WETLAND DELINEATION REPORT

East Vail Workforce Subdivision
Eagle County, Colorado

prepared for:

TRIUMPH DEVELOPMENT
12 VAIL ROAD, SUITE 700, VAIL, CO 81657

&

WESTERN ECOLOGICAL RESOURCE
711 WALNUT STREET, BOULDER, CO 80302

prepared by:

BIRCH ECOLOGY, LLC
429 MAIN STREET, LYONS, CO 80540

BIRCH ECOLOGY

FEBRUARY 2019

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1.0 INTRODUCTION

Triumph Development has plans to construct a workforce housing project near the I-70 Exit in East Vail. The development would be located on the western part of the ±23.3-acre property, on a 5.397-acre parcel which is the focus of this wetland delineation. The eastern 17.915 acres will be designated for Natural Area Preservation. Specifically, the project site is located in the southeast ¼ of Section 2 of Township 5 South and Range 80 West in Eagle County, Colorado (Figures 1 & 2).

To aid in project planning, a wetland delineation was completed for the 5.397-acre project area where the development would be located. This report describes the wetlands and waters identified in terms of their vegetation, soil, and hydrology, and includes photos and a Wetland Map. Please note, all Figures are included in Section 6.0, Tables are in Section 7.0, and Photos are in Section 8.0. Appendix A contains copies of the field data forms.

2.0 ENVIRONMENTAL SETTING

The East Vail Workforce Housing project site is located on a south to southwest-facing hillside above the Frontage Road on the north side of I-70 (Photo 1). The 5.397-acre parcel where the development would be located is dominated by aspen *(Populus tremuloides)* forest with scattered Engelmann spruce *(Picea engelmanii)* and a mixed mountain shrub community that includes serviceberry *(Amelanchier alnifolia)*, snowberry *(Symphoricarpos rotundifolius)*, chokecherry *(Prunus virginiana var. melanocarpa)*, Woods' rose *(Rosa woodsii)*, and mountain mahogany *(Cercocarpus montanus)*, among other species (Photo 2). There is a small seep wetland near a landslide area at the eastern boundary (Photos 3 & 4), and a narrow ephemeral stream channel that crosses the western side (Photo 5). Elevations of the delineation area range from a high of 8,520 in the northeastern corner to a low of 8,374 in the southwestern corner where the ephemeral stream channel flows off the project site.

3.0 DELINEATION METHODS

Wetlands were delineated by Heather Houston of Birch Ecology, LLC and formerly of Western Ecological Resource, Inc. and David Buscher of Buscher Soil & Environmental, Inc. in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (1987) and the Regional Supplement for the Western Mountains, Valleys and Coast (2010) on October 24, 2017. In general, wetland boundaries were delineated and flagged based upon the prevalence of hydrophytic vegetation, hydric soils and indicators of a wetland hydrology. Field forms for the three test pits with vegetation, soil and hydrology data are included in Appendix A. These test pits are located in both wetland and upland habitats. In general, plant species names follow Weber and Whitmann (1992). The wetland status of plants follows the 2016 National List for the Western Mountains, Valleys and Coast Region. Classification of wetlands follows Cowardin et al. (1979). Wetland flagging was surveyed by Peak Land Surveying of Vail, Colorado.

4.0 WETLANDS & WATERS OF THE U.S.

Approximately 377 square feet of a seep wetland are located within the 5.397-acre project area boundary. In addition, approximately 68 linear feet of an ephemeral stream channel bisect the project site, as illustrated by the Wetland Map (Figure 3) and summarized in Table 1.

4.1 Wetland A

4.1.1 Location

Wetland A is a seep located near the eastern boundary of the project site. The wetland extends into the project area from the Natural Area Preservation parcel to the east. Approximately 377 square feet of this wetland occur within the 5.397-acre project site (Photos 3 & 4).

4.1.2 Classification

Under the Cowardin Classification System for Wetlands and Deepwater Habitats (Cowardin et al., 1979), Wetland A is in the Palustrine System, Scrub-Shrub Wetland Class.

