

CONSULTANTS

ENGINEERING, SURVEYING & PLANNING LANDSCAPE ARCHITECTURE, GIS NATURAL RESOURCE SERVICES



JC RANCHES SUB-DIVISION 2023 AQUATIC RESOURCE INVENTORY

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EXECUTIVE SUMMARY

A routine Aquatic Resource Inventory (ARI) was conducted on JC Ranches Subdivision in Teton County, Idaho on June 1, 2022 (Appendix A – Figure 1). The study area consisted of the 80-acre parcel, efforts were focused where irrigation influences cross through the property as an irrigation ditch, and water-holding areas along the lower topography. The inventory and delineation were conducted on the 80-acre area by wetland scientist staff for Y2 Consultants, Danielle Goodman, at the request of the new property owners (the "Client").

The purpose of the study was to determine if any wetlands, as per wetland definitions in the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987), occurred within the study area; and if present, to determine the locations and boundaries of all wetlands within the study area.

The ARI provides the USACE the necessary information to make a final determination of wetland presence, boundaries, and jurisdiction as per their responsibility under Section 404 of the Federal Clean Water Act.

WETLANDS

DEFINITION OF A WETLAND & WETLAND PROTECTION

Wetlands, according to the USACE under the Clean Water Act, are defined as 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 (Environmental Laboratory, 1987).

Topographically, wetlands are transitional areas between well-drained uplands and permanently or periodically flooded aquatic habitats. Wetlands serve important ecosystem functions. Such ecological functions include food chain production, unique habitat, nesting and spawning sites, and rearing and resting landscapes for aquatic and land species. They also provide function through protection of adjacent areas from erosion, storage for storm and flood waters, natural recharge where ground and surface water are interconnected, and natural water filtration and purification functions.

WETLAND PROTECTION

Given that wetlands provide beneficial services considered valuable—as a result of their inherent and unique ecological characteristics—and because of the tremendous threats to existing wetland resources, the federal government included wetland protections when it enacted the Clean Water Act in 1972. The Act, specifically Section 404, grants protection to "Waters of the United States, including wetlands" and prohibits activities that convert wetlands to upland or open water environments. This protection is given to aquatic habitats that meet the definitional criteria of a wetland and are determined to be 'jurisdictional' by the USACE. Depending on the purpose of a project and the characteristics of a specific wetland, some impacts may be allowed, but only after project evaluation and permit issuance by the USACE and other local agencies.

Other federal agencies are also involved in regulations associated with Section 404 of the Clean Water Act. The U.S. Fish and Wildlife Service (USFWS) reviews wetland permit applications to evaluate any potential impacts a

project may have on species listed as threatened or endangered under the Endangered Species Act. The U.S. Environmental Protection Agency (EPA) also reviews all permit applications submitted to the USACE and holds the legal authority to enforce wetland regulations.

Teton County, Idaho has further enacted wetland protection measures. The Teton County Title 8 Zoning Regulations require development occur within 'upland' areas, where able, when "jurisdictional" wetlands are present (Teton County ID, 2009).

DETERMINATION AND DELINEATION

Site-specific wetland identification and delineation requires the evaluation of three wetland parameters: vegetation, soils, and hydrology. All three parameters must meet the specific definitional criteria described in the USACE Wetland Delineation Manual (Environmental Laboratory, 1987).

WETLAND VEGETATION & INDICATORS

To meet wetland vegetation criteria, an area must be dominated by plants adapted for survival in saturated soil conditions (i.e., hydrophytes). All plants known to occur in or near wetlands have been assigned a wetland indicator status. This status generally reflects the frequency at which a particular species occurs in a wetland as outlined below:

<u>Wetland indicator status</u>	Frequency of occurrence in a wetland
Upland (UPL)	< 1%
Facultative-upland (FACU)	1%-33%
Facultative (FAC)	33%-67%
Facultative-wetland (FACW)	67%-99%
Obligate wetland (OBL)	99%-100%

WETLAND SOILS & INDICATORS

A wetland or hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper horizons. Hydric soil characteristics develop over long periods of time. Indicators of hydric soils include such characteristics as a dull blue-gray color (gleyed) and/or reddish-brown speckles or nodules (ferrous iron concentrations). To meet definitional criteria, these hydric soil indicators must be at or near the soil surface (Environmental Laboratory, 1987).

WETLAND HYDROLOGY & INDICATORS

Wetland hydrology refers to the presence of water at or above the soil surface for a sufficient period of the year to significantly influence the plant types and soils that occur in the area. An area is required to be inundated or saturated to the surface for at least 5% of the growing season in most years (Environmental Laboratory, 1987). Both running water (lotic) and standing water (lentic) as well as ground water, surface water, and intermittent water can support wetlands. Lotic wetlands are associated with creek, stream, and river channels and floodplains, while lentic wetlands are associated with lakes, vernal pools, ponds, seeps, marshes, and bogs.

Although both definitional and jurisdictional wetlands meet specific vegetative, soil, and hydrologic criteria, the latter are wetlands determined by USACE personnel as subject to the regulations inherent in Section 404 of the Clean Water Act. Determination of a definitional wetland is a technical process, while determination of a

jurisdictional wetland is a decision based on an examination of the driving forces, current conditions, and relationship of a definitional wetland in relation to its surroundings.

JC RANCHES SUBDIVISION STUDY AREA

LOCATION AND PHYSIOGRAPHY

The ARI inventory consisted of the entire 80-acre property, owned by JD ID WY LLC. The study area spanned the property while focusing on the irrigation ditch and associated areas. The study area included the irrigation ditch that crosses the property at an angle, depressional areas along the central portions of the property that collect and hold irrigation water, and the associated uplands.

The property is located approximately 4.5 miles north of Driggs, Idaho. Current access to the property is gained by driving north on Highway 33 approximately 4 miles, then west onto W 4000 N for about 0.3 miles. The site is located south of W 4000 N in a portion of Section 10, T5N, R45E, Teton County, Idaho.

The study property has an approximate average elevation of 6,100 ft. and is characterized by relatively flat to rolling terrain formed during the deposition of gravel throughout the Teton Valley approximately 60-80 million years ago by major ancestral watercourses coming from the Teton River. Melting glaciers and the accompanying scouring effects of runoff leveled the valley and deposited silt, clay, and loams throughout the region. The surface aspect of the property is nearly flat with slight undulation in topography.

LAND USE

The study area is currently undeveloped and has been used for agriculture. The area is slated to be developed into a subdivision.

SURFACE HYDROLOGY

The property is located in the Hydrologic Unit Code (HUC) 170402 – Upper Snake River Basin. The subject property contains seasonal surface water in the form of an irrigation ditch. Some surface water may accumulate as overland flooding during the irrigation season, generally from late May or early June to late August. Water is fed onto the property from the Leigh Creek Canal, a diversion of Hog Canal, and from irrigation ditches on the bordering properties to the east through lateral ditch lines (Appendix A – Figure 2 and Appendix A – Figure 3).

The subject property does not contain other natural springs or wetlands. Drainage off the property is through the low areas and drainage ways present. The study area is not located within any of the FEMA Flood Zones.

