

# CEDS ENVIRONMENTAL SITE DESIGN CHECKLIST

This form is designed to help clean water advocates determine if a stormwater concept plan makes full use of Environmental Site Design (ESD). First the form takes the user through all the sensitive features that should be protected during site planning. A question in bold-italics is provided for each feature. A “no” to this question indicates an important aquatic resource protection opportunity has been missed. Detailed guidance for completing this form is provided on our ESD webpage: [ceds.org/esd](http://ceds.org/esd). Feel free to contact CEDS at 410-654-3021 or [Help@ceds.org](mailto:Help@ceds.org) for assistance in correcting missed opportunities or if any question arise.

SITE NAME:		COUNTY/CITY:				
LOCATION:						
YOUR NAME:		REVIEW DATE:				
E-MAIL:		PHONE:				
If less then 40% of the site is covered by existing impervious surfacings then it's a “new” development project; begin with the Initial Review. If existing impervious surfaces cover more then 40% of the site then it's a redevelopment project and you should go to N ( <i>page 3</i> ).				Yes	No	?
<b>Initial Review</b>						
1. Do plans show that all impervious surfaces will drain to one or more ESD practices?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Do plans show a buffer of undisturbed forest or other vegetation will be maintained along all wetlands, streams, ponds, lakes, tidal waters or other waterways? In other words, do the limits-of-disturbance intrude within 50- to 100-feet of these waters?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Have forest conservation requirements been met onsite ( <i>as opposed to paying a fee in-lieu of</i> )?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Detailed Review</b>						
A Does <i>Web Soil Survey</i> ( <a href="http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm">http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm</a> ) show soils present that have a high erosion factor ( <i>k factor &gt;0.35; if no go to B</i> )?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If high-erosion factor soils are present then are any located on slopes steeper then 25% ( <i>if no go to B</i> )?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>If yes again, then are these steep, highly-erodible soils protected from development?</i></b>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Does <i>Web Soil Survey</i> show soils with more then a 15% slope are present on the site ( <i>if no go to C</i> )?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes then these steep slopes should be protected too, but it varies from locality as to whether disturbance can be prohibited ( <i>if yes go to C</i> )?				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><i>If these moderately steep slopes are proposed for disturbance then do the supporting documents explain how all alternatives have been exhausted?</i></b>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	?
C Will uphill areas drain toward the site ( <i>if no go to D</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If yes, then does the plan show measures for diverting runoff away from the site (if yes go to D).</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If no, then does the plan show that offsite runoff will be safely conveyed through the site in well-vegetated channels, pipes, or other erosive resistant practices?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D Are wetlands, streams, creeks or other aquatic resources present on or adjoining the site ( <i>if no go to E</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If yes, then is a 50- to 200-foot buffer shown along all wetlands, streams, creeks, etc?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E Are forests present on the site ( <i>if no go to F</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, then will all of these forests remain after development ( <i>if yes go to G</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If no, then is an explanation present in the stormwater computations regarding how clustering, Better Site Design, and other measures were exhausted to minimize forest disturbance?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F <i>If forest is absent on the site then have any pervious areas been proposed for conversion to forest?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G Does <u>Web Soil Survey</u> show Hydrologic Soil Groups A-C are present on the site ( <i>if no go to H</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If yes, then are all proposed impervious surface located upslope of these permeable soils?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>If no, then what percentage of the impervious area will be upslope of permeable soils:                    %</i>			
H Do all impervious surfaces drain to one or more of the Chapter 5, micro-scale or nonstructural practice ( <i>if yes go to I</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, then what percentage of the impervious area does drain to these practices:                    %			
Do the stormwater computations contain an explanation of efforts to achieve 100% ESD treatment by:			
1. Reducing impervious area including the use of alternative surfaces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Relocating impervious areas to drain to permeable soils suited for ESD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I Do the stormwater computations show that 100% of the Rainfall Target ( $P_E$ ) has been treated with ESD Practices ( <i>if yes go to J</i> )?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not, then what percentage of the Rainfall Target has been treated with ESD Practices:                    %			
Do the stormwater computations contain an explanation of efforts to achieve 100% $P_E$ treatment by:			
1. Reducing impervious area including the use of alternative surfaces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Yes	No	?
2.	Relocating impervious areas to drain to permeable soils suited for ESD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Increasing the surface area or depth of micro-scale practices?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Will structural, end-of-pipe practices ( <i>the least preferred option</i> ) be used to treat the remainder of the P <sub>E</sub> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J	Will the site contain any uses considered hotspots as defined in <u>Section 2.8</u> of the 2000 Manual?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If yes, then is runoff from these areas treated with practices that contain underdrains or other measures to prevent infiltration and groundwater contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>UNIQUELY SENSITIVE WATERS</b>				
K	Is the project located in the drainage area of High-Quality (Tier II) Waters listed at: <a href="http://mde.maryland.gov/programs/Water/TMDL/Water%20Quality%20Standards/Pages/HighQualityWatersMap.aspx">http://mde.maryland.gov/programs/Water/TMDL/Water%20Quality%20Standards/Pages/HighQualityWatersMap.aspx</a> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L	Is the project located in the drainage of a waterway listed on MDE's TMDL webpage: <a href="http://mde.maryland.gov/programs/Water/TMDL/CurrentStatus/Pages/Programs/WaterPrograms/TMDL/Sumittals/index.aspx">http://mde.maryland.gov/programs/Water/TMDL/CurrentStatus/Pages/Programs/WaterPrograms/TMDL/Sumittals/index.aspx</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M	Does the Maryland Environmental Resources & Land Information Network (MERLIN) website ( <a href="http://www.mdmerlin.net">www.mdmerlin.net</a> ) show that the site drains to a Wetland of Special State Concern or a Sensitive Species Project Review Area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N	If your answer was yes to K, L, or M <b>and</b> the project will cause watershed forest cover to drop below 50% then you should aggressively lobby for more forest retention?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>REDEVELOPMENT &amp; ESD CLEAN WATER PROTECTION OPPORTUNITIES</b> (Existing impervious area is greater than 40% of site area)				
O	Does the concept plan show Limits Of Disturbance (LOD)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Does the LOD seem reasonable in that it extends sufficiently far from proposed structures to allow for construction activity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P	Does the plan show that:			
	1. Impervious area within the LOD will be reduced by 50% or more? <i>Or</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. ESD Practices have been used to treat the Water Quality volume (WQ <sub>v</sub> ) for at least 50% of the existing impervious area within the LOD? <i>Or</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. A combination of impervious area reduction and ESD treatment has been used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If the answer is yes to any of these three questions then go to S, otherwise go to Q.			
Q	Have any of the following alternatives to the three preceding options been used:			
	1. Treat 50% of existing imperviousness WQ <sub>v</sub> with <b>on-site</b> structural Best Management Practices? <i>Or</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Treat 50% of existing imperviousness WQ <sub>v</sub> with <b>off-site</b> structural BMPs? <i>Or</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

