

ARTICLE 16: OPEN SPACE AND NATURAL RESOURCE PROTECTIONS

16.01: STEEP SLOPES, HILLSIDES AND RIDGELINES

- A. Purpose and Intent. The purpose and intent of this section is to:
1. Establish standards for development within the Hillside Area that protect the natural character, ecological function, and visual quality of Knox County's hillsides and ridgelines.
 2. Minimize disturbance of natural land within the protection area in order to preserve its capacity to accommodate storm events, protect valuable vegetation that contributes to the scenic character of the county, and prevent erosion and sedimentation.
 3. Promote low-impact development on sensitive lands within the protection area through alternative street design standards, building placement, and site design that respect natural topography.
- B. Applicability.
1. Hillside Area include those areas within Knox County characterized by slopes of 25% or greater, and the flatter areas on the tops of ridges, including their summits, as generally depicted on the Knoxville-Knox County Hillside and Ridgeline Protection Map. The precise boundaries of the Hillside Area on a specific parcel shall be determined by a site-specific slope analysis provided by Knoxville-Knox County Planning.
 2. These standards apply to all development, including new construction, additions, grading, and subdivision, on any parcel located wholly or partially within the Hillside Area. Where a parcel contains multiple slope categories, the standards shall be applied to each slope category independently, and the total development capacity of the parcel shall be the aggregate of the capacity calculated for each category. For purposes of determining the applicable parcel-size standard, where a parcel was created through subdivision, resubdivision, or lot split within the preceding five years, the acreage of the parent tract before division shall be used. A parcel shall not be subdivided or reconfigured for the purpose of qualifying for a less restrictive land-disturbance standard.
 - a. Parcels 5 acres or greater: Shall comply with the full land disturbance standards and ridgeline protection standards of this section.
 - b. Parcels between 1 and 5 acres: Shall comply with the full land disturbance standards; ridgeline protection standards apply only where the parcel contains a mapped ridgetop.
 - c. Parcels under 1 acre and existing lots of record: Shall comply with grading/earthwork and building placement standards but are exempt from the land disturbance budget calculation.
- C. Land Disturbance Standards. All new development, subdivisions, and requests for rezoning within the Hillside Area shall be guided by the maximum land disturbance factors in Table 16.01. These factors establish a limit for land disturbance that shall be concentrated on the least sensitive portions of the site. Land disturbance includes all clearing, grading, and construction of impervious surfaces. Natural trail creation does not count toward is not considered land disturbance. The overall land disturbance budget shall be allocated across the site in a manner that concentrates disturbance on the least sensitive areas and preserves the most sensitive areas as open space.

Table 16.01: Land Disturbance Allocation by Slope

Percent Slope	Maximum Permissible Land Disturbance
0 – 25%	100% of area in this slope category
25 – 33%	75% of area in this slope category
33 – 50%	25% of area in this slope category
50% or more	No disturbance

D. Lots and Structures.

1. Lot and Building Dimensions. The minimum lot size and lot width and maximum building height shall meet the requirements of the zone in which a property is located.
2. Structures shall be sited on the most level portions of the site to minimize grading.
3. On sloping sites, building designs that step down the slope or are otherwise articulated to follow the topography are required, rather than creating large, flat building pads.
 - a. A building step-back shall be required on all downhill building walls greater than 20 feet in height, as measured above natural grade. Step-backs shall be a minimum of six feet. Decks projecting out from the building wall and hillside shall not be considered a building step-back. No vertical walls on the downhill elevations of new buildings shall exceed a maximum height of 20 feet above natural grade.
 - b. Retaining walls shall be terraced as required by Section 16.01.E.3.
 - c. Each terrace section shall not exceed ten feet in height, with a minimum horizontal offset of six feet between sections.