4.1.3 Vegetation

Wetland A is a seep within the aspen forest (Photos 3, 4 & 6). In the area mapped as wetlands, the shrubby overstory is dominated by willows *(Salix bebbiana, S. scouleriana)*, redosier dogwood *(Cornus sericea)*, and bush honeysuckle *(Distegia involucrata)*, with serviceberry, snowberry, Woods' rose, common juniper *(Juniperus communis),* and mountain maple *(Acer glabrum)* in the moist soil at the periphery. The understory of the delineated wetland is dominated by a sparse cover of beaked sedge *(Carex utriculata)* growing with cow parsnip *(Heracleum sphondylium ssp. montanum)*, starry false Solomon's seal *(Maianthemum stellatum)* and monkshood *(Aconitum columbianum)*, as well as the shade-tolerant introduced species orchard grass *(Dactylis glomerata)*.

4.1.4 Hydrology

This wetland is a seep fed by groundwater discharge and snowmelt runoff. As noted on the data form for Pit 3, the soil was saturated below a depth of 11 inches on the date of the delineation, and there was flowing water nearby in a small channel.

4.1.5 Soils

Three soil pits were used to define the limits of Wetland A. Pits 1 and 2 were located just outside the wetland boundary (Photo 7) in a shallow drainage swale. Both pits lacked hydric soil and indicators of a wetland hydrology. Pit 3 was located inside the wetland boundary. The soil was hydric and was saturated below a depth of 11 inches (Photo 8).

4.2 Ephemeral Stream Channel

4.2.1 Location

A 2-foot-wide, rocky ephemeral stream channel is located in the western portion of the project site (Photo 5). Approximately 68 linear feet of this channel is within the project boundary.

4.2.2 Classification

The ephemeral stream is in the Riverine System, Intermittent Subsystem, Streambed Class.

