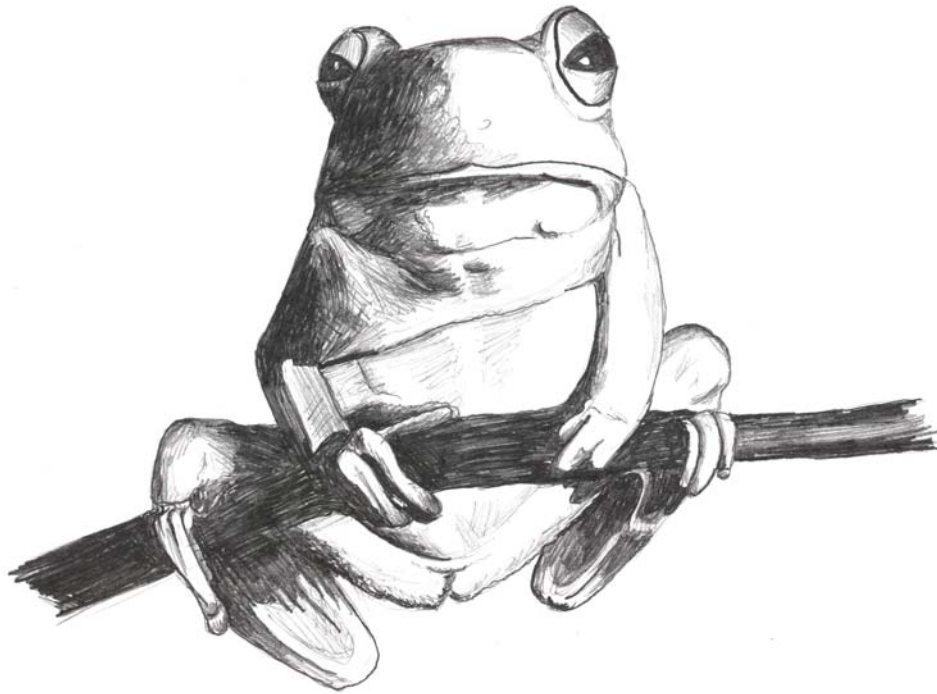


ADOPT-A-POND PROGRAM DOCUMENT

DRAFT



Created by the
Center for Watershed Protection
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For the
*Baltimore County Department of Environmental
Protection and Resources Management (DEPRM)*



PREFACE

The Adopt-a-Pond (AAP) program document was created by the Center for Watershed Protection (Center) in cooperation with Herring Run Watershed Association (HRWA) and Baltimore County. The intended audience of this document is a local watershed group implementing an AAP program in its watershed. Goals of this document are to provide educational materials on the function, maintenance, and benefits of stormwater ponds; to provide lessons learned from other AAP programs; and to provide a process for a watershed group to implement an AAP program.

The main outcome of the AAP program is to assist Baltimore County in the continual upkeep of publicly-owned stormwater ponds by having neighborhood groups accept responsibility for inspection and general maintenance of their adopted facilities. The central idea behind the AAP program is that a watershed organization, working with neighborhood groups, will assume the responsibility for performing pond inspections, organizing field days for needed maintenance, and filling out and filing maintenance reports for adopted ponds. The watershed association administering the program is responsible for collecting the maintenance reports and continuously updating the database of maintenance performed on all ponds in the program.

Instructions for Using the Adopt-a-Pond Document

There are three sections in the AAP document. The first two sections describe necessary background information for the document, and the remaining section describes the steps involved in implementing an AAP program. The purpose of each of the sections and the steps are as follows:

- | | |
|------------------|---|
| Section 1 | Pond 101 -Provides necessary background information on stormwater ponds that may be useful in answering questions posed by the public when training AAP volunteers |
| Section 2 | Tips for Building a Successful Adopt-a-Pond program -Provides tips gleaned from other AAP programs across the country on elements of successful programs |
| Section 3 | Steps for Implementing an Adopt-a-Pond Program <i>Step 1: Identifying Ponds for Adoption</i> - Describes how to determine which ponds in your area need to be adopted <i>Step2: Recruiting and Retaining Volunteers</i> - Describes a process to recruit volunteers, provides options for their duties and specifies incentives to assist in volunteer retention <i>Step 3: Technical Training Steps</i> - Describes the process for planning and implementing a field day with a group of volunteers and contains a blueprint for conducting a classroom training for volunteers <i>Step 4: Protocols for Inspecting and Maintaining Ponds</i> - Describes inspection and maintenance protocols and provides a form for inspection/ and maintenance tracking <i>Step 5: Reporting and Tracking</i> - Describes how and what to report to the County and the method to track data |

Basic forms, handouts and a slideshow are provided in Appendices I-III.

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SECTION 1. POND 101

What is a Stormwater Pond?

When land is developed, **impervious surfaces**¹ such as rooftops, roads, parking lots, and driveways are created. These impervious surfaces generate stormwater runoff because they do not allow rainwater to soak into the ground. Impervious surfaces also accumulate pollutants deposited from the atmosphere, leaked from vehicles, or wind-blown in from adjacent areas. During storm events, pollutants quickly wash off of impervious surfaces and are rapidly delivered to downstream waters. Some common pollutants found in urban stormwater runoff include sediment, nutrients (nitrogen and phosphorus), heavy metals and oil and grease. **Stormwater treatment practices**, such as ponds are inserted into the landscape to improve water quality and reduce the flooding associated with increased impervious cover and surface runoff. Stormwater ponds filter pollutants from the water before releasing it to the stream. In the absence of stormwater ponds, unfiltered water carrying various pollutants is rapidly delivered to streams. Figure 1-1 illustrates how runoff from our lawns and streets is conveyed to a typical stormwater pond.

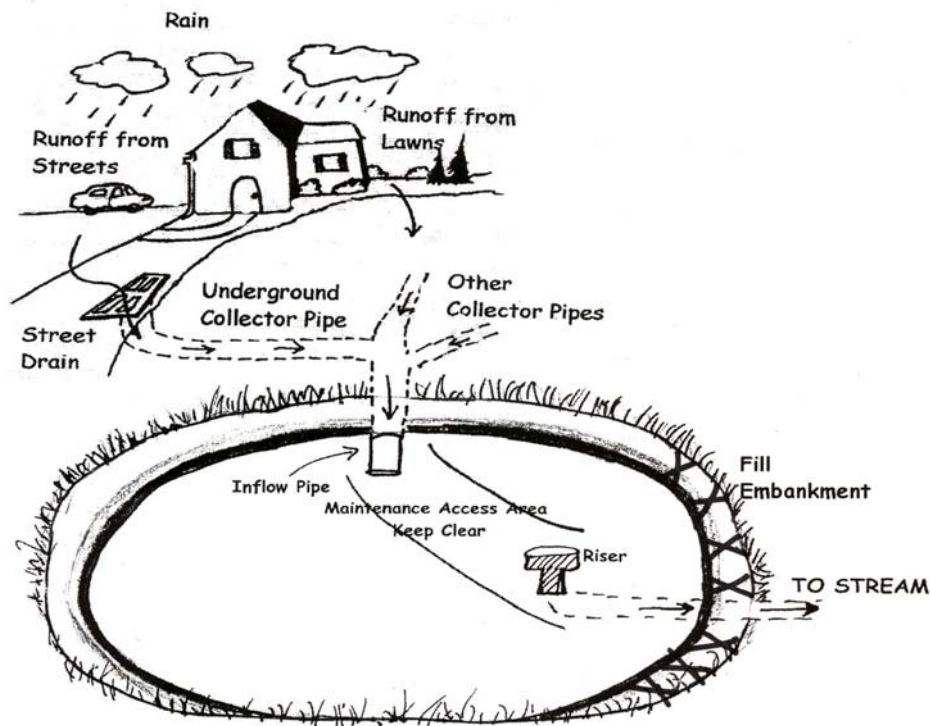


Figure1-1. Schematic of a typical stormwater pond (modified from Thurston County, 2002)

