

- NB 790-05 The Residences @ North
Site Plan Beach -

MSA-S-1829-5015

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor



Martin G. Madden
Chairman

Ren Serey
Executive Director

**STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS**

1804 West Street, Suite 100, Annapolis, Maryland 21401
(410) 260-3460 Fax: (410) 974-5338
www.dnr.state.md.us/criticalarea/

September 11, 2006

Mr. John Hofmann
Town Hall
8916 Chesapeake Avenue, PO Box 99
North Beach, MD 20714

Re: North Beach Resort Condominium Site Plan-Revised

Dear Mr. Hofmann:

This letter is in regard to our continuing review of the above referenced site plan and development proposal, and in response to the revised site plan received September 9, 2006.

Based on the revised information, it appears that the proposed filtering medium for the stormfilters has been changed to an approved leaf compost medium as requested. In addition, conversations between Commission staff and the project consultant, Robin Barnhardt, have resulted in a clearer understanding of the nature of the proposed stormfilters. Therefore, our previous concerns regarding the size of any potential underdrains have been resolved, and we have no further concerns regarding the project as proposed.

Thank you for the opportunity to provide comments on this revised site plan and development proposal. If you have any questions, please contact me at 410-260-3482.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kerrie Gallo".

Kerrie L. Gallo
Natural Resource Planner
NB790-05

Cc: Robin Barnhardt, CPJ

Robert L. Ehrlich, Jr.
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August 22, 2006

Mr. John Hofmann
Town Hall
8916 Chesapeake Avenue, PO Box 99
North Beach, MD 20714

Re: North Beach Resort Condominium Site Plan-Revised

Dear Mr. Hofmann:

Thank you for providing information on the above referenced revised site plan and stormwater management calculations. The applicant proposes to construct eighty condominium units, and fourteen town home units, as well as construct 12,000 square feet of commercial space. The property lies within an Intensely Developed Area (IDA) and is currently developed with multiple structures and parking areas.

Based on the information provided, it appears that there are several outstanding stormwater management design issues which require revision. Specifically, the applicant has proposed the use of the multiple stormfilters in order to meet the 10% pollutant reduction requirement. In order to utilize the proposed stormfilters for compliance with the 10% rule, the design of the structures must meet the criteria described within the Maryland Department of the Environment's (MDE's) 2000 Stormwater Design Manual. Based on our review of these criteria, the proposed underdrains appear inadequately sized. In addition, perlite is not considered an approved filtering medium per the design manual criteria. In order to utilize the stormfilters for 10% compliance, the perlite must be replaced with leaf compost as a medium.

Thank you for the opportunity to provide comments on this site plan and development proposal. Please have the applicant address the above stated concerns and provide a revised site plan to this office. If you have any questions, please contact me at 410-260-3482.

Sincerely,

A handwritten signature in cursive script that reads "Kerrie Gallo".

Kerrie L. Gallo
Natural Resource Planner
NB790-05

Cc: Robin Barnhardt, CPJ

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor



Martin G. Madden
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1804 West Street, Suite 100, Annapolis, Maryland 21401
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December 20, 2005

Mr. John A. Hofmann
Town Hall
8916 Chesapeake Avenue, P O Box 99
North Beach, MD 20714

RE: North Beach Resort

Dear Mr. Hofmann:

I have received the North Beach Resort development proposal and have reviewed the plans for Phases I and II. These phases each consist of 40 condominiums, 7 townhouses, and commercial use. The site is 3.51 acres and is designated IDA. The residential component comprises 2.09 acres and the commercial component comprises 1.42 acres. Phase III will be submitted at a later date. I have the following comments.

1. The plans did not include an existing conditions plan; therefore it is difficult to determine exactly what is on the site now, but it appears a significant portion of the site is impervious. Please verify what the existing conditions are.
2. The application did not include an environmental report. The applicant should obtain a letter from the Department of Natural Resources Heritage division stating whether there are any impacts to threatened or endangered species.
3. The application indicates that a stormfilter will be used to meet the 10% phosphorus pollutant reduction requirement. However, the 10% calculations were not included with the submittal. Please forward this information for our review. The removal efficiency for a stormfilter is 50%.
4. In your conversation today with Mary Owens, you indicated that the site is not within the 100-foot Buffer. This information should be provided as a note on the plat.

I will provide additional comments once I receive the requested information. Please call me at (410) 260-3479 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Regina A. Esslinger".

