Pond 1-G	56,450 ft³
Pond 1-H	23,377 ft³
Pond 1-I	20,352 ft³
Pond 1-J	45,256 ft³
Pond 1-K	11,240 ft³
Pond 1-L	108,551 ft³
Pond 1-M	38,379 ft³
Pond 1-N	58,169 ft³
Pond 1-O	102,136 ft³
Pond 1-P	43,905 ft³
Pond 1-R	24,329 ft³
Pond 1-S	25,548 ft³

Table III-D.6

Comparison of Stormwater Discharges – cubic feet per second (cfs)

DP-1	Pre-Development Rate (cfs)	Post Development Rate (cfs)	Reduction in Runoff (cfs)
1-Year	71.37	65.47	5.9
2-Year	164.09	144.37	19.72
10-Year	435.78	414.27	21.51
25-Year	654.10	613.93	40.17
50-Year	889.27	838.99	50.28
100-Year	1,011.65	957.61	54.04

f. Identification of all existing drainage basins shall be provided on pre- and post-development drainage maps:

Currently there is one Drainage Basin for the property. As proposed the development will consist of 18 separate drainage basins (subareas 1A through 1S). The pre and post development drainage basins are shown on the Existing Conditions Drainage Area Map and the Proposed Conditions Drainage Area Map included in he SWPPP (Appendix B).

g. *Discussion of the ownership and long-term maintenance and management of the stormwater basins:*

The Stormwater Management Facilities will be constructed and managed by the owner until the project is completed. Upon completion of the development ownership will be transferred to the Home Owner's Association (HOA). Additionally, the applicant will dedicate easements around all stormwater facilities to the benefit of the Town of Deerpark so they may perform any maintenance they feel the HOA is not performing, with fiscal responsibility for that maintenance resting with the HOA. The maintenance of the Stormwater Basins is as follows:

The following maintenance program is proposed in order to maintain the proper function of all drainage and erosion and sediment control facilities:

- In accordance with New York State Stormwater Management Design Manual requirements, a sediment marker shall be placed in all ponds.
- Mow the side slopes and bottom of the pond as necessary to maintain their appearance but not less than twice a year. Inspect pond and if necessary remove invasive woody vegetation to prevent it from becoming established within the pond.
- During mowing operations, litter and debris will be removed from vegetated swale, micropool extended detention pond, and the outlet

control structures.

- During the construction of the project, the site erosion and sediment control measures as well as pond embankments and outlet structures will be inspected by the project superintendent once a week and/or immediately following a rainstorm of 0.5" or more in 24 hours. Any repairs required shall be performed immediately. All sediment removal and/or repairs will be followed immediately by re-vegetation.
- All disturbed area will be stabilized and the sediment build up in the pond removed before the pond is fined, graded, and landscaped. After the construction is completed, any areas disturbed shall be stabilized immediately after the required work is completed.
- The Owner shall inspect the facilities once a month, and once a year by a Professional Engineer. A report by the Professional Engineer shall be submitted to the Owner and the Town of Deerpark in the event deficiencies are found. In addition, the Owner shall inspect the system after each major storm event to ensure the small orifices and inlets remain open. Specific attention should be paid to the following:
  - Evidence of clogging of outlet control device.
  - Erosion of the flow path through the detention facility.
  - Subsidence, erosion, cracking or tree growth on the embankments.
  - Accumulation of sediment.
- Clean catch basins and other drainage structures from silt regularly, but not less than twice a year. Remove sediment build up in the pond as required, but a minimum of every five years. A rubber-tired backhoe with a minimum reach of *25'* will be used to remove silt accumulation. Laborers with shovel and wheel barrels will be used to maintain the embankment slopes, to repair minor erosion problems and remove minor accumulation of silt. The use of hand labor will

also minimize the disturbance of stabilized areas and the established vegetation. A PW17OES-6 a rubber-tired backhoe has the reach and maneuverability to maintain these ponds from the adjacent parking lots.

- Minimize the use of road salt for maintenance of parking areas.
- Restore and re-seed any eroded areas and gullies as soon as possible.
- The Stormwater Management Facilities Maintenance Program will be managed by the owner and structures will be inspected by a certified professional.

h. An analysis of pre and post construction sedimentation and pollutant loading including quantities of specific quantities of specific pollutants so noted in the New York State Stormwater Management Design Manual:

The analysis of construction sedimentation and pollutant loading is included in the Stormwater Pollution Prevention Plan. The report concludes that according to the NYSDEC Stormwater Manual, the stormwater management ponds proposed for development have published removal rates of 80% for TSS, 50% for TP, 50% for TN, 60% for Metals, and 70% for Bacteria. With the application of the expected removal rates on the proposed detention ponds, the stormwater pollutants generated by the development will be significantly reduced (as compared to no mitigation) and any potential adverse downstream impacts would be lessened. Refer to the Stormwater Pollution Prevention Plan for the detailed calculations.

