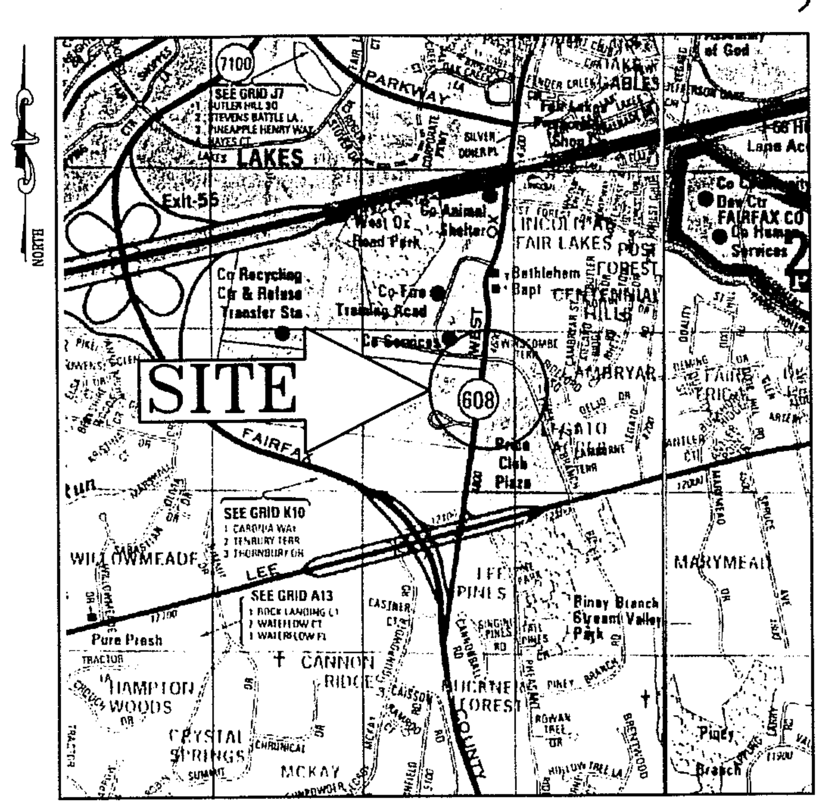
COSTCO

SPECIAL EXCEPTION AMENDMENT PLAT
4725 WEST OX ROAD
FAIRFAX,
FAIRFAX COUNTY, VIRGINIA 22030

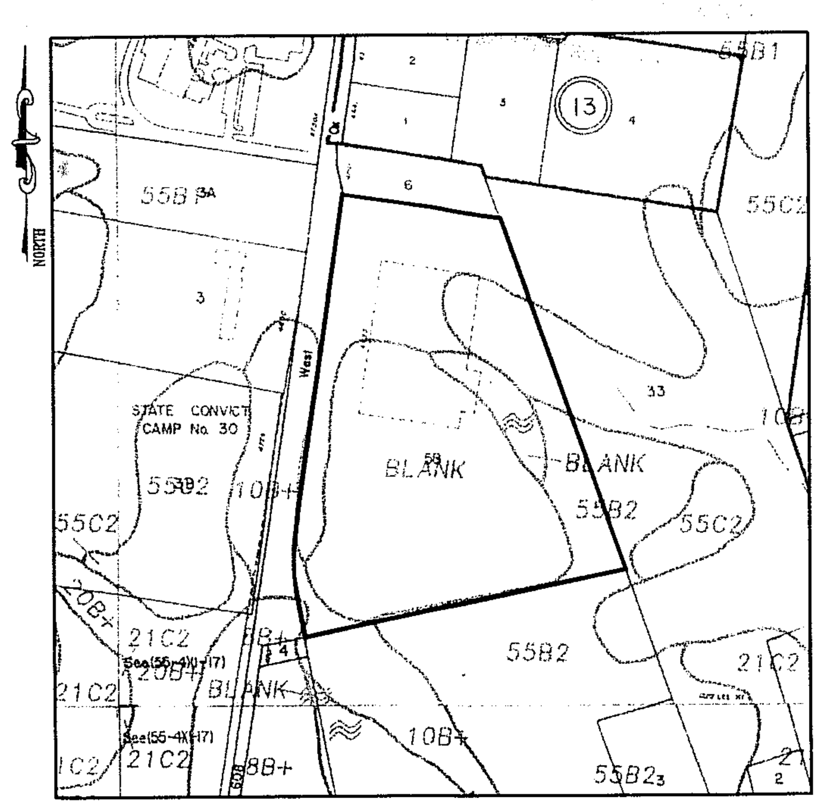
LEGEND
FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING		PROPOSED
EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE / R.O.W. LINE	
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	
	EASEMENT LINE	
	SETBACK LINE	
	CONCRETE CURB & GUTTER	CURB AND GUTTER; SPILL CURB; TRANSITION CURB; DEPRESSED CURB AND GUTTER
	TYPICAL LIGHT	
	ACORN LIGHT	
	TYPICAL SIGN	
	PARKING COUNTS	
123	CONTOUR LINE	123
TC 516.4 OR 516.4	SPOT ELEVATIONS	TC 516.00 OR 51⁶; TC 516.00 BC 515.55
XXX	SANITARY LABEL	XXX XXX
X XXX	STORM LABEL	X XXX
S	SANITARY SEWER LATERAL	S
W	UNDERGROUND WATER LINE	W
E	UNDERGROUND ELECTRIC LINE	E
G	UNDERGROUND GAS LINE	G
OH	OVERHEAD WIRE	OH
T	UNDERGROUND TELEPHONE LINE	T
C	UNDERGROUND CABLE LINE	C
	STORM SEWER	
	SANITARY SEWER MAIN	
	HYDRANT	
S	SANITARY MANHOLE	S
D	STORM MANHOLE	D
WM	WATER METER	
	WATER VALVE	
GV	GAS VALVE	
GM	GAS METER	
	TYPICAL END SECTION	
OR	HEADWALL OR ENDWALL	OR
	YARD INLET	
	CURB INLET	
C/O	CLEAN OUT	
E	ELECTRIC MANHOLE	E
T	TELEPHONE MANHOLE	T
EB	ELECTRIC BOX	EB
EP	ELECTRIC PEDESTAL	EP
	MONITORING WELL	
TP	TEST PIT	TP
	BENCHMARK	
	BORING	
	UTILITY POLE W/LIGHT	
	POLE LIGHT	
	TRAFFIC LIGHT	
	UTILITY POLE	

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.



LOCATION MAP
COPYRIGHT ADC THE MAP PEOPLE
PERMIT USE NO. 20602153-5
SCALE: 1"=2000'



SOILS MAP
SCALE: 1"=500'
(FOR ON SITE SOILS INFORMATION SEE SHEET #2)

PROPERTY INFORMATION
4725 WEST OX ROAD
FAIRFAX, VA 22030
TAX MAP #56-01-01
PARCEL 5C

OWNER
KIR FAIRFAX, LP
3333 NEW HYDE PARK ROAD
NEW HYDE PARK, NY 11042
PHONE: (516) 869-9000

APPLICANT
COSTCO WHOLESALE
45940 HORSESHOE DRIVE, SUITE 150
STERLING, VA 20166-6514
CONTACT: RENEE HANSON
PHONE: (703) 406-6800
FAX: (703) 406-6835

PREPARED BY:

BOHLER ENGINEERING

22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
FX: (703) 709-9501
CONTACT: AARON BODENSCHATZ, P.E.
www.bohlerengineering.com

UTILITY CONTACT INFORMATION:

ELECTRIC
DOMINION POWER
1901 REDDY DRIVE
WOODBRIDGE, VA 22194
CONTACT: DALE BOWMAN
PHONE: (703) 490-2815

WATER
FAIRFAX WATER
8560 ARLINGTON BLVD.
MERRIFIELD, VA 20178
CONTACT: MIKE FORRESTER
PHONE: (703) 289-6000

GAS
WASHINGTON GAS
6861 INDUSTRIAL ROAD
SPRINGFIELD, VA 22151
PHONE: (703) 750-1000

SHEET INDEX

1	COVER SHEET
2	GENERAL NOTES, DETAILS, & CORRESPONDENCE
OPTION A: WAREHOUSE EXPANSION	
3	EXISTING CONDITIONS/DEMOLITION PLAN
4	EXISTING VEGETATION MAP
5	TREE CONDITION ANALYSIS
6	OVERALL SITE PLAN
7	SITE LAYOUT PLAN
8	DETAILED SITE PLAN - WAREHOUSE EXPANSION AND WAREHOUSE SIGNAGE
9	LANDSCAPE PLAN
10	LANDSCAPE NOTES & DETAILS
11	PRELIMINARY SWM & OUTFALL ANALYSIS PLAN
12	PRELIMINARY SWM NOTES & COMPUTATIONS
13	LIGHTING PLAN
14	BUILDING ELEVATIONS
15	PHOTO RENDERINGS
OPTION B: GASOLINE FACILITY	
16	OVERALL SITE PLAN
17	DETAILED EXISTING CONDITIONS/ DEMOLITION PLAN
18	EXISTING VEGETATION MAP
19	TREE CONDITION ANALYSIS
20	DETAILED SITE PLAN
21	DETAILED LANDSCAPE PLAN
22	LANDSCAPE NOTES
23	PRELIMINARY SWM AND OUTFALL ANALYSIS PLAN
24	DETAILED LIGHTING PLAN
25	TRUCK ACCESS ROUTE PLAN
25A	GAS STATION ELEVATIONS
25B	GAS STATION PHOTO RENDERINGS
26-27	FAIR CHASE-SWM COMPUTATIONS POND #2
28-29	PINEY BRANCH RD.-OUTFALL & COMPUTATIONS
30	CAMBRYAR-SWM COMPUTATIONS
31	VDOT ROUTE 29 IMPROVEMENTS
32	HOME DEPOT/PRICE CLUB GENERALIZED DEVELOPMENT PLAN
33	HOME DEPOT/PRICE CLUB PLAZA "AS BUILT" OVERALL LAYOUT PLAN

WAIVERS/MODIFICATIONS HEREBY REQUESTED BELOW

CODE	SECTION	REQUIREMENT	PROVIDED
PUBLIC FACILITIES MANUAL/ COMPREHENSIVE PLAN	8-0202.2A	CONSTRUCTION OF AN 8-FOOT ASPHALT OR CONCRETE MAJOR PAVED TRAIL ALONG THE LEE HIGHWAY FRONTAGE IN ACCORDANCE WITH THE COUNTYWIDE TRAILS PLAN	EXCLUSION OF A TRAIL
ZONING ORDINANCE	13-302	SCREENING TYPE 3 36,675 SF TREE CANOPY 289 SHRUBS	19,293 SF TREE 1 CANOPY 197 SHRUBS MODIFICATION REQUESTED DUE TO EX. CONDITIONS/APPROVED SITE PLAN
ZONING ORDINANCE	13-304	BARRIER TYPE E - 6' HIGH WALL	EXCLUSION OF A WALL WAIVER REQUESTED DUE TO EXISTING CONDITIONS/ APPROVED SITE PLAN

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 1 of 33

Zoning Evaluation Division

MISS UTILITY
DIG WITH C.A.R.E. VIRGINIA KEEP VIRGINIA SAFE
BEFORE YOU DIG CALL
811 IN VA
or 1-800-552-7001
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE
THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL ENGINEERS
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◆ ALBANY, NY ◆ TOWSON, MD
◆ PURCHASE, NY ◆ WARRENTON, VA
◆ RONKONKOMA, NY ◆ FORT LAUDERDALE, FL
◆ CHALFONT, PA ◆ CENTER VALLEY, PA

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REVISIONS

REV:	DATE:	COMMENT:	BY:
1	06/03/11	REV. PER COUNTY COMMENTS	BJS
2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	NTS
CAD I.D.:	SD3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A & OPTION B
PROPOSED WAREHOUSE EXPANSION OR GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER
22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
FX: (703) 709-9501
www.bohlerengineering.com

DAVID B. LOGAN
COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
PROFESSIONAL ENGINEER
LICENSE No. 043616
10/20/11
PROFESSIONAL ENGINEER

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
1
OF 33

STANDARD GENERAL NOTES

1. THE PROPERTY DELINEATED HEREON IS LOCATED ON FAIRFAX COUNTY TAX ASSESSMENT MAP #0561-01-005C AND HAS A TOTAL AREA OF 16.05 ACRES. THE ADDRESS OF THE SITE IS 4725 WEST OX ROAD. PLEASE REFER TO SHEET 1 FOR REQUESTED MODIFICATIONS TO THE SPECIAL EXCEPTION AMENDMENT SUBMITTAL REQUIREMENTS.

2. THE PROPOSED USE OF GASOLINE FACILITY OR GENERAL RETAIL, LARGE, WILL BE LOCATED WITHIN A SPECIAL EXCEPTION AREA OF 699,345 S.F. OR 16.06 AC. THE EXISTING SITE IS MOSTLY PAVED WITH AN EXISTING COSTCO WAREHOUSE AND PARKING LOT.

3. BOUNDARY AND FIELD RUN TOPOGRAPHIC SURVEY PERFORMED BY:
   CONTROL POINT ASSOCIATES, INC.
   22630 DAVIS DRIVE, SUITE 200
   STERLING, VA 20164
   PHONE: (703) 709-9500
   FAX: (703) 709-9501
   TITLE: BOUNDARY & TOPOGRAPHIC SURVEY
   FILE #: S010010.03SR
   DATED: 11-24-04
   REVISED: 08-27-07
   SURVEY IS FIELD RUN

4. OWNER:
   KIR FAIRFAX, LP
   3333 NEW HYDE PARK ROAD
   SUITE 100
   NEW HYDE PARK, NY 11042

5. ZONING DATA: C-8 (HIGHWAY COMMERCIAL)

6. THE PROPOSED SITE WILL NOT IMPACT ANY BURIAL SITES AS NONE ARE NEARBY.

7. NO UTILITY EASEMENTS HAVING A WIDTH OF 25' OR MORE ARE KNOWN TO EXIST ON-SITE.

8. NO RESOURCE PROTECTION AREA, ENVIRONMENTAL QUALITY CORRIDOR OR FLOOD PLAIN IS KNOWN TO EXIST ON THIS PROPERTY.

9. ZONING REQUIREMENTS:

	REQUIRED	PROVIDED OPTION A	PROVIDED OPTION B
A. MINIMUM LOT AREA:	40,000 S.F. (0.92 AC.)	699,345 S.F. (16.06 AC.)	699,345 S.F. (16.06 AC.)
B. MIN. BUILDING SETBACK			
FRONT SETBACK (WEST)	45' BULK PLANE, 40'	99'±	276'±
SIDE SETBACK (SOUTH)	N/A	408'±	31'±
SIDE SETBACK (NORTH)	N/A	54'±	54'±
REAR SETBACK (EAST)	20'	54'±	54'±
C. MIN. PARKING SETBACK			
FRONT SETBACK (WEST)	10'	21.1'	11.4'
SIDE SETBACK (SOUTH)	N/A	7.6'	14.8'
SIDE SETBACK (NORTH)	N/A	19.4'	19.4'
REAR SETBACK (EAST)	N/A	17.9'	17.9'
D. PARKING REQUIREMENTS*	SHOPPING CENTER 4 SPACES PER 1,000 G.S.F. OF FLOOR AREA		
PROPOSED SITE CONDITIONS:			
COSTCO WAREHOUSE (GFA = 156,675 SF) 4 * (156,675 / 1,000) = 626.7	627 SPACES	686 SPACES	813 SPACES
PARKING RESERVED PER HOME DEPOT AGREEMENT	144 SPACES	144 SPACES	144 SPACES
	771 SPACES	830 SPACES	957 SPACES
HANDICAP PARKING REQUIRED 2% * REQUIRED PARKING WITH 1/6 VAN	16 SPACES 3 VAN ACCESSIBLE	18 SPACES 4 VAN ACCESSIBLE	21 SPACES 3 VAN ACCESSIBLE
EXISTING SITE CONDITIONS:			
COSTCO WAREHOUSE (GFA = 139,270 SF) 4 * (139,270 / 1,000) = 557.08	558 SPACES	816 SPACES	816 SPACES
PARKING RESERVED PER HOME DEPOT AGREEMENT	144 SPACES	144 SPACES	144 SPACES
	662 SPACES	960 SPACES	960 SPACES
CHANGE IN ONSITE PARKING:		(A) -130 SPACES	(B) -3 SPACES
EXISTING TOTAL SHOPPING CENTER PARKING:	1431 SPACES	1766 SPACES	1766 SPACES
		(A) -130 SPACES	(B) -3 SPACES
PROPOSED TOTAL SHOPPING CENTER PARKING:		1636 SPACES	1763 SPACES

*SEE APPROVED PROPOSED SITE PLAN USE & PARKING TABULATION REVISION (FFX. CO.#6552-PKS-003-1) THIS SHEET.

	REQUIRED	OPTION A	OPTION B
E. MAXIMUM BUILDING HEIGHT:	40'	28'	±18'
F. F.A.R.	0.50	0.22	0.20
G. OPEN SPACE	15% (104,902 S.F.±)	21% (146,446 S.F.±)	18% (146,446 S.F.±)
H. BULK PLANE	45' MIN.	76' (WAREHOUSE EXPANSION)*	83' (GAS STATION)*
I. GROSS FLOOR AREA	N/A	139,271 G.S.F. OF EXISTING COSTCO 17,404 G.S.F. OF COSTCO EXPANSION 156,675 G.S.F. TOTAL	139,271 G.S.F. OF EXISTING COSTCO 72 G.S.F. OF COSTCO KIOSK 139,343 G.S.F. TOTAL
J. LOADING REQUIREMENTS	5 SPACES	5 SPACES	5 SPACES

NUMBER: RETAIL STANDARD B-ONE (1) SPACE FOR THE FIRST 10,000 SF OF GROSS FLOOR AREA, PLUS ONE (1) SPACE FOR EACH ADDITIONAL 15,000 SF OR MAJOR FRACTION THEREOF (ARTICLE 11-203)

ONE (1) LOADING SPACE FOR FIRST 10,000 SF
156,675 SF - 10,000 SF = 146,675 SF
146,675 SF / 15,000 SF/LOADING SPACE = 9.78 = 10 LOADING SPACES
OR MAXIMUM 5 LOADING SPACES (FFX. CO. ZONING ORDINANCE ARTICLE 11-202-15)

DIMENSION: MINIMUM 15'WX25'LX15'H, UNLESS LOADING SPACES CONTIGUOUS, IN WHICH CASE ALL EXCEPT FIRST LOADING SPACE SHALL HAVE A MINIMUM WIDTH OF 12'

* SEE BULK PLANE DIAGRAMS THIS SHEET.

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10. THE SITE IS CURRENTLY SERVICED BY PUBLIC WATER AND SEWER.

11. ALL PROPOSED SIGNAGE SHALL CONFORM TO ARTICLE 12 OF THE FAIRFAX COUNTY ZONING ORDINANCE.

12. THE OUTDOOR AREA DEVOTED TO ANY USE SUCH AS VEHICLE OR TOOL RENTAL SHALL BE LIMITED TO THE AREA SO DESIGNATED ON AN APPROVED SPECIAL EXCEPTION PLAT.

13. THE PROPERTY IS LOCATED IN ZONE X (AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOOD PLAIN) PER MAP ENTITLED "FIRM, FLOOD INSURANCE RATE MAP, FAIRFAX COUNTY, VIRGINIA, UNINCORPORATED AREAS, PANEL 25 OF 150", COMMUNITY-PANEL NUMBER 515525 0025 D, MAP REVISED MARCH 5, 1990.

ON SITE SOILS INFORMATION

SOIL I.D. NUMBER	SOIL NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODIBILITY	GEOTECHNICAL REPORT REQD.
8B	WORSHAM	POOR	POOR	GOOD	SLIGHT	YES
10B	GLENVILLE	FAIR	MARGINAL	GOOD	MODERATE	YES
55B	GLENELG	POOR	GOOD	GOOD	MODERATE	NO
55C	GLENELG	POOR	GOOD	GOOD	MODERATE	NO

NOTE: BLANK LABEL ON SOILS MAP, SHEET 1, INDICATES FILL AREA.

PROPOSED SITE PLAN USE AND PARKING TABULATION REVISION

FEE: $555.00

Engineer: Bohler Engineering, P.C. Address: 22630 Davis Drive, Suite 200, Sterling, VA 20164 Phone # (703) 709 - 9500
Plan Name: Price Club Plaza Original Site Plan #: 6552 Tax Map # 56-1-01, 56-03-01 Parcels 5C & 5D
Zoning: C-8 (Highway Commercial District) Rezoning Case # Proffered: [ ] Yes [X] No Proffered Use Restrictions (See Note 1 below) N/A

Address	List each floor (include basement)	Suite #	Use (See Notes 2, 3, and 4 below)	Use permitted by: Right	Special Use	Special Exception	Square foot gross floor area	Square feet net floor area	# Seats and/or stools	# Company vehicles	# Service bays	# of Employees	# Students	Other	Parking rate required per code (See Note 5 below)	Total parking spaces required for this use
4725 West Ox Road Space 1 - Costco Warehouse	1	1	Shopping Center (Retail)	X			139,270								4/1,000 SF	557.1
12275 Price Club Plaza Space 2 - Home Depot	1	A	Shopping Center (Retail)	X			122,410								4/1,000 SF	489.6
12275 Price Club Plaza Space 3 - Office Depot	1	C	Shopping Center (Retail)	X			15,798								4/1,000 SF	63.2
12300 Price Club Plaza Space 4 - Sports Authority	1	A	Shopping Center (Retail)	X			42,002								4/1,000 SF	168
(If additional space is required, use pages 2-7)															REQUIRED TOTAL FOR ENTIRE SITE PLAN	1362
NUMBER OF ACCESSIBLE SPACE(S) PROVIDED	29	+ VAN ACCESSIBLE SPACE(S) PROVIDED					10	=TOTAL ACCESSIBLE PARKING SPACE(S) on site per ADA Act and VUSBC (See Note 6 below)								39
(The total number of parking spaces, including accessible parking spaces, available and useable for vehicular parking on the area covered by this site plan [See Note 6 below])															TOTAL PARKING SPACE(S) PROVIDED	1766

APPROVED
COUNTY OF FAIRFAX
OFFICE OF SITE DEVELOPMENT SERVICES
DPWES
BY [signature]
DATE 6-07-06

[1] List proffered use Prohibitions or Limitations.
[2] In building where one floor has more than one use (personal offices, general office & retail), use a separate line for each use. The uses must correspond to those identified in Article 11 of the Zoning Ordinance, or else documentation of the Zoning Administration determination must be attached to the tabulation.
[3] Units which are vacant shall be included, the intended use shall be indicated and parking allocated.
[4] Developer should make an initial parking assignment for each unit on the site plan. If developer, condominium, association or landlord wishes to make changes to assigned number of spaces after final site plan bond release, a site plan revision for reallocation of parking will be required. This form, when properly completed and certified, is intended to be such a site plan revision.
[5] If use is a Grandfathered use, it may be calculated at previous code parking rate is so identified and justification is submitted with the parking tabulations.
[6] Certification is taken to mean that the number of parking spaces shown as being provided is actually available on the site and useable (not occupied or blocked by dumpsters, air conditioners, incinerators, storage trailers, etc), that all uses on the site have been included in the above listing, and that the requisite number of spaces and signage for compliance with ADA are provided. The number of parking spaces must be in conformance with the associated rezoning, special exception, special permit and variance.

Certified Correct[6] (Applicant) Engineer's Signature: [signature] Date: 9/11/06
County Approval by: Date:
Property Owners, Landlords, Condominium Association - Concurrence with Tabulation
Print Name & Title (include company name when appropriate): KIR FAIRFAX L.P. BY: KIR FAIRFAX 547 INC. Signature: BY: [signature] Wilbur E. Simmons III Vice President Date: 9/11/06
Number of copies required: One (1) original with Engineer's Seal and Signature, plus four (4) copies.
Submit to: Office of Site Development Services, Plan and Document Control Section, 12055 Government Center Parkway, Suite 111, Fairfax, Virginia 22035-5503

COMMONWEALTH OF VIRGINIA
ADAM J. VOLANTH
No. 0402 031438
PROFESSIONAL ENGINEER

6552-PKS-003-1
Engineer

PROPOSED SITE PLAN USE AND PARKING TABULATION REVISION

Engineer: Bohler Engineering, P.C. Address: 22630 Davis Drive, Suite 200, Sterling, VA 20164 Phone # (703) 709 - 9500
Plan Name: Price Club Plaza Original Site Plan #: 6552 Tax Map # 56-1-01, 56-03-01 Parcels 5C & 5D
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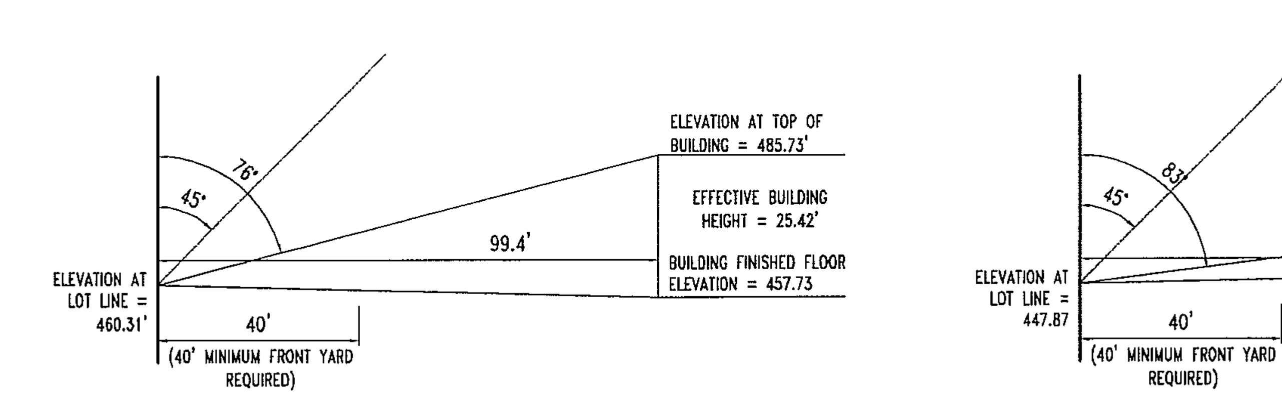
12300 Price Club Plaza Space 5 - Myer-Emco Audio Video	1	B-2	Shopping Center (Retail)	X			8,069								4/1,000 SF	32.3
12300 Price Club Plaza Space 6 - Sakoontra Thai Restaurant	1	C	Shopping Center (Restaurant)	X			6,269		144			26			1/4 seats 1/2 stools 1/2 emp.	51.3
	2	C	Shopping Center (Restaurant)	X			4,500									

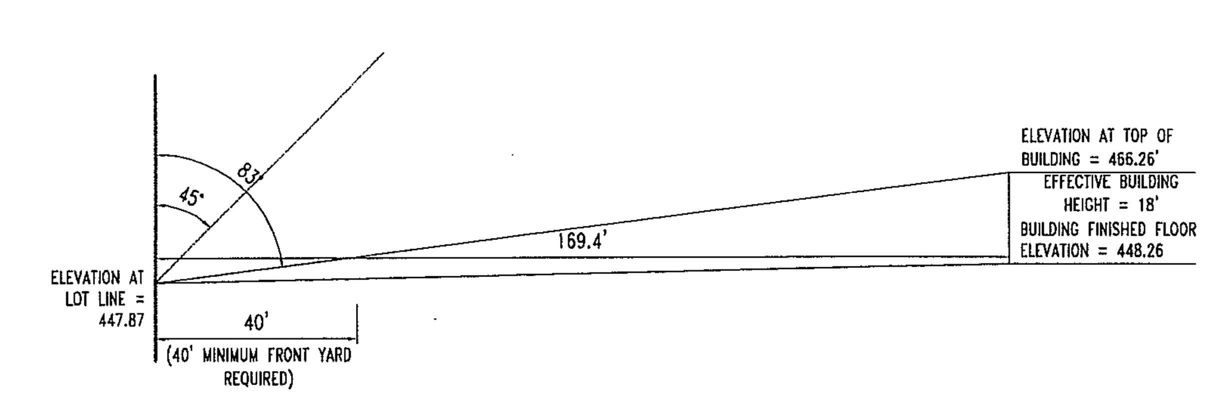
Enter Totals on Sheet 1 of 7. Number of copies required: One (1) original copy with Engineer's Seal and Signature, plus four (4) copies

Sheet 2 of 2

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 2 of 33



BULK PLANE DIAGRAM FOR WAREHOUSE EXPANSION
1"=30'



BULK PLANE DIAGRAM FOR GAS STATION
1"=30'

MISS UTILITY
DIG WITH C.A.R.E. VIRGINIA KEEP VIRGINIA SAFE
BEFORE YOU DIG CALL
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◆ STERLING, VA ◆ BOWIE, MD ◆ TOWSON, MD ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ CENTER VALLEY, PA

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	NTS
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PROJECT:
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FOR
COSTCO WHOLESALE
OPTION A & OPTION B
PROPOSED WAREHOUSE EXPANSION OR GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
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COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
Lic. No. 043516
10/20/11
PROFESSIONAL ENGINEER

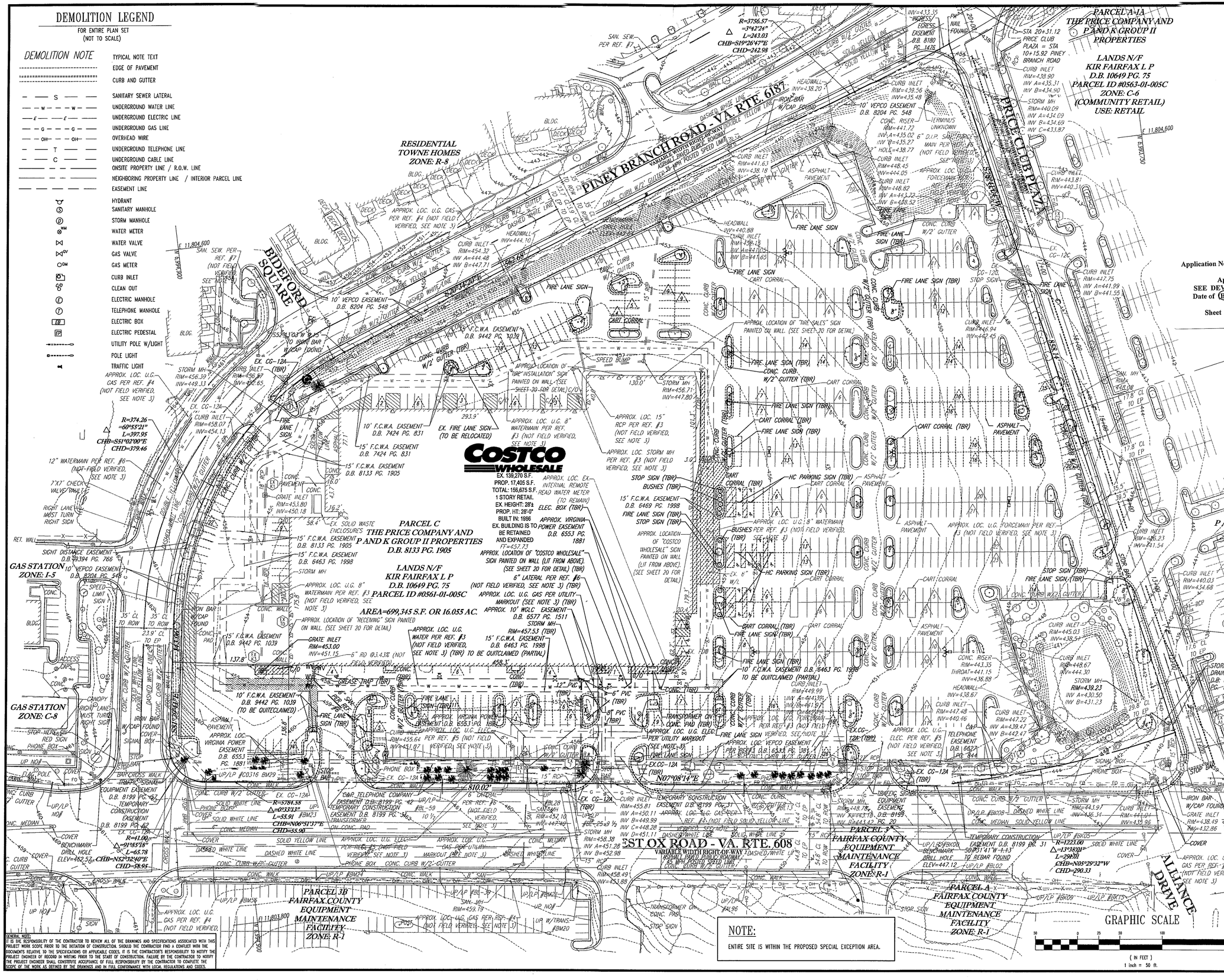
SHEET TITLE:
GENERAL NOTES, DETAILS & CORRESPONDENCE

SHEET NUMBER:
2
OF 33

DEMOLITION LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

DEMOLITION NOTE — TYPICAL NOTE TEXT
EDGE OF PAVEMENT
CURB AND GUTTER
SANITARY SEWER LATERAL
UNDERGROUND WATER LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND GAS LINE
OVERHEAD WIRE
UNDERGROUND TELEPHONE LINE
UNDERGROUND CABLE LINE
ONSITE PROPERTY LINE / R.O.W. LINE
NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE
EASEMENT LINE
HYDRANT
SANITARY MANHOLE
STORM MANHOLE
WATER METER
WATER VALVE
GAS VALVE
GAS METER
CURB INLET
CLEAN OUT
ELECTRIC MANHOLE
TELEPHONE MANHOLE
ELECTRIC BOX
ELECTRIC PEDESTAL
UTILITY POLE W/LIGHT
POLE LIGHT
TRAFFIC LIGHT



NOTE:
ENTIRE SITE IS WITHIN THE PROPOSED SPECIAL EXCEPTION AREA.

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Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 11-10-2012

Sheet 3 of 33

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REV.	DATE:	COMMENT:	BY:
1	06/03/11	REV. PER COUNTY COMMENTS	BJS
2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=50'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A
PROPOSED WAREHOUSE EXPANSION
4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER ENGINEERING
22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
FX: (703) 709-9501
www.bohlerengineering.com

COMMONWEALTH OF VIRGINIA — DAVID B. LOGAN — LICENSED PROFESSIONAL ENGINEER

MISS UTILITY
DIG WITH CARE
BEFORE YOU DIG CALL
811 IN VA
or 1-800-552-7001
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE
THE CONTRACTOR IS TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

SHEET TITLE:
EXISTING CONDITIONS/ DEMOLITION PLAN

SHEET NUMBER:
3
OF 33

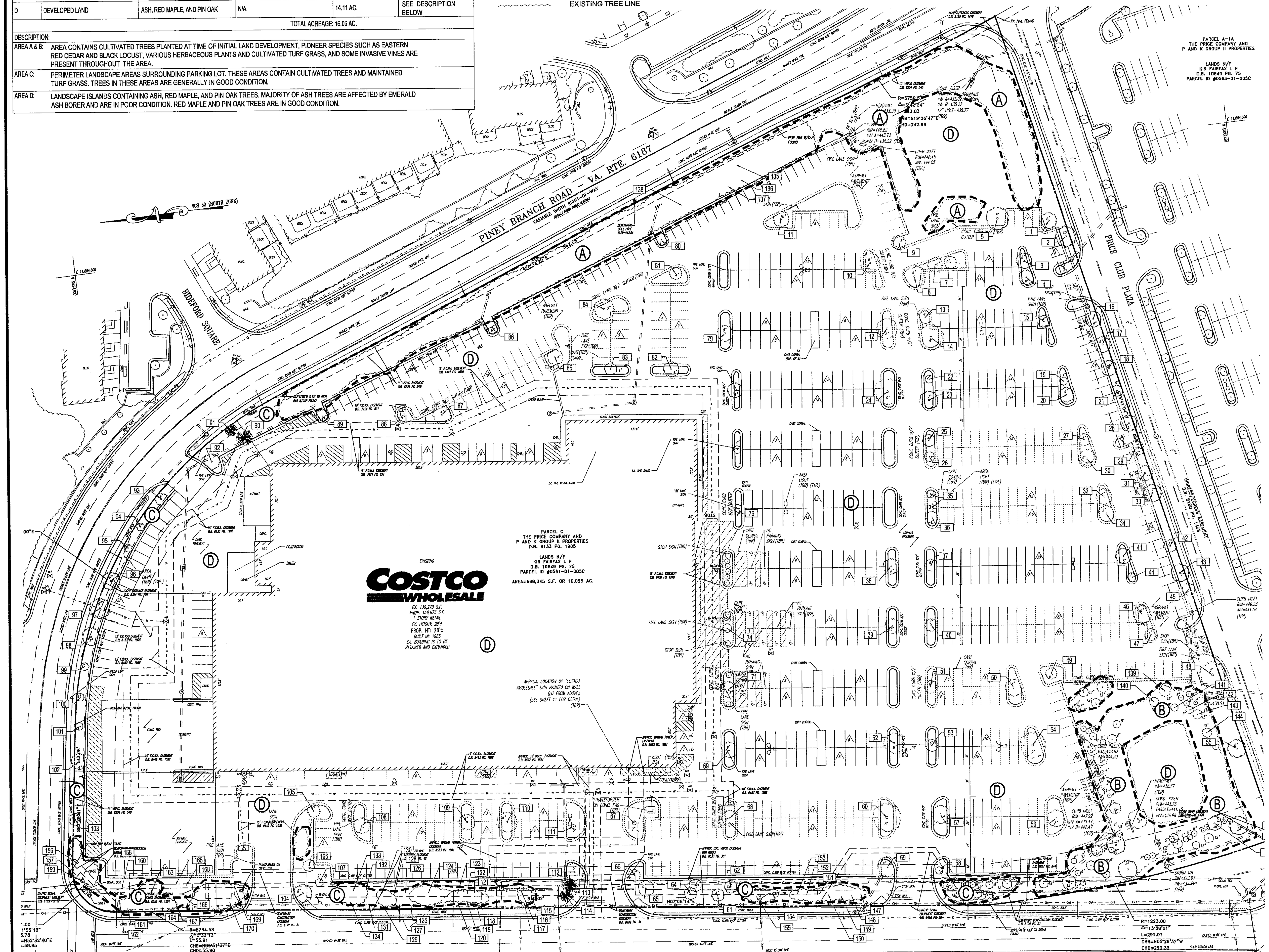
EXISTING VEGETATION MAP (EVM) - COSTCO FOR WAREHOUSE EXPANSION

COVER TYPE SUMMARY TABLE - PARCEL ID: 0561-01-005C, AREA :16.06 ACRES (699,345 SQ. FT) EVM PREPARED BY BOHLER ENGINEERING ON 12/29/09					
AREA	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	ACREAGE	COMMENTS
A	EARLY SUCCESSIONAL FOREST COMMUNITY	RED MAPLE, SPRUCE, WHITE PINE EASTERN RED CEDAR	PIONEER EARLY SUCCESSIONAL OR SUB CLIMAX	0.82 AC.	SEE DESCRIPTION BELOW
B	EARLY SUCCESSIONAL FOREST COMMUNITY	RED MAPLE, WHITE PINE EASTERN RED CEDAR, AND BLACK LOCUST	PIONEER EARLY SUCCESSIONAL OR SUB CLIMAX	0.43 AC.	SEE DESCRIPTION BELOW
C	MAINTAINED GRASSLAND	RED MAPLE, ASH, WHITE PINE, EASTERN RED CEDAR	N/A	0.70 AC.	SEE DESCRIPTION BELOW
D	DEVELOPED LAND	ASH, RED MAPLE, AND PIN OAK	N/A	14.11 AC.	SEE DESCRIPTION BELOW
TOTAL ACREAGE: 16.06 AC.					

DESCRIPTION:	
AREA A & B:	AREA CONTAINS CULTIVATED TREES PLANTED AT TIME OF INITIAL LAND DEVELOPMENT, PIONEER SPECIES SUCH AS EASTERN RED CEDAR AND BLACK LOCUST, VARIOUS HERBACEOUS PLANTS AND CULTIVATED TURF GRASS, AND SOME INVASIVE VINES ARE PRESENT THROUGHOUT THE AREA.
AREA C:	PERIMETER LANDSCAPE AREAS SURROUNDING PARKING LOT. THESE AREAS CONTAIN CULTIVATED TREES AND MAINTAINED TURF GRASS. TREES IN THESE AREAS ARE GENERALLY IN GOOD CONDITION.
AREA D:	LANDSCAPE ISLANDS CONTAINING ASH, RED MAPLE, AND PIN OAK TREES. MAJORITY OF ASH TREES ARE AFFECTED BY EMERALD ASH BORER AND ARE IN POOR CONDITION. RED MAPLE AND PIN OAK TREES ARE IN GOOD CONDITION.

