Delineating Waters of the United States, including Wetlands

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Sacramento District

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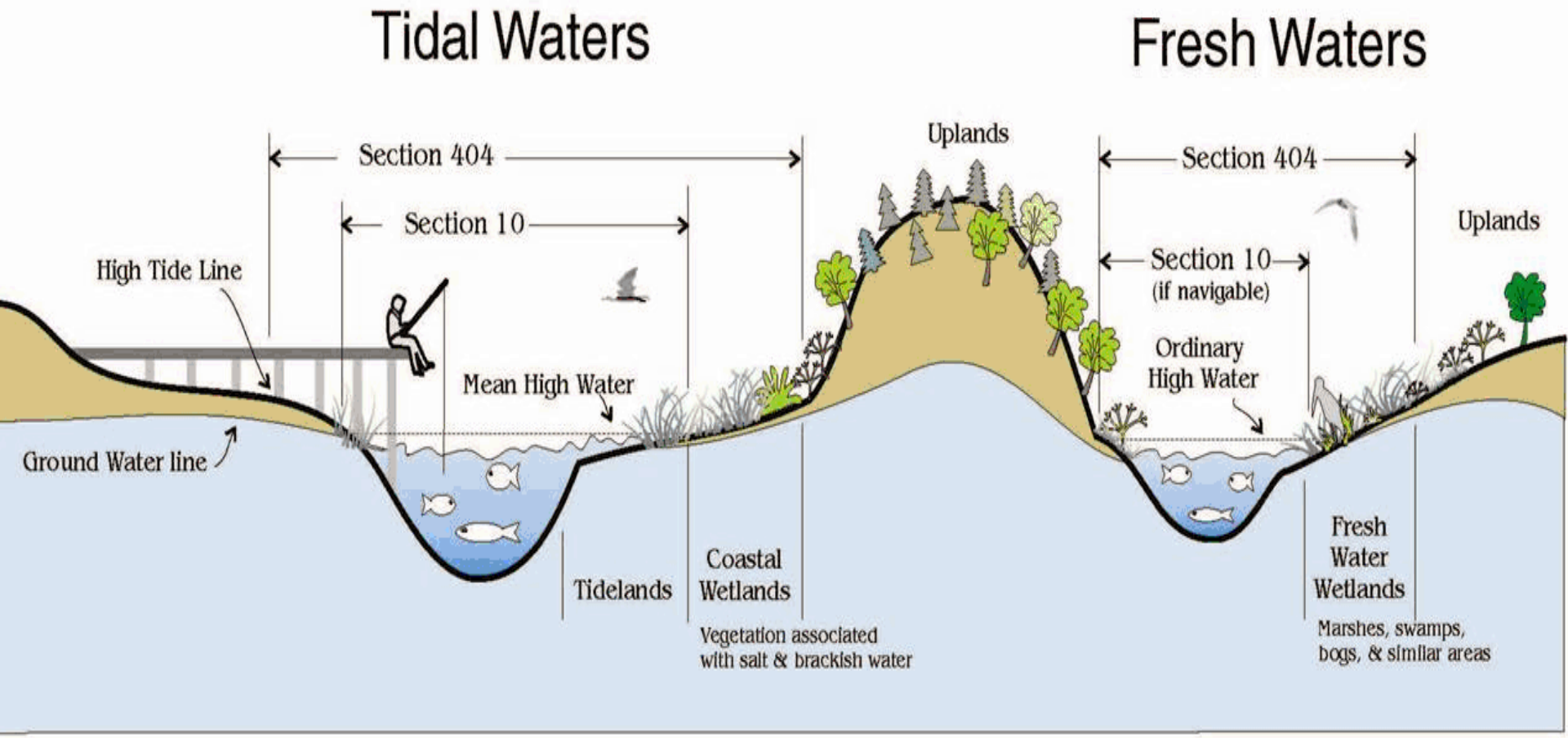
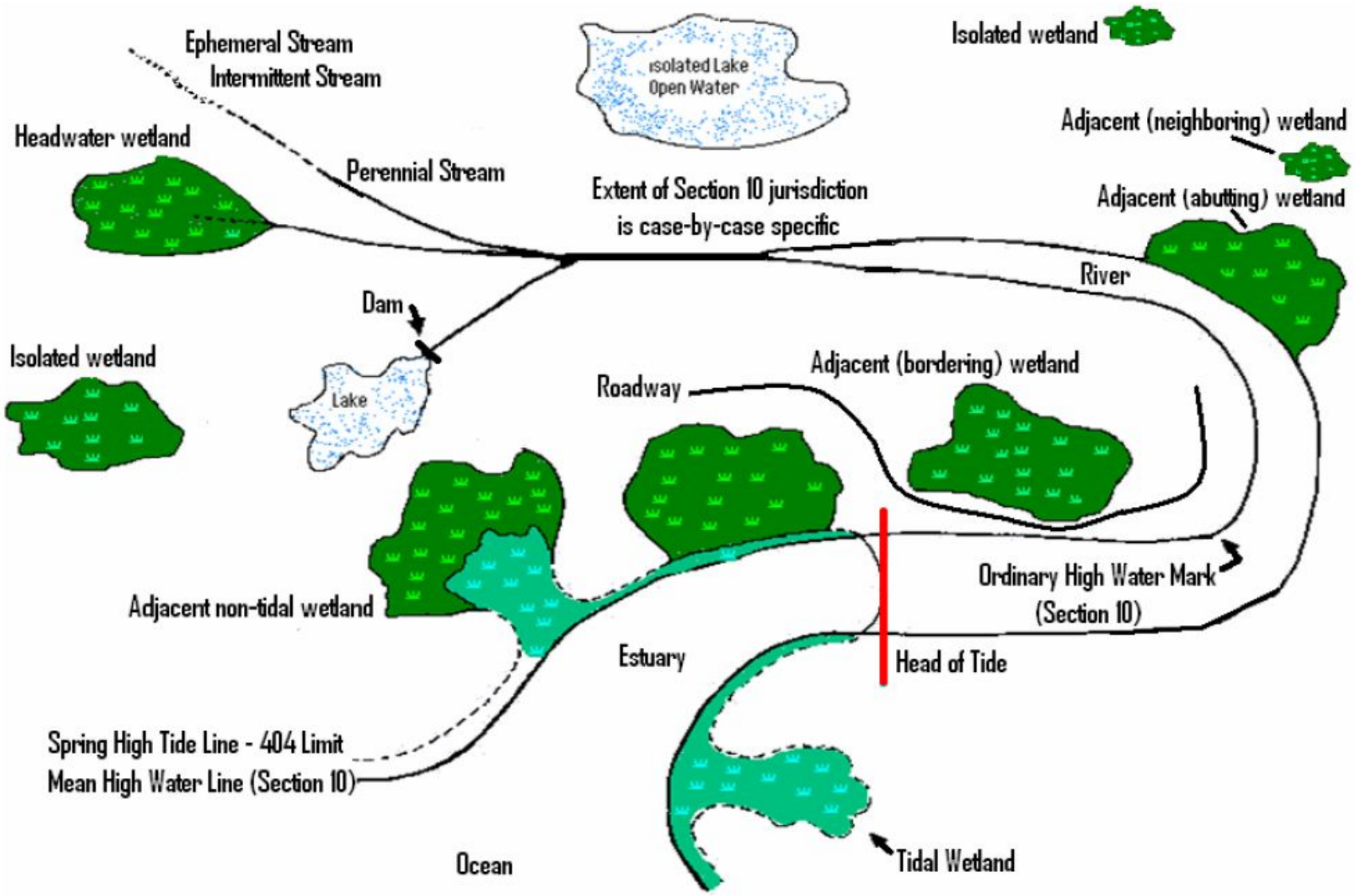
CORPS OF ENGINEERS REGULATORY JURISDICTION



	Section 103	Section 404	Section 10
	Ocean Disposal of Dredged Material	Discharge of Dredged or Fill Material (all waters of the U.S.)	All Structures and Work (navigable waters)
Typical examples of regulated activities	Ocean discharges of dredged material	All filling activities, utility lines, outfall structures, road crossings, beach nourishment, riprap, jetties, some excavation activities, etc.	Dreding, marinas, piers, wharves, floats, intake / outtake pipes, pilings, bulkheads, ramps, fills, overhead transmission lines, etc.

Landward Limits of Waters of the United States



Wetland Definition. *The CE (Federal Register 1982) and the EPA (Federal Register* 1980) jointly define wetlands as: **Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.** Wetlands generally include swamps, marshes, bogs, and similar areas.

Explicit in the definition is the consideration **of three environmental parameters: hydrology, soil, and vegetation**. Positive wetland indicators of all three parameters are normally present in wetlands.

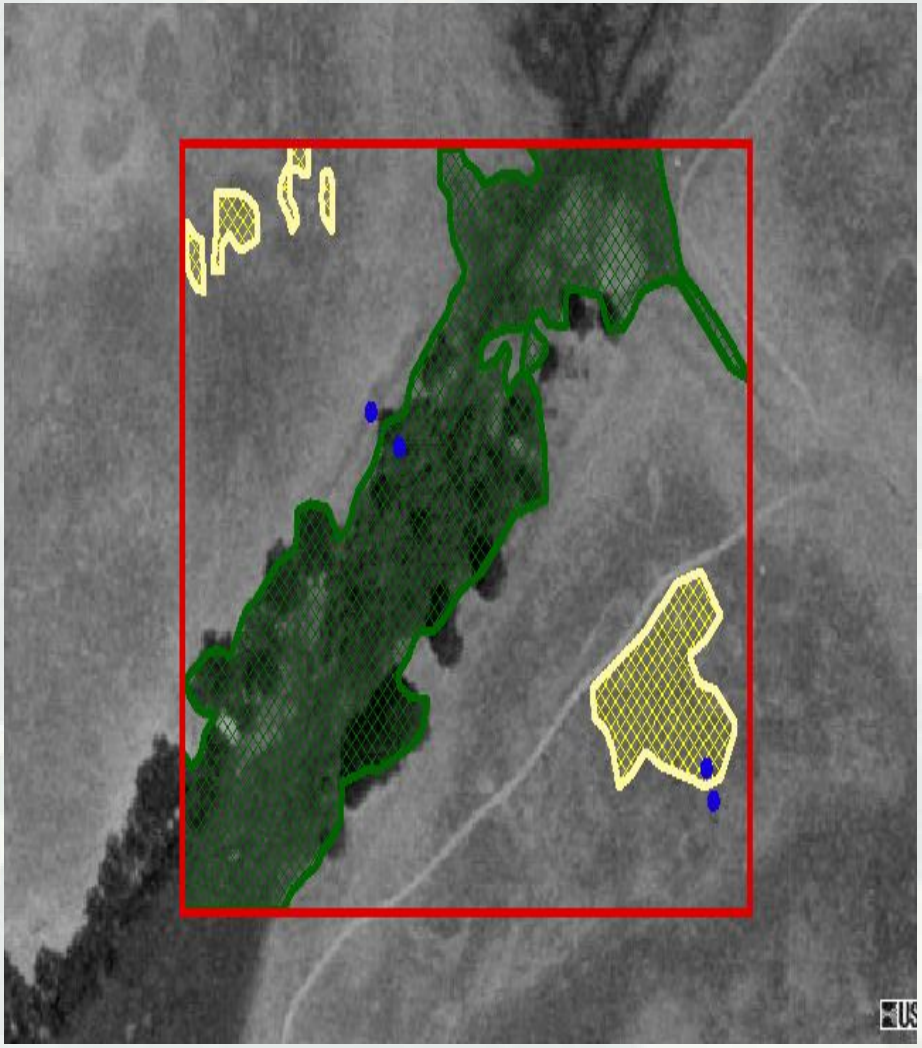
Although vegetation is often the most readily observed parameter, sole reliance on vegetation or either of the other parameters as the determinant of wetlands can sometimes be misleading.

Types of Wetlands

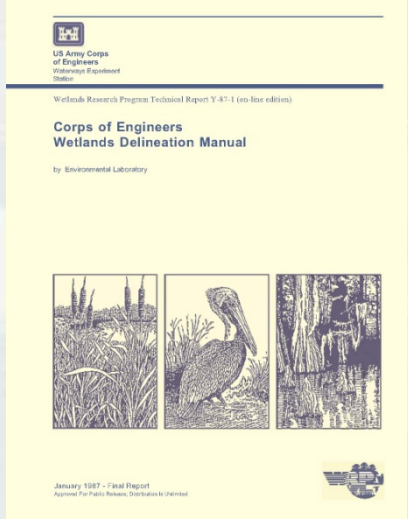
- Examples of types of wetlands include perennial or tidal marsh, seasonal wet meadows, seeps, forested wetlands, farmed wetlands and vernal pools.

Delineation

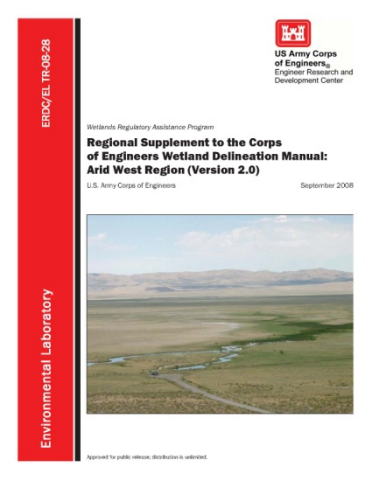
- Drawing waters of the United States, including wetlands, on a scaled map.
  - Minimum standards
- Majority of all wetland delineations are consultant prepared and Corps verified.
- First step in process should be a delineation verified by the Corps.

