GEIST ENGINEERING & ENVIRONMENTAL GROUP INC

September 18, 2023

Tilson Infrastructure
16 Middle Street, 4th Floor
Portland, ME 04101

RE: Compliance Scope- Wetland Delineation for a New Site Build
Harmoni Towers Proposed Monopole Location
Verizon Wireless Name #: SPO Naples
211 Cindy Lane, Sandpoint, Idaho
RP59N01W097510A; T59N R 1W portion of Sec 9; (48.47723. -116.46786)
GE²G Project # 311746

Geist Engineering and Environmental Group, Inc. (GE²G), appreciates the opportunity to assist Tilson Infrastructure by having a wetland delineation completed in the vicinity of the proposed new site build tower location. The National Wetland Inventory (NWI) shows that an emergent wetland extends throughout the parcel. The NWI is just an inventory and it has no legal or jurisdictional power. Actual regulated wetlands are not based on the NWI, they are based on a formal delineation which was completed on August 29, 2023.

Executive Summary:

- A survey was completed to determine whether the three required wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) were present. The wetland boundary points were staked, flagged, labelled, and located using a sub-meter GPS handheld unit.
- Wetland boundaries are depicted with white as depicted in Figure 3.
- Bonner County imposes a 40-foot building-to-wetland boundary setback are depicted with blue line as depicted in Figure 3.
- At this point in the development process, there is no intent to fill or alter the wetlands identified in this report.

Findings:

At this point in the development process, there appears to a viable location for the ground lease area. The access road may be viable depending on the road setback requirements from U.S. Highway 2 (US-2) .

If you have any inquiries or would like any additional information, please contact me at (510) 238-8851, or sgeist@geistenvironmental.com.

Sincerely,

Stephen Geist, President,
Geist Engineering and Environmental Group, Inc.

Attached:

Appendix A: Wetland Delineation Letter Report for property located at 211 Cindy Lane, Sandpoint, ID Dolyniuk Trust Property: dated September 11, 2023

Appendix B: Tabular Field Data Points with Names Latitude and Longitude

GEIST ENGINEERING & ENVIRONMENTAL GROUP INC

Appendix A:
Wetland Delineation Letter Report
for property located at 211 Cindy Lane, Sandpoint, ID
Dolyniuk Trust Property
dated September 11, 2023

GEIST ENGINEERING AND ENVIRONMENTAL GROUP, INC.
4200 Park Boulevard #149, Oakland, California 94602
510.238.8851 (p) / sgeist@geistenvironmental.com
Field Offices: Arizona, California, Colorado, Oregon, and Washington

Tom Duebendorfer - Biological Consultant, Professional Wetland Scientist

September 11, 2023

Steven Geist, President
GEIST ENGINEERING AND ENVIRONMENTAL GROUP, INC.
4200 Park Boulevard #149
Oakland, California 94602
510.238.8851 (p)
510.610.1453 (m)
sgeist@geistenvironmental.com

Re: Wetland Delineation Letter Report for property located at 211 Cindy Lane, Sandpoint, ID
Dolyniuk Trust Property: RP59N01W097510A; T59N R 1W portion of Sec 9; 48.47723. -116.46786

Dear Steven:

Per your request for environmental services, I am submitting this Wetland Delineation Letter Report for the property referenced above (Figure 1). On August 29, 2023, I visited the site and used the Regional Supplement to the Corps of Engineers (Corps) Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region U.S. Army Corps of Engineers 2010, to determine whether the three required wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) were present. The wetland boundary points were staked, flagged, labelled, and located using a sub-meter GPS handheld unit. I focused only on the eastern portion of the property adjacent US 95.

I understand the project intent is to potentially lease a portion of the Dolyniuk property and construct a Verizon cell tower in the northeast portion of the property (SPO Naples). The tower would have an approximately 70' x 70' base.

Site Conditions
The property has a residence in the western portion of the property with the majority of the undeveloped property used for horse pasture. It is located between Elmira and Samuels adjacent Hwy 95. The National Wetland Inventory (NWI) mapped a large emergent (PEM1C) wetland through the center of the property.

Vegetation
The vegetation consists of two associations:

Wet meadow: low-growing willow, dogwood, rose, sedge, bentgrass, aster, and goldenrod. This association is hydrophytic.

Upland meadow: This is located on higher topography than the wet meadow (clearly defined slopes and grazed) and consist of weedy upland vegetation: knapweed, tumble mustard, goldenrod, plantain, bentgrass, orchardgrass, ox-eye daisy, horseweed, tansy, and smooth brome. This association is not hydrophytic.

