



FLOODPLAIN MANAGEMENT BYLAW NO. 2080, 2009

ADOPTION DATE: NOVEMBER 26, 2009

**Regional District of Central Kootenay
Floodplain Management Bylaw No. 2080, 2009**

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**REGIONAL DISTRICT OF CENTRAL KOOTENAY
FLOODPLAIN MANAGEMENT BYLAW NO. 2080, 2009**

WHEREAS the Regional District of Central Kootenay may enact a floodplain management bylaw pursuant to Section 910 of the *Local Government Act* where it considers that flooding may occur on land;

AND WHEREAS the Regional District of Central Kootenay is in possession of Provincial Guidelines, maps and other documents that identify areas which may be subject to flooding in addition to recommendations previously provided by the Province and the following reports entitled:

“Alluvial Fan Hazard Assessment, Regional District of Central Kootenay, Electoral Areas E and F”, prepared by Northwest Hydraulic Consultants Ltd. for the Regional District of Central Kootenay, dated April 1990;

“Terrain Stability Inventory Alluvial and Debris Torrent Fans Kootenay Region”, prepared by Klohn-Crippen Consultants Ltd., dated 1998;

“Review of the Delineation of Geologic Fans within the RDCK”, prepared by Carol Wallace Consulting, dated 2001; and

“Flood Hazard Area Land Use Management Guidelines”, May 2004 published by the Province of British Columbia, Ministry of Water, Land and Air Protection;

NOW THEREFORE, the Board of the Regional District of Central Kootenay enacts as follows:

1.0 TITLE

This Bylaw may be cited as the “Regional District of Central Kootenay Floodplain Management Bylaw No. 2080, 2009”

2.0 APPLICATION

2.1 This Bylaw shall apply to all persons who construct, reconstruct, move, extend or locate a building, manufactured home or unit, modular home or structure or any part of them on land within Electoral Areas A, B, C, D, E, F, G, H, I, J and K of the Regional District of Central Kootenay designated as ‘Floodplain’ as depicted under Schedule “B” and Schedule “D” of this Bylaw.

2.2 The following schedules are attached to and form an integral part of this Bylaw:

Schedule "A" – Floodplain Management Regulations

Schedule "B" – Floodplain Map

Schedule "C" – Floodplain Requirement Table

Schedule "D" – Non-Standard Flood and Erosion Areas Map

Schedule "E" – Non-Standard Flood and Erosion Table

3.0 ENACTMENT AND REPEAL

"Regional District of Central Kootenay Floodplain Management Bylaw No. 1650, 2004" and all amendments thereto, is hereby, repealed.

READ A FIRST TIME this 26th day of November, 2009.

READ A SECOND TIME this 26th day of November, 2009.

READ A THIRD TIME this 26th day of November, 2009.

ADOPTED this 26th day of November, 2009.

"G.L. Wright"

"Dawn Attorp"

CHAIR

SECRETARY

I hereby certify that this is a true and correct copy of the **Regional District of Central Kootenay Floodplain Management Bylaw No. 2080, 2009** as read a third time by the Regional District of Central Kootenay Board, on the 26th day of November, 2009.

DATED at Nelson, B.C. this day of .

Secretary

I hereby certify that this is a true and correct copy of the **Regional District of Central Kootenay Floodplain Management Bylaw No. 2080, 2009**.

DATED at Nelson, B.C. this day of .

Secretary

SCHEDULE “A”

**Regional District of Central Kootenay
Floodplain Management Bylaw No. 2080, 2009**

4.0 ADMINISTRATION

- 4.1 No building or structure shall be constructed, reconstructed, altered, moved or extended by the owner, occupier or other person so that it contravenes the requirements of this Bylaw.
- 4.2 The Building Inspector, Bylaw Enforcement Officer or other persons appointed by the Board of Directors may administer this Bylaw and may enter at all reasonable times on any property to which this Bylaw applies to inspect and determine whether the regulations, prohibitions and requirements of this Bylaw are being met.
- 4.3 A Building Inspector or Bylaw Enforcement Officer who observes a contravention of this Bylaw may issue applicable notices and orders to any owner, occupier or other person who appears to have committed or allowed the contravention.
- 4.4 No person shall prevent or obstruct a Building Inspector or Bylaw Enforcement Officer from performing his or her duties under this Bylaw.
- 4.5 A person who contravenes a regulation or requirement of this Bylaw commits an offense, is punishable on summary conviction, and is liable to a fine not exceeding the maximum prescribed by law and not less than \$200.00 plus the costs of prosecution.
- 4.6 Each day during which a violation is continued shall be deemed to constitute a new and separate offense.
- 4.7 If any section, subsection, sentence, clause or phrase of this Bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remainder.
- 4.8 By the enactment, administration or enforcement of this Bylaw, the Regional District of Central Kootenay does not represent to any person that any building or structure, including a mobile home, located, constructed or used in accordance with the regulations and requirements of this Bylaw or in accordance with any advice, information, direction and guidance provided by the Regional District in the course of the administration of this Bylaw will not be damaged by flooding.