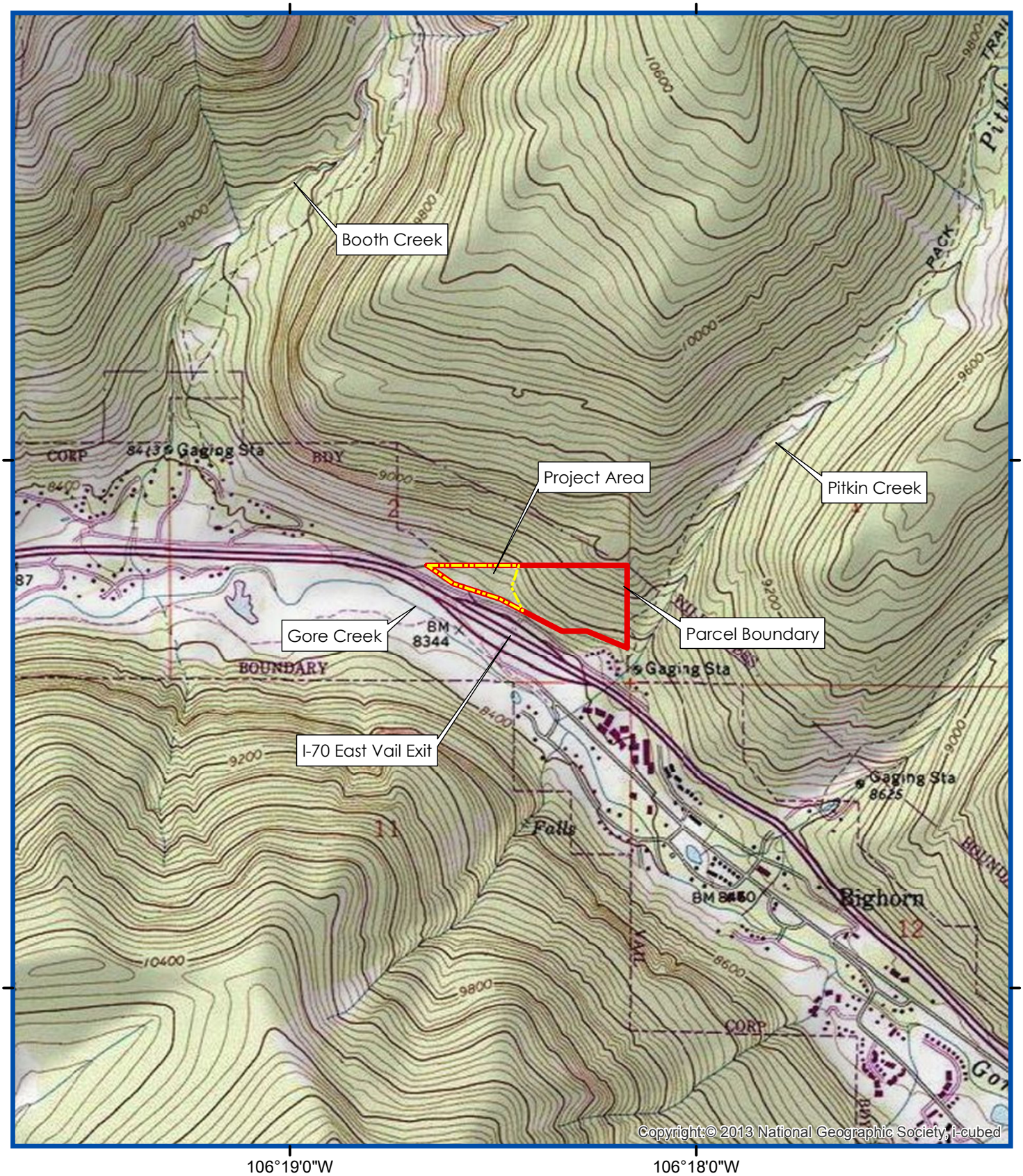
4.2.3 Hydrology

The ephemeral stream is fed by snowmelt runoff and likely seasonal groundwater discharge from the steep hillside above the parcel. The stream flows south across the site and into a 24-inch culvert in the bottom of a depression, where the inlet is buried by rocks. The outfall is on the south side of I-70, and it discharges into Gore Creek.

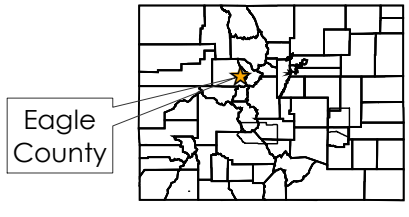
5.0 ANALYSIS OF JURISDICTIONAL STATUS

Wetland A is a seep that does not connect to other waters of the U.S. and is likely a non-jurisdictional feature. In contrast, the ephemeral stream has a direct surface connection to Gore Creek via a 24-inch culvert below I-70. Therefore, the ephemeral stream is likely jurisdictional.

6.0 FIGURES



BASE: USGS 7.5' Vail East Quadrangle, Colorado



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1:24,000

5

Figure 1. Project Location Map
East Vail Workforce Subdivision

Prepared by:
Birch Ecology LLC
429 Main Street
P.O. Box 170
Lyons, CO 80540
(720) 350-2530
www. birchecology.com

