

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): March 27, 2015

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Portland District, Middle Lake, NWP-2014-487

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Oregon County/parish/borough: Clatsop City: Astoria
Center coordinates of site (lat/long in degree decimal format): Lat. 46.093710° **N**, Long. 123.617340° **W**.

Name of nearest waterbody: Bear Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Columbia River

Name of watershed or Hydrologic Unit Code (HUC): Bear Creek-Frontal Columbia River HUC: 170800060103

- Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
 Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date:
 Field Determination. Date(s): 9 January 2015

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

- Waters subject to the ebb and flow of the tide.
 Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

- TNWs, including territorial seas
 Wetlands adjacent to TNWs
 Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs
 Non-RPWs that flow directly or indirectly into TNWs
 Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
 Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
 Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
 Impoundments of jurisdictional waters
 Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 8.72 acres.
Wetlands: No wetlands within review area.

c. Limits (boundaries) of jurisdiction based on: Limits of Ordinary High Water Line

Elevation of established OHWM (if known): Unknown.

2. Non-regulated waters/wetlands (check if applicable):³

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: **None**.

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is “adjacent”:

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: 29,679 acres

Drainage area: 8.72 acres

Average annual rainfall: 67.13 inches

Average annual snowfall: 2.6 inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through 2 tributaries before entering TNW.

Project waters are 5-10 river miles from TNW.

Project waters are 1 or less river miles from RPW.

Project waters are 5-10 aerial (straight) miles from TNW.

Project waters are 1 or less aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: .

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW⁵: Water from Middle Lake [an Intrastate Lake as described in 33 CFR 328.3 (a)(3)] flows westward, past a weir, through an unidentified ephemeral stream for a distance of 0.09 miles. This ephemeral stream flows directly into Bear Creek. Bear Creek is a perennial stream that flows directly into the Columbia River.

Tributary stream order, if known: Unknown.

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain: .
 Manipulated (man-altered). Explain: Middle Lake is an intrastate lake that has indirect flow into the Columbia River (TNW). This intrastate lake has been manipulated by the City of Astoria, to be used as a reservoir for the City's water supply. The alterations (4 in total) include the (1) Middle Lake Dam, (2) the southeast culvert that allow continuous water flow into the intrastate lake, (3) an underwater pipeline that extracts water – to be directed to a water treatment facility and (4) a small weir that allows water flow to Bear Creek during storm events. A detailed description of each of the four components is discussed further at the end of this document.

Tributary properties with respect to top of bank (estimate):

Average width: 623 feet
Average depth: Unknown
Average side slopes: 2 vertical : 1 horizontal

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover: less than % 1
 Other. Explain: .

Tributary condition/stability Explain: Distance between top of bank and ordinary high water line is less than one foot in some places along the lake. Average of 3 feet to top of bank, 2 vertical to 1 horizontal slope. Large trees (oaks, red alders) populate the outlying edge of the bank providing increased stabilization.

Presence of run/riffle/pool complexes. Explain: Intrastate lake.

Tributary geometry: Man-altered, meandering.

Tributary gradient (approximate average slope): 0%

(c) Flow:

Tributary provides for: Ephemeral (non-rpw)

Estimate average number of flow events in review area/year: less than 20

Describe flow regime: Discrete and confined flow into Bear Creek.

Other information on duration and volume: Flow is expected into Bear Creek during storm events or during snow melt.

The duration of flow should last the entire duration of the storm events and snow melt. No information on the expected volume of flow into Bear Creek.

Surface flow is: Discrete and confined. Characteristics: Flow is definite by the bed and bank of an unidentified intermittent stream between Middle Lake and Bear Creek..

Subsurface flow: No evidence of subsurface flow Explain findings: No soil pits dug. All evidence of flow observed from the surface.

Dye (or other) test performed: No dye test performed

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain: .

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by: | <input type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: Water color appeared to be clear. No pollutants clearly visible.

Identify specific pollutants, if known: None identified.

(iv) Biological Characteristics. Channel supports (check all that apply):

Riparian corridor. Characteristics (type, average width): Not applicable.

Wetland fringe. Characteristics: No adjacent wetlands border the intrastate lake. The entire perimeter of the lake is bordered by either a dam, or a maintained dirt walkway/road.

Habitat for:

Federally Listed species. Explain findings: .

Fish/spawn areas. Explain findings: Middle Lake is reported to have a stocked fish population, including bass and catfish according to fishingnotes.com. Middle Lake is listed as a destination for fishing and hiking on multiple recreational websites.

Other environmentally-sensitive species. Explain findings: .

