Z-4520-2014

Gaithersburg
A CHARACTER COUNTS! CITY

PLANNING AND CODE ADMINISTRATION

City of Gaithersburg · 31 South Summit Avenue · Gaithersburg, Maryland 20877 · Telephone: (301) 258-6330 · Fax: (301) 258-6336
plancode@gaithersburgmd.gov · www.gaithersburgmd.gov

ZONING MAP AMENDMENT APPLICATION

All information must be complete to initiate processing of application

SUBJECT PROPERTY

Street Address or Location 11506 Game Preserve Road Gaithersburg, MD 20878

APPLICANT/BILLING CONTACT

Business Name Rodgers Consulting, Inc.

Primary Contact Gary Unterberg

Street Address 19847 Century Blvd. Suite No. 200

City Germantown State Maryland Zip Code 20874

Telephone Numbers: Work 240-912-2121 Cell 301-366-9040 E-mail Address gunterberg@rodgers.com

OWNER

Business Name Classic Community Corporation

Primary Contact Steve Eckert

Street Address 8120 Woodmont Avenue Suite No. 300

City Bethesda State Maryland Zip Code 20814

Telephone Numbers: Work (301) 913-0404 Cell _____ E-mail Address _____

DEVELOPER

Business Name Classic Community Corporation

Primary Contact Steve Eckert

Street Address 8120 Woodmont Avenue Suite No. 300

City Bethesda State Maryland Zip Code 20814

Telephone Numbers: Work (301) 913-0404 Cell _____ E-mail Address _____

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 1

AMENDMENT METHOD: (complete information for only one method)

☐ **Standard Re-Zoning Method**

Existing Zone _____ Proposed Zone _____ Number of Acres to Re-Zone _____

☐ **Standard Re-Zoning Optional Method**

Existing Zone _____ Proposed Zone _____

SITE DETAILS:

Site Area Sq. Ft.		Commercial Sq. Ft.		Number of Dwelling Units/Lot	
Site Area Acres		Industrial Sq. Ft.		Number of Dwelling Units/Acre	
Green Area Sq. Ft.				Height of Tallest Building (Ft.)	
Green Area %				Height of Tallest Building (Stories)	

☒ **MXD with Sketch Plan Method**

Site Plan to Amend N/A

Existing Zone MXD Proposed Zone MXD

SITE DETAILS:	Maximum	Minimum		Maximum	Minimum
Site Area Sq. Ft.	140,699	0	Number of Dwelling Units/Lot	19	0
Site Area Acres	3.23	0	Number of Dwelling Units/Acre	5.88	0
Green Area Sq. Ft.	0	56,192	Height of Tallest Building (Ft.)	50	0
Green Area %	0	1.3	Height of Tallest Building (Stories)	4	0
Commercial Sq. Ft.	0	0			
Institutional Sq. Ft.	0	0			

PROJECT DESCRIPTION

The subject property (Devlin Property) is located just south and west of the Parklands at Watkins Mill Town Center development. The applicant proposes to connect to the adjacent Parklands development by continuing Caulfield Lane, from Parklands, through the Devlin Property and intersecting it into Forest Preserve Lane. The applicant proposes 19 townhouse units with architecture that is similar in character to the architecture in Parklands. This project will be annexed into the Parklands Homeowners Association and use the same Design Guidelines approved for the Parklands development.

See Next Page for Submission Requirements

THIS CHECKLIST IS A GENERAL GUIDE FOR ITEMS THAT ARE TYPICALLY REQUIRED FOR APPLICATIONS. PLEASE REFER TO CHAPTER 24, SECTION 196 (c) OF THE CITY CODE FOR COMPLETE REQUIREMENTS OR CONTACT PLANNING STAFF AT 301-258-6330 FOR FURTHER CLARIFICATION.

SUBMISSION REQUIREMENTS

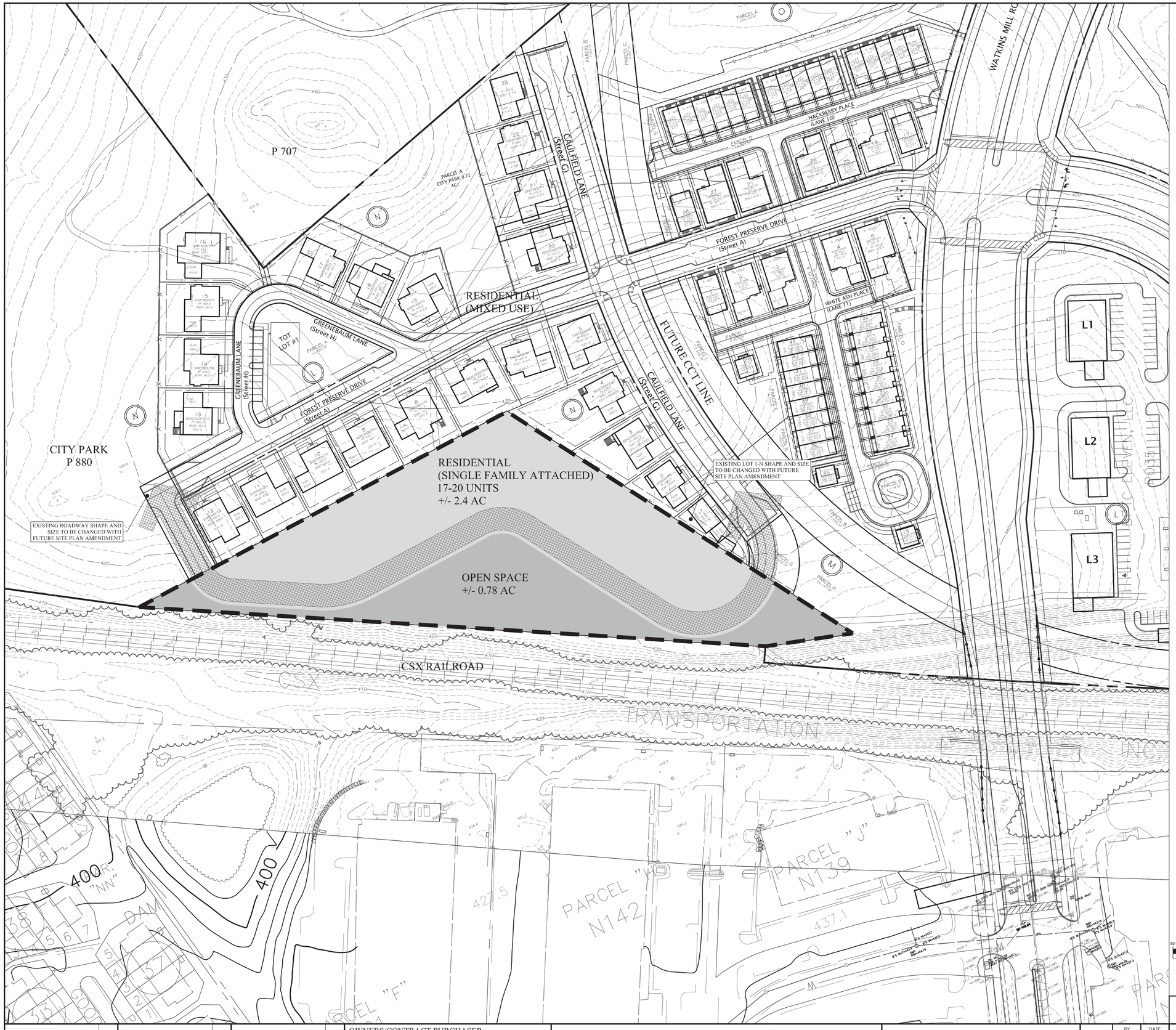
- Map or Plat, Five (5) hard copies, One (1) digital (DWF preferred) or PDF
- Legal Metes and Bounds, One (1) digital copy, PDF
- List of Affected Property Owners with Addresses, One (1) digital copy, PDF
- Applicant Statement

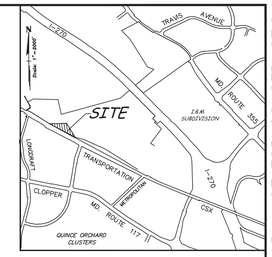
If Optional Method Also Submit:

- Site, Architectural and Detail Plan, Five (5) hard copies, One (1) digital copy (DWF preferred) or PDF
- Preliminary Affordable Housing Plan
- Preliminary Stormwater Management Plans, Three (3) hard copies, One (1) digital copy (DWF preferred) or PDF
- Preliminary Traffic Impact Study
- Other Planning Commission Requested Material

If MXD Zone Also Submit:

- Site, Architectural and Detail Plan, Five (5) hard copies, One (1) digital copy (DWF preferred) or PDF
- Concept Stormwater Management Plans, One (1) hard copy, One (1) digital copy (DWF preferred) or PDF
- Approved NRI and FSD Plans, One (1) hard copy, One (1) digital copy (DWF preferred) or PDF
- Proof of Compliance with MXD Regulations
- Other Planning Commission Requested Material





PRELIMINARY NOT FOR CONSTRUCTION

LEGEND

SITE BOUNDARY

RESIDENTIAL

OPEN SPACE

STREET CONNECTION

General Notes

1. The boundary survey for the property was prepared by Rodgers Consulting, Inc.
2. Two foot interval contourinformation was flown by McKenzie Snyder in January 2007.
3. The site is zoned MXD.
4. The intended uses for the site is residential.
5. Water and sewer class: 1
6. Maximum building heights: 50 Ft. (4 Stories)
7. The site area is 3.23 Ac.±.
8. Proposed development:

   lots: 1.68 Ac.±
   open space: 0.78 Ac.±
   right of way: 0.77 Ac.±

9. This development proposes 17 to 20 single family attached dwelling units.
10. Designation of units and total number of units subject to final site plan approval. All development to be in compliance with the master plan.
11. This development will be completed in 1 phase.
12. The plan meets or exceeds the MXD zone requirement for Open Space. The maximum building heights are as permitted under the restrictions of the Gaithersburg City Code.

SHEET INDEX

GRAPHIC SCALE

50' 0 25' 50' 100' 200'

1 INCH = 50 FT

CITY OF GAITHERSBURG MAYOR & COUNCIL
31 SOUTH SUMMIT AVENUE, GAITHERSBURG, MARYLAND 20877

MXD SKETCH PLAN APPROVAL

AT THE REGULARLY SCHEDULED MEETING OF THE MAYOR AND CITY COUNCIL HELD ON _____

APPLICATION NO. _____ WAS GRANTED

BY ORDINANCE _____ WITH _____ ( ) CONDITIONS.

DATE _____ BY _____

NOTE: ANY REVISIONS TO SIGNED PLANS MUST BE REAPPROVED BY THE MAYOR & CITY COUNCIL.

MXD SKETCH PLAN

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNERS/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814
PHONE: (301) 913-0404
FAX: (301) 913-5482
CONTACT: STEVE ECKERT

MXD SKETCH PLAN

RODGERS CONSULTING
Enhancing the value of land assets
Rodgers Consulting, Inc.
19847 Century Blvd., Suite 200
Germantown, MD 20874
301.948.4700
301.948.6256 (fax)
301.253.6609
www.rodgers.com

	BY	DATE
BASE DATA		
DESIGNED		
DRAWN		
REVIEWED		

RODGERS CONTACT:
RELEASE FOR
BY_____ DATE ____

DEVLIN PROPERTY

City of Gaithersburg
9th election district
Montgomery County, Maryland

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 2

SCALE: 1" = 50'
JOB No. 1137B
DATE: 1/2014
SHEET No. 1 OF 5

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\Sketch\01_Sketch.dwg Sheet 05 Feb 03, 2014, 4:41pm

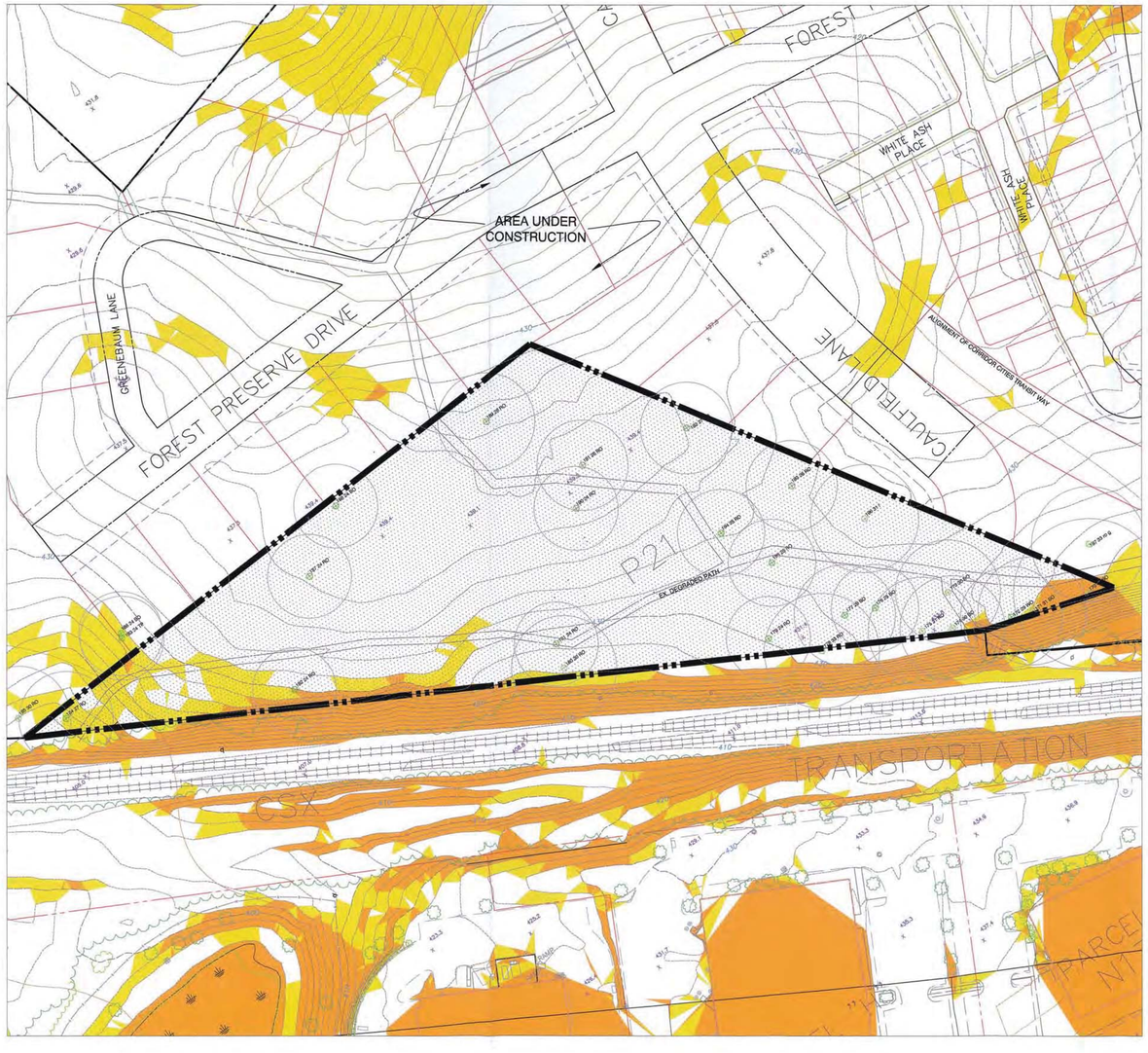
Property Summary

Floodplain	Wetland	Forest	S.V.B.
n/a	n/a	3.23	n/a

Soils Table

Symbol	Soil
16C	Brinklow-Blocktown channery silt loams, 8-15% slopes
2B	Glenelg silt loam, 3-8% slopes

