GUNSTON CENTER, L.L.C.

GENERALIZED DEVELOPMENT PLAN

RZ 2004-MV-020
APPLICATION NO _____ STAFF CSB
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 6/15/05
DATE OF (BOS) (PC) APPROVAL 6/20/05
SHEET 1 OF 15

NOTES:

1. OWNER/DEVELOPER:
   GUNSTON CENTER, L.L.C.
   44330 MERCURE CIRCLE
   SUITE 150
   DULLES, VA 20166
   (DB 14938 PG 0863)
2. THE PROPERTIES SHOWN ON THIS PLAN ARE IDENTIFIED ON THE FAIRFAX COUNTY ZONING MAP AS 113-3-01-0040 AND 113-3-01-0041 AND HAVE RESPECTIVE AREAS OF ±182,598 SF OR ±4.19 AC AND ±430,403 SF OR ±9.88 AC.
3. PARCEL 40 IS CURRENTLY ZONED R-1 AND PARCEL 41 IS CURRENTLY ZONED I-4 and R-1. THIS REZONING APPLICATION REQUESTS PARCEL 40 AND PART OF PARCEL 41 TO BE REZONED TO THE I-4 ZONING DISTRICT. PROPOSED USE ON PARCEL 41 IS INDUSTRIAL.
4. PROPOSED DEVELOPMENT ON PARCEL 40 IS LIMITED TO INSTALLATION OF SANITARY SEWER. PARCEL 40 WILL THEN BE CONVEYED TO THE FAIRFAX COUNTY PARK AUTHORITY. THIS CONVEYENCE WILL OCCUR UPON RECORDATION OF THE PLAT THAT WILL ACCOMPANY THE SUBMITTAL OF A REVISED SITE PLAN INCORPORATING THIS APPROVED REZONING.
5. WITH THE EXCEPTION OF THE RIGHT OF WAY RESERVATION FOR THE EXTENSION OF FURNACE ROAD PROVIDED WITH APPROVED SITE PLAN #1001-SP-01-2, THERE ARE NO PUBLIC FACILITIES PROPOSED WITH THIS DEVELOPMENT.
6. THE BOUNDARY INFORMATION IS FROM A SURVEY BY CHRISTOPHER CONSULTANTS, LTD. TOPOGRAPHIC INFORMATION IS FROM A FIELD RUN SURVEY BY WALTER L. PHILLIPS, INC. DATUM IS USGS (FAIRFAX COUNTY SANITARY SEWER). CONTOUR INTERVALS ARE PROVIDED EVERY TWO FEET.
7. THERE ARE EXISTING/PROPOSED INDUSTRIAL USES SURROUNDING THE PROPERTY. THE PROPOSED INDUSTRIAL USE WILL NOT POSE ANY ADVERSE IMPACTS ON THE ADJACENT OR NEIGHBORING PROPERTIES.
8. THERE ARE NO PROPOSED SPECIAL AMENITIES FOR THIS PROPERTY.
9. IT IS ANTICIPATED THAT DEVELOPMENT OF THE SANITARY SEWER EXTENSION WILL OCCUR IMMEDIATELY FOLLOWING COUNTY APPROVAL OF THE REZONING. CONSTRUCTION OF THE PROPOSED DEVELOPMENT ON PARCEL 41 HAS ALREADY BEGUN.
10. A REVIEW OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR FAIRFAX COUNTY, VIRGINIA, COMMUNITY PANEL #515525-0012SD, DATED MARCH 5, 1990, DESIGNATES THAT PORTIONS OF THE REFERENCED PROPERTY, AS SHOWN, AS BEING IN ZONE AE, AREAS INUNDATED BY THE 100-YEAR FLOODPLAIN, AND THE REMAINDER OF THE REFERENCED PROPERTY IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN. LIMITS OF RESOURCE PROTECTION AREA AS SHOWN ON PLAN.
11. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO GRAVES LOCATED ON THE SITE.
12. ALL EXISTING ON-SITE IMPROVEMENTS WHICH CONSIST OF EITHER OVERHEAD OR UNDERGROUND UTILITIES WILL REMAIN.
13. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO KNOWN UTILITY EASEMENTS ON THE PROPERTY HAVING A WIDTH OF 25 FEET OR MORE.
14. THIS PROPOSED DEVELOPMENT COMPLIES WITH THE CURRENT COMPREHENSIVE PLAN RECOMMENDATION.
15. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO HAZARDOUS SUBSTANCES ON THIS PROPERTY.
16. WITH THE EXCEPTION OF THE RPA AND CONSERVATION EASEMENTS, THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES ON THIS PROPERTY DESERVING OF PROTECTION AND/OR PRESERVATION.
17. A GEOTECHNICAL REPORT (#1001-SR-01) WAS APPROVED FOR THIS PROPERTY ON AUGUST 22, 2002.
18. VDOT APPROVED ENTRANCE MODIFICATIONS TO FURNACE ROAD ON JANUARY 23, 2003; AND, A PERMIT HAS BEEN ISSUED FOR THIS WORK.
19. ROAD IMPROVEMENTS ARE PRESENTLY UNDER CONSTRUCTION AND SHOULD BE COMPLETED IN 2005.
20. SITE IS SERVED BY PUBLIC WATER AND SEWER.
21. WQ AND SWM MEASURES ARE NOT NECESSARY FOR PARCEL 40, AS IT IS TO BE CONVEYED TO THE FCPA AS OPEN SPACE. WQ AND SWM MEASURES FOR THE DEVELOPMENT OF PARCEL 41 WERE APPROVED AS PART OF SITE PLAN 1001-SP-01. ADEQUATE OUTFALL WAS REVIEWED AND APPROVED BY FAIRFAX COUNTY DPWES AS PART OF THE SITE PLAN APPROVAL PROCESS. SEE SHEETS 10A-F FOR APPROVED SWM, WQ, AND OUTFALL COMPUTATIONS.

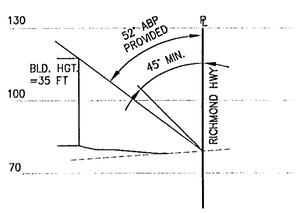
SHEET INDEX

1. COVER SHEET
2. OVERALL PLAN
3. OVERALL PLAN
4. GENERALIZED DEVELOPMENT PLAN
5. GENERALIZED DEVELOPMENT PLAN
6. GENERALIZED DEVELOPMENT PLAN
7. GENERALIZED DEVELOPMENT PLAN
8. EXISTING VEGETATION MAP
9. EXISTING VEGETATION MAP

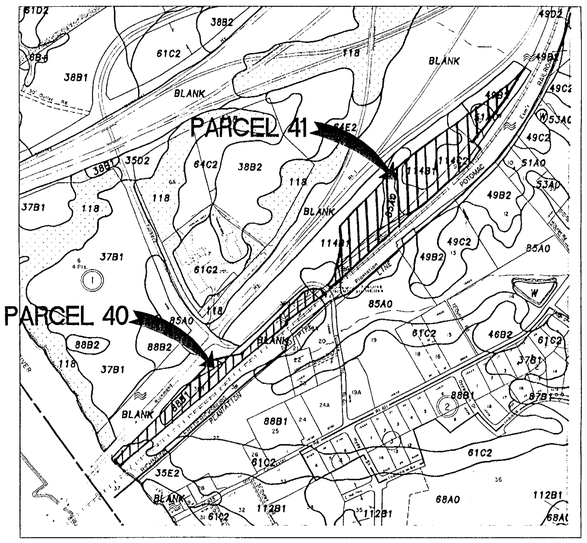
10A-F. SWM, BMP, AND OUTFALL PLANS (FROM 1001-SP-01)

APPROVED WAIVERS (PER 1001-SP-01):

1. WAIVER #024703: TRANSITIONAL SCREENING YARD AND BARRIER REQUIREMENTS ARE WAIVED FOR THE EASTERN AND WESTERN BOUNDARIES, AND THE SOUTHERN BOUNDARY WEST OF FURNACE ROAD. THE TRANSITIONAL SCREENING REQUIREMENT ALONG THE SOUTHERN BOUNDARY EAST OF FURNACE ROAD IS MODIFIED. THE BARRIER REQUIREMENT ALONG THE SOUTHERN BOUNDARY EAST OF FURNACE ROAD IS WAIVED. – SEPTEMBER 30, 2002
2. WAIVER #024319: FRONTAGE IMPROVEMENT ALONG RICHMOND HIGHWAY – AUGUST 16, 2002
3. WAIVER #024318: FRONTAGE IMPROVEMENT ALONG FURNACE ROAD – JULY 30, 2002
4. WAIVER #024317: RICHMOND HIGHWAY SERVICE DRIVE – JUNE 24, 2002
5. WAIVER #024719: STORMWATER MANAGEMENT AND OUTFALL REQUIREMENTS– OCTOBER 21, 2002



ANGLE OF BULK PLANE DETAIL
SCALE: 1" = 30'



SOILS MAP
SCALE: 1"=500'

SOIL INFORMATION SHOWN IS TAKEN FROM FAIRFAX COUNTY SOILS MAP.

SOILS DATA

SOIL ID	SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODABILITY	GEOTECH REPORT REQUIRED
35E2	MANTEO	GOOD	MARGINAL	GOOD	MODERATE	NO
88B1	HIWASSEE	GOOD	GOOD	GOOD	MODERATE	NO
85A0	ELKTON	POOR	POOR	GOOD	SLIGHT	YES
114B1 114C2	MASADA	GOOD	GOOD	GOOD	MODERATE	NO
51A0 51A0	KEYPORT	FAIR	FAIR	GOOD	MODERATE	NO

PARKING REQUIREMENTS (PARCEL 41):

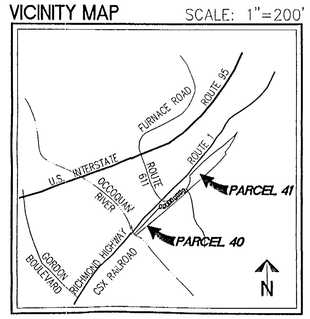
WAREHOUSING: 1 SP/1.5 EMPL X 40 EMPL =	60 SPACES
1 SP/CO. VEHICLE X 10 VEHICLE =	10 SPACES
1 SP/VISITOR X 10 VISTORS =	10 SPACES
	80 SPACES

(MIN. REQUIRED : 1 SP/1,000 G.S.F. X 101,985 S.F. = 102 SPACES

PARKING PROVIDED: 160 SPACES, INCLUDING 5 HANDICAPPED (3 VAN)

*NO PARKING REQUIRED FOR PARCEL 40 USE
(AT TIME OF FINAL SITE PLAN, TOTAL PARKING TO BE IN ACCORDANCE WITH SECTION 11 OF THE ZONING ORDINANCE, BASED ON USES.)

VICINITY MAP SCALE: 1"=200'



ZONING TABULATION

EXISTING ZONE: R-1, RESIDENTIAL DISTRICT (1 DU/AC)
I-4, MEDIUM INTENSITY INDUSTRIAL DISTRICT

PROPOSED ZONE:	PARCEL 40 R-1		PARCEL 41 I-4	
	REQUIRED, R-1	PROVIDED, R-1	REQUIRED, I-4	PROVIDED 1-4
MIN. LOT AREA	36,000 SF	±182,598 SF/±4.19 AC	20,000 SF	±430,403 SF/±9.88 AC
YARD REQUIREMENTS		YARD REQUIREMENTS		
FRONT	50' ABP, 40 FT	N/A	45' ABP, 40 FT	±52 FT
SIDE	45' ABP, 20 FT	N/A	NONE	±69 FT
REAR	45' ABP, 25 FT	N/A	NONE	N/A
MAXIMUM FAR	0.20	N/A	0.50	±0.30
OPEN SPACE	20%	±100%**	15%	±35%
INT. PARKING LOT LANDSCAPING	5%	N/A	5%	5%
MIN. LOT WIDTH	150 FT	43.13* FT	100 FT	59.62* FT
MAX. BLDG. HT.	60 FT	N/A	75 FT	±35 FT

*EXISTING CONDITION
**EXCLUDES EXISTING RIGHT OF WAY RESERVATION AND PROPOSED RIGHT OF WAY DEDICATION

TREE COVER CALCULATIONS

	PARCEL 40 PROVIDED, R-1	PARCEL 41 PROVIDED, I-4
TOTAL SITE AREA	±182,598 S.F.	±430,403 S.F.
DEDICATION AREA	0 S.F.	0 S.F.
BUILDING FOOTPRINT AREA	0 S.F.	−103,254 S.F.
NET SITE AREA	±182,598 S.F.	±327,149 S.F.
PERCENT REQUIRED	X 10 %	X 10 %
TREE COVER REQUIRED	±18,260 S.F.	±32,715 S.F.
TREE COVER PROVIDED (EXISTING SF) X 1.25		69,223 S.F.
TREE COVER PROVIDED	73,826 S.F.	+8,700 S.F.
TOTAL TREE COVERAGE	73,826 S.F.	77,923 S.F.
TOTAL COMBINED TREE COVERAGE	151,749 S.F.	

RECEIVED
Department of Planning & Zoning
JUL 07 2005
Zoning Evaluation Division

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1301 WWW.WLPINC.COM
DRAWN: MEF
DATE: 09/03/04
SCALE: N/A

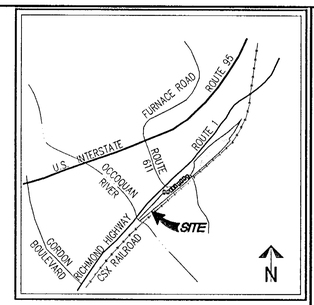
COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
9/3/04
LAND SURVEYOR

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE
1	DPZ COMMENTS	10/7/04			
2	I.N. REVS.	11/15/04			
3	COUNTY REVS.	5/23/05			
4	COUNTY REVS.	6/13/05			

GENERALIZED DEVELOPMENT PLAN

GUNSTON CENTER, L.L.C.
MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA



RICHMOND HIGHWAY - U.S. ROUTE 1
RIGHT-OF-WAY VARIES

NORTH (VCS 83)

100 YR. FLOOD PLAIN LIMIT

N59°31'48"W 62.47'

N42°45'52"E 1,000.91'

EXISTING CONSERVATION EASEMENT (DB 14,323 PG 0127)

RPA LIMIT

EXISTING FLOOD PLAIN EASEMENT (DB 14,323 PG 0127)

PROP. 15' PRIVATE SAN. SEW. EASEMENT

S49°23'37"W 1,512.92'

EXISTING RESERVATION FOR POSSIBLE FUTURE REALIGNMENT OF FURNACE ROAD ♦ (DB 14,323 PG 0127)

N66°30'53"E 216.00'

PROP. 3" PVC FORCE MAIN

PROPOSED FRONTAGE IMPROVEMENTS (PER 1001-SP-01-2)

FURNACE ROAD - ROUTE 611
RIGHT-OF-WAY VARIES

N43°06'54"E 803.87' > PROP. TYPE I, 8' ASPHALT TRAIL (PER 1001-SP-01-2)

N58°23'18"E 52.28'

N68°25'42"E 52.54'

S55°59'42"E 52.74'

120'

S48°15'57"W 342.08'

PROP. 120' R/W RESERVATION FROM EXISTING CENTERLINE OF FURNACE ROAD FOR POSSIBLE FUTURE IMPROVEMENT OF RAILROAD UNDERPASS PER PROFFER 4.

