

AN 435-05 Lonergan Bus Property  
SUB 05-6-543

MSA-S-1829-4755

Cum gratia  
6/24/03  
2/3/06  
3/26/06

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/](http://www.dnr.state.md.us/criticalarea/)

March 28, 2006

Mr. Tom Smith  
Chief of Current Planning  
City of Annapolis Planning and Zoning  
160 Duke of Gloucester Street  
Annapolis, Maryland 21401

RE: Lonergan Property  
Subdivision, Special Exception and Site Design Review

Dear Mr. Smith:

This office has reviewed the additional information submitted on March 17, 2006. The applicant has satisfied the 10 % calculations. However, sheet C-3 of 9 shows the alleyways behind the townhouses as partially pervious. Please clarify as the City's policy precludes this.

If there are questions, please feel free to call me at (410) 260-3483.

Sincerely,

A handwritten signature in cursive script that reads "Dawnn McCleary".

Dawnn McCleary  
Natural Resources Planner

cc: Kathryn Dahl  
Regina Esslinger  
AN 435-05.

Robert L. Ehrlich, Jr.  
Governor

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Lt. Governor



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March 3, 2006

Mr. Tom Smith  
Chief of Current Planning  
City of Annapolis Planning and Zoning  
Annapolis, Maryland 21401

RE: Lonergan Property  
Subdivision, Special Exception & Site Design Review

Dear Mr. Smith:

This office has reviewed the additional information and plans dated February 16, 2006. The applicant proposes to redevelop the site with a mixture of single-family dwellings and multi-family townhouses. The site is in an Intensely Developed Area and totals 3.38 acres. We have the following comments.

1. The applicant is proposing to use pervious pavers for the single family driveways and alley as well as most of the alley for the multi-family dwellings. The City's policy precludes use on this site for the pavers in the multi-family section as there are more than 5 units.
2. At this time, I am unable to verify the impervious surface calculations without a breakdown of the site.
3. The applicant is proposing to clear the entire site. It appears that some of the trees, particularly in the open space area, could be retained, thus reducing the amount of mitigation necessary.

We will provide additional comments when we receive additional information. Please feel free to call me at (410) 260-3483.

Sincerely,

  
Dawnn McCleary  
Natural Resources Planner

cc: Kathryn Dahl  
Regina Esslinger  
AN 435-05

Robert L. Ehrlich, Jr.  
Governor



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June 24, 2005

Mr. Tom Smith  
Chief of Current Planning  
Department of Planning and Zoning  
160 Duke of Gloucester Street  
Annapolis, Maryland 21401

RE: Longergan Subdivision  
Local Case Number: 2005-6-543

Dear Mr. Smith:

This office has reviewed the planned unit development application to create 32 lots and build 8-single family houses and 24 townhouses. The site is 3.25 acres and is in an Intensely Developed Area.

Please provide the 10 % pollutant reduction calculations and a letter from the Department of Natural Resources, Heritage Division verifying that there are no impacts to rare, threatened, or endangered species.

Please forward this information to our office for review. If there are any questions, please feel free to call me at (410) 260-3483.

Sincerely,

A handwritten signature in cursive script that reads "Dawnn McCleary".

Dawnn McCleary  
Natural Resources Planner

cc: Megan Owen  
Regina Esslinger  
AN 435-05

t L. Ehrlich, Jr.  
Governor

hannel S. Steele  
Governor



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March 18, 2005

Ms. Megan Owen  
Department of Planning and Zoning  
Municipal Building  
160 Duke of Gloucester Street  
Annapolis, Maryland 21401

**RE: Policy Determination: Semi-Pervious Pavers**

Dear Ms. Owen:

Thank you for providing a copy of the City of Annapolis Policy Determination regarding Semi-Pervious Pavers. It is my understanding that the purpose of the policy is to provide an impervious surface coverage reduction (or bonus) when semi-pervious pavers are used for certain projects. The City intends to allow pavers to be considered as much as 40% pervious (depending on the manufacturer's specifications) on certain types of small multi-family and commercial projects for the purpose of compliance with impervious surface limits only. For stormwater calculations, the area of the pavers would be considered 100% impervious.

As you know, at this time, the Critical Area Commission only supports the impervious surface coverage reduction associated with the use of pavers for single-family residential projects. However, the Commission explicitly encourages local governments to establish their own guidelines, policies, and regulations regarding impervious surface determinations for various materials and construction methods associated with different types of development projects.

In summary, it appears that the City has properly documented the conditions under which the policy would be applied and has clearly specified how it is to be implemented; therefore, the Commission does not oppose the proposed policy determination.

If you have any questions, please feel free to call me at (410) 260-3480.

Sincerely,

A handwritten signature in cursive script that reads "Mary R. Owens".

Mary R. Owens, Chief  
Program Implementation Division

cc: Dawnn McCleary  
Regina Esslinger



City of Annapolis  
DEPARTMENT OF PLANNING AND ZONING

Municipal Building, 160 Duke of Gloucester Street, Annapolis, Maryland 21401  
Annapolis 410-263-7961 • FAX 410-263-1129 • TDD 410-263-7943

Chartered 1708

ON ARASON, AICP

DIRECTOR

February 17, 2005

## Policy Determination

RE: Semi-Pervious Pavers

In our Municipal Code, Chapter 21.67, there is no specific, codified mention of coverage "bonuses" for the use of semi-pervious pavers.

The current *policy*, if adhering strictly to the Critical Area Commission's letter is that we can allow Uni-Ecostone for residential driveways at a 40% "bonus."

We would like to formally expand the allowed usage of the semi-pervious pavers to multi-family and commercial uses on a case by case basis with the following limitations:

- Allowed on multi-family projects where there are 5 units or less.
- Allowed on commercial projects where the parking requirement is 10 spaces or less.
- The site would have to be determined as irregular, constrained, or otherwise unusual by the Director of Planning & Zoning.
- The project would receive the 60% coverage amount for compliance with the impervious surface coverage limits; however, the project would have to count this coverage as 100% impervious for the 10% Rule calculations. In this way, the project could receive some relief from the coverage limits, but not from the stormwater management requirements.
- Further, in return for the allowance on the coverage requirement, the applicant would need to document compliance with the same requirements found in Section 21.67.080.H.5:
  - a. **New impervious surfaces on the site have been minimized.**
  - b. **Water quality impacts associated with runoff from the new impervious surfaces can be and have been minimized through site design considerations [and] use of best management practices approved by the city to improve water quality;**
  - c. **The property owner performs on-site mitigation [planting] as required by the city to offset potential adverse water quality impacts from the new impervious surfaces.**

We would also like to expand the variety of the allowed semi-pervious pavers, as long as the construction details for the proposed semi-pervious pavers state that the performance standards for the materials allows for at least 40% perviousness. This number would be based on the apertures in the paving material and the void ratio of the base and sub-base. Staff will need to always obtain a cut-sheet of the proposed pavers for any project using these materials.

would be based on the apertures in the paving material and the void ratio of the base and sub-base. Staff will need to always obtain a cut-sheet of the proposed pavers for any project using these materials.

RECEIVED

MAR 17 2006

LAW OFFICES

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KATHRYN J. DAHL  
e-mail: kdahl@hyatt.hpwsb.com

March 14, 2006

E. Thomas Smith, Jr., RLA  
Chief of Current Planning  
Department of Planning & Zoning  
City of Annapolis  
160 Duke of Gloucester Street  
Annapolis, MD 21401

Via Delivery By Hand

Re: Redevelopment of Lonergan Property – Responses to Comments  
received February 24, 2006 and March 6, 2006

Dear Mr. Smith:

Enclosed are eleven (11) copies of the Basheer/Edgemoore-Properties, L.L.C. (the "Applicant"), third revised plans for "1109 Boucher Avenue – Planned Development, Site Design, and Subdivision" (the "Plans"). There are no revisions to the "Stormwater Management Report" dated February 6, 2006 and revised on February 16, 2006. Attached to each set of Plans are the responses provided by the Applicant to the comments you e-mailed on February 24, 2006, your verbal comments given to Robert Fernandez on March 6, 2006, confirmed by e-mail on March 7 (a copy is attached) regarding the Applicant's applications for a Residential Planned Development. The comments/requests are in bold, followed by the Applicant's point-by-point responses.

### I. February 24, 2006 Comments

#### 1. The Wildlife Heritage letter was not attached as noted.

Bowman Consulting forwarded this letter to your Department on February 24 but an additional copy is attached.

2. Your response to the school board notes adequacy in the state rated capacity at Annapolis High School beyond SY 2007. Yet there was no mention of Eastport Elementary being over the same state rated capacity beyond SY 2007. Please provide a response for this issue as it relates to all applicable schools.

PLANNING & ZONING  
2006 MAR 14 A 9:47



The Lonergan redevelopment project has been in the system since June 2005. Anne Arundel County's new system regarding APF for schools was implemented to avoid the "double-counting" of students that occurred in the past. The projected numbers of students at each school in each feeder system already take into account growth in the school system; the numbers have already assumed development. To calculate each specific project again during development review "double-counts" students — this is the reason that the County has moved to the open/closed APF for schools system, as Joe Rutter, Planning and Zoning Officer, has explained on multiple occasions.

As a careful review of the recent Educational Facilities Master Plans illustrates, there has been a trend of over-estimating the students who will attend Eastport Elementary School:

2003 projected students: 215  
2003 actual students: 210  
2004 projected students: 222  
2004 actual students: 205  
2005 projected students: 221  
2005 actual students: 204

Not only were the number of actual students less than projected students in 2003, 2004, and 2005, but the overall number of students has dropped in each of those years. The information above illustrates that it is impossible to accurately predict the number of students that will attend a school in the future and that, in the recent past, these projections have tended to over-project the numbers of students who will attend Eastport Elementary School.

It should also be remembered that the City of Annapolis does not impose an APF for schools test at present on residential projects: the Annapolis City Code does not condition development approvals on Anne Arundel County's school adequacy in part because the City has no control over such system.

**3. None of the sheets, C1-C8 delineate the proposed trellis, benches, etc. within open space "A". This is an important feature within the open space and to the project as a whole.**

Crowther & Associates delivered bench and pergola cut sheets to you on Monday, February 27, copies of which are attached. The pergola at the northern and eastern perimeter of the central green will be further detailed as the project moves forward into final engineering.

**4. Please delineate public versus private roadways. Also, please delineate one-way versus two-way circulation.**

**a. Private alleyways shall utilize residential curb-cuts, the same as those used in Kingsport. This helps define a hierarchy within the road network.**

See Sheet C3. Please note that this information is also shown on the Preliminary Plat.

**5. Sheet C3 of 8 notes that lots 1-7 accommodate 4 parking spaces per lot. However, Lots 1, 2 & 3 delineate a 15 ft. driveway behind the garage, of which 2 ft. is beyond the fee-simple lot line into the alleyway. Lots 6 & 7 delineate a 16 ft. driveway behind the units.**

**a. A driveway shall be 18 ft. in length to accommodate automobiles without overhang into the alleyway.**

See revised Sheet C3. Bowman Consulting has adjusted the driveway dimensions for Lots 1-3 and 6-7 so that all 5 houses have 18' deep driveways clear of the 18' alley width.

**6. The pedestrian walkways between units 12 & 13 and units 16 & 17 should be extended thru the entire block to facilitate pedestrian movement.**

The south leg of the alley (Road B) is intended for vehicular travel only. This area of the alley contains no 'street' parking, sidewalks, or amenities. Consequently, the design intent is to discourage pedestrian access to this area. Pedestrian access through the site and connecting to the existing community is provided elsewhere on the site in appropriate areas. After careful consideration by the design team, it is proposed that the areas between Lots 12 and 13 and Lots 16 and 17 remain privately owned and maintained; the areas will be fenced as indicated on the application.

**7. Please delineate the proposed MPDU units and their proposed parking spaces on the site plan.**

At the Applicant's last meeting with Jon Arason, it was suggested by Mr. Arason and agreed to by the Applicant that the MPDU units would be in Units 8 and 24 and that each of these two structures would contain two MPDU units. Bowman Consulting has indicated the information requested on revised Sheet C3.

**8. The City and State critical area codes note that areas of natural vegetation are to be maximized and development activities shall minimize cutting and clearing of existing vegetation. After review of the grading plan in conjunction with the landscape plan, sheets C4 and C8, we cannot help but comment on the fact that 97 trees (that's every tree on-site except 2) are being removed. While 276 trees are proposed for mitigation, there should be a "reasonable" effort made to save and protect existing vegetation.**

**a. The State Forest Conservation Act, which is not applicable in the critical area, requires a minimum 20% tree preservation for projects such as this. With a project in a more environmentally sensitive area, it would make some sense that an even greater degree of preservation should be achieved.**

The State Forest Conservation Act is not applicable in the Critical Area and this project is in the Critical Area; consequently, it is not a relevant standard.

**b. Perhaps your landscape architect and not your engineer should look at adjusting the proposed grades in an effort to save many of the existing trees. This is especially true for areas along the perimeter of the property.**

Due to the previous industrial use of the site, most of the trees on the site are poorly shaped and are in generally poor condition. Trees in good condition and in suitable locations will be saved and they are indicated on Sheet C2. A letter documenting this evaluation will be provided at the Planning Commission meeting on April 6. ) ↙

Two trees, a chestnut and an oak, previously considered for transplanting are proposed to be removed. These trees were evaluated by Chris Cowles, an expert arborist with The Care of Trees, and determined to be of a type and quality that does not merit transplanting. Instead of transplanting these trees, the Applicant will plant several new, large-caliber trees. The size, type, and location of these trees will be coordinated with the landscape architect and DNEP during final engineering.

**9. Our previous comment and sketch noting the removal of Lot 8 and shifting the proposed road allowing a larger buffer adjacent to 302 President Street, remains.**

**a. The site plan delineates a 6 ft. green area between the curb and said adjacent property line. A 2'-6" retaining wall is proposed with this 6 ft. area leaving inadequate room for street trees and buffering. The landscape plans shows evergreen plantings off-site on the adjacent lot. Please adjust Lots 6 and 7, removing Lot 8, as shown on our earlier sketch plan that came before the planning commission.**

The property owner of 302 1/2 President Street, Ms. Charlotte Sorrentino, has been consulted on the design of the site and continues to support its approval and development. Ms. Sorrentino has requested, and the Applicant will provide, the following to be planted on the Sorrentino property: a) fast-growing evergreen trees along their driveway, b) crape myrtle or magnolia trees along their rear property line, c) fast-growing evergreen trees at the side of their house if space permits. The Applicant will obtain proper permission for off-site plantings and for any temporary off-site work from Ms. Sorrentino prior to construction. Further, Ms. Sorrentino and the property owner of 302 President Street, Ms. Celia Pearson, another long-time supporter of the proposed project, both requested, and the Applicant will provide, a 42" high, black metal, open, decorative fence along the

mutual property lines, as these neighbors do not desire visual screening from the project site. Letters to Ms. Sorrentino and Ms. Krebs documenting this understanding will be provided at the Planning Commission hearing on April 6.

**10. Please remove the two parallel parking spaces along the alleyway within Open Space 'C', adjacent to Unit 24. The 20 ft. buffer should be maintained along the entire property line.**

**a. Shifting of the green space adjacent to Unit 24, may, allow the two space to be located directly against Unit 24 with a minimal green space.**

Two parking spaces are proposed at the southern end of the west leg of the alley (Road B). Along most of this leg of the alley, there is a 22' wide planting area. At the location of the two parking spaces, the planting area is 11.5' wide, which can accommodate evergreen and deciduous plantings as indicated in the application. Further, the area adjacent to Lot 24 is 12.5' wide and can also accommodate the plantings and lead walk as shown in the application. After careful consideration by the design team, the Applicant proposes that the two parking spaces remain in their present location, as this is the optimal design.

## **II. March 6, 2006 Comments**

### **General Comments**

**1. Critical Area Commission (CAC) comments will come through Tom Smith. There are no outstanding CAC comments at this time.**

The CAC comments dated March 3, 2006, were provided to us on March 8, 2006. Comment 1 relates to a policy of the City and not the CAC. Comment 2 is the same request made by you and the information was provided on March 10, 2006. Comment 3 relates to the saving of trees. See Number 8 (b) above.

**2. Tom will continue his review of the SWM report.**

We have not received any comments as of the date of this letter. DNEP approved the stormwater management report on August 26, 2005.

**Plat Comments**

**1. Add DNEP signature block.**

See Preliminary Plat, page one.

**2. Add Public Utility Easement for proposed fire hydrant and water line.**

See Preliminary Plat, page one.

**3. Try to move the General Notes from page two to page one.**

There was not room to move the General Notes to page one.

**4. Show easement across private alley for trash truck access.**

The applicant will provide an easement to the City for access to the alleys for trash and emergency vehicles. See Preliminary Plat, page one.

**5. Label all MPDU units and parking spaces.**

See Preliminary Plat, page one, for MPDU labels.

**6. Clearly delineate R2 & R3 zoning lines.**

See Preliminary Plat, page one.

**7. Complete Owners Dedication and Surveyors Certificate. OK to leave blanks as necessary.**

See Preliminary Plat, page one.

**8. Add a note about trash collection.**

See Note 18 on Preliminary Plat, page two

**Site Plan Comments**

**Sheet C-2**

**1. Note existing trees to be saved or transplanted. Try to save more trees.**

Done.

**2. Add IDA designation to legend or notes.**

Done.

**Sheet C-3**

**1. Revise the ecostone limits as shown. Private alley use limited to rear of single family lots**

The alley (Road B) is surfaced with ecostone semi-pervious pavers and serves only single-family lots which conforms to City and CAC policy for the use of semi-pervious pavers.

**2. Add an ecostone area breakdown.**

Done.

**3. Add an impervious area breakdown.**

Done.

**4. Add an open space area breakdown.**

Done.

**5. Add areas of R2 & R3 zoning to tabulation.**

Done.

**6. Make building height a separate tabulation. Compute the required building height based on 'Block Face'. The SFD lots on Boucher Avenue would be based on the average height of 1228 Madison, 1101, 1103, 1105, & 1107 Boucher Avenue. The SFD lots on President St. would be based on the average height of 302, 302-1/2 President St. and the Housing Authority building along President St. We could increase the computed averages by 20 percent as allowed by MPDU.**

A block generally refers to a tract of land bounded by streets (see Code, 21.72.010 D.) and an examination of the structures on a block face analyzes those structures on the same side of the street as the project which are bounded within the block (see Code, 21.38.030 F.3.c.). For this project and for the height of the proposed single-family structures ("SFDs"), the Applicant has investigated 2 block faces: (1) the Boucher Avenue block face regarding the height of the proposed SFDs on Boucher Avenue, and (2) the President Street block face regarding the height of the proposed SFDs on President Street. These tabulations are included on Sheet C3. Note that the block face analysis for Boucher Avenue includes all of the above-referenced homes on Boucher Avenue but does not include 1228 Madison Street; this home was omitted as it is not part of the relevant Boucher "block face."

**7. Use the Kingsport alley detail. Try to eliminate curb and gutter in alley. Use the standard driveway apron at each end of private alley.**

Stormwater is managed in the alley (Road B) with semi-pervious pavers on a gravel retention bed and curb inlets to the internal storm sewer to handle water overflow. Due to the urban nature of this site, it is not practical to manage stormwater as sheet flow due to limited area, as was done in Kingsport alleys. It is also not practical to convey water in an open section swale as this would result in greatly reduced planting areas. The alley section detail as indicated is the best solution for this site.

**8. Will the existing street light on President St. remain?**

Will be relocated. See Sheet C 3.

**9. Note removal of existing parking lot entrance and storm drain inlet in the Harbor House parking lot.**

Done.

**10. Provide a detail for the fire truck road shoulder reinforcement.**

See Sheet C4.

**11. Extend sidewalks between TH units 12 & 13, and 16 & 17.**

The south leg of the alley (Road B) is intended for vehicular travel only. This area of the alley contains no 'street' parking, sidewalks or amenities, consequently, it is the design intent to discourage pedestrian access to this area. Pedestrian access through the site and connecting to the existing community is provided elsewhere on the site in appropriate areas. With careful consideration of the design team, it is proposed that the areas between Lots 12 and 13 and Lots 16 and 17 remain privately owned and maintained, and be fenced as indicated on the application.

**12. Shift crosswalk in front of lot 11 to be perpendicular to Road 'A'.**

Shifting the crosswalk at the east side of Road A will create an awkward condition on the street and fragment planting. Due to the limited traffic volume on this small street, the crosswalk, as shown, is adequate.

**Sheet C-4**

**1. Incorporate SWM facility into the park, not underground.**

Excess stormwater volume is managed with an underground detention facility located beneath the park area in the center of the site. If a dry pond, wet pond, or other surface facility were used for stormwater detention, it would greatly reduce the useful park area. Due to the urban nature of this site, underground detention is the best solution for detaining excess stormwater volume.

**2. Check the proposed grading at the park. Try to save existing trees in the park.**

Trees that will enhance the aesthetic quality of the landscaping plan and which are to be saved are identified on Sheet C2.

**3. Show limits of retaining walls.**

Done.



**Sheets C-8 & C-9**

**1. Some of the proposed trees are shown too close together. Ok to lose some and pay a fee-in-lieu for replanting.**

The landscape design will be coordinated with DNEP and the landscape architect during final engineering. If DNEP determines adequate space for planting is not available on-site, a fee in-lieu of the respective planting will be paid.

**2. Define the proposed open space in the park.**

The proposed park in the center of the site is designed with a pergola covered perimeter walk, benches, and landscaping as shown in the plan and detail of Sheets C8 and C9.

**3. Need Landscape Architect seal and signature on plans.**

Will be done.

**III. Public Works' Comments**

**1. Show underground storage tanks and what action has been taken regarding them.**

See Sheet C2.

**2. Indicate status of water and sewer service.**

Service has been terminated and abandonment locations are indicated on Sheet C2.

**3. Label Road A.**

Shown as a public road on Sheet C3.

**4. Show garbage truck access.**

Private Road "B" will provide garbage truck access. See Sheet C3.

**5. Indicate size of the sewer main and label fire hydrants.**

The sewer main will be 8 inches; fire hydrants are identified. See Sheet C4.

**6. Show connection to water main.**

See Sheet C4.

**7. Indicate whether water and sewer are public.**

Water and sewer will be public and will be located in utility easements.

**8. Indicate capacity of the existing storm drain system.**

Bowman Consulting Group will prepare storm drain computations with the final plans. These storm drain computations will include a hydraulic grade line analysis of the existing storm drain system in President Street.

**9. Add note regarding sewer pipe material and bedding.**

Bowman Consulting Group will specify SDR – 26 sewer pipe with six-inch pea gravel bedding all around pipe See Sheet C6.

I assume you will need no further Plans for the Planning Commission. Should you have further questions, please let me know.

Very truly yours,

HYATT, PETERS & WEBER, LLP



Kathryn J. Dahl

KJD/aes

Enclosures

cc: Mr. Jon Arason (w/o attachments)  
Mr. Doryan Winkelman (w/o attachments)

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KATHRYN J. DAHL  
e-mail: kdahl@hyatt.hpwsb.com

February 22, 2006

*Via Delivery By Hand*

Ms. Dawnn McCleary, Natural Resources Planner  
Critical Area Commission  
1801 West Street, Suite 100  
Annapolis, Maryland 21401

Re: Lonergan Property, 1009 Boucher Avenue, Annapolis, Maryland  
2<sup>nd</sup> Revised Plan for Planned Development, Site Design Plan and Major Subdivision

Dear Ms. McCleary:

I understand that you currently have a copy of the plans that were revised and dated February 6, 2006 accompanied by our response to your initial comments of the plans. Enclosed is an extra copy of our response letter dated February 7 and addressed to you.

Thomas E. Smith generated comments via e-mail on February 14, 2006. We have responded to his comments and submitted another set of revised plans for the Planned Development that are dated February 16, 2006 ("2<sup>nd</sup> Revised Plan"), the Stormwater Management Plan revised February 16, 2006 and the preliminary subdivision plat ("Plat"), dated February 17, 2006. Although a copy of the 2<sup>nd</sup> Revised Plan and the Plat for distribution to you was submitted to Mr. Smith on February 17, 2006 in an effort to gain your expeditious review of the 2<sup>nd</sup> Revised Plan and Plat enclosed are copies for you.

I would like to discuss these materials with you at your earliest convenience as a Planning Commission hearing is scheduled for March 2, 2006. I appreciate your attention to this matter.

Very truly yours,

HYATT, PETERS & WEBER, LLP

  
Kathryn J. Dahl

KJD:aes  
Enclosures  
cc: Mr. Doryan Winkelman

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FEB 22 2006

**CRITICAL AREA COMMISSION**

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KATHRYN J. DAHL  
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February 7, 2006

*Via Delivery By Hand*

Ms. Dawnn McCleary, Natural Resources Planner  
Critical Area Commission  
1801 West Street, Suite 100  
Annapolis, Maryland 21401

Re: Lonergan Property – Revised Application for Planned Development,  
Site Design Plan and Major Subdivision

Dear Ms. McCleary:

Basheer/Edgemoore-Properties, L.L.C. (the “Applicant”) submitted an application for a Residential Planned Development for the property at 1109 Boucher Avenue to the City of Annapolis on June 6, 2005 (the “Original Plans”). Attached to this letter are revised plans (the “Revised Plans”) dated February 6, 2006.

A) **Revised Plans.** The Revised Plans have the following changes:

- Eliminated two townhouses.
- Expanded open space area to include 36,661 square feet and extensive landscaping has been provided in Open Space Area “A.”
- Added additional landscaping to the site, as well as off-site landscaping to the adjacent Harbor House property.
- Increased the width of Open Space Area “B” to 36 feet.
- Reconfigured townhouse Lots 9-24 into three buildings, providing an additional space between the townhouse units.
- Increased driveway length at Lots 1-5 to allow for two additional parking spaces in the driveway and reduced the front yard setbacks to 25 feet.

