Comments of the Independent Peer-Review Team for the Draft Interim Northcentral and Northeast Regional Supplement to the 1987 Corps of Engineers Wetland Delineation Manual, and Responses by the Corps of Engineers and Northcentral/Northeast Working Group

through F of the "Comments and Responses" worksheet (see tabs below). Column A is a sequential item number. Responses shown in Column G were developed by the US Army Engineer Research and Development Center (ERDC) in cooperation with the Northcentral/Northeast Regional Working Group.

Peer-Review Team members were:

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comments.

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Item #	Chpt	Page	Par		Comment	Response
1	various				The COE manual should be referred to as the WetlandS Delineations Manual, not Wetland Delineation Manual.	Despite the title of the 1987 Manual, we think that "pluralizing" the adjective "wetland" in wetland delineation is grammatically incorrect. Is it correct to say apples pie and lawns mower?
2	various				Invasive species can be significant in determining wetland delineation boundaries. This fact should be acknowledged when discussing invasive species in general.	We agree that invasive species have altered the flora of both wetlands and uplands in the region. However, most of these species have appropriate indicator statuses and will not affect the wetland determination. The working group identified only a few species that can cause errors in the identification of hydrophytic vegetation. These are listed in the Problematic Hydrophytic Vegetation section of Chapter 5 (page 112 of the draft) along with delineation guidance.
3	various				While it appears the authors are combining the two regions (NC & NE), the word Region should be plural -- Regions throughout the document.	Nationwide, there are ten regions for which regional supplements are being developed. The "Northcentral and Northeast" is one of those regions and is, therefore, singular. The only subregions recognized in this supplement are based on LRRs and MLRAs, and not any subjective break between northcentral and northeast.
4	1	various			The word 'coniferous' should replace the word 'evergreen', in the phrase 'evergreen forested wetlands'.	We will make the recommended change.
5	1	various			Evergreen forested wetlands also support evergreen heaths, so either the phrase should stay the same and the paragraph should make reference to the evergreen heaths, or, if the intent is to focus on the overstory community, then "coniferous" is better than evergreen.	We will make the recommended change.
6	1	4	2		In listing the major glacial landforms, eskers should also be included, as they are glaciofluvial in origin and influence stream flow and riparian wetlands. NEEDS REFERENCE	We will make the recommended change.
7	1	5	2		Add a new sentence after the 3rd sentence: Suggest "Eskers are long narrow ridges generally deposited by melt water in glacial tunnels."	We will make the recommended change.
8	1	6 & 7	various		Since the boundaries appear to match the LLR's (p. 4), why are the titles of the Subregions not the LRR titles.? The Long Island/Cape Cod subregion (MLRA 149B) also appears to match LRR S. Why was the MLRA chosen to be included in this region? Some explanation would be good. For LLR K paper birch should be used in addition to yellow birch (*Betulah allegheniensis*)	Although LRR boundaries as established by USDA were used to define supplement regions and subregions, we chose to change the names to reflect ecoregion types and/or locations rather than the agricultural commodities emphasized by USDA. As stated on page 5, MLRA 149B in LRR S was included in this region "because of its similar climate, geologic history, and soil parent materials." We will add paper birch to the list of common trees in LRR K.

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Item #	Chpt	Page	Par		Comment	Response
9	1	6	4		Please add this reference (particularly for a discussion of eskers) - Martini, I. P., M. E. Brookfield, and S. Sadura. 2001. Principles of Glacial Geomorphology and Geology. Upper Saddle River, NJ. Prentice-Hall Inc.	We will make the recommended change.
10	1	7	2		Why is there no subdivision of saltwater wetland types starting in the second paragraph of Type and Distribution of Wetlands? Freshwater wetlands are divided into forested, shrub-dominated, or herbaceous, but not saltwater. That breakdown should be added for saltwater as well.	Saltwater forested and scrub-shrub wetlands are very limited in the Northcentral/Northeast region. The vast majority of such wetlands are dominated by herbaceous emergents. We will so state in the supplement. One exception, in limited areas, is brackish wetlands dominated by the shrub-like Iva frutescens, which is already mentioned in the supplement as a species of saline marsh edges.
11	1	7	2		There are other excellent examples of natural heritage program descriptions of wetland plant communities, particularly from the NC region. Why were those states' programs not listed?	We listed three examples of wetland descriptions from natural heritage programs in Minnesota, New Hampshire, and New York. The list was not intended to be exhaustive. Readers should check with the heritage programs in their states.
12	1	7	2		The following sentence should be included - Long term climatic fluctuations may affect wetland ecosystems over time. Such changes may affect the hydroperiod of wetlands, including headwater wetlands and coastal wetlands, and may result in shifts in vegetation and long term shifts in soil characteristics.	The intent of this statement is not clear. Chapter 5 of the supplement already gives wetland delineation guidance during drought periods and describes changes in vegetation due to fluctuating Great Lakes water levels. Are there other specific cases that should be mentioned? If the reviewers' statement refers to global climate change, it is beyond the scope of the Clean Water Act regulatory program.
13	1	7	3		Organic matter accumulation exceeding decomposition should be added to the definition of bogs.	This was implied in the term "peat-forming." Peat would not form and accumulate in a bog unless organic inputs exceeded decomposition. We will reconsider the wording.
14	1	7	3		Delete the phrase 'discharge (e.g., springs and seepages' since there are fens which are not the result of discharges -- the hydrology is groundwater, but not necessarily always a discharge.	We prefer the concept that fens are maintained by groundwater discharge. Expanding the definition to include any groundwater contact would make nearly all wetlands in the region fens, except for bogs.
15	1	7 & 8	various		The phrase 'shallow seasonally high water tables or perched regional water tables' should replace the term 'shallow water tables'.	We will make the recommended change.

