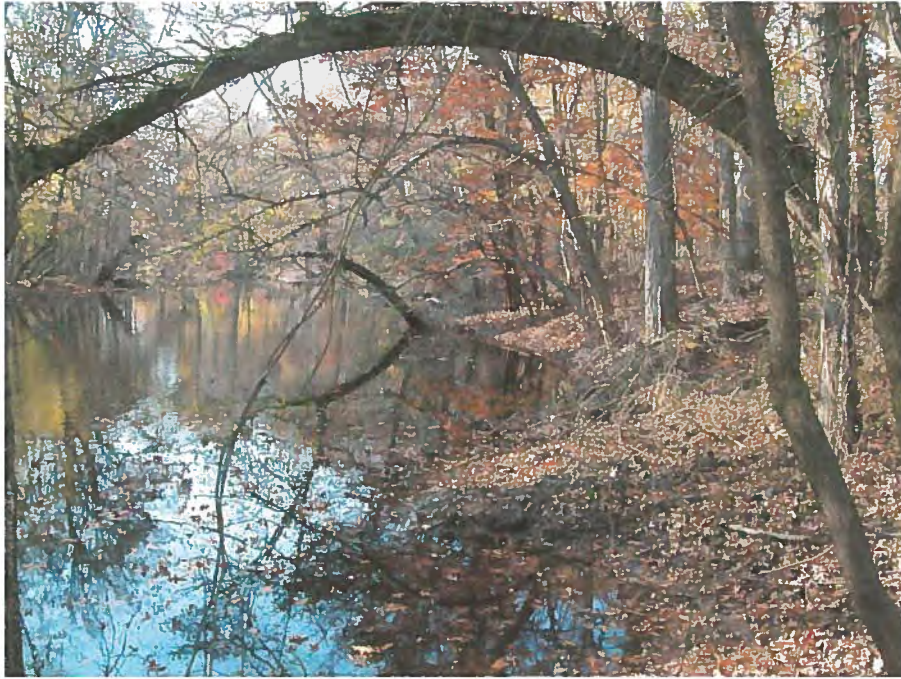


# **Stormwater Management Plan**



for  
**Bernards Township**  
**Somerset County, New Jersey**

**Prepared by:**

**Peter A. Messina P.E., C. M. E.**  
**Township Engineer**

*March 2005*

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## **INTRODUCTION**

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for Bernards Township (“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 all of 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 development, defined as projects that disturb one or more acre of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides base flow in receiving water bodies. The plan incorporates long-term operation and maintenance measures for existing and future stormwater facilities by reference to NJAC 7:8-5.8.

This 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. In addition, the plan includes 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 stormwater plan, mitigation project criteria and procedures are given.

## **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 nonpoint pollution;
- Maintain the integrity of stream channels for their biological functions, as well as for drainage;
- Minimize pollutants in stormwater 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. This plan incorporates stormwater management controls for existing development via the NJDEP Tier A stormwater general permit requirements. 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.

## **STORMWATER DISCUSSION**

Land development can dramatically alter the hydrologic cycle (see Figure 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.

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.

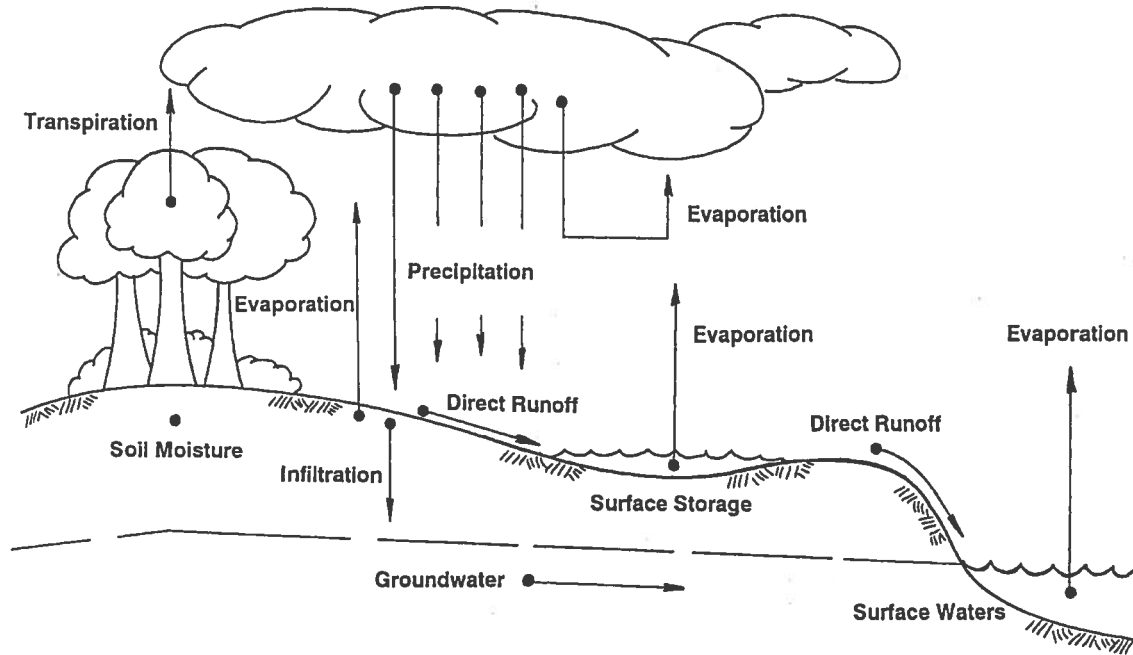


Figure 1 – Hydrologic Cycle

## **BACKGROUND**

The Township encompasses 24.5 square miles in the northern part of Somerset County, New Jersey. The Township land use is predominantly residential with clusters of commercial in the village centers and office space at the interchanges with Interstate highways. The municipality is an established community where land use is stable with little very limited development potential available. Stream and rivers within the Township are shown in Figure 2 and the topography of the Township is shown in Figure 3. The Township is situated along the west side of the Passaic River. The Township is mostly within the Passaic River Basin but parts do extend into the Raritan River Basin. The Township is located in NJDEP Watershed Management Areas (WMAs) 6, 8 and 9. The Township contains portions of Eleven Hydrologic Unit Code (HUC) areas. These HUC14 areas are shown in Figure 4.

According to the 2000 census, the Township has 24,575 residents. The population rose approximately 43 percent since the 1990 census. This population increase was significant and more than the overall state and county increases of approximately 9 and 24 percent respectively over the same period. However, the population in January of 2005 is stable at 27,363 with a maximum population, at full build out, at approximately 28,000.

In 1982 Bernards Township retained Richard Browne Associates (now The RBA Group) to prepare a very comprehensive Stormwater Management Plan for the entire township. (See Exhibit 1). The purpose of this study was to provide a coordinated program for Stormwater Management and drainage improvements in Bernards Township. In order to do this, all major rivers and their tributaries traversing the Township were examined and evaluated in terms of their capacity to handle present and future design flows. The report includes an inventory as well as an analysis of all drainage facilities controlling the flow of storm water runoff including bridges, culverts, lined channels and manmade waterways, and the internal piped drainage systems. All of these were evaluated in terms of their adequacy to handle design discharges under both existing and future land use. The land uses proposed for "future" have not changed since the 1982 study. Numerous improvements have been made in the last 24 years as recommended in the RBA Study.

In 2000 the Township of Bernards retained Najarian Associates to conduct a Stormwater study to address flooding problems within the Harrison Brook watershed (see Exhibit 2). The purpose of the study was to provide updated recommendations regarding Stormwater Management in that watershed. The Harrison Brook watershed drains an area of approximately 5.3 square miles, originating in the Borough of Bernardsville to its confluence with the Dead River. Harrison Brook and its tributary system traverse the most intensely developed part of the township, causing the greatest amount of flooding. The watershed consists of approximately 33 culverts, 15 detention basins, and associated infrastructure. This study reviewed the hydrologic characteristics of the study area with emphasis placed on analyzing the effect of detention basins in attenuating flood flows. This watershed has the highest levels of flooding occurrences in the Township, mainly along Newell Drive and Valley Road. The report focused on causes of the flooding and improvements that could be made to remedy the problems. All of the existing detention basins were studied for possible modifications to "over retain" the stormwater flows. Unfortunately, the results of the study found no meaningful improvements to the floodwater elevations after analyzing numerous improvement scenarios. The report found that the older existing developments were causing the flooding, not the newer developments with stormwater management. The Township is presently preparing a FEMA flood mitigation project in hopes of receiving federal funds for flood proofing, elevating or buy-out of flood prone dwellings.

An inventory was developed on historic flooding data that has occurred within the watershed, including the recent Hurricane Floyd. This information was utilized during the modeling phase of the study to ensure that the model adaptation to the watershed is adequate. The existing watershed data was processed for use in the hydrologic/hydraulic phase of the project. The US Army Corps of Engineers – USCOE HEC-1 model was adapted to the entire watershed to generate Stormwater runoff at different locations within the watershed. The model was exercised to simulate a number of scenarios for the 2 and 100-year storms, and Hurricane Floyd.

The results of the preliminary model simulations indicate the following:

- Most of the current flooding problems are a result of construction occurring within the 100-year flood plain of Harrison Brook.
- Providing detention in the vicinity of Route 287 will not result in appreciable reduced peak flows in the downstream watershed.
- Expanding and retrofitting selected Stormwater detention basins within the watershed would also not result in reduction in downstream flooding.
- Aggressive efforts should be made to obtain Hazardous Mitigation Funding for flood proofing, raising or removing dwellings currently within the 100-year floodplain of the watershed.

A Flood Hazard Mitigation plan was also prepared by Najarian Associates in 2003 (see Exhibit 3). The plan was prepared to address known flooding problems within the entire township. Formulation of this plan was according to the guidelines established by the Federal Emergency Management Agency (FEMA) and the New Jersey Office of Emergency Management (NJOEM).

The homes on Newell Drive became an area of focus during the study, since they were subject to regular flooding. The study concluded that providing additional stormwater detention would provide only minimal relief from flooding, and therefore recommended flood proofing and buyout as the most viable alternatives for flood mitigation.

In addition to some water quality issues, the Township has occasional flooding problems. Flooding occurs on the Passaic River, Harrison Brook and along the Dead River. Flooding on the Passaic River affects structures mainly in the northern portion of the township by Hardscrabble Road. Flooding along Harrison Brook affects properties along its length from Lake Road (especially along Newell Drive) to its confluence with the Dead River. While flooding along the Dead River affects properties mainly from Liberty Corner Road to Martinsville Road. The 100-year floodplain, shown in Figure 7, depicts the approximate Passaic River, Harrison Brook and Dead River floodplains.

In conjunction with the USGS, Somerset County operates a flood information system for its 21 municipalities. The Somerset County Flood Information System (SCFIS) includes of a network of stream and precipitation gages throughout the County. Information from these gages is automatically transmitted to a central location via telephone, radio and satellite. The information is then processed and appropriate actions are taken. These actions include notifying municipal police, fire and emergency management personnel with flood potential and water level information.

There are several SCFIS stream and precipitation gages near Bernards Township. The Township has a precipitation gages in Basking Ridge and a stream gage on the Passaic River at Millington. Information from this latter gage is available on the United States Geological Survey (USGS) web site in real time (<http://waterdata.usgs.gov/nj/nwis>).

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. The latest report was prepared in June of 2000. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data (See Figure 5). 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.

Based on the AMNET data (see Table 1 & 2), the Passaic River by Valley Road is Non-Impaired, and Harrison Brook by Valley Road is Moderately Impaired. The Dead River has three sites with the King George Road site Moderately Impaired, slightly upstream of Somerville Road, Non-Impaired and an unnamed tributary upstream of Somerville Road, Moderately Impaired. There is also an AMNET site upstream on the Passaic River at Indian Grave Brook that is Non-Impaired.

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 allocated 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 treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other BMP's.

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 TMDL's are needed. The Dead River at King George Road and near Millington is listed in the proposed Sublist 5 (March 1, 2004). The Dead River does not meet Phosphorous, Nitrate, Total Suspended Solids or Benthic Macroinvertebrate requirements (see Table 3). The Passaic River near Millington is also listed as non-attaining for 9 different parameters. ( see Table 4)

The Ten Towns Great Swamp Watershed Management Committee, of which Bernards Township is a member, retained the services of Dr. Leland Pollock, PhD., Department of Biology, Drew University, to perform a study of the "Macroinvertebrate (MIV)

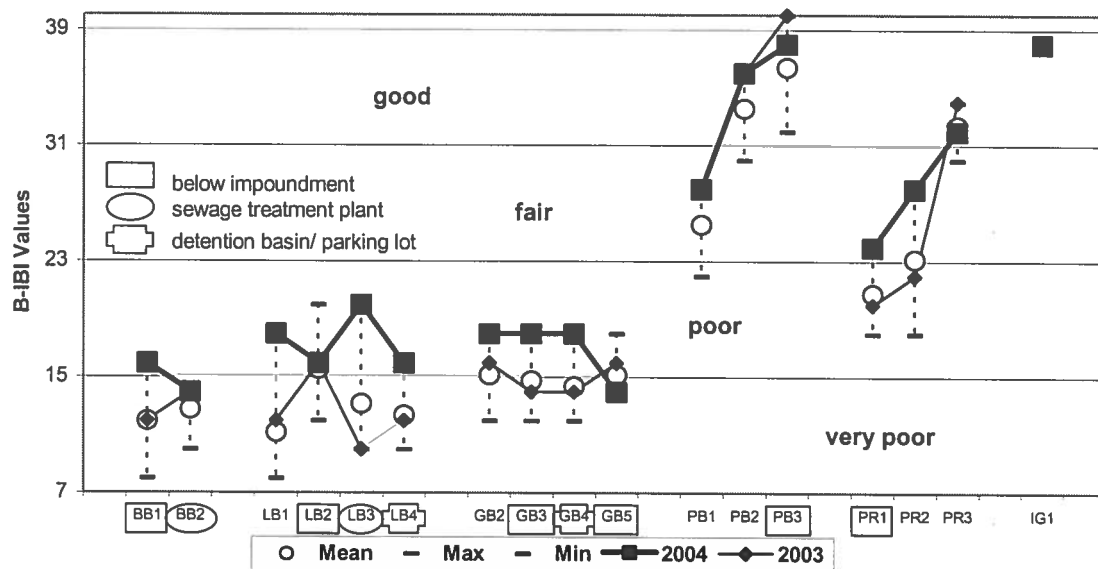


Communities of the Great Swamp Watershed". This is an annual study commissioned by the Ten Towns Committee. There were three sampling sites along the Passaic River that were part of the study. The PR1 site was just downstream of Osborn Pond, PR2 was downstream of the I-287 bridge and the PR3 site was off Hardscrabble Road opposite Butternut Road. The report for 2004 summarized the results as follows:

**"Passaic River** (The PR1 & PR2 sites rated "fair"; PR3 rated "good"):

In June, 2004, the upper Passaic River hosted high quality macroinvertebrate communities. The lower two sites along this higher-quality stream bettered their site-high scores of the recent past. PR1 remained the lowest of the three sites with environmental conditions reflecting the modifying influence of upstream Osborn Pond (higher temperatures and TDS, lower dissolved oxygen). PR1 picked up in mayfly and stonefly species, and also lost 2 stress-tolerant indicators found in 2003. Improved but still "fair" conditions at PR2 are associated with sediment loading and the lack of canopy cover in this stretch of the Passaic River, along with likely influences from an I-287 crossing just upstream. Its MIV community gained mayfly and other key stress-intolerant species. The pristine PR3 site maintained a high quality score, although it gained 4 stonefly species while losing 3 caddisfly and 2 mayfly species." The following chart (see Figure 6) illustrates the condition of the upper Passaic River and its improvement over the last four years.

**Figure 6 Great Swamp Streams  
Mean, 2003 and 2004 Values**



The Township has a small amount of developable land remaining. The existing land use, based on 1995/1997 aerial photography, is shown in Figure 8. The existing zoning is shown in Figure 9. A current aerial photo with parcel lot lines overlain on it is shown in Figure 10. The Township is not within the State Plan Designation PA1 Metropolitan Planning Area or in a designated center where infiltration requirements are not applicable.

Groundwater recharge rates for native soils in this area are generally between 0 and 19 inches annually. The average annual groundwater recharge rates are shown graphically in Figure 11.

According to the NJDEP, "A Well Head Protection Area (WHPA) in New Jersey is a map area calculated around a Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of ground water captured by a well pumping at a specific rate over a two-, five-, and twelve-year period of time for unconfined wells. ... The confined wells have a fifty foot radius delineated around each well serving as the well head protection area to be controlled by the water purveyor in accordance with Safe Drinking Water Regulations (see NJAC 7:10-11.7(b)1)."

WHPA delineations are conducted in response to the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP). The delineations are the first step in defining the sources of water to a public supply well. Within these areas, potential contamination will be assessed and appropriate monitoring will be undertaken as subsequent phases of the NJDEP SWAP

As shown in Figure 12, a portion of the Township is in a Tier 1, 2 and 3 well head protection area. This area is located in the northern part of the township.

In addition to the rivers and streams that run through and along the Township, there are a number of wetland areas. These wetland areas provide flood storage, nonpoint pollutant removal and habitat for flora and fauna. Major wetland areas in the Township are shown in Figure 13.

## **DESIGN & PERFORMANCE STANDARDS**

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. Maintenance agreements for stormwater management measures will include an enforcement clause stating that if the responsible party does not perform

required maintenance, then the Township may perform such maintenance and bill the responsible party. The Township will require all responsible parties to submit their maintenance logs via certified mail each April. The ordinances will be submitted to the County for review and approval within 12 months from the date of adoption of this Municipal Stormwater Management Plan. During construction, Township inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed.

## **PLAN CONSISTENCY**

The Township is not within a Regional Stormwater Management Planning Area and no TMDL's have been developed for waters within the Township; therefore this plan does not need to be consistent with any regional stormwater management plans (RSWMPs) nor any TMDL's. If any RSWMPs or TMDL's are developed in the future, this Municipal Stormwater Management Plan will be updated to be consistent.

Although the Township is located largely within the Passaic River Basin, part is located in the Raritan Basin. Much information on the Raritan Basin and about its characteristics has been developed as part of the Raritan Plan. Additional information concerning this plan can be found at: <http://www.raritanbasin.org>. The Township supports the Raritan Plan.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The Township will utilize the most current update of the RSIS in the stormwater review of proposed residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates of the RSIS.

The proposed Township's Stormwater Management Ordinance will be developed utilizing the adopted stormwater management plan. It will also require all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Township inspectors observe on-site soil erosion and sediment control measures and report any inconsistencies to the local Soil Conservation District.

## **NON-STRUCTURAL STRATEGIES**

The Township has reviewed the existing land development ordinances in regards to nonstructural stormwater management strategies. The Township has recently adopted numerous stormwater quality related ordinances. The following ordinances were prepared and adopted after review of model ordinances from the NJDEP, Ten Towns Great Swamp Watershed Management Committee, the Whippany Action Committee and the Rockaway River Watershed Cabinet (see Appendix A-1 to A-5):

1. Stream Buffer Conservation
2. Steep Slope Conservation
3. Tree Protection
4. Wetlands Conservation
5. Wetlands Conservation Delineation

In addition the Township has already adopted the following ordinances required by the 2004 NJPDES Stormwater Regulations ( see Appendix A-6 to A-11):

Containerized Yard Waste and Collection Ordinance  
Illicit Connection Ordinance  
Litter Control Ordinance  
Pet Waste Ordinance  
Wildlife Feeding Ordinance  
Improper Disposal of Waste Ordinance

Since the 1980's Bernards Township has provided for cluster housing developments. There are presently has twelve (12) single family housing developments situated in a cluster format preserving open space and land disturbance.

The Township has reviewed the 2003 Master Plan in regards to nonstructural stormwater management strategies. The 2003 Master Plan made the following recommendations:

- Vegetated buffers should be maintained along all stream corridors in the Township. Where past land use practices have resulted in the removal of trees along stream corridors, management practices should include the reestablishment of tree cover. Stream buffers should extend at least 95' from each side of the stream centerline.
- A stream corridor protection program should be developed and implemented which seeks to protect the stream corridor and adjacent wetlands, floodplains, and contributory uplands with steep slopes.
- Management strategies and monitoring standards should be developed for stream corridor areas.
- Bernards and neighboring municipalities should develop consistent and/or compatible management strategies along stream or river corridors.
- Water quality Best Management Practices (BMP's) should be adopted or refined, to protect the quality of surface waters and promote maximum habitat values. These include:
  - Arrange development on the least porous soils, to promote infiltration and reduce sediment and pollutant loading.
  - Buffer strips and techniques to maximize overland flow, such as grassed swales and filter strips,

- Regional stormwater management approaches and extended detention facilities.
- Wet ponds (retention basins) and wetland or marsh creation.
- Infiltration practices to detain runoff, including trenches, basins, drywells and other structural solutions
- Water quality inlets and oil/grit separators.
- Reductions in permitted residential densities and impervious coverage should be considered to reduce the potential impact to surface waters from non-point source pollution.

The recommendations in the 2003 Master Plan have already been adopted by the governing body in environmental ordinances and will be incorporated into every subdivision and site plan submitted to the township.

## **LAND USE/ BUILD OUT ANALYSIS**

Since the Township of Bernards has a combined total of less than one square mile of vacant or agricultural lands, the Township is not required to do a build-out analysis. (See Table 5)

## **MITIGATION PLANS**

Applicants of proposed major developments that are seeking a variance or exemption from the stormwater management design and performance standards shall provide a Mitigation plan to the respective land use board for their approval.

### **Mitigation Project Criteria**

1. The mitigation project must be implemented in the same drainage area as the proposed development. The project must provide additional protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards outlined in the Municipal Stormwater Management Plan. The developer must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP Stormwater BMP Manual.
2. If a suitable site cannot be located in the same drainage area as the proposed development, the mitigation project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue. The Township may allow an applicant to provide funding or partial funding to the Township for an environmental enhancement project that has been identified by the applicant in concert with the Township Engineer. The funding must be equal to or greater than the cost to implement the mitigation outlined above, including costs associated with purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.

## **RECOMMENDED IMPLEMENTING STORMWATER CONTROL ORDINANCES**

The Township currently is utilizing the new NJDEP stormwater regulations as made part of the Residential Site Improvement Standards (RSIS) for all residential major developments. Within 12 months after adoption of the Municipal Stormwater Management Plan the Township will develop similar stormwater standards for commercial developments.

## **CONCLUSION**

Bernards Township has prepared numerous Stormwater Management studies over the last 24 years. These studies have shown the areas of the municipality that routinely experience flooding conditions. Bernards Township and Somerset County have worked diligently over the years to mitigate and improve these areas. Projects such as replacement bridges over the Dead River at Acken Road, Martinsville Road, Allen Road, Somerville Road and Meeker Road have already been reconstructed to provide safe passage from flood waters. The Mine Brook Road Bridge and Whitenack Road Bridge over the Dead River are also scheduled for improvement. Bridge replacements over the Passaic River at Haas Road, Lord Stirling Road and Hardscrabble Road are also planned. The bridge replacement at Madisonville Road has already been completed. Numerous culverts and drainage improvements have also been accomplished in the last 20 years.

In regards to environmental improvements, the township has sponsored several stream bank stabilization protection projects (see figure 14), as well as a detention basin retro-fit (see figure 15). The township has adopted numerous environmentally sensitive ordinances to improve water quality by protecting the stream buffers, steep slopes, wetlands and trees. The quality of the streams in the township are very good at either non-impaired or at the high end of the range of moderately impaired. The habitat ratings are also very good at either optimal or at the high end of the range for sub-optimal.

All new development projects in the township must comply with the NJDEP Stormwater regulations, Best Management Practices and township ordinances to further improve the quality and control the quantity of stormwater runoff.

**TABLE 1**  
**NJDEP AMNET DATA SUMMARY**

<u>RIVER</u>	<u>STATION</u>	<u>LOCATION</u>	<u>98/99</u> <u>IMPAIRMENT</u> <u>SCORE</u>	<u>IMPAIRMENT</u> <u>RATING</u>	<u>HABITAT</u> <u>SCORE</u>	<u>HABITAT</u> <u>RATING</u>
Passaic River	ANO224	Valley Road	30	Non-Impaired	140	Sub-Optimal
Dead River	ANO225	Upstream Somerville Road	18	Moderately Impaired	162	Optimal
Dead River	ANO226	Somerville Road	27	Non-Impaired	158	Sub-Optimal
Dead River	ANO227	King George Road	18	Moderately Impaired	118	Sub-Optimal
Harrison Brook	ANO227A	Valley Road	21	Moderately Impaired	149	Sub-Optimal

**NJ Impairment Score**

Non-Impaired	24 – 30
Moderately Impaired	9 – 21
Severely Impaired	0 – 6

**Habitat Score**

<b><u>Value</u></b>	
Optimal	160 – 200
Sub-optimal	100 – 159
Marginal	60 – 109
Poor	<60

**Source:**

AMBIENT BIOMONITORING NETWORK  
Watershed Management Areas 3, 4, 5, and 6  
Passaic Region  
1998 Benthic Macroinvertebrate Data

New Jersey Department of Environmental Protection  
Robert C. Shinn, Jr., Commissioner  
June 2000

# New Jersey AMNET Study — 1998 Passaic Region

## Table 2

Comparative Scores / Ratings (see notes)

Watershed Management Areas 3, 4, 5, and 6

Station	NJ Impairment Score		Change in Rating	Habitat Score		Station	NJ Impairment Score		Change in Rating	Habitat Score		Station	NJ Impairment Score		Change in Rating	Habitat Score	
	92 / 93	98 / 99					92 / 93	98 / 99					92 / 93	98 / 99			
205	15	18	+	128		240	12	30	+	170		277	15	12	-	116	
206	9	15	+	104		241	15	15	/	125		277A	-	9		85	
207	18	24	+	144		242	9	15	+	121		278	12	12	/	144	
208	24	30	+	183		243	30	27	-	141		279	30	24	-	147	
209	6	6	/	121		244	24	15	-	139		280	27	21	-	106	
210	12	18	+	131		245	30	30	/	163		281	24	21	-	76	
211	12	15	+	129		246	9	15	+	107		282	24	24	/	152	
212	6	15	+	103		247	3	30	+	169		283	12	24	+	169	
213	18	24	+	145		248	30	27	-	117		284	15	15	/	93	
214	30	30	/	170		249	9	9	/	109		285	24	21	-	156	
215	30	30	/	197		250	24	18	-	152		286	6	6	/	143	
216	21	30	+	129		251	18	12	-	149		287	24	18	-	115	
217	30	30	/	105		252	30	30	/	181		288	15	18	+	133	
218	21	12	-	117		253	15	21	+	172		289	18	18	/	138	
219	12	9	-	172		254	9	27	+	156		290	12	12	/	90	
220	0	15	+	124		255	30	30	/	182		291	6	21	+	114	
221	15	9	-	172		255C	-	15		191		292	18	21	+	134	
222	3	3	/	140		255D	-	30		177		292A	-	12		146	
223	6	12	+	146		256	9	12	+	132		292O	-	15		140	
224	27	30	+	140		256A	-	18		116		293	-	21		110	
225	24	18	-	162		257	18	24	+	129							
226	24	27	+	158		258	12	15	+	142							
227	9	18	+	118		259	24	21	-	180							
227A	-	21		149		260	21	30	+	171							
228	18	18	/	134		261	3	24	+	171							
229	6	15	+	133		262	18	24	+	141							
230	3	12	+	130		263	24	-		-							
231	9	6	-	84		264	24	24	/	168							
231A	-	3		100		265	30	27	-	185							
231C	-	6		141		266	18	27	+	134							
231D	-	12		157		267	18	27	+	145							
231E	-	15		125		268	15	24	+	149							
232	30	30	/	187		269	15	15	/	132							
233	21	21	/	131		270	12	18	+	124							
234	6	27	+	121		271	9	9	/	95							
234A	15	24	+	181		272	18	24	+	109							
235	12	9	-	128		273	18	18	/	129							
236	9	15	+	160		274	15	24	+	174							
237	18	27	+	188		274A	-	18		115							
238	18	12	-	110		275	21	15	-	143							
238B	-	27		173		275A	-	15		138							
239	24	30	+	166		276	3	9	+	105							

### NOTES:

Comparison of NJ impairment score with earlier study results:

- + indicates positive change in rating
- indicates negative change in rating
- / indicates no change in rating
- +/ or -/ indicates change in score, but not in rating (see Table 1)

NJ Impairment Score	Value	Habitat Score	Value
Non-Impaired	24 - 30	Optimal	160 - 200
Moderately Impaired	9 - 21	Sub-optimal	110 - 159
Severely Impaired	0 - 6	Marginal	60 - 109
		Poor	< 60



Sub.

