



# **We Are Up Project**

## **Initial Study & Proposed Mitigated Negative Declaration**

We Are Up

20 March 2023

County of Humboldt  
PLN-2022-18047 CUP/SP  
APN 509-181-057



# Initial Study / Proposed MND We Are Up Project

Prepared for:



We Are Up  
4636 Fieldbrook Rd #109  
McKinleyville, CA 95519

Prepared by:



GHD  
718 Third Street  
Eureka, CA 95501

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# Appendices

## **Appendix A Figures**

- Figure 1 Vicinity Map
- Figure 2 Conceptual Site Map
- Figure 3 Main and Mezzanine Layout
- Figure 4 Upper and Top Layout

## **Appendix B Air Quality Modeling Results**

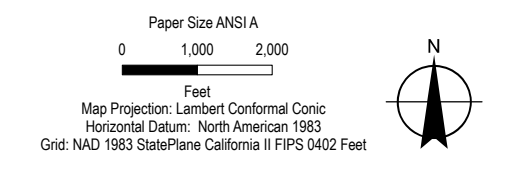
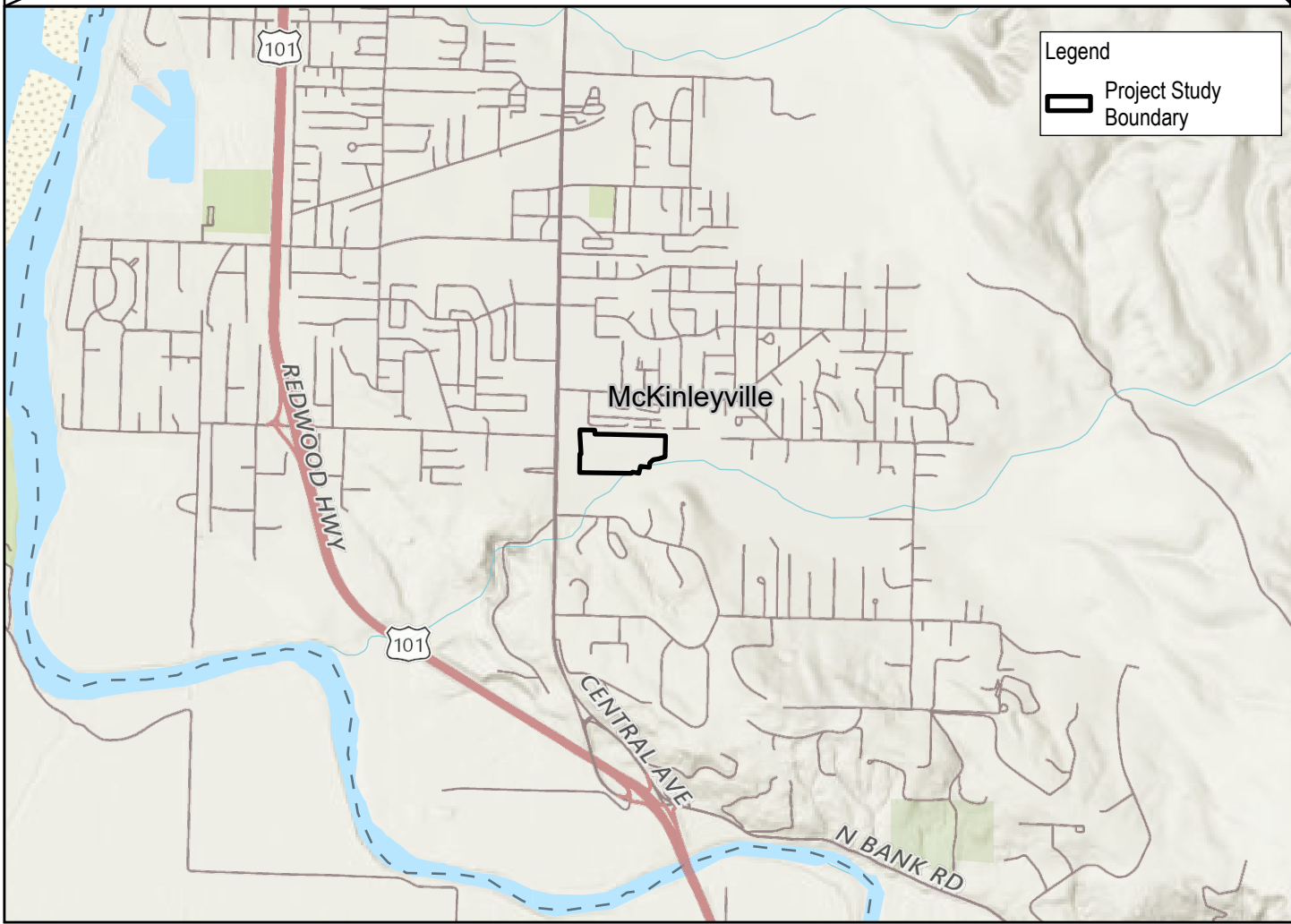
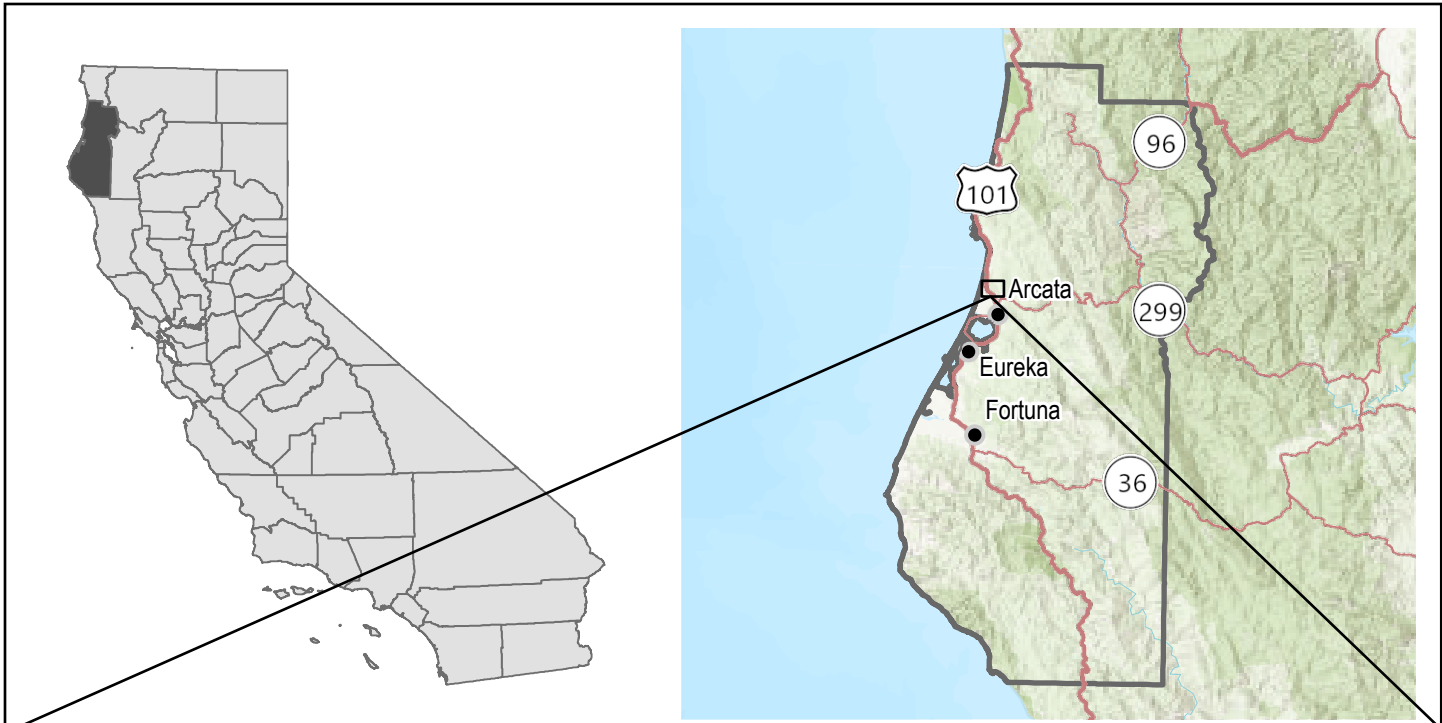
## **Appendix C Aquatic Resources Delineation and Sensitive Habitat Report Rev2**

## **Appendix D Botanical Memorandum Rev1**

# Appendix A

## Figures

- Figure 1 Vicinity Map
- Figure 2 Conceptual Site Map
- Figure 3 Main and Mezzanine Layout
- Figure 4 Upper and Top Layout

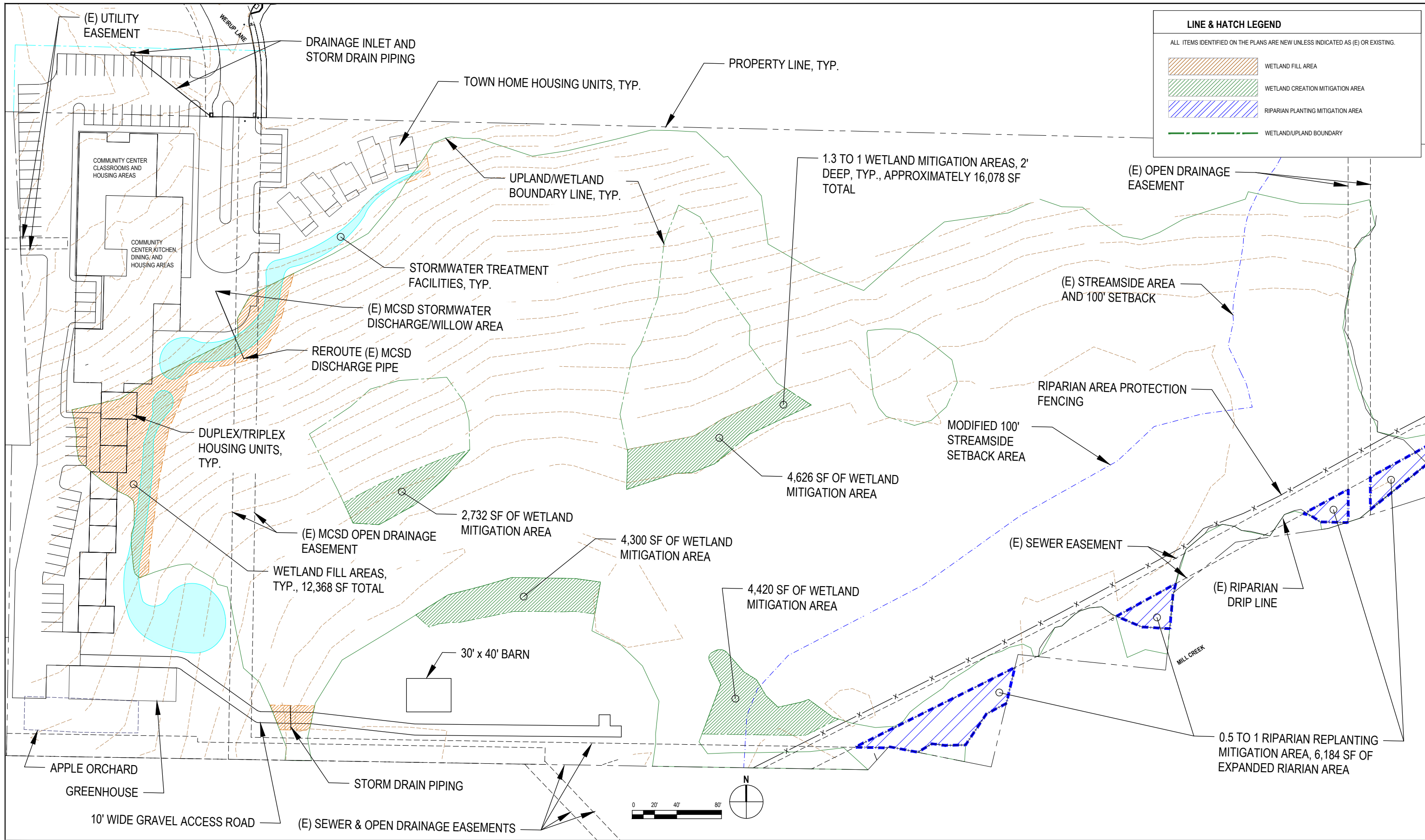


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**Vicinity Map**

Project No. 12560473  
Revision No. -  
Date 9/26/2022

**FIGURE 1**



**LINE & HATCH LEGEND**

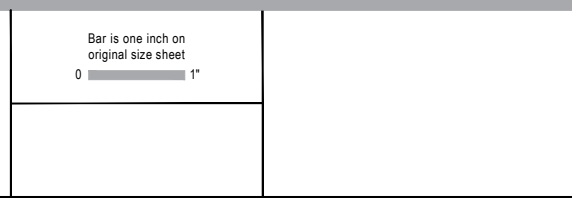
ALL ITEMS IDENTIFIED ON THE PLANS ARE NEW UNLESS INDICATED AS (E) OR EXISTING.

- WETLAND FILL AREA
- WETLAND CREATION MITIGATION AREA
- RIPARIAN PLANTING MITIGATION AREA
- WETLAND/UPLAND BOUNDARY

No.	Issue	Checked	Approved	Date
Author	N. SANGER	Drafting Check	N. SANGER	
Designer	N. SANGER	Design Check	M. SCHWARZ	
		Project Manager	M. SCHWARZ	
		Project Director	C. SMITH	

Bar is one inch on original size sheet

0 1"



**GHD** GHD Inc.  
718 Third Street  
Eureka California 95501 USA  
T 1 707 443 8326 F 1 707 444 8330  
www.ghd.com

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Client **WE ARE UP**

Project **WE ARE UP DEVELOPMENT**

Project No. **12560473**

Date **2/23/2023**

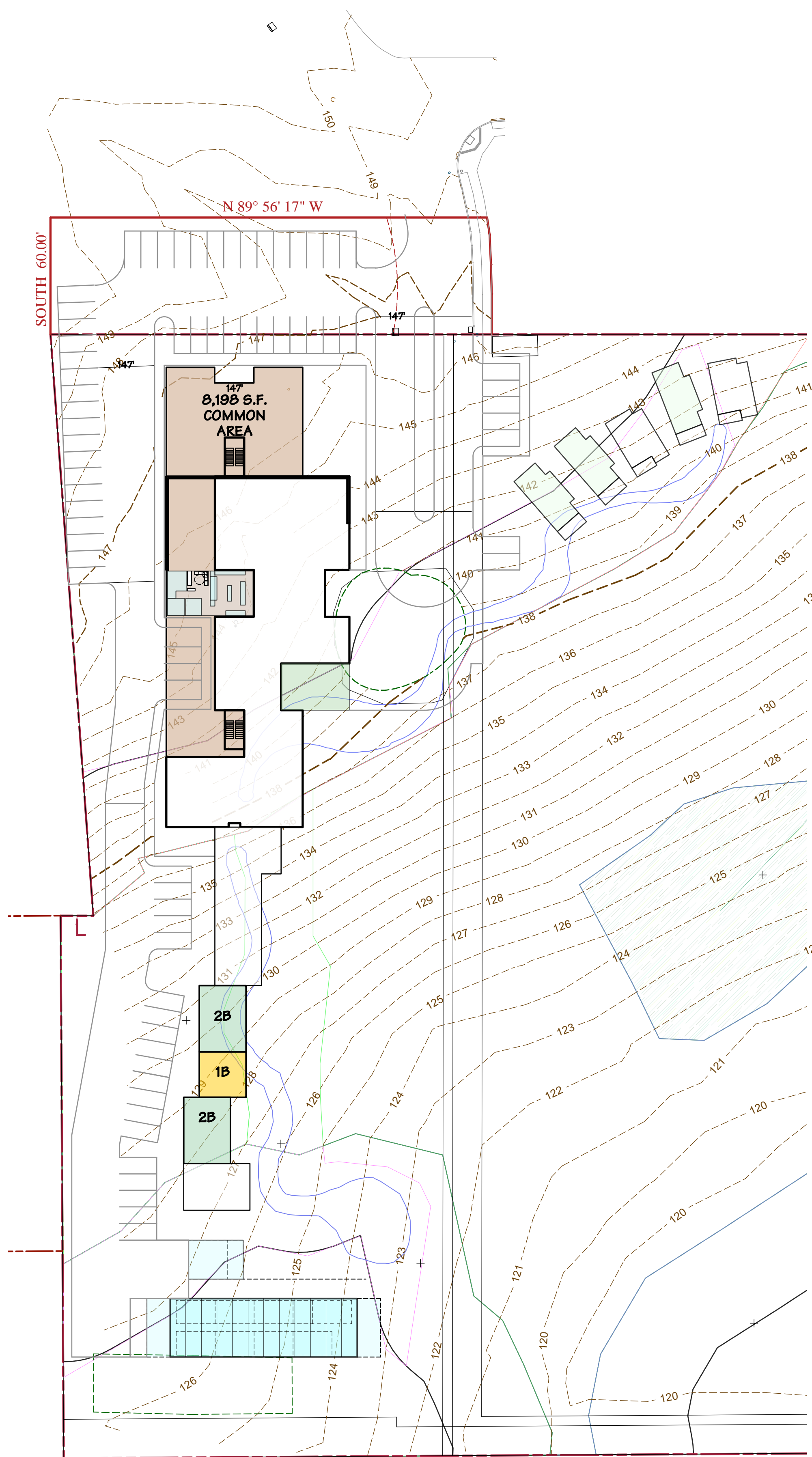
Scale **AS SHOWN**

Title **CONCEPTUAL SITE MAP**  
**FIGURE 2**

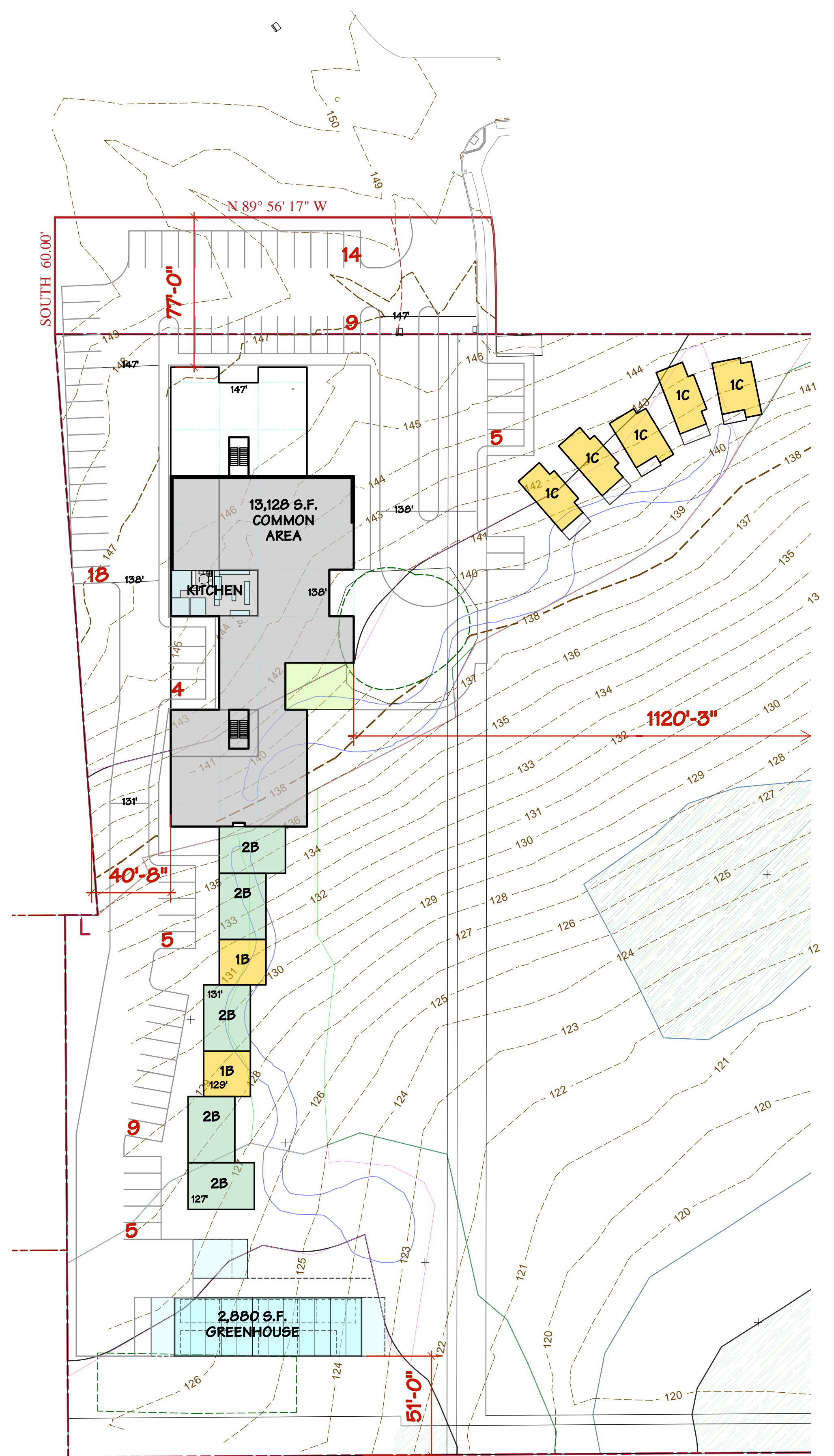
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Status Code

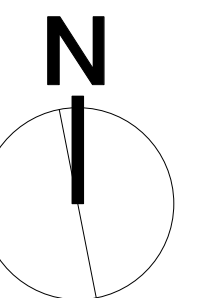
Sheet No. Sheet



**MEZZANINE LEVEL**



**MAIN LEVEL**



**PROPOSED USES**

ID	#	USE	PROPOSED FLOOR AREA
1B	3	ONE BEDROOM UNIT	550 SQ.FT.
1C	5	ONE BEDROOM UNIT	575 SQ.FT.
2B	7	TWO BEDROOM UNIT	820 SQ.FT.
A		MAIN LEVEL PUBLIC AREAS	13,128 SQ.FT.
B		MID LEVEL PUBLIC AREAS	8,198 SQ.FT.
G		GREENHOUSE	2,880 SQ.FT.

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Project No.  
**12560473**

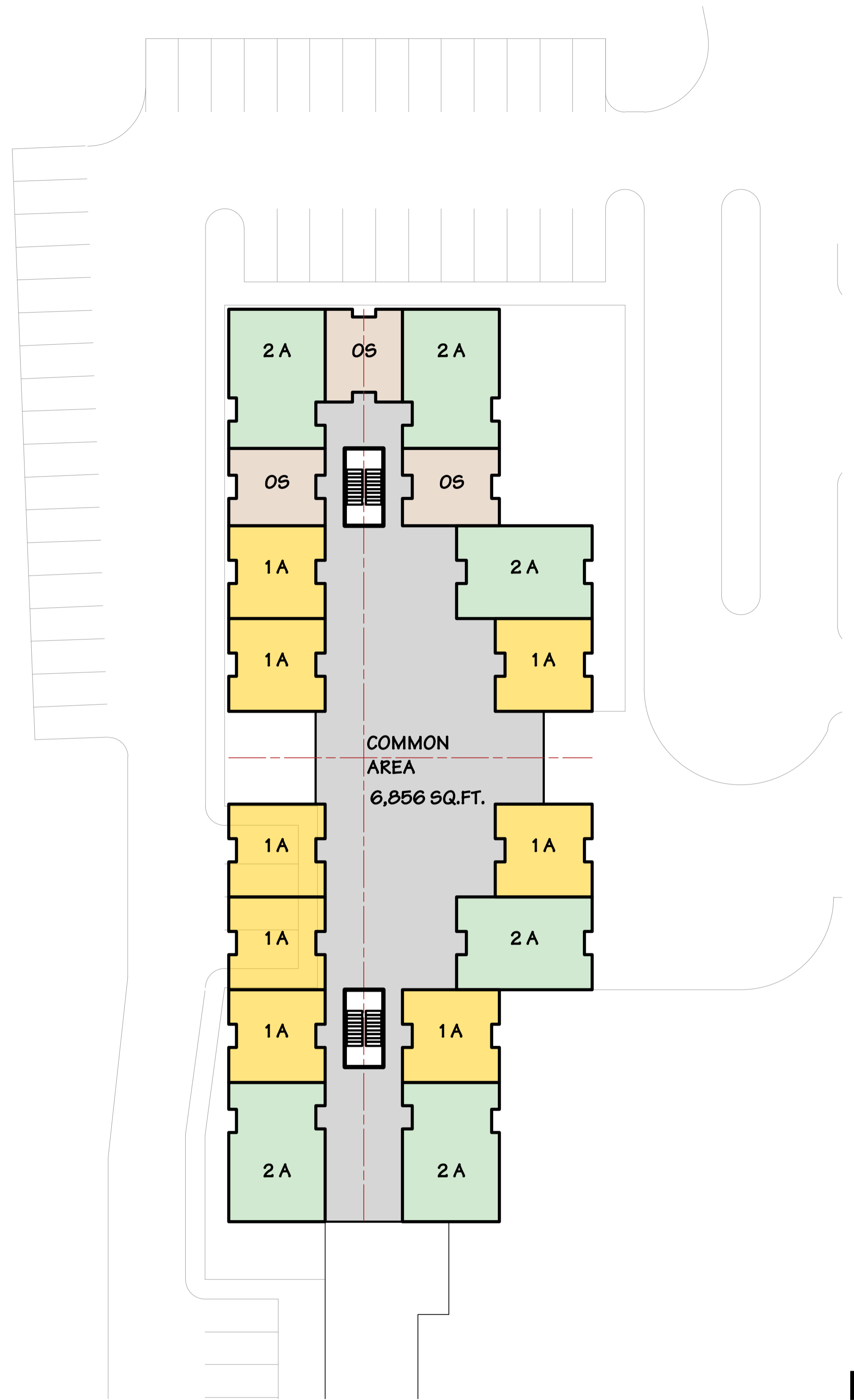
**FIGURE 3**

**Main and Mezzanine Layout**

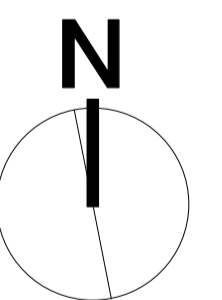




**TOP LEVEL**



**UPPER LEVEL**



PROPOSED USES			
ID	#	USE	PROPOSED FLOOR AREA
OS	7	STUDIO UNIT	460 SQ.FT.
1A	16	ONE BEDROOM UNIT	580 SQ.FT.
2A	12	TWO BEDROOM UNIT	880 SQ.FT.
C		UPPER LEVEL PUBLIC AREAS	6,856 SQ.FT.
D		TOP LEVEL PUBLIC AREAS	6,390 SQ.FT.