EXISTING VEGETATION MAP LEGEND:

- COVER TYPE BOUNDARY
- (A) EARLY SUCCESSIONAL FOREST COMMUNITY
- (B) EARLY SUCCESSIONAL FOREST COMMUNITY
- (C) MAINTAINED GRASSLANDS
- (D) DEVELOPED LAND
- EXISTING TREE LINE



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Sheet 4 of 33

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

MISS UTILITY

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DAVID B. LOGAN
COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
PROFESSIONAL ENGINEER
WEST VIRGINIA LICENSE NO. 17390
PROFESSIONAL ENGINEER

SHEET TITLE:
EXISTING VEGETATION MAP

SHEET NUMBER:
4
OF 33

Tree Condition Analysis for Costco (Fairfax County Parcel ID: 0561-01-005C)

Tree Condition Analysis Performed by Nicholas Georgas, ISA Certified Arborist MA-5061A on 12/29/09

Tree #	Common Name	Size (in inches) (DBH)	Condition Rating (%)	Species Rating (%)	Critical Root Zone Radius (in feet) (CRZ)	Preserve or Remove Tree	Remarks
1	Pin Oak	11	78%	70%	11	Preserve	
2	Pin Oak	18	75%	70%	18	Preserve	
3	Pin Oak	11	66%	70%	11	Preserve	
4	Pin Oak	10	69%	70%	10	Preserve	
5	Pin Oak	14	75%	70%	14	Preserve	
6	-						
7	Red Maple	9	72%	70%	9	Preserve	
8	Red Maple	8	66%	70%	8	Preserve	
9	Red Maple	9	75%	70%	9	Preserve	
10	Green Ash	12	53%	30%	12	Remove	
11	Green Ash	11	44%	30%	11	Remove	
12	Green Ash	11	47%	30%	11	Remove	
13	Red Maple	6	25%	70%	6	Remove	
14	Pin Oak	10	56%	70%	10	Remove	
15	Pin Oak	7	53%	70%	7	Preserve	
16	Red Maple	11	72%	70%	11	Preserve	
17	Pin Oak	11	72%	70%	11	Preserve	
18	Pin Oak	9	72%	70%	9	Preserve	
19	Pin Oak	6	50%	70%	6	Preserve	
20	Pin Oak	9	78%	70%	9	Preserve	
21	Pin Oak	9	81%	70%	9	Preserve	
22	Pin Oak	7	59%	70%	7	Preserve	
23	Pin Oak	9	69%	70%	9	Preserve	
24	Green Ash	11	50%	30%	11	Remove	
25	Pin Oak	7	53%	70%	7	Preserve	
26	Pin Oak	6	66%	70%	6	Remove	
27	Pin Oak	5	47%	70%	5	Remove	
28	Pin Oak	9	72%	70%	9	Remove	
29	Pin Oak	9	72%	70%	9	Remove	
30	Pin Oak	8	69%	70%	8	Remove	
31	Pin Oak	9	66%	70%	9	Remove	
32	Pin Oak	7	63%	70%	7	Remove	
33	Red Maple	9	72%	70%	9	Remove	
34	Pin Oak	7	56%	70%	7	Remove	
35	Pin Oak	5	56%	70%	5	Remove	
36	Pin Oak	8	69%	70%	8	Preserve	
37	Green Ash	9	50%	30%	9	Remove	Emerald Ash Borer holes in main trunk
38	Green Ash	13	44%	30%	13	Remove	Emerald Ash Borer holes in main trunk
39	Green Ash	11	47%	30%	11	Remove	Emerald Ash Borer holes in main trunk
40	Green Ash	9	50%	30%	9	Remove	Emerald Ash Borer holes in main trunk
41	Pin Oak	8	66%	70%	8	Preserve	
42	Pin Oak	8	72%	70%	8	Preserve	
43	Pin Oak	12	84%	70%	12	Preserve	
44	Pin Oak	5	47%	70%	5	Preserve	
45	Red Maple	9	63%	70%	9	Remove	Prune dead wood
46	Pin Oak	8	69%	70%	8	Preserve	
47	Pin Oak	7	53%	70%	7	Preserve	
48	Red Maple	9	81%	70%	9	Remove	
49	Green Ash	9	34%	30%	9	Remove	Emerald Ash Borer holes in main trunk
50	Green Ash	10	53%	30%	10	Remove	Emerald Ash Borer holes in main trunk
51	Green Ash	9	47%	30%	9	Remove	Emerald Ash Borer holes in main trunk
52	Green Ash	10	56%	30%	10	Remove	Emerald Ash Borer holes in main trunk
53	Green Ash	10	56%	30%	10	Remove	
54	Green Ash	13	69%	30%	13	Remove	
55	Red Maple	5	78%	70%	5	Remove	
56	Green Ash	12	72%	30%	12	Remove	
57	Green Ash	12	56%	30%	12	Remove	Emerald Ash Borer holes in main trunk
58	Green Ash	9	44%	30%	9	Remove	Emerald Ash Borer holes in main trunk
59	Green Ash	10	50%	30%	10	Remove	Emerald Ash Borer holes in main trunk
60	Green Ash	11	66%	30%	11	Remove	
61	Pin Oak	8	78%	70%	8	Preserve	
62	Spruce	12	66%	65%	12	Preserve	
63	-	0					
64	Eastern Red Cedar	7	75%	75%	7	Preserve	
65	Spruce	10	72%	65%	10	Preserve	
66	Green Ash	8	25%	30%	8	Remove	Emerald Ash Borer holes in main trunk
67	Crape Myrtle	9	88%	80%	9	Remove	
68	Green Ash	11	53%	30%	11	Remove	Emerald Ash Borer holes in main trunk
69	Green Ash	10	56%	30%	10	Remove	Emerald Ash Borer holes in main trunk
70	-	0	0%				
71	Green Ash	10	59%	30%	10	Remove	Emerald Ash Borer holes in main trunk
72	-						
73	-	0					
74	Red Maple	5	78%	70%	5	Remove	
75	-	0					
76	Red Maple	5	28%	70%	5	Remove	Poor condition, noticable damage
77	-	0					
78	-	0					
79	Green Ash	11	63%	30%	11	Remove	Emerald Ash Borer holes in main trunk
80	Green Ash	10	66%	30%	10	Remove	Emerald Ash Borer holes in main trunk
81	Green Ash	11	66%	30%	11	Remove	Emerald Ash Borer holes in main trunk
82	Red Maple	6	72%	70%	6	Preserve	
83	Red Maple	6	72%	70%	6	Preserve	
84	Green Ash	9	78%	30%	9	Remove	
85	Red Maple	8	81%	70%	8	Remove	
86	Green Ash	13	72%	30%	13	Remove	
87	Red Maple	7	75%	70%	7	Remove	
88	Red Maple	7	78%	70%	7	Remove	
89	Green Ash	11	69%	30%	11	Remove	

Tree Condition Analysis for Costco (Fairfax County Parcel ID: 0561-01-005C)

Tree Condition Analysis Performed by Nicholas Georgas, ISA Certified Arborist MA-5061A on 12/29/09

Tree #	Common Name	Size (in inches) (DBH)	Condition Rating (%)	Species Rating (%)	Critical Root Zone Radius (in feet) (CRZ)	Preserve or Remove Tree	Remarks
90	Spruce	12	75%	65%	12	Remove	
91	Spruce	7	78%	65%	7	Remove	
92	Pin Oak	10	81%	70%	10	Preserve	
93	Sugar Maple	5	69%	30%	5	Preserve	
94	Sugar Maple	5	72%	30%	5	Preserve	
95	Sugar Maple	5	78%	30%	5	Preserve	Prune dead wood from center of tree
96	Pin Oak	11	84%	70%	11	Preserve	
97	Pin Oak	13	88%	70%	13	Preserve	
98	Pin Oak	11	88%	70%	11	Preserve	
99	Sugar Maple	5	72%	30%	5	Preserve	
100	Sugar Maple	6	75%	30%	6	Preserve	
101	Pin Oak	6	75%	70%	6	Preserve	
102	Red Maple	14	88%	70%	14	Preserve	
103	Pin Oak	10	78%	70%	10	Preserve	
104	Green Ash	12	69%	30%	12	Remove	
105	Eastern Red Cedar	8	88%	75%	8	Remove	
106	Eastern Red Cedar	8	88%	75%	8	Remove	
107	Eastern Red Cedar	8	88%	75%	8	Remove	
108	Green Ash	12	72%	30%	12	Remove	Emerald Ash Borer holes in main trunk
109	Green Ash	8	63%	30%	8	Remove	
110	Green Ash	11	75%	30%	11	Remove	
111	Crape Myrtle	6	91%	80%	6	Remove	
112	Green Ash	12	72%	30%	12	Remove	
113	Spruce	9	78%	65%	9	Preserve	
114	Spruce	10	78%	65%	10	Preserve	
115	Eastern Red Cedar	7	69%	75%	7	Preserve	
116	Arborvitae	4	75%	60%	4	Preserve	
117	Spruce	12	78%	75%	12	Preserve	
118	Eastern Red Cedar	8	75%	75%	8	Preserve	
119	Eastern Red Cedar	8	75%	75%	8	Preserve	
120	Eastern Red Cedar	8	75%	75%	8	Preserve	
121	Eastern Red Cedar	8	75%	75%	8	Preserve	
122	Eastern Red Cedar	8	75%	75%	8	Preserve	
123	Spruce	7	69%	65%	7	Preserve	
124	White Pine	25	78%	60%	25	Preserve	
125	Spruce	11	84%	65%	11	Preserve	
126	Eastern Red Cedar	7	75%	75%	7	Preserve	
127	Eastern Red Cedar	7	75%	75%	7	Preserve	
128	Eastern Red Cedar	7	75%	75%	7	Preserve	
129	Eastern Red Cedar	7	75%	75%	7	Preserve	
130	Eastern Red Cedar	7	75%	75%	7	Preserve	
131	Eastern Red Cedar	7	75%	75%	7	Preserve	
132	Spruce	9	81%	65%	9	Preserve	
133	Eastern Red Cedar	7	78%	75%	7	Preserve	
134	Eastern Red Cedar	7	78%	75%	7	Preserve	
135	Red Maple	11	78%	70%	11	Preserve	
136	Spruce	7	63%	65%	7	Preserve	
137	Spruce	10	69%	65%	10	Preserve	
138	Eastern Red Cedar	8	69%	75%	8	Preserve	
139	Red Maple	10	69%	70%	10	Preserve	
140	Sugar Maple	8	72%	70%	8	Preserve	
141	Sugar Maple	8	75%	70%	8	Preserve	
142	Black Locust	9	69%	50%	9	Preserve	Remove invasive vines from tree
143	Black Locust	11	75%	50%	11	Preserve	Remove invasive vines from tree
144	Black Locust	10	66%	50%	10	Preserve	Remove invasive vines from tree
145	White Pine	23	78%	60%	23	Remove	
146	White Pine	19	78%	60%	19	Preserve	
147	Eastern Red Cedar	6	75%	75%	6	Preserve	
148	Eastern Red Cedar	6	75%	75%	6	Preserve	
149	Eastern Red Cedar	6	75%	75%	6	Preserve	
150	White Pine	14	84%	60%	14	Preserve	
151	White Pine	14	72%	60%	14	Preserve	
152	Eastern Red Cedar	7	72%	75%	7	Preserve	
153	Eastern Red Cedar	7	75%	75%	7	Preserve	
154	Eastern Red Cedar	7	75%	75%	7	Preserve	
155	Spruce	12	72%	65%	12	Preserve	
156	Pin Oak	11	91%	70%	11	Preserve	
157	Red Maple	8	75%	70%	8	Preserve	
158	Pin Oak	11	84%	70%	11	Preserve	
159	Red Maple	3	72%	70%	3	Preserve	
160	White Pine	9	75%	60%	9	Preserve	
161	Red Maple	9	81%	70%	9	Preserve	
162	White Pine	4	66%	60%	4	Preserve	
163	White Pine	8	75%	60%	8	Preserve	
164	Red Maple	10	72%	70%	10	Preserve	
165	Eastern Red Cedar	6	75%	75%	6	Preserve	
166	Eastern Red Cedar	6	75%	75%	6	Preserve	
167	Eastern Red Cedar	6	75%	75%	6	Preserve	
168	Eastern Red Cedar	6	75%	75%	6	Remove	
169	White Pine	24	84%	60%	24	Remove	
170	Red Maple	9	75%	70%	9	Preserve	

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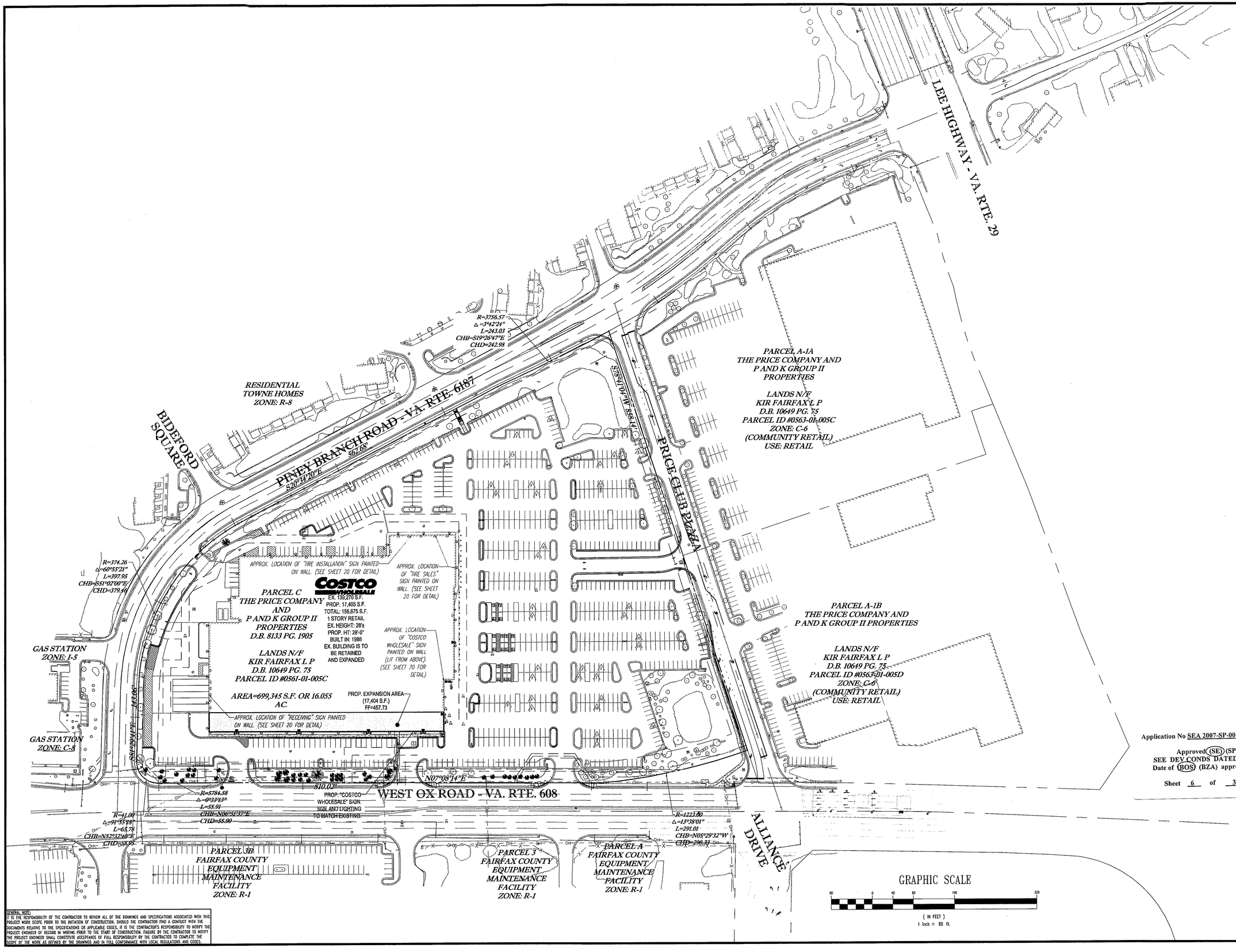
10/20/11
PROFESSIONAL ENGINEER

SHEET TITLE:
TREE CONDITION ANALYSIS

SHEET NUMBER:
5
OF 33



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Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 6 of 33

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3	10/19/11	REV. PER COUNTY COMMENTS	BJS

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PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=80'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A
PROPOSED WAREHOUSE EXPANSION
4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER ENGINEERING
22630 DAVIS DRIVE
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DAVID B. LOGAN
LICENSED PROFESSIONAL ENGINEER
DAVID B. LOGAN
PRINCIPAL ENGINEER
VIRGINIA LICENSE No. 043615
PROFESSIONAL ENGINEER

SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
6
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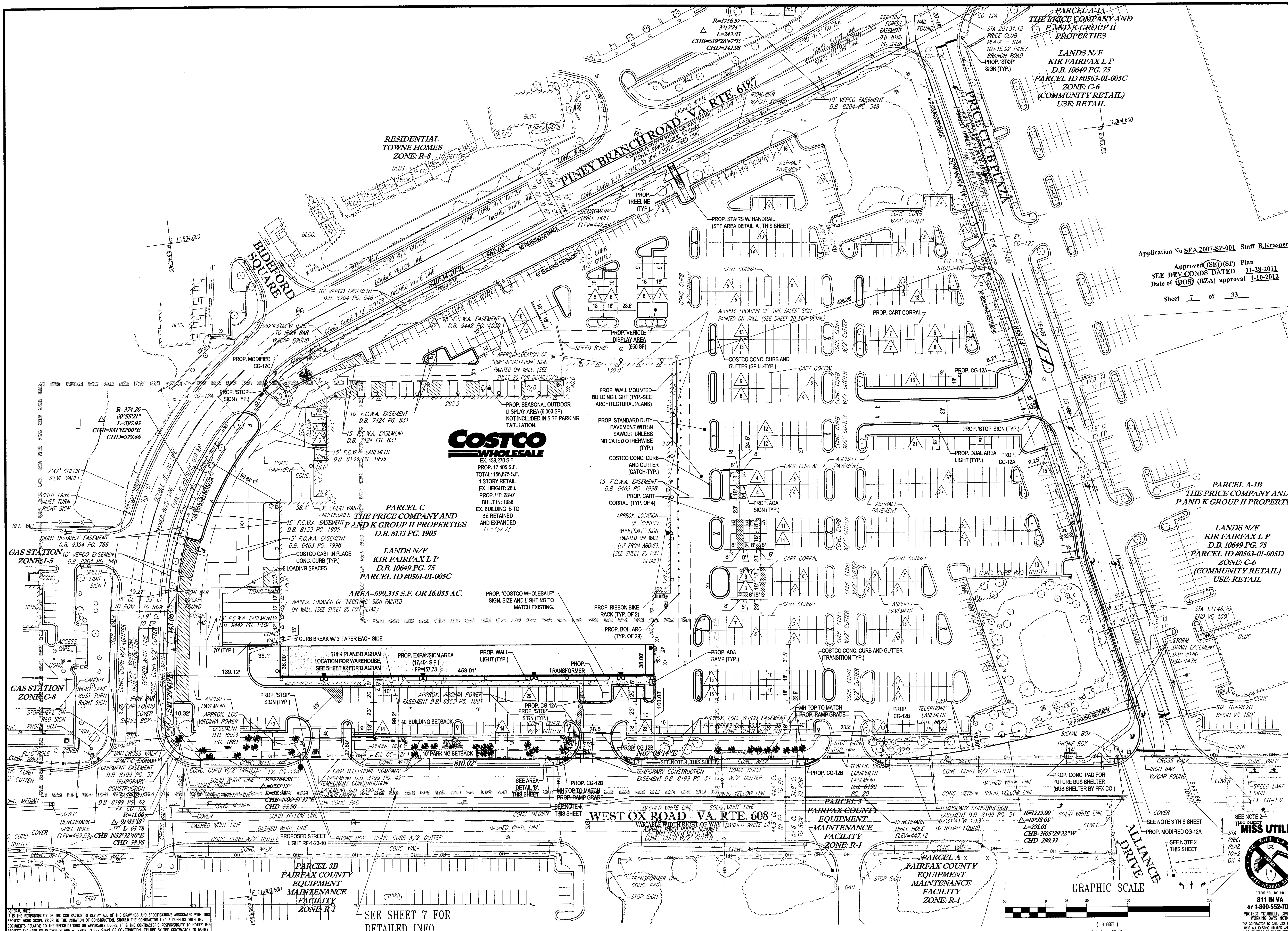

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 7 of 33

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PROJECT No.:	S010010.03
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CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A
PROPOSED WAREHOUSE EXPANSION

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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DAVID B. LOGAN
PROFESSIONAL ENGINEER

SHEET TITLE:
SITE LAYOUT PLAN

SHEET NUMBER:
7
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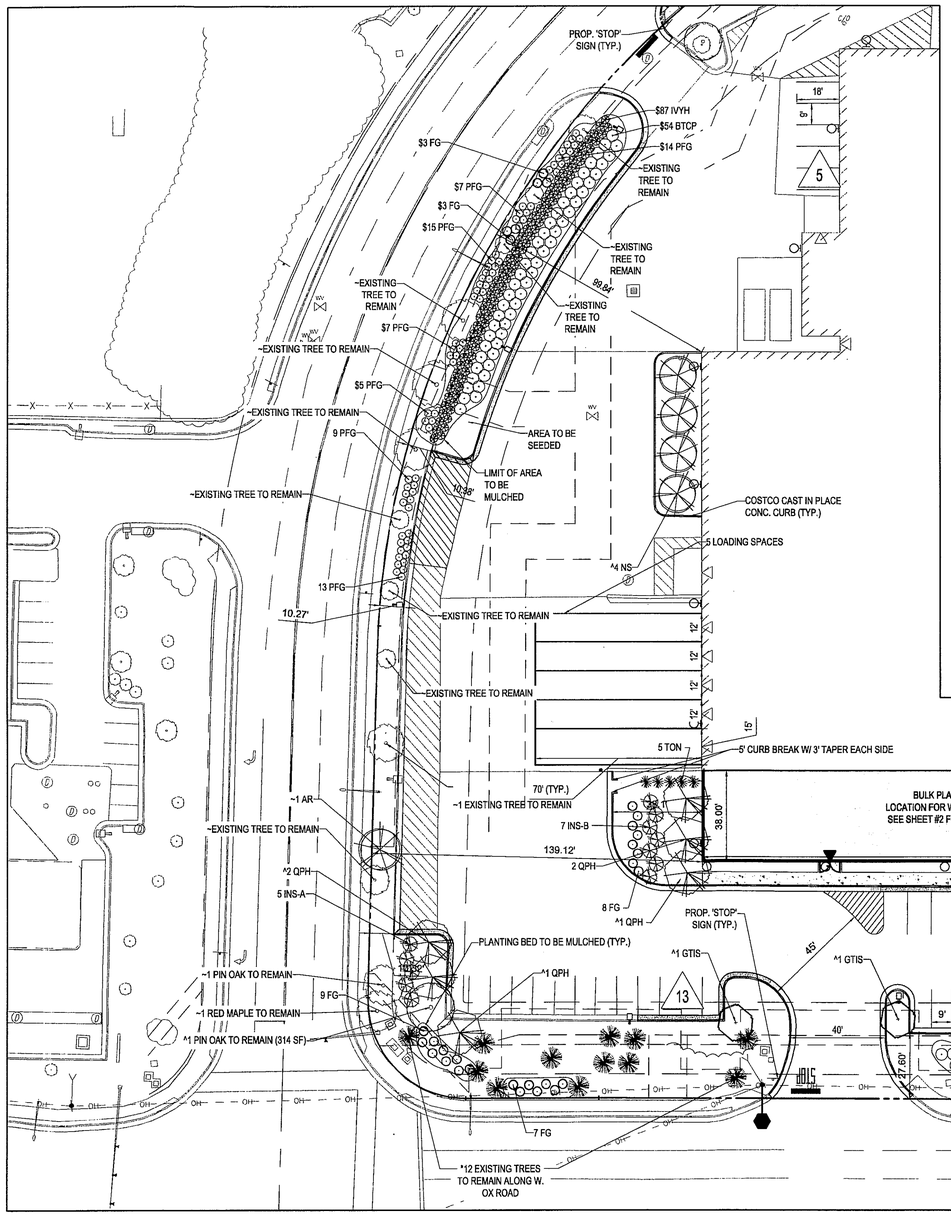
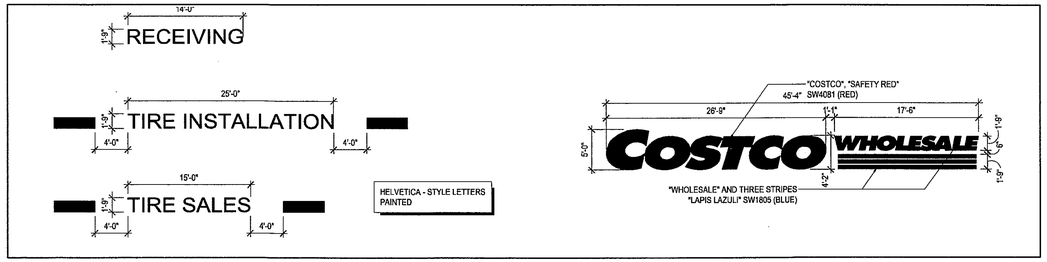


DETAILED WAREHOUSE EXPANSION AREA



EXISTING BUILDING SIGNAGE

*ALL SIGNAGE INFORMATION PROVIDED BY MULVANNYG2

Application No SEA 2007-SP-001 Staff B.Krasner

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SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 8 of 33

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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Lic. No. 042816
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SHEET TITLE:
DETAILED SITE PLAN- WAREHOUSE EXPANSION AND WAREHOUSE SIGNAGE

SHEET NUMBER:
8
OF 33

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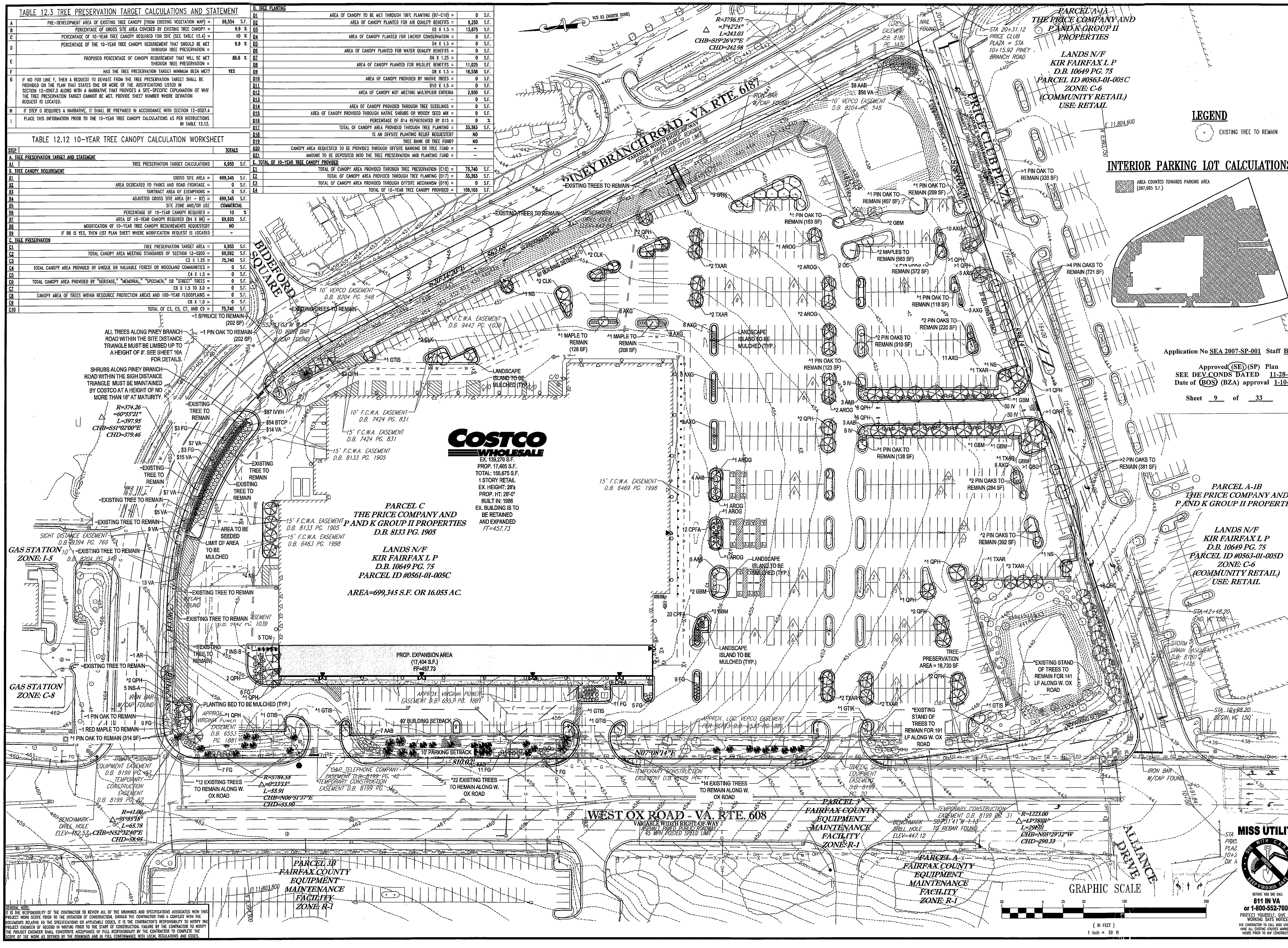
TABLE 12.3 TREE PRESERVATION TARGET CALCULATIONS AND STATEMENT

A	PRE-DEVELOPMENT AREA OF EXISTING TREE CANOPY (FROM EXISTING VEGETATION MAP) =	69,554	S.F.
B	PERCENTAGE OF GROSS SITE AREA COVERED BY EXISTING TREE CANOPY =	9.9	%
C	PERCENTAGE OF 10-YEAR TREE CANOPY REQUIRED FOR SITE (SEE TABLE 12.4) =	10	%
D	PERCENTAGE OF THE 10-YEAR TREE CANOPY REQUIREMENT THAT SHOULD BE MET THROUGH TREE PRESERVATION =	9.9	%
E	PROPOSED PERCENTAGE OF CANOPY REQUIREMENT THAT WILL BE MET THROUGH TREE PRESERVATION =	86.6	%
F	HAS THE TREE PRESERVATION TARGET MINIMUM BEEN MET?	YES	
G	IF NO FOR LINE F, THEN A REQUEST TO DEVIATE FROM THE TREE PRESERVATION TARGET SHALL BE PROVIDED ON THE PLAN THAT STATES ONE OR MORE OF THE JUSTIFICAITONS LISTED IN SECTION 12-0507.3 ALONG WITH A NARRATIVE THAT PROVIDES A SITE-SPECIFIC EXPLANATION OF WHY THE TREE PRESERVATION TARGET CANNOT BE MET. PROVIDE SHEET NUMBER WHERE DEVIATION REQUEST IS LOCATED.		
H	IF STEP G REQUIRES A NARRATIVE, IT SHALL BE PREPARED IN ACCORDANCE WITH SECTION 12-0507.4		
I	PLACE THIS INFORMATION PRIOR TO THE 10-YEAR TREE CANOPY CALCULATIONS AS PER INSTRUCTIONS IN TABLE 12.12.		

TABLE 12.12 10-YEAR TREE CANOPY CALCULATION WORKSHEET

STEP		TOTALS	
A. TREE PRESERVATION TARGET AND STATEMENT			
A1	TREE PRESERVATION TARGET CALCULATIONS	6,955	S.F.
B. TREE CANOPY REQUIREMENT			
B1	GROSS SITE AREA =	699,345	S.F.
B2	AREA DEDICATED TO PARKS AND ROAD FRONTAGE =	0	S.F.
B3	SUBTRACT AREA OF EXEMPTIONS =	0	S.F.
B4	ADJUSTED GROSS SITE AREA (B1 – B2) =	699,345	S.F.
B5	SITE ZONE AND/OR USE	COMMERCIAL	
B6	PERCENTAGE OF 10-YEAR CANOPY REQUIRED =	10	%
B7	AREA OF 10-YEAR CANOPY REQUIRED (B4 X B6) =	69,935	S.F.
B8	MODIFICATION OF 10-YEAR TREE CANOPY REQUIREMENTS REQUESTED?	NO	
B9	IF B8 IS YES, THEN LIST PLAN SHEET WHERE MODIFICATION REQUEST IS LOCATED	-	
C. TREE PRESERVATION			
C1	TREE PRESERVATION TARGET AREA =	6,955	S.F.
C2	TOTAL CANOPY AREA MEETING STANDARDS OF SECTION 12-0200 =	60,592	S.F.
C3	C2 X 1.25 =	75,740	S.F.
C4	TOTAL CANOPY AREA PROVIDED BY UNIQUE OR VALUABLE FOREST OR WOODLAND COMMUNITIES =	0	S.F.
C5	C4 X 1.5 =	0	S.F.
C6	TOTAL CANOPY AREA PROVIDED BY "HERITAGE," "MEMORIAL," "SPECIMEN," OR "STREET" TREES =	0	S.F.
C7	C6 X 1.5 TO 3.0 =	0	S.F.
C8	CANOPY AREA OF TREES WITHIN RESOURCE PROTECTION AREAS AND 100-YEAR FLOODPLAINS =	0	S.F.
C9	C8 X 1.0 =	0	S.F.
C10	TOTAL OF C3, C5, C7, AND C9 =	75,740	S.F.
D. TREE PLANTING			
D1	AREA OF CANOPY TO BE MET THROUGH TREE PLANTING (B7-C10) =	0	S.F.
D2	AREA OF CANOPY PLANTED FOR AIR QUALITY BENEFITS =	9,250	S.F.
D3	D2 X 1.5 =	13,875	S.F.
D4	AREA OF CANOPY PLANTED FOR ENERGY CONSERVATION =	0	S.F.
D5	D4 X 1.5 =	0	S.F.
D6	AREA OF CANOPY PLANTED FOR WATER QUALITY BENEFITS =	0	S.F.
D7	D6 X 1.25 =	0	S.F.
D8	AREA OF CANOPY PLANTED FOR WILDLIFE BENEFITS =	11,025	S.F.
D9	D8 X 1.5 =	16,538	S.F.
D10	AREA OF CANOPY PROVIDED BY NATIVE TREES =	0	S.F.
D11	D10 X 1.5 =	0	S.F.
D12	AREA OF CANOPY NOT MEETING MULTIPLIER CRITERIA	2,950	S.F.
D13	-	0	S.F.
D14	AREA OF CANOPY PROVIDED THROUGH TREE SEEDLINGS =	0	S.F.
D15	AREA OF CANOPY PROVIDED THROUGH NATIVE SHRUBS OR WOODY SEED MIX =	0	S.F.
D16	PERCENTAGE OF D14 REPRESENTED BY D15 =	0	%
D17	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING =	33,363	S.F.
D18	IS AN OFFSITE PLANTING RELIEF REQUESTED?	NO	
D19	TREE BANK OR TREE FUND?	NO	
D20	CANOPY AREA REQUESTED TO BE PROVIDED THROUGH OFFSITE BANKING OR TREE FUND =	-	
D21	AMOUNT TO BE DEPOSITED INTO THE TREE PRESERVATION AND PLANTING FUND =	-	
E. TOTAL OF 10-YEAR TREE CANOPY PROVIDED			
E1	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PRESERVATION (C10) =	75,740	S.F.
E2	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING (D17) =	33,363	S.F.
E3	TOTAL OF CANOPY AREA PROVIDED THROUGH OFFSITE MECHANISM (D19) =	0	S.F.
E4	TOTAL OF 10-YEAR TREE CANOPY PROVIDED =	109,103	S.F.



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FOR

COSTCO WHOLESALE

OPTION A

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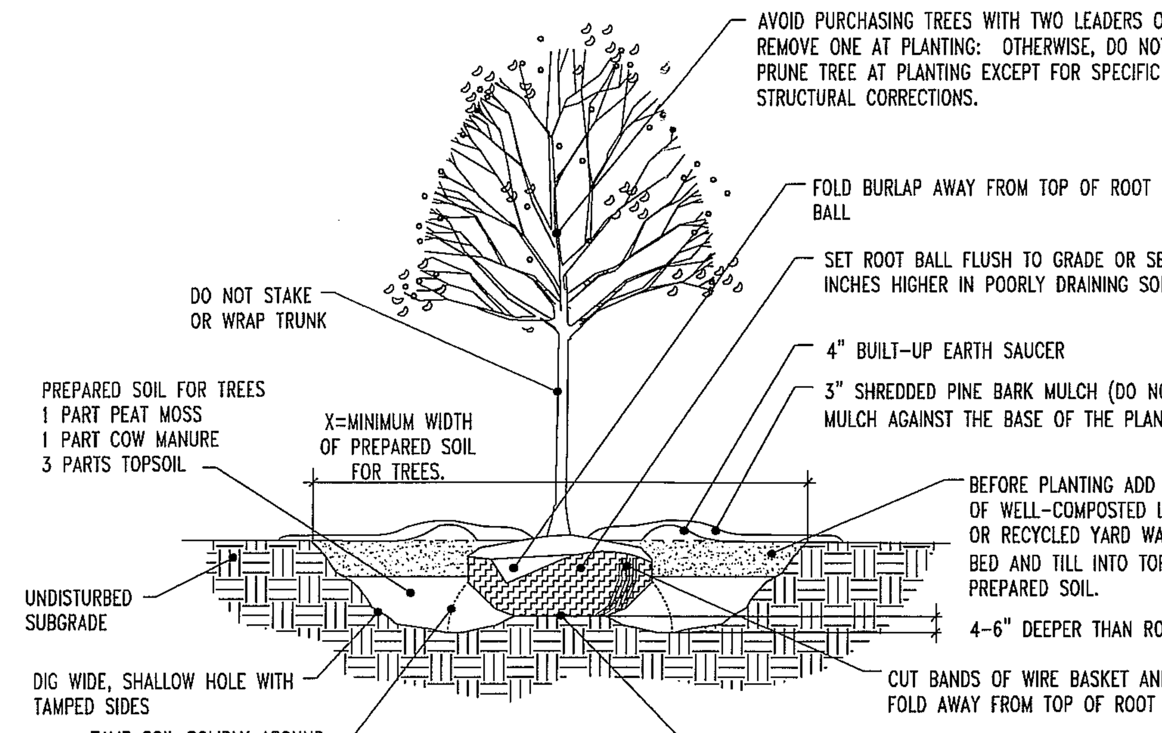
DAVID B. LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE No. 043616
WEST VIRGINIA LICENSE No. 17390
10/26/11

SHEET TITLE:
LANDSCAPE PLAN

SHEET NUMBER:
9
OF 33



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

NOTES FOR DICIDUOUS AND EVERGREEN TREE PLANTINGS:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. REMOVE ALL ROPE FROM TRUNK & TOP OF ROOT BALL. FOLD BURLAP BACK 1/3 FROM TOP OF ROOT BALL.
3. PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY.
4. THOUROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
5. THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE ROUGH TO AVOID MATTING OF SOIL LAYERS AS NEW SOIL IS ADDED. IT IS PREFERABLE TO TILL THE FIRST LIFT (2 TO 3 IN.) OF PLANTING SOIL INTO THE SUBSOIL.

GENERAL RANGE OF SOIL MODIFICATIONS & VOLUMES FOR VARIOUS SOIL CONDITIONS

POST-CONSTRUCTION SOIL CONDITION	MIN./ WIDTH PREPARED SOIL FOR TREES (X)	TYPE OF PREPARATION
GOOD SOIL (NOT PREVIOUSLY GRADED OR COMPACTED, TOPSOIL LAYER INTACT)	6 FT. OR TWICE THE WIDTH OF THE ROOT BALL, WHICHEVER IS GREATER	LOOSEN THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN IN DETAILS ABOVE.
COMPACTED SOIL (NOT PREVIOUSLY GRADED, TOPSOIL LAYER DISTURBED BUT NOT ELIMINATED)	15 FT.	LOOSEN THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN IN DETAILS ABOVE; ADD COMPOSTED ORGANIC CONTENT UP TO 5% DRY WEIGHT.
GRADED SUBSOILS AND CLEAN FILLS WITH CLAY CONTENT BETWEEN 5 & 35%	20 FT.	MINIMUM TREATMENT: LOOSEN EXISTING SOIL TO WIDTHS AND DEPTHS SHOWN, ADD COMPOSTED ORGANIC MATTER TO BRING ORGANIC CONTENT UP TO 5% DRY WEIGHT. OPTIMUM TREATMENT : REMOVE TOP 8-10 IN. OR THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN, ADD 8-10 IN. OF LOAM TOPSOIL.
POOR QUALITY FILLS, HEAVY CLAY SOILS, SOILS CONTAMINATED WITH RUBBLE OR TOXIC MATERIAL	20 FT.	REMOVE EXISTING SOILS TO THE WIDTHS AND DEPTHS CONTAMINATED WITH RUBBLE OR TOXIC MATERIAL

REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

SEEDING SPECIFICATIONS

1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.
2. PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
3. SEEDING RATES:

PERENNIAL RYEGRASS	1/2 LB/1,000 SQ FT
KENTUCKY BLUEGRASS	1 LB/1,000 SQ FT
RED FESCUE	1 1/2 LBS/1,000 SQ FT
SPREADING FESCUE	1 1/2 LBS/1,000 SQ FT
FERTILIZER (20:10:10)	14 LBS/1,000 SQ FT
MULCH	90 LBS/1,000 SQ FT

4. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDED AREA UNTIL AN ACCEPTABLE STAND OF COVER IS ESTABLISHED BY OWNER.

IRRIGATION NOTE:

CONTRACTOR TO PROVIDE AN IRRIGATION DESIGN FOR BOTH LAWN & BED AREAS. DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR TO VERIFY STATIC PRESSURE PRIOR TO DESIGN. CONTRACTOR IS ALSO RESPONSIBLE FOR ANY PRESSURE REDUCING DEVICES REQUIRED TO MEET MAXIMUM PRESSURE REQUIREMENT. SYSTEM DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACK FLOW PREVENTION, METERS AND CONTROLLERS. ALL SLEEVES IN PAVEMENT AREAS MUST BE SHOWN.

EXISTING TREES TO REMAIN IN THE PARKING LOT AREA HAVE BEEN SELECTED TO REMAIN DUE TO THEIR GOOD HEALTH CONDITION. THE EXISTING SOIL AROUND THE TREES WILL BE AERATED AND FERTILIZED BY A CERTIFIED ARBORIST

LANDSCAPE SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	STOCK SIZE	STOCK TYPE	REMARKS	10 YR TREE CANOPY	10 YR TREE CANOPY SUB TOTAL
CATEGORY IV DECIDUOUS TREES								
AROG	13	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3-3 1/2" CAL.	B+B	AIR QUALITY	250	3,250
GBM	10	GINKGO BILOBA 'MAGYAR'	MAGYAR UPRIGHT GINKGO	3-3 1/2" CAL.	B+B	AIR QUALITY	250	2,500
QBC	9	QUERCUS BICOLOR	SWAMP WHITE OAK	3-3 1/2" CAL.	B+B	WILDLIFE	250	2,250
QPH	26	QUERCUS PHELLOS	WILLOW OAK	3-3 1/2" CAL.	B+B	WILDLIFE	250	6,500
TXAR	14	TILIA X AMERICANA 'REDMOND'	REDMOND LINDEN	3-3 1/2" CAL.	B+B	AIR QUALITY	250	3,500
	72							18,000
CATEGORY III DECIDUOUS TREES								
GTIK	10	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE THORNLESS HONEYLOCUST	3-3 1/2" CAL.	B+B	-	175	1,050
GTIS	6	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SHADEMASTER'	SHADEMASTER HONEYLOCUST	3-3 1/2" CAL.	B+B	-	175	1,050
NS	7	NYSSA SYLVATICA	SOURGUM OR TUPELO	3-3 1/2" CAL.	B+B	WILDLIFE	175	1,225
CLK	6	CLADRASTIS KENTUCKEA	YELLOWWOOD	3-3 1/2" CAL.	B+B	WILDLIFE	175	1,050
	25							4,375
CATEGORY I EVERGREEN TREES								
INS	12	ILEX X 'NELLIE R. STEVENS'	NELLIE STEVENS HOLLY	6-7'	B+B	-	50	600
TON	5	THUJA OCCIDENTALIS 'NIGRA'	DARK AMERICAN ARBORVITAE	6-7'	B+B	-	50	250
	17							850
EVERGREEN SHRUB(S)								
CPFA	51	CHAMAECYPARIS PISIFERA 'FILIFERA AUREA NANA'	DWARF GOLD THREAD CYPRESS	15-18" SPRD.	#3 CAN			
IVYH	87	ILEX VOMITORIA 'YAUPON'	YAUPON HOLLY	12-15"	#3 CAN			
IG	126	ILEX GLABRA	INKBERRY	18-24"	#3 CAN			
	264							
DECIDUOUS SHRUB(S)								
AAB	40	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKEBERRY	3-4'	B+B			
AXG	72	ABELIA X GRANDIFLORA	GLOSSY ABELIA	18-24"	#3 CAN			
FG	73	FOTHERGILLA GARGENII	DWARF FOTHERGILLA	18-24"	#3 CAN			
IV	70	ITEA VIRGINICA 'HENRY'S GARNET'	GARNET SWEETSPIRE	24-30"	#5 CAN			
MC	54	MYRICA CERFERA	SOUTHERN WAXMYRTLE	30-36"	B+B			
	309							

* PLANTING AREA FOR "CV" DOES NOT MEET MINIMUM REQUIREMENTS, THEREFOR NO CANOPY CREDIT WAS TAKEN
** SEE TABLE 12.12 ON THIS SHEET FOR COMPLETE 10 YR TREE CANOPY FIGURES INCLUDING SPECIES MULTIPLIERS

10 YR TREE CANOPY PROVIDED: **23,225 SF

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS
A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
I. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
II. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

D. MULCH - ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER
I. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
II. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

F. PLANT MATERIAL
I. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
II. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
III. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
IV. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1¼", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
V. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
VI. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
VII. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
VIII. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES
A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS
A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION
A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS
A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
I. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
II. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
III. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING
A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING
A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
I. 20 POUNDS 'GROW POWER' OR APPROVED EQUAL
II. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP

E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING
A. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
I. PLANTS: MARCH 15 TO DECEMBER 15
II. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

G. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULOUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELREUTERIA	QUERCUS VARIETIES
LIQUIDAMBER STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

H. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
I. 1 PART PEAT MOSS
II. 1 PART COMPOSTED COW MANURE BY VOLUME
III. 3 PARTS TOPSOIL BY VOLUME
IV. 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
A) 2 TABLETS PER 1 GALLON PLANT
B) 3 TABLETS PER 5 GALLON PLANT
C) 4 TABLETS PER 15 GALLON PLANT
D) LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

I. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

J. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

K. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

L. GROUND COVER AREAS SHALL RECEIVE A ¼" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

M. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

N. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

O. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)
A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING
A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE
A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP
A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

14. MAINTENANCE (ALTERNATIVE BID):
A 90 DAY MAINTENANCE PERIOD SHALL COMMENCE AT THE END OF ALL LANDSCAPE INSTALLATION OPERATIONS. THE 90 DAY MAINTENANCE PERIOD ENSURES TO THE OWNER/OPERATOR THAT THE NEWLY INSTALLED LANDSCAPING HAS BEEN MAINTAINED AS SPECIFIED ON THE APPROVED LANDSCAPE PLAN. ONCE THE INITIAL 90 DAY MAINTENANCE PERIOD HAS EXPIRED, THE OWNER/OPERATOR MAY REQUEST THAT BIDDERS SUBMIT AN ALTERNATE MAINTENANCE BID FOR A MONTHLY MAINTENANCE CONTRACT. THE ALTERNATE MAINTENANCE CONTRACT WILL ENCOMPASS ANY WORK THAT IS CONSIDERED APPROPRIATE TO ENSURE THAT PLANT AND LAWN AREAS ARE HEALTHY AND MANICURED TO THE APPROVAL OF THE OWNER/OPERATOR.

