

**WETLAND MAPPING CONVENTIONS  
FOR  
AGRICULTURAL LAND AND NARROW BAND  
AND SMALL POCKET INCLUSIONS  
OF NON-AGRICULTURAL LAND**

**SOIL CONSERVATION SERVICE  
INDIANAPOLIS, IN 46278  
AUGUST 1994**

## INTRODUCTION

This document outlines the methods and procedures (conventions) the Soil Conservation Service (SCS) will use in Indiana to make wetland determinations for the Food Security Act of 1985 (FSA) as amended by the Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA)<sup>1</sup>. These off-site procedures will be supplemented by on-site methods when delineating wetlands for Clean Water Act purposes and in accordance with the state SCS/U.S. Army Corps of Engineers (COE) Memorandum of Agreement.

Mapping conventions are a set of accepted methods or procedures used to guide the wetland delineator in making off-site (i.e. office) wetland determinations on agricultural lands.

**NOTE:** The off-site mapping conventions described in the COE 1987 Manual will be used to identify and delineate non-agricultural lands that are either narrow bands immediately adjacent, or small pockets interspersed among, agricultural lands.

"Agricultural lands<sup>2</sup>" are lands:

1. that are intensively used and managed for the production of food or fiber.
2. where natural vegetation has been removed and cannot be used to determine whether the area meets applicable hydrophytic vegetation criteria in making a wetland determination.  
Examples: cropland, hayland and pasture land composed of planted grasses and legumes, orchards, and vineyards.

"Agricultural lands" do not include lands that are forest lands, woodlots, tree farms or uncultivated meadows and prairies.

These conventions are not intended to state or document SCS policy. They are designed to ensure consistent interpretations between SCS field offices throughout the state and between states within the same ecoregion. Because the criteria for making off-site wetland determinations varies according to the landscape conditions being reviewed, mapping conventions have been developed for each of three resource regions within Indiana. These conventions conform to FSA definitions and procedures.

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<sup>1</sup> When FSA is used alone, it means as amended by FACTA.

<sup>2</sup> USDA/EPA/DOI/Army MOA Concerning the Delineation of Wetlands for Clean Water Act/Section 404 and Food Security Act/Subtitle B, January 1994.

isted below are the resource regions which will be used in Indiana.

1. Potholes and Other Depressional Areas (Within the Wisconsin Glaciated Region). SEE EXHIBIT #1
2. Flooded or Poned Soils<sup>3</sup> that are inundated during the growing season<sup>4</sup>.
3. Hydric Soils That Meet Only the Saturation Criteria<sup>5</sup>.

The size of an area is not part of the wetland criteria. However, areas which meet the wetland criteria and are large enough to detect when using these conventions will be mapped as wetlands. The Memorandum of Agreement concerning the delineation of wetlands for purposes of Section 404 of the Clean Water Act and Subtitle B of the Food Security Act allows SCS determinations made on narrow bands immediately adjacent to or small pockets interspersed among agricultural lands to be used by the Environmental Protection Agency (EPA) or COE. These conventions may be used to determine wetland pockets interspersed in agricultural land or narrow bands between agricultural land that are less than 50 feet wide. For purposes of these conventions, "small pockets" and "narrow bands" are to be considered those areas which are (a) less than 5 (five) acres in size and (b) not contiguous with a larger wetland area.

These conventions will be used as the basis for completing all off-site wetland determinations in accordance with established definitions and policy.

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<sup>3</sup> Ponding can occur anywhere, while flooding is primarily restricted to areas adjacent to major perennial streams.

<sup>4</sup> The Growing Season can be estimated by approximating the number of frost free days. This time period can be approximated as the average date of the last killing frost in the spring to the average date of the first killing frost in the fall. This represents a temperature threshold of 28 degrees Fahrenheit or lower at a frequency of five (5) years in ten (10). SEE EXHIBITS #2 AND #3.

<sup>5</sup> These are areas of woody vegetation located in isolated portions of southern Indiana. These soils meet the saturation criteria but, in general, do not meet the ponding criteria for hydric soils. Section II of the field Office Technical Guide will be used in identifying these soils types.

WETLAND MAPPING CONVENTIONS

FOR

POTHOLES AND OTHER DEPRESSIONAL AREAS

(WITHIN THE WISCONSIN GLACIATED REGION)

Wetland determinations in this area will be made using the following procedure. These conventions will be used as the basis for making all off-site (office) determinations of wetlands within the pothole region. It takes into consideration above normal and below normal precipitation periods. The principal tools used to make the wetland determination are: 1) National Wetland Inventory (NWI) maps prepared by the U.S. Fish and Wildlife Service (FWS), 2) SCS Soil Survey maps, and 3) Agricultural Stabilization and Conservation Service (ASCS) 35mm aerial color slides.

STEP 1: REVIEW NWI MAPS.

All wetlands on the NWI maps will be considered wetlands for these conventions unless the soil survey indicates that no hydric soils, or hydric soil inclusions, are present<sup>6</sup> and review of the ASCS slides<sup>7</sup> fails to confirm the area as meeting wetland criteria<sup>8</sup>. Note: Many wetlands are excluded on NWI maps because of FWS policy on mapping wetlands in agricultural areas<sup>9</sup>.

STEP 2: REVIEW THE FIELD OFFICE (COUNTY) HYDRIC SOIL LIST AND SOIL SURVEY.

Review of the hydric soil list and the Soil Survey will help identify which areas have potential for wetlands.

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<sup>6</sup> Note that STEP 2 indicates the special considerations which should be taken when identifying hydric soil map units.

<sup>7</sup> See STEP 3 for further details in reviewing ASCS slides.

<sup>8</sup> Wetland criteria for Potholes or Other Depressional areas is met when the area (a) is flooded or ponded for at least seven (7) consecutive days, or (b) has a combination of flooded or ponded and/or saturated for at least fourteen (14) consecutive days during the growing season in most years (50% chance or more).

<sup>9</sup> Refer to User's guide to National Wetland Inventory Maps (Region 3), USDI Fish and Wildlife Service, December, 1993.

STEP 2: (continued)

What to look for:

1. Map units which are listed as hydric soils for the county.
2. Map units with hydric soils as part of their name.
3. Map units with hydric soils as inclusions.
4. Map units with no hydric soils. In most cases these Soils will not contain wetlands, however, they still should be reviewed for wetland symbols.
5. Areas on soil maps denoted by conventional water feature symbols such as marsh or swamp, wet spots, reservoirs, lakes, ponds, streams, etc.

STEP 3: REVIEW ASCS SLIDES.

1. Obtain all available ASCS color slides for the years 1981 - present. A minimum of five (5) years of slides must be used.
2. Review all available slides to initially identify the hydrologic characteristics and features of the area. In Step 4, however, only slides with normal precipitation will be used to determine the **percentage of occurrence**.
3. Obtain the monthly precipitation for the three (3) months preceding each flight. The precipitation data can be obtained from the Climatic Data Access Facility (CDAF) or from the National Climatological Data Center.
4. Determine if the three (3) month average precipitation is plus or minus 10% of the 30 year normal rainfall for that period. A wet flight year is a year in which the three (3) month average is equal to or greater than the 30 year normal average (for those three months) plus 10%. A dry flight month is equal to or less than the 30 year normal average minus 10%.
5. A minimum of five (5) years of slides with normal precipitation will be used for this process. If five (5) normal precipitation year slides are not available, an equal number of wet and dry year slides will be added until the minimum number of slides is reached.

**STEP 3: (continued)**

When reviewing the slides, the following criteria are considered to be indicators of a wetland.

1. Hydrophytic vegetation<sup>10</sup>.
2. Surface water.
3. Saturated conditions.
4. Flooded or drowned-out crops (mud flats).
5. Stressed crops due to wetness (yellowish color).
6. Differences in vegetation patterns due to different planting dates.
7. Inclusion of wet areas into set-aside programs.
8. Unharvested crops in an otherwise harvested area.
9. Isolated areas that are not farmed with rest of field.
10. Patches of greener vegetation.
11. Other signatures as appropriate for specific regions of the state.

