

1 **Section 3.16 Steep Slopes**
2

3 (A) **Purpose.** The purpose of this section is to regulate land subdivision and development as
4 necessary to minimize site disturbance and construction on steep slopes (15% to 25%), and to
5 avoid site disturbance on very steep slopes (> 25%) in order to:
6

- 7 (1) maintain existing topography, including natural (pre-development) elevations, grades and
8 drainage patterns,
- 9 (2) minimize impervious surfaces, stormwater runoff, channeling, flooding and soil erosion,
- 10 (3) prevent hazards to life and property resulting from slope instability or failure, including
11 rock falls, slides, slumps and other downslope movements of materials or structures,
- 12 (4) minimize associated risks to public health and safety, public facilities and infrastructure,
13 and adjoining properties,
- 14 (5) avoid stream sedimentation and adverse impacts to surface and ground water quality, and
15 aquatic habitat,
- 16 (6) maintain dense vegetative cover to stabilize soils, maintain riparian buffers and wildlife
17 habitat,
- 18 (7) minimize the adverse visual impacts of steep slope development, as viewed from public
19 vantage points,
- 20 (8) avoid the need for permanent and costly engineered slope stabilization and stormwater
21 management practices on very steep slopes, including excessive long-term management
22 and maintenance costs, and to
- 23 (9) ensure that development on steep slopes is constructed and maintained in conformance
24 with best management practices for stormwater management and erosion control, as
25 defined by the state.

26
27 (B) **Applicability.** The requirements of this section apply to all land subdivision and
28 development including in this context, vegetation removal, site preparation, grading,
29 construction, and the installation of driveways, roads, utilities and other infrastructure, on
30 steep or very steep slopes as defined under Section 10. _ with the exception of the following:
31

- 32 (1) Agriculture conducted in conformance with Accepted Agricultural Practices (AAPs) as
33 defined by the Secretary of Agriculture, Food and Markets (see Section ____).
- 34 (2) Forestry (silviculture), conducted in conformance with Accepted Management Practices
35 (AMPs) as defined by the Commissioner of Forests, Parks and Recreation, including logging
36 roads which conform to "Acceptable Management Practices for Maintaining Water Quality
37 on Logging Jobs in Vermont" as most recently amended (see Section ____).
- 38 (3) Utilities, including telecommunications facilities, power generation facilities, and
39 transmission lines regulated by the Vermont Public Service Board under ____ V.S.A. Section
40 248 (see Section ____).
- 41 (4) Extraction and quarrying operations which are separately regulated under Section ____.
- 42 (5) Structures sited within a building envelope previously approved by the DRB.
- 43 (6) The replacement or enlargement of a nonconforming structure in existence as of January
44 26, 2005, or a new accessory structure, that does not increase the pre-existing building
45 coverage of the lot within a steep or very steep slope area by more than 200 [500?] square
46 feet.

- 1 (7) Site disturbance that is customary and incidental to residential gardening, landscaping,
 2 horticulture or wood lot management for home consumption, provided such activity
 3 disturbs no more than 500 [1,000?] square feet, and involves no heavy equipment.
 4 (8) Emergency remedial action to stabilize an unstable or failing slope which poses an
 5 imminent threat to public health, safety or welfare, provided that the action involves the
 6 least necessary disruption of natural features of the site.
 7 (9) Unpaved paths or trails incidental a residential use that are maintained for use only by
 8 residents of the property and guests, [**are limited to non-motorized uses?**], and are located
 9 outside of required district and stream setbacks and buffers (see Section ____).
 10 (10) **Other? (e.g., isolated, noncontiguous areas of steep or very slope with a total area of**
 11 **500/1,000 square feet or less).**
 12

13 All other development on steep and very steep slopes is subject to conditional use review
 14 under Section 5.4 or, for the subdivision of land, applicable subdivision standards under Article
 15 VII, and the requirements of this section. The DRB may waive one or more application
 16 requirements, including the submission of a stormwater management and erosion control plan,
 17 and related standards under this section only if it finds that such requirements and standards
 18 are not applicable to a particular project or it is evident, based on submitted information and
 19 site inspection, that the proposed development involves minimal site disturbance and poses a
 20 negligible threat to water quality, public roads and facilities, and to adjoining properties.
 21

22 (C) **Application Requirements.** In addition to application requirements under Section 5.2
 23 applications for development on steep or very steep slopes shall include the following:
 24

