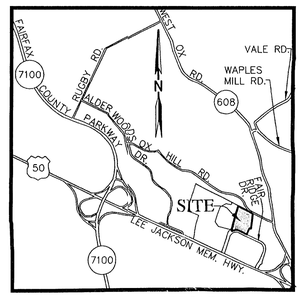
# GENERALIZED DEVELOPMENT PLAN AND SPECIAL EXCEPTION PLAT FOR FAIR RIDGE INDEPENDENT LIVING

## SULLY DISTRICT
## FAIRFAX COUNTY, VIRGINIA

### GENERAL NOTES

1. THE PROPERTY IS IDENTIFIED ON FAIRFAX COUNTY TAX ASSESSMENT MAP: 46-3-((1))-14C.
2. THE ABOVE REFERENCED PROPERTY IS CURRENTLY ZONED PDC
3. THE BOUNDARY INFORMATION SHOWN HEREON WAS COMPILED FROM ALTA PREPARED BY URBAN LTD. DATED OCT. 5, 2005.
4. THE TOPOGRAPHY SHOWN HEREON IS AT A TWO-FOOT CONTOUR INTERVAL, COMPILED FROM AIR SURVEY, DATED MARCH 30, 2005. GRID BASE ON VIRGINIA STATE PLANE COORDINATE SYSTEM, NORTH ZONE NAD 1983.
5. THE PROPERTY SHOWN ON THIS GDP PLAN IS LOCATED IN THE SULLY DISTRICT.
6. THIS PROPOSED DEVELOPMENT IS IN CONFORMANCE WITH THE COMPREHENSIVE PLAN AND ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED CONDITIONS WITH THE EXCEPTION OF THE FOLLOWING:
   *BULK PLANE ANGLES FOR SIDE AND FRONT YARDS. SEE SHEET 3 FOR PROPOSED ANGLES.
7. THIS SITE IS SERVED BY PUBLIC SEWER AND WATER.
8. STORM WATER MANAGEMENT (SWM) AND BEST PRACTICES (BMP) WILL BE PROVIDED BY AN EXISTING ONSITE FACILITY AS CONSTRUCTED WITH A PREVIOUSLY APPROVED FAIRFAX COUNTY SITE PLAN.
9. UTILITY LOCATIONS SHOWN ARE APPROXIMATE. THERE ARE NO EXISTING UTILITY EASEMENTS OF 25' OR MORE IN WIDTH ON THE SITE.
10. INDIVIDUAL UTILITY PLANS AND PROFILES WILL BE SUBMITTED DURING THE SITE PLAN STAGE FOR CONSTRUCTION PURPOSES.
11. THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES ON THIS SITE. IF ANY SUBSTANCES ARE FOUND, THE METHODS FOR DISPOSAL SHALL ADHERE TO COUNTY, STATE, OR FEDERAL LAW.
12. THERE ARE NO KNOWN BURIAL SITES OR EXISTING STRUCTURES FOUND ON THIS SITE.
13. ALL PUBLIC STREETS SHALL CONFORM TO FAIRFAX COUNTY AND/OR VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) STANDARDS AND SPECIFICATIONS UNLESS MODIFIED AS DESCRIBED IN GENERAL NOTE 6 ABOVE. PRIVATE STREETS SHALL CONFORM TO STANDARDS SET BY THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL SECTION 7 UNLESS MODIFIED AS DESCRIBED IN GENERAL NOTE 6 ABOVE.
14. IN ACCORDANCE WITH ARTICLE 18 OF THE ZONING ORDINANCE, MINOR MODIFICATIONS TO THE SIZE, DIMENSIONS, FOOTPRINTS, AND LOCATION OF BUILDINGS, PARKING SPACES, GARAGES AND SIDEWALKS MAY OCCUR WITH FINAL ENGINEERING AND DESIGN.
15. THERE ARE NO DESIGNATED ENVIRONMENTAL QUALITY CORRIDORS (EQC) AND RPA'S ON THE SUBJECT SITE PER FAIRFAX COUNTY MAPS.
16. THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES ON THE SUBJECT SITE WHICH WOULD DESERVE PROTECTION OR PRESERVATION.
17. THERE ARE NO EXISTING BUILDINGS ON SITE.
18. THE SPECIAL AMENITIES PROPOSED WITH THIS SITE SHALL INCLUDE:
    * PEDESTRIAN SIDEWALKS
    * NEIGHBORHOOD GREENS
    THE LOCATION OF THESE AMENITIES ARE REFLECTED IN THIS PLAN.
19. THE DEVELOPMENT SCHEDULE AND PROPOSED SITE PLAN SUBMISSIONS SHALL BE DETERMINED BY THE APPLICANT BASED UPON MARKET CONDITIONS.
20. NOTWITHSTANDING THE IMPROVEMENTS AND TABULATIONS SHOWN ON THIS PLAN, THE APPLICANT RESERVES THE RIGHT TO REASONABLY MODIFY THE FINAL DESIGN CONCEPTS, INCLUDING SIZES AND LOCATIONS OF IMPROVEMENTS, TO CONFORM WITH ARCHITECTURAL AND ENGINEERING TOLERANCES AND TO COMPLY WITH NEW CRITERIA AND REGULATIONS THAT MAY BE ADOPTED BY FAIRFAX COUNTY. AND OTHER AGENCIES WHOSE JURISDICTIONAL APPROVAL MAY BE REQUIRED. IN NO EVENT SHALL THE OVERALL GFA BE INCREASED AND SUCH MODIFICATIONS SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THE GDP/SE PLAT AS DETERMINED BY DPZ.
21. THIS PROJECT PROPOSES REZONING THIS PROPERTY TO R-8.
22. DIMENSIONS AND SIZES AS SCALED ARE APPROXIMATE AND MAY VARY DEPENDING ON THE FINAL USE AND ARCHITECTURAL/ENGINEERING DESIGN DURING SITE PLANNING. THE FINAL DESIGN SHALL BE IN SUBSTANTIAL CONFORMANCE WITH GDP.
23. FOR BULK PLANE DIAGRAMS, SEE SHEET #3.




VICINITY MAP
SCALE: 1" = 2000'

### SITE TABULATIONS:

| | |
|---|---|
| EXISTING SITE AREA | 302,138 SF or 6.94 AC. |
| EXISTING ZONING | PDC |
| PROPOSED ZONING | R-8 |
| PROPOSED DENSITY | 28.82 DU AC. |
| PROPOSED MAX NUMBER OF UNITS ALLOWED | 222 (WITH SPECIAL EXCEPTION, SEE NOTE#3) |
| PROPOSED USE | INDEPENDENT LIVING (WITH SPEX, SEE NOTE #3 |
| PROPOSED MAX. NUMBER OF UNITS PROVIDED | 200 |
| MINIMUM ALLOWABLE OPEN SPACE | 25% OR 75,535 SF (SEE NOTE #3) |
| LANDSCAPE OPEN SPACE PROVIDED | 55.1% or 166,675 sf |
| MAXIMUM ALLOWABLE BUILDING HEIGHT | 65' |
| BUILDING HEIGHT PROVIDED | 65' (4 STORIES) |
| BUILDING GROSS SQUARE FOOTAGE | RESIDENTIAL=286,375 S.F.<br>COMMUNITY CENTER=3,564 S.F.<br>TOTAL=289,939 S.F. |
| BUILDING NET SQUARE FOOTAGE | RESIDENTIAL=229,097 S.F.<br>COMMUNITY CENTER=2,850 S.F.<br>TOTAL=231,947 S.F. |
| FAR-OVERALL SITE | 289,939 S.F. / 302,138 S.F. = 0.96 |

1. ALL FOUR BUILDINGS ARE 1 STORY BELOW GRADE OF STRUCTURED PARKING WITH 4 STORIES ABOVE GRADE RESIDENTIAL.
2. THE HOUSING OF THE ELDERLY IS AGE RESTRICTED HOUSING FOR ADULTS 62 YEARS OF AGE AND OLDER.
3. 9-306-8(B) OF THE ZONING ORDINANCE ALLOW YOU 4 TIMES THE NUMBER OF UNITS AND REQUIRES A MINIMUM OF 25% OPEN SPACE.

### PARKING TABULATIONS:

REQUIRED = 200 AGE RESTRICTED HOUSING UNITS @ 1 SP/ 4 UNITS & 1 SP/EMPLOYEE
= 200 UNITS/4 + 8 EMPLOYEE
= 58 SPACES

PROVIDED = 271 SP (210 GARAGE, 61 SURFACE)

LOADING REQUIRED 1 SP FOR THE 1ST 10,000 GSF + 1 SP/ ADDITION 100,000 GSF= 4 SPACES
LOADING PROVIDED = 4 SPACES

HANDICAPPED PARKING REQUIRED = 7 SPACES
HANDICAPPED PROVIDED = 7 SPACES: GARAGE= 14 SP (3 VAN, 1 REG.), SURFACE 3 SP (2 VAN, 3 REG.)

### OWNER
FAIR RIDGE LLC.
8150 LEESBURG PIKE SUITE 1100
VIENNA, VA. 22182

### DEVELOPER
ATLANTIC REALTY COMPANIES, INC.
8150 LEESBURG PIKE SUITE 1100
VIENNA, VIRGINIA 22182
PH. 703-760-9500

### ARCHITECT
TORTI GALLAS AND PARTNERS, INC.
1300 SPRING STREET
SUITE 400
SILVER SPRING, MARYLAND 20910
PH. 301-588-4800

### ENGINEER
URBAN, LTD.
7712 LITTLE RIVER TURNPIKE
ANNANDALE, VIRGINIA 22003
PH. 703-642-8080

### LANDSCAPE ARCHITECT
URBAN, LTD.
7712 LITTLE RIVER TURNPIKE
ANNANDALE, VIRGINIA 22003
PH. 703-642-8080

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet ____ of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

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Department of Planning & Zoning
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Zoning Evaluation Division

### SHEET INDEX


1. COVER SHEET
2. EXISTING CONDITIONS AND SOILS MAP
3. GENERALIZED DEVELOPMENT PLAN
4. GARAGE LAYOUT
5. LANDSCAPE PLAN
5A-5B. ILLUSTRATIVE DETAILS
6-8. S.W.M.-DRAINAGE DIVIDE MAP
9. EXISTING VEGETATION MAP
10. TYPICAL FLOOR PLAN
11. TYPICAL ELEVATION
12. SECTIONS
12A. LANDSCAPE PLAN RENDERING
12B. OPEN SPACE EXHIBIT


| No. | DATE | DESCRIPTION | REV. BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | | | | |

REVISION APPROVED BY DIVISION OF DESIGN REVIEW

PLAN DATE
11-09-06
01-11-07
03-22-07
04-02-07
05-04-07
06-14-07
06-21-07


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7712 Little River Turnpike
Annandale, Virginia 22003
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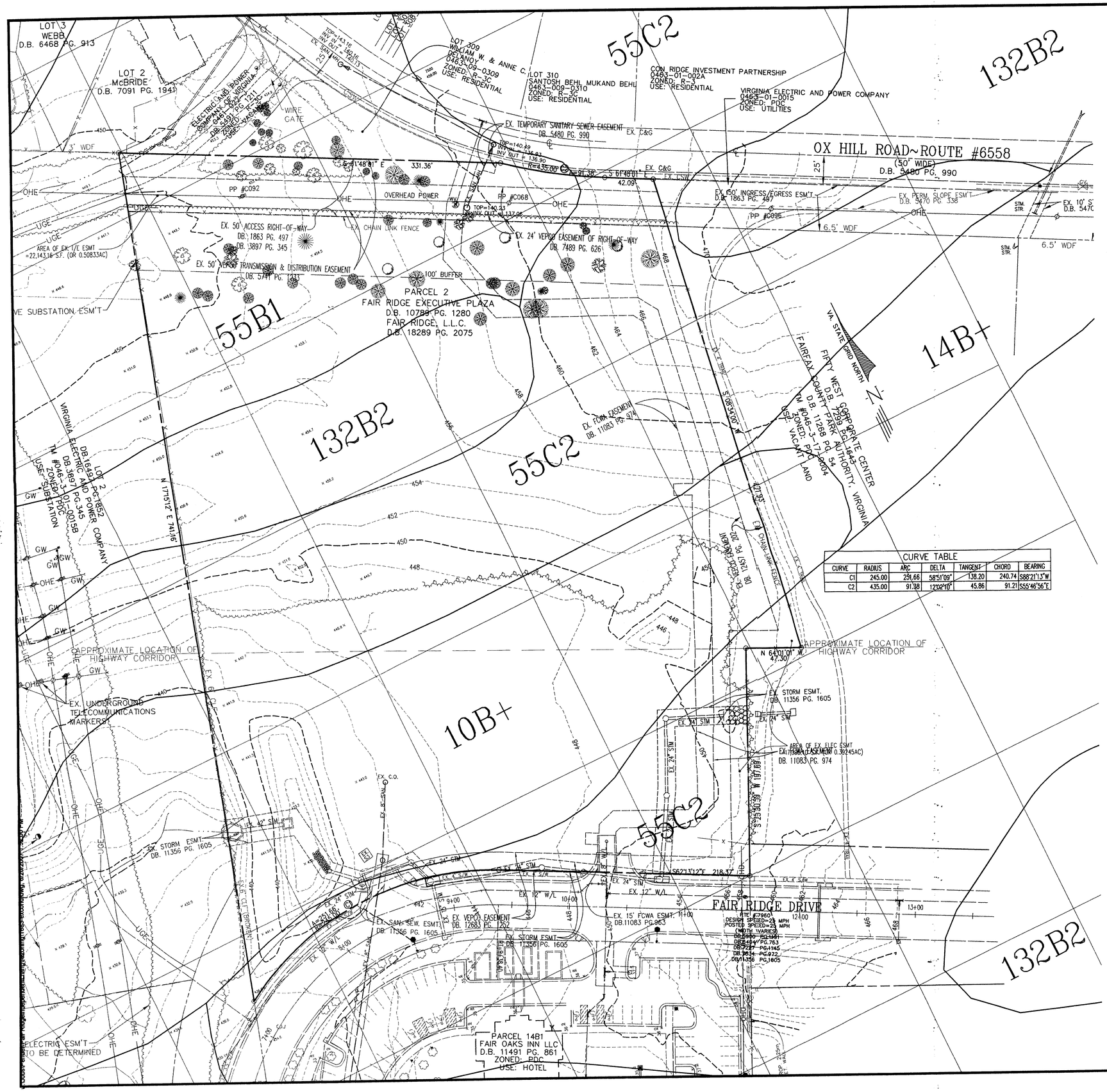
COMMONWEALTH OF VIRGINIA
ERIC S. SIEGEL
No. 023416
06/21/07
PROFESSIONAL ENGINEER

COVER SHEET
FAIR RIDGE
INDEPENDENT LIVING
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=40'
C.L. = N/A
DATE: NOV., 2006

SHEET 1 OF 12

FILE No.
MISC 1683




| CURVE TABLE | | | | | | |
|---|---|---|---|---|---|---|
| CURVE | RADIUS | ARC | DELTA | TANGENT | CHORD | BEARING |
| C1 | 245.00 | 251.66 | 58°51'09" | 138.20 | 240.74 | S88°21'13"W |
| C2 | 435.00 | 91.38 | 12°02'10" | 45.86 | 91.21 | S55°46'56"E |

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## LEGEND:

- EXISTING TREE LINE
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- EXISTING PROPERTY LINE PIPES
- EXISTING FENCE
- EXISTING LIGHTING
- EXISTING CURB AND GUTTER
- 300 EXISTING CONTOUR
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER
- W EXISTING WATER LINE
- G EXISTING GAS LINE
- UGE EXISTING UNDERGROUND ELECTRIC LINE
- OHE EXISTING OVERHEAD ELECTRIC LINE
- UGT EXISTING UNDERGROUND TELEPHONE LINE
- GW EXISTING GUY WIRE
- EXISTING DRAINAGE WAY
- EXISTING POWER POLE

| SOILS LEGEND | | |
|---|---|---|
| NUMBER | NAME | CLASS |
| 10B+ | GLENVILLE | B |
| 55B1 | GLENELG | C |
| 55C2 | GLENELG | C |
| 132B2 | MAYODAN | C |

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|---|---|---|---|---|---|
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|---|
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| 06-21-07 |


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ERIC S. SIEGEL
No. 023416
PROFESSIONAL ENGINEER
06/21/07

EXISTING CONDITIONS AND SOILS MAP

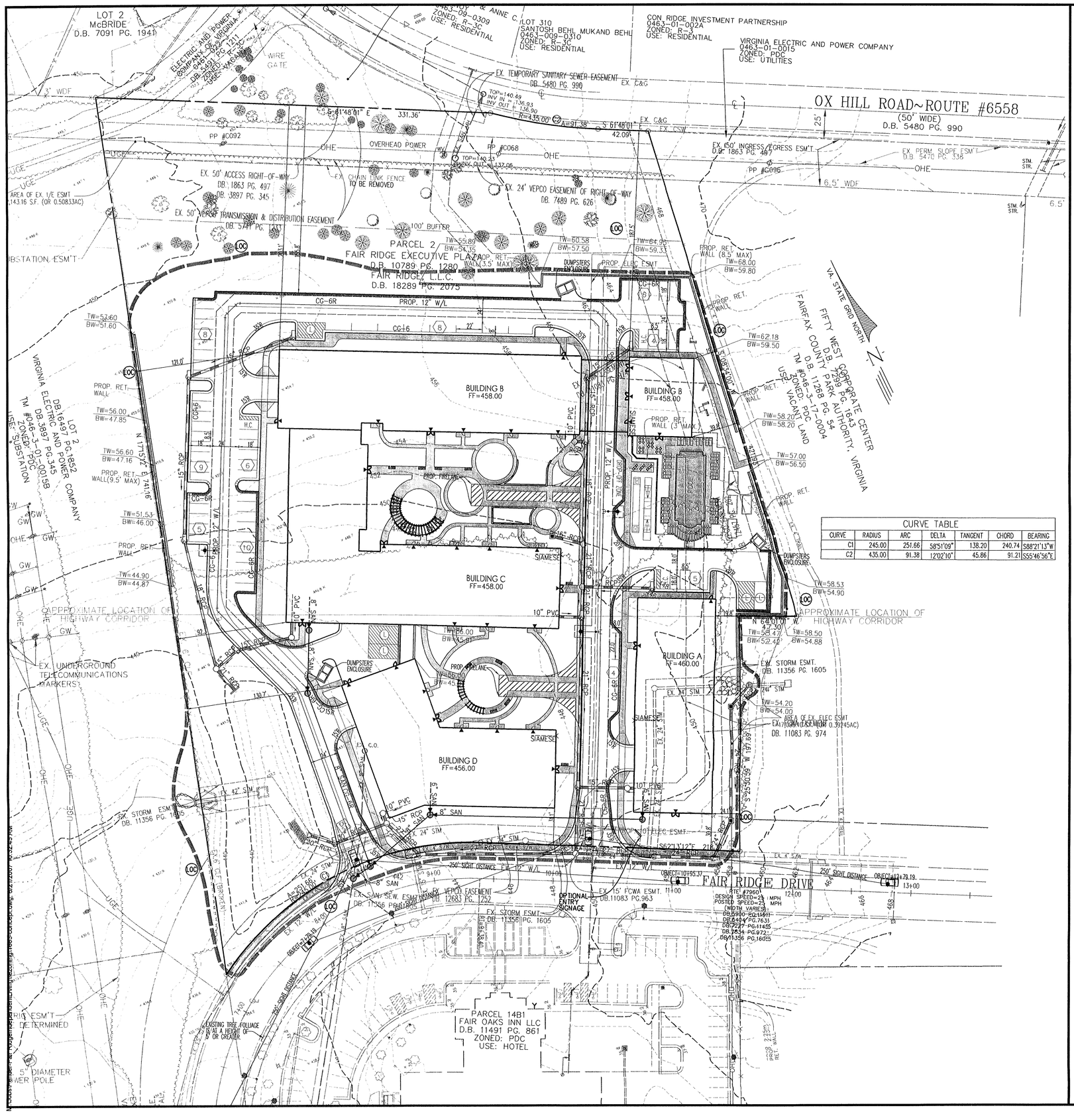
# FAIR RIDGE INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=40'
C.I. = 2'
DATE: NOV., 2006

SHEET 2 OF 12

FILE No. MISC 1683

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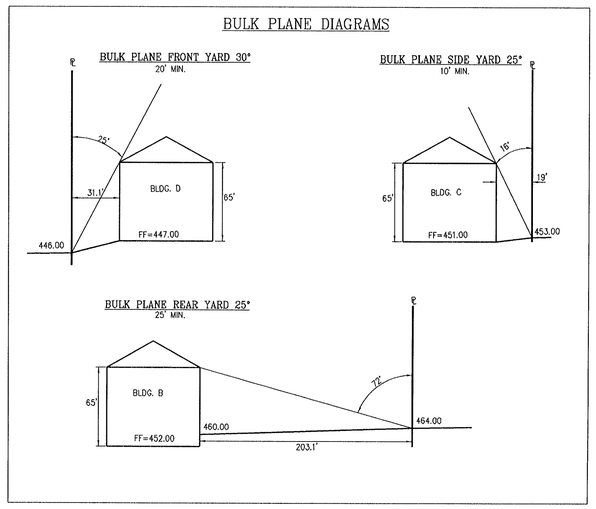
## BULK PLANE DIAGRAMS




SCALE: 1"=50'

## LEGEND:

- PROPOSED GRASSPAVE
- PROPOSED SIDEWALK
- EX. STREET LIGHTS
- PROP. STREET LIGHTS
- O.R. — OVERLAND RELIEF
- ???? VPD — PROJECTED TRAFFIC COUNT
- STREET SIGN
- STOP SIGNS
- PROP. FIRE HYDRANT
- EX. FIRE HYDRANT
- PROPOSED CURB
- MAIN BUILDING ENTERANCE
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING TREE LINE
- LOC — PROPOSED LIMITS OF CLEARING & GRADING
- EX. POWER POLE
- ROAD SIGN
- EXISTING FENCE
- 25.6 — EXISTING SPOT ELEVATION
- +25 60 — PROP. SPOT ELEVATION
- PROPOSED CC-12

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PROFESSIONAL ENGINEER

GENERALIZED DEVELOPMENT PLAN

# FAIR RIDGE
## INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

DATE: NOV., 2006

SCALE: 1"=40'  C.I. = 2'

