CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMW ATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: **JR005**

DATE VERIFIED: **April 1, 2020**

QUALITY ASSURANCE TECHNICIAN: **Charles E. Lovett II**

Charles E. Lovett II

LOCATION: WILLIAMSBURG, VIRGINIA

NOTES: Certify and Upload Maintenance Agreements, Deed & Easement, Construction Drawing

Stormwater Division

MEMORANDUM

DATE: October 17, 2016
TO: Virginia Correctional Enterprises Document Management Services
FROM: Charles Lovett II, Stormwater Administrative Assistant
BMP: JR005
RE: Files Approved for Scanning

NAME PDF/SCANNED FILE:	Fernbrook Phase I		
BMP ID OR GEN FILE NUMBER:	JR005	**OWNER NAME :**	Ewell, Gray Ann G
PIN:	4540300010	**SITE ADDRESS:**	3201 Derby Lane
		LEGAL DESCRIPTION:	PARCEL 7 DRUMMONDS QUARTERS ON THE JAMES

MAINTENANCE AGREEMENT IN FILE:	NO	**BOOK/PAGE OR DOCUMENT NO:**	N/A	**OTHER DESCRIPTION:**	N/A

BOX NO:	D005	**COMMENTS:**	N/A

Stormwater Division

MEMORANDUM

DATE: March 11, 2010

TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services

FROM: Tina Cantwell, Stormwater

PO: 270712

RE: Files Approved for Scanning

General File ID or BMP ID: JR005

PIN: 4540300010

Subdivision, Tract, Business or Owner Name (if known): Ewell, Gray Ann G

Property Description: Parcel 7 Drummonds Quarters On The James

Site Address: 3201 Derby Lane

(For internal use only) **Box** [redacted] 1 **Drawer** [redacted]

Agreements: (in file as of scan date) **Y** **Book or Doc#:** 684 **Page:** 722-725

Comments

1. Maintenance Agreement

007344

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

THIS DECLARATION, made this 27th day of April, 1994, between Fernbrook Assoc.) C. Lewis Waltrip and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: Fernbrook Subdivision TAX 46-3 1-1A As further described (Exhibit A) (Exhibit B), and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the runoff control facility, hereinafter referred to as the "FACILITY," located on and serving the above-described property to ensure that the FACILITY is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the FACILITY to ensure that the FACILITY is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the FACILITY for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the FACILITY for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the FACILITY.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the FACILITY in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the FACILITY for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the FACILITY.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the FACILITY. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the FACILITY.

9. This DECLARATION shall be recorded in the County Land Records.

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 27 day of April, 1994

COVENANTOR(S)
Fenbrook Associates
[signature] Partner

ATTEST:

_____

COVENANTOR(S)

_____

ATTEST:

_____

COMMONWEALTH OF VIRGINIA
~~CITY~~/COUNTY OF James City

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do certify that C. Lewis Waltrip, II, whose name is signed as such to the foregoing writing bearing date 27 day of April, 1994, this day sworn the same before me in my jurisdiction aforesaid.

GIVEN under my hand this 27 day of April, of 1994.

Mary S. Cashen
Notary Public

My Commission expires: Aug. 31, 1996

Approved as to form:

Les P. Posen

0261U.Wpf
Revised 9/92

18524

THIS DEED OF EASEMENT, made October 7, 1993, by and between DUDLEY S. WALTRIP 661 172 and REBECCA R. WALTRIP, husband and wife, party of the first part herein the Grantors and C. LEWIS WALTRIP, II, party of the second part, herein the Grantee.

WITNESS:

WHEREAS, Grantors own the real estate shown on the plat attached hereto and marked Exhibit "A"; said plat is incorporated herein as part of this deed.

WHEREAS, Grantee intends to develop the real estate adjacent to and adjoining Grantors' land which is shown on the plat as N/F First Settlers Landing Inc., accordingly, Grantee needs to use a portion of Grantors' land for utilities, drainage, to control runoff and to create a storm water management basin.

THEREFORE, for and in consideration of One Dollar ($1.00) cash in hand paid, and other good and valuable consideration, receipt of which is hereby acknowledged, the Grantors do hereby grant and convey unto C. Lewis Waltrip, II, his successors and assigns forever, the permanent easement and right of way to use the following described parcel of land for utilities, drainage, to control runoff and to create a storm water management basin, to control runoff and for drainage needed to develop adjacent and adjoining land for single family homes or other uses permitted by James City County, to-wit:

> All that certain piece of land situate in James City County, Virginia, which is designated on the plat (attached hereto and marked Exhibit "A") entitled "Plat of Drainage and Utility Easement for Conveyance to C. Lewis Waltrip, II and dated July 1993, as "Proposed Drainage and Utility Easement" which contains 2.585 acres, more or less.

The easement hereby granted includes:

1. The right of ingress and egress over, under and across the Grantor's land for the purposes of exercising the rights granted herein.

2. The right to trim, top, cut and remove any trees or bush, and to do all things necessary, within the land designated for this easement for the utilities, drainage, runoff and storm water management basin to serve the land which Grantee intends to develop for single

RETURNED TO STUART SPIRN ATTORNEY WILLIAMSBURG 1/13/94

family dwellings or other uses permitted by James City County.

3. The easement granted herein for the specific location described above, is in addition to any easement for right of way now existing or which may be acquired in the future.

The Grantors warrant that they own the interest herein conveyed and that they have the right to make this conveyance, and they covenant that Grantee his successors and assigns shall have quiet enjoyment of the premises for the uses described herein.

Grantors further covenant that they shall not use the land designated for this easement for any purpose which might interfere with Grantee's uses of the land.

Grantors covenant that no building or structure shall be erected within the easement without prior written consent from Grantee.

Grantee covenants that he shall repair any physical damage to Grantors' property during the construction, operation, maintenance, replacement or removal of the utilities and drainage systems.

This easement shall run with the Grantors' land and shall be binding upon the heirs, executors, administrators, successors and assigns of the Grantors and the Grantee.

WITNESS the following signatures and seals:

Dudley S. Waltrip (SEAL)

Rebecca R. Waltrip (SEAL)

STATE OF VIRGINIA
CITY/COUNTY OF James City, to-wit:

The foregoing was acknowledged before me by Dudley S. Waltrip and Rebecca R. Waltrip, husband and wife, on ~~October~~ DECEMBER 22, 1993.

My commission expires: 12-31-97.

Notary Public

In the Clerk's Office of the Circuit Court of the City of [illegible] the City of James City the 22 day of December, 1993. This Deed of Easement was presented with certificate annexed and admitted to record at 3:41 o'clock

Teste: Helen C. Ford, Clerk
by [illegible]
Deputy Clerk

DB. NO. 58 PAGE 68

2 - 2

JR 005
Fernbrook Subdivision

BOOK 684 PAGE 722

DECLARATION OF COVENANTS

007344

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

THIS DECLARATION, made this 27th day of April, 1994, between (Fernbrook Assc.) C. Lewis Waltrip and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: Fernbrook Subdivision TAX 46-3 1-1A As further described (Exhibit A) (Exhibit B), and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the runoff control facility, hereinafter referred to as the "FACILITY," located on and serving the above-described property to ensure that the FACILITY is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the FACILITY to ensure that the FACILITY is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the FACILITY for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the FACILITY for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the FACILITY.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the FACILITY in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the FACILITY for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the FACILITY.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the FACILITY. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the FACILITY.

9. This DECLARATION shall be recorded in the County Land Records.

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 27 day of April, 1994

COVENANTOR(S)
Fenbrook Associates
[signature] Partner

ATTEST:

_____

COVENANTOR(S)

_____

ATTEST:

_____

COMMONWEALTH OF VIRGINIA
~~CITY~~/COUNTY OF James City

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do certify that C. Lewis Waltrip, II, whose name is signed as such to the foregoing writing bearing date 27 day of April, 1994 this day sworn the same before me in my jurisdiction aforesaid.

GIVEN under my hand this 27 day of April, of 1994.

Mary S. Casken
Notary Public

My Commission expires: Aug. 31, 1996

Approved as to form:

[signature]

0261U.Wpf
Revised 9/92

EXHIBIT A

THIS DEED of BARGAIN AND SALE, made this 15th day of April, 1994 by and between C. Lewis **WALTRIP, II**, Single, party of the first part, **JAMESTOWN BUILDING CORPORATION, INC.**, a Virginia Corporation, party of the second part, hereinafter referred to collectively as the "Grantors" and **FERNBROOK ASSOCIATES, L.L.C.**, a Virginia Limited Liability Company, party of the third part, hereinafter referred to as the "Grantees".

W I T N E S S E T H :

That for and in consideration the sum of TEN DOLLARS ($10.00) cash in hand by the Grantee unto the Grantors, and other good and valuable consideration, the receipt which is hereby acknowledged, the Grantors do hereby BARGAIN, GRANT, SELL, and CONVEY with GENERAL WARRANTY and ENGLISH COVENANTS OF TITLE, unto the Grantees, the following described property, to-wit:

All those certain pieces, or parcels of land, situate lying and being in James City County, Virginia, containing 35.06 ± acres and 19.79 ± acres, and that Thirty (30) square foot area exchanged between C. Lewis Waltrip, II, by deed of exchange and boundary line extinguishment, between Stanley J. Dykstra and Patricia W. Dykstra, recorded contemporaneously with this instrument as set out and shown on that certain plat of survey entitled: "PLAT SHOWING BOUNDARY LINE ADJUSTMENT AND LOT LINE EXTINGUISHMENT BETWEEN TWO PARCELS FOR CONVEYANCE TO FERNBROOK ASSOCIATES, L.L.C., BERKELEY DISTRICT, JAMES CITY COUNTY, VIRGINIA", dated December 21, 1993, made by AES, A Professional Corporation, a copy of which plat is attached hereto and incorporated herein by reference for a more complete description of the property hereby conveyed.

Together with all and singular the buildings and improvements thereon rights and privileges tenements, hereditaments, easements and appurtenances, covenants and restrictions thereunto belonging or in anywise appertaining.

Subject, however, to the covenants and restrictions, easements and right of way of record affecting said property.

Being parts of the same parcels of property as conveyed to C. Lewis Waltrip, II, by deeds dated November 22, 1988 and recorded in James City County Deed Book 430 at page 484, dated January 8, 1990 and recorded in James City County Deed Book 470 at page 595, dated November

SPIRN, TARLEY, ROBINSON & TARLEY P. L. L. C.
1313 JAMESTOWN ROAD
SUITE 202
POST OFFICE BOX 984
WILLIAMSBURG, VA 23187
(804) 229-4281

jcc

6, 1992 and recorded in James City County Deed Book 590 at page 685, dated December 20, 1993, and recorded in James City County Deed Book 661 at page 170, dated October 7, 1993, and recorded in the James City County Deed Book 662 at page 172 and to Jamestown Building Corporation, Inc. by deeds dated June 29, 1993 and recorded in James City County Deed Book 626 at page 761 and dated July 23, 1993 and recorded in James City County Deed Book 631 at page 793.

WITNESS the following signatures and seals:

_____(SEAL)
C. Lewis Waltrip, II

Jamestown Building Corporation, Inc.
A Virginia Corporation

BY: _____(SEAL)
C. Lewis Waltrip, II President

COMMONWEALTH OF VIRGINIA-
In the County of , to-wit:

The foregoing Deed was acknowledged before me by C. Lewis Waltrip, II, single this 26th day of April, 1994.

My Commission Expires: 9/30/96

_____
Notary Public

COMMONWEALTH OF VIRGINIA
In the County of , to-wit:

The foregoing Deed was acknowledged before me by C. Lewis Waltrip, II as president of Jamestown Building Corporation, Inc., A Virginia Corporation, this 26th day of April, 1994.

My Commission Expires: 9/30/96

_____
Notary Public

SPIERN, TARLEY,
ROBINSON & TARLEY
P. L. L. C.
113 JAMESTOWN ROAD
SUITE 202
POST OFFICE BOX 884
WILLIAMSBURG, VA 23187
(804) 229-4281

G:\WP60\REALE ST\FERBROOK.DED

2.

Deeds/Easements/Agreements/Property Records

EXHIBIT A

BOOK 684 PAGE 724

THIS DEED of BARGAIN AND SALE, made this 15th day of April, 1994 by and between C. Lewis **WALTRIP, II**, Single, party of the first part, **JAMESTOWN BUILDING CORPORATION, INC.**, a Virginia Corporation, party of the second part, hereinafter referred to collectively as the "Grantors" and **FERNBROOK ASSOCIATES, L.L.C.**, a Virginia Limited Liability Company, party of the third part, hereinafter referred to as the "Grantees".

W I T N E S S E T H :

That for and in consideration the sum of TEN DOLLARS ($10.00) cash in hand by the Grantee unto the Grantors, and other good and valuable consideration, the receipt which is hereby acknowledged, the Grantors do hereby BARGAIN, GRANT, SELL, and CONVEY with GENERAL WARRANTY and ENGLISH COVENANTS OF TITLE, unto the Grantees, the following described property, to-wit:

All those certain pieces, or parcels of land, situate lying and being in James City County, Virginia, containing 35.06 ± acres and 19.79 ± acres, and that Thirty (30) square foot area exchanged between C. Lewis Waltrip, II, by deed of exchange and boundary line extinguishment, between Stanley J. Dykstra and Patricia W. Dykstra, recorded contemporaneously with this instrument as set out and shown on that certain plat of survey entitled: "PLAT SHOWING BOUNDARY LINE ADJUSTMENT AND LOT LINE EXTINGUISHMENT BETWEEN TWO PARCELS FOR CONVEYANCE TO FERNBROOK ASSOCIATES, L.L.C., BERKELEY DISTRICT, JAMES CITY COUNTY, VIRGINIA", dated December 21, 1993, made by AES, A Professional Corporation, a copy of which plat is attached hereto and incorporated herein by reference for a more complete description of the property hereby conveyed.

Together with all and singular the buildings and improvements thereon rights and privileges tenements, hereditaments, easements and appurtenances, covenants and restrictions thereunto belonging or in anywise appertaining.

Subject, however, to the covenants and restrictions, easements and right of way of record affecting said property.

Being parts of the same parcels of property as conveyed to C. Lewis Waltrip, II, by deeds dated November 22, 1988 and recorded in James City County Deed Book 430 at page 484, dated January 8, 1990 and recorded in James City County Deed Book 470 at page 595, dated November

SPIERS, TARLEY, ROBINSON & TARLEY P. L. L. C.
313 JAMESTOWN ROAD
SUITE 202
POST OFFICE BOX 584
WILLIAMSBURG, VA 23187
(804) 229-4281

JCC

6, 1992 and recorded in James City County Deed Book 590 at page 685, dated December 20, 1993, and recorded in James City County Deed Book 661 at page 170, dated October 7, 1993, and recorded in the James City County Deed Book 662 at page 172 and to Jamestown Building Corporation, Inc. by deeds dated June 29, 1993 and recorded in James City County Deed Book 626 at page 761 and dated July 23, 1993 and recorded in James City County Deed Book 631 at page 793.

WITNESS the following signatures and seals:

_____(SEAL)
C. Lewis Waltrip, II

Jamestown Building Corporation, Inc.
A Virginia Corporation

BY: _____(SEAL)
C. Lewis Waltrip, II President

COMMONWEALTH OF VIRGINIA-
In the County of , to-wit:

The foregoing Deed was acknowledged before me by C. Lewis Waltrip, II, single this 26th day of April, 1994.

My Commission Expires: 9/30/94

_____
Notary Public

COMMONWEALTH OF VIRGINIA
In the County of , to-wit:

The foregoing Deed was acknowledged before me by C. Lewis Waltrip, II as president of Jamestown Building Corporation, Inc., A Virginia Corporation, this 26th day of April, 1994.

My Commission Expires: 9/30/94

_____
Notary Public

SPIERN, TARLEY,
ROBINSON & TARLEY
P. L. L. C.
113 JAMESTOWN ROAD
SUITE 202
POST OFFICE BOX 584
WILLIAMSBURG, VA 23187
(804) 229-4281

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EXHIBIT B

BOOK 684 PAGE 726 BOOK 661 PAGE 172

524

THIS DEED OF EASEMENT, made October 7, 1993, by and between DUDLEY S. WALTRIP and REBECCA R. WALTRIP, husband and wife, party of the first part herein the Grantors and C. LEWIS WALTRIP, II, party of the second part, herein the Grantee.

WITNESS:

WHEREAS, Grantors own the real estate shown on the plat attached hereto and marked Exhibit "A"; said plat is incorporated herein as part of this deed.

WHEREAS, Grantee intends to develop the real estate adjacent to and adjoining Grantors' land which is shown on the plat as N/F First Settlers Landing Inc., accordingly, Grantee needs to use a portion of Grantors' land for utilities, drainage, to control runoff and to create a storm water management basin.

THEREFORE, for and in consideration of One Dollar ($1.00) cash in hand paid, and other good and valuable consideration, receipt of which is hereby acknowledged, the Grantors do hereby grant and convey unto C. Lewis Waltrip, II, his successors and assigns forever, the permanent easement and right of way to use the following described parcel of land for utilities, drainage, to control runoff and to create a storm water management basin, to control runoff and for drainage needed to develop adjacent and adjoining land for single family homes or other uses permitted by James City County, to-wit:

> All that certain piece of land situate in James City County, Virginia, which is designated on the plat (attached hereto and marked Exhibit "A") entitled "Plat of Drainage and Utility Easement for Conveyance to C. Lewis Waltrip, II and dated July 1993, as "Proposed Drainage and Utility Easement" which contains 2.585 acres, more or less.

The easement hereby granted includes:

1. The right of ingress and egress over, under and across the Grantor's land for the purposes of exercising the rights granted herein.

2. The right to trim, top, cut and remove any trees or bush, and to do all things necessary, within the land designated for this easement for the utilities, drainage, runoff and storm water management basin to serve the land which Grantee intends to develop for single

family dwellings or other uses permitted by James City County.

3. The easement granted herein for the specific location described above, is in addition to any easement for right of way now existing or which may be acquired in the future.

The Grantors warrant that they own the interest herein conveyed and that they have the right to make this conveyance, and they covenant that Grantee his successors and assigns shall have quiet enjoyment of the premises for the uses described herein.

Grantors further covenant that they shall not use the land designated for this easement for any purpose which might interfere with Grantee's uses of the land.

Grantors covenant that no building or structure shall be erected within the easement without prior written consent from Grantee.

Grantee covenants that he shall repair any physical damage to Grantors' property during the construction, operation, maintenance, replacement or removal of the utilities and drainage systems.

This easement shall run with the Grantors' land and shall be binding upon the heirs, executors, administrators, successors and assigns of the Grantors and the Grantee.

WITNESS the following signatures and seals:

Dudley S. Waltrip (SEAL)

Rebecca R. Waltrip (SEAL)

STATE OF VIRGINIA
CITY/COUNTY OF James City, to-wit:

The foregoing was acknowledged before me by Dudley S. Waltrip and Rebecca R. Waltrip, husband and wife, on ~~October~~ DECEMBER 22, 1993.

My commission expires: 12-31-97.

Notary Public

City of ... to Wit:
In the Clerk's ... the Circuit Court of the City of ... and County of James City the 22 day of December, 1993. This Deed was presented with certificate annexed and admitted to record at 3:41 o'clock
Teste: Helene S. Ward, Clerk
by ... Deputy Clerk

... to Wit:
In the ... the Circuit Court of the City of Williamsburg and County of James City the 4 day of May 1994. This ... was presented with the certificate annexed and admitted to record at 3:41 o'clock
Teste Helene S. Ward, Clerk
By ... Deputy Clerk
2-2 Teste: 58 68

FILE IN ASBUILT FILE

JR005

Jamestown
MANAGEMENT COMPANY, LLC

June 22, 2005

Mr. Thomas Coffey
3721 General Gookin
Williamsburg, Va 23188

Re: Fernbrook BMP easement

Mr. Coffey,

Enclosed please find a copy of the recorded deed of easement for the Fernbrook BMP. This document gives the HOA right and access to maintain the BMP and transfers the operation and maintenance of the BMP to the Fernbrook HOA.

This is the final step in the complete turnover of the subdivision to either the HOA, the County, or VDOT.

Sincerely,

Robert M. Oliver, PE
Dir of Development

Cc: C. Lewis Waltrip, II, Mgr. Fernbrook Associates, LLC
Darryl Cook, James City County

213 INGRAM ROAD • WILLIAMSBURG, VIRGINIA 23188
(757) 220-0856 OFFICE • (747) 220-0916 FAX

980014480

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS OF FERNBROOK ASSOCIATES, L.L.C

THIS DECLARATION, made this 22nd day of July, 1998, by FERNBROOK ASSOCIATES, L.L.C., a Virginia limited liability company (hereinafter referred to as "Declarant"), index as "Grantor."

R E C I T A L S:

There has been duly approved under the ordinances of James City County, Virginia, a subdivision known as "Fernbrook," as shown on the subdivision plat entitled "PLAT OF SUBDIVISION FERNBROOK, PHASE III, LOTS 47-72 AND LOTS 83-89, OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C., JAMES CITY COUNTY, JAMESTOWN DISTRICT, VIRGINIA," dated July 2, 1998, made by AES, Engineers-Surveyors-Planners, Landscape Architects - Environmental Consultants recorded in Plat Book 70, pages 13 and 14, in the Clerk's Office of the Circuit Court of the City of Williamsburg and James City County, Virginia, all of said property as shown on the subdivision and resubdivision plats (hereinafter collectively referred to as "Subdivision"); the purpose of this Declaration is to improve and protect the Subdivision.

AUG 14 98 0177

NOW, THEREFORE, Declarant, as owner of all of the property in the Subdivision, hereby declares that all of the property in the subdivision, shall be held, sold and conveyed subject to the following easements, restrictions, covenants and conditions, which are for the purpose of protecting the value and desirability of, and which shall run with, the real property and be binding on all

THIS INSTRUMENT WAS PREPARED BY:
Patten, Wornom & Watkins, L.C.
12350 Jefferson Avenue, #360
Newport News, VA 23602

parties having any right, title or interest in the described properties or any part thereof, their heirs, successors and assigns, and shall inure to the benefit of each owner thereof.

ARTICLE I
DEFINITIONS

Section 1. "Association" shall mean and refer to Fernbrook Homeowners Association, Inc., a Virginia non-stock corporation, its successors and assigns.

Section 2. "BMP" shall mean and refer to the on-site Best Management Practice facilities shown on the subdivision plat.

Section 3. "Owner" shall mean and refer to the record owner, whether one (1) or more persons or entities, of a fee simple title to any lot which is a part of the Subdivision, including contract sellers, but excluding those having such interest merely as security for the performance of an obligation.

Section 4. "Properties" shall mean and refer to all of the land within the Subdivision as shown on the plat of Fernbrook and all other property which may be annexed hereto pursuant to the Annexation provisions set forth hereinafter.

Section 5. "Common Area" shall mean the area identified as open space and conservation areas and on-site Best Management Practice facilities of the Subdivision Plat, together with such additional areas of Common Area as may be annexed.

Section 6. "Lot" shall mean and refer to the numbered lots intended for the purpose of constructing residential homes thereon, as shown in the Subdivision; "Lot" as used herein is intended to refer to residential lots and not to any Common Area.

Section 7. "Declarant" shall mean and refer collectively to Fernbrook Associates, L.L.C., a Virginia limited liability company, its successor and assigns, if such successor or assigns should acquire more than one (1) undeveloped Lot from the Declarant for the purpose of development.

Section 8. "Mortgage" as used herein shall mean a mortgage or deed of trust, said terms having the same meaning and may be used interchangeably.

Section 9. "Board of Directors" shall mean and refer collectively to the Board of Directors of Fernbrook Homeowners Association, Inc.

ARTICLE II
PROPERTY RIGHTS AS TO COMMON AREA

AS TO COMMON AREA, the following provisions apply:

Section 1. Owners' Easements of Enjoyment. Every Owner shall have a right and easement of enjoyment in and to the benefits which derive from the conservation area located in the Common Area and the benefits derived therefrom and the adjacent or other property which is now or subsequently becomes a part of the Common Area, and aesthetic beauty to the Lots within the Subdivision which shall be appurtenant to and shall pass with the title to every Lot, subject to the following provisions:

(a) the right of the Association to charge reasonable fees for the maintenance of the Common Area;

(b) the right of the Association to suspend the voting rights of an Owner for any period during which any assessment against his Lot remains unpaid;

(c) the right of the Association to dedicate or transfer all or any part of the Common Area to any public agency, authority or utility for such purposes and subject to such conditions as may be agreed to or be authorized by the Board of Directors of the Association; in addition thereto, the Declarant may at anytime hereafter deed, or cause the Association to deed, all or any part of the Common Area to the County of James City or other public body, who shall thereafter maintain the Common Area;

(d) the transfer of a Lot automatically transfers membership in the Association and all rights of the transferrer with respect to the Common Area and facilities to which ownership of such Lot relates.

Section 2. Delegation of Use. Any Owner may delegate, in accordance with the By-laws, his right of enjoyment to the Common Area facilities to the members of his family, his tenants or contract purchasers who reside on the Property.

Section 3. Leasing. Any Owner may lease or rent his Lot as long as the use of the Lot is consistent with the restrictions herein and provided that the lease agreement between Owner and lessee shall be written, shall be for a term of not less than thirty (30) days and shall provide that the terms of the lease shall be subject in all respects to the provisions of this Declaration and all other documents of the Association and that the failure of the lessee to comply with the terms of such documents shall constitute a default under the lease.

ARTICLE III
MEMBERSHIP AND VOTING RIGHTS

AS TO THE ASSOCIATION, the following membership and voting rights shall apply:

Section 1. Every Owner of a Lot shall be subject to assessment in the manner herein set forth and shall be a member of the Association with each such Lot Owner having an equal voting right with every other Lot Owner. Membership shall be appurtenant to and may not be separated from ownership of any Lot which is subject to assessment.

Section 2. The Association shall have two (2) classes of voting membership:

(a) Class A. Class A members shall be all Owners of Lots with the exception of the Declarant, and shall be entitled to one (1) vote for each Lot owned. When more than one (1) person holds an interest in any Lot, all such persons shall be members. The vote for such Lot shall be exercised as they determine, but in no event shall more than one (1) vote be cast with respect to any Lot.

(b) Class B. The Class B member shall be the Declarant, who shall be entitled to two (2) votes for each Lot owned. Such entitlement to two (2) votes shall be in effect at any time hereafter when the total votes outstanding in the Class A membership is less than the total votes outstanding in the Class B membership. For so long as the total votes outstanding in the Class A membership equal the total votes outstanding in the Class B membership, then the Class B membership shall be entitled to only

one (1) vote for each Lot owned; provided, however, that in any event on December 1, 1999, the Class B membership shall cease and be converted to Class A membership and thereafter the Class B member and the Class A members shall be entitled to one (1) vote for each Lot ownership thereafter. All such calculations shall be on a cumulative basis in the event of Annexation as provided herein.

ARTICLE IV
COVENANT FOR MAINTENANCE ASSESSMENTS

AS GENERAL ASSESSMENTS FOR ALL LOTS:

Section 1. Creation of the Lien and Personal Obligation of General Assessments. The Declarant, for each Lot owned within the Properties, hereby covenants and each Owner of any Lot by acceptance of a deed therefor, whether or not it shall be so expressed in such deed, is deemed to covenant and agree to pay to the Association as general assessments the following:

(a) general annual assessments or charges; and

(b) general special assessments for capital improvements, such assessments to be established and collected as hereinafter provided.

The general annual and general special assessments, together with interest, costs and reasonable attorney's fees, shall be a charge on the land and shall be a continuing lien upon the property against which each such assessment is made in accordance with the Virginia Property Owner's Association Act, being Sections 55-508, et seq., of the Code of Virginia, 1950, as amended (the "Act"). Each such assessment, together with interests, costs and reasonable

attorney's fees, shall also be the personal obligation of the person who was the Owner of such property at the time when the assessment fell due. The personal obligation for delinquent assessments shall not pass to his successors in title unless expressly assumed by them.

Section 2. Purpose of General Assessments. The general assessments levied by the Association shall be used exclusively for the improvement and maintenance of the Common Area as well as complying with the BMP for maintaining all drainage areas and on-site BMP facilities and to provide for such adequate reserve funds for the repair and replacement of improvements in the Common Area as the Board of Directors may deem appropriate from time to time.

Section 3. Maximum General Annual Assessment. Until January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment shall not exceed ONE HUNDRED AND 00/100 DOLLARS ($100.00) per year per Lot.

(a) From and after January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment may be increased each year not more than ten percent (10%) above the maximum assessment for the previous year without a vote of the membership.

(b) From and after January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment may be increased above ten percent (10%)

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by a majority vote of members who are voting in person or by proxy, at a meeting duly called for this purpose.

(c) The Board of Directors may fix the general annual assessment at an amount not in excess of the maximum.

Section 4. Working Capital Fund. The Declarant, as Agent of the Association, may establish for the Association a Working Capital Fund by collecting from each Owner up to six (6) months of the annual General Assessment for each Lot at the time the Lot is purchased to serve as a reserve fund for capital expenditures or replacements. The Declarant shall not use the Working Capital Fund to pay any construction costs or expenses and shall maintain this as a segregated fund separate and apart from other funds of the Association.

Section 5. General Special Assessments for Capital Improvements. In addition to the general annual assessments authorized above, the Association may levy, in any assessment year, a general special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the Common Area, including fixtures and personal property related thereto, provided that any such assessment shall have the assent of a majority of members who are voting in person or by proxy at a meeting duly called for this purpose.

Section 6. Notice and Quorum for Any Action Authorized under Sections 3 and 4. Written notice of any meeting called for the purpose of taking any action authorized under Section 3 or 4 shall

be sent to all members not less than five (5) days or more than thirty (30) days in advance of the meeting. At the first such meeting called, the presence of members or of proxies entitled to cast thirty percent (30%) of all the votes of membership shall constitute a quorum. If the required quorum is not present, another meeting may be called subject to the same notice requirement, and the required quorum at the subsequent meeting shall be one-half (½) of the required quorum at the preceding meeting. No such subsequent meeting shall be held more than sixty (60) days following the preceding meeting.

Section 7. Uniform Rate of Assessment. Both general annual and general special assessments must be fixed at a uniform rate for all Lots and may be collected on a monthly basis.

Section 8. Date of Commencement of General Annual Assessments; Due Dates. The general annual assessments provided for herein shall commence as to any Lot on which improvements have been completed on the first day of the month following the completion of the improvements and after the conveyance of the first Lot by the Declarant to an Owner not a Declarant as herein defined. The Declarant shall not be required to pay the general annual assessment on Lots on which improvements are not completed, provided the Declarant shall be responsible for the maintenance and upkeep of such unimproved Lots. The first general annual assessment shall be adjusted according to the number of months remaining in the calendar year. The Board of Directors shall fix the amount of the general annual assessment against each Lot at

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least thirty (30) days in advance of each general annual assessment period. Written notice of the general annual assessment shall be sent to every Owner subject thereto. The due dates shall be established by the Board of Directors. The Association shall, upon demand and for a reasonable charge, furnish a certificate signed by an officer of the Association setting forth whether the assessments on a specified Lot have been paid. A properly executed certificate of the Association as to the status of assessments on a Lot is binding upon the Association as of the date of its issuance.

Section 9. Effect of Nonpayment of General Assessments: Remedies of the Association. Any general assessment not paid within thirty (30) days after the due date shall bear interest from the due date at the maximum rate permitted by the Act. The Association may record a memorandum of lien, bring an action at law against the Owner personally obligated to pay the same or foreclose the lien against the Property pursuant to the Act. No Owner may waive or otherwise escape liability for the general assessments provided for herein by non-use of the Common Area or abandonment of his Lot.

Section 10. Subordination of the Lien to Mortgages. The lien of the assessments provided for herein shall be subordinate to the lien of any first mortgage. Sale or transfer of any Lot shall not affect the assessment lien. However, the sale or transfer of any Lot pursuant to mortgage foreclosure or any proceeding in lieu thereof shall extinguish the lien of such assessments as to payments which became due prior to such sale or transfer. No sale

or transfer shall relieve such Lot from liability for any assessments thereafter becoming due or from the lien thereof. Such subordination shall not release the Owner from personal liability for such assessment.

ARTICLE V
PROPERTY RESTRICTIONS

Section 1. Land Use and Building Type. No Lot shall be used except for residential purposes; provided, however, this shall in no way restrict the Common Area Lots being used for their intended purposes. No additional, adjacent or connected buildings to house additional persons for rent or other purposes will be permitted.

Section 2. No businesses shall be conducted from these residences or on these lots wherein any evidence of said businesses is visible from without the residence. This includes signs, marked vehicles, equipment and materials. Neither may any home business generate a stream of traffic to constitute a nuisance to the neighbors. Model and sales trailers in the initial development stages will be permitted.

Section 3. No lots may be subdivided, except lot line adjustments may be permitted provided the total number of lots is not increased.

Section 4. No animals, livestock or poultry of any kind may be kept on any lot except dogs, cats or other household pets, provided they are not kept, bred or maintained for any commercial purpose. No family shall have more than a total of three (3) dogs and cats. Animals must be properly managed so as not to be a nuisance to neighbors by barking or trespass.

Section 5. No lot shall be used or maintained as a dumping ground for rubbish or other material prior to construction. During construction the area will be kept in a reasonably neat and clean condition, although some debris must be expected. After occupancy the property shall be kept in a good state of maintenance by the owner. Trash, garbage and other waste shall not be kept except in sanitary containers which shall be enclosed in a screening structure or shall be installed underground. Incinerators will not be permitted and all trash and refuse must be picked up and hauled away.

Section 6. Easements shown on the plan for streets, drainage, utilities, screening, open space or conservation areas are for the benefit of the residents of Fernbrook Subdivision and may be changed only by the Declarant or the County of James City, Virginia. The Declarant reserves the right to require additional easements not to exceed five (5) feet in width along any property line if drainage problems develop at a later date and require such easements.

Section 7. No construction or improvements shall be permitted within any area designated under the heading "Open Space," "Conservation Area" or "Easement" as reflected on the plat of this subdivision unless approved by Declarant and/or James City County.

Section 8. Owners shall submit to Jeffrey L. Weeks and C. Lewis Waltrip II, on behalf of the Declarant, for review and approval architectural elevation and floor plans for all dwelling

units to be constructed on the lots, in accordance with the following procedures:

(a) Within fifteen (15) days after Declarant shall have received proposed elevations and floor plans for one (1) or more units to be constructed on the lots, Declarant shall give Owner notice of its approval or disapproval thereof, specifying, in the case of the latter, its reason therefor. Declarant's right to disapprove such plans and specifications shall be exercised in conformance with the following criteria: (1) Subsection (a) of this paragraph; (2) architectural compatibility with units constructed in adjoining sections; and (3) adverse impact on marketability of lots within the rest of the development. The Declarant will emphasize colonial and traditional style construction.

(b) An Owner, upon receipt of a notice of disapproval given pursuant to the above, will promptly undertake to amend and modify the proposed design so as to meet the reasons for Declarant's disapproval specified in the notice of disapproval and, upon completion thereof, the same shall be approved in writing by Declarant within fifteen (15) days after receipt of the same. If there shall be a bona fide dispute between the parties as to whether Declarant's disapproval of any design submitted to it is permitted hereunder, the parties shall enter into discussions of points of disagreement and use their best efforts to resolve such issues to their mutual satisfaction.

(c) If Declarant fails to give notice of its approval or disapproval within fifteen (15) days after receipt of any architectural elevations submitted to it for its approval, or of any required modification or amendment thereof, the same shall be deemed to have been approved by Declarant.

Section 9. All dwellings shall be served by underground utility service, including sewer, gas, electric, telephone and cable television. All dwellings shall have minimum two hundred (200) amp electric service. No above ground utilities will be permitted.

Section 10. The following additional restrictions will be observed in the intent of preserving the architectural integrity of the buildings:

(a) No external antennas of any description.

(b) No window air conditioners.

(c) No clotheslines unless small and well-screened and approved by Declarant.

(d) No fencing nearer to the street than the front of the residence and no fencing shall be erected prior to obtaining the approval of Declarant.

(e) No solar or energy panels to be visible from the street or to any other residence.

(f) No carports shall be erected on any lot or attached to any residence.

(g) No structure of a temporary character, trailer, tent, shack, shed or other outbuilding shall be built or used on any lot as a residence or for storage.

(h) No chain link fence except around dog runs, limited to one hundred twenty (120) square feet of run area.

(i) No sign of any kind shall be displayed to the public view on any lot except for an entrance sign for the subdivision on the corner Lots five (5) and six (6) and except one (1) sign of not more than five (5) square feet advertising the property for sale or rent, or signs used by the builder to advertise the property during the construction and sales period.

(j) All driveways shall extend to the street and it is recommended that they be either aggregate or concrete so as to blend with the streets.

(k) Outbuildings and fencing may be constructed or installed only with the permission of the Declarant. All outbuildings shall match the primary residence in color, materials and style.

(l) Front foundation vents shall be wood or of similar appearance.

(m) All foundations shall have a crawl space and the exterior shall be brick veneer.

(n) All exterior chimneys shall be brick.

(o) All driveways shall be of exposed aggregate and be fully connected to the street on which the lot faces.

(p) The exteriors may be brick, vinyl, aluminum or hardiplank.

(q) Each house shall have at least a two (2) car attached garage which shall be at least twenty (20) feet in width.

(r) One-story dwellings shall have at least eighteen hundred (1,800) square feet of living space and two-story dwellings shall have a minimum of two thousand (2,000) square feet of living space.

(s) Open porches or stoops (front or side) shall have lattice from platform to grade. Lattice panels, rails, board and risers shall be painted. Open porches shall have brick piers.

(t) All architectural elements that extend from the front or side of the house shall have foundation walls to grade.

(u) Roof slopes shall be a minimum of 7/12 pitch unless approved otherwise.

(v) Landscaping shall be consistent with other new homes in Fernbrook and plantings shall be indigenous to the Tidewater, Virginia area.

Section 11. Vehicles. Since the unregulated use of vehicles can destroy the appearance of a neighborhood, the following restrictions will apply:

(a) No more than three (3) ungaraged vehicles will be permitted to be consistently parked on the premises, and these must be in the driveway or on a parking apron off the driveway. These vehicles will be restricted to licensed, operable automobiles,

mini-vans and pickup trucks not to exceed three-quarters (3/4) ton in capacity.

(b) No major vehicle maintenance or overhaul of ungaraged vehicles will be permitted if unsightly and requiring more than two (2) days.

Section 12. Easements. Easements for installation and maintenance of utilities and drainage facilities are reserved as shown on the recorded plat of subdivision. The drainage and utility easements may also be used by the Declarant for ingress and egress to or to benefit the Common Area and/or the Lots as provided for herein. The Declarant reserves the right to require additional easements not to exceed five (5) feet in width along any property line of any Lot if drainage problems develop at a later date and require such easements as may be necessary in the Declarant's opinion.

ARTICLE VI
INSURANCE

Section 1. The Board of Directors is authorized (but not directed) to secure such insurance as it deems advisable and the proceeds or benefit shall be equally for all Lot Owners; no director shall be liable for the failure to obtain any such insurance, with each Owner being encouraged and entitled to secure and provide their respective insurance coverage and there being no duty on the Association to provide any insurance of any type on the Common Area or elsewhere.

ARTICLE VII
GENERAL PROVISIONS

Section 1. Enforcement. The Association or any Owner shall have the right to enforce, by any proceeding at law or in equity in the Circuit Court of the City of Williamsburg and County of James City, Virginia, all restrictions, conditions, covenants, reservations, liens and charges now or hereafter imposed by the provisions of this Declaration in accordance with the Act and all other applicable laws. Failure by the Association or by any Owner to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do so thereafter. The Court is hereby specifically empowered and authorized to use of its equitable powers and authorities to correct any arbitrary, capricious or unreasonable act by the Association or any Lot Owner or committee connected therewith.

Section 2. Severability. Invalidation of any one of these covenants or restrictions by judgment or court order shall in no way affect any other provision which shall remain in full force and effect.

Section 3. Amendment. The covenants and restrictions of this Declaration shall run with and bind the land for a term of forty (40) years from the date this Declaration is recorded, after which time they shall be automatically extended for successive periods of ten (10) years. This Declaration may be amended by an instrument signed by not less than seventy-five percent (75%) of the Lot Owners and fifty-one percent (51%) of first mortgagees as hereinafter defined. Any amendment, upon receiving the necessary

approval, shall be recorded in a document executed on behalf of the Association by its duly authorized officers. Any amendment must be recorded. In no event shall these covenants and restrictions terminate for so long as the Association owns any Common Area.

Section 4. Association Documents. In accordance with the Act, the Association shall maintain current copies of the Declaration, Articles of Incorporation, Bylaws, Rules and Regulations and budgets and shall provide copies upon request to Owners and Purchasers. The Association shall annually cause to be prepared a statement for each fiscal year which shall be provided to the Owners at each annual meeting.

Section 5. Additional Covenants. It is understood and agreed, anything to the contrary contained herein notwithstanding, as follows:

(a) A first mortgagee will be provided written notification of any default by the mortgagor of such Lot in the performance of such mortgagor's obligations under the Subdivision documents which is not cured within thirty (30) days; as used herein, the terms "first mortgage," "mortgage" or "mortgagor" shall have the same meaning and import as "first deed of trust noteholder" or "first deed of trust" or "grantor of a deed of trust"; the terms "mortgage" and "deed of trust" for the purposes herein shall have the same meaning and intent.

(b) Any first mortgagee who comes into possession of a Lot in the Properties pursuant to the remedies provided in the mortgage, or foreclosure of the mortgage, or deed (or assignment)

in lieu of foreclosure shall be exempt from any "right of first refusal," if any.

(c) Any first mortgagee who comes into possession of a Lot pursuant to the remedies provided in the mortgage, foreclosure of the mortgage, or deed (or assignment) in lieu of foreclosure shall take the Property free of any claims for unpaid assessments or charges against the mortgaged unit which accrue prior to the time such holder comes into possession of the Lot.

(d) Unless at least fifty-one percent (51%) of the first mortgagees (based upon one [1] vote for each first mortgagee) of individual Lots in the Properties have given their prior written approval, the Association shall not be entitled to:

(1) By act or omission seek to abandon, petition, subdivide, encumber, sell or transfer real estate or improvements thereon which are owned, directly or indirectly, by such Association for the benefit of the Owners and Lots in the Properties, provided, however, that the Declarant, or the Association by a vote of its Board of Directors, at any time may convey all or any part of the Common Area to the County of James City, Virginia, or to any other public body, who shall thereafter maintain the same. The conveyance to the County of James City or other public body, or the granting of easements for public utilities or for other public purposes consistent with the intended use of such property by the Association shall not be deemed a prohibited transfer within the meaning of this clause.

(2) Change the method of determining the obligations, assessments, dues or other charges which may be levied against an Owner.

(3) Use hazard insurance proceeds for losses to any Common Area property for other than the repair, replacement or reconstruction of such improvements.

(e) First mortgagees shall have the right to examine the books and records of the Association or any entity which owns the Common Area or the property of the Association.

(f) First mortgagees of Lots in the Properties may, jointly or singly, pay taxes or other charges which are in default and which may have become a charge against any Common Area property and may pay overdue premiums on hazard insurance policies, or secure new hazard insurance coverage on the lapse of a policy, for such property, and first mortgagees making such payments shall be owed immediate reimbursement therefor from the Association. Entitlement to such reimbursement is hereby agreed to and this instrument shall constitute an agreement in favor of all first mortgagees of Lots in the Properties.

(g) No provision of the Association Articles of Incorporation, or the declaration of easements, restrictions and covenants, or any similar instrument pertaining to the Properties or to Lots therein gives a Lot Owner or any other party priority over any rights of first mortgagees of Lots herein pursuant to their mortgages in the case of a distribution to Lot Owners of

insurance proceeds or condemnation awards for losses to or taking of the Association's common property.

(h) Lot Owners have a right to enjoyment of the Common Areas as provided herein and such Property is owned in fee by the Association. The Common Area properties were conveyed to the Association unencumbered except for any easements granted for public utilities or for other public purposes consistent with the intended use of such Property by the Association.

(i) In the event that management other than self-management is required of the Association, and in the event that the Association elects or decides to terminate said management, then all first mortgagees shall be given at least thirty (30) days notice of said action.

(j) All first mortgagees shall be entitled to receive reasonable written notice of damage to or condemnation of any part of the Common Area.

(k) Any approval herein required by a first mortgagee shall be implied if a first mortgagee has failed to submit a response within fourteen (14) days to aa written proposal or notice, provided the proposal or notice was delivered by certified or registered mail, with a return receipt requested.

Section 6. Easement for Public Necessity. Upon recordation of this Declaration, there is hereby granted to the County of James City, Virginia, its employees and agents a perpetual right of ingress and egress over and upon the Common Area in order to assure the performance of all public duties, including but not limited to

law enforcement officers, rescue squad personnel, fire fighting personnel and building officials. In addition, Declarant shall have the right to construct storm water management facilities on the Common Area and to have an easement for ingress and egress and for all type easements over, under and upon the Common Area for the benefit of the Lots.

ARTICLE VIII
DECLARANT'S RIGHTS AND REPRESENTATIVES

Section 1. Rights. Anything herein to the contrary notwithstanding, the Declarant shall at all times have and does hereby reserve to itself, its successors and assigns:

(a) The right to use Lots for sales models and/or a sales office for sale of all Lots within the Subdivision.

(b) A non-exclusive easement over and upon the Common Area and for purposes of making improvements to the Common Area and on all Lots located within the Subdivision.

ARTICLE IX
CONDEMNATION

In the event of a condemnation or taking by eminent domain by any local, state or federal authority of all or any part of the Common Area, the Association is hereby designated and appointed as attorney-in-fact for all Owners for purposes of representing all Owners in any proceedings, negotiations, settlements or agreements. Any funds received by the Association shall be held for the benefit of the Association and be used by the Association for the purposes herein set forth, unless there is a total taking of all the Common

Area, in which event the funds shall be distributed pro rata among the Owners and their respective first mortgagees.

ARTICLE X
ANNEXATION

Section 1. Annexation. All or any part of the following described Properties may be annexed hereto at any time hereafter solely by Declarant without the consent of the Class A or Class B members of the Association; and upon the same happening, Declarant shall be deemed the "Declarant" as herein defined and shall be entitled to and subject to all of the privileges, rights and liabilities herein set for Declarant. Said Properties which may be so annexed being described as all or any portion of the property described as follows:

> All those certain pieces, parcels or tracts of land as described on the attached Exhibit A, which are hereby made a part hereof by reference thereto.

Section 2. Method of Annexation. Declarant may cause such annexation to be made by including the provision of such annexation to shown on such recordation plat or by an instrument executed by Declarant and duly recorded describing the parcel or parcels to be annexed and referring to and making such parcel or parcels subject to the within Covenants, Conditions and Restrictions, or both.

Upon any such annexation being so made, the real estate or "Properties" covered thereby, together with the Declarant and all Owners thereof and their heirs, successors and assigns shall be entitled to, and subject to, all of the terms of the within Covenants, Conditions and Restrictions in the same manner as if

such annexed parcel had been included within the legal description as contained in said Fernbrook Subdivision.

It is further understood and agreed that such annexation of all or of any part of the real estate hereinabove described shall be solely at the option of the Declarant, and Declarant may from time to time annex all or any part or parts thereof as determined solely by the Declarant without the necessity of approval of any Lot Owner of the Association, anything to the contrary notwithstanding in the Articles of Incorporation or Bylaws of the Association.

Section 3. Encroachments. In the event any portion of any improvement on any Lot encroaches upon the Common Areas and facilities, or an encroachment for an improvement in the Common Areas exists upon a Lot, as a result of construction, reconstruction, repair, shifting, settlement or movement of any portion thereof, a valid easement for the encroachment and for the maintenance of the same shall exist so long as the encroachment exists. In addition, there is hereby created an easement for the encroachment of the entrance sign or signs to Fernbrook on the adjacent Lot.

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IN WITNESS WHEREOF, the undersigned Declarant, Fernbrook Associates, L.L.C., a Virginia limited liability company, has caused this instrument to be executed on its behalf as of the date and year first above written.

FERNBROOK ASSOCIATES, L.L.C.
A Virginia Limited Liability Company

By: _____
Managing Member

COMMONWEALTH OF VIRGINIA
City/~~County~~ of _____, to wit:

I, _____, a Notary Public in and for the City/County and Commonwealth aforesaid, do hereby certify that C Lewis Waltrip II, Managing Member of and on behalf of FERNBROOK ASSOCIATES, L.L.C., a Virginia limited liability company, whose name is signed to the foregoing writing bearing date on the 22nd day of July, 1998, has acknowledged the same before me in my City/County and Commonwealth aforesaid.

Given under my hand this 28 day of July, 1998.

_____
Notary Public

My commission expires: 1-31-2002

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VIRGINIA. City of Williamsburg and County of James City, to Wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the 4th day of Aug 98. This Restrictions was received and admitted to record at 11:11 o'Clock
Teste: _____ Clerk
Deputy Clerk

050008055

This Deed prepared by:
Williams Mullen, P.C.
Fountain Plaza Three
721 Lakefront Commons, Suite 200
Newport News, VA 23606

TAX MAP Pg. (45-4)
PARCEL (3-10)

DEED OF EASEMENT

THIS DEED OF EASEMENT, made this 8th day of April, 2005 by and between **C. LEWIS WALTRIP, II**, ("Grantor") and the **FERNBROOK HOMEOWNERS ASSOCIATION, INC.** whose mailing address is 3721 General Gookin Ct Williamsburg, Va 23185 ("Grantee").

NOW, THEREFORE, for and in consideration of One dollar ($1.00) cash in hand paid, and other good and valuable consideration, receipt of which is hereby acknowledged, the Grantor does hereby grant and convey unto Fernbrook Homeowners Association, Inc. its successors and assigns forever, the permanent easement and right of way to use the following described parcel of land for utilities, drainage, to control runoff and to create a storm water management basin, to control runoff and for drainage for the Fernbrook subdivision in James City County, to-wit:

> All that certain piece of land situate in James city County, Virginia, which is designated on the plat entitled "Plat of Drainage and Utility Easement for Conveyance to C. Lewis Waltrip, II and dated July 1993, as "Proposed Drainage and Utility Easement" which contains 2.585 acres, more or less recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and James City County, Virginia in Plat Book 58 at Page 68.
>
> Being the same easement conveyed to C. Lewis Waltrip, II his successors and assigns by Deed of Easement from Dudley S. Waltrip and Rebecca R. Waltrip, husband and wife dated October 7, 1993 and recorded in the Clerk's Office aforesaid in Deed Book 661 at Page 172.

The easement hereby granted includes:

1. The right of ingress and egress over, under and across the land of Dudley S. Waltrip and Rebecca R. Waltrip, or their successors and assigns for the purposes of exercising the rights granted herein;

Stormwater pond

2. The right to trim, top, cut and remove any trees or bush, and to do all things necessary, within the land designated for this easement for the utilities, drainage, runoff and storm water management basin to serve the land which is developed for single family dwellings or other uses permitted by James City County.

3. The easement granted herein for the specific location described above, is in addition to any easement for right of way now existing or which may be acquired in the future.

The Grantor warrants that he owns the interest in the easement herein conveyed and that he has the right to make this conveyance.

Grantor further covenants that he shall not use the land designated for this easement for any purpose which might interfere with Grantee's uses of the land.

Grantor covenants that no building or structure shall be erected within the easement without prior written consent from Grantee.

Grantee covenants that it shall repair any physical damage to the Dudley Waltrip property during the construction, operation, maintenance, replacement or removal of the utilities and drainage systems.

This easement shall run with the Dudley Waltrip land and shall be binding upon the heirs executors, administrators, successors and assigns of the Dudley Waltrip and the Grantee.

WITNESS the following signature and seal:

_____(SEAL)
C. LEWIS WALTRIP, II

COMMONWEALTH OF VIRGINIA,
CITY OF NEWPORT NEWS, to-wit:

The foregoing was acknowledged before me by C. Lewis Waltrip, II on this the 6TH day of APRIL, 2005.

_____
NOTARY PUBLIC

My Commission Expires: 9/30/07

1019413v1

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 4-12-2005
at 1:56 AM/PM. The taxes imposed by Virginia Code
Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$	$	$

TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge Clerk

RECORDATION TAX EXEMPT PER CODE OF VIRGINIA, 1950, AS AMENDED, SECTION 58.1-811 A(3)

THIS DEED, made as of this 1st day of July, 1996, by and between FERNBROOK ASSOCIATES, L.L.C., a Virginia limited liability company, hereinafter referred to as "GRANTOR," and the JAMES CITY SERVICE AUTHORITY, created by the County of James City, Virginia, organized and existing under the laws of the Commonwealth of Virginia, hereinafter referred to as "GRANTEE."

W I T N E S S E T H:

That for and in consideration of the sum of TEN AND 00/100 DOLLARS ($10.00), cash in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged at and before the signing, sealing and delivery of this Deed, the said GRANTOR does hereby GRANT, BARGAIN and CONVEY, with GENERAL WARRANTY AND ENGLISH COVENANTS OF TITLE, unto the said GRANTEE, the following described property, to wit:

All that certain lot, piece or parcel of land situate, lying and being in Jamestown District, James City County, Virginia, shown and designated as "Pump Station, 7425 square feet, 0.171 Ac." on that certain plat entitled, "PLAT OF SUBDIVISION FERNBROOK, PHASE I, LOTS 1-6, 25-46, 73-82 & 98-107, OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C., AND STANLEY J. & PATRICIA W. DYKSTRA," dated July 1995, made by AES Consulting Engineers, recorded in Plat Book 62, pages 83 and 84, in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City, Virginia, to which reference is hereby made for a more complete description of the property herein conveyed.

Together with all appurtenances, buildings and improvements thereon and being a portion of the same property as that conveyed to Grantor by Deed dated April 27, 1994, and recorded in the Clerk's Office of the Circuit Court of James City County, Virginia, in Deed Book 683, page 138.

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GRANTOR does further GRANT and CONVEY easements in perpetuity for ingress and egress and installation, operation and/or maintenance of works and systems for the collection and transmission of sewage and related utility services over, upon, across and under the drainage and utility easements described on the aforesaid plat for a more complete description of the easements herein conveyed.

WITNESS the following signatures and seals:

FERNBROOK ASSOCIATES, L.L.C.,
A Virginia Limited Liability Company

By: _____ (SEAL)
Jeffrey L. Weeks
Managing Member

COMMONWEALTH OF VIRGINIA
City/County of _____, to wit:

I, _____, a Notary Public in and for the jurisdiction aforesaid, do hereby certify that Jeffrey L. Weeks, Managing Member of and on behalf of Fernbrook Associates, L.L.C., whose name is signed to the foregoing writing bearing date as of the 1st day of July, 1996, has acknowledged the same before me in the jurisdiction aforesaid.

GIVEN under my hand this 30 day of July, 1996.

_____
Notary Public

My commission expires: 1/31/98

VIRGINIA: City of Williamsburg and County of James City, to Wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City, the 31 day of July, 1996. This deed was presented with certificate annexed and admitted to record at 12:47 o'clock
Teste: Helen S. Ward, Clerk
by _____
Deputy Clerk

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THIS INSTRUMENT WAS PREPARED BY:
Patten, Wornom & Watkins, L.C.
12350 Jefferson Avenue, #360
Newport News, VA 23602

Phase II

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS OF FERNBROOK ASSOCIATES, L.L.C.

THIS DECLARATION, made this as of the 14th day of May, 1998, by FERNBROOK ASSOCIATES, L.L.C., a Virginia corporation (hereinafter referred to as "Declarant"), index as "Grantor."