MATCHLINE — SEE SHEET 3 OF 10

OVERALL PLAN *

* SEE SHEETS 4 AND 5 FOR ALL DETAILED DIMENSIONS AND INFORMATION.

0 30 60
(IN FEET)
1 INCH = 60'

RZ 2004-MV-020

APPLICATION NO_____ STAFF CSB

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)

SEE PROFFERS DATED 6/15/05

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 2 OF 15

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE
1	DPZ COMMENTS	10/7/04			
2	DPZ COMMENTS	11/15/04			
3	COUNTY REVS.	3/31/05			
4	COUNTY REVS.	5/13/05			

OVERALL PLAN

GUNSTON CENTER, L.L.C.
MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

WALTER L. PHILLIPS
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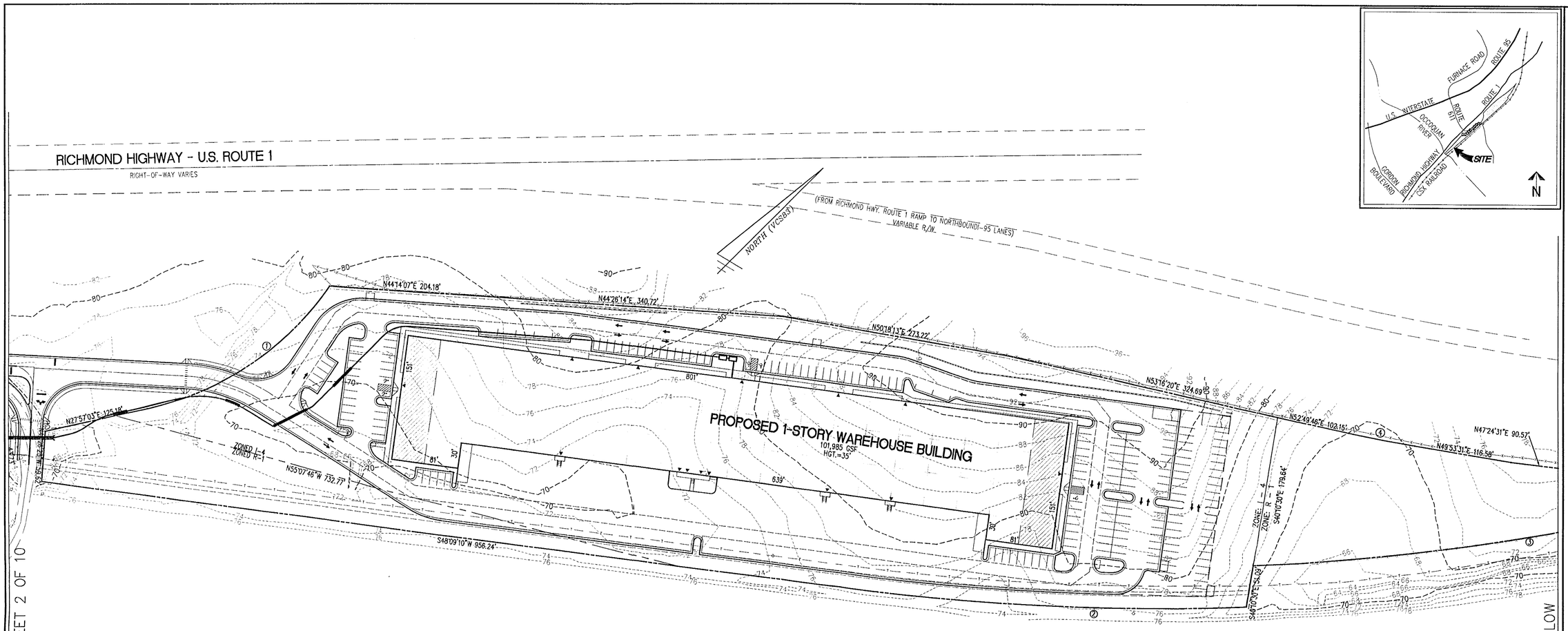
SCALE: 1" =60' | DATE: 09/03/04 | DRAWN: WEF

COMMONWEALTH OF VIRGINIA
CHARLES F. DUDLAP
No. 13098
9/3/04
LAND SURVEYOR

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: GDP_2004/00064gdp Xref: 00064BAS



OVERALL PLAN *

* SEE SHEETS 6 AND 7 FOR ALL DETAILED DIMENSIONS AND INFORMATION.

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
1	361.34'	269.46'	42°43'35"	141.34'	263.26'	N06°35'15"E
2	2,912.90'	499.87'	09°49'56"	250.55'	499.26'	S43°14'12"W
3	2,784.79'	665.70'	13°41'47"	334.45'	664.12'	S31°01'33"W
4	1,468.87'	75.08'	02°55'43"	37.55'	75.07'	N51°21'54"E

0 30 60
(IN FEET)
1 INCH = 60'

RZ 2004-MV-020
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SHEET 3 OF 15

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(703) 532-6163 FAX (703) 533-1301 WWW.WLPINC.COM

SCALE: 1" = 60' DATE: 09/03/04 DRAWN: MEP

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
9/30/04
LAND SURVEYOR

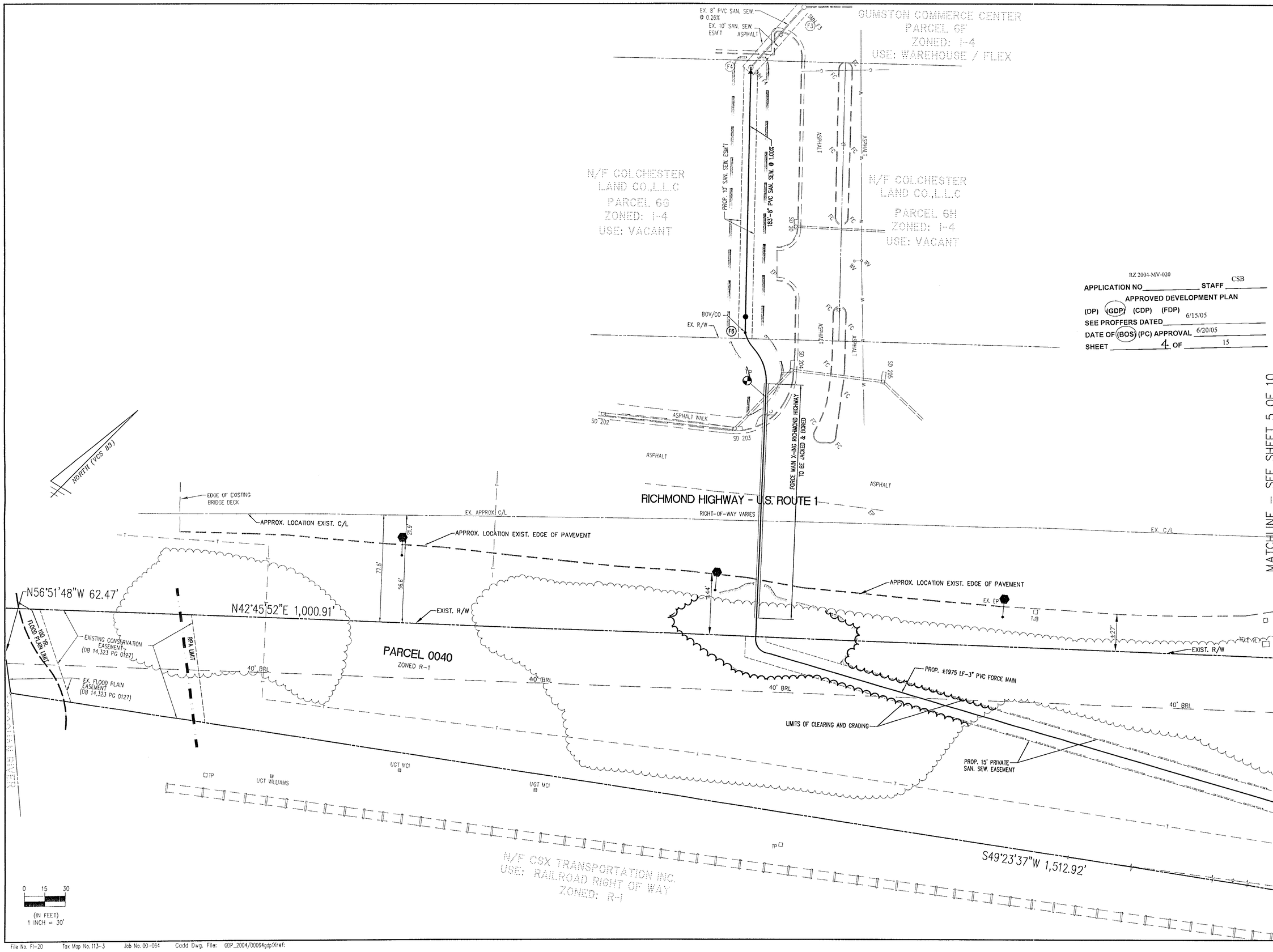
REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE
1	DPZ COMMENTS	10/7/04			
2	DPC COMMENTS	11/16/04			
3	COUNTY REVS.	1/24/05			
4	COUNTY REVS.	5/13/05			

OVERALL PLAN

GUNSTON CENTER, L.L.C.
MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: GDP_2004/00064gdp Xref: 00064BAS



RZ 2004-MV-020

APPLICATION NO _____ STAFF CSB

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)

SEE PROFFERS DATED 6/15/05

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 4 OF 15

GENERALIZED DEVELOPMENT PLAN

GUNSTON CENTER, L.L.C.

MT. VERNON DISTRICT

FAIRFAX COUNTY, VIRGINIA

WALTER L. PHILLIPS
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(703) 532-6163 FAX (703) 533-1301
WWW.WLPINC.COM

DRAWN: MEF

DATE: 09/03/04

SCALE: 1" = 30'

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
9/3/04
LAND SURVEYOR

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE
1	DPZ COMMENTS	10/7/04			
2	LN. REVS.	11/16/04			
3	COUNTY REVS.	3/23/05			
4	COUNTY REVS.	5/13/05			

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: GDP_2004/00064gdp1Xref:

RZ 2004-MV-020 CSB
APPLICATION NO_____ STAFF _____
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(DP) (GDP) (CDP) (FDP) 6/15/05
SEE PROFFERS DATED_____
DATE OF (BOS) (PC) APPROVAL 6/20/05
SHEET 5 OF 15

MATCHLINE – SEE SHEET 4 OF 10

MATCHLINE – SEE SHEET 6 OF 10

NORTH (VCS 83)

RICHMOND HIGHWAY - U.S. ROUTE 1
RIGHT-OF-WAY VARIES

APPROX. LOCATION EXIST. C/L

APPROX. LOCATION EXIST. EDGE OF PAVEMENT

EX. EP

FURNACE ROAD - ROUTE 611
RIGHT-OF-WAY VARIES

N86°30'53"E 216.00'

N45°06'54"E 603.87'

N58°23'18"E 52.26'

N88°25'41"E 52.54'

S55°39'42"E 45.73'

S48°15'57"W 342.08'

PARCEL 0040
ZONED R-1

PROP. 120' R/W RESERVATION FROM EXISTING CENTERLINE OF FURNACE ROAD FOR POSSIBLE FUTURE IMPROVEMENT OF RAILROAD UNDERPASS PER PROFFER 4.

PROPOSED FRONTAGE IMPROVEMENTS (SEE NOTE 18, SHEET 1)

PROP. 6' TRAIL

PROP. TX-1, TYPE I 6' ASPHALT TRAIL (SEE TRAIL NOTE)

PROP. ±1749 LF -3" PVC FORCE MAIN

PROP. ±1749 LF 3" PVC FORCE MAIN

PROP. 15' PRIVATE SAN. SEW. ESM'T.

EX. 15' FCWA ESM'T (B.12252 PG 1099)

EXISTING RESERVATION FOR POSSIBLE FUTURE REALIGNMENT OF FURNACE ROAD * (DB 14,323 PG 0127)

* LOCATION IS APPROXIMATE AND IS SUBJECT TO FINAL PLANS PREPARED BY FAIRFAX COUNTY AND/OR VDOT.

85' ± LIMITS OF 6" CIP SLEEVE FOR FORCE MAIN UNDER FUTURE ROAD

LIMITS OF CLEARING AND GRADING

EXIST. R/W

PROP. 15' STM. DRAIN. ESM'T

12"-24"RCP CL 3 @ 0.53%

44"-15" RCP CL 3 @ 6.70%

42"-24"RCP @ 2.28%

40' BRL

80'

87.8'

±38'

±50'

±30'

±25'

4' CLF

EX. 12" D.I.P. W/M

EX. 12" W/M

EX. 12"x8" TEE 1-8" VALVE

TEL VAULT

RR SIGNAL STATION

RET WALL

N/F CSX TRANSPORTATION INC.
USE: RAILROAD RIGHT OF WAY
ZONED: R-1

TRAIL NOTE:
THIS TRAIL IS PROPOSED AS PART OF APPROVED SITE PLAN #1001-SP-01.

FURNACE ROAD NOTE:
FRONTAGE IMPROVEMENTS ARE PROVIDED AS PART OF APPROVED SITE PLAN #1001-SP-01.

0 15 30
(IN FEET)
1 INCH = 30'

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE
1	DPZ COMMENTS	10/7/04			
2	LN. REVS.	11/16/04			
3	COUNTY REVS.	1/03/05			
4	COUNTY REVS.	5/13/05			

GENERALIZED DEVELOPMENT PLAN

GUNSTON CENTER, L.L.C.

