

Memo

To:	AES Group		
From:	Michael Gloden	Email:	michael.gloden@atkinsglobal.com
Phone:		Date:	May 4, 2015
Ref:	Southern Colorado Veterans Cemetery	cc:	
Subject:	Section 404 Jurisdictional Area Delineation		

Atkins conducted a delineation of Section 404 jurisdictional wetlands and other waters of the U.S. (WOUS) along Corral Tributary and Franceville Tributary according to guidelines in the *1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region*. The delineation was performed to inventory jurisdictional areas of the USACE within a study area encompassing the Southern Colorado Veterans Cemetery Master Plan.

REGULATORY SETTING

For delineation purposes, wetlands are defined as:

Those areas that are inundated or saturated by surface or groundwater 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 (33 CFR 328.3, 40 CFR 230.3).

The USACE and U.S. Environmental Protection Agency (EPA) are responsible for making all final jurisdictional determinations. Under Section 404 of the federal Clean Water Act (CWA), the USACE and the EPA reserve the right to determine jurisdiction on a case-by-case basis (CFR, Volume 41, Number 219).

According to 33 CFR 328.4(c), the limits of jurisdiction in non-tidal waters are as follows:

- In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark (OHWM).
- When adjacent wetlands are present, the jurisdiction extends beyond the OHWM to the limit of the adjacent wetlands.
- When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

On January 9, 2001, the U.S. Supreme Court issued a decision that the USACE lacks the authority to regulate isolated wetlands via the "Migratory Bird Rule." The 1986 Migratory Bird Rule stated that Section 404 of the CWA extended to intrastate waters that provide habitat for:

- Birds protected by migratory treaties
- Other migratory birds that cross state lines
- Endangered species

Intrastate waters used to irrigate crops sold in interstate commerce also were included. As a result of the court decision, many isolated wetlands (not connected or adjacent to other jurisdictional waters of the U.S.), which previously fell under USACE authority, are now unregulated for Section 404 purposes.

On June 5, 2007, the EPA and USACE issued a joint guidance memorandum that further refined "jurisdiction over waters of the United States under the Clean Water Act" (33 U.S.C. § 1251 *et seq*) (EPA and USACE, 2007a). This memorandum implements the Supreme Court's decision in the consolidated cases of *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208-2006) (EPA and USACE, 2007a). In addition, the procedures included in this memorandum replace the coordination procedures contained in the January 2003 EPA/USACE guidance implementing the Solid Waste Agency of Northern Cook County (aka SWANCC) decision (but leaves the remainder of that guidance unaffected) (EPA and USACE, 2007b). Further, this memorandum does not nullify or supersede the 1990 Geographic Jurisdiction Memorandum of Agreement, including its special-case provisions (EPA and USACE, 2007b).

In April 2014, the EPA and USACE issued a proposed rule to further clarify protection of streams and wetlands under the CWA following *Rapanos* and *SWANCC*. If adopted as proposed, the rule would expand the agencies' geographic scope of jurisdiction under Section 404 of the CWA compared to current regulation. Primary changes in the proposed rule include:

- (1) Designating most intermittent and ephemeral drainages as waters of the U.S.
- (2) Designating wetlands near tributaries as waters of the U.S.
- (3) Allowing subsurface connectivity to demonstrate jurisdiction
- (4) Establishing that lack of an OHWM is not sufficient to isolate upgradient wetlands
- (5) Proposing a case-specific approach to determining significant nexus of waters of the U.S.

The agencies accepted public comment on the proposed rule until November 14, 2014.

For delineation of other waters of the U.S. (non-wetland waters), the lateral extent of jurisdiction is determined by the OHWM. In Regulatory Guidance Letter (RGL) Number 05-05, the USACE defines the OHWM as:

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.

METHODS

A delineation of wetlands and other waters of the U.S. was performed by Atkins scientists on April 28 and 29, 2015. The wetland delineation was conducted in accordance with the *1987 USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987) and *2010 Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region (Version 2.0)* (USACE, 2010). In the field, wetland boundaries were demarcated with sequentially numbered flagging, and wetland boundaries were mapped using a resource grade Trimble GeoXH global positioning system (GPS) unit. The GPS data were differentially corrected using GPS Pathfinder Office software and mapped using ESRI ArcGIS 10.2 software. Wetland and upland areas were investigated for the presence of wetland hydrology, hydrophytic vegetation, and hydric soils. Non-wetland waters were investigated for the presence of an OHWM.