STUDY AREA SOILS

The dominant soil type for this property is the Alpine – St. Anthony complex, 0 to 2 percent slopes (Appendix A – Figure 4). This is the dominant soil type within the wetland areas. This soil type is characterized with slopes of 0 to 3 percent, well-drained with a moderately high capacity to transmit water, and has an average depth to the

seasonal high water table of greater than 72 inches. Other soils present on site are the Redfish- Foxcreek and the Feltonia-Arimo complexes. Soil characteristics for each sample plot can be found in the data sheets in Appendix C.

STUDY AREA VEGETATION COVERTYPES

The majority of the upland communities within the study area are dominated by smooth brome (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis*) with assorted upland forbs in the understory. There is no overstory present.

Dominant plant species on the more hydric sites include Nebraska sedge (*Carex nebrascensis*), tufted hairgrass (*Deschampsia cespitosa*), and meadow foxtail (*Alopecurus pratensis*), in addition to other FACW and FAC forbs and grasses in lower frequency. There are no trees or shrubs present on the site.

CLIMATE

The 'growing season' for Driggs (NCDC DRIGGS Station 102676-0) according to the United States Department of Agriculture (USDA) WETS table is approximately 100 days. The average high temperature annually is 54°F and the average low is 26°F, and the average precipitation is 16 inches.

PRIOR DELINEATIONS

There are no known prior wetland delineations on the study area.

WETLAND DELINEATION

METHODS

This ARI was completed according to the USACE Walla Walla District Regulatory Office Guidance for Aquatic Resource Delineation Reports public notice dated June 24th, 2019. The ARI included a routine wetland delineation using the 1987 USACE Wetland Delineation Manual and the Western Mountains, Valleys and Coast Regional Supplement.

Preliminary data for the wetland delineation were gathered from several sources prior to the onsite inspection including the USFWS's National Wetlands Inventory (NWI) mapping, the Teton County soil survey (Young, 1982), the Teton County Hydric Soils List (Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, 2017), the USACE 2016 National Wetland Plant List, version 3.24 (Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner, 2016) and aerial photography.

Onsite inspections occurred on June 1, 2022. Field data associated with the wetland delineation and boundary mapping were collected from four (4) sample plots distributed to represent the areas with different vegetative communities and that could have potential impacts within the proposed development to the property. Wetland boundaries were mapped using an EOS Arrow 100 submeter GPS. Wetland boundaries have been digitally mapped onto color, 2021, aerial photography using ArcGIS 10.5 and are included herein (Appendix A – Figure 6). The mapped wetland areas were along the center of the property following the depressional swale crossing the property near-perpendicular to the irrigation ditch. Irrigation was observed to have a large influence on the wetland areas that

were mapped. Photographic documentation of the sample plots on the property were also collected and are presented in Appendix B.

RESULTS

Mostly artificial (i.e., irrigation) conditions have influenced the creation, perpetuation, and development of wetlands within the study area. Existing proximate and adjacent land activities, which consist of livestock grazing, common agricultural practices, and residential development are at least 5 years old and are defined by the 1987 USACE Manual as "normal circumstances".

The NWI mapping indicated the presence of Freshwater Emergent wetlands habitat within the study area (Appendix A - Figure 5).

Field data collected during this study confirmed the presence of one wetland type within the inventory boundary, Freshwater Emergent. Subsequent delineation analysis and spatial mapping of wetland boundaries revealed that approximately 7.88-acres (10% of the study area) conformed to the definitional criteria for wetlands as per the 1987 USACE Manual and the Regional Supplement. Two (2) sample plots met all three wetland criteria (vegetation, soils, and hydrology) and were determined to be wetlands. Two (2) sample points met one or two of the three criteria and were determined to be upland. Wetland locations, wetland boundaries, and sample plots are depicted in Appendix A - Figure 6.

The field site investigation was performed during the late spring season (June), which indicates that groundwater and surface water elevations were higher compared to drier times of the year, as early June is typically high water runoff. However, the site is highly irrigation influenced and the irrigation water was in the process of being turned on for the season at the time of the visit. The site may expect to see increases in water later in the season as more irrigation ditches are turned on throughout the area. The irrigation ditches on and surrounding the property associated with the Teton River complex provide the hydrology for the site throughout the growing season. Water monitoring well installation was attempted in the summer of 2022 and no water was found when drilling. This is most likely due to the combination of the restrictive layer present in the soil units on site, and the water on site being irrigation fed via overland flow during the irrigation season.

1	1 1		, ,	1.
			Wetland	Wetland
Sample Point	Hydrophytes	Hydric Soils	Hydrology	Determination
SP01	No	No	Yes	No
SP02	Yes	Yes	Yes	Yes
SP03	No	Yes	Yes	No
SP04	Yes	Yes	Yes	Yes

Tabla	1 Cump magnet	مد المعالية المعالية الم	مفعام مامعم	امم ما بد مع المم	auitauia fau	IC Danahaa atu		Tatan Cauntu	ماماما
lable	T. Summary of	of individual	sample plots	and wetland	criteria for .	JC Ranches sti	udy area,	Teton County,	ldaho.

The following describes the vegetation, soils, and hydrology of these aquatic sites and adjacent uplands.

Vegetation – There is one wetland community type within the study area, freshwater emergent. Herbaceous vegetation within wetland sample plots were Nebraska sedge (*Carex nebrascensis*), tufted hairgrass (*Deschampsia cespitosa*), and meadow foxtail (*Alopecurus pratensis*). There was no shrub or tree community present.

Soils – The dominant soil type for the property is the Alpine- St. Anthony complex. Soil surveys are a predictive tool and are not an accurate map of occurrence, hence field surveys were conducted at all sample plots. Hydric indicators for soils found that definitional wetlands exhibited a sandy redox (S5). Soil characteristics associated with sample plots are presented on the respective data sheets which can be found in Appendix C.

Hydrology – Study area freshwater emergent wetlands are located in low seep areas along the depressional topography across the property. The hydrologic regime of delineated wetlands appears to be seasonally flooded (surface water present for several months during the growing season). The wetland hydrology indicators found in the wetland sample plots are surface water (A1), oxidized rhizospheres on living roots (C3), drainage patterns (B10), and FAC-Neutral test (D3). Hydrologic indicators associated with the sample plots are presented on the respective data sheets in Appendix C.

DESCRIPTIONS OF STUDY AREA AQUATIC RESOURCES

For the purposes of this report, aquatic resources in the study area have been lumped into two general groups. The wetland classification within this group is based off the system most commonly used today in the U.S., "The Classification of Wetlands and Deepwater Habitats of the United States" by Cowardin et al., 1979. Within this system, wetlands are classified primarily on geologic and hydrologic considerations, with vegetation life form or substrate type used as a class modifier.

The two types of wetlands are Palustrine Scrub-Shrub (NWI classification of Freshwater Forested/Shrub) and Palustrine Emergent (NWI classification of Freshwater Emergent). Only the Palustrine Emergent was found on the property. Palustrine refers to wetlands that are not tidal. In addition, Leigh Creek Canal, classified as riverine by the National Wetland Inventory, is a large man-mad irrigation conveyance that supplies water across the property.

