



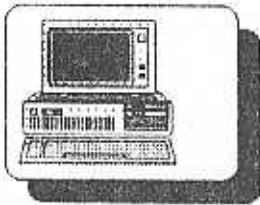
Howard Soil Conservation District
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ENGINEERING NEWSLETTER

August 1993

WHAT'S NEW

New TR-55 (Version 2) . . . is now available through our office. We operate on a "bring your own disks" basis for copies, preferably on 2 low density, double-sided, 5-1/4" disks. While computational methods are virtually unchanged, the new program features some enhancements and debugging of the earlier version.



New TR-20 (Version 2.04) . . . is also now available through our office with the same "bring your own disks" basis as above. Major changes to the 1986 version include:

- * **Hydrograph Generation:** Total hydrograph volumes and peaks are prescribed; main time increments have increased from 300 to 400 (better definition).
- * **Att-Kin Routing:** Separate channel and floodplain lengths can be modeled; multiple peaks are better handled.
- * **Flow Duration:** Now available upon request.
- * **Output 80-Columns:** Output fits 80-column paper; hydrograph coordinates over 100 cfs are now rounded to whole numbers.
- * **Errors, Warnings, & Messages:** Expanded and updated.
- * **List Options:** Allows selected parts or all input data to be printed.
- * **Intermediate Peaks:** Requires new IPEAKS record.
- * **Rainfall Tables:** Has built-in time increment of 0.1 hr., for more refined hydrographs.



New MD-378 (November 1992) . . . is available through our office. Requirements therein are now mandated for all applicable ponds designed and constructed in Howard County. Note that construction specifications contained therein are retroactive, so please warn your clients so they can inform their contractors and suppliers before the work begins.

New Developer's Certificate -- The Developer's Certificate has been updated to include a statement regarding the supervision and certification of ponds by licensed professional engineers. Please use the attached certification on all pond-related plans. The necessity for a professional engineer is nothing new, just reiterated from current regulation.



New MD-14 -- Please complete this form, which is also attached, for each pond within your development plans. Note that, according to pending DNR regulation, MD-14s will need to be updated and resubmitted during the as-built process. So, please stay tuned . . .

Operation, Maintenance, And Inspection -- The Soil Conservation Service and the Maryland Water Resources Administration have voiced their concerns regarding the lack of operation and maintenance (O&M) plans for ponds. They are also concerned that ponds are not being inspected on a periodic basis. Therefore, as a minimum, the attached "Operation, Maintenance, And Inspection" note shall be added to all pond plans.

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PONDS

Metal Pipes and Risers . . . when used in ponds, must meet current (11/92) SCS Code MD-378 specifications. However, please note that a recent directive issued by the Howard County Department of Public Works now requires the use of concrete pipe for all SWM ponds.

Concrete Pipe . . . used as pond barrels are required to meet ASTM C-361 specifications and must be noted accordingly on the plans. However, pipe manufacturers also need to know the pipe class, e.g., B-25, C-50, etc., as defined in Table 1 of the specifications. Please include the pipe class on the plans, profiles, and details. Please be sure not to mistakenly use the I, II, III, IV classifications commonly used for storm drain RCCP.

Concrete Cradles -- While maybe subtle, these have an effect on the potential piping path. Please be sure to account for the cradle thickness when designing anti-seep collars, i.e., increase their vertical dimensions due to increase in saturated pipe length and cradle thickness.

Ultimate Land Use . . . is a term used when considering watershed characteristics for ponds. Our best "guess" can only come from the most current County zoning maps. However, there have been cases where watersheds have been made even more impervious (higher RCN) than what zoning assumptions would dictate. Also, we have seen cases where RCN computations are based on a single lot RCN deemed "typical" by the engineer and applied to the entire development. This is fine as long as the value is greater than that published in TR-55 for a particular lot density, otherwise, please stick with TR-55. Remember, most of these ponds are to remain indefinitely while changes in watershed continue, usually becoming more impervious. Responsibly, we need to keep designs conservative in anticipation of these changes.

Undiverted Runoff -- We have noticed a few cases in which inlets, curb openings, etc. are credited as diverting runoff away from a pond. This superficial means of removing drainage area to the pond will be closely scrutinized, since these diversion structures also have an associated efficiency, above which flows bypass the opening to continue on their original path. In "real life," these openings are often clogged with debris, even further reducing their efficiency. Please avoid such situations.