E. Ridgeline Protection Standards. The following standards shall apply to all development on or within 100 feet of an established ridgetop:

1. Vegetation on the ridgetop shall be preserved to the maximum extent feasible as determined by the Planning Commission based on the submitted slope analysis and site plan, Grading and Earthwork Standards.
2. Grading shall be designed to follow the natural contours of the land to the maximum extent feasible, minimizing the total volume of cut and fill.
3. Cut and fill slopes shall not exceed a vertical height of ten feet without terracing, as measured according to the methodology established in Article 11 of this ordinance. Terraces shall be a minimum of six feet wide and shall be stabilized with native vegetation consistent with Tennessee Department of Environment and Conservation (TDEC) standards for slope stabilization.
4. All disturbed slopes shall be stabilized and permanently revegetated immediately upon completion of grading. Grass matting alone is not an acceptable permanent stabilization method on slopes greater than 25%; reforestation with native trees is required pursuant to the replanting standards established in Article 14 of this ordinance.
5. Fill material shall not be placed within a stream buffer or floodway.

16.02: OPEN SPACE

- A. Purpose and Intent.** Open space is an essential component of a well-planned community. The preservation of open space serves to protect the natural resources of the landscape, conserve agricultural and forested land, provide recreational opportunities, protect water quality, and maintain

the rural character that defines much of the county. This section establishes standards for the designation, protection, and management of open space.

- B. Classification of Open Space. Open space resources shall be classified as either Primary, Secondary, Useable or Amenity Open Space for the purpose of determining how they are incorporated into the open space design, and minimum open space requirements. See Table 16.02 for further detail.

Table 16.02: Open Space Classification

Areas	Counts Toward Overall Minimum	May Overlap With Other Classifications	Requirement	Minimum Size / Design Standards
1. Primary Open Space: Those resources that are most sensitive to impacts from development.				
Primary Open Space includes: - The 100-year floodplain and the regulatory floodway, as defined in Article 19. - Stream buffers as required by Article 19. - Slopes exceeding 25% over a contiguous area of at least 20,000 square feet. - Wetlands as regulated by the Tennessee Department of Environment and Conservation. - Known habitats for state or federally listed endangered or threatened species. - Archaeological sites, cemeteries, and burial grounds. - Identified karst features, including sinkholes, caves, springs, fissures, and other mapped or field-verified features.	Yes. Counts toward overall minimum open space %. Does not count toward Useable or Amenity minimums unless it independently meets those standards.	May overlap with Secondary where features coincide. Does not count as Useable or Amenity unless area independently qualifies.	Primary Open Space shall be included within the required open space in all cases, unless the applicant is permitted a variance as described in Article 21.	No minimum size. Shall remain natural/ undisturbed except for limited natural trails. No grading, fill, or impervious surfaces, except per Section 16.01. Wetlands designated for preservation shall be connected, where practicable, to other wetlands, streams, riparian buffers, or natural open space through contiguous protected areas that support habitat connectivity and ecological function.

2. Secondary Open Space: Those resources that are important to the character and ecology of the site.

Areas	Counts Toward Overall Minimum	May Overlap With Other Classifications	Requirement	Minimum Size / Design Standards
Secondary Open Space includes: - The Hillside Area as defined in Section 16.01. - Existing forests of at least one acre in size. - Existing trails and connections to neighboring open spaces or greenways. - TVA transmission line rights-of-way and flowage easement areas.	Yes. Counts toward overall minimum open space %. Does NOT count toward Useable or Amenity minimums unless it independently meets those standards.	May overlap with Primary where features coincide. May count as Useable if accessible, <33% slope, and suitable for passive recreation (e.g., forest with trails).	Secondary Open Space should be included within the required open space to the maximum extent feasible	No minimum size for individual features. Preserve in natural or semi-natural state. Limited passive improvements such as natural trails and directional signage permitted. Farming and gardening activities are permitted.

3. Useable Open Space: Land that remains in a natural, semi-natural, agricultural or recreational state.

Areas	Counts Toward Overall Minimum	May Overlap With Other Classifications	Requirement	Minimum Size / Design Standards
Useable open space must be: • Unrestricted to residents or users of the development; • Reasonably level (slopes less than 25%); and, • Suitable for passive or active recreation Examples of useable open space include but are not limited to: - pedestrian paths or greenways - play equipment - park and recreation facilities - ball fields - picnic areas - gathering spaces - similar features The following shall not be counted toward the useable open space requirement: • Required front, side, and rear yards associated with individual residential lots. • Private lots. • Public and private streets, access easements, parking areas, and driveways. • Stormwater detention basins that are not designed and maintained as naturalized, vegetated features. • Areas with slopes greater than fifty percent (50%) that are not accessible and do not provide usable recreational or ecological value. • FEMA regulatory floodway	Yes. Counts toward both the Useable minimum and the overall minimum open space %.	May overlap with Primary or Secondary if area meets Useable standards. May also count as Amenity if improved with 2+ qualifying amenity elements.	Required useable open space requirements are found in Table 16.03 below. Where proposed development is located within ¼ mile of an existing County-owned park or recreation facility, the useable open space requirement may be eliminated.	Minimum contiguous area: 5,000 sf. Minimum dimension: 50 ft., unless it is a linear greenway or trail corridor, in which case the minimum width shall be 20 feet Must be accessible via pedestrian connection.