The following process will be used when reviewing ASCS slides:

1. Place a clear overlay on an eight (8) inch per mile planning map or on a projection table if available.
2. Review the ASCS slide for the first available year. Circle the areas exhibiting wetland signatures with a dry erasable marker for that year.
3. Go to the next year's slide, circle all new areas exhibiting wetland signatures, and place a check mark next to those wetlands which have reoccurred.
4. Repeat this process for all available slide years.
5. Divide the total number of occurrences by the total number of available slides and multiply by 100. This number is the **percentage of occurrence.**

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<sup>10</sup> Within the context of these conventions, trees and/or other non-agricultural crops located on hydric soils (or soils with hydric inclusions) are considered hydrophytic vegetation.

**STEP 3: (continued)**

6. Always check for manipulation<sup>11</sup> of wetland areas.  
**NOTE:** (a) Check other areas of the field for wetland signatures which may be present outside the area impacted by the manipulation; (b) When working with soils that formed under herbaceous vegetation (sometimes called Prairie Soils or Mollisols), evidence of manipulation other than removal of woody vegetation is required.

**STEP 4: MAKING THE DETERMINATIONS      SEE EXHIBIT #4**

Wetland determinations will be based on the conventions listed below.

1. If the circled area occurrence is greater than or equal to 50 percent of the ASCS slides, the area is marked as a wetland (or with the appropriate FSA symbol as described in STEP 5), regardless of the NWI map indications.
2. If the circled area occurrence is equal to or greater than 30 percent but less than 50 percent of the ASCS slides, and is verified by the NWI map, the area is marked as a wetland (W).
3. If the circled area occurrence is equal to or greater than 30 percent but less than 50 percent of the ASCS slides, and is not verified by the NWI map, the area is a potential wetland. An on-site investigation will be required for final verification.
4. If the circled area occurrence is less than 30 percent of the ASCS slides, but is verified by the NWI map, the area is a potential wetland. An on-site investigation will be required for final verification.
5. If the circled area occurrence is less than 30 percent of the ASCS slides, and cannot be verified by the NWI map, the area is marked as Prior Converted wetland (PC) if hydric soils are present, and marked as Non-Wetland (NW) if hydric soils are not present.

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<sup>11</sup> Manipulation includes draining, dredging, filling, leveling, removal of woody vegetation (including stems and stumps), or any activity that results in impairing or reducing the flow, circulation, or reach of water. These measures may alter hydrology even if installed off-site from the affected wetlands.

STEP 4: (continued)

The actual wetland boundary will be taken from slides with 30 year normal precipitation. The boundary will be drawn by determining an average of the area containing the wetland signature(s) indicated on these selected slides. The wetland boundary will be transferred to an eight (8) inch per mile black and white photograph. When facilities are available, project the ASCS slide onto the photograph and outline the wetland to improve transfer accuracy. The areas determined to be wetlands will be marked with the appropriate FSA symbols described in STEP 5.

STEP 5: MODIFICATIONS SEE EXHIBIT #5

In addition to the criteria previously described, wetland determinations within the pothole region will be modified based on the criteria listed below.

1. Potholes, or other depressional areas, which were not manipulated prior to December 23, 1985 and which have hydrophytic vegetation, or potholes and depressions farmed under natural conditions, are wetlands. These areas will be marked with a "W". (See #1 of Exhibit #5)
2. Potholes, or other depressional areas, which (a) are located in areas where manipulation is evident before December 23, 1985, (b) still meet the wetland criteria, (c) made production<sup>12</sup> of an agricultural commodity possible, and (d) have been abandoned, are determined to be Wetlands. These areas will be marked "W". (See #2 of Exhibit #5)
3. Potholes, or other depressional areas, which (a) are located in areas where manipulation is evident before December 23, 1985, (b) still meet the wetland criteria, (c) have made production of an agricultural commodity possible, and (d) have not been abandoned, are determined to be Farmed Wetlands. these areas will be marked "FW". (See #3 of Exhibit #5)
4. Potholes, or other depressional areas, which (a) are located in areas where manipulation is evident before December 23, 1985, (b) still meet the wetland criteria, (c) have not made production of an agricultural commodity possible, (d) have not been abandoned, but (e) were used for pasture, hay or other forage production, are determined to be Farmed Wetland Pasture. These areas will be marked "FWP". (See #4 of Exhibit #5)

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<sup>12</sup> Production means mechanically planting and harvesting an agricultural commodity.

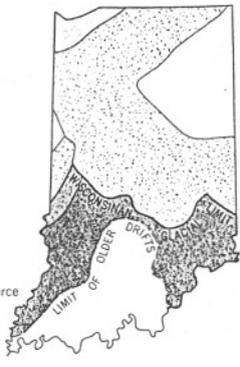
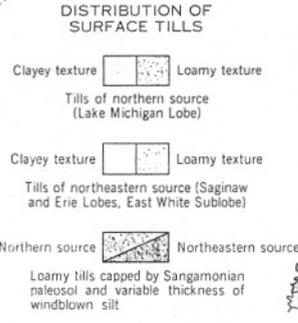
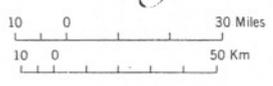
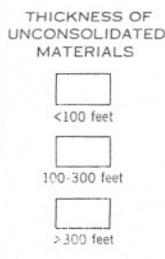
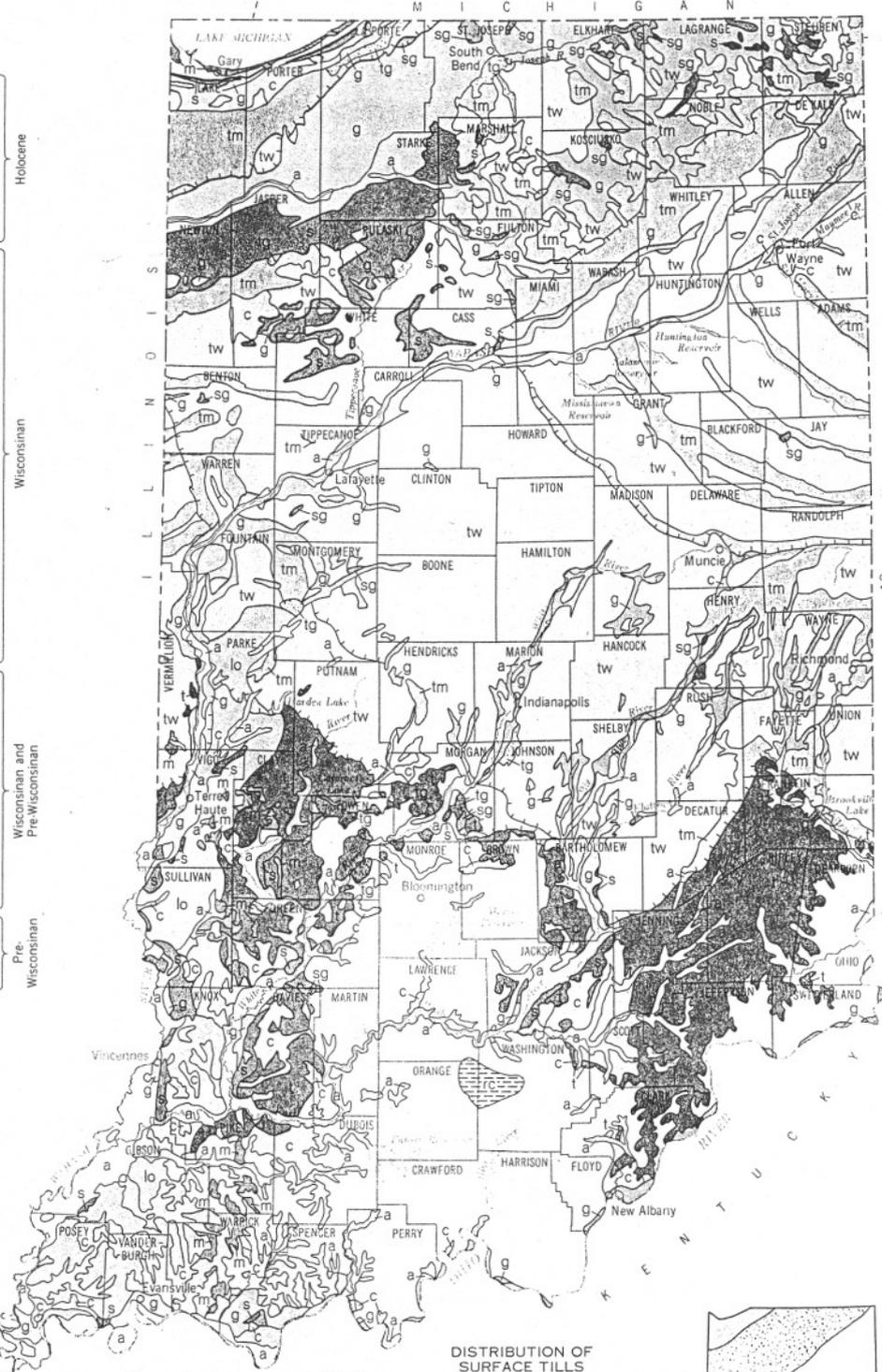
STEP 5: (continued)