MT. VERNON DISTRICT

FAIRFAX COUNTY, VIRGINIA

WALTER L. PHILLIPS
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(703) 532-6163 FAX (703) 536-3001

DRAWN: MEF
DATE: 9/03/04
SCALE: 1" =30'

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
9/3/04
LAND SURVEYOR

MATCHLINE 2 – SEE SHEET 5 OF 10

MATCHLINE – SEE SHEET 7 OF 10

RICHMOND HIGHWAY - U.S. ROUTE 1

EX. EP

STREET LIGHT TO BE INSTALLED OPPOSITE ACROSS ROADWAY BY OTHERS

RIGHT-OF-WAY VARIES

APPROX. LOCATION EXIST. EDGE OF PAVEMENT

RF-2-42-12(40) TYP. UTILIZING CUTOFF FIXTURES

APPROX. LOCATION EXIST. C/L

NORTH (VCS 83)

N 6,930,422.084
E 11,844,200.471

EXIST. R/W

4'CLF

8"x8" TEE
1-6" VALVE

45° BEND
22 1/2° BEND

PROP. 15' F.C.W.A. ESM'T

74'-30" RCP CL III STM. SEW. @ 0.60%
6" RD. INV=72.20

LIMITS OF CLEARING & GRADING

EXISTING 3' VIRGINIA PUBLIC SERVICE COMPANY ESM'T DB. 0 PG. 259

RETAINING WALL

PROP. 15' STM. SEW ESM'T

6" RD. INV=74.17

10YR W.S. ELEV. = 78.0

PROP. STM. SEW. ESM'T

N44°26'14"E 340.72'

294'-30" RCP CL III STM. SEW. @ 0.50%

148'-27" RCP CL III STM. SEW. @ 0.75%

45'-LIMITS OF 6" C.I.P. SLEEVE UNDER ROADWAY FOR FORCE MAIN

"STOP" SIGN

EXIST SIGHT DISTANCE ≥ 250'

10'-18" RCP CL III STM. SEW. @ 0.50%

30'-21" RCP CL III STM. SEW. @ 0.50%

PROP. 4' S/W

8" D.I.P. W/M

VPH = 181

PROP. 2274 LF 3" PVC FORCE MAIN

74'-18" RCP CL III @ 0.72%

74'-18" RCP CL III SEW. @ 0.50%

6" D.I.P SLEEVE

EXIST. R/W

ENTRANCE SIGN #2 ON VDOT PROP.

N27°57'03"E 125.18'

20' WIDE VDOT RIP RAP SPILLWAY

64'-21" RCP CL III SEW. @ 1.98%

2 YR. WSE.=69.65
10 YR. WSE.=70.04
FBH WSE.=72.21

PROP. 10' STM. SEW. ESM'T

PROP. 15' F.C.W.A. ESM'T

53'-30" RCP CL III SEW. @ 0.60%

29'-30" RCP CL III STM. SEW. @ 0.20%

PROP. 20' STM. ESM'T

10' CL RIP RAP

TRICKLE CONC. DITCH

APPROVED SWM DRY POND (PER 1001-SP-01-2)
0.33 AC SWM FACILITY TO BE PRIVATELY OWNED AND MAINTAINED

40' BRL

UGI CONTEL

PROP. STM. DRAINAGE EASEMENTS

EXISTING ABANDONED TELEPHONE CABLE

EXISTING 15' CSX OPERATING ESM'T DB. 7922 PG. 31

LIMITS OF CLEARING & GRADING

EX. 20' VERIZON ESM'T (DB7922 PG 88)

CONCRETE TRICKLE DITCH @ 0.50%

N45°26'25"W 59.62'

EXIST SIGHT DISTANCE=250'

GET WALL

VDH

BRL

ASPHALT

EP

N/F CSX TRANSPORTATION INC.
USE: RAILROAD RIGHT OF WAY
ZONED: R-1

PARCEL 004I

PARCEL 9A

ZONED I-4

ZONED R-1

N55°07'46"W 732.71'

S48°09'10"W 956.24'

PROPOSED 1-STORY WAREHOUSE BUILDING
101,985 SF
HGT.=35'

MEZZANINE AREA

DISABLE PARKING SIGNS (TYP.)

SIAMESE CONNECTION

6' CONC. S/W

PROP. 10' F.C.W.A. ESM'T

"STOP" SIGN

100'-6" PVC @ 5.3%

PROP. 15' STM. SEW. ESM'T

6" RD. INV.=77.50

PROP. 2274 LF 3" PVC FORCE MAIN (SEE NOTE 3)

ROOF DRAIN (TYP.)

4" CONC. SIDEWALK

PROP. 15' F.C.W.A. ESM'T

52'-6" PVC @ 5.62%

6" RD. INV=77.09

6" RD. INV.=77.50

801'

3" FORCE MAIN TO CONNECT TO INTERNAL GRINDER PUMP

6" FROM RD INV=75.28

16 SPACES

40' BRL

85'-6" PVC @ 0.5%

148'-27" RCP CL III STM. SEW. @ 0.75%

HW

EX. INV=61.1

EX. RIP RAP

105'R

116'-30" RCP CL III SEW. @ 0.50%

80'-36" RCP CL III STM. @ 10.30%

INV=84.13

193'-30" RCP CL III STM. SEW. @ 0.50%

22 1/2° BEND

TP

3/4" DOMESTIC TAP

PROP. 15' F.C.W.A. ESM'T

EXISTING ABANDONED TELEPHONE CABLE

160'-27" RCP CL III STM. SEW. @ 0.50%

7'-12" RCP CL II @ 3.57%

PROP. 10' STM. SEW. ESM'T

PROP. 10' F.C.W.A. ESM'T

LIMITS OF CLEARING & GRADING

PROP. 15' STM SEW. ESM'T

LOADING DOCK AREA

6" RD. SPILL OVER GRADE (TYP.)

RAMP

8'x8' CONC. TRANSFORMER PAD

GAS METER

1 1/2" WTR. METER

2" WTR. SVC. LINE

8"x8" TEE
1-8" VALVE

8" FIRE LINE

639'

CG-2

CG-12

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
1	361.34'	269.46'	42°43'35"	141.34'	263.26'	N06°35'15"E
2	2,912.90'	499.87'	09°49'56"	250.55'	499.26'	S43°14'12"W
3	2,784.79'	665.70'	13°41'47"	334.45'	664.12'	S31°01'33"W
4	1,468.87'	75.08'	02°55'43"	37.55'	75.07'	N51°21'54"E

0 15 30

(IN FEET)
1 INCH = 30'

* PLANTING SHALL BE A MIX OF EVERGREEN TREES PERSUANT TO THE APPROVAL OF THE URBAN FORESTRY BRANCH.

RZ 2004-MV-020

APPLICATION NO. _____ STAFF CSB

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)

SEE PROFFERS DATED 6/15/05

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 6 OF 15

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: GDP_2004/00064gdpXref:

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1301 WWW.WLPINC.COM

SCALE: 1" =30' DRAWN: MGT

DATE: 09/03/04

COMMONWEALTH OF VIRGINIA CHARLES F. DUNLAP No. 13098 9/3/04 LAND SURVEYOR

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	APPROVED	DATE
			BY:	
1	DPZ COMMENTS	10/7/04		
2	UL REVS.	11/16/04		
3	COUNTY REVS.	3/23/05		
4	COUNTY REVS.	5/13/05		

GENERALIZED DEVELOPMENT PLAN

GUNSTON CENTER, L.L.C.

MT. VERNON DISTRICT

FAIRFAX COUNTY, VIRGINIA

SHEET: 6 OF 10

MATCHLINE – SEE SHEET 6 OF 10

LIMITS OF CLEARING & GRADING

EXISTING 3' VIRGINIA PUBLIC SERVICE COMPANY ESM'T DB. Q-11 PG. 259

ALL RETAINING WALLS OVER 2' HIGH REQUIRE SEPARATE PERMIT

N50°18'13"E 273.22'

170'-15" RCP @ 5.16%

24" RCP CL III SEW. 0.50% F.H.

PROP. 15' F.C.W.A. ESM'T

156'-6" PVC @ 0.86%

EXIST. R/W

86'-15" RCP @ 0.50%

101'-6" PVC @ 0.5%

PROP. 10' STM. SEW. ESM'T

INV=76.62

INV=77.32

INV=77.15

36'-8" PVC @ 0.5%

8"x6" TEE
1-6" VALVE

8" D.I.P. W/M

19+00

18+00

17+00

16+00

21 SPACES

2 SPACES

4' CONC. SIDEWALK

6" RD. INV.=77.50

6" RD. INV.=77.50

6" RD. INV.=77.50

PROPOSED 1-STORY WAREHOUSE BUILDING

101,985 GSF
HGT.=35'

MEZZANINE AREA

LOADING DOCK AREA

RAMP

30'

81'

PROP. 15' F.C.W.A. ESM'T

8" D.I.P. W/M

11+00

12+00

13+00

9 SPACES

EXISTING 15' CSX OPERATING ESM'T DB. 7922 PG. 31

160'-24" RCP CL IV. @ 0.50%

EX. 20' VERIZON ESM'T

PROP. 15' STM. SEW. ESM'T

118'-21" RCP CL IV @ 0.50%

10'-12" RCP CL IV @ 0.50%

PROP. 10' STM. SEW. ESM'T

N/F CSX TRANSPORTATION INC.
USE: RAILROAD RIGHT OF WAY
ZONED: R-1

45° BENDS

40' BRL

15' W x 35' L CONC. PAD

10'x15' TRASH ENCLOSURE

6' CONC. S/W

151'

10'

18.0'

24.0'

26.0'

16.5'

8 SPACES

3' (TYP.)

15+00

8 PARK SPACES

10 PARK SPACES

9 PARK SPACES

PROP. 15' F.C.W.A. ESM'T

8" D.I.P. W/M

14+00

PROP. 10' F.C.W.A. ESM'T

241.2'

FUTURE POSSIBLE PARKING EXPANSION AREA

PROVIDE DE-1 APRON FOR CSX ACCESS

8"x6" TEE
1-6" VALVE
2-8" VALVES

45° BENDS

EXISTING OPERATING ESM'T DB. 7922 PG. 31

EX. 20' VERIZON ESM'T

PROPOSED PLANTINGS

TP

EX. EP

NORTH (VCS 83)

(FROM RICHMOND HWY. TRF. 1 RAMP TO NORTHBOUND I-95 LANES)

EX. EP

VARIABLE R/W

APPROX. LOCATION EXIST. EDGE OF PAVEMENT

±120'

N53°16'20"E 324.69'

EXISTING 3' VIRGINIA PUBLIC SERVICE COMPANY ESM'T DB. Q-11 PG. 259

EXIST. R/W

N52°49'46"E 102.15'

N47°24'31"E 90.57'

N49°53'31"E 116.58'

EXIST. R/W

MATCHLINE – SEE BELOW

40' BRL

PARCEL 004I

ZONE: I - 4

ZONE: R - 1

S40°10'30"E 179.64'

PROPOSED CONSERVATION EASEMENT (WATER QUALITY MANAGEMENT AREA)

FENCE REMNANTS

EXISTING ABANDONED TELEPHONE CABLE

S40°10'30"E 51.09'

INV=526

63.4' 24" RCP @ 2.38% CONC

UGT QWEST

RIP-RAP

N47°22'16"E 93.22'

N38°19'31"E 127.08'

N37°06'16"E 37.38'

PROPOSED CONSERVATION EASEMENT (WATER QUALITY MANAGEMENT AREA)

TP

NORTH (VCS 83)

MATCHLINE – SEE ABOVE

N/F CSX TRANSPORTATION INC.
USE: RAILROAD RIGHT OF WAY
ZONED: R-1

* PLANTING SHALL BE A MIX OF EVERGREEN TREES PERSUANT TO THE APPROVAL OF THE URBAN FORESTRY BRANCH.

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
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3	2,784.79'	665.70'	13°41'47"	334.45'	664.12'	S31°01'33"W
4	1,468.87'	75.08'	02°55'43"	37.55'	75.07'	N51°21'54"E

0 15 30
(IN FEET)
1 INCH = 30'

RZ 2004-MV-020

APPLICATION NO. _____ STAFF CSB

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)

SEE PROFFERS DATED 6/15/05

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 7 OF 15

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: GDP_2004/00064gdpIXref:

WALTER L. PHILLIPS
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207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046 WWW.WLPINC.COM
(703) 532-6163 FAX (703) 533-3301

SCALE: 1" = 30' DRAWN: MEF DATE: 09/03/04

COMMONWEALTH OF VIRGINIA
CHARLES F. DOUGLAS
No. 13998
9/3/04
LAND SURVEYOR

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE
1	DPZ COMMENTS	10/7/04			
2	LDL REVS.	11/16/04			
3	COUNTY REVS.	3/23/05			
4	COUNTY REVS.	5/31/05			

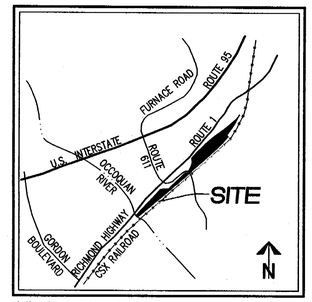
GENERALIZED DEVELOPMENT PLAN

GUNSTON CENTER, L.L.C.