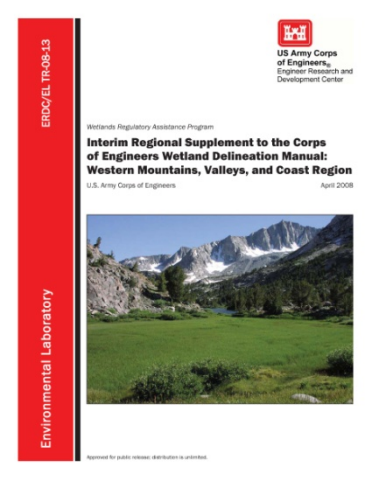


Wetland Delineation Manuals



- Corps of Engineers wetland Delineation Manual (1987) Technical Report Y-87-1





Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region and Western Mountain

Premise for use of the manual

18. Three key provisions of the CE/EPA definition of wetlands include:

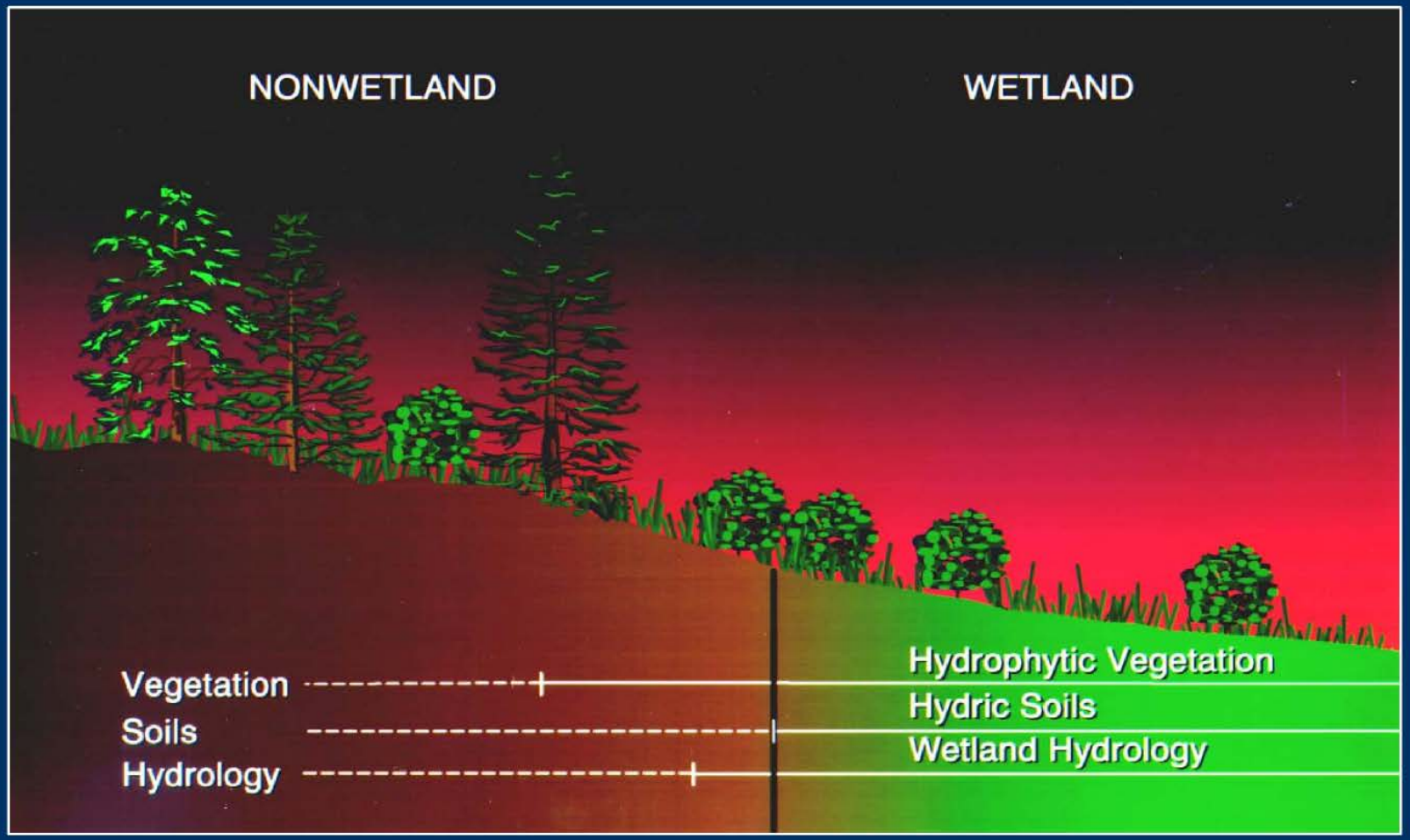
a. ***Inundated or saturated soil conditions*** *resulting from permanent or periodic* inundation by ground water or surface water.

b. A ***prevalence of vegetation typically adapted for life in saturated soil*** **conditions (hydrophytic vegetation).**

c. The presence of ***"normal circumstances."***

USER NOTES: **"Normal circumstances"** has been further defined as "the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed." The determination of whether normal circumstances exist in a disturbed area "involves an evaluation of the extent and relative permanence of the physical alteration of wetlands hydrology and hydrophytic vegetation" and consideration of the "purpose and cause of the physical alterations to hydrology and vegetation." (RGL 90-7, 26 Sep 90; HQUSACE, 7 Oct 91)

3 – Parameter Approach



Steps to Delineate a Wetland

- Collect Background Information
- Prepare Equipment and Materials
- Conduct Site Visit
- Prepare Report & Drawings
- Submit to Army Corps for Jurisdictional Determination Letter

Delineation Report Minimum Standards

http://www.spk.usace.army.mil/

MINIMUM STANDARDS FOR ACCEPTANCE OF PRELIMINARY WETLANDS DELINEATIONS

November 30, 2001

The Regulatory Branch of the Sacramento District, U.S. Army Corps of Engineers (District), receives numerous requests to perform wetlands delineations for potential applicants for permits under Section 404 of the Clean Water Act. Due to limited staff and resources, the response time can be several months or longer. To expedite this process, the District encourages applicants to use consultants to conduct preliminary wetlands delineations, especially for large and/or complex areas. Preliminary delineations may then be submitted to the District for review and verification.

While accurate delineations by qualified individuals have resulted in a quicker review and response from the District, substandard or inaccurate delineations have resulted in unnecessary time delays for applicants. These delays are due to insufficient, incomplete, or conflicting data, which prevent the District from verifying the proposed wetland boundaries. Such delineations must be returned by the District to the applicant or consultant for revision.

To improve the quality and consistency of delineations, the District has developed minimum standards necessary for accepting a delineation for verification of the jurisdictional boundaries. Any submittal that does not meet these requirements will be returned to the applicant or consultant. All deficiencies must be corrected by the applicant or a consultant prior to re-submittal.

A. MINIMUM REQUIREMENTS

The preliminary wetlands delineation report shall include:

- A statement that the delineation has been conducted in accordance with the 1987 "Corps of Engineers Wetlands Delineation Manual."
- A narrative describing the wetlands.
- Justification for the wetlands boundaries.
- The total acreage of the project site.
- Existing field conditions such as season and flood/drought conditions.
- A discussion of the hydrology source(subsurface or surface, including potential irrigation influence) and drainage gradients.
- A site location map, preferably outlined on a 7.5-minute USGS quadrangle, along with any other pertinent maps of the site. The map must provide the name of the USGS quadrangle, Section, Township, Range, and UTM or latitude and longitude.
- Directions to the site.
- Contact information for the applicant(s) and property owner(s).
- A discussion of plant communities and habitat types present on the site and a list of the scientific name, common name(s), and indicator status of all plants.
- Soil descriptions, soil map(s), and a list of hydric soils or soils with hydric inclusions on the site.
- Any observed and/or documented examples of an interstate or foreign commerce connection. Examples include, but are not limited to:
  - Recreational or other use by interstate or foreign travelers.
  - Sale of fish or shellfish in interstate or foreign commerce.
  - Use by industries, including agriculture, operating in interstate or foreign commerce.
- A delineation map at an appropriate scale (for most projects, a scale of one inch to 100 or 200 feet).

MINIMUM STANDARDS FOR ACCEPTANCE OF PRELIMINARY WETLANDS DELINEATIONS

The map should not exceed one inch to 400 feet unless there are extenuating circumstances. (Note: map scales must be accurate and in round numbers, any maps using a photographic base must be corrected for distortions, and any overlays must be of identical scale) The map must include:

- The boundary of the entire project area.
- All features which meet the criteria for wetlands or other waters of the United States.
- Color or thatched coding of the different wetlands types present.
- Topography.
- Clearly and accurately identified data point locations and the location and identification number of surveyed or GPS established flags, stakes, or wetland boundaries.
- All waters of the U.S., including but not limited to, interstate waters, tributaries, wetlands, and all other waters such as intrastate lakes, rivers, streams, and mudflats as described in 33 CFR 328.3, must be shown on the delineation map. Those features which meet wetlands criteria or are potential waters of the U.S., but which may be isolated and lacking an interstate or foreign commerce connection or non-jurisdictional for other reasons must still be shown on the map. Any justification for the Corps to make a non-jurisdictional determination should be provided in the report.
- Standard mapping conventions (e.g., north arrow, location map, etc.) and other identifying features which facilitate the correlation of map locations with ground features (e.g., buildings, fence lines, roads, right-of-ways, trees, streams, topographic features, etc.).
- A reference block which identifies the project, the delineators, surveyors, date of initial preparation and date(s) of any revisions.
- Individual numbers or other designations for each water feature identified.
- A table displaying the respective size (in acres) of each water and the cumulative acreage of each type of water.

- Data sheets completely and appropriately filled out. Data forms may be modified from the Corps' standard version, but they must present all essential information necessary to make a wetlands/non-wetlands determination.
- At least one set of paired data points documented for each feature or complex. Additional data forms may be necessary depending on various factors including the size and shape of the wetlands on the site, difficulty in identifying a precise wetlands/uplands boundary, and the width of any transition zones.

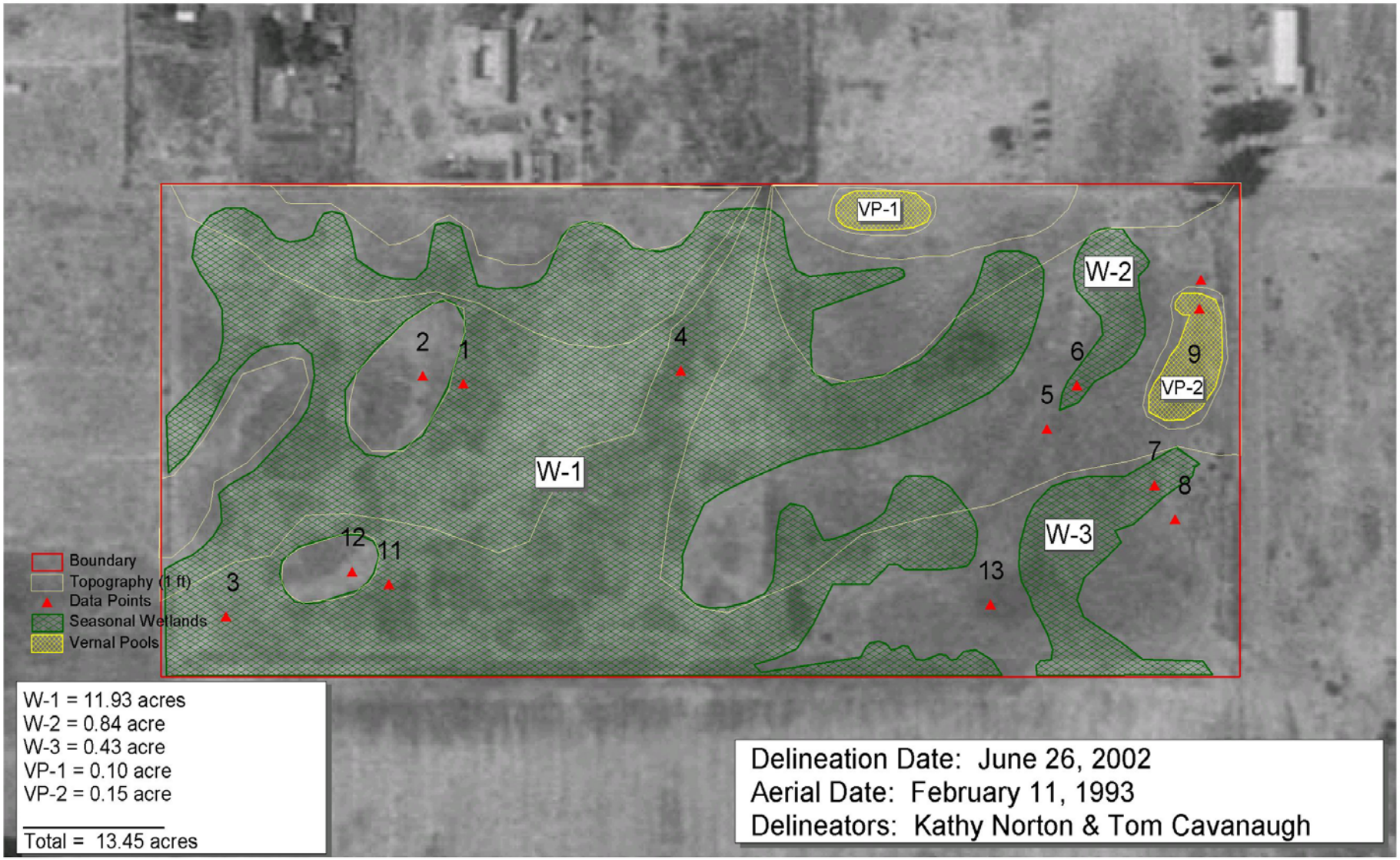
Additionally, before the Corps can complete its verification of the delineation, wetland boundaries must be marked with flags or stakes. Flags or stakes must be individually numbered and surveyed by traditional methods or by GPS equipment accurate to less than one meter. The survey data must specify the geographic coordinate system used in referencing the data, including projection and datum (e.g., Latitude-Longitude : NAD-27 or UTM - Zone 10 : NAD83). Data should be provided in a digital geographic information system (GIS) format to expedite review, with ESRI Shapefiles being the preferred format. The Corps also strongly recommends that property boundaries be flagged or staked and surveyed.

Additional information often can expedite a wetland verification. Particularly helpful data includes topographic maps, aerial and ground photographs, and related reports. Expanded narrative reports may also clarify the investigation. However, the Corps emphasizes that these reports should be succinct with only the relevant information presented. Irrelevant, verbose, or perfunctory information will only delay the Corps' evaluation.