**TAB E-3**  
**New Jersey Proposed**  
**2004 Integrated List of Waterbodies**

June 22, 2004

Region	WMA	Station Name/Waterbody	Site ID #	Impairment	Data Source
Northwest	01	Cranberry Lake-01	Cranberry Lake	Fish-Mercury	Sussex Co HD, NJDEP Clean Lakes, NJDEP Fish Tissue Monitoring
Raritan	10	Cranbury Brook near Prospect Plains	01400690	pH	NJDEP/USGS Data, EWQ
Raritan	10	Cranbury Brook at Applegarth Rd in Monroeville	AN0385	Benthic Macroinvertebrates	NJDEP AMNET
Raritan	10	Cranbury Brook at Edgemere Ave in Plainsboro	AN0386	Benthic Macroinvertebrates	NJDEP AMNET
Atlantic Coast	15	Cranes Lake-15	Hospitality Creek Campground	Fecal Coliform	Gloucester Co HD
Northwest	01	Crater Lake-01	Crater Lake	Fish-Mercury	NJDEP Fish Tissue Monitoring
Atlantic Coast	15	Cressess Creek Estuary	3413A, 3500B, 3500C	Total Coliform	NJDEP Shellfish Monitoring
Raritan	08	Cross Roads Outdoor Ministries (Camp Belser)	Cross Roads Outdoor Ministries (Camp Belser)	Fecal Coliform	
Lower Delaware	20	Crosswicks Creek	Crosswicks Creek	Fish-Mercury	NJDEP Fish Tissue Monitoring
Lower Delaware	20	Crosswicks Creek at Extonville	01484500, 20-CRO-1	Phosphorus, Fecal Coliform	NJDEP/USGS Data, Metal Recon
Lower Delaware	20	Crosswicks Creek at Groveville Rd at Groveville	01484504, 20-CRO-2	Phosphorus	NJDEP/USGS Data, Metal Recon
Lower Delaware	20	Crosswicks Creek at Main St in Hamilton	AN0126	Benthic Macroinvertebrates	NJDEP AMNET
Lower Delaware	20	Crosswicks Creek at Rt 525 (NW Oakford Lk) in New Egypt	AN0121D	Benthic Macroinvertebrates	NJDEP AMNET
Lower Delaware	20	Crosswicks Creek at Rt 537 in Plumsted	AN0121	Benthic Macroinvertebrates	NJDEP AMNET
Lower Delaware	20	Crosswicks Creek at Wainford Rd in Upper Freehold	2	Phosphorus	Monmouth Co HD
Lower Delaware	20	Crosswicks Creek near New Egypt	01484420	Phosphorus	NJDEP/USGS Data
Lower Delaware	20	Crosswicks Creek Thb S at Cookstown - New Egypt Rd in Cookstown	AN0121B	Benthic Macroinvertebrates	NJDEP AMNET
Lower Delaware	20	Crosswicks Creek DNK Thb at Iron Bridge Rd in Chesterfield	AN0126A	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	03	Crystal Lake-03	Crystal Lake (Ramapo Mountain Lakes, Inc.)	Fecal Coliform	Bergen Co HD
Lower Delaware	20	Crystal Lake-20	Crystal Lake	Fish-Mercury	NJDEP Fish Tissue Monitoring
Northwest	02	Crystal Springs-02	Crystal Springs: The Quarry	Fecal Coliform	Sussex Co HD
Atlantic Coast	15	Cushman Lake-15	Collings Lakes #2 (Jays Lake North), Collings Lakes #3 (Jays Lake South)	Fecal Coliform	Atlantic Co HD
Northeast	03	Dam Brook Thb to Pompton River at Myerson Rd in Lincoln Park	AN0289	Benthic Macroinvertebrates	NJDEP AMNET
Raritan	09	Davidsons Mill Pond-09	Davidsons Mill Pond	Fish Community	NJDEP Clean Lakes, Freshwater Fisheries
Northeast	06	Dead River at King George Rd in Bernards	AN0227	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Dead River near Millington	01379200	Phosphorus, Nitrate, Total Suspended Solids	NJDEP/USGS Data
Atlantic Coast	12	Deal Lake-12	1, Deal Lake	Fecal Coliform	NJDEP Clean Lakes, Monmouth Co HD
Atlantic Coast	12	Debois Creek at Strickland Rd in Freehold	AN0487	Benthic Macroinvertebrates	NJDEP AMNET
Raritan	09	Deep Run at Rt 516 in Old Bridge	AN0454	Benthic Macroinvertebrates	NJDEP AMNET
Raritan	09	Deep Run at Rt 516 in Old Bridge	EWQ0454	pH	EWQ
Raritan	09	Deep Run at Rt 9 in Old Bridge	AN0453	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	04	Deepavaal Brook at LH Falls Ave in Fairfield	AN0271	Benthic Macroinvertebrates	NJDEP AMNET
Atlantic Coast	13	Deer Head Lake-13	Deer Head - Upper Beach	Fecal Coliform	Sussex Co HD
Northwest	02	Deer Trail Lake-02	Deer Trail Lake	Fecal Coliform	Sparta Twp HD

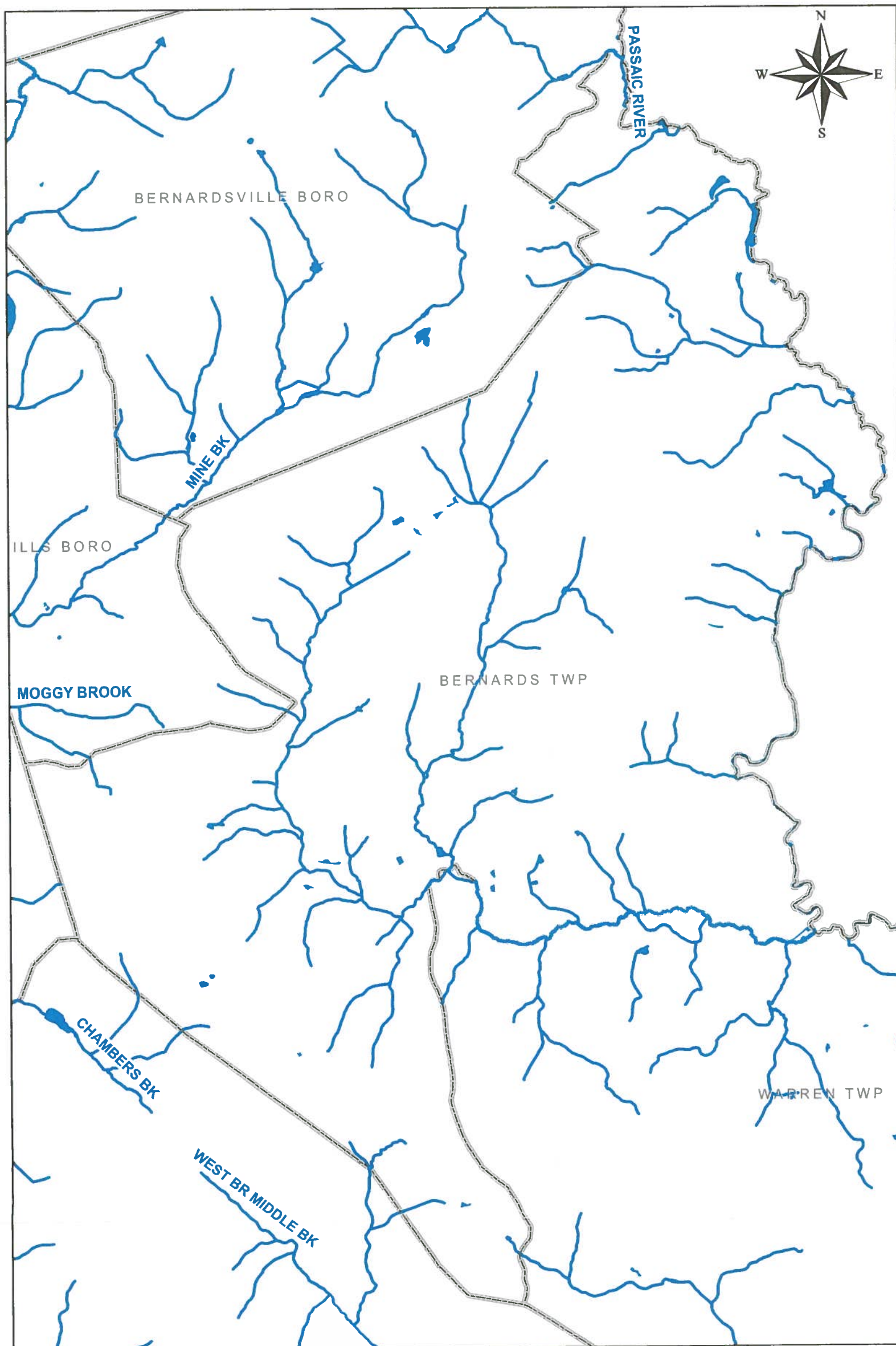
**TABLE 4**  
**New Jersey Proposed**  
**2004 Integrated List of Waterbodies**

June 22, 2004

Region	WMA	Station Name/Waterbody	Site ID #	Impairment	Data Source
Northeast	06	Passaic River at Old Mt Pleasant Ave in E Hanover	AN0231B	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Passaic River at Passaic Ave in Millburn	AN0231A	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	04	Passaic River at River Rd (Dundee Dam) in Garfield	AN0292O	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Passaic River at S Main Ave in Warren	AN0228	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	04	Passaic River at Singac	01389130, 4-PAS-4	Phosphorus, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Silver, Thallium, Zinc, Cyanide	NJDEP/USGS Data, Metal Recon
Northeast	06	Passaic River at Snyder Ave in Berkeley	AN0229B	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Passaic River at Stanley Ave in Summit	AN0229	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Passaic River at Summit Ave in Summit	AN0230	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Passaic River at Tempewick Rd near Mendham	01378680	Fecal Coliform	NJDEP/USGS Data
Northeast	06	Passaic River at Two Bridges	01382000, 6-SITE-3	Phosphorus, Arsenic, Mercury	NJDEP/USGS Data, Metal Recon
Northeast	06	Passaic River at Watchung Ave in Chatham	AN0230A	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	06	Passaic River at Willard St in Montville	AN0274A	Benthic Macroinvertebrates	NJDEP AMNET
Northeast	04	Passaic River Below Pompton River at Two Bridges	01389005	Phosphorus	NJDEP/USGS Data
Northeast	04	Passaic River from Route 280 to confluence of Pompton River (Two Bridges)	Passaic River from Route 280 to confluence of Pompton River (Two Bridges)	Fish-Mercury	NJDEP Fish Tissue Monitoring
Northeast	04	Passaic River Lower, Estuary and Tribs	Passaic River Lower, Estuary and Tribs	Fish-PCB, Fish-Dioxin	NJDEP Fish Tissue Monitoring
Northeast	06	Passaic River near Chatham	01379600, 6-SITE-1, 6-PAS-2	Phosphorus, Total Suspended Solids, Arsenic, Cadmium, Copper, Lead, Mercury, Silver, Zinc, Cyanide	NJDEP/USGS Data, Metal Recon
Northeast	06	Passaic River near Millington	01379000, EWQ0224, 6-SITE-2, 6-PAS-1 2801A, 2862, 2863A, 2863B, 2863C, 2863D, 2863E, 2863G, 2863H, 2863L, 2863M	Phosphorus, Arsenic, Cadmium, Copper, Lead, Mercury, Silver, Zinc, Cyanide	NJDEP/USGS Data, EWQ, Metal Recon
Atlantic Coast	15	Patcong River Estuary		Dissolved Oxygen, Total Coliform	NJDEP Coastal Monitoring, Shellfish Monitoring
Northwest	01	Paulins Kill at Balesville	01443440, 1-PAU-1	Arsenic	NJDEP/USGS Data, EWQ, Metal Recon
Northwest	01	Paulins Kill at Blairstown	01443500	Temperature	NJDEP/USGS Data
Northwest	01	Paulins Kill at Rt 46 Bridge near I-80	DRBCNJ0036	Temperature	DRBC
Northwest	01	Paulins Kill at Rt 46 in Knowlton	AN0032	Benthic Macroinvertebrates	NJDEP AMNET
Northwest	01	Paulins Kill at Rt 663 in Lafayette	AN0015	Benthic Macroinvertebrates	NJDEP AMNET
Northwest	01	Paulins Kill at Wardasse Junction Rd near Lafayette	01443260	Phosphorus, Fecal Coliform, Dissolved Oxygen	NJDEP/USGS Data
Northwest	01	Paulins Kill Trib at Rt 94 & Old Beaver Run Rd in Lafayette	AN0016A	Benthic Macroinvertebrates	NJDEP AMNET
Northwest	01	Paulins Kill Trib at Van Sickle Rd in Lafayette	AN0021A	Benthic Macroinvertebrates	NJDEP AMNET
Raritan	08	Pavillion Beach	Pavillion Beach	Fecal Coliform	
Northeast	04	Peckman River at McBride Ave in West Paterson	AN0275	Benthic Macroinvertebrates	NJDEP AMNET
Lower Delaware	18	Pennsauken Creek	Pennsauken Creek, Mainstem	Arsenic, Cadmium, Chromium, Copper, Lead, Mercury	304(I)
Lower Delaware	18	Pennsauken Creek at Forked Landing	Pennsauken Creek at Forked Landing	Fish-PCB, Fish-Dioxin	NJDEP Fish Tissue Monitoring
Lower Delaware	18	Pennsauken Creek at Rt 130 in Pennsauken	01467082	Phosphorus	EWQ

BLOCK	LOT	ACRES	OWNER	LOCATION	TYPE
7	4	6.7	PHARMACIA & UPJOHN	275 N. MAPLE AVENUE	VACANT
22.02	30	8.25	ROSS, EDMUND B/MARGARET	132 N.MAPLE AVENUE	WOODLAND
23	13	50.39	ROSS, EDMUND B/MARGARET	135 N MAPLE AVENUE	LIVESTOCK
104	20	9.095	TSAKIRIS, ANDY/DINAPOLI, JOHN	120 WHITENACK ROAD	HAY/TIMOTHY
104	24	8.846	TSAKIRIS, ANDY/DINAPOLI, JOHN	100 WHITENACK ROAD	HAY/TIMOTHY
105	3	25.74	ELLIS, BETSY	51 WHITENACK ROAD	VACANT
150	2.01	9.489	WINTERS, JOHN	130 POND HILL ROAD	VACANT
152	26.01	11.07	ENGLISH FARM ASSO.	VALLEY ROAD/MT AIRY RD	FRUIT/VEG/HAY/LIVESTOCK
171	4.01	14.769	PYNE-SLOANE INVESTMENTS, LLC	DOUGLAS ROAD	XMAS TREES
171	4.02	18.2418	PYNE-SLOANE INVESTMENTS, LLC	62 DOUGLAS ROAD	XMAS TREES
171	7	50.54	SLOAN/PYNE C/O WONG, R. CPA	15 LAYTON ROAD	XMAS TREES
174.16	30	20.12	MILITO, JEAN	MILITO WAY	LIVESTOCK
175	19	66.35	ENGLISH FARM ASSO.	CHURCH STREET	FRUIT/VEG/HAY/LIVESTOCK
175	38.01	16	PINSON, ELLEN	99 ALLEN ROAD	OATS/TIMOTHY/WOODLAND
175	36.01	22.581	RICHARDT, IRWIN L	233 ALLEN ROAD	MAPLE SYRUP/VEGS/LIVESTOCK
177	7.03	13.72	ALLEN ROAD CENTER LLC	ALLEN ROAD	WOODLAND
177	17	59.235	ENGLISH FARM ASSO.	200 ALLEN ROAD	WOODLAND
187	51.01	39.29	ANDERSON, EDWARD & MARIE	MARTINSVILLE ROAD	FRUIT/LIVESTOCK
187	52	29.111	HEATHERMEDE CORP.	MARTINSVILLE ROAD	WOODLAND
187	39	5.674	SCARINCI, FRANCIS	41 MOUNTAIN ROAD	LIVESTOCK
187	32.01	19.813	SORGE, JOSEPH	181 MOUNTAIN ROAD	HAY/FRUIT/VEGS
187	37	17.7	JOHN WOJNAR TRUST	77 MOUNTAIN ROAD	HAY
187	38	21.85	WOJNAR, MARIE	55 MOUNTAIN ROAD	HAY
189	17.01	37.053	MAOLUCCI, VINCENT J	240 MOUNTAIN ROAD	HAY/RYE/FRUIT
189	10	21	PROCHASKA, ROBERT/DOREEN	200 MOUNTAIN ROAD	VEGS/TREES/SHRUBS/XMAS TREES
Total		595.928			





0 2,000 4,000 8,000  
Feet

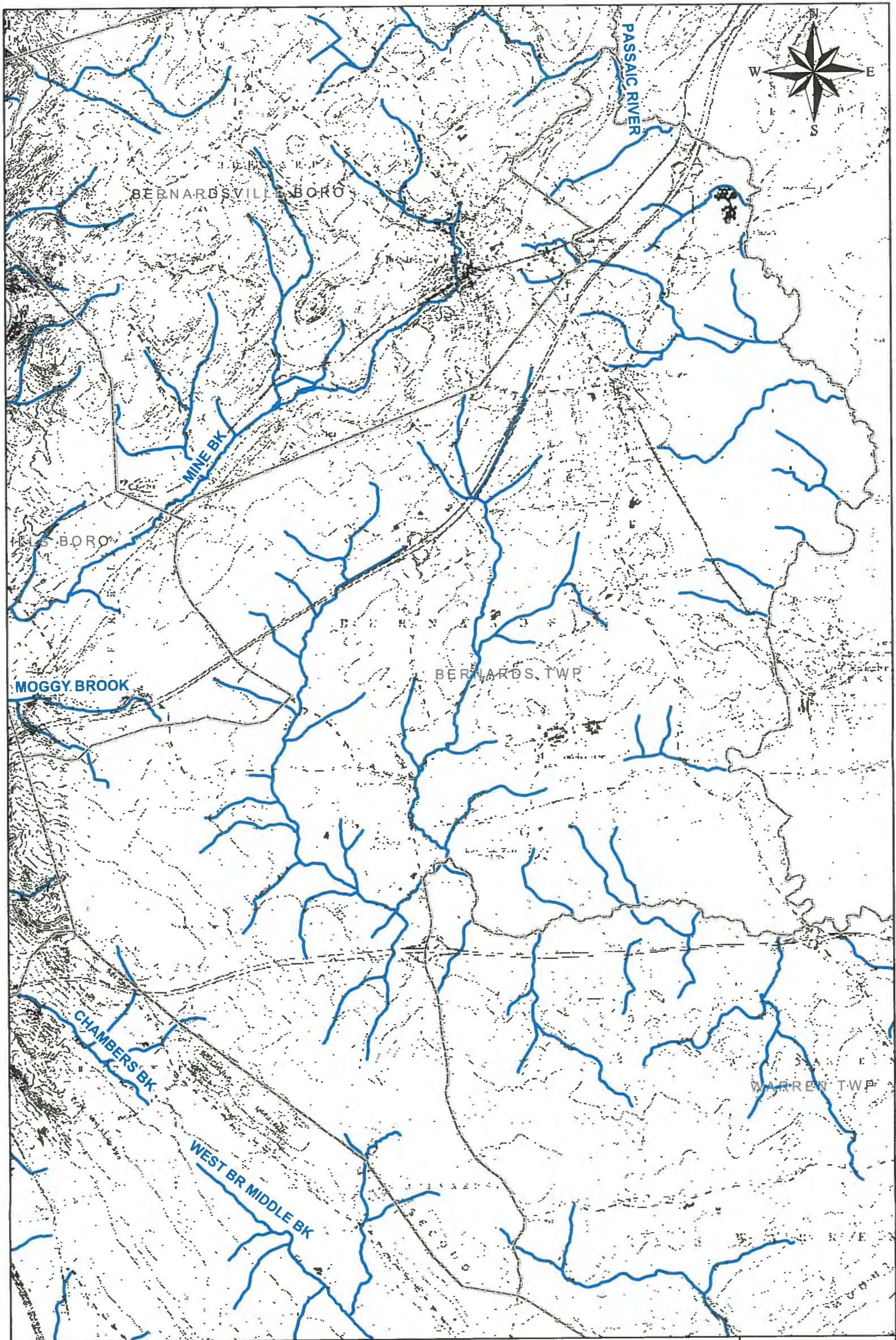
Prepared By: Somerset County, May 2004

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

## Bernards Township Waterways

Figure 2





0 2,000 4,000 8,000  
Feet

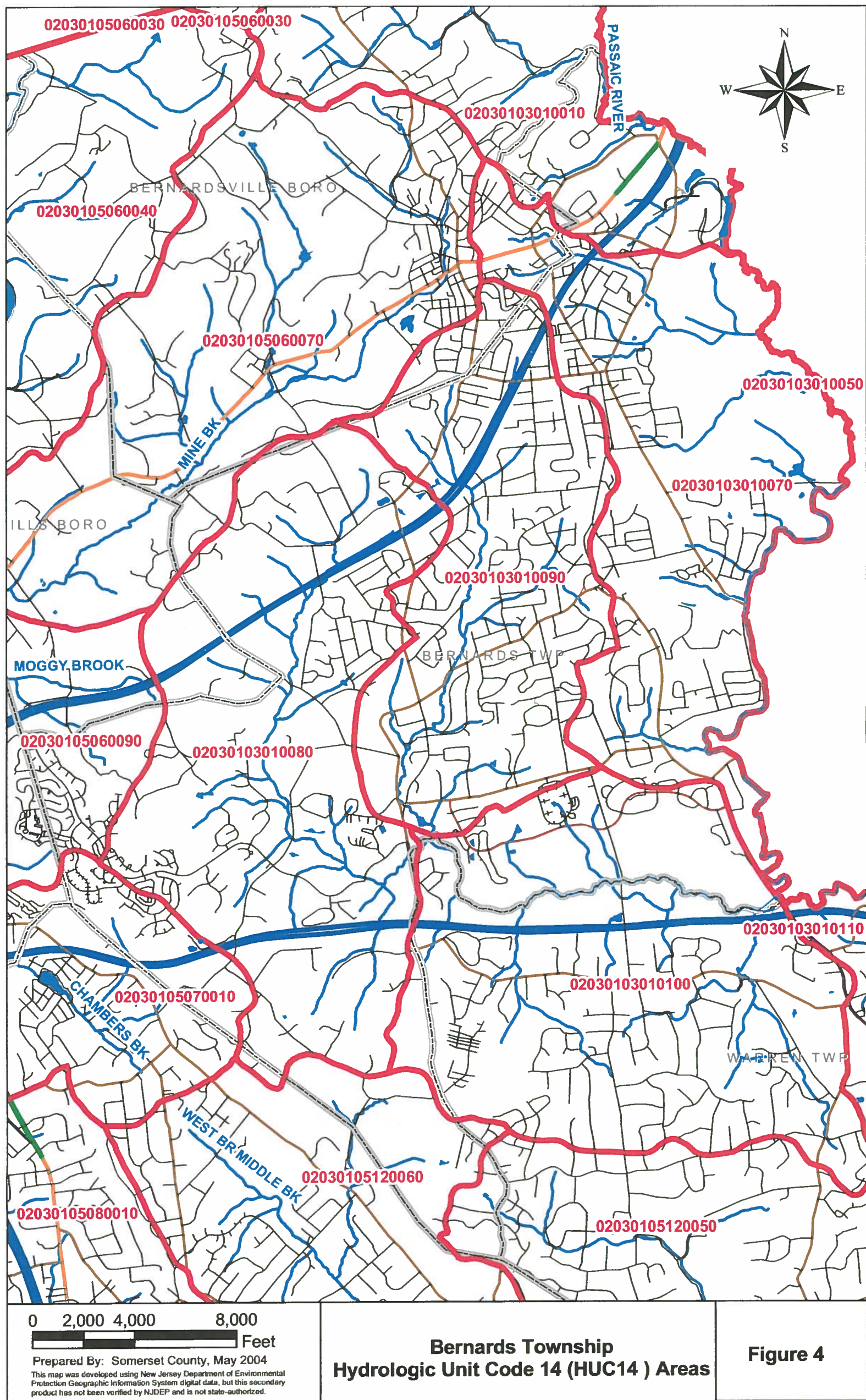
Prepared By: Somerset County, May 2004

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

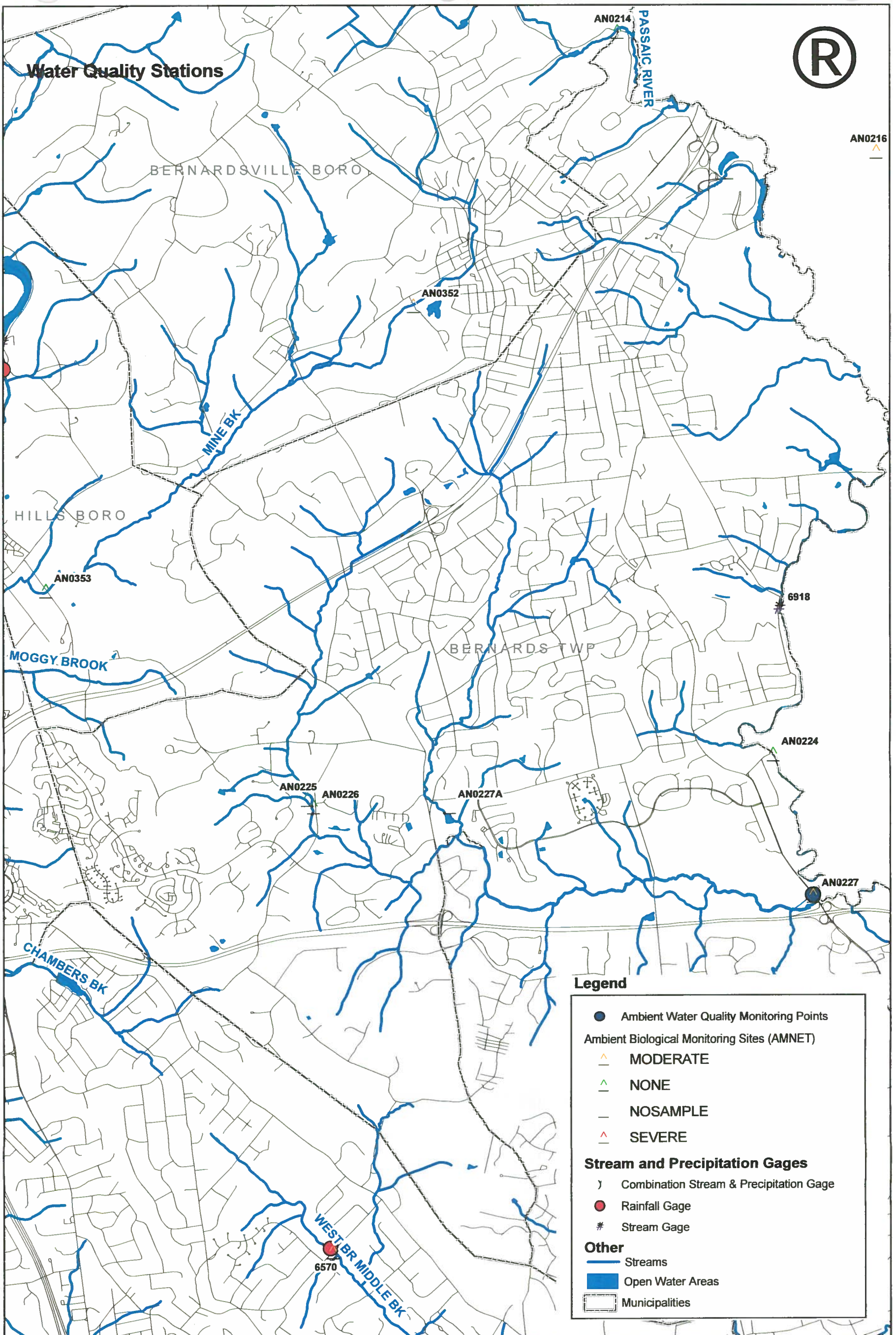
**Bernards Township  
USGS Quadrangle Map**