i. An analysis of the planned sewage disposal facilities required to service the project and its associated impacts to the site and downstream areas:

The planned sewage disposal system for the project will include a gravity collection system, force mains, sanitary pump stations and a treatment plant. The sewage will be collected by a gravity collection system and

directed to centrally located sanitary pump stations. Then the sewage will be pumped to the treatment plants by force mains. After the sewage is treated it will be released into the Basher Kill. Since the sewage is being properly treated, it is anticipated that there would not be any significant adverse environmental impacts.

j. Impact of the creation of impervious areas within delineated wetlands:

Two wetland areas are being crossed with the proposed development. With the construction of the crossings, impervious surface will be placed over the wetland areas. The wetlands being crossed are under the jurisdiction of the ACOE and as such, a permit from the ACOE will be required for these crossings. Altogether disturbances will amount to 3,989 square feet, as depicted on Exhibits III.D-2 and III.D-3

k. Analysis of the rise in temperature of the Basher Kill, wetlands and all other downstream watercourse including the Delaware River due to the increased runoff:

Thermal impacts occur in developed watersheds from the transfer of heat from impervious surfaces to stormwater runoff, and by the increase of exposure to the sun on water resources caused by the removal of vegetation from the landscape. If stormwater runoff from landscaped areas is directed to a stream without mitigation, the resulting rise in temperature can adversely affect the biota of the stream.

While a specific temperature impact analysis has not been performed, it is highly unlikely that there would be any measurable rise in temperature. Since the Stormwater computations were based on the Soil Conservation Service TR-20 and TR-55 methodologies and recommendations included in the "New York State Stormwater Management Design Manual", the

implementation of the stormwater management plan would not adversely affect the neighboring environments including the Basher Kill, wetlands, and all other downstream watercourses including the Delaware River. A significant component to any temperature impact analysis is the distance the stormwater travels before entering the receiving waters. The proposed stormwater management system has been designed to preserve the required wetland buffers. All stormwater discharges would be setback more than 100' from any receiving water course and discharged via a level spreader swale. By maintaining these natural buffers, the stormwater runoff is allowed to sheet flow over the natural terrain which dissipated any rise in temperature.

Wastewater treatment consists of physical and biological unit process systems. Waste Assimilation Capacity (WAC) Analysis was performed to evaluate the effect of the Proposed Deer Park WWTF discharge on the ambient temperature in Basher Kill:

Proposed Deer Park WWTF discharge to Basher Kill, Otisville, NY.

From New York State Department of Environmental Conservation (DEC) Guidance

Receiving Stream Characteristics

1. Receiving water being investigated in the following streams:

   Basher Kill upstream of the proposed WWTF

   Waters Index Number: D-1-12 portion
   Name: Basher Kill (or Bashas Kill)
   Description: Mouth to trib. 20
   Class: C
   Standards: C

2. Statistical minimum average seven consecutive day streamflow occurring once in ten years (MA7CD10).

The USGS/DEC Bulletin 74 lists four streams location near the study area.

Gumaer Brook near Wurtsboro, USGS 01437100, Drainage Area (DA) =6.92 mi^2, MA7CD10 = 0.7 cfs, MA7CD2 = 1.3 cfs, MA7CD10= 0.101 cfs/mi^2.

Basher Kill at Wurtsboro, USGS 01437200, Drainage Area (DA)=12.10 mi^2, MA7CD 10 = 2.1 cfs, MA7CD 2 = 3.6 cfs, MA7CD 10 = 0.174 cfs/mi^2

Willsey Brook at Wurtsboro, USGS 01437300, Drainage Area (DA)=3.25 (5.85) mi^2, MA7CD 10 = 0.0 cfs, MA7CD 2 = 0.0 cfs, MA7CD 10 = 0.0 cfs/mi^2

Basher Kill at Cuddebackville, USGS 01437400, Drainage Area (DA)=66.0 mi^2, MA7CD 10 = 10.0 cfs, MA7CD 2 = 17.0 cfs, MA7CD 10 = 0.152 cfs/mi^2

Proposed WWTF discharge site, Basher Kill at Otisville, Drainage Area (DA) = 63.61 mi^2, MA7CD 10 = 9.67 cfs [63.61 mi^2 X 0.152 cfs/mi^2 (from Basher Kill at Cuddebackville)].

3. Stream Standards, NYSDEC

Part: 704 Thermal Discharges

(i) Nontrout waters.