¹Items in bold are defined in the glossary

Why Are Ponds Important?

In Maryland, new stormwater ponds are created to reduce flooding, to improve water quality and to minimize downstream channel erosion. They function by detaining water for a period of time and allowing pollutants to settle out. New ponds are also designed to release the water at particular rates to reduce downstream flooding and channel erosion.

Flood Control

One objective of stormwater treatment practices is to reduce the flood hazard associated with large storms by reducing the peak flow associated with them. Wet and dry ponds can easily be designed for **flood control**. Floodwater storage is provided either above the level of the permanent pool in a wet pond or above the level of the primary **orifice** in a dry pond.

Channel Protection

One result of urbanization is channel erosion caused by increased stormwater runoff. Traditionally wet and dry ponds have been designed to provide control of the **two-year** or **ten-year storm**. It appears that this **design storm** has not been effective in preventing channel erosion, and recent research suggests that control of a smaller storm may be more appropriate (MacRae, 1996). Choosing a smaller design storm (one-year) and providing longer detention time (12 to 24 hours) is now thought to be the best method to reduce channel erosion.

Water Quality

Stormwater ponds and other facilities can reduce pollutants in three primary ways; through detaining the water and allowing pollutants to settle out, by filtering the water, and by plant uptake and biological activity.

In the Adopt-a-Pond program there are two types of ponds that may be adopted. A description of each practice and the pollutant removal capability of each are presented in the next few pages.

Why Should Residents Help?

It is important that ponds receive a checkup on a regular basis to determine if maintenance is needed. Maintenance includes trash removal, repairing fences for public safety, and removing vegetation that may impede pond function or result in damage to the facility. Mowing along the fence and other improvements may be needed to keep the pond aesthetically pleasing. These improvements help increase property values and pond aesthetics and help the pond function properly. Frequent maintenance can also help to reduce mosquitoes by removing garbage that can harbor a few inches of water and provide a breeding ground for mosquitoes.

Baltimore County is limited in how frequently it can visit and maintain ponds. Often county staff can only visit each pond once per year to perform basic maintenance. The Adopt-a-Pond program represents an opportunity for residents to help improve the pond facility in their neighborhood for aesthetic improvements beyond the Baltimore County's capability, while maintaining the important function that the facilities play in protecting the Chesapeake Bay.

Types of AAP Facilities

Dry Ponds



Figure 1-2. Dry pond located in the Back River Watershed

Dry Ponds (such as the one pictured in Figure 1-2) are basins whose outlets are designed to detain the stormwater runoff for some minimum duration (e.g., 24 hours). This allows some of the sediment particles, and the associated pollutants, to settle out. Unlike wet ponds, dry ponds are generally not designed to have a permanently wet pool. However, dry extended detention ponds are occasionally designed with small pools at the inlet and outlet of the pond to improve water quality. Dry ponds provide flood control by including additional storage above the primary orifice that drains the pond.

Pollutant Removal

Dry detention basins can provide moderate pollutant removal, provided that the design features include a long flowpath, good **sheet flow** in the pond, and **extended detention** of the stormwater. Many of the older dry ponds in Baltimore County were created for water quantity control (flood control) and provide minimal pollutant removal. Dry ponds, even with extended detention, are not very effective at removing soluble pollutants due to the absence of biological activity associated with a permanent pool. A few studies are available on the effectiveness of dry extended detention ponds. Typical removal rates of water quantity ponds and dry extended detention ponds, as reported by Winer (2000) are shown in Table 1-1.

| Table 1-1. Median pollutant removal efficiencies of water quantity ponds and dry extended detention ponds (Winer, 2000) | | |
|--|--|---|
| Pollutant | Water Quantity Pond Removal Rate(%)¹ | Dry Extended Detention Pond Removal Rate (%) |
| TSS | 3 | 61 |
| TP | 19 | 20 |
| TN | 5 | 31 |
| NO _x | 9 | -2 |
| Metals | 10 | 29 |
| Bacteria | ND | 78 ¹ |
| 1: Data based on less than five data points ND- No data | | |

Wet Ponds



Figure 1-3. Typical wet stormwater pond

Wet ponds (a.k.a. stormwater ponds, retention ponds, wet extended detention ponds) are constructed basins that have a permanent pool of water throughout the year (or at least throughout the wet season). Wet ponds treat incoming stormwater runoff through settling and algal uptake. The primary removal mechanism, while stormwater runoff resides in the pool, is settling. Nutrient uptake also occurs through biological activity in the pond.

Wet ponds are among the most cost-effective and widely used stormwater treatment practices. One drawback with wet ponds is the increase in temperature associated with the detention of water in a permanent pool and the potential resulting downstream thermal impacts to aquatic life. For this reason, there is limited usage of wet ponds in Use III and Use IV waters of the County.

A typical wet pond is shown in Figure 1-3. While there are several different versions of the wet pond design, the most common modification is the extended detention wet pond, where storage is provided above the permanent pool in order to detain stormwater runoff to provide greater settling. A schematic of a wet extended detention pond is provided in Figure 1-4 and illustrates typical design features, as well as the water levels associated with different design storms (e.g. extreme or overbank **flood control**, **channel protection**, etc.) illustrated in the profile below. The cross sectional diagram illustrates the storage required to control water quality, channel protection, and extreme floods.

