

APPENDIX B

CHAPTER 7.16 SHORELINE STABILIZATION  
AND FLOOD PROTECTION

From: Skagit County Shoreline Management Master Program,  
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## 7.16 SHORELINE STABILIZATION AND FLOOD PROTECTION

### 1. POLICIES

#### A. General

- (1) Streamway modification and marine diking programs should be coordinated and monitored to provide for more comprehensive planning of Skagit County's shorelines.
- (2) Recognizing that streamway modifications may cause interference with normal river geo-hydraulic processes that may lead to erosion of other up and down river shorelines, then such modifications and stabilization measures should incorporate basic geo-hydraulic principles and be located, designed, coordinated, and maintained for homogeneous river reaches.

Such modifications and measures should be sited and designed by qualified professional personnel.

#### B. Design and Location

- (1) All bank stabilization and flood protection measures should be constructed to comply with the design and location standards and guidelines of applicable agencies.
- (2) Riprapping and other bank stabilization measures should be located, designed, and constructed primarily to prevent damage to agricultural land, public roads and bridges, existing homes and residential areas, or other structures or natural features whose preservation is in the public interest.

Such measures should not restrict the flow of the river or stream.

- (3) Fish and Wildlife resources - Recognizing the value and interdependency of water bodies and associated wetlands as biologically productive habitats and recognizing the intent of the Shoreline Management Act (RCW 90.58.030(2) and WAC 173-22-030), shoreline stabilization and flood protection projects should be located landward of natural wetlands, marshes, and swamps of associated fresh and marine water bodies.

- (4) Braided and meandering channels and associated shoreline areas should not be the locations for intensive land use developments such as those of an industrial, commercial, or residential nature.
- (5) Substantial stream channel direction modification, realignment, and straightening should be discouraged as a means of shoreline and flood protection and for protection of roadway rights-of-way, navigational routes, and other construction or developmental projects.

#### C. Materials

- (1) Shoreline stabilization and revetment material should consist of substantial rock and should meet the standards and guidelines of the Soil Conservation Service.
- (2) Junk and solid waste should not be permitted for shoreline stabilization and revetment material. Concrete and concrete waste should not be used as stabilization and revetment material.
- (3) Shoreline stabilization programs should utilize natural, perennial vegetation either as stabilization material alone or as complementary to other materials.

#### D. Natural Features

- (1) Natural features such as snags, stumps or uprooted trees which support fish and other aquatic systems, and do not intrude on the navigational channel or reduce flow, and do not threaten agricultural land and existing structures and facilities should be allowed to remain.

#### E. Agricultural Practices

Recognizing the importance of vegetation as an aid to bank stabilization, agricultural operations should encourage grazing practices which enhance vegetation on and adjacent to streambanks. Cultivation to the water's edge should be avoided.

#### F. Alternatives

Shoreline stabilization programs should be encouraged to develop alternative methods of streamway modifications utilizing natural systems of stabilization and geo-hydraulic principles.

## G. Impacts

- (1) Recognizing that shorelines of recreation, wildlife, and aesthetic value are limited and irreplaceable resources, then shoreline stabilization and flood protection projects should consider their potential effects and impacts upon such resources.
- (2) Recognizing that the related shoreline stabilization and flood protection activities of filling, grading, lagooning, and dredging may have a substantial impact upon the existing aquatic and biological systems, navigation, and river hydraulics by subsequent erosion and sedimentation, then these activities and their possible impacts should be recognized.

## 2. REGULATIONS

### A. Shoreline Areas

#### (1) Urban

- a. Shoreline stabilization and flood protection measures are permitted subject to the General Regulations.
- b. Dams and impoundments are permitted as a conditional use.

#### (2) Rural Residential

- a. Shoreline stabilization and flood protection measures are permitted subject to the General Regulations.
- b. Channel modifications and dams and impoundments are a conditional use.

