

**MEMORANDUM OF AGREEMENT
AND
WETLAND MITIGATION BANK INSTRUMENT
FOR
MUDDY CREEK MITIGATION BANK**

This Memorandum of Agreement and Wetland Mitigation Bank Instrument (MOA), which describes the establishment, use, operation, and maintenance of the Muddy Creek Mitigation Bank (Bank) is an agreement made and entered into by and among Muddy Creek Mitigation Bank, LLC. Chris Kiilsgaard and Jeffery Reams (Sponsors), the U.S. Army Corps of Engineers (Corps), the Oregon Department of State Lands (DSL), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), and the Oregon Department of Fish and Wildlife (ODFW).

I. PREAMBLE:

A. Purpose: Whereas, the purpose of this MOA is to establish guidelines, responsibilities, and standards for the establishment, use, operation, and maintenance of the Bank. The Bank will be used for compensatory mitigation for unavoidable impacts to waters of the United States including wetlands that result from activities authorized under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act and Oregon's Removal-Fill Law [Oregon Revised Statutes (ORS) 196.800-196.990 and Oregon Administrative Rule (OAR) 141-085] provided such activities have met all applicable requirements and are authorized by the appropriate authority.

B. Goals and Objectives: Whereas, the primary goal of the Bank are as follows: to enhance 67 acres and create 41 acres of wetland on 108 acres of degraded farmed wetland. Habitats to be both created and enhanced are wetgrass prairie, emergent wetland, and forested wetland. When complete, the Bank will feature a 101-acre mosaic of shallow-water palustrine emergent and wet prairie grassland habitats with 62.2 acres of wetgrass prairie and 38.8 acres of emergent wetland (see *Exhibit B, Site Plan*). The remaining 7-acre parcel will be forested wetland.

The Sponsors are presently in discussion with the US Fish & Wildlife Service to establish the remaining 26.8 acres held by the Kiilsgaard and Greene Trust (16.8 acres riparian forest, 7 acres Palustrine Emergent ponds, and 3 acres upland soils currently in grass seed agriculture) as a Conservation Bank for the recovery and/or reintroduction of endemic threatened or endangered species. Should the 26.8-acre parcel not be established as a Conservation Bank the sponsors will develop the parcel as Phase 3 development of the mitigation Bank. Management actions anticipated for Phase 3 development will be acted upon only after consultation and approval from MBRT.

Hydrology Goals and Objectives:

Enhancing site hydrology is a primary restoration goal of the Bank. Increasing the extent of shallow inundation, and the duration of saturation, facilitates the transition to native wet prairie vegetation and provides habitat for waterfowl and waterbirds.

Objectives for enhancing Bank hydrology would include:

1. Reconfigure the routing of surface water from perimeter ditches out onto the Bank by selectively plugging ditches locations to promote overland flow through the Bank's swale system.
2. Intercept surface water overland flow that exits the Bank on its northern border by building berms across existing swales.
3. Increase surface water retention (and extend saturation duration) by constructing 10 low-lying, low profile berms.
4. Excavate 11 shallow (typical depth no greater than 12 inches) depression pools to capture precipitation and to selectively create wetlands on the upland mounds.
5. Design and construct the water retention features to maximize duration on the Bank site while not impacting surface drainage from neighboring properties.

Vegetation Goals and Objectives:

The primary goal of this restoration is to create and/or increase the coverage of native vegetation in forested wetland, palustrine emergent and wet prairie habitats. The desired outcome will be to develop self-sustaining native plant communities that provide a diversity of habitats for wildlife in a properly functioning floodplain setting and promote improved water quality while avoiding water impoundment issues on neighboring properties. This will be accomplished through management actions to remove existing non-native species; and water management, to preferentially select for species tolerant of seasonally saturated soil conditions.

Wet Prairie

Wet prairie habitat is proposed for approximately 62.8 acres (58% of Bank). Wet prairie habitat will undergo several years of herbicide spray to deplete the seed bank in the upper soil layers. As this habitat is largely confined to the areas of the Bank that do not yet meet hydrology standards, wet prairie habitat will be created by selectively grading these uplands to achieve wetland hydrology.

The initial matrix of wet prairie grasses, tufted hair grass, meadow barley, water foxtail, American slough grass, and spike bentgrass will be cultivated for several seasons prior to no-till drilling of forb seeds. It is likely that forb seeds will not be drilled until the first maintenance burn to reduce thatch and exposing bare soil that will promote seeding success.

Palustrine Emergent

Palustrine emergent habitat is proposed for approximately 38.2 acres (36% of Bank). The primary focus in this habitat is to establish a matrix of species that, when mature, will be composed of obligate and facultative wetland forbs and grass-like vegetation with a complementary component of grasses that can withstand extended inundation. Weed infestation is likely not to be as pervasive in this habitat due to inundation so the lengthy herbicide regime is not necessary. This habitat will be planted to the forb and grass mix following berm construction. Palustrine emergent habitat grades into wet prairie along its margins so the palustrine emergent seed mixture will be supplemented with the wet prairie seed mixture when planting along these margins.

Forested Wetland

Forested wetland habitat is proposed for seven acres (four acres planted, three acres enhanced; 6% of Bank). The primary focus in this habitat will be to first eliminate the introduced grass understory. This will be achieved through herbicide application and extending the inundation period when berm construction is complete. When understory conditions are acceptable, slough sedge plugs and bare-root shrub stock will be planted. Since the overstory is already composed of mature Oregon ash trees, there is no need to plant tree stock.

Along the southwestern edge of the Bank, four acres of forested wetland will be planted. It is intended that this area increase the forested buffer to Muddy Creek. Plant species for both the establishment and density of species is designed to mimic composition found in the forested wetlands bordering the western edge of the Bank.

C. Location and Ownership of Parcel: (1) Whereas, the Sponsor has provided proof of ownership of the mitigation bank site at the legal description described in Exhibit A of this MOA, and as depicted on a restoration plan (Exhibit B). Said parcels are hereinafter referred to as the "Property." (2) The Sponsor has not proposed additional phases in the Instrument; beyond Phase 3 (introduced in section I B), therefore, any additional phases of this bank require a modification to the Instrument and a separate MOA. The bank site owners agree to notify the Corps and DSL in advance if the property is to be sold. (3) The Property is located in Benton County, Township 14, Range 5W, Section 9, Tax Lot 300. The Bank is approximately 108 acres of the 134-acre tax lot. The address of the Bank is off Hwy 99 west of the railroad tracks between McFarland Road and Dawson Road, 3 miles north of Monroe, Oregon.

D. Project Description: Whereas, in accordance with this MOA, the Sponsor will establish and/or maintain aquatic habitats and upland buffers in compliance with the provisions of this MOA and the Final Instrument (Instrument) (Exhibit C), and shall then maintain each phase of the Bank in such condition for five (5) years after the last credit has been sold. The bank sponsor shall be responsible for compliance with this MOA and the Instrument until the Bank is closed in accordance with the Bank closure procedures. The Bank area shall consist of a mixture of creation and enhancement of wetgrass prairie, emergent wetlands, and forested wetlands as described in Exhibit C.

E. Baseline Conditions: Whereas, the baseline conditions of the bank have been established through a wetland delineation, vegetation survey, and hydrology monitoring. This data will be used to

track the progress of the Bank in reaching its goals. Basic baseline conditions are recorded here and are elaborated on within the Instrument (Exhibit C).

The bank site is currently a commercial grass seed farm, with a 3-acre inclusion of forested wetland. The bank is bordered along its western boundary by approximately 21 acres of mature Oregon white oak/Oregon Ash riparian forest and 7 acres of seasonal ponds.

A wetland delineation conducted in the early spring of 2006 revealed a mosaic of upland and wetland habitat in the subtly undulating topography of the ryegrass fields. The section in the Instrument, 2.0 detail both the existing and proposed conditions on-site. Baseline ecological survey work was conducted in the spring and summer of 2006, and detailed results are presented in the Instrument (Exhibit C).

The Bank site is a terraced floodplain of Muddy Creek with an inclusion of riparian forest along a drainage swale that was probably too wet to warrant converting to farmland. The Bank site has been unchanged for a number of years. 1936 aerial photos show the bank site and surrounding property largely intact through successive aerial overflights. The Bank's topography can be described as a series of undulating, low-profile ridges and level-bottomed swales trending in a SE-NW direction with the lobes of the ridges grading into a largely flat floodplain. Overall, topography for the site is relatively flat with 9 vertical feet of relief between high and low spots on the property. The site is entirely underlain by hydric soils of low fertility, (the Natural Resource Conservation Service has categorized all soils on site as class 4 and 5). Several ditches route surface water along the perimeter of the Bank west to Muddy Creek.

The great majority of the bank (105 acres) is degraded farmed wetland and has been farmed for a number of years. The Bank is currently in annual ryegrass production but includes some remnant wet prairie species in depression troughs that are too wet to sustain growth of annual rye grass.

Within the swales that run across the site there are several topographic lows that trap overland flow for extended periods. These floodplain depression-pool wetlands are characteristic of low gradient Willamette Valley streams and are likely to have been altered in extent and depth by farming practices.

F. Establishment and Use of Credits: Whereas, in accordance with the provisions of this MOA and upon satisfaction of the performance standards contained in the Instrument (Exhibit C), mitigation credits determined in accordance with the Instrument (Exhibit C) will be available to be used as mitigation in accordance with all applicable requirements for permits issued under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act and Oregon's Removal-Fill Law [Oregon Revised Statutes (ORS) 196.800-196.990]. The final number of credits will be determined by the MBRT based upon the final approved design and the resulting habitats achieved for each phase of the Bank in accordance with the terms and conditions contained herein.

The Sponsors would like the MBRT to consider a provision to this MOA that would allow the Bank to petition the MBRT for additional bonus credits should the Sponsors go through with their intended plan of using the Bank as a recovery site for Threatened and Endangered (T&E) Species. The Bank's locale is within the ODFW's Key Conservation Opportunity Area WV-22, where the conservation of such T&E species as; Nelson's checkermallow (*Sidalcea nelsoniana*), Bradshaw's Lomatium (*Lomatium*

bradshawii), and Willamette daisy (*Erigeron decumbens*) are a focus of conservation actions. Upon achieving Bank hydrologic and vegetation performance standards to the satisfaction of MBRT, and as laid out in this MOA, the Sponsors will consult with USFWS as to using the Bank as a recovery site for the above-mentioned T&E species. If the Sponsors proceed with T&E recovery actions, and do so to the satisfaction of USFWS, the Sponsors will present to MBRT their proposal for bonus credit. Specifics as to credit ratio and amount of credit generated by T&E recovery actions will be negotiated to the satisfactory agreement of MBRT and the Sponsors.

G. Whereas, as of the date of the MOA and subject to execution of the MOA by a duly authorized representative of the respective agencies described below, the Mitigation Banking Review Team (MBRT) consists of:

1. Corps, Co-Chair; and
2. DSL, Co-Chair; and
3. EPA; and
4. USFWS; and

6. ODFW.

H. Disclaimer: Whereas, this MOA does not in any manner affect statutory authorities and responsibilities of the signatory parties.

I. Exhibits: Whereas, the following Exhibits are incorporated by reference to this Banking Instrument:

1. "Exhibit A," Vicinity Map, Legal Property Description
2. "Exhibit B," Mitigation Site Plan; (drawing of the site)
3. "Exhibit C," Final Instrument;
4. "Exhibit D," Crediting and Debiting Procedure for the Bank;
5. "Exhibit E," Service Area Map;
6. "Exhibit F," Restrictive Covenant.

NOW, THEREFORE, the parties hereto agree as to the following:

II. DEFINITIONS*

1. BANK SPONSOR – A person who is proposing, or has established and/or is maintaining a mitigation bank. The sponsor is the entity that assumes all legal responsibilities for carrying out the terms of the Instrument, unless specified otherwise explicitly in the Instrument.

2. **COMPENSATORY MITIGATION** – Activities conducted by an authorization holder, permittee or third party to create, restore or enhance wetland functional attributes to compensate for the adverse effects of project development.
3. **CREATION** – To convert an area that has never been a wetland to a jurisdictional wetland.
4. **CREDIT** – A unit of measure of the increase in wetland functional attributes achieved at a mitigation bank site. Wetland credits are the unit of exchange for compensatory mitigation. ORS 196.600(2) further defines this term.
5. **DEBIT** – A unit of measure representing the reduction of credits at the mitigation bank corresponding to the impact at the project site.
6. **ENHANCEMENT** – Human activity that increases the function of an existing degraded wetland.
7. **INSTRUMENT** – The legally binding and enforceable agreement between the Director of DSL, the District Engineer of the Corps, and a mitigation bank sponsor that formally establishes the wetland mitigation bank and stipulates the terms and conditions of its construction, operation, and long-term management.
8. **FINANCIAL ASSURANCES** – The money or other form of financial instrument (for example, surety bonds, trust funds, escrow accounts, proof of stable revenue sources for public agencies) required of the sponsor to ensure that the functions of the subject bank are achieved and maintained over the long term, pursuant to the terms and conditions of the Instrument.
9. **FUNCTIONS** – The physical, chemical, and biological ecosystem processes of an aquatic resource without regard to their importance to society.
10. **LEDGER** – An accounting of credits and debits.
11. **MITIGATION** – Sequentially avoiding impacts, minimizing impacts, and compensating for remaining impacts to aquatic resources; the same meaning as DSL’s OAR 141-85-0010 (129).
12. **MITIGATION BANK** – Wetland(s) and any associated buffer(s) restored, enhanced, created, or protected, whose credits may be sold or exchanged to compensate for unavoidable future wetland losses due to removal, fill, or alteration activities.
13. **MITIGATION BANK REVIEW TEAM (MBRT)** – An advisory committee to the DSL and the Corps on wetland mitigation bank projects. An interagency group of federal, state, tribal, and/or local regulatory and resource agency representatives which are signatory to a MOA for a Mitigation Bank Instrument and oversee the establishment, use, and operation of a mitigation bank with the Corps and DSL serving as co-chair’s.
14. **MITIGATION SITE PLAN** – A detailed portion of the bank instrument (Exhibit B) that identifies specifically how aquatic resources and associated upland buffers will be restored, created, enhanced, or preserved on the mitigation bank.