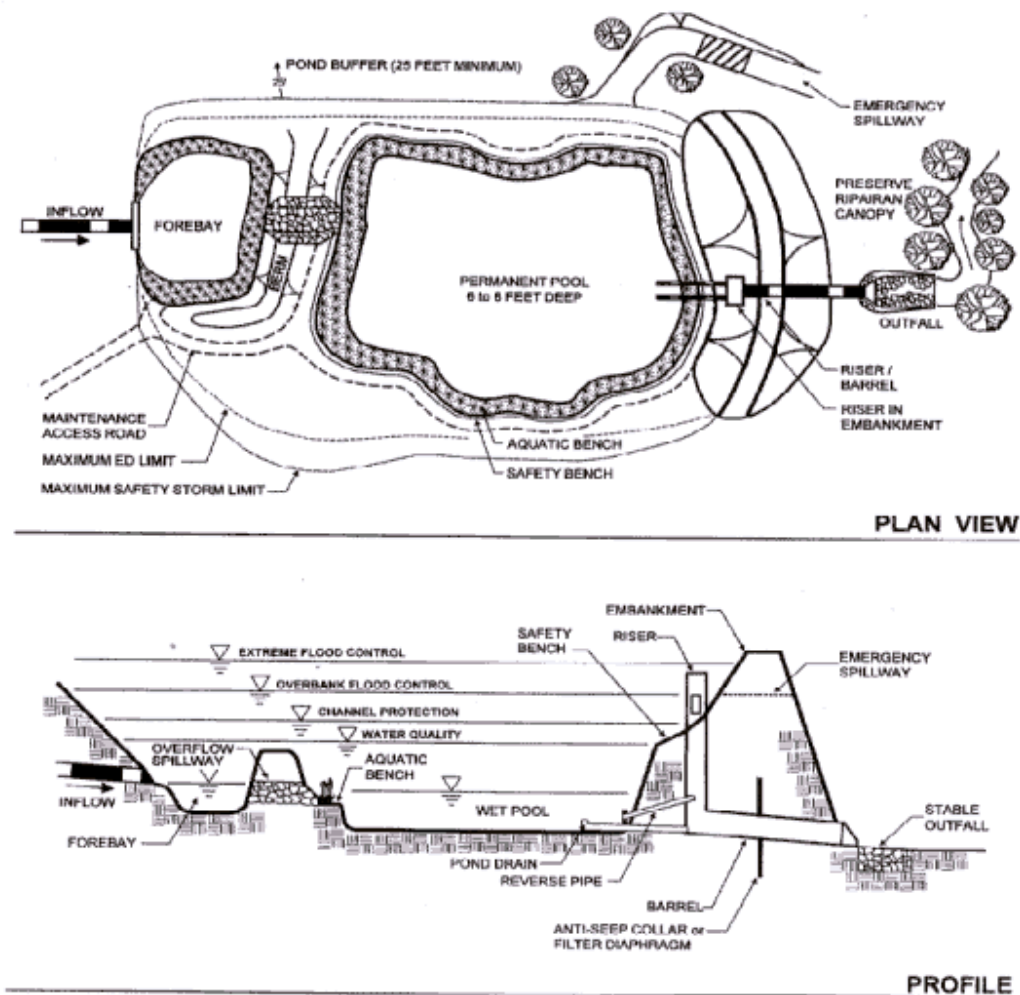


Figure 1-4. Typical wet pond design schematic

Pollutant Removal

Wet ponds are among the most effective stormwater treatment practices at removing stormwater pollutants. A wide range of research is available to estimate the effectiveness of wet ponds. Table 1-2 provides pollutant removal estimates derived from the Center's [National Pollutant Removal Performance Database for Stormwater Treatment Practices](#).

| Table 1-2. Median pollutant removal efficiency of stormwater wet ponds (Winer, 2000) | |
|---|-------------------------------|
| Pollutant | Removal Efficiency (%) |
| TSS | 80±27 ¹ |
| TP | 51±21 |
| TN | 33±20 |
| NOx | 43±38 |
| Metals | 29-73 |
| Bacteria | 70±32 |
| 1: ± values represent one standard deviation | |

Other Benefits

Economics

In addition to the water resource protection benefits of wet ponds, there is some evidence to suggest that they may provide an economic benefit by increasing property values. The results of one study suggest that "pond front" property can increase the selling price of new properties by about 10% (US EPA, 1995). Another study reported that the perceived value (i.e., the value estimated by residents of a community) of homes was increased by about 15 to 25% when located near a wet pond (Emmerling-Dinovo, 1995).

Dry ponds may actually detract from property value especially if they are not maintained in an aesthetically pleasing manner. One study found that dry ponds detracted from the perceived value of adjacent homes by between three and ten percent (Emmerling-Dinovo, 1995). Maintaining and improving property values is a compelling incentive for the proper and aesthetic maintenance of dry ponds.

Habitat

Habitat for wildlife can be provided by dry and wet ponds. Ponds that maintain an adequate wet pool depth support populations of amphibians and fish. These facilities are also known to support grassland and marsh birds including sparrows, red-winged blackbirds, blue herons and other native species. Dry ponds also support populations of birds that often nest in the trees of these facilities.

Regulations

Fencing

For liability reasons, Baltimore County requires fencing around all stormwater ponds with at least a 4:1 slope. Fencing has traditionally been made out of either chain link or split rail. Split rail fencing is being phased out, due to the amount of maintenance it requires. It is important to make County staff aware of failures in fencing to ensure public safety.

Slope Stabilization

The stabilization of the side slopes of stormwater ponds is an important aspect of maintaining the water quality function of the facility. Baltimore County often uses crown vetch (a low growing ornamental groundcover) to support and stabilize bare or eroding side slopes.

Stormwater Design Regulations

Stormwater design regulations have changed over time, most recently with the passage of the State of Maryland's New Stormwater Design Manual in 2000. As a result, most of the ponds you are likely to see were built under older design criteria, which generally included flood control and more limited water quality improvement. The newer regulations have a provision called "channel protection" that was created to reduce downstream channel erosion. Newer facilities are also likely to have improved water quality protection because of improved pond design.

Planting Regulations

The county prohibits planting within 50 feet around the riser and on the fill embankment to reduce the maintenance and structural problems that could lead to failure of the facility.

SECTION 2. TIPS FOR BUILDING A SUCCESSFUL ADOPT-A-POND PROGRAM

In an effort to improve our recommendations and guidance for the Adopt-a-Pond (AAP) program in Baltimore County, the Center researched existing AAP programs nationwide and found approximately 20. After brief research into each, these were narrowed down to seven, as a number of programs dealt with natural ponds, wetlands or were not applicable to the stormwater ponds in Baltimore County. In each of the seven communities, detailed surveys were conducted, via telephone or email, to understand each program in detail and to assess their successes, failures and lessons learned. The survey explored topics such as the program's background, information on volunteer recruitment and retention, and the lessons learned by each community. Table 2-1 summarizes the findings of that research.

| Table 2-1. Tips for building a successful Adopt-a-Pond program | |
|---|---|
| <i>Lessons Learned</i> | <i>Possible implementation in Baltimore County</i> |
| Activities should build a sense of pride and community | Clean ups and plantings foster community cooperation and lead to tangible results – a cleaner, more beautiful pond |
| Groups that provided assistance and organizing increased participation | Watershed groups can work to rally Home Owner's Associations (HOA) and individuals |
| Follow up with and communicate successes to volunteers | Watershed group or county newsletter once a year, pictures emailed to the group or posted on the watershed group website or incorporated into a newsletter |
| Educate volunteers on the necessity of Adopt-a-Pond programs and watershed protection | Through the training element of the Adopt-a-Pond program |
| Provide incentives for participation | Trash and waste collection the day after organized clean-up Downed wood and branches chipped –“free mulch” Free or reduced cost of compost bin Competition with prizes |
| Limited time and ability of volunteers to tackle more complex tasks | Keep it simple |
| Parochialism – Most volunteers were only willing to work on things which affected them directly | Don't try to have them do too much or think too far out of the box |
| Organizing is difficult when there is no HOA | At a minimum, strive to contact the neighbors living adjacent or near the facility |

