

John Griffin Regional Park – Tamarisk & Russian Olive Abatement

Final Report



Prepared for:
Colorado Water Conservation Board – Water Plan Grant
Attn: Chris Sturm

October 26, 2019

Mile High Youth Corps
Grant Amount: \$39,840.00
Prepared by: CJ Runge



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Introduction

Managed by the Cañon City Area Metropolitan Recreation & Park District, John Griffin Regional Park is located in the central part of Cañon City and provides a back to nature experience for park visitors who come from near and far. The highly popular Arkansas Riverwalk trail system winds its way through this park, immersing visitors in the natural landscape. Visitors can view wildlife and plant life, fish along the banks of the river, and picnic under the large cottonwoods within the park. Trekking through meadows, trees, or adjacent wetlands, deer, bear, and fox have been spotted along with numerous species of birds and plant life.

At 28,286 square miles, the Arkansas River basin is the largest basin in Colorado. The Arkansas River extends from the continental divide near Leadville to the Kansas state line. The river winds through eight different counties in Colorado and is plagued with invasive tree species like Russian olive and tamarisk. Eradication of these species is crucial to control the spread downriver and in surrounding areas. A collaborative effort and consistent treatment between organizations and municipalities is required to effectively manage these invasive species. Without action, the Arkansas River watershed is at risk of extreme water loss due to Russian olive and tamarisk infestation. These species are commonly found in upland areas within the floodplain that would normally have xeric vegetation. The focus of this project was to address major infestation of these species found within this floodplain and specifically along the Arkansas Riverwalk trail system.

Mile High Youth Corps (MHYC) and the Cañon City Area Metropolitan Recreation & Park District (CCREC) have had a long partnership that has typically involved the collaboration between CCREC staff and a MHYC chainsaw and pesticide crew to address Russian olive and tamarisk infestations. These project locations have occurred throughout several parks with a close proximity to the Arkansas River. Russian olive and tamarisk often out-compete native species such as Cottonwood, Willow, and native sedges, rushes and mesic grasses found in moist soil along stream banks. Once these invasive species are removed, native vegetation will have access to more water, sunlight, and nutrients found within the soil. In addition to native species thriving after removal, significant water losses are diminished.

The most effective way to combat invasive species is through persistent and frequent treatment. Although CCREC recognizes the need for treatment to effectively care for the natural environment of the park, they have not had the time, resources or people power to work a project this labor intensive into their schedule. The seven-member

crew is a small, dedicated staff whose funding has remained stagnant due to seven years of either declining or minimally increased tax revenues. Funding of this project allowed for the protection of indigenous plant and animal habitat areas within the park. On a larger scale, funding of this project allowed MHYC and CCREC to continue the collaborative and region-wide battle against woody invasive species found within the Arkansas River Basin.

Background

The Cañon City Area Metropolitan Recreation and Park District acquired the land that became John Griffin Regional Park in 1986. Approximately 12 years ago, the District made an extensive effort to remove Russian olive and tamarisk species found within the park. As the park went through the cycles of removal and re-growth, the District quickly became aware of the effects of the spread of these non-native trees altering the landscape and diminishing the authentic character of the park. Prior MHYC crews have removed invasive species from 26 acres. However, within the eastern portion of the park, the density, size, and difficult accessibility of some of the tree's locations required additional attention. This area was about 12 acres beginning at Forrest Island on the east end to the Sells Avenue Trailhead on the west edge of the park (*see Appendix A for a general map of the project area*). The funding acquired through the Water Plan Grant supported a MHYC chainsaw and pesticide crew to access these difficult areas and remove the larger trees and infestations along a 1 ¼ mile stretch along the Arkansas River.

To prepare for this intensive, 8-week long project, a site visit was conducted between CCREC and MHYC staff to identify dates for project work, strategies for removal, best locations for the crew to camp, educational opportunities, access for the wood chipper, herbicide application, and other logistics. Another important factor to consider was the anticipated height of the Arkansas River later in the summer season. Many of the large infestations of trees would only be accessible earlier in the season, so it was planned for the crew to focus their efforts in this area first.