Soils
The Natural Resources Conservation Service (NRCS) identified the property as being underlain by several mapping units including Pywell-Hoodoo complex (hydric) and Selle-Elmira complex (not hydric) (Figure 2). The soils in the wet meadow (lower topography areas) showed evidence of early season ponding with low chroma layers with redoximorphic features (an hydric indicator). Data plots in the upland mounded areas showed higher matrix chromas (3/3, 4/3 [not hydric]) (Data Plots and Photographs attached).

Hydrology
The National Wetland Inventory (NWI) mapped a large emergent (PEM1C) (palustrine, emergent, persistent, seasonally flooded) wetland as occurring through the majority of the property (Figure 2). It is located in a topographically lower portion of the property. To the east (toward US 95) the topography is mounded and rises about 2 - 4'. The lower topography wetland area showed evidence of seasonal ponding.

Wetland Determination
Figure 3 shows the properties with the GPSd wetland boundary points and the wetland boundaries (white lines). The wetland is located in the center of the property: the western edge was not delineated. It is located in a topographic low and contains some small willows, spiraea, sedge, goldenrod, and bentgrass. Due to the late season delineation, no hydrology was observed, but the area showed evidence of early season ponding. StreamStats of Idaho (https://streamstats.usgs.gov/ss/) showed a drainage starting at the western end of Cindy Lane, going through the center of the subject property (in the area of the NWI-mapped wetland) and discharging north, eventually into MacArthur Lake. I did not survey this possible drainage, but the area was dry during the August delineation.

The upland area was topographically higher and consisted of grazed upland weedy species (knapweed, tumble mustard, goldenrod, plantain, bentgrass, orchardgrass, ox-eye daisy, horseweed, tansy, and smooth brome).

Regulatory Implications
At this point in the development process, there is no intent to fill or alter the wetlands identified in this report.

Bonner County imposes a 40' building-to-wetland boundary setback (shown on Figure 3 as a blue line).

Thank you for requesting my services. Let me know if you have any questions or need additional information.

Sincerely,

Tom Duebendorfer, MA, PWS (Emeritus)

encls: Regulatory Requirements
Figure 1: Vicinity Map
Figure 2: National Wetland Inventory and NRCS Soils Map
Figure 3: Wetland Delineation, Setback, Data Plot, and Photograph Location Map
Photosheets (2)
Data Plots (7) 2-page forms
Résumé

References Used (not necessarily cited):

Bonner County Viewer (on-line mapping tool)

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, Fish and Wildlife Service, U.S. Dept. of the Interior, FWS/OBS-79/31.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.

ESRI. ArcMap 10.5.1 GIS software. Arrow Series 100 GPS unit.

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1977 (and as updated 2018 in 2nd Edition). Vascular Plants of the Pacific Northwest. University of Washington Press. Seattle, Washington (five volumes).

NAIP 2013. USDA Aerial photography of Bonner County, ID.

NRCS. US Department of Agriculture, National Resources Conservation Service. Soil Survey (website).

NRCS. 2010. United States Department of Agriculture, Natural Resources Conservation Service. 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

NTCHS. 1995. National Technical Committee for Hydric Soils, Natural Resources Conservation Service (formerly Soil Conservation Service).

Vepraskas, M.J. 1992. Redoximorphic Features for Identifying Aquic Conditions. North Carolina Agricultural Research Service. Raleigh, North Carolina.

U.S. Army Corps of Engineers 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region.

USDI. National Wetland Inventory mapping (website).

USGS. Elmira, ID 7.5' topographic quadrangle.

Regulatory Permitting Process: Types of Permits - Corps of Engineers

Under the Clean Water Act, the Corps has the authority to regulate the discharge or fill or dredged material into "Waters of the US". There are three Permits the Corps uses to regulate fill into wetlands. The Regional General and Individual Permits (not described here) are probably not appropriate for your site.

(1) Nationwide General (NWP): This permit is authorized for specific activities nationwide with minimal impact and minimal evaluation time. The NWPs typically have a ½ acre limit for fill in wetlands and 300 linear foot limit for fill in stream channels. A Pre-Construction Notification application (PCN) must be submitted to the appropriate field office (Walla Walla District). Typically, *less than 1/10-acre of wetland fill does not require mitigation* (though a PCN is required), and up to ½ acre of wetland fill, requires mitigation. (See below for **compensation methods**). There are Regional Conditions for Nationwide Permits (www.nww.usace.army.mil/Portals/28/Users/108/44/1644/Final%20NWW%20Regional%20Conditions%202017%20NWPs.pdf). There are 54 Nationwide Permits each regarding specific activities proposed in wetlands (www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/Nationwide-Permits/).

When any permit application is received, it is evaluated based upon three criteria: avoidance, minimization, and mitigation. Once the applicant meets these criteria, a permit can be issued. It is taking Corps presently about 60 days to process permits.