SHEET 3 OF 12

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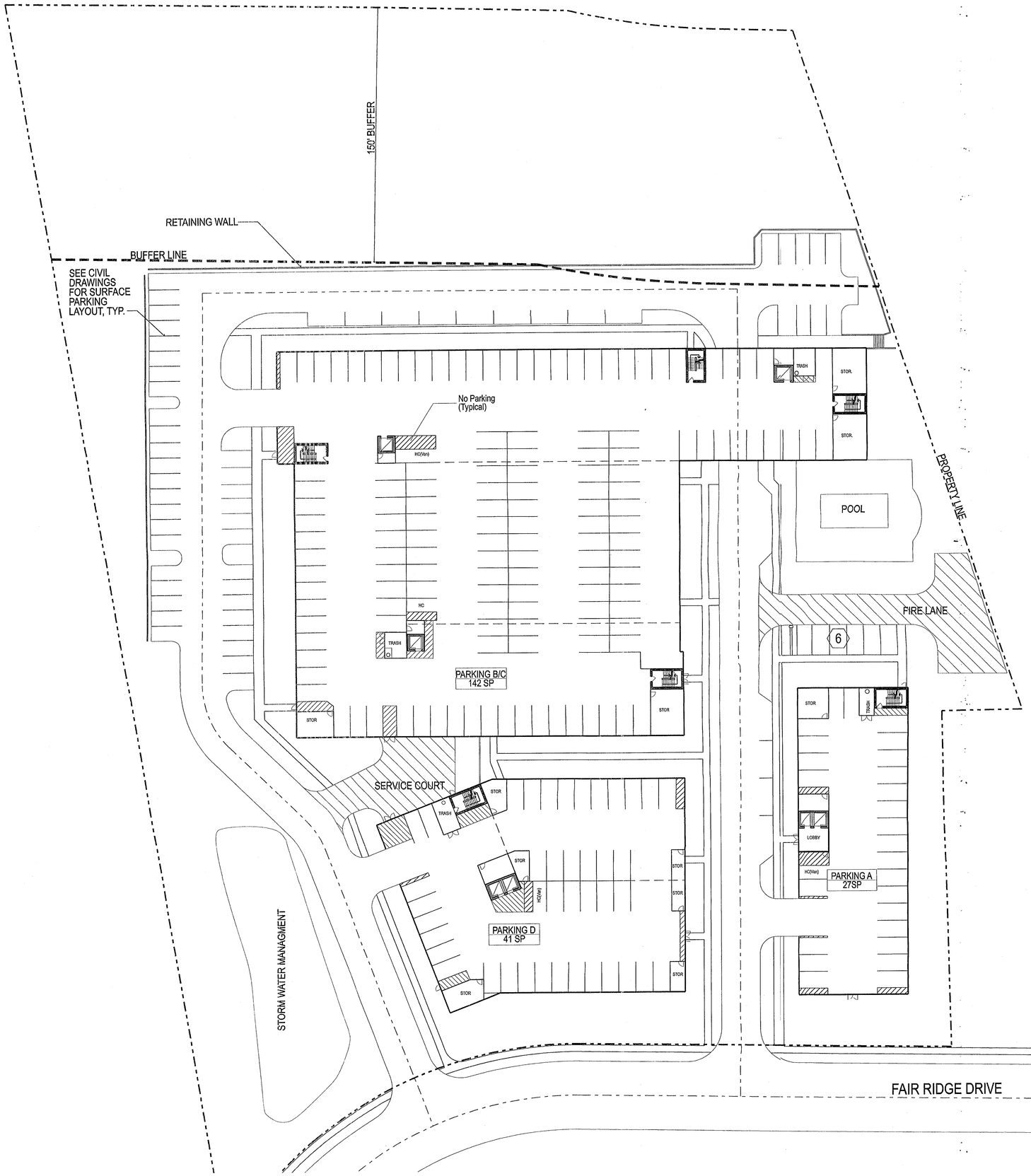


**Bldg A:**

36 Dwelling units
27 Parking spaces including 1 Accessible Van Space
11,881 GSF at Garage

**Bldg B/C:**

124 Dwelling units
142 Parking spaces including 1 Accessible Van Space and 1 Accessible Space
59,785 GSF at Garage

**Bldg D:**

40 Dwelling units
41 Parking spaces including 1 Accessible Van Space
20,281 GSF at Garage

Surface Parking: 67 Spaces

Total Parking: 277 Spaces

Total Units: 200 Dwelling Units

# GARAGE LAYOUT

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30' 20' 10' 0 30'
SCALE: 1" = 30'-0"

# FAIR RIDGE INDEPEN-DENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY,VA

Torti Gallas and Partners, Inc.
1300 Spring Street,
4th Floor
Silver Spring, MD 20910
301.588.4800
www.tortigallaschk.com

Owner
Atlantic Realty Companies
703.760.9500

Civil / Landscape Engineer
Urban Ltd.
703.642.8080

## Key Plan

## Revisions

| No. | Date |
|---|---|

Date
05/14/07
06/04/07
Principal In Charge
D.F.

Project Architect.
E.C.

Approved
M.B.

Drawn
N.F.,E.C.,S.V.,A.M.

Job No.
07135.00

Scale
As Noted

Drawing No.
4 of 12

TORTI GALLAS AND PARTNERS, INC.

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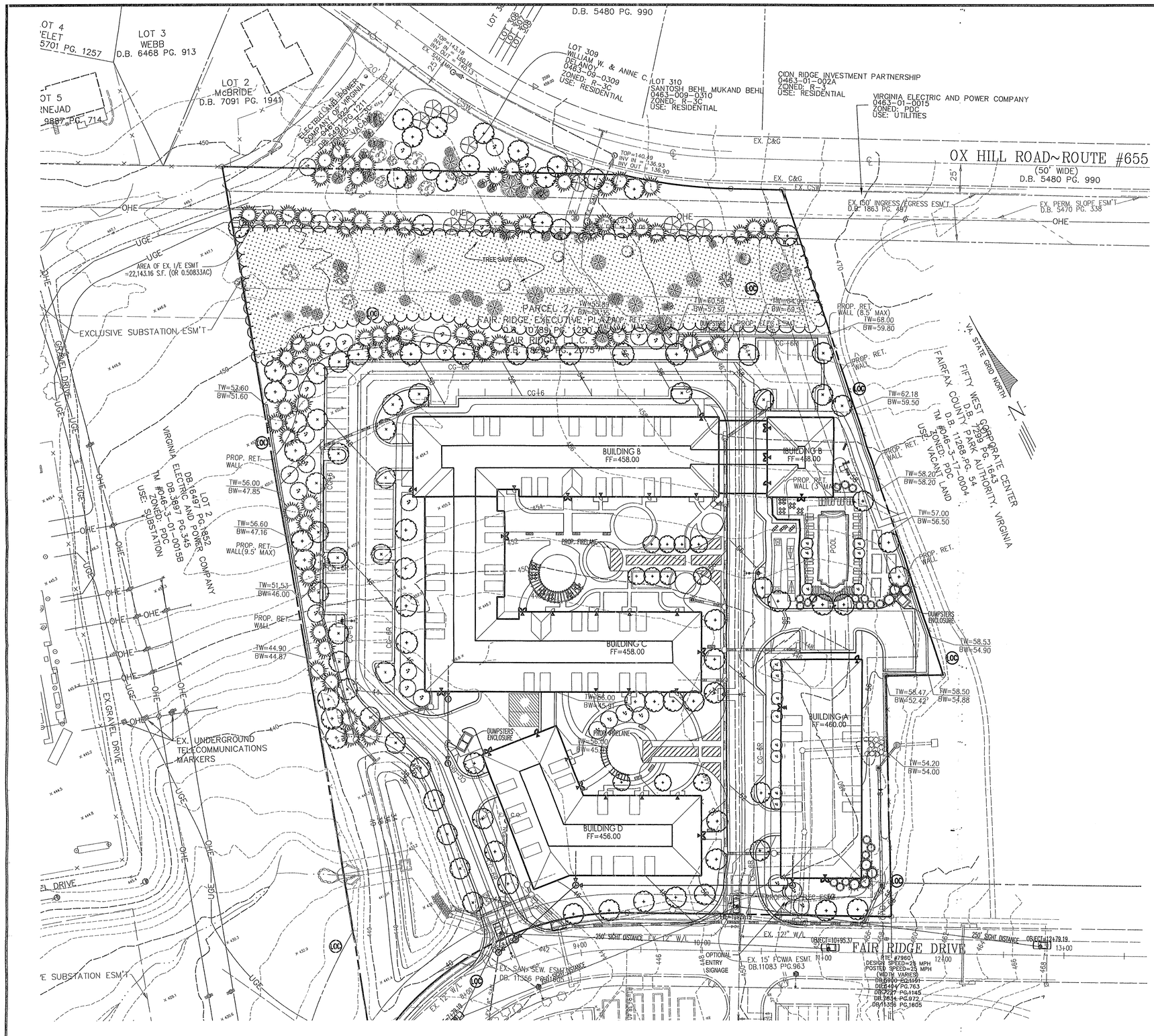


TYPICAL PLANT PALETTE

| Botanical Name | Common Name | Size |
|---|---|---|
| **CANOPY TREES** | | |
| Acer rubrum 'October Glory' | October Glory Red Maple | 3" cal. |
| Fraxinus americana | Seedless Green Ash | 3" cal. |
| Liquidambar styraciflua | Sweetgum | 3" cal. |
| Quercus palustris | Pin Oak | 3" cal. |
| Quercus phellos | Willow Oak | 3" cal. |
| Quercus rubra | Red Oak | 3" cal. |
| **ORNAMENTAL / EVERGREEN TREES** | | |
| Cercis canadensis | Eastern Redbud | 8'-10' ht. |
| Cornus florida | Flowering Dogwood | 8'-10' ht. |
| Hammelis virginiana | Witch Hazel | 6'-8' ht. |
| Ilex opaca | American Holly | 6'-8' ht. |
| Juniperus virginiana | Eastern Redcedar | 6'-8' ht. |
| Lagerstroemia indica 'Natchez' | Crape Myrtle | 8'-10' ht. |
| Magnolia lilliflora x stellata 'Susan' | Susan Magnolia | 8'-10' ht. |
| Magnolia soulangiana | Saucer Magnolia | 8'-10' ht. |
| Magnolia Virginiana | Sweetbay Magnolia | 8'-10' ht. |
| Pinus strobus | White Pine | 8'-10' ht. |
| **SHRUBS / GROUNDCOVERS / PERENNIALS / MISC.** | | |
| Azalea 'Delaware Valley' | White Azalea | 30" |
| Calamagrostis acutiflora 'Karl Forester' | Feather Reed Grass | 3 gal. |
| Cotoneaster dammeri 'Coral Beauty' | Coral Beauty Cotoneaster | 18"-24" |
| Hemerocallis minor 'Stella D'Oro' | Stella D'Oro Daylily | 2 gal. |
| Hydrangea quercifolia | Oakleaf Hydrangea | 30-36" |
| Hypericum calycinum | Aaronsbeard St. John's Wort | 3 gal. |
| Ilex crenata 'Helleri' | Helleri Holly | 18"-24" |
| Ilex x meserveae 'Blue Princess' | Blue Princess Holly | 30"-36" |
| Viburnum rhytidophylum | Leatherleaf Viburnum | 30"-36" |

NOTES:
1. LANDSCAPING SHOWN IS CONCEPTUAL AND PRESENTED ONLY TO ILLUSTRATE CHARACTER AND QUALITY OF DESIGN. LOCATIONS, SPECIES AND QUANTITIES MAY BE ADJUSTED WITH FINAL DESIGN AND ENGINEERING.

TREE CANOPY COVER REQUIREMENTS

| | |
|---|---|
| TOTAL SITE AREA: | 302,138 s.f. |
| BUILDING FOOTPRINTS: | 69,390 s.f. |
| NET SITE AREA: | 232,748 s.f. |
| CANOPY REQUIRED (20%): | 46,550 s.f. |
| TREE SAVE AREA (20,000 x 1.25): | 25,000 s.f. |
| LANDSCAPING PROVIDED: | 22,000 s.f. |
| CANOPY PROVIDED: | 47,000 s.f. |

THE FOLLOWING MODIFICATIONS ARE REQUESTED:

(i) A MODIFICATION OF THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS ALONG THE NORTHERN BOUNDARY TO THAT SHOWN ON THIS PLAN IN CONFORMANCE WITH PARAGRAPH (3) SECTION 13-304 OF THE ZONING ORDINANCE. EXISTING TREES TO REMAIN AND PROPOSED TREE AND SHRUB PLANTINGS WILL PROVIDE A SUBSTANTIAL VISUAL BUFFER BETWEEN USES.

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LANDSCAPE PLAN
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INDEPENDENT LIVING
SULLY DISTRICT
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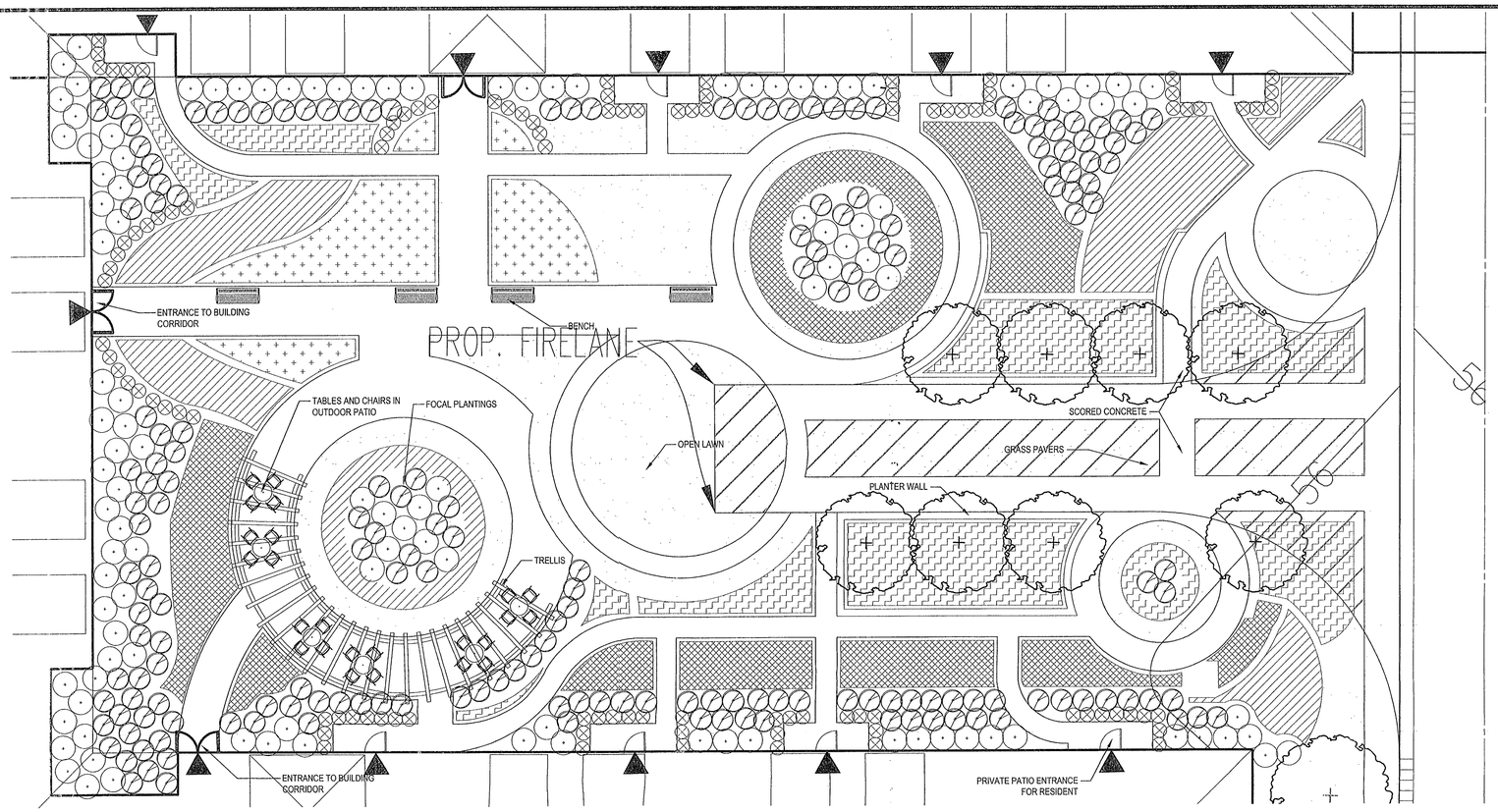
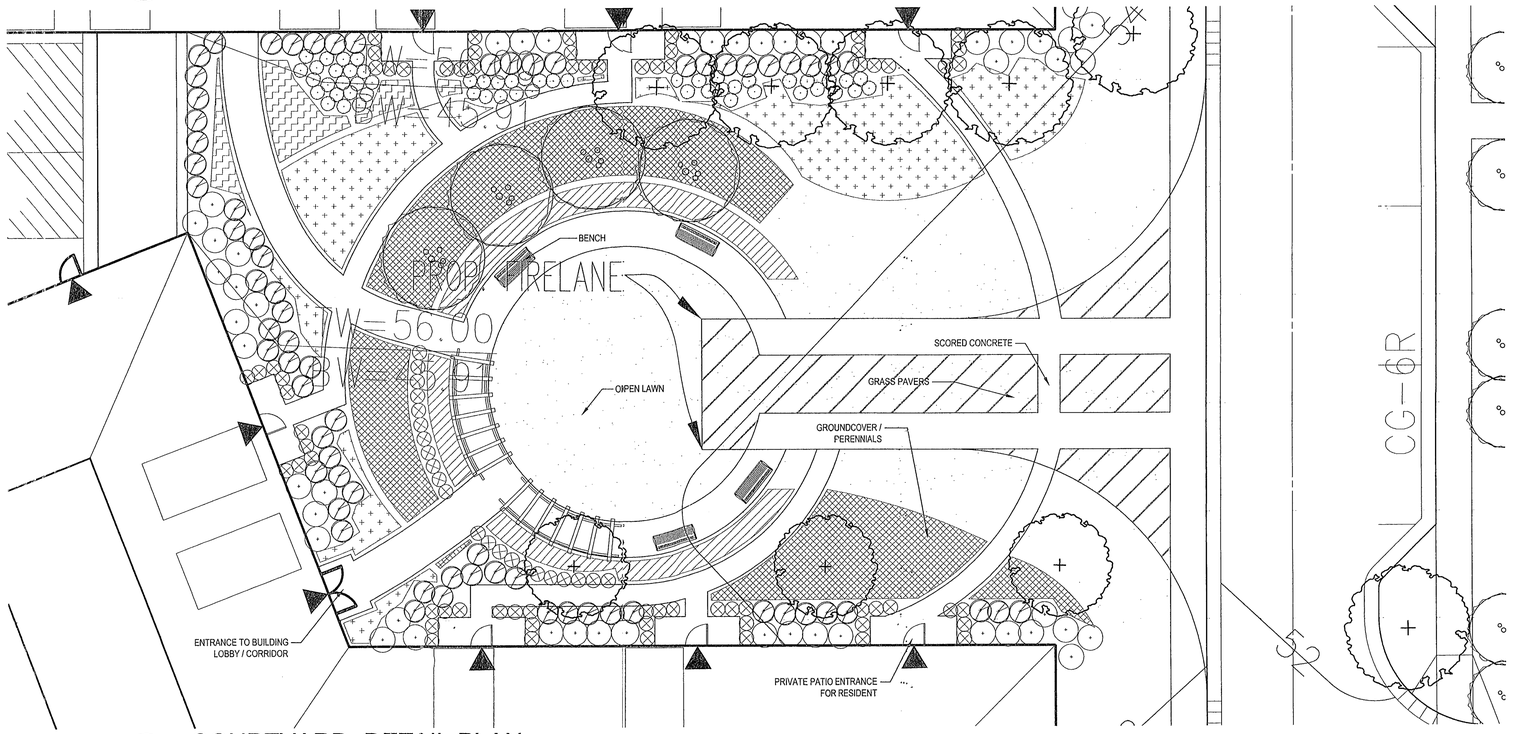
SCALE: 1"=40' C.I. =2' DATE: NOV., 2006

SHEET 5 OF 12

FILE No. MISC-1683




1 COURTYARD: DETAIL PLAN
Scale: 1"=10'




2 COURTYARD: DETAIL PLAN
Scale: 1"=10'

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COMMONWEALTH OF VIRGINIA
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ILLUSTRATIVE DETAIL PLANS
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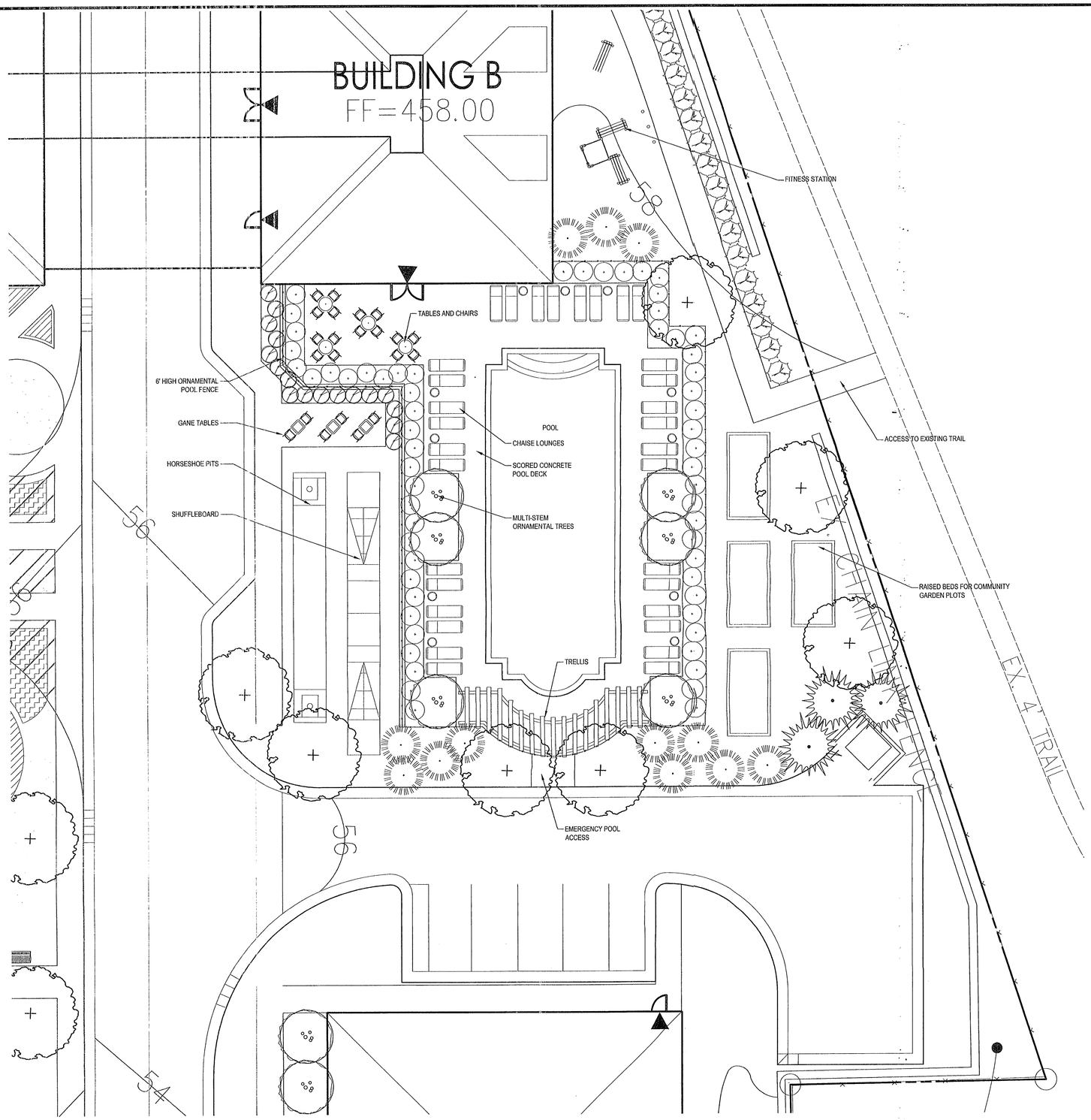
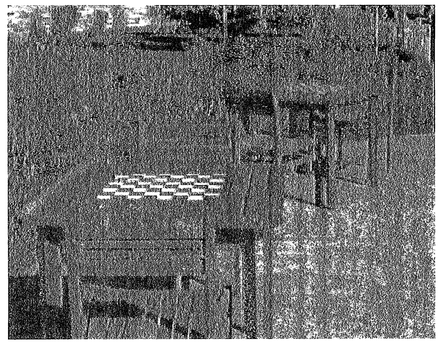
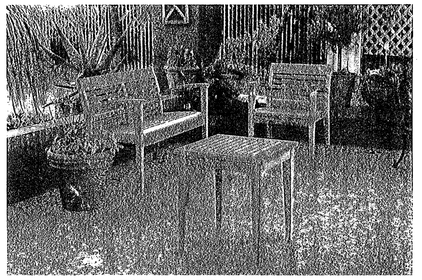
SHEET 5A OF 12

