KEY NOTE

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SITE CIVIL IMPROVEMENT ↷ EROSION CONTROL ↷ SURFACE WATER QUALITY

Geopro® Learning Tool

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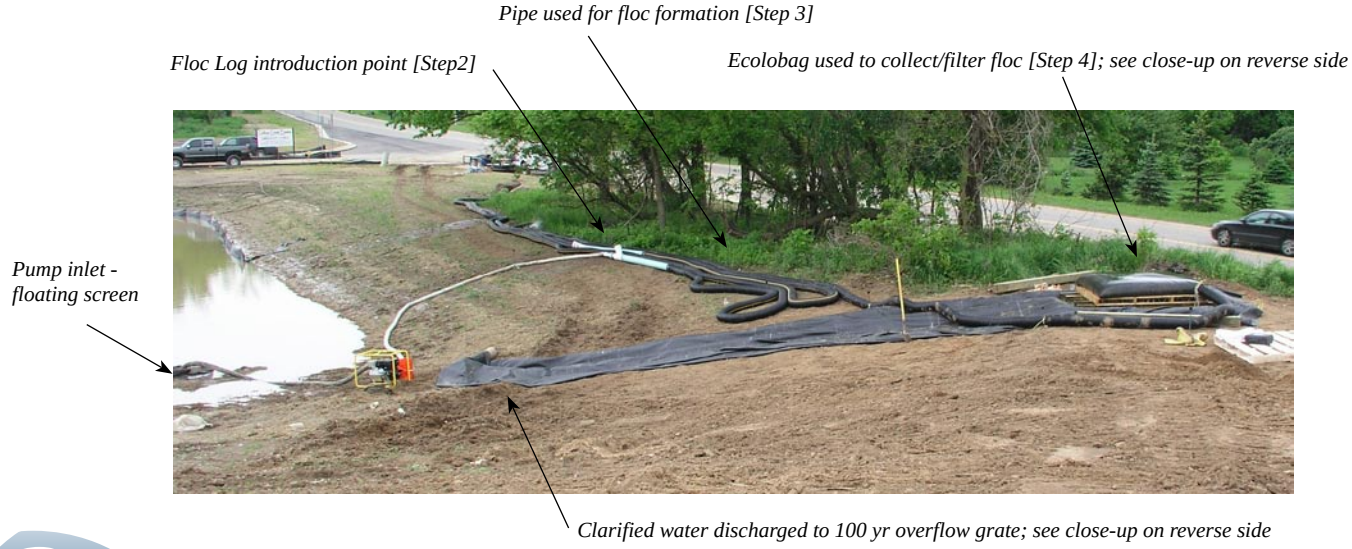
Active Water Clarification Systems

Applied Polymer Systems, Inc. [*APS*] **Floc Logs**® enable environmentally safe, economical clarification of nearly all surface waters contaminated by suspended particles. A previously published *KeyNote*, "Storm Drain System Clarification", provides details as to how to achieve clarified storm water via a 'passive' system, i.e., gravity 'driven'. This *KeyNote* addresses 'active' systems, i.e., pump 'driven' … how they work and what applications are best served by this approach. Each of the four process steps needed discussed within "Storm Drain System Clarification" is required for pump driven systems. As modified for active systems:

Step 1: Polymer Selection
Site specific soil lithology and water chemistries require a match in polymer chemistry to render the desired water quality and polymer use efficiency. No-charge bench tests, conducted by *APS* or its distributors, ensure proper polymer selection, polymer use rates, mix times and floc removal procedures. These bench tests are critical to achieve efficiency and effectiveness of Steps 3 & 4. For instance, time of mix evaluations made during the tests correlate directly to pipe, swale or hose length or required tank size. Furthermore, the floc type produced during testing often guides what components are needed for settlement and/or filtration of the floc and chelates. Bench tests that match polymer to site-specific soil chemistry all but eliminate poor to negligible clarification results and lead to efficient, economical clarification systems.

Step 2: Polymer Introduction
The introduction of *APS* **Floc Logs** into pipes, tanks, hoses, swales, etc., is simple due to their consistency, choice of shapes and securing features. Contact your *Price & Company* **Regional Representative** to determine which methods best fit your project conditions.



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Step 3: Floc Formation
To achieve rapid floc formation, turbulent rather than laminar flow is desired within pipes, tanks, hoses or swales. Again, contact *Price & Company* to inquire what mixing methods will produce optimum results.

Step 4: Settling Time and/or Filtration
Once floc has formed, it must have an opportunity to settle out and/or be filtered from the moving water, depending on the type of floc formed. Heavier floc will settle without filtration. Filtration methods, including baffle grids, particle curtains and filter bags provide removal of lighter floc from moving water. Where water clarity must be optimized to meet regulatory or environmental constraints, both settlement and filtration methods should be considered.

Often, system capacity is set by hydraulic outlet capacities, e.g., maximum release rates from a detention basin. For some applications, system capacity is controlled by required pumping rates, e.g., dredge pump output or maximum time interval between basin/pond holding capacity regeneration. Regardless, the quantity of polymer used within an active system is dependent on the pump operation flow rate [which may or may not be its maximum capacity]. Therefore, the pump output curve should be on-site and referenced during system design and installation.

If the pump intake originates from a turbid water body, the inlet screen should be configured to float, preventing its movement into bottom sediments. Depending on the total number of **Floc Logs** used, one or more introduction points [see Step 2] may be required. To achieve maximum efficiency in polymer performance, consider allowing partial mixing between introduction points. **Floc Logs** may be introduced either up or down-gradient to displacement pumps. If a rotor/stator pump powers an active system, **Floc Logs** should be introduced only down-gradient from the pump. Once a system is in place, system refinements [tweaking] should be expected to achieve optimum results.

Active systems regularly produce reductions in turbidity ranging from 1 to 3 orders of magnitude [10 to 1000 times] for a wide array of applications, including:

- Decorative pond clarification
- Sediment basin clarification
- Detention and retention basin clarification
- Site & excavation dewatering effluents
- Storm drain system cleaning water clarification
- Wheel wash-water clarification
- Hydraulic excavation water clarification
- Mechanical dredging runoff clarification
- Hydraulic dredging water clarification

Active systems can perform on virtually any turbid water condition. Additional information regarding *APS* **Floc Logs** and their related active system applications is available at:

www.siltstop.com

www.priceandcompany.com

Contact your *Price and Company, Inc.* **Regional Representative** for additional information pertaining to the use of **Floc Logs** within active water clarification systems.

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