

BACKGROUND AND
SUPPORT INFO

Alaska Mapping Conventions

August 1994

1/14/2011

MS

DRAFT

To: District Conservationists

Subject: CPA - Alaska Exempt Wetlands (AEW) Documentation

180-

The Food Security Act wetland label "AEW" for Alaska Exempt Wetlands is used only in Alaska. The National Food Security Act Manual (NFSAM), Alaska Amendment #1 addresses AEW identification criteria and landowner/operator notification, but it does not address procedures for documenting AEW areas on the official USDA aerial photos maintained by the Farm Service Agency. The NFSAM also does not address documentation of AEW areas on the SCS-CPA-026.

The following is an explanation of this unique situation: Public Law 99-349 (July 1986) exempts certain areas in Alaska that have a high potential for agricultural development and a predominance of permafrost soils, from the definition of Wetland. Therefore, for Food Security Act purposes, these areas are non/wetlands, and there is no program requirement for NRCS to identify such areas on a wetland map or to document their presence on the form SCS-CPA-026.

However, the Environmental Protection Agency and the Army Corps of Engineers do not recognize the AEW exemption for Clean Water Act purposes. These regulatory agencies consider such areas to be "Waters of the United States", and therefore within jurisdictional limits of the Clean Water Act. If NRCS were to not identify AEW areas on a wetland determination map; and were to not inform agricultural operators of this potential regulatory requirement for these special hydrologically challenged areas, we would lead agricultural operators directly into Clean Water Act noncompliance situations.

Therefore, NRCS in Alaska has agreed [*Wetland MOA, "Alaska Wetlands (And Other Waters) Mapping Conventions" 1994*] to identify AEW areas on certified wetland determination maps that will be used by all four MOA agencies (EPA/COE/FWS/NRCS) and the landowner/operator. Through this action landowners will become aware of the existence of AEW areas on their property and can respond accordingly, i.e., ignore the label for USDA program purposes, but inquire at the Corps of Engineers for Clean Water Act purposes. Identification of AEW areas by NRCS involves no additional staff time, because the technical procedures first require that such an area be identified as wetlands before it can be identified as an Alaska Exempt type of non/wetland.

- **Alaska Exempt wetland designations** will be assigned to undeveloped sites only (natural vegetation) and will be based on criteria in Appendix H and the following guidance. Agricultural parcels recently developed on what may have been "AEW" sites, will be designated as upland if the site is effectively thawed and drained. Soils with high agricultural potential that are saturated due to permafrost and that have the potential to thaw and drain once the insulating vegetation is removed, are to be mapped as Alaska Exempt Wetlands (AEW) (See "Record of Decision For The Implementation of PL 99-349", January 1990). Because this category defines an area's natural potential to drain without further manipulation, it must be mapped somewhat subjectively based upon several interdependent factors. Drainable permafrost soils should be differentiated from non-drainable permafrost soils (W) by considering the interplay of factors such as landscape position; availability and distance to a drainage outlet; soil materials; and manipulation. Agricultural development practices, (such as complete removal of the organic mat, proper berm placement, adequately sized clearing, and yearly cropping) are to be assumed. Landscapes with convex topography or slopes of 2 percent or more; coarse textured soils underlain by subsurface gravel, and a nearby outlet for surface drainage are factors promoting drainage. Depressional, concave, toeslope and drainage-way positions in nearly level landscapes; heavy textured soils; thick organic mats; high ice contents; and a lack of drainage outlets, are considered factors limiting drainage. Because many sites will have some favorable and unfavorable characteristics, the decision affecting whether an area would drain, can be based upon how an adjacent or similar site reacted to clearing.

There is no formal agreement with Farm Service Agency to maintain AEW records or to identify AEW lands on the official USDA aerial photos maintained by Farm Service Agency. However the benefits to farmers of doing so are obvious, and the resulting confusion that would take place of we didn't, is also obvious.

Therefore it is recommended that district conservationists in permafrost regions (Fairbanks, Delta Junction and to a limited extent the Kenny Lake area) continue to cooperate with the Farm Service Agency staffs to keep this issue from becoming a problem.

District conservationists should continue to identify AEW areas on wetland maps sent to COE/EPA/FWS and the landowner/operators, as per the wetland MOA; and, when transmitting the determination to the Farm Service Agency, district conservationists should identify AEW areas on the official USDA aerial photos and on the SCS-CPA-026, if agreed to by the local Farm Service Agency Executive Director. AEW field numbers and acres can be recorded on line 14 of SCS-CPA-026 along with Artificial Wetlands, by modifying the entry to identify both Artificial and Alaska Exempt Wetlands on the same line.

Dan LaPlant
State Biologist

cc: Jimmy LaVoie
FSA County Executive Directors, Alaska

To: Chuck Bell, State Conservationist

Subject: When to make Wetland Determinations

Date: March 5, 1997

This is to clarify when NRCS makes wetland determinations. It appears that this has become an issue, and was expressed in an Alaska Farm Service Agency Notice (see the attached AK Notice CP-229) with reference to a January 1990 deadline.

Our current policy on this subject is found in the National Food Security Act Manual (NFSAM), Third Ed., Amend. 2, Nov. 1996. Part 513.0 states that *"The 1985 Act, as amended, requires that **upon a client request**, wetlands be identified, determined, certified and delineated. NRCS is the lead agency responsible for certified wetland determinations on **all lands for which and NRCS-CPA-38 has been received.**"*

Clients can request a wetland determination at any time, if one has not already been completed on their lands. It is only necessary, however, for a landowner to request a wetland determination for USDA program participation if they answer "yes" to questions 8, 9, or 10 on form AD-1026. This would include situations when signing up for CRP, if the client is bidding to enter wetlands in the program; when applying for WRP; or when signing up for EQIP, if the planned practices involve possible drainage, dredging, filling leveling of wetlands, or maintenance of existing drainage systems. In other words, those activities identified in questions 8, 9 and 10 of form AD-1026.