5. Potholes, or other depressional areas, which (a) are located in areas where manipulation is evident before December 23, 1985, (b) still meet the wetland criteria, (c) have not made production of an agricultural commodity possible, (d) have not been abandoned, and (e) were not used for pasture, hay or other forage production, are determined to be Wetlands. These areas will be marked "W". (See #5 of Exhibit #5)
6. Potholes, or other depressional areas, which are located in areas where manipulation is evident before December 23, 1985, and no longer meet the wetland criteria, are determined to be Prior Converted Cropland. These areas will be marked "PC". (See #6 of Exhibit #5)
7. Potholes, or other depressional areas, which (a) met the wetland criteria prior to December 23, 1985, (b) show evidence of manipulation between December 23, 1985 and November 28, 1990, and (c) made production of an agricultural commodity possible, are determined to be converted Wetlands. These areas will be marked "CW". (See #7 of Exhibit #5)
8. Potholes, or other depressional areas, which (a) met the wetland criteria prior to December 23, 1985, (b) show evidence of manipulation between December 23, 1985 and November 28, 1990, but (c) did not make production of an agricultural commodity possible, will be marked "WX". (See #8 of Exhibit #5)
9. Potholes, or other depressional areas, which (a) met the wetland criteria prior to December 23, 1985, but which (b) show evidence of manipulation after November 28, 1990 and (c) made production of an agricultural commodity possible, are determined to be Converted Wetland plus the Year of Conversion. These areas will be marked "CW + Year". (See #9 of Exhibit #5)
10. Potholes, or other depressional areas, which (a) met the wetland criteria prior to December 23, 1985, but which (b) show evidence of manipulation after November 28, 1990 but (c) did not make production of an agricultural commodity possible, will be marked "WX". (See #10 of Exhibit #5)
11. Potholes or other depressional areas which (a) are composed of hydric soils and (b) contain woody vegetation, are wetlands. These areas are marked "W".
12. Land that (a) was formerly non-wetland under natural conditions, but (b) that now exhibits wetland characteristics because of human activities (i.e. livestock watering, fish production, irrigation, etc.) are determined to be Artificial Wetlands. These areas are marked "AW".

STEP 5: (continued)

13. Areas that (a) under natural conditions did not and currently do not meet wetland criteria, or (b) were converted wetland that did not meet wetland criteria as of December 23, 1985, and (i) were not cropped before 12/23/85, and (ii) wetland criteria has not returned, and (iii) area has not been abandoned, are to be considered Non-Wetland areas. These areas are marked "NW".
14. Areas with a combination of "PC" and "NW" will be marked as "PC/NW".

- EXPLANATION**
- Modified land Filled or mined
  - Sand, silt, and some gravel Modern river channel and floodplain deposits
  - Sand and gravel Glacial outwash
  - Sand Windblown in sheets and dunes
  - Silt Windblown loess
  - Till Ice-laid deposits
  - Till 'd deposits in hummocky morainal form
  - Sand and gravel Ice-channel meltwater deposits
  - Till-sand-gravel complex Ice-laid and meltwater deposits
  - Clay, silt, and sand Lake deposits
  - Till Ice-laid deposits
  - Red clay Largely reworked residuum of probable Tertiary and Quaternary age
  - Bedrock Lithified materials of Paleozoic age; thin residual soil and loess cover
- PLEISTOCENE**
- Holocene
  - Wisconsinan
  - Wisconsinan and Pre-Wisconsinan
  - Pre-Wisconsinan
- PRE-PLEISTOCENE**
- Significant ice-marginal position



MAP OF INDIANA SHOWING UNCONSOLIDATED DEPOSITS

Modified from Regional Geology Map Series, Indiana Geological Survey. Drafted by James R. Tolen



# Exhibit #3

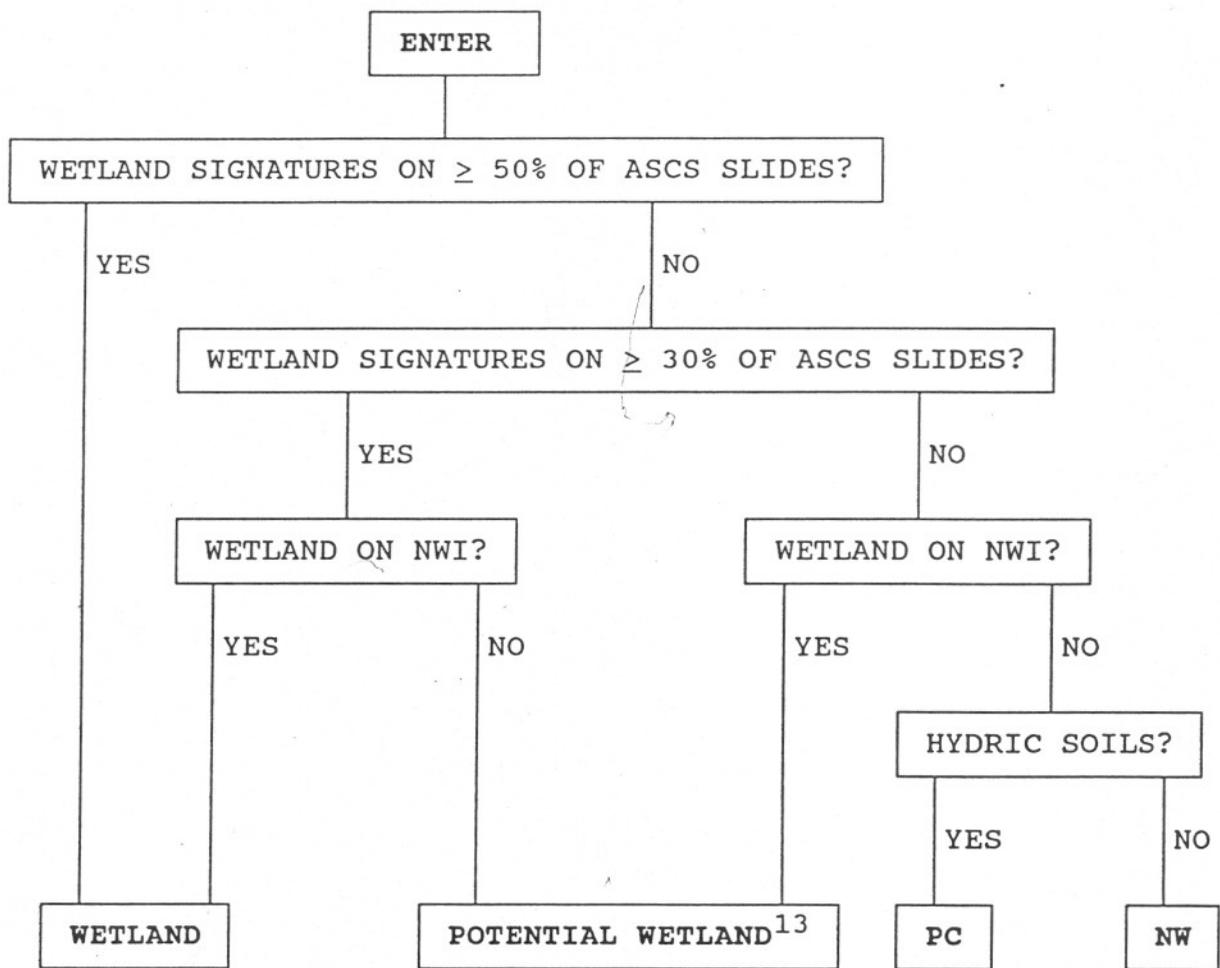
Average dates of the first killing frost  
(28° F) in the fall (5 years in 10).