Vegetation was assessed at each wetland and upland sample point. The wetland indicator status of vegetation was derived from the *Great Plains 2014 Regional Wetland Plant List* (Lichvar, 2014). Plants observed were identified using *Field Guide to Colorado's Wetland Plants* (Culver, 2013), *Common Wetland Plants of Colorado's Eastern Plains: A Pocket Guide* (Culver, 2014), *Flora of North America* (<http://www.efloras.org>), and the USDA PLANTS database (<http://plants.usda.gov>). Nomenclature follows that of the PLANTS Database (USDA-NRCS, 2014). Vegetation cover with greater than 50 percent of the dominant plant species that have an indicator status of obligate (OBL), facultative wet (FACW), and/or facultative (FAC), qualifies as hydrophytic. Vegetation cover with 50 percent or greater of the dominant plant species classified as upland (UPL) and/or facultative upland (FACU) is considered as upland.

At each upland and wetland sample point, soil pits were excavated to assess for hydric soil conditions. Wetlands must meet the qualifications of at least one hydric soil indicator, or meet the Natural Resources Conservation Service (NRCS) definition of a hydric soil. This definition states that a hydric soil formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper soil profile (Federal Register, 1994). The soil pits were evaluated by using a Munsell Soil Color Chart and by physical characteristics.

At each upland and wetland sample point, surface and subsurface hydrology observations were recorded in the field. There are 19 primary hydrology indicators and nine secondary hydrology indicators on the USACE Wetland Determination Form (USACE, 2010). Wetland hydrology is met when at least one primary or two secondary indicators are observed at the site. Vegetation, soils, and hydrology data at both upland and wetland sites were recorded onto USACE Wetland Determination Data Forms (attached). Representative photos of each wetland also were collected (available upon request).

In addition, each wetland was classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). Cowardin classifications include herbaceous palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), unconsolidated bed (UB, typically a soil or

unconsolidated rock channel bed), rock bed (RB, generally comprised of solid rock), and aquatic bed (AB, submerged or aquatic vegetation).

WETLANDS

The delineation resulted in the identification of two wetlands (GA and GB) totaling approximately 0.90 acre (39,383 square feet). Wetland GA is approximately 0.017 acre (7,485 square feet), while wetland GB is approximately 0.073 acre (31,898 square feet).

Both wetlands are located within Franceville Tributary. At Drennan Road, Franceville Tributary has been diverted from its historic path to drain into Corral Tributary. Any flow that is not diverted must pass south over Drennan Road (no culvert was identified) and across a broad, unconfined floodplain with no defined channel. Approximately 1,500 feet south of Drennan Road, surface flows may outfall into Franceville Tributary, which begins with moderately sloped banks and wide-reaching swales. As the drainage drops in elevation, the drainage narrows and the slopes become steeper, forming semi-eroded banks. A defined channel with OHWM was not observed within Franceville Tributary, but several groundwater seeps occur and are the water source for wetlands present within the drainage.

Wetland GA is located within Franceville Tributary near the southern site boundary where groundwater discharges from a headcut spanning the entire width of the drainage. The water collects in an unvegetated, open water basin, and overflows into Wetland GA. Wetland GA is a narrow, linear wetland composed of herbaceous species, including needle spikerush and narrowleaf cattail. Livestock footprints and trails were observed throughout Wetland GA and have reduced wetland vegetation recruitment in some areas. Upland vegetation surrounding the wetland included common cocklebur, wild rose, blue grama, and prickly pear. Narrowleaf cottonwoods and Russian olive grow along both banks of the drainage.

Wetland GB also is fed by a groundwater seep located at the northern end of the wetland boundary. Wetland GB is characterized by needle spikerush, Kentucky bluegrass, and common three-square. Sandbar willow grows along the edge of the wetland boundary and extends along the banks into more upland areas. Upland vegetation in the vicinity of the wetland is comprised primarily of snowberry, wild rose, smooth brome, and sandbar willow along the boundary of upland and wetland. Peachleaf willow and narrowleaf cottonwoods grow along the northern bank of the drainage.