Forest Stand Details	Stand 1- Upland Forest	3.23 acres
Dominant	Quercus velutina	
Co-Dominant	Quercus rubra	
Associated Species	Liriodendron tulipifera, Fagus grandiflora, Nyssa sylvatica	
Understory	Cornus florida, Smilax rotundifolia	
Herbaceous	Microstegium viminium, Alliaria petiolata	
Comments	Many oaks are in decline, 30% down material	



Significant and/or Specimen Trees List

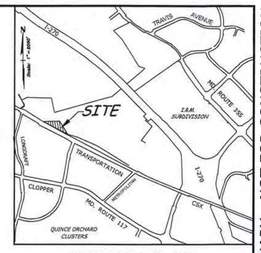
Tag No.	DBH	Symbol	Common	Latin	Condition	Comments
170 Δ	43	BO	Black Oak	Quercus velutina	Fair	triple, bad form
171 Δ	31	BO	Black Oak	Quercus velutina	Poor	dieback
172	29	WO	White Oak	Quercus alba	Poor	gash
173 Δ	30	BO	Black Oak	Quercus velutina	Fair	twin, included bark
174 Δ	30	BO	Black Oak	Quercus velutina	Poor	hollow spot
175 Δ	31	RO	Red Oak	Quercus rubra	Poor	twin, included bark
176	25	BO	Black Oak	Quercus velutina	Poor	hollow trunk
177	29	BO	Black Oak	Quercus velutina	Good	
178*Δ	33	RO	Red Oak	Quercus rubra	Fair	dieback
179	24	RO	Red Oak	Quercus rubra	Fair	dieback
180 Δ	30	RO	Red Oak	Quercus rubra	Fair	twin, dieback
181	24	RO	Red Oak	Quercus rubra	Poor	
182	24	RO	Red Oak	Quercus rubra	Poor	dieback
183*	24	TP	Tulip Poplar	Liriodendron tulipifera	Fair	twin
184	27	RO	Red Oak	Quercus rubra	Fair	
185*Δ	30	RO	Red Oak	Quercus rubra	Fair	dieback
186*	24	BO	Black Oak	Quercus velutina	Fair	
187	24	RO	Red Oak	Quercus rubra	Fair	
188	24	BO	Black Oak	Quercus velutina	Good	
189	28	RO	Red Oak	Quercus rubra	Fair	
190	24	RO	Red Oak	Quercus rubra	Fair	
191	26	RO	Red Oak	Quercus rubra	Fair	twin
192	27	RO	Red Oak	Quercus rubra	Fair	dieback
193	26	RO	Red Oak	Quercus rubra	Good	
194	25	RO	Red Oak	Quercus rubra	Fair	dieback
195	25	RO	Red Oak	Quercus rubra	Fair	leaning
196 Δ	31	BO	Black Oak	Quercus velutina	Fair	
197*Δ	33	RO	Red Oak	Quercus rubra	Good	

* Tree location is outside of the property boundaries
Δ Specimen tree

The location of individual specimen trees is by Global Positioning System (GPS) use with sub-meter accuracy. The locations of specimen trees on the NRI/FSD are for planning purposes and more detailed surveying may be required at later design/ construction stage.

Subject Property Information

Tax Map(s): FT12
Lots / Parcels: P021 - 3.23 Ac
Property Area: 3.23 Acres± (Based on Boundary Surveys prepared by Rodgers Consulting Inc.)
Zone: MXD



VICINITY MAP - 1" = 2000'

Natural Resource Inventory / Forest Stand Delineation Notes:

Site Description:
The subject site is comprised of parcel P021, of Tax Map FT12. The entire 3.23 acres of the site is forested, and consists of predominately upland hardwood species. The site is bounded to the south by the CSX right-of way, and to the north by an area under construction. The remnants of an old road crosses the property running east to west, ending at the sites low point in the western corner of the property.

Streams, Wetlands, & Stream Buffers:
No wetlands were identified on the subject site. No streams or area of stream buffer exist on the subject site. There is no area of FEMA-mapped floodplain on or within 200' of the site.

Topography:
Two foot interval contour information was flown by McKenzie Snyder in January 2007

Highly Erodible, Unsuitable and Unsafe Soils:
The soils onsite as per the Montgomery County Soil Survey include Brinklow-Blocktown channery silt loam 8-15% slopes (16C) and Glenelg silt loam 3-8% slopes (2B). Neither of these soils are considered to be highly erodible, unsuitable, or unsafe.

Forest & Trees:
The subject site contains one forest block consisting primarily of upland species. See the table for detailed information on tree species. There are 28 specimen trees observed on site, which have been noted in a separate table.

Danger Reach / Dam Break Analysis:
There are no dams associated with this site as it is located in an upland area.

Rare, Threatened, Endangered Species:
There were no rare, threatened, or endangered species observed on the property at this time. An environmental review was requested from DNR on 9.09.13.

Existing Wildlife:
No wildlife was observed on the property during the field work, though there was evidence of White-Tailed Deer (Odocoileus virginianus).

Special Protection Areas:
As per the City of Gaithersburg Master Plan, the subject site is not within a special protection area

Cultural Resources:
As per the City of Gaithersburg Master Plan, there are no cultural resources on the subject site.

Noise & Light Pollution:
Sources of noise in the vicinity of the subject site were limited to the CSX railroad tracks to the south.

Significant Views & Vistas:
There were no significant views observed from the property, and the City of Gaithersburg Master Plan does not mention any significant views from the property.

Field work for this NRI/FSD occured on 8-30-13.

Legend

- Subject Site Boundary
- Soils Lines
- GdB — Soil Text Type
- Significant and/or Specimen Tree and CRZ
- Existing Hedgerow/Brush
- Existing Edge of Vegetation
- Forest Stand
- Forest Stand Line
- 15-25% Slopes
- Slopes 25% and greater
- Existing Topography
- Existing Utility Pole
- Existing Fence (Type as labeled on plan)

N 1" = 50'

0 25 50 100 125 150
Graphic Scale

CITY OF GAITHERSBURG
31 S. SUMMIT AVE., GAITHERSBURG, MARYLAND 20877
NRI/FSD APPROVAL
THE CITY OF GAITHERSBURG DEVELOPMENT REVIEW TEAM HEREBY GRANTS APPROVAL OF NATURAL RESOURCE INVENTORY/ FOREST STAND DELINEATION
FOR APPLICATION NO. SDP-2561-2013
DATE 10/16/13 BY M. Rodgers III

* CONDITION: APPLICANT TO SUBMIT A NOISE STUDY AT THE TIME OF SCHEMATIC DEVELOPMENT PLANS APPLICATION

Qualified Professional Certificate

10/3/13
Date

M. Dusty Rood
Dusty Rood
Qualified Professional
COMAR 08.19.06.01

CITY OF GAITHERSBURG
31 SOUTH SUMMIT AVENUE
GAITHERSBURG, MARYLAND 20877
NRI/FSD APPROVAL
THE CITY OF GAITHERSBURG DEVELOPMENT REVIEW TEAM HEREBY GRANTS APPROVAL OF NATURAL RESOURCES INVENTORY FOREST STAND DELINEATION
APPLICATION NO. _____

Natural Resource Inventory / Forest Stand Delineation

PRELIMINARY NOT FOR CONSTRUCTION

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNERS/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814
PHONE: (301) 913-0404
FAX: (301) 913-5482
CONTACT: STEVE ECKERT

NATURAL RESOURCES INVENTORY/ FOREST STAND DELINEATION

RODGERS CONSULTING
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Germantown, MD 20874
301.948.4700
301.948.6256 (fax)
301.253.6609
www.rodgers.com

	BY	DATE
BASE DATA	RCI	
DESIGNED	RCI	
DRAWN	RCI	2/12
REVIEWED	RCI	2/12

ROGERS CONTACT:
RELEASE FOR
BY_____ DATE_____

DEVLIN PROPERTY
MONTGOMERY COUNTY, MD

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 3

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 8

SCALE: 1"=50'
JOB No. 11378
DATE: 9/13
SHEET No. 7 OF 8

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\NRI-FSD.dwg NRI-FSD Oct 02, 2013, 3:59pm

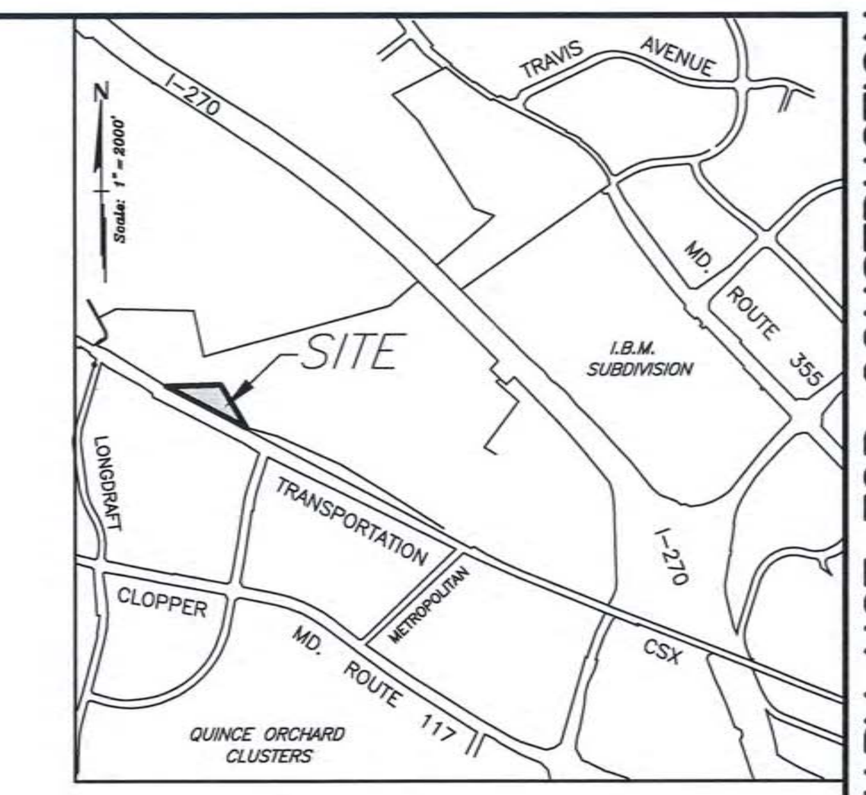
PRELIMINARY NOT FOR CONSTRUCTION

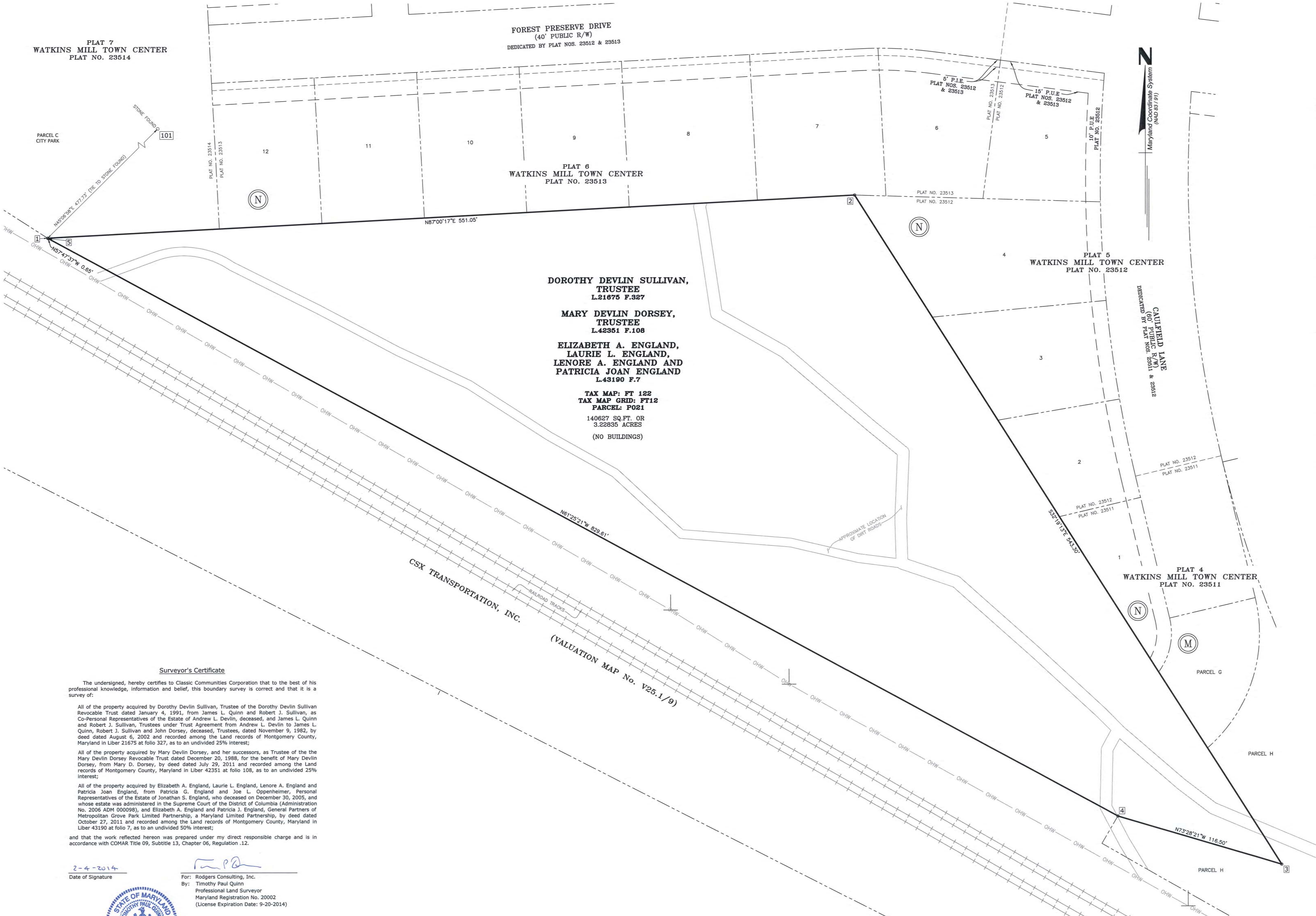
General Notes

1. Based on examination of the Flood Insurance Rate Map Number 24031C0188D, dated, September 29, 2006, published by the Federal Emergency Management Agency, which such map panel covers the area in which the Property is situated, the property lies in Zone X.
2. This plat is in the Maryland Coordinate System (NAD83/91), U.S. survey feet, based on GPS and conventional survey observations.
   Controlling Stations:
   National Geodetic Survey monument JV4456 N:547736.96 E:1233907.17
   Washington Suburban Sanitary Commission NAD 83 traverse station 15987
   N:543863.565 E:1247218.713; average combined scale/elevation factor for site: 0.999947788.