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Item #	Chpt	Page	Par		Comment	Response
16	1	7 to 10	various		The treatment of invasive species should be similar for the description of all types of wetlands. In many instances invasive species are an important and problematic component of these various types of wetlands. The topic should receive uniform delivery throughout. When invasive species are listed at the end of the descriptive paragraphs, use the phrase 'invasive species may include...'.	We have been consistent by not emphasizing invasive species in any of the general descriptions of wetland types. The final paragraph on page 10 is intended to acknowledge the prevalence of invasives in many wetlands. Nonnatives are often confused with invasives. To be invasive implies that the species negatively affects the habitats it colonizes. Some nonnative species have naturalized, while the history of introduction of others is hard to recreate. We have used the term "invasive" sparingly and only for certain species that have clearly impacted wetland habitats.
17	1	7 to 10	various		Hybrid cattail *(Typha X glauca)* is a common invasive species in various types of wetlands in the NC Region	We will make the recommended addition (page 10).
18	1	9	1		Common reed should be included in the descriptive paragraph for salt and brackish marshes as frequently occurring or dominant in the vegetative zone just above the high tide elevation in NE coastal wetlands.	We see Phragmites primarily as an invasive species in disturbed fresh and brackish wetlands. It is mentioned in the paragraph on invasives on page 10.
19	1	9	2		Wondering if the reference to yellow lady's slipper should really be for white lady's slipper [*Cypripedium candidum*], which is an associate of calcifiles in fen habitats.	We agree. We will make the recommended change.
20	1	9	2		Both common buckthorn (*Rhamnus cathartica*) and glossy buckthorn (*Frangula alnus*) should be included in invasive species for Herbaceous fens.	Because invasive species often invade more than one wetland type, we prefer to list major invasive species all at once in the final paragraph on page 10. Both buckthorns are listed there.
21	1	9	3		First sentence: Can we recommend the word "waterlogged" be changed to "saturated"?	We will make the recommended change.
22	1	9	3		Both jewelweeds should be included, not just *Impatiens capensis.*	We will add Impatiens pallida.
23	1	9	3		Reed canarygrass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and common reed (*Phragmites sp.*) are a common invasive species in wet meadows	See the response to item number 20.
24	1	10	1		European black alder *(Alnus glutinosa)* should be included in the list of invasive species.	There are other less-common invasive species that we did not list. European black alder is one of them. We prefer not to lengthen this list of examples.
25	2	11	3		What is meant by the term "weedy"? Non-native species or a weedy physiology of an individual plant, indicating perhaps youth, or second growth? NON-NATIVE AND/OR INVASIVE	"Weedy" was placed in quotes to distinquish it as a non-technical term in this general discussion of vegetation in the region. It can encompass many categories of plants -- pioneers, invasives, non-natives -- and does not require a formal definition here.

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Item #	Chpt	Page	Par		Comment	Response
26	2	11	4		Replace '.., and seasonal pools (also known as vernal pools) in forested landscapes' with -- seasonal ponds, vernal pools, and floodplain forests. This is recommended because vernal pools are not synonymous with seasonal ponds in all situations, and floodplain forests are an additional wetland type subject to seasonal hydrology.	We will make the recommended change.
27	2	11	4		Ad to the last sentence "...lake and sea levels as well as long-term climate fluctuations can...".	We will make the recommended change.
28	2	12	2		Add to the 5th sentence "…rather, it is due to the broad tolerances AND ADAPTABILITY of certain plan species...	We disagree. We are currently testing wetland indicator ratings and spatial occurrences of wetland plant species. The issue is very complex and the suggested sentence implies that we know more than we do. The current sentence is more generic.
29	2	12	4		The word 'rapidly' should appear before 'characterize the site in question' (instead of after the phrase).	We prefer to avoid splitting the infinitive ("to characterize"), which is generally considered to be a grammatical error.
30	2	13	2		Item no. 4 - Woody Vines, the definition should included the words 'rooted within the sample plot' -- all rooted woody vines within the sample plot.	We disagree. This is a matter of personal preference, but it is difficult to ignore some portions of the canopy simply because some individuals are rooted outside the plot. The important issue is whether all species covering the plot are representative of that soil and hydrologic condition. We address this issue on page 15, paragraph 3.
31	2	14	1		The document should include some explanation why item no's. 2. (Saplings and shrubs), 3. (Herbaceous plants, and 4 (woody vines) have recommended sample plot sizes that are LARGER than in the COE 1987 manual. Perhaps this could be related to the type of plant communities encountered in these regions.	Actually, only the sapling/shrub plot was expanded from those suggested in the 1987 Manual. As stated in the supplement, sampling recommendations are flexible and can be altered if preference dictates. However, we know that bigger plots provide more consistent outcomes when compared between various plot sizes. The plot sizes presented here are based on the opinions and consensus of the regional working group.
32	2	14			Another figure showing an example elongated plot would make this more user friendly. e.g., MASS Delineation Manual	The bull's-eye plots illustrated in the supplement are recommended for most situations. Too many alternatives are possible for us to illustrate them.
33	2	16	1		At the end of the first sentence, add the phrase -- such as vernal pools and floodplain forests.	The sentence is clear and simple without examples, and we don't wish to imply that these two wetland types are more important or difficult than others.
34	2	16	1		Northern climate' is not a proper description. These regions have a temperate climate with cold, snowy winters.	We will make the recommended change.

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35	2	17	2		ONE - The current revisions of the plant lists need to resolve indicator status conflicts. The plus (+) and minus (-) modifiers should be dropped. However, they should be dropped when the plant lists include valid indicators for each region. TWO - No Indicator status (NI) should not be used for the plant lists. If a plant is included in the current plant list review process, then it should be given an indicator status. The NI category creates much confusion and should be dropped!	The project to update the wetland plant list is proceeding separately from the development of regional supplements. All +/- are being dropped from the current update of the national plant list, as well as NI and NO.
36	2	17	2		The word 'apply' should be replaced with either 'review' or 'consider' in reference to using the indicator status assigned to the species in the nearest adjacent region.	Under the current (1988) plant list, we think the indicator status from the adjacent region should be used. After the update of the plant list, the issue will be moot because all NI and NO species will be given appropriate indicator statuses.
37	2	19	6		The last sentence should read, "Species that are dominant in two or more strata should be counted for each stratum where they are dominant."	We will make the recommended change.
38	2	20	9		Item no. 8 -- The phrase from p. 19 should be repeated, "Species that are dominant in two or more strata should be counted for each stratum where they are dominant" at the end of this item.	We will make the recommended change.
39	2	23	2		Change towards end of para: Sentence reads "Users need to be cautious that shallow roots were not caused by erosion, near-surface bedrock, OR ROCKY TILL, …	We will make the recommended change.
40	3	various			According to the COE 1987 manual, soils with a matrix Chroma of 1 or less -- even when the Value is 4 or less. The NTCHS requires two percent redox features in these situations. What is the rational for making this change and what is the guidance for users of this document when the COE 1987 manual and NTCHS do not agree?	As stated in Chapter 1, the indicators in this supplement supersede those in the 1987 Manual. The new indicators are based on field investigations across the country and have been approved by the National Technical Committee for Hydric Soils (NTCHS). Proposals for changes to the indicators, along with appropriate data, should be submitted to NTCHS.
41	3	25	1		Should read "…the reduction, translocation, and/or accumulation of iron and other reducible elements."	The suggested change is not necessary.
42	3	25	5		A sentence should be added to the Concepts paragraph stating that additional processes occur during hydric soil formation, but this supplement focuses on the key processes resulting in observable (visual or olfactory) morphological characteristics.	The entire section focuses on indicators. No change is needed.