15. **PRESERVATION** – The protection of ecologically important aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands or other aquatic resources as necessary to ensure protection and/or enhancement of the aquatic ecosystem.

16. **RESTORATION** – Re-establishment of wetland hydrology to a former wetland sufficient to support wetland characteristics.

17. **PERFORMANCE STANDARDS/SUCCESS CRITERIA** – The minimum standards required to meet the objectives for which the Bank was established.

18. **SERVICE AREA** – The boundaries set forth in a mitigation bank instrument that include one or more watersheds identified on the United States Geological Survey, Hydrological Unit Map, 1794, State of Oregon, for which a mitigation bank provides credits to compensate for adverse effects from project development. Service areas for mitigation banks are not mutually exclusive.

* Derived from:

Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (FR V. 60 No. 228, November 28, 1995);

Cowardin, L.M. et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Fish and Wildlife Service, Office of Biological Services. Washington, D.C. FWS/OBS-79/31. 131 pp.

Oregon Administrative Rules 141-085.

III. AUTHORITIES

The establishment, use, operation and maintenance of the Bank is carried out in accordance with the following authorities:

A. Federal:

1. Clean Water Act (33 USC 1251 et seq.);
2. Rivers and Harbors Act (33 USC 403);
3. Fish and Wildlife Coordination Act (16 USC 661 et seq.);
4. Regulatory Programs of the Corps of Engineers, Final Rule (33 CFR Parts 320-330);
5. Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40 CFR Part 230);
6. Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning the Determination of Mitigation Under Clean Water Act, Section 404 (b)(1) Guidelines (February 6, 1990);
7. Federal Guidance for the Establishment, Use, Operation of Mitigation Banks (60 F.R. 58605 et seq. November 28, 1995); and
8. Regulatory Guidance Letter No. 02-02, U.S. Army Corps of Engineers, December 26, 2002

B. State of Oregon:

1. Oregon Administrative Rules (OAR) 141-85-0010 through 141-85-445; and
2. Oregon Revised Statutes (ORS) 196.600-196.990

IV. ESTABLISHMENT OF THE BANK

A. Scope of Work: The Sponsor agrees to perform all necessary work, in accordance with the provisions of this MOA, to establish and maintain aquatic habitats and upland buffers, as described in the Instrument (Exhibit C), until it is demonstrated to the satisfaction of the agencies represented on the MBRT that the project complies with all provisions contained herein, or until all credits are sold, whichever is later. Work as described above shall include implementing the Instrument (Exhibit C). Prior to any debiting, the Mitigation Site Plan (Exhibit B) for the phase of the Bank proposed for debiting must be approved by the MBRT, the site for that phase must be secured, and appropriate financial assurances for that phase must be established. A copy of the proof of financial assurances must be submitted to DSL prior to the release of any credits at the Bank.

B. Permits: The Sponsor will obtain all appropriate permits or other authorizations needed to construct and maintain the Bank, prior to selling any credits. This MOA does not fulfill or substitute for such authorization.

C. Final Instrument: Upon signing this MOA, the MBRT approves the Instrument (Exhibit C).

D. Financial Assurance Requirements of DSL:

a. Financial Resources: The Sponsor will use an established line of credit with US Bank totaling \$300,000; these funds will be used in the construction, maintenance and monitoring phase of the mitigation bank.

b. Financial Assurance: A separate line of credit will be established with US Bank to provide Financial Assurance for the initial credit release. The Financial Assurance may be released incrementally following the financial assurance and escrow account release schedule located in Appendix 4 of the instrument.

For the initial release of credits by DSL (not to exceed 30% of the total number of credits available from enhancement wetlands at this site), the Sponsor agrees to provide adequate financial assurances to ensure that wetland acreage would be restored on site in the event of a default (see *Section V, F: Schedule of Credit Release*). Release of funds from this financial assurance will be recommended by the MBRT incrementally on the following schedule if, and only if, all performance standards, as described in Section V, E: Performance Standards are being met.

Phase 1 – Please refer to table 6 in instrument for credit release schedule

Phase 2 - Please refer to table 6 in instrument for credit release schedule

Phase 3 – If Phase 3 is enacted, the Sponsors will meet with MBRT and consult for credit release and release of financial security.

E. Real Estate Provisions: The Sponsor shall record a restrictive covenant on the Bank land and provide a copy to the Corps and DSL prior to the release of any credits. The restrictive covenant is attached as Exhibit F. A copy of the recorded document shall be provided to the Corps and DSL prior to any release of credits. Upon the final sale of Bank credits, and with prior approval from MBRT, the restrictive covenant will roll over into a long-term conservation easement held by an approved conservation entity/long-term steward (Steward).

F. The Sponsor agrees to submit an as-built report to the MBRT within 60 days following completion of the grading. The as-built report will describe in detail any substantial deviation from the requirements described in the Mitigation Site Plan submitted to the MBRT in accordance with the Instrument (Exhibit C), and the as-built report shall contain a survey showing finished grades.

V. OPERATION OF THE BANK

A. Service Area: The Bank is established to provide mitigation to compensate for impacts to waters of the United States and/or state waters, including wetlands, within the service area depicted on the excerpt of the USGS Hydrologic Unit Map as shown in Exhibit E. This service area shall include portions of hydrologic unit 1709003, within Benton, Lane, Polk and Linn Counties.

B. Access: With prior approval the Sponsor will allow, or otherwise provide for, access to the site by members of the MBRT or their agents or designees, as reasonably necessary, for the purpose of inspection, compliance monitoring, and remediation consistent with the terms and conditions of this MOA throughout the period of Bank establishment, monitoring, and operation. Inspecting parties shall not unreasonably disrupt or disturb activities on the property.

C. Projects Eligible to Use the Bank: The following types of projects may be eligible to use the Wetland Bank:

1. All activities regulated under Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act and/or the Oregon's Removal-Fill Law [Oregon Revised Statutes (ORS) 196.800-196.990] located within the service area of this Bank may be eligible to use this Bank as compensatory mitigation for unavoidable impacts; credits purchased may only be used in conjunction with a Corps or DSL permit authorization, or to resolve violations of state or federal wetland laws.

2. For projects in the service area of this Bank that require authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, and/or DSL's Removal-Fill Permit, and if said authorizations require compensatory mitigation, credits from this Bank may be permitted to be used to satisfy these compensatory mitigation requirements if the Sponsor and the third party (permittee) reach a mutually acceptable financial agreement and subject to regulatory approval on a case by case basis.

D. Number of Credits: Credits and debits will be assessed using measurements of the area of impacts and the mitigation land area. The number of credits created by development of this Bank is determined by a combination of land area and mitigation ratios provided in the Instrument (Exhibit C) as described in Exhibit D. The amount to be debited for each impact will depend upon the area of wetlands or waters to be impacted as determined during the permitting process.

E. Performance Standards: Performance standards defined below have been established by MBRT to define thresholds by which credits can be released.

(1) Hydrology Performance Standard:

Wetland hydrology has to meet the 1987 US Army Corps of Engineers Wetland Delineation Manual (1987 Manual) and any supplemental guidance adopted by both DSL and the Corps where saturation is within 12 inches of the soil surface for a minimum of 11 consecutive days (5% of the 211 day growing season). The growing season is defined as the period in which temperatures are expected to be above 28° F in 5 out of 10 years. In Benton County, this is the period from March through November. The saturation standard must be met for a minimum of 3 out of 5 years. Precipitation must approximate normal (within 85% of normal monthly average recorded at Oregon State University Climate Station, Hyslop Farm, Corvallis, OR) during the evaluation months.

Bank Hydrologic Performance:

Hydrology monitoring data will be collected to validate compliance with 1987 manual soil saturation standard. 25 saturation-monitoring wells will be established at the Bank, focusing on the higher elevation ground that is the focus of creation efforts (20 of the 25 wells will be located in areas previously delineated as uplands) in the 2006 wetland delineation (see *Figure 11*).

Saturation monitoring wells are 2 feet long, 3-inch diameter slotted PVC pipe. Approximately 20 inches of the slotted pipe is below the ground surface. Several inches of gravel will be placed in the bottom of the hole prior to installing the slotted pipe. Groundwater depth will be measured 10 times from early March through April.

A post-restoration wetland delineation will be performed within 3 years following completion of Phase 1 and Phase 2 restoration actions to prove the extent of wetlands achieved. Delineation will be performed in those years where precipitation pattern falls within 85% of normal monthly average during the evaluation months.

(2) Vegetation Performance Standards:

The vegetative standards for the various proposed habitats will be assessed at the time of annual monitoring by extrapolating data collected from habitat-specific monitoring transects (see *Figure 10*) to represent the overall site conditions by habitat.

Wet Prairie Habitat

1. Per cent Vegetative Cover- At least 50% of the relative plant cover (including bare soil) is comprised of native species for Years 1 and 2 after revegetation; raises to 60% cover in Years 3-5.

2. Tufted hair grass is represented by at least 25% relative plant cover.
3. At least 2 native grass species and 1 native forb with 5% cover each in the native cover matrix for Years 1 & 2, raises to 5 native species with at least 5% cover for each species in Years 3-5.
4. No more than 15% of relative plant cover is comprised of non-native invasive species*.
5. Wet prairie vegetation moisture index is between 2 and 3.
6. No more than 5% relative plant cover by trees or shrubs.
7. By Year 5, presence of at least 10 wet prairie cohort species and no more than twice the percent cover of bare soil present at the reference site.

Emergent Wetland Habitat

1. A minimum of 55% relative plant cover is comprised of native species.
2. Native grass or grass-like species (i.e. *Juncus*, *Carex*, or *Eleocharis* species) represent at least 25% of relative plant cover.
3. A minimum of 3 herbaceous species is represented in Years 1 & 2, increasing to a minimum of 5 species in Years 3-5.
4. Less than 15% relative plant cover is comprised of non-native invasive species*
5. The moisture index is less than 3.0.

Forested Wetland Habitat- Planted

1. A minimum of 2 tree species planted to a density of 200 stems per acre (number of planted trees derived by calculating an 80% estimate of trees in the six reference plots)
2. A minimum of 55% relative plant cover is comprised of native species.
3. A minimum of 3 native shrub species with 240 stems per acre (number derived from 80% of stem count in reference plots).
4. Less than 15% relative plant cover is comprised of non-native invasive species.
5. Moisture index is less than 3.0

Forested Wetland Habitat- Enhanced

1. A minimum of 2 native shrub species with 240 stems per acre.
2. A minimum of 20% relative plant cover slough sedge (*Carex obnupta*).
3. Less than 30% relative plant cover of non-native invasive species*.
4. A minimum of 55% relative plant cover is comprised of native species.

* Non-native invasive species to be included: reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), Himalayan blackberry (*Rubus discolor*), Japanese knotweed, (*Polygonum cuspidatum*), Eurasian water milfoil (*Myriophyllum spicatum*), climbing nightshade (*Solanum dulcamara*), yellow-flag iris (*Iris pseudocorus*), Queen Anne's lace (*Daucus carota*), Canadian thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), orchard grass (*Dactylis glomerata*), annual ryegrass (*Lolium multiflorum*), spatulaleaf loosestrife (*Lythrum portula*) and pennyroyal (*Mentha pulegium*). This list is subject to change by review of MBRT with one season of warning.

General Monitoring Protocol

In order to assess if performance standards described above are successfully met and to identify areas needing additional attention or change in management strategy, a monitoring program has been instituted. Hydrology and vegetation conditions will be assessed through annual monitoring of each

parameter, which will occur on a yearly basis for the first five consecutive years following the completion of initial planting as described in Appendix C: Instrument, Section 3.5. Additional monitoring efforts may be implemented at any time in order to target problem areas or revise management techniques. An annual report will document monitoring efforts.

Vegetation Monitoring

Vegetation monitoring will occur in each habitat present at the site: wet prairie, emergent wetland, and forested wetland. Botanists will employ monitoring methodology similar to that described in John Marshall's 2004 Draft Guidance for Vegetation Monitoring in Western Oregon Wetlands and Riparian Areas: Using Reference Sites to Help Plan and Evaluate Vegetation Performance of Mitigation Sites. The basis of this methodology uses carefully selected reference sites to create benchmarks for restoration performance. Monitoring efforts will serve to compare the targeted vegetation performance of to the actual vegetation performance of our site.

Vegetation monitoring will be conducted in June of each monitoring year. Timing of monitoring efforts will be scheduled in order to consistently capture vegetation in a similar phenological stage from year to year. Additional monitoring of some or all of the vegetation transects may be implemented as deemed necessary at other times of the year, in order to acquire information to guide new management strategies or to target problem areas.

