

Date Received: \_\_\_\_\_ Received By: \_\_\_\_\_  
 Project/Permit Number: \_\_\_\_\_  
 Fee: \_\_\_\_\_  
 (To be Completed by MOA)



**Municipality of Anchorage**  
**Project Management & Engineering Department**  
 Mail: P.O. Box 196650, Anchorage, AK 99519-6650  
 4700 Elmore Road, Anchorage, AK 99507  
 Phone (907) 343-8135 Fax (907) 343-8088  
[www.muni.org](http://www.muni.org)



# FLOOD HAZARD PERMIT APPLICATION

(Please fill out application completely; Indicate NA if necessary. Property information can be found at <http://neighborhood.muni.org/> or <http://redirect.muni.org/propappraisal/public.html> )

## PART I – APPLICANT INFORMATION

APPLICANT: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

OWNER (If Different): \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

## PART II - LOCATION OF PROPOSED PROJECT

TAX PARCEL ID(s): \_\_\_\_\_

SUBDIVISION: \_\_\_\_\_

LOT(s): \_\_\_\_\_ BLOCK: \_\_\_\_\_

ADDRESS/OTHER LOCATION INFORMATION: \_\_\_\_\_

## PART III – PROJECT DESCRIPTION:

### PROPOSED WORK – CHECK ALL THAT APPLY

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> STRUCTURE        | <input type="checkbox"/> MOBILE HOME           | <input type="checkbox"/> WATERCOURSE ALTERATION         |
| <input type="checkbox"/> RESIDENTIAL      | <input type="checkbox"/> PRIVATE LOT           | <input type="checkbox"/> BRIDGE/CULVERT (Please Circle) |
| <input type="checkbox"/> COMMERCIAL       | <input type="checkbox"/> MOBILE HOME PARK      | <input type="checkbox"/> UTILITY                        |
| <input type="checkbox"/> NEW CONSTRUCTION | <input type="checkbox"/> GRADE/EXCAVATION/FILL | <input type="checkbox"/> MAINLINE                       |
| <input type="checkbox"/> ALTERATION       | <input type="checkbox"/> ROAD CONSTRUCTION     | <input type="checkbox"/> SERVICE CONNECT                |
| <input type="checkbox"/> ADDITION         | <input type="checkbox"/> NEW SUBDIVISION       | <input type="checkbox"/> OTHER _____                    |

EXISTING STRUCTURES

1) FAIR MARKET VALUE OF STRUCTURE(S) BEFORE IMPROVEMENT: \_\_\_\_\_

2) COST OF IMPROVEMENTS: \_\_\_\_\_

ADDITIONAL IMPERVIOUS AREA TO BE ADDED TO THE FLOODPLAIN (ROOF, PAVEMENT, ETC) \_\_\_\_\_ SQ. FT.

DETAILED PROJECT NARRATIVE (Attach additional documentation if necessary)

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**PART IV – SUBMITTAL REQUIREMENTS**

Check box to indicate information has been provided. **All applications require the submittal of a site plan.**

