

# **Residential Riparian Reforestation in the Rocky River**

LEPF SG 478-2014

## **ABSTRACT**

Jared Bartley  
Rocky River Watershed Coordinator  
Cuyahoga Soil & Water Conservation District  
Prepared on behalf of Rocky River Watershed Council

The goal of the Residential Riparian Reforestation in the Rocky River Watershed project is to pilot a novel reverse auction delivery mechanism to increase adoption of restore stream water quality and function in urban and suburban areas of the watershed through the establishment of forested riparian buffers on residential property. Through the program, letters and fact sheets describing the importance of forested riparian buffers and explaining how to enroll in the program were sent to the 201 streamside property owners in target portions of the Abram Creek, Baldwin Creek and Plum Creek subwatersheds of the Rocky River Watershed in Cuyahoga and Medina Counties, Ohio. 21 of the targeted riparian residential landowners (10.4%) enrolled in the program, with 20 (95%) submitting bids of \$0. Overall, 2.5 acres and 3000 lineal feet of riparian forest were established through the program, utilizing volunteers for the planting effort. For an expanded program, a landscape or forestry contractor would likely be necessary for tree and shrub installation.

# Residential Riparian Reforestation in the Rocky River

LEPF SG 478-2014

## TECHNICAL REPORT

Jared Bartley  
Rocky River Watershed Coordinator  
Cuyahoga Soil & Water Conservation District  
Prepared on behalf of Rocky River Watershed Council



*Volunteers planting trees.*

### Introduction

The Rocky River drains 294 square miles of Medina, Cuyahoga, Lorain and Summit Counties in Northeast Ohio, including 28 separate municipalities and townships, before flowing into Lake Erie west of Cleveland. Only 14% of the watershed is considered to be in urban land use, but the remaining unprotected areas, especially agricultural areas, face high residential development pressures. While nearly 30 miles of the Main Stem and East Branch are permanently protected in public parks, the numerous headwater streams have been, and continue to be, encroached upon by roads, fields, back yards and parking lots. Increases in flooding, bank erosion, and sediment and nutrient inputs, coupled with physical channel alterations and habitat degradation, are often attributed in part to riparian deforestation.

The Rocky River Watershed Action Plan, endorsed by the Ohio Environmental Protection Agency and the Ohio Department of Natural Resources in 2006, states that “maintenance of functioning riparian corridors along the streams of the Rocky River is the single most important action that can be taken to maintain water quality in the stream and to minimize problems from future development.”

The goal of the Residential Riparian Reforestation in the Rocky River Watershed project is to pilot a novel delivery mechanism to increase adoption of restore stream water quality and function in urban and suburban areas of the watershed through the establishment of forested riparian buffers on residential property.

## **Objectives**

The two program objectives were as follows:

1. Demonstrate the effectiveness of the reverse auction mechanism for implementing riparian reforestation in residential areas.
2. Reforest approximately 4000 linear feet of stream (~2.25 acres) of riparian buffer.

## **Methods**

### *Riparian Reverse Auction*

The delivery mechanism used in the project is commonly called a reverse auction or a sealed-bid procurement auction. Owners of eligible properties could submit bids indicating the price at which they would allow a vegetated riparian buffer to be installed on their respective property. The properties were then to be selected for installation of vegetated riparian buffers based on their bid amounts, from lowest to highest, until the funds budgeted for buffer installation were exhausted.

Furthermore, demonstration sites were established in order to promote the project and to allow property-owners to become familiar with what the buffer will look like once installed.

A desktop GIS analysis was performed to identify and target riparian landowners within priority portions of the watershed. A letter and fact sheet describing how to enroll in the program and explaining the importance and benefits of establishing and maintaining forested riparian corridors were mailed to the targeted properties. The letter also contained an invitation to a community meeting where the project was explained.

Once the auction closed, bids were ordered by value. A site visit to each candidate property was performed in order to assess feasibility and to discuss potential planting details with the property owner.