Palustrine Emergent – Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytic plants, excluding mosses and lichens (Cowardin, 1979). According to the standard definition, wetland vegetation must be present for most of the growing season in most years and is usually dominated by perennial plants. Palustrine emergent wetlands may exist in a variety of geomorphic settings and water regimes, both of which strongly influence plant species composition. Palustrine emergent wetlands within the study area make up 7.88 acres. These areas occur in depressional areas that collect surface runoff and have a high water table. These areas occurred mostly within the ditch areas and in the depressional areas of the property that were determined to have wetland characteristics (Appendix A – Figure 6).

Palustrine Scrub-Shrub – This class of wetlands is characterized by woody vegetation less than 6 m (20 feet) tall, including true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions (Cowardin, 1979). Palustrine scrub-shrub wetlands most often occur in depressional areas. Palustrine scrub-shrub wetlands within the study area make up 0.0-acres.

Leigh Creek Canal – This aquatic resource is classified as riverine in the National Wetland Inventory. It runs from the near center northern border of the property to the southwest corner of the parcel. On site investigation did not identify wetlands associated with the Leigh Creek Canal along the majority of its banks on the property. Emergent wetlands were identified in the low topographical areas along the center of the property. Wetlands do border the canal in this area. These wetlands appear to be fed by multiple irrigation points. Leigh Creek Canal spans 2,050 linear feet on the property.

A listing of aquatic features by aquatic resource type and a discussion of specific characteristics of the groupings is provided below.

Table 2. Summary of aquatic resource type, Cowardian classification, acreages and associated notes and sample points, JC Ranches, Teton County, Idaho.

Aquatic Resource Type	Cowardian Classification	Associated Sample Points	Notes	Linear Feet	Acres
Palustrine Emergent Wetland	PEM1	SPO2, SPO4	Located in depositional areas of Lake Creek.	-	7.88
Palustrine Scrub-Shrub Wetland	PSS1			-	0
Leigh Creek Canal	R5UBFx	SP01, SP03	Runs diagonally through the center of the property.	2,050	-
			total of Aquatic Features	2,050 linear feet	7.88 acres

SUMMARY AND CONCLUSIONS

A routine ARI was conducted on the 80-acre study area at the JC Ranches property on W 4000 N in Teton County, Idaho on June 1, 2022, focusing on the areas surrounding irrigation features and mapped hydric soils. Field data collected from four (4) sample plots indicated that approximately 7.88-acres of the study area conformed to the definitional criteria for wetlands as per the USACE Wetland Delineation Manual. Wetlands were classified as palustrine emergent (7.88 acres). In addition, 2,050 linear feet of canal are present on the property.

REGULATORY REQUIREMENTS

Pursuant to the approval by the USACE of the said mapping and delineation, on-site wetlands may constrain the development potential within the study area. Any development plans must address impacts to the wetlands and waterways, and permits will be required to fill or modify wetlands or other Waters of the United States. Teton County, Idaho, further requires a wetland disturbance approval process via their Title B Zoning regulations for areas mapped as jurisdictional wetlands by the USACE or defined as wetlands by the Clean Water Act(Teton County, ID, 2009). Both permitting agencies require that a wetland fill permit applicant demonstrate that wetlands have been avoided or impacts minimized to the maximum extent practicable, and mitigation may be required in accordance with the quantity and type of wetland disturbance.

WORKS CITED

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- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. (2017). *Web Soil Survey*. Retrieved from http://websoilsurvey.nrcs.usda.gov/

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APPENDIX A – FIGURES



Appendix A - Figure 1. Vicinity Map, JC Ranches Subdivision, Teton County, Idaho.



Appendix A - Figure 2. National Hydrology Dataset, JC Ranches Subdivision, Teton County, Idaho.



Appendix A - Figure 3. Soil map units and Descriptions, JC Ranches Subdivision, Teton County, ID.



Appendix A - Figure 4. National Wetlands Inventory, JC Ranches Subdivision, Teton County, ID.



Appendix A - Figure 5. Observed wetlands and Aquatic Resources with sample points, JC Ranches Subdivision, Teton County, ID.

APPENDIX B – SAMPLE PLOT PHOTOS

SAMPLE POINT 01



Photo 1. SP01 hydrology, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 2. SP01 vegetation, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 3. SP01 soil pit, JC Ranches Subdivision, Teton County, ID, June 1, 2022.

SAMPLE POINT 02



Photo 4. SP02 hydrology, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 5. SP02 vegetation, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 6. SP02 soil pit, JC Ranches Subdivision, Teton County, ID, June 1, 2022.

SAMPLE POINT 03



Photo 1. SP03 hydrology, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 2. SP03 vegetation, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 9. SP03 soil pit, JC Ranches Subdivision, Teton County, ID, June 1, 2022.

SAMPLE POINT 04



Photo 10. SP04 hydrology, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 11. SP04 vegetation, JC Ranches Subdivision, Teton County, ID, June 1, 2022.



Photo 12. SP02 soil pit, JC Ranches Subdivision, Teton County, ID, June 1, 2022.

APPENDIX C – DATA FORMS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 21109 - Herbert	City/County: Tet	tonia/Teton		Sampling Date: 6/1/2022
Applicant/Owner: JD ID WY LLC		State:	ID s	Sampling Point: <u>SP 01</u>
Investigator(s): D. Goodman, N. Buchanan	Section, Township	p, Range: <u>Sec</u>	10 T5N R4	5E
Landform (hillslope, terrace, etc.): Plain	Local relief (conca	ave, convex, none)	<u>convex</u>	Slope (°): <u>1%</u>
Subregion (LRR): E - RM Region Lat: 43	.53184	Long: <u>-11(</u>	0.83664	Datum: WGS84
Soil Map Unit Name: Feltonia - Arimo Complex, 0-2% slope		N	IWI classificat	ion: Riverine, R5UBFx
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🔶 I	No (If no,	explain in Rer	narks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed?	Are "Normal Circu	mstances" pre	esent? Yes 🔶 No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic?	(If needed, explain	any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing) sampling poi	int locations, t	ransects,	important features, etc.

Hydrophytic Vegetation Present?	Yes	No 🔶				
Hydric Soil Present?	Yes	No 🔶	Is the Sampled Area			
Wetland Hydrology Present?	Yes 🔶	No	within a Wetland?	Yes	No	
Remarks: Irrigation ditch bank. The irrigation water was turned on this morning (6/1). Surface water present during irrigation season,						
but the water primarily leaves site for irrigation down stream throughout the pasture. Multiple birds observed on site.						

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30 ft. radius)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1. NA - None				That Are OBL, FACW, or FAC: 0 (A)
2				Total Number of Deminent
3				Species Across All Strata: (B)
4.				
50% = 0 20% = 0	0 %	= Total Co	ver	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15 ft. radius)		<u> </u>		
1 None				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
2				OBL species 0 x 1 = 0
3				FACW species $5 \times 2 = 10$
4				EAC species $15 \times 3 = 45$
5				$\frac{1}{100}$
50% = 0 20% = 0	0 %	= Total Co	ver	FACU species 20 $x = 100$
Herb Stratum (Plot size: 5 ft. radius)				UPL species 50 x 5 = 250
1. Achillea millefolium	10		FACU	Column Totals: <u>95</u> (A) <u>405</u> (B)
2. <u>Taraxacum officinale</u>	15		FACU	Prevalence Index = $B/A = 4.26$
3. <u>Bromus inermis</u>	50	ves	UPL	Hydrophytic Vegetation Indicators:
4. Trifolium douglasii	5		FACW	1 - Rapid Test for Hydrophytic Vegetation
5. Poa pratensis	15		FAC	2 - Dominance Test is >50%
6				$2 - \frac{1}{2} - $
7				$_$ 3 - Prevalence index is ≤ 3.0
/				 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
8				5 - Wetland Non-Vascular Plants ¹
9				Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
50% = 50 $20% = 20$	100 %	= Total Co	ver	
<u>Woody Vine Stratum</u> (Plot size: <u>50 nt. radius</u>)				
1. <u>None</u>				Hydrophytic
2				Vegetation
50% = 0 20% = 0	0 %	= Total Co	ver	Present? Yes No
% Bare Ground in Herb Stratum <u>5</u> %				
Remarks:				
Irrigation ditch bank is upland vegetation dominated. Irrig	gation ditch is	s ~ 4 feet d	eep.	

