



October 29, 2019

Ned Nelson
11773 Sunrise Dr NE
Bainbridge Island, WA 98110

RE: Headrick Garage and Pool Addition Watercourse Classification Memo - CAO19-014

Wetland Resources, Inc. (WRI) recently received email correspondence from City of Mercer Island planning staff (date: August 26, 2019, subject line: FW: Headrick Project, CAO19-094&1905-249, Notice of Application for Critical Area Determination) requesting a response to comments made by the Muckleshoot Tribe. The following narrative re-states all comments made by the Muckleshoot Tribes as italicized, indented text, which are immediately followed by the applicant's response as justified, normal text. In short, this memo is intended to present data that supports the applicant's original assertion; that the on-site reach of Stream A does not meet criteria for designation as a fish-bearing watercourse.

We have reviewed the available information for the Headrick project at 8822 SE 62nd Street, Mercer Island and offer the following comments: The Critical Areas Report is incomplete with respect to stream typing. The report notes that WADNR data was used to determine "fish presence determinations" consistent with the water typing rules set forth in WAC 222-16-030. This statement is inaccurate. WAC 222-16-030 is not in effect yet. The readers are directed to the interim rule in effect under WAC 222-16-031 which includes determinations for streams with potential fish use (Type 3) under 2.b.i. This section states:

i) Waters having any of the following characteristics are presumed to have fish use:

(A) Stream segments having a defined channel of 2 feet or greater within the bankfull width in Western Washington; or 3 feet or greater in width in Eastern Washington; and having a gradient of 16 percent or less;

Applicant's response: Noted. The section of the revised Critical Area Study titled 3.1 - Review of Existing Information, subsection 3.1.3 - Fish Presence has been updated to note that several public agencies make fish presence determinations based on WAC 222-016-031, not based on WAC 222-016-030.

The WDNR maps are tool to make this determination initially; however, in the areas outside of commercial forest production districts, the maps were not developed with field data. Therefore, anyone using the WAC and maps needs to actually collect stream data to demonstrate if the physical criteria from above are met for presumed fish use. Part of this determination means determining if there are any natural barriers downstream. We are unaware of any such barriers but the City may data otherwise. If there are no known natural barriers, then stream data for bankfull width and streambed gradient needs to be collected by measuring 6-10 random samples on site and compare against the physical criteria. If it is met, the Stream is a Type 3/Type F fish bearing water based on presumed use.

Applicant's response: Downstream natural barriers that preclude fish use were documented by WRI staff during a recent sit visit. Assumptions, methodology, and findings are presented below.

Assumptions

WAC 222-016-031(3)(b)(i) defines thresholds for the presumption of fish use. The following is taken from WAC 222-016-031(3)(b)(i), but excludes code citations relevant to streams in Eastern WA, for clarity:

(i) Waters having any of the following characteristics are presumed to have fish use:

(A) Stream segments having a defined channel of 2 feet or greater within the bankfull width...and having a gradient of 16 percent or less;

(B) Stream segments having a defined channel of 2 feet or greater within the bankfull width... and having a gradient greater than 16 percent and less than or equal to 20 percent, and having greater than 50 acres in contributing basin size...based on hydrographic boundaries;

(C) Ponds or impoundments having a surface area of less than 1 acre at seasonal low water and having an outlet to a fish stream;

(D) Ponds or impoundments having a surface area greater than 0.5 acre at seasonal low water.

(ii) The department shall waive or modify the characteristics in (i) of this subsection where:

(A) Waters have confirmed, long term, naturally occurring water quality parameters incapable of supporting fish;

(B) Snowmelt streams have short flow cycles that do not support successful life history phases of fish. These streams typically have no flow in the winter months and discontinue flow by June 1; or

(C) Sufficient information about a geomorphic region is available to support a departure from the characteristics in (i) of this subsection, as determined in consultation with the department of fish and wildlife, department of ecology, affected tribes and interested parties.

Methodology

Stream A discharges to an 18" PVC culvert in approximately the southeast corner of the property. Based on comparison with the City's stormwater inventory, and by constructing a pour-point model using publicly available LIDAR data, the contributing basin to the on-site portion of Stream A is 48.29 acres in total area.