5.0 INTERPRETATION

For the purposes of this Bylaw, the following definitions apply:

ALLUVIAL FAN means an alluvial deposit of a stream where it issues from a steep mountain valley or gorge upon a plain or at the junction of a tributary stream with the main stream.

BUILDING means any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING INSPECTOR means a person appointed, employed or contracted from time to time by the Board of the Regional District in the capacity of a building inspector.

BYLAW ENFORCEMENT OFFICER means a person appointed, employed or contracted from time to time by the Board of the Regional District in the capacity of a bylaw enforcement officer.

CONTOUR INTERVAL means a line of constant elevation that runs along the shoreline of a reservoir and is used as a reference point to measure a floodplain setback.

DESIGNATED FLOOD means a flood, which may occur in any given year, of such magnitude as to equal a flood having a 200-year recurrence interval, based on a frequency analysis of unregulated historic flood records or by regional analysis where there is inadequate stream flow data available. Where the flow of a large watercourse is controlled by a major dam, the designated flood shall be set on a site specific basis.

DESIGNATED FLOOD LEVEL means the observed or calculated elevation for the Designated Flood which is used in the calculation of the Flood Construction Level.

FLOOD CONSTRUCTION LEVEL means the Designated Flood Level plus the allowance for freeboard and is used to establish the elevation of the underside of a wooden floor system or top of concrete slab for habitable buildings. In the case of a manufactured home, the ground level or top of concrete or asphalt pad on which it is located shall be no lower than the above-described elevation. It also establishes the minimum crest level of a Standard Dike. Where the Designated Flood Level can not be determined or where there are overriding factors, an assessed height above the natural boundary of the water body or above the natural ground elevation may be used.

FLOOD PROOFING means the alteration of land or structures physically or in use to reduce or eliminate flood damage and includes the use of

elevation and/or building setbacks from water bodies to maintain a floodway and to allow for potential erosion.

FLOODPLAIN means an area that is susceptible to flooding from a watercourse, lake, or other body of water and for administrative purposes is taken to be that area submerged by the Designated Flood plus freeboard.

FLOODPLAIN SETBACK means the minimum required distance from the natural boundary of a watercourse, lake or other body of water to any landfill or structural support required to elevate a floor system or pad above the flood construction level, so as to maintain a floodway and allow for potential land erosion.

FREEBOARD means a vertical distance added to a Designated Flood Level and is used to establish the Flood Construction Level.

GEODETIC SURVEY OF CANADA (G.S.C.) DATUM means the vertical distance above Canadian Geodetic Datum (mean sea level as determined by the Canadian Hydro-graphic Service).

HABITABLE AREA means any room or space within a building or structure that is or can be used for human occupancy, commercial sales, or storage of goods, possessions or equipment (including furnaces) which would be subject to damage if flooded.

HYDROSTATIC FORCES means the additional forces that must be considered in the design and construction of a basement area in a building located in a designated Floodplain or Non-Standard Flood and Erosion (NSFEA) area. Hydrostatic forces are imposed by the saturation of the ground and overland flow of water to a depth equal to the Flood Construction Level.

LAKES are defined as those over 15 kilometres in length, or any pond, backwater, slough, swamp or marsh area affected by the lake.

NATURAL BOUNDARY means the visible high watermark of any lake, river, watercourse, or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river, watercourse, or other body of water a character distinct from that of the banks thereof, in respect to vegetation, as well as in respect to the nature of the soil itself. In addition, the natural boundary includes the best estimate of the edge of dormant or old side channels and marsh areas.

NATURAL GROUND ELEVATION means the undisturbed ground elevation prior to site preparation.

NON-STANDARD FLOODING AND EROSION AREAS (NSFEA) are areas where standard floodplain setbacks and flood construction levels may not be adequate to provide the necessary level of protection against flooding, erosion and/or debris flow; including alluvial fans, debris flow fans and floodway areas subject to flooding and erosion hazards which require special flooding and erosion precautions.