Reference: (Weather) AY-231  
Cooperative Extension Service  
Purdue University  
West Lafayette, Indiana

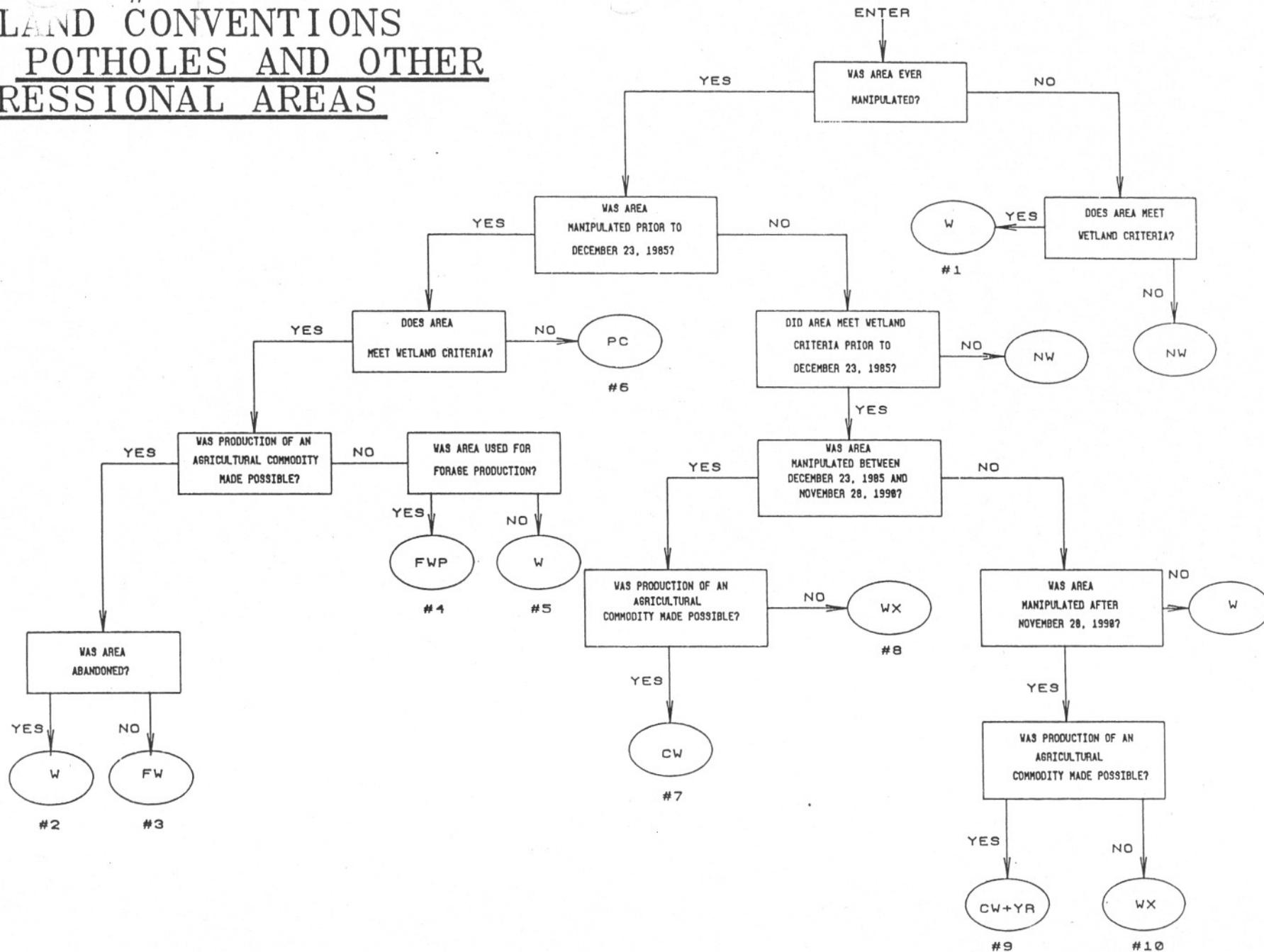
EXHIBIT #4

WETLAND DETERMINATION GUIDELINES  
FOR  
POTHOLES AND OTHER DEPRESSIONAL AREAS  
(WITHIN THE WISCONSIN GLACIATED REGION)



<sup>13</sup> An on-site investigation will be required for final verification.

# EXHIBIT #5 WETLAND CONVENTIONS FOR POTHOLES AND OTHER DEPRESSIONAL AREAS



## WETLAND MAPPING CONVENTIONS

### FOR

### FLOODED OR PONDED AREAS<sup>14</sup>

Wetland determinations in this area will be made using the following procedure. These conventions will be used as the basis for making all off-site (office) determinations of wetlands located on flooded or ponded areas within Indiana. It takes into consideration above normal and below normal precipitation periods. The principal tools used to make the wetland determination are: 1) National Wetland Inventory (NWI) maps prepared by the U.S. Fish and Wildlife Service (FWS), 2) SCS Soil Survey maps, and 3) Agricultural Stabilization and Conservation Service (ASCS) 35mm aerial color slides.

#### STEP 1: REVIEW NWI MAPS.

All wetlands on the NWI maps will be considered wetlands for these conventions unless the soil survey indicates that no hydric soils, or hydric soil inclusions, are present<sup>15</sup> and review of the ASCS slides<sup>16</sup> fails to confirm the areas as meeting hydrology criteria<sup>17</sup>. Note: Many wetlands are excluded on NWI maps because of FWS policy on mapping wetlands in agricultural areas<sup>18</sup>.

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- <sup>14</sup> Areas within the Wisconsin Glaciated Region which are not Potholes or Depressional Areas are also included in this section.
- <sup>15</sup> Note that STEP #2 indicates the special considerations which should be taken when identifying hydric soil map units.
- <sup>16</sup> See STEP #3 for further details in reviewing ASCS slides.
- <sup>17</sup> Hydrology criteria for Flooded or Pounded Areas is met (a) when there is a 50% chance of the area being seasonally flooded or ponded for at least 15 consecutive days during the growing season (or 10% of the growing season, whichever is less, under normal growing conditions), or (b) when there is a 50% chance that the area is seasonally flooded or ponded for seven (7) consecutive days or saturated for 14 or more consecutive days during the growing season. (NFSAM 514.22-23).
- <sup>18</sup> Refer to User's Guide to National Wetland Inventory Maps (Region 3), USDI Fish and Wildlife Service, December, 1993.

**STEP 2: REVIEW THE FIELD OFFICE (COUNTY) HYDRIC SOIL LIST AND SOIL SURVEY.**

Review of the hydric soil list and the Soil Survey will help identify which areas have potential for wetlands.

What to look for:

1. Map units which are listed as hydric soils for the county.
2. Map units with hydric soils as part of their name.
3. Map units with hydric soils as inclusions.
4. Map units with no hydric soils. In most cases these Soils will not contain wetlands, however, they still should be reviewed for wetland symbols.
5. Areas on soil maps denoted by conventional water feature symbols such as marsh or swamp, wet spots, reservoirs, lakes, ponds, streams, etc.

**STEP 3: REVIEW FLOOD ELEVATION MAPS.**

The seven (7) and 15 day flood elevation boundaries are determined on many original SCS Wetland Inventory Maps. These boundaries were derived from SCS Soil Surveys and stream gauge data. Land located within these boundaries are considered to meet the hydrology criteria for Flooded and Pondered Areas. Contact the SCS State Office if this information is not available for your county.

**STEP 4: REVIEW ASCS SLIDES.**

1. Obtain all available ASCS color slides for the years 1981 - present. A minimum of five (5) years of slides must be used.
2. Review all available slides to initially identify the hydrologic characteristics and features of the area. In Step 4, however, only slides with normal precipitation will be used to determine the percentage of occurrence.
3. Obtain the monthly precipitation for the three (3) months preceding each flight. The precipitation data can be obtained from the Climatic Data Access Facility (CDAF) or from the National Climatological Data Center.
4. Determine if the three (3) month average precipitation is plus or minus 10% of the 30 year normal rainfall for that period. A wet flight year is a year in which the three (3) month average is equal to or greater than the 30 year normal average (for those three months) plus 10%. A dry flight month is equal to or less than the 30 year normal average minus 10%.

