Floodplain Development Permit (FHDP)
Procedural Guide Checklist

Department of Planning Services
1402 N. 17TH Avenue, P.O. Box 758, Greeley, CO 80632
www.weld.gov | 970-400-6100 | Fax 970-304-6498

Application Requirements: (Weld County Code Section 23-11-350.C.)

Per 44CFR 60.3(a), Floodplain Development Permit applications submitted for review shall include, at a minimum, the following information. Applications containing less than the specified requirements shall not be accepted for review unless the applicant has submitted to, and had approved by, the floodplain administrator written justification as to why a particular requirement does not pertain to the proposed development.

Submit all the application components as separate PDF documents in the order outlined in the checklist below

Submittal Requirements:

_____ A completed Floodplain Development Permit application (attached).

_____ Detailed narrative of the project including the floodzone, the Base Flood Elevation (BFE), and a list of all the proposed structures. State how the structures will be floodproofed – elevated, anchored, vented, etc. State how the electrical will be floodproofed.

_____ An explanation of how the standards in Chapter 23, Article XO have been or will be met (standards attached). A word document is available upon request.

_____ Signed affidavit stating that the site will maintain compliance with Weld County's and FEMA's floodplain regulations (attached).

_____ A floodplain map showing the location of the site. List of items required for the floodplain map are in this Procedural Guide.

_____ A Certification Form stamped and signed by a registered Colorado professional engineer.

_____ Pipeline:
Detailed pipeline information including: the diameter of the pipe, the product being conveyed, the purpose of the pipeline, the floodzone the pipeline crosses through, the depth that the pipeline will be below grade a map showing the route, the installation method, the plan and profile, any above ground appurtenances, and details about how the existing grad will be affected. State if the pipeline is adjacent to or perpendicular to the water way.

_____ No Rise Certification is required if the development is in a floodway (attached).

_____ Nonresidential Buildings:
Certificate from a registered professional engineer licensed in the State that the non-residential floodproofed structure shall meet the floodproofing criteria listed in the Weld County Code Chapter 23, Article XI.

_____ All Structures:

- A *pre-construction* elevation certificate shall be submitted with the Floodplain Development Permit application.
- A *during construction* elevation certificate after the foundation has been completed.
- An *as-built* elevation certification will be required prior to receiving a certificate of occupancy or final building permit approval for the structure.

The elevation certificate shall be submitted on the most current FEMA Elevation Certificate (current elevation certificate) has an expiration of June 30, 2026).

_____ All Structures:
An elevation drawing delineated with the appropriate architectural scale, which clearly depicts the elevation of the inner/outer grade, height of the crawlspace, and lowest floor of the proposed and existing structures in relation to the Base Flood Elevation. The lowest floor (first habitable level) of the building must be one foot above the Base Flood Elevation. Example attached.

_____ Watercourse Alteration:
A description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.

_____ Deed for all affected property owners.

_____ Authorization form (attached) completed by the property owner or executed easement document or executed right-of-way document.

_____ Articles of Organization or Incorporation documents if the owner is a business entity.

_____ Statement/Delegation of Authority if the owner is a LLC, Inc., etc.

_____ Trustee documents if the owner is a Trust.

_____ Electronic copies of hydrologic and hydraulic computer models (i.e. HEC RAS).

_____ Any other relevant information which may be required by the Floodplain Administrator to determine that the proposed project has gained the appropriate Federal, State, and County approvals (e.g. wetland permits, septic permits, etc.).

_____ Submit the FHDP application on a jumpdrive, via FTP, or email it to mking@weld.gov, daungst@weld.gof, or mnader@weld.gov.

_____ Application fee $180.00.

_____ Investigation fee $90.00, due only if there is a violation.

Application Type	Fee	Hearings/Meetings	Processing Time
Floodplain Development Permit (FHDP)	$180.00	Administrative Staff Review	45 days

A copy of the Weld County Code is available online at www.weld.gov.

A completed application form and supporting materials will enable Weld County staff to process and reach a decision within the time frame established for the Floodplain Development Permit process.

The Weld County Planning Department shall be responsible for processing Floodplain Development Permits in the unincorporated areas of Weld County.

Intent (Weld County Code Section 23-11-350)

The intent of the Floodplain Development Permit is to ensure that proposed development, building sites, and structures which are to be located within the 100-year floodplain are safe from flooding.

No permit shall be issued nor shall any start of construction begin, development occur, building or structure be erected, constructed, replaced, or substantially improved within the 100-year floodplain as shown on the FEMA designated maps until a Floodplain Development Permit for such development, building, or structure has been approved by the Floodplain Administrator. Any person filing an application for a Floodplain Development Permit for a development, structure, or manufactured home is required to comply with the procedures and application requirements listed in Article XI of Chapter 23 of the Weld County Code. Any development, building, or structure which is to be located within the floodplain, as defined by the FIRM is required to obtain a Floodplain Development Permit in accordance with Article XI of Chapter 23 of the Weld County Code. A Floodplain Development Permit shall be obtained for all development, buildings, or structures which are to be located within the floodplain regardless of building permit requirements. Nothing in Article XI of Chapter 23 of the Weld County Code shall be construed as exempting an applicant for a Floodplain Development Permit from any other County regulatory requirements.

