Yadkin Project Shoreline Stewardship Policy
July 1, 1999 (Revision Date: July 1, 2002)

I. General

The Yadkin Project (Project) includes four reservoirs: High Rock, Tuckertown, Narrows (Badin Lake), and Falls. The Project is licensed by the Federal Energy Regulatory Commission (FERC) as project number 2197. Cube Yadkin Generation LLC (Cube) operates and manages the Project reservoirs in accordance with the terms of the Yadkin Project FERC license and the applicable rules and regulations of FERC. This responsibility includes providing adequate public access and public recreation facilities, and protecting important natural, environmental, cultural, and scenic resources. Cube takes its responsibility very seriously and is committed to the protection and enhancement of these resources within the FERC-licensed Project boundary (Project Boundary) and on lands adjacent to the Project reservoirs.

Generally, the Project Boundary follows the normal full-pool elevation of the four Project reservoirs. Any land or waters lying within the Project Boundary are regulated by FERC through the terms of the Project license and are covered under this Policy. Property managed by Cube includes the land below waters of the reservoirs and the generating facilities.

In addition, there are shoreline areas along the Project reservoirs owned and managed by Cube. Often ownership of these shoreline parcels is to a specific elevation contour and, therefore, the width of these parcels can vary considerably. Collectively, these strips of shoreline property, up to 100 feet from the Project Boundary, are considered "Cube-Managed Buffer."

In other areas, Cube owns shoreline property that extends back from the water a considerable distance. In these areas, the first 100 feet of shoreline property from the normal full-pool elevation of the reservoirs is also considered "Cube-Managed Buffer." All other Cube lands more than 100 feet from the Project Boundary are referred to as "Cube-Managed Lands." Private access across or use of Cube-Managed Lands is generally not granted.

This Shoreline Stewardship Policy summarizes Cube's policies, procedures, and requirements regarding use of the Project lands and waters and the Cube-Managed Buffer by owners of property adjoining the Project Boundary or the Cube-Managed Buffer (adjoining property owners) and others. Some of these have been in place for a number of years and others are new and are effective for new development platted and recorded on or after July 1, 1999. This Policy also outlines a number of voluntary measures adjoining property owners can undertake to assist in caring for the reservoirs. As shoreline property owners, Cube is subject to this Policy.

Cube allows public access to Project lands and waters, so far as consistent with the proper operation of the Project, and also to portions of the Cube-Managed Buffer (such as gamelands) for purposes of navigation and recreation, including fishing and hunting. All other uses of the Project lands and waters, or the Cube-Managed Buffer, including the development of private access, subdivision access, multi-use recreation facilities (marinas, boat docks, fishing piers, boat launch ramps, etc.), and industrial uses/facilities, require Cube's written permission. This Policy

identifies the procedures that must be followed by private individuals or developers seeking Cube's permission to use or occupy Project lands and waters or the Cube-Managed Buffer.

Any unauthorized use of, or change in the features or vegetation on, Project lands and waters or the Cube-Managed Buffer is prohibited and considered an encroachment. Such unauthorized activities include, but are not limited to, the following:

- construction, installation, or placement of structures, including retaining walls
- construction of roads, sidewalks, or pathways
- clearing or disturbance of land
- logging or removal of trees and vegetation
- installation of pipes and/or pumps
- dumping

Although all landowners are responsible for knowing and respecting the boundaries of their own property, Cube has a practice of marking the property boundaries of the Cube-Managed Buffer and other Cube-Managed Lands. Cube regularly patrols the property boundaries to ensure that they are marked. Cube periodically surveys its property to confirm or redefine property boundaries, at which time new boundary markers may be installed. Cube also encourages adjoining property owners to undertake a survey of their property before embarking on any construction, road building, or land clearing activities on their property. When a survey is done, Cube requests that the adjoining property owner notify Cube of the survey, so that Cube may conduct a follow-up survey to verify and mark the common boundary. Anyone with questions about property boundaries or surveying is encouraged to contact Cube at 1-888-886-1063 or 704-422-5678.

Under the Yadkin Project FERC license, Cube has the authority to grant permission for certain types of use and occupancy of Project lands and waters and to convey certain interests in Project lands and waters. However, this can be done only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the Project. For those purposes, Cube has the continuing responsibility to supervise and control the uses and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with, the covenants of the instrument of conveyance for any interests that it has conveyed under the Yadkin Project FERC license. If a permitted use or occupancy violates any condition of the Yadkin Project FERC license or any other condition imposed by Cube for the protection and enhancement of the Project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of the Yadkin Project FERC license is violated, Cube will take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, (i) canceling permission to use and occupy Project lands or waters, (ii) requiring the removal, at the permittee's sole expense, of any non-complying structures and facilities, and (iii) restoring the reservoir or the shoreline to its original condition. Cube also has the right to take similar actions against permittees for violations regarding the Cube-Managed Buffer and other Cube-Managed Lands. Enforcement is discussed in more detail in Section XIV of this Policy.

Under its permitting programs, Cube conditionally permits adjoining property owners with eligible lots to access and use Project lands and waters and/or the adjacent Cube-Managed Buffer. Private use of Project lands and waters, or private use of or access across the Cube-Managed Buffer, by adjoining property owners is a privilege granted by Cube. In exchange for this privilege, adjoining property owners must comply with all permits, this Policy, the Yadkin Project Specifications for Private Recreation Facilities at High Rock and Narrows Reservoirs (Specifications for Private Recreation Facilities), the Yadkin Project Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures (Multi-use Procedures) and Cube's other applicable procedures and requirements. Failure to do so is subject to enforcement as discussed in more detail in Section XIV below.

Cube has endeavored to make this Policy clear and useable for adjoining property owners. However, from time to time there may be questions regarding interpretation of this Policy or matters not specifically addressed by this Policy. These will be resolved by Cube giving due consideration to the underlying goals reflected in this Policy as well as the Yadkin Project Shoreline Management Plan (SMP) filed with FERC on July 1, 1999.

II. General Stewardship Provisions

A. Cube's highest priority under this Policy is to preserve the natural character of the shoreline. In certain circumstances described below, Cube will permit modifications to the shoreline and the Cube-Managed Buffer. Even where permitted by Cube, Cube expects alterations to the shoreline and the Cube-Managed Buffer to be minimized, and if such alteration will result in adverse impacts to reservoir or shoreline resources or Project operations, these impacts must be adequately mitigated. Cube encourages adjoining property owners to prepare plans for proposed development of houses, piers, yards, pathways, and other facilities that utilize natural materials and preserve the natural shoreline setting. Those who do so will minimize disturbance along the shoreline and will be rewarded by the benefits and beauty of a more natural environment.

B. Cube considers installation of any permitted facilities or structures in the reservoir, along the shoreline or on the Cube-Managed Buffer, to be temporary. Accordingly, Cube requires that all facilities, including piers, pathways, stairs, ramps, and retaining walls, be constructed of such materials and in such a manner that allow easy removal and restoration of the natural shoreline. Generally, wood and uncemented rock, stone, and paving block are the preferred materials. Concrete and masonry are not allowed.