Figure 1: Tamarisk and Russian olive located in a potential flood zone to be removed first.



OBJECTIVES

The goal of this project was to preserve the natural habitat and enhance the native species of John Griffin Regional Park and the Arkansas River Basin. To obtain this goal, the main objectives of the project were to:

- 1) Control tamarisk and Russian olive infestation while reestablishing sustainable native plants and habitat in a combined 12-acre portion of John Griffin Regional Park.
- 2) Treat stumps with Habitat aquatic herbicide to prevent regrowth. The stumps will provide bank stabilization along the river.
- 3) Use a wood chipper to chip all slash and disperse mulch.
- 4) Revegetate the area through planting seedlings in the areas that trees were removed.

Methods

This 8-week project began on June 10 and wrapped up July 26, 2019. The 8 weeks were split between two of MHYC's chainsaw and pesticide crews. Each crew consists of 10 members: one Crew Leader, one or two Assistant Crew Leaders, and seven to eight Corpsmembers. Every member has been through S-212 Wildland Fire Chainsaw equivalency training, chipper training, and two members of each crew are trained pesticide applicators. The crew completes a minimum of 320 hours per work week,

camps on-site to maximize work time, and is outfitted with the proper tools and gear to work as efficiently and safely as possible.

Through the Water Plan Grant, the Colorado Water Conservation Board funded four of the eight crew weeks, as well as a 10% indirect fee. Other expenses, including an additional four crew weeks, chipper rental, seedlings, herbicide, and staff supervision, were covered by CCREC and MHYC. With all these stakeholders contributing to the project, an immense amount of work was accomplished during this timeframe.

There are many strategies involved in invasive species removal and control. Some of these strategies include but are not limited to, biological control, aerial foliar herbicide spraying, root plowing and raking, mechanical removal through excavators and mulching, and hand removal. There are some areas, like Forrest Island and along the Arkansas Riverwalk Trail, where the only option of eradication is hand removal using chainsaws or hand saws. These areas have difficult terrain, frequent human interaction, and are along the riverbank. Removal of these trees is then quickly followed by the “cut-stump” method. This method involves cutting a tree with a chainsaw as low to the ground as possible and treating the stump with herbicide within a few minutes of cutting. Cut surfaces of plants with less than a 4-inch diameter must be thoroughly wetted with herbicide to kill the roots. If the diameter of the stump exceeds four inches, the herbicide is just applied to the cambial layer inside the bark ring.

Figure 2: MHYC Corpsmember stumping a Russian olive tree



TASK 1 – Removal and treatment of Russian olive and tamarisk Species (CWCB funded)

Description of Task

During an eight-week period, a chainsaw and pesticide application crew comprised of 8-10 Corpsmembers from Mile High Youth Corps will remove Russian olive and tamarisk from a combined 12-acre portion of the John Griffin Regional Park in Fremont County. The tamarisk and Russian olive trees are detrimentally affecting the habitat of native plants and wildlife

Method/Procedure

- Remove non-native Russian olive and tamarisk.
- Treat stumps with Habitat aquatic herbicide to prevent regrowth. The stumps then will provide bank stabilization along the river.
- A wood chipper will be used to turn the large pieces of the trees into mulch. The wood chips will be scattered in the project area as ground cover to promote revegetation.
- Revegetate the area in two ways:
 - Passive - when removing the noxious trees, space is created for the existing willow and cottonwood trees to repopulate and expand naturally.
 - Active - plant seedlings of willow, hackberry, red osier dogwood, silver buffalo berry, and cottonwood trees in areas where there is room, and on both sides of the trail. This will ensure a stronger native vegetation presence.

Deliverable

Eradication of Russian olive and tamarisk species from John Griffin Regional Park, leaving native vegetation with more space, water, and nutrients to thrive and improving the native habitat of the watershed.