Freeboard, Anti-seep Collars, and Impervious Cure . . . are pond safety (i.e., not SWM) aspects of ponds. The small water quality (extended detention or otherwise) orifices and volumes must be assumed to be blocked and unavailable during routing of the pond. These "real life" assumptions must be reflected in the design of these aspects, which determine design high water (DHW) and phreatic elevations. This, in effect, divides SWM reports into a SWM section and a Pond Safety section. Low flow/stage openings in the riser at the pond bottom elevation, regardless of size, must also be assumed to be blocked.

As-Built Requirements -- The Howard Soil Conservation District and the Water Resources Administration believe they have clarified the role of professional engineers regarding the design, construction, and as-built plans for ponds. See the attached "HSCD Developer & Engineer Certificates" and "As-Built Certification" for definition and details. Basically, as required by State law, licensed professional engineers are to design, supervise construction, and certify ponds as having met the approved plan and specifications. Developers should be reminded of this requirement so that they may plan for the engagement of a licensed professional engineer throughout the development process.

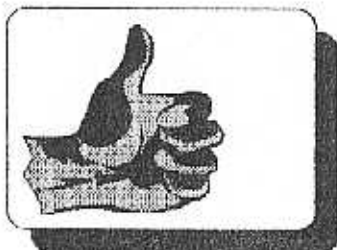
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Existing Ponds On Development Sites . . . must be safe! Our policy has always been to allow for one of the following:

- 1) Certification by a licensed professional engineer that the pond, as is, meets current specifications (MD-378), *or*;
- 2) Upgrading of the pond and certification by a licensed professional engineer that the pond meets current specifications, *or*;
- 3) Removal of the pond.

The Howard Soil Conservation District's policy is that ponds in this District must be certified to meet minimum safety standards. Many of Howard County's developments involve old farms, businesses, etc. that have ponds which predate any official supervision. Regardless of its intended use, a pond must be safe. Unfortunately, many of these old ponds involve structures which are near the end or beyond their normal life span.

Thus, the certification requirement should instigate full and proper investigations of a pond's condition by a licensed professional engineer. These investigations may include soil borings, excavations, as-built investigations, visual inspection, survey and any other additional tests the engineer feels is necessary to warrant his/her certification.



EROSION & SEDIMENT CONTROL

Standard Sediment Control Plan . . . is a "boiler-plate" plan that MDE allows Districts to develop for common, low impact disturbances. We have updated the plan and its limitations to address concerns from both builders and inspectors. Of significance, the Standard Plan no longer may be used on lots that are less than 2 acres and part of a previously approved sediment control plan. Also, inspectors may now require dike/traps to isolate the disturbed area as necessary. The new **Standard Sediment Control Plan** will take effect September 1, 1993. Copies are available at the Department of Inspections, Licenses, & Permits, Sediment Control Division, (410) 313-1855.

1991 Maryland Standard & Specifications For Soil Erosion & Sediment Control . . . are now available from MDE. For a copy of the new specs, please contact their office at:

Maryland Department of the Environment
Water Management Administration
2500 Broening Highway, Bldg. 30, 1st Floor
Baltimore, MD 21224
(410) 631-3543



The current price is \$15.00 per copy.

The use of the 1983 Standards & Specs are optional up to October 1, 1993, after which time the new 1991 Standards & Specs will be required on all Sediment Control Plans.

Please note that temporary stormwater management, complete with back-up computations, is still required per our previous newsletters. While sediment storage requirements have doubled, the temporary stormwater management volume is dependent upon computations.

HOWARD SOIL CONSERVATION DISTRICT

DEVELOPER & ENGINEER CERTIFICATES

() By The Developer:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Signature of Developer
Print name below signature

Date

() By the Engineer:

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

Signature of Engineer
Print name below signature

Date

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

Signature

PE No. _____
Date _____

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards And Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

APPENDIX A

DAM INSPECTION CHECKLIST

To help the dam owner perform periodic safety inspections of the structure, a checklist is provided. Each item of the checklist should be completed. Repair is required when obvious problems are observed. Monitoring is recommended if there is potential for a problem to occur in the future. Investigation is necessary if the reason for the observed problem is not obvious.

