TECHNICAL MEMORANDUM

Prepared by: Grette Associates[LLC]
2102 North 30th Street, Ste A
Tacoma, WA 98403

December 2, 2021

Prepared for: ATTN: Jing Liu
Toxics Cleanup Program
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

File No.: 260.002

Re: Cornet Bay Marina Model Toxic Control Act (MTCA) Cleanup Mitigation Plan: 2021 (Year 7) Vegetation Monitoring Results

1 INTRODUCTION

Grette Associates is under contract with Washington State Department of Ecology (Ecology) to assist in the long-term monitoring outlined in the approved *Cornet Bay MTCA Cleanup Mitigation Plan* (Plan; Grette Associates 2013). Cornet Bay Marina is located at 200 Cornet Bay Drive (Island County tax parcels R13436-488-2260, R13436-506-2420, and R13436-517-2500) and in Section 36, Township 34 North, Range 1 East, W.M. in Oak Harbor, Washington.

The purpose of this memorandum is to summarize the Year 7 monitoring that occurred in 2021 to evaluate the mitigation site against the Year 7 performance standards defined in the approved Plan. Photographs taken at the designated photo point locations are presented at the end of this memorandum.

2 METHODS

Per the approved Plan, quantitative data were to be collected to determine species health, density, and canopy coverage. Photographs were collected along the three (3) monitoring transects that were established during the as-built inspection (Grette Associates 2014; see attached transect map). Any additional observations, including wildlife presence, were noted and are summarized below.

As discussed below, the enhancement areas contain very little shrub coverage due to unsuitable growing conditions and from recent deck-mowing. As a result, canopy coverage was not able to be measured using the Line-Intercept method (WSDOT 2008) along each transect similar to previous monitoring efforts; therefore, a qualitative assessment was completed to evaluate coverage.

Survival rate was determined by documenting all observed mortality within the enhancement areas and comparing it against the quantities summarized in the contingency actions plan (Grette Associates 2015a[1]).

3 RESULTS

Grette Associates completed the site assessment on August 28, 2021 to evaluate the wetland and wetland buffer enhancement areas and to capture photographs at each of the photo-point locations (see attached photos).

3.1 Wetland Enhancement Area

While the emergent species within the wetland area appear to be thriving similar to the previous monitoring assessments, the wetland enhancement area is largely devoid of shrubs (Table 1). Only one Nootka rose (*Rosa nutkana*) was observed within the wetland enhancement area. No remnant shrub debris was observed within the wetland enhancement area; therefore, it is assumed that the other shrubs planted did not survive.

There is no performance standard for emergent vegetation within the planted area; however, a general assessment of the emergent vegetation was completed to determine the overall health and success of the plantings. The emergent area predominantly consists of seashore saltgrass (*Distichlis spicata*), Lyngby's sedge (*Carex lyngbyei*), saltmarsh bulrush (*Schoenoplectus maritimus*), and pickleweed (*Salicornia virginica*). Based on visual observations, the planted emergent area has approximately 80 percent aerial coverage.

3.2 Wetland Buffer Enhancement Area

The general area along the shoreline was recently deck-mowed prior to Grette Associates' Year 7 assessment (see attached photographs). As a result, there is no shrub coverage within the wetland buffer enhancement area. The observed remnant shrub shoots appeared to largely consist of volunteer Nootka rose and salmonberry (*Rubus spectabilis*).

Survival of the shrubs that were planted within the wetland buffer enhancement area is limited to three Nootka rose which are situated near the wetland edge.

Herbaceous vegetation is well established within the wetland buffer enhancement area (see attached photos). Based on visual observations, the herbaceous vegetation is providing over 80 percent ground cover.

Similar to previous assessments, wildlife observations were also recorded during the site assessment. Grette Associates observed recent sign that deer regularly use the enhancement areas for foraging.

