file copy

Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-2809

November 16, 1999

Mr. John H. Rice, PIO
Community Health
State of Georgia
2 Peachtree Street, NW
Atlanta, GA. 30303

RE: Parkside at Stone Mountain

Dear Mr. Rice:

The ARC staff appreciates receiving notice of the proposed 58-bed sheltered nursing home within the proposed continued care retirement community at New Bermuda Road and West Park Place in DeKalb County. In 1997 ARC reviewed this site for a Development of Regional Impact (DRI) called New Gibralter which planned 78 units of independent senior living, 100 assisted living, 316 multi-family, and 50 single-family units, all geared to seniors. We found this DRI to be in the best interest of the State. The currently proposed sheltered nursing home is consistent with the concept that we reviewed. Therefore, we have no objection to the proposed development.

Sincerely,

Beverly Rhea
Review Coordinator

November 16, 1999

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2 Peachtree Street, NW
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Sincerely,

Beverly Rhea
Review Coordinator

Community Health
State of Georgia
2 Peachtree Street, N.W.
Atlanta, Georgia 30303

Division of Health Planning
Suite 34.262
Phone (404) 656-0655
Fax (404) 656-0654

Russ Toal
Commissioner

November 8, 1999

Mr. Harry West
Atlanta Regional Commission
3715 Northside Parkway
200 Northcreek, Suite 300
Atlanta, Georgia 30327

Dear Mr. West:

The Georgia Department of Community Health, Division of Health Planning has **deemed complete** the application for a Certificate-of-Need for:

Parkside at Stone Mountain
085-99 Establish a 58-Bed Sheltered Nursing Home within a Continued Care Retirement Community (CCRC). Estimated project cost: $3,393,414 **Filed: 10-15-99. Deemed Incomplete: 10-28-99. Deemed Complete: 10-28-99. Decision Deadline: 01-25-00.** Site of proposed project is Intersection of New Bermuda Road and West Park Place, Stone Mountain (DeKalb County) Georgia 30087. Contact Mr. Ed Turner (404) 261-0811

The Division is reviewing the proposal under Georgia's health planning law, which seeks to avoid the unnecessary duplication of expensive health care services, equipment and facilities.

The Division may schedule a public hearing during its review and you will receive appropriate notification if that occurs. This review requires no action on your part. However, the Division would certainly welcome any comments you might wish to submit and would consider them during the review process. In addition, any interested person may submit information concerning this project to: The Georgia Department of Community Health, Division of Health Planning, at the above address.

The Division is obligated by Georgia's health planning law, O.C.G.A. Title 31, Chapter 6, to notify you once the review of an applicant whose project will be located in your area has begun as well as when the Division makes a decision on the application.

Sincerely,

John H. Rice
Public Information Officer

Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-2809

ARC

Harry West
Director

May 22, 1997

Honorable Liane Levetan, CEO
DeKalb County Commission
1300 Commerce Drive
Decatur GA 30030

RE: Development of Regional Impact - New Gibralter Community

Dear Liane:

I am writing to let you know that the ARC staff has completed review of the New Gibralter Community. Our finding is that this Development of Regional Impact (DRI) is in the best interest of the State.

I am enclosing a copy of our review report along with a letter we received from DeKalb County Schools. We note that the number of students projected from the development has dropped to 91 as a result of the developers' reducing the number of apartments to 316 and restricting the 50 single-family houses to persons aged 55 and older.

We appreciate the opportunity to review this project and ask that you let us know if you have any questions at all about the review.

Sincerely,

Harry West
Director

Enclosures

c: Mr. Ray White, DeKalb County Planning
Mr. Kevin Isakson, Isakson-Barnhart
Mr. Doyle F. Oran, DeKalb County Schools
Mr. Wayne Shackelford, GA DOT
Mr. Bob Maxey, DeKalb County Zoning
Ms. Kathryn Zickert, Isakson-Barnhart
Mr. Rick Brooks, GA DCA
Mr. Harold Reheis, GA EPD

Facility: New Gibralter Community
Preliminary Report: April 28, 1997
Final Report: May 22, 1997

DEVELOPMENTS OF REGIONAL IMPACT

REVIEW REPORT

GENERAL

According to information on the review form or comments received from potentially affected governments:

Is the proposed project consistent with the host-local government's comprehensive plan? If not, identify inconsistencies.