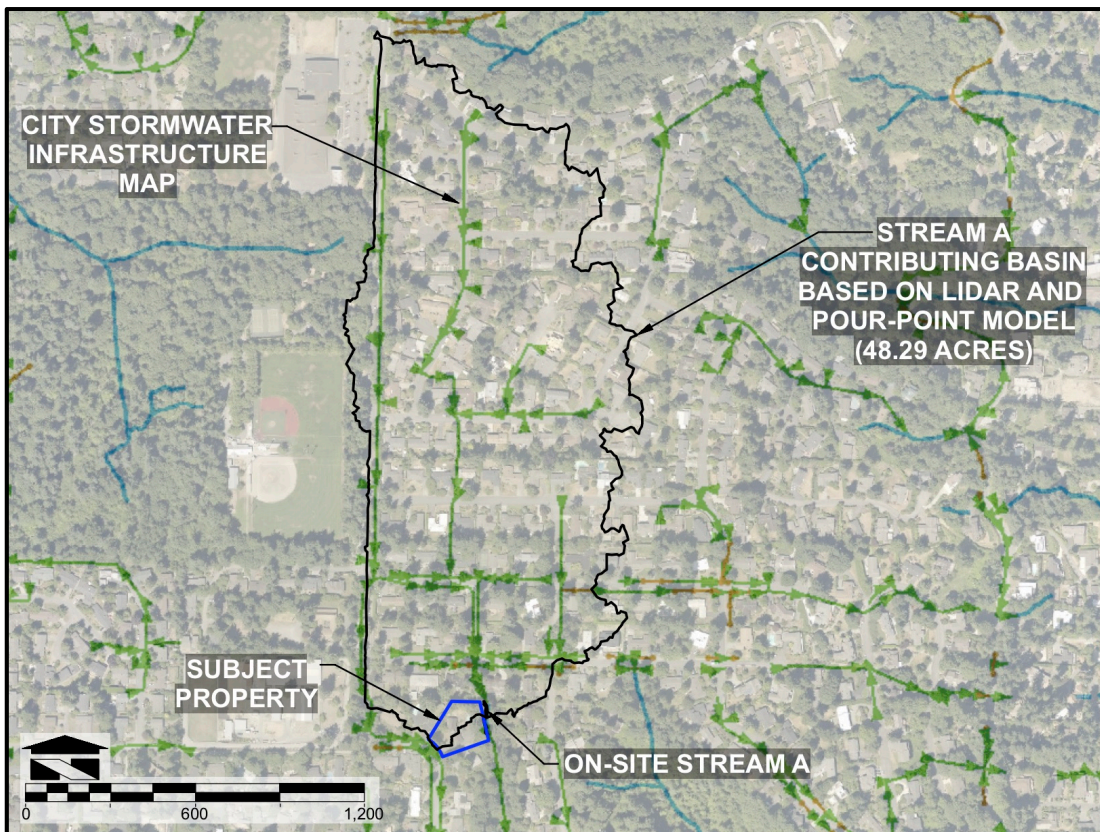


Figure 1: Contributing Basin to Stream A

As previously stated, Stream A enters an 18” culvert located in approximately the southeast corner of the subject property. Based on the City’s stormwater inventory, that pipe daylights to an open channel several properties to the south (6250 89th Ave SE). Due to evidence of steep topography (exceeding 20 percent) using LIDAR-based elevation contours, channel gradient measurements were taken in the field within the adjacent property located at 6206 89th Ave SE, to determine stream gradient. Steep topography was physically observed in the historic channel of Stream A, similar to the findings of the LIDAR-based slope assessment. Figure 2 below depicts the location where historic stream channel gradient measurements were taken. The enclosed Watercourse Classification Maps also depict the location of field measurements.

