

# Application

Application Date: [5/11/12](#)

Community: [Shaker Heights](#)

Project Manager: [Tom Gibson](#)

Mailing Address: [1836 Wilton Road, Cleveland Heights, OH 44118](#)

Phone Number: [216-932-8733](#)

Email: [GranvilleTGibson@gmail.com](mailto:GranvilleTGibson@gmail.com)

Name of Project: [First Unitarian Solar Rain Garden](#)

Location of Proposed Project (address): [First Unitarian Church of Cleveland, 21600 Shaker Blvd., Shaker Heights, OH 44122](#)

Approximate Square Footage of Stormwater Control Measure: [1,137 sq. ft.](#)

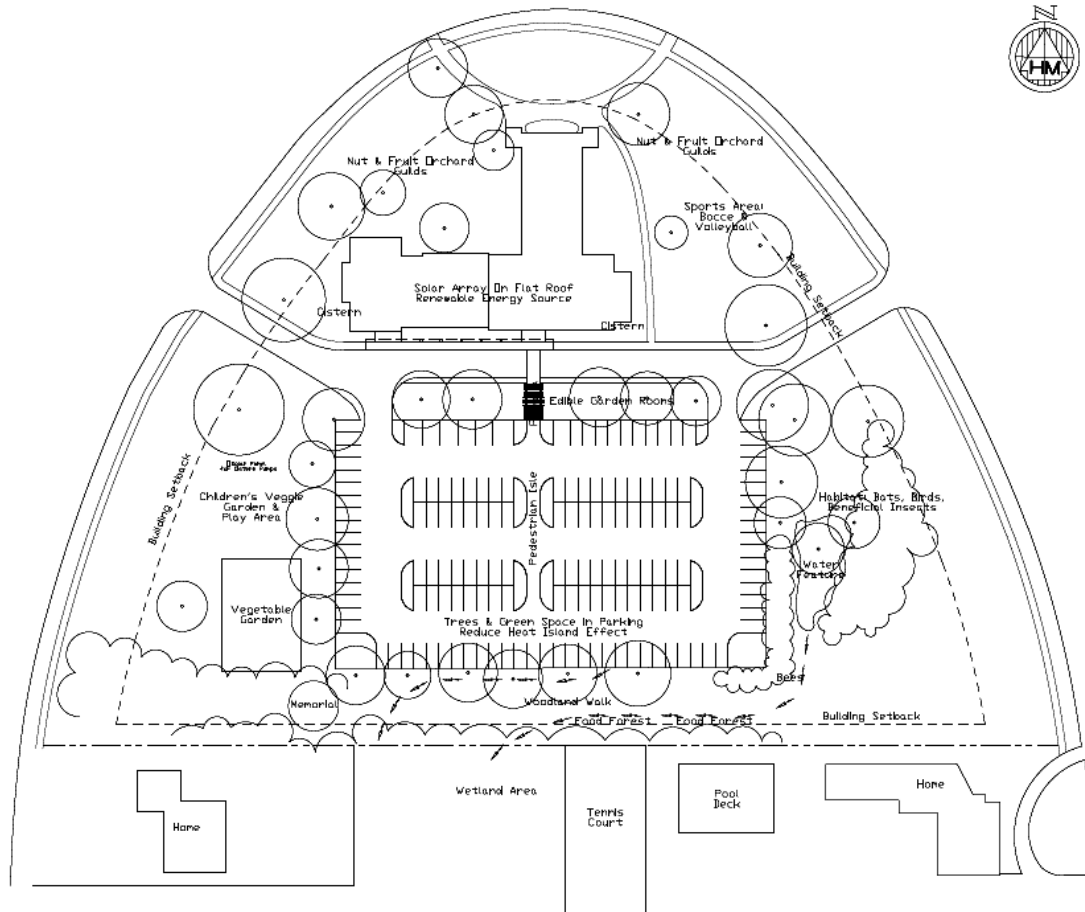
Project Start Date: [August 2012](#)

Project End Date: [November 1, 2012](#)

Estimated Total Project Cost: [\\$29,600](#)

Amount Requested: [\\$15,000](#)

Project area 'before' photo included [Yes](#)  
([http://www.cleveland.com/business/index.ssf/2012/04/first\\_unitarian\\_church\\_of\\_clev.ht](http://www.cleveland.com/business/index.ssf/2012/04/first_unitarian_church_of_clev.ht)  
[m!](#)) + Site Map (below) which not only shows the parking lot, but illustrates First  
Unitarian's original multi-year plan for greening its 6.1-acres. (In this 2010 overview, the  
solar array is on the church roof, but our overall vision remains the same.)