- SITE PLAN SHOWING THE NATURE, LOCATION, DIMENSIONS, AND ELEVATION (NGS 1972) OF THE PROPERTY LOCATED WITHIN THE FLOODPLAIN, EXISTING OR PROPOSED STRUCTURES, LOCATION OF PROPOSED FILL, LOCATION OF STORAGE OF MATERIALS INCLUDING FUEL, AND LOCATION OF DRAINAGE FACILITIES. (Refer to Appendix A for clarification)
- PROPOSED ELEVATION (NGS 1972) OF THE LOWEST FLOOR, INCLUDING BASEMENTS/CRAWLSPACES OF ALL STRUCTURES.
- PROPOSED ELEVATION (NGS 1972) OF ALL MACHINERY SERVING THE STRUCTURE INCLUDING FURNACES, HOTWATER HEATERS, AIR CONDITIONING, DUCTWORK, AND UTILITY METERS
- FOR NON-RESIDENTIAL CONSTRUCTION ONLY, ELEVATION AND CERTIFICATION BY A REGISTERED ENGINEER OR ARCHITECT THAT FLOOD-PROOFING METHODS FOR ANY NON-RESIDENTIAL STRUCTURES MEET THE FLOOD-PROOFING CRITERIA OF THE MUNICIPAL FLOOD ORDINANCE.
- BASE FLOOD ELEVATIONS FOR NEW SUBDIVISIONS OR DEVELOPMENT
- WRITTEN DESCRIPTION, IF APPLICABLE, DESCRIBING THE EXTENT WHICH A WATERCOURSE WILL BE ALTERED OR RELOCATED AS A RESULT OF THE PROPOSED DEVELOPMENT
- NO-RISE CERTIFICATION PREPARED BY A REGISTERED PROFESSIONAL ENGINEER FOR ALL PROJECTS LOCATED IN THE FLOODWAY, AND FOR ALL HYDRAULIC STRUCTURES, DRAINAGE FACILITIES, AND FILL IN FLOOD AREAS WITH BASE FLOOD ELEVATIONS WHERE NO FLOODWAYS HAVE BEEN IDENTIFIED. (Refer to Appendix C)

ASSOCIATED PERMITS

MUNICIPAL PERMITS

PERMIT/CASE NUMBER

- RESIDENTIAL/COMMERCIAL BUILDING OR LAND USE PERMIT
- FILL AND GRADE
- STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
- PLANNING PLAT OR SITE PLAN REVIEW

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ NA \_\_\_\_\_

\_\_\_\_\_

STATE AND FEDERAL PERMITS (Attach Documentation)

STATUS

- ARMY CORPS OF ENGINEERS 404 WETLAND PERMIT
- FISH HABITAT PERMIT
- COASTAL PROJECT REVIEW
- OTHER \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ADDITIONAL REQUIREMENTS

IF A PERMIT CAN BE ISSUED FOR A PROPOSED STRUCTURE, IT WILL BE THE RESPONSIBILITY OF THE APPLICANT TO PROVIDE AN FINAL AS-BUILT DRAWING AND ELEVATION CERTIFICATE PREPARED BY A REGISTERED PROFESSIONAL LAND SURVEYOR. A FINAL CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE DOCUMENTS HAVE BEEN SUBMITTED.

**In signing this application, the landowner(s) or agent hereby grants the Municipality of Anchorage the right to enter the above described location to inspect the work proposed, in progress, or work completed.**

I hereby affirm and certify that I am one of the owners or am under contract with the owners, and I believe that the above information and/or statements are true in all respects to the best of my knowledge.

\_\_\_\_\_  
**SIGNATURE** (Check One)  Owner  Applicant

\_\_\_\_\_  
*Date Signed*

## FLOOD HAZARD PERMIT FEES

NOTICE: All fees are payable at time of application.

If issuance of a permit for one of these types of developments is, after review, refused by the Municipality of Anchorage, one half of the permit fee deposited will be returned to the applicant.

PROJECT TYPE	FEE
Structure	
Addition	\$ 50.00
Alteration	50.00
New residential	200.00
New commercial	200.00
Watercourse Alteration or Obstruction	600.00
Utility mainline	200.00
Utility service connect	50.00
New subdivision (Plus \$200.00 per lot within the floodplain)	600.00
Mobile Home	
Private Lot	100.00
Mobile home park (Plus \$50.00 per mobile home space within the floodplain)	200.00
Street/Road Construction	400.00
Bank/Slope Restoration (No in-channel work)	50.00
Other	50.00

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### FOR MOA USE ONLY

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FEE CALCULATION	FEE
Structure	_____
Watercourse Alteration	_____
Utility	_____
Subdivision	_____
Mobile Home	_____
Street/Road Construction	_____
Bank/Slope Restoration	_____
Other: _____	_____
TOTAL	_____

## **APPENDIX A – SITE PLAN REQUIREMENTS**

### **A SITE PLAN IS AN ACCURATE AND DETAILED MAP OF YOUR PROPERTY:**

It shows the size, shape, and special features of your property; and the size and location of any buildings or other improvements to the property. Site plans show what currently exists on your property, and any changes or improvements you are proposing to make.

