

# Rebuilding Henderson Gage Control Section

by  
Ben Urbonas, P.E. and Bryan Kohlenberg, P.E.

The District, in cooperation with the Metro Wastewater Reclamation District and the Colorado Division of Water Resources, in early 2002 installed a grade control structure just downstream of the historic Henderson Gaging Station on the South Platte River in Adams County. A problem crept up on everybody as the River's thalweg slowly degraded over the years. For years the Division of Water Resources staff would lower the water level measuring float and adjust the "shift" on the gage's rating curve to compensate for the River's degradation. But in 2000 it had dropped too far to use this adjusting procedure and to record low flows at this gaging site.

Three options to correct this problem were possible. One was to abandon the gaging site. This was really not an option, since too many water users and data collectors depended on this gage for information. The second option was to totally rebuild the gaging site, including the wet well and all of the flow measuring and water sampling equipment. Although this option was viable, the Division had no funds for such an undertaking and it would have disrupted many of the data and water sampling efforts for an extended period of time. The third option was to install a grade control structure immediately downstream of the gaging site to restore the thalweg so as to permit recording of low-flows again at this gaging site.

Due to ongoing downstream river degradation, the District had identified the need for a grade control structure in this area in its 1985 master plan for the South Platte River. What lacked were the funds to install it. This was the case until the Division staff contacted us in 2001 requesting that we help with their problem. In addition, Metro Wastewater Reclamation District stepped up to the plate and agreed to fund a portion of the cost

Metro also had a need for improved reaeration of the River. Working with their staff a design evolved that provided for:



**Before and after views of the gage control section**

1. Grade and flow stage control
2. Reaeration of the River
3. Reasonably safe boater passage
4. Unimpeded fish migration

With combined contributions from the District, the Colorado Division of Water Resources and the Metro Wastewater Reclamation District, we hired a consultant to help design this facility. Construction was completed in the spring of 2002.

Notice the cleanup of the site that occurred as a result of this project (see the before and after photographs on this page). Over the years much rubble was dumped on the River's channel bottom and its banks at this location. All of this rubble and other trash were removed, the site regraded and then revegetated

with native vegetation and grasses. Unfortunately the very dry weather that we experienced in 2002 retarded the reestablishment of the new vegetation, but we expect it to green up when the conditions return to normal.

The site can be viewed at [www.hydrotechnica.com/hydrocam.php](http://www.hydrotechnica.com/hydrocam.php) under station name PLAHENCO. This link provides a time-delayed picture of the site looking from the Henderson Gage stilling-well downstream at the new grade control structure.