L:\Dahl\Basheer\Lonergan\PD\Agency Comments\CAC Response 2.7.06.doc

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FEB 10 2006

CRITICAL AREA COMMISSION

- Increased rear yards of Lots 4 and 5 and reduced the private alley behind Lots 4 and 5 to 12 feet.
  - Increased rear yards of Lots 25-30 by approximately 5 feet, and reduced the R3 area rear yard to 20 feet.
  - Increased side yards for Lots 1-8 and reduced travelway width at site entrances from Boucher Avenue and President Street to 20 feet.
  - Moved parallel parking along the internal road from the open and side of the road to the residences' side of the road.
  - Reduced alley travelway width to 20 feet at garages and 18 feet elsewhere.
  - Added traffic calming features in three areas of the alley.
  - Added three parking spaces to the internal road and eliminated seven parking spaces in the alley.
  - Included new site area tabulations and the Stormwater Management Tabulations reflecting compliance with performance standards. See Revised Plans, pages C3 and C4.
- B) **The Critical Area Commission's comments on the Original Plans.** Your office reviewed the Original Plans and in a letter dated June 24, 2005, raised the following concerns:
- The Applicant must provide the 10% pollutant reduction calculations.
  - The Applicant must provide a letter from the Department of Natural Resources, Heritage Division verifying that there are no impacts to rare, threatened, or endangered species.
- C) **Applicant's response to comments.** The Applicant has addressed these concerns in the following manner:
- Please see the attached letter for the 10% pollutant reduction calculations which is also included in the Stormwater Management Report: Boucher Avenue Redevelopment Project.
  - Enclosed is a letter from the Department of Natural Resources that states that the Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened, or endangered species within the boundaries of the project.

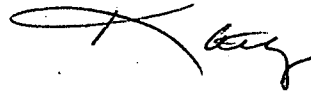
Ms. Dawnn McCleary  
February 7, 2006  
Page 3

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The Applicant has a hearing with the City of Annapolis Planning Commission scheduled for March 2, 2006. We hope that you can deliver your comments to Tom Smith at Planning and Zoning as soon as possible. If you should require any additional information, please call me.

Very truly yours,

HYATT, PETERS & WEBER, LLP



Kathryn J. Dahl

KJD:hd

Enclosures

cc: Mr. Doryan Winkelman

**BOWMAN CONSULTING GROUP**

Project: Boucher Avenue PUD  
Prepared by: S. McAree  
Project File No.: 3537-01-001

*Reduce  
inform*  
*\* Robert  
Ferraro*

**Maryland Chesapeake Bay Critical Area in Intensely Developed Areas (IDA)  
10% Rule Computations**

**Step 1 - Site Impervious**

Total site area: 147250 sf or 3.38 acres  
Existing Impervious area: 98536 sf  
Percent Impervious I:  $I = \frac{98536 \text{ sf}}{147250 \text{ sf}} = 66.92\%$

**Step 2 - Calculate Pre-development Pollution Load**

Based on Re-development Phosphorus Loading

where

$L_{pre} = (Rv)(C)(A)(8.16)$

$Rv = 0.05 + 0.009(I) = 0.6523$

$C = 1.08$

$A = 3.38 \text{ ac}$

$L_{pre} = (Rv)(C)(A)(8.16) = 0.6523 \times 1.08 \times 3.38 \times 8.16 = 19.43 \text{ lbs/yr}$

**Step 3 - Calculate Post-development Pollution Load**

Post-development Phosphorous Loading

where

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

Proposed Impervious Area:

Proposed Impervious area: 73385 sf  
Percent Impervious I:  $I = \frac{73385 \text{ sf}}{147250 \text{ sf}} = 49.84\%$

$Rv = 0.05 + 0.009(I) = 0.4985$

$C = 1.08$

$A = 3.38 \text{ ac}$

$L_{post} = (Rv)(C)(A)(8.16) = 0.4984 \times 1.08 \times 3.38 \times 8.16 = 14.85 \text{ lbs/yr}$

## BOWMAN CONSULTING GROUP

Project: Boucher Avenue PUD  
 Prepared by: S. McAree  
 Project File No.: 3537-01-001

### Step 4 - Calculate Pollution Removal Requirements

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

$$RR = 14.85 \text{ lbs/yr} - 0.9 * 19.43 \text{ lbs/yr} = -2.64 \text{ lbs/yr}$$

### Step 5 - Identify Feasible Urban Best Management Practices (BMP)

#### Table 5.0 - Soil Permeability Screening Tools

From geotechnical report the site soils fall under sandy loam with permeability rate of 1.02 in/hr.

#### Table 5.1 - Drainage Area Screening Tools

The drainage area for this site is 3.38 acres

BMP Selection based on soil permeability of 1.02 in/hr and drainage area of 3.38 acres:

Proposed BMP: **None Required- (existing site impervious reduced)**

BMP Type	Area to BMP (ac)	Fraction of DA
No BMP Required	0	0.00
	0	0.00

Check Pollution Removal Rate per Table 5.4:

Load Removed (LR)= (Post-Development Load)(Removal Rate) x Fraction of Drainage Area Served

BMP Type	Removal Efficiency (Use 0.5)	Fraction of DA	L Post	= Load Removed
No BMP Required	0.5 x	0.00 x	14.85 =	0 lbs
	0.4	0.00	14.85 =	0 lbs
Total Load Removed by BMP's=				0 lbs
Required Removal Rate (from Step 4) =				-2.64 lbs

#### Conclusion:

**Pollution removal rate for post-developed condition exceeds required removal rate for a 10% reduction of pollution load, therefore, the proposed project complies with the 10% Rule.**



**McCleary, Dawnn**

---

**From:** Doryan Winkelman [dwinkelman@basheerandedgemoore.com]  
**Sent:** Saturday, February 25, 2006 4:57 PM  
**To:** Thomas Smith  
**Cc:** Jon L. Arason; McCleary, Dawnn; AHyatt@hyatt.hpwsb.com; KDahl@hyatt.hpwsb.com; urbantree@toad.net; ahyatt@vulcan.hpwsb.com; gaycrowther@earthlink.net; rfernandez@bowmancg.com; Loren Pope  
**Subject:** RE: Feb. 7th Submittal

Tom-

Thanks for your e-mail.

I. Regarding a meeting, as noted below, I'm seeing John Patmore @ 11:30 @ DPW on Monday. I could see you earlier or later than my meeting w. John. Please e-mail as to works best for you.

II. Regarding your specific comments below, I believe our team will have conclusive, satisfactory answers/revisions to you by Tuesday morning, February 28, on 9 of your 10 items. The 10<sup>th</sup> item, our retaining wall and landscape treatment along the 302 President Street property line, is one that Basheer & Edgemoore will commit to a mutually satisfactory answer before any construction and/or earth moving permits for the property are issued. As noted below, the owner of 302 President, Charlotte Sorrentino, has been a consistent advocate for your project.

-----Original Message-----

**From:** Thomas Smith [mailto:[ETS@annapolis.gov](mailto:ETS@annapolis.gov)]  
**Sent:** Friday, February 24, 2006 5:50 PM  
**To:** Doryan Winkelman  
**Cc:** Jon L. Arason; dmccleary@dnr.state.md.us; AHyatt@hyatt.hpwsb.com; KDahl@hyatt.hpwsb.com; urbantree@toad.net; ahyatt@vulcan.hpwsb.com  
**Subject:** RE: Feb. 7th Submittal

Dory,

My cold is better thank you. Yes, I missed 9 days of running, one of the longest missed running streaks ever--most frustrating indeed.

We received your revised plans on Friday, February 17th. Since Monday was a City holiday I took a set of your plans home. After a quick, off the cuff review, it appears that our comments have not been completely nor adequately addressed. Perhaps a meeting between the two us would help clarify the issues so this project can proceed.

So as not to confuse the various plans being reviewed, and as promised previously, I have completed our review of your February 7th submittal. As you recall the majority of our review comments were forwarded on February 14th, with a note of additional, more detailed, comments to follow.

Please add the following comments to those from February 14th:

2/27/2006

1. The Wildlife Heritage letter was not attached as noted.

*Hyatt, Peters & Weber or Bowman Consulting will attach the letter Monday, February 27.*

2. Your response to the school board notes adequacy in the state rated capacity at Annapolis High School beyond SY 2007. Yet there was no mention of Eastport Elementary being over the same state rated capacity beyond SY 2007. Please provide a response for this issue as it relates to all applicable schools.

*Hyatt, Peters & Weber will have our written response to you by close-of-business Monday, February 27.*

3. None of the sheets, C1-C8 delineate the proposed trellis, benches, etc. within open space "A". This is an important feature within the open space and to the project as a whole.

*Crowther & Associates will forward bench cut sheets to you by close-of-business Monday, February 27. I believe street light photos have been previously forwarded. If not, Basheer & Edgemoore will forward pictures of our Kingsport fixtures to you on Monday, February 27. Gay's pergola @ the northern and eastern perimeter of the central green will be further detailed as the project moves forward into final engineering.*

4. Please delineate public versus private roadways. Also, please delineate one-way versus two-way circulation.

a. Private alleyways shall utilize residential curb-cuts, the same as those used in Kingsport. This helps define a hierarchy within the road network.

*Bowman Consulting will annotate the roadways and have revised sheet(s) to you no later than first thing Tuesday, February 28.*

5. Sheet C3 of 8 notes that lots 1-7 accommodate 4 parking spaces per lot. However, Lots 1, 2 & 3 delineate a 15 ft. driveway behind the garage, of which 2 ft. is beyond the fee-simple lot line into the alleyway. Lots 6 & 7 delineate a 16 ft. driveway behind the units.

a. A driveway shall be 18 ft. in length to accommodate automobiles without overhang into the alleyway.

*Bowman Consulting will adjust the driveway depth on lots 1-3 and 6-7, such all 5 houses shall have 18' deep driveways clear of the 18' alley width. They will have revised sheet(s) to you no later than first thing Tuesday, February 28.*

6. The pedestrian walkways between units 12 & 13 and units 16 & 17 should be extended thru the entire block to facilitate pedestrian movement.

*In the past, Gay has wanted these interstitial spaces to be entirely owned by the adjacent homeowners. Perhaps a good compromise is to divide the 18' in approximate thirds with the central third belonging to the HOA and affording a clear path back to the alley. The central third could be defined w. a low (42" max.), open, decorative fence. Perhaps the time for resolution would @ Planning Commission.*

7. Please delineate the proposed MPDU units and their proposed parking spaces on the site plan.

*After our last meeting @ Jon's office, it was decided that the MPDU units would be in units 8 (actually @ Jon's suggestion) and 24 and that each of these 2 structures will contain 2 MPDU units. Bowman Consulting will have revised sheet(s) to you no later than first thing Tuesday, February 28.*

8. The City and State critical area codes note that areas of natural vegetation are to be maximized and development activities shall minimize cutting and clearing of existing vegetation. After review of the grading plan in conjunction with the landscape plan, sheets C4 and C8, we cannot help but comment on the fact that 97 trees (that's every tree on-site except 2) are being removed. While 276 trees are proposed for mitigation, there should be a "reasonable" effort made to save and protect existing vegetation.

a. The State Forest Conservation Act, which is not applicable in the critical area, requires a minimum 20% tree preservation for projects such as this. With a project in a more environmentally sensitive area, it would make some sense that an even greater degree of preservation should be achieved.

*Tom, if the State Forest Conservation Act is not applicable in the critical area and our project is in the critical area, is it really a relevant standard?*

b. Perhaps your landscape architect and not your engineer should look at adjusting the proposed grades in an effort to save many of the existing trees. This is especially true for areas along the perimeter of the property.

*I believe at least three landscape architects, yourself, Mr. Urban & Ms. Crowther, have all walked the property, and their consensus is that only two trees, the chestnut and the 28"-30" oak are worthy of even consideration of preservation.*

9. Our previous comment and sketch noting the removal of Lot 8 and shifting the proposed road allowing a larger buffer adjacent to 302 President Street, remains.

a. The site plan delineates a 6 ft. green area between the curb and said adjacent property line. A 2'-6" retaining wall is proposed with this 6 ft. area leaving inadequate room for street trees and buffering. The landscape plans shows evergreen plantings off-site on the adjacent lot. Please adjust Lots 6 and 7, removing Lot 8, as shown on our earlier sketch plan that came before the planning commission.

*The owner of 302 President Street is Charlotte Sorrentino, who has been a consistent supporter of our project over the past 3+ years. Though a supporter, Ms. Sorrentino has had some concerns over automotive headlights in the alley behind units 6-8, and those concerns have not been completely addressed. Basheer & Edgemoore commits that it will have entered into an agreement w. Ms. Sorrentino that addresses plantings, fencing, and earthmoving along our common property lines before any such earthmoving or project construction commences.*

10. Please remove the two parallel parking spaces along the alleyway within Open Space 'C', adjacent to Unit 24. The 20 ft. buffer should be maintained along the entire property line.

a. Shifting of the green space adjacent to Unit 24, may, allow the two space

to be located directly against Unit 24 with a minimal green space.

*Bowman Consulting will make this parking space adjustment and have revised sheet(s) to you no later than first thing Tuesday, February 28.*

As previously noted, there remains several basic code compliance issues with the critical area, average front setbacks & building heights and easement(s) from the Housing Authority.

Unfortunately I am not able to work this weekend to review your recent submittal of February 17th, as my wife has to work instead. I will begin a detailed review of said plans and plats on Monday and will forward comments as quickly as possible.

Once you have received the comments, made the corrections and resubmitted, I will distribute them ASAP for yet another agency review. Your revised submittal should be received no later than March 9th to allow for review and preparation for an April 6th planning commission hearing. Of course this also assumes all comments have been adequately addressed.

Kind regards,

Tom

E. Thomas Smith, Jr., RLA

Chief of Current Planning

Department of Planning & Zoning

City of Annapolis

160 Duke of Gloucester St.

Annapolis, MD 21401

410-263-7961

E-mail: ets@annapolis.gov

>>> "Doryan Winkelman" <dwinkelman@basheerandedgemooore.com> 2/15/2006 4:24 PM >>>

Tom-

Thank you for yesterday's e-mail. Our team has had 2 conference calls since and is moving at ramming speed to ensure compliance. Earlier today, I faxed JLA a copy of my letter to Eric Brown, Director of HACA (sounds like whooping cough!), which references on first contact w. Eric way back in October. Hope your cold/flu is improving...must be particularly frustrating for a runner.

Dory

-----Original Message-----

2/27/2006

From: Thomas Smith [mailto:ETS@annapolis.gov]

Sent: Tuesday, February 14, 2006 3:40 PM

To: Doryan Winkelman

Cc: Jon L. Arason; AHyatt@hyatt.hpwsb.com; KDahl@hyatt.hpwsb.com; urbantree@toad.net; ahyatt@vulcan.hpwsb.com

Subject: Feb. 7th Submittal

Dory,

Good afternoon. I had hoped to forward the below comments yesterday, but I am quite under-the-weather--which is rare for me. I did manage a few hours yesterday and will be leaving shortly today. I came in solely to review your February 7th resubmittal. I apologize for my short hours, but please feel free to call me at home, 410-757-6935, if I am not in the office with any questions.

Agency review packets were sent out on both February 7th and 8th, with a request for an expedited review. I'm sure that is relevant now, given several of the below comments. Please believe I share your disappointment, which is why I'm sending these comments directly to your attention.

February 7, 2006 Resubmittal Comments:

1. The revised submittal was received absent any record plats. Without preliminary record plats, there is no way of conducting a single hearing before the planning commission on both the PUD and Major Subdivision. This is not a new request for said plats, and is normally the process. Plats provide the commission with clear delineation of fee-simple ownership versus HOA versus public ownership. It also provides for easement locations, both public and private.

a. Please provide preliminary plats with your next resubmittal.

2. As requested on several previous occasions, a letter of approval from the Housing Authority with a draft easement for recording in the land records, was not included in your resubmittal. Said easement is vital to the off-site plantings and to render an adequate buffer. Please provide this information prior to scheduling a hearing before the commission.

3. Also as mentioned on numerous occasions, the current impervious site coverage is illegal. Both from a nonconforming use stand point and from a critical area stand point. Though staff provided a plan showing the legal limits, there seems to be some misunderstanding or reluctance to comply. Hence, I have taken the liberty to provide the accurate calculations.

a. The Lonergan bus parcel (P. 231) has a legal impervious surface limit of 35,600 square feet. This calculation has been carefully documented numerous times in previous applications, aerial photographs and land use maps.

b. Add the impervious from the single-family lot fronting President Street (P 48) of 2,417 sq. ft. to 35,600 sq. ft. for a total site coverage of 38,017 sq. ft. This is quite a bit different from the 98,536.84 sq. ft. delineated on the plans. And, this illegal number was thus used to provide a 20% reduction in impervious surfaces for stormwater management compliance.

2/27/2006

c. Please provide legal calculations and stormwater management as it relates to these calculations. Plus it may behoove to consider the stormwater management alternatives offered by the planning commission at the latest work-session.

4. The critical area tabulation notes the use of EcoStone pavers for a 40% credit, yet neither the tabulation nor the plan delineates where said pavers, nor what quantity, are being used.

a. As previously discussed both the City and State Critical Area Commission only allow usage of semi-pervious pavers on single-family lots and multi-family development projects of 5 units or less. (Note City Policy Determination letter dated March 24, 2005 and State of Maryland letter dated March 18, 2005).

b. Hence, please delineate the use of EcoStone pavers in their allowable locations, and recalculate the impervious surface limits showing compliance with the 50% coverage limitations.

5. The plans note 276 replacement trees are required for mitigation for existing trees being removed within the IDA critical area. However, the none of these plants are delineated as to type or species. Further, the plans show numerous plantings off-site on the rear lot of 302½ President Street. Please provide a more detailed description, including locations, for said mitigation compliance.

6. There was no information included with the resubmittal as to the feasibility transplanting the American Chestnut and the 30" Oak tree. An arborist report with preliminary details and specifications should be provided with your next submittal.

7. The Landscape Plan should include preliminary lighting for both public and private areas. Said information needs to be included so the surrounding neighbors have a clear understanding of the proposed lighting levels and any potential impact to their privacy, etc.

8. Sheet C3 of 8 notes, 25 ft. front yards are required for lots 1 thru 8. Per code the front yard is an average of those structures on the block face. The building height is further determined by the average of those structures on the block face.

a. Please provide calculations for the average block setback, building height and ridge-line along Boucher Avenue and President Street.

While I have several more detailed comments relating to the site plan, school capacity, ideas to help meet the impervious limitations and our previous comments of January 12, 2006, I must conclude for today. I am most sorry, but I will forward those comments tomorrow. That said, the above comments carry the most severity and thus need to be answered prior to more detailed concerns.

Best regards,

Tom Smith

E. Thomas Smith, Jr., RLA

Chief of Current Planning

Department of Planning & Zoning

2/27/2006

City of Annapolis

160 Duke of Gloucester St.

Annapolis, MD 21401

410-263-7961

E-mail: [ets@annapolis.gov](mailto:ets@annapolis.gov)

**Smith, Amanda**

---

**From:** Dahl, Kathryn  
**Sent:** Tuesday, February 14, 2006 3:55 PM  
**To:** Dhopolsky, Heather; Drilling, Nicola; Smith, Amanda; Waldron, Shannon  
**Subject:** FW: Feb. 7th Submittal



Thomas Smith.vcf

**RECEIVED**

**FEB 22 2006**

**CRITICAL AREA COMMISSION**

-----Original Message-----

**From:** Thomas Smith [mailto:ETS@annapolis.gov]  
**Sent:** Tuesday, February 14, 2006 3:40 PM  
**To:** dwinkelman@basheerandedgemooore.com  
**Cc:** Jon L. Arason; AHyatt@hyatt.hpwsb.com; KDahl@hyatt.hpwsb.com; urbantree@toad.net; ahyatt@vulcan.hpwsb.com  
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management compliance.

c. Please provide legal calculations and stormwater management as it relates to these calculations. Plus it may behoove to consider the stormwater management alternatives offered by the planning commission at the latest work-session.

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Best regards,  
Tom Smith

E. Thomas Smith, Jr., RLA  
Chief of Current Planning  
Department of Planning & Zoning  
City of Annapolis  
160 Duke of Gloucester St.  
Annapolis, MD 21401  
410-263-7961  
E-mail: ets@annapolis.gov

**RECEIVED**

FEB 22 2006

CRITICAL AREA COMMISSION

-----Original Message-----

**From:** Robert Fernandez

**Sent:** Tuesday, March 07, 2006 12:00 PM

**To:** 'ets@annapolis.gov'

**Subject:** Boucher Avenue - Tom Smith Review on 3/6/06

Tom,

Thanks for meeting with me yesterday afternoon regarding your redlined plan comments to our plans dated 2/17/06. I've summarized your comments as follows:

### General Comments

1. Critical Area Commission (CAC) comments will come through Tom Smith. There are no outstanding CAC comments at this time.
2. Tom will continue his review of the SWM report.

### Plat Comments

1. Add DNEP signature block.
2. Add Public Utility Easement for proposed fire hydrant and water line.
3. Try to move the General Notes from page two to page one.
4. Show easement across private alley for trash truck access.
5. Label all MPDU units and parking spaces.
6. Clearly delineate R2 & R3 zoning lines.
7. Complete Owners Dedication and Surveyors Certificate. OK to leave blanks as necessary.
8. Add a note about trash collection.

### Site Plan Comments

#### Sheet C-2

1. Note existing trees to be saved or transplanted. Try to save more trees.
2. Add IDA designation to legend or notes.

#### Sheet C-3

1. Revise the ecostone limits as shown. Private alley use limited to rear of single family lots.
2. Add an ecostone area breakdown.
3. Add an impervious area breakdown.
4. Add an openspace area breakdown.
5. Add areas of R2 & R3 zoning to tabulation.
6. Make building height a separate tabulation. Compute the required building height based on 'Block Face'. The SFD lots on Boucher Avenue

would be based on the average height of 1228 Madison, 1101, 1103, 1105, & 1107 Boucher Avenue. The SFD lots on President St. would be based on the average height of 302, 302-1/2 President St. and the Housing Authority building along President St. We could increase the computed averages by 20 percent as allowed by MPDU.

7. Use the Kingsport alley detail. Try to eliminate curb and gutter in alley. Use the standard driveway apron at each end of private alley.
8. Will the existing street light on President St. remain?
9. Note removal of existing parking lot entrance and storm drain inlet in the Harbor House parking lot.
10. Provide a detail for the fire truck road shoulder reinforcement.
11. Extend sidewalks between TH units 12 & 13, and 16 & 17.
12. Shift crosswalk in front of lot 11 to be perpendicular to Road 'A'.

#### Sheet C-4

1. Incorporate SWM facility into the park, not underground.
2. Check the proposed grading at the park. Try to save existing trees in the park.
3. Show limits of retaining walls.

#### Sheets C-8 & C-9

1. Some of the proposed trees are shown too close together. Ok to lose some and pay a fee-in-lieu for replanting.
2. Define the proposed open space in the park.
3. Need Landscape Architect seal and signature on plans.

I also have a copy of marked plans from Mr. Patmore at DPW.

Please let me know if I've left anything out. Thanks, Robert

Sincerely,  
**Bowman Consulting Group, Ltd.**  
**Annapolis Office**

Robert M. Fernandez, PE  
Branch Manager  
2530 Riva Road, Suite 200  
Annapolis, MD 21401  
410.224.7590 ext. 1002  
410.320.0507 cell  
410.224.7592 fax  
[rfernandez@bowmancg.com](mailto:rfernandez@bowmancg.com)  
[www.bowmanconsulting.com](http://www.bowmanconsulting.com)



Chartered 1704

*City of Annapolis***DEPARTMENT OF NEIGHBORHOOD & ENVIRONMENTAL PROGRAMS**160 DUKE OF GLOUCESTER STREET, ROOM 202, ANNAPOLIS, MARYLAND 21401  
ANNAPOLIS (410) 263-7946 • BALTIMORE (410) 269-0545 • FAX (410) 263-9158 • TDD (410) 263-7943

RECEIVED AUG 29 2005

August 26, 2005

Stephen McAree, P.E.  
Bowman Consulting Group  
2530 Riva Road, Ste. 200  
Annapolis, Maryland 21401  
Tel. (410) 224-7590

**Re: Boucher Avenue Redevelopment Project**

Dear Mr. McAree:

I had a chance to review the drainage study and stormwater management computations for the development of the above referenced project and I have no concerns at this time. I like the idea of utilizing a porous pavement onsite to manage stormwater. Along with the minimum of 20% reduction in impervious cover it will satisfy all of the water quality and quantity site requirements for stormwater management. However, my concern will be use in the proposed private roadways. Please check with the Department of Public Works to see if whether they will even allow this development to have private roads or must they be public, in which case a porous asphalt may not be allowed. I will reserve the right to review the stormwater situation again if a porous paving device is not feasible and possibly an underground facility which must be subtracted from the impervious cover percentage. If you require any additional information from this department please let me know at your convenience.