MT. VERNON DISTRICT

FAIRFAX COUNTY, VIRGINIA

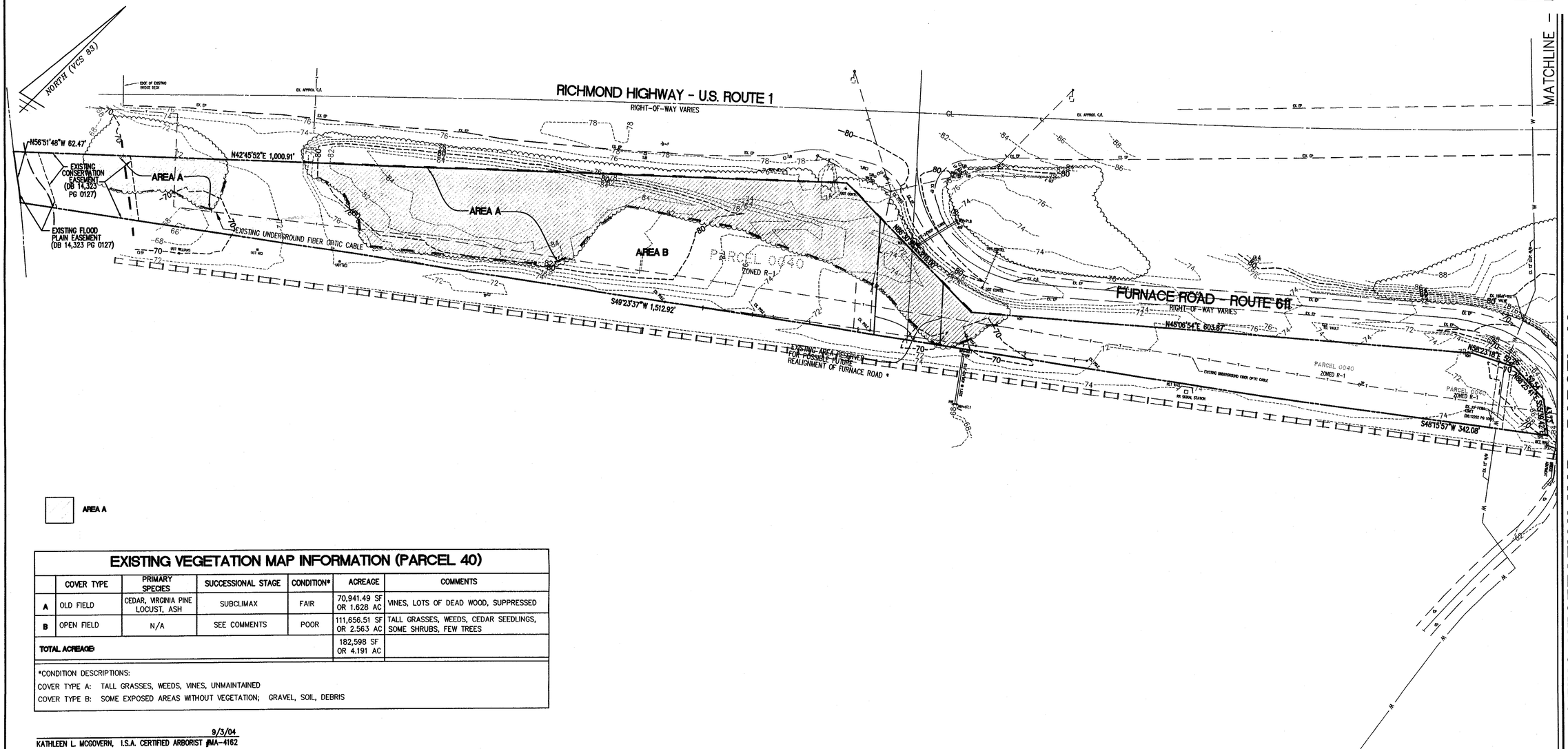
SHEET: 7 OF 10



VICINITY MAP SCALE: 1"=2000'

RZ 2004-MV-020
APPLICATION NO. _____ STAFF CSB
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 6/15/05
DATE OF (BOS) (PC) APPROVAL 6/20/05
SHEET 8 OF 15

OF 10



AREA A

EXISTING VEGETATION MAP INFORMATION (PARCEL 40)

	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION*	ACREAGE	COMMENTS
A	OLD FIELD	CEDAR, VIRGINIA PINE LOCUST, ASH	SUBCLIMAX	FAIR	70,941.49 SF OR 1.628 AC	VINES, LOTS OF DEAD WOOD, SUPPRESSED
B	OPEN FIELD	N/A	SEE COMMENTS	POOR	111,656.51 SF OR 2.563 AC	TALL GRASSES, WEEDS, CEDAR SEEDLINGS, SOME SHRUBS, FEW TREES
TOTAL ACREAGE					182,598 SF OR 4.191 AC	

*CONDITION DESCRIPTIONS:
COVER TYPE A: TALL GRASSES, WEEDS, VINES, UNMAINTAINED
COVER TYPE B: SOME EXPOSED AREAS WITHOUT VEGETATION; GRAVEL, SOIL, DEBRIS

9/3/04
KATHLEEN L. MCGOVERN, I.S.A. CERTIFIED ARBORIST #MA-4162

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(703) 532-6163 FAX (703) 533-1301

SCALE 1" = 30' DRAWN: KLM
DATE: 09/03/04
REV: 5/13/05

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
9/13/04
LAND SURVEYOR

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

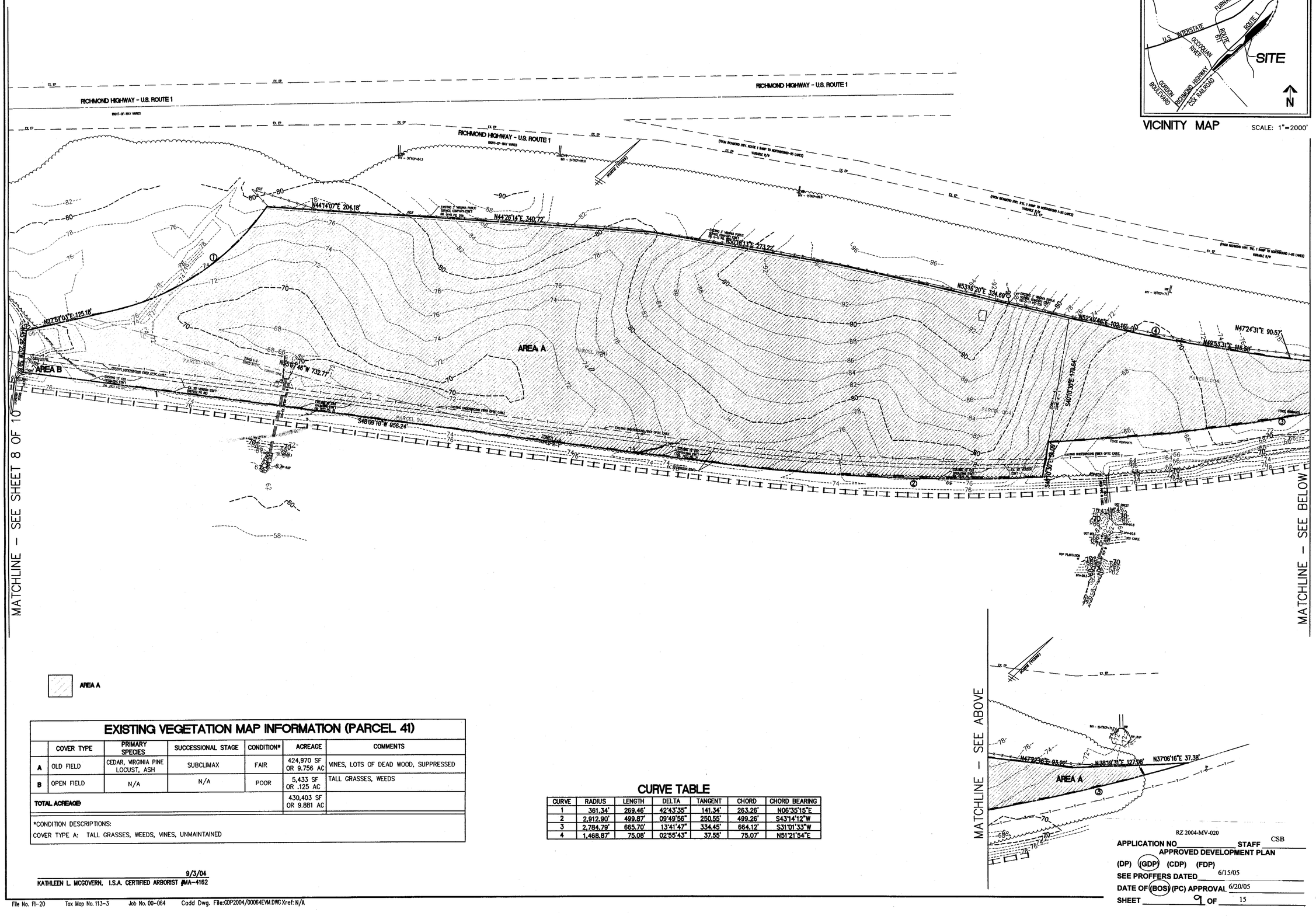
REVISION APPROVED BY

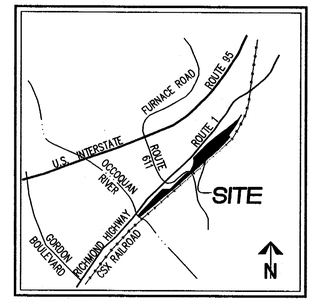
EXISTING VEGETATION MAP - PARCEL 40

GUNSTON CENTER, L.L.C.

MOUNT VERNON DISTRICT

FAIRFAX COUNTY, VIRGINIA





VICINITY MAP SCALE: 1"=2000'

AREA A

EXISTING VEGETATION MAP INFORMATION (PARCEL 41)

	COVER TYPE	PRIMARY SPECIES	SUCCESSIONAL STAGE	CONDITION*	ACREAGE	COMMENTS
A	OLD FIELD	CEDAR, VIRGINIA PINE LOCUST, ASH	SUBCLIMAX	FAIR	424,970 SF OR 9.756 AC	VINES, LOTS OF DEAD WOOD, SUPPRESSED
B	OPEN FIELD	N/A	N/A	POOR	5,433 SF OR .125 AC	TALL GRASSES, WEEDS
TOTAL ACREAGE:					430,403 SF OR 9.881 AC	

*CONDITION DESCRIPTIONS:
COVER TYPE A: TALL GRASSES, WEEDS, VINES, UNMAINTAINED

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BEARING
1	361.34'	269.46'	42°43'35"	141.34'	263.26'	N06°35'15"E
2	2,912.90'	499.87'	09°49'56"	250.55'	499.26'	S43°14'12"W
3	2,784.79'	665.70'	13°41'47"	334.45'	664.12'	S31°01'33"W
4	1,468.87'	75.08'	02°55'43"	37.55'	75.07'	N51°21'54"E

9/3/04
KATHLEEN L. MCGOVERN, I.S.A. CERTIFIED ARBORIST #MA-4162

RZ 2004-MV-020
APPLICATION NO _____ STAFF CSB
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 6/15/05
DATE OF (BOS) (PC) APPROVAL 6/20/05
SHEET 9 OF 15

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SCALE: 1" = 30' DATE: 09/03/04 REV. 5/13/05 DRAWN: KLM

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13998
9/3/04
LAND SURVEYOR

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

REVISION APPROVED BY

EXISTING VEGETATION MAP - PARCEL 41

GUNSTON CENTER, L.L.C.

MOUNT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File:GDP2004/00064EVM.DWG Xref: N/A

STORMWATER MANAGEMENT PROGRAM

STORMWATER MANAGEMENT FOR THIS 14.07 ACRE DEVELOPMENT SHALL BE ACCOMPLISHED BY THE UTILIZATION OF A DRY POND. THE DESIGN PARAMETERS SHALL LIMIT THE STORMWATER RUNOFF FOR THE 2 YEAR AND 10 YEAR STORMS TO THE PRE-DEVELOPMENT LEVELS FLOWING THROUGH THE EXISTING 36" D.I.P. CULVERT PIPE UNDER THE RAILROAD TRACKS NEAR THE SOUTH CORNER OF THE PRO-POSED BUILDING, APPROXIMATELY 380 FEET NORTHEAST OF THE FURNACE ROAD UNDERPASS, OR THE 2 YEAR AND 10 YEAR PRE-DEVELOPMENT FLOWS FROM THE PROPERTY, WHICHEVER IS LESS.

FOR THE PURPOSES OF THIS PLAN, THE PROPERTY IS SEPARATED INTO THE FOLLOWING 3 SUB AREAS: (SEE MAP AT RIGHT)

SUB AREA 1-AREA SOUTH OF FURNACE ROAD UNDERPASS - 4.19 AC.
SUB AREA 2-TAX MAP PARCEL 9C - 1.43 AC.
SUB AREA 3-PROJECT DEVELOPMENT AREA - 8.45 AC.

EXCEPT FOR THE PROPOSED SEPTIC FIELD AND THE EXISTING UTILITIES, SUBAREAS 1 AND 2 ARE TO REMAIN UNDEVELOPED AND UNDISTURBED, SUBAREA. SUBAREA 2 WILLL BE PLACED IN A CONSERVATION/WATER QUALITY MANAGEMENT AREA EASEMENT. THE PROJECT DEVELOPMENT AREA CONSISTS OF THE TWO I-4 ZONED PARCELS 9B AND 9R AND THE PORTION OF PARCEL 9A NORTH OF THE FURNACE ROAD UNDERPASS. EACH SUB AREA IS DISTINCT; AND, IN GENERAL, THE STORM DRAINAGE FLOWS ARE NOT INTERMINGLED AND HAVE SEPARATE OUTFALLS.

1. PREDEVELOPMENT CONDITIONS;

A. 2 YEAR STORM

C=0.20 (TABLE 6.6)
L=640'(LONGEST RUN) H=15'
TIME OF CONCENTRATION=10 MIN.: I=4.60 IN/HR.(PLATE 4-6)
SUBAREA 1: Q2=ACI2=4.19 X 0.2 X 4.60= 3.85 C.F.S.
SUBAREA 2: Q2=ACI2=1.43 X 0.2 X 4.60= 1.32 C.F.S.
SUBARRA 3: Q2=ACI2=8.45 X 0.2 X 4.60= 7.77 C.F.S.
TOTAL=12.94 C.F.S.

B. 10 YEAR STORM

C=0.35 (TABLE 6.6)
TIME OF CONCENTRATION=10 MIN.: I=5.92 IN/HR.
SUBAREA 1: Q10=ACI10=4.19 X 0.35 X 5.92= 8.68 C.F.S.
SUBAREA 2: Q10=ACI10=1.43 X 0.35 X 5.92= 2.96 C.F.S.
SUBAREA 3: Q10=ACI10=8.45 X 0.35 X 5.92=17.51 C.F.S.
TOTAL=29.15 C.F.S

2. POST-DEVELOPMENT CONDITIONS;

A. 2 YEAR STORM

SUBAREAS 1 & 2 = 5.62 AC.
C=0.20; TIME OF CONCENTRATION=10 MIN.: I=4.60 IN/HR.

SUBAREA 3
BUILDING/PVM'T AREA=259,200 S.F.=5.95 AC.; C=0.90
LAWN/OPEN SPACE AREAS=2.50 AC.; C=0.35
C= [(5.95 X 0.90) + (2.50 X 0.35)] / 8.45=0.74
OVERALL "C" WEIGHTED
C= [(5.62 X 0.20) + (8.45 X 0.74)] / 14.07=0.52
TIME OF CONCENTRATION=5 MIN.; I=5.45 IN/HR.
AT TIME = 5 MIN.;

SUBAREA 1 & 2; 5.62 X 0.20 X 2.57= 2.89 C.F.S.
SUBAREA 3; 8.45 X 0.74 X 5.45=34.08 C.F.S.
TOTAL=36.97 C.F.S.*

AT TIME = 10 MIN.;

SUBAREA 1 & 2; 5.62 X 0.20 X 4.60= 5.17 C.F.S.
SUBAREA 3; 8.45 X 0.74 X 3.51=21.95 C.F.S.
TOTAL=27.12 C.F.S.