1 Coordinate Table

Point	Northing	Easting
1	541519.19	1245629.38
2	541547.99	1246179.68
3	541088.86	1246470.15
4	541122.00	1246358.46
5	541518.84	1245629.93
101	541856.31	1245967.86





GRAPHIC SCALE (IN FEET)

Regarding Potomac Title Coporation Record Title Abstract, Case #47125 Effective Date: 07-16-13, prepared by Potomac Title Corporation and obtained from Montgomery Title Company, LLC.

1. Terms, conditions, easements/rights of ways and provisions set forth in a Declaration of Taking by Andrew L. Devlin, et al., and Washington Metropolitan Area Transit Authority recorded in Liber 5221 at folio 458.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
2. Terms, conditions, easements/rights of ways and provisions set forth in a deed of conveyance and right of way by J. Loring Whittington and Charlotte L. Whittington, his wife, and Albert B. Bibb recorded in Liber J.A. 5 at folio 168.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
3. Terms, conditions, easements/rights of ways and provisions set forth in an Easement and Right of Way by Andrew L. Devlin and Dorothy V. Devlin, his wife, Christian Heurich, Jr. and Beverly P. Heurich, his wife, and Jonathon S. England and Patricia G. England, his wife, and Washington Gas Light Company, recorded in Liber 2886 at folio 493.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
4. Terms, conditions, easements/rights of ways and provisions set forth in an Easement and Right of Way by Andrew L. Devlin and Dorothy V. Devlin, his wife, and Jonathon S. England and Patricia G. England, his wife, and Washington Gas Light Company, recorded in Liber 4555 at folio 482.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
5. Terms, conditions, easements/rights of ways and provisions set forth in an Right of Way Agreement by Andrew L. Devlin and Dorothy V. Devlin, his wife, and Jonathan S. England and Patricia G. England, his wife, and Atlantic Seaboard Corporation, recorded in Liber 3570 at folio 566.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
6. Terms, conditions, easements/rights of ways and provisions set forth in a deed of easement by Andrew L. Devlin and Dorothy V. Devlin, his wife, and Jonathan S. England and Patricia G. England, his wife, and Montgomery County, recorded in Liber 3622 at folio 282.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
7. Terms, conditions, easements/rights of ways and provisions set forth in a Right of Way by Andrew L. Devlin and Dorothy V. Devlin, his wife, and Jonathan S. England and Patricia G. England, his wife, and Washington Suburban Sanitary Commission, recorded in Liber 3667 at folio 50.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
8. Terms, conditions, easements/rights of ways and provisions set forth in Partial Release of Right of Way from the Washington Suburban Sanitary Commission and Andrew L. Devlin and Jonathan S. England recorded in Liber 5836 at folio 776.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
9. Terms, conditions, easements/rights of ways and provisions set forth in a Right of Way by Andrew L. Devlin and Dorothy V. Devlin, his wife, and Jonathan S. England and Patricia G. England, his wife, and the Washington Suburban Sanitary Commission, recorded in Liber 3873 at folio 779.
   DOES NOT AFFECT THE SUBJECT PROPERTY.
10. Terms, conditions, easements/rights of ways and provisions set forth in A Right of Way by Andrew L. Devlin and Jonathan S. England and Washington Suburban Sanitary Commission,recorded in Liber 5883 at folio 313.
    DOES NOT AFFECT THE SUBJECT PROPERTY.
11. Terms, conditions, easements/rights of ways and provisions set forth in a Deed by Andrew L. Devlin, Jonathan S. England et al. and the State Highway Administration of the Department of Transportation of the State of Maryland, recorded in Liber 5082 at folio 174.
    DOES NOT AFFECT THE SUBJECT PROPERTY.
12. Terms, conditions, easements/rights of ways and provisions set forth in a Deed by Andrew L. Devlin and Jonathan S. England and the Washington Metropolitan Area Transit Authority, recorded in Liber 5335 at folio 64.
    DOES NOT AFFECT THE SUBJECT PROPERTY.
13. Terms, conditions, easements/rights of ways and provisions set forth in a Deed and Agreement for the Transfer of Onsite Water and Sewer Facilities and Easement by Andrew L. Devlin and Jonathan S. England and the Washington Suburban Sanitary Commission, recorded in Liber 5897 at folio 392.
    DOES NOT AFFECT THE SUBJECT PROPERTY.
14. Terms, conditions, easements/rights of ways and provisions set forth in a Judgement involving AT&T Corp. and AT&T Communications - East, Inc., recorded in Liber 39987 at folio 52.
    THE PROPERTY INCLUDED IN THIS SURVEY IS PART OF THE PROPERTY SUBJECT TO THE JUDGEMENT. THE JUDGEMENT DOES NOT CONTAIN AN EXACT DESCRIPTION OF THE EASEMENT.

THE PROPERTY MAY BE SUBJECT TO THE TERMS, CONDITIONS, EASEMENTS/RIGHTS OF WAYS AND PROVISIONS SET FORTH IN A JUDGEMENT INVOLVING SPRINT COMMUNICATIONS COMPANY L.P., QWEST COMMUNICATIONS COMPANY, LLC, LEVEL 3 COMMUNICATIONS, LLC, AND WILTEL COMMUNICATIONS, INC., RECORDED IN LIBER 47469 AT FOLIO 221.

Surveyor's Certificate

The undersigned, hereby certifies to Classic Communities Corporation that to the best of his professional knowledge, information and belief, this boundary survey is correct and that it is a survey of:

All of the property acquired by Dorothy Devlin Sullivan, Trustee of the Dorothy Devlin Sullivan Revocable Trust dated January 4, 1991, from James L. Quinn and Robert J. Sullivan, as Co-Personal Representatives of the Estate of Andrew L. Devlin, deceased, and James L. Quinn and Robert J. Sullivan, Trustees under Trust Agreement from Andrew L. Devlin to James L. Quinn, Robert J. Sullivan and John Dorsey, deceased, Trustees, dated November 9, 1982, by deed dated August 6, 2002 and recorded among the Land records of Montgomery County, Maryland in Liber 21675 at folio 327, as to an undivided 25% interest;

All of the property acquired by Mary Devlin Dorsey, and her successors, as Trustee of the the Mary Devlin Dorsey Revocable Trust dated December 20, 1988, for the benefit of Mary Devlin Dorsey, from Mary D. Dorsey, by deed dated July 29, 2011 and recorded among the Land records of Montgomery County, Maryland in Liber 42351 at folio 108, as to an undivided 25% interest;

All of the property acquired by Elizabeth A. England, Laurie L. England, Lenore A. England and Patricia Joan England, from Patricia G. England and Joe L. Oppenheimer, Personal Representatives of the Estate of Jonathan S. England, who deceased on December 30, 2005, and whose estate was administered in the Supreme Court of the District of Columbia (Administration No. 2006 ADM 000098), and Elizabeth A. England and Patricia J. England, General Partners of Metropolitan Grove Park Limited Partnership, a Maryland Limited Partnership, by deed dated October 27, 2011 and recorded among the Land records of Montgomery County, Maryland in Liber 43190 at folio 7, as to an undivided 50% interest;

and that the work reflected hereon was prepared under my direct responsible charge and is in accordance with COMAR Title 09, Subtitle 13, Chapter 06, Regulation .12.

2-4-2014
Date of Signature

For: Rodgers Consulting, Inc.
By: Timothy Paul Quinn
Professional Land Surveyor
Maryland Registration No. 20002
(License Expiration Date: 9-20-2014)

STATE OF MARYLAND — TIMOTHY PAUL QUINN — No. 20002 — REGISTERED — PROFESSIONAL LAND SURVEYOR

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNERS/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814
PHONE: (301) 913-0404
FAX: (301) 913-5482
CONTACT: STEVE ECKERT

BOUNDARY SURVEY

RODGERS CONSULTING
Knowledge • Creativity • Enduring Values
19847 Century Boulevard
Suite 200
Germantown, Maryland 20874
Ph: 301.948.4700 (Main)
Ph: 301.253.6609 (Frederick)
Fx: 301.948.6256
www.rodgers.com

	BY	DATE
BASE DATA		
DESIGNED		
DRAWN		
REVIEWED		

RODGERS CONTACT:
RELEASE FOR ______
BY______ DATE____

BOUNDARY SURVEY

DEVLIN PROPERTY

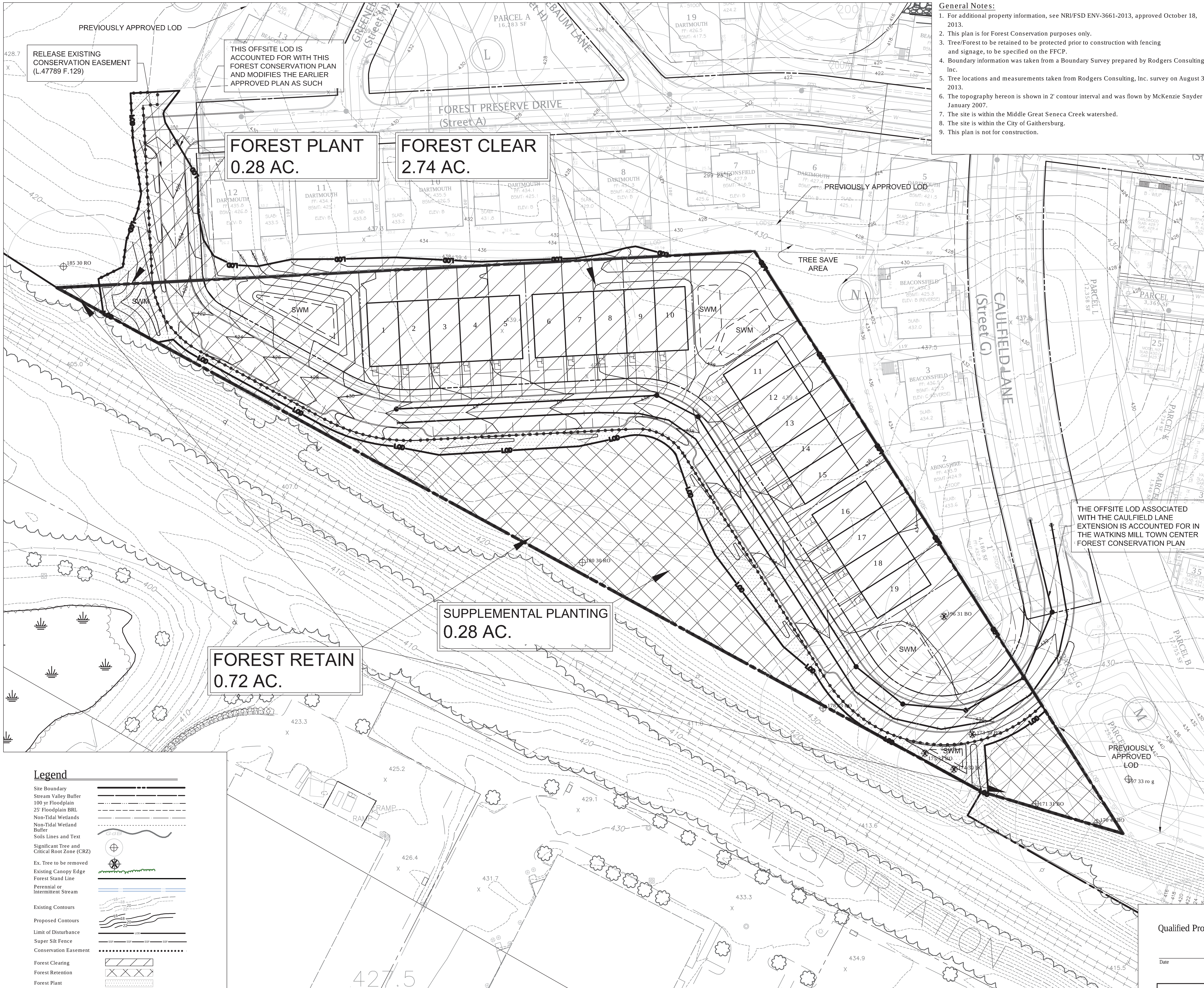
City of Gaithersburg
9th election district
Montgomery County, Maryland

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 4

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 5

SCALE: 1" = 30'
JOB No. 1090B
DATE: 1/2014
SHEET No. 4 OF 8

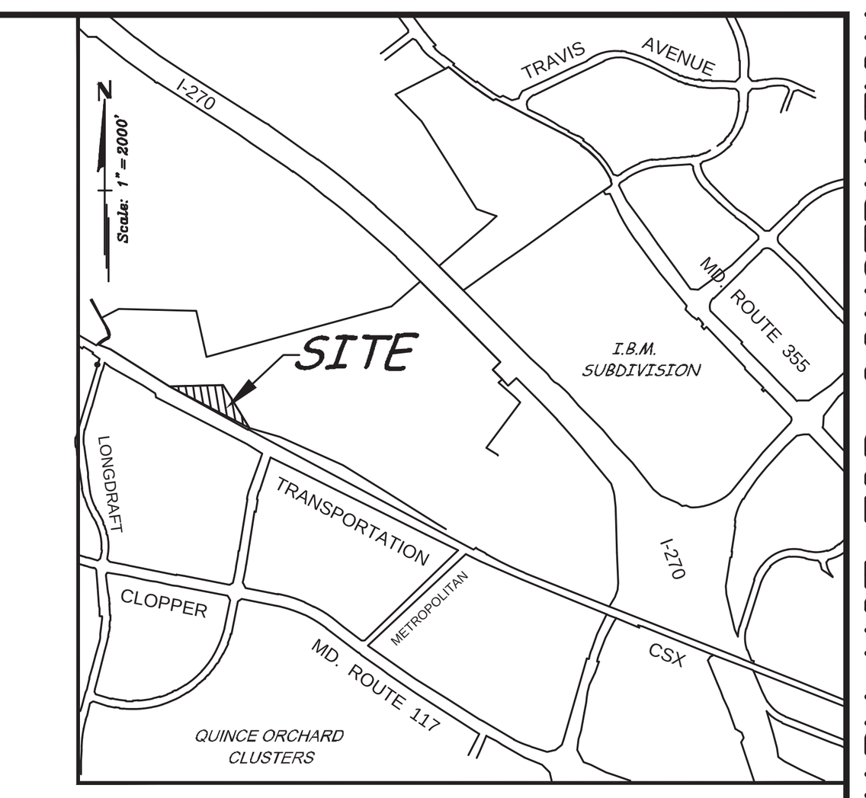
U:\devlin\BND_SURV_DEVLIN (JAN 2014).dwg Layout1 Feb 04, 2014, 11:54am



