

August 2011

CREEK BYPASS - Preventing negative impact to our natural ecosystem and ensuring a successful creek bypass.



Choosing the proper bypass pumping system is a critical element when working on rehab projects which involves creek bypassing. Each creek bypass is unique and requires detailed assessment, planning and permitting before implementation. Below are just some of the general questions one must ask to minimize risk and ensure a successful creek bypass:

- **Is a permit required for a creek bypass?** Prior to the commencement of any dewatering operation a Permit To Take Water (PTTW) is required under the Ontario Water Resources Act and the Water Taking and Transfer Regulations which is administered by the Ministry of the Environment. Both the Ministry of Natural Resources and local Conservation Authority should be consulted in case additional permits or conditions apply.
- **What are the fundamentals of design for the pump?** A detailed pumping system breakdown showing performance and characteristics of the system must meet the minimum 2 year storm regulated pumping design requirement and must be covered in the Pumping Plan Submission. Some of the fundamentals covered are flow, specific pump models with pump curves and duty points, fish protection measures, and special filtration requirements.
- **What flow must be covered by the pumping system?** The primary pumping system must handle the normal existing flow but provisions must be made to cover the specifically mandated storm flow which may

vary from the 2 year storm flow. Often the practical normal flow coverage is exponentially increased by the mandated storm flow design coverage and this can be averted by construction staging and methodology in the actual work area to provide for a quick reinstatement.

- **If using diesel pumps or electric pumps with diesel generators, how close can the pumps be set to the watercourse?** Optimally, diesel powered equipment should be located outside of the watercourse banks and floodplains. The regulatory requirement is that any fuelling or fuel operated equipment must be set 100' back from the watercourse. In the event that compliant set-back is physically impossible, protective berms should be built with protective ground coverage or equipment basins to insure that fuelling spills do not impact the local ecosystem.
- **How do you provide fish protection?** Simple measures would include using pea-stone bags and not sand bags to for temporary dams. Approved fish baskets with appropriately sized screens must be used. Fish should be relocated to a suitable location downstream prior to dewatering the work area using capture and release methods approved by Fisheries and Ocean Canada (DFO).
- **Will the pumping system run constantly?** If the system is going to run overnight or on a continuous non-stop basis, it must always be monitored. Fuel and a fuelling program may have to be used and the situation may require qualified workers to run and maintain the pumping system.
- **What is the planned redundancy or pump back-up required for the system?** Pumps are intricate machines and although they are built with reliability in mind, sometimes components expire or bad fuel is used. Some measure of redundancy must be built into the system if it is operated continuously.



AQUATECH provides the proper solution to meet our clients' needs. We will manage the entire project from the design, permit application and

implementation to the operation, monitoring and decommissioning. For more information on creek bypass pumping, please contact one of our representatives.

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