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12560473

**FIGURE 4**

**Upper and Top Layout**





# **Appendix B**

## **Air Quality Modeling Results**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**We Are Up - Construction  
Humboldt County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Educational	1.00	User Defined Unit	0.00	30,000.00	0
Parking Lot	73.00	Space	0.66	29,200.00	0
User Defined Recreational	3,600.00	User Defined Unit	0.00	3,600.00	0
Congregate Care (Assisted Living)	50.00	Dwelling Unit	3.13	32,000.00	69

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	103
<b>Climate Zone</b>	1			<b>Operational Year</b>	2026
<b>Utility Company</b>	Pacific Gas and Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	203.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Const. Begin in 2024 or 2025  
 Land Use - Greenhouse and Add'l facilities added as 'Educational' land use. 50 residential units, 69 residents  
 Construction Phase - Demolition and Grading durations increased to 22 days. All other phases are model defaults.  
 Trips and VMT - Grading Hauling Trips 5 mile distance  
 Demolition - Approximately 3,800 SF demo (House, sheds, and barn)  
 Grading - 1,800 CY Import. 1,600 CY Export. All other cut/fill balanced onsite

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	8.00	22.00
tblGrading	MaterialExported	0.00	1,600.00
tblGrading	MaterialImported	0.00	1,800.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LandUseSquareFeet	0.00	3,600.00
tblLandUse	LandUseSquareFeet	50,000.00	32,000.00
tblLandUse	Population	143.00	69.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.033
tblProjectCharacteristics	CO2IntensityFactor	0	203.98
tblProjectCharacteristics	N2OIntensityFactor	0	0.004
tblTripsAndVMT	HaulingTripLength	20.00	5.00

**2.0 Emissions Summary**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1954	1.6553	1.8979	3.6600e-003	0.1792	0.0712	0.2504	0.0768	0.0666	0.1434	0.0000	321.5393	321.5393	0.0676	5.5100e-003	324.8695
2025	0.9709	0.5587	0.7760	1.4400e-003	0.0228	0.0227	0.0455	6.1700e-003	0.0213	0.0275	0.0000	125.6901	125.6901	0.0248	2.1300e-003	126.9424
<b>Maximum</b>	<b>0.9709</b>	<b>1.6553</b>	<b>1.8979</b>	<b>3.6600e-003</b>	<b>0.1792</b>	<b>0.0712</b>	<b>0.2504</b>	<b>0.0768</b>	<b>0.0666</b>	<b>0.1434</b>	<b>0.0000</b>	<b>321.5393</b>	<b>321.5393</b>	<b>0.0676</b>	<b>5.5100e-003</b>	<b>324.8695</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/8/2024	5/7/2024	5	22	Existing Facility Demo
2	Site Preparation	Site Preparation	5/4/2024	5/10/2024	5	5	
3	Grading	Grading	5/11/2024	6/11/2024	5	22	
4	Building Construction	Building Construction	5/23/2024	4/9/2025	5	230	
5	Paving	Paving	4/10/2025	5/5/2025	5	18	
6	Architectural Coating	Architectural Coating	5/6/2025	5/29/2025	5	18	

**Acres of Grading (Site Preparation Phase): 7.5**

**Acres of Grading (Grading Phase): 22**

**Acres of Paving: 0.66**

**Residential Indoor: 64,800; Residential Outdoor: 21,600; Non-Residential Indoor: 50,400; Non-Residential Outdoor: 16,800; Striped Parking Area: 1,752**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	17.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	425.00	10.80	7.30	5.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	62.00	16.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.8700e-003	0.0000	1.8700e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.2297	0.2168	4.3000e-004		0.0106	0.0106		9.8100e-003	9.8100e-003	0.0000	37.3957	37.3957	0.0105	0.0000	37.6572
<b>Total</b>	<b>0.0247</b>	<b>0.2297</b>	<b>0.2168</b>	<b>4.3000e-004</b>	<b>1.8700e-003</b>	<b>0.0106</b>	<b>0.0124</b>	<b>2.8000e-004</b>	<b>9.8100e-003</b>	<b>0.0101</b>	<b>0.0000</b>	<b>37.3957</b>	<b>37.3957</b>	<b>0.0105</b>	<b>0.0000</b>	<b>37.6572</b>

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.4200e-003	2.4000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4917	0.4917	0.0000	8.0000e-005	0.5147
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	5.2000e-004	5.0300e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0336	1.0336	4.0000e-005	4.0000e-005	1.0464
<b>Total</b>	<b>8.2000e-004</b>	<b>1.9400e-003</b>	<b>5.2700e-003</b>	<b>2.0000e-005</b>	<b>1.4100e-003</b>	<b>2.0000e-005</b>	<b>1.4300e-003</b>	<b>3.8000e-004</b>	<b>2.0000e-005</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.5253</b>	<b>1.5253</b>	<b>4.0000e-005</b>	<b>1.2000e-004</b>	<b>1.5611</b>

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0679	0.0458	1.0000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	8.3643	8.3643	2.7100e-003	0.0000	8.4319
<b>Total</b>	<b>6.6500e-003</b>	<b>0.0679</b>	<b>0.0458</b>	<b>1.0000e-004</b>	<b>0.0491</b>	<b>3.0700e-003</b>	<b>0.0522</b>	<b>0.0253</b>	<b>2.8300e-003</b>	<b>0.0281</b>	<b>0.0000</b>	<b>8.3643</b>	<b>8.3643</b>	<b>2.7100e-003</b>	<b>0.0000</b>	<b>8.4319</b>

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.4000e-004	1.3700e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2819	0.2819	1.0000e-005	1.0000e-005	0.2854
<b>Total</b>	<b>2.2000e-004</b>	<b>1.4000e-004</b>	<b>1.3700e-003</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>3.5000e-004</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>0.2819</b>	<b>0.2819</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2854</b>

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0781	0.0000	0.0781	0.0377	0.0000	0.0377	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0183	0.1873	0.1624	3.3000e-004		7.9700e-003	7.9700e-003		7.3300e-003	7.3300e-003	0.0000	28.6703	28.6703	9.2700e-003	0.0000	28.9021
<b>Total</b>	<b>0.0183</b>	<b>0.1873</b>	<b>0.1624</b>	<b>3.3000e-004</b>	<b>0.0781</b>	<b>7.9700e-003</b>	<b>0.0861</b>	<b>0.0377</b>	<b>7.3300e-003</b>	<b>0.0450</b>	<b>0.0000</b>	<b>28.6703</b>	<b>28.6703</b>	<b>9.2700e-003</b>	<b>0.0000</b>	<b>28.9021</b>

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	0.0122	4.2900e-003	4.0000e-005	8.8000e-004	8.0000e-005	9.6000e-004	2.4000e-004	8.0000e-005	3.2000e-004	0.0000	3.5291	3.5291	1.0000e-005	5.5000e-004	3.6947
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	5.2000e-004	5.0300e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0336	1.0336	4.0000e-005	4.0000e-005	1.0464
<b>Total</b>	<b>1.1400e-003</b>	<b>0.0128</b>	<b>9.3200e-003</b>	<b>5.0000e-005</b>	<b>2.1500e-003</b>	<b>9.0000e-005</b>	<b>2.2400e-003</b>	<b>5.8000e-004</b>	<b>9.0000e-005</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>4.5627</b>	<b>4.5627</b>	<b>5.0000e-005</b>	<b>5.9000e-004</b>	<b>4.7412</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Building Construction - 2024**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1170	1.0688	1.2853	2.1400e-003		0.0488	0.0488		0.0459	0.0459	0.0000	184.3200	184.3200	0.0436	0.0000	185.4097
<b>Total</b>	<b>0.1170</b>	<b>1.0688</b>	<b>1.2853</b>	<b>2.1400e-003</b>		<b>0.0488</b>	<b>0.0488</b>		<b>0.0459</b>	<b>0.0459</b>	<b>0.0000</b>	<b>184.3200</b>	<b>184.3200</b>	<b>0.0436</b>	<b>0.0000</b>	<b>185.4097</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5300e-003	0.0713	0.0215	2.7000e-004	8.1700e-003	4.7000e-004	8.6400e-003	2.3700e-003	4.5000e-004	2.8200e-003	0.0000	25.5428	25.5428	1.1000e-004	3.6100e-003	26.6213
Worker	0.0240	0.0154	0.1502	3.4000e-004	0.0380	2.4000e-004	0.0383	0.0101	2.2000e-004	0.0104	0.0000	30.8764	30.8764	1.3100e-003	1.1800e-003	31.2596
<b>Total</b>	<b>0.0266</b>	<b>0.0867</b>	<b>0.1717</b>	<b>6.1000e-004</b>	<b>0.0462</b>	<b>7.1000e-004</b>	<b>0.0469</b>	<b>0.0125</b>	<b>6.7000e-004</b>	<b>0.0132</b>	<b>0.0000</b>	<b>56.4192</b>	<b>56.4192</b>	<b>1.4200e-003</b>	<b>4.7900e-003</b>	<b>57.8809</b>

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**3.5 Building Construction - 2025**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0485	0.4427	0.5710	9.6000e-004		0.0187	0.0187		0.0176	0.0176	0.0000	82.3314	82.3314	0.0194	0.0000	82.8153
<b>Total</b>	<b>0.0485</b>	<b>0.4427</b>	<b>0.5710</b>	<b>9.6000e-004</b>		<b>0.0187</b>	<b>0.0187</b>		<b>0.0176</b>	<b>0.0176</b>	<b>0.0000</b>	<b>82.3314</b>	<b>82.3314</b>	<b>0.0194</b>	<b>0.0000</b>	<b>82.8153</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-003	0.0310	9.3700e-003	1.2000e-004	3.6500e-003	2.0000e-004	3.8500e-003	1.0600e-003	1.9000e-004	1.2500e-003	0.0000	11.2201	11.2201	5.0000e-005	1.5800e-003	11.6910
Worker	0.0101	6.1600e-003	0.0617	1.5000e-004	0.0170	1.0000e-004	0.0171	4.5200e-003	9.0000e-005	4.6200e-003	0.0000	13.3530	13.3530	5.3000e-004	4.9000e-004	13.5110
<b>Total</b>	<b>0.0112</b>	<b>0.0372</b>	<b>0.0711</b>	<b>2.7000e-004</b>	<b>0.0206</b>	<b>3.0000e-004</b>	<b>0.0209</b>	<b>5.5800e-003</b>	<b>2.8000e-004</b>	<b>5.8700e-003</b>	<b>0.0000</b>	<b>24.5731</b>	<b>24.5731</b>	<b>5.8000e-004</b>	<b>2.0700e-003</b>	<b>25.2020</b>

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3.6 Paving - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.3800e-003	0.0678	0.1096	1.7000e-004		3.1700e-003	3.1700e-003		2.9300e-003	2.9300e-003	0.0000	14.7404	14.7404	4.6300e-003	0.0000	14.8562
Paving	8.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>8.2400e-003</b>	<b>0.0678</b>	<b>0.1096</b>	<b>1.7000e-004</b>		<b>3.1700e-003</b>	<b>3.1700e-003</b>		<b>2.9300e-003</b>	<b>2.9300e-003</b>	<b>0.0000</b>	<b>14.7404</b>	<b>14.7404</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>14.8562</b>

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	5.0000e-004	5.0500e-003	1.0000e-005	1.3900e-003	1.0000e-005	1.4000e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.0920	1.0920	4.0000e-005	4.0000e-005	1.1049
<b>Total</b>	<b>8.3000e-004</b>	<b>5.0000e-004</b>	<b>5.0500e-003</b>	<b>1.0000e-005</b>	<b>1.3900e-003</b>	<b>1.0000e-005</b>	<b>1.4000e-003</b>	<b>3.7000e-004</b>	<b>1.0000e-005</b>	<b>3.8000e-004</b>	<b>0.0000</b>	<b>1.0920</b>	<b>1.0920</b>	<b>4.0000e-005</b>	<b>4.0000e-005</b>	<b>1.1049</b>

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3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9001					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5400e-003	0.0103	0.0163	3.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3011
<b>Total</b>	<b>0.9016</b>	<b>0.0103</b>	<b>0.0163</b>	<b>3.0000e-005</b>		<b>4.6000e-004</b>	<b>4.6000e-004</b>		<b>4.6000e-004</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>2.3011</b>

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.0000e-004	3.0300e-003	1.0000e-005	8.3000e-004	0.0000	8.4000e-004	2.2000e-004	0.0000	2.3000e-004	0.0000	0.6552	0.6552	3.0000e-005	2.0000e-005	0.6630
<b>Total</b>	<b>5.0000e-004</b>	<b>3.0000e-004</b>	<b>3.0300e-003</b>	<b>1.0000e-005</b>	<b>8.3000e-004</b>	<b>0.0000</b>	<b>8.4000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>0.6552</b>	<b>0.6552</b>	<b>3.0000e-005</b>	<b>2.0000e-005</b>	<b>0.6630</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

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**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	73.00	Space	0.66	29,200.00	0
User Defined Recreational	3,600.00	User Defined Unit	0.00	3,600.00	0
Congregate Care (Assisted Living)	50.00	Dwelling Unit	3.13	32,000.00	69

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	103
<b>Climate Zone</b>	1			<b>Operational Year</b>	2026
<b>Utility Company</b>	Pacific Gas and Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	160	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics - Project Operations. PG&E CO2 intensity factor adjusted to 2020 PCL Base Plan

Land Use - Greenhouse and Add'l facilities added as 'Educational' land use. 50 residential units, 69 residents

Construction Phase - Operation Only

Vehicle Trips - 46.7 Daily on-way Trips. Avg. 0.934 trips/dwelling unit

Fleet Mix - Fleet Assumed 50/25/25 LDA/LDT1/LDT1

Woodstoves - No Fireplaces

Water And Wastewater - Indoor water demand: 2.2 MG/Year

Energy Use - Defaults = 3,972.46 total kWh/size/year. Non-title 24 electricity increased from 3,054.10 to 4,112.89 to account for Project-specific total annual energy demand estimates (161,000 KWh/year)

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Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	27.50	0.00
tblFireplaces	NumberWood	17.50	0.00
tblFleetMix	HHD	8.6230e-003	0.00
tblFleetMix	LDA	0.47	0.50
tblFleetMix	LDT1	0.07	0.25
tblFleetMix	LDT2	0.21	0.25
tblFleetMix	LHD1	0.05	0.00
tblFleetMix	LHD2	9.9950e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.15	0.00
tblFleetMix	MH	3.3880e-003	0.00
tblFleetMix	MHD	6.4800e-003	0.00
tblFleetMix	OBUS	1.0290e-003	0.00
tblFleetMix	SBUS	1.4230e-003	0.00
tblFleetMix	UBUS	2.1500e-004	0.00
tblLandUse	LandUseSquareFeet	0.00	3,600.00
tblLandUse	LandUseSquareFeet	50,000.00	32,000.00
tblLandUse	Population	143.00	69.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	160
tblVehicleTrips	ST_TR	2.93	0.93
tblVehicleTrips	SU_TR	3.15	0.93
tblVehicleTrips	WD_TR	2.60	0.93
tblWater	IndoorWaterUseRate	3,257,701.28	2,200,000.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

**2.0 Emissions Summary**

**2.1 Overall Construction**

Not Applicable

**2.2 Overall Operational**

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2163	0.0121	0.8673	1.5300e-003		0.0777	0.0777		0.0777	0.0777	10.1068	0.6721	10.7789	0.0480	0.0000	11.9789
Energy	1.0200e-003	8.7100e-003	3.7100e-003	6.0000e-005		7.0000e-004	7.0000e-004		7.0000e-004	7.0000e-004	0.0000	25.2462	25.2462	3.3200e-003	5.6000e-004	25.4973
Mobile	0.0169	0.0168	0.1724	4.0000e-004	0.0477	2.7000e-004	0.0479	0.0127	2.5000e-004	0.0129	0.0000	36.3174	36.3174	1.6700e-003	1.3900e-003	36.7746
Waste						0.0000	0.0000		0.0000	0.0000	9.2625	0.0000	9.2625	0.5474	0.0000	22.9474
Water						0.0000	0.0000		0.0000	0.0000	0.6980	1.3856	2.0836	0.0720	1.7300e-003	4.3977
<b>Total</b>	<b>0.2343</b>	<b>0.0376</b>	<b>1.0434</b>	<b>1.9900e-003</b>	<b>0.0477</b>	<b>0.0786</b>	<b>0.1263</b>	<b>0.0127</b>	<b>0.0786</b>	<b>0.0913</b>	<b>20.0673</b>	<b>63.6214</b>	<b>83.6886</b>	<b>0.6724</b>	<b>3.6800e-003</b>	<b>101.5958</b>

**3.0 Construction Detail**

Not Applicable



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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.0169	0.0168	0.1724	4.0000e-004	0.0477	2.7000e-004	0.0479	0.0127	2.5000e-004	0.0129	0.0000	36.3174	36.3174	1.6700e-003	1.3900e-003	36.7746
Unmitigated	0.0169	0.0168	0.1724	4.0000e-004	0.0477	2.7000e-004	0.0479	0.0127	2.5000e-004	0.0129	0.0000	36.3174	36.3174	1.6700e-003	1.3900e-003	36.7746

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	46.70	46.70	46.70	133,667	133,667
Parking Lot	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	46.70	46.70	46.70	133,667	133,667

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Congregate Care (Assisted Living)	10.80	7.30	7.50	42.30	19.60	38.10	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
User Defined Recreational	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.500000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.467585	0.065185	0.206638	0.147892	0.048469	0.009995	0.006480	0.008623	0.001029	0.000215	0.033079	0.001423	0.003388
User Defined Recreational	0.467585	0.065185	0.206638	0.147892	0.048469	0.009995	0.006480	0.008623	0.001029	0.000215	0.033079	0.001423	0.003388

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.1567	15.1567	3.1300e-003	3.8000e-004	15.3478
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.1567	15.1567	3.1300e-003	3.8000e-004	15.3478
NaturalGas Mitigated	1.0200e-003	8.7100e-003	3.7100e-003	6.0000e-005		7.0000e-004	7.0000e-004		7.0000e-004	7.0000e-004	0.0000	10.0895	10.0895	1.9000e-004	1.8000e-004	10.1495
NaturalGas Unmitigated	1.0200e-003	8.7100e-003	3.7100e-003	6.0000e-005		7.0000e-004	7.0000e-004		7.0000e-004	7.0000e-004	0.0000	10.0895	10.0895	1.9000e-004	1.8000e-004	10.1495

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	189070	1.0200e-003	8.7100e-003	3.7100e-003	6.0000e-005		7.0000e-004	7.0000e-004		7.0000e-004	7.0000e-004	0.0000	10.0895	10.0895	1.9000e-004	1.8000e-004	10.1495
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>1.0200e-003</b>	<b>8.7100e-003</b>	<b>3.7100e-003</b>	<b>6.0000e-005</b>		<b>7.0000e-004</b>	<b>7.0000e-004</b>		<b>7.0000e-004</b>	<b>7.0000e-004</b>	<b>0.0000</b>	<b>10.0895</b>	<b>10.0895</b>	<b>1.9000e-004</b>	<b>1.8000e-004</b>	<b>10.1495</b>

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**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	198623	14.4150	2.9700e-003	3.6000e-004	14.5967
Parking Lot	10220	0.7417	1.5000e-004	2.0000e-005	0.7511
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>15.1567</b>	<b>3.1200e-003</b>	<b>3.8000e-004</b>	<b>15.3478</b>

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2163	0.0121	0.8673	1.5300e-003		0.0777	0.0777		0.0777	0.0777	10.1068	0.6721	10.7789	0.0480	0.0000	11.9789
Unmitigated	0.2163	0.0121	0.8673	1.5300e-003		0.0777	0.0777		0.0777	0.0777	10.1068	0.6721	10.7789	0.0480	0.0000	11.9789

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1409					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0510	7.5500e-003	0.4627	1.5100e-003		0.0755	0.0755		0.0755	0.0755	10.1068	0.0000	10.1068	0.0473	0.0000	11.2880
Landscaping	0.0142	4.5800e-003	0.4046	2.0000e-005		2.1800e-003	2.1800e-003		2.1800e-003	2.1800e-003	0.0000	0.6721	0.6721	7.5000e-004	0.0000	0.6909
<b>Total</b>	<b>0.2163</b>	<b>0.0121</b>	<b>0.8673</b>	<b>1.5300e-003</b>		<b>0.0777</b>	<b>0.0777</b>		<b>0.0777</b>	<b>0.0777</b>	<b>10.1068</b>	<b>0.6721</b>	<b>10.7789</b>	<b>0.0480</b>	<b>0.0000</b>	<b>11.9789</b>

We Are Up - Operation - Humboldt County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.0836	0.0720	1.7300e-003	4.3977
Unmitigated	2.0836	0.0720	1.7300e-003	4.3977

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	2.2 / 2.05377	2.0836	0.0720	1.7300e-003	4.3977
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>2.0836</b>	<b>0.0720</b>	<b>1.7300e-003</b>	<b>4.3977</b>

We Are Up - Operation - Humboldt County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.0 Waste Detail**

**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.2625	0.5474	0.0000	22.9474
Unmitigated	9.2625	0.5474	0.0000	22.9474

**8.2 Waste by Land Use**

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	45.63	9.2625	0.5474	0.0000	22.9474
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>9.2625</b>	<b>0.5474</b>	<b>0.0000</b>	<b>22.9474</b>



# **Appendix C**

**Aquatic Resources Delineation and  
Sensitive Habitat Report Rev2**





# **Aquatic Resources Delineation and Sensitive Habitat Report\_Rev2**

We Are Up Housing Project

March 01, 2023



# Aquatic Resources Delineation and Sensitive Habitat Report\_Rev2 We Are Up Housing Project

This document has been prepared for:



We Are Up  
4636 Fieldbrook Rd #109  
McKinleyville, CA 95519

By:



GHD  
718 Third Street  
Eureka, CA 95501, United States  
T 707 443 8326 | E [misha.schwarz@ghd.com](mailto:misha.schwarz@ghd.com) | [ghd.com](http://ghd.com)

March 01, 2023



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# 1. Summary

GHD prepared this Aquatic Resources Delineation and Sensitive Habitat Report and accompanying appendices on behalf of We Are Up (Client), in support of the proposed We Are Up Housing Project (Project) within the community of McKinleyville, California (**Appendix A Figure 1**). The surveys were conducted within the Project Study Boundary (PSB) as shown in **Appendix A, Figure 2**. GHD conducted the aquatic resource delineation fieldwork on September 17th, 22nd, November 19th, December 2nd, 2021, and January 25th, 2022. A site visit was made on September 15, 2022 to assess a small area added in the northwest corner of the PSB resulting from a lot line adjustment after the wetland delineations were completed. The area encompassed by the expanded PSB is approximately 0.36 acres, most of which is comprised of regularly mowed field, and the remainder is gravel and paved surfaces. Hydrology monitoring through groundwater monitoring wells was conducted in January and February of 2023. United States Army Corps of Engineers (USACE) three-parameter wetlands were mapped based on wetland indicative vegetation, hydric soils, and wetland hydrology. GHD conducted a CDFW protocol level Sensitive Natural Community (SNC) survey on September 14<sup>th</sup>, 2021. GHD also mapped the Riparian drip line as required by the 2017 Humboldt General Plan. Three-parameter wetlands were mapped as shown in **Appendix A, Figure 3**. The Project is within the McKinleyville Community Plan which requires mapping of one-parameter wetlands (including three-parameter wetlands) requirements. No one-parameter wetlands were found in addition to the three-parameter identified in **Figure 3** (McKinleyville Community Plan, 2002). There were two Sensitive Natural Communities (SNCs) observed within the PSB.