C. Cube prohibits the operation of any equipment (vehicles, backhoes, bulldozers, skidders, tractors, all terrain vehicles, etc.) in the reservoirs, along the shoreline, or on the Cube-Managed Buffer, except by written permit.

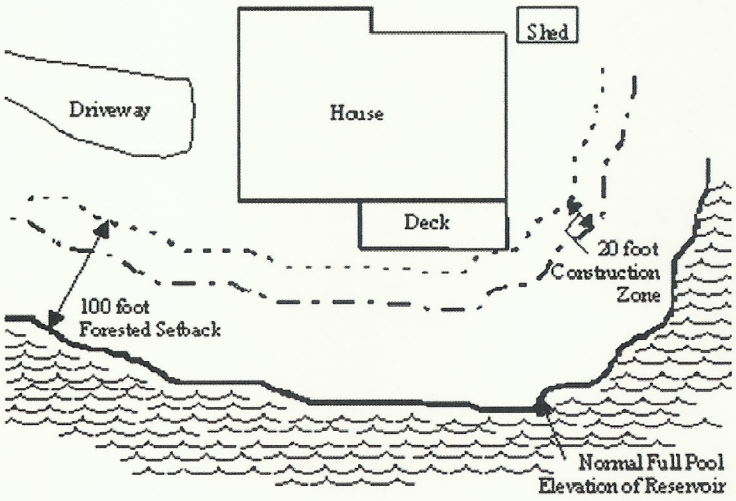
III. 100-foot Forested Setback Requirement

A. Specifications

For all lots in new subdivisions platted and recorded on or after July 1, 1999, as a condition of eligibility for private individual piers, shared piers, or use of, or private access to the Project lands and waters across, the Cube-Managed Buffer, Cube requires satisfaction of the following minimum specifications for a 100-foot forested setback:

1. All structures (including but not limited to buildings, houses, driveways, roof overhangs, decks, porches, patios, cantilevered decks, stairs, posts, columns, fences, retaining walls, landscaping walls, and gazebos) must be set back at least 100 feet from the reservoir shoreline. The setback will be maintained as a forested area. The 100-foot forested setback will be measured along the ground surface from the normal full-pool elevation of the reservoir to the nearest structure(s) (see Figure 1).

Figure 1 - 100-foot Forested Setback



100-foot Forested Setback —All structures (including but not limited to buildings, houses, driveways, roof overhangs, decks, porches, patios, cantilevered decks, stairs, posts, columns, fences, retaining walls, landscaping walls, and gazebos) must be set back at least 100 feet from the reservoir shoreline. A septic field or well, however, will be allowed in the 100-foot forested setback to the extent that installation does not require removal of any vegetation other than as permitted in Section III.A.5, below. In addition, the 100-foot forested setback requirement does not apply to a pathway to a pier, an irrigation system, etc., that has been permitted by Cube in accordance with this Policy. The 100-foot forested setback will be measured along the ground surface from the normal full-pool elevation of the reservoir to the nearest structure(s).

20-foot Construction Zone — A 20-foot-wide construction zone will be permitted to intrude into the 100-foot forested setback to accommodate construction. Vegetation may be removed in the construction zone, but that portion of the construction zone intruding into the setback must be revegetated upon completion of the construction.

Vegetation Removal — Vegetation removal on the adjoining property owner's property is allowed within the 100-foot forested setback in accordance with Section III.A.5. No vegetation removal is allowed on the Cube-Managed Buffer without a written permit from Cube.

2. A septic field or well will be allowed in the 100-foot forested setback to the extent that installation does not require removal of any vegetation other than as permitted in Section III.A.5, below. In addition, the 100-foot forested setback requirement does not apply to a pathway to a pier, an irrigation system, etc., that has been constructed pursuant to a written permit issued by Cube in accordance with this Policy.

3. A 20-foot-wide construction zone will be permitted to intrude into the 100-foot forested setback to accommodate construction. Vegetation may be removed in the construction zone, but that portion of the construction zone intruding into the setback must be revegetated upon completion of the construction.

4. Variances will be granted only when a lot is unbuildable. Unbuildable means the inability to build the minimum size house required by the subdivision's restrictive covenants, or an 1,800 square foot home, if no minimum house size is specified, behind the 100-foot forested setback.

   In instances where compliance with the 100-foot forested setback requirement would render a lot unbuildable, Cube may, but is not required to, approve variances granting a lesser setback on a lot-by-lot basis that would provide the maximum possible setback, which in no case will be less than 50 feet. For lots where Cube approves a setback of less than 100 feet, Cube will also designate an appropriate construction zone for that lot.

5. Vegetation in the 100-foot forested setback must be maintained as it existed prior to development. To provide opportunity for improved water views, adjoining property owners may remove some vegetation on their property in accordance with the following criteria:

   - Fifty percent (50%) of vegetation less than 5 feet in height may be removed; however:
     - No tree greater than 2 inches in diameter (measured 1 foot above the ground level) may be removed.
     - Within 30 feet of tributaries, ditches, swales, or drainageways that drain into the reservoir, no living vegetation, or dead vegetation root structure may be removed.
   - Dead limbs of any height may be removed on trees. Living limbs may be removed up to a height of 8 feet above the ground.
   - Fallen trees (blow-down), fallen limbs, and fallen branches may be removed, but all leaf litter (leaves, pine needles, etc.) must remain.
   - No lap trees, trees, or vegetation of any type overhanging the reservoirs or within the reservoirs may be removed without specific permission from Cube.
   - Any tree that poses an imminent threat to life or property may be removed.

6. In a permit to construct a private individual or shared pier (see the Yadkin Project Specifications for Private Recreation Facilities), Cube may allow movement or removal of identified lap trees where necessary for construction or installation of the facilities. In cases where movement or removal is necessary, Cube will require movement or removal in accordance with the Procedures For Implementation Of Those Portions Of The Shoreline

Management Plan Relating To The Removal Or Relocation Of Lap Trees, approved by FERC on May 9, 2001.

7. For any lot in a new subdivision subject to the 100-foot forested setback requirement set forth above, the primary sanction for failure to comply with this requirement is a loss of eligibility for: (i) a private (individual or shared) permit within the Project Boundary (i.e., on a reservoir); and (ii) use of, or private access to the Project lands and waters across, the Cube-Managed Buffer. Once an adjoining property owner in a subdivision to which these setback requirements apply has a permitted private pier, subsequent removal of vegetation from the 100-foot forested setback, other than as allowed under the above criteria, is also subject to enforcement as set forth in Section XIV below.

