

## **Winchester Country Club Stormwater and Irrigation Supply Improvements Winchester, Massachusetts**

ESS Group, Inc. has worked with the Winchester Country Club (WCC) for several years on a variety of golf course facility management and improvement projects.

### **Stormwater Management Improvements**

ESS was retained by WCC to evaluate flooding on a portion of the golf course, which appeared to be caused by runoff from the adjacent town roadway. ESS developed a hydrologic and hydraulic model to evaluate the roadway drainage system and its potential impacts. The results indicated that the municipal roadway drainage system was overwhelmed during significant storm events. This inadequate roadway drainage, coupled with an inefficient design for capture of roadway runoff and sedimentation in a portion of the roadway drainage system, were the cause of the flooding at WCC.

To address the problem, ESS developed a number of recommendations for drainage system improvements, which were presented to the Town of Winchester on behalf of WCC, and are being implemented by the Town to address flooding on the course. In addition, ESS designed a detention basin that was constructed by WCC in 2005, in coordination with Town drainage improvements.

### **Irrigation Water Supply Improvements**

ESS has provided comprehensive environmental consulting and engineering services for improvements to WCC's irrigation water supply system. These include: construction of an irrigation water supply well and associated appurtenances, dredging of an existing on-site pond to provide adequate storage for irrigation water, installation of piping and electrical feeds, and installation of a pump station.

In the first phase of the project, ESS performed a cost and feasibility evaluation focused on irrigation water demand and various water supply alternatives. A subsurface exploration program was also performed to evaluate the potential for expansion of an existing pond.

Once the most cost-effective approach was identified, ESS prepared applications and engineering plans to support local, state, and federal permitting, then developed final construction documents and provided contractor oversight during construction, which was completed in the fall of 2005. ESS is providing ongoing monitoring and reporting services.



### **Relevant Services Include:**

- Cost and Feasibility Evaluations
- Civil/Site Engineering
- Hydrologic and Hydraulic Analysis
- Drainage System Design
- Sedimentation and Erosion Control
- Hydrogeologic Assessment
- Subsurface Exploration Program
- Wetland Delineations and Terrestrial Ecology Evaluations
- Regulatory Consultation
- Local, State, and Federal Permitting
- Post-Construction Monitoring