*GOVERNING FLOW

B. 10 YEAR STORM

SUBAREA 1 & 2: = 5.62 AC.
C=0.35; TIME OF CONCENTRATION=10 MIN.: I=5.92 IN/HR

SUBAREA 3:

BUILDING/PVM'T AREA=259,200 S.F.=5.95 AC.; C=0.90
LAWN/OPEN SPACE AREAS=2.50 AC.; C=0.35
C= [(5.95 X 0.90) + (2.50 X 0.35)] /-8.45=0.74
OVERALL "C" WEIGHTED
C= [(5.62 X 0.20) + (8.45 X 0.74)] / 14.07=0.52
C=0.74: TIME OF CONCENTRATION=5 MIN.; I=7.27 IN/HR

AT TIME = 5 MIN.;

SUBARES 1 & 2: 5.62 X 0.35 X 3.25= 6.39 C.F.S.
SUBAREA 3: 8.45 X 0.74 X 7.27=45.46 C.F.S.
TOTAL=51.85 C.F.S.*
AT TIME = 10 MIN.;
SUBAREAS 1 & 2: 5.62 X 0.35 X 5.92=11.64 C.F.S.
SUBAREA 3: 8.45 X 0.74 X 4.68=29.26 C.F.S.
TOTAL= 40.90 C.F.S.

*GOVERNING FLOW

3. REQUIRED DETENTION:

2 YEAR STORM: 36.97 - 12.94 = 24.03 C.F.S.

10 YEAR STORM: 51.85 - 29.15 = 22.70 C.F.S

(NOTE: ALL OF THE ONSITE AREAS THAT ARE PROPOSED TO BE DISTURBED WITHIN SUBAREA 3 WILL FLOW TO THE SWM FACILITY.)

4. PREDEVELOPMENT RUNOFF TO EXISTING 36" D.I.P. CULVERT

*ONSITE AREA: = 7.65 AC.
*OFFSITE AREA:CSX RAILROAD R/W = 0.78 AC.
VDOT R/W (RTE.1 & I-95)= 8.71 AC.
TOTAL 17.14 AC.

A. 2 YEAR STORM:

ONSITE C=0.20 (TABLE 6.6)
COMPOSITE C FOR OFFSITE VDOT R/W *
=[(0.80AC PVMT X 0.90)+(7.81 AC. GRASS X 0.35)] / 8.61=0.40
OFFSITE "C "FOR RAILROAD R/W =0.40

TIME OF CONCENTRATION = 10 MIN.; I=4.60 IN/HR

Q2=[(7.65 X 0.20)+(9.49 X 0.40)] X 4.60=24.50 C.F.S.

B. 10 YEAR STORM:

ONSITE C=0.35
VDOT & RAILROAD R/W C=0.40
TIME OF CONCENTRATION = 10 MIN.; I=5.92 IN/HR
Q10=[(7.65 X 0.35)+(9.49 X 0.40)]X5.92=38.32 C.F.S.

5 UNDETAINED SUBAREA 3 RUNOFF:

A=0.43 AC
C=0.35
TIME OF CONCENTRATION = 5 MIN.

AT TIME 5 MIN.

Q2 =0.43 AC x 0.35 x 5.45=0.82 CFS
Q10=0.43 AC.x 0.35 x 7.27=1.09 CFS

AT TIME 10 MIN.

Q2 =0.43 AC x 0.35 x 3.51=0.53 CFS
Q10=0.43 AC.x 0.35 x 4.68=0.70 CFS

6 RUNOFF TO SWM POND

OFFSITE AREAS:
(1) RAILROAD RIGHT OF WAY - 0.78 AC @ C=0.40
(2) EXISTING VDOT RIGHT OF WAY

STRS. 15,21,19,18,24 & 28 - 10.77 AC @ C=0.40
STR. 27 - 0.20 AC @ C=0.77
STR. 26 - 0.10 AC @ C=0.70

A x C =(10.77x0.4)+(0.20x0.77)+(0.10x0.70)=4.53 IMP. AC (C=0.41)

ONSITE AREAS:
(1) BLDG. / PVM'T AREA - 5.95 AC @ C=0.90
(2) OPEN SPACE AREA - 2.07 AC @ C=0.35
8.02 AC

A x C =(5.95x0.9)+(2.07x0.35) = 6.06 IMP. AC (C=0.76)

TOTAL = 4.53 + 6.06 = 10.59 IMP. AC

COMPOSITE "C" FACTOR FOR POND = 10.59 IMP. AC./19.09 AC. = 0.55

TIME OF CONCENTRATION: 5 MIN.

2 YEAR STORM: Q=10.59x5.45=57.73 CFS
10 YEAR STORM Q=10.59x7.27=77.00 CFS

7 REQUIRED FLOW REDUCTIONS:

INASMUCH AS THE PREDEVELOPMENT FLOWS TO THE EXISTING 36" CULVERT ARE LOWER AND REQUIRE GREATER RUNOFF FLOW REDUCTION THAN THE STORWATER MANAGEMENT REDUCTIONS, THE CULVERT FLOWS WILL TAKE PRECEDENCE. THE MAXIMUM PERMITTED RUNOFF FROM THE POND IS AS FOLLOWS:

2 YEAR STORM: 24.50 CFS

10 YEAR STORM: 38.32 CFS

8 SUMMARY OF ROUTINGS

PEAK 2 YEAR STORM DISCHARGE: 22.62 CFS
PEAK 10 YEAR STORM DISCHARGE: 32.94 CFS

BOTH THE 2 YEAR AND 10 YEAR STORM DISCHARGES FROM THE POND ARE LESS THAN THE PREDEVELOPMENT FLOWS THE EXISTING 36" CULVERT. THEREFORE, THE STORMWATER MANAGEMENT OBJECTIVE HAS BEEN ACHIEVED.

9 ANALYSIS OF POST DEVELOPMENT RUNOFF FLOWS

2 YEAR STORM:

SUBAREA 1: 3.85 CFS (NO CHANGE)
SUBAREA 2: 1.32 CFS (NO CHANGE)
SUBAREA 3: 0.53 CFS (UNDETAINED)
22.62 CFS (CONTROLLED)

CONTRIBUTING OFFSITE - 24.69 CFS
3.63 CFS TOTAL
(PREDEVELOPMENT FLOW = 12.94 CFS)

10 YEAR STORM:

SUBAREA 1: 6.68 CFS (NO CHANGE)
SUBAREA 2: 2.96 CFS (NO CHANGE)
SUBAREA 3: 0.70 CFS (UNDETAINED)
32.94 CFS (CONTROLLED)

CONTRIBUTING OFFSITE - 32.93 CFS
10.35 CFS TOTAL
(PREDEVELOPMENT FLOW = 29.15 CFS)

10 STORMWATER MANAGEMENT SUMMARY

TOTAL 2 YEAR AND 10 YEAR STORM FLOWS AREA REDUCED TO LEVEL BELOW THE PREDEVELOPMENT CONDITIONS; AND, SURPLUS DETENTION LEVEL IS PROVIDED. (SEE ROUTINGS, SHEET 20)

BMP DESIGN CALCULATIONS/NARRATIVE

1. WATER QUALITY NARRATIVE:

THIS IS A 14.07 AC INDUSTRIAL PROJECT CONSISTING OF A 110,000 GSF WAREHOUSE BUILDING. IT IS EXPECTED THAT APPROXIMATELY ONE-HALF OF THE SITE WILL BE DISTURBED BY THE CONSTRUCTION WITH THE PORTION ON THE NORTH AND SOUTH REMAINING UNDISTURBED. A CONSERVATION EASEMENT/ WATER QUALITY MANAGEMENT AREA IS PROPOSED FOR THE NORTHERN PORTION OF THE SITE.

WATER QUALITY MEASURES FOR THIS SITE WILL BE PROVIDED BY A COMBINATION OF A CONSERVATION EASEMENT AND AN EXTENDED DRAW-DOWN COMPONENT INCORPORATE INTO THE STORMWATER MANAGEMENT POND A MINIMUM PHOSPHOROUS REMOVAL OF 40% IS REQUIRED.

2. WATER SHED INFORMATION:

PART 1 - LIST ALL SUBAREA & "C" FACTORS USED IN THE BMP COMPUTATIONS

(1) DESCRIPTION	(2) "C"	(3) ACRES
A1 SUBAREA 1 (FROM SWM COMP.)	0.20	4.19
A2 SUBAREA 2 (FROM SWM COMP.)	0.20	1.43
A3 ONSITE AREA TO POND	0.76	8.02
A4 UNCONTROLLED ONSITE	0.35	0.43

PART 2 - COMPUTE THE AVERAGE "C" FACTOR FOR THE ENTIRE SITE

(A) AREA OF SITE (a) 14.07 AC

(B) SUBAREA DESIGNATION	"C"		AREAS		PRODUCT
A1	0.20	x	4.19	=	0.84
A2	0.20	X	1.43	=	0.29
A3	0.76	x	8.02	=	6.06
A4	0.35	x	0.43	=	0.15
			(b) TOTAL	=	7.34

(C) WEIGHTED "C" FACTOR (b) / (a) = 0.52

PART 3 - COMPUTER THE TOTAL PHOSPHOROUS REMOVAL FOR THE SITE

SUBAREA DESIGNATION	BMP TYPE	REMOVAL EFF. (%)		AREA RATIO		"C" FACTOR RATIO		PRODUCT
A1	UNCONTROL	100	x	4.19/14.07	x	0.20/0.52	=	0.00
A2	CONSV. ESM'T	100	x	1.43/14.07	x	1.00	=	10.16
A3	DRY POND	40	x	8.02/14.07	x	0.76/0.52	=	33.32
A4	UNCONTROL	0	x	0.43/14.07	x	0.35.0.52	=	0.00
						(a) TOTAL	=	43.48%

PART 4 - DETERMINE COMPLIANCE WITH PHOSPHOROUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT

WATER SUPPLY OVERLAY DISTRICT (a) 40%
(OCCOQUAN METHOD)

CHEAPEAKE BAY PRESERVATION AREA
(NEW DEVELOPMENT)

CHEAPEAKE BAY PRESERVATION AREA
(REDEVELOPMENT)

[1 - 0.9 (1 "PRE" / 1 "POST")] x 100

(B) IF LINE 3 (a) 43.48> LINE 4 (a)40.00 THE PHOSPHOROUS REMOVAL IS SATISFIED

3. STORAGE:

PART 5 - WEIGHTED "C" FACTOR FOR POND = 0.55 (SEE SWM PART 6)

PART 6 - STORAGE REQUIREMENT: (PFM PLATE 2-6)

FOR "C" =0.55, STORAGE = 1,542 CF / IMP. AC
AREA TO POND = 19.09 AC
"C" FACTOR = 0.55
MIN. REQ'D STORAGE:
19.09 AC x 0.55 x 1,542 CF / IMP. AC = 16,190 CF

PART 7 - OUTFLOW COMPUTATIONS:

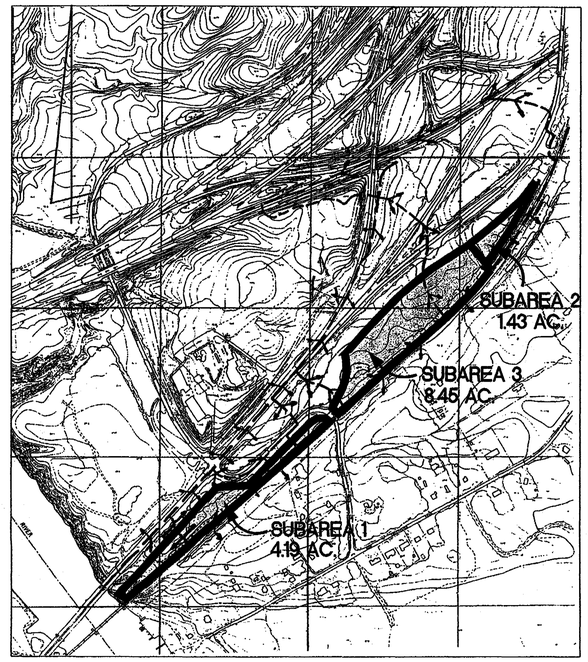
BMP STORAGE VOLUME = 16,190 CF
DURATION OF DRAW DOWN = 48 HOURS
AVERAGE FLOW = 16,190/48 HRS. = 0.094 CFS
ELEVATION AT BMP STORAGE = 68.33 (USE 69.70)
ELEVATION AT OUTLET = 64.80
TOTAL HEAD = 68.33 - 64.80 = 3.53 FT
AVERAGE HEAD = 3.53 / 2 = 1.765 FT
FOR OUTFLOW, USE ORIFICE FORMULA

$Q = CA\ (2gh)^{1/2}$

$0.094\ CFS = 0.6A\ (64.4 \times 1.765)^{1/2} = 6.397A$

$A = 0.094\ CFS / 6.397 = 0.015\ SF$

USE 0.14 FT DIAMETER OPENING IN PLATE ATTACHED TO FRONT OF STRUCTURE



SWM SUBAREA MAP
SCALE: 1"=500'

OUT FALL NARRATIVE

THIS SITE IS A 14.07 ACRE UNDEVELOPED PARCEL OF LAND LOCATED ON FURNACE ROAD. ROUTE 611 AND ADJACENT TO I-95/ROUTE 1 IN THE LORTON AREA OF FAIRFAX COUNTY. THE SITE IS MOSTLY WOODED, DOMINATED BY HARDWOODS, WITH A RELATIVELY DENSE UNDERSTORY OF VEGETATION. THE TOPOGRAPHY HAS SLOPES ON THE PROPERTY RANGING BETWEEN RELATIVELY FLAT TERRAIN ALONG FURNANCE ROAD TO FIFTEEN PERCENT (15%) TOWARDS THE CENTER PORTION OF THE PROPERTY.

ALTHOUGH THE SITE AREA IS 14.07 ACRES, THIS DEVELOPMENT WILL BE FOCUSED ON THE MIDDLE 8.45 ACRES, AND WITH THE EXCEPTION OF THE SEPTIC FIELD INSTALLATION, THE REMAINDER OF THE ACREAGE WILL BE PRESERVED IN ITS NATURAL STATE. WE HAVE SEPARATED THE SITE INTO THREE (3) SUBAREAS: (SEE SWM COMPUTATIONS); AND, THE EXISTING STORM DRAINAGE FLOWS FROM EACH OF THESE SUBAREAS ARE NOT INTERMINGLED AND HAVE SEPARATE OUTFALLS. STORM RUNOFF FROM THE DEVELOPMENT OCCURRING ON THE 8.45 ACRE MIDDLE PORTION OF THE SITE WILL BE COLLECTED IN A ONSITE STORM SEWER SYSTEM AND CONVEYED TO A DRY POND. THE RUNOFF WILL THEN BE RELEASED AT OR BELOW THE 10 YEAR AND 2 YEAR PREDEVELOPED FLOW OF THE RECEIVING EXISTING 36" D.I.P., WHICH FLOWS UNDER THE R.R RIGHT OF WAY AND OUTFALLS TO THE SOUTHEAST. THE CAPACITY OF THE RECEIVING PIPE HAS BEEN EVALUATED; AND THE PEAK DISCHARGE FROM THE SWM FACILITY HAS BEEN DESIGNED NOT TO EXCEED THE PRE-DEVELOPED FLOW, WHICH REQUIRES GREATER FLOW REDUCTIONS THAN PROVIDING THE NORMAL REQUIRED STORMWATER MANAGEMENT FLOW REDUCTIONS. AS A RESULT, SURPLUS DETENTION IS PROVIDED; AND THERE IS AN OVERALL REDUCTION IN STORMWATER RUNOFF PROVIDED FROM THIS PROPERTY. (SEE SHEETS 18,19, AND 20 FOR CALCULATIONS, DETAILS AND ROUTING)

IN CONSIDERATION OF THE FOREGOING, IT IS THE OPINION OF THE SUBMITTING ENGINEER THAT THE OUTFALL IS ADEQUATE; AND THERE WILL BE NO ADVERSE DOWNSTREAM IMPACT RESULTING FORM THE REDUCED STORM DRAINAGE FLOWS FROM THIS DEVELOPMENT.