FILE No.
MISC-1683




1 CLUBHOUSE RECREATION: DETAIL PLAN
Scale: 1"=10'


GAME TABLES


BENCHES & SEATING AREAS

FITNESS STATION

2 RECREATIONAL AMENITIES
NTS

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
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Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

| No. | DATE | DESCRIPTION | REV.BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | REVISION APPROVED BY DIVISION OF DESIGN REVIEW | | | |

| PLAN DATE |
|---|
| 11-09-06 |
| 12-14-06 |
| 3-22-07 |
| 4-20-07 |
| 05-14-07 |
| 06-04.07 |
| 06-21-07 |

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COMMONWEALTH OF VIRGINIA
ERIC S. SIEGEL
No. 023416
06/20/07
PROFESSIONAL ENGINEER

ILLUSTRATIVE DETAIL PLANS

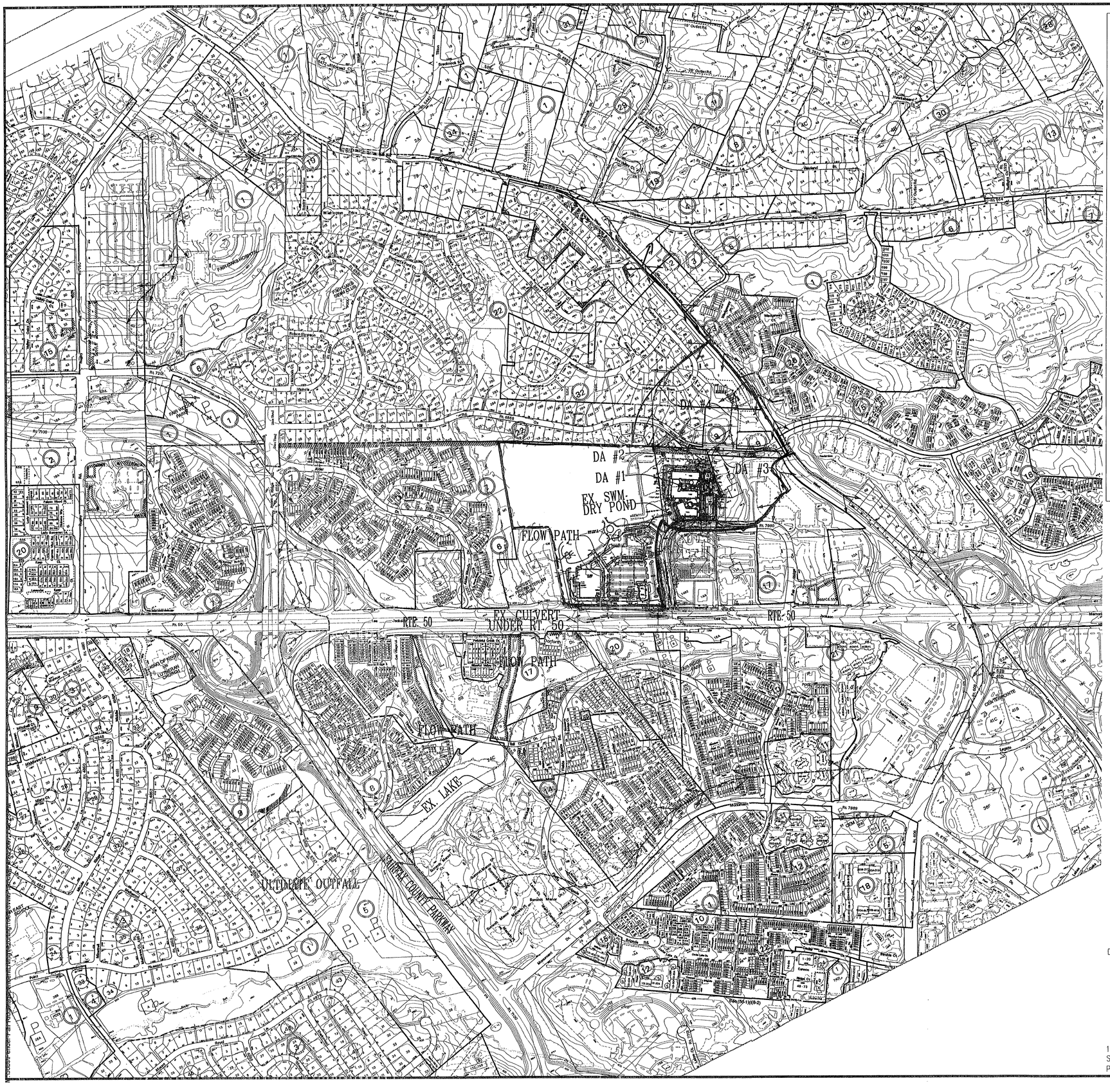
# FAIR RIDGE INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=40' C.I. =2' DATE: NOV., 2006

SHEET 5B OF 12

FILE No. MISC-1683




## 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) |

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

☑ 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.

☑ 3. Provide:

| Facility Name/ Type & No. (e.g. dry pond A, crib block, 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) |
|---|---|---|---|---|---|---|
| EXISTING DRY POND | 5.89 | 0 | 5.89 | 49x114=5,586 S.F. | 59,682 C.F. | 7' |
| | | | | | | |
| | | | | | | |
| Totals | | | | | | |

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

☑ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 3. Type of maintenance access road surface noted on the plat is Private Road (asphalt, geoblock, gravel, etc.). (gravel)

☑ 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet N/A.

☑ 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 6A.

☑ 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 6A.

☑ 9. A description of how the outfall requirements, including known changes to contributing drainage areas (i.e. drainage diversions), of the Public Facilities Manual will be satisfied is provided on Sheet 6A.

☑ 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 2 (air survey)

☑ 11. A submission waiver is requested for Offsite BMP

☑ 12. Stormwater management is not required because (is required and provided)

Revised 2-21-2006

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet 3 of 18
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Dev Conditions 6-27-2007

## DRAINAGE AREA SUMMARY

| DRAINAGE AREA DESIGNATOR | ONSITE/OFFSITE | CONTROLLED/ UNCONTROLLED | DRAINAGE AREA |
|---|---|---|---|
| DA #1 | ONSITE | CONTROLLED | 5.89 AC (OR 256,568 S.F.) |
| DA #2 | ONSITE | UNCONTROLLED | 1.05 AC (OR 45,738 S.F.) |
| DA #3 | OFFSITE | UNCONTROLLED * | 12.34 AC (OR 537,530 S.F.) |
| DA #4 | OFFSITE | UNCONTROLLED | 12.16 AC (OR 529,689 S.F.) |

*WILL NOT BE DETAINED BY THE ONSITE POND.

## SWM NOTES

1. THE EXISTING POND WILL BE REROUTED WITH THE FINAL SITE PLAN TO ENSURE IT IS ADEQUATELY SIZED, HOWEVER, THE PROPOSED LAND USE IS LESS INTENSE THAN THE ORIGINAL DESIGN OF THE POND ANTICIPATED.

| No. | DATE | DESCRIPTION | REV BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | REVISION APPROVED BY DIVISION OF DESIGN REVIEW | | | |

PLAN DATE
11-09-06
01-11-07
03-22-07
04-02-07
05-14-07
06-04-07
06-21-07

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
No. 038790
06/21/07
PROFESSIONAL ENGINEER

S.W.M. - DRAINAGE DIVIDE MAP

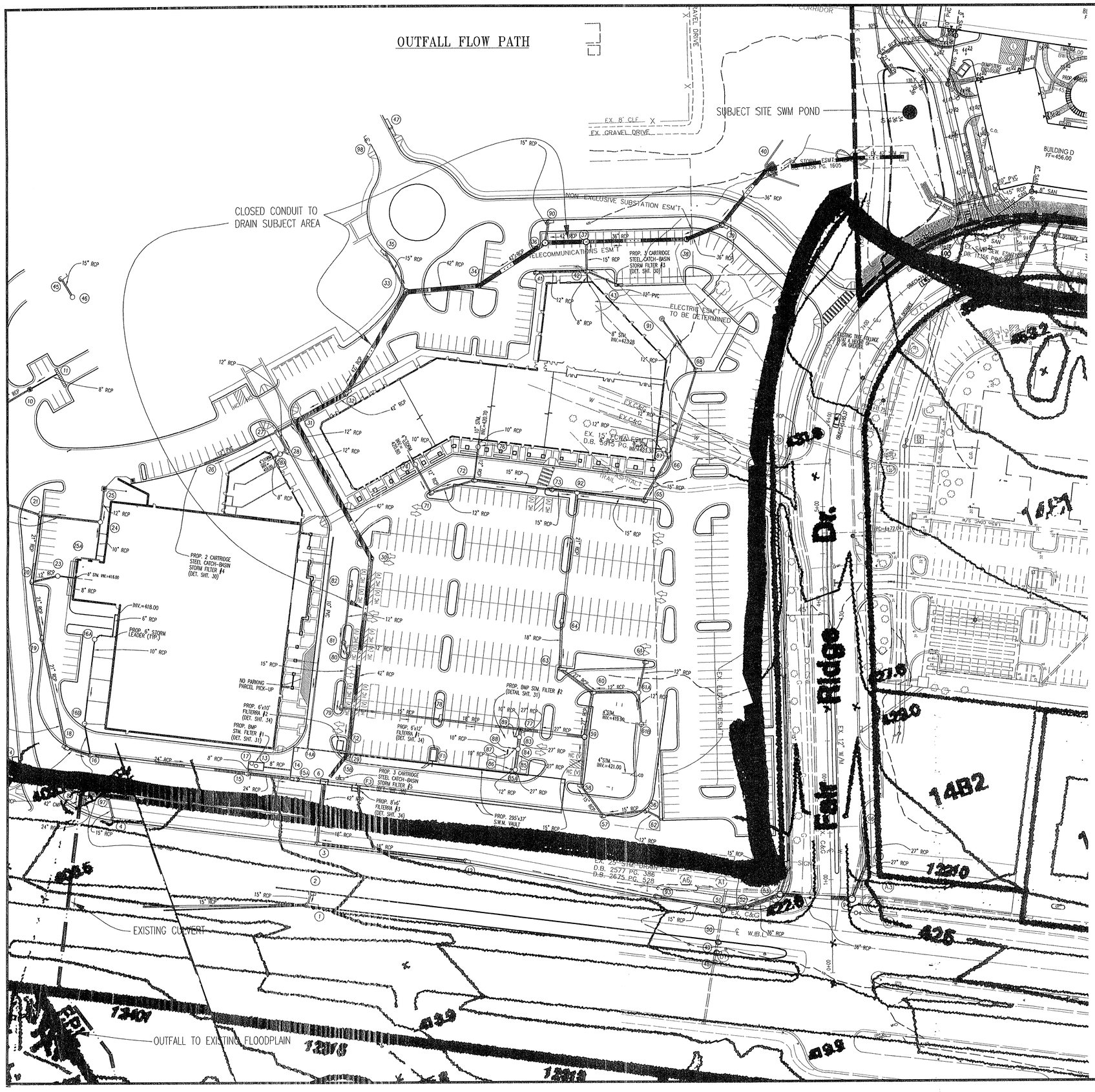
# FAIR RIDGE INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=400' C.I. = 2' DATE: NOV. 2006

SHEET 6 OF 12

FILE No. MISC 1683




## SWM / BMP ANALYSIS

THIS SITE IS LOCATED ON TAX MAP ASSESSMENT NUMBER 46-3-((1))-14C. THE PURPOSE OF THIS PLAN IS FOR THE CONSTRUCTION OF AN INDEPENDENT LIVING FACILITY ALONG WITH A COMMUNITY CENTER. SURFACE PARKING AND ALL THE NECESSARY INFRASTRUCTURE TO SUPPORT THE DEVELOPMENT WILL BE PROVIDED. THE TOTAL SITE AREA IS 6.94 ACRES, OF WHICH, 6.14 ACRES IS BEING DISTURBED WITH THIS DEVELOPMENT.

THE EXISTING SITE HAS A NATURAL DRAINAGE DIVIDE THAT FLOWS EAST TO WEST, AND THEN ULTIMATELY BREAKS NORTH TO SOUTH NEAR THE WESTERN PROPERTY LINE. AT THE BREAK POINT, THE FLOW BREAK SOUTH TO THE EXISTING STORMWATER MANAGEMENT POND, LOCATED IN THE SOUTHWEST CORNER OF THE SITE AND THE BALANCE OF THE SITE DRAINS NORTHWEST TO AN EXISTING SWALE THAT ULTIMATELY DRAINS TO AN EXISTING FLOODPLAIN. THERE IS ALSO APPROXIMATELY 12.34 AC OF OFFSITE WATER THAT DRAINS THROUGH THE POND, BUT IT IS NOT DETAINED IN THE ONSITE POND. IT IS ACTUALLY DETAINED IN AN EXISTING S.W.M. POND LOCATED TO THE EAST OF OUR SITE. THE ONSITE POND DISCHARGES THROUGH THE RISER STRUCTURE AND FLOWS VIA AN EXISTING SWALE TO AN EXISTING CULVERT SYSTEM UNDER ROUTE 50, WHICH CONSISTS OF AN EXISTING 42" RCP AND 24" RCP. AS THE COMPUTATIONS ON THIS SHEET INDICATE, THE EXISTING CULVERT SYSTEM IS ADEQUATELY CONTROLLING THE RUNOFF DRAINING TO IT. HOWEVER, URBAN ENGINEERING HAS RECENTLY SUBMITTED A SITE PLAN FOR PENDER VILLAGE, WHICH WILL COLLECT THE RUNOFF FROM OUR SUBJECT SITE AND ROUTE IT THROUGH THE PENDER VILLAGE SITE, VIA A CLOSED CONDUIT SYSTEM, TO A UNDERGROUND SWM VAULT. THE ROUTE OF THE CLOSED CONDUIT SYSTEM IS SHOWN ON SHEET 16. THE PATH OF THE FLOW IS LABELED "FLOW PATH". THE FLOW PATH ON THE EXHIBIT SHOWS THE PATH OF FLOW FROM OUR SITE TO AN EXISTING LAKE, LOCATED TO THE EAST OF ROUTE 7100.

THE EXISTING ONSITE STORMWATER MANAGEMENT POND WAS DESIGNED UNDER FAIRFAX COUNTY PLAN NUMBER 9779-SP-01, TITLED "FAIR RIDGE EXECUTIVE PLAZA - PHASE 1 SITE -- HILTON GARDEN INN". THE ORIGINAL ROUTING AND HYDROGRAPHS FOR THE POND HAVE BEEN PROVIDED ON SHEET 7. AS SHOW ON SHEET 8 IN THE EXHIBIT TITLED "OFFSITE DRAINAGE MAP", THE POND WAS SIZED TO ACCOMMODATE A DEVELOPMENT OF LIKE INTENSITY AND DRAINAGE AREA AS WHAT WE ARE PROPOSING WITH THIS APPLICATION. THE CURRENT DESIGN RESULTS IN A WATER SURFACE ELEVATIONS FOR THE 2, 10, AND 100 YEAR STORM EVENTS OF 438.41, 439.20, AND 439.76. THE TOP OF DAM IS 441.50 AND THE APPROXIMATE VOLUME OF THE DRY POND IS 57,978 CUBIC FEET.

THE EXISTING DRAINAGE DIVIDES RESULTS IN APPROXIMATELY 2.10 ACRES OF THE SUBJECT SITE DRAINING TO THE NORTHWEST CORNER OF THE SITE AND 4.84 ACRES OF THE SUBJECT SITE DRAINING TO THE EXISTING DRY POND. WITH THE PROPOSED DEVELOPMENT, THE AMOUNT OF SITE AREA BEING COLLECTED AND CONVEYED TO THE EXISTING DRY POND WILL INCREASE TO 5.89 ACRES, LEAVING 1.05 ACRES UNTREATED. AS SUCH, THE PROPOSED DEVELOPMENT WILL CHANGE THE DRAINAGE AREAS LEAVING THE SITE, BUT A LARGER PORTION WILL BE LEAVING VIA THE DETENTION POND IN HE SOUTHWEST CORNER OF THE SITE. A REDUCTION OF OF UNCONTROLLED RUNOFF FROM THE SITE WILL OCCUR AS A RESULT OF THE DEVELOPMENT. THERE WILL BE NO NEW FLOODPLAINS CREATED AS A RESULT OF THE CHANGED DRAINAGE AREA TO THE NORTHWEST OR SOUTHWEST CORNER OF THE SUBJECT PROPERTY.

PER THE FAIRFAX COUNTY LETTER TO INDUSTRY CONCERNING ADEQUACY OF THE OUTFALL, THE SITE RUNOFF WILL BE EVALUATED 150' DOWNSTREAM OF THE POINT WHERE 649 ACRES JOIN TOGETHER. THE GENERAL LOCATION IS AT THE EXISTING LAKE JUST EAST OF ROUTE 7100 (SEE SHEET 16). AT THE TIME OF THE ORIGINAL REZONING FOR OUR SITE, THE SAID LAKE WAS USED TO MEET THE BMP TREATMENT REQUIREMENTS. THIS APPLICATION WILL PROPOSE TO CONTINUE UTILIZING THE EXISTING LAKE FOR BMP TREATMENT OF OUR SITE.

SIGNATURE: Clayton Tock DATE: 01/12/07

CLAYTON C. TOCK, P.E.
ASSOCIATE

## EXISTING CULVERT ANALYSIS – UNDER ROUTE 50

CULVERT CALCULATION
AREA = 33.92 AC.
C = 0.70
$Q_2$ = 129.40 CFS
$Q_{10}$ = 172.62 CFS
SLOPE 'S' = 0.03 FT/FT
ROUGHNESS COEFFECIENT 'n' = 0.013

FOR 42" PIPE:
RADIUS = 21" = 1.75'
WETTED PERIMETER 'R'= 1.75'
AREA OF PIPE = 9.62 SQFT.
VELOCITY = (1.49/N)*(R^(2/3))*(S^(0.5))
= 28.83 FT/SEC.
CAPACITY OF PIPE 'Q' = AREA*VELOCITY
= 28.83 * 9.62
= 277.33 CFS.

MULTIPLYING THE AREA RATIO OF THE TWO PIPES (42" AND 24") TO THE TOTAL FLOW OF 172.62 CFS, THE 10 YR FLOW TO 42" PIPE IS 115.65 CFS WHICH IS LESS THAN THE DESIGN PIPE FLOW (277.33 CFS). HENCE OK.

FOR 24" PIPE:
RADIUS = 12" = 1.00'
WETTED PERIMETER 'R'= 1.00'
AREA OF PIPE = 3.14 SQFT.
VELOCITY = (1.49/n)*(R^(2/3))*(S^(0.5))
= 19.85 FT/SEC.
CAPACITY OF PIPE 'Q' = AREA*VELOCITY
= 3.14 * 19.85
= 62.34 CFS.

MULTIPLYING THE AREA RATIO OF THE TWO PIPES (42" AND 24") TO THE TOTAL FLOW OF 172.62 CFS, THE 10 YR FLOW TO 24" PIPE IS 56.96 CFS WHICH IS LESS THAN THE DESIGN PIPE FLOW (62.34 CFS). HENCE OK.

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet _____ of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

| No. | DATE | DESCRIPTION | REV.BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | | | | |

REVISION APPROVED BY DIVISION OF DESIGN REVIEW

| PLAN DATE |
|---|
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| 12-14-06 |
| 01-11-07 |
| 03-22-07 |
| 04-02-07 |
| 05-14-07 |
| 06-04-07 |
| 06-21-07 |

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
No. 036790
06/21/07
PROFESSIONAL ENGINEER

S.W.M. - DRAINAGE DIVIDE MAP

# FAIR RIDGE INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=400' C.I. = 2' DATE: NOV., 2006

SHEET 6A OF 12

FILE No. MISC 1683

## OFFSITE INFLOW PREDEVELOPMENT & POSTDEVELOPMENT

2 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 0 |
| .1666 | 10 | 0 |
| .2499 | 15 | 0 |
| .3332 | 20 | 1.736 |
| .4165 | 25 | 3.286 |
| .4998 | 30 | 4.526 |
| .5831 | 35 | 5.27 |
| .6664 | 40 | 5.642 |
| .7497 | 45 | 5.766 |
| .833 | 50 | 5.642 |
| .9163 | 55 | 5.456 |
| .9996 | 60 | 5.208 |
| 1.0829 | 65 | 4.96 |
| 1.1662 | 70 | 4.65 |
| 1.2495 | 75 | 4.402 |
| 1.3328 | 80 | 3.844 |
| 1.4161 | 85 | 3.782 |
| 1.4994 | 90 | 3.472 |
| 1.5827 | 95 | 3.162 |
| 1.666 | 100 | 2.914 |
| 1.7493 | 105 | 2.604 |
| 1.8326 | 110 | 2.356 |
| 1.9159 | 115 | 2.046 |
| 1.9992 | 120 | 1.674 |

10 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 0 |
| .1666 | 10 | 0 |
| .2499 | 15 | 4.03 |
| .3332 | 20 | 12.09 |
| .4165 | 25 | 15.066 |
| .4998 | 30 | 13.454 |
| .5831 | 35 | 11.594 |
| .6664 | 40 | 10.106 |
| .7497 | 45 | 8.865999 |
| .833 | 50 | 7.935999 |
| .9163 | 55 | 7.13 |
| .9996 | 60 | 6.509999 |
| 1.0829 | 65 | 6.014 |
| 1.1662 | 70 | 5.642 |
| 1.2495 | 75 | 5.456 |
| 1.3328 | 80 | 5.208 |
| 1.4161 | 85 | 4.96 |
| 1.4994 | 90 | 4.588 |
| 1.5827 | 95 | 4.216 |
| 1.666 | 100 | 3.968 |
| 1.7493 | 105 | 3.596 |
| 1.8326 | 110 | 3.162 |
| 1.9159 | 115 | 2.79 |
| 1.9992 | 120 | 2.418 |

100 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 0 |
| .1666 | 10 | 3.472 |
| .2499 | 15 | 25.606 |
| .3332 | 20 | 26.908 |
| .4165 | 25 | 20.708 |
| .4998 | 30 | 17.732 |
| .5831 | 35 | 15.314 |
| .6664 | 40 | 13.578 |
| .7497 | 45 | 12.214 |
| .833 | 50 | 11.656 |
| .9163 | 55 | 10.974 |
| .9996 | 60 | 10.23 |
| 1.0829 | 65 | 9.485999 |
| 1.1662 | 70 | 8.679999 |
| 1.2495 | 75 | 7.935999 |
| 1.3328 | 80 | 7.254 |
| 1.4161 | 85 | 6.509999 |
| 1.4994 | 90 | 5.704 |
| 1.5827 | 95 | 4.96 |
| 1.666 | 100 | 4.216 |
| 1.7493 | 105 | 3.782 |
| 1.8326 | 110 | 3.41 |
| 1.9159 | 115 | 2.976 |
| 1.9992 | 120 | 2.542 |

