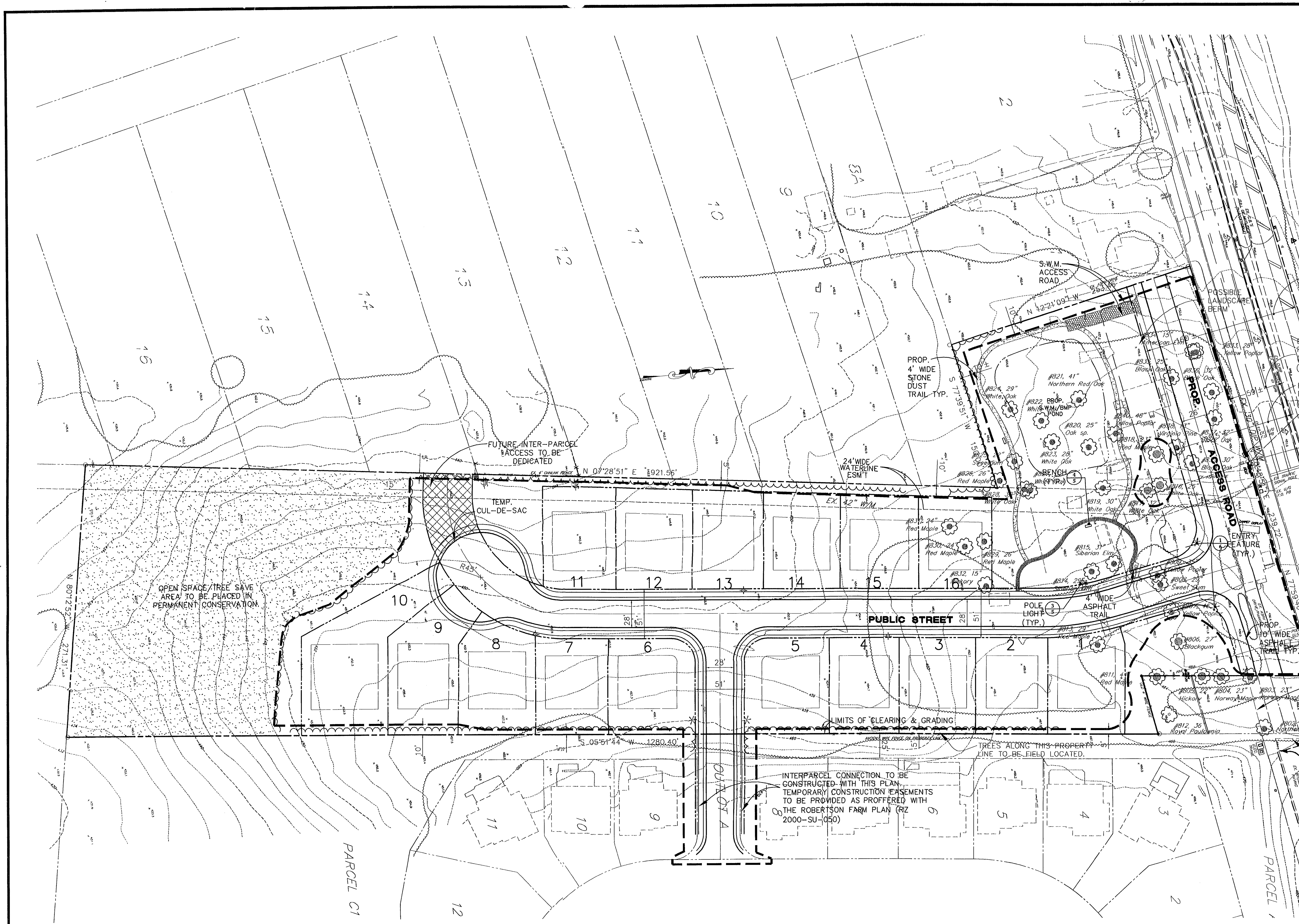

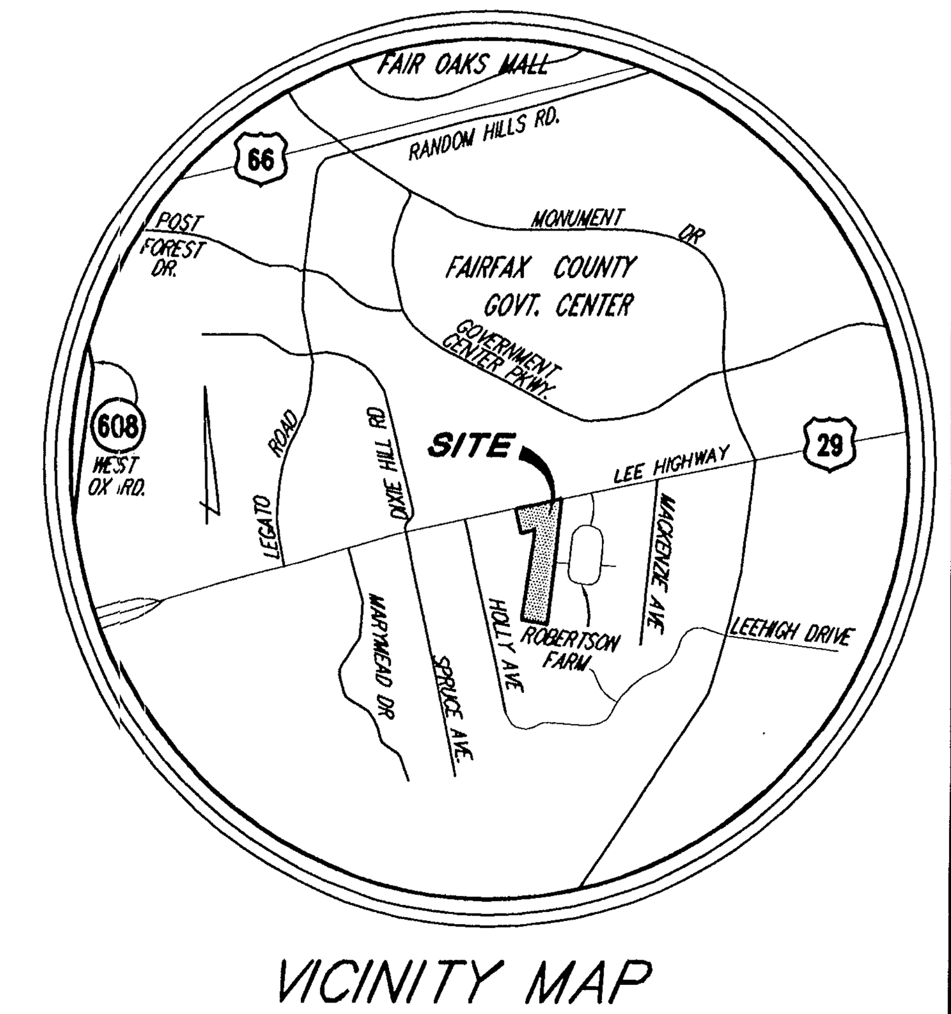

VICINITY MAP
SCALE: 1" = 2,000'

SITE TABULATIONS:

TOTAL GROSS SITE AREA (G.S.A.):	8.071 AC. ± OR 351,572.76 S.F ±
EXISTING ZONE:	R-1 =7.3478 AC. ± OR 320,070.16' S.F. ± C-8=0.7235 AC. ± OR 31515.66 S.F. ±
PROPOSED ZONE:	PDH-2 AND WS(1)
MAXIMUM DENSITY:	2 D.U. AT THE OVERYLAY LEVEL
MAXIMUM UNITS ALLOWED:	16 UNITS
PROPOSED NUMBER OF UNITS:	16 UNITS
PARKING SPACES REQUIRED:	32 SPACES
PARKING SPACES PROVIDED:	32 SPACES(2)
OPEN SPACE REQUIRED: (20% OF G.S.A.)	1.614 AC. ± OR 70,305.84 S.F. ±
OPEN SPACE PROVIDED: (38% OF G.S.A.)	3.06 AC. ± OR 133,293.6 S.F. ±
MAXIMUM BUILDING HEIGHT ALLOWED:	35 FT.
MINIMUM YARD SETBACKS:	FRONT: 18' SIDE: 10' REAR: 25'
AVERAGE LOT AREA:	7,800 S.F. ±

TREE COVER CALCULATIONS:

ADJUSTED SITE AREA CALCULATION:	
G.S.A.:	8.071 AC. ± OR 351,572.76 S.F ±
LESS R.O.W. DEDICATION FOR ROUTE 29	0.591 AC. ± OR 25,743.96 S.F. ±
ADJUSTED SITE AREA (A.S.A.):	7.48 AC. ± OR 325,828.8 S.F. ±
TREE COVER REQUIRED (20.0% OF A.S.A.):	1.496 AC. ± OR 65,165.76 S.F. ±
TREE COVER PROVIDED (30.0% OF A.S.A.):	2.24 AC. ± OR 97,748.64 S.F. ±
PROVIDED COVER BREAKDOWN:	
CREDIT FOR TREES PRESERVED:	TO BE DETERMINED(3)
CREDIT FOR TREES PLANTED:	TO BE DETERMINED(3)

(1) WATER SUPPLY OVERLAY DISTRICT
(2) TWO SPACES IN THE GARAGE AND TWO SPACES IN THE DRIVEWAY.
(3) CREDIT FOR TREES PRESERVED AND PLANTED WILL BE DETERMINED AT THE SITE PLAN PHASE. PROPOSED TREES SHOWN ON THE PLAN MAY NOT TOTAL THE REQUIRED NUMBER OF TREES TO BE PLANTED, HOWEVER, NO LESS THAN THOSE SHOWN WILL BE PROVIDED.

GRAPHIC SCALE

0 50 100 150 250

(1" = 50')

LEGEND:

- EX. TREE TO BE REMOVED
- EX. OFF-SITE TREE
- TREE TO BE PRESERVED
- POSSIBLE EXTENTS OF LANDSCAPED BERM
- POLE LIGHT (TYP.)
- BENCH (TYP.)
- POSSIBLE ENTRY FEATURE LOCATIONS
- APPROXIMATE LIMITS OF CLEARING AND GRADING
- PROPOSED TREELINE
- EXISTING TREELINE

Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 11-10-05
Date of (BOS) (PC) approval 12-05-05
Sheet 1 of 9

REVISED APRIL 12, 2005
REVISED MARCH 21, 2005
REVISED MARCH 10, 2005
REVISED FEBRUARY 25, 2005
REVISED FEBRUARY 15, 2005

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COMMONWEALTH OF VIRGINIA
PETER L. RINEK
No. 386
CERTIFIED LANDSCAPE ARCHITECT
4/12/05

CDP/FINAL DEVELOPMENT PLAN
NASSIR PROPERTY
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

RECEIVED
Department of Planning & Zoning
APR 15 2005
Zoning Evaluation Division

BC REVISIONS
JUNE 24, 2004
REVISED JULY 29, 2004
REVISED AUGUST 13, 2004
AUGUST 27, 2004
REVISED DECEMBER 06, 2004

OWNER/CONTRACT PURCHASER
RANDOLF J. BENDER
500 MONTGOMERY STREET
LONG & FOSTER BUILDING
SUITE 140
ALEXANDRIA, VA 22314-1560

DESIGNED BY: JDB	
DRAFTED BY: CAD	
CHECKED BY: PLR	
DATE: MAY, 2004	
SCALE:	HOR. 1"=50' VERT.
SHEET 1 OF 9	
CO. NO.	
CAD NAME: G3021FDP.DWG	
LAYOUT:	FDP
FILE NO.	03021.21-08

XREFS: G3021BAS 3021TOPO

GENERAL NOTES:

