



THE DEFINITIVE GUIDE

# NATURAL POOLS AND WATER GARDENS

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By Larry Carnes

[WWW.REFLECTIONSWATERGARDENS.COM](http://WWW.REFLECTIONSWATERGARDENS.COM)

## DESIGN YOUR DREAM

**Reflections Water Gardens** excels in designing and constructing beautiful natural backyard water features that sit in perfect balance with your existing landscape. We take into consideration every feature of your property and its needs while working closely with you to bring your creativity into the design process.

Read our Guide to learn more about all the things that go into dreaming, designing and building the perfect natural pool or water garden.



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Safely install, maintain and enjoy your water garden





# CHOOSE A WATER FEATURE THAT IS RIGHT FOR YOU AND YOUR SPACE

When designing a backyard water feature it is essential to consider all of your options.

- Natural Ponds
- Flowing Streams
- Koi Ponds
- Waterfalls
- Water Gardens
- Natural Pools
- Fountains

## ESCAPE TO YOUR BACKYARD

Whether you are envisioning an elegant Italian fountain that appears as you pull into your driveway, a majestic Japanese Koi pond in your backyard, a waterfall that splashes into a custom built pool, or a winding stream that flows around your property – Reflections has the expertise to bring your vision to life.

Our work is enjoyed all over the United States.



# NATURAL PONDS & POOLS

Natural pools are great water features that can be updated and expanded over time without looking out of place. Better still, you can create your own personal oasis, and still be environmentally conscious. With that in mind, consider these tips before planning your project.

## The Right Depth

When you dig, follow the rule of 1 foot of drop per 3 feet leveled ground. Thus, if you want a pool with a depth of 5 feet, you'll need to dig it out 15 feet wide. Next, plan to lose 50% of the pool area to plants. Most people tend to put the plants on one side, but you can wrap them around the perimeter or distribute them on several sides depending on the layout of your project.

This should be part of the planning phase. Additionally, once you have determined where your plants will go, you'll need to separate your pool from the plants using some type of divider. This is advised if you'd like to swim in the water without additional filtration. Most people create a divider and use a pump to move water from one side to the other.

## Drainage

Natural ponds are a low-maintenance backyard water feature, so they self-filter and self-drain. With the proper design and professional installation, drainage is a non-issue.



## Native Wildlife in Ponds

One of the best things about a natural pond or pool is that they attract and are suitable for native wildlife.

You may wish to add native fish to your pond. A Reflections water garden expert can help you pick the right fish.

Native wildlife including birds, mammals, amphibians, and insects will enjoy congregating in around your natural pond or pool.

Mosquitoes are rarely an issue with natural ponds. The desirable amphibians and birds that are attracted to your pond will keep mosquitoes at bay.

## Swimming with Fish

It is safe to swim with most types of pond fish, however, the presence of fish can mean an increase in the growth of algae which some people may not enjoy. Algae is easily managed with regular and seasonal maintenance.



# OUR PROCESS

## DREAM IT

Step 1: Imagine your perfect water garden and talk to Larry Carnes our water garden expert.

Step 2: Follow up with Larry on the phone or in person. Larry will share rough sketches based on your initial vision. Together you will brainstorm and explore all the options. Larry will take the final brainstorm and begin a formal design.

Step 3: Secure Reflections Design Services with a retainer. The Retainer is will be determined by Reflections and is variable based on the scope of your project.

Step 4: Review Hand renderings and proof Images. Client approval is needed to move to the next step.



# OUR PROCESS

## DESIGN IT

Step 1: 2D Design using rendering software. Client approval is needed to move to the next step.

Step 2: Creating a Project Budget and payment dates. Client approval is needed to move to the next step.

Step 3: Creating 3D Renderings (not necessary for some smaller projects). Client approval is needed to move to the next step.