## ONSITE INFLOW PREDEVELOPMENT

2 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 4.5126 |
| .1666 | 10 | 3.8088 |
| .2499 | 15 | 3.2292 |
| .3332 | 20 | 2.83176 |
| .4165 | 25 | 2.50056 |
| .4998 | 30 | 2.28528 |
| .5831 | 35 | 2.07 |
| .6664 | 40 | 1.9044 |
| .7497 | 45 | 1.75536 |
| .833 | 50 | 1.656 |
| .9163 | 55 | 1.5318 |
| .9996 | 60 | 1.449 |
| 1.0829 | 65 | 1.3248 |
| 1.1662 | 70 | 1.2834 |
| 1.2495 | 75 | 1.2006 |
| 1.3328 | 80 | 1.1592 |
| 1.4161 | 85 | 1.1178 |
| 1.4994 | 90 | 1.035 |
| 1.5827 | 95 | .9936001 |
| 1.666 | 100 | .97704 |
| 1.7493 | 105 | .9108 |
| 1.8326 | 110 | .89424 |
| 1.9159 | 115 | .8694 |
| 1.9992 | 120 | .828 |

10 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 12.03912 |
| .1666 | 10 | 9.80352 |
| .2499 | 15 | 8.4456 |
| .3332 | 20 | 7.55136 |
| .4165 | 25 | 6.67368 |
| .4998 | 30 | 6.14376 |
| .5831 | 35 | 5.7132 |
| .6664 | 40 | 5.24952 |
| .7497 | 45 | 4.8852 |
| .833 | 50 | 4.6368 |
| .9163 | 55 | 4.3884 |
| .9996 | 60 | 4.14 |
| 1.0829 | 65 | 3.9744 |
| 1.1662 | 70 | 3.8088 |
| 1.2495 | 75 | 3.5604 |
| 1.3328 | 80 | 3.3948 |
| 1.4161 | 85 | 3.1464 |
| 1.4994 | 90 | 3.0636 |
| 1.5827 | 95 | 2.9808 |
| 1.666 | 100 | 2.898 |
| 1.7493 | 105 | 2.8152 |
| 1.8326 | 110 | 2.7324 |
| 1.9159 | 115 | 2.5668 |
| 1.9992 | 120 | 2.484 |

100 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 20.3688 |
| .1666 | 10 | 16.767 |
| .2499 | 15 | 14.5935 |
| .3332 | 20 | 13.0824 |
| .4165 | 25 | 11.9025 |
| .4998 | 30 | 10.8054 |
| .5831 | 35 | 9.936001 |
| .6664 | 40 | 9.315001 |
| .7497 | 45 | 8.901001 |
| .833 | 50 | 8.383501 |
| .9163 | 55 | 7.969501 |
| .9996 | 60 | 7.659001 |
| 1.0829 | 65 | 7.348501 |
| 1.1662 | 70 | 7.038001 |
| 1.2495 | 75 | 6.624001 |
| 1.3328 | 80 | 6.3135 |
| 1.4161 | 85 | 6.003001 |
| 1.4994 | 90 | 5.796 |
| 1.5827 | 95 | 5.589001 |
| 1.666 | 100 | 5.382 |
| 1.7493 | 105 | 5.175 |
| 1.8326 | 110 | 4.968 |
| 1.9159 | 115 | 4.761 |
| 1.9992 | 120 | 4.554 |

## TOTAL INFLOW PREDEVELOPMENT

2 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 4.5126 |
| .1666 | 10 | 3.8088 |
| .2499 | 15 | 3.2292 |
| .3332 | 20 | 4.56776 |
| .4165 | 25 | 5.78656 |
| .4998 | 30 | 6.81128 |
| .5831 | 35 | 7.34 |
| .6664 | 40 | 7.5464 |
| .7497 | 45 | 7.52136 |
| .833 | 50 | 7.298 |
| .9163 | 55 | 6.9878 |
| .9996 | 60 | 6.657 |
| 1.0829 | 65 | 6.2848 |
| 1.1662 | 70 | 5.9334 |
| 1.2495 | 75 | 5.6026 |
| 1.3328 | 80 | 5.0032 |
| 1.4161 | 85 | 4.8998 |
| 1.4994 | 90 | 4.507 |
| 1.5827 | 95 | 4.1556 |
| 1.666 | 100 | 3.89104 |
| 1.7493 | 105 | 3.5148 |
| 1.8326 | 110 | 3.25024 |
| 1.9159 | 115 | 2.9154 |
| 1.9992 | 120 | 2.502 |

10 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 12.03912 |
| .1666 | 10 | 9.80352 |
| .2499 | 15 | 12.4756 |
| .3332 | 20 | 19.64136 |
| .4165 | 25 | 21.73968 |
| .4998 | 30 | 19.59776 |
| .5831 | 35 | 17.3072 |
| .6664 | 40 | 15.35552 |
| .7497 | 45 | 13.7512 |
| .833 | 50 | 12.5728 |
| .9163 | 55 | 11.5184 |
| .9996 | 60 | 10.65 |
| 1.0829 | 65 | 9.9884 |
| 1.1662 | 70 | 9.4508 |
| 1.2495 | 75 | 9.016399 |
| 1.3328 | 80 | 8.6028 |
| 1.4161 | 85 | 8.1064 |
| 1.4994 | 90 | 7.6516 |
| 1.5827 | 95 | 7.1968 |
| 1.666 | 100 | 6.866 |
| 1.7493 | 105 | 6.4112 |
| 1.8326 | 110 | 5.8944 |
| 1.9159 | 115 | 5.3568 |
| 1.9992 | 120 | 4.902 |

100 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 20.3688 |
| .1666 | 10 | 20.239 |
| .2499 | 15 | 40.1995 |
| .3332 | 20 | 39.9904 |
| .4165 | 25 | 32.6105 |
| .4998 | 30 | 28.5374 |
| .5831 | 35 | 25.25 |
| .6664 | 40 | 22.893 |
| .7497 | 45 | 21.115 |
| .833 | 50 | 20.0395 |
| .9163 | 55 | 18.9435 |
| .9996 | 60 | 17.889 |
| 1.0829 | 65 | 16.8345 |
| 1.1662 | 70 | 15.718 |
| 1.2495 | 75 | 14.56 |
| 1.3328 | 80 | 13.5675 |
| 1.4161 | 85 | 12.513 |
| 1.4994 | 90 | 11.5 |
| 1.5827 | 95 | 10.549 |
| 1.666 | 100 | 9.598 |
| 1.7493 | 105 | 8.957001 |
| 1.8326 | 110 | 8.378 |
| 1.9159 | 115 | 7.737 |
| 1.9992 | 120 | 7.096 |

## ONSITE INFLOW POSTDEVELOPMENT

2 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 31.39 |
| .1666 | 10 | 20.22 |
| .2499 | 15 | 14.98 |
| .3332 | 20 | 11.98 |
| .4165 | 25 | 9.91 |
| .4998 | 30 | 8.41 |
| .5831 | 35 | 7.37 |
| .6664 | 40 | 6.34 |
| .7497 | 45 | 5.76 |
| .833 | 50 | 5.13 |
| .9163 | 55 | 4.72 |
| .9996 | 60 | 4.26 |
| 1.0829 | 65 | 3.92 |
| 1.1662 | 70 | 3.57 |
| 1.2495 | 75 | 3.23 |
| 1.3328 | 80 | 2.82 |
| 1.4161 | 85 | 2.48 |
| 1.4994 | 90 | 2.13 |
| 1.5827 | 95 | 1.79 |
| 1.666 | 100 | 1.44 |
| 1.7493 | 105 | 1.09 |
| 1.8326 | 110 | .69 |
| 1.9159 | 115 | .35 |
| 1.9992 | 120 | 0 |

10 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 41.88 |
| .1666 | 10 | 26.96 |
| .2499 | 15 | 19.93 |
| .3332 | 20 | 15.96 |
| .4165 | 25 | 13.19 |
| .4998 | 30 | 11.17 |
| .5831 | 35 | 9.68 |
| .6664 | 40 | 8.47 |
| .7497 | 45 | 7.55 |
| .833 | 50 | 6.8 |
| .9163 | 55 | 6.22 |
| .9996 | 60 | 5.7 |
| 1.0829 | 65 | 5.24 |
| 1.1662 | 70 | 4.78 |
| 1.2495 | 75 | 4.26 |
| 1.3328 | 80 | 3.8 |
| 1.4161 | 85 | 3.34 |
| 1.4994 | 90 | 2.88 |
| 1.5827 | 95 | 2.36 |
| 1.666 | 100 | 1.9 |
| 1.7493 | 105 | 1.44 |
| 1.8326 | 110 | .98 |
| 1.9159 | 115 | .46 |
| 1.9992 | 120 | 0 |

100 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 70.85 |
| .1666 | 10 | 45.86 |
| .2499 | 15 | 34.06 |
| .3332 | 20 | 26.93 |
| .4165 | 25 | 22.54 |
| .4998 | 30 | 19.08 |
| .5831 | 35 | 16.78 |
| .6664 | 40 | 14.9 |
| .7497 | 45 | 13.54 |
| .833 | 50 | 12.17 |
| .9163 | 55 | 11.16 |
| .9996 | 60 | 10.22 |
| 1.0829 | 65 | 9.36 |
| 1.1662 | 70 | 8.5 |
| 1.2495 | 75 | 7.7 |
| 1.3328 | 80 | 6.84 |
| 1.4161 | 85 | 5.98 |
| 1.4994 | 90 | 5.11 |
| 1.5827 | 95 | 4.25 |
| 1.666 | 100 | 3.38 |
| 1.7493 | 105 | 2.59 |
| 1.8326 | 110 | 1.73 |
| 1.9159 | 115 | .86 |
| 1.9992 | 120 | 0 |

## TOTAL INFLOW POSTDEVELOPMENT

2 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 31.39 |
| .1666 | 10 | 20.22 |
| .2499 | 15 | 14.98 |
| .3332 | 20 | 13.716 |
| .4165 | 25 | 13.196 |
| .4998 | 30 | 12.936 |
| .5831 | 35 | 12.64 |
| .6664 | 40 | 11.982 |
| .7497 | 45 | 11.526 |
| .833 | 50 | 10.772 |
| .9163 | 55 | 10.176 |
| .9996 | 60 | 9.468 |
| 1.0829 | 65 | 8.88 |
| 1.1662 | 70 | 8.22 |
| 1.2495 | 75 | 7.632 |
| 1.3328 | 80 | 6.664 |
| 1.4161 | 85 | 6.262 |
| 1.4994 | 90 | 5.602 |
| 1.5827 | 95 | 4.952 |
| 1.666 | 100 | 4.354 |
| 1.7493 | 105 | 3.694 |
| 1.8326 | 110 | 3.046 |
| 1.9159 | 115 | 2.396 |
| 1.9992 | 120 | 1.674 |

10 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 41.88 |
| .1666 | 10 | 26.96 |
| .2499 | 15 | 23.96 |
| .3332 | 20 | 28.05 |
| .4165 | 25 | 28.256 |
| .4998 | 30 | 24.624 |
| .5831 | 35 | 21.274 |
| .6664 | 40 | 18.576 |
| .7497 | 45 | 16.416 |
| .833 | 50 | 14.736 |
| .9163 | 55 | 13.35 |
| .9996 | 60 | 12.21 |
| 1.0829 | 65 | 11.254 |
| 1.1662 | 70 | 10.422 |
| 1.2495 | 75 | 9.716 |
| 1.3328 | 80 | 9.008 |
| 1.4161 | 85 | 8.3 |
| 1.4994 | 90 | 7.468 |
| 1.5827 | 95 | 6.576 |
| 1.666 | 100 | 5.868 |
| 1.7493 | 105 | 5.036 |
| 1.8326 | 110 | 4.142 |
| 1.9159 | 115 | 3.25 |
| 1.9992 | 120 | 2.418 |

100 YEAR STORM

| TIME HRS. | MINS. | FLOW CFS |
|---|---|---|
| 0 | 0 | 0 |
| .0833 | 5 | 70.85 |
| .1666 | 10 | 49.332 |
| .2499 | 15 | 59.666 |
| .3332 | 20 | 53.838 |
| .4165 | 25 | 43.248 |
| .4998 | 30 | 36.812 |
| .5831 | 35 | 32.094 |
| .6664 | 40 | 28.478 |
| .7497 | 45 | 25.754 |
| .833 | 50 | 23.826 |
| .9163 | 55 | 22.134 |
| .9996 | 60 | 20.45 |
| 1.0829 | 65 | 18.846 |
| 1.1662 | 70 | 17.18 |
| 1.2495 | 75 | 15.636 |
| 1.3328 | 80 | 14.094 |
| 1.4161 | 85 | 12.49 |
| 1.4994 | 90 | 10.814 |
| 1.5827 | 95 | 9.21 |
| 1.666 | 100 | 7.596 |
| 1.7493 | 105 | 6.372 |
| 1.8326 | 110 | 5.14 |
| 1.9159 | 115 | 3.836 |
| 1.9992 | 120 | 2.542 |

| NO. | DESCRIPTION | REVIEW BY | APPROVED | DATE |
|---|---|---|---|---|
| | | | | |

REVISON APPROVED BY DIVISION OF DESIGN REVIEW

I HEREBY CERTIFY THAT NO OTHER CHANGES HAVE BEEN MADE ON THE PLAN OR PROFILE EXCEPT THOSE PREVIOUSLY APPROVED.

CERTIFYING ENGINEER OR LAND SURVEYOR

***************************************

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INFLOW HYDROGRAPH FILE: D: TOT2.INF, TOT10.INF
POND DESIGN DATA FILE: POND2.PND

### 2 YEAR ROUTING

| TIME (MINS.) | OUTFLOW (CFS) | INFLOW (CFS) | ELEV. (FT.) | STORAGE (AC-FT) |
|---|---|---|---|---|
| 0. | 0.00 | 0.00 | 431.33 | 0.00 |
| 5. | 4.28 | 31.39 | 433.77 | 0.19 |
| 10. | 5.67 | 20.22 | 435.44 | 0.29 |
| 15. | 6.20 | 14.98 | 436.19 | 0.35 |
| 20. | 6.48 | 13.72 | 436.62 | 0.40 |
| 25. | 6.69 | 13.20 | 436.94 | 0.44 |
| 30. | 6.87 | 12.94 | 437.23 | 0.48 |
| 35. | 7.04 | 12.64 | 437.51 | 0.52 |
| 40. | 7.19 | 11.98 | 437.76 | 0.56 |
| 45. | 7.30 | 11.53 | 437.97 | 0.58 |
| 50. | 7.38 | 10.77 | 438.11 | 0.61 |
| 55. | 7.45 | 10.18 | 438.22 | 0.63 |
| 60. | 7.59 | 9.47 | 438.31 | 0.64 |
| 65. | 7.72 | 8.88 | 438.36 | 0.65 |
| 70. | 7.79 | 8.22 | 438.39 | 0.65 |
| 75. | 7.80 | 7.63 | 438.40 | 0.65 |
| 80. | 7.75 | 6.66 | 438.37 | 0.64 |
| 85. | 7.64 | 6.26 | 438.33 | 0.63 |
| 90. | 7.50 | 5.60 | 438.27 | 0.62 |
| 95. | 7.43 | 4.95 | 438.19 | 0.60 |
| 100. | 7.37 | 4.35 | 438.09 | 0.58 |
| 105. | 7.30 | 3.69 | 437.96 | 0.56 |
| 110. | 7.20 | 3.05 | 437.78 | 0.53 |
| 115. | 7.07 | 2.40 | 437.57 | 0.50 |
| 120. | 6.93 | 1.67 | 437.34 | 0.46 |
| 125. | 6.76 | 0.00 | 437.05 | 0.41 |

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ROUTING OUTPUT SUMMARY---2 YEAR
PEAK OUTFLOW =7.50 CFS
MAX. WATER SURFACE ELEVATION =438.42 FT.
STORAGE VOLUME AT PEAK OUTFLOW =0.65 AC-FT
TIME TO PEAK OUTFLOW =75 MIN.
APPROX. TIME FOR FULL DRAWDOWN =3.58 HR.

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### 10 YEAR ROUTING

| TIME (MINS.) | OUTFLOW (CFS) | INFLOW (CFS) | ELEV. (FT.) | STORAGE (AC-FT) |
|---|---|---|---|---|
| 0. | 0.00 | 0.00 | 431.33 | 0.00 |
| 5. | 4.73 | 41.88 | 434.26 | 0.26 |
| 10. | 6.26 | 26.96 | 436.28 | 0.40 |
| 15. | 6.85 | 23.96 | 437.20 | 0.52 |
| 20. | 7.36 | 28.05 | 438.07 | 0.66 |
| 25. | 11.46 | 28.26 | 438.75 | 0.77 |
| 30. | 20.06 | 24.62 | 439.14 | 0.81 |
| 35. | 21.88 | 21.27 | 439.22 | 0.80 |
| 40. | 20.65 | 18.58 | 439.17 | 0.79 |
| 45. | 18.66 | 16.42 | 439.09 | 0.77 |
| 50. | 16.72 | 14.74 | 439.01 | 0.76 |
| 55. | 15.24 | 13.35 | 438.94 | 0.74 |
| 60. | 13.91 | 12.21 | 438.87 | 0.73 |
| 65. | 12.73 | 11.25 | 438.81 | 0.72 |
| 70. | 11.71 | 10.42 | 438.76 | 0.71 |
| 75. | 10.98 | 9.72 | 438.72 | 0.71 |
| 80. | 10.34 | 9.01 | 438.67 | 0.70 |
| 85. | 9.67 | 8.30 | 438.62 | 0.69 |
| 90. | 8.96 | 7.47 | 438.57 | 0.68 |
| 95. | 8.19 | 6.58 | 438.51 | 0.67 |
| 100. | 7.91 | 5.87 | 438.44 | 0.65 |
| 105. | 7.71 | 5.04 | 438.36 | 0.63 |
| 110. | 7.46 | 4.14 | 438.25 | 0.61 |
| 115. | 7.38 | 3.25 | 438.11 | 0.58 |
| 120. | 7.29 | 2.42 | 437.94 | 0.55 |
| 125. | 7.12 | 0.00 | 437.66 | 0.50 |

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ROUTING OUTPUT SUMMARY---10 YEAR
PEAK OUTFLOW =21.88 CFS
MAX. WATER SURFACE ELEVATION =439.21 FT.
STORAGE VOLUME AT PEAK OUTFLOW =0.80 AC-FT
TIME TO PEAK OUTFLOW =35 MIN.
APPROX. TIME FOR FULL DRAWDOWN =3.75 HR.

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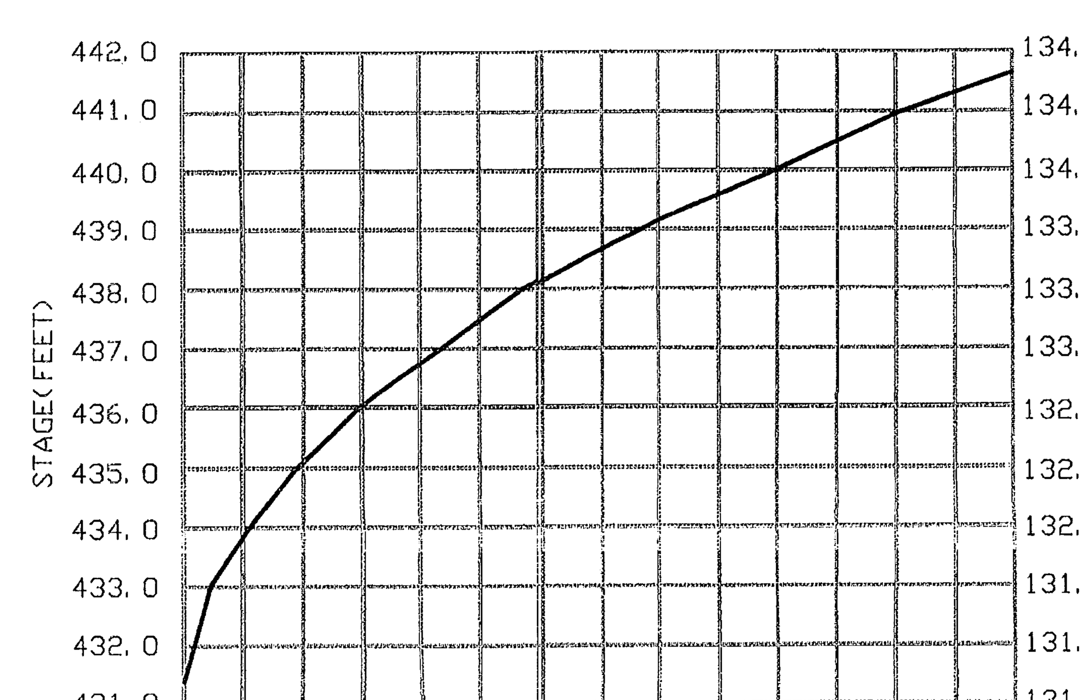


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INFLOW HYDROGRAPH FILE: D: TOT100.INF, TOTFBH.INF
POND DESIGN DATA FILE: FBH.PND

### SDF(Q100) ROUTING

| TIME (MINS.) | OUTFLOW (CFS) | INFLOW (CFS) | ELEV. (FT.) | STORAGE (AC-FT) |
|---|---|---|---|---|
| 0. | 0.00 | 0.00 | 438.42 | 0.00 |
| 5. | 20.53 | 70.85 | 439.32 | 0.17 |
| 10. | 35.67 | 49.33 | 439.58 | 0.21 |
| 15. | 50.80 | 59.67 | 439.68 | 0.23 |
| 20. | 58.18 | 53.84 | 439.75 | 0.25 |
| 25. | 46.23 | 43.25 | 439.63 | 0.22 |
| 30. | 38.55 | 36.81 | 439.56 | 0.21 |
| 35. | 33.47 | 32.09 | 439.51 | 0.20 |
| 40. | 29.86 | 28.48 | 439.46 | 0.19 |
| 45. | 26.79 | 25.75 | 439.41 | 0.19 |
| 50. | 24.55 | 23.83 | 439.38 | 0.18 |
| 55. | 22.79 | 22.13 | 439.36 | 0.18 |
| 60. | 21.12 | 20.45 | 439.33 | 0.17 |
| 65. | 19.48 | 18.85 | 439.31 | 0.17 |
| 70. | 17.84 | 17.18 | 439.29 | 0.16 |
| 75. | 16.24 | 15.64 | 439.26 | 0.16 |
| 80. | 14.96 | 14.09 | 439.24 | 0.15 |
| 85. | 13.88 | 12.49 | 439.20 | 0.14 |
| 90. | 12.43 | 10.81 | 439.14 | 0.13 |
| 95. | 10.86 | 9.21 | 439.08 | 0.12 |
| 100. | 9.27 | 7.60 | 439.02 | 0.11 |
| 105. | 7.95 | 6.37 | 438.97 | 0.10 |
| 110. | 6.81 | 5.14 | 438.91 | 0.09 |
| 115. | 5.60 | 3.84 | 438.85 | 0.08 |
| 120. | 4.34 | 2.54 | 438.78 | 0.06 |
| 125. | 3.00 | 0.00 | 438.70 | 0.04 |

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ROUTING OUTPUT SUMMARY---100 YEAR
PEAK OUTFLOW =58.18 CFS
MAX. WATER SURFACE ELEVATION =439.75 FT.
STORAGE VOLUME AT PEAK OUTFLOW =0.18 AC-FT(ABOVE WEIR)
TIME TO PEAK OUTFLOW =20 MIN.
APPROX. TIME FOR FULL DRAWDOWN =3.83 HR.