STEP 4: (continued)

5. A minimum of five (5) years of slides with normal precipitation will be used for this process. If five (5) normal precipitation year slides are not available, an equal number of wet and dry year slides will be added until the minimum number of slides is reached.

When reviewing ASCS slides, the following criteria are considered to be indicators of a wetland.

1. Hydrophytic vegetation<sup>19</sup>.
2. Surface water.
3. Saturated soils.
4. Flooded or drowned-out crops (mud flats).
5. Stressed crops due to wetness (yellowish color).
6. Differences in vegetation patterns due to different planting dates.
7. Inclusion of wet areas into set-aside programs.
8. Unharvested crops in an otherwise harvested area.
9. Isolated areas that are not farmed with rest of field.
10. Patches of greener vegetation.
11. Other signatures as appropriate for specific regions of the state.

The following process will be used when reviewing ASCS slides:

1. Place a clear overlay on an eight (8) inch per mile planning map or on a projection table if available.
2. Review the ASCS slide for the first available year. Circle the areas exhibiting wetland signatures with a dry erasable marker for that year.
3. Go to the next year's slide, circle all new areas exhibiting wetland signatures, and place a check mark next to those wetlands which have reoccurred.
4. Repeat this process for all available slide years.
5. Divide the total number of occurrences by the total number of available slides and multiply by 100. This number is the percentage of occurrence.

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<sup>19</sup> Within the context of these conventions, trees and/or other non-agricultural crops located on hydric soils (or soils with hydric inclusions) are considered hydrophytic vegetation.

6. Always check for manipulation of wetland areas.  
**NOTE:** (a) Check other areas of the field for wetland signatures which may be present outside the area impacted by the manipulation; (b) When working with soils that formed under herbaceous vegetation (sometimes called Prairie Soils or Mollisols), evidence of manipulation other than removal of woody vegetation is required.

**STEP 5: MAKING WETLAND DETERMINATIONS. SEE EXHIBIT #6**

Wetland determinations will be based on the conventions listed below.

1. If the circled area occurrence is greater than or equal to 50 percent of the ASCS slides, the area is marked as a wetland (or with the appropriate FSA symbol as described in STEP 6), regardless of the NWI map indications.
2. If the circled area occurrence is equal to or greater than 30 percent but less than 50 percent of the ASCS slides, and is verified by the NWI map, the area is marked as a wetland (W).
3. If the circled area occurrence is equal to or greater than 30 percent but less than 50 percent of the ASCS slides, and is not verified by the NWI map, the area is a potential wetland. An on-site investigation will be required for final verification.
4. If the circled area occurrence is less than 30 percent of the ASCS slides, but is verified by the NWI map, the area is a potential wetland. An on-site investigation will be required for final verification.
5. If the circled area occurrence is less than 30 percent of the ASCS slides, and cannot be verified by the NWI map, the area is marked as Prior Converted wetland (PC) if hydric soils are present, and marked as Non-Wetland (NW) if hydric soils are not present.

The actual wetland boundary will be taken from slides with 30 year normal precipitation. The boundary will be drawn by determining an average of the area containing the wetland signature(s) indicated on these selected slides. The boundaries will be transferred to an eight (8) inch per mile black and white photograph. When facilities are available, project the ASCS slide onto the photograph and outline the wetland to improve transfer accuracy. The areas determined to be wetland will be marked with the appropriate FSA symbols described in STEP 6.

**STEP 6: MODIFICATIONS SEE EXHIBIT #7**

In addition to the criteria previously described, wetland determinations within the Flooded or Poned region will be modified based on the criteria listed below.

1. Flooded or Poned areas which were not manipulated prior to December 23, 1985 and which have hydrophytic vegetation are wetlands. These areas will be marked with a "W". (See #1 of Exhibit #7).
2. Flooded or Poned areas, which (a) are located in areas where manipulation is evident, (b) still meet the wetland criteria, and (c) have been abandoned, are determined to be Wetlands. These areas will be marked "W" (See #2 of Exhibit #7).
3. Flooded or Poned areas, which (a) have not been abandoned, (b) are located in areas where manipulation is evident before December 23, 1985, (c) have made production of an agricultural commodity possible, (d) still meet the 15-day hydrology criteria, but (e) was not used for forage production, are determined to be Farmed Wetlands. These areas will be marked "FW". (See #3 of Exhibit #7)
4. Flooded or Poned areas, which (a) have not been abandoned, (b) are located in areas where manipulation is evident before December 23, 1985, (c) have made production of an agricultural commodity possible, (d) still meet the 7/14-day hydrology criteria, and (e) was used for forage production, are determined to be Farmed Wetland Pasture. These areas will be marked "FWP". (See #4 of Exhibit #7)
5. Flooded or Poned areas, which (a) still meet the wetland criteria, (b) are located in areas where manipulation is evident before December 23, 1985, (c) have not made production of an agricultural commodity possible, are determined to be Wetlands. These areas will be marked "W". (See #5 of Exhibit #7)
6. Flooded or Poned areas, which (a) have not been abandoned, (b) are located in areas where manipulation is evident before December 23, 1985, (c) have made production of an agricultural commodity possible, but (d) no longer meet the wetland criteria, are determined to be Prior Converted Cropland. These areas will be marked "PC". (See #6 of Exhibit #7)
7. Flooded or Poned areas, which (a) met the wetland criteria prior to December 23, 1985, (b) show evidence of manipulation between December 23, 1985 and November 28, 1990, and (c) made production of an agricultural commodity possible, are determined to be Converted Wetlands. These areas will be marked "CW". (See #7 of Exhibit #7)

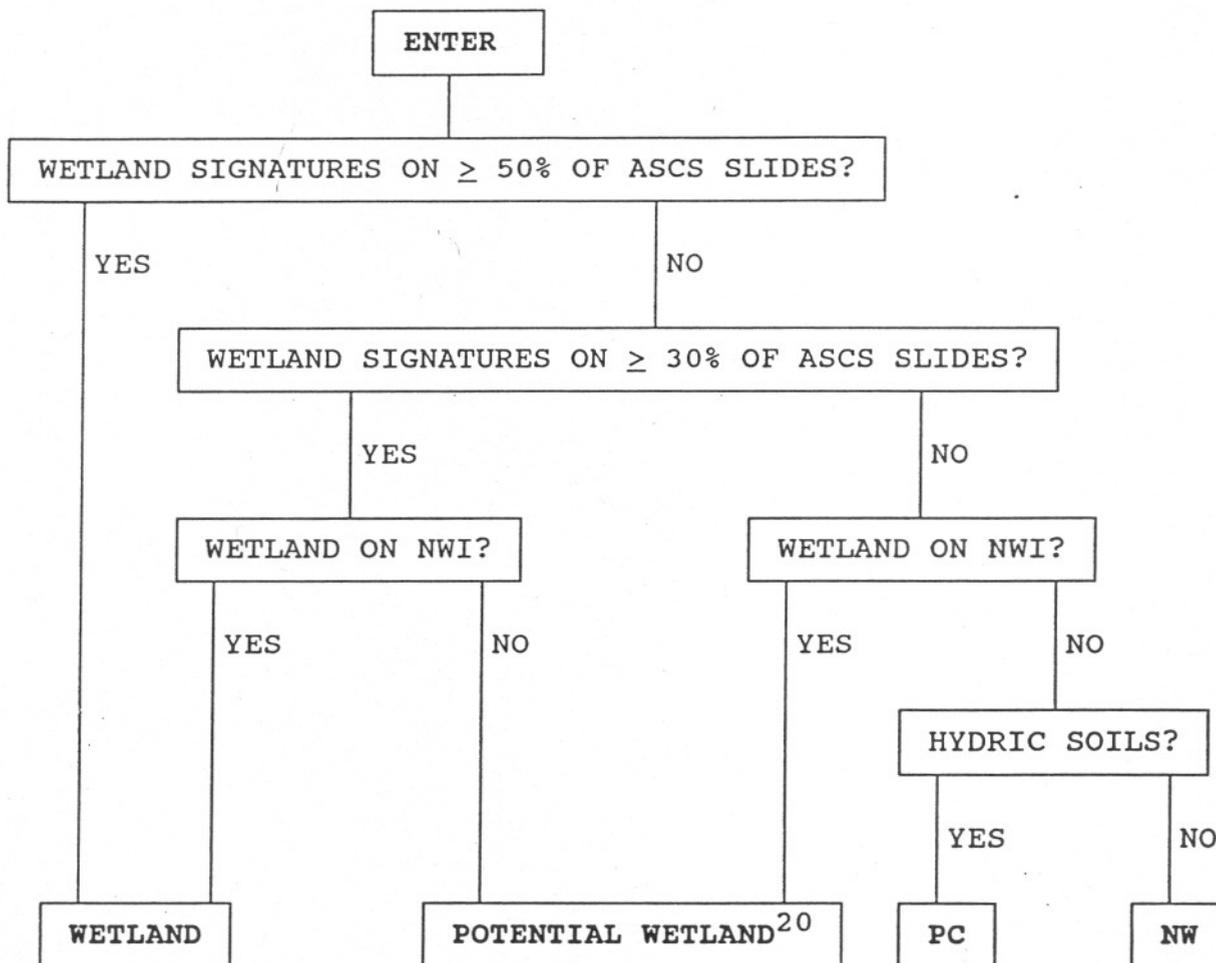
STEP 6: (continued)