According to information submitted with the review, no. Information from ARC's records indicates transportation, communications/utilities and office/professional use projected. However, it is also ARC's understanding that the applicant currently is proposing a land use change under DeKalb County procedures as well as rezoning.

Is the proposed project consistent with any potentially affected local government's comprehensive plan? If not, identify inconsistencies.

ARC's records on Gwinnett County project office/distribution/technology and low density residential in Gwinnett County near the New Gibralter site.

Will the proposed project impact the implementation of any local government's short-term work program? If so, how?

No, on DeKalb.

Will the proposed project generate population and/or employment increases in the Region? If yes, what would be the major infrastructure and facilities improvements needed to support the increase?

The proposed development of 50 single-family houses (restricted to persons aged 55 and older),, 316 apartments, 100 assisted living units and 78 independent living units could accommodate a population of 791 including 91 students and 50 full-time jobs according to regional averages.

What other major development projects are planned in the vicinity of the proposed project?

None.

Will the proposed project displace housing units or community facilities? If yes, identify and give number of units, facilities, etc.

The proposed project displaces the Stone Mountain Airport which has been abandoned.

Will the development cause a loss in jobs? If yes, how many.

No.

LOCATION

Where is the proposed project located within the host-local government's boundaries?

The site is east of Stone Mountain Park and is located in DeKalb County on the DeKalb/Gwinnett County line. 33 49'/84 07'30".

Will the proposed project be located close to the host-local government's boundary with another local government? If yes, identify the other local government.

Yes, see above.

Will the proposed project be located close to land uses in other jurisdictions that would benefit or be negatively impacted by the project? Identify those land uses which would benefit and those which would be negatively affected and describe impacts.

No conflicts were identified by Gwinnett County.

ECONOMY OF THE REGION

According to information on the review form or comments received from potentially affected governments:

What new taxes will be generated by the proposed project?

N/A.

How many short-term jobs will the development generate in the Region?

The number of short-term jobs will depend on construction schedule. Long-term jobs are estimated at 50 for the assisted care facility.

Is the regional work force sufficient to fill the demand created by the proposed project?

Yes.

In what ways could the proposed development have a positive or negative impact on existing industry or business in the Region?

Housing for the elderly continues to be a need identified in ARC's Area Plan on Aging.

NATURAL RESOURCES

Will the proposed project be located in or near wetlands, groundwater recharge area, water supply watershed, protected river corridor or other environmentally sensitive area of the Region? If yes, identify those areas.

In what ways could the proposed project create impacts that would damage or help to preserve the resource?

Watershed Protection/Wetlands/Floodplains

The proposed project site is not located in either a large or small water supply watershed. Consequently, no DNR watershed protection criteria apply to the New Gibralter Community Development. No wetlands exist within the proposed site. Furthermore, the site is not located within a 100 year floodplain.

Storm Water/Water Quality

Steps should be taken to limit the amount of pollutants that will be produced during and after construction. During construction, water quality can be impacted without storm water pollution controls. The amount of pollutants that will be produced after construction of the proposed New Gibralter Community Development was estimated by ARC. These estimates are based on some simplifying assumptions for typical pollutant loading factors (lbs\ac\year). The loading factors are based on the results of regional storm water monitoring data from the Atlanta Region. The following table summarizes the results of the analysis.

Estimated Pounds Of Pollutants Per Year

Land Coverage	Total Phosphorus	Total Nitrogen	BOD	TSS	Zinc	Lead
Medium Density Single Family (13.5 ac.)	18.2	79.8	580.5	10,813.5	4.6	1.1
Apartment/Townhouse (37.8 ac)	39.7	404.8	2,532.6	22,869	28.7	5.3
Total (51.3 ac.)	**57.9**	**484.6**	**3113.1**	**33,682.5**	**33.3**	**6.4**

If the development is approved, DeKalb County should take steps to mitigate potential impacts. The Interim Regional Storm Water Quality Management Guidelines, adopted by the Atlanta Region, provide suggestions for addressing storm water quality. These guidelines offer technical guidance for the control of post-development pollution in storm water.