PREVIOUSLY APPROVED LOD
RELEASE EXISTING CONSERVATION EASEMENT (L.47789 F.129)
THIS OFFSITE LOD IS ACCOUNTED FOR WITH THIS FOREST CONSERVATION PLAN AND MODIFIES THE EARLIER APPROVED PLAN AS SUCH
FOREST PRESERVE DRIVE (Street A)
FOREST PLANT 0.28 AC.
FOREST CLEAR 2.74 AC.
PREVIOUSLY APPROVED LOD
TREE SAVE AREA
CAULFIELD LANE (Street G)
SWM
THE OFFSITE LOD ASSOCIATED WITH THE CAULFIELD LANE EXTENSION IS ACCOUNTED FOR IN THE WATKINS MILL TOWN CENTER FOREST CONSERVATION PLAN
SUPPLEMENTAL PLANTING 0.28 AC.
FOREST RETAIN 0.72 AC.
PREVIOUSLY APPROVED LOD
TRANSPORTATION
Legend
Site Boundary
Stream Valley Buffer
100 yr Floodplain
25' Floodplain BRL
Non-Tidal Wetlands
Non-Tidal Wetland Buffer
Soils Lines and Text
Significant Tree and Critical Root Zone (CRZ)
Ex. Tree to be removed
Existing Canopy Edge
Forest Stand Line
Perennial or Intermittent Stream
Existing Contours
Proposed Contours
Limit of Disturbance
Super Silt Fence
Conservation Easement
Forest Clearing
Forest Retention
Forest Plant

General Notes:

1. For additional property information, see NRI/FSD ENV-3661-2013, approved October 18, 2013.
2. This plan is for Forest Conservation purposes only.
3. Tree/Forest to be retained to be protected prior to construction with fencing and signage, to be specified on the FFCP.
4. Boundary information was taken from a Boundary Survey prepared by Rodgers Consulting, Inc.
5. Tree locations and measurements taken from Rodgers Consulting, Inc. survey on August 30, 2013.
6. The topography hereon is shown in 2' contour interval and was flown by McKenzie Snyder in January 2007.
7. The site is within the Middle Great Seneca Creek watershed.
8. The site is within the City of Gaithersburg.
9. This plan is not for construction.



VICINITY MAP - 1" = 2000'

PRELIMINARY NOT FOR CONSTRUCTION

CITY OF GAITHERSBURG FOREST CLEARANCE AREA

TRACT AREA, FOREST COVER, AND CLEARANCE AREA		
A:	**Tract Area**	3.46 *
B:	**Existing Forest Cover**	3.46
	B = Forest Cover within Tract Area A	
C	**Cleared Forest Cover**	2.74
	C = Forest Cover to be cleared as result of development	
D	**Retained Forest Cover**	0.72
	D = B - C	
	(Existing Forest Cover B - Cleared Forest Cover C)	
AFFORESTATION		
(Use zero (0) for all negative numbers resulting from calculations)		
E	**Afforestation Threshold**	0.52
	E = Tract Area A x 15%	
F	**Afforestation Required**	0.00
	F = E - B	
	(Afforestation Threshold E - Existing Forest Cover B)	
REFORESTATION		
(Use zero (0) for all negative numbers resulting from calculations)		
G	**Conservation Threshold**	0.69
	G = Tract Area A x 20%	
H	**Existing Forest Cover greater than Conservation Threshold G**	2.77
	H = B - G	
	(Existing Forest Cover B - Conservation Threshold G)	
I	**Retained Forest Cover greater than Conservation Threshold**	0.03
	I = D - G	
	(Retained Forest Cover D - Conservation Threshold G)	
J	**Clearance greater than Conservation Threshold.**	2.74
	J = H - I	
K	**Retention Credit for retained forest cover greater than conservation threshold**	0.03
	K = D - G	
	(Retained Forest Cover D - Conservation Threshold G)	
L	**Clearance less than Conservation Threshold**	0.00
	L = G - D	
	(Conservation Threshold G - Retained Forest Cover D)	
M	**Reforestation Requirement**	0.66
	M = 1/4J - K + 2L	
BREAKEVEN POINT		
N	**Breakeven Point**	1.25
	N = H x 20% + G	
	(Retention Credit x 20% + without Threshold G)	
O	**Clearance allowed without reforestation.**	2.21
	O = B - N	
	(Existing Forest Cover - Breakeven Point N)	

*Includes off-site LOD not previously accounted for.

Forest Conservation Summary

Reforestation Requirement: 0.66 Ac.

Reforestation Proposed: 0.28 Ac.

Supplemental Planting: 0.28 Ac.*

Street Tree Credit: 0.10 Ac.**

*To be planted onsite within existing forest at 100 - 2" caliper trees per acre for a total of 28 trees.

**26 Street Trees at 700 S.F. each at 1/4 credit: 4,550 S.F.

Specimen Trees

Tag No.	DBH	Symbol	Common	Latin	Condition	Comments	Save / Remove
170	43	BO	Black Oak	Quercus velutina	Fair	triple, bad form	Save
171	31	BO	Black Oak	Quercus velutina	Poor	dieback	Save
173	30	BO	Black Oak	Quercus velutina	Fair	twin, included bark	Remove
174	30	BO	Black Oak	Quercus velutina	Poor	hollow spot	Remove
175	31	RO	Red Oak	Quercus rubra	Poor	twin, included bark	Remove
178*	33	RO	Red Oak	Quercus rubra	Fair	dieback	Save
180	30	RO	Red Oak	Quercus rubra	Fair	twin, dieback	Save
185*	30	RO	Red Oak	Quercus rubra	Fair	dieback	Save
196	31	BO	Black Oak	Quercus velutina	Fair		Remove
^ 197*	33	RO	Red Oak	Quercus rubra	Good		Remove

* Tree location is outside of the property boundaries

^ Tree 197 was included and proposed / approved for removal with the Watkins Mill Town Center Forest Conservation Plan.

GRAPHIC SCALE

30' 0 15' 30' 60' 120'

1 INCH = 30 FT

Qualified Professional Certificate

Date

Dusty Rood
Qualified Professional
COMAR 08.19.06.01

PRELIMINARY FOREST CONSERVATION PLAN

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNERS/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814
PHONE: (301) 913-0404
FAX: (301) 913-5482
CONTACT: STEVE ECKERT

Preliminary Forest Conservation Plan

RODGERS CONSULTING
Knowledge • Creativity • Enduring Values
19847 Century Boulevard
Suite 200
Germantown, Maryland 20874
Ph: 301.948.4700 (Main)
Ph: 301.253.6609 (Frederick)
Fx: 301.948.6256
www.rodgers.com

	BY	DATE
BASE DATA		
DESIGNED		
DRAWN		
REVIEWED		

RODGERS CONTACT:

RELEASE FOR ____

BY____ DATE ____

DEVLIN PROPERTY

City of Gaithersburg
9th election district
Montgomery County, Maryland

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 5

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 7

SCALE: 1" = 30'

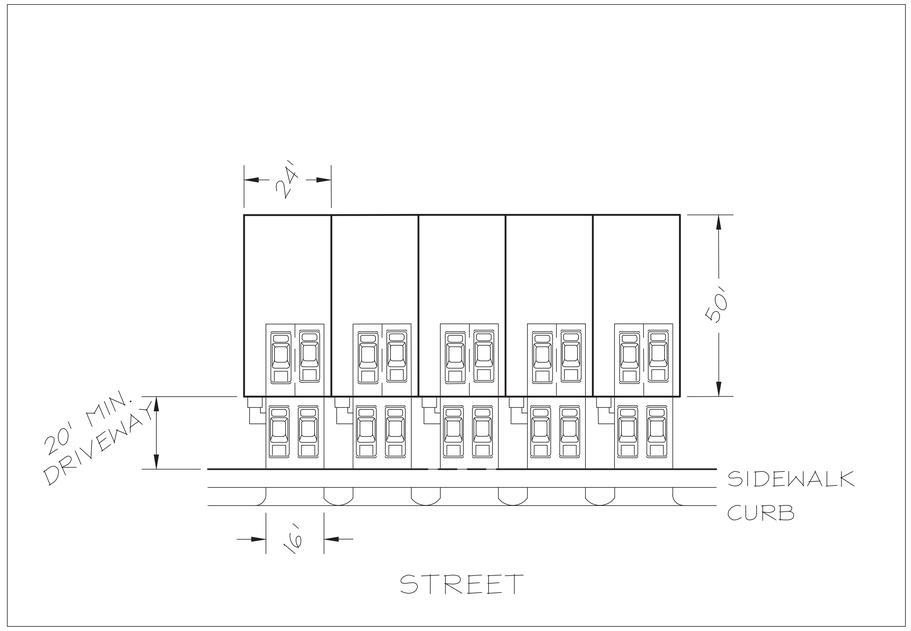
JOB No. 1137B

DATE: 1/2014

SHEET No. 6 OF 8

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\Environmental\PFCP_2014-01-21.dwg Layout1 Feb 05, 2014, 5:22pm

24' TOWNHOME (FRONT LOAD GARAGE) - ELEVATION
NTS



24' TOWNHOME (FRONT LOAD GARAGE) - PLAN
NTS

General Notes

1. Architectural elevations are shown for illustrative purpose only. Final architecture and building height shall be determined at building permit.

2. All architecture should follow the design guidelines set forth by the previously approved Watkins Mill Towncenter Site Plan.

CITY OF GAITHERSBURG MAYOR & COUNCIL
31 SOUTH SUMMIT AVENUE, GAITHERSBURG, MARYLAND 20877

SCHEMATIC DEVELOPMENT PLAN APPROVAL

AT THE REGULARLY SCHEDULED MEETING OF THE MAYOR AND CITY COUNCIL HELD ON _____
APPLICATION NO. _____ WAS GRANTED
SCHEMATIC DEVELOPMENT PLAN APPROVAL
BY RESOLUTION _____ WITH _____( ) CONDITIONS.
DATE _____ BY _____

NOTE: ANY REVISIONS TO SIGNED PLANS MUST BE REAPPROVED BY THE MAYOR & CITY COUNCIL

PRELIMINARY NOT FOR CONSTRUCTION

PRELIMINARY ARCHITECTURE PLAN

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNERS/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814
PHONE: (301) 913-0404
FAX: (301) 913-5482
CONTACT: STEVE ECKERT

PRELIMINARY ARCHITECTURE PLAN

RODGERS CONSULTING
Enhancing the value of land assets

Rodgers Consulting, Inc.
19847 Century Blvd., Suite 200
Germantown, MD 20874
301.948.4700
301.948.6256 (fax)
301.253.6609
www.rodgers.com

	BY	DATE
BASE DATA		
DESIGNED		
DRAWN		
REVIEWED		

RODGERS CONTACT:
RELEASE FOR _____
BY_____ DATE ____

DEVLIN PROPERTY

City of Gaithersburg
9th election district
Montgomery County, Maryland

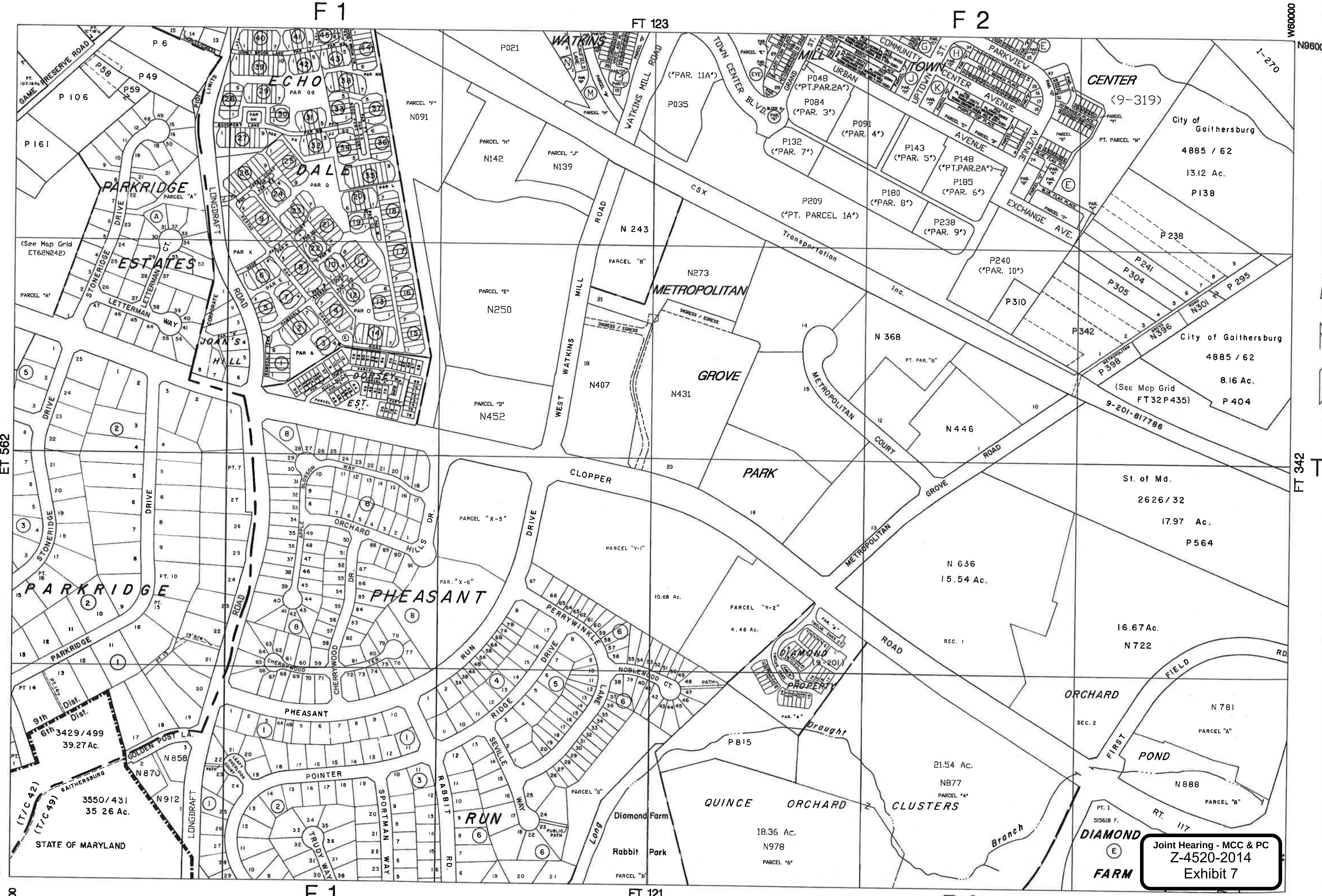
Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 6