Regina A. Esslinger, Chief
Project Evaluation Division
RAE/jd

cc: NB790-05

TOWN OF NORTH BEACH

Mark R. Frazer, Mayor

**Town Hall**8916 Chesapeake Avenue, PO Box 99
North Beach, Md 20714

December 1, 2005

Mr. Ren Serey, Director
Critical Area Commission
1804 West Street, Suite 100
Annapolis, Md 21401

Re: North Beach Resort

Dear Mr. Serey:

The owner of the mostly vacant parcels on the north and south side of Fifth Street between Bay Avenue and Chesapeake Avenue is the proposing development for the property. The development includes the following.

- 1) Phase I - 40 units condominiums; 7 units Town Homes; 6000sf commercial (north of Fifth St.)
- 2) Phase II - same as Phase I (south of Fifth St.)
- 3) Phase III - 61 room lodging

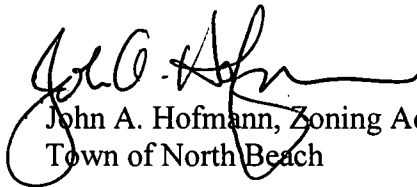
The development for Phase I and II are being proposed at this time. Phase III is a future development.

Enclosed are the engineering drawings, architectural plans, IDA checklist and storm water management computations received from the Developer.

Page Two
December 1, 2005
Critical Area Commission

Please review the enclosed documents and provide comments to the Town. If you have any question or desire to meet to review the Project, please give me a call.

Sincerely,

A handwritten signature in black ink, appearing to read "John A. Hofmann". The signature is fluid and cursive, with a large initial "J" and "H".

John A. Hofmann, Zoning Administrator
Town of North Beach

Cc: Mayor Frazer
Jim Fowler

CHECKLIST FOR PROPOSED DEVELOPMENT OR REDEVELOPMENT IN IDA

I. PROJECT DESCRIPTION

A. LOCATION -

Municipality North Beach County Calvert
 Closest Body of Water Chesapeake Bay
 Land Use Designation _____
 Zoning _____
 Existing Land Use _____
 Proposed Land Use Mixed - Use
 Site Acreage 3.51 Ac.
 Acreage Within the Critical Area _____

B. TYPE OF PROPOSED DEVELOPMENT -

	New	Expanded	Affected
			Acres
Commercial	<u>1.42 Ac.</u>	_____	_____
Industrial	_____	_____	_____
Residential	<u>2.09 Ac.</u>	_____	_____
Research/Education Areas	_____	_____	_____
Recreational	_____	_____	_____
Other (please describe)	<u>Mixed - Use Residential/Commercial</u>		_____

C. TIDAL WETLANDS -

	Existing		Proposed	
	% of Site	No. Acres	% of Site	No. Acres
Tidal Wetlands	_____	_____	_____	_____
Forest	_____	_____	_____	_____
Developed Woodlands	_____	_____	_____	_____
Farmland	_____	_____	_____	_____
Open Land	_____	_____	_____	_____
Floodplain	<u>100</u>	<u>3.51</u>	<u>100</u>	<u>3.51</u>
Steep Slopes (>15%)	_____	_____	_____	_____
Habitat Protection Areas				
Non-tidal Wetlands	_____	_____	_____	_____
Rare Species Habitat	_____	_____	_____	_____
Riparian Forest	_____	_____	_____	_____
Large Forest Areas	_____	_____	_____	_____
Habitat of local significance ...	_____	_____	_____	_____
Other significant habitat (describe) _____	_____	_____	_____	_____

Depth of Adjacent Water Body

Amount of Shoreline 0 linear feet

Quality of Existing Shoreline

_____ eroding unstabilized

_____ structurally stabilized

_____ structurally stabilized, improvements needed

_____ unstabilized, no significant erosion

List Soil Types _____

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II. PROJECT DEVELOPMENT

	<u>YES</u>	<u>NO</u>	<u>UNKNOWN</u>
A. Is the proposed development permitted in the IDA land use designation?	✓	—	—
B. Does the proposed development plan avoid site disturbance to all Habitat Protection Areas including:			
Non-tidal Wetlands	✓	—	—
Rare Species Habitat	✓	—	—
Riparian Forest and large forested areas	✓	—	—
supporting interior dwelling wildlife	✓	—	—
Natural Heritage Areas	✓	—	—
Habitat of local significance	✓	—	—
C. Does the proposed development meet all State, County and Town stormwater management regulations and have an approved sediment erosion control plan?	—	✓	—
D. For proposed new development, will the technologies utilized to meet the State and local stormwater requirements improve pollutant loadings by at least 10% of pre-development levels?	—	—	— N/A
If not, are offsets provided?	—	—	—
For redevelopment, do the technologies utilized to meet State and local stormwater requirements improve pollutant loadings by at least 10% of the site as it existed prior to redevelopment?	✓	—	—
If not, are offsets provided?	—	—	—
E. Will all permeable areas be established in vegetation?	✓	—	—
F. Have areas of public access to the shoreline (foot paths, scenic drives, recreational facilities) been maintained or created as part of proposed development?	—	—	— N/A
G. Does the proposed development provide for the enhancement of forest and/or wetland habitat through utilization of the Town's Urban Forestry program, landscaping, and/or wetland or aquatic habitat restoration?	—	—	— N/A