Aquatic/wildlife diversity. Explain findings: Freshwater roundfish reported, but not observed, within the lake. .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

Based on a review of USDA web soil survey, national wetland inventory maps and the 9 January 2015 site visit where the Corps walked the entire perimeter of Middle Lake, the Corps has determined that there are no wetlands adjacent to Middle Lake.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: None

Approximately 0 acres of wetland in total are being considered in the cumulative analysis.

⁷Ibid.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
None			

Summarize overall biological, chemical and physical functions being performed:

Biological: The perimeter of Middle Lake is bordered entirely by mature trees. Detritus from the adjacent tree cover is collected within the intrastate lake and is transported downstream during peak floods. This intrastate lake is providing habitat/shelter for migrating birds, freshwater round fish and aquatic insects / herptiles.

Chemical: This intrastate lake is located high up in the mountains (elevation at approximately 5,060 feet) near the head of the water source. It is expected that the water quality of this intrastate lake is at least “good” (no test performed); providing non-polluted water downstream during flood events. The intrastate lake is not listed on the Oregon Department of Environmental Quality 303 (d) list of impaired waters. As stated above, organic carbon (detritus) is collected within the intrastate lake and is made available to downstream sources during flood events.

Physical: The intrastate lake has been manipulated by man to become a reservoir; collecting rain water, snow melt, groundwater and adjacent flood waters to serve the City of Astoria. The intrastate lake serves as water storage for the adjacent upland vegetation during times of drought. There is a discrete and confined hydrological connection between the intrastate lake and the nearby Bear Creek via an ephemeral stream – providing a possible means of a surface water connection to transport aquatic species during flood events.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** The Corps has determined that Middle Lake has an indirectly hydrological connection with the Columbia River. The Corps has also determined, based on the biological, chemical and physical functions detailed above, that there is a significant nexus between Middle Lake and the Columbia River. Middle Lake would be considered an impounded jurisdictional water body and is subject to Section 404 Clean Water Act jurisdiction.
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** N/A
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** N/A

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
 TNWs: linear feet width (ft), Or, acres.
 Wetlands adjacent to TNWs: acres.

2. RPWs that flow directly or indirectly into TNWs.

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: 8.72 acres.
- Identify type(s) of waters: Intrastate Lake.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
 - Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
 - Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from “waters of the U.S.,” or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain: .
- Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
Identify type(s) of waters: .
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

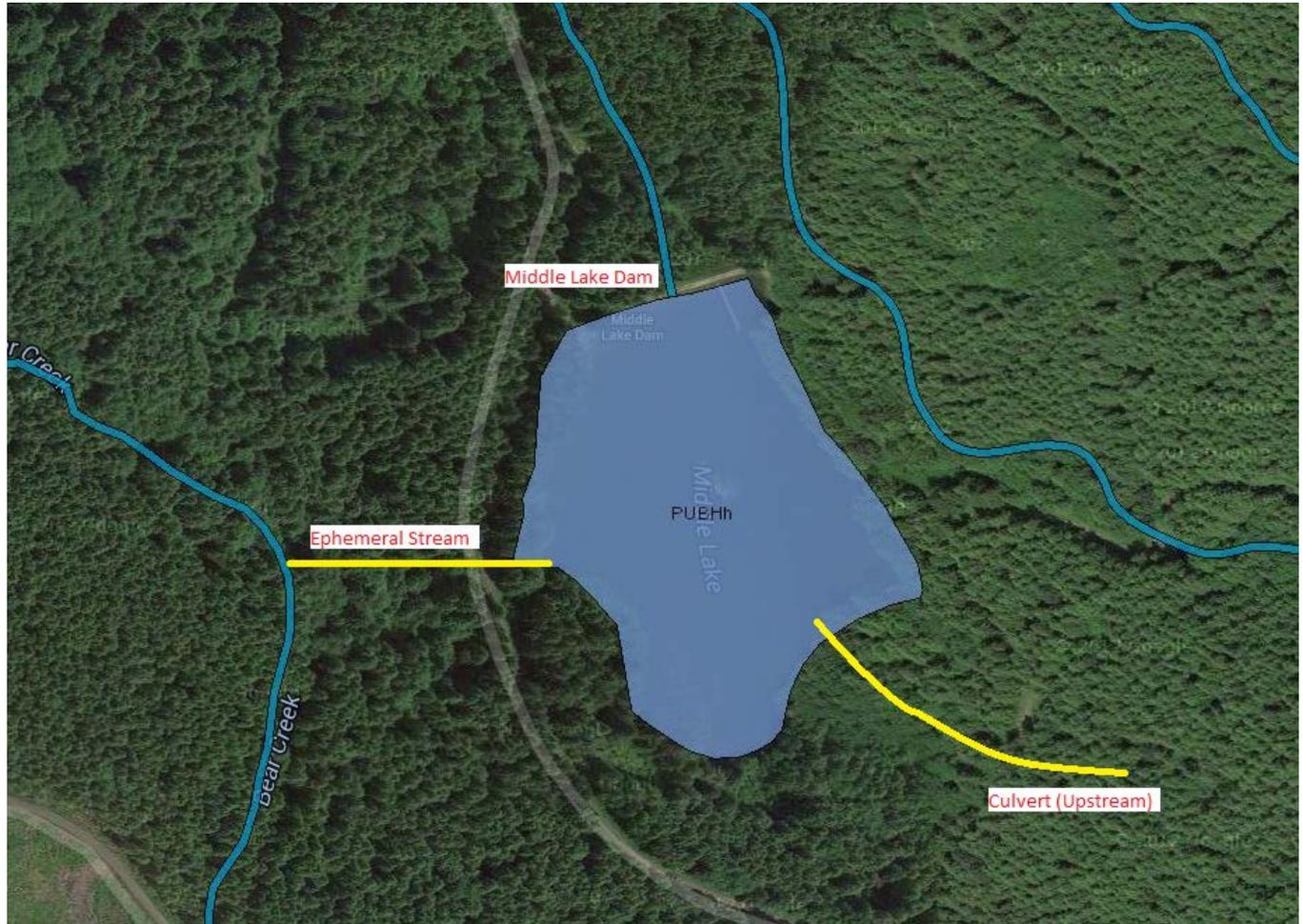
- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: .
- USDA Natural Resources Conservation Service Soil Survey. Citation: USDA web soil survey.
- National wetlands inventory map(s). Cite name USFWS National Wetland Inventory Maps
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: .
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Google Earth Pro & Bing aerial photography.
or Other (Name & Date): Onsite landscape photography 9 January 2015
- Previous determination(s). File no. and date of response letter: .

¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify): Corps site visit with Richard Chong and Ramon Mitchell conducted 9 January 2015.

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Middle Lake is a 380,014 square foot (8.72 acre) impounded intrastate lake. The boundary of this jurisdictional determination is identified by the OHWL of Middle Lake. This lake has a transient, yet consistent, hydrological connection with the Columbia River. An intrastate lake is considered to be a “water of the United States” and this intrastate lake was determined to possess a significant nexus with the Columbia River.



The above image (NWI map) shows Middle Lake and surrounding tributaries. The Corps performed a site visit at the property, dated 9 January 2015. Surface water flows into and out of Middle Lake via the following route:

- At the southeast corner of Middle Lake, there is a pipe that discharges water into the intrastate lake. This water is sourced from flowing water taken upstream from an unidentified perennial tributary (this stream is not shown on the NWI map, but was site verified by the Corps).
- Prior to the dam (human impoundment), water would have flowed north, through the tributary shown just north of Middle Lake Dam (as seen in the NWI map). The Corps visited the Middle Lake Dam – there is a dried up tributary located on the north side of the dam that is no longer in use.
- What actually occurs is that, – there is an underground pipe within Middle Lake where the City of Astoria extracts water from Middle Lake, to be used by the City.
- During flood events (hydrological connection with Columbia River), water flows over a shallow weir located at the far west end of the intrastate lake. This water flows from Middle Lake, over the weir, westward down a confined ephemeral tributary, into Bear Creek. Bear Creek is a perennial stream that flows directly into the Columbia River.



The above two images show the upstream source of water that flows in Middle Lake. The left image is the upstream section of the Pipe (entrance is just underneath the railing) that is routed underground to Middle Lake. The right image shows the downstream end of the pipeline that discharges water into the intrastate lake. It appears that water flows perennially.



The above image is of Middle Lake Dam; camera facing westward.



This tributary is shown on the NWI map as the north tributary abutting Middle Lake Dam. I am standing at the top of the dam, looking down on the old tributary. The tributary bed and bank still exists, but it has become overrun with vegetation. Since construction of Middle Lake Dam, this tributary is no longer in use.



Shallow weir located at the western perimeter of Middle Lake. During flood events, water will flow from Middle Lake, through the culvert shown at the bottom of the photograph, and down into an ephemeral tributary towards Bear Creek. This is the hydrological connection that marks Middle Lake as a jurisdictional water of the U.S.



Ephemeral tributary located west of Middle Lake. Water that overflows over the shallow weir would flow down this ephemeral tributary. This tributary runs directly into Bear Creek. This ephemeral tributary serves as a hydrological connection between Middle Lake and Bear Creek.



Bear Creek. Bear Creek is a perennial tributary that flows northward towards the Columbia River.