8. Removal of any vegetation from any portion of the 100-foot forested setback within the Cube-Managed Buffer requires a written permit from Cube. For adjoining property owners in new subdivisions who satisfy the above requirements on their property, vegetation removal from the Cube-Managed Buffer will generally be considered, by written permit, in accordance with the criteria listed under Section III.A.5, above. Failure to secure a permit from Cube prior to removing any vegetation from the Cube-Managed Buffer, or removal in any manner other than as permitted by Cube, is subject to enforcement as set forth in Section XIV below.

9. In no case may management of the 100-foot forested setback be inconsistent with the requirements of North Carolina's watershed protection rules and county watershed protection ordinances.

B. Application to Subdivisions on Narrows Reservoir

Lots in certain subdivisions on Narrows Reservoir, including lots in the Uwharrie Point[1] and Heron Bay subdivisions, are subject to a 100-foot setback requirement and tree removal restrictions (known as the "6-inch rule") established pursuant to the Bald Eagle Management Plan (BEMP) for Narrows Reservoir. Specifically, the BEMP setback rule establishes the following:

- All buildings must be set back 100 feet from the water's edge, except a septic field or well will be allowed in the 100-foot setback to the extent installation does not require removal of any 6-inch or greater diameter tree. The diameter of the tree will be measured 1 foot above ground level.
- A 20-foot construction zone around a dwelling will be permitted to intrude into the 100-foot setback. The portion of the construction zone intruding into the setback must be revegetated upon completion of construction.
- Building is interpreted to be a verb and includes, but is not limited to, the footprint of the house, roof overhangs, decks, porches, patios, cantilevered decks, stairs, posts, columns, fences, retaining walls, landscaping walls, and gazebos.

[1] The BEMP applies to Uwharrie Point except for the Allenton Ferry, Pennington Ferry, and Glenbrook Springs neighborhoods.

- Variances will be granted only when a lot is unbuildable. Unbuildable means the inability to build the minimum size house, as required in the development's restrictive covenants, behind the 100-foot setback.

The 100-foot setback will be measured along the ground surface from the normal full pool-elevation of the reservoir to the nearest building.

Cube also does not permit vegetation removal on the Cube-Managed Buffer adjacent to the lots in these subdivisions, except to allow a pathway to a pier or to address safety issues.

For lots in subdivisions on Narrows Reservoir platted and recorded on or after July 1, 1999, the provisions of Section III.A apply. For lots in earlier subdivisions, the BEMP setback rule continues to apply. However, the adjoining property owner may request from Cube, on a lot-by-lot basis, written approval for an alternative form of vegetation management consistent with Section III.A.5, above. In these cases, where vegetation has been removed in accordance with the 6-inch rule, the adjoining property owner should expect that some vegetation replanting will be required within the setback prior to Cube granting permission for any vegetation removal on the Cube-Managed Buffer.

IV. Activity Permits

Cube may authorize certain other activities to be carried out in the reservoir, along the shoreline, or on the Cube-Managed Buffer by issuing a written construction or activity permit. Other than public recreational use of the Project reservoirs through public access areas, any non-Project uses or activities on Project lands or waters, or any private use of or access across the Cube-Managed Buffer, requires a written permit from Cube, and may not commence until the permit is written. Some of the activities for which adjoining property owners most often request a permit are summarized below and discussed in more detail later in this Policy. Cube reserves the right to refuse to grant an activity permit in the event the adjoining property owner has not complied with this Policy. Permit applications may be obtained by contacting Cube at 1-888-886-1063 or (704) 422-5678 or by writing to Cube, 293 NC 740 Highway, Badin, North Carolina 28009.

If a construction or activity permit is issued, all work must be done in compliance with the terms of the permit, this Policy, and other applicable Cube policies, procedures, and requirements. The applicant is responsible for correcting or removing any unauthorized activity or structures. Permits are of limited duration and are terminable by Cube in accordance with their terms. Changing conditions or other factors may lead Cube to refuse to renew an activity permit or to terminate an activity permit.

The following activities always require a written permit from Cube:

- **Construction** — construction or modification (reconstruction, repairs, additions, or expansion) of any structures, roads, or access pathways in the reservoirs, along the shoreline within the Project Boundary, or on the Cube-Managed Buffer.
- **Shoreline Stabilization** — construction, installation, or modification of riprap, retaining walls, or other forms of shoreline stabilization measures, including shoreline plantings.

- **Shoreline Alteration (Excavation and Fill)** — removal, addition, or alteration of any natural features of the Project reservoirs, the shoreline within the Project Boundary, and the Cube-Managed Buffer, including sediment, soil and rock.
- **Vegetation Removal** — removal of any vegetation, living or dead, in the reservoirs, along the shoreline within the Project Boundary, or on the Cube-Managed Buffer.
- **Shoreline Clean-up** — removal of dead or fallen trees, "lap trees," or other woody or natural debris that exists in the reservoirs, along the shoreline within the Project Boundary, or on the Cube-Managed Buffer.
- **Private Irrigation Systems** — installation of new systems or transfer of existing irrigation systems.
- **Vegetative Plantings** — planting of any vegetation, including but not limited to shrubs, hedges, flowering plants, native vegetation, etc., in the reservoirs, along the shoreline within the Project Boundary, or the Cube-Managed Buffer.

Removal of floating debris and shoreline litter such as floating logs, paper, plastic, and other unnatural forms of garbage or debris, and the removal of trees or driftwood that poses an imminent threat to life or property do not require Cube approval as long as the method of removal complies with the other requirements of this Policy.

V. Construction Activities

A. Access Pathways

1. The construction of a pathway across the Cube-Managed Buffer to the reservoir shoreline is allowed by permit only and must not commence until a written permit is granted. Pathways should be constructed to minimize the number of trees and the amount of vegetation to be removed. Pathways constructed on the Cube-Managed Buffer and/or within the 100-foot forested setback must meet the following specifications:
   a. Pathways must be no wider than 6 feet.
   b. Pathways must be constructed of pressure-treated wood, gravel, or uncemented brick, rock, stone, or paving blocks.

2. Those applying for a permit to construct a pathway must provide Cube with the following information:
   a. A map or sketch of the adjoining property showing the location of the proposed pathway, including the Cube-Managed Buffer, if present.
   b. The location of trees and vegetation to be removed.
   c. Materials to be used in construction.

B. Structures

1. Construction of private piers and multi-use facilities may be permitted as outlined in the Specifications for Private Recreation Facilities or Multi-use Procedures, respectively. Construction of any other structures in the reservoirs, along the reservoir shoreline below the normal full-pool elevation of the reservoir, or on the Cube-Managed Buffer is prohibited.

2. New houses and other buildings on a permanent foundation located in a subdivision platted and recorded on or after July 1, 1999 must comply with the 100-foot forested setback requirement set forth in Section III.A.5, above.

C. Roads / Boat Launch Ramps

1. Construction of roads of any sort along the reservoir shoreline or on the Cube-Managed Buffer is prohibited without Cube's written permission.

2. Construction of private boat launching facilities is prohibited, except as may be permitted under the Multi-use Procedures.