Tree and shrub species utilized for the plantings include: American Sycamore, Pin Oak, Black Willow, Black Walnut, Buttonbush, Elderberry, Hazel Alder, Pin Oak, Swamp White Oak, Swamp Rose, Sugar Maple, Silver Maple, Gray Dogwood, Silky Dogwood and Red-osier Dogwood. A native riparian grass/wildflower mix was also incorporated into some of the plantings.

Each planting site is unique, and plantings were designed to maximize environmental benefit while meeting property-owner management goals for use of the property.

## **Results**

21 property owners submitted bids to the program, representing an 11% response rate. 20 of the submitted bids were for \$0, meaning that the property-owner wished to participate in the program without receiving compensation. The remaining bid was for \$1,000.

After conducting visits to each property, all bids were accepted.

Plantings were conducted during Fall 2015 and Spring 2016, utilizing Rocky River Watershed Council volunteers. Total buffer establishment/enhancement through the program is 2.5 acres and 3000 lineal feet.

## **Discussion/Lessons Learned**

### *Reverse Auction Concept*

The Reverse Auction process worked in that 13% of targeted property owners submitted bids to the program. However, since 95% of the participants bid \$0, it is difficult to determine if this approach would be significantly more effective than simply offering to plant the trees at no cost.

However, the 13% response rate was significantly higher than that for a program in 2008 that offered free tree seedlings to riparian landowners in the Rocky River Watershed. That program had only a 5 % response rate, though over a much larger sample size (11,125 potential participants) and range of landscape conditions.

Overall, the method was successful enough that RRWC will look for opportunities to use it in the future.

### *Tree Planting/Installation*

Due to the nature of the project, the planting and installation took place on a number of small, somewhat geographically dispersed parcels. This added significantly to the amount of coordination necessary for planning the planting at each site (working with property owners on general planting plans), delivery and staging of plant materials, and coordination of volunteers.

Compared to earlier efforts at seedling distribution, tree and shrub survival is expected to be improved, as larger stock is being used, deer protection fencing was installed around all plants as part of the project, and planting was performed under the supervision of RRWC and Cuyahoga SWCD, instead of being completed by homeowners. This format also provided better opportunities for directly educating the property-owners about tree maintenance and other practices to ensure healthy riparian corridors.

However, the level of volunteer recruitment and coordination that would be needed for a larger-scale version of the project would be a significant hurdle. Therefore, in a future expanded version of the program, it is likely that the majority of the tree planting would be contracted out to landscaping or forestry professionals, with a handful of volunteer planting sites to encourage public involvement and provide outreach to the community about the value of streamside forests.

Photos



# LAKE ERIE PROTECTION FUND

## SMALL GRANT - FINAL ACCOUNTING

Grant Number: SG 478-2014

v2015

Budget Categories	Original Budget	Funds Spent	Current Balance	Matching Funds
<b>A. Salaries &amp; Wages</b>				
Volunteers (141 hours @ \$22.06/hr)	0	0	0	3110.46
<b>B. Fringe Benefits</b>				
	0	0	0	
<b>C. Total Salaries &amp; Benefits (A+B)</b>				
	\$0.00	\$0.00	\$0.00	\$3,110.46
<b>D. Non-expendable Equipment</b>				
Signage at Demo Plots	0	0	0	0
<b>E. Expendable Materials &amp; Supplies</b>				
Trees & Shrubs	11200	11222.31	-22.31	565.84
Tree/Shrub Protection	1630	1630	0	343.83
Floodplain Seed Mix	1170	1147.69	22.31	
<b>F. Travel</b>				
	0	0	0	
<b>G. Services or Consultants</b>				
	0	0	0	
<b>H. Computer Costs</b>				
	0	0	0	
<b>I. Publications/Presentations</b>				
Printing of Mailer	0	0	0	0
Postage	0	0	0	97
<b>J. All other direct costs</b>				
Landowner Agreements	1000	1000	0	0
<b>K. Total Direct Costs (C thru J)</b>				
	\$15,000.00	\$15,000.00	\$0.00	\$4,117.13
<b>L. Indirect Costs</b>				
<b>Total Costs (K + L)</b>				
	\$15,000.00	\$15,000.00	\$0.00	\$4,117.13

Ohio Lake Erie Commission  
 111 E. Shoreline Drive  
 Sandusky, Ohio 44870  
 p 419-621-2040  
 f. 419-621-2042  
 lakeerie.ohio.gov

I certify that the grant expenditures listed and descriptions of the charges are true and accurate to the best of my knowledge. These expenditures represent approved grant costs that have been previously paid for and for which complete documentation is on file.

