



LOWER MINNESOTA RIVER WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting

Wednesday, June 17, 2020

Agenda Item

Item 5. D. - Braun 2020 Cost Share Application - 10312 Portland Avenue South, Bloomington

Prepared By

Linda Loomis, Administrator

Summary

Dustin Braun completed the Master Water Steward Program and this project will be his Capstone project. Hennepin County provided technical assistance to Mr. Braun for this project. The project is will capture the rainwater and store it in a 1,000 gallon cistern. The cistern will provide irrigation to the gardens, fruit and nut trees that will be planted are planned to be planted. Mr. Braun is a landscape designer and intends to do the majority of work himself.

The total estimated cost of the project is \$4,835.00. Mr. Braun is asking for a cost share of half that amount \$2,417.50. This is the third cost share application the District has received this summer.

Attachments

Cost share application

Recommended Action

Motion to approve Cost Share Application



Application type (check one) Homeowner Non-profit - 501(c)(3) School
 Business or corporation Public agency or local government unit

Project type (check all that apply) Raingarden Vegetated Swale Infiltration Basin
 Wetland restoration Lake/creek/wetland buffer Conservation practice
 Shoreline/bank stabilization Pervious hard surface
 Other CISTERN

Applicant Information

Name of Organization or Individual Applying for Grant (to be named as Grantee): DUSTIN BRAUN

Address (street, city and ZIP code): 10312 PORTLAND AVE S, BLOOMINGTON, MN 55420

Phone: 952-994-5864 Email address: DUSTIN@HOMEGROWNDESIGN.LAND

Primary Contact (if different from above)

Name of Organization or Individual Applying for Grant (to be named as Grantee):

Address (street, city and ZIP code):

Phone: _____ Email address: _____

Project location

Address (street, city and ZIP code): 10312 PORTLAND AVENUE S, BLOOMINGTON, MN 55420

Property Identification Number (PID)

Property Owners: DUSTIN & NICOLE
BRAUN

Project Summary

Title RESIDENTIAL RAINWATER HARVESTING AND IRRIGATION

Total Project Cost \$4,835 Grant amount requested \$2,418

Estimated start date JULY 2020 Estimated completion date SEPTEMBER 15, 2020

Is project tributary to a water body? No, water remains on site Yes, indirectly Yes, directly adjacent

Project description:

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

Is this work required as part of a permit? No Yes

(If yes; describe how the project provides water quality treatment beyond permit requirement on a separate page.)

Project Details

Checklist To be considered complete the following must be included with the application.

location map

project timeline

site plan & design schematic

proof of property ownership

itemized budget or contractor bid

plant list & planting plan (if project includes plants)

Description

Describe the current site conditions, as well as site history, and past management

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

What are the project objectives and expected outcomes? Give any additional project details.

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

List other key participants and their roles (provide contact information for each partner and his/her expected contribution to the project)

MASTER WATER STEWARD PROGRAM - They have provided the education and support for me to start this project and see it through to completion. I am in the 2020 cohort of this program and this will be my capstone project.

Which cost share goals does the project support? (check all that apply)

improve watershed resources

Foster water resource stewardship

increase awareness of the vulnerability of watershed resources

increase familiarity with and acceptance of solutions to improve waters

How does the project support the goals you checked?

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

Project Details (continued)

Benefits Estimate the project benefits in terms of restoration and/or **annual** pollution reduction. If you are working with a designer or contractor, they can provide these numbers. If you need help contact the district Administrator.

Benefit	Amount
Water captures	gal/year
Water infiltrated	gal/year
Phosphorus removed	lbs/year
Sediment removed	lbs/year
Land restored	sq. ft.

How will you share the project results with your community?

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

Are there other projects that could be initiated as a result of this one?

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

Evaluation

How will the project be monitored and evaluated?