INFRASTRUCTURE

Transportation

How much traffic (both average daily and peak am/pm) will be generated by the proposed project?

	Acres		AM		PM	
	Sq. Feet		Peak Hour		Peak Hour	
Land Use	Units	Weekday	Enter	Exit	Enter	Exit
Single Family Res	50	545	11	33	37	21
Multi-family	394	2,514	33	164	155	73
Assisted Living	100	261	15	8	5	8
	Total	3,320	59	205	197	102

The above trip generation figures were calculated using the Institute of Traffic Engineers Trip Generation (5th Edition) manual.

What are the existing traffic patterns and volumes on the local, county, state and interstate roads that serve the site?

The following volumes are based on 1995 GDOT coverage counts from area facilities that will likely provide the primary routes for traveling to the proposed development. 2010 volumes for these facilities were obtained from the ARC transportation model.

	1995			2010	Forecast	
	Number	1995	1995	Number	2010	2010
Facility	of Lanes	Volume	V/C Ratio	of Lanes	volume	V/C Ratio
Bermuda Road	2	Not Available	N/A	2	Not Available	N/A
West Park Place	4	Not Available	N/A	4	13,500	N/A
US 78 Stone Mountain Hwy from DeKalb Gwinnett County Line to Rockbridge Road (Sta 6043)	6	67,530	0.61	8	84,400	0.57
US 78 from Rockbridge Road to Lake Lucerne Road (Sta 045)	4	52,809	0.74	4	55,200	0.77
Rockbridge Road from US 78 to Annistown Rd (Sta 6374)	2	24,850	0.87	4	37,900	0.53

What transportation improvements are under construction or planned for the Region that would affect or be affected by the proposed project? What is the status of those improvements (long or short range or other)?

The ARC's adopted Atlanta Regional Transportation Improvement Program FY 1996 - FY 2001 (TIP), as amended September 25, 1996, includes the following proposed projects in the vicinity of this site:

A Major Investment Study conducted for the US 78 corridor from I-285 to the Gwinnett/Walton County Line identified three different concepts to improve traffic flow on US 78. Those concepts include 1) converting US 78 to a freeway-type facility from the West Park Place area to near Walton County, with a northern bypass around the City of Snellville; 2) reversible through-lanes on US 78 separated from other lanes by a physical barrier, a northern bypass around the City of Snellville and then continuing as a freeway-type facility to Walton County; and 3) barrier-separated reversible lanes along the existing US 78 corridor from the Stone Mountain Park area to east of the City of Snellville. All concepts call for US 78 to be improved to eight lanes. The study recommends that strategies such as transit, carpooling, flexible work hours and telecommuting be explored further. However, until such time that the Atlanta Region has a conforming transportation plan, this project will not be able to be implemented.

GW 124B US 78 from Rockbridge Road to East Hewatt Road. Project involves improving US 78 from 4 to 8 lanes or 4 lanes with parallel frontage roads. Preliminary Engineering has been authorized. Right-of-way and construction are scheduled to begin in FY 1999. (See above paragraph regarding this project.)

The long range element of ARC's Regional Transportation Plan: 2010 includes the following projects in the vicinity of this site:

> See above regarding US 78.

The Atlanta Region Bicycle and Pedestrian Walkways Plan, 1995 Update includes the following project:

> Although no specific projects are listed in the immediate vicinity, pedestrian and bicycle uses have been identified as part of the US 78 project and within the immediate vicinity.
>
> DeKalb County: Rockbridge Road, from Stone Mountain/Lithonia Road to DeKalb/Gwinnett County Line. Add sidewalks and bicycle lane in conjunction with any road improvements.

Will the proposed project be located in a rapid transit station area? If yes, how will the proposed project enhance or be enhanced by the rapid transit system?

No.

Is the site served by transit? If so, describe type and level of service.

No.

Are there plans to provide or expand transit service in the vicinity of the proposed project?

No.

What transportation demand management strategies does the developer propose (carpool, flex-time, transit subsidy, etc.)?