Minimum Standards for Wetland Delineations

- Wetland delineation reports should justify and document the rationale for the wetland boundaries drawn on the map.
  - At least one set of paired points documented for each feature or complex **in the right places!**
  - All info used in the delineation should be included in the report (e.g. Aerial & topographic maps)

Davenport - Juniper



Background Information

- Manuals Identifying Protocol
- USGS Maps
- Aerial Photos: Google and Bing Maps now have bird's eye view photos
- National Wetland Inventory (NWI Maps)
- NRCS Soils Maps Web Soils Surveys
- FEMA Flood Insurance Rate Maps

Off-Site Methods

Available office data can be used:

- To provide background and supporting information to plan and carry out an on-site wetland delineation
- To determine presence of wetlands and draw approximate wetland boundaries when it is not possible to visit the site or when study objectives are limited

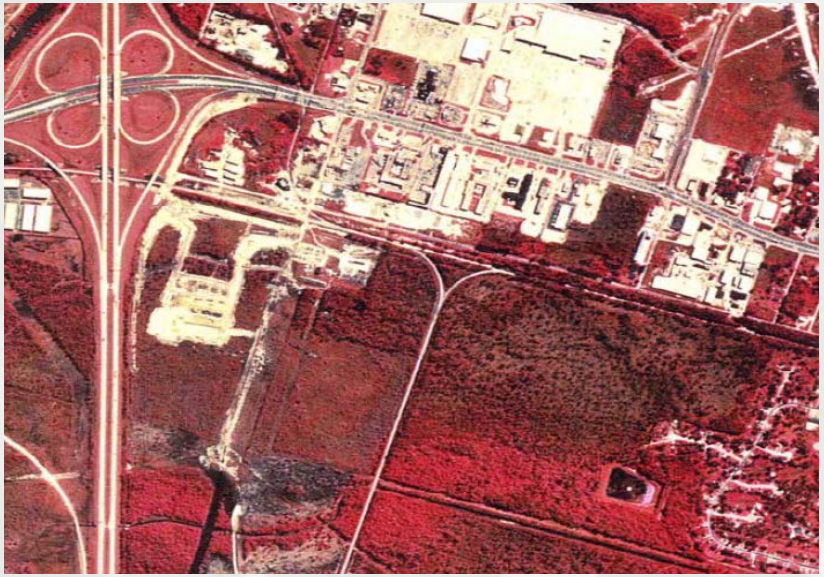
Off-Site Methods

Off-site procedures are described in:

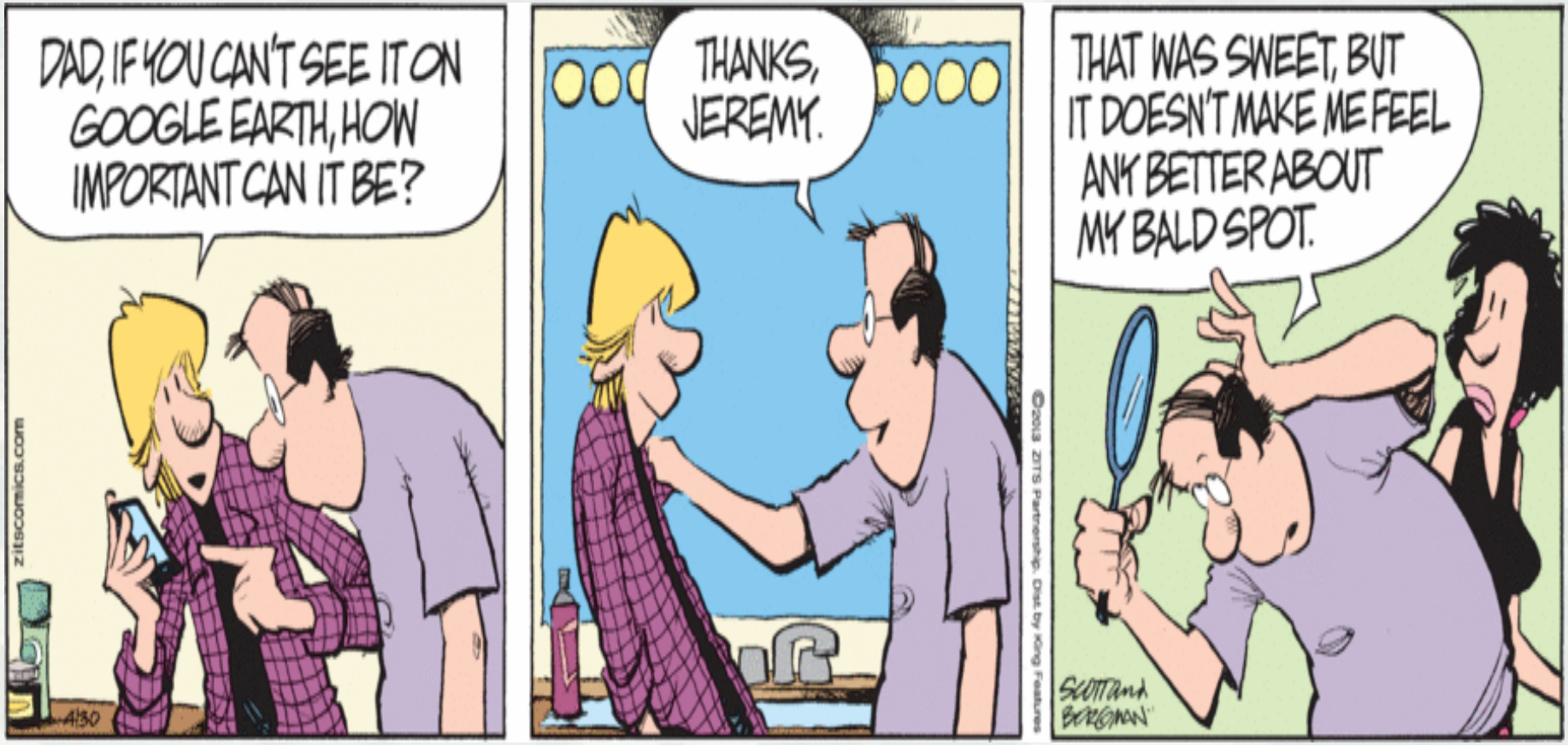
- Corps of Engineers Wetlands Delineation Manual (Part IV, Section D, Subsection 1)
- National Food Security Act Manual (Parts 513 and 514) in combination with state wetland mapping conventions

Preliminary Data Gathering

Off-site sources of information are used to plan and carry out an onsite investigation

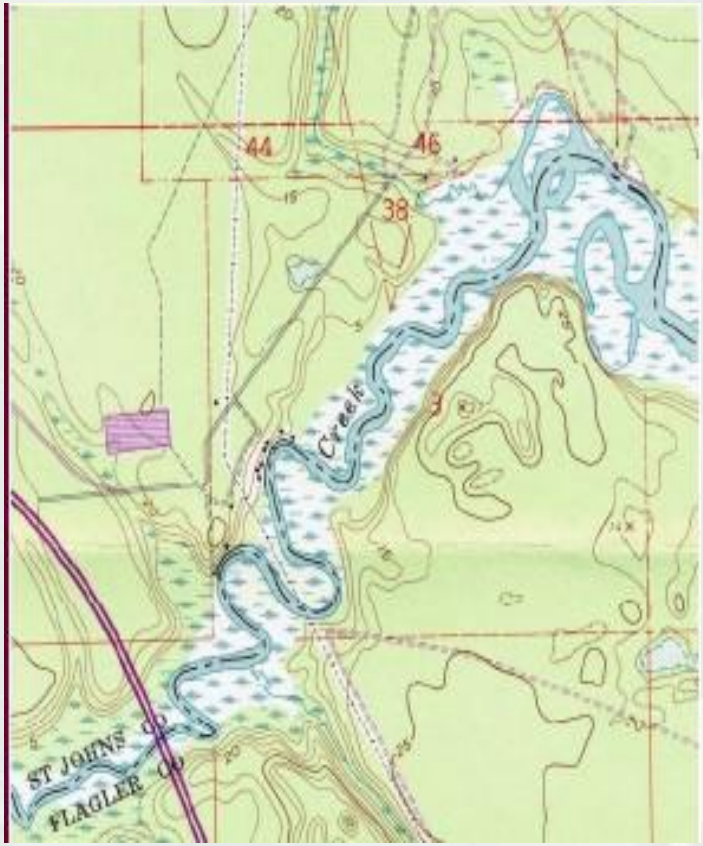


Aerial photography (e.g. Google Earth, Bing Maps)

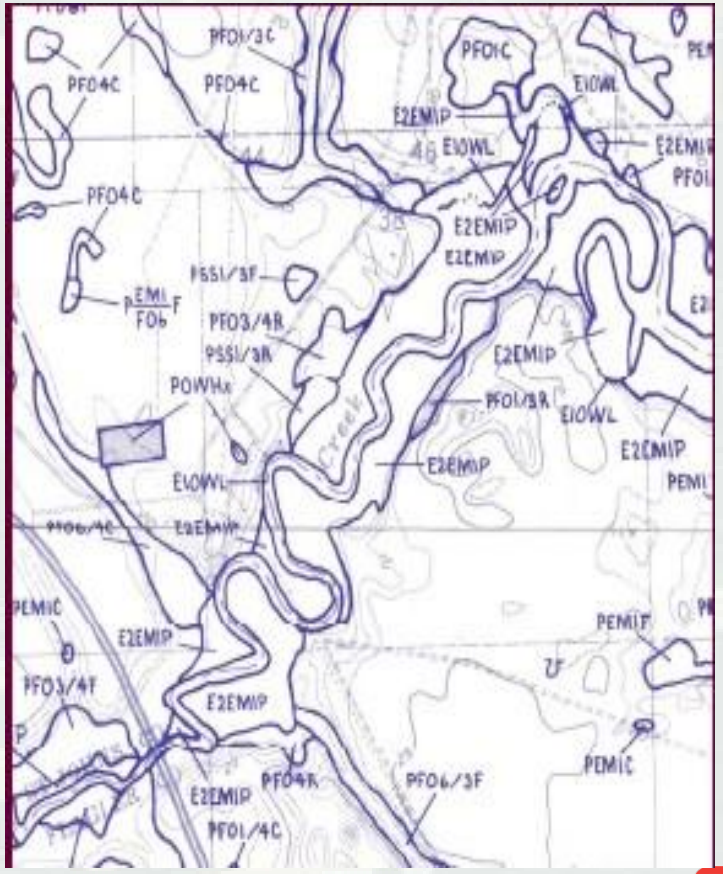

DAD, IF YOU CAN'T SEE IT ON GOOGLE EARTH, HOW IMPORTANT CAN IT BE?
zitscomics.com
THANKS, JEREMY.
©2013 ZITS Partnership. Dist. by King Features
THAT WAS SWEET, BUT IT DOESN'T MAKE ME FEEL ANY BETTER ABOUT MY BALD SPOT.
SCOTT and BERGMAN

N
2264 ft
© 2012 Google
©2010 Google
Imagery Date: 10/30/2011
1993
38°21'43.03" N 121°10'25.45" W elev 103 ft
Eye alt 9895 ft