1. THE PROPERTIES DELINEATED ON THIS CONCEPTUAL/FINAL DEVELOPMENT PLAN (CDP/FDP) ARE LOCATED IN THE SPRINGFIELD DISTRICT OF FAIRFAX COUNTY, VIRGINIA. REFER TO OWERSHIP TABLE IN 16-501 COMMENTS FOR EXISTING ZONING.
2. THE BOUNDARY INFORMATION SHOWN HEREON IS COMPILED FROM DEEDS OF RECORD AND ADJACENT INFORMATION AND DOES NOT REPRESENT A FIELD SURVEY. NO TITLE REPORT WAS FURNISHED.
3. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS FROM THE FAIRFAX COUNTY GIS DATA. THE TOPOGRAPHY IS SHOWN AT A FIVE FOOT CONTOUR INTERVAL. THE BC CONSULTANTS ASSUMES NO RESPONSIBILITY FOR DESIGN OR CONSTRUCTION CHANGES DUE TO INACCURACIES IN TOPOGRAPHIC INFORMATION SHOWN HEREON.
4. THE PROPERTY SHOWN ON THIS CDP/FDP IS IN THE SPRINGFIELD MAGISTERIAL DISTRICT, THE POPES HEAD CREEK, AND DIFFICULT RUN WATER SHEDS. SANITARY SEWER IS LOCATED IN THE POPES HEAD CREEK R-1.
5. THE PROPERTY IS LOCATED IN AREA III OF THE FAIRFAX CENTER AREA PLANNING DISTRICT, LAND UNIT AND SUBUNIT U-2 AND IS RECOMMENDED FOR RESIDENTIAL LAND USE AT THE OVERLAY LEVEL OF 2 DWELLING UNITS PER ACRE. THIS DEVELOPMENT IS IN CONFORMANCE WITH THE FAIRFAX COUNTY COMPREHENSIVE PLAN AND WILL CONFORM TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS AND CONDITIONS. WITH THE EXCEPTION OF THE FOLLOWING:
   - * WAIVER OF THE ONROAD BIKE LANE FROM THE COMPREHENSIVE TRAIL PLAN.
   - * A WAIVER OF THE REQUIREMENT OF PARAGRAPH 4 OF SECTION 17-201 OF THE FAIRFAX COUNTY ZONING ORDINANCE TO CONSTRUCT A HALF SECTION OF A FUTURE SIX LANE DIVIDED HIGHWAY ALONG THE SITES ENTIRE FRONTAGE OF LEE HIGHWAY (ROUTE 29.)
6. ACCORDING TO THE 2002 COMPREHENSIVE TRAIL PLAN AN ONROAD BIKE LANE IS REQUIRED ALONG THIS PROPERTY FRONTAGE. THE ONROAD BIKE LANE IS DEFINED AS ADDITIONAL PAVEMENT INSIDE THE ROUTE 29 PAVEMENT SECTION. SEE NOTE 5 ABOVE FOR REQUESTED WAIVER.
7. THE COUNTY OF FAIRFAX IS THE PUBLIC WATER AND SANITARY SEWER SUPPLY AGENCY FOR THIS DEVELOPMENT.
8. STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES (BMP) WILL BE PROVIDED IN ACCORDANCE WITH FAIRFAX COUNTY ORDINANCES AS APPROVED BY THE DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES.
9. THIS PLAN DOES NOT PURPORT TO SHOW ALL EXISTING UNDERGROUND UTILITIES AND THOSE SHOWN ARE APPROXIMATE. ALL KNOWN EXISTING UTILITY EASEMENTS HAVING A 25' OR MORE WIDTH ARE SHOWN ON THE PLAN.
10. THIS PLAN DOES NOT SHOW PROPOSED UTILITIES. ALL NECESSARY PUBLIC UTILITIES ARE READILY ACCESSIBLE TO THE SITE AND WILL BE EXTENDED BY THE DEVELOPER OR UTILITY COMPANY. INDIVIDUAL BUILDING UTILITY PLANS AND PROFILES WILL BE SUBMITTED IN THE FUTURE FOR CONSTRUCTION PURPOSES. BC CONSULTANTS, INC. ASSUMES NO RESPONSIBILITY FOR CONSTRUCTION WITH THESE PLANS.
11. THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES ON THIS SITE. IF ANY SUBSTANCES ARE FOUND, THE METHODS FOR DISPOSAL SHALL ADHERE TO COUNTY, STATE OR FEDERAL LAW.
12. THERE ARE NO KNOWN BURIAL SITES ON THIS SITE.
13. EXISTING STRUCTURES FOUND ON SITE ARE TO BE REMOVED.

    ANY AND ALL OFF-SITE GRADING AND UTILITY CROSSING(S) SHALL BE ALLOWED WITH PERMISSION OF THE ADJACENT OWNERS.
15. PROPOSED TREE QUANTITIES MAY BE REDUCED IF ADDITIONAL TREE SAVE AREAS CAN BE ACHIEVED. THE OVERALL TREE COVER PROVIDED WILL BE IN SUBSTANTIAL CONFORMANCE WITH AND NOT LESS THAN THAT PROFFERED WITH THIS PLAN.
16. ALL PUBLIC STREETS SHALL CONFORM TO FAIRFAX COUNTY AND/OR VIRGINIA DEPARTMENT OF HIGHWAYS AND TRANSPORTATION (VDOT) STANDARDS AND SPECIFICATIONS.
17. IN ACCORDANCE WITH PARAGRAPH 4 OF SECTION 16-403 OF THE ZONING ORDINANCE, MINOR MODIFICATIONS MAY OCCUR WITH FINAL ENGINEERING AND DESIGN BUT WILL BE IN GENERAL CONFORMANCE WITH THESE PLANS. DWELLING UNITS WILL BE SPECIFIED AT THE TIME OF FINAL ENGINEERING.
18. PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE. THE GARAGE AND ANY TANDEM DRIVEWAY SPACE WILL BE COUNTED AS PART OF THE REQUIRED PARKING SPACES. THE APPLICANT RESERVES THE RIGHT TO PROVIDE MORE THAN THE MINIMUM REQUIRED PARKING.
19. ADDITIONAL SITE FEATURES SUCH AS ENTRANCE SIGNS, LIGHTS AND/OR WALLS REPRESENTED HEREON MAY CHANGE WITH FINAL ENGINEERING, BUT SHALL BE IN GENERAL CONFORMANCE WITH THESE PLANS CONCERNING QUALITY, SIZE AND MATERIALS.
20. ALL PROPOSED LANDSCAPING SHALL BE IN CONFORMANCE WITH THE FAIRFAX COUNTY ZONING ORDINANCE.

16-501 CONCEPTUAL DEVELOPMENT PLAN COMMENTS:

1. A. VICINITY MAP AS SHOWN ON PLAN.
   B. CONTRACT PURCHASER/APPLICANT: RANDOLF J. BENDER, 500 MONTGOMERY STREET. SUITE 140 ALEXANDRIA, VA 22314-1560

OWNER AND AREA TABULATION

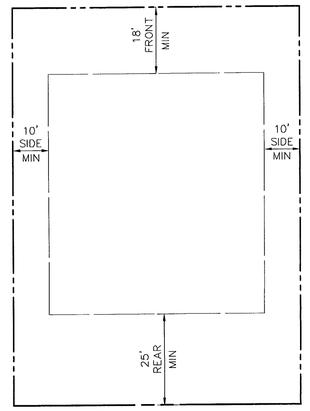
PARCEL TAX I.D. NO.	ZONING	PARCEL NO.	OWNER	DEED BOOK/ PAGE	AREA (See Note 4)
56-1-((7))-0001-A	R-1	1A	NASSIR ANSARY	11804/1850	1.12540 AC.
56-1-((1))-0046	R-1	46	NASSIR ANSARY	11804/1835	6.22241 AC.
			TOTAL AREA, ZONE R-1		7.34781 AC.
56-1-((1))-0046	C-8	46	NASSIR ANSARY	11804/1835	0.72359 AC.
			TOTAL AREA, ZONE C-8		0.72359 AC.
			TOTAL AREA FOR REZONING		8.07140 AC.

C. TOPOGRAPHY AS SHOWN ON PLAN. SEE GENERAL NOTE 3.
D. SCALE AND NORTH ARROW AS SHOWN ON PLAN.
E. REFER TO THE SITE TABULATIONS FOR MAXIMUM BUILDING HEIGHTS.
F. PROPOSED CIRCULATIOIN AS SHOWN ON PLAN.
G. OPEN SPACE AS SHOWN ON PLAN.
H. REFER TO THE SITE TABULATIONS FOR PARKING CALCULATIONS.
I. EXISTING AND PROPOSIED ROADS AS SHOWN ON PLAN.
J. THERE ARE NO FLOODPLAIN OR RPA ON THIS SITE.
K. INFORMATION REGARDING VEGETATION AS SHOWN ON THE SHEET 1 OF CDP/FDP. AN EXISTING VEGETATION MAP WILL BE SUBMITTED UNDER SEPERATE COVER.
L. STORM WATER MANAGEMENT AS SHOWN ON PLAN. SEE GENERAL NOTE 8.
M. EXISTING UTILITY EASEMENTS AS SHOWN ON PLAN OR REFER TO GENERAL NOTE 9.
N. AREAS THAT HAVE SCENIC ASSETS OR NATURAL FEATURES DESERVING OF PROTECTION ON THE PROPERTY SHALL BE CONSIDERED FOR TREE PRESERVATION AND PASSIVE RECREATION.
0. THERE ARE NO KNOWN GRAVES OR PLACES OF BURIAL ON SITE.
P. THIS PROPOSED DEVELOPMENT IS IN CONFORMANCE WITH THE FAIRFAX COUNTY COMPREHENSIVE PLAN.
Q. ALL REQUIRED LANDSCAPE SCREENING IS SHOWN ON THE PLAN. PERIPHERAL DIMENSIONS ARE SHOWN ON THE PLAN.
R. ANY AND ALL EXISTING STRUCTURES ARE TO BE REMOVED.
S. N/A
T. REFER TO THE SITE TABULATIONS FOR PROPOSED NUMBER OF DWELLING UNITS.
U. N/A
V. SEE GENERAL NOTE 5 FOR ORDINANCE CONFORMANCE AND/OR WAIVERS.
W. PROPOSED AMENITIES ARE AS SHOWN ON THE PLAN.
X. DEVELOPMENT SCHEDULE AND PHASING TO BE DETERMINED AS MARKET CONDITIONS ALLOW.

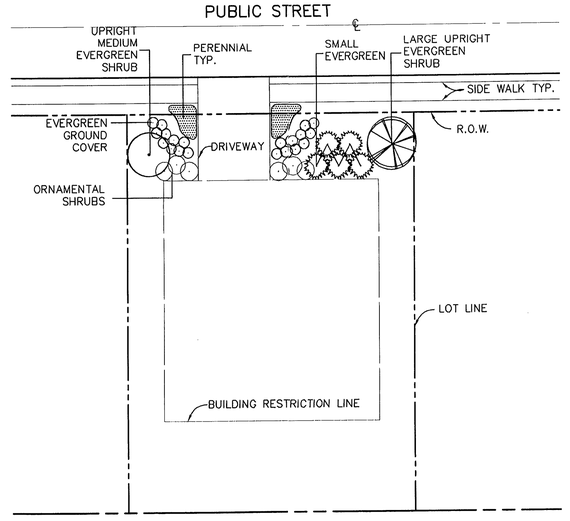
2. SOILS CLASSIFICATION MAP TO BE SUBMITTED UNDER SEPERATE COVER.
3. PUBLIC IMPROVEMENTS, BOTH ON AND OFF-SITE ARE SHOWN ON THE PLAN. TIMING FOR SUCH IMPROVEMENTS WILL DEPEND ON MARKET CONDITIONS.
4. THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES ON SITE. IF ANY SUBSTANCES ARE FOUND, THE METHODS FOR DISPOSAL SHALL ADHERE TO COUNTY, STATE AND/OR FEDERAL LAW.
5. THESE PARCELS ARE IN THE SPRINGFIELD DISTRICT AND ARE WITHIN A WATER SUPPLY OVERLAY DISTRICT.

16-502 FINAL DEVELOPMENT PLAN COMMENTS:

1. A. VICINITY MAP AS SHOWN ON PLAN.
   B. PROPERTY LINE INFORMATION AS SHOWN ON PLAN.
   C. REFER TO THE SITE TABULATIONS FOR OVERALL SITE AREA.
   D. SCALE AND NORTH ARROW AS SHOWN ON PLAN.
   E. EXISTING STREET INFORMATION AS SHOWN ON PLAN.
   F. TOPOGRAPHY AS SHOWN ON PLAN. SEE GENERAL NOTE 3.
   G. PROPOSED USES AS SHOWN ON PLAN.
   H. REFER TO SITE TABULATIONS FOR MAXIMUM BUILDING HEIGHT.
   I. DISTANCES FROM THE PROPOSED DEVELOPMENT LOT LINES TO THE SITE BOUNDARY ARE SHOWN ON THE PLAN WHERE APPLICABLE. REFER TO THE LOT LAYOUTS ON SHEET 2 FOR INDIVIDUAL LOT SETBACK DIMENSIONS.
   J. N/A
   K. PROPOSED CIRCULATION AS SHOWN ON PLAN.
   L. PARKING AS SHOWN ON PLAN.
   M. OPEN SPACE AND AMEINITIES AS SHOWN ON THE PLAN.
   N. INFORMATION REGARDING VEGETATION AS SHOWN ON THE LANDSCAPE PLAN. AN EXISTING VEGETATION MAP WILL BE SUBMITTED UNDER SEPERATE COVER.
   0. THERE ARE NO KNOWN GRAVES OR PLACES OF BURIAL ON SITE.
   P. REFER TO GENERAL NOTE 10.
   Q. STORM WATER MANAGEMENT AS SHOWN ON PLAN. SEE GENERAL NOTE 8.
   R. EXISTING UTILITY EASEMENTS AS SHOWN ON PLAN OR REFER TO GENERAL NOTE 9.
   S. THERE IS NO DESIGNATED FLOODPLAIN OR EQC LOCATED ON SITE.
   T. DEVELOPMENT SCHEDULE AND PHASING TO BE DETERMINED BY MARKET CONDITIONS.
2. REFER TO THE SITE TABULATIONS.
3. SOILS CLASSIFICATION MAP TO BE SUBMITTED UNDER SEPERATE COVER.
4. ARCHITECTURAL SKETCHES ARE NOT AVAILABLE AT THIS TIME. LIGHT FIXTURE AND SITE FURNITURE ILLUSTRATIVES ARE INCLUDED.
5. THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES ON SITE. IF ANY SUBSTANCES ARE FOUND THE METHODS FOR DISPOSAL SHALL ADHERE TO COUNTY, STATE AND/OR FEDERAL LAW.
6. SEE GENERAL NOTE 5 FOR ORDINANCE CONFORMANCE AND/OR WAIVERS.
7. A CONCEPTUAL DEVELOPMENT PLAN TO BE SUBMITTED WITH THIS PLAN.
8. THESE PARCELS ARE IN THE SPRINGFIELD DISTRICT AND WITHIN A WATER SUPPLY OVERLAY DISTRICT.



TYPICAL LOT LAYOUT
N.T.S.



TYPICAL LOT LANDSCAPING
N.T.S.

TYPICAL ARCHITECTURAL ELEVATION
N.T.S.

TYPICAL ARCHITECTURAL ELEVATION
N.T.S.

TYPICAL ARCHITECTURAL ELEVATION
N.T.S.