COMPLIANCE CHART FOR THE FAIRFAX COUNTY ZONING ORDINANCE

SECTION	REQUIREMENTS	CALCULATIONS (REQUIRED/PROPOSED)	COMPLIANCE
13-202 PERIPHERAL PARKING LOT LANDSCAPING	IF ANY PARKING LOT CONTAINS 20 OR MORE SPACES AND TRANSITIONAL SCREENING IS NOT REQUIRED BY SECTION 301 AND 302, THEN PERIPHERAL PARKING LOT LANDSCAPING SHALL BE REQUIRED AS FOLLOWS: 2. WHERE A PROPERTY LINE ABUTS THE R.O.W. OF A STREET: A. A LANDSCAPE STRIP 10' IN WIDTH, WHICH SHALL NOT INCLUDE A SIDEWALK OR TRAIL, SHALL BE LOCATED BETWEEN THE PARKING LOT AND THE PROPERTY LINE. B. AT LEAST ONE TREE FOR EVERY 40' SHALL BE PLANTED WITHIN THE LANDSCAPING STRIP.	REQUIRED: 10' BUFFER ALONG R.O.W.'S, ONE (1) TREE PER 40 LINEAR FEET. WEST OX RD. - 987 L.F. EXISTING TREE STAND(S) TO REMAIN FOR 665' OF LANDSCAPE STRIP. 322'/40 = 8.05 or 9 TREES PINEY BRANCH RD. - 348 L.F. 348'/40 = 8.7 OR 9 TREES PRICE CLUB PLAZA - 798 L.F. EXISTING TREE STAND TO REMAIN FOR 203' OF LANDSCAPE STRIP. 798'/40 = 19.9 OR 20 TREES PROVIDED: "*" WEST OX RD. - 7 EXISTING TREES TO REMAIN, EXISTING TREE STAND TO REMAIN AND 2 PROPOSED TREES (2 QPH) "~" PINEY BRANCH RD. - 10 EXISTING TREES TO REMAIN ">" PRICE CLUB PLAZA - 11 EXISTING TREES TO REMAIN AND 9 PROPOSED TREES (7 QBC, 2 PXAB) "*,~,>" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT	COMPLIES
13-302 TRANSITIONAL SCREENING REQUIREMENTS	C. TRANSITIONAL SCREENING 3 SHALL CONSIST OF AN UNBROKEN STRIP OF OPEN SPACE A MINIMUM OF 50 FEET WIDE PLANTED WITH: 1.) A MIXTURE OF LARGE AND MEDIUM EVERGREEN TREES AND LARGE DECIDUOUS TREES THAT ACHIEVES A MINIMUM TEN (10) YEAR TREE CANOPY OF SEVENTY-FIVE (75) PERCENT OR GREATER; 2.) A MIXTURE OF TREES CONSISTING OF AT LEAST SEVENTY (70) PERCENT EVERGREEN TREES, AND CONSISTING OF NO MORE THAN THIRTY-FIVE (35) PERCENT OF ANY SINGLE SPECIES OF EVERGREEN TREE; AND 3.) A MIXTURE OF PREDOMINANTLY MEDIUM EVERGREEN SHRUBS AT A RATE OF THREE (3) SHRUBS FOR EVERY TEN (10) LINEAR FEET FOR THE LENGTH OF THE TRANSITION YARD AREA.	REQUIRED: SCREENING 3, BARRIER E - 6 FT. HIGH WALL PINEY BRANCH ROAD - 962 LF. 962 X 50 = 48,100 X .75 (REQ. CANOPY) = 36,075 SF 36,075 SF OF TREE CANOPY REQUIRED 289 REQUIRED SHRUBS PROVIDED: 18,793 SF OF EXISTING TREE CANOPY (NOTE: TREES IN EXISTING VEPCO EASEMENT ALONG PINEY BRANCH ROAD EXCLUDED FROM CALCULATION) 500 SF OF PROPOSED TREE CANOPY (2 QPH) 19,293 SF TOTAL CANOPY PROVIDED 197 SHRUBS "$" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT DUE TO THE EXISTING DESIGN OF PINEY BRANCH ROAD AND REQUIRED SIGHT DISTANCE REQUIREMENTS, THE REQUIRED PLANT MATERIAL CANNOT BE PROVIDED AND THEREFORE A WAIVER/MODIFICATION FOR A REDUCTION IN THE PLANT MATERIAL IS REQUESTED.	WAIVER/ MODIFICATION REQUESTED
13-401 TREE COVER REQUIREMENTS	ZONING DISTRICT: COMMERCIAL SITE SHALL HAVE 10% COVERAGE OF TREE CANOPY	SEE TREE COVER CALCULATIONS TABLE 12.12 ON SHEET 6	COMPLIES

COMPLIANCE CHART FOR THE PUBLIC FACILITIES MANUAL

SECTION	REQUIREMENTS	CALCULATIONS (REQUIRED/PROPOSED)	COMPLIANCE
12-0513 INTERIOR PARKING LOT LANDSCAPING	12-0513.1 REQUIREMENT AS STATED IN ARTICLE 13 OF THE ZONING ORDINANCE, ALL PARKING LOTS WITH 20 OR MORE SPACES ARE REQUIRED TO PROVIDE INTERIOR PARKING LOT LANDSCAPING THAT COVERS NO LESS THAN 5% OF THE TOTAL AREA OF THE PARKING LOT.	SEE TABLE 12.13 ON THIS SHEET "^" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT	COMPLIES
12-0514 LANDSCAPE PLANS	12-0514.4 TREE COVER CALCULATIONS. ALL REQUIRED CALCULATIONS FOR TREE COVER SHALL BE PROVIDED ON THE LANDSCAPE PLAN SHEET IN A TABLE SIMILAR TO TABLE 12.12.	SEE TREE COVER CALCULATIONS TABLE 12.12 ON SHEET 6	COMPLIES
	12-0514.6A EASEMENTS THE LANDSCAPE PLAN SHALL SHOW ALL EXISTING AND PROPOSED EASEMENTS THAT MAY CONFLICT WITH THE TREE PLANTING REQUIREMENTS OF ARTICLE 13 OF THE ZONING ORDINANCE.	ALL EASEMENTS ARE DEPICTED ON THE PLAN	COMPLIES
	12-0514.6B EASEMENTS TREES SHALL NOT BE PLANTED WITHIN ANY EXISTING OR PROPOSED PUBLIC UTILITY EASEMENT THAT IS REQUIRED TO BE DELINEATED ON THE PLAN, OR WITHIN 5' (1.5 M) OF STORM DRAINAGE EASEMENTS THAT CONTAIN PIPES. IN ADDITION, TREES SHALL NOT BE PLANTED IN AN AREA WHICH WILL INTERFERE WITH EXISTING OR PROPOSED UTILITIES OR OBSTRUCT OR INTERFERE WITH ACCESS OF MAINTENANCE PERSONNEL OR EQUIPMENT, AS DETERMINED BY THE DIRECTOR, EXCEPT AS MAY BE ALLOWED IN ACCORDANCE WITH SECTION 12-0514.6C	NO TREES ARE PROPOSED WITHIN EASEMENTS OR WITHIN 5' OF STORM DRAINAGE EASEMENTS THAT CONTAIN PIPES	COMPLIES
	12-054.6E EXISTING VEGETATION OR PROPOSED PLANTINGS IN VDOT RIGHTS-OF-WAY SHALL NOT BE CREDITED TOWARD MEETING THE REQUIREMENTS OF ARTICLE 13 OF THE ZONING ORDINANCE, EXCEPT AS MAY BE PERMITTED IN A COMMERCIAL REVITALIZATION DISTRICT	NO TREES PROPOSED WITHIN THE VDOT RIGHT-OF-WAY	COMPLIES

TABLE 12.13 INTERIOR PARKNG LOT LANDSCAPING CALCULATIONS

AREA TO BE COUNTED:	398,118 S.F.
INTERIOR LANDSCAPING REQUIRED (5%):	19,906 S.F.
TOTAL EXISTING CANOPY PROVIDED:	5,303 S.F.
TOTAL SHADE TREE CANOPY PROVIDED:	
55 TREES @ 250 S.F. EACH:	13,750 S.F.
25 TREES @ 175 S.F. EACH:	4,375 S.F.
TOTAL AREA REQUIRED =	19,906 S.F.
TOTAL AREA PROVIDED =	23,428 S.F.
"^" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT	

MISS UTILITY
BEFORE YOU DIG CALL
811 IN VA
or 1-800-552-7001
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE
THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 10 of 33

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL ENGINEERS
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OFFICES: WARREN, NJ • SOUTHBOROUGH, MA • ALBANY, NY • PURCHASE, NY • RONKONKOMA, NY • CHALFONT, PA • STERLING, VA • BOWIE, MD • TOWSON, MD • WARRENTON, VA • FORT LAUDERDALE, FL • CENTER VALLEY, PA

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REVISIONS

REV:	DATE:	COMMENT:	BY:
1	06/03/11	REV. PER COUNTY COMMENTS	BJS
2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	NTS
CAD I.D.:	SD3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A
PROPOSED WAREHOUSE EXPANSION

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER
22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
FX: (703) 709-9501
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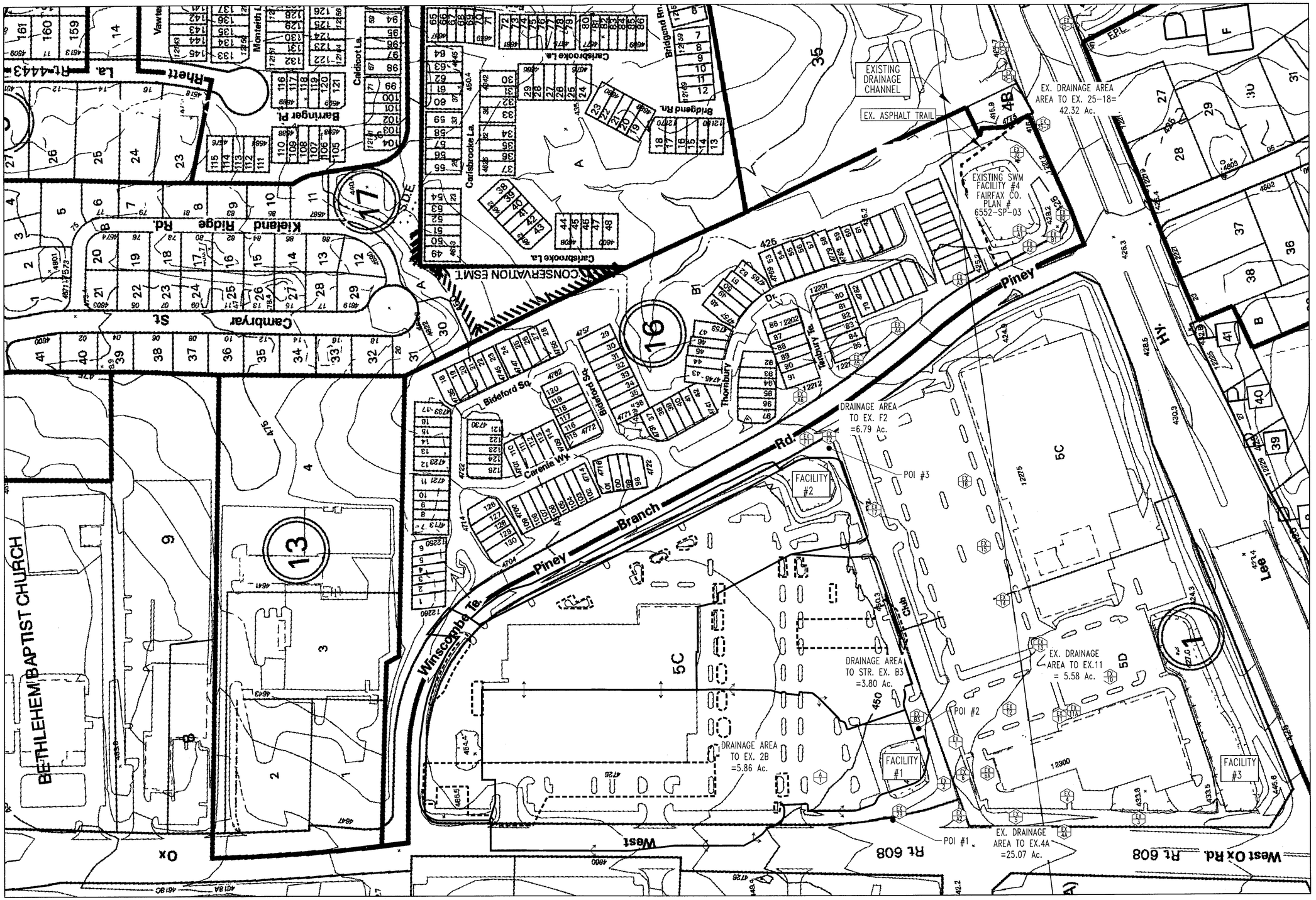
DAVID B. LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE No. 043616
COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
Lic. No. 043616
10/26/11
PROFESSIONAL ENGINEER

SHEET TITLE:
LANDSCAPE NOTES & DETAILS

SHEET NUMBER:
10
OF 33

OFF-SITE DRAINAGE MAP



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

VCS 83 (NORTH ZONE)

LEGEND

APPROXIMATE LIMITS OF DISTURBANCE 93,500± S.F. (2.2± AC.)

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

Application No SEA 2007-SP-001 Staff B.Kraemer
Approved (SE) (SP) Plan
SEE DEVELOPMENT CONDITIONS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 11 of 33

MISS UTILITY
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or 1-800-552-7001
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REVISIONS

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1	06/03/11	REV. PER COUNTY COMMENTS	BJS
2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=100'
CAD I.D.:	SW3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION A

PROPOSED WAREHOUSE EXPANSION

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER ENGINEERING
22630 DAVIS DRIVE
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COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
LICENSE NO. 033.020.1578
PROFESSIONAL ENGINEER
12/15/10

SHEET TITLE:
PRELIMINARY SWM & OUTFALL ANALYSIS PLAN

SHEET NUMBER:
11
OF 33

STORMWATER MANAGEMENT & BMP NARRATIVE

THE SUBJECT SITE CONSISTS OF AN ENLARGED/MODIFIED EXISTING COSTCO WAREHOUSE, UTILITIES, PARKING LOT, AND TWO (2) EXTENDED DETENTION DRY PONDS. THE WAREHOUSE IS PROPOSED TO BE FURTHER EXPANDED WITH THIS APPLICATION AS DEPICTED ON SHEET 5.

EXISTING ON-SITE BEST MANAGEMENT PRACTICES (BMP'S) INCLUDE TWO EXTENDED DETENTION DRY PONDS (FACILITIES #1 AND #2) PROVIDING 40% PHOSPHOROUS REMOVAL EFFICIENCY PER FAIRFAX COUNTY PLAN #6552-SP-04. AN OFF SITE WET POND (FACILITY #3) PROVIDES 45% PHOSPHOROUS REMOVAL EFFICIENCY PER THE SAME FAIRFAX COUNTY PLAN.

AS THE EXISTING PONDS PROVIDE ADEQUATE BMP'S PER APPROVED FAIRFAX COUNTY PLAN #6552-SP-04 FOR THE SUBJECT SITE AND NO INCREASE IN IMPERVIOUS AREA OR DRAINAGE AREA IS PROPOSED TO THE PONDS, THE PHOSPHOROUS RUNOFF POLLUTION LOAD WILL NOT INCREASE AND THEREFORE ADEQUATE BMP'S ARE PROVIDED.

PER PFM 6-0401.2C, FOR REDEVELOPMENT THAT IS CURRENTLY AND ADEQUATELY SERVED BY ONE OR MORE BMP'S, THE PROJECTED POST DEVELOPMENT PHOSPHOUROUS RUNOFF POLLUTION MUST BE LESS THAN OR EQUAL TO THE PRE DEVELOPED LOAD.

STORMWATER MANAGEMENT (SWM) FOR THE EXISTING COSTCO SITE IS PROVIDED BY EXISTING ON-SITE POND #1, EXISTING ON-SITE POND #2, AND EXISTING OFF-SITE POND #3 SHOWN ON THE OFF-SITE DRAINAGE DIVIDE MAP, SEE SHEET 8. THE EXISTING PEAK ROUTED RELEASE RATES AND DRAINAGE AREAS FROM APPROVED FAIRFAX COUNTY PLAN #6552-SP-04 ARE LISTED BELOW.

PRE DEVELOPMENT DISCHARGES

FACILITY #	EXISTING DRAINAGE AREA (AC.)	2-YEAR PEAK DISCHARGE (CFS)	10-YEAR PEAK DISCHARGE (CFS)
#1	5.86	3.87	5.93
#2	6.79	1.94	3.44
#3	6.10	7.18	60.87
EXISTING TOTAL RELEASE =		13.00	70.25

THE CONSTRUCTION OF THE PROPOSED WAREHOUSE EXPANSION WILL RESULT IN NO INCREASE TO THE IMPERVIOUS AREAS DRAINING TO EXISTING FACILITY #1, WITH NO INCREASE IN DRAINAGE AREA TO FACILITY #1. NO CHANGES TO THE IMPERVIOUS AREA OR DRAINAGE AREA TO FACILITY #2 ARE PROPOSED WITH THE WAREHOUSE EXPANSION..

THERE WILL BE A MINOR DECREASE IN THE UNCONTROLLED ON-SITE FLOW DRAINING TO EXISTING OFF-SITE POND #3 WITH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS DUE TO THE INCREASED PERVIOUS AREAS. THE DECREASE IN UNCONTROLLED ON-SITE AREA TO POND #3 WILL CONSEQUENTLY REDUCE THE INFLOW TO POND #3 WHICH, IN TURN, WILL REDUCE THE ROUTED PEAK DISCHARGES FROM POND #3 TO BELOW THE EXISTING PEAK DISCHARGE SHOWN ABOVE.

THE APPROXIMATE POST-DEVELOPMENT DRAINAGE AREAS TO AND PEAK DISCHARGES FROM THE EXISTING AND PROPOSED STORM WATER MANAGEMENT FACILITIES ARE SHOWN BELOW. FINAL DISCHARGE RATES ARE TO BE PER APPROVED SITE PLANS.

POST DEVELOPMENT DISCHARGES

FACILITY #	PROPOSED DRAINAGE AREA (AC.)	2-YEAR PEAK DISCHARGE (CFS)	10-YEAR PEAK DISCHARGE (CFS)
#1	5.86	<3.87	<5.93
#2	6.79	<1.94	<3.44
#3	5.33	<7.18	<60.87
PROPOSED TOTAL RELEASE =		<13.00	<70.25

SINCE THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS WILL NOT INCREASE THE OVERALL 2-YEAR AND 10-YEAR PEAK DISCHARGES FROM THE EXISTING APPROVED (FFX. CO. # 6552-SP-04) 2-YEAR AND 10-YEAR PEAK DISCHARGES FROM THE SITE, STORMWATER MANAGEMENT FOR THE SUBJECT SITE HAS BEEN PROVIDED AND NO ADDITIONAL IMPROVEMENTS ARE REQUIRED.

ADEQUATE OUTFALL ANALYSIS

THE PROPOSED DISTURBANCE AREA FOR NEW CONSTRUCTION OUTFALLS TO THE TWO EXISTING ABOVE GROUND DRY POND FACILITIES AT THE SOUTHEAST AND SOUTHWEST CORNERS OF THE PROJECT SITE. STORM WATER MANAGEMENT FACILITY #1 (SW CORNER) ULTIMATELY OUTFALLS TO THE EXISTING WET POND LOCATED ON THE HOME DEPOT PARCEL (FACILITY #3). THE WESTERN HALF OF THE SITE OUTFALLS THROUGH FACILITY ONE AND TO THE WEST WITHIN EXISTING STORM SEWER PIPES RUNNING THROUGH THE SITE ALONG WEST OX ROAD UNDERNEATH PRICE CLUB PLAZA. THE POI FOR THESE OUTFALLS ARE EXISTING STRUCTURES #2B AND #B3 (POI 1 AND 2, RESPECTIVELY). THE APPROXIMATE AREA DRAINING TO THESE STRUCTURES IS 5.86 AC. AND 3.80 AC., RESPECTIVELY. THE EXISTING CLOSED CONDUIT STORM SEWER DOWNSTREAM OF THESE STRUCTURES HAS BEEN ANALYZED FROM THE POINT OF INTEREST TO ONE PIPE LENGTH DOWNSTREAM OF EXISTING STRUCTURES #4 AND #11 RESPECTIVELY, AT WHICH POINT AN ADJOINING PIPE WITH A CONTRIBUTING DRAINAGE AREA WHICH IS GREATER THAN 90% OF THE INITIAL DRAINAGE AREA AT THE END OF THE PROPOSED SITE IMPROVEMENTS DISCHARGES INTO THE EXISTING STORM SEWER SYSTEM. SEE DRAINAGE AREA COMPARISON BELOW.

THE EXTENT OF REVIEW OF THE SITE'S OUTFALL IS EXISTING STRUCTURES #EX. 10, #EX. 3. ALL UPSTREAM PIPES FROM THESE STRUCTURES TO THE SUBJECT SITE ARE SHOWN TO BE ADEQUATE ON SHEET 25 OF FAIRFAX COUNTY PLAN #6552-SP-04, STORM WATER COMPUTATIONS. AS NO REVISIONS TO THE FLOWS TO THE DOWNSTREAM SYSTEM ARE ANTICIPATED THESE COMPUTATIONS SHOW THAT ALL ANALYZED PIPE SECTIONS ARE ADEQUATE TO HANDLE THE PROPOSED FLOW AMOUNTS; THEREFORE, IT IS THE ENGINEER'S OPINION THAT AN ADEQUATE OUTFALL FOR THE SITE IS PROVIDED.

ADEQUATE OUTFALL DRAINAGE AREA COMPARISON

STRUCTURE NUMBER @ END OF PROPOSED IMPROVMENTS	STRUCTURE NUMBER @ POINT OF CONFLUENCE	INITIAL DRAINAGE AREA (ACRES)	CONTRIBUTING DRAINAGE AREA @ POINT OF CONFLUENCE (ACRES) **	PERCENTAGE OF INITIAL DRAINAGE AREA (%)
EX. B3	EX. 11	3.80	5.58	147
EX. 2B	EX. 4	5.86	25.07	428
** PER APPROVED FFX. CO. #6552-SP-04				

EXISTING FACILITY #2 DRAINS THE REMAINDER OF THE PROJECT SITE STORMWATER RUNOFF AND OUTFALLS INTO THE EXISTING PIPE WHICH DISCHARGES TO THE EAST UNDER PINEY BRANCH ROAD. THE NEXT DOWNSTREAM STRUCTURE FROM THE SITE (POI #3) IS EX. #F2, AND THE APPROXIMATE AREA DRAINING TO THIS POINT IS 6.79 AC. THE EXISTING CLOSED CONDUIT STORM SYSTEM DOWNSTREAM OF THIS STRUCTURE FLOWS FROM EX. F2 TO EX. F1, TO EX. A6 AND EVENTUALLY TO EX. A1, AT WHICH POINT THE PIPE DISCHARGES INTO THE SWM FACILITY BUILT WITH THE PINEY BRANCH EXTENDED PLANS (FAIRFAX COUNTY PLAN #6552-SP-03) (EXISTING FACILITY #4). THE APPROXIMATE INLET LOCATIONS AND SWM FACILITY ARE SHOWN ON SHEET 8 OF THIS SET. THESE PIPES CAN BE SHOWN AS ADEQUATE ON SHEET 45 OF FAIRFAX COUNTY PLAN #6552-SP-03, PINEY BRANCH EXTENDED ROUTE 29 IMPROVEMENTS, BY PATTON, HARRIS, RUST, AND ASSOCIATES DATED 8/1/1990, INCLUDED IN THIS SET AS REFERENCED ON SHEET 16. AS THE PROPOSED ON-SITE FLOWS WILL NOT BE INCREASED FROM THE FLOWS SHOWN IN #6552-SP-03 AND THE DOWNSTREAM PIPE IS SHOWN TO BE ADEQUATE IN #6552-SP-03, THE DOWNSTREAM PIPE IS ADEQUATE TO CARRY THE FLOWS TO THE POINT OF DISCHARGE INTO EXISTING SWM FACILITY #4.

EXISTING SWM FACILITY #4 POND ROUTING COMPUTATIONS, AS SHOWN ON SHEET 15 OF THIS SET, ARE FROM THE PINEY BRANCH EXTENDED PLAN SHEETS. IN #6552-SP-03AS THE FLOWS WILL REMAIN THE SAME OR DECREASE AS PART OF THE PROPOSED REDEVELOPMENT, THE POND ROUTING COMPUTATIONS SHOWN ARE CONSERVATIVE ESTIMATES OF POST DEVELOPED CONDITIONS AND SHOULD REMAIN VALID FOR MAXIMUM DISCHARGE RATES FROM THE POND.

THE POND OUTFALLS INTO STRUCTURE EX. J2, AS SHOWN ON SHEET 8. THIS STRUCTURE FLOWS FROM #EX. J2 TO #EX. 25-8 ON THE VDOT PLANS. AT STRUCTURE EX. 25-8, A PIPE WITH A CONTRIBUTING DRAINAGE AREA WHICH IS GREATER THAN 90% OF THE INITIAL DRAINAGE AREA AT POI #3 (STRUCTURE #EX F2) DISCHARGES INTO THE EXISTING STORM SYSTEM. THEREFORE, ADEQUATE OUTFALL DRAINAGE AREA COMPARISON ADEQUATE OUTFALL ANALYSIS CAN BE CONDUCTED AT STRUCTURE #EX. 25-8 PER FAIRFAX COUNTY PFM 6-0203.2A. PLEASE SEE DRAINAGE AREA COMPARISON BELOW.

ADEQUATE OUTFALL DRAINAGE AREA COMPARISON

STRUCTURE NUMBER @ END OF PROPOSED IMPROVMENTS	STRUCTURE NUMBER @ POINT OF CONFLUENCE	INITIAL DRAINAGE AREA (ACRES)	CONTRIBUTING DRAINAGE AREA @ POINT OF CONFLUENCE (ACRES) **	PERCENTAGE OF INITIAL DRAINAGE AREA (%)
EX. F2	EX. 25-8	6.79	42.12	620
** PER APPROVED FFX. CO. #6552-SP-03				

STRUCTURE #EX. 25-8 OUTFALLS INTO A CLOSED CONDUIT STORM SYSTEM UNDER LEE HIGHWAY (VA ROUTE 29) TO END WALL #EX. 25-3 ON THE VDOT PLANS. AT THIS POINT THE SYSTEM DISCHARGES INTO A FLOODPLAIN. THESE IMPROVEMENTS WERE BUILT UNDER VDOT PROJECT #0000-029-244, RW-225, C-525 WITH A REVISION DATE OF 4-19-1995. THE OUTFALL THROUGH THESE PIPES AS DESIGNED BY VDOT IS REQUIRED TO BE ADEQUATE TO VDOT/FAIRFAX COUNTY STANDARDS AS THIS WAS A PUBLIC IMPROVEMENTS PROJECT. THEREFORE, SINCE POST DEVELOPED FLOWS WILL NOT EXCEED PRE-DEVELOPED CONDITIONS, THE VDOT IMPROVEMENTS STILL PROVIDE ADEQUATE OUTFALL.

ALSO AFFECTING THE ANALYSIS ARE TWO SITES IN THE UPSTREAM DRAINAGE AREA THAT HAVE BEEN DEVELOPED SINCE THE PINEY BRANCH EXTENDED PLANS WERE APPROVED, CAMBRYAR (FAIRFAX COUNTY PLAN #8717-01-B) AND FAIR CHASE (1619-SP-01-2). AS ADEQUATE OUTFALL FOR THESE SITES WAS CONCLUDED AT A POINT UPSTREAM OF THE POINT OF OUTFALL ANALYSIS STUDIED BY THIS SPECIAL EXCEPTION SET, AND THE POND ROUTING COMPUTATIONS FOR THE UPSTREAM SITES SHOW THAT PRE-DEVELOPMENT FLOWS WERE DECREASED OR MAINTAINED IN THE POST DEVELOPED CONDITION, THE DEVELOPMENT OF THESE TWO SITES SHOULD HAVE NO IMPACT ON THE PINEY BRANCH EXTENDED PLANS ANALYSIS REFERENCED. PLEASE SEE SHEETS 13, 14, AND 17 OF THIS SET FOR OFF SITE POND ROUTING COMPUTATIONS.

MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance paragraphs:

Special Permits (8-011 2J & 2L)	Special Exceptions (9-011 2J & 2L)
Cluster Subdivision (9-615 1G & 1N)	Commercial Revitalization Districts (9-622 2A (12) & (14))
Development Plans PRC District (16-302 3 & 4L)	PRC Plan (16-303 1E & 1O)
FDP P Districts (except PRC) (16-502 1F & 1Q)	Amendments (18-202 10F & 10I)

[X] 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100').

[X] 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet 3.

[X] 3. Provide:

Facility Name/ Type & No. (e.g. dry pond A, infil. trench, underground vault, etc.)	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
EX. DRY POND #1	5.86	0	5.86	13,500	58,250	6
EX. DRY POND #2	6.79	0	6.79	15,000	56,500	3
EX. WET POND #3	4.76	42.88	47.64	50,000	494,600	12
Totals						

[X] 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 3. Pond inlet and outlet pipe systems are shown on Sheet 3.

[X] 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 6. Type of maintenance access road surface noted on the plat is ASPHALT (asphalt, geoblock, gravel, etc.).

[X] 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 4,5,9.

[X] 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 12.

[X] 8. A description of the existing conditions of each numbered site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet 12.

[X] 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 12.

[X] 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheet 3.

[ ] 11. A submission waiver is requested for _____

[ ] 12. Stormwater management is not required because _____

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 12 of 33

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PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/13/10
SCALE:	NTS
CAD I.D.:	SW3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A
PROPOSED WAREHOUSE EXPANSION
4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER ENGINEERING
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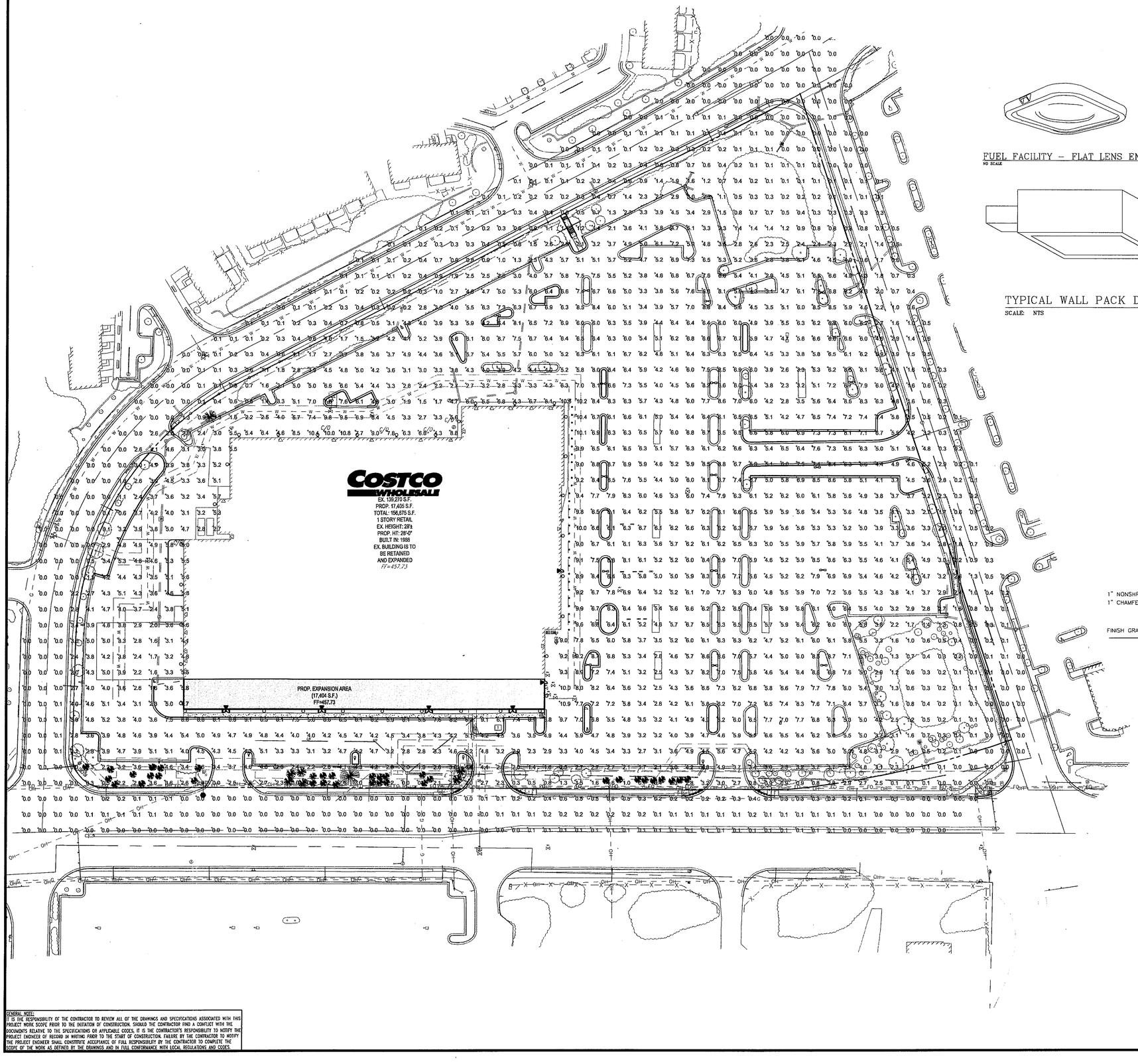
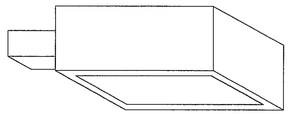
DAVID B. LOGAN
DAVID B. LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE NO. 043516
DATE 10/19/11
PROFESSIONAL ENGINEER

SHEET TITLE:
PRELIMINARY SWM NOTES & COMPUTATIONS
SHEET NUMBER:
12
OF 33

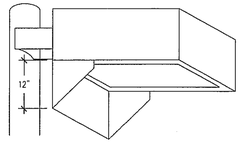


FUEL FACILITY – FLAT LENS ENCORE – GF
NO SCALE

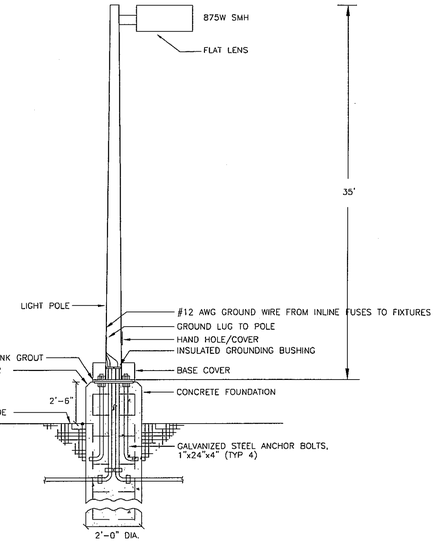
FUEL STATION FOCUS LIGHT – GA
NO SCALE



TYPICAL WALL PACK DETAIL
SCALE: NTS



HOUSE SIDE SHIELD DETAIL
NO SCALE



NOTE: PROVIDE CONCRETE J-BOX AS REQUIRED.
THIS DETAIL IS FOR ELECTRICAL CONDUITS ROUT SEE STRUCTURAL DRAWINGS FOR CONSTRUCTION

POLE BASE DETAIL
NO SCALE

Application No SEA 2007-SP-001 Staff B.Krasner

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Sheet 13 of 33

FIXTURE DESCRIPTION.

P	COOPER GALLERIA GSM-875W-MH-A5-FLAT LENSE, TYPE 5 DISTRIBUTION. 35' POLE, WITH 2'-6" BASE.
P1	COOPER GALLERIA GSM-875W-MH-3V-FLAT LENSE, 35' POLE, WITH 2'-6" BASE.
W	EMCO ECW18 200PSMH SHOEBOX-TYPE, 20' MOUNTING HEIGHT

PLAN NOTES:

① PROVIDE EXTERIOR HOUSE SHIELD FOR THESE FIXTURES

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION A
PROPOSED WAREHOUSE EXPANSION
4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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DAVID B. LOGAN
Lic. No. 048616
PROFESSIONAL ENGINEER
10/26/11

SHEET TITLE:
LIGHTING PLAN

SHEET NUMBER:
13
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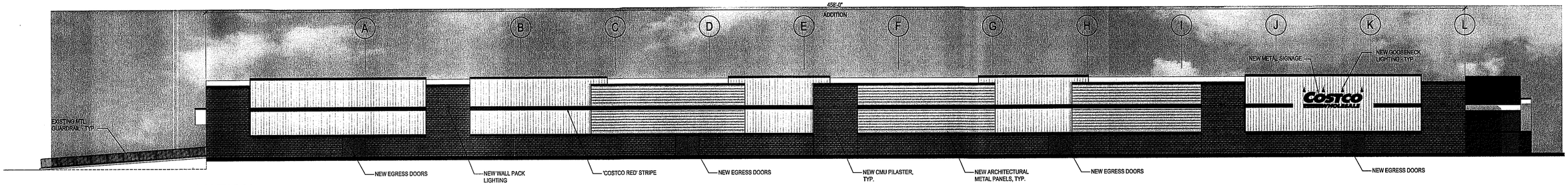
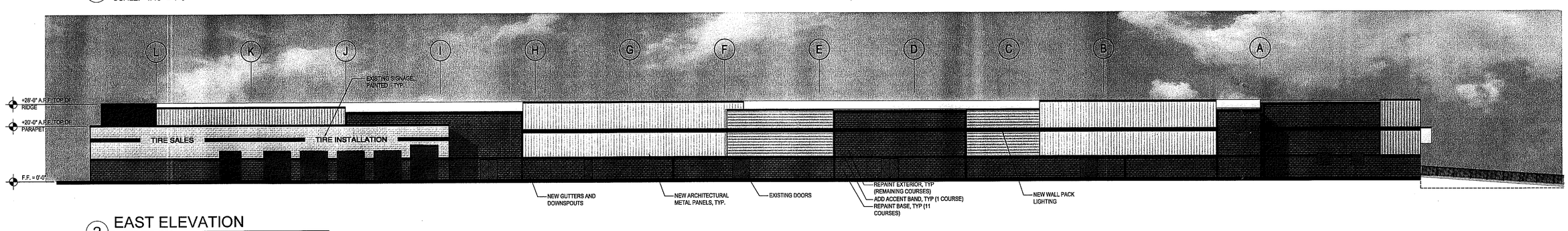


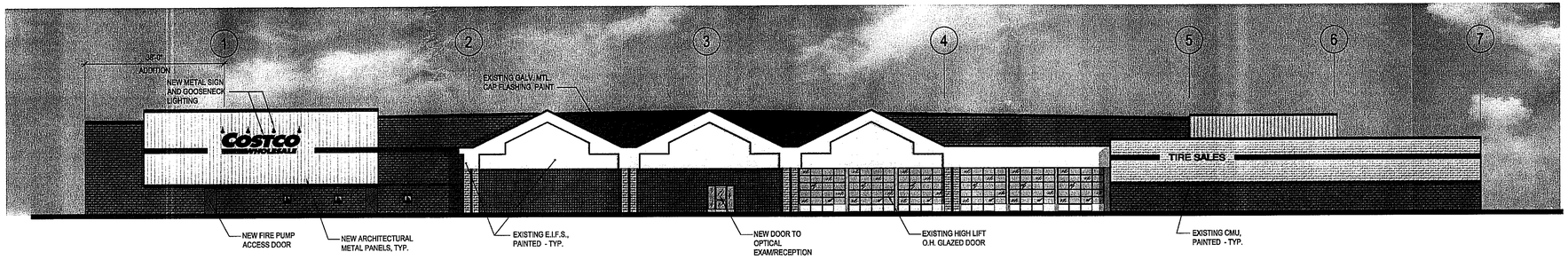
1 WEST ELEVATION

SCALE: 1/16" = 1'-0"



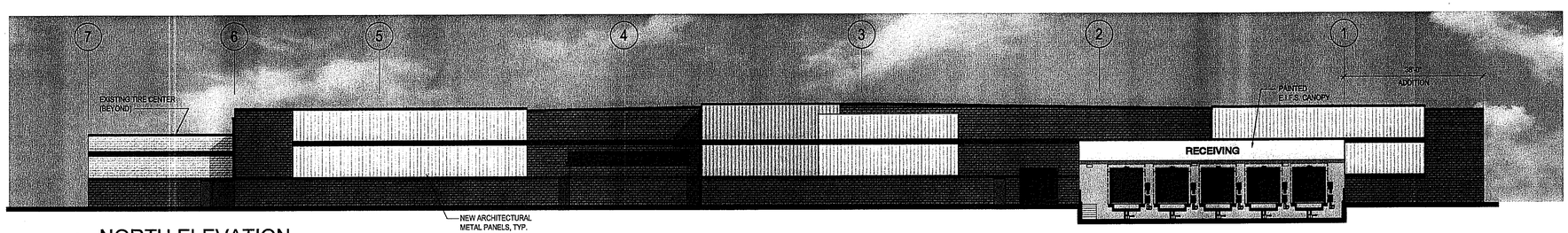
2 EAST ELEVATION

SCALE: 1/16" = 1'-0"



3 SOUTH ELEVATION

SCALE: 1/16" = 1'-0"



4 NORTH ELEVATION

SCALE: 1/16" = 1'-0"

Application No SEA 2007-SP-001 Staff B.Krasner

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SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 14 of 33

0 4' 8' 16' 32'

COSTCO WHOLESALE

FAIRFAX, VA
#204

4725 WEST OX ROAD
FAIRFAX, VA 22030

MULVANNY G2 ARCHITECTURE
8484 WESTPARK DRIVE | SUITE 700
McLEAN, VA | 22102
t 703.564.8484 | f 703.564.8400
MulvannyG2.com

94-0540-25
AUGUST 10, 2009
BUILDING ELEVATIONS

DD3.1-05

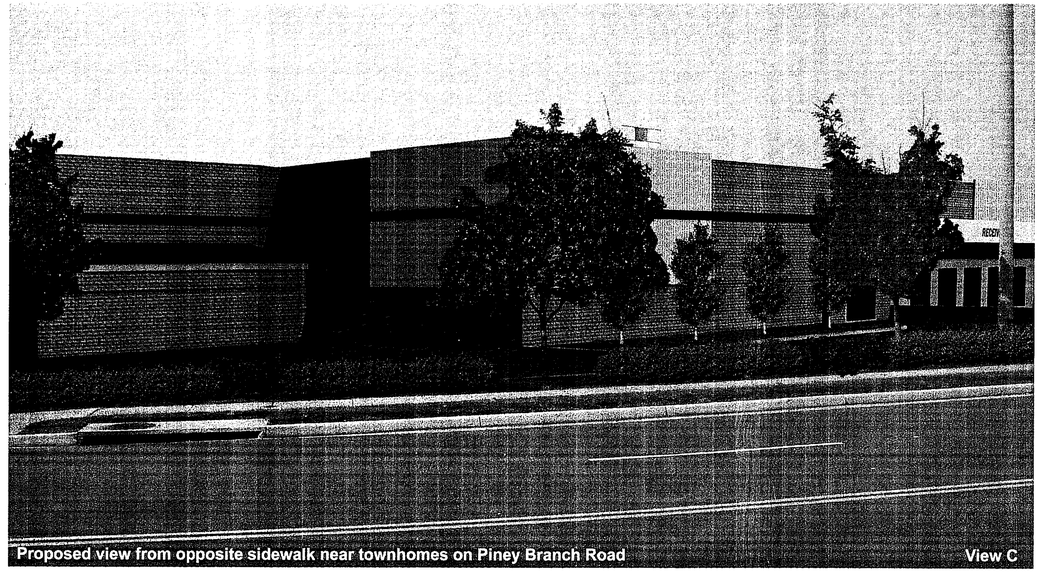
Sheet 14

COSTCO WHOLESALE

FAIRFAX, VIRGINIA

BUILDING ELEVATIONS

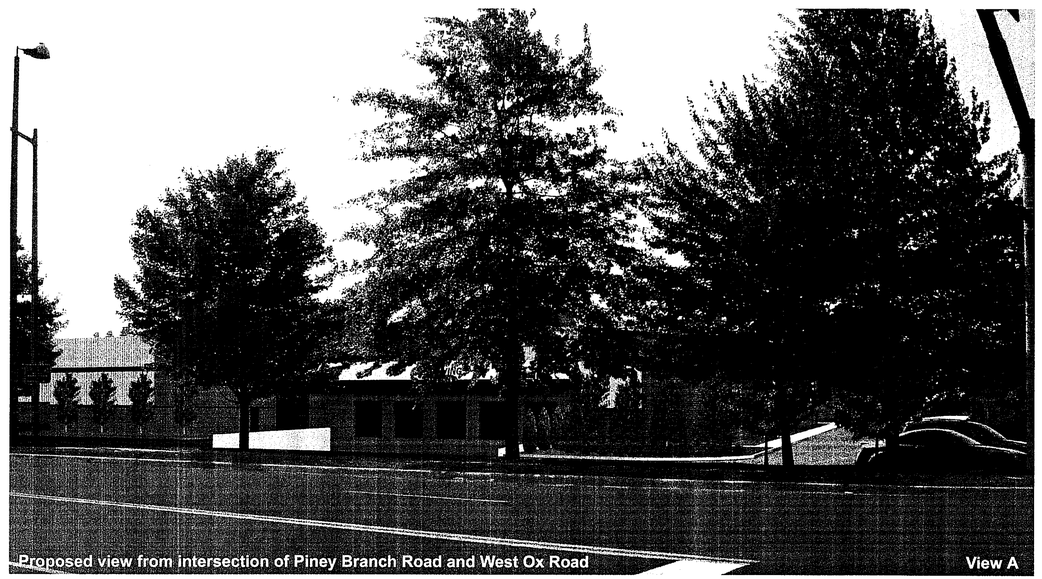
AUGUST 10, 2009



Proposed view from opposite sidewalk near townhomes on Piney Branch Road — View C

Costco Wholesale
4725 West Ox Road
Fairfax, Fairfax County, Virginia
August 28, 2009

BOHLER ENGINEERING — COSTCO WHOLESALE



Proposed view from intersection of Piney Branch Road and West Ox Road — View A

Costco Wholesale
4725 West Ox Road
Fairfax, Fairfax County, Virginia
September 22, 2009

BOHLER ENGINEERING — COSTCO WHOLESALE

Proposed view from intersection of Piney Branch Road and existing fuel stati — View B

Costco Wholesale
4725 West Ox Road
Fairfax, Fairfax County, Virg
September 22, 2009

BOHLER ENGINEERING — COSTCO WHOLESALE

Application No SEA 2007-SP-001 Staff B.Krasner

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Sheet 15 of 33

NOTE:
RENDERINGS SHOWN ARE PRESENTED ONLY TO ILLUSTRATE CHARACTER OF DESIGN. ADJUSTMENTS MAY BE MADE WITH FINAL DESIGN AND ENGINEERING.