Statement of purpose (Weld County Code Section 23-11-230)

A. It is the purpose of this ordinance to promote public health, safety and general welfare and to minimize public and private losses due to FLOOD conditions in specific areas by provisions designed to:
   1. Protect human life and health;
   2. Minimize expenditure of public money for costly flood control projects;
   3. Minimize the need for rescue and relief efforts associated with flooding which have historically been undertaken at the expense of the general public;
   4. Minimize prolonged business interruptions;
   5. Minimize damage to critical facilities, infrastructure, and other public facilities such as water, sewer and gas mains; electric and communications stations, substations and power plants, streets and bridges located in floodplains;
   6. Help maintain a stable tax base by providing for the sound use and development of flood prone areas so as to minimize future flood blight areas; and
   7. Ensure that potential buyers are notified that property is in a Special Flood Hazard Area.

Exemptions (Weld County Code Section 23-11-340)

The following open space and emergency uses are allowed to occur in a floodplain or floodway without a Floodplain Development Permit provided that such uses are not prohibited by any other resolution or statute, do not require structures, do not require alteration of the floodplain such as fill, excavation, or permanent storage of materials or equipment, and will not cause flood losses on other land or to the public:

A. Agricultural uses such as tilling, farming, irrigation, harvesting, grazing, etc;

B. Private and public recreational uses that do not include overnight vehicle parking or camping which is otherwise in violation of provisions of this Chapter 23;

C. Irrigation and livestock water supply wells provided they meet the standards for wells in a floodplain;

D. Emergency flood damage prevention measures such as sandbagging.

Investigation fee

An additional investigation fee shall be added to the cost of the permit application when specific land uses, buildings, manufactured homes, mobile homes, and structures that require a permit by the Weld County Code are located, moved, operated, or constructed prior to obtaining a permit. The investigation fee shall be 50% of the fee established by separate action by the Board of County Commissioners for land-use applications. The payment of such investigation fee shall not relieve any persons from fully complying with the requirements of the Weld County Code, nor from any other penalties.

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Floodplain Map Requirements (Weld County Code Section 23-11-350.C.3.)

Map dimensions shall be a minimum of 8½ inches wide by 11 inches high or another suitable size approved by the Planning Department.

A map which accurately displays the following information:

a. The name and address of the property owner;

b. A legal description which describes the Section, Township and Range of the property;

c. Scale and north arrow;

d. Topographic map at the building site, including a map (plot plan) drawn to an appropriate scale and the location of known encumbrances and spot elevations for the site near all existing and proposed structures;

e. Water Surface Elevations of the Base Flood Elevation (BFE) at the building site. If the Water Surface Elevations are not shown on the FBFM or FIRM, the applicant's engineer shall use acceptable methodology to determine the Water Surface Elevations and show them on the map;

f. Boundaries of the floodplain and floodway on the property;

g. A plot plan which shows the location, shape, exterior dimensions and distance from lot or property lines of each existing or proposed structure relative to the floodplain and/or floodway boundaries;

h. The elevation of the lowest floor, including the basement or crawlspace, of all new or substantially improved structures;

i. If applicable, the elevation to which any non-residential structure will be floodproofed;

j. Proposed vehicular access to the property; and

k. Any fill, proposed and existing storage of materials, and proposed and existing drainage facilities located on the property.

l. If applicable, show existing ground elevations, in the NGVD-29 or NAVD-88 vertical datum, at the development site to 2.0-ft accuracy, with offsite elevations.

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Contact Information and Office Locations

Weld County Planning, Building and Development Review
1402 N 17th Avenue
PO Box 758
Greeley, CO 80632
(970) 400-6100
www.weld.gov/Government/Departments/Planning-and-Zoning
www.weld.gov/Government/Departments/Building

Weld County Department of Public Health and Environment
Weld County Septic Permits
On Site Waste Water Systems (OWTS)
1555 N 17th Avenue
Greeley, CO 80631
(970) 304-6415
www.weld.gov/Government/Departments/Health-and-Environment

Colorado Department of Transportation (CDOT)
10601 W. 10th Street
Greeley, CO 80634
(970) 353-1232
www.codot.gov/

Division of Water Resources
Water Wells
1313 Sherman St. Ste. 821
Denver, CO 80203
(303) 866-3581 ext. 0

1809 56th Avenue
Greeley, CO 80634
(970) 352-8712
https://dwr.colorado.gov/

Well Permitting Information:
https://dwr.colorado.gov/services/well-permitting

Soil Conservation Districts
Boulder Valley and Longmont – (303) 776-4034
Brighton & Southeast Weld – (303) 659-0525
Centennial – (970) 522-7440 ext. 3
Greeley – (970) 356-6506
Larimer (Big Thompson & Ft. Collins) – (970) 295-5658
Morgan – (970) 867-9659 ext. 4
Platte Valley – (303) 857-6721
Southeast Weld – (303) 659-7004 ext. 101
West Adams – (303) 659-2080
www.coloradoacd.org

Colorado Geological Survey
Division of Minerals and Geology
1313 Sherman Street
Room 715
Denver, CO 80203
(303) 384-2643
www.coloradogeologicalsurvey.org

Floodplain Development Permit (FHDP) Application

Department of Planning Services
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Planning Department Use:	Date Received:_____
Amount $_____	Case # Assigned:_____
Application Received By:_____	Planner Assigned:_____

Parcel Number ___ ___ ___ ___ - ___ ___ ___ ___ - ___ ___ ___ ___
(12 digit number - found on Tax I.D. information, obtainable at the Weld County Assessor's Office www.weld.gov).

Address _____

Legal Description _____, Section ___, Township ___ N, Range ___ W

River/Stream Name _____ Flood Insurance Rate Map (FIRM) Panel # *08123C-*_____

Floodzone A ___ AE ___ AH ___ AO ___ Parcel size _____ acres Zoning _____

Project located in designated floodway? Yes___ No___ If yes, a "No Rise" certificate is required.