PLEASE SEE ATTACHED DOCUMENT WITH FULL DESCRIPTION AND DETAILS

Maintenance agreement

I acknowledge that receipt of a grant is contingent upon agreeing to maintain the project for the number of years outlined in the cost share guidelines. Yes

Authorization

Name of landowner or responsible party DUSTIN BRAUN

Signature *Dustin Braun* Date 6/12/2020

Type or handwrite your answers on this form. Attached additional pages as needed

(For questions, contact Linda Loomis at NaiadConsulting@gmail.com or call 763-545-4659.)

Mail the completed application to:

or Email to:

Lower Minnesota River Watershed District
c/o Linda Loomis, Administrator
112 E. Fifth St., Suite 102
Chaska, MN 55318

Linda Loomis, Administrator
naiadconsulting@gmail.com

2020 Master Water Steward capstone application form

Submit the first draft of the application by April 22, 2020 to Christina Schmitt: christina.schmitt@hennepin.us. Final application is due May 22, 2020. Application approval is required prior to receiving capstone funds.

Contact information

Master Water Steward candidate name:	Dustin Braun
Project Name:	Homestead Scale Rain Cistern
Project Location (address):	10312 Portland Ave. S., Bloomington, MN 55420

Best Management Practices (BMP) installation project description

- **Project summary:** *Briefly summarize the water quality problem you intend to address and your proposed project.*

This project is intended to address the over consumption and mis-direction of our limited water resources across the typical residential landscape by offering an alternative low-tech solution to capturing, storing, infiltrating and irrigating with the rain water that lands on site.

As we know, the majority of residential landscapes have been designed to shed water that falls from the sky off site as fast as possible; inundating our local watersheds with large spikes of water that carries with it all sorts of fertility, pollutants, foregoing any potential positive uses and dumping it in the nearest water body. We then choose to import back to our landscapes a very energy intensive form of water from surface and below surface sources and use it to supplement the irrigation needs for our landscapes and personal uses. I am going to show how we can substantially reduce, if not all together eliminate the need for supplemental city supplied water resources for a suburban landscape.

I have chosen to install a large rain cistern at my home which has been designed to be a water wise, eco-friendly, edible landscape which has a net positive environmental impact. This cistern will close the loop on taking this landscape off of the municipal water supply for landscape irrigation and will offer an important educational aspect to the neighborhood and for the community tours that will held here. This location is only 1 block from the MN River Valley and will bring awareness to the responsibility we all have of maintaining the water quality of our local rivers.

- **Please provide contact information of the firm that assisted you with project scoping and design:**

I am a landscape designer by profession and will manage all aspects of design and implementation.

HomeGrown Land Design, Dustin Braun, dustin@homegrowndesign.land, 952-994-5864

- **Project selection:** *Describe how and why you chose to complete a project in the location you are proposing. Why is this the right project for this location? What alternatives did you and your designer consider? Reference Watershed Management Plans and/or correspondence with county staff of watershed representatives.*

I live in a neighborhood that has direct access to the MN River Valley within a block or two from most people's homes. We all have a very important role to play in mitigating the potential negative impacts our landscapes can have on this local water body and currently I'm not seeing a lot of action and examples for others to be motivated by. Bloomington did support a rain garden installation project in our area which does showcase an example BMP for mitigating water runoff from our hardscapes and I'd like to showcase another solution which residents can get more hands on with at their homes. During conversations with the Hennepin County staff, the ideas I presented were well received and there was a lot of excitement to see this project move forward. With that excitement I knew I was on the right track.

My house has already begun a large transformation from being a typical flat lawn sloped towards the street, to one with pollinator plantings, water harvesting infiltration basins, gutter redirection, fruit trees and shrubs, vegetable gardens and more. Currently the one piece that's missing to tie it all together as being truly 'water wise' is to capture, store and irrigate with the rain water that falls onsite; reducing the amount of storm water entering our local system and increasing the health of this ½ acre + ecosystem.

