

Kittitas County Fairgrounds - Pollution Abated

Cooperative Solution Assures Continued Use of Community Livestock Barns



The “before” photo: manure-laden wash-water draining into Wilson Creek (photo by Terry Wittmeier)

Introduction

Have you ever seen the cute 4-H and Future Farmers of America (FFA) kids at the annual county fair, proudly showing off their well-groomed livestock? Ever wonder what they do to keep their animals so clean while at the fair? Just take a short walk behind the barns, and you’ll find out. Unfortunately, at the Kittitas County Fairgrounds, animal wash stations were draining directly into nearby Wilson Creek. But thanks to good work by staff from the city of Ellensburg’s stormwater utility and the Kittitas County Fairgrounds, the problem has been solved.

Problem

Wilson Creek runs through a series of culverts and concrete vaults underneath the Kittitas County Fairgrounds, located within the city of Ellensburg. For many decades, storm drains have collected runoff water from the fairgrounds and discharged the untreated water to Wilson Creek. During the annual county fair and other livestock-related events, the livestock wash stations at the fairgrounds also discharged to these drains. In addition to pathogens that might get swept off of the animals’ bodies during washing, animals often defecate while being washed, adding bacteria to the runoff.

The animal waste from the livestock wash stations was causing stream pollution, in conflict with the bacteria reduction goals of the Wilson Creek Sub-basin Bacteria Total Maximum Daily Load (TMDL), a water quality improvement plan that requires a reduction of pollutant loading through stormwater contributions. Additionally, the city’s Eastern Washington Phase II municipal stormwater permit requires a reduction of pollutant loading through stormwater contributions, and its municipal stormwater permit requires a reduction of pollutant loading through stormwater contributions. Adding to the challenge was the fact that Kittitas County owns and manages these fairgrounds, even though the fairgrounds are located within Ellensburg’s city limits and discharge to the city’s municipal stormwater system.

Project goals

In 2010, Jon Morrow, Ellensburg’s stormwater manager, learned about the fairgrounds runoff pollution problem and immediately began working with Matt Anderson, Kittitas County Fairgrounds manager, to help eliminate animal waste from entering Wilson Creek via the public storm system.

By the fall of 2012, a new stormwater infiltration system was in place at the fairgrounds, and the pollution was stopped.



Bottomless catch basin behind the swine barn gets the job done. (Photo by Jon Morrow)

Milestones and outcomes

In 2010, the city and county met for the first time to begin strategizing and discuss the extent of the problem. Meetings were held monthly to perform dye testing and update stormwater drainage maps, help pinpoint source control hot spots, discuss timing and sequence of events that contribute to animal waste runoff, come up with ideas to compost manure, and re-direct runoff where possible.

In 2011, the city excavated two test holes on the north side of the livestock barns and performed two independent percolation tests. Trying to establish infiltration rates was one possibility for stormwater treatment, and fortunately, the data proved conclusive that the site had suitable soils.

The county and city staff tried an experiment behind the swine livestock barn in early 2012. They installed a bottomless catch basin on two feet of drain rock. The soils had been tested in 2011 for suitability, so it was time to try and see if infiltration would work in real life. The area chosen was at the



The trench for the final infiltration gallery was dug.

end of a paved runway where hogs were bathed and groomed for showing. Good news: the bottomless catch basin worked and still works today.

Later in 2012, the county budgeted to hire an engineering firm to begin design of the system. The city provided assistance with creating utility maps and aerial-elevation contour maps for the new system. This helped with a final decision on where the infiltration pit would be built. Then the city and county excavated a large test pit to the depth of six feet to test how much stormwater would infiltrate in the vicinity of the planned system. When these infiltration rates were found to be suitable, the county installed the underground infiltration system. During that time, the city installed a plug in the 5th Avenue outfall

which severed the connection to the city system, thus preventing all future animal waste from entering the public storm system.



... and filled in with rock, to expedite infiltration (photos by Jon Morrow).

Project highlights

Overall, the city and county worked well together on this project to protect Wilson Creek's health. Within a couple of years of learning about this complex problem, the water pollution was abated and the problem was solved.

Of course, some early efforts were less successful. In 2011, efforts to collect and potentially compost manure failed. The county set out manure collection bins behind the livestock barns, but the bins were too tall for the 4-H youth to use. (One rule in 4-H is that adults cannot assist in cleaning stalls or help youth clean up animal waste.)

Also in the summer of 2011, the city installed drain markers on every catch basin at the fairgrounds to remind fair-goers and barn users that stormwater from the site was going untreated to Wilson Creek – and this effort has proved successful.

Partners

Jon Morrow, city of Ellensburg stormwater manager, and Matt Anderson, manager of the Kittitas County Fairgrounds, were the principal individuals who made this project happen. The Kittitas County Commissioners played a key role by supporting and funding this project, and Terry Wittmeier, the Washington Department of Ecology's regional stormwater manager, was instrumental in providing an incentive to complete the project. Much work and behind-the-scenes efforts went into the decision-making and preparation that made this project a success. The effects of this project will last for generations to come.

Funding

Kittitas County provided all the funding for the on-the-ground improvements at the fairgrounds, as well as staff time. The city of Ellensburg provided staff time.

For more information

To learn more about this project, contact the following individuals:

Jon Morrow
City of Ellensburg's Stormwater Manager
morrowj@ci.ellensburg.wa.us
509-925-8619

Terry Wittmeier
Washington State Dept of Ecology
Water Quality Program
Terry.Wittmeier@ecy.wa.gov
509-574-3991

Story authors:

Terry Wittmeier (contact info above) and
Jane Creech
TMDL Lead
Ecology's Central Regional Office (Yakima)
509-925-2557
Jane.Creech@ecy.wa.gov

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