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PROJECT No.:	SD10010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	NTS
CAD I.D.:	SD3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION A

PROPOSED WAREHOUSE EXPANSION

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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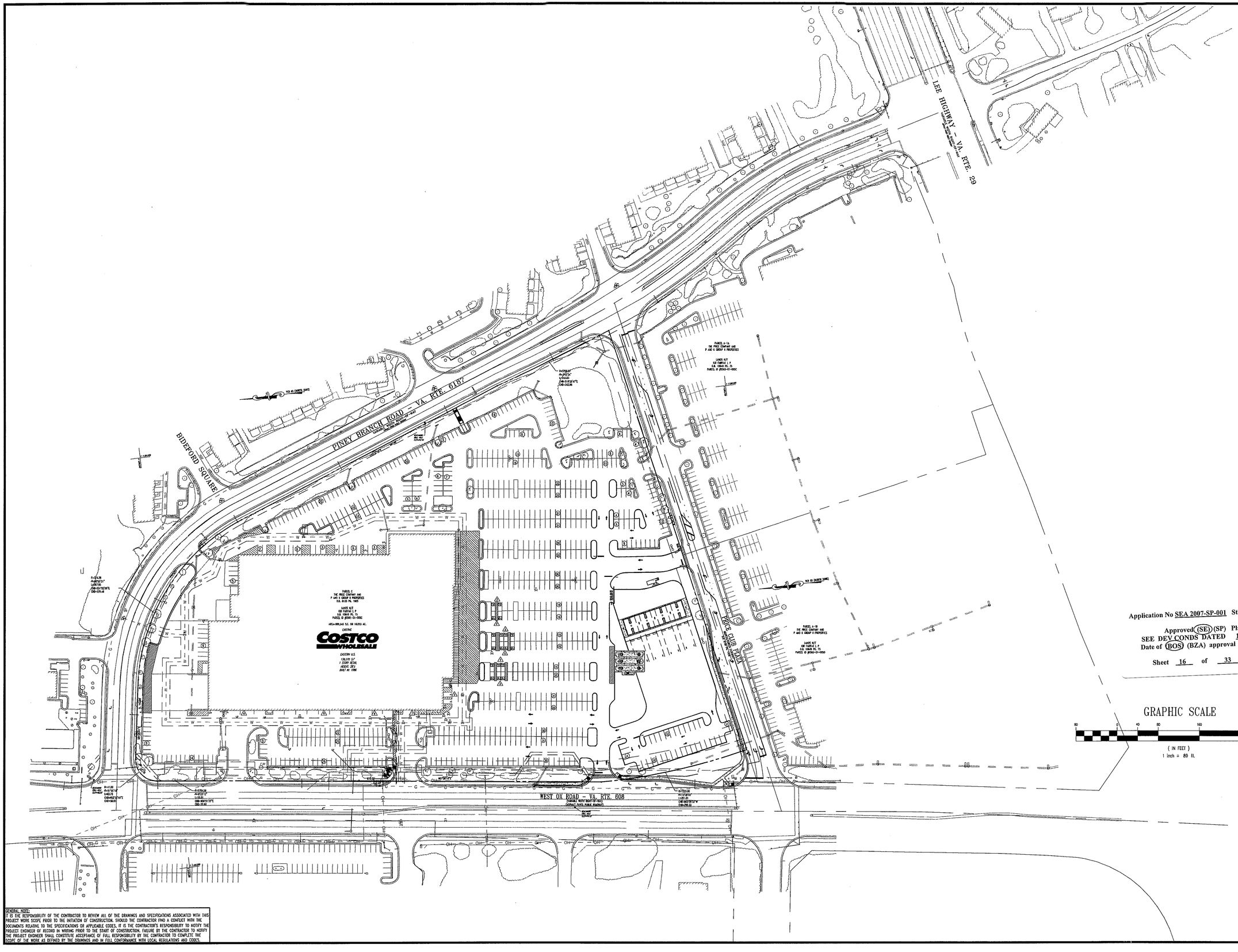
SHEET TITLE:
PHOTO RENDERINGS

SHEET NUMBER:
15
OF 33



Application No SEA 2007-SP-001 Staff B.Krasner

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Sheet 16 of 33

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PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=30'
CAD I.D.:	SE4

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION B

PROPOSED GASOLINE FACILITY

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FAIRFAX, VIRGINIA

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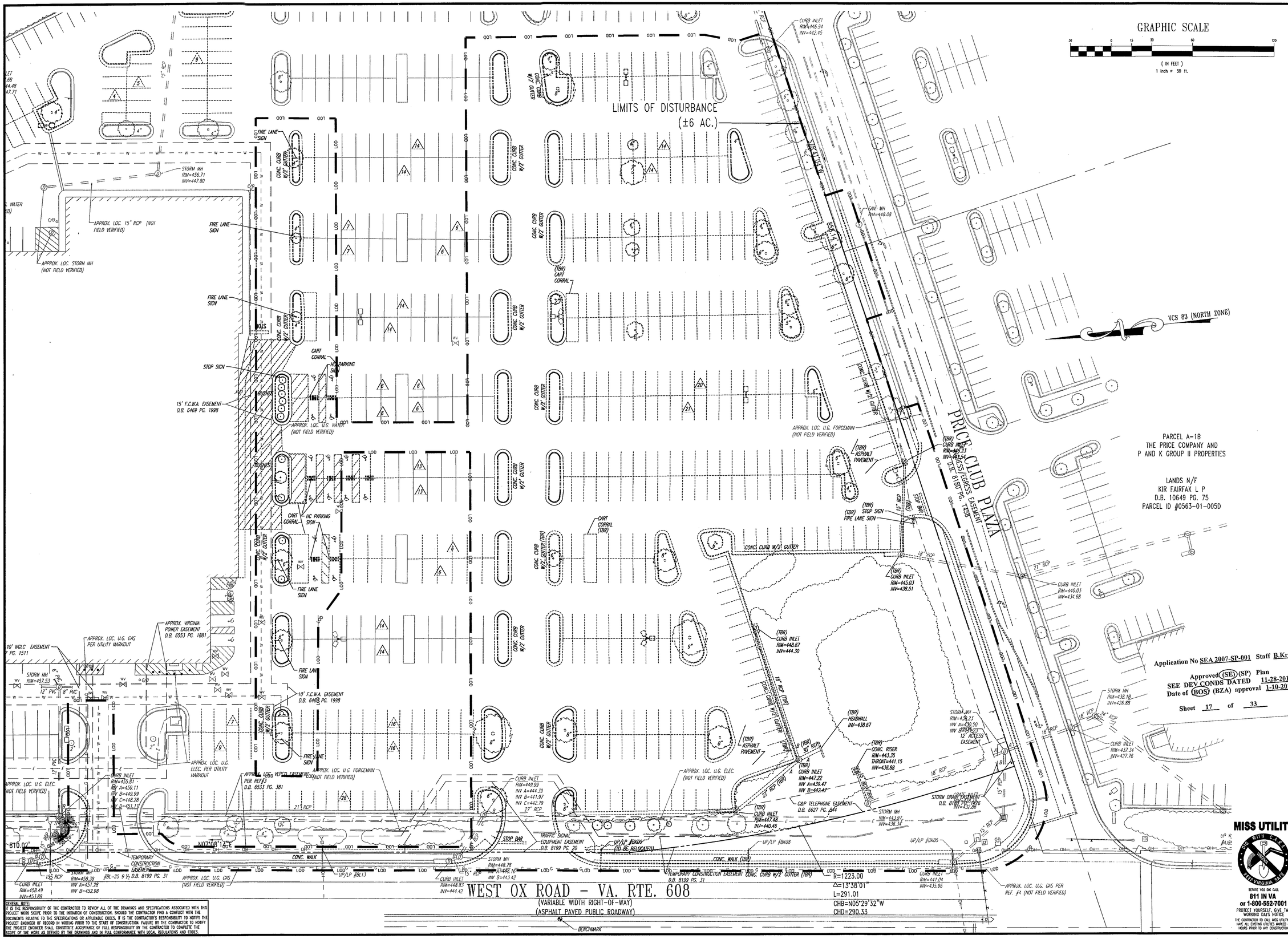
DAVID B. LOGAN
LICENSE NO. 046816
PROFESSIONAL ENGINEER
REGISTERED
PROFESSIONAL ENGINEER

SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
16
OF 33



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Sheet 17 of 33

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PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=30'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION B
PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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SHEET TITLE:
DETAILED EXISTING CONDITIONS/DEMOLITION PLAN

SHEET NUMBER:
17
OF 33

EXISTING VEGETATION MAP (EVM) - COSTCO FOR GASOLINE FACILITY

COVER TYPE SUMMARY TABLE - PARCEL ID: 0561-01-005C, AREA :16.06 ACRES (699,345 SQ. FT)
EVM PREPARED BY BOHLER ENGINEERING ON 12/29/09

AREA	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	ACREAGE	COMMENTS
A	EARLY SUCCESSIONAL FOREST COMMUNITY	RED MAPLE, SPRUCE, WHITE PINE EASTERN RED CEDAR	PIONEER EARLY SUCCESSIONAL OR SUB CLIMAX	0.82 AC.	SEE DESCRIPTION BELOW
B	EARLY SUCCESSIONAL FOREST COMMUNITY	RED MAPLE, WHITE PINE EASTERN RED CEDAR, AND BLACK LOCUST	PIONEER EARLY SUCCESSIONAL OR SUB CLIMAX	0.43 AC.	SEE DESCRIPTION BELOW
C	MAINTAINED GRASSLAND	RED MAPLE, ASH, WHITE PINE, EASTERN RED CEDAR	N/A	0.70 AC.	SEE DESCRIPTION BELOW
D	DEVELOPED LAND	ASH, RED MAPLE, AND PIN OAK	N/A	14.11 AC.	SEE DESCRIPTION BELOW
TOTAL ACREAGE: 16.06 AC.					

DESCRIPTION:

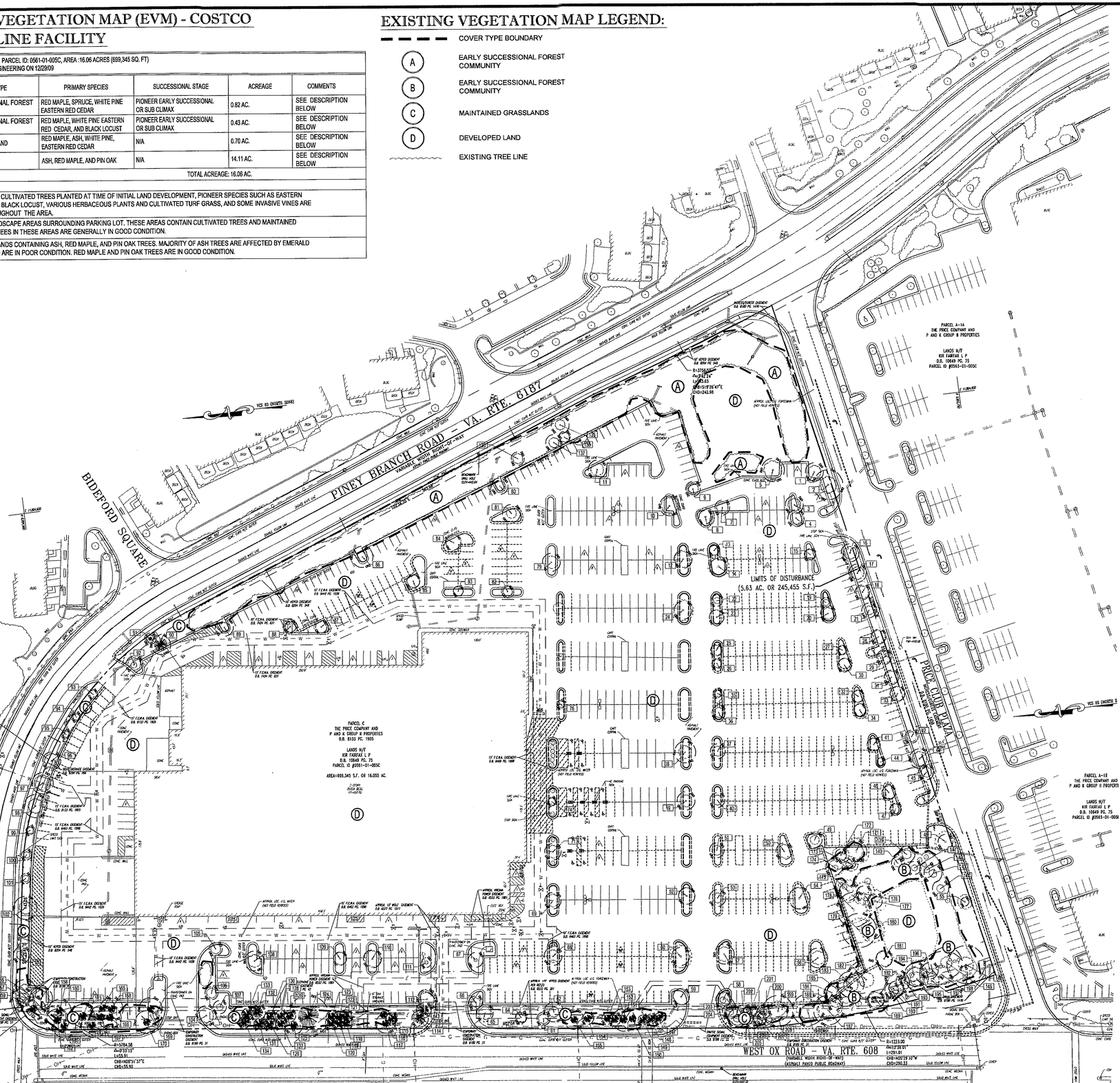
AREA A & B: AREA CONTAINS CULTIVATED TREES PLANTED AT TIME OF INITIAL LAND DEVELOPMENT, PIONEER SPECIES SUCH AS EASTERN RED CEDAR AND BLACK LOCUST, VARIOUS HERBACEOUS PLANTS AND CULTIVATED TURF GRASS, AND SOME INVASIVE VINES ARE PRESENT THROUGHOUT THE AREA.

AREA C: PERIMETER LANDSCAPE AREAS SURROUNDING PARKING LOT. THESE AREAS CONTAIN CULTIVATED TREES AND MAINTAINED TURF GRASS. TREES IN THESE AREAS ARE GENERALLY IN GOOD CONDITION.

AREA D: LANDSCAPE ISLANDS CONTAINING ASH, RED MAPLE, AND PIN OAK TREES. MAJORITY OF ASH TREES ARE AFFECTED BY EMERALD ASH BORER AND ARE IN POOR CONDITION. RED MAPLE AND PIN OAK TREES ARE IN GOOD CONDITION.

EXISTING VEGETATION MAP LEGEND:

- COVER TYPE BOUNDARY
- (A) EARLY SUCCESSIONAL FOREST COMMUNITY
- (B) EARLY SUCCESSIONAL FOREST COMMUNITY
- (C) MAINTAINED GRASSLANDS
- (D) DEVELOPED LAND
- EXISTING TREE LINE



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Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 18 of 33

MISS UTILITY
DIGGER'S HOTLINE
BEFORE YOU DIG CALL
811 IN VA
or 1-800-552-7001
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THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

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1	06/03/11	REV. PER COUNTY COMMENTS	BJS
2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=50'
CAD I.D.:	EV3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION B

PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER ENGINEERING
22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
FX: (703) 709-9501
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COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE NO. 042016
11/28/11
PROFESSIONAL ENGINEER

SHEET TITLE:
EXISTING VEGETATION MAP

SHEET NUMBER:
18
OF 33

Tree Condition Analysis for Costco (Fairfax County Parcel ID: 0561-01-005C)

Tree Condition Analysis Performed by Nicholas Georgas, ISA Certified Arborist MA-5061A on 11/29/10

Tree #	Common Name	Size (in inches) (DBH)	Condition Rating (%)	Species Rating (%)	Critical Root Zone Radius (in feet) (CRZ)	Preserve or Remove Tree	Remarks
1	Pin Oak	11	78%	70%	11	Preserve	
2	Pin Oak	18	75%	70%	18	Preserve	
3	Pin Oak	11	66%	70%	11	Preserve	
4	Pin Oak	10	69%	70%	10	Preserve	
5	Pin Oak	14	75%	70%	14	Preserve	
6	-						
7	Red Maple	9	72%	70%	9	Preserve	
8	Red Maple	8	66%	70%	8	Preserve	
9	Red Maple	9	75%	70%	9	Preserve	
10	Green Ash	12	53%	30%	12	Remove	
11	Green Ash	11	44%	30%	11	Remove	
12	Green Ash	11	47%	30%	11	Remove	
13	Red Maple	6	25%	70%	6	Remove	
14	Pin Oak	10	56%	70%	10	Remove	
15	Pin Oak	7	53%	70%	7	Preserve	
16	Red Maple	11	72%	70%	11	Preserve	
17	Pin Oak	11	72%	70%	11	Preserve	
18	Pin Oak	9	72%	70%	9	Preserve	
19	Pin Oak	6	50%	70%	6	Remove	
20	Pin Oak	9	78%	70%	9	Remove	
21	Pin Oak	9	81%	70%	9	Preserve	
22	Pin Oak	7	59%	70%	7	Remove	
23	Pin Oak	9	69%	70%	9	Remove	
24	Green Ash	11	50%	30%	11	Remove	
25	Pin Oak	7	53%	70%	7	Preserve	
26	Pin Oak	6	66%	70%	6	Remove	
27	Pin Oak	5	47%	70%	5	Remove	
28	Pin Oak	9	72%	70%	9	Remove	
29	Pin Oak	9	72%	70%	9	Remove	
30	Pin Oak	8	69%	70%	8	Remove	
31	Pin Oak	9	66%	70%	9	Remove	
32	Pin Oak	7	63%	70%	7	Remove	
33	Red Maple	9	72%	70%	9	Remove	
34	Pin Oak	7	56%	70%	7	Remove	
35	Pin Oak	5	56%	70%	5	Remove	
36	Pin Oak	8	69%	70%	8	Preserve	
37	Green Ash	9	50%	30%	9	Remove	Emerald Ash Borer holes in main trunk
38	Green Ash	13	44%	30%	13	Remove	Emerald Ash Borer holes in main trunk
39	Green Ash	11	47%	30%	11	Remove	Emerald Ash Borer holes in main trunk
40	Green Ash	9	50%	30%	9	Remove	Emerald Ash Borer holes in main trunk
41	Pin Oak	8	66%	70%	8	Remove	
42	Pin Oak	8	72%	70%	8	Remove	
43	Pin Oak	12	84%	70%	12	Preserve	
44	Pin Oak	5	47%	70%	5	Preserve	
45	Red Maple	9	63%	70%	9	Remove	Prune dead wood
46	Pin Oak	8	69%	70%	8	Remove	
47	Pin Oak	7	53%	70%	7	Remove	
48	Red Maple	9	81%	70%	9	Remove	
49	Green Ash	9	34%	30%	9	Remove	Emerald Ash Borer holes in main trunk
50	Green Ash	10	53%	30%	10	Remove	Emerald Ash Borer holes in main trunk
51	Green Ash	9	47%	30%	9	Remove	Emerald Ash Borer holes in main trunk
52	Green Ash	10	56%	30%	10	Remove	Emerald Ash Borer holes in main trunk
53	Green Ash	10	56%	30%	10	Remove	
54	Green Ash	13	69%	30%	13	Remove	
55	Red Maple	5	78%	70%	5	Remove	
56	Green Ash	12	72%	30%	12	Remove	
57	Green Ash	12	56%	30%	12	Remove	Emerald Ash Borer holes in main trunk
58	Green Ash	9	44%	30%	9	Remove	Emerald Ash Borer holes in main trunk
59	Green Ash	10	50%	30%	10	Preserve	Emerald Ash Borer holes in main trunk
60	Green Ash	11	66%	30%	11	Remove	
61	Pin Oak	8	78%	70%	8	Preserve	
62	Spruce	12	66%	65%	12	Preserve	
63	-	0					
64	Eastern Red Cedar	7	75%	75%	7	Preserve	
65	Spruce	10	72%	65%	10	Preserve	
66	Green Ash	8	25%	30%	8	Remove	Emerald Ash Borer holes in main trunk
67	Crape Myrtle	9	88%	80%	9	Remove	
68	Green Ash	11	53%	30%	11	Remove	Emerald Ash Borer holes in main trunk
69	Green Ash	10	56%	30%	10	Remove	Emerald Ash Borer holes in main trunk
70	-	0	0%				
71	Green Ash	10	59%	30%	10	Remove	Emerald Ash Borer holes in main trunk
72	-						
73	-	0					
74	Red Maple	5	78%	70%	5	Remove	
75	-	0					
76	Red Maple	5	28%	70%	5	Remove	Poor condition, noticable damage
77	-	0					
78	-	0					
79	Green Ash	11	63%	30%	11	Remove	Emerald Ash Borer holes in main trunk
80	Green Ash	10	66%	30%	10	Remove	Emerald Ash Borer holes in main trunk
81	Green Ash	11	66%	30%	11	Remove	Emerald Ash Borer holes in main trunk
82	Red Maple	6	72%	70%	6	Preserve	
83	Red Maple	6	72%	70%	6	Preserve	
84	Green Ash	9	78%	30%	9	Remove	
85	Red Maple	8	81%	70%	8	Remove	
86	Green Ash	13	72%	30%	13	Remove	
87	Red Maple	7	75%	70%	7	Remove	
88	Red Maple	7	78%	70%	7	Remove	
89	Green Ash	11	69%	30%	11	Remove	

Tree Condition Analysis for Costco (Fairfax County Parcel ID: 0561-01-005C)

Tree Condition Analysis Performed by Nicholas Georgas, ISA Certified Arborist MA-5061A on 11/29/10

Tree #	Common Name	Size (in inches) (DBH)	Condition Rating (%)	Species Rating (%)	Critical Root Zone Radius (in feet) (CRZ)	Preserve or Remove Tree	Remarks
90	Spruce	12	75%	65%	12	Remove	
91	Spruce	7	78%	65%	7	Remove	
92	Pin Oak	10	81%	70%	10	Preserve	
93	Sugar Maple	5	69%	30%	5	Preserve	
94	Sugar Maple	5	72%	30%	5	Preserve	
95	Sugar Maple	5	78%	30%	5	Preserve	Prune dead wood from center of tree
96	Pin Oak	11	84%	70%	11	Preserve	
97	Pin Oak	13	88%	70%	13	Preserve	
98	Pin Oak	11	88%	70%	11	Preserve	
99	Sugar Maple	5	72%	30%	5	Preserve	
100	Sugar Maple	6	75%	30%	6	Preserve	
101	Pin Oak	6	75%	70%	6	Preserve	
102	Red Maple	14	88%	70%	14	Preserve	
103	Pin Oak	10	78%	70%	10	Preserve	
104	Green Ash	12	69%	30%	12	Remove	
105	Eastern Red Cedar	8	88%	75%	8	Remove	
106	Eastern Red Cedar	8	88%	75%	8	Remove	
107	Eastern Red Cedar	8	88%	75%	8	Remove	
108	Green Ash	12	72%	30%	12	Remove	Emerald Ash Borer holes in main trunk
109	Green Ash	8	63%	30%	8	Remove	
110	Green Ash	11	75%	30%	11	Remove	
111	Crape Myrtle	6	91%	80%	6	Remove	
112	Green Ash	12	72%	30%	12	Remove	
113	Spruce	9	78%	65%	9	Preserve	
114	Spruce	10	78%	65%	10	Preserve	
115	Eastern Red Cedar	7	69%	75%	7	Preserve	
116	Arborvitae	4	75%	60%	4	Preserve	
117	Spruce	12	78%	75%	12	Preserve	
118	Eastern Red Cedar	8	75%	75%	8	Preserve	
119	Eastern Red Cedar	8	75%	75%	8	Preserve	
120	Eastern Red Cedar	8	75%	75%	8	Preserve	
121	Eastern Red Cedar	8	75%	75%	8	Preserve	
122	Eastern Red Cedar	8	75%	75%	8	Preserve	
123	Spruce	7	69%	65%	7	Preserve	
124	White Pine	25	78%	60%	25	Preserve	
125	Spruce	11	84%	65%	11	Preserve	
126	Eastern Red Cedar	7	75%	75%	7	Preserve	
127	Eastern Red Cedar	7	75%	75%	7	Preserve	
128	Eastern Red Cedar	7	75%	75%	7	Preserve	
129	Eastern Red Cedar	7	75%	75%	7	Preserve	
130	Eastern Red Cedar	7	75%	75%	7	Preserve	
131	Eastern Red Cedar	7	75%	75%	7	Preserve	
132	Spruce	9	81%	65%	9	Preserve	
133	Eastern Red Cedar	7	78%	75%	7	Preserve	
134	Eastern Red Cedar	7	78%	75%	7	Preserve	
135	Red Maple	11	78%	70%	11	Preserve	
136	Spruce	7	63%	65%	7	Preserve	
137	Spruce	10	69%	65%	10	Preserve	
138	Eastern Red Cedar	8	69%	75%	8	Preserve	
139	Red Maple	10	69%	70%	10	Remove	
140	Sugar Maple	8	72%	70%	8	Remove	
141	Sugar Maple	8	75%	70%	8	Remove	
142	Black Locust	9	69%	50%	9	Remove	Remove invasive vines from tree
143	Black Locust	11	75%	50%	11	Remove	Remove invasive vines from tree
144	Black Locust	10	66%	50%	10	Remove	Remove invasive vines from tree
145	White Pine	23	78%	60%	23	Remove	
146	White Pine	19	78%	60%	19	Remove	
147	Eastern Red Cedar	6	75%	75%	6	Preserve	
148	Eastern Red Cedar	6	75%	75%	6	Preserve	
149	Eastern Red Cedar	6	75%	75%	6	Preserve	
150	White Pine	14	84%	60%	14	Preserve	
151	White Pine	14	72%	60%	14	Preserve	
152	Eastern Red Cedar	7	72%	75%	7	Preserve	
153	Eastern Red Cedar	7	75%	75%	7	Preserve	
154	Eastern Red Cedar	7	75%	75%	7	Preserve	
155	Spruce	12	72%	65%	12	Preserve	
156	Pin Oak	11	91%	70%	11	Preserve	
157	Red Maple	8	75%	70%	8	Preserve	
158	Pin Oak	11	84%	70%	11	Preserve	
159	Red Maple	3	72%	70%	3	Preserve	
160	White Pine	9	75%	60%	9	Preserve	
161	Red Maple	9	81%	70%	9	Preserve	
162	White Pine	4	66%	60%	4	Preserve	
163	White Pine	8	75%	60%	8	Preserve	
164	Red Maple	10	72%	70%	10	Preserve	
165	Eastern Red Cedar	6	75%	75%	6	Preserve	
166	Eastern Red Cedar	6	75%	75%	6	Preserve	
167	Eastern Red Cedar	6	75%	75%	6	Preserve	
168	Eastern Red Cedar	6	75%	75%	6	Remove	
169	White Pine	24	84%	60%	24	Remove	
170	Red Maple	9	75%	70%	9	Preserve	

Tree Condition Analysis for Costco (Fairfax County Parcel ID: 0561-01-005C)

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Tree #	Common Name	Size (in inches) (DBH)	Condition Rating (%)	Species Rating (%)	Critical Root Zone Radius (in feet) (CRZ)	Preserve or Remove Tree	Remarks
171	Red Maple	13	75%	70%	13	Remove	
172	Cherry	7	65%	65%	7	Remove	
173	Cherry	6	60%	65%	6	Remove	
174	Cherry	10	50%	65%	10	Remove	
175	Sugar Maple	11	30%	70%	11	Remove	
176	Red Maple	9	65%	70%	9	Remove	
177	Black Locust	9	65%	50%	9	Remove	
178	Red Maple	21	65%	70%	21	Remove	
179	Red Maple	22	70%	70%	22	Remove	
180	Pear	22	60%	45%	22	Remove	
181	Willow	0	40%	60%	0	Remove	
182	White Pine	24	60%	60%	24	Remove	
183	Ash	16	50%	30%	16	Remove	
184	Spruce	10	60%	65%	10	Remove	
185	Black Locust	20	50%	50%	20	Remove	
186	Sugar Maple	9	55%	70%	9	Remove	
187	White Pine	18	60%	60%	18	Remove	
188	White Pine	19	60%	60%	19	Remove	
189	White Pine	25	70%	60%	25	Remove	
190	Eastern Red Cedar	10	50%	75%	10	Remove	
191	Eastern Red Cedar	9	55%	75%	9	Remove	
192	Cherry	14	60%	65%	14	Remove	
193	Arborvitae	7	60%	65%	7	Remove	
194	Black Locust	12	65%	50%	12	Remove	
195	Fir	24	65%	65%	24	Remove	
196	Fir	10	65%	65%	10	Remove	
197	Fir	16	55%	65%	16	Remove	
198	White Pine	29	70%	60%	29	Remove	
199	White Pine	19	60%	60%	19	Remove	
200	Spruce	8	65%	65%	8	Preserve	
201	Spruce	8	50%	65%	8	Preserve	
202	Eastern Red Cedar	8	65%	75%	8	Preserve	
203	Spruce	9	65%	65%	9	Preserve	
204	Fir	11	60%	65%	11	Preserve	
205	Eastern Red Cedar	7	65%	75%	7	Preserve	
206	Fir	11	65%	65%	11	Preserve	
207	Eastern Red Cedar	8	50%	75%	8	Preserve	
208	Eastern Red Cedar	9	65%	75%	9	Preserve	

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 19 of 33

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=50'
CAD I.D.:	EV3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
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OPTION B
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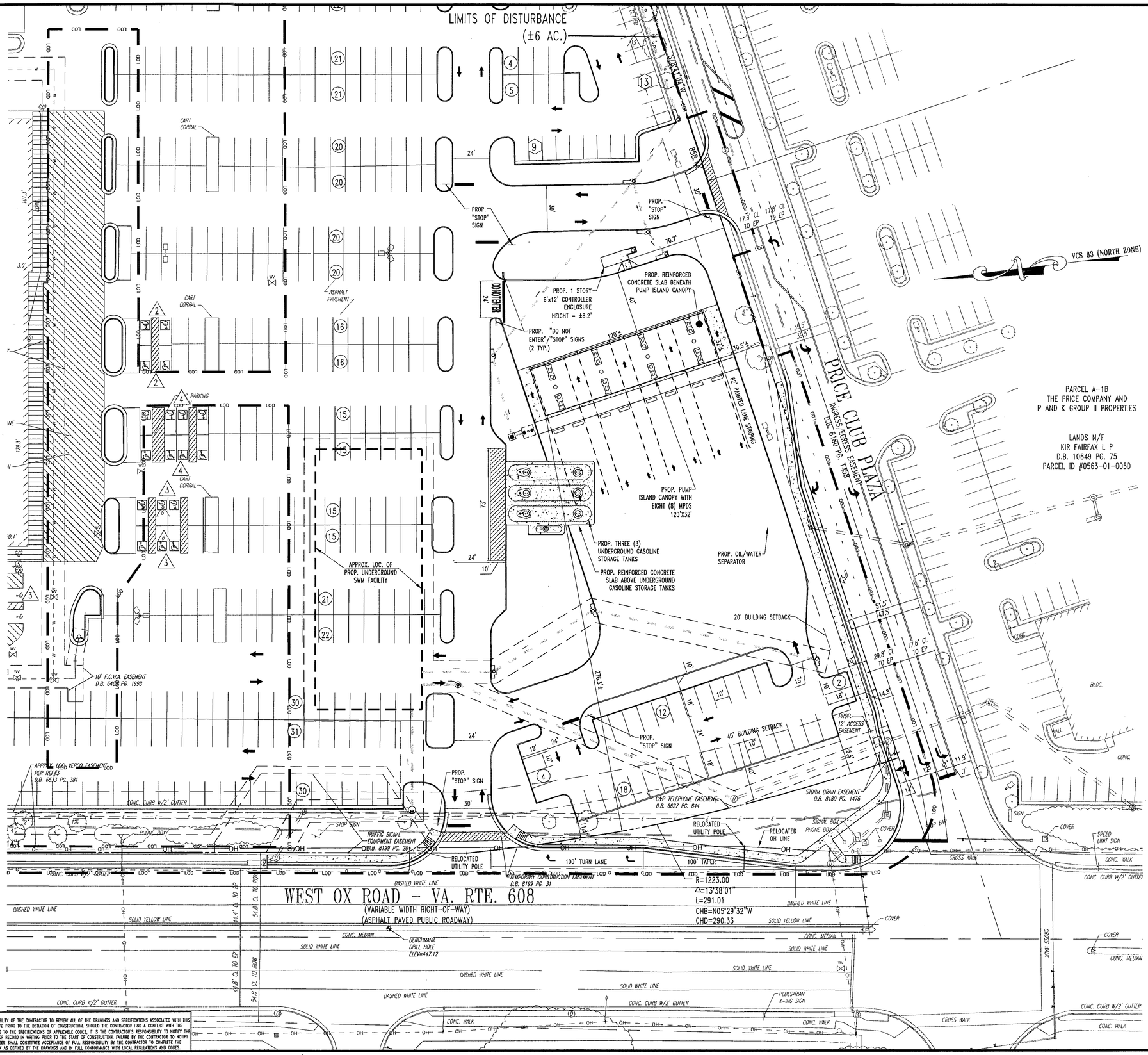
DAVID B. LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE No. 043616
WEST VIRGINIA LICENSE No. 17390
PROFESSIONAL ENGINEER

SHEET TITLE:
TREE CONDITION ANALYSIS

SHEET NUMBER:
19
OF 33



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Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 20 of 33

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

MISS UTILITY
DIG WITH CARE
BEFORE YOU DIG CALL
811 IN VA
or 1-800-552-7001
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE
THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

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SURVEYORS
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LANDSCAPE ARCHITECTS

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ALBANY, NY
BINGHAMTON, NY
ROCKY HILL, CT
STERLING, VA
BOWIE, MD
NORTON, OH
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CENTER VALLEY, PA

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3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=30'
CAD I.D.:	SE4

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION B

PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER
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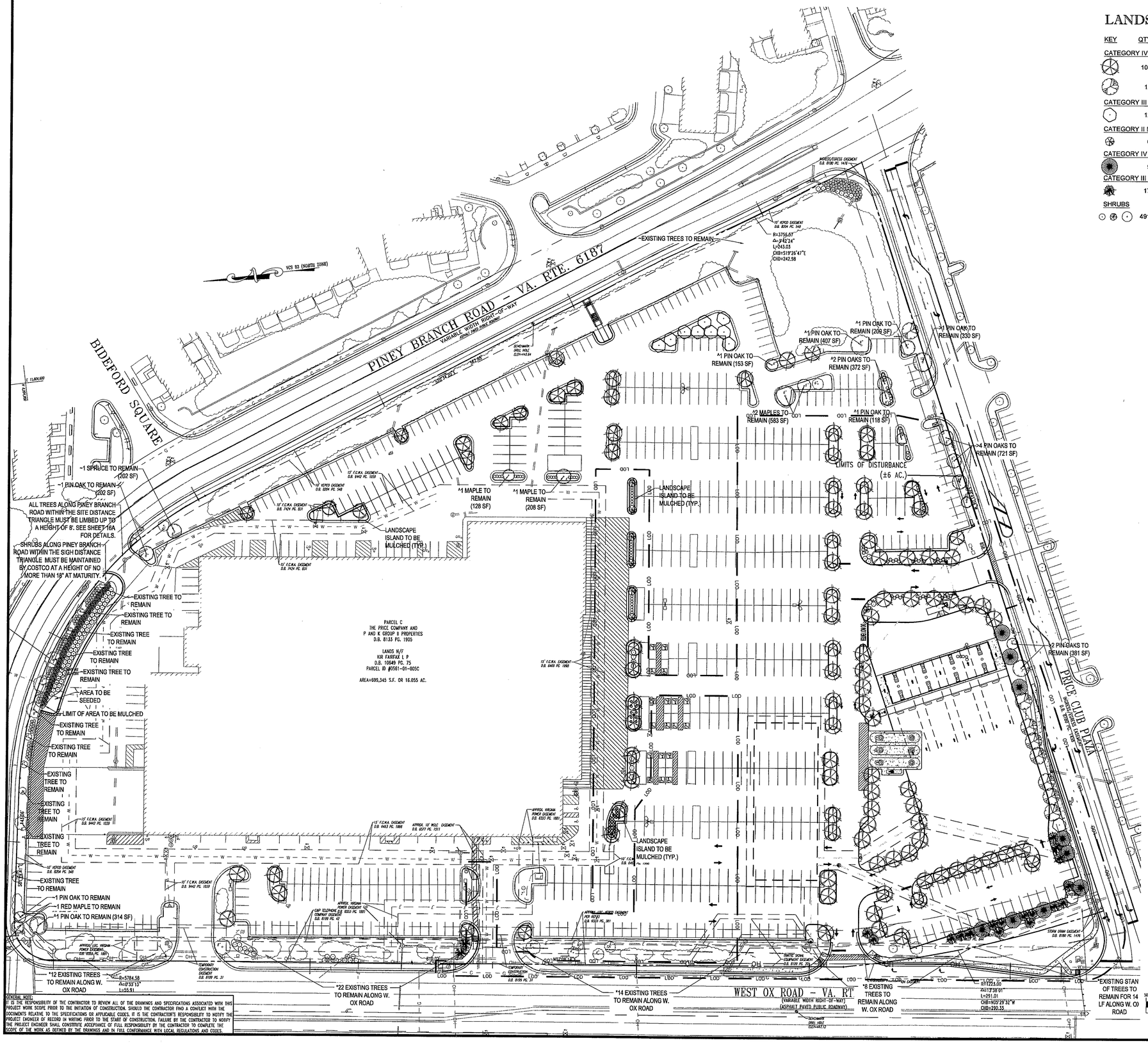
www.bohlerengineering.com

COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
LICENSE NO. 0402035818
PROFESSIONAL ENGINEER
DAVID LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE # 0402035818
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:
DETAILED SITE PLAN

SHEET NUMBER:
20
OF 33



LANDSCAPE SCHEDULE

KEY	QTY	STOCK SIZE	STOCK TYPE	REMARKS	10 YR TREE CANOPY	10 YR TREE CANOPY SUB TOTAL
CATEGORY IV DECIDUOUS TREES						
	101	2-2 1/2" CAL.	B+B	-	200	20,200
	12	2-2 1/2" CAL.	B+B	-	200	2,400
CATEGORY III DECIDUOUS TREES						
	12	2-2 1/2" CAL.	B+B	-	150	1,800
CATEGORY II DECIDUOUS TREES						
	6	2-2 1/2" CAL.	B+B	-	100	-
CATEGORY IV EVERGREEN TREES						
	9	2-2 1/2" CAL.	B+B	NATIVE	200	1,800
CATEGORY III EVERGREEN TREES						
	17	2-2 1/2" CAL.	B+B	NATIVE	150	2,550
SHRUBS						
	491	TO BE DETERMINED AT SITE PLAN (EVERGREEN AND/OR DECIDUOUS SHRUBS WILL BE PROVIDED				

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 21 of 33

MISS UTILITY
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FREE VIRGINIA LAW
BEFORE YOU DIG CALL
811 IN VA
or 1-800-552-7001
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE
THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

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2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010D10.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=50'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION B
PROPOSED GASOLINE FACILITY
4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
LICENSED PROFESSIONAL ENGINEER
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SHEET TITLE:
DETAILED LANDSCAPE PLAN
SHEET NUMBER:
21
OF 33

COMPLIANCE CHART FOR THE FAIRFAX COUNTY ZONING ORDINANCE

SECTION	REQUIREMENTS	CALCULATIONS (REQUIRED/PROPOSED)	COMPLIANCE
13-203 PERIPHERAL PARKING LOT LANDSCAPING	IF ANY PARKING LOT CONTAINS 20 OR MORE SPACES AND TRANSITIONAL SCREENING IS NOT REQUIRED BY SECTION 301 AND 302, THEN PERIPHERAL PARKING LOT LANDSCAPING SHALL BE REQUIRED AS FOLLOWS: 2. WHERE A PROPERTY LINE ABUTS THE R.O.W. OF A STREET: A. A LANDSCAPE STRIP 10' IN WIDTH, WHICH SHALL NOT INCLUDE A SIDEWALK OR TRAIL, SHALL BE LOCATED BETWEEN THE PARKING LOT AND THE PROPERTY LINE. B. AT LEAST ONE TREE FOR EVERY 40' SHALL BE PLANTED WITHIN THE LANDSCAPING STRIP.	REQUIRED: 10' BUFFER ALONG R.O.W.'S, ONE (1) TREE PER 40 LINEAR FEET. WEST OX RD. - 987 L.F. 987'/40 = 24.6 or 25 TREES PINEY BRANCH RD. - 348 L.F. 348'/40 = 8.7 OR 9 TREES PRICE CLUB PLAZA - 798 L.F. EXISTING TREE STAND TO REMAIN FOR 203' OF LANDSCAPE STRIP. 595'/40 = 14.8 OR 15 TREES PROVIDED: "*" WEST OX RD. - 48 TOTAL TREES (56 EXISTING TREES TO REMAIN) "~" PINEY BRANCH RD. - 17 TOTAL TREES (15 EXISTING TREES TO REMAIN, 2 PROPOSED TREES) ">" PRICE CLUB PLAZA - 15 TOTAL TREES (7 EXISTING TREES TO REMAIN, 8 PROPOSED TREES) "*,~,>" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT	COMPLIES
13-302 TRANSITIONAL SCREENING REQUIREMENTS	C. TRANSITIONAL SCREENING 3 SHALL CONSIST OF AN UNBROKEN STRIP OF OPEN SPACE A MINIMUM OF 50 FEET WIDE PLANTED WITH: 1.) A MIXTURE OF LARGE AND MEDIUM EVERGREEN TREES AND LARGE DECIDUOUS TREES THAT ACHIEVES A MINIMUM TEN (10) YEAR TREE CANOPY OF SEVENTY-FIVE (75) PERCENT OR GREATER; 2.) A MIXTURE OF TREES CONSISTING OF AT LEAST SEVENTY (70) PERCENT EVERGREEN TREES, AND CONSISTING OF NO MORE THAN THIRTY-FIVE (35) PERCENT OF ANY SINGLE SPECIES OF EVERGREEN TREE; AND 3.) A MIXTURE OF PREDOMINANTLY MEDIUM EVERGREEN SHRUBS AT A RATE OF THREE (3) SHRUBS FOR EVERY TEN (10) LINEAR FEET FOR THE LENGTH OF THE TRANSITION YARD AREA.	REQUIRED: SCREENING 3, BARRIER E - 6 FT. HIGH WALL PINEY BRANCH ROAD - 962 LF. 962 X 50 = 48,100 X .75 (REQ. CANOPY) = 36,075 SF 36,075 SF OF TREE CANOPY REQUIRED 289 REQUIRED SHRUBS PROVIDED: 18,793 SF OF EXISTING TREE CANOPY (NOTE: TREES IN EXISTING VEPCO EASEMENT ALONG PINEY BRANCH ROAD EXCLUDED FROM CALCULATION) 400 SF OF PROPOSED TREE CANOPY 19,293 SF TOTAL CANOPY PROVIDED 259 SHRUBS "$" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT DUE TO THE EXISTING DESIGN OF PINEY BRANCH ROAD AND REQUIRED SIGHT DISTANCE REQUIREMENTS, THE REQUIRED PLANT MATERIAL CANNOT BE PROVIDED AND THEREFORE A WAIVER/MODIFICATION FOR A REDUCTION IN THE PLANT MATERIAL IS REQUESTED.	WAIVER/ MODIFICATION REQUESTED
13-401 TREE COVER REQUIREMENTS	ZONING DISTRICT: COMMERCIAL SITE SHALL HAVE 10% COVERAGE OF TREE CANOPY	SEE TREE COVER CALCULATIONS TABLE 12.12 ON THIS SHEET	COMPLIES

LANDSCAPE SCHEDULE

KEY	QTY	STOCK SIZE	STOCK TYPE	REMARKS	10 YR TREE CANOPY	10 YR TREE CANOPY SUB TOTAL
CATEGORY IV DECIDUOUS TREES						
	101	2-2 1/2" CAL.	B+B	-	200	20,200
	12	2-2 1/2" CAL.	B+B	-	200	2,400
CATEGORY III DECIDUOUS TREES						
	12	2-2 1/2" CAL.	B+B	-	150	1,800
CATEGORY II DECIDUOUS TREES						
	6	2-2 1/2" CAL.	B+B	-	100	-
CATEGORY IV EVERGREEN TREES						
	9	2-2 1/2" CAL.	B+B	NATIVE	200	1,800
CATEGORY III EVERGREEN TREES						
	17	2-2 1/2" CAL.	B+B	NATIVE	150	2,550
SHRUBS						
	491	TO BE DETERMINED AT SITE PLAN (EVERGREEN AND/OR DECIDUOUS SHRUBS WILL BE PROVIDED				

GENERAL NOTE:
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TABLE 12.13 INTERIOR PARKNG LOT LANDSCAPING CALCULATIONS

AREA TO BE COUNTED:	435,869 S.F.
INTERIOR LANDSCAPING REQUIRED (5%):	21,794 S.F.
TOTAL EXISTING CANOPY PROVIDED:	3,947 S.F.
TOTAL SHADE TREE CANOPY PROVIDED:	
100 TREES @ 200 S.F. EACH:	20,000 S.F.
12 TREES @ 200 S.F. EACH:	1,800 S.F.
TOTAL:	21,800 S.F.
TOTAL AREA REQUIRED =	21,794 S.F.
TOTAL AREA PROVIDED =	25,747 S.F.
"^" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT	

AREA COUNTED TOWARDS PARKING AREA (435,869 SF)

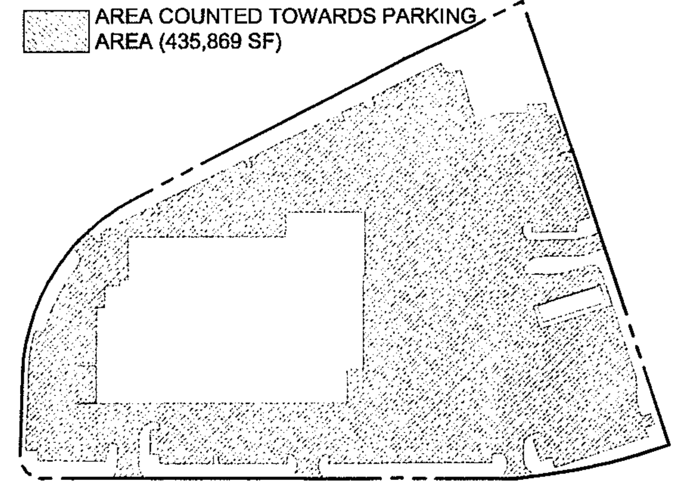

TABLE 12.3

A	PRE-DEVELOPMENT AREA OF EXISTING TREE CANOPY (FROM EXISTING VEGETATION MAP)	699,345
B	PERCENTAGE OF GROSS SITE AREA COVERED BY EXISTING TREE CANOPY	12.1%
C	PERCENTAGE OF 10-YEAR TREE CANOPY REQUIRED FOR SITE (SEE TABLE 12.4)	10%
D	PERCENTAGE OF THE 10-TEAR TREE CANOPY REQUIREMENT THAT SHOULD BE MET THROUGH TREE PRESERVATION	12.1%
E	PROPOSED PERCENTAGE OF CANOPY REQUIREMENT THAT WILL BE MET THROUGH TREE PRESERVATION	48.6%
F	HAS THE TREE PRESERVATION TARGET MINIMUM BEEN MET?	YES
G	IF NO FOR LINE F, THEN A REQUEST TO DEVIATE FROM THE TREE PRESERVATION TARGET SHALL BE PROVIDED ON THE PLAN THAT STATES ONE OR MORE OF THE JUSTIFICATIONS LISTED IN 12-0507.3 ALONG WITH A NARRATIVE THAT PROVIDES A SITE-SPECIFIC EXPLANATION OF WHY THE TREE PRESERVATION TARGET CANNOT BE MET. PROVIDE SHEET NUMBER WHERE DEVIATION REQUEST IS LOCATED	N/A
H	IF STEP G REQUIRES A NARRATIVE, IT SHALL BE PREPARED IN ACCORDANCE WITH 12-0507.4	N/A
I	PLACE THIS INFORMATION PRIOR TO THE 10-YEAR TREE CANOPY CALCULATIONS AS PER INSTRUCTIONS IN TABLE 12.12	

