

FEMA Subdivision/PUD Checklist

October 25th, 2022

Preliminary Questions

1 What Flood Zone is my development in?

Process: Access the Cedar City FEMA and LOMR Map on the City Website.

- | | |
|--------------------------|--|
| Zone A Categories | <input type="checkbox"/> Zone A: (BFEs are Not Determined)
<input type="checkbox"/> Zone A1-30: (BFEs are Provided, Old Format)
<input type="checkbox"/> Zone AE: (BFEs are Provided, New Format)
<input type="checkbox"/> Zone AO: (Base Flood Depths, Feet Above Ground, are Provided, Sheet Flow Ponding, or Shallow Flooding)
<input type="checkbox"/> Zone AH: (BFEs are Provided, Shallow Flooding)
<input type="checkbox"/> Zone A99: (BFEs are Not Provided, Protected From Base Flood by Levees or Federal Flood Protections Systems Under Construction)
<input type="checkbox"/> Zone AR: (Base Floodplain that Results from the Decertification of a Previously Accredited Flood Protection System that is in the Process of Being Restored to Provide a 100-Year, or Greater Level of Flood Protection)
<input type="checkbox"/> Zone V: (BFEs are Not Determined, Coastal Area Subject to a Velocity Hazard)
<input type="checkbox"/> Zone VE: (BFEs are Provided, Coastal Area Subject to a Velocity Hazard)
<input type="checkbox"/> Zone B/X (Shaded): (Area of Moderate Flood Hazard, Usually the Area Between 100-Year and 500-Year Floods, or Areas of Lesser Hazard such as Areas Protected by Levees from the 100-Year Flood, or Shallow Flooding Areas with Average Depths of Less than 1-Foot or Drainage Areas Less than 1 Square Mile)
<input type="checkbox"/> Zone C/X (Unshaded): (Area of Minimal Flood Hazard, Usually Depicted as Above the 500-Year Flood Level. Zone C may have Ponding and Local Drainage Problems that don't Warrant a Detailed Study or Designation as Base Floodplain. Zone X is Determined to be outside the 500-Year Flood and Protected by Levee from the 100-Year Flood.)
<input type="checkbox"/> Zone D: (Area of Undetermined but Possible Flood Hazards) |
|--------------------------|--|

~ If Zone A, A1-30, AE, AO, AH, A99, AR, V, or VE fill out a Floodplain Development Permit and proceed to step 2.

~ If Zone B, X (shaded), C, X (unshaded), or D the development is not in an area of significant flood concern (Ensure reasonably safe from flooding).

2 Is the proposed subdivision or development (including manufactured home parks as well as commercial and/or industrial developments) greater than 50 lots or 5 acres, whichever is lesser? The proposed development plan needs to show all phases. This requirement encompasses all proposed phases of the development.

Process: Check plans to see if the proposed subdivision is either 50 lots or 5 acres, not only the portion lying within Flood Zone A.

Total Number of Lots: _____ Lots
 Total Number of Acres: _____ Acres

- Yes
 No

~ If Yes, the BFE will need to be determined using detailed methods, unless already determined (see reverse for additional information).

~ If No, ensure that the building site will be reasonably safe from flooding by using either the detailed or simplified methods for estimating a BFE, unless already determined (see reverse for additional information).

3 If in a Flood Zone A Category, is the Base Flood Elevation (BFE) known?

Process: Check the City FEMA and LOMR Map BFE layer.

- Yes,
 No

If Yes, provide information to the City.

If No, determine the BFE using the applicable method.

Checklist for Subdivisions and PUDs

Development Plan Checklist

- | Yes | No | N/A | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Scale, nature, location, dimensions, and elevations of the area in question shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Existing and proposed structures shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Cut / Fill volumes provided. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Storage of materials, drainage facilities, and staging areas shown on plans (if applicable). |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Floodplain boundaries are shown on all applicable pages. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Description of the extent to which any watercourse will be altered or relocated as a result of the proposed development. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If any watercourse is to be altered, verify that the DNR and DWR have been notified prior and submit evidence of such notification to FEMA. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Require that maintenance is provided within the altered or relocated portion of said watercourse so that flood-carrying capacity is not diminished. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The cumulative affect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood. |

Information to Provide to the City

- | Yes | No | N/A | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Depending on the applicable approach, provide the Detailed Flood Study, or the Simplified Method, and resultant BFE(s). The study shall include a map showing the BFEs for all affected lots throughout the entire subdivision. A BFE elevation shall be provided for each affected lot. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Completed Floodplain Development Permit. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The Final Plat must include a note that references the flood study and calculated BFE. Additionally, the flood zone boundary must also be shown on the Final Plat. |

Detailed Methods to Determine a BFE

The three essential factors that MUST be determined by a hydrologist, professional engineer, or registered surveyor either by hand calculations or by computer model to determine a BFE by detailed methods include:

- > **Floodplain Geometry (Topography)** - the measurement of the geometry of a cross section(s) of the floodplain, which includes horizontal and vertical coordinates.
- > **Flood Discharge and/or Volume (Hydrology)** - the determination of the peak rate of stream flow [usually measured in cubic feet per second (cfs)] that will occur during a flood (100-year). When determining lake or pond elevations, a 100-year flood hydrograph is required to determine the BFE.
- > **Flood Height (Hydraulics)** - the determination of the water-surface elevation that will occur during a flood (100-year), the selection of a method to relate the flood discharge to a flood depth, and the selection of Manning's roughness coefficients or "n" values.

Simplified Methods to Estimate a BFE

Simplified Methods to Estimate a BFE Include:

- > **Contour Interpolation** - superimposing a Zone A boundary onto a topographic map in order to estimate a BFE.
- > **Data Extrapolation** - can be used if a site is within 500 feet upstream of a stream reach, which a 100-year flood profile has been computed by detailed methods (in a flood insurance study), and the floodplain and channel bottom slope characteristics are relatively similar to the downstream reaches.