R E C I T A L S:

There has been duly approved under the ordinances of James City County, Virginia, a subdivision known as "Fernbrook, Phase II," as shown on the subdivision plat entitled "Plat of Subdivision Fernbrook, Phase II, Lots 7-24 AND Lots 90-97, OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C., JAMES CITY COUNTY, JAMESTOWN DISTRICT, VIRGINIA," dated March 27, 1998, made by AES, Consulting Engineers, recorded in Plat Book 69 at pages 10 and 11 in the Clerk's Office of the Circuit Court of the City of Williamsburg and James City County, Virginia, all of said property as shown on the subdivision and resubdivision plats (hereinafter collectively referred to as "Subdivision"); the purpose of this Declaration is to improve and protect the Subdivision.

NOW, THEREFORE, Declarant, as owner of all of the property in the Subdivision, hereby declares that all of the property as shown on Exhibit A attached hereto shall be held, sold and conveyed subject to the following easements, restrictions, covenants and conditions, which are for the purpose of protecting the value and desirability of, and which shall run with, the real property and be

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binding on all parties having any right, title or interest in the described properties or any part thereof, their heirs, successors and assigns, and shall inure to the benefit of each owner thereof.

ARTICLE I
DEFINITIONS

Section 1. "Association" shall mean and refer to Fernbrook Homeowners Association, Inc., a Virginia non-stock corporation, its successors and assigns.

Section 2. "Owner" shall mean and refer to the record owner, whether one (1) or more persons or entities, of a fee simple title to any lot which is a part of the Subdivision, including contract sellers, but excluding those having such interest merely as security for the performance of an obligation.

Section 3. "Properties" shall mean and refer to all of the land within the Subdivision as shown on the plats of Fernbrook, Phase I and Phase II.

Section 4. "Common Area" shall mean the area identified as open space and conservation areas of the Subdivision Plat and shall also mean and refer to the onsite Best Management Practices acres ("BMP") and the runoff control facilities and vegetation located therein, together with any easements for access thereto.

Section 5. "Lot" shall mean and refer to the numbered lots intended for the purpose of constructing residential homes thereon, as shown in the Subdivision as lots 7 through 24 and 90 through 97

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of said Subdivision; "Lot" as used herein is intended to refer to residential lots and not to any Common Area.

Section 6. "Declarant" shall mean and refer collectively to Fernbrook Associates, L.L.C., a Virginia corporation, its successor and assigns, if such successor or assigns should acquire more than one (1) undeveloped Lot from the Declarant for the purpose of development.

Section 7. "Mortgage" as used herein shall mean a mortgage or deed of trust, said terms having the same meaning and may be used interchangeably.

Section 8. "Board of Directors" shall mean and refer collectively to the Board of Directors of Fernbrook Homeowners Association, Inc.

ARTICLE II
PROPERTY RIGHTS AS TO COMMON AREA

AS TO COMMON AREA, the following provisions apply:

Section 1. Owners' Easements of Enjoyment. Every Owner shall have a right and easement of enjoyment in and to the benefits which derive from the conservation area located in the Common Area and the benefits derived therefrom and the adjacent or other property which is now or subsequently becomes a part of the Common Area, and aesthetic beauty to the Lots within the Subdivision which shall be appurtenant to and shall pass with the title to every Lot, subject to the following provisions:

(a) the right of the Association to charge reasonable fees for the maintenance of the Common Area;

(b) the right of the Association to suspend the voting rights of an Owner for any period during which any assessment against his Lot remains unpaid;

(c) the right of the Association to dedicate or transfer all or any part of the Common Area to any public agency, authority or utility for such purposes and subject to such conditions as may be agreed to or be authorized by the Board of Directors of the Association; in addition thereto, the Declarant may at anytime hereafter deed, or cause the Association to deed, all or any part of the Common Area to the City of Williamsburg or other public body, who shall thereafter maintain the Common Area;

(d) the transfer of a Lot automatically transfers membership in the Association and all rights of the transferrer with respect to the Common Area and facilities to which ownership of such Lot relates.

Section 2. Delegation of Use. Any Owner may delegate, in accordance with the By-laws, his right of enjoyment to the Common Area facilities to the members of his family, his tenants or contract purchasers who reside on the Property.

Section 3. Leasing. Any Owner may lease or rent his Lot as long as the use of the Lot is consistent with the restrictions herein and provided that the lease agreement between Owner and lessee shall be written, shall be for a term of not less than thirty (30) days and shall provide that the terms of the lease shall be subject in all respects to the provisions of this Declaration and all other documents of the Association and that the

failure of the lessee to comply with the terms of such documents shall constitute a default under the lease.

ARTICLE III
MEMBERSHIP AND VOTING RIGHTS

AS TO THE ASSOCIATION, the following membership and voting rights shall apply:

Section 1. Every Owner of a Lot shall be subject to assessment in the manner herein set forth and shall be a member of the Association with each such Lot Owner having an equal voting right with every other Lot Owner. Membership shall be appurtenant to and may not be separated from ownership of any Lot which is subject to assessment.

Section 2. The Association shall have two (2) classes of voting membership:

(a) Class A. Class A members shall be all Owners of Lots with the exception of the Declarant, and shall be entitled to one (1) vote for each Lot owned. When more than one (1) person holds an interest in any Lot, all such persons shall be members. The vote for such Lot shall be exercised as they determine, but in no event shall more than one (1) vote be cast with respect to any Lot.

(b) Class B. The Class B member shall be the Declarant, who shall be entitled to two (2) votes for each Lot owned. Such entitlement to two (2) votes shall be in effect at any time hereafter when the total votes outstanding in the Class A membership is less than the total votes outstanding in the Class B membership. For so long as the total votes outstanding in the

Class A membership equal the total votes outstanding in the Class B membership, then the Class B membership shall be entitled to only one (1) vote for each Lot owned; provided, however, that in any event on December 1, 1999, the Class B membership shall cease and be converted to Class A membership and thereafter the Class B member and the Class A members shall be entitled to one (1) vote for each Lot ownership thereafter. All such calculations shall be on a cumulative basis in the event of Annexation as provided herein.

ARTICLE IV
COVENANT FOR MAINTENANCE ASSESSMENTS

AS GENERAL ASSESSMENTS FOR ALL LOTS:

Section 1. Creation of the Lien and Personal Obligation of General Assessments. The Declarant, for each Lot owned within the Properties, hereby covenants and each Owner of any Lot by acceptance of a deed therefor, whether or not it shall be so expressed in such deed, is deemed to covenant and agree to pay to the Association as general assessments the following:

(a) general annual assessments or charges; and

(b) general special assessments for capital improvements and for BMP and common area maintenance, such assessments to be established and collected as hereinafter provided.

The general annual and general special assessments, together with interest, costs and reasonable attorney's fees, shall be a charge on the land and shall be a continuing lien upon the property against which each such assessment is made in accordance with the Virginia Property Owner's Association Act, being Sections 55-508,

et seq., of the Code of Virginia, 1950, as amended (the "Act"). Each such assessment, together with interests, costs and reasonable attorney's fees, shall also be the personal obligation of the person who was the Owner of such property at the time when the assessment fell due. The personal obligation for delinquent assessments shall not pass to his successors in title unless expressly assumed by them.

Section 2. Purpose of General Assessments. The general assessments levied by the Association shall be used exclusively for the improvement and maintenance of the Common Area and to provide for such adequate reserve funds for the repair and replacement of improvements in the Common Area as the Board of Directors may deem appropriate from time to time.

Section 3. Maximum General Annual Assessment. Until January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment shall not exceed ONE HUNDRED AND 00/100 DOLLARS ($100.00) per year per Lot.

(a) From and after January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment may be increased each year not more than ten percent (10%) above the maximum assessment for the previous year without a vote of the membership.

(b) From and after January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment may be increased above ten percent (10%)

by a majority vote of members who are voting in person or by proxy, at a meeting duly called for this purpose.

(c) The Board of Directors may fix the general annual assessment at an amount not in excess of the maximum.

Section 4. Working Capital Fund. The Declarant, as Agent of the Association, may establish for the Association a Working Capital Fund by collecting from each Owner up to six (6) months of the annual General Assessment for each Lot at the time the Lot is purchased to serve as a reserve fund for capital expenditures or replacements. The Declarant shall not use the Working Capital Fund to pay any construction costs or expenses and shall maintain this as a segregated fund separate and apart from other funds of the Association.

Section 5. General Special Assessments for Capital Improvements. In addition to the general annual assessments authorized above, the Association may levy, in any assessment year, a general special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the Common Area, including fixtures and personal property related thereto, provided that any such assessment shall have the assent of a majority of members who are voting in person or by proxy at a meeting duly called for this purpose.

Section 6. Notice and Quorum for Any Action Authorized under Sections 3 and 4. Written notice of any meeting called for the purpose of taking any action authorized under Section 3 or 4 shall

be sent to all members not less than five (5) days or more than thirty (30) days in advance of the meeting. At the first such meeting called, the presence of members or of proxies entitled to cast thirty percent (30%) of all the votes of membership shall constitute a quorum. If the required quorum is not present, another meeting may be called subject to the same notice requirement, and the required quorum at the subsequent meeting shall be one-half (½) of the required quorum at the preceding meeting. No such subsequent meeting shall be held more than sixty (60) days following the preceding meeting.

Section 7. Uniform Rate of Assessment. Both general annual and general special assessments must be fixed at a uniform rate for all Lots and may be collected on a monthly basis.

Section 8. Date of Commencement of General Annual Assessments: Due Dates. The general annual assessments provided for herein shall commence as to any Lot on which improvements have been completed on the first day of the month following the completion of the improvements and after the conveyance of the first Lot by the Declarant to an Owner not a Declarant as herein defined. The Declarant shall not be required to pay the general annual assessment on Lots on which improvements are not completed, provided the Declarant shall be responsible for the maintenance and upkeep of such unimproved Lots. The first general annual assessment shall be adjusted according to the number of months remaining in the calendar year. The Board of Directors shall fix the amount of the general annual assessment against each Lot at

least thirty (30) days in advance of each general annual assessment period. Written notice of the general annual assessment shall be sent to every Owner subject thereto. The due dates shall be established by the Board of Directors. The Association shall, upon demand and for a reasonable charge, furnish a certificate signed by an officer of the Association setting forth whether the assessments on a specified Lot have been paid. A properly executed certificate of the Association as to the status of assessments on a Lot is binding upon the Association as of the date of its issuance.

Section 9. Effect of Nonpayment of General Assessments: Remedies of the Association. Any general assessment not paid within thirty (30) days after the due date shall bear interest from the due date at the maximum rate permitted by the Act. The Association may record a memorandum of lien, bring an action at law against the Owner personally obligated to pay the same or foreclose the lien against the Property pursuant to the Act. No Owner may waive or otherwise escape liability for the general assessments provided for herein by non-use of the Common Area or abandonment of his Lot.

Section 10. Subordination of the Lien to Mortgages. The lien of the assessments provided for herein shall be subordinate to the lien of any first mortgage. Sale or transfer of any Lot shall not affect the assessment lien. However, the sale or transfer of any Lot pursuant to mortgage foreclosure or any proceeding in lieu thereof shall extinguish the lien of such assessments as to payments which became due prior to such sale or transfer. No sale

or transfer shall relieve such Lot from liability for any assessments thereafter becoming due or from the lien thereof. Such subordination shall not release the Owner from personal liability for such assessment.

ARTICLE V
PROPERTY RESTRICTIONS

Section 1. Land Use and Building Type. No Lot shall be used except for residential purposes; provided, however, this shall in no way restrict the Common Area Lots being used for their intended purposes. No additional, adjacent or connected buildings to house additional persons for rent or other purposes will be permitted.

Section 2. No businesses shall be conducted from these residences or on these lots wherein any evidence of said businesses is visible from without the residence. This includes signs, marked vehicles, equipment and materials. Neither may any home business generate a stream of traffic to constitute a nuisance to the neighbors. Model and sales trailers in the initial development stages will be permitted.

Section 3. No lots may be subdivided, except lot line adjustments may be permitted provided the total number of lots is not increased.

Section 4. No animals, livestock or poultry of any kind may be kept on any lot except dogs, cats or other household pets, provided they are not kept, bred or maintained for any commercial purpose. No family shall have more than a total of three (3) dogs and cats. Animals must be properly managed so as not to be a nuisance to neighbors by barking or trespass.

Section 5. No lot shall be used or maintained as a dumping ground for rubbish or other material prior to construction. During construction the area will be kept in a reasonably neat and clean condition, although some debris must be expected. After occupancy the property shall be kept in a good state of maintenance by the owner. Trash, garbage and other waste shall not be kept except in sanitary containers which shall be enclosed in a screening structure or shall be installed underground. Incinerators will not be permitted and all trash and refuse must be picked up and hauled away.

Section 6. Easements shown on the plan for streets, drainage, utilities, screening, open space or conservation areas are for the benefit of the residents of Fernbrook Subdivision and may be changed only by the Declarant or the County of James City, Virginia. The Declarant reserves the right to require additional easements not to exceed five (5) feet in width along any property line if drainage problems develop at a later date and require such easements.

Section 7. No construction or improvements shall be permitted within any area designated under the heading "Open Space," "Conservation Area" or "Easement" as reflected on the plat of this subdivision unless approved by Declarant and/or James City County.

Section 8. Owners shall submit to the Declarant for its review and approval architectural elevation and floor plans for all dwelling units to be constructed on the lots, in accordance with the following procedures:

(a) Within fifteen (15) days after Declarant shall have received proposed elevations and floor plans for one (1) or more units to be constructed on the lots, Declarant shall give Owner notice of its approval or disapproval thereof, specifying, in the case of the latter, its reason therefor. Declarant's right to disapprove such plans and specifications shall be exercised in conformance with the following criteria: (1) Subsection (a) of this paragraph; (2) architectural compatibility with units constructed in adjoining sections; and (3) adverse impact on marketability of lots within the rest of the development.

(b) An Owner, upon receipt of a notice of disapproval given pursuant to the above, will promptly undertake to amend and modify the proposed design so as to meet the reasons for Declarant's disapproval specified in the notice of disapproval and, upon completion thereof, the same shall be approved in writing by Declarant within fifteen (15) days after receipt of the same. If there shall be a bona fide dispute between the parties as to whether Declarant's disapproval of any design submitted to it is permitted hereunder, the parties shall enter into discussions of points of disagreement and use their best efforts to resolve such issues to their mutual satisfaction.

(c) If Declarant fails to give notice of its approval or disapproval within fifteen (15) days after receipt of any architectural elevations submitted to it for its approval, or of any required modification or amendment thereof, the same shall be deemed to have been approved by Declarant.

Section 9. All dwellings shall be served by underground utility service, including sewer, gas, electric, telephone and cable television. All dwellings shall have minimum two hundred (200) amp electric service. No above ground utilities will be permitted.

Section 10. The following additional restrictions will be observed in the intent of preserving the architectural integrity of the buildings:

(a) No external antennas of any description.

(b) No window air conditioners.

(c) No clotheslines unless small and well-screened and approved by Declarant.

(d) No fencing nearer to the street than the front of the residence and no fencing shall be erected prior to obtaining the approval of Declarant.

(e) No solar or energy panels to be visible from the street or to any other residence.

(f) No carports shall be erected on any lot or attached to any residence.

(g) No structure of a temporary character, trailer, tent, shack, shed or other outbuilding shall be built or used on any lot as a residence or for storage.

(h) No chain link fence except around dog runs, limited to one hundred twenty (120) square feet of run area.

(i) No sign of any kind shall be displayed to the public view on any lot except one (1) sign of not more than five (5)

square feet advertising the property for sale or rent, or signs used by the builder to advertise the property during the construction and sales period, other than on the open space areas adjacent to Ironbound Road, where temporary and permanent signs not to exceed four (4) feet by eight (8) feet may be erected to reflect the entrance to and the name of the subdivision and sales information, to be erected at the discretion of Jamestown, Inc.

(j) All driveways shall extend to the street and it is recommended that they be either aggregate or concrete so as to blend with the streets.

(k) Outbuildings and fencing may be constructed or installed only with the permission of the Declarant.

(l) Front foundation vents shall be wood or of similar appearance.

(m) All foundations shall have a crawl space and the exterior shall be brick veneer.

(n) All exterior chimneys shall be brick.

(o) All driveways shall be of exposed aggregate and be fully connected to the street on which the lot faces.

(p) The exteriors may be brick, vinyl, aluminum or hardiplank.

(q) Each house shall have at least a two (2) car attached garage which shall be at least twenty (20) feet in width.

(r) One-story dwellings shall have eighteen hundred (1,800) square feet of living space and two-story dwellings shall have a minimum of two thousand (2,000) square feet of living space.

(s) Open porches or stoops (front or side) shall have lattice from platform to grade. Lattice panels, rails, board and risers shall be painted. Open porches shall have brick piers.

(t) All architectural elements that extend from the front or side of the house shall have foundation walls to grade.

(u) Roof slopes shall be a minimum of 7/12 pitch unless approved otherwise.

(v) Landscaping shall be consistent with other new homes in Fernbrook and plantings shall be indigenous to the Tidewater, Virginia area.

Section 11. Vehicles. Since the unregulated use of vehicles can destroy the appearance of a neighborhood, the following restrictions will apply:

(a) No more than three (3) ungaraged vehicles will be permitted to be consistently parked on the premises, and these must be in the driveway or on a parking apron off the driveway. These vehicles will be restricted to licensed, operable automobiles, mini-vans and pickup trucks not to exceed three-quarters (3/4) ton in capacity.

(b) No major vehicle maintenance or overhaul of ungaraged vehicles will be permitted if unsightly and requiring more than two (2) days.

Section 12. Easements. Easements for installation and maintenance of utilities and drainage facilities are reserved as shown on the recorded plat of subdivision. The drainage and utility easements may also be used by the Declarant for ingress and

egress to or to benefit the Common Area and/or the Lots as provided for herein. The Declarant reserves the right to require additional easements not to exceed five (5) feet in width along any property line of any Lot if drainage problems develop at a later date and require such easements as may be necessary in the Declarant's opinion.

ARTICLE VI
INSURANCE

Section 1. The Board of Directors is authorized (but not directed) to secure such insurance as it deems advisable and the proceeds or benefit shall be equally for all Lot Owners; no director shall be liable for the failure to obtain any such insurance, with each Owner being encouraged and entitled to secure and provide their respective insurance coverage and there being no duty on the Association to provide any insurance of any type on the Common Area or elsewhere.

ARTICLE VII
GENERAL PROVISIONS

Section 1. Enforcement. The Association or any Owner shall have the right to enforce, by any proceeding at law or in equity in the Circuit Court of the City of Williamsburg and County of James City, Virginia, all restrictions, conditions, covenants, reservations, liens and charges now or hereafter imposed by the provisions of this Declaration in accordance with the Act and all other applicable laws. Failure by the Association or by any Owner to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do so thereafter. The Court is hereby specifically empowered and authorized to use of its equitable powers and authorities to correct any arbitrary, capricious or unreasonable act by the Association or any Lot Owner or committee connected therewith.

Section 2. Severability. Invalidation of any one of these covenants or restrictions by judgment or court order shall in no way affect any other provision which shall remain in full force and effect.

Section 3. Amendment. The covenants and restrictions of this Declaration shall run with and bind the land for a term of forty (40) years from the date this Declaration is recorded, after which time they shall be automatically extended for successive periods of ten (10) years. This Declaration may be amended by an instrument signed by not less than seventy-five percent (75%) of the Lot Owners and fifty-one percent (51%) of first mortgagees as hereinafter defined. Any amendment, upon receiving the necessary

approval, shall be recorded in a document executed on behalf of the Association by its duly authorized officers. Any amendment must be recorded. In no event shall these covenants and restrictions terminate for so long as the Association owns any Common Area.

Section 4. Association Documents. In accordance with the Act, the Association shall maintain current copies of the Declaration, Articles of Incorporation, Bylaws, Rules and Regulations and budgets and shall provide copies upon request to Owners and Purchasers. The Association shall annually cause to be prepared a statement for each fiscal year which shall be provided to the Owners at each annual meeting.

Section 5. Additional Covenants. It is understood and agreed, anything to the contrary contained herein notwithstanding, as follows:

(a) A first mortgagee will be provided written notification of any default by the mortgagor of such Lot in the performance of such mortgagor's obligations under the Subdivision documents which is not cured within thirty (30) days; as used herein, the terms "first mortgage," "mortgage" or "mortgagor" shall have the same meaning and import as "first deed of trust noteholder" or "first deed of trust" or "grantor of a deed of trust"; the terms "mortgage" and "deed of trust" for the purposes herein shall have the same meaning and intent.

(b) Any first mortgagee who comes into possession of a Lot in the Properties pursuant to the remedies provided in the mortgage, or foreclosure of the mortgage, or deed (or assignment)

in lieu of foreclosure shall be exempt from any "right of first refusal," if any.

(c) Any first mortgagee who comes into possession of a Lot pursuant to the remedies provided in the mortgage, foreclosure of the mortgage, or deed (or assignment) in lieu of foreclosure shall take the Property free of any claims for unpaid assessments or charges against the mortgaged unit which accrue prior to the time such holder comes into possession of the Lot.

(d) Unless at least fifty-one percent (51%) of the first mortgagees (based upon one [1] vote for each first mortgagee) of individual Lots in the Properties have given their prior written approval, the Association shall not be entitled to:

(1) By act or omission seek to abandon, petition, subdivide, encumber, sell or transfer real estate or improvements thereon which are owned, directly or indirectly, by such Association for the benefit of the Owners and Lots in the Properties, provided, however, that the Declarant, or the Association by a vote of its Board of Directors, at any time may convey all or any part of the Common Area to the County of James City, Virginia, or to any other public body, who shall thereafter maintain the same. The conveyance to the County of James City or other public body, or the granting of easements for public utilities or for other public purposes consistent with the intended use of such property by the Association shall not be deemed a prohibited transfer within the meaning of this clause.

(2) Change the method of determining the obligations, assessments, dues or other charges which may be levied against an Owner.

(3) Use hazard insurance proceeds for losses to any Common Area property for other than the repair, replacement or reconstruction of such improvements.

(e) First mortgagees shall have the right to examine the books and records of the Association or any entity which owns the Common Area or the property of the Association.

(f) First mortgagees of Lots in the Properties may, jointly or singly, pay taxes or other charges which are in default and which may have become a charge against any Common Area property and may pay overdue premiums on hazard insurance policies, or secure new hazard insurance coverage on the lapse of a policy, for such property, and first mortgagees making such payments shall be owed immediate reimbursement therefor from the Association. Entitlement to such reimbursement is hereby agreed to and this instrument shall constitute an agreement in favor of all first mortgagees of Lots in the Properties.

(g) No provision of the Association Articles of Incorporation, or the declaration of easements, restrictions and covenants, or any similar instrument pertaining to the Properties or to Lots therein gives a Lot Owner or any other party priority over any rights of first mortgagees of Lots herein pursuant to their mortgages in the case of a distribution to Lot Owners of

insurance proceeds or condemnation awards for losses to or taking of the Association's common property.

(h) Lot Owners have a right to enjoyment of the Common Areas as provided herein and such Property is owned in fee by the Association. The Common Area properties were conveyed to the Association unencumbered except for any easements granted for public utilities or for other public purposes consistent with the intended use of such Property by the Association.

(i) In the event that management other than self-management is required of the Association, and in the event that the Association elects or decides to terminate said management, then all first mortgagees shall be given at least thirty (30) days notice of said action.

(j) All first mortgagees shall be entitled to receive reasonable written notice of damage to or condemnation of any part of the Common Area.

(k) Any approval herein required by a first mortgagee shall be implied if a first mortgagee has failed to submit a response within fourteen (14) days to aa written proposal or notice, provided the proposal or notice was delivered by certified or registered mail, with a return receipt requested.

Section 6. Easement for Public Necessity. Upon recordation of this Declaration, there is hereby granted to the County of James City, Virginia, its employees and agents a perpetual right of ingress and egress over and upon the Common Area in order to assure the performance of all public duties, including but not limited to

law enforcement officers, rescue squad personnel, fire fighting personnel and building officials. In addition, Declarant shall have the right to construct storm water management facilities on the Common Area and to have an easement for ingress and egress and for all type easements over, under and upon the Common Area for the benefit of the Lots.

ARTICLE VIII
DECLARANT'S RIGHTS AND REPRESENTATIVES

Section 1. Rights. Anything herein to the contrary notwithstanding, the Declarant shall at all times have and does hereby reserve to itself, its successors and assigns:

(a) The right to use Lots for sales models and/or a sales office for sale of all Lots within the Subdivision.

(b) A non-exclusive easement over and upon the Common Area and for purposes of making improvements to the Common Area and on all Lots located within the Subdivision.

ARTICLE IX
CONDEMNATION

In the event of a condemnation or taking by eminent domain by any local, state or federal authority of all or any part of the Common Area, the Association is hereby designated and appointed as attorney-in-fact for all Owners for purposes of representing all Owners in any proceedings, negotiations, settlements or agreements. Any funds received by the Association shall be held for the benefit of the Association and be used by the Association for the purposes herein set forth, unless there is a total taking of all the Common

Area, in which event the funds shall be distributed pro rata among the Owners and their respective first mortgagees.

IN WITNESS WHEREOF, the undersigned Declarant, Fernbrook Associates, L.L.C., a Virginia limited liability company, has caused this instrument to be executed on its behalf as of the date and year first above written.

FERNBROOK ASSOCIATES, L.L.C.
a Virginia limited liability company

By: _____
Managing member

COMMONWEALTH OF VIRGINIA
City/County of James City, to wit:

I, Julia B. Davis, a Notary Public in and for the City/County and Commonwealth aforesaid, do hereby certify that C. Lewis Waltrip, II, managing member of and on behalf of Fernbrook Associates, L.L.C., whose name is signed to the foregoing writing bearing date as of the 14th day of May, 1998, has acknowledged the same before me in my City/County and Commonwealth aforesaid.

Given under my hand this 14th day of May, 1998.

Julia B. Davis
Notary Public

My commission expires: 2/28/2003

MAY27 98 0109

EXHIBIT A

All those certain lots, pieces or parcels of land situate, lying and being in James City County, Virginia, as shown on that certain plat entitled, "PLAT OF SUBDIVISION FERNBROOK, PHASE II, LOTS 7-24 AND LOTS 90-97, OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C., JAMES CITY COUNTY, JAMESTOWN DISTRICT, VIRGINIA," dated March 27, 1998, made by AES Consulting Engineers and duly recorded in the Clerk's Office of the Circuit Court of the City of Williamsburg and James City County, Virginia, in Plat Book 69, pages 10 and 11, to which reference is hereby made.

VIRGINIA: City of Williamsburg and County of James City, to Wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the 27 day of May 98 ... annexed and ... 9:37 ...
Teste: ...
By [signature]
Deputy Clerk

MAY 27 98 0110

000 005100

Prepared By: Williams, Mullen, Clark & Dobbins, P.C.
One Old Oyster Point Road, Suite 210
Newport News, Virginia 23602

CORRECTION DEED, made this 9th day of March, 2000, from **FERNBROOK ASSOCIATES, L.L.C.**, a Virginia Limited Liability Company, party of the first part, indexed as Grantor and Grantee to **FERNBROOK HOMEOWNERS ASSOCIATION, INC.**, a Virginia corporation, party of the second part, c/o Bernie J. Grablowsky, Ph.D., PCAM, United Property Associates, 4455 South Boulevard, Suite 250, Virginia Beach, Virginia 23452-1159, indexed as Grantor and Grantee.

W I T N E S S E T H:

THAT FOR and in consideration of Ten Dollars ($10.00) cash in hand paid from the party of the second part to the party of the first part, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledge, the party of the first hereby grants and conveys unto the party of the second part, all that certain real property located in the County of James City, Virginia, and more particularly described on Corrected Exhibit 'A' attached and made a part hereof, which description is the accurate description of the common area intended to be owned and maintained by the party of the second part rather than the land erroneously attached to the Deed of Gift dated September 3, 1999 and recorded as Instrument No.: 99022121..

MAR 14 00 0223

TO HAVE TO HOLD to above described property for the purposes and in accordance with all terms and provisions of that certain Declaration of Covenants, Conditions and Restrictions for Fernbrook Homeowners Association, Inc., Phase I, dated September 14, 1995 duly recorded in the Clerk's Office of the Circuit Court for James City County, Virginia, on October 13, 1995, in Deed Book 757 at page 199; Fernbrook Homeowners Association, Inc.,

Phase II, dated May 14, 1998, and recorded in the Clerk's Office aforesaid on May 27, 1988, as Instrument No. 980009750, page 86; and Fernbrook Homeowners Association, Inc., Phase III, dated July 22, 1998, and recorded in the Clerk's Office aforesaid on August 14, 1998, as Instrument No.: 980014480, page 188.

The party of the second quitclaims, grants and conveys unto the party of the first part all of the property conveyed in Exhibit 'A'.

Whenever used herein, the singular shall include the plural, the plural the singular, and the use of any gender shall include all other genders.

WITNESS the following signatures and seals:

FERNBROOK ASSOCIATION, L.L.C.

By: _____
C. Lewis Waltrip, II, Manager

FERNBROOK HOMEOWNERS ASSOCIATION, INC.

By: _____
C. Lewis Waltrip, President

MAR 14 8 0224

COMMONWEALTH OF VIRGINIA
City/~~County~~ of Newport News, to-wit:

I, Joseph Latella, a Notary Public in and for the city/county and commonwealth aforesaid, do certify that C. Lewis Waltrip, II, Manager of Fernbrook Associates, L.L.C. a Virginia Limited Liability Company, whose name is signed to the foregoing Deed of Correction, dated March 9, 2000, has acknowledged the same before me in my city/county and commonwealth aforesaid.

Given under my hand this 11 day of March, 2000.

My Commission Expires: 1/31/2002

COMMONWEALTH OF VIRGINIA
City/~~County~~ of Newport News, to-wit:

I, Joseph Latella, a Notary Public in and for the city/county and commonwealth aforesaid, do certify that C. Lewis Waltrip, II, President of Fernbrook Homeowner's Association, Inc., a Virginia corporation, whose name is signed to the foregoing Deed dated ~~September~~ March 9, ~~1999~~, has acknowledged the same before me in my city/county and commonwealth aforesaid.

Given under my hand this 11 day of March, 2000.

My Commission Expires: 1/31/2002

MAR 14 8 0225

33084.000/Deed to Homeowner's Association

Legal Description – Corrected Exhibit 'A'

A. Area of Right of Way Dedication along Greensprings Road, containing 0.170 acres +/-; Area of Right of Way Dedication for Right Turn Lane, containing 0.041 acres +/-; and Area of Right of Way for Dedication for Public Street Purposes containing 4.294 acres +/- and the common elements as shown on that certain plat entitled, "PLAT OF SUBDIVISION, FERNBROOK, PHASE I, LOT 1-6, 25-46, 73-82 & 98-107, OWNER/DEVELOPER, FERNBROOK ASSOCIATES, L.L.C. AND STANLEY J. & PATRICA W. DYKSTRA", made by AES Consulting Engineers, dated July 31, 1995 and recorded in the Clerk's Office of the Circuit Court for James City County, Virginia in Plat Book 62 at pages 83 and 84.

B. Area of Right of Way Dedication, containing 0.182 acres +/-and the common elements as shown on that certain plat entitled, "PLAT OF SUBDIVISION, FERNBROOK, PHASE II, LOTS 7-24 AND LOTS 90-97, OWNER/DEVELOPER, FERNBROOK ASSOCIATES, L.L.C.", made by AES Consulting Engineers, dated March 27, 1998 and recorded in the Clerk's Office of the Circuit Court for James City County, Virginia, in Plat Book 69 at pages 10 and 11.

C. Area of Right of Way Dedication, containing 0.092 acres +/- for drainage easements and the common elements as shown on that certain plat entitled, "PLAT OF SUBDIVISION, FERNBROOK, PHASE III, LOTS 47-72 AND LOTS 83-89, OWNER/DEVELOPER FERNBROOK ASSOCIATES, L.L.C.", made by AES Consulting Engineers, dated July 8, 1998 and recorded in the Clerk's Office of the Circuit Court for James City County, Virginia, in Plat Book 80 at pages 13 and 14.

Legal Description – Exhibit 'A'

A. Fernbrook, Phase I, Lots 1-6, Lots 25-46, Lots 73-82 and Lots 98-107: OWNER/DEVELOPER: FERNBROOK ACCOSIATES, L.L.C. AND STANLEY J. & Patricia W. DYKSTRA, JCC, JAMESTOWN DISTRICT, VIRGINIA", dated July 31, 1995 and made by AES, Engineers-Surveyors-Planners, Landscape Architects-Environmental Consultants and recorded in Plat Book 62 at page 83 and 84.

B Fernbrook, Phase II, Lots 7-24, and Lots 90-97: OWNER/DEVELOPER: FERNBROOK ACCOSIATES, L.L.C. AND STANLEY J. & Patricia W. DYKSTRA, JCC, JAMESTOWN DISTRICT, VIRGINIA", dated March 27, 1998 and made by AES, Engineers-Surveyors-Planners, Landscape Architects-Environmental Consultants and recorded in Plat Book 69 at page 10 and 11.

C. Fernbrook, Phase III, Lots 47-72, and Lots 83-89: OWNER/DEVELOPER: FERNBROOK ACCOSIATES, L.L.C. AND STANLEY J. & Patricia W. DYKSTRA, JCC, JAMESTOWN DISTRICT, VIRGINIA", dated July 2, 1998 and made by AES, Engineers-Surveyors-Planners, Landscape Architects-Environmental Consultants and recorded in Plat Book 70 at page 13 and 14.

VIRGINIA: City of Williamsburg and County of James City, to-wit:
This Correction Deed was presented with certificate annexed and admitted to record on 14 March, 2000, at 12:40 PM in the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City.
TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge ~~Deputy~~ Clerk

MAR 14 00 0227

5 of 5.

EXHIBIT A

THIS DEED of BARGAIN AND SALE, made this 15th day of April, 1994 by and between C. Lewis **WALTRIP, II**, Single, party of the first part, **JAMESTOWN BUILDING CORPORATION, INC.**, a Virginia Corporation, party of the second part, hereinafter referred to collectively as the "Grantors" and **FERNBROOK ASSOCIATES, L.L.C.**, a Virginia Limited Liability Company, party of the third part, hereinafter referred to as the "Grantees".

W I T N E S S E T H :

That for and in consideration the sum of TEN DOLLARS ($10.00) cash in hand by the Grantee unto the Grantors, and other good and valuable consideration, the receipt which is hereby acknowledged, the Grantors do hereby BARGAIN, GRANT, SELL, and CONVEY with GENERAL WARRANTY and ENGLISH COVENANTS OF TITLE, unto the Grantees, the following described property, to-wit:

All those certain pieces, or parcels of land, situate lying and being in James City County, Virginia, containing 35.06 ± acres and 19.79 ± acres, and that Thirty (30) square foot area exchanged between C. Lewis Waltrip, II, by deed of exchange and boundary line extinguishment, between Stanley J. Dykstra and Patricia W. Dykstra, recorded contemporaneously with this instrument as set out and shown on that certain plat of survey entitled: "PLAT SHOWING BOUNDARY LINE ADJUSTMENT AND LOT LINE EXTINGUISHMENT BETWEEN TWO PARCELS FOR CONVEYANCE TO FERNBROOK ASSOCIATES, L.L.C., BERKELEY DISTRICT, JAMES CITY COUNTY, VIRGINIA", dated December 21, 1993, made by AES, A Professional Corporation, a copy of which plat is attached hereto and incorporated herein by reference for a more complete description of the property hereby conveyed.

Together with all and singular the buildings and improvements thereon rights and privileges tenements, hereditaments, easements and appurtenances, covenants and restrictions thereunto belonging or in anywise appertaining.

Subject, however, to the covenants and restrictions, easements and right of way of record affecting said property.

Being parts of the same parcels of property as conveyed to C. Lewis Waltrip, II, by deeds dated November 22, 1988 and recorded in James City County Deed Book 430 at page 484, dated January 8, 1990 and recorded in James City County Deed Book 470 at page 595, dated November

SPIRN, TARLEY, ROBINSON & TARLEY P. L. L. C.
1313 JAMESTOWN ROAD
SUITE 202
POST OFFICE BOX 584
WILLIAMSBURG, VA 23187
(804) 229-4281

JCC

6, 1992 and recorded in James City County Deed Book 590 at page 685, dated December 20, 1993, and recorded in James City County Deed Book 661 at page 170, dated October 7, 1993, and recorded in the James City County Deed Book 662 at page 172 and to Jamestown Building Corporation, Inc. by deeds dated June 29, 1993 and recorded in James City County Deed Book 626 at page 761 and dated July 23, 1993 and recorded in James City County Deed Book 631 at page 793.

WITNESS the following signatures and seals:

_____(SEAL)
C. Lewis Waltrip, II

Jamestown Building Corporation, Inc.
A Virginia Corporation

BY: _____(SEAL)
C. Lewis Waltrip, II President

COMMONWEALTH OF VIRGINIA-
In the County of , to-wit:

The foregoing Deed was acknowledged before me by C. Lewis Waltrip, II, single this 26th day of April, 1994.

My Commission Expires: 9/30/94

_____
Notary Public

COMMONWEALTH OF VIRGINIA
In the County of , to-wit:

The foregoing Deed was acknowledged before me by C. Lewis Waltrip, II as president of Jamestown Building Corporation, Inc., A Virginia Corporation, this 26th day of April, 1994.

My Commission Expires: 9/30/91

_____
Notary Public

SPIERN, TARLEY,
ROBINSON & TARLEY
P. L. L. C.
113 JAMESTOWN ROAD
SUITE 202
POST OFFICE BOX 984
WILLIAMSBURG, VA 23187
(804) 229-4281

G:\WP60\REALEST\FERBROOK.DED

PB 87 PG 91

\# 020022503

87 PAGE 91

VICINITY MAP
(NTS)

CURVE DATA TABLE

NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	[illegible]	[illegible]	50.28	25.16	S 25°16'02" E	50.25
C2	[illegible]	396.31	48.67	24.37	S 36°20'11" E	48.64

CERTIFICATE OF NOTARIZATION

STATE OF VIRGINIA

CITY/COUNTY OF James City, I, Susan Eveland A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE PERSONS WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN THE CITY/COUNTY AFORESAID.
GIVEN UNDER MY HAND THIS 19 DAY OF June 2002
MY COMMISSION EXPIRES [illegible]

Susan Eveland
NOTARY PUBLIC

OWNER'S CERTIFICATE

THE BOUNDARY LINE ADJUSTMENT SHOWN ON THIS PLAT AND KNOW AS "BOUNDARY LINE ADJUSTMENT, LOT 45, FERNBROOK, PHASE I, AND PUMP STATION LOT, FERNBROOK, PHASE I" IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS, PROPRIETORS, AND OR TRUSTEES.

Carol J. Gabrowski — 6/19/02
CAROL J. GABROWSKI — DATE

By: [signature] — 9/9/02
JAMES CITY COUNTY SERVICE AUTHORITY — DATE

CERTIFICATE OF NOTARIZATION

STATE OF VIRGINIA

CITY/COUNTY OF James City, I, Gray H. Dobson A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE PERSONS WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN THE CITY/COUNTY AFORESAID.
GIVEN UNDER MY HAND THIS 9th DAY OF September 2002
MY COMMISSION EXPIRES 11/30/2006

[signature]
NOTARY PUBLIC

CERTIFICATE OF SOURCE OF TITLE

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY JAMESTOWN BUILDING CORPORATION, INC., A VIRGINIA CORPORATION, TO CAROL J. GABROWSKI, UNMARRIED, BY DEED DATED OCTOBER 9, 1997, AND RECORDED IN THE OFFICE OF THE CLERK OF CIRCUIT COURT OF THE COUNTY OF JAMES CITY IN LAND RECORD #970016709.

ENGINEERS OR SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE OR BELIEF, THIS PLAT COMPLIES WITH ALL OF THE REQUIREMENTS OF THE BOARD OF SUPERVISORS AND ORDINANCES OF THE COUNTY OF JAMES CITY, VIRGINIA, REGARDING THE PLATTING OF SUBDIVISIONS WITHIN THE COUNTY.

8/6/01 — Nancy S. Herman-Thompson
DATE — NANCY S. HERMAN-THOMPSON L.S.#002254

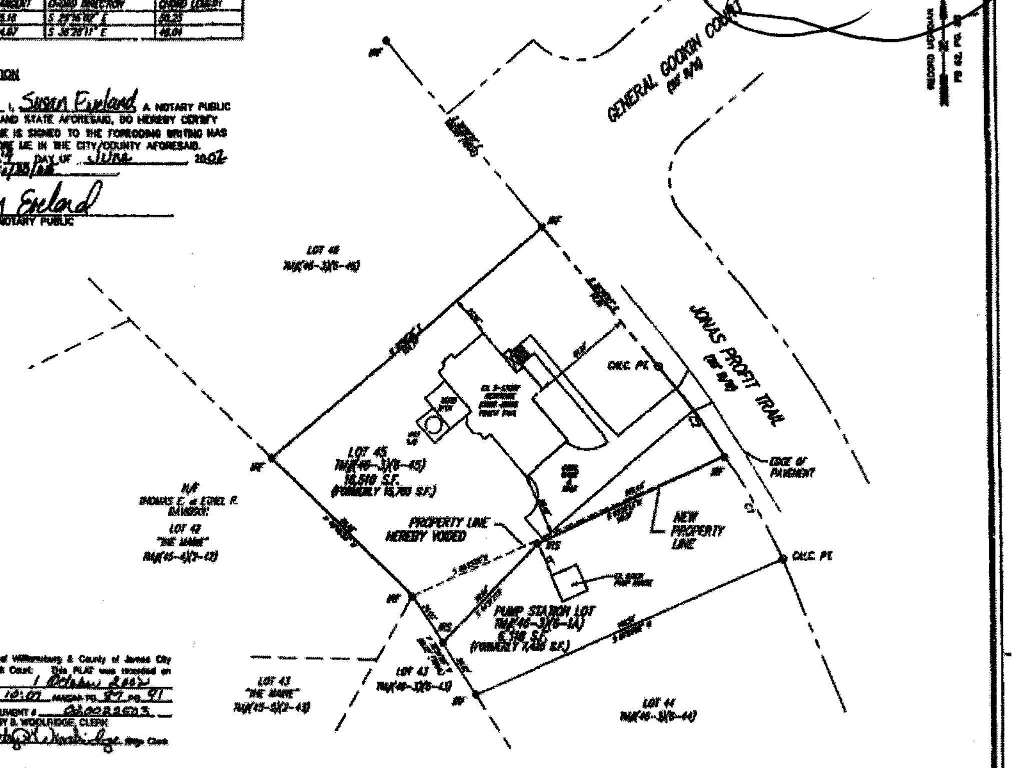
CERTIFICATE OF APPROVAL

THIS SUBDIVISION IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

9/6/02 — [signature]
DATE — SUBDIVISION AGENT OF JAMES CITY COUNTY

STATE OF VIRGINIA, JAMES CITY COUNTY

IN THE CLERK'S OFFICE OF THE CIRCUIT COURT FOR THE COUNTY OF JAMES CITY THE 1 DAY OF October 2002 @10:07AM
THIS MAP WAS PRESENTED AND ADMITTED TO RECORD AS THE LAW DIRECTS IN PLAT BOOK 87, PAGE 91.
BETSY B. WOOLRIDGE, CLERK OF CIRCUIT COURT
TESTE
BY Betsy B. Woolridge CLERK



City of Williamsburg & County of James City Circuit Court: This PLAT was recorded on 1 October 2002 at 10:07 in PB 87 pg 91
DOCUMENT # 020022503
BETSY B. WOOLRIDGE, CLERK
[signature] Dep. Clerk

NOTES:

1. IN ACCORDANCE WITH SECTION 19-33 OF THE SUBDIVISION ORDINANCE, ALL UTILITIES SHALL BE PLACED UNDERGROUND.
2. MONUMENTS SHALL BE SET IN ACCORDANCE WITH SECTIONS 19-34 THROUGH 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
3. RECORDED REFERENCES:
   DEED BOOK 787, PAGE 228
   PLAT BOOK 82, PAGE 83-84
   LR#970016709
   OFFICE OF THE CLERK OF CIRCUIT COURT OF THE COUNTY OF JAMES CITY, VIRGINIA.
4. MFIP ZONE X. SEE F.I.R.M. #510201-0040-B, EFFECTIVE DATE FEBRUARY 6, 1991.
5. A CURRENT TITLE REPORT HAS NOT BEEN FURNISHED TO THIS OFFICE.
6. UNDERGROUND UTILITIES NOT LOCATED.
7. STREET ADDRESS : #2080 JONAS PROFIT TRAIL

SITE DATA

* LOT AREA (LOT 45):	16,510 S.F. / 0.38 AC.
* LOT AREA (PUMP STATION LOT):	6,618 S.F. / 0.15 AC.
* TOTAL AREA :	23,128 S.F. / 0.53 AC.
* ZONING DISTRICT :	R1
* BUILDING SETBACKS :	FRONT = 35' REAR = 35' SIDE = 15'

LEGEND:

IPF = IRON PIPE FOUND
PB = PLAT BOOK
DB = DEED BOOK
CALC. PT. = CALCULATED POINT
EX. = EXISTING
CONC. = CONCRETE
TM = TAX PARCEL NUMBER

GRAPHIC SCALE: 1" = 30'

SCALE	1"=30'
FIELD CHK'D	SS/RR
DRAWN	SLS
CHECKED	NLHT
DATE	11/14/00

COMMISSION NUMBER 6390 — SHEET NUMBER 1 — 1 OF 1

BOUNDARY LINE ADJUSTMENT
LOT 45, FERNBROOK, PHASE I
AND PUMP STATION LOT, FERNBROOK, PHASE I
FOR
CAROL J. GABROWSKI

JAMESTOWN DISTRICT — JAMES CITY COUNTY — VIRGINIA

REVISIONS

NO	DATE	DESCRIPTION
1	6/13/02	NOTARY CERTIFICATE

NANCY L. HERMAN-THOMPSON No. 002254 8/6/01 LAND SURVEYOR

Committed to Excellence
ENGINEERS • ARCHITECTS • SURVEYORS

007344

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

THIS DECLARATION, made this 27th day of April, 1994, between Fernbrook Assoc. C. Lewis Waltrip and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: Fernbrook Subdivision TAX 46-3, 1-1A As further described (Exhibit A) (Exhibit B), and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the runoff control facility, hereinafter referred to as the "FACILITY," located on and serving the above-described property to ensure that the FACILITY is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the FACILITY to ensure that the FACILITY is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the FACILITY for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the FACILITY for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the FACILITY.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the FACILITY in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the FACILITY for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the FACILITY.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the FACILITY. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the FACILITY.

9. This DECLARATION shall be recorded in the County Land Records.

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 27 day of April, 1994

COVENANTOR(S)
Fenbrook Associates
C. Lewis Waltrip, II Partner

ATTEST:

_____

COVENANTOR(S)

_____

ATTEST:

_____

COMMONWEALTH OF VIRGINIA
~~CITY~~/COUNTY OF James City

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do certify that C. Lewis Waltrip, II, whose name is signed as such to the foregoing writing bearing date 27 day of April, 1994 this day sworn the same before me in my jurisdiction aforesaid.

GIVEN under my hand this 27 day of April, of 1994.

Mary S. Casher
Notary Public

My Commission expires: Aug. 31, 1996

Approved as to form:

Lee L. Gasser

0261U.Wpf
Revised 9/92

980013425

AFFIDAVIT

The attached plat, and courses and distance description, made by Ronald W. Eads Certified Land Surveyor, James City County Virginia, dated July 2, , 1998, of the lands of Fernbrook Associates, LLC, situate in Jamestown District, James City County, Virginia, and being the same land acquired by the said Fernbrook Associates, LLC , by Deed dated April 15, 1994, from C. Lewis Waltrip, II and Jamestown Building Corp., of record in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City, Virginia, in Deed Book 683, Page 140, is hereby confirmed and submitted for record in the aforesaid Clerk's Office.

Given under our hands this 20th day of July, 1998.

_______________ (SEAL)
OWNER C. Lewis Waltrip, II

_______________ (SEAL)
OWNER

JUL 21 98 01111

ACKNOWLEDGMENT

STATE OF VIRGINIA
County of York, to-wit:

I, Jennifer Bane Helms, a Notary Public in the jurisdiction aforesaid, State of Virginia, do hereby certify that C. Lewis Waltrip, II - appeared before me this 21st day of July, 1998, have acknowledged the same before me in my jurisdiction aforesaid.

My commission expires: 1/31/2000

Given under my hand this 21 day of July, 1998.

____
NOTARY PUBLIC

VIRGINIA. City of Williamsburg and County of James City, to Wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the 21 day of July, 1998. This Affidavit & Plats was presented with certificate annexed and admitted to record at 10:55 o'clock
Teste: Helena S. Ward, Clerk
by _______________
Deputy Clerk

PLAT RECORDED IN
P.B. 70 PAGE 13 & 14

Q80 **006205**

AFFIDAVIT

The attached plat, and courses and distance description, made by Ronald W. Eads Certified Land Surveyor, James City County Virginia, dated March 27, 19 98, of the lands of Fernbrook Associates, LLC, situate in Jamestown District, James City County, Virginia, and being the same land acquired by the said Fernbrook Associates. LLC, by Deed dated April 15, 1994, from C. Lewis Waltrip, II and Jamestown Building Corporation, of record in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City, Virginia, in Deed Book 683, Page 140, is hereby confirmed and submitted for record in the aforesaid Clerk's Office.

Given under our hands this 3rd day of April, 19 98.

OWNER C. Lewis Waltrip, II, President (SEAL)

OWNER (SEAL)

ACKNOWLEDGMENT

STATE OF VIRGINIA
County of York, to-wit:

I, Jennifer B. Helms, a Notary Public in the jurisdiction aforesaid, State of Virginia, do hereby certify that C. Lewis Waltrip, II whose names are signed to the foregoing Certificate of Confirmation by Owners, and Plat, bearing date of the 27th day of March, 19 98, have acknowledged the same before me in my jurisdiction aforesaid.

My commission expires: 1/31/2000

Given under my hand this 3rd day of April, 19 98.

NOTARY PUBLIC

APR-8 98 0001

VIRGINIA City of Williamsburg and County of ..., to Wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the 8 day of April, 1998. This Certificate was presented with certificate annexed and admitted to record at 8:56 o'clock
Teste: [illegible] Ward, Clerk
by [illegible]
Deputy Clerk

PLAT RECORDED IN P.B. NO. 69 PAGE 10 & 11

020022503

PURSUANT TO VIRGINIA CODE SECTION 58.1-811 C(3), THIS DEED IS EXEMPT FROM TAXATION UNDER VIRGINIA CODE SECTION 58.1-802.

Consideration: $550.00
TAX PARCEL ID # 463060001A

THIS DEED is made the 16th day of September, 2002, by and between the **JAMES CITY SERVICE AUTHORITY**, a political subdivision of the Commonwealth of Virginia ("GRANTOR"), and **CAROL J. GRABOWSKI** ("GRANTEE"), whose mailing address is 2888 Jonas Profit Trail, Williamsburg, Virginia 23185.

WITNESSETH: That for and in consideration of the sum of TEN DOLLARS ($10.00), cash in hand paid, and other good and valuable considerations, the receipt of which is hereby acknowledged, the GRANTOR does hereby grant and convey, with SPECIAL WARRANTY OF TITLE, unto GRANTEE, the following described property, to-wit:

That area, consisting of 807 square feet, more or less, between the lines labeled as "PROPERTY LINE HEREBY VOIDED" and "NEW PROPERTY LINE," as shown on that certain plat made by DJG, Inc., dated August 6, 2001, entitled "BOUNDARY LINE ADJUSTMENT, LOT 45, FERNBROOK, PHASE I, AND PUMP STATION LOT, FERNBROOK, PHASE I" and recorded simultaneously herewith in the Clerk's Office of the Circuit Court of James City County, Virginia, in Plat Book _____, Page _____.

OCT-12 0087

IN WITNESS WHEREOF, the JAMES CITY SERVICE AUTHORITY has caused this instrument to be executed in its behalf by LARRY M. FOSTER, General Manager.

JAMES CITY SERVICE AUTHORITY

By: _____ (SEAL)
Larry M. Foster, General Manager

COMMONWEALTH OF VIRGINIA,
COUNTY OF JAMES CITY, to-wit:

I, Greg H. Dohrman, a Notary Public in and for the jurisdiction aforesaid do hereby certify that LARRY M. FOSTER, on behalf of the JAMES CITY SERVICE AUTHORITY, whose name is signed to the foregoing writing bearing date on the 16th day of September, 2002, has acknowledged the same before me in the jurisdiction aforesaid.

GIVEN under my hand this 16th day of September, 2002.

[SEAL] Notary Public

My Commission expires: 11/30/2005

This Deed prepared by:
Greg H. Dohrman
Assistant County Attorney
James City County
101-C Mounts Bay Road
Williamsburg, VA 23185
(757) 253-6832

RETURN TO:
Sheldon M. Franck, Esq.
Geddy, Harris, Franck & Hickman
1177 Jamestown Road
Williamsburg, Virginia 23185

8800 OCT-1 02

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 1 OCT. 02
at 10:07 AM/PM. The taxes imposed by Virginia Code
Section 58.1-801, 58.1-802 & 58.1-814 have been paid.

STATE TAX	LOCAL TAX	ADDITIONAL TAX
$	$	$

TESTE: BETSY B. WOOLRIDGE, CLERK
BY: Betsy B. Woolridge Clerk

PLAT RECORDED IN
P.B. NO. 97 PAGE 96

phase 1 013432

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS OF FERNBROOK ASSOCIATES, L.L.C

THIS DECLARATION, made this 14th day of September, 1995, by FERNBROOK ASSOCIATES, L.L.C., a Virginia limited liability company (hereinafter referred to as "Declarant"), index as "Grantor."

RECITALS:

There has been duly approved under the ordinances of James City County, Virginia, a subdivision known as "Fernbrook," as shown on the subdivision plat entitled "PLAT OF SUBDIVISION FERNBROOK, PHASE I, LOTS 1-6, 25-46, 73-82 & 98-107, OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C. AND STANLEY J. & PATRICIA W. DYKSTRA, JAMES CITY COUNTY, JAMESTOWN DISTRICT, VIRGINIA," dated July 31, 1995, made by AES, Engineers-Surveyors-Planners, Landscape Architects - Environmental Consultants recorded in Plat Book 62, pages 83 and 84, in the Clerk's Office of the Circuit Court of the City of Williamsburg and James City County, Virginia, all of said property as shown on the subdivision and resubdivision plats (hereinafter collectively referred to as "Subdivision"); the purpose of this Declaration is to improve and protect the Subdivision.

NOW, THEREFORE, Declarant, as owner of all of the property in the Subdivision, hereby declares that all of the property in the subdivision, shall be held, sold and conveyed subject to the following easements, restrictions, covenants and conditions, which are for the purpose of protecting the value and desirability of, and which shall run with, the real property and be binding on all parties having any right, title or interest in the described properties or any

part thereof, their heirs, successors and assigns, and shall inure to the benefit of each owner thereof.

ARTICLE I
DEFINITIONS

Section 1. "Association" shall mean and refer to Fernbrook Homeowners Association, Inc., a Virginia non-stock corporation, its successors and assigns.

Section 2. "BMP" shall mean and refer to the on-site Best Management Practice facilities shown on the subdivision plat.

Section 3. "Owner" shall mean and refer to the record owner, whether one (1) or more persons or entities, of a fee simple title to any lot which is a part of the Subdivision, including contract sellers, but excluding those having such interest merely as security for the performance of an obligation.

Section 4. "Properties" shall mean and refer to all of the land within the Subdivision as shown on the plat of Fernbrook and all other property which may be annexed hereto pursuant to the Annexation provisions set forth hereinafter.