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 9

SCALE: N/A
JOB No. 1137B
DATE: 1/2014
SHEET No. 8 OF 8

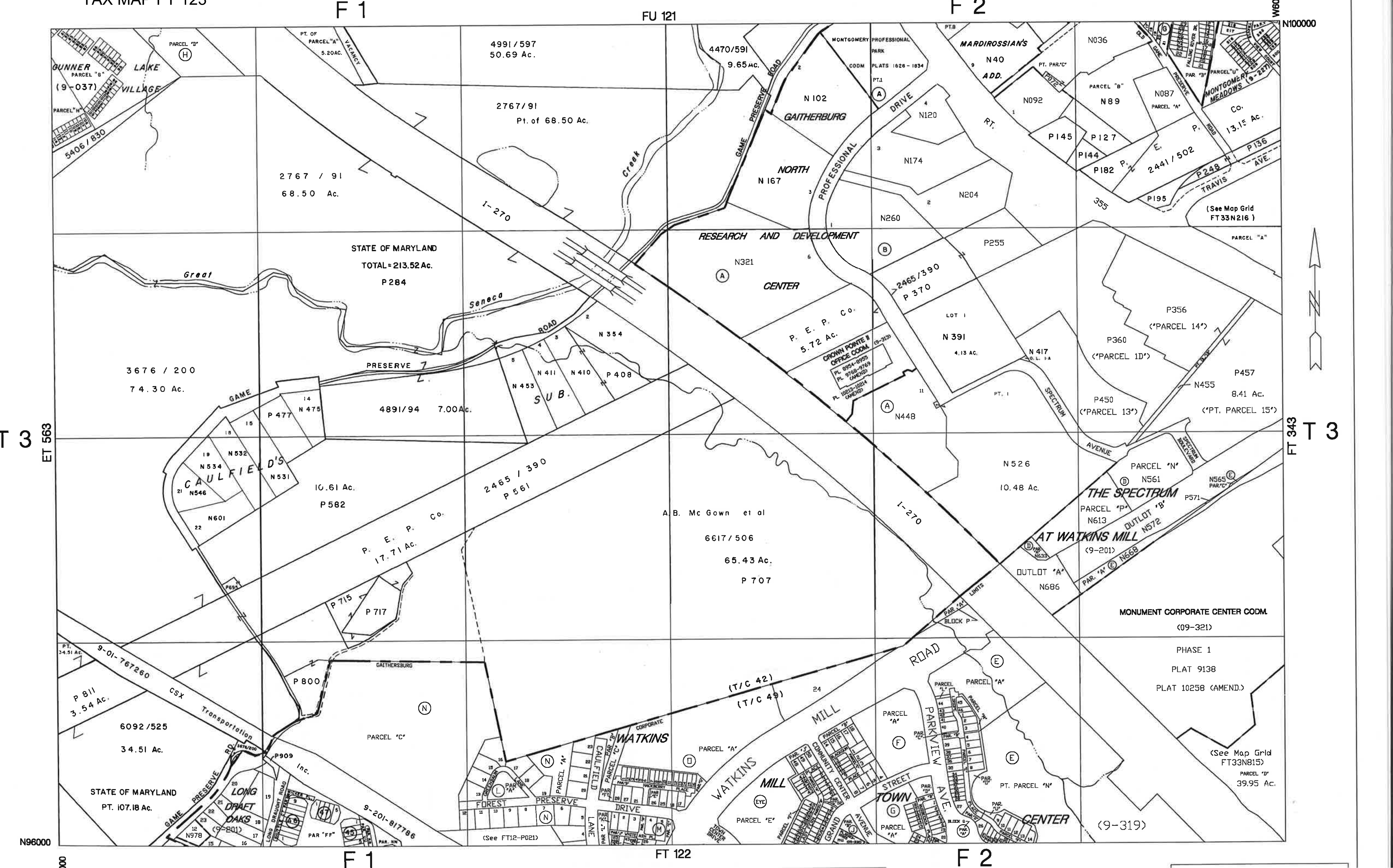
N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\SDP\08_ARCHITECTURE.dwg Sheet 05 (2) Feb 04, 2014, 2:54pm

TAX MAP FT 122



Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 7

TAX MAP FT 123



Devlin Property
11506 Game Preserve Road
Gaithersburg, MD 20878

Master Plan and MXD Compliance Statement

The subject property (Devlin Property, Parcel 21) consists of 3.23 acres and is located just south and west of the Parklands at Watkins Mill Town Center (Formerly Casey West) development. The site is currently zoned MXD and this proposal is being submitted to update the land use by sketch plan. The applicant proposes to connect to the adjacent Parklands development, which is also zoned MXD, by continuing Caulfield Lane, from Parklands, through the Devlin Property and intersecting it into Forest Preserve Lane. The applicant proposes 19 townhouse units with architecture that is similar in character to the architecture in Parklands. This project will be annexed into the Parklands Homeowners Association and be governed by the same Design Guidelines document approved for the Parklands development.

The 1997 City of Gaithersburg Master Plan designates Parcel 21 along with part of Parcels 707 and 880 "as mixed residential (Map Designations 48 and 49)." The Master Plan goes on to state, "Development may occur only after West Watkins Mill Road is constructed over the CSX rail line. The maximum housing unit count on this 44-acre parcel for all dwellings will be 300 with 50 percent being single-family detached and 50 percent single-family attached equaling 7 units per acre." The proposed development is consistent with the recommendation of the 1997 Master Plan. West Watkins Mill Road has been constructed. The 23 single-family detached units approved on what was parcel 880 west of Watkins Mill Road combined with the proposed 19 single-family attached unit on parcel 21 is close to the 50/50 mix of detached to attached specified in the 1997 Master Plan. The density of development proposed on Parcel 21 is 5.88 units per acre with is just below the 7 units per acre specified in the Master Plan.

A Settlement Agreement dated April 18, 2005 included development requirements pertaining to the Casey West project. One of those requirements titled "Right of Way to Adjoining Properties" requires the development to connect to adjoining properties that will be developed in the future, provided that the development is compatible with the residential uses of the Casey West Development. The right-of-way from Caulfield Lane to Parcel 21 has been provided for this purpose as required by the Settlement Agreement.

The approved Sketch Plan number Z-297 for the Casey West property include four possible sketch plan options. The option that was selected and turned into an approved site plan is Alternative 4. Alternative 4 provided residential on part of what was parcel 880 consistent with the 1997 Master Plan.

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 8

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 12

MXD Sketch Plan Notes

1. Heights are maximum numbers expressed in stories and feet as follows:
   4 Story = Max. 50'
2. Existing Zone= MXD
3. Gross Land Area= 3.23 +/- Acres
4. Land Use Illustrated
   Residential= 19 Units
   Density- 5.88 Units per acre
5. Green area shall not be less than 40% of total area shown for residential use.
6. Parking required 2.5 spaces per unit= 48 parking spaces
7. Parking Provided= 57 off-street + 21 on-street= 78 total*

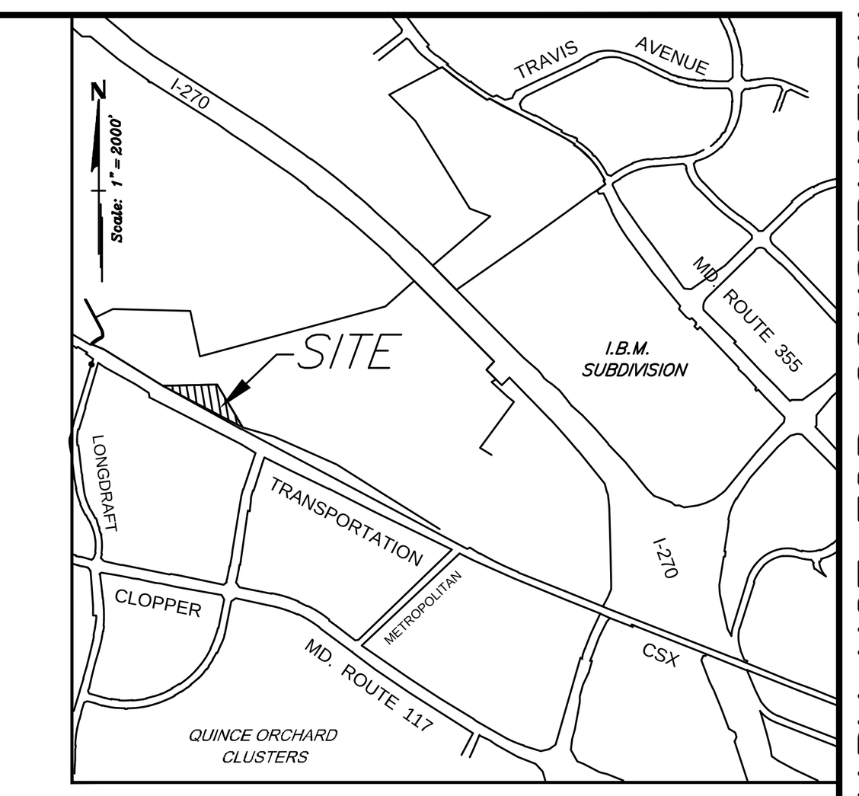
*Per the City of Gaithersburg Ordinance, each garage parking space counts as 0.5 spaces.
2 Garage Spaces = 1 garage space + 2 driveway spaces= 3 spaces per unit
3 spaces per unit * 19 units= 57 spaces

DEVLIN PROPERTY

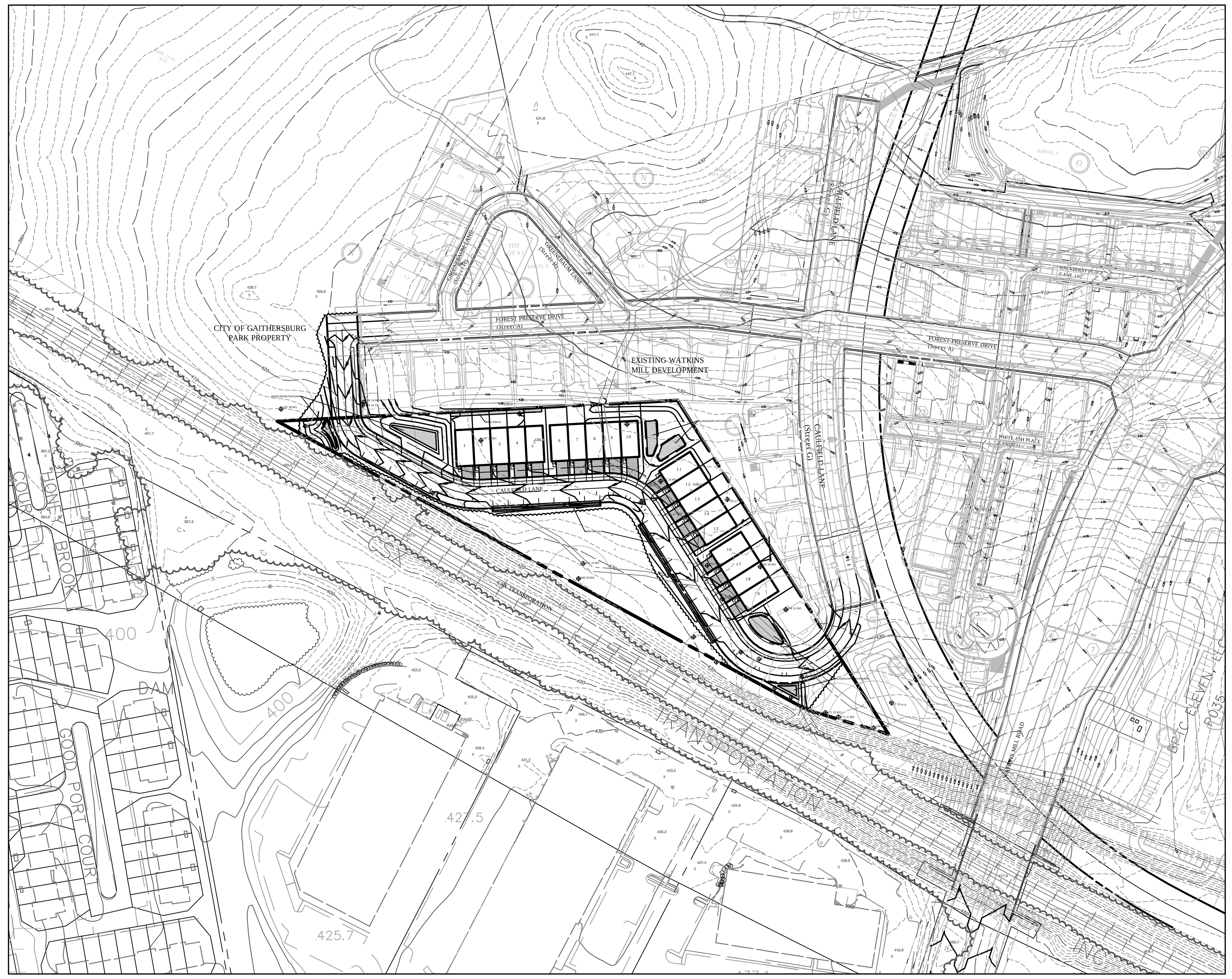
STORMWATER MANAGEMENT CONCEPT PLAN

CITY OF GAITHERSBURG, MARYLAND

PRELIMINARY NOT FOR CONSTRUCTION



VICINITY MAP - 1" = 2000'



SHEET INDEX

Title	Sheet No.
Stormwater Concept - Cover Sheet	1
Stormwater Concept Plan	2
Stormwater Details	3

GRAPHIC SCALE

100 0 50 100 200 400

1 INCH = 100 FT

CITY OF GAITHERSBURG
DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT

APPLICATION NO. SWM-XXXX-2012

CONCEPT PLAN ☒ PRELIMINARY PLAN ☒

APPROVAL DATE -

BY

CALL "MISS UTILITY" AT 1-800-257-7777
48 Hours Before Start Of Construction

The excavator must notify all public utility companies with underground facilities in the area of excavation and have those facilities located by the utility companies prior to commencing excavation. The excavator is responsible for compliance with requirements of Chapter 36A of the Montgomery County Code.