4. Amenity Open Space: Improved open space designed and maintained for use or activity.

Areas	Counts Toward Overall Minimum	May Overlap With Other Classifications	Requirement	Minimum Size / Design Standards
Amenity open space must be: - Unrestricted to residents, tenants, employees, customers, or users of the development. - Designed and improved for active or passive recreational use. - Reasonably level (slopes less than 7%) - Maintained in a safe and usable condition. Examples of amenity open space include but are not limited to: - outdoor seating areas - parklets - pedestrian path or greenway - play equipment - park and recreation facilities - rooftop garden or gathering space - shade structures - stage or amphitheater - plazas - public art - gathering spaces - similar features The following shall not be counted toward the amenity open space requirement: - Required front, side, and rear yards associated with individual residential lots. - Private lots. - Public and private streets, access easements, parking areas, and driveways. - Stormwater detention basins that are not designed and maintained as naturalized, vegetated features. - Areas with slopes greater than forty percent (40%) that are not accessible and do not provide usable recreational or ecological value. - FEMA regulatory floodway	Yes. Counts toward the Amenity minimum, the Useable minimum, and the overall minimum open space %.	Always counts as Useable. May overlap with Secondary if located within a qualifying feature. Does not overlap with Primary.	Required amenity open space requirements are found in Table 16.03 below.	Min. contiguous area: 2,500 sf. for residential; no minimum contiguity for commercial or mixed-use development. Must be accessible via pedestrian connection. Amenity Open Space shall be required for all developments of 50 or more dwelling units, or 50,000 square feet or more of non-residential floor area, in the TND, RHB, NMU, MUCC, and TC districts. Smaller developments in these districts may satisfy the amenity requirement through contribution to a public amenity fund or off-site improvement.

- C. Permitted Uses of Open Space. The following uses are permitted within any of the required open space classifications:
1. Conservation of natural, archaeological, or historical resources.
 2. Passive recreation, including walking, hiking, bicycling, and equestrian trails.
 3. Active recreation areas, such as playfields and courts, provided they are limited to no more than 10% of the total open space and are not located within Primary Areas.
 4. Agriculture, horticulture, or silviculture, provided that all applicable best management practices are utilized, and such activities are not conducted within Primary Conservation Areas.
 5. Landscaped, low-impact stormwater management facilities, including bioretention areas and constructed wetlands, provided they are designed as naturalized features and are located outside of Primary Conservation Areas.
 6. Community gardens, provided they are accessible to all residents or users of the development.
- D. Applicability and Open Space Requirements.
1. Open space shall be required for all residential subdivisions 20 acres , or more , and all mixed-use development that includes a residential component in the Planned Growth Area, as set forth in this section.
 2. The required open space shall be set aside from the developable area of the site and shall be preserved in perpetuity.
 3. For all major subdivisions and all multi-family, commercial, and industrial development, a minimum percentage of the gross tract area shall be designated and permanently protected as open space, as specified in Table 16.03.

Table 16.03: Minimum Open Space for Conventional Development

District	Minimum Useable Open Space (% of Gross Tract Area)*	Minimum Amenity Open Space (% of Gross Tract Area)	Minimum Open Space (% of Gross Tract Area)^**
NR-1, NR-2	5	2.5	10
MR-1, MR-2	2.5	2.5	10
TND	2.5	2.5	10
RHB	5	2.5	10
NMU	5	5	10
MUCC	5	5	10
HC	2.5	2.5	5
BC	2.5	2.5	5
EC	0	0	0
TC	0	0	5
LI	0	0	0
HI	0	0	0
In a commercial or mixed-use zoning district, the Useable open space requirement applies only to residential uses. *Exempt from minimum open space requirements when located within ¼ mile of an existing public park or greenway. ^If the required percentage is less than the min. contiguous area as listed in Table 16.02, then all required Useable and/or Amenity Open Space shall be contiguous.			