Sincerely,

Thomas Green, Stormwater Engineer

cc: Frank Biba, Chief of Environmental Programs  
Tom Smith, Chief of Planning & Zoning  
Loren Pope, Basheer & Edgemore



**MARYLAND**  
DEPARTMENT OF  
NATURAL RESOURCES

Robert L. Ehrlich, Jr., Governor

Michael S. Steele, Lt. Governor

C. Ronald Franks, Secretary

December 5, 2005

RECEIVED DEC 15 2005

Ms. Cynthia A. Todd  
Bowman Consulting Group, Ltd.  
2530 Riva Road, Suite 200  
Annapolis, MD 21401

**RE: Environmental Review for 1109 Boucher Avenue Project, Tax Map 11Z, Lots 231, 353 & 48, City of Annapolis, Anne Arundel County, Maryland.**

Dear Ms. Todd:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted. It is also important to note that the utilization of state funds, or the need to obtain a state authorized permit may warrant additional evaluations that could lead to protection or survey recommendations by the Wildlife and Heritage Service. If this project falls into one of these categories, please contact us for further coordination.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,  
Environmental Review Coordinator  
Wildlife and Heritage Service  
MD Dept. of Natural Resources

ER #2005.2329.aa

cc: Robert ✓  
Steve  
Cindy



Robert L. Ehrlich, Jr., Governor

Michael S. Steele, Lt. Governor

C. Ronald Franks, Secretary

December 5, 2005

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Ms. Cynthia A. Todd  
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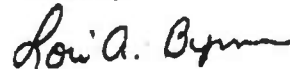
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cc: Robert ✓  
Steve  
Cindy

Tawes State Office Building • 580 Taylor Avenue • Annapolis, Maryland 21401

410.260.8DNR or toll free in Maryland 877.620.8DNR • www.dnr.maryland.gov • TTY users call via Maryland Relay

# STORMWATER MANAGEMENT REPORT

## Boucher Avenue Redevelopment Project

Boucher Avenue and President Street  
City of Annapolis, Maryland

**Prepared For :**

**Basheer and Edgemore**  
3130 Fairview Park Drive  
Suite 650  
Falls Church, VA 22042  
(703) 849-8700

**RECEIVED**

MAR 17 2006

CRITICAL AREA COMMISSION

**Prepared By:**

**Bowman**  
CONSULTING

2530 Riva Rd.  
Suite 200  
Annapolis, MD 21401  
(410) 224-7590

February 6, 2006  
Revised February 16, 2006

2-17-06



*Stephen D. McCarry*

81 :h d L 1 833 9002

PLANNING & ZONING

Boucher Avenue  
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# STORM WATER MANAGEMENT REPORT AND SUITABLE OUTFALL STATEMENT

**Boucher Avenue**  
City of Annapolis, Maryland

## INTRODUCTION

The named property encompasses approximately 3.38 acres located within the city of Annapolis. Hydrologically the site is a redevelopment located within the Critical Area intensely developed area (IDA) and drains to tidal outfall. Currently the site is developed as a former bus maintenance and storage facility. The applicant proposes a redevelopment with the site is split into two residential zones with R2 zoning for single family dwellings located along the exterior road frontage of Boucher Avenue and President Street and R3 zoning for multi-family townhomes located within the interior of the site. Stormwater management will be addressed for the site as detailed below.

## STORMWATER MANAGEMENT REQUIREMENTS

Stormwater management shall be provided in conformance with the requirements of the City of Annapolis and the Stormwater Management Practices and Procedures Manual, September, 200. The requires that all new development meet all of the criteria for recharge volume ( $Re_v$ ), water quality volume ( $WQ_v$ ), Channel Protection Volume ( $Cp_v$ ), Overbank Flood Protection ( $Q_p$ ) and Extreme Flood Control ( $Q_f$ ). Qualitative control for  $WQ_v$  is required based on the percentage of impervious area on the site. Included in this is  $Re_v$  based on the percentage of impervious area on the site and the hydrological soil classifications. Quantitative control of the 1-year storm,  $Cp_v$ , is required based on a 12 hour detention time (Use IV waters). Quantitative control of the 10-year storm ( $Q_p$ ) is required as well.

## STORMWATER MANAGEMENT STATEMENT

Stormwater runoff for this infill redevelopment project will be treated by offline SWM practices using infiltration BMP's.

The project is a redevelopment located within the critical area intensely developed area (IDA). Runoff is treated and managed by an infiltration trench with a pretreatment facility and drywells for rooftop runoff.

The primary BMP will be an infiltration facility centrally located in the open space commons area. The infiltration trench will be an offline system, whereas the discharge rate for the water quality storm event will pass through a diversion manhole to a

pretreatment underground storage facility consisting of a 60-inch diameter perforated high density polyethylene pipe. A manifold system consisting of perforated distribution piping will convey water from the pretreatment facility to the underground stone infiltration trench.

Runoff from roof leaders of the single family dwellings units 1-5 that front Boucher Avenue and units 6-8 that front President Street will be directed to underground drywells designed to treat 500 square feet of rooftop per drywell facility.

The infiltration facilities will provide water quality (WQv) and recharge (REv) and will provide pollutant load removal in compliance with the Critical Area 10% rule. Under redevelopment within the city of Annapolis, channel protection volume (CPv), Overbank Flood Protection (Qp), and extreme flood protection (Qf) are not required. Adequate conveyance will be provided to existing downstream closed stormdrain systems that outfall to tidal waters.

- 1) WQv will be provided in infiltration trench and drywell facilities.
- 2) REv is part of WQv in the infiltration facilities.
- 3) CPv is not required for redevelopment.
- 4) Overbank Flood Protection (Qp) and Extreme Flood Protection (Qf) are not required. Adequate conveyance will be provided for runoff to the closed stormdrain systems that outfall to tidal waters.

## **HYDROLOGY**

The method used to determine the hydrological conditions of the site and for the design of the SWM BMP's is the USDA, NRCS "Runoff Curve Number Method, Technical Release No. 55 (TR-55, June 1986), together with the guidelines found in the *2000 Maryland Stormwater Design Manual Volumes I and II* and the *September, 2001 Anne Arundel County Stormwater Management Practices and Procedures Manual*. A designation of "woods" was used for all non impervious and non-wooded areas for the "existing conditions" analysis.

<b>STORMWATER MANAGEMENT SUMMARY TABLE - BOUCHER AVENUE</b>					
<i>MINIMUM SIZING CRITERIA</i>	<i>SYMBOL</i>	<i>VOLUME REQUIRED (acre-feet)</i>	<i>VOLUME REQUIRED --Using Credits-- (acre-feet)</i>	<i>SWM Practice</i>	<i>Notes</i>
Water Quality Volume	<i>(WQ<sub>v</sub>)</i>	0.150	0.150	Infiltration trench and Drywells	WQv provided in trench and drywells.
Recharge Volume	<i>(RE<sub>v</sub>)</i>	0.044	0.044	Infiltration trench and Drywells	REv provided in trench and drywells.
Channel Protection Storage Volume	<i>(CP<sub>v</sub>)</i>	N/A	N/A		Not required for redevelopment
Overbank Flood Protection	<i>(Q<sub>p10</sub>)</i>	N/A	N/A		Adequate conveyance will be provided in downstream storm drain systems.
Extreme Flood	<i>(Q<sub>f</sub>)</i>	N/A	N/A		Adequate conveyance will be provided in downstream storm drain systems.
<b>Notes:</b>					
1. This was designed per the general requirements of city of Annapolis Stormwater Management Requirements.					

# BOWMAN CONSULTING GROUP

Drainage Area A

Infiltration Trench Practice I-1 Per MDE SWM Design Manual

Site Name: Boucher Avenue  
 Date: February 16, 2006  
 County: Anne Arundel

By: S. McAree  
 Checked: RMF

**Step 1. Compute WQv Volume**

$$WQv = \frac{(P)(Rv)(A)}{12}$$

$$Rv = 0.05 + 0.009I$$

*I = % Imperviousness*

*A = Site Area*

	<i>P</i>
Eastern Zone	1.00
Western Zone	0.90

*\*WQv minimum = 0.2" per acre*

**Site Data**

A = 3.380 acres  
 Impervious Area = 1.830 acres  
 I (% Impervious) = 54.1 %  
 Rv = 0.537

Zone = Eastern Zone  
 P = 1.00 inch

WQv = 0.15 ac-ft  
 or 6592.08 cf

**Step 2. Compute Recharge Volume (Rev)**

(MDE SWM Manual Section 2.2-page 2.5)

$$Rev = \frac{(S)(Rv)(A)}{12}$$

*(percent volume method)*

HSG	Recharge factor	Area	%
A	0.42	0.00	0.00%
B	0.29	3.38	100.00%
C	0.14	0.00	0.00%
D	0.08	0.00	0.00%
		3.38	100.00%

S = 0.29

Rev = 0.044 ac-ft  
 or 1912 cf

# BOWMAN CONSULTING GROUP

## Drainage Area A      Infiltration Trench Practice I-1 Per MDE SWM Design Manual

Site Name: Boucher Avenue  
 Date: February 16, 2006  
 County: Anne Arundel

By: S. McAree  
 Checked: RMF

### Step 3. Compute Peak Discharge for Water Quality Storm

#### Site Data from Step 1

Determine Runoff Volume  $Q_a$  from eq.  $Q_a = P \times R_v$

$$Q_a = 1.00 \text{ inch} \times 0.537 \text{ watershed inches}$$

$$A = 3.380 \text{ acres}$$

$$\text{Impervious Area} = 1.830 \text{ acres}$$

$$I (\% \text{ Impervious}) = 54.1 \%$$

$$R_v = 0.537$$

Determine CN for Water Quality Storm from Eq:

$$\text{Zone} = \text{Eastern Zone}$$

$$P = 1.00 \text{ inch}$$

$$CN = \frac{1000}{[10 + 5P + 10Q_a - 10(Q_a^2 + 1.25Q_aP)^{0.5}]}$$

$$WQ_v = 0.15 \text{ ac-ft}$$

$$\text{or } 6592.08 \text{ cf}$$

$$CN = 95$$

$$T_c = 0.1 \text{ hr}$$

Determine Initial Abstraction  $I_a$  from Eq.  $I_a = (200/CN) - 2$

$$I_a = 0.105$$

$$\text{Compute } I_a/P = 0.105$$

Determine the unit peak discharge ( $q_u$ ) from TR-55 Exhibit 4-II and Area (A) in sq. miles

$$q_u = 1000 \text{ csm/in} \quad \text{from TR-55 Exhibit 4-II}$$

Determine Peak Discharge using equation:  $Q_p = q_u \times A \times Q_a$

$$Q_p = 1000 \times 0.005281 \times 0.54 = 2.84 \text{ cfs}$$

where:  $A = 0.005281 \text{ sq. miles}$

Use Peak Discharge from Water Quality Storm to evaluate grass swale credits and to design diversion devices to water quality BMP facilities.

# BOWMAN CONSULTING GROUP

## Drainage Area A

Site Name:

Boucher Avenue

Date:

2/16/2006

## Infiltration Trench Practice I-1 Per MDE SWM Design Manual

By:

S. McAree

Checked:

RMF

Impervious

1.830

### Credits

1. Natural Area Conservation (ac.)	0.00	Subtract areas (protected by easement) from lot area.	0.00	Imp.
2. Disconnection of Rooftop Runoff (ac.)		Subt.roof areas discharged onto lawn<5%, with 75' sheetflow Compensate with volume storage if <75' sheetflow	0.17	Imp.
3. Disconnection of Non-roof Runoff (ac.)		Subtract impervious areas if filtered by grass area 75' max. flowpath on impervious area, max. 1000 sq.ft. area	0.00	Imp.
4. Sheetflow to Buffer (ac.)	0.00	Grass area <5%, for length equal impervious flow path Subtract area which sheet flows to buffer in easement Max. flowpath to buffer 150' for pervious, 75' for impervious <5% slope to buffer or level spreader reqd. Can't combine with credits 2 and 3	0.00	Imp.
5. Grass Channel Credit (a.c.) (N/A if rooftop disconnect provided)	0.00	Subtract impervious areas draining to grass channel designed per Manual. 10 minutes of residence time in channel reqd.	0.00	Imp.
6. Environmentally Sensitive Credit (applicable or not applicable) (applicable or not applicable)	0.00	No structural practices reqd., rooftops must be disconnected Impervious area max. 15%, and lot size > 2 acres		

### Water Quality Calculation

Original Drainage Area	3.38	<b>Natural Area and Sheet Flow to Buffer Credit Credit=</b>	0.15	ac-ft
Effective Drainage Area	3.38	$= (P)(Original Rv)(Orig. A-Sheet flow to Buffer A-Natural Area Conservation A)/12$	6592.08	cf
Effective imp. Area after credits	1.66	<b>Rooftop Disconnect and Non-Rooftop Disconnect Credit Credit=</b>	0.14	ac-ft
		$= (P)(New Rv)(Original A)/12$	or 6036.69	cf
New R <sub>v</sub>	0.492			
WQv Credit (ac. Ft.)	0.01	$= (Original WQv-NA Credit and SF to Buffer Credit WQv) + (Original WQv-Rooftop and Non-roof Credit)$		
WQv Credit (C.F.)	555			
WQv required (ac. Ft.)	0.14	$= Original WQv-Total Credit WQv$		
WQv required (C.F.)	6037			

### Required Rev (Percent Area Method)

(S)=	0.29			
(Ai)=	1.83			
Rev = (S)(Ai)=	0.531	ac or	23117	cf
Rev Treated by Credits=	0.170	ac (Sum of site impervious treated by sheetflow and disconnects)		
Rev Remaining for treatment=	0.361	acres non-structurally or		
Original Rev=	0.044			
Rev (structurally)=		$Rev (Remaining) / Rev (Percent Area Method) \times Rev (Original) =$	0.030	ac-ft
	0.361	divided by	0.531	times
			0.044	=
			0.030	ac-ft
			1299	cf

# BOWMAN CONSULTING GROUP

## Infiltration Trench Practice I-1 Per MDE SWM Design Manual

Drainage Area A

Site Name:

Boucher Avenue  
Date: 2/16/2006

By: S. McAree  
Checked: RMF

**Step 1.**

Compute pretreatment requirements

Given underlying infiltration rate of  $f = 1.02$  in/hr

"f" less > 2 inches per hr Use:

$$V_p = (.50)WQ_v \quad WQ_v = 6037 \text{ cf.}$$

"f" <= 2 inches per hr Use:

$$V_p = (.25)WQ_v \quad V_p = 1509 \text{ cf}$$

**Step 2.**

Additional Pretreatment Techniques

Use all Techniques Indicated (3 minimum required)

- Grass Channel per Chapter 5 - Credit #5
- Grass Filter Strip Minimum 20 feet and only if sheet flow is established
- Use Bottom Sand layer
- Use Upper Sand Layer 6" minimum with filter fabric at sand/gravel interface
- Use Washed Bank Run Gravel as Aggregate

**Step 3.**

Size Pretreatment Sediment Basin, Stilling Basin, Sump Pit, or Storage Chamber

Option A) Pre-Treatment Perforated Underground Sediment Chamber:

Choose Option A

- Pipe Diameter: 60 inches
- Pipe Cross-Sectional Area: 19.63 sf
- Minimum Pipe Length Required: 76.9 linear feet
- Use One (1) 80 ft pipe plus volume of two 7' dia. manholes each end

Option B) Pre-treatment Sediment Basin Minimum Surface Area:

NOT USED

$$A_{sf} = 0.066 WQ_v \text{ (for Impervious } \leq 75\%)$$

$$A_{sf} = 0.0081 WQ_v \text{ (for Impervious } > 75\%)$$

Minimum Surface Area Required for Sediment Basin  $A_{sf} = 435$  sf

Pre-Treatment Pool Volume:	Stage	Area (sf)	Delta (ft)	Avg. Area (sf)	Net Storage (cf)	Cumulative Storage (cf)
			0.0	0	0	0
			0.0	0	0	0
			0.0	0	0	0
<b>Total Pretreatment Volume Provided <math>V_p =</math></b>			<b>0 cf</b>	<b>&lt;</b>	<b>1509 cf Required</b>	<b>NG</b>
<b>Total Pretreatment Surface Area Provided:</b>			<b>0 sf</b>	<b>&lt;</b>	<b>435 sf Required</b>	<b>NG</b>

Total Pretreatment Volume Provided  $V_p =$

Total Pretreatment Surface Area Provided:

Pretreatment Storage Volume provided :

80 lf of 60-inch HDPE : 19.63 sf/ft= 1571 cf

**Step 4.**

Compute Trench Volume Required

Required Volume of Infiltration Trench  $V_w = WQ_v - V_p = 6037 \text{ cf} - 1571 \text{ cf} = 4466 \text{ cf}$

Volume to manage  $C_{pv}$ :  $V_{C_{pv}} = 0 \text{ cf}$  (Additional Volume to Manage): 0 cf

Volume to manage  $Q_p$ :  $V_{Q_p} = 0 \text{ cf}$  4466 cf

Infiltration Trench Design:

Trench Volume Manages Water Quality and Recharge Only

Maximum allowable depth  $d_{max} = f \times T_s / n = 122 \text{ inches} = 10.2 \text{ ft max.}$

where

- $dt = 5$  ft Design Trench depth between 2 feet and 10.2 ft
- $f = 1.02$  in/hr Coefficient of permeability for Underlying Infiltration Soils
- $n = 0.4$  Porosity of stone reservoir
- $T_s = 48$  hours Maximum allowable storage time for infiltration trench

Area of Infiltration Trench

$$A_t = \frac{V_w}{[n \times dt + fT]} \text{ where time to fill the trench (T) is 2 hours}$$

Use a Infiltration Trench with minimum area  $A_t = 2058.0$  sf

Design Trench Length = 80 ft

Design Trench Width = 26 ft

Use an Infiltration Trench

80 ft long by 26 ft wide by 5 ft deep

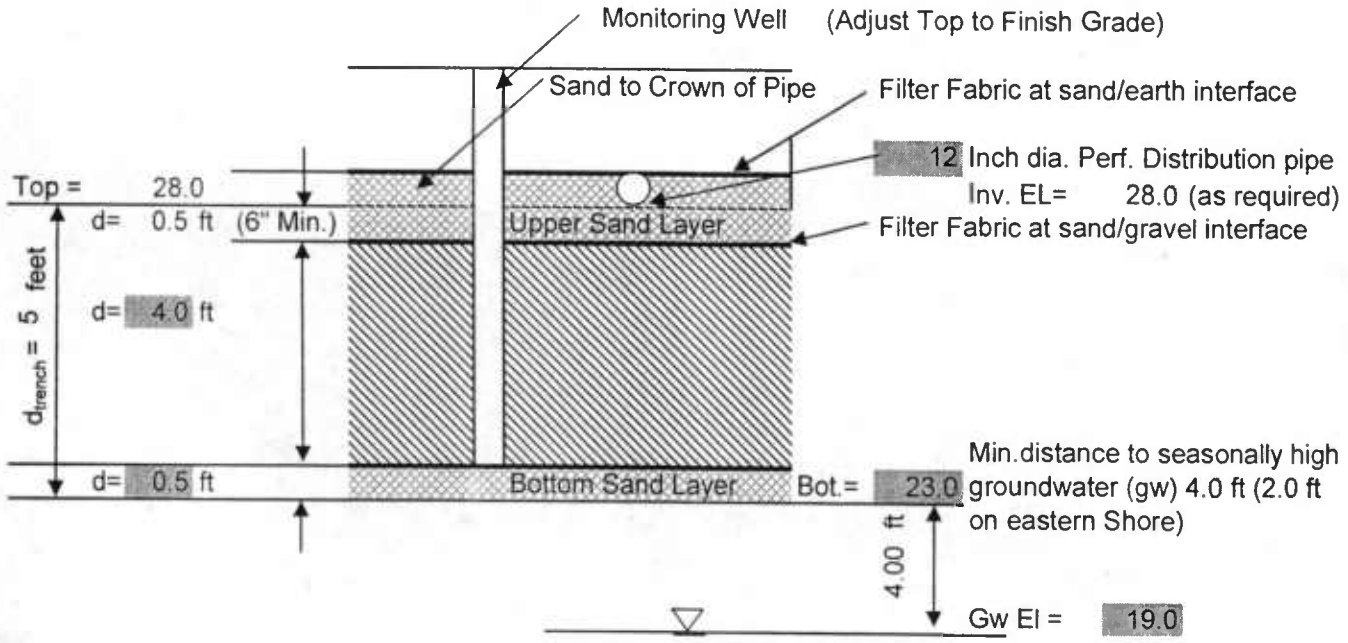
# BOWMAN CONSULTING GROUP

## Drainage Area A

## Infiltration Trench Practice I-1 Per MDE SWM Design Manual

Site Name: Boucher Avenue  
Date: 2/16/2006

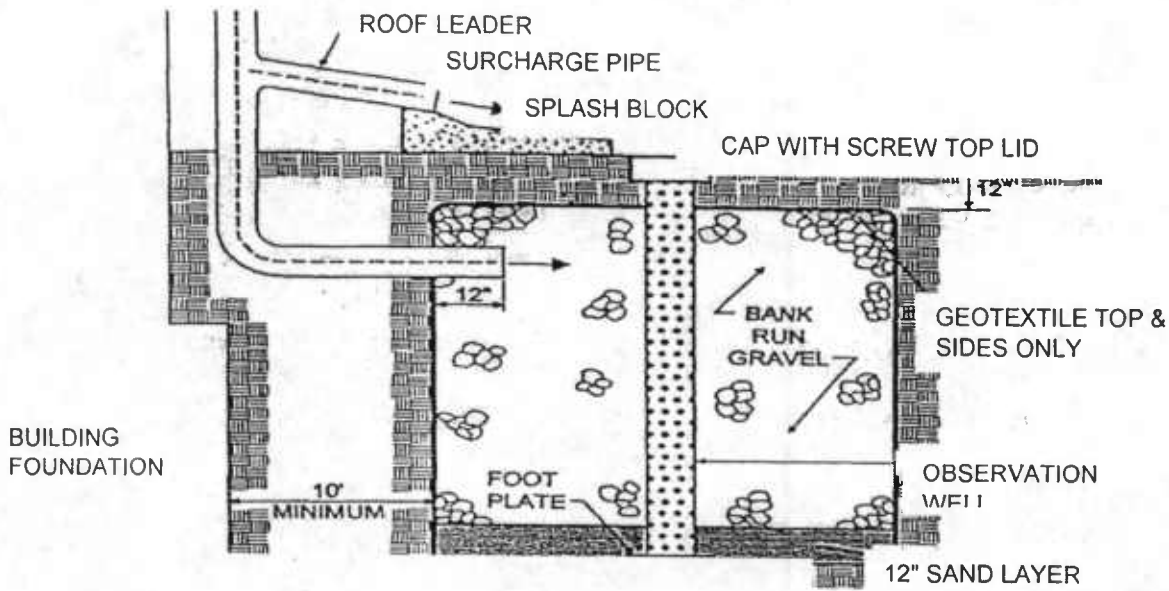
By: S. McAree  
Checked: RMF





**WORKSHEET**

**Figure 5.1 Schematic of Dry Well**



**Table 5.2 Rooftop Disconnection Compensation Storage Volume Requirements (Per Disconnection Using Dry wells, Raingardens, etc.)**

Disconnection Length Provided	0 - 14 ft.	15 - 29 ft.	30 - 44 ft.	45 - 59 ft.	60 - 74 ft.	> 75 ft.
% WQv Treated by Disconnect	0%	20%	40%	60%	80%	100%
% WQv Treated by Storage	100%	80%	60%	40%	20%	0%
Max. Storage Volume* (Eastern Rainfall Zone)	40 cu-ft.	32 cu-ft.	24 cu-ft.	16 cu-ft.	8 cu-ft.	0 cu-ft.
Max. Storage Volume* (Western Rainfall Zone)	36 cu-ft.	28.8 cu-ft.	21.6 cu-ft.	14.4 cu-ft.	7.2 cu-ft.	0 cu-ft.

\*Assuming 500 square feet roof area to each downspout.

\*\* Disconnection length on slopes less than 5%.