Figure 3: Chipping Slash



Figure 4: Low stumping Russian olive trees, followed by herbicide application



Results

The John Griffin Regional Park – Russian olive and Tamarisk Abatement Project was extremely successful. Throughout the duration of this project, it was quickly observed that the two crews working in the park were moving at a healthy pace. In the eight weeks allotted, the crews exceeded expectations and were able to clear more than 45 acres of invasive Russian olive and tamarisk species. The original target area of 12 acres was exceeded and they were able to work both west and east from Forrest Island, clearing all invasive species on the South side of the bank within John Griffin Regional Park

Quantitative Results Include:

- 9,007 invasive trees removed
- 9,007 trees chipped
- 9,007 stumps treated
- 2246 ounces of herbicide sprayed (17.5 Gallons)
- 56.4 acres improved
- 261 seedlings planted

Figure 5: Weekly Breakdown of Project Accomplishments

Week	Dates	Trees Removed	Trees Chipped	Stumps Treated	Herbicide Applied (ounces)	Acres Improved
1	6/10-6/14	1114	1114	1114	247	1.89
2 & 3	6/17-6/20	3330	3330	3330	838	35
4	6/24-6/27	468	468	468	180	2.07
5	7/1-7/5	552	552	552	126	9
6	7/8-7/11	1352	1352	1352	403	5.48
7	7/15-7/18	1851	1851	1851	358	2.40
8	7/22-7/25	340	340	340	94	0.56
TOTAL:		9007	9007	9007	2246	56.4

Due to extreme heat in mid-July, CCREC staff decided to wait to re-vegetate and plant seedlings until temperatures cooled down. Sixty volunteers from Cañon City High School, one volunteer from the Colorado State Forest Service, and the entire Recreation District crew worked from 8-12 on the morning of August 30 to plant 261

seedlings. Species like Blue Stem Willow, Red Osier Dogwood, Elderberry, and Chokecherry were planted in areas where the Russian olive and tamarisk species were removed.

Conclusions and Discussion

We are very thankful for the opportunity to partner with the Cañon City Area Metropolitan Recreation & Park District, Colorado Youth Corps Association, and the Colorado Water Conservation Board. Many of the issues that we face today in natural resources cannot be accomplished without collaboration and teamwork. Together, we are making significant impacts on the health of the watershed, local ecosystems, and biodiversity.

We are very excited to conclude that the goals and objectives of this project were met and exceeded. The acreage improved was quadrupled, and towards the end of the project the crew was starting to work in areas that were not planned on. Now that nearly all of the Russian olive and tamarisk species are removed within John Griffin Regional Park, regular maintenance, mowing, and upkeep will be much more manageable and native species will begin to thrive.

This project would not have been successful without the assistance from the Colorado Water Conservation Board and the Water Plan Grant. Moving forward, CCREC staff will most likely be able to keep up with any re-growth and have better accessibility to all areas of the park.

Actual Expense Budget

Name of Water Project: John Griffin Regional Park-Tamarisk & Russian Olive Abatement						
Task No.	Task Description	Start Date⁽¹⁾	End Date	Grant Funding Request	Match Funding	Total
1	Chain and Pesticide Application Crew \$8,300/week @ 8 weeks	7/15/2018	12/31/2019	\$33,200	\$33,200	\$66,400
	Chipper Rental				\$8,000	\$8,000
	Crew Supervision				\$5,100	\$5,100
	Vegetation/Seedlings				\$1,000	\$1,000
	Indirect Fee (10%)	7/15/2018	12/31/2019	\$6,640		\$6,640
Total				\$39,840	\$47,300	\$87,140

Match Funding

Source	Description	Amount
Cañon City Area Metropolitan Recreation & Park District	1-week Chain and Pesticide Application Crew	\$8,300.00
	Chipper Rental	\$8,583.58
	Crew Supervision	\$5,033.08
	Vegetation/Seedlings	\$996.00
Mile High Youth Corps	3-weeks Chain and Pesticide Application Crew	\$24,900.00
Total Matching Funds		\$47,812.66

See *Appendix B* for proof of purchases including: Chipper Rental, and Crew Supervision, Vegetation/Seedlings.