**Figure 3**



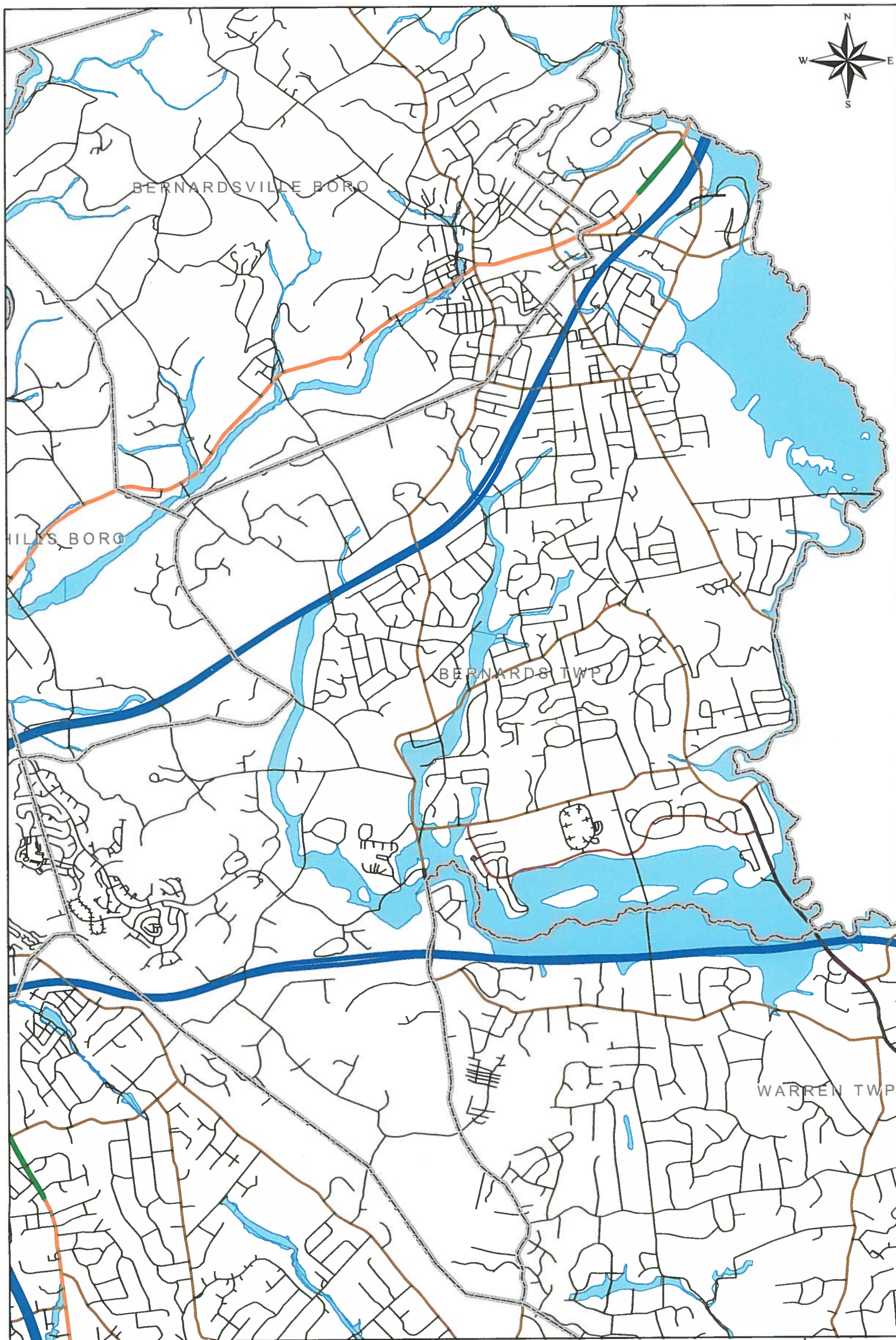






**Water Quality and Water Quantity  
Monitoring Stations and  
Precipitation Gages**





0 2,000 4,000 8,000  
Feet

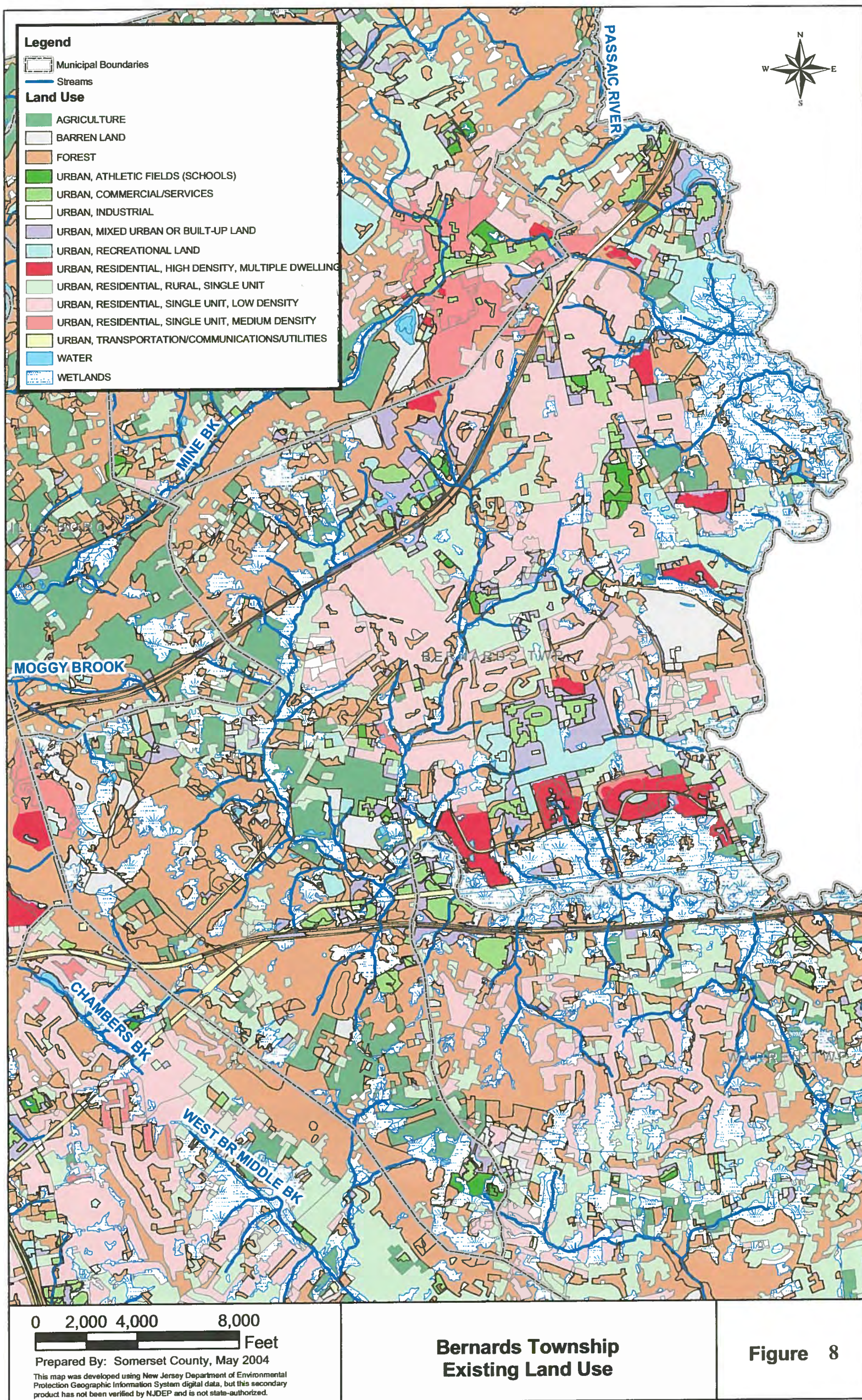
Prepared By: Somerset County, May 2004

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

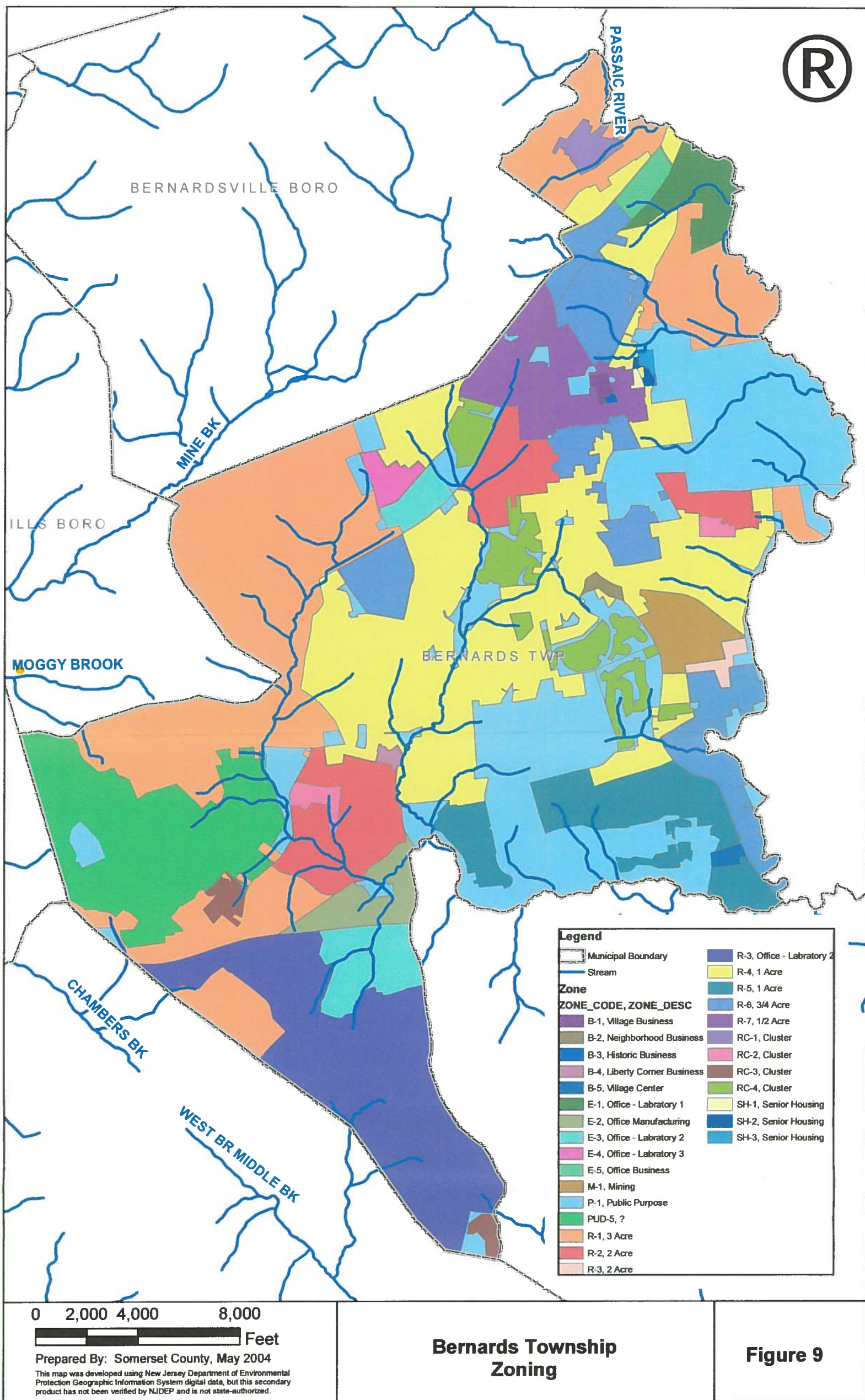
**Bernards Township  
100-Yr Flood Plain**

**Figure 7**













0 2,000 4,000 8,000  
Feet

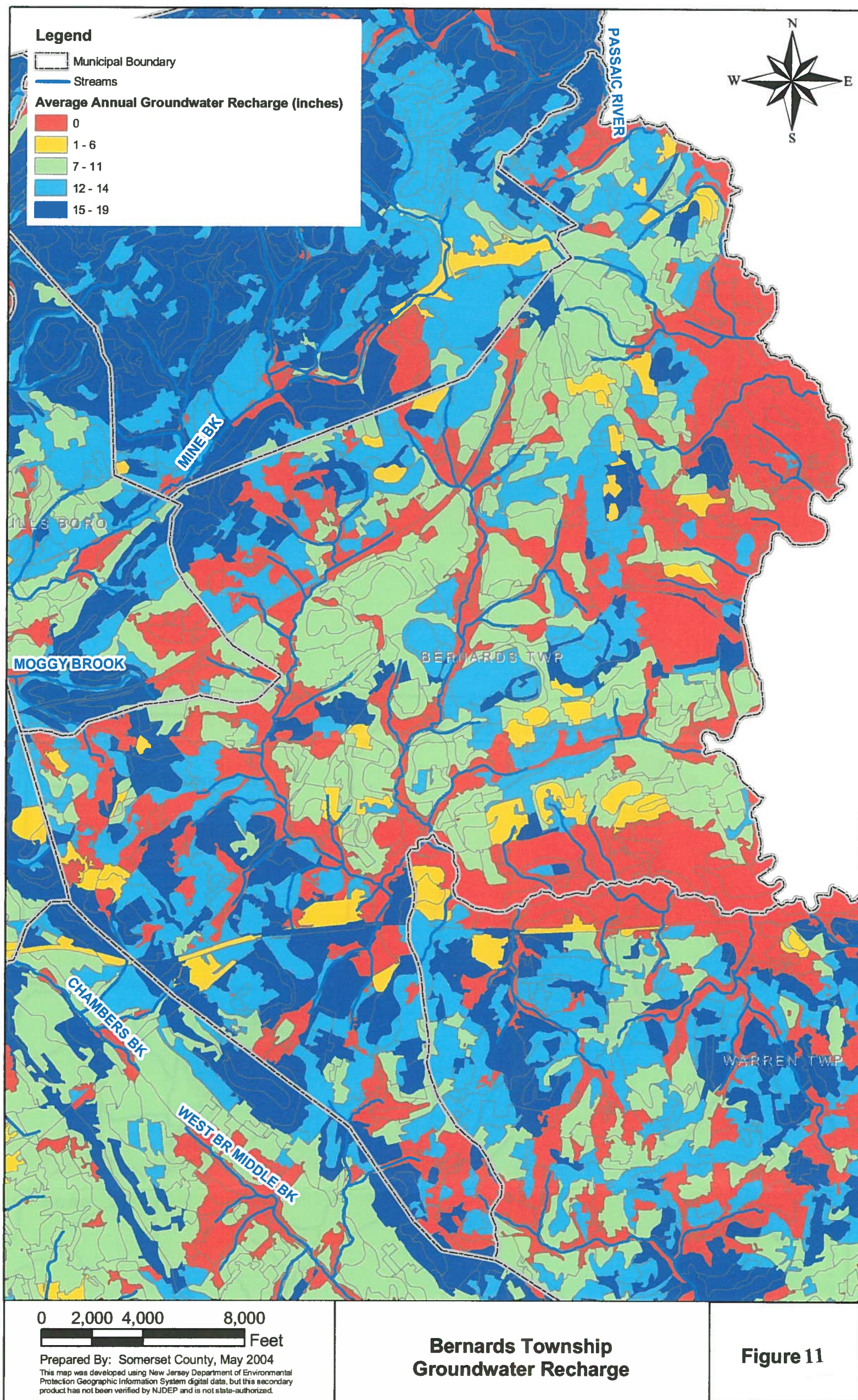
Prepared By: Somerset County, May 2004

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

### **Bernards Twp. Aerial Photo with Parcels**

**Figure 10**

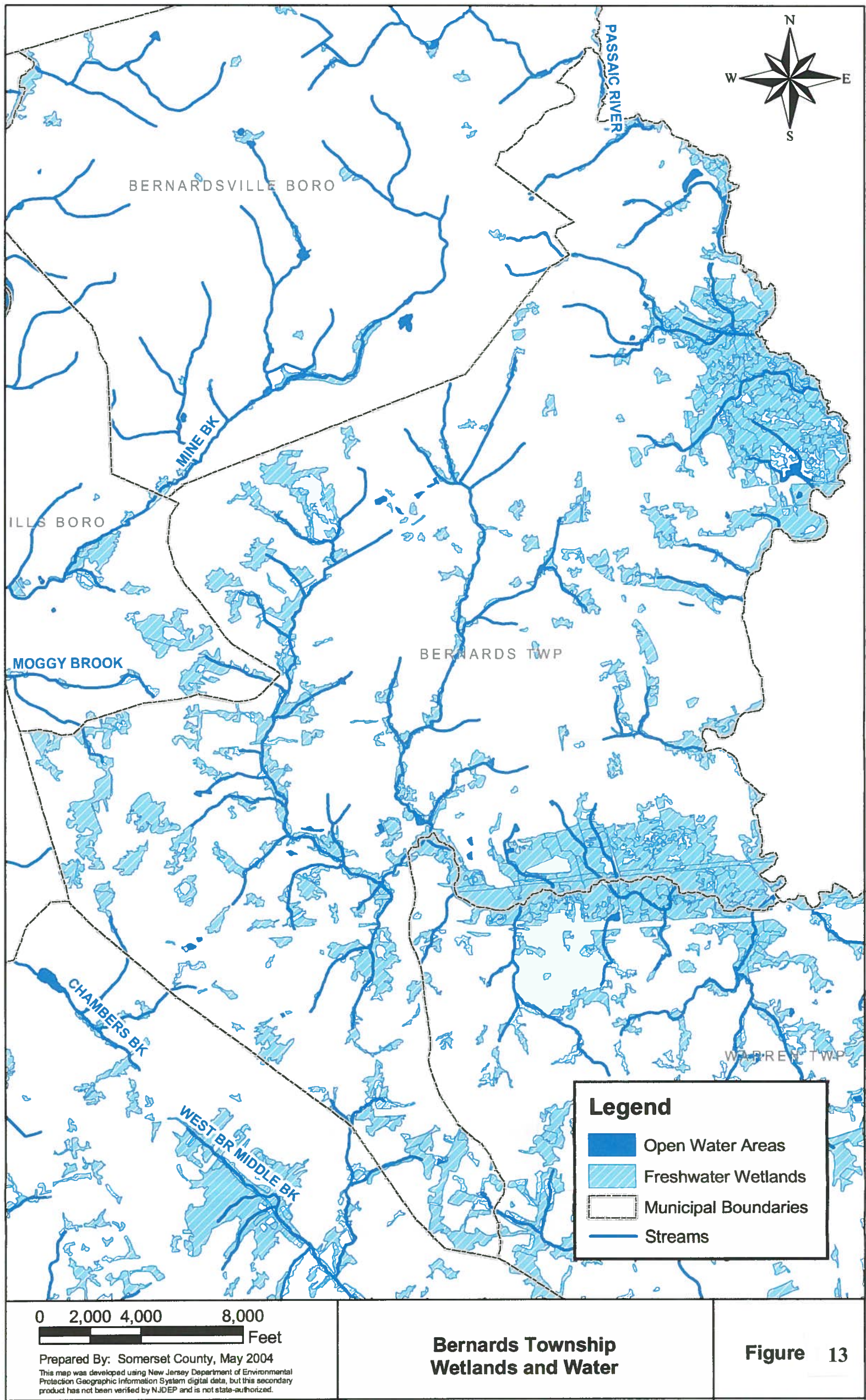




**Bernards Township  
Groundwater Recharge**

**Figure 11**







## **Stream Buffer Improvement Projects**



**Southard Park**



**Allen Street Park**

**FIGURE 14**

## **Detention Basin Retro-Fit Project**



**St. James Detention Basin “Before”**



**St. James Detention Basin “After”**

**FIGURE 15**



## GREAT SWAMP WATERSHED



**FIGURE 16**



## APPENDIX A-1

### ORDINANCE #1357

#### An Ordinance Amending the Land Use Ordinance of the Township of Bernards Chapter XXI, Section 45 Regarding "Tree Removal and Protection"

##### SECTION 21-3 Definitions

DRIP LINE shall mean a limiting line established by a series of perpendicular drop points marking the maximum radius of the crown of an existing tree, but not less than six feet from the trunk.

NATURAL FEATURES shall mean having or constituting features existing in a natural setting; implanting or being as if implanted by nature.

SPECIMEN TREE shall mean a tree noticeable by reason of individual characteristics within a species. These characteristics shall include, but not limited to a slow growing tree with a caliper of at least 12 inches.

TREE shall mean any deciduous or coniferous species which reaches a typical height of 12 feet or more at maturity and has a DBH of four inches or greater.

##### § 21-43.3. Shade Trees.

Each development plan shall provide for shade trees having a maximum spacing of 50 feet along each side of all streets, public or private, existing or new. In determining the need for new shade trees, the location of existing shade trees shall be considered. If existing shade trees will remain, the tree protection committee and/or the Chief Engineering Inspector shall determine if new shade trees will be required. Additionally, shade trees shall be provided within parking areas containing eight thousand (8,000) or more square feet and shall be planted at a minimum ratio of one shade tree for every ten (10) parking spaces. Shade trees shall be a minimum caliper of three (3) - four (4) inches measured six (6) inches above grade. The board may consult with the shade tree commission concerning the adequacy and appropriateness of the proposed shade trees. (Ord. #585, § 614C; Ord #1103, § 41)

##### § 21-44.2. Grading.

- e. Any grading or stripping shall be done so as to minimize permanent damage to existing trees over four inches DBH that are not designated to be removed by permit.

## Tree Removal and Protection

### § 21-45.1. Removal of Trees.

- a. No tree with a diameter in excess of four DBH shall be removed if located a distance greater than 25 feet from any construction unless approved by the board.
- b. All areas of tree removal shall be indicated on the development plan.
- c. All provisions of any other applicable ordinance of the township regulating the removal of trees shall be complied with.
- d. When regulated trees or areas of trees are removed without proper approvals from the Board, the affected areas shall be replaced to the satisfaction of the Zoning Enforcement Officer in accordance with Section 16-3.5. The following table:

REPLACEMENT OF TREES	
EXISTING TREES REMOVED DIAMETER OF TREE	NUMBER OF REPLACEMENT TREES
0" - 6"	1
6" - 12"	2
12" - 18"	3
18" - 24"	4
24" - 30"	5
31" - 36"	6
37" - 40"	9
41" OR GREATER	10

All replacement trees shall be of nursery grade quality, balled and burlapped and not less than 2 ½" - 3" caliper. Replacement trees shall be consistent with the type and species removed from the site and shall be planted in accordance with accepted nursery practice.

- e. Any tree along the side of any road which was planted specifically for street shade tree purposes shall not be removed without the approval of the Shade Tree Commission.  
(Ord. #585, § 616A)

### § 21-45.2. Tree Protection.

- a. The first priority is to protect all trees on the site whenever possible. The trees to be saved should be protected with fences, signs, or other suitable devices to protect the root zones as well as the tree trunks and branches.
- b. Prior to any tree removal, all trees must be flagged and clearing areas identified for field inspection by the Township Engineer or other approved representative of the Township.
- c. Tree Protection During Construction
  - 1. Tree protection measures and the limit of disturbance line shown on the landscape plan shall be provided in the field with snow fencing or other durable material and verified by the Township Engineer or other designated official prior to soil disturbance.
  - 2. Protective barriers shall not be supported by the plants they are protecting but shall be self-supporting. Barriers shall be minimum for four feet high and last until construction is complete.
  - 3. Chain link fence may be required for tree protection if warranted by site conditions or variety of the plant.
  - 4. Snow fencing used for tree protection shall be firmly secured along the drip line, but no less than six feet from the trunk.
  - 5. The grade of the land located within the drip line shall not be raised or lowered more than six inches unless compensated by welling or retaining wall methods. In no event shall welling retaining wall methods be less than six feet from the trunk of a tree.
  - 6. No soil stockpiling, storage of building materials, construction equipment or vehicles shall be permitted within the drip line or within six feet of any remaining trees, whichever is greater.
  - 7. Any clearing as shown on the approved plan within the drip line, or within six feet of the trunk of a remaining tree, whichever is greater, shall be done by hand-operated equipment.
  - 8. When it is necessary for curbing or utility line installation within the dripline or within six feet of a remaining tree, damage to roots shall be kept to the minimum necessary for proper installation of the line.

§ 21-52.4. Additional Details Required Prior to Classification and Approval of a Minor Subdivision Flag Lot.

- c. The location and species of all existing trees or groups of trees having a diameter in excess of six inches (DBH). When the tree count is more than 25 trees in excess of six inches DBH per acre, the area may be shown as a wooded area with the approximate number of trees per acre. In such designated wooded areas, the

location and species of all trees having a diameter of ten inches or greater (DBH) must be shown.

- i. A landscaping plan in conformance with Section 21-43.

(Ord. #585, § 706D)

§ 21-54.3. Format for Preliminary Development Plans.

- a. Each submission shall be at a minimum scale of one inch equals 30 feet for a tract up to 40 acres in size; one inch equals 50 feet or a tract over 40 acres in size. Each submission shall be on one of the following standard sheet sizes: 24 x 36 inches or 30 x 42 inches unless an alternate sheet size is approved by the township engineer. If one sheet is not sufficient to contain the entire tract, the map may be divided into sections to be shown on separate sheets equal sizes, with reference on each sheet to the adjoining sheet.
- b. The application shall be submitted in bound sets of drawings. Each set of drawings shall be broken down according to the following criteria:
  - 1. Title sheet;
  - 2. Site survey and layout plan;
  - 3. Tree Identification Plan
  - 4. Clearing, grading and drainage plan;
  - 5. Landscape plan;
  - 6. Lighting, signing and striping plan;
  - 7. Erosion and sedimentation control plan;
  - 8. Utilities plan;
  - 9. Building plans and elevation;
  - 10. Township standard details;
  - 11. Public Improvement Construction Documents. Two (2) sets of construction plans (and specifications) shall be submitted as separate documents in addition to being part of the complete submission. Drawings shall be at a scale of one (1) inch equals thirty (30) feet, in the format set forth in Section 21-54.3. The degree of completeness required at the time of preliminary submission will depend upon the implementation schedule. If the applicant plans to construct public improvements prior to submission for final approval, the plans should show sufficient detail to allow a thorough engineering review. If, however, the applicant does not plan to construct the improvements prior to submission for final approval, the plans may be graphical, giving typical sections, center line geometry, typical details, limits of construction, general drainage structures, etc.

(Ord. #585, § 708C)

§ 21-54.4. Details Required for Preliminary Development Plans.

a. Required Details

20. The locations and species of all existing trees or groups of trees having a diameter in excess of six inches DBH. When the tree count is more than 25 trees in excess of six inches DBH per acre, the area may be shown as a wooded area with the approximate number of trees per acre. In such designate wooded areas, the location and species of all trees having a diameter of ten inches or greater DBH must be shown.

38.(d) The plan shall show;

(2) Existing individual trees in excess of six inches DBH, identified by species and showing the approximate drip lines.

(3) Contiguous stands of trees with intergrown crowns which will be preserved.

a. Existing individual trees in excess of ten inches DBH or contiguous stands of trees with intergrown crowns which will be cut down.

45. Tree removal requirements for major subdivisions and site plans

Each application to the Planning Board or Zoning Board of Adjustment for approval of a major or minor subdivision or any site plan that requires the removal of trees shall include an application for a tree removal permit. The application and development proposal shall conform to the following provisions:

a. Application form - The application form shall be available from the Zoning Enforcement Officer and shall include the following information.

1. Name and address of the owner of the premises and status of legal entity (individual, partnership, corporation of this or any other state, etc.);
2. Status of the applicant with respect to land (owner, lessee, tenant, purchaser, under contract, etc.);
3. Name and address of the applicant for the permit if other than the owner, accompanied by the owner's written consent;
4. Description of the premises where removal is to be taken place, including lot and block numbers, and street address;
5. A list of all trees to be removed with a DBH equal to or greater than six inches identified by size and species, including total number of each species to be removed;

6. Purpose for tree removal (construction, street or roadway, driveway, utility easement, recreation areas, patio, parking lot, etc.);
  7. Proof that there are no delinquent property taxes or assessments due on the property for which the application is submitted;
  8. Such other information as may be deemed necessary in order to effectively process and decide such application;
  9. Trees that had been removed within the past two years.
- b. Landscape Plan - The following information shall be provided on a landscape plan prepared in accordance with this Chapter.
1. Base information
    - a. Location of tree canopy within the property boundaries.
    - b. Location of individual trees with a DBH equal to or greater than six inches identified by size and species within the area of development/limit of disturbance.
    - c. Location of individual trees with a DBH equal to or greater than six inches identified by size and species thirty feet beyond a delineated limit of disturbance line.
    - d. Location of individual existing trees noted for preservation within the area of development/limit of disturbance identified by size and species.
    - e. Clear labeling of the area intended for tree removal.
    - f. Tree protection details and limit of disturbance line.
    - g. Anticipated areas subject to regrading.
  2. Design requirements
    - a. Only those trees necessary to permit the construction of buildings, structures, streets, driveways, infrastructures and other authorized improvements shall be removed. Existing vegetation shall be preserved to the greatest extent feasible.
    - b. No more than sixty (60) percent of existing tree canopy within the property boundaries shall be removed. Existing tree canopy comprised of the forty (40) percent minimum shall be noted for preservation. Steep slope limits of disturbance shall supersede this section when approved by the Board.
    - c. No more than ten (10) percent of existing trees with a DBH equal to or greater than ten (10) inches within the area of development/limit of disturbance shall be removed unless the applicant shall replace trees removed in accordance with the table in Section 21-45.1.
    - d. Landscape standards may be waived by the Board when trees and/or shrub masses are preserved and/or relocated on-site that essentially duplicate the landscape requirements contained in this section.

- e. The approving authority shall have the option of requiring a conservation easement to protect any or all trees or tree canopy areas to remain on site.

§ 21-54.6 Support Documentation.

- c. Natural Features Report. This report shall include:

5. Data on landscaping, including a vegetation map showing tree and ground cover existing on the site as compared with that proposed.

21-54.6.m.4.

- ( c ) Storm Water. The following data and documentation:

(2)Changes in peak rates and volumes of stormwater runoff and runoff coefficients expected to be caused by changes in land use and whether or not there will be any increased incidence of flooding caused by increased storm water runoff due to the projected project.

(3)Submission of plans showing the disposition of storm water and attempts to delay the time of concentration by the use of detention basins or other acceptable methods.

(4)Submission of an erosion and sediment control plan in accordance with the requirements of Article V.

§ 21-54.9. Effect of Preliminary Approval.

- e. Preliminary Approval Construction Rights. In the case of a subdivision or site plan, preliminary approval shall grant the right to the owner the ability to construct the roadways, drainage system, detention basins, utility and other site improvements as shown on the approved preliminary subdivision of site plan. A performance bond for restoration of the site will be required as per subsection 21-59.2. In the case of a subdivision, one (1) building permit certificate of occupancy may be granted if there are no other dwelling units on the property. Preliminary approval does not grant the right to the owner the ability to begin additional grading or tree removal outside the roadway right-of-way or outside any approved detention basins except for the construction of one dwelling, utilities, or drainage if necessary.

(Ord. #585, § 708I; Ord. #1103, § 46)

§ 21-55.2. Details Required for Final Plats and Final Plans.

- d. The final submission shall be accompanied by the following documents:

- (i) The finalized landscape plan and associated documentation pursuant to Section 21-43 through 21-45 inclusive.

#### § 21-63.2. Construction Permits.

- c. Every application for a construction permit shall be accompanied by three (3) sets of plans drawn in ink or a blueprint showing the actual shape and dimensions of the lot to be built upon, the exact location, size and height of all existing and proposed structures and substructures, the location and species of all trees equal to or greater than six inches DBH within 15 feet of proposed structure, indicate all trees to be removed, a tree removal permit application if applicable, all existing easements, the existing or intended use of each structure, the number of dwelling units the structure is designed to accommodate, the number and location of off-street parking spaces and off-street loading areas and such other information with regard to the lot and neighboring lots as may be necessary to determine and provide for the enforcement of this chapter. A construction permit shall be granted or denied in writing within twenty (20) business days from the date of a complete application unless additional time is agreed upon in writing by the applicant. One (1) copy of such plans shall be returned to the owner when such plans shall have been approve or denied by the construction code enforcement official and zoning enforcement officer together with such permit as may be granted. All dimensions shown on these plans relating to the location and size of the lot to be built upon shall be based on an actual survey of the lot by a licensed land surveyor in the State of New Jersey. The lot and the location of the structure(s) thereon shall be staked out on the grounds before construction is started. No construction permit shall be issued for any structure:

5.Until a tree removal permit is applied for and issued, if required.

(ORD. #585, § 1002b; Ord. #1103, § 60; Ord. #1229, § 3)

#### § 21-64. Violations

In case any building or structure is erected, constructed, reconstructed, altered, moved or converted; or any building, structure or land is used in violation of, or contrary to, the provisions of this chapter; or any person removing any trees from any property within the Township limits without obtaining a tree removal permit, the township may institute an action to enjoin or any other appropriate action or proceeding to prevent such erection, construction, reconstruction, alteration, conversion or use. However, nothing in this chapter shall be construed to restrict the right of any party to obtain a review by any court of competent jurisdiction according to law. (Ord. #585, § 1003)

#### 21-65 Penalties

##### § 21-65.1. Fines.



Any owner, agent, person or corporation who violates any of the provisions of this chapter or who fails to comply with any of the requirements thereof or who erects, raises, moves, extends, enlarges, alters or demolishes any structure in violation of any detailed statement or plan submitted hereunder, or who puts into use any lot or premises in violation of any detailed statement or plans submitted hereunder or who refuses reasonable opportunity to inspect any premises shall, or removed a tree without a permit that is required upon conviction thereof by any court authorized by law to hear and determine the matter, be liable to a fine of not more than one thousand (\$1,000.00) dollars, or to imprisonment for a term of not more than ninety (90) days or both, as such court in its discretion may impose. Each tree removed shall be considered a separate offence. The owners of any property wherein a violation exists, and any builder, contractor, or agent who may have assisted in the commission of any such violation, shall be guilty of a separate offense.

Each day during or on which a violation occurs or continues shall be deemed a separate offense.

(Ord. #585, § 1004A; Ord. #845, § 2)

*Publication by Summary Pursuant to N.J.S.A.40:49-2*

**ORDINANCE #1357**

**An Ordinance Amending the Land Use Ordinance of the Township of Bernards  
Chapter XXI, Section 45 "Tree Removal and Protection"**

This ordinance sets forth and defines regulations concerning tree removal and provides for protection of trees in conjunction with new development within the township.

**TOWNSHIP OF BERNARDS  
PUBLIC NOTICE**

**Ordinance #1357** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on May 25, 1999, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on June 29, at 8:00 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from dszabo@bernards.org.

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

**TOWNSHIP OF BERNARDS  
COUNTY OF SOMERSET  
Public Notice**

Notice is hereby given that the Township of Bernards, **Ordinance #1357 – An Ordinance Amending the Land Use Ordinance of the Township of Bernards, Chapter XXI, Section 45 Regarding "Tree Removal and Protection"**, was introduced and passed on first reading at a meeting of the Township Committee, on May 25, 1999 and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on June 29, 1999.

Denise Szabo  
Municipal Clerk

## APPENDIX A-2

### ORDINANCE #1504

An Ordinance Amending Chapter 21, Revised Land Use Ordinances of the Township of Bernards,  
County of Somerset, State of New Jersey Regarding  
Stream Buffer Conservation

**BE IT ORDAINED** by the Township Committee of the Township of Bernards, in the County of Somerset and the State of New Jersey, that Chapter 21 of the Revised Land Use Ordinances of The Township of Bernards, be amended and supplemented as follows:

The following new subsection is added:

#### **§21-14.4 Stream Buffer Conservation.**

- a. **Purpose and Intent.** In recognition of the fact that natural features contribute to the welfare of residents, the following regulations have been enacted to provide reasonable controls governing the restoration, conservation, disturbance and management of existing stream buffers for all perennial and intermittent streams and all lakes and ponds in the municipality by establishing designated Stream Buffer Conservation Areas.

In addition, the specific purposes and intent of this subsection are to:

1. Reduce the amount of nutrients, sediment, organic matter, pesticides and other harmful substances that reach watercourses, wetlands and subsurface and surface water bodies by using scientifically proven processes including filtration, deposition, absorption, adsorption, plant uptake, biodegradation and denitrification and by improving infiltration, encouraging sheet flow and stabilizing concentrated flows.
2. Improve and maintain the safety, reliability and adequacy of the water supply for domestic, agricultural, commercial, industrial and recreational uses while sustaining diverse populations of aquatic flora and fauna.
3. Regulate the land use, siting and engineering of all development to be consistent with the intent and objectives of this section and accepted conservation practices, and to work within the carrying capacity of existing natural resources.
4. Assist in the implementation of pertinent state laws concerning erosion and sediment control practices.