### **A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION:**

1. Legal description of parcel, north arrow, and scale
2. All property lines, easements and their dimensions.
3. Names of adjacent roads, location of driveways.
4. Location of streams, or lakes with setbacks indicated
5. Location, size, and shape of all buildings, existing and proposed, with elevation of lowest floor indicated
6. Location and dimensions of existing or proposed sewage systems.
7. Location of all propane tanks, fuel tanks, and generators
8. Dimensions and depth of any fill on site. .
9. A survey showing the existing ground elevations at 4 corners of the building
10. Proposed ground elevations at 4 corners of the building, if applicable
11. Location of any proposed temporary construction fencing, buildings, fuel storage, and erosion control structures.

**ELEVATION NOTE:** The Municipality of Anchorage requires all VERTICAL datum to be based on 1972 NGS datum. Assumed datum will not be accepted unless the property is located in areas where 1972 NGS datum has not been established.

For structures proposed in the flood plain, the lowest floor elevation must be one foot above the base flood elevation. **Crawlspace grade is also considered “floor elevation” for the purpose of this requirement.**

For those areas where 1972 NGS datum does not exist, a plot plan with contours, lot corner elevations using assumed datum, high-water mark and existing water levels of creeks, lakes, or streams, and proposed lowest living floor elevations, is required.

## **APPENDIX B- FLOODPLAIN CONSTRUCTION STANDARDS**

### **USE OF FLOOD RESISTANT MATERIALS**

The Federal Emergency Management Agency (FEMA) guidelines for flood resistant materials are contained in Technical Bulletin 2-93. This publication is available for review or reproduction upon request. This publication is also available on the Web.

Portions of buildings below the base flood elevation (BFE) are often constructed entirely out of concrete, which is considered a flood resistant material. It is also a common building practice to frame up from a concrete stem wall with wood construction to create a garage/storage space below the elevated first floor. Since garage spaces typically utilize sheetrock to achieve the necessary fire separation, construction of this type results in the use of materials subject to flood damage.

In order to comply with FEMA's guidelines for flood resistant materials as listed in Technical Bulletin 2-93, the use of untreated wood and sheetrock to cover wall members below the BFE is prohibited. The preferred design alternative (other than concrete walls) will be the use of pressure treated heavy timber construction (6"x10" horizontal, 8"x8" vertical) and pressure treated frame members. The ceiling can be protected with sheetrock if the first floor above the protected ceiling is one foot above the BFE and the sheetrock is less than one foot below that elevation. Cement board may be used as a substitute for sheetrock. Siding below the BFE shall utilize the acceptable materials listed in Technical Bulletin 2-93.

**The area of a building below the BFE may only used for building access, parking and storage. No living space is permitted below the BFE.**

### **REQUIRED ELEVATION**

All construction below the BFE is susceptible to flooding and must consist of flood-resistant materials. The BFE will be established by this department and conveyed to the applicant for incorporation into the building plans. In order to adequately determine if flood-resistant materials are required, applicants proposing construction in flood prone areas shall provide a survey of existing ground elevations of the four corners of the proposed development and the proposed ground elevations of the proposed development.

The BFE shall be shown on the elevation drawings for the proposed structure. The BFE will be established by this department and conveyed to the applicant for incorporation into the building plans.

### **BASEMENTS**

The Municipal Flood Ordinance requires that the lowest floor, including basement, be elevated one foot above the BFE. The National Flood Insurance Program defines a basement as "any area of the building having its floor subgrade (below ground level) on all sides."

Applicants proposing construction in flood prone areas will need to be aware of final interior and exterior grade levels of the proposed structure. Subgrade basements and crawlspaces can incur significant flood insurance penalties.