SECTION 3. STEPS FOR IMPLEMENTING AN ADOPT-A-POND PROGRAM

Step 1. Identifying Ponds for Adoption

The Adopt-a-Pond program is for the adoption of publicly owned facilities in Baltimore County. Therefore it is important to identify which facilities are publicly owned and hence candidates for adoption. The method for determining the location of the ponds is as stated:

Please contact Baltimore County Department of Environmental Protection and request locations of publicly owned facilities in your watershed. Which ponds to adopt first may be assigned by the County or determined by site visits and consideration of factors such as pre-existing relationships with potential volunteers, available volunteers, and straightforward versus complex design/maintenance issues. As experience grows with the AAP program, so too can the network of sites.

Baltimore County
Department of Environmental Protection and Resources Management
DEPRM
Field Operations Section
(410) 887-3778

Step 2. Recruiting and Retaining Volunteers

Recruiting Volunteers

Volunteers are the most critical element of a successful Adopt-a-Pond program. Without a strong core of volunteers, AAP programs will not succeed. Therefore proper recruitment and constructive use of their time are important factors in retaining their services and support. This step provides examples of where to look for volunteers, ways to recruit volunteers and levels of achievement and incentives to keep them interested and engaged. Also provided is a distinction among volunteers: secondary stewards who volunteer one or two days a year to assist with pond activities, and primary stewards who act as a point of contact for a pond, inspect the pond and who help to rally their neighbors to perform maintenance and pond improvements.

Sources of Volunteers

Volunteers come in all shapes and sizes and walks of life. There is no "ideal candidate" although there are often likely prospects. For the purpose of stormwater pond stewardship, recruits may be found right in the backyard, i.e. those residents who live adjacent to the pond. Quite possibly, someone is already an unofficial steward and their identity is known within the neighborhood. Knocking on a few doors should solve this mystery.

Table 3-1. Sources of volunteers

| | |
|--|---|
| ➤ Members of watershed organizations | ➤ Residents living near the pond |
| ➤ Community associations or Homeowner associations | ➤ Middle and high schools, colleges (especially environmental studies) (High School volunteer req.) |
| ➤ Walk-ins, call-ins and web responses | ➤ Boy Scout or Girl Scout troops |
| ➤ Civic groups (Kiwanis, Rotary club) | |

Outreach Techniques

A number of outreach techniques exist and include: stories in newspapers, coverage on cable channels, presentations to school or community groups, and announcements on watershed organizations websites. Community fairs and other gatherings may be good venues for recruiting volunteers. Direct contact and targeted mailings will probably be the most efficient methods for the Adopt-a-Pond population because of the limited number of public ponds in a given area. If direct contact is chosen, the canvasser should be prepared to discuss the technical details of the program including pond function, as well as a plan for any modification (maintenance, plantings etc.) with members of the pond neighborhood. Ensure local covenants are observed when canvassing. Canvassers should display clear photo identification and a letter of introduction from the sponsor. Outreach techniques are listed in Table 3-2.

Table 3-2. Outreach Techniques

| | |
|-------------------------------------|---------------------|
| ➤ New stories/media coverage | ➤ WebPages |
| ➤ School or community presentations | ➤ Direct contact |
| ➤ Newsletters | ➤ Targeted mailings |

A decision should be made by the local watershed group implementing the AAP program on how to handle volunteers who are interested in adopting or maintaining a privately owned pond. This segment of volunteers will inevitably appear as the AAP program is being advertised. At a minimum, resources should be shared with these volunteers since the local watershed group likely has a shared interest in having well functioning, well maintained ponds throughout the watershed regardless of whether they are publicly or privately owned.

Primary Stewards/Secondary Stewards

In the AAP program, outreach techniques should be used to recruit two types of volunteers, primary stewards and secondary stewards. The primary stewards are willing to take responsibility for filling out and submitting the Inspection Maintenance Form and assisting in rallying neighbors and other volunteers to work on maintenance and cleanup days. Primary stewards should also receive a higher level of training, including receiving the *Handbook for Pond Leaders*. Once a volunteer is identified as a potential primary steward, an in-depth discussion, a tour of the pond, and/or a short training course is necessary, at the volunteer's convenience. If possible, two or more primary stewards should be recruited for each stormwater pond adopted. The role of secondary stewards is to assist with maintenance and cleanup days, though it should be noted that these stewards are potential primary stewards if there is loss due to attrition.

Levels of Pond Adoption

Three levels of pond adoption are available to volunteer groups depending on interest and level of commitment. The most basic level involves simple routine inspections and trash removal in a pond facility. More advanced levels of adoption include an inspection, removing trash, creating habitat for wildlife, modifying the pond to improve performance and planting trees or shrubs. Details for each of the levels are presented below, as are websites where additional resources and grants are available.



Level 1 Crawdad Pond Keeper

- Most basic level of pond adoption
- Perform inspections of the facility on a periodic basis (quarterly/biannually)
- Identifies potential maintenance issues and reports appropriate information to the County based on the guidance provided on the Maintenance Record form
- Also mobilizes neighbors to perform trash pickup and light mowing or trimming to improve pond aesthetics and performance



Level 2 Baltimore Oriole Beautifier

- Same as Level 1
- Also works with mobilized neighbors to perform either internal or external pond landscaping to improve pond aesthetics and performance (a simple sketch landscape plan must be approved prior to the planting project by the Field Operations Division of DEPRM)

Examples:

Landscaping improvements may include the planting of aesthetically pleasing plants on the area around the pond other than the berm or planting internally in the pond with a wildflower mix (see Appendix III), native grasses or native trees (plantings must occur greater than 50 feet from the riser and not on the embankment). Planting outside the fence can be done, though if it is on county property residents must maintain the plantings. King County, Washington has published a document that discusses screening and visually enhancing ponds, it can be located on the web at <http://dnr.metrokc.gov/wlr/dss/pond.htm> . Another example of a possible improvement would be planting crown vetch on the sides of the pond to help stabilize an eroding slope.