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Item #	Chpt	Page	Par		Comment	Response
43	3	26	1		The discussion of the sequence of reducing chemical reactions should either cover the entire sequence or make it clear that only the redox reactions that produce readily identifiable morphological characteristics are being included. If the second approach is used, then include references for more information about the entire sequence.	Again, this section focuses on the development of indicators. It is not intended as a comprehensive review of soil chemistry. No change is needed.
44	3	26	1		If terms such as "reddish-gray colors" are going to be used, then refer the reader to the Problem Soil section of this chapter. A cautionary statement about the differences between soil color based on redox conditions vs. red or gray parent materials needs to be inserted before such phrases are used.	This is a general discussion of the formation of redox features intended for inexperienced users. Advanced topics, if relevant, are addressed in other sections of the supplement.
45	3	26	2		There needs to be a description of manganese concentrations, including color and texture.	This suggestion goes beyond the intent of the section, which only provides a general definition of redox concentrations. It does not attempt to distinguish iron and manganese concentrations. Colors of iron-manganese masses are described in the indicator to which they apply (F12).
46	3	26	5		Epipedon needs to be defined in the glossary.	All previous working groups and the National Advisory Team (NAT) decided not to reproduce all glossary terms currenty defined in the "Field Indicators of Hydric Soils in the United States" and other sources except for a select few that were identified as critical for application of the indicators. The glossary includes links to more comprehensive glossaries of techical terms.
47	3	27 & 28	various		The information on fiber content of organic soils is too detailed in relation to the treatment of other morphological indicators. The detailed information presented should be a reference, instead of providing it in this document. Also, for Table 6. (p. 28), a reference should be provided from where this table was adapted if it is to be used in this document.	The working group and NAT felt that this information needed to be placed in the Concepts section where it was more likely to be read and used. This determination can be critical to the correct identification of indicators. Reference is made to ASTM standard D 5715-00, which is available for a fee from ASTM International.
48	3	27	3		Replace this paragraph with, "Another field method for determining the degree of decomposition for organic materials is a system modified from a method originally developed by L. von Post and described in detail in ASTM standard D 5715-00. This method is presented in Appendix __."	The working group and NAT felt that this information needed to be placed in the Concepts section where it was more likely to be read and used.
49	3	27	3		Move this paragraph to Appendix __.	See the previous response.
50	3	28	Table 6.		Move Table 6. to Appendix __.	See the previous response.

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Item #	Chpt	Page	Par		Comment	Response
51	3	27 7 28	various		Insert the following text immediately after Table 5. : "Field identification of the type of organic material may be accomplished with the following initial assessment. More detailed differentiation of the degree of organic matter decomposition iis provide in Appendix __ of this publication.: FIBRIC SOIL MATERIAL: This is the least decomposed of the organic soil materials and contains large amounts of fibers. Visible fiber content of an unrubbed sample in hand exceeds 2/3 of the volume of the sample. If rubbed firmly between thumb and forefinger ten times, the resulting visible fiber content will range from 2/5 to 3/4 or more of the remaining soil volume. The Soil Textural Class is PEAT. HEMIC SOIL MATERIAL: This is intermediate in degree of decomposition. Visible fiber content of an unrubbed sample ranges from 1/3 to 2/3 of the volume of the sample. If rubbed ten times, the resulting sample does not meet the visible fiber content of either FIBRIC SAPRIC SOIL MATERIAL: This is the most highly decomposed of the	See the previous response. The additional text is not needed; the concept is adequately and more concisely presented in Table 5.
52	3	28	1		The very last phrase should read "..., if they no longer have wetland hydrology or do not support hydrophytic vegetation."	We will make the recommended change.
53	3	28			A new second paragraph should be inserted cautioning users that, "Soils within areas that are flooded or ponded for more than one week during the growing season are considered hydric (third and fourth Hydric Soil Criteria), regardless of the soil profile morphology."	The supplements focus on indicators. The hydric soil criteria are well documented and discussed in other documents. They were developed as a database selection tool for producing hydric soils lists, and were not intended to identify hydric soils in the field. The regional working groups and NAT have consistently decided that the hydric soil criteria do not need to be repeated in the supplements. The use of ponding, flooding, and water-table data to identify hydric soils in areas that lack indicators is described in the problem soils section of Chapter 5. That procedure incorporates the 14-day standard recommended by the National Academy of Sciences (1995), which is used consistently in these supplements whenever a hydrologic standard is required.
54	3	28	1		Line 4 (last sentence): no comma needed between "wetlands" and "if" as these are dependent clauses.	We will make the recommended change.
55	3	29	1		The subtitle should read "Observe and Evaluate Landscape Position"	Documentation is an important part of any site description, especially if the soils are determined to be problematic at some point during the delineation. This section describes more than landscape position. No change is necessary.

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56	3	29	1		The phrase should read "..., can help to explain why a hydric soil is or is not present."	We will make the recommended change.
57	3	29	5		The last phrase should not start with the word 'Or': "Is the surface or slope shape convex, …?"	We will make the recommended change.
58	3	29	8		"other nearby sites" needs to be defined; are these other nearby WETLAND sites?	These need not be wetland sites, and "nearby" does not require a rigorous definition in this general context.
59	3	31	3		Add the following to the end of the paragraph (though basic to the observation of soil, should be included here): "As always, do not obtain colors while wearing sunglasses. Colors must be obtained in the field under natural light and not under artificial light."	This guidance was given in Chapter 5 but we will repeat it here.
60	3	31	4		The word Histols should be singular - "indicators A1 (Histisol)".	We will make the recommended change.
61	3	31	5		Soil colors specified in SOME indicators DO have decimal points (for Hue and/or Color)! BW Adds: Second sentence should read: "Soil colors specified in the indicators do not have decimal points (except A12). Next sentence: "Soil **chroma** should not be rounded..." This is either a typo or, if intentional, is inconsistent with NTCHS language which states that "Soil **color** should not be rounded..." If it is changed to 'soil chroma', this could be interpreted to mean that soil value colors could be rounded (down?) to meet indicators that require value of 3 or less.	We will address the inconsistency with indicator A12. Currently there is no guidance about the rounding of color value estimates. We will ask NTCHS to consider the issue and incorporate any guidance in future versions of the supplement.
62	3	31	7		Lithologic discontinuities needs to be defined in the glossary. Also, this sentence should be written "Significant changes in parent material, i.e., lithologic discontinuities, in the soil can affect the hydrologic properties of the soil." The way it is written now suggests that "significant changes in parent material or lithologic discontinuities" are two different things.	All previous working groups and the National Advisory Team (NAT) decided not to reproduce all glossary terms currenty defined in the "Field Indicators of Hydric Soils in the United States" and other readily available sources except for a select few that were identified as critical for application of the indicators. According to Soil Taxonomy a lithologic discontinuity and change in parent material may be two different things. No change is necessary.
63	3	32	1		This paragraph should include a reference to hydric inclusions, such as "Some of these inclusions may be hydric while the soil map unit does not appear on Hydric Soil Lists."	We will make the recommended change.
64	3	33			The four Hydric Soil Criteria should be mentioned in the introduction to Hydric Soil Indicators. While the first two are related to soil taxonomy, users of this document should be reminded throughout this chapter of the third and fourth criteria (ponding and flooding).	See the response to item #53.