References

Information on phreatophyte control:

- RiversEdge West Resource Center: <https://riversedgewest.org/resource-center/russian-olive>
- Arkansas River Watershed Invasive Plants Plan (ARKWIPP) Strategic Plan: <https://riversedgewest.org/sites/default/files/images/ARKWIPP%20Plan.pdf>

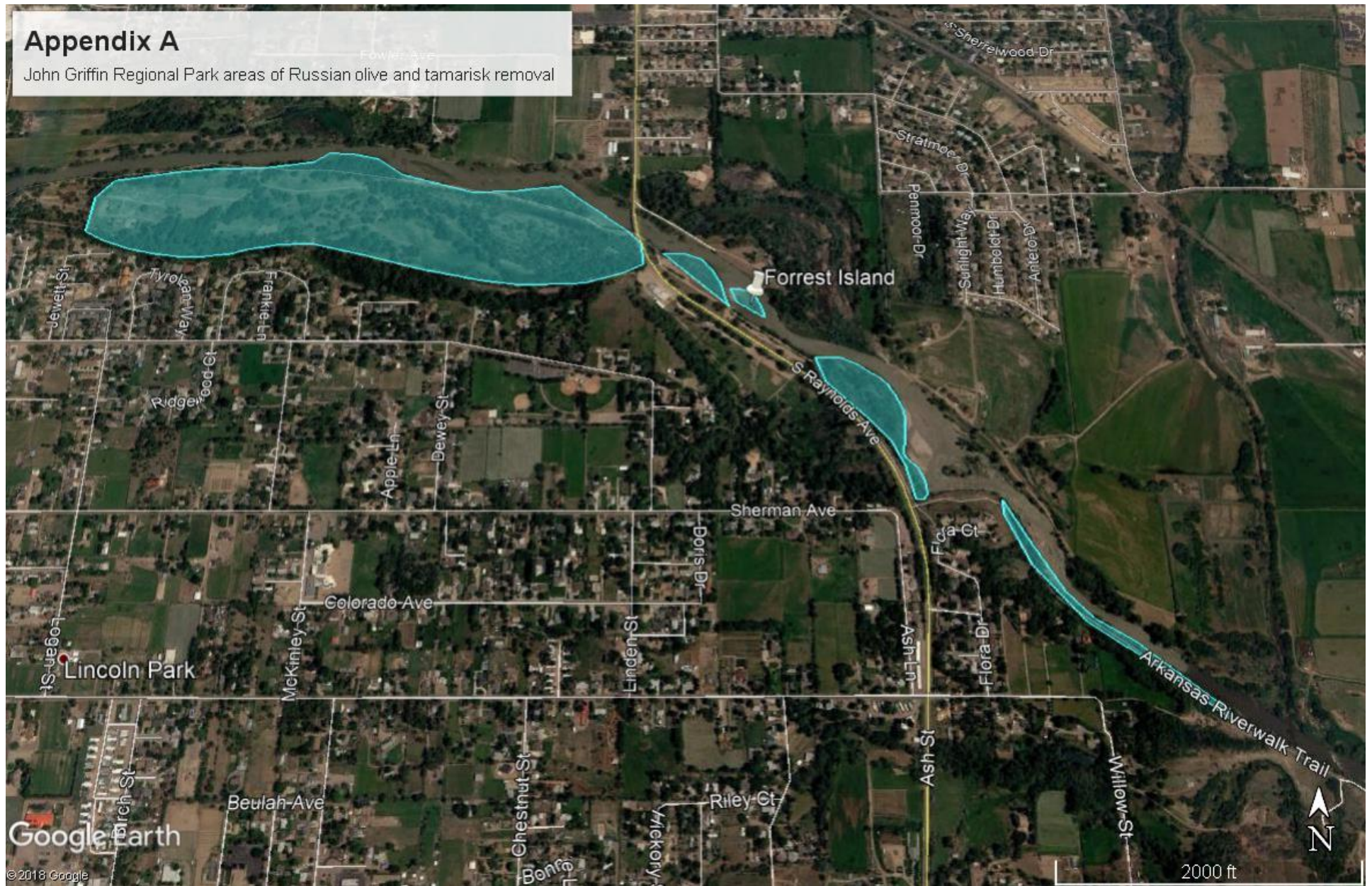
Appendix

Appendix A: Project Area Map

Appendix B: Proof of Purchases

Appendix A

John Griffin Regional Park areas of Russian olive and tamarisk removal





Mile High Youth Corps helps youth make a difference in themselves and in their communities through meaningful service experiences and educational opportunities.

417 E Vermijo Ave
Colorado Springs, CO 80903
719-630-7421 | 719-434-3432
cassandrar@mhyc.net

INVOICE NO.	2019-138
DATE	6/28/2019
CUSTOMER ID	Canon City Area Rec & Parks District

Kyle Horne
Cañon City Area Metropolitan and Park District
575 Ash Street
Cañon City, CO 81212
719-275-1578

Theresa Khong, Senior Accountant
Mile high Youth Corps
6740 E Colfax Ave
Denver, CO 80220
720-407-7281 x330
theresak@mhyc.net

21 days

[illegible]

Make all checks payable to Mile High Youth Corps.

THANK YOU FOR YOUR BUSINESS!



MILE HIGH YOUTH CORPS

INVOICE

Mile High Youth Corps helps youth make a difference in themselves and in their communities through meaningful service experiences and educational opportunities.