The aquatic resource delineation identified one three-parameter wetland with hydric soil, hydrophytic vegetation, and hydrology indicators, and two SNCs. The three-parameter wetland extends throughout most of the PSB. The total area of the three-parameter wetland mapped within the PSB is 8.68 acres and the total area of SNCs mapped within the PSB is 1.6 acres (**Appendix A, Figure 3**). The three-parameter wetlands are hydrologically connected to Mill Creek, a tributary of Mad River (a navigable water) and is likely USACE and Regional Water Quality Control Board (RWQCB) jurisdictional. The total area of three-parameter wetlands encompasses 8.68 acres, or 56.2% of the PSB.

## 2. Introduction

This report supports the Project's environmental documentation, permitting, and construction planning as deemed appropriate. The proposed PSB encompasses 15.4 acres (**Appendix A Figure 3**). This report is subject to, and must be read in conjunction with, the limitations set out in Section 6, Special Terms and Conditions, and the assumptions and qualifications contained throughout the report.

### 2.1 Site Location and Project Description

The PSB consists of partially developed, and grassy and vegetated open space, just west of Grocery Outlet in McKinleyville, California (**Appendix A, Figure 1**). The PSB is bordered by residential areas to the north and west, and by Mill Creek to the south, and a forested lot to the east. The property is a generally flat to mildly sloped grassland field, with several small clumps of trees within, and bordered by trees to the south and west of the property. The study of this Project is an investigation of uplands, wetlands, and SNCs on the parcel to inform future proposed development.

## 2.2 Regulatory Background

### 2.2.1 Federal

#### **Waters of the United States**

The Code of Federal Regulations (CFR), 40 CFR § 230.3 states the following:

*The term waters of the United States are defined as:*

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
- (2) All interstate waters including interstate wetlands;*
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
  - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
  - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
  - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;**
- (4) All impoundments of waters otherwise defined as waters of the United States under this definition;*
- (5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;*
- (6) The territorial sea;*
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. (40 CFR § 230.3).*

#### **Wetlands Definition**

40 CFR § 230.3 continues and defines, “(t) The term wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas” (40 CFR § 230.3).

#### **Wetland Delineation Manual**

The 1987 USACE Wetland Delineation Manual provides guidelines and methods to determine whether an area is a wetland subject to federal regulation under Section 404 of the Clean Water Act. The manual specifies that wetland hydrology, soil, and vegetation indicators must be present to identify a wetland (USACE 1987, p. 10). In addition, the Wetlands Delineation Manual states, “If hydrophytic vegetation is

being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g., irrigation) were to be terminated, the area should not be considered a wetland,” (USACE, 1987).

### **Federal Geographic Data Committee (FGDC) Wetland Classification Standard**

The Classification of Wetlands and Deepwater Habitats of the United States (FGDC, 2013) provides a nationally standardized hierarchical system for classifying wetland and deepwater habitats based on Cowardin et al. (1979). The National Wetland Inventory (NWI), a publicly available resource that provides information on the distribution of wetlands in the U.S., classifies wetlands according to the FDGC standard. The FDGC classification is based on a definition of wetlands with at least one of the three wetland attributes: predominantly hydrophytic vegetation, predominantly hydric soil, and hydrology. However, they state that all available information should be used, and all three attributes should be considered if they are present (FGDC, 2013).

#### **2.2.2 State**

The State Water Resources Control Board’s (SWRCB) April 2019 Procedures for Discharges of Dredged or Fill Material to Waters of the State says the following:

*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes, or the area lacks vegetation.*

*The Water Code defines “waters of the state” broadly to include “any surface water or groundwater, including saline waters, within the boundaries of the state.” “Waters of the state” includes all “waters of the U.S.” The following wetlands are waters of the state:*

- 1. Natural wetlands,*
- 2. Wetlands created by modification of a surface water of the state, and*
- 3. Artificial wetlands that meet any of the following criteria:*
  - a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;*
  - b. Specifically identified in a water quality control plan as a wetland or other water of the state;*
  - c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or*
  - d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):*
    - i. Industrial or municipal wastewater treatment or disposal,*
    - ii. Settling of sediment,*



- iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
- iv. Treatment of surface waters,
- v. Agricultural crop irrigation or stock watering,
- vi. Fire suppression,
- vii. Industrial processing or cooling,
- viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
- ix. Log storage,
- x. Treatment, storage, or distribution of recycled water, or
- xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
- xii. Fields flooded for rice growing.

*All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state” (SWRCB, 2019).*

The February 2020 Draft Guidance State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State further clarifies as follows:

*Human activity can cause changes to the surrounding landscape (e.g., grading activities, road construction, direct hydromodification) such that wetlands form where wetlands did not previously exist. Where such artificial wetlands are now a relatively permanent part of the natural landscape, and are not subject to ongoing operation and maintenance, they are waters of the state. By requiring that the wetlands are relatively permanent, the framework excludes wetlands that are temporary or transitory. That they are part of the natural landscape also indicates the relative permanence of the wetlands and suggests that the wetland is self-sustaining without ongoing operation and maintenance activities and provides similar ecosystem services as natural wetlands. By way of example, this category of wetlands includes situations where water flow is permanently redirected as the result of human activity, such as grading in another area, such that new wetlands form in areas that were previously dry. These wetlands may not be natural wetlands because they result from human activity and they were not formed by modifying a water of the state (rather they were an indirect result), but nevertheless they take on the function of natural wetlands such that they should be considered waters of the state. This category would not include artificial wetlands constructed for specific purposes listed in section II.3.d because the construction of the artificial wetlands would be too recent to be deemed “historic” and the artificial wetland would likely require ongoing maintenance such that they would not be deemed “relatively permanent,” and/or the artificial wetland is not part of the “natural landscape” (SWRCB, 2020).*

The RWQCB carry out and regionally regulate the SWRCB’s definition of Waters of the State.

## 2.2.3 McKinleyville Community Plan

The McKinleyville Community Plan (2002, updated 2017) defines wetland areas using a 1-parameter definition as follows (p. 49):

*Wetland Areas shall be defined according to the criteria utilized by the CA Dept. of Fish and Game (also included in the County's Open Space Implementation Standards). In summary, the definition requires that a given area satisfy at least one of the following three criteria:*

- 1. The presence of at least periodic predominance of hydrophytic vegetation; or,*
- 2. predominately hydric soils; or,*
- 3. periodic inundation for seven (7) consecutive days.*

For this study, “hydrophytic vegetation” is deemed to be plants that have their roots in saturated soil (reduced conditions) during the growing season (i.e., water table at the surface). Hydrophytic plants are FACW or wetter (OBL) per the wetlands indicator status as defined by the *2020 National Wetland Plant List* (USACE 2020) and are the dominant plant species in any given plot.

## 3. Methodology

### 3.1 Aquatic Resources Delineation Approach

GHD scientists conducted the aquatic resource delineation on September 17th, 22nd, November 19th, December 2nd, 2021, and January 25th, 2022. The PSB expanded after the initial wetland delineations, and on September 15, 2022, GHD scientists visited this site to assess the presence or absence of aquatic resources. Groundwater monitoring occurred in the winter of 2022-2023 to further investigate hydrology on-site and aided in determining wetland boundaries.

To define a wetland, the USACE requires that vegetation, soil, and hydrology (three-parameters) all show wetland attributes (USACE 1987; USACE 2010). The wetland delineation used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)* (USACE 2010). The current standard field forms provided by the USACE (2010) were used to collect vegetation, soils, and hydrology data (**Appendix B**).

In potential three-parameter wetland areas, vegetation, soil, and hydrology data were collected in a transect across the upland/wetland boundary with two plots (upland/wetland) per transect. The naming convention used on datasheets to designate upland or wetland plots associated with a transect is -U or -W, respectively.

Three-parameter wetland/upland boundaries and plots were mapped in the field with an Eos Arrow 100 Submeter Global Positioning System (GPS) Receiver with Global Navigation Satellite System (GNSS) and an iPad running ArcGIS Collector software. The wetland/upland boundary was recorded with the GPS unit as needed to map the wetland's spatial extent. The points were then connected in the office using ArcMap software for figure creation and the boundaries were clipped to the extent of the PSB.

Each three-parameter wetland area was designated with a number (e.g., W1). The wetland points were also labeled with their respective wetland number. In addition to the wetland sampling points, upland sampling points were described. These were labeled beginning with a “U” and numbered in sequence (e.g., U1, U2). The upland sampling points were completed to confirm and document the absence of any wetland indicators (soils, hydrology, and vegetation). **Appendix B** contains all datasheets recorded during the delineation.

## 3.2 Botanical Methodology

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer within a standard-sized plot determined by the strata layer. Nomenclature follows *The Jepson Manual* (Baldwin et al. 2012), which was cross-checked to federal standard nomenclature to identify the indicator status. The species' wetland indicator status for the Western Mountains, Valleys, and Coast Region was denoted in the respective column, using the standard reference: *2020 National Wetland Plant List* (USACE 2020). This list classifies species based on the probability that they are found in wetlands (USACE 1987) as follows:

- Obligate (OBL): almost always in wetlands (99% probability)
- Facultative Wetland (FACW): usually occurring in wetlands (67% to 99% probability)
- Facultative (FAC): commonly occurring in wetlands and uplands (34% to 66% probability of occurring in wetlands)
- Facultative Upland (FACU): usually occurring in uplands (1% to 33% probability of occurring in wetlands)
- Upland (UPL): upland obligate, rarely in wetlands (1% in wetlands)

Species that do not appear on the list are considered to be in the upland category (Lichvar et al. 2018). Standard procedures for documenting hydrophytic vegetation indicators were used per the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Site photographs have been included as **Appendix C**. A separate Botanical Memo contains the locations and extents of mapped vegetation alliances and Sensitive Natural Communities within the PSB (GHD 2021). Wetland vegetation is considered an assembly of plants that are FAC or wetter.

## 3.3 Vegetation Mapping and Assessment

The vegetation community onsite was assessed in the field and classified at the alliance level according to the Manual of California Vegetation (Sawyer et al. 2009) using the Rapid Assessment method. Kelsey McDonald assessed potential SNCs according to protocol (CDFW 2018) and mapped Mill Creek's Riparian Drip line on September 14, 2021, in accordance with the Humboldt County General Plan as directed by the county (2021, Trevor Estlow, pers. comm.). Vegetation Rapid Assessment forms (**Appendix D**) were used to characterize the dominant vegetation and evaluate habitat quality, and this assessment provided the basis for designating vegetation as SNCs per CDFW should it qualify. Photo documentation of the habitat observed onsite can be found in **Appendix C**. The Rapid Assessment location was mapped using a point collected in the field with an Eos Arrow 100 Submeter Global Navigation Satellite System (GNSS) Receiver and an iPad running ArcGIS Collector software in the WGS84 datum. The location of the Vegetation Rapid Assessments is shown in **Appendix A Figure 3**. A Natural Resources Conservation Service (NRCS) soils map was consulted prior to conducting surveys (**Appendix A Figure 4**), as is required by CDFW's protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities (CDFW 2018). The full NRCS Custom Soil Resource report for the PSB is available in **Appendix E**. Mapping of sensitive plant species will occur in the spring/summer of 2022 and the results will be transmitted in a separate report.

## 3.4 Soils Methodology

Hydric soils were defined based on the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010) procedures in combination with the Natural Resources Conservation Service's (NRCS) definitions presented in *Field Indicators of Hydric Soils in the United States* (USDA/NRCS 2018 version 8.2). Soil pits were dug to an approximate depth of 14 to 18 inches. Data on soil color, texture, and redoximorphic features were recorded. Any observed redoximorphic features (iron concentrations) were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 are indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2018).

The *Munsell Soil Color Book* (COLOR, M. 2000) was used to describe the soil colors for the entire depth of the test pit. Moist, natural soil aggregate (ped) surfaces, which had not been crushed, were used to determine the soil's color. Soils with low chroma were verified as being hydric or upland with *Field Indicators of Hydric Soils in the United States* (Version 8.2, 2018).

### 3.4.1 Existing Soils Information

The NRCS identifies three main soil units within the PSB (**Appendix A, Figure 4; and Appendix E**). A brief map unit description, as generated by the NRCS, is provided for each soil unit below (NRCS 2022). Although NRCS soil mapping is informative, the scale is generally too broad to definitively characterize potential wetlands. Please see the full report included as **Appendix E** for complete details.

#### **Worswick-Arlynda complex 0 to 2 percent slopes**

The Worswick-Arlynda complex 0 to 2 percent slopes map unit composition contains: 55% Worswick and similar soils, 15% Arlynda and similar soils, and 10% minor components. Worswick-Arlynda soils can be found in river valleys, backslopes and mountain bases; the parent material is alluvium derived from mixed sources rock. Worswick-Arlynda complex soils consist of silty loam in the top and lower horizons, with loamy and gravelly sand in the middle horizons. Worswick-Arlynda soils would be considered prime farmland if irrigated and drained. These soils are very poorly drained, and the depth to water table is 0 to 4 inches. Worswick-Arlynda complex is considered a hydric soil. This soil type is in the southeastern corner of the PSB and comprises 9.7% of the PSB.

#### **Arcata and Candymountain, 0 to 9 percent slopes**

The Arcata and Candymountain 0 to 9 percent slopes map unit composition contains: 50% Arcata and similar soils, 35% Candymountain and similar soils, and 15% minor components. Arcata and Candymountain soils can be found on marine terraces, backslopes and tread; the parent material is marine deposits derived from mixed sources. Arcata and Candymountain soils 0 to 9 percent consist of very fine to fine sandy loam. These soils are considered Prime farmland if irrigated. These soils are well drained, and the depth to water table is more than 80 inches. Arcata and Candymountain are not considered hydric soil. This soil type is in a very thin linear line that separates the Worsick-Arlynda complex 0 to 2% slopes from the Arcata and Candymountain soils 2 to 9% slopes, thus comprises a very small portion of the project area.

#### **Arcata and Candymountain, 2 to 9 percent slopes**

The Arcata and Candymountain 2 to 9 percent slopes map unit composition contains: 50% Arcata and similar soils, 35% Candymountain and similar soils, and 15% minor components. Arcata and Candymountain soils can be found on marine terraces, backslopes and tread; the parent material is marine deposits derived

from sedimentary sock. Arcata and Candymountain soils consist of loam, sandy loam, and fine sandy loam. Arcata and Candymountain soils are considered farmland of statewide importance. These soils are well drained, and the depth to water table is more than 80 inches. Arcata and Candymountain are not considered hydric soils. This soil type is in the main portion of the PSB and comprises 90.3% of the PSB.

### 3.5 Precipitation and Hydrology

GHD performed the investigation within the PSB during September 17th, 22nd, November 19th, December 2nd, 2021, and January 25th, 2022, starting at the end of the dry season and continuing through the winter wet season. Additionally, groundwater was monitored in the 2022-2023 water year. A WETS table showing climate data for the Arcata Eureka Airport, CA, Station is provided in **Appendix F** (NOAA 2022). The Mill Creek Wetlands overlay as defined can is shown in Figure 4 (**Appendix A, Figure 5**). The FEMA flood hazard map is included in **Appendix A, Figure 6** (FEMA 2022). Aerial photography and the National Wetland Inventory Mapper were referenced before conducting fieldwork (**Appendix A, Figure 7**) (NWI 2022). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field.

Field investigations were conducted in the winter of 2022-2023 and included visual observations, test pits, and soil characterization at seven hydrology pits, and monitoring of ten groundwater monitoring wells (piezometers) after 50 percent average annual rainfall was recorded for the nearest appropriate climate station (**Appendix A, Figure 8**). Each monitoring well (“MW”) was designated with a number (e.g., MW-1), and each hydrology pit (“HP”) was also designated with a number (e.g., HP-1). Precipitation data and rainfall measurements to aid in groundwater monitoring were taken from the NOAA rain gage at the Eureka Weather Forecast Office (WFO) on Woodley Island. The Eureka NOAA rain gauge is the station nearest to the project site with sufficient historical data (at least 20 years) required to analyze the average annual rainfall. **Appendix F** presents the NRCS WETS table data applicable to the Project site for the 2023 water year.

#### 3.5.1 Groundwater Monitoring Well Installation

Ten monitoring wells (piezometers) were installed onsite on January 11, 2022 (MW-1 through MW-10) (**Appendix A, Figure 8**). The wells were installed in potential wetlands and mapped uplands. Wells installed in potential wetlands were installed to determine if wetlands hydrology exists or does not exist (groundwater within 12 inches of the surface for 14 consecutive days) and were used to inform this wetlands delineation (MW-2 and MW-3, located on the western portion of the property). Other wells were installed in uplands to inform wetlands creation (to be incorporated into the Wetlands Mitigation and Monitoring Plan) and stormwater infiltration (to inform the stormwater engineering design).

Wells were installed by hand auguring to a depth of four to five feet. One-inch PVC piping was used, with the bottom approximate one half of the wells being slots (and was wrapped with geofabric and had a slot size of 0.010 inches), and the top approximate one half being solid. The well was placed in the augured hole and back filled with clean, dry sand to approximately one foot from the ground surface. The remainder of the hole was filled with Bentonite hole plug, which was mounded around each well. Each well was then labelled, and prior to monitoring in 2023, the top of casing was measured (distance from the ground surface to the top of PCV pipe).

Once half of the annual average rainfall occurred monitoring of the wells commenced. Monitoring started on January 7, 2023 and was completed on February 21, 2023. Depth to groundwater was measured with an electronic groundwater measurement device that “beeped” when water was encountered. Depth to groundwater was measure in a tenth of a foot.

The U.S. Army Corps of Engineers (2005) provides a technical standard for monitoring hydrology. This standard requires 14 or more consecutive days of flooding or ponding, or a water table within 12 inches of the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50 percent or higher probability) (National Research Council 1995). Groundwater was monitored once 50 percent of the average annual rainfall had been met and was monitored for five consecutive weeks (Day 0, 7, 14, 21, 28, and 35), after the 50 percent of average annual rainfall (**Appendix F**), starting on January 7, 2023 and completed on February 21, 2023.

Depth to groundwater was measured with an electronic groundwater measurement device that “beeped” when water was encountered (Heron Instruments Little Dipper water level data logger). Weekly measurements included the water depth for each well and depth to groundwater was measured in tenths of a foot. Groundwater elevations generally correlate to rainfall data, with groundwater elevations rising following precipitation events, and falling after and between events.

### 3.5.2 Hydrology Soil Pits

In addition to MW-2 and MW-3 installed in the western portion of the property, “hydro-soil” pits (HPs) were excavated to determine groundwater condition surrounding MW-2 and MW-3 (**Appendix A, Figure 8**). Seven HPs were dug (HP-1 through HP-7) by hand, commencing on January 24, 2023 and terminating on February 21, 2023. During each visit each HP was hand dug with a sharpshooter to approximately 14-18 inches and remained open for 20-30 minutes prior to any measurement. For each visit, a new hole was excavated. Once the HP was left open for the time previously mentioned, depth to groundwater was measured from the surface. Measurement was in inches.

#### Soil Profile at Hydrology Soil Pits

At each HP location, soils data was collected on February 25, 2023, which was a sunny day. Soil pits were excavated to approximately 14 inches and data was collected regarding horizon depth, soil color, and redoximorphic features. Special attention was given to soil chroma color.

## 4. Results

The PSB contains one three-parameter wetland that is likely USACE and RWQCB jurisdictional and two Sensitive Natural Communities (SNCs) as well as a Riparian Drip line as defined by the Humboldt County General Plan. Upland sampling pits (plot locations) are also described to confirm and document the absence of wetland hydrology, hydric soils and hydrophytic plants in these uplands sampling areas. **Appendix A, Figure 3** shows the results of the three-parameter wetland delineation, and SNC determination based upon dominant vegetation. The Riparian Drip line was mapped per guidance from the Humboldt County General Plan and county staff.

### 4.1 Wetland

One contiguous three-parameter wetland was mapped within the PSB totaling 8.68 acres. Please see the USACE Data Forms in **Appendix B** for more details and see **Appendix A, Figure 3** for the associated map. Soil pits and vegetation plots were conducted throughout the PSB totaling nine transect points (**Table 1**). An additional 143 soil pits (**Table 2**) were dug, of which 101 ended up being hydric and 42 were non hydric soils.

The determination of hydric and non-hydric soil on these 143 soil pits was solely based on soil features and morphology.

Groundwater monitoring also occurred after 50 percent average annual rainfall was observed for the 2022-2023 water year to further investigate hydrologic patterns on-site. Monitoring occurred every seven days for 35 consecutive days beginning 1/17/2023 and extending to 2/21/2023. Results from this monitoring are summarized in **Section 4.3**.

Wetland 1 was open and mostly free of rooted woody vegetation and is classified according to the Cowardin system as a Palustrine Emergent wetland (PEM) (FGDC 2013). The vegetation was primarily characterized by redtop (*Agrostis stolonifera*, FAC), reed fescue (*Festuca arundinacea*, FAC), common velvetgrass (*Holcus lanatus*, FAC), Italian rye grass (*Festuca perennis*, FAC), slough sedge (*Carex obnupta*, OBL), and mountain bod sedge (*Scirpus microcarpus*, OBL). Wetland 1 mostly passed the dominance test for hydrophytic vegetation (wetlands plots).

Soil in Wetland 1 consisted mostly of loams with a 10YR 3/2 upper horizon (0 to 4 or 6 inches) with 0% to 20% of 7.5YR 4/6 redoximorphic features and a 10YR 3/2 lower horizon (4 or 6 to 14 inches) with distinct 10% to 30% of 7.5YR 4/6 redoximorphic features. The hydric soil indicator is Redox Dark Surface (F6). Wetland 1 was drier in some locations and wetter in others with standing water in the swales, appearing to drain south to Mill Creek. Primary indicators of wetland hydrology were a High Water Table (A2), Saturation (A2), and secondary indicators of wetland hydrology included geomorphic position (D2) and passing the vegetation FAC-neutral test (D5). Wetland 1 is hydrologically connected to a Mill Creek which is connected to the Mad River, a navigable waterway and is therefore assumed to be under USACE and RWQCB jurisdiction. Please see attached data forms for sample points W1T1-W and W1T1-U in **Appendix B** and **Table 1** for additional details.

**Table 1 Wetland Transect Sampling Locations**

Sample Point	Location (lat/long) center of transect (wetlands uplands boundary)
W1T1 / U1T1	(40.932710409, -124.098692428)
W1T2 / U1T2	(40.932734608, -124.098625034)
W1T3 / U1T3	(40.932764517, -124.097496859)
W1T4 / U1T4	(40.933062453, -124.099412379)
W1T5 / U1T5	(40.933518773, -124.099463200)
W1T6 / U1T6	(40.934214987, -124.098043217)
W1T7 / U1T7	(40.933722303, -124.097575092)
W1T8 / U1T8	(40.932748433, -124.097355161)
W1T9 / U1T9	(40.933377525, -124.098205482)

## 4.2 Uplands

Upland sampling points were also collected to characterize areas that are likely to be affected by the Project. No wetlands indicators were detected within the areas characterized by the upland pits and vegetation plots.

The upland sample points were located throughout the PSB, wherever the ground appeared to be slightly drier and higher than the surrounding areas. Upland areas were dominated by redtop (FAC), sweet vernal grass (*Anthoxanthum odoratum*, FACU), sweet vernal grass (FAC), ribwort (*Plantago lanceolata*, FACU), and hawkbit (*Leontodon saxatilis*, FACU). Soils did not show hydric soil characteristics and contained mostly a loam texture with an upper horizon of 10YR 3/3 from 0 to 9 inches with no redoximorphic features, and a lower horizon from 9 to 14 inches of 10YR 3/4 with usually 0% redoximorphic features. The site did not show any primary or secondary indicators of wetland hydrology. Vegetation plots did not pass the FAC Neutral test. While many plots contained primarily facultative plants, these plants were not acting as hydrophytic vegetation, and were present on convex slopes with well drained soils. Uplands were determined using a three-parameter approach, and while facultative plants may have been primarily present in many of the upland plots, there were also facultative upland or upland plants present with hydric soils and no hydrology was present. Out of all nine of the upland transect plots, none were determined to contain hydrophytic vegetation (**Table 2**). A total of 42 upland pits were dug to determine upland boundaries (**Table 3**).

**Table 2 Upland Transect Plot Wetland Vegetation Determination**

Upland Vegetation Plot ID	% Facultative or Wetter Vegetation	Pass Fac Neutral Test?	Prevalence Index	Wetlands Vegetation Present?
U1T1	50%	No	-	No
U1T2	50%	No	-	No
U1T3	50%	No	-	No
U1T4	50%	No	-	No
U1T5	100%	No	3.67	No
U1T6	100%	No	3.02	No
U1T7	50%	No	-	No
U1T8	100%	No	3.11	No
U1T9	50%	No	-	No

**Table 3 Total Number of Hydric and Non-Hydric and Soil Pits**

Wetland	Upland
101	42

## 4.3 Hydrology Monitoring

### 4.3.1 Groundwater Monitoring

Groundwater monitoring occurred every seven days from January 17 to February 21, 2023 by GHD soil scientist Misha Schwarz and technician Alex Crowe. Results are summarized in **Table 4**. Only MW-2 and



MW-3 are analyzed in this report because they were installed specifically to investigate the wetland boundary in the western portion of the PSB (results bolded and shaded blue in Table 4). Over the course of monitoring, several notable precipitation events occurred where measured rainfall was over 100 percent of average for that time of the month (January 17, 24, and 31, and February 2; **Appendix F**). Results demonstrated that groundwater levels (i.e., the water table) were not within 12 inches of the soil surface for 14 consecutive days, and thus wetland hydrology is not present at the site of MW-2 and MW-3. Hydrology monitoring from soil pits dug around these piezometers further informed the location of the wetland boundary in the western portion of the PSB, described in **Section 4.3.2**.