VI. Shoreline Stabilization Measures

A. Erosion of the reservoir shoreline is a naturally occurring phenomenon resulting from wave action upon the land. All owners of property adjoining the reservoirs have to expect some amount of shoreline erosion over time, and this is consistent with Cube's policy of preserving a natural shoreline, when possible. Prevention of severe erosion is the responsibility of the owner of the property adjoining the reservoir. To the extent that particular circumstances demonstrate the need for shoreline stabilization, based on the assessment of a registered Professional Engineer, vegetative plantings are preferred, followed by riprap and, in extreme circumstances, retaining walls.

B. No shoreline stabilization measures may be placed in the Project lands or reservoirs (below full-pool elevation) or on the Cube-Managed Buffer without a Cube written activity permit.

C. Any adjoining property owner with concerns that the property is subject to severe erosion may contact Cube to request a shoreline stabilization application and to initiate the shoreline stabilization evaluation process. The shoreline stabilization evaluation will be conducted by a professional engineering firm of Cube's choice. An application fee will be charged for the permit that will reflect the cost of a professional engineering evaluation of the need and appropriate measures for erosion control.

D. All requests to implement erosion control must meet all applicable zoning and other government regulations and will require written approval from the U.S. Army Corps of Engineers, and in some instances, the North Carolina Department of Cultural Resources (NCDCR) and the North Carolina Wildlife Resources Commission (NCWRC). The applicant will be responsible for any fees or costs associated with securing any necessary approvals.

E. Issuance of a permit for the installation of any erosion control measure does not give the permittee the right to add or remove shoreline material or change the existing reservoir contour except as specifically stated in the permit. All erosion control structures of any type must follow and may not alter the basic contour of the shoreline.

VII. Shoreline and Reservoir Alteration (Excavation, Dredge, and Fill)

A. Alteration of the existing reservoir bottom or shoreline, such as removal, addition or fill (other than Cube approved shoreline stabilization measures), or modification of rocks, soil, sand, and sediment (including dredging and excavation), is prohibited on Narrows, Tuckertown, and Falls reservoirs.

B. On High Rock Reservoir, in recognition of the high rate of sedimentation that occurs, Cube may permit excavation of reservoir sediments to maintain or create recreational boat access. Excavation at High Rock Reservoir is by written permit only in accordance with the following standards:
   1. All excavations must have prior written approval from the U.S. Army Corps of Engineers and the North Carolina Division of Water Quality (NCDWQ).
   2. Excavation of the reservoir adjacent to shoreline which has been designated as High cultural probability zone in the Yadkin Project Shoreline Management Plan (SMP) requires prior written approval from the NCDCR.
   3. Only excavation (in the dry) is permitted and must be performed when the reservoir is drawn down sufficiently to access the excavation site. No dredging (in the wet) is permitted in conjunction with the construction or maintenance of private piers.
   4. The excavation must not alter the reservoir shoreline at normal full-pool elevation (655 feet at High Rock).
   5. No excavation is allowed in areas of wetland vegetation.
   6. Excavation may not occur during the months of March–June because of potential impacts to fish spawning.
   7. The shape and depth of the excavation must be such that water will drain freely from the excavation when the reservoir level drops below the level of the excavation.
   8. All excavated material must be placed landward of the normal full-pool elevation (655 feet at High Rock).
   9. Individuals conducting the excavation are responsible for disposing excavated material in compliance with North Carolina Department of Environment and Natural Resources (NCDENR) regulations and requirements.
   10. Cube reserves the right to require prior testing of sediment in the area to be excavated and reserves the right to deny permission for excavation based on test results.

C. Anyone seeking permission for excavation must contact Cube early in their planning process and submit an application. The following information must be included in the application:
   1. A map of the reservoir area where the excavation is proposed.
   2. A description of the planned excavation, including an estimate of the area to be modified and the amount of material proposed to be removed from the reservoir.
   3. A plan for disposal of excavated material.
   4. A brief description of the potential impacts of the proposed excavation activity on surrounding reservoir resources, including impacts to water quality and fish habitat.
   5. Plans and schedule for conducting the proposed excavation.
   6. Written approval from the U.S. Army Corps of Engineers and NCDWQ.
   7. If excavation is planned adjacent to shoreline designated as High cultural probability zone, written approval from the NCDCR.

D. Cube may permit alteration of the existing reservoir bottom or shoreline or modification of rocks, soil, sand, and sediment (including dredging and excavation) on rare occasions if such modification to the shoreline will enhance habitat for fish or wildlife **or if such alterations or modifications are necessary for the maintenance of water intake or discharge systems**. Cube may also permit such activities in order to enhance public access or public recreation opportunities. Cube will permit such activities only with the concurrence of the appropriate agencies.

VIII. Vegetation Removal (see Shoreline Cleanup, Section X)

A. The removal of trees, stumps, brush, or any other form of vegetation, living or dead, along the shoreline below the normal full-pool elevation of the reservoir or on the Cube-Managed Buffer is prohibited without written permission from Cube.

B. For new development in subdivisions platted and recorded on or after July 1, 1999, a 100-foot forested setback must be maintained. To remain eligible for a private recreation facility permit, removal of vegetation within the 100-foot forested setback is limited to that allowed under Section III.A.5.

C. Removal of any vegetation from any portion of the 100-foot forested setback on the Cube-Managed Buffer requires a written permit from Cube. For adjoining property owners (in new subdivisions as well as in subdivisions platted and recorded prior to July 1, 1999) who satisfy the requirements described in Section III of this Policy on their property, vegetation removal from the Cube-Managed Buffer will generally be considered, by written permit, in accordance with the criteria listed under Section III.A.5. Failure to secure a permit from Cube prior to removing any vegetation from the Cube-Managed Buffer, or removal in any manner other than as permitted by Cube, is subject to enforcement as set forth in Section XIV below.

IX. Aquatic Vegetation

A. Cube prohibits the removal or destruction of aquatic vegetation growing in the reservoirs or along the immediate shoreline within the Project Boundary. Aquatic vegetation provides very important habitat for fish and other aquatic life forms and must not be cut, removed or in any way harmed by adjoining property owners.

B. Consistent with NCWRC guidance, Cube may allow the construction of new private piers in shoreline areas where there is aquatic vegetation present, so long as the pier conforms to the specifications set forth in the construction permit and the adjoining property owner assumes responsibility for the health and viability of the aquatic vegetation. Specific requirements relative to these standards will be contained in an Aquatic Vegetation Agreement (referred to in Section IV of the Specifications for Private Recreation Facilities), which must be signed by the adjoining property owner before a construction permit will be issued.

C. Cube may, from time to time, grant written permission for the removal of certain forms of non-native or nuisance aquatic plants. The permission will only be made with the concurrence of the NCWRC.

