

Soil and Water Conservation District Services

-Education about ponds, cycling, weed control, maintenance, and oxygen demand. Your local Soil and Water Conservation District (SWCD) will be more than happy to help with any questions you have.

-Your local SWCD provides assistance with consulting about ponds. One of the most important things that can be done is to have your site reviewed. They can determine how the local watershed will interact with your pond and if the area you want to place your pond will work or if there would be better options.

-They can also help you with soil investigations. The SWCD representative can come out and look at your soil to determine what will need to be done to build a pond.

-The SWCD can provide you with a list of local contractors to help you in your search for a contractor.

Permits

-You may have to obtain a permit or license to build a pond on your property. Listed below are several organizations that you will want to contact to make sure you have all the correct permits and licenses.

- DNR - Division of Water
- IDEM - Office of Water Quality
- U.S. Corps of Engineers
- Local Planning Departments and Commissions
- County Highway
- County Surveyor
- Utility Investigation

Further Reading

U.S. Department of Agriculture, Natural Resources Conservation Service.
1982. Ponds - Planning, Design, Construction. Agriculture Handbook
590. Washington, DC.

Indiana Department of Natural Resources, Division of Fish and Wildlife.
Indiana Fish Pond Management.

*Hamilton County Soil and Water Conservation District is an equal
opportunity provider and employer.*

Your Own Pond

A Brief Introduction Into Planning, Designing, and Maintaining Your Own Pond



Pamphlet Provided by:

Hamilton County Soil and Water Conservation District
1108 S. 9th Street
Noblesville, IN, 46060-3745

Phone: (317) 773-2181

www.hamiltonswcd.org

Needs and Uses For Your Pond

1) Water Livestock

-Just as important as proper feeding and care, animals need a consistent supply of water. A pond can be a good way to have water right next to where your animals are grazing. This keeps the animals healthy and allows for them to graze larger areas of land.

-These type of ponds need to be planned very carefully. To keep the integrity of your pond up, you need to keep animals from getting in the water too much. A fencing system or trough attached to the pond are ways to keep the animals out of the water and maintain a healthy water system.

2) Irrigation

-To get the most out of your land, your crops are going to have to remain properly watered. A pond provides water close to your crops so you can water your crops when they need some extra water.

3) Fire Protection

-Having a pond close to your house can make it possible to have water on hand if a fire were to start. The only type of upgrade to use the pond as fire protection is to add a dry hydrant for the firefighters to attach their hoses. A good rule of thumb is to contact your local fire department so that you will have the right size hydrant, because each fire department may use a different type of hose. The department may also just pump directly out of your lake, so a dry hydrant would not be needed in this case.

4) Use as a natural environment for wildlife

-A pond can be a great place to attract local wildlife and aquatic animals. If you are looking for a natural environment for animals to visit, a pond is a great way to go. A pond is like any form of landscaping in which it adds value to your house and beauty to your yard.

5) Create a Fishing Hole

-There are many easy ways to create your own fishing hole in your backyard. With proper care and maintenance, you can create a place to catch "the big one" a few steps from your back door.

-Fishing environments need proper maintenance and care to be a truly healthy environment for the fish. Some basic information on this can be found later in this pamphlet.

Steps to Build a Pond

- 1) Contact local Soil and Water Conservation District for site evaluation.
- 2) Check on permits, covenants, or other restrictions that may apply to the pond.
- 3) Complete pond design and acquire all permits for the pond.
- 4) Select contractor to construct pond. Check the references and past experience of the contractor to make sure the pond will be built properly.
- 5) Build the pond.
- 6) Complete construction and stabilize all disturbed ground.
- 7) Add docks, beaches, fish structure, and other amenities before the pond fills with water.
- 8) Enjoy your well-planned pond.



Maintenance

A pond needs to be checked periodically and maintained to make sure it is working properly. If it is an embankment pond, the dam and any of the parts associated with it should be checked to make sure they are in working order.

1) Algae and Water Plants

-A pond will naturally grow many species of plants. Some plants, like cattails, may start to dominate the pond and become a nuisance around the edge and restricting access. Algae will also grow in the pond and must be kept under control. If fish are living in the water, then it is even more important that all of the living organisms in the water are in balance with each other. Water plants and algae can be kept under control with chemicals or through a species of fish called grass carp. Educating yourself about nutrient and oxygen cycles, weed control, aeration, and other maintenance issues is a great way to keep your pond healthy.

2) Aeration

-Fish and other animals depend on a certain level of oxygen in the water to allow them to survive. If this level goes too low, then the fish and other animals could die. When you aerate the water, you are basically forcing oxygen into the water so the fish and other animals can breathe. Keeping an eye on the oxygen levels in your pond can help keep the fish kill low. There are kits available on the market to test for the amount of oxygen in the water.

-If oxygen levels are low there are several different ways to get oxygen back in the water. There are pumps and fountains that are specially built to aerate your pond and keep your fish healthy.