Preliminary Data Gathering



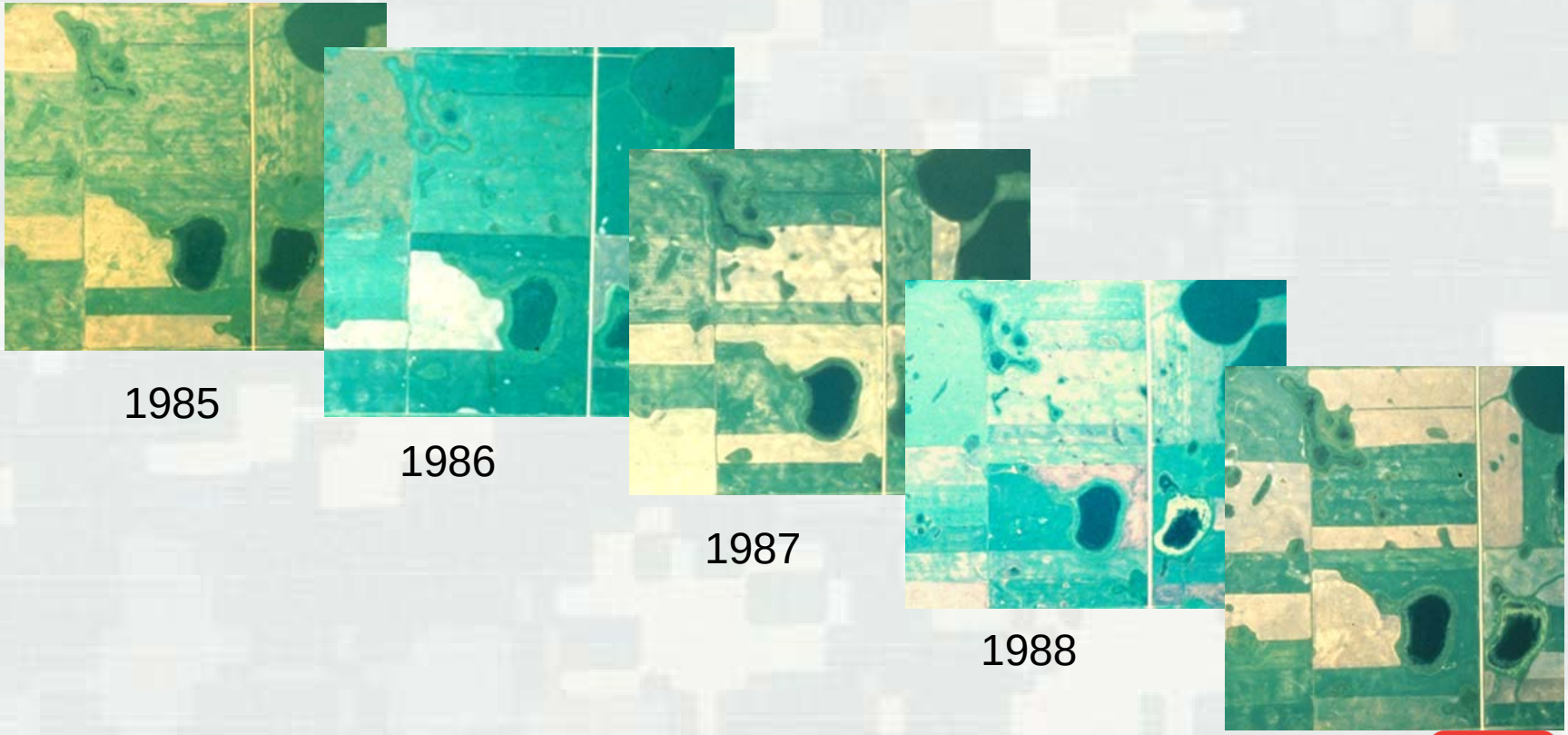
USGS topographic maps



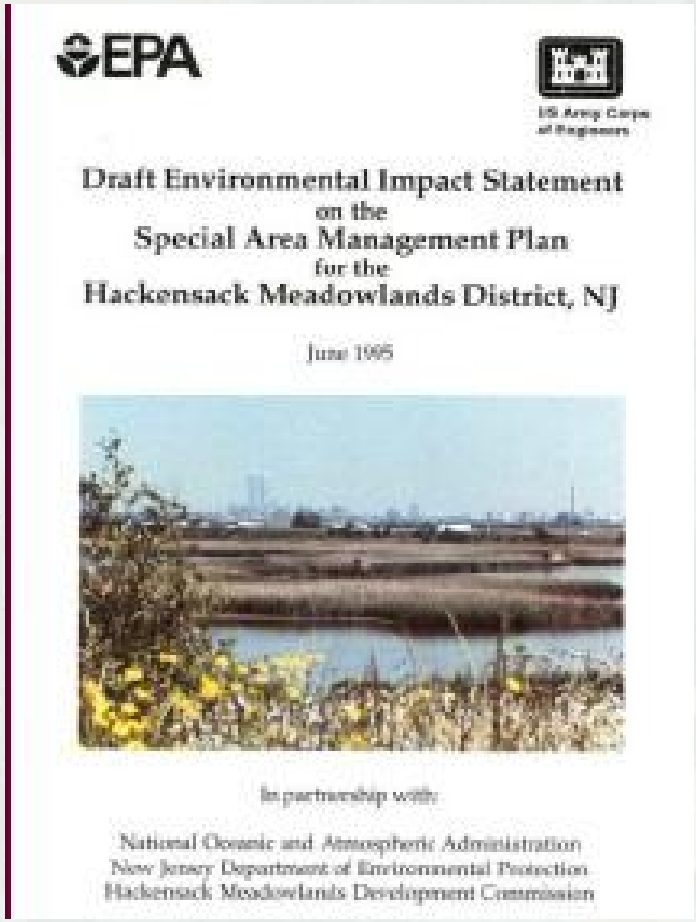
NWI maps

Preliminary Data Gathering

Consolidated Farm Services Agency annual crop-compliance slides



Preliminary Data Gathering


EPA

US Army Corps of Engineers

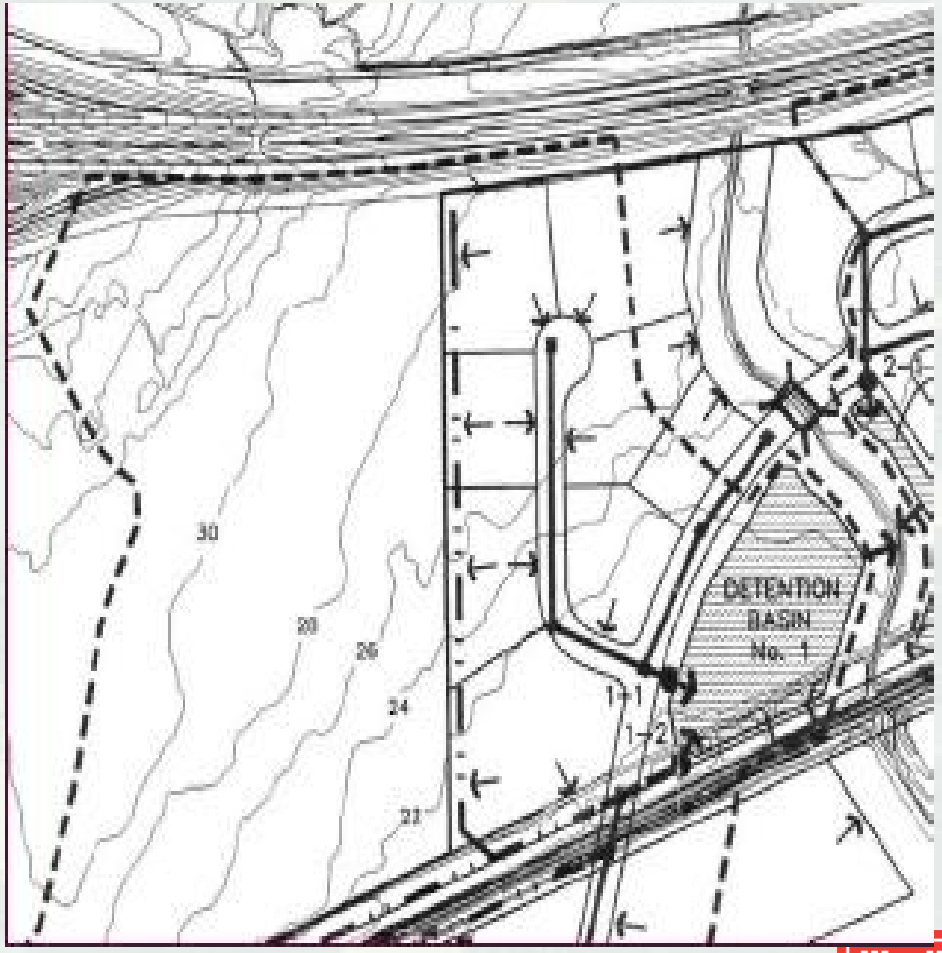
Draft Environmental Impact Statement
on the
Special Area Management Plan
for the
Hackensack Meadowlands District, NJ

June 1995

In partnership with:

National Oceanic and Atmospheric Administration
New Jersey Department of Environmental Protection
Hackensack Meadowlands Development Commission

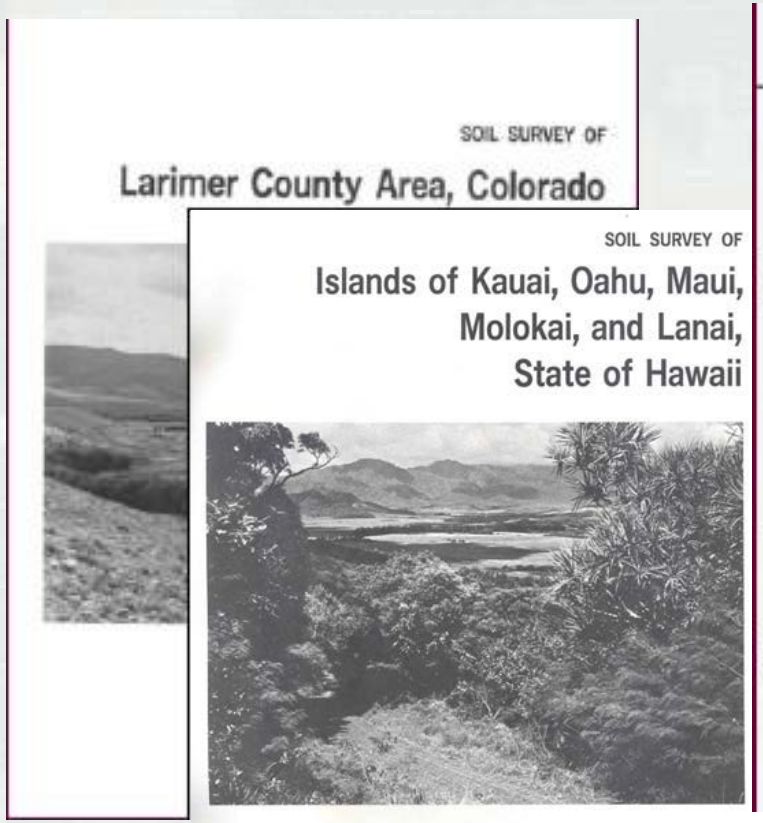
Existing environmental impact statements

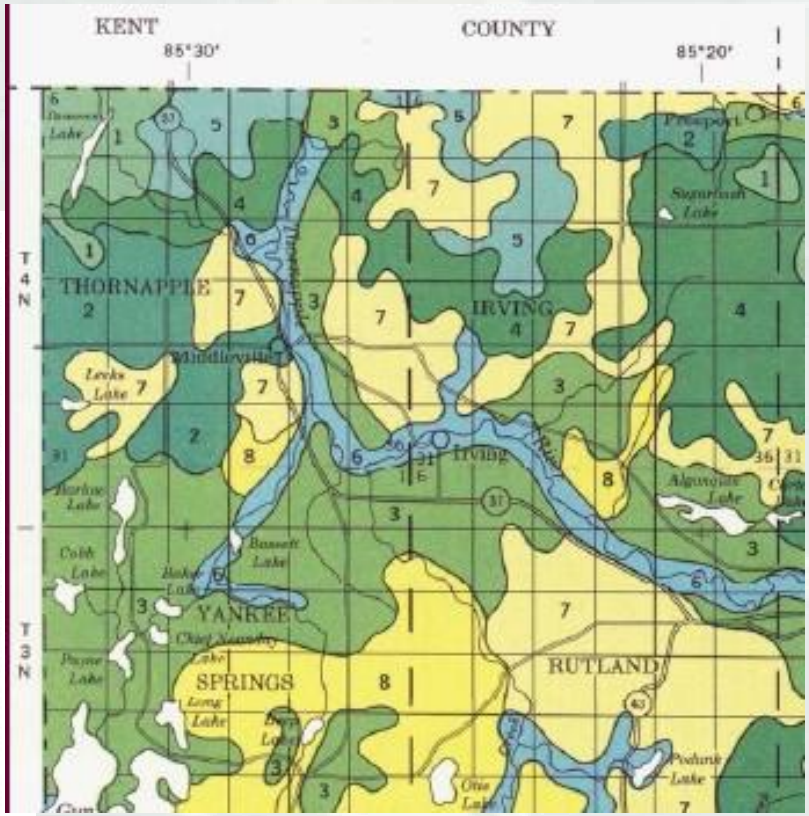


Engineering plans

Preliminary Data Gathering

Soil Survey Reports





General soils map

Evaluating Normal Rainfall

WETS tables

- USDA National Water and Climate Center
- Analyze monthly precipitation data from >8,000 National Weather Service stations
- Based on a standard 30 years of rainfall data
- Provide monthly and annual thresholds for:
  - Below normal rainfall (lowest 3 years in 10)
  - Above normal rainfall (highest 3 years in 10)

Data Sources on the Web

- USGS maps, photos, data:

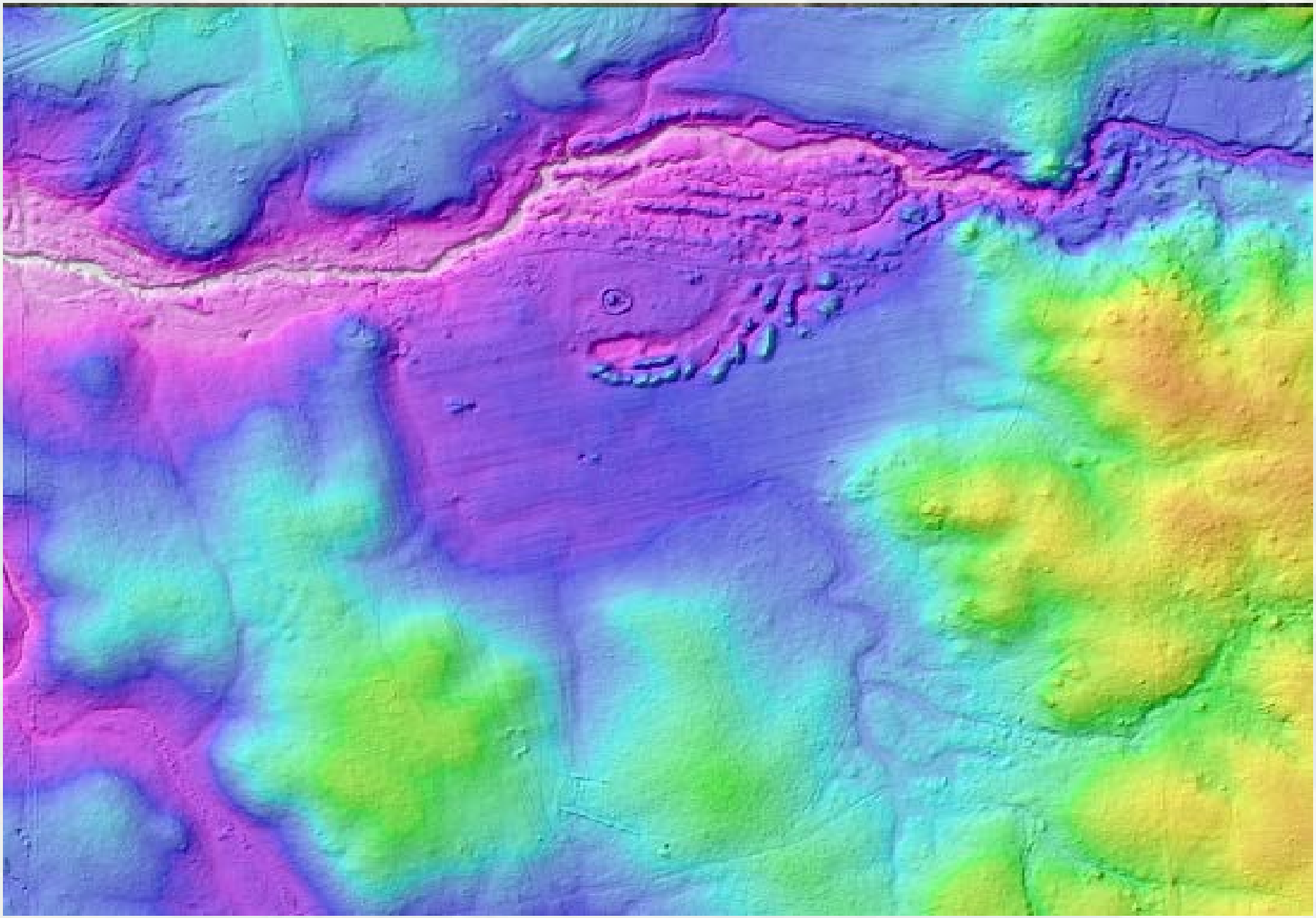
  http://ask.usgs.gov/

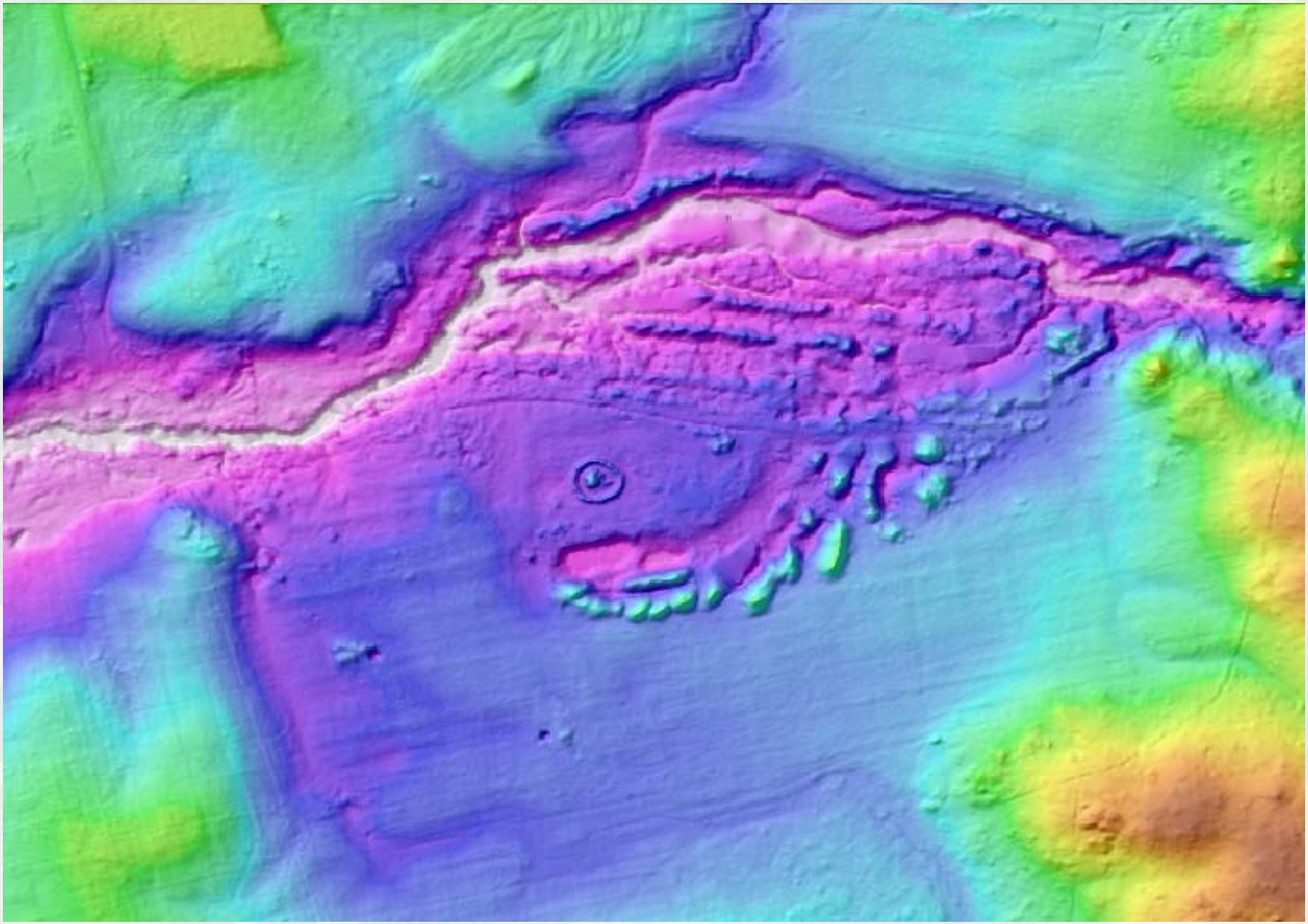
- NWI maps:

http://www.fws.gov/wetlands/Data/Mapper.html

- Soil survey reports and data:

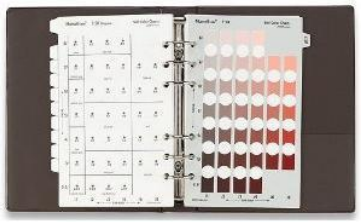
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm





Equipment and Materials for the Field

- Base Map or Aerial Photo
- Copies of Wetland Data Sheet
- National List of Plant Species that Occur in Wetlands
- Hydric Soils List
- Spade, Auger, Probe
- Spray Water Bottle to Moisten Soils
- Munsell Color Book
- Tape Measure
- Flagging



Wetland Delineation Methods

- Routine – In general based on visual estimates of percent cover of plant species made either within the vegetation unit as a whole or within one or more sampling plots in representative locations

- Comprehensive – A detailed delineation requiring the collection of quantitative data

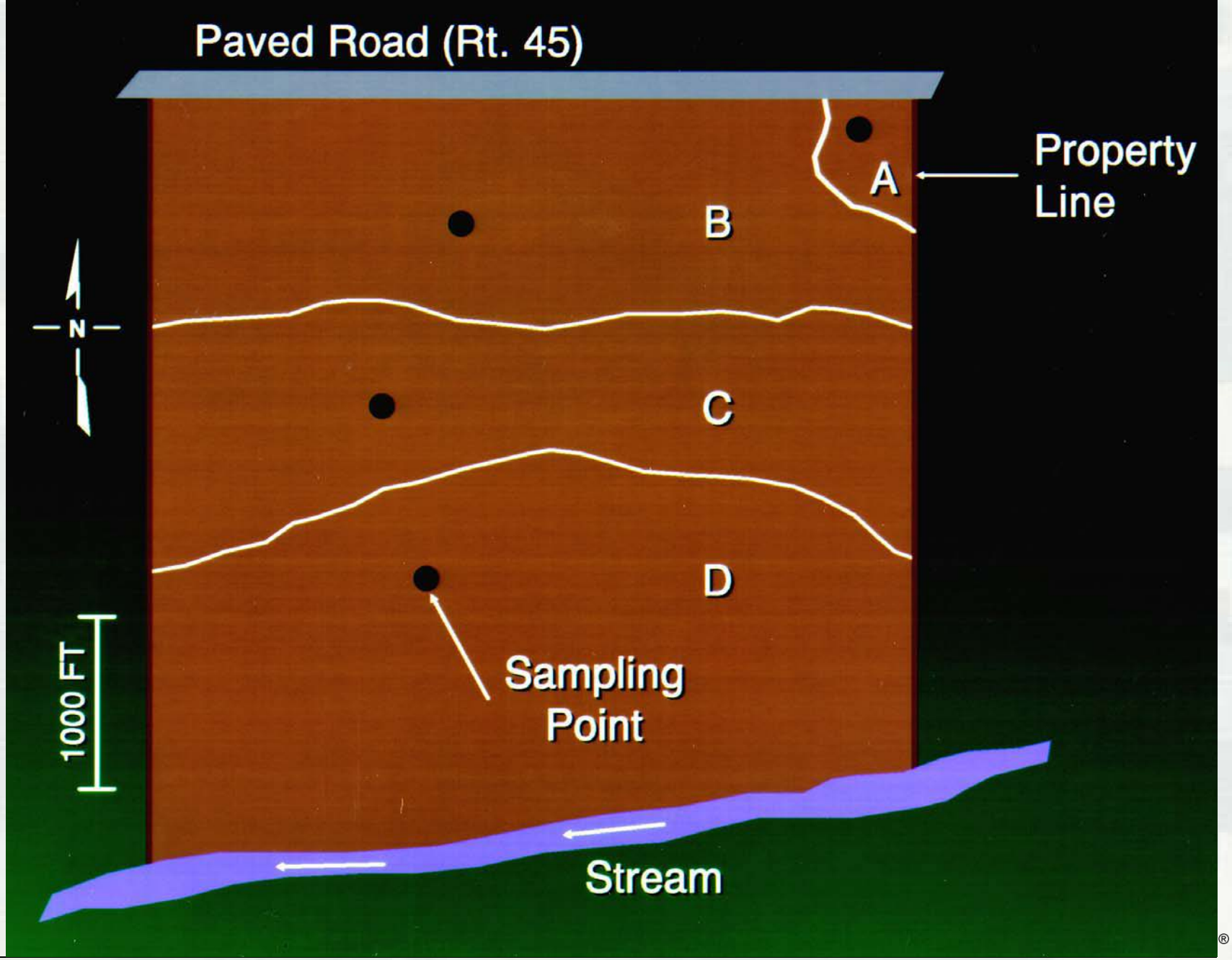
Routine Methods

Use the routine method for small areas when:

- Project area is small (<5 acres)
- Plant communities are homogeneous
- Plant community boundaries are abrupt
- Project is not controversial

Routine Method Steps

- Step 1. Locate the project area
- Step 2. Is the area disturbed such that procedure for Atypical Situations must be used?
- Step 3. Select a sampling approach (small or large area)
- Step 4. Identify and map the plant community types
- Step 5. Determine whether “normal environmental conditions” are present (i.e., is it a potential Problem Area wetland?)
- Step 6. Select a representative observation point in each plant community


Paved Road (Rt. 45)
Property Line
A
B
C
D
N
1000 FT
Sampling Point
Stream

Routine Method Steps cont.

- Step 7. Visually select dominant species from each stratum of the community
- Step 8. Record the indicator status of each dominant species
- Step 9. Determine whether the vegetation is hydrophytic

US Army Corps of Engineers

North American Digital Flora: National Wetland Plant List

The NWPL has been made available for use.
Click here to download NWPL 2012 Plant Lists

Version 3.0 of the NWPL website is now available for use.
Please bookmark: http://wetland_plants.usace.army.mil

ABOUT NWPL
OVERVIEW
NWPL NOMENCLATURE
ACKNOWLEDGEMENTS
CITATION INFORMATION

PROPOSE NEW SPECIES

ALL BOTANICAL SEARCHES

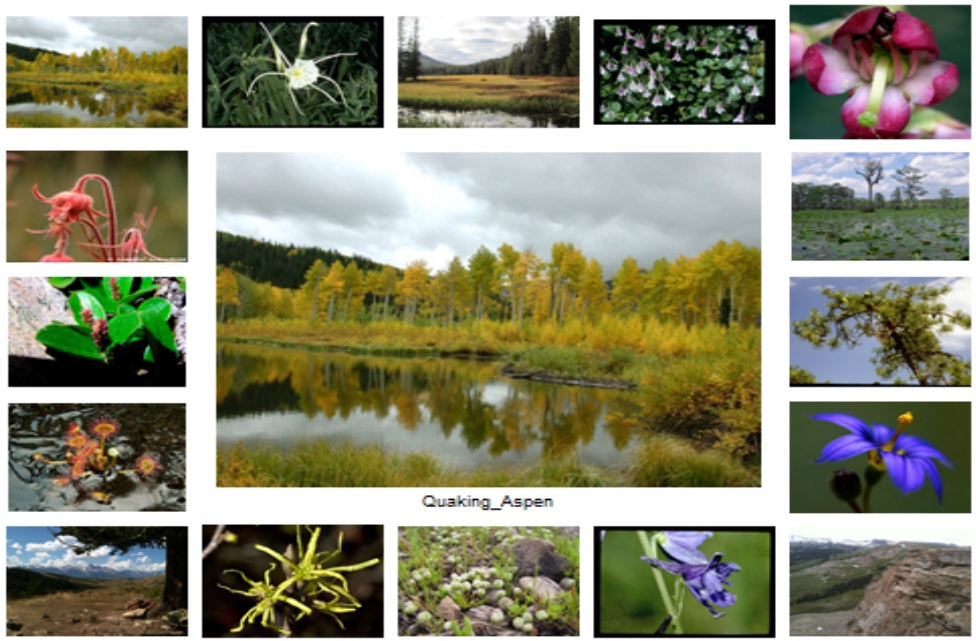
DOWNLOAD PANEL MEMBERS
R3 EXTERNAL BOTANIST VOTERS
FWS 1988 AND 1996 LISTS

NWPL and NTCWV Documents

ADMINISTRATION

HELP USING THIS WEBSITE

Final Federal Register Notice
NWPL Release Announcements.


Quaking_Aspen

Images courtesy of BONAP et. al.

Partners

US Army Corps of Engineers

BONAP

NRCS

Questions or Comments?
Contact us!

Wetland Vegetation Is Present When…

- More than 50% of dominant species across all strata are OBL, FACW, or FAC

or

- The prevalence index is 3.0 or less

or

- There are morphological adaptations and problematic conditions explained in the remarks section of the data sheet

Remember '+' and '–' modifiers are not used in hydrophytic vegetation indicators and hydric soils and hydrology must be present to use the prevalence index unless the site is problematic

Regional Supplement Data Form

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Reed canary grass (*Phalaris arundinacea*)	50	Yes	OBL
2. Narrowleaf Cattail (*Typha angustifolia*)	20	Yes	OBL
3. Annual ragweed (*Amborsia artemisiifolia*)	10	No	FACU
4. Rabbitsfoot grass (*Polypogon monspeliensis*)	5	No	FACW
5.			
6.			
7.			
8.			
	85% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

Wetland vegetation near edge of a large marsh. Vegetation is robust.

US Army Corps of Engineers — Arid West – Version 2.0

Routine Method Steps cont. for Hydrology

- Step 10. Record indicators of wetland hydrology

- Step 11. Determine whether wetland hydrology is present

Wetland Hydrology Indicators

- Primary Indicators: 1 required – Surface Water, High Water Table, Saturation, Water Marks, Sediment Deposits, Drift Deposits, Surface Soil Cracks, Inundation Visible on Aerial Imagery, Water Stained Leaves, Salt Crust, Biotic Crust, Aquatic Crust, Aquatic Invertebrates, Hydrogen Sulfide Odor, Oxidized Rhizospheres, Presence of Reduced Iron, Recent Iron Reduction in Tilled Soils, Thin Muck Surface

Wetland Hydrology Indicators

- Secondary Indicators: 2 or more required – Water Marks (riverine), Sediment Deposit (riverine) Drift Deposit (riverine), Drainage Patterns, Dry-season Water Table, Crayfish Borrows, Saturation Visible on Aerial Imagery, Shallow Aquitard, FAC-Neutral test (OBL + FACW) > (FACU + UPL)

Weather and Site Condition Considerations

- What time of year are you visiting the site?
- Consider recent rain events. Did it rain immediately before your site visit and how much has it rained?
- Has long-term precipitation been normal?
- Is the site irrigated?

Hydrology Section of Datasheet

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
___ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (**Riverine**)
X High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
X Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	___ Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 12 inches
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 8 inches

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Aerial photos

Remarks:

Soils saturated in upper part of profile. Surface water was observed near the sample point approximately 25 feet to the north.

US Army Corps of Engineers

Arid West – Version 2.0

Routine Wetland Method Cont. for Hydric Soils

- Step 12. Determine whether the soil must be characterized. The soil is assumed to be hydric if:
  - All dominant species are OBL, or
  - All dominants are OBL or FACW and the wetland boundary is abrupt
- Step 13. If needed, dig a soil pit (at least 20 inches deep)

Hydric Soils

- Hydric soil – is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

  Saturation or inundation, when combined with microbial activity in the soil, causes the depletion of oxygen. This promotes certain biogeochemical processes, such as the accumulation of organic matter, and the reduction, translocation, or accumulation of iron and other reducible elements.

Soils

NRCS Field Guide

Depleted Soil

Redoxomorphic features

Soil Profile Description

- Matrix Soil Color – All Soil must be moist (Hue value/chroma)
- Matrix Percent – What percent of the soil profile is that color
- Redox Features – If present record the color of the redox feature
- Redox Percent – Record the percent of redox features in the soil
- Redox Type Location – Concentration, depletion, reduced matrix, covered or coated sand grains and location either in the matrix or pore lining of roots
- Texture – Loamy, Sandy or Clayey

SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	100					Loamy	
9-20	10YR 4/1	95	10YR 5/6	5	C	M	Loamy	Redox Prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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Soil Indicators

- Once you have the soil description read through the soil indicators to see it one or more fit the soil profile description. Be sure to include if any restrictive layers were present and remarks that further describe the soil.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soil meets indicator criteria. In addition, soil is in OBL dominated vegetation sample point.

Finalizing the Datasheet

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Development City/County: Utah Sampling Date: June 12, 2011

Applicant/Owner: Mr. Big State: UT Sampling Point: 1

Investigator(s): Mr. Consulting Section, Township, Range: 10, T 5 South, R 2 East

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): D Interior desert Lat: 41.1234 Long: -111.1234 Datum: _____

Soil Map Unit Name: Ironton Silt Loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

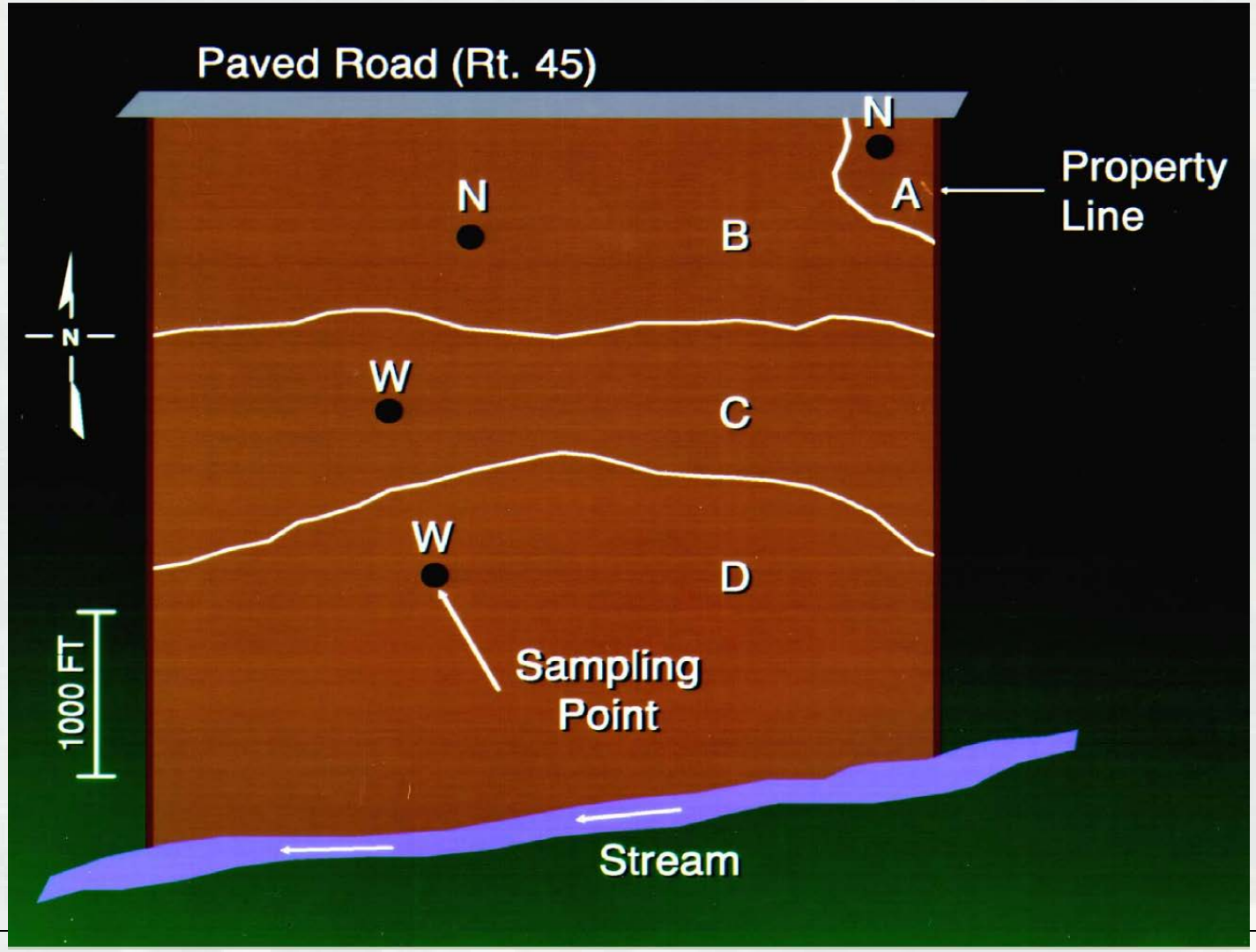
Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