[1] As noted in the Contingency Action Compliance Report (Grette Associates 2015a), the revised standard for assessing survival within the wetland enhancement area was reduced to 50 shrubs. Originally, the area was planted with a total of 65 assorted shrubs; however, 15 were replaced with an assortment of emergent species (Grette Associates 2015a).

Table 1. Preliminary Year 7 performance standard summary

Performance Standards	Performance Standard met?
1a. A minimum of 1,300 square feet of aquatic area will be created by the end of the Cornet Bay cleanup.	**Yes**[1]
2a. A minimum of two (2) species of native shrubs will be present by the end of the monitoring period within the wetland enhancement area.	**No** – 1 species present
2b. A minimum of 80% survival of planted shrub species in Year 7 within the wetland enhancement area.	**No** – 2%
2c. A minimum of 30% aerial coverage of native shrubs after Year 7 within the wetland enhancement area.	**No** – 0%
3a. A minimum of two (2) species of native shrubs will be present by the end of the monitoring period within the buffer enhancement area.	**Yes** – 2 species present[2]
3b. A minimum of 80% survival of planted shrub species in Year 7 within the buffer enhancement area.	**No**– 4%
3c. A minimum of 30% aerial coverage of native shrubs after Year 7 within the wetland buffer enhancement area.	**No** – 0%

[1] Area verified during the as-built survey conducted after completion of the cleanup.
[2] While the enhancement area was recently deck-mowed, remanent Nootka rose and salmonberry shoots were observed during the assessment.

Table 2. 2021 Shrub Mortality Survey Results

Enhancement Area	2020 Survey Results		Assorted Plant Totals	Assessment Standard	Survival Percentage
	Alive	Dead[1]			
Wetland	1	-	1	50[1]	2%
Wetland Buffer	3	-[2]	3	79	4%

[1] Per the approved contingency actions (Grette Associates 2015), the assessment standard was reduced to 50 species.
[2] Given the significant disturbance from the recent deck-mowing, for evaluation purposes it is assumed that most shrubs did not survive.

4 DISCUSSION

The enhancement areas are not meeting Year 7 performance standards.

In Grette Associates' professional opinion, the wetland enhancement area does not appear to provide suitable growing conditions for a shrub community. The soils in the upper wetland enhancement area are very sandy, and likely do not retain enough moisture during the dry months to support shrub species. Furthermore, the majority of the shoreline is relatively steep and transitions to upland in a moderately short distance (Grette Associates 2014). As a result, the wetland enhancement area appears to provide better growing conditions to support a salt tolerant emergent vegetation community that is regularly inundated by marine waters rather than a vegetation community that includes native shrubs that are conducive to growing in brackish environments. Currently the wetland enhancement area contains approximately 80 percent coverage of emergent vegetation. Based Grette Associates' 2020 observations, the wetland buffer enhancement area was likely on target to achieve the 30 percent shrub coverage requirement for Year 7; however, due to the recent deck-mowing the wetland buffer enhancement area did not

have any shrub coverage at the time when this assessment was conducted. In addition, the deck-mowing might result in some mortality because mowing cut the vegetation near ground level. The extreme heat this summer might also result in some mortality.

5 RECOMMENDATIONS

Based on the Year 7 monitoring results presented above, Grette Associates makes the following recommendations.

5.1 Wetland Enhancement Recommendations

Grette Associates recommends that performance standards 2a, 2b, and 2c be updated to reflect emergent species and that a shrub community no longer be required[2]. While removal of a shrub layer will potentially reduce habitat value, the area will still meet wetland criteria (USACE 2010); therefore, no net loss of wetland area will occur as a result of the project. Furthermore, approximately 1,320 square feet of aquatic areas was created to compensate from the approximately 990 square feet of permanent aquatic impacts associated with the project and approximately 1,750 square feet of wetland buffer was enhancement in response to the 1,750 square feet of temporary disturbance to the wetland buffer.

