

Ridgeline Resource Planning

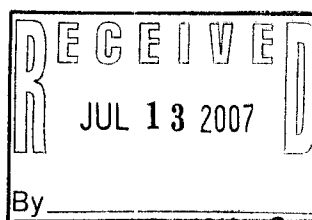
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"Environmental, Wetland and Land Use Consulting"

MEMORANDUM

DATE: July 12, 2007
TO: Mid-Valley Wetland Mitigation Bank MBRT
(DSL, ACOE, USEPA, USF&W, DEQ, ODFW)
RE: Phase 1 Monitoring Report
FROM: Carla Cudmore and Pat Thompson

Enclosed is a copy of the July 2007 monitoring report for Phase 1 of the Mid-Valley Mitigation Bank.
If you have any questions please contact Pat or Carla.

Mitigation Monitoring Report Cover Sheet
Oregon Department of State Lands

Block 1: Report Information

DSL Permit Number:	COE Permit Number: <i>Nationwide Permit 27 - 200400726</i>
Permittee: <i>Gilmour</i>	
County: <i>Benton</i>	Report Date: <i>6/15/07</i> Monitoring Year <i>2</i>
Date Removal-Fill Activity Completed:	
Date mitigation was completed Grading: <i>2/05</i> Planting: <i>5/06</i>	
Report submitted by: <i>Marvin and Cindy Gilmour</i>	

Block 2: Monitoring Report Purpose

This monitoring report is for monitoring a project that includes: (check all that apply):

- Compensatory **freshwater** wetland mitigation for permanent wetland impacts.
- Compensatory **estuarine** wetland mitigation for permanent wetland impacts.
- Only non-wetland** compensatory mitigation.
- Only mitigation for temporary** impacts that has a monitoring requirement.
- Voluntary wetland enhancement, creation or restoration (General authorization or individual permit) not funded with money from our wetland mitigation revolving fund.
- Voluntary wetland enhancement, creation or restoration (General authorization or individual permit) funded with money from **our wetland mitigation revolving fund**.
- Mitigation Bank Report**
- Other: _____

Block 3: Results

	Success Criteria	Met? (Y/N)	Comments/Reasons for Failure*
1.	Emergent Vegetation	3 of 3 requirements	
2.	Wetgrass Prairie	4 of 6 requirements	Possible inadequate performance standards
3.	Created Tree/Shrub	5 of 5 requirements	
4.			
5.			
6.			
7.			
8.			

Remedial work recommended	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Deed Restriction or other protection instrument attached (noted: if a filed deed restriction was a required as a permit condition, please attach a copy: <i>previously submitted</i>)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Final Monitoring Report?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Requesting release or partial release of bond/credits	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

*see report for detailed information

TABLE OF CONTENTS

1.0	REGULATORY BACKGROUND	1
2.0	WORK SUMMARY	1
3.0	AS-BUILT PLANS	1
4.0	HYDROLOGY PERFORMANCE STANDARDS, METHODOLOGY, AND RESULTS ...	2
4.1	Performance standards	2
4.2	Methodology	2
4.3	Results	2
5.0	VEGETATION PERFORMANCE STANDARDS AND METHODOLOGY	2
5.1.	Performance Standards	2
5.2	Methodology	3
5.3	VEGETATION MONITORING RESULTS	3
5.3.1	Emergent Vegetation	5
5.3.2	Wetgrass Prairie	5
6.0	SPECIES AREA CURVE	7
7.0	PHOTO POINT MONITORING	7
8.0	CREDIT SALES SUMMARY	7
9.0	REQUEST FOR CREDIT RELEASE	8

LIST OF ATTACHMENTS

Attachment	1	Monitoring Tube Results
Attachment	2	Sample Plot Monitoring Data
Attachment	3	Monitoring Point Locations

1.0 REGULATORY BACKGROUND

The purpose of this report is to summarize the progress of Phase 1 of the Mid-Valley Wetland Mitigation Bank (Bank). The Bank is located approximately one mile east of Independence Highway and one and one-half miles south of Springhill Drive in T10S, R4W, Sec. 15, Tax Lot 700. The letter of approval for the Bank was signed on September 27, 2005 and is permitted as ACOE permit #2004-000726. Phase 1 of the Bank consists of 33.1 acres.

