Streamlines

A Newsletter for North Carolina Water Supply Watershed Administrators

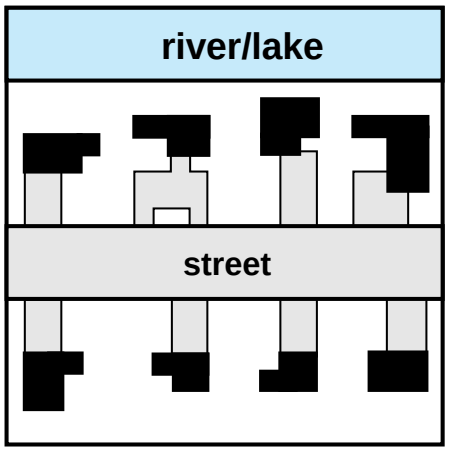
Volume 1, Number 4 **June 1996**

The Advantages Of Cluster Development

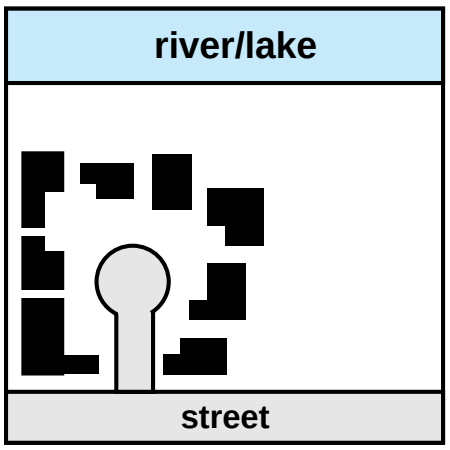
Clustering is the close grouping of structures, which may share common walls, floors, ceilings, and roofs as well as other outdoor areas such as recreation and parking facilities. The most common form of cluster development encompasses residential structures in an urban context, such as townhouses, condominiums, and apartments. However, modern clustering may include multiple uses from detached residential to commercial to light industrial in a "neo-traditional" land use pattern.

Using cluster development, construction can be concentrated in one or more areas of a site, allowing the protection of sensitive resource areas and the conservation of open space. Conventional development tends to sprawl to cover most of the buildable land with individual tracts in a "cookie-cutter" approach. Minimum lot sizes and setback requirements can create parcels that are set apart from adjacent ones with little coordination of design between them. Building footprints, combined with individual driveways and other paved areas, add up to excessive impervious cover and the potential degradation of water quality due to nonpoint source pollution.

Clustering is an alternative to traditional design; it is intended to lead toward a more livable and less environmentally impacting method of land development. Clustering modifies minimum lot size requirements and/or set-



CONVENTIONAL SUBDIVISION



CLUSTER DEVELOPMENT

back distances – sometimes a difficult task with strict zoning ordinances – in order to conserve land. Houses are typically placed closer together and targeted away from naturally sensitive features. Individual driveways and parking areas may be consolidated to conserve even more space. The resultant open area is then available for use as a park, buffer, or wildlife habitat. Many homeowners fear cluster development, thinking it will lead to devaluation of nearby single family detached housing; but, not surprisingly, homes in clustered arrangements often increase in value faster than conventional properties because of the nearby presence of the open space and the recreational amenities available. Also, due to the close proximity of the homes and the shared open space, cluster communities tend to have more of an "old-fashioned neighborhood" type of feel to them.

Clustering serves economic, environmental, social, and aesthetic purposes. The following points summarize some of the benefits of clustering

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Buffers Help Protect Water Quality

Early in the development planning process, environmentally sensitive areas should be identified and their boundaries delineated on development plans. Sensitive areas may include steep slopes, wetlands, flood prone areas, riparian corridors, wildlife habitat, etc. Many of these sensitive areas are located adjacent to waterways. Retaining natural or forested buffers along waterways helps preserve the important functions of these sensitive areas.

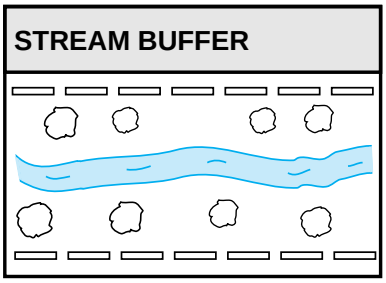
Natural buffers have many benefits that make them valuable best management practices for protecting water quality and other resource values.

The value of forested and vegetative buffers has been recognized in North Carolina, and buffers have become an important tool in the state's water quality management program. For example, the water supply watershed protection rules require that new developments maintain natural or vegetative buffers around all perennial waters with a minimum width of 30 feet for low density development and a minium 100 feet buffer for high density development. The buffer is measured landward from the normal pool elevation of impounded structures and from the bank of each side of streams or rivers.

No new development (i.e., built-upon area) is allowed in the buffer. However water dependent structures or other structures such as flagpoles, signs and security lights, which result in only diminimus increases in impervious area, and public projects such as road crossings and greenways, may be allowed where no practical alternative exists.

Runoff from adjacent developed areas should never be piped through a culvert directly into the adjacent waterbody or be discharged into buffers in a concentrated flow. To the extent practicable, stormwater runoff should enter buffers in a sheet flow manner to maximize the infiltration of runoff and allow the filtering of pollutants from runoff. If preserved and managed properly, buffers can be a valuable tool in protecting a community's water supply. For more information on vegetative buffers and state requirements, see the Resources Box or call DEM's Watershed Technical Assistance Unit.