None.

What is the cumulative generation of this and other DRIs or major developments? Is the transportation system (existing and planned) capable of accommodating these trips?

There are no other DRI sites in the vicinity of this site. Currently, the existing street system operates well in the immediate area, with the exception of US 78 which exceeds capacity during the morning and evening peak hours. Rockbridge Road, from US 78 to Annistown Road was recently improved by Gwinnett County from two lanes to four lanes with a divided median.

According to future projected 2010 volumes, US 78 will be approaching capacity, even with planned improvements. Other roads in the vicinity of the site area are expected to operate at an acceptable level of service.

Despite problems with US 78, it is believed that the transportation system can accommodate the additional traffic. However, the developer, DeKalb and Gwinnett County officials should work with ARC and the GA DOT to develop appropriate transportation projects and programs that will reduce single-occupant vehicle travel, encourage the use of alternative modes and be included in local and regional transportation plans. The site should be developed for pedestrian and bicycle access, with sidewalks connecting to commercial areas nearby.

AIR QUALITY ANALYSIS

Analysis Methodology

The emissions analysis for the proposed New Gibralter Community in DeKalb County was based on trip generation estimates for the facility broken into respective single and multi-family units and assisted living units. For the purposes of the subsequent air quality analysis, the multi-family and assisted living portions were combined while the single-family was broken out separately. The estimated emissions are based on light duty gas vehicles (passenger automobiles) using a mix of off-peak off-highway and peak off-highway conditions, assuming 20% Cold Starts.

Results of Analysis

Estimates for both hydrocarbons and nitrogen oxides resulting from this development are presented in the following table.

	TONS PER YEAR	TONS PER DAY
Nitrogen Oxides	9.781	.038
Hydrocarbons	11.375	.044

The proposed design includes some noteworthy features including its pedestrian connections. The development does not exceed acceptable thresholds for air quality emissions, and is, therefore, acceptable as proposed.

HISTORIC RESOURCES

Will the proposed project be located near a national register site? If yes, identify site.

Information submitted with the review mentions Hightower Trail, but notes that it is not active.

In what ways could the proposed project create impacts that would damage the resource?

N/A.

In what ways could the proposed project have a positive influence on efforts to preserve or promote the historic resource?

N/A.

INFRASTRUCTURE
Wastewater and Sewage

How much wastewater and sewage will be generated by the proposed project?

According to regional averages, the development could generate 0.13MGD of wastewater.

Which facility will treat wastewater from the project?

Gwinnett County's Jackson Creek Facility.

What is the current permitted capacity and average annual flow to this facility?

Permit = 3.0MGD
1993 average flow = 2.880MGD

What other major developments will be served by the plant serving this project?

Not applicable as Gwinnett County has the ability to monitor flows to all wastewater treatment plants and shift flow from plants nearing treatment capacity to plants which have available capacity.

INFRASTRUCTURE
Water Supply and Treatment

How much water will the proposed project demand?

Again, according to regional averages 0.15MGD.

How will the proposed project's demand for water impact the water supply or treatment facilities of the jurisdiction providing the service?

The County should have sufficient water supply and treatment capacity for the development.

INFRASTRUCTURE
Solid Waste

How much solid waste will be generated by the project? Where will this waste be disposed?

417.92 tons per year by national averages. The County provides pick-up and disposal service for residential development. It is likely the apartments and assisted living center would contract private service.

Other than adding to a serious regional solid waste disposal problem, will the project create any unusual waste handling or disposal problems?

No.

Are there any provisions for recycling this project's solid waste.

None stated.

INFRASTRUCTURE
Other facilities

According to information gained in the review process, will there be any unusual intergovernmental impacts on:

- Levels of governmental service?
- Administrative facilities?
- Schools?*
- Libraries or cultural facilities?
- Fire, police, or EMS?
- Other government facilities?
- Other community services/resources (day care, health care, low income, non-English speaking, elderly, etc.)?

*ARC estimates 91 additional students.

HOUSING

Will the proposed project create a demand for additional housing?

No, the development is housing.

Will the proposed project provide housing opportunities close to existing employment centers?