The location of the cistern will catch water from the largest and cleanest portion of the garage roof. It will be located on the north side of the garage near some of our gardens and will offer a cooler location to maintain a high level of water quality. Once the water is captured, any overflow will be directed back into the landscape into a low lying area which will infiltrate and passively irrigate establishing fruit trees, shrubs and pollinator plantings making this a great example of a close loop system that takes water from a hardscape and infiltrates it into the ground. We have very sandy soils in this area and will be able to infiltrate all of the water flowing through this system.

- **Site selection:** *Include letter of support from the project site's property owner.*

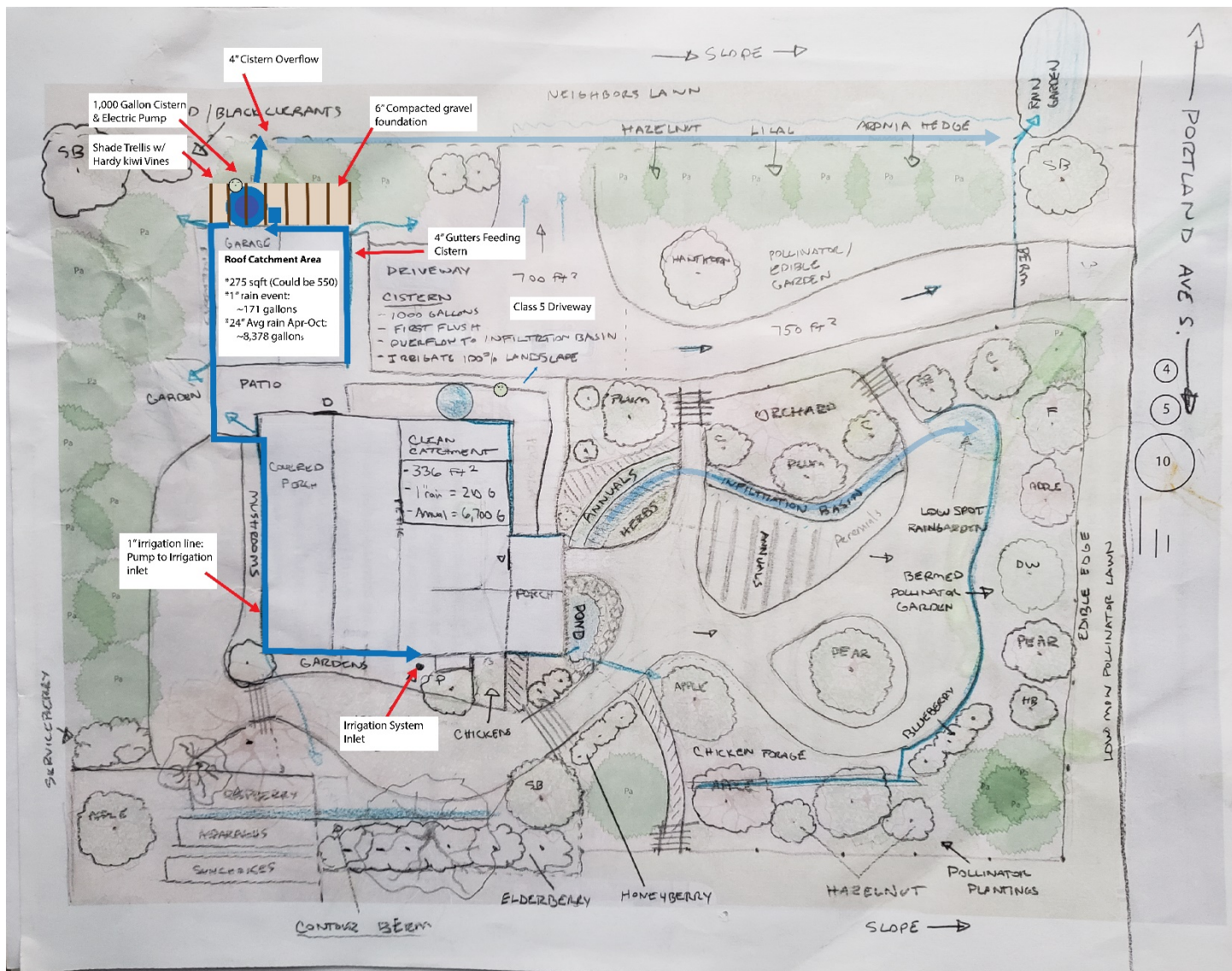
It's my own property and I support this project 😊