**Table 4 Results from Monitoring Wells**

	DATE:	1/17/2023	1/24/2023	1/31/2023	2/7/2023	2/14/2023	2/21/2023
	Rainfall YTD:	20.97	21.80	21.93	23.34	23.69	23.89
	Normal YTD:	18.93	20.39	21.77	23.15	24.52	25.96
	Current % Norm:	110.8%	106.9%	100.7%	100.8%	96.6%	92.0%
	Name(s) of Data Recorders:	M.Schwarz	M.Schwarz	M.Schwarz	M.Schwarz	A.Crowe	M.Schwarz
Monitoring Well Number	TOC (feet ags)	Water Depth (feet bgs) (DTW - TOC)	Water Depth (feet bgs) (DTW - TOC)	Water Depth (feet bgs) (DTW - TOC)	Water Depth (feet bgs) (DTW - TOC)	Water Depth (feet bgs) (DTW - TOC)	Water Depth (feet bgs) (DTW - TOC)
MW-1	0.90	1.00	1.55	2.08	1.60	1.27	2.08
<b>MW-2</b>	0.85	<b>1.36</b>	<b>1.90</b>	<b>2.40</b>	<b>1.60</b>	<b>0.76</b>	<b>2.30</b>
<b>MW-3</b>	1.04	<b>0.61</b>	<b>1.06</b>	<b>1.71</b>	<b>0.71</b>	<b>0.50</b>	<b>1.58</b>
MW-4	0.69	0.91	1.36	1.94	1.36	1.06	1.96
MW-5	0.90	1.00	1.50	2.55	1.55	1.86	2.74
MW-6	1.04	0.76	0.97	1.22	0.76	0.50	1.11
MW-7	1.02	0.68	0.78	1.01	0.73	0.17	0.73
MW-8	0.98	0.82	2.12	2.64	1.92	3.03	3.64
MW-9	1.08	1.32	2.22	3.52	1.54	1.12	3.07
MW-10	1.06	0.84	1.44	2.17	0.99	0.56	1.87

**NOTES:**

TOC = Top of Casing (measured in inches and converted to decimal-feet)

DTW = Depth to Water (measured at TOC)

Bgs = below ground surface

Ags = above ground surface

### 4.3.2 Hydrology Soil Pits

Seven hydrology soil pits were excavated around MW-2 and MW-3 to investigate the groundwater level in finer detail between and around the monitoring wells, concurrent with the dates that piezometers were monitored. Groundwater monitoring occurred every seven days from January 24 to February 21, 2023 by GHD soil scientist Misha Schwarz and Alex Crowe. Results are summarized in **Table 5**. Groundwater levels were not within 12 inches of the soil surface for 14 consecutive days for any of the hydrology pits. The wetland boundary was mapped in contour with HP-1, HP-3, HP-5, HP-7, and MW-3, as they appear to be at a transitional line where the water table becomes shallower. Three-parameter wetlands are delineated to the east of this line (**Appendix A, Figure 3**).

**Table 5 Results from Hydrology Soil Pits**

Hydro Pit	1/17/2023	1/24/2023	1/31/2023	2/7/2023	2/14/2023	2/21/2023
		DTW (inches bgs)	DTW (inches bgs)	DTW (inches bgs)	DTW (inches bgs)	DTW (inches bgs)
HP-1	-	14.50	16 (DRY)	14.50	5.25	18 (DRY)
HP-2	-	14 (DRY)	17 (DRY)	14.25	13.50	19 (DRY)
HP-3	-	15 (DRY)	17 (DRY)	16.00	11.75	21 (DRY)
HP-4	-	15 (DRY)	15 (DRY)	13.50	9.00	18 (DRY)
HP-5	-	15.25	15 (DRY)	10.00	7.50	18 (DRY)
HP-6	-	14 (DRY)	16 (DRY)	16.75	12.75	17 (DRY)
HP-7	-	14.25	15 (DRY)	10.00	4.50	18.00

**NOTES:** DTW (inches below ground surface) - Unless noted as “DRY”

## 4.4 Soil Monitoring

### 4.4.1 Soil Profile at Monitoring Wells 2 and 3

The soil profile was characterized for monitoring wells installation, summarized in **Table 6**. Soils throughout the profile were generally loam. Results demonstrated that the soils for MW-2 and MW-3 do not meet hydric soil indicators. While redoximorphic features were present in the soil profile, they were at a depth that does not qualify as a hydric soil indicator (in combination with matrix value and chroma). Soil matrix chromas were often too high (greater than 2) to qualify for hydric soils indicators associated with redox concentrations.

**Table 6 Soil Profiles from Monitoring Wells**

Hydro Pit	Soil Depth	Matrix	Redoximorphic Features <sup>1</sup>
MW-2	0-9"	10YR 2/2	None
	9-20"	10YR 3/3	None
	20-39"	2.5Y 4/3	15% FeC
	39-48"	2.5Y 5/3	10% FeC
MW-3	0-13"	10YR 3/2	None
	13-26"	10YR 4/3	15% FeC
	26-36"	10YR 4/4	5% FeC
	36-48"	10YR 5/4	5% FeC

1. FeC = iron concentrations (e.g., redoximorphic features).

### 4.4.2 Soil Profile at Hydrology Pits

The soil profile was characterized for hydrology pits on January 25, 2023, summarized in **Table 7**. Soils throughout the profile were generally loam. Results demonstrate that the soils for each hydrology pit do not meet hydric soil indicators. While redoximorphic features were present in some of the soil profiles, they were at a depth that does not qualify as a hydric soil indicator (in combination with matrix value and chroma). Soil matrix chromas were often too high (greater than 2) to qualify for hydric soils indicators associated with redox concentrations. At four of the soil pits, no redoximorphic features were observed.

**Table 7 Soil Profiles from Hydrology Soil Pits**

Hydro Pit	Soil Depth	Matrix	Redoximorphic Features <sup>1</sup>
HP-1	0-14"	10YR 3/2+	None
HP-2	0-9"	10YR 3/2+	None
	9-14"	10YR 3/2+	15% FeC
HP-3	0-14"	10YR 3/3	None
HP-4	0-10"	10YR 3/3	None

Hydro Pit	Soil Depth	Matrix	Redoximorphic Features <sup>1</sup>
HP-4	10-14"	10YR 3/2+	5% FeC
HP-5	0-10"	10YR 3/3	None
	10-14"	10YR 3/2+	5% FeC
HP-6	0-10"	10YR 3/3	None
	10-14"	10YR 3/2+	5% FeC
HP-7	0-14"	10YR 3/2+	None

2. FeC = iron concentrations (e.g., redoximorphic features).

## 4.5 Sensitive Natural Communities

The PSB contains two SNCs, totaling 1.6 acres. Please see attached Rapid Assessment datasheet in **Appendix D** for additional details and see **Appendix A, Figure 3** for the associated map. No wetlands were mapped within the boundaries of the SNCs. **Table 8** contains additional details.

### 4.5.1 Sitka Spruce Alliance

The Sitka Spruce Alliance corresponds to the Rapid Assessment datasheet WEIR001 in **Appendix D**. The Sitka Spruce Alliance was observed in the north, northwest, and southwest edges of the PSB and covers 0.75 acres of the PSB. This SNC contained a tree canopy cover of 40% Sitka spruce (*Picea sitchensis*), 35% red alder (*Alnus rubra*), and 20% incense cedar (*Thuja plicata*), and is associated with California blackberry (*Rubus ursinus*). The Sitka Spruce Alliance has a State ranking of S2, therefore qualifying it as an SNC.

### 4.5.2 Coastal Willow Alliance

The Coastal Willow Alliance corresponds to the Rapid Assessment datasheet WEIR002 in **Appendix D**. The Coastal Willow Alliance was observed in the north, northwest, and southwest edges of the PSB and covers 0.85 acres of the PSB. This SNC contained a tree canopy cover of 2% red alder (*Alnus rubra*), a shrub layer of 85% coastal willow (*Salix hookeriana*), and 20% California blackberry. The Coastal Willow Alliance has a State ranking of S3, therefore qualifying it as an SNC.

**Table 8 Sensitive Natural Communities**

Sensitive Natural Community	Lat/Long	Area
Sitka Spruce Alliance (S2)	(40.9341790, -124.0968654)	0.75 acres
Coastal Willow Alliance (S3)	(40.9339933, -124.0968717)	0.85 acres

## 4.6 Riparian Corridor

The Riparian Corridor of Mill Creek was mapped to the drip line, and no wetlands were assessed underneath the canopy. The Riparian Dripline can be found in **Appendix A, Figure 3**. Much of the two SNCs are present within the Mill Creek Riparian corridor.

## 5. Conclusions

The aquatic resources delineation for the We Are Up Housing Project, completed on January 25<sup>th</sup>, 2022, determined the extent of three-parameter wetlands within the PSB based on hydrophytic vegetation, hydric soils, and wetland hydrology using methods and indicators outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)* (USACE 2010). An additional site visit on September 15, 2022 to assess the presence or absence of aquatic resources in the expanded PSB determined the absence of wetland features from two soil pits that are characterized by upland soils and vegetation. Groundwater monitoring was conducted in January and February of 2023 to better understand hydrologic patterns on-site. The total area of three-parameter wetlands mapped within the PSB is 8.68 acres, or 56% of the PSB, and due to the hydrological connection with Mill Creek, are likely considered USACE and RWQCB jurisdictional. The area of Uplands on the site totals 5.07 acres, and all 11 upland plots contain no hydrophytic vegetation. The area of SNCs totals 1.6 acres, or 10% of the PSB. Wetlands were not mapped within the Riparian Corridor Dripline or underneath the SNC canopy. Wetland data forms are attached showing sample plot data collected in transects across wetland boundaries and additional upland sampling points (**Appendix B**) and Rapid Assessment data forms determining the SNC are attached (**Appendix D**).

## 6. Special Terms and Conditions

### 6.1 Purpose of this Report

GHD prepared this report for the Client, and the Client may only use and rely on this report for the purpose agreed upon between GHD and the Client, as set out in the scope and contract for work effort reported herein. GHD Inc. is not liable for any action arising out of the reliance of any third party on the information contained within this report. GHD otherwise disclaims responsibility to any entity other than the Client arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

### 6.2 Scope and Limitations

This report does not authorize any individuals to develop, fill, or alter the delineated wetlands. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development purposes. A USACE jurisdictional approval letter is required to signify confirmation of delineation results. In situations where a field investigation determines that no jurisdictional wetlands occur, jurisdictional concurrence with these findings is recommended.

The delineation conclusions were based on the information available during the period of the investigation, which took place on in late 2021 to early 2022, with groundwater monitoring extending into early 2023.

The opinions, conclusions, and any recommendations in this report are based on conditions encountered and information reviewed by the date of preparation of the report. Site conditions may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change unless contracted to do so.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions, and any recommendations in this report are based on the information obtained from and testing undertaken at or in connection with specific sample points. Conditions at other locations of the site may be different from the conditions found at the specific sample points.

## 7. References

- Baldwin, B. D. 2012. The Jepson Manual, Second Edition. University of California Press. Berkeley, CA.
- CDFW. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. Sacramento, CA.
- COLOR, M., 2000. Munsell Soil Color Charts. Year 2000 revised washable edition.
- FEMA, Federal Emergency Management Agency. 2021. FEMA Flood Map Service Center. Accessed February 2021. <https://msc.fema.gov/portal/home>
- FGDC, Federal Geographic Data Committee. 2013. Classification of Wetlands and Deepwater Habitats of the United States. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.
- Lichvar et al. 2018. The National Wetland Plant List: 2018 wetland ratings. United States Army Corps of Engineers. [http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=\\$N/1012381](http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1012381).
- NOAA Regional Climate Centers. 2021. AgCIS. Accessed December 2021. <http://agacis.rcc-acis.org/>
- NRCS, Natural Resources Conservation Service. 2021. Web Soil Survey. Accessed January 2022. <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.
- NWI, National Wetlands Inventory. 2021. National Wetlands Inventory mapper. Accessed September 2021. <https://www.fws.gov/wetlands/data/Mapper.html>.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evans. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society. Sacramento, CA.
- SWRCB, State Water Resources Control Board. 2019. "Procedures for Discharges of Dredged or Fill Material to Waters of the State." Procedures, Sacramento, CA. [https://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/procedures\\_conformed.pdf](https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/procedures_conformed.pdf).
- SWRCB, State Water Resources Control Board. 2020. Draft Guidance for the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Guidance, Sacramento, CA: State Water Resources Control Board. [https://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/guidance\\_02142020.pdf](https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/guidance_02142020.pdf).
- USACE. 1987. Wetlands Delineation Manual, Tech. Rep 4-87-1. Waterways Experiment Station, United States Department of the Army Corps of Engineers (USACE).
- USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Corps of Engineers.
- USACE. 2020. National Wetland Plant List, version 3.5. USACE Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. <http://wetland-plants.usace.army.mil/>

USDA, U.S. Department of Agriculture. 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds). United States Department of Agriculture (USDA) and Natural Resources Conservation Service (NRCS) in cooperation with the National Technical Committee for Hydric Soils.

## **8. Report Preparers**

### **8.1 Client**

We Are Up, 4535 Fieldbrook Road, McKinleyville, CA 95519 USA

### **8.2 GHD**

This report was prepared by the following GHD staff:

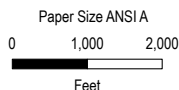
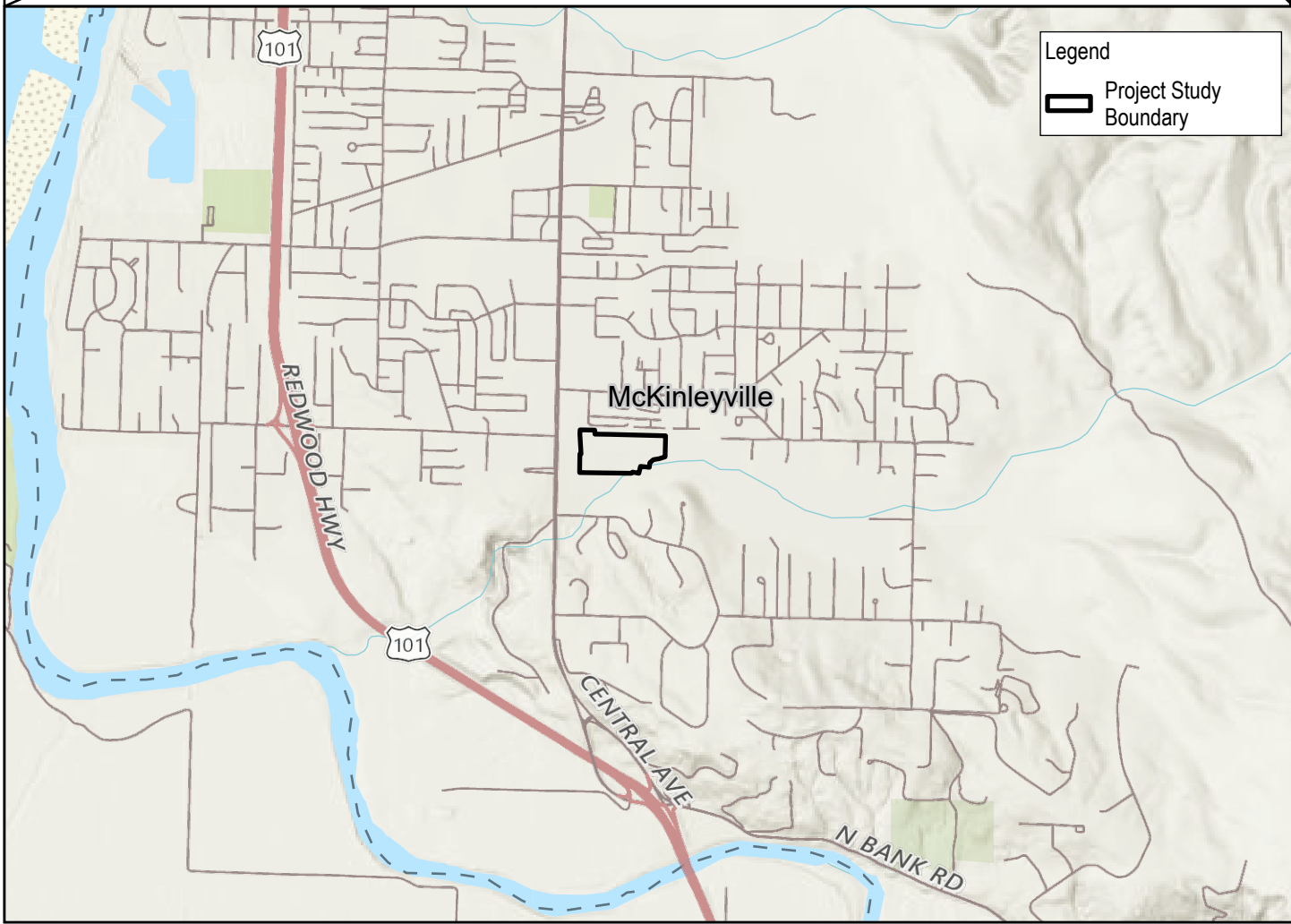
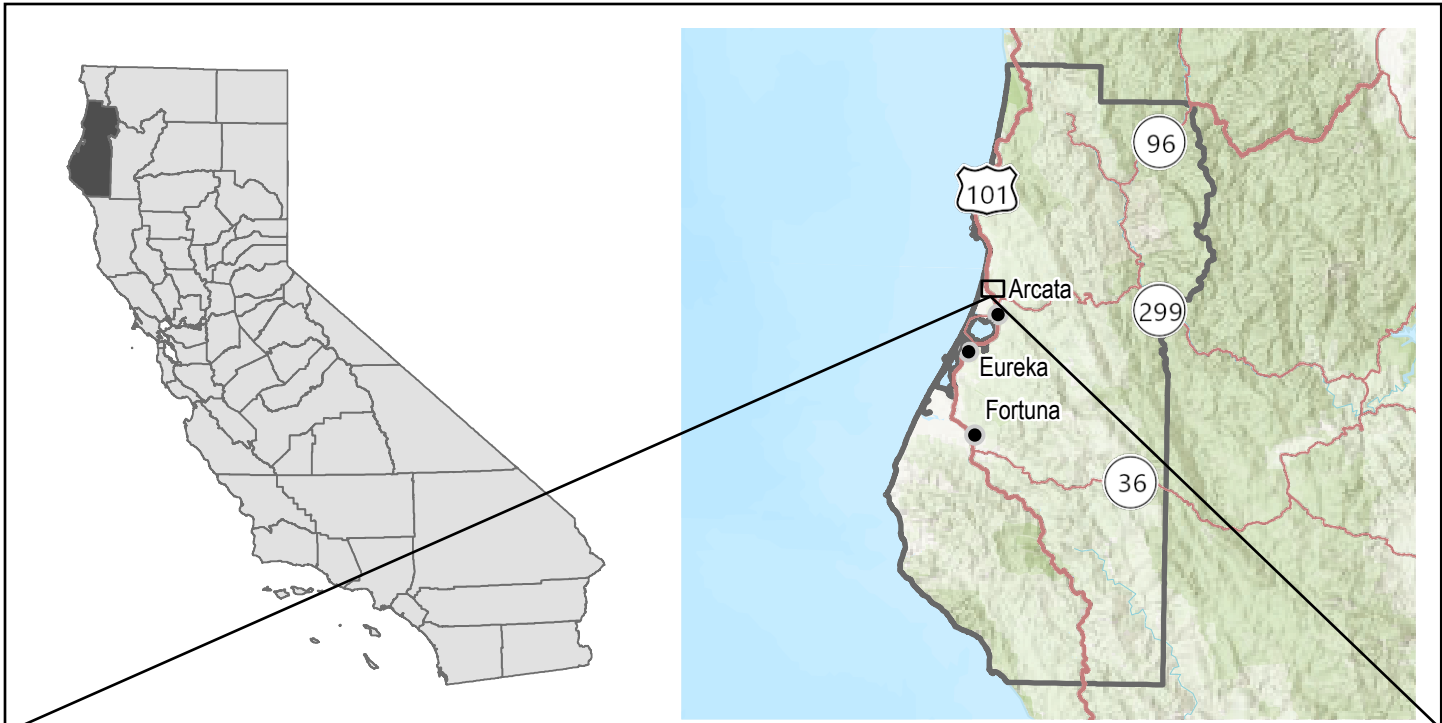
Kolby Lundgren, Botanist/Wetland Scientist, kolby.lundgren@ghd.com, 707-267-2214

Misha Schwarz, Project Manager, misha.schwarz@ghd.com, 707-267-2259

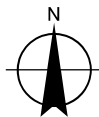
# Appendix A

## Figures





Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet



We Are Up

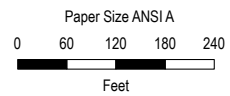
Project No. 12560473  
 Revision No. -  
 Date 9/26/2022

Vicinity Map

**FIGURE 1**



Legend  
 Project Study Boundary



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

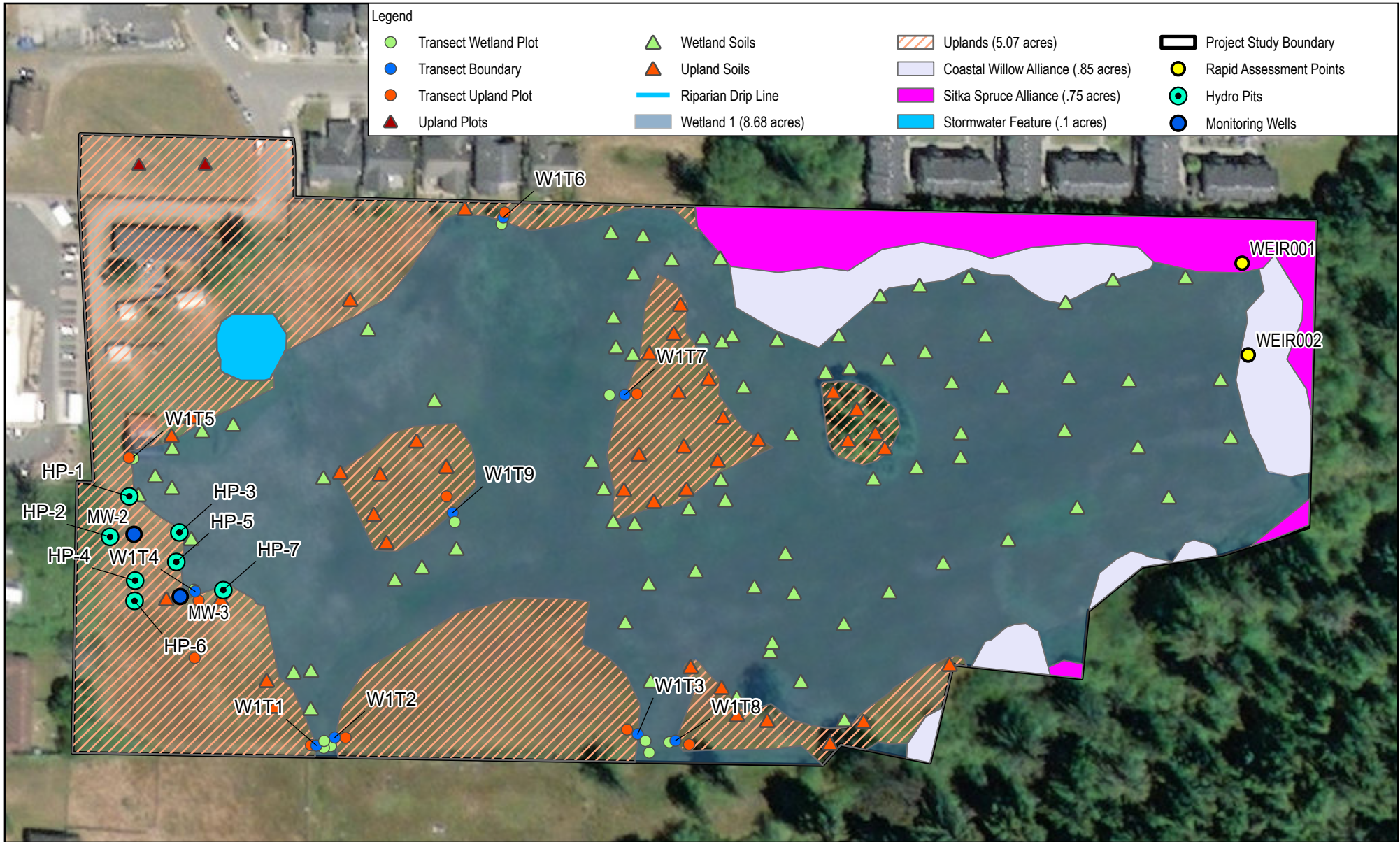


We Are Up

Project No. 12560473  
 Revision No. -  
 Date 9/26/2022

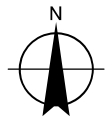
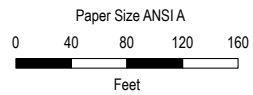
Project Study Boundary