TABLE 12.12

STEP		TOTALS
A. TREE PRESERVATION TARGET AND STATEMENT		
A 1	PLACE THE TREE PRESERVATION TARGET CALCULATIONS AND STATEMENT HERE PRECEDING THE 10-YEAR TREE CANOPY CALCULATIONS	SEE ABOVE
B. TREE CANOPY REQUIREMENT		
B1	IDENTIFY GROSS SITE AREA =	699,345
B2	SUBTRACT AREA DEDICATED TO PARKS AND ROAD FRONTAGE =	0
B3	SUBTRACT AREA OF EXEMPTIONS =	-
B4	ADJUSTED GROSS SITE AREA (B1-B2) =	699,345
B5	IDENTIFY SITES ZONING AND OR USE =	COMMERCIAL
B6	PERCENTAGE OF 10-YEAR TREE CANOPY REQUIRED =	10%
B7	AREA OF 10-YEAR TREE CANOPY REQUIRED (B4 x B5) =	69,935
B8	MODIFICATION OF 10-YEAR TREE CANOPY REQUIREMENTS REQUESTED?	NO
B9	IF B8 YES, THEN LIST PLAN SHEET WHERE MODIFICATION REQUEST IS LOCATED	N/A
C. TREE PRESERVATION		
C1	TREE PRESERVATION TARGET AREA =	8,451
C2	TOTAL CANOPY AREA MEETING STANDARDS OF § 12-0200 =	33,991
C3	C2 X 1.25 =	42,489
C4	TOTAL CANOPY AREA PROVIDED BY UNIQUE OR VALUABLE FOREST OR WOODLAND COMMUNITIES =	0
C5	C4 X 1.5	0
C6	TOTAL CANOPY AREA PROVIDED BY "HERITAGE," "MEMORIAL," "SPECIMEN," OR "STREET" TREES =	0
C7	C6 X 1.5 TO 3.0 =	0
C8	CANOPY AREA OF TREES WITHIN RESOURCE PROTECTION AREAS AND 100-YEAR FLOODPLAINS =	0
C9	C8 X 1.0 =	0
C10	TOTAL OF C3, C5, C7, AND C9 =	42,489
D. TREE PLANTING		
D1	AREA OF CANOPY TO BE MET THROUGH TREE PLANTING (B7-C10) =	0
D2	AREA OF CANOPY PLANTED FOR AIR QUALITY BENEFITS =	0
D3	X 1.5 =	0
D4	AREA OF CANOPY PLANTED FOR ENERGY CONSERVATION =	0
D5	X 1.5 =	0
D6	AREA OF CANOPY PLANTED FOR WATER QUALITY BENEFITS =	0
D7	X 1.5 =	0
D8	AREA OF CANOPY PROVIDED BY NATIVE TREES =	0
D9	X 1.5 =	0
D10	AREA OF CANOPY PROVIDED BY IMPROVED CULTIVARS AND VARIETIES =	0
D11	X 1.5=	0
D12	AREA OF CANOPY PROVIDED THROUGH TREE SEEDLINGS =	0
D13	X 1.0 =	0
D14	AREA OF CANOPY PROVIDED THROUGH NATIVE SHRUBS OR WOODY SEED MIX =	0
D15	X 1.0 =	0
D16	PERCENTAGE OF D14 REPRESENTED BY D15 =	0
-	CANOPY AREA NOT ELIGIBLE FOR MULTIPLIER =	28,150
D17	TOTAL CANOPY AREA PROVIDED THROUGH TREE PLANTING =	28,150
D18	IS AN OFFSITE PLANTING RELIEF REQUESTED?	NO
D19	TREE BANK OR TREE FUND?	N/A
D20	CANOPY AREA REQUESTED TO BE PROVIDED THROUGH OFFSITE BANKING OR TREE FUND =	0
D21	AMOUNT TO BE DEPOSITED INTO THE TREE PRESERVATION AND PLANTING FUND =	$0
E. TOTAL OF 10-YEAR TREE CANOPY PROVIDED		
E1	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PRESERVATION (C10) =	42,489
E2	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING (D17) =	28,150
E3	TOTAL OF CANOPY AREA PROVIDED THROUGH OFFSITE MECHANISM (D19) =	0
E4	TOTAL OF 10-YEAR TREE CANOPY PROVIDED =	70,639
	PERCENTAGE OF 10-YEAR TREE CANOPY PROVIDED =	10.10%

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 22 of 33

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=50'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION B
PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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SUITE 200
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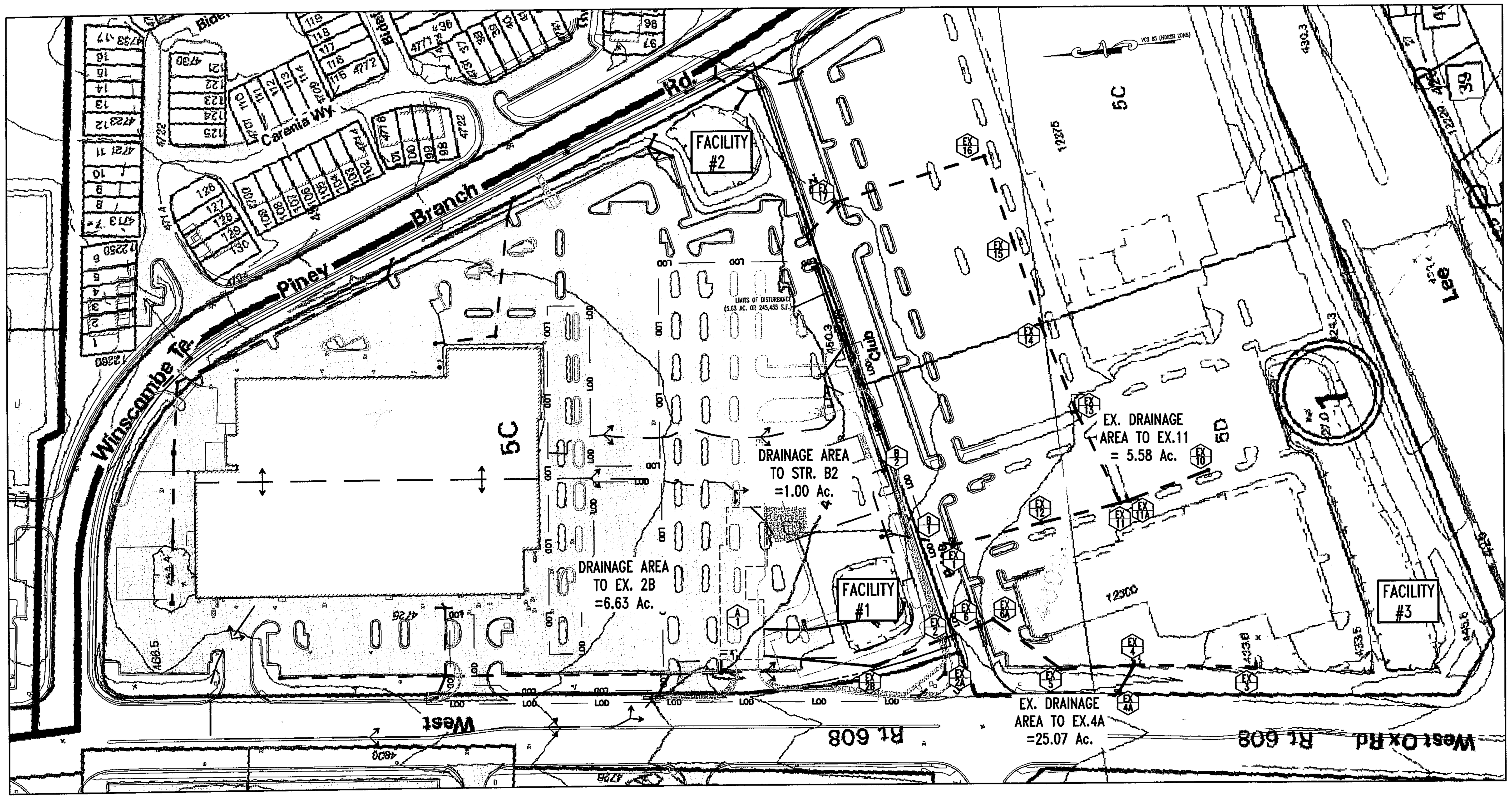
VIRGINIA LICENSE No. 043516
WEST VIRGINIA LICENSE No. 17390
10/26/11
PROFESSIONAL ENGINEER

SHEET TITLE:
LANDSCAPE NOTES

SHEET NUMBER:
22
OF 33

OFF-SITE DRAINAGE MAP



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

STORM DRAIN DESIGN COMPUTATIONS

FROM	TO	DRAIN. AREA (ACRES)	RUNOFF COEF. C	C x A INCR.	C x A ACCUM	TIME OF CONCENTRATION: TIME IN PIPE (sec.)	TIME	I	Q (cfs) INCR (c.f.s.)	Q (cfs) ACCUM (c.f.s.)	DESIGN: PIPE DIA. In	SLOPE Ft/Ft	"n"	MAX Q (c.f.s.)	VEL Ft/Sec	PROFILE: LENGTH Ft	FALL Ft	UPPER INV	LOWER INV
A1	A2	10-y ear routed outflow from the proposed SWM facility = 5.9 c.f.s.							5.9	5.9	18	0.010	0.013	10.3	6.1	146.0	1.40	438	436.6
Ex.2B	Ex.2									5.9	18	0.054	0.013	24.5	11.1	107.7	5.84	436.34	430.5
Ex. 2A	Ex.2	0.76	0.54	0.41	0.41		5	7.27	3.0	3.0									
Ex. 2	Ex.1				0.41		5	7.27		8.9	18	0.026	0.013	17.1	9.7	52.0	1.37	430.50	429.13
Ex.1	Ex.6	0.76	0.8	0.61	1.02		5	7.27	4.4	13.3	18	0.049	0.013	23.3	13.7	21.0	1.03	428.92	427.89
Ex.6	Ex.5				1.02					13.3	24	0.007	0.013	18.6	6.5	116.7	0.79	427.84	427.05
Ex.5	Ex.4	0.44	0.81	0.36	1.37		5	7.27	2.6	15.9	24	0.015	0.013	28.0	9.2	105.2	1.60	426.90	425.30
Ex.4A	Ex.4	25.07	0.39	10.17	10.17		10	5.92	60.2	60.2									
Ex.4	Ex.3	0.22	0.85	0.19	11.73		10	5.92	1.1	77.2	42	0.007	0.013	84.7	10.1	170.2	1.20	424.95	423.75
B2	B1	1.00	0.8	0.80	0.80		5	7.27	5.8	5.8	18	0.010	0.013	10.5	6.1	112.5	1.13	438.03	436.90
B1	Ex.B2	0.06	0.7	0.04	0.84		5	7.27	0.3	6.1	18	0.043	0.013	21.8	10.4	49.3	2.12	436.80	434.68
Ex.B2	Ex.12	0.39	0.75	0.30	1.14		5	7.27	2.2	8.3	21	0.016	0.013	20.1	7.8	123.1	1.97	434.68	432.71
Ex.12A	Ex.12	0.57	0.9	0.60	0.60		5	7.27	4.4	4.4									
Ex.12	Ex.11				1.74					12.7	24	0.019	0.013	31.5	9.3	119.4	2.30	432.51	430.21
Ex.13	Ex.11	0.41	0.9	0.37	6.72		5	7.27	2.7	48.2									
Ex.11	Ex.11A	0.61	0.9	0.55	9.01		5	7.27	4.0	64.9	36	0.008	0.013	57.9	9.4	8.0	0.06	429.23	429.17
Ex.11A	Ex.10	0.33	0.9	0.30	9.31		5	7.27	2.2	67.1	36	0.017	0.013	86.5	13.6	118.7	1.99	429.14	427.15

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MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance paragraphs:

Special Permits (8-011 2J & 2L)	Special Exceptions (9-011 2J & 2L)
Cluster Subdivision (9-615 1G & 1N)	Commercial Revitalization Districts (9-622 2A (12) & (14))
Development Plans PRC District (16-302 3 & 4L)	PRC Plan (16-303 1E & 1O)
FDP P Districts (except PRC) (16-502 1F & 1Q)	Amendments (18-202 10F & 10I)

[X] 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100').

[X] 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet 17.

[X] 3. Provide:

Facility Name/ Type & No.	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
(e.g. dry pond A, infil. trench, underground vault, etc.) UNDERGROUND STORAGE FACILITY	5.88	0.75	6.63	12,000	41,300	N/A
Totals						

[X] 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 17. Pond inlet and outlet pipe systems are shown on Sheet 17.

[X] 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 17. Type of maintenance access road surface noted on the plat is ASPHALT (asphalt, geoblock, gravel, etc.).

[X] 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet's 18,19,21.

[X] 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 23.

[X] 8. A description of the existing conditions of each numbered site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet 23.

[X] 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet 23.

[X] 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets 17.

[ ] 11. A submission waiver is requested for ______.

[ ] 12. Stormwater management is not required because ______.

14

STORMWATER MANAGEMENT & BMP NARRATIVE

THE SUBJECT SITE CONSISTS OF AN EXISTING COSTCO WAREHOUSE, UTILITIES, PARKING LOT, AND TWO (2) EXTENDED DETENTION DRY PONDS. THE PROPOSED SITE SHALL CONSIST OF A COSTCO WAREHOUSE, A COSTCO GAS STATION, AN EXTENDED DETENTION DRY POND, AN UNDERGROUND STORAGE FACILITY, A STORMFILTER FACILITY, FILTERA STRUCTURES, UTILITIES, AND PARKING LOT.

BEST MANAGEMENT PRACTICES (BMP'S) WILL BE PROVIDED FOR THE SUBJECT SITE BY WAY OF AN ON-SITE EXTENDED DETENTION DRY POND, AN UNDERGROUND ON-SITE STORMFILTER FACILITY, ON-SITE FILTERRA STRUCTURES, AND AN OFF-SITE WET POND. ALL OF THESE BMP STRUCTURES AND FACILITIES WILL COMBINE TO PROVIDE A PHOSPHOROUS REMOVAL EFFICENCY OF APPROXIMATELY 51%. THE SUBJECT SITE IS IN THE WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN WATERSHED), THEREFORE A 50% PHOSPHOROUS REMOVAL EFFICIENCY IS REQUIRED. SINCE THE PROPOSED AND EXISTING FACILITIES AND STRUCTURES PROVIDE A 51% PHOSPHOROUS REMOVAL EFFICIENCY, THE BMP REQUIREMENT FOR THE SUBJECT SITE HAS BEEN SATISFIED.

STORMWATER MANAGEMENT (SWM) FOR THE EXISTING COSTCO SITE IS PROVIDED BY EXISTING ON-SITE POND #1, EXISTING ON-SITE POND #2, AND EXISTING OFF-SITE POND #3 SHOWN ON THE OFF-SITE DRAINAGE DIVIDE MAP, SEE THIS SHEET. THE EXISTING PEAK ROUTED RELEASE RATES AND DRAINAGE AREAS FROM APPROVED FAIRFAX COUNTY PLAN #6552-SP-04 ARE LISTED BELOW.

FACILITY #	EXISTING DRAINAGE AREA	2-YEAR PEAK DISCHARGE (CFS)	10-YEAR PEAK DISCHARGE (CFS)
#1	5.86	3.87	5.93
#2	6.79	1.94	3.44
#3	6.10	7.18	60.87
EXISTING TOTAL RELEASE =		13.00	70.25

AFTER THE DEVELOPMENT OF THE PROPOSED GAS STATION, THERE WILL BE NO CHANGE TO THE AREA DRAINING TO EXISTING POND #2 AND NO CHANGE TO THE POND ITSELF, THEREFORE THE PEAK RELEASE RATES WILL REMAIN UNCHANGED.

THERE WILL BE A MINOR DECREASE IN THE UNCONTROLLED ON-SITE AREA DRAINING TO EXISTING OFF-SITE POND #3 WITH THE CONSTRUCTION OF THE PROPOSED GAS STATION. THE DECREASE IN UNCONTROLLED ON-SITE AREA TO POND #3 WILL CONSEQUENTLY REDUCE THE INFLOW TO POND #3 WHICH, IN TURN, WILL REDUCE THE ROUTED PEAK DISCHARGES FROM POND #3 TO BELOW THE EXISTING PEAK DISCHARGE SHOWN ABOVE.

THE CONSTRUCTION OF THE PROPOSED GAS STATION WILL REQUIRE THE REMOVAL OF EXISTING POND #1. EXISTING POND #1 WILL BE REPLACED BY A PROPOSED UNDERGROUND STORAGE FACILITY. THE AREA DRAINING TO THE PROPOSED UNDERGROUND STORAGE FACILITY WILL BE SLIGHTLY LARGER THAN THE AREA PREVIOUSLY DRAINING TO POND #1, HOWEVER, THE PROPOSED FACILITY WILL BE SIZED SO THAT THERE WILL BE ADEQUATE VOLUME TO DECREASE THE PEAK 2-YEAR AND 10-YEAR FLOWS BEING DISCHARGED. THE APPROXIMATE 2-YEAR AND 10-YEAR STORM DISCHARGES AND STORAGE VOLUMES FOR THE PROPOSED FACILITY ARE 2.2 CFS AND 36,600 CF AND 5.9 CFS AND 39,200 CF RESPECTIVELY. THE APPROXIMATE TOTAL VOLUME PROVIDED IN THE FACILITY IS 41,300 CF.

THE APPROXIMATE POST-DEVELOPMENT DRAINAGE AREAS TO AND PEAK DISCHARGES FROM THE EXISTING AND PROPOSED SWM FACILITIES ARE SHOWN BELOW.

FACILITY #	PROPOSED DRAINAGE AREA (RTC)	2-YEAR PEAK DISCHARGE (CFS)	10-YEAR PEAK DISCHARGE (CFS)
#1	6.63	2.2	5.9
#2	6.79	1.94	3.44
#3	5.33	<7.18	<60.87
PROPOSED TOTAL RELEASE =		< 11.3	< 70.2

DUE TO THE FACT THAT THE CONSTRUCTION OF THE PROPOSED GAS STATION WILL DECREASE THE OVERALL 2-YEAR AND 10-YEAR PEAK DISCHARGES FROM THE EXISTING APPROVED (FFX. CO. # 6552-SP-04) 2-YEAR AND 10-YEAR PEAK DISCHARGES FROM THE SITE, SWM FOR THE SUBJECT SITE HAS BEEN PROVIDED.

OUTFALL ANALYSIS

THE AREA BEING DISTURBED FOR THE CONSTRUCTION OF THE PROPOSED GAS STATION GENERALLY OUTFALLS TO THE SOUTH WITHIN TWO EXISTING CLOSED CONDUIT STORM SEWER PIPES RUNNING UNDERNEATH PRICE CLUB PLAZA. THE PROPOSED SITE IMPROVEMENTS END AT PROPOSED STRUCTURE #B1 AND EXISTING STRUCTURE #2B. THE APPROXIMATE AREA DRAINING TO THESE STRUCTURES IS 1.06 AC. AND 6.63 AC. RESPECTIVELY. THE EXISTING CLOSED CONDUIT STORM SEWER DOWNSTREAM OF THESE STRUCTURES HAS BEEN ANALYZED FROM THE END OF THE PROPOSED IMPROVEMENTS TO ONE PIPE LENGTH DOWNSTREAM OF EXISTING STRUCTURES #11 AND #4, AT WHICH POINT AN ADJOINING PIPE WITH A CONTRIBUTING DRAINAGE AREA WHICH IS GREATER THAN 90% OF THE INITIAL DRAINAGE AREA AT THE END OF THE PROPOSED SITE IMPROVEMENTS (STRUCTURES EXISTING #2B AND PROPOSED #B2) DISCHARGES INTO THE EXISTING STORM SEWER SYSTEM. SEE DRAINAGE AREA CALCULATIONS BELOW.

STRUCTURE NUMBER @ END OF PROPOSED IMPROVMENTS	STRUCTURE NUMBER @ POINT OF CONFLUENCE	INITIAL DRAINAGE AREA (ACRES)	CONTRIBUTING DRAINAGE AREA @ POINT OF CONFLUENCE (ACRES) **	PERCENTAGE OF INITIAL DRAINAGE AREA (%)
B1	EX. 11	1.06	5.58	526
EX. 2B	EX. 4	6.63	25.07	378
** PER APPROVED FFX. CO. #6552-SP-04				

THEREFORE, THE EXTENT OF REVIEW FOR THE SITE'S OUTFALL IS EXISTING STRUCTURES #10 AND #3. ALL UPSTREAM PIPES FROM THESE STRUCTURES TO THE SUBJECT SITE HAVE BEEN ANALYZED FOR ADEQUATE CAPACITY, SEE STORM DRAIN COMPUTATIONS THIS SHEET. THESE COMPUTATIONS SHOW THAT ALL ANALYZED PIPE SECTIONS ARE ADEQUATE TO HANDLE THE PROPOSED FLOW AMOUNTS, THEREFORE IT IS THE ENGINEERS OPINION THAT AN ADEQUATE OUTFALL FOR THE PROPOSED SITE IS PROVIDED.

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 23 of 33

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REVISIONS

REV:	DATE:	COMMENT:	BY:
1	06/03/11	REV. PER COUNTY COMMENTS	BJS
2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=100'
CAD I.D.:	SW3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT
FOR
COSTCO WHOLESALE
OPTION B
PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER ENGINEERING
22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
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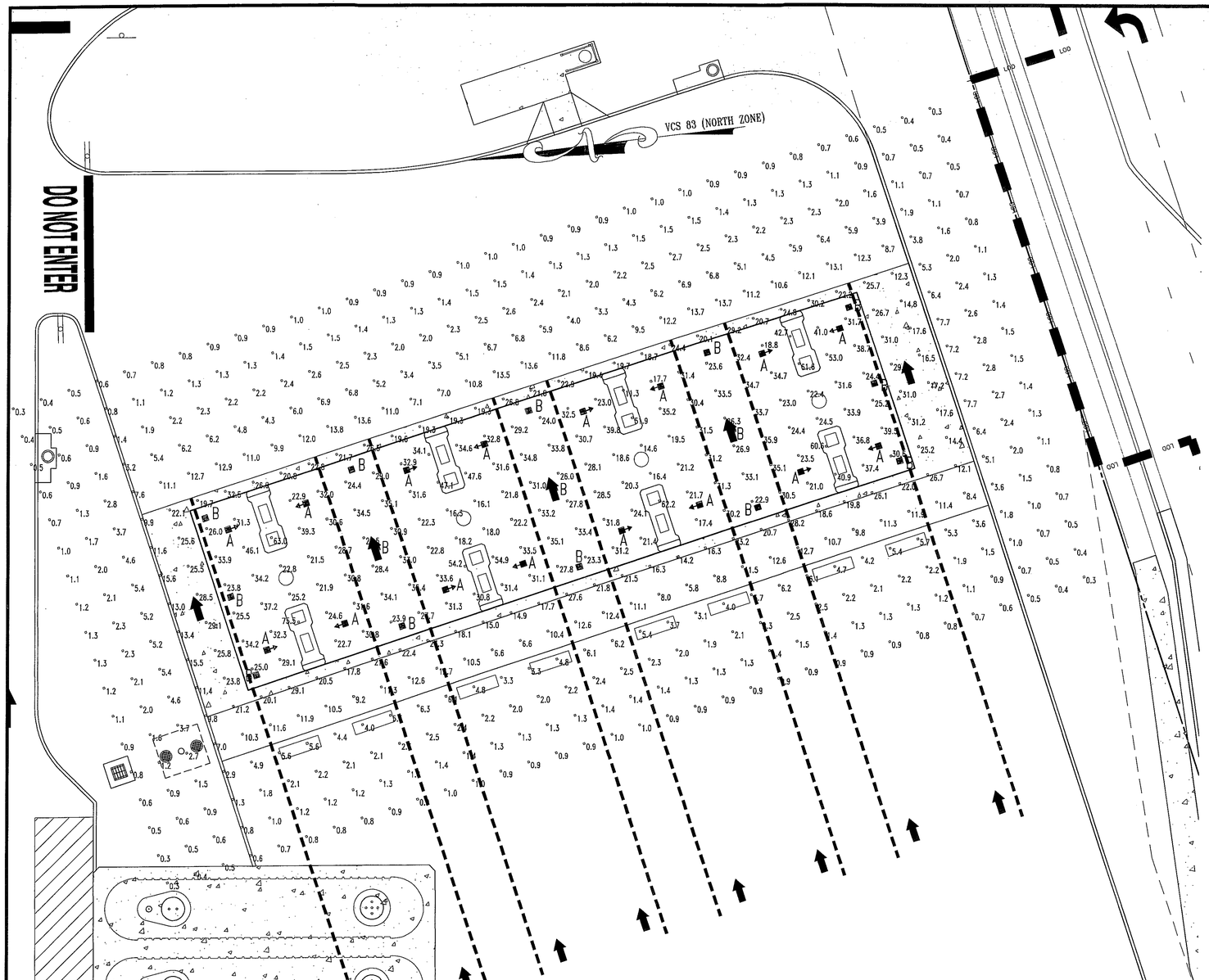
DAVID B. LOGAN
COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
PROFESSIONAL ENGINEER
VIRGINIA LICENSE No. 035616
WEST VIRGINIA LICENSE No. 17599
10/26/11
PROFESSIONAL ENGINEER

SHEET TITLE:
PRELIMINARY SWM AND OUTFALL ANALYSIS PLAN

SHEET NUMBER:
23
OF 33



GENERAL NOTE:
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GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

1 inch = 10 ft.

ECTA-SP-100-P-38-FO
(LUMINAIRE TYPE 'A')

ENCORE® TOP ACCESS - FOCUS

OUTDOOR LIGHTING | CANOPY & CEILING LIGHTING

HOUSING - Die-cast two-piece aluminum housing ensures a weather-tight, durable construction. Two threaded conduit openings allow use of ballast box as junction box for through wiring.

LENS FRAME/DOOR FASTENER - Features an integral hinged, die-cast aluminum door with a powder coat finish. Door frame closes and locks with stainless steel spring catch.

INSTALLATION - Designed for single deck canopies where access for installation and maintenance is available from above. The Encore Top Access features a watertight seal without the need for additional sealants. The Encore Top Access can be installed by one person in either a 12" or 16" deck pan.

OPTICAL ASSEMBLY - The optical assembly directs light specifically to the areas you wish to light. It can be adjusted vertically plus or minus 6 degrees and horizontally 350 degrees to allow for proper aiming.

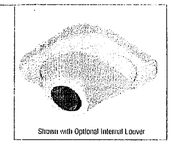
LIGHT SOURCES - Metal Halide PAR lamp. Shipped with lamp installed.

BALLASTS - High-power factor type HX-HPF ballast is designed for -20 degree F operation. The ballast is mounted in a separate enclosure above the optical unit to provide the lowest operating temperatures available.

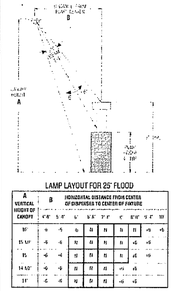
FINISH - Standard colors are white or bronze powder coat finish. Each fixture is finished with LSI's DuraGrip® polyester powder coat finish process. The DuraGrip finish withstands extreme weather changes without cracking or peeling, and is guaranteed for five full years.

WARRANTY - The Encore Top Access unit carries a comprehensive 5-year warranty on all parts, finish, workmanship and electrical components (excluding lamp).

PHOTOMETRICS - For detailed photometric data, contact LSI Petroleum Lighting Sales.


Shown with Optional Louver

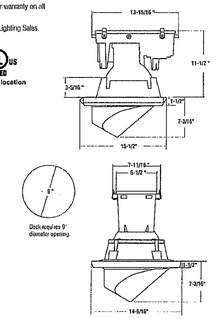
Protected by the following patents: D372,579 5,662,407 6,152,570 6,695,222 6,224,233 6,464,378
Patentado 8,958 199,294 CA2276077 CA2361049
and Pat. Pend.


LAMP LAYOUT FOR 25' FLOOD

A VERTICAL HEIGHT OF CANOPY	B HORIZONTAL DISTANCE FROM CENTER OF DISPENSER TO EDGE OF CANOPY							
	4'	5'	6'	8'	10'	12'	14'	16'
10'	-1	-1	0	0	0	0	-1	-1
11'-12'	-1	-1	0	0	0	0	-1	-1
13'	-1	-1	0	0	0	0	-1	-1
14'-15'	-1	-1	0	0	0	0	-1	-1
16'	-1	-1	0	0	0	0	-1	-1

+3-2004 LSI INDUSTRIES INC.

DIMENSIONS



NOTE: Encore Top Access can be mounted in a single skin canopy with 12' or 16' deck pans.

Project Name _____ Fixture Type _____
Catalog # _____

ECTA-S-200-PSMV-PG
(LUMINAIRE TYPE 'B')

ENCORE® TOP ACCESS - HIGH IMPACT

OUTDOOR LIGHTING | CANOPY & CEILING LIGHTING

HOUSING - Die-cast two-piece aluminum housing ensures a weather-tight, durable construction. Two threaded conduit openings allow use of ballast box as junction box for through wiring. Hazardous Location (HL) Option available on 250 watt maximum fixtures to meet Class 1, Division 2, Groups A, B, C, and D hazardous location requirements.

LENS/GASKET - Dropped borosilicate prismatic glass lens with a continuous one-piece extruded high temperature gasket to ensure maximum sealing to the housing.

LENS FRAME/DOOR FASTENER - Features an integral hinged, die-cast aluminum lens frame. Door frame closes and locks with stainless steel spring catch, allowing easy access for ground re-lamping.

INSTALLATION - Designed for single deck canopies where access for installation and maintenance is available from above. The Encore Top Access features a watertight seal without the need for additional sealants. The Encore Top Access can be installed by one person in either a 12" or 16" deck pan.

REFLECTORS/DISTRIBUTION PATTERNS - A highly specular, symmetrical reflector directs light into a dropped borosilicate prismatic glass lens. The vertical beam optical system provides uniform light distribution, without hot spots, and extends lighting beyond the outline of the canopy while adding additional illumination to vertical surfaces. Internal shielding and soft lighting diffusion options are available.

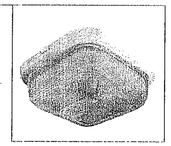
LIGHT SOURCES - Pulse-Start Metal Halide. Shipped with lamp installed.

BALLASTS - High-power factor type ballasts. Pulse-Start Metal Halide features Super CWA ballasts. Ballasts are designed for -20 degree F operation. The ballast is mounted in a separate enclosure above the optical unit to provide the lowest operating temperatures available.

FINISH - Standard colors are white or bronze powder coat finish. Each fixture is finished with LSI's DuraGrip® polyester powder coat finish process. The DuraGrip finish withstands extreme weather changes without cracking or peeling, and is guaranteed for five full years.

WARRANTY - The Encore Top Access unit carries a comprehensive 5-year warranty on all parts, finish, workmanship and electrical components (excluding lamp).

PHOTOMETRICS - For detailed photometric data, contact LSI Petroleum Lighting Sales.



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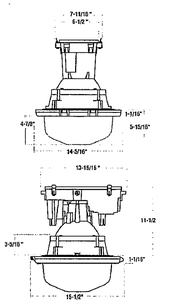
Patentado 8,958 199,294 CA2276077 CA2361049
and Pat. Pend.

DIMENSIONS



NOTE: Encore Top Access can be mounted in a single skin canopy with 12' or 16' deck pans.

+3-2004 LSI INDUSTRIES INC.

Project Name _____ Fixture Type _____
Catalog # _____

Statistical Area Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
CANOPY	31.00	75.5	11.3	2.74	6.68

Maintained Footcandle levels at grade, using a 0.78 Total Light Loss Factor.

Numeric Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
DISPENSER	Illuminance	Fc	43.21	62.8	24.3	1.78	2.58

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Lumens	LLF	Description	Total Watts
	16	A	SINGLE	6000	0.780	ECTA-SP-100-P-38-FO	129
	15	B	SINGLE	19000	0.780	ECTA-S-200-PSMV-PG	235

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan 11-28-2011
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 1-10-2012
Sheet 24 of 33

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THE CONTRACTOR TO CALL MISS UTILITY TO HAVE ALL EXISTING UTILITIES MARKED 48 HOURS PRIOR TO ANY CONSTRUCTION.

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2	09/27/11	REV. PER COUNTY COMMENTS	NTG
3	10/19/11	REV. PER COUNTY COMMENTS	BJS

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S010010.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/15/10
SCALE:	1"=10'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION B

PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

BOHLER

22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
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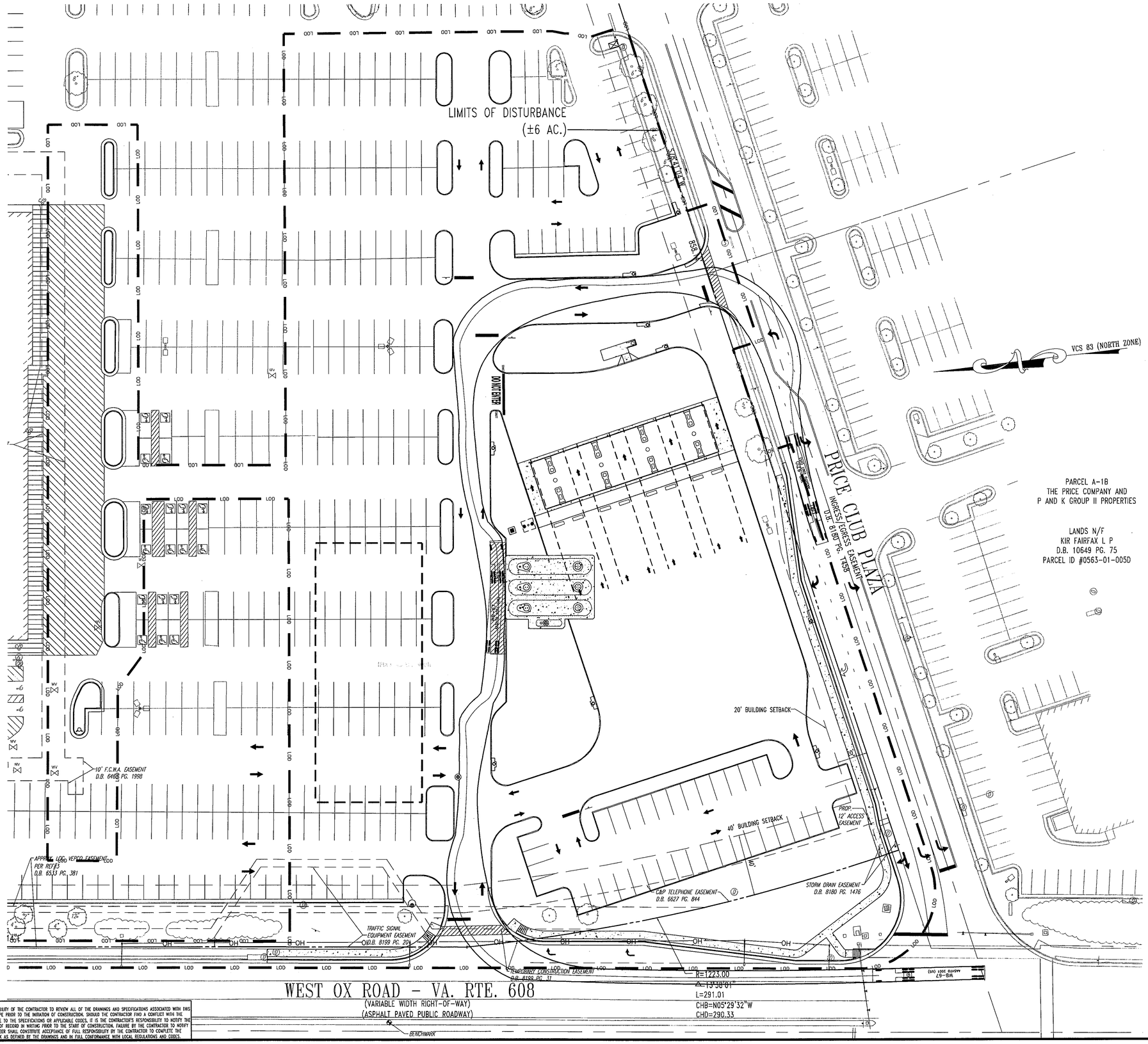
DAVID L. DE LEGAN
Lic. No. 040206 10/20/11
PROFESSIONAL ENGINEER

SHEET TITLE:
DETAILED LIGHTING PLAN

SHEET NUMBER:
24
OF 33



Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 25 of 33

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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CENTER VALLEY, PA

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3	10/19/11	REV. PER COUNTY COMMENTS	BJS

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PROJECT No.:	S010D10.03
DRAWN BY:	BJS
CHECKED BY:	DBL
DATE:	12/13/10
SCALE:	1"=30'
CAD I.D.:	SE3

PROJECT:
SPECIAL EXCEPTION AMENDMENT PLAT

FOR

COSTCO WHOLESALE

OPTION B

PROPOSED GASOLINE FACILITY

4725 WEST OX ROAD
FAIRFAX COUNTY
FAIRFAX, VIRGINIA

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22630 DAVIS DRIVE
SUITE 200
STERLING, VIRGINIA 20164
PH: (703) 709-9500
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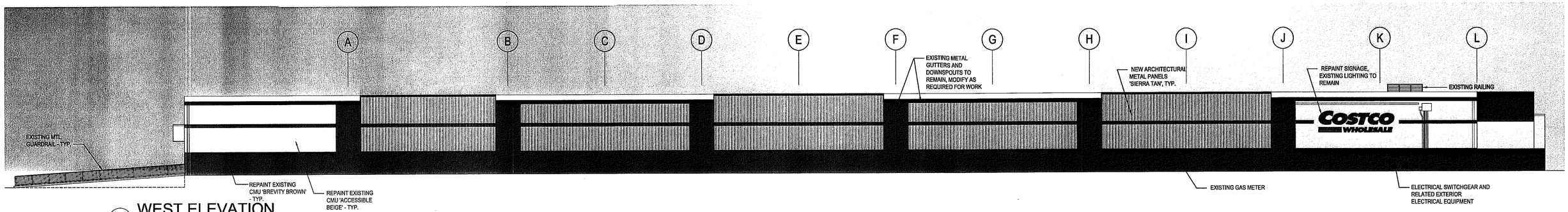
www.bohlerengineering.com

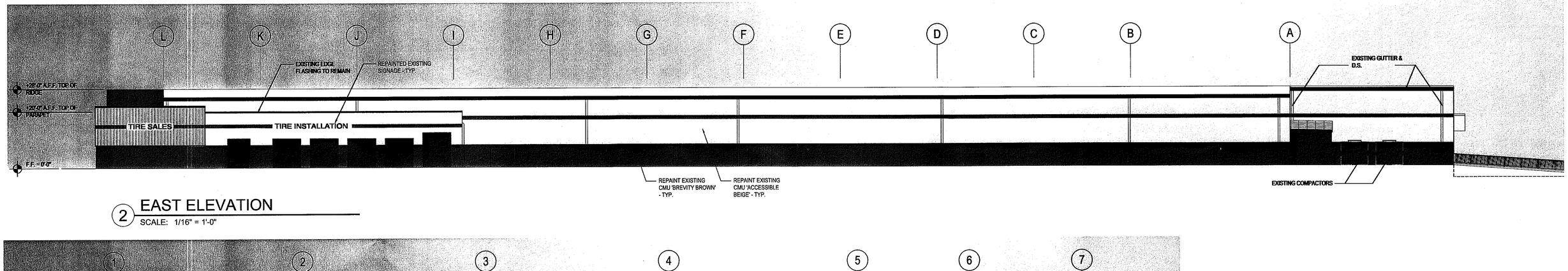
COMMONWEALTH OF VIRGINIA
DAVID B. LOGAN
LICENSE NUMBER
VIRGINIA LICENSE NO. 041016
PROFESSIONAL ENGINEER

SHEET TITLE:
TRUCK ACCESS ROUTE PLAN

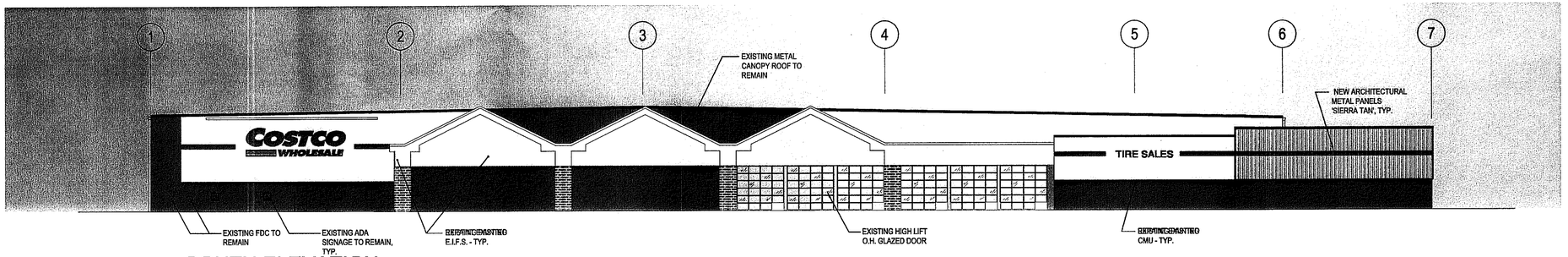
SHEET NUMBER:
25
OF 33



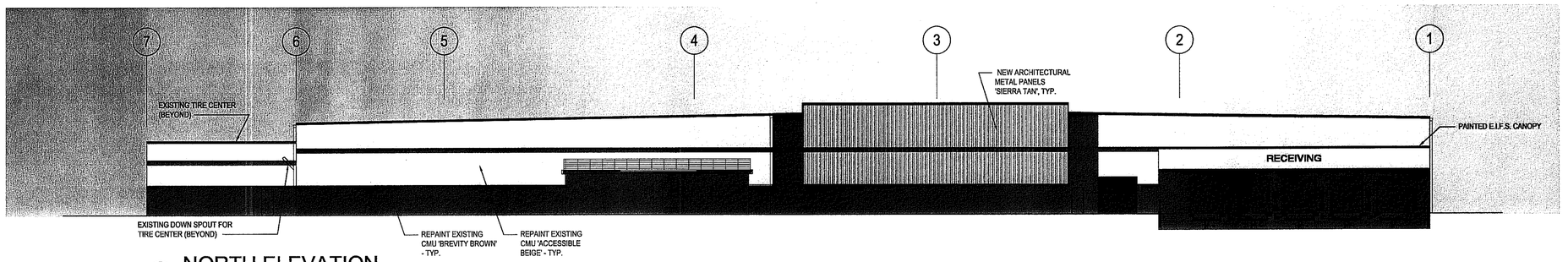
1 WEST ELEVATION
SCALE: 1/16" = 1'-0"



2 EAST ELEVATION
SCALE: 1/16" = 1'-0"



3 SOUTH ELEVATION
SCALE: 1/16" = 1'-0"



4 NORTH ELEVATION
SCALE: 1/16" = 1'-0"

COSTCO WHOLESALE

FAIRFAX, VIRGINIA

ELEVATIONS

OCTOBER 20, 2011

Application No. SEA 2001-SP-004 Staff: BMK
APPROVED SE / SP PLAN
SEE DEV CONDS DATED: 11/28/11
Date of BOS/BZA Approval: 01/10/12
Comments:
Sheet: 25A of 33

0 4' 8' 16' 32'

COSTCO WHOLESALE

FAIRFAX, VA
#204

4725 WEST OX ROAD
FAIRFAX, VA 22030

MULVANNY G2 ARCHITECTURE

1110 112TH AVE. NE | SUITE 500
BELLEVUE, WA | 98004
t 425.463.2000 | f 425.463.2002

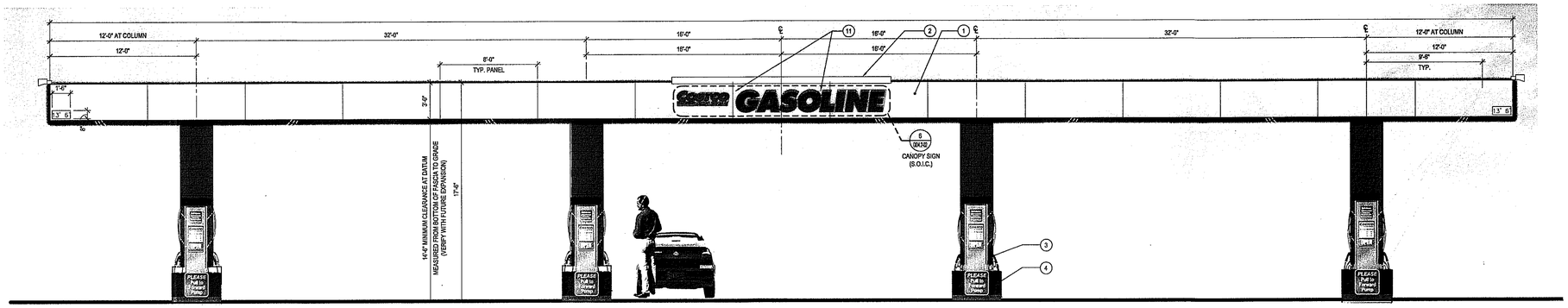
MulvannyG2.com

94-0540-02
OCTOBER 20, 2011

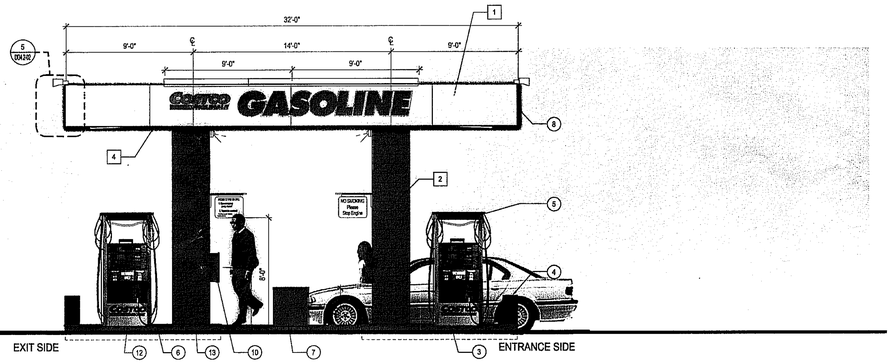
PROPOSED ELEVATION UPGRADES

DD3.1-03

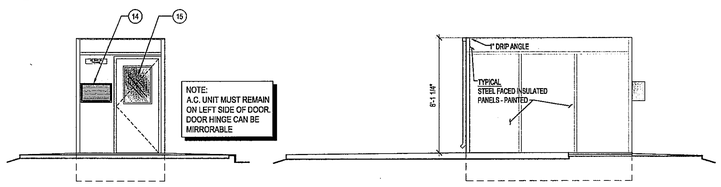
Sheet 25A



1 EAST AND WEST SIDE ELEVATIONS
SCALE: 1/4"=1'-0"

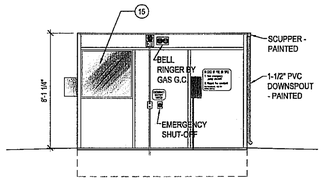


2 NORTH AND SOUTH END ELEVATIONS
SCALE: 1/4"=1'-0"

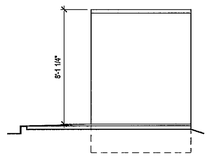


SIDE ELEV. C

REAR ELEV. D

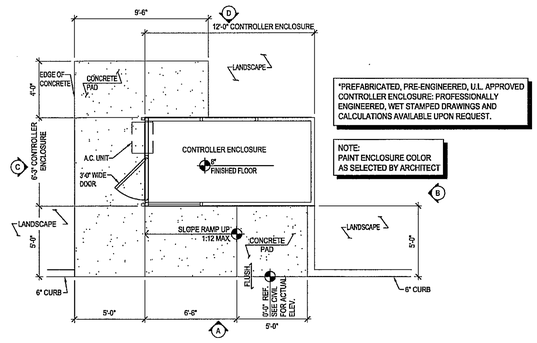


FRONT ELEV. A



SIDE ELEV. B

4 CONTROLLER ENCLOSURE ELEVATIONS
SCALE: 1/4"=1'-0"



*PREFABRICATED, PRE-ENGINEERED, U.L. APPROVED CONTROLLER ENCLOSURE: PROFESSIONALLY ENGINEERED, WET STAMPED DRAWINGS AND CALCULATIONS AVAILABLE UPON REQUEST.