Note: Overhead view of entire 6.1-acre church property, including parking lot (before solar panels) with marked parking lanes.

## NORTHEAST OHIO REGIONAL SEWER DISTRICT SCALE STORMWATER DEMONSTRATION PROJECTS

S3DP 2012

The application must include the following:

**1) Project Summary:** (300 word maximum) Include a project description that addresses the eligibility requirements detailed above.

The project we propose is a double Solar Rain Garden, with locations at each end of the 176-foot-long solar array, newly installed in the parking lot of the First Unitarian Church. The two gardens, roughly 400 sq. ft. each, would draw water from two raised cisterns, each with a capacity of 650 gallons (<http://www.waterwalltanks.com/raintank-gallery/waterwall-fatboy-tanks/1866385>). These cisterns, in turn, would receive water from two gutters running the length of the solar array, which would collect water runoff that falls between the separate rows of solar panels (Calculated for panels, 32 per row, with a surface area of 17.766 sq. ft. each, and slanted 4 degrees. Each gutter would collect runoff from one row and guide it to the cisterns via rain chains.). We estimate

that, based on the average warm-season Cleveland rainfall of over 3 inches per month, that such a system would collect roughly 2,000 gallons of water/mo.

In addition to providing water to the Solar Rain Garden, we believe the cistern capacity would be sufficient to provide water for the church's new 5,400 sq. ft. Permaculture Garden (indicated on the 2010 Site Map as "Edible Garden Rooms.")

We believe the Solar Rain Garden project can serve as a meaningful role model for reducing runoff from similar solar projects. Since many parking lots offer excellent exposure to sunlight, the likelihood is high that, over the coming years, many other solar structures will be sited there. First Unitarian's proposed Solar Rain Garden, the first of its kind in NE Ohio (we believe), should demonstrate that collecting solar panel runoff via rain gardens is feasible, desirable, and attractive.

The rain garden will also demonstrate the value of "stacking" environmental projects, turning one solution into many.

## **2) Visibility and Public Outreach (300 word maximum)**

What audience will be exposed to this S3DP (neighbors, students, community groups, general public)? Describe how these groups will be exposed to the project – include methods of exposure and frequency. Include a letter of support from the community (i.e.; Mayor, Councilperson).

The church receives thousands of visitors annually, not only from its approximately 550 members, friends, and children; but from Sunday Forums and concerts that attract a wide range of non-affiliated attendees. In addition, the church receives regular visits from attendees at events and classes put on by a dozen or so renters that include the Cleveland Institute of Music (site of frequent lessons), Al-Anon, Meals on Wheels, a driver education school, various private lessons (dance, yoga, pilates), etc., plus several dozen weddings, funerals, and non-church-sponsored concerts.

Virtually all of the above attendees enter the church building via the parking lot where the solar rain garden would be located. To educate visitors, we already have in place, or are currently designing, signage that explains the Permaculture Garden. We plan to do the same for the Solar Rain Garden, developing signage describing how the garden and cisterns eliminate a given amount of run-off and why such an effort is important. We also plan to highlight, if applicable, the NORSD grant. Finally, we plan to publicize our demonstration project just as we already publicized the solar project (see link above) and are currently working to publicize our Permaculture Garden (e.g., both the Plain Dealer and Edible Cleveland have scheduled site visits.) Finally, as we have with all our current "green" activities, we plan to include the project on our website.

We are including letters of support from Mary Mulligan, chair of the Elegant and Edible committee of the Shaker Heights Centennial celebration; Ann McCulloh, curator of the plant collection at the Cleveland Botanical Garden; Luren Dickenson, Director of the

Shaker Heights Public Library; Elle Adams, head of our partner garden in Hough, City Rising Farm; and Victoria Mills, Executive Director of the Doan Brook Watershed. We also expect a similar letter from Kate Sopko, a board member the Green Triangle Project (to be forwarded next week).

### **3) Ability to Provide Long Term Maintenance** (300 word maximum)

Discuss:

\_ Who owns the land where the S3DP will be located? Does the applicant have site control?

The First Unitarian Church owns the land, but Bold Alternatives (builder of the solar array) and its tax shelter investors own the solar structure. The church, however, has the enthusiastic support of Bold Alternatives for this project and, we, according to our contract, will take over ownership of the structure in 7 or 8 years (depending on the site's financial return for investors)

\_ What maintenance is required for this project?