8. Flooded or Poned areas, which (a) met the wetland criteria prior to December 23, 1985, (b) show evidence of manipulation between December 23, 1985 and November 28, 1990, but (c) did not make production of an agricultural commodity possible, will be marked "WX". (See #8 of Exhibit #7)
9. Flooded or Poned areas, which (a) met the wetland criteria prior to December 23, 1985, but which (b) show evidence of manipulation after November 28, 1990 and (c) make production of an agricultural commodity possible, are determined to be Converted Wetland plus Year of Conversion. These areas will be marked "CW + Year". (See #9 of Exhibit #7)
10. Flooded or Poned areas, which (a) met the wetland criteria prior to December 23, 1985, but which (b) show evidence of manipulation after November 28, 1990 but (c) do not make production of an agricultural commodity possible, will be marked "WX". (See #10 of Exhibit #7)
11. Flooded or Poned areas which (a) are composed of hydric soils and (b) contain woody vegetation, are wetlands. These areas are marked "W".
12. Land that (a) was formerly non-wetland under natural conditions, but (b) that now exhibits wetland characteristics because of human activities (i.e. livestock watering, fish production, irrigation, etc.) are determined to be Artificial Wetlands. These areas are marked "AW".
13. Areas that (a) under natural conditions did not and currently do not meet wetland criteria, or (b) were converted wetland that did not meet wetland criteria as of December 23, 1985, and (i) were not cropped before 12/23/85, and (ii) wetland criteria has not returned, and (iii) area has not been abandoned, are to be considered Non-Wetland areas. These areas are marked "NW".
14. Areas with a combination of "PC" and "NW" will be marked as "PC/NW".

EXHIBIT #6

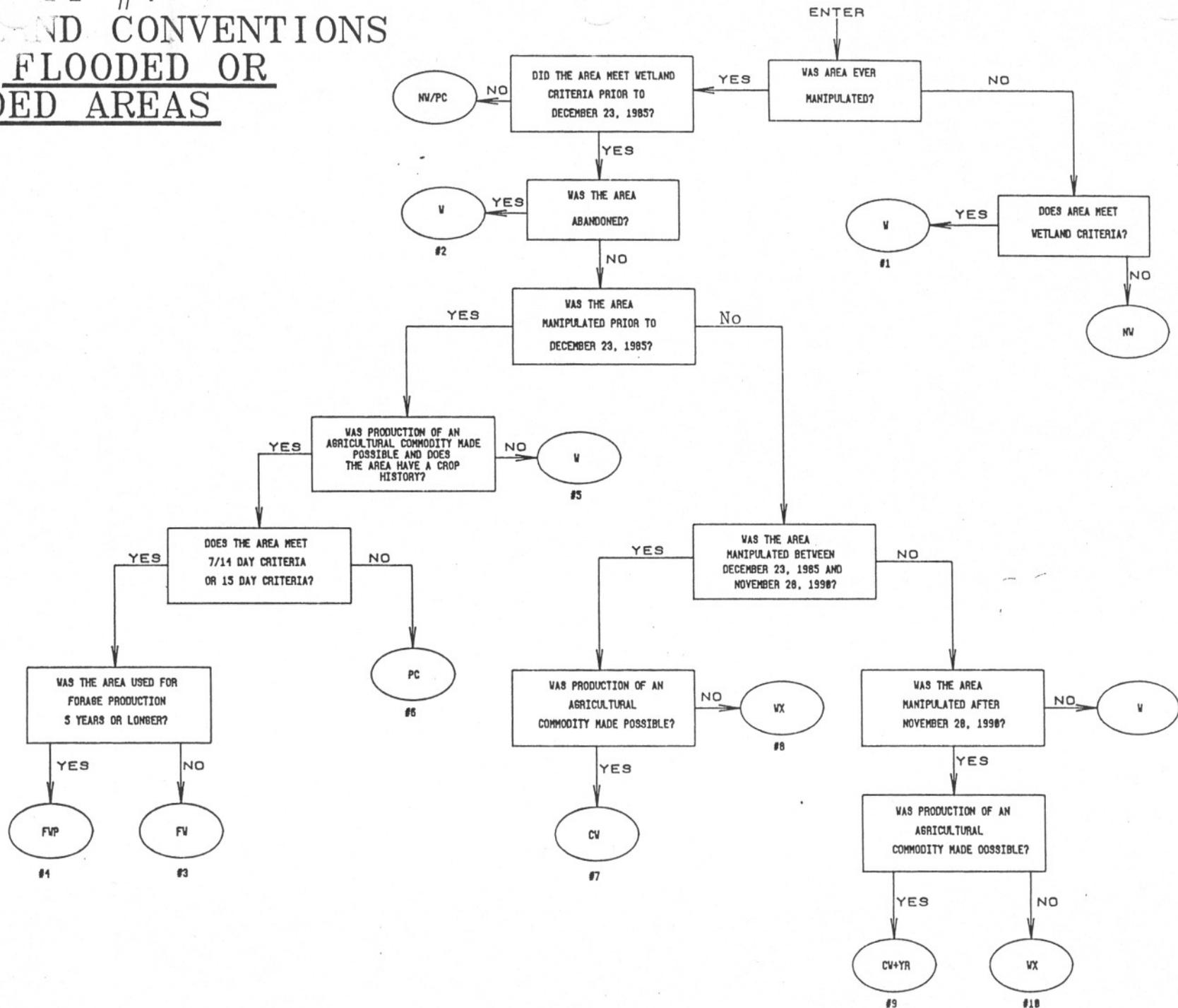
GUIDELINES FOR WETLAND DETERMINATIONS

FOR  
FLOODED OR PONDED AREAS



<sup>20</sup> An on-site investigation will be required for final verification.

# EXHIBIT #7 WETLAND CONVENTIONS FOR FLOODED OR PONDED AREAS



## WETLAND MAPPING CONVENTIONS

### FOR

### HYDRIC SOILS THAT MEET ONLY THE SATURATION CRITERIA

Wetland determinations in this area will be made using the following procedure. These conventions will be used as the basis for making all off-site (office) determinations of wetlands on Hydric Soils That Meet Only the Saturation Criteria. The principal tools used to make the wetland determination are: 1) National Wetland Inventory (NWI) maps prepared by the U.S. Fish and Wildlife Service (FWS), 2) SCS Soil Survey maps, and 3) Agricultural Stabilization and Conservation Service (ASCS) 35mm aerial color slides.