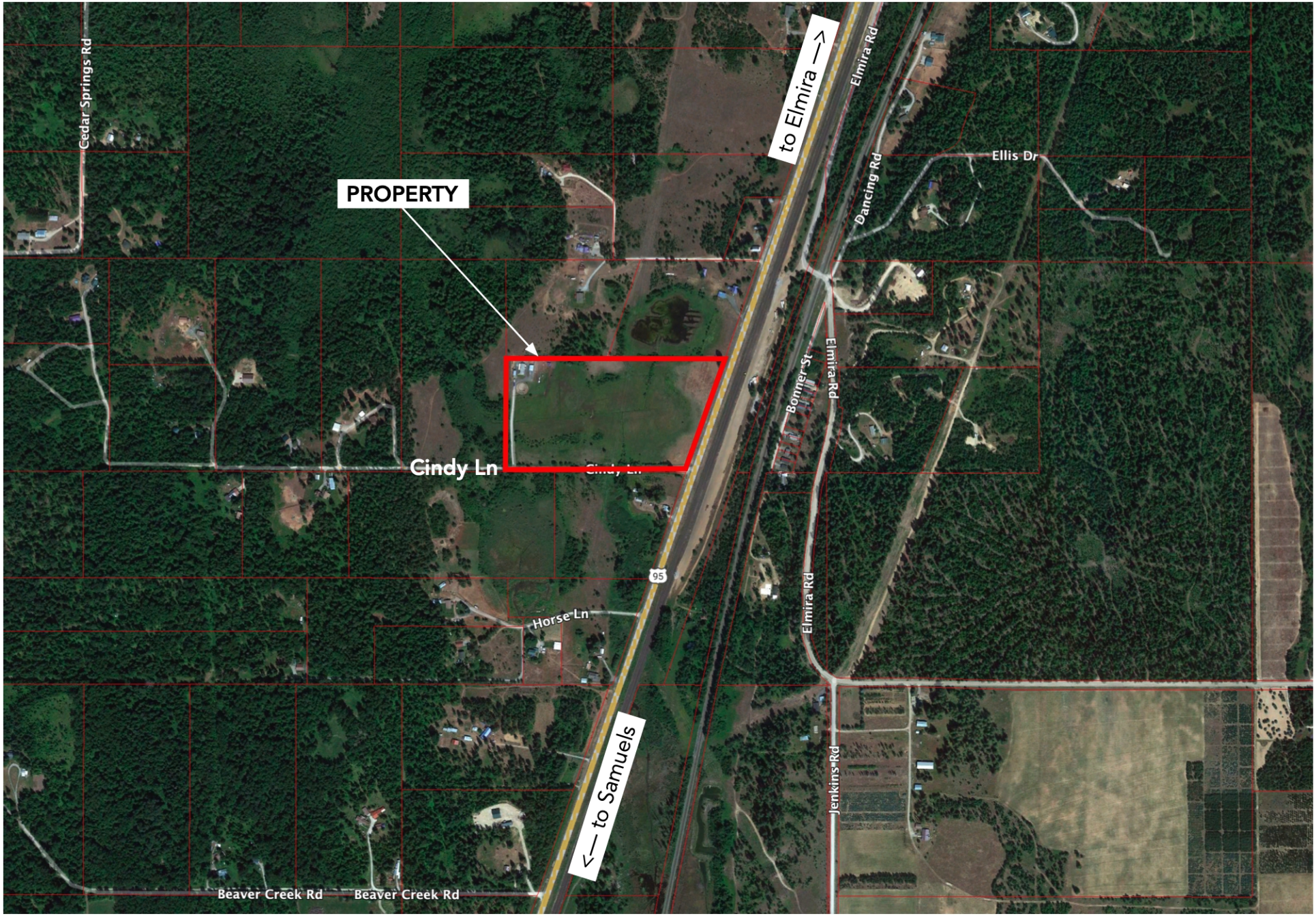
Compensation Methods for unavoidable Wetland Impacts

According to the 2008 Final Mitigation Rule (Federal Register/Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations), under § 332.1 (c) the Final Mitigation Rule maintains the requirements set forth in Section 404(b)(1) Guidelines at 40 CFR part 230 which state that *"the permit applicant [is required] to take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States. Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. Compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a section 404 permit complies with the Section 404(b)(1) Guidelines"* (emphasis mine). According to § 230.93 (a)(2), restoration of impacted wetland is the first priority in the compensation sequence followed by purchasing credits (employing the use of approved Wetland Mitigation Banks within the service area) § 230.93 (b)(2).

Regarding a recent Supreme Court ruling and the EPA / Corps revised "Waters of the US" definitions, it appears that wetlands are federally regulated only if there is a "relatively permanent surface water connection" to clearly defined navigable "Waters of the US". The EPA and Corps have NOT specifically defined "relatively permanent".