X. Shoreline Cleanup (see Vegetation Removal, Section VIII)

A. The removal of dead trees, stumps, or other woody or natural debris that exists in the reservoirs, along the shoreline below the normal full-pool elevation of the reservoir or on the Cube-Managed Buffer is prohibited without written permission from Cube. Such material provides cover for fish, and its presence greatly enhances fish habitat in the reservoirs. Cube may grant a permit for woody debris removal on a case-by-case basis for purposes of safety or recreational access. Anyone requesting approval from Cube for shoreline cleanup must obtain a written permit from Cube. Movement or removal of lap trees may only occur with Cube's written permission. **In cases where movement or removal is necessary, Cube will require movement or removal in accordance with the Procedures For Implementation Of Those Portions Of The Shoreline Management Plan Relating To The Removal Or Relocation Of Lap Trees, approved by FERC on May 9, 2001.**

B. Floating debris, litter, and trash (bottles, cans, tires, plastic containers, styrofoam, logs, etc.) can be removed from the reservoir and shoreline at any time, and does not require Cube approval as long as the method of removal complies with the other requirements of this Policy.

XI. Private Irrigation Systems

A. Installation of new private irrigation systems that utilize the Project reservoirs as a water source require a written permit from Cube. The following information must be included in the application:
   1. A property map showing the location of the irrigation system including the intake pipe and pump, and the location of the area to be served by the irrigation system.
   2. A design drawing of the irrigation system to be installed.
   3. An estimate of the amount of water to be withdrawn from the reservoir for irrigation purposes on a daily, weekly, or monthly basis.
   4. A schedule for installation of the irrigation system.

B. Cube may permit the installation of new private irrigation systems on a case-by-case basis where such systems meet the following criteria:
   1. The pumps and machinery for the new irrigation system are either attached to a pier for that lot or are set back at least 100 feet from the normal full-pool shoreline elevation. No pumps or machinery are permitted in the reservoirs, and in general, pumps and machinery are not allowed on the Cube-Managed Buffer.
   2. All electrical lines are in conduit and piping and conduit associated with the irrigation system are located along the pathway (under or alongside) that Cube has permitted within the 100-foot forested setback and result in no additional clearing of vegetation within the 100-foot forested setback.
   3. The adjoining property owner has preserved or recreated a forested area between the reservoir shoreline and the lawn, garden, or other area to be irrigated. The width of the

forested area will be 100 feet for lots in new subdivisions platted and recorded on or after July 1, 1999. The width of the required forested area for all other lots will be determined by Cube on a case-by-case basis.

4. The system is designed such that it adequately addresses safety and environmental impacts.

C. Irrigation systems, existing as of July 1, 1999, may remain in place, **as the facilities existed on that date together with any subsequent modifications or repairs approved by Cube pursuant to a written construction permit or not requiring a county building permit**, so long as the system is maintained in good repair, until such time that the property is sold or transferred to a new owner. At the time of transfer, Cube will inspect the existing system and determine what modifications to the system, if any, are necessary before the permit will be transferred. Existing irrigation systems are transferable, so long as (i) the facilities have been maintained in good repair, (ii) the current property owner has complied with the terms of this Policy and all other applicable Cube procedures and requirements, and (iii) the new property owner has signed a permit for the irrigation system, in accordance with Cube's requirements. **Any modifications or repairs to existing irrigation systems requiring a county building permit requires a construction permit.**

D. Transfer of private irrigation systems will be handled as part of a private pier transfer (see the Yadkin Project Specifications for Private Recreation Facilities). If there is no pier to transfer, prior to the sale or transfer of adjoining property, the existing property owner (seller) or the seller's agent must contact Cube to request an irrigation system transfer. Upon request, Cube will arrange a site visit. If (i) the facilities are determined to be in good repair, and (ii) the seller has complied with all applicable Cube procedures and requirements, Cube will provide the seller or the seller's agent with a form to request transfer of the permit. **In order for the transfer to be effective, the applicable transfer fee must be paid** and a new permit must be completed and signed by the new owner at the time of closing. If the irrigation system is deemed not transferable, Cube will provide the seller or the seller's agent with a written description of repairs (up to and including replacement of the existing irrigation system with a new system) or other actions that must be undertaken before the irrigation system will be transferable.

E. Cube may require removal of unapproved or non-conforming irrigation systems.

F. During times of low water or drought conditions, Cube may request that operation of all private irrigation systems cease. Failure to comply with such a request may result in termination of the permit and the adjoining property owner, at the owner's sole expense, being required to remove the irrigation system, and other enforcement as described in Section XIV, below.

XII. Vegetative Plantings

Planting of any vegetation — including but not limited to shrubs, hedges, flowering plants, native vegetation, etc. — is prohibited in the reservoirs, along the shoreline within the Project Boundary, and on the Cube-Managed Buffer without written permission from Cube.

XIII. Discharges/Dumping

A. Cube prohibits any discharge or dumping into Project waters of any materials, including but not limited to wastewater from sanitary or storm sewer systems, industrial waste, chemicals, paints, petroleum products, household products, leaves, grass clippings, and household waste. The introduction of these materials to the reservoir system can significantly impact water quality and may be a violation of State and federal law. Cube also prohibits the application of pesticides or herbicides in the Project reservoirs, on Project lands, or on the Cube-Managed Buffer without Cube's written permission.

B. Anyone responsible for discharging or dumping such materials into Project waters is subject to enforcement as provided in Section XIV below, and Cube also may refer such actions to proper authorities for investigation.

XIV. Enforcement

A. One of the underlying goals of this Policy is to protect and enhance the natural, environmental, cultural and scenic resources within the Project Boundary and on the adjoining lands. Cube's highest priority is to preserve the natural character of the shoreline as it exists today, and this is reflected in the procedures and requirements of this Policy as well as the Specifications for Private Recreation Facilities and Multi-use Procedures. Cube believes that most adjoining property owners appreciate the beauty and importance of a natural shoreline and will comply with this Policy. In those instances where violations of this Policy occur, however, Cube will consider those violations as serious matters. Violations of this Policy include: (i) any failure to comply with the provisions of this Policy or other applicable Cube procedures or requirements; and (ii) failure to obtain or to comply with written permission from Cube, where required, before undertaking construction or other activities.

B. The primary sanctions for violations of this Policy are loss of eligibility for: (i) a private (individual or shared) or multi-use facility permit within the Project Boundary (i.e., on a reservoir); and (ii) use of, or private access to the Project lands and waters across, the Cube-Managed Buffer. Cube will also require corrective action including but not limited to restoration and/or mitigation. Eligibility may be reinstated only where adequate restoration and/or mitigation is undertaken and Cube determines that reinstatement of eligibility is otherwise consistent with the underlying objectives reflected in this Policy and the SMP. Cube, as it deems appropriate, will consult with federal and State regulatory agencies in determining adequate restoration and/or mitigation measures.