THE IMAGES ON THIS SHEET ARE TO CERTIFY THE QUALITY OF THE PROPOSED DEVELOPMENT AND ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. THE DEVELOPER RESERVES THE RIGHT TO GENERALLY CHANGE THE CONFIGURATION, DIMENSIONS, AND OR LOCATION DUE TO ORDINANCE, PFM OR FINAL ENGINEERING REQUIREMENTS. HOWEVER, THE ELEMENTS WILL BE PROVIDED IN SUBSTANTIAL CONFORMANCE WITH THE CHARACTER OF THE ILLUSTRATIONS SHOWN.

Application No: RZ/FDP 2004-SP-027
Staff: WMKA
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 11-10-05
Date of (BOS) (PC) approval 12-05-05
Sheet 2 of 9

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12600 Fair Lakes Circle, Suite 100, Fairfax, VA 22033
(703)449-8100 (703)449-8108 (Fax)
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COMMONWEALTH OF VIRGINIA — PETER L. RINEK — No. 038 — CERTIFIED LANDSCAPE ARCHITECT

NOTES

NASSIR PROPERTY

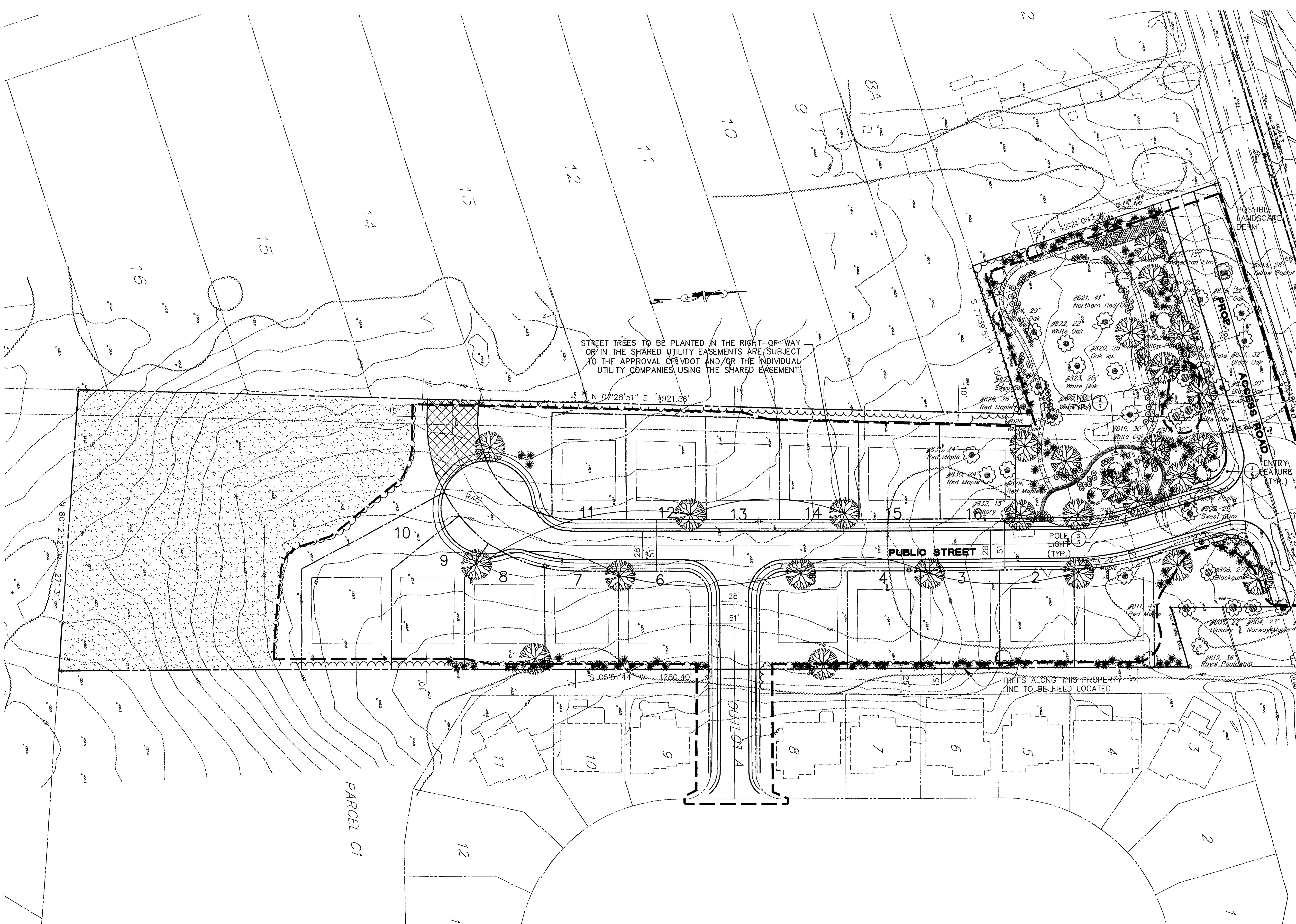
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISED APRIL 12, 2005
REVISED MARCH 17, 2005
REVISED MARCH 10, 2005
FEBRUARY 15, 2005

BC REVISIONS
JUNE 24, 2004
REVISED JULY 29, 2004
REVISED AUGUST 13, 2004
REVISED AUGUST 27, 2004
REVISED DECEMBER 06, 2004
OWNER/CONTRACT PURCHASER
BENDER GROUP, THE
500 MONTGOMERY STREET
SUITE 140
ALEXANDRIA, VA 22314-1560

DESIGNED BY: JDB
DRAFTED BY: CAD
CHECKED BY: PLR
DATE: MAY, 2004
SCALE: HOR. NA
VERT.
SHEET 2 OF 9
CO. NO.
CAD NAME: G3021NOT.DWG
LAYOUT: NOTES
FILE NO. 03021.11-08

XREFS:



RECOMMENDED PLANTINGS: (1)

DECIDUOUS TREES	ORNAMENTAL TREES	EVERGREEN TREES	SHRUBS	PERENNIALS
RED MAPLE	DOWNEY SERVICEBERRY	AMERICAN HOLLY	RED OSIER DOGWOOD	ASTER SP.
WHITE ASH	ALLEGHENY SERVICEBERRY	EASTERN REDCEDAR	ARROWWOOD VIBURNUM	CHRYSOPSIS
SWEET GUM	EASTERN REDBUD	PITCH PINE	BUTTONBUSH	DICENTRA SP.
WHITE OAK	FLOWING DOGWOOD	LOBLOLLY PINE	WITCH HAZEL	GERANIUM SP.
PIN OAK	CAROLINA SILVERBELL	SCOTCH PINE	POSSUMHAW	HEUCHERA SP.
WILLOW OAK	SWEETBAY MAGNOLIA	SERBIAN SPRUCE	INKBERRY	IRIS SP.
RED OAK	SOURWOOD	SHORTLEAF PINE	WINTERBERRY	LOBELIA SP.
AMERICAN LINDEN	FRINGETREE	WHITE PINE	NORTHERN BAYBERRY	PHLOX SP.
GREEN ASH		VIRGINIA PINE	SOUTHERN WAX MYRTLE	RUDBECKIA SP.
BLACK GUM		EASTERN HEMLOCK	CATAWBA RHODODENDRON	SALVIA SP.
LITTLE LEAF LINDEN			COCKSPUR HAWTHORN	SEDUM SP.
				TRILLIUM

THIS SHEET FOR LANDSCAPING PURPOSES ONLY

GRAPHIC SCALE

0 50 100 150 250

(1" = 50')

(1) ADDITIONAL TREE COVER CREDIT MAY BE ACHIEVED BY USING AT LEAST 90% NATIVE AND DESIRABLE TREE SPECIES FOR PROPOSED PLANTINGS PER TABLE 12.7 OF THE PFM.

(2) TREE SIZE, TYPE, SPECIE, AND/OR CATEGORICAL CLASSIFICATION TO BE DETERMINED AT SUBDIVISON PLAN PER TABLE 12.7 OF THE PFM.

LEGEND:

- PROPOSED DECIDUOUS TREE(2)
- PROPOSED ORNAMENTAL TREE(2)
- PROPOSED EVERGREEN TREE(2)
- POLE LIGHT (TYP.)
- BENCH (TYP.)
- POSSIBLE ENTRY FEATURE LOCATIONS
- LARGE SHRUB (TYP.)
- APPROXIMATE LIMITS OF CLEARING AND GRADIN
- PROPOSED TREELINE
- EXISTING TREELINE
- EX. TREE TO BE REMOVED
- EX. OFF-SITE TREE
- TREE TO BE PRESERVED

Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
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COMMONWEALTH OF VIRGINIA
PETER L. RINEK
No. 788
CERTIFIED LANDSCAPE ARCHITECT

LANDSCAPE PLAN

NASSIR PROPERTY

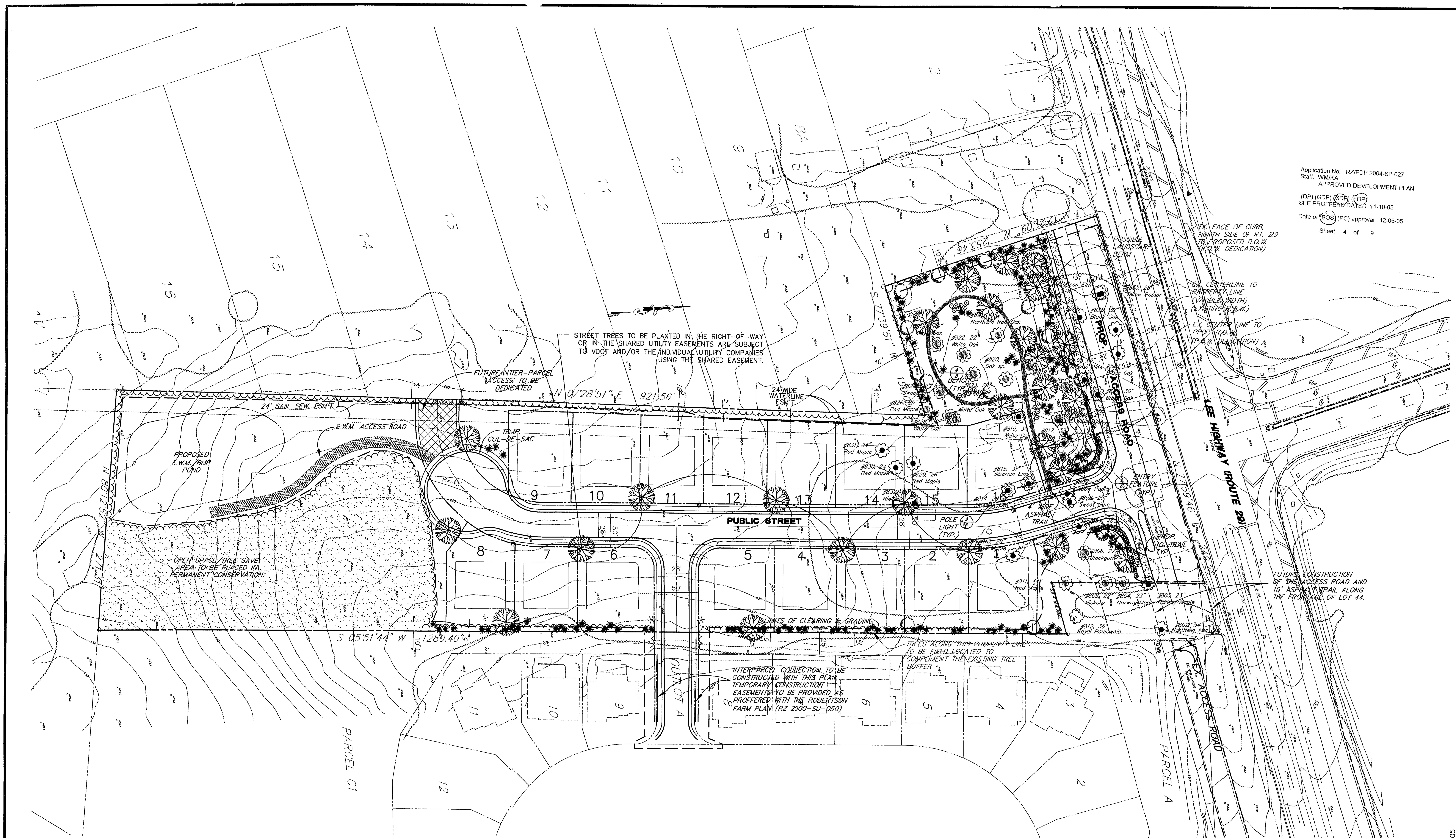
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

REVISED APRIL 12, 2005
REVISED MARCH 21, 2005
REVISED MARCH 10, 2005
REVISED FEBRUARY 15, 2005

BC REVISIONS
JUNE 24, 2004
REVISED JULY 29, 2004
REVISED AUGUST 13, 2004
AUGUST 27, 2004
REVISED DECEMBER 06, 2004
OWNER/CONTRACT PURCHASER RANDOLF J. BENDER 500 MONTGOMERY STREET LONG & FOSTER BUILDING SUITE 140 ALEXANDRIA, VA 22314-1560

DESIGNED BY:	JDB
DRAFTED BY:	CAD
CHECKED BY:	PLR
DATE:	MAY, 2004
SCALE:	HOR. 1"=50' VERT.
SHEET 3 OF 9	
CO. NO.	
CAD NAME:	G3021FDP.DWG
LAYOUT:	LSC
FILE NO.	03021.21-08

XREFS: G3021BAS 3021TOPO



Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (SDP) (FDP)
SEE PROFFERS DATED 11-10-05
Date of (BOS) (PC) approval 12-05-05
Sheet 4 of 9

SITE TABULATIONS:

TOTAL GROSS SITE AREA (G.S.A.):	8.071 AC. ± OR 351,572.76 S.F ±
EXISTING ZONE:	R-1 =7.3478 AC. ± OR 320,070.16' S.F. ± C-8=0.7235 AC. ± OR 31515.66 S.F. ±
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PARKING SPACES REQUIRED:	32 SPACES(2)
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OPEN SPACE REQUIRED: (20% OF G.S.A.)	1.61 AC. ± OR 70,305.84 S.F. ±
OPEN SPACE PROVIDED: (38% OF G.S.A.)	3.06 AC. ± OR 133,293.6 S.F. ±
MAXIMUM BUILDING HEIGHT ALLOWED:	35 FT.
MINIMUM YARD SETBACKS:	FRONT: 18' SIDE: 10' REAR: 25'
AVERAGE LOT AREA:	7,800 S.F. ±

*

**

TREE COVER CALCULATIONS:

ADJUSTED SITE AREA CALCULATION:	
G.S.A.:	8.071 AC. ± OR 351,572.76 S.F ±
LESS R.O.W. DEDICATION FOR ROUTE 29	0.591 AC. ± OR 25,743.96 S.F. ±
ADJUSTED SITE AREA (A.S.A.):	7.48 AC. ± OR 325,828.8 S.F. ±
TREE COVER REQUIRED (20.0% OF A.S.A.):	1.496 AC. ± OR 65,165.76 S.F. ±
TREE COVER PROVIDED: (27.5% OF A.S.A.)	2.05 AC. ± OR 89,602.92 S.F. ±
PROVIDED COVER BREAKDOWN:	
CREDIT FOR TREES PRESERVED:	TO BE DETERMINED(3)
CREDIT FOR TREES PLANTED:	TO BE DETERMINED(3)

(1) WATER SUPPLY OVERLAY DISTRICT

(2) TWO SPACES IN THE GARAGE AND TWO SPACES IN THE DRIVEWAY.

