



See also MC009 and MC025

The three BMPs were repaired in 1998.

MC009 is pond #1

MC024 is pond #2

MC025 is pond #3

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- STORMWATER 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: MC024

DATE VERIFIED: December 12, 2012

QUALITY ASSURANCE TECHNICIAN: Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

Date: March 28, 2012
To: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
From: Leah Hardenbergh
PO: 110426
Re: Files Approved for Scanning

General File ID or BMP ID: MC024
PIN: 4830200001
Owner Name (if known): ROLLING WOODS
Legal Property Description: OPEN SPACE S-3 ROLLING WDS
Site Address: BASIN 1- 5801 HAWTHORNE LOT 48

(For internal use only):

Box # 3

Agreements (in file as of scan date): N Book or Doc #:

MC-024

Contents for Stormwater Management Facilities As-built Files

Each file is to contain:

1. As-built plan
2. Completed construction certification
3. Construction Plan
- ④ 4. Design Calculations
5. Watershed Map
6. Maintenance Agreement
7. Correspondence with owners
8. Inspection Records
9. Enforcement Actions

000021748

000020722

RE-RECORDING OF
EASEMENT AND MAINTENANCE AGREEMENT

RE-RECORDING OF THIS
This **EASEMENT AND MAINTENANCE AGREEMENT** (this "Agreement") is made

this 24th day of October 2000, by and between **ROLLING WOODS HOMEOWNERS' ASSOCIATION OF WILLIAMSBURG, INC.**, a Virginia non-stock corporation ("ASSOCIATION"), Grantor, whose registered agent is Stephen J. Roberts, Esq., with an address of 905 Richmond Road, Williamsburg, Virginia 23185; and **JAMES CITY COUNTY**, a Political Subdivision of the Commonwealth of Virginia ("COUNTY"), Grantee, with an address of Attention: County Administrator, 101-C Mounts Bay Road, Williamsburg, Virginia, 23185.

RECITALS

WHEREAS, the ASSOCIATION is the umbrella homeowners' association responsible for the maintenance, management, operation and control of the Common Areas in the residential community known as Rolling Woods, located in the County of James City, Virginia; and

WHEREAS, Rolling Woods is subject to certain covenants and restrictions set forth in the Rolling Woods Declaration of Covenants and Restrictions dated _____, and recorded in the Clerk's office of the Circuit Court of the City of Williamsburg and the County of James City, Virginia (the Williamsburg/James City County Clerk's Office) in Deed Book ____, Page ____,

This Instrument prepared by:
Colleen K. Killilea, Esq.
Jones, Blechman, Woltz & Kelly, P.C.
460 McLaws Circle, Suite 220
Williamsburg, Virginia 23185
(757) 259-5740
(757) 259-5717 (fax)

OCT 26 02 88

NOV 16 00 01

the Amended and Restated Declaration of Covenants and Restrictions dated _____ and recorded in the Williamsburg/James City Clerk's Office in Deed Book ____, Page ____, and ____; and as may be further amended, restated, modified or supplemented (the "Declaration"); and

WHEREAS, pursuant to the Declaration, the ASSOCIATION is responsible for the maintenance and upkeep of the Common Areas in Rolling Woods; and

WHEREAS, there are ~~three privately owned stormwater detention basins in Rolling Woods~~, located within a certain piece or parcel of land identified as "OPEN SPACE" on a certain plat entitled "ROLLING WOODS SUBDIVISION SECTION 3, THE DIGGES BROTHERS, INC - OWNER/DEVELOPER, JAMES CITY COUNTY, VIRGINIA", dated October 19, 1988 by the DeYoung-Johnson Group, Inc., Engineers-Architects-Surveyors, Williamsburg, Virginia, which plat was recorded in the Williamsburg/James City County Circuit Court Clerk's Office in Plat Book 49, pages 78-79. These three stormwater detention basins provide the stormwater management and drainage for the Rolling Woods community, and said system, hereinafter referred to as the "SYSTEM," also includes any runoff control facilities, pipes, conveyance systems and associated improvements and easements, located on and serving the above-described property. The SYSTEM shall not include any elements located within any Virginia Department Transportation rights-of-way.

WHEREAS, the ASSOCIATION and the COUNTY have agreed, subject to the provisions of Paragraph 15 herein, that ~~the ASSOCIATION will be responsible for certain routine maintenance and repairs of the SYSTEM, and the Country will be responsible for certain non-routine maintenance, emergency repairs and replacements all as hereinafter set forth; and~~

WHEREAS, the purpose of the maintenance is to ensure that the SYSTEM detains and releases stormwater in accordance with the approved SYSTEM design as presented in the approved

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plans, James City County Case Number S-17-87 and S-34-88, and with the law and applicable executive regulation except as otherwise provided for in Item 9 below.

NOW THEREFORE, in consideration of TEN DOLLARS (\$10.00), the mutual covenants contained herein and other good valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. County's Duties. The COUNTY agrees, subject to the provisions of Paragraph 15 herein, to perform all "Non-routine Work" (as hereinafter defined in paragraph 4 below) to the SYSTEM. In connection with the exercise of its duties hereunder, the COUNTY agrees to complete all work lien free and in a good and workmanlike manner, and to restore all disturbed areas upon completion of the work to substantially the original condition of such areas. The COUNTY further agrees to serve as the primary advisor to the ASSOCIATION on all state and federal regulations regarding the management and operation of the stormwater detention basins.

2. Association's Duties

The ASSOCIATION

- a) agrees to perform all "Routine Work" (as hereinafter defined in paragraph 4 below) to the SYSTEM; and
- b) agrees to levy regular or special assessments, if necessary, to the fullest extent permitted under the Declaration of Covenants and/or Virginia law, against all present or subsequent owners of property, subject to the Declaration of Covenants and served by the SYSTEM to ensure that the ASSOCIATION has adequate funds available to perform its obligations in accordance with this Agreement; and

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c) hereby grants and conveys to the COUNTY the non-exclusive right of ingress and egress over and across those certain access areas designated as “_____” on Exhibit A attached hereto for the purpose of (i) providing access to and from the SYSTEM to enable the COUNTY to perform its duties under this Agreement; (ii) providing perpetual access from the public right-of-ways to the SYSTEM for the COUNTY, its employees, its agent and its contractor, and (iii) for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM; and

d) hereby agrees to promptly notify the COUNTY when the ASSOCIATION legally transfers any of the responsibilities for the SYSTEM. The ASSOCIATION shall supply the COUNTY with a copy of any document of transfer, executed by the ASSOCIATION and by the transferee, indicating the transferee’s agreement to assume the ASSOCIATION’S obligations hereunder.

Definitions.

A. “Routine Work.” As used herein, the term “Routine Work” means the performance of the following duties.

- (i) Mowing and seeding of the stormwater detention basin embankment.
- (ii) Removal of downed trees from the stormwater detention basins themselves, insofar as they inhibit the function of the stormwater detention basins.
- (iii) Removal of tree growth from the dam embankment itself.

OCT 26 0292

NOV 16 0005

- (iv) Maintaining storm water outlets and release structures free of trash and debris.
- (v) Commercially reasonable management of aquatic vegetation, such that said vegetation does not interfere with the function of the stormwater detention basin and dam.
- (vi) Routine maintenance of dam embankment to prevent surface erosion of the dam.
- (vii) Commercially reasonable action to control animals (such as beavers and muskrats) that may live in or around the stormwater detention basins, insofar as they pose a hazard to the function of the settlement basin.

B. "Non-routine Work." As used herein, the term "Non-routine Work" means performance of the following duties.

- (i) Dredging and cleaning of the stormwater detention basins to maintain an appropriate depth for storm water management purposes.
- (ii) Periodic checks of the stormwater detention basin depths, as appropriate.
- (iii) Making all necessary structural repairs to the dam embankment and associated dams and spillways, other than mowing and seeding.
- (iv) Replacing pipe spillways when damaged to the extent that their function is impaired.
- (v) Providing emergency repairs to the stormwater detention basins, dams, spillways, pipes and embankments, to include dam embankment failures.

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5. **Compliance with Laws.** The work performed by any party shall be completed in a good and workmanlike manner and shall comply with all federal, state and local laws, regulations and ordinances.

6. **Reservation.** The ASSOCIATION reserves (a) the right to landscape and grade the easement areas and to install fencing on easement areas other than easements for ingress/egress or access, (b) the right to install (or to grant others the right to install) other utilities in, on or about the easement areas, and (c) the right to otherwise use the easement areas for such other purposes as the ASSOCIATION may desire, provided that such use is not inconsistent with and does not interfere with the easements granted by this instrument, and further provided that the function of the dam is not impaired by such use.

7. **Duration.** The easements hereby granted and the other covenants, agreements and licenses contained herein shall be covenants and agreements running with the land and shall inure to the benefit of, and be binding upon, the parties hereto and all persons claiming under them, in perpetuity unless terminated or amended in accordance with paragraph 14 below.

8. **Remedies.** In addition to all rights and remedies otherwise available at law or in equity, in the event of any default under or violation or threatened violation of this Agreement by any party hereto, then the County shall have the following rights:

A. After notice to the ASSOCIATION setting forth the specific failures to comply with this Agreement, if those failures are not corrected within thirty (30) days after the delivery of the notice, then the COUNTY shall have the right to correct the failures, and the ASSOCIATION shall pay the costs thereof.

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9. **Separability.** The invalidation of any of the grants or covenants contained herein, by order of court, legislative mandate or otherwise, shall not affect any of the other provisions hereof and such other provisions shall remain in full force and effect.

10. **Notice.** Any notice required or intended to be given to any party under the terms of this Agreement shall be in writing and shall be deemed to be duly given if hand delivered or if deposited in the United States Mail, marked certified or registered, return receipt requested, postage prepaid or if sent by commercial courier service (e.g. Federal Express or UPS), addressed to the party to whom notice is to be given at the party's address set forth above, or at such other address as the party may hereafter designate by notice.

11. **Nonwaiver.** The forbearance or waiver by any party of a breach of any provision of this Agreement shall not operate as or be construed to be a waiver of any continuing breach or subsequent breach of this Agreement.

12. **Miscellaneous.** Whenever used herein, the singular shall include the plural, the plural the singular and the use of any gender shall include all other genders. The use of paragraph headings or captions is for ease of reference only and such headings or captions shall have no substantive meaning in the interpretation of this Agreement.

13. **Governing Law.** This Agreement shall be construed in accordance with, and governed by, the laws of the Commonwealth of Virginia.

14. **Amendment/Termination.** This Agreement may not be amended or terminated except by an instrument in writing duly executed by all parties and recorded in the Clerk's Office. However, the parties agree that when the COUNTY implements a stormwater management maintenance program to limit and manage the volume of stormwater runoff and to prevent the degradation of the County's waterways, that the COUNTY will not exclude

OCT 26 02 95

NOV 16 00 08

Rolling Woods from inclusion in the County's plan, based either in whole or in part on the existence of this Agreement, and once Rolling Woods is included in such a system, the parties agree that this Agreement will terminate and that all maintenance of the stormwater detention basins, whether routine or non-routine, will become the responsibility of the COUNTY.

15. Appropriations Clause. Notwithstanding any other provision herein to the contrary, this Agreement shall in no way obligate the County or the Board of Supervisors to appropriate money in order to fulfill any of the terms and conditions of this Agreement. However, it is the present intention of the County to fulfill the obligations under this Agreement.

WITNESS the following duly authorized signatures and seals:

**ROLLING WOODS HOMEOWNERS
ASSOCIATION OF WILLIAMSBURG, INC.**

A Virginia non-stock corporation

By: 
Vernon Dockins, President

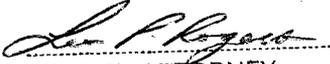
**THE COUNTY OF JAMES CITY, a Political
Subdivision of the Commonwealth of Virginia**

By: 

Name: Sanford B. Wanner

Title: County Administrator

APPROVED AS TO FORM


COUNTY ATTORNEY

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City :

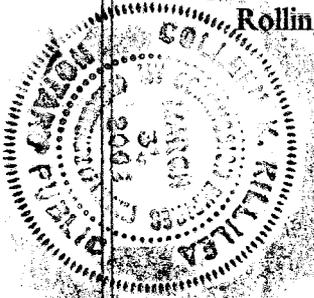
The foregoing instrument was acknowledged before me in James City County, Virginia, this
24th day of October, 2000, by Vernon Dockins, President of

Rolling Woods Homeowners Association, a Virginia non-stock corporation, on its behalf.

Colleen K. Kuehn

Notary Public

My commission expires: 3/31/2002



OCT 26 02 96

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City :

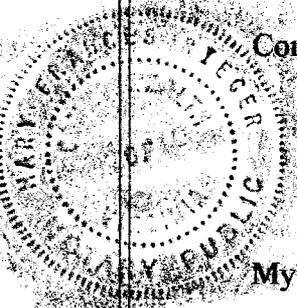
The foregoing instrument was acknowledged before me in James City County, Virginia, this
25th day of October, 2000, by Sanford B. Warner,

County Administrator, of James City County, a Political Subdivision of the

Commonwealth of Virginia, on its behalf.

Mary Frances Rieger
Notary Public

My commission expires: Oct. 31, 2001.



