King County Flood Hazard Certificate

Project Name: _____

Parcel Number: _____ DLS-Permitting Division Permit Number:_____

Attach all site plans, building plans, floodplain development permit, floodplain maps, and any other documentation.

This form is current as of October 2024.

Section A *(to be completed by an applicant or applicant's engineer)*

The purpose of Section A is to identify the type and location of the flood hazards on the parcel with the proposed floodplain development and identify study requirements. A specific analysis must be provided, accompanied by an explanation in Section B of which analytical methodologies were used, for all proposed floodplain development unless the project meets the conditions that don't require analyses in each subsection. If an analysis was required by section 4.4.2 of the King County Surface Water Design Manual, attach the relevant documentation to this Flood Hazard Certification.

King County code requires that floodplain development comply with regulations based on the effective flood hazard data shown on the effective FEMA Flood Insurance Study and accompanying Flood Insurance Rate Maps, but if there are better available data showing higher regulatory standards, then those must be used. King County Code 21A.24.230 identifies the sources of better available data that can be used.

Floodplain map information can be found on King County iMap (under the bookmarks tab in the upper right-hand corner, toggle "Floodplain Management") or go to FEMA's Map Service Center.

A.1. Flood Information

The proposed floodplain development lies at least partially within the King County regulatory floodplain based on review and determination from any of the following sources:

- ☐ FEMA Flood Insurance Rate Map: Full panel number: _____ Panel date: _____
- ☐ Preliminary Flood Insurance Rate Map: Full panel number: _____
- ☐ Special study as required by section 4.4.2 of the King County Surface Water Design Manual
- ☐ Other: (please note source and attach documentation): _____

The proposed floodplain development lies entirely or partially within the following:

- ☐ FEMA Flood Insurance Rate Map flood zone: _____ (AE, AH, AO, VE, A, etc.)
- ☐ King County zero-rise floodway (riverine Zone AE)? ☐ Yes ☐ No
- ☐ FEMA floodway?

A.2. FEMA Floodway

Based on section 21A.24.260 of the King County Code and section 4.4.2 of the King County Surface Water Design Manual, the proposed floodplain development in the FEMA floodway must have documentation certifying no-rise, which shall demonstrate NO impact on the 1% annual chance (100-year) floodway elevations when compared to the existing conditions or pre-project conditions model. This certification shall be determined and certified by a registered professional engineer using standard methods and practices and will be referred to as a "FEMA Floodway no-rise analysis."

Based on a review of the potential impacts of this proposed floodplain development, a "FEMA floodway no-rise analysis":

- ☐ Meets standards in K.C.C. 21A.24.260. Completion of Section B.1. of this form by a professional engineer licensed in the state of Washington is a condition of the issuance of this permit.
- ☐ Is not required because the proposed development is not in the FEMA floodway.

A.3. King County Zero-Rise Floodway

Based on section 21A.24.250 of the King County Code and section 4.4.2 of the King County Surface Water Design Manual, the proposed floodplain development cannot create a measurable increase to the water surface elevations or energy grade line for the 1% annual chance (100-year) flood when compared to the existing conditions or pre-project conditions. This certification of no measurable increase to water surface elevations or the energy grade line is to be determined and certified by a registered professional engineer using standard methods and practices accepted by the King County Department of Natural Resources and Parks and will be referred to as a "King County zero-rise analysis."

Based on a review of the potential impacts of this proposed floodplain development, the "King County zero-rise analysis":

- ☐ Meets standards in K.C.C. 21A.24.250. Completion of Section B.2 of this form by a professional engineer licensed in the state of Washington is a condition of the issuance of the associated permit.
- ☐ Is not required for the following reason(s):
  - ☐ Post/pier foundation construction system for a building, with no significant impedance to flow where the area underneath is not enclosed, blocked or otherwise obstructed and with no breakaway walls.
  - ☐ Shallow flooding zone (Zone AO or AH). (Provide map showing flood zones)
  - ☐ Ineffective flow area. (Provide analysis)
  - ☐ Proposed project lies within a hydraulic shadow. (Provide analysis)
  - ☐ Other (Explain and cite King County Code):