The hydric soil indicator for wetlands GA and GB were loamy gleyed matrix (Indicator F2). Indicator F2 is described as comprising a gleyed matrix that makes up 60 percent or more of a layer within 12 inches of the surface. Surface water (Indicator A1) was present at both wetlands GA and GB. Additional secondary hydrological indicators were noted at one or both wetlands in the form of soil saturation, salt crust, and algal mat or crust. Wetlands GA and GB are both classified as PEM wetlands by Cowardin due to the dominance of erect, rooted, herbaceous vegetation.

OTHER WATERS OF THE U.S.

In addition to wetlands, other waters of the U.S. were identified on the site, including Corral Tributary and two non-vegetated surface waters located in the Franceville Tributary.

Corral Tributary is an ephemeral, non-relatively permanent water (RPW) that flows southwest through the site for approximately 4,160 feet. Corral Tributary exhibits a low-flow channel that meanders within a broader active floodplain. Corral Tributary is characterized by a low slope, with bed and floodplain composed entirely of sand. No water was observed within the channel during the site visit, but evidence of episodic flows were observed in the form of debris deposits and eroding banks. The east bank of Corral Tributary showed signs of significant stability issues. In some areas, vertical cut banks exceed 30 feet in height. The thalweg of this tributary was not well defined. Currently, the thalweg flows along the base of some of the vertical cut banks. Continued bank erosion is expected along the east channel bank if stabilization actions are not taken.

An OHWM was identified within Corral Tributary, generally following the outer limits of the active channel. In some areas, the OHWM was extended beyond the active channel because physical indicators such as destruction of terrestrial vegetation, debris/wrack lines, scour/deposition, and split flows suggest that the active channel has a tendency to laterally migrate within the floodplain. At these locations, the limits of both

the OHWM and active channel were delineated. Floodplain modeling in Corral Tributary may be used to further refine the OHWM in subsequent phases of the project.

Two open-water features were identified in association with wetlands within the Franceville Tributary. Both of the open-water features are formed from groundwater that seeps from headcuts, but neither exhibits wetland characteristics (i.e., lacked wetland vegetation). At the time of field investigations, water was approximately two to three feet deep, and measured approximately 0.015 acre and 0.009 acre each at the outside edge of water.

FUTURE ACTIONS

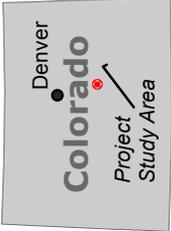
The delineation resulted in the identification of 0.90 acre (39,383 square feet) of wetlands, 0.024 acre (1,083 square feet) of open water, and 4,160 linear feet of Corral Tributary in the study area. During development of the Southern Colorado Veterans Cemetery Master Plan, direct impacts to wetlands and other waters of the U.S. would be avoided and/or minimized to the greatest extent practicable per the requirements of Section 404 of the CWA. Any impacts to jurisdictional areas that cannot be avoided and are greater than 0.1 acre but less than 0.5 acre may be permitted by the USACE under a Nationwide Permit (NWP). Compensatory mitigation may be required for unavoidable impacts to wetlands and other waters of the U.S. deemed jurisdictional by the USACE.

Bank stabilization along Corral Tributary is proposed for inclusion within the Southern Colorado Veterans Cemetery Master Plan. Conceptual alternatives to stabilize Corral Tributary may include a variety of treatments, some of which may require cuts or fills within the limits of CWA jurisdiction. Coordination with the USACE is required during development of bank stabilization treatments to determine jurisdictional status and subsequent permitting requirements. Bank stabilization may be authorized under both NWP 13 and NWP 27, and will be dependent on the extent and design of the selected treatments, as well as the limitations and general conditions of each permit. The Albuquerque District of the USACE holds regulatory permitting authority for this project from the Southern Colorado Branch Office (719-543-9459) in Pueblo, Colorado.