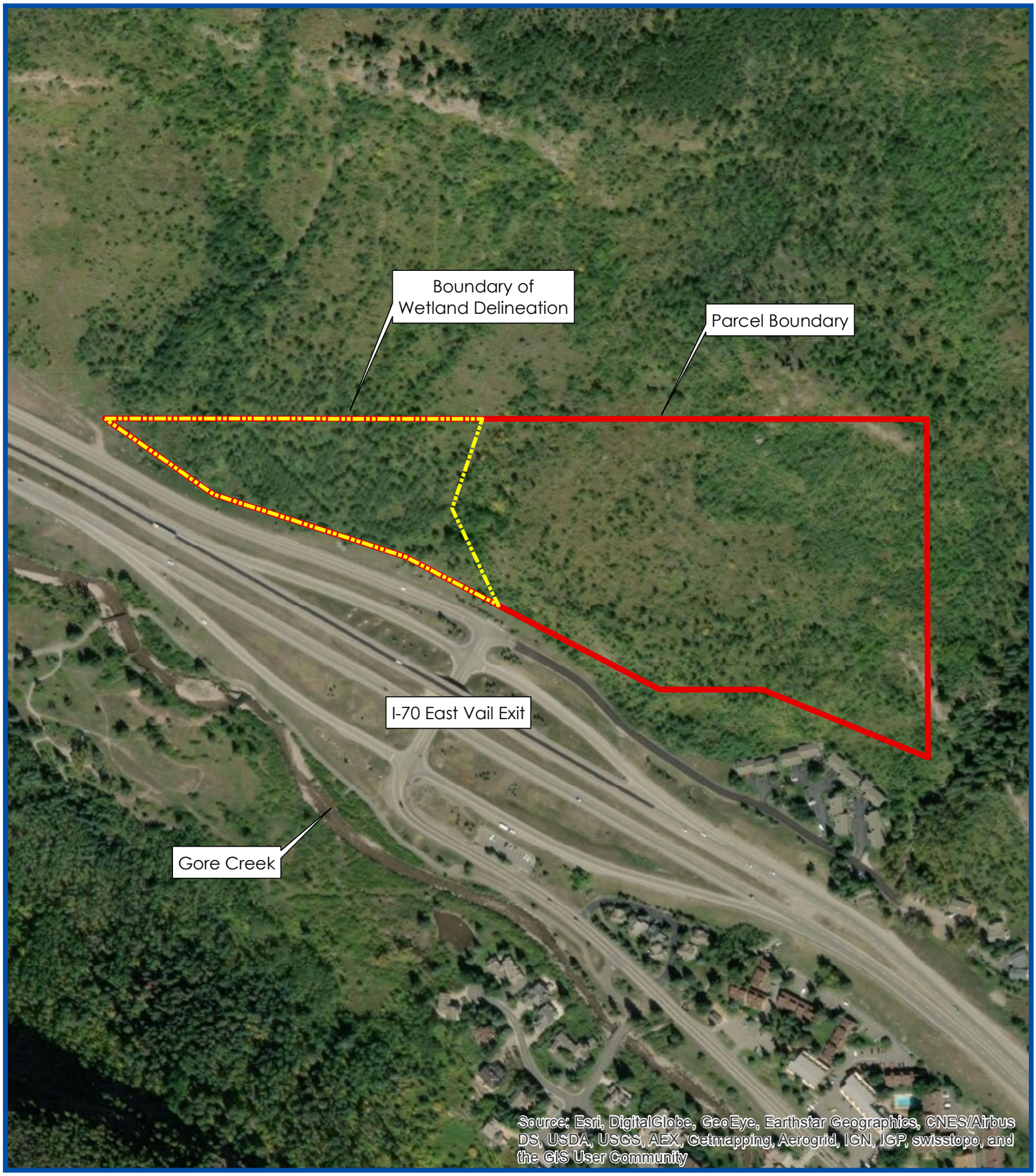
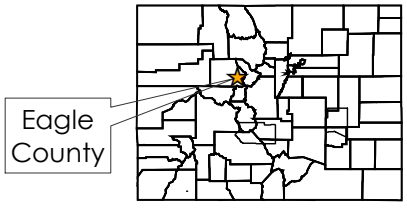


