



MEMORANDUM

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Subject: Wetland Mitigation Sites Trip Report

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On July 16, 2009 Bruce Schuld of Idaho Department of Environmental Quality (IDEQ) and Susan Firor from TerraGraphics (TG) toured three potential wetland mitigation sites that have been identified in conjunction with the other resource agencies working in the Coeur d'Alene River Basin area. This memo describes the observations made on that trip.

Background, Purpose and Objectives

IDEQ and TG were tasked by EPA with continuing the search for and reconnaissance level evaluation of potential opportunities and locations for wetlands mitigation that will be necessary prior to long term expansion of the Page ICP Repository. As a prelude to this trip, IDEQ contacted the USFWS, IDFG, BLM and others to obtain access and information about prospective mitigation sites. To the best of our knowledge, the following sites were identified by numerous entities as those sites with the most likely potential for high value wetlands development under a mitigation plan that could be implemented with other private state and federal partners.

This trip report must be supplemented with significant evaluations and feasibility studies prior to site selection or project design work.

Site 1 - Blue Creek

The Blue Creek site is approximately 40 acres and offers some mitigation potential. The site is situated in the delta of Blue Creek where it enters Lake Coeur d'Alene (see Figure 1). It is difficult to predict the potential wetland acreage at this site, but it is possible that prior to historical development for agricultural purposes the entire site was wetland. The site is owned by BLM which has completed a NEPA permitting process for light restoration work that they hoped to accomplish at the site. BLM is willing, even eager, to enter into an agreement with IDEQ and EPA for wetland mitigation credits in exchange for project support. They and the neighboring



landowners are, however, not interested in any mitigation project that would involve extensive stream channel re-construction or relocation.

Figure 1. Blue Creek Property Owned by BLM

Blue Creek has been confined to a single channel near the east side of the site by two parallel constructed berms along its length. The creek is not seriously incised, which is unusual for a straightened reach, so reconnecting with the historic floodplain is a tractable proposal. Currently, BLM believes that a partial removal of the dikes will provide for the periodic flooding of the 40 acre area needed to sustain future wetland values. During discussion of the removal, IDEQ has suggested that this material might be subject to reuse somewhere in the lower Basin as topsoil depending on its character.

The ideal situation in this delta is one where the creek is free of obstructions so it can move laterally, spread, and braid. The site was probably a wet meadow with a very high year-round water table. Historical vegetation probably consisted mostly of wetland sedges and rushes, with hawthorn, chokecherry, and willow in numerous riparian channels. BLM has proposed the removal of the berms to allow for improved floodplain connectivity. Bruce Schuld has also suggested that more culverts be installed along the road immediately east of the site to encourage more dispersed hydration from hillside drainage. This passive restoration plan can provide a slow

but effective recovery that, if approved, should be given plenty of time (+ 10 years) to be proven effective.

A proposed mechanism for removal of the berms is to scrape the sod back, remove the bulk of the berm, and replace the sod. This technique has been used at other sites, but is only cost effective where the quality of adjacent sedges, rushes, and forbs is very high. It appears that the existing plant species and density on the berms are not of particularly high quality, so they could likely be reproduced or improved upon by a good and aggressive revegetation plan. More study will be required to confirm this observation.

Any wetlands established at this site will be of a slightly different classification from those found at West Page Swamp, which are all palustrine wetlands from four subclasses: emergent, scrub-shrub, forested, and aquatic bed. Those at Blue Creek will all be lacustrine wetlands, primarily of the emergent subclass. The differences between the two classes are relatively minor, but USFWS should be consulted to understand their view of using these wetland types in mitigation.

Bruce has stated that, based on what he has observed, he believes construction at this site would be very easy and would have a high potential for success in achieving mitigation goals. Furthermore, he will suggest to EPA that TG conduct a comprehensive feasibility study to investigate the potential for wetlands at this site, the alternatives for mitigation, and the approximate costs.

Site 2 - Rivers Confluence

This is a small site identified by Upstream Mining Group's consultant, Inland Northwest Resources. It is approximately 13 acres of sandbar and deciduous forest located at the confluence of the North and South Forks of the Coeur d'Alene River. The property is owned by Forest Capital Partners, LLC. It is an important recreational site, as evidenced by numerous recreational vehicles parked at the site. Mitigation potential at this site appears to be very low for several reasons: 1) Mitigation would conflict with current public uses of the site for camping and other recreation; 2) the costs to purchase the property are expected to be very high; and 3) the site would likely require significant modifications to the existing morphology, earth moving, soils importation, and revegetation. In sum, this site would require a very intensive and contentious administrative and technical process. A photo of the site is shown in Figure 2.



Figure 2. Rivers Confluence site.