(3) CREDIT FOR TREES PRESERVED AND PLANTED WILL BE DETERMINED AT THE SITE PLAN PHASE. PROPOSED TREES SHOWN ON *THE PLAN MAY NOT TOTAL* THE REQUIRED NUMBER OF TREES TO BE PLANTED, HOWEVER, NO LESS THAN THOSE SHOWN WILL BE PROVIDED.

(2)(4) TREE SIZE, TYPE, SPECIE, AND/OR CATEGORICAL CLASSIFICATION TO BE DETERMINED AT SUBDIVISON PLAN PER TABLE 12.7 OF THE PFM.

GRAPHIC SCALE

0 50 100 150 250

(1" = 50')

PROPOSED DECIDUOUS TREE(4)

PROPOSED ORNAMENTAL TREE(4)

PROPOSED EVERGREEN TREE(4)

POLE LIGHT (TYP.)

BENCH (TYP.)

POSSIBLE ENTRY FEATURE LOCATIONS

LARGE SHRUB (TYP.)

LEGEND:

EX. TREE TO BE REMOVED

EX. OFF-SITE TREE

TREE TO BE PRESERVED

POSSIBLE EXTENTS OF LANDSCAPED BERM

POLE LIGHT (TYP.)

BENCH (TYP.)

POSSIBLE ENTRY FEATURE LOCATIONS

APPROXIMATE LIMITS OF CLEARING AND GRADING

PROPOSED TREELINE

EXISTING TREELINE

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COMMONWEALTH OF VIRGINIA
PETER L RINEK
No. 788
4/12/05
CERTIFIED LANDSCAPE ARCHITECT

ALTERNATE PLAN

NASSIR PROPERTY

SPRINGFIELD DISTRICT
FAIRFAX COUNTY

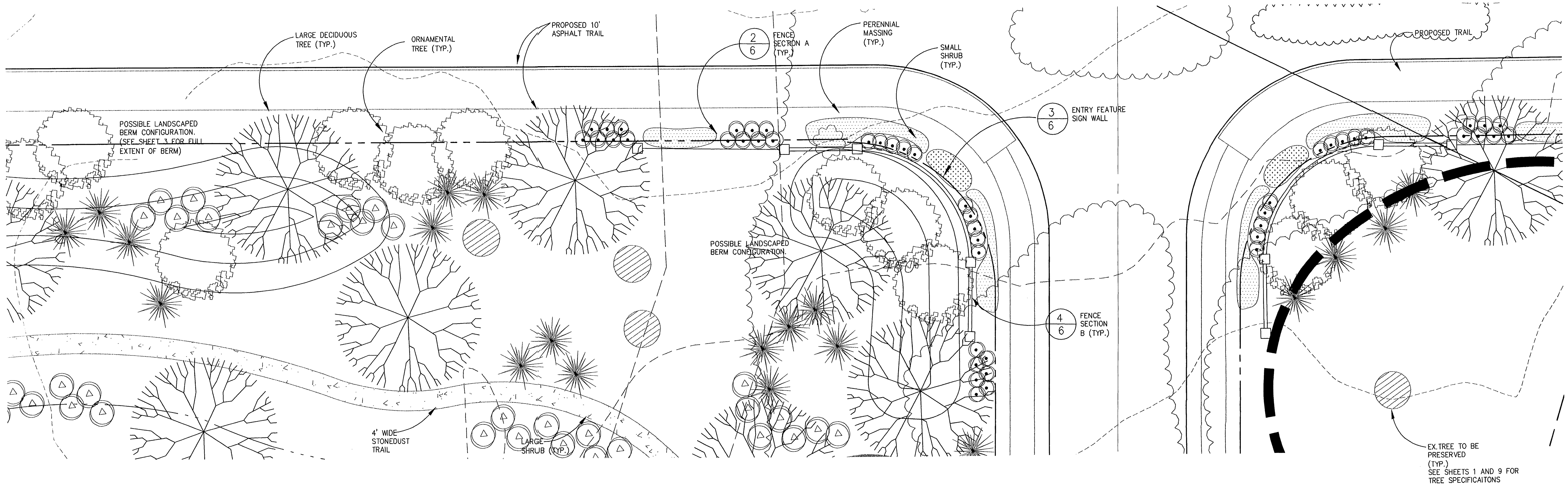
REVISED APRIL 12, 2005
REVISED MARCH 21, 2005
REVISED MARCH 10, 2005
REVISED FEBRUARY 25, 2005
REVISED FEBRUARY 15, 2005

BC REVISIONS
JUNE 24, 2004
REVISED JULY 29, 2004
REVISED AUGUST 13, 2004
AUGUST 27, 2004
REVISED DECEMBER 06, 2004

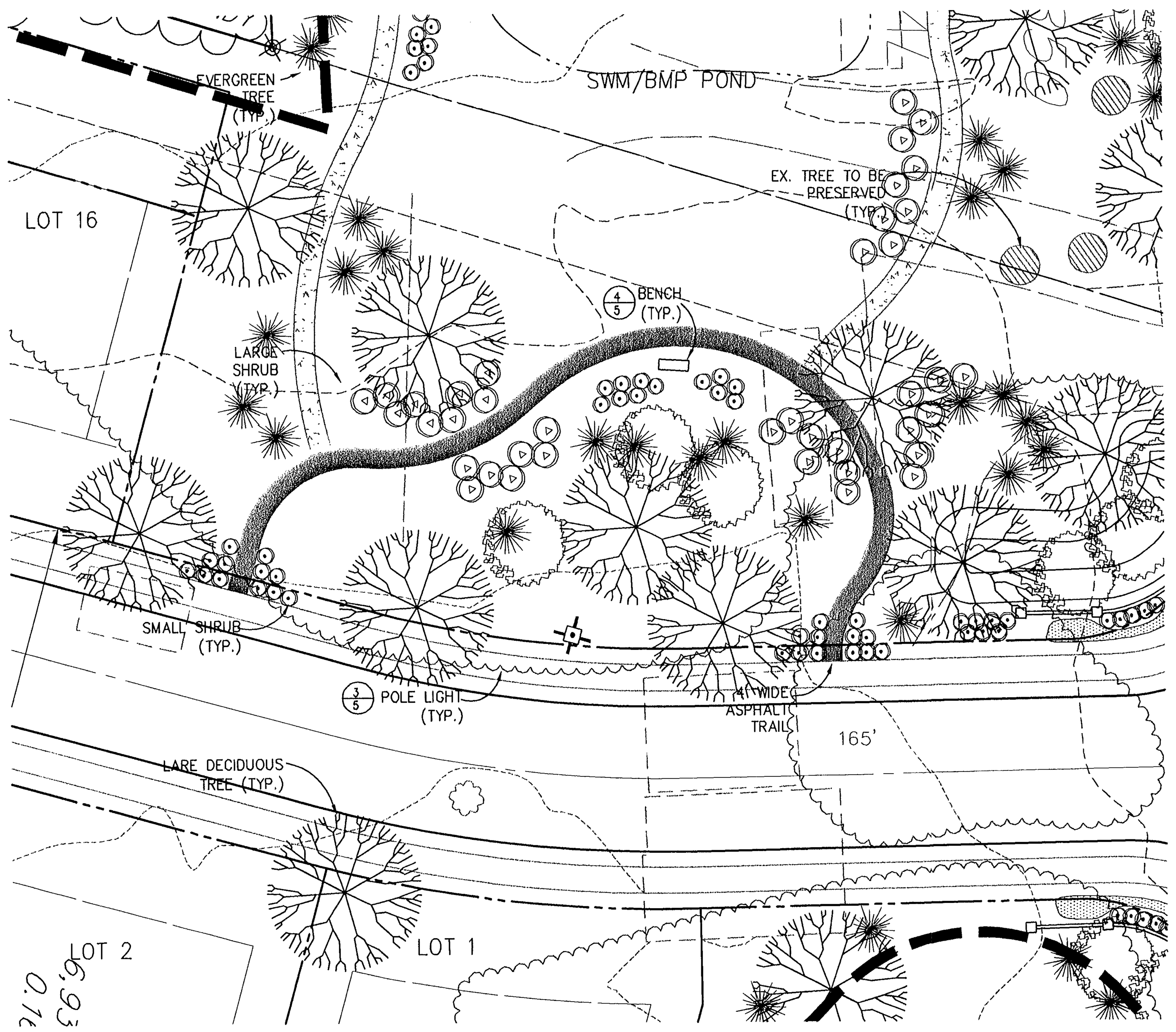
OWNER
BENDER GROUP, THE
500 MONTGOMERY STREET
LONG & FOSTER BUILDING
SUITE 140
ALEXANDRIA, VA 22314-1560

DESIGNED BY:	JDB
DRAFTED BY:	CAD
CHECKED BY:	PLR
DATE:	MAY, 2004
SCALE:	HOR. 1"= 50' VERT.
SHEET 4 OF 9	
CO. NO.	
CAD NAME:	G3021ALTPLAN
LAYOUT:	ALT
FILE NO.	03021.11-03

XREFS: G3021BAS 0000TOPO 0000XXXX



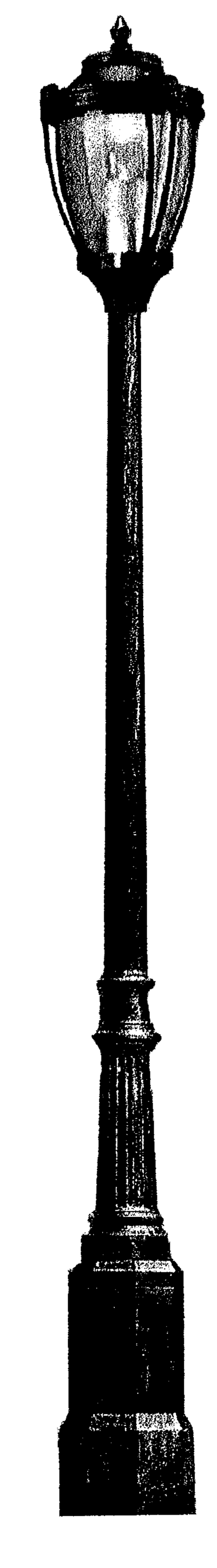
1/5 **ENTRY FEATURE AND BERM DETAIL**
PLAN
SCALE 1"=10'



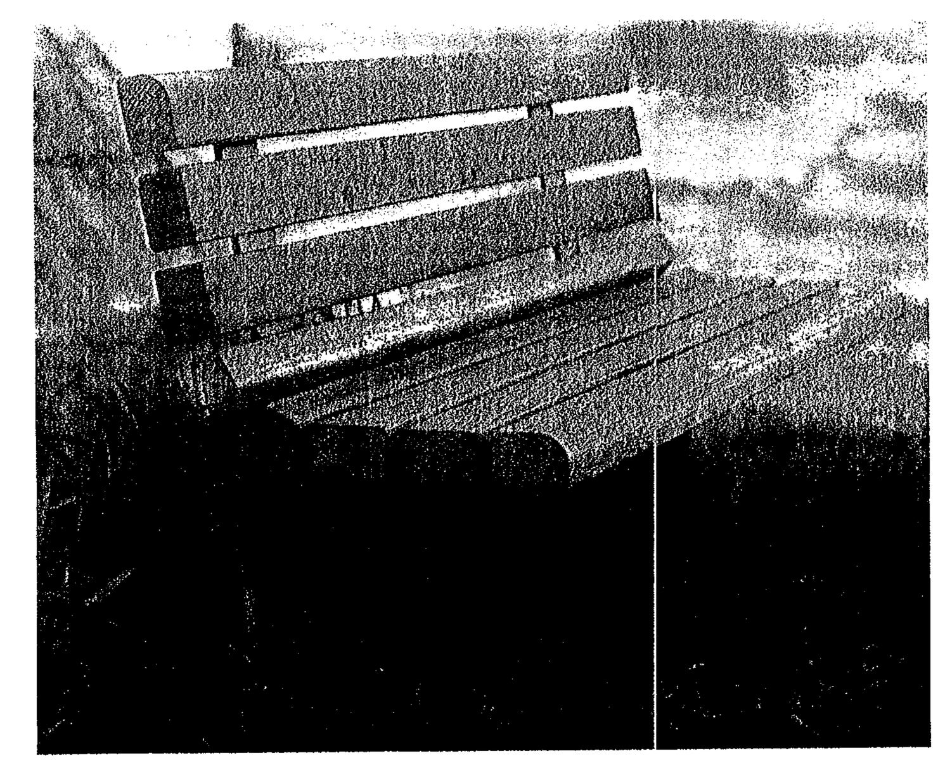
1/2 **POCKET PARK**
PLAN
SCALE 1"=20'

THIS SHEET FOR LANDSCAPING PURPOSES ONLY

Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 11-10-05
Date of (BOS) (PC) approval 12-05-05
Sheet 5 of 9



3/5 **POLE LIGHT** (OR EQUAL)
PHOTO N.T.S.