Yes.

Is there housing accessible to the project in all price ranges demanded?

Yes.

Is it likely or unlikely that potential employees of the proposed project be able to find affordable* housing?

Likely.

* Defined as 30 percent of the income of a family making 80 percent of the median income of the Region. 1996 median family income of $52,100 for Atlanta MSA.

DEVELOPMENT OF REGIONAL IMPACT

DRI–REQUEST FOR COMMENTS

Instructions: The project described below has been submitted to this Regional Development Center for review as a Development of Regional Impact (DRI). A DRI is a development project of sufficient scale or importance that it is likely to have impacts beyond the jurisdiction in which the project is actually located, such as adjoining cities or neighboring counties. We would like to consider your comments on this proposed development in our DRI review process. Therefore, please review the information about the project included on this form and give us your comments in the space provided. The completed form should be returned to the RDC on or before the specified return deadline.

Preliminary findings and comments of the RDC:

NEW GIBRALTER COMMUNITY - DEKALB COUNTY

50 sq.ft. Houses, 394 Multi-family units, 100 Assisted Living units

Comments from affected party (attach additional sheets as needed):

See attachment

Individual completing form: Doyle F. Oran
Executive Director

Local Government: DeKalb County Schools

Department: Planning

Telephone: ( ) 404-297-7457

Signature: Doyle F. Oran Date: 5/7/97

Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327-2809

404 364-2562
404 364-2599 (FAX)

Beverly Rhea
Review Coordinator

ARC

Return Deadline: May 12, 1997

DeKalb County School System

Board of Education Members
William Bradley Bryant, Chair
Phil McGregor, Vice Chair
Elizabeth Andrews
Frances Edwards
Lynn Cherry Grant
Mike Kelly
Terry C. Morris

James R. Hallford, Superintendent

3770 North Decatur Road, Decatur, GA 30032-1099

District Office: (404) 297-1200; (404) 297-2300

May 7, 1997

Ms. Beverly Rhea
Review Coordinator
Atlanta Regional Commission
200 Northcreek, Suite 300
3715 Northside Parkway
Atlanta, Georgia 30327

Dear Ms. Rhea:

The New Gibralter Community Development is in the Pine Ridge Elementary, Stephenson Middle School, and Stephenson High School attendance boundaries. At the present time, Pine Ridge, Stephenson Middle, and Stephenson High are all overcrowded and cannot handle the additional students projected for this development without serious space problems.

Within the next four to five years, building projects are planned which will enable us to accommodate the students currently in the area as well as the anticipated increase in student population. Until then, this development will create more serious housing problems for the school system.

Sincerely,

Doyle F. Oran
Executive Director

May 22, 1995

ARC Storm Water Management Task Force
INTERIM STORM WATER QUALITY MANAGEMENT GUIDELINES

Introduction

The following are suggested interim guidelines for local governments that want to protect and improve water quality by minimizing the potential harmful impacts generated by pollution in storm water runoff from urban land uses. These guidelines are focused on practices to minimize long-term impacts of developed areas on water quality. In general, the objectives of these interim guidelines include minimizing imperviousness, providing areas to capture overland flow of storm water and allow it to infiltrate into the soil, treating other runoff that leaves a developed site and designing sites to protect water quality.

Although many pollutants in storm water runoff must be considered in storm water design, one of the primary pollutants used as a design parameter is total suspended solids, or TSS. The following table is provided as information on post-development characteristics of average annual TSS loads (pounds per acre per year) associated with various land uses and development types. The source of this information is based on storm water samples collected for the Atlanta Region Storm Water Characterization Study and is supplemented with national data for the non-urban land uses.

Land Use	TSS (lbs/ac/yr.)
Forest/Open	235
Agriculture/Pasture/Cropland	327
Large Lot Single Family (>2ac)	355
Low Density S.F. (1-2ac)	447
Low-Medium Density S.F. (0.5-1.0ac)	639
Medium Density S.F. (0.25-0.5ac)	801
Townhouse/Apartment	605
Commercial	983
Office/Light Industrial	708
Heavy Industrial	795

The Atlanta Region Storm Water Management Task Force is working to develop a detailed manual of Best Management Practices (BMPs) for reducing TSS and other pollutants in storm water runoff from urban areas. The Task Force generated the following protection measures as interim recommendations to be used until the BMP manual is completed. This guidance document includes a variety of recommended practices which are presented below as options for developers and engineers to consider in designing controls for storm water runoff quality from developed areas. These practices are options and may be used alone or in combination - selection of appropriate controls will be site-specific.