A MARYLAND REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT SEAL AND SIGNATURE ON PLANS WILL BE ACCEPTED AS PRIMA FACIE EVIDENCE THAT PLANS ARE IN COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS.

STATE OF MARYLAND FRANK G. BOSSONG, IV NO. 13970 REGISTERED PROFESSIONAL ENGINEER

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNER/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814

CONTACT: STEVE ECKERT
PHONE: (301)913-0404
FAX: (301) 913-5482

STORMWATER MANAGEMENT CONCEPT PLAN - COVER SHEET

RODGERS CONSULTING
Knowledge • Creativity • Enduring Values
19847 Century Boulevard
Suite 200
Germantown, Maryland 20874
Ph: 301.948.4700 (Main)
Ph: 301.253.6609 (Frederick)
Fx: 301.948.6256
www.rodgers.com

	BY	DATE
BASE DATA	RCI	11/05
DESIGNED	TJS	1/14
DRAWN	TJS/JK	1/14
REVIEWED	GU	1/14
RODGERS CONTACT:		

RELEASE FOR ______ ☐
BY______ DATE____

DEVLIN PROPERTY

CITY OF GAITHERSBURG
9TH ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 9A

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 20A

SCALE: 1" = 100'
JOB No. 1137B
DATE: FEB 2014
SHEET No. 1 OF 2

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\SWM\SWM_Concept.dwg SWM-1C Feb 04, 2014, 9:51am

PRELIMINARY NOT FOR CONSTRUCTION

CITY OF GAITHERSBURG
PARK PROPERTY

FOREST PRESERVE DRIVE
(Street A)

EXISTING WATKINS
MILL DEVELOPMENT

FOREST PRESERVE DRIVE
(Street A)

CAULFIELD LANE
(Street G)

WHITE ASH PLACE
(LANE 11)

WATKINS MILL ROAD

CSX TRANSPORATION

CAULFIELD LANE

MICRO-BIORETENTION

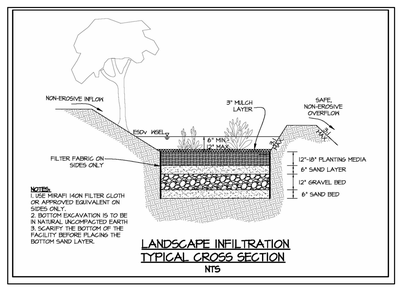
LANDSCAPE INFILTRATION

BIO-SWALE

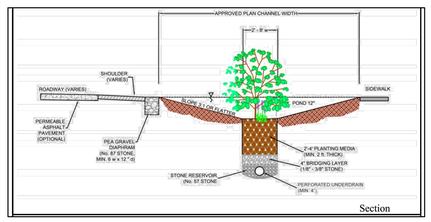
DA 1
DA 2
DA 2a
DA 3
DA 4
DA 5
DA 6
DA 7
DA 8

SWM PLAN LEGEND

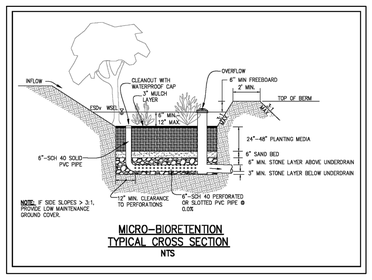
- SITE BOUNDARY
- PUBLIC RIGHT OF WAY
- LOT LINES
- STREET CENTER LINE
- EXISTING WATER
- W — PROPOSED WATER
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING SEWER
- S — PROPOSED SEWER
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PUE
- 580 — EXISTING CONTOURS
- 580 / 582 — PROPOSED CONTOURS
- STORMWATER DRAINAGE AREA DIVIDE
- EXISTING TREES/HEDGEROW
- PROPOSED TREE LINE
- SWM FACILITY (BIO-SWALE, LANDSCAPE INFILTRATION, MICROBIORETENTION)
- PERMEABLE PAVER/PAVEMENT



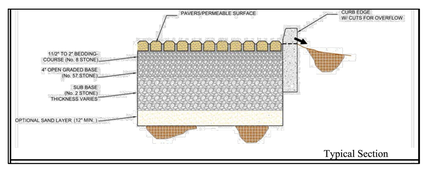
LANDSCAPE INFILTRATION
TYPICAL CROSS SECTION
NTS



TYPICAL BIO-SWALE DETAIL



MICRO-BIORETENTION
TYPICAL CROSS SECTION
NTS



PERMEABLE PAVER DETAIL

GRAPHIC SCALE
30' 0 15' 30' 60' 120'
1 INCH = 30 FT

CITY OF GAITHERSBURG
DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT
APPLICATION NO. SWM-XXXX-2012
CONCEPT PLAN ☒ PRELIMINARY PLAN ☒
APPROVAL DATE -
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CALL "MISS UTILITY" AT 1-800-257-7777
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STATE OF MARYLAND — PHILIP G. BOSSONG — REG. 21972 — REGISTERED PROFESSIONAL ENGINEER

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNER/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814

CONTACT: STEVE ECKERT
PHONE: (301)913-0404
FAX: (301) 913-5482

STORMWATER MANAGEMENT CONCEPT PLAN

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BASE DATA	RCI	11/05
DESIGNED	TJS	1/14
DRAWN	TJS/JK	1/14
REVIEWED	GU	1/14
RODGERS CONTACT:		

RELEASE FOR
BY_____ DATE ____

DEVLIN PROPERTY

CITY OF GAITHERSBURG
9TH ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 9B

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 20B

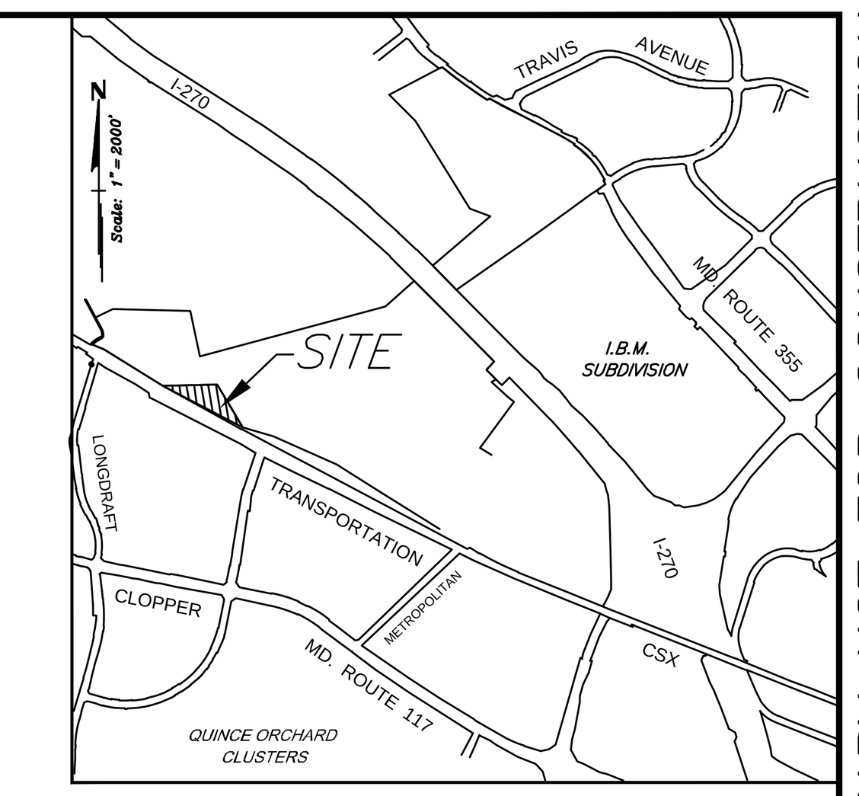
SCALE: 1" = 30'
JOB No. 1137B
DATE: FEB 2014
SWM-2
SHEET No. 2 OF 2

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\SWM\SWM_Concept.dwg SWM-2C Feb 04, 2014, 9:51am

DEVLIN PROPERTY

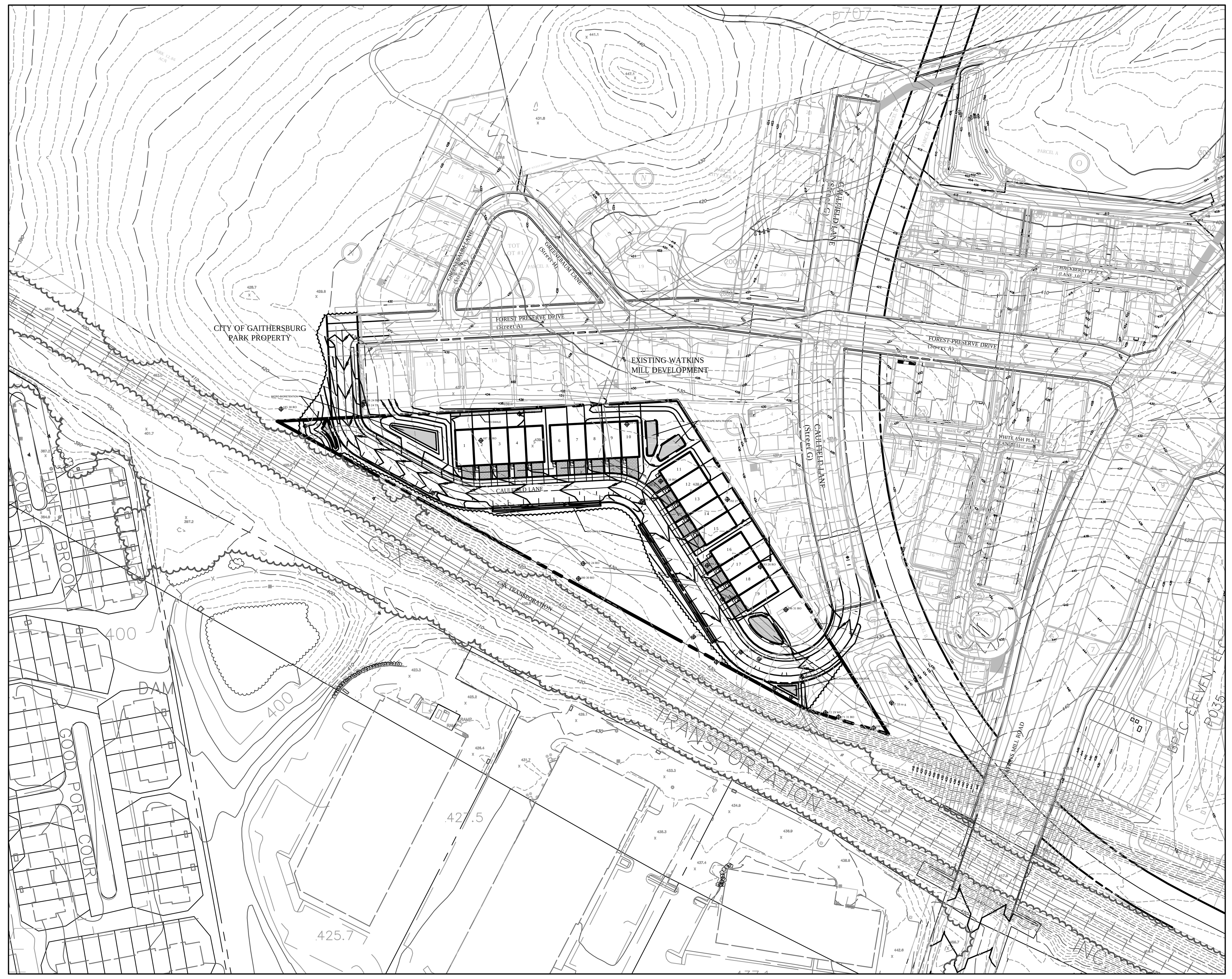
STORMWATER MANAGEMENT CONCEPT PLAN

CITY OF GAITHERSBURG, MARYLAND



VICINITY MAP - 1" = 2000'

PRELIMINARY NOT FOR CONSTRUCTION



SHEET INDEX

Title	Sheet No.
Stormwater Concept - Cover Sheet	1
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GRAPHIC SCALE

100' 0 50' 100' 200' 400'

1 INCH = 100 FT

CITY OF GAITHERSBURG
DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT

APPLICATION NO. SWM-XXXX-2012

CONCEPT PLAN [X] PRELIMINARY PLAN [X]

APPROVAL DATE -

BY

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STATE OF MARYLAND FRANK G. BOSSONG, IV NO. 13970 REGISTERED PROFESSIONAL ENGINEER

REVISION	DATE	REVISION	DATE	REVISION	DATE

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DRAWN	TJS/JK	1/14
REVIEWED	GU	1/14
RODGERS CONTACT:		

RELEASE FOR

BY_______ DATE_____

DEVLIN PROPERTY

CITY OF GAITHERSBURG
9TH ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 9A

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 20A

SCALE: 1" = 100'

JOB No. 1137B

DATE: FEB 2014

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\SWM\SWM_Concept.dwg SWM-1C Feb 04, 2014, 9:51am

PRELIMINARY NOT FOR CONSTRUCTION

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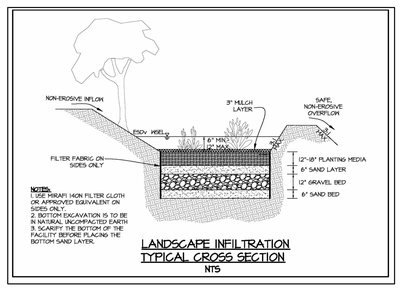
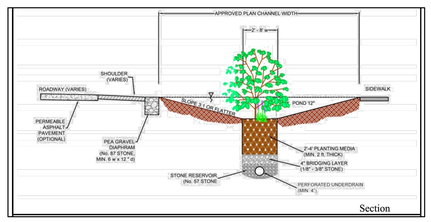
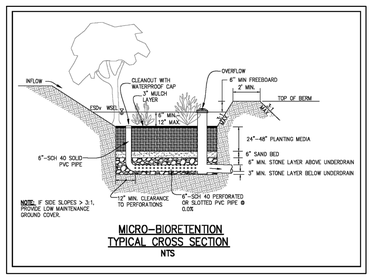
- PROPOSED TREE LINE
- SWM FACILITY (BIO-SWALE, LANDSCAPE INFILTRATION, MICROBIORETENTION)
- PERMEABLE PAVER/PAVEMENT



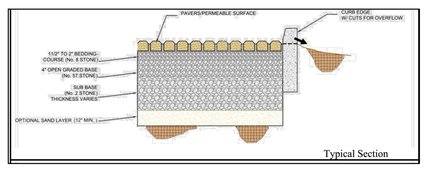
LANDSCAPE INFILTRATION
TYPICAL CROSS SECTION
NTS



TYPICAL BIO-SWALE DETAIL



MICRO-BIORETENTION
TYPICAL CROSS SECTION
NTS



PERMEABLE PAVER DETAIL

GRAPHIC SCALE
30' 0 15' 30' 60' 120'
1 INCH = 30 FT

CITY OF GAITHERSBURG
DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT
APPLICATION NO. SWM-XXXX-2012
CONCEPT PLAN ☒ PRELIMINARY PLAN ☒
APPROVAL DATE -
BY

CALL "MISS UTILITY" AT 1-800-257-7777
48 Hours Before Start Of Construction

The excavator must notify all public utility companies with underground facilities in the area of proposed excavation and have those facilities located by the utility companies prior to commencing excavation. The excavator is responsible for compliance with requirements of Chapter 36A of the Montgomery County Code.

