

# Stormwater Pond "Parts" & When To Take Action!

This short guide will help you determine what steps to take to maintain your stormwater pond, and when to seek professional assistance.



Delaware Department of Natural Resources and Environmental Control  
Division of Soil and Water Conservation, Sediment and Stormwater Program  
302-739-9921



May 2007

# Let's Get Started

1. By regulation, the State of Delaware requires property owners to maintain the stormwater management facility (must function properly).
2. This includes commonly owned ponds, for example, a stormwater management pond that exists in common ground of a community development.
3. First, obtain the most recent maintenance inspection performed by the Delegated Agency, to assist you in deciding what repairs are required, versus what is optional.
4. The Delegated Agency is the agency in Delaware that implements the Delaware Sediment and Stormwater Regulations at the local level. This agency is also responsible for maintenance inspections. The Delegated Agency in which you seek assistance will depend on where you live. Please see the next page for a listing of the Delegated Agencies and their jurisdiction.
5. Note that the information contained within this guidance document may vary slightly from one Delegated Agency to another. Before acting, always contact the Delegated Agency to verify that the proper action is being taken. Some Delegated Agencies, such as New Castle County and the Town of Middletown, may even perform major maintenance corrections on stormwater facilities within their jurisdiction. To find out, please contact your Delegated Agency.

## LIST OF DELEGATED AGENCIES

### **Department of Natural Resources & Environmental Control**

Division of Soil and Water Conservation

Sediment and Stormwater Program

89 Kings Highway

Dover DE 19901

Phone: (302) 739-9921

<http://www.dnrec.state.de.us/DNREC2000/Divisions/Soil/Stormwater/StormWater.htm>

Responsible for all aspects of administration of the state sediment and stormwater management program under the Delaware Sediment and Stormwater Law and Regulations. Responsible for plan review and inspection of State and Federal Projects.

### **Department of Transportation**

800 Bay Road

P.O. Box 778

Dover DE 19903

Phone: (302) 760-2251

<http://www.deldot.net/>

Delegated Area: DeDOT Construction

### **New Castle County**

New Castle County Dept. of Land Use

Licensing Division

87 Reads Way

Corporate Commons

New Castle DE 19720

Phone: (302) 395-5400

<http://www.co.new-castle.de.us/landuse/home/webpage1.asp>

Delegated Area: All unincorporated areas of New Castle County

### **New Castle Conservation District**

2430 Old County Road

Newark DE 19702

Phone: (302) 832-3100, Ext. 3

Delegated Area: All Incorporated areas of New Castle County (except City of Newark, City of Wilmington and Town of Middletown).

### **City of Newark**

Public Works Department

220 Elkton Road

Newark DE 19711

Phone: (302) 366-7040

[http://newark.de.us/docs/departments/public\\_works.html](http://newark.de.us/docs/departments/public_works.html)

Delegated Area: City of Newark

## LIST OF DELEGATED AGENCIES Continued...

### **City of Wilmington**

Dept. of Public Works  
800 North French Street  
Wilmington DE 19801  
Phone: (302) 576-3056

<http://www.ci.wilmington.de.us/departments/pubworks.htm>

Delegated Area: City of Wilmington

### **Town of Middletown**

19 West Green Street  
Middletown DE 19709  
Phone: (302) 378-2711

[http://www.middletownde.org/town\\_offices.htm](http://www.middletownde.org/town_offices.htm)

Delegated Area: Town of Middletown

### **Kent County**

Kent Conservation District  
800 Bay Road, Suite 2  
Dover, DE 19901  
Phone: 302-741-2600 (X 3)