Practice 1: Minimize Impervious Surface

This option may be most appropriately applied to larger sites. Minimizing the amount of impervious surface on a site allows for more infiltration of storm water into the ground, thereby reducing both pollutants and the runoff from the site. This approach to managing storm water runoff does not require extensive maintenance. Therefore, when possible, limiting impervious surface on a site should be encouraged. This basically involves leaving part of a site undeveloped to achieve lower percentages of impervious surface. It is recommended that impervious surface on a site be limited to the impervious surface equivalent to medium density, single family residential (approximately 1/4 - 1/2 acre average lot sizes) development. This type of development typically has 25% or less impervious surface. If a developer restricts impervious surface to these levels, construction of structural controls for water quality would probably not be necessary. Any development more dense than medium density single family residential should employ structural controls (see Practice 2 below).

The development site should be planned so that open space areas act as a pollutant filter and buffer for storm water flow from the site. Environmentally sensitive portions of a development site such as river and stream corridors and wetlands should be targeted for the undeveloped, "open space" or "greenbelt" areas. Local governments can encourage the concept of "cluster development," which allows higher levels of impervious (over 25%, for example) on portions of a site if sensitive areas are left undeveloped and maintained as undisturbed open space and they function to reduce the pollutant load in storm water runoff. Provisions should be made so that any open space areas are maintained in their natural state. If any development in these areas occurs in the future, the site would have to be re-reviewed, for storm water quality purposes, by the local government.

As a general guideline to local governments, several studies indicate that watershed-wide impervious surface amounts should not exceed 10-25% of the total land area in a water supply watershed.

Practice 2: Structural Controls

If the developer selects storm water management options which involve structural controls, it is important for local governments to require that the developer submit a Storm Water Management Plan as a key component of the Plan of Development. The storm water plan should include the location, construction and design details and all engineering calculations for all storm water quality control measures.

Wet Ponds

This practice recommends that structural controls be designed to control water quality in addition to the quantity controls typically required by local governments. At this time, the preferred approach to achieve water quality goals is construction of wet ponds. However, wet ponds may be more appropriately suited for larger developments or a group of developments. To develop an appropriate wet pond, additional storage provided above the permanent pool, combined with an appropriately designed outlet control structure, could give the necessary control for both storm water quality and quantity. Other structural control methods such as constructed wetlands could be explored as long as they were shown to achieve the desired pollutant removal.

As an example, the following design guidelines typically achieve a TSS reduction of 65%.

- Keep pond shape simple for good circulation.
- Inlets should be widely spaced from the outlets to avoid short-circuiting.
- Length should be three to five times the width.
- At least three, and preferably six to seven feet of permanent pool depth is needed for the majority of the pond.
- An underwater shelf (approximately 6"-12" deep and at least 3' wide) around the perimeter of the pond should be planted with rooted aquatic plant species.
- The pond should be designed with a sediment forebay which is easily accessible for maintenance and periodic cleaning. The forebay should be designed so as to minimize the resuspension of previously deposited sediments. The forebay storage capacity should be about 10% of the permanent pool storage to accommodate sediment accumulations over a 10- to 20-year period.
- The pond surface area should correspond to approximately 1% of the total drainage area. The minimum drainage area is 20-25 acres; the maximum is 100-300 acres depending on the level of imperviousness in the drainage basin.
- For water quality benefits, the pond should provide storage for runoff depths as listed below. The pond volume above the normal pool required for water quality may be calculated by multiplying the runoff depth by the contributing drainage area.