    _____

A.4. Compensatory Storage

Based on section 21A.24.240 of the King County Code, the proposed floodplain development cannot reduce the effective base flood storage volume of the floodplain and must provide compensatory storage if grading or other floodplain development displaces any effective flood storage volume. Compensatory storage must be provided at equivalent elevations. Compensatory storage is to be determined and certified by a registered professional engineer using standard methods and practices accepted by the King County Department of Natural Resources and Parks and will be referred to as a "compensatory storage analysis."

Based on a review of the potential impacts of this proposed floodplain development, the "compensatory storage analysis":

☐ Meets standards in K.C.C. 21A.24.240. Completion of Section B.2. of this form by a professional engineer licensed in the state of Washington is a condition of the issuance of the associated permit.

☐ Is not required for the following reason(s):

- ☐ Grading or fill is placed within the foundation of an existing residential structure to bring the interior foundation grade to the same level as the lowest adjacent exterior grade.
- ☐ Other (Explain and cite King County Code):

  _____

A.5. Base Flood Depth and Base Flood Velocity Analysis

Based on section 21A.24.240 of the King County Code, proposed floodplain developments are not allowed if the base flood depth exceeds three feet and the base flood velocity exceeds three feet per second. This is to be determined and certified by a registered professional engineer using standard methods and practices accepted by the King County Department of Natural Resources and Parks and will be referred to as a "base flood depth and base flood velocity analysis."

Based on a review of the potential impacts of this proposed floodplain development, the "base flood depth and base flood velocity analysis":

☐ Meets standards in K.C.C. 21A.24.240. Completion of Section B.2 of this form by a professional engineer licensed in the state of Washington is a condition of the issuance of the associated permit.

☐ Is not required for the following reasons:

- ☐ Project involves elevating or improving an existing structure without increasing the foundation footprint of the structure.
- ☐ Other (Explain and cite King County Code):

  _____

Section A submitted by: _____ (printed name) **Date:**_____

Section B.1. FEMA Floodway No-Rise Certification

Section B.1 is used to identify and present which analytical methodologies were used to demonstrated compliance with King County Code 21A.24.260. This section shall be completed by an engineer licensed in the state of Washington when an analysis is required per Section A. If the proposed floodplain development is not located in a FEMA floodway, proceed to Section B.2.

This is to certify that the attached technical data supports the fact that the proposed floodplain development for Permitting Division Permit Number _____ will not impact the 1% annual chance (100-year) flood elevations, floodway elevations, and floodway widths on _____ (stream name) at published cross-sections in the Flood Insurance Study for King County, Washington and Incorporated Areas, dated August 19, 2020 and will not impact the 1% annual chance (100-year) flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed floodplain development. Attached are all supporting data and calculations.

Code Requirement	**Analytical Methodology** *(check one or more)*	**Engineering Certification Required?**
No impact to 100-year FEMA floodway elevations, or FEMA floodway widths.	☐ HEC-RAS analysis showing NO impact on the FEMA floodway elevations or floodway widths when compared to the Existing Conditions or Pre-Project Conditions model.	Yes
	☐ Other. See attached information.	Yes

Attached are all supporting data and calculations.

Professional Engineer's stamp

_____
Signature

_____
Date

_____
Name and Title

_____
Company

_____
Address

_____
City, State, Zip

Section B.2. King County Zero-Rise Floodway Certification, Compensatory Storage, and Base Flood Depth and Velocity

Section B.2 is used to identify and present which analytical methodologies were used to demonstrate compliance with King County Code 21A.24.230, 21A.24.240, and 21A.24.250. This section shall be completed by an engineer licensed in the state of Washington when an analysis is required per Section A.