<http://kentcd.org/>

Delegated Area: Kent County

### **Sussex County**

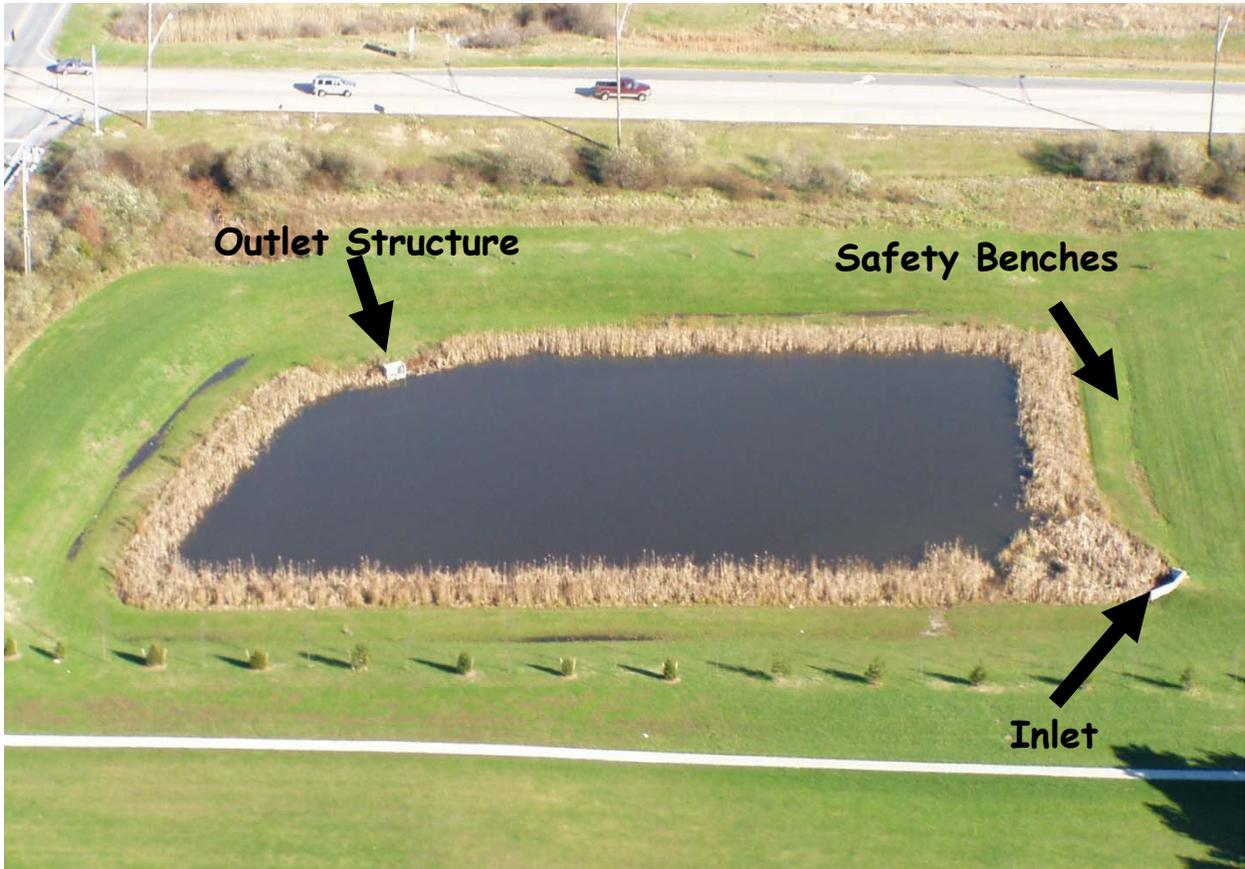
Sussex Conservation District  
23818 Shortly Road  
Georgetown DE 19947  
Phone: (302) 856-7219

[http://www.sussexconservation.org/sed\\_sw.htm](http://www.sussexconservation.org/sed_sw.htm)

Delegated Area: Sussex County

# Stormwater Pond Parts...

## Typical Stormwater Pond (Excavated)



## Embankment on Stormwater Pond

### Pond Embankment

When a pond can't be excavated, an earthen dam known as an embankment must be constructed with either clay or a liner to retain water.



**ACTION ITEM**  
Do not plant large trees on embankment.  
Remove saplings as necessary.

**Outlet Structure**

The outlet structure allows water to flow out of the stormwater pond at a regulated water level.



**ACTION ITEMS**  
Remove debris from outlet structure.  
Mow a 10-foot access path to outlet.  
Hire a professional if structure is cracked or broken.



**Inlet**

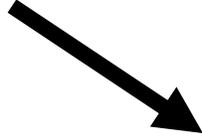
Water flows into pond through the inlets. Keep inlet structures free of debris and trash.

**ACTION ITEMS**  
Remove debris from all inlet structures.  
Mow 10-foot access path to outlet.  
Hire a professional if structure is cracked or broken.

