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NATIONAL ENGINEERING HANDBOOK SERIES
210-VI
Amendment FL-1

SUBJECT: ENG - NATIONAL ENGINEERING HANDBOOK, PART 630, HYDROLOGY, FLORIDA AMENDMENTS

Purpose. To supplement the National Engineering Handbook (NEH), Part 630, Hydrology.

Effective Date. This amendment is effective when received.

The NEH, Part 630, Hydrology needs to be updated with Florida information that was in the Technical Release 55.

Filing Instructions. The attached amendments are to be filed in the NEH, Part 630, Hydrology.

Delete Pages	Insert Pages
-----	NEH Notice Florida Amendment FL-1
-----	FL7-v (09/08)
-----	FL7-3a – FL7-3b (09/08)
-----	FL9-iii (09/08)
-----	FL9-6a – FL9-6b (09/08)
-----	FL15-i (09/08)
-----	FL15-10a – FL15-10b (09/08)
-----	FL16-iii (09/08)
-----	FL16-14a – FL16-14b (09/08)

Questions regarding the attached amendment should be directed to the SCE.

Jesse T. Wilson
State Conservation Engineer

Enclosure

DIST: A, F, ENG

Chapter 7 Hydrologic Soil Groups

Contents

FL630.0700 Hydrologic soil groups: Drainage and group D soils FL7-3a

FL630.0700 Hydrologic soil groups: Drainage and group D soils

Some soils are in hydrologic group D because of a high water table. Once these soils are effectively drained, they may be reclassified as shown below, but shall not exceed their drained classification:

Effective Drainage Depth in Inches	Hydrologic Soil Group
20 to 36	C
36 to 48	B
Greater than 48	A

Effective drainage is defined as having good surface drainage with a designed subsurface drainage system .

properly installed and maintained with a removal rate of at least 0.5 inches per day.

Another acceptable procedure is to compute S from soil characterization data or field measurements to the effective drainage depth and compute CN from the formula:

$$CN = \frac{1000}{S + 10}$$ [see Eq. 10-12, Part 630, Chapter 10]

Caution: Where subsurface drain tubing is used, its normal life span and the effect of a possible failure must be carefully considered. Soil containing iron may have a high potential for plugging (ochre) and fail without proper maintenance. Soils should be tested for iron. See Florida Drainage Guide for recommendations.

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Chapter 9 Hydrologic Soil-Cover Complexes

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FL630.0901	Estimating curve number for containerized nursery production on geotextiles		FL9-6a
Tables	**Table FL9-3**	Runoff curve numbers for containerized nursery operations in Florida	FL9-6a

FL630.0901 Estimating curve number for containerized nursery production on geotextiles

The TR-55 curve number table does not have a value for areas covered with geotextile. The closest approximation would be Artificial Desert Landscaping (impervious weed barrier, desert shrub with 1-2 inch sand or gravel mulch and basin borders).

Literature values for a ground cover of geotextile do not currently exist. Dr. Thomas Yeager of the University of Florida currently has a research project to measure runoff values for geotextile, so this amendment will be updated when that work has been completed.

The values presented in Table FL2-2e are based upon professional judgment and upon consultation with other engineers from the NRCS National Office and the NRCS Water and Climate Institute.

Table FL9-3 - Runoff curve numbers for containerized nursery operations in Florida[1/]

----------Cover description---------- cover type and hydrologic condition	------CN for Hydrologic soil group----- A	B	C	D
Nursery production area, geotextile [2/]	94	95	96	96
Nursery production area, geotextile underlain with impermeable barrier such as black plastic	98	98	98	98
Nursery production area, geotextile underlain with porous material such as crushed rock (the geotextile should have high permeability)	88	90	92	94
Access Roads - Dirt	72	82	87	89
Access Roads - Gravel	76	85	89	91
Access Roads - Paved	98	98	98	98
Greenhouse Roof	98	98	98	98

[1/] Average runoff condition, and $I_a = 0.2S$

[2/] Curve numbers are based upon expert opinion in consultation with Engineers from the Water and Climate Institute and with the National Hydraulic Engineer. Currently, Tom Yeager with IFAS is working on a research project to determine runoff amounts from different geotextiles used in the nursery production industry. Once this research is completed, this amendment will be modified to include research data. Professional experience should be used in the application of these curve numbers. If curve numbers other than those listed above are used for geotextiles, then the basis for that decision should be documented.

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Chapter 16 Hydrographs

Contents

FL630.1604 Unit hydrograph development – peak use factor FL16-14a

FL630.1604 Unit hydrograph development – peak use factor

For watersheds with an average watershed slope of 0.5 percent or less, a peak use factor (PRF) of 284 (previously referred to as the DelMarVa unit hydrograph) can be used.