Section 5. "Common Area" shall mean the area identified as open space and conservation areas and on-site Best Management Practice facilities of the Subdivision Plat, together with such additional areas of Common Area as may be annexed.

Section 6. "Lot" shall mean and refer to the numbered lots intended for the purpose of constructing residential homes thereon, as shown in the Subdivision; "Lot" as used herein is intended to refer to residential lots and not to any Common Area.

Section 7. "Declarant" shall mean and refer collectively to Fernbrook Associates, L.L.C., a Virginia limited liability company, its successor and assigns, if such successor or

assigns should acquire more than one (1) undeveloped Lot from the Declarant for the purpose of development.

Section 8. "Mortgage" as used herein shall mean a mortgage or deed of trust, said terms having the same meaning and may be used interchangeably.

Section 9. "Board of Directors" shall mean and refer collectively to the Board of Directors of Fernbrook Homeowners Association, Inc.

ARTICLE II
PROPERTY RIGHTS AS TO COMMON AREA

AS TO COMMON AREA, the following provisions apply:

Section 1. Owners' Easements of Enjoyment. Every Owner shall have a right and easement of enjoyment in and to the benefits which derive from the conservation area located in the Common Area and the benefits derived therefrom and the adjacent or other property which is now or subsequently becomes a part of the Common Area, and aesthetic beauty to the Lots within the Subdivision which shall be appurtenant to and shall pass with the title to every Lot, subject to the following provisions:

(a) the right of the Association to charge reasonable fees for the maintenance of the Common Area;

(b) the right of the Association to suspend the voting rights of an Owner for any period during which any assessment against his Lot remains unpaid;

(c) the right of the Association to dedicate or transfer all or any part of the Common Area to any public agency, authority or utility for such purposes and subject to such conditions as may be agreed to or be authorized by the Board of Directors of the Association; in addition thereto, the Declarant may at anytime hereafter deed, or cause the Association to

deed, all or any part of the Common Area to the County of James City or other public body, who shall thereafter maintain the Common Area;

(d) the transfer of a Lot automatically transfers membership in the Association and all rights of the transferrer with respect to the Common Area and facilities to which ownership of such Lot relates.

Section 2. Delegation of Use. Any Owner may delegate, in accordance with the By-laws, his right of enjoyment to the Common Area facilities to the members of his family, his tenants or contract purchasers who reside on the Property.

Section 3. Leasing. Any Owner may lease or rent his Lot as long as the use of the Lot is consistent with the restrictions herein and provided that the lease agreement between Owner and lessee shall be written, shall be for a term of not less than thirty (30) days and shall provide that the terms of the lease shall be subject in all respects to the provisions of this Declaration and all other documents of the Association and that the failure of the lessee to comply with the terms of such documents shall constitute a default under the lease.

ARTICLE III
MEMBERSHIP AND VOTING RIGHTS

AS TO THE ASSOCIATION, the following membership and voting rights shall apply:

Section 1. Every Owner of a Lot shall be subject to assessment in the manner herein set forth and shall be a member of the Association with each such Lot Owner having an equal voting right with every other Lot Owner. Membership shall be appurtenant to and may not be separated from ownership of any Lot which is subject to assessment.

Section 2. The Association shall have two (2) classes of voting membership:

(a) Class A. Class A members shall be all Owners of Lots with the exception of the Declarant, and shall be entitled to one (1) vote for each Lot owned. When more than one (1) person holds an interest in any Lot, all such persons shall be members. The vote for such Lot shall be exercised as they determine, but in no event shall more than one (1) vote be cast with respect to any Lot.

(b) Class B. The Class B member shall be the Declarant, who shall be entitled to two (2) votes for each Lot owned. Such entitlement to two (2) votes shall be in effect at any time hereafter when the total votes outstanding in the Class A membership is less than the total votes outstanding in the Class B membership. For so long as the total votes outstanding in the Class A membership equal the total votes outstanding in the Class B membership, then the Class B membership shall be entitled to only one (1) vote for each Lot owned; provided, however, that in any event on December 1, 1999, the Class B membership shall cease and be converted to Class A membership and thereafter the Class B member and the Class A members shall be entitled to one (1) vote for each Lot ownership thereafter. All such calculations shall be on a cumulative basis in the event of Annexation as provided herein.

ARTICLE IV
COVENANT FOR MAINTENANCE ASSESSMENTS

AS GENERAL ASSESSMENTS FOR ALL LOTS:

Section 1. Creation of the Lien and Personal Obligation of General Assessments. The Declarant, for each Lot owned within the Properties, hereby covenants and each Owner of any Lot by acceptance of a deed therefor, whether or not it shall be so expressed in such deed, is deemed to covenant and agree to pay to the Association as general assessments the following:

(a) general annual assessments or charges; and

(b) general special assessments for capital improvements, such assessments to be established and collected as hereinafter provided.

The general annual and general special assessments, together with interest, costs and reasonable attorney's fees, shall be a charge on the land and shall be a continuing lien upon the property against which each such assessment is made in accordance with the Virginia Property Owner's Association Act, being Sections 55-508, et seq., of the Code of Virginia, 1950, as amended (the "Act"). Each such assessment, together with interests, costs and reasonable attorney's fees, shall also be the personal obligation of the person who was the Owner of such property at the time when the assessment fell due. The personal obligation for delinquent assessments shall not pass to his successors in title unless expressly assumed by them.

Section 2. Purpose of General Assessments. The general assessments levied by the Association shall be used exclusively for the improvement and maintenance of the Common Area as well as complying with the BMP for maintaining all drainage areas and on-site BMP facilities and to provide for such adequate reserve funds for the repair and replacement of improvements in the Common Area as the Board of Directors may deem appropriate from time to time.

Section 3. Maximum General Annual Assessment. Until January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment shall not exceed ONE HUNDRED AND 00/100 DOLLARS ($100.00) per year per Lot.

(a) From and after January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment may be

increased each year not more than ten percent (10%) above the maximum assessment for the previous year without a vote of the membership.

(b) From and after January 1 of the year immediately following the conveyance of the first Lot to an Owner, the maximum general annual assessment may be increased above ten percent (10%) by a majority vote of members who are voting in person or by proxy, at a meeting duly called for this purpose.

(c) The Board of Directors may fix the general annual assessment at an amount not in excess of the maximum.

Section 4. Working Capital Fund. The Declarant, as Agent of the Association, may establish for the Association a Working Capital Fund by collecting from each Owner up to six (6) months of the annual General Assessment for each Lot at the time the Lot is purchased to serve as a reserve fund for capital expenditures or replacements. The Declarant shall not use the Working Capital Fund to pay any construction costs or expenses and shall maintain this as a segregated fund separate and apart from other funds of the Association.

Section 5. General Special Assessments for Capital Improvements. In addition to the general annual assessments authorized above, the Association may levy, in any assessment year, a general special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the Common Area, including fixtures and personal property related thereto, provided that any such assessment shall have the assent of a majority of members who are voting in person or by proxy at a meeting duly called for this purpose.

Section 6. Notice and Quorum for Any Action Authorized under Sections 3 and 4. Written notice of any meeting called for the purpose of taking any action authorized under Section 3 or 4 shall be sent to all members not less than five (5) days or more than thirty (30) days in advance of the meeting. At the first such meeting called, the presence of members or of proxies entitled to cast thirty percent (30%) of all the votes of membership shall constitute a quorum. If the required quorum is not present, another meeting may be called subject to the same notice requirement, and the required quorum at the subsequent meeting shall be one-half (½) of the required quorum at the preceding meeting. No such subsequent meeting shall be held more than sixty (60) days following the preceding meeting.

Section 7. Uniform Rate of Assessment. Both general annual and general special assessments must be fixed at a uniform rate for all Lots and may be collected on a monthly basis.

Section 8. Date of Commencement of General Annual Assessments: Due Dates. The general annual assessments provided for herein shall commence as to any Lot on which improvements have been completed on the first day of the month following the completion of the improvements and after the conveyance of the first Lot by the Declarant to an Owner not a Declarant as herein defined. The Declarant shall not be required to pay the general annual assessment on Lots on which improvements are not completed, provided the Declarant shall be responsible for the maintenance and upkeep of such unimproved Lots. The first general annual assessment shall be adjusted according to the number of months remaining in the calendar year. The Board of Directors shall fix the amount of the general annual assessment against each Lot at least thirty (30) days in advance of each general annual assessment period. Written notice of

the general annual assessment shall be sent to every Owner subject thereto. The due dates shall be established by the Board of Directors. The Association shall, upon demand and for a reasonable charge, furnish a certificate signed by an officer of the Association setting forth whether the assessments on a specified Lot have been paid. A properly executed certificate of the Association as to the status of assessments on a Lot is binding upon the Association as of the date of its issuance.

Section 9. Effect of Nonpayment of General Assessments: Remedies of the Association. Any general assessment not paid within thirty (30) days after the due date shall bear interest from the due date at the maximum rate permitted by the Act. The Association may record a memorandum of lien, bring an action at law against the Owner personally obligated to pay the same or foreclose the lien against the Property pursuant to the Act. No Owner may waive or otherwise escape liability for the general assessments provided for herein by non-use of the Common Area or abandonment of his Lot.

Section 10. Subordination of the Lien to Mortgages. The lien of the assessments provided for herein shall be subordinate to the lien of any first mortgage. Sale or transfer of any Lot shall not affect the assessment lien. However, the sale or transfer of any Lot pursuant to mortgage foreclosure or any proceeding in lieu thereof shall extinguish the lien of such assessments as to payments which became due prior to such sale or transfer. No sale or transfer shall relieve such Lot from liability for any assessments thereafter becoming due or from the lien thereof. Such subordination shall not release the Owner from personal liability for such assessment.

ARTICLE V
PROPERTY RESTRICTIONS

Section 1. Land Use and Building Type. No Lot shall be used except for residential purposes; provided, however, this shall in no way restrict the Common Area Lots being used for their intended purposes. No additional, adjacent or connected buildings to house additional persons for rent or other purposes will be permitted.

Section 2. No businesses shall be conducted from these residences or on these lots wherein any evidence of said businesses is visible from without the residence. This includes signs, marked vehicles, equipment and materials. Neither may any home business generate a stream of traffic to constitute a nuisance to the neighbors. Model and sales trailers in the initial development stages will be permitted.

Section 3. No lots may be subdivided, except lot line adjustments may be permitted provided the total number of lots is not increased.

Section 4. No animals, livestock or poultry of any kind may be kept on any lot except dogs, cats or other household pets, provided they are not kept, bred or maintained for any commercial purpose. No family shall have more than a total of three (3) dogs and cats. Animals must be properly managed so as not to be a nuisance to neighbors by barking or trespass.

Section 5. No lot shall be used or maintained as a dumping ground for rubbish or other material prior to construction. During construction the area will be kept in a reasonably neat and clean condition, although some debris must be expected. After occupancy the property shall be kept in a good state of maintenance by the owner. Trash, garbage and other waste shall not be kept except in sanitary containers which shall be enclosed in a screening structure or shall

be installed underground. Incinerators will not be permitted and all trash and refuse must be picked up and hauled away.

Section 6. Easements shown on the plan for streets, drainage, utilities, screening, open space or conservation areas are for the benefit of the residents of Fernbrook Subdivision and may be changed only by the Declarant or the County of James City, Virginia. The Declarant reserves the right to require additional easements not to exceed five (5) feet in width along any property line if drainage problems develop at a later date and require such easements.

Section 7. No construction or improvements shall be permitted within any area designated under the heading "Open Space," "Conservation Area" or "Easement" as reflected on the plat of this subdivision unless approved by Declarant and/or James City County.

Section 8. Owners shall submit to Jeffrey L. Weeks and C. Lewis Waltrip II, on behalf of the Declarant, for review and approval architectural elevation and floor plans for all dwelling units to be constructed on the lots, in accordance with the following procedures:

(a) Within fifteen (15) days after Declarant shall have received proposed elevations and floor plans for one (1) or more units to be constructed on the lots, Declarant shall give Owner notice of its approval or disapproval thereof, specifying, in the case of the latter, its reason therefor. Declarant's right to disapprove such plans and specifications shall be exercised in conformance with the following criteria: (1) Subsection (a) of this paragraph; (2) architectural compatibility with units constructed in adjoining sections; and (3) adverse impact on marketability of lots within the rest of the development. The Declarant will emphasize colonial and traditional style construction.

(b) An Owner, upon receipt of a notice of disapproval given pursuant to the above, will promptly undertake to amend and modify the proposed design so as to meet the reasons for Declarant's disapproval specified in the notice of disapproval and, upon completion thereof, the same shall be approved in writing by Declarant within fifteen (15) days after receipt of the same. If there shall be a bona fide dispute between the parties as to whether Declarant's disapproval of any design submitted to it is permitted hereunder, the parties shall enter into discussions of points of disagreement and use their best efforts to resolve such issues to their mutual satisfaction.

(c) If Declarant fails to give notice of its approval or disapproval within fifteen (15) days after receipt of any architectural elevations submitted to it for its approval, or of any required modification or amendment thereof, the same shall be deemed to have been approved by Declarant.

Section 9. All dwellings shall be served by underground utility service, including sewer, gas, electric, telephone and cable television. All dwellings shall have minimum two hundred (200) amp electric service. No above ground utilities will be permitted.

Section 10. The following additional restrictions will be observed in the intent of preserving the architectural integrity of the buildings:

(a) No external antennas of any description.

(b) No window air conditioners.

(c) No clotheslines unless small and well-screened and approved by Declarant.

(d) No fencing nearer to the street than the front of the residence and no fencing shall be erected prior to obtaining the approval of Declarant.

(e) No solar or energy panels to be visible from the street or to any other residence.

(f) No carports shall be erected on any lot or attached to any residence.

(g) No structure of a temporary character, trailer, tent, shack, shed or other outbuilding shall be built or used on any lot as a residence or for storage.

(h) No chain link fence except around dog runs, limited to one hundred twenty (120) square feet of run area.

(i) No sign of any kind shall be displayed to the public view on any lot except for an entrance sign for the subdivision on the corner Lots five (5) and six (6) and except one (1) sign of not more than five (5) square feet advertising the property for sale or rent, or signs used by the builder to advertise the property during the construction and sales period.

(j) All driveways shall extend to the street and it is recommended that they be either aggregate or concrete so as to blend with the streets.

(k) Outbuildings and fencing may be constructed or installed only with the permission of the Declarant. All outbuildings shall match the primary residence in color, materials and style.

(l) Front foundation vents shall be wood or of similar appearance.

(m) All foundations shall have a crawl space and the exterior shall be brick veneer.

(n) All exterior chimneys shall be brick.

(o) All driveways shall be of exposed aggregate and be fully connected to the street on which the lot faces.

(p) The exteriors may be brick, vinyl, aluminum or hardiplank.

(q) Each house shall have at least a two (2) car attached garage which shall be at least twenty (20) feet in width.

(r) One-story dwellings shall have at least eighteen hundred (1,800) square feet of living space and two-story dwellings shall have a minimum of two thousand (2,000) square feet of living space.

(s) Open porches or stoops (front or side) shall have lattice from platform to grade. Lattice panels, rails, board and risers shall be painted. Open porches shall have brick piers.

(t) All architectural elements that extend from the front or side of the house shall have foundation walls to grade.

(u) Roof slopes shall be a minimum of 7/12 pitch unless approved otherwise.

(v) Landscaping shall be consistent with other new homes in Fernbrook and plantings shall be indigenous to the Tidewater, Virginia area.

Section 11. Vehicles. Since the unregulated use of vehicles can destroy the appearance of a neighborhood, the following restrictions will apply:

(a) No more than three (3) ungaraged vehicles will be permitted to be consistently parked on the premises, and these must be in the driveway or on a parking apron off the driveway. These vehicles will be restricted to licensed, operable automobiles, mini-vans and pickup trucks not to exceed three-quarters (3/4) ton in capacity.

(b) No major vehicle maintenance or overhaul of ungaraged vehicles will be permitted if unsightly and requiring more than two (2) days.

Section 12. Easements. Easements for installation and maintenance of utilities and drainage facilities are reserved as shown on the recorded plat of subdivision. The drainage and utility easements may also be used by the Declarant for ingress and egress to or to benefit the Common Area and/or the Lots as provided for herein. The Declarant reserves the right to require additional easements not to exceed five (5) feet in width along any property line of any Lot if drainage problems develop at a later date and require such easements as may be necessary in the Declarant's opinion.

ARTICLE VI
INSURANCE

Section 1. The Board of Directors is authorized (but not directed) to secure such insurance as it deems advisable and the proceeds or benefit shall be equally for all Lot Owners; no director shall be liable for the failure to obtain any such insurance, with each Owner being encouraged and entitled to secure and provide their respective insurance coverage and there being no duty on the Association to provide any insurance of any type on the Common Area or elsewhere.

ARTICLE VII
GENERAL PROVISIONS

Section 1. Enforcement. The Association or any Owner shall have the right to enforce, by any proceeding at law or in equity in the Circuit Court of the City of Williamsburg and County of James City, Virginia, all restrictions, conditions, covenants, reservations, liens and charges now or hereafter imposed by the provisions of this Declaration in accordance with the Act and all other applicable laws. Failure by the Association or by any Owner to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do

so thereafter. The Court is hereby specifically empowered and authorized to use of its equitable powers and authorities to correct any arbitrary, capricious or unreasonable act by the Association or any Lot Owner or committee connected therewith.

Section 2. Severability. Invalidation of any one of these covenants or restrictions by judgment or court order shall in no way affect any other provision which shall remain in full force and effect.

Section 3. Amendment. The covenants and restrictions of this Declaration shall run with and bind the land for a term of forty (40) years from the date this Declaration is recorded, after which time they shall be automatically extended for successive periods of ten (10) years. This Declaration may be amended by an instrument signed by not less than seventy-five percent (75%) of the Lot Owners and fifty-one percent (51%) of first mortgagees as hereinafter defined. Any amendment, upon receiving the necessary approval, shall be recorded in a document executed on behalf of the Association by its duly authorized officers. Any amendment must be recorded. In no event shall these covenants and restrictions terminate for so long as the Association owns any Common Area.

Section 4. Association Documents. In accordance with the Act, the Association shall maintain current copies of the Declaration, Articles of Incorporation, Bylaws, Rules and Regulations and budgets and shall provide copies upon request to Owners and Purchasers. The Association shall annually cause to be prepared a statement for each fiscal year which shall be provided to the Owners at each annual meeting.

Section 5. Additional Covenants. It is understood and agreed, anything to the contrary contained herein notwithstanding, as follows:

(a) A first mortgagee will be provided written notification of any default by the mortgagor of such Lot in the performance of such mortgagor's obligations under the Subdivision documents which is not cured within thirty (30) days; as used herein, the terms "first mortgage," "mortgage" or "mortgagor" shall have the same meaning and import as "first deed of trust noteholder" or "first deed of trust" or "grantor of a deed of trust"; the terms "mortgage" and "deed of trust" for the purposes herein shall have the same meaning and intent.

(b) Any first mortgagee who comes into possession of a Lot in the Properties pursuant to the remedies provided in the mortgage, or foreclosure of the mortgage, or deed (or assignment) in lieu of foreclosure shall be exempt from any "right of first refusal," if any.

(c) Any first mortgagee who comes into possession of a Lot pursuant to the remedies provided in the mortgage, foreclosure of the mortgage, or deed (or assignment) in lieu of foreclosure shall take the Property free of any claims for unpaid assessments or charges against the mortgaged unit which accrue prior to the time such holder comes into possession of the Lot.

(d) Unless at least fifty-one percent (51%) of the first mortgagees (based upon one [1] vote for each first mortgagee) of individual Lots in the Properties have given their prior written approval, the Association shall not be entitled to:

(1) By act or omission seek to abandon, petition, subdivide, encumber, sell or transfer real estate or improvements thereon which are owned, directly or indirectly, by such Association for the benefit of the Owners and Lots in the Properties, provided, however, that the Declarant, or the Association by a vote of its Board of Directors, at any time may convey all or any part of the Common Area to the County of James City, Virginia, or to any

other public body, who shall thereafter maintain the same. The conveyance to the County of James City or other public body, or the granting of easements for public utilities or for other public purposes consistent with the intended use of such property by the Association shall not be deemed a prohibited transfer within the meaning of this clause.

(2) Change the method of determining the obligations, assessments, dues or other charges which may be levied against an Owner.

(3) Use hazard insurance proceeds for losses to any Common Area property for other than the repair, replacement or reconstruction of such improvements.

(e) First mortgagees shall have the right to examine the books and records of the Association or any entity which owns the Common Area or the property of the Association.

(f) First mortgagees of Lots in the Properties may, jointly or singly, pay taxes or other charges which are in default and which may have become a charge against any Common Area property and may pay overdue premiums on hazard insurance policies, or secure new hazard insurance coverage on the lapse of a policy, for such property, and first mortgagees making such payments shall be owed immediate reimbursement therefor from the Association. Entitlement to such reimbursement is hereby agreed to and this instrument shall constitute an agreement in favor of all first mortgagees of Lots in the Properties.

(g) No provision of the Association Articles of Incorporation, or the declaration of easements, restrictions and covenants, or any similar instrument pertaining to the Properties or to Lots therein gives a Lot Owner or any other party priority over any rights of first mortgagees of Lots herein pursuant to their mortgages in the case of a distribution to Lot

Owners of insurance proceeds or condemnation awards for losses to or taking of the Association's common property.

(h) Lot Owners have a right to enjoyment of the Common Areas as provided herein and such Property is owned in fee by the Association. The Common Area properties were conveyed to the Association unencumbered except for any easements granted for public utilities or for other public purposes consistent with the intended use of such Property by the Association.

(i) In the event that management other than self-management is required of the Association, and in the event that the Association elects or decides to terminate said management, then all first mortgagees shall be given at least thirty (30) days notice of said action.

(j) All first mortgagees shall be entitled to receive reasonable written notice of damage to or condemnation of any part of the Common Area.

(k) Any approval herein required by a first mortgagee shall be implied if a first mortgagee has failed to submit a response within fourteen (14) days to aa written proposal or notice, provided the proposal or notice was delivered by certified or registered mail, with a return receipt requested.

Section 6. Easement for Public Necessity. Upon recordation of this Declaration, there is hereby granted to the County of James City, Virginia, its employees and agents a perpetual right of ingress and egress over and upon the Common Area in order to assure the performance of all public duties, including but not limited to law enforcement officers, rescue squad personnel, fire fighting personnel and building officials. In addition, Declarant shall have the

right to construct storm water management facilities on the Common Area and to have an easement for ingress and egress and for all type easements over, under and upon the Common Area for the benefit of the Lots.

ARTICLE VIII
DECLARANT'S RIGHTS AND REPRESENTATIVES

Section 1. Rights. Anything herein to the contrary notwithstanding, the Declarant shall at all times have and does hereby reserve to itself, its successors and assigns:

(a) The right to use Lots for sales models and/or a sales office for sale of all Lots within the Subdivision.

(b) A non-exclusive easement over and upon the Common Area and for purposes of making improvements to the Common Area and on all Lots located within the Subdivision.

ARTICLE IX
CONDEMNATION

In the event of a condemnation or taking by eminent domain by any local, state or federal authority of all or any part of the Common Area, the Association is hereby designated and appointed as attorney-in-fact for all Owners for purposes of representing all Owners in any proceedings, negotiations, settlements or agreements. Any funds received by the Association shall be held for the benefit of the Association and be used by the Association for the purposes herein set forth, unless there is a total taking of all the Common Area, in which event the funds shall be distributed pro rata among the Owners and their respective first mortgagees.

ARTICLE X
ANNEXATION

Section 1. Annexation. All or any part of the following described Properties may be annexed hereto at any time hereafter solely by Declarant without the consent of the Class A or Class B members of the Association; and upon the same happening, Declarant shall be deemed the "Declarant" as herein defined and shall be entitled to and subject to all of the privileges, rights and liabilities herein set for Declarant. Said Properties which may be so annexed being described as all or any portion of the property described as follows:

> All those certain pieces, parcels or tracts of land as described on the attached Exhibit A, which are hereby made a part hereof by reference thereto.

Section 2. Method of Annexation. Declarant may cause such annexation to be made by including the provision of such annexation to shown on such recordation plat or by an instrument executed by Declarant and duly recorded describing the parcel or parcels to be annexed and referring to and making such parcel or parcels subject to the within Covenants, Conditions and Restrictions, or both.

Upon any such annexation being so made, the real estate or "Properties" covered thereby, together with the Declarant and all Owners thereof and their heirs, successors and assigns shall be entitled to, and subject to, all of the terms of the within Covenants, Conditions and Restrictions in the same manner as if such annexed parcel had been included within the legal description as contained in said Fernbrook Subdivision.

It is further understood and agreed that such annexation of all or of any part of the real estate hereinabove described shall be solely at the option of the Declarant, and Declarant may from time to time annex all or any part or parts thereof as determined solely by the Declarant

without the necessity of approval of any Lot Owner of the Association, anything to the contrary notwithstanding in the Articles of Incorporation or Bylaws of the Association.

Section 3. Encroachments. In the event any portion of any improvement on any Lot encroaches upon the Common Areas and facilities, or an encroachment for an improvement in the Common Areas exists upon a Lot, as a result of construction, reconstruction, repair, shifting, settlement or movement of any portion thereof, a valid easement for the encroachment and for the maintenance of the same shall exist so long as the encroachment exists. In addition, there is hereby created an easement for the encroachment of the entrance sign or signs to Fernbrook on the adjacent Lot.

IN WITNESS WHEREOF, the undersigned Declarant, Fernbrook Associates, L.L.C., a Virginia limited liability company, has caused this instrument to be executed on its behalf as of the date and year first above written.

FERNBROOK ASSOCIATES, L.L.C.
A Virginia Limited Liability Company

By: _____
Managing Member

COMMONWEALTH OF VIRGINIA
City/County of Newport News, to wit:

I, Patricia A. Buckless, a Notary Public in and for the City/County and Commonwealth aforesaid, do hereby certify that Jeffrey L. Weeks, Managing Member of and on behalf of FERNBROOK ASSOCIATES, L.L.C., a Virginia limited liability company, whose name is signed to the foregoing writing bearing date on the 14th day of September, 1995, has acknowledged the same before me in my City/County and Commonwealth aforesaid.

Given under my hand this 25th day of September, 1995.

Patricia A. Buckless
Notary Public

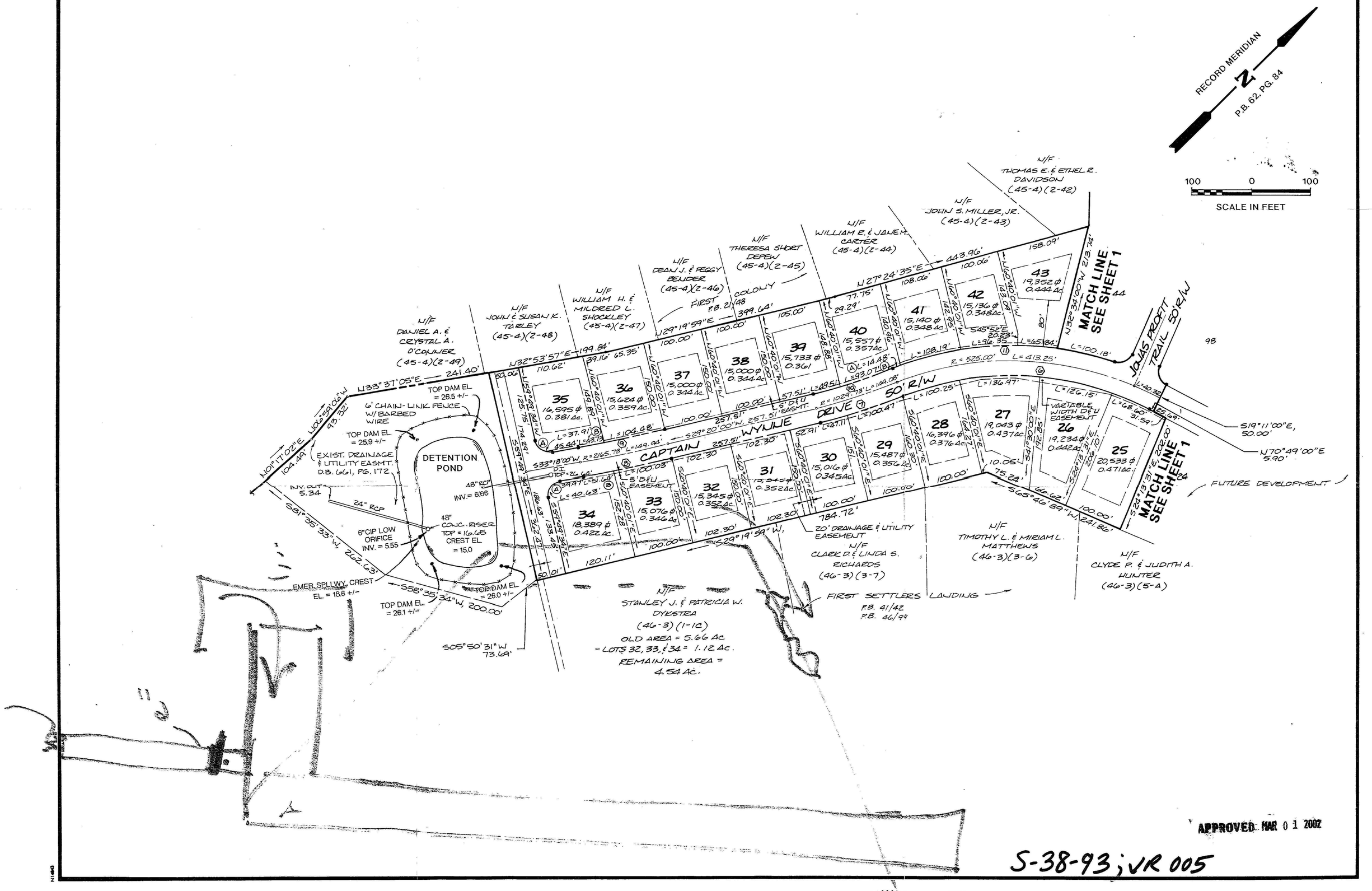
My commission expires: 10-31-98

VIRGINIA: City of Williamsburg and County of James City, to Wit:
In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the 3 day of Oct 95. This Deed of Restrictions was presented with certificate annexed and admitted to record at 10:25 o'clock
Teste: Helene S. Ward, Clerk
by [signature]
Deputy Clerk

23 - 23

3. Construction Certificate

4. Record Drawing (as-built plan)



CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994

AS-BUILT DRAWING

FERNBROOK

PHASE I

OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C. & STANLEY J. & PATRICIA W. DYKSTRA

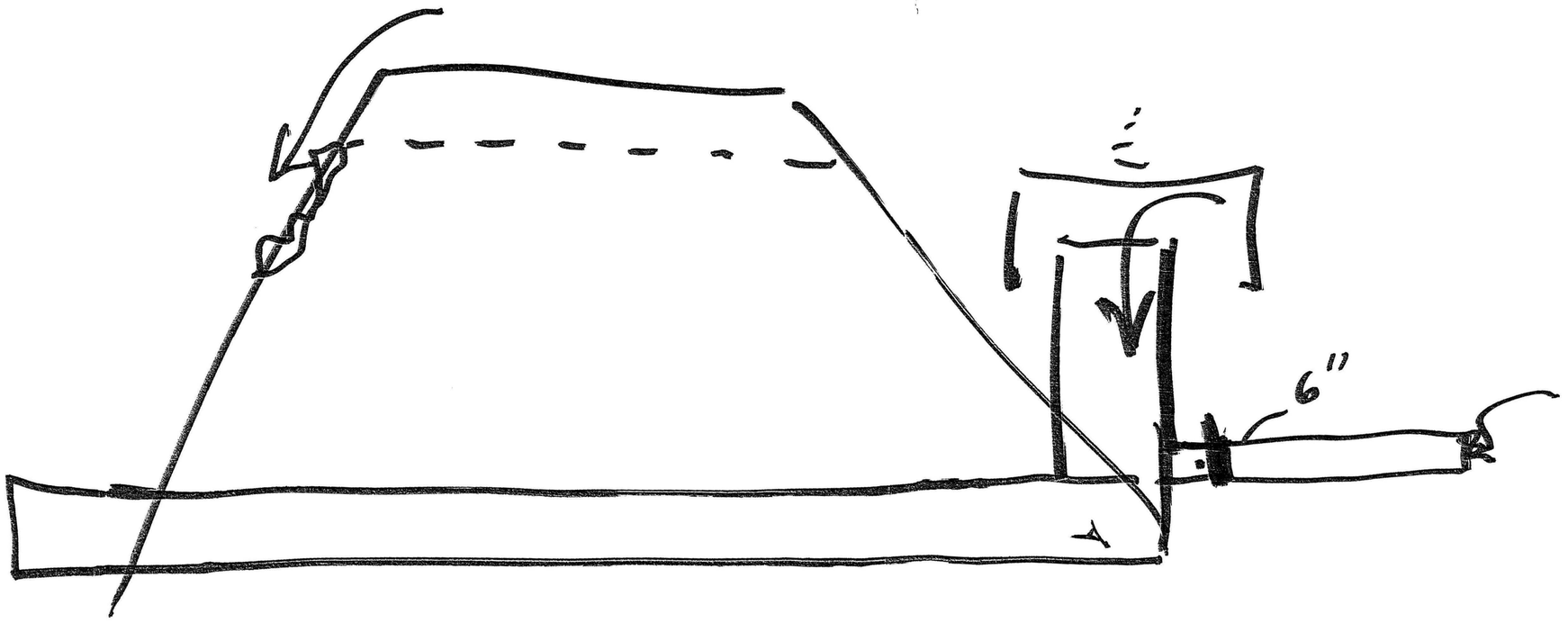
JAMESTOWN DISTRICT JAMES CITY COUNTY VIRGINIA

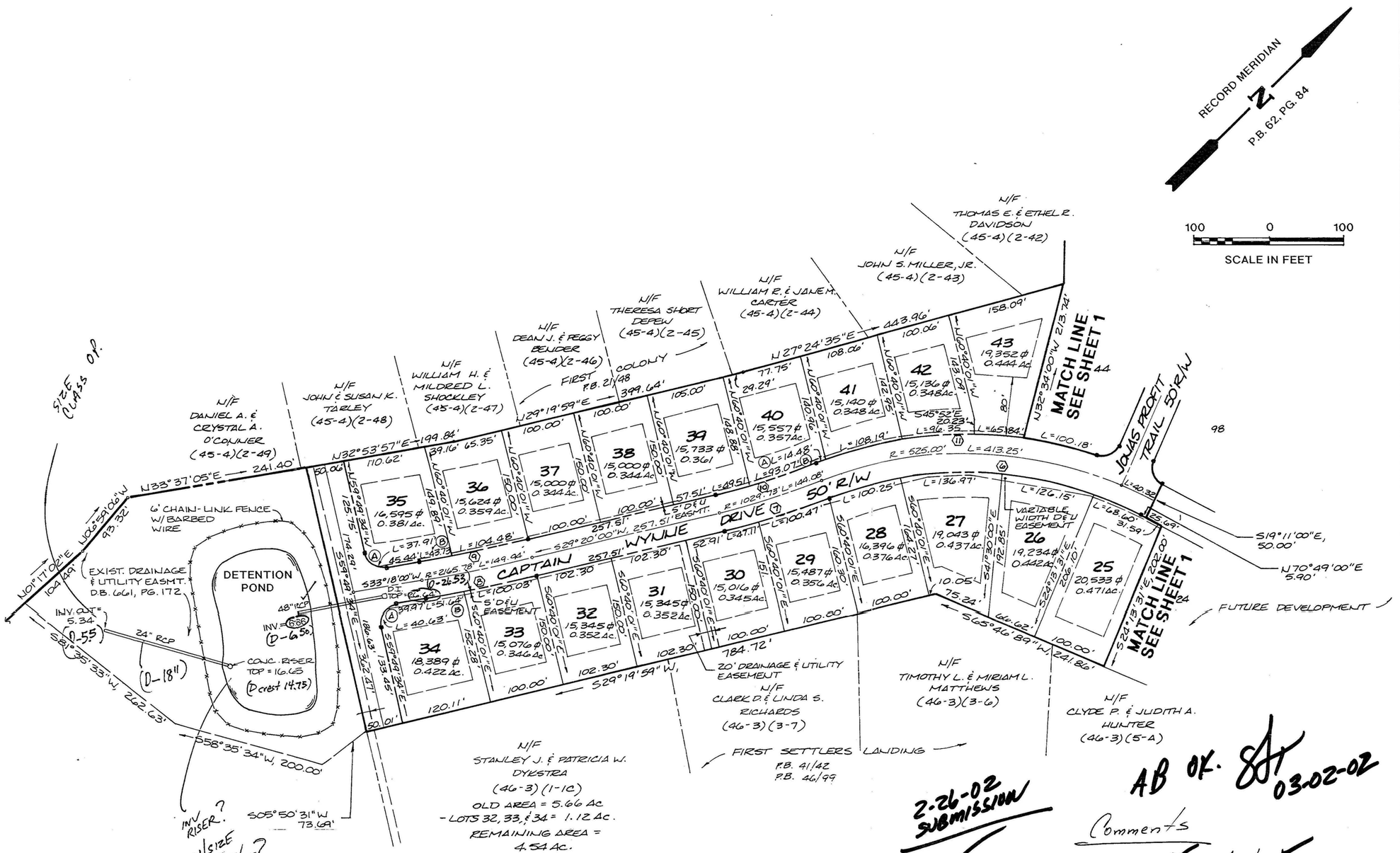
COMMONWEALTH OF VIRGINIA
02-07-02
10-10-01
2-17-97
RONALD W. EADS
No. 1948
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
3	02/02	ADTNL. ELEV. FIELD VERIFIED	RWE
2	10/01	POND & STRUCTURES FIELD VERIFIED	RWE
1	2/97	AS-BUILT POND	RWE

Designed RWE	Drawn RMJ
Scale 1"=100'	Date 2/17/97
Project No. 6877	
Drawing No. 1 of 1	

AS-BUILT DRAWING - 2/17/97


6"



Comments

1. Show Riser Size, crest elev and invert of riser. ✓
2. * Invert size of Low Flow Baff orifice. ✓
3. ✓ Barrel per design plan is 18". ABuilt shows 24 inch. ✓
4. * Show emergency spillway location, crest elevation and field dimensions including bottom width, sideslope & Topwidth. ✓
5. * Design Top of Dam is supposed to be at EL. 26.00. Provide elevations around top perimeter, especially west & north sides to ensure EL. 26.0 was achieved. ✓
6. Show size & type of outlet protection.

SJT REVIEW SET

ES CONSULTING ENGINEERS

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994

AS-BUILT DRAWING

FERNBROOK

PHASE I

OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C. & STANLEY J. & PATRICIA W. DYKSTRA

JAMESTOWN DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
10-10-01
2-17-97
RONALD W. EADS
No. 1948
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
2	10/01	POND & STRUCTURES FIELD VERIFIED	RWE
1	2/97	AS-BUILT POND	RWE

Designed RWE	Drawn RMJ
Scale 1"=100'	Date 2/17/97
Project No. 6877	
Drawing No. 1 of 1	

AS-BUILT DRAWING - 2/17/97

5. Construction Drawings

OWNER'S CERTIFICATE

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT AND KNOWN AS FERNBROOK (PHASE) IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS, PROPRIETORS AND OR TRUSTEES.

8-4-95 — DATE — NAME

DATE — NAME

CERTIFICATE OF SOURCE OF TITLE

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY C. LEWIS WALTRIP II, ETALS TO FERNBROOK ASSOCIATES DATED APRIL 27, 1994 AND RECORDED IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY IN DEED BOOK 483, PAGE 138.

CERTIFICATE OF NOTARIZATION

STATE OF VIRGINIA

CITY/COUNTY OF James City Co, I, Jim S Bowman A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE PERSONS WHOSE NAMES ARE SIGNED TO THE FOREGOING WRITING HAVE ACKNOWLEDGED THE SAME BEFORE ME IN THE CITY/COUNTY AFORESAID. GIVEN UNDER MY NAME THIS 4th DAY OF August, 1995. MY COMMISSION EXPIRES Septmber 30, 1995.

SIGNATURE

ENGINEER OR SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE OR BELIEF, THIS PLAT COMPLIES WITH ALL OF THE REQUIREMENTS OF THE BOARD OF SUPERVISORS AND ORDINANCES OF THE COUNTY OF JAMES CITY, VIRGINIA, REGARDING THE PLATTING OF SUBDIVISIONS WITHIN THE COUNTY.

8-4-95 — DATE — G. T. WILSON, JR. C.L.S.

CERTIFICATE SOURCE OF TITLE - LOTS 32,33,34

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY DAVID M. & ALICE F. MURRAY TO STANLEY J. & PATRICIA W. DYKSTRA AND RECORDED IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY IN DEED BOOK 262, PAGE 402, AND DEED BOOK 483, PAGE 138 DATED APRIL, 1994.

OWNER'S CERTIFICATE - LOTS 32,33,34

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT AND KNOWN AS FERNBROOK PHASE I IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS, PROPRIETORS AND OR TRUSTEES.

11 August 1995 — DATE — NAME

August 11 1995 — DATE — NAME

CERTIFICATE OF NOTARIZATION

STATE OF VIRGINIA

CITY/COUNTY OF York, I, Ruth D Bass A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE PERSONS WHOSE NAMES ARE SIGNED TO THE FOREGOING WRITING HAVE ACKNOWLEDGED THE SAME BEFORE ME IN THE CITY/COUNTY AFORESAID. GIVEN UNDER MY NAME THIS 11th DAY OF August, 1995. MY COMMISSION EXPIRES April 30th, 1997.

SIGNATURE

NOTE: STREETS ARE HEREBY DEDICATED FOR PUBLIC USE

CERTIFICATE OF APPROVAL

THIS SUBDIVISION IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

8/9/95 — DATE — VIRGINIA DEPARTMENT OF TRANSPORTATION

8/9/95 — DATE — VIRGINIA DEPARTMENT OF HEALTH

9/29/95 — DATE — SUBDIVISION AGENT OF JAMES CITY COUNTY

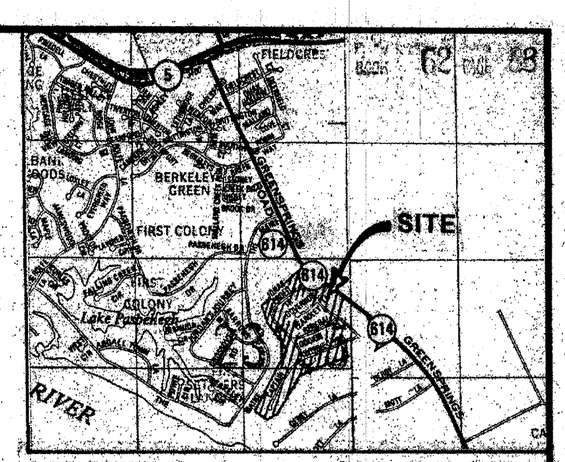
RECORD MERIDIAN PLAT BOOK 59, PAGE 18

100 0 100

SCALE IN FEET

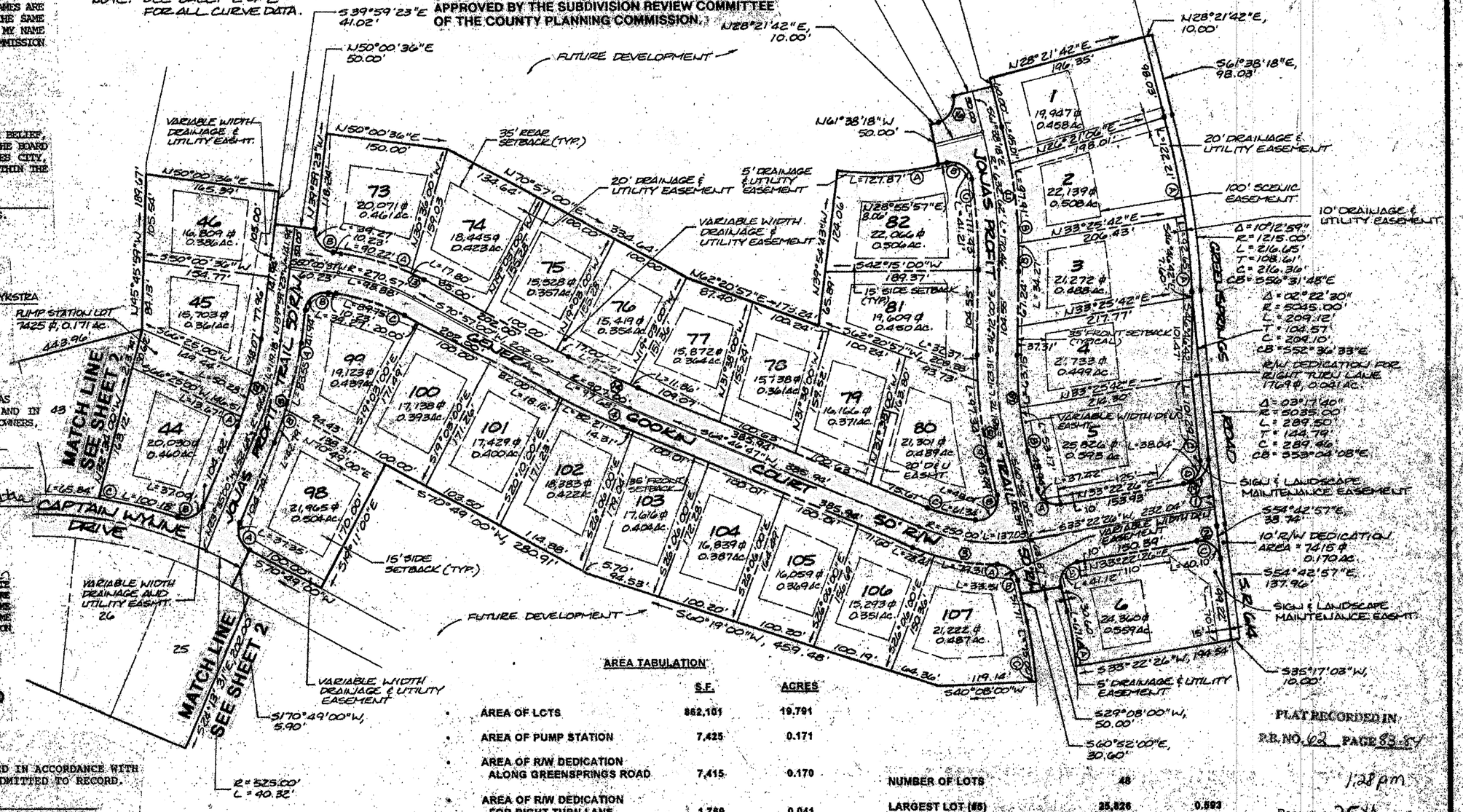
NOTES:

1. SITE IS NOTED AS JAMES CITY COUNTY TAX PARCEL (46-3)(1-1A) AND A PORTION OF (46-3)(1-1C).
2. SITE IS ZONED R-1 LIMITED RESIDENTIAL.
3. ALL LOTS ARE TO BE SERVED BY PUBLIC WATER AND SEWER.
4. ALL UTILITIES ARE TO BE PLACED UNDERGROUND.
5. BUILDING SETBACK REQUIREMENTS:
   - FRONT: 35'
   - SIDE: 15'
   - REAR: 35'
6. MINIMUM LOT WIDTH
   - LOTS UP TO 43,560 S.F. - 100' WIDE AT SETBACK
   - LOTS OVER 43,560 S.F. - 150' WIDE AT SETBACK
7. MINIMUM LOT SIZE - 15,000 S.F.
8. EXISTING TREES AND VEGETATION WITHIN THE 100' SCENIC EASEMENT SHALL REMAIN IN THEIR NATURAL STATE. HOWEVER, THE OWNER SHALL HAVE THE RIGHT TO INSTALL AND CONSTRUCT THRU SAID SCENIC EASEMENT SUCH ROAD, DRIVEWAYS, UTILITIES AND ENTRANCE SIGNS, AS MAY BE NECESSARY, IN ACCORDANCE WITH THE PROFFERS AND APPROVED BY THE SUBDIVISION REVIEW COMMITTEE OF THE COUNTY PLANNING COMMISSION.



LOCATION MAP SCALE: 1"=2000'

NOTE: SEE SHEET 2 OF 2 FOR ALL CURVE DATA.



