

Applicant Use	<b>DETENTION BASIN REVIEW CHECKLIST</b>		Official Use
<b>HYDROLOGIC DESIGN</b>			
	Verify input model for pre-development and developed land use, soil type and areas are consistent with site plan and other documentation.		
	Interconnected Pond simulation model used to size detention pond utilizing SCS runoff hydrographs.		
	If separate threshold discharge areas exist, verify that they meet criteria		
	If impervious areas are not included in model because they are considered ineffective, verify that dispersion criteria are met per appropriate BMP to designated impervious area as ineffective.		
	Verify model report is submitted and verify that detention facility meets discharge criteria.		
	Verify model computer file is submitted with project, consider running model to verify report conclusions.		
	Check that layout of detention pond and control structure design shown on site plans/drainage plans is consistent with results of model.		
	A schematic of the hydrologic modeling parameters (network diagram of model, or equivalent) should be provided with basin designations matching basin designations on drainage work map required to be included in the Drainage Report.		
<b>SPECIAL REQUIREMENTS</b>			
	Is a permit from Division of Water Required		
	Is a separate tract established that encompasses the detention pond, access roads, and associated appurtenances and structures and is there is at least a 20-ft separation between any facility, the catch point of fill or cut slopes, or access road to the tract line.		
<b>POND GEOMETRY &amp; STRUCTURAL DESIGN</b>			
	Interior side slopes steeper than 3H:1V are provided with protective fencing.		
	If interior or exterior side slopes steeper than 2H:1V are proposed, is the design addressed in the geotechnical report by a licensed professional engineer with geotechnical expertise.		
	If retaining walls or rockeries are proposed have they been designed by a licensed professional engineer.		
	Is the flow path from pond inlet to outlet maximized to the extent feasible to prevent sedimentation? Verify that the inlet to the pond is not via the control structure or outflow conveyance system.		
	Is a debris barrier (trash rack) provided for the pond outlet and for any pond inlet pipes.		
	If an embankment is proposed (i.e. berm construction above existing grade) to impound water, a geotechnical engineer is required to design the embankment for slopes steeper than 2H:1V and greater than 6-ft in height.		
	Is a pond berm embankment “key” equal to 50% of the berm embankment cross-sectional height and width included in the design?		
	Is the pond berm embankment constructed on fill soils? If so, a geotechnical engineer shall provide design and design should be included in geotechnical report.		
	Are anti-seepage collars provided on pipes through embankments ponding greater than 8-ft of water.		
	Is any pond berm embankment soils and compaction specified by a geotechnical engineer?		

	Is all exposed earth on embankment either sodded or seeded? No trees or shrubs are allowed to be planted on berms taller than 4 feet. Trees or shrubs planted on berms 4 feet or smaller shall not exceed 20 feet mature height and have a fibrous root system.	
	Is the top of berm width at least 10-feet, or as recommended by a geotechnical engineer? If the top of berm is to be used for maintenance access, minimum width is 15-feet.	

<b>SETBACKS</b>		
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	Is the maximum water surface elevation shown on the drainage plan and also shown in the pond cross-section?	
	Is there at least a 2-foot vertical clearance from the maximum water surface to any structures (buildings) within 25-feet?	
	Is there at least a 20-foot horizontal separation from the maximum water surface to property lines, structures, sewer lines and the tract property boundary line?	

<b>ACCESS ROADS</b>		
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	Is access to the detention pond provided from a public street or right-of-way?	
	For access to the detention pond outside of the public right-of-way is a minimum 15-foot easement provided? Is the easement provided with a minimum 12-foot width all weather surface such as crushed rock ?	
	Is an access road provided to the control structure and other drainage structures associated with the detention pond? If pond maintenance is to be performed from the access road (i.e. no ramp to pond bottom) the access road should extend around the pond perimeter.	
	Is the pond access road grade less than 15% and less than 12% to the control structure?	
	Minimum horizontal curve radius 40-feet.	
	If access road length exceeds 75-ft a turnaround must be provided for a 31-ft length design vehicle with an inside wheel path radius of 40-ft.	
	Is paved apron provided where access road connects to paved public roadway?	
	Is a gate or are bollards provided for the access road? Vehicle access shall be limited by a locking gate or bollards. Gates are required if pond is fenced and must be located only on a straight section of road?	

<b>ACCESS RAMPS</b>		
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	Access ramp required unless applicant demonstrated that a 20-ft reach track hoe can access all areas of the pond from the perimeter access road? Perimeter access road shall be extended around entire perimeter of pond (see above).	
	Access ramp grade less than 15%.	
	Access ramp width at least 12-feet.	
	Access ramp section of suitable design to provide year round access? Standard section of geotextile over native soils with 6-inches of crushed rock allowed, but slope limited to 12% maximum for this design.	
	Ramp extended to bottom of pond for bottom area greater than 1,500 square feet? Otherwise ramp may end 4 feet (measured horizontally) from pond bottom.	

