November 3, 2016

Mr. Erick Ayrand
City Planner
City of Stanwood
10220 270th Street NW
Stanwood, WA 98292

Re: McDay Holdings Inc. Critical Areas Report and Habitat Management Plan Third-Party Review

Dear Erick:

On November 2, 2016, two biologists from Confluence Environmental Company (Confluence) visited four parcels (referred to herein as "the site") located at the southwest corner of the intersection of 270th Street NW and 84th Avenue NW, Stanwood, Washington (Tax parcels 32041900307900, 32041900303700, 32041900310000, and 32041900310100). The purpose of the site visit was to conduct a review of the Critical Area Report and Habitat Management Plan (Talasaea Report) prepared by Talasaea (2016).

BACKGROUND REVIEW

Prior to the site inspection, the Talasaea Report was reviewed as well the National Wetland Inventory (NWI) (USFWS 1983). The NWI identified a palustrine emergent wetland across the southern portion of the site, encompassing most of parcels 32041900310000, and 32041900310100.

The Talasaea Report did not identify any waterbodies, streams, or wetlands on the site. However, it also determined that the site was predominantly vegetated with species that could indicate the presence of wetland conditions. Since the vegetation was indicative of possible wetlands, Talasaea opted to evaluate groundwater levels at two locations on the site to determine if wetland hydrology was present instead of conducting a full delineation as required by Corps manual.

The results of the groundwater monitoring study indicated that wetland hydrology did not exist in the area represented by the wells. The groundwater study occurred outside of the growing season but the Talasaea Report did not describe how results of the study done outside of the growing season extrapolated to predict the hydrology during the growing season. Specifically, we needed to evaluate if normal climatic conditions during the growing season were wetter or drier than those encountered during the hydrology study. Our evaluation determined that the hydrology study was conducted during the wettest part of the year, thus if

wetland hydrology was not present in the wells during the study, it would not likely be present during drier times of the year (i.e. during the growing season).

The next step in our review was to determine if the wells represented the NWI mapped wetland. The Talasaea Report did not include a figure showing the location of the hydrology monitoring wells in relation to the mapped NWI wetland; therefore, we digitized Figure 2 from the Talasaea Report, which showed the locations of the monitoring wells and overlaid those locations with the mapped NWI wetland. Figure 1, below, shows the digitized locations of the wells in relation to the location of the mapped NWI wetland.

FINDINGS

We agree with the determination made by Talasaea (2016) that no waterbodies or streams were located on or adjacent to the site. We also agree that most of the site is dominated by species with a wetland indicator status of facultative, meaning that the species is found equally in wetlands and uplands. The exception to this was the dominance of reed canarygrass, a species with a wetland indicator status of facultative-wet, in the southern portion of the site.

Without additional information in the area dominated by reed canarygrass, we cannot agree with their conclusion that wetlands aren't present on the site. We believe that more information is needed to support this conclusion and recommend that a wetland delineation following the Routine Determinations method described by the Corps Wetland Determination Manual (Corps 1987) and the local Regional Supplement (Corps 2010) should be conducted.

Confluence reached this conclusion based on the following rationale:

- We evaluated the NWI mapped wetland at two different locations (Test Plot [TP] 1 and TP-2), using Routine Determination methods and the local Regional Supplement (Corps 1987, 2010, respectively). TP-1 was located in the western portion of the NWI mapped wetland and TP-2 was located in the eastern portion of the NWI mapped wetland (just south of DL-S) (Figure 1, page 3). Data sheets for the two test plots are attached.

- Both test plots met the wetland vegetation and hydric soils criteria. Test pits dug at the two test plot locations were not deep enough to fully evaluate the wetland hydrology criterion.