- 25 (1) A copy of the USGS topographic map showing the location of the property in relation to
 26 general site topography and drainage.
 27
 28 (2) A slope map of the property generally indicating areas of steep (15%-25%) and very steep
 29 (>25%) slope, as determined from one or more of the following:
 30
 31 (a) USGS topographic maps,
 32 (b) Digital elevation data available from the Vermont Center for Geographic Information,
 33 (c) USDA Vermont Soil Survey map units, available from the Natural Resource
 34 Conservation Service.
 35
 36 (3) A site plan for the property prepared by a licensed professional engineer or surveyor
 37 showing:
 38
 39 (a) The location of all surface waters, wetlands, and required setback and buffer areas
 40 (see Section ____).
 41 (b) The general location and density of existing vegetation and a tabulation of the type,
 42 area and location of vegetation to be removed.
 43 (c) The location of rock outcrops and ledges larger than 200 square feet in area.
 44 (d) The location of all existing and proposed improvements, including building envelopes
 45 or footprints, driveways, roads and other impervious surfaces, and trail and utility
 46 corridors.

- 1 (4) A grading plan for the property prepared by a licensed professional engineer or surveyor
 2 showing:
 3
 - 4 (a) The limits of proposed site disturbance on steep and very steep slopes.
 - 5 (b) Existing elevation contours at 2-foot intervals (National Geodetic Vertical Datum)
 6 within and extending 100 feet beyond all areas of proposed site disturbance.
 - 7 (c) For linear development (e.g., driveway, road, trail) attached elevation cross-sections
 8 (profiles) and slope calculations for each segment identified on the grading plan.
 - 9 (d) Elevation contours for finished grades within all proposed areas of site disturbance.
 - 10 (e) The location of existing and proposed erosion control and stormwater management
 11 facilities or measures.
- 12
 - 13 (5) A stormwater management, erosion prevention and sediment control plan, prepared or
 14 certified by a professional engineer, that includes:
 15
 - 16 (a) A construction narrative and schedule.
 - 17 (b) Calculations of the volume and velocity of surface runoff from the lot pre- and post-
 18 development.
 - 19 (c) A description of soils within and extending 100 feet beyond all proposed areas of
 20 disturbance, including information regarding soil slope, erodability, construction
 21 stability, and depth to bedrock.
 - 22 (d) Temporary and permanent measures to control stormwater runoff and prevent soil
 23 erosion during all phases of development, and associated construction details.
 - 24 (e) Temporary and permanent slope stabilization measures, and associated construction
 25 details.
 - 26 (f) Specifications for site re-vegetation following final construction and grading.
 - 27
 - 28 (6) For development that involves the construction of structures on steep slopes, an
 29 architectural or engineering plan, prepared by a licensed professional, that includes
 30 structural elevations and sections, and identifies building construction methods and
 31 details.
 - 32
 - 33 (7) For development that directs or channels stormwater runoff off-site to adjoining surface
 34 waters, properties or public rights-of-way the following also shall be submitted as
 35 applicable:
 36
 - 37 (a) A state project review sheet identifying all required state and federal permits (e.g.,
 38 stormwater, wetlands, stream alteration).
 - 39 (b) Approval from the Bolton Select Board or Vermont Agency of Transportation for
 40 drainage into public road rights-of-way.
 - 41 (c) Drainage easements for drainage onto adjoining properties.
 - 42 (d) A hydrologic study prepared by a qualified professional, to be paid for by the applicant,
 43 if required by the DRB to determine the effects of proposed development on surface
 44 waters, wetlands, special flood hazard areas and downstream facilities in the vicinity of
 45 the project, and recommended mitigation measures.