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65	3	33 & 34			The Indicators for Problem Soils section should be mentioned in this introductory discussion of Hydric Soil Indicators, and the user should be provided the page numbers (pps. 60 - 64).	We will make the recommended change.
66	3	33	3		The first two sentences should be combined, "It is permissible to combine certain hydric soil indicators if all requirements of the indicators are met, as long as the most restrictive requirements for thickness of layers in any indicators used are met."	Previous reviewers and editors of this section have not noted any confusion. The original sentences clearly express the ideas intended. In our opinions, the proposed change is less clear than the original. No change is needed.
67	3	33	4		This paragraph is a bit confusing. Suggested clarification for Sentence 2 (line 4): ".... characteristics of F3, but neither layer meets the thickness requirement for its respective indicator. In this instance, by combining the depths of the second and third layers (3-10 inches), this meets the more restrictive conditions for thickness for F3..."	We will clarify the wording.
68	3	34	1		Same comments from Page 33, Paragraph 4 re: clarifying the "thickness" discussion applies to this paragraph.	We will clarify the wording.
69	3	34	6		User notes: please clarify that "Histosol" is a major soil order, and that the hydric indicator doesn't apply to all histosols (e.g., Folists).	We will clarify the wording.
70	3	37	3		Aquic conditions should be defined in the glossary.	All previous working groups and the National Advisory Team (NAT) decided not to reproduce all glossary terms currenty defined in the "Field Indicators of Hydric Soils in the United States" and other readily available sources except for a select few that were identified as critical for application of the indicators.
71	3	40	3		Delete "This indicator is extremely rare in this region and" from the last sentence. It is not rare in the NE & NC regions.	We will make the recommended change.
72	3	41	3		Should read, "Many alluvial soils have stratified layers at depths greater than 6 in.; these do not fit this indicator."	We will make the recommended change.
73	3	42	Fig. 13		The photo is not a good illustration of Indicator A5. In the exposure used, it does not appear that the layers have a value of 3 or less with a chroma of 1 or less.	We have used the best photos available to us. They will be replaced in future versions when better examples become available.
74	3	43	5		Umbric epidedons and ochric epipedons should be defined in the glossary.	We will recommend to the NTCHS that "ochric epipedon" be added to the glossary of the "Field Indicators."

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Item #	Chpt	Page	Par		Comment	Response
75	3	43	5		The User Notes state that "This indicator often occurs in prairie soils (Mollisols)…" which is a true statement. However, Mollisols are not common in the NC and NE regions. This needs to be clarified for use of this indicator in these regions. Perhaps just delete 'often occurs in prairie soils (Mollisols), " so that the sentence now reads: "This indicator applies to soil that have dark-colored surface layers,...'	We will make the recommended change.
76	3	45	6		It should be stated where this indicator is found, such as" Mollisols and other dark-colored soils."	The application of this indicator to soils with thick dark surfaces is clear. No change is needed.
77	3	47	5		Replace 'rare' with 'localized'.	We will make the recommended change.
78	3	48			This is not a reliable indicator for the Northeast region! These specific conditions as described by the Indicator also occur in non-hydric soils. (Did we instead resolve this issue by acknowledging that it is referring to spodic soils and/or using the following comments instead of recommending it be dropped??)	Changes to the indicators must be reviewed and approved by the National Technical Committee for Hydric Soils. The supplement reflects the latest NTCHS decisions. Proposals for changes should be submitted to NTCHS along with supporting data.
79	3	50 - 52			Indicators S6, S7 & S9 should be deleted from these pages. S6 should be moved to the Indicators for Problem Soils section. Since there seems to be uncertainty about the applicability of S7 & S9 in the NC & NE regions, and they both also appear in the Indicators for Problem Soils section, these two Indicators should be eliminated from these pages. Having them here potentially creates some confusion. In this draft S7 & S9 are already identified as Indicators for Problem Soils in the NC & NE regions, not routine Indicators.	Indicators are listed in this section if they are approved for routine use by the NTCHS. They are listed again under Indicators for Problem Soils if they have been approved for testing by NTCHS. However, the regions or subregions where they are applicable are different.
80	3	50	2		Either S6 should be dropped from LRR R as recommended or it should be moved to the problem indicators section. (Perhaps it should be moved to the problem indicators section in any case??) The morphology described in this indicator is commonly seen in non-hydric soils throughout Northeast region. Shouldn't there be a thickness requirement?	Changes to the indicators must be reviewed and approved by the National Technical Committee for Hydric Soils. The supplement reflects the latest NTCHS decisions. Proposals for changes should be submitted to NTCHS along with supporting data.
81	3	50	4		The first sentence should start, "This is a very common indicator of hydric soils when similar features also occur below 6 in. …'	This change would add confusion and is not a necessary part of the indicator.
82	3	51	Fig. 20		Lots of comments about the repeated use of this picture… This is the same picture used to illustrate Indicator S1. For S7 a thinner dark surface layer should be illustrated. (Which Indicator - ?8 - is it also used to illustrate in the Field Indicators of Hydric Soils manual??)	Better photos will be used when they become available.