4/5 **BENCH** (OR EQUAL)
PHOTO N.T.S.

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COMMONWEALTH OF VIRGINIA
PETER L. RINEK
No. 388
CERTIFIED LANDSCAPE ARCHITECT

DETAILED LANDSCAPE PLAN

NASSIR PROPERTY

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

APRIL 12, 2005
REVISED MARCH 21, 2005
REVISED MARCH 10, 2005
REVISED FEBRUARY 15, 2005

BC REVISIONS
JUNE 24, 2004
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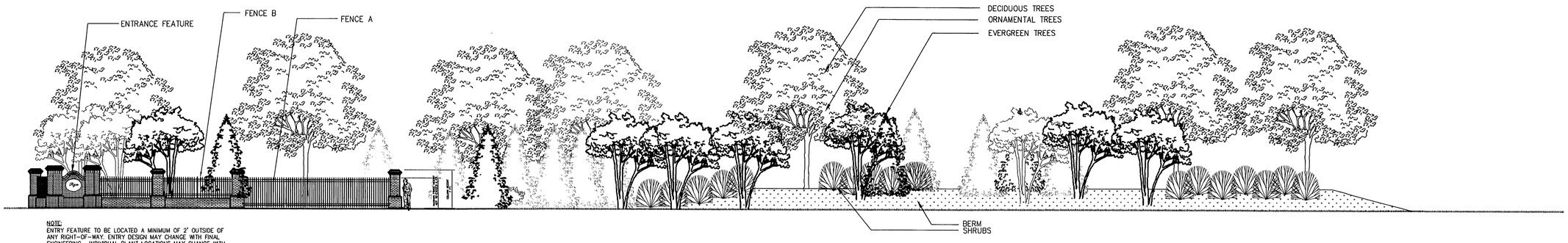
REVISED DECEMBER 06, 2004

OWNER/CONTRACT PURCHASER
BENDER GROUP, THE
500 MONTGOMERY STREET
LONG & FOSTER BUILDING
SUITE 140
ALEXANDRIA, VA 22314-1560

DESIGNED BY: JDB	
DRAFTED BY: CAD	
CHECKED BY: PLR	
DATE: MAY, 2004	
SCALE:	HOR. AS SHOWN VERT.
SHEET 5 OF 9	
CO. NO.	
CAD NAME: G3021LSCDET.DWG	
LAYOUT:	LSCDET
FILE NO.	03021.11-08

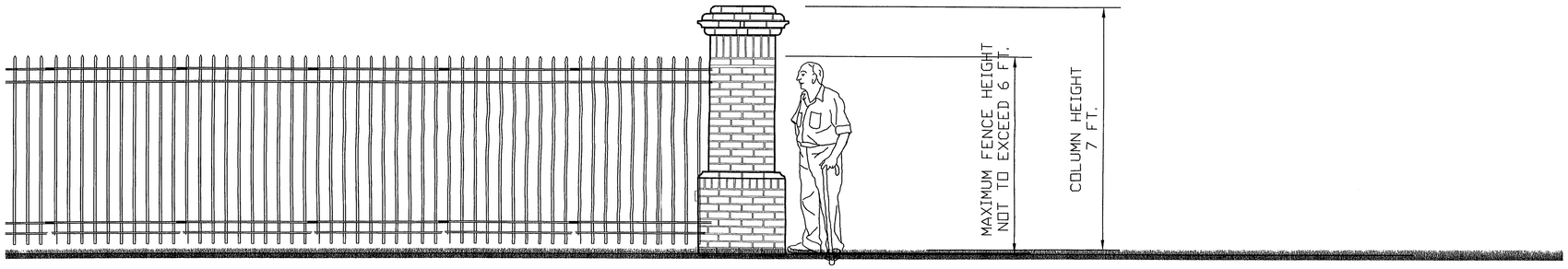
XREFS: G3021BAS



NOTE:
ENTRY FEATURE TO BE LOCATED A MINIMUM OF 2' OUTSIDE OF ANY RIGHT-OF-WAY. ENTRY DESIGN MAY CHANGE WITH FINAL ENGINEERING. INDIVIDUAL PLANT LOCATIONS MAY CHANGE WITH FINAL ENGINEERING.

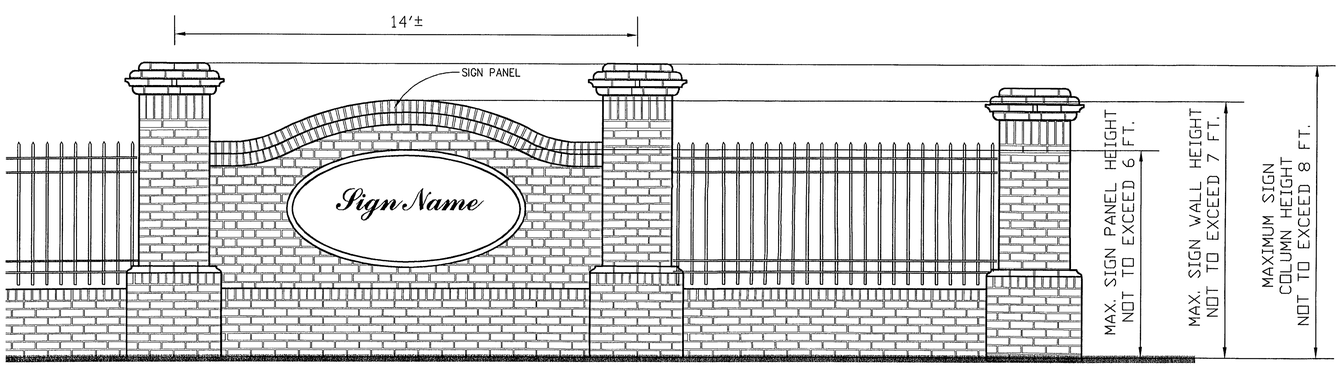
1/6 ENTRANCE FEATURE AND BERM ELEVATION

PLAN SCALE 1"=10'



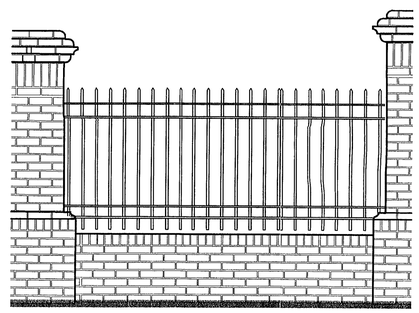
2/6 ENTRY FEATURE FENCE A

ELEVATION SCALE 1/2" = 1'-0"



3/6 ENTRY FEATURE SIGN WALL

ELEVATION SCALE 1/2" = 1'-0"



4/6 ENTRY FEATURE FENCE B

ELEVATION SCALE 1/2" = 1'-0"

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Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)
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Date of (BOS) (PC) approval 12-05-05

Sheet 6 of 9

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ENTRY FEATURE ELEVATIONS

NASSIR PROPERTY

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

BC REVISIONS
DECEMBER 06, 2004
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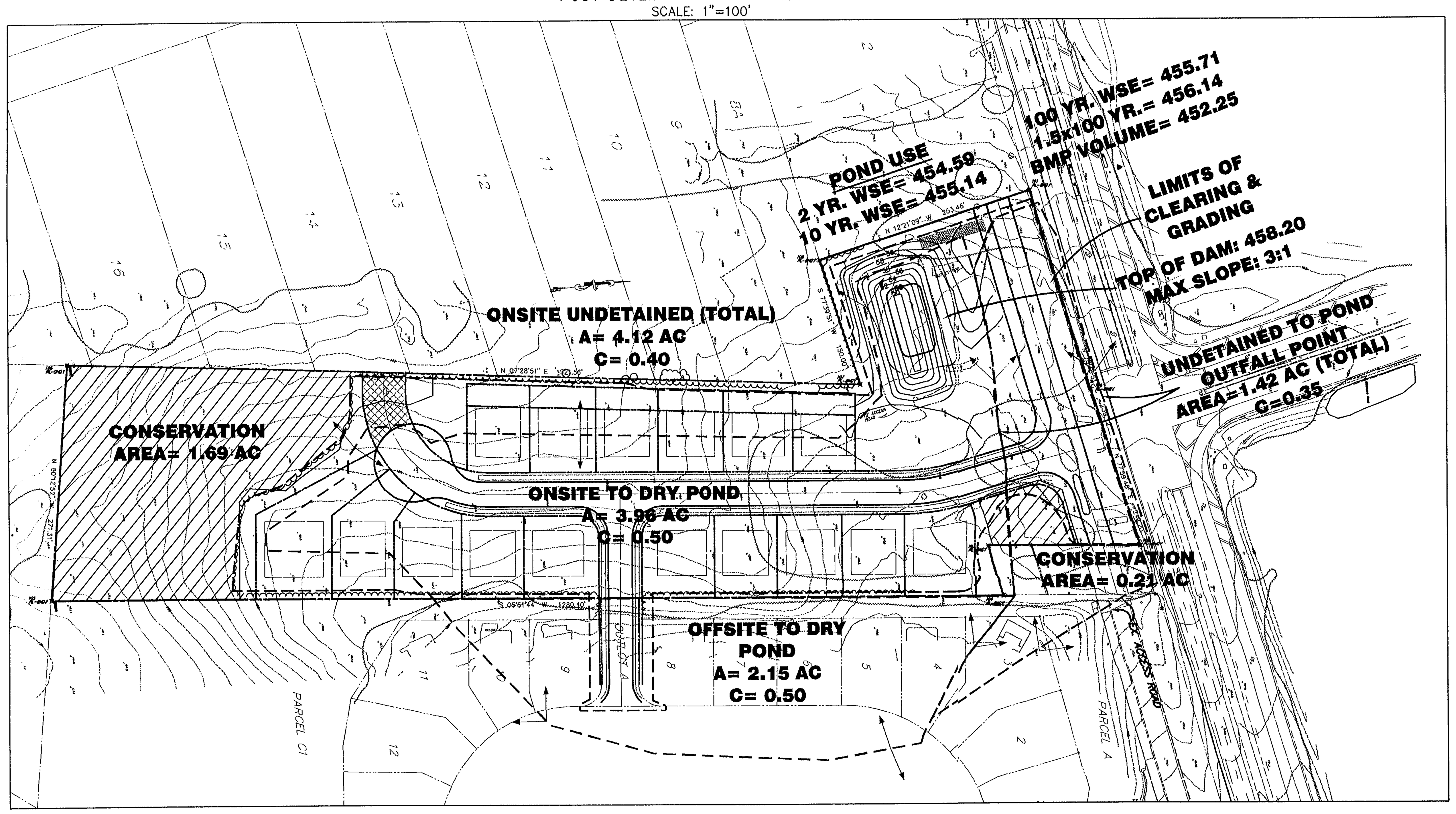
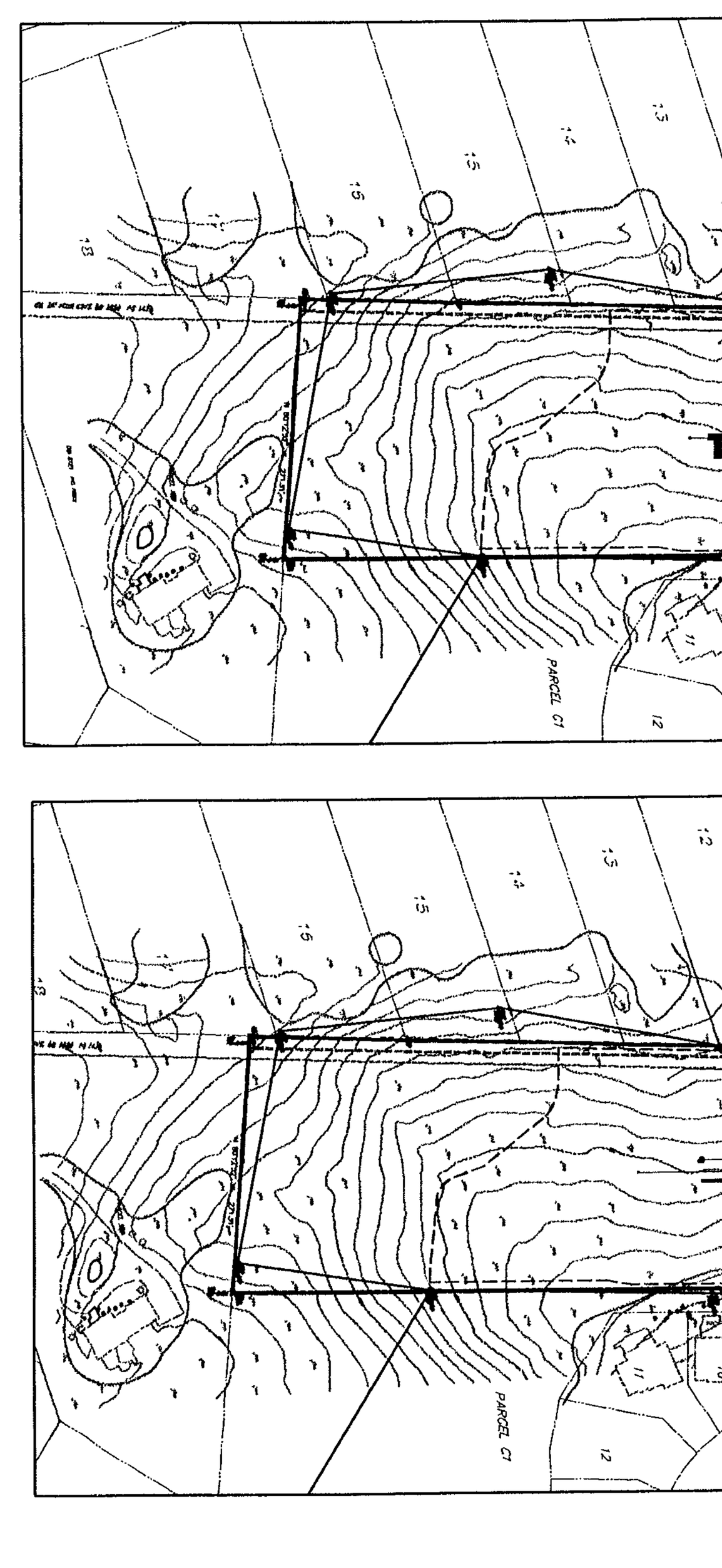
SCALE:	HOR. AS SHOWN VERT.
SHEET 6 OF 9	
CO. NO.	
CAD NAME:	G3021DET-1.DWG
LAYOUT:	SIGN-DET
FILE NO.	03021.11-08