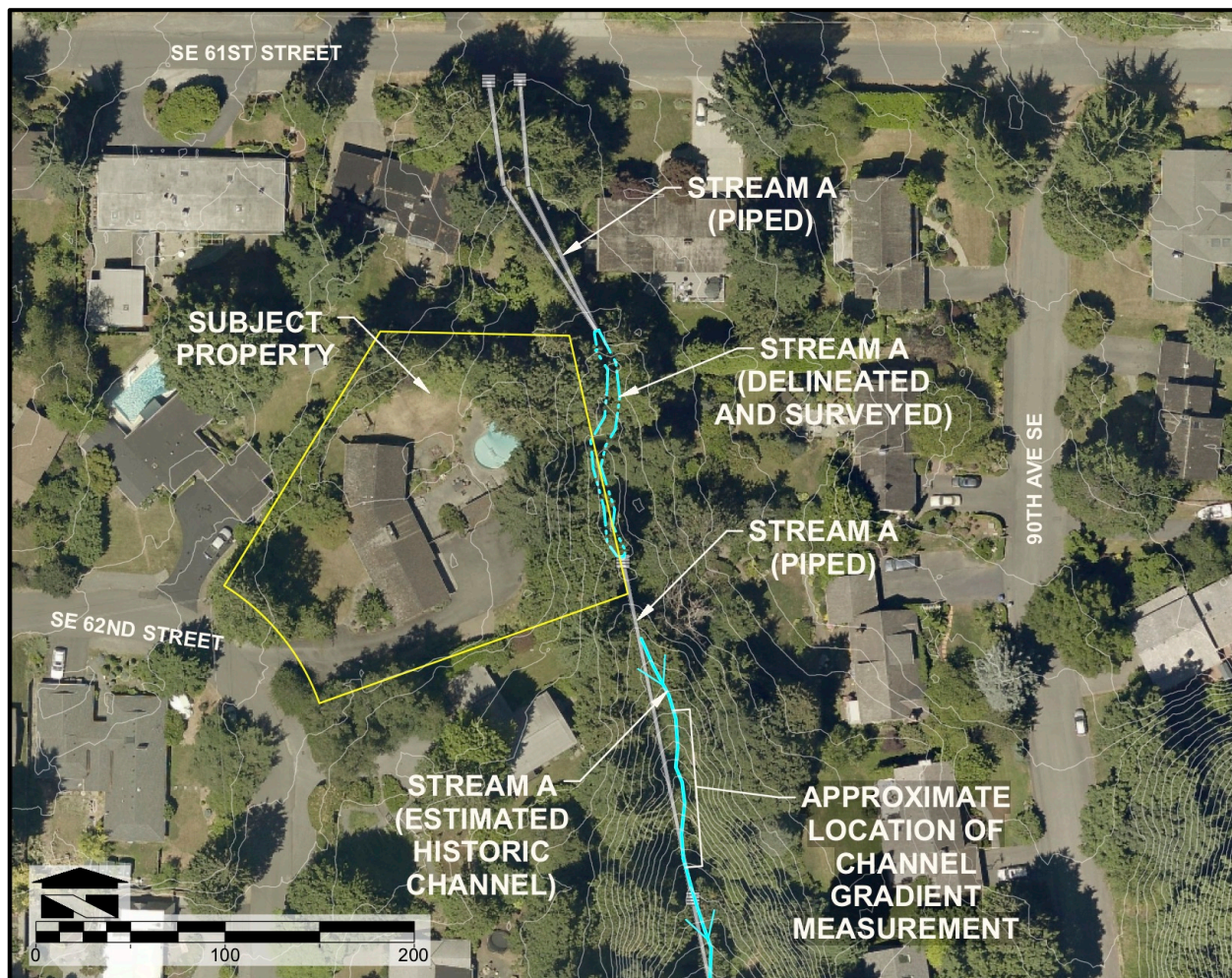


Figure 2: Existing Site Conditions and Channel Measurement Location

Using a Suunto clinometer, surveyor’s rod (long fiberglass pole), and a 100-foot measuring tape, WRI staff conducted a channel gradient measurement in the field. This area was selected for field measurement based on a WRI analysis of elevation contours generated from publicly available LIDAR data that indicated a continuous slope exceeding 20 percent gradient for at least 88 horizontal feet. Due to the presence of dense, sight-obscuring vegetation, and limited site access, channel gradient was measured in two segments. The first segment was 55 feet in length (parallel to the sloping ground surface) and began at the lowest point of the historic channel. The second segment was 35 feet in length along the ground surface. Each segment was measured using the following method.

- 1) Mark the surveyor's rod at the investigator's eye level,
- 2) Set the surveyor's rod at the beginning of the segment (downstream),
- 3) Set a measuring tape at the same location as the surveyor's rod,
- 4) Walk the measuring tape upslope along the historic channel to the end of the length of the segment, and
- 5) Standing at the end of the segment, sight the mark on the surveyor's rod using the clinometer and record the slope measurement.