The monitoring protocol uses stratified systematic plot method with a series of baselines, each with transects running perpendicular from the baseline across each sampling area. Baselines are established in each habitat type and section of the bank site, with enough baselines to encompass the entire area of the site. Care has been taken to ensure that a baseline runs along each habitat type that will be created on site, with a total of six baselines established. Baseline locations are shown in Figure 10 of the Instrument. The stratified sampling method may be altered based on actual conditions in order to capture both emergent and wet prairie wetland types. This is to ensure an adequate number of plots to obtain diversity data to measure wetland performance. Alterations from the monitoring methodology will only occur if a random stratified sampling method does not yield enough data for one of the habitat types. Baseline transect locations can also be added to target emergent wetland habitat or wet prairie habitat.

Permanent transects will be established along each baseline. The number and design of transects established will vary per habitat type. For **wetgrass prairie** and **emergent wetlands**, transect lines will be placed 250' apart along the baseline with 10 1m² sample plots per transect. A total of 12 transect lines are anticipated for these two habitats, with a total of 120 survey plots. The location of the first sample plot along the transect line will be randomly placed, and then the remaining sample positions will follow at 30 m apart along the right side of the transect line. For **forested wetlands**, there will be one circular plot measuring 10 m diameter on each transect line. There will be one to two transect lines per forest baseline, depending on the size of the forested areas, spaced 30 m apart. There will be approximately 5 forested wetland plots on site.

For all types of survey plots, all species will be listed along with percent cover and nativity designation. For forested wetland plots, surveyors will also count the number of stems at ground level for each tree species recorded in the plot, in order to calculate percent survival. Data sheets to be used will be from the Draft Vegetation Monitoring document (Marshall, 2004). Please see Appendix 9 for a sample data form.

Reference Site – Reference sites will be monitored once initially to establish baseline conditions at the sites and subsequently thereafter as deemed necessary by MBRT and Bank sponsors. The primary reason for selecting and monitoring reference sites is to determine whether problems occurring within the Bank are a result of management strategy or indicative of a larger event within the watershed.

Reference sites have been selected for each of the proposed habitat types at the Bank, wetgrass prairie, emergent wetland, and forested wetland. Locations for reference sites were chosen based on meeting the following criteria:

1. Located in the same watershed as the Bank,
2. Relatively undisturbed status; and,
3. Similar or identical hydrogeomorphic and soil conditions of the Bank.

Preferred reference sites were those in close proximity to the Bank.

Wetgrass prairie reference site

A section of the Research Natural Area (RNA) at Finley National Wildlife Refuge was selected as the reference site for the wetgrass prairie habitat types at the Bank. The specific location is the southeast $\frac{1}{4}$ of section 28, township 13 south, range 5 west, Willamette meridian (44 ° 24.5' N, 123 ° 18' W). The site chosen was utilized in a comprehensive inventory of native prairie vegetation in 1972, and already has permanent transects established by William Moir and Peter Mika. This site was chosen due to its close proximity to the Bank, its undisturbed nature, and high biodiversity of wetgrass prairie species. The existing data and research available for the site is extensive, and provides a comprehensive database and species list. The size of the selected reference site at approximately 61 acres is comparable to the proposed 62.75 acres of wetgrass prairie to be created and enhanced at the Bank. Both the RNA at Finley and the Bank are also situated similarly to the east of Muddy Creek, and are affected likewise by hydrologic fluctuations within the watershed.

Emergent wetland reference site

Also within the Finley National Wildlife Refuge, a reference site was chosen to provide baseline data for the emergent wetland habitats at the Bank. The reference site is in the McFadden Marsh area of the Finley Refuge. The site was chosen due to its location adjacent to the wetgrass prairie habitat, its proximity to the Bank site, the successful nature of the ongoing restoration projects in and around the refuge's emergent wetland habitats.

Forested wetland reference site

A six reference sites for the Oregon ash (*Fraxinus latifolia*) forested wetland community are established on the property directly adjacent to the Bank, also under the ownership of the sponsors. Sites were chosen for their close proximity to the Bank, relatively undisturbed nature and similarity in sources of hydrology and soil composition. Transects have been established and baseline data collected at these sites will help determine planting densities for the forested wetland to be created and enhanced at the Bank.

Hydrology Monitoring-

Groundwater saturation will be assessed annually during the growing season using the network of established saturation monitoring wells placed throughout the Bank and described in section 4.1, hydrology standard (figure 11, exhibit C).

Within three years after final construction, another wetland delineation will be performed. The delineation will take place during the growing season, in a year with precipitation within 85% of normal monthly average. The delineation will focus on the graded areas to assess saturation conditions of the former upland areas and document that this created wetland habitat meets the 1987 Manual standards.

Photographic Documentation

Permanent photo points will be established around the bank site to depict representative habitats and conditions. Photo points will be selected after the construction phase is complete and will be noted on the As-Built Survey Document. These photo points are strategically located in each habitat type and include views of monitoring transects and other areas of special interest.

Contingency Plan

A contingency plan provides strategies for dealing with performance shortfalls and potential deficiencies or disasters that may afflict the bank during both the construction phase and throughout the existence of the bank. Any existing shortfalls in performance criteria may be identified through the monitoring process, while additional project deficiencies may be encountered through regular management and maintenance activities. Some of the circumstances for which the bank sponsors are prepared include natural disasters, a particularly dry year during vegetation establishment, temporary inability to meet performance standards, and difficulty to convert the upland areas of the bank to wetlands. Additional circumstances could include vandalism, (i.e. off-road vehicles destroying berms) and weed infestations. In response to these and other potential circumstances, the bank sponsors will invoke contingency plans to intervene in any disruption that would alter the physical site plan and/or native vegetation targets. The Bank sponsors have sufficient monetary resources to finance any action(s) deemed necessary to correct contingency circumstances.

The management strategy of the bank is adaptive, providing the bank sponsors to implement corrective actions, as needed depending on the particular problem facing the bank at a given time. Corrective actions to be taken may require approval by appropriate agencies and might include additional grading, replanting or reseeding, additional removal of invasive species, or the alteration of site hydrology.

F. Schedule of Credit Release: Upon submittal of all appropriate documentation by the Sponsor, and subsequent approval by the MBRT, the MBRT co-chair's will provide in writing the release of credits for use by the Sponsor or for transfer to a third party in accordance with the following schedule (see *Exhibit C: Instrument, Table 6* for details):

Phase 1

Release 1 (Summer 2007, Year 1): 30% (15% upon signing of instrument by the Corps and DSL and initiation of weed control (as described in Exhibit C, Final Instrument, Section 3.5) and an additional 15% upon completion of grading, (as described in Exhibit C, Section 3.2) Credit release would be based on Phase 1 enhancement wetland credits.

Release 2 (October 2008, Year 2): Up to 50% based upon the completion of planting (as described in Exhibit C, Section 3.5) and one complete growing season after planting following Section V. E (2). (Credit release would be based on Phase 1 enhancement wetland credits.

Release 3 (March 2009, Year 3): Up to 75% upon establishment of saturation standards as outlined in performance standards in Section V. E (1). Credit release would be based on total achieved wetland credits from Phase 1.

Release 4 (March 2010, Year 4): Up to 90% upon demonstration of plant establishment, desired diversity, prevalence of wetland species and maximum tolerance of non-native species and meeting the 1987 Wetland Delineation Manual hydrology as outlined in performance standards in Section V. E. 3. (Credit release would be based on total achieved wetland credits from Phase 1).

Release 5 (2014, Year 8, or later) 100% credit release with the establishment of a long term endowment.

Phase 2

Release 1 (Summer 2007, Year 1): 15% upon initial weed control (described in Exhibit C, Section 3.5). Credit release would be based on Phase 2 enhancement wetland credits only.

Release 2 (Summer 2010, Year 4): 30% upon completion of grading, submission of a copy of the Line of Credit ((DSL requirement only) the Corps may release credits once remaining standards are met)), Restrictive Covenant and MBRT conducts a field inspection. Credit release would be based on Phase 2 enhancement wetland credits achieved.

Release 3 (October 2011, Year 5): Up to 50% based upon the completion of planting and one complete growing season after planting following Section V. E (2). Credit release would be based on Phase 2 enhancement wetland credits.

Release 4 (March 2012, Year 6): Up to 75% upon establishment of saturation standards as outlined in performance standards in Section V. E (1). Credit release would be based on total achieved wetland credits from Phase 2.

Release 5 (March 2013, Year 7): Up to 90% upon demonstration of plant establishment, desired diversity, prevalence of wetland species and maximum tolerance of non-native species and meeting the 1987 Wetland Delineation Manual hydrology as outlined in performance standards in Section V. E. 3. Credit release would be based on total achieved wetland credits from Phase 2.

Release 6 (2014, Year 8, or later) 100% credit release with the establishment of a long-term endowment.

Phase 3

In the event that the Bank enters the remaining 26.8 acres into Phase 3 of the mitigation bank, the Bank sponsors will negotiate with MBRT credit ratios and an appropriate credit release schedule.

G. Conditions on Sales of Credits: Any credits sold before achieving the performance standards (e.g. the 30% advance release of Credits), shall require conformance with the financial assurance requirements described in Section IV.D. by DSL and compliance with the Corps permit. Aside from the advance release of credits, if the number of credits debited exceeds the number created, then no further credit sales shall be permitted by the Corps and DSL until the Sponsor has implemented corrective actions and achieved the performance standards so as to provide for the number of credits to be greater than or equal to the number of credits debited to cover permitted impacts with this Bank.

The Corps will use its enforcement authority over the permit issued to the Sponsors as necessary to assure success of the Bank. The Corps will not require additional financial assurance from the Sponsors. The Corps will not base the release of credits on the presence/absence of financial assurances in the Line of Credit. The Corps may release credits in advance of DSL if all other performance measures have been met.

H. Provisions For Uses of the Mitigation Bank Area: The Sponsor shall not use or authorize the use of areas within the Bank for any purpose that interferes with its conservation purposes other than those specified below:

- a) Monitoring of vegetation, soils and water;
- b) Maintenance of wetlands, trails, bridges, berms, dams, outlet and spillway structures, and other appurtenant facilities;
- c) Hunting and fishing and other recreational uses such as hiking and bird watching;
- d) Ecological education; and
- e) Compliance with state or federal regulations or appropriate court orders.

VI. MAINTENANCE AND MONITORING OF THE BANK

A. Maintenance Provisions: The Sponsor agrees to perform all necessary work to maintain the Bank consistent with the maintenance criteria established in the Instrument. The Sponsor shall continue with such maintenance activities until completion of the monitoring period described in Section VI.B. Deviation from the approved Instrument is subject to review and written approval by MBRT.

B. Monitoring Provisions: The Sponsor agrees to perform all necessary work to monitor the Bank to demonstrate compliance with the performance standards established in this MOA. The monitoring program shall follow the guidelines established below:

1. Photos will be taken throughout the spring at the designated photo stations to verify that the hydrology will be adequate to assure success of this plan. An initial vegetation survival survey will be completed in the spring either in May or June, following planting and again the following October to document planting success and to initiate any remedial action that might be required to meet the applicable performance standards.

2. Reference sites will be monitored once initially to establish baseline conditions at the sites and subsequently thereafter as deemed necessary by MBRT and Bank sponsors, with the exception of the wetgrass prairie reference site, where a wealth of usable data has already been recorded under the Research Natural Area designation. The sample size and data collection of the reference site at the Finley RNA will follow protocol established in the Moir and Mika 1972 survey. The primary reason for monitoring reference sites is to determine whether problems occurring within the Bank are a result of management strategy or indicative of a larger event within the watershed.

3. Annual reports for the Bank will be filed with the DSL and the Corps each November, for five years after the last credit is sold. These reports will specifically address progress towards the performance standards and any remedial action taken to correct deficiencies that might have occurred in meeting the standards. A detailed narrative summarizing the condition of the Bank and all regular

maintenance activities will be included in the reports. Particular attention will be given to monitoring the status of the wetland species (FAC, FACW, and OBL) to insure that they are becoming stable at the levels necessary to meet the hydrophytic vegetation criteria of the 1987 Wetland Delineation Manual. Yearly photographs will be taken from established photo points providing representative perspectives of the mitigation area. These photo points will be set, surveyed, and shown on the as built survey. Photos from each photo point will be included in each annual report. A summary of credits sold by the bank will be included in the monitoring reports.

4. The Bank's annual review by the MBRT will be conducted each spring, beginning in 2007 (Year 1). This will allow time for the annual monitoring report (due each November) to be prepared and disseminated prior to the MBRT meeting. Any remediation measures that might become necessary will be reviewed with the MBRT as they become necessary and will be summarized at the annual review meeting.

C. Accounting Procedure: The Sponsor shall submit a statement (copy of the receipt) to the Corps and DSL each time credits are sold. If requested, the Corps and/or DSL will distribute the statement to other members of the MBRT. In addition, the Sponsor shall submit an annual ledger to the Corps and DSL for distribution to all members of the MBRT, showing all transactions at the Bank for the previous reporting period and a cumulative tabulation of all transactions to date. At a minimum, each ledger must include the following information: project and permittee name, Corps and DSL permit number, type of permit (IP, NWP, GA), locality, amount of impacts, amount of credits and type of habitat sold from the Bank, and the date of transaction. The MBRT will review the annual report to assure no net loss of wetlands acreage. Annual ledgers and transaction reports shall be submitted to the MBRT as long as credits remain in the Bank and the Bank remains operational.