Resources and Grants for Plants and Trees: Baltimore Community Challenge Grants www.co.ba.md.us/Agencies/community/grants.html, Baltimore County Tree Nursery, and Chesapeake Bay Trust www.chesapeakebaytrust.org , Baltimore County Forestry

Board <http://www.bcfb.sailorsite.net> and the Tree-mendous Maryland program <http://www.dnr.state.md.us/forests/treemendous> , MD Cooperative Extension Riparian buffer planting info <http://www.agnr.umd.edu/MCE/Publications/PDFs%5CFS725.pdf>



Level 3 Terrapin Pond Expert

- Same as Level 2
- Works to create habitat for wildlife
- Performs simple retrofits with DEPRM assistance to improve pond performance and/ or resolve maintenance issues

Examples:

Habitat Improvement techniques include the construction/ installation of bluebird boxes, wood duck boxes (for wet ponds), bat boxes, or other methods to create wildlife habitat. Designs for the aforementioned habitat boxes can be found at the following websites:

- Bluebirds – www.dnr.state.md.us/wildlife/bluebird.html
- Wood Ducks – www.ducks.org/conservation/duck_box_plans.pdf
- Bats -- <http://www.batcon.org/> or <http://www.ducks.ca/nestboxes/batbox.pdf>

Simple retrofits are actions that can be performed to improve pond performance and/or ease the maintenance burden. These retrofits would require approval and close coordination with the stormwater engineering division in DEPRM. Many of the ponds have already been inspected by the county during the creation of its watershed plans and may be slated for retrofits already. It may also be useful to review the watershed plan or discuss a particular facility with DEPRM staff.

Examples of simple retrofits include the construction of a simple trash rack or gravel or wooden berm. A berm should be constructed when an inflow pipe forms a confined channel directly to the outflow orifice (Figure 3-1). This type of retrofit improves water quality by deflecting the water into a larger area of the pond, increasing the contact of the stormwater with pond vegetation. It also increases the amount of time the water is held in the pond, allowing more pollutants to settle out. This feature is especially important as the majority of pollutants tend to travel in the “first flush” or beginning of the storm when the accumulated pollutants from roads, rooftops and driveways are being transported.

Resources and Grants: Baltimore County Community Challenge Grants

www.co.ba.md.us/Agencies/community/grants.html ,

Chesapeake Bay Trust www.chesapeakebaytrust.org,

Local High School or Middle schools that have shop classes may be able to assist in the construction of habitat boxes or flow deflecting berms.



Figure 3-1. Dry pond with retrofit potential (inflow on left leads directly to outfall)

Incentives

Incentives are an important component of AAP programs across the country. Table 3-3 lists potential incentives proposed for the AAP program. Each watershed group is free to develop their own incentives for the AAP program. In our hypothetical scenario, we estimated a maximum cost of the incentives is based on nearly 100% participation (per assumptions made in Table 3-4) and adoption of 30 ponds. The maximum cost we estimated was \$7500 for a period of several years. The county plans to provide signs for actively adopted ponds, and letters of recognition for volunteers who reach Level 1. Additional incentives such as those in Table 3-3 are the responsibility of local watershed groups, as they are in a position to receive grants, sponsorship by local businesses and donations to assist with costs. Potential grant funding sources for compost bins and rain barrels include Chesapeake Bay Trust and Baltimore County Community Challenge Grants referenced on the previous page.

| Table 3-3. Potential incentives for the AAP program | |
|--|---|
| Adoption Level | Potential Incentives |
| Level 1 Crowdad Pond Keeper | Letter of Recognition from the County Signage Pizza or Cookout on a Maintenance Day |
| Level 2 Baltimore Oriole Beautifier | Free Compost Bin |
| Level 3 Terrapin Pond Expert | Additional Sign (Highest Achievement) Free Rain Barrel |

| Table 3-4. Potential incentive cost estimates for the AAP program | | | |
|---|----------------|-----------------------|-------------------|
| Incentive | # Units | Estimated Cost | Total Cost |
| Basic Signage ¹ | 30 | \$ 30 | \$900 |
| Pizza or Cookout (assumes 10 volunteers) ¹ | 30 | \$ 40 | \$1200 |
| Free Compost Bin (assumes 15 groups achieve) ² | 90 | \$ 30 | \$2700 |
| Free Rain Barrel (assumes 10 groups achieve) ³ | 90 | \$ 30 | \$2700 |
| Total Cost Estimate | | | \$7500 |
| Assumptions ¹ Level 1: 30 groups (10 volunteers attend) ² Level 2: 15 groups (6 households participate) ³ Level 3: 10 groups (9 volunteers in each group are interested in rain barrels) | | | |

Step 3. Technical Training Steps

Technical training will be required for both the organization that has chosen to adopt a pond and the volunteers who agree to participate in pond inspection and clean-up activities. The training required for the basic Adopt-a-Pond program is not envisioned to be extensive, with limited time devoted to both field and classroom training. At a minimum, classroom training of watershed organization staff and primary stewards is required, as some basic adoption information should be learned before heading to the pond. Preferably, watershed staff, primary stewards and all volunteers would participate in field training that will take place at the pond facility, so details on filling out forms and pond structural features can be more easily explained with the pond as a backdrop. Table 3-5 summarizes the differences between the types of training in terms of audience and focus.

| Table 3-5. Types of training | | | |
|-------------------------------------|---|--|--|
| Training | Audience | Training Time | Training Method |
| Classroom | Pond adoption group Primary Stewards | After initial contact but prior to first field day event | Slideshow Handouts |
| Classroom / Field | Watershed group staff | Prior to performing training with the public | Slideshow Handouts Pond Visits Program Document |
| Field | Field volunteers | Day of Event | Brief Lecture Handouts |

Classroom Training

Classroom training will involve a slide show presentation to your watershed group staff, primary stewards or the organization that has expressed interest in adopting a public pond. The slideshow provides background to all interested members of the organization on the role of stormwater runoff in affecting water quality, how their pond plays a role in stormwater management, the various types of ponds, and how to go about meeting the requirements of the Adopt-a-Pond program. Appendix III contains a paper and digital copy of the slideshow.

The goal of the training is to provide organizations with the fundamentals of stormwater management so that they can answer the questions of potential volunteers in their community. Since the program is composed entirely of volunteers who are providing time and willingness to improve their community, the classroom training session should be a relaxed event, possibly with simple refreshments (nothing promotes volunteerism like a good dessert). Table 3-6 provides a quick look at what should be done during classroom training and is followed with additional discussion of the resources provided in the document and points that should be raised.

| Table 3-6. Classroom training steps |
|---|
| <ol style="list-style-type: none"> 1) Amend slideshow for your audience and the goals for the AAP pond facility 2) Distribute laminated handout (Appendix II) 3) Explain the purpose of the presentation 4) Present slideshow 5) Link to watershed efforts |

Step 1. Amend slideshow for your audience and the goals for the AAP pond facility

A slideshow is provided in the front pocket of the AAP document for education or training of AAP volunteers or your own staff/volunteers in a classroom type setting. Amend this slideshow for both the audience and the goals that you've set for the pond. Lecture notes are provided in the Powerpoint file to assist the presenter during the talk.

Step 2. Distribute laminated handout and inspection questions

Distribute the laminated handout and inspection questions that appear in Appendix II.

Step 3. Explain why is it important to maintain the pond

Use the information provided in section 1: Why Should Residents Help? (page 5) to explain the importance of maintaining a pond. Key issues include: aesthetics, proper pond function and public safety.

