Working with rain garden consultants, designers and contractors

For most homeowners, rain gardens are simple, do-it-yourself projects that can be completed in a weekend with basic gardening skills and equipment. However, many landowners may not have the time, skills, equipment or ability to build their own rain features. For larger properties, most rain gardens and other "Green" stormwater structures require further consideration during design, construction and maintenance of these innovative systems. Collecting, conveying, and infiltrating large volumes of rain water requires precise planning and a comprehensive understanding of the types of soils, plants and materials used to reduce stormwater runoff. In addition, changes to existing stormwater drainage or retrofitting older units may require approval by an engineer. The purpose of this guide is to make sure you know what to look for in the development of your rain garden so you end up with the garden you intended!

Experienced "Green" professionals can provide some of the best support for the overall success of rain gardens. Some of the benefits may include: increased aesthetic value, heightened visual interest, increased public perception and approval, compliance with municipal and state permitting procedures, accurate construction cost estimates, faster installation time, anticipated maintenance plans, as well as a prolonged performance and life of the project. An investment in the services of experienced professionals is the best way to ensure the best performance of a "living" stormwater system.

There are four phases to working with a "Green" professional. The first is to develop a project proposal describing your general site conditions and what you are looking for. Next, you want to retain a professional with experience undertaking similar projects for both the design and construction phases. The last step (post-construction) is to ensure the system performs to its best ability and that the plants become successfully established. The key to a successful project is to give ample consideration to each phase.

Creating a Proposal

For larger rain gardens or more complicated infiltration systems, we recommend creating a project proposal. Begin by writing out a brief statement of your goals and create a project description, a list of needs, and an approximate budget. Often rain gardens or bio-infiltration systems are sought after to fix a problem. Explain what drainage or runoff issues are occurring and how the problem had been addressed in the past. Within the proposed scope of work, indicate sensitive features on your property that should be taken into consideration.

Once you have developed your project proposal, you can request bids from qualified consultants, designers and contractors. A good place to start is the Kentucky Nursery and Landscape Association or you can look up Landscapers, Landscape Architects or Environmental Engineers in the Yellow Pages. Remember: Rain gardens and "Green" infrastructure are a fairly new concepts, so make sure the person you're considering has experience with this type of work. This innovative, ecological approach to stormwater management requires a wider range of skills and fields of study.

It is critical that the professionals you seek understand the fundamental principles, guidelines and processes involved with stormwater runoff reduction, construction techniques and post-construction maintenance. Request a statement of qualifications, including a list of similar projects and references. Evaluate their portfolio of previous work, contact their references, and plan visits to selected sites where their projects have been completed. Some prospective consultants or designers may indicate preferred contractors. Select the most-qualified professionals and negotiate a contract, including scope of service and compensation to be provided. Notify firms not selected and thank them for their interest.

Design

The project designer begins this phase begins by making site visits, discussing issues and solutions with the property owner, surveying the site, collecting soil data and reviewing regulatory information (including permits, ordinances or easements). They will use this information to determine what would best support a proper design as well as resolve situations that may produce a hazard, liability or overall failure.

Key factors to be considered in the design include:

- **The anticipated storm conditions the feature should handle**
- **The site "watershed" and how much water will be produced**
- **Soil type and infiltration rate**
- **Regulatory and environmental issues involved in the design**

- **The design style or theme, selection and layout of plants (preferably native to Kentucky), and types of materials that best integrates with the surrounding landscape**

The prepared plans should include:

- **Calculations and information for applicable permit approval**
- **Material specifications and construction bid documents**
- **A spillway or overflow route for excess runoff**
- **Steps to be taken to maintain the desired quality of construction**
- **How the completed work will be monitored and what steps are to be taken to repair/replace damaged elements**

Construction

Once a design has been created, bids for construction can be solicited from contractors. The contractor is responsible for taking the design and building the system based on the plans and specifications. By reviewing similar "Green" works already completed by potential contractors, you will get a better understanding of their typical scope and quality of work. Contact their references and assess their experience (including the ability to complete projects on time, within estimated cost, and with a high quality of craftsmanship).

The importance of obtaining a competent contractor cannot be overstated. Do not assume that the contractor with the lowest bid should be awarded the construction contract. A low bid may reflect inexperience in construction of "Green" stormwater structures, the intention to substitute (or omit) specified materials and cutting corners during construction. If the quality of work is poor, the structure will require more maintenance and may have a shorter life expectancy. The resulting in long-term costs of a low-bid project are likely to be more than the overall cost of higher quality structure.

When meeting with a contractor, look for indications that applicants can meet your goals. Do they have experience building rain gardens or other "Green" stormwater systems? Do they possess specialized skills, training, tools or equipment needed to complete the project? What forms of payment do they accept? What type of guarantee that is being offered? How will post-construction issues be addressed?

Typically, the contractor will:

- **Submit a bid and develop a construction contract.**
- **Submit a plan to mobilize material and equipment on site.**
- **Provide the people to manage and carry out the construction.**
- **Meet with the owner and designer to review progress and resolve problems as they arise.**
- **Demonstrate that the work is being performed in accordance with the design specifications and/or applicable codes and ordinances.**

Post-construction

Once the rain garden is built, it will need to be monitored and inspected to ensure it is operating properly. Rain gardens and "Green" stormwater structures are in many ways living systems. Success of the system is measured in part by the establishment of healthy, vigorous plants and soils with proper drainage. Because developing an extensive root network is a key component to success, the plant establishment period typically takes between three to five years. This amount of time will also expose the rain garden to a variety of rain events. Larger storms will test the integrity of the system to handle high volumes of water.

Some unforeseen problems may arise that will need to be resolved. If the project was designed and constructed by two separate companies, it may be more difficult to determine who is at fault and how the remedies will be addressed. A competent and confident contractor typically offers a one-year guarantee on all material and workmanship. However, the contractor may have been instructed to use inadequate materials by a poor design. Likewise, design calculations may have been based on a loose soil that was compacted by the contractor's personnel or equipment during construction. Once again, working with competent, qualified and experienced professional can not be under emphasized.

Post-construction considerations include:

- **Will there be adequate water, maintenance, monitoring and support for the system until it becomes fully established (from 3 – 5 years)?**
- **How much maintenance is the owner willing to provide?**
- **Would a hired landscape maintenance crew be able to distinguish native plants from weeds and understand how to care for rain garden plants?**
- **How will failures be evaluated and remedied?**
- **What guarantees are offered?**

For further information on working with rain garden designers and contractors contact the Bluegrass Rain Garden Alliance, Commercial / Professional Team coordinators:

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