Fee Owner(s) of the Property:
Name:_____
Company:_____
Phone #:_____ Email:_____
Street Address:_____
City/State/Zip Code:_____

Applicant or *Authorized Agent:
Name:_____
Company:_____
Phone #:_____ Email:_____
Street Address:_____
City/State/Zip Code:_____

☐ Single-Family Residence	☐ Remodel (over 50%)	☐ Boring or Trenching
☐ Manufactured Home	☐ Nonresidential	☐ Tank Battery
☐ Outbuilding i.e. barn	☐ Substantial Improvement	☐ Watercourse Alteration
☐ Addition	☐ Fill material	☐ Grading

☐ Other_____

Brief Description of Project**:_____

_____

Include the square footages of all structures.

Signature: Owner or Authorized Agent	Date	Signature: Owner or Authorized Agent	Date
Print: Owner or Authorized Agent		Print: Owner or Authorized Agent	

*Authorization forms from the property owners must accompany all applications if signed by an Authorized Agent.
**Attach a detailed narrative of the project and how it meets the floodplain standards to this application.

Professional Certification

I hereby affirm that this Floodplain Development Application was prepared under my responsible charge for the owners thereof and to my knowledge is accurate and adherent to the applicable standards and rules provided by Weld County, Colorado.

Name (print):_____

PE/PLS#:_____

Company Name:_____

Address:_____

City, State, Zip:_____

Phone:_____

Email:_____

Date:_____

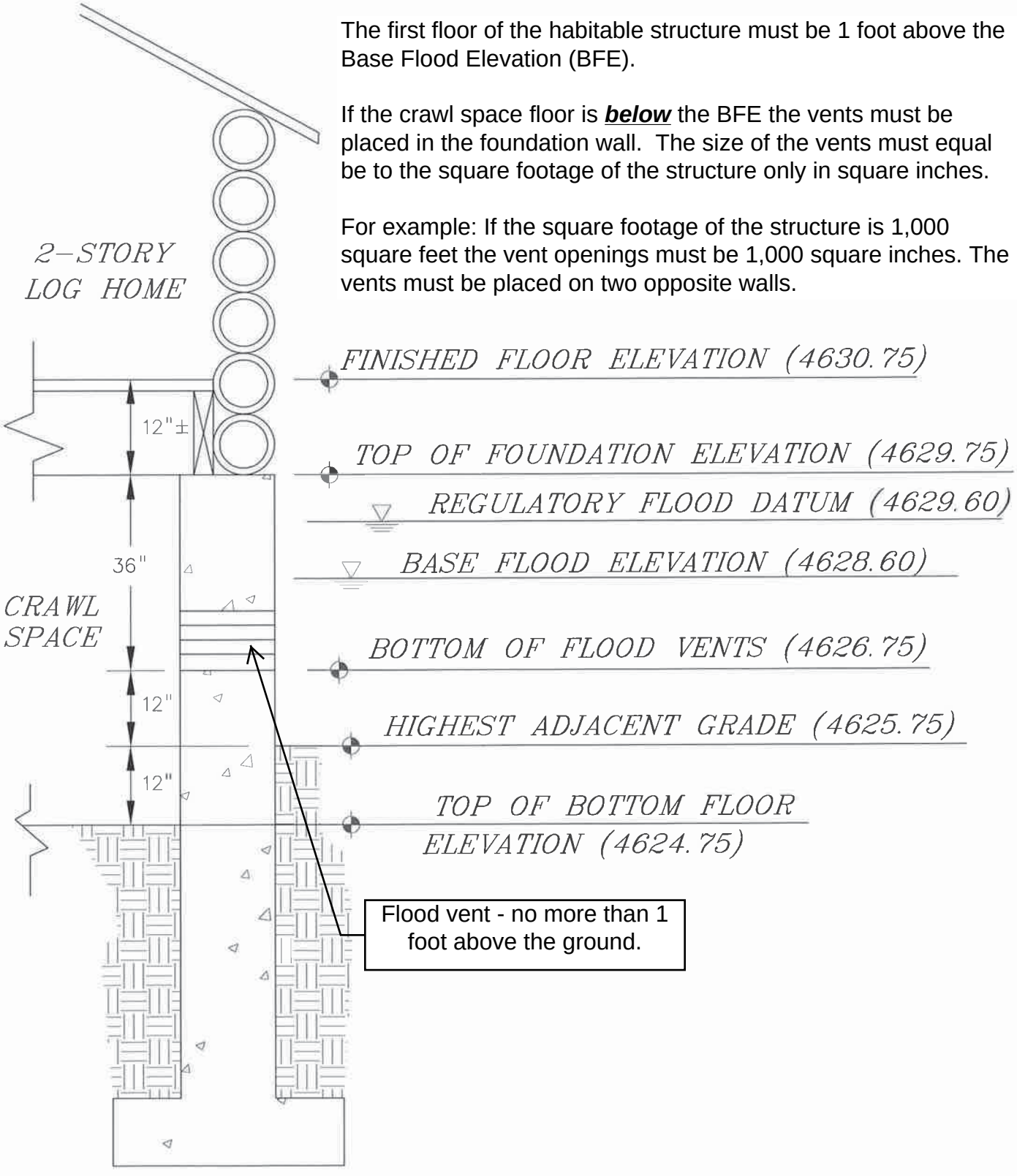
Signature, seal, and date

Example Elevation Drawing

The first floor of the habitable structure must be 1 foot above the Base Flood Elevation (BFE).