RZ 2004-MV-020
APPLICATION NO STAFF CSB
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 6/15/05
DATE OF (BOS) (PC) APPROVAL 6/20/05
SHEET 10 OF 15

FOR INFORMATION ONLY

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE, FALLS CHURCH, VIRGINIA 22046 WWW.WLPINC.COM
(703) 532-6163 FAX (703) 533-8301

DRAWN: SO
DATE: 4-22-02; REV. 12/6/02 CO. COMMENTS
REV. 2/13/03 CO. COMMENTS
SCALE: AS NOTED

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLAP
No. 13098
6/2/02
LAND SURVEYOR

NO.	DESCRIPTION	DATE	REV. BY	APPROVED

REVISION APPROVED BY

STORMWATER MANAGEMENT / BMP COMPUTATIONS

GUNSTON CENTER
(FORMERLY COLCHESTER INDUSTRIAL CENTER)
MOUNT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

SHEET: 18 OF 31
SHEET 10A OF 10

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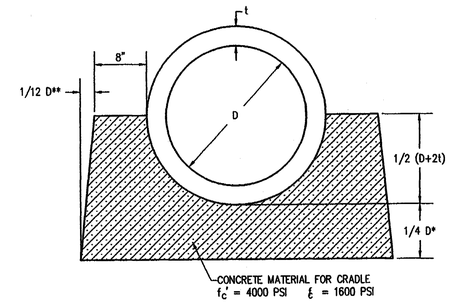
File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: 00064BMP1.DWG Xref:



CONCRETE CRADLE

BUT NOT LESS THAN 6"

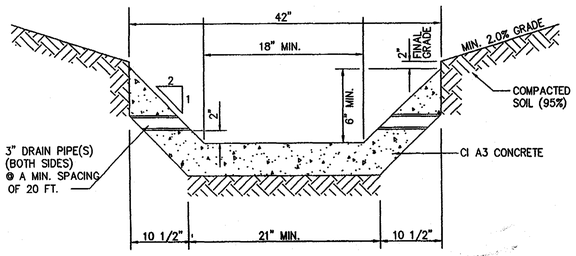
IF THE PIPE IS LAID IN AN EXCAVATED TRENCH, THEN THE SIDE WALLS MAY CONFORM TO THE TRENCH SHAPE (I.E., THE TRENCH MAY BECOME THE CRADLE FORM)

SOURCE: SCS; ES-154, A2 CRADLE

DETAILS FOR CIRCULAR CONDUITS EXTENDING THROUGH DAM EMBANKMENTS

STANDARD CONCRETE CRADLE

N.T.S.



DESIGN BASE WIDTH OF CONC. DITCH SHOULD BE A MIN. OF 18".
DESIGN DEPTH OF CONC. DITCH SHOULD BE A MIN. OF 6".
BOTTOM WIDTH OF CONC. DITCH SHOULD BE A MIN. SIZE OF 21".

NOTES:

1. APPROPRIATE TRANSITION SECS, WITH A MIN LENGTH = TO 3xW, SHALL BE PROVIDED AT THE ENDS OF THE TRICKLE DITCH.
2. CURTAIN WALLS SHALL BE PROVIDED AT INLET AREAS WHERE WATER FLOW IS CONSTANT, AND WHERE THE DITCH TRANSITIONS TO THE NATURAL CHANNEL.
3. POROUS STONE SUB-BASE SHOULD BE AVOIDED.
4. MIN DITCH BOTTOM GRADE IS 0.5%. (0.7% FOR THIS APPLICATION)

TRICKLE DITCH DETAIL

RISER STRUCTURE FLOTATION CALCULATIONS

I. WEIGHT OF WATER DISPLACED

CONCRETE BASE = Ah
= (PI)(3.17 ft)^2 (0.67 ft) = 21.15 ft^3

MANHOLE = PI R^2h
= (PI)(2.92 ft)^2 (7.28 ft)
= 195.01 ft^3

WHERE h = FBH ELEV. - SWM INV.
= 72.08 - 64.80
= 7.28 ft

TOTAL VOLUME DISPLACED = 21.15 + 195.01 =216.16 CF

TOTAL WEIGHT OF WATER DISPLACED = (1.3)(216.16 ft^3)(62.4 lb / ft^3) = 17,535 lb

WHERE 1.3 = FACTOR OF SAFETY

II. WEIGHT OF CONCRETE

VOL CONCRETE BASE = A h
= (PI)(3.17 ft)^2 (0.67 ft)
= 21.15 ft^3

VOL MANHOLE WALLS = [PI * R^2(OUTSIDE WALL) - PI * R^2(INSIDE WALL)]
= [(PI)(2.92)^2 - (PI)(2.50)^2] 7.28
= 52.06 ft^3

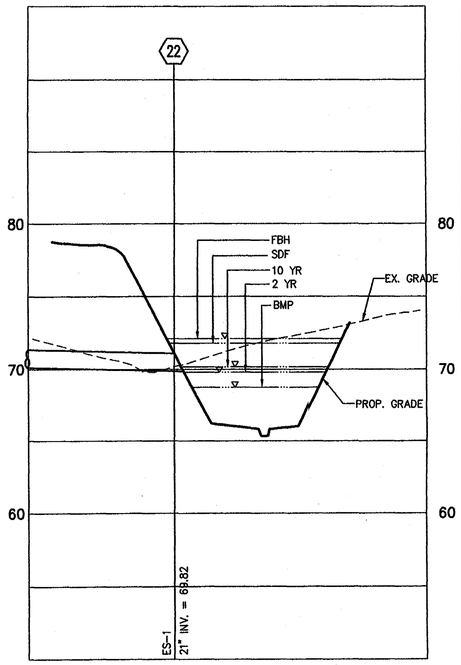
VOL. CONCRETE PLACED IN BOTTOM OF MANHOLE
VOL. = PI*R^2h
= (PI)(2.5 ft)^2 (3.0 ft)
= 58.90 ft^3

TOTAL VOL. CONCRETE = 21.15 + 52.06 + 58.90 = 132.11 FT^3

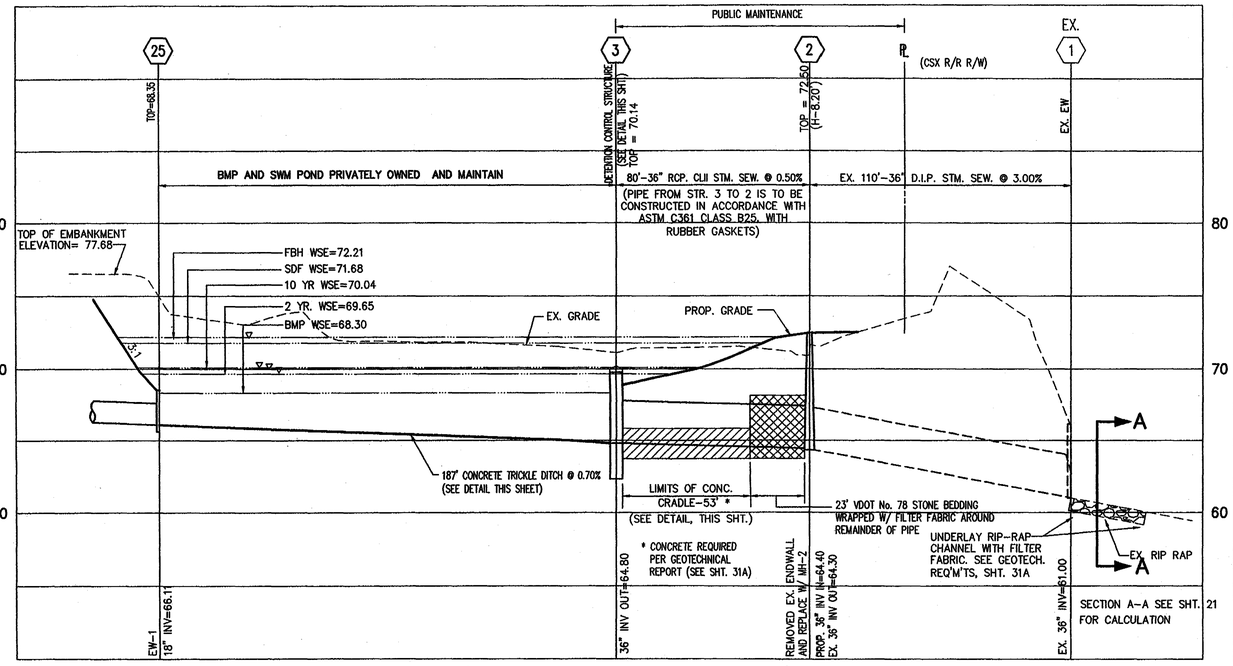
TOTAL WEIGHT OF CONCRETE = (132.11 ft^3)(145 lb / ft^3) = 19,156 lbs

CONCLUSION : 17,535 lb < 19,156 lb

THEREFORE RESISTANCE TO FLOTATION IS ACHIEVED.



POND CROSS SECTION SCHIEMATIC

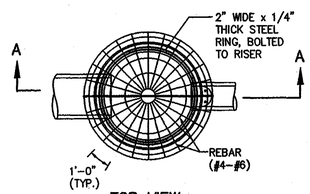


SWM / BMP PROFILE AND POND CROSS SECTION SCHEMATIC

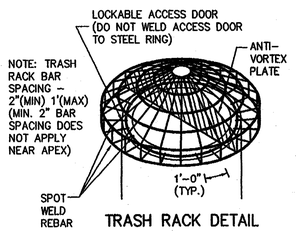
(EAST - WEST)
HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

NOTE:
SWM STORAGE AREA IS EXCAVATED INTO EXISTING GROUND; AND, THERE IS NO DAM CONSTRUCTION PROPOSED.

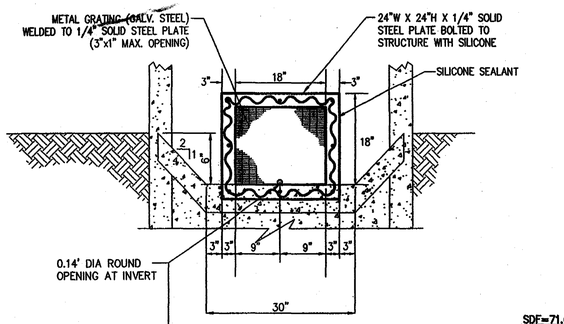
NOTE: OWNER SHALL CHECK INCOMING STORM SEWER PIPES BETWEEN STRUCTURES 25 AND 28 ON A QUARTERLY BASIS AND, IF NECESSARY FLUSH OUT ANY ACCUMULATED SEDIMENT.



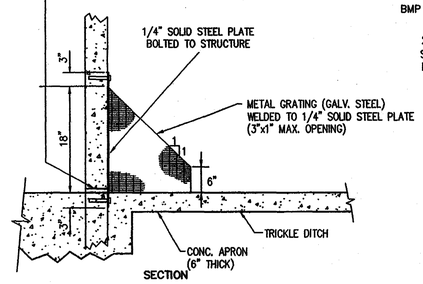
TOP VIEW



TRASH RACK DETAIL



ELEVATION



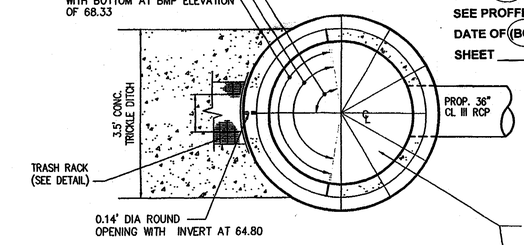
SECTION

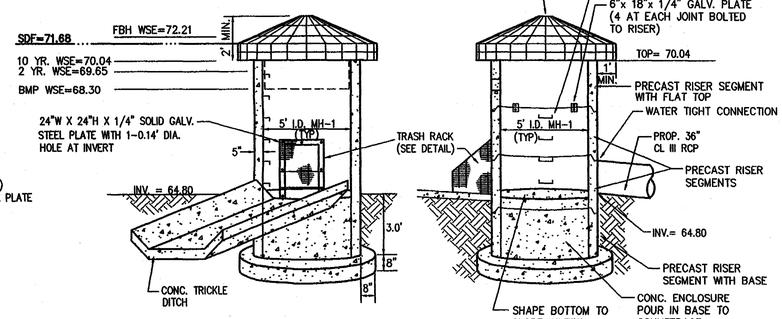
NOTES:

1. ALTERNATIVE CAGE CONFIGURATIONS ARE ACCEPTABLE AS LONG AS THE FLOW VELOCITY THRU THE CAGE AT THE MAX. POOL ELEV. IS LESS THAN 0.15 FPS.
2. THIS DETAIL (METAL GRATING AND STEEL PLATE) MAY BE APPLIED DIRECTLY AGAINST RECTANGULAR RISERS.
3. FOR LARGER CAGES (HEIGHT > 5') A 3'x2' HINGED GATE WITH LOCKING MECHANISM SHALL BE INSTALLED ON THE FRONT FACE OF THE CAGE.

TRASH RACK DETAIL

N.T.S.





(PRIVATELY OWNED AND MAINTAINED)
NOT TO SCALE

NOTE : ALL JOINTS BETWEEN PRECAST RISER SEGMENTS SHALL BE MADE WATER TIGHT WITH BUTYL RUBBER O-RING GASKETS.