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### FBH(1.5 X Q100) ROUTING

| TIME (MINS.) | OUTFLOW (CFS) | INFLOW (CFS) | ELEV. (FT.) | STORAGE (AC-FT) |
|---|---|---|---|---|
| 0. | 0.00 | 0.00 | 438.42 | 0.00 |
| 5. | 41.13 | 106.27 | 439.58 | 0.45 |
| 10. | 102.87 | 72.27 | 440.09 | 0.23 |
| 15. | 65.86 | 76.69 | 439.65 | 0.25 |
| 20. | 73.71 | 67.30 | 439.62 | 0.22 |
| 25. | 57.34 | 54.51 | 439.52 | 0.21 |
| 30. | 48.78 | 46.35 | 439.47 | 0.19 |
| 35. | 42.13 | 40.47 | 439.41 | 0.18 |
| 40. | 37.27 | 35.94 | 439.37 | 0.18 |
| 45. | 33.50 | 32.51 | 439.33 | 0.17 |
| 50. | 30.89 | 29.91 | 439.30 | 0.17 |
| 55. | 28.57 | 27.71 | 439.28 | 0.16 |
| 60. | 26.42 | 25.57 | 439.26 | 0.16 |
| 65. | 24.33 | 23.53 | 436.23 | 0.15 |
| 70. | 22.25 | 21.42 | 439.20 | 0.14 |
| 75. | 20.25 | 19.50 | 439.16 | 0.14 |
| 80. | 18.30 | 17.51 | 439.11 | 0.13 |
| 85. | 16.28 | 15.47 | 439.06 | 0.12 |
| 90. | 14.67 | 13.37 | 439.01 | 0.11 |
| 95. | 13.16 | 11.33 | 438.96 | 0.10 |
| 100. | 11.31 | 9.30 | 438.91 | 0.09 |
| 105. | 9.48 | 7.67 | 438.85 | 0.08 |
| 110. | 7.93 | 6.00 | 438.78 | 0.06 |
| 115. | 6.48 | 4.28 | 438.72 | 0.05 |
| 120. | 4.88 | 2.54 | 438.64 | 0.03 |
| 125. | 3.19 | 0.00 | 438.57 | 0.02 |

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ROUTING OUTPUT SUMMARY---1.5 X 100 YEAR
PEAK OUTFLOW =100.54 CFS
MAX. WATER SURFACE ELEVATION =440.09 FT.
STORAGE VOLUME AT PEAK OUTFLOW =0.23 AC-FT(ABOVE WEIR)
TIME TO PEAK OUTFLOW =10 MIN.
APPROX. TIME FOR FULL DRAWDOWN =3.75 HR.

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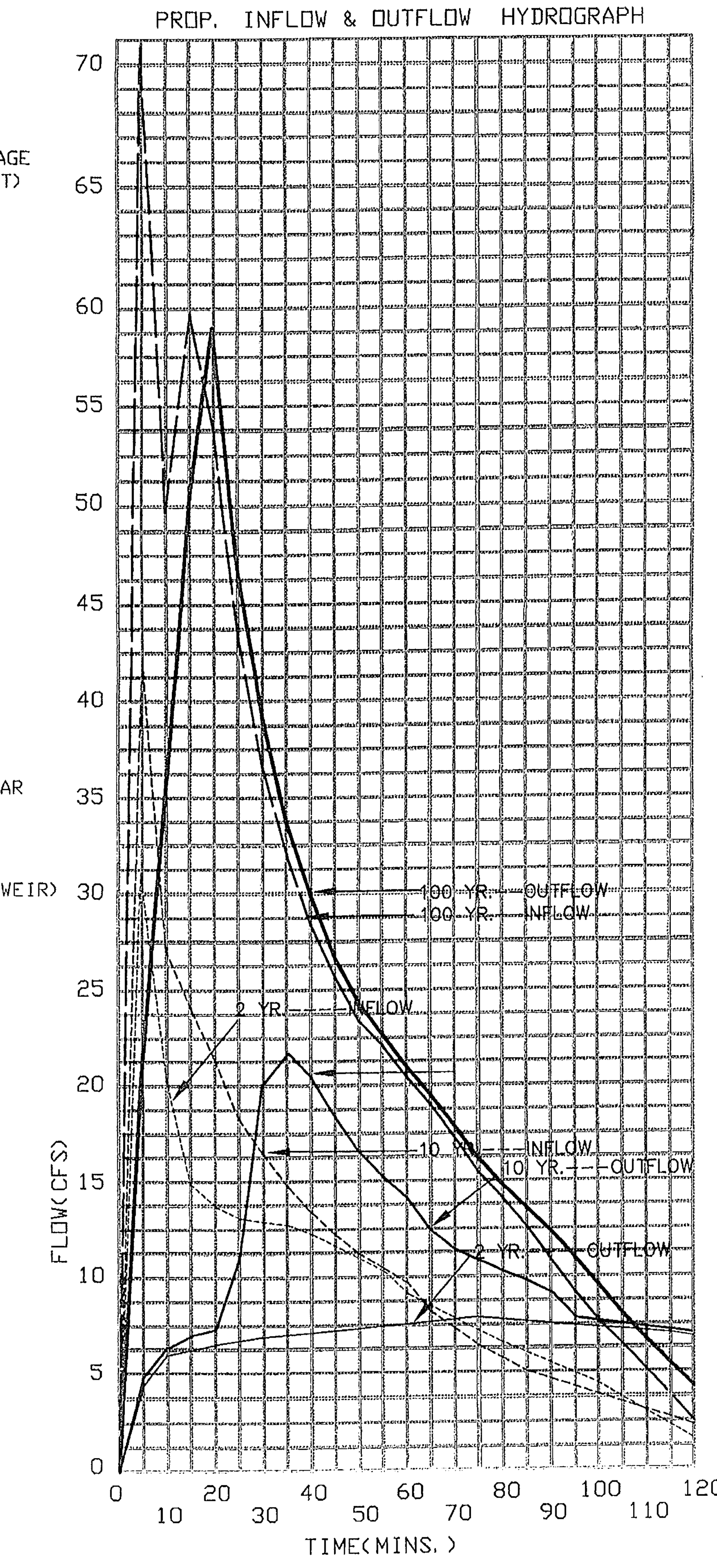
## STAGE/DISCHARGE/STORAGE CURVE

| ELEVATION (FT.) | DISCHARGE (CFS) | STORAGE (AC-FT) |
|---|---|---|
| 431.330 | 0.000 | 0.000 |
| 431.500 | 0.250 | 0.002 |
| 431.750 | 0.980 | 0.009 |
| 432.000 | 1.870 | 0.016 |
| 432.250 | 2.360 | 0.022 |
| 432.500 | 2.770 | 0.029 |
| 432.750 | 3.120 | 0.036 |
| 433.000 | 3.440 | 0.043 |
| 433.250 | 3.730 | 0.057 |
| 433.500 | 4.000 | 0.075 |
| 433.750 | 4.260 | 0.092 |
| 434.000 | 4.490 | 0.110 |
| 434.250 | 4.720 | 0.127 |
| 434.500 | 4.940 | 0.145 |
| 434.750 | 5.140 | 0.164 |
| 435.000 | 5.340 | 0.190 |
| 435.250 | 5.530 | 0.217 |
| 435.500 | 5.720 | 0.243 |
| 435.750 | 5.900 | 0.270 |
| 436.000 | 6.070 | 0.296 |
| 436.250 | 6.240 | 0.323 |
| 436.500 | 6.410 | 0.355 |
| 436.750 | 6.570 | 0.392 |
| 437.000 | 6.730 | 0.428 |
| 437.250 | 6.880 | 0.465 |
| 437.500 | 7.030 | 0.501 |
| 437.750 | 7.180 | 0.537 |
| 438.000 | 7.320 | 0.574 |
| 438.250 | 7.460 | 0.622 |
| 438.500 | 8.040 | 0.669 |
| 438.750 | 11.430 | 0.716 |
| 439.000 | 16.480 | 0.763 |
| 439.250 | 22.750 | 0.810 |
| 439.500 | 30.020 | 0.858 |
| 439.750 | 38.170 | 0.910 |
| 440.000 | 47.110 | 0.969 |
| 440.250 | 56.780 | 1.028 |
| 440.500 | 67.120 | 1.087 |
| 440.750 | 78.100 | 1.146 |
| 441.000 | 89.680 | 1.205 |
| 441.250 | 101.820 | 1.263 |
| 441.500 | 114.500 | 1.331 |
| 441.750 | 127.710 | 1.399 |

PROP. INFLOW & OUTFLOW HYDROGRAPH




## EMERGENCY SPILLWAY

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Version : 1.30 Executed : 02-08-1999 14:31:52

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TITLE OF COMPUTATIONS ===> POND -- PHASE 2 SITE

TOP OF DAM ELEVATION = 441.75

ELEVATION @ INVERT OF FACILITY = 431.33

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

Weir1= 438.42 / 6.5 Weir2= 439.21 / 21.5

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

WEIR FLOW, CFS

| Elevation | Weir-1 | Weir-2 | Tot. Weir |
|---|---|---|---|
| 441.75 | 118.49 | 287.21 | 405.71 |
| 441.50 | 105.40 | 245.87 | 351.28 |
| 441.25 | 92.83 | 206.73 | 299.56 |
| 441.00 | 80.81 | 169.92 | 250.73 |
| 440.75 | 69.35 | 135.59 | 204.95 |
| 440.50 | 58.50 | 103.95 | 162.45 |
| 440.25 | 48.27 | 75.25 | 123.52 |
| 440.00 | 38.73 | 49.82 | 88.55 |
| 439.75 | 29.91 | 28.15 | 58.06 |
| 439.50 | 21.89 | 11.08 | 32.97 |
| 439.25 | 14.74 | 0.57 | 15.31 |
| 439.00 | 8.61 | 0.00 | 8.61 |
| 438.75 | 3.70 | 0.00 | 3.70 |
| 438.50 | 0.44 | 0.00 | 0.44 |

## PRINCIPAL SPILLWAY

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Version : 1.30 Executed : 02-08-1999 14:32:47

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TITLE OF COMPUTATIONS ===> POND -- PHASE 2 SITE

TOP OF DAM ELEVATION = 441.75

ELEVATION @ INVERT OF FACILITY = 431.33
FLOW CONTROLS USED :
INVERT/ORIFICE
OR WEIR (Length - ft) :

Weir1= 438.42 / 6.5
Orifice1= 431.33 / .5 X 1.2
DATA FILENAME (Elev. vs Dischg.)===>

| Elevation | Orifice-1 | Weir-1 | TOTAL FLOW |
|---|---|---|---|
| 441.75 | 9.21 | 118.49 | 127.71 |
| 441.50 | 9.10 | 105.40 | 114.50 |
| 441.25 | 8.98 | 92.83 | 101.82 |
| 441.00 | 8.87 | 80.81 | 89.68 |
| 440.75 | 8.75 | 69.35 | 78.10 |
| 440.50 | 8.63 | 58.50 | 67.12 |
| 440.25 | 8.51 | 48.27 | 56.78 |
| 440.00 | 8.38 | 38.73 | 47.11 |
| 439.75 | 8.26 | 29.91 | 38.17 |
| 439.50 | 8.13 | 21.89 | 30.02 |
| 439.25 | 8.00 | 14.74 | 22.75 |
| 439.00 | 7.87 | 8.61 | 16.48 |
| 438.75 | 7.74 | 3.70 | 11.43 |
| 438.50 | 7.60 | 0.44 | 8.04 |
| 438.25 | 7.46 | 0.00 | 7.46 |
| 438.00 | 7.32 | | 7.32 |
| 437.75 | 7.18 | | 7.18 |
| 437.50 | 7.03 | | 7.03 |
| 437.25 | 6.88 | | 6.88 |
| 437.00 | 6.73 | | 6.73 |
| 436.75 | 6.57 | | 6.57 |
| 436.50 | 6.41 | | 6.41 |
| 436.25 | 6.24 | | 6.24 |
| 436.00 | 6.07 | | 6.07 |
| 435.75 | 5.90 | | 5.90 |
| 435.50 | 5.72 | | 5.72 |
| 435.25 | 5.53 | | 5.53 |
| 435.00 | 5.34 | | 5.34 |
| 434.75 | 5.14 | | 5.14 |
| 434.50 | 4.94 | | 4.94 |
| 434.25 | 4.72 | | 4.72 |
| 434.00 | 4.49 | | 4.49 |
| 433.75 | 4.26 | | 4.26 |
| 433.50 | 4.00 | | 4.00 |
| 433.25 | 3.73 | | 3.73 |
| 433.00 | 3.44 | | 3.44 |
| 432.75 | 3.12 | | 3.12 |
| 432.50 | 2.77 | | 2.77 |
| 432.25 | 2.36 | | 2.36 |
| 432.00 | 1.87 | | 1.87 |
| 431.75 | 0.98 | | 0.98 |
| 431.50 | | | |

THIS SHEET OBTAINED FROM 9779-SP-01, PREPARED BY

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet 10 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

| No. | DATE | DESCRIPTION | REV.BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | | | | |

REVISION APPROVED BY DIVISION OF DESIGN REVIEW

PLAN DATE
11-09-06
12-14-06
01-11-07
03-22-07
04-02-07
05-14-07
06-04-07
06-21-07

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
No. 036790
06/21/07
PROFESSIONAL ENGINEER

S.W.M. - DRAINAGE DIVIDE MAP

# FAIR RIDGE INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

DATE: NOV., 2006
C.I. = N/A
SCALE: N/A

SHEET 7 OF 12

FILE No. MISC 1683

# STORM SEWER DESIGN COMPUTATIONS

| FROM | TO | TYPE OF STRT. | DRAIN. AREA (ACRES) | RUN OFF COEF. 'C' | C X A INCR | C X A ACCUM | TIME OF CONCENTRATION TC | TIME | ACC | TOTAL FLOW I In/hr | INCR | ACCUM | PIPE RUN LENGTH (Ft) | DIA. | SLOPE % | CAPACITY CFS | VEL FPS | ELEVATIONS UPPER INVERT | FALL | LOWER INVERT | DROP STR | TOP STR | | REMARKS DIA. (METRIC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 5 | * | 0.49 | 0.80 | 0.39 | 0.60 | 5.0 | 0.1 | 5.00 | 7.27 | 2.40 | 4.07 | 59.55 | 15 | 1.91 | 8.96 | 7.15 | 130.52 | 1.14 | 129.38 | 0.00 | 0.00 | | 375mm |
| 3E | 3B | * | 0.60 | 0.60 | 0.36 | 0.36 | 5.0 | 0.1 | 5.00 | 7.27 | 2.62 | 2.62 | 42.50 | 15 | 5.22 | 14.80 | 9.15 | 132.60 | 2.22 | 130.38 | 0.00 | 0.00 | * | 375mm |
| 3C | 3B | * | 0.01 | 0.90 | 0.01 | 0.01 | 5.0 | 0.3 | 5.00 | 7.27 | 0.07 | 0.07 | 23.57 | 15 | 0.51 | 4.62 | 1.39 | 130.50 | 0.12 | 130.38 | 0.00 | 0.00 | | 375mm |
| 3B | 3A | * | 0.27 | 0.78 | 0.21 | 0.58 | 5.0 | 0.1 | 5.00 | 7.27 | 1.53 | 4.22 | 29.42 | 15 | 0.71 | 5.47 | 4.91 | 130.28 | 0.21 | 130.07 | 0.00 | 0.00 | | 375mm |
| 3D | 3A | * | 0.50 | 0.72 | 0.36 | 0.36 | 5.0 | 0.0 | 5.00 | 7.27 | 2.62 | 2.62 | 5.79 | 15 | 0.52 | 4.66 | 3.90 | 130.10 | 0.03 | 130.07 | 0.00 | 0.00 | | 375mm |
| 3A | 2C | * | 0.29 | 0.78 | 0.23 | 1.17 | 5.0 | 0.1 | 5.00 | 7.27 | 1.67 | 8.51 | 21.50 | 18 | 0.98 | 10.41 | 6.55 | 129.99 | 0.21 | 129.78 | 0.00 | 0.00 | | 450mm |
| 2C | 2B | * | 0.00 | 0.00 | 0.00 | 1.17 | 5.0 | 0.0 | 5.00 | 7.27 | 0.00 | 8.51 | 15.50 | 18 | 0.97 | 10.36 | 6.53 | 129.36 | 0.15 | 129.21 | 0.00 | 0.00 | * | 375mm |
| 3 | 2A | * | 0.25 | 0.90 | 0.23 | 0.23 | 5.0 | 0.0 | 5.00 | 7.27 | 1.67 | 1.67 | 10.50 | 15 | 0.57 | 4.90 | 3.62 | 129.46 | 0.06 | 129.40 | 0.00 | 0.00 | | 375mm |
| 2A | 2 | * | 0.00 | 0.00 | 0.00 | 0.00 | 25.0 | 0.1 | 25.00 | 0.00 | 8.66 | 8.66 | 24.50 | 27 | 1.14 | 33.20 | 7.03 | 128.40 | 0.28 | 128.12 | 0.00 | 0.00 | Q10 | 675mm |
| 2A | 2 | * | 0.00 | 0.00 | 0.00 | 0.00 | 15.0 | 0.0 | 15.00 | 0.00 | 28.92 | 28.92 | 24.50 | 27 | 1.14 | 33.20 | 9.38 | 128.40 | 0.28 | 128.12 | 0.00 | 0.00 | Q100 | 675mm |
| 2 | 1 | * | 0.24 | 0.60 | 0.14 | 0.00 | 5.0 | 0.1 | 5.00 | 7.27 | 1.02 | 2.62 | 35.72 | 27 | 1.18 | 33.67 | 5.03 | 128.02 | 0.42 | 127.60 | 0.00 | 0.00 | Q10 | 675mm |
| 2 | 1 | * | 0.24 | 0.75 | 0.18 | 0.00 | 15.0 | 0.1 | 15.00 | 7.05 | 1.27 | 30.19 | 35.72 | 27 | 1.18 | 33.67 | 9.55 | 128.02 | 0.42 | 127.60 | 0.00 | 0.00 | Q100 | 675mm |
| 1 | EXA2 | * | 0.35 | 0.90 | 0.32 | 0.00 | 5.0 | 0.1 | 5.00 | 7.27 | 2.33 | 4.95 | 21.88 | 27 | 1.65 | 39.83 | 6.86 | 127.50 | 0.36 | 127.14 | 0.00 | 0.00 | Q10 | 675mm |
| 1 | EXA2 | * | 0.35 | 1.13 | 0.40 | 0.00 | 15.0 | 0.0 | 15.00 | 7.05 | 2.82 | 33.01 | 21.88 | 27 | 1.65 | 39.83 | 11.17 | 127.50 | 0.36 | 127.14 | 0.00 | 0.00 | Q100 | 675mm |
| EXA2 | EXA1 | * | 0.00 | 0.00 | 3.23 | 0.00 | 5.0 | 0.1 | 5.00 | 7.27 | 23.48 | 28.43 | 42.20 | 36 | 0.92 | 64.29 | 8.83 | 127.09 | 0.39 | 126.70 | 0.00 | 0.00 | Q10 | 900mm |
| EXA2 | EXA1 | * | 0.00 | 0.00 | 4.04 | 0.00 | 15.0 | 0.1 | 15.00 | 7.05 | 28.46 | 61.47 | 42.20 | 36 | 0.92 | 64.29 | 10.33 | 127.09 | 0.39 | 126.70 | 0.00 | 0.00 | Q100 | 900mm |
| 13C | 13B | * | 9.92 | 0.63 | 0.00 | 0.00 | 25.0 | 0.0 | 25.00 | 4.03 | 15.08 | 15.08 | 16.52 | 24 | 3.33 | 41.39 | 12.17 | 136.25 | 0.55 | 135.70 | 0.00 | 0.00 | * | 600mm |
| 13B | 13A | * | 1.38 | 0.78 | 1.08 | 1.08 | 25.0 | 0.0 | 25.00 | 4.03 | 4.35 | 19.43 | 20.50 | 24 | 0.98 | 22.40 | 8.01 | 135.60 | 0.20 | 135.40 | 0.00 | 0.00 | * | 600mm |
| 13A | 13 | * | 0.29 | 0.67 | 0.19 | 1.27 | 25.0 | 0.0 | 25.00 | 4.03 | 1.38 | 20.22 | 22.62 | 24 | 1.33 | 26.12 | 9.16 | 135.30 | 0.30 | 135.00 | 0.00 | 0.00 | | 600mm |
| 13 | 12 | * | 0.11 | 0.90 | 0.10 | 1.37 | 25.0 | 0.1 | 25.00 | 4.03 | 0.40 | 20.62 | 31.82 | 24 | 1.26 | 25.43 | 9.00 | 134.70 | 0.40 | 134.30 | 0.00 | 0.00 | | 600mm |
| 12 | 11 | * | 0.00 | 0.00 | 0.00 | 1.90 | 25.0 | 0.0 | 25.00 | 4.03 | 0.00 | 22.74 | 29.21 | 24 | 3.08 | 39.82 | 13.07 | 134.20 | 0.90 | 133.30 | 0.00 | 0.00 | | 600mm |
| 11A | 11 | * | 0.35 | 0.75 | 0.26 | 0.26 | 5.0 | 0.1 | 5.00 | 7.27 | 1.89 | 1.89 | 14.61 | 15 | 0.68 | 5.36 | 4.00 | 133.20 | 0.10 | 133.10 | 0.00 | 0.00 | | 375mm |
| 11 | 10 | * | 0.08 | 0.60 | 0.05 | 2.21 | 25.0 | 0.0 | 25.00 | 4.03 | 0.20 | 23.99 | 8.01 | 24 | 1.87 | 31.04 | 10.88 | 133.00 | 0.15 | 132.85 | 0.00 | 0.00 | | 600mm |
| 10 | 9B | * | 0.35 | 0.90 | 0.32 | 2.53 | 25.0 | 0.0 | 25.00 | 4.03 | 1.29 | 25.28 | 14.00 | 24 | 1.86 | 30.91 | 10.94 | 132.55 | 0.26 | 132.29 | 0.00 | 0.00 | | 600mm |
| 9B | 9A | * | 0.25 | 0.85 | 0.21 | 2.74 | 25.0 | 0.0 | 25.00 | 4.03 | 0.85 | 26.13 | 9.50 | 24 | 2.00 | 32.08 | 11.35 | 132.19 | 0.19 | 132.00 | 0.00 | 0.00 | * | 600mm |
| 1B | 1A | * | 0.39 | 0.76 | 0.30 | 0.30 | 5.0 | 0.0 | 5.00 | 7.27 | 2.15 | 2.15 | 9.06 | 15 | 2.21 | 9.62 | 6.35 | 127.70 | 0.20 | 127.50 | 0.00 | 0.00 | | |