If the crawl space floor is ***below*** the BFE the vents must be placed in the foundation wall. The size of the vents must equal be to the square footage of the structure only in square inches.

For example: If the square footage of the structure is 1,000 square feet the vent openings must be 1,000 square inches. The vents must be placed on two opposite walls.



Departments of Planning
Building, Development Review
and Environmental Health
1402 North 17TH Avenue
P.O. Box 758
Greeley, CO 80632

Authorization Form

I, (We), _____, give permission to _____
(Owner – please print) (Authorized Agent/Applicant–please print)

to apply for any **Planning, Building, Access, Grading or OWTS** permits on our behalf, for the property located at (address or parcel number) below:

_____

Legal Description: _____ of Section _____, Township_____ N, Range_____ W

Subdivision Name: _____ Lot_____ Block_____

Property Owners Information:

Address: _____

Phone: _____ E-mail: _____

Authorized Agent/Applicant Contact Information:

Address: _____

Phone: _____ E-Mail: _____

Correspondence to be sent to: Owner ____ Authorized Agent/Applicant ____ by: Mail_____ Email_____

Additional Info:_____

_____

I (We) hereby certify, under penalty of perjury and after carefully reading the entire contents of this document, that the information stated above is true and correct to the best of my (our) knowledge.

_____Date_____ _____ Date _____

Owner Signature Owner Signature

Subscribed and sworn to before me this _____ day of _____, 20 _____ by _____.

My commission expires _____ _____

Notary Public

Department of Planning Services
1402 N. 17TH Avenue
P.O. Box 758
GREELEY, CO 80632
970-400-6100
FAX 970-304-6498

"NO-RISE" Certification

For development in the floodway

This is to certify that I am a duly qualified, registered, professional engineer licensed to practice in the State of Colorado.

It is to further certify that the attached technical data supports the fact that the proposed or as-built floodplain development _____ *(insert development)* activities in the floodway will not impact the 100-year flood elevations, floodway elevations, or floodway widths on _____ *(name of the waterway)* at published or unpublished cross-sections in the vicinity of the proposed development activity. This certification includes, but is not limited to, published and unpublished cross-sections in the Flood Insurance Study (FIS) dated September 22, 1999, and any revisions thereto.

Attached are the following documents that support my findings:

1. _____
2. _____
3. _____
4. _____

Name (print): _____
PE/PLS#: _____
Company Name: _____
Address: _____
City, State, Zip: _____
Phone: _____
Email: _____
Date: _____

Chapter 23 Article XI

Division 4 - Standards

I have read and understand the Standards in Division 4 of Chapter 23 Article 11 of the Weld County Code. Per my signature below I have received a copy of the Standards and the development in the floodplain that is described in my Floodplain Development Permit will remain in compliance with the Weld County Code.

Signature: _____ Date: _____

Name (print): _____

Sec. 23-11-360. General standards.

In all Special Flood Hazard Areas, the following provisions are required for all development, new construction and substantial improvements:

A. Prior to the start of construction or commencement of development, a Floodplain Development Permit shall be obtained.

B. All Floodplain analysis done for the purpose of obtaining a Floodplain Development Permit shall be performed utilizing the appropriate FEMA accepted methodology.

C. Per 44 CFR 60.3(a), all new construction or substantial improvements shall be designed and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

D. Per 44 CFR 60.3(a), all new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

E. Per 44 CFR 60.3(a), all new construction or substantial improvements shall be constructed with materials resistant to flood damage.

F. Per 44 CFR 60.3(a), all new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

G. Per 44 CFR 60.3(a), all new or replacement water supply systems shall be designed to minimize or eliminate infiltration of FLOOD waters into the system.

H. Per 44 CFR 60.3(b), all manufactured homes shall be installed using methods and practices which minimize flood damage. For purposes of this requirement, manufacture homes must be elevated and anchored to prevent flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and county anchoring requirements for resisting wind forces.

I. Per 44 CFR 60.3(a), all new or replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the system into flood waters. On-site wastewater treatment systems (OWTS) shall be located to avoid impairment to them or contamination from them during flooding. OWTS shall comply with Section 30-8-100 of the Weld County Code.

J. Per CWCB Floodplain Rule 11, a Floodplain Development Permit shall not be issued for the construction of a new structure or addition to an existing structure on a property removed from the floodplain by the issuance of a FEMA LOMR-F, if the lowest floor elevation, including the basement, is less than one (1) foot (twelve [12] inches) above the BFE or Model-Backed Approximate Flood Elevation that existed prior to the placement of FILL.

K. Per CWCB Floodplain Rule 12 and 44 CFR 60.3(b), any use or development which causes or results in an alteration or relocation of a watercourse shall comply with the requirements listed below. The applicant shall provide evidence that:

1. Channelization and other flow diversion projects shall appropriately consider issues of sediment transport, erosion, deposition and channel migration and properly mitigate potential problems throughout the project, as well as upstream and downstream of any development activity. A detailed analysis of sediment transport and overall channel capacity should be considered, when appropriate, to assist in determining the most appropriate design. The residual 100-Year floodplain shall be evaluated.

2. Any channelization or other stream alteration activity proposed by a project proponent must be evaluated for its impact on the regulatory floodplain and shall be in accordance with all applicable federal and state rules and regulations.

3. Any alteration or relocation of a watercourse shall be designed and sealed by a registered Colorado professional engineer or certified professional hydrologist.

4. All activities within the regulatory floodplain shall meet all applicable federal and state requirements and regulations.