STANDARD SMH-1 OR EQUIVALENT DETENTION CONTROL STRUCTURE

RZ 2004-MV-020 CSB

APPLICATION NO _____ STAFF _____

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP) 6/15/05

SEE PROFFERS DATED _____

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 11 OF 15

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

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DATE: 4-23-02, REV. 12/6/02 CO. COMMENTS
REV. 2/13/03 CO. COMMENTS
DRAWN: SO
SCALE: AS NOTED

COMMONWEALTH OF VIRGINIA
CHARLES T. DUNLAP
No. 13088
LAND SURVEYOR

STORMWATER MANAGEMENT BMP DETAILS

GUNSTON CENTER
(FORMERLY COLCHESTER INDUSTRIAL CENTER)

MOUNT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

FOR INFORMATION ONLY

2-YEAR ROUTING

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	64.80
5.0	57.72	57.7	57.7	57.7	0.00	67.34
10.0	37.17	94.9	136.8	152.6	7.91	68.97
15.0	27.53	64.7	161.1	201.5	20.20	69.55
20.0	22.03	49.6	165.5	210.6	22.60	69.65
25.0	18.21	40.2	163.1	205.7	21.30	69.60
30.0	15.46	33.7	158.8	196.8	18.96	69.50
35.0	13.56	29.0	154.6	187.9	16.63	69.40
40.0	11.65	25.2	150.7	179.8	14.57	69.30
45.0	10.59	22.2	147.3	172.9	12.80	69.22
50.0	9.43	20.0	144.5	167.3	11.45	69.16
55.0	8.68	18.1	142.0	162.6	10.29	69.10
60.0	7.84	16.5	139.9	158.5	9.31	69.05
65.0	7.20	15.0	138.1	154.9	8.45	69.00
70.0	6.57	13.8	136.4	151.8	7.73	68.96
75.0	5.93	12.5	134.7	148.9	7.06	68.92
80.0	5.19	11.1	133.1	145.9	6.38	68.88
85.0	4.55	9.7	131.5	142.8	5.69	68.85
90.0	3.92	8.5	129.9	139.9	5.03	68.81
95.0	3.28	7.2	128.1	137.1	4.47	68.77
100.0	2.65	5.9	126.3	134.1	3.90	68.73
105.0	2.01	4.7	124.3	130.9	3.30	68.68
110.0	1.27	3.3	122.3	127.6	2.67	68.63
115.0	0.64	1.9	120.1	124.2	2.06	68.59
120.0	0.00	0.6	117.6	120.7	1.55	68.53

********** SUMMARY OF ROUTING COMPUTATIONS **********

Starting Pond W.S. Elevation = 64.80 ft

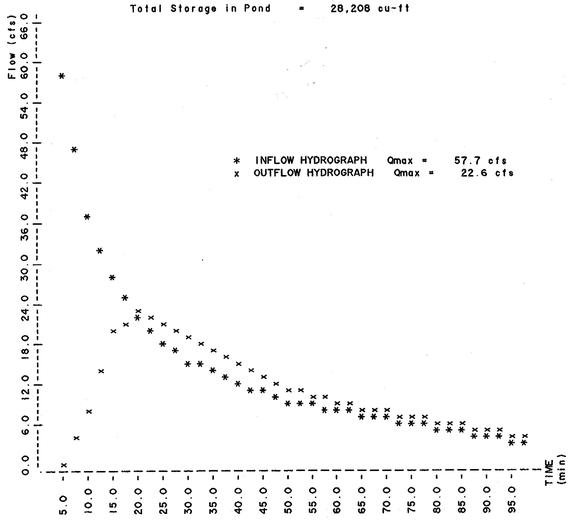
***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 57.72 cfs
Peak Outflow = 22.60 cfs
Peak Elevation = 69.65 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 28,208 cu-ft

Total Storage in Pond = 28,208 cu-ft



10-YEAR ROUTING

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	64.80
5.0	76.99	77.0	77.0	77.0	0.00	67.73
10.0	49.56	126.6	162.1	203.5	20.74	69.57
15.0	36.64	86.2	182.6	248.3	32.85	70.04
20.0	29.33	66.0	182.7	248.5	32.94	70.04
25.0	24.25	53.6	177.2	236.2	29.54	69.92
30.0	20.54	44.8	170.7	221.9	25.63	69.77
35.0	17.79	38.3	164.7	209.0	22.17	69.63
40.0	15.57	33.4	159.4	198.0	19.30	69.51
45.0	13.87	29.4	155.1	188.9	16.90	69.41
50.0	12.50	26.4	151.5	181.5	14.99	69.32
55.0	11.44	23.9	148.5	175.4	13.44	69.25
60.0	10.48	21.9	146.1	170.4	12.18	69.19
65.0	9.64	20.1	143.9	166.2	11.16	69.14
70.0	8.79	18.4	141.9	162.3	10.22	69.09
75.0	7.84	16.6	139.9	158.5	9.30	69.05
80.0	6.99	14.8	137.9	154.7	8.40	69.00
85.0	6.14	13.1	135.9	151.1	7.56	68.95
90.0	5.30	11.4	133.9	147.4	6.72	68.90
95.0	4.34	9.6	131.9	143.6	5.86	68.85
100.0	3.49	7.8	129.7	139.7	4.97	68.80
105.0	2.65	6.1	127.4	135.9	4.24	68.75
110.0	1.80	4.5	124.9	131.8	3.47	68.69
115.0	0.85	2.7	122.2	127.6	2.66	68.63
120.0	0.00	0.9	119.3	123.1	1.90	68.57

********** SUMMARY OF ROUTING COMPUTATIONS **********

Starting Pond W.S. Elevation = 64.80 ft

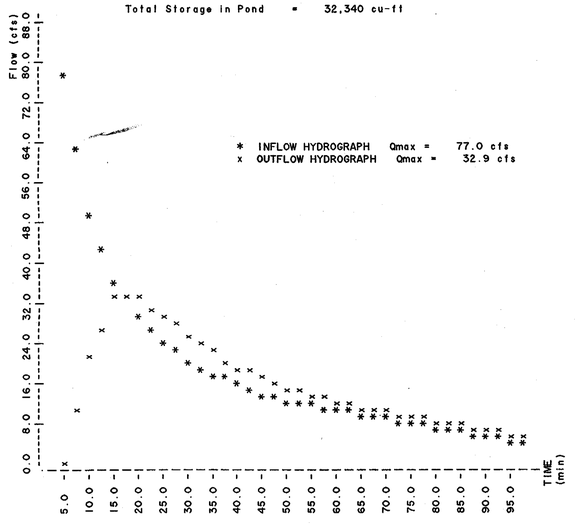
***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 76.99 cfs
Peak Outflow = 32.94 cfs
Peak Elevation = 70.04 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 32,340 cu-ft

Total Storage in Pond = 32,340 cu-ft



SWM / BMP POND
STAGE - STORAGE CHART

GIVEN POND DATA			COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
64.80	0.0	0	0.0	0.0
65.00	0.0	173	1.2	1.2
65.20	0.0	394	2.6	2.6
65.40	0.0	666	4.4	4.4
65.60	0.0	996	6.6	6.6
65.80	0.0	1,390	9.3	9.3
66.00	0.0	1,852	12.3	12.3
66.20	0.0	2,418	16.1	16.1
66.40	0.0	3,132	20.9	20.9
66.60	0.0	4,009	26.7	26.7
66.80	0.0	5,067	33.8	33.8
67.00	0.0	6,324	42.2	42.2
67.20	0.0	7,702	51.3	51.3
67.40	0.0	9,116	60.8	60.8
67.60	0.0	10,567	70.4	70.4
67.80	0.0	12,053	80.4	80.4
68.00	0.0	13,577	90.5	90.5
68.20	0.0	15,146	101.0	101.0
68.40	0.3	16,767	111.8	112.1
68.60	2.2	18,441	122.9	125.1
68.80	4.9	20,169	134.5	139.4
69.00	8.4	21,952	146.3	154.7
69.20	12.3	23,798	158.7	171.0
69.40	16.7	25,713	171.4	188.1
69.60	21.4	27,701	184.7	206.1
69.65	22.6	28,209	188.1	210.7
69.80	26.4	29,762	198.4	224.8
70.00	31.8	31,897	212.6	244.4
70.04	32.9	32,333	215.6	248.5
70.20	43.3	34,105	227.4	270.7
70.40	63.2	36,385	242.6	305.8
70.60	88.0	38,737	258.2	346.2
70.80	116.6	41,164	274.4	391.0
71.00	148.4	43,666	291.1	439.5
71.20	183.1	46,242	308.3	491.4
71.40	220.3	48,891	325.9	546.2
71.60	259.9	51,614	344.1	604.0
71.80	301.7	54,412	362.7	664.4
72.00	345.4	57,286	381.9	727.3
72.20	391.1	60,225	401.5	792.6
72.40	438.4	63,218	421.5	859.9
72.60	487.4	66,265	441.8	929.2
72.80	538.0	69,367	462.4	1000.4

APPLICATION NO RZ 2004-MV-020 STAFF CSB

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP) 6/15/05

SEE PROFFERS DATED

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 12 OF 15

FOR INFORMATION ONLY

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE, FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1301 WWW.WLPINC.COM

DATE: 4-22-02 - REV. 12/6/02 CO. COMMENTS
DRAWN: SO
SCALE: NONE

COMMONWEALTH OF VIRGINIA
No. 13098
CHARLES F. DUNLAP
LAND SURVEYOR

REVISION APPROVED BY

NO.	DESCRIPTION	DATE	REV. BY	APPROVED	DATE

STORM WATER MANAGEMENT POND ROUTINGS

GUNSTON CENTER
(FORMERLY COLCHESTER INDUSTRIAL CENTER)

MOUNT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: 00064SWM4.DWG Xref:

SDF ROUTING

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	-0.0	0.0	0.00	70.04
5.0	130.28	130.3	-19.6	130.3	74.92	71.33
10.0	84.34	214.6	-20.0	195.1	107.53	71.68
15.0	62.63	147.0	-19.6	127.0	73.29	71.31
20.0	49.52	112.2	-20.5	92.6	56.53	71.10
25.0	41.44	91.0	-21.5	70.4	45.97	70.97
30.0	35.09	76.5	-21.3	55.0	38.17	70.86
35.0	30.85	65.9	-20.2	44.6	32.42	70.77
40.0	27.41	58.3	-19.1	38.1	28.57	70.71
45.0	24.89	52.3	-18.0	33.2	25.59	70.67
50.0	22.38	47.3	-16.9	29.3	23.11	70.62
55.0	20.52	42.9	-15.8	26.0	20.88	70.59
60.0	18.80	39.3	-15.0	23.5	19.24	70.56
65.0	17.21	36.0	-14.0	21.1	17.51	70.52
70.0	15.62	32.8	-12.9	18.9	15.90	70.49
75.0	14.17	29.8	-12.0	16.9	14.42	70.47
80.0	12.58	26.8	-11.0	14.8	12.86	70.43
85.0	10.99	23.6	-9.7	12.6	11.13	70.40
90.0	9.40	20.4	-8.5	10.7	9.63	70.36
95.0	7.81	17.2	-7.2	8.7	7.94	70.33
100.0	6.22	14.0	-5.8	6.8	6.33	70.28
105.0	4.77	11.0	-4.6	5.2	4.88	70.25
110.0	3.18	7.9	-3.1	3.4	3.21	70.19
115.0	1.59	4.8	-1.6	1.7	1.67	70.14
120.0	0.00	1.6	-0.0	-0.0	0.00	70.04

********** SUMMARY OF ROUTING COMPUTATIONS **********

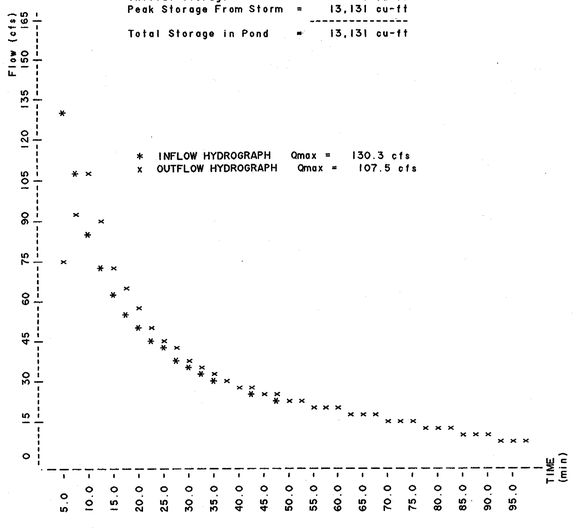
Starting Pond W.S. Elevation = 70.04 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 130.28 cfs
Peak Outflow = 107.53 cfs
Peak Elevation = 71.68 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 13,131 cu-ft
Total Storage in Pond = 13,131 cu-ft



FREEBOARD HYDRAGRAPH ROUTING

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	-0.0	0.0	0.00	70.04
5.0	195.42	195.4	-20.0	195.4	107.71	71.68
10.0	126.51	321.9	-24.2	301.9	163.05	72.21
15.0	93.94	220.5	-20.0	196.3	108.15	71.69
20.0	74.28	168.2	-19.4	148.2	83.80	71.43
25.0	62.16	136.4	-19.7	117.0	68.38	71.25
30.0	52.64	114.8	-20.4	95.1	57.74	71.12
35.0	46.28	98.9	-21.2	78.5	49.84	71.02
40.0	41.11	87.4	-21.7	66.2	43.95	70.94
45.0	37.33	78.4	-21.4	56.8	39.06	70.87
50.0	33.57	70.9	-20.8	49.5	35.19	70.81
55.0	30.78	64.3	-20.1	43.5	31.79	70.76
60.0	28.20	59.0	-19.3	38.9	29.11	70.72
65.0	25.81	54.0	-18.3	34.7	26.52	70.68
70.0	23.43	49.2	-17.5	30.9	24.18	70.64
75.0	21.26	44.7	-16.2	27.2	21.73	70.60
80.0	18.87	40.1	-15.1	23.9	19.49	70.56
85.0	16.49	35.4	-13.6	20.3	16.94	70.51
90.0	14.10	30.6	-12.0	17.0	14.52	70.47
95.0	11.72	25.8	-10.4	13.8	12.06	70.42
100.0	9.33	21.1	-8.5	10.7	9.59	70.36
105.0	7.15	16.5	-6.7	8.0	7.33	70.31
110.0	4.77	11.9	-4.7	5.2	4.95	70.25
115.0	2.38	7.1	-2.3	2.5	2.41	70.17
120.0	0.00	2.4	-0.1	0.1	0.06	70.04