Buffer Benefits



- Protect water quality by filtering pollutants from runoff
- Provide areas for appropriate recreational activities
- Help preserve the aesthetic quality of riparian areas
- Provide shade to help cool water temperatures and maintains dissolved oxygen concentrations
- Infiltrate and slow runoff, reducing peak flows and downstream flooding
- Provide valuable habitat for fish and wildlife
- Stabilize streambanks, reducing sedimentation problems
- Increase adjacent property values

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For assistance with the watershed protection program, contact the NC DEM, Water Supply Watershed Technical Assistance Unit, PO Box 29535, Raleigh, NC 27626-0535, (919) 733-5083 at extensions:

Lisa Martin ..... Ext. 565
Michelle Suverkrubbe .. Ext. 583
Brent McDonald ..... Ext. 508

Cluster Dvpmnt.

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development:

- Allows for the preservation of environmentally sensitive areas
- Can reduce development construction and infrastructure costs and provide for better utilization of land
- Can reduce impervious surface areas, thereby reducing stormwater runoff and associated water quality impacts
- Preserves rural (or neighborhood) aesthetic and social character by conserving open space
- Enhances neighborhood security and sense of community through increased density without compromising privacy
- Allows for more efficient (less expensive) subdivision layout by requiring less paved area and utility lines per unit
- Increased open space provided usually has a direct relation to increased property values
- May provide for better public or community access to a natural or recreational feature.

DEM Initiates New Citizen Monitoring Program

The North Carolina Water Quality Section has initiated a volunteer water quality monitoring program to take advantage of widespread public interest in improving and maintaining surface water quality in the state.

The program will train volunteer monitors in aspects of water quality, monitoring, and quality assurance and maintain publicly accessible databases of this information. Regular meetings, training, volunteer monitoring newsletters, and Internet resources are all planned facets of the program.

Routine monitoring stations will be established to provide the best complement to existing DEM and discharger monitoring activities. Special studies will be developed as needed to address issues like short and long term trends in water quality, increases and decreases in submerged aquatic vegetation, and habitat quality. Initial focus will be in the Neuse River Basin and then expand to the rest of the state as the program matures.

In order to maximize the resources available to these activities, the state is seeking donations of time, equipment, and/or services to assist with volunteer activities. Facilities that may have on-site laboratories, water quality monitoring equipment, or staff with experience in water quality monitoring that would like to share these resources with the public are invited to participate.

If you have such resources available or are interested in this program, please contact Larry Ausley or Cathy Tyndall with the North Carolina Division of Environmental Management/Water Quality Section at (919) 733-9960.

Coming Soon: Design Methods Pamphlet

Coming soon is an illustrated pamphlet by Anne Valentine on design methods to preserve conservation lands in residential subdivisions. Anne is the graphic artist who is currently working with Randall Arendt in his design guideline project for Orange County, NC, and the Association of County Commissioners. Her pamphlet, expected in the fall of 1996, will summarize Randall's much awaited project (which is due out "soon"). For further information, please call Chuck Roe, with the Conservation Trust for North Carolina at (919) 828-4199.

Did You Know?

When a municipality annexes land or extends its Extraterritorial Jurisdiction (ETJ) boundary into a water supply watershed, the municipality must, under the state law, immediately amend and implement the local water supply watershed protection ordinance in this new jurisdictional area.

There is no delayed enforcement period. The amended map for the area or new ordinance provisions, if applicable, should be sent to DEM as soon as they are adopted. For further information, please call the Water Supply Watershed Protection Program Technical Assistance Group at (919) 733-5083, extensions 583, 508 or 565.

Resources

DEHNR

See the following for more information on:

Cluster Development

Arendt, Randall et al. Rural by Design. APA Planners Press, 1994.

Arendt, Randall. "Creating Open Space Networks." Environment & Development, American Planning Association, May/June 1996.

Untermann, Richard and Small, Robert. Site Planning for Cluster Housing. Van Nostrand Reinhold, 1977.

Model Watershed Protection Ordinance Section 303.

Schueler, Thomas et al. Blueprint to Protect Coastal Water Quality: A Guide to Successful Growth Management in the Coastal Region of North Carolina. The Center for Watershed Protection, 1995.

Buffers

Schueler, Thomas et al. Site Planing for Urban Stream Protection. The Center for Watershed Protection, 1995.

Model Watershed Protection Ordinance Section 304.

What's Happening ?

June 20 – Floodplain Management Workshop, Land-of-Sky Regional Council office, Asheville, NC, 8:30 a.m. - 4:30 p.m. For information, call John Gerber, NC Division of Emergency Management, (919) 733-9362.

July 10 – NC Water Quality Committee of the NC EMC - Raleigh, Archdale Bldg., 512 N. Salisbury St., Ground Floor Hearing Chambers, 12 noon. Agenda Items: Several local government water supply watershed ordinances will be reviewed.

July 14-17 – American Water Resources Association Annual Symposium on Watershed Restoration and Management: Physical, Chemical, and Biological Considerations, Syracuse, NY. Contact Dr. Jeffrey J. McDonnell, SUNY College of Environmental Science & Forestry, Syracuse, NY, (315) 470-6565

Sept. 23-25 – National Symposium on Effectiveness of Erosion and Sediment Control Practices. Raleigh, NC. Joseph Kleiss, Soil Science, Box 7619, North Carolina State University, Raleigh, NC 27695-7619.

October 5-9 – Water Environment Federation – 69th Annual Conference, Dallas, TX. WEF, 601 Wythe St., Alexandria, VA 22314-1994. Tel: 1-800-666-0206.

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