5. Conserve the natural features important to land and water resources (e.g., headwater areas, groundwater recharge zones, floodways, floodplains, springs, streams, wetlands, woodlands, prime wildlife habitats) and other features constituting high recreational value or containing amenities that exist on developed and undeveloped land.
  6. Work with floodplain, steep slope and other ordinances that regulate environmentally sensitive areas to minimize hazards to life, property and stream features.
  7. Conserve natural, scenic and recreation areas within and adjacent to stream areas for the community's benefit.
- b. Definitions, Applicability, Width Determination of a Stream Buffer Conservation Area and Establishment of a Stream Buffer Conservation Easement.

1. Definitions. As used in this subsection, the following terms shall have the meanings set forth below:

STREAM shall mean a natural watercourse or surface water body that contains water for at least part of the year, has a drainage area of 50 acres or greater, or is portrayed as a dashed line on a USDA Soil Survey Map of the most recent edition.

STREAM BUFFER CONSERVATION AREA shall mean an area adjacent to a Stream that intercepts surface water runoff, wastewater, subsurface flow and/or deep groundwater flows from upland sources and functions to remove or buffer the effects of associated nutrients, sediment, organic matter, pesticides or other pollutants prior to entry into the Stream. This area may also provide wildlife habitat, control water temperature, attenuate flood flow and provide opportunities for passive recreation. This area may or may not contain trees and other vegetation and shall be subject to the restrictions outlined in this subsection.

STREAM BUFFER CONSERVATION EASEMENT shall mean an easement running to the Township and established in accordance with Article IX of this chapter. A Stream Buffer Conservation Easement shall contain a Stream Buffer Conservation Area and shall be subject to all restrictions applicable to the Stream Buffer Conservation Area.

STREAM BUFFER MANAGEMENT PLAN shall mean a plan approved by the Township Engineer or his appointed representative pursuant to §21-14.h.1. The plan shall be prepared by a landscape architect, professional engineer or other qualified professional and shall fully evaluate the effects of any proposed activity/uses on a Stream Buffer Conservation Area. The plan shall identify existing conditions (vegetation, 100-year floodplain, soils, slopes,

etc.), all proposed activities and all proposed management techniques, including any measures necessary to offset disturbances to the Stream Buffer Conservation Area.

2. **Applicability.** The regulations outlined in this subsection shall be applicable to all properties containing a Stream Buffer Conservation Area.
3. **Width Determination.** A Stream Buffer Conservation Area shall extend a minimum of 75 feet from each defined edge of a Stream at bankfull flow or shall equal the extent of the 100 year floodplain, whichever is greater. A Stream Buffer Conservation Area shall consist of two distinct zones designated as follows (see Figure 205 located at the end of this chapter).

(a) **Zone One.**

- (1) Zone One shall begin at each defined edge of a Stream and shall occupy a margin of land with a minimum width of 25 feet measured horizontally on a line perpendicular to the edge of the Stream at bankfull flow.
- (2) Where steep slopes (in excess of 25 percent) are located within 25 feet of a Stream, Zone One shall extend the entire distance of the steep slope area. If the distance of the steep slope area is greater than 75 feet, there shall be no requirement for the establishment of Zone Two. If the distance of the steep slope area is less than 75 feet, the width of Zone Two shall be adjusted such that the total width (Zone One and Zone Two) shall be 75 feet, except where a greater width is required in order to include the 100-year floodplain, pursuant to §21-14.4.b.3(b)(2).

(b) **Zone Two.**

- (1) Zone Two shall begin at the outer edge of Zone One and shall occupy a minimum width of 50 feet in addition to Zone One, except where a lesser width is required for Zone Two pursuant to §21-14.4.b.3(a)(2).
- (2) Where the 100-year floodplain extends greater than 75 feet from the waterway, Zone One shall remain a minimum of 25 feet wide, except as otherwise required pursuant to §21-14.4.b.3(a)(2), and Zone Two shall extend from the outer edge of Zone One to the outer edge of the 100-year floodplain.

- (c) **Responsibility For Width Determination.** The applicant or their designated representative shall be responsible for the initial width determination of a Stream Buffer Conservation Area and for identifying the area on any plan submitted to the Township in conjunction with an

application for a construction permit or development plan approval or whenever the width determination is deemed necessary by the Zoning Enforcement Officer in order to determine compliance with this subsection. The initial determination shall be subject to approval by the Township Engineer.

- (d) Zone Two Waiver. If the applicant submits a Stream Buffer Management Plan that proves to the satisfaction of the Township Engineer that a proposed vegetative or other enhancement to Zone One will eliminate the need for a Zone Two, the Township Engineer may waive the requirement for a Zone Two, provided that the approved Stream Buffer Management Plan is implemented by the applicant.

- 4. Establishment of a Stream Buffer Conservation Easement. When any of the following circumstances occur, the applicant shall establish a Stream Buffer Conservation Easement containing the Stream Buffer Conservation Area. The Stream Buffer Conservation Easement shall be recorded prior to the Township issuing any permits or approving any uses relating to the applicable use or activity.

- (a) When the applicant applies to the Construction Code Office for a construction permit, excluding a construction permit application that involves only a fence.

- (b) When the applicant applies to the Planning Board or Board of Adjustment for approval of a development plan, excluding a development plan application that involves only a fence.

- c. Uses Permitted in a Stream Buffer Conservation Area. No construction, development, use, activity, encroachment or structure shall be permitted in a Stream Buffer Conservation Area unless specifically permitted herein.

- 1. Zone One.

- (a) Uses Permitted By Right. The following uses shall be permitted by right in Zone One and do not require approval by the Zoning Enforcement Officer or compliance with an approved Stream Buffer Management Plan.

- (1) Open space uses that are primarily passive in character, including wildlife sanctuaries, nature preserves, forest preserves, fishing areas and passive areas of public and private parklands.

- (2) Fences for which a permit has been issued by the Construction Code Office (Notwithstanding the fact that they are permitted in a Stream Buffer Conservation Area, fences are still subject to approval by the

Zoning Enforcement Officer as to compliance with the general requirements for fences, including §21-16.2).

- (b) Uses Requiring Township Approval. The following uses shall be permitted in Zone One subject to approval by the Zoning Enforcement Officer and subject to compliance with an approved Stream Buffer Management Plan.

- (1) Buffer crossings by farm vehicles and livestock, recreational trails, roads, railroads, stormwater lines, sanitary sewer lines, water lines and public utility transmission lines, provided that the land disturbance is the minimum required to accomplish the permitted use.

- (2) Reforestation.

- (3) Streambank stabilization.

## 2. Zone Two.

- (a) Uses Permitted By Right. The following uses shall be permitted by right in Zone Two and do not require approval by the Zoning Enforcement Officer or compliance with an approved Stream Buffer Management Plan.

- (1) Open space uses that are primarily passive in character, including wildlife sanctuaries, nature preserves, forest preserves, recreational trails and passive areas of public and private parklands.

- (2) Fences for which a permit has been issued by the Construction Code Office (Notwithstanding the fact that they are permitted in a Stream Buffer Conservation Area, fences are still subject to approval by the Zoning Enforcement Officer as to compliance with the general requirements for fences, including §21-16.2).

- (3) Minimum required front, side and rear yards on private lots, provided that no minimum required yard may extend into Zone Two more than half the distance between the outer boundaries of Zone One and Zone Two (see Figure 204 located at the end of this chapter).

- (4) Agricultural uses existing at the time of adoption of this ordinance.

- (b) Uses Requiring Township Approval. The following uses shall be permitted in Zone Two subject to approval by the Zoning Enforcement Officer and subject to compliance with an approved Stream Buffer Management Plan.

- (1) New agricultural uses.

- (2) Buffer crossings by farm vehicles and livestock, roads, railroads, stormwater lines, sanitary sewer lines, water lines and public utility transmission lines, provided that the land disturbance is the minimum required to accomplish the permitted use.
  - (3) Stormwater lines, sanitary sewer lines, water lines and public utility transmission lines running along, i.e. parallel to, the buffer, provided that the land disturbance is the minimum required to accomplish the permitted use and the lines are located as far from Zone One as practical.
  - (4) Selective cutting of trees.
  - (5) Recreation areas such as camps, campgrounds, picnic areas, golf courses, ballfields, playgrounds and courts, provided these uses are designed in a manner that will not generate concentrated flow of stormwater.
  - (6) Naturalized stormwater basins, provided the entire basin is located a minimum of 50 feet from the defined edge of all Streams.
  - (7) Reforestation.
- d. Uses Specifically Prohibited in a Stream Buffer Conservation Area. Any use or activity not permitted pursuant to §21-14.4.c shall be prohibited within a Stream Buffer Conservation Area. By way of example, the following uses and activities are specifically prohibited:
1. Clear-cutting of trees and other vegetation.
  2. Selective cutting of trees and/or the clearing of other vegetation within Zone One, except where such cutting and/or clearing is necessary to prepare land for a use permitted pursuant to §21-14.4.c.1 and where the effects of these actions are mitigated by revegetation, in compliance with an approved Stream Buffer Management Plan.
  3. Selective cutting of trees and/or the clearing of other vegetation within Zone Two, except where such cutting and/or clearing is necessary to prepare land for a use permitted pursuant to §21-14.4.c.2 and where the effects of these actions are mitigated by revegetation, in compliance with an approved Stream Buffer Management Plan.
  4. Removal of trees in excess of selective cutting, except where such removal is necessary as a means to eliminate dead, diseased or hazardous tree stands that

jeopardize public safety, or as part of a reforestation project, and the removal is in compliance with an approved Stream Buffer Management Plan.

5. Removal or disturbance of vegetation in a manner that is inconsistent with erosion control and buffer protection practices.
  6. Storage of hazardous or noxious materials.
  7. Use of fertilizers, pesticides, herbicides, and/or other chemicals in excess of prescribed industry standards or the recommendations of the Somerset-Union Soil Conservation District.
  8. Roads or driveways, except where permitted as buffer crossings in compliance with §21-14.4.c.1(b)(1) or §21-14.4.c.2(b)(2).
  9. Motor and/or wheeled vehicle traffic in any area which, in the opinion of the Township Engineer, is not designed to adequately accommodate the type and volume of traffic.
  10. Parking lots.
  11. Any type of permanent structure, excluding structures approved in conjunction with a use permitted pursuant to §21-14.4.c.
  12. Subsurface sewage disposal areas.
  13. Sod farming.
  14. Minimum required front, side and rear yards, except as permitted in Zone Two pursuant to §21-14.4.c.2(a)(2) or as otherwise permitted pursuant to this subsection.
- e. Nonconforming Structures and Uses in a Stream Buffer Conservation Area. Nonconforming structures and uses of land within a Stream Buffer Conservation Area shall be regulated under the provisions of Section 21-11 of the Land Development Ordinance. The following additional regulations shall also apply:
1. Existing nonconforming structures or uses within Zone One or Zone Two that are prohibited pursuant to §21-14.4.d may be continued provided the existing building footprint and use are not expanded or enlarged.
  2. Discontinued nonconforming uses may be resumed at any time within one year from such discontinuance, but not thereafter. No change or resumption shall be permitted that is more detrimental to the Stream Buffer Conservation Area, as measured against the purposes and intent set forth in §21-14.4.a, than the existing or former nonconforming use. This one-year time limit shall not



apply to agricultural uses that are following prescribed Best Management Practices for crop rotation.

f. Boundary Interpretation and Appeals Procedure.

1. A property owner or applicant may dispute a Stream designation or the Zone (One or Two) boundaries of a Stream Buffer Conservation Area or the defined edge of a Stream by submitting evidence to the Zoning Enforcement Officer that describes the designation/boundaries approved by the Township Engineer, the designation/boundaries proposed by the property owner or applicant and all justification for the proposed designation/boundary change. The evidence supporting a proposed Stream designation must be provided by a New Jersey licensed professional engineer.
2. The Township Engineer or his appointed representative shall evaluate all material submitted and shall make a written determination within 45 days of receipt of a complete submission.
3. Any party aggrieved by any determination or decision under this subsection may appeal to the Township Committee under the provisions of this ordinance. The party contesting the determination or decision shall have the burden of proof in case of any such appeal.

g. Inspection of a Stream Buffer Conservation Area.

1. Lands within and adjacent to a Stream Buffer Conservation Area shall be inspected by the Zoning Enforcement Officer and/or the Township Engineer or his appointed representative when:
  - (a) A construction permit application affecting the Stream Buffer Conservation Area is submitted to the Construction Code Office.
  - (b) A development plan application affecting the Stream Buffer Conservation Area is submitted to the Planning Board or Board of Adjustment.
  - (c) A change or resumption of a nonconforming use within the Stream Buffer Conservation Area is proposed.
  - (d) A proposed Stream Buffer Management Plan is submitted to the Zoning Enforcement Officer.
2. A Stream Buffer Conservation Area may also be inspected by the Zoning Enforcement Officer and/or the Township Engineer or his appointed representative for compliance with this subsection, including compliance with an approved Stream Buffer Management Plan, at any time when the presence

not unsightly and does not constitute a health hazard. § 3-7.7. Open or Overflowing Waste Disposal Bins.

It shall be unlawful for any residential or commercial property owner to permit open or overflowing waste disposal bins on his or her property

**§ 3-7.8. Storage in Residential Zones.**

In areas zoned residential, except in a fully enclosed structure or during days designated for the collection of bulky items, it shall be unlawful for any residential property owner to store or permit storage of tires or any bulky household waste, including household appliances, furniture and mattresses.

**§ 3-7.9. Reserved.**

**§ 3-7.10. Vehicle Loads Causing Litter.**

No person shall drive, move, stop or park any vehicle within the township unless the vehicle is so constructed and loaded as to prevent any load or contents from being blown, dropped, sifted, leaked or otherwise deposited upon any street or other public place or upon adjoining private property, nor shall any person drive or move any vehicle or truck within the township, the wheels or tires of which carry out or deposit in any street or other public place, mud, dirt, sticky substance or foreign matter of any kind. Any person operating a vehicle from which any glass or objects have fallen or escaped, which could cause an obstruction, damage a vehicle, or otherwise endanger travelers or public property, shall immediately cause the public property to be cleaned of all glass or objects and shall pay the costs therefor. § 3-7.11. Construction Sites.

It shall be unlawful for any owner, agent or contractor in charge of a construction or demolition site to permit the accumulation of litter before, during or after completion of any construction or demolition project. It shall be the duty of the owner, agent or contractor in charge of a construction site to furnish containers adequate to accommodate flyable or nonflyable debris or trash at areas convenient to construction areas, and to maintain and empty the receptacles in such a manner and with such a frequency as to prevent spillage of refuse.

**§ 3-7.12. Violations and Penalties.**

Any person violating any provision of this section shall, upon conviction thereof, be subject to a fine not to exceed \$100 for each violation. If the violation is of a continuing nature, each day during which it continues shall constitute a separate and distinct offense under this section. If any provision of this section is found to be invalid, it shall not affect the validity or enforceability of the remainder of this section.

**§ 3-7.13. Enforcement:**

This section shall be enforced by the Zoning Enforcement Officer of the Township of Bernards.

<b>Explanatory Statement:</b>
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This ordinance aligns with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. Peter Messina took the Litter Ordinance and added language required by the NJDEP. Bernards Township must implement this ordinance on or before 10/1/05.

Barbara J. Pence, Administrator

Publication by Summary Pursuant to N.J.S.A. 40:49-2

**This ordinance is consistent with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. Language was added to the township's current litter ordinance to be consistent with NJDEP stormwater regulations. No person will be permitted to throw, drop, discard or otherwise place litter of any nature upon any public or private property, other than in a litter receptacle, or having done so, to allow such litter to remain, except that the owner or person in control of private property may maintain authorized private litter receptacles for collection in such a manner that litter will be prevented from being carried or deposited by the elements upon any street, sidewalk or other public place or upon any private property. Whenever any litter is thrown or discarded or allowed to fall from a vehicle or boat in violation of this section, the operator or owner, or both, of the motor vehicle or boat shall also be deemed to have violated this section.**

**TOWNSHIP OF BERNARDS  
PUBLIC NOTICE**

Ordinance #1751 having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 8/10/04, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 9/28/04, at 7:30 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from dszabo@bernards.org.

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

Note: the 9/28/04 meeting and PH were adjourned to 9/30/04

**TOWNSHIP OF BERNARDS  
Public Notice**

Notice is hereby given that Bernards Township Ordinance #1751, was introduced and passed on first reading at a meeting of the Township Committee, on 8/10/04, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 9/30/04.

Denise Szabo  
Municipal Clerk

## APPENDIX A-9

### **ORDINANCE #1752**

An Ordinance to Amend the Revised General Ordinances of the Township of Bernards,  
Chapter 5 "Animal Control" Section 8 "Regulations"  
Subsection 9 "Removal of Dog Feces to Comply with the NJPDES Municipal  
Stormwater Regulation Program

#### **SECTION I. Purpose.**

The purpose of this ordinance is to replace in entirety Section 5-8.9 of the Revised General Ordinances of the Township of Bernards to establish requirements in compliance with the NJPDES Municipal Stormwater Regulation Program, for the proper disposal of pet solid waste in the Township of Bernards, so as to protect public health, safety and welfare, and to prescribe penalties for failure to comply.

#### **§ 5-8.9. Removal of feces.**

a. **Definitions.**

For the purpose of this subsection, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

IMMEDIATE shall mean that the pet solid waste is removed at once, without delay.

OWNER/KEEPER shall mean any person who shall possess, maintain, house or harbor any pet or otherwise have custody of any pet, whether or not the owner of such pet.

PERSON shall mean any individual, corporation, company, partnership, firm, association or political subdivision of this state subject to municipal jurisdiction.

PET shall mean a domesticated animal (other than a disability assistance animal) kept for amusement or companionship.

PET SOLID WASTE shall mean waste matter expelled from the bowels of the pet; excrement.

PROPER DISPOSAL shall mean placement in a designated waste receptacle, or other suitable container and discarded in a refuse container which is regularly emptied by the municipality or some other refuse collector; or disposal into a system designed to convey domestic sewage for proper treatment and disposal.

b. **Requirement for Disposal.** All pet owners and keepers are required to immediately and properly dispose of their pet's solid waste deposited on any property, public or private, not owned or possessed by that person.

c. **Exemptions.**

Any owner or keeper who requires the use of a disability assistance animal shall

be exempt from the provisions of this section while such animal is being used for that purpose.

d. Enforcement.

The provisions of this subsection shall be enforced by the Health Department of the Township of Bernards.

e. Violations and Penalties.

Any person(s) who is found to be in violation of the provisions of this subsection shall be subject penalties set forth in Section 3-1 of the Revised General Ordinances of the Township of Bernards.

**SECTION II. Severability:**

Each section, subsection, sentence, clause and phrase of this ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this ordinance.



### **SECTION III. Effective date:**

This ordinance shall be in full force and effect from and after its adoption and publication as required by law.

#### **Explanatory Statement:**

This ordinance aligns with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. Peter Messina took the model ordinances provided by the NJDEP and inserted the appropriate enforcement agency. While this ordinance may provoke discussion, we are not aware that we can change the substance of the ordinances. Bernards Township must implement this ordinance on or before 10/1/05.

Barbara J. Pence, Administrator

#### **Publication by Summary Pursuant to N.J.S.A.40:49-2**

This ordinance is consistent with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. It expands upon the township's current requirements for dogs to all domestic animals.

#### **TOWNSHIP OF BERNARDS PUBLIC NOTICE**

**Ordinance #1752** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 8/10/04, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 9/28/04, at 7:30 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from dszabo@bernards.org.

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

Note: the 9/28/04 meeting and PH were adjourned to 9/30/04

#### **TOWNSHIP OF BERNARDS Public Notice**

Notice is hereby given that Bernards Township Ordinance #1752, was introduced and passed on first reading at a meeting of the Township Committee, on 8/10/04, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 9/30/04.

Denise Szabo  
Municipal Clerk

## APPENDIX A-10

### **ORDINANCE 1753**

An Ordinance to Amend the Revised General Ordinances of the Township of Bernards, Chapter X "Municipal Parks, Playgrounds and Pools" by Adding a New Section 4 "Feeding Wildlife" to Comply with the NJPDES Municipal Stormwater Regulation Program

#### **SECTION I. Purpose.**

The purpose of this ordinance is to add a new Section 10-4 to Chapter 10 of the Revised General Ordinances of the Township of Bernards to prohibit the feeding of unconfined wildlife in compliance with the NJPDES Municipal Stormwater Regulation Program, in any public park or on any other property owned or operated by the Township of Bernards, so as to protect public health, safety and welfare, and to prescribe penalties for failure to comply.

#### **SECTION 10-4 Feeding of Wildlife**

##### **§ 10-4.1. Definitions.**

For the purpose of this section, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

FEED shall mean to give, place, expose, deposit, distribute or scatter any edible material with the intention of feeding, attracting or enticing wildlife. Feeding does not include baiting in the legal taking of fish and/or game.

PERSON shall mean any individual, corporation, company, partnership, firm, association or political subdivision of this State subject to municipal jurisdiction.

WILDLIFE shall mean all animals that are neither human nor domesticated.

**§ 10-4.2. Prohibited Conduct.**

No person shall, in any public park or on any other property owned or operated by the Township of Bernards, feed any wildlife, excluding confined wildlife (for example, wildlife confined in zoos, parks or rehabilitation centers, or unconfined wildlife at environmental education centers).

**§ 10-4.3. Enforcement.**

- a. This section shall be enforced by the Police Department of the Township of Bernards.
- b. Any person found to be in violation of this section shall be ordered to cease the feeding immediately.

**§ 10-4.4. Violations and Penalties.**

Any person(s) who is found to be in violation of the provisions of this section shall be subject to penalties as set forth in Section 3-1 of the Revised General Ordinances of the Township of Bernards.

**SECTION II. Severability:**

Each section, subsection, sentence, clause and phrase of this ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this ordinance.

**SECTION II. Effective date:**

This ordinance shall be in full force and effect from and after its adoption and any publication as may be required by law.

**Explanatory Statement:**

This ordinance aligns with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. Peter Messina took the model ordinances provided by the NJDEP and inserted the appropriate enforcement agency. While this ordinance may provoke discussion, we are not aware that we can change the substance of the ordinances. Bernards Township must implement this ordinance on or before 10/1/05.

Barbara J. Pence, Administrator

**Publication by Summary Pursuant to N.J.S.A. 40:49-2**

This ordinance is consistent with the goals of the 2003 Bernards Township Master Plan and State of New Jersey Stormwater Management Regulations. It prohibits the feeding of wildlife on township property including public parks and pool.

**Ordinance #1753** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 8/10/04, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 9/28/04, at 7:30 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from [dszabo@bernards.org](mailto:dszabo@bernards.org).

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

Note: the 9/28/04 meeting and PH were adjourned to 9/30/04

**TOWNSHIP OF BERNARDS**  
**Public Notice**

Notice is hereby given that Bernards Township Ordinance #1753, was introduced and passed on first reading at a meeting of the Township Committee, on 8/10/04, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 9/30/04.

Denise Szabo  
Municipal Clerk

## APPENDIX A-11

### **ORDINANCE #1755**

An Ordinance to Amend the Revised General Ordinances of the Township of Bernards, Chapter 17 "Stormwater Management" by Creating a New Section 2 "Improper Disposal of Wastes" to Comply with the NJPDES Municipal Stormwater Regulations Program

#### **SECTION I. Purpose:**

The purpose of this ordinance is to add a new Section 17-2, entitled "Improper Disposal of Wastes," to Chapter 17 of the Revised General Ordinances of the Township of Bernards in order to prohibit the spilling, dumping, or disposal of materials other than stormwater to the municipal separate storm sewer system (MS4) operated by the Township of Bernards, in compliance with the NJPDES Municipal Stormwater Regulations Program so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

#### **§ 17-2.1. Definitions.**

For the purpose of this section, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) shall mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels or storm drains) that is owned or operated by the Township of Bernards or other public body and is designed and used for collecting and conveying stormwater.

PERSON shall mean any individual, corporation, company, partnership, firm, association or political subdivision of this state subject to municipal jurisdiction.

STORMWATER shall mean water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.

#### **§ 17-2.2. Prohibited Conduct.**

The spilling, dumping or disposal of materials other than stormwater to the municipal separate storm sewer system operated by the Township of Bernards is prohibited. The spilling, dumping or disposal of materials other than stormwater in such a manner as to cause the discharge of pollutants to the municipal separate storm sewer system is also prohibited.

#### **§ 17-2.3. Exceptions to Prohibition.**

The following are exceptions to the prohibitions in § 17-2.2 above:

- a. Waterline flushing and discharges from potable water sources.
- b. Uncontaminated groundwater (e.g., infiltration, crawl space or basement sump pumps, foundation or footing drains, rising groundwaters).
- c. Air conditioning condensate (excluding contact and non-contact cooling water).
- d. Irrigation water (including landscape and lawn watering runoff).
- e. Flows from springs, riparian habitats and wetlands, water reservoir discharges and diverted stream flows.
- f. Residential car washing water and residential swimming pool discharges.
- g. Sidewalk, driveway and street wash water.
- h. Flows from fire fighting activities.
- i. Flows from rinsing of the following equipment with clean water:
  - 1. Equipment used in the application of salt and de-icing materials immediately following salt and de-icing material applications. Prior to rinsing with clean water, all residual salt and de-icing materials must be removed from equipment and vehicles to the maximum extent practicable using dry cleaning methods (e.g., shoveling and sweeping). Recovered materials are to be returned to storage for reuse or properly discarded.
  - 2. Rinsing of equipment, as noted in the above situation is limited to exterior, undercarriage and exposed parts and does not apply to engines or other enclosed machinery.

#### **§ 17-2.4. Enforcement.**

This section shall be enforced by the Zoning Enforcement Officer of the Township of Bernards.

#### **§ 17-2.5. Violations and Penalties.**

Any person(s) who is found to be in violation of the provisions of this section shall be subject to penalties as set forth in Section 3-1 of the Revised General Ordinances of the Township of Bernards.

#### **SECTION II. Severability:**

Each section, subsection, sentence, clause and phrase of this ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this ordinance.

#### **SECTION III.. Effective date:**

This ordinance shall be in full force and effect from and after its adoption and any publication as may be required by law.

#### **Publication by Summary Pursuant to N.J.S.A.40:49-2**

This ordinance is consistent with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. It is based on the model ordinances provided by the NJDEP and has been amended to include the appropriate enforcement agency in Bernards Township. It prohibits the spilling, dumping



or disposal of materials other than stormwater to the municipal separate storm sewer system operated by the Township of Bernards is prohibited. The spilling, dumping or disposal of materials other than stormwater in such a manner as to cause the discharge of pollutants to the municipal separate storm sewer system is also prohibited.

Note: On 8/10/04 ordinance was tabled to a worksession discussion.

**TOWNSHIP OF BERNARDS  
PUBLIC NOTICE**

**Ordinance #1755**, was introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 9/14/04 and then ordered to be published according to law/ It will be further considered for final passage and adoption at a public hearing held at a meeting of the Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 10/26/04, at 7:30 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from [dszabo@bernards.org](mailto:dszabo@bernards.org).

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

**TOWNSHIP OF BERNARDS  
Public Notice**

Notice is hereby given that Bernards Township Ordinance #1755, was introduced and passed on first reading at a meeting of the Township Committee, on 9/14/04, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 10/26/04.

Denise Szabo  
Municipal Clerk



## APPENDIX A-12

James E. McGreevey  
Governor

State of New Jersey  
Department of Environmental Protection  
Bureau of Nonpoint Pollution Control  
Division of Water Quality  
P.O. Box 029  
Trenton, N.J. 08625-0029  
Tel: 609-633-7021, 292-0407  
FAX: 609-984-2147  
[www.state.nj.us/dep/dwq/nonpoint.htm](http://www.state.nj.us/dep/dwq/nonpoint.htm)

Bradley M. Campbell  
Commissioner

03/22/2004



Peter Messina  
Bernards Twp  
1 Collyer Ln  
Basking Ridge, NJ 07920

Re: R9 -Tier A Municipal Stormwater General Permit  
NJPDES: NJG0148661 / PI ID #: 168115  
Bernards Twp  
Somerset County

Dear Peter Messina :

Enclosed please find your municipality's Authorization to Discharge (Authorization) under the New Jersey Pollutant Discharge Elimination System (NJPDES) Tier A Municipal Stormwater General Permit NJ0141852 (Tier A Permit), and a copy of the final permit. The "Effective Date" on the enclosed Authorization, 04/01/2004, is your municipality's "Effective Date of Permit Authorization" (EDPA) under this final permit. The implementation schedules contained in the final permit are based on your municipality's EDPA.

A unique NJPDES permit number NJG0148661 has been assigned for your municipality's authorization under the Tier A Permit. In any future correspondence or inquiries, please use or refer to that NJPDES permit number.

The enclosed final permit includes some technical corrections and changes to the advance copy that the Department of Environmental Protection (Department) mailed to your municipality in late January. Please replace the advance copy with the official final permit contained in this mailing. Also enclosed with this mailing is a summary of these technical corrections and changes.

A compact disk (CD) that contains guidance for the Tier A Permit and the informational brochure for the Local Public Education Program will be mailed to you under separate cover. The guidance will have blank and completed example Stormwater Pollution Prevention Plan (SPPP) forms to assist your municipality in preparing its SPPP. The CD will also contain other guidance including courtesy copies of the amended NJPDES Stormwater rules (N.J.A.C. 7:14A) and Stormwater Management rules (N.J.A.C. 7:8), model ordinances, the New Jersey Stormwater Best Management Practices Manual, and additional educational materials supplied by the Department's Division of Watershed Management.

If any information about your municipality in this letter or the enclosed Authorization (i.e., mailing address, Municipal Stormwater Program Coordinator, etc.) is incorrect or has changed or changes in the future, please contact the Bureau of Nonpoint Pollution Control for an Administrative Update Form.

The Department appreciates your efforts toward accomplishing the goal of providing cleaner water for our State and looks forward to working together with you in the future. If you have any questions please contact Tara Wood at the Bureau of Nonpoint Pollution Control at (609) 633-7021, or (609) 292-0407.

Sincerely,

A handwritten signature in dark ink, appearing to read "Barry Chalofsky".

Barry Chalofsky, P.P., Chief  
Bureau of Nonpoint Pollution Control

**Enclosures: (3)**

Authorization to Discharge  
NJPDES General Permit No. NJ0141852  
Summary of technical corrections and changes

C: (w/AUTHORIZATION Form): NJDEP Water Compliance and Enforcement Region Office  
Debbie Esposti, BPM



**Bureau of Nonpoint Pollution Control**  
**Division of Water Quality**  
PO Box 029  
Trenton, NJ 08625-0029  
Phone: (609) 633-7021  
Fax: (609) 984-2147

**AUTHORIZATION TO DISCHARGE**  
**R9 -Tier A Municipal Stormwater General Permit**

**Facility Name:**

**PI ID #:** 168115

BERNARDS TWP

**Facility Address:**

**NJPDES #:** NJG0148661

1 COLLYER LN  
BASKING RIDGE, NJ 07920

**Type of Activity:** Stormwater Discharge General Permit Authorization New

**Owner:**

BERNARDS TWP  
1 COLLYER LN  
BASKING RIDGE, NJ 07920

**Operating Entity:**

BERNARDS TWP  
1 COLLYER LN  
BASKING RIDGE, NJ 07920

**Issuance Date:**

03/22/2004

**Effective Date:**

04/01/2004

**Expiration Date:**

02/28/2009

Your Request for Authorization under NJPDES General Permit No. NJ0141852 has been approved by the New Jersey Department of Environmental Protection.