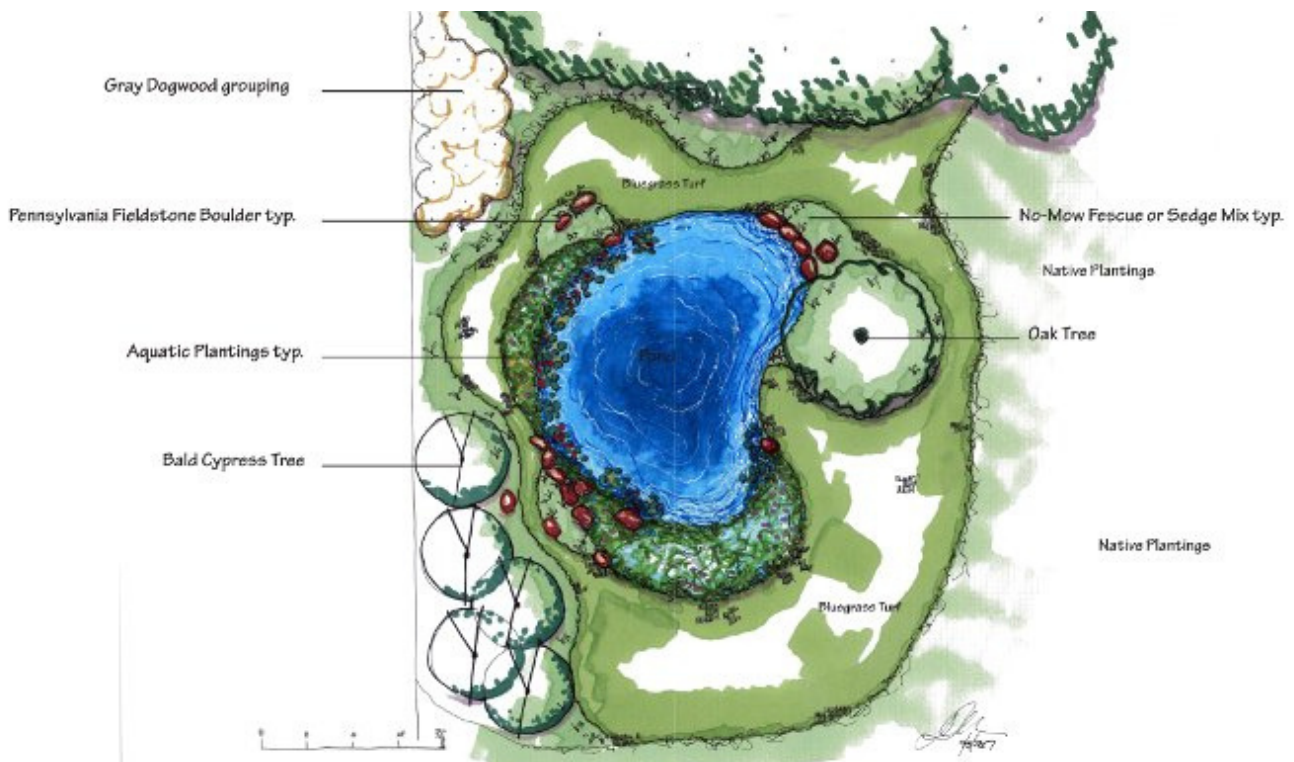
Step 4: If needed: Reflections will find an engineer and obtain topographical surveys and soil assessments.

Step 5: Obtaining bids from necessary contractors. Client approval is needed to move to the next step.

Step 6: If needed: obtain permits from necessary governing bodies.

Step 7: Pay a project deposit to begin construction

Step 8: Construction dates will be set when the deposit is paid.





# OUR PROCESS

## DO IT

Step 1: Construction begins: Reflections will seek client approval for any changes to budget or structural/design changes deemed necessary during construction.

Step 2: Project construction is completed.

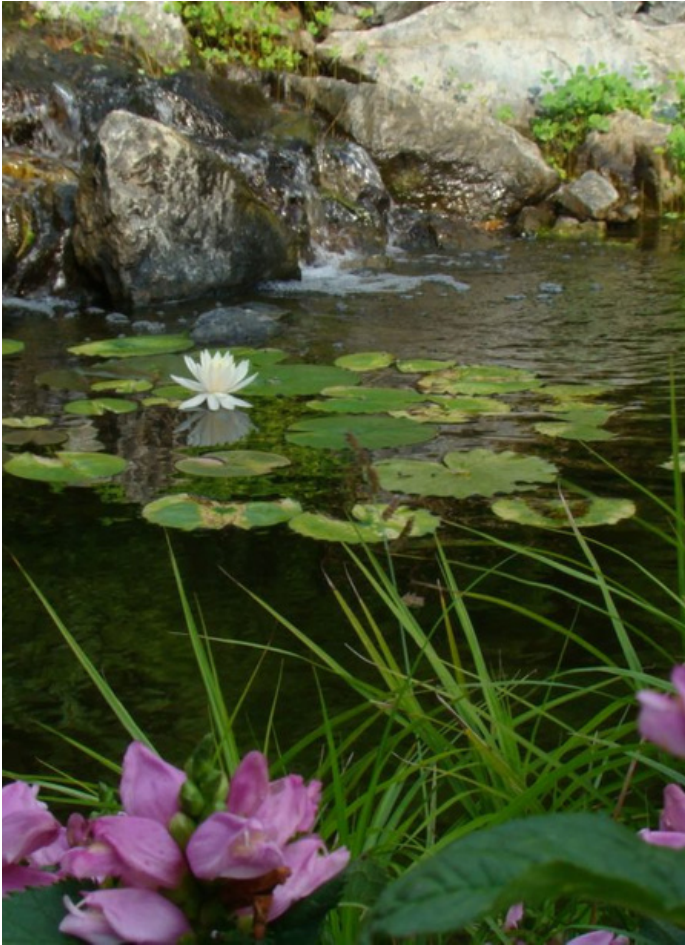
Step 3: Reflections will instruct the client on the care and service required to maintain their new water garden.