### **OPENINGS TO EQUALIZE HYDROSTATIC FLOOD FORCES**

The Municipal Flood Ordinance requires that all fully enclosed areas below the lowest floor that are usable solely for parking, building access, or storage in an area other than a basement or crawl space shall have a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area according to FEMA specifications. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

The vents should be placed on opposing walls to allow the entry and exit of floodwaters. Detailed information about FEMA's flood venting requirement may be found in Technical Bulletin 1. This publication is available for review or reproduction upon request. This publication is also available on the Web.

### **ELECTRICAL GEAR AND EQUIPMENT**

All electrical, heating, ventilation, plumbing and air conditioning equipment that is permanently affixed to a structure and which may be subject to floodwater damage shall be elevated a minimum of one foot above the BFE or higher unless otherwise constructed to prohibit the entry of flood waters. FEMA has published a document titled *Protecting Building Utilities from Flood Damage* that gives specific guidance on proper construction technique. This publication is available for review or reproduction upon request. This publication is also available on the Web.

### **FILL/ENCROACHMENT GUIDELINES**

Proposed developments cumulatively may not increase base flood heights more than one-foot anywhere in the identified floodplain. (Applies only to floodplains with BFEs but without identified floodways.)

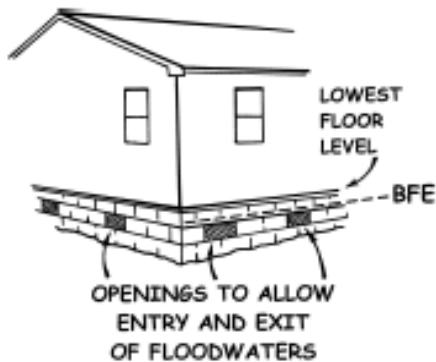
All watercourse alterations or modifications must not reduce the carrying capacity of the stream or increase BFEs. Watercourse alterations or modifications must not reduce the carrying capacity of the stream or increase BFEs. The applicant must submit an analysis that compares existing channel capacity with proposed capacity. Alteration or modification must maintain carrying capacity of the watercourse. Floodway regulations apply for alterations within a designated floodway (Appendix C).

If fill is to be placed within the floodplain areas the applicant must include with the application the volume, height, and sideslope of the fill perimeter within the floodplain. The applicant must also indicate the method used to protect the fill from erosion. The placement must not interfere with any existing utilities or easements. Fill must not unreasonably obstruct or divert the flow of surface water to the detriment of adjacent or hydraulically affected property owners.

## SPECIFIC FLOODPLAIN CONSTRUCTION STANDARDS

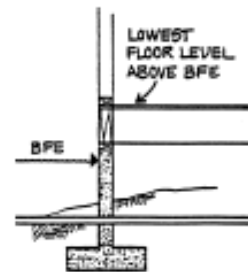
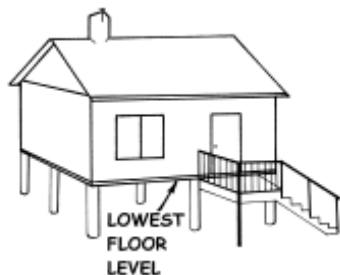
### Residential Structures:

Residential structures must have the lowest floor including basement elevated at least to or above the BFE. This elevation requirement can be accomplished by any of the following three (3) methods:



### **2. Fill:**

A poured slab placed over compacted fill can also be used to elevate the lowest floor of a structure to one foot above the BFE. Please note that when a building site is filled, it is still in the floodplain and no basements are permitted.



### **1. Foundation Stem Walls:**

The crawlspace must not be below grade. It must have as a minimum two permanent openings no more than one foot above grade. The total area of the openings must be no less than 1 square inch for every square foot of enclosed space. This helps to relieve hydrostatic pressure on the foundation during a flood. Any covers placed over the openings must be able to open automatically during flood flows without human intervention. Screens are acceptable if they permit entry and exit of floodwater.