REFERENCES

- Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. U.S.D.I. Fish and Wildlife Services. Washington, D.C. [Cowardin et al., 1979]
- Environmental Protection Agency and U.S. Army Corps of Engineers (EPA/USACE). 2007. Clean Water Act Jurisdictional following the U.S. Supreme Court's decision in Rapanos v. United States & Carabell v. United States. Issued June 5, 2007. Washington, D.C. [EPA and USACE, 2007a]
- Environmental Protection Agency and U.S. Army Corps of Engineers (EPA/USACE). 2007. Memorandum for Director of Civil Works and U.S. EPA Regional Administrators. Washington, D.C. [EPA and USACE, 2007b]
- Culver, Denise R., Joanna M. Lemly. 2013. Colorado Natural Heritage Program and Colorado State University. *Field Guide to Colorado's Wetland Plants*. Vision Graphics, Inc. Loveland, CO. [Culver, 2013]
- Culver, Denise R. 2014. Colorado Natural Heritage Program and Colorado State University. *Common Wetland Plants of Colorado's Eastern Plains: A Pocket Guide*. Frederic Printing, Aurora, CO. [Culver, 2014]
- Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *Great Plains 2014 Regional Wetland Plant List*. Phytoneuron 2014-41: 1-42. [Lichvar, 2014]
- Natural Resources Conservation Service, United States Department of Agriculture. 2015. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed January 16, 2015. [USDA-NRCS, 2014]

U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERCD/EL TR-10-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center. [USACE, 2010]

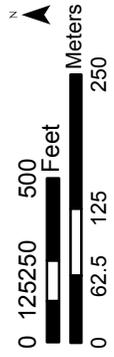


ATKINS

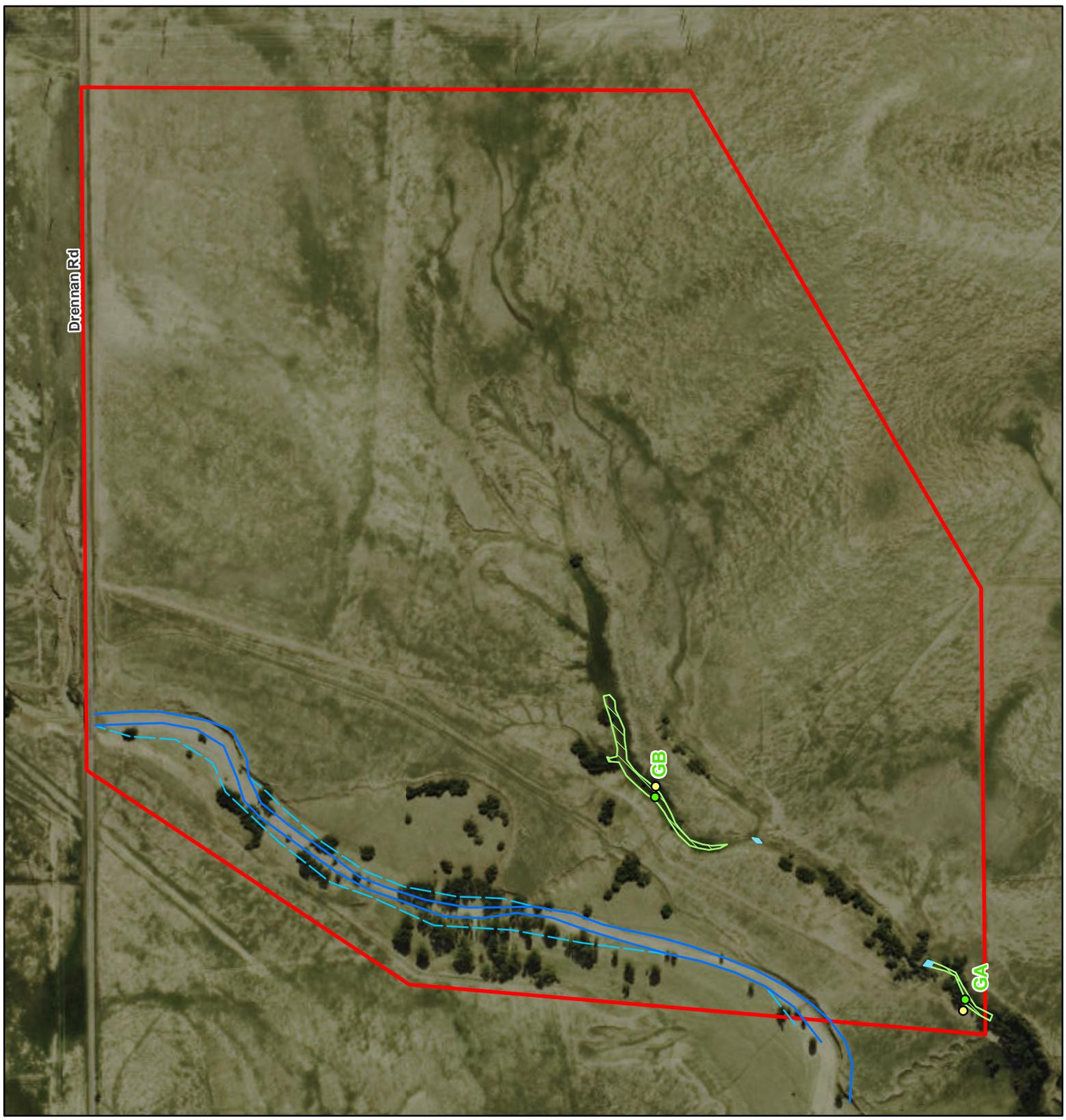
**Southern Colorado
National Cemetery**
Waters of the U.S.