**Date:** 03/22/2004

Barry Chalofsky, P.P., Chief  
Bureau of Nonpoint Pollution Control  
Division of Water Quality  
New Jersey Department of Environmental Protection



# NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Permit Number: NJ0141852

P.I. ID #50577

**Final: Tier A Municipal Stormwater Master General Permit**

**Permittee:**

Division Of Water Quality  
401 E State Street  
Trenton, New Jersey 08625

**Co-Permittee:**


**Property Owner:**

**Location Of Activity:**

NJPDES Master General Permit Program  
Interest  
401 E State Street  
Trenton, New Jersey 08625

Authorization(s) Covered Under This Approval	Issuance Date	Effective Date	Expiration Date
R9 -Tier A Municipal Stormwater General Permit	02/02/2004	03/03/2004	02/28/2009

By Authority of:  
Commissioner's Office

  
DEP AUTHORIZATION  
Barry Chalofsky, P.P., Chief  
Bureau of Nonpoint Pollution Control  
Division of Water Quality

(Terms, conditions and provisions attached hereto)

EDPA = 4/1/04

**NJPDES Municipal Stormwater Regulation Program**  
**Summary of Statewide Basic Requirements (SBRs)**  
**Tier A Municipal Stormwater Permit (NJ0141852)**

Statewide Basic Requirement	Minimum Standard	Implementation Schedule
Stormwater Pollution Prevention Plan (SPPP)	SPPP describes the municipality's stormwater program, which includes details on the implementation of required SBRs.	12 months from effective date of permit 4/1/04 authorization (EDPA)
Public Notice	Comply with applicable State and local public notice requirements when providing for public participation.	Upon EDPA
<b>Post-Construction Stormwater Management in New Development and Redevelopment</b>		
Stormwater Management Plan	Adopt stormwater management (SWM) plan in accordance with N.J.A.C. 7:8.	Complete 12 mos. from EDPA
Stormwater Control Ordinance	Adopt and implement stormwater control ordinance in accordance with N.J.A.C. 7:8.	Adopt ordinance 12 months from SWM plan adoption.
Residential Site Improvement Standards	Ensure compliance with Residential Site Improvement Standards for stormwater management (N.J.A.C. 5:21-7).	Upon EDPA
BMP Operation and Maintenance	Ensure adequate long-term operation and maintenance of BMPs.	EDPA for BMPs on municipal property. 24 mos. elsewhere.
Storm Drain Inlets Design Standard for New Construction	New storm drain inlets must meet the design standards specified in Attachment C of the permit.	12 months if municipally installed. Otherwise 24 mos.
<b>Local Public Education</b>		
Local Public Education Program	Incorporate all SBRs that have an educational message into a cohesive package. Distribute educational information annually to residents and businesses, as well as conduct a yearly "event".	Start 12 months from EDPA
Stormwater/Nonpoint Source Education	Distribute information to residents and businesses regarding general stormwater/nonpoint pollution and steps that the public can take to reduce pollutants in stormwater runoff.	Start 12 months from EDPA
Storm Drain Labeling	Label all municipal storm drain inlets. Coordinate efforts with watershed groups and volunteer organizations.	Complete 60 mos. from EDPA
Fertilizer/Pesticide Education	Distribute information regarding fertilizer/pesticide application, storage and disposal, as well as alternatives, including the use of native or well adapted species when landscaping.	Start 12 months from EDPA
Waste Disposal Education	Distribute information regarding proper waste disposal, handling and storage, including hazards associated with illicit connections and improper disposal of waste.	Start 12 months from EDPA
<b>Improper Disposal of Waste</b>		
Pet Waste Ordinance	Adopt and enforce an ordinance requiring owners to properly dispose of their pet's solid waste. Distribute information regarding the ordinance and the environmental benefits of proper disposal of pet waste.	Complete 12 mos. and ongoing
Litter Ordinance	Adopt and enforce a litter ordinance, or enforce the existing State litter statute (N.J.S.A. 13:1E-99.3). Distribute information concerning the ordinance and fines associated with littering.	Complete 12 mos. and ongoing



Improper Waste Disposal Ordinance	Adopt and enforce an ordinance prohibiting spilling, dumping or disposal of any materials other than stormwater into the MS4 (with some exceptions). Distribute information regarding the ordinance.	Complete 12 mos. from EDPA and ongoing
Wildlife Feeding Ordinance	Adopt and enforce an ordinance that prohibits feeding of non-confined wildlife in any public park or property owned/operated by the municipality. Distribute information regarding the wildlife feeding prohibition.	Complete 12 months from EDPA and ongoing
Yard Waste	Non-containerized yard waste placed at curb can be no closer than 10' from a storm drain inlet. Pickup must be monthly Oct.-Dec., once in spring, and "as needed" during remainder of year.	Start 12 months from EDPA and ongoing
Illicit Connection Elimination and MS4 Outfall Pipe Mapping	Develop, implement and enforce a program and an ordinance, to the extent allowable under State law, to eliminate illicit connections to MS4 within the municipality. Map all municipal storm sewer outfall pipes which discharge to surface water.	Complete 60 months from EDPA and ongoing
<b>Solids and Floatable Controls</b>		
Street Sweeping	Requires monthly sweeping of curbed streets, roads and highways (with a posted speed limit of 35 mph or less) in predominantly non-residential areas and sweeping within one week of any leaf pick up or snow melt.	Start 12 months from EDPA and ongoing
Storm Drain Inlet Retrofitting	Retrofitting of storm drain inlets during road repair, reconstruction, alterations or repaving with inlets that meet the design standards specified in Attachment C of the permit.	Start 12 months from EDPA and ongoing
Stormwater Facility Maintenance	Develop and implement a structural stormwater facility maintenance program that includes yearly catch basin cleaning to ensure proper function and operation of the stormwater facility.	Start 12 months from EDPA and ongoing
Road Erosion Control Maintenance	Develop a roadside erosion control maintenance program to identify and stabilize roadside erosion. Repairs shall be made in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey (N.J.A.C. 2:90-1).	Start 12 months from EDPA and ongoing
Outfall Pipe Stream Scouring Remediation	Develop and implement a stormwater outfall pipe scouring detection, remediation and maintenance program to identify and stabilize erosion in areas immediately downstream of the outfall pipe. Repairs shall be made in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey (N.J.A.C. 2:90-1).	Start 12 months from EDPA and ongoing
<b>Maintenance Yard Operations</b>		
De-icing Material Storage	Construct permanent indoor storage for deicing materials. Seasonal tarping shall be used as an interim BMP until the permanent structure is completed. Uncovered sand may be stored outside if a 50' setback is maintained from any storm sewer inlet.	Complete 60 months from EDPA
Fueling Operations	Develop and implement SOPs for vehicle fueling, bulk delivery and inspection and maintenance of storage tanks, piping and pumps in addition to required practices contained in the permit.	Start 12 months from EDPA and ongoing
Vehicle Maintenance	Implement required practices contained in the permit for vehicle maintenance.	Start 12 mos. from EDPA & ongoing
Equipment and Vehicle Washing	Allow no discharge of wash water from maintenance operations (with limited exceptions), and follow prescribed BMP options for proper disposal of wash water	Complete 36 months from EDPA
Good Housekeeping	Implement required practices contained in the permit for good housekeeping.	Start 12 mos. from EDPA & ongoing
<b>Employee Training</b>		
Employee Training	Develop and conduct an employee training program for appropriate employees that covers the required topics contained in the permit.	Start 12 mos. from EDPA & ongoing

APPENDIX A-13

NJAC 7:8 STORMWATER MANAGEMENT RULE

Please see NJDEP Internet site

[http://www.nj.gov/dep/rules/adoptions/2004\\_0202\\_watershed.pdf](http://www.nj.gov/dep/rules/adoptions/2004_0202_watershed.pdf)

THIS IS A COURTESY COPY OF THIS RULE ADOPTION. THE OFFICIAL VERSION WILL BE PUBLISHED IN THE FEBRUARY 2, 2004 NEW JERSEY REGISTER. SHOULD THERE BE ANY DISCREPANCIES BETWEEN THIS TEXT AND THE OFFICIAL VERSION OF THE ADOPTION, THE OFFICIAL VERSION WILL GOVERN.

## **CHAPTER 7A FRESHWATER WETLANDS PROTECTION ACT RULES**

### **7:7A-4.3 Conditions that apply to all general permit authorizations**

(a) (No change)

(b) The following conditions apply to all activities conducted under the authority of a general permit:

1.-9. (No change.)

10. If activities under the general permit meet the definition of "major development" at N.J.A.C. 7:8-1.2, the Stormwater Management Rules at N.J.A.C. 7:8 apply.

11.-16. (No change.)

(c)-(f) (No change.)

### **7:7A-5.11 General permit 11- Outfalls and intake structures**

(a)-(e) (No change.)

(f) Stormwater discharged from an outfall authorized under general permit 11 shall be managed in accordance with the Stormwater Management Rules at N.J.A.C. 7:8. –

(g)-(j) (No change.)

## **CHAPTER 7E COASTAL ZONE MANAGEMENT**

### **SUBCHAPTER 8. RESOURCE RULES**

#### **7:7E-8.7 Stormwater management**

If a project or activity meets the definition of "major development" at N.J.A.C. 7:8-1.2, then the project or activity shall comply with the Stormwater Management rules at N.J.A.C. 7:8.

## **CHAPTER 8 STORMWATER MANAGEMENT**

### **SUBCHAPTER 1. GENERAL PROVISIONS**

THIS IS A COURTESY COPY OF THIS RULE ADOPTION. THE OFFICIAL VERSION WILL BE PUBLISHED IN THE FEBRUARY 2, 2004 NEW JERSEY REGISTER. SHOULD THERE BE ANY DISCREPANCIES BETWEEN THIS TEXT AND THE OFFICIAL VERSION OF THE ADOPTION, THE OFFICIAL VERSION WILL GOVERN.

#### 7:8-1.1 Scope and purpose

(a) This chapter establishes general requirements for stormwater management plans and stormwater control ordinances, as well as content requirements and procedures for the adoption and implementation of regional stormwater management plans and municipal stormwater management plans under the Municipal Land Use Law N.J.S.A. 40:55D-1 et seq.; the Water Quality Planning Act, N.J.S.A. 58:11A-1 et seq.; the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.; and the Flood Hazard Area Control Act, N.J.S.A. 58:16A-50 et seq.; and implementing rules.

(b) This chapter establishes design and performance standards for stormwater management measures required by rules pursuant to the Flood Hazard Area Control Act, N.J.S.A. 58:16A-50 et seq.; the Coastal Area Facility Review Act, N.J.S.A. 13:19-1 et seq.; the Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq.; the Waterfront Development Law, N.J.S.A. 12:5-3; the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq.; and the Dam Safety Act, N.J.S.A. 58:4-1 et seq.

(c) This chapter establishes safety standards for stormwater management basins pursuant to N.J.S.A. 40:55D-95.1.

#### 7:8-1.2 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise.

“CAFRA Planning Map” means the geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.

“CAFRA Centers, Cores or Nodes” means those areas within boundaries accepted by the Department pursuant to N.J.A.C. 7:8E-5B.

“Compaction” means the increase in soil bulk density.

“Core” means a pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

“County review agency” means an agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

1. A county planning agency; or

THIS IS A COURTESY COPY OF THIS RULE ADOPTION. THE OFFICIAL VERSION WILL BE PUBLISHED IN THE FEBRUARY 2, 2004 NEW JERSEY REGISTER. SHOULD THERE BE ANY DISCREPANCIES BETWEEN THIS TEXT AND THE OFFICIAL VERSION OF THE ADOPTION, THE OFFICIAL VERSION WILL GOVERN.

2. A county water resources association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

“Department” means the Department of Environmental Protection.

“Designated Center” means a State Development and Redevelopment Plan Center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

“Design engineer” means a person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

“Development” means the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

In the case of development on agricultural land, development means: any activity that requires a State permit; any activity reviewed by the County Agricultural Boards (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et seq.

“Drainage area” means a geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

“Environmentally constrained area” means the following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department’s Landscape Project as approved by the Department’s Endangered and Nongame Species Program.

“Environmentally critical area” means an area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitats of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and well head protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department’s Landscape Project as approved by the Department’s Endangered and Nongame Species Program.

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"Empowerment Neighborhoods" means neighborhoods designated by the Urban Coordinating Council "in consultation and conjunction with" the New Jersey Redevelopment Authority pursuant to N.J.S.A. 55:19-69.

"Erosion" means the detachment and movement of soil or rock fragments by water, wind, ice or gravity.

"Impervious surface" means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

"Infiltration" is the process by which water seeps into the soil from precipitation.

"Lead planning agency" means one or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee pursuant to N.J.A.C. 7:8-3.2, that serves as the primary representative of the committee.

"Major development" means any "development" that provides for ultimately disturbing one or more acres of land or increasing impervious surface by one-quarter acre or more. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Projects undertaken by any government agency which otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., are also considered "major development."

"Municipality" means any city, borough, town, township, or village.

"Node" means an area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

"Nutrient" means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

"Person" means any individual, corporation, company, partnership, firm, association, political subdivision of this State and any state, interstate or Federal agency.

"Pollutant" means any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.



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"Recharge" means the amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

"Sediment" means solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

"Site" means the lot or lots upon which a major development is to occur or has occurred.

"Soil" means all unconsolidated mineral and organic material of any origin.

"State Development and Redevelopment Plan Metropolitan Planning Area (PA1)" means an area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the State's future redevelopment and revitalization efforts.

"State Plan Policy Map" is defined as the geographic application of the State Development and Redevelopment Plan's goals and Statewide policies, and the official map of these goals and policies.

"Stormwater" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities.

"Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

"Stormwater management basin" means an excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

"Stormwater management measure" means any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal nonstormwater discharges into stormwater conveyances.

"Stormwater management planning agency" means a public body authorized by legislation to prepare stormwater management plans.

"Stormwater management planning area" means the geographic area for which a stormwater management planning agency is authorized to prepare stormwater

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management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

"Tidal Flood Hazard Area" means a flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

"Urban Coordinating Council Empowerment Neighborhood" means a neighborhood given priority access to State resources through the New Jersey Redevelopment Authority.

"Urban Enterprise Zones" means a zone designated by the New Jersey Urban Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et seq.

"Urban Redevelopment Area" is defined as previously developed portions of areas:

1. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
2. Designated as CAFRA Centers, Cores or Nodes;
3. Designated as Urban Enterprise Zones; and
4. Designated as Urban Coordinating Council Empowerment Neighborhoods.

"Waters of the State" means the ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

"Wetlands" or "wetland" means an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

#### 7:8-1.3 Program information

Questions or submissions regarding this chapter should be directed to the Division of Watershed Management, New Jersey Department of Environmental Protection, P.O. Box 418, Trenton, New Jersey 08625.

#### 7:8-1.4 Severability

If the provisions of any section, subsection, paragraph, or clause of this chapter shall be judged invalid by a court of competent jurisdiction, such order or judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, or clause of this chapter.

#### 7:8-1.5 Relationship to other regulatory programs

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(a) Nothing in this chapter shall be construed as preventing the Department or other agencies or entities from imposing additional or more stringent stormwater management requirements necessary to implement the purposes of any enabling legislation including those measures necessary to achieve the Surface Water Quality Standards at N.J.A.C. 7:9B.

(b) If a stormwater management measure is used as a soil erosion or sediment control measure, the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., shall also apply.

(c) These stormwater requirements are the Department's standards referenced by the stormwater management provisions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.

#### 7:8-1.6 Applicability to Major Development

(a) Except as provided in (b) below, all major development shall comply with the requirements of this chapter.

(b) The following major development shall be subject to the stormwater management requirements in effect on February 1, 2004, copies of which are available from the Department at the address specified in N.J.A.C. 7:8-1.3:

1. Major development which does not require any of the Department permits listed in (c) below and which has received one of the following approvals pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) prior to February 2, 2004:

- i. Preliminary or final site plan approval;
- ii. Final municipal building or construction permit;
- iii. Minor subdivision approval where no subsequent site plan approval is required;
- iv. Final subdivision approval where no subsequent site plan approval is required; or
- v. Preliminary subdivision approval where no subsequent site plan approval is required;

2. Major development which has received one of the approvals pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) in (1) above prior to February 2, 2004 and has secured at least one of the applicable permits listed in (c) below from the Department by February 2, 2004, and provided that the permit included a stormwater management review component.

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3. Major development undertaken by any government agency, which does not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., provided the project has secured at least one of the applicable Department permits listed in (c) below prior to February 2, 2004, and provided that the permit included a stormwater management review component.

(c) For the purposes of this section, the term "permit" shall include transition area waivers under the Freshwater Wetlands Protection Act. In order to qualify under (b)2 or 3 above, the major development must have obtained at least one Department permit granted under the following statutes and, provided that the permit included a stormwater management review component, prior to February 2, 2004:

1. Flood Hazard Area Control Act, N.J.S.A. 58-16A-50 et seq.;
2. Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq.;
3. Coastal Area Facility Review Act, N.J.S.A. 13:19-1 et seq.;
4. Waterfront and Harbor Facilities Act, N.J.S.A. 12:5-3;

(d) An exemption provided by (b) above shall expire with the expiration, termination or other loss of duration or effect of either of the qualifying local approval or Department permit, whichever comes first. The expiration of local approvals under (b)1 above shall be governed by local ordinance. In the event there are multiple qualifying Department permits under (c) above, the expiration date is governed by that permit which expires last provided that the permit is still in effect. Once the exemption expires, the major development shall be subject to all requirements of this chapter upon reapplication for that permit and all subsequent permits or local approval(s) under the Municipal Land Use Law.

(e) An exemption under (b) above is limited to the land area and the scope of the project addressed by the qualifying approval(s) and permit(s). Exemptions under this section shall be deemed void if revisions are made to the qualifying approval or permit in (b) above, including approvals under the Municipal Land Use Law, unless upon application, the Department determines that each revision would have a de minimis impact on water resources. In making this determination, the Department shall consider the extent of any impacts on water resources resulting from the revision, including, but not limited to:

- 1) increases in stormwater generated;
- 2) increases in impervious surface;
- 3) increases in stormwater pollutant loading;
- 4) changes in land use;

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5) new encroachments in special water resource protection areas; and,

6) changes in vegetative cover.

(f) In case of conflict with the Coastal Permit Program Rules at N.J.A.C. 7:7-4.4(a)4, the requirements of this chapter shall supersede.

## SUBCHAPTER 2. GENERAL REQUIREMENTS FOR STORMWATER MANAGEMENT PLANNING

### 7:8-2.1 Scope

This subchapter provides general principles applicable to all stormwater management plans and stormwater control ordinances, including the goals of stormwater management planning, the process for identification of stormwater management planning agencies, and stormwater management plan requirements.

### 7:8-2.2 Goals of stormwater management planning

(a) All stormwater management plans and stormwater control ordinances shall be designed to:

1. Reduce flood damage, including damage to life and property;
2. Minimize, to the extent practical, any increase in stormwater runoff from any new development;
3. Reduce soil erosion from any development or construction project;
4. Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
5. Maintain groundwater recharge;
6. Prevent, to the greatest extent feasible, an increase in nonpoint pollution;
7. Maintain the integrity of stream channels for their biological functions, as well as for drainage;
8. Minimize pollutants in stormwater runoff from new and existing development in order 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

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9. Protect public safety through the proper design and operation of stormwater management basins.

#### 7:8-2.3 Stormwater management planning agencies

(a) The following entities may be stormwater management planning agencies provided they are authorized under their enabling legislation to prepare stormwater management plans:

1. A municipality;
2. A county;
3. A county water resources agency or association;
4. A designated planning agency under N.J.A.C. 7:15;
5. A Soil Conservation District;
6. The Delaware River Basin Commission;
7. The Pinelands Commission;
8. The Delaware and Raritan Canal Commission;
9. The New Jersey Meadowlands Commission;
10. The Department; or
11. Other regional, State or interstate agencies.

#### 7:8-2.4 Stormwater management plan requirements

(a) A stormwater management plan shall include structural and nonstructural stormwater management strategies necessary to meet the stormwater management goals of this chapter.

(b) A regional stormwater management plan shall comply with the requirements of this subchapter and N.J.A.C 7:8-3.

(c) A municipal stormwater management plan shall comply with the requirements of this subchapter and N.J.A.C 7:8-4.

(d) A stormwater management plan shall incorporate the safety standards for stormwater management basins at N.J.A.C. 7:8-6.

(e) In developing a stormwater management plan and identifying appropriate stormwater management measures thereunder, each stormwater management planning agency shall consider the physical characteristics and ecological resources of the stormwater management planning area.

(f) A stormwater management plan and any stormwater management ordinance shall be coordinated with any other stormwater management plans related to the same river basin or drainage area.

#### 7:8-2.5 Exemptions

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A municipality or other entity conducting stormwater management planning under this chapter may petition the Department at the address provided at N.J.A.C. 7:8-1.3 for an exemption to the requirements of this chapter by submitting documentation to demonstrate that, if granted, the exemption will not result in an increase in flood damage, water pollution, including threats to the biological integrity, or constitute a threat to the public safety.

### SUBCHAPTER 3. REGIONAL STORMWATER MANAGEMENT PLANNING

#### 7:8-3.1 Scope

(a) This subchapter describes stormwater management planning and implementation at the regional level, including plan elements; planning process; characterization; development of drainage area-specific objectives and standards; selection of stormwater management measures; strategy for implementing the measures and evaluating the effectiveness of the regional stormwater management plan; plan review, adoption, amendment or revision; and implementation and periodic evaluation of the plan.

(b) A regional stormwater management plan shall address stormwater-related water quality, ground water recharge and/or water quantity impacts of new and existing land uses in a regional stormwater management planning area. A regional stormwater management planning area shall consist of one or more contiguous drainage areas. For example, a drainage area could be an area defined by a hydrologic unit code 14 (HUC14) as defined by the United States Geological Survey.

#### 7:8-3.2 Regional stormwater management planning committee and lead planning agency

(a) A regional stormwater management planning committee (the committee) shall be established for the purposes of creating a regional stormwater management plan.

(b) A person or entity seeking to establish a regional stormwater management committee shall solicit participation from municipalities, interstate agencies, regional agencies, counties, designated planning agencies under N.J.A.C. 7:15, Soil Conservation Districts, regional environmental commissions, Pinelands Commission, mosquito control and extermination commissions, public water supply and wastewater treatment utilities and agencies, lake associations, watershed associations, the watershed management planning area public advisory committee, environmental organizations, businesses, the Department and other appropriate State and Federal agencies and, members of the general public in the drainage area(s) to be addressed by the proposed plan. The solicitation for members of the general public to be part of the regional stormwater management planning committee can be performed through notices in local paper.

(c) The regional stormwater management planning committee shall designate a lead planning agency, which shall be recognized as the primary contact for the committee.



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The regional stormwater management planning committee, through the lead planning agency, shall:

1. Prepare the regional stormwater management plan;
2. Coordinate the regional stormwater management planning process with any applicable watershed management area planning process;
3. Provide opportunities for public participation throughout the regional stormwater management planning process; and
4. Perform other activities appropriate to facilitate the regional stormwater management planning process, including mediation, public information, providing technical assistance, and seeking and providing grants or other financial assistance, as available, to municipalities and/or local or regional agencies pursuant to N.J.S.A. 40:55D-99 or other applicable authority.

(d) A request for recognition as a regional stormwater management planning committee shall be submitted to the Department at the address listed in N.J.A.C. 7:8-1.3 by the lead planning agency, and include the following information:

1. A draft work plan and schedule for completing a regional stormwater management plan;
2. A copy of the mailing list used to solicit participation, including the entities identified in (b) above;
3. A copy of the letter of invitation to participate in the committee;
4. A copy of each response to the letter of invitation; and
5. In cases where no response from a public entity to the letter of invitation is received within 60 days, the group shall send a follow-up request by certified mail, return receipt requested, and submit proof of such follow-up.

(e) The Department shall respond in writing within 45 days of the receipt of a complete request for recognition as a regional stormwater management planning committee. The Department shall either approve the application, request additional information or deny the request for recognition. Denials will include a justification for the decision.

The Department shall base approval or denial on the information submitted in the draft work plan and schedule for plan completion, completion of the requirements to involve and notify impacted parties, and whether there are other competing or overlapping requests for recognition for the same regional stormwater management planning area.

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### 7:8-3.3 Regional stormwater management plan and elements

(a) A regional stormwater management plan shall incorporate, at a minimum, the following elements:

1. Identification of the lead planning agency and a description of the structure and members of the committee;
2. A statement of authority to develop and implement a stormwater management plan from public entities, as appropriate, represented on the regional stormwater management planning committee.
3. A characterization and assessment of the regional stormwater management planning area prepared in accordance with N.J.A.C. 7:8-3.4;
4. A statement of drainage area-specific water quality, groundwater recharge, and water quantity objectives established under N.J.A.C. 7:8-3.5;
5. The drainage area-specific stormwater-related water quality, groundwater recharge and water quantity design and performance standards established under N.J.A.C. 7:8-3.6;
6. The stormwater management measures selected in accordance with N.J.A.C. 7:8-3.7 and a summary of the rationale for the selection of each measure;
7. A description of the strategy for implementing the selected stormwater management measures for the regional stormwater management planning area and for evaluating the effectiveness of the regional stormwater management plan in accordance with N.J.A.C. 7:8-3.8, including a long-term monitoring program; and
8. To the extent elements of the plan do not represent the consensus of the committee, the plan shall identify and provide a discussion of the majority and minority positions.

(b) The regional stormwater management plan may also include:

1. Innovative stormwater measures and strategies such as nonpoint source pollutant trading, mitigation strategies, or special protection measures; and
2. A stream corridor protection plan to address protection of areas adjacent to waterbodies. For waterbodies subject to N.J.A.C. 7:8-5.5(h), the plan shall provide, at a minimum, protections equivalent to those provided at N.J.A.C. 7:8-5.5(h) and demonstrate that the functional value and overall condition of the special water resource protection area will be maintained or enhanced.

### 7:8-3.4 Characterization and assessment of the regional stormwater management planning area

of a possible unauthorized use, activity or structure is brought to their attention.

h. Management of a Stream Buffer Conservation Area.

1. Stream Buffer Management Plan. With the exception of uses permitted by right pursuant to §21-14.4.c.1(a) or §21-14.4.c.2(a), no construction, development, use, activity, encroachment or structure shall be permitted within any Stream Buffer Conservation Area unless the effects of same are mitigated by implementation of an approved Stream Buffer Management Plan.
  - (a) At the time of submission of an application to the Construction Code Office for a construction permit or to the Planning Board or Board of Adjustment for approval of a development plan, or prior to commencing any use/activity that does not require a construction permit or development plan approval, the landowner or developer shall submit to the Zoning Enforcement Officer a proposed Stream Buffer Management Plan prepared by a landscape architect, professional engineer or other qualified professional. The proposed plan shall fully evaluate the effects of all proposed uses/activities on the Stream Buffer Conservation Area and shall identify existing conditions (vegetation, 100-year floodplain, soils, slopes, etc.), all proposed uses/activities and all proposed management techniques, including proposed vegetation and any other measures necessary to offset disturbances to the Stream Buffer Conservation Area. The proposed plan shall be subject to approval by the Township Engineer or his appointed representative.
  - (b) Vegetation Selection. Dominant vegetation in the Stream Buffer Management Plan shall consist of plant species that are suited to the stream buffer environment. The Township Engineer may require species suitability to be verified by qualified experts in the Somerset-Union Soil Conservation District, Natural Resources Conservation Service, NJ Department of Environmental Protection, US Fish and Wildlife Service and/or State or Federal forest agencies.
    - (1) In Zone One, dominant vegetation shall consist of a variety of native trees, shrubs and tall grasses and shall include species that will provide streambank stabilization.
    - (2) In Zone Two, dominant vegetation shall consist of a variety of trees and shrubs, with an emphasis on native species and species that will provide soil stabilization.
    - (3) The Stream Buffer Management Plan shall provide for the revegetation of all disturbed areas to the extent possible. Where revegetation is not possible, the Stream Buffer Management Plan shall

set forth the proposed measures for restoration.

- (c) Performance Guarantee. Performance of the Stream Buffer Management Plan shall be guaranteed by a surety, such as a bond, cash or letter of credit, which shall be provided to the Township prior to the Township issuing any permits or approving any uses relating to the applicable use or activity.

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**§21-52.3. Details Required for Final Approval of Minor Subdivisions** is amended to add:

- a. 37. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.

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**§ 21-54.4. Details Required for Preliminary Development Plans** is amended to add:

- a. 47. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.

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**ARTICLE IX, Fees, Guarantees, Inspections and Off-Tract Improvements** is amended as follows (new text is underlined; deletions are ~~stricken~~):

**ARTICLE IX, Fees, Guarantees, Inspections and Off-Tract Improvements.**

(Note: Appendix A, Cash Deposit Agreement for a Performance Bond; Appendix B, Improvement Performance Bond; Appendix C, Developer's Agreement; Appendix D, Hiking and Pedestrian Trail Easement Form; Appendix E, Sight Triangle Easement Form; Appendix F, Conservation Easement Form; Appendix G, Access Easement and Maintenance Agreement Form; Appendix H, Utility Easement Form; Appendix I, Sanitary Sewer Easement Form; Appendix J, Drainage Facilities Easement Form; Appendix K, Irrevocable Letter of Credit Form; and Appendix L, Stream Buffer Conservation Easement Form, may be found at the end of this chapter.)