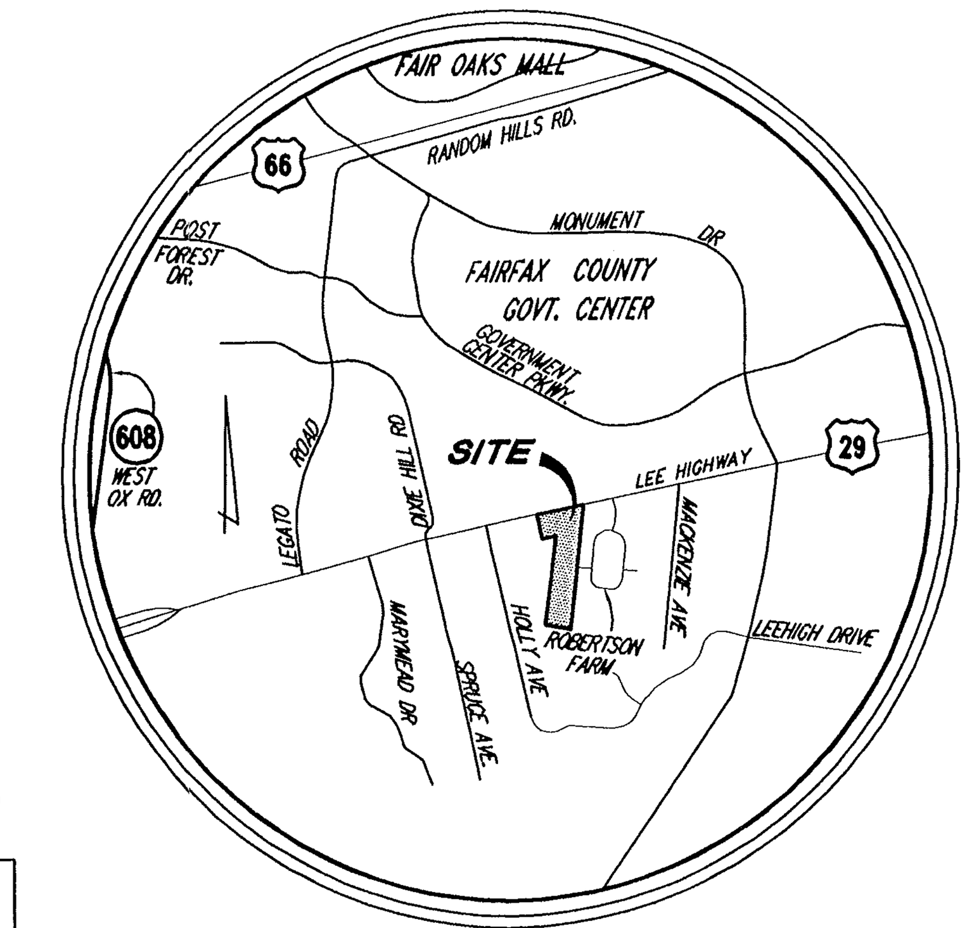
XREFS:

POST DEVELOPMENT DRAINAGE DIVIDES
SCALE: 1"=100'



PRE DEVELOPMENT DRAINAGE DIVIDES
SCALE: 1"=200'





VICINITY MAP
SCALE: 1" = 2,000'

Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 11-10-05

Date of (BOS) (PC) approval 12-05-05

Sheet 7 of 9

Pre Development vs. Post Development Runoff To Popes Head Watershed

Pre-Development: Flow Calculations

Storm Frequency	Cf	C	i	A	Peak Inflow
2-Year (Site Area)	1.00	0.300	5.45	5.93	**9.70**
10-Year (Site Area)	1.00	0.300	7.27	5.93	**12.93**
100-Year (Site Area)	1.25	0.300	9.84	5.93	**21.88**

Post-Development: Controlled/Uncontrolled Areas

Description:	Weighted "C"	Area (ac.):	C*A	Q-2 *	Q-10	Q-100
To Pond - Onsite	0.650	3.00	**1.95**	10.63	14.18	19.19
Not to Pond - Onsite	0.350	2.93	**1.03**	5.61	7.49	10.14

Pond Calc.: Allowable Release Into Difficult Run

Pre-Development Flow At Point of Pond Discharge

Storm Frequency	Cf	C	i	A	Peak Inflow
2-Year (Total Area)	1.00	0.350	5.45	2.35	**4.48**
10-Year (Total Area)	1.00	0.350	7.27	2.35	**5.98**
100-Year (Total Area)	1.25	0.350	9.84	2.35	**10.12**

Post-Development Uncontrolled Flow At Point of Pond Discharge

Description:	Weighted "C"	Area (ac.):	C*A	Q-2 *	Q-10	Q-100
Not to Pond (uncontrolled)	0.350	1.42	**0.50**	2.73	3.64	4.92

Post-Development: Pond Maximum Allowable Outflow

Storm Frequency	Pre-Dev.	-	Post-Uncon.	=	Allowable Release
2-Year	4.48	-	2.73	=	1.75
10-Year	5.98	-	3.64	=	2.34
100-Year	10.12	-	4.92	=	5.20

2 YEAR STORM

INITIAL CONDITIONS

Starting WS Elev = 447.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 17.82 cfs at .1000 hrs
Peak Outflow = .55 cfs at 1.8000 hrs

Peak Elevation = 454.59 ft
Peak Storage = .603 ac-ft

10 YEAR STORM

INITIAL CONDITIONS

Starting WS Elev = 447.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 23.77 cfs at .1000 hrs
Peak Outflow = 2.21 cfs at 1.3500 hrs

Peak Elevation = 455.14 ft
Peak Storage = .697 ac-ft

100 YEAR STORM

INITIAL CONDITIONS

Starting WS Elev = 447.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 32.20 cfs at .1000 hrs
Peak Outflow = 4.78 cfs at 1.0500 hrs

Peak Elevation = 455.71 ft
Peak Storage = .803 ac-ft

Preliminary Stormwater Management Narrative

Pre-development Conditions

This 8.07-acre site is surrounded by single-family homes. The northern portion of the site fronting existing Route 29 has structures, however, the majority of the site is wooded and has mild slopes. A major drainage divide splits the site into two watersheds, Difficult Run and Popes Head Creek, 2.14 acres to Difficult Run and 5.93 acres to Popes Head Creek. Runoff draining north into Difficult Run flows overland to a ditch along Route 29, and into an existing storm sewer system designed with the Glen Alden Subdivision. Runoff draining south into Popes head flows overland until it reaches a ditch approximately 700 feet down stream of the site.

Post-development Conditions

A dry stormwater management/BMP pond will be placed in the northwest corner of the site within the Difficult Run watershed. 2.90 acres within the Popes Head Creek watershed will be collected in a storm sewer system and piped to the on-site pond. The on-site SWM/BMP dry pond will also treat 0.6 acres within the Difficult Run watershed, and 2.28 acres of off-site runoff from the Roberson Farm Subdivision. The dry pond will be designed to over detain the stormwater runoff in order to release at a rate that is less than the predevelopment rate from Difficult Run, see allowable release computations, pond outflow computations, and pond volume table this sheet. The pond outfalls into an existing stable ditch along Route 29, which eventually drains into an existing storm sewer system designed with the Glen Alden Subdivision. Because the release rate from the pond is less than the pre-development, the ditch and the storm sewer system can be proved adequate. The 2 year stormwater runoff rate has been reduced from 4.48 cfs to 3.28 cfs, a 27% decrease, and the 10 year stormwater runoff rate has been reduced from 5.98 cfs to 5.85 cfs. 1.34 acres flows off-site undetained from the Popes Head Watershed, however, because 2.90 acres originally draining into the watershed is now being detained by the on-site pond, the peak discharge rate is still less than predevelopment rates, see this sheet for computations.

BMP Narrative

The 8.08 acre site is split into two separate watersheds, Difficult Run, and Popes Head Creek. Difficult Run requires a 40% phosphorous removal rate, and Popes Head Run, which is in the Occoquan watershed, requires a 50% phosphorous removal rate. From existing conditions, 5.93 acres drains into the Popes Head Creek Watershed, and 2.15 acres drains into the Difficult Run Watershed. Because there are two different phosphorous removal requirements for the site, a weighted average based on site area has been taken. Approximately 73% of the site requires 50% removal efficiency, and 27% of the site requires 40% removal efficiency, therefore the minimum removal efficiency for the entire site is 47.3%. BMP requirements will be satisfied through the use of Conservation Area, and the on-site SWM/BMP dry pond, see BMP design calculations this sheet. 100% credit will be taken for the off-site area draining into the pond. The off-site area from the Robertson Farm subdivision is completely developed, and the run off draining into the proposed pond has not already been treated by a BMP facility. The BMP removal for the site is 49.02% which more than meets the required 47.3%.

POND VOLUME

Elevation (ft)		Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
447.00	-----	.0001	.0000	.000	.000
448.00	-----	.0200	.0215	.007	.007
450.00	-----	.0600	.1146	.076	.084
452.00	-----	.1100	.2512	.167	.251
452.25	-----	.1150	.3375	.028	.279
452.50	-----	.1200	.3525	.029	.309
453.00	-----	.1300	.3749	.062	.371
453.50	-----	.1400	.4049	.067	.439
454.00	-----	.1500	.4349	.072	.511
456.00	-----	.2000	.5232	.349	.860
458.00	-----	.2400	.6591	.439	1.299

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

*BMP VOLUME = 0.279 AC-FT (12,153 CF)

BMP FACILITY DESIGN CALCULATIONS

II. WATERSHED INFORMATION

PART 1: LIST ALL OF THE SUBAREAS AND "C" FACTORS USED IN THE BMP COMPUTATIONS

SUBAREA DESIGNATION & DESCRIPTION (1)		"C" (2)	AREA (AC.) (3)
#1	Onsite to Dry Pond	0.50	3.50
#2	Onsite Undetained	0.40	2.67
#3	Conservtaion Area	0.30	1.90
#4	Off-site to Dry Pond	0.5	2.28

PART 2: COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THE SITE

(A) AREA OF THE SITE (a) 8.07 ACRES

(B) SUBAREA DESIGNATION (1)		"C" (2)		AREA (AC.) (3)		PRODUCT (4)
#1	Onsite to Dry Pond	0.50	X	3.50	=	1.75
#2	Onsite Undetained	0.40	X	2.67	=	1.07
#3	Conservtaion Area	0.30	X	1.90	=	0.57
#4	Off-site to Dry Pond	0.50		2.28		1.14
				(b) TOTAL	=	4.53

(C) WEIGHTED AVERAGE "C" FACTOR (b) / (a) = (c) 0.56

PART 3: COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION (1)	BMP TYPE (2)	REMOVAL EFF. (%) (3)		AREA RATIO (4)		"C" FACTOR RATIO (5)		PRODUCT (6)
#1	Onsite to Dry Pond	40	X	0.43	X	0.89	=	15.46
#2	Onsite Undetained	0	X	0.33	X	0.71	=	0.00
#3	Conservtaion Area	100	X	0.24	X	1.00	=	23.54
#4	Off-site to Dry Pond	40	X	0.28	X	0.89	=	10.07
						(a) TOTAL	=	49.07

PART 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT: (a) 47.3 %
(FAIRFAX COUNTY (CHESAPEAKE BAY PRESERVATION AREA - 40%)
OR (FAIRFAX COUNTY 'WATER SUPPLY OVERLAY DISTRICT - 50%)

(B)IF LINE 3 (a) 49.07 % > LINE 4(a) 47.3 %

PART 7: COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR EACH PROPOSED BMP FACILITY

(A) LIST AREAS TO BE CONTROLLED BY THE PROPOSED BMP.