Development of the Bank was through a combination of restoration of previously drained wetlands (10.58 acres), restoration of wet prior converted (1.02 acres), enhancement of remnant ash swales and shrub/scrub (10.17 acres), and the creation of wetlands from upland agricultural land (4.78 acres). The inclusion of adjacent upland forest (4.89 acres) and an existing pond (1.66 acres) as buffer areas to the Bank is also planned. The 1.66 acres of existing pond will not generate any credits. Anticipated Bank credits:

<u>Type of Credit</u>	<u>Acres</u>	<u>Ratio</u>	<u>Credits</u>
Restoration	10.58	1:1	10.580
WPC Restoration	1.02	2:1	0.510
Creation	4.78	1½:1	3.187
Enhancement	10.17	5:1	2.034
Buffer	<u>4.89</u>	10:1	<u>0.4.89</u>
Total	31.44 acres		16.8 credits

2.0 WORK SUMMARY

Work began in the Fall 2004 with the initial herbicide applications and grading following in February 2005. Grass seeding occurred in April, October and November 2005. The site was sprayed for broadleaf weed control during the grass plantings. Following the broadleaf herbicide applications, the dryer portions were planted with forbs in November 2005. Bare root tree and shrub species were planted in February 2006 and common camas (*Camassia quamash*) bulbs and soft rush (*Juncus effusus*) and spreading rush (*Juncus patens*) rhizomes in April 2006. In February 2007, six Western crab apple (*Malus fusca*) and 50 Pacific willow (*Salix lasiandra*) trees were planted.

The sponsors have continued to conduct, at a minimum, weekly site visits hoeing and spraying for undesirable species. A small portion of the wet prairie near data points 21, 30, 31 and 32 contained more spiny sow thistle (*Sonchus aper*) and prickly lettuce (*Lactuca serroila*) than the sponsors were comfortable with, in response, the sponsors sprayed the area to remove these non-natives in April 2007. During the spraying some of the non-target vegetation was damaged but will return. Currently there is still some bare land in this area.

3.0 AS-BUILT PLANS

The as-built plans were submitted with the first monitoring report in April 2006.

4.0 HYDROLOGY PERFORMANCE STANDARDS, METHODOLOGY, AND RESULTS

4.1 Performance standards:

Wetland hydrology, defined as saturation of the major part of the root zone (in the upper 12-inches of the soil profile) or ponding upon the soil surface for at least 12.5% of the growing season must be achieved (for the purpose of this determination, the growing season is defined as the period in which temperatures are expected to be above 28° F in 5 out of 10 years. This is the period between November and March in Benton County. Wetland hydrology will be present in three out of five years or less if the weather records are close to normal and no irrigation is supplied.

4.2 Methodology:

Water depth and depth of saturation will be indicated throughout the site using a combination of groundwater monitoring tubes as an aid to show how the water level follows the site topography, and paired plots along the site boundary and any high areas to indicate the exact location of the wetland boundary. The paired plots will be done using soil probes or pits. In addition, these areas will be visually documented with photographs to show a dominance of wetland species. The wetland boundary will then be displayed on a site map.

4.3 Results

The results of the monitoring indicate that 100% of the planned Bank area is meeting wetland hydrology criteria with the entire Bank area having saturated soils. The 2007 water levels in the monitoring tubes (Attachment 1) ranging from a minimum of standing water at 8" below the surface to inundation to 10" above the surface.

5.0 VEGETATION PERFORMANCE STANDARDS AND METHODOLOGY

Vegetation monitoring was conducted for the site on all areas except the enhanced forest and buffer areas as the only performance standards are for the fifth year.

5.1 Performance Standards

Emergent Herbaceous

1. A minimum of 55% of the relative plant cover (including bare soil) is comprised of native species.
2. No more that 15% of the relative plant cover is comprised of non-native invasive species as define below.
3. The wetland's moisture index is less than 3.0.

*Non-native invasive species to be included: reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), Himalayan blackberry (*Rubus discolor*), and Japanese knotweed (*Polygonum cuspidatum*), Eurasian water milfoil (*Myriophyllum spicatum*), climbing nightshade (*solanium dulcamara*) (and yellow-flag iris (*Iris pseudacorus*), Anne's lace (*Daucus carota*), Canadian thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), orchard grass (*Dactylis glomerata*) and annual ryegrass (*Lolium multiflorum*) or others as determined by the MBRT.