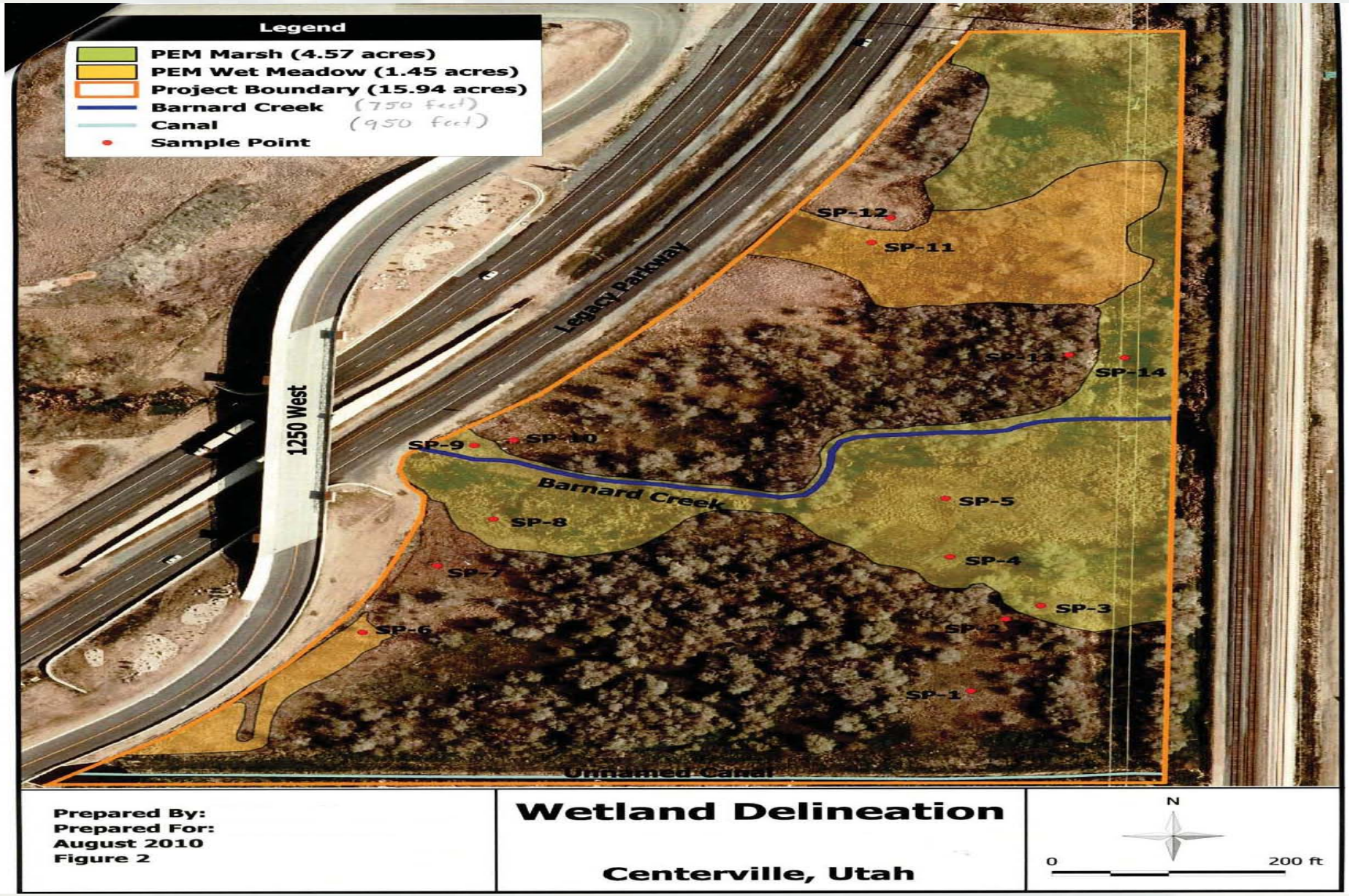
Wetlands Delineations Cont.

- Step 14. Flag the site
- Step 15. Survey or GPS locate the wetland flagging and create a wetland delineation map
- Step 16. Prepare a delineation report
- Step 17. Submit to the Corps for verification

Finalizing and Flagging the Wetland Line



Delineation Map



Routine Method for Large Areas

Establish a baseline

Determine the number and position of transects

Sample points along the first transect:

Determine whether “normal environmental conditions” are present

Establish an observation point in the first plant community, characterize vegetation, soil, and hydrology, and record

Make the wetland determination at that point

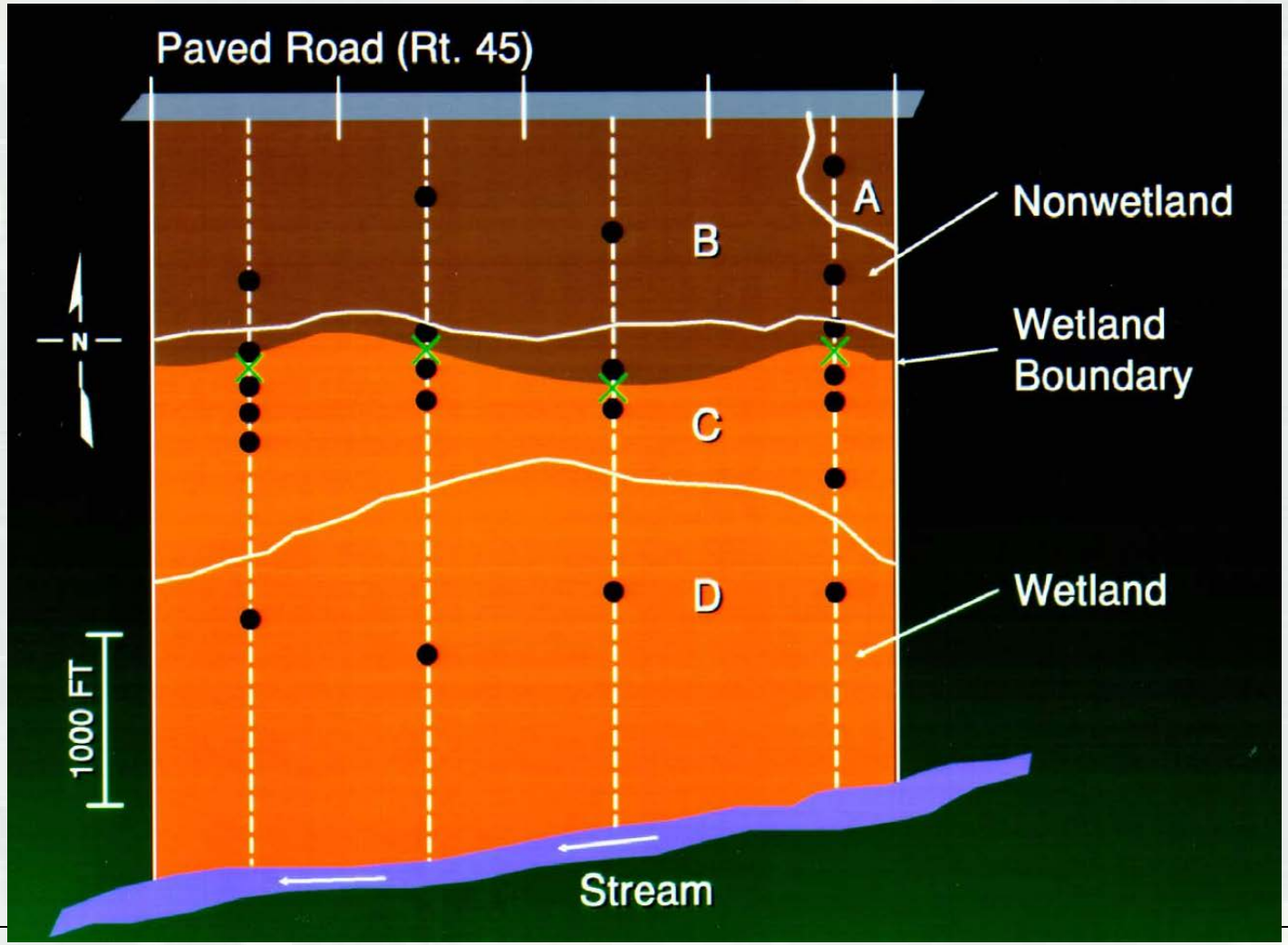
Sample remaining points on that transect

Determine the wetland boundary between points

Sample the remaining transects, synthesize data

Determine the wetland boundary between transects

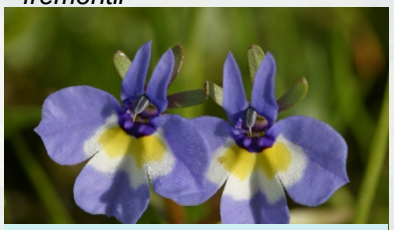
Additional Sample Points Depending on Site Complexity



Is this a seasonal wetland or a vernal pool?

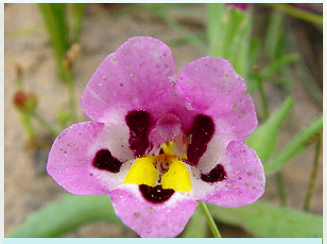
Common Vernal Pool Plant Species

Goldfields, *Lasthenia fremontii*

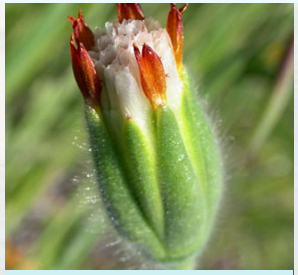


Horned downingia
Downingia bicornuta

Wooly marbles
Psylocarphys sp.



Vernal pool monkeyflower
Mimulus tricolor



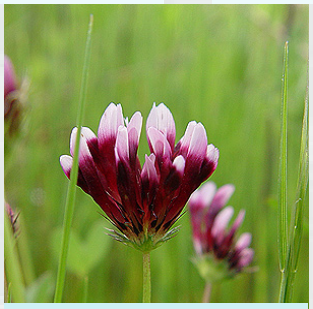
Blow wives
Achyrachaena mollis

Coyote thistle *Eryngium vaseyi*

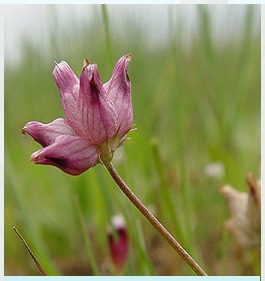
Butter and eggs
Tryphysaria eriantha

Field owl's clover
Castilleja campestris

Vernal pool dodder
Cuscuta howelliana



White-tipped clover
Trifolium variegatum



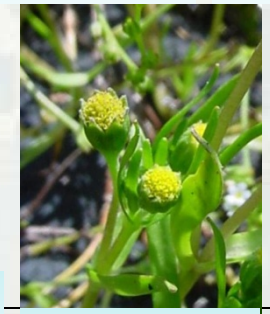
Dwarf sack clover
Trifolium depauperatum

Spikerush,
Eleocharis macrostachya

Blennosperma nannum

Popcorn flower
Plagiobothrys stipitatus

VP buttercup
Ranunculus bonariensis



Lasthenia glaberima

Navarretia leucocephala

Tidy-tips
Layia fremontii

White meadowfoam
Limnanthes alba

Problem Areas/Atypical Situations

Atypical Situations: Wetlands affected by or induced by recent human activities or natural events.

May include unauthorized activities (e.g., filled wetlands), natural events (e.g., beaver dams) and man-induced wetlands (e.g., road fill impounds water)

Problem Areas: Wetland types or conditions which make application of one or more parameter difficult.

Includes periodic lack of parameter (e.g., hydrology) due to normal seasonal or annual variations in environmental conditions which result from causes other than human activities or catastrophic events (e.g., seasonal wetlands, including vernal pools)

Common Atypical/Difficult Situations

- Wetlands in irrigated areas
- Drainage ditches
- Channelized streams
- Isolated wetlands
- Farmed wetlands

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12510-SPD
SOUTH PACIFIC DIVISION
REGULATORY PROGRAM
WETLANDS DETERMINATION AND DELINEATION PROCEDURES FOR IRRIGATED LANDS

South Pacific Division

Table of Contents

1.0 Purpose
2.0 Applicability
3.0 References
4.0 Related Procedures
5.0 Definitions
6.0 Responsibilities
7.0 Procedures
8.0 Records & Measurements
9.0 Attachments
10.0 Flow Chart

1.0 Purpose.

To provide guidance for determining whether, and to what extent, wetlands occurring on irrigated land would persist in the absence of irrigation and meet the definition of wetlands under the 1987 Corps of Engineers (Corps) Wetland Delineation Manual (1987 Manual) and the appropriate regional supplement.