Step 4. Present slideshow (Appendix II)

Step 5. Link to watershed efforts

Link the efforts of the AAP program to the efforts of your watershed group and overall water protection efforts. Make them aware of the pollution prevention message on the back of the laminated handout.

Field Training

Field training takes place on the day of an actual cleanup event and can be conducted at the pond being adopted. This helps to illustrate what volunteers are looking for when they inspect a pond, as well as proper maintenance techniques. The field training steps have been divided into two sections - things to do prior to the field day (pre-planning) and topics to be covered in the field (at the site). Table 3-7 looks at the basic field training elements of the Adopt-a-Pond program, although pond adopting organizations may wish to add other training items as they experiment with what works best for their neighborhood.

Table 3-7. Field training steps

Field Day Planning

Pre-planning

1. Visit the pond facility (ideally with the primary steward)
2. Decide on the day's activities
3. Contact volunteers with information about the event (i.e. directions, registration, cell #s)
4. Prepare materials (supplies, handouts)

At the Site

5. Introduce your local watershed group and sponsors
6. Discuss the goals of the AAP Program and the tasks for the day
7. Emphasize safety first
8. Distribute and review Five Steps to Adopting Your Pond Handout and the Maintenance Record
9. Provide context and linkage
10. Time for questions
11. Do the work
12. Document the day

PRE-PLANNING

1. Visit the pond facility

Visiting the pond facility ideally with a primary pond steward is critical to being able to determine a game plan for the individual pond. Consultation with the DEPRM Field Operations Section may also help with the following critical questions.

- What are the maintenance needs of the facility?
- What are the maintenance expectations for the AAP group?
- What frequency of pond maintenance is needed?

2. Decide on the day's activities

Based on your preliminary pond investigation and discussion with the primary pond steward, decide on field day activities. Besides an introduction to the pond and the inspection checklist, what are the objectives for the day i.e. trash cleanup, weed trimming, landscaping or other management options detailed in Step 2.

3. *Contact volunteers with information about the event*

Contact the volunteers with key information about the event including the time, place, directions, activities, contact numbers and weather cancellation policies. Appropriate methods to contact the volunteers include a phone tree, door hanger, and email. Have a rain date set in advance and provide that information in the initial contact. If practical, have attendees register in advance and provide a reminder call the week before. Provide a day-of cell phone number and have the phone with you and turned on.

4. *Prepare materials*

In addition to a cell phone, sign-up sheets, pens, and (digital) cameras, have any necessary supplies, equipment, tools, handouts and other propaganda at the site before the start time. For the purpose of the Baltimore County Adopt-a-Pond program, handouts include a laminated description of pond maintenance and pollution prevention techniques. Table 3-8 provides a list of materials for an AAP field day.

| Table 3-8. List of materials | |
|---|---|
| <ul style="list-style-type: none"> ➤ Gloves (15 pairs) ➤ Weed trimmer ➤ Rakes; Shovels ➤ Trash bags ➤ Recycling bags ➤ Pruning sheers | <ul style="list-style-type: none"> ➤ Camera ➤ Sign-up sheet /pens ➤ AAP handouts ➤ Watershed Organization info ➤ Notebook to document efforts ➤ Plants - if landscaping |

AT THE SITE

5. *Introduce your local watershed group and sponsors*

Give the volunteers some background on your watershed group and mention that Baltimore County DEPRM has sponsored the program. If additional funds or donations are received in support of the AAP program, those sponsors should be mentioned as well.

6. *Discuss the goals of the AAP Program and the tasks for the day*

Provide a detailed description of the day's activities. The two major goals of the AAP program are summarized in the following bullets:

- To assist the County with growing maintenance burden for stormwater ponds
- To improve the aesthetics in the community and improve the function of stormwater facilities to benefit downstream areas and the Chesapeake Bay.

Establish a time frame for the day's activities ("Break for pizza at noon and see whether there's more to do"). The preliminary discussion and any questions may take 15 to 25 minutes. Show and discuss any operations, such as installing potted plants and emphasizing the proper use of any necessary tools. Provide an opportunity for the volunteers to provide their personal perspective of the pond.

Re-state what will be done during this activity and encourage questions and fun. Explain the need for future scheduled cleanups and the possibility to perform more advanced

maintenance and improvements. If there are more than five persons, break into multiple groups.

7. Emphasize safety first

Explain Safety First and avoidance of dangerous situations (sharp objects, slippery slopes, dangerous plants/objects, bees, snakes, poison ivy, ticks). Participants should wear sturdy gloves and boots to help prevent injuries. Be clear that any dangerous situations should be brought to the attention of the group leader(s) and NOT handled by the volunteer(s). As an element of Safety First, have everyone sign in with name, contact info and mailing address for follow-up. Note that there is a liability waiver on the sign-up sheet(s) and also advise that photos may appear on the web, in newsletters, etc.

8. Distribute and Review the Five Steps to Adopting Your Pond handout and the Maintenance Record

Distribute the laminated handout and inspection questions that appear in Appendix II.

- 1) Review the form and function of stormwater ponds using the facility as a backdrop to illustrate different features (i.e. inflow, outflow, **riser**, embankment)
- 2) Describe basic pond inspection guidelines reviewing the handout and the Maintenance Record sheet.
- 3) Review the types of pond maintenance and specific tasks that will be performed that day (See Management Options in Step 2)
- 4) Review what to do with the maintenance record sheet once the inspection has been completed (i.e. Address or telephone number of the watershed organization to report to.)
- 5) Mention the benefits of maintaining a stormwater pond – property values, water quality, aesthetics and the Chesapeake Bay. (Described in more detail in Section 1).

9. Provide context and linkage

Provide linkage to the efforts of your watershed group and your overall watershed protection efforts. Make them aware of the pollution prevention message on the back of the laminated handout.

10. Time for Questions

Allow time for questions and comments from the volunteers

11. Do the work

Break into groups and assign tasks for each group. An example is provided in the bulleted list below.

- Group 1 – Collect any trash and recycling from the pond
- Group 2 – Perform weed trimming and mowing along the fence
- Group 3 – Clear vegetation around the riser structure and remove English ivy and vines from trees
- Group 4 – Plant trees and shrubs in prescribed places and gather garbage bags and recycling and place by the street for pickup

12. Document the day

Document the day with pictures (before/after/action shots), sign-up sheets, and a record of the activities performed and the hours spent by volunteers. This will help with reporting to the county and will also provide pictures and examples of activities for future recruitment efforts, follow up emails and newsletters that document the success of the events.

Step 4. Protocols for Inspecting and Maintaining a Pond

The Baltimore County Department of Environmental Protection sponsors the Adopt-a-Pond program to assist in the maintenance of publicly owned stormwater ponds. When a group decides to adopt a stormwater pond, they will be asked to fill out a simple one-page form each time that they visit the pond (see page 27). The form can be filled out by hand and mailed back to the sponsoring watershed association at the address on the front of the form, or filled out electronically and e-mailed to them. Descriptions to aid in filling out the AAP Maintenance Report and the report itself are below.