D. Contingency Plans/Remedial Actions: In the event the Bank or a specific phase of the Bank fails to achieve the performance standards specified in Part V, Section E of this MOA, the Sponsor shall develop necessary contingency plans and implement appropriate remedial actions for the Bank or that phase of the bank in coordination with the MBRT. In the event the Sponsor fails to implement necessary remedial actions within one growing season after notification by the Corps and/or DSL of necessary remedial action to address any failure in meeting the performance standards, the MBRT will notify the Sponsor and the appropriate authorizing agency(ies) and recommend appropriate remedial actions including suspension/revocation of available mitigation credits.

If DSL and/or the Corps determine that the Bank is operating at a deficit, they will notify the Sponsors in writing that credit sales shall immediately cease, and that remediation is necessary. The MBRT will consult with Sponsors to develop appropriate remedial actions to resolve the deficit. If the approved remedial actions result in failure of site conditions to improve, or continued deterioration in the growing season following this notification, the MBRT will continue to participate in adaptive management and seek resolution in consultation with the Sponsors. If DSL and/or the Corps determine that conditions at the Bank have failed to improve or continue to deteriorate due to the sponsors becoming unwilling or unable to implement the remedial actions, either agency may employ its usual methods to enforce compliance with their respective permit. Either agency may also request that

whatever amount of the financial assurance deemed necessary be transferred to a party acceptable to these agencies to undertake corrective actions.

If a situation develops in which the land where the Bank is sited fails to meet wetland criteria despite remedial efforts, and there is still a deficit of wetlands achieved relative to the number of credits already sold, the agencies retain all existing rights to seek any additional value related to the land thereafter released from bank obligations, so that this value can be applied toward land costs at a new mitigation site. This land value element may be sought separately from or jointly with the financial assurance or other compliance tools.

At the written request of the Sponsor, the MBRT will perform a compliance inspection to determine whether all performance standards have been satisfied.

E. Default: Should the MBRT determine that the Sponsor is in material default of any provision of this MOA, the MBRT may notify the Sponsor that the sale or transfer of any credits will be suspended until the appropriate deficiencies have been remedied. Upon notice of such suspension, the Sponsor agrees to immediately cease all sales or transfers of mitigation credits until the Corps and DSL inform the Sponsor that sales or transfers may be resumed. Should the Sponsor remain in default, the MBRT, acting through the Corps and DSL, may terminate the MOA and any subsequent Bank operations. Upon termination, the Sponsor agrees to perform and fulfill all obligations under this Agreement relating to credits that were sold or transferred prior to termination.

F. Bank Closure: At the end of the monitoring period, upon satisfaction of the performance standards, the Corps and DSL shall issue a written certification of satisfaction to the Sponsor and the financial security holder, and thereafter any remaining financial assurances will be released to the Sponsor. The Sponsor may be allowed to utilize that portion of the Bank lands that have not had compensation credits debited from it (i.e. Restoration, Creation, Enhancement, or Preservation lands) provided the utilization does not adversely impact the areas from which compensatory mitigation credit has been debited. Upon bank closure, the Long-Term Management Fund shall be conveyed to the Steward of the Bank lands.

G. Long-Term Ownership and Preservation: At the end of the active monitoring period, the Sponsor shall transfer Long-Term Management Fund (*Section IV, E*) and the title to the designated Steward of the Bank land. At that time, the Steward shall be responsible for managing the Bank in perpetuity in accordance with the terms of a long-term management plan and real estate provisions, including the terms of the recorded restrictive covenant, which is provided in Exhibit F. If the appointed Steward declines to accept title of the Bank and the associated Long-Term Management Fund, the Sponsor shall then transfer title of the Bank and the associated Long-Term Management Fund to a public resource agency or non-profit agency engaged in conservation activities, subject to written approval of the receiving entity by the MBRT. If no public resource agency or non profit agency engaged in conservation activities is willing to accept title to and responsibility for the Bank lands, then the Sponsor will be the Long-Term Steward until another party acceptable to the MBRT agrees to accept title to and management responsibility for the Bank land.

VII. RESPONSIBILITIES OF THE MITIGATION BANK REVIEW TEAM

- A. The agencies represented on the MBRT agree to provide appropriate oversight in carrying out provisions of this MOA.
- B. The agencies represented on the MBRT agree to review and provide comments on all project plans, annual monitoring reports, credit review reports, contingency plans, and necessary permits for the Bank. Comments, if any, on the final construction documents for each phase as described in Exhibit C, monitoring reports, credit review reports, contingency plans, and permits for Bank construction and operation will be reviewed in a timely manner from the date of submittal.
- C. The agencies represented on the MBRT agree to review and confirm reports on evaluation of performance standards prior to approving credits within each phase of the Bank.
- D. The agencies represented on the MBRT shall conduct compliance inspections, as necessary to verify credits available at the Bank, annual inspections, and recommend corrective measures (if any) to the Sponsor, until the terms and conditions of the Instrument have been determined to be fully satisfied or until all credits have been sold, whichever is later.

VIII. OTHER PROVISIONS

- A. Force Majeure: The Sponsor will not be responsible for Bank failure that is attributed to natural catastrophes such as flood, drought, disease, regional pest infestation, etc., that the MBRT, determines is beyond the reasonable control of the Sponsor to prevent or mitigate.
- B. Dispute Resolution: Resolution of disputes about application of this MOA shall be in accordance with those stated in the Federal Guidance for the Establishment, Use and Operation of Mitigation Banks (60 F.R. 58605 et seq., November 28, 1995). Disputes related to satisfaction of performance standards may be subject to independent review from government agencies or academia that are not part of the MBRT. The MBRT will evaluate this input and determine whether the success criteria are met. Appeals of any DSL decisions shall be processed according to OAR 141-85-0075.
- C. Validity, Modification, and Termination of the MOA: This MOA will become valid on the latter date of either the Sponsor's signature or the signature of the representative of the Corps or DSL. This MOA may only be amended or modified with the written approval of all signatory parties. Any of the MBRT members may terminate their participation upon written notification to all signatory parties without invalidating this MOA. Participation of the MBRT member seeking termination will end 30 days after written notification.
- D. Specific Language of MOA Shall Be Controlling: To the extent that specific language in this document changes, modifies, or deletes terms and conditions contained in those documents that are incorporated into the MOA by reference, and that are not legally binding, the specific language within the MOA shall be controlling.
- E. Notice: Any notice required or permitted hereunder shall be deemed to have been given either (i) when delivered by hand, or (ii) three (3) days following the date deposited in the United States mail,

postage prepaid, by registered or certified mail, return receipt requested, or (iii) sent by Federal Express or similar next day nationwide delivery system, addressed as follows (or addressed in such other manner as the party being notified shall have requested by written notice to the other party):

Chris Kiilgaard
3558 NW Polk St
Corvallis, Oregon 97330

U.S. Army Corps of Engineers
CENWP-OD-G- Policy Specialist
P.O. Box 2946
Portland Oregon 97208-2946

Oregon Department of State Lands
775 Summer Street NE, Suite 100
Salem, Oregon 97301-1279

F. Entire MOA: This MOA constitutes the entire agreement between the parties concerning the subject matter hereof and supersedes all prior agreements or undertakings.

G. Modification: This MOA may not be modified except by the written agreement of the DSL, Corps and Bank sponsors. In the event the Sponsor determines that modifications must be made in the Instrument to ensure successful establishment of habitat within the Bank, the Sponsor shall submit a written request for such modification to the MBRT, for approval. The MBRT agrees to not unreasonably withhold or delay such approval. Documentation of implemented modifications shall be made consistent with this MOA.

H. Invalid Provisions: In the event any one or more of the provisions contained in this MOA are held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions hereof, and this MOA shall be construed as if such invalid, illegal or unenforceable provision had not been contained herein.

I. Headings and Captions: Any paragraph heading or captions contained in this MOA shall be for convenience of reference only and shall not affect the construction or interpretation of any provisions of this MOA.

J. Counterparts: This MOA may be executed by the parties in any combination, in one or more counterparts, all of which together shall constitute but one and the same instrument.

K. Binding: This MOA shall be immediately, automatically, and irrevocably binding upon the Sponsor and its heirs, successors, assigns and legal representatives upon execution by the Sponsor, the Corps, and DSL even though it may not, at that time or in the future, be executed by the other potential parties to this MOA. The execution of this MOA by EPA, ODFW, or the USFWS, or other agency, city or county shall cause the executing agency to become a party to this MOA upon execution, even though all or any of the other potential parties have not signed the MOA. Execution does not signify the agencies'

agreement with the use of Credits in the Muddy Creek Wetland Mitigation Bank in connection with any specific permit or project.

L. Liability of Regulatory Agencies: The responsibility for financial success and risk to the investment initiated by the Sponsor rests solely with the Sponsor. The Regulatory Agencies (Agencies) that are parties to this MOA administer their regulatory programs to best protect and serve the public's interest in its wetlands and waterways, and not to guarantee the financial success of mitigation banks, specific individuals, or entities. Accordingly, there is no guarantee of profitability for any individual mitigation bank. Bank sponsors should not construe this MOA as a guarantee in any way that the Agencies will ensure sale of credits from this Bank or that the Agencies will forgo other mitigation options that may also serve the public interest. Since the Agencies do not control the number of mitigation banks proposed or the resulting market impacts upon success or failure of individual banks, in depth market studies of the potential and future demand for bank credits are the sole responsibility of the mitigation bank sponsor.

M. Grant Program Participation: According to the Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (Guidance) published in the Federal Register on November 28, 1995 by the Corps, EPA, the Natural Resource Conservation Service, USFWS, and the National Marine Fisheries Service, wetlands restored through the Conservation Reserve Program or similar programs cannot be used to generate credits from a mitigation bank. In accordance with the Guidance, Federally-funded wetland restoration projects cannot be used to generate credits within this mitigation bank.

N. Suspension of Credits: The MBRT may suspend the sale of credits if new information received by the MBRT indicates information in this MOA was falsely presented or due to a breach of this MOA.

IN WITNESS WHEREOF, the parties hereto have executed this MOA on the date herein below last written by the Co-Chairs.

Chris Kiilsgaard, Principal, MCMB

Date

Jeff Reams, Principal, MCMB

Date

MITIGATION BANK REVIEW TEAM

By the MBRT Co-Chairs:

Thomas E. O'Donovan
Colonel, Corps of Engineers
District Commander

Date

Louise Solliday, Director
Oregon Department of State Lands

Date

By the MBRT of the Muddy Creek Mitigation Bank:

Michelle Pirzadeh, Director
Office of Ecosystems, Tribal, and Public Affairs
U.S. Environmental Protection Agency, Region 10

Date

By the MBRT of the Muddy Creek Mitigation Bank:

Kemper McMaster, Director
Oregon State Office
U.S. Fish and Wildlife Service

Date

By the MBRT of the Muddy Creek Mitigation Bank:

Oregon Department of Fish and Wildlife

Date

**Muddy Creek Mitigation Bank
*Instrument***

Exhibit C

1st Submittal: October 10, 2006
2nd Submittal: December 20, 2006
3rd Submittal: February 22, 2007

Submitted to:

Mitigation Bank Review Team

Submitted by:
Muddy Creek Mitigation Bank, LLC

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1.0 INTRODUCTION

The Muddy Creek Mitigation Bank LLC; Chris Kiilsgaard and Jeffery Reams (Sponsors) are submitting this instrument to create the Muddy Creek Mitigation Bank (Bank) to the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (Corps). This instrument states the Bank's goals, demonstrates the need for an additional wetland mitigation bank in the Willamette Valley and discusses the Sponsor's commitment to restore, enhance, preserve and maintain the proposed Muddy Creek Mitigation Bank now and in the future.

The Sponsors will construct the Bank on 108 acres of degraded farmed wetland-hydric soils along Muddy Creek just south of Finley Wildlife Refuge (*Figure 1*). The Bank is located in the Hydrologic Unit 1709003 (USGS Hydrologic Unit Map for Oregon, 1974) (*Exhibit E of the MOA*), within Benton County, Oregon. The Bank is zoned as exclusive farm use (EFU) and most recently operated as a commercial grass seed farm.

The Sponsors are currently working with the Corvallis-Benton County Economic Development Partnership (EDP) and the City of Corvallis on anticipated economic growth in Benton County and how they intend to meet projected development goals. Within the urban growth boundary, approximately 64% (638 acres) of the 1,000 acres in South Corvallis are designated as wetlands. This is the largest contiguous parcel found in the Willamette Valley and is currently designated for industrial development (Mysty Rusk, President of the Economic Development Partnership, per communication). The Muddy Creek Mitigation Bank would be used to offset wetland impacts as a result of future economic growth.

The main purpose of the Muddy Creek Mitigation Bank is to provide available mitigation credits for unavoidable wetland losses due to economic growth within the 4th Field Hydrologic Unit 1709003. Our primary focus is to help provide available credits to the City of Corvallis and private developers within the city limits and urban growth boundary (UGB) for future commercial, residential and industrial real estate development. Proposed growth anticipated by the City of Corvallis and the EDP is forecasted to impact current wetlands. While it is possible that development impacts on some high quality wetlands may be avoided or minimized, it is highly unlikely that all impacts to wetlands will be avoided. To counter unavoidable wetland impacts, compensatory mitigation will be required.