YES NO UNKNOWN

- H. Does the proposed development use cluster development in order to reduce pervious surface and to maximize areas of natural vegetation? N/A

- I. Does the proposed development minimize the destruction of forest and woodland vegetation? N/A

- J. Has the proposed development incorporated mitigating techniques for pollution control? ✓

If so, what special actions has the property owner or developer implemented and/or provided for?

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Worksheet A: Standard Application Process

Calculating Pollutant Removal Requirements¹

Step 1: Calculate Existing and Proposed Site Imperviousness

A. Calculate Percent Imperviousness

Phases I+II = 2.09 acres

- 1) Site Area within the Critical Area IDA, A = $\frac{I}{I+II}$ $\frac{II}{I+II}$ acres
- 2) Site Impervious Surface Area, Existing and Proposed, (See Table 4.1 for details)

	(a) Existing (acres)		(b) Proposed (acres)	
	<i>Phase I</i>	<i>Phase II</i>	<i>Phase I</i>	<i>Phase II</i>
Roads				
Parking lots				
Driveways				
Sidewalks/paths				
Rooftops				
Decks				
Swimming pools/ponds				
Other				
Impervious Surface Area	<u>.812</u>	<u>.929</u>	<u>.989</u>	<u>.978</u>

3) Imperviousness (I)

Existing Imperviousness, I_{pre} = Impervious Surface Area / Site Area
 = (Step 2a) / (Step 1)
 = $(\frac{.812}{2.09}) / (\frac{1.05}{2.09})$
 = $\frac{.812}{1.05}$ %
 = 77.33% / 90.19%

Proposed Imperviousness, I_{post} = Impervious Surface Area / Site Area
 = (Step 2b) / (Step 1)
 = $(\frac{.989}{2.09}) / (\frac{1.03}{2.09})$
 = $\frac{.989}{1.03}$ %
 = 94.19% / 94.98%

B. Define Development Category (circle)

- 1) New Development: Existing imperviousness less than 15% I (Go to Step 2A)
- 2) Redevelopment: Existing imperviousness of 15% I or more (Go to Step 2B)
- 3) Single Lot Residential Development: Single lot being developed or improved; single family residential development; and more than 250 square feet of impervious area and associated disturbance (Go to Section 5, Residential Approach, for detailed criteria and requirements).

¹ NOTE: All acreage used in this worksheet refers to areas within the IDA of the Critical Area only.

Step 2: Calculate the Predevelopment Load (L_{pre})

A. New Development

$$\begin{aligned} L_{pre} &= (0.5) (A) \\ &= (0.5) (\quad) \\ &= \quad \text{lbs /year of total phosphorus} \end{aligned}$$

Where:

- L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
- 0.5 = Annual total phosphorus load from undeveloped lands (lbs/acre/year)
- A = Area of the site within the Critical Area IDA (acres)

B. Redevelopment

$$\begin{aligned} L_{pre} &= (R_v) (C) (A) (8.16) \\ R_v &= 0.05 + 0.009 (I_{pre}) \quad .75 / .86 \\ &= 0.05 + 0.009 (\quad) = \quad \\ L_{pre} &= (\quad) (\quad) (\quad) (8.16) \\ &= \quad \text{lbs/year of total phosphorus} \end{aligned}$$

Where:

- L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
- R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff
- I_{pre} = Pre-development (existing) site imperviousness (i.e., $I = 75$ if site is 75% impervious)
- C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l
- A = Area of the site within the Critical Area IDA (acres)
- 8.16 = Includes regional constants and unit conversion factors

Step 3: Calculate the Post-Development Load (L_{post})

A. New Development and Redevelopment:

$$L_{post} = (R_v) (C) (A) (8.16)$$

$$R_v = 0.05 + 0.009 (I_{post})$$

$$= 0.05 + 0.009 (\text{ }) = \frac{.90}{.91}$$

$$L_{post} = (\text{ }) (\text{ }) (\text{ }) (8.16)$$

$$= \text{ } \text{ lbs/year of total phosphorus}$$

Where: $\frac{2.31}{2.29}$

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)

R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff

I_{post} = Post-development (proposed) site imperviousness (i.e., $I = 75$ if site is 75% impervious)

C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l

A = Area of the site within the Critical Area IDA (acres)

8.16 = Includes regional constants and unit conversion factors

Step 4: Calculate the Pollutant Removal Requirement (RR)

$$RR = L_{post} - (0.9) (L_{pre})$$

$$= (\text{ }) - (0.9) (\text{ })$$

$$= \text{ } \text{ lbs/year of total phosphorus}$$

Where: $\frac{0.582}{.346}$

RR = Pollutant removal requirement (lbs/year)

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

For Phase I + Phase II together = .928

Step 5:**Identify Feasible BMP(s)**

Select BMP Options using the screening matrices provided in the Chapter 4 of the 2000 Maryland Stormwater Design Manual. Calculate the load removed for each option.