Step 4: Final payments are made: Reflections will invoice the client for any remaining balance on the project.

Step 5: Enjoy your Oasis of Tranquility! Although It may take several months for elements of your water garden to grow in, Reflections encourages you to begin enjoying your new water garden right away!







## AQUATIC PLANTS CREATE HARMONY THROUGH SIMPLICITY

A water garden is a natural environment that you will return to time and again for serenity and peaceful reflection. It is more than just putting together an attractive design. Instead, it is about setting the stage for a highly personal experience that is all your own.

No element in your water garden can create this experience more than lush green vegetation and exotic flowers.

The best way to achieve a harmonious environment is by simplifying your design. Rather than planting an assortment of colors, try choosing two or three colors that complement each other and use greenery as a foundation.

A Reflections water garden expert can help you look through a catalogue of options and select a combination of plants that will complement your unique water feature.



# CHOOSING THE RIGHT PLANTS

At Reflections Water Gardens our go-to aquatic plants are; hardy water lilies, pickerel weed, arrowhead, iris, sweet flag, marsh marigold, rushes, and sedges. We typically recommend choosing native plants whenever possible and can help you choose elegant options that are right for your water garden and geographic location.

## Our Go-To Aquatic Plants

- Hardy Water Lilies
- Pickerel Weed
- Arrowhead
- Iris
- Sweet Flag
- Marsh Marigold
- Rushes
- Sedges

## TYPES OF PLANTS

An effective way to foster a calm environment is to create texture. You can do this by adding plants at different depths in and around the pond.

**Deep-water plants:** Secure the plant in a pot and submerge the pot at the bottom of the pond. The entire plant, however, is not fully submerged.

*Examples of common deep-water plants include Arrowhead, Tape Grass, Water Willow, Water Violet, and Golden Club.*

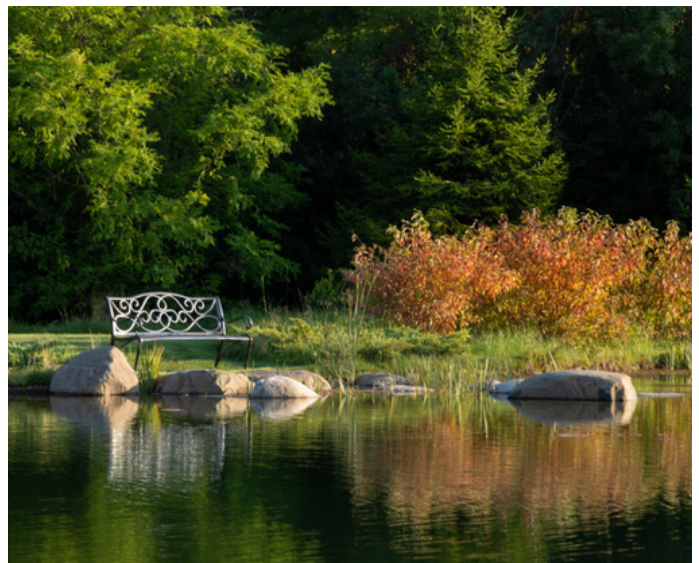


**Submerged plants:** These are plants that grow exclusively under the water. Submerged plants receive nutrients from the water and keep the water clean and clear throughout the growing season.

*Examples of submerged plants include Anacharis, Hornwort, Mermaid Plant, Lemon Bacopa, and Rotala.*

**Floating plants:** Floating plants require no soil. The roots take in nutrients strictly from the water and the plant is visible on the surface.