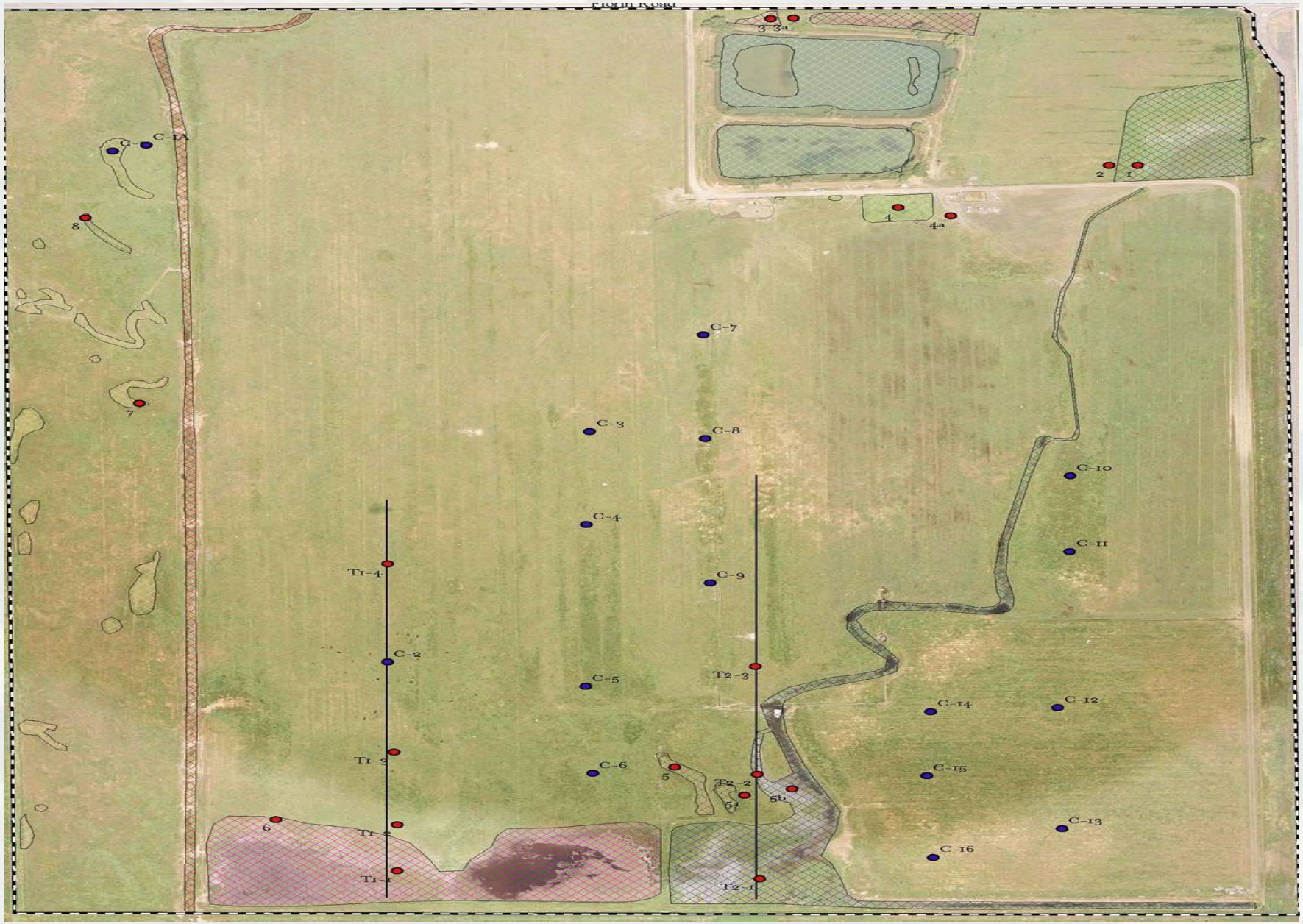
12500-SPD
SOUTH PACIFIC DIVISION
REGULATORY PROGRAM
IRRIGATED WETLANDS DELINEATION PROCEDURES

- **1.0 Purpose.**
- To provide guidance for determining whether, and to what extent, wetlands occurring on irrigated land would persist in the absence of irrigation and meet the definition of wetlands under the 1987 Corps of Engineers Wetland Delineation Manual, including the appropriate regional supplement, and thus be potentially subject to jurisdiction under Section 404 of the Clean Water Act (CWA).
- **2.0 Applicability.**
- This memorandum applies to jurisdictional determinations made by South Pacific Division (SPD) subordinate Districts for wetlands which may be supported in whole or in part by irrigation water (“irrigated wetlands”). This includes, but is not limited to areas in rice production and irrigated pastureland.

IRRIGATED WETLANDS

This guidance is intended solely to address identifying wetlands that would exist, absent irrigation. **It is not intended to address the jurisdictional status of any wetlands nor issues relative to permitting work in such wetlands or mitigating impacts to such wetlands.**

This guidance is intended to be consistent with all applicable Corps of Engineers delineation standards. Delineations, verifications and subsequent jurisdictional determinations within SPD are based on a preponderance and a synthesis of all of the available data in accordance with Corps regulations and standards, including those listed below. If any conflict arises, existing Corps regulations, guidance and standards take precedence.


3
3a
2
1
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4a
8
7
C-7
C-3
C-8
C-10
C-4
C-11
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C-9
C-2
C-5
T2-3
C-14
C-12
T1-3
C-6
5
T2-2
5a
Sb
C-15
6
T1-2
C-13
C-16
T1-1
T2-1

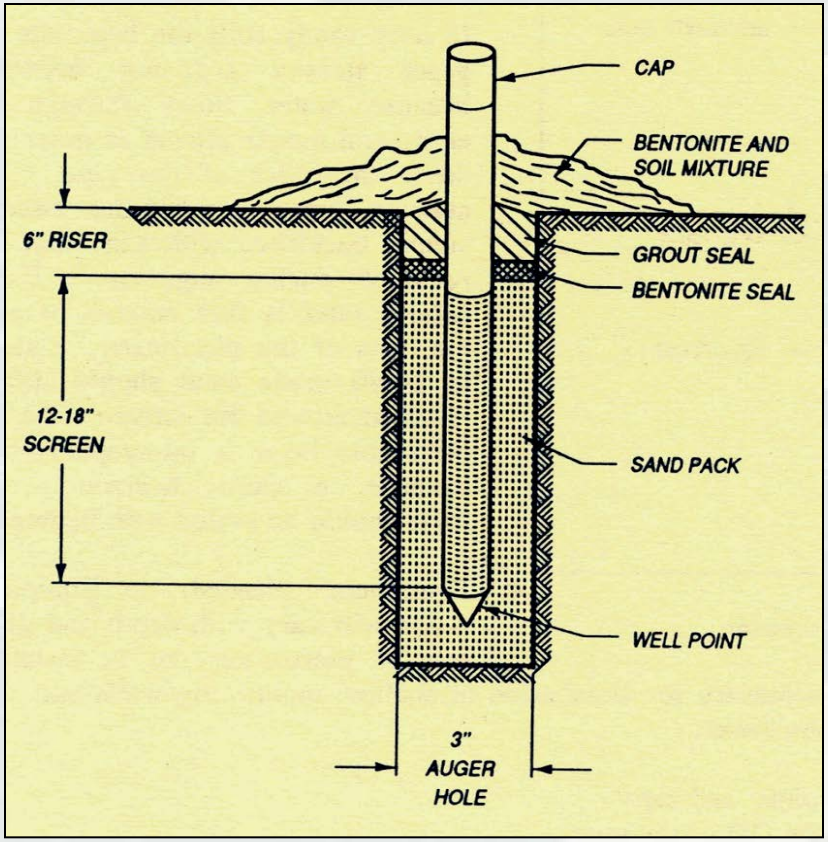
Resources

Dat Le Property
1937 Aerial
N
1" = 1000'

Dat Le Property
1957 Aerial
N
1" = 1000'

Kinds of Hydrologic Data

Groundwater wells

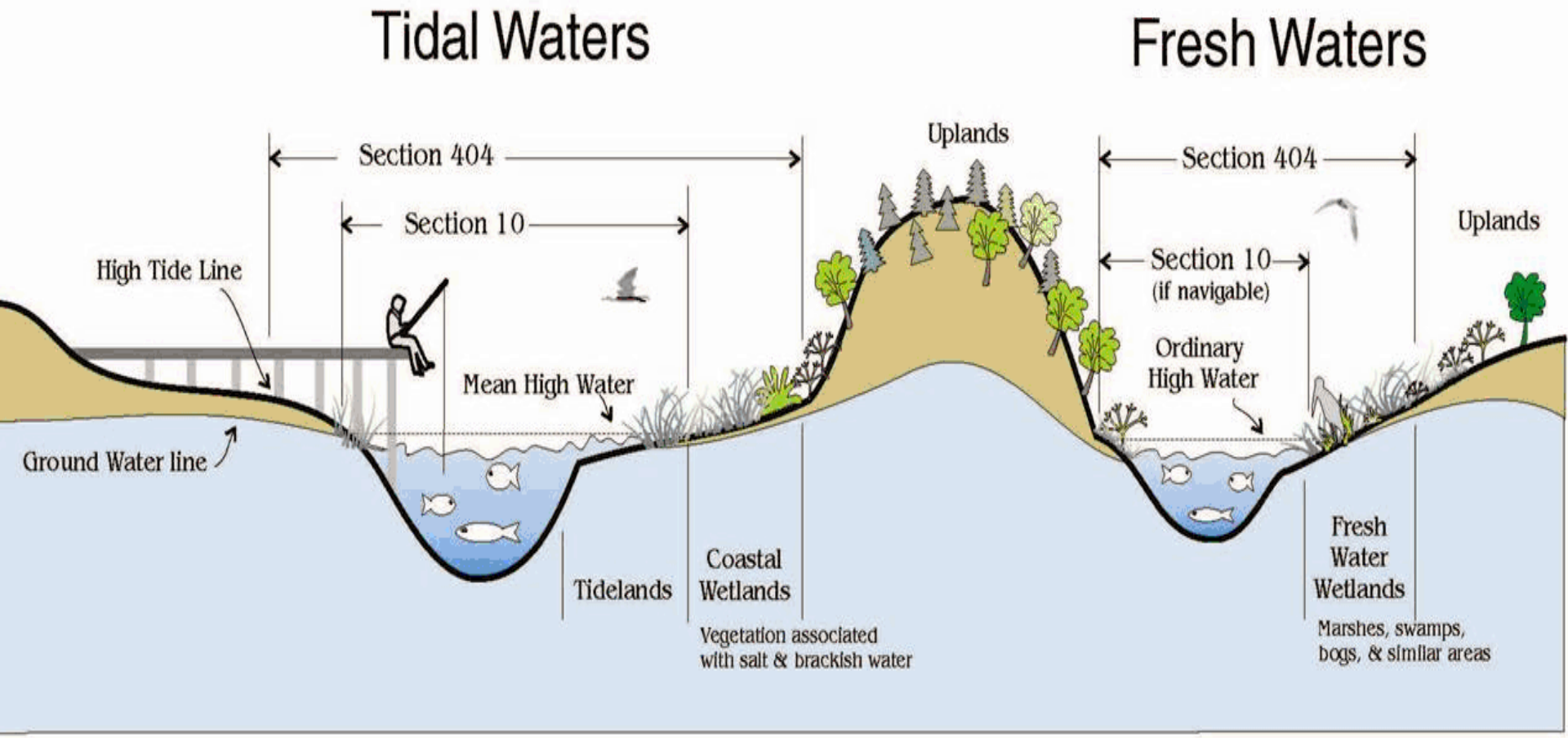


OHWM

Corps regulations define the term “ordinary high water mark” for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

“The term ***ordinary high water mark*** means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a **clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means** that consider the characteristics of the surrounding areas.”

CORPS OF ENGINEERS REGULATORY JURISDICTION



	Section 103	Section 404	Section 10
	Ocean Disposal of Dredged Material	Discharge of Dredged or Fill Material (all waters of the U.S.)	All Structures and Work (navigable waters)
Typical examples of regulated activities	Ocean discharges of dredged material	All filling activities, utility lines, outfall structures, road crossings, beach nourishment, riprap, jetties, some excavation activities, etc.	Dreding, marinas, piers, wharves, floats, intake / outtake pipes, pilings, bulkheads, ramps, fills, overhead transmission lines, etc.

RGL 05-05

- a. **Purpose.** To provide guidance for identifying the **ordinary high water mark**.

- b. **Applicability.** This applies to jurisdictional determinations for non-tidal waters under Section 404 of the Clean Water Act and under Sections 9 and 10 of the Rivers and Harbors Act of 1899.

In making OHWM determinations, Corps districts generally rely on physical evidence to ascertain the lateral limits of jurisdiction, to whatever extent physical evidence can be found and such evidence is deemed reasonably reliable.

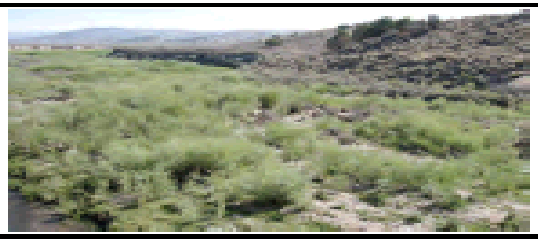
Physical indicators include the features listed in the definitions at 33 CFR Sections 328.3(e) and 329.11(a)(1) and other appropriate means that consider the characteristics of the surrounding areas.

The following **physical characteristics** should be considered when making an OHWM determination, to the extent that they can be identified and are deemed reasonably reliable:

- **Natural line impressed on the bank**
- **Shelving**
- **Changes in the character of soil**
- **Destruction of terrestrial vegetation**
- **Presence of litter and debris**

- Wracking
- Vegetation matted down; bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Change in plant community

At OHW		**Benches** – Formed by the removal of previously aggraded sediment – Located near the below/at OHW boundary and potentially near the at/above boundary (Fig. 13)
		Drift (organic debris larger than twigs) – Tends to be oriented in the direction of flow (Lichvar et al. 2006) – Often collects behind/in obstructions or is simply deposited by receding flow
		Exposed root hairs below intact soil layer – Exposed by erosion of sediment – Tend to be located along the above/at OHW boundary or where benches have formed
		Change in particle size distribution – Transition from coarser to finer sediment common – Likely to occur near the at/below OHW boundary (Fig. 13)

At OHW		– Germination of seedlings after drawdown of recent event – May be either wetland or upland species
		– Intermittently active inside meander bar above bankfull – Zonation of vegetation varies from devoid at bottom, where it's most active, to sparse on the intermittently active bar and fully vegetated outside active area
		– Most active area is barren in foreground – Above OHW is a thick shrub zone in background lacking physical removal from higher discharge events
Above OHW		– Vegetation thickens above OHW zone due to lack of disturbance from moderate events
		– Old incised channel with active and bankfull zones – Light green shrubs located on upper active zone – Upper active zone maintained as evidenced by exposed soil surfaces – Majority of all events sizes retained within the incised channel walls

- **In some cases, the physical characteristics may be misleading and would not be reliable for determining the OHWM**. For example, water levels or flows may be manipulated by human intervention for power generation or water supply.
- For such cases, **districts should consider using other appropriate means to determine the OHWM.**

- Such other reliable methods that may be **indicative of the OHWM** include, but are not limited to:
- **lake and stream gage data**
- **elevation data**
- **spillway height**
- **flood predictions**
- **historic records of water flow**
- **statistical evidence**.

To the maximum extent practicable, districts generally **use more than one** physical indicator or other means for determining the OHWM.