### **3. Piers, Piles and Posts:**

This method is commonly used to avoid large fills and when flood heights are extreme. The supporting members must be designed to resist hydrostatic and hydrodynamic forces. Fully enclosed areas below the BFE can only be used for parking, access and limited storage. In addition, the following conditions must be met for any enclosed area below the BFE:

- a) Service equipment (e.g., furnaces, water heaters, washers/dryers, etc.) are NOT



permitted below the BFE.

b) All walls, floors, and ceiling materials located below the BFE must be unfinished and constructed of materials resistant to flood damage.

c) The walls of any enclosed area below the BFE must be designed by a registered professional engineer or architect in a manner to prevent lateral movement, collapse or flotation of the structure. There must be at least two openings on each wall and the bottom of all openings must be no higher than one foot above grade.

### **Non-residential Structures**

Must have the lowest floor including basement elevated to or above the BFE, or floodproofed at least one foot above BFE. If floodproofed, structures must be dry-floodproofed, which means keeping the water out. Non-residential (commercial) structures, together with attendant utility and sanitary facilities, are designed so that the structure is watertight below the base flood level. The walls are impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Additionally, the structure must be designed to:

- prevent seepage, collapse or cracking of basement walls
- prevent buckling of basement floors
- prevent back-up of water from sewer lines
- have all openings located one foot above BFE
- all protective features must operate automatically without human intervention

Note: Dry floodproofing measures must be certified by a licensed engineer and only apply to non-residential structures.

## **APPENDIX C – “NO-RISE” ANALYSIS PROCEDURES**

Section 60.3(d)(3) of the National Flood Insurance Program (NFIP) requires that the Municipality to prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the city during the occurrence of the base (100-year) flood discharge.

In most cases, the “No-Rise Certificate” must be supported by technical data based upon the standard step-backwater computer model utilized to develop the 100-year floodway shown on the Anchorage’s effective Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM) and the results tabulated on the Flood Insurance Study (FIS) for Anchorage.

The analysis procedure is outlined in the attached document from the Federal Emergency Management Agency. While the attached guidelines specifically address floodway development the same procedure can be used to determine the impact of projects in flood zones without BFEs has that have the potential to increase flood elevations.



**FEMA**

## ***Procedures for "No-Rise" Certification*** **For Proposed Developments in the Regulatory Floodway**

Section 60.3 (d) (3) of the National Flood Insurance Program (NFIP) regulations states that a community shall "prohibit encroachments, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base (100-year) flood discharge."

Prior to issuing any building, grading or development permits involving activities in a regulatory floodway the community must obtain a certification stating the proposed development will not impact the pre-project base flood elevations, floodway elevations, or floodway data widths. The certification should be obtained from the applicant and be signed and sealed by a professional engineer.

The engineering or "no-rise" certification must be supported by technical data.

The supporting technical data should be based upon hydraulic analyses that utilize the same model used to prepare the effective Flood Insurance Study (FIS) report and Flood Insurance Rate Map (FIRM) unless it is demonstrated that the 'effective' hydraulic model is unavailable or its use is inappropriate. If an alternative hydraulic model is used, the new model must be calibrated to reproduce the FIS profiles within 0.5 feet. Hydraulic model used in the analysis must be on FEMA's accepted models list, or documentation must be provided showing the model meets the requirements of NFIP regulation 65.6(a)(6).

Although communities are required to review and approve the "no-rise" submittals, they may request, in writing, technical assistance and review from the FEMA regional office. However, if this alternative is chosen, the community must review the technical submittal package and verify that all supporting data, listed in the following paragraphs, are included in the package before forwarding to FEMA.