SOIL

Profile Description: (Describe to the de	pth needed to docu	nent the i	ndicator	or confirm	the absence	e of indicators.)		
Depth <u>Matrix</u>	Redo	x Features	; 1	. 2	- .	- ·		
(inches) Color (moist) %	Color (moist)	%	Type	Loc		Remarks		
$\frac{0.4}{1000}$ $1000000000000000000000000000000000000$	None							
$\frac{4-13^{\circ}}{100} = \frac{1000}{100} = \frac{100}{100}$	None				SCL	Distinct horizon changes		
<u>13+" 10YR 5/3 100</u>	none				SCL			
Depth 25"						No cobble		
¹ Type: C=Concentration. D=Depletion	Texture: Si = S	Silty, $C = C$	lay, S = S	and, L = L	oam ² Lo	cation: PL=Pore Lining, M=Matrix.		
Hydric Soil Indicators: (Applicable to al	I LRRs, unless othe	rwise note	ed.)		Indicat	ors for Problematic Hydric Soils ³ :		
Histosol (A1)	Sandy Redox (S5)			2 c	m Muck (A10)		
Histic Epipedon (A2)	Stripped Matrix	(S6)			Re	d Parent Material (TF2)		
Black Histic (A3)	Loamy Mucky I	Mineral (F1) (except	MLRA 1)	Ver	ry Shallow Dark Surface (TF12)		
Hydrogen Sulfide (A4)	Loamy Gleyed	Matrix (F2))		Oth	ner (Explain in Remarks)		
Thick Dark Surface (A12)	Depleted Math	rface (F6)			³ Indicat	ors of hydrophytic vegetation and		
Sandy Mucky Mineral (S1)	Depleted Dark	Surface (F	7)		wetla	and hydrology must be present,		
Sandy Gleyed Matrix (S4)	Redox Depress	sions (F8)			unless disturbed or problematic.			
Restrictive Layer (if present):								
Туре: <u>NA</u>						•		
Depth (inches): <u>NA</u>					Hydric Soi	I Present? Yes No		
Remarks:	cobbles or gravel							
	cobbles of gravel.							
HYDROLOGY								
Wetland Hydrology Indicators:					0			
Primary Indicators (minimum of one require	ed; cneck all that appl	<u>y)</u>			<u>Seco</u>	Nature Otained Leaves (DO) (NL DA 4		
✓ Surrace Water (A1)	water-Sta		es (B9) (e: nd 4 P)	xcept	\	(Water-Stained Leaves (B9) (MLRA 1, 2,		
High Water Table (A2)	MILKA Solt Crust	1, 2 , 4A , a	na 4B)		▲ г	4A, and 4B)		
Water Marks (B1)		(DTT) vertehrates	s (B13)		<u> </u>	Dry-Season Water Table (C2)		
Sediment Deposits (B2)	Hvdrogen	Sulfide Od	or (C1)			Saturation Visible on Aerial Imagery (C9)		
Drift Deposits (B3)	Oxidized F	Rhizospher	es along	Living Roc	ots (C3)	Geomorphic Position (D2)		
Algal Mat or Crust (B4)	Presence	of Reduce	d Iron (C4	+)		Shallow Aquitard (D3)		
Iron Deposits (B5)	Recent Irc	n Reductio	on in Tilleo	d Soils (C6	5) F	FAC-Neutral Test (D5)		
Surface Soil Cracks (B6)	Stunted of	Stressed	Plants (D	1) (LRR A) <u> </u>	Raised Ant Mounds (D6) (LRR A)		
Inundation Visible on Aerial Imagery (Figure 1)	B7) Other (Ex	olain in Re	marks)		F	Frost-Heave Hummocks (D7)		
Sparsely Vegetated Concave Surface	(B8)							
Field Observations:	(B8)							
	(B8)	ches):		_				
	(B8) No Depth (in No Depth (in	ches): ches):		_		•		
Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	(B8) No Depth (in No _◆_ Depth (in No _◆_ Depth (in	ches): ches): ches):		Wetla	and Hydrolog	gy Present? Yes No		

Remarks:

Irrigation ditch is flowing seasonally - (turned on 6/1/22). Surface water is present seasonally, though it does not appear to reach the bank vegetation. Ditch is eroded with primarily unstable banks, Some stretches of the ditch have slumps vegetated.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 21109 - Herbert	City/County: Tetonia/Teton Sampling Date: 6/1/2022
Applicant/Owner: JD ID WY LLC	State: ID Sampling Point: <u>SP 02</u>
Investigator(s): D. Goodman, N. Buchanan	Section, Township, Range: Sec 10 T5N R45E
Landform (hillslope, terrace, etc.): Plain (Swale)	Local relief (concave, convex, none): <u>none</u> Slope (°): <u>0%</u>
Subregion (LRR): E - RM Region Lat: 43	0.77875 Long: -111.12965 Datum: WGS84
Soil Map Unit Name: Redfish Foxcreek Complex 0-2% slope	NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	/ disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.

Hydrophytic Vegetation P	resent? Yes	•	No				
Hydric Soil Present?	Yes	•	No	Is the Sampled Area		•	
Wetland Hydrology Prese	nt? Yes	•	No	within a Wetland?	Yes	•	No
Remarks: Site	s in a swale west of	irrigation	on ditch. Slight vegetat	ion hummocking around bunch	arasses	.Irrigatio	on fed site - irrigation turned