US Army Corps of Engineers®

SPECIAL PUBLIC NOTICE

Final Map and Drawing Standards for the South Pacific Division Regulatory Program

August 6, 2012

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Introduction: This notice establishes final standards and guidelines for maps and drawings submitted as part of delineations and applications for U.S. Army permits and jurisdictional determinations. The intent of these standards is to improve the quality and consistency of maps and drawings and simplify and improve review and processing by Corps Regulatory project managers. We estimate that at least 70-80% of maps and drawings submitted to the Corps Regulatory Program in South Pacific Division (comprised of Albuquerque, San Francisco, Sacramento, and Los Angeles districts) already meet the majority of these standards. By adhering to a single standard for maps and drawings, applicants and consultants should have a clear and concise product, and project managers should be able to provide permit decisions and jurisdictional determinations in a more consistent and timely manner. In addition, electronic mapping of permit-related maps and

5) Delineations of waters of the U.S.:

a. Plan view maps must be provided.

b. Cross-sectional view drawings must be provided at the Corps project manager's discretion. Examples of when cross-sectional view drawings would be appropriate include stream or wetland restorations, stream crossings, proposed structures, and delineations of tidal areas.

c. Clearly show location and extent of all areas potentially meeting the criteria for waters of the U.S., including special aquatic sites (e.g., wetlands, sanctuaries and refuges, mudflats, vegetated shallows, and riffle and pool complexes), and/or navigable waters. Each type of boundary (for example, ordinary high water mark, mean high water, wetlands or other special aquatic sites, and high tide line) must be clearly annotated and/or symbolized to ensure they are differentiable on the map..

d. The survey area boundary must be clearly annotated and/or symbolized and must include all potential waters of the U.S. The survey area boundary encloses the spatial area for which a Corps jurisdictional determination is being requested. Show locations of any wetland delineation or ordinary high water mark data points, labeled according to the number of the corresponding wetland delineation form or ordinary high water mark data sheet. Generally, a wetland boundary must be based on sets of at least two wetland delineation data points, one within the proposed wetland boundary and one outside it.

e. Include representative ordinary high water mark (OHWM) widths where measured in the field (averages may be acceptable for uniform channel reaches). OHWM widths must be shown with a transect/profile line (e.g., A-A') labeled with the corresponding width measurement in feet. In some cases, a corresponding cross section may be required, in which case the cross section must include the corresponding OHWM elevations.

f. Include information not directly related to a delineation of waters of the U.S. on a separate map(s).

g. If there are tidal areas within the survey area, identify the location and elevation of Mean High Water and the High Tide Line on all maps and cross-section drawings.

h. Each line or polygon representing a water of the U.S. must be labeled with a unique name (for example, WL1, WL2, VP1, VP2, STR1, STR2, etc.). The delineation report must be accompanied by the attached Aquatic Resources.xlsx table (Excel file format).

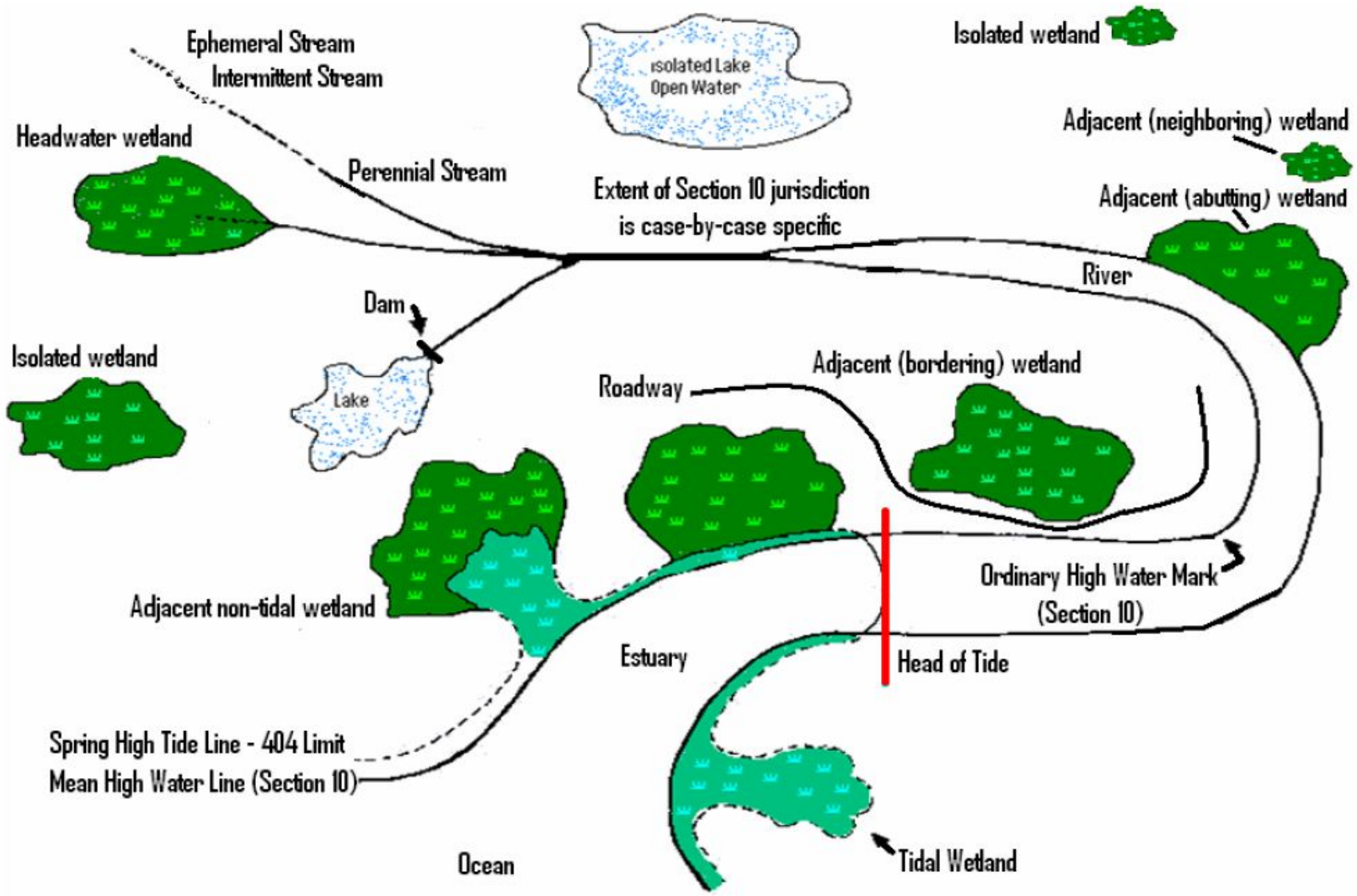
i. If impact areas within waters of the U.S. are shown, those must also be labeled with a unique name (for example,). In this case, the delineation report must also be accompanied by the attached Impacts.xlsx table (Excel file format).

j. If submitted, delineation-related GIS data must use the unique names as described above and conform to the Aquatic Resources.xlsx and Impacts.xlsx data tables and must include a text file of metadata, including datum, projection, and mapper contact information.

Aquatic-Resources-SPK-190109804-Delta Wetlands.xlsx

	A	B	C	D	E	F	G	H	I	
1	Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
2	Bacon - Drainage Ditch	R4SB	RIVERINE	Linear	3.71	FOOT	RPW	37.996265	-121.560381	Middle River
3	Bacon - Canal/Ditch	R4SB	RIVERINE	Linear	23.51	FOOT	RPW	37.956247	-121.556070	Middle River
4	Bacon - Tidal Channel	E2US	RIVERINE	Area	3.14	ACRE	TNW	37.996711	-121.529226	Middle River
5	Bacon - Farmed Wetland	PEM	DEPRESS	Area	406.47	ACRE	RPWWN	37.953724	-121.535231	Middle River
6	Bacon - Forested Wetland	PFO1	DEPRESS	Area	17.99	ACRE	RPWWN	37.998476	-121.546447	Middle River
7	Bacon - Freshwater Marsh	PEM	DEPRESS	Area	116.91	ACRE	RPWWN	38.000184	-121.566410	Middle River
8	Bacon - Open Water/Pond	L2EM	DEPRESS	Area	0.2	ACRE	RPWWN	37.967539	-121.571718	Middle River
9	Bacon - Tidal Marsh	E2EM	ESTUARINEF	Area	0.76	ACRE	TNWW	37.996711	-121.529226	Middle River
10	Webb - Drainage Ditch	R4SB	RIVERINE	Linear	3.38	FOOT	RPW	38.065367	-121.631908	San Joaquin River
11	Webb - Canal/Ditch	R4SB	RIVERINE	Linear	30.19	FOOT	RPW	38.077479	-121.586598	San Joaquin River
12	Webb - Tidal Channel	E2US	RIVERINE	Area	3.24	ACRE	TNW	38.064658	-121.597148	San Joaquin River
13	Webb - Farmed Wetland	PEM	DEPRESS	Area	1100.46	ACRE	RPWWN	38.081673	-121.614515	San Joaquin River
14	Webb - Forested Wetland	PFO1	DEPRESS	Area	203.92	ACRE	RPWWN	38.053165	-121.629587	San Joaquin River
15	Webb - Freshwater Marsh	PEM	DEPRESS	Area	158.97	ACRE	RPWWN	38.053547	-121.629913	San Joaquin River
16	Webb - Open Water/Pond	L2EM	DEPRESS	Area	83.3	ACRE	RPWWD	38.084232	-121.584928	San Joaquin River
17	Webb - Tidal Marsh	E2EM	ESTUARINEF	Area	0.15	ACRE	TNWW	38.064658	-121.597148	San Joaquin River
18	Bouldin - Drainage Ditch	R4SB	RIVERINE	Linear	14.97	FOOT	RPW	38.116884	-121.559659	South Fork Mokelun
19	Bouldin - Canal/Ditch	R4SB	RIVERINE	Linear	30.7	FOOT	RPW	38.102839	-121.530677	South Fork Mokelun
20	Bouldin - Farmed Wetland	PEM	DEPRESS	Area	494.99	ACRE	RPWWN	38.093642	-121.517204	South Fork Mokelun
21	Bouldin - Forested Wetland	PFO	DEPRESS	Area	12.67	ACRE	RPWWN	38.093477	-121.570063	South Fork Mokelun
22	Bouldin - Freshwater Marsh	PEM	DEPRESS	Area	144.75	ACRE	RPWWN	38.112051	-121.579375	South Fork Mokelun
23	Bouldin - Open Water/Pond	L2EM	DEPRESS	Area	1.04	ACRE	RPWWN	38.108001	-121.550471	South Fork Mokelun
24	Holland - Drainage Ditch	R4SB	RIVERINE	Linear	2.89	FOOT	RPW	37.995136	-121.595796	Holland Cut
25	Holland - Canal/Ditch	R4SB	RIVERINE	Linear	15.39	FOOT	RPW	37.999544	-121.599213	Holland Cut
26	Holland - Farmed Wetland	PEM	DEPRESS	Area	625.17	ACRE	RPWWN	38.011262	-121.597151	Holland Cut
27	Holland - Forested Wetland	PFO	DEPRESS	Area	111.41	ACRE	RPWWN	38.024097	-121.588974	Holland Cut
28	Holland - Freshwater Marsh	PEM	DEPRESS	Area	166.46	ACRE	RPWWN	38.006213	-121.618740	Holland Cut
29	Holland - Open Water/Pond	L2EM	DEPRESS	Area	74.96	ACRE	RPWWD	38.014838	-121.593999	Holland Cut

Are these Features Waters of the United States?



Significant Nexus Evaluation

- Assessment of:
  - Flow characteristics and functions of the tributary
  - Functions performed by all wetlands adjacent to the tributary
    - Tributary is defined as a stream reach of the same order
- Determine if the tributary and any adjacent wetlands significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
- Relates to the goal of the Clean Water Act
  - "Restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Significant Nexus Evaluation

7+ page data form with all supporting information for every aquatic resource feature

- Hydrologic factors:
  - Volume, duration, and frequency of flow
  - Proximity to the traditional navigable water
  - Size of the watershed
  - Average annual rainfall
  - Average annual winter snow pack

Physical Factors: Landscape Position, Sediment, Bedload (e.g., hydraulic mining issues)

Significant Nexus Evaluation

- Ecological factors:
  - Potential of tributaries to carry nutrients, pollutants, and flood waters to traditional navigable waters
  - Potential of adjacent wetlands to:
    - Trap and filter nutrients and pollutants
    - Trap sediments
    - Store flood waters
  - Maintain water quality in traditional navigable waters (e.g.,303 d list tributaries; 2-way street)
  - Tributaries and their adjacent wetlands that provide habitat (e.g., places for feeding, nesting, spawning, or rearing young) for many aquatic species that also live in traditional navigable waters

Rapanos-Carabell Guidance

- These features are generally not jurisdictional
  - Upland swales or gullies
  - Ditches (including roadside ditches) excavated in and draining only uplands and that do not carry a relatively permanent flow of water
  - HOWEVER on P.12 “Certain ephemeral waters in the arid west are distinguishable from the geographic features described above where they HAVE a significant nexus to downstream traditional navigable waters.”
- This guidance does not provide authority to assert jurisdiction over waters deemed non-jurisdictional by SWANCC

JD Coordination Processes

- Applies only to approved jurisdictional determinations
- If significant nexus determination, draft JDs e-mailed to EPA Regional Office
  - EPA Region has 15 days to make special case recommendation to EPA HQ (1989 JD MOA)
  - EPA HQ has 10 working days to decide if it is a special case
- If isolated waters determination, coordination process continues with 21-day time frame
- **7+ page data form with all supporting information for each aquatic feature!**

RGL 08-02

Helps relieve JD log jam for permitting

- When to do a Preliminary JD
  - Landowner, permit applicant, or other affected party voluntarily wants to set aside questions of jurisdiction to expedite obtaining permit authorization
  - Enforcement situations where site access is impractical or unauthorized, or if approved JD cannot be completed in a timely manner
  - Delineation/mapping of potential waters, including wetlands, remains the same for preliminary JDs as for approved JDs

Preliminary JDs

- For permit decisions, include all potential waters, including wetlands, when determining impacts and compensatory mitigation
- Corps is not making a legally-binding determination whether CWA/RHA jurisdiction exists
- Affected party can later request an approved JD
  - Transmittal letter should advise affected party not to start work in waters if he or she intends to request an approved JD at a later time
  - No expiration date

RGL 08-02

- Approved Jurisdictional Determinations
  - Official Corps determination that jurisdictional waters are present or absent on a site
  - Valid for 5 years (RGL 05-02), unless new information or changing environmental conditions warrant a revision
  - May also identify the limits of jurisdictional waters
  - Can be appealed
  - Districts continue to post on their web pages

RGL 08-02

- When to do an Approved JD
  - Landowner, permit applicant, or other affected party requests an approved JD
  - Landowner, permit applicant, or other affected party contests jurisdiction over a particular waterbody or wetland (and allows property access to provide an approved JD)
  - Corps determines that jurisdiction does not exist over a particular waterbody or wetland
  - Enforcement actions, where practicable
  - At district engineer's discretion, when it is warranted in a particular case

RGL 08-02

- When *not* to do an Approved or Preliminary JD
  - When the person is seeking a JD for another purpose, such as:
    - Section 402 of the Clean Water Act (NPDES)
    - Section 311 of the Clean Water Act (oil and hazardous substances spills)

References

Corps of Engineers Wetland Delineation Manual, January 1987

Regional Supplement to the Corps of Engineers Delineation Manual: Arid West Region (Version 2.0)

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)

Regulatory Guidance Letter (RGL) 90-7, 26 Sep 90

Clarification of the Phrase "Normal Circumstances" as it Pertains to Cropped Wetlands;

National Food Security Act Manual, Fifth Edition

"Joint Guidance from the Natural Resources Conservation Service (NRCS) and the Army Corps of Engineers (COE) ConcerningWetland Determinations for the Clean Water Act and the Food Security Act of 1985",dated 25 February 2005.

Corps Technical Standard for Water-Table Monitoring of Potential Wetland Sites, June 2005 (Technical Standard)

WETS Tables

Questions ?