A brief description should be made of any noted irregularities, needed maintenance, or problems. Abbreviations and short descriptions are recommended. Space at the bottom of the form should be used for any items not listed.

DAM _____		DATE _____		Y / M	MON I T O R	R E P A I R	I N V E S T I G A T E
OWNER _____		WEATHER _____					
INSPECTED BY _____		POOL LEVEL _____					
Item	Comments						
1. CREST							
a. Visual settlement?							
b. Misalignment?							
c. Cracking?							
2. UPSTREAM SLOPE							
a. Erosion?							
b. Ground cover in good condition?							
c. Trees, shrubs, or other woody vegetation?							
d. Longitudinal/Vertical cracks?							
e. Adequate riprap protection?							
f. Stone deterioration?							
g. Settlements, depressions, or bulges?							
3. DOWNSTREAM SLOPE							
a. Erosion?							
b. Ground cover in good condition?							
c. Trees, shrubs, or other woody vegetation?							
d. Longitudinal/Vertical cracks?							
e. Riprap protection adequate?							
f. Settlements, depressions, or bulges?							
g. Soft spots or boggy areas?							
h. Movement at or beyond toe?							
i. Bolls at toe?							
4. DRAINAGE-SEEPAGE CONTROL							
a. Internal drains flowing?	Est. Left _____ gpm	Est. Right _____ gpm					
b. Seepage at toe?	Estimated _____ gpm						
c. Does seepage contain fines?							

INSPECTION CHECKLIST - PAGE 2		Y / N	M O N I T O R	R E P A I R	I N V E S T I G A T E
INSPECTED BY _____	DATE _____				
Item	Comments				
5. ABUTMENT CONTACTS					
a. Erosion?					
b. Differential movement?					
c. Cracks?					
d. Seepage?	Estimated _____ gpm				
e. Adequate erosion protection for ditches?					
6. INLET STRUCTURE Concrete or Metal Pipe (circle one)					
a. Seepage into structure?					
b. Debris or obstructions?					
c. If concrete, do surfaces show:					
1. Spalling?					
2. Cracking?					
3. Erosion?					
4. Scaling?					
5. Exposed reinforcement?					
6. Other?					
d. If metal, do surfaces show:					
1. Corrosion?					
2. Protective Coating deficient?					
3. Misalignment or split seams?					
e. Do the joints show:					
1. Displacement or offset?					
2. Loss of joint material?					
3. Leakage?					
f. Are the trash racks:					
1. Broken or bent?					
2. Corroded or rusted?					
3. Obstructed?					
4. Operational?					
g. Sluice/Drain gates:					
1. Broken or bent?					
2. Corroded or rusted?					
3. Leaking?					
4. Not seated correctly?					
4. Periodically maintained?					
5. Operational?					

INSPECTION CHECKLIST - PAGE 3		Y/N	MONITOR	REPAIR	INVESTIGATE
INSPECTED BY _____	DATE _____				
Item	Comments				
7. PRINCIPAL SPILLWAY PIPE					
		Concrete or Metal Pipe (circle one)			
a. Seepage into conduit?					
b. Debris present?					
c. Do concrete surfaces show:					
1. Spalling?					
2. Cracking?					
3. Erosion?					
4. Scaling?					
5. Exposed reinforcement?					
6. Other?					
d. Do the joints show:					
1. Displacement or offset?					
2. Loss of joint material?					
3. Leakage?					
8. STILLING BASIN/POOL					
		Riprap or Concrete (circle one)			
a. If concrete, condition of surfaces?					
b. Deterioration or displacement of joints?					
c. Outlet channel obstructed?					
d. Is released water:					
1. Undercutting the outlet?					
2. Eroding the embankment?					
3. Displacing riprap?					
4. Scouring the plunge pool?					
e. Tailwater elevation and flow conditions:					
9. EMERGENCY SPILLWAY					
a. Is the channel:					
1. Eroding or backcutting?					
2. Obstructed?					
b. Trees or shrubs in the channel?					
c. Seepage present?					
d. Soft spots or boggy areas?					
e. Channel slopes eroding or sloughing?					
10. RESERVOIR					
a. High water marks?					
b. Erosion/slides into pool area?					
c. Sediment accumulation?					
d. Floating debris present?					
e. Adequate riprap protection for ditches?					