Corral Tributary

- Active Channel
- Boundary
- OHWM
- Upland USACE Dataform
- Wetland USACE Dataform
- Wetland
- Open Water
- Project Study Area



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Drennan Rd

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: VA Southern Colorado Cemetery City/County: Colorado Springs, El Paso County Sampling Date: 4/28/2015
 Applicant/Owner: Veterans Affairs State: CO Sampling Point: GA (wetland)
 Investigator(s): M. Gloden and H. Darrow Section, Township, Range: S2, T15S, R65W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3%
 Subregion (LRR): G Lat: 3846.219 Long: -10438.582 Datum: Nad 83
 Soil Map Unit Name: Manzanola clay loam, 1-3% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>10x 10 ft</u>)				
1. <u>Narrowleaf cattail (<i>Typha angustifolia</i>)</u>	<u>15</u>	<u>N</u>	<u>OBL</u>	
2. <u>Broadleaved pepperweed (<i>Lepidium latifolium</i>)</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Common threesquare (<i>Shoenoplectus pungens</i>)</u>	<u>25</u>	<u>N</u>	<u>OBL</u>	
4. <u>Needle spikerush (<i>Eleocharis acicularis</i>)</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>55</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>45</u> <u>95</u> = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 2 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 45 x 1 = 45
 FACW species 10 x 2 = 20
 FAC species _____ x 3 = _____
 FACU species _____ x 4 = _____
 UPL species _____ x 5 = _____
 Column Totals: 55 (A) 65 (B)
 Prevalence Index = B/A = 1.18

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: GA (wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 4/2	100					sandy clay	
3-8	Gley 1 2.5 N	70	10YR 4/2	30	C		sandy clay	
8-12	Gley 1 2.5 N	100					sandy clay	
							sandy clay	

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Restrictive Layer (if observed):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>3"</u> Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>surface</u>	