Figure 2. Aerial Photograph
East Vail Workforce Subdivision



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1:6,000

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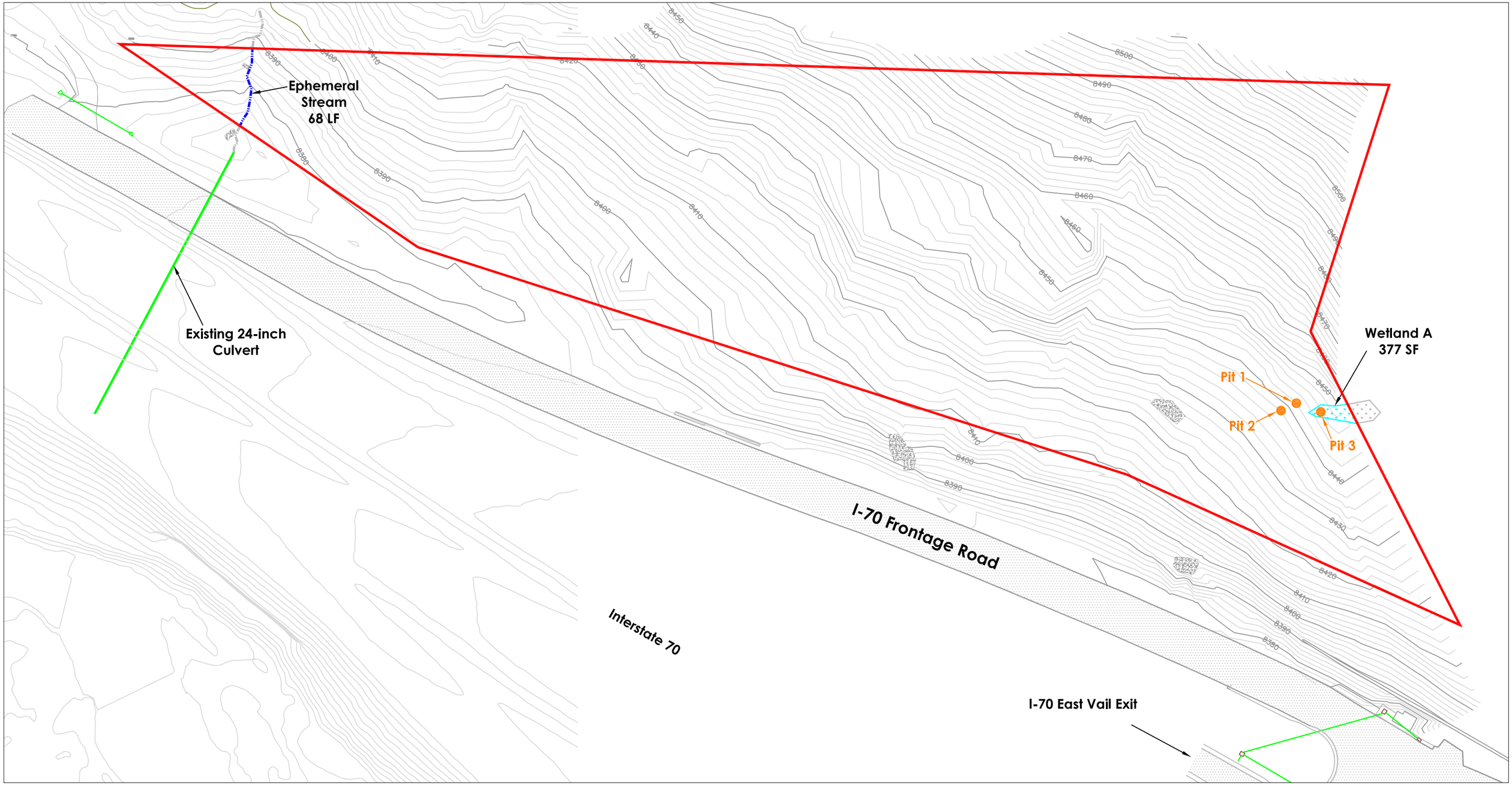

Legend:

- Wetlands
- Pit 1 Soil Pits
- Ephemeral Stream Channel
- Culverts
- Project Boundary

Wetland Flagging
Surveyed by:
Peak Land Surveying Inc.
of Vail, CO

Date: February 2019
Contour Interval = 2 ft
Scale: 1 in = 75 ft

Figure 3. Wetland Map
East Vail Workforce Housing

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7.0 TABLES

TABLE 1
Potential Waters of the U.S. Summary
East Vail Workforce Housing Project

Potential Waters of the U.S.	Size	Location
Wetlands		
Wetland A	377 ft^2 (<0.01 ac)	39.645810 -106.307616
Total Wetlands	**377 ft^2**	
Aquatic Habitats		
Ephemeral stream channel	68 LF	39.646449 -106.310683
Total Aquatic Habitats	**68 LF**	