Guidance for completing form AD-1026 is found in NFSAM 522.20; where it says; "if question 8,9, and 10 are all answered "no", FSA will not refer the AD-1026 to NRCS for wetland determinations." and;

"If one or more of the questions 8, 9, and 10 (of form AD-1026) are answered "yes", FSA will review previous determinations and refer the AD-1026 to NRCS for certified wetland determination only if needed. If needed, the person must also complete form NRCS-CPA-38.

Question 8a of the AD-1026 has resulted in some confusion. Clients should be answering this question "no" if they have a HEL determination but do not have a wetland determination. Questions 8b, 9 and 10 are the questions that will identify if a wetland determination is needed.

The following is a chronological listing of events relative to policy changes that affect when NRCS makes a wetland determination.

Dec. 1985 - Swampbuster provisions included in the Food Security Act

- July 1986 - Congress passed the special Alaska exemption (PL 99-349).
- Oct. 1986 - Section 540.40 of the National Food Security Act Manual stated that either the producer or the program agency could request an SCS wetland determination. The producer had to make the request in writing, and the program agency was to use form AD-1026 to make the request.
- April 1988 - National Bulletin 450-9-14, stated that our first priority was to complete the wetland inventories.
- August 1988 - WNTC field review of Alaska's wetland determinations identified several errors and recommended corrective action.
- March 1989 - SCS in Alaska hired the first State Biologist to address wetland issues.
- May 1989 - National Bulletin 180-9-22: States were instructed to develop and test Wetland Mapping Convention; train employees, and establish quality assurance reviews with NTCs.
- July 1989 - SCS in Alaska developed and field tested mapping conventions with ASCS and other agencies. These conventions included the procedures for identifying the new Alaska Exempt Wetlands (AEW).
- January 1990 - Alaska's Wetland Mapping Conventions were approved and distributed to district conservationists for use. All wetland determinations in Alaska made prior to the date of the "Record of Decision" (December 15, 1989) were voided.
- ?--1991 - Chief's stated policy was that all wetland determinations be completed by the end of calendar year 1991.
- May 1991 - Memo from Chief William Richard's to delay any further wetland inventories and determinations except in those cases where the person indicated on the AD-1026 that manipulation of a wet area is planned.
- August 1991 - National Bulletin 180-1-24: Chief's instructions to make determinations only for FmHA inventory farms, when a valid AD569 was issued, and when a person checks "yes" to questions 11, 12, or 13 on the AD-1026.

- January 1994 - Interagency Wetland MOA required development of new Mapping Conventions.
- May 1994 - Chief Johnson identified wetland priorities: 1) service individual requests; 2) certify existing determinations; and 3) resumption of general wetland determinations.
- August 1994 - Alaska's MOA Mapping Conventions approved
- Feb. 1995 - Chief expressed the Policy to have all wetland determinations completed by the end of FY96.
- April 1995 - Secretary Glickman froze all previous wetland determinations and required that all requests for wetland determinations be submitted in writing from clients using the INTERIM form.
- June 1995 - NRCS issued Form NRCS-CPA-38 to replace the INTERIM form to be used by clients for requesting wetland determinations.
- April 1996 - 1996 Farm Bill passed with language that NRCS will only certify wetland determinations upon request from the client.
- Sept. 1996 - Farm Bill Fed Reg. included changes that NRCS will only certify wetland determinations upon request from the client.
- Nov. 1996 - Current Policy in NFSAM, Third Ed., Amend. 2. (as stated above).

Dan LaPlant
State Biologist

cc: District Conservationists
Jim Schmidt
Cal Miller

WETLAND CERTIFICATION

This wetland determination was made using wetland mapping conventions agreed upon by the US Army Corps of Engineers, Environmental Protection Agency, US Fish and Wildlife Service and Natural Resources Conservation Service. This determination is sufficient for determining eligibility for USDA programs and is ___; or is not ___; valid for Clean Water Act purposes. Wetlands on this determination will be added to the public list of certified determinations maintained by FSA and are valid for a period of 5 years.

The determination was made using the following approved mapping method(s):

- ___ Agricultural Land Off-Site Determination Method
- ___ Agricultural Land On-Site Determination Method
- ___ Non Agricultural Land Off-Site Determination Method
- ___ Non Agricultural Land On-Site Determination Method

Name of hydric soil(s) _____
or un-named soil inclusion(s) _____

Comments: (describe conditions that attributed to the determination) _____

By _____ (district conservationist) _____ (date)

Note: Only areas within the red boundary have had wetland determinations made. Additional wetlands may be present on other areas of the map.

Two examples of where we have done a poor job with meeting this responsibility.

CWNA - We usually say "No problem, just tell the DC first". What we should be saying is "No problem, just notify the DC first so it can be added to the conservation plan; and get a CWA Section 404 Permit first.

Wetlands farmed under natural conditions. We usually say, "no problem, the site can be farmed under natural conditions, when dry enough, as long as the farmer doesn't have to alter the hydrology or remove woody vegetation. We also say that if there is a little woody vegetation present, he/she can till through it as long as he/she uses normal farming equipment, like a disk; and does not use equipment designed to cut woody vegetation, like a brush hog or hydro axe." This is correct for FSA, but it is not all that the farmer needs to know. What we should also be telling the farmer is that he/she should also check with the COE (because the COE says that a farmer can't plow up the wetland if it's not a normal farming activity (can't bring new land into production if its wetland, without a permit).