#### (3) Rural

- a. Shoreline stabilization and flood protection measures are permitted subject to the General Regulations.
- b. Channel modifications and dams and impoundments are a conditional use.

#### (4) Conservancy

- a. Shoreline stabilization and flood protection measures are permitted subject to the General Regulations.

Natural character erosion control measures including current deflectors are to be utilized instead of bank revetments and rip rap whenever possible.

- b. Dams and impoundments are permitted as a conditional use.
- c. Channel direction modification, realignment, and straightening are permitted only as a conditional use.

(5) Natural

Shoreline stabilization and flood protection measures, dams, impoundments, and channel modifications are prohibited except for vegetative bank stabilization measures.

(6) Aquatic

- a. Shoreline stabilization and flood protection measures are permitted only as a conditional use.
- b. Dams and impoundments are permitted as a conditional use only if compatible with the upland Shoreline Area regulations.
- c. Current deflectors are permitted as a conditional use.

B. General

- (1) Shoreline permit/statement of exemption - In order to assure that shoreline stabilization and flood protection measures are consistent with this program as required by RCW 90.58.140 (1), no work may commence without the responsible person or agency having obtained either a Shoreline Permit or Statement of Exemption from this department.
- (2) Qualifications for approval - Shoreline stabilization and flood protection measures shall be allowed only when adequate evidence is presented that one of the following conditions exist:
  - a. Significant erosion of agricultural lands.
  - b. High water or erosion threatens public works and properties, including roads, bridges, railroads, and utility systems.
  - c. High water or significant erosion damages or threatens existing homes and residential areas.
  - d. High water or significant erosion damages or threatens to damage existing commercial and industrial uses and developments.
- (3) Professional design - The County may require professional design of shoreline stabilization and flood protection works where such projects will cause interference with normal river geo-hydraulic

processes, leading to erosion of other up and down river shoreline properties or adverse effects to shoreline resources and uses.

(4) Channel modifications - River and stream channel direction modification, realignment, and straightening are not permitted unless for substantiated purposes connected with uses consistent with this program.

(5) Design and construction

- a. Existing streambank vegetation shall be preserved to the maximum extent feasible during shoreline stabilization and flood protection work.
- b. New or expanded dike, revetment, or riprap systems, cut-and-fill slopes, and backfilled areas shall be progressively planted with compatible, self-sustaining, and soil stabilizing vegetation.
- c. All works shall allow for the passage of surface and ground waters.
- d. All works shall be designed and constructed to meet the requirements and standards of the County Engineer, State Departments of Fisheries and/or Game, Corps of Engineers where applicable, and Soil Conservation Service.

(6) Materials

- a. Materials for shoreline stabilization and flood protection works shall not consist of solid waste, junk or abandoned automobiles, asphalt or macadam, or any building demolition debris except that which is used for emergency purposes.
- c. Techniques utilizing totally or in part vegetative bank stabilization procedures shall be preferred over structural means such as concrete revetments or extensive rip rap.

(7) Estuaries and wetlands - Any proposal to dike, drain, or fill tidelands, estuaries, salt marshes, and associated water bodies and wetlands shall provide a thorough evaluation of the natural productivity of the wetlands to be displaced and the proposed use.

- (8) Dams and impoundments - Dams and impoundments shall be subject to applicable Shoreline Area regulations.
- (9) Project information - The county shall require and utilize the following substantiating information during review of shoreline stabilization and flood protection proposals:
- a. River channel hydraulics and floodway characteristics up and down stream from the project area shall be identified contingent upon the extent and nature of project work involved. Updated topography maps or phased (old and recent) aerial photography would be adequate.
  - b. Existing shoreline stabilization and flood protection works within the area stipulated above.
  - c. Physical, geological, and/or soil characteristics of the area.
  - d. Existing and proposed shoreline and water uses for the project area and area stipulated above.
  - e. Predicted impact upon area shore and hydraulic processes, adjacent properties, and shoreline and water uses.