A MARYLAND REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT SEAL AND SIGNATURE ON PLANS WILL BE ACCEPTED AS PRIMA FACIE EVIDENCE THAT PLANS ARE IN COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS.

STATE OF MARYLAND — PHILIP G. BOSSONG — REG. 21972 — REGISTERED PROFESSIONAL ENGINEER

REVISION	DATE	REVISION	DATE	REVISION	DATE

OWNER/CONTRACT PURCHASER:
CLASSIC COMMUNITY CORPORATION
8120 WOODMONT AVENUE, SUITE 300
BETHESDA, MD 20814

CONTACT: STEVE ECKERT
PHONE: (301)913-0404
FAX: (301) 913-5482

STORMWATER MANAGEMENT CONCEPT PLAN

RODGERS CONSULTING
Knowledge • Creativity • Enduring Values
19847 Century Boulevard
Suite 200
Germantown, Maryland 20874
Ph: 301.948.4700 (Main)
Ph: 301.253.6609 (Frederick)
Fx: 301.948.6256
www.rodgers.com

	BY	DATE
BASE DATA	RCI	11/05
DESIGNED	TJS	1/14
DRAWN	TJS/JK	1/14
REVIEWED	GU	1/14
RODGERS CONTACT:		

RELEASE FOR
BY_____ DATE ____

DEVLIN PROPERTY

CITY OF GAITHERSBURG
9TH ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

Joint Hearing - MCC & PC
Z-4520-2014
Exhibit 9B

Joint Hearing - MCC & PC
SDP-4560-2014
Exhibit 20B

SCALE: 1" = 30'
JOB No. 1137B
DATE: FEB 2014
SWM-2
SHEET No. 2 OF 2

N:\MD-Montgomery-City of Gaithersburg\Parklands\DWG\Devlin\SWM\SWM_Concept.dwg SWM-2C Feb 04, 2014, 9:51am

DEVLIN PROPERTY

STORMWATER MANAGEMENT CONCEPT

Submitted for:

Classic Community Corporation
8120 Woodmont Avenue, Suite 300
Bethesda, MD 20814

Prepared by:

Rodgers Consulting, Inc.
19847 Century Blvd., Suite 200
Germantown, MD 20874

January 2014

DEVLIN PROPERTY – STORMWATER CONCEPT

Contents

SECTION 1.1– EXECUTIVE SUMMARY/ SITE OVERVIEW

EXECUTIVE SUMMARY

The applicant for the project is Classic Community Corporation. The Devlin property is a 3.23 acre site located off of Game Preserve Road, located between the Watkins Mill development and CSX railroad tracks and property in the City of Gaithersburg. The site is zoned as MXD, and is proposed to be developed into four townhouse buildings. In order to build these townhouses, only 2.74 acres of the property will be disturbed. The site is within the Great Seneca Creek watershed.

The project will consist of four townhouse buildings, associated driveways, roadway and parallel parking.

This storm water management Plan has been prepared to comply with the requirements of the 2007 MDE SWM manual and the Environmental Site Design (ESD) Process and Computations supplement dated July 2010. This document introduces the proposed development and its intended implementation of the concepts and goals outlined for the project. A storm water management concept Plan has not previously been approved for this project.

The plan proposes the use of permeable pavements, bioswales, landscape infiltration, and micro-bioretention to treat the runoff from the site.

SLOPES

The Natural Resource Inventory Map delineates slope ranges for 15-25% and 25% and greater (see Natural Resource Inventory Map). These are confined to small areas near the CSX railroad.

SOILS

The soils found on site are as follows: Brinklow-Blocktown channery silt loams, 8-15% slopes (16C) and Glenelg silt loam, 3-8% slopes (2B). The site is HSG type ‘B’.

STREAMS/ WATERSHED

There are no streams at the site.

WETLANDS

There are no wetlands at the site.

FLOODPLAIN

There is no area of FEMA-mapped floodplain on or within 200’ of the site.

FOREST

The entire site is forested and consists of predominately upland hardwood species. The site was surveyed by Rodgers Consulting, Inc. staff on August 30, 2013.

SEDIMENT CONTROL PRACTICES

Sediment control will be provided through a combination of perimeter controls, and the use of sediment traps.

SECTION 1.2 - PURPOSE AND SCOPE

The purpose of this stormwater concept design study is to identify acceptable stormwater management Best Management Practices (BMP's) and to ensure sufficient space is allocated for construction and maintenance of the facilities. This study presents the preliminary design calculations. The report and plan illustrate the sites use of ESD to the maximum extent practicable (MEP) per the requirements of the MDE SWM Manual, and the Best Management Practices (BMPs) to be utilized with supporting calculations and plans.

SECTION 1.3 - ON-SITE ESD PRACTICES

On-site ESD practices are to be used to the maximum extent practicable. An evaluation of the existing site conditions in conjunction with the design of the development plan was performed to determine the maximum extent of treatment using ESD. Through the integration of ESD into the site design, the Pe requirement of 1.80" will be met. As explained below, there are site constraints that have constrained or reduced the effectiveness of certain ESD practices. Therefore, this swm plan provides "ESD to the MEP".

Alternative Surfaces – The following practices have been considered and analyzed as alternative methods to reduce the RCN (runoff curve number) for impervious surfaces on the site.

a. Green Roofs – Alternative surfaces that replace conventional construction materials and include a protective covering of planting media and vegetation. These systems reduce impervious cover and more closely mimic the natural hydrology of the site. *Green roofs are not proposed as the building roof will be sloped.*

b. Permeable Pavements – Pavement alternatives that replace conventional concrete or asphalt and provide a porous surface course and open graded stone and sand sub-base system to provide water quality and groundwater recharge benefits. These include porous bituminous asphalt, pervious concrete, and permeable interlocking concrete pavements. *Permeable pavements are proposed for the driveways on the site.*

c. Reinforced Turf – Alternative surface system made of interlocking structural units with open areas for placing gravel or growing grass. These systems are utilized in light traffic areas such as emergency access roads, plazas, or occasionally used parking areas. The open load-bearing matrix system allows for runoff characteristics to be similar to open space or gravel. *Reinforced turf is not proposed as a standalone practice currently.*

Nonstructural Practices – Practice that utilizes grading and landscaping techniques to divert runoff into vegetated areas for filtration and away from conventional storm drain systems.

a. Disconnection of Rooftop Runoff – Practice that involves direction of flow from downspouts onto vegetated areas where it can be filtered over the ground, thereby reducing runoff volume to storm drain systems and decreasing the amount of pollutants delivered to receiving waters. *This practice is not utilized on this site.*

b. Disconnection of Non-Rooftop Runoff - Practice that involves direction of flow from impervious surfaces onto vegetated areas where it can filter over the ground, thereby reducing runoff volume to storm drain systems and decreasing the amount of pollutants delivered to receiving waters. *This practice is not practical for use on this site.*

c. Sheetflow to Conservation Areas – Practice that diverts flow from impervious areas to adjacent natural areas to filter over the ground. The natural areas must be protected areas that will not be developed in the future, such as stream buffers or forest conservation areas. *This practice is not practical for this site.*

Micro-Scale Practices – Small water quality treatment devices used to capture and treat runoff from discrete impervious areas (less than 1 acre) by means of natural filtration using vegetation and pervious soils.

a. Rainwater Harvesting (Cisterns and Rain Barrels) – Practice that intercepts and stores rainfall for future reuse for non-potable water supplies. This practice reduces runoff volumes and discharge of pollutants downstream. *This practice is not proposed for the site.*

b. Submerged Gravel Wetlands – Small scale filter practice utilizing wetland plants in a rock media to provide water quality treatment. The runoff is treated by means of pollutant removal through biological uptake from the algae and bacteria growing in the filter media, as well as nutrient uptake and physical and chemical treatment processes by the wetland plants. *This practice is not proposed for the site.*

c. Landscape Infiltration – Practice using on-site vegetative planting areas to capture, store and treat runoff by means of filtration through planting soils and media followed by infiltration of the water into the native soils. *This practice is proposed in a few locations in the open space parcels to be provided between the townhouses buildings and at each open parcel at the end of the site.*

d. Infiltration Berms – Practice that uses an earthen mound composed of soil and stone placed along the contour of a gentle slope. Runoff flows down slope to the berm, and slowly filters through the soil and stone providing quality treatment prior to continuing to sheet flow to receiving waters. *This practice is not practical for use on this site.*

e. Dry Wells – An excavated pit or structural chamber filled with gravel or stone which provides temporary storage of rooftop runoff. The runoff is stored in the well and allowed to slowly filter into the surrounding soils, thereby mimicking the natural treatment and filtration process prior to development. *This practice is not proposed for the site.*

f. Micro-Bioretention – Practice to treat runoff from discrete impervious areas by passing it through a filter bed mixture of sand, soil, and organic matter. Once filtered and treated, the runoff is returned to a conveyance system or infiltrated back into the native soils.
This practice is proposed near the western end of the site in the open space areas.

g. Rain Gardens – A shallow, excavated landscape feature that temporarily holds runoff in an absorbent planted soil bed, mulch layer, and plantings such as shrubs, grasses and flowers. Runoff is directed to the rain gardens, where it ponds and slowly filters into the soils for treatment. *This practice is not proposed for the site.*

h. Swales – Graded channels that provide conveyance of runoff while profile water quality treatment and flow attenuation. Pollutant removal is provided through vegetative filtration, sedimentation, biological uptake, and infiltration into the underlying soils. Swales can consist of grass swales, wet swales, and bio-swales. *Bioretention swales are proposed along the roadways and parallel parking areas and in the rear of one of the townhouse buildings.*

i. Enhanced Filters – A modification applied to a specific practice outlined above by adding a stone reservoir underneath the conventional filtering media to provide more effective water quality treatment and groundwater recharge for a single facility. *This practice is not proposed at the site.*

SECTION 1.4 - REPORT

CRITERIA

- The 2000 Maryland Stormwater Management Design Manual, Maryland Department of the Environment.
- MDE 2007 Maryland Storm Water Design manual
- Environmental Site Design(ESD) Process and Computations supplement dated July 2010
- Montgomery County Ordinance

STORMWATER MANAGEMENT DESIGN

Environmental site design is provided by several treatment methods for the Devlin Property site. Micro-Bioretention and Landscape facilities will be provided in open spaces of the site collecting runoff from the rooftop and paved areas. In addition, bioswales are proposed along the roadway and in the rear of the townhouse buildings. Using these multiple methods environmental site design has been used to the maximum extent practicable.

Runoff Control:

ESD Facility Descriptions

Micro-bioretention- The facilities proposed will be Sump facilities- The sump facility encompasses landscaped garden bioretention facilities. Runoff is directed to the facility by downspouts or overland flow or by curb cuts. At the surface these facilities appear to be a landscaped sump area with plantings, and have inlets to act as an overflow for larger storm events. The 1 yr storm is held and treated in the facility while the larger storm events bypass the facility via the overflow inlets.

Landscape Infiltration- Similar to the micro-bioretention areas, the facilities proposed will be sump facilities as landscaped garden facilities. Runoff is directed to the facility by downspouts or overland flow or by curb cuts. At the surface these facilities appear to be a landscaped sump area with plantings, and have inlets to act as an overflow for larger storm events. The 1 yr storm is held and treated in the facility while the larger storm events bypass the facility via the overflow inlets.

Bio-swales- These areas will collect runoff linear to the townhouse buildings and roadways and direct runoff towards the lower areas of the site. These areas will be planted and include overflow for larger storm events.

Alternative stormwater management measures

Permeable pavers/pavement is proposed for the driveways outside of the public right of way.

ON-SITE ESD PLANNING TECHNIQUES

On-site ESD Planning techniques are to be used to the Maximum Extent Practicable without conflicting with the existing state law or local ordinances, regulations, or policies.

a. Preserving and Protecting Natural Resources – There are no stream valleys or buffers on the site. There were no rare, threatened, or endangered (RTE) species observed on the property
b. Conserving Natural Drainage Patterns- Proposed grading and drainage divides will maintain the existing divides to the extent practicable.
c. Minimizing Impervious Area- Efforts were made to minimize impervious over the entire site, with a portion of the site to remain forested.
d. Reducing Runoff Volume- Runoff Volume is reduced through the use of micro-scale practices.
e. Using ESD Practices to maintain 100 percent of the annual predevelopment groundwater recharge volume- With the bio-swales and landscape infiltration areas planned, the recharge from the site should be maintained.
f. Using green roofs, permeable pavement, reinforced turf, and other alternative surfaces- Alternative surfaces are proposed for the townhouse driveways.
g. Limiting soil disturbance, mass grading, and compaction- The development is 3 acres, and will be subject to sediment control measures to minimize soil disturbance.
h. Clustering Development- The proposed development program includes 4 townhouse buildings clustered along one side of the roadway.

SECTION 1.5 - CONCLUSION

The stormwater management design presented in this report provides ESD to the MEP through the implementation of alternative surfaces and micro-scale practices.

For the entire site, the required ESDv is 9,461 cubic feet. With the proposed facilities, the volume treated is 9,653 cubic feet.

COMPUTATIONS

Concept computations were done in accordance with the MDE 2007 Maryland Storm Water Design manual, Environmental Site Design(ESD) Process and Computations supplement dated July 2010, and Montgomery County Water Resources Technical Policy- 5.

Determining Target ESDv

The property was assessed as one overall area draining to the south towards the CSX railroad. This overall area is 3.43 acres (including the offsite roadway additions), with an impervious percentage of 43%. This was used to determine a Pe of 1.80" for the site using the soils at the site.

Determining ESDv Provided

For concept computations ESDv was determined for each facility type and not for each individual facility.

- Micro-Bioretention ESDv is determined by the storage volume provided within the facility and filter media. A media depth of 3' was assumed as well as a ponding depth of 12".
- Landscape Infiltration ESDv is determined by the storage volume provided within the facility and filter media. A media depth of 3' was assumed as well as a ponding depth of 6".
- Bio-swale ESDv is determined by the storage volume provided within the facility and filter media. The width of the swales vary, a media depth of 2.5' was assumed as well as a ponding depth of 6".
- Permeable paver ESDv is calculated based on B soils and a 12" subbase.