The State of Idaho does not regulate activities in wetlands.

Bonner County imposes a 40' building to wetland boundary setback and any according to their Ordinance, wetland fills will require a permit from the Corps of Engineers — but it is unknown how the Corps would regulate the on-site wetland nor how the County will address the new EPA / Corps revised "Waters of the US" rule. I have been in contact with the County to ascertain their decisions in reference to wetland regulations and setbacks, but have not yet heard back.



211 Cindy Lane, Sandpoint, ID
RP59N01W097510A
T59N, R1W, portion of Sec 9
48.47723. -116.46786

Figure 1
Vicinity Map
Dolyniuk Trust
SPO Naples

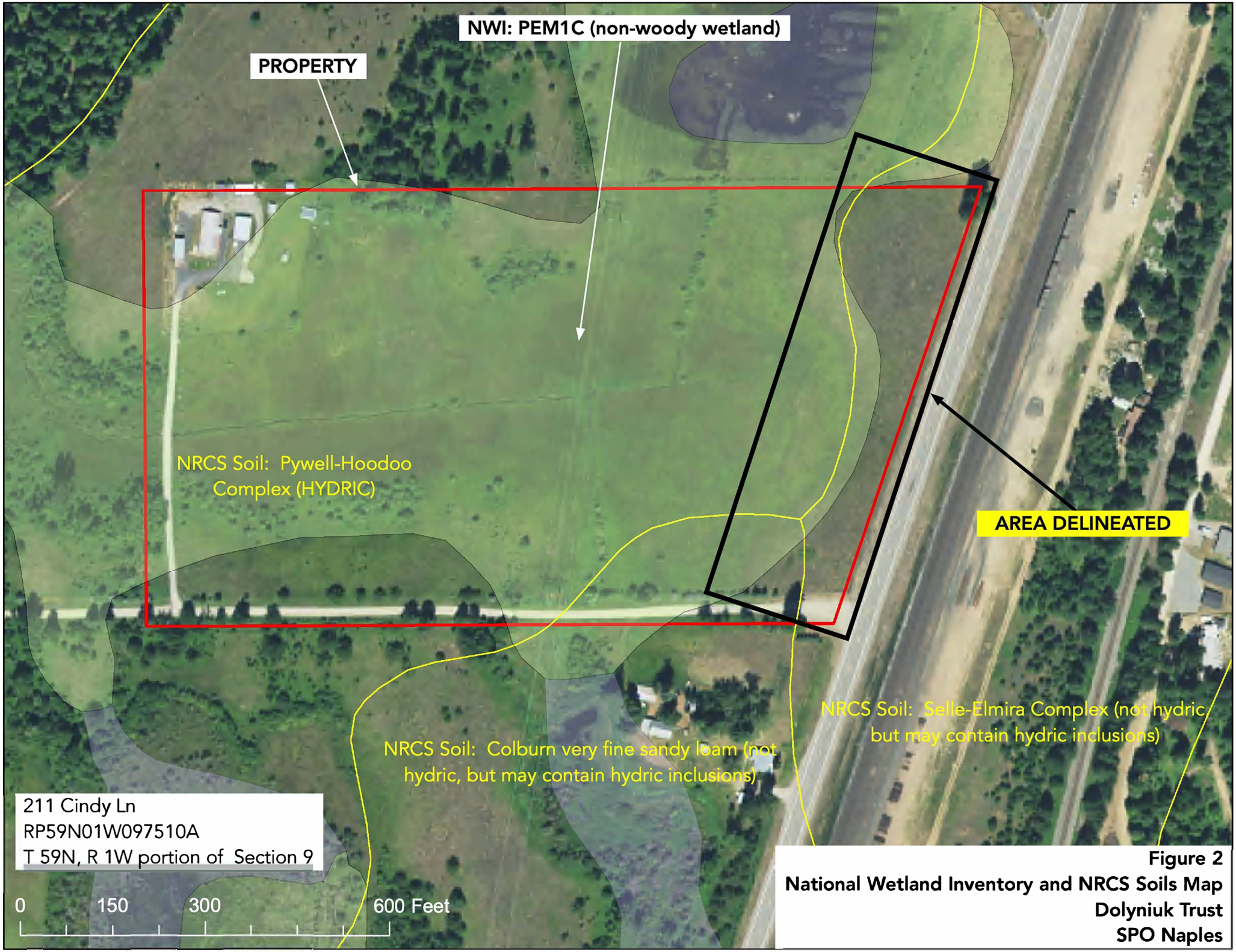


Figure 2
National Wetland Inventory and NRCS Soils Map
Dolyniuk Trust
SPO Naples

Figure 3
Wetland Delineation, Setback, Data Plot, and Photograph Locations Map
Dolyniuk Property

Photo 1. View south from upland mound area toward lower topography wetland (blue line). Upland consists of weedy vegetation (grazed) including knapweed, bentgrass, tumble mustard, plantain, and horseweed. Wetland contains minor amounts of low-growing willow, sedge, bentgrass, and goldenrod.