NOV 16 00 09

VIRGINIA: City of Williamsburg and County of James City, to-wit:

This Re-Recording was presented with certificate annexed and admitted to record on 16 Nov, 2000, at 8:57 AM 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 Clerk

VIRGINIA: City of Williamsburg and County of James City, to-wit:

This Easement Agreement was presented with certificate annexed and admitted to record on 26 Oct., 2000, at 3:22 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 Clerk

030 008750

CORRECTED EASEMENT AND MAINTENANCE AGREEMENT

COPY

This **CORRECTED EASEMENT AND MAINTENANCE AGREEMENT** (this "Agreement") is made this 5th day of March 2003, by and between **ROLLING WOODS HOMEOWNERS' ASSOCIATION OF WILLIAMSBURG, INC.**, a Virginia non-stock corporation ("ASSOCIATION"), Grantor, whose registered agent is Stephen J. Roberts, Esq., with an address of 905 Richmond Road, Williamsburg, Virginia 23185; and **JAMES CITY COUNTY**, a Political Subdivision of the Commonwealth of Virginia ("COUNTY"), Grantee, with an address of Attention: County Administrator, 101-C Mounts Bay Road, Williamsburg, Virginia, 23185.

RECITALS

WHEREAS, the ASSOCIATION is the umbrella homeowners' association responsible for the maintenance, management, operation and control of the Common Areas in the residential community known as Rolling Woods, located in the County of James City, Virginia; and

WHEREAS, Rolling Woods is subject to certain covenants and restrictions set forth in the Rolling Woods Declaration of Covenants and Restrictions dated October 20, 1987, and recorded in the Clerk's office of the Circuit Court of the City of Williamsburg and the County of James City, Virginia (the Williamsburg/James City County Clerk's Office) in Deed Book 413, Pages 1-5, the Amended and Restated Declaration of Covenants and Restrictions dated March 8, 1989 and recorded in the Williamsburg/James City County Clerk's Office in Deed Book 478, Page 732, and 733; and as may be further amended, restated, modified or supplemented (the "Declaration"); and

MAR 25 8 04 32

WHEREAS, pursuant to the Declaration, the ASSOCIATION is responsible for the maintenance and upkeep of the Common Areas in Rolling Woods; and

WHEREAS, there are three privately owned stormwater detention basins in Rolling Woods, located within a certain piece or parcel of land identified as "OPEN SPACE" on a certain plat entitled "ROLLING WOODS SUBDIVISION SECTION 3, THE DIGGES BROTHERS, INC - OWNER/DEVELOPER, JAMES CITY COUNTY, VIRGINIA", dated October 19, 1988 by the DeYoung-Johnson Group, Inc., Engineers-Architects-Surveyors, Williamsburg, Virginia, which plat was recorded in the Williamsburg/James City County Circuit Court Clerk's Office in Plat Book 49, pages 78-79. These three stormwater detention basins provide the stormwater management and drainage for the Rolling Woods community, and said system, hereinafter referred to as the "SYSTEM," also includes any runoff control facilities, pipes, conveyance systems and associated improvements and easements, located on and serving the above-described property. The SYSTEM shall not include any elements located within any Virginia Department Transportation rights-of-way.

WHEREAS, the ASSOCIATION and the COUNTY have agreed, subject to the provisions of Paragraph 15 herein, that the ASSOCIATION will be responsible for certain routine maintenance and repairs of the SYSTEM, and the County will be responsible for certain non-routine maintenance, emergency repairs and replacements all as hereinafter set forth; and

WHEREAS, the purpose of the maintenance is to ensure that the SYSTEM detains and releases stormwater in accordance with the approved SYSTEM design as presented in the approved plans, James City County Case Number S-17-87 and S-34-88, and with the law and applicable executive regulation except as otherwise provided for in Item 9 below.

NOW THEREFORE, in consideration of TEN DOLLARS (\$10.00), the mutual covenants contained herein and other good valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. County's Duties. The COUNTY agrees, subject to the provisions of Paragraph 15 herein, to perform all "Non-routine Work" (as hereinafter defined in paragraph 4 below) to the SYSTEM. In connection with the exercise of its duties hereunder, the COUNTY agrees to complete all work lien free and in a good and workmanlike manner, and to restore all disturbed areas upon completion of the work to substantially the original condition of such areas. The COUNTY further agrees to serve as the primary advisor to the ASSOCIATION on all state and federal regulations regarding the management and operation of the stormwater detention basins.

2. Association's Duties

The ASSOCIATION

- a) agrees to perform all "Routine Work" (as hereinafter defined in paragraph 4 below) to the SYSTEM; and
- b) agrees to levy regular or special assessments, if necessary, to the fullest extent permitted under the Declaration of Covenants and/or Virginia law, against all present or subsequent owners of property, subject to the Declaration of Covenants and served by the SYSTEM to ensure that the ASSOCIATION has adequate funds available to perform its obligations in accordance with this Agreement; and
- c) hereby grants and conveys to the COUNTY the non-exclusive right of ingress and egress over and across those certain access areas located on lots 48, 49, and 53 in

MAR 25 8 04 34

Section 3; and lot 10 in Section 4; and all adjacent areas owned by the ASSOCIATION for the purpose of (i) providing access to and from the SYSTEM to enable the COUNTY to perform its duties under this Agreement; (ii) providing perpetual access from the public right-of-ways to the SYSTEM for the COUNTY, its employees, its agent and its contractor, and (iii) for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM; and

d) hereby agrees to promptly notify the COUNTY when the ASSOCIATION legally transfers any of the responsibilities for the SYSTEM. The ASSOCIATION shall supply the COUNTY with a copy of any document of transfer, executed by the ASSOCIATION and by the transferee, indicating the transferee's agreement to assume the ASSOCIATION'S obligations hereunder.

Definitions.

A. "Routine Work." As used herein, the term "Routine Work" means the performance of the following duties.

- (i) Mowing and seeding of the stormwater detention basin embankment.
- (ii) Removal of downed trees from the stormwater detention basins themselves, insofar as they inhibit the function of the stormwater detention basins.
- (iii) Removal of tree growth from the dam embankment itself.

- (iv) Maintaining storm water outlets and release structures free of trash and debris.
- (v) Commercially reasonable management of aquatic vegetation, such that said vegetation does not interfere with the function of the stormwater detention basin and dam.
- (vi) Routine maintenance of dam embankment to prevent surface erosion of the dam.
- (vii) Commercially reasonable action to control animals (such as beavers and muskrats) that may live in or around the stormwater detention basins, insofar as they pose a hazard to the function of the settlement basin.

B. "Non-routine Work." As used herein, the term "Non-routine Work" means performance of the following duties.

- (i) Dredging and cleaning of the stormwater detention basins to maintain an appropriate depth for storm water management purposes.
- (ii) Periodic checks of the stormwater detention basin depths, as appropriate.
- (iii) Making all necessary structural repairs to the dam embankment and associated dams and spillways, other than mowing and seeding.
- (iv) Replacing pipe spillways when damaged to the extent that their function is impaired.
- (v) Providing emergency repairs to the stormwater detention basins, dams, spillways, pipes and embankments, to include dam embankment failures.

MAR 25 04 36

5. **Compliance with Laws.** The work performed by any party shall be completed in a good and workmanlike manner and shall comply with all federal, state and local laws, regulations and ordinances.

6. **Reservation.** The ASSOCIATION reserves (a) the right to landscape and grade the easement areas and to install fencing on easement areas other than easements for ingress/egress or access, (b) the right to install (or to grant others the right to install) other utilities in, on or about the easement areas, and (c) the right to otherwise use the easement areas for such other purposes as the ASSOCIATION may desire, provided that such use is not inconsistent with and does not interfere with the easements granted by this instrument, and further provided that the function of the dam is not impaired by such use.

7. **Duration.** The easements hereby granted and the other covenants, agreements and licenses contained herein shall be covenants and agreements running with the land and shall inure to the benefit of, and be binding upon, the parties hereto and all persons claiming under them, in perpetuity unless terminated or amended in accordance with paragraph 14 below.

8. **Remedies.** In addition to all rights and remedies otherwise available at law or in equity, in the event of any default under or violation or threatened violation of this Agreement by any party hereto, then the County shall have the following rights:

A. After notice to the ASSOCIATION setting forth the specific failures to comply with this Agreement, if those failures are not corrected within thirty (30) days after the delivery of the notice, then the COUNTY shall have the right to correct the failures, and the ASSOCIATION shall pay the costs thereof.

MAR 25 8 04 37

9. **Separability.** The invalidation of any of the grants or covenants contained herein, by order of court, legislative mandate or otherwise, shall not affect any of the other provisions hereof and such other provisions shall remain in full force and effect.

10. **Notice.** Any notice required or intended to be given to any party under the terms of this Agreement shall be in writing and shall be deemed to be duly given if hand delivered or if deposited in the United States Mail, marked certified or registered, return receipt requested, postage prepaid or if sent by commercial courier service (e.g. Federal Express or UPS), addressed to the party to whom notice is to be given at the party's address set forth above, or at such other address as the party may hereafter designate by notice.

11. **Nonwaiver.** The forbearance or waiver by any party of a breach of any provision of this Agreement shall not operate as or be construed to be a waiver of any continuing breach or subsequent breach of this Agreement.

12. **Miscellaneous.** Whenever used herein, the singular shall include the plural, the plural the singular and the use of any gender shall include all other genders. The use of paragraph headings or captions is for ease of reference only and such headings or captions shall have no substantive meaning in the interpretation of this Agreement.

13. **Governing Law.** This Agreement shall be construed in accordance with, and governed by, the laws of the Commonwealth of Virginia.

14. **Amendment/Termination.** This Agreement may not be amended or terminated except by an instrument in writing duly executed by all parties and recorded in the Clerk's Office. However, the parties agree that when the COUNTY implements a stormwater management maintenance program to limit and manage the volume of stormwater runoff and

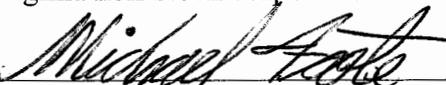
MAR 25 8 04 38

to prevent the degradation of the County's waterways, that the COUNTY will not exclude Rolling Woods from inclusion in the County's plan, based either in whole or in part on the existence of this Agreement, and once Rolling Woods is included in such a system, the parties agree that this Agreement will terminate and that all maintenance of the stormwater detention basins, whether routine or non-routine, will become the responsibility of the COUNTY.

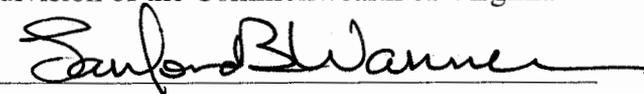
15. **Appropriations Clause.** Notwithstanding any other provision herein to the contrary, this Agreement shall in no way obligate the County or the Board of Supervisors to appropriate money in order to fulfill any of the terms and conditions of this Agreement. However, it is the present intention of the County to fulfill the obligations under this Agreement.

WITNESS the following duly authorized signatures and seals:

**ROLLING WOODS HOMEOWNERS'
ASSOCIATION OF WILLIAMSBURG, INC.**
A Virginia non-stock corporation

By: 
Michael Foote, President

**THE COUNTY OF JAMES CITY, a Political
Subdivision of the Commonwealth of Virginia**

By: 

Name: Sanford B. Wanner

Title: County Administrator

APPROVED AS TO FORM


COUNTY ATTORNEY

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City :

The foregoing instrument was acknowledged before me in James City County, Virginia, this
5th day of March, 2003, by Michael Foote, President of
Rolling Woods Homeowners Association, a Virginia non-stock corporation, on its behalf.

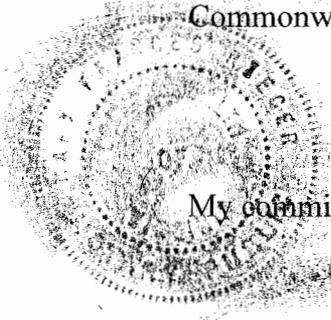


Mary Frances Rieger
Notary Public

My commission expires: October 31, 2005.

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City :

The foregoing instrument was acknowledged before me in James City County, Virginia, this
18th day of March, 2003, by Sanford B. Warner,
County Administrator, of James City County, a Political Subdivision of the
Commonwealth of Virginia, on its behalf.



Mary Frances Rieger
Notary Public

My commission expires: October 31, 2005.

MAR 25 2003 04:40

This Instrument prepared by:
Leo P. Rogers, Esq.
James City County
101-C Mounts Bay Road
Williamsburg, Virginia 23185
(757) 253-6614

VIRGINIA: CITY OF WILLIAMSBURG & COUNTY OF JAMES CITY
This document was admitted to record on 25 Mar. 03
at 11:20 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

RESOLUTION

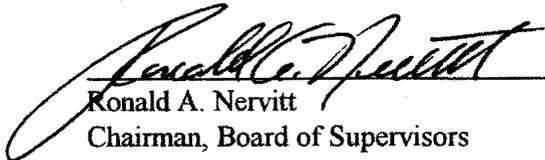
THE EASEMENT AND MAINTENANCE AGREEMENT FOR

THE ROLLING WOODS DETENTION PONDS

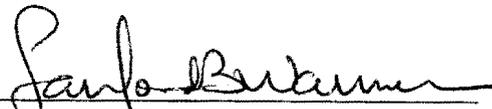
WHEREAS, there currently exists three detention ponds in the Rolling Woods subdivision for which there is no long-term maintenance agreement; and

WHEREAS, the Rolling Woods Homeowners' Association of Williamsburg, Inc., is willing to perform all routine maintenance and the County is willing, subject to appropriations, to provide all non-routine maintenance of the detention ponds.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, hereby authorizes and directs the County Administrator to enter into the Easement and Maintenance Agreement with the Rolling Woods Homeowners' Association of Williamsburg, Inc., for the detention ponds in the Rolling Woods subdivision.