TABLE 2
Vascular Plant Species List
East Vail Workforce Housing Project

Scientific Name	Common Name	Family	Origin*	Wetland Status**
Trees				
Picea engelmannii	Engelmann spruce	Pinaceae	N	FAC
Populus tremuloides	Aspen	Salicaceae	N	FACU
Shrubs				
Acer glabrum	Mountain maple	Aceraceae	N	FACU
Amelanchier alnifolia	Serviceberry	Rosaceae	N	FACU
Artemisia tridentata var. vaseyana	Mountain big sagebrush	Asteraceae	N	NL
Cercocarpus montanus	Mountain mahogany	Rosaceae	N	NL
Chrysothamnus parryi	Parry's rabbitbrush	Asteraceae	N	NL
Cornus sericea (C. stolonifera)	Redosier dogwood	Cornaceae	N	FACW
Distegia involucrata	Bush honeysuckle	Caprifoliaceae	N	FAC
Juniperus communis ssp. alpina	Common juniper	Cupressaceae	N	UPL
Prunus virginiana var. melanocarpa	Choke cherry	Rosaceae	N	FACU
Ribes inerme	Whitestem gooseberry	Grossulariaceae	N	FAC
Rosa woodsii	Woods' rose	Rosaceae	N	FACU
Salix bebbiana	Bebb willow	Salicaceae	N	FACW
Salix monticola	Mountain willow	Salicaceae	N	OBL
Salix scouleriana	Scouler willow	Salicaceae	N	FAC
Symphoricarpos rotundifolius	Snowberry	Caprifoliaceae	N	NL
Perennial Graminoids				
Bromus inermis	Smooth brome	Poaceae	I	UPL
Carex utriculata	Beaked sedge	Cyperaceae	N	OBL
Dactylis glomerata	Orchard grass	Poaceae	I	FACU
Elymus trachycaulus	Slender wheatgrass	Poaceae	N	FAC
Phleum pratense	Timothy	Poaceae	I	FAC
Poa compressa	Canada bluegrass	Poaceae	I	FACU
Perennial Forbs				
Achillea lanulosa	Yarrow	Asteraceae	N	FACU
Aconitum columbianum	Monkshood	Helleboraceae	N	FACW
Agastache urticifolia	Nettleleaf giant hyssop	Lamiaceae	N	FACU
Arctostaphylos uva-ursi	Kinnickinnick	Ericaceae	N	FACU
Aster foliaceus	Leafy bracted aster	Asteraceae	N	FACU
Cirsium arvense	Canada thistle	Asteraceae	I+	FAC
Frasera speciosa	Monument plant	Gentianaceae	N	NL
Geranium richardsonii	Richardson's Geranium	Geraniaceae	N	FAC
Heracleum sphondylium ssp. montanum	Cow parsnip	Apiaceae	N	FAC
Linaria vulgaris	Toadflax	Scrophulariaceae	I+	NL

TABLE 2
Vascular Plant Species List
East Vail Workforce Housing Project

Scientific Name	Common Name	Family	Origin*	Wetland Status**
Mahonia repens	Oregon grape	Berberidaceae	N	NL
Maianthemum stellatum (Smilacina stellata)	Starry false Solomon seal	Convallariaceae	N	FAC
Paxistima myrsinites	Mountainlover	Celastraceae	N	FACU
Pyrola rotundifolia ssp. asarifolia	Roundleaf wintergreen	Pyrolaceae	N	FACU
Rudbeckia ampla (R. laciniata var. ampla)	Goldenglow	Asteraceae	N	FAC
Thalictrum fendleri	Fendler meadowrue	Thalictraceae	N	FAC
Vicia americana	American vetch	Fabaceae	N	FAC

* Origin

N = Native
I = Introduced
I+ = Colorado State Noxious Weed

** Wetland Status

OBL = Obligate Wetland
FACW = Facultative Wetland
FAC = Facultative
FACU = Facultative Upland
UPL = Obligate Upland
NO/NL = No Status in this Region

8.0 PHOTOS

Photo 1. View from the project site to the southeast, toward the I-70 corridor and East Vail Exit. (10/18/17).

Photo 2. The steep forested hillside above the project site is dominated by aspen. (10/24/17).

Photo 3. Wetland A is a seep with a shrubby overstory dominated by willows and dogwood, with beaked sedge and cow parsnip in the understory. (10/24/17).

Photo 4. Wetland A is on a steep, southwestern-facing slope. (10.18/17).

Photo 5. The rocky ephemeral stream channel has a bed that averages about two feet wide. (10/24/17).

Photo 6. Aspen forest next to Wetland A. (10/24/17).