Findings

Each segment, as measured in the field, showed a slope angle of 21 degrees. Using basic trigonometry, it was determined that the horizontal distance of the first segment (55 feet along a 21° slope) equals 51.3 feet, and that the horizontal distance of the second segment (35 feet along a 21° slope) equals 32.7 feet. Therefore, a continuous 21° slope was physically observed for a total horizontal distance of 84 feet. Farther downstream of the measurement location, channel gradient appeared to become less steep. Above the upstream limits of measurement, slope appeared to be as steep or steeper than the measured segments. Based on the total area of the contributing basin (48.29 acres), and the observed 21° slope, the on-site portion of Stream A does not meet any of the presumption-of-fish thresholds established in the WAC. Stream A is correctly classified as a Type III/Type Ns watercourse in the vicinity of the subject property.

The lack of fish presence may be a result of existing artificial barriers downstream. In this case, there are known fish passage culvert/pipe barriers per WDFW which was not identified or discussed in the CAR. See attached figure and <https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html>

See also the assessments for two downstream culverts at

http://apps.wdfw.wa.gov/fishpassagephotos/Reports/920837_Report.pdf

http://apps.wdfw.wa.gov/fishpassagephotos/Reports/920826_Report.pdf

Applicant's response: Artificial barriers do exist downstream from the subject property, and support the Type III stream classification made for this project, pursuant to the Mercer Island City Code (MICC) provisions in effect at the time the applicant's complete application was accepted. The revised Critical Area Study includes a discussion of downstream barriers, and a regulatory discussion that supports the applicant's non-fish Type 3 determination.

As with the current project, future development of the subject property would also be subject to the MICC in effect at the time of complete application. The currently adopted code (as amended by Ordinance 19C-05, August 2019) requires stream typing consistent with the definitions and thresholds stated in the WAC despite the absence of any explicit reference to the WAC. In the vicinity of the subject property, Stream A would still be classified as a Type III/Type Ns watercourse, and would be subject to the associated regulatory setbacks. This assertion is based on the natural fish passage barrier discussed in detail above (non-fish due to greater than 16 percent slope with a contributing basin less than 50 acres).

From a review of the site plan map showing the locations of the surveyed OHWM, it appears that the stream meets the criteria for bankfull width (i.e. >+2 feet). The streambed gradient is unknown at this time. More data is needed to establish the streams classification.

Applicant's response: The on-site portion of Stream A meets the criteria for bankfull width, but is upstream of a natural fish passage barrier according to the WAC (greater than 16 percent slope in with a contributing basin less than 50 acres), and an artificial fish passage barrier (culvert under E Mercer Way). See detailed discussion above. In the vicinity of the subject property, Stream A is correctly classified as a Type 3/Ns stream pursuant to the water typing rules of WAC 222-16-031, and pursuant to the rules in effect at the time of complete application for the current project. In the vicinity of the project, current and future development should not be subject to regulatory setbacks associated with fish-bearing streams based on the findings of this memo.

This memo is supplied to the applicant (Ned Nelson) as a means of addressing comments received by City of Mercer Island staff from the Muckleshoot Tribe regarding the Headrick Garage and Pool Addition project. The findings are based on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. The laws applicable to streams are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

Wetland Resources, Inc.