BMP Type	(L_{post})	x	(BMP_{RE})	x	(% DA Served)	=	LR
Stormfilter	2.31	x	.40	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
Load Removed, LR (total) =							_____ lbs/year
Pollutant Removal Requirement, RR (from Step 4) =							_____ lbs/year

Where:

- Load Removed, LR = Annual total phosphorus load removed by the proposed BMP (lbs/year)
- L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)
- BMP_{RE} = BMP removal efficiency for total phosphorus, Table 4.8 (%)
- % DA Served = Fraction of the site area within the critical area IDA served by the BMP (%)
- RR = Pollutant removal requirement (lbs/year)

If the Load Removed is equal to or greater than the Pollutant Removal Requirement computed in Step 4, then the on-site BMP complies with the 10% Rule.

Has the RR (pollutant removal requirement) been met? Yes No

NORTH BEACH RESORT CONDOMINIUM

STORMWATER MANAGEMENT COMPUTATIONS

- perlite needs to be replaced w/ leaf compost
- underdrains do not meet criteria in manual → undersized

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JUL 24 2006

Project: 35-027

Date: April, 2006 - RAB
Rev:

CRITICAL AREA COMMISSION

CPJ
Associates

Charles P. Johnson & Associates, Inc.

Planners • Engineers • Landscape Architects • Surveyors

1751 Elton Road 3rd Floor Silver Spring, Maryland 20903
301.434.7000 Fx. 301.434.9394 Frederick, MD - Fairfax, VA

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VICINITY MAP
SCALE: 1"=2,000'

Narrative

“The Residences at North Beach” are located between Chesapeake Avenue and Bay Avenue in the area of 3rd Street and 5th Street. The site is within the Town of North Beach, in Calvert County, Maryland. The site is 3.51 acres and is zoned as waterfront (W). The site is to be developed in three phases. Phases 1 and 2 of the development are mixed-use buildings for commercial and residential purposes covering 2.09 acres. Future Phase 3 is the development of a hotel site covering 1.42 acres. The site is within the Chesapeake Bay watershed.

The development of this site is classified as re-development. The stormwater management for this site will be designed to meet criteria for re-development. Stormwater quantity control is not necessary because there is no channel to protect from increased runoff or velocities and all stormwater will be directed into the existing storm sewer system and discharged directly into the Chesapeake Bay. Stormwater quality control will be designed to meet the criteria under the Town’s Critical Area Protection Program. The site is located in an Intensely Developed Area (IDA). The Critical Area Criteria for re-development in an IDA requires a 10 percent of reduction of pre-development pollutant loadings. The stormwater quality control system for this site is designed to meet the 10 percent reduction of the predevelopment runoff from impervious areas and all of the runoff from any impervious areas added to the site.

STORMWATER MANAGEMENT COMPUTATIONS

StormFilter Design

Phase	Total Area (sf)	Existing Impervious (sf)	Proposed Impervious (sf)
1	45603	35378	43101
2	44885	40482	42624

1) Determine Impervious Area to be Treated

$$\text{Imp}_{(\text{treat})} = \text{Additional Proposed Impervious Area} + 10\% \text{ of Existing Impervious Area}$$

Phase 1: $\text{Imp}_{(\text{treat})} = 11261 \text{ sf} = 0.26 \text{ ac.}$

Phase 2: $\text{Imp}_{(\text{treat})} = 6190 \text{ sf} = 0.14 \text{ ac.}$

2) Determine Required Number of Cartridges

Required # of Cartridges per Phase = 12
 (Based on the StormFilter sizing sheet attached)

Provided # of Cartridges per Phase = 14

Pollutant Load Removal Calculations

PHASE 1

1) Calculate Site Imperviousness

Phase	Total Area (sf)	Existing Impervious (sf)	Proposed Impervious (sf)
1	45603	35378	43101
	1.04	.812	.989

Existing Development % Impervious = 77.6 %

Proposed Development % Impervious = 94.5 %

The proposed development is categorized as: **Re-development**
 (Since the Pre-Re-development % Impervious is > 15%)