Photo 7. Pits 2 (foreground) and 1 (background) are in a drainage swale below Wetland A. (10/24/17).

Photo 8. Pit 3 is within Wetland A.

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APPENDIX A. FIELD DATA FORMS

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

Project/Site: East Vail Workforce Housing City/County: Eagle Sampling Date: 10/24/17

Applicant/Owner: Triumph Development State: CO Sampling Point: Pit 1

Investigator(s): Houston + Buscher Section, Township, Range: Sec. 2 T5S R80W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): E Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: N/A NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WP 918 = 0387812 4389271

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: 10x10')			
1. Acer glabrum	40	Y	FACU
2. Salix cf. monticola	30	Y	OBL
3. Juniperus communis	5	N	UPL
4. Symphoricarpos rotundifolius	10	N	NL
5.			
	85 = Total Cover		
Herb Stratum (Plot size: 10x10')			
1. Heracleum sphondylium	40	Y	FAC
2. Dactylis glomerata	20	Y	FACU
3. Pyrola rotundifolia	15	N	FACU
4. Carex sp. (leaves only)	2	N	FACW
5. Thalictrum fendleri	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 18

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (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[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL East Vail 10/24/17 Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR2/1	100	—	—	—	—	L	
16-19	10YR2/2	100	—	—	—	—	CL	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy 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[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks:

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 ✓ 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: In shallow drainage swale

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

Project/Site: East Vail Workforce Housing City/County: Eagle Sampling Date: 10/24/17
Applicant/Owner: Triumph Development State: CO Sampling Point: Pit 2
Investigator(s): Houston + Buscher Section, Township, Range: Sec. 27 T5S R82W
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): E Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: N/A NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: WP 919 = 0387810 4389268 in swale. Surface saturation observed nearby

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	20	Y	FACU
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10')			
1. Salix cf. bebbiana	20	Y	FACW
2. Symphoricarpos rotundifolius	15	Y	NL
3. Distegia involucrata	5	N	FAC
4. Amelanchier alnifolia	2	N	FACU
5. Cornus sericea	5	N	FACW
	47 = Total Cover		
Herb Stratum (Plot size: 10x10')			
1. Dactylis glomerata	20	Y	FACU
2. Heracleum sphondylium	30	Y	FAC
3. Elymus trachycaulus	15	N	FAC
4. Bublechia ampla	5	N	FAC
5. Aconitum columbianum	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (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[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: below pit #1

SOIL East Vail 10/24/17 Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100	—	—	—	—	L	
16-18	10YR 2/2	100	—	—	—	—	CL	
18	cobble							

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy 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[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

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 ✓ 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: Just below Pit 1 in same drainage swale.

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

Project/Site: East Vail Workforce Housing City/County: Eagle Sampling Date: 10/24/17

Applicant/Owner: Triumph Development State: CO Sampling Point: Pit 3

Investigator(s): Houston & Buscher Section, Township, Range: Sec. 2 T5S R80W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): E Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: N/A NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
below seep in small swale w/ saturated soil.

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: 10x10')			
1. Salix cf. bebbiana	35	Y	FACW
2. Cornus sericea	25	Y	FACW
3. Juniperus communis	10	N	UPL
4. Salix cf. scouleriana	15	N	FAC
5. Rosa woodsii	5	N	FACU
	90 = Total Cover		
Herb Stratum (Plot size: 10x10')			
1. Carex utriculata	25	Y	OBL
2. Heracleum sphondylium	20	Y	FAC
3. Dactylis glomerata	15	Y	FACU
4. Maianthemum stellatum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (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:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:
WP 920 = 0387815
4389268
WL #100

SOIL East Vail 10/24/17 Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR2/1	100	—	—	—	—	cbl CL	
10-22	10YR2/1	100	7.5YR3/4	1	C	M/PL	V cbl CL	
22	large cbl							

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy 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[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Not enough redox features for F6, but probably depleted matrix below low chroma soil (A12) since is saturated in low chroma soil.

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 ✓ Depth (inches): —

Water Table Present? Yes ___ No ✓ Depth (inches): —

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: below seep, flowing water in nearby small channel