

Lower Minnesota River Watershed District  
2018 Cost Share Incentive and Water Quality Restoration Program  
Homeowner Application - Benjamin & Lisa Larson

## **Table of Contents**

<b>Contact Info:</b>	<b>2</b>
<b>Purpose:</b>	<b>2</b>
<b>Proposed Plan:</b>	<b>2</b>
Part 1: Trees	2
Part 2: Rain Barrels	4
<b>Location Map / Site Plan / Design Specifications</b>	<b>6</b>
<b>Project Timeline:</b>	<b>7</b>
<b>Record of Property Ownership</b>	<b>7</b>
<b>Estimation of water captured and pollution removed</b>	<b>8</b>
<b>In-Kind contribution of labor</b>	<b>8</b>
<b>Sources</b>	<b>8</b>

## **Contact Info:**

Homeowners : Benjamin & Lisa Larson  
Address: 10831 Quebec Ave S Bloomington, MN 55438  
Phone: (612)597-0919 or (612)597-1860  
Email: [benjaminlarson8@gmail.com](mailto:benjaminlarson8@gmail.com) or [lisalarsonll@gmail.com](mailto:lisalarsonll@gmail.com)

## **Purpose:**

The purpose of this application is to manage rainwater, reduce erosion, stabilize the slope, and reduce water use by collecting rainwater to use for irrigation.

## **Proposed Plan:**

As residential homeowners, we have developed a two part project plan to reduce the volume of runoff water from our property, reduce erosion, and increase filtration of groundwater.

This plan also has the side benefit of increasing O<sub>2</sub> production, increasing the amount of native plants vs grass on our property, and reducing the amount of treated water used to maintain lawn and plants. This two part plan includes the installation two rain barrels and planting of approximately 40 trees.

We own a .41 acre corner lot with a total of approximately 300 linear feet bordering residential streets. The size and location of our property allows for a lot of rainwater run-off into the road. Our property lies just over a half mile from the Minnesota River, which makes reducing this run-off and improving the quality of any run-off extremely important to the ecological environment near me.

## Part 1: Trees

### Eligible Best Management Practices (BMP) Utilized

- Unique solutions for soil erosion and sediment control practices
- Native habitat restoration
- Volume of runoff reduction and runoff treatment practices

The south side of our property slopes toward the road. Due to the placement of our fence, and the rate of the slope we are unable to plant a rain garden in order to reduce runoff. Just one medium sized tree is able to utilize up to 2380 gallons of rainfall per year (Center for Urban Forest Research). Not only do trees absorb water, but they also increase the water storage potential of soil by drawing moisture from the soil (Center for Urban Forest Research). By planting trees along the south side of our property we will be able to dramatically reduce the amount of water runoff that would normally end up in the street. Another benefit of planting trees is erosion reduction in two main ways. First, they diminish the impact of rainwater on soil. Second, the establishment of roots provides structure to the soil (Center for Urban Forest Research).

We propose to plant a row of forty Emerald Green Arborvitae (*Thuja occidentalis*) trees along the south side of our property. We have selected this variety of evergreen tree because it is native to North America. Birds and other wildlife will appreciate the reduction of grass in favor of native habitat on our property. This variety of tree was also selected because evergreen and coniferous trees absorb more water than deciduous trees of similar size (Center for Urban Forest Research). In addition, the roots of trees help filter out pollutants, improving the quality of runoff that does make it to the watershed. Trees also convert CO<sub>2</sub> to O<sub>2</sub>, thus improving the air quality of our community.

### Plan Part 1 Summary:

- Plant a row of approximately 40 Emerald Green Arborvitae trees along the south side of our property (borders the road).

### Plan Part 1 Benefits

- Reduce runoff

- Increase native habitat/reduce grass
- Reduce soil erosion
- Increase filtration of water runoff
- Increase in O<sub>2</sub> production to improve air quality

#### Plant List

- Approximately 40 of Emerald Green Arborvitae (*Thuja occidentalis*) trees
- These trees are a medium tree growing to approximately 15 feet tall and 3-4 feet wide



Image 1: Emerald Green Arborvitae trees

Image credit: <https://lathamsnursery.com/product/arborvitae-emerald-green-thuja-occidentalis-smaragd/>

## Part 2: Rain Barrels

### Eligible Best Management Practices (BMP) Utilized

- Volume of runoff reduction and runoff treatment practices

In order to reduce the volume of rainwater runoff on our property we propose to install two - sixty five gallon rain barrels on our backyard gutter downspouts. These rain barrels will not only reduce the amount of runoff from our property by storing water during storms, but also will reduce the amount of treated water that we use to maintain our lawn and plants during dry

times. Specifically the water stored in these rain barrels will be used to water trees planted from part one of this proposal.