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**21-58A.2. Deeds/Easements** is amended as follows (new text is underlined; deletions are ~~stricken~~):

**21-58A.2. Deeds/Easements.**

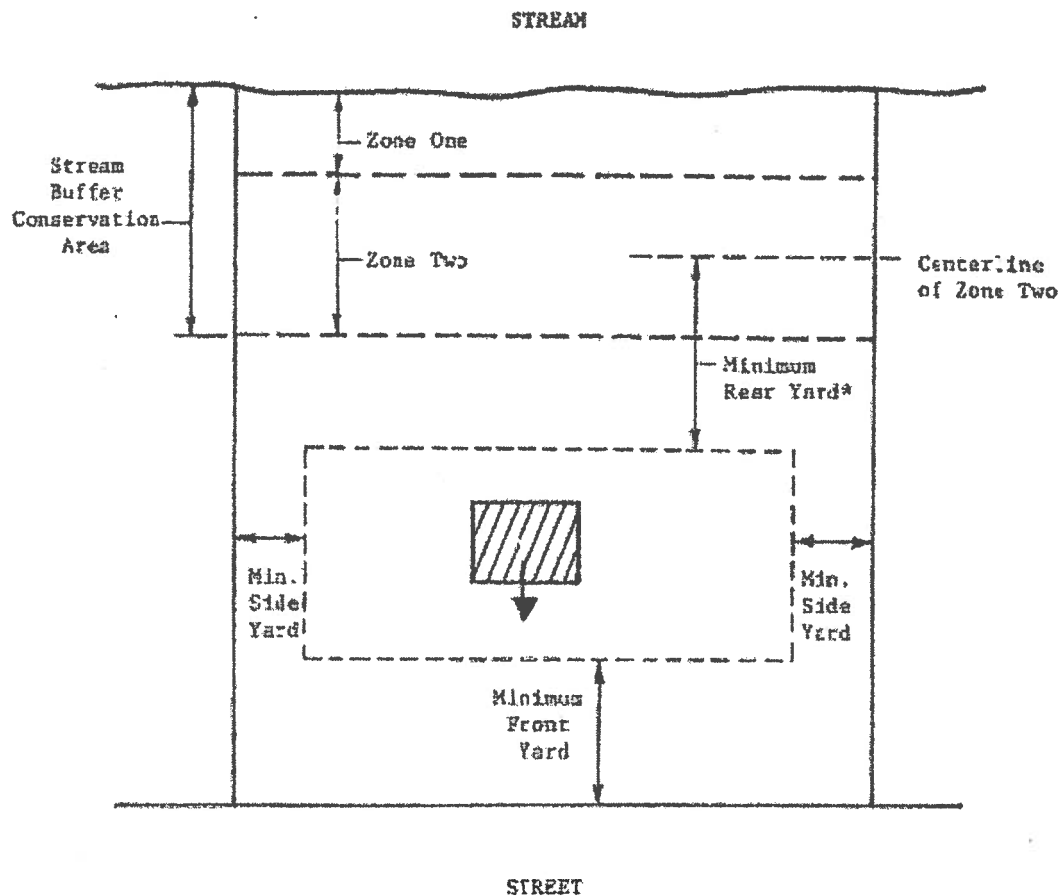
For property to be transferred to the township, and for all easements shown on the development plan and requested by the board, the applicant shall prepare all necessary deeds of transfer of title and/or easements in a form acceptable to the township. For easements, applicants must use the pre-printed forms set forth in Appendices "D" through "J" and "L", which are available from the township engineering department. The township engineer, in consultation with the township attorney, may revise the pre-printed form from time to time, but such revisions may not alter the substance of such forms unless authorized by an ordinance implementing the revision. These deed(s) shall be

accompanied by a map drawn to the scale of the township's tax maps showing proposed lot lines, easements and lot numbers.

The following new figures are added:

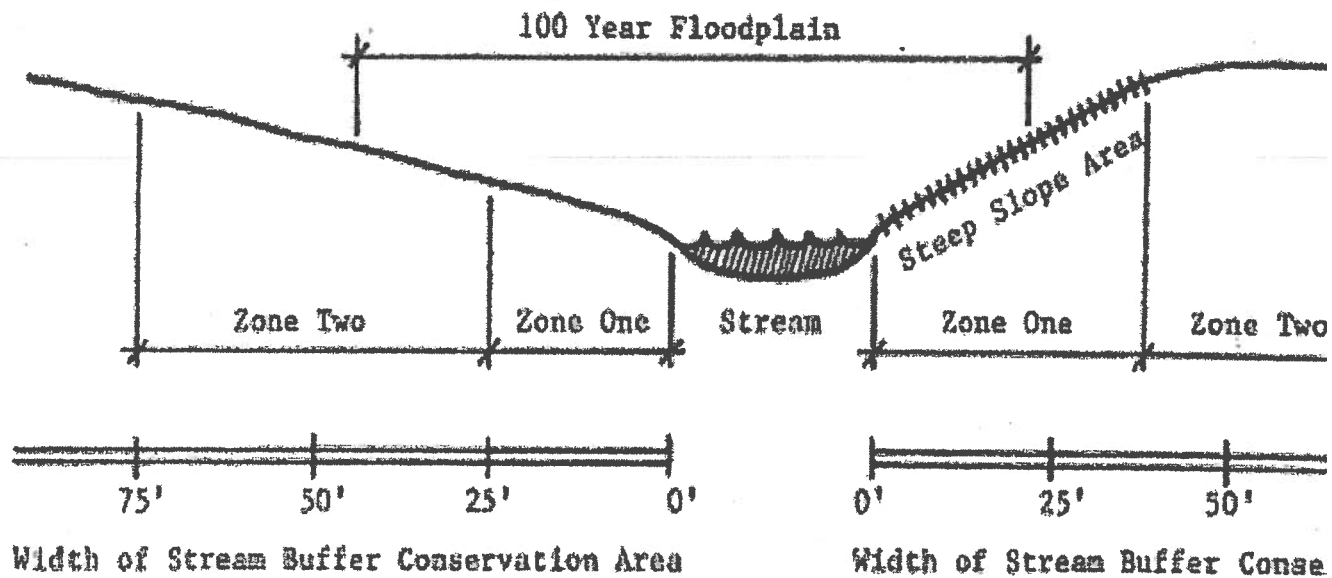
### Figure 204 – Yard Requirements For Lots Containing Stream Buffer Conservation Areas

Note: Arrow Indicates Direction Front of House is Facing.



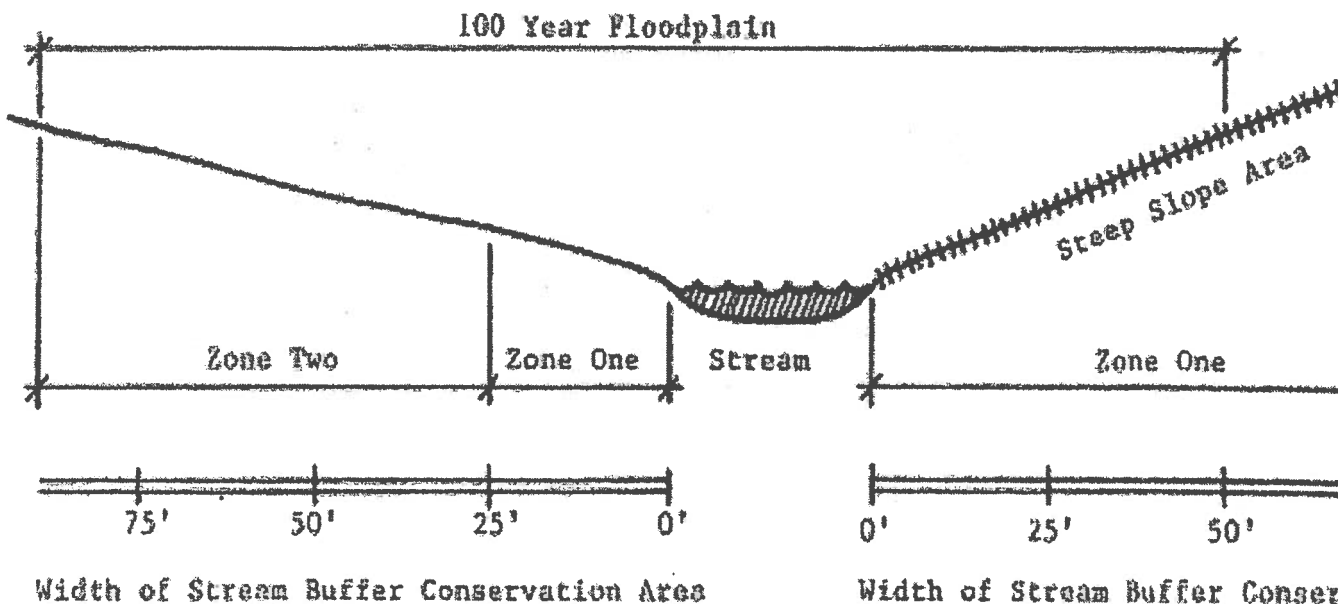
\*The required yard adjacent to the Stream Buffer Conservation Area, whether it be a rear yard, side yard or front yard, may extend no further than halfway into, i.e. no further than the centerline of, Zone Two. In this example, the yard adjacent to the Stream Buffer Conservation Area is a rear yard.

**Figure 205 – Stream Buffer Conservation Area Cross Sections**



**Example A1 – When Steep Slopes Are Not Present.**  
Zone One is typically 25' wide and Zone Two is typically 50' wide.

**Example B1 – When Steep Slopes Are Present.** Zone One is wider than 25' in order to include the steep slope area. Zone Two is less than 50' wide.



**Example A2 – When Steep Slopes Are Not Present.** Zone Two is wider than 50' in order to include the 100 year floodplain.

**Example B2 – When Steep Slopes Are Present.** Since Zone One is wider than 25' in order to include the steep slope area, the requirement for a Zone Two is not met.

***APPENDIX A, ARTICLE III, Checklist – Application for Final Approval of a Minor Subdivision is amended to add:***

37. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.
- 

***APPENDIX B, ARTICLE III, Checklist – Application for Preliminary Approval of a Major Subdivision or Site Plan is amended to add:***

50. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.
- 

***APPENDIX D, ARTICLE III, Checklist – Application for Approval of a Variance Pursuant to NJSA 40:55D-70(c) is amended to add:***

12. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.
- 

***APPENDIX E, ARTICLE III, Checklist – Application for Approval of a Variance Pursuant to NJSA 40:55D-70(d) Where Site Plan Approval is Not Required is amended to add:***

13. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.
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***APPENDIX F, ARTICLE III, Checklist – Application for Approval of a Variance Pursuant to NJSA 40:55D-70(d) Where Site Plan Application is Bifurcated to a Later Hearing is amended to add:***

31. Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.
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The following new appendix is added:

**APPENDIX L, ARTICLE IX**  
***Stream Buffer Conservation Easement Form***

On a form provided by the Township Attorney.

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The Township Clerk is directed to give notice at least ten days prior to hearing on the adoption of this ordinance to the Somerset County Planning Board and to all other persons entitled thereto pursuant to N.J.S. 40:55D-15 and N.J.S. 40:55D-63 (if required). Upon the adoption of this ordinance after public hearing thereon, the Township Clerk is further directed to publish notice of the passage thereof and to file a copy of the ordinance as finally adopted with the Somerset County Planning Board as required by



N.J.S. 40:55D-16. The Clerk shall also forthwith transmit a copy of this ordinance after final passage to the Township Tax Assessor as required by N.J.S. 40:49-2.1.

## Publication by Summary Pursuant to N.J.S.A.40:49-2

### **ORDINANCE #1504**

An Ordinance Amending Chapter 21, Revised Land Use Ordinances of the Township of Bernards,  
County of Somerset, State of New Jersey Regarding  
Stream Buffer Conservation

The general purpose of this ordinance, which is based on a model ordinance recommended by the Ten Towns Great Swamp Watershed Committee, is to enhance the water quality of streams and other surface water bodies by protecting the areas adjacent to streams and other surface water bodies. In order to do so, the ordinance establishes Stream Buffer Conservation Areas, generally 75' wide, along each side of designated streams. The types of uses permitted in the Stream Buffer Conservation Areas and the levels of Township approval required for those uses are specified in the ordinance and generally fall into three categories:

1. Uses such as nature preserves and passive parklands that do not require any type of Township approval.
2. Uses that require approval by the Zoning Officer, including approval of a Stream Buffer Management Plan.
3. Uses that require approval by the Zoning Officer, including approval of a Stream Buffer Management Plan, and recording of a Stream Buffer Conservation Easement. These uses include uses that require a construction permit or Planning Board/Board of Adjustment approval, excluding fences.

### **TOWNSHIP OF BERNARDS PUBLIC NOTICE**

**Ordinance #1504** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 9/25/01 then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 10/9/01 at 8:00 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from [dszabo@bernards.org](mailto:dszabo@bernards.org).

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

Note: Ordinance public hearing continued from 10/9/01 to 10/23/01.

## APPENDIX A-3

**EXPLANATORY STATEMENT:** The purpose of this ordinance is to place limits on the amount of steep slopes that may be disturbed in conjunction with new construction and to require conservation easements for steep slope areas.

### **ORDINANCE #1539**

An Ordinance of the Township of Bernards, County of Somerset and State of New Jersey, Amending, Revising and Supplementing The Code of the Township of Bernards, Chapter 21, "Revised Land Use Ordinances" Concerning Steep Slopes

NOW, THEREFORE, BE IT ORDAINED by the Township Committee of the Township of Bernards, County of Somerset and State of New Jersey that Chapter 21, entitled "Land Development", of the Code of the Township of Bernards shall be amended, revised and supplemented as follows (new text is underlined; deletions are ~~stricken~~):

#### SECTION 21-14

##### **Critical Area Regulations**

All applications for development including development of an individual lot, shall be subject to the following restrictions with respect to topographic and environmental features. (Ord. #585, § 502; Ord. #1269, 8-26-1997, amended)

##### **§ 21-14.2. Steep Slopes.**

- a. The purpose of this subsection is to regulate the intensity of use in areas of steeply sloping terrain in order to limit soil loss and erosion and the degradation of surface water.
- b. The applicant shall prepare a steep slope map based on ten-foot contour intervals showing slope classes of 0% to 14.9%, 15% to 19.9%, 20% to 25% and greater than 25%. The map shall also include a calculation of the area of proposed disturbance of each slope class on each existing and proposed lot, as well as within any proposed road right-of-way.
  1. Areas with slopes ranging from 0% to 14.9% are not restricted to development.
  2. Areas with slopes ranging from 15% to 25% shall require detailed grading plans and architectural plans. The Board must find that drainage and erosion problems will not result from the development and that the architecture is specifically designed to accommodate the topography. Roads and driveways should be designed to follow the natural topography to the greatest extent possible to minimize the disturbance of steep slope areas.
    - (a) Areas with slopes ranging from 15% to 19.9% shall have disturbed areas limited to 40% of that slope category.
    - (b) Areas with slopes ranging from 20% to 25% shall have disturbed areas limited to 20% of that slope category.

3. In areas with slopes greater than 25%, no development, regrading or stripping of vegetation shall be permitted unless the disturbance is for roadway crossings or utility construction and it can be demonstrated that the roadway or utility improvements are necessary in the sloped area for the improvement to exist.
4. For applications requiring development plan approval by the Board, the Board may require that areas with slopes greater than 25% be protected by a conservation easement running to the Township. If an area is to be preserved in its entirety due to the presence of steep slopes, the applicant may offer the area for dedication to the Township, a private land trust or a non-profit agency in order to preserve and maintain the area in its natural state.

(Ord. #585, § 502B; Ord. #760, § 22; Ord. #1269, 8-26-1997, amended)

The Township Clerk is directed to give notice at least ten days prior to hearing on the adoption of this ordinance to the Somerset County Planning Board and to all other persons entitled thereto pursuant to N.J.S. 40:55D-15 and N.J.S. 40:55D-63 (if required). Upon the adoption of this ordinance after public hearing thereon, the Township Clerk is further directed to publish notice of the passage thereof and to file a copy of the ordinance as finally adopted with the Somerset County Planning Board as required by N.J.S. 40:55D-16. The Clerk shall also forthwith transmit a copy of this ordinance after final passage to the Township Tax Assessor as required by N.J.S. 40:49-2.1.

**Publication by Summary Pursuant to N.J.S.A.40:49-2**

The purpose of this ordinance is to place limits on the amount of steep slopes that may be disturbed in conjunction with new construction and to require conservation easements for steep slope areas

**TOWNSHIP OF BERNARDS  
PUBLIC NOTICE**

**Ordinance #1539** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 4/9/02, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 5/14/02, at 8:00 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from dszabo@bernards.org.

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

**TOWNSHIP OF BERNARDS  
COUNTY OF SOMERSET  
Public Notice**

Notice is hereby given that the Township of Bernards, **Ordinance #1539**, was introduced and passed on first reading at a meeting of the Township Committee, on 4/9/02, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 5/14/02.

Denise Szabo  
Municipal Clerk

## APPENDIX A-4

### **ORDINANCE #1269**

An Ordinance to Amend Chapter XXI, "Land Development",  
of the Revised General Ordinances  
of the Township of Bernards as it Affects Wetlands  
Protection and Steep Slopes

WHEREAS, a review of the Chapter XXI, " Land Development", of the revised General Ordinances of the Township of Bernards, indicates a need for additional requirements regarding Wetlands Protection and Steep Slopes; and

WHEREAS, the Ten Town Great Swamp Watershed Committee recommended better documentation of the presence or absence of wetlands and wetlands protection during construction and steep slope requirements;

NOW, THEREFORE, BE IT ORDAINED that Chapter XXI, "Land Development", of the Revised General Ordinances of the Township of Bernards (1984), is hereby amended by deleting the first paragraph of Section 21-14 "Critical Area Regulations", and by deleting in their entirety Section 21-14.1, "Land Classification", and Section 21-14.2, "Lowlands", and replacing these sections with the following:

#### **21-14 Critical Area Regulations**

All applications for development including development of an individual lot shall be subject to the following restrictions with respect to topographic and environmental features.

##### **21-14.1 Wetland Protection**

a. **Wetland Delineation.** A wetlands letter of interpretation (LOI) from the New Jersey

Department of Environmental Protection (NJDEP) shall be submitted as part of the application for any major subdivision or major site plan application. A minor subdivision application or a building permit application for an individual lot shall not be required to submit an LOI, however, an on-site wetland delineation shall be prepared by a qualified consultant. If wetlands are present that could be impact by the proposed improvements, a NJDEP approved LOI shall be submitted with the minor subdivision application or building permit application. If no wetlands are observed, a note to that effect shall be shown on the plans.

1. **Documentation.** All wetland and transition areas required pursuant to N.J.A.C. 7:7A-1 et seq. (N.J. Freshwater Wetlands Protection Act Rules) or any successor statutes or regulations shall be clearly shown on all plats or site plans submitted for approval.



2. All final plats, final site plans or individual lot building plans shall include the wetland line(s) identification number as assigned by NJDEP, pursuant to the Freshwater Wetlands Protection Act.

b. **Wetland Protection Standards.** To prevent adverse impacts on delineated wetlands, the following guidelines shall be employed:

1. A snow fence shall be installed along the limit of disturbance outside of the final wetland transition area boundary line prior to the commencement of on-site construction, so as to prevent encroachment into these regulated areas.

2. A silt fence and/or hay bales should be installed downstream from disturbance areas adjacent to the State-mandated wetland transition area line (or buffer) so as to prevent the transport of silt into the wetland areas.

3. The applicant shall avoid encroachment into State-regulated wetland and transition areas.

All existing on-site vegetation within or adjacent to the wetland areas shall be preserved.

4. Prior signing of the final plat or site plan, the applicant shall provide evidence of the filing of any deed restriction required by NJDEP to permit transition area modifications.

c. **Conservation Easement.** Whenever an LOI or wetlands delineation is required under subsection 21-14.1a above, all wetlands and transition areas shall be protected by a conservation easement running to the Township. Such conservation easement shall, at the request of the owner of such a property, be amended to conform with any subsequent modification of the included transition areas, provided that such modification is first approved by the New Jersey Department of Environmental Protection. Modifications may include but are not limited to, transition area averaging plans. An owner may request such modification by submitting an amendatory deed to the township engineer for review and approval. The owner shall be responsible to reimburse the township for the cost of having any in-house or outside professional or technical personnel review the proposed amendatory deed.

#### **21-14.2 Steep Slopes**

a. The purpose of this subsection is to regulate the intensity of use in areas of steeply sloping terrain in order to limit soil loss and erosion and the degradation of surface water.

b. The applicant shall prepare a steep slope map based on ten foot (10') contour intervals showing slope classes of 0% - 14.9%, 15% - 25%, and greater than 25%. The map shall also include a calculation of the area of proposed disturbance of each slope class on each existing and proposed lot, as well as within any proposed road right-of-way.

1. Areas with slopes ranging from 0% to 14.9% are not restricted to development.

2. Areas with slopes ranging from 15% to 25% shall require detailed grading plans and architectural plans. The board must find that drainage and erosion problems will not result from the development and that the architecture is specifically designed to accommodate the topography. Road and driveways should be designed to follow the natural topography to the greatest extent possible to minimize the disturbance of steep slope areas.

3. Areas with slopes greater than 25%, no development, regarding, or stripping of vegetation shall be permitted unless the disturbance is for roadway crossings or utility construction and it can be demonstrated that the roadway or utility improvements are necessary in the sloped area for the improvement exists.

**Section 21-14.3, "Flood Damage Prevention", shall remain unchanged.**

The Township Clerk is directed to promptly amend the Land Development Ordinance to reflect the changes described in this ordinance.

If any part of this ordinance is found to be invalid, it shall not affect the validity of the remainder of this ordinance.

This ordinance shall take effect immediately upon final passage and publication according to law.

#### **TOWNSHIP OF BERNARDS PUBLIC NOTICE**

The foregoing **Ordinance #1269** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on June 24, 1997, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on August 12, 1997 at 8:00 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance.

By Order of the Township Committee  
Denise Szabo, Township Clerk

#### **TOWNSHIP OF BERNARDS PUBLIC NOTICE**

Please take notice that the public hearing on **Ordinance #1269 An Ordinance to Amend Chapter XXI, "Land Development", of the Revised General Ordinances of the Township of Bernards as it Affects Wetlands Protection and Steep Slopes** has been rescheduled from August 12, 1997 to August 26, 1997 at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ when and where, or at such time and place to which

said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance.

By Order of the Township Committee  
Denise Szabo, Township Clerk

**TOWNSHIP OF BERNARDS  
COUNTY OF SOMERSET  
Public Notice**

Notice is hereby given that the Township of Bernards, **Ordinance #1269 - An Ordinance to Amend Chapter XXI, "Land Development", of the Revised General Ordinances of the Township of Bernards as it Affects Wetlands Protection and Steep Slopes** was introduced and passed on first reading at a meeting of the Township Committee, on June 24, 1997 and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on August 26, 1997.

Denise Szabo  
Township Clerk

## APPENDIX A-5

**EXPLANATORY STATEMENT:** The purpose of this ordinance is to require that wetlands transition areas on new construction sites be delineated by permanent markers in order to prevent future encroachment and disturbance of the wetlands and transition areas.

### **ORDINANCE #1540**

An Ordinance of the Township of Bernards, County of Somerset and State of New Jersey, Amending and Supplementing The Code of the Township of Bernards, Chapter 21, "Revised Land Use Ordinances"  
Concerning Wetlands Transition Areas

NOW, THEREFORE, BE IT ORDAINED by the Township Committee of the Township of Bernards, County of Somerset and State of New Jersey that Chapter 21, entitled "Land Development", of the Code of the Township of Bernards shall be amended and supplemented as follows:

**§ 21-14.1. Wetland Protection.**

- b. Wetland Protection Standards. To prevent adverse impacts on delineated wetlands, the following guidelines shall be employed:

The following new paragraph is added:

5. Whenever a conservation easement is required pursuant to Subsection 21-14.1.c below, the easement boundaries shall be delineated with survey monuments to ensure that future encroachment and disturbance of the easement does not occur. The quantity and location of monuments shall be sufficient to adequately identify the easement and shall be shown on the plans and subject to approval by the Township Engineer, provided the spacing of monuments shall not exceed one hundred (100) feet. Performance of the monument installation shall be guaranteed by a surety, such as a bond, cash or letter of credit, which shall be provided to the Township prior to the Township issuing any permits relating to the proposed site work.

The Township Clerk is directed to give notice at least ten days prior to hearing on the adoption of this ordinance to the Somerset County Planning Board and to all other persons entitled thereto pursuant to N.J.S. 40:55D-15 and N.J.S. 40:55D-63 (if required). Upon the adoption of this ordinance after public hearing thereon, the Township Clerk is further directed to publish notice of the passage thereof and to file a copy of the ordinance as finally adopted with the Somerset County Planning Board as required by

N.J.S. 40:55D-16. The Clerk shall also forthwith transmit a copy of this ordinance after final passage to the Township Tax Assessor as required by N.J.S. 40:49-2.1.

*Publication by Summary Pursuant to N.J.S.A. 40:49-2*

The purpose of this ordinance is to require that wetlands transition areas on new construction sites be delineated by permanent markers in order to prevent future encroachment and disturbance of the wetlands and transition areas

**TOWNSHIP OF BERNARDS  
PUBLIC NOTICE**

**Ordinance #1540** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 4/9/02, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 5/14/02, at 8:00 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from dszabo@bernards.org.

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

**TOWNSHIP OF BERNARDS  
COUNTY OF SOMERSET  
Public Notice**

Notice is hereby given that the Township of Bernards, #1540, was introduced and passed on first reading at a meeting of the Township Committee, on 4/9/02, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 5/14/02.

Denise Szabo  
Municipal Clerk



## APPENDIX A-6

### **ORDINANCE #1756**

An Ordinance to Amend the Revised General Ordinances of the Township of Bernards, by Creating a New Chapter 18 "Yard Waste Containerization and Collection Program" to Comply with the NJPDES Municipal Stormwater Regulations Program

#### **SECTION I. Purpose:**

The purpose of this ordinance is to add a new section to Chapter 18 of the Revised General Ordinances of the Township of Bernards to establish requirements for the proper handling of yard waste in the Township of Bernards, in compliance with the NJPDES Municipal Stormwater Regulations Program, so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

#### **§ 18-8.1. Definitions.**

For the purpose of this section the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

CONTAINERIZED shall mean the placement of yard waste in a trashcan, bucket, bag or other vessel, such as to prevent the yard waste from spilling or blowing out into the street and coming into contact with stormwater.

PERSON shall mean any individual, corporation, company, partnership, firm, association or political subdivision of this state subject to municipal jurisdiction.

STREET shall mean any street, avenue, boulevard, road, parkway, viaduct, drive or other way, which is an existing state, county or municipal roadway, and includes the land between the street right-of-way lines, whether improved or unimproved, and may comprise pavement, shoulders, gutters, curbs, sidewalks, parking areas and other areas within the street right-of-way lines.

YARD WASTE shall mean brush, leaves and grass clippings.

**§ 18-8.2. Prohibited Conduct.**

No owner or occupant of any property, or any employee or contractor of such owner or occupant engaged to provide lawn care or landscaping services, shall sweep, rake, blow or otherwise place yard waste in the street unless the yard waste is containerized.. If yard waste that is not containerized is placed in the street, the party responsible for placement of yard waste shall remove the yard waste from the street or said party shall be deemed in violation of this section.

**§ 18-8.3 Yard Waste Collection Program.**

The Township of Bernards shall establish a program to accept leaves contained in leaf bags as delivered to the Pill Hill Recycling Facility by the property owner. Property owners may bring brush to the same facility in accordance with current regulations. Disposal of grass, leaves and brush in any street shall be deemed in violation of this section, as provided in § 18-8.2 above.

**§ 18-8.4. Enforcement.**

The provisions of this section shall be enforced by the Zoning Enforcement Officer of the Township of Bernards.

**§ 18-8.5. Violations and Penalties.**

Any person(s) who is found to be in violation of the provisions of this section shall be subject to penalties as set forth in Section 3-1 of the Revised General Ordinances of the Township of Bernards.

**SECTION II. Severability:**

Each section, subsection, sentence, clause and phrase of this ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this ordinance.

**SECTION III. Effective date:**

This Ordinance shall be in full force and effect from and after its adoption and any publication as may be required by law.

**Explanatory Statement:**

This ordinance aligns with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. Peter Messina took the model ordinances provided by the NJDEP and inserted the appropriate enforcement agency. While this ordinance may provoke discussion, we are not aware that we can change the substance of the ordinances. Bernards Township must implement this ordinance on or before 10/1/05. Barbara J. Pence, Administrator

This ordinance is consistent with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. It is based on the model ordinances provided by the NJDEP and has been amended to include the appropriate enforcement agency in Bernards Township. No owner or occupant of any property, or any employee or contractor of such owner or occupant engaged to provide lawn care or landscaping services, shall sweep, rake, blow or otherwise place yard waste in the street unless the yard waste is containerized.. If yard waste that is not containerized is placed in the street, the party responsible for placement of yard waste shall remove the yard waste from the street or said party shall be deemed in violation of this section.

**TOWNSHIP OF BERNARDS  
PUBLIC NOTICE**

**Ordinance #1756** having been introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 8/10/04, and then ordered to be published according to law, will be further considered for final passage and adoption at a public hearing held at a meeting of said Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 9/28/04, at 7:30 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from [dszabo@bernards.org](mailto:dszabo@bernards.org).

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

Note: the 9/28/04 meeting and PH were adjourned to 10/30/04

**TOWNSHIP OF BERNARDS  
Public Notice**

Notice is hereby given that Bernards Township Ordinance #1756, was introduced and passed on first reading at a meeting of the Township Committee, on 8/10/04 and passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 9/30/04.

Denise Szabo  
Municipal Clerk

## APPENDIX A-7

### **ORDINANCE #1754**

An Ordinance to Amend the Revised General Ordinances of the Township of Bernards, by Creating a New Chapter 17 "Stormwater Management" Section 1 "Illicit Storm Sewer Connections" to Comply with the NJPDES Municipal Stormwater Regulations Program

#### **SECTION I. Purpose.**

The purpose of this ordinance is to create a new Chapter 17, Stormwater Management, and Section 17-1 thereof, entitled "Illicit Storm Sewer Connections," of the Revised General Ordinances of the Township of Bernards, in order to prohibit illicit connections to the municipal separate storm sewer system(s) operated by the Township of Bernards in compliance with the NJPDES Municipal Stormwater Regulations Program, so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply.

#### **§ 17-1.1. Definitions.**

For the purpose of this section, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. The definitions below are the same as or based on corresponding definitions in the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A-1.2.

DOMESTIC SEWAGE shall mean waste and wastewater from humans or household operations.

ILLICIT CONNECTION shall mean any physical or non-physical connection that discharges domestic sewage, non-contact cooling water, process wastewater or other industrial waste (other than stormwater) to the municipal separate storm sewer system operated by the Township of Bernards, unless that discharge is authorized under a NJPDES permit other than the Tier A Municipal Stormwater General Permit (NJPDES Permit Number NJ0141852). Non-physical connections may include, but are not limited to, leaks, flows or overflows into the municipal separate storm sewer system.

INDUSTRIAL WASTE shall mean non-domestic waste, including, but not limited to, those pollutants regulated under Section 307(a), (b) or (c) of the Federal Clean Water Act [33 U.S.C. §1317(a), (b) or (c)].

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) shall mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels or storm drains) that is owned or operated by the Township of Bernards or other public body, and is designed and used for collecting and conveying stormwater.

NJPDES PERMIT shall mean a permit issued by the New Jersey Department of Environmental Protection to implement the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A

NON-CONTACT COOLING WATER shall mean water used to reduce temperature for the purpose of cooling. Such waters do not come into direct contact with any raw material, intermediate product (other than heat) or finished product. "Non-contact cooling water" may, however, contain algaecides or biocides to control fouling of equipment such as heat exchangers and/or corrosion inhibitors.

PERSON shall mean any individual, corporation, company, partnership, firm, association, or political subdivision of this state subject to municipal jurisdiction.

PROCESS WASTEWATER shall mean any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct or waste product. "Process wastewater" includes, but is not limited to, leachate and cooling water other than non-contact cooling water.

STORMWATER shall mean water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.

**§17-1.2. Prohibited Conduct.**

No person shall discharge or cause to be discharged through an illicit connection to the municipal separate storm sewer system operated by the Township of Bernards any domestic sewage, non-contact cooling water, process wastewater or other industrial waste (other than stormwater).

**§ 17-1.3. Enforcement.**

This section shall be enforced by the Zoning Enforcement Officer of the Township of Bernards.



#### **§ 17-1.4. Violations and Penalties.**

Any person(s) who is found to be in violation of the provisions of this section shall be subject to penalties as set forth in Section 3-1 of the Revised General Ordinances of the Township of Bernards.

#### **SECTION II. Severability:**

Each section, subsection, sentence, clause and phrase of this ordinance is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this ordinance to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this ordinance.