- **Detailed project description:** *Describe the proposed project and your implementation timeline. What will be the end result? Include time-specific major milestones between project initiation and project completion.*
 - Installation of a properly designed 1,000 gallon rain water cistern which will supply 100% of the landscapes seasonal irrigation needs.
 - Sourced from debris free asphalt roof of home
 - Filtered at gutter source with gutter guards
 - Pre-treatment using a first-flush diverter designed to separate initial ~20 gallons of dirtier water prior to clean water entering cistern. Weekly maintenance check to be performed.
 - Quiet inlet design to ensure no mixing of tank sediment while filling
 - Overflow design with appropriately sized 4" plumbing and draining to a mulch infiltration basin which will passively irrigate annual vegetables, fruit trees and pollinator plantings, ending up in a grass infiltration basin/rain garden.
 - Diverter Valve allows water to be harvested in summer and diverted in winter.
 - Automated irrigation for all landscaping needs
 - On-demand electric pump to automate irrigation needs and remove need for pressurized city water source for landscape.
 - Plumbing to existing irrigation system (which will be disconnected from the city supply), annual garden beds and new outdoor faucets will replace the city water source with water from the cistern.
 - Automatic Timer will be used to automate irrigation tasks making them easier and removing barrier to engagement.

- Shade Structure to keep water temperature cool during the summer season
 - Pergola over rain cistern with seasonal shade provided by Hardy Kiwi Vines
- (Not in scope, potential future enhancement) Potable water treatment system for rain water harvested.
 - Three/Four stage filter: Gravel up-flow filter, sand bio filter, biochar filter, UV filter
 - Potable water storage tank in basement which can supply household needs.
- Benefits
 - Reduce demand on local water resources and infrastructure during peak seasons.
 - ~3-4,000 gallons seasonally (maybe more, hard to say as demand may change annually)
 - Reduced runoff into storm water system diverted into cistern and landscape
 - 1" rain event: ~171 gallons
 - 24" average rainfall April-October: ~4,104 gallons
 - Healthy water used to grow produce which feeds a family and community.
 - Chlorine/Chloramine/Fluoride/etc... free
 - Nutrient rich containing high levels of nitrogen
 - Water independence: Take ownership of our water needs
- Implementation Timeline:
 - Coordinate Installation workshops: May-June
 - Materials Ordered: Week of July 1st
 - Installation: June 20th-June 28th
 - Installation workshops: July 18th, July 25th
 - Video Documentary: Installation process documentary complete by: September 15th
- Notes:
 - There will be no required permits for this project based on my conversations with the city permit office. Rain barrels/cisterns do not require a permit and since I'll be disconnecting the inground irrigation system from the city supply they will not require any permitting.
 - My home is insured and I carry a liability policy to cover issues with the cistern and volunteers helping on the project.
 - Social distancing guidelines will be followed during project installation:
 - Stay at home if you're sick, don't share tools, limited interactions, sanitize and wash hands. If there are tasks, where maintaining social distancing may be challenging, the workers should wear masks. It's also best to minimize the number of people working on-site at any one time.

BMP project design detail

1,000 Gallon Cistern sizing considerations are based on average monthly rainfall, monthly usage and installation location.