4. Conservation Development: For any subdivision developed pursuant to Section 16.03, a higher open space requirement shall apply, as specified in Table 16.06. This incentive-based approach

allows for the preservation of open space in exchange for flexibility in dimensional standards of the base district.

5. Yield Plan Bonus.

- a. To incentivize the voluntary preservation of open space and natural resources beyond the minimum requirements, a bonus may be applied to the base yield established through a yield plan prepared in accordance with Article 21, for those properties located within the Growth Policy Plan area. The base lot yield is determined according to the number of developable acres available, once the minimum open space requirement has been met and acreage allotted for infrastructure improvements has been factored, and divided by the minimum lot size of the district.
- b. For development located outside the Growth Policy Plan area, conservation development may be used voluntarily. The use of a conservation development design shall not increase the base lot yield otherwise demonstrated by an approved yield plan.

Table 16.04: Yield Plan Bonus Allowance

Open Space Provided (% of Gross Tract Area)	Yield Bonus Units (Conventional Development)	Yield Bonus Units (Conservation Development)
10% above minimum	10% above yield plan	10% above yield plan
20% above minimum	20% above yield plan	15% above yield plan
30% above minimum	25% above yield plan	20% above yield plan
40% or more above minimum	35% above yield plan	25% above yield plan

- c. The yield bonus shall not result in a total number of dwelling units exceeding the maximum units otherwise permitted by the next higher-intensity zoning district. Bonus units shall be clustered in accordance with an approved Alternative Development Plan (see Article 21) and shall not encroach upon Primary or Secondary Open Space areas.

E. Open Space Design Standards. Open space shall be designed to meet the following minimum standards:

1. Connectivity: Whenever feasible, open space shall be designed to connect to existing or planned open space, greenways, or trails on adjacent properties or within the public right-of-way.
2. Accessibility: Open space shall be accessible to all residents or users of the development.
3. Slopes: At least 50% of the minimum required open space in residential and mixed-use districts shall have slopes of 25% or less and shall be suitable for Useable open space.
4. Stormwater Integration: Where open space is used for stormwater management, it shall be designed as a naturalized, vegetated feature (e.g., bioretention area, constructed wetland, wet meadow) that provides both stormwater and ecological benefits. See Article 19 for more details and design requirements.

F. Permanent Protection.

1. The required open space shall be protected in perpetuity by a binding legal instrument, recorded prior to final plat approval. The instrument shall be one of the following:
 - a. A permanent conservation easement.
 - b. A permanent restrictive covenant for conservation purposes in favor of a governmental entity.
 - c. Dedication to Knox County as a public park or natural area, subject to acceptance by the Knox County Commission.
 - d. A deed restriction or covenant running with the land that permanently restricts the open space from further development, in a form approved by the Knox County Law Director.

2. The instrument shall clearly identify all restrictions on the use of the open space and shall include provisions for the long-term management and maintenance of the open space, including identification of the party responsible for maintenance.
- G. Ownership and Maintenance. Required open space shall be permanently preserved as open space and shall not be further subdivided, developed, or converted to another use, except for improvements expressly permitted within the open space by this Ordinance. Before final plat or development plan approval, the open space shall be protected by a recorded conservation easement, deed restriction, plat restriction, or other legal instrument approved by Knox County. The restriction shall run with the land and shall be binding upon all current and future owners. The required open space shall be owned and maintained by one of the following:
1. A homeowners' association (HOA) or property owners' association (POA) established by the developer, with mandatory membership and assessment authority sufficient to maintain the open space.
 2. A qualified land trust or other conservation organization.
 3. Knox County or another governmental entity, subject to acceptance.
 4. For commercial, industrial and mixed-use development, the property owner of record, with maintenance obligations set forth in the recorded deed restriction.
 5. In all cases, the recorded instrument shall identify the party responsible for maintenance, require the open space to remain permanently protected, and prohibit its use for future development or satisfaction of open space requirements for another development. If the responsible party fails to maintain the open space, Knox County may, following notice and an opportunity to cure, perform the necessary maintenance and assess the actual cost against the property.