NON-STANDARD FLOODING AND EROSION RATING (NSFER) is a rating assigned for the purposes of establishing reasonable subdivision and floodplain bylaw requirements. The rating is based upon field experience and all information available to the Province at the time it was assigned.

PAD means a gravelled or paved surface on which blocks, posts, runners or strip footings are placed for the purpose of supporting a mobile home or unit or a concrete pad for supporting a habitable area.

PROFESSIONAL ENGINEER means a person who is registered or licensed under the provisions of the *Engineers and Geoscientists Act*.

REGIONAL DISTRICT means the Regional District of Central Kootenay.

SAFELINE or IMPACT LINES means lines shown on reference plans for properties bordering on a reservoir or a river established by B.C. Hydro to prevent damage to buildings from shoreline erosion processes.

SCOUR PROTECTION or EROSION PROTECTION is defined as protective works constructed along dike slopes, stream banks, lakes and other water bodies to prevent their erosion by surface runoff, stream flows and/or wave action.

SMALL LAKES are defined as those lakes less than 15 kilometres in length and where there is no history of severe flooding or concern for shoreline erosion, and for ponds, swamps or marsh areas.

STANDARD DIKE means a dike built to a minimum crest elevation equal to the flood construction level and meeting standards of design and construction approved by the Province and maintained by an ongoing authority such as a local government body or a diking authority under the *Dike Maintenance Act* or successor legislation.

STRUCTURE means a construction or portion thereof of any kind, whether fixed to, supported by or sunk into the land or water, specifically including retaining structures of any size directly connected to a building or other structure but specifically excluding landscaping, fences, signs and paving.

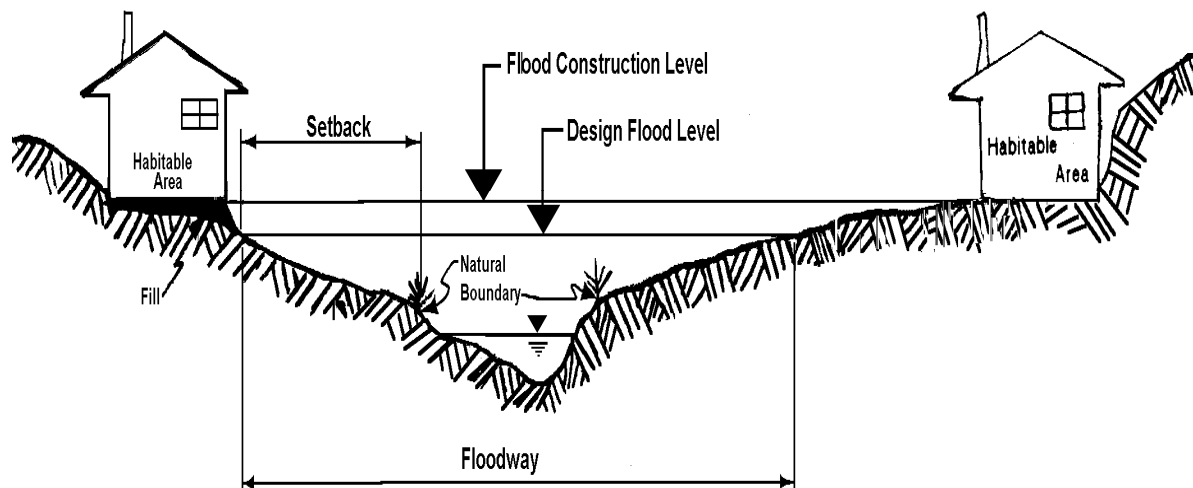
TOP OF BANK means the point at which the upward ground level becomes less than one (1.0) vertical to four (4.0) horizontal, and refers to the crest of the bank or bluff where the slope clearly changes into the natural upland bench; or as otherwise designated from time to time by the authority having jurisdiction.

WATERCOURSE means any natural or man made depression with well-defined banks and a bed 0.6 metres (2.0 feet) or more below the surrounding land serving to give direction to a current of water at least six months of the year and/or having a drainage area of two square kilometres (0.8 square miles) or more upstream of the point of consideration.

WETLAND means land seasonally or permanently covered by water and dominated by water tolerant vegetation. Wetlands include swamps, marshes, bogs and fens but do not include lands periodically flooded for agricultural purposes.