Therefore the wetland call we give the farmer may be what we think is acceptable and reasonable because it helps him/her maintain compliance with our program. But it does not address his or her need to know how it will affect his or her compliance with CWA.

Sometimes a landowner will appeal a swampbuster label decision with the intent to help him address a CWA issue. This only works if the label determination is a PC.

Subject: TCH - Interagency Memorandum of Agreement (MOA)
Concerning the Delineation of Wetlands

To: Warren Lee, Director
Conservation Planning Division
Washington, DC 20013

190-13-14

The enclosed Issue Paper describes 9 issues identified by the Alaska SCS staff as needing additional clarification from the SCS National Wetland Team, or concurrence with the proposed approach to deal with the situations.

Please provide comments, if possible, prior to the May 16 Minnesota meeting. For further clarification contact Dan LaPlant (907) 271-2424.

Steve Probst

State Conservationist

cc: Tommy George, WNTC
Gene Andreuccetti, Assistant Chief, West

ALASKA

ISSUE PAPER,

RELATIVE TO THE IMPLEMENTATION OF THE JANUARY 6, 1994 MOA;

CONCERNING THE DELINEATION OF WETLANDS FOR PURPOSES OF SECTION 404 OF THE CLEAN WATER ACT AND SUBTITLE B OF THE FOOD SECURITY ACT, BY THE DEPARTMENT OF AGRICULTURE, THE ENVIRONMENTAL PROTECTION AGENCY, THE DEPARTMENT OF THE INTERIOR, AND THE DEPARTMENT OF THE ARMY.

Purpose:

Conditions relative to agricultural uses of wetlands in Alaska are quite different as compared to the situations that exist in most other states. Many of the assumptions made during the formulation of the National MOA may not apply to Alaska conditions. Therefore it's necessary to describe conditions related to this agreement that exist in the state; clarify the terminology used; and provide answers to the questions that have surfaced thus far. Several issues require clarification before agreement between the agencies can be reached.

In an attempt to resolve these issues this paper identifies each issue; explains its application in Alaska; and explains how SCS proposes to deal with it. If our approach is contrary to the intent of the National M.O.A. and therefore unacceptable, please provide us guidance. Please respond to each issue with a concurrence, or recommend an alternative approach.

Background:

Wetlands in Alaska are extremely extensive. U.S. Fish and Wildlife Service estimates that 43.3% of the state, or 174,683,900 acres meet wetland criteria, as compared to 103,343,600 acres or 5.2% of the land surface in all other states combined. Wetland amounts along major river valleys in Alaska are much higher. For example, 60.9% of the Tanana River Valley (where most agricultural lands are located) are wetland.

Although less than 100,000 acres in Alaska currently meet the MOA's definition of agricultural land (and perhaps an additional 100,000 acres may be converted to agricultural land within the foreseeable future) wetlands within these areas are indeed a major component of these landscapes, and wetland losses associated with agriculture have the potential to become locally significant.

Wetland conversion activities for agricultural development and operation are mostly a result of land clearing actions (removal of woody vegetation). Other manipulations that account for a much smaller segment of wetland conversions include the installation of diversions, ditches, and waterways to provide

exit routes for surface waters. Drain tiles or other subsurface drain systems are not used in Alaska. Therefore, wetland conversions relate almost entirely to land clearing operations during the original development of the agricultural parcels.

The most significant problem related to wetland delineation in Alaska is the lack of detailed resource information. Resource data is generally not available to the level found in most other states. Several examples can be cited: 1) In many areas where recent agricultural development (land clearing) has taken place, current aerial photography to identify farms, fields, etc., do not exist. In several cases the most recent photography has original native (forested) vegetation, with no roads, fields, buildings, etc.; 2) National Wetland Inventory products in Alaska are produced at the scale 1:63,360 not 1:20,000 as in other states; 3) detailed SCS Soil Survey products either do not exist, or if available, are Order 3 & 4 surveys on photography taken before roads, fields, buildings or other development has taken place; 4) ASCS color slides to document cropping history are not available in Alaska; 5) local climate data to document growing season and to distinguish dry years from wet years are often not available; 6) limited USDA program participation by Alaska farmers in the past results in limited cropping history documentation. Other issues that make the program uniquely different in Alaska are the Alaska Exempt Wetland (AEW) category, hydric soil criteria problems and hydrology field indicators. Also, agricultural use of lands is not a well established land use on many acres in Alaska. New agricultural operations are being developed out of lands in native vegetation, and failed farming efforts often result in regrowth of native vegetation on lands that have only been in production for a few years. Non-agricultural lands may have a Clean Water Act wetland determination for non agricultural purposes one year, and may be subject to Food Security Act regulations a year or two later.

Issue #1 - Mapping Conventions:

The M.O.A. states that the agencies are to reach concurrence **"on a set of mapping conventions for use in making wetland delineations. Only mapping conventions concurred upon by all signatory agencies will be used by SCS for wetland delineations."**

Additional discussion is needed to clarify that the agreed upon mapping conventions will result in wetland delineations for official FSA wetland determinations; which, in Alaska, can be significantly different than a wetland delineation on an FSA Wetland Inventory.