- While we agree that wetland hydrology was not present in well DL-S, the location of the well may not accurately represent the area identified as wetland on the NWI map and TP-2 (Figure 1). In the absence of site topographic data, we used LIDAR data (PSLC 2005) and estimated that the location of TP-2 was approximately 1.5 to 2 feet lower in elevation than well DL-S. Thus, water levels 2 feet below ground surface at DL-S may be within 12 inches or closer to the surface at TP-2, meeting the wetland hydrology

criterion. Additional information is needed to determine if wetland hydrology is present in the area represented by TP-2. In addition, Figure 2 (page 4) is a photo of the area near TP-2 that shows inundation, indicating that wetland hydrology is present at least for some portion of the year.

Figure 1. Locations of NWI mapped wetland, Confluence test plots, and Talasaea hydrology wells.

Figure 2. Photo of inundation within the NWI mapped wetland on November 19, 2015 (Source Ryan Larsen, City of Stanwood).

In summary, we recommend that a wetland delineation be conducted following the Routine Determinations method described by the Corps Wetland Determination Manual (Corps 1987) and the local Regional Supplement (Corps 2010) to determine if the NWI mapped wetland meets all three wetland criteria and if needed, to determine the accurate wetland boundary.

If you have any comments or questions, please feel free to contact me. My contact information is below.

Respectfully yours,

KERRIE MCARTHUR, PWS
Senior Biologist
206.999.6201 | kerrie.mcarthur@confenv.com

Attachments: Test Plot Data Sheets

REFERENCES

Corps (U.S. Army Corps of Engineers). 1987. Corps of Engineers Wetlands Delineation Manual. Corps, Waterways Experiment Station, Vicksburg, Mississippi. Technical Report Y-87-1.

Corps. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual – Western Mountains, Valleys, and Coast Region. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi. ERDC/EL TR-08-13.

Talasaea (Talasaea Consultants, Inc.). 2016. Critical Areas Report and Habitat Management Plan, Stanwood Septage Receiving Plant, Stanwood, Washington. Prepared for McDay Holdings, Inc., Stanwood, Washington by Talasaea Consultants, Inc., Woodinville, Washington.

USFWS (US Fish and Wildlife Service). 1983.Wetland Mapper Version 2. Available at https://www.fws.gov/wetlands/Data/Mapper.html. Accessed on October 31, 2016.

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

Project/Site: Stanwood Police Station City/County: Stanwood Sampling Date: 1/12/16

Applicant/Owner: City of Stanwood State: WA Sampling Point: TP1

Investigator(s): KAM/CNM Section, Township, Range: S19 T34N R4E

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

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

Soil Map Unit Name: Puget Silty Clay loam 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 ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes _____ No unknown	

Remarks:
wetter than normal precip for October
w/in western portion of NWI mapped wlk in area dominated by RCG

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Herb Stratum (Plot size: _____)			
1. reed canary grass	60	✓	FACW
2. Circsum sp	25	✓	FAC
3. bedstraw / Cleavers	1		FACU
4. unid grass	15		FAC
5. Card. thistle	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	102 = Total Cover		

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: TP1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	10YR 4/6	5	C	M	sandy loam w/ gravel & glass	

[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:

Moist soil full material (note glass) ∴ hydric indicators may not have developed in place / on site

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): ___

unknown

Wetland Hydrology Present? Yes ___ No ___

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

Remarks:

the site visit was reconn level only - did not dig deep enough (ie ≥12 inches) test pit. No visual signs of primary indicators

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

Project/Site: Stanwood - Police Station City/County: Stanwood Sampling Date: 11/2/16

Applicant/Owner: City of Stanwood State: WA Sampling Point: TP2

Investigator(s): KAM / CNM Section, Township, Range: S19 T34N R4E

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

Subregion (LRR): A Lat: Long: Datum:

Soil Map Unit Name: Puget Silty clay loam 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 ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Wetter than normal October precip.
low spot w/in eastern portion of NWI mapped wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

Herb Stratum (Plot size: ____)			
1. reed canary grass	100	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	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 ____

Remarks:

SOIL

Sampling Point: TP2

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 %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/2						Clay loam	
9+10	2.5Y 5/1	70	7.5YR 4/6	30	C	PL/M	clay loam	

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

Hydric Soil Indicators: (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)
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- ___ 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:

Pictures taken by City document area inundated in 2015