**Drywell Tabulation for Area A-2:**

Lot No.	Quantity of Downspouts per Lot	Disconnection length provided **	Storage Volume Required per Drywell (cf)	Max. roof area (sf) to downspouts assuming 500 sf/each	
1	2	0	40	1000	
2	2	0	40	1000	
3	2	0	40	1000	
4	2	0	40	1000	
5	2	0	40	1000	
6	2	0	40	1000	
7	2	0	40	1000	
8	1	0	40	500	
<b>Total</b>	<b>15</b>			<b>7500</b>	<b>Total Impervious reduction to be applied to credits: 0.17 acres</b>

## Worksheet A: Standard Application Process

### Calculating Pollutant Removal Requirements<sup>1</sup>

**Step 1: Calculate Existing and Proposed Site Imperviousness**

**A. Calculate Percent Imperviousness**

- 1) Site Area within the Critical Area IDA, A = \_\_\_\_\_ acres
- 2) Site Impervious Surface Area, Existing and Proposed, (See Table 4.1 for details)

← 3.38 acres DM 3/17/06  
606 ha

	(a) Existing (acres)	(b) Proposed (acres)
Roads		0.7474
Parking lots		
Driveways	0.7646 AC	0.0495
Sidewalks/paths		0.1204
Rooftops	0.1082 AC	0.6892
Decks		0.0354
Swimming pools/ponds		
Other <b>GARAGE</b>		0.1893
<b>Impervious Surface Area</b>	<b>0.8728</b>	<b>1.8312</b>

3) Imperviousness (I) OK

Existing Imperviousness,  $I_{pre}$  = Impervious Surface Area / Site Area  
 = (Step 2a) / (Step 1)  
 =  $(0.8728) / (3.38)$   
 = 25.8 % OK

Proposed Imperviousness,  $I_{post}$  = Impervious Surface Area / Site Area  
 = (Step 2b) / (Step 1)  
 =  $(1.8312) / (3.38)$   
 = 54.2 % OK

**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).

<sup>1</sup> 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**

~~$$L_{pre} = (0.5) (A)$$

$$= (0.5) ( \quad )$$

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

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**

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

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

$$= 0.05 + 0.009 ( \underline{25.8} ) = \underline{0.282} \quad OK$$

$$L_{pre} = ( \underline{0.282} ) ( \underline{0.30} ) ( \underline{3.38} ) (8.16)$$

$$= \underline{2.33} \text{ lbs/year of total phosphorus} \quad OK$$

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:**

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

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

$$= 0.05 + 0.009 ( \underline{54.2} ) = \underline{0.538}$$

$$L_{post} = ( \underline{0.538} ) ( \underline{0.30} ) ( \underline{3.380} ) (8.16)$$

$$= \underline{4.45} \text{ lbs/year of total phosphorus } \text{OK}$$

Where:

$L_{post}$  = 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)**

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

$$= ( \underline{4.45} ) - (0.9) ( \underline{2.33} )$$

$$= \underline{2.35} \text{ lbs/year of total phosphorus } \text{OK}$$

Where:

$RR$  = 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)

**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 <sub>post</sub> )	x	(BMP <sub>RE</sub> )	x	(% DA Served)	=	LR
<u>INFILTRATION TRENCH</u>	<u>4.45</u>	x	<u>.65</u>	x	<u>.81</u>	=	<u>2.34</u> lbs/year
<u>DRYWELL</u>	<u>4.45</u>	x	<u>.65</u>	x	<u>.13</u>	=	<u>0.38</u> lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year

Load Removed, LR (total) = 2.72 lbs/year

Pollutant Removal Requirement, RR (from Step 4) = 2.35 lbs/year

Where:

- Load Removed, LR = Annual total phosphorus load removed by the proposed BMP (lbs/year)
- L<sub>post</sub> = Average annual load of total phosphorus exported from the post-development site (lbs/year)
- BMP<sub>RE</sub> = 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

*OK*  
*OK*  
*OK*  
*0.34 average of P<sub>03</sub> Treatment*

**Table 4.7 Estimate of Pollutant Load Removed by Each BMP**

$$\text{Load Removed, LR} = (L_{\text{post}}) (\text{BMP}_{\text{RE}}) (\% \text{ DA Served})$$

Where:

- LR = Annual total phosphorus load removed by the proposed BMP (lbs/year)
- $L_{\text{post}}$  = Average annual load of total phosphorus exported from the post-development site prior to development (lbs/year)
- $\text{BMP}_{\text{RE}}$  = BMP removal efficiency for total phosphorus, Table 4.8 (%)
- % DA Served = Fraction of the drainage area served by the BMP (%)

**Table 4.8 BMP Removal Rates for Total Phosphorus**

Code	BMP	Total Phosphorus Removal Efficiency (%)
P-1	Micropool ED	40%
P-2	Wet Pond	50%
P-3	Wet ED Pond	60%
P-4	Multiple Pond	65%
P-5	Pocket Pond	50%
W-1	Shallow Wetland	40%
W-2	ED Wetland	40%
W-3	Pond/Wetland	55%
W-4	Pocket Wetland	40%
I-1	Infiltration Trench	65%
I-2	Infiltration Basin	65%
F-1	Surface Sand Filter	50%
F-2	Underground Sand Filter	50%
F-3	Perimeter Sand Filter	50%
F-4	Organic Filter	50%
F-5	Pocket Sand Filter	40%
F-6	Bioretention	50%
O-1	Dry Swale	65%
O-2	Wet Swale	40%

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. If not, the designer must evaluate alternative BMP designs to achieve higher removal efficiencies, add additional BMPs, design the project so that more of the site is treated by the proposed BMPs, or design the BMP to treat runoff from an off-site area.

## Boucher Avenue Impervious Area Tabulation

		House (sq. ft.)	Porch (sq. ft.)	Driveway (sq. ft.)	Garage (sq. ft.)	Totals (sq. ft.)
<b>8 SFD Lots</b>						
Lot	1	1,679.00	170.00	310.00		2,159.00
Lot	2	1,679.00	170.00	271.00		2,120.00
Lot	3	1,679.00	345.00	271.00		2,295.00
Lot	4	1,679.00	345.00	415.00		2,439.00
Lot	5	1,679.00	170.00	415.00		2,264.00
Lot	6	1,679.00	170.00	238.00		2,087.00
Lot	7	1,679.00	170.00	238.00		2,087.00
Lot	8	720.00			324.00	1,044.00
<b>22 TH Lots</b>						
Lot	9	844.00			360.00	1,204.00
Lot	10	804.00			360.00	1,164.00
Lot	11	756.00			360.00	1,116.00
Lot	12	836.00			360.00	1,196.00
Lot	13	795.00			360.00	1,155.00
Lot	14	756.00			360.00	1,116.00
Lot	15	811.00			360.00	1,171.00
Lot	16	823.00			360.00	1,183.00
Lot	17	795.00			360.00	1,155.00
Lot	18	756.00			360.00	1,116.00
Lot	19	815.00			360.00	1,175.00
Lot	20	788.00			360.00	1,148.00
Lot	21	756.00			360.00	1,116.00
Lot	22	794.00			360.00	1,154.00
Lot	23	756.00			360.00	1,116.00
Lot	24	842.00			360.00	1,202.00
Lot	25	857.00			360.00	1,217.00
Lot	26	815.00			360.00	1,175.00
Lot	27	756.00			360.00	1,116.00
Lot	28	794.00			360.00	1,154.00
Lot	29	769.00			360.00	1,129.00
Lot	30	830.00			360.00	1,190.00
<b>Roads</b>						32,555.00
<b>Sidewalks</b>						5,243.00
<b>Subtotals</b>		<b>30,021.0</b>	<b>1,540.0</b>	<b>2,158.0</b>	<b>8,244.0</b>	
<b>Grand Total Impervious Area</b>						<b>79,761.00 Square Feet</b>
						<b>1.831 Acres</b>

# **MARSHALL ENGINEERING, INC.**

## **GEOTECHNICAL ENGINEERS**

3161 Solomons Island Road, Suite 2 · Edgewater, MD 21037  
(410)956-7820 · FAX (410)956-1537

*John P. Marshall, P.E.*  
*President*

*Robert A. O'Berry*  
*Geotechnical Engineer*

*Lisa P. Carroll*  
*Project Manager*

March 3, 2005

Basheer & Edgemoore  
2071 Chain Bridge Road, #510  
Vienna, VA 22182  
Attention: Loren Pope

Re: Geotechnical Investigation  
Proposed SWM Infiltration  
Loneragan Site, Boucher Avenue  
Anne Arundel County (Annapolis), MD  
MEI Job No. 05024

Mr. Pope:

Submitted here is the report of our geotechnical investigation at the referenced site. The purpose of this study was to determine the suitability of the subsurface profile at a location specified by your engineer, John Patmore with C.D. Meekins, for the use of infiltration for stormwater management.

### **FIELD & LABORATORY INVESTIGATION**

To determine the subsurface conditions, three hand auger borings were made to depths of 15 feet below the existing ground surface. The boring locations were located in the field by John Patmore by using measurements from existing site features. Soil technicians made the borings, visually inspected and classified the soils encountered and also obtained samples for subsequent classification by our geotechnical staff. Laboratory Sieve/Hydrometer tests were performed on selected samples from the borings to help establish textural classification for determining infiltration rates. Boring Logs, a Boring Plan and the laboratory test results are attached. On the Logs, the soil classifications are based on the USDA Textural Triangle. Also shown with each is the Group Symbol based on the



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 Lonergan Site, Boucher Avenue  
 MEI Job No. 05024  
 March 3, 2005

Unified Soils Classification System.

PVC pipe was installed near each of the borings so that infiltration tests could be performed to measure permeability. Information concerning the test installation is given on the boring logs. The infiltration tests were done in accordance with current Anne Arundel County and Maryland Department of the Environment (MDE) requirements. A summary of the test results is attached.

**GENERAL SUBSURFACE CONDITIONS**

Based on the Geologic Map of Anne Arundel County, prepared by the Maryland Geologic Survey, the geologic profile at the site consists of the Aquia Formation. At the boring locations the generalized subsurface profile consists of layered Sands (Loamy Sands, Sandy Loams and Sandy Clay Loams). Groundwater was not encountered at any of the boring locations. However, it is noted that groundwater levels may vary at different times due to seasonal changes, precipitation and local runoff.

Given below is a general summary of the profile at the boring locations relative to infiltration potential.

<u>Depth</u>	<u>Description</u>	<u>Infiltration Potential*</u>
<b><u>Boring SWM-1</u></b>		
0.0'-9.0'	Layered Sandy Loam and Sandy Clay Loam Sandy Loam	Slow/Poor***
9.0'-15.0'**		Slow
<b><u>Boring SWM-2</u></b>		
0.0'-4.0'	Loamy Sand [Fill?] Sandy Loam Sandy Loam	Good
4.0'-13.0'**		Slow
13.0'-15.0'		Slow

\* See Following Page  
 \*\* See Following Page  
 \*\*\* See Following Page

<u>Depth</u>	<u>Description</u>	<u>Infiltration Potential*</u>
<b><u>Boring SWM-3</u></b>		
0.0'-4.0'	Loamy Sand [Fill?]	Good
4.0'-6.0'	Sandy Loam	Slow
6.0'-10.0'	Layered Sandy Loam and Sandy Clay Loam	Slow/Poor***
10.0'-15.0'**	Sandy Loam	Slow

\* Relative Permeability Ratings Based on charts in DNR publications.

Poor = not considered suitable for infiltration (can be due to thin layers)

Slow = probably suitable but slow (Prel. I = 1.0 in./hr.)

Good = probably suitable (Prel. I = 2.5 in./hr.)

\*\* Performed Infiltration Testing in this layer.

\*\*\* Where a dual infiltration potential is provided, the slower infiltration rate should be used for design unless field infiltration can verify a higher rate.

The permeability classification and preliminary infiltration rate "I" given above is based on information from DNR publications which relate infiltration rates to soil classification based on the USDA Textural Triangle and our experience with similar soil types and conditions.

Concerning actual infiltration rates, reference is made to the Infiltration Test Summary in the Appendix. The results of our infiltration testing are tabulated below.

<u>Boring Number</u>	<u>Test Depth</u>	<u>Soil Description</u>	<u>Infiltration Rate Range (in./hr.)</u>
SWM-1	13.0'	Sandy Loam	1.9 to 6.8
SWM-2	10.0'	Sandy Loam	1.3 to 3.3
SWM-3	11.0'	Sandy Loam	2.0 to 5.7

### CONCLUSIONS & RECOMMENDATIONS

The following design infiltration rates can be used for design of any infiltration system situated within the Sandy Loam deposits and conforming with current Anne

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Loneragan Site, Boucher Avenue  
MEI Job No. 05024  
March 3, 2005

PER PAUL MARSHALL RECOMMENDS  
SLOWER RATE DUE TO UNKNOWN  
LAYERS OF SANDY CLAY LOAM.

Arundel County and MDE requirements. It is noted that these design rates are contingent upon the installation of an overflow device.

<u>Boring No.</u>	<u>Depth</u>	<u>Description</u>	<u>Design Infiltration Rate (in./hr.)</u>
SWM-1	9.0'-15.0'	Sandy Loam	1.02*
SWM-2	4.0'-15.0'	Sandy Loam	1.02*
SWM-3	10.0'-15.0'	Sandy Loam	1.02*

\* Based on the installation of an overflow device

The remaining subsurface profile is not suitable for infiltration for stormwater management due to soils with unsuitable infiltration rates and possible fill [Fill?] soils.

A geotechnical engineer should inspect the subgrade of any infiltration system designed on the basis of this report in order to compare the subsurface conditions with those encountered in the boring and used for design. If conditions are not the same, changes may be necessary.

#### REMARKS

This report was compiled based solely on the results of the soil test borings performed at the project. The recommendations were developed from the information obtained in the test borings which depicts subsurface conditions only at those specific locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the soil conditions at the boring locations.

The nature and extent of variations within the borings may not become evident until the time of construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations in this report after performing on-site observations during

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Loneragan Site, Boucher Avenue  
MEI Job No. 05024  
March 3, 2005

the excavation period and noting the characteristics of any variation. However, only minor variations that can be readily evaluated and adjusted during construction are expected.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. This company is not responsible for the conclusions, opinions or recommendations made by others based on this data. If during construction, any problems or deviations are encountered contrary to our findings, Marshall Engineering, Inc. should be notified immediately.

We have appreciated this opportunity to provide our services to you on this project. If we can be of any further assistance, please do not hesitate to contact our office.

Very truly yours,  
**MARSHALL ENGINEERING, INC.**



John P. Marshall, P.E.  
President  
JPM/LPC:amj  
Copies: Client – Mail (2); FAX (1) 410/267-0338



Lisa P. Carroll  
Project Manager



C.D. PERKINS & ASSOCIATES, INC.  
 CONSULTING ENGINEERS AND SURVEYORS  
 114 WEST STREET SECOND FLOOR, P.O. BOX 1131  
 ANNAPOLIS, MARYLAND 21403-1131  
 PHONE: 410-267-1714

SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_  
 CALCULATED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 SCALE \_\_\_\_\_

# BOUCHER AVENUE

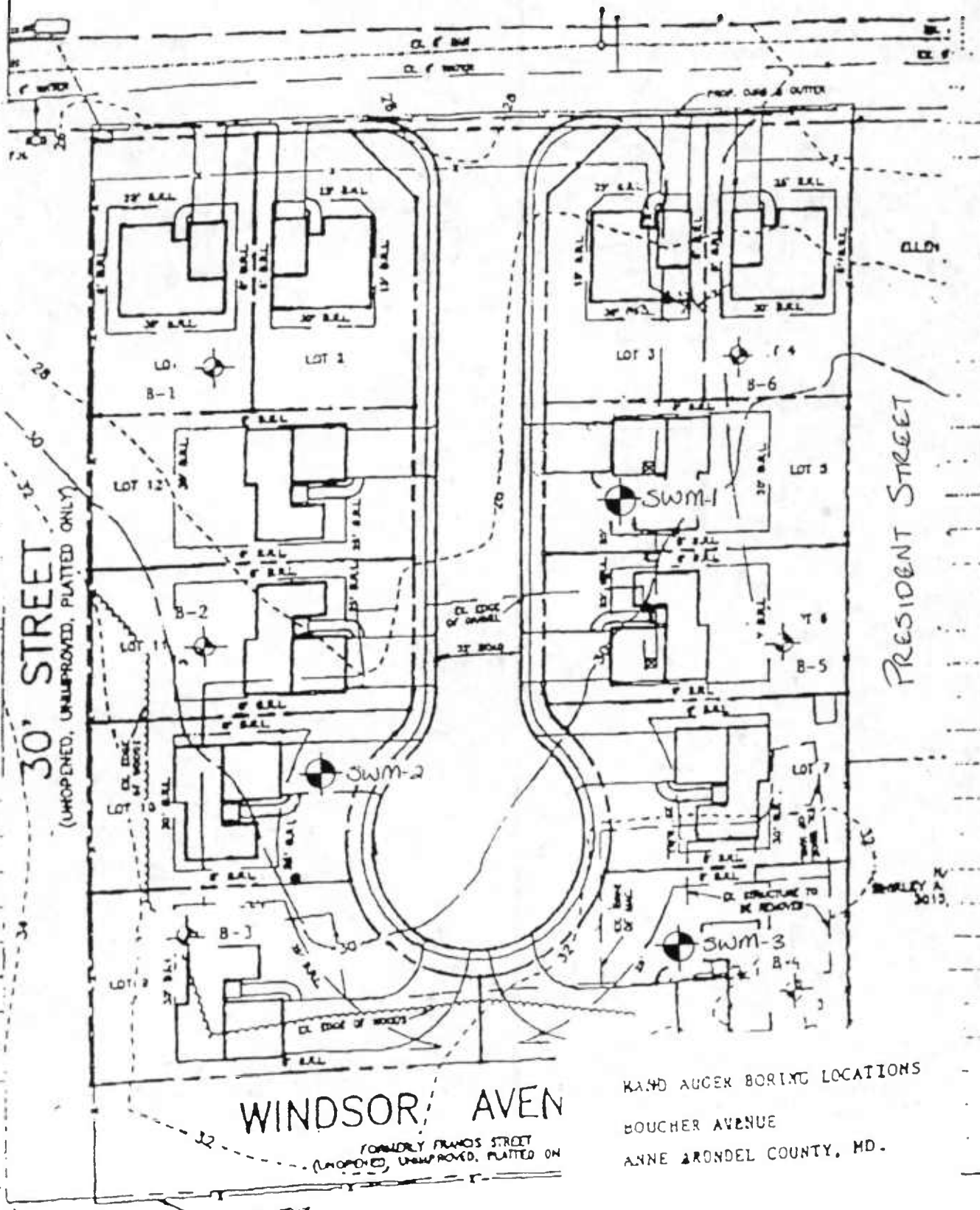
MADISON STREET

30' STREET  
 (UNOPENED, UNIMPROVED, PLATTED ONLY)

PRESIDENT STREET

WINDSOR AVENUE

FORMERLY FRANKS STREET  
 (UNOPENED, UNIMPROVED, PLATTED ON)



WATER AUGER BORING LOCATIONS  
 BOUCHER AVENUE  
 ANNE ARONDEL COUNTY, MD.

# HAND AUGER SUMMARY

BORING NO.: SWM-1

PROJECT: Lonergan Site - Boucher Avenue  
 CLIENT: Basheer & Edgemoore  
 LOCATION: See Boring Plan

PROJECT NO.: 05024  
 DATE: 02/03/2005  
 ELEVATION:  
 LOGGED BY: LPC

DEPTH TO WATER> AT COMPLETION: Dry  
 DEPTH TO CAVE-IN> AT COMPLETION: None

AFTER HOURS:  
 AFTER HOURS:

ELEVATION/ DEPTH	SOIL SYMBOLS, SAMPLERS AND TEST DATA*	USCS	Description	NM%	DYNAMIC CONE PENETROMETER TEST		
					DEPTH	N	CURVE
							3 6 9 12
0		SC-SM	Layered Moist Reddish Olive Brown f-m Sandy Loam (SM) and Sandy Clay Loam (SC)  - moist to very moist below 2'  - very moist below 6'	8			
2.5							
5							
7.5							
9.0		9.0	Moist Olive Brown f-m Sandy Loam (SC-SM)  - very moist w/ironstone fragments below 14'  * See Note	12			
10	SC-SM	13					
12.5		10					
15		15.0	Bottom of Boring 15'	14			

\*Note: To perform infiltration test, made boring to 13.0' and installed PVC pipe at location 10'± from this boring. Sealed around annulus space at bottom with bentonite pellets and water.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

# HAND AUGER SUMMARY

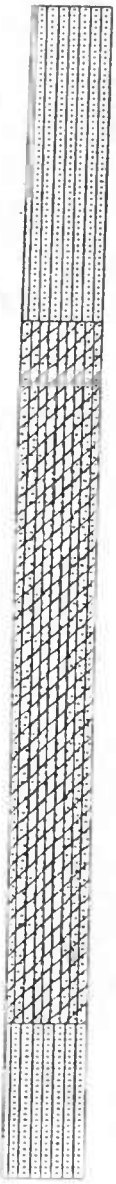
BORING NO.: SWM-2

PROJECT: Lonergan Site - Boucher Avenue  
 CLIENT: Basheer & Edgemore  
 LOCATION: See Boring Plan

PROJECT NO.: 05024  
 DATE: 02/03/2005  
 ELEVATION:  
 LOGGED BY: LPC

DEPTH TO WATER > AT COMPLETION: Dry  
 DEPTH TO CAVE-IN > AT COMPLETION: None

AFTER HOURS:  
 AFTER HOURS:

ELEVATION/ DEPTH	SOIL SYMBOLS, SAMPLERS AND TEST DATA*	USCS	Description	NM%	DYNAMIC CONE PENETROMETER TEST		
					DEPTH	N	CURVE
							3    6    9    12
0		SM	Moist Brown f-m Loamy Sand (SM) [Fill?]  - w/trace gravel below 2'	6			
2.5				9			
5		SC-SM	4.0	Moist Olive Brown f-m Sandy Loam (SC-SM)  - moist to very moist below 9'	12		
7.5				12			
10			* See Note	14			
12.5				18			
15	SM	13.0	Moist to Very Moist Olive Brown f-m Sandy Loam (SM)  * See Note	16			
		15.0	Bottom of Boring 15'	14			

\*Note: To perform infiltration test, made boring to 10.0' and installed PVC pipe at location 10'± from this boring. Sealed around annulus space at bottom with bentonite pellets and water.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

# HAND AUGER SUMMARY

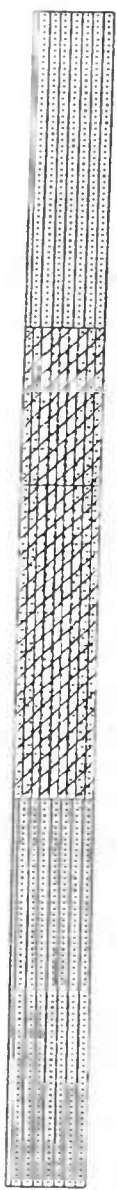
BORING NO.: SWM-3

PROJECT: Lonergan Site - Boucher Avenue  
 CLIENT: Basheer & Edgemoore  
 LOCATION: See Boring Plan

PROJECT NO.: 05024  
 DATE: 02/03/2005  
 ELEVATION:  
 LOGGED BY: LPC

DEPTH TO WATER > AT COMPLETION: Dry  
 DEPTH TO CAVE-IN > AT COMPLETION: None

AFTER HOURS:  
 AFTER HOURS:

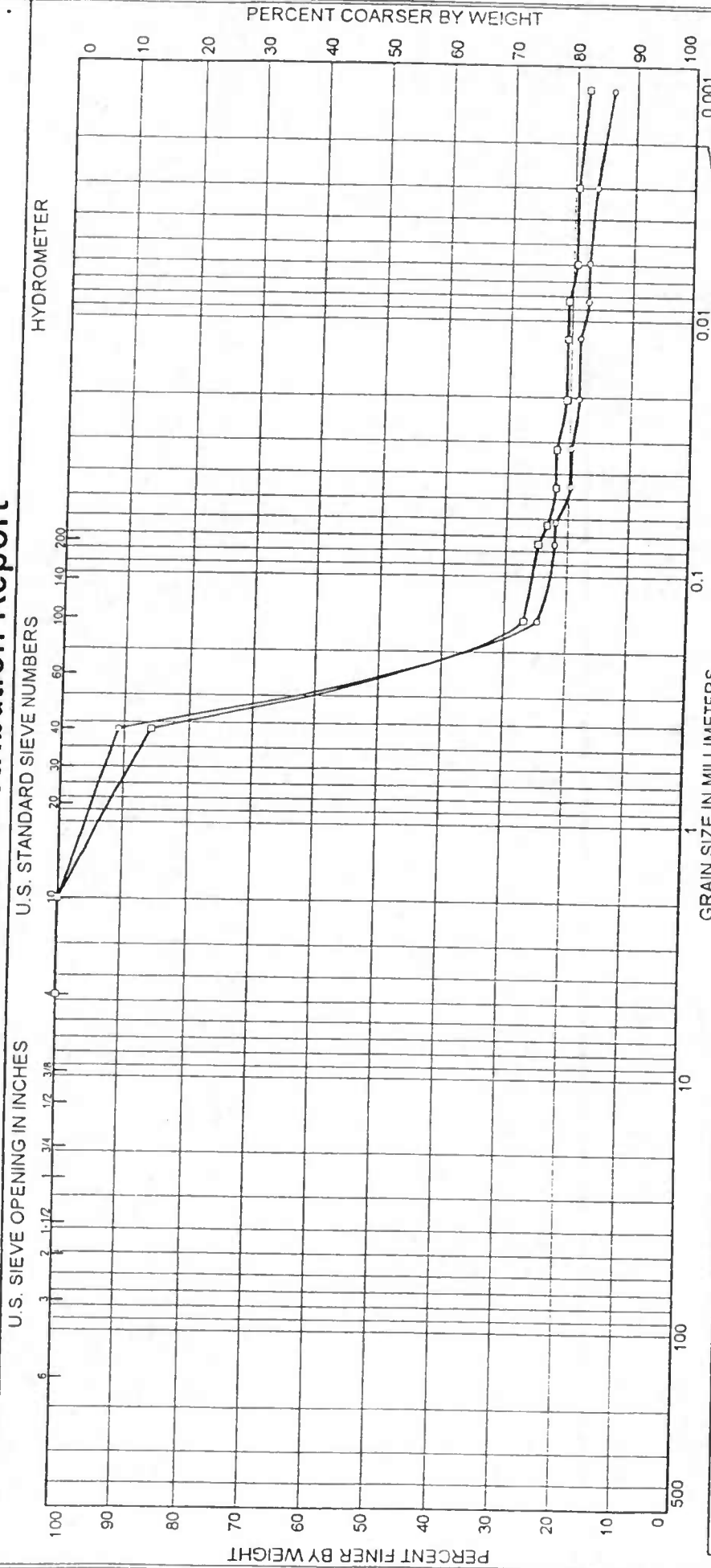
ELEVATION/ DEPTH	SOIL SYMBOLS, SAMPLERS AND TEST DATA*	USCS	Description	NM%	DYNAMIC CONE PENETROMETER TEST		
					DEPTH	N	CURVE
							3   6   9   12
0		SM	Moist to Very Moist Brown f-m Loamy Sand (SM) [Fill?]  - wet below 3'	12			
2.5				18			
5		SC-SM	Moist Olive Brown f-m Sandy Loam (SC-SM)	13			
7.5		SC-SM	Layered Moist Olive Brown f-m Sandy Loam (SM) and Sandy Clay Loam (SC)	11			
10		SM	Moist to Very Moist Olive Brown f-m Sandy Loam (SM)  - w/Sandy Loam (SC-SM) layers below 13'  * See Note	18			
12.5				15			
15		15.0	Bottom of Boring 15'	20			

\*Note: To perform infiltration test, made boring to 11.0' and installed PVC pipe at location 10'± from this boring. Sealed around annulus space at bottom with bentonite pellets and water.