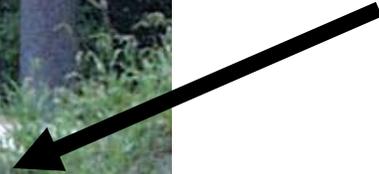
## Emergency Spillway

Every pond must have an emergency spillway. Water can overflow at this location if it becomes overly full due to a significant rain event.

**Rip Rap  
Emergency Spillway**



**Concrete  
Emergency Spillway**



**ACTION ITEM**  
Hire a professional if structure is cracked or broken.



### **Trash Rack**

A trash rack keeps trash and debris from exiting the pond.

### **Trash Rack on Low Flow Orifice**

The low flow orifice regulates the water level in pond.

**ACTION ITEM**  
Remove trash and debris from the trash rack and outlet to allow water to exit the stormwater pond.



### **Concrete Weir**

A concrete weir is not found on all stormwater ponds. It functions to retain water and regulate water level.

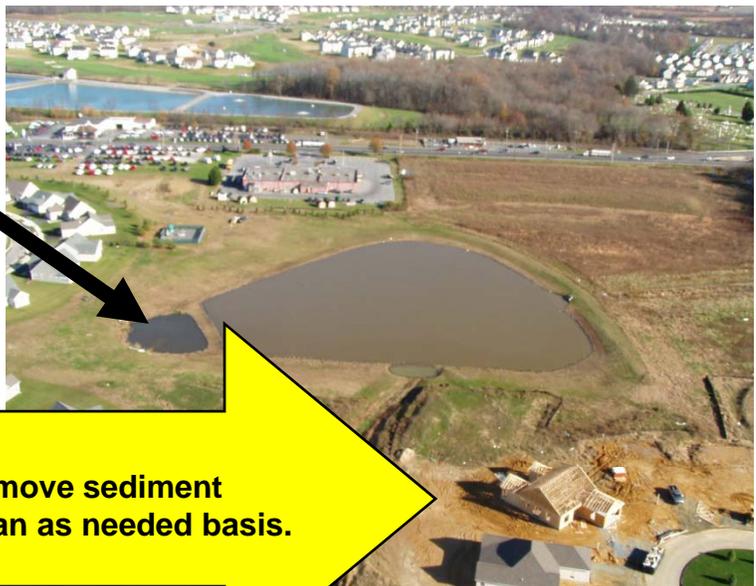


**ACTION ITEM**  
Hire a professional if structure is cracked or broken.





**Safety Bench** There are typically two safety benches in a stormwater pond, one 1-foot above the permanent pool of water and one 1-foot below. This feature is called a safety bench because it is intended to safeguard someone if they fall in or near the pond.



**Forebay**

A forebay concentrates sediment into one area to decrease dredging costs later.

**ACTION ITEM**  
Hire a professional to remove sediment (dredge the forebay) on an as needed basis.



### **Pond Buffers ("No Mow Zone")**

Buffers are optional, not required. There are three major benefits of buffers. First, they provide necessary habitat for wildlife. Second, they filter the water as it enters the pond, removing nutrients such as Nitrogen and Phosphorus. Third, they deter geese from entering the pond, which will reduce potentially harmful bacteria from entering the water.

#### **ACTION ITEM**

**Buffers are optional. The entire homeowner's association should agree with the buffer width decision. Also work with your lawn care company to achieve the desired goals.**

### **Aeration**

Pond aeration provides oxygen in the water column, vital for the survival of aquatic organisms like fish. There are many different types of aeration systems. Some types even have the added benefit of reducing mosquitoes.

#### **OTHER ACTION ITEM**

**Aeration systems are optional. Hire a professional to install and maintain your aeration system, if your homeowner's association or maintenance corporation agrees on this option.**

# CASE STUDIES

When do I hire a professional?  
What can I do myself?

Here are some examples.



**ACTION ITEM**

Clean trash. To save on cost, do it yourself.



### **ACTION ITEMS**

Contact your Delegated Agency for the most recent maintenance inspection. Hire a professional to remove vegetation (in this instance will be mechanical and chemical). We do not recommend doing this yourself. Hire a professional who has both a commercial applicator's license and aquatic pesticide applicator's license through the Delaware Department of Agriculture. Also, removing the fencing is recommended, but not required.