16.03: CONSERVATION DEVELOPMENT

- A. Purpose and Intent. The conservation development option is intended to provide an alternative to conventional subdivision development that encourages the preservation of open space, natural resources, agricultural land, and rural character. Conservation development allows for more compact development in exchange for the permanent protection of significant site features, and is intended to reduce stormwater runoff and flooding, preserve natural resources, protect water quality, maintain rural character, and provide open space and recreational amenities for residents.
- B. Applicability.
1. Districts. Conservation development is permitted by administrative review, pursuant to the requirements set forth in Article 21, in the following zoning districts:

Zoning District
RP - Rural Preservation
RR - Rural Residential
NR-1, NR-2 - Neighborhood Residential
MR-1, MR-2 - Mixed Residential
TND - Traditional Neighborhood
EC - Employment Center

2. Minimum Site Area.
 - a. A Conservation Development requires a minimum of the gross tract area to be preserved in permanent open space, with an emphasis on protecting identified natural, agricultural, scenic, or cultural resources, as indicated in Table 16.06.

- b. The minimum lot size required for a Conservation Development is established as follows:

Table 16.05: Minimum Site Area Required of a Conservation Development

District	Conservation Development Minimum Site Area
RP	20 acres
RR	10 acres
NR-1, NR-2, MR-1, MR-2, TND, EC	10 acres

3. Qualifying Conditions. The Conservation Development option may be utilized on any qualifying site. In the RP and RR districts, the option may also be elected on any parcel meeting the minimum site area even in the absence of the conditions below. In all other districts, at least one of the following conditions must be present:
 - a. Slopes of 33% or greater are present.
 - b. Any portion of the property lies within the 100-year floodplain.
 - c. The property is subject to a Tennessee Valley Authority (TVA) flowage and electrical transmission easements.
 - d. The property is immediately adjacent to and abuts an active working agricultural or extractive industry.
 - e. The property contains riparian buffers, karst featured, identified endangered species habitat, historic or cultural sites.
 - f. Streams, rivers, wetlands, or forest habitats or wildlife corridors are present on the site.
- C. Conservation Development Standards.
 1. Open Space Requirement. The minimum open space set aside required of a Conservation Development in an established district shall be as follows:

Table 16.06: Minimum Open Space Required of Conservation Development

District	Minimum Open Space (% of Gross Tract Area)
RP	60%
RR	50%
NR-1, NR-2	25%
MR-1, MR-2, TND, EC	25%

2. Open Space Composition. The required open space shall:
 - a. Include all Primary Open Space areas on the site.
 - b. Include Secondary Open Space areas to the maximum extent feasible.
 - c. Be contiguous to the maximum extent feasible, rather than fragmented into isolated pockets.
 - d. Be directly accessible to the largest practicable number of lots within the subdivision.
 - e. Connect to any existing or potential future open space, greenways, or trail systems on adjoining parcels.
 - f. Include a pedestrian trail system providing access through the open space where topography permits.
3. Conservation Design Process. The Conservation Development shall be designed using the following four-step process:
 - a. Step 1 - Identify Conservation Areas: Delineate all Primary and Secondary Open Space areas on the site, as defined in Section 16.02.