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Item #	Chpt	Page	Par		Comment	Response
83	3	52	1		Spodic horizon should be defined in the glossary. The term spodic horizon also occurs on p. 61 (S8).	All previous working groups and the National Advisory Team (NAT) decided not to reproduce all glossary terms currenty defined in the "Field Indicators of Hydric Soils in the United States" and other readily available sources except for a select few that were identified as critical for application of the indicators.
84	3	52	3		Examples of where this indicator is commonly found should be included (as is the case with other indicators).	The working group provided no information about the situations where this indicator may be found.
85	3	56	3		Include a cautionary statement that older soil surveys (published/hard copy) may include horizon descriptions with the gleyed modifier (g) which do not meet the current definition of gleyed soils.	The supplement does not use soil survey descriptions to make hydric soil determinations. Determinations are made in the field based on indicators. The supplement is very specific as to the color requirements for a depleted matrix and for gleyed soils. There should be no confusion with older systems of soil description that were developed for other reasons.
86	3	55	3		A cautionary statement about the differences between soil color based on redox conditions vs. gray parent materials needs to be inserted.	Problematic soils are discussed in Chapter 5 of the supplement. The working group did not identify gray parent materials as a problem in using this indicator. We would appreciate more detailed information before making a change in the supplement.
87	3	57	3		A cautionary statement should be added to not confuse this indicator with A11 and A12.	We will make the recommended change.
88	3	57	4		The last sentence should read, "… investigate and describe the layer below the dark-colored epipedon to document further evidence of reduced conditions."	This is not necessary to meet the indicator. In fact, episaturated hydric soils may not meet this condition.
89	3	59	3		ADD AS A CAUTION: "Soils within areas that are flooded or ponded for more than one week during the growing season are considered hydric (third and fourth Hydric Soil Criteria), regardless of the soil profile morphology."	This indicator does not require direct knowledge of the duration of ponding. See also the response to item #53.
90	3	60	1		The order in which the Indicators for Problem Soils are presented should re-organized and a summary included in this paragraph. A10, A16, S3, S6, F12 & TF12 are common in the NC & NE regions. S7, S8 & S9 are currently being tested in the NC & NE regions. For F19 either 1) it should be retitled PROBLEM Floodplain Soils for the NC & NE regions; 2) a justification should be provided as to why a Piedmont Indicator is included for the NC & NE regions; or , 3) it should be deleted.	These indicators are listed in the following order, as they are in the*Field Indicators of Hydric Soils in the United States*: A indicators, S indicators, and F indicators. All of these are test indicators in the identified subregions. In accordance with NTCHS decisions, indicator F19 (Piedmont Floodplain Soils) will be restricted to problem soils in LRR S only.
91	3	60	2		Should read, "A layer of muck or sapric material 0.75 in. (2 cm) or more thick… This does not apply to other organic materials which might be part of a mineral soil horizon."	The indicator clearly states that muck is the material that has to be present. A change in the indicator would require a change from the NTCHS.

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Item #	Chpt	Page	Par		Comment	Response
92	3	61	2		I think we decided 'in the end' to leave "mucky peat or peat" intact?? The last sentence should read, "If peat, then any underlying sandy soil materials must also demonstrate reduced conditions."	We do not understand the issue. Is the concern about folistic materials that may be identified as peat? The wording of the indicator was developed by NTCHS and any change would require NTCHS approval. Cautions about folistic layers are given in the Concepts section of Chapter 3.
93	3	61	3		The first sentence should read, "…, this indicator is more commonly found within interdunal swales…"	We will make the recommended change.
94	3	61	3		The last sentence should refer users to pps. 27 & 28 (see comments above in reference to those pps.).	We will clarify the wording.
95	3	63			Repeating -- For F19 either 1) it should be retitled PROBLEM Floodplain Soils for the NC & NE regions; 2) a justification should be provided as to why a Piedmont Indicator is included for the NC & NE regions; or , 3) it should be deleted.	A change in the name of an indicator would require approval by the NTCHS. In accordance with NTCHS decisions, indicator F19 (Piedmont Floodplain Soils) will be restricted to problem soils in LRR S only.
96	3	64	3		Under User Notes for Indicator TF2: Delete third sentence (hold over from Great Plains supp…) and replace with "This indicator is commonly found in glacial sediments derived from Mesozoic bedrock adjacent to the Great Lakes and along the Connecticut River valley."	We will make the recommended change.
97	4	65	1		7th line - Please change “hydric soil morphology” to “Hydric Soil Conditions” ... (Morphology will not always be present... NTCHS Criteria 3 and 4) 10th line - Please change “hydric soils” to “hydric soil morphology and ....."	This sentence refers to observable hydric soil features. Therefore, "morphology" is appropriate. The absence of hydric soil indicators is discussed elsewhere. In addition, the supplement does not use hydric soil criteria, which are simply a database-query tool, to identify hydric soils that lack indicators. See pages 118-119 of the draft.
98	4	65	3		'Northern climate' is not a proper description. These regions have a temperate climate with cold, snowy winters.	We will make the recommended change.
99	4	66	1		19th Line AND ALL OTHER OCCURRENCES DISCUSSING WATER TABLES WITHIN 12 INCHES OF THE SOIL SURFACE - Please change “and/or a water table 12 in. (30 cm) or less below” to read “water table within 12 inches of the soil surface". Please change everywhere applicable to avoid confusion. Also make the change in Hydrology Indicator A2 on page 71 and in A3 as well....	This wording was chosen to include a depth of exactly 12 inches as reflecting wetland hydrology. The words "within 12 inches" seem to imply that the depth must be less than 12 inches and, thus, a depth of exactly 12 inches would not count.
100	4	66	3		2nd paragraph under Growing Season, first sentence: The first sentence here should also be included as the first sentence under 'Concepts' in the soils chapter on page 25.	The same idea is stated just two sentences later, at the top of page 26.
101	4	66	3		Is there research that supports use of soil temperature measurement methodology in the field? Provide reference.	We will cite appropriate references that relate soil temperature to microbial activity.

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Item #	Chpt	Page	Par		Comment	Response
102	4	66	3		Guidance needed on variable growing seasons - same site, different plant communities reacting at a different rate to growing season, e.g. wet meadow with emergence but forested community not yet showing signs of growing season.	As described in the draft supplement, the area must be subject to the same climatic conditions; the type of vegetation is not relevant. In the example, whichever community showed the earlier evidence of growth would determine the start of the growing season. We will clarify the wording.
103	4	68	2		2nd sentence - delete or clarify ", the area is a wetland if indicators of hydric soil and hydrophytic vegetation are also present." Clarification needed if left in, because it can be interpreted to mean that hydrology is assumed if other two parameters present.	The sentence reads "One primary indicator from any group is sufficient to conclude that wetland hydrology is present; the area is a wetland if indicators of hydric soil and hydrophytic vegetation are also present." There is no such assumption, stated or implied. All three factors are needed.
104	4	68	2		Last sentence: insert ", such as highest predicted tide of the year," after "Other evidence of hydrology"	We see no reason to focus on this one example, although it may be appropriate if sufficiently justified.
105	4	68	3		2nd sentence should read: "Organic layers consist of dead and decomposing plant matter, therefore, observation must be made below any living material (e.g., a living mat of mosses, lichens, etc.)."	We will make the recommended change.
106	4	69	Table 10		What is rationale for indicator categories - I.e. primary vs. secondary? And, what's with the ordering of the indicators - why are they out of order in the numbering?	The working group has continued the practice used since 1992 of categorizing indicators as either primary or secondary based on their estimated reliability, with two secondary indicators needed in the absence of a primary indicator. Indicators have been numbered sequentially as they were first developed in other regions. Therefore, some numbers may be missing from a particular region. In Table 10, primary indicators are listed before secondary indicators within each group.
107	4	69	Table 10		The Corps should indicate what they use as an elevation to determine the extent of jurisdiction in tidal situations. Possibilities include Spring Tide, and the highest predicted tide of the year. They should discourage using indicators such as Drift lines (also called wrack or debris line) as that can be influenced by wind driven or storm tides.	In tidal areas, Clean Water Act jurisdiction extends to the "high tide line" or the limits of adjacent wetlands. As described in Chapter 1, this supplement addresses wetland delineation but does not address the delineation of other potentially regulated waters of the US. Check with your local district for the proper interpretation of the high tide line. There are sufficient cautions about unusual hydrologic events in the User Notes for particular indicators. For example, a wrack line known to be caused by an extreme or infrequent flooding event can be discounted.
108	4	70	1		Please change “and/or a water table 12 in. (30 cm) or less below” to read “water table within 12 inches of the soil surface".	See item number 99.
109	4	70	2		5th sentence: change 'seasonal soil ice' to 'frozen soil in spring'	We will make the recommended change.
110	4	71	1		Please change “and/or a water table 12 in. (30 cm) or less below” to read “water table within 12 inches of the soil surface"	See item number 99.