AREA TABULATION

	S.F.	ACRES
• AREA OF LOTS	862,101	19.791
• AREA OF PUMP STATION	7,425	0.171
• AREA OF R/W DEDICATION ALONG GREENSPRINGS ROAD	7,415	0.170
• AREA OF R/W DEDICATION FOR RIGHT TURN LANE	1,769	0.041
• AREA OF R/W DEDICATION FOR PUBLIC STREET PURPOSES	187,067	4.294
TOTAL AREA SUBDIVIDED	1,065,777	24.467

NUMBER OF LOTS	48	
LARGEST LOT (#5)	25,826	0.593
SMALLEST LOTS (#37 & 38)	15,000	0.344
AVERAGE LOT SIZE	17,950	0.412
LOT YIELD PER GROSS ACRE	1.96 LOTS/GROSS ACRE	

PLAT RECORDED IN P.B. NO. 62 PAGE 83-84

1:28 pm

Recorded 25th day of September 1995 in D.B. No. 765 page 713

Melvie D. Barnes Clerk

CONSULTING ENGINEERS

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994

PLAT OF SUBDIVISION

FERNBROOK
PHASE I
LOTS 1-6, 25-46, 73-82, & 98-107
OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C. AND STANLEY J. & PATRICIA W. DYKSTRA
JAMES CITY COUNTY — JAMESTOWN DISTRICT — VIRGINIA

COMMONWEALTH OF VIRGINIA 8-4-95 G. T. WILSON, JR. CERTIFICATE No. 1183 CERTIFIED LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY

Designed GAM	Drawn RMJ
Scale 1"=100'	Date JULY 31, 1995
Project No. 6877	
Drawing No. 1 of 2	

BOOK 62 PAGE 84

LOT CURVE DATA

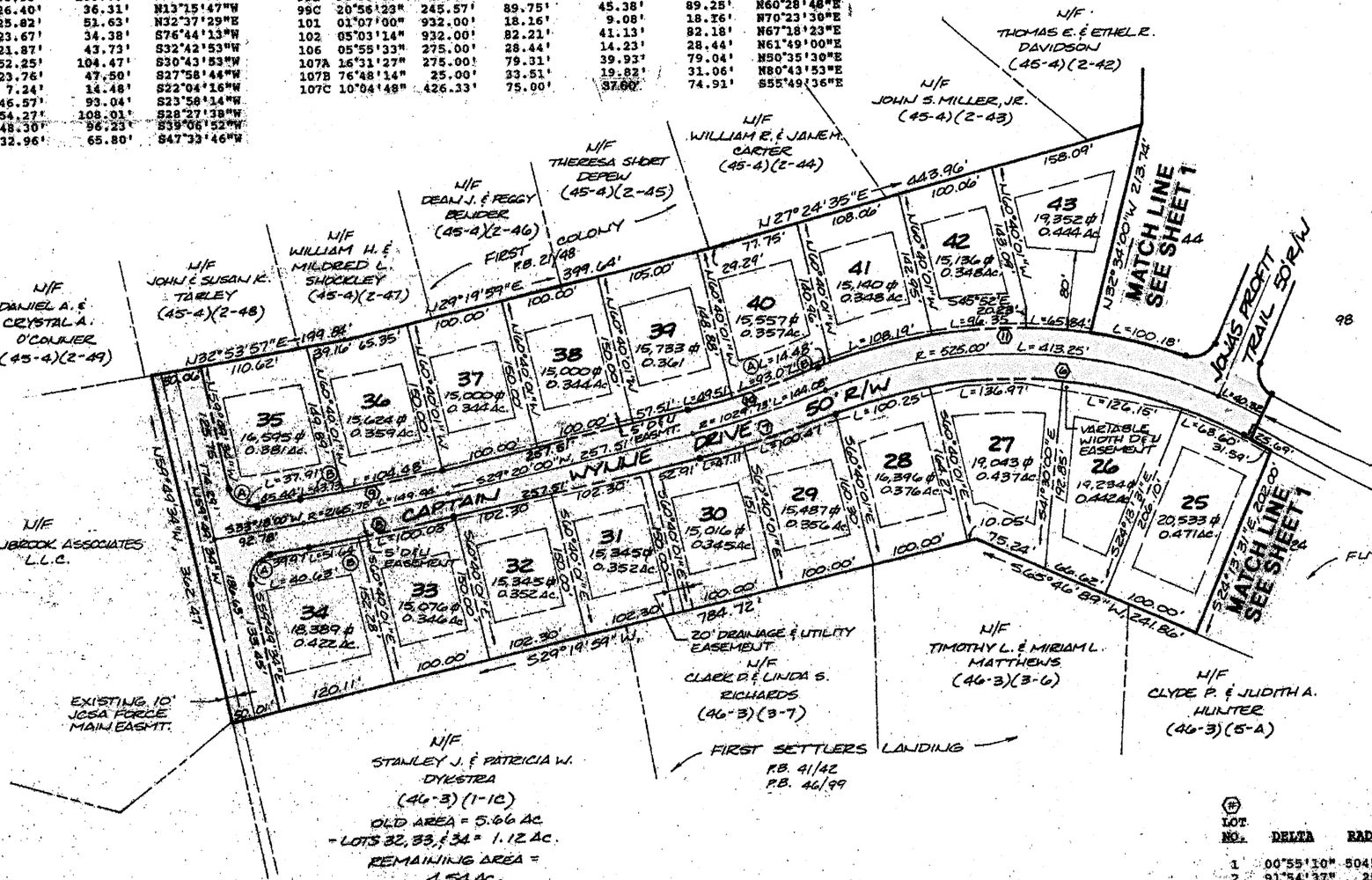
LOT NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
1	03°55'17"	657.62'	45.01'	22.51'	45.00'	N59°40'27"W
2A	05°48'40"	1205.00'	122.21'	61.16'	122.16'	S58°43'57"E
2B	08°31'51"	657.62'	97.91'	49.05'	97.82'	N53°27'05"W
3A	04°24'20"	1205.00'	92.65'	46.35'	92.63'	S53°37'29"E
3B	02°59'10"	657.62'	34.27'	17.14'	34.27'	N47°41'53"W
4	07°59'49"	456.72'	63.75'	31.92'	63.69'	N50°11'46"W
5A	85°45'34"	25.00'	37.42'	23.22'	34.02'	S76°15'13"W
5B	06°40'11"	456.72'	53.17'	26.61'	53.14'	N57°32'05"W
5C	01°08'53"	5055.00'	101.29'	50.65'	101.29'	S53°13'42"E
5D	87°10'34"	25.00'	38.04'	23.80'	34.47'	S10°12'51"E
6A	08°08'34"	476.33'	67.69'	33.90'	67.64'	N56°47'34"W
6B	94°14'26"	25.00'	41.12'	26.92'	36.64'	N13°44'47"W
6C	91°54'37"	25.00'	40.10'	25.85'	35.94'	N79°19'44"E
25	07°51'40"	500.00'	68.60'	34.36'	68.55'	N66°53'10"E
26	14°27'20"	500.00'	126.15'	63.41'	125.81'	N55°43'40"E
27	15°41'45"	500.00'	136.97'	68.92'	136.54'	N40°39'07"E
28	11°29'15"	500.00'	100.25'	50.29'	100.08'	N27°03'37"E
29	05°27'27"	1054.73'	100.47'	50.27'	100.43'	N24°02'44"E
30	02°33'33"	1054.73'	47.11'	23.56'	47.11'	N28°03'14"E
33	02°36'58"	2190.78'	100.03'	50.03'	100.03'	N30°38'29"E
34A	93°07'34"	25.00'	40.63'	26.40'	36.31'	N13°15'47"W
34B	01°21'02"	2190.78'	51.64'	25.82'	51.63'	N32°37'29"E
35A	86°52'26"	25.00'	37.91'	23.67'	34.38'	S76°44'13"W
35B	01°10'14"	2140.78'	43.73'	21.87'	43.73'	S32°42'53"W
36	02°47'46"	2140.78'	104.48'	52.25'	104.47'	S30°43'53"W
39	02°42'32"	1004.73'	47.50'	23.76'	47.50'	S27°58'44"W
40A	01°30'32"	550.00'	14.48'	7.24'	14.48'	S22°04'16"W
40B	05°18'28"	1004.73'	93.07'	46.57'	93.04'	S23°58'14"W
41	11°16'13"	550.00'	108.19'	54.27'	108.01'	S28°27'38"W
42	10°02'15"	550.00'	96.35'	48.30'	96.23'	S39°06'52"W
43	06°51'33"	550.00'	65.84'	32.96'	65.80'	S47°33'46"W
44A	02°00'06"	391.21'	13.67'	6.83'	13.67'	S24°35'03"E
44B	88°00'41"	25.00'	37.09'	22.91'	33.78'	S18°55'21"W
44C	10°26'09"	550.00'	100.18'	50.23'	100.04'	S56°12'37"W
45	07°02'25"	391.21'	48.07'	24.07'	48.04'	S36°28'11"E
73A	17°29'18"	295.57'	90.22'	45.46'	89.87'	S58°45'16"W
73B	90°00'00"	25.00'	39.27'	25.00'	35.36'	N84°59'23"W
74	03°27'05"	295.57'	17.80'	8.90'	17.80'	S69°13'28"W
76	05°23'59"	882.00'	83.12'	41.59'	83.09'	S68°15'00"W
77	00°46'14"	882.00'	11.86'	5.93'	11.86'	S65°09'54"W
80A	11°00'22"	506.72'	97.34'	48.82'	97.19'	S55°21'49"E
80B	110°01'30"	25.00'	48.01'	35.72'	40.96'	S05°51'15"E
80C	15°37'17"	225.00'	61.34'	30.86'	61.15'	S56°58'08"W
81	03°39'38"	506.72'	32.37'	16.19'	32.37'	S48°01'49"E
82A	21°43'35"	337.23'	127.88'	64.72'	127.11'	N39°13'30"E
82B	94°26'45"	25.00'	41.21'	27.02'	36.70'	N76°04'11"E
82C	10°30'26"	607.62'	111.43'	55.87'	111.27'	S51°27'13"E
98A	85°36'00"	25.00'	37.35'	23.15'	33.97'	N66°23'00"W
98B	05°33'24"	441.21'	42.79'	21.41'	42.77'	N26°21'42"W
99A	10°50'59"	441.21'	83.55'	41.90'	83.42'	N34°33'54"W
99B	90°00'00"	25.00'	39.27'	25.00'	35.36'	N05°00'37"E
99C	20°56'23"	245.57'	89.75'	45.38'	89.25'	N60°28'48"E
101	01°07'00"	932.00'	18.16'	9.08'	18.16'	N70°23'30"E
102	05°03'14"	932.00'	82.21'	41.13'	82.18'	N67°18'23"E
106	05°55'33"	275.00'	28.44'	14.23'	28.44'	N61°49'00"E
107A	16°31'27"	275.00'	79.31'	39.93'	79.04'	N50°35'30"E
107B	76°48'14"	25.00'	33.51'	19.82'	31.06'	N80°43'53"E
107C	10°04'48"	426.33'	75.00'	37.60'	74.91'	S55°49'36"E

PUMP STATION LOT

DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
07°21'51"	391.21'	50.28'	25.18'	50.24'	S29°16'02"E

RECORD MERIDIAN
PLAT BOOK 59, PAGE 18

100 0 100
SCALE IN FEET



R/W LOT CURVE DATA

LOT NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
1	00°55'10"	5045.00'	80.95'	40.48'	80.95'	S54°15'25"E
2	91°54'37"	25.00'	40.10'	25.85'	35.94'	S79°19'44"W
3	22°27'00"	275.00'	107.75'	54.58'	107.06'	S53°33'16"W
4	06°10'14"	932.00'	100.37'	50.23'	100.32'	S67°51'53"W
5	16°24'23"	441.21'	126.34'	63.60'	125.91'	S31°47'12"E
6	49°30'00"	500.00'	431.97'	230.50'	418.66'	S46°04'00"W
7	08°01'00"	1054.73'	147.58'	73.91'	147.45'	S25°19'30"W
8	03°58'00"	2190.78'	151.67'	75.87'	151.64'	S31°19'00"W
9	03°58'00"	2140.78'	148.21'	74.13'	148.18'	N31°19'00"E
10	08°01'00"	1004.73'	140.58'	70.40'	140.46'	N25°19'30"E
11	40°06'41"	550.00'	385.04'	200.79'	377.23'	N41°22'21"E
12	16°24'23"	391.21'	112.02'	56.40'	111.64'	N31°47'12"W
13	20°56'23"	295.57'	108.02'	54.62'	107.42'	N60°28'48"E
14	06°10'14"	882.00'	94.99'	47.54'	94.94'	N67°51'53"E
15	14°40'00"	506.72'	129.71'	65.21'	129.36'	N53°32'00"W
16	90°00'00"	25.00'	39.27'	25.00'	35.36'	N16°38'17"W
17	15°26'18"	657.62'	177.20'	89.14'	176.66'	S53°55'09"E
18	14°40'00"	456.72'	116.91'	58.78'	116.59'	S53°32'00"E
19	87°10'14"	25.00'	38.04'	23.79'	34.47'	S10°12'41"E

PLAT RECORDED IN
P.B. NO. 62 PAGE 83-84
1:28 p.m.
Recorded 29 day of September 1995
in D.B. No. 755 pages 713
Nelson S. Smith Clerk

NOTE: STREETS ARE HEREBY DEDICATED FOR PUBLIC USE

ES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994

PLAT OF SUBDIVISION

FERNBROOK

PHASE I

LOTS 1-6, 25-46, 73-82, & 98-107

OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C. AND STANLEY J. & PATRICIA W. DYKSTRA

JAMES CITY COUNTY / JAMESTOWN DISTRICT VIRGINIA

COMMONWEALTH OF VIRGINIA
8-4-95
G. T. WILSON, JR.
CERTIFICATE No. 1183
CERTIFIED LAND SURVEYOR

1:28 p.m.
Recorded 29th day of September 1995
D.B. No. 755 Page 713
Nelson S. Smith Clerk

No.	DATE	REVISION / COMMENT / NOTE	BY

Designed GAM	Drawn RMJ
Scale 1"=100'	Date JULY 31, 1995
Project No. 6877	
Drawing No. 2 of 2	

LOT CURVE DATA

NUMBER	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
7A	04°26'26"	476.33	37.19	18.61	37.19	S50°29'10"E
7B	00°31'24"	6192.88	56.58	28.29	56.58	S48°30'42"E
8	00°55'36"	6192.88	100.15	50.07	100.15	S49°14'12"E
9	00°57'00"	6192.88	102.68	51.34	102.68	S50°10'30"E
10A	00°23'50"	6192.88	42.95	21.47	42.95	S50°50'55"E
10B	45°17'41"	60.00	47.43	25.03	46.21	S73°41'41"E
10C	17°26'22"	60.00	18.26	9.20	18.19	S87°37'20"E
10D	01°26'24"	3725.00	93.62	46.81	93.62	S54°29'25"E
11A	68°52'09"	60.00	72.12	41.14	67.86	S44°28'05"E
11B	01°32'22"	3725.00	100.09	50.05	100.08	S53°00'01"E
12A	39°38'19"	60.00	41.51	21.62	40.69	S09°47'09"W
12B	04°15'05"	3725.00	276.40	138.26	276.33	S50°06'16"E
13	60°00'00"	60.00	62.83	34.64	60.00	S59°36'16"W
14A	83°51'04"	60.00	87.81	53.88	80.18	N48°28'10"W
14B	24°05'46"	60.00	25.23	12.81	25.05	N18°35'30"W
15A	20°25'05"	60.00	21.38	10.81	21.27	N40°50'56"W
15B	00°44'03"	6242.88	80.01	40.00	80.01	N50°41'27"W
15C	89°32'34"	25.00	39.07	24.80	35.21	S84°54'17"W
15D	09°04'00"	586.87	92.87	46.53	92.77	S44°40'00"W
16	09°13'00"	586.87	94.40	47.30	94.30	S53°48'30"W
17	01°54'00"	586.87	19.46	9.73	19.46	S59°22'00"W
20	04°06'38"	1385.37	100.20	50.12	100.17	S62°23'19"W
21	04°08'13"	1385.37	100.03	50.04	100.01	S66°31'45"W
22	02°13'09"	1385.37	53.65	26.83	53.65	S69°42'26"W
90A	10°05'30"	536.87	94.56	47.40	94.44	N45°10'45"E
90B	89°32'35"	25.00	39.07	24.80	35.21	N04°38'17"W
90C	01°09'35"	6242.88	126.35	63.18	126.35	N48°49'47"W
90D	02°32'12"	426.33	18.88	9.44	18.87	N49°30'56"W
91	10°05'30"	536.87	94.56	47.40	94.44	N55°16'15"E
94	03°22'00"	1335.37	78.47	39.24	78.45	N62°00'00"E
95	05°07'17"	1335.37	119.36	59.72	119.32	N66°14'38"E
96	02°00'43"	1335.37	46.89	23.45	46.89	N69°48'38"E

RIGHT OF WAY CURVE DATA

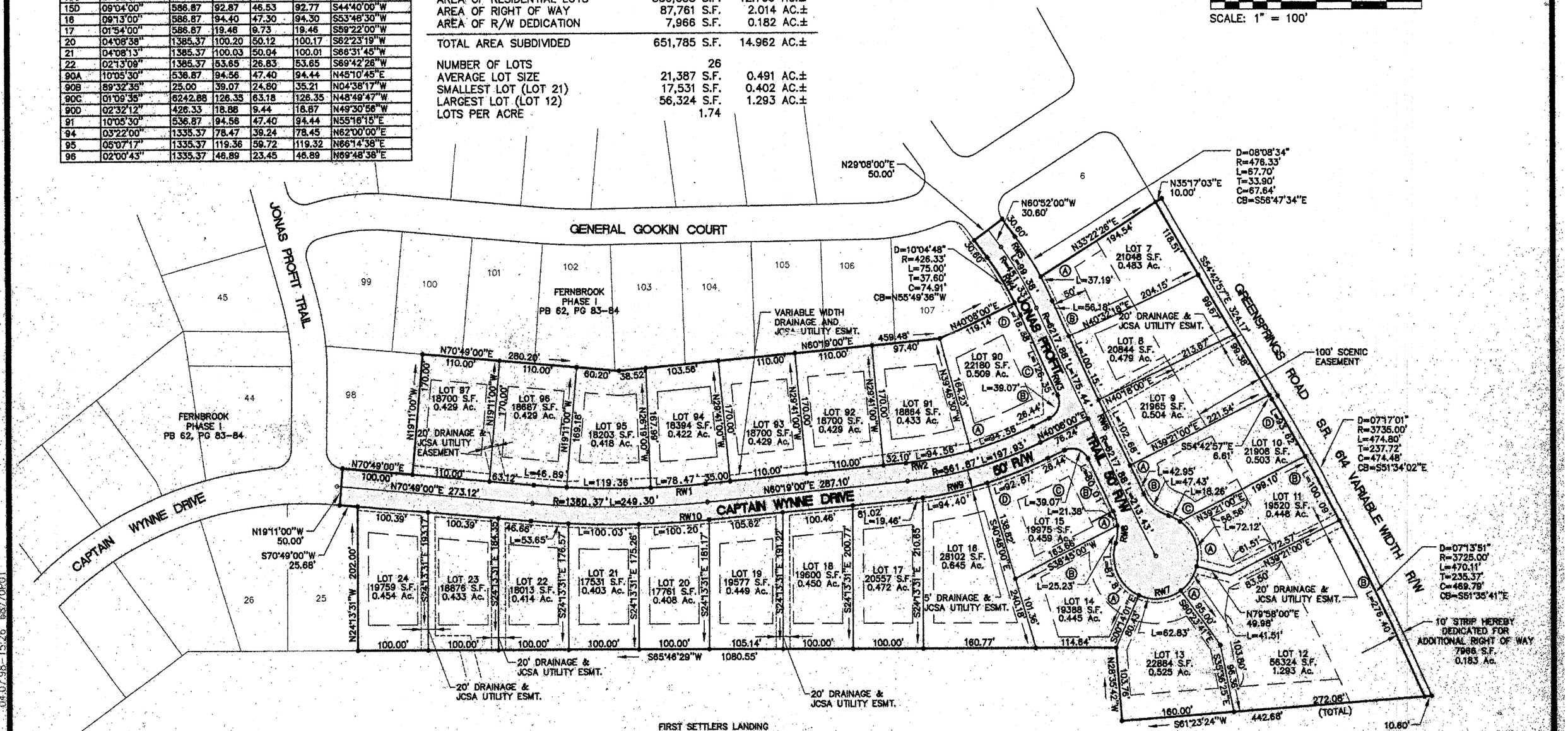
NUMBER	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CHORD BEARING
RW1	10°30'00"	1335.37	244.72	122.70	244.36	N65°34'00"E
RW2	20°11'00"	536.87	189.12	95.55	188.14	N50°13'30"E
RW3	01°09'35"	6242.88	126.35	63.18	126.35	N48°49'47"W
RW4	12°37'00"	426.33	93.88	47.13	93.69	N54°33'28"W
RW5	12°37'00"	476.33	104.89	52.66	104.68	S54°33'28"E
RW6	02°47'50"	6192.88	302.35	151.21	302.32	S49°38'55"E
RW7	269°47'54"	60.00	282.53	———	85.00	S38°33'25"W
RW8	44°30'51"	60.00	46.61	24.56	45.45	N28°48'03"W
RW9	20°11'00"	586.87	206.73	104.45	205.67	S50°13'30"W
RW10	10°30'00"	1385.37	253.88	127.30	253.53	S65°34'00"W

AREA TABULATION
FERNBROOK
PHASE II
LOTS 7–24, 90–97

AREA OF RESIDENTIAL LOTS	556,058	S.F.	12.766 AC.±
AREA OF RIGHT OF WAY	87,761	S.F.	2.014 AC.±
AREA OF R/W DEDICATION	7,966	S.F.	0.182 AC.±
TOTAL AREA SUBDIVIDED	651,785	S.F.	14.962 AC.±
NUMBER OF LOTS	26		
AVERAGE LOT SIZE	21,387	S.F.	0.491 AC.±
SMALLEST LOT (LOT 21)	17,531	S.F.	0.402 AC.±
LARGEST LOT (LOT 12)	56,324	S.F.	1.293 AC.±
LOTS PER ACRE	1.74		

RECORD MERIDIAN
PLAT BOOK 62, PAGE 83-84

GRAPHIC SCALE
100' 0' 100' 200'
SCALE: 1" = 100'



RECORDED IN P.B. NO. 69 PAGE 10 & 11

04.07.98-15:26 68770P01 KEG

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION
FERNBROOK
PHASE II
LOTS 7 - 24, AND LOTS 90 - 97

OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C.

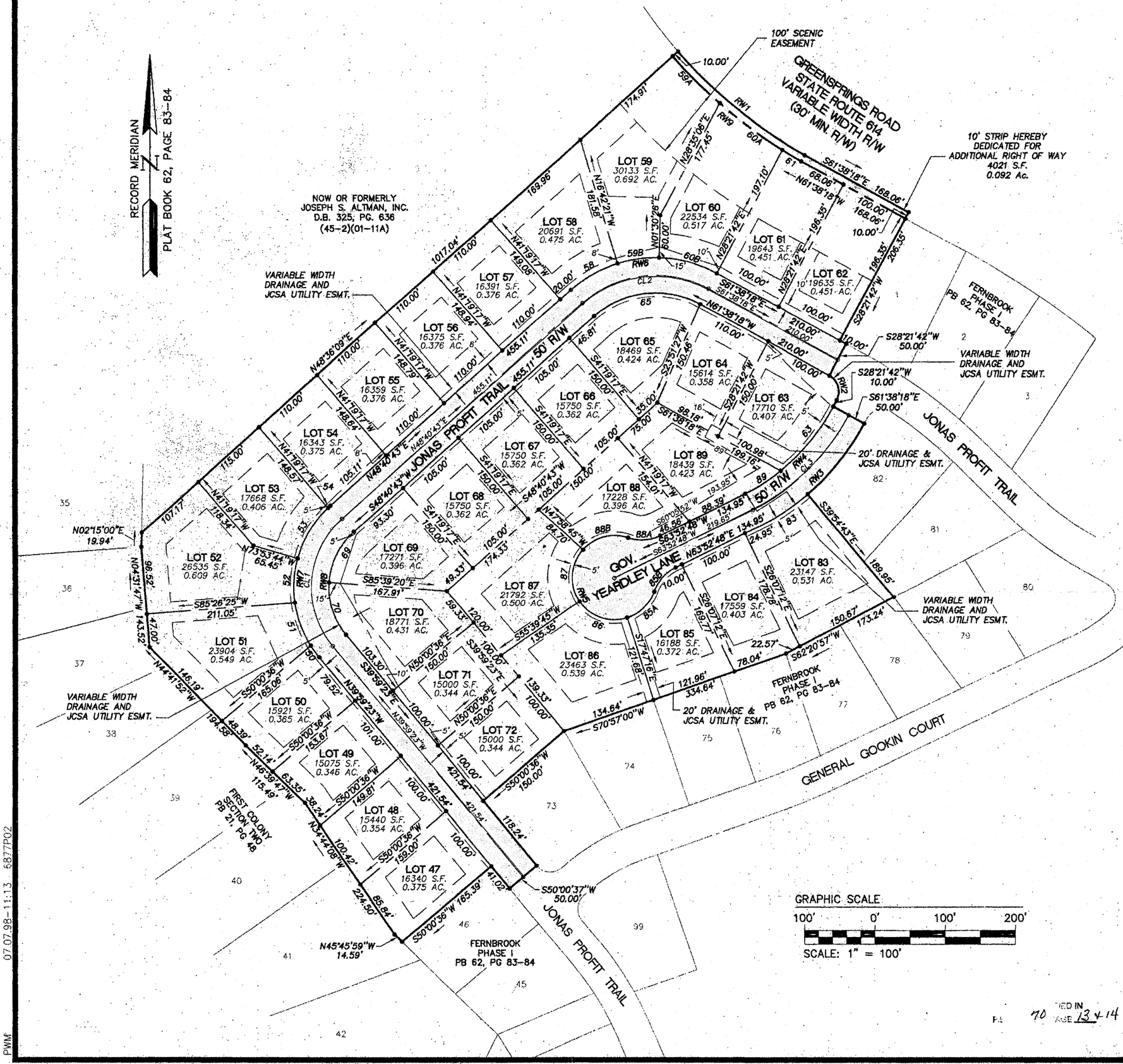
JAMES CITY COUNTY JAMESTOWN DISTRICT VIRGINIA

COMMONWEALTH OF VIRGINIA
3-27-98
RONALD W. EADS
NO. 001948
LAND SURVEYOR

Recorded 8th day of April 1998
DOCUMENT # 980012205
Teste: Beverly M. Nicholas, Clerk

No.	DATE	REVISION / COMMENT / NOTE	BY
1	4/7/98	REVISED PER COUNTY COMMENTS	RWE

Designed GAM	Drawn KEG
Scale 1"=100'	Date 3/27/98
Project No. 6877-2	
Drawing No. 2 OF 2	



RIGHT OF WAY CURVE DATA

NUMBER	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
RW1	665.00	20°00'38"	232.25	117.32	231.07	S51°37'59"E
RW2	25.00	90°00'00"	39.27	25.00	35.36	S16°38'18"E
RW3	337.23	35°31'05"	209.05	108.01	205.72	N46°07'15"E
RW4	287.23	35°31'05"	178.06	91.99	175.22	S46°07'15"W
RW5	60.00	269°48'04"	282.54	60.21	85.00	S26°07'12"E
RW6	183.02	69°40'59"	222.59	127.40	209.13	N83°31'13"E
RW7	155.00	88°40'06"	239.87	151.44	216.64	N04°20'40"E
RW8	105.00	88°40'06"	162.49	102.59	146.76	N04°20'40"E
RW9	675.00	20°00'51"	235.78	119.11	234.59	N51°37'53"W

LOT CURVE DATA

LOT NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
50	155.00	07°35'35"	20.54	10.29	20.53	N36°11'36"W
51	155.00	24°23'51"	66.00	33.51	65.50	N20°11'52"W
52	155.00	23°34'37"	63.78	32.35	63.33	N03°47'22"E
53	155.00	31°17'41"	84.66	43.41	83.61	N31°13'31"E
54	155.00	01°48'22"	4.89	2.44	4.89	N47°46'32"E
58	183.02	23°57'38"	76.54	38.84	75.98	N60°39'32"E
59A	675.00	07°57'14"	93.70	46.93	93.63	N45°36'04"W
59B	183.02	18°52'05"	60.27	30.41	60.00	N82°04'24"E
60A	675.00	09°20'52"	110.12	55.18	110.00	N54°15'07"W
60B	183.02	26°51'16"	85.78	43.69	85.00	S75°03'56"E
61	675.00	02°42'45"	31.96	15.98	31.95	N60°16'55"W
63	287.23	23°36'06"	118.32	60.01	117.48	S40°09'45"W
65	133.02	69°40'59"	161.78	92.60	152.00	S83°31'13"W
69	105.00	44°20'03"	81.25	42.78	79.23	S26°30'41"W
70	105.00	44°20'03"	81.25	42.78	79.23	S17°49'22"E
83	337.23	13°47'30"	81.17	40.78	80.98	N56°59'02"E
85A	60.00	53°13'59"	55.75	30.07	53.76	N45°35'45"E
85B	60.00	44°54'02"	47.02	24.79	45.83	N41°25'47"E
86	60.00	73°27'01"	76.92	44.76	71.76	S71°03'45"E
87	60.00	76°21'30"	79.96	47.18	74.17	S03°50'30"W
88A	60.00	44°54'02"	47.02	24.79	45.83	S86°19'49"W
88B	60.00	66°45'35"	69.91	39.53	66.02	S75°24'02"W
89	287.23	11°54'59"	59.74	29.98	59.63	S57°55'18"W

CENTERLINE CURVE DATA

NUMBER	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
CL1	130.00	88°40'06"	201.18	127.01	181.70	N04°20'40"E
CL2	158.02	69°40'59"	192.19	110.00	180.56	N83°31'13"E
CL3	312.23	35°31'05"	193.55	100.00	190.47	S46°07'15"W

AREA TABULATION
FERNBROOK
PHASE III
LOTS 47-72, 83-89

AREA OF RESIDENTIAL LOTS	611,888 S.F.	14.047 AC.±
AREA OF RIGHT OF WAY	103,281 S.F.	2.371 AC.±
AREA OF R/W DEDICATION	4,021 S.F.	0.092 AC.±
TOTAL AREA SUBDIVIDED	719,190 S.F.	16.510 AC.±
NUMBER OF LOTS	33	
AVERAGE LOT SIZE	18,542 S.F.	0.426 AC.±
SMALLEST LOT (LOT 71)	15,000 S.F.	0.344 AC.±
LARGEST LOT (LOT 59)	30,133 S.F.	0.692 AC.±
LOTS PER ACRE	2.00	

RECORDED IN PLAT BOOK 70 PAGE 13 & 14

07.07.98-11:13 6877P02 PWM

CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

PLAT OF SUBDIVISION
FERNBROOK
PHASE III
LOTS 47-72, AND LOTS 83-89

OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C.

JAMES CITY COUNTY JAMESTOWN DISTRICT VIRGINIA

COMMONWEALTH OF VIRGINIA
7-8-98
RONALD W. EADS
NO. 001948
LAND SURVEYOR

10:55 AM Recorded 21 day of July 1998
DOCUMENT # 980015825
Clerk

No.	DATE	REVISION / COMMENT / NOTE	BY

Designed	Drawn
GAM	PWM
Scale	Date
1"=100'	7/2/98
Project No.	
6877-4	
Drawing No.	
2 OF 2	

6. Design Calculations

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

RTE _____ PROJ FURNBROOK DATE 4-22-94

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Sa(FT/FT)=Sx+SwEo	Lt(FT)15 P EFFEC LENGTH FT L/Lt	d(FT)	E(#16)	h(FT)	Q; INTERC-EPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
CAPTAIN WYNNE	39A	3B	6		.79	.3	.24		3.5	.83		.83	.0274	.0208	2.9	2.0	.69	.0833	4	1.0	3.5	.1458	.1666	6.5	.93	.99	.82		.01	TO 39
	39	3C	10	27+60RT	.2	.3	.06			.21		.21	.001		3.6		.56			.95			.1593							
	39	3C	10	27+60RT	.51	.3	.15			.54	.01	.55	.001		7.0		.18			.52			.0966							
				TOTAL	.71					.75		.76	.001											13.6	.10	.29	.39	4.8<7		
	31A	3B	6		.90	.3	.27			.95		.95	.003		7.0		.28			.74			.1287	4.6	1.3	1.0	.95	-0-		
	31B	3B	6		.30	.3	.09			.32		.32	.009		2.8		.71			1.0			.1666	6.5	.92	.99	.32	-0-		
	31	3CC	10	10+49LT	.35	.3	.11			.37		.37	.001		5.5															
	31	3CC	10	10+49LT	.35	.3	.11			.37		.37	.001		5.5															
				TOTAL	.70					.74		.74	.001											13.6	.10	.29	.39	4.8<7		
	32A	2B	4		.80	.3	.24			.84		.84	.003		6.5		.31			.88			.1491	3.7	1.1	1.0	.84	-0-		
	32	3C	6	10+49RT	.2	.3	.06			.21		.21	.001		3.6															
	32	3C	6	10+49RT	.4	.3	.12			.42		.42	.001		6.0															
				TOTAL	.6					.63		.63	.001											9.6	.10	.29	.34	4.8<7		
JONAS PROFFIT	6C	3B	4		.6	.3	.18			.63		.63	.0039		5.6		.36			.85			.1497	3.4	1.2	1.0	.63	-0-		
	6D	3B	4		.5	.3	.15			.53		.53	.0088		5.0		.40			.89			.1514	3.2	1.2	1.0	.53	-0-		
	6	3C	10	29+88LT	.5	.3	.15			.53		.53	.001		7.0															
	6	3C	10	29+88LT	.4	.3	.12			.42		.42	.001		6.0															
				TOTAL	.9					.95		.95	.001											13.6	.10	.29	.34	4.8<8.5		

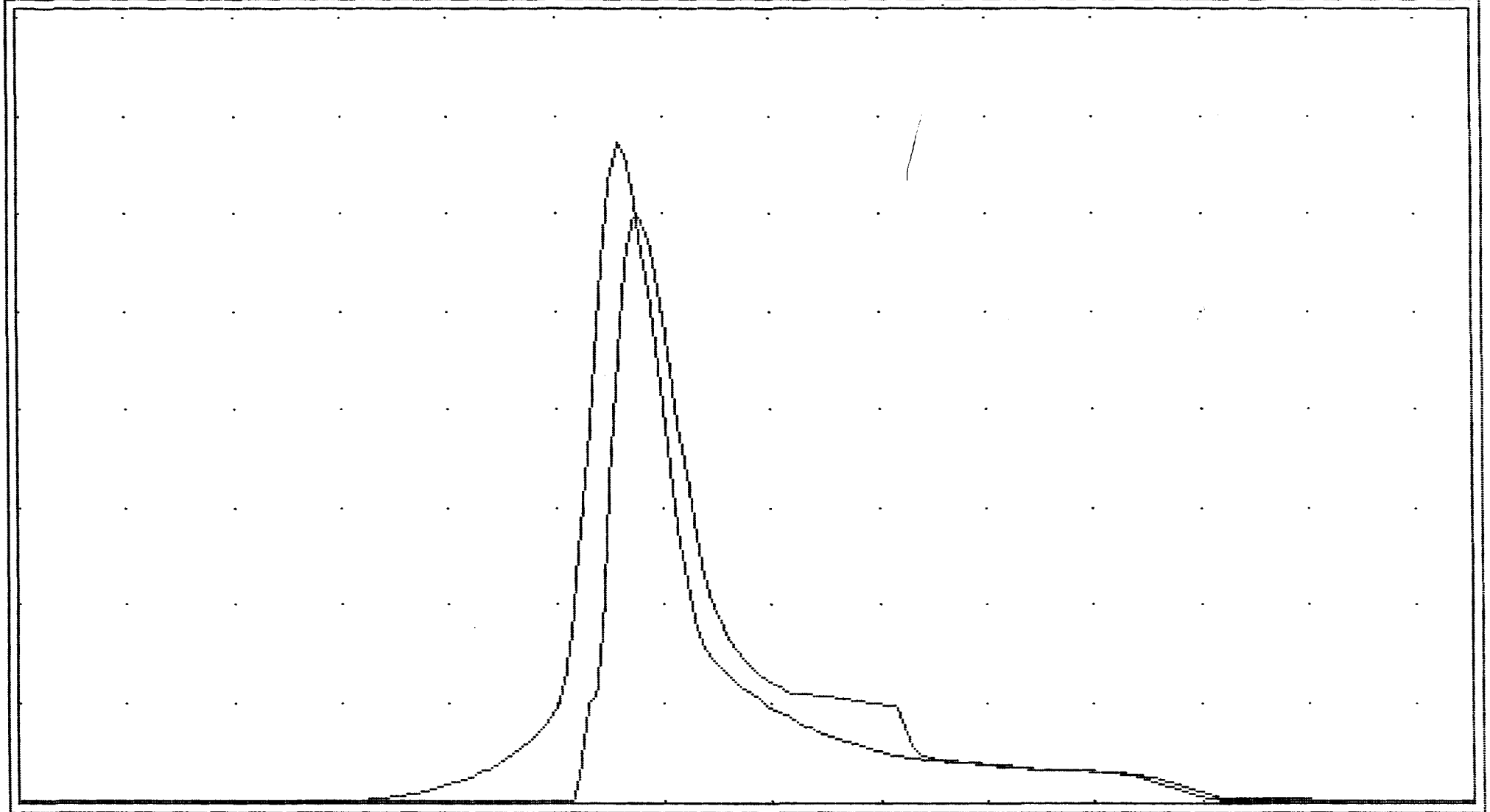
STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

RTE _____ PROJ FURNBROOK DATE 4-22-94

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx + SwEo	LI(FT)15 P EFFEC LENGTH FT L/Lt	d(FT)	E(#16)	h(FT)	Qi INTERC-EPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
GEN'L GOOKIN																														
	12A	3C	6	12+68 LT	.6	.3	.18		3.5	.63		.63	.001	.0208	7.5	2.0		.0833	4		3.5	.1458								
	12A	3C	6	12+68 LT	.6	.3	.18			.63		.63	.001		7.5															
				TOTAL	1.2					1.26		1.26	.001											9.6	.12	.29	.41	5.8<8.5		
	16B	3B	9		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1146	6.5	.93	.99	.52	.01	TO 16	
	16A	3B	6		.5	.3	.15			.53		.53	.0099		3.2		.63			1.0			.1506	3.1	1.3	1.0	.53	-0-		
	16	3C	10	17+24 RT	.3	.3	.09			.32		.32	.001		5.0															
	16	3C	10	17+24 RT	.4	.3	.12			.42	.01	.43	.001		6.0															
				TOTAL	.7					.74		.75	.001											13.6	.10	.29	.34	4.8<8.5		
	17C	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1506	3.1	1.3	1.0	.53	-0-		
	17	4CC	10	17+24 LT	.8	.3	.24			.84		.84	.001		8.5															
	17	4CC	10	17+24 LT	.7	.3	.21			.74		.74	.001		8.0															
				TOTAL	1.5					1.58		1.58	.001											13.6	.11	.29	.38	5.3<8.5		
	11A	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1506	3.2	1.2	1.0	.53	-0-		
	11	3CC	10	14+90 RT	.5	.3	.15			.53		.53	.001		7.0															
	11	3CC	10	14+90 RT	.5	.3	.15			.53		.53	.001		7.0															
				TOTAL						1.06		1.06	.001											13.6	.10	.29	.34	4.8<8.5		

Qp = 118.9 RESERVOIR ROUTE 25 Yr



HGU = 140 min 12 VGU = 20.0 cfs

MAX STORAGE = 350502

MAX ELEVATION = 21.93

FERNBROOK

DRY POND

Code 5/5/94

CREST OF RISER = 14.75'

CREST OF DAM = 26.0'

ELEV OF EMERGENCY SPILLWAY = 18.0'

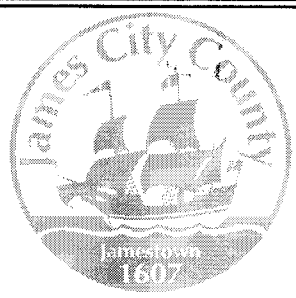
SEDIMENT BASIN STORAGE

REQ'D = (134 c.y)(27 c.f/c.y)(89 AC)

= 322,002 C.F REQ'D

MAX STORAGE OF POND = 350,502 c.f.

PROVIDED >> REQ'D.



James City County, Virginia
Environmental Division

FERNBROOK SUBDIVISION
DRY DETENTION POND BMP # 1

Record Hydrology and Hydraulics

D. COOK

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

RTE _____ PROJ FURNBROOK DATE 4-22-94

INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx + SwEo	LT(FT)15 P EFFEC LENGTH FT L/LT	d(FT)	E(#16)	h(FT)	Q; INTERC-EPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	SHEET ___ OF ___ REMARKS
GEN'L GOOKIN																													
12A	3C	6	12+68 LT	.6	.3	.18		3.5	.63		.63	.001	.0208	7.5	2.0		.0833	4		3.5	.1458									
12A	3C	6	12+68 LT	.6	.3	.18			.63		.63	.001		7.5																
			TOTAL	1.2					1.26		1.26	.001											9.6	.12	.29	.41	5.8	<8.5		
16B	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1d06	6.5	.93	.99	.52	.01		TO 16
16A	3B	6		.5	.3	.15			.53		.53	.0099		3.2		.63			1.0			.1501	3.1	1.3	1.0	.53	-0-		
16	3C	10	17+24 RT	.3	.3	.09			.32		.32	.001		5.0															
16	3C	10	17+24 RT	.4	.3	.12			.42	.01	.43	.001		6.0															
			TOTAL	.7					.74		.75	.001											13.6	.10	.29	.34	4.8	<8.5		
17C	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1506	3.1	1.3	1.0	.53	-0-		
17	4CC	10	17+24 LT	.8	.3	.24			.84		.89	.001		8.5															
17	4CC	10	17+24 LT	.7	.3	.21			.74		.79	.001		8.0															
			TOTAL	1.5					1.58		1.58	.001											13.6	.11	.29	.38	5.3	<8.5		
11A	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1506	3.2	1.2	1.0	.53	-0-		
11	3CC	10	14+90 RT	.5	.3	.15			.53		.53	.001		7.0															
11	3CC	10	14+90 RT	.5	.3	.15			.53		.53	.001		7.0															
			TOTAL						1.06		1.06	.001											13.6	.10	.29	.34	4.8	<8.5		

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

RTE _____ PROJ FURNBROOK DATE 4-22-94

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	SX CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx+SwEo	LT(FT)15 P EPPEC LENGTH FT L/LT	d(FT)	E(#16)	h(FT)	Q; INTERC-EPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	SHEET ___ OF ___ REMARKS
CAPTAIN WYNNE	39A	3B	6		.79	.3	.24		3.5	.83		.83	.027	.0208	2.9	2.0	.69	.0833	4	1.0	3.5	.1458	.1666	6.5	.93	.99	.82	.01		TO 39
	39	3C	10	27+60RT	.2	.3	.06			.21		.21	.001		3.6		.56			.95			.1593							
	39	3C	10	27+60RT	.51	.3	.15			.54	.01	.55	.001		7.0		.18			.52			.0966							
				TOTAL	.71					.75		.76	.001											13.6	.10	.29	.34	4.8<7		
	31A	3B	6		.90	.3	.27			.95		.95	.003		7.0		.28			.74			.1287	4.6	1.3	1.0	.95	-0-		
	31B	3B	6		.30	.3	.09			.32		.32	.009		2.8		.71			1.0			.1666	6.5	.92	.99	.32	-0-		
	31	3CC	10	10+49LT	.35	.3	.11			.37		.37	.001		5.5															
	31	3CC	10	10+49LT	.35	.3	.11			.37		.37	.001		5.5															
				TOTAL	.70					.74		.74	.001											13.6	.10	.29	.34	4.8<7		
	32A	3B	4		.80	.3	.24			.84		.84	.003		6.5		.31			.88			.1491	3.7	1.1	1.0	.84	-0-		
	32	3C	6	10+49RT	.2	.3	.06			.21		.21	.001		3.6															
	32	3C	6	10+49RT	.4	.3	.12			.42		.42	.001		6.0															
				TOTAL	.6					.63		.63	.001											9.6	.10	.29	.34	4.8<7		
TONAS PROFFIT	6C	3B	4		.6	.3	.18			.63		.63	.0039		5.6		.36			.85			.1447	3.4	1.2	1.0	.63	-0-		
	6D	3B	4		.5	.3	.15			.53		.53	.0028		5.0		.90			.89			.1546	3.2	1.2	1.0	.53	-0-		
	6	3C	10	29+88LT	.5	.3	.15			.53		.53	.001		7.0															
	6	3C	10	29+88LT	.4	.3	.12			.42		.42	.001		6.0															
				TOTAL	.9					.95		.95	.001											13.6	.10	.29	.34	4.8<8.5		

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

RTE _____ PROJ FURN BROOK DATE 2-28-94

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	S_X CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx+SwEo	L_T(FT)15 P EFFEC LENGTH FT	L/L_T	d(FT)	E(#16)	h(FT)	Q; INTERCEPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
WYNNE SUMP	39	3C	10	27+60 RT	.2	.3	.06		3.5	.21		.21	.001	.0208	3.6	2.0	.56	.0833	4	.95	3.5	.1458	.1593								
	39	3C	10	27+60 LT	.51	.3	.15			.54	.01	.55	.001		7.0		.18			.52			.0916								
				TOTAL	.71					.75		.76	.001											13.6	.10	.29	.34	4.8' <7			
SUMP	31	3CC	10	10+49 LT	.35	.3	.11			.37		.37	.001		5.5																
	31	3CC	10	10+49 LT	.35	.3	.11			.37		.37	.001		5.5																
				TOTAL	.70					.74		.74	.001											13.6	.10	.29	.34	4.8' <7			
SUMP	32	3C	6	10+49 RT	.2	.3	.06			.21		.21	001		3.6																
	32	3C	6	10+49 RT	.4	.3	.12			.42		.42	001		6.0																
				TOTAL	.6					.63		.63	001											9.6	.10	.29	.34	4.8' <7			
GOOK SUMP	12A	2C	6	12+68 LT	.6	.3	.18			.62		.63	.001		7.5																
	12A	3C	6	12+68 LT	.6	.3	.18			.62		.63	001		7.5																
				TOTAL	1.2					1.26		1.26	.001											9.6	.12	.29	.41	5.8 <8.5			
SUMP	16	3C	10	17+24 RT	.3	.3	.09			.32		.32	.001		5.0																
	16	3C	10	17+24 RT	.4	.3	.12			.42	.01	.43	.001		6.0																
				TOTAL	.7					.79		.75	.001											13.6	.10	.29	.34	4.8 <8.5			
SUMP	17	4CC	10	17+24 LT	.8	.3	.24			.89		.89	.001		8.5																
	17	4CC	10	17+24 LT	.7	.3	.21			.74		.74	.001		8.0																
				TOTAL	1.5					1.58		1.58	.001											13.6	.11	.29	.38	5.3 <8.5			

SHEET 1 OF 2

4-74

STORM WATER INLET COMPUTATIONS

Form LD 204
Rev 6-85

RTE _____ PROJ FORN BROOK DATE 2-28-94

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx+SwEo	Lt(FT)15 P EFFEC LENGTH FT	L/Lt	d(FT)	E(#16)	h(FT)	Qi INTERC-EPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
SUMP	11	3CC	10	19+90 RT	.5	.3	.15		3.5	.53		.53	.001	.0208	7.0	2.0		.0833	4		3.5	.1458										
	11	3CC	10	19+90 RT	.5	.3	.15			.53		.53	.001		7.0																	
				TOTAL						1.06		1.06	.001											13.6	.10	.29	.34	4.8 < 7			
	6	3C	10	29+88 LT	.5	.3	.15			.53		.53	.001		7.0																	
	6	3C	10	29+88 LT	.4	.3	.12			.42		.42	.001		6.0																	
				TOTAL	.9					.95		.95	.001											13.6	.10	.29	.34	4.8 < 7			
GRADE ↓ 4-74	39A	3B	6	26+60	.79	.3	.24			.83		.83	.0274		2.9		.69			1.0			.1dda	6.5	.93	.99	.82	.01			
	31A	3B	6		.90	.3	.27			.95		.95	.0020		7.0		.28			.74			.1287	4.6	1.3	1.0	.95	-0-			
	31B	3B	6		.30	.3	.09			.32		.32	.0090		2.8		.71			1.0			.1dda	6.5	.92	.99	.32	-0-			
	32A	3B	4		.80	.3	.24			.84		.84	.0020		6.5		.31			.88			.1491	3.7	1.1	1.0	.84	-0-			
	16B	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1506	3.1	1.3	1.0	.53	-0-			
	16A	3B	6		.5	.3	.15			.53		.53	.0094		3.2		.63			1.0			.1dda	6.5	.93	.99	.52	.01			
	17C	3B	4		.5	.3	.15			.53		.53	.0032		5.0		.40			.89			.1506	3.1	1.3	1.0	.53	-0-			
	11A	3B	4		.5	.3	.15			.53		.53	.0038		5.0		.40			.89			.1506	3.2	1.2	1.0	.53	-0-			
	6C	3B	4		.6	.3	.18			.63		.63	.0034		5.6		.36			.85			.1447	3.4	1.2	1.0	.63	-0-			
	6D	3B	4		.5	.3	.15			.53		.53	.0039		5.0		.40			.89			.1506	3.2	1.2	1.0	.53	-0-			

SHEET 2 OF 2

See revisions dated 2/28/94

STORM WATER INLET COMPUTATIONS

$N = 0.015$ FULL FLOW $E = 1-(1-W/2)^{1.8}$

Form LD 204
Rev 6-85

RTE CAPTAIN WYNNE DR PROJ 6877 (FUKN BROOK) DATE 11/2/93 SHEET 1 OF 3

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	SX CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx+SwEo	LT(FT)15 P EFFEC LENGTH FT (GRADE / SUMP)	L/LT	d(FT)	E(#16)	h(FT)	Q; INTERCEPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
SUMP	41	4AA	4	31+43 RT	0.15	0.90	0.11		3.5	0.37		0.37	.001	.0208				.0833						7.6	0.12	0.29		0.41	5.6' < 7'		33=41
SUMP	40	4AA	4	31+43 LT	0.90	0.30	0.27		3.5	0.95		0.95	.001	.0208				.0833						7.6	0.195	0.29		0.59	7' ≤ 7'		33=40
~~GRADE~~	~~37A~~	~~3B~~	~~6~~	~~25+75 RT~~	~~1.00~~	~~0.30~~	~~0.30~~		~~3.5~~	~~1.05~~		~~1.05~~	.0030	.0208	~~7.6~~	~~2.0~~	~~0.76~~	~~.0833~~	~~4.0~~	~~0.70~~	~~3.5~~	~~.1456~~	~~.1229~~	~~4.69~~	~~1.28~~	~~100%~~	~~1.05~~	~~Q_A=0.00~~		~~33=37A~~
SUMP	39	3C	10	27+60 RT	1.50	0.30	0.45		3.5	1.58		1.58	.001	.0208				.0833						13.6	0.135	0.29		0.97	6.5'<7'		33=39
~~GRADE~~	~~37~~	~~4BB~~	~~6~~	~~25+75 LT~~	~~0.70~~	~~0.30~~	~~0.21~~		~~3.5~~	~~0.74~~		~~0.74~~	~~.003~~	~~.0208~~	~~6.5~~	~~2.0~~	~~0.37~~	~~.0833~~	~~4.0~~	~~0.78~~	~~3.5~~	~~.1456~~	~~.1385~~	~~3.68~~	~~1.37~~	~~100%~~	~~0.74~~	~~Q_A=0.00~~		~~33=37~~
GRADE	38A	4BB	6	27+36 LT	1.07	0.30	032		3.5	1.12		1.12	.0274	.0208	4.5	2.0	0.44	.0833	4.0	0.89	3.5	.1456	.1506	5.31	1.13	100%	0.39	Q_A=0.00		33=38A
SUMP	38	4AA	4	27+60 LT	0.43	0.30	0.13		3.5	0.45	0.00	0.95	.001	.0208				.0833						7.6	0.12	0.29		0.41	5.8'<7'		33=38
GRADE	28	4BB	6	21+42 LT	0.20	0.30	0.06		3.5	0.21		0.21	.0120	.0208	1.55	2.0	1.29	.0833	4.0	1.00	3.5	.1456	.1666	3.01	1.99	100%	0.21	Q_A=0.00		33=28
SUMP	35	4CC	8	18+57 LT	1.30	0.30	0.39		3.5	1.37	0.00	1.37	.001	.0208				.0833						11.6	0.14	0.29		0.48	6.7'<8.5'		33=35
SUMP	36	3C	6	18+57 RT	1.30	0.30	0.39		3.5	1.37		1.37	.001	.0208				.0833						9.6	0.155	0.29		0.53	7.5'<8.5'		33=36
SUMP	33	4CC	8	14+55 LT	0.93	0.30	0.28		3.5	0.96		0.98	.001	.0208				.0833						11.6	0.115	0.29		0.90	5.5'<8.5'		33=33
SUMP	34	3C	6	14+55 RT	1.40	0.30	0.42		3.5	1.47		1.47	.001	.0208				.0833						9.6	0.17	0.29		0.59	8.2'<8.5'		33=34
GRADE	33C	3BB	4	11+65 LT	0.40	0.30	0.12		3.5	0.42		0.42	.0040	.0208	4.3	2.0	0.47	.0833	4.0	0.92	3.5	.1456	.1549	3.03	1.98	100%	0.42	Q_A=00.00		33=33C
SUMP	31	3CC	10	10+49 LT	1.90	0.30	0.57		3.5	2.00	0.00	2.00	.001	.0208				.0833						13.6	0.16	0.29		0.55	7.7'<8.5'		33=31
SUMP	32	3C	6	10+49 RT	1.40	0.30	0.42		3.5	1.47		1.47	.001	.0208				.0833						9.6	0.17	0.29		0.59	8.2'<8.5'		33=32
				JONAS ACOFIT TRAIL																											
GRADE	30A	3B	4	39+40 LT	1.00	0.30	0.30		3.5	1.05		1.05	.0030	.0208	7.7'	2.0	0.26	.0833	4.0	0.70	3.5	.1456	.1229	4.69	.8534	96.85%	1.02	Q_A=0.03		33=30A
SUMP	30	3CC	6	38+08 LT	1.00	0.30	0.30		3.5	1.05	0.03	1.08	.001	.0208				.0833						9.6	0.13	0.29		0.45	6.3'<8.5'		33=30
				GROUNDSPRINGS RAD																											
SUMP	30D	3C	8		1.00	0.30	0.30		3.5	1.05		1.05	.001	.0208				.0833						11.6	0.115	0.29		0.90	5.5'<8.5'		33=30D
SUMP	29	3C	8		1.10	0.30	0.33		3.5	1.16		1.16	.001	.0208				.0833						11.6	0.12	0.29		0.41	5.8'<8.5'		33=29

STORM WATER INLET COMPUTATIONS

$n = 0.015$ for RCP

$E = 1 - (1 - W/T)^{1.8}$

Form LD 204
Rev 6-85

RTE GENERAL GOOKIN COURT PROJ 6877 (FERN BROOK) DATE 11/2/93

SHEET 2 OF 3

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx + SwEo	LT(FT)15 P EFFEC LENGTH FT L/LT	d(FT)	E(#16)	h(FT)	Q; INTERCEPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	REMARKS
GRADE	4B	3B	4	10+38 LT	0.35	0.30	0.11		3.5	0.37		0.37	.0069	.0208	3.2	2.0	0.63	.0833	4.0	0.96	3.5	.1956	.1608	3.30	1.21	100%	0.37	Q_b=0.00		SS #4B
SUMP	5A	3A	2.5	11+90 LT	0.40	0.30	0.12		3.5	0.42	0.00	0.42	.001	.0208				.0833						6.1	0.135	0.29	0.47	6.5' < T0'		SS #5A
GRADE	4	3B	4	10+38 RT	1.00	0.30	0.30		3.5	1.05		1.05	.0069	.0208	6.5	2.0	0.81	.0833	4.0	0.78	3.5	.1956	.1345	5.70	0.70	88.68%	0.93	Q_b = 0.12'		SS #4
SUMP	5	3A	2.5	11+90 RT	0.70	0.30	0.21		3.5	0.74	0.12	0.86	.001	.0208				.0833						6.1	0.16	0.29	0.55	7.7' < 10'		SS #5
SUMP	12	3C	6	12+90 RT	1.00	0.30	0.30		3.5	1.05		1.05	.001	.0208				.0833						9.6	0.13	0.29	0.45	6.3' <		SS #12
GRADE	17A	3B	4	14+45 LT	0.30	0.30	0.09		3.5	0.32		0.32	.0037	.0208	3.6	2.0	0.56	.0833	4.0	0.94	3.5	.1958	.1579	2.61	1.53	100%	0.32	Q_b=0.00		SS #17A
SUMP	12A	3C	6	12+68 LT	1.20	0.30	0.36		3.5	1.26	0.00	1.26	.001	.0208				.0833						9.6	0.145	0.29	0.50	7' < 8.5'		SS #12A
GRADE	16B	3BB	6	19+70 RT	0.90	0.30	0.27		3.5	0.95		0.95	.0094	.0208	5.7	2.0	0.35	.0833	4.0	0.84	3.5	.1958	.1433	5.77	1.04	100%	0.95	Q_b=0.00		SS #16B
SUMP	16	3C	10	17+24 RT	1.70	0.30	0.51		3.5	1.79	0.00	1.79	.001	.0208				.0833						13.6	0.15	0.29	0.52	7.2' < 8.5		SS #16
GRADE	18	4BB	6	21+58 LT	0.90	0.30	0.12		3.5	0.42		0.42	.0094	.0208	3.2	2.0	0.63	.0833	4.0	0.98	3.5	.1958	.1637	3.78	1.59	100%	0.42	Q_b=0.00		SS #18
GRADE	18A	4BB	6	19+70 LT	0.50	0.30	0.15		3.5	0.53	0.00	0.53	.0094	.0208	3.9	2.0	0.51	.0833	4.0	0.93	3.5	.1958	.1564	4.29	1.40	100%	0.53	Q_b=0.00		SS #18A
SUMP	17	4CC	10	17+24 LT	2.00	0.30	0.60		3.5	2.10	0.00	2.10	.001	.0208				.0833						13.6	0.16	0.29	0.55	7.7' < 8.5		SS #17
				GOV. VERNON CT CROSS																										
GRADE	18C	3B	4	16+95 LT	0.90	0.30	0.27		3.5	0.95		0.95	.0038	.0208	7.3	2.0	0.27	.0833	4.0	0.72	3.5	.1958	.1258	4.76	.8809	96.34%	0.92	Q_b=0.03		SS #18C
SUMP	10	3C	6	14+90 LT	1.00	0.30	0.30		3.5	1.05	.03	1.08	.001	.0208				.0833						9.6	0.13	0.29	0.45	6.3' < 7'		SS #10
GRADE	11B	3BB	6	16+10 RT	1.30	0.30	0.39		3.5	1.37		1.37	.0038	.0208	8.0	2.0	0.25	.0833	4.0	0.68	3.5	.1958	.1199	5.71	1.05	100%	1.37	Q_b=0.00		SS #11B
SUMP	11	3CC	10	14+90 RT	1.50	0.30	0.45		3.5	1.58	0.00	1.58	.001	.0208				.0833						13.6	0.14	0.29	0.48	6.7' < 7'		SS #11
SUMP	7	3C	6	12+67 LT	0.80	0.30	0.24		3.5	0.84		0.84	.001	.0208				.0833						9.6	0.125	0.29	0.43	6.0' < 7'		SS #7
SUMP	9	3A	2.5	12+67 RT	0.40	0.30	0.12		3.5	0.42	0.01	0.42	.001	.0208				.0833						8.1	0.13	0.29	0.45	6.3' < 7'		SS #9
											↓																			
											SEE SH. 3		SS #9A																	

STORM WATER INLET COMPUTATIONS

$N = 0.015$ $\quad E = 1 - (1 - E_o)^{1.8}$

ROLL TOP

Form LD 204
Rev 6-85

RTE JONAS PROFIT TRAIL PROJ 6877 (FURN BROOK) DATE 11/2/93

	INLET NUMBER	INLET TYPE	INLET LENGTH (FT)	STATION	DRAINAGE AREA (AC)	C	CA	Σ CA	I IN/HR	Q INCR (CFS)	Q CARRY-OVER (CFS)	Q_T GUTTER FLOW	S GUTTER SLOPE (FT/FT)	Sx CROSS SLOPE (FT/FT)	T(SPREAD)	W(FT)	W/T	Sw(FT/FT)	Sw/Sx	Eo(#10)	a	Sw=a/(12W)	Se(FT/FT)=Sx + SwEo	Lt(FT)15 P EFFEC LENGTH FT L/Lt	d(FT)	E(#16)	h(FT)	Q; INTERCEPTED CFS d/h	Qb CARRY-OVER CFS	T SPREAD @ SAG FT	SHEET 3 OF 3 REMARKS
GRADE	8A	3B	4	26+10 LT	0.85	0.30	0.26		3.5	0.89		0.89	.0034	.0208	7.0	2.0	0.29	.0833	4.0	0.75	3.5	.1458	.1302	4.39	.9121	98.79%	0.88		$Q_b = 0.01$		55 = 8A
GRADE	8	3B	4	27+80 LT	0.65	0.30	0.20		3.5	0.68	0.01	0.69	.0034	.0208	6.1	2.0	0.33	.0833	4.0	0.81	3.5	.1458	.1389	3.79	1.06	100%	0.69		$Q_b = 0.00$		55 = 8
SUMP	6	3C	10	29+88 LT	2.00	0.80	0.60		3.5	2.10	0.00	2.10	.001	.0208				.0833						13.6	0.17	0.29	0.57	8.2' < 8.5'			55 = 6
																														Go to Sta. 2	55 = 9
GRADE	9A	3B	4	27+90 RT	0.80	0.30	0.24		3.5	0.84		0.84	.0034	.0208	6.9	2.0	0.29	.0833	4.0	0.75	3.5	.1458	.1302	4.28	.9395	99.26%	0.83		$Q_b = 0.01$		55 = 9A
SUMP	21	3C	6	22+25 LT	1.50	0.30	0.45		3.5	1.58		1.58	.001	.0208				.0853						9.6	0.17	0.29	0.59	8.2' < 8.5'			55 = 21
SUMP	22	3C	6	22+25 RT	1.00	0.30	0.30		3.5	1.05		1.05	.001	.0208				.0833						9.6	0.135	0.29	0.47	6.5' < 8.5'			55 = 22
GRADE	23	3B	4	19+75 RT	0.10	0.30	0.03		3.5	0.11		0.11	.0095	.0208	1.5	2.0	1.33	.0833	4.0	1.00	3.5	.1958	.1666	1.71	2.34	100%	0.11		$Q_b = 0.00$		55 = 23
SUMP	24	3CC	6	18+38 RT	0.90	0.30	0.27		3.5	0.95	0.00	0.95	.001	.0208				.0833						7.6	0.125	0.29	0.43	6' < 8.5'			55 = 24
GRADE	25A	3BB	4	16+55 LT	0.10	0.70	0.07		3.5	0.25		0.25	.0085	.0208	1.8	2.0	1.11	.0833	4.0	1.00	3.5	.1958	.1666	2.92	1.37	100%	0.25		$Q_b = 0.00$		55 = 25A
SUMP	25	3AA	2.5'	18+38 LT	0.30	0.70	0.21		3.5	0.74	0.00	0.74	.001	.0208				.0833						6.1	0.15	0.29	0.52	7.2' < 8.5'			55 = 25
SUMP	20	4AA	4	13+96 LT	0.30	0.30	0.09		3.5	0.32		0.32	.001	.0208				.0833						7.6	0.125	0.29	0.43	6' < 8.5'			55 = 20
SUMP	26	4AA	4	10+60 LT	0.30	0.70	0.21		3.5	0.74		0.74	.001	.0208				.0833						6.1	0.15	0.29	0.52	7.2' < 8.5'			55 = 26
SUMP	27	3A	2.5	10+60 RT	0.30	0.30	0.09		3.5	0.32		0.32	.001	.0208				.0833						6.1	0.13	0.29	0.45	6.3' < 8.5'			55 = 27