	Inches of Runoff	
Land Use	Sandy Soil	Clayey Soil
Freeways	0.35	0.40
Totally Paved Area	1.10	1.10
Industrial	0.85	0.90
Commercial	0.75	0.85
Schools	0.20	0.40
Low Density Res.	0.10	0.30
Medium Density Res.	0.15	0.35
High Density Res.	0.20	0.40
Developed Parks	0.50	0.60

- Storage for flood control should be provided above the level of storage provided for water quality benefits.
- The ratio of outlet flow rate to pond surface area for each stage value needs to be at the most 0.002 cfs/ft^2 for the water quality portion.

Extended Detention with Wetland Plantings

For smaller sites, with a drainage area less than 20-25 acres, it may be appropriate for the developer to use the option of a detention facility system established to provide water quality improvement through much longer detention times in contact with wetland plantings. Research has shown that storm water impounding areas which capture the first flush of runoff in a wetland setting for several days, in concert with an outlet control system for extending the detention times of larger storms, demonstrate measurable improvements in water quality. As an example, the following general design guidelines typically achieve a TSS reduction of between 45 and 80%.

If this type of system is desired, the pond area should follow the 1% of drainage basin rule presented above. The first flush capture should be at least 1/2 inch runoff from all impervious surfaces. The bottom of the pond should be cultivated with plantings indigenous to local wetlands. The first flush should be held so as to prevent its complete release in less than a 48 hour period. Each pond should provide the forebay sediment storage area already presented, as well as layout to prevent short circuit. Water velocity through the pond should be kept as low as possible with a maximum goal of 1/2 fps. Where possible, the outlet control system should be located adjacent to a public street to allow maximum access.

Maintenance of Structural Controls

If structural storm water controls are not maintained properly, they will provide no benefit. The developer's Storm Water Management Plan should require the developer to submit a detailed, long-term schedule for inspection and maintenance of any structural storm water facilities included. This schedule should be consistent with the maintenance policy of the local government and should describe all maintenance and inspection requirements and persons responsible for performing maintenance and inspection activities. Provisions should be made for the local government to inspect the facilities during and after construction.

Practice 3: Other Controls

Many of the following suggested controls are applicable to all developments. In general, the objectives of the following storm water runoff controls include minimizing imperviousness, providing areas to capture overland flow of storm water and allow it to infiltrate into the soil, reducing sediment flows, and avoiding directly connected impervious surface areas.

Building/Site Design

- Direct roof downspouts away from direct connection with impervious surfaces.
- Use grassed swales/vegetative filter strips whenever feasible for the drainage collection system (eliminate curb and gutter). Because of decreased storm water runoff, a reduction in pollutant loads will also be realized.
- Landscape with terraces rather than aggressive slopes.
- Encourage the use of bioengineering practices to rehabilitate unstable stream channels resulting from impacts of urbanization.
- Protect and maintain natural, undisturbed buffers adjacent to streams.
- Keep development out of wetland and floodplain areas. Encourage incorporating wetlands into landscaping, upgrading wetlands where possible.
- Design and locate buildings, roads, parking and landscaping to conform with the natural terrain and to retain natural features.
- Minimize impervious surface in river and stream corridors.

Erosion and Sediment Controls

- Leave generous buffers or natural areas between bare land areas.
- Regrass/landscape bare soil.
- Check for volume transfer and velocities of water downstream of project to protect downstream areas from increased erosion and to prevent streambank and natural area destruction.
- For controls during construction, refer to the State Erosion and Sediment Control Act and pending State construction permit.

Recommended References

- United States Environmental Protection Agency, January 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.

- Schueler, Thomas R., Department of Environmental Programs, Metropolitan Washington Council of Governments, July 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs.

- Georgia Soil & Water Conservation Commission, Metro Atlanta Association of Conservation Districts, USDA Soil Conservation Service and Georgia Environmental Protection Division, 1994. Guidelines for Streambank Restoration.

- Pitt, Dr. Robert E. Excerpts from Detention Pond Design to Control Quality and Quantity, University of Alabama, Birmingham Continuing Education Workshop. For more information, contact David Eckhoff, Director of Engineering Professional Development, (205)934-8268.

- Camp Dresser & McKee, prepared for the Atlanta Region Storm Water Task Force, Atlanta Region Storm Water Characterization Study, 1993.