C. In addition, in the event of a violation of this Policy, Cube, at its sole option, has the right to: (i) terminate any existing permits, and (ii) erect a barrier along the Project Boundary or across the Cube-Managed Buffer to restrict access to the Project lands and waters; and (iii) require, at the adjoining property owner's sole expense, (a) removal of any piers, pathways, or other facilities and structures located within the Project Boundary or on the Cube-Managed Buffer, and (b) restoration and/or mitigation, up to and including restoring Project lands and waters and the Cube-Managed Buffer to their original condition. In addition, if the adjoining property owner fails to take the required action after notice from Cube, Cube will

consider any facilities or structures remaining within the Project Boundary or the Cube-Managed Buffer as a trespass upon its property, and reserves the right to, at the adjoining property owner's sole expense, remove the facilities or structures, treat them as its own property without any liability to the adjoining property owner for payment, and perform the required restoration and/or mitigation. Cube also may pursue any other rights or remedies, including damages, it may have in any permit, or at law or in equity.

XV. Voluntary Guidelines for Timbering Operations

Cube has established a set of guidelines for timbering operations that occur on the Cube-Managed Lands adjacent to or near Project waters. These guidelines were developed to help minimize the potential impact of timbering operations on reservoir water quality and scenic resources. Cube requires that all contractors conducting timbering operations on Cube-Managed Lands adhere to its guidelines. Cube encourages all adjoining property owners to voluntarily follow the same guidelines in conducting timbering operations on their property.

Table 1
Cube Guidelines for Timbering Operations

Forest Management Objectives	To manage the forest resource, which includes pine, pine-hardwood, and hardwood timber stands for multiple use: watershed protection and wood and fiber production.
	To practice sustainable forestry that integrates the reforestation, growing, nurturing and harvesting of trees for useful products with the conservation of soil, air, and water quality; wildlife and fish habitat; and scenic resources.
	To use responsible practices on Cube-managed forest lands and promote among other forest landowners in the Yadkin watershed good forest practices that are both economically sound and environmentally responsible.
	To manage and preserve lands of special significance (biologically, geologically, ecologically, or historically significant) in a manner that takes into account their unique qualities.
Specific Activities/Requirements	Reforest final harvest tracts within 18 months of harvest operation.
	Plan and implement thinning harvest on a regular basis to sustain tree growth and provide wildlife openings and browse.
	Extend rotation ages for pine plantations for 50–60 years with periodic thinnings starting at 17+ years and repeating every 7–10 years until final harvest. Selectively harvest hardwood stands on a 20+ -year harvest schedule.
	Limit final harvest cutting area size to areas of less than 100 acres. Limit the majority of all cutting areas to 50 acres or less in size.
	Maintain a 100-foot forested buffer between harvest areas and the reservoirs to protect water quality, provide wildlife corridors and preserve shoreline scenic resources.
	Abide by all State and federal laws concerning performance standards in Forest Practice Guidelines related to Water Quality (15NCAC1J .0201-.0209) for erosion and sediment control related to logging operations and road construction.

XVI. Voluntary Shoreline Stewardship Measures

Table 2
Voluntary Actions Adjoining Property Owners Can Take to Help Preserve Reservoir Water Quality

Activity	Action
Property Development	Plan your home site to minimize the opportunity of drainage of water from your house, driveway, or lawn directly into the reservoir.
	Establish a building setback and establish or maintain a natural forested buffer between your lawn and the reservoir shoreline, even where not required for eligibility for a private pier or reservoir access.
	Keep clearing of vegetation and creation of lawns to a minimum.
	Install, or be sure that your builder installs, silt fences and other appropriate forms of erosion and sedimentation control on your property to prevent runoff of sediment into the reservoirs.
	Minimize the size of paved driveways and parking areas on your property.
Yard Care	Minimize use of fertilizers, herbicides, and pesticides on your lawn and in your yard.
	Convert unused portions of lawn into gardens, shrubs, trees, or meadows.
	Plant native species and hardy grasses, which require little or no specialized care (see Table 3).
Boating	Use petroleum products with caution and take steps to prevent them from getting into the water.
	Wash boats away from the water and use biodegradable, non-phosphate detergents.
Household Maintenance	Keep septic systems and drain fields well maintained. Have septic tanks pumped and inspected routinely. Have drain fields inspected, particularly if any odor is observed.
	Wash cars and other vehicles away from the water.
Agricultural Activities	Maintain a forested shoreline buffer.
	Install fencing to keep farm animals out of the reservoirs.
	Institute best-management practices as recommended by the State and USDA for crop and animal production.

A. Preserve and Create Natural Forested Shoreline

A natural forested shoreline is essential to the continued health and beauty of the Project reservoirs. Clearing of native trees and vegetation from around the water's edge destroys habitat for resident wildlife, is detrimental to water quality, and speeds shoreline erosion. By leaving or recreating a natural forested buffer between a house or yard and the reservoir, adjoining property

owners can help provide habitat for birds and wildlife, improve water quality, and reduce shoreline erosion. Cube recommends that adjoining property owners, even where private pier eligibility or reservoir access are not concerns, consider the following measures on their property to help preserve the shoreline:

- Place buildings and structures at least 100 feet from the shoreline. The further from the shoreline a structure is constructed, the less impact the construction will have on the reservoir and shoreline environment.
- Recreate or maintain a forested buffer of native trees and shrubs between lawn and the shoreline. Generally, the wider the buffer, the more effective it will be in reducing environmental impacts to the reservoir and shoreline. Keep clearing of trees and vegetation from property near the reservoirs to a minimum.
- Use native trees, shrubs, and flowers for landscaping yards and gardens (see Table 3). Native plants provide optimum food and habitat for birds and wildlife.

B. Protect and Create Habitat for Fish

To help protect the excellent fishery that currently exists in the Project reservoirs, adjoining property owners are encouraged to take the following actions to help protect, preserve, and recreate important fish habitat.

- Avoid swimming and boating in and around stands of aquatic vegetation. Aquatic vegetation provides premier habitat for fish and other organisms.
- Use downed trees and limbs to create brush piles in the water. Such material provides important cover for fish.

C. Protect Water Quality

The greatest source of pollutants to the Project reservoirs is from nonpoint sources. Nonpoint source pollution is generally created by runoff of water from cleared land into tributary rivers and streams, as well as into the reservoirs themselves. As water runs off cleared land, it picks up sediment and damaging pollutants such as nitrogen, phosphorus, and toxins. As development around the reservoirs increases and more land is cleared, pollutant input from nonpoint sources will continue to increase and reservoir water quality will continue to decline. Cube has established policies to reduce runoff and diminish the impacts of nonpoint source pollution on reservoir water quality. Cube strongly encourages adjoining property owners to consider the following measures to help reduce the effect of shoreline development on reservoir water quality:

- Establish a building setback and establish or maintain a natural forested buffer between your lawn and the reservoir shoreline, even where not required for eligibility for a private pier or reservoir access.
- Discontinue or minimize the use of fertilizer, herbicides, and pesticides on your lawn, in your house and in your yard. Consider the use of biological controls or try to select products that are labeled as environmentally friendly.
- Keep mowing of lawns to a minimum, or raise the blade height on your lawn mower.