2) Calculate Pre-Development Pollutant Load

$$L_{pre} = R_v * C * A * 8.16$$

Where:

$$R_v = 0.05 + 0.009(I) = 0.75$$
$$C = 0.3 \quad (\text{Since pre-development } I > 20\%)$$
$$A = 1.05 \quad = \text{site area (ac.)}$$

$$L_{pre} = 1.92 \text{ lbs/yr}$$

3) Calculate Post-Development Pollutant Load

$$L_{post} = R_v * C * A * 8.16$$

Where:

$$R_v = 0.05 + 0.009(I) = 0.90$$
$$C = 0.3$$
$$A = 1.05 \quad = \text{site area (ac.)}$$

$$L_{post} = 2.31 \text{ lbs/yr}$$

4) Calculate the Pollutant Removal Requirement

RR = Removal Requirement

$$RR = L_{post} - 0.9 (L_{pre})$$

$$RR = 0.58 \text{ lbs/yr}$$

5) Identify Feasible Urban Best Management Practices (BMP)

STR. 54

$$\text{Total Site Area} = 45603 \text{ sf}$$

$$\text{STR. D.A.} = 4244 \text{ sf}$$

BMP Type = StormFilter

$$\text{BMP}_{RE} = 40\% = \text{removal efficiency for total phosphorus (\%)}$$

LR₁ = Load Removed from Phases 1&2

$$LR_1 = L_{post} * \text{BMP}_{RE} * \% \text{ Drainage Area Served}$$

$$LR_1 = 0.09 \text{ lbs/yr}$$

STR. 60

Total Site Area = 45603 sf
STR. D.A. = 16052 sf

3520

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₂ = Load Removed from Phases 1&2

LR₂ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₂ = 0.32 lbs/yr

STR. 64

Total Site Area = 45603 sf
STR. D.A. = 10736 sf

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₃ = Load Removed from Phases 1&2

LR₃ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₃ = 0.22 lbs/yr

STR. 92

Total Site Area = 45603 sf
STR. D.A. = 1330 sf

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₄ = Load Removed from Phases 1&2

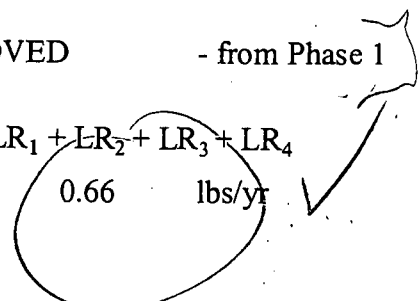
LR₄ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₄ = 0.03 lbs/yr

TOTAL LOAD REMOVED - from Phase 1

LR_{Total} = LR₁ + LR₂ + LR₃ + LR₄

LR_{Total} = 0.66 lbs/yr



LR_{Total} > RR, therefore BMP complies with the 10% Rule.

PHASE 2

1) Calculate Site Imperviousness

Phase	Total Area (sf)	Existing Impervious (sf)	Proposed Impervious (sf)
2	44885	40482	42624

Existing Development % Impervious = 90.2 %

Proposed Development % Impervious = 95.0 %

The proposed development is categorized as: **Re-development**

(Since the Pre-Re-development % Impervious is > 15%)

2) Calculate Pre-Development Pollutant Load

$$L_{pre} = R_v * C * A * 8.16$$

Where:

$$R_v = 0.05 + 0.009(I) = 0.86$$
$$C = 0.3 \quad (\text{Since pre-development } I > 20\%)$$
$$A = 1.03 \quad = \text{site area (ac.)}$$

$$L_{pre} = 2.17 \text{ lbs/yr}$$

3) Calculate Post-Development Pollutant Load

$$L_{post} = R_v * C * A * 8.16$$

Where:

$$R_v = 0.05 + 0.009(I) = 0.90$$
$$C = 0.3$$
$$A = 1.03 \quad = \text{site area (ac.)}$$

$$L_{post} = 2.28 \text{ lbs/yr}$$

4) Calculate the Pollutant Removal Requirement

RR = Removal Requirement

$$RR = L_{post} - 0.9 (L_{pre})$$

$$RR = 0.33 \text{ lbs/yr}$$

5) Identify Feasible Urban Best Management Practices (BMP)

STR. 72

Total Site Area = 44885 sf
STR. D.A. = 4875 sf

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₁ = Load Removed from Phases 1&2

LR₁ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₁ = 0.10 lbs/yr

STR. 78

Total Site Area = 45603 sf
STR. D.A. = 16052 sf

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₂ = Load Removed from Phases 1&2