Project Director  
 Authorizing Agent  
 Fiscal Agent

*Judith A. Burt*

Date  
 4/15/2010

# Ernst Conservation Seeds Inc

8884 Mercer Pike  
 Meadville PA 16335-9275  
 Phone (814) 336-2404; (800) 873-3321; Fax (814) 336-5191  
 www.ernstseed.com  
 sales@ernstseed.com

**Bill To:**

Cuyahoga Soil & Water Distric  
 6100 West Canal Road  
 Valley View OH 44125-3330

<b>Quote</b>	<b>154378</b>
<b>Date</b>	10/30/2015
<b>Page</b>	1

Phone (216) 524-6580 Ext. 0000  
 Fax (216) 524-6584 Ext. 0000  
 E-mail

Purchase Order No.	Customer ID	Shipping Method	UPS Shipper #	Payment Terms	Quote Expires	Salesperson ID
EM 103015 KK	CUYA001	UPS GROUND		Credit Card	11/29/2015	
Quantity	UOM	Item Number	Description	Unit Price	Ext. Price	
30.00000	lb	ERNMX-178S	Riparian Buffer Mix	\$29.36000	\$880.80	
0	Each	NOTE		\$0.00000	\$0.00	
			<b>Shipping Quote: UPS \$17 for 30 lbs to zip 44125</b>			

<b>Subtotal</b>	<b>\$880.80</b>
<b>Trade Discount</b>	<b>\$0.00</b>
<b>Shipping/Handling</b>	<b>\$0.00</b>
<b>Custom Mix Chg</b>	<b>\$0.00</b>
<b>Tax</b>	<b>\$0.00</b>
<b>Total US \$</b>	<b>\$880.80</b>

PRICES QUOTED ARE FIRM FOR 30 DAYS AND ARE F.O.B. MEADVILLE.  
 ITEMS QUOTED ARE SUBJECT TO AVAILABILITY AT TIME OF DELIVERY.  
 RETURNS OF INDIVIDUAL ITEMS AND ERNST MIXES ARE SUBJECT TO 10% RESTOCKING FEE  
 AND MUST BE MADE WITHIN 30 DAYS OF INVOICE DATE. NO RETURNS ON CUSTOM MIXES.  
 THERE IS A 25% RESTOCKING FEE ON CANCELLED OR RETURNED BIOENGINEERING ORDERS.



**More saving.  
More doing.<sup>SM</sup>**

3355 STEELYARD DRIVE  
CLEVELAND, OH 44109 (216)741-6123

6857 00005 43983 10/30/14 04:18 PM  
CASHIER KAITLYN - KRA4140

099713045583 5'X 50' WIRE <A>  
5'X50' 14GA GALV WELDED WIRE  
5@49.47 247.35N  
099713045576 4'X50'W WIRE <A>  
4'X50' 14GA GALV WELDED WIRE  
4@38.97 155.88N  
098168405195 STAKES <A>  
1X2-36" GRADE STAKES 12PC BUNDLE  
5@6.97 34.85N  
090489110185 STAKES <A>  
1X2-36" GRADE STAKES 12PC BUNDLE  
6@6.97 41.82N  
090489109356 STAKES <A>  
GRADE STAKES - 1X2-24" 12-PC BUNDLE  
5@4.49 22.45N  
6956148900266 8IN BLK TI <A> 6.47N  
8" BLK UV RSST DBLLCK CBLE TIE 100PK  
4715409150008 8IN BLK TI <A> 6.47N  
8" BLK UV RSST DBLLCK CBLE TIE 100PK