Wetgrass Prairie

The above performance standards along with the following:

1. At least 10 wetgrass prairie species are present as listed in "Species Composition for Willamette Valley Vegetation Types" by Kathy Pendergrass, August 2003, *supplied by John Marshall (USFWS) author of "Draft Guidance on Vegetation Performance Standard and Monitoring Protocols for Reference Sites and Mitigation Sites"* to enhance Appendix II of this document.
2. Tufted hairgrass (*Deschampsia cespitosa*) is represented by 25% or greater relative plant cover.
3. At least 50% of the relative plant cover (including bare soil) is comprised of native species.
4. No more than 15% of the relative plant cover is comprised of non-native invasive species as define above.
5. The prairie's moisture index is between 2.0 and 3.0.
6. No more than 5% relative plant cover by shrubs or trees.

Shrub and Forest - Created

By the end of the second growing season, the shrub and forest component of the wetland will meet or exceed 75% of the species richness of the reference site (excluding non-native invasive species). The plant density in forested wetlands will be at least 50 to 100 living stems per acre and shrub/scrub wetlands at least 200 to 300 living woody stem per acre, of species that are rated FAC or wetter, excluding FAC- species. This must be achieved by the end of the second growing season following planting and maintained through the end of the monitoring period until canopy coverage is greater than 30%. There will be no more than 15% aerial coverage of non-native invasive species*. These densities will be a combination of planted individuals and natural recruitment.

In addition the herbaceous layer in the forest and shrub areas will meet or exceed the performance standards for emergent herbaceous wetlands as stated above.

5.2 Methodology

Monitoring was conducted of the existing monitoring points that had been laid out using a stratified systematic plot method. The transects were laid out in a stratified arrangement along one baseline with equal distance between each transect (approximately 250'). The transects crossed the entire wetland, generally perpendicular to the topography. The sampling plots were predetermined and plotted on the transects at 100-foot intervals from each other.

The herbaceous sample plots were conducted using two methods. This was done as it was realized, past monitoring did not match the approved methodology protocols. We included both methods in our results, *approved* - one meter quadrants, located at the northwest corner of each point and the *past method* - a 10 feet in diameter sampling plot with the center point at the center of the plot. When needed, a 30-foot diameter forest/shrub sample plot was placed with its center at the plot center point encompassing the herbaceous plots. The starting point of the sample plots was staggered in order to cover a broader area. The sample plots were permanently identified in the field and were plotted on a site map.

5.3 VEGETATION MONITORING RESULTS

Vegetation monitoring was conducted on June 8, 2007 by Marvin and Cindy Gilmour, Pat Thompson and Carla Cudmore. Attachment 2 includes spread sheets with the results of both monitoring methods. The spread sheets include a complete listing of all species identified in the Bank. A total of 36 monitoring plots were examined. Monitoring point #27a (See Attachment 3 for monitoring point locations) was added this year to get a better look at the forest/shrub

species and density as it had become apparent that the forest and shrub plantings were not adequately covered with the previous monitoring points. Monitoring point 27a was monitored for the forest and shrub species only. Both the botanical and common names are included as well as the indicator status, origin (native or non-native), moisture index, and if it was planted or a volunteer species.

During the June 2007 monitoring 68 plant species were identified in the Bank. As was mentioned above, the monitoring was conducted in two ways. The results were very similar between the two different methods. The percentage of tufted hairgrass went from 14.7% using the 1 meter square to 18.4% using the 10' diameter circle. The real distinction between the methods however, was noted in the number of species that were found within the Bank, but were not found within a monitoring plot. Using the 1 meter square method, 24 plant species were found within the Bank, but not in a sample plot, versus only 14 species using the 10' diameter method. These species (24 or 14) depending on the methodology) were found during the walk between the monitoring points or other work within the Bank.

COMPARISONS OF HERBACEOUS SAMPLE PLOT METHODOLOGIES

	Approved Method 1 meter sq.	Previously Used Method 10' diameter circle
Moisture Index for wet prairie	1.6	1.65
% Tufted Hairgrass for wet prairie	14.7	18.4
Species noted in Bank, but not in a monitoring plot	24	14

We are requesting to continue using the protocols followed during the previous monitorings (10' diameter circle) as it appears to offer a more complete picture of the Bank than the methods stated in the performance standards. Both sets of results are included but only the 10' diameter herbaceous results were used for the performance standard calculations .