Remarks: Site is in a swale west of irrigation ditch. Slight vegetation hummocking around bunch grasses. Irrigation ted site - irrigation turned on for season 6/1/22. Grazed pasture - not yet grazed at visit.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30 ft. radius)	% Cover	Species?	Status	Number of Dominant Species
_{1.} NA - None				That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3			<u> </u>	Species Across All Strata: (B)
4.				
50% = 0 20% = 0	0 %	= Total Co	over	That Are OBL EACW or EAC 100 % (A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				
1. None				Prevalence Index worksneet:
2.				Total % Cover of: Multiply by:
3				OBL species <u>45</u> x 1 = <u>45</u>
۵ ۸			·	FACW species <u>49</u> x 2 = <u>98</u>
4				FAC species <u>3</u> x 3 = <u>9</u>
5				FACU species 3 x 4 = 12
50% = 0 $20% = 0$	0 %	= Total Co	over	UPL species $0 \times 5 = 0$
<u>reib Stratum</u> (Flot size. <u>5 n. radius</u>)	45	VAS	OBI	Column Totals: 100 (A) 164 (B)
	22	<u>,000</u>		
	_ <u>32</u>	<u>yes</u>		Prevalence Index = B/A =1.64
3. <u>Taraxacum officinale</u>		<u>no</u>	FACU	Hydrophytic Vegetation Indicators:
4. Rumex occidentalis	_ 2	no	FACW	1 - Rapid Test for Hydrophytic Vegetation
5. Calamagrostis canadensis	15	no	FACW	◆ 2 - Dominance Test is >50%
6. Phleum pratense	3		FAC	\bullet 3 - Prevalence Index is ≤3.0 ¹
7			<u> </u>	4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9.				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
50% = 50 20% = 20	100 %	- Total Ca		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30 ft. radius)	100 /0		ver	
1 None				Underschutig
2			. <u></u>	Vegetation
50% = 0 20% =0	0 0/	- Total Ca		Present? Yes • No
% Bare Ground in Herb Stratum 0 %	0 /0		ver	
Remarks:				1
Vegetation is dominated by carex & deschampsia in a s	wale. Calama	agrostis & c	deschampsia	a create slight hummocking.

SOIL

Profile Desc	ription: (Describe	to the de	pth needed to docun	nent the	indicator	or confirm	the absence	e of indicators.)
Depth (inches)	Matrix Color (moist)	0/2	Color (moist)	x Feature	Type ¹	1 oc^2	Toyturo	Pemarks
0-3"	7 5YR 2 5/2	100	None	/0	<u> </u>		SCI	Remarks
3-13"	7.5YR 3/3	95	5YR 4/6	5	C	M	SCL	small gravel
13-20"	7 5YR 3/3	97	7 5YR 4/4	3	<u> </u>	M	SCI	large gravel slight black mottle (1/%)
20"+	7.5YR 3/3	100	None	<u> </u>	<u> </u>		SCI	small cobble common
	7.011(0/0	100	None			·	001	
·			·			·		
				·		· <u> </u>		
						·		
¹ Type: C=Co	oncentration, D=Dep	letion	Texture: Si = S	ilty, $C = 0$	Clay, S = 3	Sand, $L = L$	oam ² Lo	cation: PL=Pore Lining, M=Matrix.
		able to al	A Sandy Podox (S	wise not	ied.)			m Muck (A10)
Histic Er	pipedon (A2)		Stripped Matrix	(S6)			2 0	d Parent Material (TF2)
Black Hi	stic (A3)		Loamy Mucky M	lineral (F	1) (excep	t MLRA 1)	Ver	ry Shallow Dark Surface (TF12)
Hydroge	n Sulfide (A4)		Loamy Gleyed I	Matrix (F	2)		Oth	ner (Explain in Remarks)
Depleted	Below Dark Surfac	e (A11)	Depleted Matrix	(F3)	、		3	
Thick Da Sandy M	ark Sufface (A12) lucky Mineral (S1)		Redox Dark Sui	face (F6 Surface () F7)		Indicate	ors of hydrophytic vegetation and
Sandy G	ileyed Matrix (S4)		Redox Depress	ions (F8)			unle	ss disturbed or problematic.
Restrictive I	ayer (if present):		_ <u></u>	. ,				•
Type: NA	A							
Depth (ind	ches): <u>NA</u>						Hydric Soi	l Present? Yes <u></u> No
Remarks:								
Roots are no	t quite oxidized but i	redox in th	ie matrix from 3-13" is	prevaler	nt.			
HYDROLO	GY							
Wetland Hyd	drology Indicators:							
Primary Indic	ators (minimum of c	one require	ed; check all that apply	y)			Seco	ondary Indicators (2 or more required)
Surface	Water (A1)		Water-Stai	ned Leav	/es (B9) (e	except	\	Water-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ter Table (A2)		MLRA	1, 2, 4A,	and 4B)		•	4A, and 4B)
Saturatio	on (A3)		Salt Crust	(B11)] <u>♦</u>	Drainage Patterns (B10)
Water M	arks (B1)		Aquatic In	/ertebrate	es (B13)		L	Dry-Season Water Table (C2)
Drift Der	(B2)			Suillue C	vuor (CT) eres along	Living Roo	(C3)	Seconorphic Position (D2)
Algal Ma	it or Crust (B4)		Presence of	of Reduc	ed Iron (C	4)	(00) <u>(</u>	Shallow Aquitard (D3)
Iron Dep	osits (B5)		Recent Iro	n Reduct	ion in Tille	d Soils (C6	5) 🔶 F	FAC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or	Stressed	d Plants (D)) (LRR A)) F	Raised Ant Mounds (D6) (LRR A)
Inundatio	on Visible on Aerial	Imagery (E	37) Other (Exp	lain in R	emarks)		F	Frost-Heave Hummocks (D7)
Sparsely	Vegetated Concave	e Surface	(B8)					
Field Observ	vations:							
Surface Wate	er Present? Y	'es	No <u></u> Depth (ind	ches):		_		
Water Table	Present? Y	′es	No <u></u> Depth (inc	ches):				•
Saturation Pr	resent? Y	′es	No 🔶 Depth (ind	ches):		Wetla	and Hydrolog	gy Present? Yes ▼ No
Describe Red	corded Data (stream	gauge, m	nonitoring well, aerial p	ohotos, p	revious in	spections),	if available:	
		-	- '					
Remarks:								

Site is in a drainage swale associated with the irrigation ditch. During the dry season the site is problematic and drainage/seep pattern is barely visible.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 21109 - Herbert	City/County: _	Tetonia/Teton		Sampling Date: 6/1/2022
Applicant/Owner: JD ID WY LLC		St	tate: ID	Sampling Point: <u>SP 03</u>
Investigator(s): D. Goodman, N. Buchanan	Section, Town	iship, Range:	Sec 10 T5N R	45E
Landform (hillslope, terrace, etc.): Plain	Local relief (c	oncave, convex, n	none): none	Slope (°): 0%
Subregion (LRR): E - RM Region Lat: 43	.77779	Long:	-111.13028	Datum: WGS84
Soil Map Unit Name: Alpine - St. Anthony Complex 0-2% slopes			NWI classific	cation: <u>n/a</u>
Are climatic / hydrologic conditions on the site typical for this time of ye	ear?Yes 🔶	No (If	f no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology significantly	v disturbed?	Are "Normal C	Circumstances"	oresent? Yes 🔶 No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic?	(If needed, ex	plain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	y sampling	point location	ns, transects	, important features, etc.

Hydrophytic Vegetation Present?	Yes	No 🔶			
Hydric Soil Present?	Yes 🔶	No	Is the Sampled Area		
Wetland Hydrology Present?	Yes 🔶	No	within a Wetland?	Yes	No
Remarks: Irrigation floo colors aren't bright, seasonal effects.	od overflow dur	ing peak seasons. T	he vegetation fails, does not	indicate a wetla	nd. Soil shows faint indicators,

VEGETATION – Use scientific names of plants.