Ronald A. Nervitt
Chairman, Board of Supervisors

ATTEST:


Sanford B. Wanner
Clerk to the Board

<u>SUPERVISOR</u>	<u>VOTE</u>
MCLENNON	AYE
HARRISON	AYE
GOODSON	ABSENT
KENNEDY	AYE
NERVITT	AYE

Adopted by the Board of Supervisors of James City County, Virginia, this 24th day of October, 2000.

Floyd 9/16/99

THIS DEED EXEMPT FROM RECORDING TAXES PURSUANT TO VIRGINIA CODE §58.1-810 (3).

THIS DEED OF GIFT, made this 24 day of June, 1999, by and between THE DIGGES BROS., INC. and SASHA L. DIGGES and WILLIAM E. D. DIGGES, Trustees in liquidation, hereinafter referred to as "Grantor", and ROLLING WOODS HOMEOWNER'S ASSOCIATION OF WILLIAMSBURG, INC., hereinafter referred to as "Grantee", whose mailing address is 905 Richmond Road, Williamsburg, Virginia

23185 (40 Stephen Roberts). WHEREAS, The Digges Bros., Inc. was a Virginia corporation whose existence was terminated by the Virginia State Corporation Commission on September 1, 1996 for failure to file an Annual Report and pay the required Franchise Tax; and

WHEREAS, at the time of termination of corporate existence, the Directors of the aforesaid corporation were Sasha L. Digges and William E. D. Digges; and

WHEREAS, at the time of termination of corporate existence, the aforesaid corporation held title to the property described below and, pursuant to Virginia Code Section 13.1-752, the directors are given the authority to convey said property.

WITNESSETH: That for and in consideration of the sum of Ten Dollars (\$10.00), cash in hand paid by the Grantee to the Grantor, and other good and valuable consideration, receipt whereof is hereby acknowledged, the Grantor does hereby GRANT, BARGAIN, SELL and CONVEY with GENERAL WARRANTY and ENGLISH COVENANTS OF TITLE unto ROLLING WOODS HOMEOWNER'S ASSOCIATION OF WILLIAMSBURG, INC., the following described property, to-wit:

NOV-88 0062

All that certain piece or parcel of land, situate in District in James City County, Virginia, identified as "OPEN SPACE" on a certain plat entitled, "ROLLING WOODS SUBDIVISION SECTION 3, THE DIGGES BROTHERS, INC.-OWNER DEVELOPER, JAMES CITY COUNTY, VIRGINIA" dated October 19, 1988 by The DeYoung- Johnson Group, Inc., Engineers - Architects - Surveyors, Williamsburg, Virginia, which plat was recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City, Virginia in Plat Book 49, pages 78-79.

Being a portion of the same property as that conveyed unto Grantors herein by Deed dated October 1, 1986 from Trust James Twenty Seven, Thirty One & Woods of Williamsburg Co., which Deed was recorded in the aforesaid Clerk's Office in Deed Book 319, at page 346.

NOV-88 0063

This conveyance is made expressly subject to the conditions, restrictions and easements, if any, of record, constituting constructive notice.

WITNESS the following signatures and seals:

THE DIGGES BROS., INC.

By: [Signature]
Title: _____

[Signature]
SASHA L. DIGGES

[Signature]
WILLIAM E. D. DIGGES

STATE OF VIRGINIA

CITY/COUNTY OF James City, to-wit:

The foregoing Deed was acknowledged before me by Sasha Digges, _____ of THE DIGGES BROS., INC., Trustee in liquidation, this 21st day of December, 1999.

[Signature]
NOTARY PUBLIC

My Commission Expires: May 31, 2002

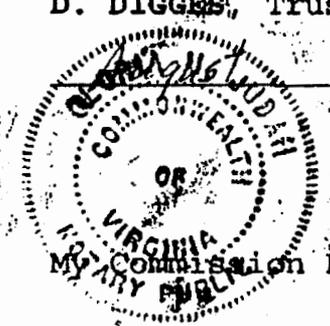


4900 88-10N
NOV-88 0064

STATE OF VIRGINIA

CITY/COUNTY OF James City, to-wit:

The foregoing Deed was acknowledged before me by WILLIAM E. D. DIGGES, Trustee in liquidation, this 23rd day of August, 1999.

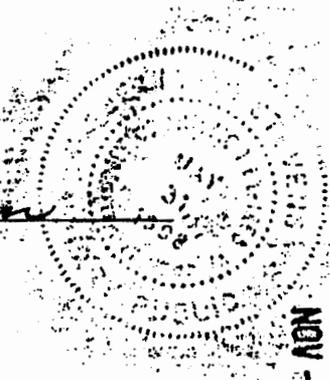


Christy M. Judah
NOTARY PUBLIC

STATE OF VIRGINIA

CITY/COUNTY OF James City, to-wit:

The foregoing Deed was acknowledged before me by SASHA L. DIGGES, Trustee in liquidation, this 27th day of December, 1999.



Betty M. Stover
NOTARY PUBLIC

My Commission Expires: May 31, 2002

PREPARED BY:
JONES, BLECHMAN, WOLTZ & KELLY, P.C.
David W. Otey, Jr.
460 McLaws Circle, Suite 220
Williamsburg, Va 23185

NOV-88 0065

VIRGINIA City of Williamsburg and County of James City, to-wit:
This Deed left was presented with certificate annexed and admitted to record on 8 Nov, 2000, at 9:16 AM 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

1,012,500.00

USA 319 PAGE 346

This Deed, made this 1st. day of October, 1986, by and between James H. SELLERS, TRUSTEE under Trust identified as TRUST JAMES TWENTY-SEVEN, James H. SELLERS, TRUSTEE under Trust identified as TRUST JAMES THIRTY-TWO, James H. SELLERS, TRUSTEE under Trust identified as TRUST JAMES THIRTY-THREE, and WOODS OF WILLIAMSBURG COMPANY, a Virginia Limited Partnership whose Certificate is recorded in the Clerk's Office of the Circuit Court of Williamsburg and James City County, Va., parties of the first part; and THE DIGGES BROS., INC., whose address is 16 Mile Course, Williamsburg, Va., 23105, party of the second part.

Witness, for and in consideration of \$10, cash in hand paid, and other good and valuable considerations, the receipt whereof is hereby acknowledged, the parties of the first part do grant and convey with Special Warranty unto the party of the second part, the following described property, to-wit:

All those certain contiguous tracts, pieces, or parcels of land, situate, lying, and being in James City County, Va., and being more particularly bounded and described as follows:

A. Parcels I, II, and III, Parcel III being 99.88 acs. +/-, and a 1.79 acre parcel, all as shown on plat recorded with deed in Deed Book 150 page 95, which plat is recorded in Plat Book 31 page 54 in the aforesaid Clerk's Office.

B. The southern portion of Lake Loring #2 as shown on plat entitled Birchwood Park Sec. B Part 3 and recorded in said Clerk's Office in Plat Book 18 page 35, bounded by "A" above on the east, west, and south; and on the north by the centerline of a stream as shown on said plat, which centerline is the line to which the dotted lines of lots 91 thru 96 on said plat would be extended as per legend on said plat.

C. Beginning at a point in the northernmost corner of lot 89 as shown on plat entitled Birchwood Park Section B Part 2 and recorded in Map Book 17 page 39; thence westerly along the north line of said lot 89 to "A" above; thence northerly along the boundary of "A" above to its intersection with the edge of Lake Loring #2; thence northeastwardly in a straight line to the southernmost corner of lot 91 on aforesaid plat in Map Book 18 page 35; thence northwardly along east line of said lot 91 to south line of lot 30 as shown on plat entitled Birchwood Park Sec. B Part 2 and recorded in Map Book 17 pages 19 and 20; thence eastwardly along said south line of said lot 30 to the southeast corner of said lot 30; thence southeastwardly in a straight line to the point of beginning.

D. Bounded on the east by Old Jamestown Road (now known as Lake Powell Road); on the north by south line of lots 3 and 4 as shown on plat recorded with Deed Book 151 page 488 in Map

1.

Book 32 page 33 on the west by east lines of lots 64 through 68 on aforesaid plat in Map Book 17 page 39; and on the south by "A" above.

E. There is excepted a small parcel of land, heretofore condemned of record by James City County for a sewage pump station, which parcel is approximately 200 feet southwesterly from the southern terminus of Redbud Lane and approximately 500 feet west of Lake Powell Road, plat in Deed Book 162 page 343.

It being the same or a part of the same conveyed to parties of the first part by the following deeds: Deed Book 226 page 43, Deed Book 158 page 839, and Deed Book 159 page 167.

First parties have granted easements to James City Service Authority, dated March 20, 1986 and recorded in Deed Book 302 pages 116 et seq, 122 et seq, 126 et seq, and 553 et seq, and by Condemnation in Deed Book 162 page 344, and Deed Book 164 page 334.

Witness the following signatures and seals, and in witness whereof, Woods of Williamsburg Company has caused its name to be signed hereto and this instrument sealed by Polly M. Sellers, its General Partner.

James H. Sellers, Trustee (SEAL)
James H. Sellers, Trustee for
Trust identified as Trust James
Twenty-seven

James H. Sellers, Trustee (SEAL)
James H. Sellers, Trustee for
Trust identified as Trust James
Thirty-two

James H. Sellers, Trustee (SEAL)
James H. Sellers, Trustee for
Trust identified as Trust James
Thirty-three

Woods of Williamsburg Company (SEAL)

by Polly M. Sellers (SEAL)
General Partner

State of Virginia- at large
City of Norfolk, to-wit:

The foregoing instrument was acknowledged before me this
23 rd. day of October, 1986 by James H. Sellers in his capacity

Rollingswood Section 3
Existing Stormwater Management Pond 1
Pond Repair Plan

As-Built Report

Note: All hydrologic and hydraulic computations developed from record design plans for the facility and as-built information obtained following repair activities performed in September-October 2000. As-Built data obtained October 27th 2000.

A. Hydrology Using SCS Hydrology Methods with assistance from Haestad Methods, PondPack v. 6.0
James City County SCS Type II, P rainfall: 2-yr. (3.5"); 10-yr. (5.8"); 25-yr (6.4"); 100-yr (8.0")

<u>Predevelopment</u>		DA = 12.2 ac. CN = 73	Tc = 12 min. (0.2 hr.)
2-year	18.16 cfs	(2-year Allowable Discharge)	
10-year	46.40 cfs	(10-year Allowable Discharge)	
25-year	54.40 cfs		
100-year	76.24 cfs		

<u>PostDev without Detention</u>		DA = 12.2 ac. CN = 80	Tc = 5.88 min. (0.098 hr.)
1-year	20.10 cfs	(Peak Pond Inflow)	
2-year	30.18 cfs	(Peak Pond Inflow)	
10-year	66.56 cfs	(Peak Pond Inflow)	
25-year	76.34 cfs	(Peak Pond Inflow)	
50-year	89.44 cfs	(Peak Pond Inflow)	
100-year	102.57 cfs	(Peak Pond Inflow)	

B. Hydraulic Data

Pond Stage-Storage Data

El. 12.4	0.00	acre
El. 13.0	0.0254	acre
El. 14.0	0.0621	acre
El. 15.0	0.1179	acre
El. 20.0	0.2704	acre

(Note: Top of dam at 24.10, 23.76, 24.04 and 23.83 per as-built survey. Top of dam 3.24 feet lower than design top of dam at El. 27.00. Adjust Stage-Storage Curve to high at El. 24.0)

El. 24.0	0.4402	acre	
El. 25.0	0.5474	acre	
El. 26.0	0.6509	acre	
El. 27.0	0.7544	acre	Top of Dam

Note: Volume at design Normal Pool at El. 24.0 was 2.483 acre-ft. or 108,159 cubic feet.

C. Pond & Structure Elevations (Based on As-Built Data 10/25/00)

All as-built data referenced to El. 10.45 at outlet barrel crest. TBM corner of frame on anti-vortex/trash rack lid @ Elevation 22.77.