*Some of the most popular include Water Hyacinth, Water Lettuce, Frogbit, Ferns, Salvinia, among dozens of others.*







## ROCKS & LANDSCAPE

While you may think of plants as the most important feature of your water garden, the rocks and other structures around which they are planted are an essential element in creating a well balanced and natural feeling space.

To create an interesting landscape you will want to use more than one type of rock for your water project. Different rocks serve different purposes. For example, around the edge of a pond or natural pool, you may want sandstone for its varying shades of brown and its attractive look.

Flagstone is also a great choice since its flat shape is handy for holding down the edge of the pond liner – they make nice pavers, too. Both sandstone and flagstone are sedimentary rocks.

## A ROCK FOR EVERY PROJECT

Certain rocks are better suited for some water projects than others are. For example, in a natural pool, you want to use large, smooth rocks to help hold the liner down beneath the water. Heavy, stone slabs help hold the liner against the wall. When building a Koi pond you will need to use rocks such as pea gravel to cover the bottom.



This helps filter out the waste and debris from the fish and plants. Another important thing to remember when working with a Koi pond is you don't want any type of rock or gravel that is too jagged and may harm the fish.

## TYPES OF ROCKS

While there are many different rock variations, they are all derived from one of three main types.

**Sedimentary rocks:** These rocks are an accumulation of sediment that's gathered over time. They consist of layers of materials such as shells, sand, pebbles, and so on. The materials harden to form the rock. Sedimentary rocks are softer and can break apart over time or erode under flowing water.

**Igneous rocks:** These rocks form from magma (molten rock) that escapes the earth's core and solidifies on the surface. Igneous rocks may look different depending on how and when the molten magma cooled. If it cooled rapidly, the rock appearance is shiny and smooth. If gas bubbles are inside the magma as it's cooling, then it will form a porous surface.

**Metamorphic rocks:** Metamorphic rocks are formed underneath the surface of the earth as a result of changes in pressure and heat. Heat and pressure create a rock that is layered and often with small minerals that glisten and shine. One familiar example of this type of rock is marble.



Everyone has different tastes. Some people may enjoy the natural look of dry stacked rocks, while others want cemented rocks.

By using various sizes, textures, and colors of rocks you will add more interest and beauty to your backyard.

We recommend using rocks that pair well together and avoiding a mix and match approach to keep the artistic integrity of your project.





## MAINTAINING YOUR OASIS

Each water feature is as unique as its owner and will require a customized maintenance plan to keep it looking its best. Reflections design and maintains water environments to function as a balanced biological ecosystem the way nature intended.

Larry has great knowledge when it comes to the actual workings of a waterscape. His education and experience make him an expert in design, performance and function.



A water garden expert can help you with aquatic plantings, water quality issues, fish care and will provide reassurance that everything in your garden is well balanced and working properly.

While properly caring for your water feature, we'll keep an eye out for issues, and can diagnose any future concerns that may arise over time.

While maintaining your water feature over time, you may decide to update or expand it. Reflections is available to make expert recommendations that will work well with your current design.



# HASSLE FREE MAINTENANCE

After installation Reflections Water Gardens can provide regular/seasonal maintenance and guide its customers on how to care for the many facets of their project.

**Aquatic planting:** Selecting and Cultivating Aquatic plants throughout the seasons.

## Improving water quality

**Fish Care:** Reflections works with top KOI Experts in the industry to ensure the health of your fish.

**Seasonal Maintenance:** Including start-ups and shutdowns for each season.

## Full Spring Clean Outs

**System Repairs:** If any part of your water garden is in need of a repair a Reflections water garden tech will help you safely asses and fix the problem.

**Periodic/Monthly Maintenance:** Reflections will come to you on an as needed basis or provides regular monthly services.

## Fall pond netting

**Winterizing:** Refections creates an an individual plan based on your needs.

**Special Event Preparation:** Prepare your space for guests in a way that protects your landscape and highlights it's natural beauty.



# TAKE CARE OF YOUR SPACE





## EQUIPMENT & SAFETY

Natural swimming pools and ponds add an elegant and scenic feature to any backyard. However, they also present risks for children or those who cannot swim.

If you have a natural pool or pond in your backyard that has a depth of more than six inches, you should take some safety precautions to prevent an accident.

Children should always be supervised and adults are advised to use caution when consuming alcohol. Swimming while intoxicated is never recommended.