LR₂ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₂ = 0.32 lbs/yr

STR. 82

Total Site Area = 45603 sf
STR. D.A. = 10736 sf

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₃ = Load Removed from Phases 1&2

LR₃ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₃ = 0.21 lbs/yr

STR. 94

Total Site Area = 45603 sf

STR. D.A. = 1614 sf

BMP Type = StormFilter

BMP_{RE} = 40% = removal efficiency for total phosphorus (%)

LR₄ = Load Removed from Phases 1&2

LR₄ = L_{post} * BMP_{RE} * % Drainage Area Served

LR₄ = 0.03 lbs/yr

TOTAL LOAD REMOVED - from Phase 1

LR_{Total} = LR₁ + LR₂ + LR₃ + LR₄

LR_{Total} = 0.67 lbs/yr ✓

LR_{Total} > RR, therefore BMP complies with the 10% Rule.

StormFilter Sizing Based on the MDE Design Methodology

Project Name:

Date:

3/8/2006

Input XXX

Result XXX

SITE CHARACTERISTIC INPUT

Design Storm, P (inches)

1.00

Total Area, A_T (acres)

0.25

Impervious Area, A_I (acres)

0.25

REDEVELOPMENT/FLOW-BASED SIZING

Percent Impervious, $I = \text{Impervious Area} / \text{Total Area}$

100%

Weighted Volumetric Runoff Coefficient, $R_v = 0.05 + 0.09(I)$

0.95

Runoff Volume, Q_a (watershed inches) = $P \times R_v$

0.95

Unit Peak Discharge, q_u (csm/in)

1,010

Water Quality Flow, Q_p (cfs)

0.37

Number of 15 gpm Filter Cartridges Required

12

Vault Size

8x16

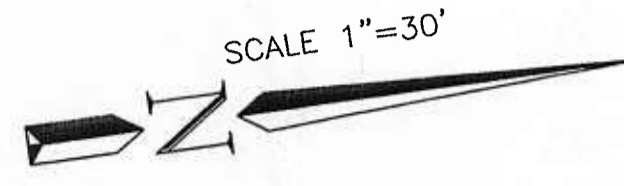
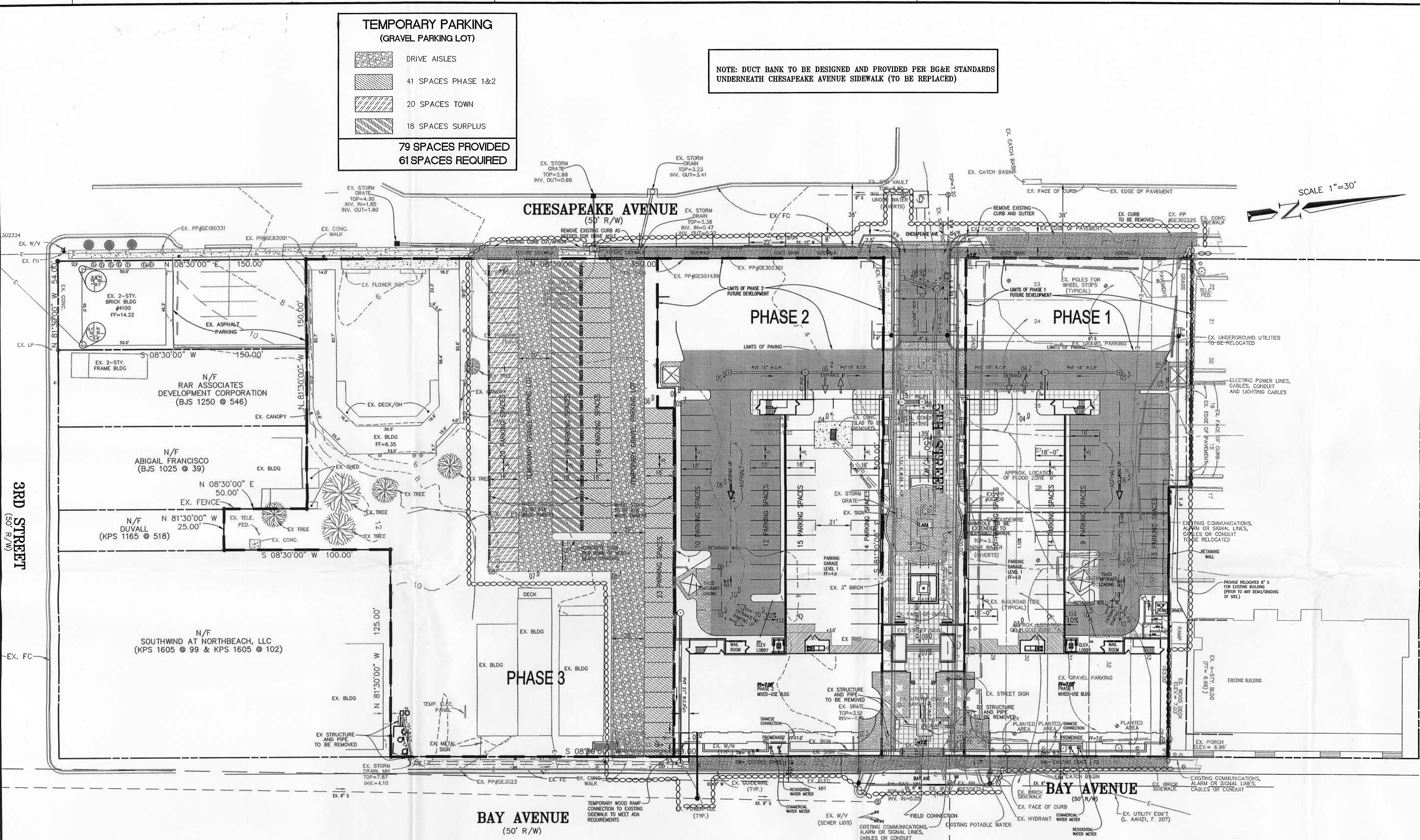
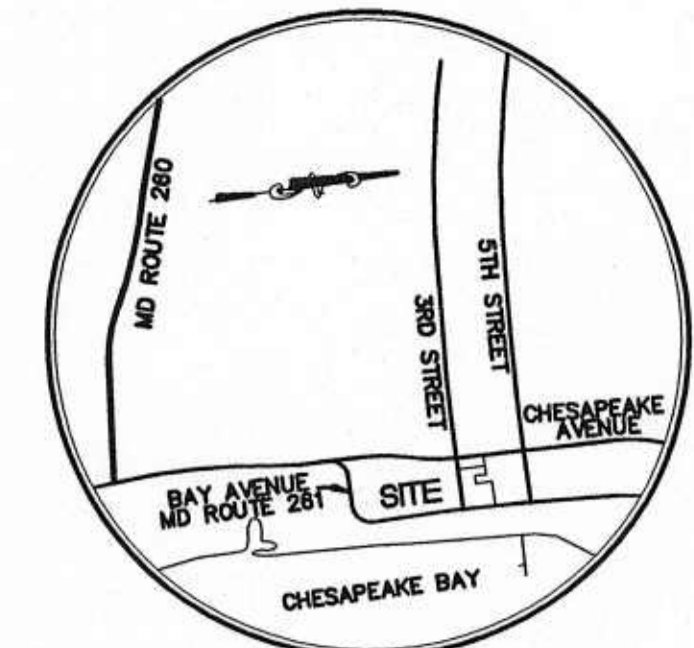
SW360 ENGINEER :

