



## Corps Turns Wastelands into Wetlands



The U.S. Corps of Engineers and its partners at the former K.I. Sawyer Air Force Base (Mich.) gave the taxpayer two projects for the price of one when they remediated two landfills into one environmentally-secure landfill and one thriving organically-rich wetland.

Landfills 1 and 2, located on the former Air Force Base were used to collect industrial and municipal household waste during base operations from 1956-1962. K.I. Sawyer AFB encompasses 8.3 square miles, consisting of airfield operation facilities, industrial/disposal facilities, housing facilities, recreational facilities and undeveloped land.



Landfill 2 was located at the headwaters of Silver Lead Creek and it contained 140,000 cubic yards of waste material over 5.5 acres. The toe of landfill 2 formed the west bank of Silver Lead Creek.

Remedial action was necessary to minimize direct contact by humans and animals with fly ash fill, prevent erosion of landfill material into adjacent surface water bodies and to restore wetlands by removal of all obvious waste material from the adjacent pond or stream. Erosion and surface water runoff added sediments from the landfill to the adjacent wetlands. The Michigan Department of Natural Resources (MDNR) and Michigan Department of Environmental Quality (MDEQ) expressed concerns with potential adverse physical effects of sediment runoff from the landfill on fish breeding habitat in Silver Lead Creek.



Normally, landfills are closed using the presumptive remedy of constructing a cover or cap over the refuse. MDNR and MDEQ were concerned that a capped landfill might still provide the opportunity for sediment run-off into the adjacent stream. The Corps agreed and opted to relocate the material from Landfill 2 into Landfill 1, thereby providing only one landfill to “cap” and restoring the wetlands in the Landfill 2 location back into its original condition.

The excavation of Landfill 2 successfully exposed the pre-landfill topology including unearthing preserved tree stumps that identified upland terrain, meandering bankline and wetlands. Organic-rich soils left in place and new seeding was used to promote vegetative cover. Landfill 1 was capped with an 18-inch-thick earth cover consisting of four inches of topsoil and 14 inches of rooting material.



Consolidating Landfill 2 on top of Landfill 1 in lieu of capping proved to be a success in many ways: The cost proved to be less expensive than capping both Landfills 1 & 2, three acres of historic wetlands were reclaimed, and the State of Michigan received the preferred alternative it was looking for. In addition, future savings will be realized since the cost of maintaining and monitoring a closed landfill has been eliminated. Finally, land use is not limited by deed restrictions.

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