SUBTOTAL 515.29  
SALES TAX 0.00

TAX EXEMPT

TOTAL \$515.29

XXXXXXXXXXXX0182 MASTERCARD 515.29  
AUTH CODE 00467C/6052630 TA

P.O.#/JOB NAME: COE CREEK



6857 05 43983 10/30/2014 6707

RETURN POLICY DEFINITIONS

POLICY ID DAYS POLICY EXPIRES ON  
A 1 90 01/28/2015

THE HOME DEPOT RESERVES THE RIGHT TO  
LIMIT / DENY RETURNS. PLEASE SEE THE  
RETURN POLICY SIGN IN STORES FOR  
DETAILS.

BUY ONLINE PICK-UP IN STORE  
AVAILABLE NOW ON HOMEDEPOT.COM.  
CONVENIENT, EASY AND MOST ORDERS  
READY IN LESS THAN 2 HOURS!

\*\*\*\*\*

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HOME DEPOT GIFT  
CARD!**

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the brief survey about your store visit  
and enter for a chance to win at:

[www.homedepot.com/opinion](http://www.homedepot.com/opinion)

COMPARTA SU OPINION EN UNA BREVE  
ENCUESTA PARA LA OPORTUNIDAD DE GANAR.

**User ID:  
H89 95112 88260**

**Password:  
14530 88255**

Entries must be entered by 11/29/2014.  
Entrants must be 18 or older to enter.  
See complete rules on website. No  
purchase necessary.



# Invoice

3339 W 850 N  
 PO Box 259  
 Lizton, IN 46149

Phone # 317-994-5487  
 Fax # 317-994-5494

Due Date	DATE	INVOICE #
3/21/2016	3/21/2016	35724

BILL TO
Cuyahoga Soil & Water Conservation Dist. Jared Bartley 6100 West Canal Road Valley View, OH 44125

SHIP TO
6801 School St. Valley City, OH 44280 Jared Bartley 216-848-9604 cell

P.O. NUMBER	TERMS	REP	SHIP	VIA	PROJECT
	25% Now, 75% Prior to Delivery	Dawn	3/23/2016	Direct Ship	

QUANTITY	ITEM CODE	DESCRIPTION	PRICE EACH	AMOUNT
		B Grade - Conservation		
6	REM3	Acer rubrum - Red maple - 3 gallon 2-3'	12.00	72.00
8	SUM3	Acer saccharum - Sugar Maple - 3 gallon 2-3'	14.00	112.00
6	YEB1GRM	Aesculus flava - Yellow Buckeye - 1 gallon root pruning 1-2'	11.75	70.50
7	PAW3	Asimina triloba - Pawpaw - 3 gallon 2-3'	14.00	98.00
10	RIB3GRM	Betula nigra - River Birch - 3- gallon root pruning 3-4'	13.50	135.00
10	DOG1	Cornus amomum - Silky dogwood - 1 gallon 3-4'	8.75	87.50
10	RED3	Cornus sericea- Red-osier Dogwood- 3 gallon 2-3'	12.00	120.00
10	BUT3	Cephalanthus occidentalis - Buttonbush - 3 gallon 3*4'	12.50	125.00
8	WIT3	Hamamelis virginiana - Common witchhazel - 3 gallon 2-3'	12.50	100.00
10	SWO3	Quercus bicolor- Swamp White Oak - 3 gallon 2-3'	12.50	125.00
7	PIO3	Quercus palustris - Pin oak - 3 gallon 2-3'	12.50	87.50
9	ELD3	Sambucus canadensis - Elderberry - 3 gallon 2-3'	12.00	108.00
5	VIB3	Viburnum dentatum - Arrowwood Viburnum - 3 gallon 2-3'	12.00	60.00
	INFO1	Pricing reflects a 2% discount for cash or equivalent payment. Deposit of 25% is required to reserve product. Pricing is subject to change if ordered quantities vary. Availability is subject to change at the time of ordering.	0.00	0.00
	FRT-LONG	Delivery via 53' trailer and semi to: Valley City, OH \$100 per hour will apply for driver unload assistance. \$85 per hour detention fee will apply after two hours. Freight share w/ Cleveland Metro: TBD	325.00	325.00