Top of Dam	El. 23.76 lowest (27.0 Design)	10 - 12 ft. top width
Emergency Spillway	El. 22.8 center (26.0 Design)	4 ft. bottom width; 3H:1V; 1' deep
Riser Crest	El. 21.31 (24.0 Design)	New 24 inch RCP
Barrel Length	65 l.f (Design 85 feet)	New Riser to Barrel Invert Out
Invert Out Barrel	El. 10.45 (Ref elevation)	New 10 inch CPP outlet barrel
Height of Dam	El. 23.76 - El. 10.45 = 13.31 feet	

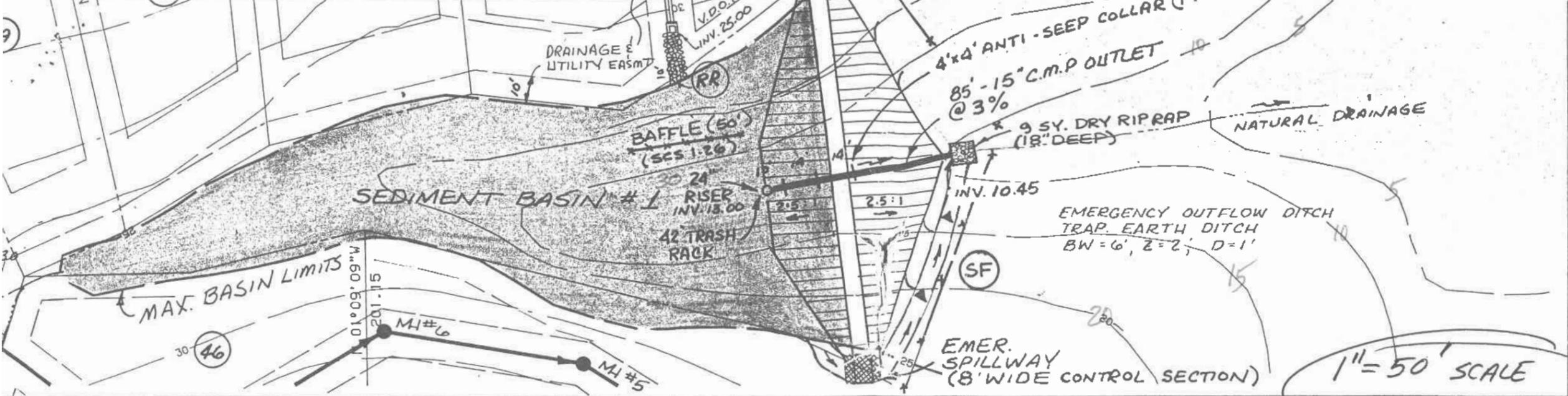


D. Final Pond Routing

DA= 12.2 ac. CN=80 Tc=5.88 min. or 0.098 hr.
(Note: Slipliner Pond Condition - 24 inch riser and 10 inch HDPE barrel)

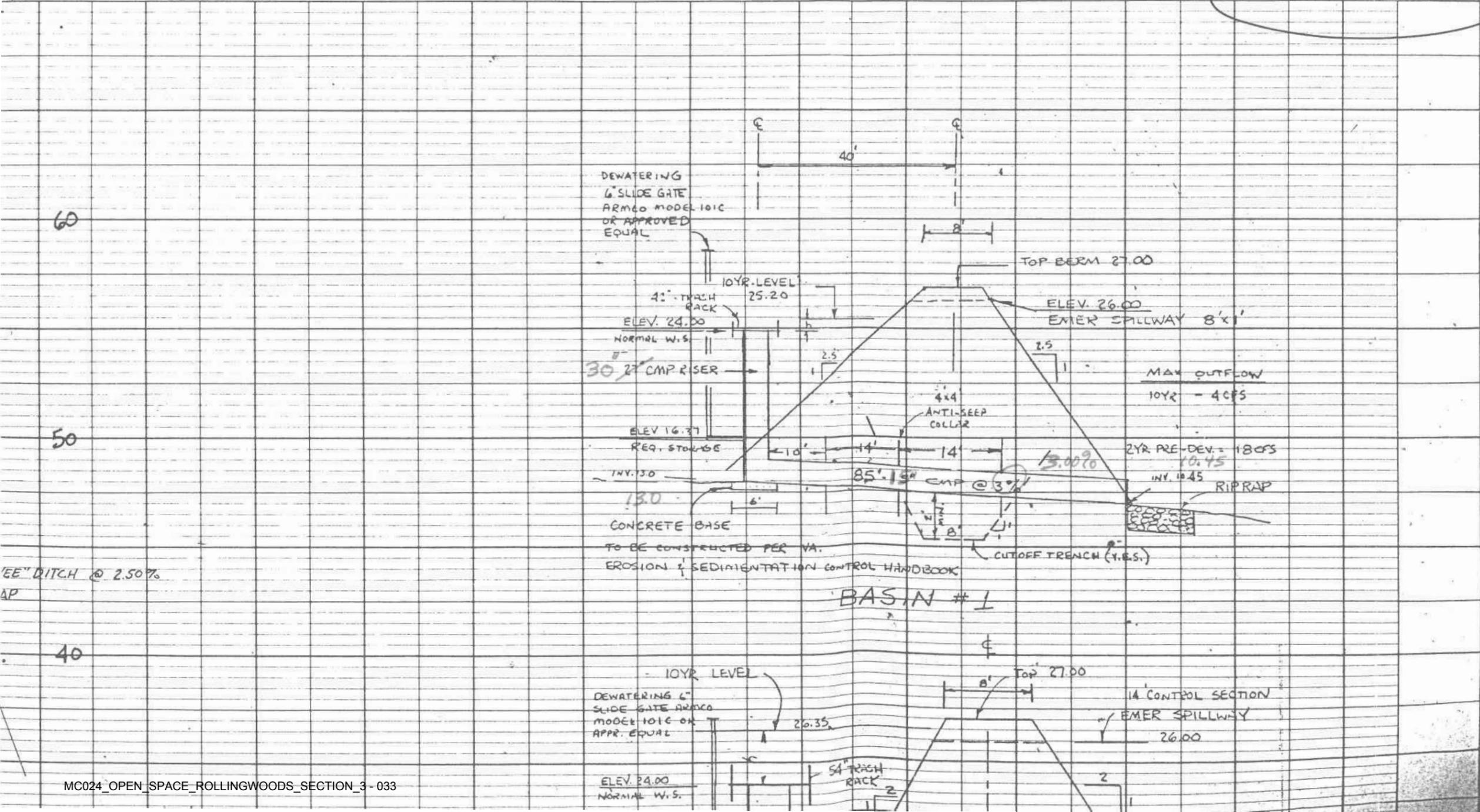
1-year	0.00 cfs	@	WSEL 20.14	
2-year	0.50 cfs	@	WSEL 21.16	
10-year	9.08 cfs	@	WSEL 22.59	(1.17 feet freeboard to top dam low)
25-year	13.48 cfs	@	WSEL 23.25	(0.51 feet freeboard to top of dam low)
50-year	25.11 cfs	@	WSEL 23.96	(Dam overtopped at two low spots)
100-year	--	Not Modeled	--	

Note: As-built pond information revealed the riser crest was 2.69 feet lower than design EL. 24 and top of dam was 3.24 feet lower than design El. 27.0. Separation between riser crest and top of dam was 3 feet for design (El. 24 to El 27) and 2.45 feet actual (El. 21.31 to El. 23.76) per as-built survey. Routing based on design (not as-built) stage-storage information to elevation 24.0 as top of dam.



- 1. 6/1/88 REV'D
- 2. 6/17/88 REV.
- 3. 8/05/88 RE
- 4. 8/9/88 REV.

Scale
1"=50'



THE DEYOUNG-JOHNSON GROUP, INC.
ENGINEERS · ARCHITECTS · SURVEYORS

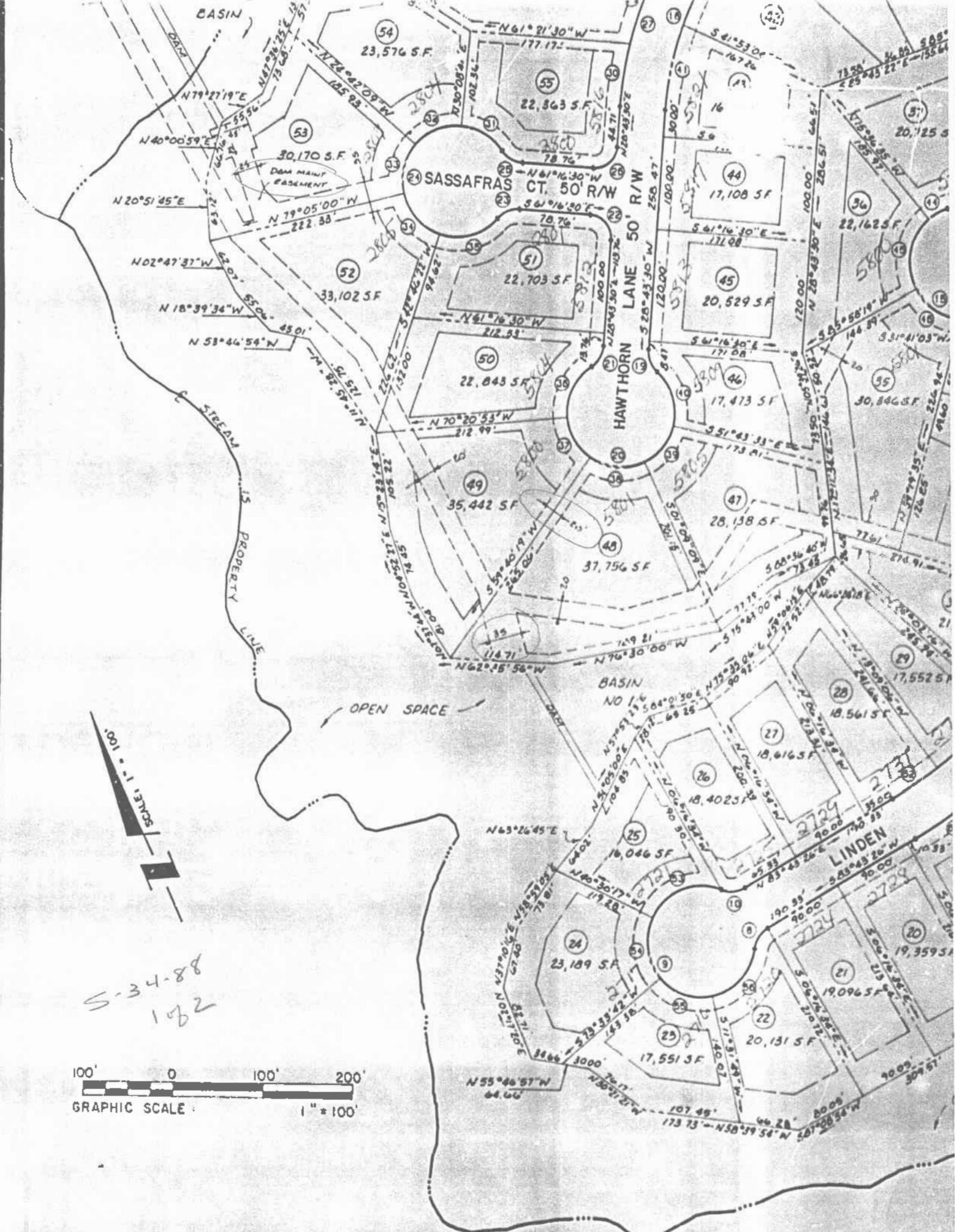
P.O. BOX 197 WILLIAMSBURG, VIRGINIA 23187 (804) 253-0673

CHECKED LDE

DRAWN DPC

DESIGNED DPC

4/21/88



12' MAINT. RD.

30 x 40 PUMP AREA.

42" TRUSS JACK

24" RISER

15" BARREL

8' WIDE SPILLWAY

Normal-Pool Elev. 24

10' DRAINAGE EASEMENT AROUND POND

Baffle

Pond 2

POND CONCEPT
PRELIMINARY HYDROLOGY

ALLOWABLE $q_2 = 18.16 \text{ CFS}$
 ALLOWABLE $q_{10} = 46.40 \text{ CFS}$
 POSIDEV W/O DET, $Q_2 = 30.18 \text{ CFS}$
 POSIDEV W/O DET, $Q_{10} = 66.56 \text{ CFS}$
 POSIDEV W/O DET, $Q_{100} = 102.57 \text{ CFS}$

ESTIMATED STORAGE (2) =
 ESTIMATED STORAGE (10) =
 ESTIMATED STORAGE (100) =
 POND OUT 2 = 0.00 CFS
 POND OUT 10 = 2.48 CFS
 POND OUT 100 = 12.69 CFS