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Item #	Chpt	Page	Par		Comment	Response
111	4	71	2		Consistency: 4th sentence: insert "(30 cm)" after "12 in."	We will make the recommended change.
112	4	71	2		Last sentence - How would someone know for sure unless they've already penetrated the restrictive layer? So, add the following sentence "Should this occur, a second (or more) pit or auger hold should be dug without penetrating the restrictive layer to accurately determine the water table level."	This seems obvious without further elaboration in the supplement.
113	4	73	Group Title		"Recent Inundation" - Define recent.	The definition of "recent" depends on various factors (e.g., was it a drier-than-normal season or year?) and was deliberately left to the judgment of the field investigator. In general, wetland hydrology indicators should reflect wetness episodes that occur on average every two years or so. The User Notes for particular indicators provide cautions about extreme or infrequent events.
114	4	74	2		First sentence - Insert 'and indicate' following 'ponded situations'.	We will make the recommended change.
115	4	79	1		Define "long-duration".	In the context of this indicator, "long duration" simply means long enough to retard the establishment and growth of vegetation in the depression. No actual time limit is intended or needed to use the indicator as part of a three-factor wetland identification.
116	4	80	1		Define "long periods". Also under User Notes, provide an example of where this is typically seen, as in vernal pools in New England.	Again, no time limit is intended or needed (see item 115 above) although experience indicates that this is more than a few days. We will add the vernal pool example.
117	4	81	2		Define "reasonably abundant". Perhaps use the 'few/common/many' approach.	The User Note says that one or two individuals are not sufficient. Therefore, the minimum is three, but the investigator should use his/her judgment and knowledge of the site in interpreting this and all wetland indicators.
118	4	84	2		Include a statement in the 'Cautions and User Notes' to take time of year into consideration with this indicator.	As with several other wetland hydrology indicators (e.g., sediment deposits, drift deposits), the field investigator is unlikely to know when the site was ponded and surface soil cracks formed. The indicator simply indicates a recent inundation event. In the three-factor approach to wetland identification, indicators of hydric soils and hydrophytic vegetation provide evidence that the wetness occurred during the period of the year when soil microbial communities were active and plants were growing. It is not necessary to determine the timing of formation of surface cracks.

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Item #	Chpt	Page	Par		Comment	Response
119	4	91	2		A redox meters should be mentioned as an alternative to alpha, alpha-dipyridal dye.	The National Advisory Team has concluded that one-time direct measurement of soil redox potential using a platinum electrode and millivolt meter is not sufficiently reliable for routine use in identifying reducing soil conditions. Complicating factors include the need for replicated readings, microsite differences in redox potentials, calibration and pH correction, and stability of readings. The techique is more suited to long-term monitoring in conjunction with soil water monitoring.
120	4	94	2		2nd sentence: Define or reference 'dry' or 'unusually dry'.	As stated in the User Notes, both of these terms are defined in Chapter 5 (pages 120-121 of the draft) along with procedures to determine whether they have occurred.
121	4	94	2		Insert "likely" before "indicates"	We will make the recommended change.
122	4	94	2		After 6th sentence that ends with "capable of perching water near the surface." insert the following sentence: "Should this occur, a second (or more) pit or auger hold should be dug without penetrating the restrictive layer to accurately determine the water table level."	See response to item number 112.
123	4	94	2		Last sentence: Delete "for subsurface irrigation".	We do not understand why this recommendation was made. The presence of a drainage structure does not necessarily negate the indicator. The concern is for structures specifically designed for subsurface irrigation (i.e., artificially maintaining the water table within 12-24 inches of the surface to provide water for crops in situations where the water table may never rise naturally into the 0-12 inch zone). In this case, a water table in the 12-24 inch range during the dry season would not be a valid indicator of a shallower water table (0-12 inches deep) earlier in the growing season. Hence the specific exception for areas subject to subsurface irrigation.
124	5	103	Intro		The concept of using reference sites is not introduced until page 112 (par. 5. c.). The concept of using reference sites should be mentioned in the Introduction.	The Introduction does not address ways to handle difficult wetland situations; therefore, mentioning reference areas here would be premature. Furthermore, reference areas are only one approach to the problem. Discussion of reference areas is better postponed to the section where all such approaches are listed and described.
125	5	103	1		Third line from the end - "due to recent human activities" need temporal clarification. What time span is meant by 'recent'?	No specific time period is intended or needed. Human activities that obscure wetland indicators must have occurred recently enough that indicators have not had long enough to re-form. Depending upon the indicator, these activities could have occurred a few days to many years ago. The timing of these activities is not relevant to wetland identification, although they may have policy implications that are beyond the scope of the supplement.