Image 2: Proposed 65 gallon rain barrels

Manufacturer: Good Ideas Inc

Model Number: IMP-L65-DAR

ASIN: B00NP5EEFY

Link:

[https://www.amazon.com/Good-Ideas-IMP-L65-DAR-Impressions-65-Gallon/dp/B00NP5EEFY/ref=pd\\_da\\_y0\\_86\\_4?encoding=UTF8&pd\\_rd\\_i=B00NP5EEFY&pd\\_rd\\_r=RS4X1Y9J9AV87YBQB6Y&pd\\_rd\\_w=OOFZ1&pd\\_rd\\_wg=qX8PI&refRID=RS4X1Y9J9AV87YBQB6Y&th=1](https://www.amazon.com/Good-Ideas-IMP-L65-DAR-Impressions-65-Gallon/dp/B00NP5EEFY/ref=pd_da_y0_86_4?encoding=UTF8&pd_rd_i=B00NP5EEFY&pd_rd_r=RS4X1Y9J9AV87YBQB6Y&pd_rd_w=OOFZ1&pd_rd_wg=qX8PI&refRID=RS4X1Y9J9AV87YBQB6Y&th=1)

## Location Map / Site Plan / Design Specifications

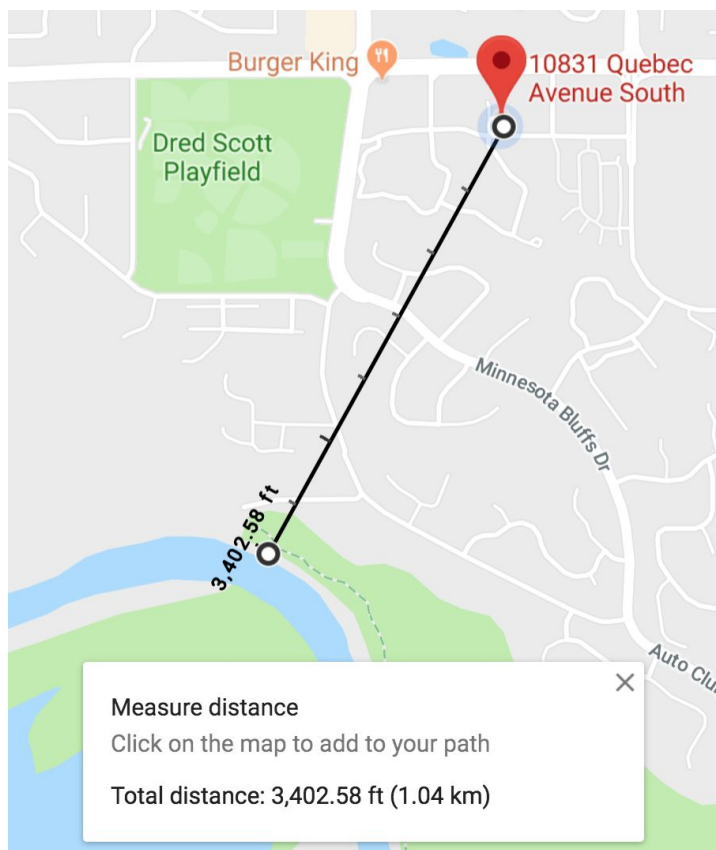


Image 3: shows location of property relative to Minnesota River



Image 4: satellite view of property

- **Red line:** property boundary
- **Yellow Dots:** proposed placement of trees to be planted (picture does not reflect exact number of trees)
- **Pink dots:** proposed placement of rain barrels

## Project Timeline:

- April 15th: submit application
- Within 1 month of application approval: Order supplies
- Within 2 months of supply arrival: implementation of project
- Full project will be completed by August 31st, 2018 at the latest.

## Record of Property Ownership

See Attachment to Email

## Estimation of water captured and pollution removed

- Water captured by trees: Medium trees can capture up to 2380 gallons of water per year (Center for Urban Forest Research). The planting of approximately 40 trees could capture up to 95,200 gallons per year total.
- Water captured by rain barrels: Each rain barrel can hold up to 65 gallons of rainwater each storm. Having two rain barrels will be able to capture 130 gallons of water per rainstorm and can be used to water lawn and plants during dry times.
- Pollution removed by trees: Trees are able to remove anywhere from 13 to 48 pounds of CO2 per year (Urban Forestry Network). During this process they are also able to produce 260 pounds of oxygen per year (Environment Canada).

### **Budget**

<b>Item</b>	<b>Cost</b>
Emerald Green Arborvitae Trees x NUMBER	\$40 x 40 = \$1600
Soil x NUMBER	\$7 x 10 = \$70
Mulch x NUMBER	\$4 x 25 = \$100
Post hole digger rental x 2 days	\$75 x 2 days = \$150
Rain Barrels x 2	\$150 x 2 = \$300
<b>Total</b>	<b>\$2220</b>

See cost share worksheet for more information including in-kind labor contribution and requested funds from LMRWD. Attached to Email.

## In-Kind contribution of labor

Homeowners will provide contribution of all in-kind labor required for the project.

## Sources

Center for Urban Forest Research, Pacific Southwest Research Station, USDA Forest Service, Davis, California. July 2002. ([http://northlandnemo.org/images/CUFR\\_182\\_UFfactsheet4.pdf](http://northlandnemo.org/images/CUFR_182_UFfactsheet4.pdf))

Urban Forestry Network (<http://urbanforestrynetwork.org/benefits/air%20quality.htm>).

Environment Canada, Canada's national environmental agency  
(<https://www.thoughtco.com/how-much-oxygen-does-one-tree-produce-606785>).