SUBAREA DESIGNATION (1)		"C" (2)		AREA (AC.) (3)		PRODUCT (4)
#1	Onsite to Dry Pond	0.50	X	3.50	=	1.75
#2	Onsite Undetained	0.50	X	2.67	=	1.34
#3	Conservtaion Area	0.30	X	1.90	=	0.57
#4	Off-site to Dry Pond	0.50	X	2.28		1.14
			(a)	10.35		
					(b)	4.80

(C) WEIGHTED AVERAGE "C" FACTOR (b) / (a) = (c) 0.46

PART 8: DETERMINE THE STORAGE REQUIRED FOR EACH PROPOSED FACILITY

(A) EXTENDED DETENTION DRY POND
CHART A6-40 VALUE (APPENDIX 4-3) FOR BMP STORAGE PER ACRE
[(4375 x "C") - 875] OR [311.25 x % IMP.] = (a) 1151.871981 CF/AC

DESIGN 1 (48 HOUR DRAWDOWN)
LINE 7(a) 10.35 X LINE 8(a) 1151.871981 = 11,921.9 CF

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CDP/FINAL DEVELOPMENT PLAN
SWM/BMP PLAN

NASSIR PROPERTY

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

APRIL 12, 2005

BC REVISIONS
JULY 29, 2004
REVISED DECEMBER 6, 2004
REVISED FEBRUARY 15, 2005
REVISED MARCH 10, 2005
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OWNER/CONTRACT PURCHASER
RANDOLF J. BENDER
500 MONTGOMERY STREET
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DESIGNED BY: JDB
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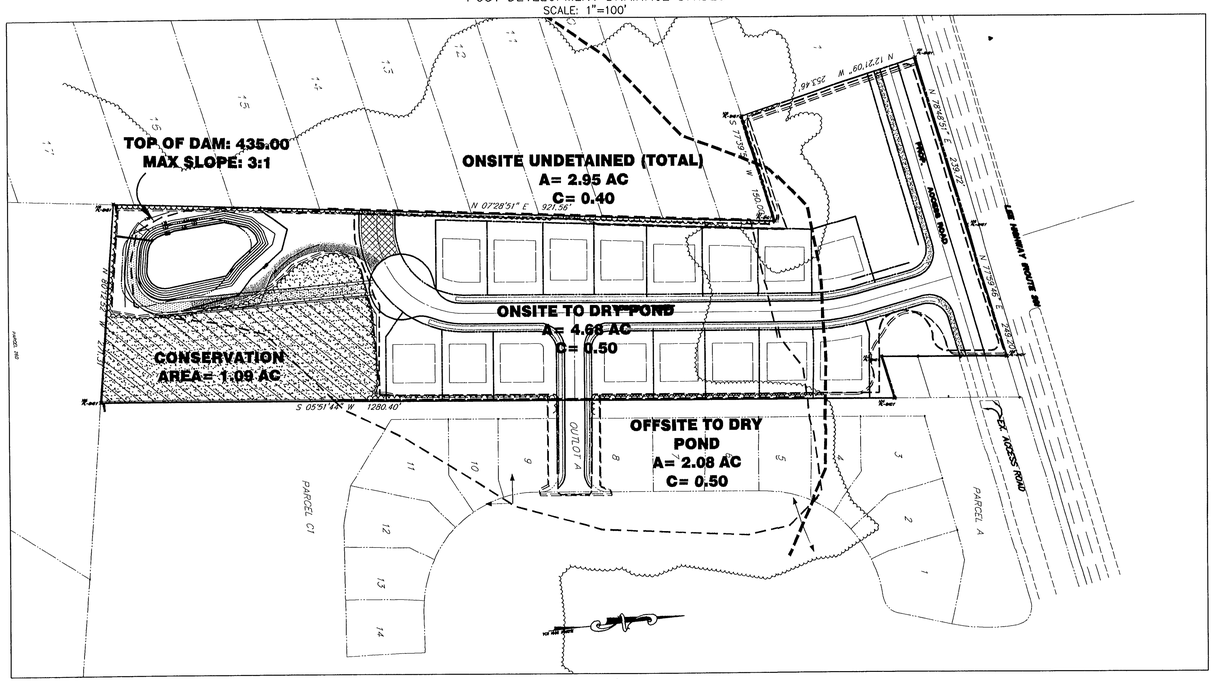
POST DEVELOPMENT DRAINAGE DIVIDES
SCALE: 1"=100'



Pre Development vs. Post Development Runoff

Pre-Development: Flow Calculations

Storm Frequency	*Cf*	C	*i*	*A*	*Peak Inflow*
2-Year (Site Area)	1.00	0.300	5.45	8.07	**13.19**
10-Year (Site Area)	1.00	0.300	7.27	8.07	**17.60**
100-Year (Site Area)	1.25	0.300	9.84	8.07	**29.78**

Post-Development: Controlled/Uncontrolled Areas

Description:	*Weighted "C"*	*Area (ac.):*	*C*A*	*Q-2 "*	*Q-10*	*Q-100*
To Pond - Offsite	0.500	2.08	**1.04**	5.67	7.56	10.23
Not to Pond - Onsite	0.400	2.95	**1.18**	6.43	8.58	11.61

Post-Development: Pond Maximum Allowable Outflow

Storm Frequency	*Pre-Dev.*	+	*Offsite*	-	*Post-Uncon.*	=	*Ilowable Release*
2-Year	13.19	+	5.67	-	6.43	=	**12.43**
10-Year	17.60	+	7.56	-	8.58	=	**16.58**

Preliminary Alternate Stormwater Management Narrative

Pre-development Conditions
This 8.07-acre site is surrounded by single-family homes. The northern portion of the site fronting existing Route 29 has structures, however, the majority of the site is wooded and has mild slopes. A major drainage divide splits the site into two watersheds, Difficult Run and Popes Head Creek, 2.14 acres to Difficult Run and 5.93 acres to Popes Head Creek. Runoff draining north into Difficult Run flows overland to a ditch along Route 29, and into an existing storm sewer system designed with the Glen Alden Subdivision. Runoff draining south into Popes head flows overland until it reaches a ditch approximately 700 feet down stream of the site.

Post-development Conditions
A dry stormwater management/BMP pond will be placed in the southwest corner of the site within the Popes Head Creek watershed. The dry pond will be designed to detain the stormwater runoff in order to release at a rate that is less than the predevelopment rate from the site. The pond outfalls into an existing swale that will cross several properties until it reaches an existing ditch that is adequate to carry the 100-year release from the pond. An outfall channel will need to be designed with appropriate easements in order to have an adequate outfall from this pond.

BMP Narrative

The 8.07-acre site is split into two separate watersheds, Difficult Run, and Popes Head Creek. Difficult Run requires a 40% phosphorous removal rate, and Popes Head Run, which is in the Occoquan watershed, requires a 50% phosphorous removal rate. From existing conditions, 5.93 acres drains into the Popes Head Creek Watershed, and 2.15 acres drains into the Difficult Run Watershed. Because there are two different phosphorous removal requirements for the site, a weighted average based on site area has been taken. Approximately 73% of the site requires 50% removal efficiency, and 27% of the site requires 40% removal efficiency, therefore the minimum removal efficiency for the entire site is 47.3%. BMP requirements will be satisfied through the use of Conservation Area, and the on-site SWM/BMP dry pond, see BMP design calculations this sheet. 100% credit will be taken for the off-site area draining into the pond. The off-site area from the Robertson Farm subdivision is completely developed, and the run off draining into the proposed pond has not already been treated by a BMP facility. The BMP removal for the site with the pond and open space is in excess of 50%. Since the Best Management practices has been met with conventional methods, no innovative measures such as rain gardens have been proposed. These facilities would only serve as additional maintenance issues for the future H.O.A. and be of little usefulness for the site's water quality.

V:\project_2003\03021\Engr\Design\Preliminary Stormwater Management Narrative2.doc

BMP FACILITY DESIGN CALCULATIONS

II. WATERSHED INFORMATION

PART 1: LIST ALL OF THE SUBAREAS AND "C" FACTORS USED IN THE BMP COMPUTATIONS

SUBAREA DESIGNATION & DESCRIPTION		"C"	AREA (AC.)
(1)		(2)	(3)
#1	Onsite to Dry Pond	0.50	4.68
#2	Onsite Undetained	0.40	2.30
#3	Conservtaion Area To Pond	0.30	0.44
#3A	Conservtaion Area Not To Pond	0.30	0.65
#4	Off-site to Dry Pond	0.5	2.08

PART 2: COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THE SITE

(A) AREA OF THE SITE			(a)	8.07	ACRES
(B) SUBAREA DESIGNATION		"C"		AREA (AC.)	PRODUCT
(1)		(2)		(3)	(4)
#1	Onsite to Dry Pond	0.50	X	4.68	= 2.34
#2	Onsite Undetained	0.40	X	2.30	= 0.92
#3	Conservtaion Area To Pond	0.30	X	0.44	= 0.13
#3A	Conservtaion Area Not To Pond	0.30	X	0.65	= 0.20
			(b)	TOTAL	= 3.59
(C) WEIGHTED AVERAGE "C" FACTOR			(b) / (a) = (c)		0.44

PART 3: COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFF. (%)		AREA RATIO		"C" FACTOR RATIO		PRODUCT
(1)	(2)	(3)		(4)		(5)		(6)
#1	Onsite to Dry Pond	40	X	0.58	X	1.12	=	26.09
#2	Onsite Undetained	0	X	0.29	X	0.90	=	0.00
#3	Cons. To Pond	100	X	0.05	X	1.00	=	5.45
#3A	Cons. Not To Pond	100	X	0.08	X	1.00	=	8.05
#4	Off-site to Dry Pond	40	X	0.26	X	1.12	=	11.60
					(a)	TOTAL	=	51.20

PART 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT:		(a)	47.3 %
	(FAIRFAX COUNTY CHESAPEAKE BAY PRESERVATION AREA - 40%)		
OR	(FAIRFAX COUNTY WATER SUPPLY OVERLAY DISTRICT - 50%)		

PART 4: DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT:		(a)	47.3 %
	(FAIRFAX COUNTY CHESAPEAKE BAY PRESERVATION AREA - 40%)		
OR	(FAIRFAX COUNTY WATER SUPPLY OVERLAY DISTRICT - 50%)		
(B) IF LINE 3 (a)	51.20 % > LINE 4(a)		47.3 %
THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.			

V. STORAGE

PART 7: COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR EACH PROPOSED BMP FACILITY

(A) LIST AREAS TO BE CONTROLLED BY THE PROPOSED BMP.

SUBAREA DESIGNATION		"C"		AREA (AC.)	PRODUCT
(1)		(2)		(3)	(4)
#1	Onsite to Dry Pond	0.50	X	4.68	= 2.34
#3	Conservtaion Area To Pond	0.30	X	0.44	= 0.13
#4	Off-site to Dry Pond	0.50	X	2.08	1.04
			(a)	7.20	(b) 3.51
(C) WEIGHTED AVERAGE "C" FACTOR			(b) / (a) = (c)		0.49

PART 8: DETERMINE THE STORAGE REQUIRED FOR EACH PROPOSED FACILITY

(A) EXTENDED DETENTION DRY POND							
	CHART A6-40 VALUE (APPENDIX 4-3) FOR BMP STORAGE PER ACRE [(4375 x "C") - 875] OR [31.25 x % IMP.] =			(a)	1259.027778	CF/AC	
	DESIGN 1 (48 HOUR DRAWDOWN)						
	LINE 7(a)	7.20	X	LINE 8(a)	1259.027778	=	9,065.0 CF

VI. OUTLET COMPUTATION

PART 9: DETERMINE THE REQUIRED ORIFICE SIZE FOR EACH EXTENDED DETENTION FACILITY

(A)	BMP STORAGE REQUIREMENT (S) FROM PART 8.			(a)	9,065	CF
(B)	MAXIMUM HEAD (h) AT THE REQUIRED BMP STORAGE FROM THE ELEVATION STORAGE CURVE FOR THE FACILITY.			(b)	2.5	FT.
(C)	PEAK OUTFLOW RATE (Qp) AT THE MAXIMUM HEAD FOR DRAWDOWN TIME OF 48 HOURS	[Qp = S / (0.5 x 3600 x 48)]				
(A)	BMP STORAGE REQUIREMENT (S) FROM PART 8.			(a)	9,065	CF
(B)	MAXIMUM HEAD (h) AT THE REQUIRED BMP STORAGE FROM THE ELEVATION STORAGE CURVE FOR THE FACILITY.			(b)	2.5	FT.
(C)	PEAK OUTFLOW RATE (Qp) AT THE MAXIMUM HEAD FOR DRAWDOWN TIME OF 48 HOURS	[Qp = S / (0.5 x 3600 x 48)]				
		0.0000116 x LINE 9 (a)	9,065	=(c)	0.10	CFS
(D)	REQUIRED ORIFICE AREA (A) [A = Qp / (0.6 x(64.4 x h)^0.5)]					
	LINE 9(c	0.10	/[0.60 x (64.4 x LINE 9(b)]	2.5	)^0.5]	
				= (d)	0.01	IN²
				OR	2.0	FT²
(E)	DIAMETER OF CIRCULAR ORIFICE					
	2.0 x (LINE 9(d)	0.01	/ 3.1415927)^0.5	= (e)	0.13	FT.
				OR	1.6	IN.