HYDROLOGIC REPORT

2 YR PRE-DEV.....
STORM .....
DRY POND.....

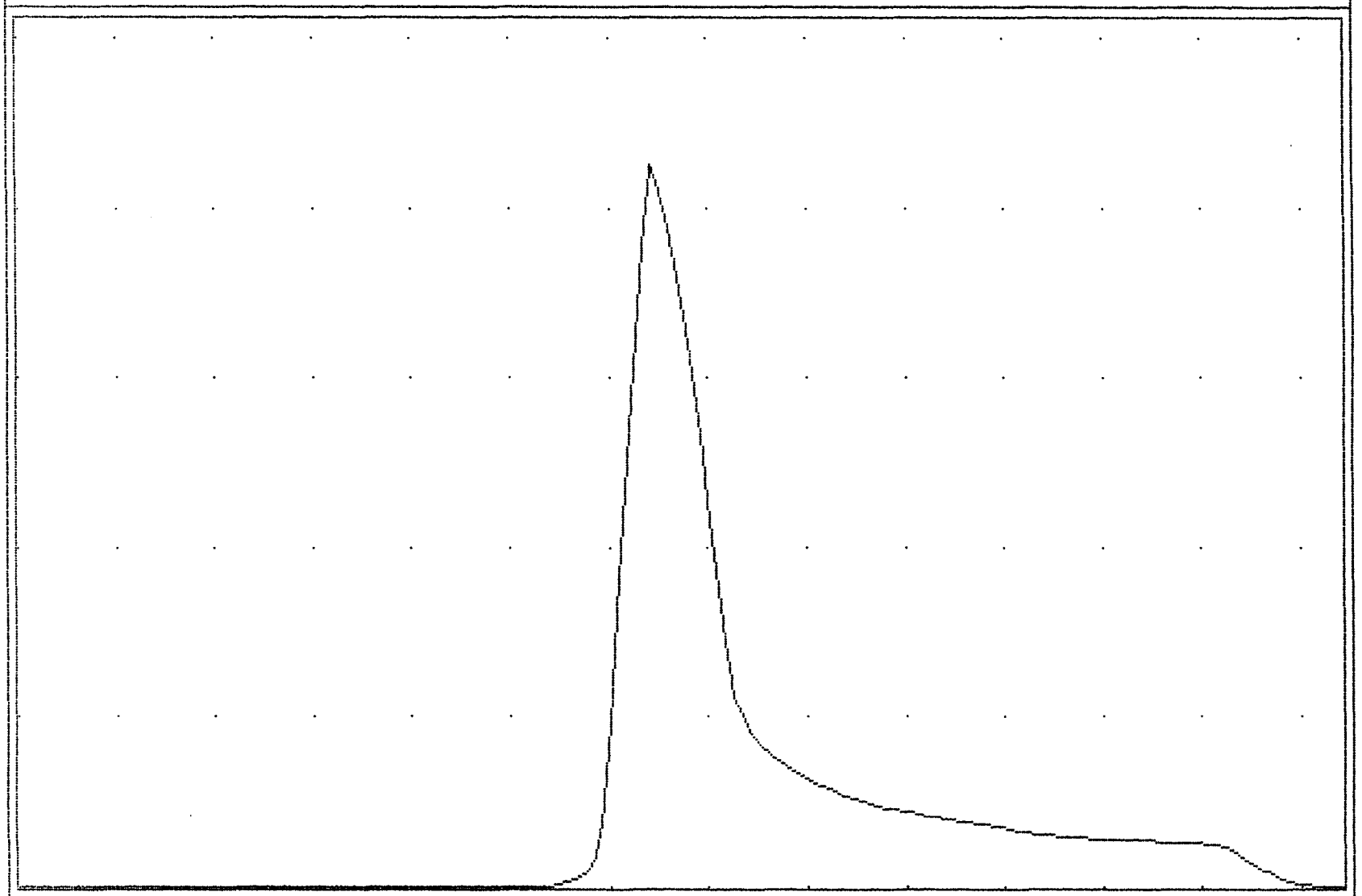
Hyd. No. 1

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 42.60 cfs
Storm frequency	= 2 yr	Time interval	= 10 min
Basin area	= 89.86 ac	Basin curve No.	= 75
Ave basin slope	= .85 %	Hydraulic len	= 3000 ft
Basin lag	= 57.8 min	Time of concen	= 96.58 min
Total precip.	= 3.50 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)	
11.50	0.79	11.67	1.52	11.83	3.95	12.00	10.03
12.17	16.72	12.33	23.83	12.50	31.17	12.67	38.13
12.83	42.60	13.00	41.41	13.17	39.37	13.33	36.68
13.50	33.55	13.67	30.10	13.83	26.39	14.00	22.46
14.17	18.37	14.33	14.34	14.50	11.17	14.67	10.07
14.83	9.23	15.00	8.59	15.17	8.08	15.33	7.65
15.50	7.28	15.67	6.96	15.83	6.67	16.00	6.41
16.17	6.17	16.33	5.95	16.50	5.73	16.67	5.53
16.83	5.35	17.00	5.17	17.17	5.02	17.33	4.88
17.50	4.76	17.67	4.65	17.83	4.54	18.00	4.45
18.17	4.36	18.33	4.27	18.50	4.19	18.67	4.11
18.83	4.03	19.00	3.95	19.17	3.86	19.33	3.78
19.50	3.70	19.67	3.61	19.83	3.53	20.00	3.44
20.17	3.36	20.33	3.27	20.50	3.19	20.67	3.12
20.83	3.05	21.00	2.99	21.17	2.94	21.33	2.90
21.50	2.86	21.67	2.83	21.83	2.80	22.00	2.78
22.17	2.76	22.33	2.74	22.50	2.72	22.67	2.71
22.83	2.69	23.00	2.68	23.17	2.66	23.33	2.65
23.50	2.63	23.67	2.61	23.83	2.60	24.00	2.58
24.17	2.51	24.33	2.39	24.50	2.23	24.67	2.01
24.83	1.74	25.00	1.42	25.17	1.13	25.33	0.88

Qp = 42.6 S.C.S. RUNOFF 2 Yr



HGU = 120 min 1 VGU = 10.0 cfs

VOL = (cuft/acft) = 424637 / 9.748

HYDROLOGIC REPORT

2 YR POST-DEV.....
STORM .....
DRY POND.....

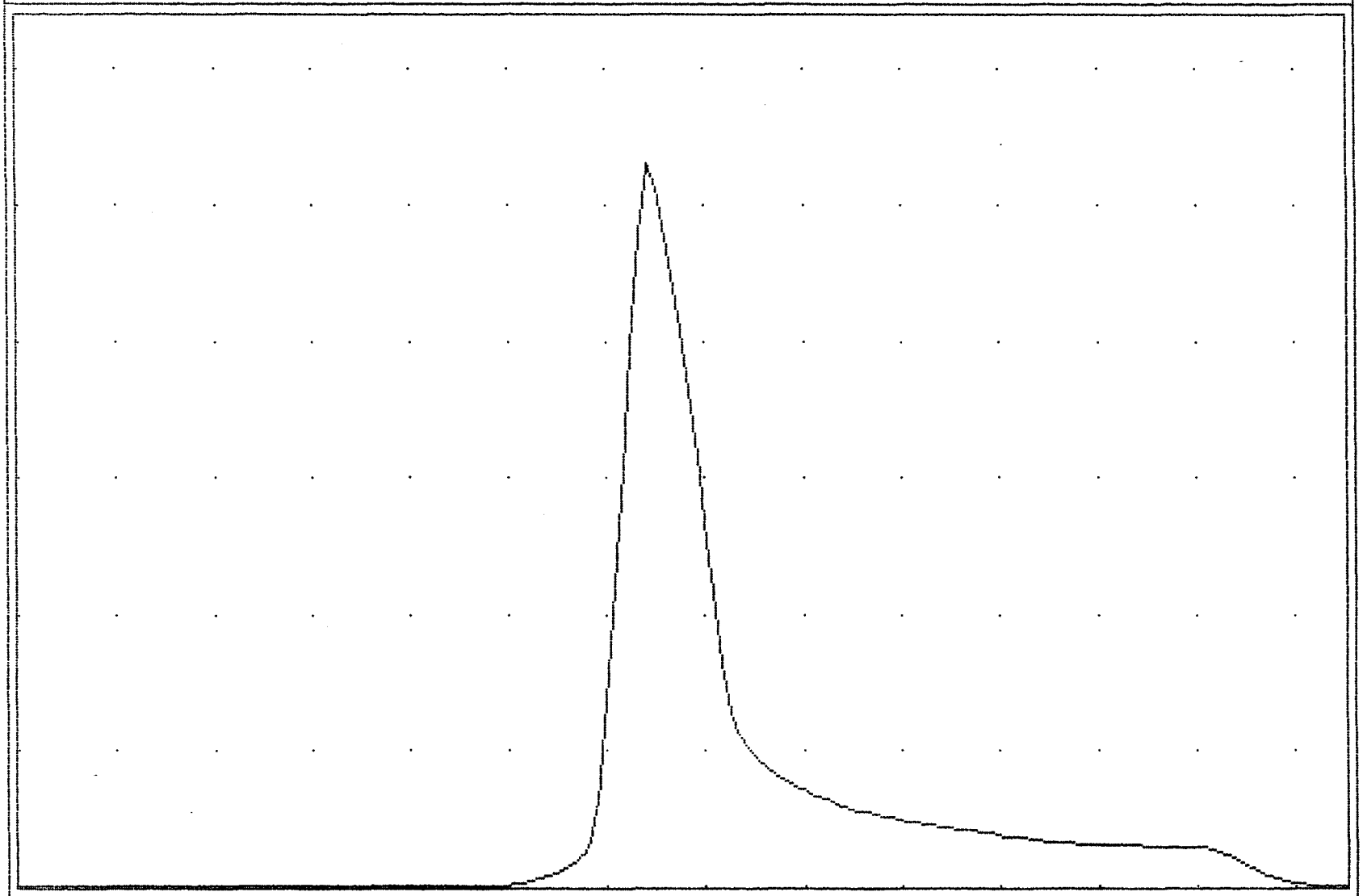
Hyd. No. 2

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 53.14 cfs
Storm frequency	= 2 yr	Time interval	= 10 min
Basin area	= 89.86 ac	Basin curve No.	= 79
Ave basin slope	= .85 %	Hydraulic len	= 3000 ft
Basin lag	= 51.4 min	Time of concen	= 85.78 min
Total precip.	= 3.50 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
10.83	0.73	11.00	0.99	11.17	1.31	11.33	1.72
11.50	2.26	11.67	3.40	11.83	6.71	12.00	14.34
12.17	22.60	12.33	31.27	12.50	40.12	12.67	48.28
12.83	53.14	13.00	51.21	13.17	48.31	13.33	44.69
13.50	40.58	13.67	36.12	13.83	31.39	14.00	26.45
14.17	21.35	14.33	16.43	14.50	12.67	14.67	11.39
14.83	10.42	15.00	9.68	15.17	9.10	15.33	8.60
15.50	8.18	15.67	7.81	15.83	7.48	16.00	7.18
16.17	6.91	16.33	6.65	16.50	6.41	16.67	6.18
16.83	5.97	17.00	5.77	17.17	5.60	17.33	5.44
17.50	5.30	17.67	5.17	17.83	5.05	18.00	4.94
18.17	4.84	18.33	4.75	18.50	4.65	18.67	4.56
18.83	4.47	19.00	4.37	19.17	4.28	19.33	4.19
19.50	4.09	19.67	4.00	19.83	3.90	20.00	3.81
20.17	3.71	20.33	3.62	20.50	3.53	20.67	3.45
20.83	3.37	21.00	3.30	21.17	3.24	21.33	3.19
21.50	3.15	21.67	3.12	21.83	3.09	22.00	3.06
22.17	3.04	22.33	3.02	22.50	3.00	22.67	2.98
22.83	2.96	23.00	2.95	23.17	2.93	23.33	2.91
23.50	2.89	23.67	2.87	23.83	2.85	24.00	2.84
24.17	2.76	24.33	2.63	24.50	2.45	24.67	2.20
24.83	1.91	25.00	1.56	25.17	1.24	25.33	0.96

Qp = 53.1 S.C.S. RUNOFF 2 Yr



HGU = 120 min 2 VGU = 10.0 cfs

VOL = (cuft/acft) = 510811 / 11.727

HYDROLOGIC REPORT

10 YR PRE-DEV.....
STORM .....
DRY POND.....

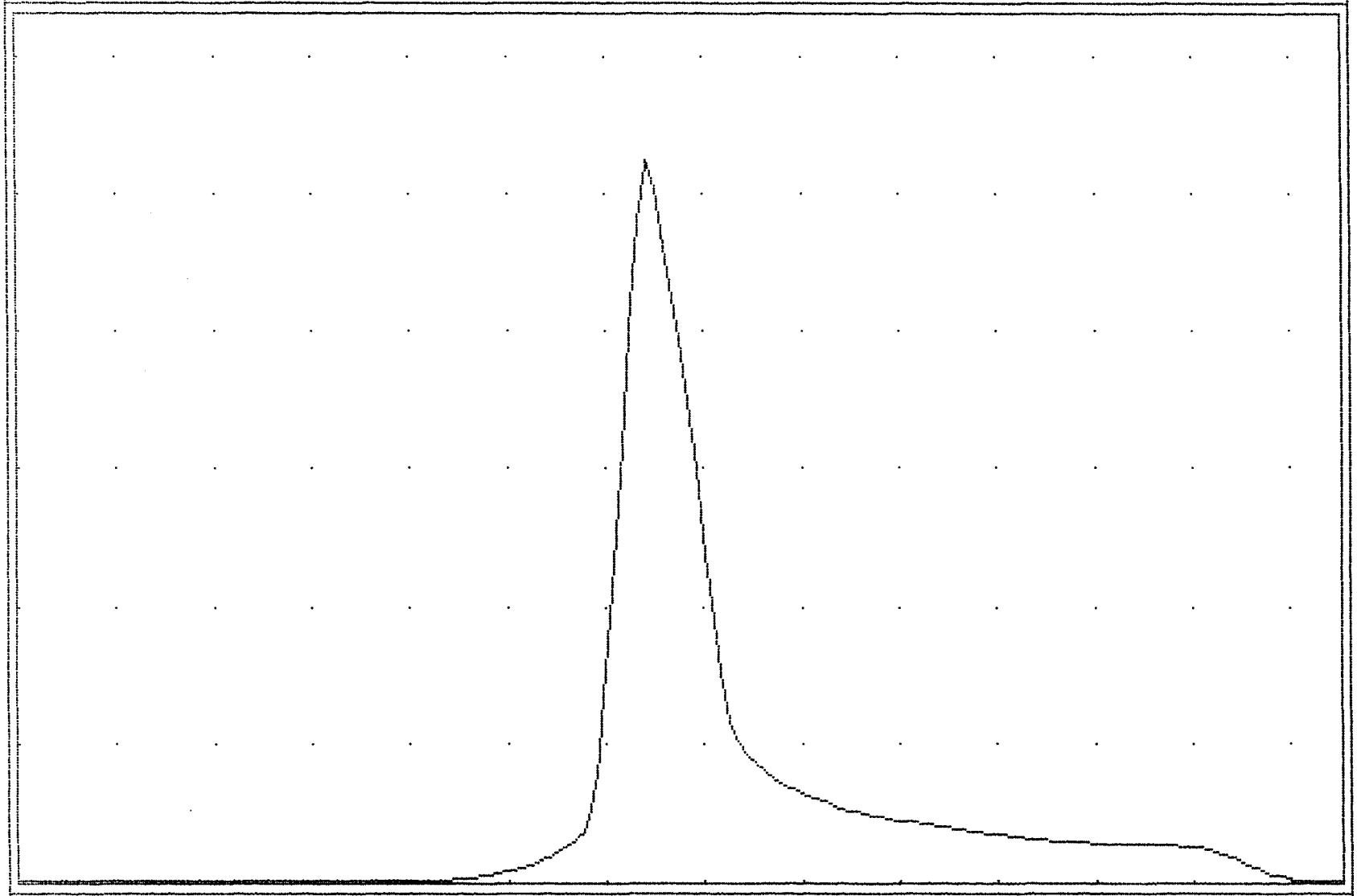
Hyd. No. 3

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 104.97 cfs
Storm frequency	= 10 yr	Time interval	= 10 min
Basin area	= 89.86 ac	Basin curve No.	= 75
Ave basin slope	= .85 %	Hydraulic len	= 3000 ft
Basin lag	= 57.8 min	Time of concen	= 96.58 min
Total precip.	= 5.70 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfS)	
9.50	0.69	9.67	0.90	9.83	1.13	10.00	1.38
10.17	1.67	10.33	2.00	10.50	2.38	10.67	2.83
10.83	3.36	11.00	3.99	11.17	4.75	11.33	5.70
11.50	6.92	11.67	9.42	11.83	16.35	12.00	31.42
12.17	47.56	12.33	64.33	12.50	81.28	12.67	96.55
12.83	104.97	13.00	100.45	13.17	94.17	13.33	86.57
13.50	78.11	13.67	69.08	13.83	59.57	14.00	49.73
14.17	39.69	14.33	30.13	14.50	23.01	14.67	20.65
14.83	18.85	15.00	17.50	15.17	16.42	15.33	15.51
15.50	14.73	15.67	14.05	15.83	13.45	16.00	12.90
16.17	12.40	16.33	11.93	16.50	11.48	16.67	11.07
16.83	10.68	17.00	10.33	17.17	10.01	17.33	9.72
17.50	9.46	17.67	9.23	17.83	9.02	18.00	8.82
18.17	8.64	18.33	8.46	18.50	8.29	18.67	8.12
18.83	7.96	19.00	7.79	19.17	7.62	19.33	7.45
19.50	7.28	19.67	7.10	19.83	6.93	20.00	6.76
20.17	6.59	20.33	6.42	20.50	6.26	20.67	6.11
20.83	5.98	21.00	5.85	21.17	5.75	21.33	5.66
21.50	5.59	21.67	5.52	21.83	5.47	22.00	5.42
22.17	5.38	22.33	5.34	22.50	5.31	22.67	5.28
22.83	5.24	23.00	5.21	23.17	5.18	23.33	5.14
23.50	5.11	23.67	5.08	23.83	5.04	24.00	5.01
24.17	4.88	24.33	4.65	24.50	4.32	24.67	3.89
24.83	3.37	25.00	2.75	25.17	2.19	25.33	1.70
25.50	1.27	25.67	0.91	25.83	0.60	26.00	0.36

Qp = 105.0 S.C.S. RUNOFF 10 Yr



HGU = 120 min 3 VGU = 20.0 cfs

VOL = (cuft/acft) = 987716 / 22.675

HYDROLOGIC REPORT

10 YR POST-DEV.....
STORM .....
DRY POND.....

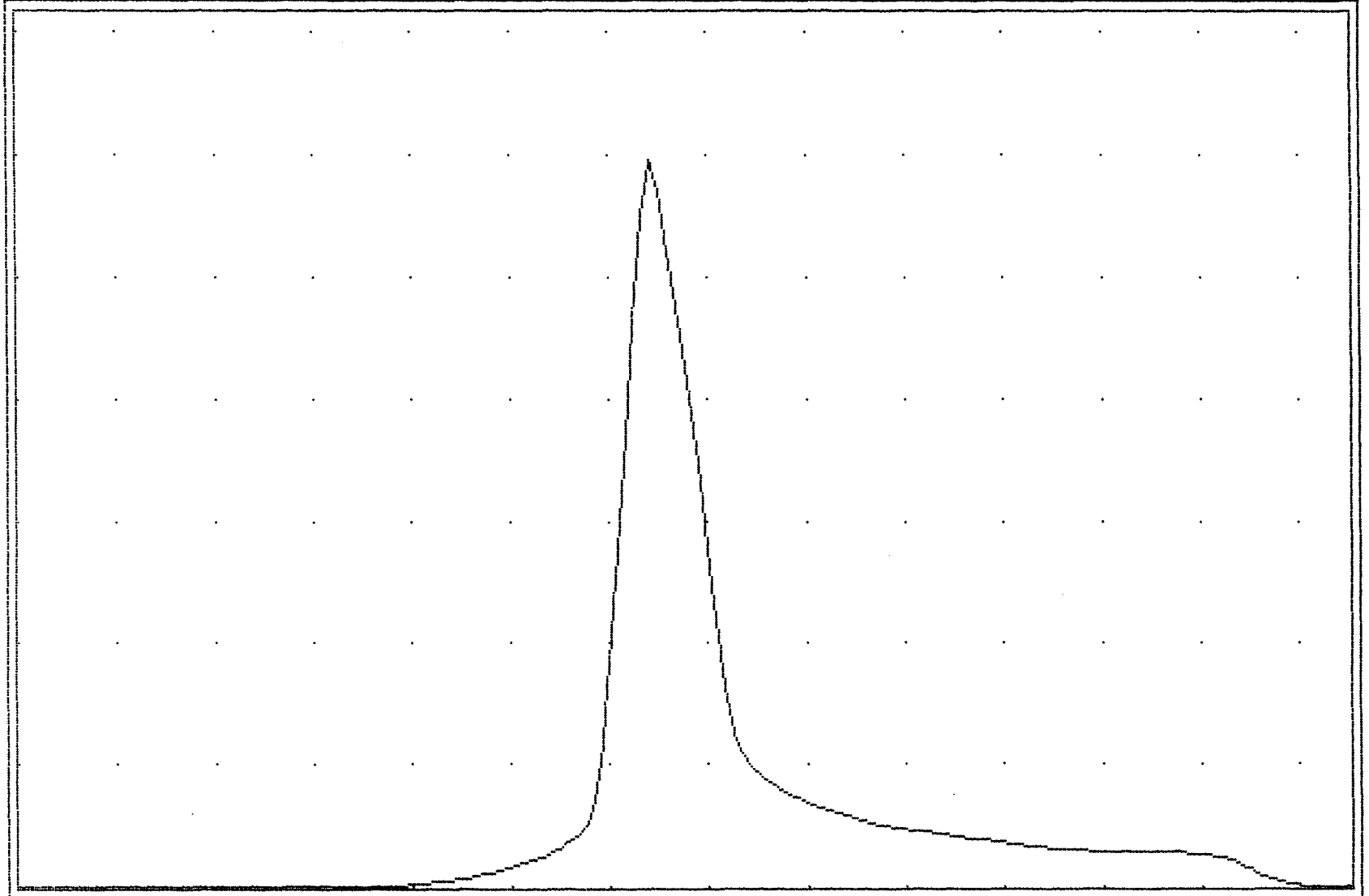
Hyd. No. 4

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 119.25 cfs
Storm frequency	= 10 yr	Time interval	= 10 min
Basin area	= 89.86 ac	Basin curve No.	= 79
Ave basin slope	= .85 %	Hydraulic len	= 3000 ft
Basin lag	= 51.4 min	Time of concen	= 85.78 min
Total precip.	= 5.70 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)	
8.83	0.98	9.00	1.19	9.17	1.43	9.33	1.68
9.50	1.96	9.67	2.25	9.83	2.57	10.00	2.90
10.17	3.27	10.33	3.68	10.50	4.16	10.67	4.72
10.83	5.38	11.00	6.17	11.17	7.11	11.33	8.28
11.50	9.77	11.67	12.81	11.83	20.96	12.00	38.07
12.17	56.27	12.33	75.04	12.50	93.88	12.67	110.57
12.83	119.25	13.00	113.59	13.17	106.03	13.33	97.08
13.50	87.22	13.67	76.78	13.83	65.87	14.00	54.65
14.17	43.27	14.33	32.54	14.50	24.69	14.67	22.12
14.83	20.17	15.00	18.70	15.17	17.53	15.33	16.55
15.50	15.71	15.67	14.98	15.83	14.33	16.00	13.74
16.17	13.19	16.33	12.68	16.50	12.21	16.67	11.76
16.83	11.35	17.00	10.97	17.17	10.62	17.33	10.32
17.50	10.04	17.67	9.79	17.83	9.56	18.00	9.35
18.17	9.15	18.33	8.96	18.50	8.78	18.67	8.60
18.83	8.42	19.00	8.24	19.17	8.06	19.33	7.87
19.50	7.69	19.67	7.51	19.83	7.33	20.00	7.14
20.17	6.96	20.33	6.78	20.50	6.61	20.67	6.45
20.83	6.31	21.00	6.18	21.17	6.07	21.33	5.97
21.50	5.89	21.67	5.82	21.83	5.76	22.00	5.71
22.17	5.67	22.33	5.63	22.50	5.59	22.67	5.56
22.83	5.52	23.00	5.49	23.17	5.45	23.33	5.42
23.50	5.38	23.67	5.34	23.83	5.31	24.00	5.27
24.17	5.13	24.33	4.89	24.50	4.54	24.67	4.09
24.83	3.54	25.00	2.89	25.17	2.31	25.33	1.79
25.50	1.34	25.67	0.95	25.83	0.64	26.00	0.38

Qp = 119.3 S.C.S. RUNOFF 10 Yr



HGU = 120 min 4 VGU = 20.0 cfs

VOL = (cuft/acft) = 1113283 / 25.557

HYDROLOGIC REPORT

100 YR POST-DEV.....
STORM .....
DRY POND.....

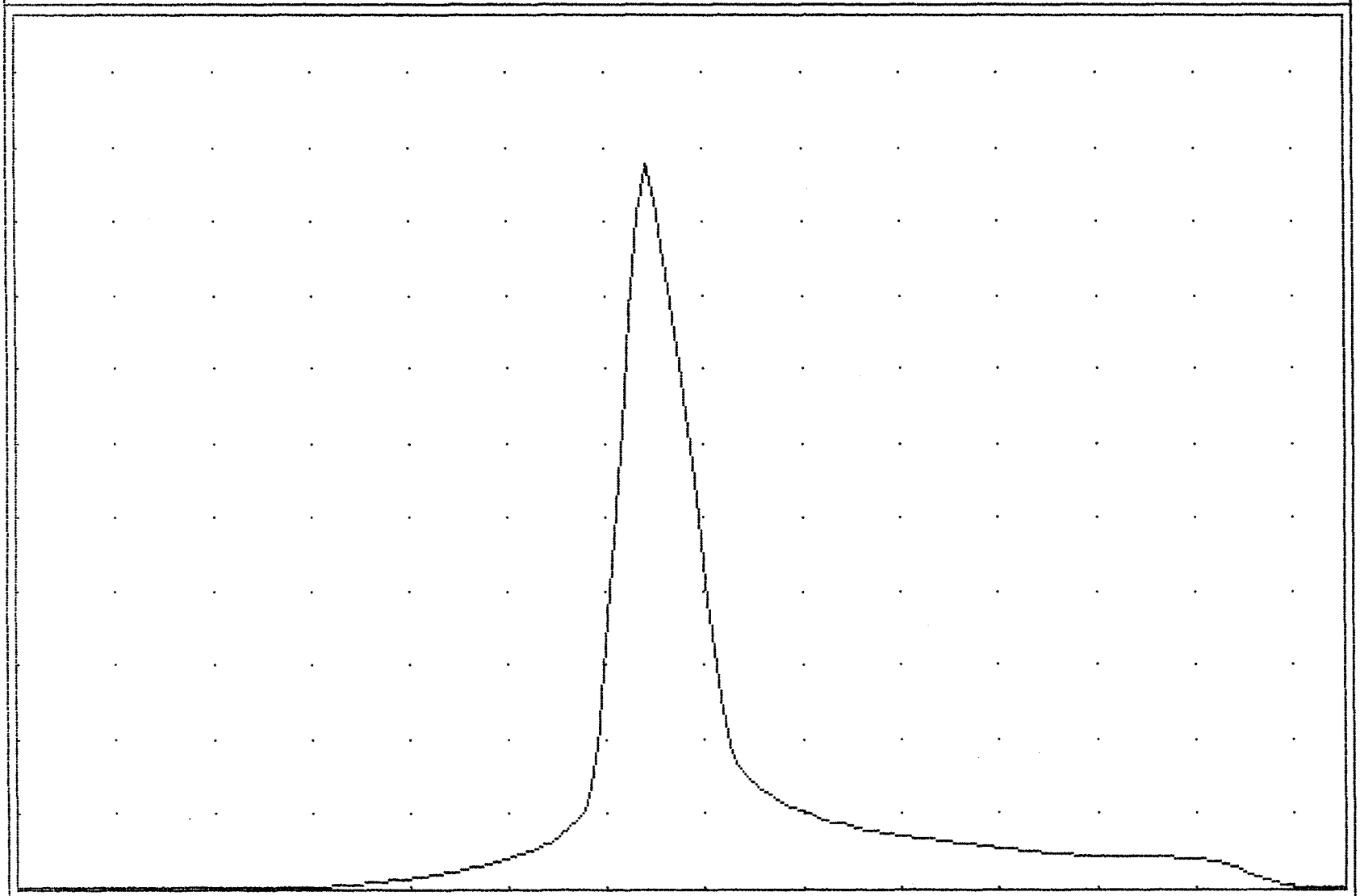
Hyd. No. 5

Hydrograph type	= S.C.S. RUNOFF	Peak discharge	= 195.67 cfs
Storm frequency	= 100 yr	Time interval	= 10 min
Basin area	= 89.86 ac	Basin curve No.	= 79
Ave basin slope	= .85 %	Hydraulic len	= 3000 ft
Basin lag	= 51.4 min	Time of concen	= 85.78 min
Total precip.	= 8.10 in	Distribution	= S.C.S. II

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)		TIME--OUTFLOW (hrs cfs)	
6.83	0.77	7.00	0.96	7.17	1.17	7.33	1.40
7.50	1.64	7.67	1.88	7.83	2.13	8.00	2.39
8.17	2.66	8.33	2.94	8.50	3.24	8.67	3.57
8.83	3.94	9.00	4.35	9.17	4.82	9.33	5.32
9.50	5.85	9.67	6.41	9.83	7.00	10.00	7.62
10.17	8.29	10.33	9.04	10.50	9.91	10.67	10.93
10.83	12.13	11.00	13.57	11.17	15.25	11.33	17.35
11.50	20.00	11.67	25.37	11.83	39.25	12.00	67.26
12.17	96.79	12.33	127.00	12.50	157.08	12.67	183.15
12.83	195.67	13.00	185.37	13.17	172.18	13.33	156.87
13.50	140.25	13.67	122.79	13.83	104.69	14.00	86.21
14.17	67.59	14.33	50.25	14.50	37.83	14.67	33.83
14.83	30.81	15.00	28.54	15.17	26.73	15.33	25.20
15.50	23.91	15.67	22.78	15.83	21.77	16.00	20.86
16.17	20.02	16.33	19.24	16.50	18.51	16.67	17.83
16.83	17.19	17.00	16.61	17.17	16.08	17.33	15.61
17.50	15.18	17.67	14.80	17.83	14.44	18.00	14.12
18.17	13.82	18.33	13.53	18.50	13.25	18.67	12.98
18.83	12.70	19.00	12.42	19.17	12.15	19.33	11.87
19.50	11.59	19.67	11.31	19.83	11.04	20.00	10.76
20.17	10.48	20.33	10.21	20.50	9.95	20.67	9.71
20.83	9.49	21.00	9.29	21.17	9.12	21.33	8.98
21.50	8.86	21.67	8.75	21.83	8.66	22.00	8.58
22.17	8.52	22.33	8.46	22.50	8.40	22.67	8.34
22.83	8.29	23.00	8.24	23.17	8.18	23.33	8.13
23.50	8.07	23.67	8.02	23.83	7.96	24.00	7.91
24.17	7.69	24.33	7.33	24.50	6.81	24.67	6.13
24.83	5.31	25.00	4.33	25.17	3.46	25.33	2.68
25.50	2.01	25.67	1.43	25.83	0.95	26.00	0.57

Qp = 195.7 S.C.S. RUNOFF 100 Yr



HGU = 120 min 5 VGU = 20.0 cfs

VOL = (cuft/acft) = 1827029 / 41.943

HYDROLOGIC REPORT

2 YR STORM.....
THROUGH STRUCTURE.....
DRY POND.....

Hyd. No. 7

Hydrograph type = RESERVOIR ROUTE Peak discharge = 21.79 cfs
Storm frequency = 2 yr Time interval = 10 min
Inflow hyd. no. = 2 Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
11.17	1.31	1.72	7.67	7.70	0.01
11.33	1.72	2.26	10.61	10.70	0.04
11.50	2.26	3.40	14.42	14.60	0.09
11.67	3.40	6.71	19.78	20.08	0.15
11.83	6.71	14.34	29.45	29.89	0.22
12.00	14.34	22.60	49.87	50.50	0.31
12.17	22.60	31.27	85.96	86.80	0.42
12.33	31.27	40.12	138.75	139.82	0.53
12.50	40.12	48.28	208.87	210.14	0.63
12.67	48.28	53.14	295.81	297.26	0.73
12.83	53.14	51.21	395.61	397.23	0.81
13.00	51.21	48.31	472.99	499.96	13.48
13.17	48.31	44.69	532.93	572.51	19.79
13.33	44.69	40.58	585.10	625.93	20.42
13.50	40.58	36.12	628.52	670.37	20.92
13.67	36.12	31.39	662.60	705.22	21.31
13.83	31.39	26.45	686.94	730.11	21.59
14.00	26.45	21.35	701.29	744.78	21.75
14.17	21.35	16.43	705.50	749.09	21.79
14.33	16.43	12.67	699.83	743.28	21.73
14.50	12.67	11.39	685.78	728.92	21.57
14.67	11.39	10.42	667.11	709.84	21.36
14.83	10.42	9.68	646.66	688.92	21.13
15.00	9.68	9.10	624.99	666.76	20.88
15.17	9.10	8.60	602.53	643.77	20.62

HYDROGRAPH DISCHARGE TABLE Cont'd

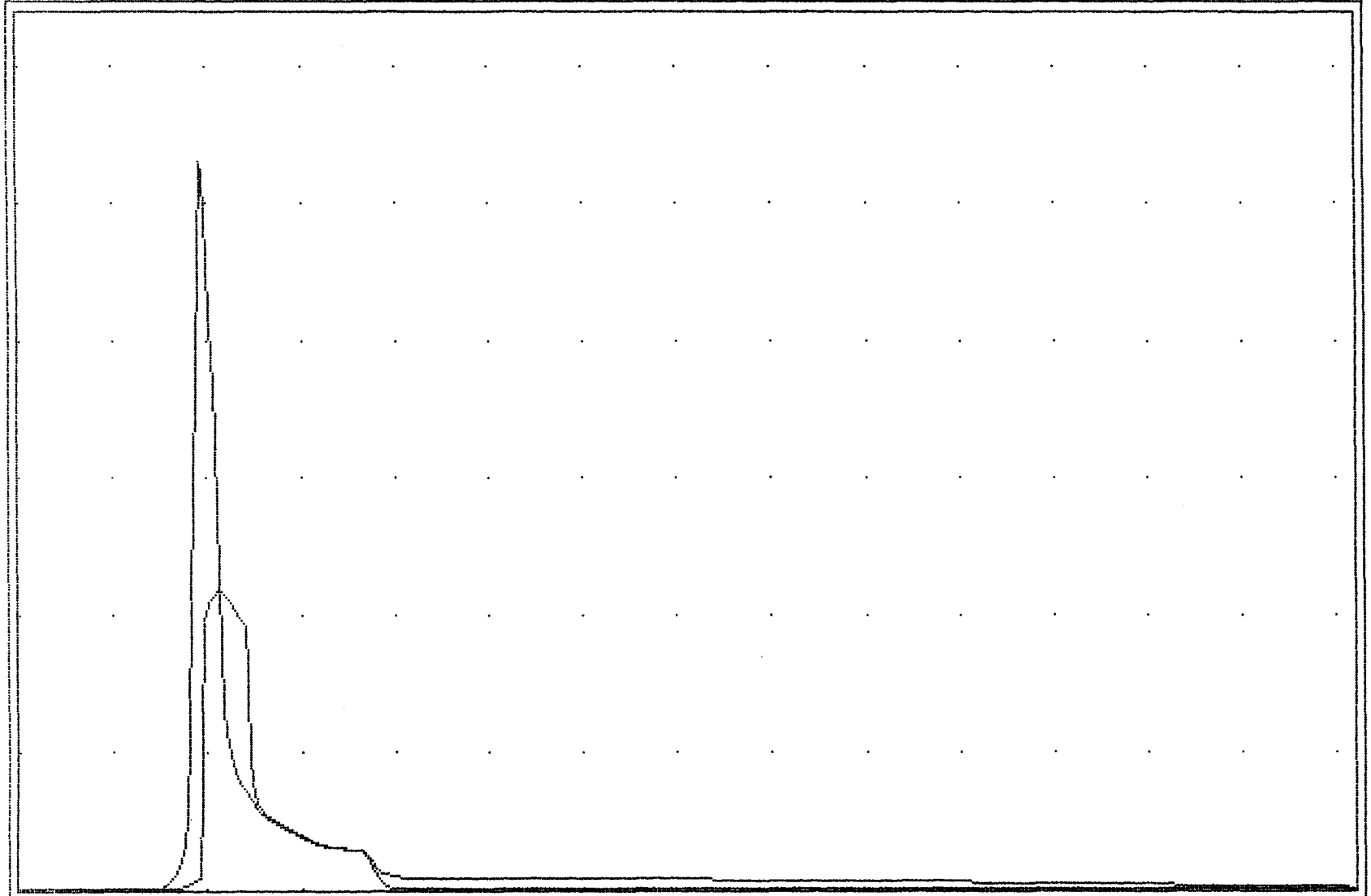
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
15.33	8.60	8.18	579.52	620.22	20.35
15.50	8.18	7.81	556.16	596.30	20.07
15.67	7.81	7.48	532.57	572.15	19.79
15.83	7.48	7.18	508.95	547.87	19.46
16.00	7.18	6.91	485.38	523.61	19.12
16.17	6.91	6.65	472.79	499.47	13.34
16.33	6.65	6.41	467.70	486.34	9.32
16.50	6.41	6.18	465.58	480.76	7.59
16.67	6.18	5.97	464.58	478.16	6.79
16.83	5.97	5.77	464.04	476.73	6.34
17.00	5.77	5.60	463.67	475.77	6.05
17.17	5.60	5.44	463.40	475.04	5.82
17.33	5.44	5.30	463.16	474.43	5.63
17.50	5.30	5.17	462.90	473.90	5.50
17.67	5.17	5.05	462.60	473.37	5.38
17.83	5.05	4.94	462.29	472.82	5.26
18.00	4.94	4.84	461.99	472.29	5.15
18.17	4.84	4.75	461.70	471.78	5.04
18.33	4.75	4.65	461.42	471.29	4.93
18.50	4.65	4.56	461.16	470.82	4.83
18.67	4.56	4.47	460.90	470.37	4.73
18.83	4.47	4.37	460.66	469.93	4.64
19.00	4.37	4.28	460.41	469.50	4.55
19.17	4.28	4.19	460.16	469.06	4.45
19.33	4.19	4.09	459.92	468.63	4.36
19.50	4.09	4.00	459.67	468.19	4.26
19.67	4.00	3.90	459.42	467.76	4.17
19.83	3.90	3.81	459.17	467.32	4.07
20.00	3.81	3.71	458.92	466.88	3.98
20.17	3.71	3.62	458.67	466.44	3.88
20.33	3.62	3.53	458.43	466.00	3.79
20.50	3.53	3.45	458.18	465.57	3.70
20.67	3.45	3.37	457.94	465.16	3.61
20.83	3.37	3.30	457.72	464.76	3.52
21.00	3.30	3.24	457.51	464.39	3.44
21.17	3.24	3.19	457.32	464.06	3.37
21.33	3.19	3.15	457.15	463.76	3.30
21.50	3.15	3.12	457.01	463.50	3.25
21.67	3.12	3.09	456.88	463.27	3.20
21.83	3.09	3.06	456.77	463.08	3.16
22.00	3.06	3.04	456.67	462.92	3.12
22.17	3.04	3.02	456.59	462.77	3.09

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
22.33	3.02	3.00	456.52	462.65	3.06
22.50	3.00	2.98	456.46	462.54	3.04
22.67	2.98	2.96	456.41	462.45	3.02
22.83	2.96	2.95	456.36	462.35	3.00
23.00	2.95	2.93	456.31	462.27	2.98
23.17	2.93	2.91	456.26	462.18	2.96
23.33	2.91	2.89	456.21	462.09	2.94
23.50	2.89	2.87	456.16	462.01	2.92
23.67	2.87	2.85	456.11	461.93	2.91
23.83	2.85	2.84	456.06	461.84	2.89
24.00	2.84	2.76	456.02	461.76	2.87
24.17	2.76	2.63	455.94	461.62	2.84
24.33	2.63	2.45	455.77	461.33	2.78
24.50	2.45	2.20	455.50	460.85	2.67
24.67	2.20	1.91	455.11	460.15	2.52
24.83	1.91	1.56	454.58	459.22	2.32
25.00	1.56	1.24	453.91	458.04	2.07
25.17	1.24	0.96	453.16	456.71	1.78
25.33	0.96	0.72	452.39	455.36	1.49
25.50	0.72	0.51	451.56	454.08	1.26
25.67	0.51	0.34	450.35	452.80	1.22
25.83	0.34	0.20	448.84	451.20	1.18
26.00	0.20	0.10	447.12	449.39	1.13
26.17	0.10	0.03	445.27	447.43	1.08
26.33	0.03	0.00	443.36	445.41	1.02

Maximum outflow (cfs) = 21.79
Maximum storage (cu ft) = 218188 ← 2 yr volume
Maximum elevation (ft) = 18.00

Qp = 21.8 RESERVOIR ROUTE 2 Yr



HGU = 400 min 7 VGU = 10.0 cfs

MAX STORAGE = 218188

MAX ELEVATION = 18.00

HYDROLOGIC REPORT

10 YR STORM .....
THROUGH STRUCTURE.....
DRY POND.....

Hyd. No. 8

Hydrograph type = RESERVOIR ROUTE Peak discharge = 95.37 cfs
Storm frequency = 10 yr Time interval = 10 min
Inflow hyd. no. = 4 Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
9.00	1.19	1.43	9.19	9.25	0.03
9.17	1.43	1.68	11.70	11.81	0.06
9.33	1.68	1.96	14.63	14.81	0.09
9.50	1.96	2.25	18.01	18.27	0.13
9.67	2.25	2.57	21.90	22.23	0.16
9.83	2.57	2.90	26.32	26.72	0.20
10.00	2.90	3.27	31.34	31.79	0.23
10.17	3.27	3.68	36.99	37.51	0.26
10.33	3.68	4.16	43.37	43.95	0.29
10.50	4.16	4.72	50.58	51.21	0.32
10.67	4.72	5.38	58.76	59.46	0.35
10.83	5.38	6.17	68.10	68.86	0.38
11.00	6.17	7.11	78.84	79.66	0.41
11.17	7.11	8.28	91.25	92.12	0.44
11.33	8.28	9.77	105.70	106.64	0.47
11.50	9.77	12.81	122.75	123.76	0.50
11.67	12.81	20.96	144.25	145.34	0.54
11.83	20.96	38.07	176.85	178.03	0.59
12.00	38.07	56.27	234.55	235.88	0.66
12.17	56.27	75.04	327.39	328.89	0.75
12.33	75.04	93.88	454.28	458.69	2.21
12.50	93.88	110.57	582.43	623.20	20.38
12.67	110.57	119.25	737.86	786.88	24.51
12.83	119.25	113.59	862.88	967.68	52.40
13.00	113.59	106.03	941.57	1095.72	77.08

HYDROGRAPH DISCHARGE TABLE Cont'd

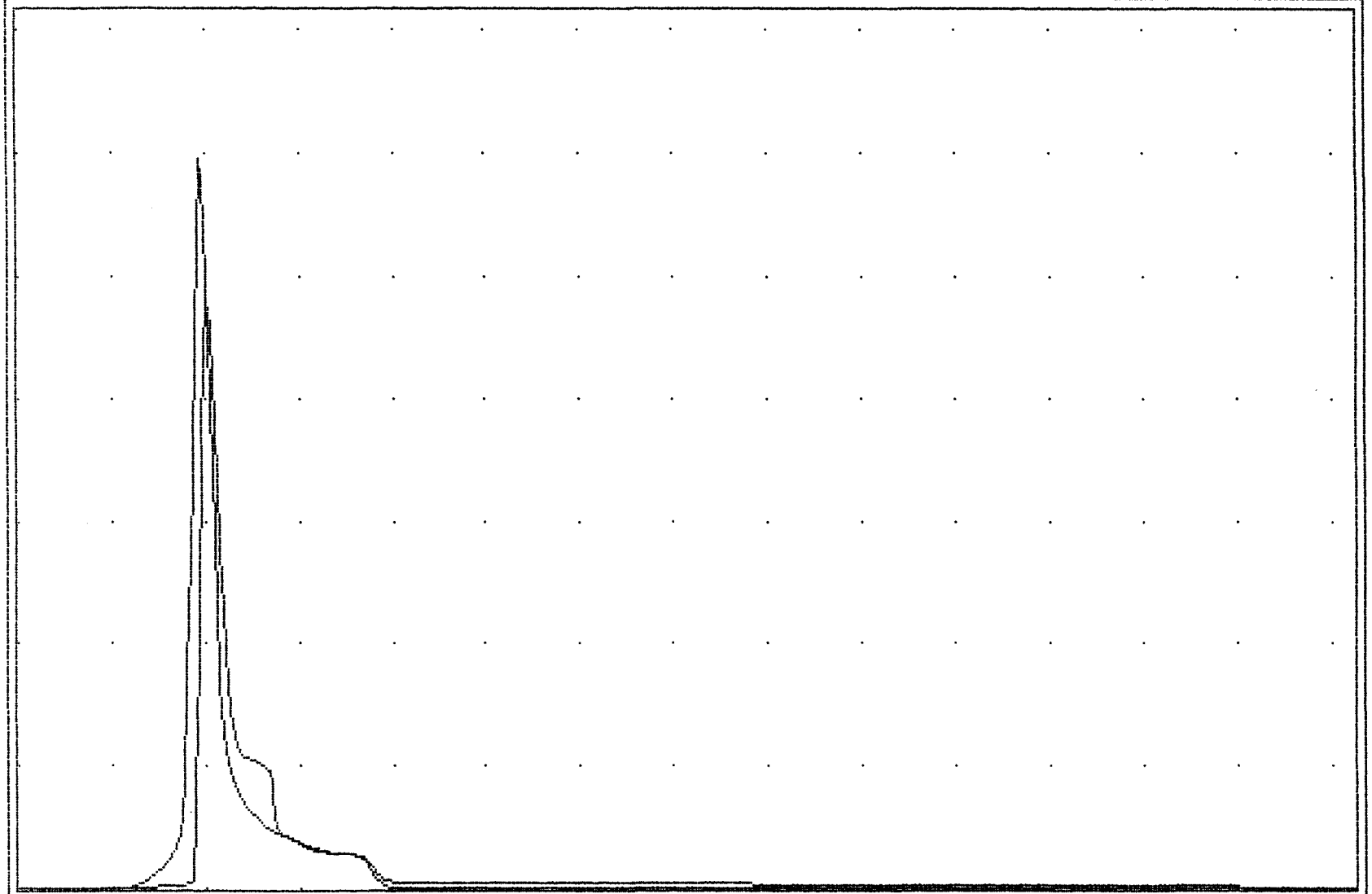
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
13.17	106.03	97.08	979.82	1161.19	90.69
13.33	97.08	87.22	992.19	1182.93	95.37
13.50	87.22	76.78	988.57	1176.49	93.96
13.67	76.78	65.87	974.88	1152.58	88.85
13.83	65.87	54.65	954.51	1117.53	81.51
14.00	54.65	43.27	929.15	1075.03	72.94
14.17	43.27	32.54	899.71	1027.08	63.69
14.33	32.54	24.69	867.63	975.52	53.94
14.50	24.69	22.12	835.94	924.86	44.46
14.67	22.12	20.17	808.13	882.75	37.31
14.83	20.17	18.70	785.70	850.42	32.36
15.00	18.70	17.53	766.95	824.58	28.81
15.17	17.53	16.55	750.73	803.18	26.23
15.33	16.55	15.71	736.17	784.81	24.32
15.50	15.71	14.98	722.64	768.43	22.89
15.67	14.98	14.33	709.27	753.33	22.03
15.83	14.33	13.74	695.22	738.58	21.68
16.00	13.74	13.19	680.26	723.29	21.51
16.17	13.19	12.68	664.52	707.19	21.33
16.33	12.68	12.21	648.10	690.40	21.15
16.50	12.21	11.76	631.09	673.00	20.95
16.67	11.76	11.35	613.56	655.06	20.75
16.83	11.35	10.97	595.59	636.67	20.54
17.00	10.97	10.62	577.26	617.90	20.32
17.17	10.62	10.32	558.64	598.84	20.10
17.33	10.32	10.04	539.83	579.58	19.87
17.50	10.04	9.79	520.92	560.18	19.63
17.67	9.79	9.56	502.03	540.75	19.36
17.83	9.56	9.35	483.20	521.37	19.08
18.00	9.35	9.15	473.87	502.11	14.12
18.17	9.15	8.96	470.00	492.36	11.18
18.33	8.96	8.78	468.38	488.11	9.87
18.50	8.78	8.60	467.62	486.12	9.25
18.67	8.60	8.42	467.19	485.00	8.90
18.83	8.42	8.24	466.89	484.21	8.66
19.00	8.24	8.06	466.64	483.55	8.45
19.17	8.06	7.87	466.41	482.93	8.26
19.33	7.87	7.69	466.18	482.34	8.08
19.50	7.69	7.51	465.95	481.74	7.90
19.67	7.51	7.33	465.73	481.15	7.71
19.83	7.33	7.14	465.50	480.56	7.53
20.00	7.14	6.96	465.28	479.97	7.35

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
20.17	6.96	6.78	465.05	479.38	7.16
20.33	6.78	6.61	464.83	478.79	6.98
20.50	6.61	6.45	464.61	478.22	6.81
20.67	6.45	6.31	464.40	477.67	6.64
20.83	6.31	6.18	464.20	477.16	6.48
21.00	6.18	6.07	464.02	476.69	6.33
21.17	6.07	5.97	463.86	476.27	6.20
21.33	5.97	5.89	463.72	475.90	6.09
21.50	5.89	5.82	463.60	475.59	5.99
21.67	5.82	5.76	463.50	475.32	5.91
21.83	5.76	5.71	463.41	475.09	5.84
22.00	5.71	5.67	463.34	474.89	5.78
22.17	5.67	5.63	463.27	474.72	5.72
22.33	5.63	5.59	463.22	474.57	5.68
22.50	5.59	5.56	463.17	474.44	5.64
22.67	5.56	5.52	463.12	474.32	5.60
22.83	5.52	5.49	463.08	474.20	5.56
23.00	5.49	5.45	463.01	474.09	5.54
23.17	5.45	5.42	462.93	473.95	5.51
23.33	5.42	5.38	462.85	473.80	5.48
23.50	5.38	5.34	462.76	473.64	5.44
23.67	5.34	5.31	462.67	473.48	5.41
23.83	5.31	5.27	462.58	473.32	5.37
24.00	5.27	5.13	462.48	473.16	5.34
24.17	5.13	4.89	462.33	472.89	5.28
24.33	4.89	4.54	462.03	472.35	5.16
24.50	4.54	4.09	461.52	471.46	4.97
24.67	4.09	3.54	460.78	470.15	4.69
24.83	3.54	2.89	459.79	468.41	4.31
25.00	2.89	2.31	458.55	466.23	3.84
25.17	2.31	1.79	457.15	463.75	3.30
25.33	1.79	1.34	455.73	461.25	2.76
25.50	1.34	0.95	454.37	458.86	2.24
25.67	0.95	0.64	453.13	456.67	1.77
25.83	0.64	0.38	452.03	454.72	1.35
26.00	0.38	0.19	450.58	453.04	1.23
26.17	0.19	0.06	448.79	451.15	1.18
26.33	0.06	0.00	446.80	449.04	1.12
26.50	0.00	0.00	444.73	446.86	1.06
26.67	0.00	0.00	442.72	444.73	1.01

Maximum outflow (cfs) = 95.37
Maximum storage (cu ft) = 326267
Maximum elevation (ft) = 21.26

Qp = 95.4 RESERVOIR ROUTE 10 Yr



HGU = 400 min 8 VGU = 20.0 cfs

MAX STORAGE = 326267

MAX ELEVATION = 21.26

HYDROLOGIC REPORT

100 YR STORM.....
THROUGH STRUCTURE.....
WET POND.....

Hyd. No. 9

Hydrograph type = RESERVOIR ROUTE Peak discharge = 172.94 cfs
Storm frequency = 100 yr Time interval = 10 min
Inflow hyd. no. = 5 Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
7.17	1.17	1.40	8.15	8.18	0.02
7.33	1.40	1.64	10.63	10.72	0.04
7.50	1.64	1.88	13.51	13.67	0.08
7.67	1.88	2.13	16.80	17.03	0.11
7.83	2.13	2.39	20.50	20.81	0.15
8.00	2.39	2.66	24.66	25.03	0.19
8.17	2.66	2.94	29.28	29.71	0.21
8.33	2.94	3.24	34.39	34.88	0.24
8.50	3.24	3.57	40.03	40.57	0.27
8.67	3.57	3.94	46.24	46.84	0.30
8.83	3.94	4.35	53.09	53.74	0.33
9.00	4.35	4.82	60.67	61.38	0.36
9.17	4.82	5.32	69.07	69.84	0.38
9.33	5.32	5.85	78.40	79.21	0.41
9.50	5.85	6.41	88.71	89.57	0.43
9.67	6.41	7.00	100.06	100.97	0.46
9.83	7.00	7.62	112.51	113.47	0.48
10.00	7.62	8.29	126.10	127.12	0.51
10.17	8.29	9.04	140.94	142.01	0.54
10.33	9.04	9.91	157.14	158.27	0.56
10.50	9.91	10.93	174.92	176.10	0.59
10.67	10.93	12.13	194.53	195.76	0.61
10.83	12.13	13.57	216.31	217.60	0.64
11.00	13.57	15.25	240.67	242.01	0.67
11.17	15.25	17.35	268.08	269.48	0.70