FSA Wetland Inventories in Alaska were completed in 1990 on areas in the Interior of Alaska where agricultural parcels are

concentrated (Fairbanks and Delta Junction field office areas). The mapping conventions used in this process were specifically for the purpose of producing a wetland inventory. It was recognized that the district conservationist would be required to consider additional, and more current information, at the time a "wetland determination" was to be made in response to an individual AD-1026. The inventories were completed on the best available aerial photography, with extensive field checking. At several locations, land clearing operations had taken place since the date of the photography (and now, even since the 1990 inventory). The date of land clearing actions in relation to the passage of FSA could not be determined without researching each site separately. Therefore the resulting inventory indicates wetland status as of the date of the photography (unless otherwise noted), and recognizes that the inventory is only a tool to be used for making the official FSA wetland determinations [This is consistent with NFSAM Section 513.31 (a)]. In addition to the inventory, the SCS district conservationist is required to review more recent ASCS black and white photography (if available), consider cropping history obtained from the farmer and/or ASCS, apply his/her knowledge of the local area, and conduct a recent observation of the site to confirm conditions, if necessary.

The agencies in Alaska will work toward reaching agreement on a complete set of mapping conventions (see attached diagram on page 8) that will be used by SCS for making off-site wetland determinations on agricultural lands, recognizing that the wetland inventory product is only a step in that process. In addition, the conventions will identify the 1987 Corps Wetland Delineation Manual (with current national Corps guidance) as the procedure for making wetland determinations on areas with native vegetation, supplemented with Alaska Exempt Wetland (AEW) criteria (See Issue #2).

Concurrence _____.

Issue #2 - Alaska Exempt Wetland Category - Will the other agencies recognize the Alaska Exempt Wetland category?: The Alaska Exempt Wetland Category (AEW), was established in response to Public Law 99-349, and has been used by SCS in Alaska since 1990 for Food Security Act purposes. A draft amendment to the NFSAM Third Edition, was recently sent to the National Office for approval to address this issue. Although these permafrost wetlands are exempt from the definition of "Wetland" as stated in the NFSAM, we have identified these areas as such on FSA wetland determinations and instructed the operators to check with the Corps of Engineers for Clean Water Act (CWA) purposes. Failure to acknowledge that these "wet" lands exist on the farm, would have been setting the operator up for a CWA violation.

Alaska Exempt Wetlands (AEW) are only found on lands with native vegetation. Once cleared of trees and shrubs the permafrost thaws and the area drains without additional manipulation. Therefore, Alaska Exempt Wetlands (AEW) are not found on agricultural lands (as defined by the January MOA) and there is no need to address AEW in the NFSAM wetland mapping procedures. Alaska Exempt Wetlands (AEW) need to be addressed in the procedures used on non agricultural land.

SCS in Alaska plans to tentatively handle this issue by preparing mapping conventions that address both agricultural lands and non agricultural lands. Non agricultural land procedures will reference the 1987 Manual, as agreed to in the MOA, and Alaska Exempt Wetland Criteria (see diagram on page 9). This should address the concern when the wetland determinations are made by SCS. However, this will not address the concern for those wetland determinations that are originally made for CWA purposes by someone other than SCS. Information material made available through Soil and Water Conservation Districts and other agencies will be relied upon to inform landowners of the possibility of Alaska Exempt Wetlands on their non agricultural lands. Also, copies of PL 99-349 and the supporting Alaska Exempt Wetland field test report have once again been provided to the other agencies for their legal counsel response to recognizing Alaska Exempt Wetlands for Clean Water Act purposes.

Concurrence or comments _____.

Issue #3 - USDA Program Participant: We are concerned about the statement in Section IV B of the MOA, which states that "Lands owned or operated by a USDA program participant that are not agricultural lands and for which a USDA program participant requests a wetland delineation, will be delineated by SCS in coordination with" Specifically, our concern is that a private landowner in Alaska (such as a Native Corporation who may own millions of acres) could become a USDA program participant by operating a few acres of agricultural lands, and then request SCS to provide wetland determinations on their millions of acres of non agricultural land, with the justification that they are intending to identify potential agricultural ventures. These wetland determinations, of course, will need to be suitable for use by the Corps of Engineers for Clean Water Act purposes.

The agencies in Alaska intend to establish a procedure that will allow SCS to deny those types of requests, by limiting the size of a land unit that the agreement will apply to, or by stipulating that the MOA only apply to areas of the state where existing agricultural activities are currently taking place. In other words, agreeing that the January MOA will only apply to

specifically identified "Agricultural Areas" of the State. Agricultural Areas will be identified by geographical means or climatic criteria. Is this approach acceptable? _____.

Issue #4 - Growing Season: NFSAM Section 527.4 identifies the growing season as that part of the year when soil temperatures at 19.7 inches below the soil surface are higher than biologic zero (5 degrees C). It also allows for the establishment of growing season by approximating the period between the first and last killing frost, based on 28 degrees F. However, the climate data needed for this calculation is often not available in Alaska. NFSAM also indicates that in certain parts of the country where the plant communities have adapted to regional conditions, local methods of determining growing season may be more accurate than that described above. "Such methods may be used when accompanied by the technical rationale."

SCS in Alaska will continue to utilize the NOAA climate data and zones map for Alaska (which is based on the average dates of last and first 28 degree F. frost), when local data is not available.

In addition, USGS, EROS greenness maps will be considered for use in the future, where supported by local plant phenology data.

Future growing season determination methods in Alaska will be based on plant phenology and supported by technical reports that document local plant community adaptations (Ping, et. al. (1990) reported biologic activity in soils as low as -1 degree C).

Concurrence _____.