Diagram 1

Cross-Section of a Typical Floodplain



Note: This diagram is provided for illustrative purposes only (source: British Columbia Ministry of Environment)

6.0 FLOODPLAIN DESIGNATION

6.1 The following are designated as Floodplain:

- a. Land shown as Floodplain in Schedule “B” – Floodplain Map;
and
- b. Land within the Non-Standard Flooding and Erosion Area boundaries as delineated in Schedule “C” – Non-Standard Flooding and Erosion Areas Map.

7.0 FLOODPLAIN SPECIFICATIONS

7.1 Flood Construction Levels

The following elevations are specified as Flood Construction Levels, except where more than one Flood Construction Level is applicable, the higher elevation shall be the specified Flood Construction Level:

- a. Where Floodplain Mapping is available, the Flood Construction Level (F.C.L.) for a specific property shall be determined by interpolation from the “200 year frequency Flood Level” as identified in Schedule “B” of this Bylaw
- b. Where Floodplain Mapping is not available, the following elevations are specified as Flood Construction Levels:
 - a. 652.3 G.S.C. Datum on Whatshan Lake;
 - b. 581.2 G.S.C. Datum on Duncan Lake;
 - c. 539.2 G.S.C. Datum on Slocan Lake;
 - d. 536.5 G.S.C. Datum on Kootenay Lake;
 - e. 443.5 G.S.C. Datum on the Arrow Reservoir;
 - f. 3.0 metres above natural boundary for the Duncan, Goat, Halfway (Arrow Reservoir), Kaslo, Kootenay (Brilliant Dam to Columbia River), Kootenay (Corra Lynn Dam to South Slocan Dam), Lardeau, Little Slocan, Moyie, Pend D’orelle, Salmo, Slocan, South Salmo, Westfall and Whatshan Rivers;

- g. 3.0 metres above natural boundary for Barnes, Burton, Caribou, Carpenter, Cooper, Corn, Crawford, Cultus, Dog (Arrow Lake north of Castlegar), Duhamel, Eagle (Arrow Reservoir), East, Erie, Fosthall, Fry, Hall, Hamill, Hawkins, Howser, Keen, Koch, Kokanee, Kuskanax, Lemon, Midge, Mosquito, Pingston, Poplar, Stagleap, Summit and Wilson (Slocan Lake) Creeks;
- h. 1.5 metres above natural boundary for Wilson Creek (Kootenay Lake drainage and South Salmo River Drainage); and
- i. 1.5 metres above natural boundary for all other small lakes, ponds, marshes and watercourses.

7.2 Floodplain Setbacks

The following distances are specified as Floodplain Setbacks, except where more than one Floodplain Setback is applicable, the greater distance shall be applied:

- a. Floodplain Setbacks for the Arrow Reservoir shall be above the safe line for properties with a covenant and reference plan. For properties without a covenant or reference plan, the Floodplain Setback shall be 30 metres from the 440.7 metre contour interval;
- b. Floodplain Setbacks for the Kootenay River between the South Slocan Dam and Brilliant Dam shall be the safe line for properties with a covenant and reference plan. For properties without a covenant and reference plan the Floodplain Setback shall be 15.0 metres from the natural boundary;
- c. Floodplain Setbacks for the Duncan River shall be the setback as defined for properties with a covenant. For properties without a covenant the Floodplain Setback shall be as determined by Schedule B or 30.0 metres from the natural boundary.
- d. 90.0 metres from Bernard Creek;
- e. 50.0 metres from the natural boundary of the west bank of Preacher Creek and 20.0 metres from the natural boundary of the east bank of Preacher Creek;

- f. 45.0 metres from the natural boundary of the east bank of Grohman Creek and 30.0 metres from the natural boundary for the west bank of Grohman Creek;
- g. 30.0 metres from the natural boundary of the Columbia, Goat, Halfway (Arrow Reservoir), Kaslo, Kootenay (excluding that portion from the South Slovan Dam to Brilliant Dam), Lardeau, Little Slovan, Moyie, Pend D'orelle, Salmo, Slovan, South Salmo, Westfall and Whatshan Rivers;
- h. 30.0 metres from the natural boundary for Barnes, Burton, Caribou, Carpenter, Cooper, Corn, Crawford, Cultus, Dog (Arrow Lake north of Castlegar), Duhamel, Eagle (Arrow Reservoir), East, Erie, Fortynine, Fosthall, Fry, Hall, Hamill, Hawkins, Howser, Inonoaklin, Keen, Koch, Kokanee, Kuskanax, Lemon, Midge, Mosquito, Pingston, Poplar, Stagleap, Summit and Wilson Creek (Slovan Lake Drainage);
- i. 30.0 metres from the natural boundary of Duncan Lake;
- j. 15.0 metres from the natural boundary of Wilson Creek (Kootenay Lake and South Salmo River Drainages);
- k. 15.0 metres from the natural boundary for all other lakes and watercourses; and
- l. 7.5 metres from the natural boundary for all small lakes, ponds and marshes.

