



Project Summary

Three curb-cut rain gardens were installed at Rice Lake Elementary School to treat stormwater runoff before it enters Rice Lake. Prior to installation, rain falling on impervious surfaces within the rain garden drainage areas was channeled through the curb and gutter system without any form of treatment. The project improved the quality and reduced the volume of stormwater reaching Rice Lake by capturing and infiltrating runoff from the nearby sidewalks and parking lots. Planting of the native species community was done by the students. The close proximity of the curb-cut rain gardens to Rice Lake Elementary School will also provide unique educational opportunities about stormwater best management practices.



Project Specs

Rain Gardens Installed.....3
 Date InstalledJune 2011
 Live Storage Area 2,109 ft²
 Total Drainage Area..... 2.01 acres

Installation Funding

RCWD \$8,224.03
 State of MN CWF..... \$11,249.02
 Total Installation Cost \$19,473.05

Other Expenses

Design..... \$3,220
 Construction Oversight..... \$1,680
 Promotion/Administration.... \$2,851
 Ongoing Maintenance \$300/year



Pre-installation conditions consisted of open turf grass areas and a parking lot island that provided little benefits to water quality or wildlife habitat.



Curb-cuts were used to divert stormwater into the rain gardens that will provide reductions in volume and pollutant loading to Rice Lake.

The rain gardens were planted with native species to aid in filtration/infiltration and provide wildlife habitat.



Pretreatment chambers will capture sediment and debris prior to entering the garden and reduce future maintenance efforts.



Modeled Pollutant Reductions

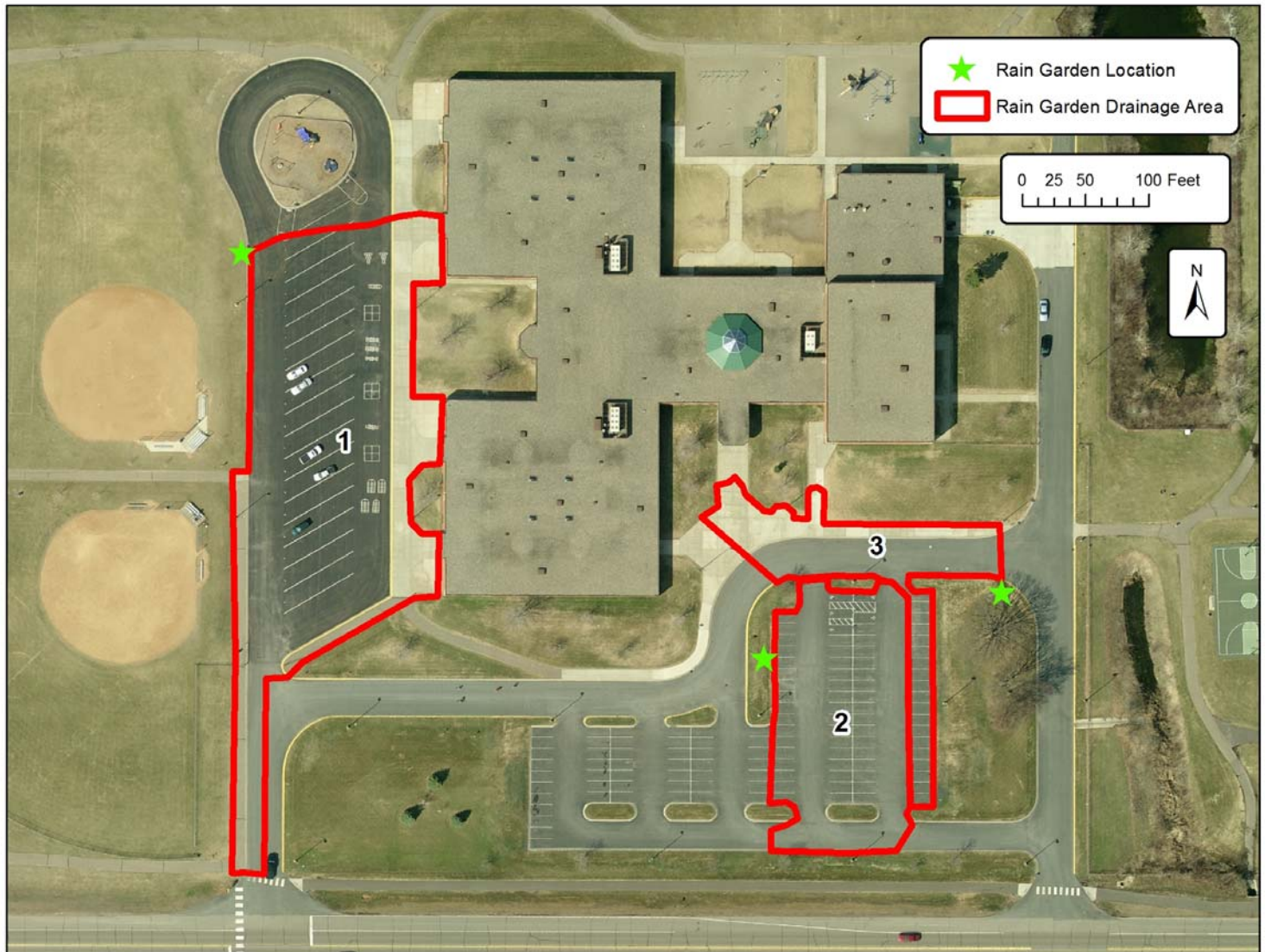
WinSLAMM modeling was used to estimate reductions in water volume, total suspended solids (TSS), and total phosphorus (TP) following rain garden installation. The table to the right highlights these reductions for each of the three drainage areas on the Rice Lake Elementary School campus in which a rain garden was installed. Water quality benefits to receiving water bodies associated with these reductions include:

- Groundwater recharge,
- Increased water clarity,
- Decreased pollutant and toxin loading, and
- Decreased nutrient loading that stimulates nuisance algae blooms.

ID	Drainage Area / Live Storage Area	Volume Reductions		TSS Reductions		TP Reductions	
		ft ³ /yr	%	lbs/yr	%	lbs/yr	%
1	1.19 acres / 1,115 ft ²	63,598	83	451.3	83	0.952	83
2	0.50 acres / 676 ft ² *	9,278	30	109.0	43	0.172	42
3	0.31 acres / 318 ft ²	14,636	70	101.1	70	0.224	70
Annual Project Total		87,512 ft ³		661.4 lbs		1.348 lbs	
30 Yr Project Total		2,625,360 ft ³		19,842.0 lbs		40.440 lbs	
Benefit / \$100 Spent** (over 30 years)		7,248 ft ³		54.8 lbs		0.112 lbs	
30 Yr Cost** / Unit		\$600.73/acre-ft		\$1.83/lb		\$895.75/lb	

* Under drain installed due to slow infiltration rates, which decreases volume and pollutant reductions.

**The 30 year cost per unit of volume or pollutant removal includes installation, design, construction oversight, promotion, administration, and 30 year maintenance costs.



Rice Lake Elementary School campus with three rain garden locations and corresponding drainage areas.