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Item #	Chpt	Page	Par		Comment	Response
126	5	104	5 (2.c.)		A redox meters should be mentioned as an alternative to alpha, alpha-dipyridal dye.	See the response to item number #119.
127	5	107	5 (4.a.)		Add wet meadows and wet prairies to the examples of wetlands influenced by temporal shifts.	We will make the recommended change.
128	5	107	5(4.a.1)		First sentence (and throughout this section) - What exactly does "if possible" mean? How are the regulatory agencies going to define/direct/enforce when it is or is not possible to return to a site? By whose time clock is this measured?	Whether a recommended action is "possible" depends on when the information is needed, decision deadlines, environmental conditions, workloads, costs, and many other factors. Users of this supplement (including regulatory personnel and private consultants) need the flexibility to make these decisions on a case-by-case basis. Permit applicants and consultants should seek advice from their local Corps district if an action does not seem possible.
129	5	108	2 (1 c)		First sentence (and also c.3, d.3, e.2, pps. 110 & 111)- Replace the word 'determine' with 'indicate'. I would not use an aerial photo to absolutely determine that a vegetation community is dominated by Hydrophytes in accordance with the manual on every site. Determine seems like too confident of a word.	We agree with the comment about the shortcomings of most aerial photography for this purpose. However, if one cannot determine from an aerial photo (or other data source) whether the vegetation is hydrophytic, then use one of the other approaches listed in items a-e. Sometimes, more than one approach may be possible and provide multiple lines of evidence.
130	5	108	2 (1.c.)		Replace 'at a later date' with 'early in the growing season'.	We will make the recommended change.
131	5	108	8 (3)		Delete 'since their formation about 6,000 years ago.' Sentence should read: "The Great Lakes have experienced significant periodic fluctuations in water levels."	We will make the recommended change.
132	5	111	9 (4.f.)		First sentence refers to "peat mosses (*Sphagnum* spp.)" - not all mosses in peatland setting are of *Sphagnum* genus, so this should be changed to "peat mosses (e.g., *Sphagnum* spp.)" or the reference to "(*Sphagnum* spp.)" should be deleted altogether	We will make the recommended change.
133	5	112	2 (5.a.)		First long sentence - Where did this list of FACU species come from? Use e.g. and there should be a REFERENCE to a source. We do not know why jack pine would be on this list. We have never seen that species in wetland where we work - it is typically 'high & dry'.	The list is based on working group experience and consensus. A species, such as jack pine, may be problematic in one area but not another. However, these are not intended as examples (not "e.g."). Only these species, and no others, qualify for the exclusion. We will try to clarify the wording.
134	5	112	2 (5.a.)		In reference to species listed as FACU, include all latin names for this section even if they've been referenced before in the Supplement -- so users are not confusing common names w/ other species	This suggestion is contrary to ERDC editorial policy, which lists scientific names only after the first mention of a common name. The common names listed here are of widely known species and it is unlikely to cause confusion.

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Item #	Chpt	Page	Par		Comment	Response
135	5	117	3 (4.a.viii.)		If "Piedmont Floodplain Soils (F19)"is to be removed from this Supplement, then this line should be removed.	The working group agreed to keep this indicator for problem soils. No change is necessary.
136	5	118	2		A redox meter should be mentioned as an alternative to alpha, alpha-dipyridal dye.	See the response to item number #119.
137	5	118	3 (4.d.)		1st sentence: refers to "ped" - provide definition in glossary for soil ped -- some users of the manual are just getting started in this industry and might just be learning the technical soil terminology	We will add a definition of "ped" to the glossary.
138	5	119	2		Sentence 3: include "seasonal ponds" and "floodplain forests" in this list.	"Vernal pools and potholes" was intended to cover seasonal ponds. We will add floodplain wetlands.
139	5	119	2		Sentence 3 (line 5): first time the use of the term "flatwoods" is referenced in this document. I am unfamiliar with this term - is it a regional term? If so, it should be defined where one might find it (such as was done with "interdunal swales" near the Great Lakes). If indentifying "flatwoods" is important in this section, it should be included in the other sections of the document that refer to wetlands lacking hydrology indicators seasonally. The USEPA had the following discussion on their Great Lakes Ecosystem website: Flatwoods in the Midwestern United States are typically open, post oak-dominated woodlands of level uplands and stream terraces. They are characterized by soils with nearly impervious subsoil horizons and surface horizons that are seasonally saturated and seasonally dry. Flatwoods occur locally throughout the southeastern United States (Braun 1950; Shelford 1963). In the Midwest, flatwoods are reported from Ohio (Braun 1936), Indiana (Aldrich and Homoya 1984; Dolan and Menges 1989), Illinois (Telford 1926), and Missouri (Nelson 1985).	Wet flatwoods are described in Chapter 1, page 8, as occurring on glacial lake plains in the region, such as those near Lake Ontario. They are described as having shallow water tables for long periods. We have used the term consistently within this supplement.
140	5	123	2		1st paragraph under "Description of the Problem": again use of the terminology "flatwoods" - incorporate this terminology into the other sections of the supplement that refer to these type of seasonally wetlands	See the previous response.

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Item #	Chpt	Page	Par		Comment	Response
141	5	123	2		1st paragraph under "Description of the Problem", last sentence describing examples of wetland/non-wetland mosaics should include a description of areas where topography is subtle and due to the parent material, the extremely tight soils tend to pond surface water long enough during the growing season to create seasonal wet meadows and flats (e.g., Lake Superior clay plain in NE Minnesota & northern Wisconsin and areas of Rainy Lobe till in northern Minnesota). No doubt there are other areas throughout the NC/NE region that have these subtle mosaics of wet/non-wet area.	We will add the example.
142	Datasheet				Data Sheet, Page 2: List of Hydric Soil Indicators: reference to Piedmont Floodplain Soils (F19) should be deleted unless so justified to keep it in this supplement (per recommendations provided previously from this peer review committee)	The data form will be revised to conform with any changes made in the text of the supplement.
143	Datasheet				In general, the amount of space allowed for remarks is rather small. Also there is no space to provide a sketch of the site or other pertinent site features. This was helpful on RODM data sheets as it provided an opportunity for delineators to note pertinent features in the field that may be forgotten if not photographed or surveyed using GPS or other traditional survey.	We will expand the data form to three pages to allow additional space for remarks, sketches, and other data.

The following technical comments are opinions of one or more members of the Peer Review Team for the Northcentral and Northeast Regions.
(Initials are provided for the original commentor. Additional members agreed with some of these comments, but not the entire team.)

Item #	Chpt	Page	Par	Initials	Comment	Response
144	3	43 & 45		A.K.	It should be mentioned that indcators A11 was formerly F4 and A12 was formerly F5 in early versions so the Field Indicators of Hydric Soils manual.	Although this would provide historical perspective, it is likely to be confusing to new wetland delineators who have no knowledge of the former F4 and F5 hydric soil indicators and do not need the information to carry out a wetland delineation.
145	4	65	various	M.G	Since Wetland Hydrology includes the concept of "fifty percent chance of occurrence", there needs to be a discussion of the “status” of inadvertently created wetlands and wetlands that are reverting in failed agricultural drainage/abandonment settings. Specifically, the issue is defining the AMOUNT OF TIME necessary for “abandonment” or lack of “active maintenance” resulting in the area being considered “Jurisdictional”. This is particularly important in mining, land grading, and agricultural situations. Is just two years enough (meeting Wetland Hydrology criteria one of two years)?	Policy issues, such as the definition of abandonment, are beyond the scope of the regional supplement. The supplement is a technical document that should remain relevant and applicable even when jurisdictional policy changes. "Inadvertently created wetlands" and those in former agricultural fields are wetlands if they meet the requirements given in the supplement. Whether or not they are jurisdictional is a separate issue.