(ii) The water temperature at the surface of a stream shall not be raised to more than 90 degrees Fahrenheit at any point.

(iii) At least 50 percent of the cross sectional area and/or volume of flow of the stream including a minimum of one-third of the surface as measured from shore to shore shall not be raised to more than five Fahrenheit degrees over the temperature that existed before the addition of heat of artificial origin or to a maximum of 86 degrees Fahrenheit whichever is less.

(iv) At least 50 percent of the cross sectional area and/or volume of flow of the stream including a minimum of one-third of the surface as measured from shore to shore shall not be lowered more than five Fahrenheit degrees from the temperature that existed immediately prior to such lowering.

Receiving Waters Temperature and Critical Flow

1. Summer Temperature: 25°C (77°F) as per NYSDEC Guidance for non-trout streams.

2. Winter Temperature: 10°C (50°F)

3. MA7CD 10(once in 10 year 7 consecutive day low flow): 9.67 cfs (see above)

Wastewater Characteristics

1. The estimated project wastewater flow is 0.139 MGD (0.214 cfs).

2. The estimated effluent temperature is assumed to be 23°C (73°F).

Calculation of Waste Assimilation Capacity for Temperature

1. The maximum temperature increase allowed in one-half of the flow volume is 5°F (non-trout stream).

2. Critical stream flow is 9.67 cfs/2 = 4.83 cfs at 50°F and effluent flow is 0.214 cfs at 73°F.

3. Using a mass balance calculation the resultant temperature in the Basher Kill from the mixture of one-half of the critical low flow and entire design flow of the proposed wastewater treatment facility is 51°F. This temperature increase (+ 1°F) is well within the NYSDEC allowable increase of 5°F.

3. Similarly, using a Basher Kill temperature of 41°F (5°C), the resultant temperature in the Basher Kill from the mixture of one-half of the critical low flow and entire design flow of the proposed wastewater treatment facility is 42.3°F. This temperature increase (+ 1.3°F) is well within the NYSDEC allowable increase of 5°F.

Conclusion of Waste Assimilation Capacity for Temperature

The temperature effects of the effluent from the proposed Basher Kill Subdivision WWTP are well below the allowable changes in receiving water temperature considered by NYSDEC to be protective of Basher Kill aquatic life.

l. Impact of sedimentation and surface runoff to the existing and proposed roads:

Surface runoff from the entire Project, including the proposed roads, will be captured and conveyed to the surface detention ponds and treated as described in the Stormwater Pollution Prevention Plan. There should be little or no sedimentation on the proposed roadways. Existing roadways surrounding the site that do not have proper drainage facilities may be subject to some sedimentation, but no more than currently exists.

m. Identify herbicides and Pesticides to be used on the project:

The herbicides and pesticides used on the project will include applications associated with typical lawn maintenance. Common herbicides and pesticides that may be used include 2, 4-D, DiCamba, MCPP, Malathion, and Permethrin.

2. Mitigation Measures

a. Stormwater management, Water quality and erosion and sediment control plans should be developed and included in the DEIS according to the following:

i. Reducing the Impacts of Stormwater Runoff from new developments, NYSDEC.

The Stormwater Management system has been designed in accordance with the NYSDEC publication "Reducing the Impacts of Stormwater Runoff from new development" with the following design features:

- Peak flow rates have been controlled to ensure that the post-development rate of runoff from the site will not exceed pre-development rates for 1, 2, 10, 25, and 100-year 24-hour storm events.
- Pollutant loading is controlled by means of detaining the runoff generated from 90% rainfall event for longer than 24 hours.
- Emergency discharges are controlled. For all ponds, have an emergency spillway designed to handle the 100-year storm event that directs flows away from the proposed residences.
- The reduction in peak discharge rates for the entire storm events and for all of subareas is significant in the post development condition. These reductions in post development discharge rates ensure that no down stream properties, watercourse or drainage systems will be adversely affected by the proposed development.

ii. New York Guidelines for Urban Erosion and Sediment Control.

The Erosion and Sediment control drawings included in the Appendices have been developed in accordance with the New York State Guidelines for Urban Erosion and Sediment Control (August 2005), New York State General Permit for Stormwater Discharges, GP-93-06 (General Permit) criteria as summarized in the NYSDEC Stormwater Design Manual and "Reducing the Impacts of Stormwater Runoff from New Development", as published by the New York State Department of Environmental Conservation (NYSDEC), second edition, April 1993.

The proposed erosion control measures include the following design features:

- The proposed soil erosion and sediment control devices include protective earthmoving procedures and grading practices, vegetated cover, check dams, silt fencing, and temporary silt traps. The approach