This information pertains only to this boring and should not be interpreted as being indicative of the site.



# Particle Size Distribution Report



<input type="checkbox"/> % COBBLES		<input type="checkbox"/> % GRAVEL		<input type="checkbox"/> % SAND		<input type="checkbox"/> % SILT		<input type="checkbox"/> % CLAY	
0.0	0.0	0.0	79.4	5.4	15.2	3.8	18.6		
0.0	0.0	0.0	77.6						

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
	S-13	13'	02/25/05	SC-SM	Olive Brown Sandy Loam			
	S-6	6'	02/25/05	SC-SM	Olive Brown Sandy Loam			

Client <u>Basheer &amp; Edgemooore</u>	
Project <u>Loneragan Site</u>	
Project No. <u>05024</u>	Plate
<b>MARSHALL ENGINEERING, INC.</b>	

# INFILTRATION TEST SUMMARY

Lonergan Site

Anne Arundel County, MD

March 3, 2005

<u>Boring Number</u>	<u>Test Depth</u>	<u>Time Duration (min)</u>	<u>Infiltration Rate (in/hr)</u>
SWM-1	13.0'	60	6.8
		60	3.1
		60	1.9
SWM-2	10.0'	60	3.3
		60	2.8
		60	1.3
SWM-3	11.0'	60	5.7
		60	3.3
		60	2.0

Date Received: 6/5/05

Application Filing # SE 2005-6-543

### PLANNED UNIT DEVELOPMENT APPLICATION FORM

City of Annapolis  
Planning and Zoning Department  
160 Duke of Gloucester Street Annapolis, Maryland 21401  
(410) 263-7961

#### Part I. Applicant Information:

Owner of Property: Basheer/Edgemoore-Lonergan, L.L.C.

Address: 3130 Fairview Park Drive, Suite 650, Falls Church, VA 22042

Phone Number: 703-849-8700

Applicant/Agent (if not Owner): Kathryn J. Dahl, Esq., Hyatt, Peters & Weber, LLP

Address: 1919 West Street, Annapolis, Maryland 21401

Phone Number: 410-266-0626

#### Part II. Planned Unit Development Information:

Proposed Use(s) of PUD: Residential Development

1109 Boucher Avenue, 304 President Street and former right-of-way (abandoned) of  
Location: Windsor Avenue, Annapolis, Maryland

Zoning Classification: R2-Single Family Residence District / R3 General Residence District

#### Part III. Submittal Requirements (please submit ten copies of each):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Site plan including metes and bounds of property                    | <input checked="" type="checkbox"/> Written statement addressing the <del>special</del> <u>special planned development exception</u> standards of chapter <del>21.72</del> <u>21.24</u> |
| <input checked="" type="checkbox"/> Vicinity map  | <input checked="" type="checkbox"/> Written statement addressing the site design standards of chapter <del>21.98.050</del> , as applicable <u>21.22 &amp; 21.62</u>                     |
| <input checked="" type="checkbox"/> Floor plan, as applicable   | <input checked="" type="checkbox"/> One set of #10 envelopes, stamped and addressed to property owners within 200 feet of the project   |
| <input checked="" type="checkbox"/> Exterior building elevations  |   |
| <input type="checkbox"/> Application fee: \$500.00 + \$100/acre or fraction thereof <u>See attached</u> |   |
| <input checked="" type="checkbox"/> Land use plan   |   |
| <input checked="" type="checkbox"/> Engineering plan, as applicable                                     |   |

The undersigned assert that this proposed special exception will be in strict accordance with the standards set forth in Chapter 21.74, Planned Unit Developments, of the Code of Annapolis. Additional consideration shall be given to Chapter 21.72, Special Exceptions; Chapter 21.98, Site Design; Chapter 21.64, Off-Street Parking; 21.67, Critical Area Overlay; Chapter 17.09, Tree Preservation; Chapter 19.12 Stormwater Management; and Chapter 20.12, Preliminary Plat (subdivision requirements). BASHEER/EDGEMOORE-LONERGAN, L.L.C.

Signature: By: Dorlan L. Winkleman, Vice President of Land Acquisition  
Date: May 16, 2005

Contact: Kathryn J. Dahl, Esq.  
Hyatt, Peters & Weber, LLP  
1919 West Street, Annapolis, Maryland 21401  
Phone # 410.266.0626  
Fax # 410.841.5065

**RECEIVED**  
JUN 17 2005  
CRITICAL AREA COMMISSION

**BASHEER/EDGEMOORE-PROPERTIES, L.L.C.  
REDEVELOPMENT PROPOSAL – LONERGAN PROPERTY, EASTPORT**

**STATEMENT IN SUPPORT – STANDARDS FOR SITE DESIGN PLAN REVIEW**

---

**\*NOTE:** The City Council of the City of Annapolis recently adopted Ordinance No. O-1-04 which enacts a new zoning code for the City that will become effective on July 1, 2005 ("New Code"). While the Applicant is submitting this application prior to July 1, 2005, the application will be reviewed under the New Code. In order to facilitate administrative review during this transitional period, the criteria explained below refer primarily to the New Code but also include footnote references to the existing zoning regulations codified as of the date of this application ("Old Code").

**Background**

Basheer/Edgemoore-Lonergan, L.L.C. (the "Applicant") is the purchaser of certain property located in the residential neighborhood of Eastport, with frontage on Boucher Avenue and President Street. Totalling approximately 3.25 acres, the property is more particularly described as Tax Map 11Z, Parcels 231, 353, and 48 (the "Property"). The Property is zoned within the R2-Single-Family Residence District and the R3-General Residence District, and it is classified as an Intensely Developed Area ("IDA") within the Critical Area overlay. The R3 zoning classification on a portion of the Property was the result of a rezoning which was approved earlier this year by the City Council in Ordinance No. O-31-04. See Attachment "A".

Since the 1950's, the Property has been used by Lonergan's Charter Service, Inc. for the maintenance and storage of school buses and charter buses (the "Bus Operation"). The Bus Operation is a legal nonconforming use that can be continued. Lonergan's Charter Service, Inc. desires, however, to relocate the Bus Operation off-site. The Applicant desires to redevelop the Property with a residential planned development ("RPD") with eight single-family detached homes ("Detached Homes") along the Property's frontage on Boucher Avenue and President Street, and twenty-two single-family attached homes ("townhouses") and four moderately priced dwelling units ("MPDUs") on the interior of the Property, for a total of thirty-four dwelling units on the Property. As illustrated by the enclosed materials and by the information provided below, the Applicant's proposals for an RPD and site design plan review meet all of the applicable requirements in the Code of the City of Annapolis ("Code") for approval of the use. Note that because of the similarity in the language of certain planned development and site design plan review criteria there are instances where the language in each application duplicative.

## **Annapolis City Code, Chapters 21.22 and 21.62**

### **21.22.080 Review Criteria and Findings**

#### **A. District Standards (including Chapter 21.62 / see below)**

The Applicant proposed an RPD for the Property that is split-zoned within the R2 and R3 Districts. The RPD application, site design review plan and landscaping plan comply with the R2 and R3 District standards as required by the Planned Development criteria.

#### **Use Regulations**

Detached Homes are proposed on the area of the Property that is zoned R2 District, a permitted use for the District and Townhouses in the R3 District, a use permitted by special exception in the District. These uses, therefore, conform to the Planned Development provision of the New Code that allows permitted uses or uses subject to special exception.

#### **Bulk Standards**

The height of the Detached Homes in the R2 district is two and one-half stories and approximately thirty-three feet in height which conforms to the maximum height requirement of thirty-five feet and two and one-half stories of the district. The height of the Townhouses in the R3 District, is thirty-five feet and three and one-half stories which conforms to the maximum height requirement of thirty-five feet and three and one-half stories of the district.

Along the periphery of the Property, yard setbacks are required. The front yards provided along Boucher Avenue and President Street are twenty-five feet; side yards along the periphery in the R2 area of the Property are six feet, and the side yard in the R3 area of the property, along the south property line, is five feet, all of which conform to the Districts' requirements. The rear yard in the R3 area of the Property, along the west property line, is proposed for twenty-four feet, provided the Director of Planning and Zoning grants a twenty percent (20%) reduction as allowed by the MPDU provisions per Section 20.30.160 of the Code.

#### **Density Standards**

The property is comprised of 1.12 +/- acres zoned R2 and 2.13 +/- acres zoned R3. Given these zoning designations, nine dwelling units are allowed on the R2 area of the Property and twenty-six units are allowed on the R3 area of the property. With the 15% density bonus provided for under the MPDU regulations, the total allowable density on the property is forty dwelling units. The Applicant's proposal calls for thirty-four units, reducing the maximum density by six units.

## **B. Design**

The Annapolis Comprehensive Plan, January, 1998 ("Comprehensive Plan") calls for flexible design standards on infill sites within existing neighborhoods that "encourage development that replicates the traditional, pedestrian friendly pattern of some of Annapolis' older residential neighborhoods".<sup>1</sup> The Planned Development process allows this flexibility for comprehensive design of the overall site to weave new homes into the existing neighborhood fabric along the existing streets, create a new internal pedestrian friendly streetscape, and provide a "step down" transition from the multi-family use at one side of the Property to detached homes on the other side. This level of design response would not be possible under traditional zoning regulations.

The proposed RPD is the result of numerous discussions with the Planning and Zoning staff, other City staff, and neighborhood residents. The site design provides a continuation of the existing streetscape along Boucher Avenue and President Street, an interior pocket park, and an alley to shield garages and driveways from public streets. The reduced setbacks and lot widths allow for a greater portion of the site to be in the public domain while the architecture and placement of the homes provide for the intimacy of private spaces. The proposed RPD achieves the Comprehensive Plan's goal for residential infill design by extending the traditional neighborhood pattern through site and creating an inviting, pedestrian-friendly environment.

## **C. Compatibility**

Detached Homes are proposed along Boucher Avenue and President Street with an architectural style, detailing and proportion that is harmonious with the surrounding homes and greater Eastport. Front yards and side yards are provided to continue and strengthen the public streetscape rhythm. The design provides deep front porches and new sidewalks along Boucher Avenue and President Street.

Townhouses with detached garages and private rear yards are proposed in the interior of the site to act as a transition from Harbor House, a 273 unit, multi-family public housing facility. The alley accessed parking provides an urban design response with an alley system similar in alignment to paper streets originally programmed for this neighborhood block.

## **D. Minimize Adverse Impacts**

The existing Bus Operation is a non-conforming, and inappropriate, industrial land use for this otherwise entirely residential neighborhood. Neighbors have complained about the adverse impacts of the existing use which cause excessive noise, traffic and pollution. The

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<sup>1</sup> Comprehensive Plan, p. 91

Bus Operation is largely comprised of a large asphalt and gravel parking lot used to store and fuel buses, and ancillary maintenance and office facilities. The Bus Operation has no public green space and is almost entirely impervious surface.

The proposed RPD will replace the Bus Operation with residential uses that are entirely compatible with the existing neighborhood. Traffic will be reduced below the rates generated by the Bus Operation and exchange heavy buses with family vehicles. Ample parking, in excess of Code requirements, will be provided entirely within site. New homes will be provided with both a scale and design that is appropriate to the existing context of detached homes and apartments that adjoin the Property.

#### **E. Building Locations**

The layouts of the buildings, open spaces, landscaping, pedestrian walkways, internal roadway, and alley have been designed to provide a safe and pleasant environment for the future residents of the project as well as their neighbors. The internal features of the plan such as the pedestrian and vehicular travel ways and linkages to open space areas are intended to function efficiently with no adverse impacts on the surrounding area.

#### **F. Natural Features**

As the site has been used primarily as a parking lot, it is devoid of significant natural resources. The RPD proposal includes a detailed landscape plan that will integrate the proposed green areas and open spaces into the overall design. While some scrub vegetation exists in spots along the perimeter of the site today, the entire site will be replanted with appropriate landscaping.

#### **G. Slopes and Soils**

There is a gentle slope from the rear of the site towards Boucher Avenue but there will be no degradation of unique or sensitive lands. Much of the existing parking lot will be returned to open space, green areas or pervious surface.

#### **H. Critical Area**

The proposed design reduces the impervious coverage by 30% within the Intensely Developed Area ("IDA") of the Critical Area and will not adversely impact any streams, wetlands, habitat, or other natural features.

### **21.62.010 General design standards**

#### **A. Relation of Buildings and Structures to the Surrounding Environment**

The existing area of the Property is in a well-established residential enclave east and south of the intersection of Boucher Avenue and President Street within the greater Eastport

neighborhood. Single-family detached homes front Boucher Avenue until its terminus at Hawkins Cove, where the Shearwater condominiums and Hawkins Cove townhouses are located. There are also single-family detached homes along President Street as well as Harbor House apartments that abuts the side and rear of the Property. The Bus Operation on the Property includes offices, bus maintenance and repair facilities, a storage yard, and employee parking of personal vehicles.

The proposed buildings and structures will be compatible with the existing neighborhood and will reinforce the residential character of the area. The site is designed to seamlessly integrate into the existing neighborhood. The Detached Homes that face Boucher Avenue and President Street will be of a size and scale similar to the surrounding homes and will have deep front porches to enhance the pedestrian-friendly nature of the streets. The Townhouses, at the interior and rear of the site, incorporate a unique architectural composition rather than repetitive elements typical of most townhouse design. The Townhouses, with private yards and detached garages, provide an appropriate transition from the Harbor House apartment complex they abut. The site design includes an open area of approximately 15,000 square feet. All garages on the Property will be accessed via the alleys.<sup>2</sup>

The proposed development will remove an incompatible nonconforming use and replace it with a well-planned residential project that will enhance the experience of living in this part of the Eastport community. Given these qualities, the project reflects the land use and housing goals and policies of the Comprehensive Plan.

**B. Relation of Structures to Adjacent Development (Height, Width and Façade, Proportion, Mass, Relationship to Street, Roof Forms, Composition, Rhythm, Proportion of Openings, Façade Materials, Color, Corner and Through Lots, Site signage)**

The RPD proposes a mix of Detached Homes and Townhouses clustered around a central green. The Detached Homes will front on Boucher Avenue and President Street, while the Townhouses will be located to the interior and rear of the Property. The three detached homes sited on President Street, closest to the Harbor House apartments, will maintain the character and setbacks of that portion of the street in a manner consistent with the two existing homes along that frontage. Similarly, the five proposed detached homes fronting Boucher Avenue will be consistent with the existing homes located on both sides of that street. A landscape and fencing buffer will be provided along the interior property line, at the Harbor House apartments and behind the homes located in the 1200 block of Madison Street. No signage is proposed. The mix of housing types and the careful site planning with regard to dwelling location complement the existing neighborhood.<sup>3</sup> The architectural elevations submitted with the Application show how the project will complement the existing urban fabric and acknowledge the aesthetic character of structures within this area of Eastport.

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<sup>2</sup> See Old Code, Section 21.98.050 C and P.

<sup>3</sup> See Old Code, Section 21.98.050 D.



## **21.62.030 Design of Open Areas**

### **A. Existing features**

The majority of the open area of the Property is a large flat asphalt and gravel parking lot used to store, fuel and maintain buses for the Bus Operation. A portion of the Property to the west with a detached dwelling contains a grassed yard area and driveway.

### **B. Buffer areas**

The proposed design contains abundant landscaping and attractive fencing to provide an appropriate buffer between adjoining properties and the RPD. Because the Detached Houses and Townhouses will integrate well into the surrounding residential neighborhood, the buffering has been appropriately designed to emphasize the character of the neighborhood and to reinforce the residential atmosphere.

### **C. Bufferyards**

Bufferyards are not required in R2 or R3 districts

### **D. Open Space**

The RPD includes approximately 33,000 square feet of common landscaped open space with a central landscaped pocket park containing approximately half of this open space. The Townhouses are arranged so that most overlook the park. The remainder of the open space are landscaped green areas that surround the Townhouses in the form of yards, smaller garden areas and planting beds. All of these areas will be maintained by the homeowners association.

## **21.62.040 Planting**

Landscaping will be provided as proposed in the Landscape Plan and landscape schedule. Landscaping is provided throughout the site, in a central pocket park, two other smaller green areas, and also includes street trees, perimeter planting, and foundation plantings. The landscape plan calls for 52 deciduous trees, 38 ornamental trees, 15 evergreen trees, and 656 shrubs.

## **21.62.050 Street Trees**

Twenty-two maple, ash and oak street trees are proposed along Boucher Avenue and President Street, located outside of the public right-of-way, in private yards or areas maintained by the homeowners association.

#### **21.62.060 Scenic, Historic, Archaeological and, Landmark Sites and Views**

There are pleasant vistas up and down Boucher Avenue and President Street in close proximity to the site especially in the spring when the tree canopies are filling out and the shrubs and flowers are in bloom. This area of Eastport continues the interconnected street grid pattern and pedestrian scale of downtown Annapolis, but the Comprehensive Plan does not identify the neighborhood as enjoying any unique landmarks or pristine views. However, the Comprehensive Plan does call for establishing new site design standards for flexible residential development on infill sites within existing neighborhoods. The proposed project has been designed with significant input from the neighbors and staff and it reflects the sensitivity called for in the Comprehensive Plan. As this portion of Eastport is located outside of Annapolis' Historic/Institutional Core, it does not appear to include any sites of significant archaeological or historic value.

#### **21.62.070 Transitional Provisions for Development Adjoining Residential Districts**

A portion of the Property was rezoned by the City Council from R2 to R3 in Ordinance No. O-31-04 (see Attachment "A"). The Planning Commission recommended in favor of the rezoning and in so doing found that "the type of development that may result from this rezoning would create a transitional density between Harbor House and the single family neighborhood (and) is not contrary to the public interest." This finding was incorporated into O-31-04. The City Council also found that "the split zoning creates an opportunity — albeit with good site planning — for a density transition from the higher density Harbor House to the lower density single family units on Boucher Ave." The rezoning affords the Applicant the ability to "step down" density from the R4 zoning of Harbor House to the R2 zoning of the traditional Eastport neighborhood. As part of the proposed development, the single-family streetscape of Boucher Avenue and President Street will be preserved. The proposed townhouses will transition from the garden apartments of Harbor House to the project's single-family detached units along both President Street and Boucher Avenue. Landscaped buffers will further soften the transition between the project and the existing neighborhood.<sup>4</sup>

#### **21.62.080 Surface Water Drainage**

The existing site is largely covered by an asphalt and gravel parking lot, driveways, and buildings, and contains 98,537 square feet of impervious surface. The existing drainage sheet flows into the adjacent streets and provides little groundwater infiltration. (There is one inlet structure located along the driveway, but the site had not been graded to conduct water to this drain.)

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<sup>4</sup> See Old Code, Section 21.98.050 F.

The RPD will reduce impervious surface by approximately 30%. Further, the road paving surfaces will be of Eco-Stone porous pavers set on a gravel infiltration bed. The reduction in impervious surface and the very large surface area of the gravel infiltration bed will provide the greatest opportunity for ground water recharge and will dramatically improve stormwater runoff. Curb inlets and yard inlets will be provided to conduct any excess stormwater into the existing storm sewer.

#### **21.62.090 Traffic Impacts**

The Lonergan Bus Company currently operates the Bus Operation on the Property, providing school bus transportation and private charters. The majority of vehicle trips generated by the current use are buses and employee traffic. Based on the volume data collected, the Bus Operation generated twenty-nine AM peak hour trips and thirty-four PM peak hour trips. The volume entering and exiting the Bus Company parking lot was then compared to the anticipated trips that will be generated by the proposed thirty-four residential units. The proposed residential subdivision will generate twenty-four AM peak hour trips and twenty-eight PM peak hour trips, based on the Institute of Transportation Engineers Trip Generation Manual 7th Edition. The redevelopment of the property will result in five fewer AM peak hour trips and six fewer PM peak hour trips, a reduction of seventeen percent in peak hour trips. The change in use will also replace the large buses traveling to site with family vehicles.<sup>5</sup>

#### **21.62.100 Driveway Connections to Public Streets and Rights-of-Way**

Driveway and garages are all accessed through a rear, two-way alley which will be privately maintained by the homeowners association.

#### **21.62.110 Vehicular Circulation**

Two-way vehicular access to the site is provided at both Boucher Avenue, at the north side of the site, and at President Street, on the east side of the site. Within the site, vehicular circulation is provided by a one-way street, which accesses the fronts of the townhouses, and a two-way alley, which accesses to garages. The street and alley are privately maintained by the homeowners association.

#### **21.62.120 Parking and Loading**

##### **A. General design considerations**

New Code 21.66.130 requires one off-street parking space for each single-family detached home off two off-street parking spaces for each townhouse and for each MPDU, resulting in a total requirement of sixty off-street spaces. All required parking is provided with additional parking provided for guests and the convenience of the residents. All garages are accessed through a rear alley so that garage doors and driveways are not visible from Boucher Avenue or President Street to enhance the design quality and urban character of the

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<sup>5</sup> See Old Code, Section 21.98.050 I.

plan. Guest parking is provided in parallel parking spaces provide in the alley and along the internal street.<sup>6</sup>

**B. Types of facilities**

The proposed plan provides a two-car garage for each detached home and townhouse. In addition, nine additional guest parking spaces are provided on the internal road and alley. A total of seventy-seven off-street parking spaces are provided in the proposed plan which is seventeen in excess to the Code requirement.

**C. Provisions for the physically handicapped**

No designated parking for handicapped use is required under the Americans With Disabilities Act or the Maryland Accessibility Code.

**D. Access**

Access to residential, single-family garages are via a two-way rear alley. Parallel parking is located in the alley and the interior street.

**E. Surface material**

Parking spaces, parking pads and the alley will be surfaced with Eco-Stone permeable pavers with a subsurface gravel infiltration bed to reduce impermeable surface and enhance the opportunity for ground water recharge.

**F. Parking space and aisle dimensions**

Parallel parking spaces and drive aisles dimensions conform to New Code requirements.

**G. Buffers and planting**

The alley is buffered by decorative fencing and generous landscaping along the property line.

**H. Design of Loading Facilities**

As this property is entirely single-family use, no loading facilities are necessary or required.

**21.62.130 Pedestrian and Bicycle Circulation**

The design incorporates an interior sidewalk system that provides safe and convenient pedestrian and bicycle access through and around the site. Crosswalks will be constructed of a special paving material of contrasting surface texture and color, which will clearly identify their location

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<sup>6</sup> See Old Code, Section 21.98.050 K.

to walkers, bikers, and drivers. Pedestrian safety will also be enhanced off-site with the construction of sidewalks on Boucher Avenue and President Street frontages.<sup>7</sup>

#### **21.62.140 Lighting**

Decorative, pole mounted street lights, with downcast "cutoff" fixtures to eliminate glare into adjacent homes, will be provided along the interior street to appropriately illuminate the area. Lighting will be provided in the alley for general illumination and security.

#### **21.62.150 Utility Services**

Electric utilities, public water service, and public sewer service are currently available to the Property and adequate to serve the proposed design. Traffic will be reduced (see 21.62.090, "Traffic Impacts," above). Further, the City Council, in Ordinance No. O-31-04, adopted findings regarding the Property and the matter of the availability of public facilities. The Council determined in "Finding 2" regarding the "Availability of Public Facilities" that "[t]his site is in-fill development and all municipal services are available without major extensions." See Attachment "A".

#### **21.62.160 Waste Disposal**

Solid waste and recycling material will be removed privately by the homeowners association. Refuse will be contained in 30-gallon cans with lids and recycling bins. Pickups will occur via the alley.<sup>8</sup>

#### **21.62.170 Noise**

While no noise measurements have been conducted, neighbors adjacent to the Bus Operation report considerable noise from the Property. The most burdensome noise reports relates to numbers of buses idling at very early hours in the morning and buses returning late in the night. Changing the use of this Property to a residential use will remove this incompatible noise source from the neighborhood and will replace the Bus Operation with a use that is entirely compatible.

The new homes to be constructed will suffer no adverse noise impacts from the surrounding uses as the area is an established residential neighborhood.<sup>9</sup>

#### **21.62.180 Storage, Loading, and Service Areas**

Not applicable.

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<sup>7</sup> See Old Code, Section 21.98.050 J.

<sup>8</sup> See Old Code, Section 21.98.050 M.