A 7.5 metre setback is required for any standard dike or structure used for flood protection or any easement or right of way for a standard dike or structure used for flood protection.

8.0 FLOODPLAIN REGULATIONS

- 8.1 No building, manufactured home or unit, modular home or structure or any part thereof shall be constructed, reconstructed, moved,

extended or located with the underside of a wooden floor system or top of concrete slab of any area used for habitation, business, or storage of goods damageable by floodwaters, or in the case of a manufactured home or unit the ground level or top of pad on which it is located, lower than the Flood Construction Level specified in Section 7.1 of this Bylaw.

- 8.2 No landfill or structural support required to support a floor system or pad, shall be constructed, reconstructed, moved, extended or located within any Floodplain Setback specified in Section 7.2 of this Bylaw.
- 8.3 Unless specifically provided for elsewhere in this Bylaw, no area below the Flood Construction Level shall be used for the installation of furnaces, major electrical switchgear, or other fixed equipment susceptible to damage by floodwater.
- 8.4 Structural support or compacted fill or a combination of both may be used to elevate the underside of the floor system or the top of the pad above the Flood Construction Level. The structural support and/or fill shall be protected against scour and erosion from flood flows, wave action, ice and other debris.
- 8.5 Unless a building is situated on lands with a natural elevation above that as the specified Flood Construction Level or greater, basements shall be prohibited and crawl spaces shall not exceed 1.2 metres (4 feet) in height to the underside of the floor joists; and
 - a. All entry points for flood or debris flow material, such as windows and doors, shall be located above the Flood Construction Level;
 - b. The building foundation shall be constructed to withstand the Hydrostatic Forces during inundation up to the Flood Construction Level; and
 - c. For buildings located within NSFEAs that all applicable engineering requirements related to an NSFEA rating are deemed satisfied.
- 8.6 When a building permit is applied for on parcels with frontage on Kootenay Lake, the Building Official shall request a structurally engineered foundation or geotechnical report if any part of a footing up to and including the level of a slab, or portion of the foundation is intended by its design to be submersible or subject to water fluctuation below 536.5 metres or wave action. A covenant shall be placed on Title noting such structure may be subject to damage by water.

- 8.7 The Building Inspector may require, at the cost of the landowner, a British Columbia Land Surveyor's certificate to verify compliance with the Flood Construction Levels and Floodplain Setbacks as specified in this Bylaw.

9.0 NON-STANDARD FLOOD AND EROSION AREAS

Explanatory Note: Non-Standard Flood and Erosion Areas are areas where standard Floodplain Setbacks and Construction Levels contained elsewhere in this Bylaw may not be adequate to provide the necessary protection against flooding, erosion and/or debris flow. Supplementary regulations are required.

- 9.1 Non-Standard Flood and Erosion Areas are identified on Schedule "C" of this Bylaw.
- 9.2 The provisions under Section 7.1 and 7.2 of this Bylaw shall apply to development within all Non-Standard Flood and Erosion Areas as identified on Schedule "C" of this Bylaw. In instances in which specifications for Floodplain Setback and Flood Construction Levels conflict, the GREATER of the distances or elevation shall apply.
- 9.3 Development on land within a Non-Standard Flood and Erosion Rating of S, 1 or 2 as identified on Schedule "C" of this Bylaw shall comply with the Minimum Elevation 'Above Natural Ground' or 'Above Obstruction that Could Cause Ponding' as identified in Schedule "D" of this Bylaw.
- 9.4 Structural support or compacted fill or a combination of both may be used to elevate the underside of any floor system or the top of the pad above the elevations as specified in Schedule "D" of this Bylaw. The structural support and/or fill shall be protected against scour and erosion from the flood flows, wave action, ice and other debris.
- 9.5 Where compacted fill is used to elevate the underside of the floor system or the top of pad, the minimum distance from any point of the building perimeter to the toe of the fill slope shall be:
- a. 6.5 metres with fill slope being protected against scouring or erosion by placing a cover of vegetation consisting of shrubs, turf or trees or by placing a covering of riprap; or