Issue #5 Narrow Bands and small pockets: The MOA states that each state will identify the limits of non agricultural land narrow bands and small pockets, within or adjacent to agricultural lands. The Corps of Engineer will likely support very narrow and very small pockets.

SCS in Alaska will support using NFSAM wetland determination procedures on non agricultural lands in narrow bands of 200 feet or less and small pockets of 5 acres or less, within agricultural lands.

Concurrence _____.

Issue #6 FSA wetland inventories on non agricultural lands: The greatest need that agricultural operators in Alaska have for wetland determinations is on lands in native vegetation. Wetlands conversions due to removal of woody vegetation (land clearing) are the most common type of wetland manipulation

affecting FSA program eligibility. A formal FSA wetland determination obtained prior to clearing will not only help maintain program eligibility but will also help guide agricultural development to the most suitable soils within a soil map complex.

Determinations for FSA purposes can not be made in a timely manner because of the lack of detailed resource information needed to conduct off-site 1987 Corps Wetland Delineation Manual determinations on these lands. This leaves us caught between two extreme levels of detail with respect to wetland mapping; NWI products at 1"/mile that are not often adequate for planning the location of clearing operations; and FSA/CWA wetland determination using on-site procedures in the 1987 Corps Wetland Delineation Manual, that are too labor intensive for planning purposes.

To address this concern, SCS will identify off-site mapping conventions to be used for both agricultural and non agricultural lands to produce wetland inventories (see attached diagram on page 9). **These inventories will not be recognized as either FSA or CWA wetland determinations**, however they will allow the State or local government to plan agricultural land disposals to avoid significant wetland acreages. Individual farmers will be instructed to obtain detailed wetland determinations for each proposed field, prior to land clearing operations.

Concurrence _____.

Issue #7 - COE/EPA Fact Sheets: Section IV H. of the MOA states that SCS and FWS will provide landowners/operators with general written information regarding the Clean Water Act Section 404 program permit requirements. The agreement however does not provide for the COE/EPA to make available Swampbuster information. Therefore there is no provision established to prevent a landowner from unknowingly becoming a Swampbuster, even though they a 404 permit to convert the wetland. This is quite possible in Alaska where the landowner may be planning for non agricultural uses of their lands one year, and then alter plans to become a USDA program participant the next.

To address this concern the Alaska agreement will require that the COE/EPA distribute Swampbuster Fact Sheets to all 404 permit applicants located in "Agricultural Areas" of the state, as discussed in Issue #3.

Concurrence _____.

Issue #8 - Existing CWA Jurisdictional Determinations:
Situations exist in Alaska where Clean Water Act (CWA)
Jurisdictional Wetland determinations have been completed by the
Corps on agricultural lands for operators who are not USDA
program participants, and therefore received no FSA
determination. To make use of these completed determinations,
the new FSA wetland mapping conventions will identify the need to
contact the local Corps of Engineers office for such information
early in the wetland determination process.

SCS will give blanket acceptance to previously made Clean Water
Act jurisdictional determinations by the Corps of Engineers,
using the 1987 Corps Wetland Delineation Manual. Such
determinations will be subject to the NFSAM appeals process.

Concurrence _____.

Issue 9 - Field Testing: NFSAM Section 513.11 (i) says that our
mapping conventions are to be approved by the agencies and field
tested. Field testing of these new conventions may not be able
to be accomplished prior to the deadline.

Will there be field testing guidelines, format, etc., in addition
to what is provided in Section 513.30 (c)? _____.

Structure For SCS Wetland Mapping Conventions in Alaska, Incorporating Both On-Site and Off-Site methods.

STAGE I

- Review existing resource data, such as;
 - NWI maps
 - USGS quad maps
 - Soil Surveys
 - Flood Plain Maps
 - Vegetation Maps
 - CIR photography
 - etc.
- Steps will be consistent with WNTC mapping convention guidelines.
- This interim product is a FSA Wetland Inventory on a photo base with a scale of approximately 4" / mile and is equivalent to a preliminary wetland determination made by the Corps of Engineers.

STAGE IIA

For **Agricultural lands** (including narrow bands and small pockets of non agricultural land).

- steps in this segment will be consistent with the NFSAM 3rd Edition and will require that the district conservationist obtain current site information available when applying off-site methods. Additional information may include viewing recent ASCS black and white photos taken since the inventory, reviewing recent cropping information from ASCS and/or the farmer, and applying the DCs local knowledge of the area.

An additional step will be to obtain information from the local Corps office on any previous jurisdictional determinations they may have made.

The product of these procedures will be a FSA Wetland Determination. Following consultation with FWS; completion of the appeals process; and review and approval of the interagency oversight team; the delineated wetlands are identified as **Certified Wetlands.**

STAGE IIB

For Non Agricultural Lands

These procedures will include use of the 1987 Corps of Engineers Wetland Manual (with current National Corps guidance). The methods may include both routine or comprehensive techniques.

Additional step in these
conventions will be to apply the
Alaska Exempt Wetland Criteria for
wetlands located in permafrost areas.

The resulting product will be a
tentative FSA wetland determination.

Following coordination with COE and
EPA; completion of the appeals
process; and review and approval of
the interagency oversight; the
delineated wetlands are identified as
Certified Wetlands.

MOA quotes

The agreement allows agricultural operators to come to one agency (SCS) for all federal wetland determinations.

The MOA applies to all agricultural areas in Alaska, as defined in the agreement.

The agreement allows SCS to make off-site wetland determinations on agricultural lands using a series (3 years) of photos.

Wetland determinations that SCS will make for farmers on non-agricultural land, will be made using the same wetland manual and after attending the same wetland training as the other agencies.