# STORM WATER INLET COMPUTATIONS

| INLET NUMBER | TYPE | LENGTH | STATION | DRAINAGE AREA (AC) | C | CA | ΣCA | I IN/HR | Q INCR | Q CARRY OVER | Qt (CFS) | S Gutter Slope (FT/FT) | Sx | T Spread (FT) | W (FT) | W/T | Sw | Sw/Sx | Eo | a | Sw1 | Se | Lt. p eff | L/Lt d | E h #16 | Q INTERCEP (CFS) | Qb CARRY OVER (CFS) | d/h | T SPREAD @ SAG | REMARKS LENGTH OF THROAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 3B | 12.0 | | 0.49 | 0.80 | 0.39 | 0.39 | 4.00 | 1.57 | 0.00 | 1.57 | 0.080 | 0.06 | 2.4 | 2.0 | 0.82 | 0.00 | 1.4 | 0.99 | 2.6 | 0.11 | 0.17 | 12.4 | 1.0 | 1.0 | 1.56 | 0.0 | | | 3.6m |
| 5 | 3B | 10.0 | | 0.53 | 0.90 | 0.48 | 0.48 | 4.00 | 1.91 | 0.00 | 1.91 | 0.010 | 0.02 | 7.6 | 2.0 | 0.26 | 0.00 | 4.2 | 0.71 | 3.5 | 0.15 | 0.12 | 8.6 | 1.2 | 1.0 | 1.91 | 0.0 | | | 3.0m |
| 4 | 3B | 12.0 | | 1.00 | 0.86 | 0.86 | 0.86 | 4.00 | 3.44 | 0.00 | 3.44 | 0.010 | 0.03 | 7.9 | 2.0 | 0.25 | 0.00 | 2.8 | 0.63 | 3.3 | 0.14 | 0.12 | 11.4 | 1.1 | 1.0 | 3.44 | 0.0 | | | 3.6m |
| 3 | 3B | 8.0 | | 0.25 | 0.90 | 0.23 | 0.23 | 3.50 | 0.79 | 0.00 | 0.79 | 0.025 | 0.02 | 2.9 | 2.0 | 0.69 | 0.00 | 4.2 | 0.99 | 3.5 | 0.15 | 0.17 | 6.6 | 1.2 | 1.0 | 0.79 | 0.0 | | | 2.4m |
| 2 | 3B | 6.0 | | 0.24 | 0.60 | 0.14 | 0.14 | 3.50 | 0.50 | 0.00 | 0.50 | 0.025 | 0.02 | 2.0 | 2.0 | 1.00 | 0.00 | 4.2 | 1.00 | 3.5 | 0.15 | 0.17 | 5.4 | 1.1 | 0.9 | 0.50 | 0.0 | | | 1.8m |
| 1 | 3B | 8.0 | | 0.35 | 0.90 | 0.31 | 0.32 | 3.50 | 1.10 | 0.00 | 1.10 | 0.025 | 0.02 | 4.0 | 2.0 | 0.50 | 0.00 | 4.2 | 0.95 | 3.5 | 0.15 | 0.16 | 7.7 | 1.0 | 0.9 | 1.10 | 0.0 | | | 2.4m |
| 3D | 3B | 8.0 | | 0.50 | 0.72 | 0.36 | 0.36 | 3.50 | 1.26 | 0.00 | 1.26 | 0.025 | 0.02 | 4.4 | 2.0 | 0.45 | 0.00 | 4.2 | 0.92 | 3.5 | 0.15 | 0.16 | 8.3 | 1.0 | 1.0 | 1.26 | 0.0 | | | 2.4m |
| 3C | 3B | 4.0 | | 0.01 | 0.90 | 0.01 | 0.01 | 3.50 | 0.03 | 0.00 | 0.03 | 0.020 | 0.02 | 2.0 | 2.0 | 1.00 | 0.00 | 4.2 | 1.00 | 3.5 | 0.15 | 0.17 | 1.6 | 2.5 | 0.0 | 0.03 | 0.0 | | | 1.2m |
| 3B | 3B | 8.0 | | 0.27 | 0.78 | 0.21 | 0.21 | 3.50 | 0.74 | 0.00 | 0.74 | 0.040 | 0.04 | 2.0 | 2.0 | 1.00 | 0.00 | 2.1 | 1.00 | 3.0 | 0.13 | 0.17 | 7.3 | 1.1 | 1.0 | 0.74 | 0.0 | | | 2.4m |
| 3A | 3B | 8.0 | | 0.29 | 0.78 | 0.23 | 0.23 | 3.50 | 0.79 | 0.01 | 0.80 | 0.033 | 0.04 | 2.3 | 2.0 | 0.89 | 0.00 | 2.1 | 1.00 | 3.0 | 0.13 | 0.17 | 7.2 | 1.1 | 1.0 | 0.80 | 0.0 | | | 2.4m |
| 13A | 3B | 12.0 | | 1.45 | 0.85 | 1.23 | 1.23 | 3.50 | 4.31 | 0.00 | 4.31 | 0.010 | 0.04 | 7.4 | 2.0 | 0.27 | 0.00 | 2.1 | 0.63 | 3.0 | 0.13 | 0.12 | 12.4 | 1.0 | 1.0 | 4.31 | 0.0 | | | |
| 13 | 3B | 6.0 | | 0.11 | 0.90 | 0.10 | 0.10 | 3.50 | 0.35 | 0.00 | 0.35 | 0.070 | 0.02 | 2.0 | 2.0 | 1.00 | 0.00 | 4.2 | 1.00 | 3.5 | 0.15 | 0.17 | 6.3 | 1.0 | 1.0 | 0.34 | 0.0 | | | 1.8m |
| 3E | 3B | 10.0 | | 0.60 | 0.60 | 0.36 | 0.36 | 3.50 | 1.26 | 0.00 | 1.26 | 0.036 | 0.03 | 3.3 | 2.0 | 0.61 | 0.00 | 2.8 | 0.97 | 3.3 | 0.14 | 0.16 | 9.0 | 1.1 | 1.0 | 1.26 | 0.0 | | | 3.0m |
| 11A | 3B | 8.0 | | 0.35 | 0.75 | 0.26 | 0.26 | 3.50 | 0.92 | 0.00 | 0.92 | 0.030 | 0.02 | 2.3 | 2.0 | 0.88 | 0.00 | 4.2 | 1.00 | 3.5 | 0.15 | 0.17 | 8.6 | 0.9 | 1.0 | 0.91 | 0.0 | | | 2.4m |
| 11 | 3B | 4.0 | | 0.08 | 0.60 | 0.05 | 0.05 | 3.50 | 0.17 | 0.00 | 0.17 | 0.050 | 0.08 | 2.0 | 2.0 | 1.00 | 0.00 | 1.0 | 1.00 | 2.0 | 0.08 | 0.17 | 4.2 | 1.0 | 1.0 | 0.17 | 0.0 | | | 1.2m |
| 10 | 3B | 8.0 | | 0.35 | 0.90 | 0.31 | 0.32 | 3.50 | 1.10 | 0.00 | 1.10 | 0.020 | 0.04 | 3.3 | 2.0 | 0.61 | 0.00 | 2.1 | 0.96 | 3.0 | 0.13 | 0.16 | 7.2 | 1.1 | 1.0 | 1.10 | 0.0 | | | 2.4m |
| 1A | 3B | 10.0 | | 0.39 | 0.76 | 0.30 | 0.30 | 4.00 | 1.19 | 0.00 | 1.19 | 0.029 | 0.02 | 3.9 | 2.0 | 0.51 | 0.00 | 4.0 | 0.95 | 3.5 | 0.15 | 0.16 | 8.4 | 1.2 | 0.7 | 1.19 | 0.0 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3.0m |

## STORMWATER OUTFALL COMPUTATIONS:

2 YR. POND RELEASE=7.50 CFS (@ TIME=75 MINS.)
10 YR. POND RELEASE=21.88 CFS (@ TIME=35 MINS.)
100 YR. POND RELEASE=58.18 CFS (@ TIME=20 MINS.)
DRAINAGE AREA BETWEEN X-SECTION 1-1 AND POND:
A=0.6223HA. =1.54 AC. C=0.30
PER TIME OF CONCENTRATION = 5 MINS.
Q2=1.54 X 0.30 X 5.75=2.66 CFS
Q10=1.54 X 0.30 X 7.27 =3.56 CFS
Q100=1.25 X (1.54 X 0.30 X 9.84)=5.68 CFS
TOTAL RUNOFF (WORST CASE):
Q2=7.50+2.66=10.16 CFS
Q10=21.88+3.56=25.44 CFS
Q100=58.18+5.68=63.86 CFS

### X-SECTION 1-1

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 6:1 |
| RIGHT SIDE SLOPE | = 6:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.031 |
| DISCHARGE | Q2= 10.16 CFS |
| DEPTH | D2= 0.84 FT. |
| VELOCITY | V2=2.42 FPS |
| FLOW AREA | =4.20 SF |
| FLOW TOP WIDTH | =10.04 FT. |
| WETTED PERIMETER | =10.18 FT. |
| CRITICAL DEPTH | =0.71 FT. |
| CRITICAL SLOPE | =0.0756 |
| FROUDE NUMBER | =0.66 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 1-1

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 6:1 |
| RIGHT SIDE SLOPE | = 6:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.031 |
| DISCHARGE | Q10=25.44 CFS |
| DEPTH | D10= 1.18 FT. |
| VELOCITY | V10=3.04 FPS |
| FLOW AREA | =8.37 SF |
| FLOW TOP WIDTH | =14.17 FT. |
| WETTED PERIMETER | =14.37 FT. |
| CRITICAL DEPTH | =1.02FT. |
| CRITICAL SLOPE | =0.0699 |
| FROUDE NUMBER | =0.70 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 1-1

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 6:1 |
| RIGHT SIDE SLOPE | = 6:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.031 |
| DISCHARGE | Q100=63.86 CFS |
| DEPTH | D100= 1.67 FT. |
| VELOCITY | V100=3.83 FPS |
| FLOW AREA | =16.68 SF |
| FLOW TOP WIDTH | =20.01 FT. |
| WETTED PERIMETER | =20.29 FT. |
| CRITICAL DEPTH | =1.48 FT. |
| CRITICAL SLOPE | =0.0591 |
| FROUDE NUMBER | =0.74 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 2-2

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 10:1 |
| RIGHT SIDE SLOPE | = 17:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.031 |
| DISCHARGE | Q2=10.16 CFS |
| DEPTH | D2=0.62 FT. |
| VELOCITY | V2=1.98 FPS |
| FLOW AREA | =5.12SF |
| FLOW TOP WIDTH | =16.63 FT. |
| WETTED PERIMETER | =16.68 FT. |
| CRITICAL DEPTH | =0.51 FT. |
| CRITICAL SLOPE | =0.083 |
| FROUDE NUMBER | =0.63 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 2-2

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 10:1 |
| RIGHT SIDE SLOPE | = 17:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.031 |
| DISCHARGE | Q10=25.44 CFS |
| DEPTH | D10= 0.87 FT. |
| VELOCITY | V10=2.50 FPS |
| FLOW AREA | =10.19 SF |
| FLOW TOP WIDTH | =23.46 FT. |
| WETTED PERIMETER | =23.53 FT. |
| CRITICAL DEPTH | =0.74 FT. |
| CRITICAL SLOPE | =0.0734 |
| FROUDE NUMBER | =0.67 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 2-2

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 10:1 |
| RIGHT SIDE SLOPE | = 17:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.031 |
| DISCHARGE | Q100=63.86 CFS |
| DEPTH | D100=1.23 FT. |
| VELOCITY | V100=3.14 FPS |
| FLOW AREA | =20.32 SF |
| FLOW TOP WIDTH | =33.13 FT. |
| WETTED PERIMETER | =33.23 FT. |
| CRITICAL DEPTH | =1.07 FT. |
| CRITICAL SLOPE | =0.065 |
| FROUDE NUMBER | =0.71 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 3-3

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 8.75:1 |
| RIGHT SIDE SLOPE | = 11.25:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.018 |
| DISCHARGE | Q2=10.16 CFS |
| DEPTH | D2=0.76 FT. |
| VELOCITY | V2=1.74 FPS |
| FLOW AREA | =5.83 SF |
| FLOW TOP WIDTH | =15.27 FT. |
| WETTED PERIMETER | =15.35 FT. |
| CRITICAL DEPTH | =0.58 FT. |
| CRITICAL SLOPE | =0.0800 |
| FROUDE NUMBER | =0.50 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 3-3

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 8.75:1 |
| RIGHT SIDE SLOPE | = 11.25:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.018 |
| DISCHARGE | Q10=25.44 CFS |
| DEPTH | D10= 1.08 FT. |
| VELOCITY | V10=2.19 FPS |
| FLOW AREA | =11.60 SF |
| FLOW TOP WIDTH | =21.54 FT. |
| WETTED PERIMETER | =21.65 FT. |
| CRITICAL DEPTH | =0.83 FT. |
| CRITICAL SLOPE | =0.0708 |
| FROUDE NUMBER | =0.53 |
| FLOW IS SUBCRITICAL | |

### X-SECTION 3-3

OPEN CHANNEL – UNIFORM FLOW

| | |
|---|---|
| LEFT SIDE SLOPE | = 8.75:1 |
| RIGHT SIDE SLOPE | = 11.25:1 |
| MANNING'S | N=0.06 |
| CHANNEL SLOPE | =0.018 |
| DISCHARGE | Q100=63.86 CFS |
| DEPTH | D100=1.52 FT. |
| VELOCITY | V100=2.76 FPS |
| FLOW AREA | =23.14SF |
| FLOW TOP WIDTH | =30.43 FT. |
| WETTED PERIMETER | =30.56 FT. |
| CRITICAL DEPTH | =1.20 FT. |
| CRITICAL SLOPE | =00626 |
| FROUDE NUMBER | =0.56 |
| FLOW IS SUBCRITICAL | |

## STORMWATER MANAGEMENT/BMP NARRATIVE

AN UNDERGROUND DETENTION FACILITY(FACILITY #1) ON PHASE 1 SITE AND A DRY DRY POND(FACILITY #2) ON PHASE 2 SITE FOR STORMWATER MANAGEMENT.

BOTH FACILITIES HAVE BEEN DESIGNED TO REGULATE 2 AND 10 YEARS STORM EVENTS FROM POST-DEVELOPMENT CONDITION. THE DETENTION STORAGE OF FACILITY #1 IS ACHIEVED BY UNDERGROUND CORRUGATED METAL PIPES. THE PRE-DEVELOPMENT AND POST-DEVELOPMENT RUNOFF AT POINT OF RELEASE ARE AS FOLLOWING:

FACILITY #1(PRE-DEVELOPMENT)--Q2=3.27 CFS, Q10=8.72 CFS & Q100=14.76 CFS
(POST-DEVELOPMENT)--Q2=3.18 CFS, Q10=8.66 CFS & Q100=28.92 CFS
FACILITY #2(PRE-DEVELOPMENT)--Q2=7.55 CFS, Q10=21.74 CFS & Q100=40.20 CFS
(POST-DEVELOPMENT)--Q2=7.50 CFS, Q10=21.88 CFS & Q100=58.18 CFS

THE BMP REQUIREMENTS HAVE BEEN MET BY THE EX. OFFSITE FAIR LAKES, LAKE #2. PLEASE SEE SHEET 13D FOR APPROVAL LETTER.
BMP NOTES, WATERQUALITY NARRATIVE, BMP MAP AND COMPUTAIONS HAVE ALSO BEEN PROVIDED ON SHEET 13D.

## STORMWATER OUTFALL NARRATIVE

PHASE 1 SITE:
THE RUNOFF GENERATED FROM THE SITE WILL BE COLLECTED BY THE PROPOSED STORM SEWER SYSTEM AND CONVEYED TO THE UNDERGROUND DETENTION FACILITY. AFTER BEING DETAINED, THE RELEASE FROM THE UNDERGROUNG CMP STORAGE WILL THEN FLOW TO THE EXISTING STORM SEWER EX. A2-EX. A1 THAT IS TO FUNCTION AS THE OUTFALL FOR THE SITE. COMPUTATIONS HAVE BEEN PROVIDED WITH 10 YR. AND 100 YR. STORM EVENTS TO VERIFY THE CAPACITY OT THE OUTFALL. BASED ON OUR CALCULATION, IT IS OUR OPINION THAT THERE IS NO ADVERSE IMPACT TO THE DOWNSTREAM AREA AND THE SITE HAS AN ADEQUATE OUTFALL.

PHASE 2 SITE:
SINCE A MINOR PORTION OF PHASE 1 SITE FALLS WITHIN THE DRAINAGE AREA OF PHASE 2 SITE, A DRY POND HAS ALSO BEEN PROVIDED ON PHASE 2 SITE. THE DRY POND HAS BEEN DESIGNED TO ACCOMMODATE THE POST-DEVELOPMENT CONDITION OF PHASE 2 SITE AND PORTION OF PHASE 1 SITE THAT DRAINS TOWARDS THE POND.
AFTER BEING DETAINED, THE STORMWATER WILL THEN DISCHARGE INTO A WELL DEFINED CHANNEL THAT FUNCTION AS THE SECOND OUTFALL. THE OUTFALL CHANNEL COMPUTATIONS AND CROSS-SECTIONS HAVE BEEN PROVIDED ON THIS SHEET. BASED ON OUR ANALASYS, IT IS OUR OPINION THAT THE SECOND OUTFALL IS ALSO ADEQUATE.

| 1. | REVISE INLET COMPS. FOR STR. 4, 5, 6, | | | |
|---|---|---|---|---|
| | | | | |
| NO. | DESCRIPTION | REVIEW BY | APPROVED | DATE |

REVISON APPROVED BY DIVISION OF DESIGN REVIEW

I HEREBY CERTIFY THAT NO OTHER CHANGES HAVE BEEN MADE ON THE PLAN OR PROFILE EXCEPT THOSE PREVIOUSLY APPROVED.

CERTIFYING ENGINEER OR LAND SURVEYOR

DESIGN FLOW FOR STORM SEWER STR #13C TO STR #9A:

10 YR. STORM

1. TC= 5 MINS.:
ONSITE RUNOFF= 2.74 X 7.27 = 19.92 CFS
OFFSITE POND RELEASE = 0 CFS
TOTAL = 19.92 CFS

2. TC= 10 MINS.:
ONSITE RUNOFF= 2.74 X 5.92 = 16.22 CFS
OFFSITE POND RELEASE = 0 CFS
TOTAL = 16.22 CFS

3. TC= 15 MINS.:
ONSITE RUNOFF= 2.74 X 5.10 = 13.97 CFS
OFFSITE POND RELEASE = 4.06 CFS
TOTAL = 18.03 CFS

4. TC= 20 MINS.:
ONSITE RUNOFF= 2.74 X 4.56 = 12.49 CFS
OFFSITE POND RELEASE = 12.12 CFS
TOTAL = 24.61 CFS

5. TC= 25 MINS.(TIME OF EX. POND PEAK RELEASE):
ONSITE RUNOFF= 2.74 X 4.03 = 11.04 CFS
OFFSITE POND RELEASE = 15.08 CFS
TOTAL = 26.13 CFS

6. TC= 30 MINS.:
ONSITE RUNOFF= 2.74 X 3.71 = 10.17 CFS
OFFSITE POND RELEASE = 13.45 CFS
TOTAL = 23.62CFS

USE TC= 25 MINS. I10= 4.03 IN./HR. & EX. POND RELEASE=15.08 CFS FOR DESIGN FLOW.

NOTE:
THE HYDROGRAPH/RELEASE OF THE EX. UPSTREAM POND IS PER 6169-SP-02 'FIFTY WEST CORPORATE CENTER, BUILDING 2'.

DESIGN FLOW FOR STORM SEWER STR #2 TO STR EX. A1:

10 YR. STORM

1. TC= 5 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
(0.14+0.32+1.60+1.63)X7.27=26.83 CFS
RELEASE FROM UNDERGROUND DETETION=1.60 CFS
TOTAL= 26.83 + 1.60 = 28.43 CFS

2. TC= 10 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
(0.14+0.32+1.60+1.63)X5.92=21.84 CFS
RELEASE FROM UNDERGROUND DETETION=2.47 CFS
TOTAL= 21.84 + 2.47 = 24.31 CFS

3. TC= 15 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
(0.14+0.32+1.60+1.63)X5.10=18.82 CFS
RELEASE FROM UNDERGROUND DETETION=2.88 CFS
TOTAL= 18.82 + 2.88 = 21.70 CFS

4. TC= 20 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
(0.14+0.32+1.60+1.63)X4.56=16.83 CFS
RELEASE FROM UNDERGROUND DETETION=4.31 CFS
TOTAL= 16.83 + 4.81 = 21.14 CFS

5. TC= 25 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
(0.14+0.32+1.60+1.63)X4.03=14.87 CFS
RELEASE FROM UNDERGROUND DETETION=8.66 CFS
TOTAL= 14.87 + 8.66 = 23.53 CFS

6. TC= 30 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
(0.14+0.32+1.60+1.63)X3.71=13.69 CFS
RELEASE FROM UNDERGROUND DETETION=7.89 CFS
TOTAL= 13.69 + 7.89 = 21.58 CFS

USE TC= 5 MINS. I10= 7.27 IN./HR. & DETENTION RELEASE=1.60 CFS FOR DESIGN FLOW.

DESIGN FLOW FOR STORM SEWER STR #2 TO STR EX. A1:

100 YR. STORM

1. TC= 5 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
1.25X(0.14+0.32+1.60+1.63)X9.84=45.39 CFS
RELEASE FROM UNDERGROUND DETETION=2.02 CFS
TOTAL= 45.39 + 2.02 = 47.41 CFS

2. TC= 10 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
1.25X(0.14+0.32+1.60+1.63)X8.10=37.36 CFS
RELEASE FROM UNDERGROUND DETETION=6.74 CFS
TOTAL= 37.36 + 6.74 = 44.10 CFS

3. TC= 15 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
1.25X(0.14+0.32+1.60+1.63)X7.05=32.52 CFS
RELEASE FROM UNDERGROUND DETETION=28.92 CFS
TOTAL= 32.52 + 28.92 = 61.43 CFS

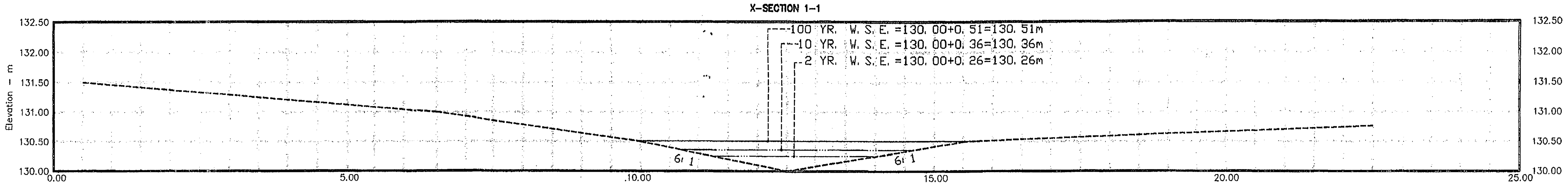
4. TC= 20 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
1.25X(0.14+0.32+1.60+1.63)X6.32=29.15 CFS
RELEASE FROM UNDERGROUND DETETION=16.90 CFS
TOTAL= 29.15 + 16.90 = 46.05 CFS

5. TC= 25 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
1.25X(0.14+0.32+1.60+1.63)X5.75=26.52 CFS
RELEASE FROM UNDERGROUND DETETION=15.66 CFS
TOTAL= 26.52 + 15.66 = 42.18 CFS

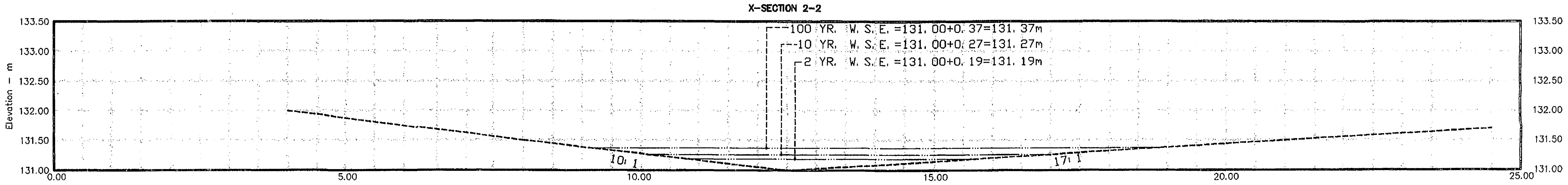
6. TC= 30 MINS.:
ADDITIONAL RUNOFF BETWEEN STR. #2 AND EX. A2:
1.25X(0.14+0.32+1.60+1.63)X5.22=24.08 CFS
RELEASE FROM UNDERGROUND DETETION=13.08 CFS
TOTAL= 24.08 + 13.08= 37.16 CFS

USE TC= 15 MINS. I100= 7.05 IN./HR. & DETENTION RELEASE=28.92 CFS FOR DESIGN FLOW.

