



ALBERTA WHITEWATER ASSOCIATION

Boulder Run – Oldman River Flood Repair Report

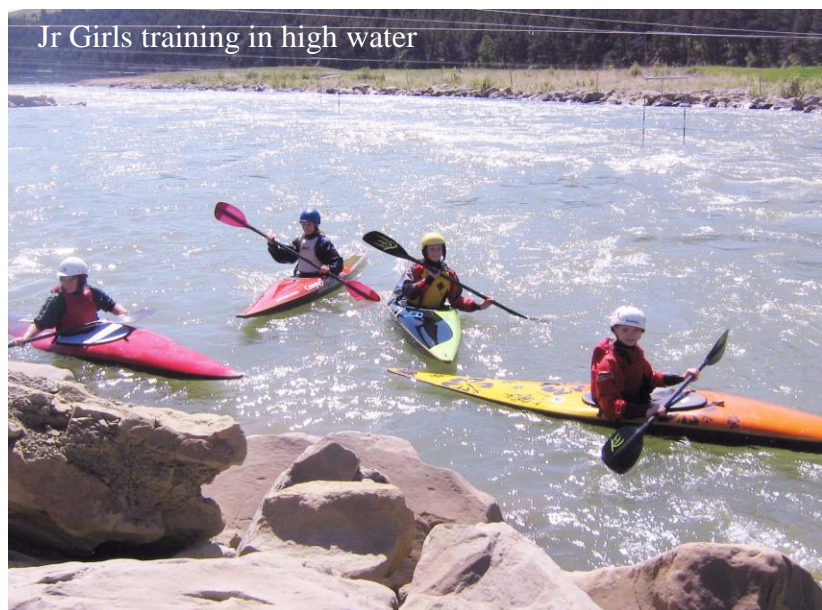
The 2013 Plan

The AWA's and Pinch-o-Crow Creekers (POCC) plan for Boulder Run on the Oldman River in 2013 was to install additional gates in between the existing gate wires. The club was ready to proceed when the flood put this plan on hold.

The Boulder Run race course was originally built in 1992 and it provides a great moving water training site for the 2 clubs in southern Alberta, especially during the late summer when the local rivers lose their flows. But it is fairly flat and quite wide to make it a great whitewater facility.

The Flood

Major flooding in southern Alberta on June 20-21, 2013 resulted in a devastating washout of the Boulder Run whitewater facility on the Oldman River. The river washed over the floodplain knocking down the slalom gate posts, tearing down the wires and gates, cutting a new channel through the parking area on river left, moving substantial amounts of gravels and sediments and eroding the large rocks and berms that form the whitewater features below the dam



Immediately following the flood event, the AWA began working with the other stakeholders, POCC and the Lethbridge paddlers to look at the plan forward. This group began discussions with Alberta Parks and Alberta Environment to determine the extent of the damage and the public safety situation. Of critical concern was how the flood knocked down the gate wires that could be a hazard to rafters and paddlers.

Alberta Parks closed access to the site. The POCC kayak team training program at Boulder Run was cancelled indefinitely and moved to the Blairmore slalom site, which had to be abandoned after 2 weeks because of lack of water. As the high waters receded the damages to the Boulder Run facility became much clearer. It also became more difficult to reconcile rebuilding the site to its original specs considering the damage that 3 three flood events in 21 years has done.



Damages after flood

Boulder Run Planning

Boulder Run was built for whitewater paddlers in 1992 to mitigate the loss of 3 rivers when the Oldman River dam was created. This is the 3rd major flood event in 21 years, where the river has overflowed its banks below the dam and washed out the park, the slalom gate system and the whitewater features in the river.

The AWA and POCC looked at what modifications can be done, in conjunction with the flood rehabilitation work, to make the site more flood resilient and better

for whitewater paddlers. The assessment of the site determined that:

1. The design of the current river channel is not sufficient to carry the flood discharges from the Oldman Dam. The river channel is approximately 70 m wide but large groynes on either side reduce the channel to only 35 m at the narrowest points.
2. Removing the groynes and berms on river left and right will widen the river and increase the flow capacity. Taking out the midstream rocks will reduce turbulence and increase flow capacity. Together these two changes will create the volume capacity that can carry flood level discharges from the Oldman Dam.
3. Widening the river and taking out the midstream rocks will remove the whitewater features that was built to mitigate the loss of whitewater river runs that were flooded by the dam. The current design is already too wide for a good whitewater course.
4. The original design was created 25 years ago and there have been a number of fundamental changes in whitewater sport.
 - a. playboating and freestyle kayaking became big components of the sport
 - b. slalom race courses were shortened from 800 m to 250 m
 - c. boaters have consistently improved their skills, abilities and athleticism

To meet the demands of today, changes to Boulder Run would be desirable.

- a. Build one or more surfing waves
- b. Shorten the slalom race course
- c. Intensify the rapids by condensing the vertical drop over a shorter distance
- d. Create novice teaching areas
- e. A narrow channel would make the site easier to manage and train on

The 2013 flood exposed an opportunity to rebuild Boulder Run with a new design that would significantly improve the flood capacity and meet the requirements for an improved whitewater facility. The flood waters opened up a new channel on river left running from a spot close to the existing hydro-turbine tunnels, through the parking area and along the road. The heavy rock that armours the river left embankment became the river right embankment of this new channel. This area became an island during the flood. The new smaller river left channel ran for about 250 meters before merging back into the main river.

The AWA and POCC are proposing to modify Boulder Run to remove all the groynes and midstream flow obstructions from the main channel of the river. This will speed up the flow of any flood releases through Boulder Run and create the flood capacity necessary to prevent future costly rebuilds.

The new channel on river left that was exposed during the flood will be excavated shaped and contoured to become the new whitewater training facility. The heavy rock that is salvaged from the main channel groynes and midstream features will be used to armour the banks of the new channel and to create new whitewater features. This channel will be 10 m wide, drop 2 m and run about 250 meters from the turbine tunnels down to a spot close to the cottonwood tree grove.

The condensed distance of the whitewater channel with the same vertical drop will increase the gradient of the course from 2.5m/Km (12 feet/mile) to 8 m/Km (38 feet/mile). This will make it a much better whitewater course capable of hosting national calibre whitewater kayak events in the future.



The new channel with spillway in background

The whitewater channel will be connected to the main channel but blocked by a set of large sandstone blocks that will direct water coming down the spillway to stay in the main flood channel.

The water coming from the turbine tunnels will be diverted into the whitewater channel by a drop at the top of the whitewater channel. During normal water releases from the turbines, water from the turbines will flow downhill in this direction and away from the main channel. A residual flow will be retained in the main channel to sustain the fish population in this section of the river. It is important to maintain enough flow capacity below the turbine tunnels so that the water does not back up into the tunnels during normal operations.

Progress towards Repairs

The POCC club applied for Disaster Recovery Program funding to replace the slalom gate system lost in the flood. The club will not be able to activate that application until the repairs on the whitewater course are made.

The AWA / POCC have been in discussion with the original design team of John Mahoney, Stewart Rood and Ron Middleton (Alberta Environment – retired) in regards to a redesign of Boulder Run. We have also talked with Alberta Parks and Alberta Environment about the need for a redesign of the facility.

At the date of this report in mid-January, Alberta Parks and Alberta Environment have not committed to any action to rebuild Boulder Run. When the Government begins active work on this project, it is expected to take 4 months for the design engineering. Work in the river to rebuild the facility will take another 2 months. We are hopeful that work in the river will begin in the fall of 2014 with the river expected to open back up to the public for the summer of 2015.