- b. As designed by a Professional Engineer.
- 9.6 Where structural methods are used to elevate the underside of the floor system or top of pad, the foundation of the building shall be constructed to a distance of at least 1.0 metres below the Natural Ground Elevation.
- 9.7 The Floodplain Setback and Flood Construction Level for development on land within a Non-Standard Flood and Erosion Rating of E, F, G and P as identified on Schedule “C” of this Bylaw shall be determined by a site specific assessment by a suitably qualified Professional Engineer pursuant to Section 56 of the *Community Charter*.
- 9.8 The foundation of construction on land within a Non-Standard Flood and Erosion Rating of E, F, G and P shall be designed by a Professional Engineer and constructed to ensure that structures are anchored to minimize the impact of flood, sediment and erosion damage; footings are extended below scour depth; or fill materials are armoured where elevation is achieved by fill to protect against scour, erosion and flood flows.
- 9.9 An assessment by a Professional Engineer for flood or debris flow hazards in NSFEA areas is not required for ancillary buildings, including detached or semi-detached garages, shops, storage sheds, decks, boathouses and carports in the NSFEA rated ‘E’, ‘F’, ‘G’ or ‘P’, provided that all other Floodplain Setback and Flood Construction Level requirements apply, unless exempted under Section 10 – General Exemptions or Section 11 – Site Specific Exemptions.

10.0 GENERAL EXEMPTIONS

- 10.1 The following types of developments are exempted from the Flood Construction Levels specified in this bylaw, subject to conditions specified as follows: (Note: these types of developments are not exempted from the Floodplain Setbacks):
- a. A renovation of an existing building or structure that does not involve an addition thereto.
 - b. An addition to a building or structure at the original non-conforming floor elevation, that would increase the size of the building or structure by less than 25 percent of the ground floor area (excluding decks, carports or garages) existing at the date of adoption of Floodplain Bylaw 1000

(August 14, 1994) provided that the degree of non-conformity regarding the setback is not increased (i.e. no closer to the water than existing).

- c. That portion of a building or structure to be used as a carport, garage or entrance foyer, porches, domestic greenhouses and storage buildings not used for the storage of goods damageable by floodwaters.
- d. Recreation shelters, stands, campsite washhouses and other outdoor facilities susceptible to only marginal damage by floodwaters.
- e. Farm buildings other than dwelling units, closed-sided livestock housing and buildings containing hazardous commodities such as herbicides, pesticides, fuel and products with similar environmental impacts.
- f. On-loading and off-loading facilities associated with water-oriented industry and portable sawmills.
- g. Farm Dwelling Units: Farm dwelling units on parcels 8.0 hectares or greater in area, located within the Agricultural Land Reserve, shall be located with the underside of a wooden floor system or the top of the pad of any habitable area (or in the case of a manufactured home, the top of the pad or the ground surface on which it is located) no lower than 1.0 metre above the Natural Ground Elevation taken at any point on the perimeter of the building, or no lower than the Flood Construction Levels specified in this Bylaw, whichever is the lesser.
- h. Closed-Sided Livestock Housing: Closed-sided livestock housing not behind standard dikes shall be located with the underside of a wooden floor system or the top of the pad (or in the case of a mobile unit, the top of pad or the ground surface on which it is located) no lower than 1.0 metre above the natural ground elevation taken at any point on the perimeter of the building, or no lower than the Flood Construction Levels specified in this Bylaw, whichever is the lesser.
- i. Industrial Uses: Industrial uses, other than main electrical switchgear, shall be located with the underside of a wooden floor system or the top of the pad of any habitable area (or in the case of a mobile unit, the top of pad or the ground surface on which it is located) no lower than the Flood

Construction Levels specified in this Bylaw minus Freeboard.
Main electrical switchgear shall be no lower than the Flood
Construction Level.

- j. Heavy industrial development located behind a standard dike.

10.2 The following development is exempted from both the Floodplain Setbacks and the Flood Construction Levels specified in this bylaw:

- a. A self-supporting deck or boathouse that is not:
 - i. used for Habitable Area and the land owner has registered a covenant in favour of the Province and the Regional District of Central Kootenay which states that the deck or boathouse will not be used as a Habitable Area;
 - ii. structurally attached to a building, manufactured home or structure; and
 - iii. within 7.5 m of any standard dike, training works or structure used for flood protection or seepage control or any easement or right of way for a standard dike, training works or structure used for flood protection or seepage control.

11.0 SITE SPECIFIC EXEMPTIONS

11.1 An application by a property owner to the Regional District for a site specific exemption of Floodplain Specifications shall be completed in the form provided by the Regional District and submitted in accordance with the instructions on the application. This provision is not a substitute for any requirements under Section 56 of the *Community Charter*.