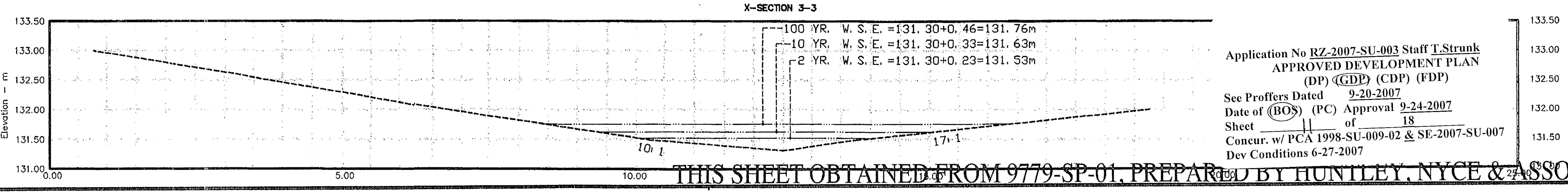
X-SECTION 1-1




X-SECTION 2-2




X-SECTION 3-3




Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet 11 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

THIS SHEET OBTAINED FROM 9779-SP-01, PREPARED BY HUNTLEY, NYCE & ASSOC.

| No. | DATE | DESCRIPTION | REV.BY | APPROVED | DATE |
|---|---|---|---|---|---|

REVISION APPROVED BY DIVISION OF DESIGN REVIEW

PLAN DATE
11-09-06
12-14-06
01-11-07
03-22-07
04-02-07
05-14-07
06-04-07
06-21-07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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
No. 036790
06/21/07
PROFESSIONAL ENGINEER

S.W.M. - DRAINAGE DIVIDE MAP
FAIR RIDGE
INDEPENDENT LIVING
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

DATE: NOV., 2006
C.I. = N/A
SCALE: N/A

SHEET
7A
OF
12

FILE No.
MISC 1683

BMP NOTES:

1. AN OFFSITE BMP WAIVER REQUEST HAS BEEN APPROVED. PLEASE SEE THIS SHEET FOR APPROVAL LETTER AND WATER QUALITY NARRATIVE.
2. THE PROPOSED DETENTION FACILITIES HAVE BEEN DESIGNED FOR STORMWATER MANAGEMENT PURPOSE ONLY. HOWEVER, THE PROPOSED SWM FACILITIES HAVE PROVIDED CERTAIN DRAWDOWN TIME BY DETAINING THE STORM RUNOFF. BASED ON OUR POND ROUTING CALCULATIONS, THERE ARE APPROX. 6 HOURS AND 3.7 HOURS DRAWDOWN TIMES THAT HAVE BEEN ACHIEVED BY THE DETENTION FACILITY #1 AND #2 RESPECTIVELY. THEREFORE, THE ONSITE SWM FACILITIES HAVE ALSO CONTRIBUTED SOME BMP CONTROL ONTO THE WATERSHED. FOR INFORMATIONAL PURPOSE, THE BMP FACILITY DESIGN CALCULATIONS HAVE BEEN SHOW ON THIS SHEET.

## Water Quality Narrative for the Watershed Draining to the Offsite Existing Fair Lakes, Lake No. 2

1. Location of Lake No. 2: Tax Map 45-5-001 Parcel 24.
2. Designed Watershed: 530 acres of ultimate condition per zoning uses.
3. BMP storage required: 1975 cf/ac per equivalent 'c' factor of 0.65.
   BMP storage provided: 2811 cf/ac per equivalent 'c' factor of 0.84.
   The weighted 'c' factor of the overall phase 1 and phase 2 site is 0.79.
4. Based on the facts above, we believe that the water quality control has been achieved by the existing Lake No. 2.
5. An offsite BMP waiver has been requested and approved. However, we have proposed an underground detention facility on Fair Ridge Executive Phase One site and a dry pond on Phase Two site. These onsite SWM facilities will provide a phosphorus removal efficiency of 33.37% for the runoff being generated from the site. The site is within the water supply overlay district and a removal efficiency of 50% is normally required. Since the proposed facilities are additional control to the watershed of Lake No. 2, the water quality will be further improved.
6. For onsite BMP control, please see 'BMP Facility Design Calculations'.

## BMP Facility Design Calculations (FOR INFORMATIONAL PURPOSE ONLY)

I. Water Quality Narrative

A. The BMP requirement for the site (VSPOD) = 50% Phosphorus Removal.
B. One underground and one above ground dry detention facilities are proposed. However, the site is to be served by the ex. Fair Lakes, Lake No. 2 to meet the requirements.
C. 1.10 acre open space (proffer required buffer area) has been used for BMP credit.
D. The offsite area being controlled = 0.24 acre.
E. The onsite area being uncontrolled = 0.88 acre.
F. The site (overall phase 1 and phase 2) is a 12.49 acre commercial/office use land with 11.61 acres being controlled and 0.88 acre being uncontrolled.
G. The proposed SWM facilities are to be privately owned and maintained by the owners.
H. A minor drawdown time has been provided.

II. Watershed Information

Part 1: subarea and 'c' factors used in the BMP computations

| Subarea | Designation | 'C' | Acres |
|---|---|---|---|
| BMP Area #1 | Onsite Controlled | 0.85 | 4.11 |
| BMP Area #2 | Offsite Controlled at 20% | 0.85 | 0.24 |
| BMP Area #3 | Onsite Uncontrolled | 0.30 | 0.88 |
| BMP Area #4 | Onsite Controlled | 0.90 | 6.40 |
| BMP Area #5 | Onsite Controlled | 0.30 | 1.10 |

III. Phosphorus Removal

Part 2: Compute the weighted average 'c' factor for the site

| Subarea | Designation | 'C' | Acres | Product |
|---|---|---|---|---|
| BMP Area #1 | Onsite Controlled | 0.85 | 4.11 | 3.49 |
| BMP Area #3 | Onsite Uncontrolled | 0.30 | 0.88 | 0.26 |
| BMP Area #4 | Onsite Controlled | 0.90 | 6.40 | 5.76 |
| BMP Area #5 | Onsite Controlled | 0.30 | 1.10 | 0.33 |
| | | | 12.49 | 9.84 |

Weighted average 'c' factor for the site = 9.84/12.49 = 0.79

Part 3: Compute the total phosphorus removal for the site.

| Subarea | BMP Type | Removal Efficiency | Area Ratio | 'C' Factor Ratio | Product |
|---|---|---|---|---|---|
| BMP Area #1 | Dry Pond(*) | 35(***) | 0.329 | 1.076 | 12.39 |
| BMP Area #2 | Dry Pond(*) | 35(***) | 0.004 | 1.076 | 0.15 |
| BMP Area #4 | Wet Pond(**) | 30(***) | 0.512 | 1.139 | 17.50 |
| BMP Area #5 | Open Space | 100 | 0.088 | 0.380 | 3.33 |
| | | | | | 33.37 |

Total Phosphorus removal of the site = 33.37%

* 6 hours drawdown time

** 3.7 hours drawdown time

*** per 'CONTROLLING URBAN RUNOFF: A PRACTICAL MANUAL FOR PLANNING AND DESIGNING URBAN BMPS' BY DEPARTMENT OF ENVIRONMENTAL PROGRAMS, METROPOLITAN WASHINTON COUNCIL OF GOVERNMENTS.

Part 4: Compliance with Phosphorus Removal Requirement

33.37% < 50% and the phosphorus removal requirement is not satisfied. -- IF SERVED BY ONSITE FACILITIES ONLY!

*See BMP Waiver #019615 (EX. OFFSITE LAKE NO. 2)

IV. Site Coverage

Part 5: Determine compliance with site coverage requirements.

| Subarea | Designation | 'C' | Acres | Product |
|---|---|---|---|---|
| BMP Area #3 | Onsite Uncontrolled | 0.30 | 0.88 | 0.26 |
| | | | 0.88 | 0.26 |

The uncontrolled site area = 0.88 acre.
The equivalent site area = 0.26 acre.
Weighted 'C' factor for the onsite uncontrolled area = 0.26/0.88 = 0.30.

1.93 < 2.50 (20% of the total site area) and the site coverage requirement is satisfied.

Part 6: Offsite areas for which coverage is required.

| Subarea | Designation | 'C' | Acres | Product |
|---|---|---|---|---|
| BMP Area #2 | Offsite Controlled | 0.85 | 0.24 | 0.204 |
| | | | 0.24 | 0.204 |

Total offsite area = 0.24 acre
Total equivalent offsite area = 0.204 acres

0.26 > 0.204 therefore all offsite uncontrolled area draining to the facilities must be included.

V. Storage

Part 7: Weighted average 'c' factor for the facilities

Detention facility #1

| Subarea | Designation | 'C' | Acres | Product |
|---|---|---|---|---|
| BMP Area #1 | Onsite Controlled | 0.85 | 4.11 | 3.494 |
| BMP Area #2 | Offsite Controlled | 0.85 | 0.24 | 0.204 |
| | | | 4.35 | 3.698 |

Weighted average 'c' factor for the Pond #1 = 3.698/4.35 = 0.85

Detention facility #2

| Subarea | Designation | 'C' | Acres | Product |
|---|---|---|---|---|
| BMP Area #4 | Onsite Controlled | 0.90 | 6.40 | 5.760 |
| | | | 6.40 | 5.760 |

Weighted average 'c' factor for the Pond #2 = 5.760/6.40 = 0.90

Part 8: Storage required for the BMP facilities ---- N/A

FAIRFAX COUNTY

VIRGINIA

Department of Environmental Management
Division of Design Review
12055 Government Center Parkway
Fairfax, Virginia 22035-5503

May 26, 1998

Telephone (703) 324-1700
Waiver Request No: 019615
File No: ~~03045~~/98
C3165

Tom Chao, P.E.
Huntley, Nyce & Associates, Ltd.
45150 Russell Branch Parkway
Ashburn, Virginia 20147

Subject: Request for Waiver of the Water Quality Control Requirements of the Chesapeake Bay Preservation Ordinance for Fair Ridge Plaza and Exxon Station; Tax Map #46-3-001-14 and 14A; Sully District

Reference: Your Letter Dated May 14, 1998

Dear Mr. Chao:

This is in response to your request for a waiver of water quality control requirements for the subject project. Based on your letter the off-site Lake #2 will provide BMP for this site. If you demonstrate compliance with Section 6-0402.6B of the Public Facilities Manual by submission of water quality narrative, a water quality waiver should not be required.

However, an agreement must be executed between owners of the Lake and Fair Ridge Plaza and Exxon Station as described in our letter regarding stormwater detention waiver.

If further assistance is desired, please contact Qayyum M. Khan, Special Projects Branch at 324-1700.

Sincerely,

Ray Curd, Chief
Special Projects Branch

RC/bc
1217bsp

cc: Fred Rose, Chief, Stormwater Management Branch, Department Public Works
Henry Schenke, Chief, Bonds and Agreements Branch, DEM
Donald Croll, Acting, Chief, Site Review Branch, DEM
Qayyum M. Khan, Chief, Storm Drainage Section, Special Projects: Branch, DEM
Chesapeake Bay Exception Request File, Special Projects Branch, IDEM
Central Files

| NO. | DESCRIPTION | REVISION BY | APPROVED | DATE |
|---|---|---|---|---|
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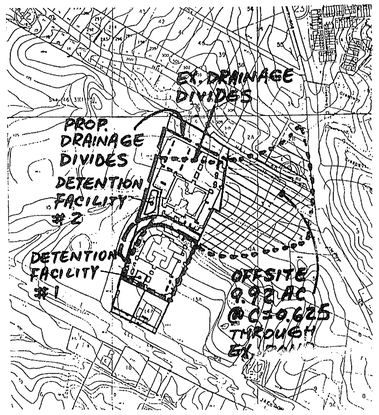
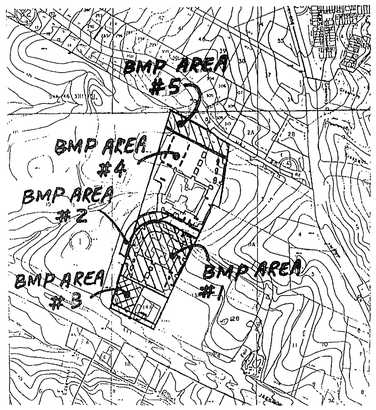
I HEREBY CERTIFY THAT NO OTHER CHANGES HAVE BEEN MADE ON THE PLAN OR PROFILE EXCEPT THOSE PREVIOUSLY APPROVED.

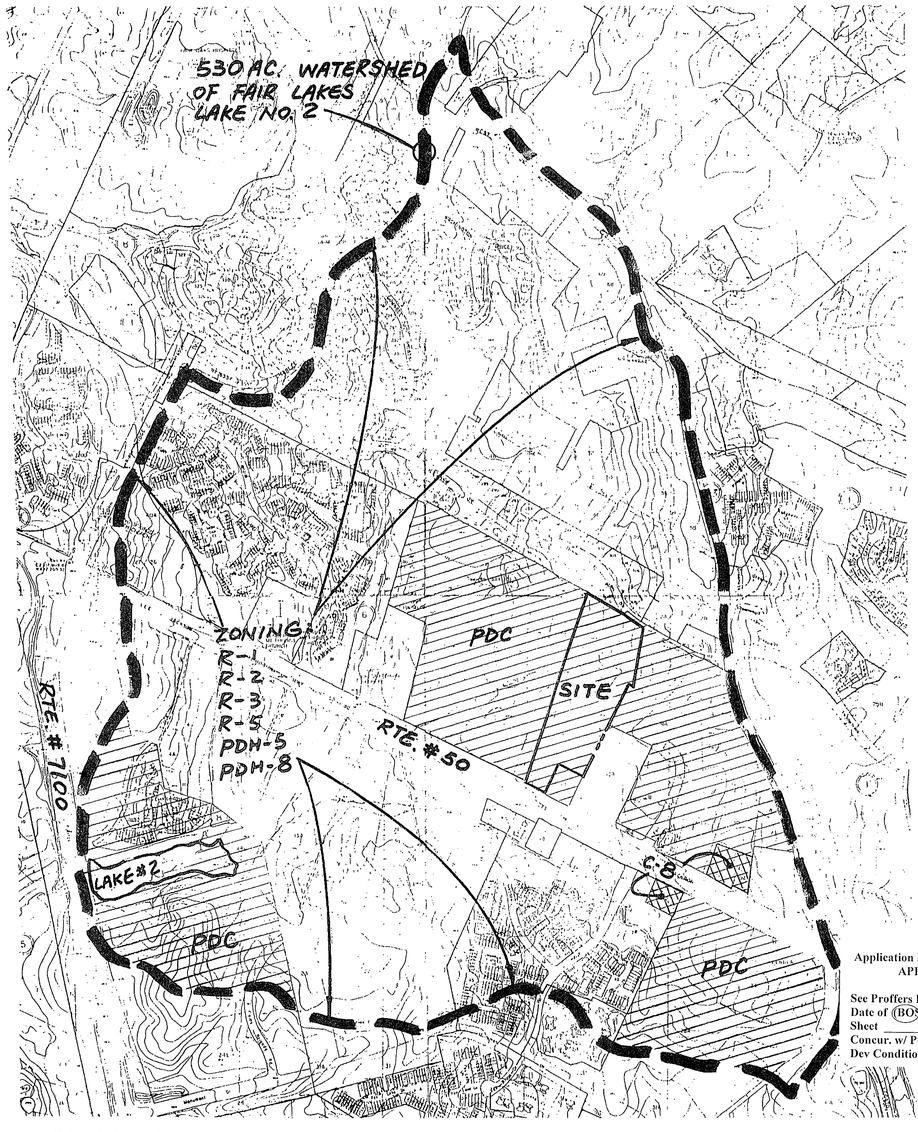
CERTIFYING ENGINEER OR LAND SURVEYOR

OFFSITE DRAINAGE MAP




BMP MAP




DRAINAGE MAP OF EXISTING LAKE #2
THIS SHEET OBTAINED FROM 9779-SP-01, PREPARED BY HUNTLEY, NYCE & ASSOC.

| No. | DATE | DESCRIPTION | REV BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | REVISION APPROVED BY DIVISION OF DESIGN REVIEW | | | |

PLAN DATE
11-09-06
12-14-06
01-11-07
03-22-07
04-12-07
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06-04-07
06-21-07


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CLAYTON C. TOCK
No. 038790
06/21/07
PROFESSIONAL ENGINEER

V.M. - DRAINAGE DIVIDE MAP

# FAIR RIDGE
DEPENDENT LIVING
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

C.I. = N/A

DATE: NOV., 2006

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (CDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet 12 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

SHEET
8
OF
12

FILE No.
MISC 1683

SCALE 1"=100'

NORTH

## LEGEND

SITE BOUNDARY

VEGETATION COMMUNITY BOUNDARY

| | COVER TYPE | PRIMARY SPECIES | SUCCESSIONAL STAGE | CONDITION* | ACREAGE (AC) | COMMENTS |
|---|---|---|---|---|---|---|
| A | Upland Forest | Yellow-Poplar<br>Red Maple | Sub-Climax | Good | 4.35 | See Condition Description |
| B | Old Field | Red Maple<br>Black Locust<br>Autumn Olive | Early-Successional | Fair to Good | 0.32 | See Condition Description |
| C | Open Field | Chinese Bushclover<br>Indian Grass<br>Carolina Nightshade | N/A | N/A | 2.26 | See Condition Description |
| TOTAL ACREAGE | | | | | 6.93 | |

*CONDITION DESCRIPTION:

A. This area of upland forest is in generally good condition. The dominant species are yellow-poplar (*Liriodendron tulipifera*) and red maple (*Acer rubrum*). Tree diameters at breast height (DBH) ranged from approximately 5 to 20 inches. The understory is of moderate coverage and consists of young yellow poplar, red maple and sugar maple (*Acer saccharum*) saplings. Vines of Japanese honeysuckle (*Lonicera japonica*) moderately covered the forest floor. There is a low amount of coarse woody debris and a few dead limbs within the canopy.

B. The early successional old field is in fair to good condition. A diverse species composition included black locust (*Robinia pseudoacacia*), red maple, autumn olive (*Elaeagnus umbellata*), staghorn sumac (*Rhus typhina*), and common pokeweed (*Phytolacca americana*). Groundcover species included Indian hemp (*Apocynum cannabinum*), Japanese honeysuckle, Carolina nightshade (*Solanum carolinense*), and serrate-leaf blackberry (*Rubus argutus*).

C. The open field contained a moderately diverse species community, which was primarily dominated by Chinese bushclover (*Lespedeza cuneata*), Indian grass (*Sorghastrum nutans*), Carolina nightshade, and goldenrod (*Solidago* spp.). This area also included a dry storm water management pond and associated infrastructure in the southwestern portion of the property.

NOTES:

1. This Existing Vegetation Map is based upon examination of background materials, such as the USGS 1994 Fairfax and Vienna, VA-MD Topographic Quadrangle Maps, existing topography, Fairfax County Soils Map, National Wetlands Inventory Map, Resource Protection Area map and aerial photography. A field verification was performed by Wetland Studies and Solutions, Inc. (WSSI) on October 30, 2006.

2. Parcel boundaries were obtained in digital format from Fairfax County digital data. The property boundary information was provided in digital format from Urban Engineering & Associates, Inc. As shown on this map, the site boundary line differs from the parcel lines. This discrepancy is due to differences from the actual boundary survey-location conducted by Urban Engineering & Associates, Inc. and the information obtained from Fairfax County digital data. Since a survey-location of the boundary governs over County digital data, WSSI has used the surveyed boundary received from Urban Engineering & Associates, Inc. rather than the parcel lines from Fairfax County; therefore, the property size is 6.93 acres, which is consistent with the Fairfax County website.