FIGURE 2



Legend

- Transect Wetland Plot
- ▲ Wetland Soils
- Uplands (5.07 acres)
- Project Study Boundary
- Transect Boundary
- ▲ Upland Soils
- Coastal Willow Alliance (.85 acres)
- Rapid Assessment Points
- Transect Upland Plot
- Riparian Drip Line
- Sitka Spruce Alliance (.75 acres)
- Hydro Pits
- ▲ Upland Plots
- Wetland 1 (8.68 acres)
- Stormwater Feature (.1 acres)
- Monitoring Wells



Map Projection: Lambert Conformal Conic  
Horizontal Datum: North American 1983  
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

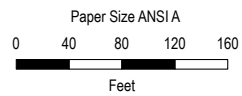
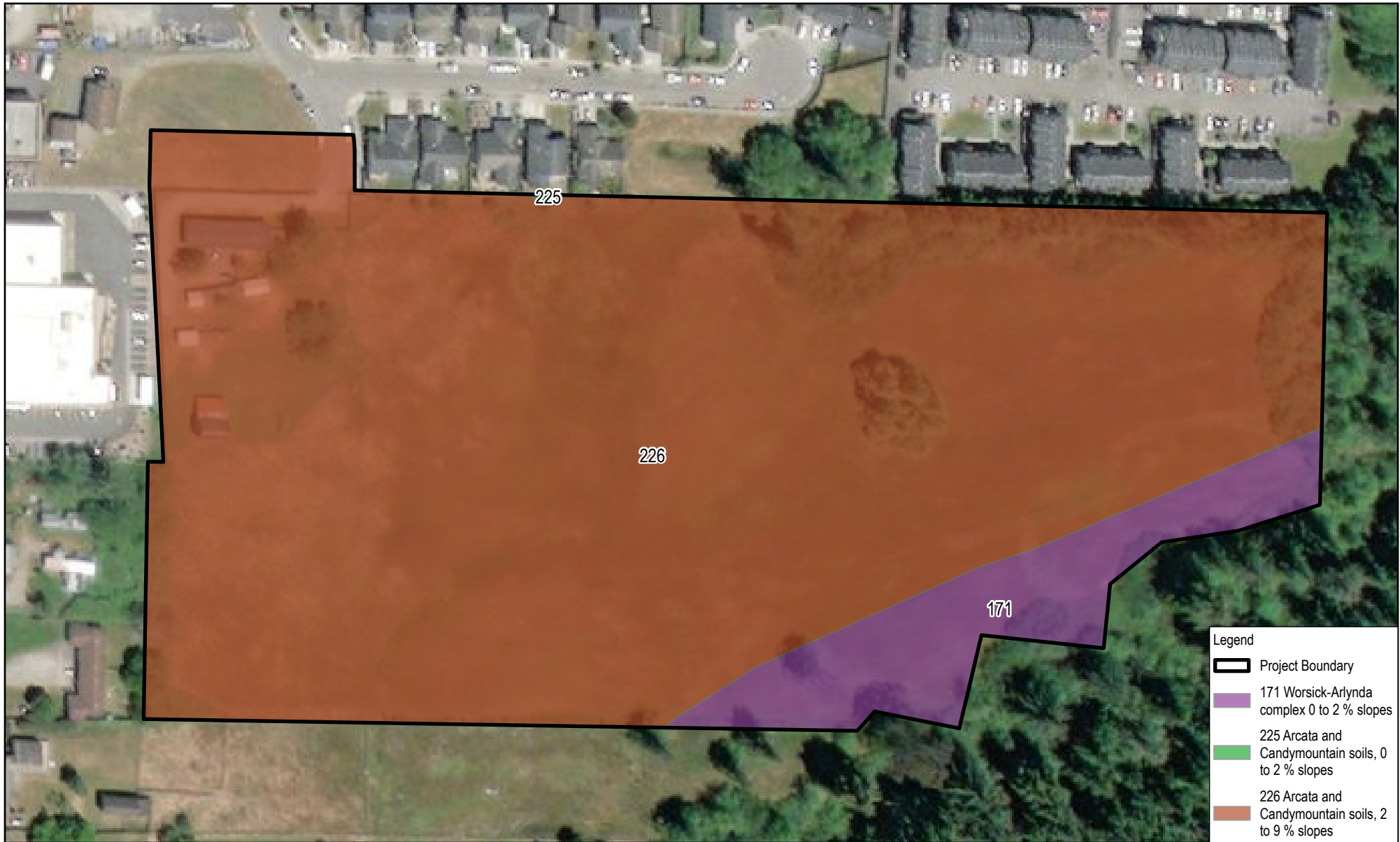


We Are Up

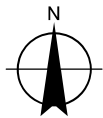
**Wetland Delineation and Sensitive Habitats**

Project No. 12560473  
Revision No. -  
Date 2/22/2023

**FIGURE 3**



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



We Are Up



Project No. 12560473  
 Revision No. -  
 Date 9/26/2022

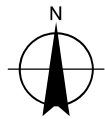
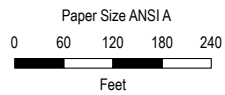
NRCS Soil Survey

FIGURE 4



**Legend**

-  Mill Creek Wetlands
-  Project Study Boundary



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



**We Are Up**

Project No. 12560473  
 Revision No. -  
 Date 9/26/2022

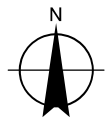
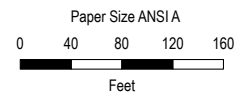
**Mill Creek Wetland Overlay**

**FIGURE 5**



**Legend**

- 1% Annual Chance Flood Hazard
- Project Study Boundary



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



**We Are Up**

Project No. **12560473**  
 Revision No. -  
 Date **9/26/2022**


**FEMA Floodplain**


**FIGURE 6**

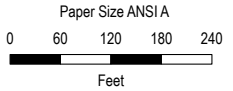


**Legend**

USA Wetlands

 Riverine

 Project Study Boundary



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

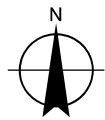
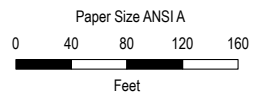


We Are Up

Project No. 12560473  
 Revision No. -  
 Date 9/26/2022

National Wetlands Inventory

**FIGURE 7**



Mary Keehn Property Development  
Keehn Development

Project No. 12560473  
Revision No. -  
Date 2/22/2023

Map Projection: Lambert Conformal Conic  
Horizontal Datum: North American 1983  
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

Monitoring Wells and Hydro Pits

FIGURE 8



# **Appendix B**

## **Wetland Delineation Datasheets**

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

Project/Site: Kechn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21  
 Applicant/Owner: GHD for Mary Kechn Development State: CA Sampling Point: WTT1-W  
 Investigator(s): K. McDonald, M Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): A Lat: 40.93271041 Long: -124.0986924 Datum: WGS84  
 Soil Map Unit Name: Arcata and Candy Mountain, 2-9% slopes NWI classification: NA/PEM  
 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>1m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Helcus lanatus</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Agrostis stolonifera</u>	<u>36</u>	<u>Y</u>	<u>FAC</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Ranunculus repens</u>	<u>6</u>		<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. <u>Mentha pulegium</u>	<u>5</u>		<u>OBL</u>	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. <u>Hypochaeris radicata</u>	<u>3</u>		<u>FACU</u>	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. <u>Anthoxanthum odoratum</u>	<u>2</u>		<u>FACU</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. <u>Juncus vesperius</u>	<u>5</u>		<u>FACW</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
<u>97</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>3</u>				
Remarks:				

**SOIL**

MBS Uechu 7/27/21 Sampling Point: W/T1-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/2	80	7.5YR4/6	20	C	M	loam	
6-14	10YR3/2	90	7.5YR 4/6	10	C	m	Silt+loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required, check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Drainage Patterns (B10) <i>Swale</i>
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2) <i>Swale</i>
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks: *Based on Topographic position & soils*

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21  
 Applicant/Owner: GAD for Mary Keehn Development State: CA Sampling Point: WTT1-U  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 40,93271041 Long: -124.0986924 Datum: WGS84  
 Soil Map Unit Name: Arctia and Candy mountain, 2-9% slopes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------

Remarks:

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species <u>63</u> x 3 = <u>189</u>
5. _____	_____	_____	_____	FACU species <u>29</u> x 4 = <u>116</u>
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: <u>92</u> (A) <u>305</u> (B)
				Prevalence Index = B/A = <u>3.32</u>
Herb Stratum (Plot size: <u>1m</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Holcus lanatus</u>	<u>18</u>	<u>N</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Agrostis stolonifera</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Anthoxanthum odoratum</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. <u>Hypochaeris radicata</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. <u>Daucus carota</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. <u>Festuca perennis</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>92</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>8</u>				

Remarks:

**SOIL**

MBS Kechn 9/17/21

Sampling Point: WITI-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR2/2	100	—	—	—	—	Loam	
6-14	10YR2/2	100	—	—	—	—	Silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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 Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except 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<sup>3</sup>:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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 X

Remarks:

**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 along 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 (2 or more 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 X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21  
 Applicant/Owner: GTD for Mary Keehn Dowd State: CA Sampling Point: W12-W  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: SS, T6N, R1E  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR): A Lat: 46.93273461 Long: -124.698625 Datum: NAD83  
 Soil Map Unit Name: Arceuth 2nd Canyomat, 7-9% slopes NWI classification: PEWM  
 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 <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <u>Does not pass PI, but has hydrology and soils.</u>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	= Total Cover	
<b>Sapling/Shrub Stratum (Plot size: _____)</b>					
1. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
2. _____	_____	_____	_____	Total % Cover of:	Multiply by:
3. _____	_____	_____	_____	OBL species <u>0</u>	x 1 = <u>0</u>
4. _____	_____	_____	_____	FACW species <u>0</u>	x 2 = <u>0</u>
5. _____	_____	_____	_____	FAC species <u>88</u>	x 3 = <u>264</u>
= Total Cover				FACU species <u>10</u>	x 4 = <u>40</u>
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )				UPL species <u>0</u>	x 5 = <u>0</u>
1. <u>Agrostis stolonifera</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	Column Totals:	<u>98</u> (A) <u>304</u> (B)
2. <u>Festuca perennis</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.10</u>	
3. <u>Lolium compositum</u>	<u>8</u>		<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
4. <u>Holcus lanatus</u>	<u>10</u>		<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. <u>Bromus hordeaceus</u>	<u>5</u>		<u>FACU</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. <u>Hypochaeris radicata</u>	<u>5</u>		<u>FACU</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover <u>98</u>					
<b>Woody Vine Stratum (Plot size: _____)</b>					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____	_____	_____	_____		
= Total Cover _____					
% Bare Ground in Herb Stratum <u>2</u> = Total Cover _____					
Remarks: <u>Does not pass FAC-neutral</u>					

**SOIL**

MBS Uechu 9/17/21

Sampling Point: WIT2-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR2/2	90	7.5YR 4/4	10	C	m	Loam	
6-14	10YR3/2	80	7.5YR 4/6	20	C	m	Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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 Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except 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<sup>3</sup>:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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 X

Remarks:

**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 along 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 (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10) Swale
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2) Swale
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes X No \_\_\_\_\_

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

Remarks:

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

Project/Site: Kechn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21  
 Applicant/Owner: GHD for Mary Kechn Development State: CA Sampling Point: W172U  
 Investigator(s): K McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): CONVEX Slope (%): 5  
 Subregion (LRR): A Lat: 40.93273461 Long: -124.098625 Datum: WGS84  
 Soil Map Unit Name: Arcata and Candymountain, 2-9% slopes 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Remarks: <u>f</u>						

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)		
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)		
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)		
4. _____							
_____ = Total Cover							
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:			
1. _____						Total % Cover of:	Multiply by:
2. _____				OBL species _____	x 1 = _____		
3. _____				FACW species _____	x 2 = _____		
4. _____				FAC species _____	x 3 = _____		
5. _____				FACU species _____	x 4 = _____		
_____ = Total Cover				UPL species _____	x 5 = _____		
				Column Totals:	_____ (A) _____ (B)		
				Prevalence Index = B/A = _____			
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
1. <u>Agrostis stolonifera</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>			<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
2. <u>Anthoxanthum odoratum</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>				
3. <u>Festuca arundinacea</u>	<u>5</u>		<u>FAC</u>				
4. <u>Holcus lanatus</u>	<u>6</u>		<u>FAC</u>				
5. <u>Daucus carota</u>	<u>4</u>		<u>FACU</u>				
6. <u>Plantago lanceolata</u>	<u>2</u>		<u>FACU</u>				
7. <u>Lotus corniculatus</u>	<u>2</u>		<u>FAC</u>				
8. _____							
9. _____							
10. _____							
11. _____							
<u>94</u> = Total Cover							
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
1. _____							
2. _____							
_____ = Total Cover							
% Bare Ground in Herb Stratum <u>6</u>							
Remarks:							



**SOIL**

MBS Kechn 9/17/21

Sampling Point: W1 T2-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR3/2	100	—	—	—	—	Loam	
9-14	10YR3/3	90	7.5YR4/6	10	C	m	Silt/Loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

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

Project/Site: Keckm City/County: Mckinleyville/Humboldt Sampling Date: 9/17/21  
 Applicant/Owner: GHD for Mary Keckm State: CA Sampling Point: W1T3L  
 Investigator(s): H McDonald, M. Schwarz Section, Township, Range: S5, T4N, R1E  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): Concave Slope (%): 10  
 Subregion (LRR): A Lat: 40.3276452 Long: -124.0974969 Datum: WGS84  
 Soil Map Unit Name: Arcaata and Candy mat 2-9% slopes NWI classification: PEM  
 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks:			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:			
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)		
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)		
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)		
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____			
_____ = Total Cover							
<b>Sapling/Shrub Stratum (Plot size: _____)</b>							
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
2. _____	_____	_____	_____				
3. _____	_____	_____	_____				
4. _____	_____	_____	_____				
5. _____	_____	_____	_____				
_____ = Total Cover							
<b>Herb Stratum (Plot size: <u>1m<sup>2</sup></u>)</b>							
1. <u>Carex obnupta</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>			<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. <u>Festuca arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>				
3. <u>Agrostis stolonifera</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>				
4. <u>Ranunculus repens</u>	<u>3</u>						
5. <u>Lotus corniculatus</u>	<u>1</u>						
6. <u>Hedys lanatus</u>	<u>1</u>						
7. _____	_____	_____	_____				
8. _____	_____	_____	_____				
9. _____	_____	_____	_____				
10. _____	_____	_____	_____				
<u>100</u> = Total Cover							
<b>Woody Vine Stratum (Plot size: _____)</b>							
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
_____ = Total Cover							
<b>% Bare Ground in Herb Stratum <u>0</u></b>							
Remarks: <u>Passes FAC-neutral</u>							

**SOIL**

MBS Kechn 9/17/21

Sampling Point: W13-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 3/2	90	7.5YR 4/6	10	C	m	Loam	
5-14	10YR 3/2	85	7.5YR 4/4	15	C	m	Silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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 Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except 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<sup>3</sup>:**

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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:

**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 along 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 (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10) Swale
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2) Swale
- 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, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: Keehn City/County: McKinleyville / Humboldt Sampling Date: 9/17/21  
 Applicant/Owner: GHO for Mary Keehn State: CA Sampling Point: WTT3-U  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): none Slope (%): 3  
 Subregion (LRR): A Lat: 40.93276452 Long: -124.0974969 Datum: WGS84  
 Soil Map Unit Name: Arca2z and candy mountain, 2-9% slopes 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____					
2. _____					
3. _____					
4. _____					
				= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
				= Total Cover	
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )					
1. <u>Arrostis stolonifera</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>		
2. <u>Anthoxanthum odoratum</u>	<u>25</u>	<u>Y</u>	<u>CACU</u>		
3. <u>Festuca arundinacea</u>	<u>12</u>		<u>FAC</u>		
4. <u>Hypochaeris radicata</u>	<u>4</u>				
5. <u>Lotus corniculatus</u>	<u>3</u>				
6. <u>Daucus carota</u>	<u>3</u>				
7. <u>Plantago lanceolata</u>	<u>3</u>				
8. _____					
9. _____					
10. _____					
11. _____					
				<u>99</u> = Total Cover	
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					
				= Total Cover	
% Bare Ground in Herb Stratum <u>1</u>					
Remarks:					

**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% (A/B)

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

\_\_\_ 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

\_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>

\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

\_\_\_ 5 - Wetland Non-Vascular Plants<sup>1</sup>

\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes  No

**SOIL**

MBS Kechn 9/17/21 Sampling Point: W1 T3-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/2	100	-	-	-	-	Silt loam	
6-14	10YR3/3	100	-	-	-	-	Silt loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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 X

Remarks: \_\_\_\_\_

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No Y Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks: \_\_\_\_\_

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

Project/Site: Kechn City/County: Mckinleyville/Humboldt Sampling Date: 9/22/21  
 Applicant/Owner: GAD for Mary Kechn Level State: CA Sampling Point: W1T4W  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5  
 Subregion (LRR): A Lat: 40.93306245 Long: -124.099124 Datum: NAD 83  
 Soil Map Unit Name: Arcata 3 (2ndymnt, 2-9% slopes) 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks:			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x 1 = _____
3. _____	_____	_____	_____	FACW species _____	x 2 = _____
4. _____	_____	_____	_____	FAC species _____	x 3 = _____
5. _____	_____	_____	_____	FACU species _____	x 4 = _____
= Total Cover				UPL species _____	x 5 = _____
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )				Column Totals:	_____ (A) _____ (B)
1. <u>Holcus lanatus</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index = B/A = _____	
2. <u>Agrostis stolonifera</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
3. <u>Anthoxanthum odoratum</u>	<u>10</u>		<u>FACU</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤30 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
4. <u>Lotus corniculatus</u>	<u>4</u>		<u>FAC</u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
5. <u>Festuca acuminata</u>	<u>3</u>		<u>FAC</u>		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover <u>97</u>					
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
= Total Cover _____					
% Bare Ground in Herb Stratum <u>3</u>					
Remarks:					

**SOIL**

MBS Veehn 9/22/21

Sampling Point: WITA-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 2/2	100	-	-	-	-	Loam	
7-13	10YR 2/2	70	7.5YR 9/4	30	C	m	Loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required, check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2) Low Swale
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**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, monitoring well, aerial photos, previous inspections), if available:

Remarks: Based on hydric soils/ Topographic position.

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

Project/Site: Kechn City/County: McKinleyville / Humboldt Sampling Date: 9/22/21  
 Applicant/Owner: Gito for Mary Kechn State: CA Sampling Point: W1T4-U  
 Investigator(s): M. Schwarz, K McDonald Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): none Slope (%): 10  
 Subregion (LRR): A Lat: 40.93306245 Long: -124.0994124 Datum: NAD83  
 Soil Map Unit Name: Arctz and Candy Mountain, 2-9% slopes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
<b>Herb Stratum (Plot size: <u>1m<sup>2</sup></u>)</b>				
1. <u>Agrostis stolonifera</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. <u>Halepous lanatus</u>	<u>15</u>		<u>FAC</u>	
3. <u>Anthoxanthum odoratum</u>	<u>18</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Hypochaeris radicata</u>	<u>3</u>		<u>FACU</u>	
5. <u>Leontodon saxatilis</u>	<u>2</u>		<u>FACU</u>	
6. <u>Plantago lanceolata</u>	<u>2</u>		<u>FACU</u>	
7. <u>Lactuca pinnatifida</u>	<u>3</u>		<u>FAC</u>	
8. <u>Daucus carota</u>	<u>2</u>		<u>FACU</u>	
9. <u>Rumex acetosella</u>	<u>1</u>		<u>FACU</u>	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	% Bare Ground in Herb Stratum <u>9</u>
2. _____	_____	_____	_____	
= Total Cover				
Remarks:				



**SOIL**

MBS Uechm 9/22/21

Sampling Point: W1T4-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR3/2	106	-	-	-	-	Loam	
9-14	10YR3/3	80	7.5YR9/4	20	c	m	Loam	Silt Loam

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

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |                                                            |                                                                   |                                                           |
|------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 | <input type="checkbox"/> Other (Explain in Remarks)       |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |                                                           |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |                                                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |                                                           |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |                                                           |

<sup>3</sup>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:

**HYDROLOGY**

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- |                                                                    |                                                                                   |                                                                            |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)                                         | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |                                                                                   |                                                                            |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |                                                                                   |                                                                            |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/22/21  
 Applicant/Owner: GHD for Mary Keehn Parcel. State: CA Sampling Point: W215-W  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: SS, T6N, R1E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 25  
 Subregion (LRR): A Lat: 40.93351877 Long: -124.0954632 Datum: WGS 84  
 Soil Map Unit Name: Arcatz 3 Candy mat, 2-990 slopes 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>To SW of barn</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )				
1. <u>Holcus lanatus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Lotus corniculatus</u>	<u>20</u>		<u>FAC</u>	
3. <u>Festuca perennis</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Agrostis stolonifera</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>2</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

MBS Uech 9/22/21

Sampling Point: W1T5-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/2	100	-	-	-	-	Loam	
6-13	10YR3/2	80	7.5YR4/6	20	C	m	Loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required, check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2) <i>low slope</i>
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks: Based on hydric soils + Topographic position

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/22/21  
 Applicant/Owner: GAP for Mary Keehn Demel State: CA Sampling Point: WITS-U  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: 55, 6N, R1E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 35  
 Subregion (LRR): A Lat: 40.93351877 Long: -124.0994632 Datum: WGS84  
 Soil Map Unit Name: Arcata and Candy Mountain, 2-9 1/2 slopes NWI classification: non  
 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 <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b>	
1. _____				Total % Cover of:	Multiply by:
2. _____				OBL species _____	x 1 = _____
3. _____				FACW species _____	x 2 = _____
4. _____				FAC species <u>90</u>	x 3 = <u>270</u>
5. _____				FACU species <u>8</u>	x 4 = <u>32</u>
_____ = Total Cover				UPL species _____	x 5 = _____
				Column Totals:	<u>98</u> (A) <u>360</u> (B)
				Prevalence Index = B/A = <u>3.67</u>	
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1. <u>Lotus corniculatus</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Agrostis stolonifera</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	2 - Dominance Test is >50% <input checked="" type="checkbox"/>	
3. <u>Haleus lanatus</u>	<u>15</u>		<u>FAC</u>	3 - Prevalence Index is ≤3.0 <sup>1</sup> <input checked="" type="checkbox"/>	
4. <u>Eristica perennis</u>	<u>10</u>		<u>FAC</u>	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. <u>Rumex acetosella</u>	<u>8</u>		<u>FACU</u>	5 - Wetland Non-Vascular Plants <sup>1</sup>	
6. <u>Trifolium repens</u>	<u>5</u>		<u>FAC</u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. _____					
9. _____					
10. _____					
11. _____					
<u>98</u> = Total Cover					
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b>	
1. _____				Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>3</u>					

Remarks: All facultative plants on convex steep slope with well-drained soil. Do not appear to be growing as hydrophytes.

**SOIL**

MBS Keahn 9/22/21

Sampling Point: WITS-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/3	100	-	-	-	-	Loam/Sandy Loam	
6-14	10YR3/3	100	-	-	-	-	Gravelly Sand Loam (fill?)	