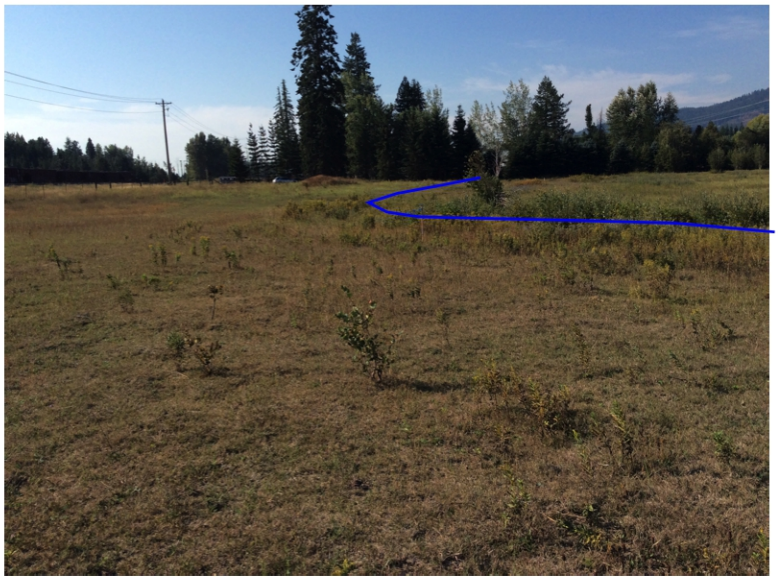


Photo 2. View south from upland mound area toward lower topography wetland (blue line). Upland consists of weedy vegetation (grazed) including knapweed, bentgrass, tumble mustard, plantain, and horseweed. Wetland contains minor amounts of low-growing willow, sedge, bentgrass, and goldenrod.

Photo 3. View south from upland mound area toward lower topography wetland (blue line). Upland consists of weedy vegetation (grazed) including knapweed, bentgrass, tumble mustard, plantain, and horseweed. Wetland contains minor amounts of low-growing willow, sedge, bentgrass, and goldenrod.

Photosheet 1
Dolyniuk Property
August 29, 2023

Photo 4. View southwest from upland mound area toward lower topography wetland (blue line). Upland consists of weedy vegetation (grazed) including knapweed, bentgrass, tumble mustard, plantain, and horseweed. Wetland contains minor amounts of low-growing willow, sedge, bentgrass, and goldenrod.

Photo 5. View north from southeast portion of property. Upland mound area in foreground, toward lower topography wetland (blue line). Upland consists of weedy vegetation (grazed) including knapweed, bentgrass, tumble mustard, plantain, and horseweed. Wetland contains minor amounts of low-growing willow, sedge, bentgrass, and goldenrod.

Photosheet 2
Dolyniuk Property
August 29, 2023

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 1

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.478191 **Long.:** -116.465343 **Datum:** WGS 84

Soil Map Unit Name: Pywell-Hoodoo complex **NWI classification:** PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
All three parameters met. Plot is in a wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1. Pinus ponderosa	5	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1. Salix scouleriana	40	☑ 50.0%	FAC
2. Cornus alba	25	☑ 31.3%	FACW
3. Rosa woodsii	15	☐ 18.8%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	80	= Total Cover	
Herb Stratum (Plot size: 0.1 ac)			
1. Solidago lepida	30	☑ 33.3%	FAC
2. Carex flava	20	☑ 22.2%	OBL
3. Agrostis stolonifera	15	☐ 16.7%	FAC
4. Dactylis glomerata	10	☐ 11.1%	FACU
5. Hieracium pratense	10	☐ 11.1%	UPL
6. Symphyotrichum spathulatum	5	☐ 5.6%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	25	x 2 =	50
FAC species	90	x 3 =	270
FACU species	30	x 4 =	120
UPL species	10	x 5 =	50
Column Totals:	175 (A)		510 (B)

Prevalence Index = B/A = 2.914

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation is hydrophytic - both tests met

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 1

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	80%	7.5 YR	4/6	20%	C	M	Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils shows hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

area topographically lower than obvious mounded area - spring hydrology very likely

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 2

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.478082 **Long.:** -116.465283 **Datum:** WGS 84