********** SUMMARY OF ROUTING COMPUTATIONS **********

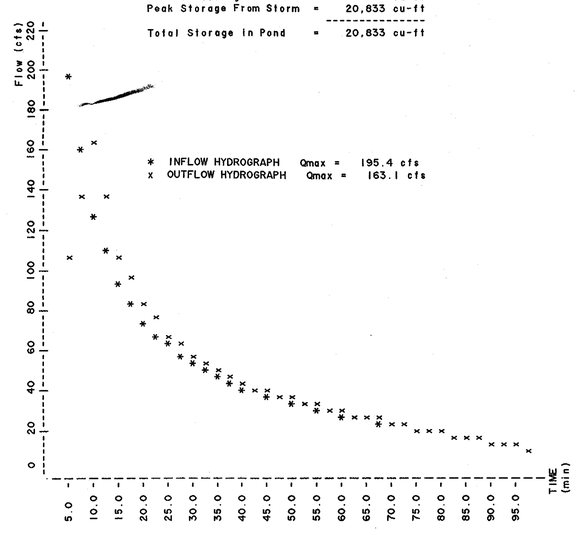
Starting Pond W.S. Elevation = 70.04 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 195.42 cfs
Peak Outflow = 163.05 cfs
Peak Elevation = 72.21 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 20,833 cu-ft
Total Storage in Pond = 20,833 cu-ft



SDF/FBH
STAGE – STORAGE CHART

GIVEN POND DATA			COMPUTATIONS	
ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
70.04	0.0	0	0.0	0.0
70.14	1.6	5	0.0	1.6
70.24	4.6	37	0.2	4.8
70.34	8.5	124	0.8	9.3
70.44	13.1	294	2.0	15.1
70.54	18.3	574	3.8	22.1
70.64	24.0	992	6.6	30.6
70.74	30.2	1,576	10.5	40.7
70.84	36.9	2,352	15.7	52.6
70.94	44.0	3,348	22.3	66.3
71.04	51.5	4,573	30.5	82.0
71.14	59.3	5,859	39.1	98.4
71.24	67.5	7,163	47.8	115.3
71.34	76.1	8,486	56.6	132.7
71.44	84.9	9,827	65.5	150.4
71.54	94.1	11,187	74.6	168.7
71.64	103.6	12,565	83.8	187.4
71.74	113.3	13,962	93.1	206.4
71.84	123.3	15,378	102.5	225.8
71.94	133.6	16,813	112.1	245.7
72.04	144.1	18,267	121.8	265.9
72.14	154.9	19,735	131.6	286.5
72.24	165.9	21,217	141.4	307.3
72.34	177.2	22,712	151.4	328.6
72.44	188.7	24,221	161.5	350.2
72.54	200.4	25,743	171.6	372.0
72.64	212.3	27,279	181.9	394.2
72.74	224.5	28,828	192.2	416.7
72.84	236.8	30,392	202.6	439.4
72.94	249.4	31,969	213.1	462.5
73.04	262.1	33,560	223.7	485.8
73.14	275.0	35,168	234.5	509.5
73.24	288.1	36,793	245.3	533.4
73.34	301.4	38,435	256.2	557.6
73.44	314.9	40,095	267.3	582.2
73.54	328.6	41,771	278.5	607.1
73.64	342.4	43,466	289.8	632.2
73.74	356.4	45,178	301.2	657.6

RZ 2004-MV-020
APPLICATION NO _____ STAFF CSB
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
SEE PROFFERS DATED 6/15/05
DATE OF (BOS) (PC) APPROVAL 6/20/05
SHEET 13 OF 15

FOR INFORMATION ONLY

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1801 WWW.WLPINC.COM

DATE: 4-22-02 ; REV. 12/6/02 CO. COMMENTS | DRAWN: SO | SCALE: NONE

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNCAN
No. 13088
4/22/02
LAND SURVEYOR

NO.	DESCRIPTION	DATE	REV. BY	APPROVED

REVISION APPROVED BY

STORM WATER MANAGEMENT POND ROUTINGS
GUNSTON CENTER
(FORMERLY COLCHESTER INDUSTRIAL CENTER)
MOUNT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: 00064SWM4.DWG Xref:

RZ 2004-MV-020 CSB

APPLICATION NO_____ STAFF _____

APPROVED DEVELOPMENT PLAN

(DP) (GDP) (CDP) (FDP)

SEE PROFFERS DATED 6/15/05

DATE OF (BOS) (PC) APPROVAL 6/20/05

SHEET 14 OF 15

NOTE: SEE SHEET 15 FOR ALL OTHER STORM SEWER PIPE AND INLET CALCULATIONS

RICHMOND HIGHWAY - U.S. ROUTE 1

RIGHT-OF-WAY VARIES

(FROM RICHMOND HWY. ROUTE 1 RAMP TO NORTHBOUND-95 LANES)

VARIABLE R/W

(FROM RICHMOND HWY. RTE. 1 RAMP TO

VARIABLE R/W

RIGHT-OF-WAY VARIES

RICHMOND HIGHWAY - U.S. ROUTE 1

RIGHT-OF-WAY VARIES

RIGHT-OF-WAY (VARIES)

RIGHT-OF-WAY (VARIES)

ONSITE A=0.04 AC C=0.30

OFFSITE A=3.58 AC C=0.40

OFFSITE A=1.52 AC C=0.40

OFFSITE A=2.14 AC C=0.77

A=0.06 C=0.90

A=0.21 AC C=0.72

A=0.07 AC C=0.90

ONSITE A=0.01 AC C=0.90

A=0.10 AC C=0.70

A=0.29 AC C=0.51

OFFSITE (R/W) A=0.06 AC C=0.40

OFFSITE (R/W) A=0.10 AC C=0.40

OFFSITE A=4.95 AC C=0.40

ONSITE A=0.80 AC C=0.79

ONSITE A=0.43 AC C=0.81

A=0.73 AC C=0.88

A=0.57 AC C=0.90

A=0.57 AC C=0.90

ONSITE A=0.08 AC C=0.35

ONSITE A=1.35 AC C=0.78

OFFSITE A=0.56 AC C=0.40

A=1.17 AC C=0.84

A=0.76 AC C=0.86

PARCEL 004H

PARCEL 004

PARCEL 004C

PARCEL 9A

ONSITE A=0.10 AC C=0.35

ONSITE A=0.76 AC C=0.35

N/F CSX TRANSPORTATION INC.
USE: RAILROAD RIGHT OF WAY
ZONED: R-1

OFFSITE R/R A=0.21 AC C=0.40

OFFSITE R/R A=0.21 AC C=0.40

ONSITE A=0.21 AC C=0.35

N/F CSX TRANSPORTATION INC.
USE: RAILROAD RIGHT OF WAY
ZONED: R-1

OFFSITE R/R A=0.16 AC C=0.40

ONSITE A=0.10 AC C=0.35

FURNACE ROAD - ROUTE 611

(50' R/W)

64

62

60

(SEE BELOW)

EXISTING OUTFALL DITCH SECTION A-A

SCALE: 1"=2' (H & V)

(EXISTING DITCH HAS RIP-RAP LINING)

n=0.03

PRE-DEVELOPMENT CONDITIONS	POST-DEVELOPMENT CONDITIONS	CAPACITY
Q_2= 24.50 CFS	Q_2= 22.60 CFS	d=2.80 FT
d = 1.04 FT	d = 1.0 FT	Q=178.4 CFS
V_2= 4.80 FPS	V_2= 4.70 FPS	V=8.3 FPS
Q_{10}= 38.32 CFS	Q_{10}= 32.94 CFS	
d = 1.31 FT	d = 1.21 FT	
V_{10}= 5.5 FPS	V_{10}= 5.3 FPS	

SECTION B-B

PRE-DEVELOPMENT:

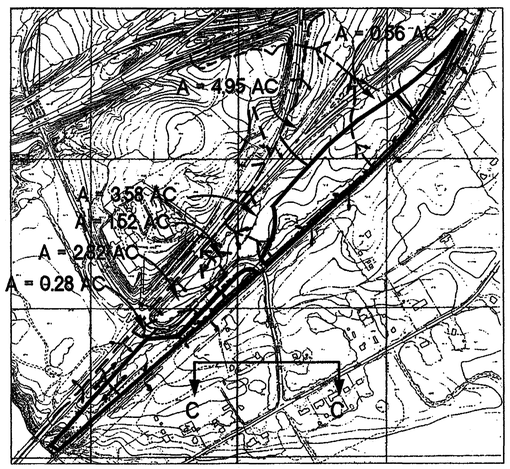
AREA=1.99 AC
"C" = 0.4
Q_2 = 1.93 x 0.4 x 5.45=4.35 CFS
Q_{10}= 1.93 x 0.4 x 7.27=5.80 CFS

POST-DEVELOPMENT:

AREA=0.29 AC
"C" = 0.51
Q_2 = 0.29 x 0.51x 5.45=0.806 CFS
Q_{10}= 0.29 x 0.51 x 7.27= 1.08 CFS

GUTTER SLOPE = 7.85%
CROSS SLOPE = 2.08%
DISCHARGE = 1.08 CFS
SPREAD = 1.9'
"d" DEPTH = 0.16'

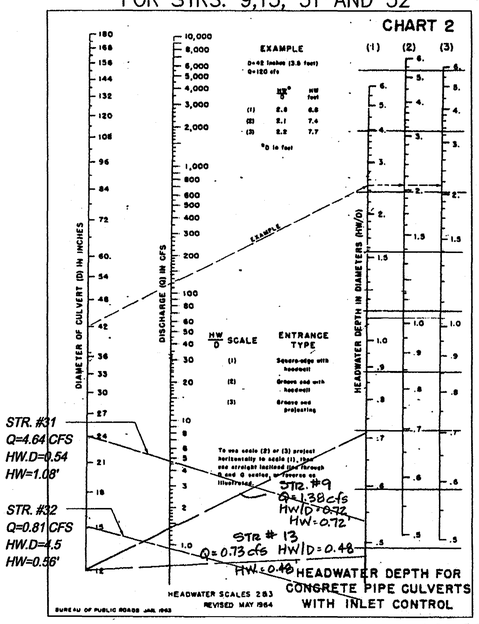
EXTRA STORM INLET IS NOT NIECESSARY.



OFFSITE DRAINAGE MAP

1"=500'

CULVERT HEADWATER CALCULATIONS
FOR STRS. 9,13, 31 AND 32



STR. #31
Q=4.64 CFS
HW.D=0.54
HW=1.08'

STR. #32
Q=0.81 CFS
HW.D=1.5
HW=0.56'

FOR INFORMATION ONLY

THIS SHEET FOR DRAINAGE AREA PURPOSES ONLY

WALTER L. PHILLIPS
INCORPORATED
CIVIL ENGINEERS LAND SURVEYORS PLANNERS LANDSCAPE ARCHITECTS
207 PARK AVENUE FALLS CHURCH, VIRGINIA 22046
(703) 532-6163 FAX (703) 533-1301 WWW.WLPINC.COM

DATE 4-22-02, REV. 12/6/02 CO. COMMENTS | DRAWN: SO | SCALE 1" = 50'

COMMONWEALTH OF VIRGINIA
CHARLES F. DUNLOP
No. 13088
LAND SURVEYOR
6/20/05

NO.	DESCRIPTION	DATE	REV. BY	APPROVED

REVISION APPROVED BY

DRAINAGE AREA MAP / STORM SEWER PROFILES

GUNSTON CENTER
(FORMERLY COLCHESTER INDUSTRIAL CENTER)
MOUNT VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

File No. FI-20 Tax Map No. 113-3 Job No. 00-064 Cadd Dwg. File: 00064ER4.DWG Xref: 00064BAS

SHEET: 21 OF 31

SHEET 10E OF 10

SITE
SITE
POTOMAC SOUTHERN RAILROAD
FURNACE ROAD
COLCHESTER ROAD
Existing Drainage Easement
Proposed Drainage Easement
Proposed Storm Sewer
Existing Storm Sewer
Existing Culvert
Proposed Culvert
Proposed Inlet
Existing Inlet
Proposed Manhole
Existing Manhole
Proposed Contour
Existing Contour
Limits of Clearing & Grading
Proposed Pond
Existing Pond
Proposed Flow Arrow
Existing Flow Arrow
Proposed Swale
Existing Swale
Proposed Rip-Rap
Existing Rip-Rap
Proposed Curb & Gutter
Existing Curb & Gutter
Proposed Sidewalk
Existing Sidewalk
Proposed Trail
Existing Trail
Proposed Fence
Existing Fence
Proposed Guardrail
Existing Guardrail
Proposed Retaining Wall
Existing Retaining Wall
Proposed Tree Line
Existing Tree Line
Proposed Building
Existing Building
Proposed Pavement
Existing Pavement
Proposed Gravel
Existing Gravel
Proposed Limits of Disturbance
Existing Limits of Disturbance
Proposed Limits of Vegetation
Existing Limits of Vegetation
Proposed Limits of Impervious
Existing Limits of Impervious
Proposed Limits of Pervious
Existing Limits of Pervious
Proposed Limits of Open Space
Existing Limits of Open Space
Proposed Limits of Common Area
Existing Limits of Common Area
Proposed Limits of Private Area
Existing Limits of Private Area
Proposed Limits of Public Area
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Proposed Limits of Private Street
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Proposed Limits of Public Street
Existing Limits of Public Street
Proposed Limits of Alley
Existing Limits of Alley
Proposed Limits of Easement
Existing Limits of Easement
Proposed Limits of Right-of-Way
Existing Limits of Right-of-Way
Proposed Limits of Property Line
Existing Limits of Property Line
Proposed Limits of Subdivision
Existing Limits of Subdivision
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Existing Limits of Responsibility
Proposed Limits of Liability
Existing Limits of Liability
Proposed Limits of Warranty
Existing Limits of Warranty
Proposed Limits of Guarantee
Existing Limits of Guarantee
Proposed Limits of Insurance
Existing Limits of Insurance
Proposed Limits of Bond
Existing Limits of Bond
Proposed Limits of Surety
Existing Limits of Surety
Proposed Limits of Indemnity
Existing Limits of Indemnity
Proposed Limits of Hold Harmless
Existing Limits of Hold Harmless
Proposed Limits of Waiver
Existing Limits of Waiver
Proposed Limits of Release
Existing Limits of Release
Proposed Limits of Discharge
Existing Limits of Discharge
Proposed Limits of Termination
Existing Limits of Termination
Proposed Limits of Expiration
Existing Limits of Expiration
Proposed Limits of Renewal
Existing Limits of Renewal
Proposed Limits of Extension
Existing Limits of Extension
Proposed Limits of Modification
Existing Limits of Modification
Proposed Limits of Amendment
Existing Limits of Amendment
Proposed Limits of Revision
Existing Limits of Revision
Proposed Limits of Addendum
Existing Limits of Addendum
Proposed Limits of Supplement
Existing Limits of Supplement
Proposed Limits of Appendix
Existing Limits of Appendix
Proposed Limits of Exhibit
Existing Limits of Exhibit
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