Mile High Youth Corps

417 E Vermijo Ave
Colorado Springs, CO 80903
719-630-7421 | 719-434-3432
cassandrar@mhyc.net

INVOICE NO.	2019-160
DATE	6/30/2019
CUSTOMER ID	Canon City Area Rec & Parks

TO

Kyle Horne
Cañon City Area Metropolitan and Park District
575 Ash Street
Cañon City, CO 81212
719-275-1578

khorne@ccrec.org

PROGRAM / JOB

John Griffin Regional Park Russian olive and Tamarisk Removal

PAYMENT TERMS

21 days

DESCRIPTION	QUANTITY	AMOUNT	TOTAL
1 week of a chainsaw crew (June 10-13)	1.00	\$8,300.00	\$8,300.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
TOTAL DUE			\$8,300.00

Make all checks payable to Mile High Youth Corps.

THANK YOU FOR YOUR BUSINESS!

rec'd
7-18-19

To:

Invoice No.

89856

Canon City Area Recreation and Park District
 575 Ash St.
 Canon City, Co. 81212
 (719) 275-1578



Kyle Horne - Executive Director

Date: 7/11/19

Item	Unit Cost	Total
4 bxs LT Blue Stem Willow # 239	93.00	372.00
2 bxs LT Red Osier Dogwood # 249	93.00	186.00
2 bxs LT Red Elderberry # 256	93.00	186.00
21 XLP Chokecherry # 444	12.00	252.00

Tax Exempt No. 84-0567937

Sales Tax

exempt
 Total 996.00

Total

CK-CA-MO Amount Paid:

Amount Due

Ck#

Dated

Rcv'd By

F.Y.

Funding

Amount

CC 2939100 4380-622 996.00

Deposit No.