NOTE:
PAINT ENCLOSURE COLOR AS SELECTED BY ARCHITECT

3 CONTROLLER ENCLOSURE LAYOUT
SCALE: 1/4"=1'-0"

KEY NOTES

1. PAINTED METAL FASCIA PANEL, SEE FINISH SCHEDULE. SUPPLIED AND INSTALLED BY CANOPY SUPPLIER UNDER SEPARATE CONTRACT.
2. CANOPY FASCIA LIGHT FIXTURE, "WIDE FASCIA" FIXTURE. S.O.I.C. REFER TO 5/DD4.2
3. MULTI-PRODUCT DISPENSER 42"W X 94"H X 32"D.
4. CONCRETE-FILLED METAL FORMED GUARD AT ENDS OF ISLANDS. T.O. GUARD @ 30" ABOVE TRAFFIC SURFACE. PAINT W/ INDUSTRIAL ENAMEL GLOSS BLUE PAINT "LAPIS LAZULI" (SW 1935)
5. FUELING POSITION NUMBER, 3" HIGH WHITE DECALS. REFER TO ELECTRICAL DRAWINGS FOR EXACT DISPENSER NUMBERS. BY G.C.
6. RAISED CONCRETE ISLAND WITH METAL EDGE FORM, PAINT THE SIDES ONLY GLOSS BLACK (SW 1007)
7. WASTE RECEPTOR, BOLT DOWN, CENTER OF EACH ISLAND. S.O.I.C.
8. STEEL TUBE COLUMN WITH SHEET METAL COLUMN WRAP PAINTED - SEE FINISH SCHEDULE. SEE STRUCTURAL DRAWINGS. SUPPLIED AND INSTALLED BY CANOPY SUPPLIER UNDER SEPARATE CONTRACT.
9. METAL WRAP REINFORCING BRACKET BY CANOPY SUPPLIER.
10. FIRE EXTINGUISHERS MOUNTED ON ENTRANCE SIDE COLUMNS. FIRE EXTINGUISHER CABINET TO BE, BROOKS MODEL #MARK II, RED CABINET WITH CLEAR COVER (OR EQUAL). SUPPLIED BY CONTRACTOR.
11. PANELS BEHIND SIGNAGE TO BE PAINTED SMOOTH. COLOR TO MATCH CANOPY FASCIA.
12. CAULK PERIMETER OF DISPENSER BASE. TYPICAL
13. ELECTRICAL ACCESS PANELS SUPPLIED BY CANOPY MFG. IF CMU COLUMNS ARE TO BE USED, GAS G.C. TO SUPPLY AND INSTALL.
14. A.C. UNIT
15. FIXED GLASS

GENERAL NOTES

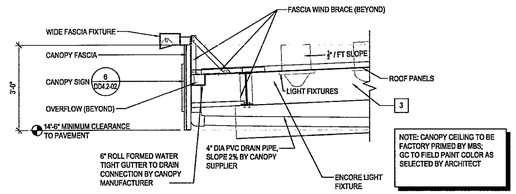
A. SEE SHEET A1.01 FOR ADDITIONAL GENERAL NOTES.
B. SEE ENLARGED SITE PLAN FOR ADDITIONAL DETAIL REFERENCES.

SIGNAGE AREA TABULATION (CANOPY SIGNS)

QTY.	SIGN	DETAIL	SIZE	AREA (S.F.) EA.	TOTAL S.F.
1	COSTCO GASOLINE (EAST FACADE)	6-DD4.2-01	1'-8 1/4" x 17'-1 1/4"	28.86 S.F.	28.86 S.F.
1	COSTCO GASOLINE (WEST FACADE)	6-DD4.2-01	1'-8 1/4" x 17'-1 1/4"	28.86 S.F.	28.86 S.F.
1	COSTCO GASOLINE (NORTH FACADE)	6-DD4.2-01	1'-8 1/4" x 17'-1 1/4"	28.86 S.F.	28.86 S.F.
1	COSTCO GASOLINE (SOUTH FACADE)	6-DD4.2-01	1'-8 1/4" x 17'-1 1/4"	28.86 S.F.	28.86 S.F.
4	TOTAL SIGNAGE AREA				115.44 S.F.

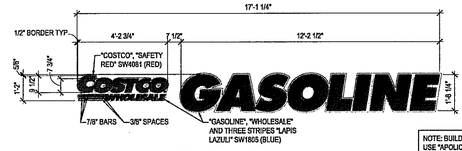
EXTERIOR FINISH SCHEDULE

#	ITEM	MATERIAL	FINISH	COLOR	MANUFACTURER \ NOTES
1	FASCIA	METAL	POWDER COATED	GRAYSTONE PPL20488	SPRAYLAT
2	COLUMN	CMU	SPLIT FACE	3157	BETCO SUPREME
3	CONTROLLER ENCLOSURE	METAL	POWDER COATED	GRAYSTONE PPL20488	SPRAYLAT
4	CANOPY CEILING	METAL	KYNAR 500	WHITE	APCO



NOTE: CANOPY CEILING TO BE FACTORY PRIMED BY MBS; GC TO FIELD PAINT COLOR AS SELECTED BY ARCHITECT

5 CANOPY FASCIA LIGHTING
SCALE: 1/2"=1'-0"



NOTE: BUILDING MOUNTED SIGNS: USE "APOLIC" ACM WITH 0.020-INCH THICK, COIL-COATED ALUMINUM SHEET FACINGS

6 CANOPY SIGN DETAIL (S.O.I.C.)
SCALE: 3/8"=1'-0"
1040303P

Application No: SEA 2007-SP-001 Staff: BMK
APPROVED SE / SP PLAN
SEE DEV CONDS DATED: 11/28/11
Date of BOS/PB/BZA: 01/10/12
Sheet: 25B of 33
Commissioner

COSTCO WHOLESALE
FAIRFAX, VA
#204

MULVANNY G2 ARCHITECTURE
8484 WESTPARK DRIVE | SUITE 700
McLEAN, VA | 22102
t 703.564.8484 | f 703.564.8400
MulvannyG2.com

94-0540-02
JANUARY 21, 2011
CONCEPT ELEVATIONS

DD4.2-03

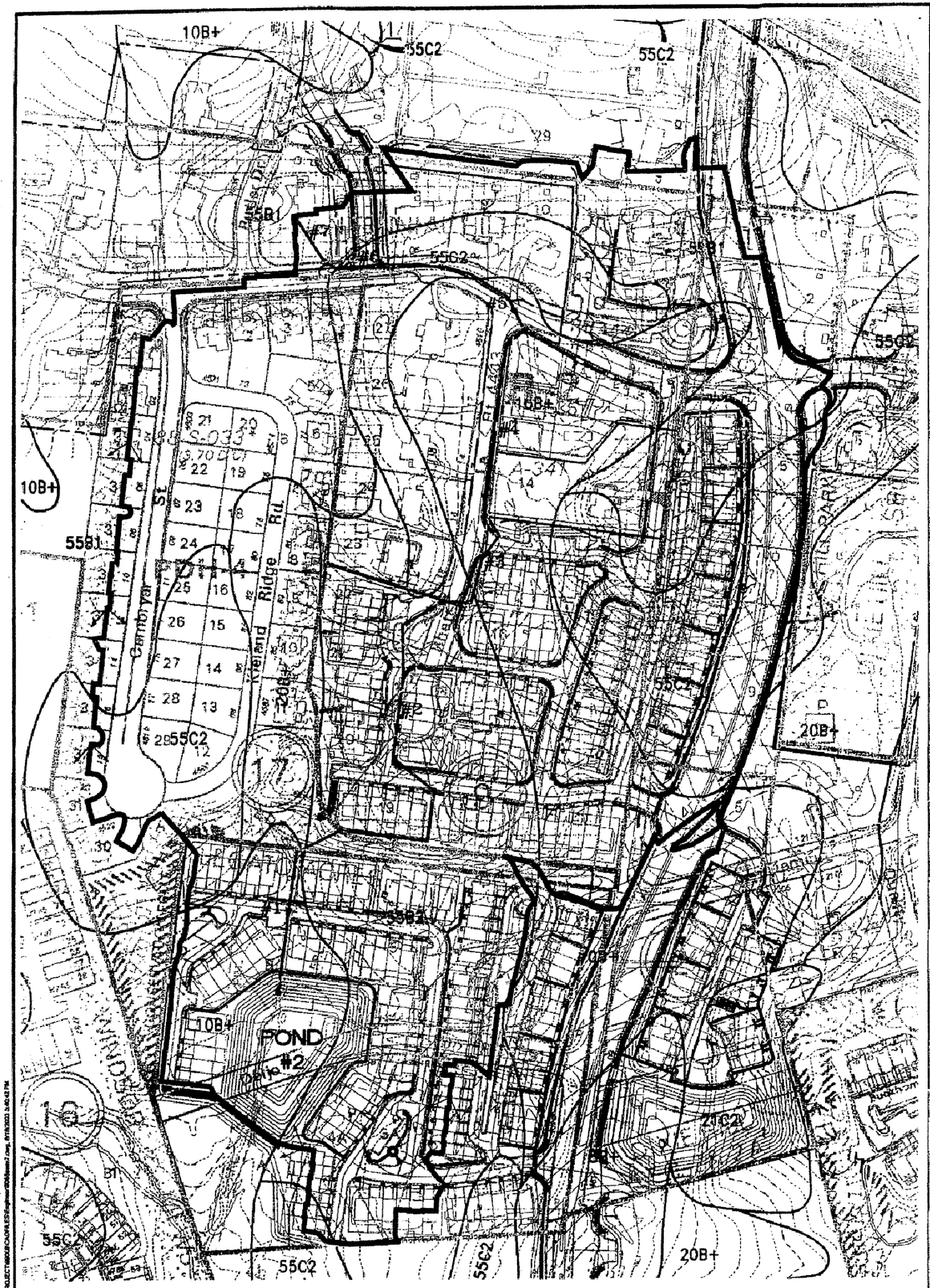
COSTCO WHOLESALE

FAIRFAX, VIRGINIA

CONCEPT ELEVATIONS

JANUARY 21, 2011

Sheet 25B



TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Channel

Flow Area	8.2000 sq ft
Wetted Perimeter	7.24 ft
Hydraulic Radius	1.13 ft
Slope	.012500 ft/ft
Mannings n	.0130
Hydraulic Length	580.00 ft
Avg Velocity	13.92 ft/sec
Segment #1 Time:	.0116 hrs

Segment #2: Tc: TR-55 Channel

Flow Area	4.1000 sq ft
Wetted Perimeter	5.12 ft
Hydraulic Radius	.80 ft
Slope	.028160 ft/ft
Mannings n	.0130
Hydraulic Length	435.00 ft
Avg Velocity	16.59 ft/sec
Segment #2 Time:	.0073 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	2.3000 sq ft
Wetted Perimeter	3.91 ft
Hydraulic Radius	.59 ft
Slope	.011667 ft/ft
Mannings n	.0130
Hydraulic Length	300.00 ft
Avg Velocity	8.69 ft/sec
Segment #3 Time:	.0096 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.2000 sq ft
Wetted Perimeter	2.74 ft
Hydraulic Radius	.44 ft
Slope	.011000 ft/ft
Mannings n	.0130
Hydraulic Length	275.00 ft
Avg Velocity	6.93 ft/sec
Segment #4 Time:	.0110 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	.7000 sq ft
Wetted Perimeter	2.17 ft
Hydraulic Radius	.32 ft
Slope	.026667 ft/ft
Mannings n	.0130
Hydraulic Length	300.00 ft
Avg Velocity	8.80 ft/sec
Segment #5 Time:	.0095 hrs

Segment #6: Tc: TR-55 Shallow

Hydraulic Length	130.00 ft
Slope	.010000 ft/ft
Paved	
Avg Velocity	2.03 ft/sec
Segment #6 Time:	.0178 hrs

Segment #7: Tc: TR-55 Sheet

Mannings n	.0300
Hydraulic Length	100.00 ft
2yr, 24hr P	3.2000 in
Slope	.020000 ft/ft
Avg Velocity	.62 ft/sec
Segment #7 Time:	.0451 hrs
Total Tc:	.1118 hrs

PRE-DEVELOPMENT RUNOFF CURVE NUMBER DATA

Soil/Surface Description		CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
10-Glenville 1 acre Lots	C	79	9.590			79.00
20-Meadowville Open Poor	B	79	.190			79.00
55-Glenelg 1 acre Lots	B	68	19.900			68.00
COMPOSITE AREA & WEIGHTED CN --->			29.680			71.62 (72)

ALLOWABLE RELEASE TABLE

	PRE-DEVELOPMENT RELEASES	POST-DEVELOPMENT RELEASES
2-YEAR	39.24 CFS	13.28 CFS
10-YEAR	104.13 CFS	49.28 CFS

POST-DEVELOPMENT RUNOFF CURVE NUMBER DATA

Soil/Surface Description		CN	Area acres	%Imp'vrops Adjustment %C	%UC	Adjusted CN
10-Glenville Townhomes	C	90	9.590			90.00
20-Meadowville Open Poor	B	79	.190			79.00
55-Glenelg Townhomes	B	85	19.900			85.00
COMPOSITE AREA & WEIGHTED CN --->			29.680			86.58 (87)

BMP FACILITY DESIGN CALCULATIONS - POND 2

PLAN NAME: Fair Chase Section 1 — DATE: 7/19/2008
CO. PLAN #: 1619-SP-01 — ENGINEER: MDL - DRH

I. WATER QUALITY NARRATIVE

This proposed wet pond drains into the Popes Head Creek watershed. The ultimate drainage area to this pond is 56.78 acres. Roughly 9.1 acres drains into an existing dry pond at Carnbyr. No credit was taken for this area. A total of 6.50 acres drains from the remaining residents of Centennial Hills. The remaining 23.38 acres from onsite consists of 5 single family detached units, 152 townhouses, 56 multi-family units, and a clubhouse. Since the requirement for this watershed is 50% phosphorous removal efficiency, a wet pond facility is necessary. This proposed SWM/BMP facility will be privately maintained by the future H.O.A. See the SWM narrative for further information.

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)
A1	ONSITE DETAINED	0.75	23.38
A2	OFFSITE DETAINED (Full Credit)	0.50	6.30
A3	ONSITE UNDETAINED	0.75	4.10

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

(A) AREA OF THE SITE: (a) 27.48 ACRES

(B) SUBAREA DESIGNATION (1)		"C" (2)		AREA (AC) (3)		PRODUCT (4)
A1	ONSITE DETAINED	0.75	X	23.38	=	17.54
A3	ONSITE UNDETAINED	0.75	X	4.10	=	3.08
				(b) TOTAL	=	20.61

(C) WEIGHTED AVERAGE "C" FACTOR: (b) / (a) = (c) 0.75

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)
A1	Wet Pond	50	X	0.85	X	1.00	=	42.54
A2	Wet Pond	50	X	0.23	X	0.67	=	7.64

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

(B) IF LINE 3 (a) 50.2 % > LINE 4(a) 50 %
THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

V. STORAGE

PART 2: 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)		PRC
A1	Onsite Detained	0.75	X	23.38	=	
A2	Offsite Detained	0.50	X	6.30	=	
				(a) 29.68		(b)

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

PART 3: DETERMINE THE STORAGE REQUIRED FOR EACH PROPOSED FACILITY

(B) WET POND:
VOLUME OF RUNOFF PER ACRE FROM MEAN STORM:
[1632 x "C"] - 1632 x LINE 7(c) = (b) 1,011.9 CF/AC

"DESIGN 1 (2.5 x VOLUME OF RUNOFF FROM MEAN STORM EVEN IN WET STORAGE WITH EXTENDED DETENTION ABOVE THE PERMANENT POO"
WET STORAGE: 2.5 X LINE 7(a) 29.68 X LINE 8(b) 1,011.9 =
EXTENDED DETENTION: LINE 7 (a) 29.68 X LINE 8(b) 1,011.9 = 30,034.6 CF

"DESIGN 2 (4.0 x VOLUME OF RUNOFF FROM MEAN STORM)
4.0 X LINE 7(a) 29.68 X LINE 8(b) 1,011.9 = 120,138.5 CF

Application No SEA 2007-SP-001 Staff Bi Krasner
Approved (SD) (SP) Plan 11-28-2011
SEE DEVCONDS DATED 1-10-2012
Date of (BOS) (BZA) approval

Sheet 26 of 33

(SWM CALCULATED BY TR-55 METHOD)

STORMWATER MANAGEMENT COMPUTATIONS - POND 2

SECTION ONE

FAIR CHASE

SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

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 — No. 21267 — MICHAEL D. LUNDY — 8-20-08 — PROFESSIONAL ENGINEER

OWNER:
FAIR CHASE DEVELOPMENT, LLC
14121 PARKE LONG COURT
SUITE 201
CHANTILLY, VA. 20151

DESIGNED BY: DST
DRAFTED BY: CAD
CHECKED BY: MDL
DATE: SEPT., 2002
SCALE: HOR. 1"=100'
VERT. -
SHEET 83 OF 166
CO. NO. 1619-SP-01
FILE NO. 99088-36
CADD NAME: 9088swm7.DWG

OPTION B FOR INFORMATIONAL PURPOSES ONLY

2 YEAR STORM EVENT

INITIAL CONDITIONS

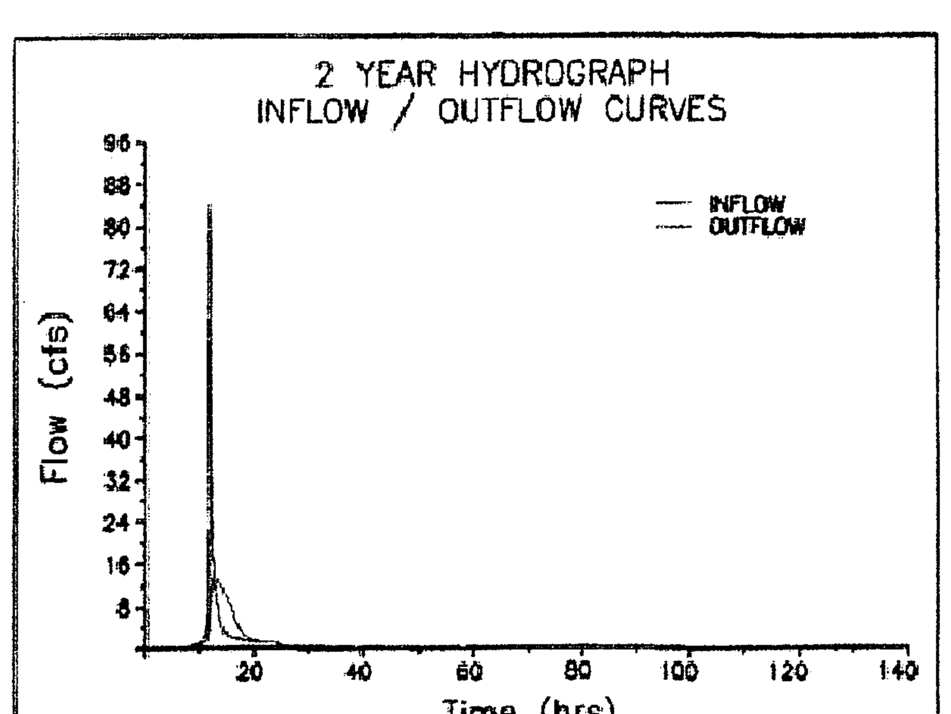
Starting WS Elev	=	425.00 ft
Starting Volume	=	121052 cu. ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0833 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	84.33 cfs	at	11.9119 hrs
Peak Outflow	=	13.28 cfs	at	12.6616 hrs
Peak Elevation	=	428.39 ft		
Peak Storage	=	220935 cu. ft		

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
6.7473	.00	.00	.00	.00	.01
7.1638	.01	.01	.02	.02	.03
7.5803	.04	.05	.05	.06	.07
7.9968	.08	.09	.10	.12	.13
8.4133	.14	.16	.17	.19	.21
8.8298	.23	.25	.27	.30	.32
9.2463	.35	.37	.39	.42	.44
9.6628	.47	.50	.53	.56	.60
10.0793	.63	.67	.72	.77	.82
10.4958	.88	.94	1.01	1.08	1.17
10.9123	1.26	1.35	1.46	1.59	1.73
11.3288	1.90	2.09	2.30	2.64	3.36
11.7453	4.75	6.90	9.10	11.02	12.21
12.1618	12.74	12.95	13.08	13.18	13.24
12.5783	13.27	13.28	13.27	13.25	13.22
12.9948	13.18	13.12	13.05	12.97	12.88
13.4113	12.79	12.68	12.55	12.41	12.27
13.8278	12.12	11.97	11.81	11.63	11.46
14.2443	11.28	11.11	10.93	10.74	10.55
14.6608	10.36	10.18	10.00	9.80	9.60
15.0773	9.41	9.22	9.03	8.85	8.64
15.4938	8.43	8.23	8.04	7.85	7.67
15.9103	7.40	7.05	6.72	6.41	6.13
16.3268	5.85	5.60	5.36	5.13	4.90
16.7433	4.67	4.46	4.26	4.07	3.90
17.1598	3.74	3.59	3.45	3.32	3.20
17.5763	3.09	2.98	2.88	2.79	2.70
17.9928	2.62	2.54	2.47	2.41	2.34
18.4093	2.28	2.23	2.17	2.12	2.07
18.8258	2.02	1.98	1.94	1.90	1.86
19.2423	1.82	1.79	1.75	1.72	1.69
19.6588	1.66	1.63	1.60	1.57	1.55
20.0753	1.52	1.50	1.47	1.45	1.43
20.4918	1.41	1.40	1.38	1.36	1.35
20.9083	1.34	1.32	1.31	1.30	1.29
21.3248	1.28	1.27	1.26	1.25	1.24
21.7413	1.24	1.23	1.22	1.21	1.21
22.1578	1.20	1.19	1.19	1.18	1.18
22.5743	1.17	1.17	1.16	1.16	1.15
22.9908	1.15	1.14	1.14	1.13	1.13
23.4073	1.13	1.12	1.12	1.11	1.11
23.8238	1.11	1.10	1.10	1.08	1.03
24.2403	.96	.89	.83	.77	.72
24.6568	.67	.63	.59	.55	.52
25.0733	.49	.46	.43	.41	.38
25.4898	.36	.34	.32	.31	.29
25.9063	.28	.27	.25	.24	.23
26.3228	.22	.21	.21	.20	.19
26.7393	.19	.18	.18	.17	.17
27.1558	.16	.16	.15	.15	.15
27.5723	.15	.14	.14	.14	.14
27.9888	.13	.13	.13	.13	.13
28.4053	.13	.13	.13	.12	.12
28.8218	.12	.12	.12	.12	.12
29.2383	.12	.12	.12	.12	.12
29.6548	.12	.12	.12	.12	.12
30.0713	.12	.12	.11	.11	.11
30.4878	.11	.11	.11	.11	.11
30.9043	.11	.11	.11	.11	.11
31.3208	.11	.11	.11	.11	.11
31.7373	.11	.11	.11	.11	.11
32.1538	.11	.11	.11	.11	.11
32.5703	.11	.11	.11	.11	.11
32.9868	.11	.11	.11	.11	.11
33.4033	.11	.11	.11	.11	.11
33.8198	.11	.11	.11	.11	.11
34.2363	.11	.11	.11	.11	.11
34.6528	.11	.11	.11	.11	.11
35.0693	.11	.11	.11	.11	.11
35.4858	.11	.11	.11	.11	.11
35.9023	.11	.11	.11	.11	.11
36.3188	.11	.11	.11	.11	.11
36.7353	.11	.11	.11	.11	.11
37.1518	.11	.11	.11	.11	.11



10 YEAR STORM EVENT

INITIAL CONDITIONS

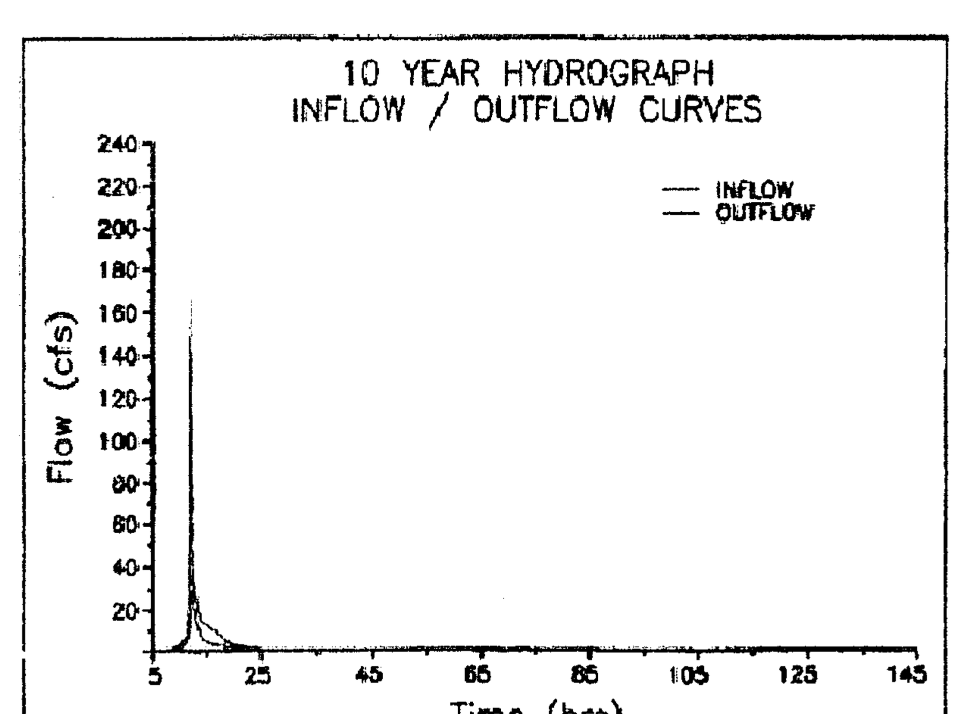
Starting WS Elev	=	425.00 ft
Starting Volume	=	121052 cu. ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0833 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	166.48 cfs	at	11.9119 hrs
Peak Outflow	=	49.28 cfs	at	12.1618 hrs
Peak Elevation	=	430.61 ft		
Peak Storage	=	300150 cu. ft		

HYDROGRAPH ORDINATES (cfs)
Output Time Increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
4.6648	.00	.00	.00	.00	.01
5.0813	.01	.02	.03	.04	.05
5.4978	.06	.07	.09	.10	.12
5.9143	.13	.15	.17	.19	.21
6.3308	.23	.25	.27	.29	.31
6.7473	.33	.36	.38	.41	.43
7.1638	.46	.48	.51	.53	.56
7.5803	.59	.61	.64	.67	.70
7.9968	.73	.76	.79	.82	.86
8.4133	.90	.94	.98	1.03	1.08
8.8298	1.13	1.19	1.25	1.31	1.37
9.2463	1.43	1.49	1.55	1.60	1.66
9.6628	1.72	1.78	1.85	1.92	2.00
10.0793	2.09	2.18	2.28	2.39	2.51
10.4958	2.63	2.77	2.92	3.09	3.27
10.9123	3.46	3.68	3.91	4.18	4.49
11.3288	4.84	5.22	5.61	6.24	7.56
11.7453	8.85	10.69	13.18	21.96	39.47
12.1618	49.28	46.77	42.24	40.15	37.79
12.5783	35.25	32.74	30.59	28.66	26.84
12.9948	25.14	23.55	22.38	21.24	20.14
13.4113	19.07	18.02	17.06	16.46	15.85
13.8278	15.25	14.65	14.36	14.23	14.10
14.2443	13.96	13.82	13.68	13.54	13.40
14.6608	13.25	13.10	12.95	12.80	12.64
15.0773	12.48	12.33	12.17	12.01	11.86
15.4938	11.69	11.52	11.36	11.19	11.03
15.9103	10.86	10.69	10.51	10.34	10.17
16.3268	10.00	9.83	9.65	9.47	9.30
16.7433	9.13	8.96	8.80	8.61	8.43
17.1598	8.26	8.09	7.92	7.76	7.61
17.5763	7.34	7.05	6.77	6.52	6.27
17.9928	6.05	5.83	5.63	5.44	5.26
18.4093	5.09	4.90	4.72	4.56	4.40
18.8258	4.25	4.12	3.99	3.86	3.75
19.2423	3.64	3.54	3.44	3.35	3.26
19.6588	3.18	3.10	3.03	2.96	2.89
20.0753	2.82	2.76	2.71	2.65	2.60
20.4918	2.55	2.51	2.47	2.43	2.40
20.9083	2.36	2.33	2.30	2.28	2.25
21.3248	2.23	2.20	2.18	2.16	2.14
21.7413	2.12	2.11	2.09	2.07	2.06
22.1578	2.04	2.03	2.02	2.00	1.99
22.5743	1.98	1.97	1.96	1.95	1.94
22.9908	1.93	1.92	1.91	1.90	1.89
23.4073	1.88	1.88	1.87	1.86	1.85
23.8238	1.84	1.84	1.83	1.79	1.70
24.2403	1.59	1.47	1.36	1.27	1.17
24.6568	1.09	1.01	.94	.88	.82
25.0733	.76	.71	.66	.62	.58
25.4898	.54	.51	.48	.45	.42
25.9063	.40	.38	.36	.34	.32
26.3228	.30	.29	.27	.26	.25
26.7393	.24	.23	.22	.21	.20
27.1558	.20	.19	.18	.18	.17
27.5723	.17	.16	.16	.16	.15
27.9888	.15	.15	.14	.14	.14
28.4053	.14	.14	.13	.13	.13
28.8218	.13	.13	.13	.13	.12
29.2383	.12	.12	.12	.12	.12
29.6548	.12	.12	.12	.12	.12
30.0713	.12	.12	.12	.12	.12
30.4878	.12	.12	.12	.11	.11
30.9043	.11	.11	.11	.11	.11
31.3208	.11	.11	.11	.11	.11
31.7373	.11	.11	.11	.11	.11
32.1538	.11	.11	.11	.11	.11
32.5703	.11	.11	.11	.11	.11
32.9868	.11	.11	.11	.11	.11
33.4033	.11	.11	.11	.11	.11
33.8198	.11	.11	.11	.11	.11
34.2363	.11	.11	.11	.11	.11
34.6528	.11	.11	.11	.11	.11
35.0693	.11	.11	.11	.11	.11
35.4858	.11	.11	.11	.11	.11



POND ROUTING COMPUTATIONS - NORMAL CONDITIONS

OUTLET CONNECTIVITY

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	3	--->	1	429.000	436.000
Stand Pipe	4	--->	1	430.500	436.000
Orifice-Area	2	--->	1	425.000	436.000
Culvert-Circular	1	--->	TW	423.500	436.000

TW SETUP, DS Channel

OUTLET STRUCTURE INPUT DATA

Structure ID = 4
Structure Type = Stand Pipe

# of Openings	=	1
Invert Elev.	=	430.50 ft
Diameter	=	6.0000 ft
Orifice Area	=	28.2743 sq. ft
Orifice Coeff.	=	.600
Weir Length	=	18.85 ft
Weir Coeff.	=	3.000
K, Submerged	=	.000
K, Reverse	=	1.000
Kb, Barrel	=	.000000 (per ft of full flow)
Barrel Length	=	.00 ft
Mannings n	=	.0000

Structure ID = 3
Structure Type = Weir-Rectangular

# of Openings	=	1
Crest Elev.	=	429.00 ft
Weir Length	=	5.00 ft
Weir Coeff.	=	3.000000

Weir TW effects (Use adjustment equation)

Structure ID = 2
Structure Type = Orifice-Area

# of Openings	=	1
Invert Elev.	=	425.00 ft
Area	=	1.5000 sq. ft
Top of Orifice	=	426.00 ft
Datum Elev.	=	425.00 ft
Orifice Coeff.	=	.600

Structure ID = 1
Structure Type = Culvert-Circular

No. Barrels	=	1
Barrel Diameter	=	4.0000 ft
Upstream Invert	=	423.50 ft
Dnstream Invert	=	420.50 ft
Horiz. Length	=	250.00 ft
Barrel Length	=	250.02 ft
Barrel Slope	=	.01200 ft/ft

OUTLET CONTROL DATA...

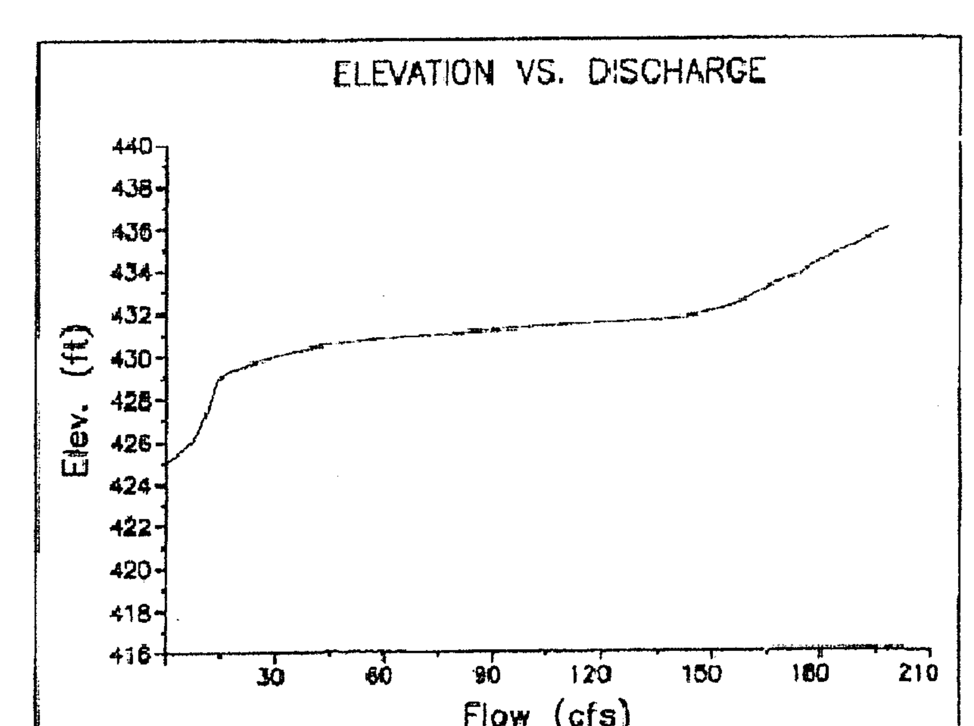
Mannings n	=	.0130
Ke	=	.5000 (forward entrance loss)
Kb	=	.004925 (per ft of full flow)
Kr	=	.5000 (reverse entrance loss)
HW Convergence	=	.100 +/- ft

INLET CONTROL DATA...

Equation form	=	1
Inlet Control K	=	.0098
Inlet Control M	=	2.0000
Inlet Control c	=	.03980
Inlet Control Y	=	.6700
T1 ratio (HW/D)	=	1.154
T2 ratio (HW/D)	=	1.301
Slope Factor	=	-.500
Calc inlet only	=	Yes

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...
At T1 Elev = 428.12 ft ---> Flow = 87.96 cfs
At T2 Elev = 428.78 ft ---> Flow = 100.53 cfs

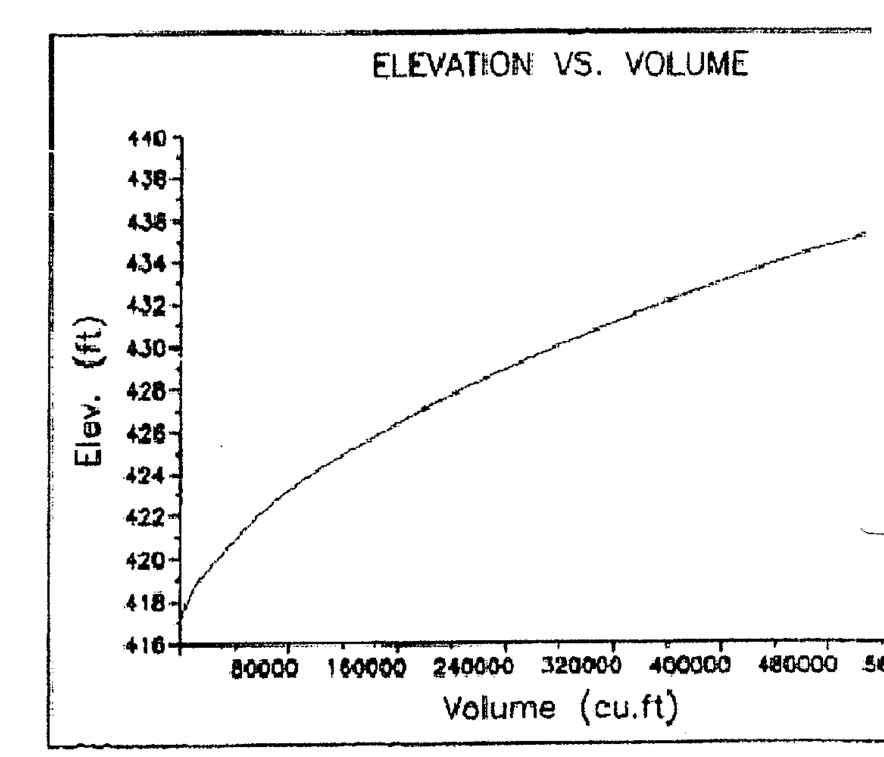


COMPOSITE OUTFLOW SUMMARY

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
416.50	.00	Free Outfall		(no Q: 3,4,2,1)
416.90	.00	Free Outfall		(no Q: 3,4,2,1)
417.30	.00	Free Outfall		(no Q: 3,4,2,1)
417.70	.00	Free Outfall		(no Q: 3,4,2,1)
418.10	.00	Free Outfall		(no Q: 3,4,2,1)
418.50	.00	Free Outfall		(no Q: 3,4,2,1)
418.90	.00	Free Outfall		(no Q: 3,4,2,1)
419.30	.00	Free Outfall		(no Q: 3,4,2,1)
419.70	.00	Free Outfall		(no Q: 3,4,2,1)
420.10	.00	Free Outfall		(no Q: 3,4,2,1)
420.50	.00	Free Outfall		(no Q: 3,4,2,1)
420.90	.00	Free Outfall		(no Q: 3,4,2,1)
421.30	.00	Free Outfall		(no Q: 3,4,2,1)
421.70	.00	Free Outfall		(no Q: 3,4,2,1)
422.10	.00	Free Outfall		(no Q: 3,4,2,1)
422.50	.00	Free Outfall		(no Q: 3,4,2,1)
422.90	.00	Free Outfall		(no Q: 3,4,2,1)
423.30	.00	Free Outfall		(no Q: 3,4,2,1)
423.50	.00	Free Outfall		(no Q: 3,4,2,1)
423.70	.00	Free Outfall		(no Q: 3,4,2,1)
424.10	.00	Free Outfall		(no Q: 3,4,2,1)
424.50	.00	Free Outfall		(no Q: 3,4,2,1)
424.90	.00	Free Outfall		(no Q: 3,4,2,1)
425.00	.00	Free Outfall		(no Q: 3,4,2,1)
425.30	2.17	Free Outfall		2,1 (no Q: 3,4)
425.70	5.05	Free Outfall		2,1 (no Q: 3,4)
426.10	7.57	Free Outfall		2,1 (no Q: 3,4)
426.50	8.84	Free Outfall		2,1 (no Q: 3,4)
426.90	9.95	Free Outfall		2,1 (no Q: 3,4)
427.30	10.95	Free Outfall		2,1 (no Q: 3,4)
427.70	11.86	Free Outfall		2,1 (no Q: 3,4)
428.10	12.71	Free Outfall		2,1 (no Q: 3,4)
428.50	13.51	Free Outfall		2,1 (no Q: 3,4)
428.90	14.26	Free Outfall		2,1 (no Q: 3,4)
429.00	14.44	Free Outfall		2,1 (no Q: 3,4)
429.30	17.15	Free Outfall		3,2,1 (no Q: 4)
429.70	23.56	Free Outfall		3,2,1 (no Q: 4)
430.10	32.06	Free Outfall		3,2,1 (no Q: 4)
430.50	42.21	Free Outfall		3,2,1 (no Q: 4)
430.90	67.02	Free Outfall		3,4,2,1
431.30	104.12	Free Outfall		3,4,2,1
431.70	141.92	Free Outfall		4,1 (no Q: 3,2)
432.10	152.59	Free Outfall		4,1 (no Q: 3,2)
432.50	158.69	Free Outfall		4,1 (no Q: 3,2)
432.90	163.27	Free Outfall		4,1 (no Q: 3,2)
433.30	167.85	Free Outfall		4,1 (no Q: 3,2)
433.70	173.93	Free Outfall		4,1 (no Q: 3,2)
434.10	177.00	Free Outfall		4,1 (no Q: 3,2)
434.50	181.58	Free Outfall		4,1 (no Q: 3,2)
434.90	186.16	Free Outfall		4,1 (no Q: 3,2)
435.30	190.73	Free Outfall		4,1 (no Q: 3,2)
435.70	195.31	Free Outfall		4,1 (no Q: 3,2)
436.00	198.36	Free Outfall		4,1 (no Q: 3,2)

POND VOLUME

Elevation (ft)	Planimeter (sq. in)	Area (sq. ft)	A1+A2+sqr(A1*A2) (sq. ft)	Volume (cu. ft)	Volume Sum (cu. ft)
416.50	-----	0	0	0	0
417.00	-----	1553	1553	259	259
418.00	-----	7214	12114	4038	4297
419.00	-----	12281	28908	9636	13933
420.00	-----	13688	38934	12978	26911
421.00	-----	15167	43264	14421	41332
422.00	-----	16690	47767	15922	57254
423.00	-----	18327	52506	17502	74757
424.00	-----	24163	63534	21178	95934
425.00	-----	26085	75354	25118	121052
426.00	-----	28081	78292	52195	148129
427.00	-----	30081	87226	29075	177205
428.00	-----	32190	93389	31130	208334
430.00	-----	36705	103268	68846	277180
430.50	-----	37859	111841	18640	295820
432.00	-----	41427	117127	78084	355264
434.00	-----	46369	131624	87750	443014
436.00	-----	51505	146744	97829	540843



Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 27 of 33

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 MICHAEL R. TUCKER No. 21267 5-20-03 PROFESSIONAL ENGINEER

(SWM CALCULATED BY TR-55 METHOD)

STORMWATER MANAGEMENT COMPUTATIONS–POND 2
SECTION ONE
FAIR CHASE
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

BC REVISIONS

OWNER
FAIR CHASE DEVELOPMENT, LLC
14121 PARKE LONG COURT
SUITE 201
CHANTILLY, VA. 20151

DESIGNED BY: DST
DRAFTED BY: CAD
CHECKED BY: MDL
DATE: SEPT., 2002
SCALE: HOR. - VERT. -
SHEET 84 OF 166
CO. NO. 1619-SP-01
FILE NO. 99068-36
CADD NAME: 9068swm8.DWG

OPTION B FOR INFORMATIONAL PURPOSES ONLY

10/19/11

EXISTING PRICE CLUB POND #2

FLOOD ROUTING

PC Job No. 6349 By: MJ Date:

25 YEAR SWMM

Hydrograph code: 25YRSMIN Time incr: 5.00 min Factor: 1.00
Watershed area: 6.79ac. C: 0.730

Outflow stored as # 1

OUTLET OPENING DESCRIPTION
Circ Orif C= 0.60 Inv elev= 439.60 Diam(in)= 12.00 CL elev= 440.10
Weir C= 3.00 Inv elev= 442.80 L(ft)= 12.00 Slope= 0.01

ELEV(ft)	DISCHARGE(Q)cfs.				STORAGE(cf)
438.00	0.00	0.00	0.00	0.00	0.
439.00	0.00	0.00	0.00	0.00	12415.
439.50	0.00	0.00	0.00	0.00	19866.
440.00	0.00	0.00	0.00	0.00	24832.
441.00	3.59	0.00	0.00	3.59	40393.
442.00	5.21	0.00	0.00	5.21	55954.
443.00	6.31	0.00	0.00	6.31	71372.
443.80	6.44	3.22	0.00	9.66	78108.
444.00	7.47	47.32	0.00	54.79	79249.