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

- Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**
- |                                                                                                                                                                                                                    |                                                                   |                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1)                                                                                                                                                                             | <input type="checkbox"/> Sandy Redox (S5)                         | <b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> |
| <input type="checkbox"/> Histic Epipedon (A2)                                                                                                                                                                      | <input type="checkbox"/> Stripped Matrix (S6)                     |                                                             |
| <input type="checkbox"/> Black Histic (A3)                                                                                                                                                                         | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |                                                             |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                                                                                                                                                                     | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |                                                             |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)                                                                                                                                                         | <input type="checkbox"/> Depleted Matrix (F3)                     |                                                             |
| <input type="checkbox"/> Thick Dark Surface (A12)                                                                                                                                                                  | <input type="checkbox"/> Redox Dark Surface (F6)                  |                                                             |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                                                                                                                                                                  | <input type="checkbox"/> Depleted Dark Surface (F7)               |                                                             |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                                                                                                                                                                  | <input type="checkbox"/> Redox Depressions (F8)                   |                                                             |
| <input type="checkbox"/> 2 cm Muck (A10)<br><input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Very Shallow Dark Surface (TF12)<br><input type="checkbox"/> Other (Explain in Remarks) |                                                                   |                                                             |
| <sup>3</sup> 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: \_\_\_\_\_

**HYDROLOGY**

- Wetland Hydrology Indicators:**
- Primary Indicators (minimum of one required; check all that apply)
- |                                                                    |                                                                                   |                                                                            |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <u>Secondary Indicators (2 or more required)</u>                           |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)                                         | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |                                                                                   | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |                                                                                   |                                                                            |

**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, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

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

Project/Site: Kechn City/County: McKinleyville/Humboldt Sampling Date: 11/19/21  
 Applicant/Owner: GHD for Mary Kechn Demel State: CA Sampling Point: WTTG-2  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): slightly convex Slope (%): 15  
 Subregion (LRR): A Lat: 40.93421499 Long: -124.0980432 Datum: WAS84  
 Soil Map Unit Name: Arcata's Candymat, 2-9% slopes 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <u>seep</u>			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )				
1. <u>Scirpus microcarpus</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Lolium corniculatum</u>	<u>5</u>		<u>FAC</u>	
3. <u>Festuca arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
4. <u>Juncus hesperus</u>	<u>15</u>		<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

**SOIL**

Neelan 11/19/21 Sampling Point: WIT6-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/2	90	7.5YR4/4	10	C	M	Loam	
6-14	10YR3/2	80	7.5YR4/6	20	C	M		

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: \_\_\_\_\_

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required, check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 11

Wetland Hydrology Present? Yes  No

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

Remarks: \_\_\_\_\_

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

Project/Site: Kechn City/County: McKinleyville / Humboldt Sampling Date: 11/19/21  
 Applicant/Owner: GAD for Mary Kechn Develop State: CA Sampling Point: WJ1 T6U  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 20  
 Subregion (LRR): A Lat: 40.93421499 Long: -124.0980432 Datum: WGS84  
 Soil Map Unit Name: Arcata and Cordy mountain, 2-9% slopes 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: <u>Top of slope</u>					

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	= Total Cover	
Sampling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x 1 = _____
3. _____	_____	_____	_____	FACW species _____	x 2 = _____
4. _____	_____	_____	_____	FAC species <u>99</u>	x 3 = <u>297</u>
5. _____	_____	_____	_____	FACU species _____	x 4 = _____
= Total Cover				UPL species <u>1</u>	x 5 = <u>5</u>
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )				Column Totals:	<u>100</u> (A) <u>302</u> (B)
1. <u>Agrostis stolonifera</u>	<u>52</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.02</u>	
2. <u>Hedys lanatus</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
3. <u>Trifolium repens</u>	<u>15</u>		<u>FAC</u>		
4. <u>Lotus corniculatus</u>	<u>2</u>		<u>FAC</u>		
5. <u>Leucanthemum vulgare</u>	<u>1</u>		<u>UPL</u>		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____	Remarks:	
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
= Total Cover <u>100</u>					
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
= Total Cover _____					
% Bare Ground in Herb Stratum <u>100</u>					



**SOIL**

*Keenan 11/19/21*

Sampling Point: WIT6-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR3/4	100	-	-	-	-	Loam	
8-14	10YR3/4	100	-	-	-	-	Sandy Loam	

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

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

Indicators for Problematic Hydric Soils<sup>3</sup>:

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

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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:

**HYDROLOGY**

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- |                                                                    |                                                                                   |                                                                            |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)                                         | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |                                                                                   |                                                                            |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |                                                                                   |                                                                            |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

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

Project/Site: Kechn City/County: McKinleyville/Humboldt Sampling Date: 11/19/21  
 Applicant/Owner: GAD for Mary Kechn Devel State: CA Sampling Point: W117-L  
 Investigator(s): K. McDonald, M. Schwart Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 15  
 Subregion (LRR): A Lat: 40.3372230 Long: -124.095751 Datum: WGS84  
 Soil Map Unit Name: Arca2 B (Andymnt, 2-9% slopes) 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>North side east of scarpus swale</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
= Total Cover				
<b>Herb Stratum (Plot size: <u>1m<sup>2</sup></u>)</b>				
1. <u>Juncus hesperus</u>	<u>15</u>		<u>FACU</u>	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. <u>Ranunculus repens</u>	<u>15</u>		<u>FAC</u>	
3. <u>Carex douglasii</u>	<u>2</u>		<u>OBL</u>	
4. <u>Festuca arundinacea</u>	<u>18</u>	<u>Y</u>	<u>FAC</u>	
5. <u>Hypochaeris radicata</u>	<u>12</u>		<u>FACU</u>	
6. <u>Trifolium repens</u>	<u>1</u>		<u>FAC</u>	
7. <u>Agrostis stolonifera</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
8. <u>Plantago lanceolata</u>	<u>2</u>		<u>FACU</u>	
9. _____				
10. _____				
11. _____				
<u>95</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
= Total Cover				
<b>% Bare Ground in Herb Stratum <u>5</u></b>				
Remarks:				

SOIL

Kechn 11/19/21

Sampling Point: WIT7-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR3/2	100	-	-	-	-	Loam	
4-14	10YR3/2	90	7.5YR 4/6	10	C	m	Loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required, check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 11"

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 9"

Wetland Hydrology Present? Yes  No

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

Remarks:

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

Project/Site: Keehn City/County: McKinleyville / Humboldt Sampling Date: 11/19/21  
 Applicant/Owner: GHD for Mary Keehn State: CA Sampling Point: WTTU  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): convex Slope (%): 15  
 Subregion (LRR): A Lat: 40.3372230 Long: -124.0975751 Datum: WGS 84  
 Soil Map Unit Name: Arctia and Gandy mat, 2-9% soils NWI classification: nae  
 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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <u>Tongue of upland along convex slope</u>		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
= Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				OBL species _____ x 1 = _____
1. _____	_____	_____	_____	FACW species _____ x 2 = _____
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
= Total Cover				Prevalence Index = B/A = _____
<b>Herb Stratum (Plot size: <u>1m<sup>2</sup></u>)</b>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Acrostis sibirica</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Hypochaeris radicata</u>	<u>16</u>		<u>FACU</u>	
3. <u>Plantago lanceolata</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Lotus corniculatus</u>	<u>2</u>			
5. <u>Ranunculus repens</u>	<u>2</u>			
6. <u>Festuca arundinacea</u>	<u>5</u>			
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
<u>20</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
<b>% Bare Ground in Herb Stratum <u>20</u></b>				
Remarks:				

**SOIL**

Heeha 11/19/21

Sampling Point: WIT7-V

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR3/3	100	—	—	—	—	Loam	
5-14	10YR3/4	100	—	—	—	—	Loam	

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

- Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**
- |                                                            |                                                                   |                                                             |
|------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |                                                             |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |                                                             |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |                                                             |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |                                                             |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |                                                             |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |                                                             |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |                                                             |
- <sup>3</sup>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:

**HYDROLOGY**

- Wetland Hydrology Indicators:**
- |                                                                           |                                                                                   |                                                                            |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <u>Primary Indicators (minimum of one required; check all that apply)</u> |                                                                                   | <u>Secondary Indicators (2 or more required)</u>                           |
| <input type="checkbox"/> Surface Water (A1)                               | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                            | <input type="checkbox"/> Salt Crust (B11)                                         | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                                  | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                                 | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                           | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                              | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                          | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                               | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                         | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)        |                                                                                   |                                                                            |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)          |                                                                                   |                                                                            |

**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, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: Kechn City/County: McKinleyville/Humboldt Sampling Date: 11/19/21  
 Applicant/Owner: GAD for Mary Kechn Devel. State: CA Sampling Point: W1TBW  
 Investigator(s): K. McDonald, M. Schwaner Section, Township, Range: SS, T6N, R1E  
 Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): A Lat: 40.9327843 Long: -124.0973552 Datum: NAD83  
 Soil Map Unit Name: Wersik - Arlynda complex, 0-2% slope S 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Remarks:	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
= Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
= Total Cover					
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )					
1. <u>Festuca arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Agrostis stolonifera</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>		
3. <u>Lotus corniculatus</u>	<u>5</u>	_____	<u>FAC</u>		
4. <u>Plantago lanceolata</u>	<u>1</u>	_____	<u>FACU</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>96</u> = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2. _____	_____	_____	_____		
% Bare Ground in Herb Stratum <u>4</u> = Total Cover					
Remarks:					

SOIL

Keeln 11/19/21

Sampling Point: W18-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/2	100	-	-	-	-	Silt loam	
6-14	10YR3/2	90	7.5YR 4/4	10	c	m	Silt loam	

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

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

<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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<sup>3</sup>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:

HYDROLOGY

Wetland Hydrology Indicators:

<b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<b>Secondary Indicators (2 or more required)</b> <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) Swale <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
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Field Observations:

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

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

Remarks:  
 Base on hydric soil + Geomorphic position

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

Project/Site: Keewah City/County: McKinleyville/Humboldt Sampling Date: 11/19/21  
 Applicant/Owner: GHO for Mary Keesh Devel. State: CA Sampling Point: W1TB-U  
 Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S 5, T 6N, R 1E  
 Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): convex Slope (%): 3  
 Subregion (LRR): A Lat: 40.93274843 Long: -124.0973552 Datum: NAD83  
 Soil Map Unit Name: Worsick - Arhynda complex 0-2% slopes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Small convex upland within larger wetland</u>		

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species _____ x 5 = _____ Column Totals: <u>95</u> (A) <u>295</u> (B) Prevalence Index = B/A = <u>3.11</u>
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input checked="" type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) _____ <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>1m<sup>2</sup></u>)</b>				
1. <u>Agrostis stolonifera</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Plantago lanceolata</u>	<u>10</u>		<u>FACU</u>	
3. <u>Festuca arundinacea</u>	<u>5</u>		<u>FAC</u>	
4. <u>Lotus corniculatus</u>	<u>2</u>		<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum <u>05</u></b>				
Remarks: <u>Dominated by FAC species</u>				
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>



**SOIL**

Kechn 11/19/21

Sampling Point: W1T8-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	104R3/3	100	-	-	-	-	Silt/Loam	
9-13	104R3/3	90	7.5YR5/6	10	C	m	Loam/Silt/Loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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  <sup>1</sup>

Remarks: Chroma Too High/Redox Too Deep

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**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, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: Kechn City/County: McKinleyville, CA Sampling Date: 12/2/21  
 Applicant/Owner: GHO for Mary Kehn Devel. State: CA Sampling Point: WTT9-W  
 Investigator(s): K. McDonald, JM Schwarz Section, Township, Range: SS, T6, R1E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): A Lat: 40.93337753 Long: -124.098205 Datum: NAD83  
 Soil Map Unit Name: Aranta & Candy mat, 2-9% slopes 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of _____ Multiply by: _____	
1. _____	_____	_____	_____	OBL species _____	x 1 = _____
2. _____	_____	_____	_____	FACW species _____	x 2 = _____
3. _____	_____	_____	_____	FAC species _____	x 3 = _____
4. _____	_____	_____	_____	FACU species _____	x 4 = _____
5. _____	_____	_____	_____	UPL species _____	x 5 = _____
_____ = Total Cover				Column Totals: _____ (A)	_____ (B)
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )				Prevalence Index = B/A = _____	
1. <u>Lotus corniculatus</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Festuca arundinacea</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>		
3. <u>Agrostis stolonifera</u>	<u>55</u>	<u>Y</u>	<u>FAC</u>		
4. <u>Plantago lanceolata</u>	<u>10</u>				
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<u>95</u> = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>5</u>					
Remarks:					

SOIL

*Vechn 12/2/21 Schwarz*

Sampling Point: W1T9-W

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR2/1	100	—	—	—	—	Loam	
6-14	10YR 2/1	90	7.5Y 4/6	C	m	10	Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required, check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Geomorphic Position (D2) <i>Loam Area</i>
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	
<input type="checkbox"/> Other (Explain in Remarks)	

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  <sup>①</sup>

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

Remarks: <sup>①</sup> Based on hydric soil / Topographic position

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

Project/Site: Leech City/County: McKinleyville/Humboldt Sampling Date: 12/22/11  
 Applicant/Owner: GHO for Mary Leech Devel. State: CA Sampling Point: W1T9-U  
 Investigator(s): K McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5  
 Subregion (LRR): A Lat: 40.93337753 Long: -124.0982055 Datum: WGS84  
 Soil Map Unit Name: Acacia and Candy Mountain, 2-9% slopes 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 <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>1m<sup>2</sup></u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Plantago lanceolata</u>	<u>10</u>		<u>FACU</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Leontodon saxatilis</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Hypochaeris radicata</u>	<u>8</u>		<u>FACU</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. <u>Agrostis stolonifera</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. <u>Ranunculus repens</u>	<u>10</u>		<u>FAC</u>	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. <u>Samolus trichum chilense</u>	<u>1</u>		<u>FAC</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. <u>Festuca arundinacea</u>	<u>2</u>		<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
_____ = Total Cover				
				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Remarks:
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>7</u>				

**SOIL**

*Uechu 12/2/21 Schwarz*

Sampling Point: WIT9-U

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR3/2	100	-	-	-	-	Loam	
7-15	10YR3/2+	100	-	-	-	-	Loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

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

Project/Site: WE Ave Up City/County: Madras/Union Sampling Date: 9/15/22  
 Applicant/Owner: Mary Kedar Development State: CA Sampling Point: UP-10  
 Investigator(s): M. Schwarz, K. Lundgren Section, Township, Range: S5, T6N, R1E  
 Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 0-3  
 Subregion (LRR): A Lat: 40.9343 Long: -124.09915 Datum:   
 Soil Map Unit Name: arcata + Candy Mountain soils, 0-2% slopes NWI classification: NA

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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>2/5 = 40%</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
_____ = Total Cover				Total % Cover of:	Multiply by:
_____ = Total Cover				OBL species _____	x 1 = _____
_____ = Total Cover				FACW species _____	x 2 = _____
_____ = Total Cover				FAC species _____	x 3 = _____
_____ = Total Cover				FACU species _____	x 4 = _____
_____ = Total Cover				UPL species _____	x 5 = _____
_____ = Total Cover				Column Totals: _____	(A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = _____	
<b>Hydrophytic Vegetation Indicators:</b>					
___ 1 - Rapid Test for Hydrophytic Vegetation					
___ 2 - Dominance Test is >50%					
___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>					
___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)					
___ 5 - Wetland Non-Vascular Plants <sup>1</sup>					
___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)					
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
<b>Herb Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
1. <u>Agrostis stolonifera</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>		
2. <u>Prunella vulgaris</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>		
3. <u>Hypochaeris radicata</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>		
4. <u>Lotus corniculatus</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>		
5. <u>Plantago lanceolata</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>		
6. <u>Festuca perennis</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
_____ = Total Cover <u>90</u>					
<b>Woody Vine Stratum (Plot size: _____)</b>					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>10</u>					
Remarks:					

**SOIL**

9/15/22 We Are Up ms

Sampling Point: UP-10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/3	100	—	—	—	—	Silt loam	
6-13	10YR 5/6	100	—	—	—	—	Sandy loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>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:

Dug in drainage swall

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

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

Project/Site: We Are Up City/County: Rockingville/HamCo Sampling Date: 9/15/22  
 Applicant/Owner: Maykeehr Development State: CA Sampling Point: UP-11  
 Investigator(s): M. Schwarz, K. Lundgren Section, Township, Range: SS, T6N, R1E  
 Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 0-3  
 Subregion (LRR): A Lat: 40.93434 Long: -124.0994 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Arctid & Cady Mountain soils, 0-2% slopes NWI classification: NA  
 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 <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>	
Remarks:			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>2/5 = 40%</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____	
1. _____	_____	_____	_____	OBL species _____	x 1 = _____
2. _____	_____	_____	_____	FACW species _____	x 2 = _____
3. _____	_____	_____	_____	FAC species _____	x 3 = _____
4. _____	_____	_____	_____	FACU species _____	x 4 = _____
5. _____	_____	_____	_____	UPL species _____	x 5 = _____
_____ = Total Cover				Column Totals: _____	(A) _____ (B) _____
Herb Stratum (Plot size: _____)				Prevalence Index = B/A = _____	
1. <u>Rumex acetosella</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <u>Leucanthemum vulgare</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>		
3. <u>Hypochaeris radicata</u>	<u>5</u>		<u>FACU</u>		
4. <u>Ajrostitis stolonifera</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>		
5. <u>Trifolium repens</u>	<u>7</u>	<u>Y</u>	<u>FACU</u>		
6. <u>Poa annua</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>97</u> = Total Cover <u>48.5</u> <u>17.4</u>				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>	
Woody Vine Stratum (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>3</u>					
Remarks:					



**SOIL**

9/15/22 We Are Up MS

Sampling Point: UP-11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR3/3	100	—	—	—	—	Silt+loam	
6-14	10YR3/3	100	—	—	—	—	Silt+loam	

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>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 X

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |                                                                    |                                                                                   |                                                                            |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)                                         | <input type="checkbox"/> Drainage Patterns (B10)                           |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |                                                                                   |                                                                            |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |                                                                                   |                                                                            |

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

# Appendix C

## Site Photographs



Photo 1. Looking north from the southern edge of the PSB.



Photo 2. The northeastern edge of the PSB, showing the Coastal Willow Alliance backed by the Sitka Spruce Alliance behind it.



Photo 3. Viewing the southern edge of the PSB near Mill Creek.



Photo 4. Facing west in the center of the PSB.



Photo 5. Viewing a swale in the center of the PSB facing North.



Photo 6. Viewing more hydrophytic vegetation within Wetland 1, present on the upper slope.



Photo 7. Viewing a swale at the base of the slope within Wetland 1.



Photo 8. Dormant Coastal Willow Alliance SNC within the riparian corridor of Mill Creek.



Photo 9. SNCs Coastal Willow Alliance backed by Sitka Spruce Alliance within the riparian corridor of Mill Creek.



Photo 10. Mill Creek in late January, 2022.

# Appendix D

## Rapid Assessment Datasheets



# Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type:	Alliance Association
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION			circle: Relevé or <b>RA</b>
Database #: <b>WEIRCOY</b>	Date: <b>9/14/21</b>	Name of recorder: <b>Kelsey McDonald</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
UID:	Other surveyors:	Location Name: <b>Weirup / Kechn Development</b>	
GPS name: <b>Arrows 8</b>		For Relevé only: Bearing °, left axis at ID point _____ of <b>Long / Short</b> side	
UTME _____ UTMN _____		Zone: <b>11</b> NAD83 GPS error: ft./ m./ PDOP _____	
Decimal degrees: LAT _____		LONG _____	
GPS within stand? <b>Yes / No</b> If No, cite from GPS to stand: distance (m) _____ bearing ° _____ inclination ° _____			
and record: Base point ID _____ Projected UTM's: UTME _____ UTMN _____			
Camera Name: <b>iPhone</b> Cardinal photos at ID point: <b>NESW 12:29pm</b>			
Other photos:			
Stand Size (acres): <sup>Including off property</sup> <b>&lt;1, 1.5 (&gt;5)</b>   Plot Area (m <sup>2</sup> ): 100 / _____   Plot Dimensions _____ x _____ m   RA Radius <b>30</b> m			
Exposure, Actual °: _____ NE NW SE <b>(SW)</b> Flat Variable   Steepness, Actual °: _____ 0° <b>1-5°</b> >5-25° >25			
Topography: Macro: top upper <b>(mid)</b> lower bottom   Micro: convex flat <b>concave</b> <b>undulating</b>			
Geology code: _____ Soil Texture code: _____   Upland or Wetland/ <b>Riparian</b> (circle one)			
% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)			
<b>H2O:</b>   BA Stems: <b>25</b> Litter: <b>30</b> Bedrock: _____ Boulder: _____ Stone: _____ Cobble: <b>1</b> Gravel: <b>5</b> Fines: <b>38</b> =100%			
% Current year bioturbation _____ Past bioturbation present? <b>Yes / No</b>   % Hoof punch _____			
Fire evidence: <b>Yes / No</b> (circle one) If yes, describe in Site history section, including date of fire, if known.			
Site history, stand age, comments: <b>Characterizing forested area on outer edges of property. Separated out areas of strong coastal willow dominance without taller spruce/alder canopy. Similar tree species composition along Mill Creek. RA point at NE corner.</b>			
Disturbance code / Intensity (L,M,H): _____ / _____ / _____ "Other" _____ / _____			
II. HABITAT DESCRIPTION			
Tree DBH: <b>T1</b> (<1" dbh), <b>T2</b> (1-6" dbh), <b>T3</b> (6-11" dbh), <b>T4</b> (11-24" dbh), <b>T5</b> (>24" dbh), <b>T6</b> multi-layered (T3 or T4 layer under T5, >60% cover)			
Shrub: <b>S1</b> seedling (<3 yr. old), <b>S2</b> young (<1% dead), <b>S3</b> mature (1-25% dead), <b>S4</b> decadent (>25% dead)			
Herbaceous: <b>H1</b> (<12" plant ht.), <b>H2</b> (>12" ht.)			
Desert Riparian Tree/Shrub: <b>1</b> (<2ft. stem ht.), <b>2</b> (2-10ft. ht.), <b>3</b> (10-20ft. ht.), <b>4</b> (>20ft. ht.)			
Desert Palm/Joshua Tree: <b>1</b> (<1.5" base diameter), <b>2</b> (1.5-6" diam.), <b>3</b> (>6" diam.)			
III. INTERPRETATION OF STAND			
Field-assessed vegetation Alliance name: <b>Sitka Spruce Forest Alliance</b>			
Field-assessed Association name (optional): <b>Picea sitchensis - Alnus rubra</b>			
Adjacent Alliances/direction: <b>Salix hookeriana / S. Agrostis stolonifera / SW</b>			
Confidence in Alliance identification: L <b>(M)</b> H Explain: <b>patchy distribution</b>			
Phenology (E,P,L): Herb <b>P</b> Shrub <b>P</b> Tree <b>P</b> Other identification or mapping information:			



**Combined Vegetation Rapid Assessment and Relevé Field Form**  
(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type:	Alliance Association
<b>I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION</b>			circle: Relevé or <b>RA</b>
Database #: <b>WEIR002</b>	Date: <b>9/14/21</b>	Name of recorder: <b>Kelsey McDonald</b>	
	UID:	Other surveyors:	
		Location Name: <b>weirup</b>	
GPS name: <b>Arrows</b>		For Relevé only: Bearing°, left axis at ID point ___ of Long / Short side	
UTME _____ UTMN _____		Zone: 11 NAD83 GPS error: ft./ m./ PDOP _____	
Decimal degrees: LAT _____		LONG _____	
GPS within stand? <b>Yes</b> / No If No, cite from GPS to stand: distance (m) ___ bearing° ___ inclination° ___			
and record: Base point ID _____		Projected UTM: UTME _____ UTMN _____	
Camera Name: <b>phone</b>		Cardinal photos at ID point: <b>NESW 12:56</b>	
Other photos:			
Stand Size (acres): <b>&lt;1</b> 1-5, >5   Plot Area (m <sup>2</sup> ): 100 / _____   Plot Dimensions ___ x ___ m   RA Radius <b>30</b> m			
Exposure, Actual °: ___ NE NW SE <b>SW</b> Flat Variable   Steepness, Actual °: ___ 0° <b>1-5°</b> > 5-25° > 25			
Topography: Macro: top upper mid <b>lower</b> bottom   Micro: convex flat concave <b>undulating</b>		Geology code: _____ Soil Texture code: _____   Upland or <b>Wetland/Riparian</b> (circle one)	
% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)			
H <sub>2</sub> O: <input type="radio"/> BA Stems: <b>50</b> Litter: <b>30</b> Bedrock: _____ Boulder: _____ Stone: _____ Cobble: _____ Gravel: _____ Fines: <b>20</b> =100%			
% Current year bioturbation _____ Past bioturbation present? Yes / No   % Hoof punch _____			
Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.			
Site history, stand age, comments: <b>Characterizing Coastal willow thickets on edge of Sitka spruce dominance and mowed non-native pasture grasses.</b>			
Disturbance code / Intensity (L,M,H): _____ / _____ / _____ / _____ "Other" _____ / _____			
<b>II. HABITAT DESCRIPTION</b>			
Tree DBH: <b>T1</b> (<1" dbh), <b>T2</b> (1-6" dbh), <b>T3</b> (6-11" dbh), <b>T4</b> (11-24" dbh), <b>T5</b> (>24" dbh), <b>T6</b> multi-layered (T3 or T4 layer under T5, >60% cover)			
Shrub: <b>S1</b> seedling (<3 yr. old), <b>S2</b> young (<1% dead), <b>S3</b> mature (1-25% dead), <b>S4</b> decadent (>25% dead)			
Herbaceous: <b>H1</b> (<12" plant ht.), <b>H2</b> (>12" ht.)			
Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)			
Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)			
<b>III. INTERPRETATION OF STAND</b>			
Field-assessed vegetation Alliance name: <b>Coastal Willow Thicket Alliance</b>			
Field-assessed Association name (optional): _____			
Adjacent Alliances/direction: <b>Picea sitchensis</b> <b>NES</b> , <b>Agrostis stolonifera</b> <b>W</b>			
Confidence in Alliance identification: L- <b>M</b> -H Explain: <b>Patches on edge of Sitka spruce forest</b>			
Phenology (E,P,L): Herb <input type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/> Other identification or mapping information: _____			