3. A WSSI Spring 2004 Color Infrared Imagery was used as a base map for this exhibit.

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**Vicinity Map**
**Fair Ridge Executive Plaza - Phase 2**
**WSSI #21288.01**
**Scale: 1" = 2000'**

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet 13 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive, Suite 100 • Gainesville, VA 20155
Phone 703 679 5600 • Fax 703 679 5601
www.wetlandstudies.com

# EXISTING VEGETATION MAP

Prepared For: Atlantic Realty Companies

Fair Ridge Executive Park
Fairfax County, Virginia

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REVISIONS

| No. | Date | Description | Rev. By | App. By |
|---|---|---|---|---|
| | | | | |

SCALE: AS NOTED

DATE: November 2006

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 29
Boundary and Topo Source: Urban Engineering & Associates, Inc. Fairfax County Digital Data

| Design | Draft | Approved |
|---|---|---|
| JNC | JNC | MH/LABG |

Sheet # 9 of 12

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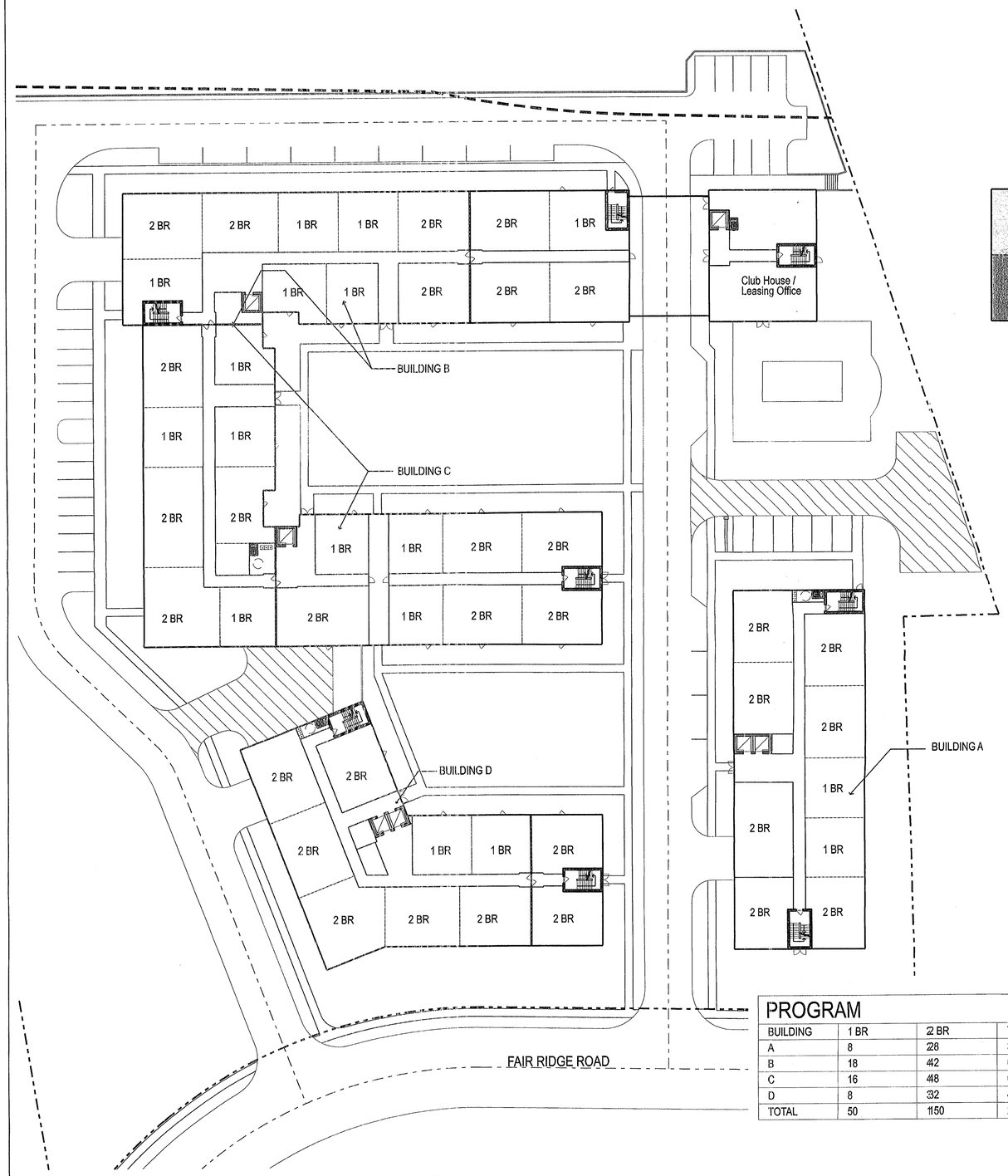


FIRST FLOOR PLAN

| PROGRAM | | | | | |
|---|---|---|---|---|---|
| BUILDING | 1 BR | 2 BR | TOTAL | GFA (RES., INCL. LOFTS) | NFA (RES., INCL. LOFTS) |
| A | 8 | 28 | 36 | 51,164 SF | 40,930 SF |
| B | 18 | 42 | 60 | 84,116 SF* | 67,292 SF |
| C | 16 | 48 | 64 | 92,044 SF | 73,635 SF |
| D | 8 | 32 | 40 | 59,051 SF | 47,240 SF |
| TOTAL | 50 | 150 | 200 | 286,375 SF | 229,097 SF |

*ADDITIONAL 3564 SF AT FIRST FLOOR COMMUNITY CENTER

TYPICAL FLOOR PLAN (Level 2-4)

Application No RZ-2007-SU-003 Staff T.Strunk
APPROVED DEVELOPMENT PLAN
(DP) (GDP) (CDP) (FDP)
See Proffers Dated 9-20-2007
Date of (BOS) (PC) Approval 9-24-2007
Sheet 14 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

30' 20' 10' 0 30'
SCALE: 1" = 30'-0"

# FAIR RIDGE INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY,VA

Torti Gallas and Partners, Inc.
1300 Spring Street,
4th Floor
Silver Spring, MD 20910
301.588.4800
www.tortigallaschk.com

Owner
Atlantic Realty Companies
703.760.9500

Civil / Landscape Engineer
Urban Ltd.
703.642.8080

## Key Plan

## Revisions

| No. | Date |
|---|---|

Date
05/14/07
06/04/07
Principal In Charge
D.F.

Project Architect.
E.C.

Approved
M.B.

Drawn
N.F.,E.C.,S.V.,A.M.

Job No.
07135.00

Scale
As Noted

Drawing No.
10 of 12

TORTI GALLAS AND PARTNERS, INC.

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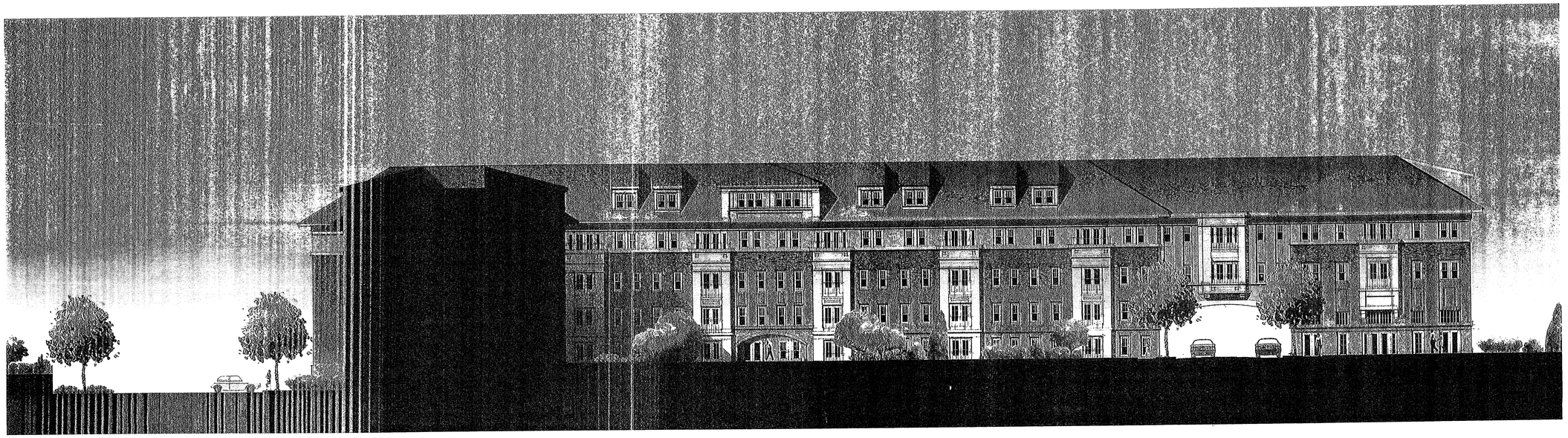
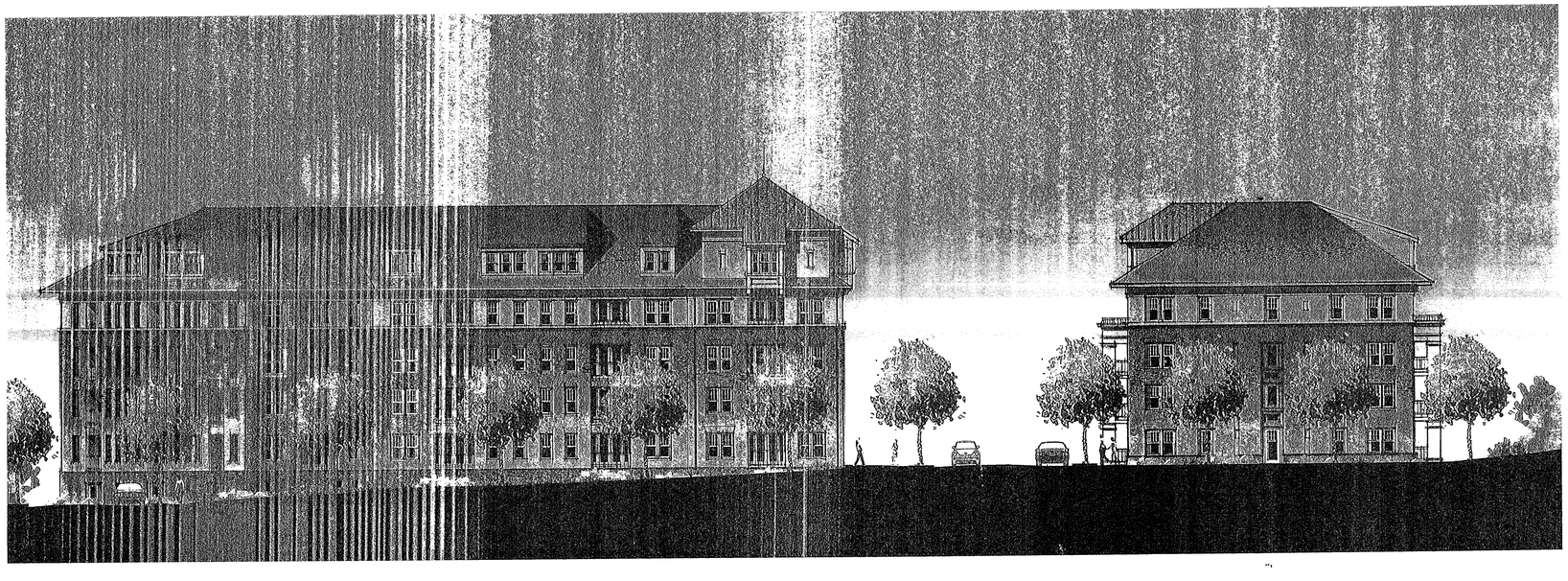


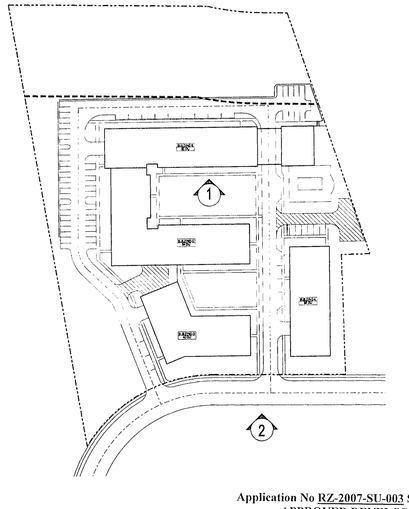
1 BUILDING B ELEVATION, AT COURTYARD

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



2 BUILDINGS D AND A ELEVATIONS, AT FAIR RIDGE DRIVE

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




Application No RZ-2007-SU-003 Staff T.Strunk
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(DP) (GDP) (CDP) (FDP)
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Sheet 15 of 18
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Dev Conditions 6-27-2007

# FAIR RIDGE INDEPENDENT LIVING

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Drawing No.



TORTI GALLAS AND PARTNERS INC


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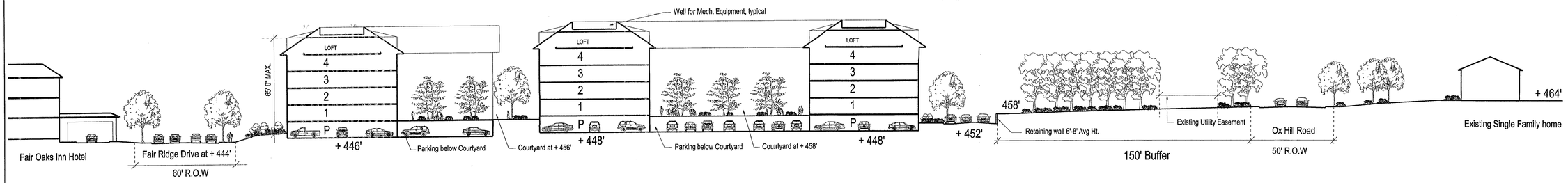
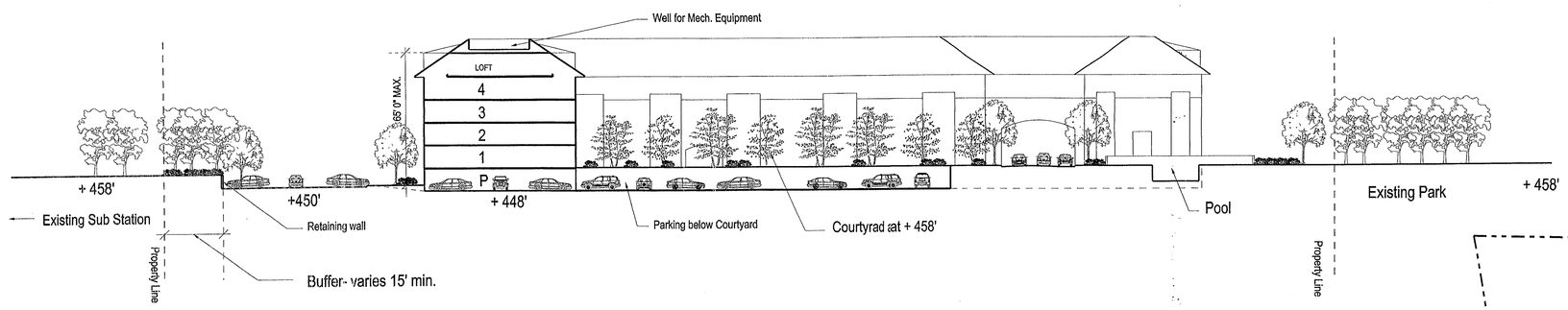
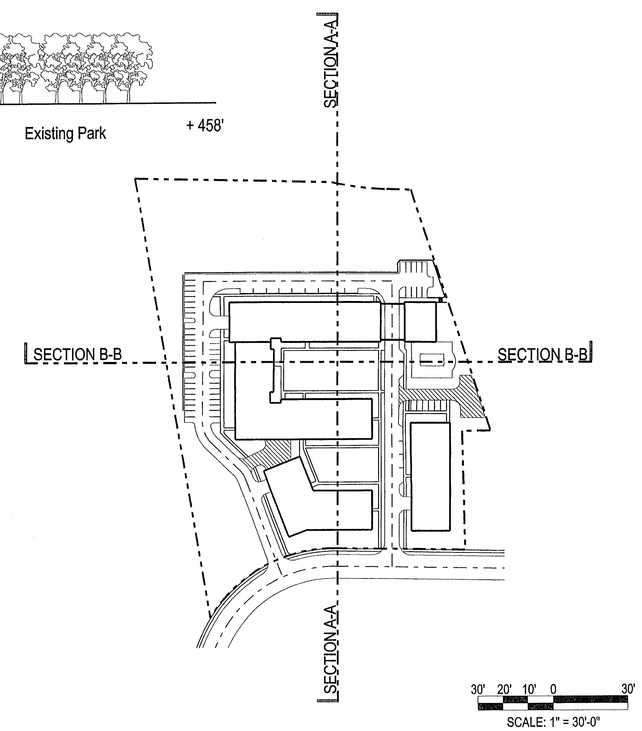



## SECTION A-A




## SECTION B-B




Application No RZ-2007-SU-003 Staff T.Strunk
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Sheet 10 of 18
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Dev Conditions 6-27-2007

# FAIR RIDGE INDEPEN-DENT LIVING

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Job No.
07135.00

Scale
As Noted

Drawing No.

12 of 12

TORTI GALLAS AND PARTNERS, INC.


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Saved: 5/30/2007
er: BOND_24x36.plt

TYPICAL PLANT PALETTE

| Botanical Name | Common Name | Size |
|---|---|---|
| **CANOPY TREES** | | |
| Acer rubrum 'October Glory' | October Glory Red Maple | 3" cal. |
| Fraxinus americana | Seedless Green Ash | 3" cal. |
| Liquidambar styraciflua | Sweetgum | 3" cal. |
| Quercus palustris | Pin Oak | 3" cal. |
| Quercus phellos | Willow Oak | 3" cal. |
| Quercus rubra | Red Oak | 3" cal. |
| **ORNAMENTAL / EVERGREEN TREES** | | |
| Cercis canadensis | Eastern Redbud | 8'-10' ht. |
| Cornus florida | Flowering Dogwood | 8'-10' ht. |
| Hammelis virginiana | Witch Hazel | 6'-8' ht. |
| Ilex opaca | American Holly | 6'-8' ht. |
| Junipenus virginiana | Eastern Redcedar | 6'-8' ht. |
| Lagerstroemia indica 'Natchez' | Crape Myrtle | 8'-10' ht. |
| Magnolia tilliflora x stellata 'Susan' | Susan Magnolia | 8'-10' ht. |
| Magnolia soulangiana | Saucer Magnolia | 8'-10' ht. |
| Magnolia Virginiana | Sweetbay Magnolia | 8'-10' ht. |
| Pinus strobus | White Pine | 8'-10' ht. |
| **SHRUBS / GROUNDCOVERS / PERENNIALS / MISC.** | | |
| Azalea 'Delaware Valley' | White Azalea | 30" |
| Calamagrostis acutiflora 'Karl Forester' | Feather Reed Grass | 3 gal. |
| Cotoneaster dammeri 'Coral Beauty' | Coral Beauty Cotoneaster | 18"-24" |
| Hemerocallis minor 'Stella D'Oro' | Stella D'Oro Daylily | 2 gal. |
| Hydrangea quercifolia | Oakleaf Hydrangea | 30-36" |
| Hypericum calycinum | Aaronsbeard St. John's Wort | 3 gal. |
| Ilex crenata 'Helleri' | Helleri Holly | 18"-24" |
| Ilex x meserveae 'Blue Princess' | Blue Princess Holly | 30"-36" |
| Viburnum rhytidophylum | Leatherleaf Viburnum | 30"-36" |

NOTES:
1. LANDSCAPING SHOWN IS CONCEPTUAL AND PRESENTED ONLY TO ILLUSTRATE CHARACTER AND QUALITY OF DESIGN. LOCATIONS, SPECIES AND QUANTITIES MAY BE ADJUSTED WITH FINAL DESIGN AND ENGINEERING.

TREE CANOPY COVER REQUIREMENTS

| | |
|---|---|
| TOTAL SITE AREA: | 302,138 s.f. |
| BUILDING FOOTPRINTS: | 69,390 s.f. |
| NET SITE AREA: | 232,748 s.f. |
| CANOPY REQUIRED (20%): | 46,550 s.f. |
| TREE SAVE AREA (20,000 x 1.25): | 25,000 s.f. |
| LANDSCAPING PROVIDED: | 22,000 s.f. |
| CANOPY PROVIDED: | 47,000 s.f. |

THE FOLLOWING MODIFICATIONS ARE REQUESTED:

(i) A MODIFICATION OF THE TRANSITIONAL SCREENING AND BARRIER REQUIREMENTS ALONG THE NORTHERN BOUNDARY TO THAT SHOWN ON THIS PLAN IN CONFORMANCE WITH PARAGRAPH (3) SECTION 13-304 OF THE ZONING ORDINANCE. EXISTING TREES TO REMAIN AND PROPOSED TREE AND SHRUB PLANTINGS WILL PROVIDE A SUBSTANTIAL VISUAL BUFFER BETWEEN USES.

Application No RZ-2007-SU-003 Staff T.Strunk
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Sheet 1 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

ILLUSTRATIVE PLAN

urban

# FAIR RIDGE INDEPENDENT LIVING

Fairfax County, Virginia

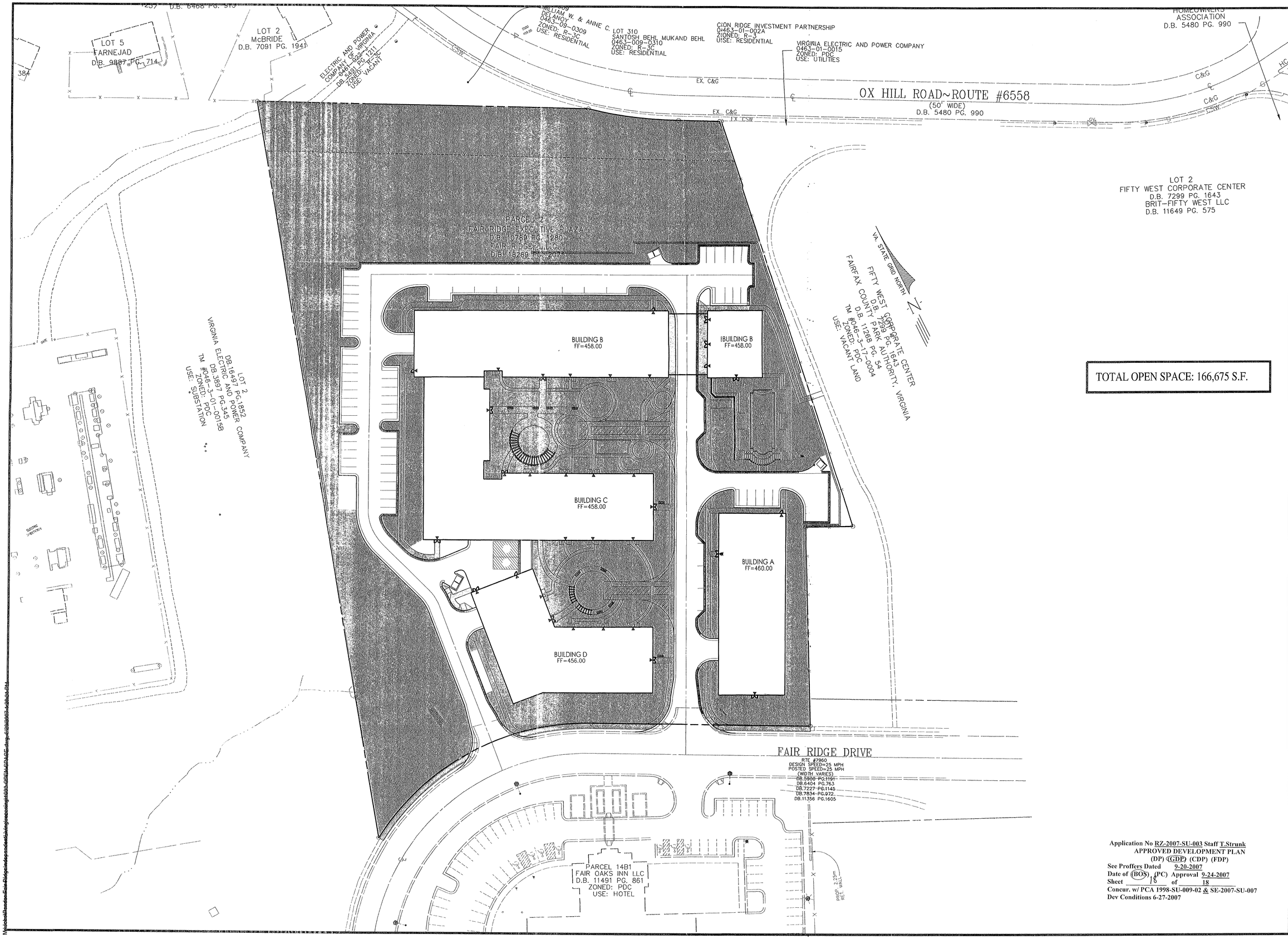
ATLANTIC REALTY COMPANIES

0 20' 40' 80' 160'

Scale: 1"=40'

June 21, 2007

Urban, Ltd. - L:\Jobs\Fair Ridge Exec Plaza\1683_Landscape-Illus.dwg [Illust Plan] June 21, 2007 - 3:18pm sseace




TOTAL OPEN SPACE: 166,675 S.F.

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Sheet 18 of 18
Concur. w/ PCA 1998-SU-009-02 & SE-2007-SU-007
Dev Conditions 6-27-2007

| No. | DATE | DESCRIPTION | REV BY | APPROVED | DATE |
|---|---|---|---|---|---|
| | | REVISION APPROVED BY DIVISION OF DESIGN REVIEW | | | |

| PLAN DATE |
|---|
| 11-09-06 |
| 12-14-06 |
| 01-11-07 |
| 03-22-07 |
| 04-02-07 |
| 05-04-07 |
| 06-21-07 |

Urban, Ltd.
7712 Little River Turnpike
Annandale, Virginia 22003
Tel: 703.642.8080
www.urban-ltd.com
urban
Planners-Engineers-Landscape Architects-Land Surveyors

COMMONWEALTH OF VIRGINIA
ERIC S. SIEGEL
No. 023416
06/21/07
PROFESSIONAL ENGINEER

OPEN SPACE EXHIBIT

# FAIR RIDGE
# INDEPENDENT LIVING

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

SCALE: 1"=40' C.I. = 2' DATE: NOV., 2006

SHEET 12B OF 12

FILE No. MISC 1683