5. Within the regulatory floodway, alteration or relocation of a watercourse not occur unless the project proponent demonstrates through a floodway analysis and report, sealed by a registered Colorado professional engineer, that there is not more than a 0.00-foot rise in the proposed conditions resulting from the development compared to the existing conditions in the foodway, otherwise known as a NO-RISE Certification, unless the proponent first applies for and receives a CLOMR for a Floodway revision.

6. Maintenance shall be required for any altered or relocated portions of watercourses so that the flood-carrying capacity is not diminished.

7. Municipalities within a three-mile radius of the proposed alteration or relocation of a watercourse have been notified in writing of the proposed alteration or relocation of a watercourse.

8. The CWCB has been notified in writing of the proposed alteration or relocation of a watercourse.

9. The Insurance and Mitigation Division of FEMA has been notified in writing of the proposed alteration or relocation of a watercourse.

10. The Army Corps of Engineers has been notified in writing of the proposed alteration or relocation of a watercourse.

L. Per CWCB Floodplain Rule 6, all new critical facilities, substantially improved critical facilities and additions to critical facilities shall either be floodproofed or elevated a minimum of two (2) feet (twenty-four [24] inches) above the Base Flood Elevation. Facilities that are exempted from the definition of critical facilities must still meet all of the other floodplain regulations. Ingress and egress for new critical facilities shall, when practicable, have continuous noninundated access during a 100-Year flood event.

M. Barns with no habitable living spaces or sanitary systems, toilets, loafing sheds, detached garages with no habitable living spaces, boathouses/boat docks with no habitable living spaces and storage sheds may be floodproofed by the flood-venting measures described below:

1. Flood-vented structures shall be anchored to resist flotation, collapse and lateral movement;

2. Flood-vented structures shall be constructed using flood-resistant materials below the Base Flood Elevation, plus one (1) foot;

3. All utility equipment in a flood-vented structure shall be elevated or made watertight to prevent the accumulation of flood water in the components;

4. There shall be a minimum of two (2) openings on different sides of each enclosed area, and if a building has more than one (1) enclosed area below the Base Flood Elevation, each area shall have openings on exterior walls;

5. The total net area of all openings shall be at least one (1) square inch for each square foot of enclosed area, or the openings shall be designed and the construction documents shall include a statement that the design and installation will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of flood waters;

6. The bottom of each opening shall be one (1) foot or less above the adjacent ground level;

7. The openings shall be located below the Base Flood Elevation;

8. Openings shall be at least three (3) inches in diameter; and

9. Any louvers, screens or other opening covers shall allow the automatic flow of Flood waters into and out of the enclosed area.

Openings installed in doors and windows that meet requirements above are acceptable; however, doors and windows without installed openings do not meet the requirements of this Subsection.

N. All oil and gas facilities and oil and gas storage facilities, including tank batteries, shall be anchored to resist flotation, collapse or lateral movement. Oil and gas facilities and oil and gas storage facilities shall be elevated, floodproofed or flood-vented, as appropriate.

O. If fill material is to be used in the floodplain, a registered Colorado professional engineer shall certify that the fill material is designed to withstand the erosional forces associated with the base flood.

P. Outside storage of floatable materials associated with nonagricultural uses shall not be allowed. Materials that are not floatable can be stored outside, provided that a Floodplain Development Permit is obtained.

Q. A below grade crawlspace is considered a crawlspace that has an interior grade lower than the base flood elevation. Construction of a below grade crawlspace shall:

1. Have an interior grade elevation no lower than two (2) feet below the lowest adjacent exterior grade.
2. Have the height of the below grade crawlspace measured from the interior grade of the crawlspace to the top of the foundation wall, not to exceed four (4) feet at any point.
3. Have an adequate drainage system that allows floodwaters to drain from the interior area of the below grade crawlspace following a flood.
4. Meet the requirements of anchoring for manufactured homes, be constructed of materials resistant to flood damage, and meet the requirements of flood vented structures.
5. Comply with FEMA Technical Bulletin 11, as amended.

R. All electrical must be elevated a minimum of one (1) foot above the base flood elevation unless the electrical meets the exception in ASCE 24.

Sec. 23-11-370. Specific standards for Approximate Floodplains (Zone A).

In addition to the general standards in Section 23-11-360 above, the following provisions are required for all development, new construction and substantial improvements that are located in Special Flood Hazard Areas designated as Zone A (Approximate Floodplain):

A. Per 44 CFR 60.3(b) and CWCB Floodplain Rule 11, all new construction or substantial improvement of any residential structure shall have the lowest floor (including basement) elevated a minimum of one (1) foot above the Base Flood Elevation. Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered Colorado land surveyor. The certificate shall utilize FEMA's Elevation Certificate and must include all information requested on the Elevation Certificate.

B. Per 44 CFR 60.3(b), with the exception of critical facilities, all new construction or substantial improvement of any commercial, industrial or other nonresidential structures shall either have the lowest floor (including basement) elevated a minimum of one (1) foot above the Base Flood Elevation or, together with attendant utility and sanitary facilities, be designed so that at one (1) foot above the base flood level, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. A registered professional engineer or architect licensed in the State shall develop and/or review structural design, specifications and plans for construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice.