# Appendix E

## NRCS Custom Soil Resources Report

## Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

## Report—Map Unit Description

### Humboldt County, Central Part, California

#### 171—Worswick-Arlynda complex 0 to 2 percent slopes

##### Map Unit Setting

*National map unit symbol:* 2111w

*Elevation:* 0 to 810 feet

*Mean annual precipitation:* 60 to 75 inches  
*Mean annual air temperature:* 50 to 55 degrees F  
*Frost-free period:* 275 to 330 days  
*Farmland classification:* Prime farmland if irrigated and drained

### Map Unit Composition

*Worswick and similar soils:* 55 percent  
*Arlynda and similar soils:* 35 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Worswick

#### Setting

*Landform:* River valleys  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Mountainbase  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium derived from mixed sources

#### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material  
*A1 - 1 to 2 inches:* silt loam  
*A2 - 2 to 4 inches:* silt loam  
*Bwg - 4 to 9 inches:* silt loam  
*Cg1 - 9 to 15 inches:* loamy sand  
*Cg2 - 15 to 30 inches:* gravelly loam  
*Cg3 - 30 to 36 inches:* silt loam  
*Cg4 - 36 to 60 inches:* silt loam

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* About 0 to 4 inches  
*Frequency of flooding:* NoneOccasional  
*Frequency of ponding:* Occasional  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 9.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam  
*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)



*Hydric soil rating:* Yes

## Description of Arlynda

### Setting

*Landform:* River valleys

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainbase

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Alluvium derived from mixed sources

### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material

*A - 1 to 2 inches:* silt loam

*Bwg - 2 to 15 inches:* loam

*Cg - 15 to 35 inches:* loam

*2CAgb - 35 to 60 inches:* loam

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.20 to 2.00 in/hr)

*Depth to water table:* About 2 to 20 inches

*Frequency of flooding:* NoneOccasional

*Frequency of ponding:* Frequent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* High (about 11.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* B/D

*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam

*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)

*Hydric soil rating:* Yes

## Minor Components

### Bigtree

*Percent of map unit:* 5 percent

*Landform:* Alluvial fans, terraces, fan remnants

*Landform position (two-dimensional):* Backslope, toeslope

*Landform position (three-dimensional):* Mountainbase

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam

*Other vegetative classification:* Forest Type IV, coastal  
(RNPF004CA)

*Hydric soil rating:* No

#### **Fluventic dystrodepts, loamy-skeletal**

*Percent of map unit:* 5 percent

*Landform:* Alluvial fans

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Mountainbase

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam

*Other vegetative classification:* Forest Type IV, coastal  
(RNPF004CA)

*Hydric soil rating:* No

## **225—Arcata and Candymountain soils, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2lmt0

*Elevation:* 10 to 290 feet

*Mean annual precipitation:* 35 to 90 inches

*Mean annual air temperature:* 52 to 55 degrees F

*Frost-free period:* 275 to 325 days

*Farmland classification:* Prime farmland if irrigated

### **Map Unit Composition**

*Arcata and similar soils:* 50 percent

*Candymountain and similar soils:* 35 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Arcata**

#### **Setting**

*Landform:* Marine terraces

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Marine deposits derived from mixed

#### **Typical profile**

*A - 0 to 23 inches:* fine sandy loam

*AB - 23 to 37 inches:* very fine sandy loam

*Bw - 37 to 51 inches:* fine sandy loam

*C - 51 to 67 inches:* fine sandy loam

#### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 8.9 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 1  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* B  
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam  
*Hydric soil rating:* No

#### **Description of Candymountain**

##### **Setting**

*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Marine deposits derived from mixed

##### **Typical profile**

*A1 - 0 to 11 inches:* fine sandy loam  
*A2 - 11 to 19 inches:* fine sandy loam  
*Bt1 - 19 to 38 inches:* fine sandy loam  
*Bt2 - 38 to 48 inches:* fine sandy loam  
*BCt - 48 to 55 inches:* sandy loam  
*C - 55 to 63 inches:* loamy fine sand

##### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 8.9 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* B  
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam  
*Hydric soil rating:* No

### **Minor Components**

#### **Urban land, residential**

*Percent of map unit:* 4 percent  
*Landform:* Marine terraces  
*Hydric soil rating:* No

#### **Timmons**

*Percent of map unit:* 3 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam  
*Hydric soil rating:* No

#### **Halfbluff**

*Percent of map unit:* 3 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F004BX118CA - Sitka spruce-redwood/salal/western brackenfern, marine terraces, marine deposits, fine sandy loam  
*Hydric soil rating:* No

#### **Megwil,**

*Percent of map unit:* 3 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F004BX120CA - Redwood-Sitka spruce/California huckleberry-salmonberry/western swordfern-deer fern, marine terraces, loam  
*Hydric soil rating:* No

#### **Talawa**

*Percent of map unit:* 2 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## 226—Arcata and Candymountain soils, 2 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* 2lmt1  
*Elevation:* 10 to 310 feet  
*Mean annual precipitation:* 35 to 90 inches  
*Mean annual air temperature:* 52 to 55 degrees F  
*Frost-free period:* 275 to 325 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Arcata and similar soils:* 50 percent  
*Candymountain and similar soils:* 35 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Arcata

#### Setting

*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Marine deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 27 inches:* loam  
*AB - 27 to 36 inches:* loam  
*Bw - 36 to 63 inches:* sandy loam

#### Properties and qualities

*Slope:* 2 to 9 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 9.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2e  
*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B  
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam  
*Hydric soil rating:* No

## Description of Candymountain

### Setting

*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Marine deposits derived from sedimentary rock

### Typical profile

*A - 0 to 17 inches:* fine sandy loam  
*Bw - 17 to 55 inches:* fine sandy loam  
*C - 55 to 79 inches:* loamy very fine sand

### Properties and qualities

*Slope:* 2 to 9 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 8.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* B  
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam  
*Hydric soil rating:* No

## Minor Components

### Urban land, residential

*Percent of map unit:* 4 percent  
*Landform:* Marine terraces  
*Hydric soil rating:* No

### Halfbluff

*Percent of map unit:* 4 percent  
*Landform:* Marine terraces

*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F004BX118CA - Sitka spruce-redwood/salal/  
western brackenfern, marine terraces, marine deposits, fine  
sandy loam  
*Other vegetative classification:* Forest Type IV, coastal  
(RNPF004CA)  
*Hydric soil rating:* No

**Megwil,**

*Percent of map unit:* 3 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F004BX120CA - Redwood-Sitka spruce/California  
huckleberry-salmonberry/western swordfern-deer fern, marine  
terraces, loam  
*Hydric soil rating:* No

**Timmons**

*Percent of map unit:* 2 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-  
California huckleberry/western swordfern, marine terraces,  
marine deposits, sandy loam and loam  
*Hydric soil rating:* No

**Talawa**

*Percent of map unit:* 2 percent  
*Landform:* Marine terraces  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## Data Source Information

Soil Survey Area: Humboldt County, Central Part, California  
Survey Area Data: Version 7, Sep 6, 2021

# Appendix F

## Record of Climatological Observations and WETS Table





1958														
1959														
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1998		14.12	8.13	2.33	4.51	0.24	0.06	0.02	0.28	4.65	16.57		50.91	
1999	5.80	12.28	9.94	2.42	2.31	0.06	0.01	0.25	0.01	1.53	8.32	3.66	46.59	
2000	12.80	8.67	3.09	3.78	2.77	1.08	0.02	0.02	0.44	3.37	4.26	2.76	43.06	
2001	3.92	4.53	2.21	3.07	0.99	1.00	0.17	0.23	0.41	1.78	9.54	11.41	39.26	
2002	7.56	6.95	4.75	3.06	0.70	0.83	0.07	0.04	0.19	0.06	2.36	22.96	49.53	
2003	7.81	3.78	5.63	12.92	1.45	0.11	0.04	0.58	0.55	0.56	6.08	12.97	52.48	
2004	6.71	9.07	2.59	2.07	1.14	0.07	0.11	0.70	0.63	4.98	1.71	9.11	38.89	
2005	5.54	2.16	6.13	6.55	4.86	4.10	0.10	0.14	0.17	3.42	9.38	13.99	56.54	
2006	11.94	5.97	10.63	4.50	1.48	0.56	0.08	0.10	0.17	0.70	9.50	9.68	55.31	
2007	2.63	13.11	3.66	3.71	0.95	0.67	0.86	0.12	1.03	5.73	3.23	7.78	43.48	

2008	10.26	3.65	4.79	2.40	0.10	0.40	0.09	0.82	0.18	1.13	5.08	10.01	38.91
2009	2.06	6.78	6.78	1.38	3.86	0.31	0.19	0.14	0.63	2.45	4.34	5.08	34.00
2010	10.49	5.38	6.76	8.36	3.58	3.46	0.10	0.21	2.00	5.29	6.35	12.38	64.36
2011	2.69	4.66	12.57	5.07	1.72	1.31	0.25	M0.05	M0.37	5.16	4.64	3.31	41.80
2012	9.11	M2.12	12.65	5.66	1.08	2.41	0.76	0.08	0.10	3.55	6.93	11.06	55.51
2013	2.94	2.00	3.47	2.24	1.88	0.78	0.00	0.10	4.37	0.05	1.70	0.98	20.51
2014	2.16	7.90	8.85	1.84	1.05	0.73	T	0.00	3.23	5.74	5.11	9.96	46.57
2015	2.07	5.59	3.78	2.39	0.10	0.07	0.13	0.51	0.59	1.10	5.30	18.77	40.40
2016	12.30	2.93	10.48	3.27	0.64	0.11	0.59	0.02	T	12.03	7.20	8.22	57.79
2017	11.03	14.24	10.09	5.32	1.26	0.72	0.01	0.01	0.73	1.81	8.55	2.31	56.08
2018	9.19	2.97	8.35	5.34	0.97	0.48	0.02	0.02	0.32	0.89	5.68	5.40	39.63
2019	8.39	16.09	5.39	3.64	3.11	T	0.02	0.46	3.21	2.08	2.05	7.88	52.32
2020	9.26	1.01	2.80	2.11	5.66	0.53	MT	0.02	0.77	0.60	3.27	5.14	31.17
2021	6.81	6.15	4.29	0.67	0.33	1.93	0.11	0.01	1.68	5.40	3.79	6.73	37.90
2022	2.92	M0.00											2.92

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2022-02-08

## Precipitation Data for Groundwater Monitoring

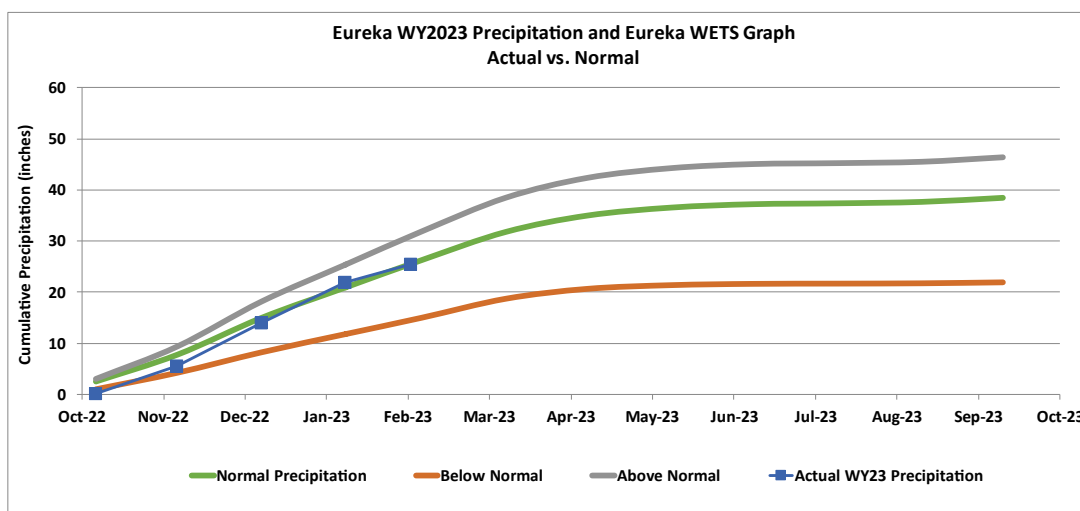
Precipitation data and rainfall measurements for the project site were taken from the National Oceanic Atmospheric Administration (NOAA) rain gage at the Eureka Weather Forecast Office (WFO) on Woodley Island. The Eureka NOAA rain gage is the station nearest to the project site with sufficient historical data (at least 20 years) required to create an NRCS WETS table.

**Table 1** presents NRCS WETS table data applicable to the project site for the 2023 water year. The NRCS WETS data includes the mean monthly below normal, normal, and above normal precipitation values for the period of 1972 to 2022 (AgACIS 2023).

*Table 1 Eureka, California WETS table (1972-2022)*

Precipitation (inches)			
Month	Below Normal	Normal	Above Normal
January	3.59	5.98	7.25
February	3.21	5.35	6.49
March	3.74	5.53	6.61
April	1.94	3.2	3.88
May	0.73	1.57	1.91
June	0.25	0.66	0.79
July	0.05	0.17	0.18
August	0.06	0.28	0.27
September	0.19	0.8	0.88
October	0.96	2.45	2.96
November	3.25	5.26	6.36
December	4.02	7.22	8.8

Rainfall data (as of February 24, 2023) for Eureka for the 2023 water year (October 1, 2022, to September 30, 2023) is shown in **Figure 1**. Below normal, normal, and above normal rainfall data from the WETS Table for Eureka are shown for comparison.



*Figure 1 Eureka, California WY 2023 Precipitation and WETS graph*



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➔ **The Power of Commitment**

# **Appendix D**

**Botanical Memorandum Rev1**



# Technical Memorandum

October 10, 2022

<b>To</b>	Mary Keehn	<b>Contact No.</b>	
<b>Copy to</b>	Misha Schwarz, GHD Project Director	<b>Email</b>	marykeehncg@gmail.com
<b>From</b>	Jane Cipra, GHD Botanist	<b>Project No.</b>	12560473
<b>Project Name</b>	We Are Up Proposed Development		
<b>Subject</b>	Rare Plant and Sensitive Natural Communities Assessment		

## 1. Introduction

This Technical Memorandum reports the results of complete protocol-level botanical surveys, site reconnaissance, vegetation classification, and habitat assessment, on behalf of We Are Up (Client), in support of the proposed We Are Up Proposed Development (Project) within the community of McKinleyville, California (**Attachment A Figure 1**). The surveys were conducted within the Project Study Boundary (PSB) as shown in **Attachment A, Figure 2**. GHD conducted seasonally appropriate floristic surveys on April 12 and June 2, 2022 for potentially occurring special status plants within the PSB (Table 1). A site visit was made on September 15, 2022 to assess habitat quality of a small area added in the northwest corner of the PSB resulting from a lot line adjustment after the initial floristic surveys were completed. The area encompassed by the expanded PSB is approximately 0.36 acres, most of which is comprised of regularly mowed field, and the remainder is gravel and paved surfaces. This technical memorandum summarizes all botanical and habitat studies conducted during the three site visits. No special status plants were detected onsite, and a complete plant list is included in **Attachment B**. Site photos can be found in **Attachment C**. Vegetation communities were identified and mapped in the Aquatic Resources Delineation completed March 1, 2022. Sensitive Natural Communities (SNC) on site include a 0.75-acre Sitka spruce (*Picea sitchensis*) stand which is considered a (S2), as well as 0.85-acres of coastal willow (*Salix hookeriana*) which has an SNC ranking of S3. Please see the Aquatic Resources Delineation Report for details, maps, and datasheets on these communities.

### 1.1 Location

The PSB consists of partially developed, and grassy and vegetated open space, just west of Grocery Outlet in McKinleyville, California (**Attachment A, Figure 1**). The PSB is bordered by residential areas to the North and West, and by Mill Creek to the South, and a forested lot to the East. The property is a generally flat to mildly sloped grassland field, with several small clumps of trees within, and bordered by trees to the South and West of the property.

## 2. Regulatory Setting

### 2.1 Federally Listed Species

Special status plant species under Federal jurisdiction include those listed as endangered, threatened, or as candidate species by the United States Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA).

## 2.2 State Listed Species

Special status plant species under California Department of Fish and Wildlife (CDFW) jurisdiction include the following:

- Endangered, Threatened, or Candidate plant species listed under the California Endangered Species Act (CESA)
- Plants listed as Rare under California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.)
- California Rare Plant Ranking (CRPR) rare plants on the California Native Plant Society's (CNPS) Lists 1 and 2.

Plant species on CNPS Lists 1 and 2 are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code, and CDFW has oversight of these special status plant species as a trustee agency. Such species are considered during the CEQA process because they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. Plants on CNPS Lists 3 and 4 do not have formal protection under CEQA, but may merit consideration in certain circumstances. Additionally, locally significant plants (CEQA Guidelines, (§ 15125, subd. (c)), or as designated in local or regional plans, policies, or ordinances) are considered special status plant species (CDFW 2018).

## 2.3 Sensitive Natural Communities

Natural vegetation communities listed as Sensitive in the California Natural Diversity Database (CNDDDB) and on the California Sensitive Natural Communities List are to be addressed within the CEQA review process (CDFW 2022a). Sensitive Natural Communities (SNCs) are classified at the Alliance level according to A Manual of California Vegetation (Sawyer et al. 2009). CDFW considers alliances with a NatureServe State Rank of S1 to S3 to be Sensitive Natural Communities, and therefore these alliances are considered during the CEQA process (CDFW 2022a).

# 3. Methods

## 3.1 Pre-Survey Investigations

A scoping list of CRPR plant species and habitats with recorded occurrences in the project vicinity was compiled prior to surveys on April 12, 2022 by consulting the CNDDDB (CDFW 2022b), the CNPS Inventory of Rare and Endangered Vascular Plants (CNPS 2022), and U.S. Fish and Wildlife Service IPaC (USFWS 2022) (Table 1). The CNDDDB RareFind database was also consulted for rare plant occurrences documented in the project vicinity.

The scoping list includes special-status plants with documented occurrences on the Arcata North USGS quadrangle and adjacent seven quadrangles (Crannell, Panther, Creek, Blue Lake, Korbel, Arcata South, Eureka, and Tyee City). The query yielded 22 special status plant species with CRPR rank of 1 or 2, including two state and federally endangered plants. All species were reviewed prior to the field survey and evaluated for their potential to occur at the site. Of the species identified during scoping, two have a high probability and one has a moderate probability of occurring within the study area, 28 have a low probability of occurring within the study area, and 15 have no potential to occur onsite because they are restricted to coastal dunes, bluffs, or saltmarshes. Plants with a high to moderate potential to occur onsite include Howell's montia (*Montia howellii*, CRPR 2B.2), Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*, CRPR 1B.2) and coast checkerbloom (*Sidalcea oregana* ssp. *eximia*, CRPR 1B.2), which have been documented in similar disturbed fields and roadside edge habitats in suburban areas nearby.

CNDDDB documented one Sensitive Habitat (classified according to Holland, 1986) within the 8-quad area: Northern Coastal Salt Marsh. This habitat type is not present in the PSB.



Table 1 Potential for Special Status Plants to Occur in the PSB

Scientific Name	Common Name	FESA	CESA	Global Rank <sup>2</sup>	State Rank <sup>2</sup>	CRPR <sup>2</sup>	Habitat Requirements <sup>1</sup>	Potential to Occur in the PSB
<i>Angelica lucida</i>	sea-watch	None	None	G5	S3	4.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps	No potential. No suitable habitat is present in the PSB.
<i>Astragalus rattanii</i> <i>var. rattanii</i>	Rattan's milk-vetch	None	None	G4T4	S4	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Calamagrostis bolanderi</i>	Bolander's reed grass	None	None	G4	S4	4.2	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest	Low potential. Marginally suitable habitat is present in the PSB. There are no known occurrences in the Project vicinity.
<i>Cardamine angulata</i>	seaside bittercress	None	None	G4G5	S3	2B.2	Lower montane coniferous forest, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Carex leptalea</i>	bristle-stalked sedge	None	None	G5	S1	2B.2	Bogs and fens, Marshes and swamps, Meadows and seeps	Low potential. The nearest non-historic occurrence (from 2011) is 10 miles north of the PSB.
<i>Carex praticola</i>	northern meadow sedge	None	None	G5	S2	2B.2	Meadows and seeps	Low potential. This species has not been observed in the Humboldt Bay Area since 1915.
<i>Castilleja littoralis</i>	Oregon coast paintbrush	None	None	G3	S3	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	No potential. No suitable habitat is present in the PSB.
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	None	None	G5?	S3	4.3	North Coast coniferous forest, Riparian forest	No potential. No suitable habitat is present in the PSB.
<i>Coptis laciniata</i>	Oregon goldthread	None	None	G4?	S3?	4.2	Meadows and seeps, North Coast coniferous forest	Low potential. Marginally suitable habitat is present in the PSB. There are no known occurrences in the Project vicinity.

Scientific Name	Common Name	FESA	CESA	Global Rank <sup>2</sup>	State Rank <sup>2</sup>	CRPR <sup>2</sup>	Habitat Requirements <sup>1</sup>	Potential to Occur in the PSB
<i>Eleocharis parvula</i>	small spikerush	None	None	G5	S3	4.3	Marshes and swamps	Low potential. Marginally suitable habitat is present in the PSB. There are no known occurrences in the Project vicinity.
<i>Erythronium revolutum</i>	coast fawn lily	None	None	G4G5	S3	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Fissidens pauperculus</i>	minute pocket moss	None	None	G3?	S2	1B.2	North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	None	None	G5T3	S2	1B.2	Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	Low potential. This species has not been observed in the Humboldt Bay Area since 1905.
<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	None	None	G4T3	S3	1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie	No potential. No suitable habitat is present in the PSB.
<i>Hosackia gracilis</i>	harlequin lotus	None	None	G3G4	S3	4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland	Low potential. Marginally suitable habitat is present in the PSB. There are no known occurrences in the Project vicinity.
<i>Lasthenia californica</i> ssp. <i>macrantha</i>	perennial goldfields	None	None	G3T2	S2	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	No potential. No suitable habitat is present in the PSB.
<i>Lathyrus palustris</i>	marsh pea	None	None	G5	S2	2B.2	Bogs and fens, Coastal prairie, Coastal scrub, Lower montane coniferous	Low potential. The only known occurrence of this species in the Humboldt Bay Area is

This Technical Memorandum is provided as an interim output under our agreement with Mary Keehn. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

Scientific Name	Common Name	FESA	CESA	Global Rank <sup>2</sup>	State Rank <sup>2</sup>	CRPR <sup>2</sup>	Habitat Requirements <sup>1</sup>	Potential to Occur in the PSB
							forest, Marshes and swamps, North Coast coniferous forest	an observation (from 2003) 12 miles south of the PSB.
<i>Layia carnosa</i>	beach layia	FE	CE	G2	S2	1B.1	Coastal dunes, Coastal scrub	No potential. No suitable habitat is present in the PSB.
<i>Lilium kelloggii</i>	Kellogg's lily	None	None	G3	S3	4.3	Lower montane coniferous forest, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Lilium occidentale</i>	western lily	FE	CE	G1	S1	1B.1	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, North Coast coniferous forest	Low potential. Suitable habitat is present but this six-foot tall red lily is threatened by collection and known from few locations in the Humboldt bay area.
<i>Listera cordata</i>	heart-leaved twayblade	None	None	G5	S4	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	Low potential. Marginally suitable habitat is present.
<i>Lycopodium clavatum</i>	running pine	None	None	G5	S3	4.1	Lower montane coniferous forest (mesic) Marshes and swamps North Coast coniferous forest (mesic)	No potential. The PSB is outside of the elevational range for this species (150 – 4,020 feet).
<i>Mitellastr caulescens</i>	leafy-stemmed mitrewort	None	None	G5	S4	4.2	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	Low potential. Marginally suitable habitat is present.
<i>Monotropa uniflora</i>	ghost-pipe	None	None	G5	S2	2B.2	Broadleafed upland forest, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.

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Scientific Name	Common Name	FESA	CESA	Global Rank <sup>2</sup>	State Rank <sup>2</sup>	CRPR <sup>2</sup>	Habitat Requirements <sup>1</sup>	Potential to Occur in the PSB
<i>Montia howellii</i>	Howell's montia	None	None	G3G4	S2	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools	Moderate potential. Suitable habitat is present.
<i>Oenothera wolfii</i>	Wolf's evening-primrose	None	None	G2	S1	1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	Low potential. Marginally suitable habitat is present.
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	None	None	G4T4	S2S3	2B.2	Coastal scrub, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Piperia candida</i>	white-flowered rein orchid	None	None	G3	S3	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Pityopus californicus</i>	California pinefoot	None	None	G4G5	S4	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Pleuropogon refractus</i>	nodding semaphore grass	None	None	G4	S4	4.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	Low potential. Suitable habitat is present in the PSB. There are no known occurrences of this species in the Project vicinity.
<i>Ribes laxiflorum</i>	trailing black currant	None	None	G5?	S3	4.3	North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	None	None	G3	S3	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Low potential. Suitable habitat is present in the PSB; however, this species has not been observed in the McKinleyville Area since 1933.