The agreement facilitates and requires coordination between the agencies on the field level, when making wetland determinations for agricultural operators.

The agreement allows SCS to make use of technical wetland delineation expertise in the other agencies, and it provides a mechanism of all four agencies to exchange and share technical assistance on wetland identification.

The agreement requires joint training of field staffs, and resolution of issues through joint field visits when appropriate.

PROJECT PROPOSAL: DEVELOPMENT OF WETLAND IDENTIFICATION AND DATA STORAGE METHODS IN ALASKA USING A GEOGRAPHIC INFORMATION SYSTEM (GIS).

PURPOSE: To improve wetland identification and data storage methods in Alaska, for long term utilization when carrying out FSA Swampbuster responsibilities and the Agricultural Wetland MOA.

DESCRIPTION: FSA wetland inventories were completed for agricultural areas of Interior Alaska during the summer of 1990. Wetlands were identified on the best available CIR photography (1978-1986 photos with a scale 1:15,840). Because of ongoing agricultural land development in Alaska during the late 1970s and 1980s the photo interpretation methods resulted in the identification of wetlands that were present on the date of the photo and not necessarily the 1990 condition. Sites that were ground truthed were corrected, however the majority of the wetlands were identified strictly through photo interpretation. When making formal FSA wetland determinations, district conservationists are required to compare the current land use condition in relation to the 1990 inventory products to confirm the continued presence of native vegetation, or to identify the dates of land clearing and the planting of agricultural commodities. Since the 1990 inventory, only a limited number of wetland determinations have been made, as directed by NRCS Headquarters.

Program managers and district conservationists have identified the goal of completing all FSA wetland determinations for Alaska agricultural operators by the end of FY96. To effectively accomplish this goal a usable wetland inventory product must be available to district conservationists. Although commonly used throughout the Nation by CFSA, the following standard products are not useful for that purpose in Alaska:

NWI Maps: NWI maps for this area were developed for broad scale planning purposes only. They are available only at a scale of 1:63,360; derived from 1978 photography, 1:60,000 scale with minimum polygon size of 3-5 acres; and wetlands on lands cleared for agriculture were not identified.

CFSA Black and White photos: CFSA B&W coverage is not available in stereo. A 1990 or 1991 photo set is the only current (relatively) coverage available through conventional means.

CFSA Color Slides: There are no CFSA Color slides available in Alaska.

Hydrology tools and Climate data: There is very limited climate data available for the area, and NRCS hydrology tools have little to no application to the conditions present.

Therefore, our wetland inventory/determination options are:
Option 1. Update the existing inventory on the ASCS 1990-91 b&w photos (this inventory will be obsolete soon after completed).

Option 2. Complete all determinations using on-site procedures (this will result in the goal not met because of the excessive workload).

Option 3. NRCS to obtain new CIR photo stereo coverage of the area in 1995 at a cost of over \$250,000 (this product will also be outdated after additional land clearing is completed or after CRP lands are recleared and brought back into production).

All the above options will result in obsolete products in five years or less.

Option 4. This option is to automate the process using a controlled photo base and digitized USGS quad sheets. Using these products within a GIS or similar system, current photography can be used to update determinations as land use changes take place. Recertification of determinations on a five year schedule can easily be accomplished without conducting new inventories.

USGS in Alaska is currently in the process of digitizing full color quad sheets. Department of Defense high resolution satellite imagery may soon be available as a controlled photo base. Although the DOD imagery is currently classified, Alaska USGS National Mapping Division and FWS NWI staff are working on a project to ground truth sites on the DOD imagery as part of a GATF Study.

Use of DOD products, as well as Russian imagery available through the University of Alaska, appear to be a promising option for efficiently meeting our Congressional FSA mandate to conduct wetland determinations. If successful, this system can be accessed by CFSA and utilized as the list of certified wetlands; and shared with the Corps of Engineers and the Environmental Protection Agency for Clean Water Act purposes.

FY96 funds requested for the Alaska NRCS Wetland Automation System: **\$50,000**. The requested funds will be used to partially support a GIS specialist position (currently on our approved staffing plan) to complete the necessary tasks to get our existing GIS system compatible with the above products; test its application for recording wetland determinations; and producing products (maps) for agricultural operators.

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Wetland Mapping Conventions and Problems :

1. Purpose/Definitions

Wetlands were identified and mapped for farmlands surrounding Delta Junction and Fairbanks in the summer of 1990 using the conventions and criteria outlined in the West National Technical Center Note W-3 and the Alaska Supplement (attached). The maps produced as a result of this effort are intended for Agency use by SCS District Conservationists to assist them when making a wetland determination on cooperating farms for the purposes of the Food Security Act of 1985.

Wetlands as defined by WNTC Note W-3 require the presence of both hydric soils and a prevalence of hydrophytic vegetation. According to the definition, hydric soils include; all organic soils (histosols); and soils belonging to the Aquic suborder with water tables near the soil surface during a significant portion during the growing season; and soils that are ponded or flooded for a long duration during the growing season (7 days or more when in native vegetation, WNTC Note W-3).

The definition of growing season is defined in the 1987 publication, Hydric Soils of the United States, as that "portion of the year when soil temperatures are above biologic zero, (41F) as defined by Soil Taxonomy". Because the near surface temperatures of Interior Alaska soils are commonly below 41 F during the summer months, and since biologic activity has been documented in Alaska at soil temperatures as low 32 F (Ping, et.al. 1990), an alternative method for identifying the beginning of the growing season needs to be employed. In order to provide a basis for mapping, I assumed a growing season beginning on May 15'th and extending through the 1'st of September for Interior Alaska. These dates roughly correspond to the first growth of native vegetation in the spring and the first hard freeze of fall. Studies to document the relationship between plant growth and soil temperature need to be initiated in order to provide a better understanding and a quantifiable definition for the growing season in Interior Alaska. Once these studies are complete, the maps may be modified to reflect changes to the initial assumptions.