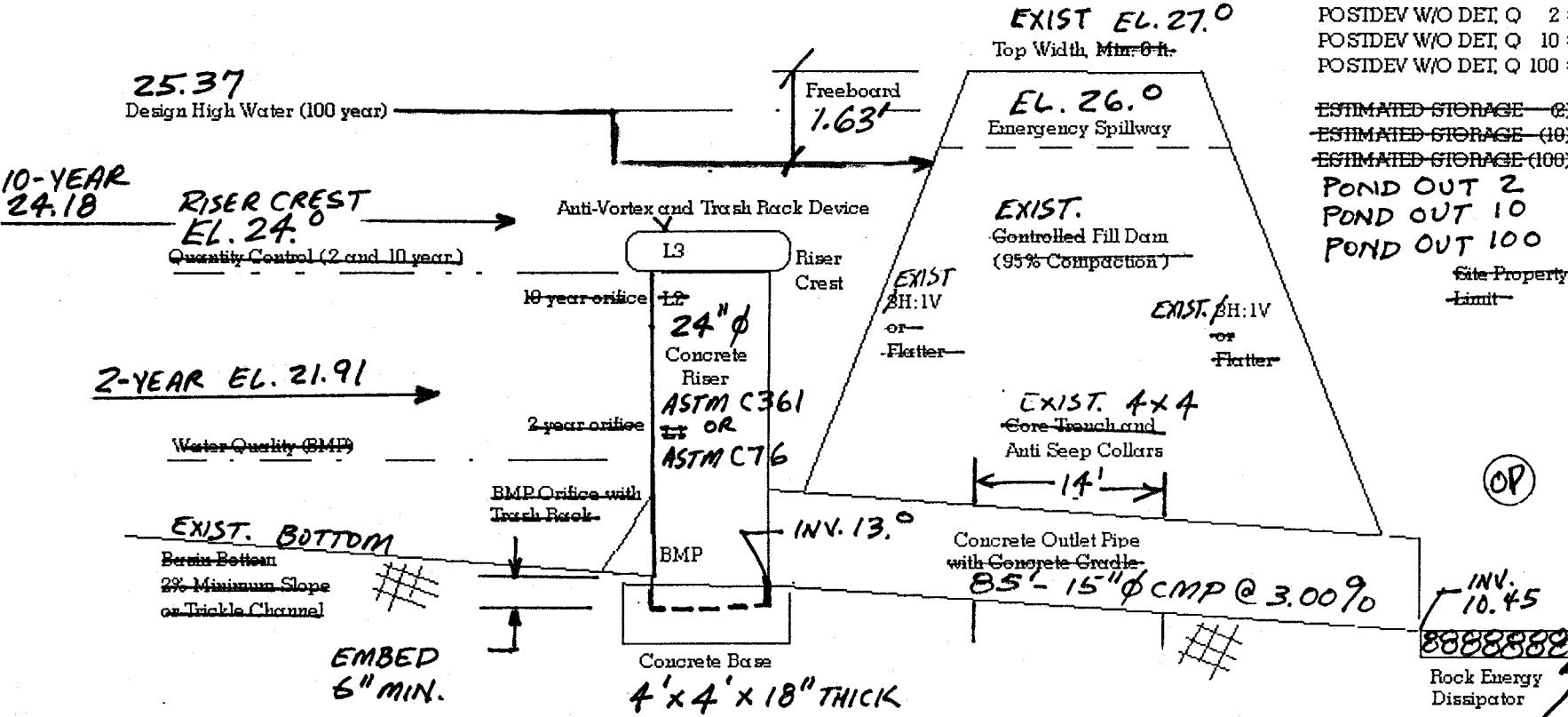
Site Property Limit
 RPA Limit

CHANNEL CHECK

$Q_{10} = 2.48 \text{ CFS}$
 $V_{10} = 2.0 \text{ FPS}$
 $D_{10} = 0.14 \text{ FT.}$

Adequate Channel

RESTORE TO
 CLASS I RIPRAP
 $L_A = 8'$
 $W = 12'$
 24" THICKNESS
 (4.5 C.Y.)



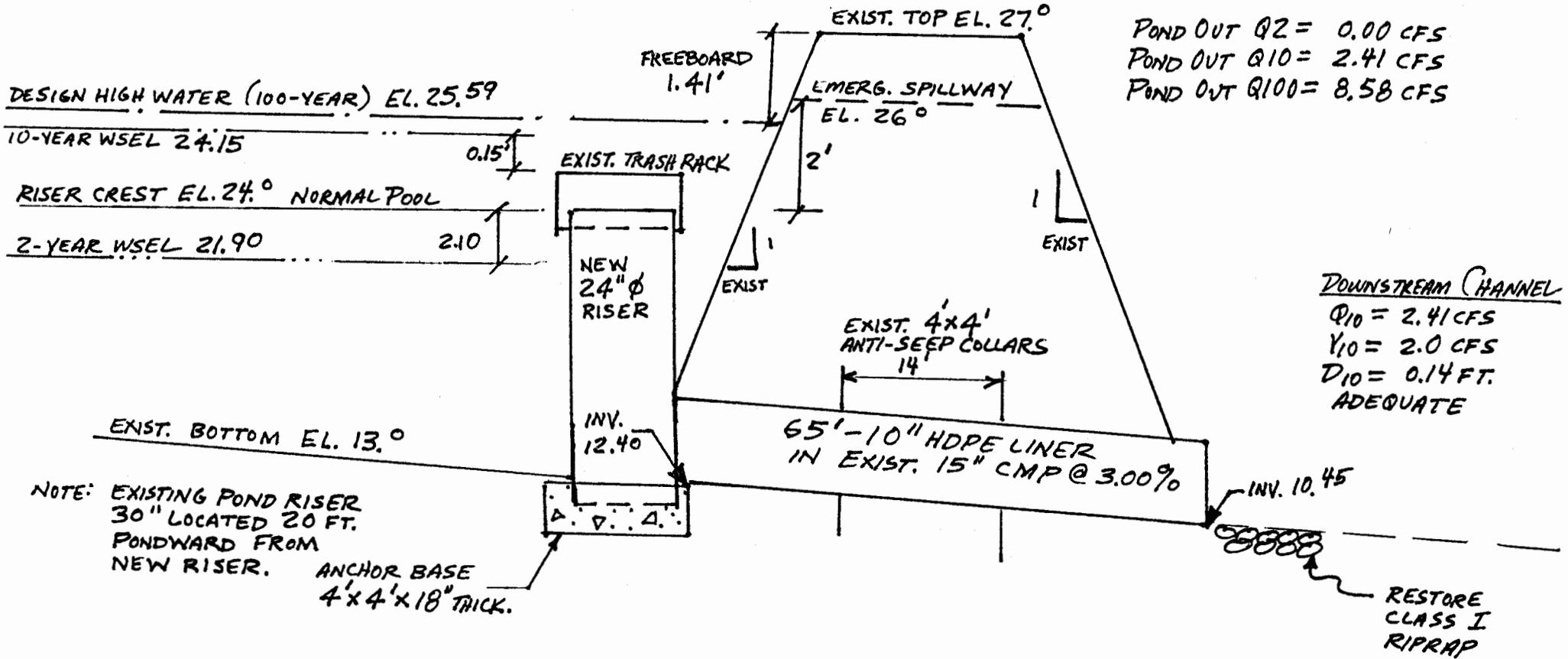
{PROJECT} ROLLINGWOODS SEC 3
 ON SITE STORMWATER DETENTION / BMP POND # EXIST. SWMP-1
 CONCEPT PLAN
 NO SCALE

POND DATA

ALLOWABLE Q2 = 18.16 CFS
 ALLOWABLE Q10 = 46.4 CFS

INFLOW Q2 = 30.18 CFS
 INFLOW Q10 = 66.56 CFS
 INFLOW Q100 = 102.57 CFS

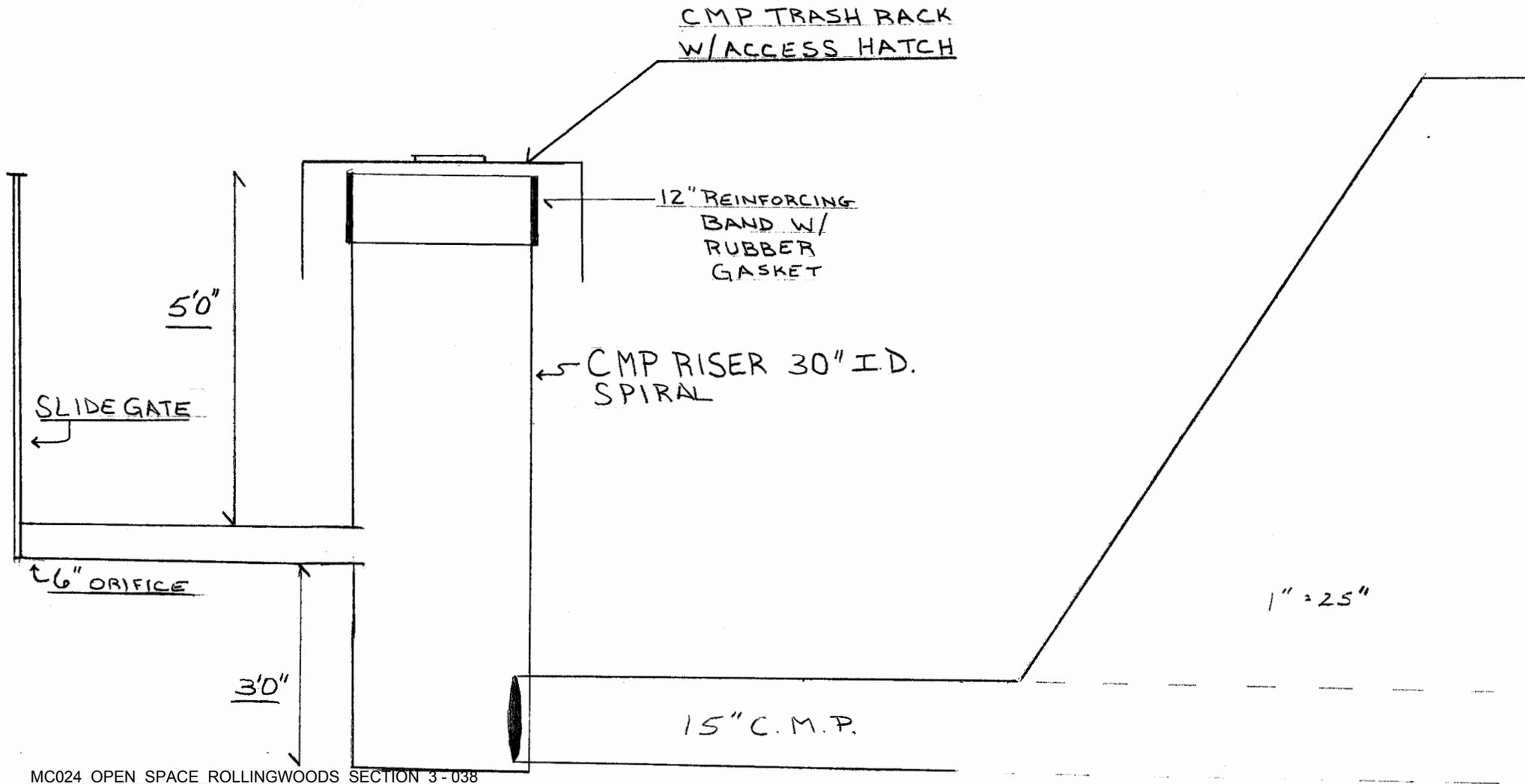
POND OUT Q2 = 0.00 CFS
 POND OUT Q10 = 2.41 CFS
 POND OUT Q100 = 8.58 CFS



RISER: 24 INCH DIA, REINFORCED CONCRETE ASTM C361 OR C76 (11.6' HEIGHT)
 BARREL: 10 INCH HDPE CULVERT RENEW WITH EXISTING 15" CMP BARREL. (SEE SPECIFICATIONS).

ROLLINGWOODS SECTION 3 - SWAMP 1

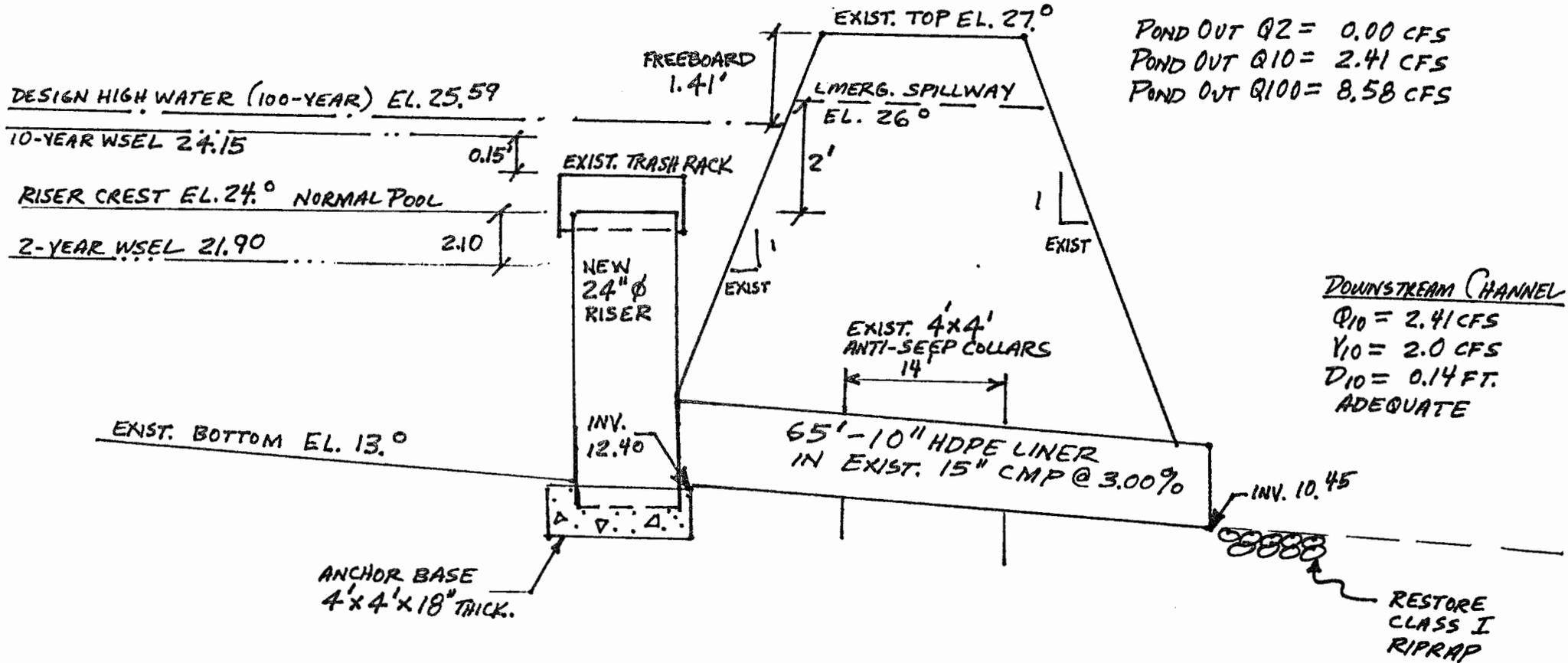
ROLLING WOODS POND 1



POND DATA

ALLOWABLE Q2 = 18.16 CFS
 ALLOWABLE Q10 = 46.4 CFS
 INFLOW Q2 = 30.18 CFS
 INFLOW Q10 = 66.56 CFS
 INFLOW Q100 = 102.57 CFS

POND OUT Q2 = 0.00 CFS
 POND OUT Q10 = 2.41 CFS
 POND OUT Q100 = 8.58 CFS



DOWNSTREAM CHANNEL
 Q10 = 2.41 CFS
 V10 = 2.0 CFS
 D10 = 0.14 FT.
 ADEQUATE

- RISER: 24 INCH DIA, REINFORCED CONCRETE ASTM C361 OR C76.
- BARREL: 10 INCH HDPE CULVERT RENEW WITH EXISTING 15" CMP BARREL. (SEE SPECIFICATIONS).