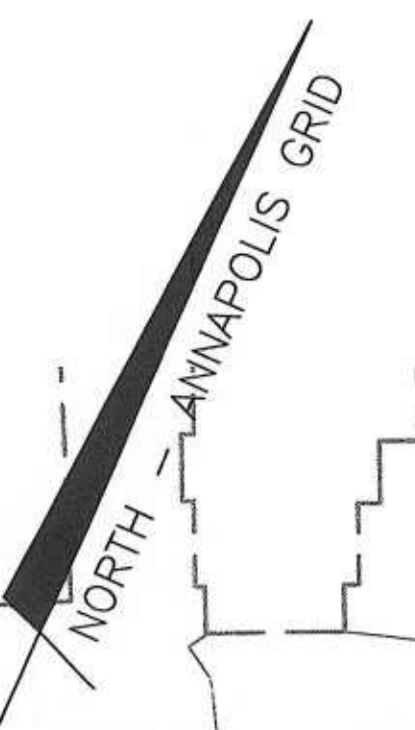
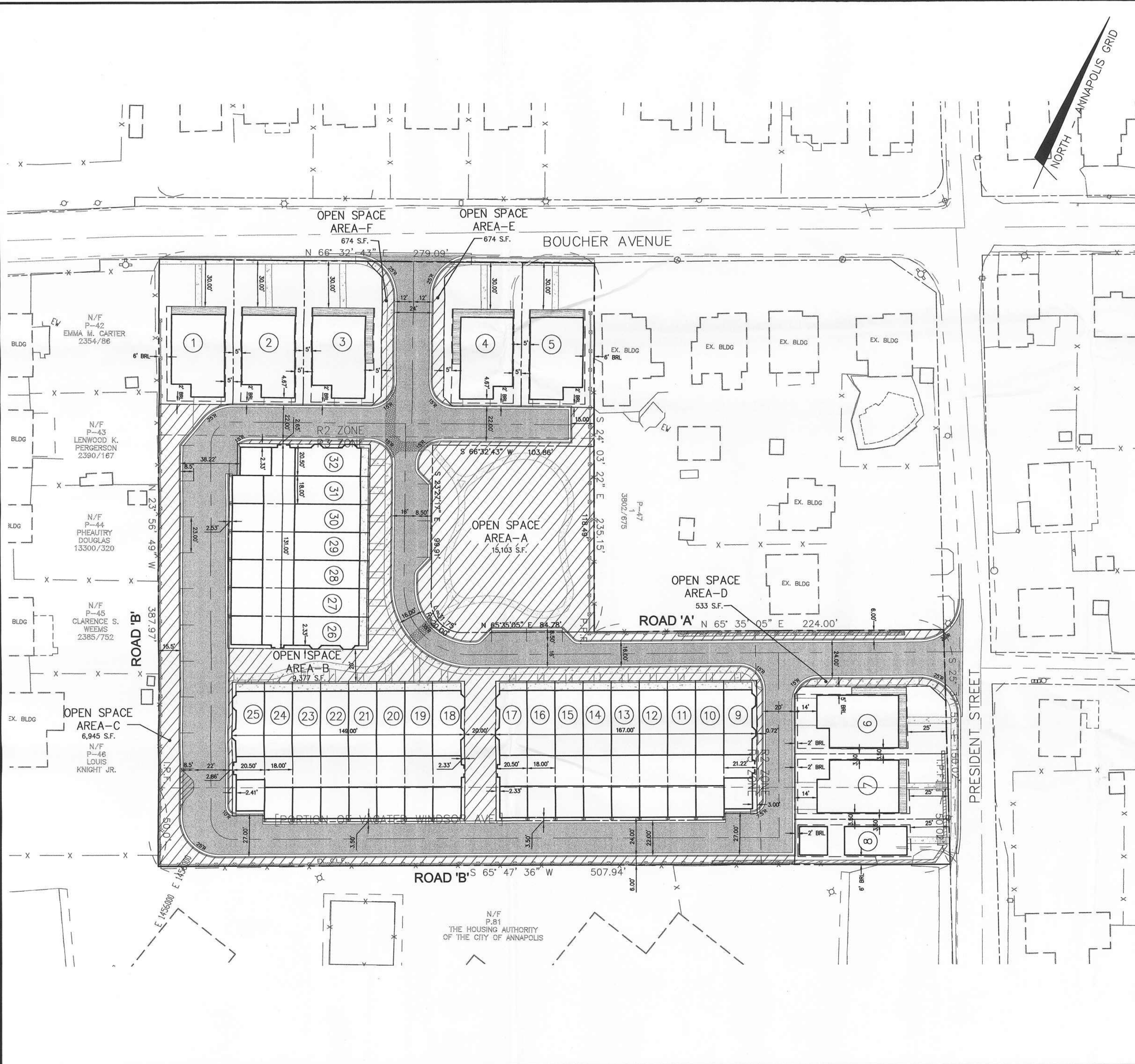
<sup>9</sup> See Old Code, Section 21.98.050 N.

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**Stormwater Management Impervious Area Tabulation**

Existing Impervious Area	98,536 s.f.	
	<b>Required</b>	<b>Proposed</b>
Maximum Impervious Area allowed (20% reduction of existing impervious area per SWM regs.)	78,829 s.f.	69,281 s.f.

Note: Proposed Impervious Area Includes EcoStone Pavers (40% pervious) for all Roadways and Driveways.

**Critical Area Impervious Area Tabulation**

Total Site Area	141,714 s.f.	
	<b>Allowable</b>	<b>Proposed</b>
Maximum Impervious Area allowed (50% of total site area per Critical Area regs.)	70,857 s.f.	69,281 s.f.

Note: Proposed Impervious Area Includes EcoStone Pavers (40% pervious) for all Roadways and Driveways.

**Area Tabulation**

Lot Area		<b>Proposed</b>
Private Road Area (measured to face of curb)		35,373 s.f.
Open Space Area		33,306 s.f.

**Open Space Area Tabulation**

Required Open Space (20% of Total Site Area)	28,343 s.f.	33,341 s.f.
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**Lot Density Tabulation**

	<b>Allowable</b>	<b>Proposed</b>
<b>R2 Zoning:</b> Maximum Allowable Density (gross development area divided by minimum lot area per dwelling unit) (includes 15% for MPDU)	10	8
<b>R3 Zoning:</b> Maximum Allowable Density (gross development area divided by minimum lot area per dwelling unit) (includes 15% for MPDU)	30	24
Building Height (Maximum Allowable)	Required 35 ft.	Proposed 35 ft.

**Lot Size and Buffer Tabulation**

	<b>Required</b>	<b>Proposed</b>
<b>R2 Zoning:</b> Lot Size	5,400 s.f. 5,400 s.f. 5,400 s.f. 5,400 s.f. 5,400 s.f. 5,400 s.f. 5,400 s.f.	4,380 s.f. Lot 1 4,140 s.f. Lot 2 4,532 s.f. Lot 3 4,532 s.f. Lot 4 4,284 s.f. Lot 5 4,181 s.f. Lot 6 4,132 s.f. Lot 7 2,829 s.f. Lot 8
Minimum Lot Width	50 ft. 50 ft. 50 ft. 50 ft. 50 ft. 50 ft. 50 ft.	47.21 ft. Lot 1 45.00 ft. Lot 2 50.00 ft. Lot 3 50.00 ft. Lot 4 46.09 ft. Lot 5 43.50 ft. Lot 6 42.00 ft. Lot 7 28.50 ft. Lot 8

**R3 Zoning:**

Lot Size	Required	Proposed
3,600 s.f.	1,825 s.f. Lot 9	
3,600 s.f.	1,620 s.f. Lots 10 thru 16	
3,600 s.f.	1,845 s.f. Lot 17, 18	
3,600 s.f.	1,620 s.f. Lot 19 thru 24	
3,600 s.f.	1,760 s.f. Lot 25	
3,600 s.f.	1,845 s.f. Lot 26	
3,600 s.f.	1,620 s.f. Lot 27 thru 31	
3,600 s.f.	1,742 s.f. Lot 32	
Minimum Lot Width	16 ft. 16 ft. 16 ft.	21.22 ft. Lot 9 18.00 ft. Lots 10 thru 16, 19 thru 24, 27 thru 31 20.50 ft. Lot 17, 18, 25, 26, 32

**R2 Zoning:**

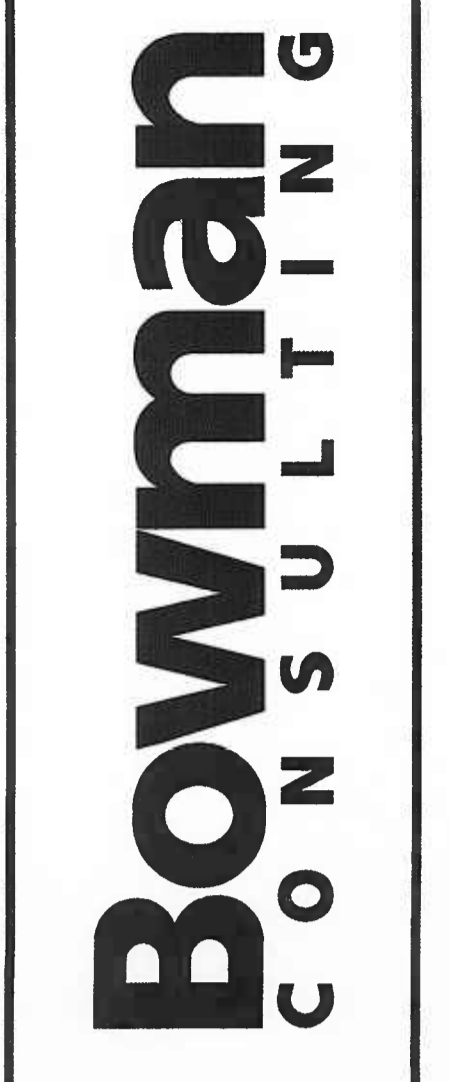
Principal Buildings	Required	Proposed
Front Yard	25 ft.	25 ft. Lots 1 thru 5
Interior Side Yard	6 ft.	5 ft. Lots 1 thru 5
Corner Side Yard	15 ft.	5 ft. Lots 3, 4, 6
Rear Yard	30 ft.	2 ft. Lots 1 thru 8
Accessory Buildings	30 ft.	n/a Lot 8
Front Yard	6 ft.	3.5 ft. Lot 8
Interior Side Yard	15 ft.	6 ft. Lot 8
Corner Side Yard	2 ft.	2 ft. Lot 8
Rear Yard	2 ft.	2 ft. Lot 8

**R3 Zoning:**

Principal Buildings	Required	Proposed
Front Yard	20 ft.	0.5 ft. Lots 9 thru 32
Interior Side Yard	n/a	n/a Lots 9 thru 32
Corner Side Yard	15 ft.	0.0 ft. Lots 9, 17, 18, 25, 32
Rear Yard	30 ft.	n/a Lots 9 thru 32
Accessory Buildings	20 ft.	n/a Lots 9 thru 32
Front Yard	5 ft.	n/a Lots 9 thru 32
Interior Side Yard	15 ft.	2 ft. Lots 9 thru 32
Corner Side Yard	2 ft.	2 ft. Lots 9 thru 32
Rear Yard	2 ft.	2 ft. Lots 9 thru 32

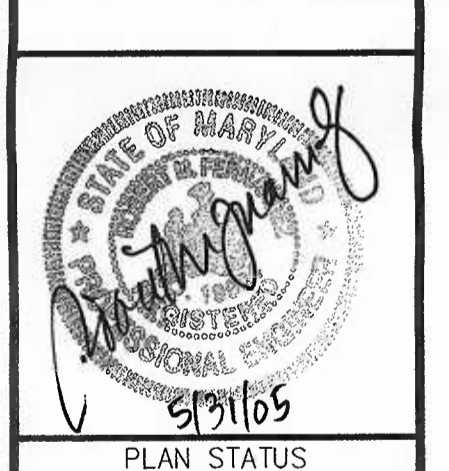
**Parking Space Tabulation**

	<b>Required</b>	<b>Proposed</b>
Single Family Detached	n/a	0
Standard on-street Spaces	8	16
Standard off-street Spaces (1 per lot)	n/a	13
Single Family Attached	48	48
Standard on-street Spaces	n/a	13
Standard off-street Spaces (2 per lot)	n/a	48



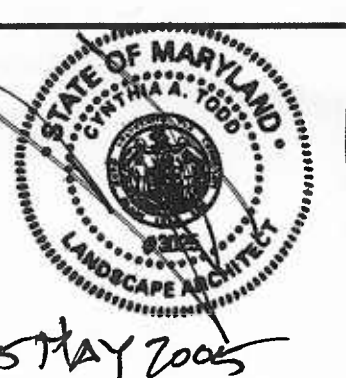
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CITY OF ANNAPOLIS  
**1109 BOCHER AVENUE**  
DISTRICT



PLAN STATUS		
DATE	DESCRIPTION	
LDD DESIGN	LDD DRAWN	RF CHKD
SCALE	H: 1"=30'	
	V:	
JOB No.	3537-01-002	
DATE	MAY 23, 2005	
FILE No.	RECEIVED	
SHEET	JUN 17 2005	
	OF 6	
	CRITICAL AREA COMMISSION	





PLAN STATUS		
DATE	DESCRIPTION	
CAT	DRB	CAT
DESIGN	DRAWN	CHKD
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JOB No.	3537-01-001	
DATE:	MAY 16, 2005	
FILE No.		
SHEET	1 OF 2	

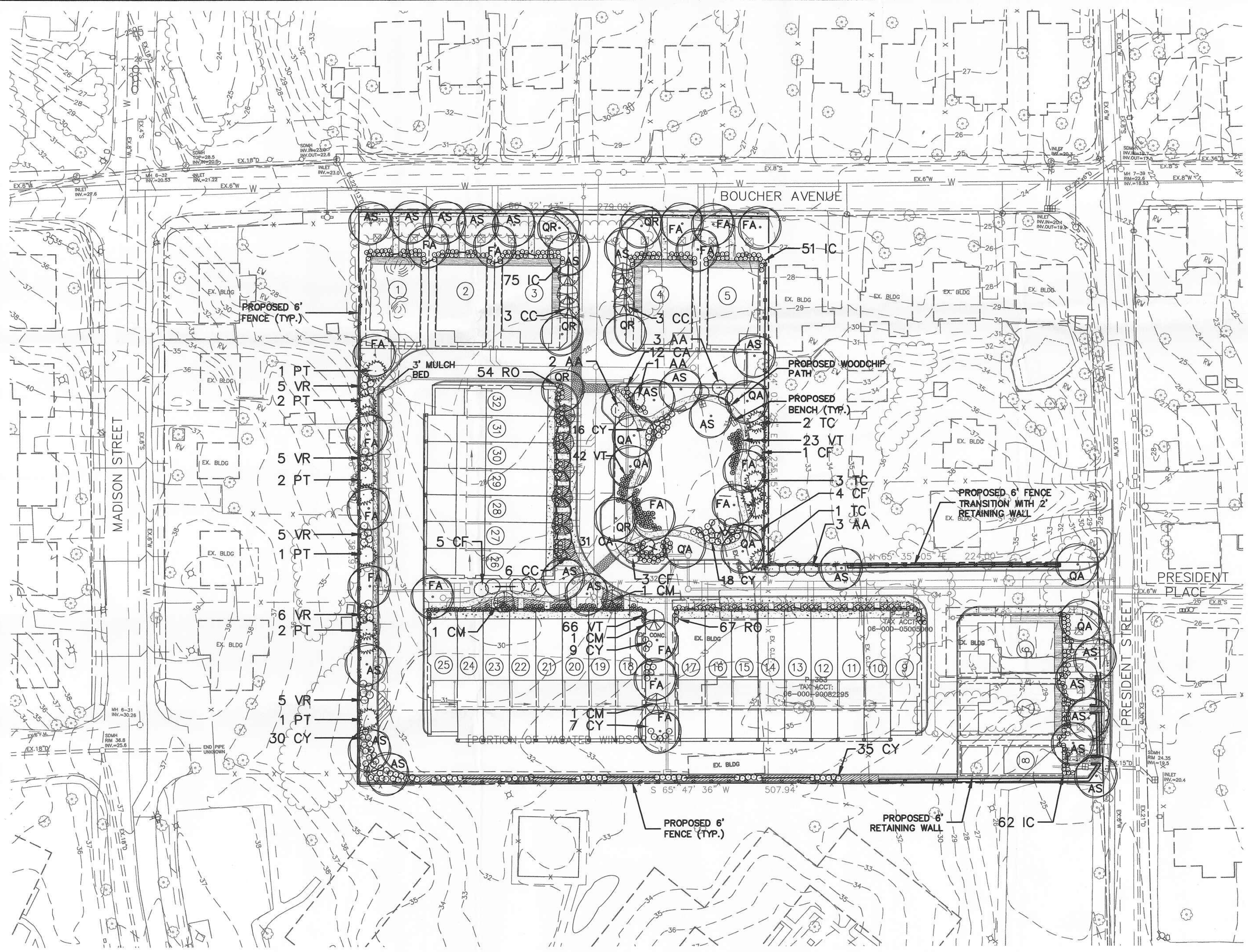


**LEGEND**

- MAJOR DECIDUOUS TREE
- MINOR DECIDUOUS TREE
- EVERGREEN TREE
- SHRUB
- GROUNDCOVER
- MULCH BED
- SAN.
- SAN. MH
- SD. W/ MH.
- WATER
- WATER VALVE
- FIRE HYDRANT
- LIGHT
- C&G
- SW.
- INLET

**SITE DATA**

- ZONING: R2 AND R3
- SOIL CLASSIFICATION: M&B MONMOUTH-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES
- PROPOSED USE: RESIDENTIAL
- SITE AREA: 3.25 ACRES
- LIMIT OF DISTURBANCE: 3.25± ACRES



NOTE: PLANOMETRIC TOPOGRAPHIC INFORMATION BASED ON CITY OF ANNAPOLIS GIS.

RECEIVED  
 JUN 27 2005  
 CRITICAL AREA COMMISSION



# Planting Schedule

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
AS	Acer saccharum	Sugar Maple	22	as shown	2 - 2 1/2" CAL.	B&B
FA	Fraxinus americana	White Ash	17	as shown	2 - 2 1/2" CAL.	B&B
QA	Quercus alba	White Oak	7	as shown	2 - 2 1/2" CAL.	B&B
QR	Quercus rubra	Northern Red Oak	6	as shown	2 - 2 1/2" CAL.	B&B

MAJOR DECIDUOUS TREE TOTAL= 52

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
AA	Amelanchier arborea	Serviceberry	9	as shown	7' - 8'	B&B
CF	Cornus florida	Flowering Dogwood	13	as shown	7' - 8'	B&B
CM	Cornus mas	Cornelian Cherry Dogwood	4	as shown	7' - 8'	B&B
CC	Crataegus crusgalli var. inermis	Thornless Cockspur Hawthorn	12	as shown	7' - 8'	B&B

ORNAMENTAL TREE TOTAL= 38

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
PT	Pinus thunbergiana	Japanese Black Pine	9	as shown	5-6' HT.	B&B
PS	Tsuga canadensis	Canadian Hemlock	6	as shown	5-6' HT.	B&B

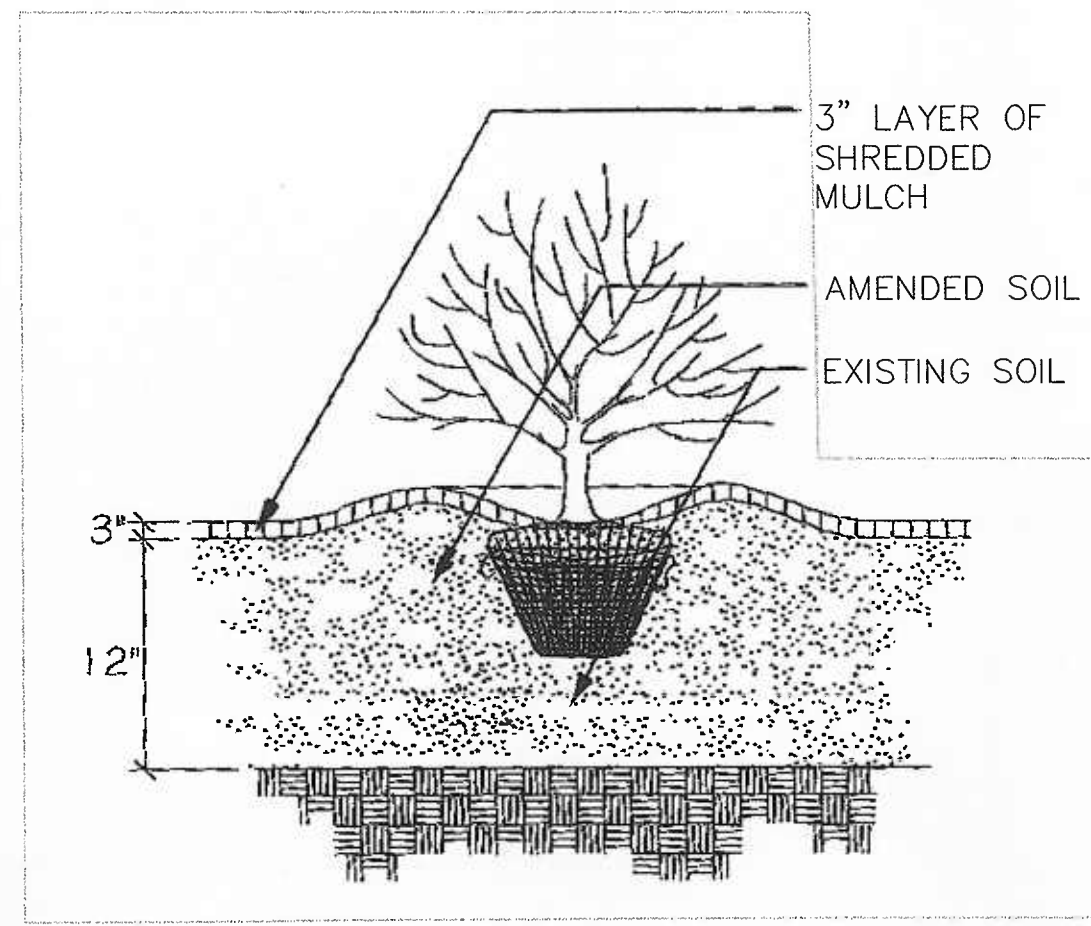
EVERGREEN TREE TOTAL= 15

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
CA	Clethra alnifolia	Summersweet Clethra	43	as shown	18-24" HT.	CONT.
IC	Cornus sericea 'Flaviramea'	Yellow Twig Dogwood	115	as shown	18-24" HT.	CONT.
Y	Ilex crenata 'Helleri'	Helleri Holly	188	as shown	18-24" HT.	CONT.
RO	Rhododendron obtusum 'Hinodegeri'	Red Azalea	121	as shown	18-24" HT.	CONT.
VR	Viburnum rhytidophyllum	Leatherleaf Viburnum	26	as shown	18-24" HT.	CONT.
VT	Viburnum trilobum compactum	Compact American Cranberrybush	131	as shown	18-24" HT.	CONT.

SHRUB TOTAL= 656

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	CONTAINER	ROOT TYPE
///	Euonymus fortunei 'Colorata'	Purple Leaf Wintercreeper	8000	6"	FLATS	BARE

GROUND COVER TOTAL= 8000

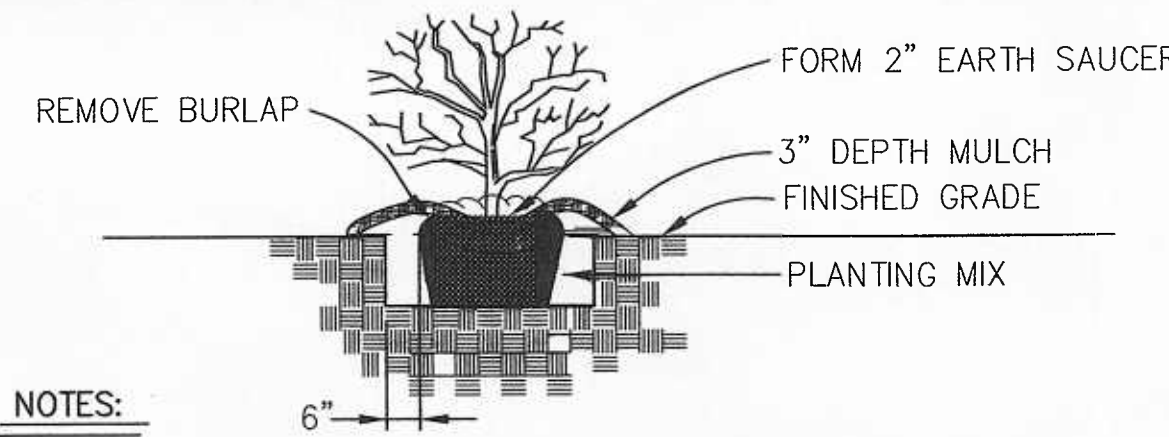


### AMENDED SOIL:

- TOP 12" TO BE 70% SCREENED TOP SOIL & COMPOSTED SEWAGE SLUDGE.
- TILL ORGANIC MATTER INTO SOIL TO A DEPTH OF 6".
- PLANT & FERTILIZE AS PER PLANTING SPECIFICATIONS.
- MULCH 3" DEPTH. COMPOSTED SHREDDED HARDWOOD BARK.
- PROTECT PREPARED AREAS FROM CONSTRUCTION ACTIVITIES. DO NOT ALLOW AREAS TO BECOME COMPACTED OR DISTURBED BY SUBSEQUENT WORK.