2. Data Sources/Methods/General Limitations

Primary source documents used to support the mapping include; High Altitude Color Infrared Photography (1:15840 scale HAP-CIR 1978-1986), ASCS Black and White photography, Soil Surveys, FWS National Wetland Inventory (NWI) Maps, and Topography Maps.

Another important source for the immediate Fairbanks area included the large scale wetlands maps contracted by the Corps. of Engineers. The CIR photography and Soil Survey were consistently the most useful documents. The ASCS photography in the Delta Junction Field Office was also used extensively to document wetness problems that varied annually and were not visible on the CIR. NWI maps were helpful in delineating the boundaries of some high value wetlands, but were generally of limited value in identifying saturated wetlands associated with permafrost. This was due primarily to the poor vegetation/permafrost correlation found in areas that had been frequently burned.

Wetlands were initially identified and delineated on the photography by interpreting the vegetation signatures visible on the CIR photography. Soils maps, NWI maps and ASCS photography were all consulted at this point to corroborate boundaries and to identify wetlands that might have been missed in the initial interpretation. Field checks were then conducted to verify the accuracy of the interpretation and to refine boundaries. In areas where the expected reliability of the interpretation was high, verification was infrequent. In areas where the interpretation had a lower reliability, the maps were field checked at a much higher frequency. Accessibility and the potential of the site to be cropped also influenced the field checking.

3. Alaska Exempt Wetlands (AEW)

Soils with high agricultural potential that are saturated due to permafrost and that have the potential to thaw and drain once the insulating vegetation is removed, were mapped as Alaska Exempt Wetlands (AEW) (see Alaska Supplement of WNTC Tech Note W-3). Because this category defines an area's **natural potential** to drain, it was mapped somewhat subjectively based upon several interdependent factors (see 3b).

a). **Permafrost vs. Uplands** - Saturated permafrost areas were differentiated from upland areas primarily by relying upon the soils maps. Limited field checking to verify the presence or absence of the permafrost was conducted, however the boundaries of the soil units were not changed unless major discrepancies with the mapping were found. Areas of discontinuous or very deep frost (>5') within a shallow permafrost soil such as Tanana were expected and normally were included within the AEW designation rather than separated into the upland category. If the soils map conflicted with an expected overstory signature on the CIR photography, the soils information was given more credence; i.e. Frozen Tanana soils which were occasionally mapped under mixed stands of aspen and white spruce were classified as AEW. Discontinuously frozen or deeply frozen (>5') Minto soils which often supported pure stands of scrub black spruce were mapped as

uplands. The USFWS NWI maps were also consulted when making a AEW determination, however they were generally of limited value due to the very poor correlation between scrub black spruce (PSS1B) and hydric soil conditions caused by permafrost.

b). Drainable vs. NonDrainable - Drainable permafrost soils (AEW) were differentiated from non-drainable frozen soils (W) by considering the interplay of several factors including; landscape position, availability and distance to a drainage outlet, soil materials, and management. Good management practices such as complete removal of the organic mat, proper berm placement, an adequate sized clearing, and yearly cropping were assumed. Landscapes with convex or plain slopes of 2 percent or more; coarse textured soils underlain by subsurface gravel, and a nearby outlet for surface drainage were factors promoting drainage. Depressional, concave, toeslope and drainageway positions in nearly level landscapes; heavy textured soils with thick organic mats and high ice contents; and a lack of drainage outlets were considered negative influences. Because most sites had both favorable and unfavorable characteristics, the decision affecting whether an area would drain was often based upon how an adjacent or similar site reacted to clearing.

c) Mapping Problems and Considerations - Several factors were encountered in the field mapping that often clouded a choice between the Alaska Exempt Wetland (AEW), non-drainable Wetlands (W), and uplands (U) category. Some of these include:

c 1). The size of a clearing and it's location within a watershed play a significant role in influencing whether an area will drain sufficiently to allow farming. Clearing size and location are unpredictable and determined more by land ownership patterns and management decisions than by a site's **natural potential**. Although I assumed a standard set of management practices to simplify the mapping process (see 3b above), the interplay of past or future unknown management practices and natural site conditions made it difficult to apply the criteria and to distinguish potential with any consistency. An incomplete understanding and a lack of documented research about management's role in the thawing and draining of permafrost on a variety of soil and landform types contributed to the problem.

c 2). The wide variation in subsurface materials, ice content and landforms underlying the frozen Goldstream soil type made it difficult to rely upon the Soil Surveys to predict the potential of an area to drain. I assumed that soil textures and thickness of the mantle over gravel or bedrock played a significant role in determining the potential and speed with

which an area will drain. This theory was difficult to apply with any real consistency because **permafrost** prevents the investigation of subsurface materials with a hand auger. Subsurface characteristics were therefore inferred, primarily based upon geographic location and landscape position.

c 3). The condition of newly cleared and thawing fields is often misleading. Ice damming and surface ponding caused by berms piles and thermo-karsting can persist for several years after the initial clearing. The amount of time required for these conditions to fully disappear and for the permafrost to recede to a depth sufficient to allow the field to "dry up" is unclear, but appears to be highly variable and dependant upon several interacting factors. No criteria was included in the definition of an AEW on what constitutes a reasonable length of time for an area to "drain". This created consistency problems when applying the definition to temporary "wet spots" that might persist for several years before eventually draining. Another problem was my ability to differentiate between these temporary wet spots and more permanent "undrainable" areas (see c 4 below).