11.2 As a condition of a site specific exemption, the property owner will be required at his/her own expense to commission a Professional Engineer's Report that addresses exemption precedents in the surrounding area and provide a summary report containing a description of the proposed development, and recommendations for conditions, as applicable.

11.3 As a condition of a site specific exemption, the property owner will be required at his/her expense to prepare and register a restrictive covenant under Section 219 of the *Land Title Act* and Section 56 of the *Community Charter* in favor of the Regional District specifying conditions that would enable the land to be safely used for the use

intended according to the terms of the Professional Engineer's report which will form part of the restrictive covenant.

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SCHEDULE "B"**

FLOODPLAIN MAP

The boundaries of Floodplain areas listed in this Bylaw, together with any explanatory legends, notations and references in respect thereof, are delineated and described on the "Floodplain Map" which Floodplain Map consists of a computer record compiled by means of geographic information software. The Floodplain Map is kept in the office of the Secretary and in the Planning Department at the Regional District Office. The Floodplain Map forms part of this Bylaw. A generalized diagrammatic representation of the Floodplain Map is annexed to this Bylaw as Schedule "B".

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SCHEDULE "C"**

FLOODPLAIN TABLE

Watercourse	Receiving Watercourse	Flood Construction Level (FCL)	Floodplain Setback
All other lakes and watercourses		3.0 metres	15.0 metres
All other small lakes, ponds and marshes		1.5 metres	7.5 metres
Arrow Reservoir		443.5 G.S.C.	Safe line with a covenant and reference plan. 30.0 metres from the 440.7 metre contour interval for properties without a covenant.
Barnes Creek		3.0 metres	30.0 metres
Bernard Creek		1.5 metres	90.0 metres
Burton Creek		3.0 metres	30.0 metres
Caribou Creek		3.0 metres	30.0 metres
Carpenter Creek		3.0 metres	30.0 metres
Columbia River		Schedule B	30.0 metres
Cooper Creek		3.0 metres	30.0 metres
Corn Creek		3.0 metres	30.0 metres
Crawford Creek		3.0 metres	30.0 metres
Cultus Creek		3.0 metres	30.0 metres
Dog Creek	Arrow Lake north of Castlegar	3.0 metres	30.0 metres
Duhamel Creek		3.0 metres	30.0 metres
Duncan Lake		581.2 G.S.C.	30.0 metres
Duncan River		3.0 metres	As determined with a covenant or as indicated in Schedule B, or 30 metres from the natural boundary for properties without a covenant.
Eagle Creek	Arrow Reservoir	3.0 metres	30.0 metres
East Creek		3.0 metres	30.0 metres
Erie Creek		3.0 metres	30.0 metres
Forty-nine Creek		1.5 metres	30.0 metres
Fosthall Creek		3.0 metres	30.0 metres
Fry Creek		3.0 metres	30.0 metres
Goat River		3.0 metres	30.0 metres

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Grohman Creek	East Bank	1.5 metres	45.0 metres
Grohman Creek	West Bank	1.5 metres	30.0 metres
Halfway River	Arrow Reservoir	3.0 metres	30.0 metres
Hall Creek		3.0 metres	30.0 metres
Hamill Creek		3.0 metres	30.0 metres
Hawkins Creek		3.0 metres	30.0 metres
Howser Creek		3.0 metres	30.0 metres
Inonoaklin Creek		Schedule B	30.0 metres
Kaslo River		3.0 metres	30.0 metres
Keen Creek		3.0 metres	30.0 metres
Koch Creek		3.0 metres	30.0 metres
Kokanee Creek		3.0 metres	30.0 metres
Kootenay Lake		536.5 G.S.C.	15.0 metres
Kootenay River	Brilliant Dam to Columbia River	3.0 metres	30.0 metres
Kootenay River	Corra Lynn Dam to Columbia River	3.0 metres	Safe line with a covenant and reference plan. 15.0 metres from the natural boundary for properties without a covenant or reference plan.
Kuskanax Creek		3.0 metres	30.0 metres
Lardeau River		3.0 metres	30.0 metres
Lemon Creek		3.0 metres	30.0 metres
Little Slocan River		3.0 metres	30.0 metres
Midge Creek		3.0 metres	30.0 metres
Mosquito Creek		3.0 metres	30.0 metres
Moyie River		3.0 metres	30.0 metres
Pend D'orelle River		3.0 metres	30.0 metres
Pingston Creek		3.0 metres	30.0 metres
Poplar Creek		3.0 metres	30.0 metres
Preacher Creek	West Bank	1.5 metres	50.0 metres
Preacher Creek	East Bank	1.5 metres	20.0 metres
Salmo River		3.0 metres	30.0 metres
Slocan River		3.0 metres	30.0 metres
South Salmo River		3.0 metres	30.0 metres
Slocan Lake		539.2 G.S.C.	15.0 metres
Stagleap Creek		3.0 metres	30.0 metres
Summit Creek		3.0 metres	30.0 metres
Westfall River		3.0 metres	30.0 metres
Whatshan Lake		652.3 G.S.C.	7.5 metres
Whatshan River		3.0 metres	30.0 metres
Wilson Creek	Slocan Lake	3.0 metres	30.0 metres