### Safety Tips

- Install Fences or Hedges
- Install a Rescue post, Buoy and Signs
- Install an Alarm on Gates
- Monitor the Area with Security Cameras
- Children should never play in or around a water feature unaccompanied by a sober adult or capable baby sitter.
- Alcohol should be used with caution around water features of any size

If an accident occurs at your pool, Call 911 immediately, even if you believe the person is okay.

Calling 911 ensures the safety of the person and reduces your liability as a property owner.



# SUBMERSIBLE WATER PUMPS

Despite their ground-ready, durable and insulated construction, submersible water pumps still present severe hazards for homeowners and should never be used in ponds meant for swimming or human immersion.

The problem is simple: electricity and water do not mix. As such, installing an electric submersible water pump for water gardens, natural ponds, or pools requires great skill and experience to avoid electrocution.

Manufacturers design submersible pumps to be safe. For instance, they encase them in cast-iron housing designed to isolate the electrical and working parts of the unit. All cables are shielded and sealed by standard rubber. However, both the casing and the rubber shielding does not guarantee that the submersible water pump will never have any contact with water.

## Water Seals

The rubber water seals on a submersible pump contain no adhesive. Instead, they form the seal due to a crimping method that tightens components within the pump. The seal insulates the inside of the pump from water, humidity, and outside air.

While this produces a high level of insulation, occasional seal failures can occur.



A tiny malfunction can bring the inside of the pump into contact with the water garden or natural pond water. The result of this malfunction would be electrified water inside the pond.

## The Cables

Like the main components of the pump, manufacturers go to great lengths to properly seal the cables. For instance, they will fill gaps with epoxy to prevent water from invading the unit. They also wrap the cables in a neoprene, which is both air and watertight.

Epoxy is incredibly effective at forming a waterproof seal. This seal will not fail unless it is subjected to some form of impact that would cause it to crack. If the seal cracks, water might get into the cable. The same is true for neoprene.

## Regular Outlets vs. GFCI Receptacles

Both the National Electric Code (NEC) and OSHA require that all homes now contain GFCI receptacles in areas where water exists or potentially exists. These areas include bathrooms, kitchens, utility rooms, garages, and anywhere outside.

## Regular Outlets vs. GFCI Receptacles (cont.)

GFCI receptacles prevent electrocution by cutting off the power source when an unusual increase or “leakage” in power, like that caused when water comes into contact with electricity, is detected.

Unfortunately, many older homes do not have GFCI receptacles. As a result, plugging an electric water pump into a regular outlet can make it vulnerable to a power surge. It can also increase the risk of electric shock. Therefore, if you use an electric pump, you must make sure that you plug it into a GFCI receptacle or replace your old outlet.

## Freezing Temperatures During the Winter

During the winter, it is a good idea to remove the water pump from your water garden or natural pond. Winters in Illinois, for example, produce frigid temperatures that can plummet below zero. As a result, the water in a natural pond or water garden may stay frozen throughout the season.

Frozen water can take its toll on a submersible water pump. Just one freeze can cause the casing or the cabling to crack open, exposing the electrical parts.

## Abrasives and Heavy Objects

Since most natural ponds or water gardens contain rocks, plants, sand, and other objects, it is important to ensure that they do not come into contact with the water pump.



## Abrasives and Heavy Objects (cont.)

When placing your pump, be sure to isolate it from any heavy rocks, sharp objects, or metal objects. Also, if you use sand, position the pump so that it is filtering the least amount of sand possible. Since sand is abrasive, it can damage the inner parts of the pump over time.

# NEVER SWIM IN A POND WITH A SUBMERGED WATER PUMP

There are special pumps designed for swimming pools and ponds that do not carry this risk.

If you need to enter your pond or pools with a submersible water pump to retrieve something or perform routine maintenance it is critical that you turn off the electricity to the submersible pump and enter with caution.



# ESCAPE TO YOUR BACKYARD

CONTACT A WATER GARDEN EXPERT  
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## LARRY CARNES *Founder and President*

Larry began his career as a student of art and developed a passion for landscaping. He worked for several companies, gaining knowledge in tree care, patio design and installation, and landscape architecture.

After assisting a pond builder in creating a unique in-ground pond/pool for his family, Larry's landscaping interests turned to the creation of custom water features.

Larry has taken Genesis 3 courses with Anthony Archer-Wills, learning to render beautiful designs and create natural looking ponds and water gardens that are works of art

He created Reflections Water Gardens which focuses on high-end residential and commercial projects, with naturalistic water-shaping.