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Chapter 15 Travel Time, time of Concentration

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Curve number method for estimating lag FL15-10a

Figure

Figure FL-15.3 Runoff curve numbers for containerized nursery operations in Florida FL15-10b

Chapter 15. Curve number method for estimating lag

For small watershed areas (less than 2,000 acres) the curve number method can be used to estimate T_c from watershed lag. The curve number method was developed to span a broad set of conditions ranging from steep to flat and from heavily forested to smooth. The equation for watershed lag is:

$$L = \frac{\ell^{0.8}\,(S+1)^{0.7}}{1900\,Y^{0.5}}$$

where L = lag in hours

ℓ = hydraulic length of watershed in feet

$$S = \frac{1000}{CN} - 10$$

CN = hydrologic soil cover (Use CN as obtained from Chapter 2 of TR-55)

Y = average watershed land slope in percent

Fig. FL-15.3 shows the solution to the above equation in graph form. T_c is equal to 1.67 x L.

Limitations. The procedure for computing T_c as currently covered in TR-55 is the preferred method. However, the curve number method can be used with the following limitations:

1. Agriculture watersheds of 2,000 acres or less
2. Using the graphical method for computing peak discharge

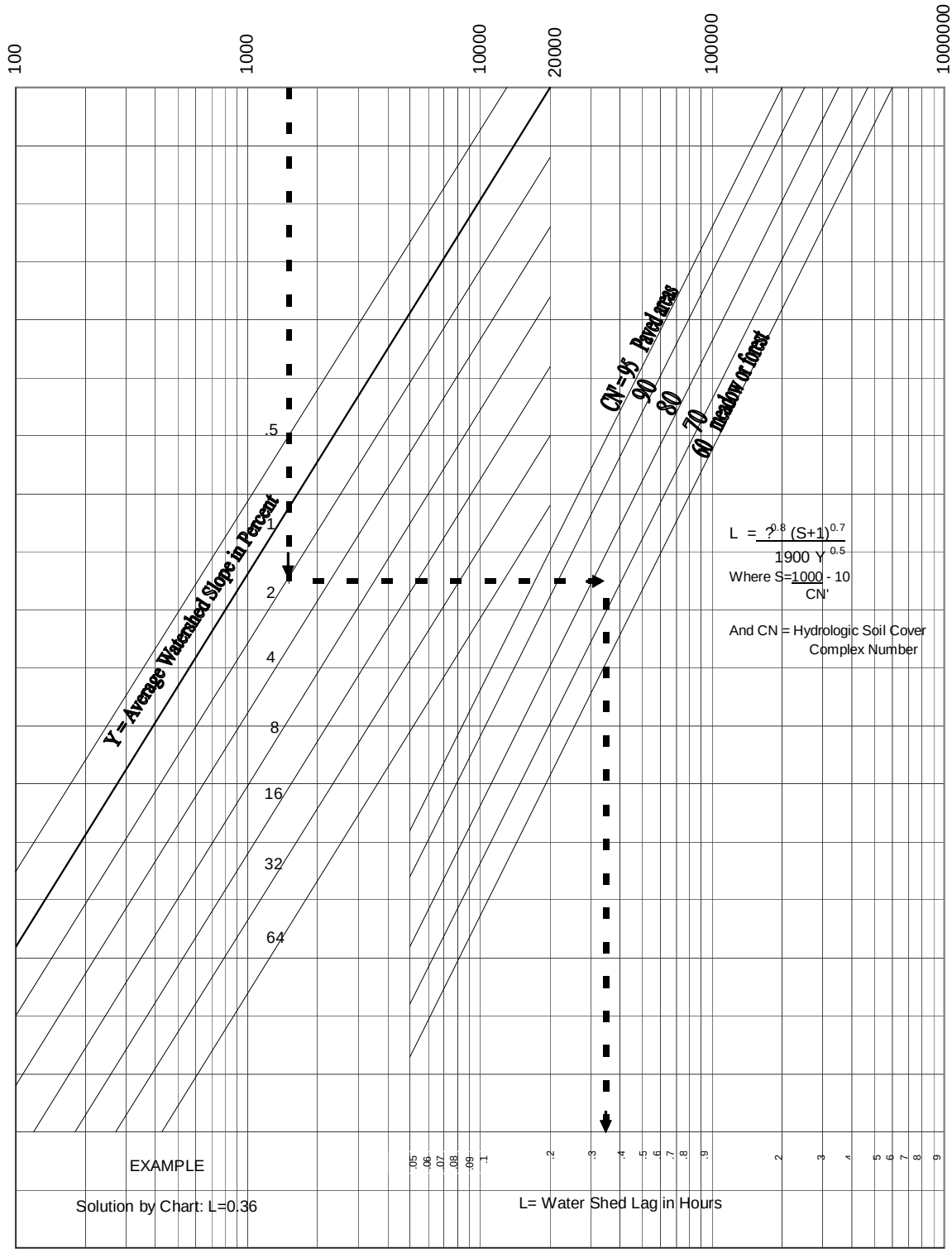

Figure FL-15.3 ------ Curve number method for estimating lag (L)

Time of Concentration,
$T_c = 1.67\ L$
Limited to: (1) Agricultural watersheds of 2,000 acres or less
(2) Using the graphical method for computing peak discharge