1,000 Gallon Cistern & Electric Pump

4" Cistern Overflow

6" Compacted gravel foundation

Shade Trellis w/ Hardy kiwi Vines

GARAGE
Roof Catchment Area
*275 sqft (Could be 550)
*1" rain event: ~171 gallons
*24" Avg rain Apr-Oct: ~8,378 gallons

DEWKEYWAY 700 Ft?
CISTERN
- 1,000 GALLONS
- FIRST FLUSH
- OVERFLOW TO INFILTRATION BASIN
- IRRIGATE 100% LANDSCAPE

Class 5 Driveway

1" irrigation line: Pump to Irrigation inlet

Irrigation System Inlet

4
5
10

PORTLAND AVE S.

EDIBLE EDGE
LOW MAIN POLLINATOR LAWN

SLOPE →

SLOPE →

CONTOUR BERM

NEIGHBORS LANE
HAZELNUT LILAC ARONIA HEDGE

700 FT?
750 FT?

CLEAN CATCHMENT
- 336 FT²
- 1" rain = 210 G
- Annual = 6,700 G

INFILTRATION BASIN

LOW SPOT RAIN GARDEN

BERMED POLLINATOR GARDEN

BILBERY

POLLINATOR PLANTINGS

CHICKENS

CHICKEN FORAGE

ELDERBERRY

HOMEYBERRY

HAZELNUT

POLLINATOR PLANTINGS

SERVICE DRIVEWAY

PATIO

COURT YARD

PORCH

POND

CHICKENS

CHICKEN FORAGE

HAZELNUT

POLLINATOR PLANTINGS

EDIBLE EDGE
LOW MAIN POLLINATOR LAWN

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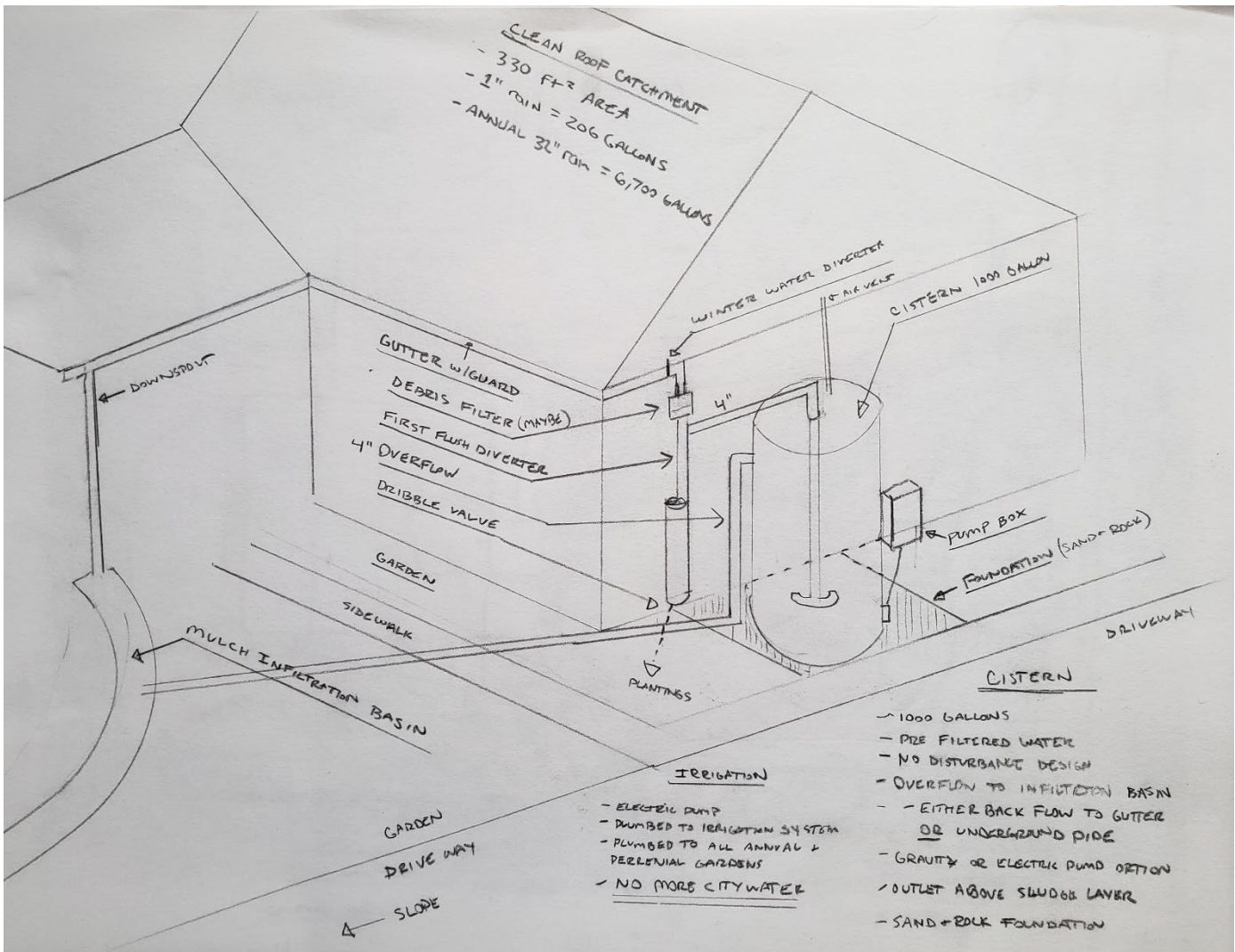
CHICKEN FORAGE

