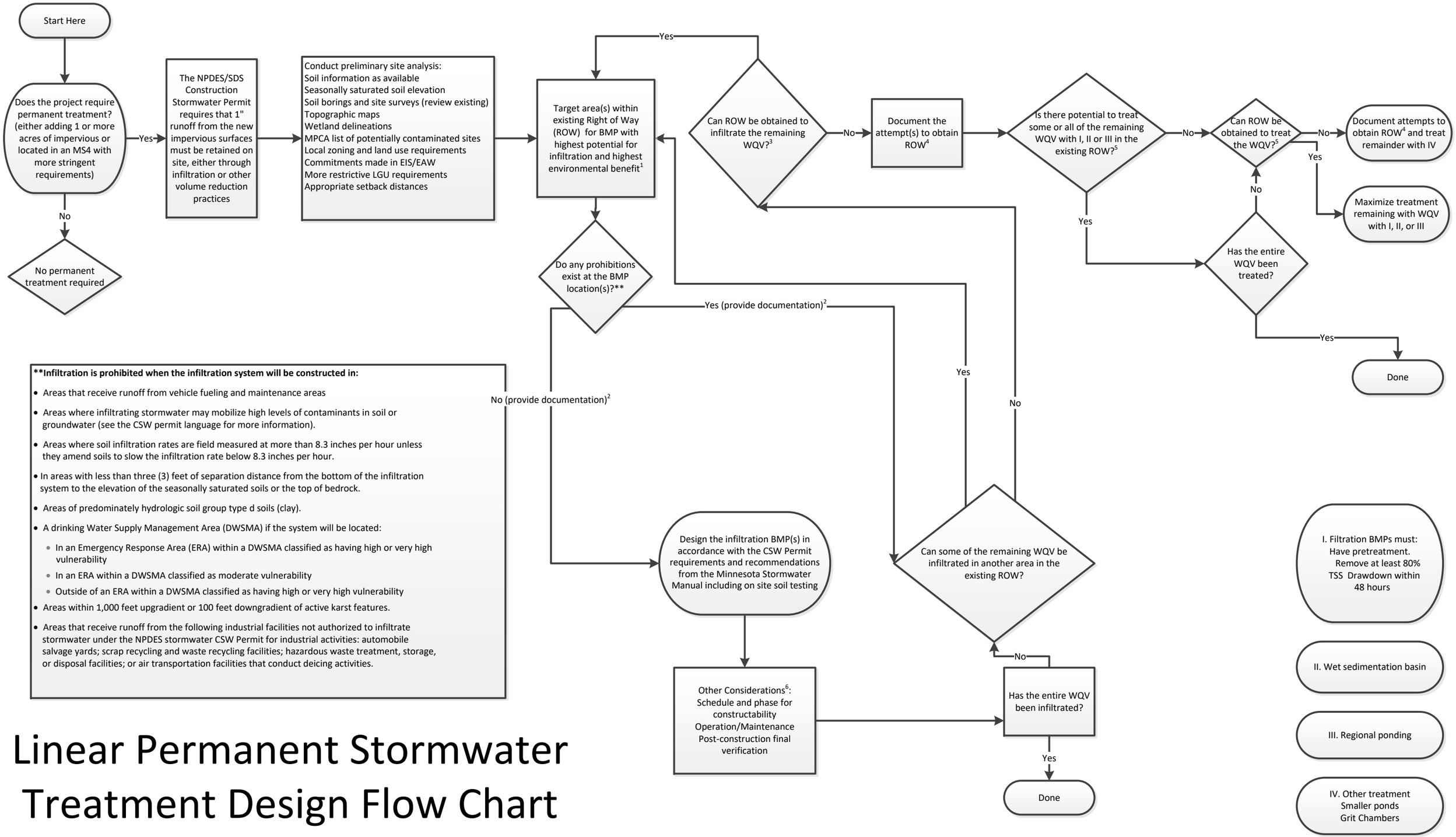
# Linear Permanent Stormwater Treatment Design Flow Chart

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# Linear Permanent Stormwater Treatment Design Flow Chart Supplement

The flow chart is intended to guide Stormwater Pollution Prevention Plan (SWPPP) designers in identifying areas for stormwater treatment and the appropriate type of treatment on linear road projects for compliance with the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater (CSW) Permit. There may be instances where other opportunities for stormwater treatment exist that are not covered by the flow chart such as treating offsite runoff or utilizing some other type of treatment. MPCA staff can assist designers with these decisions.

1: Areas with the highest environmental benefit include areas of the project that discharge to surface waters with highest preference given to special or impaired waters.

2: Permittees must provide at least one soil boring, test pit or infiltrometer test in the location of the infiltration practice in order to determine design infiltration rates, depth to groundwater and soil types. Other examples of documentation could include maps or geotechnical information identifying karst areas or Drinking Water Supply Management Area (DWSMA). The documentation will either be used to show prohibitions exist, or be used to show the system complies with the design requirements in the CSW Permit. Infiltration systems are prohibited if the system will mobilize high levels of contaminates in soil or groundwater. For this requirement, permittees must either complete the MPCA's contamination screening checklist or conduct their own assessment to determine the suitability for infiltration.

3: At this stage, permittees should target acquiring right of way (ROW) in areas that are most likely to provide infiltration, which could include expanding an area that was already identified as able to infiltrate. Use the information obtained in the preliminary site analysis to determine these areas.

4: Potential reasons why obtaining ROW may be infeasible: Land owners requesting more than fair market value, land has structures or otherwise is in use, land owners unwilling to sell, etc. Typically, this step should be completed by the 30% planning phase of the project. All attempts to obtain ROW must be done during the planning phase and documented in the SWPPP.

5: Areas within should be prioritized based on the amount of impervious surfaces the best management practices (BMPs) can treat and areas that will have the highest environmental benefit (near lakes, wetlands, streams, etc.). Other areas could include bridge approaches and decks, stream crossings, or areas adjacent to lakes or wetlands.

6: Other considerations are items to ensure permit compliance after the design phase. It is required that infiltration areas be constructed only after the drainage area is stabilized unless there are rigorous BMPs in place to keep sediment laden runoff completely away from the BMPs. It is important that this phasing plan is addressed in the SWPPP. The BMPs owner responsible for long-term maintenance must be identified. It is also necessary to have a method to ensure that the BMPs is functioning correctly such as visually verifying, testing with a double ring infiltrometer, etc. so the site can meet the CSW Permit termination requirements.