#### STEP 1: REVIEW FOTG HYDRIC SOIL INTERPRETATIONS.

Section II of the FOTG, Hydric Soil Interpretations, lists the map units for each county which are considered hydric soils or which may have inclusions of hydric soils. The dominant components of the map units on the following soil series meet the hydric soil criteria of saturation only in Indiana: **Atkins, Clermont, Cobbsfork, Ginat, Hoosierville, and Peoga**. This section of the conventions will be used exclusively for areas which contain these soils.

#### STEP 2: REVIEW NWI MAPS<sup>21</sup>.

All wetlands on the NWI maps will be considered wetlands for these conventions unless the soil survey indicates that no saturation-only hydric soils, or saturation-only hydric soil inclusions, are present<sup>22</sup> and review of the ASCS slides<sup>23</sup> fails to confirm the area as meeting wetland criteria<sup>24</sup>.

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<sup>21</sup> Refer to User's Guide to National Wetland Inventory Maps (Region 3), USDI Fish and Wildlife Service, December, 1993.

<sup>22</sup> Note that STEP 3 indicates the special considerations which should be taken when identifying hydric soil map units.

<sup>23</sup> See STEP 4 for further details in reviewing ASCS slides.

<sup>24</sup> Wetland criteria for Hydric Soils That Meet Only the Saturation Criteria is met when the area is saturated for 14 or more consecutive days during the growing season.

**STEP 3: REVIEW THE FIELD OFFICE (COUNTY) HYDRIC SOIL LIST AND SOIL SURVEY.**

Review of (a) the hydric soil list for saturation-only soils, and (b) the Soil Survey will help identify which areas have potential for wetlands.

What to look for:

1. Map units with saturation-only hydric soils as inclusions.
2. Map units with no hydric soils. In most cases these Soils will not contain wetlands, however, they still should be reviewed for wetland symbols.
3. Areas on soil maps denoted by conventional water feature symbols such as marsh or swamp, wet spots, reservoirs, lakes, ponds, streams, etc.

**STEP 4: REVIEW ASCS SLIDES.**

1. Obtain all available ASCS color slides for the years 1981 - present. A minimum of five (5) years of slides must be used.
2. Review all available slides, including both wet and dry years, to determine if hydrophytic vegetation is present.
3. When reviewing the slides, woody vegetation<sup>25</sup> is the only criteria considered to be an indicator of a saturation-only wetland.

**STEP 5: MAKING THE DETERMINATIONS**

Wetland determinations will be based on the conventions listed below.

1. Place a clear overlay on an eight (8) inch per mile planning map or on a projection table if available.
2. Review each sheet of the county soil survey. Outline all areas containing saturation-only soil map units with a dry erasable marker.

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<sup>25</sup> Woody vegetation is considered to be trees, and other non-herbaceous plants including vines and shrubs, which cannot be removed by normal farming operations.  
NOTE: Normal farming operations are limited to the use of tillage and haying equipment considered normal for the local area. (NFSAM 515.12)

STEP 5: (continued)

3. The boundaries will be transferred to an eight (8) inch per mile black and white photograph. When facilities are available, project the ASCS slide onto the photograph and outline the wetland to improve transfer accuracy. The areas determined to be wetland will be marked with the appropriate FSA symbols described in STEP 6.

STEP 6: MODIFICATIONS SEE EXHIBIT #8

In addition to the criteria previously described, wetland determinations within the region of Hydric Soils That Meet Only the Saturation Criteria will be modified based on the criteria listed below.

1. Hydric Soils That Meet Only the Saturation Criteria, which did not have woody vegetation removed prior to December 23, 1985 are wetlands. These areas will be marked with a "W". (See #1 of Exhibit #8).
2. Hydric Soils That Meet Only the Saturation Criteria, where (a) woody vegetation has been removed prior to December 23, 1985, and (b) have not been abandoned, are determined to be Prior Converted Cropland and marked as "PC". (See #2 of Exhibit #8)
3. Hydric Soils That Meet Only the Saturation Criteria, where (a) woody vegetation has been removed prior to December 23, 1985, and (b) have been abandoned, are determined to be Wetland and marked as "W". (See #3 of Exhibit #8)
4. Hydric Soils That Meet Only the Saturation Criteria, where woody vegetation (a) was not removed prior to December 23, 1985, but (b) had been removed between December 23, 1985 and November 28, 1990, are determined to be Converted Wetlands. These area are marked "CW". (See #4 of Exhibit #8)
5. Hydric Soils That Meet Only the Saturation Criteria, where woody vegetation (a) was not removed prior to December 23, 1985, but (b) had been removed after November 28, 1990, are determined to be Converted Wetlands plus Year of Conversion. These area are marked "CW + Year". (See #5 of Exhibit #8)
6. Land that (a) was formerly non-wetland under natural conditions, but (b) that now exhibits wetland characteristics because of human activities (i.e. livestock watering, fish production<sup>26</sup>, irrigation, etc.) are determined to be Artificial Wetlands. These areas are marked "AW".

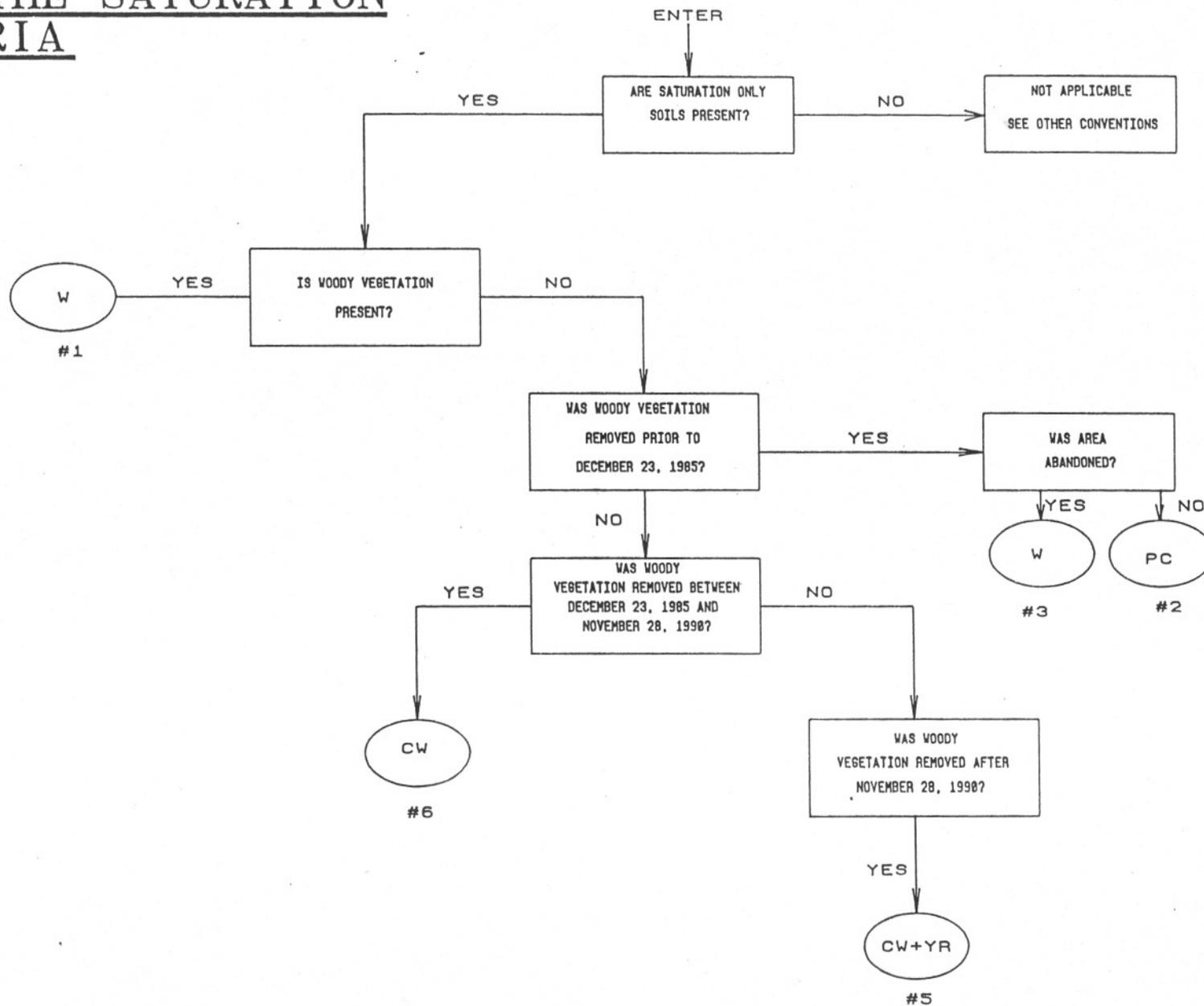
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<sup>26</sup> Production means mechanically planting and harvesting an agricultural commodity.