#### **SECTION III. Effective date:**

This ordinance shall be in full force and effect from and after its adoption and any publication as may be required by law.

#### **Publication by Summary Pursuant to N.J.S.A.40:49-2**

This ordinance is consistent with the goals of the 2003 Bernards Township Master Plan and the State of New Jersey Stormwater Management Regulations. It is based on the model ordinances provided by the NJDEP and has been amended to include the appropriate enforcement agency in Bernards Township. It prohibits the discharge, or cause to be discharged, through an illicit connection to the municipal separate storm sewer system operated by the Township of Bernards any domestic sewage, non-contact cooling water, process wastewater or other industrial waste (other than stormwater).

Note: on 8/10/04 ordinance was tabled to a worksession discussion

#### **TOWNSHIP OF BERNARDS PUBLIC NOTICE**

**Ordinance #1754**, was introduced and passed on first reading by the Township Committee of the Township of Bernards in the County of Somerset on 9/14/04 and then ordered to be published according to law/ It will be further considered for final passage and adoption at a public hearing held at a meeting of the Township Committee at the Municipal Building, 1 Collyer Lane, Basking Ridge, NJ in said township on 10/26/04, at 7:30 P.M., when and where, or at such time and place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance. A complete text of this ordinance is available in the Office of the Municipal Clerk, 1 Collyer Lane, Basking Ridge, NJ, from 8:30 A.M. to 4:30 P.M., Monday through Friday. Copies are also available via e-mail from [dszabo@bernards.org](mailto:dszabo@bernards.org).

By Order of the Township Committee  
Denise Szabo, Municipal Clerk

#### **TOWNSHIP OF BERNARDS Public Notice**

Notice is hereby given that Bernards Township Ordinance #1754, was introduced and passed on first reading at a meeting of the Township Committee, on 9/14/04, and was passed on final reading and adopted following a public hearing thereon at a regular meeting of the Governing Body of the Township of Bernards on 10/26/04.

Denise Szabo  
Municipal Clerk

## APPENDIX A-8

### **ORDINANCE #1751**

An Ordinance to Amend the Revised General Ordinances of the Township of Bernards, Chapter 3 "Police Regulations" Section 7 "Litter" to Comply with the NJPDES Municipal Stormwater Regulations Program

**BE IT ORDAINED**, by the Township Committee of the Township of Bernards in the County of Somerset that Chapter 3, "Police Regulations," Section 7 "Litter" of the Revised General Ordinances of the Township of Bernards is hereby amended:

#### **§ 3-7.1. Littering Prohibited.**

It shall be unlawful for any person to throw, drop, discard or otherwise place litter of any nature upon any public or private property, other than in a litter receptacle, or having done so, to allow such litter to remain, except that the owner or person in control of private property may maintain authorized private litter receptacles for collection in such a manner that litter will be prevented from being carried or deposited by the elements upon any street, sidewalk or other public place or upon any private property. Whenever any litter is thrown or discarded or allowed to fall from a vehicle or boat in violation of this section, the operator or owner, or both, of the motor vehicle or boat shall also be deemed to have violated this section.

#### **§ 3-7.2. Definitions.**

For the purpose of this section, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

**GARBAGE** shall mean putrescible animal and vegetable waste resulting from the handling, preparation, cooking or consumption of food, provided that nothing contained herein shall be deemed to apply to manure and compost heaps maintained in areas suitable to their use.

**JUNK** shall mean any apparatus or device, of whatever material, or any part or parts thereof, which may be discarded or be placed out of doors without protective covering. Any such apparatus or device placed on the land or property of another person without the consent and permission of the owner of such land or property shall be deemed discarded junk.

**LITTER** shall mean any used or unconsumed substance or waste material which has been discarded whether made of aluminum, glass, plastic, rubber, paper or other natural or synthetic material, or any combination thereof, including, but not limited to, any bottle, jar or can, or any top, cap or detachable tab of any bottle, jar or can, any unlighted cigarette, cigar, match or flaming or glowing material or any garbage, trash, refuse, debris, rubbish, grass clippings or other lawn or garden waste, newspaper, magazines, glass, metal, plastic or paper containers or other packaging or construction material, but

not including the waste of the primary processes of mining or other extraction processes, logging, sawmilling, farming or manufacturing.

**LITTER RECEPTACLE** shall mean a container suitable for the depositing of litter.

**PERSON** shall mean any individual, corporation, company, partnership, firm, association or political subdivision of this state subject to municipal jurisdiction.

**PUBLIC PLACE** shall mean any and all streets, lanes, parkways, sidewalks, municipal parking lots, alleys or other public ways, and any and all public parks, squares, spaces, recreation areas, grounds and buildings.

**REFUSE** shall mean all putrescible and nonputrescible solid wastes (except body wastes), including but not limited to garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles and solid market and industrial wastes.

**RUBBISH** shall mean nonputrescible solid wastes consisting of both combustible and noncombustible wastes, such as paper, wrappings, cigarettes, cardboard, tin cans, yard clippings, leaves, wood, glass, bedding, crockery, gravel, stones, rocks, rubble, construction materials, earth, dirt, ashes, sticks, tacks, nails or similar materials.

#### **§ 3-7.3. Uses of Litter Receptacles.**

Litter receptacles and their servicing are required at the following public places which exist in the municipality, including sidewalks used by pedestrians in active retail commercially zoned areas, such that at a minimum there shall be no single linear quarter-mile without a receptacle, buildings held out for use by the public, including schools, government buildings and railroad stations; parks; all street vendor locations; self-service refreshment areas; construction sites; gasoline service station islands; shopping centers; parking lots; and at special events to which the public is invited, including sporting events, parades, carnivals, circuses and festivals. The proprietors of these places or the sponsors of these events shall be responsible for providing and servicing the receptacles such that adequate containerization is available.

#### **§ 3-7.4. Sweeping Litter into Gutters.**

No person shall sweep into or deposit in any gutter, street, catch basin or other public place within the township the accumulation of litter from any building or lot or from any public or private sidewalk or driveway. All sweepings shall be collected and properly containerized for disposal. Persons owning or occupying places of business within the township shall keep the sidewalks in front of their business premises free of litter.

#### **§ 3-7.5. Litter in Lakes and Fountains.**

No person shall throw or deposit litter in any fountain, pond, lake, stream, river or other body of water in a park or elsewhere within the township.

#### **§ 3-7.6. Owner to Maintain Premises Free of Litter.**

No person shall throw or deposit litter on any private property within the township, whether owned by such person or not, and the owner or person in control of any private property shall at all times maintain the premises free of litter; provided, however, that this subsection shall not prohibit the storage of litter in suitable containers in a manner that is

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### 7:8-3.3 Regional stormwater management plan and elements

(a) A regional stormwater management plan shall incorporate, at a minimum, the following elements:

1. Identification of the lead planning agency and a description of the structure and members of the committee;
2. A statement of authority to develop and implement a stormwater management plan from public entities, as appropriate, represented on the regional stormwater management planning committee.
3. A characterization and assessment of the regional stormwater management planning area prepared in accordance with N.J.A.C. 7:8-3.4;
4. A statement of drainage area-specific water quality, groundwater recharge, and water quantity objectives established under N.J.A.C. 7:8-3.5;
5. The drainage area-specific stormwater-related water quality, groundwater recharge and water quantity design and performance standards established under N.J.A.C. 7:8-3.6;
6. The stormwater management measures selected in accordance with N.J.A.C. 7:8-3.7 and a summary of the rationale for the selection of each measure;
7. A description of the strategy for implementing the selected stormwater management measures for the regional stormwater management planning area and for evaluating the effectiveness of the regional stormwater management plan in accordance with N.J.A.C. 7:8-3.8, including a long-term monitoring program; and
8. To the extent elements of the plan do not represent the consensus of the committee, the plan shall identify and provide a discussion of the majority and minority positions.

(b) The regional stormwater management plan may also include:

1. Innovative stormwater measures and strategies such as nonpoint source pollutant trading, mitigation strategies, or special protection measures; and
2. A stream corridor protection plan to address protection of areas adjacent to waterbodies. For waterbodies subject to N.J.A.C. 7:8-5.5(h), the plan shall provide, at a minimum, protections equivalent to those provided at N.J.A.C. 7:8-5.5(h) and demonstrate that the functional value and overall condition of the special water resource protection area will be maintained or enhanced.

### 7:8-3.4 Characterization and assessment of the regional stormwater management planning area

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(a) The regional stormwater management plan shall include a characterization and assessment that addresses the following components, unless the committee determines that a component is not appropriate for the regional stormwater management planning area and provides a rationale for not including the component:

1. Maps showing the following information. Maps developed on a Geographical Information System shall meet the Digital Data standards in N.J.A.C. 7:1D unless a rationale for a different format is provided.

- i. The regional stormwater management planning area boundary;
- ii. Existing land uses;
- iii. Projected land uses assuming full development under existing zoning;
- iv. Soil mapping units based on the detailed soil maps in County Soil Surveys published by the U.S. Department of Agriculture or, in areas for which County Soil Surveys are not available, on information obtained from Soil Conservation Districts;
- v. Topography based on the U.S. Geological Survey Topographic Map, 7.5 minute quadrangle series, or other sources of information depicting topography in similar or greater detail;
- vi. Water bodies based on detailed map sheets in County Soil Surveys published by the U.S. Department of Agriculture; the U.S. Geological Survey Topographic Map, 7.5 minute quadrangle series; or other sources of information depicting water bodies in similar or greater detail;
- vii. Coastal wetlands based on maps prepared by the Department under the Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq., and freshwater wetlands based on maps prepared by the Department under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq.;
- viii. Flood hazard areas based on delineations made by the Department under the Flood Hazard Area Control Act, N.J.S.A. 58:16A-50 et seq. For a water body for which the Department has not delineated the flood hazard area, a map of the flood hazard area prepared in accordance with N.J.A.C. 7:13 is acceptable;
- ix. Groundwater recharge areas and well head protection areas based on maps prepared by the Department or ordinances of an affected municipality;
- x. Environmentally constrained areas and environmentally critical areas;
- xi. River areas designated under the New Jersey Wild and Scenic Rivers Act, N.J.S.A. 13:8-45 et seq., or the Federal Wild and Scenic Rivers Act, 16 U.S.C. §§1278 et seq.;



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xii. For each waterbody in the regional stormwater management planning area, identification of the waterbody or waterbody segment, the drainage area, and the classification of the waterbody pursuant to N.J.A.C. 7:9B-1.15;

xiii. Each waterbody designated as a water quality limited surface water pursuant to N.J.A.C. 7:15-6;

xiv. Man-made stormwater conveyance, storage and discharge systems, including municipal separate storm sewer outfall pipes and the drainage areas as appropriate for these outfall structures; and

xv. Source water areas of potable public surface water supply intakes and public water supply reservoirs available on the Departments webpage at [www.nj.gov/dep/swap/](http://www.nj.gov/dep/swap/);

2. A map showing jurisdictional boundaries within the regional stormwater management planning area of municipal, county, and other agencies with responsibility for implementing stormwater management;

3. Identification of the physical characteristics of the regional stormwater management planning area pertinent to stormwater management, such as slopes, swales and impoundment areas as necessary for completing the analysis in N.J.A.C. 7:8-3.4(a)4;

4. A water quality, groundwater recharge and water quantity hydrologic and hydraulic model or analysis of the regional stormwater management planning area which addresses existing land uses and projected land uses assuming full development under existing zoning and taking into account permanently preserved lands;

5. An identification and evaluation of existing municipal, county, State, Federal, and other stormwater-related groundwater recharge, water quality and water quantity regulations and programs shall be conducted, including, where applicable, programs to develop total maximum daily loads (TMDLs) in accordance with N.J.A.C. 7:15-7; and

6. A summary of information that has been identified as useful for purposes of stormwater management planning but that is not available for technical, financial, or other reasons.

(b) The Department encourages the use of existing information to the extent that it is available to minimize the cost of data acquisition, such as information available on the Department's Geographical Information System web site ([www.state.nj.us/dep/gis](http://www.state.nj.us/dep/gis)) or as developed through a watershed planning process.

(c) The characterization and assessment shall include information on locations and activities outside the regional stormwater management planning area that drain into the

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planning area (for example, stormwater originating in an adjacent drainage area that is transferred to the stormwater management planning area).

(d) Using the modeling or other information obtained under (a) through (c) above, the stormwater-related water quality impacts of existing land uses and projected land uses assuming full development under existing zoning shall be identified and ranked in accordance with the following process:

1. Inventory existing and potential stormwater-related pollutant sources and stormwater-related pollutants in the regional stormwater management planning area.

i. Stormwater-related pollutant sources include, for example, urban and suburban development, roads, storm sewers, agriculture, mining, and waterfront development.

ii. Stormwater-related pollutants include, for example, nutrients, pathogens, hydrocarbons, metals, pesticides, sediments, and suspended solids;

2. For surface water bodies and/or segments thereof and aquifers and/or portions thereof in the regional stormwater management planning area, identify and describe the existing or designated uses that are or may be adversely affected by stormwater-related pollutants, and to the extent feasible, identify the source(s) of the pollutant. The use of the report and list prepared by the Department to comply with Federal Clean Water Act, Section 303(d) and 305(b) (33 USC §§1313(d) and 1315(b)) and underlying data, including biological assessments, is encouraged; and

3. Identify and rank the most significant existing and potential stormwater-related pollutants and, for each pollutant, identify and rank the sources.

(e) Using the modeling or other information obtained under (a) through (c) above for stormwater-related water quantity impacts and stormwater-related groundwater recharge impacts of existing and projected land uses assuming full development under existing zoning, the most significant existing and potential stormwater-related water quantity problems, including flooding, erosion, mosquitoes, base-flow reduction, ground water depletion, and associated ecosystem impacts, shall be identified and described. The problems shall be ranked based on consideration of threat to public health, safety, and welfare as evidenced by history of or potential for flood damage; risk of loss of or damage to water supplies; and risk of damage to the biological integrity of water bodies.

7:8-3.5 Drainage area-specific water quality, groundwater recharge and water quantity objectives

(a) The regional stormwater management plan shall identify drainage area-specific water quality, groundwater recharge and water quantity objectives that are consistent with the goals of stormwater management planning at N.J.A.C. 7:8-2.3, and address each of the stormwater-related pollutant sources and pollutants ranked under N.J.A.C. 7:8-3.4(d) and

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the water quantity and groundwater recharge problems ranked under N.J.A.C. 7:8-3.4(e). The objectives shall address the elimination, reduction, or minimization of stormwater-related impacts associated with new and existing land uses. The objectives developed for the regional stormwater management plan may take into consideration environmental, social, and economic factors.

(b) Notwithstanding (a) above, the drainage area -specific objectives for major development shall provide, at a minimum, the protection that would be achieved through the application of N.J.A.C. 7:8-5, Design and Performance Standards for Stormwater Management Measures.

(c) If a TMDL has been established pursuant to N.J.A.C. 7:15 for a waterbody or waterbody segment in the regional stormwater management planning area, drainage area-specific objectives shall incorporate the loading reductions established in the TMDL for stormwater sources of pollution. In addition, if a waterbody or waterbody segment in the regional stormwater management planning area is on the Department's list prepared to comply with Federal Clean Water Act, Section 303(d) (33 USC §§1313(d)) for one or more designated uses by stormwater runoff, then drainage area objectives shall be included that address the pollutants or pollution for which the waterbody is threatened or impaired.

#### 7:8-3.6 Drainage area-specific design and performance standards

(a) The regional stormwater management plan shall identify drainage area-specific design and performance standards in order to meet the drainage area-specific water quality, groundwater recharge and water quantity objectives identified under N.J.A.C. 7:8-3.5.

(b) Drainage area-specific design and performance standards may include performance standards for control of stormwater quantity, erosion, groundwater recharge and stormwater quality, as well as design standards for particular structural and nonstructural stormwater management strategies.

(c) The design and performance standards for stormwater management measures for major development described in N.J.A.C. 7:8-5 shall be incorporated into the regional stormwater management plan. Alternative drainage area-specific design and performance standards may be developed provided the alternative standard is at least as protective as would be achieved under N.J.A.C. 7:8-5 when considered on a regional stormwater management planning area basis.

(d) For structural stormwater management measures, drainage area-specific design and performance standards shall conform to the general standards at N.J.A.C. 7:8-5.7.

(e) Drainage area-specific design and performance standards do not have to be uniform throughout a drainage area provided the drainage area, when considered in its entirety, satisfies N.J.A.C. 7:8-5.

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#### 7:8-3.7 Selection of stormwater management measures

(a) The regional stormwater management plan shall identify stormwater management measures necessary to achieve the drainage area-specific water quality, groundwater recharge and water quantity objectives developed in accordance with N.J.A.C. 7:8-3.5, and design and performance standards developed in accordance with N.J.A.C. 7:8-3.6.

(b) Stormwater management measures in the following categories shall be considered and selected, as appropriate:

1. Stormwater management measures for new land uses;
2. Stormwater management measures for existing land uses, including, for example, retrofit measures for the modification of existing structural stormwater management measures or other structures affecting stormwater runoff; elimination of illicit or illegal discharges; prevention or minimization of the exposure of pollutants to stormwater; and control of floatables;
3. Stormwater management measures that enhance, protect, and/or preserve land or water areas possessing characteristics or features that provide for flood control, maintenance or improvement of water quality, or conservation of natural resources (for example, land use controls, local and regional open space plans and taxes, buffer zones, redirecting, recharging or minimizing stormwater discharges, pretreatment and/or end-of-pipe treatment); and
4. Public education programs that address stormwater quantity and quality.

(c) A written rationale shall be provided for each selected stormwater management measure, including an analysis of feasibility, benefits and costs, estimated percent pollutant load reduction and anticipated performance longevity;

(d) Each selected stormwater management measure shall include, as appropriate, a program for preventative and corrective maintenance, including a long-term implementation schedule and identification of the entity responsible for implementation and maintenance.

#### 7:8-3.8 Strategy for implementing and evaluating effectiveness of stormwater management measures

(a) The regional stormwater management plan shall include a strategy for implementing the stormwater management measures. The lead planning agency or another entity designated by the committee shall be responsible for coordination and tracking of the implementation of the regional stormwater management plan, including the long-term monitoring program.

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(b) The implementation strategy shall:

1. Identify agencies and/or entities necessary to implement the measures and conduct the long-term monitoring program;
2. Identify the respective measures and/or monitoring each agency and/or entity will implement and the enabling mechanisms by which the measures will be implemented, including, for example, new or amended municipal ordinances or interagency agreements;
3. Establish a schedule for the implementation of the measures based on priority, including specific milestones for all mechanisms identified under (b)2 above;
4. Provide an estimate of short term and long term implementation costs to be incurred; and
5. Identify existing and potential private, local, State, and Federal funding sources to implement the regional stormwater management plan.

(c) The implementation strategy shall include a long-term monitoring program that will provide information about land use, water quality, water quantity, groundwater resources and riparian and aquatic habitat condition, as appropriate. Information for the monitoring program may include data obtained through watershed management, local, county, State, interstate, and/or Federal monitoring programs, including volunteer monitoring programs.

(d) The implementation strategy shall include a procedure for evaluating and then updating as necessary, at least every five years, the effectiveness of the implemented measures in achieving the objectives and design and performance standards established in the regional stormwater management plan.

7:8-3.9 Regional stormwater management plan review, adoption, and amendment and/or revision

(a) Upon completion of a regional stormwater management plan, the lead planning agency shall submit the plan to the Department and, if applicable, to the designated water quality management planning agency as an amendment to the areawide water quality management plan(s) in accordance with the Water Quality Management Planning Rules at N.J.A.C. 7:15.

(b) In reviewing a regional stormwater management plan submitted under (a) above, the Department shall determine whether the plan conforms to the requirements of this chapter. The Department will disapprove, return for additional information or proceed with a proposed amendment in accordance with N.J.A.C. 7:15-3.4(g).



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(c) Modifications to an adopted regional stormwater management plan shall be processed as an amendment or revision in accordance with N.J.A.C. 7:15-3.4(b)5 or 3.5(b)5, as applicable.

#### 7:8-3.10 Implementation of adopted regional stormwater management plan

(a) Once the regional stormwater management plan has been adopted pursuant to N.J.A.C. 7:8-3.9, implementation responsibilities are as follows:

1. The Department will use the adopted regional stormwater management plan as the basis for reviewing the stormwater management aspects of projects or activities regulated pursuant to Coastal Permit Program rules, N.J.A.C. 7:7; the Freshwater Wetland Protection Act rules, N.J.A.C. 7:7A; the Coastal Zone Management rules, N.J.A.C. 7:7E; the Flood Hazard Area Control Act rules, N.J.A.C. 7:13; the New Jersey Pollutant Discharge Elimination System rules, N.J.A.C. 7:14A; and the Dam Safety Standards, N.J.A.C. 7:20. The requirements of this chapter are considered to be the minimum stormwater standards. Additional requirements may be imposed as necessary under the respective programs.

2. Each municipality in the regional stormwater management planning area shall incorporate the applicable provisions of the regional stormwater management plan into a new or amended municipal stormwater management plan and ordinances.

3. In accordance with the Residential Site Improvement Standards at N.J.A.C. 5:21-7, if a stormwater management plan for the region has been approved by the Department, stormwater management systems must conform with that plan.

4. The Department shall not issue a permit for a project or activity that conflicts with an Areawide Water Quality Management Plan pursuant to N.J.A.C. 7:15-3.1.

### SUBCHAPTER 4. MUNICIPAL STORMWATER MANAGEMENT PLANNING

#### 7:8-4.1 Scope

This subchapter describes stormwater management planning and implementation at the municipal level, including plan elements, county review and technical assistance, the schedule for adoption of the plan and ordinances, and variance or exemption from design and performance standards for stormwater management measures.

#### 7:8-4.2 Municipal stormwater management plan and elements

(a) A municipal stormwater management plan shall address stormwater-related water quality, groundwater recharge and water quantity impacts of major development, and may also address stormwater-related water quality, water quantity and groundwater

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recharge impacts of existing land uses. For purposes of this subchapter, major development is limited to projects that ultimately disturb one or more acres of land.

(b) A municipal stormwater management plan and stormwater control ordinance(s) shall conform with applicable regional stormwater management plan(s).

(c) A municipal stormwater management plan shall, at a minimum:

1. Describe how the municipal stormwater management plan will achieve the goals of stormwater management planning set forth at N.J.A.C. 7:8-2.3;
2. Include maps showing water bodies based on Soil Surveys published by the U.S. Department of Agriculture; the U.S. Geological Survey Topographic Map, 7.5 minute quadrangle series; or other sources of information depicting water bodies in similar or greater detail;
3. Map groundwater recharge areas and well head protection areas based on maps prepared by the Department under N.J.S.A. 58:11A-13 or a municipal ordinance;
4. Describe how the municipal stormwater management plan incorporates design and performance standards in N.J.A.C.7: 8-5 or alternative design and performance standards adopted as a part of a regional stormwater management plan or water quality management plan;
5. Describe how adequate long-term operation as well as preventative and corrective maintenance (including replacement) of the selected stormwater management measures will be ensured;
6. Describe how the plan will ensure compliance with Safety Standards for Stormwater Management Basins at N.J.A.C. 7:8-6;
7. Describe how the municipal stormwater management plan is coordinated with the appropriate Soil Conservation District and any other stormwater management plans, including any adopted regional stormwater management plan, prepared by any stormwater management planning agency related to the river basins or drainage areas to which the plans and/or ordinances apply;
8. Evaluate the extent to which the municipality's entire master plan (including the land use plan element), official map and development regulations (including the zoning ordinance) implement the principles expressed in N.J.A.C. 7:8-5.3(b). This evaluation shall also be included (with updating as appropriate) in the reexamination report adopted under N.J.S.A. 40:55D-89;
9. Include a map of the municipality showing:

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- i. Projected land uses assuming full development under existing zoning, and
- ii. The hydrologic unit code 14 (HUC14) drainage areas as defined by the United States Geological Survey; and an estimate, for each HUC14 drainage area, of the total acreage in the municipality of impervious surface and associated future nonpoint source pollutant load assuming full build out of the projected land uses.

10. At the option of the municipality, document that it has a combined total of less than one square mile of vacant or agricultural lands rather than provide the information required in (c)8 and 9 above. Agricultural lands may be excluded if the development rights to these lands have been permanently purchased or restricted by covenant, easement or deed. Vacant or agricultural lands in environmentally constrained areas may be excluded if the documentation also includes an overlay map of these areas at the same scale as the map under (c)10i below.

- i. Documentation shall include an existing land use map at an appropriate scale to display the land uses of each parcel within the municipality. Such a map shall display the following land uses: residential (which may be divided into single family, two-to-four family, and other multi-family), commercial, industrial, agricultural, parkland, other public uses, semipublic uses, and vacant land;

11. In order to grant a variance or exemption from the design and performance standards in N.J.A.C. 7:8-5, include a mitigation plan that identifies what measures are necessary to offset the deficit created by granting the variance or exemption. The mitigation plan shall ensure that mitigation is completed within the drainage area and for the performance standard for which the variance or exemption was granted;

12. Include a copy of the recommended implementing stormwater control ordinance(s) requiring stormwater management measures, and

13. The municipal stormwater management plan may also include a stream corridor protection plan to address protection of areas adjacent to waterbodies. For waterbodies subject to N.J.A.C. 7:8-5.5(h), the plan shall provide, at a minimum, protections equivalent to those provided at N.J.A.C. 7:8-5.5(h) and be approved by the Department.

#### 7:8-4.3 Schedule for adoption of municipal stormwater management plan and ordinances

(a) A municipality shall adopt a municipal stormwater management plan as an integral part of its master plan and official map in accordance with the schedule in (a)1 or 2 below, whichever is sooner. The requirements in N.J.A.C. 7:8-4.2(c)8 and 9 are not operative until February 2, 2006.

- 1. By the deadline established in a New Jersey Pollutant Discharge Elimination System permit obtained by the municipality for a municipal separate storm sewer system under N.J.A.C. 7:14A; or

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2. By the next reexamination of the master plan under N.J.S.A. 40:55D-89, if a grant for 90 percent of the costs for the preparation of the municipal stormwater management plan has been made available to a municipality by the Department;

(b) Within one year after the municipality adopts the municipal stormwater management plan, the municipality shall adopt stormwater control ordinance(s) to implement the adopted plan and shall submit the adopted municipal stormwater management plan and ordinance(s) to the county review agency for approval. The adopted municipal stormwater management plan and ordinance(s) shall not take effect without approval by the county review agency.

(c) The municipality shall amend the municipal stormwater management plan and stormwater control ordinance(s) as necessary and submit the amended plan and amended ordinance(s) to the county review agency for approval.

(d) The municipality shall reexamine the municipal stormwater management plan at each reexamination of the municipality's master plan in accordance with N.J.S.A. 40:55D-89.

(e) Within one year of the adoption of a regional stormwater management plan as an amendment to the Areawide Water Quality Management Plan, or an amendment thereto, each municipality within the regional stormwater management planning area shall amend their respective municipal stormwater management plans and stormwater control ordinance(s) to implement the regional stormwater management plan.

#### 7:8-4.4 County review process

(a) A municipality shall submit a copy of the adopted stormwater management plan and stormwater control ordinance(s) to the county review agency and the Department.

(b) In reviewing the adopted municipal stormwater management plan and ordinance(s), the county review agency shall consider whether the plan and ordinance(s) conform with the requirements of this chapter.

(c) In accordance with N.J.S.A. 40:55D-97, it is the county review agency's responsibility to review and approve, conditionally approve (specifying the necessary amendments to the plan and ordinance(s)) or disapprove the adopted municipal stormwater management plan and ordinance(s) within 60 calendar days of receipt of the plan and ordinance(s). If the county review agency does not approve, conditionally approve, or disapprove the plan or ordinance(s) within 60 calendar days, the plan and ordinance(s) shall be deemed approved. The county review agency shall issue a written decision to the municipality, with a copy to the Department.

(d) A municipal stormwater management plan and ordinance(s) approved under (c) above shall take effect immediately. A municipal stormwater management plan and

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ordinance(s) conditionally approved under (c) above shall take effect upon adoption by the municipality of the amendments specified by the county review agency.

(e) Within 30 days of the effective date of the municipal stormwater management plan and ordinance(s) under (d) above, the municipality shall place the plan and ordinance(s) on its website and notify the Department, the Soil Conservation District and State Soil Conservation Committee, or:

1. Submit a copy of the approved municipal stormwater management plan and ordinance(s) to the Department; and
2. Provide notice of such approval to the Soil Conservation District and the State Soil Conservation Committee and, upon request, submit a copy of the approved plan and ordinance(s).

#### 7:8-4.5 Reservation of rights

The Department reserves the right to review stormwater management plans and ordinances for compliance with this subchapter and make recommendations to correct any deficiencies.

#### 7:8-4.6 Variance or exemption from the design and performance standards for stormwater management measures

A municipality may grant a variance or exemption from the design and performance standards for stormwater management measures set forth in its approved municipal stormwater management plan and stormwater control ordinance(s), provided the municipal plan includes a mitigation plan in accordance with N.J.A.C. 7:8-4.2(c)11 and the municipality submits a written report to the county review agency and the Department describing the variance or exemption and the required mitigation.

### SUBCHAPTER 5 DESIGN AND PERFORMANCE STANDARDS FOR STORMWATER MANAGEMENT MEASURES

#### 7:8-5.1 Scope

(a) This subchapter establishes design and performance standards for stormwater management measures for major development intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies.

(b) The standards specified in this subchapter do not apply to major development if alternative design and performance standards that are at least as protective as would be achieved through this subchapter when considered on a regional stormwater management area basis are applicable under a regional stormwater management plan adopted in



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accordance with this chapter or a water quality management plan adopted in accordance with N.J.A.C. 7:15.

#### 7:8-5.2 Stormwater management measures for major development

(a) Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards at N.J.A.C. 7:8-5.4 and 5.5. To the maximum extent practicable, these standards shall be met by incorporating nonstructural stormwater management strategies at N.J.A.C. 7:8-5.3 into the design. If these measures alone are not sufficient to meet these standards, structural stormwater management measures at N.J.A.C. 7:8-5.7 necessary to meet these standards shall be incorporated into the design.

(b) The development shall incorporate a maintenance plan under N.J.A.C. 7:8-5.8 for the stormwater management measures.

(c) Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlnebergi* (bog turtle).

(d) The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements at N.J.A.C. 7:8-5.4 and 5.5:

1. The construction of an underground utility line provided that the disturbed areas are revegetated upon completion;
2. The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and
3. The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

(e) A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements at N.J.A.C. 7:8-5.4 and 5.5 may be obtained for the enlargement of an existing public roadway or railroad, or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

1. The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;

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2. The applicant demonstrates through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of N.J.A.C. 7:8-5.4 and 5.5 to the maximum extent practicable;
3. The applicant demonstrates that, in order to meet the requirements at N.J.A.C. 7:8-5.4 and 5.5 existing structures currently in use, such as homes and buildings would need to be condemned; and
4. The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under (e)3 above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate for requirements of N.J.A.C. 7:8-5.4 and 5.5 that were not achievable on-site.