Monitoring points 8 and 22 were previously identified as created forest/shrub plots. These are being reclassified as wet prairie as no trees or shrubs are located within these plots and the prairie is doing very well which we feel outweighs the value of the intermixed forest and shrub component in this area. During the recent (May 2007) MBRT annual site visit it was the consensus of the MBRT that the value of the wet prairie was more significant for this site than the value of newly created forest/shrub area .

Grass species dominate the Bank with the most abundant species being spike bentgrass (*Agrostis exarata*), tufted hairgrass (*Deschampsia cespitosa*), water foxtail (*Alopecurus geniculatus*), short-awned foxtail (*Alopecurus aequalis*), meadow barley (*Hordeum brachyantherm*) and slough grass (*Beckmania syzigachne*).

The near absence of invasive and non-native species on site remains extremely impressive, particularly with the close proximity to reed canary grass.

5.3.1 Emergent Vegetation

All three of the performance criteria for **emergent herbaceous** vegetation were met.

Required: At least 55% of the mean plant cover (including bare soil) will be comprised of native species -- **Met**, Plots 16, 19, 20, 24 and 25 are the planned emergent vegetation plots, which are comprised of 87% native species which is a significant rise from the spring 2006 monitoring which was 63%. If we only looked at the non-native species without including bareland (due to recent inundation) there would be 97% native species in the emergent areas.

Required: No more than 15% of the mean plant cover will be comprised of non-native invasive species. --**Met** with 0% of non-native invasive species.

Required: The wetland's moisture index is less than 3.0. --**Met** with an average moisture index of 1.3.

5.3.2 Wetgrass Prairie

The performance criteria for **wetgrass prairie** was met for 4 of the 6 requirements.

Required: At least 10 wetgrass prairie species are present as listed in "Species Composition for Willamette Valley Vegetation Types" by Kathy Pendergrass.-- **Met**. Twelve wet grass prairie species have been identified within the plots with an additional four species found in the Bank but not within a monitoring plot. Thus a total of 16 of the wetgrass prairie species are on site whereas during the Fall 2006 monitoring only 10 species were found.

Required: Tufted hairgrass (*Deschampsia cespitosa*) is represented by 25% or greater mean cover.--**Not met**. Tufted hairgrass was present on average 18.4% in the 22 plots identified as wetland prairie. This is less than in the previous monitorings. During the MBRT site visit (June 07) the MBRT saw the abundance of tufted hairgrass and felt that its presence was more than adequate. With this in mind, we are requesting that this standard be reduced to 17% or greater cover, so that we will be able to meet our performance standards and so that this percentage better represents the overall goals for a wetgrass prairie.

Required: At least 55% of the mean plant cover (including bare soil) will be comprised of native species.-- **Met**. Only one of the 22 wetland prairie plots had non-native species for a total of 0.4%. Bare soil accounted for 7% of the ground cover, which was higher than the previous monitoring. This is due to the spraying that was conducted to remove some non-native vegetation within a portion of the wet prairie.

Required: No more than 15% of the mean plant cover will be comprised of non-native invasive species --**Met**, with 0% of non-native invasive species.

Required: The prairie's moisture index is between 2.0 and 3.0.--**Not met.** *The average moisture index of the prairie plots is 1.67. This moisture index appears to be remaining fairly constant between 1.6 and 1.7. We will continue to monitor this standard, but are concerned that with the trends on site, this standard may not be met.*

Required: The prairie has no more than 5% mean cover by shrubs or trees. **Met.** *Only 6 of the 22 prairie plots having any shrub or overstory component, none of which accounts for significant shading. This standard will be more closely reviewed as the shrub and tree components begin to grow and age.*

5.3.3 Shrub and Forest - Created

The performance criteria for **shrub and forest - created** was met for 5 of the 5 requirements.

Required: By the end of the second growing season, the shrub and forest component of the wetland will meet or exceed 75% of the species richness of the reference site (excluding non-native invasive species). **Met.** *Reference site (in-Bank) contains a combination of six overstory and scrub/shrub species, while the Bank (not including the reference sites) includes 10 overstory and scrub/shrub species, which far exceeds the 75% species richness required. ($6 \times .75 = 4.5$ required species).*

Required The plant density in forested wetlands will be at least 50 to 100 living stems per acre and shrub/scrub wetlands at least 200 to 300 living woody stem per acre, of species that are rated FAC or wetter, excluding FAC- species. This must be maintained through the end of the monitoring period until canopy coverage is greater than 30%. This would translate into:

Forest: 1.25 acres (54,450 ft²) @ 50-100 stems /ac = 63 - 125 stems in the Bank
Shrub: 0.75 acres ((32,670 ft²) @ 200-300 stems/ac = 150 - 225 stems in the Bank

Met - *There is 706 sq² (30' dia.) of monitored forest/shrub plots times four plots for a total of 2,824 ft² of monitored created forest/shrub plots. This accounts for 5% of the total created forest and 9% of the shrub. So: in the 5% of the monitored forested area there were three trees, this equates to 75 trees over the full 1.25 acres. In the 9% of the monitored shrub area there were 30 shrubs, this equates to 250 shrubs in the full 0.75 acres.*

Required: There will be no more than 15% aerial coverage of non-native invasive species*. **Met** with 0% of non-native invasive species.

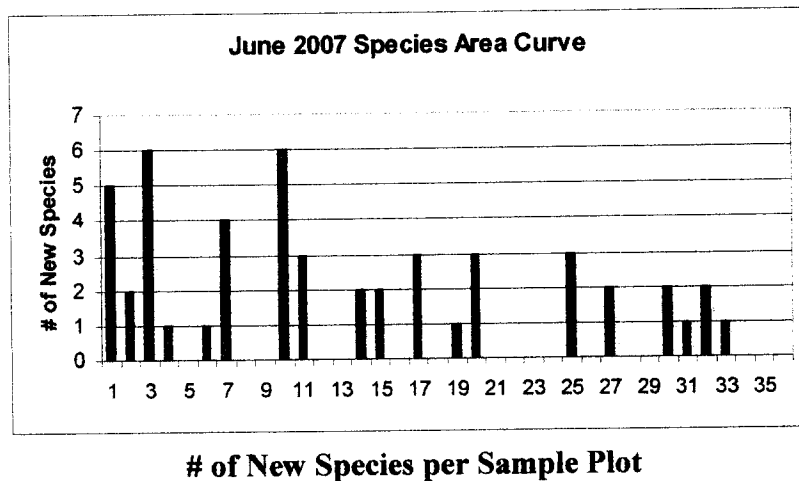
In addition the herbaceous layer in the forest and shrub areas will meet or exceed the performance standards for emergent herbaceous wetlands (below):

Required: At least 55% of the mean plant cover (including bare soil) will be comprised of native species -- **Met**, Plots 26, 27, 27a (not monitored for herbaceous) and 33 are the planned forest/shrub vegetation plots, which are comprised of 70% native species . The only reason this is not 100% is due to some remaining bare land (due to recent inundation). None of the plots have any non-native species.

Required: The wetland's moisture index is less than 3.0. --**Met** with an average moisture index of 1.6.

6.0 SPECIES AREA CURVE

The sample plots were evaluated using a species area curve to show the incidence of new species found within each of the plots. The curve shows several spikes in the number of new species found as new wetland types are sampled. The last three plots showed no new species. All wetland types were included in the sample plots.



7.0 PHOTO POINT MONITORING

Photos at each sample point were taken and handed out during the MBRT's annual site visit.

8.0 CREDIT SALES SUMMARY

Mid-Valley Mitigation Bank (Phase 1) has a possible 16.8 credits. To date 13.44 credits have been released, 12.318 sold, with 1.193 credits unsold. The following summarizes all credit sales to date.