Relatively little. The gutters and cisterns may need occasional cleaning, and the Solar Rain Garden itself will be part of the ongoing maintenance of the Permaculture Garden.

\_ Who will provide on-going maintenance and how will this maintenance be ensured?

Our full-time administrator and custodial staff would manage difficult tasks (e.g., cleaning gutters from a cherry picker). But we will hand-off ongoing maintenance of the garden to our volunteer maintenance committee, which is just forming.

\_ Does the applicant have the necessary equipment required for maintenance? What is that equipment?

Gutter maintenance would require rental of a cherry picker, something the church often rents for routine maintenance of both the church building and for tree trimming. Gutter inspection could easily be incorporated into the custodial routine. Maintenance of the garden would require standard gardening tools, which are readily available in the church toolshed or via volunteers.

### **4) Budget Summary Worksheet**

**Expenses:**

#### **a) The gardens:**

<b>Landscape Design, onsite coordination/supervision</b>	<b>\$2,700</b>
<b>Plants</b>	<b>\$2,000</b>
<b>Humus/soil/sand mix (10 cu.yds)</b>	<b>\$200</b>

Stone and gravel construction supervisor	\$3,000
(includes construction of support platforms For the cisterns)	
Gravel	\$600
Stone	\$700
Metal Edging	\$200
In-kind labor (provided by church volunteers)	\$5,000
b) 2 Cisterns (650 gallon, cost includes shipping)	\$2,000
c) 2 176-ft Gutters + rain chains; material, labor, equipment	\$13,200
a. Materials	\$3,600
b. Rental equipment	\$3,400
c. Labor	\$6,400

**Total** **\$29,600**

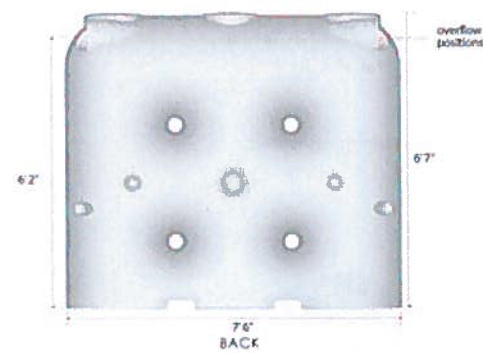
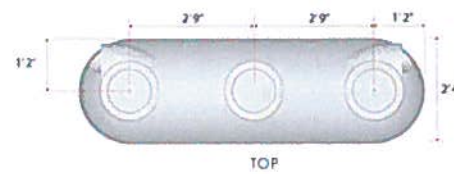
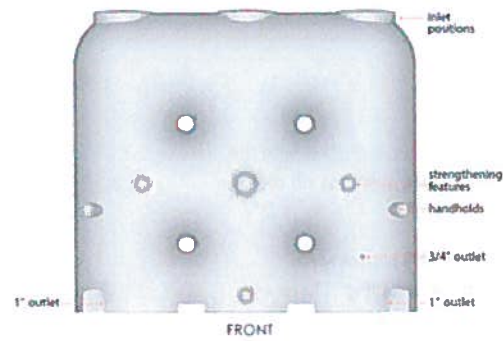


**WATERWALL**  
rainwater tanks



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#### FATBOY Installation

- A. This bit's important..!
- B. Prepare the base
- C. Position the tank[s]
- D. Install the overflow
- E. Install the inlet strainer
- F. Connecting taps or pumps
- G.

## WATERWALL FATBOY 650G TANK

The Fatboy tank has a large capacity whilst still being space efficient... despite the name! Click on the links [in red] for more details.

Dimensions 7'6" long x 6'7" high x 2'4" deep

Capacity 650 gallons

Weight 220pd empty; 2.8 ton full

Inlet A 12" mosquito proof leaf **strainer** supplied with the tank can be placed in any of three inlet positions on the top.

Overflow A 3" flanged overflow outlet is provided, including rubber seal and screws for installing. There are overflow positions on either end of the tank.

Outlets Two brass threaded 1" **tap outlets** – one in each end and one low on the front of the tank – plus one 3/4" tap outlet at knee height on the front of the tank.

Footing A level, **solid base** is all that is required for Waterwall Fatboy such as cement pavers or a contained sand base.

Price Contact your local **distributor** for pricing.

Material High density polyethylene, UV stabilised, FEA approved for holding potable water.

Installation instructions Step by step details of installing the Waterwall Fatboy rainwater tank are available for **download**, and to **view online**.

Download **Information brochure** with dimensions and specifications.

Colors\*



\*Indicative only, color appearance will vary from screen to screen.

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