County Facility Number and Pond Name

Each stormwater pond facility has a unique number assigned by the County that is used to track the exact pond location and the maintenance performed there in the County's database. When a group adopts a pond, they will be informed of the County Facility number and exact Pond Name that should be recorded on the inspection sheet. The Adopt-a-Pond Maintenance Report also contains a list of Facility Numbers and Pond Names on the back of the sheet with the nearest street or intersection. In addition, the County will erect Adopt-a-Pond signs on each adopted facility that have the assigned facility name and number.

PART 1. INSPECTION REPORT – should be completed after each inspection

Trees on Embankment



Pond fill **embankments** are the sloped sides or banks through which the horizontal outflow pipe extends that impounds runoff in the facility. A stable embankment is important to ensure that erosion does not occur. Embankments can become breached by erosion or when trees and brush with large roots impair their stability and function. Trees and brush with extensive woody root systems must be completely removed from embankments. Pond inspectors should note the presence of any trees or large brush on the inner or outer sides of stormwater pond embankments and contact DEPRM at

the number on the form to have them removed.

Signs of Animal Burrows on Embankment



Animal burrows can deteriorate the structural integrity of embankments and slopes. Groundhog/woodchuck burrows are often above permanent pool in wet ponds and are easier to spot than muskrat burrows that are located both at and below permanent pool. Overgrown dam embankments may be riddled with burrow complexes that are not visible to the eye. Usually, if one burrow is found, one finds that more are present as rodent burrowing complexes usually have several ingress/egress points.

Pond inspectors should note the presence of any burrows on the inner or outer sides of stormwater pond embankments and contact the DEPRM at the number on the form to have them removed.

Overgrown Vegetation Around Riser



Excessive vegetation around the riser structure can cause physical damage or clog the riser and create standing water in the pond. Inspectors should note the presence of trees and brush within 15 feet of the riser and contact DEPRM at the number provided on the maintenance form to have them removed.

Damage to the Fence



Fencing, primarily of the chain-link and split rail variety, surrounds many of the ponds located in Baltimore County. This fencing is for safety purposes, and is actively maintained by the County. During an inspection, neighborhood groups should note if sections of the fence are damaged or missing and contact DEPRM at the number on the form immediately to have them repaired.

Damage to the Riser or Excess Sediment



The riser is a vertical pipe that extends from the bottom of a stormwater pond and houses the control devices (weirs/orifices) that drain the stormwater from the pond. Sediment around the riser can cause clogging and create standing water in the pond. Pond inspectors should note the presence of excess sediment at the pond riser or any physical damage such as rust or holes in the riser and contact the DEPRM at the number on the form to have the sediment removed and repairs done.

Gate Locked



Each stormwater pond facility has a gate to provide access for maintenance and inspection. These gates are to be locked with a padlock to protect the public from being subject to possible injury. Occasionally these locks are missing. During an inspection, neighborhood groups should note if locks are damaged or missing and contact DEPRM at the number on the form immediately to have them replaced.

Trash Removal Needed



Grass clippings, leaves, soil and/or trash of any kind are often dumped directly into a stormwater pond or into a storm inlet that leads to the pond. Leaves and grass clippings release bacteria, oxygen-consuming materials, and nutrients, and can lead to clogging. Community pond inspectors can help prevent pond failure by calling the County to remove trash or more directly by removing these materials and disposing of them with their regular trash (see Part 2).

PART 2. MAINTENANCE PERFORMED – should be completed after each maintenance day

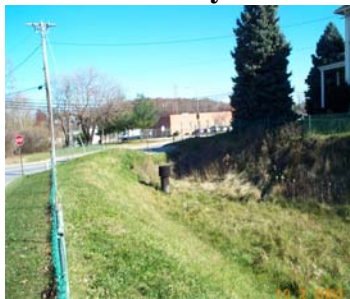
Trash Removed



Community pond adopters can provide valuable assistance to the County in maintaining ponds by agreeing to perform simple tasks to reduce the maintenance burden for the county. A simple way to do this is by volunteering to remove grass clippings, leaves, soil and/or trash of any kind that have been dumped directly into a stormwater pond facility and disposing of them with their regular trash or calling the County for a trash pickup. When filling out the maintenance record, groups should estimate the number of bags of trash they have removed and make a note on the report in the

assigned space. If calling the County for a trash pickup, please try to note the type of materials to be hauled away and a rough amount so the County can provide a large enough vehicle.

Mowed Recently



Community groups can help mow the areas inside the pond fence. The County recommends that groups mow a small strip of about six feet inside the fence to help maintain access and for aesthetic purposes. Most grass is hardest if it is maintained as an upland meadow, cut no shorter than 6 to

8 inches. Grass should never be cut below 4 inches except when trimming along the fence. Do not mow the side slopes or embankments. Record the date mowed on the Maintenance Record form.

Landscaping or replanting

While trees or bushes near pond embankments and risers may cause problems with pond function, they may be planted outside maintenance and access areas. It is necessary to submit a landscaping plan to the County and receive approval prior to any beautification or planting projects. Prior County approval for invasive species removal is also required to prevent bare soil on pond embankments. Groups should record the approval date the Maintenance Record form whenever beautification or plantings are performed.

Other (please describe)

This is a miscellaneous category for any other pond maintenance that a group performs. It is necessary to consult with the County for approval for any other projects proposed for neighborhood stormwater ponds. Examples of additional pond maintenance options are detailed in Section 3 – Levels of Pond Adoption.

ADOPT-A-POND MAINTENANCE RECORD

Instructions for Filling out the Form

To answer the questions, please check the boxes if yes and provide additional information where indicated.

When finished completing the form, please mail it to: Local Watershed Group

Name of The Person Submitting the Form: _____

Telephone Number _____ Today's Date _____

County Facility Number _____ (see opposite side for list of numbers)

County Pond Name _____ (see opposite side for Pond Names)

Part 1. Inspection Report If you check any of the boxes in Part 1, **call (410) 887-3778**,
Baltimore County DEPRM Field Operations section

- ☐ Are there Trees on Embankment?
- ☐ Are there Signs of Animal Burrows on Embankment?
- ☐ Is there Overgrown Vegetation around riser?
- ☐ Is there Damage to the Fence? Location _____
- ☐ Is there Damage to the Riser or Excess Sediment ?
- ☐ Is the Gate Locked?
- ☐ Is Trash Removal needed?

Part 2. Maintenance Performed

- ☐ Trash removed by Adoption group Estimated # of bags _____
- ☐ Mowed recently? Date _____
- ☐ Beautification or replanting done? County Landscaping Approval date _____
- ☐ Other (please describe) _____

Step 5. Reporting and Tracking

The Adopt-a-Pond Tracking database is a simple Excel spreadsheet that will allow the user to generate annual reports on the maintenance performed at specific ponds in the program. This database is provided on the CD in Appendix III of the document. The database columns follow the exact pattern of the questions asked in the **Adopt-a-Pond Maintenance Record** used by the neighborhood groups during an inspection (see Figure 3-2). The user enters either Yes, No or a text description for each column. Remember that a record with a unique date must be created for each pond every time maintenance is performed on that pond. As the AAP Tracking database grows, users might wish to import data from Excel into a program such as Access that can generate reports and run queries.