c 4). In areas with marginal soils (Goldstream soils) on nearly level slopes, it was often extremely difficult to predict whether the area would drain upon clearing. Marginal sites were field checked at a much higher level of frequency than areas that were more obviously "drainable". Comparisons were also made to previously cleared sites with similar characteristics in order to provide a basis for making predictions. Although on-site visits and comparisons were useful, it was often impossible to make exact comparisons and to know the level of management used on past clearings. The DC should be aware that the success in draining these marginal sites is highly dependant upon management and natural factors which were not easily determined by a single field visit. Because of this, determinations in marginal areas may have a lower level of reliability than in other areas and may need to be re-evaluated at a later date.

c 5). Midslope clearings and clearings of small size commonly receive significant amounts of meltwater seeping out of upslope permafrost. Soils in these clearings are variably saturated by the seepage, with water collecting in depressions and along artificial obstacles such as berms and roads. Below the uppermost surface (4 to 12 inches), these soils are often powder dry and no longer saturated by water perched above the permafrost. Seepage and saturated surface conditions can persist indefinitely, but may be alleviated if additional clearing provides an outlet or if a higher level

of management is employed, such as diversions or shaping to remove water. Although fields in this condition are currently mapped as wetlands (W), it is probable that a number of these areas actually have the **potential** to drain and that their status may change if the clearing size is enlarged to provide a natural drainage outlet.

c 6). The lack of full scale stereo photography for the Delta and Fairbanks areas severely limited my ability to see subtle terrain and possible drainage patterns and outlets crucial for determining whether an area would drain once cleared. I relied to a large extent upon the slope categories identified in the soil survey, along with field observations and indications of ponding evident on the Color Infrared and ASCS photography. Even with adequate stereo coverage and extensive field investigation, subtle topographic differences and clearly defined outlets for drainage are very difficult to identify.

c 7). Minto soils, which were considered upland soil types for this mapping, are underlain at some depth by ice-rich permafrost. Once cleared, these soils typically develop a significant number of thermokarst pits and small enclosed depressions that pond or saturate with water throughout the growing season. If these areas persist, they qualify as wetlands under the soil/hydrology criteria and should be identified.

c 8). Field mapping took place over the course of an exceptionally dry summer. Although I tried to take this into consideration when mapping, it is difficult to predict how much characteristic variability would occur between wetlands during normal years and years of extreme drought and rain. Areas that are wetlands due to ponding or flooding are particularly susceptible to years of variable rainfall. Insufficient data was available to document the flooding and ponding history in many areas.

4. Final Determinations

Cleared areas previously identified in the soil surveys as frozen (Tanana, and Goldstream soils), which have thawed and drained after clearing were mapped as upland. Field boundaries were identified using the latest photo image available (HAP CIR, 1980, 1981, or 1986). No attempt was made to draw out present day clearing boundaries. Because a significant amount of clearing has taken place since the photography was taken, many areas mapped as AEW will now be cleared and thawed. The District Conservationist

should update and reclassify the mapping when making a final determination to reflect the latest cleared field boundaries once newer photography becomes available. Likewise, the DC needs to review all Wetlands (W) on farms for possible conversion activities and cropping history to determine their FSA status as either a CW (converted wetland), PC (prior converted) or a FW (farmed wetland).

5. Notes: Fairbanks Area

- a. - Eileson Ag. - Wetlands are easily identified and confined primarily to the numerous channels and sloughs that dissect the project area. Evidence of perched water tables can be found within a foot of the surface in most channels. Soils were frozen near the surface prior to clearing, and although discontinuous lenses of frozen soil undoubtedly persist at some depth, permafrost has receded to a depth that no longer interferes with subsurface drainage. Channels commonly supported a dominance of hydrophytic vegetation (sedges, eriophorum, scrub black spruce) prior to clearing.
- b). Numerous disconnected sloughs and oxbows occur in the Potlatch Ponds area out the Chena Hot Springs Rd. At first glance, most of these depressional channels appeared to qualify as wetlands. Vegetation is dominately facultative grasses and fac-wet sedges, however the soils had few hydric indicators and saturated conditions did not exist at the time of the mapping. Oxbows may still qualify if ponding occurs for at least 7 consecutive days (14 if cropped) during the growing season, fifty percent of years. Based upon the likelihood of ponding in these enclosed depressions during the spring months and the prevalence of hydrophytes, these areas have tentatively been identified as wetlands using the symbol Wx. The x symbol was used to indicate that additional information is needed on the ponding history and start of the growing season before a final determination can be made. Once the local growing season is determined, the D.C. should apply his understanding of the annual frequency and duration of the ponding problem to make a final determination for each unit marked with an Wx.
- c). Browns Court Ag. - Wetlands in eastern Browns Court are underlain by permafrost and may also be impacted by low-velocity flooding from streams originating in the mountains. Channels are poorly defined in the lower stream courses and overflow would likely disperse over large areas, determined by relatively minor differences in relief. Overflow water would perch and saturate surface soils for a significant period of time after the flooding event, due to the very fine soil textures found in the area. The

exact area impacted by the flooding was difficult to determine without conducting extensive field checks and without a record of past flooding events. The resulting wetlands map, which was interpreted using vegetative signatures, may overstate the actual extent of the wetland in the area.