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
11.33	17.35	20.00	299.22	300.67	0.73
11.50	20.00	25.37	335.05	336.57	0.76
11.67	25.37	39.25	378.83	380.42	0.80
11.83	39.25	67.26	441.50	443.44	0.97
12.00	67.26	96.79	509.08	548.00	19.46
12.17	96.79	127.00	631.22	673.13	20.95
12.33	127.00	157.08	788.94	855.01	33.04
12.50	157.08	183.15	927.93	1073.02	72.55
12.67	183.15	195.67	1039.26	1268.17	114.45
12.83	195.67	185.37	1122.19	1418.08	147.94
13.00	185.37	172.18	1167.88	1503.23	167.67
13.17	172.18	156.87	1179.54	1525.43	172.94
13.33	156.87	140.25	1170.72	1508.59	168.93
13.50	140.25	122.79	1149.08	1467.84	159.38
13.67	122.79	104.69	1118.94	1412.12	146.59
13.83	104.69	86.21	1082.59	1346.42	131.92
14.00	86.21	67.59	1042.10	1273.49	115.69
14.17	67.59	50.25	999.50	1195.91	98.20
14.33	50.25	37.83	954.40	1117.35	81.48
14.50	37.83	33.83	909.25	1042.48	66.61
14.67	33.83	30.81	870.90	980.91	55.01
14.83	30.81	28.54	842.77	935.54	46.38
15.00	28.54	26.73	821.10	902.13	40.51
15.17	26.73	25.20	803.78	876.37	36.29
15.33	25.20	23.91	789.43	855.71	33.14
15.50	23.91	22.78	777.21	838.54	30.67
15.67	22.78	21.77	766.45	823.90	28.72
15.83	21.77	20.86	756.74	811.00	27.13
16.00	20.86	20.02	747.80	799.38	25.79
16.17	20.02	19.24	739.33	788.69	24.68
16.33	19.24	18.51	731.12	778.60	23.74
16.50	18.51	17.83	723.04	768.88	22.92
16.67	17.83	17.19	714.63	759.39	22.38
16.83	17.19	16.61	706.02	749.65	21.82
17.00	16.61	16.08	696.43	739.81	21.69
17.17	16.08	15.61	685.96	729.11	21.57
17.33	15.61	15.18	674.75	717.65	21.45
17.50	15.18	14.80	662.91	705.54	21.32
17.67	14.80	14.44	650.54	692.89	21.18
17.83	14.44	14.12	637.72	679.78	21.03
18.00	14.12	13.82	624.53	666.29	20.88
18.17	13.82	13.53	611.03	652.47	20.72

HYDROGRAPH DISCHARGE TABLE Cont'd

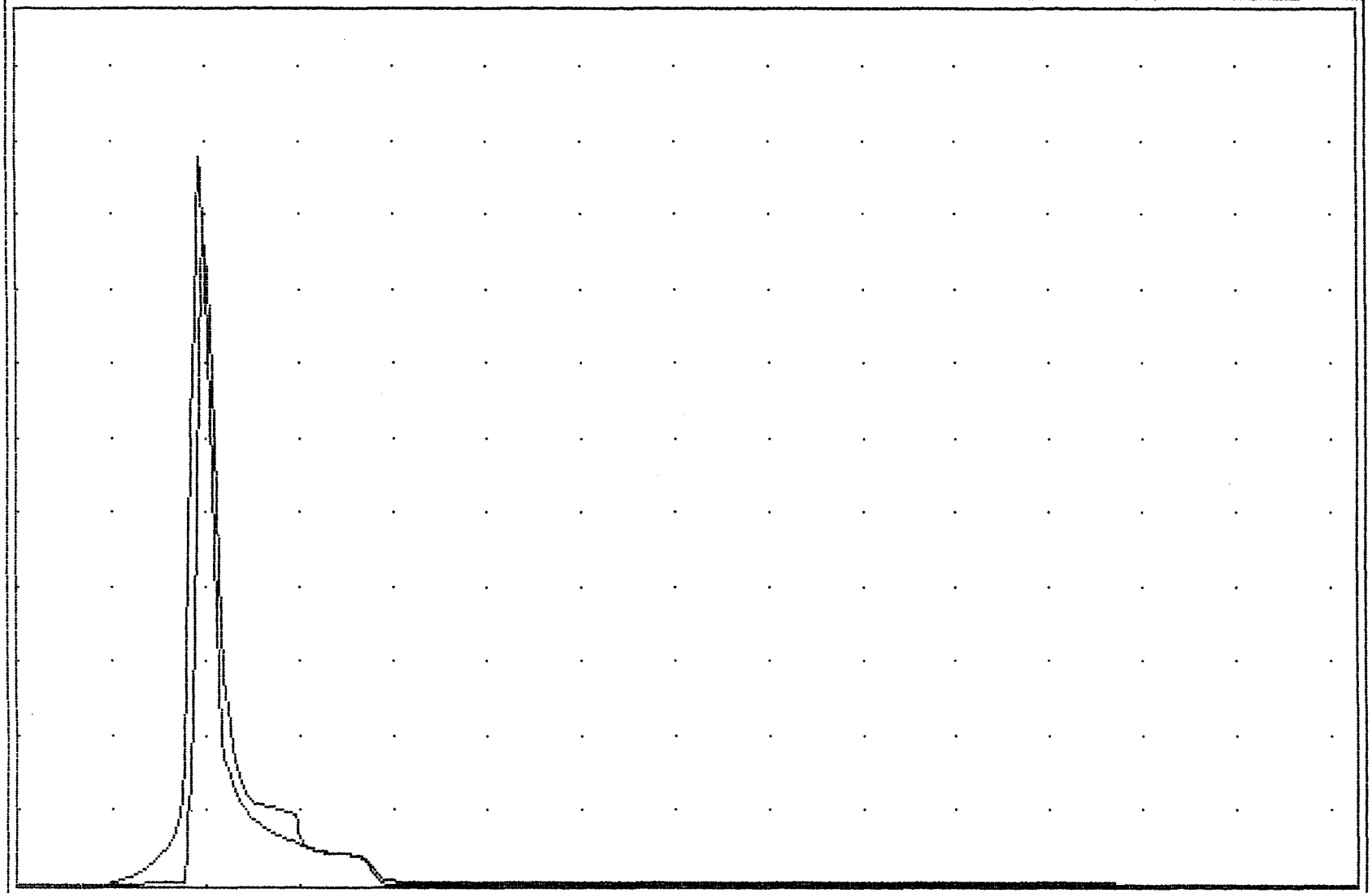
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
18.33	13.53	13.25	597.26	638.38	20.56
18.50	13.25	12.98	583.25	624.04	20.39
18.67	12.98	12.70	569.03	609.48	20.23
18.83	12.70	12.42	554.60	594.70	20.05
19.00	12.42	12.15	539.97	579.72	19.88
19.17	12.15	11.87	525.16	564.54	19.69
19.33	11.87	11.59	510.22	549.17	19.48
19.50	11.59	11.31	495.16	533.68	19.26
19.67	11.31	11.04	480.40	518.06	18.83
19.83	11.04	10.76	474.13	502.75	14.31
20.00	10.76	10.48	471.36	495.92	12.28
20.17	10.48	10.21	470.09	492.59	11.25
20.33	10.21	9.95	469.40	490.78	10.69
20.50	9.95	9.71	468.93	489.56	10.31
20.67	9.71	9.49	468.56	488.59	10.01
20.83	9.49	9.29	468.25	487.76	9.76
21.00	9.29	9.12	467.97	487.03	9.53
21.17	9.12	8.98	467.72	486.38	9.33
21.33	8.98	8.86	467.51	485.82	9.16
21.50	8.86	8.75	467.32	485.34	9.01
21.67	8.75	8.66	467.17	484.93	8.88
21.83	8.66	8.58	467.03	484.58	8.77
22.00	8.58	8.52	466.92	484.27	8.68
22.17	8.52	8.46	466.82	484.02	8.60
22.33	8.46	8.40	466.73	483.79	8.53
22.50	8.40	8.34	466.65	483.59	8.47
22.67	8.34	8.29	466.58	483.40	8.41
22.83	8.29	8.24	466.51	483.22	8.35
23.00	8.24	8.18	466.44	483.04	8.30
23.17	8.18	8.13	466.38	482.86	8.24
23.33	8.13	8.07	466.31	482.68	8.19
23.50	8.07	8.02	466.24	482.51	8.13
23.67	8.02	7.96	466.17	482.33	8.08
23.83	7.96	7.91	466.11	482.15	8.02
24.00	7.91	7.69	466.04	481.97	7.97
24.17	7.69	7.33	465.91	481.64	7.86
24.33	7.33	6.81	465.64	480.93	7.65
24.50	6.81	6.13	465.20	479.78	7.29
24.67	6.13	5.31	464.58	478.14	6.78
24.83	5.31	4.33	463.77	476.02	6.13
25.00	4.33	3.46	462.63	473.41	5.39
25.17	3.46	2.68	460.93	470.42	4.74

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
25.33	2.68	2.01	459.03	467.07	4.02
25.50	2.01	1.43	457.13	463.72	3.30
25.67	1.43	0.95	455.34	460.57	2.61
25.83	0.95	0.57	453.73	457.73	2.00
26.00	0.57	0.28	452.33	455.25	1.46
26.17	0.28	0.09	450.71	453.18	1.23
26.33	0.09	0.00	448.73	451.09	1.18
26.50	0.00	0.00	446.59	448.83	1.12
26.67	0.00	0.00	444.48	446.59	1.06

Maximum outflow (cfs) = 172.94
Maximum storage (cu ft) = 405745
Maximum elevation (ft) = 23.30

Qp = 172.9 RESERVOIR ROUTE 100 Yr



HGU = 400 min 9 VGU = 20.0 cfs

MAX STORAGE = 405745

MAX ELEVATION = 23.30

Option 1 STAGE / STORAGE TABLE R to rese

1. RESERVOIR No = 1. 2. RESERVOIR NAME = DRY POND.#1.
3. S = Ks * Z^b
Ks = 0..... b = 0.....
START ELEV = 0..... INCREMENT = 0...

	STAGE ft	ELEVATION ft	CO AREA sq ft	INC STORAGE cu ft	TOT STORAGE cu ft
4	0.00	6.00.	8618....	0	0
5	2.00	8.00.	11458...	20076	20076
6	4.00	10.00.	14419...	25877	45953
7	6.00	12.00.	17747...	32166	78119
8	8.00	14.00.	21390...	39137	117256
9	10.00	16.00.	25280...	46670	163926
10	12.00	18.00.	29022...	54302	218228
11	14.00	20.00.	33722...	62744	280972
12	16.00	22.00.	38343...	72065	353037
13	18.00	24.00.	42778...	81121	434158
14	20.00	26.00.	48196...	90974	525132

Change item number: 0 DY to cor

Reservoir No. 1 OUTLET STRUCTURES

CULVERT STRUC A. Q=CoA[2gh/k]^.5

1. WIDTH (in) = 18.
2. HEIGHT (in) = 18.
3. No. BARRELS = 1..
4. INVERT ELEV. = 6.....
5. Co = 0.60
6. CULVERT LENGTH (ft) = 175.
7. CULVERT SLOPE (%) = .29.
8. MANNING'S N-VALUE = .013

CULVERT STRUC B. Q=CoA[2gh/k]^.5

9. WIDTH (in) = 4..
10. HEIGHT (in) = 4..
11. No. BARRELS = 1..
12. INVERT ELEV. = 6.....
13. Co = 0.60
14. CULVERT LENGTH (ft) = 32..
15. CULVERT SLOPE (%) = 0...
16. MANNING'S N-VALUE = .013
17. MULTI-STAGE OPTION ? (Y/N) Y

WEIR STRUCTURE A. Q=CwLH^EXP

18. CREST LENGTH (ft) = 12.5664
19. CREST ELEVATION = 14.75..
20. Cw = 3.00
21. EXP = 1.50
22. MULTI-STAGE OPTION ? (Y/N) Y

WEIR STRUCTURE B. Q=CwLH^EXP

23. CREST LENGTH (ft) = 4.....
24. CREST ELEVATION = 18.....
25. Cw = 3.00
26. EXP = 1.50
27. MULTI-STAGE OPTION ? (Y/N) N

Change item number: 0 DY to cor

TABLE 3

WORKSHEET FOR BMP POINT SYSTEM

FISKN BROOK

A. STRUCTURAL BMP POINT ALLOCATION

BMP	BMP Points		Fraction of Site Served by BMP		Weighted BMP Points
DRY POND	60	x	~~77.95~~ 89.86 / 55.97	=	9.63 ~~8.29~~
(DESIGN TYPE 3)		x		=	
		x		=	
		x		=	

TOTAL WEIGHTED STRUCTURAL BMP POINTS: ~~8.29~~ 9.63

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit		Points for Natural Open Space
~~2.51~~ 4.49 / 55.97 (100)	x	.1 (0.1 per 1%)	=	~~2.24~~ 0.80

C. TOTAL WEIGHTED POINTS

~~8.29~~ 9.63	+	~~2.24~~ 0.80	=	~~10.53~~ 10.43
Structural BMP Points		Natural Open Space Points		TOTAL

File

JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670 Fax Number: 757-259-4032

DATE SENT: 8/23/2000

Name: Wayne Reed
Firm or Company: C. Lewis Waltrip
Facsimile Number: 565-0089
Number of pages including this transmittal: 5
From: Michael Woolson

James City County
P O Box 8784
Williamsburg VA 23187-8784

Comments:
Wayne - Here is the comments for Greensprings West Trash Rack.

S-38-93 Fernbrook: convert sediment basin to Dry Pond. drain and clean pipes, establish bot. elev., remove any silt fence around basin. remove all woody vegetation from emergency spillway.

If you do not receive all pages, call 757-253-6670 as soon as possible

DARRYL

STORM SEWER TABULATION

DATA FILE: a:6877.ST3
RAINFALL FILE: JCC.RN3
PRINTED: 08-17-1993

10 YEAR DESIGN STORM Q = CIA I = 39.137/ (Tc + 8.000) ^ 0.672

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)		PIPE CAP (CFS)	SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
2	0.2	0.70	0.1	0.1	5.0	6.99	0.73		6.5	15	25	1.000	1.663	3.44	22.95	22.50	SS#40 TO SS#41...
							0.73	0.0		15				3.44	22.54	22.25	1
1	0.9	0.30	0.3	19.0	41.0	2.86	54.54		92.4	48	145	0.414	0.144	4.34	15.93	7.10	SS#42 TO SS#41...
							54.54	0.0		48				4.34	15.72	6.50	OUTFALL
74	0.8	0.30	0.2	0.2	5.0	6.99	1.66		6.5	15	100	1.000	0.589	3.47	25.26	24.75	SS#39 TO SS#39A
							1.66	0.0		15				1.70	24.68	23.75	4
4	0.7	0.30	0.2	0.5	15.0	4.76	2.14		9.1	15	25	2.000	2.000	6.06	24.16	23.75	SS#38 TO SS#39...
							2.14	0.0		15				6.06	23.66	23.25	3
3	0.4	0.30	0.1	18.7	39.6	2.92	54.57		96.4	48	384	0.450	0.144	4.34	16.81	8.83	SS#40 TO SS#38...
							54.57	0.0		48				4.34	16.25	7.10	1
7	1.6	0.40	0.6	0.6	20.0	4.17	2.67		10.5	15	75	2.667	2.301	4.11	27.89	27.00	SS#38B TO SS#38C.
							2.67	0.0		15				2.24	26.16	25.00	6
6	0.2	0.30	0.1	0.7	20.4	4.14	2.89		10.5	15	75	2.667	2.667	7.11	25.46	25.00	SS#38A TO SS#38B.
							2.89	0.0		15				7.11	23.46	23.00	5
5	1.1	0.30	0.3	18.1	39.5	2.93	52.95		90.9	48	24	0.400	0.136	4.21	17.16	8.92	SS#38 TO SS#38A
							52.95	0.0		48				4.21	17.13	8.83	3
11	0.3	0.30	0.1	0.1	5.0	6.99	0.63		11.4	15	32	3.125	4.187	4.93	26.59	26.05	SS#26 TO SS#27...
							0.63	0.0		15				4.93	25.25	25.05	10
10	0.3	0.70	0.2	10.0	36.7	3.05	30.38		52.0	42	75	0.267	0.091	3.16	18.82	11.35	SS#28 TO SS#26...
							30.38	0.0		42				3.16	18.75	11.15	9
9	0.2	0.30	0.1	17.1	37.1	3.03	51.71		84.4	48	217	0.346	0.130	4.12	18.46	11.15	SS#37 TO SS#28...
							51.71	0.0		48				4.12	18.18	10.40	8
8	0.0	0.00	0.0	17.1	38.0	2.99	51.05		91.5	48	365	0.405	0.126	4.06	17.95	10.40	SS#38A TO SS#37 .
							51.05	0.0		48				4.06	17.49	8.92	5
19	1.5	0.30	0.5	0.5	20.0	4.17	1.88		5.1	15	32	0.625	0.314	2.64	24.20	23.40	SS#22 TO SS#21...
							1.88	0.0		15				1.98	24.10	23.20	18
18	1.0	0.30	0.3	0.8	20.2	4.15	3.11		4.7	15	240	0.533	0.436	4.36	23.81	23.10	SS#23 TO SS#22...
							3.11	0.0		15				3.15	22.76	21.82	17

STORM SEWER TABULATION (continued)
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17	0.1	0.70	0.1	0.8	21.3	4.05	3.32		4.9	15	123	0.569	0.337	4.42	22.46	21.72	SS#24 TO SS#23...
							3.32	0.0		15				3.09	22.04	21.02	16
16	0.9	0.30	0.3	1.1	21.8	4.00	4.36		19.0	18	32	3.281	2.398	4.57	21.72	20.92	SS#25 TO SS#24...
							4.36	0.0		18				3.20	20.95	19.87	15
15	0.3	0.70	0.2	2.4	22.0	3.99	9.37		24.8	24	181	1.204	0.166	4.99	20.52	19.37	SS#25A TO SS#25..
							9.37	0.0		24				2.98	20.22	17.19	14
14	0.1	0.70	0.1	2.4	22.7	3.92	9.49		29.0	24	304	1.641	0.176	3.02	20.08	17.09	SS#20 TO SS#25A..
							9.49	0.0		24				3.02	19.55	12.10	13
13	0.3	0.50	0.2	9.7	35.2	3.12	30.16		48.8	42	149	0.235	0.090	3.13	19.38	12.10	SS#20A TO SS#20..
							30.16	0.0		42				3.14	19.24	11.75	12
12	0.0	0.00	0.0	9.7	36.0	3.08	29.79		54.8	42	135	0.296	0.088	3.10	19.11	11.75	SS#26 TO SS#20A..
							29.79	0.0		42				3.10	18.99	11.35	10
22	3.7	0.30	1.1	1.1	20.0	4.17	4.63		9.5	15	90	2.156	1.908	5.14	25.73	24.50	SS#35A TO SS#35B.
							4.63	0.0		15				3.78	24.01	22.56	21
21	0.2	0.30	0.1	1.2	20.3	4.14	4.84		9.5	15	90	2.156	2.156	7.61	23.20	22.56	SS#35 TO SS#35A..
							4.84	0.0		15				7.61	21.26	20.62	20
20	1.3	0.30	0.4	7.0	33.4	3.21	22.60		38.2	36	286	0.329	0.115	3.20	19.08	13.17	SS#28 TO SS#35...
							22.60	0.0		36				3.20	18.75	12.23	9
24	0.6	0.30	0.2	0.2	20.0	4.17	0.75		13.8	15	50	4.560	3.196	2.71	24.45	24.00	SS#36 TO SS#36A..
							0.75	0.0		15				0.64	22.85	21.72	23
23	1.3	0.30	0.4	0.6	20.5	4.12	2.35		11.4	15	32	3.125	3.125	6.98	22.02	21.62	SS#35 TO SS#36...
							2.35	0.0		15				6.98	21.02	20.62	20
28	3.4	0.30	1.0	1.0	25.0	3.74	3.81		10.7	15	90	2.733	2.360	4.73	26.59	25.50	SS#33A TO SS#33B.
							3.81	0.0		15				3.11	24.47	23.04	27
27	0.2	0.30	0.1	1.1	25.4	3.71	4.01		10.7	15	90	2.733	2.733	8.00	23.57	23.04	SS#33 TO SS#33A..
							4.01	0.0		15				8.00	21.11	20.58	26
26	0.9	0.30	0.3	4.9	30.5	3.37	16.55		29.8	36	195	0.200	0.062	2.34	19.61	14.08	SS#33C TO SS#33
							16.55	0.0		36				2.34	19.49	13.69	25

STORM SEWER TABULATION (continued)
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25	0.0	0.00	0.0	4.9	31.9	3.29	16.16		29.8	36	210	0.200	0.059	2.29	19.40	13.69	SS#35 TO SS#33C..
							16.16	0.0		36				2.29	19.27	13.27	20
29	1.4	0.30	0.4	0.4	20.0	4.17	1.75		7.9	15	32	1.500	2.571	4.95	22.34	21.58	SS#33 TO SS#34...
							1.75	0.0		15				4.95	21.51	21.10	26
76	0.8	0.30	0.2	0.2	5.0	6.99	1.68		6.5	15	95	1.000	0.057	1.90	20.54	19.70	SS#32 TO SS#32A
							1.68	0.0		15				1.37	20.49	18.75	33
33	0.6	0.30	0.2	0.4	15.0	4.76	2.00		13.5	15	32	4.344	0.096	1.63	20.45	18.75	SS#31 TO SS#32...
							2.00	0.0		15				1.63	20.42	17.36	32
32	0.7	0.40	0.3	2.9	27.7	3.55	10.35		19.3	24	58	0.729	0.210	3.30	20.25	16.81	SS#31B TO SS#31..
							10.35	0.0		24				3.30	20.13	16.39	31
31	0.3	0.30	0.1	3.0	28.0	3.53	10.61		19.2	24	58	0.724	0.220	3.38	20.13	16.39	SS#33C TO SS#31B
							10.61	0.0		24				3.38	20.00	15.97	30
30	0.4	0.30	0.1	3.1	28.3	3.51	10.98		26.1	30	294	0.405	0.072	2.24	19.93	15.87	SS#33 TO SS#33C..
							10.98	0.0		30				2.24	19.72	14.68	26
39	0.4	0.40	0.2	0.2	10.0	5.62	0.90		16.0	15	32	6.125	5.543	2.86	23.57	23.08	SS#30D TO SS#30E.
							0.90	0.0		15				1.32	21.80	21.12	38
38	1.0	0.30	0.3	0.5	20.0	4.17	1.92		4.9	15	175	0.583	0.140	2.92	21.68	21.02	SS#30C TO SS#30D.
							1.92	0.0		15				1.56	21.44	20.00	37
37	1.2	0.30	0.4	0.8	25.0	3.74	3.07		5.6	15	50	0.740	0.225	2.50	21.35	19.90	SS#30B TO SS#30C.
							3.07	0.0		15				2.50	21.24	19.53	36
36	0.0	0.00	0.0	0.8	25.3	3.71	3.04		5.7	15	130	0.769	0.222	2.48	21.15	19.43	SS#30A TO SS#30B.
							3.04	0.0		15				2.48	20.86	18.43	35
35	1.0	0.30	0.3	1.1	26.2	3.65	4.09		6.9	18	135	0.437	0.152	2.31	20.78	18.18	SS#30 TO SS#30A..
							4.09	0.0		18				2.31	20.57	17.59	34
34	1.0	0.30	0.3	2.0	27.2	3.58	6.98		17.7	24	70	0.614	0.095	2.22	20.49	17.34	SS#31 TO SS#30...
							6.98	0.0		24				2.22	20.42	16.91	32
41	0.5	0.40	0.2	0.2	10.0	5.62	1.12		3.6	15	32	0.313	0.164	1.66	23.49	22.78	SS#29 TO SS#29A..
							1.12	0.0		15				1.43	23.44	22.68	40

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40	1.1	0.30	0.3	0.5	15.0	4.76	2.52	9.3	15	230	2.061	1.149	4.03	23.22	22.58	SS#30 TO SS#29...
							2.52 0.0		15				2.06	20.57	17.84	34
63	1.0	0.30	0.3	0.3	20.0	4.17	1.25	9.1	15	25	2.000	3.502	5.18	22.37	21.68	SS#11 TO SS#10...
							1.25 0.0		15				5.18	21.49	21.18	62
62	0.5	0.30	0.2	2.4	29.3	3.44	8.19	25.3	30	58	0.379	0.040	1.67	20.71	17.68	SS#11A TO SS#11
							8.19 0.0		30				1.67	20.69	17.46	61
61	1.0	0.30	0.3	2.7	29.9	3.41	9.13	25.8	30	58	0.397	0.050	1.86	20.63	17.46	SS#11B TO SS#11A.
							9.13 0.0		30				1.86	20.60	17.23	60
60	1.3	0.30	0.4	3.1	30.4	3.38	10.36	37.7	30	110	0.845	0.064	2.11	20.53	17.13	SS#18C TO SS#11B.
							10.36 0.0		30				2.11	20.46	16.20	59
59	0.9	0.30	0.3	3.3	31.3	3.32	11.11	34.6	30	295	0.712	0.073	2.26	20.38	16.20	SS#18B TO SS#18C.
							11.11 0.0		30				2.26	20.17	14.10	44
44	0.9	0.30	0.3	3.6	33.5	3.21	11.58	22.9	30	32	0.313	0.080	2.36	20.08	14.00	SS#18A TO SS#18B.
							11.58 0.0		30				2.36	20.05	13.90	43
43	0.5	0.30	0.2	7.0	33.7	3.19	22.28	52.1	36	180	0.611	0.112	3.15	19.87	13.40	SS#18 TO SS#18A..
							22.28 0.0		36				3.15	19.67	12.30	42
42	0.4	0.30	0.1	7.1	34.6	3.15	22.33	52.0	42	75	0.267	0.049	2.32	19.58	12.30	SS#20 TO SS#18...
							22.33 0.0		42				2.32	19.55	12.10	13
77	0.5	0.30	0.2	0.2	5.0	6.99	1.05	6.5	15	55	1.000	0.014	1.59	20.41	19.75	SS#16 TO SS#16B
							1.05 0.0		15				0.86	20.40	19.20	46
46	0.7	0.30	0.2	0.5	20.0	4.17	2.13	11.4	15	32	3.125	0.082	1.79	20.36	19.20	SS#17 TO SS#16...
							2.13 0.0		15				1.74	20.33	18.20	45
45	1.5	0.30	0.5	3.2	28.1	3.52	11.31	29.8	30	248	0.528	0.076	2.30	20.24	16.62	SS#18A TO SS#17..
							11.31 0.0		30				2.30	20.05	15.31	43
49	1.2	0.30	0.4	0.4	25.0	3.74	1.35	8.1	15	120	1.583	1.838	4.68	24.66	24.00	SS#17A TO SS#17B.
							1.35 0.0		15				4.68	22.46	22.10	48
48	0.5	0.30	0.2	2.2	25.4	3.71	8.02	31.0	30	100	0.570	0.038	1.63	20.48	17.19	SS#17 TO SS#17C
							8.02 0.0		30				1.63	20.44	16.62	47

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LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFALL INT I (IPH)	TOTAL FLOW Q=CA*I, DFQ (CFS)		PIPE CAP (CFS)	SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
47	0.3	0.30	0.1	2.3	26.4	3.63	8.19		31.1	30	176	0.574	0.033	1.80	20.39	18.20	SS#17C TO SS#17A.
							8.19	0.0		30				1.67	20.33	17.19	45
51	1.2	0.30	0.4	0.4	20.0	4.17	1.50		38.2	24	40	2.850	3.892	5.46	22.14	21.44	SS#12 TO SS#12A..
							1.50	0.0		24				5.46	20.59	20.30	50
50	1.0	0.30	0.3	1.7	21.9	3.99	6.61		12.2	24	154	0.292	0.074	2.72	20.59	19.15	SS#17A TO SS#12..
							6.61	0.0		24				2.24	20.48	18.70	48
53	0.4	0.30	0.1	0.1	15.0	4.76	0.57		6.5	15	52	1.000	1.253	3.07	22.01	21.62	SS#5 TO SS#5A....
							0.57	0.0		15				3.07	21.36	21.10	52
52	0.7	0.30	0.2	1.0	21.0	4.07	4.05		12.5	24	95	0.305	0.026	2.02	20.76	19.54	SS#12 TO SS#5....
							4.05	0.0		24				1.62	20.73	19.25	50
55	0.1	0.30	0.0	0.0	5.0	6.99	0.21		23.0	15	20	12.650	14.497	5.14	25.16	24.70	SS#4 TO SS#4A....
							0.21	0.0		15				5.14	22.26	22.17	54
54	1.0	0.30	0.3	0.7	20.0	4.17	2.78		25.0	24	154	1.221	0.772	3.59	22.01	21.42	SS#5 TO SS#4.....
							2.78	0.0		24				1.31	20.82	19.54	52
57	0.1	0.30	0.0	0.0	5.0	6.99	0.21		21.1	15	20	10.650	9.478	1.88	24.93	24.70	SS#4B TO SS#4C...
							0.21	0.0		15				0.50	23.04	22.57	56
56	0.3	0.30	0.1	0.1	10.0	5.62	0.76		5.7	15	52	0.769	0.769	3.14	22.88	22.57	SS#4 TO SS#4B....
							0.76	0.0		15				3.14	22.48	22.17	54
58	0.5	0.40	0.2	0.2	15.0	4.76	0.95		5.9	15	74	0.824	1.056	3.51	23.29	22.78	SS#4 TO SS#4D....
							0.95	0.0		15				3.51	22.51	22.17	54
67	0.6	0.30	0.2	0.2	20.0	4.17	0.81		3.9	15	35	0.356	0.065	1.19	22.93	22.22	SS#9A TO SS#8....
							0.81	0.0		15				0.97	22.91	22.10	66
66	0.8	0.30	0.2	0.7	26.8	3.61	2.49		5.4	15	140	0.693	0.559	4.01	22.63	22.00	SS#9 TO SS#9A....
							2.49	0.0		15				2.92	21.85	21.03	65
65	0.4	0.30	0.1	0.8	27.5	3.56	2.88		14.1	18	25	1.800	1.800	6.26	21.24	20.78	SS#7 TO SS#9.....
							2.88	0.0		18				6.26	20.79	20.33	64
64	0.8	0.30	0.2	1.9	27.6	3.56	6.86		36.6	30	220	0.795	0.034	2.78	20.79	19.53	SS#11 TO SS#7....
							6.86	0.0		30				1.40	20.71	17.78	62

STORM SEWER TABULATION (continued)
DATA FILE: a:6877.ST3
RAINFALL FILE: JCC.RN3
PRINTED: 08-17-1993

10 YEAR DESIGN STORM Q = CIA I = 39.137/ (Tc + 8.000) ^ 0.672

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, DFQ (CFS)		PIPE CAP (CFS)	SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
68	0.9	0.30	0.3	0.3	25.0	3.74	0.95		3.6	15	190	0.311	0.167	2.36	23.22	22.69	SS#9A TO SS#8A...
							0.95	0.0		15				1.14	22.91	22.10	66
71	0.4	0.40	0.2	0.2	10.0	5.62	0.90		4.8	15	32	0.563	0.319	2.58	24.08	23.58	SS#6A TO SS#6B...
							0.90	0.0		15				1.61	23.98	23.40	70
70	0.3	0.40	0.1	0.3	10.3	5.56	1.56		5.9	15	215	0.837	0.574	3.40	23.80	23.30	SS#6 TO SS#6A....
							1.56	0.0		15				1.40	22.57	21.50	69
69	0.9	0.30	0.3	0.9	15.0	4.76	4.19		11.4	18	65	1.177	1.177	5.82	22.04	21.40	SS#7 TO SS#6.....
							4.19	0.0		18				5.82	21.28	20.63	64
73	3.5	0.30	1.1	1.1	20.0	4.17	4.38		6.5	15	200	1.000	1.169	5.01	23.69	22.50	SS#25B TO SS#25C.
							4.38	0.0		15				4.92	21.35	20.50	72
72	0.0	0.00	0.0	1.1	20.7	4.11	4.31		7.0	18	85	0.447	0.206	4.03	21.12	20.25	SS#25 TO SS#25B..
							4.31	0.0		18				3.17	20.95	19.87	15
75	0.9	0.30	0.3	0.3	5.0	6.99	1.89		10.3	15	73	2.521	0.069	1.84	20.47	19.50	SS#31 TO SS#31A
							1.89	0.0		15				1.54	20.42	17.66	32
78	0.5	0.30	0.2	0.2	5.0	6.99	1.05		7.4	15	95	1.316	0.532	3.00	20.91	20.50	SS#16 TO SS#16A
							1.05	0.0		15				0.89	20.40	19.25	46
79	0.6	0.30	0.2	0.2	5.0	6.99	1.26		4.7	15	80	0.538	0.036	1.90	22.60	21.93	SS#6 TO SS#6C
							1.26	0.0		15				1.13	22.57	21.50	69
80	0.5	0.30	0.2	0.2	5.0	6.99	1.05		4.6	15	85	0.506	0.029	1.59	22.59	21.93	SS#6 TO SS#6D
							1.05	0.0		15				0.94	22.57	21.50	69

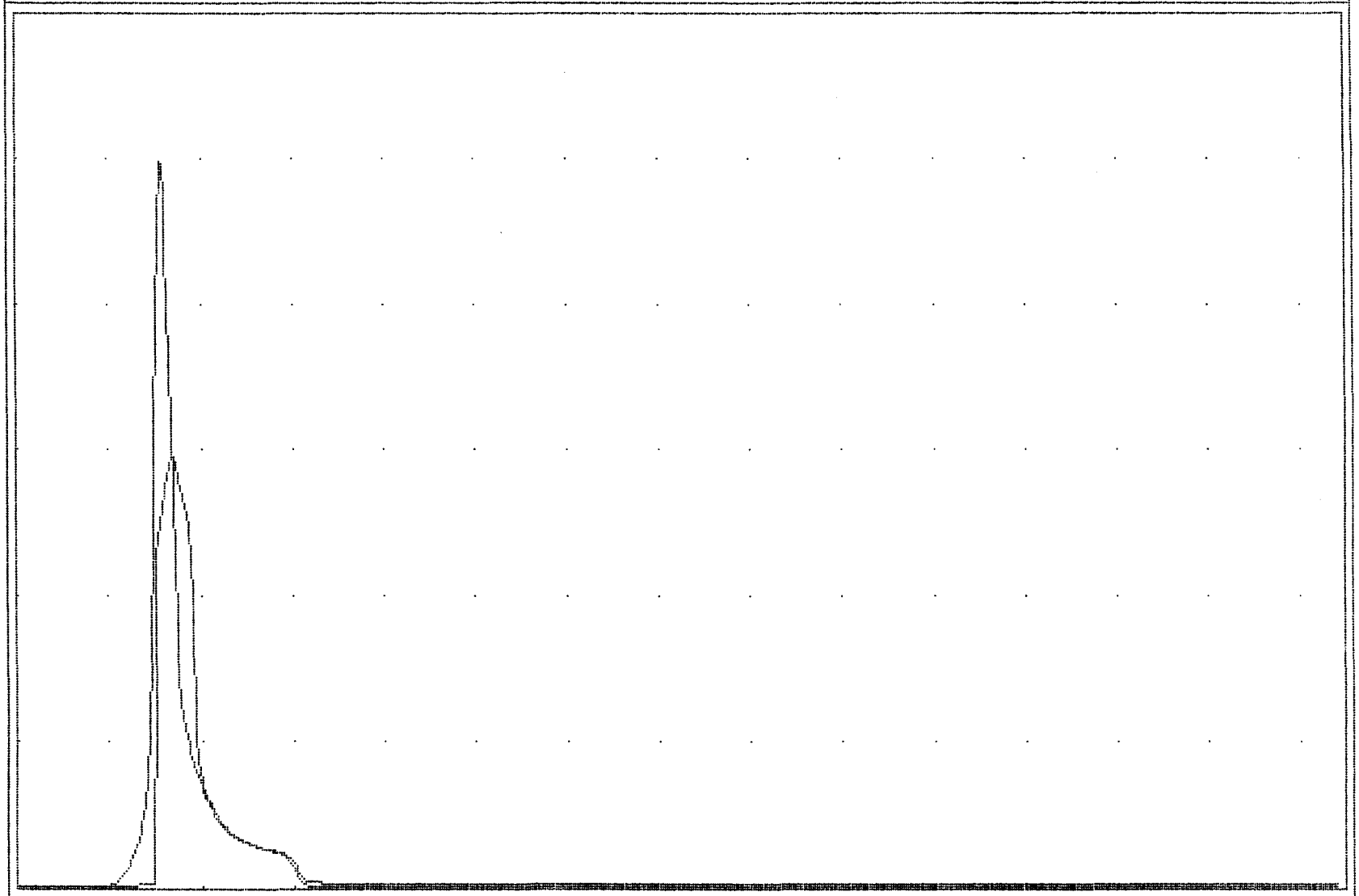
HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
20.50	6.07	5.96	464.83	477.21	6.19
20.67	5.96	5.86	464.70	476.86	6.08
20.83	5.86	5.75	464.56	476.51	5.98
21.00	5.75	5.64	464.43	476.17	5.87
21.17	5.64	5.54	464.30	475.83	5.76
21.33	5.54	5.43	464.17	475.48	5.66
21.50	5.43	5.33	464.03	475.14	5.55
21.67	5.33	5.22	463.90	474.79	5.45
21.83	5.22	5.11	463.77	474.45	5.34
22.00	5.11	5.05	463.64	474.10	5.23
22.17	5.05	5.00	463.52	473.80	5.14
22.33	5.00	4.96	463.40	473.58	5.09
22.50	4.96	4.93	463.28	473.37	5.04
22.67	4.93	4.90	463.17	473.17	5.00
22.83	4.90	4.89	463.07	473.00	4.96
23.00	4.89	4.80	462.99	472.86	4.93
23.17	4.80	4.72	462.89	472.68	4.89
23.33	4.72	4.64	462.74	472.42	4.84
23.50	4.64	4.55	462.56	472.10	4.77
23.67	4.55	4.46	462.37	471.75	4.69
23.83	4.46	4.37	462.15	471.38	4.61
24.00	4.37	4.20	461.93	470.98	4.53
24.17	4.20	3.95	461.65	470.50	4.42
24.33	3.95	3.62	461.26	469.80	4.27
24.50	3.62	3.22	460.70	468.82	4.06
24.67	3.22	2.77	459.98	467.54	3.78
24.83	2.77	2.25	459.08	465.96	3.44
25.00	2.25	1.79	458.02	464.09	3.04
25.17	1.79	1.38	456.86	462.05	2.60
25.33	1.38	1.03	455.71	460.03	2.16
25.50	1.03	0.73	454.63	458.12	1.74
25.67	0.73	0.48	453.65	456.39	1.37
25.83	0.48	0.29	452.78	454.86	1.04

Maximum outflow (cfs) = 59.15
Maximum storage (cu ft) = 325801
Maximum elevation (ft) = 21.24

25 Year Storm Routing DARRYL

Qp = 59.1 RESERVOIR ROUTE 25 Yr



HGU = 500 min 11 VGU = 20.0 cfs

MAX STORAGE = 325801

MAX ELEVATION = 21.24

HYDROLOGIC REPORT

25-year Post-Dev.....
Storm, Routed.....
Dry Pond.....

Hyd. No. 11

Hydrograph type = RESERVOIR ROUTE Peak discharge = 59.15 cfs
Storm frequency = 25 yr Time interval = 10 min
Inflow hyd. no. = 10 Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
9.33	1.13	1.45	6.34	6.34	0.00
9.50	1.45	1.81	8.89	8.92	0.02
9.67	1.81	2.21	12.05	12.14	0.04
9.83	2.21	2.66	15.94	16.08	0.07
10.00	2.66	3.16	20.65	20.82	0.09
10.17	3.16	3.71	26.26	26.47	0.10
10.33	3.71	4.32	32.89	33.13	0.12
10.50	4.32	5.00	40.64	40.92	0.14
10.67	5.00	5.76	49.64	49.96	0.16
10.83	5.76	6.61	60.05	60.40	0.18
11.00	6.61	7.59	72.03	72.42	0.19
11.17	7.59	8.75	85.81	86.23	0.21
11.33	8.75	10.16	101.70	102.15	0.23
11.50	10.16	12.26	120.13	120.61	0.24
11.67	12.26	15.96	142.02	142.55	0.26
11.83	15.96	23.83	169.67	170.24	0.28
12.00	23.83	36.36	208.85	209.47	0.31
12.17	36.36	50.97	268.36	269.04	0.34
12.33	50.97	66.37	354.93	355.69	0.38
12.50	66.37	81.16	462.67	472.28	4.81
12.67	81.16	93.67	518.46	610.20	45.87
12.83	93.67	99.64	597.20	693.30	48.05
13.00	99.64	98.08	689.64	790.52	50.44
13.17	98.08	92.86	782.45	887.36	52.45
13.33	92.86	85.79	865.02	973.38	54.18

HYDROGRAPH DISCHARGE TABLE Cont'd

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-O (i) cfs	2S/dt+O (j) cfs	OUTFLOW cfs
13.50	85.79	77.92	932.81	1043.66	55.43
13.67	77.92	69.45	983.78	1096.52	56.37
13.83	69.45	60.58	1015.13	1131.15	58.01
14.00	60.58	51.49	1026.86	1145.15	59.15
14.17	51.49	42.50	1021.81	1138.93	58.56
14.33	42.50	34.22	1001.94	1115.81	56.93
14.50	34.22	28.24	966.62	1078.66	56.02
14.67	28.24	24.95	918.72	1029.08	55.18
14.83	24.95	22.93	863.60	971.91	54.15
15.00	22.93	21.52	805.60	911.49	52.94
15.17	21.52	20.32	746.68	850.05	51.69
15.33	20.32	19.28	687.73	788.52	50.40
15.50	19.28	18.33	629.51	727.34	48.91
15.67	18.33	17.44	572.39	667.13	47.37
15.83	17.44	16.58	516.52	608.15	45.82
16.00	16.58	15.76	486.04	550.54	32.25
16.17	15.76	14.97	478.81	518.37	19.78
16.33	14.97	14.22	476.14	509.54	16.70
16.50	14.22	13.51	474.88	505.34	15.23
16.67	13.51	12.84	474.05	502.61	14.28
16.83	12.84	12.21	473.38	500.40	13.51
17.00	12.21	11.64	472.79	498.43	12.82
17.17	11.64	11.11	472.25	496.64	12.19
17.33	11.11	10.63	471.65	495.00	11.67
17.50	10.63	10.18	471.04	493.39	11.18
17.67	10.18	9.76	470.44	491.84	10.70
17.83	9.76	9.36	469.88	490.38	10.25
18.00	9.36	8.99	469.35	489.00	9.83
18.17	8.99	8.64	468.86	487.71	9.43
18.33	8.64	8.31	468.39	486.49	9.05
18.50	8.31	8.00	467.95	485.34	8.70
18.67	8.00	7.71	467.53	484.26	8.36
18.83	7.71	7.45	467.14	483.24	8.05
19.00	7.45	7.22	466.78	482.31	7.76
19.17	7.22	7.02	466.46	481.46	7.50
19.33	7.02	6.84	466.17	480.70	7.27
19.50	6.84	6.68	465.91	480.02	7.06
19.67	6.68	6.53	465.68	479.42	6.87
19.83	6.53	6.40	465.47	478.89	6.71
20.00	6.40	6.28	465.29	478.41	6.56
20.17	6.28	6.17	465.12	477.98	6.43
20.33	6.17	6.07	464.97	477.58	6.31

FOLK BLOCK #6877 3/28/94
HWD

EXTENDED DRY DETENTION POND
DESIGN TYPE 3

PRE-DEVELOPMENT

DRAINAGE AREA = 89.86 Ac±

CURVE NUMBER = 75

POST-DEVELOPMENT

DRAINAGE AREA = 89.86 Ac±

CURVE NUMBER = 79

DESIGN TYPE 3 - DETAIN 1 INCH RUNOFF FOR 24 HOURS.

REQUIRED VOLUME: $(1\text{ in.})(R_v)(D.A.)$

$R_v = 0.05 + 0.009(\%\text{ IMP.})$

$= 0.05 + 0.009(35\%)$

$= 0.05 + 0.315$

$= 0.365$

$$\text{VOLUME} = \frac{(1\text{ IN})(0.365)(89.86\text{ Ac})(43{,}560\text{ SF/Ac})}{12\text{ IN/FT}} = 119{,}060\text{ FT}^3$$

THIS STORAGE OCCURS AT ELEVATION: 14.10 FT

TO DETAIN FOR 24 HRS.

$$\frac{119{,}060\text{ FT}^3}{(24\text{ HRS})(60\text{ MIN/HR})(60\text{ SEC/MIN})} = 1.38\text{ CFS}$$

SIZE ORIFICE TO EARLY MAXIMUM 1.38 CFS

$Q = 1.38$ CFS

$Q = CA\sqrt{2gh}$ $\quad h = 14.25 - 6.00 = 8.75$

$g = 32.2\text{ FT/SEC}^2$

$C = 0.60$

$1.38 = 0.60\,A\sqrt{2(32.2)(8.75)}$

$A = .0969\text{ FT}^2 = \frac{\pi d^2}{4}$ $\quad d = 0.3512\text{ FT} = 4.21\text{ IN.}$

USE 4" ORIFICE

7. Reports

HYDROLOGIC REPORT FOR

FERN BROOK

SECTION 2

JOB NO. 6877

DRY POND #1

prepared by:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE RD,SUITE 1

WILLIAMSBURG, VA. 23188

REVISED DATE: 03/28/94

DARRYL

HYDRAULIC REPORT FOR

FERN BROOK

SECTION 2

STORM SEWER DESIGN

JOB NO. 6877

prepared by:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE Rd,SUITE 1

Williamsburg, VA. 23188

Revised Date: 3/3/94

LINE 3 / Q = 54.57 / HT = 48 / WID = 48 / N = .013 / L = 384 / JLC = 1.1

SS#40 TO SS#38... / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	16.25	48.00	7.10	4.34	16.54	0.00	15.43	12.56
UPSTRM	16.81	48.00	8.83	4.34	17.10	0.00	14.99	12.57

Drainage area (ac)	= 0.43	Slope of invert (%)	= 0.4500
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1444
Time of conc (min)	= 39.57	Critical depth (in)	= 26.21
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 27.82
Intensity (in/hr)	= 2.92	Upstream surcharge (ft)	= 3.98
Cumulative C*A	= 18.66	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 54.57	Line capacity (cfs)	= 96.36
Q catchment (cfs)	= 0.72	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 88.25	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 88.97	Ponding width (ft)	= N/A

LINE 4 / Q = 2.14 / HT = 15 / WID = 15 / N = .013 / L = 25 / JLC = .9

SS#38 TO SS#39... / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	23.66	4.96	23.25	6.06	24.23	14.11	3.31	0.35
UPSTRM	24.16	4.96	23.75	6.06	24.73	14.11	2.81	0.35

Drainage area (ac)	= 0.71	Slope of invert (%)	= 2.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.0000
Time of conc (min)	= 15.00	Critical depth (in)	= 7.03
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 27.82
Intensity (in/hr)	= 4.76	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.45	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.14	Line capacity (cfs)	= 9.13
Q catchment (cfs)	= 1.01	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.66	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.67	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 79 / Q = 1.26 / HT = 15 / WID = 15 / N = .013 / L = 80 / JLC = 0

SS#6 TO SS#6C / DNLN = 69

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.57	12.80	21.50	1.13	22.59	13.85	2.8	1.12
UPSTRM	22.60	7.98	21.93	1.90	22.65	14.97	2.68	0.66

Drainage area (ac)	= 0.60	Slope of invert (%)	= 0.5375
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0809
Time of conc (min)	= 5.00	Critical depth (in)	= 5.38
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.86
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.18	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.26	Line capacity (cfs)	= 4.73
Q catchment (cfs)	= 1.26	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.26	Ponding width (ft)	= N/A

LINE 80 / Q = 1.05 / HT = 15 / WID = 15 / N = .013 / L = 85 / JLC = 0

SS#6 TO SS#6D / DNLN = 69

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.57	12.80	21.50	0.94	22.58	13.85	2.8	1.12
UPSTRM	22.59	7.94	21.93	1.59	22.63	14.97	2.69	0.66

Drainage area (ac)	= 0.50	Slope of invert (%)	= 0.5059
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0595
Time of conc (min)	= 5.00	Critical depth (in)	= 4.92
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.88
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.15	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.05	Line capacity (cfs)	= 4.59
Q catchment (cfs)	= 1.05	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.05	Ponding width (ft)	= N/A

LINE 77 / Q = 1.05 / HT = 15 / WID = 15 / N = .013 / L = 55 / JLC = 0

SS#16 TO SS#16B / DNLN = 46

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.40	14.45	19.20	0.86	20.42	14.72	5.17	1.21
UPSTRM	20.41	7.94	19.75	1.59	20.45	14.97	4.79	0.66

Drainage area (ac)	= 0.50	Slope of invert (%)	= 1.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0641
Time of conc (min)	= 5.00	Critical depth (in)	= 4.92
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.80
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.15	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.05	Line capacity (cfs)	= 6.46
Q catchment (cfs)	= 1.05	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.05	Ponding width (ft)	= N/A

LINE 78 / Q = 1.05 / HT = 15 / WID = 15 / N = .013 / L = 95 / JLC = 0

SS#16 TO SS#16A / DNLN = 46

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.40	13.85	19.25	0.89	20.42	14.41	5.12	1.18
UPSTRM	20.91	4.92	20.50	3.00	21.05	14.08	3.76	0.35

Drainage area (ac)	= 0.50	Slope of invert (%)	= 1.3158
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.6664
Time of conc (min)	= 5.00	Critical depth (in)	= 4.92
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.51
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.15	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.05	Line capacity (cfs)	= 7.41
Q catchment (cfs)	= 1.05	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.05	Ponding width (ft)	= N/A

LINE 75 / Q = 1.89 / HT = 15 / WID = 15 / N = .013 / L = 73 / JLC = 0

SS#31 TO SS#31A / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.42	15.00	17.66	1.54	20.46	0.00	6.44	1.23
UPSTRM	20.47	11.67	19.50	1.84	20.52	12.47	4.88	1.02

Drainage area (ac)	= 0.90	Slope of invert (%)	= 2.5205
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0906
Time of conc (min)	= 5.00	Critical depth (in)	= 6.59
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.64
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.27	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.89	Line capacity (cfs)	= 10.25
Q catchment (cfs)	= 1.89	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.89	Ponding width (ft)	= N/A

LINE 76 / Q = 1.68 / HT = 15 / WID = 15 / N = .013 / L = 95 / JLC = 0

SS#32 TO SS#32A / DNLN = 33

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.49	15.00	18.75	1.37	20.52	0.00	5.35	1.23
UPSTRM	20.54	10.13	19.70	1.90	20.60	14.05	4.78	0.88

Drainage area (ac)	= 0.80	Slope of invert (%)	= 1.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0856
Time of conc (min)	= 5.00	Critical depth (in)	= 6.22
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.74
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.24	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.68	Line capacity (cfs)	= 6.46
Q catchment (cfs)	= 1.68	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.68	Ponding width (ft)	= N/A

LINE 73 / Q = 4.38 / HT = 15 / WID = 15 / N = .013 / L = 200 / JLC = .9

SS#25B TO SS#25C. / DNLN = 72

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.35	10.22	20.50	4.92	21.73	12.38	9.25	0.89
UPSTRM	23.69	10.05	22.50	5.01	24.08	14.11	4.75	0.87

Drainage area (ac)	= 3.50	Slope of invert (%)	= 1.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 1.1758
Time of conc (min)	= 20.00	Critical depth (in)	= 10.05
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 28.50
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.05	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.38	Line capacity (cfs)	= 6.46
Q catchment (cfs)	= 4.38	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.38	Ponding width (ft)	= N/A

LINE 74 / Q = 1.66 / HT = 15 / WID = 15 / N = .013 / L = 100 / JLC = 0

SS#39 TO SS#39A / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.68	11.11	23.75	1.70	24.72	12.91	2.81	0.97
UPSTRM	25.26	6.18	24.75	3.47	25.45	14.77	3.04	0.48

Drainage area (ac)	= 0.79	Slope of invert (%)	= 1.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.7317
Time of conc (min)	= 5.00	Critical depth (in)	= 6.18
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 29.05
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.24	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.66	Line capacity (cfs)	= 6.46
Q catchment (cfs)	= 1.66	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.66	Ponding width (ft)	= N/A

LINE 71 / Q = 0.90 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#6A TO SS#6B... / DNLN = 70

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	23.98	6.95	23.40	1.61	24.02	10.21	3.14	0.56
UPSTRM	24.08	4.90	23.58	2.58	24.18	14.07	1.16	0.35

Drainage area (ac)	= 0.40	Slope of invert (%)	= 0.5627
Runoff coefficient	= 0.40	Slope energy grade line (%)	= 0.5155
Time of conc (min)	= 10.00	Critical depth (in)	= 4.55
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 26.00
Intensity (in/hr)	= 5.62	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.16	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.90	Line capacity (cfs)	= 4.84
Q catchment (cfs)	= 0.90	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.90	Ponding width (ft)	= N/A

LINE 72 / Q = 4.31 / HT = 18 / WID = 18 / N = .013 / L = 85 / JLC = .9

SS#25 TO SS#25B.. / DNLN = 15

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.95	12.95	19.87	3.17	21.11	15.27	7.88	1.36
UPSTRM	21.12	10.49	20.25	4.03	21.38	17.75	9.25	1.07

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.4471
Runoff coefficient	= 0.00	Slope energy grade line (%)	= 0.3199
Time of conc (min)	= 20.67	Critical depth (in)	= 9.51
Inlet time (min)	= 0.00	Natural ground elev. (ft)	= 31.00
Intensity (in/hr)	= 4.11	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.05	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.31	Line capacity (cfs)	= 7.02
Q catchment (cfs)	= 0.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 4.38	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.38	Ponding width (ft)	= N/A

LINE 69 / Q = 4.19 / HT = 18 / WID = 18 / N = .013 / L = 65 / JLC = 1

SS#7 TO SS#6..... / DNLN = 64

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.28	7.69	20.63	5.82	21.80	17.81	3.53	0.72
UPSTRM	22.04	7.69	21.40	5.82	22.57	17.81	2.65	0.72

Drainage area (ac)	= 0.90	Slope of invert (%)	= 1.1772
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 1.1772
Time of conc (min)	= 15.00	Critical depth (in)	= 9.37
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.56
Intensity (in/hr)	= 4.76	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.88	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.19	Line capacity (cfs)	= 11.39
Q catchment (cfs)	= 1.29	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.88	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 5.16	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 70 / Q = 1.56 / HT = 15 / WID = 15 / N = .013 / L = 215 / JLC = 1

SS#6 TO SS#6A.... / DNLN = 69

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.57	12.80	21.50	1.40	22.60	13.85	2.8	1.12
UPSTRM	23.80	5.99	23.30	3.40	23.98	14.69	3.24	0.46

Drainage area (ac)	= 0.30	Slope of invert (%)	= 0.8372
Runoff coefficient	= 0.40	Slope energy grade line (%)	= 0.6431
Time of conc (min)	= 10.25	Critical depth (in)	= 5.99
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 27.80
Intensity (in/hr)	= 5.56	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.28	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.56	Line capacity (cfs)	= 5.91
Q catchment (cfs)	= 0.67	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.90	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.57	Ponding width (ft)	= N/A

LINE 67 / Q = 0.81 / HT = 15 / WID = 15 / N = .013 / L = 35 / JLC = .9

SS#9A TO SS#8.... / DNLN = 66

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.91	9.66	22.10	0.97	22.92	12.04	2.97	0.84
UPSTRM	22.93	8.20	22.22	1.19	22.95	14.93	2.88	0.69

Drainage area (ac)	= 0.65	Slope of invert (%)	= 0.3565
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0855
Time of conc (min)	= 20.00	Critical depth (in)	= 4.33
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 26.36
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.20	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.81	Line capacity (cfs)	= 3.86
Q catchment (cfs)	= 0.81	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.81	Ponding width (ft)	= N/A