- b. Step 2 - Locate House Sites: Identify the location of individual house sites in areas that are not Primary Open Space, with preference given to areas with the least environmental sensitivity.
 - c. Step 3 - Align Streets and Trails: Design streets and trails to provide access to house sites while minimizing land disturbance and preserving open space connectivity.
 - d. Step 4 - Draw Lot Lines: Draw lot lines around the house sites, with remaining land designated as permanent open space.
 - 4. Yield Plan. Prior to designing a Conservation Development, the applicant shall prepare a conventional subdivision yield plan demonstrating the maximum number of lots that could be achieved under a conventional layout complying with all applicable standards of the underlying zoning district. This yield plan establishes the base number of dwelling units for the tract.
 - 5. Lot Size and Setback Modifications. To allow for the clustering of homes, the minimum lot size and setback requirements of the underlying zoning district may be modified as follows for a Conservation Development:
 - a. Minimum Lot Size: No minimum lot size provided the overall number of dwelling units does not exceed the yield plan.
 - b. Setbacks: Setbacks established in the underlying zoning district may be reduced by half the requirement.
 - c. All lots shall have adequate area for a septic system and reserve area (if public).
 - d. No lot size or setback modifications shall exempt an applicant from meeting all other required standards including parking.
 - 6. Perimeter Buffer and Visual Mitigation.
 - a. Where a Conservation Development abuts land zoned RP or RR that is not part of the development, a perimeter buffer of not less than 50 feet in width shall be maintained along the boundary abutting the rural-zoned property.
 - b. The perimeter buffer shall remain in a natural or landscaped state. Existing vegetation within the buffer shall be preserved to the maximum extent practicable, in accordance with the requirements of Article 14 of this ordinance.
 - c. No structures, parking areas, or storage shall be located within the perimeter buffer. Pedestrian trails and stormwater facilities designed as naturalized features may be permitted within the buffer.
 - d. Where existing vegetation within the buffer is insufficient to provide visual screening, supplemental landscaping shall be installed in accordance with the standards of Article 14.
- D. Review and Approval.
- 1. A Conservation Development shall be reviewed and approved as a permitted use in all eligible districts, following the procedures of Article 21.

16.04 AGRICULTURAL FAMILY SUBDIVISION EXEMPTION.

- A. Purpose. This subsection provides a limited exemption from the open space and conservation design requirements of this section for bona fide agricultural operations where a landowner seeks to subdivide a parcel to allow a family member to establish a residence on the property. The intent is to support the continuation of agricultural operations and multi-generational farming families while preventing the misuse of this provision for speculative development.
- B. Eligibility. To qualify for the Agricultural Family Subdivision Exemption, all of the following criteria must be met:

1. The parent parcel is located in the AR and RP zoning districts.
 2. The parent parcel is a minimum of 10 acres in size.
 3. The parent parcel is currently used for bona fide agricultural purposes, as evidenced by enrollment in the Tennessee Agricultural, Forest, and Open Space Land Act (Greenbelt Program), an active farm plan filed with the USDA Farm Service Agency, or documentation of active agricultural production for at least three of the preceding five years.
 4. The lot to be subdivided is intended for the construction of a dwelling by a family member of the property owner. For purposes of this section, 'family member' means a spouse, child, stepchild, grandchild, parent, grandparent, or sibling of the property owner.
- E. Standards. Lots created under this exemption shall comply with the following:
1. Maximum of two lots may be subdivided from the parent parcel under this exemption.
 2. Each subdivided lot shall be a minimum of one acre and a maximum of three acres in size.
 3. The subdivided lot shall be located to minimize the impact on productive agricultural land, avoiding prime farmland soils to the extent practicable.
 4. The subdivided lot shall have direct access to a public road or a recorded access easement.
 5. The remainder of the parent parcel shall continue to meet the minimum lot size of the underlying zoning district.
 6. All applicable setback, access, and infrastructure requirements of the underlying zoning district shall apply to the subdivided lot.
- F. Deed Restriction. A deed restriction shall be recorded with each lot created under this exemption stating that:
1. The lot was created under the Agricultural Family Subdivision Exemption.
 2. The lot may not be further subdivided.
 3. If the lot is sold or transferred to a non-family member within ten years of its creation, the lot shall be subject to all open space and development standards that would have otherwise applied at the time of subdivision.
- G. Review and Approval. Applications under this exemption shall be reviewed administratively by the Planning Director or their designee. The applicant shall submit:
1. A completed application form.
 2. A survey or sketch plan showing the proposed lot, the remainder parcel, and the location of existing agricultural operations.
 3. Documentation of agricultural use as described in subsection (B) above.
 4. A signed affidavit attesting to the family relationship between the property owner and the intended lot recipient.
- H. Limitations. This exemption shall not be used to circumvent the intent of this article. If the Planning Director determines that a pattern of successive exemptions on the same or related parcels constitutes de facto subdivision development, the application shall be denied and the applicant directed to the conventional subdivision, Conservation Development, or Development Alternative process established in Article 21.