The Bank will restore, enhance and protect native habitats. The site lies within 0.125 miles of the US Fish & Wildlife Finley Wildlife Refuge, the largest tract of native Willamette Valley wet prairie located in the Willamette Valley. With the close proximity to the refuge, potential exists to accommodate rare plant species such as Bradshaw's desert parsley (*Lomatium bradshawii*), Nelson's checkermallow (*Sidalcea nelsoniana*), Kincaid's lupine (*Lupinus sulphurus var. kincaidii*), Curtus' aster (*Aster curtus*) and the Willamette daisy (*Erigeron decumbens*). Creating wide buffers along Muddy Creek will create corridors for wildlife. The Bank will create new foraging areas to accommodate rare wildlife species such as the dusky Canada goose. The Bank's wetland habitats also provide forage and resting opportunity for a variety of migrating passerine and shorebirds. The restoration of degraded marginal farmland back to its historical state will yield very high wetland functional benefits within the Muddy Creek Watershed.

1.1 BANK LOCATION

The former Bar-K Ranch has been purchased and is the current proposed site of the Muddy Creek Mitigation Bank. Legal description for the Bank location is T14-R5W- Section 9, tax lot 300. The site is located west of Highway 99 bordering Muddy Creek to the west, three miles north of the city of Monroe and 13 miles south of the city of Corvallis.

1.2 SERVICE AREA

The service area is located within the Hydrologic Unit 1709003, which includes portions of Benton, Lane, Polk and Linn Counties (*Exhibit E of MOA*). Towns located within this service area include Adair Village, Corvallis, Philomath, Tangent, Albany, Monroe, Junction City, Veneta, Harrisburg, Brownsville, Eugene and Springfield.

The Muddy Creek Watershed contains similar topographic and hydrologic characteristics to the broader Mary's River Watershed and to the portion of the Middle Willamette Drainage Basin included within our service area. Although now mostly channelized, the Willamette River once meandered across the valley floor as seen in its remnant terrace deposits, slough, islands and yazoos (Hulse, et al. 1997). The main stem of the Muddy is a yazoo, a remnant of one of the Willamette's previous courses.

The service area is limited to a 600-foot elevation or lower for the proposed impact site. The service area also contains similar soils, climate and vegetation to those features of the Muddy Creek Mitigation Bank. Tributaries and mainstem channels encompassed by the service area flow through forested, agricultural and urban lands, and are influenced by both urban and rural activities. The Bank will provide wetland values to those already present in the watershed, as environmental conditions at the site are favorable for replication.

Muddy Creek and the Muddy Creek Watershed, in which the Bank is located, is a current management priority for multiple land use agencies and organizations. The Greenbelt Land Trust has designated the Muddy Creek as a conservation corridor and a priority for preservation activities. The Bank's location on the Muddy Creek channel 0.125 miles south of Finley Wildlife Refuge allows us the opportunity to contribute to the multi-agency effort to protect and enhance this riparian corridor. Bank sponsors are committed to working with agencies and conservation groups to accomplish conservation goals set out for the Muddy Creek watershed.

1.3 NEEDS ANALYSIS

The EDP and the City of Corvallis have expressed a tremendous desire to create a bank within their service area to mitigate the anticipated loss of wetlands due to development. (Approximately 1,000 acres in South Corvallis are designated for industrial development of which 638 acres are estimated to be wetlands.) The city-owned airport is located within the proposed industrial development. Because FAA regulations prohibit on-site mitigation within 10,000 feet of any airport due to conflicts with waterfowl, it will be virtually impossible to mitigate wetland loss on site for the airport. South Corvallis is the largest contiguous parcel available for industrial development and there are no viable alternative locations for major

industrial sites within the Corvallis UGB. Since the City of Corvallis and private developers anticipate development of South Corvallis as it is currently designated, there is an enormous need for the Muddy Creek Mitigation Bank.

2.0 EXISTING AND PROPOSED CONDITIONS

2.1 EXISTING CONDITIONS AND SITE PLAN

2.1.1 Ecological Baseline Details

Vegetation

There is a three-acre inclusion of wetland forest on the northern boundary of the Bank. The overstory of this forest is entirely Oregon ash (*Table 1*). Shrubby understory within this habitat is composed of Indian plum (*Omeleria cerasiformis*), trailing blackberry (*Rubus ursinus*), Himalayan blackberry (*R. discolor*) and Nootka rose (*Rosa nutkana*).

Table 1. Baseline Existing Vegetation

Scientific Name	Common Name	Nativity
Alisma plantago-aquatica	American water plaintain	native
Alopecurus pratensis	meadow foxtail	non-native
Alopecurus geniculatis	Water foxtail	native
Amaranthus retroflexus	amaranth	non-native
Avena fatua	wild oats	non-native
Bechmania syzignache	American slough grass	native
Carex obnupta	slough sedge	native
Craetagus douglasii	Hawthorne	native
Downingia yini	downingia	native
Fraxinus latifolia	Oregon ash	native
Geranium molle	dovetail	non-native
Glyceria occidentalis	western manna grass	native
Gnaphalium palustre	lowland cudweed	native
Juncus bufonius	toad rush	native
Lolium multiflorum	annual ryegrass	non-native
Malva sylvestris	common mallow	non-native
Myosotis scirpoides	forget me not	non-native
Navarretia squarrosa	skunkweed	native
Omeleria cerasiformis	Indian plum	native
Phalaris arundinacea	reed canary grass	non-native
Polygonum persicaria	spotted ladysthumb	probably native
Rosa nutkana	nootka rose	native
Rorippa curvisiliqua	yellow watercress	native
Rubus discolor	Himalayan blackberry	Non-native
Rubus ursinus	Trailing blackberry	native
Rumex crispus	curly dock	non-native
Solanum dulcamara	nightshade	non-native
Sonchus asper	annual sowthistle	non-native
Taraxacum officinale	dandelion	non-native

Veronica peregrina	Purslane speedwell	native
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The Bank is in its last year of farming (current lease expires September 2006) with the dominant vegetation being annual rye grass. This crop has been harvested and vegetation management (see Section 3.5 for details) will begin in the fall of 2006. While the dominant vegetation is annual rye grass, native wetland species exist in the low-lying depressional pool wetlands within the swales. Reconnaissance in the spring of 2006 showed these pools to contain native wetland prairie species, including American slough grass (*Beckmannia syzigachne*), water foxtail (*Alopecurus geniculatus*), cudweed (*Gnaphalium palustre*), yellowcress (*Rorippa curvisiliqua*) and western manna grass (*Glyceria occidentalis*).

Soils

According to the Benton County Soil Survey (Figure 2) the site is composed of Awbrig (Dayton) silty clay loam, 0-2% slopes, Coburg silty clay loam, 0-3% slopes, and Waldo silty clay loam, 0-3% slopes. The Natural Resource Conservation Service has categorized all soils on site as class 4 and class 5; the three soil types found on the Bank site are hydric.

Table 2. Soil Type Main Characteristics

Soils	Drainage	Permeability	Runoff	Hydric
Awbrig (Dayton) silty clay loam, 0-2% slopes	Poorly drained	Very slow	Slow to very slow or ponded	Yes
Coburg silty clay loam, 0-3% slopes	Moderately well drained	Moderately slow	Slow	Yes, inclusions of Awbrig
Waldo silty clay loam, 0-3% slopes	Poorly drained	Slow	Subject to flooding	Yes

Hydrology

The Bank is a terrace floodplain to Muddy Creek and is topographically lower than surrounding land on its eastern and southern edge. The Bank is connected to its larger sub-basin through the network of swales that move overland flow to Muddy Creek. The railroad line that forms the eastern edge of the Bank intercepts several of the swales, although in each of the swales there are culverts that pass water beneath the railroad tracks. A substantial amount of water moving onto the Bank comes from a ditch in the southeast corner of the property. Water in this ditch flows north along the railroad grade, passing under the access road, and follows the access road before exiting the site through the three-acre Oregon ash wetland forest. In order of importance, the primary sources of surface water delivery to the Bank are the overland routing systems (floodplain terrace swale system and ditch), followed by precipitation.

Bank-full discharge out of Muddy Creek also moves water onto the Bank site. The majority of the area's precipitation occurs during winter and spring. The stream flow of the creek is significantly higher during this time period, receiving runoff from the upper watershed. Muddy Creek drains approximately 42% of the total area of the Mary's River basin and can account for 40% of the flow during the high-flow periods in the winter (Ecosystems Northwest, 1999).

Water quality

Drainage from the Bank flows to Muddy Creek and then to Mary's River, both of which are listed as water quality limited streams under the Clean Water Act. Muddy Creek is listed due to temperature and Mary's River due to fecal coliform, temperature and dissolved oxygen. In a 2002 Mary's River Watershed Water Quality study, Muddy Creek showed evidence of nutrient inputs from agricultural activity and effects of a possible source of bacterial contamination. A sample site at upper Muddy Creek had the highest and most frequent values for fecal coliform bacteria of all the sample sites. Parts of lower Muddy Creek had depressed dissolved oxygen levels suggesting a high organic load into the stream.

The bank site is exposed to a slight potential for elevated nutrient loads emanating from surface run-off of neighboring property onto the bank with the onset of winter precipitation. This condition should not contribute to elevating nutrient loads in Muddy Creek as the constructed retention berms will intercept overland flow and nutrient load should settle out in the wetland pools. The current agricultural use on the property allows for significant herbicide application. The proposed herbicide regime to occur on the Bank site will be significantly less frequent and intense than that which exists currently, positively influencing surface water quality issues.

It is anticipated that the Bank will have a positive effect on both the fecal coliform and the organic load parameters measured in the water quality study of Muddy Creek. The developed wetlands will trap bacteria and organic load in the wetland sediments, decreasing the amount entering the flow of Muddy Creek. Additionally, the new wetlands will create more water filtration and retention.

While it is not expected that the creation of a wet prairie will help increase the dissolved oxygen, it is not anticipated that the Bank will adversely affect this parameter.

[2.1.2 Existing Wetlands Classification](#)

Cowardin

The Bank is a lowland floodplain of Muddy Creek. The National Wetlands Inventory, Monroe 15 minute quadrangle, lists several emergent wetland classes on the bank site and palustrine forest along Muddy Creek (*Figure 3*). Cowardin classes listed include Palustrine Emergent Seasonally Flooded, Palustrine Emergent Temporarily Flooded, Palustrine Forest Seasonally Flooded, and Palustrine/Forest/Temporarily Flooded.

Wetland Delineation

Turnstone Environmental Consultants conducted an on-site wetland delineation April 20, 2006 – April 26, 2006, at the Muddy Creek Mitigation Bank. The investigation and reporting process revealed a mosaic of wetland and upland habitats present on the site, characteristic of the mosaic of wetgrass prairie plant communities common on the neighboring Finley Prairie.

During the investigations, observations of soils, vegetation and hydrology were made using the "Routine Onsite" method of the Manual (Environmental Laboratory 1987). Numerous soil profiles were examined around the site. 126 sites were selected as data points to verify changes in the three key parameters used to delineate the wetland boundaries (*Figure 4- Wetland Delineation Map*). Each of the profiles was examined for hydric soils, vegetation wetland indicator status and wetland hydrology field indicators.

The National Wetlands Inventory (NWI) map has several wetlands mapped on the property, primarily in the north and west areas of the site. Palustrine emergent seasonally flooded wetlands are mapped in the north and southwest of the site and Palustrine forested temporarily flooded wetlands are mapped along Muddy Creek in the west of the property (see *Figure 3*). These wetlands are part of a larger complex and are connected to the extensive palustrine unconsolidated bottom semi-permanently flooded wetlands to the north. The palustrine forested wetlands onsite are a part of the palustrine-forested corridor along Muddy Creek.

A total of **67.0** acres of wetlands were located within the approximately 108-acre study area. Seven wetlands exist within the study area with their boundaries separated by the access roads or adjacent property lines. These wetlands provide important functions to the Muddy Creek watershed since they retain floodwaters from the creek itself as well as filter water flowing overland from adjacent agricultural lands before it enters the creek. Historically, it is likely the wetlands closest to the creek were palustrine forested seasonally or semi-permanently flooded, and the wetlands further east were palustrine emergent temporarily flooded.

The seven wetlands identified by our study area would likely be jurisdictional by DSL. Additionally, the waters of Muddy Creek and the drainage ditches on the property may also be classified as waters of the state or U.S.

The remaining **41.0** acres of upland habitat are primarily composed of the tops of the mounds and subtle ridges that make up the undulating landscape typical of the wetgrass prairie in the Willamette Valley. It is likely that farming practices and hydrologic alteration has impacted ecological functions of these uplands.

Hydrogeomorphic Assessment of Current Conditions

An assessment of site wetland functions was evaluated in the spring of 2006 using the Hydrogeomorphic method (HGM) based on the Willamette Valley Slope/Flat wetland subclass (Adamus, 2001). Functions were assessed for the prospective wet prairie, palustrine emergent and forested wetland habitats, and for anticipated habitat condition five years after the completion of restoration.

Tables 3a, 3b and 3c summarize the condition assessments for the 10 referenced-based functions. HGM assessment work sheets for the various habitats are included in *Appendix 1*.