MIN	IN	IN AVE	IN VOL	OFF OUT	AVE OUT	VOL OUT	STORAGE	ELEV
0.0	0.00	0.00	0.	0.00	0.00	0.	0.	438.00
5.0	40.90	20.50	6149.	0.00	0.00	0.	6149.	438.90
10.0	26.47	33.73	10115.	0.00	0.00	0.	16264.	439.21
15.0	19.58	23.02	6907.	0.00	0.00	0.	23171.	439.87
20.0	15.61	17.59	5275.	0.01	0.00	121.	28333.	440.22
25.0	12.99	14.30	4290.	1.71	1.26	377.	32245.	440.48
30.0	11.05	12.02	3606.	2.49	2.08	616.	35235.	440.67
35.0	9.57	10.31	3093.	2.91	2.66	798.	37529.	440.82
40.0	8.43	9.00	2698.	3.33	3.13	938.	39288.	440.93
45.0	7.58	8.01	2402.	3.61	3.47	1042.	40649.	441.02
50.0	6.84	7.21	2164.	3.73	3.67	1101.	41711.	441.08
55.0	6.25	6.56	1963.	3.61	3.77	1131.	42541.	441.14
60.0	5.73	6.00	1799.	3.38	3.85	1154.	43193.	441.18
65.0	5.25	5.50	1651.	3.93	3.93	1171.	43668.	441.21
70.0	4.81	5.03	1509.	3.96	3.95	1184.	43994.	441.23
75.0	4.31	4.56	1368.	3.98	3.97	1192.	44170.	441.24
80.0	3.82	4.06	1218.	3.98	3.98	1198.	44194.	441.24
85.0	3.37	3.59	1078.	3.97	3.98	1204.	44079.	441.24
90.0	2.87	3.12	937.	3.95	3.96	1188.	43826.	441.22
95.0	2.38	2.62	786.	3.91	3.93	1178.	43428.	441.20
100.0	1.93	2.16	647.	3.88	3.89	1166.	42921.	441.16
105.0	1.44	1.69	506.	3.78	3.82	1145.	42281.	441.12

PROPOSED POND

FLOOD ROUTING

PC Job No. 6349 By: MJ Date:
SCENARIO #2

Hydrograph code: 25YRSMIN Time incr: 5.00 min Factor: 1.00
Watershed area: 11.39ac. C: 0.820

Outflow received from #: 1 0 0 6349MJ.OUT
Outflow stored as # 2

OUTLET OPENING DESCRIPTION
Weir C= 3.00 Inv elev= 417.46 L(ft)= 16.00 Slope= 0.01
Cutoff elev= 417.98
Rect Orif C= 0.60 Inv elev= 417.46 L(ft)= 16.00 Ht(ft)= 0.52 CL elev= 417.69
Effective elev= 417.98
Weir C= 3.00 Inv elev= 420.25 L(ft)= 50.00 Slope= 3.01

ELEV(ft)	DISCHARGE(Q)cfs.				STORAGE(cf)
411.00	0.00	0.00	0.00	0.00	0.
412.00	0.00	0.00	0.00	0.00	5450.
414.00	0.00	0.00	0.00	0.00	20855.
416.85	0.00	0.00	0.00	0.00	50922.
417.40	0.00	0.00	0.00	0.00	65388.
418.00	0.00	24.88	0.00	24.88	95925.
420.00	0.00	67.91	0.00	67.91	138492.
420.25	0.00	71.49	0.00	71.49	144055.
422.00	0.00	92.76	373.04	0.00	180111.
425.00	0.00	102.96	763.86	0.00	216699.

MIN	EL	OTHER	IN AVE	IN VOL	OUT OFF	AVE OUT	VOL STORAGE	ELEV
0.0	0.00	0.00	0.00	0.	0.00	0.00	0. 0.	411.00
5.0	77.24	0.00	38.62	11586.	0.00	0.00	0. 11586.	412.50
10.0	49.67	0.00	63.46	19067.	0.00	0.00	0. 30653.	414.85
15.0	36.89	0.00	43.30	13015.	0.00	0.00	0. 43668.	414.92
20.0	29.42	0.81	33.56	10068.	0.00	0.00	0. 53737.	415.59
25.0	24.47	1.71	28.61	8462.	0.00	0.00	0. 62190.	416.13
30.0	20.83	2.40	24.70	7411.	0.00	0.00	0. 69609.	416.53
35.0	18.03	2.53	22.09	6628.	0.00	0.00	0. 76237.	416.90
40.0	15.88	2.33	20.08	6025.	0.00	0.00	0. 82261.	417.22
45.0	14.29	3.61	18.55	5566.	4.25	2.13	658. 87190.	417.50
50.0	12.99	3.73	17.26	5178.	11.65	7.65	3296. 90072.	417.67
55.0	11.77	3.81	16.10	4830.	13.69	12.37	1712. 91189.	417.73
60.0	10.83	3.88	15.15	4544.	14.45	14.07	4221. 91512.	417.75
65.0	9.90	3.93	14.27	4282.	14.36	14.41	4321. 91472.	417.75
70.0	9.08	3.96	13.42	4027.	13.87	14.11	4234. 91265.	417.73
75.0	8.12	3.98	12.56	3769.	13.19	13.53	4058. 90975.	417.72
80.0	7.19	3.98	11.64	3492.	12.38	12.76	3825. 90632.	417.70
85.0	6.35	3.97	10.75	3224.	11.52	11.95	3585. 90271.	417.68
90.0	5.62	3.95	9.84	2953.	10.65	11.09	3326. 89897.	417.66
95.0	4.98	3.91	8.88	2664.	9.72	10.18	3055. 89507.	417.63
100.0	3.64	3.85	7.94	2383.	8.79	9.26	2777. 89113.	417.61
105.0	2.71	3.76	6.99	2097.	7.85	8.32	2496. 88714.	417.59

PONDING AREA NORTH OF ROUTE 29

FLOOD ROUTING

PC Job No. 6349 By: MJ Date: 8-2-91
SCENARIO #2 W/RTE 29 POND & NEW PIPE

Hydrograph code: 25YRSMIN Time incr: 5.00 min Factor: 1.00
Watershed area: 42.32ac. C: 0.630

Outflow received from #: 1 0 0 2MJ.OUT

OUTLET OPENING DESCRIPTION
Circ Orif C= 0.60 Inv elev= 407.22 Diam(in)= 24.00 CL elev= 408.22
Weir C= 3.00 Inv elev= 412.20 L(ft)=300.00 Slope=40.013
Circ Orif C= 0.60 Inv elev= 407.50 Diam(in)= 30.00 CL elev= 408.75

ELEV(ft)	DISCHARGE(Q)cfs.				STORAGE(cf)
407.72	0.00	0.00	0.00	0.00	0.
408.00	0.00	0.00	0.00	0.00	0.
410.00	20.19	0.00	26.43	0.00	8025.
411.51	27.44	0.00	35.27	0.00	40928.
412.00	29.43	0.00	43.91	0.00	51605.
412.21	30.22	0.90	43.96	0.00	54661.
415.00	39.39	5329.90	59.09	0.00	5428.37 238117.

MIN	IN	OTHER	IN AVE	IN VOL	OUT OFF	AVE OUT	VOL STORAGE	ELEV
0.0	0.00	0.00	0.00	0.	0.00	0.00	0. 0.	407.72
5.0	150.49	0.00	75.25	22574.	50.84	25.42	7625. 14948.	410.32
10.0	97.18	0.00	123.83	37150.	63.00	56.96	17089. 35009.	411.84
15.0	71.86	0.00	84.52	25358.	65.92	64.99	19497. 40869.	411.91
20.0	57.32	0.00	64.60	19380.	66.54	66.51	19954. 40329.	411.88
25.0	47.68	0.00	52.50	15750.	64.01	65.18	19553. 36526.	411.71
30.0	40.58	0.00	44.13	13239.	60.68	62.35	18704. 31061.	411.36
35.0	35.12	0.00	37.85	11355.	56.85	58.76	17628. 24788.	410.97
40.0	30.94	0.00	33.03	9909.	52.85	54.85	16454. 18243.	410.47
45.0	27.84	4.25	31.51	9454.	49.27	51.06	15317. 13386.	410.20
50.0	25.11	11.05	34.23	10238.	46.73	48.00	14399. 9219.	410.01
55.0	22.93	13.69	36.59	10917.	37.64	42.18	12655. 6482.	409.62
60.0	21.11	14.45	36.09	10827.	36.20	36.92	11078. 4234.	409.55
65.0	19.29	14.36	34.60	10381.	34.73	35.45	10636. 5979.	409.49
70.0	17.45	13.87	31.59	9776.	33.73	33.72	10117. 5638.	409.40
75.0	15.83	13.19	30.27	9082.	32.44	31.58	9476. 5943.	409.31
80.0	14.01	12.38	27.71	8312.	27.89	29.17	8750. 4805.	409.29
85.0	12.27	11.52	25.14	7541.	25.33	26.61	7984. 4364.	409.09
90.0	10.55	10.65	22.55	6765.	22.74	24.04	7211. 3919.	408.98
95.0	8.72	9.72	19.63	5949.	20.02	21.38	6415. 2452.	408.86
100.0	7.16	8.79	17.17	5151.	17.37	18.70	5609. 2994.	408.75
105.0	5.28	7.85	14.51	4352.	14.70	16.03	4810. 2536.	408.63

STORM SEWER DESIGN COMPUTATIONS

ROUTE 29 PROJ:
COUNTY DISTRICT
DESCRIPTION 25 YEAR EVENT DESIGN
SHEET OF

FROM POINT	TO POINT	AREA DRAIN "A" ACRES	RUN-OFF COEF. C	CA INCREMENT	CA ACCUMULATED	INLET TIME MINUTES	RAIN FALL IN/HR	RUNOFF Q C.F.S.	INVERT ELEVATIONS UPPER END	INVERT ELEVATIONS LOWER END	LENGTH FT.	SLOPE FT/FT	DIA. IN.	CAPACITY C.F.S.	VEL. FPS.	FLOW TIME SEC.	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
K2	K1	PER ROUTING									39.27	40750	40660	84	.0107	30	42.4	9.8	8.6	
K1	EX.X2	—	—	—	—	—	—		408.10	405.83	14	.0121	30	45.1	10.4	1.3	

OUTFALL NARRATIVE

THE OUTFALL FROM THE PROPOSED POND IS DISCHARGED INTO THE NATURAL DRAINAGE SWALE UPSTREAM OF THE ROUTE 29 CULVERT. THIS CULVERT RUNS SOUTH UNDER ROUTE 29 AND DISCHARGES INTO AN EXISTING SWALE LOCATED IN AN EXISTING FLOOD PLAIN EASEMENT. WE HAVE EVALUATED THIS OUTFALL BASED ON VDOT CRITERIA USING THE 25 YEAR STORM TO PRECLUDE PONDING ON ROUTE 29, AND FAIRFAX COUNTY CRITERIA TO SHOW ADEQUACY OF OUTFALL USING THE 2 YEAR STORM REGARDING EROSTVENESS AND THE 10 YEAR STORM REGARDING CAPACITY WITHIN THE EASEMENT. THE OUTFALL STUDIES ARE BASED ON THE RATIONAL METHOD AND ARE BASED ON ROUTING OF THE DESIGN STORMS USING THE DRAINAGE DIVIDES SHOWN ON EXHIBIT 5 INCLUDED ON THIS SHEET.

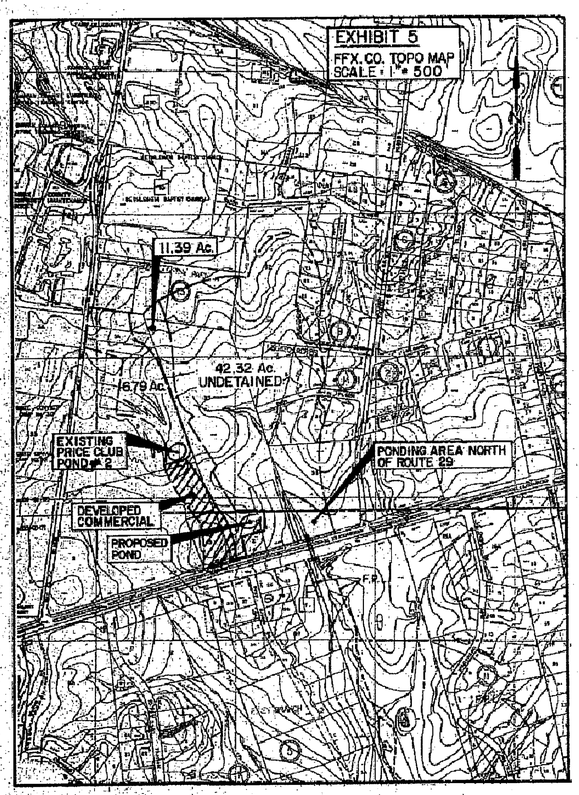
VDOT CRITERIA: WE HAVE PROPOSED AN ADDITIONAL 30" RCP THAT ACTS IN CONJUNCTION WITH THE EXISTING 24" CULVERT UNDER THE EAST BOUND AND WEST BOUND LANES OF ROUTE 29. THESE COMBINED CULVERTS YIELD A ROUTED WATER SURFACE ELEVATION OF 411.51 WHICH IS YET BELOW THE PAVEMENT SURFACE AS SHOWN ON THE PROFILES BELOW.

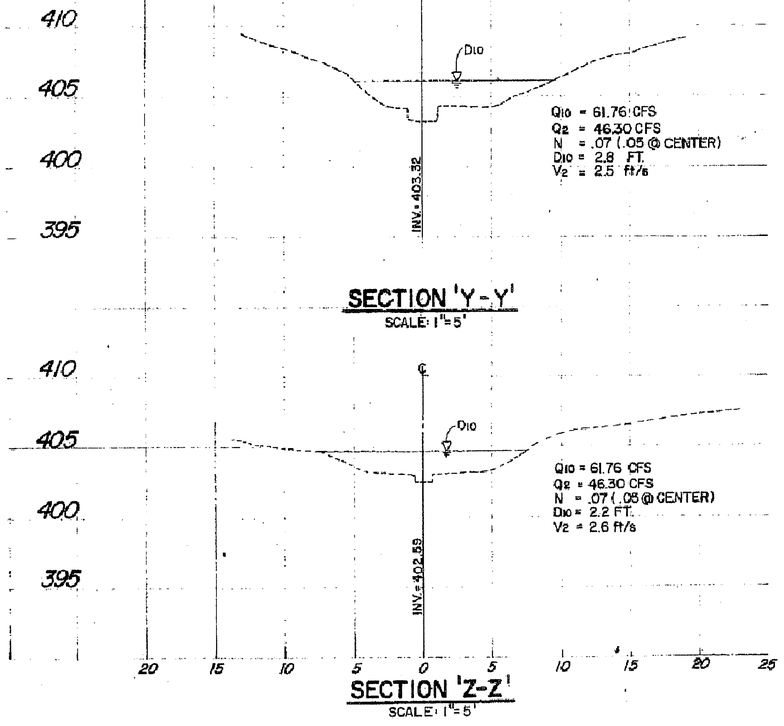
FAIRFAX COUNTY CRITERIA: THE OUTFALL DOWNSTREAM OF ROU DISCHARGES INTO AN EXISTING FLOOD PLAIN EASEMENT. THE VELOCITIES, AS CALCULATED FOR SECTIONS YY AND ZZ ARE LE THAN 3 FEET PER SECOND AND ARE THEREFORE NONERESIVE. T VELOCITIES ARE BASED ON A N FACTOR 0.07 ON THE PERIMETE THE SWALE AND 0.05 AT THE CENTER OF THE SWALE. THIS IS BASED ON THE FIELD VERIFIED VEGETATION IN THIS OUTFALL. CONCERNING CAPACITY, THE 10 YEAR DISCHARGE IS WITHIN TH EXISTING EASEMENT. THIS SWALE EVENTUALLY RUNS TO PINEY BRANCH APPROXIMATELY 3,500 FEET SOUTH OF ROUTE 29.

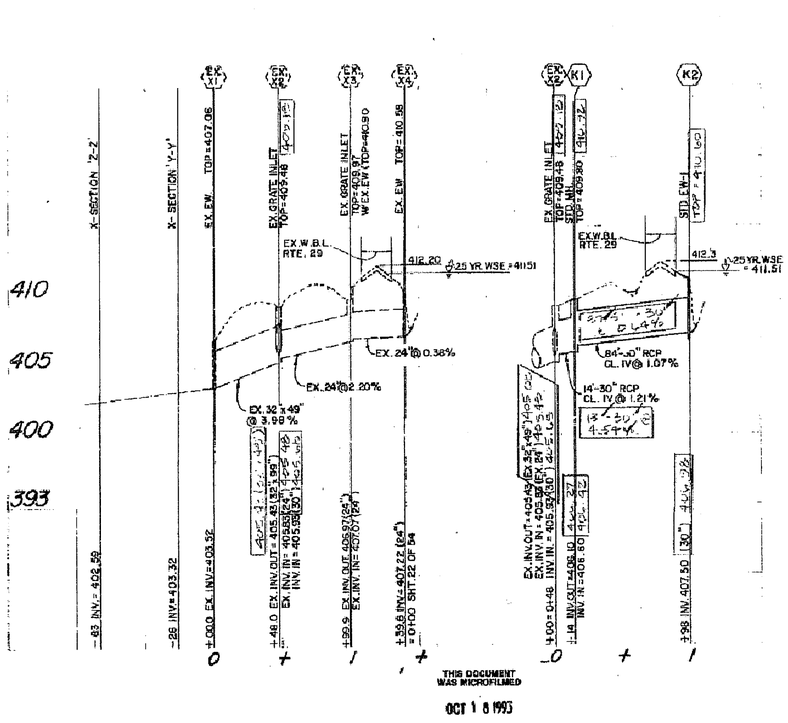
AS-BUILT NOTES
SEE SHEET 1 OF 54

COMMONWEALTH OF VIRGINIA
9-10-92
GERARD P. MORGAN
1350
SURVEYOR

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV.CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 28 of 33







No.	REVISIONS	DATE	CHKD.

PROFESSIONAL SEAL:
COMMONWEALTH OF VIRGINIA
BHARAT BHARGAVA
No. 022698
PROFESSIONAL ENGINEER

PROJECT:
PINEY BRANCH ROAD EXTENDED & ROUTE 29 IMPROVEMENTS
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

TITLE: "AS-BUILT"
OUTFALL PROFILE AND COMPUTATIONS

PHR&A
Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects
3975 Fair Ridge Drive P.O. Box 961
Fairfax, Virginia 22030
703-273-6700

Offices:
Fairfax, Va.
Bridgewater, Va.
Leesburg, Va.
Rockville, Md.
Virginia Beach, Va.
Chantilly, Va.
Winchester, Va.

SURVEY PHR&A	DATE AUGUST 1990
DESIGN MJ	DRAWN CJM
CHKD.	SCALE
SHEET 10A OF 54	FILE NO. 6349-1-0

OPTION B FOR INFORMATIONAL PURPOSES ONLY 10/19/11

STORM WATER INLET COMPUTATIONS

INLET NUMBER	INLET TYPE	INLET LENGTH (ft.)	STATION	DRAINAGE AREA (AC.)	C	CA	Σ CA	I IN/HR	Q INCR (cfs)	Q CARRY-OVER (cfs)	Q_T GUTTER FLOW	S GUTTER SLOPE (ft/ft)	S_x CROSS SLOPE (ft/ft)	T (SPREAD)	W (FT.)	W/T	Sw (ft/ft)	Sw/Sx	Eo (#10)	a	Sw=a/(12W)	Se (ft/ft)= Sx+SwEo	Lt (ft) / P EFFEC LENGTH FT.	L/LT / d (ft)	E (#16) / h (ft)	Qi INTERCEPTED cfs / d/h	Qb CARRY-OVER cfs / T SPREAD @ SAG FT.	REMARKS
A14	3B	8	14+96 RT	0.49	0.80	0.392	0.392	3.5	1.37	0	1.37	0.0104	0.0400	4.07	2.0	0.49	0.0833	2.1	0.89	3.0	0.127	0.153	7.3	1.10	1.0	1.37	0	
A13	3A	2.5	15+92 RT	0.04	0.80	0.032	0.032	3.5	0.11	0	0.11	0.0163	0.0351	1.16	2.0	1.72	0.0833	2.4	1.0	3.2	0.132	0.167	2.5	1.00	1.0	0.11	0	
A12	3B	8	15+92 LT	0.65	0.43	0.280	0.280	3.5	0.98	0	0.98	0.0269	—	2.57	2.0	0.78	0.0833	2.3	0.99	3.1	0.130	0.166	8.0	1.0	1.0	0.98	0	
A11	3B	6	ENTR A	0.49	0.50	0.245	0.245	3.5	0.86	0	0.86	0.0175	0.0208	3.71	2.0	0.54	0.0833	4.0	0.96	3.5	0.146	0.161	6.2	0.97	1.0	0.86	0	
A10	3B	4	ENTR A	0.07	0.80	0.056	0.056	3.5	0.20	0	0.20	0.0169	0.0208	1.42	2.0	1.41	0.0833	4.0	1.0	3.5	0.146	0.167	3.2	1.25	1.0	0.20	0	
A9	3B	4	17+17 LT	0.08	0.80	0.064	0.064	3.5	0.22	0	0.22	0.0475	0.0030	1.23	2.0	1.62	0.0833	27.8	1.0	3.9	0.164	0.167	4.7	0.85	0.97	0.22	0	
A8	3B	8	20+56 LT	0.17	0.80	0.136	0.136	3.5	0.47	0.29	0.77	0.0104	0.0208	3.72	2.0	0.54	0.0833	4.0	0.96	3.5	0.146	0.161	5.5	1.45	1.0	0.77	0	
G1	3B	8	21+95 RT	0.57	0.80	0.456	0.456	3.5	1.60	0	1.60	0.008	0.0208	7.22	2.0	0.28	0.0833	4.0	0.73	3.5	0.146	0.128	7.4	1.08	1.0	1.60	0	
A7	3A	2.5	21+95 LT	0.05	0.80	0.040	0.040	3.5	0.14	0	0.14	0.008	0.0208	1.44	2.0	1.39	0.0833	4.0	1.0	3.5	0.146	0.167	2.2	1.14	1.0	0.14	0	
F4	3B	4	23+80 RT	0.16	0.80	0.128	0.128	3.5	0.45	0	0.45	0.0120	0.0100	2.52	2.0	0.79	0.0833	8.3	1.0	3.8	0.157	0.167	4.1	0.98	1.0	0.45	0	
F3	MH-1		CONNECTOR	0.31	0.80	0.248	0.248	3.5	0.87	0	0.87	0.0196	0.0300													0.87	0	FUTURE
[illegible]	[illegible]	[illegible]	24+29.47 RT	0.07	0.80	0.056	0.056	3.5	0.20	0	0.20	0.0121	—	1.52	2.0	1.32	0.0833	8.3	1.0	3.8	0.157	0.167	2.9	1.38	1.0	0.20	0	
[illegible]	[illegible]	[illegible]	24+62.01 LT	0.31	0.80	0.248	0.248	3.5	0.87	0	0.87	0.0225	0.0208	3.34	2.0	0.60	0.0833	4.0	0.98	3.5	0.146	0.163	6.7	0.99	1.0	0.87	0	
A5	3B	10	26+15 LT	0.23	0.80	0.184	0.184	3.5	0.64	0	0.64	0.0307	0.0281	1.99	2.0	1.01	0.0833	3.0	1.0	3.3	0.139	0.163	6.4	0.94	0.99	0.64	0	
D2	3B	6	27+30 RT	0.09	0.80	0.072	0.072	3.5	0.25	0	0.25	0.0440	—	1.31	2.0	1.53	0.0833	8.3	1.0	3.8	0.157	0.167	4.8	1.25	1.0	0.25	0	
D1	3B	10	27+30 Med	0.10	0.80	0.080	0.080	3.5	0.28	0	0.28	0.0340	0.010	5.38	—	0.19	—	1.0	0.42	1.0	0.083	0.045	10.2	0.98	1.0	0.28	0	
A4	3B	4	27+30 LT	0.11	0.80	0.088	0.088	3.5	0.31	0	0.31	0.0200	0.010	1.63	2.0	1.22	0.0833	8.3	1.0	3.8	0.157	0.167	4.1	0.98	1.0	0.31	0	
A3	3B	6	29+00 LT	0.14	0.80	0.112	0.112	3.5	0.39	0	0.39	0.0210	0.0362	1.68	2.0	1.19	0.0833	2.3	1.0	3.1	0.130	0.167	5.0	1.20	1.0	0.39	0	
C4	3B	6	29+60 RT	0.52	0.70	0.364	0.364	3.5	1.27	0	1.27	0.0050	0.0252	6.0	2.0	0.33	0.0833	3.3	0.78	3.4	0.141	0.135	6.1	0.98	1.0	1.27	0	
C3	3C	6	30+00 RT	0.13	0.70	0.091	0.210	3.5	0.74	0	0.74	0.0010	0.0100	—	2.0	—	0.0833	—	—	—	—	—	9.6	0.10	0.5	0.20	10.34	@ Sump
				0.17	0.70	0.119																					8.56	L&R
C7	3B	4	31+70 RT	0.07	0.80	0.056	0.056	3.5	0.20	0	0.20	0.0208	—	1.37	2.0	1.46	0.0833	8.3	1.0	3.8	0.157	0.167	3.4	1.18	1.00	0.20	0	
C2	3B	6	30+68 RT	0.29	0.45	0.130	0.130	3.5	0.46	0	0.46	0.0090	0.0131	2.50	2.0	0.80	0.0833	6.4	1.0	3.7	0.154	0.166	4.2	1.43	1.00	0.46	0	
C5	3B	14	30+00 Med	0.22	0.80	0.176	0.176	3.5	0.62	0	0.62	0.0120	0.0100	8.33	—	0.12	—	1.0	0.29	1.0	0.083	0.034	13.4	1.04	1.0	0.62	0	
C6	3B	6	31+15 Med	0.08	0.80	0.064	0.064	3.5	0.22	0	0.22	0.0110	0.0285	3.01	—	0.33	—	1.0	0.66	1.0	0.083	0.083	5.0	1.20	1.0	0.22	0	
C1	3C	6	30+68 Med	0.03	0.80	0.024	0.064	3.5	0.22	0	0.22	0.0010	0.0131	—	2.0	—	0.0833	—	—	—	—	—	7.8	0.05	0.5	0.10	4.10	@ Sump
				0.05	0.80	0.040																					6.93	L&R
B2	3B	6	31+60 LT	0.09	0.80	0.072	0.072	3.5	0.25	0	0.25	0.0210	0.0318	1.42	2.0	1.41	0.0833	2.6	1.0	3.2	0.135	0.167	4.2	1.43	1.0	0.25	0	
B1	3C	6	31+15 LT	0.08	0.80	0.064	0.120	3.5	0.42	0	0.42	0.0010	0.0291	—	2.0	—	0.0833	—	—	—	—	—	9.6	0.07	0.5	0.14	2.45	@ Sump
				0.07	0.80	0.056																					3.12	L&R
A2	3C	4	30+68 LT	0.10	0.80	0.080	0.080	3.5	0.28	0	0.28	0.0090	0.0131	1.74	2.0	1.15	0.0833	6.4	1.0	3.7	0.154	0.167	3.4	1.18	1.0	0.28	0	
H2		4	ENTR 'B'	0.09	0.80	0.072	0.072	3.5	0.25	0	0.25	0.0113	0.0208	1.69	2.0	1.19	0.0833	4.0	1.0	3.5	0.146	0.167	3.2	1.25	1.0	0.25	0	
H1		4	ENTR 'B'	0.06	0.80	0.048	0.048	3.5	0.17	0	0.17	0.0113	0.0208	1.45	2.0	1.38	0.0833	4.0	1.0	3.5	0.146	0.167	2.7	1.48	1.0	0.17	0	
E2	3B	6	CONNECTOR	0.18	0.80	0.144	0.144	3.5	0.50	0	0.50	0.0387	0.0208	1.74	2.0	1.15	0.0833	4.0	1.0	3.5	0.146	0.167	6.2	0.97	1.0	0.50	0	
E1	3B	4	CONNECTOR	0.08	0.80	0.064	0.064	3.5	0.22	0	0.22	0.0330	0.0208	1.32	2.0	1.52	0.0833	4.0	1.0	3.5	0.146	0.167	4.2	0.95	1.0	0.22	0	
A9A	3A	2.5	19+26.5 LT	0.30	0.58	0.174	0.174	3.5	0.61	0	0.61	0.040	0.0208	1.76	2.0	1.14	0.0833	4.0	1.0	3.5	0.146	0.167	7.4	0.34	0.53	0.32	0.29	

CONNECTOR ROAD

STORM SEWER DESIGN COMPUTATIONS

FROM POINT	TO POINT	AREA DRAIN. "A" ACRES	RUN-OFF COEF. C	CA INCREMENT	CA ACCUMULATED	INLET TIME MINUTES	RAIN FALL IN./HR.	RUN-OFF Q C.F.S.	INVERT ELEVATIONS UPPER END	INVERT ELEVATIONS LOWER END	LENGTH FT.	SLOPE FT./FT.	DIA. IN.	CAPACITY C.F.S.	VEL. F.P.S.	FLOW TIME MIN.	REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
A14	A13	0.49	0.80	0.39	0.39	5	7.27	2.84	455.05	453.70	89	0.0152	15	8.0	3.36	0.44	
A13	A12	0.04	0.80	0.03	0.42	5	7.27	3.05	453.60	453.04	56	0.0100	15	6.5	2.96	0.32	
A12	A11	0.65	0.43	0.28	0.70	5	7.27	5.09	452.94	452.25	69	0.0100	15	6.5	2.96	0.39	
A11	A10	0.49	0.50	0.25	0.95	5	7.27	6.87	452.15	451.77	38	0.0100	18	10.5	6.34	0.10	
A10	A9	0.07	0.80	0.06	1.01	5	7.27	7.31	451.67	450.37	70	0.0186	18	15.0	8.15	0.14	
A9	A9A	0.08	0.80	0.06	1.07	5	7.27	7.78	450.27	441.75	209	0.0408	18	21.2	11.08	0.31	
A8	A7	0.17	0.80	0.14	1.45	5	7.27	10.54	440.13	435.85	139	0.0308	18	18.5	10.78	0.21	
A7	A6	0.05	0.80	0.04	2.10	5	7.27	15.27	435.25	432.69	266	0.0100	24	29.0	7.73	0.57	
A6	A5	0.31	0.80	0.25	2.80	5	7.27	20.36	432.59	429.39	149	0.0215	24	34.0	11.09	0.22	
A5	A4	0.23	0.80	0.18	3.27	5	7.27	23.77	429.29	424.03	112	0.0470	24	50.0	15.44	0.12	
A4	A3	0.11	0.80	0.09	4.20	5	7.27	30.53	423.93	420.82	175	0.0178	30	56.0	11.43	0.26	
A3	A2	0.14	0.80	0.11	4.31	5	7.27	31.33	420.72	417.71	168	0.0179	30	56.0	11.52	0.24	
A2	A1	0.10	0.80	0.08	5.73	5	7.27	41.66	417.61	417.11	50	0.0100	29x45	68.6	9.94	0.08	36" EQ.
A9A	A8	0.30	0.58	0.17	1.24	5	7.27	9.04	441.53	440.23	130	0.0100	18	10.5	6.69	0.32	
G1	A7	0.57	0.80	0.46	0.46	5	7.27	3.34	438.96	436.10	56	0.0509	15	14.8	9.64	0.09	
H2	H1	0.09	0.80	0.07	0.07	5	7.27	0.50	437.28	436.94	34	0.0100	15	6.5	3.10	0.18	
H1	A7	0.08	0.80	0.06	0.13	5	7.27	0.90	436.84	436.10	74	0.0100	15	6.5	3.70	0.33	
F3	F2	0.31	0.80	0.25	0.25	5	7.27	1.80	435.70	434.99	71	0.0100	15	6.5	4.50	0.26	Future
Ex 1	F2	—	—	—	—	—	—	0.10	435.99	435.80	24	0.0079	18	9.5	1.80	0.22	
F2	F1	—	—	—	—	—	—	1.90	434.74	434.24	50	0.0100	18	10.5	4.52	0.18	
F4	F1	0.16	0.80	0.13	0.13	5	7.27	0.95	436.60	434.57	45	0.0451	15	14.0	6.41	0.12	
F1	A6	0.07	0.80	0.06	0.45	5	7.27	3.27	434.14	433.19	77	0.0123	18	11.5	5.25	0.24	
D3	D2	1.97	0.35	0.69	0.69	5	7.27	5.02	426.00	425.37	61	0.0103	18	10.7	5.8	0.32	
D2	D1	0.09	0.80	0.07	0.76	5	7.27	5.53	424.87	424.56	31	0.0100	24	22.6	5.9	0.09	
D1	A4	0.10	0.80	0.08	0.84	5	7.27	6.11	424.46	424.03	43	0.0100	24	22.6	6.1	0.12	
C4	C3	0.52	0.70	0.36	0.36	5	7.27	2.62	420.21	419.92	45	0.0064	19x30	19.4	4.23	0.18	24" EQ.
C3	C2	0.30	0.70	0.21	0.57	5	7.27	4.14	419.82	419.34	68	0.0070	19x30	19.4	4.82	0.24	24" EQ
C8	C7	0.66	0.50	0.33	0.33	5	7.27	2.40	425.00	420.79	84	0.0501	15	6.5	4.72	0.16	
C7	C2	0.07	0.80	0.06	0.39	5	7.27	2.84	420.69	419.67	102	0.0100	15	6.5	5.10	0.33	
C2	C1	0.29	0.45	0.13	1.09	5	7.27	7.92	419.24	418.94	43	0.0070	19x30	19.4	5.76	0.12	24" EQ
C5	C1	0.22	0.80	0.17	0.17	5	7.27	1.24	419.95	419.27	68	0.0100	15	6.5	4.06	0.20	
C6	C1	0.08	0.80	0.06	0.06	5	7.27	0.44	419.74	419.27	47	0.0100	15	6.5	4.42	0.18	
C1	A2	0.03	0.80	0.02	1.34	5	7.27	9.74	418.84	418.62	31	0.0070	19x30	19.4	6.07	0.09	24" EQ.
B2	B1	0.09	0.80	0.07	0.07	5	7.27	0.51	419.96	419.51	45	0.0100	15	6.5	3.14	0.24	
B1	A2	0.08	0.80	0.06	0.13	5	7.27	0.95	419.41	418.96	45	0.0100	15	6.5	3.76	0.20	
K1	EX. K	1.45	0.80	1.16	1.16	5	7.27	8.43	452.38	450.12	94	0.0240	15	10.0	9.14	0.17	
J2	J1	FROM	100YR	ROUTING	OUTFLOW			153.0	410.68	409.50	98	0.0120	48	157.35	14.27	0.11	
J1	J	FROM	100YR	ROUTING	OUTFLOW			153.0	409.30	407.9	115	0.0122	38x60	158.6	14.38	0.13	48" EQ
J6	J5	—	—	—	—	—	—	69.49	413.07	412.50	102	0.0056	48	107.49	9.10	0.19	
E2	E1	0.18	0.80	0.14	0.14	5	7.27	1.02	429.61	429.23	38	0.0100	18	10.5	3.8	0.17	
E1	A5	0.08	0.80	0.06	0.20	5	7.27	1.45	429.13	427.67	88	0.0176	18	13.9	5.2	0.27	

CONNECTOR ROAD

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 29 of 33

No.	REVISIONS	DATE	CHKD.
1 (triangle)	GENERAL REVISIONS.	11-8-91	BB
1	ADD STORM INLET	6-5-92.	

153684

TCA 301-565-3340

PROFESSIONAL SEAL: COMMONWEALTH OF VIRGINIA — B. Bhargava — BHARAT BHARGAVA No. 020686 — PROFESSIONAL ENGINEER

PROJECT:
PINEY BRANCH ROAD EXTENDED & ROUTE 29 IMPROVEMENTS
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

TITLE:
STORM SEWER COMPUTATIONS

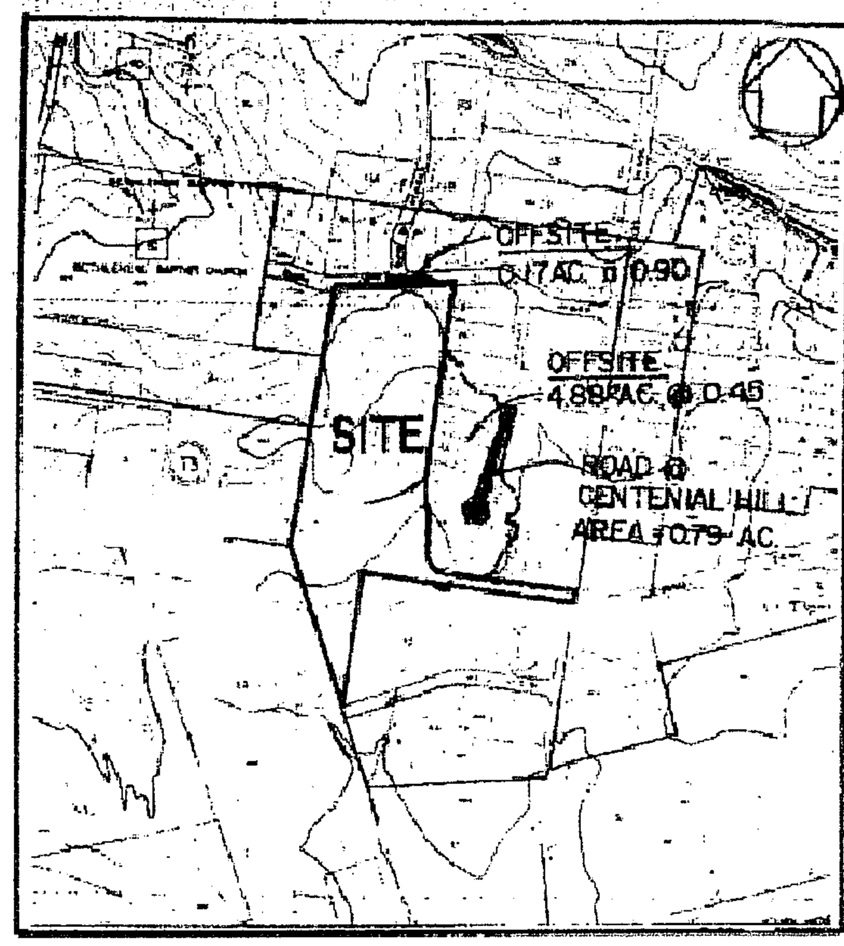
PHR&A
Patton Harris Rust&Associates,pc
Engineers,Surveyors,Planners,Landscape Architects
3998 Fair Ridge Drive,P.O.Box 901
Fairfax,Virginia 22030
703-273-8700

Offices:
Fairfax,Va.
Bridgewater,Va.
Leesburg,Va.
Rockville,Md.
Virginia Beach,Va.
Chantilly,Va.
Winchester,Va.

SURVEY PHR & A	DATE MAY, 1991
DESIGN RLY	DRAWN
CHKD. BB	SCALE N/A
SHEET 45 OF 54	FILE NO. 6349-1-0

OPTION B FOR INFORMATIONAL PURPOSES ONLY

10/19/11



OFFSITE DRAINAGE MAP TO B.M.P.
(SCALE: 1" = 500')

B.M.P. Calculations

Total area to pond :
offsite area .17 ac @ .90 : .15 imp. /ac
offsite area .79 ac @ .90 : .71 imp. /ac
offsite area 4.88 ac @ .45 :2.20 imp. /ac
area from site 9.25 ac @ .50 :4.63 imp. /ac.

total area to pond : 15.09 ac @ 0.51 = 7.69 imp. /ac.

using curve "A" of of storage required / ac. =(4375 x c)- 875
=(4375 x .51)-875
=1356.25 cf
total B.M.P. storage req'd for area to pond =1268.75 x 15.09 ac
=20466 cf

Elev. 443.60 will yield the required B.M.P. storage.
using a 1.55" single orifice we will have 48 hrs of draw down
(see routing calculations.)

Phosphorus Removal Calculations:

using a dry detention with 4:1 side slops, min. two days of detention and total access to the pond we will have 40.00% removal efficiency. We will use Occoquan Method to calculate total phosphorus removed from the facility.
site is located within Chesapeake Bay Preservation Area and also site drains to Occoquan therefore we need 50.00 % removal.

onsite to facility : 9.25 ac @ 0.30
offsite to facility : 5.84 ac @ 0.52
open space = area in parcel "A" contained within conservation easment : 0.81 ac

total % phosphorus removed from:

site: 40.00% x (9.25ac/ 11.08ac) x (0.50/0.50) = 33.39 %
Ruffin Dr.:
offsite (R.O.W) 40.0% x (.17 ac /11.08ac) x (0.9/0.5) = 1.105%
Rd @ Centenial Hills:
offsite (R.O.W) 40.00% x (.79ac /11.08ac) x (0.9/0.5) = 5.13%
offsite 0.20x40.00% x (4.88ac/11.08ac) x(0.45/0.5) = 3.17%
undisturbed open space
within a conservation easment 100% x(0.5355ac/11.08)x1.0 =7.57 %
total Phosphorus removed =50.37 %

====> 50.37 % > 50.00 %

Total site area = 11.08 acres

offsite: 0.17 ac. @ .90 = 0.15 imp. /ac.
0.79 ac. @ .90 = 0.71 imp. /ac.
4.88 ac. @ .45 = 2.20 imp. /ac.
total: 5.84 ac. @ .52 = 3.06 imp. /ac.
SEE OFFSITE DRAINAGE MAP ABOVE

Area of the lots in the pond: 8.07 ac @ 0.50 = 6.04 imp. /ac.
Area from parcel "A" : 1.18 ac @ 0.50 = 0.59 imp. /ac.
total area of site to pond = 9.25 ac @ 0.50 = 4.63 imp. /ac.

==> Uncontrolled area from site : 11.08 ac. - 9.25 ac. = 1.83 ac

Allowable discharge calculations:

Q(allow) = Q(pre. dev. runoff) + Q(offsite runoff) - Q(uncont.)
pre. dev. runoff:
A=11.08 ac. C(2 year)=0.15 C(10 year)=0.30 Tc=5 min.
Q=AIC I(2 year)=5.45 in/hr I(10 year)=7.27 in/hr
Q(2 year) = 11.08 ac x 5.45 in/hr x 0.15 = 9.06 cfs
Q(10 year)= 11.08 ac x 7.27 in/hr x 0.30 =24.17 cfs

Offsite runoff (ultimate condition):
A=5.84 ac. C = 0.52 Tc=5 min.
Q=AIC I(2 year)=5.45 in/hr I(10 year)=7.27 in/hr
Q(2 year) = 5.84 ac x 5.45 in/hr x 0.52=16.55 cfs
Q(10 year)= 5.84 ac x 7.27 in/hr x 0.52 =22.08 cfs

Uncontrolled runoff (post dev. cond.):
A=1.83 ac. C = 0.50 Tc=5 min.
Q=AIC I(2 year)=5.45 in/hr I(10 year)=7.27 in/hr
Q(2 year) = 1.83 ac x 5.45 in/hr x 0.50 = 4.99 cfs
Q(10 year)= 1.83 ac x 7.27 in/hr x 0.50 = 6.65 cfs

Allowable discharge from det. facility:
2 year : 9.06 cfs + 16.55 cfs - 4.99 cfs = 20.62 cfs
10 year : 24.17 cfs + 22.08 cfs - 6.65cfs = 39.60 cfs

discharge from pond (2 year) = 14.32 cfs < 20.62 cfs allowed
discharge from pond (10 year) = 23.38 cfs < 39.60 cfs allowed

/// DESIGN OF BMP ORIFICE PLATE \\\

BMP STORAGE VOLUME	= 20446 C.F.
DEPTH OF STORAGE IN POND	= 3.6 FT.
BMP DRAWDOWN TIME	= 48.00 HOURS
DIA. OF LARGE BMP ORIFICE OR SINGLE HOLE	= 1.55 INS.

<<<< >>>>

AVG. FLOW THRU. BMP ORIFICE	= .12 CFS
TOTAL AREA OF BMP HOLE(S)	= 1.89 SQ.IN.