#### 7:8-5.3 Nonstructural stormwater management strategies

(a) To the maximum extent practicable, the standards in N.J.A.C. 7:8-5.4 and 5.5 shall be met by incorporating nonstructural stormwater management strategies at N.J.A.C. 7:8-5.3 into the design. The persons submitting an application for review shall identify the nonstructural strategies incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management strategies identified in (b) below into the design of a particular project, the applicant shall identify the strategy and provide a basis for the contention.

(b) Nonstructural stormwater management strategies incorporated into site design shall:

1. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
2. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
3. Maximize the protection of natural drainage features and vegetation;
4. Minimize the decrease in the "time of concentration" from pre-construction to post-construction. "Time of Concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the drainage area to the point of interest within a watershed;
5. Minimize land disturbance including clearing and grading;
6. Minimize soil compaction;

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7. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;

8. Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas; and

9. Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff. These source controls include, but are not limited to:

i. Site design features that help to prevent accumulation of trash and debris in drainage systems;

ii. Site design features that help to prevent discharge of trash and debris from drainage systems;

iii. Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and

iv. When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

(c) Any land area used as a non structural stormwater management measure to meet the performance standards in N.J.A.C. 7:8-5.4 and 5.5 shall be dedicated to a government agency, subjected to a conservation restriction filed with the County Clerk's office, or subject to Department approved or equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

(d) Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual available from the Department through the address listed at N.J.A.C. 7:8-1.3.

7:8-5.4 Erosion control, groundwater recharge and runoff quantity standards

(a) This section contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.

1. The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.

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2. The minimum design and performance standards for groundwater recharge are as follows:

i. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at N.J.A.C. 7:8-5.6, either:

(1) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or

(2) Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the two-year storm is infiltrated.

ii. This groundwater recharge requirement does not apply to projects within "urban redevelopment area," or to projects subject to iii below.

iii. The following types of stormwater shall not be recharged:

(1) Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than 'reportable quantities' as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

(2) Industrial stormwater exposed to "source material." "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

iv. The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or downgradient of the groundwater recharge area.

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3. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at N.J.A.C. 7:8-5.6, complete one of the following:

i. Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the two, 10, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;

ii. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the two, 10, and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

iii. Design stormwater management measures so that the post-construction peak runoff rates for the two, 10 and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed; or

iv. In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with i, ii, and iii above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.

(b) Any application for a new agricultural development that meets the definition of major development at N.J.A.C. 7:8-1.2 shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this provision, "agricultural development" means land uses normally associated with the production of food, fiber and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.

#### 7:8-5.5 Stormwater runoff quality standards

Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by 80 percent of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional one-quarter acre of impervious surface is being proposed on a development site. The requirement to reduce total suspended solids (TSS) does not apply to any stormwater runoff in a discharge regulated under a numeric effluent



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limitation for TSS imposed under the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1 below. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures.

Table 1: Water Quality Design Storm Distribution

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500
30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

(b) For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP manual may be obtained from the address identified in N.J.A.C. 7:8-1.3 or found on the Department's website at [www.njstormwater.org](http://www.njstormwater.org). The BMP manual and other sources of technical guidance are listed in N.J.A.C. 7:8-5.9(a). TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. Where the Department is not the review agency, a copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the address at N.J.A.C. 7:8-1.3.

(c) If more than one BMP in series is necessary to achieve the required 80 percent TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

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$$R = A + B - (AXB)/100$$

Where

R = total TSS percent load removal from application of both BMPs, and

A = the TSS percent removal rate applicable to the first BMP

B = the TSS percent removal rate applicable to the second BMP

Table 2: TSS Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	See N.J.A.C. 7:8-5.7(d)
Sand Filter	80
Vegetative Filter Strip	60 -80
Wet Pond	50-90

(d) If there is more than one onsite drainage area, the 80 percent TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site in which case the removal rate can be demonstrated through a calculation using a weighted average.

(e) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in N.J.A.C. 7:8-5.4 and 5.5.

(f) Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in N.J.A.C. 7:8-1.3.

(g) In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.

(h) Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC 14 drainage. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

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1. The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

i. A 300-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of bank outwards, or from the centerline of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession is provided.

ii. Encroachment within the designated special water resource protection area under (h)1i above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or centerline of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by the Department.

2. All stormwater shall be discharged outside of but may flow through the special water resource protection area and shall comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. (See N.J.A.C. 2:90-1.3).

3. If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., (see N.J.A.C. 2:90-1.3), then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

- i. Stabilization measures shall not be placed within 150 feet of the waterway;
- ii. Stormwater associated with discharges allowed by this paragraph shall achieve a 95 percent TSS post construction removal rate;
- iii. Temperature shall be addressed to ensure no impact on receiving waterway;
- iv. The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;
- v. A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and
- vi. All encroachments proposed under this section shall be subject to review and approval by the Department.

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4. A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to this subsection has been approved by the Department, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to this subsection shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined above in (h)1i. In no case shall a stream corridor protection plan allow reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

5. This subsection does not apply to the construction of one individual single family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before (effective date of the rule), provided that the construction begins on or before (five years from effective date of the rule).

#### 7:8-5.6 Calculation of stormwater runoff and groundwater recharge

(a) Stormwater runoff shall be calculated in accordance with the following:

1. The design engineer shall calculate runoff using one of the following methods:

i. The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Section 4, National Engineering Handbook (NEH-4), dated July 2002, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at <http://www.wcc.nrcs.usda.gov/water/quality/common/neh630/4content.html> or at Natural Resources Conservation Service, 220 Davidson Avenue, Somerset, New Jersey 08873; (732) 537-6040; or

ii. The Rational Method for peak flow and the Modified Rational Method for hydrograph computations. The rational and modified rational methods are described in "Appendix A-9 Modified Rational Method" in the Standards for Soil Erosion and Sediment Control in New Jersey, July 1999. This document is available from the State Soil Conservation Committee or any of the Soil Conservation Districts listed at N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District is available from the State Soil Conservation Committee, P.O. Box 330, Trenton, NJ 08625, 609-292-5540.

2. For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded

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land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at N.J.A.C. 7:8-5.6(a)1i and the Rational and Modified Rational Methods at N.J.A.C. 7:8-5.6(a)1i. A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover have existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation.)

3. In computing pre-construction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce pre-construction stormwater runoff rates and volumes.

4. In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release-55, Urban Hydrology for Small Watersheds or other methods may be employed.

5. If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.

(b) Groundwater recharge may be calculated in accordance with the following:

1. The New Jersey Geological Survey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water-Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at New Jersey Geological Survey website at <http://www.state.nj.us/dep/njgs/>, or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427, Trenton, NJ 08625-0427; (609) 984-6587.

#### 7:8-5.7 Standards for structural stormwater management measures

(a) Standards for structural stormwater management measures are as follows:

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1. Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).

2. Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate. The parallel bars at the outlet structure shall be spaced no greater than one-third the width of the diameter of the orifice or one-third the width of the weir, with a minimum spacing between bars of one-inch and a maximum spacing between bars of six inches. For outlets with a width or diameter less than three inches, the parallel bars shall be spaced one inch apart. In addition, the design of trash racks must comply with the requirements of N.J.A.C. 7:8-6.2(a).

3. Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4 and 7.5 shall be deemed to meet this requirement.

4. At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of two and one-half inches in diameter.

5. Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at N.J.A.C. 7:8-6.

(c) Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, ground water recharge and water quality design and performance standards established by this subchapter.

(d) Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

#### 7:8-5.8 Maintenance requirements

(a) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.

(b) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal;



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and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

(c) Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.

(d) If the person responsible for maintenance identified under (b) above is not a public agency, the maintenance plan and any future revisions based on (h) below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

(e) Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.

(f) The person responsible for maintenance identified under (b) above shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

(g) The person responsible for maintenance identified under (b) above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

(h) The person responsible for maintenance identified under (b) above shall retain and make available, upon request by any public entity with administrative, health, environmental or safety authority over the site, the maintenance plan and the documentation required by (f) and (g) above.

(i) Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.

7:8-5.9 Sources for technical guidance

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(a) Technical guidance for stormwater management measures can be found in the documents listed at (a)1 and 2 below, which are available from Maps and Publications, Department of Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; telephone (609) 777-1038.

1. Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, 2002 as amended. Information is provided on stormwater management measures such as:

- i. Bioretention systems;
- ii. Constructed stormwater wetlands;
- iii. Dry wells;
- iv. Extended detention basins;
- v. Infiltration structures;
- vi. Manufactured treatment devices;
- vii. Pervious paving;
- viii. Sand filters;
- ix. Vegetative filter, and
- x. Wet pond.

2. The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended.

(b) Additional technical guidance for stormwater management measures can be obtained from the following:

1. The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625, 609-292-5540;

2. The Rutgers Cooperative Extension Service, 732-932-9306; and

3. The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625, 609-292-5540.

## SUBCHAPTER 6. SAFETY STANDARDS FOR STORMWATER MANAGEMENT BASINS

### 7:8-6.1 Scope

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(a) This subchapter sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This subchapter applies to any new stormwater management basin.

(b) The provisions of this subchapter are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management basins. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management basins to be retrofitted to meet one or more of the safety standards in N.J.A.C. 7:8-6.2(a), (b) and (c)1 for trash racks, overflow grates, and escape provisions at outlet structures.

#### 7:8-6.2 Requirements for trash racks, overflow grates and escape provisions

(a) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin outlets in accordance with the following:

1. The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars;
2. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure;
3. The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack; and
4. The trash rack shall be constructed of rigid, durable, and corrosion resistant material and designed to withstand a perpendicular live loading of 300 lbs./ft sq.

(b) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, the grate shall comply with the following requirements:

1. The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance;
2. The overflow grate spacing shall be no greater than two inches across the smallest dimension; and
3. The overflow grate shall be constructed of rigid, durable, and corrosion resistant material and designed to withstand a perpendicular live loading of 300 lbs./ft sq.

# **New Jersey Stormwater Best Management Practices Manual**

February 2004

<http://www.state.nj.us/dep/watershedmgt/bmpmanualfeb2004.htm>

## **APPENDIX A -14**

# **DRAFT Model Stormwater Control Ordinance for Municipalities**

**Important note:** *This sample ordinance is provided to assist municipalities in the incorporation of design and performance standards into municipal plans. It is provided for information purposes only. It is important that current legislation is carefully reviewed before any portion of this draft ordinance is adopted.*

## **Section 1: Purpose**

### **A. Policy Statement**

Flood control, groundwater recharge, and pollutant reduction through nonstructural or low impact techniques shall be explored before relying on structural BMPs. Structural BMPs should be integrated with nonstructural stormwater management measures and proper maintenance plans. Nonstructural measures include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated loading of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

*Note: Municipalities are encouraged to develop and adopt regional stormwater management plans and implement ordinances for specific drainage area performance standards that address local stormwater management and environmental characteristics.*

### **B. Purpose**

It is the purpose of this ordinance to establish minimum stormwater management requirements and controls for major development.

#### C. Applicability

This ordinance shall be applicable to any site plan or subdivision that requires preliminary or final site plan review.

#### D. Compatibility with Other Permit and Ordinance Requirements

Development approvals issued pursuant to this ordinance are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This ordinance is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

## Section 2: General Standards

#### A. Design and Performance Standards for Stormwater Management Measures

1. 1. Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in this section. To the maximum extent feasible, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design.

2. 2. The standards in this ordinance apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or Water Quality Management Plan adopted in accordance with Department rules. Such alternative standards shall provide at least as much protection from stormwater-related loss of groundwater recharge, stormwater quantity and water quality impacts of major development projects as would be provided under the standards in this subchapter.

3. 3. For site improvements regulated under the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21, the RSIS shall apply in addition to this section except to the extent the RSIS are superseded by this section or alternative standards applicable under a regional stormwater management plan or Water Quality Management Plan adopted in accordance with Department rules.

## Section 3: Stormwater Management Requirements for Major Development

A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development.

B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department' Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlenbergi* (bog turtle).

C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements at Sections 3.F and 3.G:

1. 1. The construction of an underground utility line provided that the disturbed areas are revegetated upon completion;
2. 2. The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and
3. 3. The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

D. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements at Sections 3.F and 3.G may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

1. 1. The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
2. 2. The applicant demonstrates through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Sections 3.F and 3.G to the maximum extent practicable;
3. 3. The applicant demonstrates that, in order to meet the requirements at Sections 3.F and 3.G, existing structures currently in use, such as homes and buildings would need to be condemned; and
4. 4. The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under D.3 above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate for requirements of Sections 3.F and 3.G that were not achievable on-site.

#### E. Nonstructural Stormwater Management Strategies

1. 1. To the maximum extent practicable, the standards in 3.F and 3.G shall be met by incorporating nonstructural stormwater management strategies at 3.E into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in 3.E.2 below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.

- ☐ 2. Nonstructural stormwater management measures incorporated into site design shall:
- ☐ a. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
- ☐ b. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
- ☐ c. Maximize the protection of natural drainage features and vegetation;



- ☐.d. Minimize the decrease in the "time of concentration" from pre-construction to post construction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed;
- ☐.e. Minimize land disturbance including clearing and grading;
- ☐.f. Minimize soil compaction;
- ☐.g. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;
- ☐.h. Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;
- ☐.i. Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff. These source controls include, but are not limited to:
  - ☐.(1) Site design features that help to prevent accumulation of trash and debris in drainage systems;
  - ☐.(2) Site design features that help to prevent discharge of trash and debris from drainage systems;
  - ☐.(3) Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
  - ☐.(4) When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

2. 3. Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 3.F and 3.G shall be dedicated to a government agency, subjected to a conservation restriction filed with the appropriate County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

3. 4. Guidance for nonstructural stormwater management measures is available in the New Jersey Stormwater Best Management Practices Manual. The manual is available on the Department of Environmental Protection's stormwater web page at <http://www.njstormwater.org>.

#### F. Erosion Control, Groundwater Recharge and Runoff Quantity Standards

1. This section contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.

☐.a. The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.

☐.b. The minimum design and performance standards for groundwater recharge are as follows:

☐.(1) The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Section 4, either:

☐.(a) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100% of the average annual pre-construction groundwater recharge volume for the site; or

☐.(b) Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated.

☐.(2) This groundwater recharge requirement does not apply to projects within the "urban redevelopment" area, or projects subject to (3) below.

☐.(3) The following types of stormwater shall not be recharged:

☐.(a) Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than 'reportable quantities' as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas

where recharge would be inconsistent with Department approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

□.(b) Industrial stormwater exposed to "source material". "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

□.(4) The design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or downgradient of the groundwater recharge area.

□.c. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Section 4, complete one of the following:

□.(1) Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2, 10, and 100 year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;

□.(2) Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the 2, 10, and 100 year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

□.(3) Design stormwater management measures so that the post-construction peak runoff rates for the 2, 10 and 100 year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed. The percentages shall not be applied to post-construction stormwater runoff into tidal flood hazard areas if the increased volume of stormwater runoff will not increase flood damages below the point of discharge; or

□.(4) In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with 1, 2 and 3 above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.

2. Any application for a new agricultural development that meets the definition of major development at Section 12 shall be submitted to the appropriate Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For the purposes of this section, "agricultural development" means land uses normally associated with the production of food, fiber and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacturing of agriculturally related products.

#### G. Stormwater Runoff Quality Standards

1. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80 percent of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre of impervious surface is

being proposed on a development site. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures.

2. 2. For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 6, or found on the Department's website at [www.njstormwater.org](http://www.njstormwater.org). The BMP Manual and other sources of technical guidance are listed in Section 6. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418 Trenton, New Jersey, 08625-0418.

□.3. If more than one BMP in series is necessary to achieve the required 80% TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$\square.R = A + B - (AXB)/100$$

Where

R = total TSS percent load removal from application of both BMPs, and

A = the TSS percent removal rate applicable to the first BMP

B = the TSS percent removal rate applicable to the second BMP

3. 4. If there is more than one onsite drainage area, the 80% TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site in which case the removal rate can be demonstrated through a calculation using a weighted average.

□.5. Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections

□.3.F and 3.G.

4. 6. Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in Section 6.

5. 7. In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.

□.8. Special water resource protection areas shall be established along all waters designated Category One at

□.N.J.A.C. 7:9B and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

□.a. The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

<b>Table 1: Water Quality Design Storm Distribution</b>
---

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500
30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

**Table 2: TSS Removal Rates for BMPs**

Best Management Practice	TSS % Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	See Section 5.C
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

- (1) A 300-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the centerline of the waterway where the bank is not defined, consisting of existing vegetation or vegetation

allowed to follow natural succession is provided. (2) Encroachment within the designated special water resource protection area under Subsection (1) above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where applicant demonstrates that the functional value and overall

condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or centerline of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by the Department.

□.b. All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey", established under the Soil Erosion and Sediment Control Act,

□.N.J.S.A. 4:24-39 et seq.

□.c. If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey", established under the Soil Erosion and Sediment Control Act,

□.N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

□.(1) Stabilization measures shall not be placed within 150 feet of the Category One waterway;

□.(2) Stormwater associated with discharges allowed by this section shall achieve a 95% TSS post-construction removal rate;

□.(3) Temperature shall be addressed to ensure no impact on receiving waterway;

□.(4) The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;

□.(5) A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and

□.(6) All encroachments proposed under this section shall be subject to review and approval by the Department.

□.d. A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway subject to Section 2.G(8) has been approved by the Department of Environmental Protection, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway subject to

□.G.8 shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined in G.8.a.(1) above. In no case shall a stream corridor protection plan allow the reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

□.e. This subsection does not apply to the construction of one individual single family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before [effective date of the Stormwater Management Rules], provided that the construction begins on or before [five years from effective date of the Stormwater Management Rules].

## **Section 4: Calculation of Stormwater Runoff and Groundwater Recharge**

A. Stormwater runoff shall be calculated in accordance with the following:

1. The design engineer shall calculate runoff using one of the following methods:

□.a. The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds; or

□.b. The Rational Method for peak flow and the Modified Rational Method for hydrograph computations.

2. For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term “runoff coefficient” applies to both the NRCS methodology at Section

4.A.1.a and the Rational and Modified Rational Methods at Section 4.A.1.b. A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover have existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).

1. 3. In computing pre-construction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce pre-construction stormwater runoff rates and volumes.

2. 4. In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release-55, Urban Hydrology for Small Watersheds and other methods may be employed.

3. 5. If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.

B. Groundwater recharge may be calculated in accordance with the following:

1. The New Jersey Geological Survey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at <http://www.state.nj.us/dep/njgs/>; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427 Trenton, New Jersey 08625-0427; (609) 984-6587.

## **Section 5: Standards for Structural Stormwater Management Measures**

A. Standards for structural stormwater management measures are as follows:

1. 1. Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas, wetlands; flood-



prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone).

2. 2. Structural stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch (1") spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third ( $1/3$ ) the width of the diameter of the orifice or one-third ( $1/3$ ) the width of the weir, with a minimum spacing between bars of one-inch and a maximum spacing between bars of six inches. In addition, the design of trash racks must comply with the requirements of Section 7.D.

3. 3. Structural stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement.

4. 4. At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of two and one-half inches in diameter.

5. 5. Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at Section 7.

B. Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by this subchapter.

C. Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

## **Section 6: Sources for Technical Guidance**

A. Technical guidance for stormwater management measures can be found in the documents listed at 1 and 2 below, which are available from Maps and Publications, Department of Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; telephone (609) 777-1038.

1. 1. Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on stormwater management measures such as: bioretention systems, constructed stormwater wetlands, dry wells, extended detention basins, infiltration structures, manufactured treatment devices, pervious paving, sand filters, vegetative filter strips, and wet ponds.

2. 2. The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, as amended.

B. Additional technical guidance for stormwater management measures can be obtained from the following:

1. 1. The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by

the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;

2. 2. The Rutgers Cooperative Extension Service, 732-932-9306; and

3. 3. The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey, 08625, (609) 292-5540.

## **Section 7: Safety Standards for Stormwater Management Basins**

A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This subchapter applies to any new stormwater management basin.

B. The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management basins.

*Note: Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management basins to be retrofitted to meet one or more of the safety standards in Section 7.C.1, 7.C.2, and 7.C.3 for trash racks, overflow grates, and escape provisions at outlet structures.*

### **C. Requirements for Trash Racks, Overflow Grates and Escape Provisions**

1. A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin outlets in accordance with the following:

☐ a. The trash rack shall have parallel bars, with no greater than six inch spacing between the bars.

☐ b. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.

☐ c. The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

☐ d. The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs/ft sq.

2. An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:

☐ a. The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.

☐ b. The overflow grate spacing shall be no less than two inches across the smallest dimension.

☐ c. The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs/ft sq.

3. For purposes of this subsection, escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from

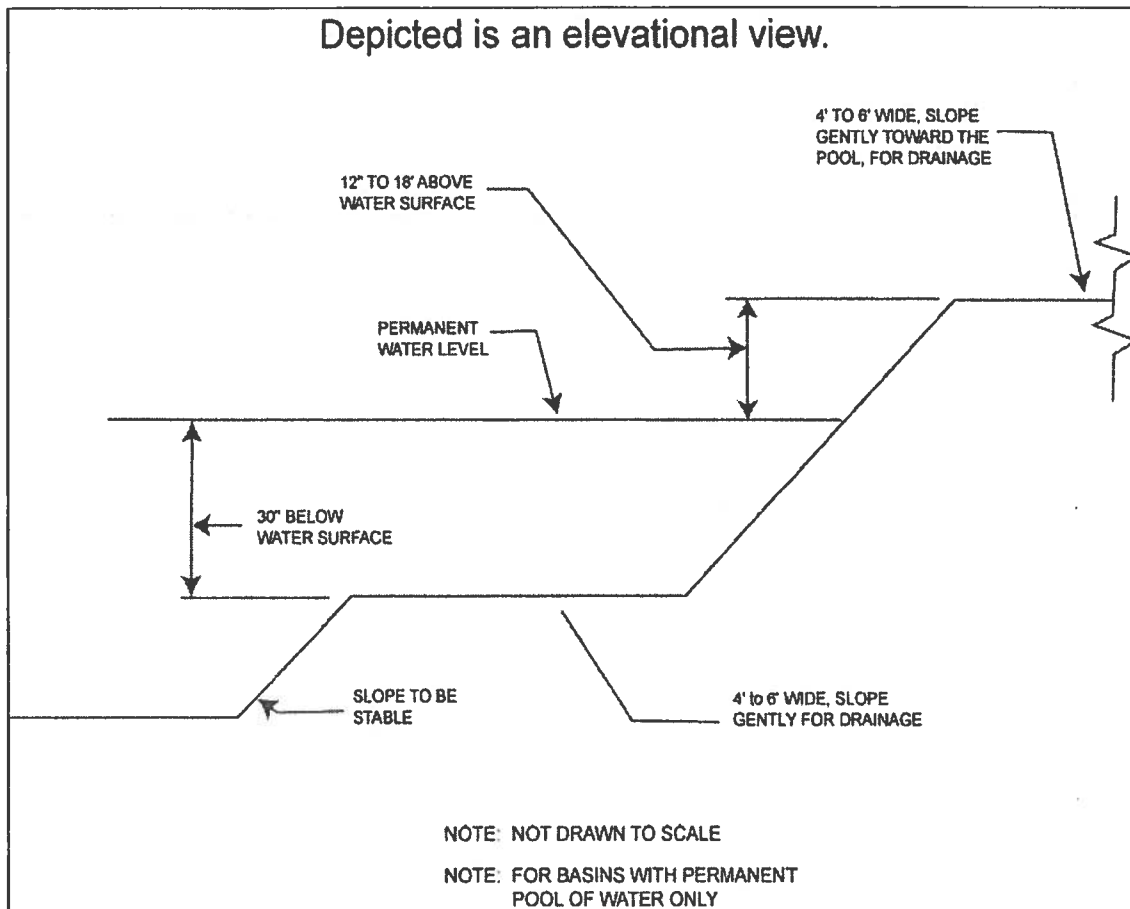
stormwater management basins. Stormwater management basins shall include escape provisions as follows:

- ☐ a. If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in Section 7.D a freestanding outlet structure may be exempted from this requirement.
- ☐ b. Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than two and one-half feet. Such safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one-half feet below the permanent water surface, and the second step shall be located one to one and one-half feet above the permanent water surface. See Section 7.E for an illustration of safety ledges in a stormwater management basin.
- ☐ c. In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than 3 horizontal to 1 vertical.

#### D. Variance or Exemption from Safety Standards

1. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or Department) that the variance or exemption will not constitute a threat to public safety.

#### E. Illustration of Safety Ledges in a New Stormwater Management Basin



## **Section 8: Requirements for a Site Development Stormwater Plan**

### **A. Submission of Site Development Stormwater Plan**

1. Whenever an applicant seeks municipal approval of a development subject to this ordinance, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at 8.C below as part of the submission of the applicant's application for subdivision or site plan approval.
2. The applicant shall demonstrate that the project meets the standards set forth in this ordinance.
3. The applicant shall submit [specify number] copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 8.C of this ordinance.

### **B. Site Development Stormwater Plan Approval**

The applicant's Site Development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this ordinance.

### **C. Checklist Requirements**

The following information shall be required:

- ☐ 1. Topographic Base Map
  - ☐ The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of 1"=200' or greater, showing 2 foot contour intervals. The map as appropriate may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category 1 waters, wetlands and flood plains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown.
- ☐ 2. Environmental Site Analysis A written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways and
  - ☐ vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.
- ☐ 3. Project Description and Site Plan(s)
  - ☐ A map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high ground water elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.
- ☐ 4. Land Use Planning and Source Control Plan
  - ☐ This plan shall provide a demonstration of how the goals and standards of Sections 2 through 5 are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

2. 5. Stormwater Management Facilities Map

The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

- ☐ a. Total area to be paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
- ☐ b. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

6. Calculations

- ☐ a. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section 3 of this ordinance.
- ☐ b. When the proposed stormwater management control measures (e.g. infiltration basins) depends on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on onsite boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the control measure.

7. Maintenance and Repair Plan

The design and planning of the stormwater management facility shall meet the maintenance requirements of Section 9.

2. 8. Waiver from Submission Requirements

The municipal official or board reviewing an application under this ordinance may, in consultation with the municipal engineer, waive submission of any of the requirements in Sections 8.C.1 through

8.C.6 of this ordinance when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

## Section 9: Maintenance and Repair

A. Applicability

- 1. Projects subject to review as in Section 1.C of this ordinance shall comply with the requirements of Section 9.B and 9.C.

B. General Maintenance

- 1. The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.
- 2. The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for maintenance, the plan

shall include documentation of such person's agreement to

assume this responsibility, or of the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

2. 3. Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.

3. 4. If the person responsible for maintenance identified under Section 9.B.2 above is not a public agency, the maintenance plan and any future revisions based on Section 9.B.7 below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

4. 5. Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of nonvegetated linings.

5. 6. The person responsible for maintenance identified under Section 9.B.2 above shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

6. 7. The person responsible for maintenance identified under Section 9.B.2 above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

7. 8. The person responsible for maintenance identified under Section 9.B.2 above shall retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Sections 9.B.6 and

9.B.7 above.

9. The requirements of Sections 9.B.3 and 9.B.4 do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency.

*(Note: It may be appropriate to delete requirements in the maintenance and repair plan that are not applicable if the ordinance requires the facility to be dedicated to the municipality. If the municipality does not want to take this responsibility, the ordinance should require the posting of a two year maintenance guarantee in accordance with N.J.S.A. 40:55D-53. Guidelines for developing a maintenance and inspection program are provided in the New Jersey Stormwater Best Management Practices Manual and the NJDEP Ocean County Demonstration Study, Stormwater Management Facilities Maintenance Manual, dated June 1989 available from the NJDEP, Watershed Management Program.)*

10. In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance, the municipality shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County may immediately proceed to do so and shall bill the cost thereof to the responsible person.

B. Nothing in this section shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee in accordance with N.J.S.A. 40:55D-53.



### C. Penalties

Any responsible person who violates any portion or section of this ordinance shall be subject to the following penalties: [Municipality to specify].

## Section 10: Effective Date

This ordinance shall take effect upon the approval by the county review agency , or sixty (60) days after submission to the county review agency if they fail to act.

*(NOTE: This model ordinance does not include a section on fees. The Department expects that the review of development applications under this ordinance would be an integral part of the municipal review of subdivisions and site plans. As a result, the costs to municipalities of reviewing development applications under this ordinance can be defrayed by fees charged for review of subdivisions and site plans under N.J.S.A. 40:55D 8.b)*

## Section 11: Severability

If the provisions of any article, section, subsection, paragraph, subdivision, or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision, or clause of this ordinance.

## Section 12: Definitions

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

"CAFRA Planning Map" means the geographic depiction of the boundaries for Coastal Planning Areas, CAFRA Centers, CAFRA Cores and CAFRA Nodes pursuant to N.J.A.C. 7:7E-5B.3.

"CAFRA Centers, Cores or Nodes" means those areas within boundaries accepted by the Department pursuant to N.J.A.C. 7:8E-5B.

"Compaction" means the increase in soil bulk density.

"Core" means a pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

"County review agency" means an agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review

agency  
may either be:

A county planning agency; or

A county water resource association created under N.J.S.A 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

"Department" means the New Jersey Department of Environmental Protection.

"Designated Center" means a State Development and Redevelopment Plan Center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

"Design engineer" means a person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

"Development" means the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. In the case of development of agricultural lands, development means: any activity that requires a State permit; any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A 4:1C-1 et seq.

"Drainage area" means a geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

"Environmentally constrained area" means the following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

"Environmentally critical areas" means an area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and well head protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

"Empowerment Neighborhood" means a neighborhood designated by the Urban Coordinating Council "in consultation and conjunction with" the New Jersey Redevelopment Authority pursuant to N.J.S.A 55:19-69.

"Erosion" means the detachment and movement of soil or rock fragments by water, wind, ice or

gravity.

"Impervious surface" means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

"Infiltration" is the process by which water that seeps into the soil from precipitation.

"Major development" means any "development" that provides for ultimately disturbing one or more acres of land or increasing impervious surface by one-quarter acre or more. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Projects undertaken by any government agency which otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq. are also considered "major development."

"Municipality" means any city, borough, town, township, or village.

"Node" means an area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

"Nutrient" means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

"Person" means any individual, corporation, company, partnership, firm, association, or political subdivision of this State and any state, interstate or federal agency.

"Pollutant" means any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

"Recharge" means the amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

"Sediment" means solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

"Site" means the lot or lots upon which a major development is to occur or has occurred.

"Soil" means all unconsolidated mineral and organic material of any origin.

"State Development and Redevelopment Plan Metropolitan Planning Area (PA1)" means an area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

"State Plan Policy Map" is defined as the geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

"Stormwater" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities.

"Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

"Stormwater management basin" means an excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

"Stormwater management measure" means any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

"Tidal Flood Hazard Area" means a flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

"Urban Coordinating Council Empowerment Neighborhood" means a neighborhood given priority access to state resources through the New Jersey Redevelopment Authority.

"Urban Enterprise Zones" means a zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et. seq.

"Urban Redevelopment Area" is defined as previously developed portions of areas:

- ☐ (1) Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
- ☐ (2) Designated as CAFRA Centers, Cores or Nodes,
- ☐ (3) Designated as Urban Enterprise Zones; and
- ☐ (4) Designated as Urban Coordinating Council Empowerment Neighborhoods.

"Waters of the State" means the ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

"Wetlands" or "wetland" means an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.