Soil Map Unit Name: Pywell-Hoodoo complex **NWI classification:** PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:
None of three parameters met. Plot not in wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.		☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 0.1 ac)			
1. Plantago lanceolata	25	☑ 35.7%	FACU
2. Agrostis stolonifera	15	☑ 21.4%	FAC
3. Leucanthemum vulgare	10	☐ 14.3%	FACU
4. Solidago lepida	10	☐ 14.3%	FAC
5. Centaurea maculosa	10	☐ 14.3%	UPL
6.		☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	70	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	35	x 4 =	140
UPL species	10	x 5 =	50
Column Totals:	70 (A)		265 (B)

Prevalence Index = B/A = 3.786

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Vegetation is not hydrophytic - neither test met. Area heavily grazed.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 2

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	100%					M	Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils lacking hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

Area topographically higher than obvious wetland area - hydrology unlikely

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 3

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.477756 **Long.:** -116.465237 **Datum:** WGS 84

Soil Map Unit Name: Pywell-Hoodoo complex **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:
None of three parameters met. Plot not in wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.		☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 0.1 ac)			
1. Centaurea maculosa	80	☑ 66.7%	UPL
2. Bromus inermis	15	☐ 12.5%	UPL
3. Agrostis stolonifera	15	☐ 12.5%	FAC
4. Plantago lanceolata	10	☐ 8.3%	FACU
5.		☐ 0.0%	
6.		☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	120	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	95	x 5 =	475
Column Totals:	120 (A)		560 (B)

Prevalence Index = B/A = 4.667

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Vegetation is not hydrophytic - neither test met. Area heavily grazed.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 3

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	100%						Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils lacking hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

Area topographically higher than obvious wetland area - hydrology unlikely

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 4

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.477769 **Long.:** -116.465614 **Datum:** WGS 84

Soil Map Unit Name: Pywell-Hoodoo complex **NWI classification:** PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
All three parameters met. Plot is in a wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')				
1.		☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	**= Total Cover**		
Sapling/Shrub Stratum (Plot size: 20')				
1. Salix scouleriana	60	☑	100.0%	FAC
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	60	**= Total Cover**		
Herb Stratum (Plot size: 0.1 ac)				
1. Carex flava	35	☑	25.9%	OBL
2. Solidago lepida	30	☑	22.2%	FAC
3. Agrostis stolonifera	25	☑	18.5%	FAC
4. Tanacetum vulgare	25	☑	18.5%	FACU
5. Scirpus microcarpus	10	☐	7.4%	OBL
6. Symphyotrichum spathulatum	10	☐	7.4%	FAC
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	135	**= Total Cover**		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	**= Total Cover**		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	0	x 2 =	0
FAC species	125	x 3 =	375
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	195 (A)		520 (B)

Prevalence Index = B/A = 2.667

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation is hydrophytic - both tests met

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 4

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	80%	7.5 YR	4/6	20%	C	M	Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils shows hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

area topographically lower than obvious mounded area - spring hydrology very likely

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 5

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.477874 **Long.:** -116.464673 **Datum:** WGS 84

Soil Map Unit Name: Selle-Elmira complex **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present? Yes ○ No ◉	
Wetland Hydrology Present? Yes ○ No ◉	

Remarks:
None of three parameters met. Plot not in wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.		☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 0.1 ac)			
1. Centaurea maculosa	40	☑ 32.0%	UPL
2. Agrostis stolonifera	25	☑ 20.0%	FAC
3. Sisymbrium altissimum	25	☑ 20.0%	FACU
4. Bromus hordeaceus	15	☐ 12.0%	FACU
5. Conyza canadensis	10	☐ 8.0%	FACU
6. Plantago lanceolata	10	☐ 8.0%	FACU
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	125	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	60	x 4 =	240
UPL species	40	x 5 =	200
Column Totals:	125 (A)		515 (B)

Prevalence Index = B/A = 4.120

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Vegetation is not hydrophytic - neither test met. Area heavily grazed.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 5

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	100%						Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils lacking hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

Area topographically higher than obvious wetland area - hydrology unlikely

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 6

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.476838 **Long.:** -116.465160 **Datum:** WGS 84

Soil Map Unit Name: Selle-Elmira complex **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present? Yes ○ No ◉	
Wetland Hydrology Present? Yes ○ No ◉	

Remarks:
None of three parameters met. Plot not in wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.		☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 0.1 ac)			
1. Conyza canadensis	60	☑ 46.2%	FACU
2. Centaurea maculosa	35	☑ 26.9%	UPL
3. Agrostis stolonifera	15	☐ 11.5%	FAC
4. Sisymbrium altissimum	10	☐ 7.7%	FACU
5. Leucanthemum vulgare	10	☐ 7.7%	FACU
6.		☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	130	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	80	x 4 =	320
UPL species	35	x 5 =	175
Column Totals:	130 (A)		540 (B)

Prevalence Index = B/A = 4.154

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:
Vegetation is not hydrophytic - neither test met. Area heavily grazed.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 6