ROLLINGWOODS SECTION 3 - SWMP 1

ROLLING WOODS SECTION THREE BASIN TWO

INPUT DESIGN DATA

DESIGN STORM FOR ANALYSIS = 2 YEAR PRE-DEV.
DRAINAGE AREA (ACRES) = 35
AVERAGE SLOPE OF DRAINAGE AREA (%) = 6
HYDRAULIC LENGTH (FT) = 2200
IMPERVIOUS SURFACE (%) = 10
HYDRAULIC LENGTH MODIFIED (%) = 10
COMPOSITE CURVE NUMBER = 73
SLOPE ADJUSTMENT FACTOR = .88
PONDING ADJUSTMENT FACTOR = 1

RESULTS OF HYDRAULIC CALCULATIONS
(SCS TR-55 & TP-149 PROCEDURES)

WATERSHED LAG ADJUSTED (IMPER. AREAS & CHAN. IMPROV.) IS .261 HOURS
TIME OF CONCENTRATION ADJUSTED IS .435 HOURS
THE PEAK DISCHARGE FROM THIS WATERSHED IS 29 C.F.S.

ROLLING WOODS SECTION THREE BASIN TWO

INPUT DESIGN DATA

POST

DESIGN STORM FOR ANALYSIS = 2 YEAR
DRAINAGE AREA (ACRES) = 35
AVERAGE SLOPE OF DRAINAGE AREA (%) = 6
HYDRAULIC LENGTH (FT) = 2200
IMPERVIOUS SURFACE (%) = 15
HYDRAULIC LENGTH MODIFIED (%) = 25
COMPOSITE CURVE NUMBER = 78
SLOPE ADJUSTMENT FACTOR = .88
PONDING ADJUSTMENT FACTOR = .83

RESULTS OF HYDRAULIC CALCULATIONS
(SCS TR-55 & TP-149 PROCEDURES)

WATERSHED LAG ADJUSTED (IMPER. AREAS & CHAN. IMPROV.) IS .2 HOURS
TIME OF CONCENTRATION ADJUSTED IS .333 HOURS
THE PEAK DISCHARGE FROM THIS WATERSHED IS 39 C.F.S.

THE FOLLOWING ARE TIME INCREMENTS AND ORDINATES OF THE
INFLOW HYDROGRAPH

(HOURS)	(C.F.S.)
	0,0
.08	.565
.16	2.154
.24	5.565
.32	11.547
.4	20.394
.479	31.433
.559	37.792
.639	36.943
.719	28.263
.799	18.791
.879	10.412
.959	4.118
1.039	.527
1.119	0

STAGE (FT)	DISCHARGE (CFS)	STORAGE (CF)
5	0	0
6	27	24432
7	29.2	59650
7.5	40.2	81700

THE FOLLOWING ARE TIME INCREMENTS AND ORDINATES OF THE
OUTFLOW HYDROGRAPH

(HOURS)	(C.F.S.)
0.000	0.077
0.080	0.429
0.160	1.370
0.240	3.341
0.320	6.805
0.400	12.047
0.479	18.236
0.559	23.484
0.639	25.985
0.719	25.311
0.799	22.374
0.879	18.229
0.959	13.826
1.039	10.135
1.119	7.355
1.199	5.333
1.278	3.874
1.358	2.811
1.438	2.040
1.518	1.480
1.598	1.074
1.678	0.780
1.758	0.565
1.838	0.411
1.918	0.298
1.998	0.215
2.078	0.157
2.157	0.114
2.237	0.083
2.317	0.060
2.397	0.044
2.477	0.032
2.557	0.023
2.637	0.017
2.717	0.012
2.797	0.009
2.877	0.006
2.957	0.005
3.036	0.003

————— MAX. OUTFLOW

MAXIMUM OUTFLOW IS 26 C.F.S.
MAXIMUM STAGE IS 6.730E22 FT. 25.78
MAXIMUM STORAGE IS 55113 CUBIC FEET

ROLLING WOODS SECTION THREE BASIN TWO

INPUT DESIGN DATA

DESIGN STORM FOR ANALYSIS = 10 YEAR ~~POST~~
DRAINAGE AREA (ACRES) = 35
AVERAGE SLOPE OF DRAINAGE AREA (%) = 6
HYDRAULIC LENGTH (FT) = 2200
IMPERVIOUS SURFACE (%) = 15
HYDRAULIC LENGTH MODIFIED (%) = 25
COMPOSITE CURVE NUMBER = 78
SLOPE ADJUSTMENT FACTOR = .86
PONDING ADJUSTMENT FACTOR = .83

RESULTS OF HYDRAULIC CALCULATIONS
(SCS TR-55 & TP-149 PROCEDURES)

WATERSHED LAG ADJUSTED (IMPER. AREAS & CHAN. IMPROV.) IS .2 HOURS
TIME OF CONCENTRATION ADJUSTED IS .333 HOURS
THE PEAK DISCHARGE FROM THIS WATERSHED IS 87 C.F.S.

THE FOLLOWING ARE TIME INCREMENTS AND ORDINATES OF THE
INFLOW HYDROGRAPH

(HOURS)	(C.F.S.)
0,0	
.08	1.704
.16	6.292
.24	15.623
.32	30.563
.4	50.948
.479	74.571
.559	86.679
.639	82.689
.719	62.399
.799	40.928
.879	22.304
.959	8.68
1.039	1.092
1.119	0

(FT)	(CFS)	(CF)
5	0	0
6	27	24432
7	29.2	59650
7.5	40.2	81700

THE FOLLOWING ARE TIME INCREMENTS AND ORDINATES OF THE
OUTFLOW HYDROGRAPH

(HOURS)	(C.F.S.)
0.000	0.234
0.080	1.266
0.160	3.924
0.240	9.182
0.320	17.843
0.400	27.205
0.479	28.157
0.559	29.164
0.639	34.734
0.719	37.001
0.799	36.280
0.879	33.496
0.959	29.666
1.039	28.743
1.119	28.231
1.199	27.729
1.278	27.235
1.358	23.146
1.438	16.797
1.518	12.189
1.598	8.846
1.678	6.419
1.758	4.659
1.838	3.381
1.918	2.453
1.998	1.780
2.078	1.292
2.157	0.938
2.237	0.680
2.317	0.494
2.397	0.358
2.477	0.260
2.557	0.189
2.637	0.137
2.717	0.099
2.797	0.072
2.877	0.052
2.957	0.038
3.036	0.028

————— PEAK OUTFLOW

MAXIMUM OUTFLOW IS 37 C.F.S.
 MAXIMUM STAGE IS 7.354546 FT. 26.35
 MAXIMUM STORAGE IS 75285 CUBIC FEET
 REQ. LENGTH OUTFLOW CHANNEL = 33'

Pipe Load Computations

Neglect load reduction effect due to 15 inch carrier (casing) pipe. Assume slipliner handles load.

Total Load on Pipe	= WHF + L	Where	W=Unit Weight of Soil, 120 pcf
	= (120)(16.55)(0.8)		H= Height of Cover, 16.5 ft.
	= 1,588 psf		F= Soil Arch Factor, 0.80
	1,588 < 4,580 therefore ok.	FS = 2.88	L= Liveload, > 10 ft. Negligible.

Slipliner Pipe Specification

The outlet barrel slipliner pipe consist of approximately 65 feet of 10 inch nominal diameter closed profile, high density polyethylene Culvert Renew culvert/sewer pipe as manufactured by Polysystems, Inc. of Steelville, MO or approved equal. The pipe shall consist of standard profile, helical-spiral type with a smooth internal and external surface, inside diameter sized, hollow-wall closed profile PE 3408 high density polyethylene. The pipe joint must be a screw type joint connection which threads the helical spiral together forming an integral joint capable of being easily pushed or jacked into the host pipe.

<u>Final Pond Routing</u>	DA= 12.2 ac.	CN=80	Tc=5.88 min. or 0.098 hr.
(Note: Slipliner Pond Condition - 24 inch riser and 10 inch HDPE barrel)			
2-year	0.00 cfs	@	WSEL 21.90
10-year	2.41 cfs	@	WSEL 24.15
100-year	8.58 cfs	@	WSEL 25.59 (DHW; Freeboard 1.41 feet; 0.4 ft. below ES)

Note: Outlet pipe is in control, riser size no effect. All discharges and WSELs match Existing Pond very closely and differences are negligible. 100-year WSEL difference is 0.23 feet (2.76 inch). Pond discharges drop slightly. Therefore, use of 24 inch riser pipe with 10 inch HDPE outlet barrel is acceptable.

- NO DIFFERENCE IN 2-YEAR DISCHARGE OR WSEL.
- REDUCTION IN 10-YEAR POND OUTFLOW (0.20 cfs). NO CHANGE WSEL.
- REDUCTION IN 100-YEAR POND OUTFLOW (4.11 cfs). WSEL RAISED 0.23 FT (2.7"). NEGUGIBLE EFFECT. FREEBOARD STILL OK & 100-YR WSEL NEVER REACHES EMERG. SPILLWAY CREST.



THE DeYOUNG-JOHNSON GROUP, INC.
 P. O. Box 197
 WILLIAMSBURG, VA 23187
 (804) 253-0673

JOB 1860832 ROLLING WOODS 3
 SHEET NO. 1 OF 5
 CALCULATED BY DPC DATE 4-12-88
 CHECKED BY _____ DATE 5-18-88 REV. _____
 SCALE _____

SEDIMENT BASIN # 1

DRAINAGE AREA = 12.2 Ac
 IMPERVIOUS AREA = 25% (DEVELOPED)
 CN = EXISTING 73 SOIL CLASS = C
 PROPOSED 80
 HYDRAULIC LENGTH = 700'
 WATERSHED SLOPE = 6%
 PONDING FACTOR = .88 (DEVELOPED)
 SLOPE ADJUSTMENT = 1.07
 HYD. LENGTH MODIFIED = 70

REQUIRED STORAGE = 12.2 Ac x 67 CY/Ac x 27 cf/cy = 22070 CF
 SEDIMENT STORAGE = 12.2 Ac x 40 CY/Ac x 27 CF/cy = 13176 CF

		STAGE - STORAGE		
STAGE	CONTOUR	AREA	VOL	Σ VOL
0	13	1107 SF	1907	1907
1	14	2707 SF		
2	15	5136 SF	3921	5828
3	16			
4	17			
5	18			
6	19			
7	20	11780	(8458 x 5)	48118
11	24	19177	(15478 x 4)	110,032 CF
12	25	23845		
13	26	28353		