C. Per 44 CFR 60.3(b), all new construction and substantial improvements with fully enclosed areas below the lowest floor that are used solely for the parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered Colorado professional engineer or architect to meet or exceed the following minimum criteria:

1. There shall be a minimum of two (2) openings on different sides of each enclosed area; if a building has more than one (1) enclosed area below the Base Flood Elevation, each area shall have openings on exterior walls;
2. The total net area of all openings shall be at least one (1) square inch for each square foot of enclosed area, or the openings shall be designed and the construction documents shall include a statement that the design and installation will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of flood waters;
3. The bottom of each opening shall be one (1) foot or less above the adjacent ground level;
4. The openings shall be located below the Base Flood Elevation;
5. Openings shall be at least three (3) inches in diameter; and
6. Any louvers, screens or other opening covers shall allow the automatic flow of flood waters into and out of the enclosed area.

Openings installed in doors and windows that meet the above requirements are acceptable; however, doors and windows without installed openings do not meet the requirements of this Subsection.

D. Per 44 CFR 60.3(b), Base Flood Elevation data shall be generated for all subdivision proposals and other proposed development, including the placement of manufactured home parks greater than fifty (50) lots and/or

five (5) acres or greater in size. Per 44 CFR 65.3, the applicant shall submit a LOMR to FEMA for acceptance and approval within sixty (60) days after the Base Flood Elevations are determined.

E. Per 44 CFR 60.3(a), all subdivision proposals, including the placement of manufactures home parks and subdivisions, shall conform to the following requirements:

1. All subdivision proposals, including the placement of manufactured home parks, shall be reasonably safe from flooding. If a subdivision or other development proposal is in a flood-prone area, the proposal shall minimize flood damage;

2. All proposals for the development of subdivisions, including the placement of manufactured home parks and subdivisions, shall meet the Floodplain Development Permit requirements;

3. Adequate drainage paths shall be provided to reduce exposure to flood hazards; and

4. Public utilities and facilities such as sewer, gas, electrical and water systems shall be located and constructed to minimize or eliminate flood damage.

Sec. 23-11-380. Specific standards for Floodplains with Base Flood Elevations (Zones A1-A30, AE, AH, and AO).

In addition to the general standards in Section 23-11-360 above and specific standards for Approximate Floodplains in Section 23-11-370 above, the following provisions are required for all development, new construction and substantial improvements that are located in Special Flood Hazard Areas designated as Zones A1-A30, AE, AH, and AO:

A. Per 44 CFR 60.3(c), when a regulatory floodway has not been designated, the Floodplain Administrator shall require that no new construction, substantial improvements or other development, including fill, shall be permitted in Zones A1-A30 and AE on the county's FIRM unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the Base Flood more than one-half (½) foot (six [6] inches) at any point within the COUNTY.

B. Per 44 CFR 60.3(c), all new manufactured homes that are placed within Zones A1-A30, AH and AE that are outside of a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision or in an existing manufactured home park or subdivisions on which a manufactured home has incurred substantial damage shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated a minimum of one (1) foot above the Base Flood Elevation and shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

C. Per 44 CFR 60.3(c), existing manufactured homes that are placed or substantially improved on sites in an existing manufactured home park or subdivisions within Zones A1-A30, AH and AE and that are not subject to the provisions of Subsection B above shall be elevated so that either:

1. The lowest floor of the manufactured home is a minimum of one (1) foot above the Base Flood Elevation; or

2. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and is securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

D. Per 44 CFR 60.3(c), Recreational Vehicles placed on sites within the floodplain shall:

1. Be on site for fewer than one hundred eighty (180) consecutive days and be fully licensed and properly equipped for highway usage; or

2. Shall meet the elevation and anchoring requirements for manufactured homes.

A recreational vehicle is properly equipped for highway usage if it is on its wheels or jacking system, is attached to the site only by quick disconnect utilities and security devices and has no permanently attached additions.

E. Per 44 CFR 60.3(c), Zone AO (shallow flooding) areas can be located within the Special Flood Hazard Area. These Special Flood Hazard Areas are associated with Base Flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow. The following provisions shall apply:

1. All new construction and substantial improvements of residential structures shall have the lowest floor (including basement) elevated above the highest adjacent grade at least one (1) foot above the depth number specified in feet on the FIRM. If no depth number is provided on the FIRM, the lowest floor (including basement) shall be a minimum of three (3) feet above the highest adjacent grade. Upon completion of the

structure, the elevation of the lowest floor, including the basement, shall be certified by a registered Colorado land surveyor. Such certification shall be submitted to the Floodplain Administrator.

2. With the exception of critical facilities, all new construction or substantial improvement of any commercial, industrial or other nonresidential structures shall either have the lowest floor (including basement) elevated to a minimum of one (1) foot above the Base Flood Elevation (at least three [3] feet if no depth number is specified) or, together with attendant utility and sanitary facilities, be designed so that, at one (1) foot above the base flood level, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. A registered professional engineer or architect licensed in the State shall develop and/or review structural design, specifications and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice.

3. Adequate drainage paths shall be established to guide flood waters around and away from proposed structures.

F. Per 44 CFR 60.3(c), notwithstanding any other provisions of this Ordinance, the County map approve certain development in Zones A1-A30, AE or AH on the County's FIRM which results in the increase of the Base Flood Water Surface Elevation by more than one-half (½) foot (six [6] inches), provided that a CLOMR is submitted to FEMA which fulfills the provisions of 44 CFR 65.12 and receives FEMA approval.

Sec. 23-11-390. Specific standards for Floodplains with Floodways.