**CONTROL STRUCTURE**

	Orifice(s) and weirs sizes and elevations match hydrologic model output.	
	Control structure detail provided in plans	
	Minimum clear space of 6-inches provided from top of riser to bottom of structure lid.	
	Minimum orifice diameter > 4"	
	Backwater affects possible for outlet pipe? If so, have they been analyzed for.	
	1-ft separation from bottom of structure to lowest orifice?	
	1-ft minimum separation from lowest orifice to outlet pipe invert?	
	Capacity of overflow riser adequate to pass 100-year storm?	
	Grated bar inlet structure provided and designed to pass 100-year storm? Bar spacing 4".	

**EMERGENCY SPILLWAY**

	Emergency spillway provided and designed to pass 100-year developed peak flow?	
	Minimum freeboard above maximum water surface elevation of 6-inches.	
	Discharge from spillway or overflow directly to downstream conveyance system or other acceptable discharge point.	
	Armored to full width, beginning at a point 2 ft below the 100yr-24hr water elevation inside the pond and extending it across the berm embankment to downstream where the emergency overflow reenters the conveyance system.	

**SIGNAGE AND FENCING**

	Fencing provided where pond slope greater than 3H:1V above emergency overflow water surface, or where there are walls greater than 30-inches in height.	
	If a public facility – pond tract fenced with 6-ft chain link.	
	Wood fence or other alternative fencing/shrubbery screening allowed for private facilities.	

**PLANTINGS & LANDSCAPING**

	Disturbed soil quality and depth restored ?	
	Pond interior side slopes and bottom sodded or seeded with appropriate seed mixture	
	All remaining areas of storm pond tract seeded, sodded or landscaped ?	
	No trees or shrubs within 25-feet of inlet or outlet pipes or drainage structures.	
	No water seeking plants such as willow or poplar within 50-ft of structures.	
	Trees and shrubs planted in clumps to form landscape island a minimum of 6-feet apart and 6-feet to fences and other barriers.	
	Evergreen trees or trees with little leaf fall in areas draining to pond.	
	Deciduous tree set back from pond so branches do not extend over pond.	

## SUBMITTAL INFORMATION

### DRAINAGE REPORT

	Is the report Stamped, Signed, & Bound Storm Water Report by Licensed PE in KY?	
	Is the Project Name & Location?	
	Is the Owner Name & Contact Information?	
	Is the Engineer Name & Contact Information?	
	Is the date of submittal listed?	
	Is the Design Narrative (Existing Site, Proposed Development, etc.) included?	
	Is the Project Location Map shown?	
	Is a USGS Map for with Project Site shown (1" = 1000' or better)?	
	Is the Soil Type Map & Soil Classification shown?	
	Is the project within a Flood Insurance Rate Map (FIRM)?	
	Is the Existing Drainage Area Map Whole Site (1" = 50' or better) shown?	
	Is the Sub-Watersheds delineated?	
	Are the Sub-Watersheds labeled (must co-relate to the model)?	
	Are the C-Factor or CN for each Sub-Watershed?	
	Are the Impervious Area shown with a Hatched Pattern?	
	Is Detention Basin Analysis performed using SCS Method?	
	Does the Sub-Water sheds information match the Drainage Area Maps?	
	Is the Plan View of the interconnectivity of Watersheds shown?	
	Is TR-55 Methodology for Time of Concentration (Tc) used?	
	Hydrologic modeling results including schematic of model setup referencing model basin identifies to basins and sub-basins shown in the work map and hydrologic model.	
	Work map showing sub basins and basins contributing to the detention pond with basin identifies corresponding to the nomenclature used in the hydrologic model.	
	Summary table of contributing sub basins identifying soil type and areas of impervious, landscape, forest, etc. corresponding to hydrologic model inputs.	
	Document how all required facility setbacks are met.	
	Geotechnical report including analysis of embankment berms, slope stability for steep slopes located within setback distances or within 300-ft of the top of a slope designated a landslide hazard area, retaining wall design, and any other analysis required by geotechnical engineer.	
	If pond is to provide for infiltration and detention, document soils testing requirements per infiltration facility standards.	
	Design calculations for overflow structures, emergency spillway, and outfall protection.	
	Show on work map the location of natural drainage channels and show a clear path of overflow to downstream collection point from emergency spillways.	

**CONSTRUCTION DRAWINGS**

	Show existing topography based on field verified survey.	
	Show proposed topography and extend proposed topography to catch points.	
	Show tract boundaries and easements with widths and location of easement markers.	
	Planting plan showing plant species, quantity, location and any special planting requirements.	
	Design and maximum water surface shown in plan view.	
	Design and maximum water surface shown in pond cross-section	
	Provide at least one pond cross-section through the control structure.	
	Details of emergency spillway provided.	
	Details of control structure shown – include control structure detail showing elevations of orifices, riser overflow, top of structure, etc.	
	Proposed design and location of information sign including sign specifications.	