I have considered the hazards represented on FIRM Panel _____ of the Flood Insurance Study for King County, Washington and Incorporated Areas dated August 19, 2020, and the supporting documentation for Permitting Division Permit Number _____. I have also searched for and considered all other available information including: preliminary Flood Insurance Rate Maps, preliminary Flood Insurance Studies, draft flood boundary work maps and associated technical reports, critical areas reports prepared in accordance with FEMA standards in 44 CFR 65 and consistent with the King County Surface Water Design Manual provisions for floodplain analysis set forth in section 4.4.2, FEMA Letters of Map Change, channel migration zone maps and studies, historical flood hazard information, and site topography and ground elevations. All sources are clearly identified in the attached report. In addition, I have created new data where existing sources are not sufficient to assure compliance, and the attached report clearly documents my methods and assumptions.

Code Requirement	**Analytical Methodology** *(check one or more)*	**Engineering Certification Required?**
No impact to 100-year flood elevations, zero-rise floodway elevations, and zero-rise floodway widths. No reduction in floodplain conveyance both onsite and on adjacent properties during the 100-year flood event.	☐ Hand calculations showing that flood conveyance ($K=1.49/n\ AR^{2/3}$) will equal or exceed existing values at every location.	Yes
	☐ HEC-RAS analysis showing that neither the water surface nor the energy grade will rise by 0.01 feet at any location when proposed conditions are compared to existing conditions.	Yes
	☐ Other. See attached information	Yes
Compensatory storage provided (no net fill).	☐ Volumetric calculations to show that compensatory storage provides equivalent volume at equivalent elevations to that being displaced, and is hydraulically connected to the source of flooding. For this purpose, equivalent elevations mean having similar relationship to ordinary high water and to the best available 10-year, 50-year, and 100-year water surface profiles.	Yes
	☐ Other. See attached information.	Yes
Base flood depth does not exceed 3 feet or base flood velocity does not exceed 3 feet per second.	☐ Base flood depth and base flood velocity mapping and data show less than 3 feet depth or less than a velocity of 3 feet per second at the project location.	Yes
	☐ Other. See attached information.	Yes

(Section B.2. Continued)

I certify that the attached technical data supports the fact that this submitted design will meet requirements for protection of floodplain storage and floodplain conveyance, as well as base flood depth and base flood velocity requirements, as set forth in King County Code Title 21A. Compliance is achieved as described on the preceding page.

Attached are all supporting data and calculations.

Professional Engineer's stamp

_____
Signature

_____
Date

_____
Name and Title

_____
Company

_____
Address

_____
City, State, Zip

Section C. Department of Natural Resources and Parks Review

Section C shall be completed by the reviewer from the King County Department of Natural Resources and Parks' River and Floodplain Management Section (DNRP, RFMS).

Based on a review of the proposed floodplain development, the River and Floodplain Management Section determines the following:

☐ No flood hazard analysis required.

☐ A flood hazard analysis is required and the proposed floodplain development **meets** the FEMA no-rise, King County zero-rise, compensatory storage, and base flood depth and base flood velocity requirements of King County Code 21A.24.240, 21A.24.250, 21A.24.260 and the King County Surface Water Design Manual Section 4.4.2. This determination does not include a review of other flood hazard area standards in King County Code sections 21A.24.230 through 21A.24.272.

☐ A flood hazard analysis is required and the proposed floodplain development **meets** the FEMA no-rise, King County zero-rise, compensatory storage, and base flood depth and base flood velocity requirements of King County Code 21A.24.240, 21A.24.250, 21A.24.260 and the King County Surface Water Design Manual Section 4.4.2, **however this approval is with additional comments or conditions**. (DNRP, RFMS will provide comments in an email or other written format to the Permitting Division.

☐ A flood hazard analysis is required and the proposed floodplain development **does not meet** the FEMA no-rise, King County zero-rise, compensatory storage, and/or base flood depth and base flood velocity requirements of King County Code 21A.24.240, 21A.24.250, 21A.24.260 and the King County Surface Water Design Manual Section 4.4.2.

Reason(s) not approved:

Reviewed by: _____ Date: _____

DNRP, RFMS Reviewer

_____

DNRP, RFMS Reviewer signature