	Absolute	Dominan	t Indicator	Dominance Test wo	rksheet:			
Tree Stratum (Plot size: 30 ft. radius)	<u>% Cover</u>	Species?	Status	Number of Dominant	Species		4	
1. NA - None				That Are OBL, FACW	, or FAC	: <u> </u>	I	(A)
2				Total Number of Dom	ninant			
3				Species Across All St	trata:		3	(B)
4				Demont of Dominant	Chaolog			
50% = 0 20% = 0	0 %	= Total Co	over	That Are OBL. FACW	Species /. or FAC:	333	3333%	(A/B)
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				Prevalence Index w	orksheet			()
1. None				Total % Cover of		- Mult	inly by:	
2					0	<u></u>	<u>ipiy by.</u> 0	_
3			<u> </u>		3	× I –	6	-
4				FACVV species	25	x 2 =	75	_
5.				FAC species	20	x 3 =	75	_
50% = 0 20% = 0	0 %	= Total Co	over	FACU species	32	x 4 =	128	_
Herb Stratum (Plot size: 5 ft. radius)				UPL species	35	x 5 =	175	_
1. <u>P</u> oa pratensis	15	yes	FAC	Column Totals:	95	(A)	384	(B)
2. Bromus inermis	35	yes	UPL	Prevalence Inde	PX = R/A		4.04	
3. Taraxacum officinale	12		FACU	Hydrophytic Vegeta	tion Indi		-	
4. Trifolium Douglasii	3		FACW	1 - Ranid Test fo	r Hydroph	outic Vec	etation	
5 Dactylis glomerata	20	ves	FACU		oct is SEC	19110 900	Jetation	
6 Alopecurus pratensis	10		FAC	2 - Dominance i		0 /0		
7				3 - Prevalence in		.U · 1.m		
۰			·	data in Rema	il Adaptati rks or on	ions' (Pr a separa	ovide sup	porting
8:				5 - Wetland Non-	-Vascular	Plants ¹		
9				Problematic Hydr	rophytic \		n ¹ (Evolai	n)
10				¹ Indicators of hydric a		eyelallo		ii)
				be present. unless di	sturbed o	r probler	natic.	nusi
30% = 50 $20% = 20$	100 %	= Total Co	ver					
<u>None</u> (Flot size: <u>com hadre</u>)								
				Hydrophytic				
2				Present?	′es	No	•	
50% = 0 20% = 0	0 %	= Total Co	ver			_		
Remarks:								
Vegetation is not hydrophilic.								

SOIL

Depth	Matrix		Re	dox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Туре	Loc ²	Texture	Remarks
0-3"	10YR 2/2	100	n/a				SC	
3-7"	10YR 3/2	97	10YR 5/4	3	D	Μ	SC	Depletion Mottling faint
7-17"	10YR 4/3	97	5YR 4/6	3	С	PL	SCL	Redox oxidized rhizopheres
17"+	10YR 5/3	100	None	both H	łź		SCL	Gravel increases with depth
Depth 25"								
		_						
	oncontration D-D		Texture: Si -	- Silty C -				
Hydric Soil	Indicators: (Appl	icable to a	I LRRs, unless oth	erwise no	ted.)	= 3anu, L =		ors for Problematic Hydric Soils ³ :
Histoso	l (A1)		Sandy Redox	(S5)	,		2 c	m Muck (A10)
Histic E	pipedon (A2)		Stripped Mat	rix (S6)			Re	d Parent Material (TF2)
Black H	istic (A3)		Loamy Muck	y Mineral (F	1) (exc	ept MLRA 1) Vei	ry Shallow Dark Surface (TF12)
Hydroge	en Sulfide (A4)		Loamy Gleye	d Matrix (F	2)		Oth	ner (Explain in Remarks)
Deplete	d Below Dark Surfa	ace (A11)	Depleted Mat	trix (F3)			2	
Thick D	ark Surface (A12)		Redox Dark S	Surface (F6	5) 		°Indicat	ors of hydrophytic vegetation and
Sandy I	Mucky Mineral (S1)		Depleted Dar	K Surface (F7)		wetla	and hydrology must be present,
Bestrictive	Jeyeu Malinx (54)			SSIONS (FO)		unie	ss disturbed of problematic.
Type N	A							
Denth (in	ches). NA						Hydric Soi	I Present? Yes 🔶 No
Deput (III							Tryune Sol	
HYDROLC	OGY							
Wetland Hy	drology Indicator	s:					_	
Primary Indi	cators (minimum of	f one require	ed; check all that ap	pply)			<u>Seco</u>	ondary Indicators (2 or more required)
Surface	Water (A1)		Water-S	tained Lea	ves (B9)	(except	\	Water-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ater Table (A2)		MLR	A 1, 2, 4A,	and 4B)	-	4A, and 4B)
	ion (A3) Aarka (D4)		Sait Cru	St (B11)	(D42)		I	Drainage Patterns (B10)
Vvater N	nt Doposito (P2)		Aquatic	Invertebrat	es (B13))	L	Dry-Season Water Table (C2)
Drift Do	no $(B3)$) na Livina Ro	`	Seconorphic Position (D2)
Algal M	at or Crust (B4)		Presence	e of Reduc	ed Iron	(C4)	.013 (00) (Shallow Aquitard (D3)
Iron De	posits (B5)		Recent	Iron Reduc	tion in T	illed Soils (C	6) F	FAC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted	or Stresse	d Plants	(D1) (LRR	•) <u> </u>	Raised Ant Mounds (D6) (LRR A)
Inundat	ion Visible on Aeria	I Imagery (I	B7) Other (E	Explain in R	emarks	()(, <u> </u>	Frost-Heave Hummocks (D7)
Sparsel	y Vegetated Conca	ive Surface	(B8)	·	,			(),
Field Obser	vations:		. ,					
Surface Wat	ter Present?	Yes 🔶	No Depth ((inches): S	easona	ally		
Water Table	Present?	Yes	No Depth ((inches):				
Saturation F	Present?	Yes	No 🔶 Depth ((inches):		Wet	land Hydrolog	gy Present? Yes 🔶 No
Describe Re	ecorded Data (strea	m gauge, n	nonitoring well, aeria	al photos, p	revious	inspections)	, if available:	
Remarks:								
Surface	later is present in	a nonding	a area where irrig	ation wate	ar overf	ows from t	he ditch (50)' west) site matches ponding
area/depr	ression.		g area where inly	anon walt			ne unon. (~0t	wear, are matches ponuling

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 21109 - Herbert	_ City/County:	Tetonia/Teton		Sampling Date: 6/1/2022
Applicant/Owner: JD ID WY LLC		Sta	ate: ID	Sampling Point: <u>SP 04</u>
Investigator(s): D. Goodman, N. Buchanan	_ Section, Towns	ship, Range:	Sec 10 T5N R4	15E
Landform (hillslope, terrace, etc.): Plain (Swale)	_ Local relief (cc	oncave, convex, no	one): none	Slope (°): 0%
Subregion (LRR): E - RM Region Lat: 43	3.77916	Long:	111.12547	Datum: WGS84
Soil Map Unit Name: Redfish Foxcreek Complex 0-2% slope			_ NWI classifica	ation: <u>n/a</u>
Are climatic / hydrologic conditions on the site typical for this time of y	/ear?Yes 🔶	No (If	no, explain in Re	emarks.)
Are Vegetation, Soil, or Hydrology significant	y disturbed?	Are "Normal C	ircumstances" pi	resent? Yes 🔶 No
Are Vegetation, Soil, or Hydrology naturally p	roblematic?	(If needed, exp	lain any answer	s in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	g sampling p	point location	s, transects,	important features, etc.
Lludenskutis Vasatatian Dessant? Vas 🔺 Na				