Table 3a. Wet Prairie Habitat HGM Conditions Assessment

Function	Wet Prairie Existing HFR ²	Wet Prairie 5-Year HFR ³	Wet Prairie Functional Gain (+) Loss (-)
Water Storage and Delay	0.30	0.50	+0.20
Sediment Stabilization & Phosphorus Retention	0.60	0.67	+0.07
Nitrogen Removal	0.52	0.55	+0.03
Primary Production	0.28	0.56	+0.28
Invertebrate Habitat Support	0.29	0.37	+0.08
Amphibian and Turtle Habitat	0.38	0.55	+0.17
Breeding Waterbird Support	0.00	0.74	+0.74
Wintering & Migrating Waterbird Support	0.39	0.90	+0.51

Songbird Habitat Support	0.43	0.46	+0.03
Support of characteristic Vegetation	0.52	0.86	+0.34

HGM assessment based on referenced assessment for Willamette Valley Slopes/Flats subclass

²Functional capacity scores standardized to highest function site of this subclass reported by DSL

³5 year HFR score derived from anticipated site response to various restoration actions

Table 3b. Emergent Wetland Habitat HGM Conditions Assessment

Function	Palustrine Emergent Existing HFR ²	Palustrine Emergent 5-Year HFR ³	Palustrine Emergent Functional Gain (+) Loss (-)
Water Storage and Delay	.45	.60	+0.15
Sediment Stabilization & Phosphorus Retention	.65	.71	+0.06
Nitrogen Removal	.52	.63	+0.11
Primary Production	.28	.49	+0.21
Invertebrate Habitat Support	.31	.55	+0.24
Amphibian and Turtle Habitat	.70	.70	0.00
Breeding Waterbird Support	.00	.93	+0.93
Wintering & Migrating Waterbird Support	.75	.85	+0.10
Songbird Habitat Support	.43	.61	+0.18
Support of characteristic Vegetation	.62	.69	+0.07

¹HGM assessment based on referenced assessment for Willamette Valley Slopes/Flats subclass

²Functional capacity scores standardized to highest function site of this subclass reported by DSL

³5 year HFR score derived from anticipated site response to various restoration actions

Table 3c. Forested Wetland Habitat HGM Conditions Assessment

Function	Forested Wetland Existing HFR ²	Forested Wetland 5-Year HFR ³	Forested Wetland Functional Gain (+) Loss (-)
<i>Water Storage and Delay</i>	.50	.75	+0.25
Sediment Stabilization & Phosphorus Retention	.73	.91	+0.18
Nitrogen Removal	.73	.86	+0.13
Primary Production	.40	.70	+0.30
Invertebrate Habitat Support	.43	.51	+0.08
Amphibian and Turtle Habitat	.62	.65	+0.03
Breeding Waterbird Support	.00	.90	+0.90
Wintering & Migrating Waterbird Support	.70	.70	0.00
Songbird Habitat Support	.47	.50	+0.03
Support of characteristic Vegetation	.58	.92	+0.34

¹HGM assessment based on referenced assessment for Willamette Valley Slopes/Flats subclass

²Functional capacity scores standardized to highest function site of this subclass reported by DSL

³5 year HFR score derived from anticipated site response to various restoration actions

2.1.3 Former or Current Uses

105 acres of the Bank are currently operating as a commercial grass seed farm and planted in annual rye grass. Aerial photography dating back to 1936 shows that the Bank site had been previously cleared for agricultural purposes and has changed very little in the intervening years. The previous landowner told the bank sponsors that the site had also been used as a cattle operation after World War II and then converted back to farming. Annual crops have been the primary source of agriculture grown. Perennial crops have occasionally been planted but created small yields. Based on topographic details, historical data and knowledge of surrounding habitat, it is likely that this site originally contained mesic wet prairie habitats with palustrine forests in the lowlands interspersed with emergent wetlands dominated by native grasses. These native habitats are consistent with what is found in the Finley Wildlife Refuge and the Muddy Creek Watershed.

The remaining three acres of the bank are currently a degraded forested wetland.

Land use in the vicinity of the Mitigation Bank site includes agriculture, forestland, rural farm residences, national wildlife refuge, private duck clubs and transportation corridors. A significant waterway located adjacent to the Bank is Muddy Creek. Other waterways near the Bank include the Long Tom River and Willamette River.

2.2 PROPOSED CONDITIONS SITE PLAN

Restoration effort at the Bank is directed by the overarching ecological goal of enhancing a commercial grass seed farm surrounded by agricultural ditches and introduced vegetation to the re-establishment of native wet prairie habitats on 108 acres of degraded agricultural hydric soil lands (*Exhibit B*). Both hydrology and vegetation will be manipulated in order to increase the hydroperiod and to establish native vegetation-dominant wet prairie.

When complete, the Bank will feature a 101-acre mosaic of shallow-water palustrine emergent and wet prairie grassland habitats. Extending the hydroperiod necessary to develop these habitats will be accomplished by constructing low-profile berms across existing swales to contain seasonal high water table and winter overland flow. Additional water will be redirected toward topographic lows on the site by blocking drainage ditches that ring the agricultural fields.

These 101 acres would carry a Cowardin Classification of Palustrine Emergent (PEMC) freshwater wetland. This acreage would have a Hydrogeomorphic (HGM) Classification of Slope/Flat.

The remaining seven acres of the Bank will be developed into palustrine-forested wetlands (four planted, three enhanced). The four-acre planted section is intended to increase the width of the riparian forest buffer to Muddy Creek. The three-acre enhanced area is currently composed of mature Oregon ash trees as overstory so management actions will involve replacing the

herbaceous layer (mostly introduced grasses and reed canary grass) with plantings of slough sedge.

This palustrine-forested wetland type would carry a Cowardin Classification of Palustrine Forested Temporarily Flooded (PFOA) and an HGM Classification of Slope/ Flat.

2.2.1 Anticipated Wetland Classification

Habitat enhancement at the Bank will center on the establishment of three wetland types: wet prairie, palustrine emergent and forested wetland. Our goal with the habitat enhancement/vegetation effort would be to create native vegetation-dominant plant communities that would become self-sustaining in the coming years.

Objectives for increasing the Bank's native vegetation would include:

1. Seasonal herbicide spray (early spring, mid-summer, and fall applications) with non-selective glyphosphate spray for 1-2 years prior to planting native species.
2. Focus the initial vegetation plantings on the native grass component matrix, tufted hair grass, water foxtail, meadow barley, and American slough grass to establish a base that can compete with introduced species.
3. Continue control of introduced grass species by selective hand weeding and control of introduced herbaceous species by selective triclopyr herbicide application.
4. Complement the native grass component in the 3rd year of the restoration (or when we are satisfied with native grass condition) with native wet prairie and emergent wetland forbs. These seeds will be either drilled as seed with a no-till drill, or plantings with bulbs and plugs.
5. Establish management actions, (controlled burns and mowing), and continue herbicide program to promote native vegetation dominance throughout the Bank.
6. Enhance existing seasonally saturated palustrine forest by removing understory of introduced, invasive grasses. This will be accomplished through a series of herbicide sprayings and extending saturation/standing water period to remove unwanted vegetation.

Wetland Delineation

Within three years after initial restoration and planting activities are complete, another wetland delineation will be conducted on site during the first several weeks of the growing season. The hydrologic alterations and grading activities slated to occur on site will likely significantly alter existing conditions and increase the acreage of wetlands. The bank sponsors anticipate that the 41 acres originally delineated as upland will meet wetland hydrology and vegetation criteria after restoration activities are completed.

HGM Assessment of Future Conditions and Ecological Lift

HGM-based assessment of ecological functions relevant to the restoration of the Bank site were assessed for the existing site conditions and for the anticipated increase in ecological function, or

“lift” following the completion of the restoration actions in Year 5 (2011) of monitoring (see *Section 2.1.2*).

Wet Prairie

The largest ecological lift in the wet prairie habitat will come from breeding waterbird support and wintering and migrating waterbird support. Ecological lift in these two functions would be expected; as berm construction, excavation, and grading will extend standing water well into bird breeding season, and create a mosaic of pools and grassland which is very desirable waterbird habitat. A third ecological function that noticeably increases is support of characteristic vegetation as the site shifts from a commercial grass seed farm to native vegetation-dominant wet prairie habitat.

Emergent Wetland

For emergent wetland habitat the most significant gain will come from breeding waterbird support. Like the wet prairie habitat, by creating pockets of surface water that extend into the breeding season where none existed before produces very desirable habitat for waterbirds. Substantial gains are also achieved for invertebrate habitat support and songbird habitat.

Forested Wetland

Significant gains (> 20% lift from existing to 5-yr assessment) will be achieved for; water storage and delay, primary production, breeding waterbird support, and support of characteristic vegetation.

3.0 WETLAND MITIGATION BANK DESIGN

The wetland delineation conducted for the Bank revealed a mosaic of upland and wetland habitat in the subtly undulating topography of the ryegrass fields. The delineation established that there is 67 acres that already meet wetland hydrology standards and 41 acres of upland. Restoring the Bank to wetland habitat features includes the construction of low-lying berms across swales to trap overland flow, blocking water passage within existing ditches to reroute surface flow, and grading/excavating the upland areas.

3.1 HYDROLOGY SOURCE AND SUPPORTING STRUCTURES

As discussed in Section 2.1.1, primary hydrology sources to the Bank are precipitation, overland flow through the existing swale system, and drainage ditches. Seasonal high ground water extends the length of soil saturation well into late spring, especially on the western half of the Bank. Periodic overflow out of Muddy Creek is likely to bring additional water onto the site although it should not be considered a reliable hydrology source. A final hydrologic source that could be utilized as a contingency in case of a drought during the vegetation establishment phase is through irrigation. The Bank has water rights to withdraw up to 221 acre-feet of water drawn out of Muddy Creek, (*Certificate #32612, Appendix 2*).

Surface water flows across the Bank in an east-to-west and south-to-north direction, passing under the access road through culverts in 3 locations. These culverts are undersized (largest diameter pipe is 12") so during high winter flows, such as last year, the culverts were not able to carry the flow, which led to sections of the access road washing out. Our access road must be maintained in passable condition as it the only access to Pacific Power and Light utility poles. We propose to replace the undersized pipe with larger diameter pipe. By increasing culvert pipe diameter from 12 to 24 inches surface flow can pass through, and not overtop, the access road.

3.2 PROPOSED GRADING CONCEPT AND PLAN

Construction of the Muddy Creek Mitigation Bank will enhance 108 acres of degraded farmed wetland. In order to meet 1987 Manual hydrology criteria, two types of berms are proposed; balanced cut-and-fill terrace berms, and retention berms. Terrace berms are located on the side slopes of upland mounds approximately at the break between upland and wetland soils. The tops of terrace berms are roughly level with the newly excavated mound surface and are intended to trap precipitation and overland flow off of the mounds creating broad saturation sites across the upland mound. Retention berms span low-lying swales and are created from fill material taken from upland excavation sites. Retention berms will trap overland flow through existing swale system and are expected to produce saturated soil conditions sufficient to create palustrine emergent habitat in their deeper areas grading into wet prairie on higher topography (*Figures 6, 7 & 8*).

The Bank construction map (*Figure 5*) shows locations for the construction of 10 low-lying, low profile retention berms (profile side slopes 10:1 average height of berms 12-28 inches) in order

to promote saturation zones necessary for the proposed wetland habitats. Berm material will be composed of clay and silty-clay soil. The top several inches of soil within the footprint of all berms and excavated sites will be stripped and stock piled. This soil will be placed on the berms as a top dressing to promote seedling establishment. Figure 6 shows a cross section of typical retention berm profile. Specific information for each berm and ditch plug is provided in Appendix 3.

In Phase 1 construction, 3,174 cubic yards of excavated material will be moved from 4 upland soil sites to build 4 retention berms and plug 1 drainage ditch. 848 cubic yards excavated, as footprint stripping will be placed back on retention berms as top dressing.

In Phase 2 construction, 5,698 cubic yards of excavated material will be moved from 7 upland sites to build 6 retention berms and plug 1 drainage ditch. 2,428 cubic yards excavated, as footprint stripping will be placed back on retention berms as top dressing.

In the event that a Phase 3 is initiated at the Bank, Phase 3 construction design will be reviewed and approved by MBRT prior to any grading or other site construction is to begin.

In total, 8,872 cubic yards of upland excavated material will be moved onto wetland soils to build retention berms and plug 1,423 linear feet of ditch. 3,276 cubic yards of wetland soil will be temporarily displaced during berm construction then replaced as top dressing for seedling establishment.

All construction will take place outside of the Bank's designated FEMA 100-year flood plain (*Figure 7*). Retention berms will be located and constructed such that no impounded water will cross onto neighboring properties, nor will they impede surface drainage from neighboring properties. Construction impacts will be temporary and it is the intention of the Bank sponsors that the entire site meets DSL wetland criteria within several years after Bank site construction is complete.

Upland areas will be graded into two configurations: broad shallow pools, and depression pools created from the "borrow" to construct retention berms.

Nine balanced cut-and-fill terrace berms approximately 12-18 inches high will ring designated uplands. Terrace berms will be situated and constructed such that the existing narrowly convex mound surface will be excavated/pushed laterally to form terrace berms. The upper several inches of soil are pushed off the top of the mound leaving a narrowly concave surface grading into a slightly higher berm thereby creating a broad surface that should slow surface runoff and increase saturated soil hydroperiod. Figure 8 shows a cross section through a typical terrace berm. Terminal ends of each terrace berm will grade into existing topographic contours to blend into prevailing landscape.

The excavated depression pools are strategically located on the topographic high spots within the Bank's ridge system. Fill from these locales will be used to build retention berms and to fill in existing ditches. Depression pools will be up to 20 inches deep and situated to create a mosaic of deeper water within the wet prairie habitats. Figure 9 shows a cross section profile of a typical

depression pool. It is expected that water in these pools will last into June, benefiting breeding populations of resident birds and amphibians.

In addition to surface grading, bank design will replace seven existing 12-inch diameter pipe culverts with 24-inch diameter pipe culverts.