### BED PREPARATION

NOT TO SCALE

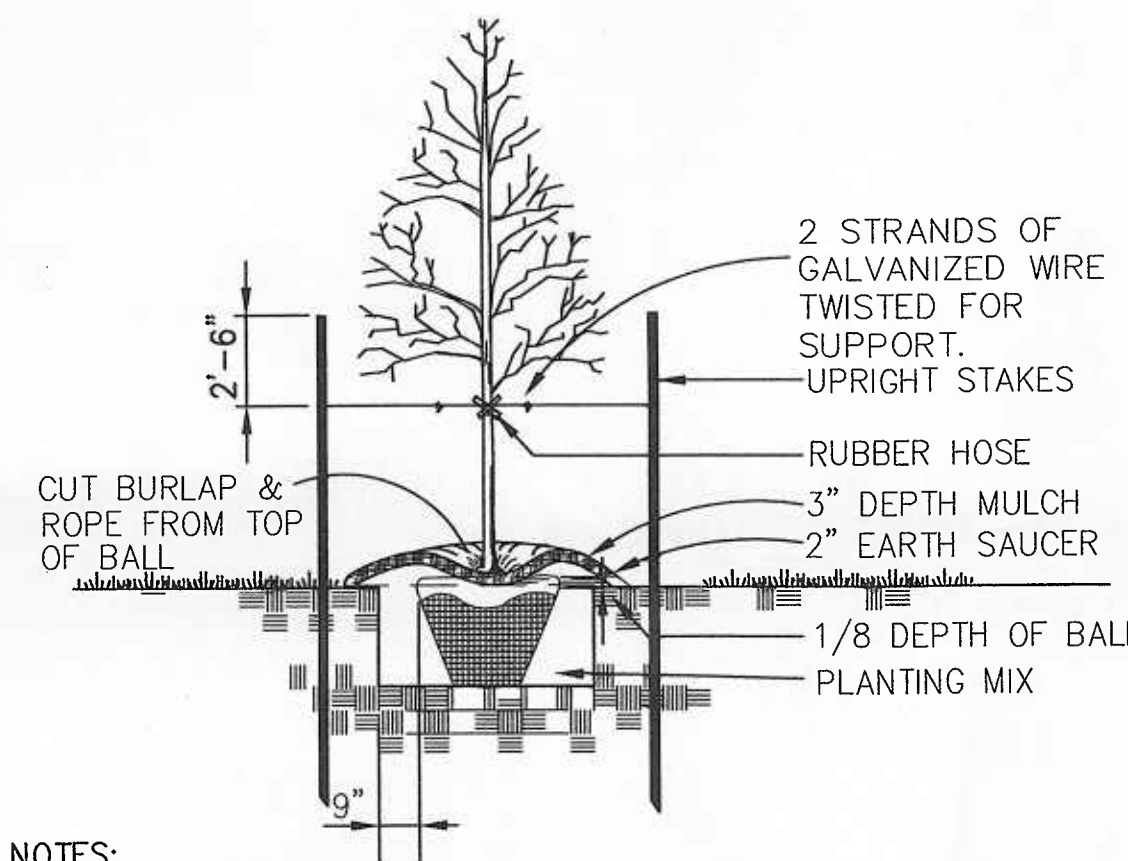


### NOTES:

1. SEE "LANDSCAPE SPECIFICATION GUIDELINES, 5TH EDITION, FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. PRUNE OUT ANY DEAD OR BROKEN BRANCHES.

### SHRUB PLANTING

DECIDUOUS AND EVERGREEN SHRUBS  
NOT TO SCALE



### NOTES:

1. SEE "LANDSCAPE SPECIFICATION GUIDELINES, 5TH EDITION, FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. STAKE OR GUY AS REQUIRED PER "LANDSCAPE SPECIFICATION GUIDELINES"
3. SEE "LANDSCAPE SPECIFICATION GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2 1/2" CALIPER.
4. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
5. RESTRICT PRUNING TO CORRECTIVE PRUNING ONLY.

### TREE PLANTING AND STAKING

DECIDUOUS AND EVERGREEN TREES UP TO 2 1/2" CALIPER  
NOT TO SCALE

### Planting Notes:

1. The Contractor is responsible for locating all site utilities.
2. The Contractor shall obtain the Landscape Architect's approval of all staked out layout before proceeding with construction.
3. No plant material shall be put into the ground before finished grading and bed prep has been approved by the Landscape Architect.
4. All plant material shall be installed according to details and specs.
5. The Contractor shall provide back fill planting mix according to the contract specs.
6. The plan shall govern over the plant list.
7. Trees on adjacent properties shown on the plan shall be preserved and protected. The Contractor shall make every effort to avoid disturbance of existing rootzones.
8. All disturbed areas shall be seeded.

### Tree Protection Notes:

1. No site work shall begin in areas where tree protection measures have not been completed.
2. All tree protection measures, including root pruning, shall be coordinated with the limit of disturbance so as to maximize the areas of root and canopy protection. Tree protection fence and root pruning lines shall be staked in the field for approved by owner's representative prior to installation/performance.
3. Tree protection fencing shall be maintained and repaired by the Contractor for the duration of the contract.
4. Access to fenced root protection zones shall be permitted only with prior approval of owner's representative.
5. The sequence of treatment & protection measures on all trees to be protected shall be:
  - root pruning
  - tree pruning and chemical treatment
  - mulch treatment
  - installation of tree protection fence
  - installation of signs

### Procedures:

6. Root prune by hand with sharpened spades, shovels or hand pruners, or with a specialty root pruning machine with a 24" long blade, sharpened prior to project start. Cut at the edge of proposed excavation. Large roots that stop the progress of the machine are to be cut by hand saw.
7. All root protection zones will be mulched as follows, in order to ensure more consistent soil moisture and temperature and to protect roots from compaction, spills and washouts. Mulch shall be wood chips produced by a "disc" type chipper, which has been stockpiled for a minimum of 90 days to cure. Install mulch to a depth of coverage of 6". No mulch shall be installed within 12" of tree trunks.
8. Within root protection zones, backhoes and tracked equipment shall avoid operations which could cause soil compression, such as turning and rutting. If necessary to prevent compression, install planking.

### Demolition, excavation and Construction Operations:

9. The following items are restricted from the root protection zone: concrete washout, construction material, fuel or chemical storage, temporary stockpile of soil, operation of equipment/machinery.
10. Within root protection zones, any demolition or removal of concrete and/or asphalt shall be accomplished by some method which does not sever or damage root systems. Remove concrete and asphalt by hand if possible. If machinery is used, it shall be placed on some portion of the hardscape to remain.
11. Excavated material shall not be placed in any root protection zone.
12. To prevent soil/root dehydration within the root protection zones, excavations which will remain open for 24 hours or more shall be covered with overlapped, pinned burlap from the top of the cut at 36" down the vertical slopes. This burlap shall be wet down at least once every 24 hours during the exposed excavation.
13. All operations on-site shall endeavor to avoid damage and scars to tree trunks and major limbs. Pull back overhanging limbs and tie them out of your way. Larger, low hanging limbs may need pruning. The landscape architect must be notified of large tree limbs (over 2" diameter) that need pruning.
14. After construction is completed, a final (punch list) pruning shall be undertaken to repair any damage and limb breakage which occurs during construction.

### Tree Preservation Notes:

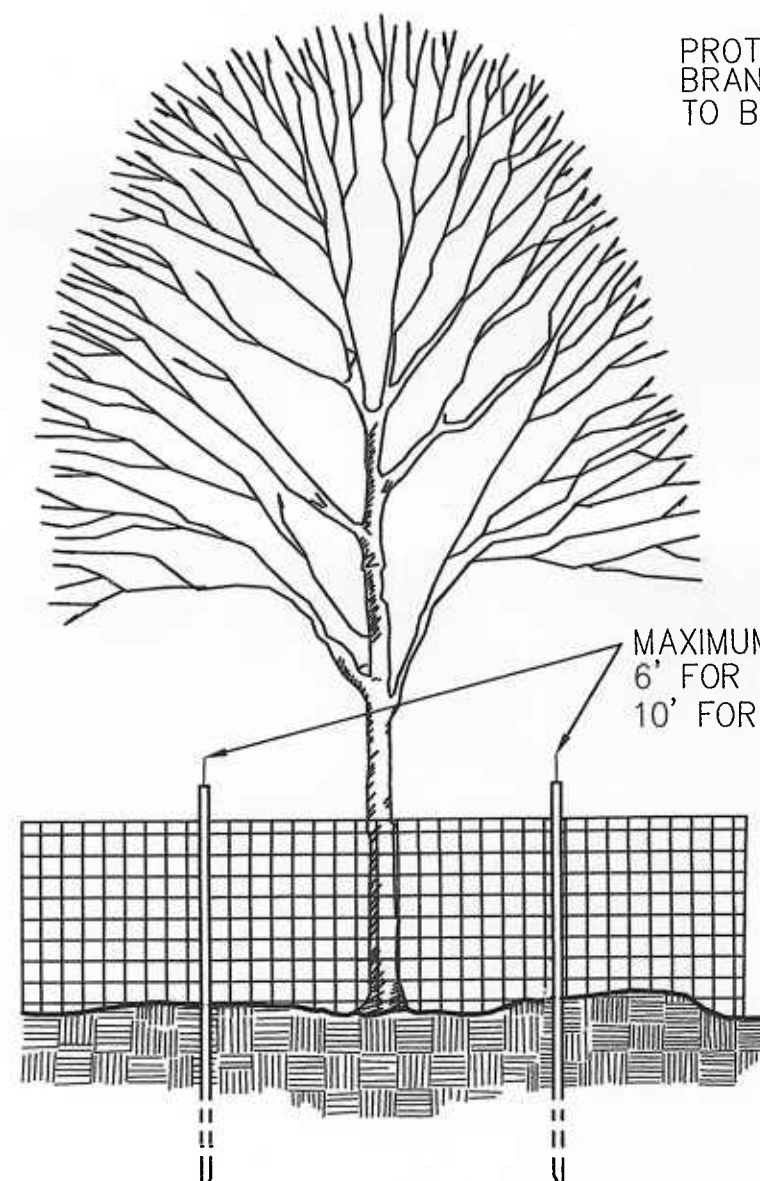
Existing trees labeled on the plan shall be preserved and protected. The Contractor shall make every effort to avoid disturbance of existing tree rootzones.

Tree Protection fence shall be staked in the field by the contractor and approved by the owner's representative prior to installation.

Location for the root pruning line designated on this plan shall be staked in the field by the contractor and approved by the project landscape architect prior to pruning.

See Tree Preservation Specifications for further information.

See arborist work for individual tree work items required by this contract.



PROTECTIVE FENCING TO PRESERVE TRUNK, BRANCHES AND ROOT SYSTEM. FENCING TO BE MAINTAINED THROUGHOUT CONSTRUCTION.

### NOTES:

1. HEAVY EQUIPMENT, VEHICULAR TRAFFIC, OR STOCK PILING SHALL NOT BE PERMITTED WITHIN DRIPLINE.
2. NO TOXIC MATERIALS TO BE STORED WITHIN 30m FROM DRIPLINE.

MAXIMUM DISTANCE BETWEEN POSTS  
6' FOR PLASTIC FENCE  
10' FOR WELDED WIRE

FENCING TO CONSIST OF 4' HIGH 14-GAUGE WELDED WIRE WITH 2"x4" OPENINGS, CONNECTED TO 6" T" STAKES, EVENLY SPACED, DRIVEN AT LEAST 18" BELOW GROUND.

OR

FENCING TO CONSIST OF 4' HIGH ORANGE PLASTIC CONSTRUCTION FENCE CONNECTED TO 6" LONG STEEL T" POSTS, EVENLY SPACED, DRIVEN AT LEAST 18" BELOW GROUND.

### TREE PROTECTION FENCE INSTALLATION DETAIL

NOT TO SCALE

**Bowman**  
CONSULTING

Bowman Consulting Group, Ltd.  
2500 Riva Road  
Suite 200  
Annapolis, Maryland 21401  
Phone: (410) 224-7590  
Fax: (410) 224-7592  
www.bowmanconsulting.com  
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LANDSCAPE DETAILS & NOTES

1109 BOUCHER AVENUE

CITY OF ANNAPOLIS

DISTRICT



25 MAY 2005  
PLAN STATUS

DATE	DESCRIPTION
CAT	DRB
DESIGN	DRAWN
	CHKD

SCALE: H: 1" = 30'  
V:  
JOB No. 3537-01-002  
DATE: MAY 16, 2005  
FILE No.

SHEET L2

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JUN 17 2005  
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**LEGEND**

EX. CONTOURS	190
EX. SPOT ELEVATION	115.0
EX. SAN.	4" S
EX. C/O	0 C/O
EX. SAN. MH	18" D
EX. SD. W/ MH	18" D
EX. WATER	8" W
EX. WATER VALVE	1/2" W
EX. WATER REDUCER	1/2" W
EX. FIRE HYDRANT	4" W
EX. TREE CANOPY	1/2" W
EX. LIGHT	1/2" W
EX. SIGN	1/2" W
EX. C&G	1/2" W
EX. SW.	1/2" W
EX. UTILITY POLE	1/2" W
W/ GUY	1/2" W

**SITE DATA**

ZONING:	R2 AND R3
SOIL CLASSIFICATION:	M&B MONMOUTH-URBAN LAND COMPLEX, 0 - 5 PERCENT SLOPES
PROPOSED USE:	RESIDENTIAL
SITE AREA:	147,250 SF. (3.38 AC.)
CRITICAL AREA:	IDA

**EXISTING IMPERVIOUS AREA**

EX. DRIVEWAY:	33,304 SQ. FT.
EX. BUILDING:	4,713 SQ. FT.
TOTAL AREA:	38,017 SQ. FT. (0.8728 ACRES)

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MAR 17 2006  
CRITICAL AREA COMMISSION

**DISPOSITION NOTES**

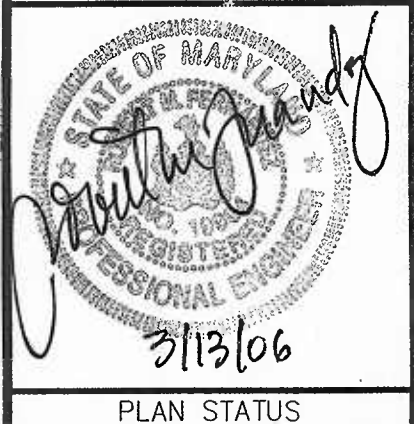
①	TO BE REMOVED
②	TO BE RELOCATED
S	SAVE EXISTING TREE
T	TRANSPLANT EX. TREE PER LANDSCAPE PLANS

ALL TREES WITHIN PROJECT BOUNDARY SHALL BE DEMOLISHED UNLESS OTHERWISE NOTED.

**Bowman CONSULTING**

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Fax: (410) 224-7592  
www.bowmanconsulting.com

**EXISTING CONDITIONS**  
**1109 BOUCHER AVENUE**  
CITY OF ANNAPOLIS  
6TH DISTRICT



**PLAN STATUS**

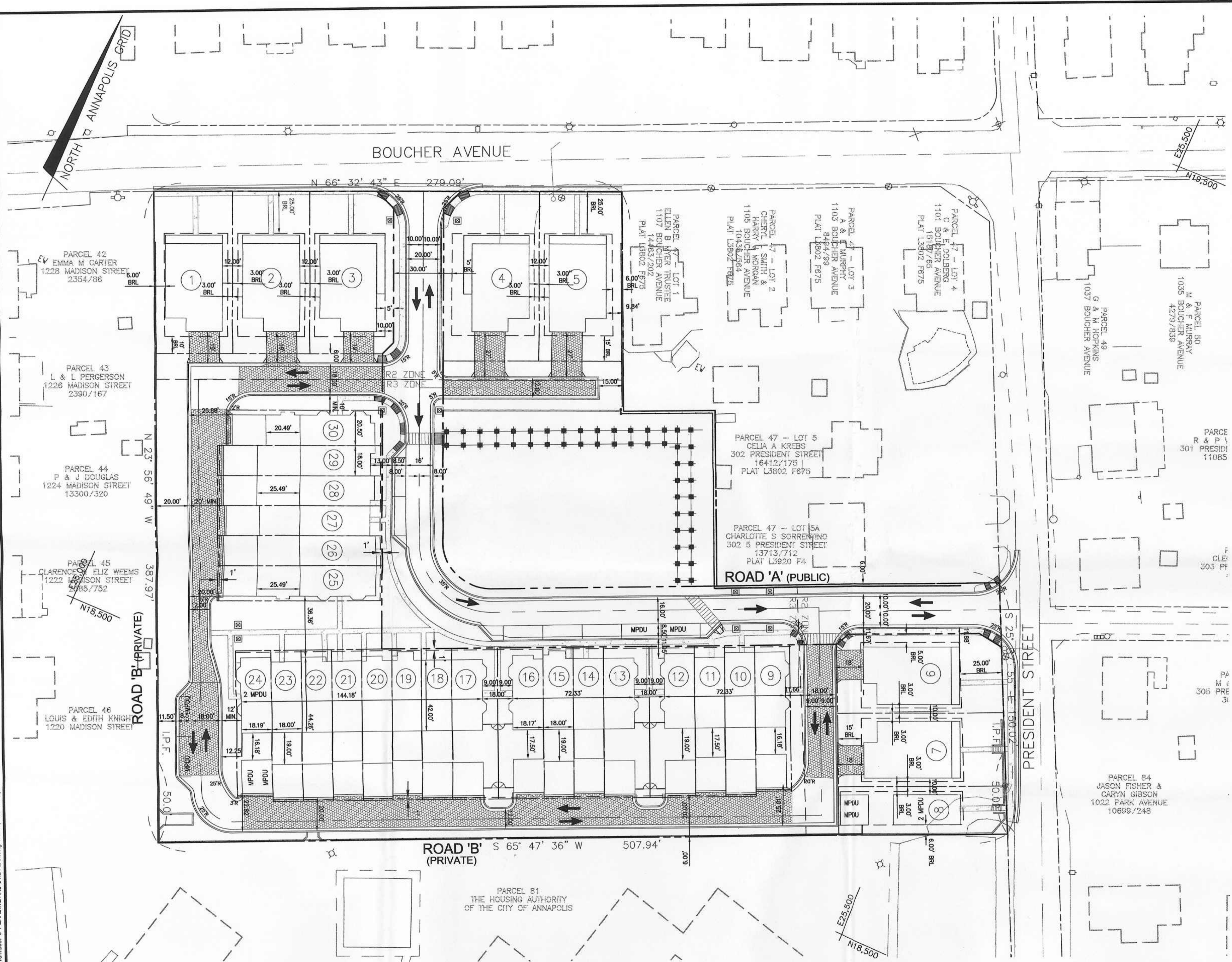
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JOB No. 3537-01-002	
DATE: MARCH 13, 2006	
FILE No.	

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NOTE: PLANOMETRIC TOPOGRAPHIC INFORMATION BASED ON CITY OF ANNAPOLIS GIS.



CAO File Path: P:\3537 - Boucher Avenue\3537-01-001\Engineering\Work\3537-3-4-GRADING AND UTIL PLAN.dwg Mar 10, 2006 - 5:17pm



**1. Area Tabulation**

Lot Area	Proposed	76,965 s.f.
Private Road Area (measured to face of curb)		17,503 s.f.
Public ROW Road Area		20,947 s.f.
Open Space Area		51,835 s.f.
<b>Total</b>		<b>147,250 s.f.</b>

**2. Critical Area Impervious Area Tabulation (See Table on Sheet C4 for Impervious Breakdown)**

Total Site Area	Allowable	Proposed
	73,625 s.f. 50.00%	73,548 s.f. 49.95%

Maximum Impervious Area allowed (50% of total site area, per Critical Area regs.)

Note: EcoStone Pavers (40% pervious) are in Private Alleys (13,193 sq. ft.), and SFD driveways (2,158 sq. ft.).

**3. Open Space Area Tabulation**

	Required	Proposed
Open Space Area A		16,721 s.f.
Open Space Area B		3,743 s.f.
Open Space Area C		7,970 s.f.
Open Space Area D		747 s.f.
Open Space Area E		654 s.f.
<b>Total Open Space Area</b>	<b>29,450 s.f. (20%)</b>	<b>31,835 s.f. 21.62%</b>

**4. Lot Density Tabulation**

	Allowable	Proposed
R2 Zoning (49,271 sf, 1,131 acres): Maximum Allowable Density	10	9
Notes: 1. Gross development area divided by minimum lot area per dwelling unit 2. Includes 15% for MPDU.		
R3 Zoning (98,194 sf, 2,250 acres): Maximum Allowable Density	30	23
Notes: 1. Gross development area divided by minimum lot area per dwelling unit 2. Includes 15% for MPDU.		

**5. Building Height**

	Required	Proposed
Boucher Avenue Dwellings	35 ft.	35 ft.
President Street	35 ft.	35 ft.

(1) Average Height per Table A

**6. Lot Size Tabulation**

	Required	Proposed
R2 Zoning: Lot Size	5,400 s.f.	4,400.6 s.f. Lot 1 5,400 s.f. 4,434.1 s.f. Lot 2 5,400 s.f. 4,769.7 s.f. Lot 3 5,400 s.f. 5,682.6 s.f. Lot 4 5,400 s.f. 4,991.3 s.f. Lot 5 5,400 s.f. 4,556.4 s.f. Lot 6 5,400 s.f. 4,414.8 s.f. Lot 7 5,400 s.f. 2,996.1 s.f. Lot 8
Minimum Lot Width	50 ft.	45.0 ft. Lot 1 50 ft. 45.0 ft. Lot 2 50 ft. 45.0 ft. Lot 3 50 ft. 45.0 ft. Lot 4 50 ft. 45.0 ft. Lot 5 50 ft. 40.0 ft. Lot 6 50 ft. 23.0 ft. Lot 8
R3 Zoning: Lot Size	3,600 s.f.	1,827.0 s.f. Lot 9 3,600 s.f. 1,620.0 s.f. Lot 10 & 11 3,600 s.f. 2,445.0 s.f. Lot 12 3,600 s.f. 2,445.0 s.f. Lot 13 3,600 s.f. 1,620.0 s.f. Lot 14 3,600 s.f. 2,445.0 s.f. Lot 15 3,600 s.f. 2,445.0 s.f. Lot 16 3,600 s.f. 1,620.0 s.f. Lot 17 3,600 s.f. 1,827.0 s.f. Lot 18 thru 23 3,600 s.f. 2,068.0 s.f. Lot 24 3,600 s.f. 1,764.0 s.f. Lot 25 3,600 s.f. 1,764.0 s.f. Lot 26 thru 29 3,600 s.f. 1,827.0 s.f. Lot 30
Minimum Lot Width	16 ft.	18.0 ft. Lot 10, 11, 14, 15, 18 thru 23, 26 thru 29 16 ft. 21.0 ft. Lot 9, 24, 25, 30 (end units) 16 ft. 27.2 ft. Lot 12, 13, 16, 17 (end units)

**7. Yard Setback Tabulation - Note Yards varied through PUD approval process.**

	Required	Proposed
R2 Zoning: Principal Buildings	Average	Proposed
Front Yard	25 ft.	25.0 ft. Lots 1 thru 5
Front Yard	25 ft.	25.0 ft. Lots 6 thru 8
Interior Side Yard	6 ft.	5.0 ft. Lots 1 thru 5
Interior Side Yard	6 ft.	3.5 ft. Lots 6 thru 8
Corner Side Yard	15 ft.	5.0 ft. Lots 3
Corner Side Yard	15 ft.	11.0 ft. Lots 4
Corner Side Yard	15 ft.	6.0 ft. Lots 6
Rear Yard	30 ft.	10.0 ft. Lots 1 thru 3
Rear Yard	30 ft.	15.0 ft. Lots 4 thru 7
Rear Yard	30 ft.	15.0 ft. Lot 8
Accessory Buildings	Average	Proposed
Front Yard	20 ft.	25.0 ft. Lot 8
Interior Side Yard	2 ft.	3.5 ft. Lot 8
Corner Side Yard	15 ft.	15 ft. Lot 8
Rear Yard	2 ft.	1.0 ft. Lot 8
R3 Zoning: Principal Buildings	Required	Proposed
Front Yard	20 ft.	1.0 ft. Lots 9 thru 30
Interior Side Yard	n/a	n/a. Lots 10, 11, 14, 15, 18, thru 23, 26 thru 29
Corner Side Yard	15 ft.	n/a. Lots 9, 12, 13, 16, 17, 24, 25, 30 (end units)
Rear Yard	30 ft.	1.0 ft. Lots 9 thru 30
Accessory Buildings	Required	Proposed
Front Yard	20 ft.	1.0 ft. Lots 9 thru 30
Interior Side Yard	2 ft.	n/a. Lots 10, 11, 14, 15, 18, thru 23, 26 thru 29
Corner Side Yard	15 ft.	n/a. Lots 9, 12, 13, 16, 17, 24, 25, 30 (end units)
Rear Yard	2 ft.	1.0 ft. Lots 9 thru 30

**8. Parking Space Tabulation**

	Required	Proposed
R2 Zoning: Standard off-street Spaces (1 per lot)	7	28
MPDU	4	4
R3 Zoning: Standard off-street Spaces (2 per lot)	42	42
Standard on-street Spaces	n/a	5
MPDU	4	4
<b>Totals</b>	<b>57</b>	<b>83</b>

(Lots 1 thru 7 accommodate 4 spaces per lot)

**Table A : Lonergan Site - Fronting Property Heights**

House Number	Street Name	Story	Height (ft)
1101	Boucher Avenue	2	33
1103	Boucher Avenue	2	33
1105	Boucher Avenue	2	33
1107	Boucher Avenue	2	33
Average Boucher Avenue Heights			33
20% Increase Allowance			39.6
302	President Street	2	32
302.5	President Street	2	32
Average President Street Heights			34
20% Increase Allowance			40.8

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**Bowman**  
CONSULTING

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PRELIMINARY SITE PLAN  
1109 BOUCHER AVENUE  
CITY OF ANNAPOLIS  
6TH DISTRICT

PLAN STATUS

DATE DESCRIPTION

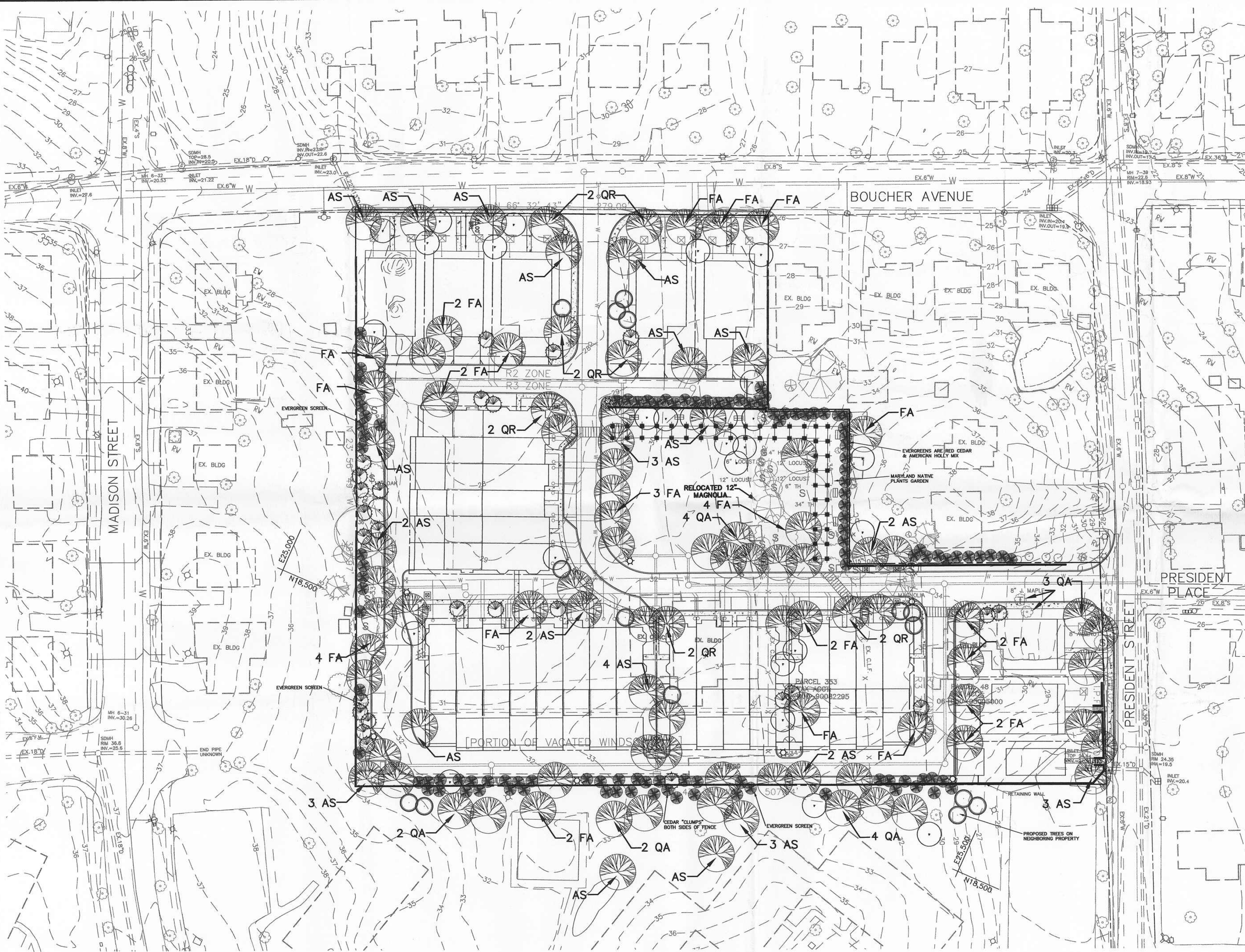
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DATE: MARCH 13, 2006  
FILE No.