1 (D) **Development Standards.**

- 2
- 3 (1) Site disturbance and development, not limited to grading, building construction and the
4 installation of driveways, roads, utilities or other infrastructure, is prohibited on very steep
5 slopes (>25%) except for development that is exempted under Subsection (B) above and
6 the following, which otherwise must meet all applicable requirements of this section:
7
- 8 (a) Hiking, rock climbing, snowmobile and mountain-biking trails that are open to the
9 public and regularly maintained by a public, nonprofit or commercial organization.
 - 10 (b) Ski lifts and trails associated with an existing or permitted alpine or Nordic ski facility,
11 including permitted year-round recreational uses of such facilities (see Section ____).
 - 12 (c) Development on a lot legally in existence as of January 26, 2005 for which the Board
13 determines that no portion of the lot has a slope of 25% or less and, as such, the
14 prohibition of development on very steep slopes would preclude any reasonable use of
15 the property.
 - 16 (d) A driveway or road required to serve proposed development where it is documented
17 that no other means of access, including aerial access, exists or can be provided, and
18 which extends no more than 100 feet into an area of very steep slope.
19
- 20 (2) Development, including building envelopes or footprints, driveways, parking areas, septic
21 systems, and road and utility corridors shall be sited to minimize site disturbance on steep
22 slopes (15% to 25%) and to avoid site disturbance on very steep slopes (>25%).
23
- 24 (3) Existing drainage patterns and vegetation shall be maintained to the maximum extent
25 physically feasible to avoid stream alterations and relocations, and increased stormwater
26 runoff due to vegetation removal, slope disturbance, recontouring and site compaction .
27 No new drainageways shall be created nor additional runoff directed to surface waters,
28 wetlands, public rights-of-way, or adjacent properties unless all necessary state and
29 municipal approvals and drainage easements are obtained.
30
- 31 (4) The area(s) of site disturbance shall be limited to that necessary to accommodate proposed
32 development, including access and supporting infrastructure, and shall be stabilized and re-
33 vegetated at the completion of construction and final grading.
34
- 35 (a) Areas of site disturbance shall exclude ridgelines and, to the extent physically feasible,
36 rock outcrops greater than 200 square feet in area.
 - 37 (b) Areas of site disturbance shall meet district setback requirements, and also be set back
38 from property lines as necessary to avoid slope alterations that result in slope
 - 39 (c) Areas of site disturbance shall be located outside of required setback areas, including
40 surface water and wetland setbacks (see Section 3.17). Setback distances shall be
41 increased as necessary to avoid slope instability or surface runoff that could damage
42 surface waters, wetlands or adjoining properties.
 - 43 (d) Areas of site disturbance and construction, as approved by the DRB, shall be clearly
44 marked (staked or fenced) on the ground during all phases of construction.
 - 45 (e) Site disturbance and construction shall be phased so that only those areas where
46 active construction is taking place are exposed.

- 1 (f) Topsoil removed from disturbed areas shall be stockpiled and stabilized for
- 2 replacement on the site following final construction and grading. Topsoil shall not be
- 3 stockpiled on slopes greater than 10%.
- 4 (g) Temporary measures shall be used to stabilize slopes and soils until final grades are
- 5 established, in conformance with a DRB-approved construction or phasing schedule.
- 6 (h) All disturbed areas shall be stabilized during winter months. Site stabilization
- 7 measures shall be installed by October 15th. No site disturbance or construction shall
- 8 occur between October 15th and April 15th unless specific measures for winter
- 9 construction, stormwater management and erosion control are approved.
- 10 (i) Finished grades shall not exceed 2[3?]:1 (two-foot horizontal to one-foot vertical) and
- 11 shall be rounded to eliminate sharp angles and blend into natural land contours,
- 12 except where retaining walls or other engineered slope-stabilization measures are
- 13 proposed.
- 14 (j) Permanent vegetation shall be re-established and maintained following final
- 15 construction and grading as necessary to stabilize disturbed and graded slopes, to
- 16 minimize stormwater runoff and erosion, and to screen development as viewed from
- 17 public vantage points to avoid undue adverse visual impacts.

18
 19 (5) Driveways, roads and utility corridors, to the maximum extent physically feasible, shall be
 20 shared and designed and constructed to:

- 21
- 22 (a) Follow natural elevation contours to minimize the amount of cut and fill and slope
- 23 stabilization required and the adverse visual impacts of road and utility cuts.
- 24 (b) Avoid rock outcrops and ledges larger than 200 square feet in area.
- 25 (c) Minimize the number and extent of stream crossings and buffer area disturbance
- 26 within steep slope areas.
- 27 (d) Avoid channeling or directing stormwater runoff to adjoining properties, public rights-
- 28 of-way, and surface waters and wetlands.
- 29 (e) Not exceed a finished grade of 15% over any 50-foot section, in accordance with
- 30 Sections 3.2 and 7.6.

31
 32 An existing farm or logging road with a gradient of 25% or less may be converted and
 33 upgraded for recreational use or to access development if it meets all applicable
 34 requirements of these regulations. However, if an alternative route exists that results in
 35 less slope or site disturbance, the DRB may require the installation of a new driveway or
 36 access road and the stabilization, re-vegetation and abandonment of the farm or logging
 37 road.

38
 39 (6) Structures shall be designed, to the maximum extent physically feasible, to conform to
 40 rather than alter existing slopes.