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	100%						Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Soils lacking hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

Area topographically higher than obvious wetland area - hydrology unlikely

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

Project/Site: Harmoni Towers (RP59N01W097510A) **City/County:** Bonner **Sampling Date:** 29-Aug-23

Applicant/Owner: Geist Environmental **State:** ID **Sampling Point:** DP 7

Investigator(s): Tom Duebendorfer, PWS **Section, Township, Range:** S 9 T 59N R 1W

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR E **Lat.:** 48.476944 **Long.:** -116.465528 **Datum:** WGS 84

Soil Map Unit Name: Pywell-Hoodoo complex **NWI classification:** PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? 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 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 ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:
All three parameters met. Plot is in a wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.		☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20')			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 0.1 ac)			
1. Carex flava	50	☑ 34.5%	OBL
2. Symphyotrichum spathulatum	35	☑ 24.1%	FAC
3. Agrostis stolonifera	30	☑ 20.7%	FAC
4. Solidago lepida	20	☐ 13.8%	FAC
5. Hieracium pratense	5	☐ 3.4%	UPL
6. Centaurium pulchellum	5	☐ 3.4%	FACU
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	145	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column Totals:	145 (A)		350 (B)

Prevalence Index = B/A = 2.414

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Vegetation is hydrophytic - both tests met

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP 7

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100%						Silt Loam	
2-10	10YR	4/2	80%	7.5 YR	4/6	20%	C	M	Silt 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: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils shows hydric indicators

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ 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)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

area topographically lower than obvious mounded area - spring hydrology very likely

Tom Duebendorfer - Professional Wetland Scientist (#000157), Biologist, Botanist

OBJECTIVE

Provide botanical and ecological services to a wide range of organizations and individuals for projects involving land development, wetland delineation, vegetation mapping, rare plant surveys, resource inventories, Environmental Assessments, Biological Evaluations and Assessments, and research-level studies on specific habitats or species.

EDUCATION

WSPSS, SWS Hydric Soils Workshop, Soils and Hydrology, June 2009
Wetland Training Institute, Soils and Hydrology, August 1990
Humboldt State University, Arcata, California
M.A. Biology May 1987
California State Teaching Credential May 1987
B.A. Biology June 1977
University of California, Irvine (2 years - biology major)

EMPLOYMENT

- **Self-employed wetland and botanical consultant (1981 to present)**

  Provided botanical and wildlife surveys, floristic research, habitat characterization, ecological sampling, synecological analysis, aerial photo mapping, wetland delineation, impact analysis, restoration and mitigation, resource planning, permitting, rare and endangered plant surveys, plant taxonomy, soil analysis, computer-aided multivariate analyses and statistics, computer-aided graphics and drafting. Involved with design (as part author/editor) of Washington Dept of Ecology Hydrogeomorphic approach to wetland function assessment program (Assessment Team). Trained in E WA DOE Assessment Methodology (assisted in development of the methodology). Wetland Mitigation Bank preparation. Teaches wetland delineation and plant identification courses to Tribes, agencies, and groups.

  Project locations include rare plant surveys/studies and wetland work in southern, central, northern and coastal California; coastal, southwestern, and northeastern Oregon; north, east-central, and southwest Idaho; eastern and western Washington; and northwest Montana.

- **Senior Wetland Ecologist, Client/Project Manager, Corporate Botanist (1989-1994)**

  David Evans and Associates, Inc. Bellevue, Washington

  Provided wetland delineation, impact assessment, conceptual and final mitigation design, monitoring, cumulative impact assessment, wetland permitting, habitat characterization, rare plant and T&E animal surveys, Biological Evaluations and Assessments, as well as instruction and guidance in systematics and classification to staff in 7 west coast offices. Maintained excellent rapport with clients and other project team members (both in office and as field crew leader). Managed projects from proposals, contracting, budgeting, scheduling and invoicing, to collections.

  Project locations include: Pacific Northwest, from central and coastal Oregon to eastern, western, and coastal Washington, and northwest Montana.

CERTIFICATIONS

Professional Wetland Scientist, Society of Wetland Scientists (#000157)
Certified Wetland Delineator, Corps of Engineers (Seattle District)
Qualified Wetland Specialist, Spokane County, Washington
Qualified Wetland Specialist, City of Spokane, Washington
Completed Training in NEPA/EPA Process
Completed Soils and Hydrology workshops (WTI); Hydric Soils (WSSPSS - Updates 2009)

Tom Duebendorfer - Professional Wetland Scientist (#000157), Biologist, Botanist

SPECIFIC EXPERIENCE

Habitats include: dune coastline, coastal and inland forested, scrub, and marsh wetlands, oak woodlands, steppe scrubland, grasslands, sagebrush, agricultural areas (wetlands), coniferous and deciduous montane, alpine, bog (fen), and serpentine vegetation.