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
429.50	-----	0	0	0	0
430.00	-----	9690	9690	1615	1615
435.00	-----	16523	38866	64777	66392

Elevations With Areas Interpolated From The Closest Two Planimeter Readings

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
431.00	-----	10912	30884	10295	11910

1.5X100-YEAR STROM

INITIAL CONDITIONS

Starting WS Elev = 431.00 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 3.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 62.35 cfs at 6.00 min
Peak Outflow = 16.28 cfs at 33.00 min
Peak Elevation = 433.78 ft
Peak Storage = 35449 cu.ft

2-YEAR STORM

INITIAL CONDITIONS

Starting WS Elev = 429.50 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 3.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 18.40 cfs at 6.00 min
Peak Outflow = 4.79 cfs at 33.00 min
Peak Elevation = 431.25 ft
Peak Storage = 14725 cu.ft

10-YEAR STORM

INITIAL CONDITIONS

Starting WS Elev = 429.50 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 3.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 24.55 cfs at 6.00 min
Peak Outflow = 7.73 cfs at 27.00 min
Peak Elevation = 431.41 ft
Peak Storage = 16544 cu.ft

100-YEAR STORM

INITIAL CONDITIONS

Starting WS Elev = 431.00 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = 3.00 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow = 41.57 cfs at 6.00 min
Peak Outflow = 13.26 cfs at 27.00 min
Peak Elevation = 432.65 ft
Peak Storage = 19672 cu.ft

Application No: RZ/FDP 2004-SP-027
Staff: WM/KA
APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 11-10-05

Date of (BOS) (PC) approval 12-05-05

Sheet 8 of 9

BC Consultants
Planners • Engineers • Surveyors • Landscape Architects
12600 Fair Lakes Circle, Suite 100, Fairfax, VA 22033
(703)449-8100 (703)449-8108 (Fax)
www.bccon.com

COMMONWEALTH OF VIRGINIA — PETER L. RINES — No. 3834 — LANDSCAPE ARCHITECT — CERTIFIED

CDP/FINAL DEVELOPMENT PLAN
ALTERNATE SWM/BMP PLAN

NASSIR PROPERTY

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

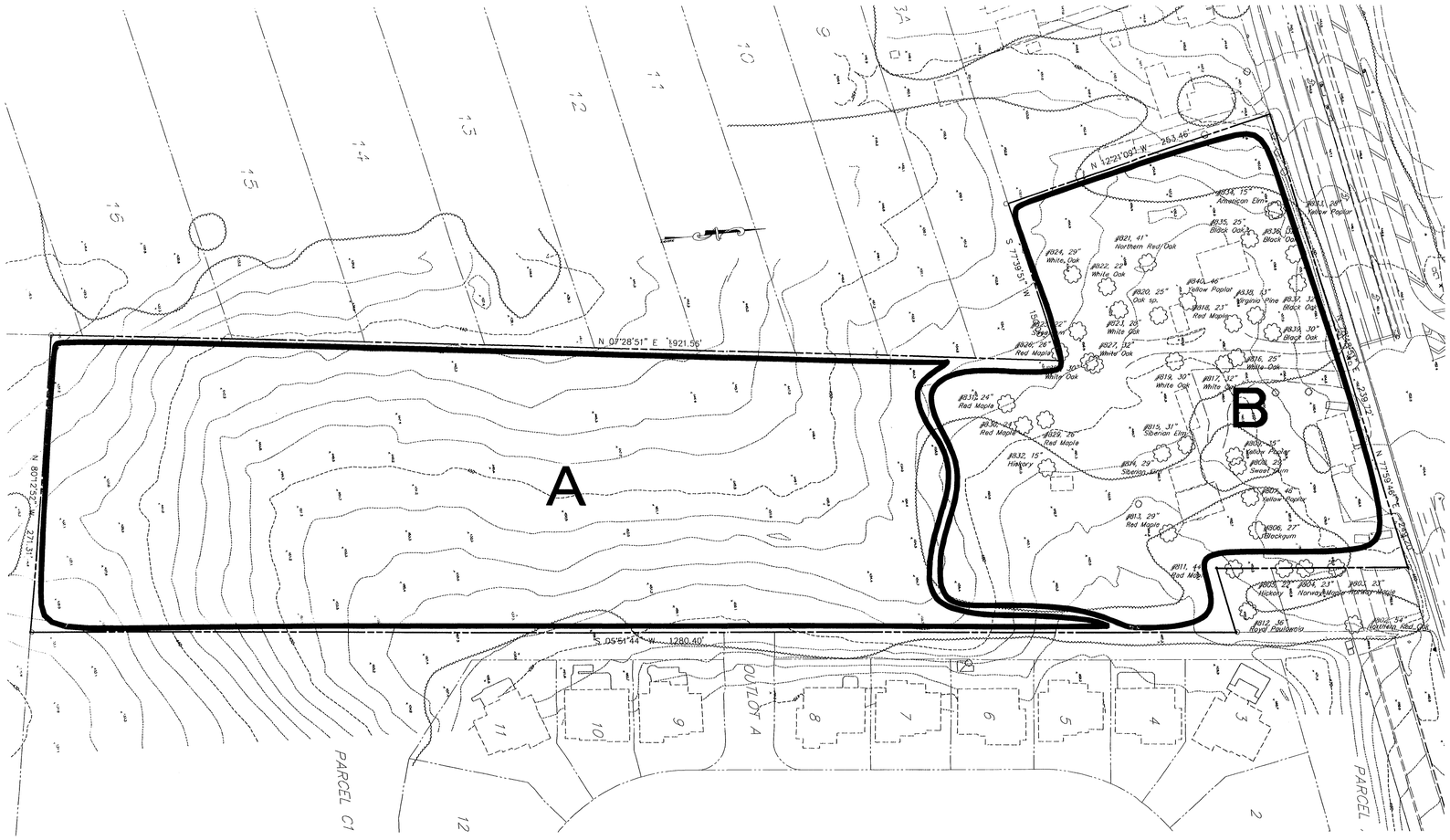
APRIL 12, 2005

BC REVISIONS
JULY 29, 2004
REVISED DECEMBER 6, 2004
REVISED FEBRUARY 15, 2004
REVISED MARCH 10, 2005
REVISED MARCH 21, 2005

OWNER/CONTRACT PURCHASER
RANDOLF J. BENDER
500 MONTGOMERY STREET
LONG & FOSTER BUILDING
SUITE 140
ALEXANDRIA, VA 22314-1560

DESIGNED BY:	JDB
DRAFTED BY:	CAD
CHECKED BY:	PLR
DATE:	MAY, 2004
SCALE:	HOR. 1"=100' VERT.
SHEET	8 OF 9
CO. NO.	
CAD NAME:	G3021SWM2.DWG
LAYOUT:	SWM2
FILE NO.	03021.11-03

XREFS: G3021BAS 3021TOPO



Tag #	Species	Size	*CRZ	*Condition	Canopy position	Crown density	Average canopy spread	Problems/Comments
		*DBH(in.)	R(ft.)	%		%	(ft.)	
802	northern red oak	54	54	60	dominant	75	55	girdling roots, trunk wound, basal decay, large deadwood, branch decay vertical crack, swollen base
803	Norway maple	23	23	65	intermediate	70	40	exposed roots, large deadwood, branch decay
804	Norway maple	23	23	55	intermediate	70	35	girdling roots, basal decay, trunk decay, large deadwood
805	hickory	22	22	65	dominant	75	45	large deadwood
806	blackgum	27	27	75	codominant	75	45	small deadwood
807	yellow poplar	46	46	70	dominant	75	60	large deadwood
808	sweetgum	29	29	65	codominant	65	40	exposed roots, large deadwood
809	yellow poplar	35	35	70	dominant	75	50	large deadwood
810	sweetgum	20	20	60	intermediate	55	25	exposed roots, large deadwood hardscape conflict, soil compaction, close to existing house
811	red maple	44	44	60	codominant	75	60	exposed roots
812	royal paulownia	36	36	45	codominant	55	35	basal decay, trunk decay, large deadwood, branch decay, decline
813	red maple	29	29	65	codominant	70	50	trunk decay, large deadwood
814	Siberian elm	29	29	60	codominant	65	40	large deadwood, girdling roots
815	Siberian elm	31	31	65	codominant	70	50	large deadwood
816	white oak	25	25	60	codominant	60	45	girdling roots, large deadwood, one-sided
817	white oak	32	32	60	codominant	60	45	exposed roots, large deadwood
818	red maple	23	23	60	codominant	75	40	exposed roots, small deadwood hardscape conflict, soil compaction
819	white oak	30	30	65	codominant	75	60	large deadwood,slight lean
820	white oak	25	25	65	codominant	70	45	girdling roots, large deadwood
821	northern red oak	41	41	70	dominant	70	55	large deadwood
822	white oak	22	22	60	codominant	65	35	large deadwood, one-sided
823	white oak	28	28	70	codominant	75	55	large deadwood
824	white oak	29	29	65	codominant	75	55	large deadwood
825	sweetgum	22	22	55	codominant	50	20	thin crown
826	red maple	26	26	45	codominant	45	30	large deadwood, dieback, dead lead
827	white oak	32	32	65	codominant	60	40	large deadwood, one-sided
828	white oak	30	30	60	codominant	65	45	large deadwood, one-sided
829	red maple	26	26	70	codominant	75	50	trunk wound, small deadwood
830	red maple	24	24	60	codominant	75	40	trunk decay, small deadwood
831	red maple	24	24	65	codominant	70	45	small deadwood
832	hickory	15	15	65	intermediate	75	40	small deadwood, vines
833	yellow poplar	28	28	65	dominant	75	40	large deadwood, one-sided, utility prune
834	American elm	15	15	70	intermediate	65	20	small deadwood, one-sided
835	black oak	25	25	65	codominant	60	40	large deadwood, utility prune
836	black oak	32	32	60	dominant	75	55	trunk decay, weak crotch, branch decay, large deadwood
837	black oak	32	32	70	dominant	75	65	large deadwood
838	Virginia pine	13	13	50	codominant	*LCR=50	20	large deadwood, one-sided
839	black oak	30	30	65	codominant	60	40	one-sided, soil compaction
840	yellow poplar	30	30	65	codominant	65	35	girdling roots, large deadwood

DBH = Diameter at Breast Height (measured 4.5 feet above ground)

CRZ = Critical Root Zone (1 foot of radius per inch of tree diameter)

LCR = Live Crown Ratio (measured only on evergreens)

Note: Condition ratings provided as percentages based on methods outlined in the latest edition of the *Guide for Plant Appraisal*, published by the International Society of Aboriculture

EVM SUMMARY TABLE

TYPE	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION	ACREAGE	DESCRIPTION
A	MATURE UPLAND FOREST	NORTHERN RED OAK WHITE OAK PIN OAK BLACK OAK VIRGINIA PINE RED MAPLE	LONG TERM SUB-CLIMAX	FAIR TO GOOD	5.28141 AC.	**Southern Portion** The southern portion of the site exists as moderately stocked, mature upland hardwood forest with Virginia pine widely interspersed throughout. Overstory tree s within this stand are between 8"-18" DBH and are between 50 -80 years of age. Primary overstory tree species include northern red oak*(Quercus rubra)* white oak*(Quercus alba)* pin oak *(Quercus pallustris)* black oak*(Quercus velutina)* Virginia pine*(Pinus virginiana)* and red maple*(Acer rubrum)* These trees are generally in fair condition. There is evidence of decline in many of the larger hardwoods and a considerable amount of wind throw has occurred, primarily among Virginia pines. The understory c ontains dogwood *(Cornus florida)*, blackgum*(Nyssa sylvatica)* hickory *(Carya spp.)* white oak, American holly *(Ilex opaca)*, and American beech *(Fagus grandifolia)* Desirable hardwood overstory species regeneration is present in good numbers (300 stems per acre).
B	DEVELOPED (LAWN AREAS AND EXISTING HOMES)	NORTHERN RED OAK WHITE OAK BLACK OAK RED MAPLE	---	FAIR TO GOOD	2.79 AC.	**Northern Portion** The majority of the trees inventoried within the northern portion of the site are larger specimens, between 20"- 45" diameter at breast height (DBH). These trees occur primarily in lawn areas surrounding existing home sites. All trees inventoried have been assigned a tag number and flagged in the field. Information gathered for each of these trees includes: species, size, condition, canopy position, crown density, average crown spread, and problems associated with tree health and vigor. Tree conditions have been assigned as percentages based on methods outlined in the latest edition of the *Guide for Plant Appraisal* published by the International Society of Arboriculture.
				TOTAL	8.07141 AC.	

Application No: RZ/FDP 2004-SP-027
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APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 11-10-05
Date of (BOS) (PC) approval 12-05-05
Sheet 9 of 9

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COMMONWEALTH OF VIRGINIA PETER L. RINCK 3388 LANDSCAPE ARCHITECT

EXISTING VEGETATION MAP

NASSIR PROPERTY

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

APRIL 12, 2005
REVISED MARCH 21, 2005

BC REVISIONS
JUNE 24, 2004
AUGUST 27, 2004
REVISED DECEMBER 06, 2004
REVISED FEBRUARY 15, 2005
REVISED MARCH 10, 2005

OWNER/CONTRACT PURCHASER
BENDER GROUP, THE
500 MONTGOMERY STREET
SUITE 140
ALEXANDRIA, VA 22314-1560

DESIGNED BY: JDB
DRAFTED BY: CAD
CHECKED BY: PLR
DATE: MAY, 2004
SCALE: HOR. 1"=60'
VERT.
SHEET 9 OF 9
CO. NO.
CAD NAME: G3021EVM.DWG
LAYOUT: EVM
FILE NO. 03021.11-03

XREFS: G3021BAS G3021EASC