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Wilson Creek	Kootenay Lake	1.5 metres	15.0 metres
Wilson Creek	South Salmo River	1.5 metres	15.0 metres

Where under Flood Construction Levels, G.S.C. means geodetic survey of Canada and metres is above natural boundary and where setback requirements are from the natural boundary of the watercourse unless otherwise indicated.

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SCHEDULE "D"**

NON-STANDARD FLOOD AND EROSION MAP

The boundaries of the Non-Standard Flooding and Erosion Areas listed in this Bylaw, together with any explanatory legends, notations and references in respect thereof, are delineated and described on the "Non-Standard Flooding and Erosion Areas (NSFEA) Map" which NSFEA Map consists of a computer record compiled by means of geographic information software. The NSFEA Map is kept in the office of the Secretary and in the Planning Department at the Regional District Office. The NSFEA Map forms part of this Bylaw. A generalized diagrammatic representation of the NSFEA Hazard Map is annexed to this Bylaw as Schedule "D".

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SCHEDULE "E"**

NON-STANDARD FLOOD AND EROSION TABLE

NSFEA Rating	Physical Description	CC section 56 Professional Engineer/Geoscientist Report Requirements	Minimum Elevation above Natural Ground surface (m)	Minimum Elevation above Obstruction that could cause ponding (m)	Comments
S	Superficial flooding and inundation by low velocity flow possible; typical of the low gradient alluvial/debris flow fans of very small streams or the flattest most distant edges of larger alluvia/debris flow fans.	N/A	0.3	0.3	Scour/Erosion Protection as per Sec. 9.4 and 9.5
1	Shallow flooding by low velocity flow possible; typical of the alluvial/debris flow fans of small streams with moderate slopes or the run-out areas of larger alluvial/debris flow fans.	N/A	0.6	0.3	Scour/Erosion Protection as per Sec. 9.4 and 9.5
2	Flooding by moderate velocity flows possible; typical of the alluvial/debris flow fans of moderate size streams, small streams with steeper slopes, or the transition zone of larger alluvial/debris flow fans.	N/A	1.0	0.6	Scour/Erosion Protection as per Sec. 9.4 and 9.5
F	Flooding by moderate velocity flows possible; typical of the alluvial and debris fans of moderate size streams, small streams with steeper slopes, or the transition zone of larger alluvial and debris flow fans.	Full Engineer/Geoscientist Report required including a complete hazard assessment, siting of proposed buildings and site-specific recommendations. Report registered on the title of the property.	N/A	N/A	
E	Flooding and erosion from: high velocity flows, avulsions, debris flows or bank stability problems possible. Typical of areas on alluvial/debris flow fans of larger streams, moderate sized streams with steeper slopes or erodible banks in the floodway of large rivers.	Full Engineer/Geoscientist Report required including a complete hazard assessment, siting of proposed buildings and site-specific recommendations. Report registered on the title of the property.	N/A	N/A	
G	Temporary NSFE Rating: This is a geological feature. As such any portion of it should be assumed to be potentially active. The geological fan boundaries have been solely delineated by interpretation of aerial photography.	Professional Engineer/Geoscientist reconnaissance level report recommended to first determine what portion of the lot, if any, is on an active alluvial/debris torrent fan.	N/A	N/A	Geological fans identified using air photographs; field verification of hazard level required.
P	Temporary NSFE Rating: Flooding and erosion from high velocity flows; avulsions, debris flows or bank stability problems. Typical of the apex areas of larger streams or moderated sized streams with steeper slopes.	Full Engineer/Geoscientist Report required including a complete hazard assessment, siting of proposed buildings and site-specific recommendations. Report registered on the title of the property	N/A	N/A	Essentially, an 'E' rated fan that needs its boundaries clarified