3.3 SITE CONDITIONS AND CONSTRAINTS

1. Neighboring properties on the southwestern corner of the Bank have significant populations of reed canary grass (*Phalaris arundinacea*). Bank sponsors will try to work on a management plan with these neighboring property owners to eliminate the reed canary grass.
2. Site hydrology relies on water delivered through ditches and overland flow. Multiple years of drought could retard wetland succession.
3. Creating wetland hydrology on uplands is problematic and will require considerable monitoring to ensure the Bank is conforming to 1987 Manual criteria.

3.4 CONSTRUCTION ACCOMMODATIONS

Temporary access to the Bank for equipment contractors will be through the gravel access road off of Highway 99 onto the Bank. Temporary staging area will be at the junction of the east-west and north-south access roads. Nearing the end of construction, the staging area will be excavated to conform to the grading plan and reseeded with native grass mixture.

Surface grading work will be done with a 24-yard scraper, small bulldozer and a 2-yard pull-type scraper with a rubber tire tractor. As all construction will take place during July-September of respective phases there is very low likelihood of contamination and erosion control problems; however, consideration to impacts and pollution brought on by construction are discussed in the Bank's Removal/Fill application to DSL and the Corps.

3.5 VEGETATION PLANTING DETAILS

Along with establishing a suitable wetland hydrologic regime, a primary goal of this restoration is to create and/or increase the coverage of native vegetation in forested wetland, palustrine emergent and wet prairie habitats. The restoration will be accomplished through management actions to remove existing non-native species; plant desirable wetland vegetation as seeds, bulbs, plugs and rootstock; and water management, to preferentially select for species tolerant of seasonally saturated soil conditions. Species and seeding rates by various habitats are displayed on Table 4.

Vegetation Planting Plan and Associated Management Actions

Preparing for & Including Year 1: Fall of 2006 through 2007

1. Fall 2006 Site Preparation flail mow the 105 acres (the cultivated land) of the Bank.
2. Spring 2007 Site Preparation/Weed Control
 - a. Herbicide spray glyphosphate; application rate, 1 quart per acre for all of Phase 1 and Phase 2.
 - b. No-till drill cover crop (probably barley) on Phase 2 ground
3. Summer Site Preparation - Boom spray all of Phase 1 and Phase 2 with tricopylr herbicide to control introduced broadleaf species.
4. Fall
 - a. Initiate vegetation planting in the palustrine emergent habitat in Phase 1 with no-till seed drill native grass component (tufted hair grass, water foxtail, and western manna grass) to establish a base that can compete with introduced species.
 - b. Mow/harvest barley crop on Phase 2 ground
 - c. Post-emergent spray after native seed planting on palustrine emergent habitat
 - d. Spray upland habitat in Phase 1 and all of Phase 2 with glyphosphate herbicide

Year 2: 2008

1. Winter - Plant tree and shrub root stock for riparian forest habitat
2. Spring- Site Preparation/Weed Control- Phase 2
 - a. Herbicide spray, glyphosphate, all Phase 2 ground
 - b. No-till drill in cover crop on Phase 2 ground
3. Summer
 - a. Control introduced grass species in palustrine emergent habitat by selective hand weeding and spot spraying herbicide.
 - b. Boom spray all of Phase 1 and Phase 2 with tricopylr herbicide to control introduced broadleaf species.
4. Fall
 - a. No-till drill herbaceous seed mixture Phase 1 palustrine emergent habitat
 - b. No-till wet prairie habitat grass mixture for Phase 1
 - c. Post-emergent spray after native seed planting on wet prairie habitat
 - d. Mow/harvest barley crop on Phase 2 ground, mow Phase 1 ground

Year 3: 2009

1. Spring
 - a. Herbicide spray Phase 2
 - b. No-till drill in cover crop on Phase 2
 - c. Control introduced species on Phase 1 by selective hand weeding and spot spraying herbicide.
2. Summer
 - a. Water tree and shrub root stock planted in riparian forest habitat; 1x every two weeks
 - b. Spot spray and hand weed all planted ground

3. Fall
 - a. No-till drill herbaceous seed mixture Phase 1 wet prairie habitat
 - b. Mow/harvest barley crop on Phase 2 ground, mow Phase 1 ground
 - c. Plant enhanced buffer area with tree and root stock and plugs of slough sedge

Year 4: 2010

1. Spring
 - a. Control introduced species on all planted ground by selective hand weeding and spot spraying herbicide
 - b. Spot spray and weed around planted root stock
2. Summer
 - a. Water planted root stock
 - b. Continue spot spray-weeding program
3. Fall
 - a. Mow Phase 1 ground
 - b. No-till drill grass seed mixture for palustrine emergent and wet prairie habitats

Year 5: 2011

1. Spring- Continue control of introduced species on all ground through selective weeding and spray
2. Summer- Monitor condition of root stock; weed-water if needed
3. Fall
 - a. Mow all Phase 1 and Phase 2 ground
 - b. No-till drill herbaceous seed mixture for Phase 2 wet prairie and palustrine emergent habitats

Years 6-9: 2012-2015

1. Establish management actions to include rotational burning and mowing
2. Continue herbicide program to promote native vegetation dominance throughout the Bank.
3. Create management plan for long-term conservation steward

Table 4a. Wet Prairie Habitat
62.20 acres

Form	Latin Name	Common Name	Wetland Indicator Status	Rate: Lbs/Acre	Total Amt Lbs
Grass	<i>Deschampsia caespitosa</i>	Tufted hair grass	FACW	2.00	125.5
Grass	<i>Deschampsia elongata</i>	Slender hair grass	FACW-	0.50	31.5
Grass	<i>Hordeum brachyantherum</i>	Meadow barley	FACW	2.00	125.5
Grass	<i>Bechmania syzigachne</i>	American slough grass	OBL	4.00	251.0
Grass	<i>Agrostis exarata</i>	Spike bentgrass	FACW	0.25	15.7
Grass	<i>Alopecurus geniculatus</i>	Water foxtail	FACW+	4.00	251.0
Sedge	<i>Carex unilateralis</i>	One-sided sedge	FACW	0.25	15.7
Forb	<i>Boisduvalia densiflora</i>	Spike primrose	FACW-	0.50	31.5
Forb	<i>Lupinus polyphyllus</i>	Large-leafed lupine	FAC+	0.25	15.7
Forb	<i>Gnaphalium palustre</i>	Lowland cudweed	FAC+	0.10	6.3
Forb	<i>Plagiobothrys figuratus</i>	Popcorn flower	FACW	0.10	6.3
Forb	<i>Camassia quamash</i>	Common camas	FACW	50 bulbs /ac	3,137 bulbs

Table 4b. Emergent Wetland Habitat
38.80 acres

Form	Latin Name	Common Name	Wetland Indicator Status	Rate: Lbs/Acre	Total Amt Lbs
Grass	<i>Alopecurus geniculatus</i>	Water foxtail	FACW+	4.00	155.2
Grass	<i>Glyceria occidentalis</i>	Western mannagrass	OBL	4.00	155.2
Grass	<i>Deschampsia caespitosa</i>	Tufted hair grass	FACW	2.00	77.6
Forb	<i>Sagittaria latifolia</i>	Wapato	OBL	0.25	9.7
Forb	<i>Rorippa curvisilqua</i>	Western yellowcress	FACW+	0.10	3.9
Forb	<i>Gnaphalium palustre</i>	Lowland cudweed	FAC+	0.10	3.9
Forb	<i>Plagiobothrys figuratus</i>	Popcorn flower	FACW	0.10	3.9
Forb	<i>Myosotis laxa</i>	Forget-me-not	OBL	0.10	3.9
Forb	<i>Downingia elegans</i>	Downingia	OBL	0.10	3.9
Forb	<i>Alisima plantago-aquatica</i>	Water plantain	OBL	1.00	38.8
Forb	<i>Sparganium emersum</i>	Bur-reed	OBL	0.50	19.4
Rush	<i>Eleocharis palustris</i>	Common spike rush	OBL	0.50	19.4

Table 4c. Forested Wetland Habitat
7.0 acres (4.0 acres enhanced-planted, 3.0 acres enhanced-buffer)

Forest Wetland Habitat Enhanced/Planted	Latin Name	Common Name	Wetland Indicator Status	Planting Rate	Total Planted
Enhanced-Planted	<i>Fraxinus latifolia</i>	Oregon ash	FACW	150/acre	600
Enhanced-Planted	<i>Quercus garryana</i>	Oregon white oak	NOL	50/acre	200
Enhanced-Planted	<i>Salix lasiandra</i>	Pacific willow	FACW+	50/acre	200
Enhanced-Planted	<i>Physiocarpus capitatus</i>	Pacific ninebark	FACW-	50/acre	200
Enhanced-Planted	<i>Salix sitchensis</i>	Sitka willow	FACW	50/acre	200
Enhanced-Planted	<i>Pyrus fusca</i>	Pacific crabapple	FAC+	50/acre	200
Enhanced-Planted	<i>Spiraea douglassii</i>	Spiraea	FACW	50/acre	200
Enhanced-Planted	<i>Rosa nutkana</i>	Nootka rose	FAC	50/acre	200
Enhanced-Buffer	<i>Physiocarpus capitatus</i>	Pacific ninebark	FACW-	120/acre	360
Enhanced-Buffer	<i>Cornus stolonifera</i>	Red osier dogwood	FACW	120/acre	360
Enhanced-Buffer	<i>Carex obnupta</i>	Slough sedge	OBL	500plugs/ac	1,500

3.6 AS-BUILT DOCUMENTATION

As-built conditions will be documented following completion of the construction phase of the Bank's development. The as-built document will identify any modification to the construction plan that was presented to and approved by the Corps and DSL. The as-built report will be presented to MBRT.

4.0 BANK ECONOMICS

4.1 CREDIT AVAILABILITY

With the written approval of DSL and the Corps, mitigation credits will be available for sale to federal, state and county governments, Oregon Department of Transportation, Federal Highways, regional and local utilities along with private companies and citizens. Approval of credit sales to the above applicants will only be released at the discretion of the Corps and DSL. Credit sales may only be allowed in the context of the Corps and DSL permits decisions or to resolve violations of these laws administered by these agencies.

Credits will be available only to applicants whose properties reside in the service area up to 600 feet in elevation. Purchasing credits in areas outside the service area will require approval of permitting agencies.

Based on estimates from the Muddy Creek Mitigation Bank, LLC, 60.33 credits will be available for sale at the completion of the wetland construction project. Table 5 depicts the total acres available, types of wetland the Bank proposes to construct and the credit conversion ratios expected through the life of the Bank for both Phase 1 and Phase 2 of the project as well as Bank totals. Credits to be generated from a possible Phase 3 will be formulated through discussions with MBRT at that time.

Table 5. Pre-Project Credit Calculation for Muddy Creek Mitigation Bank

Condition	Phase	Process	Wetland Acres	Upland Acres	Forested Wetland Acres	Total Acres	Credit Conversion Ratio	Credits Available
Proposed Wetland	Phase 1 West	Enhancement	37.8	--	--		2:1	18.90
Proposed Wetland	Phase 1 West	Creation	--	9.0	--		1.5:1	6.00
Proposed Wetland	Phase 1 West	Enhancement: Plant. Forest	--	--	4.0		2:1	2.00
Proposed Wetland	Phase 1 West	Enhancement: Exist. Forest	--	--	3.0		3:1	1.00
Total Phase 1						53.8		27.90
Proposed Wetland	Phase 2 East	Enhancement	22.2				2:1	11.10
Proposed Wetland	Phase 2 East	Creation		32.0			1.5:1	21.33
Total Phase 2						54.2		32.43
TOTAL PROJECT			60.0	41.0	7.0	108.0		60.33

4.2 ITEMIZED PROJECT COSTS

The proposed total costs and justification of the bank are located in Appendix 4. The Sponsors propose to separate the Bank into two phases (justification for separation and details of Phases 1 and 2 are found in *Section 4.4: Accounting Procedures*). Projections of itemized site costs by phase and justification of these costs to construct, maintain and monitor the Muddy Creek Mitigation Bank are located in Appendix 4. Financial assurance, maintenance and monitoring, and endowment tables that detail the projected actual costs to the Bank and risk assurances to the Corps and DSL are located in Appendix 4.

4.3 DEMONSTRATION OF FINANCIAL RESOURCES

U.S. Bank and the Muddy Creek Mitigation Bank, LLC (Bank) have created a Line of Credit of \$50,000 to cover the financial assurance requirement by DSL for the initial 30% credit release for phase 1. This Line of Credit found in Appendix 7 will only be drawn upon in the event that remediation is necessary by DSL. Statements can be sent immediately at DSL's request assuring sufficient funds of the agreed upon amount. The Bank will use its existing line of credit of \$300,000 with U.S. Bank to fund site preparation, excavation, planting, maintenance and monitoring. It is projected that the Bank will be able to pay off all of its debt and be self-supporting through credit sales during its first three years of operation. This estimate is based on conservative estimates of costs and credit sales.

The Corps will use its enforcement authority over the permit issued to the Sponsors as necessary to assure success of the Bank. The Corps will not require additional financial assurance from the Sponsors. The Corps will not base the release of credits on the presence/absence of financial assurances in the Line of Credit. The Corps may release credits in advance of DSL if all other performance measures have been met.

4.4 ACCOUNTING PROCEDURES

The Sponsors propose to separate the Bank into two phases in an effort to reduce the size of the large capital outlay initially required for the project and to reduce the amount of time required before the project becomes financially self-sustaining.