<b>Subtotal</b>	\$1,625.50
<b>Sales Tax</b>	\$0.00

<b>Payments/Credits</b>	\$0.00
<b>Balance Due</b>	\$1,625.50



**Riverside Native Trees and Nursery, LLC**

Invoice

**RIVERSIDE**

2295 River Road  
Delaware, OH 43015  
740-815-3230

Phone # 740-815-3230  
Fax # 740-943-5068

ekapraly@gmail.com  
www.riversidenativetrees.com

Date	Invoice #
11/8/2014	08182176

Bill To
Jared Bartley Rocky River Watershed Coordinator 6100 West Canal Road Valley View, OH 44125

Ship To

Quantity	Item Code	Description	Price Each	Amount
18	Pin Oak 3G (Q. p...	Trees in 3 gallon containers	15.95	287.10T
18	Am Sycamore 3G...	Trees in 3 gallon containers	15.95	287.10T
18	Boxelder 3G (A. n...	Trees in 3 gallon containers	15.95	287.10T
18	Swamp White Oa...	Trees in 3 gallon containers	19.95	359.10T
10	Silky Dogwood 3...	Shrubs in 3 Gallon Containers	15.50	155.00T
10	Spicebush 3G (L...	Shrubs in 3 gallon containers	15.50	155.00T
10	Black Chokeberry...	Shrubs in 3 Gallon containers	15.50	155.00T
10	Red Osier Dgwd ...	Shrubs in 3 Gallon Containers	15.50	155.00T
1	Delivery		100.00	100.00T
		Sales exempt from state tax	0.00%	0.00
			<b>Total</b>	<b>\$1,940.40</b>



# Invoice

3339 W 850 N  
 PO Box 259  
 Lizton, IN 46149

Phone # 317-994-5487  
 Fax # 317-994-5494

Due Date	DATE	INVOICE #
3/14/2016	3/14/2016	35688

**PAID**  
 (non-posting)

<b>BILL TO</b>	<b>SHIP TO</b>
Cuyahoga Soil & Water Conservation Dist. Jared Bartley 6100 West Canal Road Valley View, OH 44125	

P.O. NUMBER	TERMS	REP	SHIP	VIA	PROJECT
	25% Now, 75% Prior to Delivery	Dawn	3/14/2016	Direct Ship	

QUANTITY	ITEM CODE	DESCRIPTION	PRICE EACH	AMOUNT
		B Grade - Restoration		
15	SUM3	Acer saccharum - Sugar Maple - 3 gallon 2-3'	13.30	199.50
20	OHB1GRM	Aesculus glabra - Ohio Buckeye - 1-gallon root pruning 1-2'	11.75	235.00
75	BUT3	Cephalanthus occidentalis - Buttonbush - 3 gallon 3-4'	12.35	926.25
75	DOG3	Cornus amomum - Silky dogwood - 3 gallon 3-5'	12.11	908.25
75	RED3	Cornus sericea- Red-osier Dogwood- 3 gallon 2-3'	11.40	855.00
50	WIT3	Hamamelis virginiana - Common witchhazel - 3 gallon 2-3'	11.88	594.00
25	BLW3	Juglans nigra - Black walnut - 3 gallon 3-4'	14.25	356.25
100	SYC3	Platanus occidentalis - Sycamore - 3 gallon *fall availability		0.00
75	SWO3	Quercus bicolor- Swamp White Oak - 3 gallon 2-3'	11.88	891.00
75	PIO3	Quercus palustris - Pin oak - 3 gallon 2-3'	11.88	891.00
15	RIB3	Betula nigra - River birch - 3 gallon 3-4' substitute for Black Willow	13.30	199.50
25	ELD3	Sambucus canadensis - Elderberry - 3 gallon 3-4'	11.86	296.50
50	VIB3	Viburnum dentatum - Arrowwood Viburnum - 3 gallon 2-3'	11.40	570.00
		Subtotal		6,922.25
	INFO1	Pricing reflects a 2% discount for cash or equivalent payment. Deposit of 25% is required to reserve product. Pricing is subject to change if ordered quantities vary. Availability is subject to change at the time of ordering.	0.00	0.00
	FRT-SHORT	Delivery via 29' trailer and semi to:Valley View, OH \$100 per hour will apply for driver unload assistance. \$85 per hour detention fee will apply after two hours.	1,300.00	1,300.00