- Use petroleum products with caution and take steps to prevent them from getting into the water.
- Keep septic systems and leach fields in good working order and adhere to established county requirements for the location, design, and operation of septic systems.
- When doing construction or earthwork, install silt fences and other appropriate forms of sedimentation and erosion control on your property to prevent erosion and runoff into the reservoir or tributary streams.

As a reminder, Cube prohibits any discharge or dumping of any materials into the reservoirs. Do not discard paints, cleaners, solvents or other household materials directly into the water. Cube also prohibits the spraying of insecticides or herbicides directly into the reservoirs.

Table 3
Beneficial Trees and Plants Recommended for Use by Adjoining Property Owners in Landscaping and in Establishing a Forested Reservoir Shoreline

	Species Name	Height	Characteristics/Benefits
Large Deciduous Trees	Red Maple *Acer rubrum*	75'	fast growing; early red blossom; globular; prefers wet but tolerates dry soil
	Sugar Maple *Acer saccharum*	75'	oval; beautiful fall color; prefers sandy, loam soil; needs sun
	River Birch *Betula nigra*	50-75'	fast growing; prefers moist locations; attractive bark; needs sun; wildlife value
	Shagbark Hickory *Carya ovata*	60-80'	oval; narrow habit; nuts; wildlife value; needs deep rich soil and sun
	Mockernut Hickory *Carya tomentosa*	75-100'	attractive ascending branches; yellow fall color; drought tolerant; wildlife value
	American Beech *Fagus grandifolia*	80'	large trunk with wide spreading branches; slow growing; prefers well-drained soil; wildlife value
	Red or Green Ash *Fraxinus pennsylvanica*	60'	fast growing; oval; prefers rich, well-drained soil
	American Ash *Fraxinus americanus*	70-90'	fast growing; wildlife value; prefers well-drained loamy soils; late summer-fall fruit
	Honey Locust *Gleditsia triancanthos*	80'	fast growing; globular; fine foliage; tolerates any soil type
	Sweet Gum *Liquidamber styraciflua*	50'	rapid growth; pyramidal; pretty fall color; unusual leaf; likes well drained, wet soil and sun.
	Tulip Poplar *Liriodendron tulipifera*	80-120'	rapid growth; pyramidal; tulip like flower in May-June; prefers deep, rich soil and sun
	Blackgum, Tupelo *Nyssa sylvatica*	75'	horizontal branches; wildlife value; brilliant fall color; tolerates moist soil
	Sourwood, Sorrel *Oxydendron arboreum*	40-60'	pyramidal; flower tassels in July, glossy foliage; striking fall color
	Sycamore *Platanus occidentalis*	120'	oval; attractive white bark; attracts insects for birds; wildlife value; grows well on shoreline banks; needs sun

	Species Name	Height	Characteristics/Benefits
	Black Cherry *Prunus serotina*	55'	abundant fruit; wildlife value; white fragrant flowers
	White Oak *Quercus alba*	60-90'	largest of oaks; round-headed; wildlife value; tolerates a range of soils
	Black Oak *Quercus velutina*	75-100'	large ovoid oak; drought tolerant; shade tolerant; wildlife value
	Southern Red Oak *Quercus falcata*	60-80'	ovoid; drought tolerant; wildlife value
	Red Oak *Quercus rubra*	75-100'	large rounded oak; tolerates a wide range of soils; wildlife value
	Post Oak *Quercus stellata*	35-50'	spreading branches; globular; prefers sun and dry soils; wildlife value
	Scarlet Oak *Quercus coccinea*	60-80'	oval; medium grower; lustrous foliage; brilliant fall color; wildlife value; tolerates dry soil; needs sun
	Willow Oak *Quercus phellos*	50'	pyramidal; fast growing; fine textured foliage; tolerates wet/dry soil
Small Deciduous Trees	Shad Blow, Serviceberry *Amelanchier arborea or canadenis*	20-30'	oval; light grey bark; attractive white blossoms in early spring; red fruit in summer; wildlife value
	Ironwood *Carpinus caroliniana*	30'	oval; smooth grey bark; zig-zag branches; wing fruit; wildlife value; tolerates moist or dry soil; some sun
	Persimmon *Diospyros virginiana*	40-60'	oval; small canopy; picturesque contorted branches; fall yellow fruits; wildlife value
	Washington Hawthorn *Crataegus phaenopyrum*	30'	oval; brilliant fall color; June flower; bright red berry in fall/winter; wildlife value; tolerates poor soil, light shade
	Hackberry *Celtis occidentalis*	30-40'	round; rapid grower, corky knobs on bark; wildlife value; tolerates moist or dry soils
	Redbud *Cercis canadensis*	40'	globular; beautiful pink-purple flower clusters in April; heart shaped leaf; prefers deep, moist soil; tolerates light shade
	Fringetree *Chionanthus virginicus*	30'	pyramidal; slow growing fragrant June flower; wildlife value; needs deep, moist soil; tolerates light shade
	Flowering Dogwood *Cornus florida*	30'	oval; beautiful white flowers in April/May; small red fruits; wildlife value; needs well-drained, acid soil; tolerates some shade
	Cockspur Hawthorn *Crataegus crus-galli*	30'	glossy foliage; dense habit; persistent red fruit; wildlife value; tolerates poor soil, some shade
Evergreen Trees	American Holly *Ilex opaca*	45'	red berry; wildlife value; needs moist, acid soil
	Loblolly Pine *Pinus taeda*	20-60'	pioneer species; wildlife value; tolerates sandy soils; needles in bundles
	Virginia Pine *Pinus virginiana*	20-60'	pioneer species; tolerates poor soils; wildlife value
	Shortleaf Pine *Pinus echinata*	30-60'	columnar; tolerates poor soils, prefers sun; wildlife value
	Eastern Red Cedar *Juniperus virginiana*	80'	pyramidal; wildlife value; thick branches, dense foliage; tolerates poor soils