Hydrophytic Vegetation Present?	Yes 🔶	No		
Hydric Soil Present?	Yes 🔶	No	Is the Sampled Area	•
Wetland Hydrology Present?	Yes 🔶	No	within a Wetland? Yo	es No
Remarks: Plot loca	ted in a slight swal	le/low lying area adja	cent to irrigation ditch. Site is graze	ed annually. Sporadically overcast.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30 ft. radius)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1. NA - None				That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4.				
50% = 0 20% = 0	0 %	= Total Co	wer	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15 ft. radius)				
1 None				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
2				OBL species <u>55</u> x 1 = <u>55</u>
3			·	FACW species $0 x 2 = 0$
4			·	FAC species $35 \times 3 = 105$
5			·	$\frac{1}{12} = \frac{1}{12}$
50% = 0 20% = 0	0%	= Total Co	over	$\frac{1}{10} = \frac{2}{10} = \frac{10}{10}$
Herb Stratum (Plot size: <u>5 ft. radius</u>)				UPL species $2 \times 5 = 10$
1. Carex nebrascensis	55	yes	OBL	Column Totals: 95 (A) 182 (B)
2. <u>Alopecurus pratensis</u>	20	yes	FAC	Prevalence Index = $B/A = 1.92$
3. <u>Taraxacum officinale</u>	3		FACU	Hydrophytic Vegetation Indicators:
4. <u>P</u> oa pratensis	15		FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Thlaspi arvense	2		UPL	◆ 2 - Dominance Test is >50%
6.				• 3 - Prevalence Index is $\leq 3.0^{1}$
7				Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10			·	Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
50% = 50 20% = 20	100 %	Tatal Oa		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30 ft. radius)	100 /0		ver	
1 None				
			·	Hydrophytic
2		·	·	Present? Yes A No
50% = 0 $20% = 0$	0 %	= Total Co	ver	
% bare Ground in Herb Stratum <u>3</u> /0				
Remarks:				
Carex dominates. Site fluctuates in the amount of Carex	but through	out swale a	rea it is con	nmon.