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Item #	Chpt	Page	Par		Comment	Response
146	4	74	2	B.W	Delete third sentence.	The statement is taken almost verbatim from the 1987 Manual. It simply means that the maximum inundation level may have been higher than the sediment deposit indicates, but not lower. We will clarify the wording.
147	4	74	2	K.R.	Third sentence - Sediment deposits indicate the 'minimum' inundation level? This can't possibly be true. The minimum would be washed away by any deeper/maximum level. Therefore, replace (?) 'minimum' with 'maximum'.	See the previous response.
148	4	74	2	M.G.	Third sentence - delete the word 'minimum'. Follow with a new fourth sentence - "The sediment deposits are an indicator of one or more events were persistent inundation elevations are evident and these remnant indicators suggest inundation elevations that persist for more than several hours"	See the previous response.
149	5	103	1	M.G.	There is another category of Difficult Wetland Situations that is not addressed. These are areas that were originally upland soils that have past modified hydrology due to human activities and now meet the third or fourth Hydric Soil Criteria (flooded or ponded for more than one week during the growing season regardless of the soil profile morphology), wetland hydrology criteria, and have a predominance of hydrophytic vegetation. Particularly, these are situations where maintenance of the past human modifications has been abandoned or has languished. How soon after abandonment or lack of regular maintenance should these be considered wetlands, e.g., assuming a predominance of hydrophytic vegetation as stated -- does meeting the hydrology criterion and the hydric soil crierion (such as either third or fourth Hydric Soil Criteria) just one year out of two make it a wetland?	See the response to item number 145 concerning "abandonment" and other policy issues. In this supplement, sites that currently meet wetland standards are wetlands, but whether they are jurisdictional is not addressed here. In your example, the manipulated site has indicators of hydrophytic vegetation and wetland hydrology. Under procedures given in Chapter 5, the site would also have hydric soils if it meets the description of a "Recently Developed Wetland," has a soil that changes color upon exposure to air, reacts to alpha-alpha-dipyridyl, or meets the hydrologic standard.
150	5	103	2	K.R	Delete the last phrase of the last sentence (in italics) "…, interpreted in light of his or her professional experience and knowledge of the ecology of wetlands in the region."	We disagree.

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Item #	Chpt	Page	Par		Comment	Response
151	5	116	1	A.K.	Paragraph at top of page (starts from preceding page 115): last sentence refers to "Tree throw and cryoturbation". Seriously question where cryoturbation is occurring in this region, as this phenomenon is more specific to soil formation in permafrost conditions (specifically Gelisols) where clear examples of ice wedge formation and freeze-thaw cycles literally cause churning of the soil. Brady & Weil (2003) indicate there are no Gelisols in the NE/NC Region. Are there permafrost/alpine conditions in the highest elevations of the northern Applachians? If there is justification for cryoturbation to be referenced in the Supplement, it should then be officially defined in the glossary.	We will delete "cryoturbation."

The following are not technical comments, but are simply edits (E) of the text (incomplete information, poor grammar, typographical errors, etc.).

Item #	Chpt	Page	Par	Initials	Comment	Response
152	1	1	1	E	Full references to U.S. Code (e.g., 33 U.S.C. 1344) should be included in citations; check entire document	Relevant U.S. code references are cited only once, in this introduction. In general, the supplement is a technical guidance document, not a review of laws, regulatiions, or policy.
153	1	4	1	E	When abbreviating units of measurement, it should consistent throughout document; e.g., mm, cm, m, in, ft. Throughout this document inches is abbreviated with a period, i.e., "in."	This is ERDC editorial style, presumably to avoid confusion between "inches" and the preposition "in" -- it is done consistently throughout the supplement.
154	1	4	3	E	Is there a tense issue here? Third sentence says "It is an unsorted mixture of fine particles, sand, gravel,… and boulders that WAS scoured and redeposited… WAS should be changed to WERE or HAVE BEEN?	We will change it to "were."
155	1	5	1	E	Top paragraph (continued from page 4), line 3 - Is there an extra space between the words "that" and "derived"?	Yes. We will fix it.
156	1	5	1	E	Top paragraph (continued from page 4), line 12 (last sentence) - Delete comma between the word "region" and "due"	We will make the recommended change.
157	1	5	1	E	A number of suggestions on this para: 4th sentence - suggest add words in ALL CAPS: "Ground moraine is a landform OF LOW RELIEF consisting of glacial BASAL till deposited by receding ice. " 6th sentence: "Terminal and lateral moraines are ridges or chains of hills that formed, RESPECTIVELY, AT THE END OR SIDES of glaciers."	We will make the recommended change.

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Item #	Chpt	Page	Par		Comment	Response
158	1	6	1	E	Top paragraph (continued from page 5), line 2 - clause "further details can be found in USDA Natural Resources Conservation Service (2006a)." is incomplete. Read out loud literally, there is a word missing at the end. It is referencing a USDA NRCS document, but it should be mentioned by name the way this sentence is written.	We disagree. The wording is the same as for any cited reference -- e.g., "details can be found in Smith (2001).
159	1	9	2	E	Paragraph 2 is difficult to read because of inconsistent punctuation. Use a semi-colon to separate a series when there are sub-series being defined within, e.g., use ";" before "(2)" and "(3"). Also, inconsistent use of parentheses in this document. When using multiple parentheses, brackets [ ] should be used outside ( ), and { } should be used outside of [ ]. Example: [Symphyotrichum (=Aster) puniceum].	We will make the recommended change.
160	1	9	3	E	*puniceum* shouuld be *puniceus*	It is Symphyotrichum puniceum and Aster puniceus. We will make the recommended change.
161	2	15	1	E	Top paragraph (continued from page 14), first line. Same comment as about clearer use of parentheses and brackets. Line should read "[e.g., 5 by 5 ft (1.5. by 1.5 m), or 10 by 10 ft (3.1 by 3.1 m)]. Suggest changing this throughout document wherever multiple parentheses "(( ))" have been used	We will make the recommended change.
162	3	60	4	E	Delete "(sapric soil material)" -- I made this note BEFORE Mal made the above comment. Do we still want to make this recommendation?? In either case, should it be "sapric material" or "sapric soil material"? Barry - Yes, My comment was to delete the parenthetical statement, because it is redundant. It is not substantive to include it. BW.	We will make the recommended change.
163	5	114	3 (5.)	E	2nd sentence: comma not needed between words "systems" and "with"	We will make the recommended change.
164	5	115	2	E	4th sentence: comma not needed between words "1800s" and "may"	We will make the recommended change.
165	5	120	2 (3.a).	E	Acronyms "DIFF", "DST", "DEF" should be defined on first use	These are not really meaningful acronyms or abbreviations. For example, DIFF is just "difference," which is nearly meaningless in this context. We have tried to identify their meanings by the wording of the sentence in which they are used. Go to the WebWIMP site for details.