Stormwater360

TEMPORARY PARKING
(GRAVEL PARKING LOT)

[Pattern]	DRIVE AISLES
[Pattern]	41 SPACES PHASE 1&2
[Pattern]	20 SPACES TOWN
[Pattern]	18 SPACES SURPLUS
79 SPACES PROVIDED	
61 SPACES REQUIRED	

NOTE: DUCT BANK TO BE DESIGNED AND PROVIDED PER BG&E STANDARDS UNDERNEATH CHESAPEAKE AVENUE SIDEWALK (TO BE REPLACED)



CURRENT OWNER

BARBARA AND RON RUSSO
RAR ASSOCIATES DEVELOPMENT CORPORATION
PO BOX 39
9132 BAY AVENUE
NORTH BEACH, MD 20714

DEVELOPER

VAN METRE RESIDENTIAL INVESTMENTS, LLC
5252 LYNKATE COURT
BURK, VA 22015
703-425-2600

Charles P. Johnson & Associates, Inc.
PLANNERS - ENGINEERS - LANDSCAPE ARCHITECTS - SURVEYORS
170 EILTON ROAD SUITE 300 SILVER SPRING, MARYLAND 20905
Phone: 301-594-1000 Fax: 301-594-9991
FREDERICK, MD DEC 2 2015 FAIRFAX VA

CATEGORY 1 SITE PLAN
THE RESIDENCES AT NORTH BEACH
THIRD ELECTION DISTRICT
CALVERT COUNTY, MARYLAND

3RD STREET
(50' R/W)

EX. FC

BAY AVENUE
(50' R/W)