Date

CSFS Originator

Payment Due By

8/11/19

Remit to:

Colorado State Forest Service
 Canon City District
 515 McDaniel Blvd
 Canon City, CO 81212-4164

White-Customer copy; Yellow-State Office copy; Pink-Project copy

PORTABLE TOILETS
HOME OWNERS • CONTRACTORS
PARTY, WEDDING AND TENT RENTALS

2% PER MONTH FINANCE CHARGE
WILL BE MADE ON ALL AMOUNTS
UNPAID AFTER 30 DAYS FROM
DUE DATE RESULTING IN AN
ANNUAL PERCENTAGE RATE OF
24%. IN EVENT OF DEFAULT,
PURCHASER AGREES THAT
COLLECTION COST INCLUDING
REASONABLE ATTORNEY FEES
MAY BE RECOVERED.

IF EQUIPMENT DOES NOT WORK PROPERLY NOTIFY OFFICE AT ONCE. LESSEE AGREES TO
KEEP EQUIPMENT LOCKED OR GUARDED WHEN NOT IN USE. NO DRIVERS OR RIDERS
THREE MONTHS OF AGE.

09:05:15

V 214

PORTABLE TOILETS
HOME OWNERS • CONTRACTORS
PARTY, WEDDING AND TENT RENTALS

TERMS

2% PER MO. FINANCE CHARGE
WILL BE MADE ON ALL AMOUNTS
UNPAID AFTER 30 DAYS FROM
DUE DATE RESULTING IN AN
ANNUAL PERCENTAGE RATE OF
24%. IN EVENT OF DEFAULT
PURCHASER AGREES THAT
COLLECTION COST INCLUDING
REASONABLE ATTORNEY FEES
MAY BE RECOVERED.

DAMAGE WAIVER Charge is 10% of Gross Rental Charges

By means, Lessee declines damage waiver in consideration of the charges shown below. Lessee agrees to waive certain claims against Lessee for damage to equipment as shown by set forth on the reverse hereof. If desired, Lessee may provide Lessee with a certificate of primary insurance in form acceptable to Lessee, covering all risks of loss to the subject equipment. Furthermore, certificate of insurance must include proof of physical damage coverage as related to the equipment as listed herein plus all liability and property damage coverage.

BY HIS INITIALS CUSTOMER DECLINES DAMAGE WAIVER X

WARNING: AVOID UNLAWFUL FAILURE TO RETURN RENTED PROPERTY IS A CLASS 5 FELONY UNLESS THE VALUE OF THE PROPERTY IS UNDER ONE HUNDRED COLUMNS IN WHICH CASE IT IS A CLASS 3 MISDEMEANOR.

LESSEE IS RESPONSIBLE FOR ALL TIRE DAMAGE & REPAIR

IF EQUIPMENT DOES NOT WORK PROPERLY, NOTIFY OFFICE AT PAGE 45 SEEL AGREES TO
KEEP EQUIPMENT LOCKED OR GUARDED WHEN NOT IN USE. NO DRIVERS OR TENDING
TRUCKS UNDER 21 YEARS OF AGE.

FINAL

Page: 1

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1  5030-0003      VERMEER BC1000XL CHIPPER SHREA      443.58      443.58
   $126.50/2      57.50  184.00      345.00  1380.00  4140.00
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--- Payments -----

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3-00-519
V2/4

PROVISIONS ON THE BACK OF THIS LEASE ARE PART OF THIS CONTRACT

TOTAL DUE	443.58
AMT BILLED	443.58

Report Criteria:

Employee.Employee number = 2568

Date	Check Number	M	Hours	Gross / Expense PC Type Amount	
FUHR, JIM					
2568					
06/21/2019	11833		45.25 1-01	GR	1,258.27
			9.50 3-01	GR	.00
			25.25 9-02	GR	.00
07/05/2019	11871		80.00 1-01	GR	1,258.27
			3.50 9-01	GM	.00
07/19/2019	11907		80.00 1-01	GR	1,258.27
			2.25 9-01	GM	.00
08/02/2019	11939		76.00 1-01	GR	1,258.27
			4.00 9-02	GR	.00
Employee Range Totals					
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			9.50 3-01	GR	.00
			5.75 9-01	GM	.00
			29.25 9-02	GR	.00
			325.75		5,033.08