It is Grette Associates' professional opinion that the existing site conditions will not support a shrub community given the marine conditions and that it would be more invasive to recommend any substantial modification (e.g., grading) to allow for more suitable growing conditions for shrubs. The emergent community exhibits approximately 80 percent groundcover and re-grading the site would potentially reduce emergent coverage which provides quality aquatic habitat compared to the shrub element that largely provides habitat only for terrestrial wildlife species (i.e. foraging). Additionally, given its location, the wetland enhancement area likely does not provide suitable refuge opportunities for most wildlife species that would be expected to forage in the area. Grette Associates also recommends that the goose exclusion barrier be removed to prevent rack debris from covering the emergent species within the wetland enhancement area.

5.2 Wetland Buffer Recommendations

Grette Associates recommends that Ecology coordinate with the Cornet Bay Marina to ensure no future deck-mowing will occur within the wetland buffer enhancement area. In addition, Grette Associates recommends a spring monitoring assessment to evaluate the enhancement area to determine if any of the shrubs (planted and volunteer) survived the deck-mowing. If this assessment determines that the mowing resulted in high mortality, Grette Associates recommends that the site be replanted with approximately 79 Nootka rose and salmonberry and regularly watered during the dry season until the end of the monitoring program (i.e., Year 10).

[2] Per the approved Plan, contingency actions may be implemented if the mitigation site continues to fail performance standards (Grette Associates 2013).

If you have any questions on the site assessment observations or stewardship recommendations, please contact me at (253) 573-9300, or by email at chadw@gretteassociates.com.

Regards,

Chad Wallin
Biologist

References:

Grette Associates, LLC. 2013. Cornet Bay Marina – Cornet Bay Marina Mitigation Plan: Model Toxic Control Act (MTCA) Cleanup. Prepared for Kennedy/Jenks Consultants, Inc. July 2013.

Grette Associates, LLC. 2014. Cornet Bay Marina – Cornet Bay Marina Model Toxic Control Act (MTCA) Cleanup Mitigation Plan As-Built. Prepared for Kennedy/Jenks Consultants, Inc. August 28, 2014.