- 41
- 42 (a) Reduced building footprints, stilts, step-down and similar construction methods shall
- 43 be used to minimize the need for slope terracing and retaining walls.
- 44 (b) Excavation for foundations and footings shall be limited to the extent physically
- 45 feasible to minimize site disturbance and ensure compatibility with surrounding
- 46 terrain. Footings shall extend to stable rock or soil.

- 1 (c) Site excavation and grading for building pads is prohibited for detached accessory
- 2 structures other than private garages or approved landing pads.
- 3 (d) Compacted clean fill shall be used as necessary to support proposed structures.
- 4 (e) Structures shall be set back from the top and bottom of cut and fill slopes an adequate
- 5 distance (generally six feet plus one-half the height of the cut or fill) necessary to
- 6 ensure structural safety.
- 7 (f) Structures on steep slopes shall be screened and constructed of materials that
- 8 minimize their visibility from public vantage points.

9

10 (7) Stormwater runoff and erosion shall be managed on-site in conformance with

11 management plans approved by the DRB, through the use of best management practices

12 (BMPs) approved by state which are appropriate for the type of development and site-

13 specific slope, drainage and soil conditions. For the purpose of these regulations, the

14 following publications, as most recently revised, shall serve as official guides and

15 specifications for stormwater management and erosion control. Practices designed and

16 constructed in accordance with these technical documents shall be presumed to meet this

17 standard:

- 18
- 19 (a) Vermont Stormwater Management Manual, Volumes I and II.
- 20 (b) Vermont Standards & Specifications for Erosion Prevention and Sediment Control.
- 21 (c) Vermont Erosion Prevention and Sediment Control Field Guide.

22

23 (E) **Considerations.** Conditions of approval under these standards may include but are not

24 limited to:

- 25
- 26 (a) Limitations on the total portion of any site that may be cleared, regraded, filled,
- 27 drained, excavated or otherwise modified.
- 28 (b) Performance bonds or other sureties acceptable to the Bolton Select Board to ensure
- 29 that construction, stormwater management and erosion control systems, and slope
- 30 stabilization and revegetation are completed as approved.
- 31 (c) Deed restrictions on the future use and subdivision of land to preserve undeveloped
- 32 areas and limit vegetation removal.
- 33 (d) Dedication of easements to protect remaining undisturbed slopes.
- 34 (e) Maintenance agreements that ensure permanent slope stabilization and stormwater
- 35 management facilities are properly maintained.
- 36 (f) Modifications in required erosion prevention and stormwater management plans.
- 37 (g) Increased setbacks from slopes, property lines, surface waters and wetlands for site
- 38 disturbance and construction activities, as necessary to maintain slope stability.
- 39 (h) Modifications in project design to conform to the requirements of this section.
- 40 (i) The submission of monitoring and site inspections reports and professional
- 41 certifications during and after the completion of construction.
- 42 (j) Construction materials that minimize the visibility of development on steep slopes.
- 43 (k) Replanting and vegetation screening requirements.
- 44 (l) Documentation that all required state and federal permits have been obtained prior to
- 45 the start of site work [**the issuance of certificates of occupancy or compliance**].

46

1 (F) **Liability Waiver.** The applicant and subsequent property owners shall assume all liability in
2 the event that changes in topography and drainage result in damage to neighboring or
3 downstream properties. The Town of Bolton shall be held harmless from any claims for
4 damage for approved development on steep and very steep slopes under these regulations.
5
6

7 **Definitions (Under Article X):**
8

9 **Excavation:** Removal of earth, sand, gravel, rock or other similar material through uncovering,
10 digging, grading, quarrying, extraction or displacement.
11

12 **Fill:** Deposit or placement of earth, sand, gravel, rock or other similar material.
13

14 **Rock Outcrop:** Portion of bedrock that protrudes through the soil, including boulders, ledges and cliffs.
15

16 **Slope:** The topographic gradient of any area of land, whether or not located on a single parcel,
17 as determined by the change in vertical distance or elevation (rise) over a horizontal distance
18 (run) which, for the purposes of these regulations is expressed as a percentage (e.g., 20-ft
19 gain/100-ft distance = 0.20 or 20%). For construction and grading purposes slope also may be
20 expressed as the ratio of the horizontal to vertical distance (e.g., 2:1). For purposes of these
21 regulations, a "**steep slope**" is a natural (pre-development) slope of 15% to 25%. A "**very steep**
22 **slope**" is a natural (pre-development) slope of 25% or more (see Section 3.16).
23

24 **Site Disturbance:** Removal of vegetation, grading, excavation, fill, or any combination thereof,
25 and site conditions resulting from such actions.