3) General Wear and Tear

-Erosion around the edges of your pond is a thing to be mindful of. This can cause you problems over time as the edges are slowly torn up by the wave motion in the pond and other factors. There are ways to counteract erosion but it is best to take actions at the first sign of erosion. There are many different ways to take care of erosion and your local Soil and Water Conservation District can help you decide what the best option would be.

-Checking your dam for leaks and other signs structure weakness can help save you a lot of hassle in the end. Catching any issues with your dam before they become a bigger issue can save you from a huge problem.

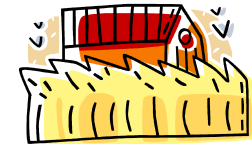
-Spillways and other emergency functions built into your pond need to be checked on a regular basis.

6) Recreation

-A pond can be a great place to just relax. There are many ways to create a pond that is perfect for swimming. The biggest thing to make it a swimming pond is to have very high water quality, much higher than in some of the other uses.

-Swimming ponds can be made to have as little grass and algae growth as possible. There are many different products available on the market that can kill the algae and grass in the pond. If you decide to go the swimming route, realize that it may be hard to keep fish and other animals alive in the water if there are no grasses or algae because of their need for cover and food.

A pond does not necessarily have to be one of the things described above. Many of these objectives can be combined together to create a pond that meets several different needs. For example, you could create a pond that could be used for irrigation and could also water your animals. As long as the needs of the ponds do not interfere with each other, a pond can take on many different functions.



Types of Ponds

There are two main types of ponds, embankment and excavated ponds. The differences between each of them is discussed below.

1) Embankment

-An embankment pond is made by creating a dam or earthen embankment that will stop the flow of a stream or watercourse. It is usually situated so that the stopped water will fill up a valley or other low section of land. These type of ponds are usually the biggest of the two because the area that is being filled is already there. They are especially good if you are putting a pond in a very hilly area.

2) Excavated

-These ponds are made by just digging a pit or dugout and then a slope up to the edges of the pond. They are found in places with very level land. The size of the pond is determined by the area that you excavate. Excavated ponds are limited by the machinery that is digging the pond. This is why they are usually smaller than an embankment pond. There is also a high cost associated with excavating the pond. You then have to decide where to put all of the fill you just excavated. You can keep it on site or you may even need to move the soil off site, which is expensive to do. All of these factors play into the higher cost of an excavated pond.



Preliminary Investigations

1) Size

-The pond should be big enough to meet your needs. For example, if you wanted to build a fishing pond there are minimum requirements you need to meet. A 1/4 acre pond can support 1 species of fish, which is usually cat fish. If you want more diversity, you need to build a pond that is 1/2 acre or bigger.

-You also need to make sure your pond is deep enough. If it is not deep enough, you may have a high fish kill because there is not enough water volume for the fish to live in. It would also cause a lot of problems when the pond froze. A depth of at least 8-10 feet is recommended as a minimum depth over 25% or more of the surface area for fish to survive.

2) The Watershed

-The watershed is another important aspect of the pond. This is where most of the water supply will come from to keep your pond filled. You need to make sure that enough water is flowing into your pond from the watershed that your pond will stay full. You should also be aware that you can have too much water flowing into your pond from the watershed and will have to add costly measures to get rid of the excess water. One of the things that your local Soil and Water Conservation District can help you with is determining how the watershed will affect your pond.

-A clean pond is a healthy pond. Being mindful about the local watershed and type of runoff that would occur from your surroundings can help you build a healthy pond. Place the pond in an area where chemicals or animal waste will not end up in your pond as runoff from the local watershed. This will help keep a very healthy environment in your pond.

3) Placement

-There are many factors you need to consider into where the pond should be placed. You want to put the pond as close to where you are going to use the water as possible. This will allow you to have the water close at hand when you need to use it.

-Another thing you want to look at in placement is to put the pond where you can get the largest storage volume and excavate the smallest amount of earth. Placement can save you money and maximize your storage volume.

-Awareness of structures around the dam is vital. If the dam were to fail, you want to have it in a place that would cause the least amount of property damage and injury to people.

-The pond should fit in with the natural lay of the land and not stick out or look unnatural with the surroundings.

-A suitable outlet for the water is very important. If your pond were to have too much water in it, you need to have a plan and place for the water to go. A site that will allow easy outlet of water is essential.

-Be aware of utilities in the ground. It is a major challenge to build a pond where existing gas, telephone, electric, and tile drains may be located.

4) Soil

-The soil type that makes up the pond is another important aspect to consider. If the soil is too sandy or allows too much water to flow out of the pond, water levels will fluctuate significantly. This can be remedied by using chemicals or bringing in soil to help the sides of the pond retain the water. This can get expensive so it is usually suggested to place the pond in an area where the soil is already suitable for retaining water. Your local Soil and Water Conservation District can help you determine if your chosen location and soil types found there are suitable for a pond.



Performing a Soil Probe