

BVW Delineation Handbook 2022 Updates: Hydric Soils

Deborah Henson, PhD, CPSS

Senior Lecturer II & Associate Department Head
Department of Environmental Conservation
UMASS Amherst

Overview of Updates

- Recognition of Hydric Soils as a distinct parameter for BVW delineation
 - Acknowledging that Soils provide the best evidence of current site hydrology (barring the existence of artificial site drainage).
- Improved consistency with Federal hydric soil indicators
- Addition of multiple Appendices focused on Soils.

General Approach Taken

- Incorporate “best science” available, while making the body of the document most useful to lay persons who serve on Conservation Commissions.
- Include detailed Field Indicators of Hydric Soil in an Appendix.
 - > Listed Indicators are representative and not “all-inclusive”
- Separate out **Common Hydric Soil Field Indicators** from **Difficult to Analyze Hydric Soils** to provide guidance on when greater experience may be needed to make hydric soil assessment
 - *“Difficult to Analyze Soils” include “Problem Soils*” but these headings are not meant to be synonymous.*
 - *as defined by ACOE, 2012 Regional Supplement NC/NE v.2 – Chapter 5

Question 1:

- Will DEP Issue guidance that will in some way allow for updates to soil science of hydric soils? (Such as referencing the “Field Indicators of Hydric Soils in New England”)

Question: • Will DEP Issue guidance that will in some way allow for updates to soil science of hydric soils? (Such as referencing the “Field Indicators of Hydric Soils in New England”)

- Firstly, there is no regulatory restriction requiring that only the “Handbook listed” indicators can be used.
 - If a soil meets the definition of a Hydric Soil, evidence may be provided to the regulatory authority (local ConCom/MADEP) to demonstrate this.
- Secondly, the new BVW Delineation Handbook (Appendix F) includes language that refers the user to find more comprehensive hydric soil indicator information in the contents of:
 - 1) USACOE, 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral/Northeast region (Version 2.0)*; and
 - 2) USDA, NRCS, 2018. *Field Indicators of Hydric Soils in the United States, Version 8.2*.

Additionally, the USACOE issued guidance in July 2017 recognizing / approving the use of the New England Field Indicators (Version 4) for use in “Chapter 5” situations.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

CENAE-RDP

July 6, 2017

MEMORANDUM FOR THE RECORD

SUBJECT: *Field Indicators for Identifying Hydric Soils in New England (Version 4)*. New England Hydric Soil Technical Committee (NEHSTC), May 2017

1. The above-referenced guide is an update of the previous version released in 2004. It clarifies and refines the 2004 version based on extensive field testing. This guide is currently the best available reference of its kind in New England and is specifically developed for New England soils.

3. This field guide provides an important resource to use in problem and disturbed situations where Chapter 5 “Difficult Wetland Situations in the Northcentral and Northeast Region” of the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* is applicable. When properly used, this field guide provides results that help make determinations in these difficult to delineate areas. This field guide and subsequent updates are appropriate and recommended for use with whatever version of the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* is in effect at the time of the wetland delineation.

- **This guidance document also recognizes the scientific authority of any future updates to the New England Hydric Soil Field Indicators for use in Chapter 5 situations.**

Question 2:

- “It appears that the new DEP Delineation Handbook does not include the driest of the hydric soil criteria (for both fine textured soils and for sandy soils) that were in the old one. I’m curious as to the rationale for that change.”

Question: • “It appears that the new DEP Delineation Handbook does not include the driest of the hydric soil criteria (for both fine textured soils and for sandy soils) that were in the old one. I’m curious as to the rationale for that change.”

Taken from page 29 in BVW Delineation Handbook (1995):

Indicators of Wetland Hydrology

Hydric Soil Indicators

The following is a list of some hydric soil indicators - any of which can be used to identify the presence of wetland hydrology:

- ◆ Within 12 inches from the bottom of the O-horizon, soils with a matrix chroma of 3 and values of 4 or higher, with 10 percent or more low-chroma mottles, as well as indicators of saturation (i.e., mottles, oxidized rhizospheres, concretions, nodules) within 6 inches of the soil surface.

Taken from page 30 in BVW Delineation Handbook (1995):

Indicators of Wetland Hydrology

Soils that are Difficult to Analyze

- ◆ **Sandy soils.** Soil colors often are not distinctive in most sandy soils. Instead, look for these indicators of hydric sandy soils:
 - c) matrix chroma of 3 (from the Munsell Soil Color Charts) in the top 12 inches of soil measured from the bottom of the O-horizon, with distinct or prominent mottling.

- This Question centers on “3-chroma” soils with 12-inches of surface, with either:
 - i. 10% or greater redox depletions starting within 12,” along with indicators of saturation (i.e., mottles, oxidized rhizospheres, concretions, nodules) within 6” of surface ; or
 - ii. For sandy soils, evidence of redox concentrations within 12”

Response:

The Hydric Soils portion of the Handbook was totally rewritten to provide consistency with the approved Field Indicators of Hydric Soils recognized by the USACOE.

- Furthermore, the most current *Field Indicators of Hydric Soil in New England* (Version 4) does not include the first indicator at all, and the second indicator is incorporated under NE-S1, which can be used under Chapter 5 situations (as authorized by the USACOE).
- Nothing in the revised Handbook prohibits use of indicator NE-S1 in Chapter 5 situations.

It is worth noting that even in the NE field Indicators (Version 4) there is a strong caution against improper application of this indicator. So, it did not make sense to include it in the MA BVW Delineation Handbook update

NE-S1. - Three Chroma Sands

- **Technical Description:** A layer 10 cm (4 in) or more thick with value 3 or less and chroma 1 or less that is directly underlain by a layer that begins at a depth less than or equal to 30 cm (12 in) from the soil surface that has a matrix value 4 or more, chroma 3 or less with 2% or more redox features that are distinct or prominent.

- **User Notes:** This indicator is of limited extent in New England and **should only be considered if there is strong evidence of wetland hydrology and a plant community dominated by wetland plants (hydrophytic vegetation). This indicator may lead to false positive interpretations that a soil is hydric when it is not.** Careful analysis of the topography, evidence of wetness, presence of hydrophytic vegetation and morphological adaptations should be considered when applying this indicator.

- In finer textured soils, I believe that many (but certainly not all) of these “3-chroma soils with 10% or more redox depletions within 12 inches of bottom of the O, and redox concentrations within 6 inches of surface” may be now captured under F6 (Redox Dark Surface).
- Although guidance for Indicator F6 notes that the layer under the dark surface will usually be depleted (if due to subsurface saturation), there is not a strict requirement for this. The presence of redox depletions provide evidence that the dark surface is due to subsurface saturation.