HAZELNUT

POLLINATOR PLANTINGS

EDIBLE EDGE
LOW MAIN POLLINATOR LAWN

Imagine the same setup shown below on the North side of the garage. The overflow will be directed into a low laying area near the cistern where water will infiltrate and irrigate the water loving plantings nearby. If the overflow is very large, the water will then slowly travel ~150' through grass, infiltrating and irrigating fruiting shrubs along the way before it ever enters the street. *Foundation will be 6" of compacted gravel after excavation of topsoil.



Seasonal Maintenance

- Winterizing in late October includes draining tank, leaving valves cracked open, diverting water to regular overflow path.
- Tank Cleaning: In the Spring the tank will be laid on it's side and fully cleaned before being used for the season.
- Debris filter and gutter guard cleaning will be performed in between large rain events as necessary.

Community outreach plan description

- **Topics:** *Which topics will you cover in your outreach and education efforts (select all that apply):*
 - Erosion or sediment
 - Road salt
 - General water quality**
 - Groundwater**
 - Critical habitat**
 - Other (please list):
- **Outreach goals:** *What are your goals for your outreach and education efforts/what changes are you hoping to affect in your community?*
 - My goal is to connect with the community I live within to foster greater sense of ownership of maintaining the health of our local ecologies and water resources. I want to share with others the knowledge that I have gained through this program as well as the years of self-study and coursework that guides me in most decisions I make. I'd like to create community with others that share this passion and develop neighborhood level relationships that are rooted in environmental and personal health. Most of all, I want to share that being eco-conscience is not only easy, it's fun!
- **Describe your audience:** *Include a description of the audience you intend to reach with your education and outreach efforts. Be as specific as possible regarding geographic area, demographics, and other relevant information about your audience.*
 - My target audience will be members of my community here in SE Bloomington as well as I've built connections with online through my edible landscape business. The audience can be young and old, my next-door neighbors to those that need to drive a few miles to come over. I'd like to speak directly to those that share the responsibility of stewarding the MN River Valley that is so close to our hearts and homes.
- **Project activities:** *Describe the activities you plan to do to engage your audience in learning about and/or taking action to protect water. Include a timeline of activities. Tell us about the educational resources you plan to use.*

I'll be taking part in a two different outreach programs which are both aimed at educating the public on how to design, implement and maintain water quality BMP's at home.

