



Item	Response
Pit diversion and pit storm water calculations	<ul style="list-style-type: none"> <li>■ Golder accepts the statement by TetraTech, the engineer of record, that the flow-through drain was designed for either the General or Local PMP events.</li> <li>■ Golder notes that TetraTech and the Mine modified the design criteria for the Pit Stormwater Pond and the Crusher Stormwater Pond, and prepared a design that will pass the flow in excess of the 100-year, 24-hour event instead of storing the PMP event rainfall volume.</li> </ul>
Sediment calculations	<ul style="list-style-type: none"> <li>■ No comment</li> </ul>
Drainage from perimeter containment areas	<ul style="list-style-type: none"> <li>■ Golder understands that TetraTech addressed the issues related to environmental flows in the baseline and post-mining reports dealing with hydrology and average-annual runoff.</li> <li>■ Golder understands that the Mine plans to perform post-closure maintenance, which will address any concerns related to sediment yield calculations.</li> </ul>
Geometric design	<ul style="list-style-type: none"> <li>■ Golder understands that the proposed slope angles are less than proposed by Golder and that the slope lengths are less than or equal to the minimum slope lengths recommended by Golder, which are conservative selections.</li> </ul>
Detailed sediment control design during operations.	<ul style="list-style-type: none"> <li>■ No Comment</li> </ul>
Pre- and post-mining sediment yield calculations	<ul style="list-style-type: none"> <li>■ Post-mining maintenance is expected to address any concerns previously raised.</li> </ul>
Water storage on benches	<ul style="list-style-type: none"> <li>■ The Mine indicates that Golder's concerns will be dealt with during the final design.</li> </ul>
Riprap downchutes	<ul style="list-style-type: none"> <li>■ Based on Golder's experience the use of riprap on such steep channels is undesirable. See section 4.0.</li> </ul>
Flow-through drains	<ul style="list-style-type: none"> <li>■ Golder reviewed the designs provided by TetraTech, attached to the Mine's response. The approach followed during operations for maintaining the inlets is practical and acceptable.</li> <li>■ The effectiveness of the design for post-closure is less clear. However, with post-closure maintenance being planned by the Mine, any issues can be resolved at that time.</li> </ul>
Water on top of tailings facility and waste rock storage areas	<ul style="list-style-type: none"> <li>■ Golder assumes that the Mine will take care of details in the final design stage, ensuring stability and acceptable performance.</li> </ul>
Allowance for erosion in containment areas	<ul style="list-style-type: none"> <li>■ Golder accepts that post-closure maintenance will address concerns previously raised.</li> </ul>

#### 4.0 RIPRAP DOWNCHUTES

Golder's concern with using riprap in the downchutes is based on known failures when using the Robinson, Kadavy and Rice (1998) method. Golder staff acted as review consultants for the project shown in the photograph below and warned against using this approach. The designer elected not to

follow the advice and proceeded with implementation of that design. The photograph below is of a failure of those downchutes during a 10-year storm, which was intended to withstand a 100-year storm. Golder provides the recommendation against using riprap in good faith.



## 5.0 CONCLUSION

This concludes Golder's review of the water management aspects of Rosemont Mine.