Phase 1 of the Bank development includes all land west of the access road that runs north through the property (see *Figure 5*). Phase 1 totals 53.8 acres that have been delineated 44.8 acres of wetland and 9 acres of upland. Phase 2 includes the acreage on the east side of the access road and the railroad tracks are the eastern boundary. Phase 2 totals 54.2 acres that have been delineated 22.2 acres of wetland with 32.0 acres of upland.

Project tasks have already begun- herbicide and weed control is already in progress on both Phase 1 and Phase 2 acreage. Site excavation and grading is scheduled to begin in 2007 (Year 1) in Phase 1 and 2010 (Year 4) in Phase 2. (The projected start of Phase 2 is based on estimates that the Bank will sell five credits per year). Anticipated release of credits would begin during

Year 1 (2007) and continue at a predetermined pace depending on project task completion and MBRT approval. Table 6 details the anticipated schedule of successful task completion and credit release by project phase and year.

Anticipated Credit Release Schedule

Phase 1

Release 1 (Summer 2007, Year 1): 30% (15% upon acceptance of instrument from MBRT and initiation of weed control and an additional 15% upon completion of grading, and initial site preparation as described on page 17 of this Instrument, and field inspection conducted by MBRT). (Credit release would be based on enhancement Phase 1 wetland credits only, no total anticipated Phase 1 wetland credits).

Release 2 (Fall 2008, Year 2): Up to 50% based upon the completion of planting and one complete growing season after planting following Section V. E (2). (Credit release would be based on enhancement Phase 1 wetland credits only, no total anticipated Phase 1 wetland credits).

Release 3 (Spring 2009, Year 3): Up to 75% upon establishment of saturation standards as outlined in performance standards in Section V. E (1). (Credit release would be based on total anticipated wetland credits from Phase 1).

Release 4 (Spring 2010, Year 4): Up to 90% upon demonstration of plant establishment, desired diversity, prevalence of wetland species and maximum tolerance of non-native species and meeting the 1987 Wetland Delineation Manual hydrology as outlined in performance standards in Section V. E. 3. (Credit release would be based on total achieved wetland credits from Phase 1).

Release 5 (2014, Year 8, or later) 100% credit release with the establishment of a long term endowment.

Phase 2

Release 1 (Summer 2007, Year 1): 15% upon initial weed control. (Credit release would be based on enhancement Phase 2 wetland credits only, no total anticipated Phase 2 wetland credits).

Release 2 (Summer 2010, Year 4): 30% upon completion of grading and initial site preparation as described on page 17 of this Instrument, and MBRT conducts a field inspection. (Credit release would be based on enhancement Phase 2 wetland credits only, no total anticipated Phase 2 wetland credits).

Release 3 (Fall 2011, Year 5): Up to 50% based upon the completion of planting and one complete growing season after planting following Section V. E (2). (Credit release would be based on enhancement Phase 2 wetland credits only, no total anticipated Phase 2 wetland credits).

Release 4 (Spring 2012, Year 6): Up to 75% upon establishment of saturation standards as outlined in performance standards in Section V. E (1). (Credit release would be based on total anticipated wetland credits from Phase 2).

Release 5 (March 2013, Year 7): Up to 90% upon demonstration of plant establishment, desired diversity, prevalence of wetland species and maximum tolerance of non-native species and meeting the 1987 Wetland Delineation Manual hydrology as outlined in performance standards in Section V. E. 3. (Credit release would be based on total anticipated wetland credits from Phase 2).

Release 6 (2014, Year 8, or later) 100% credit release with the establishment of a long-term endowment.

Phase 3

In the event that the Bank enters the remaining 26.8 acres into Phase 3 of the mitigation bank, the Bank sponsors will negotiate with MBRT credit ratios and an appropriate credit release schedule.

[Details of Anticipated Credit Release](#)

[Phase 1 Details](#)

Year 1: 2007

Upon acceptance of the instrument by MBRT and initiation of weed control, the Sponsors recommend a credit release of 15% (3.28 credits out of 21.90 existing wetland credits) of existing Phase 1 delineated wetland credits. Upon completion of the grading, the Sponsors recommend a credit release of an additional 15% (additional 3.29 credits out of 21.90 existing wetland credits) of existing Phase 1 delineated wetland credits. Phase 1 planting will also begin in this year. Cumulative Phase 1 credit release by end of Year 1 would be 30% of the existing Phase 1 delineated wetland credits, totaling 6.57 credits released.

Year 2: 2008

Upon completion of planting and one complete growing season after planting in Year 2, the Sponsors recommend a credit release of up to an additional 20% (additional 4.38 credits out of 21.90 existing wetland credits) of existing Phase 1 delineated wetland credits. Ongoing weed control will continue in Phase 1. Annual Monitoring begins for Phase 1. Cumulative Phase 1 credit release by end of Year 2 would be up to 50% of the existing Phase 1 delineated wetland credits, totaling 10.95 credits released.

Year 3: 2009

Saturation will be determined using 25 monitoring wells (10 of which are in Phase 1 acreage). These wells will be maintained and used to document wetland hydrology along with field verification during wetland delineation. Saturation is based on three out of five years precipitation equal or greater than 85% of historic with saturation levels in upper 12 inches for a minimum of 11 days during the growing season. Once saturation has been established, the Sponsors recommend a credit release of up to an additional 9.97 credits out of 27.90 credits (27.90 credits is the total projected Phase 1 credits). The Sponsors understand that the Bank must demonstrate saturation (determined in Year 3) before any credits are released from the former upland areas. Ongoing site maintenance, weeding, planting and annual monitoring in Phase 1 will continue. Cumulative Phase 1 credit release by end of Year 3 would be up to 75% of the total Phase 1 credits, totaling 20.92 credits released.

Year 4: 2010

At the discretion of DSL and the Corps and upon fulfillment all required performance standards, the Sponsors recommend a credit release of up to an additional 15% (additional 4.19 credits out of 27.90 total credits for Phase 1). Ongoing site maintenance, weeding, planting and annual monitoring in Phase 1 will continue. Cumulative Phase 1 credit release by end of Year 4 would be 90% of the total Phase 1 credits, totaling 25.11 credits released.

After Year 4: 2011 and future

The remaining 10% (2.79 credits) will be held by the MBRT until a long-term steward is established.

Phase 2 Details

Year 1: 2007

Upon acceptance of the instrument by MBRT and initiation of weed control, the Sponsors recommend a credit release of 15% (1.66 credits out of 11.1 existing wetland credits) of existing Phase 2 delineated wetland credits. Cumulative Phase 2 credit release by end of Year 1 would be 15% of the existing Phase 2 delineated wetland credits, totaling 1.66 credits released.

Cumulative credit release by end of Year 1 for both phases of the Bank would be 13.6% of the total projected Bank credits (60.33 total project credits), totaling 8.23 credits released.

Year 2: 2008

Ongoing weed control will continue in Phase 2. Annual Monitoring begins for Phase 2. Cumulative Phase 2 credit release by end of Year 2 would be 15% of the existing Phase 2 delineated wetland credits, totaling 1.66 credits released.

Cumulative credit release by end of Year 2 for both phases of the Bank would be 20.9% of the total projected Bank credits (60.33 total project credits), totaling 12.61 credits released.

Year 3: 2009

Ongoing weed control and annual monitoring will continue in Phase 2. Cumulative Phase 2 credit release by end of Year 3 would be 15% of the existing Phase 2 delineated wetland credits, totaling 1.66 credits released.

Cumulative credit release by end of Year 3 for both phases of the Bank would be 37.4% of the total projected Bank credits (60.33 total project credits), totaling 22.58 credits released.

Year 4: 2010

Upon completion of the grading, the Sponsors recommend a credit release of an additional 15% (additional 1.67 credits out of 11.1 existing wetland credits) of existing Phase 2 delineated wetland credits. Phase 2 planting will also begin in this year. Ongoing weed control and annual monitoring will continue in Phase 2. Cumulative Phase 2 credit release by end of Year 4 would be 30% of the existing Phase 2 delineated wetland credits, totaling 3.33 credits released.

Cumulative credit release by end of Year 4 for both phases of the Bank would be 47.1% of the total projected Bank credits (60.33 total project credits), totaling 28.44 credits released.

Year 5: 2011

Upon completion of planting and one complete growing season after planting in Year 5, the Sponsors recommend a credit release of up to an additional 20% (additional 2.22 credits out of 11.1 existing wetland credits) of existing Phase 2 delineated wetland credits. Ongoing weed control and annual monitoring will continue in Phase 2. Cumulative Phase 2 credit release by end of Year 5 would be 50% of the existing Phase 2 delineated wetland credits, totaling 5.55 credits released.

Cumulative credit release by end of Year 5 for both phases of the Bank would be 50.8% of the total projected Bank credits (60.33 total project credits), totaling 30.66 credits released.

Year 6: 2012

Saturation will be determined using 25 monitoring wells (15 of which are in Phase 2 acreage, all of which are monitored annually since Year 1). These wells will be maintained and used to document wetland hydrology along with field verification during wetland delineation. Saturation is based on three out of five years precipitation equal or greater than 85% of historic with saturation levels in upper 12 inches for a minimum of 11 days during the growing season. Once saturation has been established, the Sponsors recommend a credit release of up to an additional 18.77 credits out of 32.43 credits (32.43 credits is the total projected Phase 2 credits). The Sponsors understand that the Bank must demonstrate saturation (determined in Year 6) before any credits are released in newly created upland areas. Ongoing site maintenance, weeding, planting and annual monitoring in Phase 2 will continue. Cumulative Phase 2 credit release by end of Year 6 would be up to 75% of the total Phase 2 credits, totaling 24.32 credits released.

Cumulative credit release by end of Year 6 for both phases of the Bank would be 81.9% of the total projected Bank credits (60.33 total project credits), totaling 49.43 credits released.

Year 7: 2013

At the discretion of DSL and the Corps and upon fulfilling all required performance standards, the Sponsors recommend a credit release of up to an additional 15% (additional 4.87 credits out of 32.43 total credits for Phase 2). Ongoing site maintenance, weeding, planting and annual monitoring in Phase 2 will continue. Cumulative Phase 2 credit release by end of Year 7 would be up to 90% of the total Phase 2 credits, totaling 29.19 credits released.

Cumulative credit release by end of Year 7 for both phases of the Bank would be 90.0% of the total projected Bank credits, totaling 54.3 credits released.

After Year 7: 2014 and future

The remaining 10% (3.24 credits) of total Phase 2 credits will be held by the MBRT until a long-term steward is established.

Total combined Phase 1 and Phase 2 credits to be held by MBRT until a long-term steward is established and all required performance standards are being fulfilled is 6.03 credits.

5.0 MANAGEMENT AND REGULATORY REQUIREMENTS

5.1 Proof of Ownership

Warranty Deed and Title #200502390; for the proposed bank is held by the Greene and Kiilsgaard Living Trust and on file with Benton County. (*Exhibit 1*).

5.2 LIST OF ADJACENT PROPERTY OWNERS

Peggy Goracke
26861 Dawson Rd
Monroe, Or 97456

Patricia Fortmiller
PO Box 444
Monroe, Or 97456

ILNG LLC
PO Box 2801
Eugene, Or

J and C Hunt Club
1140 Oak Dr
Junction City, Or 97448

Flora Crocker
4227 NW Elmwood
Corvallis, Or 97330

Robert Goracke
25830 Old River Rd
Monroe, Or 97456-9626

5.3 LONG TERM PROTECTION INSTRUMENT

It is the intention of the bank sponsors to deed the Bank property over to a qualified conservation entity upon final sale of credits. This conservation entity will become the long-term steward of the bank. A draft of a Memorandum of Understanding is included as Appendix 6.

5.4 DRAFT LONG TERM MANAGEMENT PLAN

A long-term management plan will be developed over the next two years as the bank sponsors become more familiar with the maintenance and management needs of the bank. This long-term, or adaptive management plan will be submitted to the MBRT for review and approval by Corps and DSL prior to final negotiations with conservation entity/long-term steward and their taking over management of the Bank.

5.5 LOCAL GOVERNMENT APPROVAL

Benton County Planning Dept has found the Bank application to be consistent with the comprehensive plan and land use regulations. This opinion was stated in the public comments when the prospectus was open to public comment. Benton County will have another chance to review the construction plan when the Fill/Removal permit is circulated.

5.6 COORDINATION WITH MBRT

The Sponsors began coordination with MBRT in November 2005 with property purchase. The prospectus was submitted in January 2006. The public meeting was held in March 2006. There were very few public comments about the Bank proposal and no specific requests from MBRT

regarding additional information. One written comment to MBRT from Joe Boyer of Monroe, Oregon, during the public response period was discussed at the public meeting. The bank sponsors met with Mr. Boyer and agreed to send a copy of the construction plans to him. When the MBRT approves the construction plan, a copy will be sent to Mr. Boyer.

5.7 BANK CLOSURE AND TERMINATION OF CONDITIONS

Monitoring and Maintenance will continue as the bank sponsors responsibility as long as credits are available for sale. Adaptive management and maintenance actions will continue for five years after last credit sale and will be the financial responsibility of the Bank sponsors. At the completion of the sale of credits, the Bank, with the approval of MBRT, will transfer property title deed to conservation entity/long-term steward. An endowment currently for the purpose of management and financial activities related to the bank will be transferred to conservation entity/long-term steward, within 180 days of title transfer.

A Deed Restrictive Covenant (*Exhibit F*) for protecting the conservation functions of the Bank during the short term is required to terminate the conditions of the Instrument.

6.0 REFERENCES

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