Stormwater Computations

JOB NUMBER:	1137B		
SUBJECT:	Devlin Property		
BY:	TJS	DATE:	1/31/2014 14:44
CHKD:		DATE:	

19847 Century Blvd.,Suite 200 - Germantown, MD 20874
Germantown 301.948.4700
Frederick 301.253.6609
Fax 301.948.6256 - www.rodgers.com

Rainfall Target, Pe

Site Area (Acres)	3.43	(includes roadway areas offsite)		Building:	24782
LOD Area (acres)	2.68	116771		Road:	26472
Site Impervious Area (acres)	1.46	63,591		Sidewalk:	3260
Impervious %	43	for Site		Driveway:	9077
RCN*	75	for Site			63591
Pe (in.)	1.80				
Target ESDv for full Pe (CF)	9460.57				
Target ESDv for 1" Pe (CF)	5255.87				
LOD Impervious Area (acres)	1.46				
Rv	0.54	for LOD			

Site Soil Conditions			
HSG	RCN	Area (acres)	Percent
A	38.00	0.00	0.0
B	55.00	3.43	100.0
C	70.00	0.00	0.0
D	77.00	0.00	0.0

Weighted Target RCN (woods) 55

Soil Group HSG	RCN Pe (in)	Imp Pe (in)
A	0.00	0.00
B	1.80	1.80
C	0.00	0.00
D	0.00	0.00

Weighted Target Pe (woods) 1.80 1.80

*From TR-55

Formulas

I (%) = ((Impervious Area)/(Drainage Area))*100

$R_v = 0.05 + 0.009*I$

ESDv=(Pe)(Rv)(A)/12

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 1

Area(SF)= 10024 Area Impervious (SF)= 8821.12 Imp%= 88 Rv = .05 + 0.009 x Imp%
Area(AC)= 0.23 Area Impervious (AC)= 0.20 Rv= 0.84

Area of Pervious pavement: 0

Micro- Bioretention

For Micro-Bioretention a ESDv is determined by the storage provided in the facility and in the filter media.
Drainage area excluding Micro-bio= 10024 OK
V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, D is the filter media depth, and 0.4 is the void ratio.
Af (SF)= 188 d(FT)= 3 Af % of DA = 1.9 increase area
V1= 225.6
V2= Storage above Media Max depth 1 FT d(FT)= 0.5
Bottom Contour Elevation = 419.5 Area (SF)= 188
Top Contour Elevation = 420 Area (SF)= 327 V2 = 128.75

ESDv = V1 + V2 = 354 CF

Treatment Summary

ESDv Total (CF) = 354 OK Max ESDv (CF) = 1895 using Pe = 2.7
Pe Provided = 0.51 Target ESDv (CF) = 1263 using Pe = 1.80

Area 1	1263	354

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Engineer: TJS

ESD Design Spreadsheet

DA: Area 2

Area(SF)= 14562 Area Impervious (SF)= 12232.08 Imp%= 84 Rv = .05 + 0.009 x Imp%
Area(AC)= 0.33 Area Impervious (AC)= 0.28 Rv= 0.81

Area of Pervious Pavement: 0

Permeable Pavement

For Permeable Pavement an ESDv is determined by the storage provided in the subbase.
A is the area of permeable pavement, d is the depth of the subbase

A (SF)= 3295 d(IN)= 12
Soil Type= B ESDv/FT^2= 0.196

ESDv=Af*ESDv/FT^2= 645.82

Bio Swale

For Bio-Swale an ESDv is determined by the storage provided in the facility and in the filter media.
V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, d is the filter media depth, and 0.4 is the void ratio.
Af (SF)= 300 d(FT)= 2.5 w1(FT)= 2
V1= 300 L(FT)= 150
V2= Storage above Media Max depth 0.75 FT
Bottom w2 (FT) = 2 Storage Depth, D (FT)= 0.5
Length = 150 Side Slopes Z:1= 3 V2 = 262.5

V3 = Storage in Media Side Slope = Lx(w1 - w2)/2 x D x 2 V3 = 0

ESDv = V1 + V2 = 563

Micro- Bioretention

For Micro-Bioretention a ESDv is determined by the storage provided in the facility and in the filter media.
Drainage area excluding Micro-bio= 14562 OK
V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, D is the filter media depth, and 0.4 is the void ratio.
Af (SF)= 683 d(FT)= 2 Af % of DA = 4.7 OK
V1= 546.4
V2= Storage above Media Max depth 1 FT d(FT)= 1
Bottom Contour Elevation = 526 Area (SF)= 683
Top Contour Elevation = 527 Area (SF)= 1053 V2 = 868

ESDv = V1 + V2 = 1414 CF

Treatment Summary

ESDv Total (CF) = 2623 OK	Max ESDv (CF) = 2654	using Pe = 2.7
Pe Provided = 2.67	Target ESDv (CF) = 1769	using Pe = 1.80

Area 2	1769	2623

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 3

Area(SF)=	9388	Area Impervious (SF)=	6102.2	Imp%=	65	Rv = .05 + 0.009 x Imp%
Area(AC)=	0.22	Area Impervious (AC)=	0.14	Rv=	0.64	

Area treated in Drywells: 0
Area of Pervious pavement: 0

Bio Swale

For Bio-Swale an ESDv is determined by the storage provided in the facility and in the filter media.

V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, d is the filter media depth, and 0.4 is the void ratio.

Af (SF)=	625	d(FT)=	3	w1(FT)=	5
V1=	750	L(FT)=	125		

V2= Storage above Media Max depth 0.75 FT

Bottom w2 (FT) =	5	Storage Depth, D (FT)=	0.5	
Length =	125	Side Slopes Z:1=	3	V2 = 406.25

V3 = Storage in Media Side Slope = Lx(w1 - w2)/2 x D x 2 V3 = 0

ESDv = V1 + V2 = 1156

Treatment Summary

ESDv Total (CF) =	1156 OK	Max ESDv (CF) = 1352	using Pe = 2.7
Pe Provided =	2.31	Target ESDv (CF) = 901	using Pe = 1.80

Area 3	901	1156

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 4

Area(SF)=	8235	Area Impervious (SF)=	6093.9	Imp%=	74	Rv = .05 + 0.009 x Imp%	
Area(AC)=	0.19	Area Impervious (AC)=	0.14	Rv=	0.72		

Area treated in Drywells:	0
Area of Pervious pavement:	0
Area treated in Rain Garden:	0

Landscape Infiltration

For Landscape Infiltration a ESDv is determined by the storage provided in the facility and in the filter media.

Drainage area excluding Landscape Infiltration= 8235 OK

V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, D is the filter media depth, and 0.4 is the void ratio.

Af (SF)= 607 d(FT)= 3 Af % of DA = 7.4 OK

V1= 728.4

V2= Storage above Media Max depth 1 FT d(FT)= 0.5

Bottom Contour Elevation =	436.5	Area (SF)=	607	
Top Contour Elevation =	437	Area (SF)=	786	V2 = 348.25

ESDv = V1 + V2 = 1077 CF

Treatment Summary

ESDv Total (CF) =	1077 OK	Max ESDv (CF) =	1334	using Pe = 2.7
Pe Provided =	2.18	Target ESDv (CF) =	889	using Pe = 1.80

Area 4	889	1077

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 5

Area(SF)=	14487	Area Impervious (SF)=	11589.6	Imp%=	80	Rv = .05 + 0.009 x Imp%
Area(AC)=	0.33	Area Impervious (AC)=	0.27	Rv=	0.77	

Area treated in Drywells:	0
Area of Pervious pavement:	0
Area treated in Rain Garden:	0

Permeable Pavement

For Permeable Pavement an ESDv is determined by the storage provided in the subbase.
A is the area of permeable pavement, d is the depth of the subbase

A (SF)=	2922	d(IN)=	12
Soil Type=	B	ESDv/FT^2=	0.196

ESDv=Af*ESDv/FT^2= 572.712

Landscape Infiltration

For Landscape Infiltration a ESDv is determined by the storage provided in the facility and in the filter media.
Drainage area excluding Landscape Infiltration= 11565 OK
V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, D is the filter media depth, and 0.4 is the void ratio.

Af (SF)=	951	d(FT)=	3	Af % of DA =	8.2 OK
V1=	1141.2				

V2= Storage above Media Max depth 1 FT d(FT)= 0.5

Bottom Contour Elevation =	431	Area (SF)=	951	
Top Contour Elevation =	431.5	Area (SF)=	1153	V2 = 526

ESDv = V1 + V2 = 1667 CF

Treatment Summary

ESDv Total (CF) =	2240 OK	Max ESDv (CF) = 2510	using Pe = 2.7
Pe Provided =	2.41	Target ESDv (CF) = 1673	using Pe = 1.80

Area 5	1673	2240

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 6

Area(SF)=	3800	Area Impervious (SF)=	3420	Imp%=	90	Rv = .05 + 0.009 x Imp%
Area(AC)=	0.09	Area Impervious (AC)=	0.08	Rv=	0.86	

Bio Swale

For Bio-Swale an ESDv is determined by the storage provided in the facility and in the filter media.

V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, d is the filter media depth, and 0.4 is the void ratio.

Af (SF)=	418	d(FT)=	2.5	w1(FT)=	2.2
V1=	418	L(FT)=	190		

V2= Storage above Media Max depth 0.75 FT

Bottom w2 (FT) =	2	Storage Depth, D (FT)=	0.5		
Length =	190	Side Slopes Z:1=	2	V2 =	285

V3 = Storage in Media Side Slope = Lx(w1 - w2)/2 x D x 2 V3 = 19

ESDv = V1 + V2 = 722

Treatment Summary

ESDv Total (CF) =	722	OK	Max ESDv (CF) = 735	using Pe = 2.7
Pe Provided =	2.65		Target ESDv (CF) = 490	using Pe = 1.80

Area 6	490	722

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 7

Area(SF)=	8404	Area Impervious (SF)=	6050.88	Imp%=	72	Rv = .05 + 0.009 x Imp%	
Area(AC)=	0.19	Area Impervious (AC)=	0.14	Rv=	0.70		

Area treated in Drywells:	0
Area of Pervious pavement:	0
Area treated in Rain Garden:	0

Landscape Infiltration

For Landscape Infiltration a ESDv is determined by the storage provided in the facility and in the filter media.

Drainage area excluding Landscape Infiltration= 8404 OK

V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, D is the filter media depth, and 0.4 is the void ratio.

Af (SF)= 622 d(FT)= 3 Af % of DA = 7.4 OK

V1= 746.4

V2= Storage above Media Max depth 1 FT d(FT)= 0.5

Bottom Contour Elevation =	436.5	Area (SF)=	622	
Top Contour Elevation =	437	Area (SF)=	789	V2 = 352.75

ESDv = V1 + V2 = 1099 CF

Treatment Summary

ESDv Total (CF) =	1099 OK	Max ESDv (CF) = 1324	using Pe = 2.7
Pe Provided =	2.24	Target ESDv (CF) = 882	using Pe = 1.80

Area 7	882	1099

Project: Devlin Property Proj#: 1137b 1/31/2014 14:44
Engineer: TJS

ESD Design Spreadsheet

DA: Area 8

Area(SF)=	5204	Area Impervious (SF)=	4423.4	Imp%=	85	Rv = .05 + 0.009 x Imp%
Area(AC)=	0.12	Area Impervious (AC)=	0.10	Rv=	0.82	

Area treated in Drywells:	0
Area of Pervious pavement:	0
Area treated in Rain Garden:	0

Landscape Infiltration

For Landscape Infiltration a ESDv is determined by the storage provided in the facility and in the filter media.

Drainage area excluding Landscape Infiltration= 5204 OK

V1 = Storage in Filter Media = Af (SF) x d (FT) x 0.4 , Where Af is the filter area, D is the filter media depth, and 0.4 is the void ratio.

Af (SF)= 173 d(FT)= 3 Af % of DA = 3.3 OK

V1= 207.6

V2= Storage above Media Max depth 1 FT d(FT)= 1

Bottom Contour Elevation =	429	Area (SF)=	173	
Top Contour Elevation =	430	Area (SF)=	173	V2 = 173

ESDv = V1 + V2 = 381 CF

Treatment Summary

ESDv Total (CF) =	381 OK	Max ESDv (CF) = 960	using Pe = 2.7
Pe Provided =	1.07	Target ESDv (CF) = 640	using Pe = 1.80

Area 8	640	381

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ESDv Summary

Drainage Area	Target ESDv	ESDv Provided	Pe
Area 1	1263	354	0.51
Area 2	1769	2623	2.67
Area 3	901	1156	2.31
Area 4	889	1077	2.18
Area 5	1673	2240	2.41
Area 6	490	722	2.65
Area 7	882	1099	2.24
Area 8	640	381	1.07

Total ESDv Provided = 9653 **ESDv Target Met**

Total ESDv Required = 9461

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Stream Channel Protection, C_{pv}

Site Area (Acres)	3.43
Disturbed Area (acres)	2.68
Impervioused Area (acres)	1.46
Impervious %	43.00
RCN*	75.00
Target ESDv for full Pe (CF)	9460.57
Rv	0.54
ESDv Provided (CF)	9652.70
Pe Provided	1.84
Se (in.)	8.18
S 1(in.)	8.18
P (in)	1.80
Qe (in)	0.10
Q1 (in)	0.10

Reduced RCN Calculations			
HSG	RCN	Area (acres)	Percent
A	0.00	0.00	0.00
B	55.00	3.43	100.00
C	70.00	0.00	0.00
D	0.00	0.00	0.00

P1 (County specific) = 2.60 Montgomery county

Revised Composite RCNe = 55.00
Required RCN 1= 55.00
Ve(runoff volume RCN 55) = 988.04
V1(runoff volume RCN 55) = 988.04

Cpv Required (CF) 0.00

Formulas

Se (in.) = 1000/RCNe - 10 Ve=(Qe*DA sf)/12
S1 (in.) = 1000/RCN1 - 10 V1=(Q1*DA sf)/12
Cpv= Ve-V1
Q1=(P1-0.2S1)^2/(P1+0.8S1)
R_v = 0.05 + 0.009*I
Qe=(P1-0.2Se)^2/(P1+0.8Se)

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Hydrology Summary Table DA "A"

Drainage Area (acres)	2.68
RCN	75
Target RCN	55
Post Treatment RCN	55

Summary of General Treatment Requirements

Requirements	Volume Required	Notes
Pe Requirement (in)	1.80	
Pe Provided (in)	1.84	
Pe Remaining for Treatment (in)	0.00	
Channel Protection Volume (CF)	0.00	

*Input from TR-55