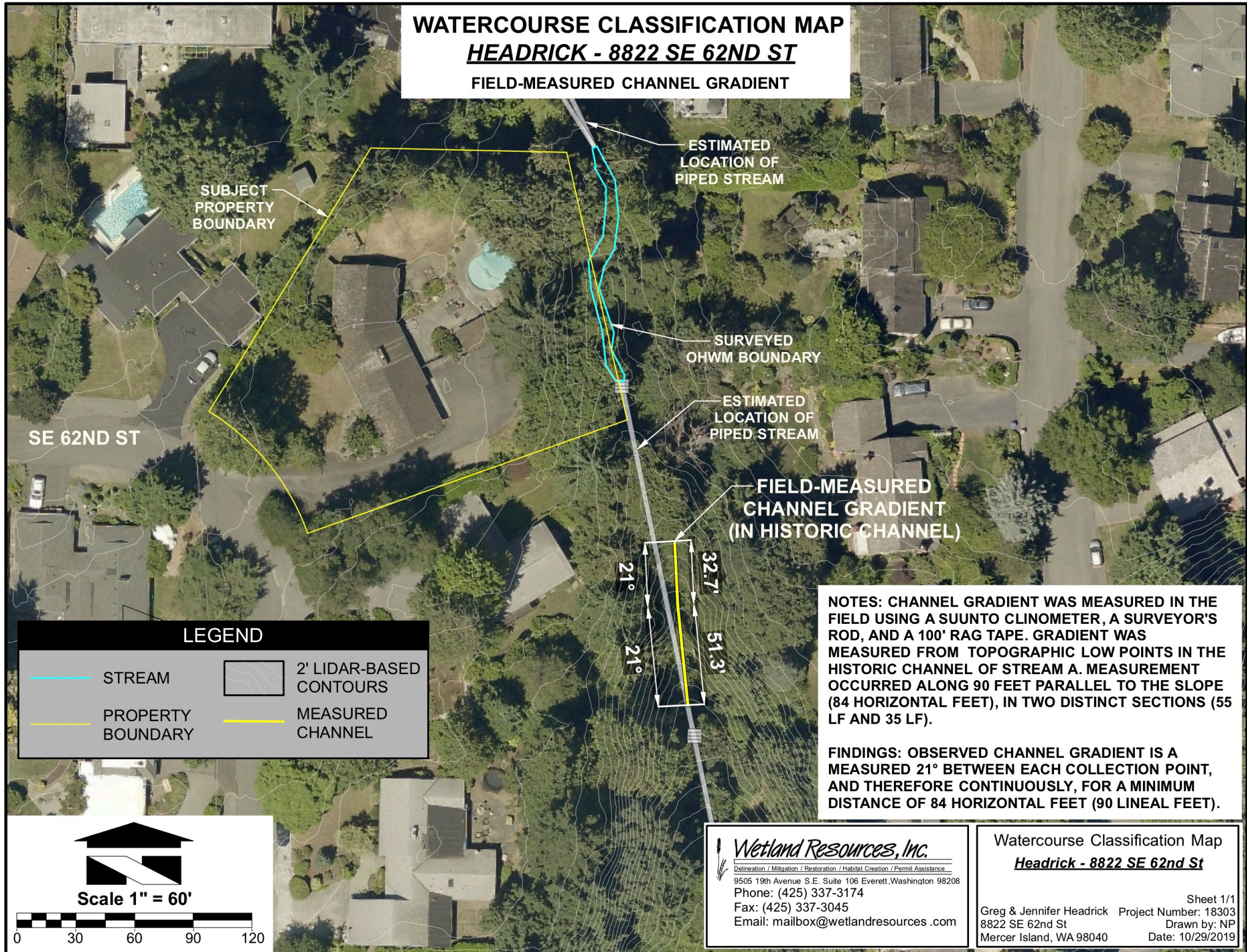
A handwritten signature in black ink, appearing to read "Niels Pedersen", with a long, sweeping horizontal flourish extending to the right.

Niels Pedersen
Senior Wetland Ecologist, PWS #3087

Enclosure: Watercourse Classification Map (Sheet 1/1)

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WATERCOURSE CLASSIFICATION MAP
HEADRICK - 8822 SE 62ND ST
FIELD-MEASURED CHANNEL GRADIENT



LEGEND

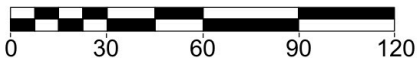
-  STREAM
-  PROPERTY BOUNDARY
-  2' LIDAR-BASED CONTOURS
-  MEASURED CHANNEL

NOTES: CHANNEL GRADIENT WAS MEASURED IN THE FIELD USING A SUUNTO CLINOMETER, A SURVEYOR'S ROD, AND A 100' RAG TAPE. GRADIENT WAS MEASURED FROM TOPOGRAPHIC LOW POINTS IN THE HISTORIC CHANNEL OF STREAM A. MEASUREMENT OCCURRED ALONG 90 FEET PARALLEL TO THE SLOPE (84 HORIZONTAL FEET), IN TWO DISTINCT SECTIONS (55 LF AND 35 LF).

FINDINGS: OBSERVED CHANNEL GRADIENT IS A MEASURED 21° BETWEEN EACH COLLECTION POINT, AND THEREFORE CONTINUOUSLY, FOR A MINIMUM DISTANCE OF 84 HORIZONTAL FEET (90 LINEAL FEET).



Scale 1" = 60'



Wetland Resources, Inc.

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Watercourse Classification Map
Headrick - 8822 SE 62nd St

Sheet 1/1
 Greg & Jennifer Headrick Project Number: 18303
 8822 SE 62nd St Drawn by: NP
 Mercer Island, WA 98040 Date: 10/29/2019

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