Floodways are administrative limits and tools used to regulate existing and future floodplain development. The State has adopted floodway standards that are more stringent than the FEMA minimum standard. Located within the Special Flood Hazard Area are areas designated as floodway. Since the floodway is extremely hazardous due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions, in addition to the provisions of the general standards in Section 23-11-360, specific standards for Approximate Floodplains in Section 23-11-370 and specific standards for floodplains with Base Flood Elevations in Section 23-11-380, for al development, new construction and substantial improvements that are located in floodways shall apply:

A. Per 44 CFR 60.3(d), encroachments within the regulatory floodway are prohibited, including fill, new construction, substantial improvements and other development, unless it has been demonstrated through hydrologic and hydraulic analyses performed by a registered Colorado professional engineer and in accordance with standard engineering practices that the proposed encroachment would not result in any increase, as shown by a NO-RISE Certification, in flood levels within the cunty during the occurrence of the base flood discharge. Per CWCB Floodplain Rule 7, FEMA Risk Mapping Assessment and Planning (Risk MAP) Technical References, Guidelines and Standards for Flood Risk Analysis and Mapping Activities, and associated resource documents are considered to be standards for delineation of regulatory floodplain information..

B. Per 44 CFR 60.3(d), if the above standard is satisfied, all new construction and substantial improvements shall comply with all applicable provisions of this Ordinance.

C. Per 44 CFR 60.3(d), notwithstanding any other provisions of this Ordinance, the County may approve certain development in Zones A1-A30, AE or AH on the COUNTY'S FIRM which results in the increase of the Base Flood Water Surface Elevation by more than one-half (½) foot (six [6] inches), provided that a CLOMR is submitted to FEMA which fulfills the provisions of 44 CFR 65.12 and receives FEMA approval.

Sec. 23-11-400. Specific standards for Floodplain studies.

CWCB Floodplain Rules 7, 9 and 10 provide specific standards for conducting floodplain studies.

A. Per CWCB Floodplain Rule 7, all floodplain studies shall be carried out in accordance with the following standards:

1. Approximate floodplain information shall be based on detailed hydrology computed for 100-Year floods. Hydraulic information shall be produced using approximate, field or limited techniques and the best available topographic/survey data.

2. Detailed floodplain information shall be based on detailed hydrologic and hydraulic determinations for 100-Year floods. Flood profiles and floodplain delineations for the base flood shall be plotted.

3. Base mapping for floodplain studies shall meet the minimum standards as set forth in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners.

4. Topographic and field survey information for floodplain studies shall meet the minimum standards set forth in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners.

5. Geographic Information System information for floodplain studies shall meet the minimum standards as set forth in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners.

6. Hydrologic analyses for floodplain studies shall be completed using the information set forth in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners. Additionally, hydrology studies must comply with the following:

    a. All floodplain studies, regardless of the level of detail, shall utilize detailed hydrologic information. The Colorado Floodplain and Stormwater Criteria Manual may be used as a reference to aid in the analysis; and

    b. Any new study to evaluate hydrologic information and/or design storm criteria shall be completed in such a way that it is scientifically defensible and technically reproducible.

7. Hydraulic analyses for floodplain studies shall be completed using the protocols set forth in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners.

8. Floodplain delineations shall be completed using the protocols set forth in FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners and shall, at a minimum, comply with the technical quality assurance standards as follows:

    a. The flood elevations and the floodplain delineations on the maps must correlate reasonably to the best available topographic information for the stream and adjacent corridor.

    b. The planimetric features on the floodplain maps must be consistent with the best available aerial photographs or other suitable information for the stream and adjacent corridor, as determined through prevailing industry practices.

9. The results of the hydrologic analyses, hydraulic analyses and floodplain delineations shall be summarized in a written report. All floodplain information that is presented for designation shall be properly titled, dated, organized and bound as a stand-alone document. In addition to the hard copy final report, a digital copy of the final report shall be submitted in MS Word and PDF formats. All pertinent backup data, such as GIS files, hydrologic models and hydraulic models shall also be provided in acceptable digital formats.

    a. The regulatory floodplain maps shall show, at a minimum, the flood boundaries, the location of all cross-sections used in the hydraulic analysis, the reference line drawn down the center of the floodplain or low flow channel and a sufficient number of flood contours in order to reconstruct the flood water surface profiles.

    b. Flood contours or Base Flood Elevations shall be shown as wavy lines drawn perpendicular to the direction of flow of Flood water and shall extend completely across the area of the mapped regulatory floodplain.

    c. The regulatory floodplain map scale shall be one (1) inch equals one thousand (1,000) feet or such map scale showing greater detail. FEMA map panels may be at one (1) inch equals five hundred (500) feet, one (1) inch equals one thousand (1,000) feet or one (1) inch equals two thousand (2,000) feet.

B. Per CWCB Floodplain Rule 9, if a publicly operated and maintained structures is specifically designed and operated, either in whole or in part, for flood control purposes, then its effects shall be taken into consideration when delineating the floodplain below such structure.

1. The effects of the structures shall be based upon the 100-Year Flood with full credit given to the diminution of peak flood discharges, which would result from normal flood control structure operating procedures.

2. The hydrologic analysis shall consider the effects of on-site detention for rooftops, parking lots, highways, road fills, railroad embankments, diversion structures, refuse embankments, including but not limited to solid waste disposal facilities, mill tailings, impoundments, siltation ponds, livestock water tanks, erosion control structures or other structures, only if they have been designed and constructed with the purpose of impounding water for flood detention and are publicly operated and maintained. Public operation and maintenance shall include direct responsibility or ultimate responsibility through written agreement.

3. Detention structures that are privately operated or maintained shall not be included in the hydrologic analysis unless it can be shown that they exacerbate downstream peak discharges.

