Pumping Stations - Part 4 - Discharge Line & Pump Selection

**Course Description:**
This 4-hour online course provides guidance on discharge line sizing and pump selection for pumping stations. While the course is written from the perspective of storm water pumping stations, many of these concepts also apply to sewage pumping stations and potable water pumping stations. The course includes itemized procedures for many of the design steps. The student is also directed to several other RedVector.com courses written by other authors. One course is titled 'Sewage Lift Station Design', written by Mr. William Rushing, PE. The other course is titled 'Pump Suction Characteristics', written by Mr. John White, PE. These two courses provide in-depth training in two areas of pumping station design. The text of the course is taken from the Federal Highway Administration’s circular on Storm water Pumping Stations. The Body of this course is presented in a Word document format and must be downloaded. There will be a multiple-choice quiz at the end of this course.

**Learning Objectives:**
- Understand the components of the discharge line, including the pipe itself, check valves, elbows, manifolds, tees, reducers and expanders
- Understand the impacts of the various components of the discharge line
- Understand the computations involved in determining head loss from each of the components of the discharge line
- Understand the concept of Total Dynamic Head
- Understand the concept of a System Curve and how to develop one
- Understand pump characteristics including cavitation, vortexing, Net Positive Suction Head (required and available), submergence, and specific speed
- Understand how to use manufacturer’s pump curves to select a pump and determine the performance of the pump in a specific application