LINE 68 / Q = 0.95 / HT = 15 / WID = 15 / N = .013 / L = 190 / JLC = .9

SS#9A TO SS#8A... / DNLN = 66

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.91	9.66	22.10	1.14	22.93	12.04	2.97	0.84
UPSTRM	23.22	5.47	22.69	2.36	23.31	14.44	2.88	0.40

Drainage area (ac)	= 0.85	Slope of invert (%)	= 0.3105
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.2022
Time of conc (min)	= 25.00	Critical depth (in)	= 4.69
Inlet time (min)	= 25.00	Natural ground elev. (ft)	= 26.83
Intensity (in/hr)	= 3.74	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.26	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.95	Line capacity (cfs)	= 3.60
Q catchment (cfs)	= 0.95	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.95	Ponding width (ft)	= N/A

LINE 65 / Q = 2.88 / HT = 18 / WID = 18 / N = .013 / L = 25 / JLC = 1

SS#7 TO SS#9..... / DNLN = 64

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.79	5.53	20.33	6.26	21.40	16.61	3.84	0.46
UPSTRM	21.24	5.53	20.78	6.26	21.85	16.61	3.38	0.46

Drainage area (ac)	= 0.40	Slope of invert (%)	= 1.8000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 1.8000
Time of conc (min)	= 27.49	Critical depth (in)	= 7.78
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.67
Intensity (in/hr)	= 3.56	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.81	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.88	Line capacity (cfs)	= 14.09
Q catchment (cfs)	= 0.57	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 2.77	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.34	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 66 / Q = 2.49 / HT = 15 / WID = 15 / N = .013 / L = 140 / JLC = 1.1

SS#9 TO SS#9A.... / DNLN = 65

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.85	9.83	21.03	2.92	21.98	12.14	3.38	0.85
UPSTRM	22.63	7.57	22.00	4.01	22.88	15.00	3.07	0.62

Drainage area (ac)	= 0.80	Slope of invert (%)	= 0.6929
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.6421
Time of conc (min)	= 26.81	Critical depth (in)	= 7.57
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 26.33
Intensity (in/hr)	= 3.61	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.69	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.49	Line capacity (cfs)	= 5.38
Q catchment (cfs)	= 1.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.77	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.77	Ponding width (ft)	= N/A

LINE 63 / Q = 1.25 / HT = 15 / WID = 15 / N = .013 / L = 25 / JLC = .9

SS#11 TO SS#10... / DNLN = 62

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.49	3.77	21.18	5.18	21.91	13.01	3.61	0.24
UPSTRM	22.37	3.77	21.68	5.18	22.79	13.01	2.88	0.24

Drainage area (ac)	= 1.00	Slope of invert (%)	= 2.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 3.5022
Time of conc (min)	= 20.00	Critical depth (in)	= 5.37
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.82
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.30	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.25	Line capacity (cfs)	= 9.13
Q catchment (cfs)	= 1.25	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.25	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 64 / Q = 6.86 / HT = 30 / WID = 30 / N = .013 / L = 220 / JLC = 1.2

SS#11 TO SS#7.... / DNLN = 62

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.71	30.00	17.78	1.40	20.74	0.00	5.76	4.91
UPSTRM	20.79	15.08	19.53	2.78	20.91	30.00	3.63	2.47

Drainage area (ac)	= 0.80	Slope of invert (%)	= 0.7955
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0748
Time of conc (min)	= 27.55	Critical depth (in)	= 10.50
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.67
Intensity (in/hr)	= 3.56	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.93	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 6.86	Line capacity (cfs)	= 36.58
Q catchment (cfs)	= 1.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 8.51	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 9.51	Ponding width (ft)	= N/A

LINE 41 / Q = 1.12 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#29 TO SS#29A.. / DNLN = 40

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	23.44	9.15	22.68	1.43	23.47	11.71	3.14	0.78
UPSTRM	23.49	8.12	22.78	1.66	23.54	14.95	1.26	0.68

Drainage area (ac)	= 0.50	Slope of invert (%)	= 0.3125
Runoff coefficient	= 0.40	Slope energy grade line (%)	= 0.1980
Time of conc (min)	= 10.00	Critical depth (in)	= 5.09
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 25.30
Intensity (in/hr)	= 5.62	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.20	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.12	Line capacity (cfs)	= 3.61
Q catchment (cfs)	= 1.12	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.12	Ponding width (ft)	= N/A

LINE 42 / Q = 22.33 / HT = 42 / WID = 42 / N = .013 / L = 75 / JLC = 1

SS#20 TO SS#18... / DNLN = 13

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.55	42.00	12.10	2.32	19.63	0.00	15.22	9.62
UPSTRM	19.58	42.00	12.30	2.32	19.67	0.00	14	9.62

Drainage area (ac)	= 0.40	Slope of invert (%)	= 0.2667
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0493
Time of conc (min)	= 34.64	Critical depth (in)	= 17.36
Inlet time (min)	= 8.00	Natural ground elev. (ft)	= 29.81
Intensity (in/hr)	= 3.15	Upstream surcharge (ft)	= 3.78
Cumulative C*A	= 7.10	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 22.33	Line capacity (cfs)	= 51.95
Q catchment (cfs)	= 0.73	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 32.93	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 33.66	Ponding width (ft)	= N/A

LINE 43 / Q = 22.28 / HT = 36 / WID = 36 / N = .013 / L = 180 / JLC = 1.2

SS#18 TO SS#18A.. / DNLN = 42

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.67	36.00	12.30	3.15	19.82	0.00	14.5	7.07
UPSTRM	19.87	36.00	13.40	3.15	20.02	0.00	11.55	7.07

Drainage area (ac)	= 0.50	Slope of invert (%)	= 0.6111
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1117
Time of conc (min)	= 33.69	Critical depth (in)	= 18.05
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 27.95
Intensity (in/hr)	= 3.19	Upstream surcharge (ft)	= 3.47
Cumulative C*A	= 6.98	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 22.28	Line capacity (cfs)	= 52.14
Q catchment (cfs)	= 0.84	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 32.09	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 32.93	Ponding width (ft)	= N/A

LINE 44 / Q = 11.58 / HT = 30 / WID = 30 / N = .013 / L = 32 / JLC = 1

SS#18A TO SS#18B. / DNLN = 43

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.05	30.00	13.90	2.36	20.14	0.00	11.55	4.91
UPSTRM	20.08	30.00	14.00	2.36	20.17	0.00	11.45	4.91

Drainage area (ac)	= 0.90	Slope of invert (%)	= 0.3125
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0797
Time of conc (min)	= 33.46	Critical depth (in)	= 13.64
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 27.95
Intensity (in/hr)	= 3.21	Upstream surcharge (ft)	= 3.58
Cumulative C*A	= 3.61	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 11.58	Line capacity (cfs)	= 22.93
Q catchment (cfs)	= 1.29	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 15.51	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 16.80	Ponding width (ft)	= N/A

LINE 45 / Q = 11.31 / HT = 30 / WID = 30 / N = .013 / L = 248 / JLC = 1.1

SS#18A TO SS#17.. / DNLN = 43

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.05	30.00	15.31	2.30	20.14	0.00	10.14	4.91
UPSTRM	20.24	30.00	16.62	2.30	20.32	0.00	6.5	4.91

Drainage area (ac)	= 1.50	Slope of invert (%)	= 0.5282
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0760
Time of conc (min)	= 28.14	Critical depth (in)	= 13.48
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.62
Intensity (in/hr)	= 3.52	Upstream surcharge (ft)	= 1.12
Cumulative C*A	= 3.21	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 11.31	Line capacity (cfs)	= 29.81
Q catchment (cfs)	= 1.88	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 13.41	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 15.29	Ponding width (ft)	= N/A

LINE 46 / Q = 2.13 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#17 TO SS#16... / DNLN = 45

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.33	15.00	18.20	1.74	20.38	0.00	6.17	1.23
UPSTRM	20.36	13.91	19.20	1.79	20.41	7.80	5.17	1.19

Drainage area (ac)	= 0.70	Slope of invert (%)	= 3.1250
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0923
Time of conc (min)	= 20.00	Critical depth (in)	= 7.00
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.62
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.51	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.13	Line capacity (cfs)	= 11.42
Q catchment (cfs)	= 0.88	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 2.10	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.97	Ponding width (ft)	= N/A

LINE 47 / Q = 8.19 / HT = 30 / WID = 30 / N = .013 / L = 176 / JLC = 1

SS#17C TO SS#17A. / DNLN = 45

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.33	30.00	17.19	1.67	20.38	0.00	5.93	4.91
UPSTRM	20.39	26.30	18.20	1.80	20.44	19.74	5.53	4.56

Drainage area (ac)	= 0.30	Slope of invert (%)	= 0.5739
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0373
Time of conc (min)	= 26.45	Critical depth (in)	= 11.47
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 26.24
Intensity (in/hr)	= 3.63	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 2.25	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 8.19	Line capacity (cfs)	= 31.07
Q catchment (cfs)	= 0.51	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 9.93	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 10.44	Ponding width (ft)	= N/A

LINE 48 / Q = 8.02 / HT = 30 / WID = 30 / N = .013 / L = 100 / JLC = 0

SS#17 TO SS#17C / DNLN = 47

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.44	30.00	16.62	1.63	20.48	0.00	7.11	4.91
UPSTRM	20.48	30.00	17.19	1.63	20.52	0.00	6.25	4.91

Drainage area (ac)	= 0.50	Slope of invert (%)	= 0.5700
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0383
Time of conc (min)	= 25.43	Critical depth (in)	= 11.36
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 25.94
Intensity (in/hr)	= 3.71	Upstream surcharge (ft)	= 0.79
Cumulative C*A	= 2.16	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 8.02	Line capacity (cfs)	= 30.96
Q catchment (cfs)	= 1.05	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 8.89	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 9.93	Ponding width (ft)	= N/A

LINE 49 / Q = 1.35 / HT = 15 / WID = 15 / N = .013 / L = 120 / JLC = .9

SS#17A TO SS#17B. / DNLN = 48

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.46	4.27	22.10	4.68	22.80	13.53	2.59	0.29
UPSTRM	24.66	4.27	24.00	4.68	25.00	13.53	1.75	0.29

Drainage area (ac)	= 1.20	Slope of invert (%)	= 1.5833
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 1.8385
Time of conc (min)	= 25.00	Critical depth (in)	= 5.57
Inlet time (min)	= 25.00	Natural ground elev. (ft)	= 27.00
Intensity (in/hr)	= 3.74	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.36	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.35	Line capacity (cfs)	= 8.13
Q catchment (cfs)	= 1.35	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.35	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 50 / Q = 6.61 / HT = 24 / WID = 24 / N = .013 / L = 154 / JLC = 1.2

SS#17A TO SS#12.. / DNLN = 48

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.48	21.36	18.70	2.24	20.56	22.64	5.23	2.95
UPSTRM	20.59	17.33	19.15	2.72	20.71	21.51	4.44	2.43

Drainage area (ac)	= 1.00	Slope of invert (%)	= 0.2922
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0984
Time of conc (min)	= 21.92	Critical depth (in)	= 10.92
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.59
Intensity (in/hr)	= 3.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.65	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 6.61	Line capacity (cfs)	= 12.23
Q catchment (cfs)	= 1.25	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 6.29	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 7.54	Ponding width (ft)	= N/A

LINE 51 / Q = 1.50 / HT = 24 / WID = 24 / N = .013 / L = 40 / JLC = .9

SS#12 TO SS#12A.. / DNLN = 50

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.59	3.43	20.30	5.46	21.05	16.79	3.29	0.28
UPSTRM	22.14	3.43	21.44	5.46	22.61	16.79	2.13	0.28

Drainage area (ac)	= 1.20	Slope of invert (%)	= 2.8500
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 3.8924
Time of conc (min)	= 20.00	Critical depth (in)	= 5.21
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.58
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.36	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.50	Line capacity (cfs)	= 38.18
Q catchment (cfs)	= 1.50	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.50	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 52 / Q = 4.05 / HT = 24 / WID = 24 / N = .013 / L = 95 / JLC = 1

SS#12 TO SS#5.... / DNLN = 50

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.73	17.78	19.25	1.62	20.77	20.66	4.34	2.50
UPSTRM	20.76	14.60	19.54	2.02	20.82	23.43	4	2.00

Drainage area (ac)	= 0.70	Slope of invert (%)	= 0.3053
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0502
Time of conc (min)	= 21.05	Critical depth (in)	= 8.55
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.54
Intensity (in/hr)	= 4.07	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.00	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.05	Line capacity (cfs)	= 12.50
Q catchment (cfs)	= 1.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.79	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.79	Ponding width (ft)	= N/A

LINE 53 / Q = 0.57 / HT = 15 / WID = 15 / N = .013 / L = 52 / JLC = .9

SS#5 TO SS#5A.... / DNLN = 52

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.36	3.14	21.10	3.07	21.51	12.20	3.19	0.19
UPSTRM	22.01	3.14	21.62	3.07	22.16	12.20	2.67	0.19

Drainage area (ac)	= 0.40	Slope of invert (%)	= 1.0000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 1.2531
Time of conc (min)	= 15.00	Critical depth (in)	= 3.63
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.54
Intensity (in/hr)	= 4.76	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.12	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.57	Line capacity (cfs)	= 6.46
Q catchment (cfs)	= 0.57	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.57	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 54 / Q = 2.78 / HT = 24 / WID = 24 / N = .013 / L = 154 / JLC = 1

SS#5 TO SS#4..... / DNLN = 52

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.82	15.37	19.54	1.31	20.85	19.20	4	2.12
UPSTRM	22.01	7.08	21.42	3.59	22.21	21.89	3.38	0.77

Drainage area (ac)	= 1.00	Slope of invert (%)	= 1.2208
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.8847
Time of conc (min)	= 20.00	Critical depth (in)	= 7.08
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 26.81
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.67	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.78	Line capacity (cfs)	= 24.99
Q catchment (cfs)	= 1.25	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.96	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.21	Ponding width (ft)	= N/A

LINE 55 / Q = 0.21 / HT = 15 / WID = 15 / N = .013 / L = 20 / JLC = .9

SS#4 TO SS#4A.... / DNLN = 54

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.26	1.11	22.17	5.14	22.67	7.84	3.38	0.04
UPSTRM	25.16	1.11	24.70	5.14	25.57	7.84	-1.25	0.04

Drainage area (ac)	= 0.10	Slope of invert (%)	=12.6500
Runoff coefficient	= 0.30	Slope energy grade line (%)	=14.4969
Time of conc (min)	= 5.00	Critical depth (in)	= 2.20
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 24.70
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.03	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.21	Line capacity (cfs)	= 22.97
Q catchment (cfs)	= 0.21	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.21	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 56 / Q = 0.76 / HT = 15 / WID = 15 / N = .013 / L = 52 / JLC = 1

SS#4 TO SS#4B.... / DNLN = 54

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.48	3.77	22.17	3.14	22.64	13.01	3.38	0.24
UPSTRM	22.88	3.77	22.57	3.14	23.04	13.01	2.98	0.24

Drainage area (ac)	= 0.35	Slope of invert (%)	= 0.7692
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.7692
Time of conc (min)	= 10.00	Critical depth (in)	= 4.18
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 26.81
Intensity (in/hr)	= 5.62	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.14	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.76	Line capacity (cfs)	= 5.66
Q catchment (cfs)	= 0.59	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.21	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.80	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 57 / Q = 0.21 / HT = 15 / WID = 15 / N = .013 / L = 20 / JLC = .9

SS#4B TO SS#4C... / DNLN = 56

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	23.04	5.60	22.57	0.50	23.04	9.17	2.98	0.42
UPSTRM	24.93	2.20	24.70	1.88	24.99	10.61	2.04	0.11

Drainage area (ac)	= 0.10	Slope of invert (%)	=10.6505
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 9.7325
Time of conc (min)	= 5.00	Critical depth (in)	= 2.20
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 28.00
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.03	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.21	Line capacity (cfs)	= 21.07
Q catchment (cfs)	= 0.21	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.21	Ponding width (ft)	= N/A

LINE 58 / Q = 0.95 / HT = 15 / WID = 15 / N = .013 / L = 74 / JLC = .9

SS#4 TO SS#4D.... / DNLN = 54

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.51	4.10	22.17	3.51	22.70	13.37	3.38	0.27
UPSTRM	23.29	4.10	22.78	3.51	23.48	13.37	1.06	0.27

Drainage area (ac)	= 0.50	Slope of invert (%)	= 0.8243
Runoff coefficient	= 0.40	Slope energy grade line (%)	= 1.0564
Time of conc (min)	= 15.00	Critical depth (in)	= 4.69
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.10
Intensity (in/hr)	= 4.76	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.20	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.95	Line capacity (cfs)	= 5.86
Q catchment (cfs)	= 0.95	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.95	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 59 / Q = 11.11 / HT = 30 / WID = 30 / N = .013 / L = 295 / JLC = 1

SS#18B TO SS#18C. / DNLN = 44

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.17	30.00	14.10	2.26	20.24	0.00	11.35	4.91
UPSTRM	20.38	30.00	16.20	2.26	20.46	0.00	7.5	4.91

Drainage area (ac)	= 0.90	Slope of invert (%)	= 0.7119
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0733
Time of conc (min)	= 31.28	Critical depth (in)	= 13.36
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 26.20
Intensity (in/hr)	= 3.32	Upstream surcharge (ft)	= 1.68
Cumulative C*A	= 3.34	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 11.11	Line capacity (cfs)	= 34.60
Q catchment (cfs)	= 1.13	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 14.39	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 15.51	Ponding width (ft)	= N/A

LINE 60 / Q = 10.36 / HT = 30 / WID = 30 / N = .013 / L = 110 / JLC = 1

SS#18C TO SS#11B. / DNLN = 59

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.46	30.00	16.20	2.11	20.53	0.00	7.5	4.91
UPSTRM	20.53	30.00	17.13	2.11	20.60	0.00	6.64	4.91

Drainage area (ac)	= 1.30	Slope of invert (%)	= 0.8455
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0639
Time of conc (min)	= 30.41	Critical depth (in)	= 12.91
Inlet time (min)	= 25.00	Natural ground elev. (ft)	= 26.27
Intensity (in/hr)	= 3.38	Upstream surcharge (ft)	= 0.90
Cumulative C*A	= 3.07	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 10.36	Line capacity (cfs)	= 37.71
Q catchment (cfs)	= 1.46	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 12.93	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 14.39	Ponding width (ft)	= N/A

LINE 61 / Q = 9.13 / HT = 30 / WID = 30 / N = .013 / L = 58 / JLC = 1.1

SS#11B TO SS#11A. / DNLN = 60

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.60	30.00	17.23	1.86	20.65	0.00	6.54	4.91
UPSTRM	20.63	30.00	17.46	1.86	20.68	0.00	5.86	4.91

Drainage area (ac)	= 1.00	Slope of invert (%)	= 0.3966
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0496
Time of conc (min)	= 29.89	Critical depth (in)	= 12.11
Inlet time (min)	= 25.00	Natural ground elev. (ft)	= 25.82
Intensity (in/hr)	= 3.41	Upstream surcharge (ft)	= 0.67
Cumulative C*A	= 2.68	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 9.13	Line capacity (cfs)	= 25.83
Q catchment (cfs)	= 1.12	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 11.81	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 12.93	Ponding width (ft)	= N/A

LINE 62 / Q = 8.19 / HT = 30 / WID = 30 / N = .013 / L = 58 / JLC = 0

SS#11A TO SS#11 / DNLN = 61

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.69	30.00	17.46	1.67	20.73	0.00	5.86	4.91
UPSTRM	20.71	30.00	17.68	1.67	20.75	0.00	5.86	4.91

Drainage area (ac)	= 0.50	Slope of invert (%)	= 0.3793
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0399
Time of conc (min)	= 29.31	Critical depth (in)	= 11.48
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 26.05
Intensity (in/hr)	= 3.44	Upstream surcharge (ft)	= 0.53
Cumulative C*A	= 2.38	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 8.19	Line capacity (cfs)	= 25.26
Q catchment (cfs)	= 1.05	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 10.76	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 11.81	Ponding width (ft)	= N/A

LINE 5 / Q = 52.95 / HT = 48 / WID = 48 / N = .013 / L = 24 / JLC = 1.2

SS#38 TO SS#38A / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	17.13	48.00	8.83	4.21	17.40	0.00	14.99	12.56
UPSTRM	17.16	48.00	8.92	4.21	17.44	0.00	14.96	12.57

Drainage area (ac)	= 1.07	Slope of invert (%)	= 0.4000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1359
Time of conc (min)	= 39.47	Critical depth (in)	= 25.82
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 27.89
Intensity (in/hr)	= 2.93	Upstream surcharge (ft)	= 4.24
Cumulative C*A	= 18.09	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 52.95	Line capacity (cfs)	= 90.85
Q catchment (cfs)	= 1.53	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 84.05	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 85.57	Ponding width (ft)	= N/A

LINE 6 / Q = 2.89 / HT = 15 / WID = 15 / N = .013 / L = 75 / JLC = .9

SS#38A TO SS#38B. / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	23.46	5.49	23.00	7.11	24.24	14.45	3.63	0.41
UPSTRM	25.46	5.49	25.00	7.11	26.24	14.45	4.75	0.41

Drainage area (ac)	= 0.20	Slope of invert (%)	= 2.6667
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.6667
Time of conc (min)	= 20.39	Critical depth (in)	= 8.17
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 31.00
Intensity (in/hr)	= 4.14	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.70	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.89	Line capacity (cfs)	= 10.54
Q catchment (cfs)	= 0.42	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 2.67	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.09	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 7 / Q = 2.67 / HT = 15 / WID = 15 / N = .013 / L = 75 / JLC = .9

SS#38B TO SS#38C. / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	26.16	13.97	25.00	2.24	26.24	14.48	4.75	1.19
UPSTRM	27.89	7.85	27.00	4.11	28.15	14.98	1.25	0.65

Drainage area (ac)	= 1.60	Slope of invert (%)	= 2.6667
Runoff coefficient	= 0.40	Slope energy grade line (%)	= 2.5470
Time of conc (min)	= 20.00	Critical depth (in)	= 7.85
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 29.50
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.64	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.67	Line capacity (cfs)	= 10.54
Q catchment (cfs)	= 2.67	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.67	Ponding width (ft)	= N/A

LINE 8 / Q = 51.05 / HT = 48 / WID = 48 / N = .013 / L = 365 / JLC = .9

SS#38A TO SS#37 . / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	17.49	48.00	8.92	4.06	17.75	0.00	14.96	12.56
UPSTRM	17.95	48.00	10.40	4.06	18.21	0.00	16.95	12.57

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.4055
Runoff coefficient	= 0.00	Slope energy grade line (%)	= 0.1263
Time of conc (min)	= 37.98	Critical depth (in)	= 25.35
Inlet time (min)	= 0.00	Natural ground elev. (ft)	= 31.35
Intensity (in/hr)	= 2.99	Upstream surcharge (ft)	= 3.55
Cumulative C*A	= 17.06	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 51.05	Line capacity (cfs)	= 91.47
Q catchment (cfs)	= 0.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 80.95	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 80.95	Ponding width (ft)	= N/A

LINE 9 / Q = 51.71 / HT = 48 / WID = 48 / N = .013 / L = 217 / JLC = 1.1

SS#37 TO SS#28... / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	18.18	48.00	10.40	4.12	18.45	0.00	16.95	12.56
UPSTRM	18.46	48.00	11.15	4.12	18.73	0.00	15.72	12.57

Drainage area (ac)	= 0.20	Slope of invert (%)	= 0.3456
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1296
Time of conc (min)	= 37.10	Critical depth (in)	= 25.52
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 30.87
Intensity (in/hr)	= 3.03	Upstream surcharge (ft)	= 3.31
Cumulative C*A	= 17.06	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 51.71	Line capacity (cfs)	= 84.45
Q catchment (cfs)	= 0.42	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 80.54	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 80.95	Ponding width (ft)	= N/A

LINE 10 / Q = 30.38 / HT = 42 / WID = 42 / N = .013 / L = 75 / JLC = 1.1

SS#28 TO SS#26... / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	18.75	42.00	11.15	3.16	18.91	0.00	16.22	9.62
UPSTRM	18.82	42.00	11.35	3.16	18.98	0.00	15.34	9.62

Drainage area (ac)	= 0.30	Slope of invert (%)	= 0.2667
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.0912
Time of conc (min)	= 36.70	Critical depth (in)	= 20.25
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 30.19
Intensity (in/hr)	= 3.05	Upstream surcharge (ft)	= 3.97
Cumulative C*A	= 9.97	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 30.38	Line capacity (cfs)	= 51.95
Q catchment (cfs)	= 1.47	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 46.76	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 48.23	Ponding width (ft)	= N/A

LINE 11 / Q = 0.63 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#26 TO SS#27... / DNLN = 10

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	25.25	2.41	25.05	4.93	25.63	11.02	3.89	0.13
UPSTRM	26.59	2.41	26.05	4.93	26.97	11.02	2.89	0.13

Drainage area (ac)	= 0.30	Slope of invert (%)	= 3.1250
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 4.1866
Time of conc (min)	= 5.00	Critical depth (in)	= 3.81
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 30.19
Intensity (in/hr)	= 6.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.09	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.63	Line capacity (cfs)	= 11.42
Q catchment (cfs)	= 0.63	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.63	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 12 / Q = 29.79 / HT = 42 / WID = 42 / N = .013 / L = 135 / JLC = .9

SS#26 TO SS#20A.. / DNLN = 10

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	18.99	42.00	11.35	3.10	19.14	0.00	15.34	9.62
UPSTRM	19.11	42.00	11.75	3.10	19.26	0.00	17.04	9.62

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.2963
Runoff coefficient	= 0.00	Slope energy grade line (%)	= 0.0877
Time of conc (min)	= 35.97	Critical depth (in)	= 20.05
Inlet time (min)	= 0.00	Natural ground elev. (ft)	= 32.29
Intensity (in/hr)	= 3.08	Upstream surcharge (ft)	= 3.86
Cumulative C*A	= 9.67	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 29.79	Line capacity (cfs)	= 54.76
Q catchment (cfs)	= 0.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 46.13	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 46.13	Ponding width (ft)	= N/A

LINE 13 / Q = 30.16 / HT = 42 / WID = 42 / N = .013 / L = 149 / JLC = 1.1

SS#20A TO SS#20.. / DNLN = 12

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.24	42.00	11.75	3.14	19.40	0.00	17.04	9.62
UPSTRM	19.38	42.00	12.10	3.13	19.53	0.00	15.22	9.62

Drainage area (ac)	= 0.30	Slope of invert (%)	= 0.2349
Runoff coefficient	= 0.50	Slope energy grade line (%)	= 0.0899
Time of conc (min)	= 35.18	Critical depth (in)	= 20.17
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 30.83
Intensity (in/hr)	= 3.12	Upstream surcharge (ft)	= 3.78
Cumulative C*A	= 9.67	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 30.16	Line capacity (cfs)	= 48.76
Q catchment (cfs)	= 1.05	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 45.09	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 46.13	Ponding width (ft)	= N/A

LINE 14 / Q = 9.49 / HT = 24 / WID = 24 / N = .013 / L = 304 / JLC = 1

SS#20 TO SS#25A.. / DNLN = 13

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.55	24.00	12.10	3.02	19.69	0.00	16.72	3.14
UPSTRM	20.08	24.00	17.09	3.02	20.22	0.00	11.59	3.14

Drainage area (ac)	= 0.10	Slope of invert (%)	= 1.6414
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.1760
Time of conc (min)	= 22.74	Critical depth (in)	= 13.09
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 30.68
Intensity (in/hr)	= 3.92	Upstream surcharge (ft)	= 0.99
Cumulative C*A	= 2.42	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 9.49	Line capacity (cfs)	= 28.98
Q catchment (cfs)	= 0.49	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 10.93	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 11.42	Ponding width (ft)	= N/A

LINE 15 / Q = 9.37 / HT = 24 / WID = 24 / N = .013 / L = 181 / JLC = 1.1

SS#25A TO SS#25.. / DNLN = 14

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.22	24.00	17.19	2.98	20.36	0.00	11.48	3.14
UPSTRM	20.52	13.84	19.37	4.99	20.91	23.72	7.88	1.88

Drainage area (ac)	= 0.30	Slope of invert (%)	= 1.2044
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.3033
Time of conc (min)	= 21.98	Critical depth (in)	= 13.01
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 29.26
Intensity (in/hr)	= 3.99	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 2.35	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 9.37	Line capacity (cfs)	= 24.82
Q catchment (cfs)	= 1.47	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 9.47	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 10.93	Ponding width (ft)	= N/A

LINE 16 / Q = 4.36 / HT = 18 / WID = 18 / N = .013 / L = 32 / JLC = 1

SS#25 TO SS#24... / DNLN = 15

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.95	12.95	19.87	3.20	21.11	15.27	7.88	1.36
UPSTRM	21.72	9.56	20.92	4.57	22.04	17.97	6.84	0.95

Drainage area (ac)	= 0.90	Slope of invert (%)	= 3.2812
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.9146
Time of conc (min)	= 21.84	Critical depth (in)	= 9.56
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 29.26
Intensity (in/hr)	= 4.00	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.09	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.36	Line capacity (cfs)	= 19.02
Q catchment (cfs)	= 1.29	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.80	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 5.08	Ponding width (ft)	= N/A

LINE 17 / Q = 3.32 / HT = 15 / WID = 15 / N = .013 / L = 123 / JLC = 1

SS#24 TO SS#23... / DNLN = 16

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.04	12.25	21.02	3.09	22.19	13.56	6.98	1.07
UPSTRM	22.46	8.82	21.72	4.42	22.76	14.77	6.75	0.75

Drainage area (ac)	= 0.10	Slope of invert (%)	= 0.5691
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.4628
Time of conc (min)	= 21.30	Critical depth (in)	= 8.75
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 29.72
Intensity (in/hr)	= 4.05	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.82	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 3.32	Line capacity (cfs)	= 4.87
Q catchment (cfs)	= 0.49	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.31	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.80	Ponding width (ft)	= N/A

LINE 18 / Q = 3.11 / HT = 15 / WID = 15 / N = .013 / L = 240 / JLC = 1

SS#23 TO SS#22... / DNLN = 17

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.76	11.27	21.82	3.15	22.91	13.00	6.64	0.99
UPSTRM	23.81	8.47	23.10	4.36	24.10	14.87	3.19	0.71

Drainage area (ac)	= 1.00	Slope of invert (%)	= 0.5333
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.4949
Time of conc (min)	= 20.23	Critical depth (in)	= 8.47
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 27.54
Intensity (in/hr)	= 4.15	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.75	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 3.11	Line capacity (cfs)	= 4.72
Q catchment (cfs)	= 1.43	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.88	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.31	Ponding width (ft)	= N/A

LINE 19 / Q = 1.88 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#22 TO SS#21... / DNLN = 18

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.10	10.81	23.20	1.98	24.16	12.73	3.09	0.95
UPSTRM	24.20	8.45	23.40	2.64	24.31	14.88	2.89	0.71

Drainage area (ac)	= 1.50	Slope of invert (%)	= 0.6250
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.4607
Time of conc (min)	= 20.00	Critical depth (in)	= 6.58
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 27.54
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.45	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.88	Line capacity (cfs)	= 5.11
Q catchment (cfs)	= 1.88	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.88	Ponding width (ft)	= N/A

LINE 20 / Q = 22.60 / HT = 36 / WID = 36 / N = .013 / L = 286 / JLC = 1.2

SS#28 TO SS#35... / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	18.75	36.00	12.23	3.20	18.91	0.00	15.64	7.07
UPSTRM	19.08	36.00	13.17	3.20	19.24	0.00	9.59	7.07

Drainage area (ac)	= 1.30	Slope of invert (%)	= 0.3287
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1148
Time of conc (min)	= 33.39	Critical depth (in)	= 18.18
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.76
Intensity (in/hr)	= 3.21	Upstream surcharge (ft)	= 2.91
Cumulative C*A	= 7.04	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 22.60	Line capacity (cfs)	= 38.24
Q catchment (cfs)	= 1.86	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 30.45	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 32.30	Ponding width (ft)	= N/A

LINE 21 / Q = 4.84 / HT = 15 / WID = 15 / N = .013 / L = 90 / JLC = .9

SS#35 TO SS#35A.. / DNLN = 20

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.26	7.72	20.62	7.61	22.16	14.99	3.88	0.64
UPSTRM	23.20	7.72	22.56	7.61	24.10	14.99	3.75	0.64

Drainage area (ac)	= 0.20	Slope of invert (%)	= 2.1556
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.1556
Time of conc (min)	= 20.34	Critical depth (in)	= 10.57
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 27.56
Intensity (in/hr)	= 4.14	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.17	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.84	Line capacity (cfs)	= 9.48
Q catchment (cfs)	= 0.42	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 4.63	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 5.05	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 22 / Q = 4.63 / HT = 15 / WID = 15 / N = .013 / L = 90 / JLC = .9

SS#35A TO SS#35B. / DNLN = 21

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.01	15.00	22.56	3.78	24.23	0.00	3.75	1.23
UPSTRM	25.73	10.33	24.50	5.14	26.14	13.89	1.25	0.90

Drainage area (ac)	= 3.70	Slope of invert (%)	= 2.1556
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.1174
Time of conc (min)	= 20.00	Critical depth (in)	= 10.33
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 27.00
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.11	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.63	Line capacity (cfs)	= 9.48
Q catchment (cfs)	= 4.63	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.63	Ponding width (ft)	= N/A

LINE 23 / Q = 2.35 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = 1.1

SS#35 TO SS#36... / DNLN = 20

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.02	4.78	20.62	6.98	21.78	13.98	3.88	0.34
UPSTRM	22.02	4.78	21.62	6.98	22.78	13.98	2.88	0.34

Drainage area (ac)	= 1.30	Slope of invert (%)	= 3.1250
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 3.1250
Time of conc (min)	= 20.50	Critical depth (in)	= 7.36
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.76
Intensity (in/hr)	= 4.12	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.57	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.35	Line capacity (cfs)	= 11.42
Q catchment (cfs)	= 1.86	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.75	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.61	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 24 / Q = 0.75 / HT = 15 / WID = 15 / N = .013 / L = 50 / JLC = .9

SS#36 TO SS#36A.. / DNLN = 23

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	22.85	13.57	21.72	0.64	22.86	14.27	2.79	1.17
UPSTRM	24.45	4.16	24.00	2.71	24.56	13.43	2.75	0.28

Drainage area (ac)	= 0.60	Slope of invert (%)	= 4.5600
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 3.4110
Time of conc (min)	= 20.00	Critical depth (in)	= 4.16
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 28.00
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.18	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.75	Line capacity (cfs)	= 13.79
Q catchment (cfs)	= 0.75	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.75	Ponding width (ft)	= N/A

LINE 25 / Q = 16.16 / HT = 36 / WID = 36 / N = .013 / L = 210 / JLC = 1.2

SS#35 TO SS#33C.. / DNLN = 20

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.27	36.00	13.27	2.29	19.35	0.00	9.48	7.07
UPSTRM	19.40	36.00	13.69	2.29	19.48	0.00	11.06	7.07

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.2000
Runoff coefficient	= 0.00	Slope energy grade line (%)	= 0.0587
Time of conc (min)	= 31.86	Critical depth (in)	= 15.37
Inlet time (min)	= 0.00	Natural ground elev. (ft)	= 27.75
Intensity (in/hr)	= 3.29	Upstream surcharge (ft)	= 2.71
Cumulative C*A	= 4.91	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 16.16	Line capacity (cfs)	= 29.83
Q catchment (cfs)	= 0.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 22.79	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 22.79	Ponding width (ft)	= N/A

LINE 26 / Q = 16.55 / HT = 36 / WID = 36 / N = .013 / L = 195 / JLC = 1.2

SS#33C TO SS#33 / DNLN = 25

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.49	36.00	13.69	2.34	19.58	0.00	11.06	7.07
UPSTRM	19.61	36.00	14.08	2.34	19.70	0.00	8.63	7.07

Drainage area (ac)	= 0.93	Slope of invert (%)	= 0.2000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0616
Time of conc (min)	= 30.47	Critical depth (in)	= 15.56
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.72
Intensity (in/hr)	= 3.37	Upstream surcharge (ft)	= 2.53
Cumulative C*A	= 4.91	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 16.55	Line capacity (cfs)	= 29.83
Q catchment (cfs)	= 1.33	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 21.46	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 22.79	Ponding width (ft)	= N/A

LINE 27 / Q = 4.01 / HT = 15 / WID = 15 / N = .013 / L = 90 / JLC = .9

SS#33 TO SS#33A.. / DNLN = 26

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.11	6.41	20.58	8.00	22.11	14.84	3.88	0.50
UPSTRM	23.57	6.41	23.04	8.00	24.57	14.84	2.75	0.50

Drainage area (ac)	= 0.20	Slope of invert (%)	= 2.7333
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.7333
Time of conc (min)	= 25.38	Critical depth (in)	= 9.61
Inlet time (min)	= 5.00	Natural ground elev. (ft)	= 27.04
Intensity (in/hr)	= 3.71	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.08	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.01	Line capacity (cfs)	= 10.68
Q catchment (cfs)	= 0.42	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.81	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.23	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 28 / Q = 3.81 / HT = 15 / WID = 15 / N = .013 / L = 90 / JLC = .9

SS#33A TO SS#33B. / DNLN = 27

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.47	15.00	23.04	3.11	24.62	0.00	2.75	1.23
UPSTRM	26.59	9.37	25.50	4.73	26.94	14.52	1.25	0.81

Drainage area (ac)	= 3.40	Slope of invert (%)	= 2.7333
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.5785
Time of conc (min)	= 25.00	Critical depth (in)	= 9.37
Inlet time (min)	= 25.00	Natural ground elev. (ft)	= 28.00
Intensity (in/hr)	= 3.74	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.02	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 3.81	Line capacity (cfs)	= 10.68
Q catchment (cfs)	= 3.81	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.81	Ponding width (ft)	= N/A

LINE 29 / Q = 1.75 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#33 TO SS#34... / DNLN = 26

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.51	4.96	21.10	4.95	21.89	14.11	3.36	0.35
UPSTRM	22.34	4.96	21.58	4.95	22.72	14.11	2.88	0.35

Drainage area (ac)	= 1.40	Slope of invert (%)	= 1.5000
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 2.5714
Time of conc (min)	= 20.00	Critical depth (in)	= 6.36
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.72
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.42	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.75	Line capacity (cfs)	= 7.91
Q catchment (cfs)	= 1.75	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 1.75	Ponding width (ft)	= N/A

Note: Normal depth assumed

LINE 30 / Q = 10.98 / HT = 30 / WID = 30 / N = .013 / L = 294 / JLC = 1

SS#33 TO SS#33C.. / DNLN = 26

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	19.72	30.00	14.68	2.24	19.79	0.00	8.53	4.91
UPSTRM	19.93	30.00	15.87	2.24	20.00	0.00	7.39	4.91

Drainage area (ac)	= 0.40	Slope of invert (%)	= 0.4048
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0717
Time of conc (min)	= 28.28	Critical depth (in)	= 13.28
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.76
Intensity (in/hr)	= 3.51	Upstream surcharge (ft)	= 1.56
Cumulative C*A	= 3.13	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 10.98	Line capacity (cfs)	= 26.09
Q catchment (cfs)	= 0.50	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 14.97	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 15.47	Ponding width (ft)	= N/A

LINE 33 / Q = 2.00 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#31 TO SS#32... / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.42	15.00	17.36	1.63	20.46	0.00	6.73	1.23
UPSTRM	20.45	15.00	18.75	1.63	20.49	0.00	5.35	1.23

Drainage area (ac)	= 0.60	Slope of invert (%)	= 4.3437
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0960
Time of conc (min)	= 15.00	Critical depth (in)	= 6.79
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.35
Intensity (in/hr)	= 4.76	Upstream surcharge (ft)	= 0.45
Cumulative C*A	= 0.42	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.00	Line capacity (cfs)	= 13.46
Q catchment (cfs)	= 0.86	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.68	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.53	Ponding width (ft)	= N/A

LINE 34 / Q = 6.98 / HT = 24 / WID = 24 / N = .013 / L = 70 / JLC = 1.1

SS#31 TO SS#30... / DNLN = 32

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.42	24.00	16.91	2.22	20.50	0.00	6.44	3.14
UPSTRM	20.49	24.00	17.34	2.22	20.57	0.00	6.13	3.14

Drainage area (ac)	= 1.00	Slope of invert (%)	= 0.6143
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.0953
Time of conc (min)	= 27.18	Critical depth (in)	= 11.23
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 25.48
Intensity (in/hr)	= 3.58	Upstream surcharge (ft)	= 1.15
Cumulative C*A	= 1.95	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 6.98	Line capacity (cfs)	= 17.73
Q catchment (cfs)	= 1.43	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 7.44	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 8.87	Ponding width (ft)	= N/A

LINE 35 / Q = 4.09 / HT = 18 / WID = 18 / N = .013 / L = 135 / JLC = 1

SS#30 TO SS#30A.. / DNLN = 34

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.57	18.00	17.59	2.31	20.66	0.00	6.38	1.77
UPSTRM	20.78	18.00	18.18	2.31	20.86	0.00	6.13	1.77

Drainage area (ac)	= 1.00	Slope of invert (%)	= 0.4370
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1515
Time of conc (min)	= 26.21	Critical depth (in)	= 9.26
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 25.82
Intensity (in/hr)	= 3.65	Upstream surcharge (ft)	= 1.10
Cumulative C*A	= 1.12	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 4.09	Line capacity (cfs)	= 6.94
Q catchment (cfs)	= 1.25	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.50	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 4.75	Ponding width (ft)	= N/A

LINE 36 / Q = 3.04 / HT = 15 / WID = 15 / N = .013 / L = 130 / JLC = .9

SS#30A TO SS#30B. / DNLN = 35

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.86	15.00	18.43	2.48	20.96	0.00	6.13	1.23
UPSTRM	21.15	15.00	19.43	2.48	21.25	0.00	6.31	1.23

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.7692
Runoff coefficient	= 0.00	Slope energy grade line (%)	= 0.2223
Time of conc (min)	= 25.33	Critical depth (in)	= 8.38
Inlet time (min)	= 0.00	Natural ground elev. (ft)	= 27.00
Intensity (in/hr)	= 3.71	Upstream surcharge (ft)	= 0.47
Cumulative C*A	= 0.82	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 3.04	Line capacity (cfs)	= 5.66
Q catchment (cfs)	= 0.00	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 3.50	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.50	Ponding width (ft)	= N/A

LINE 37 / Q = 3.07 / HT = 15 / WID = 15 / N = .013 / L = 50 / JLC = .9

SS#30B TO SS#30C. / DNLN = 36

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.24	15.00	19.53	2.50	21.33	0.00	6.21	1.23
UPSTRM	21.35	15.00	19.90	2.50	21.45	0.00	5.85	1.23

Drainage area (ac)	= 1.20	Slope of invert (%)	= 0.7400
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.2253
Time of conc (min)	= 25.00	Critical depth (in)	= 8.41
Inlet time (min)	= 25.00	Natural ground elev. (ft)	= 27.00
Intensity (in/hr)	= 3.74	Upstream surcharge (ft)	= 0.20
Cumulative C*A	= 0.82	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 3.07	Line capacity (cfs)	= 5.55
Q catchment (cfs)	= 1.35	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 2.15	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 3.50	Ponding width (ft)	= N/A

LINE 38 / Q = 1.92 / HT = 15 / WID = 15 / N = .013 / L = 175 / JLC = .9

SS#30C TO SS#30D. / DNLN = 37

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.44	15.00	20.00	1.56	21.47	0.00	5.75	1.23
UPSTRM	21.68	7.93	21.02	2.92	21.81	14.98	5.04	0.66

Drainage area (ac)	= 1.00	Slope of invert (%)	= 0.5829
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 0.1937
Time of conc (min)	= 20.00	Critical depth (in)	= 6.65
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 27.32
Intensity (in/hr)	= 4.17	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.46	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 1.92	Line capacity (cfs)	= 4.93
Q catchment (cfs)	= 1.25	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.90	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.15	Ponding width (ft)	= N/A

LINE 39 / Q = 0.90 / HT = 15 / WID = 15 / N = .013 / L = 32 / JLC = .9

SS#30D TO SS#30E. / DNLN = 38

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.80	8.15	21.12	1.32	21.83	11.06	4.94	0.68
UPSTRM	23.57	4.55	23.08	2.86	23.70	13.79	1.17	0.31

Drainage area (ac)	= 0.40	Slope of invert (%)	= 6.1250
Runoff coefficient	= 0.40	Slope energy grade line (%)	= 5.8549
Time of conc (min)	= 10.00	Critical depth (in)	= 4.55
Inlet time (min)	= 10.00	Natural ground elev. (ft)	= 25.50
Intensity (in/hr)	= 5.62	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.16	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 0.90	Line capacity (cfs)	= 15.98
Q catchment (cfs)	= 0.90	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 0.90	Ponding width (ft)	= N/A

LINE 40 / Q = 2.52 / HT = 15 / WID = 15 / N = .013 / L = 230 / JLC = .9

SS#30 TO SS#29... / DNLN = 34

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	20.57	15.00	17.84	2.06	20.64	0.00	6.38	1.23
UPSTRM	23.22	7.63	22.58	4.03	23.47	15.00	3.25	0.63

Drainage area (ac)	= 1.10	Slope of invert (%)	= 2.0609
Runoff coefficient	= 0.30	Slope energy grade line (%)	= 1.2298
Time of conc (min)	= 15.00	Critical depth (in)	= 7.63
Inlet time (min)	= 15.00	Natural ground elev. (ft)	= 27.08
Intensity (in/hr)	= 4.76	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.53	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.52	Line capacity (cfs)	= 9.27
Q catchment (cfs)	= 1.57	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 1.12	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.70	Ponding width (ft)	= N/A

8. Correspondence

Scott Thomas

From: Darryl Cook
Sent: Friday, July 20, 2001 1:22 PM
To: Pat Menichino; Scott Thomas
Subject: FW: Attention John Horne

Here's that e-mail request regarding Fernbrook issues.
-----Original Message-----
From: John Horne
Sent: Thursday, January 11, 2001 8:57 AM
To: Darryl Cook
Subject: FW: Attention John Horne

Please prepare a response.
-----Original Message-----
From: Christy Parrish
Sent: Thursday, January 11, 2001 8:06 AM
To: John Horne; Darryl Cook
Subject: FW: Attention John Horne

Forwarding e-mail.

C
-----Original Message-----
From: KPO3712@aol.com [mailto:KPO3712@aol.com]
Sent: Wednesday, January 10, 2001 5:47 PM
To: devtman@james-city.va.us
Subject: Attention John Horne

John
My Name is Kevin O'connell writing on behalf of the Fernbrook Homeowners association Board of Directors
I am writing to request to be notified prior to any final inspections concerning the BMP and any other inspections including the streets and to be present when these inspections are done. As I indicated when we last spoke I have real concern that the transition of these items from developer to the Homeowners association be monitored closely and handled with great care based on past issues that we have already faced with the developer. In addition I would like some type of update that I can present to the board at our next scheduled meeting on January 20th. There were several request from Darrell Cook to the Developer for corrections in the drainage as well as the BMP and I would like to know the status of such. My address is 3712 General Gookin Court,Williamsburg 23185 my office number is 253-5963 home 220-6776

Scott Thomas

From: Scott Thomas
Sent: Monday, July 23, 2001 4:20 PM
To: 'KPO3712@aol.com'
Cc: Darryl Cook; Pat Menichino; Beth Davis
Subject: Fernbrook Subdivision

Kevin O'Connell
Fernbrook HOA
Re: Stormwater Management/BMP Facilties

Kevin

Hello. My name is Scott Thomas, I am a civil engineer with the James City County Environmental Division. One of my duties with the Environmental Division is involvement in engineering and construction-related issues pertaining to stormwater management facilities (sometimes referred to as BMP's). This also includes coordinating with official representatives of HOA's that are involved with the task of maintenance associated with stormwater management facilities.

Last June, I had met with a representive within the HOA where we walked several areas within the sudivision looking at drainage issues and Darryl Cook and myself gave a slide presentation at Jamestown High School. I cannot recall if I had met you or not during those initial contacts. Recently, I have been involved with Pat Menichino to perform some early inspections of the dry pond detention facility located at the end Captain Wynne Drive (County BMP ID Code JR 005). In this effort, while the contractor was onsite, we preliminarily inspected the facility and gave input into what would be we expect to occur for final conversion of the temporary sediment basin into its final dry pond stormwater management BMP configuration per the approved site plan, based on stormwater function and structural integrity of the facility.

I can assist you or other Board members in whatever manner possible related to the BMP. In addition to this email, I will be forwarding you a "first contact" packet of current information that provides information publications, brochures, general landscaping and maintenance plan tips, etc. that our division has developed as it relates to maintenance of stormwater management (BMP) facilities.

We have several tiers of resources available to assist you in addition to the information packet, depending on the level of service your HOA requires.

1) We have a general presentation that can be given to you or other board members. This is a slide presentation which outlines, in general, the stormwater management program at the County, regulations pertaining to water quality/quantity and the different types of facilities that are commonly used to provide stormwater management. As I mentioned earlier, I believe we gave that presentation to board or committee members last year June 6th 2000 at Jamestown High School.

2) We are currently involved with a County-wide stormwater management facility inspection program in James City County, where we are performing inventory and inspection of all the facilities in the County. Currently, we have not yet been through the Fernbrook Subdivision as part of that program. Once performed, inspection and rating information for the facilities will be available upon request. I anticipate the inspection to be performed this fall.

3) We have a more thorough technical assessment type program, which is geared toward helping the HOA's set up a specific maintenance plan for certain BMP facilities, especially for BMP's that are older. Currently, a maintenance plan is required for all new BMPs in the County, however for older facilities or developments there may be no formal maintenance plan to follow. This portion of our program is what I would envision for your specific community. Based on my knowledge of this facility and the way it should operate based on our inspections thus far, I would like to coordinate with you to set up a maintenance plan specifically for this facility.

I can fully explain any of the above programs in depth with you if you have any questions. Again, I want you to know that this is an attempt to establish a starting point between me, our office and the HOA about future maintenance activities associated with the stormwater management facility within Fernbrook. I look forward to hearing from you after you receive the information packet in the mail.

Scott J. Thomas, P.E.
James City County
Environmental Division
Phone: 757-253-6639

FERNBROOK SUBDIVISION BMP # 1

(Note: This is a Typical Maintenance Plan for a Detention or Retention Pond facility. For general use by HOA's, or other designated parties which are responsible for operation, maintenance and inspection of BMP facilities when no other specifically approved plans are available. This is provided by the Environmental Division of James City County for informational purposes only. This plan addresses normal structural and stormwater runoff control aspects of the facility. It does not address landscaping, cosmetic, or ornamental features associated with the facility nor does it replace any specific recommendations offered by a registered professional.)

Maintenance Plan (Detention or Retention Pond BMP's)

A maintenance program is required to ensure the Stormwater Management (SWM) / Best Management Practice (BMP) pond facility functions as designed and to provide for reasonable aesthetic conditions. Proper maintenance is encouraged to prevent the introduction of debris and sediment into pretreatment areas (if applicable), the BMP itself, its principal flow control structures and downstream waterways. Following facility installation, acceptance and establishment of vegetation in disturbed areas, inspections for sediment buildups will be performed at least quarterly. It is anticipated that under normal conditions, sediment removal will be required once every 5 to 10 years. If other construction or related land-disturbing activities are performed upland of the BMP, adequate protection measures should be implemented and inspeciton frequencies increased at least once weekly.

The designated party will inspect the SWM/BMP structure after each significant rainfall event or the following working day if a weekend or holiday occurs. A significant rainfall for this structure is defined as one (1) inch or more of gauged rainfall within a 24 hour period. Once per year (more or less) a representative of the County may jointly inspect the structure. Appropriate action will be taken to ensure appropriate maintenance. Where structures are to be maintained jointly, allocation of maintenance costs will be in accordance with terms established in maintenance agreements. Keys to locked access points or structures shall be made available to the County upon request.

BMP Description: BMP # 1 serves a drainage area of 89.86 acres associated with development of Fernbrook Subdivision. The facility is an old County designation Type 3, 6 point dry-type detention pond BMP. A dry-type detention pond temporarily stores runoff and is normally dry during non-rainfall periods. Typically draw down times range from 24 to 72 hours following a storm event. The facility contains a 48 inch vertical concrete pipe riser, an anti-vortex/trash rack cap, a 18 inch concrete outlet pipe barrel and a 4 foot wide bottom, grass-lined trapezoidal shaped emergency spillway. There are 2 openings in the riser pipe to provide for water quality draw down and to offer control for larger storm events, specifically the 2- and 10- year design storms. During the 100-year storm, the maximum water level should rise to about 8.5 feet above the top of the riser to El. 23.3, which is within 2.7 feet of the top of dam at El. 26.0. During this type of larger storm event, the emergency spillway, which is located through the embankment directly west of the riser structure, will discharge flow. If functioning properly, normal storm events should reach an elevation below the top of the riser and the pond should draw down in about 24 to 36 hours.

Inspection and Maintenance of the Facility should consist of the following Additional Measures:

1. Inspect for sediment buildup by visual observation and a physical determination of sediment depth within pond's storage area. If the depth of sediment reaches the depth of 2' - 6" above the bottom of pond (or Cleanout Elevation of 8.5) , removal is required. At the same time, or at least once per year, clean pretreatment devices, the riser bottom and outlet pipes of accumulated sediments. Dispose of sediments removed from the facility at an acceptable disposal area. (Note: Cleanout Elevation is at 10 percent Water Quality Volume.)

2. Perform maintenance mowing of pond grasses at least twice each year. Grasses such as tall fescue should be mowed in early summer after emergence of the heads on cool season grasses and in late fall to prevent seeds of annual weeds from maturing. Mowing of legumes can be less frequent. Trees, shrubs and woody vegetation are not be permitted to grow on any part of pond embankment that was constructed using engineered (compacted) fills.

3. Perform soil sampling on stabilized pond soil areas at least once every 4 years. Soil sampling and testing should be performed a qualified independent soil testing laboratory such as VPI&SU. Apply additional lime and fertilizer in accordance with test recommendations.

4. In stabilized pond areas, if vegetation covers less than 40 % of soil surfaces, lime, fertilize and seed in accordance with recommendations for new seedlings. If vegetation covers more than 40 % but less than 70 % of soil surfaces, lime, fertilize and over seed in accordance with current seeding recommendations of the Virginia Erosion and Sediment Control Handbook (VESCH).

5. Perform quarterly inspections of the riser section and crest spillway for the observance of collected trash and debris. Immediately remove any trash or debris that prevents the movement of water. Remove any trash and litter downstream and at storm drain or channel inflow locations to maintain the integrity of the structure and provide an attractive appearance.

6. Perform yearly structural inspections of the facility for damage. Structural inspection shall be performed on the concrete riser, anti-vortex and trash rack cap, trash rack, orifices/weirs, outlet barrel and pond embankment. Exposed metal surfaces shall be painted to minimize rust damage or replaced if rust damage is irreversible. If damage is evident, further investigation by a registered professional engineer may be required to assess the integrity of the structure.

7. Perform quarterly inspections of the graded side slopes of the facility for signs of animal/rodent borrows or slope erosion. Immediately perform necessary repairs, refilling or reseeding.

8. Perform yearly observations of perimeter areas surrounding the facility to ensure changes in land use, topography or access have not occurred and do not affect the operation, maintenance, access or safety features provided for the facility. Appropriate action is required to ensure adequacy and to provide a clear, safe passage for maintenance vehicles to the engineered embankment and principal flow control structures.