← REQ STORAGE

← STORAGE BELOW 24.00

STORAGE BASIN DESIGNED ON NORMAL WATER SURFACE
 ELEVATION OF 24.00 • RUNOFF STORAGE IS ABOVE ELEV.
 24.00



THE DeYOUNG-JOHNSON GROUP, INC.
 P. O. Box 197
 WILLIAMSBURG, VA 23187
 (804) 253-0673

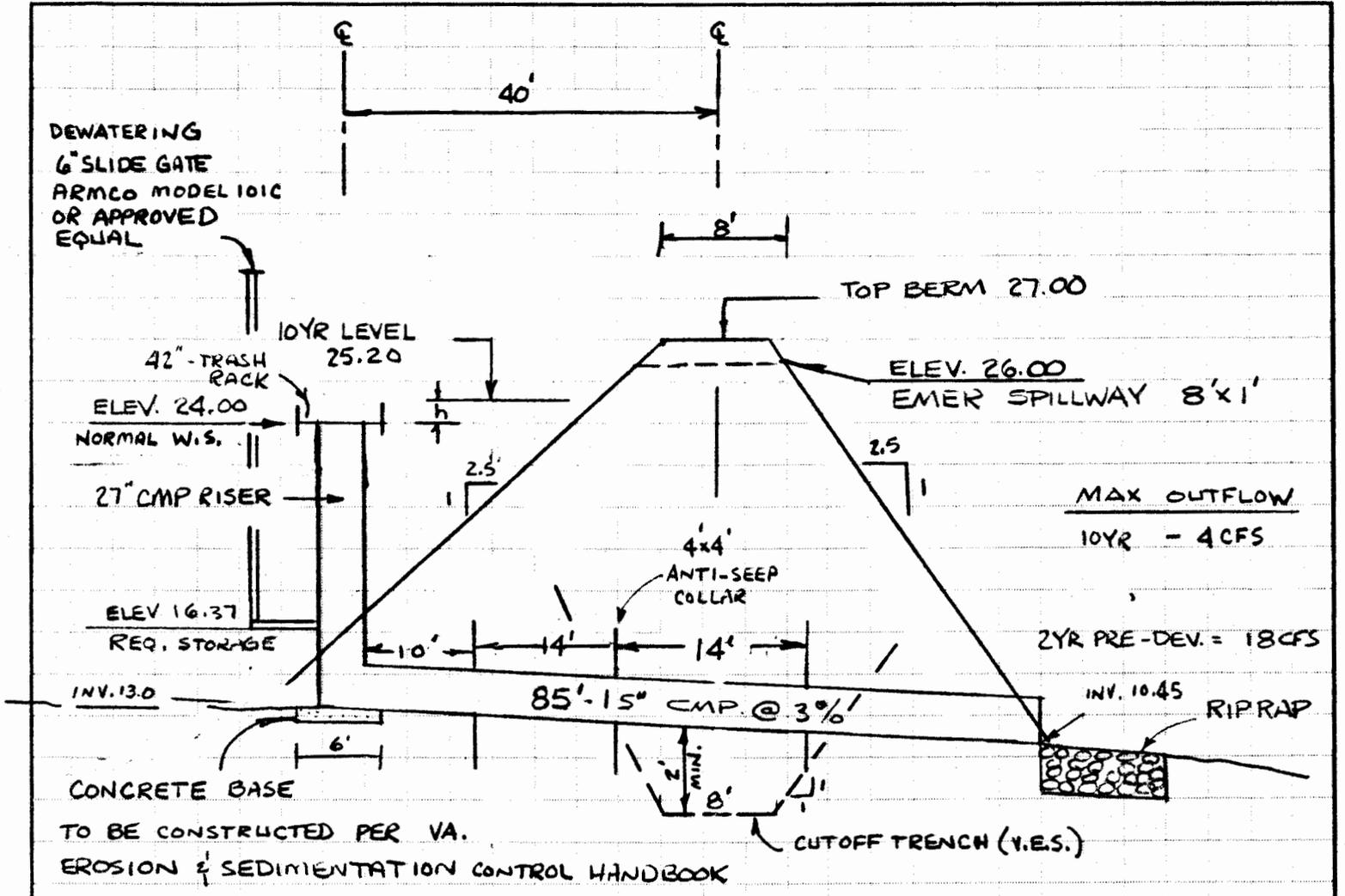
JOB 1860362 ROLLINGWOODS 3

SHEET NO. 2 OF 5

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____



STAGE - STORAGE - DISCHARGE

ELEVATION	STAGE	h 27/15"	DISCHARGE		STORAGE ABOVE ELEV 24.0
			27/15"	TOTAL	
24.0	11	—	—	0	0
24.5	11.5	.5	—	0	
25.0	12	1.0	12.1	12.1	21511 CF
25.5	12.5	1.5	12.3	12.3	
26.0	13.0	2.0	12.6	12.6	47610 CF

RESULTS OF HYDRAULIC CALCULATIONS
(SCS TR-55 & TP-149 PROCEDURES)

WATERSHED LAG ADJUSTED (IMPER. AREAS & CHAN. IMPROV.) IS .059 HOURS
 TIME OF CONCENTRATION ADJUSTED IS .098 HOURS
 THE PEAK DISCHARGE FROM THIS WATERSHED IS 55 C.F.S.

THE FOLLOWING ARE TIME INCREMENTS AND ORDINATES OF THE
 INFLOW HYDROGRAPH

(HOURS)	(C.F.S.)
0,0	
.024	3.736
.047	11.653
.071	23.902
0.399999E-02	34.793
.113	43.767
.141	50.727
.165	55.328
.189	52.291
.212	43.629
.236	29.425
.259	17.921
.283	8.938
.306	3.019
.33	0

STAGE (FT)	DISCHARGE (CFS)	STORAGE (CF)
11	0	0
12	12.1	21511
13	12.6	47610

THE FOLLOWING ARE TIME INCREMENTS AND ORDINATES OF THE
 OUTFLOW HYDROGRAPH

(HOURS)	(C.F.S.)		
0.000	0.087		
0.024	0.442	0.471	9.553
0.047	1.250	0.495	9.108
0.071	2.559	0.518	8.683
0.094	4.271	0.542	8.278
0.118	6.274	0.566	7.893
0.141	8.453	0.589	7.525
0.165	10.567	0.613	7.174
0.189	12.107	0.636	6.840
0.212	12.147	0.660	6.521
0.236	12.166	0.683	6.217
0.259	12.168	0.707	5.927
0.283	12.158	0.731	5.651
0.306	12.140	0.754	5.387
0.330	12.121		
0.354	12.101		
0.377	11.563		
0.401	11.024		
0.424	10.510		
0.448	10.020		

MAXIMUM OUTFLOW IS 12.2 C.F.S.
MAXIMUM STAGE IS 12.2 FT.
MAXIMUM STORAGE IS 26730 CUBIC FEET
REQ. LENGTH EXIT CHANNEL = 32'

ROLLING WOODS SECTION 3 SNMP #1 MODIFICATIONS

SCS TYPE II
P, RAINFALL

1 YR	2.8"
2 YR	3.5"
5 YR	4.7"
10 YR	5.8"
25 YR	6.4"
50 YR	7.2"
100 YR	8.0"

DA = 12.2 AC.; CN = 73; Tc = 12 min.
(0.2 HR)

PREDEV

1 YR	11.00 CFS
2 YR	18.16 CFS
5 YR	32.23 CFS
10 YR	46.40 CFS
25 YR	54.40 CFS
50 YR	65.24 CFS
100 YR	76.24 CFS

(DESIGN PLANS 18.0 CFS)

ALLOWABLES
2 YR - 18.16 CFS
10 YR - 46.40 CFS

E.S. EL = 26.00
RISER CR. = 24.0
TOP DAM = 27.00
BOTTOM DAM = 13.00
HT DAM = 27 - 10.45
= 16.55'

A... Post Dev w/o Det

DA = 12.2 AC.; CN = 80; Tc = 5.88 min. (0.098 HR)

1 YR	20.10 CFS
2 YR	30.18 CFS
5 YR	48.84 CFS
10 YR	66.56 CFS
25 YR	76.34 CFS
50 YR	89.44 CFS
100 YR	102.57 CFS

POND SS DATA

EL. 13	0.02540 AC.
14	0.06210 AC.
15	0.11790 AC.
20	0.27040 AC.
24	0.4402 AC.
25	0.5474 AC.
26	0.6509 AC.
27	0.7544 AC.

(VOLUME Norm. Pool EL 24.0 = 2.483 AC-FT
108,159 C.F.)

B... Post Dev with Det (Existing Ponds)

1 YR	0.00 @ EL. 20.16
2 YR	0.00 @ EL. 21.91
5 YR	0.60 @ EL. 24.04
10 YR	2.61 @ EL. 24.15
25 YR	5.05 @ EL. 24.29
50 YR	10.05 @ EL. 24.68
100 YR	12.69 @ EL. 25.36

DESIGN
EL 25.2, 27" RISER
4 CFS 'OUT

C... Post Dev with Det (POND)

STORAGE₁ = 1.119 AC-FT
STORAGE₂ = 1.663 AC-FT
STOR₁₀ = 2.551 AC-FT
STOR₂₅ = 2.617 AC-FT
STOR₁₀₀ = 3.181 AC-FT.

New Pond Modifications (C...

MAINTAIN NORMAL POOL @ EL. 24.0 (EXIST RISER CREST)

New RCP Riser required

First Trial: Min 1.25 x outlet barrel

$$1.25 \times 15/12 = 1.56' \times 12 = 18.75''$$

min. 21 inch riser (21" RCP)

- TRY
- 1 - 21 inch
 - 2 - 24 inch
 - 3 - 27 inch
 - 4 - 30 inch

① First Trial (21" RCP Barrel)

	CFS	
1 YR	0.00 @ EL. 20.16	
2 YR	0.00 @ EL. 21.91	(0.00 < 18.16; WSEL = PREVIOUS)
10 YR	2.39 @ EL. 24.20	2.39 < 18.16, EL. 24.20 just above crest. 0.05' ABOVE PREVIOUS
25 YR	4.51 @ EL. 24.37	(WSEL 0.08' ABOVE PREVIOUS)
100 YR	12.50 @ EL. 25.39	(12.50 < PREVIOUS; WSEL 0.03' ABOVE PREVIOUS)

100-YR 25.39 < EM. SPILLWAY EL. 26.00
 FB = 27.00 - 25.39 = 1.61 FT.

∴ 21 inch RCP IS ACCEPTABLE

@ EL. 25.50 15" pipe is control.

② 2ND TRIAL (24 inch)

1 YR	0.00 @ EL. 20.16
2 YR	0.00 @ EL. 21.91
10 YR	2.48 @ EL. 24.18

∴ Use 24" RISER

100 YR 12.69 @ EL. 25.37 FB (27.00 - 25.37 = 1.63 FT)

OUTLET STRUCTURE

RISER = crest el 24.0
 24" DIA
 $C_{WEIR} = 3.1$
 $C_{ORIF} = 0.60$

BARREL INU $v/s = 13.0$
 INU $o/s = 10.45$
 $L = 85'$
 $n = 0.024$
 CHART 2 NOMO GRAPH 1 (SQ. EDGE)
 $K = 0.5$

EMER. SPILLWAY EL. 26.0 CREST
 WEIR 8' (8' BW)
 $C = 3.33$

Composite Rating Curve

ELEV	Q, cfs
13.00	0.00
24.00	0.00
24.50	6.89
25.00	12.52
25.50	12.75
26.00	12.98
26.50	22.50
27.00	39.40

15" OUTLET PIPE GOVERNS
 ABOVE EL. 25.50

OUTFALL CHANNEL / OP.
 CHANNEL $S = 4.74\%$
 $SS = 5:1 / 8:1$
 $n = 0.04$
 $Q_{10} = 2.48 \text{ CFS}$
 $V_{10} = 2.00 \text{ FPS}$
 $D_{10} = 0.14'$
 $D < 0.5 \text{ PIPE } \phi$
 MIN TW COND.

O.P. DESIGN
 CLASS I
 $LA = 8'$
 $W = 3.75 + 8 = 11.75'$
 $= 12'$
 24" THICK (2X STONE)
 (4.5 CY CLASS I)

ROLLING WOODS - Hawthorne 10/27/00

	+	HI	-	EL
2 TOP ANTI VORT/TRASH RACK			2.07	22.77
3 TOP RISER CREST			3.53	21.31
4 BOTTOM INV 6" PIPE U/S DR.			7.26	17.58
5 INV BARREL U/S			13.09	11.75
6 ES CREST			2.04	22.80
7 EMB 1 END LT.			0.74	24.10
8 EMB 2 MID			1.08	23.76
9 EMB 3 END RT			0.80	24.04
1 INV BARREL OUT D/S	14.39	24.84		10.45
10 EMB 4			6.50	18.34
11 EMB 5			1.01	23.83

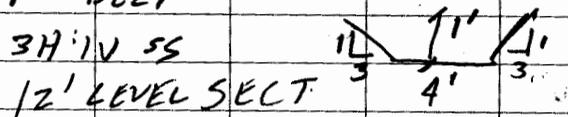
(REF EL 10.45 @ #1; +14.39 IS = 24.84 HI)

▷ BARREL 0.9' ID CPP (HORE) (10.8")