SOIL

(inches)	Color (moist)	%	Color (moist)	%	Tvne ¹	l oc ²	Texture	Remarks
0-4"	10YR 2/1	100	None	/0			SCL	Lots of OM
<u> </u>	10YR 3/3	95	2 5YR 4/8	5			SCI	Small pockets of depletion/deving oxi
11 10"	10/10/3/3		2.511(4/6		- 0		<u>00L</u>	block mottling (5% glov and PM) increa
11-19	101R 4/3		2.51K 4/0	5	<u> </u>		30	black motuling(5%gley and Bivi), increa
19"+	10YR 5/3	100	None				LS	sand with gravel
Depth 24"								
¹ Type: C=Cc	oncentration, D=De	pletion	Texture: Si = S	Silty, C =	Clay, S =	Sand, L = I	_oam ² Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Appli	cable to a	II LRRs, unless othe	erwise no	ted.)		Indicat	tors for Problematic Hydric Soils ³ :
Histosol	(A1)		◆ Sandy Redox ((S5)			2 0	cm Muck (A10)
Histic Ep	oipedon (A2)		Stripped Matrix	(S6) Minorol (I	-1) (Re	ed Parent Material (TF2)
Black His	stic (A3)		Loamy Mucky	Mineral (I	-1) (exce]	ot MLRA 1) Ve	ry Shallow Dark Surface (TF12)
Hyuroge Depleted	1 Sullice (A4) 1 Below Dark Surfa	ce (Δ11)	Loany Gleyeu	waux (F v (F3)	2)		0	ner (Explain in Remarks)
Depleted Thick Da	ark Surface (A12)		Bedox Dark Si	rface (Ff	5)		³ Indica	tors of hydrophytic vegetation and
Sandy M	lucky Mineral (S1)		Depleted Dark	Surface	(F7)		wet	and hydrology must be present.
Sandy G	leyed Matrix (S4)		Redox Depres	sions (F8)		unle	ess disturbed or problematic.
Restrictive L	ayer (if present):							
Type NA	A Contraction of the second se							
Type: <u></u>							Hydric So	il Present? Yes 🔶 No
Depth (inc Remarks: Oxidized rhiz	ches): <u>NA</u> ospheres in horizo	n 4-11". Bo	ottom horizon is grave	lly loamy	sand and	is wet. Beç	ginning to feel	saturated.
Depth (inc Remarks: Oxidized rhiz	ches): <u>NA</u> cospheres in horizo GY	n 4-11". Bo	ottom horizon is grave	Ily loamy	sand and	is wet. Beg	ginning to feel	saturated.
Depth (inc Remarks: Oxidized rhiz	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of	n 4-11". Bo	ottom horizon is grave	lly loamy	sand and	is wet. Be	ginning to feel	saturated.
Depth (inc Remarks: Oxidized rhiz IYDROLO Wetland Hyc Surface	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1)	n 4-11". Bo	ottom horizon is grave ed; check all that app Water-Sta	lly loamy	sand and	is wet. Beg	ginning to feel	saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2 ,
Depth (inc Remarks: Oxidized rhiz IYDROLO Wetland Hyc Primary Indic Surface V High Wa	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2)	n 4-11". Bo	ed; check all that app Water-Sta	lly loamy	sand and ves (B9) (and 4B)	is wet. Beg	ginning to feel	saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A. and 4B)
Depth (inc Remarks: Oxidized rhiz IYDROLO Wetland Hyc Primary Indic Surface 1 High Wa Saturatic	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3)	n 4-11". Bo	ed; check all that app Water-Sta Water-Sta Salt Crust	lly loamy ly) ained Lea . 1, 2, 4A, t (B11)	sand and ves (B9) (and 4B)	is wet. Beg	ginning to feel	saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Depth (inc Remarks: Oxidized rhiz IYDROLO(Wetland Hyc Primary Indic Surface V High Wa Saturatic Water M:	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1)	n 4-11". Bo	ed; check all that app Water-Sta Salt Crust Salt Crust	lly loamy ly) ained Lea 1, 2, 4A , t (B11)	sand and ves (B9) (and 4B) æs (B13)	is wet. Beg	ginning to feel	saturated. pondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Water Ma Sedimen	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) tter Table (A2) on (A3) arks (B1) nt Deposits (B2)	n 4-11". Bo	ed; check all that app Water-Sta Salt Crust Aquatic Ir Hydrogen	lly loamy ly) ained Lea 1, 2, 4A, t (B11) nvertebrat	sand and ves (B9) (and 4B) æs (B13) Odor (C1)	is wet. Beg	ginning to feel	saturated. saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Saturatic Water Ma Sedimen Drift Dep	ches): <u>NA</u> cospheres in horizo GY chrology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) posits (B3)	n 4-11". Br	ed; check all that app Water-Sta Water-Sta MLRA Salt Crust Aquatic Ir Hydrogen Oxidized	ly loamy ly) ained Lea 1, 2, 4A, t (B11) overtebrat o Sulfide (Rhizosph	sand and ves (B9) (and 4B) ces (B13) Odor (C1) eres along	is wet. Beg except	ginning to feel	saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) ot Deposits (B2) posits (B3) tt or Crust (B4)	n 4-11". Bo	ed; check all that app Water-Sta MLRA Salt Crust Aquatic Ir Hydrogen Oxidized Presence	lly loamy ly) ained Lea 1, 2, 4A , t (B11) wertebrat sulfide (Rhizosph of Reduc	sand and ves (B9) (and 4B) dor (C1) eres along ced Iron (C	is wet. Beg except g Living Ro C4)	ginning to feel	saturated. saturated. water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
Depth (inc Remarks: Oxidized rhiz IYDROLO(Wetland Hyc Primary Indic Surface V High Wa Saturatic Water M: Sedimen Drift Dep Algal Ma Iron Dep	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) tter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	n 4-11". Bo	ed; check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent Ird	lly loamy ly) ained Lea 1, 2, 4A, t (B11) nvertebrat sulfide (Rhizosph of Reduc	sand and ves (B9) (and 4B) and 4B) an	except except g Living Ro (24) ed Soils (C	ginning to feel	saturated. saturated. Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
	Ches): <u>NA</u> Cospheres in horizo GY drology Indicators Cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) nt Deposits (B2) posits (B3) tt or Crust (B4) posits (B5) Soil Cracks (B6)	n 4-11". Br	ed; check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent Irc Stunted o	lly loamy <u>ly)</u> ained Lea 1, 2, 4A, t (B11) nvertebrat sulfide (Rhizosph of Reduc on Reduc r Stresse	sand and ves (B9) (and 4B) ces (B13) Odor (C1) eres along ced Iron (C tion in Till d Plants (I	except except c4) ed Soils (C D1) (LRR A	ginning to feel 	saturated. saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
	ches): <u>NA</u> cospheres in horizo GY crology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) posits (B3) tt or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial	n 4-11". Br	ed; check all that app 	IV) ained Lea 1, 2, 4A , t (B11) overtebrat of Reduc on Reduc on Reduc r Stresse plain in R	sand and ves (B9) (and 4B) des (B13) Odor (C1) eres along ced Iron (C tion in Till d Plants (I gemarks)	except except el Soils (C D1) (LRR A	ginning to feel	saturated. saturated. <u>bindary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Water Ma Saturatic Unift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) to Deposits (B2) posits (B3) to or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aerial v Vegetated Concar	n 4-11". Br	ed; check all that app 	lly loamy ly) ained Lea 1, 2, 4A, t (B11) wertebrat o Sulfide (Rhizosph of Reduc on Reduc on Reduc r Stresse plain in R	sand and ves (B9) (and 4B) dor (C1) eres along ced Iron (C tion in Till d Plants (I cemarks)	except except c), c) c) c) c) c) c) c) c) c) c) c) c) c)	yinning to feel	saturated. saturated. water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Water M: Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely Field Observ	Ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) tter Table (A2) on (A3) arks (B1) arks (B1) arks (B1) arks (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial vegetated Concar vations:	n 4-11". Bo	ed; check all that app Water-Sta MLRA Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ira Stunted o B7) Other (Ex (B8)	lly loamy ly) ained Lea 1, 2, 4A, t (B11) nvertebrat sulfide (Rhizosph of Reduc on Reduc on Reduc r Stresse plain in R	sand and ves (B9) (and 4B) ces (B13) Odor (C1) eres along ced Iron (C tion in Till d Plants (I Remarks)	except except c4) c1) (LRR A	ginning to feel	saturated. saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Saturatic Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely Field Observ	Ches): <u>NA</u> Cospheres in horizo GY Chology Indicators Cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) th Deposits (B2) posits (B3) arks (B1) th Oregosits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial v Vegetated Concar vations: er Present?	n 4-11". Br	ed; check all that app 	Ily loamy Iy) ained Lea 1, 2, 4A, t (B11) wertebrat of Reduc of Reduc of Reduc or Stresse plain in R aches):	sand and ves (B9) (and 4B) des (B13) Ddor (C1) eres along ced Iron (C tion in Till d Plants (I cemarks)	is wet. Beg except except ed Soils (C D1) (LRR A	ginning to feel	saturated. saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely Field Observ Surface Water	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial v Vegetated Concar vations: er Present? Present?	n 4-11". Br	ed; check all that app 	lly loamy ly) ained Lea 1, 2, 4A , t (B11) wertebrat of Reduc on Reduc on Reduc on Reduc r Stresse plain in R	sand and ves (B9) (and 4B) des (B13) Odor (C1) eres along ced Iron (C tion in Till d Plants (I cemarks)	except except D1) (LRR A	ginning to feel	saturated. saturated. <u>ondary Indicators (2 or more required)</u> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Water M: Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely Field Observ Surface Water Vater Table Saturation Pr (includes can	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) arks (B1) arks (B2) posits (B3) arks (B5) Soil Cracks (B6) on Visible on Aerial vegetated Concar vations: er Present? Present? Present? illary fringe)	n 4-11". Bo i: one requir one requir ve Surface Yes Yes Yes Yes Yes	ed; check all that app 	lly loamy ly) ained Lea 1, 2, 4A , 1, 2, 4A , t (B11) nvertebrat Sulfide (Rhizosph of Reduc on Reduc o	sand and ves (B9) (and 4B) ces (B13) Odor (C1) eres along ced Iron (C tion in Till d Plants (I Remarks) 4"	except except d) ed Soils (C D1) (LRR A	ginning to feel <u>Sec</u> <u>↓</u> ots (C3) <u>↓</u> (C3) <u>↓</u> (C	saturated.
Depth (inc Remarks: Oxidized rhiz Oxidized rhiz IYDROLOO Wetland Hyc Primary Indic Surface V High Wa Saturatic Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely Field Observ Surface Water Surface Water Surface Cap Describe Rec	Ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) arks (B1) arks (B2) posits (B3) tt or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial vegetated Concar vations: er Present? Present? Present? present? corded Data (strear	n 4-11". Bo i: one requir one requir ve Surface Yes Yes Yes Yes n gauge, r	ed; check all that app 	lly loamy ly) ained Lea 1, 2, 4A, t (B11) nvertebrat of Reduc on	sand and ves (B9) (and 4B) ees (B13) Ddor (C1) eres along ced Iron (C tion in Till d Plants (I Remarks) 4"	except except d) ed Soils (C D1) (LRR A except exce	ginning to feel	saturated.
	ches): <u>NA</u> cospheres in horizo GY drology Indicators cators (minimum of Water (A1) ter Table (A2) on (A3) arks (B1) th Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial v Vegetated Concar vations: er Present? Present? Present? resent? pillary fringe) corded Data (stream	n 4-11". Br	ed; check all that app ed; check all that app Water-Sta MLRA Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Ira Stunted o B7) Other (Ex (B8) No Depth (ir No Depth (ir No Depth (ir nonitoring well, aerial	elly loamy	sand and ves (B9) (and 4B) des (B13) Odor (C1) eres along ced Iron (C tion in Tilli d Plants (I d Plants (I d Plants) d Plants (I d Plants)	except except cliving Roi cliv	ginning to feel <u>Sec</u> <u>•</u> ots (C3) <u>•</u> 6) <u>•</u> land Hydrolo if available:	saturated.