	Species Name	Height	Characteristics/Benefits
Evergreen Shrubs	Juniper *Juniiperus communis*	2-30'	oval; bluish gray; tolerates dry, poor soil
	Moutain Laurel *Kalmia latifolia*	5-30'	whorled leaves; flowers May/June; prefers deep, moist, acid soil; tolerates light sun
	Bayberry *Myrica heterophylla*	4-8'	persistent leaves; aromatic; wildlife value; tolerates dry, sandy soils
	Wax Myrtle *Myrica cerifera*	25-30'	persistent leaves; wildlife value; grayish, waxy fruit; inconspicuous flowers
	Rhododendron *Rhododendron catawbiense*	12-15'	majestic bell-shaped purple flowers (also cultivated varieties in other colors);tolerates poor soil, acid loving
	Great Laurel, Rosebay *Rhododendron maximum*	15-25'	June flower; large waxy leaves; needs acid, moist soil
Deciduous Shrubs	Common Alder *Alnus serulata*	12-20'	oval; purple catkins spring; prefers sun and moist soils; flood tolerant; wildlife value
	Red Chokeberry *Arontia arbutifolia*	9'	flowers May-June; smooth pale leaves; red berry; wildlife value; tolerates wet acid or dry soil
	Black Chokeberry *Arontia melanocarpa*	3-6'	oval, black berry; wildlife value; tolerates wet acid or dry soil
	New Jersey Tea *Ceanothus americana*	1-3'	globular or mounded; dense red stems; tolerant of poor soils; wildlife value
	Sweet Pepperbush *Clethra alnifolia*	6'	oval; fragrant summer flower; persistent brown seed; wildlife value; tolerates acid wet or dry soil and some shade
	Sweetbay Magnolia *Magnolia virginiana*	12-20'	oval; aromatic foliage; large white flowers; wet to moist soils; acid loving
	Red Osier Dogwood *Cornus stolonifera*	6-12'	globular or mounded; upright spreading red-purple stems; flood tolerant; wildlife value
	Gray Dogwood *Cornus racemosa*	8-15'	vase; June clustered flower; gray stalk, white berry; wildlife value; tolerates any soil type
	Strawberry Bush *Euonymus americanus*	6'	oval; purple-pink fruit capsule; bright fall color; needs moist, deep fertile soil
	Witch-alders *Fothergilla species*	3-6'	oval; brilliant fall color; needs moist, rich soil
	Possumhaw *Ilex decidua*	12-20'	oval; branching shrub; prefers wet sites; shade tolerant; winter red berries; wildlife value
	Winterberry *Ilex verticillata*	4-9'	oval; small flower in spring; bright red berry; wildlife value; tolerates any soil and some shade
	Wild Plum *Prunus sp.*	20-35'	globular, white flowers May; red-purple fruits in fall; prefers sun
	Pink Pinxter Azalea *Rhododendron nudiflorum*	6'	oval; April-May pink flower; needs moist, acid soil; tolerates light sun
	Clammy Swamp Azalea *Rhododendron viscosum*	9-15'	oval; needs moist, acid soil; tolerates light sun
	Shining Sumac *Rhus copallina*	8-30'	globular; lustrous foliage; summer flower; red fruit; wildlife value; tolerates dry, sandy soil; needs sun

	Species Name	Height	Characteristics/Benefits
	Smooth Sumac *Rhus glabra*	6-20'	globular; summer flower; red fruit; wildlife value; needs deep, well-drained soil and some shade
	Black Willow *Salix nigra*	10-30'	upright branching; prefers moist areas flood tolerant; wildlife value
	Elderberry *Sambucus canadensis*	6-12'	oval; flat flower cluster early summer; wildlife value; needs deep, well-drained soil and sun
	Coralberry Indian Currant *Symphoricarpos orbiculatus*	3-6'	small pale oval leaves; curving branches; wildlife value; tolerates poor soil and some shade
	Common Deerberry *Vaccinium stamineum*	6-12'	globular; upright spreading branches; nodding bell flowers May; wildlife value
	Mapleleaf Viburnum *Viburnum acerifolium*	4'	ovoid; small shrub; maple shaped leaves; shade tolerant; wildlife value
	Black Haw *Viburnum prunifolium*	10-25'	attractive flower clusters; wildlife value; bluish-black fruit; oval leaf; tolerates range of soils
	Yellow-root *Xanthorhiza simplicissima*	2'	yellow bark and root; small flower; tolerates any moist or dry soil
Hardy Ground Cover	Lady Fern *Athyrium filix-femina*	2-3'	Nice texture; tolerates shade and wet soil; not drought tolerant
	Violet Wood Sorrel *Oxalis violacea*	4-8"	Excellent for rock gardens; tolerates some shade, dry soil and drought
	Grass-leaved Blazing Star *Liatrus graminifolia*	1-3"	rose-purple flowers in late summer; hairy stem
	Bird-Foot Violet *Viola pedata*	2-6"	purple flowers; tolerates some shade, dry soil and drought
	Barren Strawberry *Waldsteinia fragarioides*	4-6"	edging or border planting; tolerates some shade, dry soil and drought
Ornamental Grasses	Switch Grass *Panicum virgatum*	5'	makes excellent dried flowers, screen; needs sun; tolerates dry soil and drought
Vines	Trumpet Creeper *Campis radicans*	to 35'	large red-orange trumpet flowers; attracts hummingbirds; needs sun; tolerates poor soils;
	Trumpet Honeysuckel *Lonicera semervirens*	to 20'	yellow-red trumpet flowers, attracts hummingbirds; shade tolerant; semi-evergreen
	Virginia Creeper *Parthenocissus quinquefolia*	to 35'	bright red fall foliage, blue-black berries, high wildlife value, shade tolerant, fast growth rate, long-lived
	Wild Grape *Vitis species*	to 35'	blue-black berries, very high wildlife value, shade tolerant, fast growth rate
Flowering Perennials	Butterfly Weed *Asclepias tuberosa*	2-3'	attracts butterflies; brilliant orange flower; needs sun; tolerates dry soil and drought
	Threadleaf Coreopsis *Coreopsis verticillata*	1-2'	airy texture; yellow, star-shaped flower; needs sun; tolerates dry soil and drought
	Queen Anne's Lace *Daucus carota*	2-3'	delicate texture; white bloom; needs sun; tolerates dry soil and drought

	Species Name	Height	Characteristics/Benefits
	Geum *Geum virginianum*	2-3'	airy habit; colorful; needs sun; tolerates dry soil and drought
	Blazing Star *Liatris scariosa*	1-5'	erect, bushy habit; bold color; needs sun; tolerates dry soil and drought
	Wild Sweet William *Phlox divaricata*	1-2'	small, crowded flowers that bloom all summer; needs sun; tolerates dry soil and drought
	Black-eyed Susan *Rudbeckia hirta var. Pulcherrima*	1-3'	yellow, daisy-like flower; upright habit; needs sun; tolerates dry soil and drought
	Virginia Spiderwort *Tradescantia virginiana*	1-2'	handsome blue flowers; low, compact growth; needs sun; tolerates wet soil and drought
	Culver's Root *Veronica verginica*	3-6'	background planting; upright habit; needs sun; tolerates dry soil and drought
	Wild Bergamot *Monarda fistulosa*	3'	lilac to purple flowers; prefers dry soils; excellent perennial herb
	Cardinal Flower *Lobelia cardinalis*	2-3'	bright scarlet flowers; prefers moist soil, partial shade; erect perennial
	Wild Columbine *Aquilegia canadensis*	1-2'	excellent garden selection; yellow and red flowers; prefers loamy soil, partial shade
	Fire Pink *Silene virginica*	6-10"	deep crimson petals; prefers well-drained sandy soil; flowers in loose cluster