Permitting knowledge and direct use of wetland methodologies (USFWS, US Army Corps of Engineers, WA Dept of Ecology, and local county and city jurisdictions); knowledge of Corps Permit process. Restoration activities. Biological Assessments (BA), USFS Evaluations (BE), Environmental Assessments (EA); SEPA/NEPA; T&E species monitoring, Raptor Monitoring, Wetland Mitigation Bank Design.

Rare plant studies include approximately 45 sensitive plant and vegetation surveys on private, state, and federal lands for small to medium scale hydroelectric plants, stream corridors, sewage treatment facilities, water treatment facilities, prison site, seeding experiments, road and highway construction, transmission corridors (utilities), fiber optic cable routes, and mining companies. Biological Evaluations for USFS-listed sensitive species in four states.

Clients (independently and during tenure as employee) include:

Small- and Large-scale Developers:
Burlington-Northern, Puget Western, Glacier Park Company, Trillium Corporation, Quadrant, Blackhawk/Port Blakely Communities, Coldwater Creek, Valencia Wetlands Trust, Waterfront Property Mgmt., Kirk-Hughes Development, Fortress LLC, & others

Public Entities:
Washington Department of Ecology, Benewah County (through EDA), Federal Highways Administration, Bureau of Reclamation, King Co., US Army Corps of Engineers, Spokane County Engineering and Public Works, Oregon Nature Conservancy, Humboldt County Planning, Humboldt State University Research Program; Benewah County; Idaho Soil and Conservation District, City of Winchester, Idaho Transportation Department, Washington Department of Transportation, Kalispell Indian Tribe, City of Colville, Rathdrum

Communications (fiber optic projects):
AT&T, MCI/WorldCom, Cascade Utilities

Exploratory and Active Mining Companies:
Emerald Creek Garnet Company, American Gold Resources, Cal Nickel Corp., Baretta, Noranda

Assisting other Consulting Firms and Numerous Private Landowners.
The Soils Group, Intermountain Resources, Inc., Hart-Crowser, Inc., Welch-Comer Eng., Land Profile, Inc., Selkirk Environmental, David Evans and Associates, J.A. Sewell and Assoc., EarthTech, ALSC Architects; Ecological Resources, Forsgren Assoc., JUB Eng., Adolfson Assoc. Copper Basin Constr., Toothman-Orton Eng., Rocky Point Investments, HAWKEFA, Tate Engineering.

PUBLICATIONS

Duebendorfer, T.E. 1990. *"An Integrated Approach to Enhancing Rare Plant Populations through Habitat Restoration: II. Habitat Characterization through Classification of Dune Vegetation."* Pp. 478-487 in: Bonnicksen, T.M. and H.G. Hughes, eds. Proceedings of the first annual meeting of the Society for Ecological Restoration and Management. Also presented at Society of Wetland Scientists, May 1993.

Pickart, A.J., L.M. Miller, and T.E. Duebendorfer. 1998. *"Yellow bush lupine invasion in northern California coastal dunes. I. Ecological impacts and manual restoration techniques*". Restoration Ecology Vol 6 No 1, pp59-68.

Seattle Audubon Series, "*Wetland Plants of the Western Washington and NW Oregon"* (Cooke 1997, editor): My role was as a contributor and technical editor.

Hruby, T., S. Stanley, T. Granger, T. Duebendorfer, R. Friesz, B. Lang, B. Leonard, K. March, and A. Wald. 2000. Methods for Assessing Wetlands Functions. Volume II, Part 1: Assessment Methods - Depressional Wetlands in the Columbia Basin of Eastern Washington, WA State Department of Ecology Publication #00-06-47.

Fieldbook of Plant Uses (North Idaho) - self published field booklet (2019)

GEIST ENGINEERING & ENVIRONMENTAL GROUP INC

Appendix B:
Tabular Field Data Points with
Names Latitude and Longitude

GEIST ENGINEERING AND ENVIRONMENTAL GROUP, INC.
4200 Park Boulevard #149, Oakland, California 94602
510.238.8851 (p) / sgeist@geistenvironmental.com
Field Offices: Arizona, California, Colorado, Oregon, and Washington

GEIST ENGINEERING & ENVIRONMENTAL GROUP INC

Waypoint	Latitude	Longitude
A1,	48.4764203383333,	-116.466189447667,
A2,	48.4765651736667,	-116.465971134833,
A3,	48.4767236143333,	-116.465746612,
A4,	48.4768503448333,	-116.465543093833,
A5,	48.4769560568333,	-116.4653411315,
A6,	48.4771065231667,	-116.465173636,
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Note: Contact GE²G for (KML, CSV, GPX) files, if required
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