To support a "no-rise" certification for proposed developments encroaching into the regulatory floodway, a community will require that the following procedures be followed:

1. Current Effective Model: Submit a written request for the effective model for the specified stream and community, identifying the limits of the requested data. A fee will be assessed for providing the data. Send data requests to:

Michael Baker Jr., Inc.  
3601 Eisenhower Avenue  
Alexandria, Virginia 22304  
(703) 960-8800

2. Duplicate Effective Model: Upon receipt of the effective computer model, the engineer should run the original model to duplicate the output in the effective (FIS).
3. Corrected Effective Model: The model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections, or incorporates more detailed topographic information than that used in the current effective model. Floodway limits should be manually set at the new cross-section locations by measuring from the effective FIRM or FBFM. The cumulative reach lengths of the stream should also remain unchanged. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model.
4. Existing, or Pre-Project Conditions Model: Revise the Duplicate Effective or the Corrected Effective model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project. If no modifications have occurred since the date of the effective model, then the model would be identical to the Duplicate Effective or Corrected Effective model. The results of this Existing Conditions analysis will indicate the 100-yr elevations at the project site.
5. Proposed, or Post-Project Conditions Model: Modify the Existing Condition or Pre-Project Conditions Model (or Duplicate Effective model or Corrected Effective model, as appropriate) to reflect revised or post-project conditions. The overbank roughness coefficients should remain the same unless a reasonable explanation of how the proposed development will impact Manning's "n" values is included with the supporting data. The results of this analysis will indicate the 100-year elevation for proposed conditions at the project site. These results must indicate NO impact on the 100-year floodway elevations when compared to the Existing Conditions or Pre-Project Conditions model. If an increase results the project will require the submittal of a CLOMR prior to the start of the project.

The "no-rise" supporting data and a copy of the engineering certification must be submitted to and reviewed by the appropriate community official prior to issuing a permit.

The "no-rise" supporting data should include, but may not be limited to:

- 1) Copy of the Duplicate Effective model;
- 2) Copy of the Corrected Effective model;
- 3) Existing conditions, or Pre-Project conditions model
- 4) Proposed conditions or Post-Project conditions model.
- 5) FIRM and topographic map, showing floodplain and floodway, the additional cross-sections, the site location with the proposed topographic modification superimposed onto the maps, and a copy of the effective FIRM or FBFM showing the current regulatory floodway.
- 6) Documentation clearly stating analysis procedures. All modifications made to the original FIS model to represent revised existing conditions, as well as those made to the revised existing conditions model to represent proposed conditions, should be well documented and submitted with all supporting data.
- 7) Copy of effective Floodway Data Table copied from the (FIS) report.
- 8) Statement defining source of additional cross-section topographic data and supporting information.
- 9) Cross-section plots, of the added cross sections, for revised existing and proposed conditions.
- 10) Certified planimetric (boundary survey) information indicating the location of structures on the property.
- 11) Copy of the source from which input for original FIS model was taken.
- 12) CD with all input and output files.
- 13) Printout of output files from EDIT runs for all three floodway models.

The engineering "no-rise" certification and-supporting technical data must stipulate NO impact on the 100-year flood or floodway elevations at the new cross-sections and at all existing cross-sections anywhere in the model. Therefore, the revised computer model should be run for a sufficient distance (usually one mile, depending on hydraulic slope of

the stream) upstream and downstream of the development site to insure proper "no-rise" certification.

Attached is a sample "no-rise" certification form that can be completed by a registered professional engineer and supplied to the community along with the supporting technical data when applying for a development permit.

ENGINEERING "NO-RISE" CERTIFICATION

This is to certify that I am a duly qualified engineer licensed to practice in the State of \_\_\_\_\_.

It is to further certify that the attached technical data supports the fact that proposed \_\_\_\_\_ will

(Name of Development)

not impact the 100-year flood elevations, floodway elevations and floodway widths on \_\_\_\_\_ at published sections

(Name of Stream)

in the Flood Insurance Study for \_\_\_\_\_,

(Name of Community)

dated \_\_\_\_\_ and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

Attached are the following documents that support my findings:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

seal:

\_\_\_\_\_  
(Address)