Thank you!	<b>Subtotal</b>	\$8,222.25
	<b>Sales Tax</b>	\$0.00

<b>Payments/Credits</b>	\$0.00
<b>Balance Due</b>	\$8,222.25



## Order Details

### Order Summary - Order# W469005116 PO# RRWCB4B

Order Date: 03/16/2016  
jbartley@cuyahogascwd.org

Order Status: Complete

Total Number of Units: 77

Order Total: \$1,458.54

Strongsville #3817 : 3 Item(s)					
Product Description	Status / Tracking	Unit Price	Qty	Qty Recv	Item Total
 <p><b>5 ft. x 50 ft. 14-Gauge Galvanized Steel Welded Wire</b> Model # 308303HD Store SKU # 274909 Internet/Catalog SKU# 204331896</p>	Complete	\$39.84	22	22	\$717.12
 <p><b>4 ft. x 50 ft. 14-Gauge Galvanized Steel Welded Wire</b> Model # 308302EB Store SKU # 274895 Internet/Catalog SKU# 204322262</p>	Complete	\$31.98	15	15	\$479.70
 <p><b>1 in. x 2 in. x 3 ft. Untreated Pine Grade Stakes (12-Pack)</b> Model # 461902 Store SKU # 461902 Internet/Catalog SKU# 203316905</p>	Complete	\$7.27	40	40	\$261.72
<b>Shipping Charges</b>					N/A

Merchandise Subtotal **\$1,458.54**

Shipping Charges FREE

Sales Tax \$0.00

**Total \$1,458.54**

**Jared Bartley**

---

**From:** sales@opnseed.com  
**Sent:** Friday, April 15, 2016 12:40 PM  
**To:** Jared Bartley  
**Subject:** ohioprairienursery.com - Order Confirmation



[Pre-Designed Seed Mixes](#) [Seed of Individual Species](#) [Seed Packets](#) [The "Prairie Guys" Favorite Mixes](#)

Thank you for your order on [ohioprairienursery.com](http://ohioprairienursery.com). Here are your order details:

---

<b>Order ID:</b>	<b>Order Date:</b>	<b>Order Total:</b>	
30359	April 15, 2016 @ 12:39 PM EDT	\$286.24 USD	

**Billing Info:**  
Jared Bartley  
3715 E. 69th St.  
Cleveland, OH 44105  
[jbartley@cuyahogawcd.org](mailto:jbartley@cuyahogawcd.org)  
Ph. 216-848-9604  
Tax exempt

**Shipping Info:**  
Jared Bartley  
3715 E. 69th St.  
Cleveland, OH 44105

**Shipping Method:**

**Memo to merchant:**

Not entered

Item		Qty	Price	Total
<a href="#">Ohio Flood Plain Native Seed Mix</a>	Size: 1/4 Acre Broadcast 3 PLS Lbs.			
Item # OFLPM02		1	\$211.68	\$211.68
<a href="#">Chamaecrista fasciculata - Partridge Pea</a>				
Item # CHA01F	Size: 1 Oz.	5	\$3.00	\$15.00
<a href="#">Gaillardia pulchella - Indian Blanket</a>				
Item # GAI01F	Size: 1 Oz.	5	\$5.50	\$27.50
			<b>Subtotal:</b>	\$254.18
			<b>Tax:</b>	\$19.35
			<b>Shipping:</b>	\$12.71
			<b>Handling:</b>	\$0.00
			<b>Total:</b>	\$286.24 USD

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