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## ARCHITECTURE/ENGINEERING

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### Why are there stumps in the wetlands?

**W**e have gotten so many questions about the stumps along Delaware State Route 1 over the years, we felt like this would be a great forum to clarify why they are there.

When planning the Route 13 Relief Route (now called State Route 1), DelDOT had to address numerous environmental concerns, including the loss of wetlands and habitat. JCM Environmental was the environmental consultant on this project and performed the environmental mapping, permitting, mitigation design, mitigation construction oversight, and mitigation monitoring.

The areas containing the stumps are mitigation wetlands designed to offset habitat and wetland losses due to construction of the road. Mitigation projects always require coordination with at least one Local, State, or Federal regulatory agency. In the case of Route 1, numerous agencies were involved including DNREC, U.S. Army



*Mitigation wetland along State Route 1 South*

Corps of Engineers, U.S. EPA and the U.S. Fish and Wildlife Service. All of these agencies had concerns regarding wetland losses and required compensation or mitigation.

Since this was one of the largest wetland mitigation projects ever attempted in Delaware, there was a lot of discussion amongst the regulatory agencies. While preparing the designs for

these areas, JCM Environmental proposed adding stumps from the woodlands cleared for roadway construction into the newly created wetland areas. This was proposed for a variety of reasons, one of which was to supply cover for small birds, reptiles, amphibians, and mammals. Cover would allow animals to colonize the large open areas relatively

quickly after construction, which is important because many of these animals carry and deposit native seeds. A small mammal or bird would be easy prey if they had no where to hide and may not venture into these areas without the stumps present. Research also indicates that placing woody debris such as stumps and logs into a constructed wetland may help "jump-start" the establishment of certain biological communities such as aquatic insects, which are an important component of the food chain for larger animals. The stumps would also increase the amount of nutrients and organic matter available within the wetland after construction.

Since mitigation wetlands will be required by the regulatory agencies to be monitored for a number of growing seasons following construction, twenty in the case of Rte. 1, it is important to design and construct correctly the first time to avoid potentially costly corrective

actions in the future.

The criteria used by regulatory agents to determine the success of a wetland mitigation project includes the presence of wetland-dependent wildlife, a high survival rate of the planted vegetation, the presence of wetland hydrology, soil properties that indicate anaerobic conditions, and a minimum percent coverage of hydrophytic (wetland) plant species.

And so, actions taken during wetland construction that increase biodiversity, like adding stumps, can prove to be invaluable years later when regulatory agencies will determine if a wetland project is successful based on such criteria as if wetland-dependent wildlife are utilizing the site.

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