 - I've been working with the Bloomington Water Resources department to develop and understanding of what condition the current ~100 rain gardens are in that the city of Bloomington installed for residents as part of the street reconstructions projects.
 - Rain Garden Owner Survey: We started by developing an approach for how we think the best way to reach residents and garner feedback from them would be. This resulted in a 15 question survey that was sent to all the residents with raingardens in Bloomington and the nine mile creek watershed district. This survey lead to information that allowed us to create a tailored approach for what the community needed.
 - Rain Garden Management Plan: The next items was to create/update a rain garden management plan that Capital Region Watershed was nice enough to share with us. This work was finalized the week of 4/13/20 and will be mailed out in the coming weeks to residents.
 - Rain Garden Maintenance Class: The residents also shared a desire to have an in-person education event which we concluded would be a neighborhood level rain garden maintenance class hosted at one of the residents rain garden. Our goal is to either collectively lead three different courses over the summer months OR Lead a live webinar covering the same material this summer at the Nine Mile Creek offices rain garden if the shelter in place is still in effect. Our target audience is likely around 100 people.

- I'll also be educating the community about the importance of managing your own water-print across your landscape with the main subject being the installation of the home scale rain water cistern.
 - Installation events: As part of the implementation I'll be hosting two in person workshops for the rain water cistern installation on July 18th and July 25th. These will allow the local community to see up close what it takes to make a difference and to learn and ask questions along the way. At this event I'll also discuss the adopt a drain program and share a few easy tips for getting started at home.
 - Video Documentary: An installation process documentary will be filmed of the entire process from the conceptual goals, the decision making patterns, installation and the system in use. This will be shared on social media platforms through my network and any others that are interested. I plan to complete this by September 15th and believe I'll be able to reach multiple hundreds of people through this medium, especially with the covid events this year. I will leverage the help of a professional videographer to make the content really stand out from the average video. This is a personal friend of mine.

Budget

- **Budget:** *Provide a budget for the project, including total costs broken down by tasks and the amount requested through this capstone grant application. Describe how the costs were estimated. In addition, provide the following breakdown:*
 - Total project cost: \$4,835
 - LMRWD Grant requested amount \$2,418
 - Funding from other sources: \$2417
- **Budget detail:** *Use table below and/or attach budget detail*

These costs have been estimated using research from various companies that supply the main components of the rain water harvesting components. Some of the items have been estimated and shipping and taxed have been estimated. Any costs above and beyond the \$2,500 will be covered out of pocket by myself.

Description	Cost	Source
1,000 Gallon Cistern	\$ 800.00	https://www.rainharvest.com/1000-gallon-snyder-vertical-water-tank.asp
Pump, first flush diverter, calming inlet, overflow siphon, accessories	\$ 725.00	https://www.rainharvest.com/rainflow-ags-above-ground-rainwater-collection-system.asp
Plumbing (Overflow, Irrigation lines, timer)	\$ 300.00	Menards
Cement Foundation	\$ 500.00	Local
Cistern Shade Structure	\$ 500.00	Menards
Plants (Hardy Kiwi)	\$ 60.00	Bachmans
Video Documentary Editing Support	\$ 200.00	Local Videographer friend
Labor (\$12/hr x 150 hours)	\$ 1,800.00	
Total Project Estimation	\$ 4,835.00	

Master Water Stewards

MIDS (Minimal Impact Design Standards) Calculator Data

http://stormwater.pca.state.mn.us/index.php/MIDS_calculator

Rain Barrel/ Cistern	
Date of Project	June 2020
Zip code of Site	55420
Total Area of site	23,099 sqft/.53 acres
Total Impervious Area on Site	4,016 sqft
Area Routed to project	275 sqft (27.5'x20.5')
Impervious Area captured by project	275 sqft (27.5'x20.5')
Cistern Volume Capacity	1,000 gallon
Irrigation Application Area	19,000 sqft (potentially irrigated area)
Irrigation Application Rate	1x per week
Irrigation Season Start	April
Irrigation Season End	October
Does the system go offline during off season?	Yes
Date of Project	June 2020