MID-VALLEY MITIGATION BANK - CREDIT TRACKING

DATE	NAME	LOCATION	ADDED	SOLD	SQ FT
9/28/05	CORPS/DSL INITIAL RELEASE - 30% CREDITS		5.04		
10/4/05	Investor's Equity Inc - Keith Nakayama	Charlies Estates, Lebanon		0.18	7,840.80
10/4/05	RMA Development	Clearview III, Lebanon		0.47	20,343.00
10/4/05	Gordon Vogt	Skyview III, North Albany		0.09	4,137.00
10/7/05	Conser Homes	Morningstar Phase III, Millersburg		0.13	5,662.80
10/11/05	BBF Dev. Clover Ridge-Myles Breadner	Edgewater, Albany		0.87	37,897.20
10/11/05	Wulf Const	Creekside at Adair, Adair Village		0.13	5,662.80
10/17/05	Ken Kohl-ODOT	OR 228: OR 99E to I-5		2.57	111,949.20
10/25/05	Conser Homes	Sweetwater Subdivision		0.27	11,761.20
6/9/06	CORPS/DSL 2ND RELEASE - 30% CREDITS		5.04		
6/16/06	GRS Enterprises	Eagle View Estates		0.28	12,196.80
9/29/06	Kingdom Estates	31707 S Fifth Street, Lebanon		0.2695	11,739.00
12/6/06	RC Ventures LLC	Millersburg		0.978	42,602.00
12/6/06	Gregory M. Perry			0.07	3,049.20
9/5/06	Home Solutions			0.07	3,049.20
1/5/07	North Coast Electric			0.27	5,663.00
2/14/07	Progressive Design Builders			0.5	21,780.00
7/20/06	Pacific Habitat			2	87,120.00
10/11/06	Fernwood Environmental			0.2	8,712.00
2/23/06	CORPS/DSL 3RD RELEASE		3.36		
2/26/07	Brownsville JV, LLC	Brownsville		0.1	4,356.00
3/8/07	IWM, LLC - R & D Construction			0.49	21,301.00
5/10/07	Greater Albany Public School	Knox Butte Road School Site		1.26	54,886.00
4/19/07	Arrt Properties, LLC			1.12	48,844.00
Totals			13.44	12.318	

9.0 REQUEST FOR CREDIT RELEASE

We are requesting our forth credit release of an additional 15 percent (2.52) credit release. This would bring the total release to 95 percent for total release of 15.96 credits.

Total Credits Possible	16.80
Release #1 (30%)	5.04 Grading and Initial Planting
Release #2 (30%)	5.04 Phase 1 Spring 2006 Monitoring
Release #3 (20%)	3.36 Phase 1 Fall 2006 Monitoring
Current Request (15%)	<u>2.52</u> Phase 1 2007 Monitoring
Remaining Credits (5%)	0.84 Credits Remaining Phase 1

Mid-Valley Wetland Mitigation Bank Water Monitoring Worksheet

Readings are depth in inches above (+) or below (-) ground surface

Date	Pipe 1	Pipe 2	Pipe 3	Pipe 4	Pipe 5	Hole 6
12/18/2002	-36"	-38"	0"	-9"	-1"	
1/1/2003	-25"	-2"	-41"	-1"	0"	
1/28/2003	-29"	-3"	-39"	-2"	0"	
2/21/2003	-28"	-6"	-40"	0"	-4"	
3/16/2003	-29"	-5"	-38"	-2"	-4"	
3/20/2003	-27"	-2"	-33"	-1"	0"	
3/27/2003	-28"	-4.5"	-34"	-2"	0"	
4/10/2003	-25"	-2"	-32"	-1"	0"	
12/13/2004	-28"	-14"	-8"	-6"	-9"	
1/25/2004	-20"	-2"	-31"	-1"	0"	
2/15/2004	-18"	-2"	-29"	-1"	0"	
3/19/2004	-23"	-11"	-34"	-6"	-8"	
12/15/2004	-26"	-12"	-40"	-3"	-10"	
3/26/2005	+4"	+6"	Removed*	-2"	+1"	
4/1/2005	-9"	+4"	Removed*	-2"	-2"	

Drained Pond on April 5, 2005 for Construction Purposes

4/10/2005	-30"	+9"	Removed*	-9"	-8"	
5/14/2005	-17"	0"	Removed*	-11.5"	-6"	
11/14/2005	0"	+10"	-11"	-12"	-4"	
12/28/2005	+1"	+10"	-5"	0"	+4"	-2"
1/15/2006	+3"	+10"	-2"	-5"	+5"	0"
2/15/2006	+1"	+10"	-8"	-1"	0"	-4"
3/10/2006	+1"	+10"	-8"	-1"	0"	-5"
4/7/2006	+1"	+10"	-7"	-5"	+2"	-6"
2/10/07	+1"	+10"	-4"	-2"	+1"	
3/14/07	+1"	+10"	-6"	-3"	+2"	
4/16/07	+1"	+10"	-8"	-4"	+1"	

* pipe removed during construction activities and then replaced

Biodiversity Mitigation Bank - Phase 1		Sample Plot Monitoring Results - June 2007 (10 diameter plots)		Shrub cover	
Biodiversity Name	Common Name	Species	Height	DBH	DBH
Plot ID	Plot Name	Species	Height	DBH	DBH
001	001	001	001	001	001
002	002	002	002	002	002
003	003	003	003	003	003
004	004	004	004	004	004
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