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Scientific Name	Common Name	FESA	CESA	Global Rank <sup>2</sup>	State Rank <sup>2</sup>	CRPR <sup>2</sup>	Habitat Requirements <sup>1</sup>	Potential to Occur in the PSB
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	None	None	G5T2	S2	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	<b>High potential.</b> Suitable habitat is present and there is a CNDDDB occurrence (from 2005) approximately 1.4 miles north of the PSB.
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	coast checkerbloom	None	None	G5T1	S1	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	<b>High potential.</b> Suitable habitat is present and there is a CNDDDB occurrence (from 2001) approximately 2.1 miles north of the PSB.
<i>Silene scouleri</i> ssp. <i>scouleri</i>	Scouler's catchfly	None	None	G5T4T5	S2S3	2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	Low potential. Marginally suitable habitat is present in the PSB.
<i>Sulcaria spiralifera</i>	twisted horsehair lichen	None	None	G3G4	S2	1B.2	Coastal dunes, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Viola palustris</i>	alpine marsh violet	None	None	G5	S1S2	2B.2	Bogs and fens, Coastal scrub	Low potential. This species has not been observed in the Humboldt Bay Area since 1923.

Footnotes:

1 General habitat, and microhabitat column information, reprinted from CNDDDB (October 2021).

2 Rankings from CNDDDB (October 2021).

Column Header Categories and Abbreviations:

FESA Listing status under the federal Endangered Species Act (ESA)

FE Federal Endangered; FT = Federal Threatened; FC = Federal Candidate; FD = Federally Delisted

CESA Listing status under the California state Endangered Species Act (CESA)

SE State Endangered; SD = State Delisted; ST = State Threatened.

GRank: Global Rank from NatureServe's Heritage Methodology (NatureServe 2021) (ranking according to degree of global imperilment - G1 = Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors; G2 = Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors; G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors; G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors; G5 = Secure—Common; widespread and abundant.

Subspecies/variety level: "Subspecies/varieties receive a T-rank attached to the G-rank. With the subspecies/varieties, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety" (CDFW 2021b); ? = " Denotes inexact numeric rank" (NatureServe 2021); Q = " Questionable taxonomy that may reduce conservation priority" (NatureServe 2021)

SRank: State Rank from NatureServe's Heritage Methodology (NatureServe 2021) (ranking according to degree of imperilment in the state (California) - S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state; S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state; S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state; S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors; S5 = Secure—Common, widespread, and abundant in the state; SNR = State Not Ranked.

CRPR: CNPS rankings for rare plants (CNPS 2021) - 1A = Plants presumed extinct in California; 1B = Plants rare, threatened or endangered in California and elsewhere; 2 = Plants rare, threatened, or endangered in California, but more common elsewhere; 3 = Plants about which more information is needed (a review list); 4 = Plants of limited distribution (a watch list); n/a = not applicable; Threat Code extensions and their meanings: ".1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat); .3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)" (CDFW 2021b).

Potential to Occur:

No potential: Habitat in and adjacent to the PSB is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Low potential: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found in the PSB.

Moderate potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found in the PSB.

High potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on in the PSB

Present: Detected or documented on-site.

## 3.2 Floristic Surveys

GHD botanists Christian Hernandez and Jane Cipra conducted floristic surveys in April and June 2022 to cover the blooming period for all potentially occurring special status plants onsite. The special status plant survey followed Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018) and General Rare Plant Survey Guidelines by the Endangered Species Recovery Program (USFWS 2002). The special status plant survey was conducted by walking the site and identifying all plant species encountered to the lowest taxonomic level necessary for rare plant identification. Nomenclature follows The Jepson Manual (Baldwin et al 2012). GHD Botanist Christian Hernandez conducted the initial survey on April 12, 2022 and Jane Cipra conducted the second survey on June 2, 2022. The site assessment of the expanded PSB was conducted by GHD botanist Kolby Lundgren on September 15, 2022.

GHD Botanist Jane Cipra has an M.A. in Biology from Humboldt State University, with over fifteen years of experience conducting special status plant surveys. GHD Botanist Christian Hernandez has a degree in Environmental Science from Humboldt State University and two years of experience conducting biological and botanical surveys. GHD Botanist Kolby Lundgren has a degree in Botany from Humboldt State University and seven years of experience conducting biological and botanical surveys.

A list of species observed within the project area is provided (**Attachment C**).

## 4. Results

### 4.1 Special Status Plants

No special status plant species were observed onsite. The April 12 survey was timed to observe early-spring blooming potentially occurring special status species. The following survey on June 2 was timed to observe later-blooming species. Seasonally appropriate floristic surveys were completed by qualified botanists according to protocol (CDFW 2018). The site conditions in the expanded PSB do not support quality habitat for those species listed with potential to occur in the Project footprint. Species in the expanded footprint were identifiable during the September 15, 2022 survey by a combination of vegetation, flowers, and fruit. No evidence of late blooming species with moderate to high potential to occur in the Project footprint (*Sidalcea* sp.) was detected. A pre-construction survey is recommended for the expanded PSB only, to confirm the presence or absence of early blooming species with moderate to high potential to occur in the Project footprint (*Montia howellii*), and no additional surveys for special status plant species are recommended for the remainder of the Project area.

## 5. Conclusion

Protocol-level floristic surveys for potentially occurring special status plants and investigations for sensitive habitats and potential wetlands onsite were completed on April 12 and June 2, 2022. An additional site assessment was made on September 15, 2022 for a small area of frequently disturbed habitat added to the PSB as apart of a lot line adjustment. No special status plants were detected onsite. The parcel contains pasture dominated by non-native grasses with Coastal Willow Thickets and Sitka Spruce stands around the northeastern and southeastern edge of the PSB. Highly invasive species including Scotch broom, English ivy, English holly, cape ivy, cotoneaster, and Himalayan blackberry.

### 5.1 Scope and limitations

*This technical memorandum has been prepared by GHD for Mary Keehn. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.*

## 5.2 Accessibility of documents

*If this Technical Memorandum is required to be accessible in any other format this can be provided by GHD upon request and at an additional cost if necessary.*

*The opinions, conclusions and any recommendations in this memorandum are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.*

*Investigations undertaken in respect of this memorandum are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this memorandum.*

## 6. References

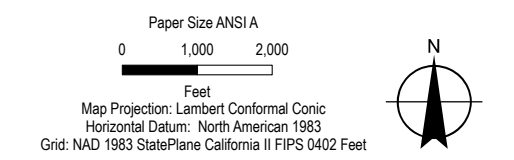
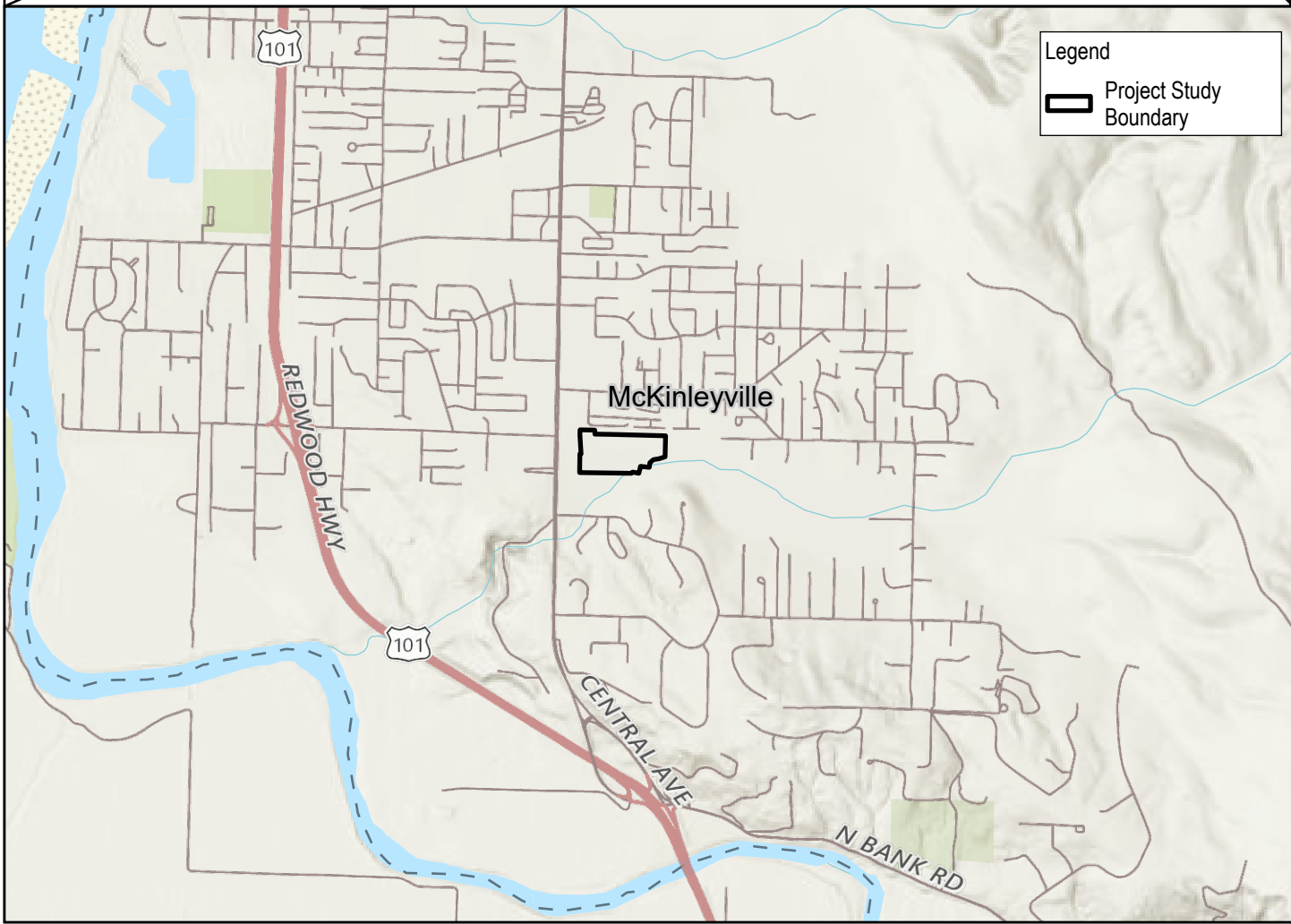
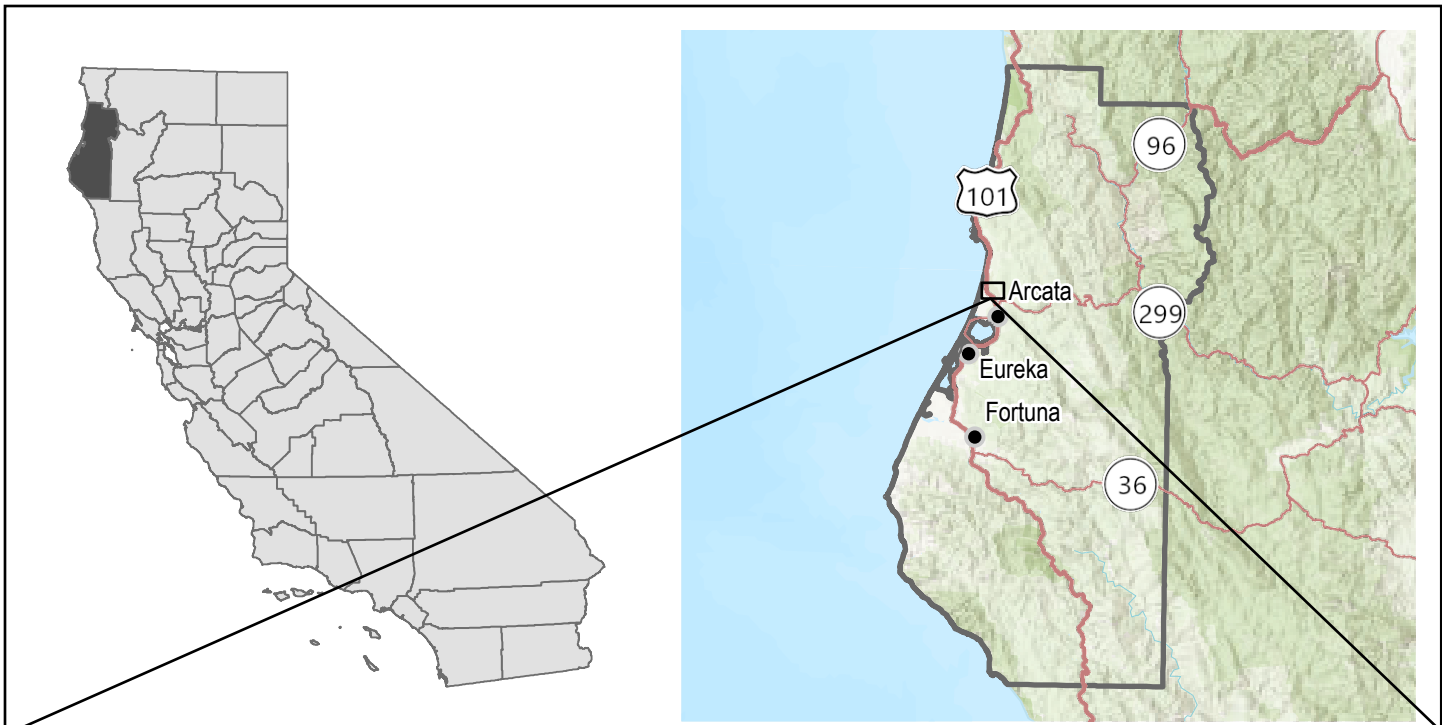
- Baldwin, B. D. 2012. The Jepson Manual, Second Edition. University of California Press. Berkeley, CA.
- California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. Sacramento, CA.
- California Department of Fish and Wildlife (CDFW). 2022a. California Department of Fish and Wildlife Natural Communities website. Accessed March 24, 2021. <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>
- California Department of Fish and Wildlife (CDFW) 2022b. California Natural Diversity Database (CNDDDB). Sacramento, California. Accessed March 18, 2021. <https://wildlife.ca.gov/Data/CNDDDB/Maps-and-Data#43018410-cnddb-quickview-tool>
- California Native Plant Society (CNPS) 2022. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.45). California Native Plant Society, Rare Plant Program Website. Accessed March 18, 2021. <http://www.rareplants.cnps.org>
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evans. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society. Sacramento, CA. <https://vegetation.cnps.org/>
- United States Fish and Wildlife Service (USFWS). 2002. General Rare Plant Survey Guidelines by the Endangered Species Recovery Program.
- United States Fish and Wildlife Service (USFWS). 2022. Information for Planning and Consultation (IPaC). Accessed March 18, 2022. <https://ecos.fws.gov/ipac/>



# Attachments

# Attachment A

## Figures



We Are Up

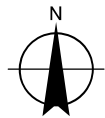
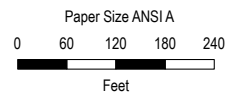
Project No. 12560473  
Revision No. -  
Date 9/26/2022

Vicinity Map

**FIGURE 1**



Legend  
 Project Study Boundary



Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



We Are Up

Project No. 12560473  
 Revision No. -  
 Date 9/26/2022

Project Study Boundary

FIGURE 2

# **Attachment B**

**Plant Species Observed**

Attachment B. Plant species observed in the PSB 2022.

Scientific Name	Common Name	Family	Status
<i>Carpobrotus edulis</i>	iceplant	Aizoaceae	invasive non-native
<i>Allium triquetrum</i>	white flowered onion	Aliaceae	non-native
<i>Amarillis belladonna</i>	naked ladies	Amaryllidaceae	non-native
<i>Narcissus spp.</i>	narcissus	Amaryllidaceae	non-native
<i>Daucus carota</i>	carrot	Apiaceae	non-native
<i>Oenanthe sarmentosa</i>	water parsley	Apiaceae	non-native
<i>Ilex aquifolium</i>	holly	Aquifoliaceae	invasive non-native
<i>Zantedeschia aethiopica</i>	calla lily	Araceae	invasive non-native
<i>Delairea odorata</i>	Cape ivy	Araliaceae	invasive non-native
<i>Hedera helix</i>	English ivy	Araliaceae	invasive non-native
<i>Achillea millefolium</i>	yarrow	Asteraceae	native
<i>Baccharis pilularis</i>	coyote brush	Asteraceae	non-native
<i>Chamomilla swaveolus</i>	chamomile	Asteraceae	non-native
<i>Cirsium vulgare</i>	bullthistle	Asteraceae	invasive non-native
<i>Erechtites sp.</i>	fireweed	Asteraceae	non-native
<i>Helminthotheca echioides</i>	bristly oxtongue	Asteraceae	non-native
<i>Hypochaeris radicata</i>	hairy cats ear	Asteraceae	invasive non-native
<i>Leontodon saxatilis</i>	hawkbit	Asteraceae	non-native
<i>Leucanthemum vulgare</i>	ox eye daisy	Asteraceae	invasive non-native
<i>Senecio vulgaris</i>	common groundsel	Asteraceae	non-native
<i>Sonchus asper</i>	prickly sow thistle	Asteraceae	non-native
<i>Symphyotrichum chilense</i>	Pacific aster	Asteraceae	native
<i>Taraxacum erythrospermum</i>	red-seeded dandelion	Asteraceae	non-native
<i>Tragopogon porrifolius</i>	salsify	Asteraceae	non-native
<i>Athyrium filix-femina</i>	common ladyfern	Athyriaceae	native
<i>Alnus rubra</i>	red alder	Betulaceae	native
<i>Brassica rapa</i>	common mustard	Brassicaceae	invasive non-native
<i>Raphanus raphinastrium</i>	wild radish	Brassicaceae	non-native
<i>Lonicera involucrata</i>	coast twinberry	Caprifoliaceae	native
<i>Cerastrium glomeratum</i>	sticky chickweed	Caryophyllaceae	non-native
<i>Crassula connata</i>	pygmy stonecrop	Crassulaceae	non-native
<i>Hesperocyparis macrocarpa</i>	Monterey cypress	Cupressaceae	non-native
<i>Sequoia sempervirens</i>	coast redwood	Cupressaceae	native
<i>Thuja plicata</i>	western red cedar	Cupressaceae	native
<i>Carex microptera</i>	smallwing sedge	Cyperaceae	native
<i>Carex obnupta</i>	slough sedge	Cyperaceae	native

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Scientific Name	Common Name	Family	Status
<i>Eleocharis acicularis</i> var. <i>gracilescens</i>	needle spikerush	Cyperaceae	native
<i>Isolepis cernua</i>	low bulrush	Cyperaceae	native
<i>Scirpus microcarpus</i>	small fruited bulrush	Cyperaceae	native
<i>Pteridium aquilinum</i>	brackenfern	Dennstaedtiaceae	native
<i>Polystichum munitum</i>	western sword fern	Dryopteridaceae	native
<i>Equisetum telmateia</i>	giant horsetail	Equisetaceae	native
<i>Erica lusitanica</i>	Spanish heather	Ericaceae	invasive non-native
<i>Vaccinium ovatum</i>	evergreen huckleberry	Ericaceae	native
<i>Euphorbia lathyris</i>	caper spurge	Euphorbiaceae	non-native
<i>Cytisus scoparius</i>	Scotch broom	Fabaceae	invasive non-native
<i>Lotus corniculatus</i>	bird's foot trefoil	Fabaceae	non-native
<i>Lotus peduncularis</i>	big trefoil	Fabaceae	non-native
<i>Medicago arabica</i>	spotted medick	Fabaceae	non-native
<i>Medicago polymorpha</i>	burr clover	Fabaceae	non-native
<i>Medicago sativa</i>	alfalfa	Fabaceae	non-native
<i>Trifolium dubium</i>	lesser trefoil	Fabaceae	non-native
<i>Trifolium repens</i>	white clover	Fabaceae	non-native
<i>Vicia sativa</i>	spring vetch	Fabaceae	non-native
<i>Erodium moschatum</i>	whitestem filaree	Geraniaceae	non-native
<i>Geranium dissectum</i>	cutleaf geranium	Geraniaceae	non-native
<i>Geranium molle</i>	dove's foot geranium	Geraniaceae	non-native
<i>Iris germanica</i>	yellow bearded iris	Iridaceae	non-native
<i>Sisyrinchium californicum</i>	golden blue-eyed grass	Iridaceae	native
<i>Juncus balticus</i>	Baltic rush	Juncaceae	native
<i>Juncus effusus</i>	common bog rush	Juncaceae	native
<i>Juncus effusus</i> var. <i>pacifica</i>	Pacific rush	Juncaceae	native
<i>Juncus hesperius</i>	coast or bog rush	Juncaceae	native
<i>Mentha pulegium</i>	pennyroyal	Lamiaceae	invasive non-native
<i>Mentha suaveolens</i>	apple mint	Lamiaceae	non-native
<i>Prunella vulgaris</i>	self heal	Lamiaceae	native
<i>Stachys chamissonis</i>	hedge nettle	Lamiaceae	native
<i>Veronica persica</i>	wall speedwell	Lamiaceae	non-native
<i>Linum bienne</i>	flax	Linaceae	non-native
<i>Modiola caroliniana</i>	Carolina bristle mallow	Malvaceae	non-native
<i>Morella californica</i>	California wax myrtle	Myracaceae	native
<i>Eucalyptus globulus</i>	blue gum	Myrtaceae	invasive non-native
<i>Epilobium ciliatum</i>	northern willow herb	Onagraceae	non-native

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Scientific Name	Common Name	Family	Status
<i>Parentucellia viscosa</i>	yellow glandweed	Orobanchaceae	non-native
<i>Oxalis stricta</i>	wood sorrel	Oxalidaceae	non-native
<i>Abies grandis</i>	grand fir	Pinaceae	native
<i>Picea glauca</i>	white spruce	Pinaceae	non-native
<i>Picea sitchensis</i>	Sitka spruce	Pinaceae	native
<i>Digitalis purpurea</i>	foxglove	Plantaginaceae	non-native
<i>Plantago lanceolata</i>	ribwort	Plantaginaceae	invasive non-native
<i>Plantago major</i>	broadleaf plantain	Plantaginaceae	non-native
<i>Veronica scutellata</i>	marsh speedwell	Plantaginaceae	non-native
<i>Agrostis stolonifera</i>	redtop	Poaceae	invasive non-native
<i>Alopecurus aequalis</i>	shortawn foxtail	Poaceae	native
<i>Anthoxanthum odoratum</i>	wweet vernal grass	Poaceae	invasive non-native
<i>Avena sativa</i>	common oat	Poaceae	non-native
<i>Briza maxima</i>	rattlesnake grass	Poaceae	non-native
<i>Bromus catharticus</i>	rescue grass	Poaceae	non-native
<i>Bromus hordeaceus</i>	soft chess	Poaceae	invasive non-native
<i>Cynodon dactylon</i>	Bermuda grass	Poaceae	invasive non-native
<i>Dactylus glomeratus</i>	orchard grass	Poaceae	non-native
<i>Danthonia californica</i>	California oatgrass	Poaceae	non-native
<i>Danthonia decumbens</i>	heath grass	Poaceae	non-native
<i>Festuca arundinacea</i>	Reed fescue	Poaceae	invasive non-native
<i>Festuca bromoides</i>	fescue	Poaceae	non-native
<i>Festuca perennis</i>	Italian rye grass	Poaceae	invasive non-native
<i>Glyceria declinata</i>	mann grass	Poaceae	non-native
<i>Holcus lanatus</i>	common velvetgrass	Poaceae	invasive non-native
<i>Poa annua</i>	annual blue grass	Poaceae	non-native
<i>Poa pratensis</i>	Kentucky bluegrass	Poaceae	non-native
<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae	invasive non-native
<i>Rumex obtusifolius</i>	broadleaf dock	Polygonaceae	non-native
<i>Ranunculus repens</i>	crowfoot, creeping buttercup	Ranunculaceae	invasive non-native
<i>Frangula purshiana</i>	cascastra sagrada	Rhamnaceae	native
<i>Cotoneaster spp.</i>	cotoneaster	Rosaceae	non-native
<i>Fragaria vesca</i>	wild strawberry	Rosaceae	native
<i>Malus domestica</i>	apple tree	Rosaceae	non-native
<i>Malus fusca</i>	western crabapple	Rosaceae	non-native
<i>Physocarpus capitatus</i>	ninebark	Rosaceae	non-native
<i>Potentilla anserina</i>	wilver weed cinquefoil	Rosaceae	native

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Scientific Name	Common Name	Family	Status
<i>Rosa californica</i>	California wild rose	Rosaceae	native
<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae	invasive non-native
<i>Rubus ursinus</i>	California blackberry	Rosaceae	native
<i>Galium trifidum</i>	three-petal bedstraw	Rubiaceae	non-native
<i>Gallium aparine</i>	cleavers	Rubiaceae	non-native
<i>Maianthemum dilatatum</i>	false lily of the valley	Ruscaceae	native
<i>Salix hookeriana</i>	coastal willow	Salicaceae	native
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae	native
<i>Scrophularia californica</i>	California figwort	Scrophulariaceae	native
<i>Viola adunca</i>	western dog violet	Violaceae	native

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# **Attachment C**

## **Site Photographs**



***Photo 1. View northwest from the eastern end of the PSB showing the stand of redwood in the middle of the parcel.***



***Photo 2. View north of the barn and residence from the southern extent of the PSB.***



***Photo 3. View of arroyo willow at eastern edge of the PSB.***



***Photo 4. Cape ivy at the barn.***



***Photo 5. Understory of the redwoods in the center of the PSB.***