STEP 6: (continued)

7. Areas that (a) under natural conditions did not and currently do not meet wetland criteria, or (b) were converted wetland that did not meet wetland criteria as of December 23, 1985, and (i) were not cropped before 12/23/85, and (ii) wetland criteria has not returned, and (iii) area has not been abandoned, are to be considered Non-Wetland areas. These areas are marked "NW".
8. Areas with a combination of "PC" and "NW" will be marked as "PC/NW".

# EXHIBIT #8 WETLAND CONVENTIONS FOR HYDRIC SOILS THAT MEET ONLY THE SATURATION CRITERIA



27

## DEFINITIONS

**ABANDONMENT:** The cessation of cropping, forage production or management operation, for 5 consecutive years, on prior converted cropland (PC), farmed wetland (FW), farmed wetland pasture and hayland (FWP), or wetland that was converted to the extent that it did not meet wetland criteria before 12/23/85, but was not cropped (NW). Furthermore, land considered to be abandoned must have reverted back to wetland and meet wetland criteria. (NFSAM 525.0)

**AGRICULTURAL COMMODITY:** An annual crop planted by the tilling of the soil or sugarcane. (NFSAM 525.0)

**ARTIFICIAL WETLAND (AW):** Land that was formerly non-wetland under natural conditions, but now exhibits wetland characteristics because of human activities. Examples include, but are not limited to, artificial wetlands created for livestock watering, fish production, irrigation, rice production, flood control, recreation, wildlife habitat, gravel pits and borrow pits. NOTE: Wetlands created by beaver activity are not artificial wetlands. (NFSAM 514.33; 525.0)

**CONVERTED WETLANDS (CW):** Converted Wetland is land that meets all the following criteria: (a) was wetland, FW, or FWP under natural conditions, but (b) after December 23, 1985, has been drained, dredged, filled, leveled, or otherwise manipulated, including any activity that results in impairing or reducing the flow, circulation, or reach of water, and/or (c) woody vegetation, including stems and stumps, was removed and (d) the production of an agricultural commodity was made possible. (NFSAM 514.24; 525.0)

**FARMED WETLAND (FW):** Farmed wetlands are wetlands that were drained, dredged, filled, leveled or otherwise manipulated before December 23, 1985, for the purpose of, or to have the effect of, making the production of an agricultural commodity possible, and continue to meet specific hydrologic criteria. This definition applies if: (a) such production was not possible before the manipulation; and (b) an agricultural commodity has been produced at least once prior to December 23, 1985, and (c) the area has not been abandoned to agricultural production. (NFSAM 514.22; 525.0)

**FARMED WETLAND PASTURE (FWP):** Farmed wetland pastures or hayland are wetlands that: (a) were manipulated and used for pasture or hayland prior to December 23, 1985, still meet wetland criteria, and are not abandoned, or (b) were FW that have not been cropped for five (5) successive years, but were used for forage production during that time, and have not been abandoned, or (c) were PC that meet wetland criteria, have not been cropped for five (5) successive years, but were used for forage production during that time and have not been abandoned. (NFSAM 514.23; 525.0)

**HYDROPHYTIC VEGETATION:** Plants growing in water or in a substrate that is at least periodically deficient in oxygen during the growing season as a result of saturation or inundation by water. (NFSAM 525.0)

**MAKING PRODUCTION POSSIBLE:** Making production possible means: (a) manipulation which allows or would allow production of an agricultural commodity where such production was not previously possible, or (b) making an area farmable more years than previously possible, or (c) manipulation which reduces crop stress and allows increased crop yields, or (d) manipulation after 11/28/90 that allows forage production or pasture and hayland use. (NFSAM 514.20)

**MANIPULATION:** Manipulation is the alteration of the hydrology and/or the removal of woody vegetation (including stems and stumps) on a wetland. Hydrologic alterations that are considered manipulation may result from: dams, dikes, ditches, diversions, subsurface drains, pumps, terraces, and dredge and fill. NOTE: These measures may alter hydrology even if installed off-site from the affected wetlands. (NFSAM 514.20; 525.0)

**MAPPING CONVENTIONS:** Mapping conventions are a set of accepted practices or procedures used to guide the wetland delineator in making off-site wetland determinations on agricultural lands. Each state develops and field tests its own mapping conventions with concurrence from the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service. (514.30;525.0)

**NON-WETLANDS (NW):** Non-wetland is land that under natural conditions does not meet wetland criteria (sometimes called an upland). Non-wetland also includes wetlands which were converted to the extent that wetland criteria was not present prior to December 23, 1985, but were not cropped. NOTE: Non-wetland areas are not subject to any wetland restrictions except abandonment. (NFSAM 514.37; 525.0)

**OFF-SITE DETERMINATIONS:** Off-site determinations are wetland determinations made without a visit to the site, which are completed in the office using approved wetland mapping conventions and inventories. (NFSAM 514.12)

**ON-SITE DETERMINATIONS:** On-site determinations are wetland determinations made by visiting the wetland site and/or comparison site, if appropriate. (NFSAM 514.12)

**POTHOLE:** A depression, generally circular, elliptical, or linear in shape, occurring in glacial outwash plains, moraines, till plains, and glacial lake plains. (NFSAM 525.0)

**PRIOR CONVERTED CROPLAND (PC):** Prior converted croplands are wetlands that were drained, dredged, filled, leveled, or otherwise manipulated, including the removal of woody vegetation, before December 23, 1985, for the purpose of, or having the effect of, making the production of an agricultural commodity possible, and an agricultural commodity was planted or produced at least once prior to December 23, 1985. Prior converted croplands converted before December 23, 1985, are exempt from the FSA and CWA provisions. (NFSAM 514.31; 525.0)

**PRODUCTION:** Production means mechanically planting and harvesting an agricultural commodity. (Warren Lee, SCS NHQ: phone conversation 7/94)

**WETLANDS (W):** FSA wetlands are wetlands that have not been manipulated and have not had the water regime altered or woody vegetation removed. Wetlands include abandonment wetlands. Wetlands are lands that: (a) have a predominance of hydric soil; and (b) are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions; and (c) under normal circumstances do support a prevalence of hydrophytic vegetation.

**NOTE:** Normal circumstances refers to the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed. (NFSAM 513.11; 525.0)

**WOODY VEGETATION:** Woody vegetation is considered to be trees, and other non-herbaceous plants including vines and shrubs, which cannot be removed by normal farming operations.

**NOTE:** Normal farming operations are limited to the use of tillage and haying equipment considered normal for the local area. (NFSAM 515.12)

**"WX" WETLANDS:** "WX" areas are wetlands that have been manipulated after December 23, 1985, but the manipulation did not make production of agricultural commodities possible. "WX" areas may or may not meet wetland criteria depending on type and degree of manipulation. (NFSAM 514.38)

These conventions will take effect on the date of the last signature below and will continue in effect until modified or revoked by agreement of all signatory agencies, or revoked by any of the signatory agencies alone upon 90 days written notice. Modifications to these conventions may be made by mutual agreement and approval by all the signatory agencies.

Robert L. Eddleman 7/28/94  
date

Robert L. Eddleman  
Soil Conservation Service  
U.S. Department of Agriculture

David C. Hudak 8/2/94  
date

David C. Hudak  
Fish & Wildlife Service  
U.S. Department of the Interior

Douglas A. Ehorn 8/10/94  
date

Douglas A. Ehorn  
U.S. Environmental Protection  
Agency

William F. Christman 3 Aug 94  
date

William F. Christman  
Corps of Engineers, Louisville District  
U.S. Department of the Army

Gary R. Mannesto 8/8/94  
date

Gary R. Mannesto  
Corps of Engineers, Detroit District  
U.S. Department of the Army