3/13/06

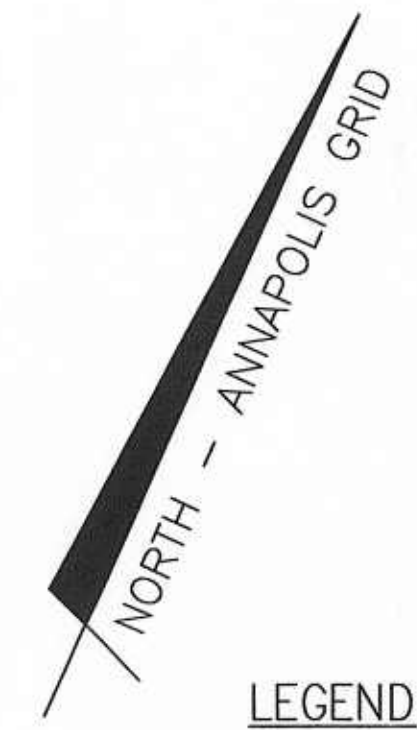
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NOTE: PLANOMETRIC TOPOGRAPHIC INFORMATION BASED ON CITY OF ANNAPOLIS GIS.



- LEGEND**
- SAVE EXISTING TREE
  - TRANSPLANT EX. TREE PER LANDSCAPE PLANS
  - MAJOR DECIDUOUS TREE
  - DOGWOOD TREE
  - COCKSPUR HAWTHORN TREE
  - BLACK PINE TREE
  - RED CEDAR TREE
  - GROUNDCOVER
  - MULCH BED
  - SAN.
  - SAN. MH
  - SD. W/ MH.
  - WATER
  - WATER VALVE
  - FIRE HYDRANT
  - STREET LIGHT
  - C&G
  - SW.
  - INLET

ALL TREES WITHIN PROJECT BOUNDARY SHALL BE DEMOLISHED UNLESS OTHERWISE NOTED.

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**REPLACEMENT CHART**

- SCRUB SHRUB (1 FOR EVERY 20 S.F.):  
EXISTING SHRUBS TO BE REPLACED = 420 S.F.  
PROPOSED = 21
  - TREES 1 TO 4" DIA. (1 FOR 1):  
EXISTING TREES TO BE REPLACED = 11  
PROPOSED = 11
  - TREES 4 TO <12" DIA. (2 FOR 1):  
EXISTING TREES TO BE REPLACED = 41  
PROPOSED = 82
  - TREES 12 TO <18" DIA. (3 FOR 1):  
EXISTING TREES TO BE REPLACED = 27  
PROPOSED = 81
  - TREES 18 TO <24" DIA. (4 FOR 1):  
EXISTING TREES TO BE REPLACED = 9  
PROPOSED = 36
  - TREES 24" AND UP DIA. (5 FOR 1):  
EXISTING TREES TO BE REPLACED = 9  
PROPOSED = 45
- TOTAL REPLACEMENT = 276

**Bowman**  
CONSULTING

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www.bowmanconsulting.com

PRELIMINARY LANDSCAPE & LIGHTING PLAN  
**1109 BOUCHER AVENUE**  
CITY OF ANNAPOLIS  
6TH DISTRICT

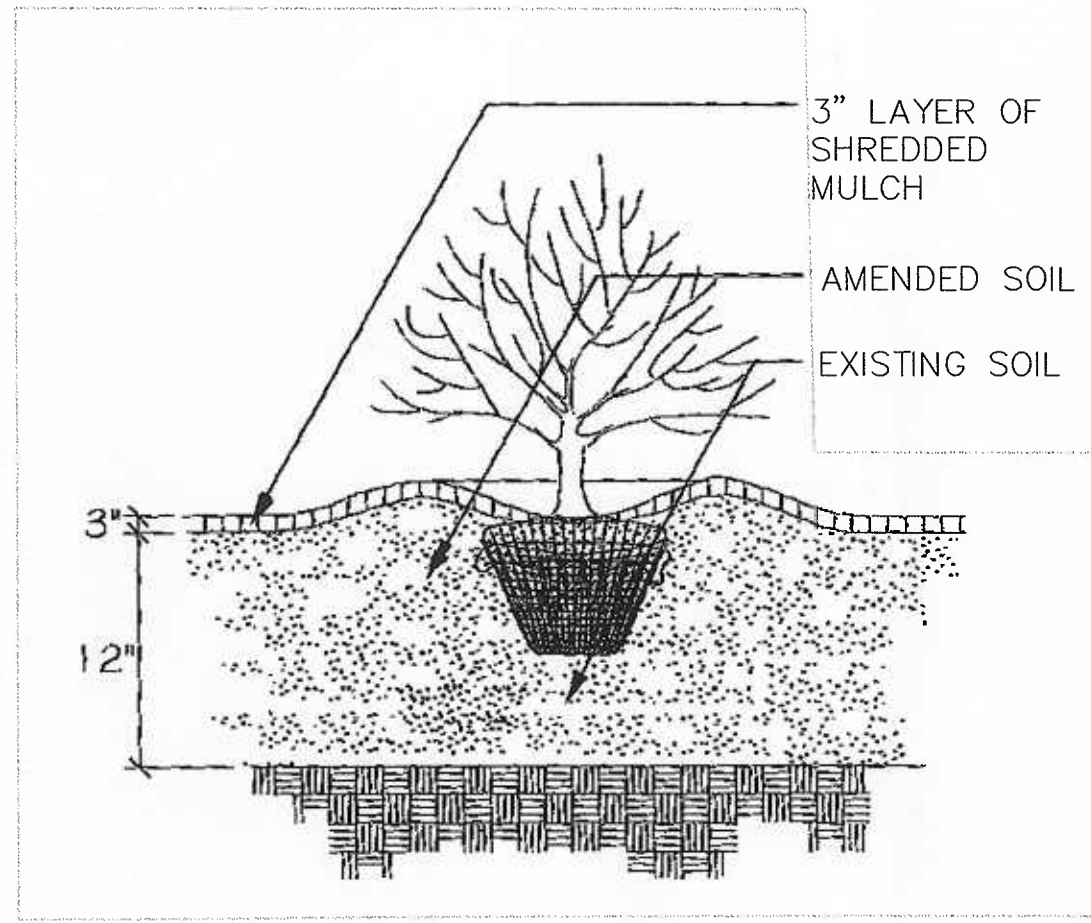
*2nd Revision*  
*March 13, 2006*

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	V: 1"=30'
	JOB No. 3537-01-001
	DATE: MARCH 13, 2006
	FILE No.
	SHEET C8 OF 9



# PLANTING SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
AS	Acer saccharum	Sugar Maple	36	as shown	2 - 2 1/2" CAL.	B&B
FA	Fraxinus americana	White Ash	32	as shown	2 - 2 1/2" CAL.	B&B
QA	Quercus alba	White Oak	15	as shown	2 - 2 1/2" CAL.	B&B
QR	Quercus rubra	Northern Red Oak	10	as shown	2 - 2 1/2" CAL.	B&B
MAJOR DECIDUOUS TREE TOTAL= 93						
SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
CF	Cornus florida	Flowering Dogwood	28	as shown	7' - 8'	B&B
CC	Crataegus crusgalli var. inermis	Thornless Cockspur Hawthorn	15	as shown	7' - 8'	B&B
ORNAMENTAL TREE TOTAL= 43						
SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SPACING	SIZE @ THE TIME OF PLANTING	ROOT TYPE
PT	Pinus thunbergiana	Japanese Black Pine	25	as shown	5-6' HT.	B&B
JV	Juniperus virginiana	Red Cedar	115	as shown	5-6' HT.	B&B
EVERGREEN TREE TOTAL= 140						



**BED PREPARATION**  
NOT TO SCALE

**AMENDED SOIL:**

- TOP 12" TO BE 70% SCREENED TOP SOIL & COMPOSTED SEWAGE SLUDGE.
- TILL ORGANIC MATTER INTO SOIL TO A DEPTH OF 6".
- PLANT & FERTILIZE AS PER PLANTING SPECIFICATIONS.
- MULCH 3" DEPTH. COMPOSTED SHREDDED HARDWOOD BARK.
- PROTECT PREPARED AREAS FROM CONSTRUCTION ACTIVITIES. DO NOT ALLOW AREAS TO BECOME COMPACTED OR DISTURBED BY SUBSEQUENT WORK.

**Planting Notes:**

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3. Tree protection fencing shall be maintained and repaired by the Contractor for the duration of the contract.
4. Access to fenced root protection zones shall be permitted only with prior approval of owner's representative.
5. The sequence of treatment & protection measures on all trees to be protected shall be:
  - root pruning
  - tree pruning and chemical treatment
  - mulch treatment
  - installation of tree protection fence
  - installation of signs

**Procedures:**

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Tree Protection fence shall be staked in the field by the contractor and approved by the owner's representative prior to installation.

Location for the root pruning line designated on this plan shall be staked in the field by the contractor and approved by the project landscape architect prior to pruning.

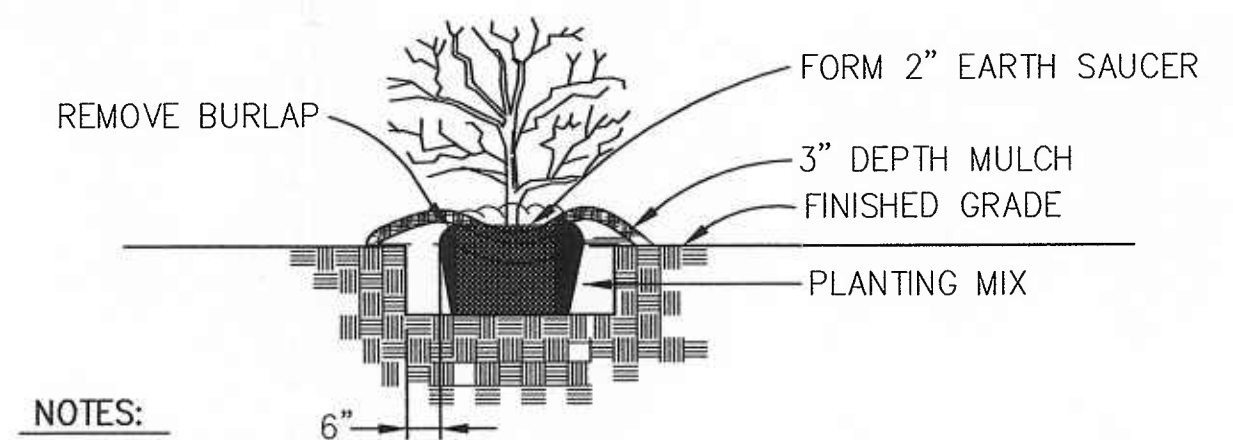
See Tree Preservation Specifications for further information.

See arborist work for individual tree work items required by this contract.

**RECEIVED**

MAR 17 2006

CRITICAL AREA COMMISSION

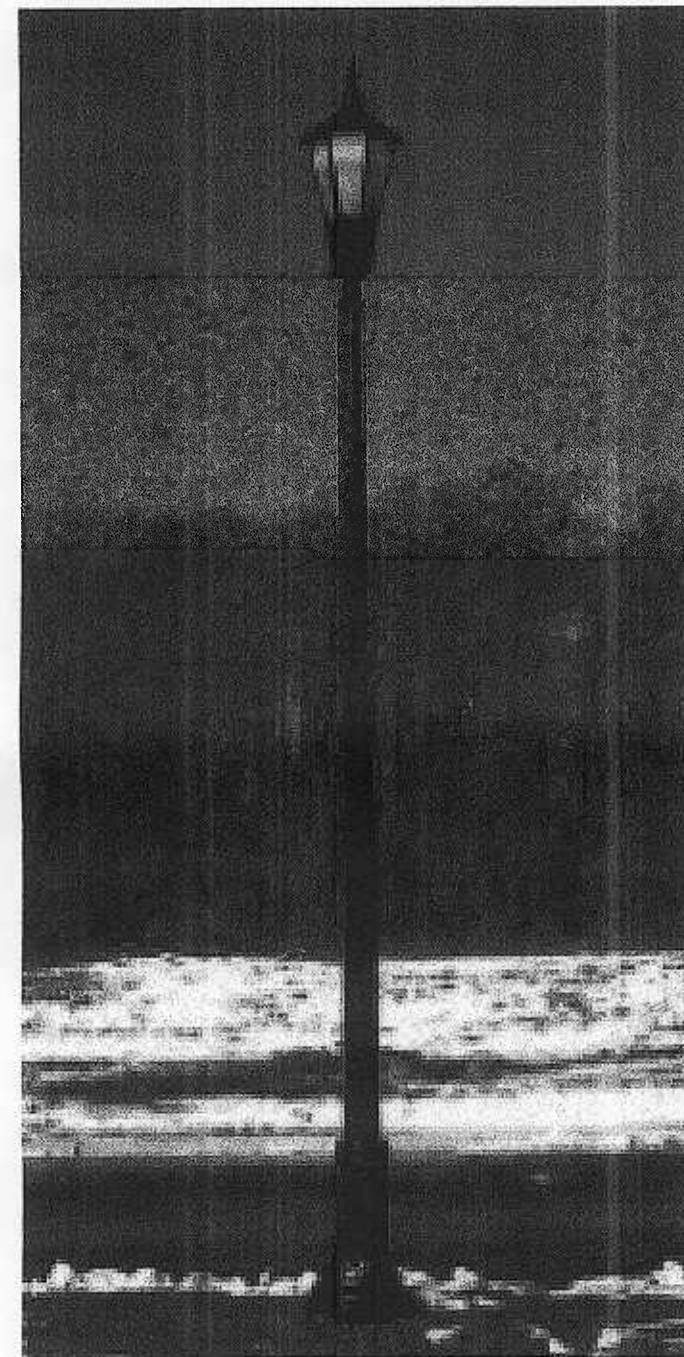


**NOTES:**

1. SEE "LANDSCAPE SPECIFICATION GUIDELINES, 5TH EDITION, FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. PRUNE OUT ANY DEAD OR BROKEN BRANCHES.

**SHRUB PLANTING**

DECIDUOUS AND EVERGREEN SHRUBS  
NOT TO SCALE



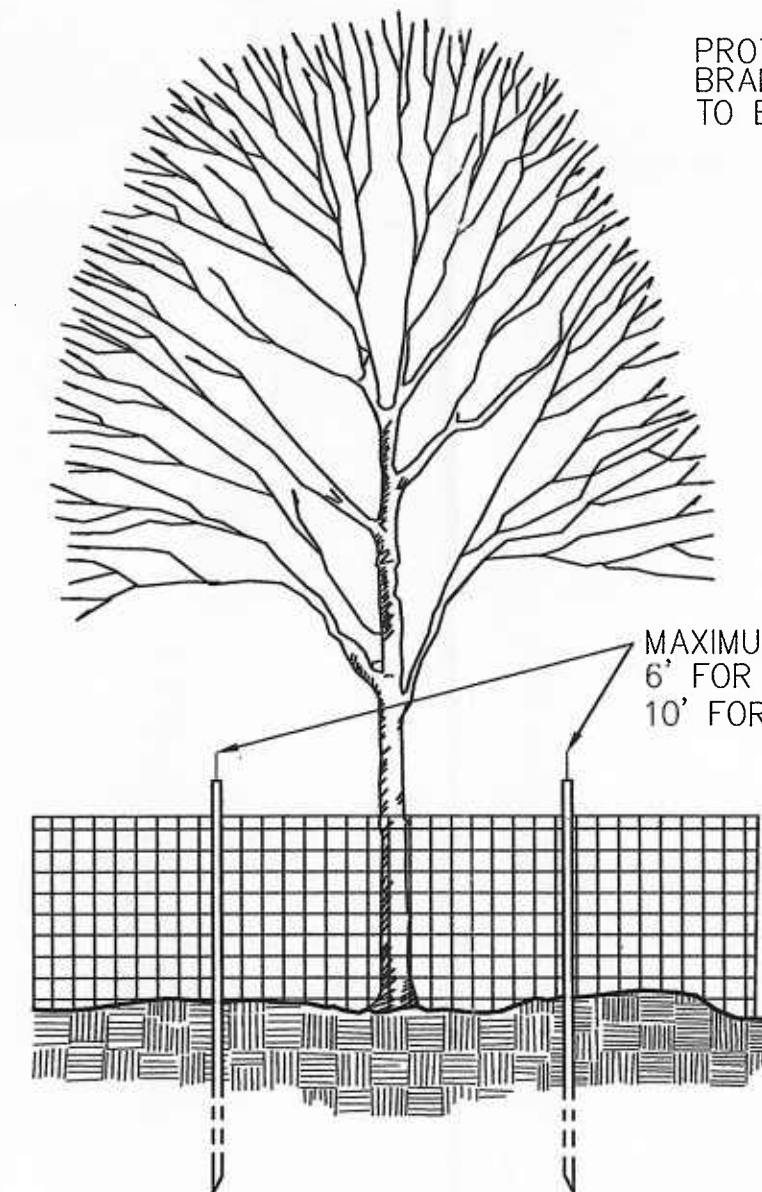
**LIGHT POLE AND FIXTURE**  
NOT TO SCALE

- NOTES:**
1. SEE "LANDSCAPE SPECIFICATION GUIDELINES, 5TH EDITION, FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
  2. STAKE OR GUY AS REQUIRED PER "LANDSCAPE SPECIFICATION GUIDELINES"
  3. SEE "LANDSCAPE SPECIFICATION GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2 1/2" CALIPER.
  4. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
  5. RESTRICT PRUNING TO CORRECTIVE PRUNING ONLY.

**TREE PLANTING AND STAKING**

DECIDUOUS AND EVERGREEN TREES UP TO 2 1/2" CALIPER  
NOT TO SCALE

PROTECTIVE FENCING TO PRESERVE TRUNK, BRANCHES AND ROOT SYSTEM. FENCING TO BE MAINTAINED THROUGHOUT CONSTRUCTION.



**NOTES:**

1. HEAVY EQUIPMENT, VEHICULAR TRAFFIC, OR STOCK PILING SHALL NOT BE PERMITTED WITHIN DRIPLINE.
2. NO TOXIC MATERIALS TO BE STORED WITHIN 30m FROM DRIPLINE.

MAXIMUM DISTANCE BETWEEN POSTS  
6' FOR PLASTIC FENCE  
10' FOR WELDED WIRE

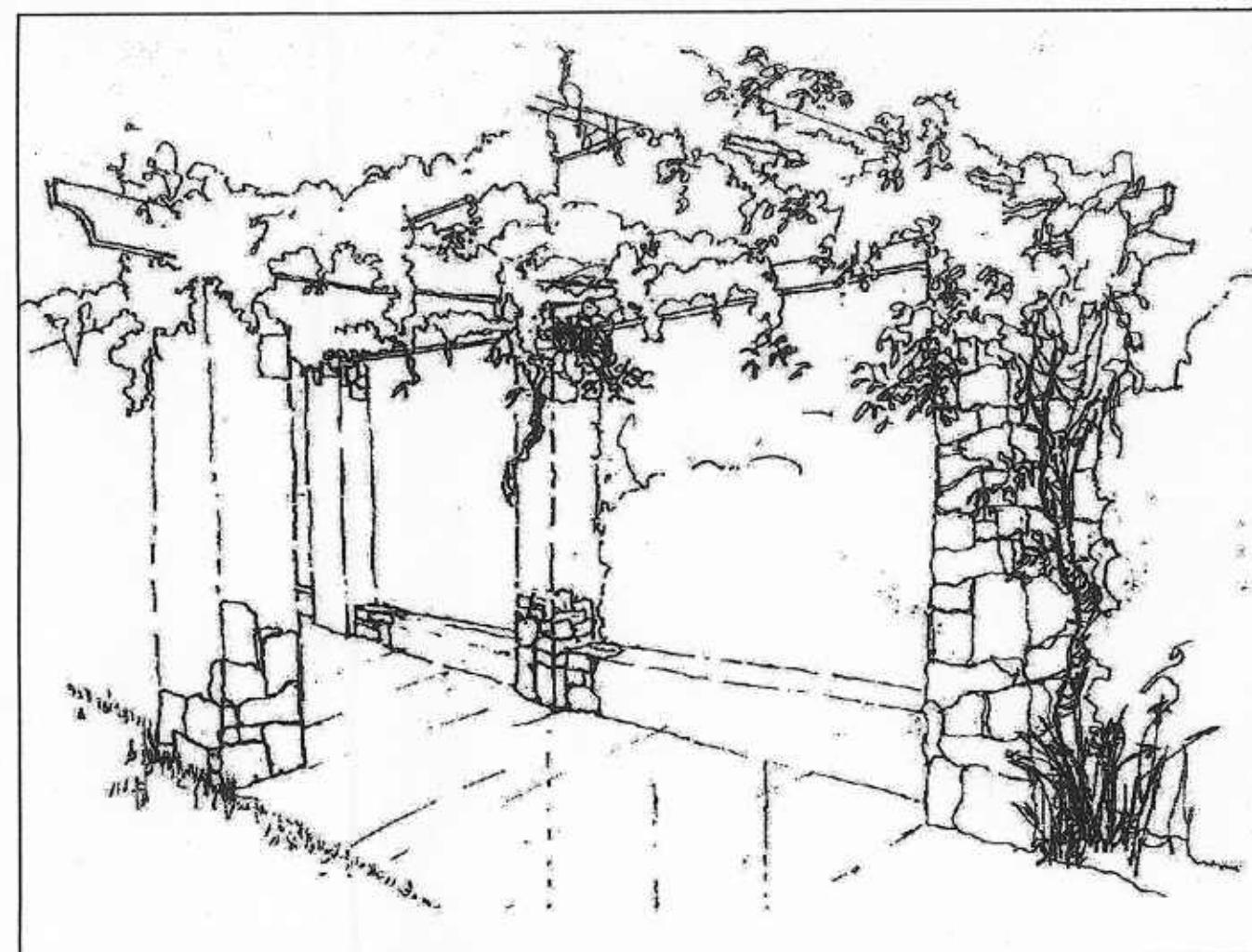
FENCING TO CONSIST OF 4' HIGH 14-GAUGE WELDED WIRE WITH 2"x4" OPENINGS, CONNECTED TO 2"X4" STAKES, EVENLY SPACED, DRIVEN AT LEAST 18" BELOW GROUND.

OR

FENCING TO CONSIST OF 4' HIGH ORANGE PLASTIC CONSTRUCTION FENCE CONNECTED TO 6' LONG STEEL "T" POSTS, EVENLY SPACED, DRIVEN AT LEAST 18" BELOW GROUND.

**TREE PROTECTION FENCE INSTALLATION DETAIL**

NOT TO SCALE



**PERGOLA RENDERING**  
NOT TO SCALE

PLAN STATUS		
DATE	DESCRIPTION	
CAT	DRB	CAT
DESIGN	DRAWN	CHKD
SCALE	H: 1" = 30'	
V:		
JOB No. 3537-01-002		
DATE : MARCH 13, 2006		
FILE No.		