Data Filename ===> gsm

Formulas used:
calculations for discharge through orifice:
Q=CA(2gh)^0.5 C=0.6(orifice coeff.) , h=head(varies) A=area (sf)
calculations for discharge through weir:
Q=CLH^1.5 C=3.7(weir coeff.) , H=head(varies)
L=length of opening(ft)
control opening's for structure are:
1.55" opening @ elevation 440.00
5-(0.67'X3.0') @ elevation 443.60
emerg. spillway with 25' length & 3:1 side slops @ elev. 444.55

TOP OF DAM ELEVATION = 446

ELEVATION @ INVERT OF FACILITY = 440

FLOW CONTROLS USED :
INVERT.ORIFICE (Dia.- ins. or Height X Width - ft) OR WEIR (Length - ft) :

** BMP Orifice Plate Used **
Weir1= 0 / 0 Weir2= 0 / 0 Weir3= 0 / 0
Trap. Emer. Spillway - INV = 444.55 : Bot Width = 25 : Side/Slope = 3
Orifice1= 440 / 1.55 Orifice2= 443.6 / 0 Orifice3= 0 / 0
Orifice1= 440 / 0 X 0 Orifice2= 443.6 / .67 X 9 Orifice3: 0 / 0 X 0

Bot Width = 0 Ft : Slope = 0 % : Side/Slope = 0 : N = 0

DATA FILENAME (Elev. vs Dischg.)===>

ORIFICE FLOW, CFS

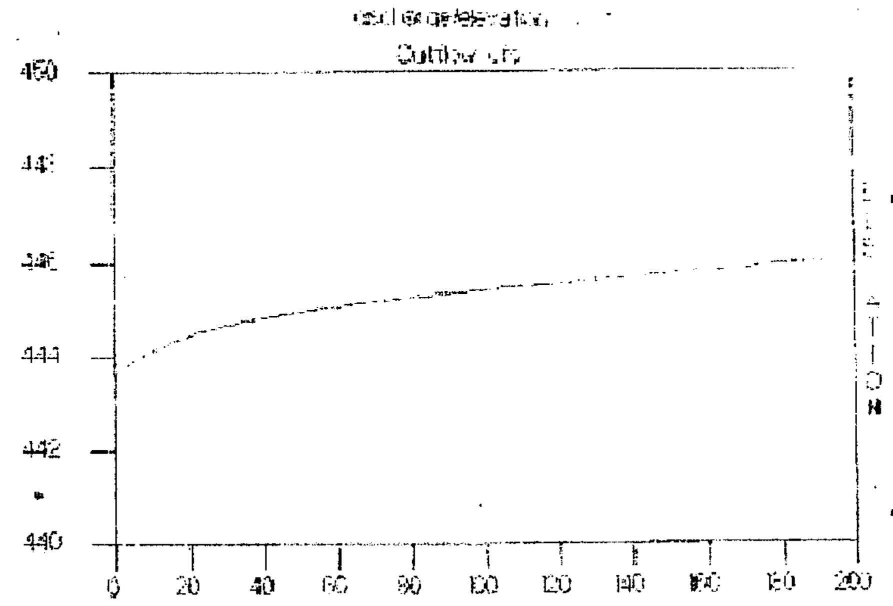
Elevation	Orifice-1	Orifice-2	Orifice-3	Tot.Orifice
446.00	0.15	41.72	0.00	41.88
445.75	0.15	39.12	0.00	39.27
445.50	0.15	36.32	0.00	36.47
445.25	0.14	33.29	0.00	33.44
445.00	0.14	29.96	0.00	30.10
444.75	0.14	26.21	0.00	26.35
444.50	0.13	21.82	0.00	21.96
444.25	0.13	16.15	0.00	16.28
444.00	0.13	6.83	0.00	6.96
443.75	0.12	1.57	0.00	1.69
443.50	0.12	0.00	0.00	0.12
443.25	0.11	0.00	0.00	0.11
443.00	0.11	0.00	0.00	0.11
442.75	0.10	0.00	0.00	0.10
442.50	0.10	0.00	0.00	0.10
442.25	0.09	0.00	0.00	0.09
442.00	0.09	0.00	0.00	0.09
441.75	0.08	0.00	0.00	0.08
441.50	0.08	0.00	0.00	0.08
441.25	0.07	0.00	0.00	0.07
441.00	0.06	0.00	0.00	0.06
440.75	0.05	0.00	0.00	0.05
440.50	0.04	0.00	0.00	0.04
440.25	0.03	0.00	0.00	0.03
440.00	0.00	0.00	0.00	0.00

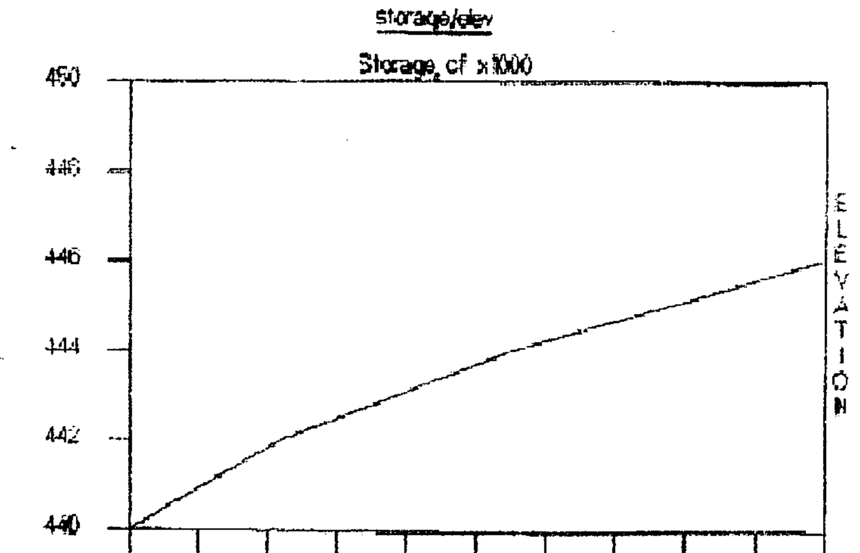
WEIR FLOW, CFS

Elevation	Weir-1	Weir-2	Weir-3	Emer.Spill.	Tot.Weir
446.00	0.00	0.00	0.00	149.61	149.61
445.75	0.00	0.00	0.00	110.41	110.41
445.50	0.00	0.00	0.00	76.21	76.21
445.25	0.00	0.00	0.00	47.21	47.21
445.00	0.00	0.00	0.00	23.82	23.82
444.75	0.00	0.00	0.00	6.91	6.91
444.50	0.00	0.00	0.00	0.00	0.00
444.25	0.00	0.00	0.00	0.00	0.00
444.00	0.00	0.00	0.00	0.00	0.00
443.75	0.00	0.00	0.00	0.00	0.00
443.50	0.00	0.00	0.00	0.00	0.00
443.25	0.00	0.00	0.00	0.00	0.00
443.00	0.00	0.00	0.00	0.00	0.00
442.75	0.00	0.00	0.00	0.00	0.00
442.50	0.00	0.00	0.00	0.00	0.00
442.25	0.00	0.00	0.00	0.00	0.00
442.00	0.00	0.00	0.00	0.00	0.00
441.75	0.00	0.00	0.00	0.00	0.00
441.50	0.00	0.00	0.00	0.00	0.00
441.25	0.00	0.00	0.00	0.00	0.00
441.00	0.00	0.00	0.00	0.00	0.00
440.75	0.00	0.00	0.00	0.00	0.00
440.50	0.00	0.00	0.00	0.00	0.00
440.25	0.00	0.00	0.00	0.00	0.00
440.00	0.00	0.00	0.00	0.00	0.00

COMBINED ELEVATION vs DISCHARGE DATA

Elevation	Discharge-CFS
446.00	191.49
445.75	149.68
445.50	112.68
445.25	80.65
445.00	53.93
444.75	33.26
444.50	21.96
444.25	14.25
444.00	6.96
443.75	1.69
443.50	0.12
443.25	0.11
443.00	0.11
442.75	0.10
442.50	0.10
442.25	0.09
442.00	0.09
441.75	0.08
441.50	0.08
441.25	0.07
441.00	0.06
440.75	0.05
440.50	0.04
440.25	0.03
440.00	0.00





2 YEAR STORM

/// ISWM ~ RESERVOIR ~ ROUTING ~ OUTPUT \\\

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Version : 1.30 Executed :04-26-1994 11:00:09

Title of Routing ===> 2 year storm
Inflow Hydrograph File ===> D:CAM2.INF
Pond Design Data File ===> D:CAM.PND

INPUT DATA FOR ===> CAMBRYAR

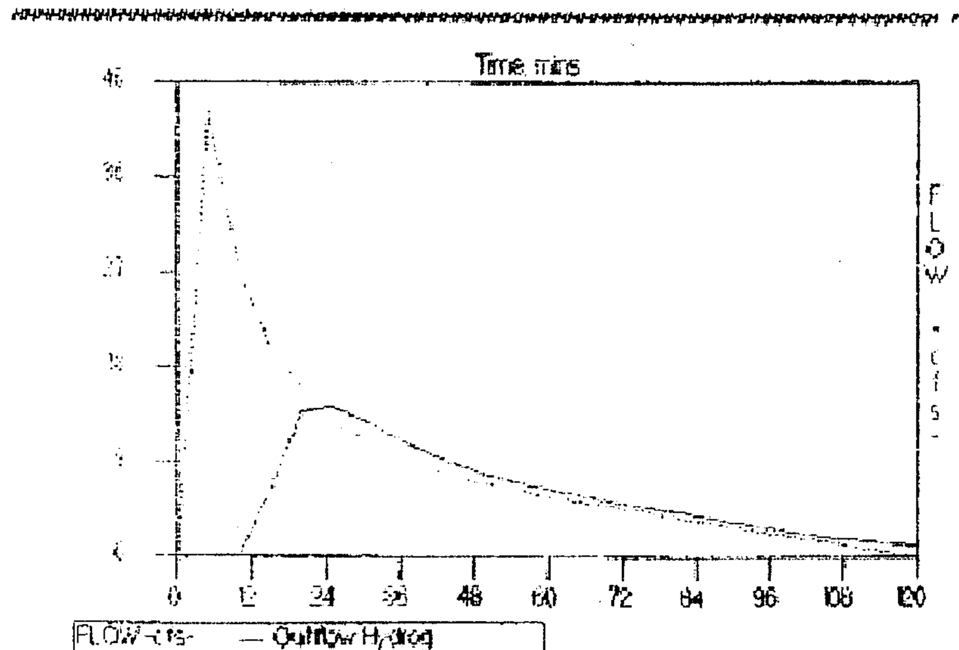
Elevation-ft	Discharge-cfs	Storage c.f.
440.00	0.00	0.000
440.25	0.03	1150.000
440.50	0.04	2300.000
440.75	0.05	3450.000
441.00	0.06	4600.000
441.25	0.07	5750.000
441.50	0.08	6900.000
441.75	0.08	8050.000
442.00	0.09	9200.000
442.25	0.09	10912.500
442.50	0.10	12625.000
442.75	0.10	14337.500
443.00	0.11	16050.000
443.25	0.11	17762.500
443.50	0.12	19475.000
443.75	1.67	21187.500
444.00	6.96	22900.000
444.25	14.28	25250.000
444.50	21.96	27600.000
444.75	33.26	29950.000
445.00	53.93	32300.000
445.25	80.65	34650.000
445.50	112.68	37000.000
445.75	149.68	39350.000
446.00	191.49	41700.000

OUTPUT DATA FOR ===> CAMBRYAR

Time-min	Inflow-cfs	Outflow-cfs	W.S. Elev	Storage c.f.
0.	0.00	0.00	440.00	0.00
5.	41.96	0.07	441.37	12860.59
10.	27.03	6.11	443.08	20633.36
15.	20.02	6.31	443.97	24744.55
20.	16.02	13.76	444.23	25422.06
25.	13.24	14.32	444.25	25099.58
30.	11.24	12.99	444.21	24573.95
35.	9.86	11.44	444.15	24100.91
40.	8.47	9.99	444.10	23644.99
45	7.70	8.79	444.06	23321.89
50.	6.85	7.82	444.03	23030.78
55.	6.31	7.03	444.00	22814.64
60.	5.70	6.38	443.97	22609.99
65.	5.24	5.81	443.95	22440.18
70.	4.77	5.30	443.92	22281.16
75.	4.31	4.82	443.90	22128.17
80.	3.77	4.33	443.88	21960.98
85.	3.31	3.83	443.85	21804.97
90.	2.85	3.36	443.83	21653.09
95.	2.39	2.89	443.81	21502.72
100.	1.92	2.43	443.78	21350.86
105.	1.46	1.96	443.76	21200.51
110.	0.92	1.61	443.74	20994.36
115.	0.46	1.39	443.70	20716.77
120.	0.00	1.11	443.66	20384.99
125.	0.00	0.84	443.61	20133.41
130.	0.00	0.64	443.58	19942.63
135.	0.00	0.48	443.56	19797.97
140.	0.00	0.37	443.54	19688.27
145.	0.00	0.28	443.53	19605.08
150.	0.00	0.21	443.51	19542.00
155.	0.00	0.16	443.51	19494.17
160.	0.00	0.12	443.50	19457.90
165.	0.00	0.12	443.49	19421.97
170.	0.00	0.12	443.49	19386.12
175.	0.00	0.12	443.48	19350.32
180.	0.00	0.12	443.48	19314.58
185.	0.00	0.12	443.47	19278.91
190.	0.00	0.12	443.47	19243.29
195.	0.00	0.12	443.46	19207.75
200.	0.00	0.12	443.46	19172.26
		Towards Full Drawdown		
3564.	0.00	0.04	440.54	2473.60
3569.	0.00	0.04	440.54	2461.07
3574.	0.00	0.04	440.53	2448.67
3579.	0.00	0.04	440.53	2436.30
3584.	0.00	0.04	440.53	2423.97
3589.	0.00	0.04	440.53	2411.67

hhh ROUTING OUTPUT SUMMARY hhh

Peak Outflow = 14.32 cfs
Maximum Water Surface Elevation = 444.25 feet
Storage Volume At Peak Outflow = 25099.58 c.f.
Time For Full Drawdown Exceeds 59.81 hours !!
Inflow & Outflow Hydrographs File == cam2.OUT



10 YEAR STORM

/// ISWM ~ RESERVOIR ~ ROUTING ~ OUTPUT \\\

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Version : 1.30 Executed :04-26-1994 11:00:27

Title of Routing ===> 10 year storm
Inflow Hydrograph File ===> D:CAM10.INF
Pond Design Data File ===> D:CAM.PND

INPUT DATA FOR ===> CAMBRYAR

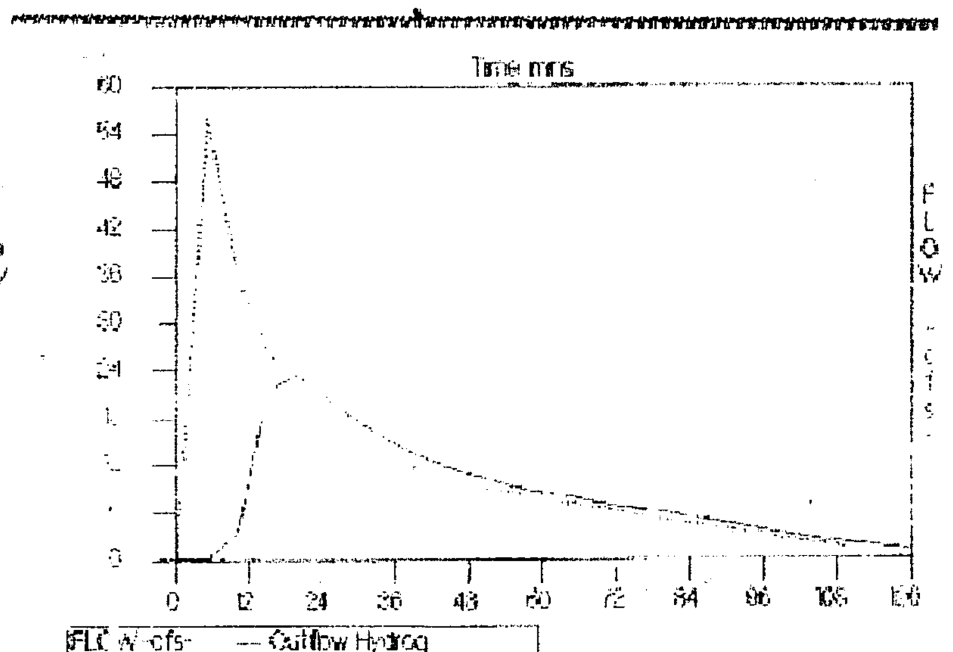
Elevation-ft	Discharge-cfs	Storage c.f.
440.00	0.00	0.000
440.25	0.03	1150.000
440.50	0.04	2300.000
440.75	0.05	3450.000
441.00	0.06	4600.000
441.25	0.07	5750.000
441.50	0.08	6900.000
441.75	0.08	8050.000
442.00	0.09	9200.000
442.25	0.09	10912.500
442.50	0.10	12625.000
442.75	0.10	14337.500
443.00	0.11	16050.000
443.25	0.11	17762.500
443.50	0.12	19475.000
443.75	1.69	21187.500
444.00	6.96	22900.000
444.25	14.28	25250.000
444.50	21.96	27600.000
444.75	33.26	29950.000
445.00	53.93	32300.000
445.25	80.65	34650.000
445.50	112.68	37000.000
445.75	149.68	39350.000
446.00	191.49	41700.000

OUTPUT DATA FOR ===> CAMBRYAR

Time-min	Inflow-cfs	Outflow-cfs	W.S. Elev	Storage c.f.
0.	0.00	0.00	440.00	0.00
5.	85.98	0.08	441.82	16762.43
10.	36.04	3.22	443.82	26605.26
15.	26.64	31.32	444.46	28201.43
20.	21.33	23.30	444.53	27587.72
25.	17.63	20.51	444.45	26724.34
30.	14.94	17.73	444.36	25867.45
35.	12.94	15.24	444.28	25198.49
40.	11.32	13.23	444.21	24626.23
45.	10.09	11.62	444.16	24166.91
50.	9.09	10.33	444.12	23795.64
55.	8.32	9.29	444.08	23503.37
60.	7.62	8.45	444.05	23254.10
65.	7.01	7.73	444.03	23038.85
70.	6.39	7.07	444.00	22833.93
75.	5.70	6.42	443.97	22617.10
80.	5.08	5.77	443.94	22409.96
85.	4.47	5.14	443.91	22208.46
90.	3.85	4.52	443.88	22006.98
95.	3.16	3.88	443.85	21791.14
100.	2.54	3.23	443.82	21584.37
105.	1.92	2.60	443.79	21380.95
110.	1.31	1.98	443.76	21180.81
115.	0.62	1.56	443.73	20900.33
120.	0.00	1.25	443.68	20524.19
125.	0.00	0.95	443.63	20238.96
130.	0.00	0.72	443.60	20022.67
135.	0.00	0.55	443.57	19858.66
140.	0.00	0.41	443.55	19734.29
145.	0.00	0.31	443.53	19639.98
150.	0.00	0.24	443.52	19568.46
155.	0.00	0.18	443.51	19514.23
160.	0.00	0.14	443.50	19473.11
165.	0.00	0.12	443.50	19437.16
170.	0.00	0.12	443.49	19401.28
175.	0.00	0.12	443.49	19365.45
180.	0.00	0.12	443.48	19329.69
185.	0.00	0.12	443.48	19293.99
190.	0.00	0.12	443.47	19258.35
195.	0.00	0.12	443.47	19222.78
200.	0.00	0.12	443.46	19187.26
		Towards Full Drawdown		
3564.	0.00	0.04	440.54	2478.76
3569.	0.00	0.04	440.54	2466.31
3574.	0.00	0.04	440.53	2453.90
3579.	0.00	0.04	440.53	2441.52
3584.	0.00	0.04	440.53	2429.17
3589.	0.00	0.04	440.53	2416.85

hhh ROUTING OUTPUT SUMMARY hhh

Peak Outflow = 23.38 cfs
Maximum Water Surface Elevation = 444.59 feet
Storage Volume At Peak Outflow = 27587.72 c.f.
Time For Full Drawdown Exceeds 59.81 hours !!
Inflow & Outflow Hydrographs File == cam10.OUT



100YEAR STORM

/// ISWM ~ RESERVOIR ~ ROUTING ~ OUTPUT \\\

Copyright (c) 1990 by ITS, Inc. & F. A. Rose, P.E.

Version : 1.30 Executed :04-26-1994 11:30:52

Title of Routing ===> 100 year storm
Inflow Hydrograph File ===> D:CAM100.INF
Pond Design Data File ===> D:CAM.PND

INPUT DATA FOR ===> CAMBRYAR

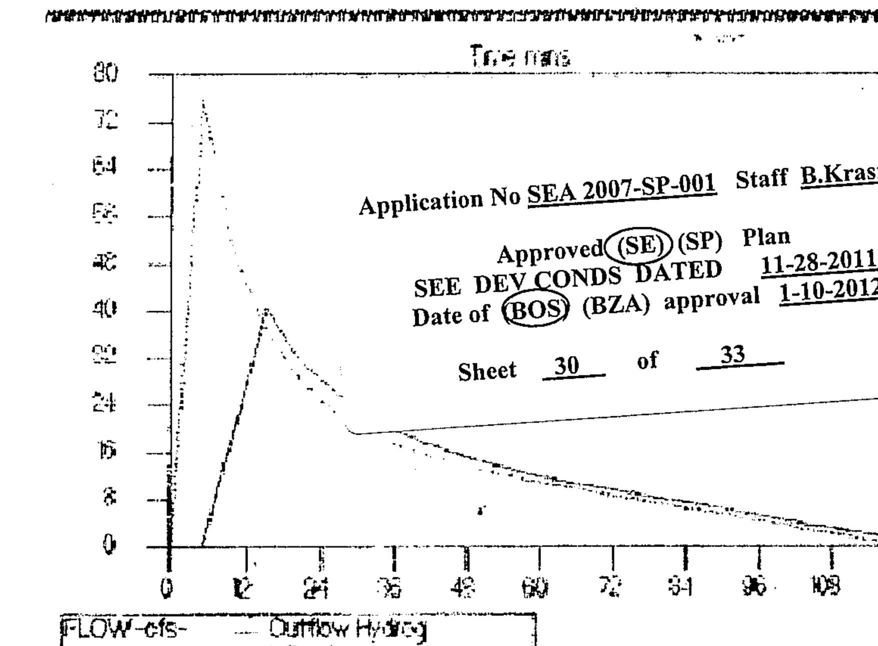
Elevation-ft	Discharge-cfs	Storage c.f.
440.00	0.00	0.000
440.25	0.03	1150.000
440.50	0.04	2300.000
440.75	0.05	3450.000
441.00	0.06	4600.000
441.25	0.07	5750.000
441.50	0.08	6900.000
441.75	0.08	8050.000
442.00	0.09	9200.000
442.25	0.09	10912.500
442.50	0.10	12625.000
442.75	0.10	14337.500
443.00	0.11	16050.000
443.25	0.11	17762.500
443.50	0.12	19475.000
443.75	1.69	21187.500
444.00	6.96	22900.000
444.25	14.28	25250.000
444.50	21.96	27600.000
444.75	33.26	29950.000
445.00	53.93	32300.000
445.25	80.65	34650.000
445.50	112.68	37000.000
445.75	149.68	39350.000
446.00	191.49	41700.000

OUTPUT DATA FOR ===> CAMBRYAR

Time-min	Inflow-cfs	Outflow-cfs	W.S. Elev	Storage c.f.
0.	0.00	0.00	440.00	0.00
5.	75.77	0.09	442.31	22694.16
10.	49.05	20.11	444.44	31373.01
15.	36.42	40.46	444.84	30163.00
20.	28.80	31.99	444.72	29267.38
25.	24.19	27.39	444.62	28233.48
30.	20.41	23.08	444.52	27432.63
35.	17.54	20.27	444.45	26733.64
40.	15.34	18.08	444.37	26091.89
45.	14.46	16.19	444.31	25578.40
50.	13.01	14.58	444.26	25106.79
55.	11.97	13.23	444.21	24717.61
60.	10.53	12.08	444.17	24371.81
65.	10.01	11.06	444.14	24058.13
70.	9.07	10.10	444.11	23756.12
75.	8.34	9.19	444.08	23472.65
80.	7.31	8.27	444.05	23179.57
85.	6.39	7.37	444.01	22885.04
90.	5.47	6.46	443.98	22588.74
95.	4.54	5.54	443.93	22288.71
100.	3.62	4.62	443.89	21989.35
105.	2.77	3.72	443.85	21704.61
110.	1.85	2.83	443.80	21410.90
115.	0.92	1.92	443.76	21131.82
120.	0.00	1.42	443.71	20684.56
125.	0.00	1.08	443.65	20360.57
130.	0.00	0.82	443.61	20114.89
135.	0.00	0.62	443.58	19926.59
140.	0.00	0.47	443.56	19787.32
145.	0.00	0.36	443.54	19680.19
150.	0.00	0.27	443.52	19598.96
155.	0.00	0.21	443.51	19537.36
160.	0.00	0.16	443.51	19490.65
165.	0.00	0.12	443.50	19454.67
170.	0.00	0.12	443.49	19418.75
175.	0.00	0.12	443.49	19382.89
180.	0.00	0.12	443.48	19347.10
185.	0.00	0.12	443.48	19311.37
190.	0.00	0.12	443.47	19275.70
195.	0.00	0.12	443.47	19240.10
200.	0.00	0.12	443.46	19204.55
		Towards Full Drawdown		
3564.	0.00	0.04	440.54	2484.84
3569.	0.00	0.04	440.54	2472.38
3574.	0.00	0.04	440.54	2459.95
3579.	0.00	0.04	440.53	2447.55
3584	0.00	0.04	440.53	2435.19
3589.	0.00	0.04	440.53	2422.84

hhh ROUTING OUTPUT SUMMARY hhh

Peak Outflow = 40.46 cfs
Maximum Water Surface Elevation = 444.84 feet
Storage Volume At Peak Outflow = 30163 c.f.
Time For Full Drawdown Exceeds 59.81 hours !!
Inflow & Outflow Hydrographs File == cam100.OUT



Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 30 of 33

Huntley, Nyce & Associates, Ltd.
SURVEYING • CIVIL ENGINEERING • LAND PLANNING
7202 POPLAR ST
ANNANDALE, VIRGINIA 22003
703-750-3490
45150 RUSSELL BRANCH PARKWAY
SUITE 100
ASHBURN, VIRGINIA 22011
703-729-0145 METRO 478-1051

COMMONWEALTH OF VIRGINIA
CHARLES J. HUNTLEY
CERTIFICATE
LAND SURVEYOR

CAMBRYAR (FORMERLY ODDENINO PROPERTY)
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA
STORM WATER MANAGEMENT

SCALE: NONE
DATE: 12/10/93
REVISIONS:
3-7-95 REV CONS AREA IN BMP CALC

SHEET 12 OF 21
FILE NO. PP - 2074

OPTION B FOR INFORMATIONAL PURPOSES ONLY 10/19/11

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
9-30-93 5-18-94 4-19-95	3	VA.			R000-029-249 RW-225, C-525	25

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

LIMITED ACCESS HIGHWAY By Resolution of State Highway and Transportation Board, dated July 16, 1987

ELECTRIC (VIRGINIA POWER) (E)
TELEPHONE (C & P TELEPHONE CO.) (T-C)
WATER (FAIRFAX CO. WATER AUTHORITY) (10" W)
CABLE TV (MEDIA GENERAL) (CATV)
STORM SEWER (FAIRFAX CO. DEPT. OF PUBLIC WORKS) (12" CMP)

DESIGNED BY ____ DATE ____
CHECKED BY ____ DATE ____
DRAFTED BY ____ DATE ____
DRAFT. CHK. BY ____ DATE ____
TECH. REVIEW BY ____ DATE ____
SUPERVISED BY ____ DATE ____
QIC CHECKED BY ____ DATE ____
VA CHECKED BY ____ DATE ____

PLAN SURVEYED PLOTTED NOTEBOOK AS-BUILT CHECKED FIELD CHECKED

PREPARED BY WILBUR SMITH ASSOCIATES BTML DIVISION FALLS CHURCH, VIRGINIA

197 PARCEL 33A
THE PRICE COMPANY & P & K GROUP II PROP.
D.B. 8133 P. 1905
16.33 AC.
56-1-01-33A

216 PARCEL 35
SEPTIC FIELD
ROBERT P. WARHURST & HAMPTON WILLIAMS III
D.B.7082 P.1148
7.6680 AC.
56-1-001-35

217 PARCEL 36
JAMES L. YVONNE SNYDER
D.B.3394 P.194
6.45 AC.
56-1-001-36

218 PARCEL 37
FRANK M. LE ROUX, TRUSTEE
D.B. 6957 P. 1196
12.911 AC.
56-1-001-37

254 PARCEL 4B
D.B. 8133
PG. 1905

EXIST. S.W.M. POND

EXIST. SAN. SEWER & ACCESS ESM'T. D.B. 8133 PG. 1929

EXIST. STORM DRAINAGE EASEMENT D.B. 8153 PG. 1929

LIMIT OF CONSTRUCTION STA. 11+88.00

EXIST. R.O.W.

STA. 11+75 12" STD. CG-9D

P.O.T. STA. 168+20.57 & CONSTR. RTE. 29 = P.I. STA. 10+00.00 & CONSTR. LEGATO ROAD

PROP. TEMP. CONSTR. & GRADING ESM'T.

PROP. STORM DRAIN ESM'T.

PROP. R.O.W.

PROP. TEMP. CONSTR. & GRADING EASEMENT

SEE SHEET 24 MATCHLINE STA. 160+50

MATCHLINE STA. 175+50 SEE SHEET 26

EXIST. R.O.W.

℄ RTE. 29

RETAINING WALL ST'D. RW-3 REQ'D. (SEE SHT. 2u-1 FOR DETAILS)

195 LOT 28 ROBERT M. WRIGHT D.B.6883 P.735 20,281 SQ.FT. 56-1-28

264 LOT 27 RICHARD JACOB! D.B.8553 P.1728 20,911 SQ.FT. 56-1-27

265 TOP= 410.90 INV. IN= 406.78 INV. OUT= 406.68

TOP= 409.33 INV. IN= 405.54 INV. OUT= 405.17

PARCEL "F" FAIRFAX COUNTY PARK AUTH. D.B.4376 P.335 3.2373 AC. 56-3-7-

EX. FLOOD PLAIN ESM'T. D.B. 4376

EXIST. 20' SAN. SEW. ESM'T. D.B. 5882 P. 1391

EXIST. 30' STORM DRAIN ESM'T. D.B. 5882 P. 1391

EXIST. CONC. DITCH

4' CHW 2.5X4 OVAL CMP INV. OUT= 403.61

SEE DETAIL "A" BELOW

INV. OUT= 403.24

EXIST. 10' STORM DRAIN ESM'T. D.B. 7615 P. 0244

EXIST. 15' F.C.W.A. ESM'T D.B. 5518 P.G. 616

PROF. TEMP. CONST. & GRADING ESM'T.

213 PARCEL 13
MERRIFIELD GARDEN CENTER CORP.
D.B. 5518 P. 628
32.9745 AC.
56-3-001-13

TOP= 411.96 INV. IN= 408.27 INV. OUT= 408.31

A RTE. 29 STA. 166+45 (79' RT.)
B RTE. 29 STA. 169+65 (78' RT.)

TOP= 408.84 INV. IN (18")= 405.64 INV. IN (15")= INV. OUT (42")= 404.70

214 PARCEL 14
ALFRED T. CONNOR
D.B. 3899 P.879
5.001 AC.
56-3-001-14

TOP= 422.65 INV. IN= 416.59 INV. OUT= 416.18

TOP= 419.67 INV. IN (18")= 415.13 INV. IN (27")= 414.63 INV. OUT (30")= 414.48

EXIST. STORM DRAIN ESM'T. D.B. 5426 PG. 1826

215 PARCEL 15A
JANG BAK SOOK
D.B. 7534 P. 845
1.3008 AC.
56-3-001-15A

PROP. TEMP. CONSTR. & GRADING ESM'T.

EXIST. 10' SAN. SEW. EASEMENT D.B. 5426 PG. 1826

LOT 2 CHARLES & BEVERLY WORTHINGTON D.B. 8104 P. 1423 26,465± SQ.FT. 56-3-001-

SEE SHEET 28-3 & 28-6 FOR DESCRIPTION OF DRAINAGE STRUCTURES

DETAIL "A" (NOT TO SCALE)
2' 10' 2 1 18" DRYSTONE RIPRAP CLASS I

FOR FIGURES IN< >, SEE SHEET NO. 2H

FIGURES IN BRACKETS & DOT DASHED LINES DENOTE (PERMANENT) STORM DRAINAGE EASEMENTS.

FIGURES IN PARENTHESIS & DOT-DOT DASHED LINES DENOTE TEMPORARY CONSTRUCTION & GRADING EASEMENTS.

DASHED LINES DENOTE APPROX. LIMITS OF GRADING (SHORT DASHES &/OR "-|-" DENOTE CUT, LONG DASHES &/OR "-|F-" DENOTE FILL.)

FOR MODIFIED PE-1 DETAILS, SEE SHEET NUMBER 2J-10

HATCHED AREAS DENOTE AREAS OF DEMOLITION OF PAVEMENT

DOTTED AREAS DENOTE AREAS OF WIDENING OF EXISTING PAVEMENT

49 UNDERDRAIN ST'D. UD-2 REQ'D.
50 UNDERDRAIN MOD. UD-4 REQ'D.

(A) TO BE RELOCATED(BY OTHERS)
(B) TO BE REMOVED
(C) TO BE ABANDONED
(D) TO BE ADJUSTED

18 MEDIAN BARRIER ST'D. MB-3 REQ'D.
1 TEMPORARY SILT FENCE REQ'D.
2 TEMPORARY FILTER BARRIER REQ'D.
3 TEMPORARY DROP INLET SILT TRAP REQ'D.
20 GUARDRAIL ST'D. GR-2 REQ'D.
25 GUARDRAIL TERMINAL ST'D. GR-7 REQ'D.

PROFILE INDEX
MARYMEAD SERV.-RD.26B
MERRIFIELD SERV.-RD.26B
E.B. RTE. 29 25A-1
W.B. RTE. 29 25A-2
LEGATO RD. 25B
MARYMEAD DR. 25B
MERR. GARDEN CTR. 24C
DRIVEWAYS 25B

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan 11-28-2011
SEE DEV CONDS DATED
Date of (BOS) (BZA) approval 1-10-2012
Sheet 31 of 33

SCALE 0 50 100

PLAN NO A | PROJECT R000-029-249 | FILE NO. | SHEET NO 25

A2502-1

129

VDOT NO. 6013

OPTION B FOR INFORMATIONAL PURPOSES ONLY 10/19/11 31 OF 33

Proposed Expansion to Existing Lot
PENDING SITE PLAN APPROVAL #6442-SP-02-1

Interparcel Access to Existing Price Club
40' Access/Entrance Drive
PRIVATE STREET: SEE SECTION SHEET 1
ENTRANCE SIGN

Proposed Hunters Lodge OR EATING ESTABLISHMENT
4,500 SF ON SECOND FLOOR

MAC D ASSOC. & RALPH LOUK & CALDWELL KENDRICK
ZONE : R-1
USE : SINGLE FAMILY

Road Dedication
VARIES FOR WEST OX ROAD IMPROVEMENTS
APPROXIMATE 31,295 S.F.

Pedestrian Amenities
BENCHES AND TRASH RECEPTACLES - TYPICAL
BIKE RACK

35' Transitional Screening Yard
AS PER ARTICLE 13. REQUEST MODIFICATION OF BARRIER - SEE NOTE 13.

Proposed Retail Center
52,776 S.F. MAX. BUILDING HEIGHT 40'
1 & 2 STORY

Proposed Storm Water Mgmt Pond
Wet pond designed in accordance with applicable Best Management Practices including criteria governing recommended slope and average depth. Pond is designed to restrict post development peak run-off volume of the two year design storm to 50% of the predevelopment peak run-off. The side slopes and retaining wall configuration as shown will be honored within the limits of final engineering practices. Baffles required to ensure desired length of flow within the pond will be provided during final site plan if determined necessary during final design and analysis. Conformance with the July 1987 edition of the Council of Governments Manual for Controlling Urban Runoff will be followed to the extent feasible.

Proposed Limits of Clearing and Grading

PRICE COMPANY
ZONE : C-8
USE : COMMERCIAL

Private Street as per Site Plan #6552-SP-02

Proposed Sidewalk/Trail
AS PER THE COMPREHENSIVE PLAN, CONNECT TO SIDEWALK IN PINEY BRANCH ROAD

Proposed Parking Lot Landscaping
AS PER ARTICLE 13

ENTRANCE SIGN

35' Transitional Screening Yard
AS PER ARTICLE 13. REQUEST MODIFICATION OF BARRIER - SEE NOTE 13.

P&K ASSOC.
ZONE : R-8
USE : VACANT LAND

Road Improvements
AS PER PROFFERS ASSOCIATED WITH RZ-87-S-023A

Building B
6,000 SF.
9,000 SF.
9,100 SF.
28,676 SF.

Building A
19,620 SF.
20,000 SF.
102,150 SF.

Movable planters, coordinated with the architecture and site furnishings and planted with seasonal display, will be strategically located at the entrances along the front of Retail Building A

Movable planters, coordinated with the architecture and site furnishings and planted with seasonal display, will be strategically located at the entrances along the front of Retail Building B

LOADING
Stop Sign
6.5' TYP.
ROUTE 608 WEST OX ROAD (ROW VARIES)
PINEY BRANCH ROAD (EXTENDED) (ROW VARIES)
Section A sheet 1
Section B sheet 1
FUTURE FACE OF CURB
TRANSFORMERS

CURVE DATA

	DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD DIST.
①						
②	28°00'04"	80.00'	39.10'	19.95'	N 02°29'29"W	38.71'
③	01°01'04"	11500.00'	204.28'	102.14'	S 73 57'50"W	204.23'
4	03°07'02"	630.00'	34.22'	17.14'	N 15°57'27"W	34.21'
5	07°48'21"	1284.12'	174.81'	87.61'	N 30°37'54"W	174.81'
6	01°13'29"	3690.81'	78.90'	39.45'	N 25°21'51"W	78.89'

ROUTE 29 (ROW VARIES)
LEE HIGHWAY
C/L OF WEST BOUND LANE
C/L OF ROW

Road Dedication
VARIES FOR LEE HIGHWAY IMPROVEMENTS
APPROXIMATE 112,085 S.F.

APPROVED DEVELOPMENT PLAN
SEE PROFFERED CONDITIONS
Date of (BOS) (BZA) approval 8/5/91
Sheet 2 of 2

35' Transitional Screening Yard
AS PER ARTICLE 13. REQUEST MODIFICATION OF BARRIER - SEE NOTE 13.

Proposed Retail Center
141,770 SF. MAX. BUILDING HEIGHT 30'
1 STORY

Landscape Entry Feature
3-1/2" CALIPER TREES AND ENTRY SIGN

JOHN WINFIELD
ZONE : R-1
USE : VACANT LAND

FRANCES CORNELL
ZONE : R-1
USE : SINGLE FAMILY

ROBERT NESTER
ZONE : R-1
USE : SINGLE FAMILY

ROBERT NESTER
ZONE : R-1
USE : SINGLE FAMILY

WILTON CROUCH
ZONE : R-1
USE : SINGLE FAMILY

ROBERT KUNICK
ZONE : R-1
USE : SINGLE FAMILY

JOHN BRADHAM
ZONE : R-1
USE : SINGLE FAMILY

ROBERT WRIGHT
ZONE : R-1
USE : SINGLE FAMILY

SEE SHEET 1 FOR NOTES, TABS AND LEGEND
SEE SHEET 3 FOR PRELIMINARY UTILITY LAYOUT

Application No SEA 2007-SP-001 Staff B.Krasner
Approved (SE) (SP) Plan
SEE DEV.CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012
Sheet 32 of 33

No.	REVISIONS	DATE	CHKD.
01	Revise Layout	3/27/91	SSW
02	Revised Layout	5/28/91	SSW
03	" "	6/12/91	SSW
04	Added add'l Benches/bike racks & planter pots	7/16/91	SSW
05	Revisions Per Citizen Comments	8-1-91	SSW

PROFESSIONAL SEAL:

PROJECT:
PRICE CLUB
COMMERCIAL SITE
SPRINGFIELD DISTRICT
FAIRFAX COUNTY, VIRGINIA

TITLE:
RZ-87-S-023 B
GENERALIZED DEVELOPMENT PLAN
PRELIMINARY LAYOUT

PHR&A
Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects
3998 Fair Ridge Drive, P.O.Box 901
Fairfax, Virginia 22030
703-273-8700

Offices:
Fairfax, Va.
Bridgewater, Va.
Leesburg, Va.
Rockville, Md.
Virginia Beach, Va.
Chantilly, Va.
Winchester, Va.

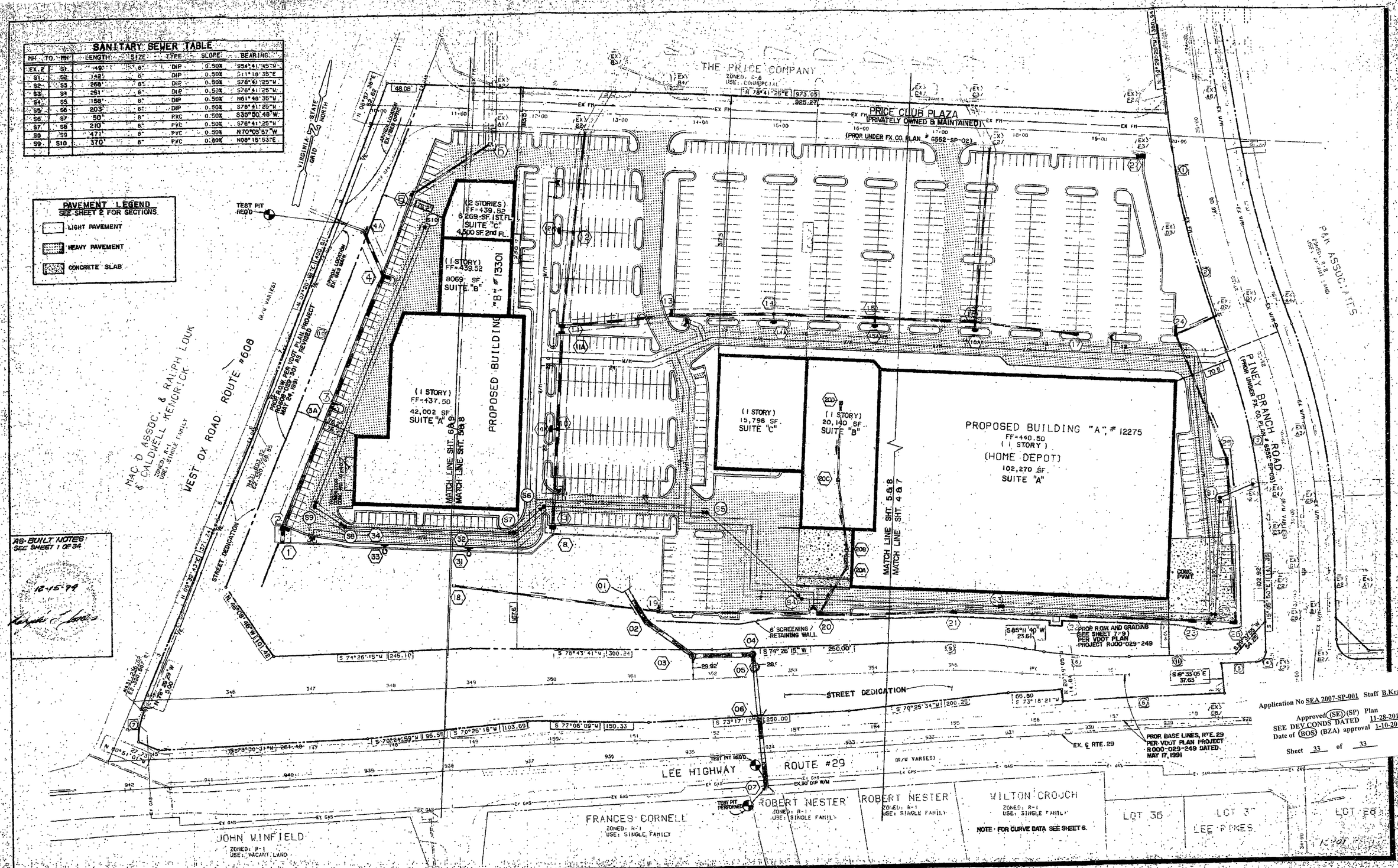
SURVEY: PHR&A	DATE: Rev. NOV 21, 1990 AUG. 1990
DESIGN: SSW	DRAWN: DWP/CADD
CHKD.: SSW/TDR	SCALE: C.I. 1"=50' 2'
SHEET 2 OF 3	FILE NO.: 6349-1-0

SANITARY SEWER TABLE

MH	TO MH	LENGTH	SIZE	TYPE	SLOPE	BEARING
EX.2	S1	49'	8"	DIP	0.50%	S54°41'35"W
S1	S2	142'	8"	DIP	0.50%	S11°18'35"E
S2	S3	268'	8"	DIP	0.50%	S78°41'25"W
S3	S4	251'	8"	DIP	0.50%	S78°41'25"W
S4	S5	158'	8"	DIP	0.50%	N61°48'35"W
S5	S6	203'	8"	DIP	0.50%	S78°41'25"W
S6	S7	50'	8"	PVC	0.50%	S35°50'48"W
S7	S8	210'	8"	PVC	0.50%	S78°41'25"W
S8	S9	471'	8"	PVC	0.50%	N70°03'37"W
S9	S10	370'	8"	PVC	0.80%	N08°15'53"E

PAVEMENT LEGEND
SEE SHEET 2 FOR SECTIONS

- LIGHT PAVEMENT
- HEAVY PAVEMENT
- CONCRETE SLAB



AS-BUILT NOTES:
SEE SHEET 1 OF 34

12-15-94

Application No SEA 2007-SP-001 Staff B.Krasner

Approved (SE) (SP) Plan
SEE DEV CONDS DATED 11-28-2011
Date of (BOS) (BZA) approval 1-10-2012

Sheet 33 of 33

No.	REVISIONS	DATE	CHKD.
6	CHANGE ORDER 4	9/9/92	PG
4	REVISE PARKING SPACES & TRASH COMPACTOR PAD ADD TRANSFORMER PAD	7/28/92	PG
3	CHANGE ORDER 3	7/22/92	PG
2	CHANGE ORDER 1	5/22/92	PG
1	ADDENDUM #1	3/13/92	PG
	BID SET 2-25-92		

PROFESSIONAL SEAL: COMMONWEALTH OF VIRGINIA — J. KEITH SINGLAR, JR. — NO. 11195 — 10/15/91 — PROFESSIONAL ENGINEER

PROJECT: PRICE CLUB PLAZA
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

TITLE: "AS-BUILT" OVERALL LAYOUT PLAN

PHR&A
Patton Harris Rust & Associates, pc.
Engineers, Surveyors, Planners, Landscape Architects
3959 Fair Ridge Drive, P.O. Box 301
Fairfax, Virginia 22030
703-273-6700

Offices:
Fairfax, Va.
Bridgewater, Va.
Leesburg, Va.
Rockville, Md.
Virginia Beach, Va.
Chantilly, Va.
Winchester, Va.

SURVEY PHR&A	DATE OCTOBER 1991
DESIGN B	DRAWN JDP/CJM
CHKD. TPM	SCALE 1"=50'
SHEET 3 OF 34	FILE NO. 6349-2-0

OPTION B FOR INFORMATIONAL PURPOSES ONLY 10/19/11 33 OF 33