9. Record Keeping. Keep reasonable, accurate written records of inspections and maintenance activities performed for the BMP structure at all times. Records shall document routine maintenance and/or repairs performed. Copies shall be provided to the County upon request.

10. The facility shall not accept additional drainage or be modified in any way without prior consent or approval by the Environmental Division of James City County.

(End)

Scott Thomas

From: KPO3712@aol.com
Sent: Monday, July 23, 2001 8:36 PM
To: scottt@james-city.va.us
Subject: Re: Fernbrook Subdivision

Scott

Thank you for e-mailing me regarding the BMP . I did meet you when you and Darrell walked through and did I inspection per my request. I would like any input you ma y have and please put us on any schedule of inspections you feel we need to do as well as any suggested maintenance that we should be doing. My home number is 220-6776 and my office number at Kingsmill is 253-5963 Please contact with any information you need. My biggest concern at this point is to make sure the BMP is turned over to the association in the proper condition as well as any other drainage. We currently have some severe Drainage issues on several of the lots.Pat along with Waltrip rep and Dobson walked all of the areas. There is a letter being complied now to address these concerns. I am sure if you ask Pat he can fill you in.

KEVIN O'CONNELL

DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626
codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAGEMENT
(757) 259-4116

July 23, 2001

Mr. Kevin O'Connell
Fernbrook HOA
3712 General Gookin Court
Williamsburg, Va. 23185

Re: Fernbrook Subdivision
Stormwater Management Facility

Dear Mr. O'Connell:

As per my recent email correspondence to you, I have forwarded some "***first contact***" information related to maintenance of stormwater management facilities at the above referenced community.

Information as attached includes: the brochure entitled *Best Management Practices Education Program for Homeowners Associations*; landscaping tips for stormwater management BMP's, a sample maintenance plan for a dry pond type stormwater management facility; three brochures related to liability and maintenance; and various copies of other general information collected by our division.

Our division is always readily available to assist owners and HOA representatives with guidance related to stormwater management facilities and we look forward working with you in the future. In the meantime, if you have any additional questions or comments, please call me at 757-253-6639.

Sincerely,

Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

SWMProg\Education\Subdivsions\Fernbrook.let1

9. Record Keeping. Keep reasonable, accurate written records of inspections and maintenance activities performed for the BMP structure at all times. Records shall document routine maintenance and/or repairs performed. Copies shall be provided to the County upon request.

10. The facility shall not accept additional drainage or be modified in any way without prior consent or approval by the Environmental Division of James City County.

(End)

Inspection and Maintenance of the Facility should consist of the following Additional Measures:

1. Inspect for sediment buildup by visual observation and a physical determination of sediment depth within the pond's storage area. Deposited sediments shall be removed from the bottom of the basin if significant available storage capacity is reduced or lost. Generally, if sediments reaches a uniform depth of 2' - 6" above the bottom of pond (or Cleanout Elevation of 8.0), removal is recommended. Homeowner education and routine sediment removal can effectively delay or deter the need for mass, large scale dredging of the basin. At the same time, or at least once per year, clean pretreatment devices, which in this case is the forebay area at the outfall of the 48-inch storm drain pipe into the basin, and clean the riser bottom and outlet pipe through the dam of accumulated sediments. Dispose of sediments removed from the facility at an acceptable disposal area. (Note: Cleanout Elevation selected is approximately is at 10 percent Water Quality Volume.)

2. Generally, aesthetic look of the interior side slopes of the basin in areas other than the dam fill and near the principal inflow and outflows devices is at the discretion of the owner. Some owners prefer a vegetated, natural look. Other owners prefer a more groomed and aesthetic look. Given a choice, a more natural, vegetative look is generally more consistent with current pond buffer/setback provisions of the County. If trees and thick vegetation are left to remain, dead trees or limbs should be removed on a regular basis so as to not float or migrate toward the principal flow control structures and possibly result in clogging and stormwater malfunction.

3. Immediately following a significant rainstorm event, or at least once weekly, inspect the low flow orifice, riser section and emergency spillway for the observance of collected trash and debris. Immediately remove any trash or debris that prevents the movement of water. One clear indication that the low flow orifice is clogged will be significant depth of ponded water in the basin for a period of 72 hours or more following a significant rainstorm. Also, remove any observed trash and litter in the bottom of the basin and at the outlet end of the 48-inch pipe on a monthly basis to prevent the migration of trash toward the riser and low flow orifice.

4. Perform maintenance mowing of vegetation at least twice each year at the dam fill (west side of BMP) and around the riser and along the emergency spillway (south side of the BMP). The intent is to keep dam fills and the primary and emergency flow control structures free and clear of trees and thick vegetation, which can endanger the structural integrity of the dam fill and interfere with routine inspection.

5. Perform soil sampling on stabilized pond soil areas at least once every 4 years. Soil sampling and testing should be performed a qualified independent soil testing laboratory such as VPI&SU. Apply additional lime and fertilizer in accordance with test recommendations.

6. Perform yearly structural inspections of the facility for damage. Structural inspection shall be performed on the concrete riser, anti-vortex and trash rack cap, orifices/weirs, outlet barrel and pond embankment. Exposed metal surfaces shall be painted to minimize rust damage or replaced if rust damage is irreversible. Observed cracks or damage to concrete surfaces shall be grout or epoxy filled. If significant damage is evident, further investigation by a registered professional engineer may be required to assess the integrity of the structure.

7. Perform quarterly inspections of the graded side slopes of the facility for signs of animal/rodent borrows or slope erosion. Immediately perform necessary repairs, refilling or reseeding.

8. Perform yearly observations of perimeter areas surrounding the facility to ensure changes in land use, topography or access have not occurred and do not affect the operation, maintenance, access or safety features provided for the facility. Appropriate action is required to ensure adequacy and to provide a clear, safe passage for maintenance vehicles to the engineered embankment and principal flow control structures.

FERNBROOK SUBDIVISION BMP (August 22, 2003)

(Note: This is a maintenance plan for the subject detention pond facility. For general use by the HOA, or other designated parties which are responsible for operation, maintenance and inspection of the BMP facility when no other specifically approved plans are available. This is provided by the Environmental Division of James City County as a courtesy and for informational purposes only. This plan addresses normal structural and stormwater runoff control aspects of the facility. It does not address landscaping, cosmetic, or ornamental features associated with the facility nor is it meant to replace any previous or subsequent recommendations as offered by a registered professional.)

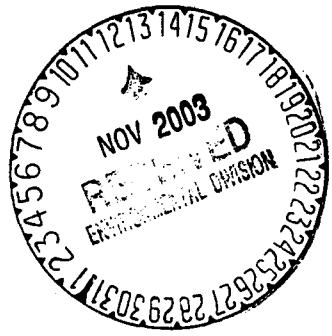
Maintenance Plan (Detention Pond BMP)

A maintenance program is required to ensure the Stormwater Management (SWM) / Best Management Practice (BMP) pond facility functions as designed and to provide for reasonable aesthetic conditions. Proper maintenance is encouraged to prevent the introduction of debris and sediment into pretreatment areas (if applicable), the BMP itself, principal flow control structures and downstream waterways. Following facility installation, acceptance and establishment of vegetation in disturbed areas, inspections for sediment buildups will be performed at least quarterly. It is anticipated that under normal conditions and without routine maintenance, major sediment removal operations would be required once every 5 to 10 years. If other construction or related land-disturbing activities are performed upland of the BMP, adequate protection measures should be implemented and inspection frequencies increased at least once weekly.

The designated party will inspect the SWM/BMP structure after each significant rainfall event or the following working day if a weekend or holiday occurs. A significant rainfall for this structure is defined as one (1) inch or more of gauged rainfall within a 24 hour period. Once per year (more or less) a representative of the County may jointly inspect the structure. Appropriate action will be taken to ensure appropriate maintenance. Where structures are to be maintained jointly, allocation of maintenance costs will be in accordance with terms established in maintenance agreements. Keys to locked access points or structures shall be made available to the County upon request.

BMP Description: The BMP situated at the south end of Captain Wynne Drive in the Fernbrook Subdivision is a dry detention pond. The stormwater basin serves a drainage area of 89.86 acres from Fernbrook Subdivision and offsite areas. The facility is an old County designation Type 3, 6 point dry-type detention pond BMP. A dry-type detention pond temporarily stores runoff and is normally dry during non-rainfall periods. Typically draw-down times range from 24 to 72 hours following a storm event. The facility contains a 48 inch vertical concrete pipe riser, an anti-vortex/trash rack cap, a 18 inch concrete outlet pipe barrel and a 4 foot wide bottom, grass-lined trapezoidal shaped emergency spillway. There are 2 openings on the riser pipe to provide for water quality draw down and to offer control for larger storm events, specifically the 2- and 10- year design storms. One is a small 6-inch low flow orifice (opening) situated at the bottom of the riser pipe. The second is the opening crest of the 48-inch riser pipe. During the 100-year storm, the maximum water level should rise to about 8.5 feet above the top of the riser to El. 23.3, which is within 2.7 feet of the top of dam at El. 26.0. During this type of large storm event, the emergency spillway, which is located through the embankment directly west of the riser structure, will discharge flow. If functioning properly, normal storm events should reach an elevation below the top of the riser and the pond should draw down in about 24 to 36 hours. Of utmost importance to the function of the facility is to keep the low flow 6-inch orifice on the pipe riser free and clear of debris, litter, trash and sediments. If this orifice is clogged the basin will hold water instead of being a dry pond facility.

Fernbrook Homeowner's Association



November 8, 2003

Mr. Scott J. Thomas, P.E.
Environmental Division
101 Mounts Bay Road
P.O. Box 8784
Williamsburg, VA 23187-8784

Re: Fernbrook Subdivision
County Plan No. S-38-93
County BMP ID Code: JR 005

Dear Mr. Thomas:

Pursuant to obtaining as built drawings from AES Consulting Engineers, I completed an inspection of all storm drain inlets for the above referenced subdivision. The following is a consolidated summary of all inlets in need of erosion and sediment control repair.

Location #

SS# 38A – Has a 5'x1'4' x 2' sinkhole.

SS# 38B – Has minor sinkholes on two sides.

SS# 38C – Erosion on two sides of inlet top.

SS# 35A – Major erosion on two sides of inlet top.

SS# 35B – Minor erosion on two sides of inlet top.

SS# 33A – Major erosion on three sides.

SS# 33B – Erosion on two sides.

SS# 29 – Major erosion on three sides.

SS# 6A – Erosion on two sides.

SS# 7 – Minor erosion on one side.

SS# 22 - Minor erosion on one side.

Scott Thomas

From: Scott Thomas
Sent: Friday, January 30, 2004 3:39 PM
To: Pat Menichino; Joe Buchite
Cc: Darryl Cook
Subject: Fernbrook Request

Has there been any progress on the Fernbrook request about the condition of inlets/storm drains in the subdivision? To refresh your memory, we got a letter dated November 8th from Dan Joyner with the HOA in which he listed about 17 locations where he/they observed deteriorated inlet/storm drain conditions. At the time I forwarded this letter request to the inspection staff, the question was raised as to whether or not these conditions were prevalent before Hurricane Isabel or if the hurricane caused additional damage. In either case, this issue must still be resolved as I believe we are still holding bond for the project.

(Asbuilt and certification issues associated with the BMP were resolved some time ago. The BMP was cleaned up and was acceptable at that time; however, site related issues remained for bond release. To me, the happening of Isabel should have no bearing on if deteriorated conditions are now present along the onsite storm drainage system, especially as it relates to subsurface facilities. If the Hurricane caused subsidence at inlets, then that means that some sort of improper condition existed prior to the storm. Just because a storm of great magnitude, outside the design storm may have happened, it probably just made the condition present itself sooner than it would have over time.)

Dan called me today for an update. He says he needs to get an update to the HOA at their board meeting coming up in about 2 weeks. Has there been any progress?

Scott J. Thomas, P.E.
James City County
Environmental Division

It was a pleasure to meet with you and discuss the importance of pond maintenance. I look forward to working with you in the future on homeowner education and maintenance issues associated with the BMP. In the meantime, if you have any additional questions or comments, please call me at 757-253-6639.

Sincerely,

Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

SWMProg\Education\Subdivsions\Fernbrook.let1

SS# 25C – Major erosion at inlet with 20' depressed area over RCP.

SS# 18B – Major erosion with large sinkhole.

SS# 16A – 4'X2' sink hole at curb.

SS# 17 – Large sink hole at curb.

SS# 17A – Large sink hole on rear side of inlet.

Entrance – Large sink hole on North side of entrance road.

BMP

BMP Outfall location RR has major erosion at the last section of pipe. The area is 20'x8'x36" deep and the RCP is undermining.

Your letter dated August 22, 2003 referenced erosion and sediment control bonds currently being held for Fernbrook. The HOA board respectfully request that all storm drain inlets be repaired as soon as possible as some of these locations may cause injury to a resident or visitor.

Thanks for your help and should you have any questions regarding the above, please contact me at (757) 342-0243.

Sincerely yours,

Dan Joyner
Board Member

9. Inspection Records

10. Misc. (ex. photos)

WATERSHED	JR	MAINTENANCE PLAN	No	CTRL STRUC DESC	RCP Riser
BMP ID NO	005	SITE AREA acre	56	CTRL STRUC SIZE inches	48
PLAN NO	S-38-93	LAND USE	SF Residential	OTLT BARRL DESC	RCP Barrel
TAX PARCEL	(45-04)(03-10)	old BMP TYP	Dry Pond	OTLT BARRL SIZE inch	18
PIN NO	4540300010	JCC BMP CODE			
CONSTRUCTION DATE	8/1/2001	POINT VALUE	6	EMERG SPILLWAY	Yes
PROJECT NAME	Fernbrook Subdivision			DESIGN HW ELEV	23.3
FACILITY LOCATION	End Captain Wynne Drive (Near 3780)			PERM POOL ELE	None
CITY-STATE	Williamsburg, Va. 23185	SVC DRAIN AREA acres	89	2-YR OUTFLOW cfs	
CURRENT OWNER	C. Lewis Waltrip			10-YR OUTFLOW cfs	
OWNER ADDRESS	218 Jernigan Lane			REC DRAWING	Yes
OWNER ADDRESS 2		SERVICE AREA DESCRI	Fernbrook and Greensprings Rd.		
CITY-STATE-ZIP CODE	Yorktown, Va. 23692	IMPERV AREA acres		CONSTR CERTI	No
OWNER PHONE		RECV STREAM	UT of James River		
MAINT AGREEMENT	Yes	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	10/25/2001
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	2.7	INTERNAL RATING	3
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	6" low flow orifice. Converted to BMP 6/01.	
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No

Return to Menu

TY COUNTY

-2

94,000

JAMES CITY COUNTY

46-1

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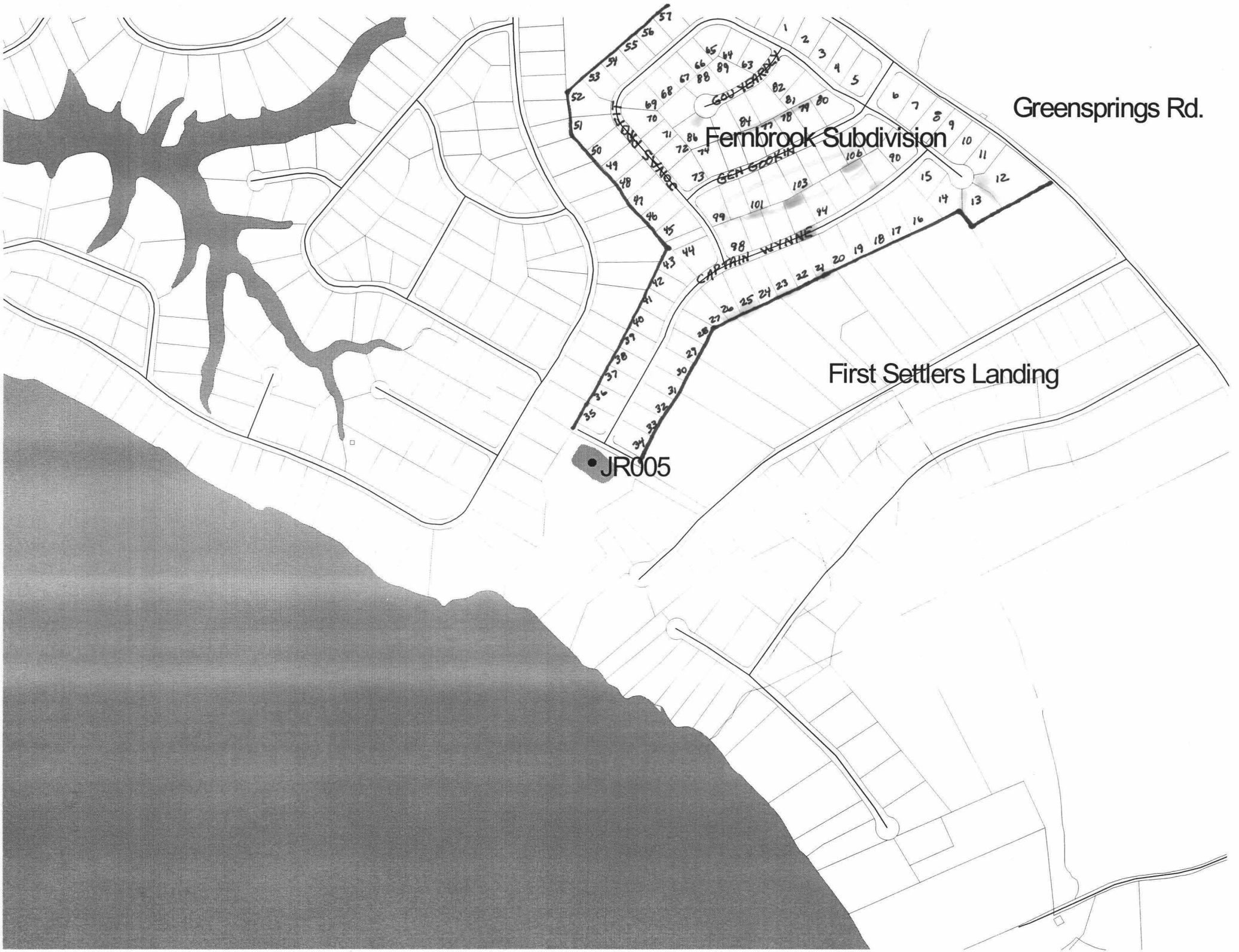
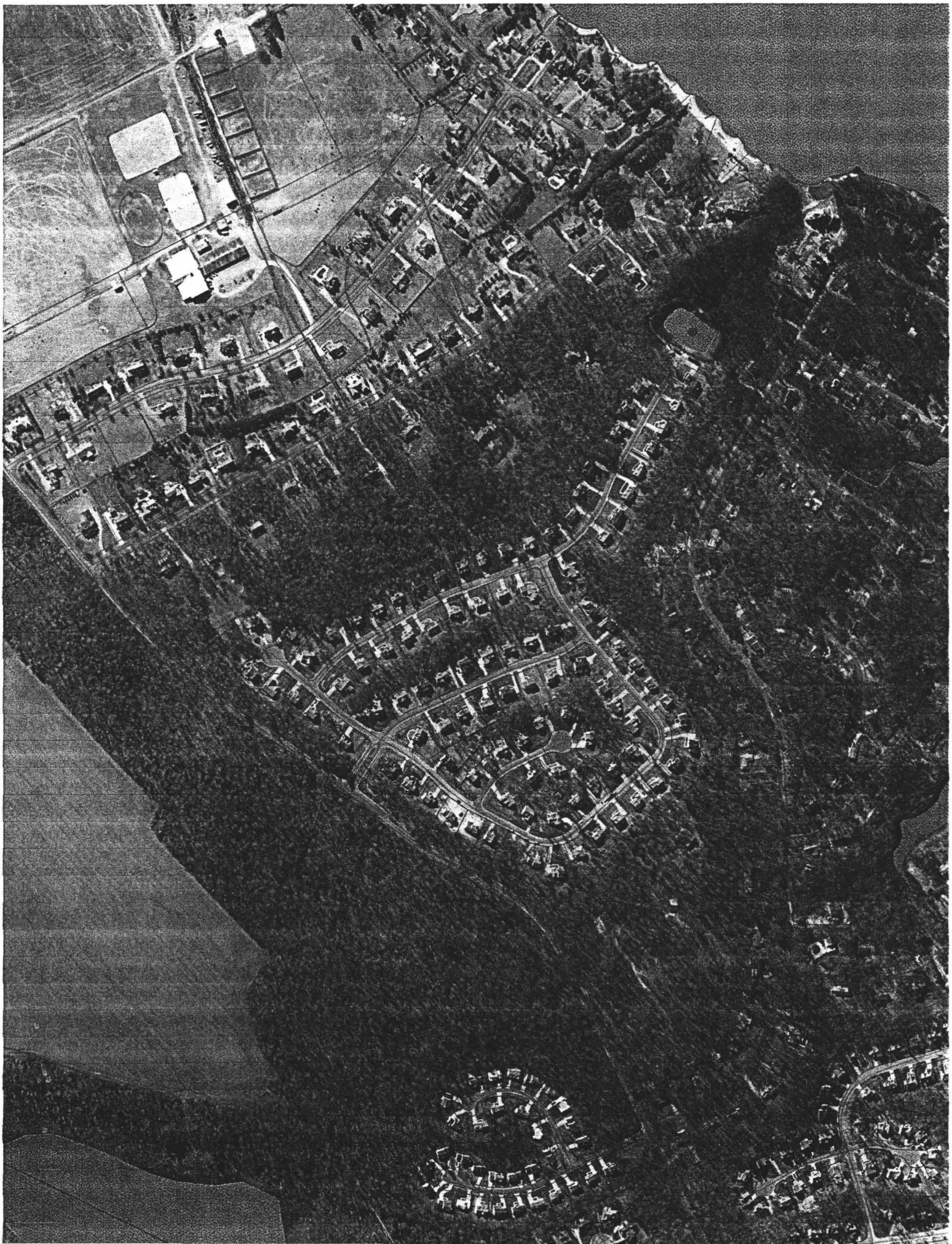
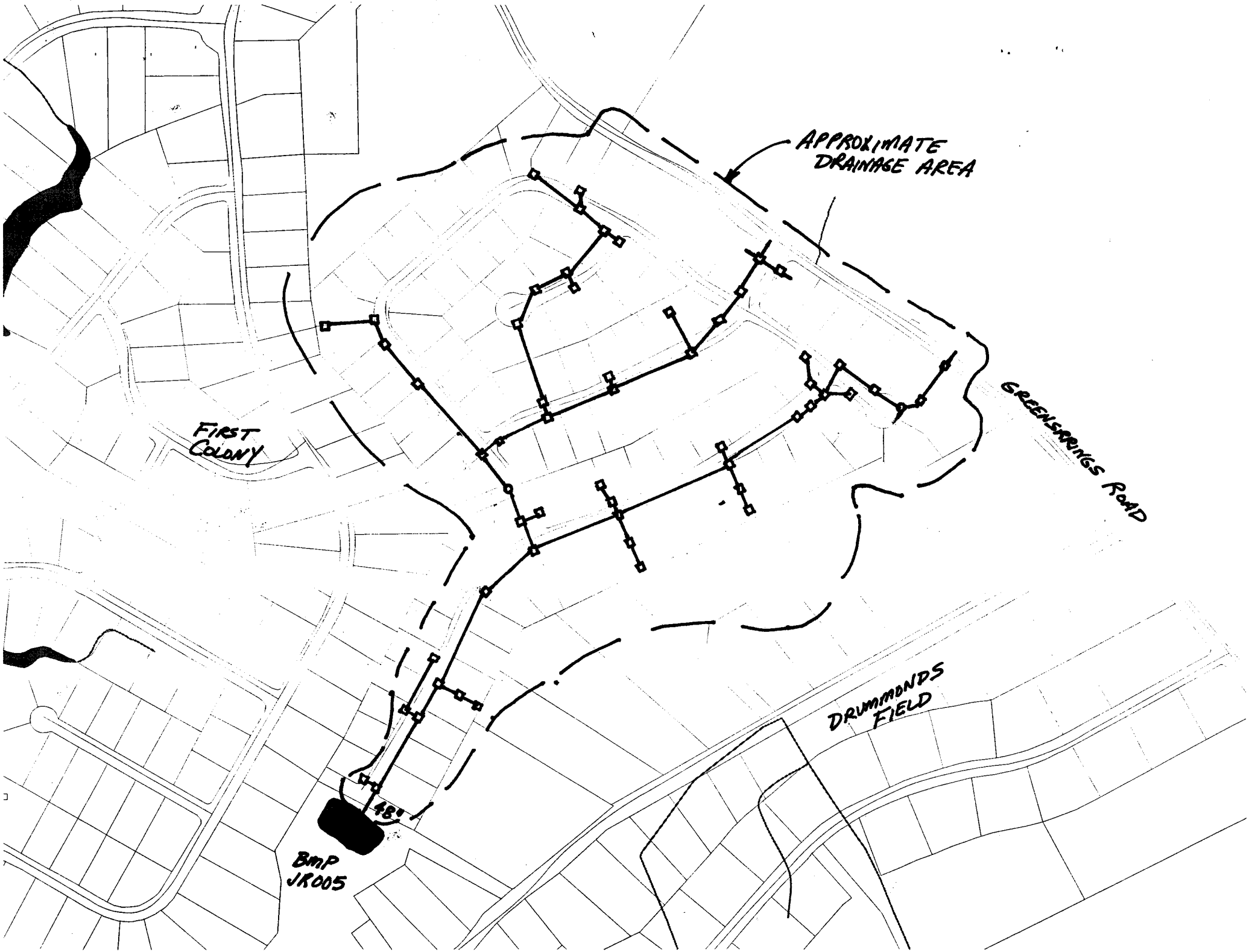
E 2,496,000

E 2,497,000


Greensprings Rd.
Fernbrook Subdivision
First Settlers Landing
JR005
GOLDYEARLY
SONAS PROFIT
GEN GOOKIN
CAPTAIN WYNNE




APPROXIMATE
DRAINAGE AREA
FIRST
COLONY
GREENSPRINGS ROAD
DRUMMONDS
FIELD
48"
BMP
JR005

ES CONSULTING ENGINEERS

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994

AS-BUILT DRAWING

FERNBROOK

PHASE I

OWNER/DEVELOPER: FERNBROOK ASSOCIATES, L.L.C. & STANLEY J. & PATRICIA W. DYKSTRA

JAMESTOWN DISTRICT JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
02-07-02
10-10-01
2-17-97
RONALD W EADS
No. 1948
LAND SURVEYOR

No.	DATE	REVISION / COMMENT / NOTE	BY
3	02/02	ADTNL. ELEV. FIELD VERIFIED	RWE
2	10/01	POND & STRUCTURES FIELD VERIFIED	RWE
1	2/97	AS-BUILT POND	RWE

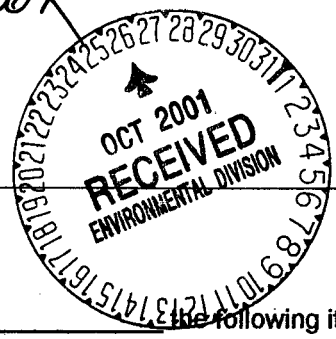
Designed RWE	Drawn RMJ
Scale 1"=100'	Date 2/17/97
Project No. 6877	
Drawing No. 1 of 1	

AS-BUILT DRAWING – 2/17/97

Jamestown Management Co., LLC
213 Ingram Road
Williamsburg, Virginia 23188
(O) (757) 220-0856
(F) (757) 220-0916

LETTER OF TRANSMITTAL

DATE: 10/25/01	JOB NO.
ATTENTION: PAT MENICHINO	
RE: FERNBROOK S-38-93 JR005	



To JCC-BMVR

WE ARE SENDING YOU ☑ Attached ☐ Under Separate cover via _____ the following items:

☐ Shop Drawings ☑ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
3			As Built - Pond Asked for corrections / additions to AB 12-17-01 SAT

THESE ARE TRANSMITTED as checked below:

☑ For Approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☑ As requested ☐ Return for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Let me know the verdict - can we get one thing off this list!! ☺
Thanks

COPY TO _____ SIGNED: Bob Oliver
Bob Oliver, P.E.

If enclosures are not as noted, kindly notify us at once.

Jamestown Management Co., LLC
213 Ingram Road
Williamsburg, Virginia 23188
(O) (757) 220-0856
(F) (757) 220-0916

LETTER OF TRANSMITTAL

DATE: 2/26/02	JOB NO.
ATTENTION: Scott	
RE: Fernbrook BMP	

To Scott Thompson - JCC

WE ARE SENDING YOU ☐ Attached ☐ Under Separate cover via _____ the following items:

☐ Shop Drawings ☑ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
4			BMP As Builts

THESE ARE TRANSMITTED as checked below:

☑ For Approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Return for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS
Scott — These should reflect what you need
Let me know

COPY TO _____ SIGNED: _____
Bob Oliver, P.E.

If enclosures are not as noted, kindly notify us at once.

AES CONSULTING ENGINEERS
Engineering, Surveying and Planning
5248 Olde Towne Road, Suite 1
WILLIAMSBURG, VIRGINIA 23188

(804) 253-0040
FAX (804) 220-8994

LETTER OF TRANSMITTAL

DATE	JOB NO.
4/6/94	6877

ATTENTION: DANIEL COLE

RE: FERN BLOCK

TO JAMES CITY CO.
CODE COMPLIANCE

RECEIVED
4-6-94

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
2		2 SH.	SH. 9 & 9B CORRECTIONS (DAM & DETAIL)
1		1 SH.	NAT. OPEN SPACE SHT.
1		1 SH.	BMP WORKSHT
1		—	DRAINAGE CALC — POND.

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

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☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO _____ SIGNED: _____

If enclosures are not as noted, kindly notify us at once.

CODE COMPLIANCE REVIEW COMMENTS
FERN BROOK SUBDIVISION, Section 2
PLAN NO. S-38-93
March 29, 1994 DEC

1. Check to ensure that the pond safely discharges 25-year storm as new E&S handbook requires.

2. Please submit a drainage area map that shows the offsite areas that are controlled by the proposed pond. Also show the natural open space areas claimed on the BMP calculation worksheet to demonstrate that this project meets the county's criteria.

3. Because of the depth of the proposed basin and its long side slopes, provide a permanent, rigid fence around the basin for safety protection.

4. An Inspection/Maintenance Agreement must be executed with the county for the BMP facility prior to issuance of land disturbance permit.

LOT 50

N32° 53'

SEE SHEET 9-B FOR DAM SECTION

SF PLACE SILT FENCE @ TOE OF FILL SLOPE

RR PROVIDE RAP APR OF EC-I EROSION STONE (

6' HIGH CHAIN LINK FENCE

* remove (SF) if still in place

ARCHAEOLOGICAL SITE #44JC97

EXIST. 15" RCP
INV. IN = 5.15
INV. OUT = 4.70
(TO BE REMOVED)

DRY POND #1

INV. = 6.50

EXISTING SEDIMENT BASIN

RR PROVIDE 20' LONG RIP-RAP APRON CONSISTING OF EC-I TYPE A EROSION CONTROL STONE (15 C.Y. REQ'D.)

175 L.F. OF 24" R.C.P. @ 0.29% INCLUDING 1 ES - 1 END SECTION
INV. IN = 6.00
INV. OUT = 5.50

20 L.F. OF 6" PERFORATED PIPE W/ 6" x 4" REDUCER

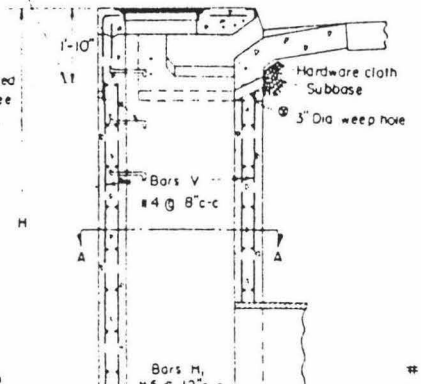
remove all woody vegetation *

W/F DUDLEY S. & E. REBECCA WALTRIP

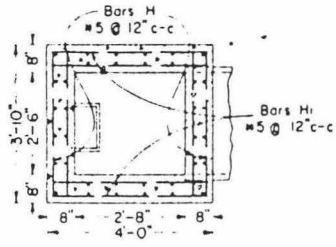
EMERGENCY SPILLWAY EL. = 18.00 PROVIDE TRAPEZOIDAL GRASS DITCH W/ 4' BOTTOM, 2:1 SS W/ MIRAMAT LINING

DI-3AA-3BB-3CC

For all details, dimensions, and reinforcing steel above this line see Standard DI-3A, 3B, 3C.



③ 3" Dia weep hole to be located to drain subbase material. Weep hole with 12" x 12" plastic hardware cloth 1/4" mesh or galvanized steel wire, minimum wire dia 0.03 inch, number 4 mesh hardware cloth anchored firmly to outside of structure



SECTION A-A

4 x 8" Smooth Dowels @ approx 12" C-C

NOTES

All cast in place concrete to be Class A3. For acceptable alternate see Precast Standard Designs.

Minimum depth (H) to be 8'-0". Maximum depth to be 20'-0". For inlets less than 8' use Std. DI-3A, 3B, 3C.

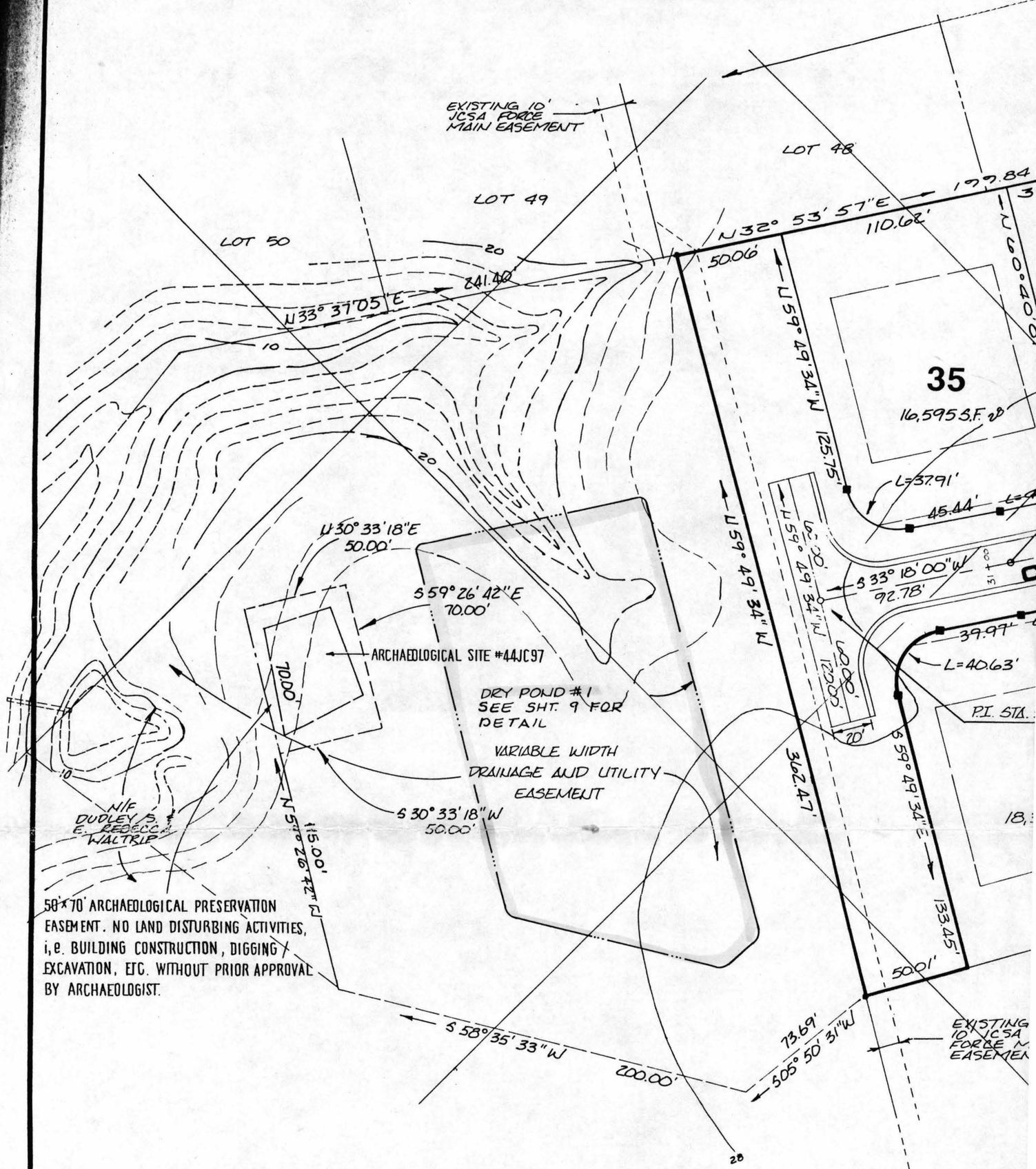
Length of slot (L) will, in all cases, be shown on plans.

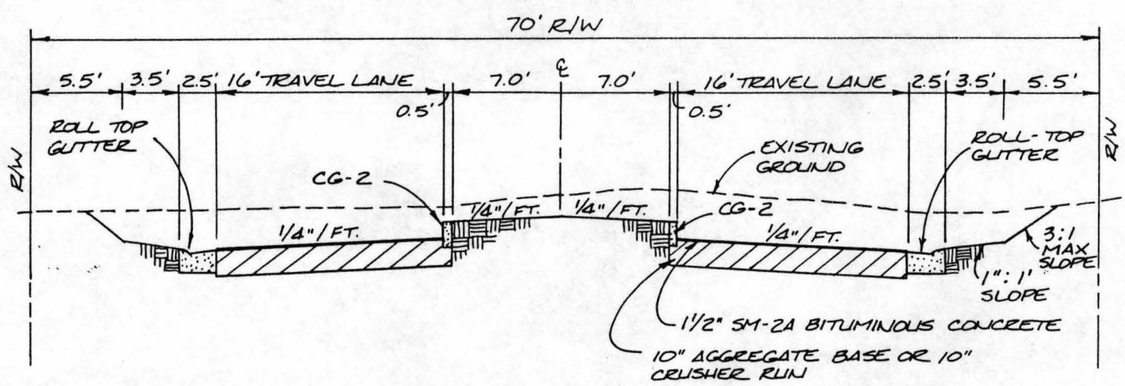
When inlet is used in 4' median, back of inlet is to be shaped to conform with proposed curb.

For plan view of inlet see Std. DI-3A, 3B, 3C.

The following section of this file contains many documents that are of **POOR QUALITY**. Every attempt was made to produce the best possible images.

VCE DOCUMENT CONVERSION CENTER





TYPICAL SECTION AT ENTRANCE

CATEGORY IV

SCALE : 1"=10' HORIZ., 1" = 5' VERT.

1. PROVIDE 2-16' TRAVEL LANES, SLOPE = 1/4"/FT.
2. PROVIDE CG-2 HEADER CURB ADJACENT TO MEDIAN; ROLL TOP GUTTER AT OUTSIDE EDGE OF ROADS
3. PROVIDE 3.5' SHOULDER WITH 1":1' SLOPE
4. PROVIDE 3:1 MAXIMUM SLOPE FROM BACK OF ROLL TYPE GUTTER TO EXISTING GROUND
5. PROVIDE CBR = 10 OR GREATER

FERNBROOK SUBDIVISION
DRY POND
(CAPTAIN WYNNE DRIVE

S-38-93

LOT 48

LOT 49

LOT 50

N32° 53' 57"E — 177.84

SEE SHEET 9-8 FOR DAM SECTION

SF PLACE SILT FENCE @ TOE OF FILL SLOPE

RR PROVIDE 20' LONG RIP-RAP APRON CONSISTING OF EC-I TYPE A EROSION CONTROL STONE (9 C.Y.)

SS#41
D.I.-4AA
L=4'-0"
IS-1 SHAPING
TOP=24.53
INV. IN = 22.50

6' HIGH CHAIN LINK FENCE

35

36

37

38

SS# 38
DI-4AA, L=4
TOP=27.82
WAV IN = 23.25 (15")
INV IN = 8.83 (48")
INV OUT = 8.83 (48")

25' OF 15" RCP @ 2.00%

0.15 Ac.

CAPTAIN

24' OF 48" RCP @

25' OF 15" RCP @ 1.00%

IP

384' OF 48" RCP @ 0.45%

0.43 Ac.

0.9 Ac.

SS#40
DI-4AA
L=4'-0"
TOP=26.53
INV. IN = 7.10 (48")
INV. IN = 22.25 (15")
INV. OUT = 7.10 (48")

33

32

34

145' OF 48" RCP @ 0.41%

ARCHAEOLOGICAL SITE #44JC97

EXIST. 15" RCP
INV. IN = 5.15
INV. OUT = 4.70
(TO BE REMOVED)

EXISTING SEDIMENT BASIN

DRY POND #1

INV. IN 6.50

20 L.F. OF 6" PERFORATED PIPE W/ 6"x4" REDUCER

10 RR PROVIDE 20' LONG RIPRAP APRON CONSISTING OF EC-I TYPE A EROSION CONTROL STONE (15 C.Y. REQ'D.)

175 L.F. OF 24" R.C.P. @ 0.29% INCLUDING 1ES-1 END SECTION
INV. IN = 6.00
INV. OUT = 5.50

W/F DUDLEY S. & E. REBECCA WALTRIP

EMERGENCY SPILLWAY EL. = 18.00 PROVIDE TRAPEZOIDAL GRASS DITCH W/ 4' BOTTOM, 2:1 SS W/ MIRAMAT LINING

N/F STANLEY J. & PATRICIA DYKSTRA

PRINCIPAL SPILLWAY

48" PRECAST CONCRETE RISER PIPE W/ EXTENDED BASE AND ANTI-VORTEX DEVICE. TOP OF RISER ELEV. = 14.75'. TOP OF BASE ELEV. = 6.00'. ALL JOINTS TO BE WATER TIGHT.

DI-3AA-3BB-3CC

For all details, dimensions, and reinforcing steel above this line see Standard DI-3A, 3B, 3C.

Steps required for details see Std. ST-1

Hardware cloth Subbase

3" Dia weep hole

Bars V #4 @ 8"c-c

Bars H #5 @ 12"c-c

Bars Hi #5 @ 12"c-c

③ 3" Dia. weep hole to be located to drain subbase material. Weep hole with 12" x 12" plastic hardware cloth 1/4" mesh or galvanized steel wire, minimum wire dia 0.03 inch, number 4 mesh hardware cloth anchored firmly to outside of structure

NOTES

All cast in place concrete to be Class A3. For acceptable alternate see Precast Standard Designs.

Minimum depth (H) to be 8'-0". Maximum depth to be 20'-0". For inlets less than 8' use Std. DI-3A, 3B, 3C.

DI-3A-3B-3C

#4 x 8" smooth dowels @ approx. 12" C-C to be placed in all areas adjacent to abutting concrete keyways or other means of preventing settlement may be substituted when approved by the Engr.

For details of Inlet Frame & Cover see Std. IC-2

Bars G

Bars C

Bars E

Bars B

Galvanized plate to be bent on an angle of 68° 30' and is to be anchored with 3/4" x 4" stud shear connectors welded to bent plate at 2'-0" c-c

Bar F

Bars A

Face of Curb

Bars D

Gutter

Expansion Joint

Expansion Joint

If Inlet is constructed in Median Curb or with integral Curb, Gutter is to be omitted (See detail)

Type A

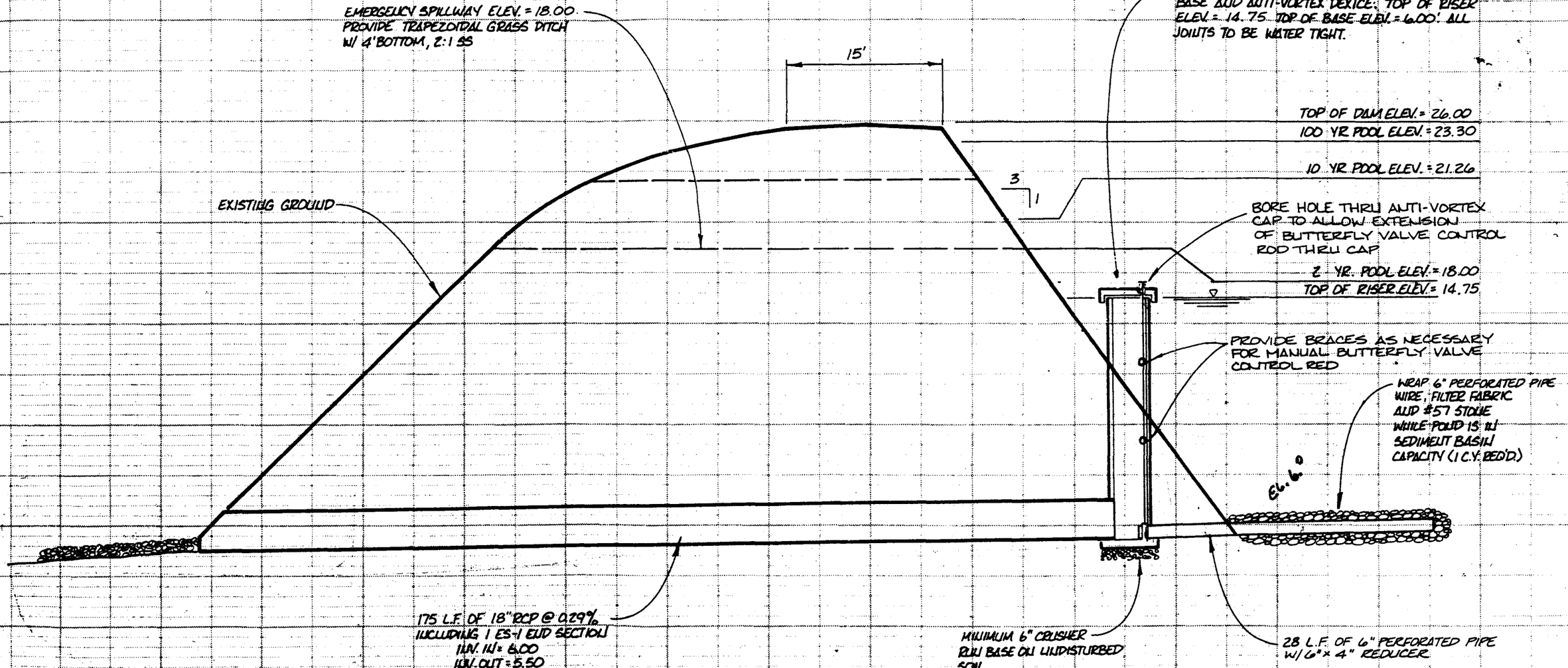
Type B

☆ NOSE DETAILS

Keyed Const. Joint

Bars F

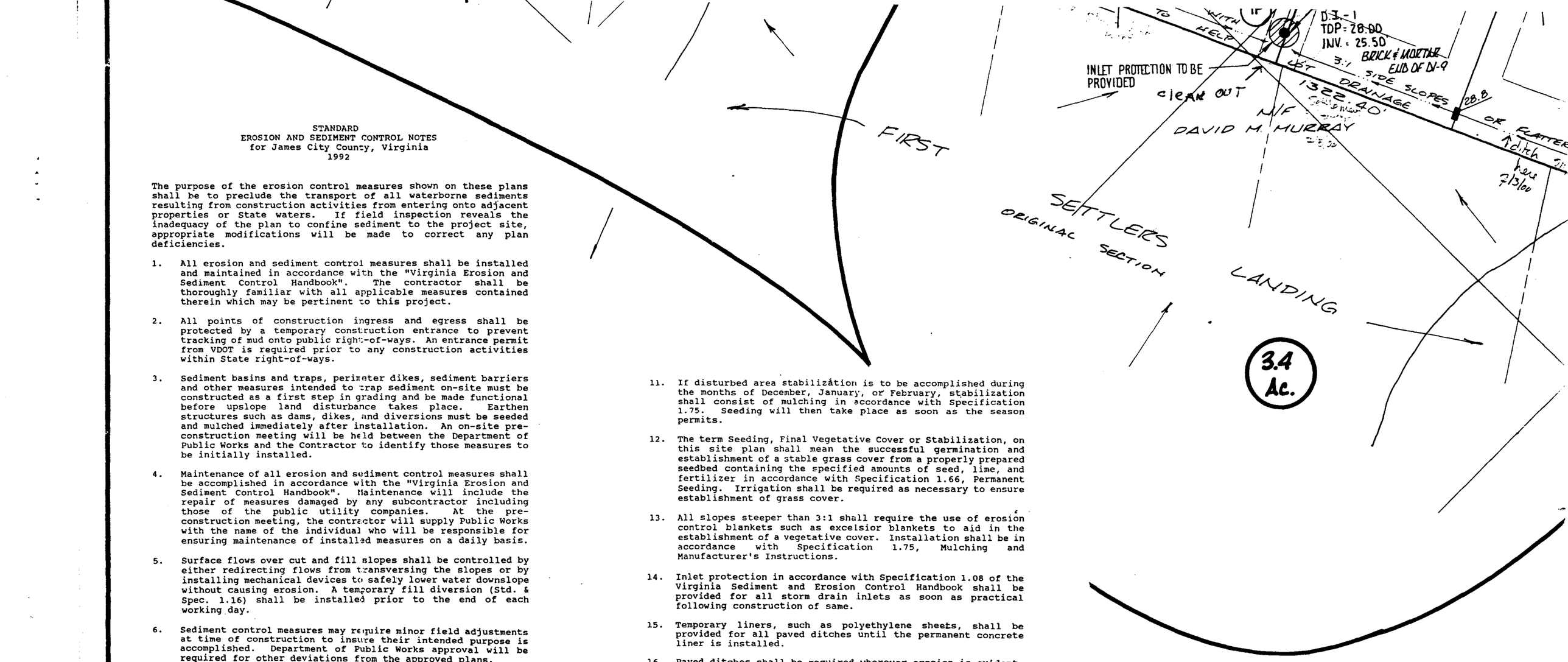
Sheet 1 of



NOTE: BU
PO

DAM AND SPILLWAY SECTION

N.T.S.



STANDARD
EROSION AND SEDIMENT CONTROL NOTES
for James City County, Virginia
1992

The purpose of the erosion control measures shown on these plans shall be to preclude the transport of all waterborne sediments resulting from construction activities from entering onto adjacent properties or State waters. If field inspection reveals the inadequacy of the plan to confine sediment to the project site, appropriate modifications will be made to correct any plan deficiencies.

1. All erosion and sediment control measures shall be installed and maintained in accordance with the "Virginia Erosion and Sediment Control Handbook". The contractor shall be thoroughly familiar with all applicable measures contained therein which may be pertinent to this project.

2. All points of construction ingress and egress shall be protected by a temporary construction entrance to prevent tracking of mud onto public right-of-ways. An entrance permit from VDOT is required prior to any construction activities within State right-of-ways.

3. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment on-site must be constructed as a first step in grading and be made functional before upslope land disturbance takes place. Earthen structures such as dams, dikes, and diversions must be seeded and mulched immediately after installation. An on-site pre-construction meeting will be held between the Department of Public Works and the Contractor to identify those measures to be initially installed.

4. Maintenance of all erosion and sediment control measures shall be accomplished in accordance with the "Virginia Erosion and Sediment Control Handbook". Maintenance will include the repair of measures damaged by any subcontractor including those of the public utility companies. At the pre-construction meeting, the contractor will supply Public Works with the name of the individual who will be responsible for ensuring maintenance of installed measures on a daily basis.

5. Surface flows over cut and fill slopes shall be controlled by either redirecting flows from transversing the slopes or by installing mechanical devices to safely lower water downslope without causing erosion. A temporary fill diversion (Std. & Spec. 1.16) shall be installed prior to the end of each working day.

6. Sediment control measures may require minor field adjustments at time of construction to insure their intended purpose is accomplished. Department of Public Works approval will be required for other deviations from the approved plans.

7. The contractor shall strip and pile topsoil at the locations shown on the plan or as directed by the engineer. Silt fence shall be placed at the toe of the stockpile after stripping of topsoil is complete.

8. The contractor shall complete drainage facilities within 30 days following completion of rough grading at any point within the project. The installation of drainage facilities shall take precedence over all underground utilities. Outfall ditches from drainage structures shall be stabilized immediately after construction of same. This includes installation of erosion control stone where required. Any drainage outfalls required for a street must be completed before street grading begins.

9. Permanent or temporary soil stabilization must be applied to all denuded areas within 7 days after final grade is reached on any portion of the site. Soil stabilization must also be applied to denuded areas which may not be at final grade but will remain dormant (undisturbed) for longer than 30 days. Soil stabilization measures include vegetative establishment, mulching and the early application of gravel base material on areas to be paved.

10. No more than 300' of sanitary sewer, storm sewer, or waterline area to be open at one time. Following installation of any portion of these items, all disturbed areas are to be immediately stabilized (i.e., the same day).

11. If disturbed area stabilization is to be accomplished during the months of December, January, or February, stabilization shall consist of mulching in accordance with Specification 1.75. Seeding will then take place as soon as the season permits.

12. The term Seeding, Final Vegetative Cover or Stabilization, on this site plan shall mean the successful germination and establishment of a stable grass cover from a properly prepared seedbed containing the specified amounts of seed, lime, and fertilizer in accordance with Specification 1.66, Permanent Seeding. Irrigation shall be required as necessary to ensure establishment of grass cover.

13. All slopes steeper than 3:1 shall require the use of erosion control blankets such as excelsior blankets to aid in the establishment of a vegetative cover. Installation shall be in accordance with Specification 1.75, Mulching and Manufacturer's Instructions.

14. Inlet protection in accordance with Specification 1.08 of the Virginia Sediment and Erosion Control Handbook shall be provided for all storm drain inlets as soon as practical following construction of same.

15. Temporary liners, such as polyethylene sheets, shall be provided for all paved ditches until the permanent concrete liner is installed.

16. Paved ditches shall be required wherever erosion is evident. Particular attention shall be paid to those areas where grades exceed 3%.

17. Temporary erosion control measures are not to be removed until all disturbed areas are stabilized. After stabilization is complete, all measures shall be removed within 30 days. Trapped sediment shall be spread and seeded.

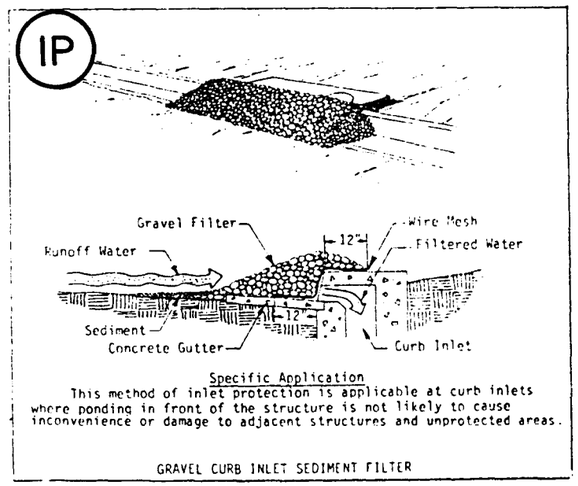
18. Off-site waste or borrow areas shall be approved by James City County prior to the import of any borrow or export of any waste to or from the project site.

19. All paved and/or piped outfalls will be constructed before road grading and utility installation begins.

20. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.

21. A preconstruction conference shall be held on-site between the County, the Developer, the Project Engineer and the Contractor prior to issuance of a Land Disturbing Permit. The Contractor shall submit a narrative plan to the County prior to the preconstruction conference detailing the sequence of construction for the project, including installation of erosion control measures.

22. All roadways and shoulders shall be stabilized with at least six inches of crusher run aggregate after grading. Crusher run aggregate shall be the material specified in Section 206 of the Virginia Department of Transportation, Road and Bridge Specifications.



Specific Application
This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas.

GRAVEL CURB INLET SEDIMENT FILTER

11364