Project Data	The Residences At North Beach for Van Metre Companies										Unit Labels	7/21/04			
Unit Description	Color Legend	Description	Average	Unheated S.F.	Gross S.F.	Basement	Ground	Second	Third	Fourth	Fifth	Total	Unit %	Net S.F.	Gross S.F.
A1	N/A	2 BR / 2BA	1093.00	77.00	1270.00	0	0	1	1	1	1	4	10.00%	4,372.00	5,080.00
A2	N/A	2 BR / 2BA	1304.00	83.00	1387.00	0	0	1	1	1	1	4	10.00%	5,216.00	5,548.00
A3	lower Contig	2 BR / 2BA	1452.00	78.00	1530.00	0	0	1	1	1	1	3	7.50%	4,356.00	4,590.00
A3 all w/lot	lower Contig	2 BR / 2BA	1875.00	78.00	1783.00	0	0	0	0	0	1	1	2.50%	1,675.00	1,753.00
B1	N/A	3 BR / 2BA	1219.00	66.00	1285.00	0	0	1	1	1	1	4	10.00%	4,874.00	5,140.00
B1 all Balc.	N/A	3 BR / 2BA	1219.00	66.00	1285.00	0	0	1	1	1	1	4	10.00%	5,396.00	5,728.00
B2	N/A	3 BR / 2BA	1345.00	83.00	1422.00	0	0	1	1	1	1	4	10.00%	4,874.00	5,140.00
B2 all 1	N/A	3 BR / 2BA	1375.00	83.00	1458.00	0	0	2	2	2	2	8	20.00%	11,000.00	11,644.00
B2 all 2	N/A	3 BR / 2BA	1402.00	83.00	1485.00	0	0	2	2	2	2	8	20.00%	11,216.00	11,880.00
Grand Totals												40	100.00%	52,983.00	64,823.00
Parking Totals												57		0.00	1.43

- LEGEND:**
- DENOTES EX. CLEANOUT
 - ⊙ DENOTES EX. SANITARY MANHOLE
 - ⊕ DENOTES EX. STORM MANHOLE
 - ⊛ DENOTES EX. LIGHTPOLE
 - DENOTES EX. OVERHEAD WIRES
 - DENOTES EX. RAILROAD TIES
 - ⊙ DENOTES EX. TREE (CANOPY NOT SHOWN TO SCALE)
 - ⊙ DENOTES EX. SHRUB
 - ⊙ DENOTES EX. WATER VALVE
 - ⊙ DENOTES EX. WATER METER
 - ⊙ DENOTES BORE HOLE LOCATIONS
 - ⊙ DENOTES EX. FIRE HYDRANT
 - ⊙ DENOTES PK NAIL SET
 - ⊙ DENOTES IRON PIPE FOUND
 - ⊙ DENOTES IRON PIPE SET
 - ⊙ DENOTES EX. CATV
 - ⊙ DENOTES EX. TELEPHONE PEDESTAL
 - ⊙ DENOTES EX. STREET SIGN
 - PHASE LINE
 - LIMIT OF DISTURBANCE
 - BITUMINOUS CONCRETE

IMPERVIOUS AREA	TOTAL PHASE AREA	PERCENTAGE
PHASE 1 44,739 S.F.	45,954 S.F.	97%
PHASE 2 44,595 S.F.	45,135 S.F.	99%
PHASE 3 52,596 S.F.	61,893 S.F.	85%

NOTE: THERE ARE NO ENCLOSED SPACES BELOW FLOOD PROTECTION ELEVATION OF 7.0

FLOOD ZONES:

- FLOOD ZONE "A7"— AREA OF 100-YEAR FLOOD; BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS DETERMINED.
- FLOOD ZONE "B"— AREAS BETWEEN LIMITS OF THE 100-YEAR FLOOD AND 500-YEAR FLOOD; OR CERTAIN AREAS SUBJECT TO 100-YEAR FLOODING WITH AVERAGE DEPTHS LESS THAN ONE FOOT OR WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN ONE SQUARE MILE; OR AREAS PROTECTED BY LEVEES FROM THE BASE FLOOD.
- FLOOD ZONE "C"— AREAS OF MINIMAL FLOODING.

PARKING REQUIRED	PARKING PROVIDED
PHASE 1 = 113	PHASE 1 = 100
PHASE 2 = 123	PHASE 2 = 95
5TH STREET REPLACEMENT = 20	TEMPORARY GRAVEL PARKING = 79
TOTAL = 256	TOTAL = 274

CLIENT:	VAN METRE RESIDENTIAL INVESTMENTS, LLC 5252 LYNKATE COURT BURK, VA 22015 CONTACT: JIM POWLER PHONE: (703) 425-2600
DESIGN:	JAB
DRAFT:	JAB
APPROVED:	JKD
DATE:	OCTOBER 2005
SCALE:	1" = 30'
SHEET:	1
OF:	2
FILE NO.:	55-027-21-B