4. If a structures is not specifically designed and operated, either in whole or in part, for flood control purposes (i.e. railroad embankments, roadway embankments, non-engineered berms, etc.), then its effects shall not be taken into account and the delineation of the floodplain below such structure shall be based upon the 100-Year Flood that could occur absent the structure’s influence. However, if adequate assurances have been obtained to preserve the flood routing capabilities of such structure, then the delineation of the

floodplain below the structure may be based on the assumption that the reservoir formed by the structure will be filled to the elevation of the structure's emergency spillway and the 100-year hydrology can be routed through the reservoir to account for any flood attenuation effects.

5. Adequate assurances shall include appropriate recognition in a county adopted master plan of:

   a. Flood-routing capability of the reservoir, as shown by comparison of the 100-Year Floodplain in plan and profile with and without the structure in place, in order that the public may be made aware of the potential change in the level of flood protection in the event that the reservoir flood-routing capability is lost;

   b. The need to preserve that flood-routing capability by whatever means available in the event that the reservoir owners attempt to make changes that would decrease the flood-routing capability; and

   c. A complete operations and maintenance plan.

6. Irrigation facilities, including but not limited to ditches and canals, may be used as stormwater or flood conveyance facilities if approved by the irrigation facility owners.

7. Unless specified otherwise by aforementioned written agreement, flood hydrology for floodplain mapping purposes shall consist of peak hydrologic flows that are identical immediately downstream and immediately upstream of a ditch or canal that is generally perpendicular to the stream or drainageway of interest. The irrigation facility shall be assumed as running full so that there are no computed flood reduction benefits downstream of the irrigation facility. Backwater behind irrigation facilities shall be mapped.

C. Per CWCB Floodplain Rule 10, the use of levees for property protection, flood control and flood hazard mitigation is not encouraged unless other mitigation alternatives are not viable.

1. The areas landward of an accredited levee system shall be mapped as Zone X (shaded). The FIRM for these areas will include an informational note that advises users of the flood risk in levee-impacted areas.

2. In situations where levees are the only viable alternative for protection of existing development, "setback" levees shall be designed and constructed to maintain the natural channel and reserve a portion of the natural floodplain capacity.

3. Levees shall not be used for flood protection along streams or watercourses where new development is planned.

4. Levees may be used to protect public utility plant facilities for wastewater treatment and pumping, as well as electric power plants, due to their close proximity to natural waterways.

5. For existing levees that protect existing development, proper maintenance shall be performed by levee owners/operators, or nonfederal sponsors in the case of federal levees, according to an operations and maintenance plan. Levees shall not be constructed for the primary purpose of removing undeveloped lands from mapped floodplain areas for the purposes of development. When constructed, levees for which protection will be considered for designation and approval must meet the requirements set forth in 44 CFR 65.10. Artificial embankments that function as a levee or flood control structure must meet the provisions of CWCB Rule 10 or 2 CCR 402-1 (2010), respectively, in order to be considered as providing protection.

6. An operation and maintenance manual that ensures continuing proper function of the levee shall be prepared and updated. The levee shall be structurally sound and adequately maintained. Sedimentation effects shall be considered for all levee projects. Certification from a federal or state agency or a Colorado registered professional engineer that the levee meets the minimum freeboard criteria stated above and that it appears, on visual inspection, to be structurally sound and adequately maintained shall be required on a three-year basis and provided to the CWCB. Levees that have obvious structural defects or that are obviously lacking in proper maintenance shall not be considered in the hydraulic analysis.

7. Privately operated or maintained levee systems will not be considered in the hydraulic analysis performed unless the county mandates operation and maintenance of the levee system and the criteria set forth below are met.

   a. Levees for which the community, state or federal government has responsibility for operations and maintenance will be considered, provided that the criteria set forth below are met.

   b. Privately owned levee systems shall only be considered in the hydraulic analysis if a fully executed agreement exists between the levee owner and a governmental entity enabling unrestricted access to the governmental entity for the purposes of inspection and maintenance and gives the governmental entity responsibility for maintenance.

c. A copy of the executed agreement shall be provided to the CWCB and the CWCB shall be notified in writing of any changes made to the agreement.

8. A minimum levee freeboard of three (3) feet shall be necessary with an additional one (1) foot of freeboard within one hundred (100) feet of either side of hydraulic structures within the levee or wherever the flow is constricted, such as at bridges. An additional one-half (0.5) foot above this minimum is also required at the upstream end of the levee.

9. In cases where levees are mapped as providing 100-Year Flood protection, the adequacy of interior drainage systems on the landward side of the levee shall be evaluated. Areas subject to flooding from inadequate interior drainage behind levees shall be mapped using standard procedures.

10. Evaluation of levees shall not consider human intervention (e.g., capping of levees by sandbagging, earth fill or flashboards) for the purpose of increasing a levee's design level of protection during an imminent flood. Human intervention shall only be considered for the operation of closure structures (e.g., gates or stop logs) in a levee system designed to provide at least the level of base flood protection, including adequate freeboard as described above, provided that such human operation is specifically included in an emergency response plan adopted by the county.

11. For areas protected by a levee providing less than the level of base flood protection, flood elevations shall be computed as if the levee did not exist. For the unprotected area between the levee and the source of flooding, the elevations to be shown shall be obtained from either the flood profile that would exist at the time levee overtopping begins or the profile computed as if the levee did not exist, whichever is higher. This procedure recognizes the increase in flood elevation in the unprotected area that is caused by the levee itself. This procedure may result in flood elevations being shown as several feet higher on one (1) side of the levee than on the other. Both profiles shall be shown in the final report and labeled as "before levee overtopping" and "after levee overtopping," respectively.