### **OTHER ACTION ITEMS**

Hire a professional to remove excess sediment from the pond, if determined by a maintenance inspection. This can be costly (\$\$\$), depending on sediment removal. The professional should obtain engineering plans prior to dredging to minimize the possibility of damaging the pond liner if one exist.



### **A Note of Fencing**

Fencing is not required. Some insurance companies will require fencing to be installed in order for the maintenance corporation or homeowner's association to be covered by liability insurance. In Delaware, fencing is not recommended because it makes maintenance of stormwater ponds difficult and can deter access should an emergency arise.



#### **ACTION ITEMS**

**Remove vegetation from outlet. To save on cost, do it yourself. Additionally, you can choose to hire a year-round professional for permanent algae control (optional). We recommend that you not do this yourself. Hire a professional who has both a commercial applicator's license and aquatic pesticide applicator's license through the Delaware Department of Agriculture.**



**ACTION ITEM**

**Major structural repairs are necessary. This will be costly, but must be done. Leaving the structure in this state can be dangerous. You must first obtain guidance from the Delegated Agency, followed by hiring a professional to complete the repair (costly\$\$\$).**



#### **ACTION ITEMS**

**Decrease the use of lawn fertilizers throughout the community. Work with your lawn care company to be sure that grass clippings are not dumped into the pond. This will reduce nutrients into the system. Algae removal is optional (not required). We recommend not to do this yourself. Hire a professional who has both a commercial applicator's license and aquatic pesticide applicator's license through the Delaware Department of Agriculture.**



#### **ACTION ITEMS**

**Stabilize banks of pond. If erosion is severe enough, hire a professional. If erosion is minor, do it yourself to save on cost. In the spring or fall, till ground and clear soil of debris and rocks. Seed with perennial species and mulch (straw works well). Water frequently until vegetation is established.**



# Mosquito Problems?

## **ACTION ITEMS**

**DNREC Mosquito Control will sample the pond to see if the source of mosquitoes is coming from your pond. If so, they will treat for mosquitoes, free of charge.**

**New Castle County 302-836-2555**

**Kent & Sussex Counties 302-422-1512**

**Other options? Call a professional to determine if the introduction of *Gambusia* (mosquito fish) would be appropriate for the stormwater pond.**



## **OTHER ACTION ITEMS**

**Contact your Delegated Agency for a maintenance inspection. Hire a professional to remove vegetation (in this instance will be mechanical and chemical). We recommend that you not do this yourself. Hire a professional who has both a commercial applicator's license and aquatic pesticide applicator's license through the Delaware Department of Agriculture.**

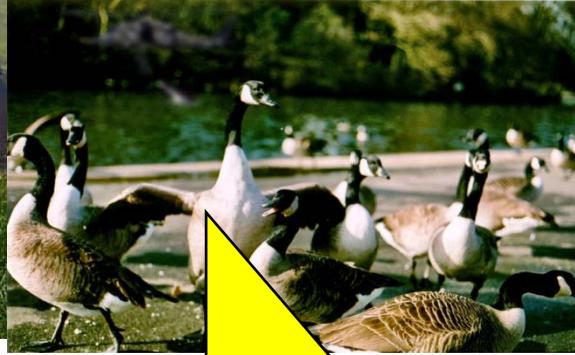


#### **ACTION ITEMS**

**Decrease the use of lawn fertilizers throughout the community. In this instance, vegetation removal is optional; however, we recommend that you not do this yourself. Hire a professional who has both a commercial applicator's license and aquatic pesticide applicator's license through the Delaware Department of Agriculture. The introduction of grass carp is not permitted in stormwater ponds in the State of Delaware.**



# Goose Problem?



## ACTION ITEMS

No action is required for goose control; however, leaving a buffer will deter the geese from staying at your pond. Other options also exist that will deter geese; however, they can not be done yourself. Hire a professional who has experience with goose control.

## OTHER ACTION ITEMS

Decrease the use of lawn fertilizers throughout the community. In this instance, vegetation removal is optional; however, we do not recommend that you do this yourself. Hire a professional who has both a commercial applicator's license and aquatic pesticide applicator's license through the Delaware Department of Agriculture. The introduction of grass carp is not permitted in stormwater ponds in the State of Delaware.