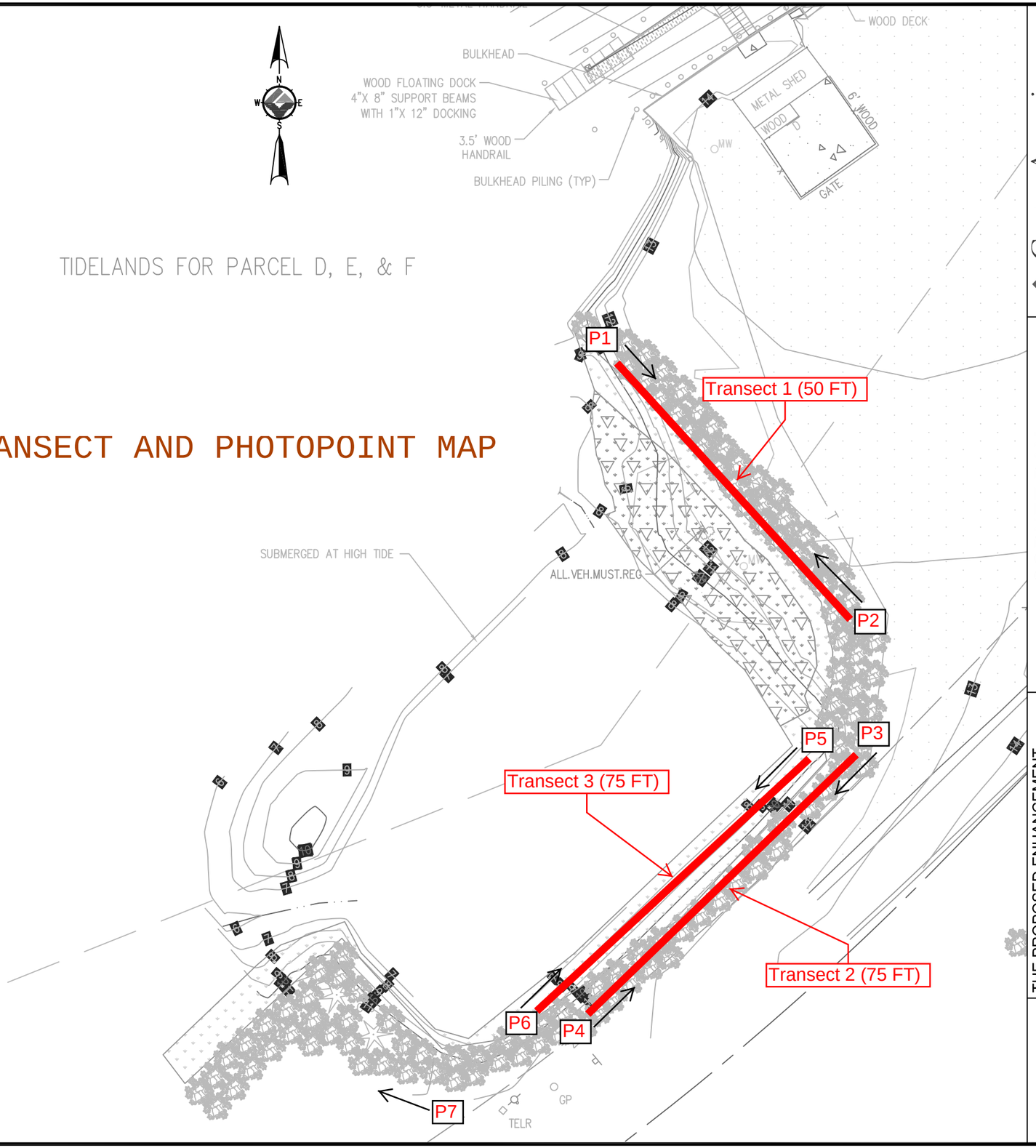
Grette Associates, LLC. 2015a. Cornet Bay Marina Model Toxic Control Act Cleanup Mitigation Plan: Contingency Action Compliance Report. Prepared for Kennedy/Jenks Consultants, Inc. March 17, 2015.

Grette Associates, LLC. 2015b. Cornet Bay Marina Model Toxic Control Act Cleanup Mitigation Plan: Year 1 Monitoring Report. Prepared for Kennedy/Jenks Consultants, Inc. October 19, 2020.

Washington State Department of Transportation (WSDOT). 2008. WSDOT Wetland Mitigation Site Monitoring Methods. Guidance Memorandum. Updated June 12, 2008.

TRANSECT AND PHOTOPOINT MAP

TIDELANDS FOR PARCEL D, E, & F



LEGEND

AQUATIC HABITAT CREATION
1300 SF (APPROX.)

WETLAND ENHANCEMENT
1720 SF (APPROX.)

WETLAND BUFFER ENHANCEMENT
1750 SF (APPROX.)

—MHHW— MEAN HIGHER HIGH WATER
11.02 (APPROX.)

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PROJECT #:304.003 DATE:05.14.13
DESIGNED BY:CW DATE:05.14.13
CHECKED BY: MB

CLIENT: Cornet Bay Marina

CORNET BAY REMEDIATION PROJECT
PROPOSED ONSITE MITIGATION

SITE ADDRESS: Island County, WA

DRAWING SCALE: 1/2"=1'0"

THE PROPOSED ENHANCEMENT AREAS WILL BE PLANTED WITH NATIVE SHRUB SPECIES

SHEET 1 OF 1

Attachment A.

Figure 1. Transect 1 facing northwest.

Figure 2. Transect 1 facing southeast.

Figure 3. Transect 2 facing southwest.

Figure 4. Transect 2 facing northeast.

Figure 5. Transect 3 facing southwest.

Figure 6. Transect 3 facing northeast.

Figure 7. Planted emergent area.