Site 3 - Shadowy St. Joe

This is a large site on two parcels adjacent to the St. Joe River and owned by IDFG and Avista. Implementation of the proposed restoration will require analysis, design, and planning. A phased construction approach could work nicely here, allowing designers to learn some of the special characteristics of the site during an initial phase and apply them for improved results in later phases. A rough estimate of potential wetland area at the site is 20-30 acres; however, with careful design, this could be considerably larger. Existing hydration is good on the Avista property at the upstream end of the site, but manipulation will be required to hydrate the IDFG property at the lower end. Figure 3 shows a photo of the site looking toward the drier, IDFG property.

Significant potential for successful mitigation is present at this site while meeting IDFG’s stated project objectives. This project also warrants further study.



Figure 3. Shadowy St. Joe Restoration Site

Proposed ideas for restoration at Shadowy St. Joe include the following. See Figure 4.

1. Fill the ditch along the base of Highway 50 to intercept hillside groundwater seepage and raise water table.
2. Fill the drainage ditch that separates the Avista parcel from the IDFG parcel.
3. Fill the drainage ditch located immediately east of the point where Miesen Creek enters the floodplain.
4. Eliminate the man-made channel that routes Miesen Creek directly to the St. Joe River.
5. Via excavation and the planned placement of fill, route Miesen Creek lengthwise along the property in a meandering fashion.
6. Excavate deepwater pools, which will be heavily influenced by groundwater and, therefore, remain full year round and provide cool water refugia for salmonids during the warmest summer months.
7. Encourage the establishment of native woody vegetation and supplement natural recruitment with ongoing plantings.

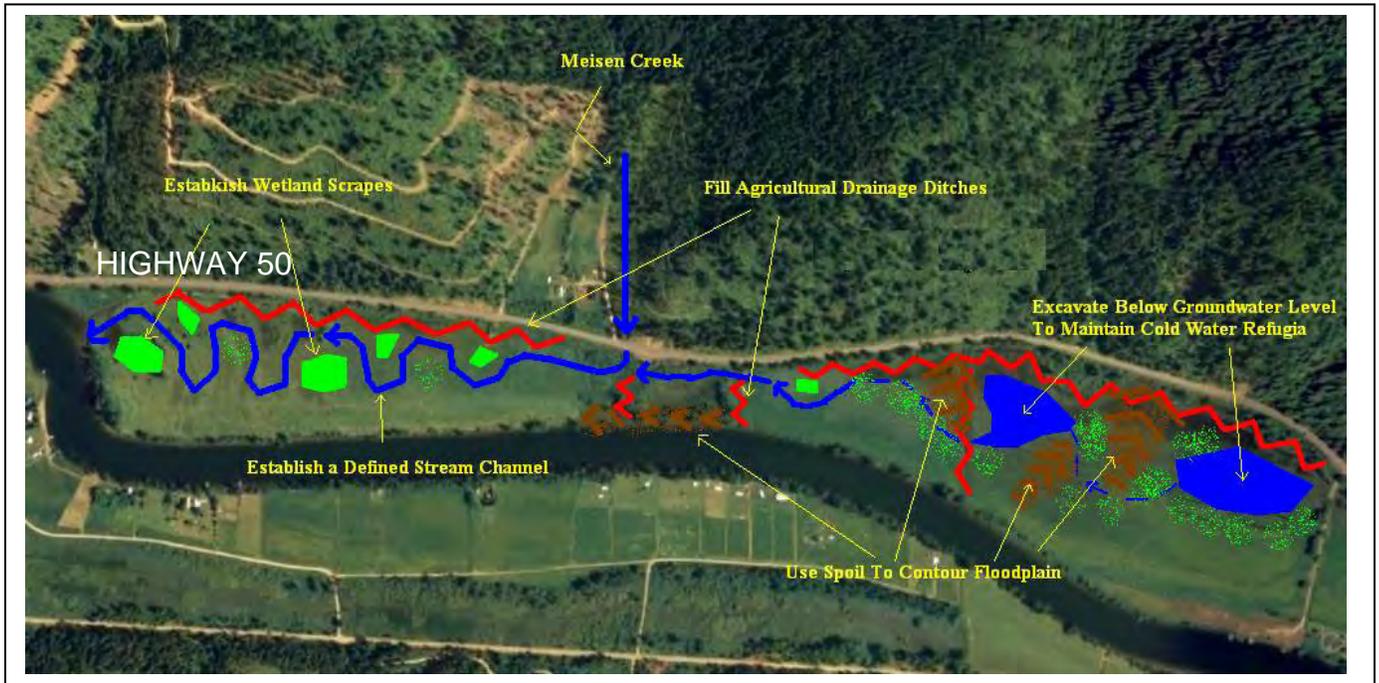


Figure 4. Shadowy St. Joe Restoration plan.

Conclusions

Two of the sites visited present significant potential for meeting the objectives of wetland mitigation for Page Repository expansion. Blue Creek and Shadowy St. Joe are projects that are big enough to provide good value to the mitigation project while also allowing for other important restoration goals to be met. These two sites are recommended for further investigation. The Rivers Confluence site is not recommended for further study.