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: VA Southern Colorado Cemetery City/County: Colorado Springs, El Paso County Sampling Date: 4/28/2015
 Applicant/Owner: Veterans Affairs State: CO Sampling Point: GA (upland)
 Investigator(s): M. Gloden and H. Darrow Section, Township, Range: S2, T15S, R65W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3%
 Subregion (LRR): G Lat: 3846.22 Long: -10438.592 Datum: Nad 83
 Soil Map Unit Name: Manzanola clay loam, 1-3% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N Soil N, or Hydrology N 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 _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>10x10 ft</u>)				
1. <u>Prickly pear spp. (Opuntia spp.)</u>	15	N	UPL	
2. <u>Nootka rose (Rosa nutkana)</u>	30	Y	FACU	
3. <u>Blue grama (Bouteloua gracilis)</u>	45	Y	UPL	
4. <u>Common cocklebur (Xanthium pennsylvanicum)</u>	5	N	UPL	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
95 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. <u>None</u>				
2. _____				
% Bare Ground in Herb Stratum <u>20</u> _____ = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 0 (A)
 Total Number of Dominant Species Across All Strata: 0 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: VA Southern Colorado Cemetery City/County: Colorado Springs, El Paso County Sampling Date: 4/29/2015
 Applicant/Owner: Veterans Affairs State: CO Sampling Point: GB (wetland)
 Investigator(s): M. Gloden and H. Darrow Section, Township, Range: S2, T15S, R65W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3%
 Subregion (LRR): G Lat: 3846.445 Long: -10438.389 Datum: Nad 83
 Soil Map Unit Name: Manzanola clay loam, 1-3% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N Soil N, or Hydrology N 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. None _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10x10 ft</u>)				
1. <u>Sandbar willow (<i>Salix exigua</i>)</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>10x10 ft</u>)				
1. <u>Kentucky bluegrass (<i>Poa pratensis</i>)</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
2. <u>Common threesquare (<i>Shoenoplectus pungens</i>)</u>	<u>15</u>	<u>N</u>	<u>OBL</u>	
3. <u>Needle spikerush (<i>Eleocharis acicularis</i>)</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. None _____				
2. _____				
% Bare Ground in Herb Stratum <u>30</u>				_____ = Total Cover
Remarks: (Include photo numbers here or on a separate sheet.)				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC (excluding 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:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

SOIL

Sampling Point: GB wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3"	10YR 4/2	100					Silty clay	
3-12	Gley 2 2/5 N	100					Silty clay	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators:						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16)			<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRRH outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
Restrictive Layer (if observed):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations:		
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>3"</u>		
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____		
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>surface</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: VA Southern Colorado Cemetery City/County: Colorado Springs, El Paso County Sampling Date: 4/29/2015
 Applicant/Owner: Veterans Affairs State: CO Sampling Point: GB (upland)
 Investigator(s): M. Gloden and H. Darrow Section, Township, Range: S2, T15S, R65W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3%
 Subregion (LRR): G Lat: 3846.445 Long: -10438.379 Datum: Nad 83
 Soil Map Unit Name: Manzanola clay loam, 1-3% slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation N Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation N Soil N, or Hydrology N 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 _____ No <u>x</u> Hydric Soil Present? Yes _____ No <u>x</u> Wetland Hydrology Present? Yes _____ No <u>x</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>x</u>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. None _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10x10 ft</u>)				
1. <u>Sandbar willow (<i>Salix exigua</i>)</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>10</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>10x10 ft</u>)				
1. <u>Western snowberry (<i>Symphoricarpos occidentalis</i>)</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Nootka rose (<i>Rosa nutkana</i>)</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	
3. <u>Smooth brome (<i>Bromus inermis</i>)</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>85</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. <u>None</u>				
2. _____				
% Bare Ground in Herb Stratum <u>20</u>				
<u>105</u> = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)
 Total Number of Dominant Species Across All Strata: _____ (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (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:
 ___ Dominance Test is >50%
 ___ Prevalence Index is ≤3.0¹
 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: GB (upland) _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12"	7.5YR 3/4	90					sandy-clay-loam	
0-12"	7.5YR 3/4	10					sandy-clay-loam	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators:						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Dark Surface (S7) (LRR G)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> High Plains Depressions (F16)		
<input type="checkbox"/> Stratified Layers (A5) (LRR F)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			(LRRH outside of MLRA 72 & 73)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Reduced Vertic (F18)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)			<input type="checkbox"/> High Plains Depressions (F16)	(MLRA 72 & 73 of LRR H)				
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)								
Restrictive Layer (if observed):								
Type: _____								
Depth (inches): _____								
Remarks:						Hydric Soil Present? Yes _____ No <u> x </u>		

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations:		
Surface Water Present? Yes _____ No _____	Depth (inches): _____	
Water Table Present? Yes _____ No _____	Depth (inches): _____	
Saturation Present? Yes _____ No _____	Depth (inches): _____	
(includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <u> x </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		