If a neighborhood group has filled out the form electronically in Microsoft Word, it is possible to import the data into Excel without having to retype it. To accomplish this, first open Microsoft Word, then follow this process:

1. Open the form and then click on Tools on the menu bar, and then Options.
2. In the Options dialogue box, click on the tab marked Save
3. Now click on the box marked “Save data only for forms”
4. Click OK, then save the file with a unique name

This will give you a text file that can be imported into Excel. To accomplish this, open the Adopt-a-Pond Tracking database, and do the following:

1. Click on Data on the menu bar, then “Get External Data”, then “Import Text File”.
2. Go to the folder where your file is saved and double click it.
3. A Text Import Wizard will guide you through a 3-step process. In the first step, select delimited as the data type. In step two, select Comma as your delimiter, and in step three make sure the “General” button is selected for column data format.

The screenshot shows a Microsoft Excel spreadsheet titled "Microsoft Excel - Proposed Adopt a Pond Database". The spreadsheet has columns A through F. The data is as follows:

| | A | B | C | D | E | F |
|----|-------------|-----------|-----------|-----------------|---------------------------|-------------------------|
| | Name | Telephone | Date | Facility Number | Facility Name | Trees on the embankment |
| 1 | | | | | | |
| 2 | Joe Guy | | 5/14/2003 | 164 | WOODWARD SQUARE POND 1 | Yes |
| 3 | Betty Smith | | 7/3/2003 | 553 | GRIMSDALE/MCNEAL PROPERTY | |
| 4 | Bob | | 4/12/2003 | 1547 | BEACHWOOD NORTH | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
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| 15 | | | | | | |
| 16 | | | | | | |
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| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |

Below the main table, there are two lists:

| Facility Number List | Facility Names List |
|----------------------|---------------------------|
| 164 | WOODWARD SQUARE POND 1 |
| 170 | WOODWARD SQUARE POND 2 |
| 181 | PERRING WOODS COURT |
| 230 | DEBBIE ACRES |
| 381 | URBANWOOD |
| 532 | GOLDENTREE SECT 1 |
| 533 | GOLDENTREE SECT 2 POND 1 |
| 534 | GOLDENTREE SECT 2 POND 2 |
| 535 | GOLDENTREE SECT III |
| 553 | GRIMSDALE LLOYD PROPERTY |
| 554 | GRIMSDALE/MCNEAL PROPERTY |
| 624 | KAHLER PROPERTY |
| 832 | RUSTIC RIDGE |
| 932 | VAN DYKE MANOR |
| 947 | VILLAGE OF HICKORY HOLLOW |
| 1007 | CAPE MAY LANDING |

Figure 3-2. Sample Adopt-A-Pond Tracking Database

Reporting to the County

The main goal of the Adopt-a-Pond program is to assist Baltimore County in the continued upkeep of publicly-owned stormwater ponds while at the same time providing citizen education on the functions of stormwater management and potentially increasing the local watershed association capacity by providing another tool to attract membership. The central idea behind the Adopt-a-Pond program is that a watershed organization or neighborhood group will assume the responsibility for performing facility inspections, organizing field days for needed maintenance, and filling out maintenance reports for all the upkeep performed for every pond the organization or group has agreed to adopt. The watershed group organizing the AAP program has the responsibility for collecting the maintenance reports and continuously updating the database that records the maintenance performed on all ponds in the program.

This report will summarize the types of maintenance completed, the number of times maintenance and inspection was performed, and the number of times an inspection yielded a “yes” answer that required the County be contacted. The watershed association will provide this report to the County on a regular basis.

The County wishes to be contacted directly by Adopt-a-Pond groups when certain conditions are identified during an inspection (these are indicated on the maintenance record form). A telephone number for the Baltimore County DEPRM Field Operations Section is located on the form, and a yes answer for any of the boxes in Part 1 Inspection Report of the Maintenance Record form should be phoned in immediately by the person performing the inspection. Remember, the continued functioning of a facility relies on timely action, so don’t wait to call the County.

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Winer, R. 2000. [National Pollutant Removal Performance Database for Stormwater Treatment Practices: 2nd Edition](#). Center for Watershed Protection. Ellicott City, MD.

GLOSSARY

BERM: A shelf that breaks the continuity of a slope; a linear embankment.

CHANNEL PROTECTION VOLUME: Detaining and releasing stormwater runoff at a slower rate in order to reduce downstream channel erosion. In Maryland the design criteria requires 24-hour detention of the one-year post-developed, 24-hour storm event for the control of stream channel erosion.

DESIGN STORM: The storm magnitude selected for use as a criterion in designing stormwater management practices. The design storm is typically referred to by its frequency, such as a two-year storm or a ten-year storm (a storm which on average occurs every two years or ten years).

EMBANKMENT: The earthen fill berm of the stormwater pond through which the horizontal outflow pipe extends that drains the pond.

EXTENDED DETENTION: A stormwater design feature that provides for the gradual release of a volume of water over a 12 to 48 hour period, in order to increase settling of urban pollutants and/or to protect downstream channels from frequent storm events.

FLOOD CONTROL: (As defined in reference to stormwater facilities such as ponds) Preventing or limiting floods by providing storage for flood waters in stormwater practices.

IMPERVIOUS: The characteristic of a material which prevents the infiltration or passage of liquid through it. May be referred to as impervious surface(s) or impervious cover when applied to surfaces, such as roads, streets, parking lots, rooftops and sidewalks.

ORIFICE: A restricted opening that controls the flow of water out of a pond.

PEAK FLOW: The maximum instantaneous rate of flow during a storm, usually in reference to a specific design storm event.

RISER: A vertical pipe which extends from the bottom of a stormwater pond and houses the control devices (weirs/orifices) to achieve the discharge rates for specified designs.

SHEET FLOW: Water, usually storm runoff, flowing in a thin layer over the ground surface.

STORMWATER TREATMENT PRACTICE: A structural or non-structural device designed to temporarily store or treat urban stormwater runoff in order to mitigate flooding, reduce pollution and provide other amenities (also called BMP).

STORMWATER QUALITY CONTROL: The removal of pollutants from stormwater runoff through the use of stormwater treatment practices.

TEN- YEAR STORM: The peak discharge rate associated with a 24 hour storm event which exceeds bankfull capacity and occurs on average once every ten years.

TWO-YEAR STORM: The peak discharge rate associated with a 24 hour storm event which exceeds bankfull capacity and occurs on average once every two years.

WATER QUALITY CONTROL: A volume of control which attempts to maximize removal of pollutants. In Maryland this is achieved by capturing a volume of stormwater runoff equal to 90% of an average year (equal to capturing the 1st inch of runoff from a developed site).