▷ CASING CMD 15"φ

▷ DAM 10-12' TOP WIDTH

▷ ES 4' BOTTOM WIDTH EC-2
1' DEEP



▷ W 0.5 from INV. DRAIN U/S
 $17.58 + 0.5 \approx 18.0 \pm$ 10/25/00

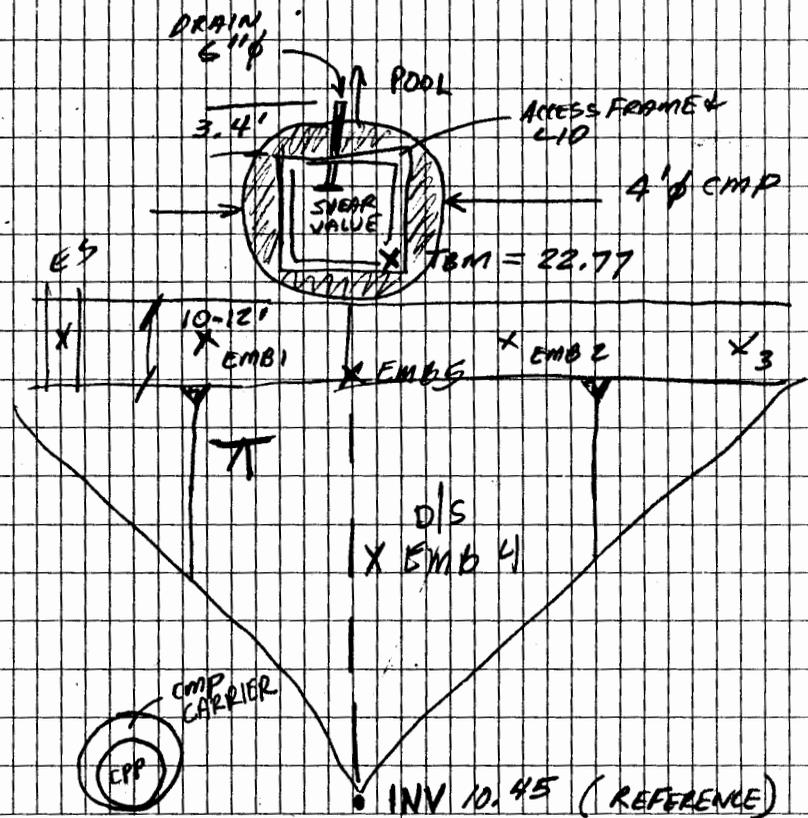
SWIM POND 1 - REPAIR W. BASS S. THOMAS SMY 70'S

▷ 24"φ RCPTD, WALL 3.5"

▷ 4'φ CMP TOP, 2' HEIGHT GALV.
ASTM A 929, 0.064" THICK

1.45' TRASH CAP TO RISER CREST
EL. 22.77 + 1.45 = 21.32 ~ 21.31 OK

6"-8"φ DIP PUSH ON JOINT, 3.4' LONG DRAIN with CI shear Gate Valve chain



**Rollingswood Section 3
Existing Stormwater Management Pond 1
Pond Repair Plan**

Final Hydrology & Hydraulics and Design Report
February 17, 1999

Note: All hydrologic and hydraulic computations developed from record design plans for the facility and field observed (as-built) information.

A. Hydrology Using SCS Hydrology Methods with assistance from Haestad Methods, PondPack v. 6.0
James City County SCS Type II, P rainfall: 2-yr. (3.5"); 10-yr. (5.8"); 25-yr (6.4"); 100-yr (8.0")

<u>Predevelopment</u>		DA = 12.2 ac. CN = 73	Tc = 12 min. (0.2 hr.)
2-year	18.16 cfs	(2-year Allowable Discharge)	
10-year	46.40 cfs	(10-year Allowable Discharge)	
25-year	54.40 cfs		
100-year	76.24 cfs		

<u>PostDev without Detention</u>		DA = 12.2 ac. CN = 80	Tc = 5.88 min. (0.098 hr.)
2-year	30.18 cfs	(Peak Pond Inflow)	
10-year	66.56 cfs	(Peak Pond Inflow)	
25-year	76.34 cfs	(Peak Pond Inflow)	
100-year	102.57 cfs	(Peak Pond Inflow)	

B. Pond Hydraulics (Existing As-Built Condition)

<u>PostDev with Detention</u>		DA= 12.2 ac. CN=80	Tc=5.88 min. or 0.098 hr.
(Note: Existing As-Built Pond Condition - 30 inch riser and 15 inch CMP barrel)			
2-year	0.00 cfs	@	WSEL 21.91
10-year	2.61 cfs	@	WSEL 24.15
25-year	5.05 cfs	@	WSEL 24.29
100-year	12.69 cfs	@	WSEL 25.36 (Maximum High Water, Freeboard 1.64 feet)

Note: Original Plan 10-year design, based on 27 inch riser = 4 cfs @ WSEL 25.2

Storage Required

2-year	1.663 acre-ft. (for control of 2-year pre- vs. post)
10-year	2.551 acre-ft. (for control of 10-year pre- vs. post)

Pond Stage-Storage Data

El. 12.4	0.00	acre	
El. 13.0	0.0254	acre	
El. 14.0	0.0621	acre	
El. 15.0	0.1179	acre	
El. 20.0	0.2704	acre	
El. 24.0	0.4402	acre	
El. 25.0	0.5474	acre	
El. 26.0	0.6509	acre	
El. 27.0	0.7544	acre	Top of Dam

Note: Volume at Normal Pool El. 24.0 is 2.483 acre-ft. or 108,159 cubic feet.

C. Pond & Structure Elevations (Based on Design Plan or Field Observed)

Top of Dam	El. 27.0	15 - 20 ft. top width
Emergency Spillway	El. 26.0	6 to 8 ft. bottom width; 2H:1V sideslopes
Riser Crest	El. 24.0	Existing 30 inch
Bottom of Dam	El. 13.0	
Barrel Length	85 l.f	Existing Riser to Barrel Invert Out
Invert Out Barrel	El. 10.45	Existing 15 inch CMP outlet barrel
Height of Dam	El. 27.0 - El. 10.45 = 16.55 feet	

D. Pond Repair Plan

Maintain Normal Pool at El. 24.0 (Riser Crest)
Use reinforced concrete pipe riser due to past degradation of CMP riser.

Select New Riser Size

Design Plan was 27 inch riser.

As-built was 30 inch riser.

Minimum Riser Size: $1.25 \times \text{Outlet Barrel} = 1.25 \times 15/12 = 18.75$ inch or 21 inch minimum.

Therefore, try standard size of 24 inch, ASTM C361 or C76 reinforced concrete pipe

First Trial Route DA= 12.2 ac. CN=80 Tc=5.88 min. or 0.098 hr.

(Note: Modified Pond Condition - 24 inch riser and 15 inch CMP barrel)

2-year	0.00 cfs	@	WSEL 21.91
10-year	2.48 cfs	@	WSEL 24.18
100-year	12.69 cfs	@	WSEL 25.37 (DHW; Freeboard 1.63 feet; 0.63 ft. below ES)

Note: Outlet pipe is in control, riser size no effect. All discharges and WSELs match Existing Pond very closely and differences are negligible. 100-year WSEL difference is 0.01 feet (0.12 inch).
Therefore, use of 24 inch riser pipe is acceptable.

Slipline Existing 15 inch CMP Outlet Barrel

Since existing CMP riser deteriorated, expect current or future deterioration of existing 15" outlet barrel.

Existing 15 inch CMP will serve as carrier pipe for new slipliner. Concentric or eccentric placement.

Assumptions: Pond Outlet Barrel measured at 15 inch. Therefore 15 inch CMP.

2-2/3" x 1/2" corrugations with ID=15 inch nominal.

Minimal damage or deflection. Assume maximum 5 percent deflection.

Design Carrier Pipe ID = 15 inch - (0.05)(15) = 14.25 inch maximum slipliner ID

Select Slipliner Size

Try 12 inch: $14.25 - 12 = 2.25$ inch or 1.125 inch each way if centered concentrically, too close.

Try 10 inch: $14.25 - 10 = 4.25$ inch or 2.125 inch each way if centered concentrically, ok. Use 10 inch.

Select Slipliner Type

Culvert Renew by Polysystems, Inc., Steelville, MO. HDPE smooth interior and exterior with low profile screw type joint. Suitable for insertion renewal for culvert. Lightweight, strong. Allowable crush load 4,580 psf. Mannings n = 0.012 (0.009)

Length:		= 65 feet from new riser
Bell out-to-out:	OD2	= 11.20 inches
Inside Diam.:	ID	= 10.00 inches
Play:	14.25 - 11.20	= 3.05 inch or 1.52 inch each way, ok

Pipe Load Computations

Neglect load reduction effect due to 15 inch carrier (casing) pipe. Assume slipliner handles load.

Total Load on Pipe	= WHF + L	Where	W=Unit Weight of Soil, 120 pcf
	= (120)(16.55)(0.8)		H= Height of Cover, 16.5 ft.
	= 1,588 psf		F= Soil Arch Factor, 0.80
	1,588 < 4,580 therefore ok.	FS = 2.88	L= Liveload, > 10 ft. Negligible.

Slipliner Pipe Specification

The outlet barrel slipliner pipe consist of approximately 65 feet of 10 inch nominal diameter closed profile, high density polyethylene Culvert Renew culvert/sewer pipe as manufactured by Polysystems, Inc. of Steelville, MO or approved equal. The pipe shall consist of standard profile, helical-spiral type with a smooth internal and external surface, inside diameter sized, hollow-wall closed profile PE 3408 high density polyethylene. The pipe joint must be a screw type joint connection which threads the helical spiral together forming an integral joint capable of being easily pushed or jacked into the host pipe.

Final Pond Routing DA= 12.2 ac. CN=80 Tc=5.88 min. or 0.098 hr.

(Note: Slipliner Pond Condition - 24 inch riser and 10 inch HDPE barrel)

2-year	0.00 cfs	@	WSEL 21.90
10-year	2.41 cfs	@	WSEL 24.15
100-year	8.58 cfs	@	WSEL 25.59 (DHW; Freeboard 1.41 feet; 0.4 ft. below ES)

Note: Outlet pipe is in control, riser size no effect. All discharges and WSELs match Existing Pond very closely and differences are negligible. 100-year WSEL difference is 0.23 feet (2.76 inch). Pond discharges drop slightly. Therefore, use of 24 inch riser pipe with 10 inch HDPE outlet barrel is acceptable.

ROLLING WOODS SECTION THREE BASIN NUMBER 1

INPUT DESIGN DATA

DESIGN STORM FOR ANALYSIS = 2 YEAR **PRE-DEV.**
DRAINAGE AREA (ACRES) = 12.2
AVERAGE SLOPE OF DRAINAGE AREA (%) = 6
HYDRAULIC LENGTH (FT) = 700
IMPERVIOUS SURFACE (%) = .01
HYDRAULIC LENGTH MODIFIED (%) = .01
COMPOSITE CURVE NUMBER = 73
SLOPE ADJUSTMENT FACTOR = 1.07
PONDING ADJUSTMENT FACTOR = 1

RESULTS OF HYDRAULIC CALCULATIONS
(SCS TR-55 & TP-149 PROCEDURES)

WATERSHED LAG ADJUSTED (IMPER. AREAS & CHAN. IMPROV.) IS .12 HOURS
TIME OF CONCENTRATION ADJUSTED IS .2 HOURS
THE PEAK DISCHARGE FROM THIS WATERSHED IS 13 C.F.S.

ROLLING WOODS SECTION THREE BASIN NUMBER 1

INPUT DESIGN DATA

DESIGN STORM FOR ANALYSIS = 2 YEAR **POST-DEV.**
DRAINAGE AREA (ACRES) = 12.2
AVERAGE SLOPE OF DRAINAGE AREA (%) = 6
HYDRAULIC LENGTH (FT) = 700
IMPERVIOUS SURFACE (%) = 25
HYDRAULIC LENGTH MODIFIED (%) = 50
COMPOSITE CURVE NUMBER = 80
SLOPE ADJUSTMENT FACTOR = 1.07
PONDING ADJUSTMENT FACTOR = .88

RESULTS OF HYDRAULIC CALCULATIONS
(SCS TR-55 & TP-149 PROCEDURES)

WATERSHED LAG ADJUSTED (IMPER. AREAS & CHAN. IMPROV.) IS .059 HOURS
TIME OF CONCENTRATION ADJUSTED IS .098 HOURS
THE PEAK DISCHARGE FROM THIS WATERSHED IS 26 C.F.S.

ROLLING WOODS SECTION THREE BASIN NUMBER 1

INPUT DESIGN DATA

DESIGN STORM FOR ANALYSIS = 10 YEAR **POST-DEV.**
DRAINAGE AREA (ACRES) = 12.2
AVERAGE SLOPE OF DRAINAGE AREA (%) = 6
HYDRAULIC LENGTH (FT) = 700
IMPERVIOUS SURFACE (%) = 25
HYDRAULIC LENGTH MODIFIED (%) = 50
COMPOSITE CURVE NUMBER = 80
SLOPE ADJUSTMENT FACTOR = 1.07
PONDING ADJUSTMENT FACTOR = .88



THE DeYOUNG-JOHNSON GROUP, INC.
 P. O. Box 197
 WILLIAMSBURG, VA 23187
 (804) 253-0673

JOB: 1860832 ROLLINGWOODS 3
 SHEET NO. 1 OF _____
 CALCULATED BY DPC DATE 4-12-88
 CHECKED BY _____ DATE _____
 SCALE _____

SEDIMENT BASIN #2

DRAINAGE AREA = 35 Ac
 IMPERVIOUS AREA : 25% DEVELOPED
 CN = EXISTING 60% - 73 Cw = 76
 40% - 80
 PROPOSED 40% - 73 Cw = 78
 60% - 80
 PREVALENT SOIL CLASS - C
 HYDRAULIC LENGTH - 2200
 WATERSHED SLOPE - 8%
 SLOPE ADJUSTMENT - .88
 PONDING FACTOR - .83
 HYDRAULIC LENGTH MOD - 10

REQ. SEDIMENT STORAGE - 35Ac x 40 CY/AC x 27 CF/CY = 37800

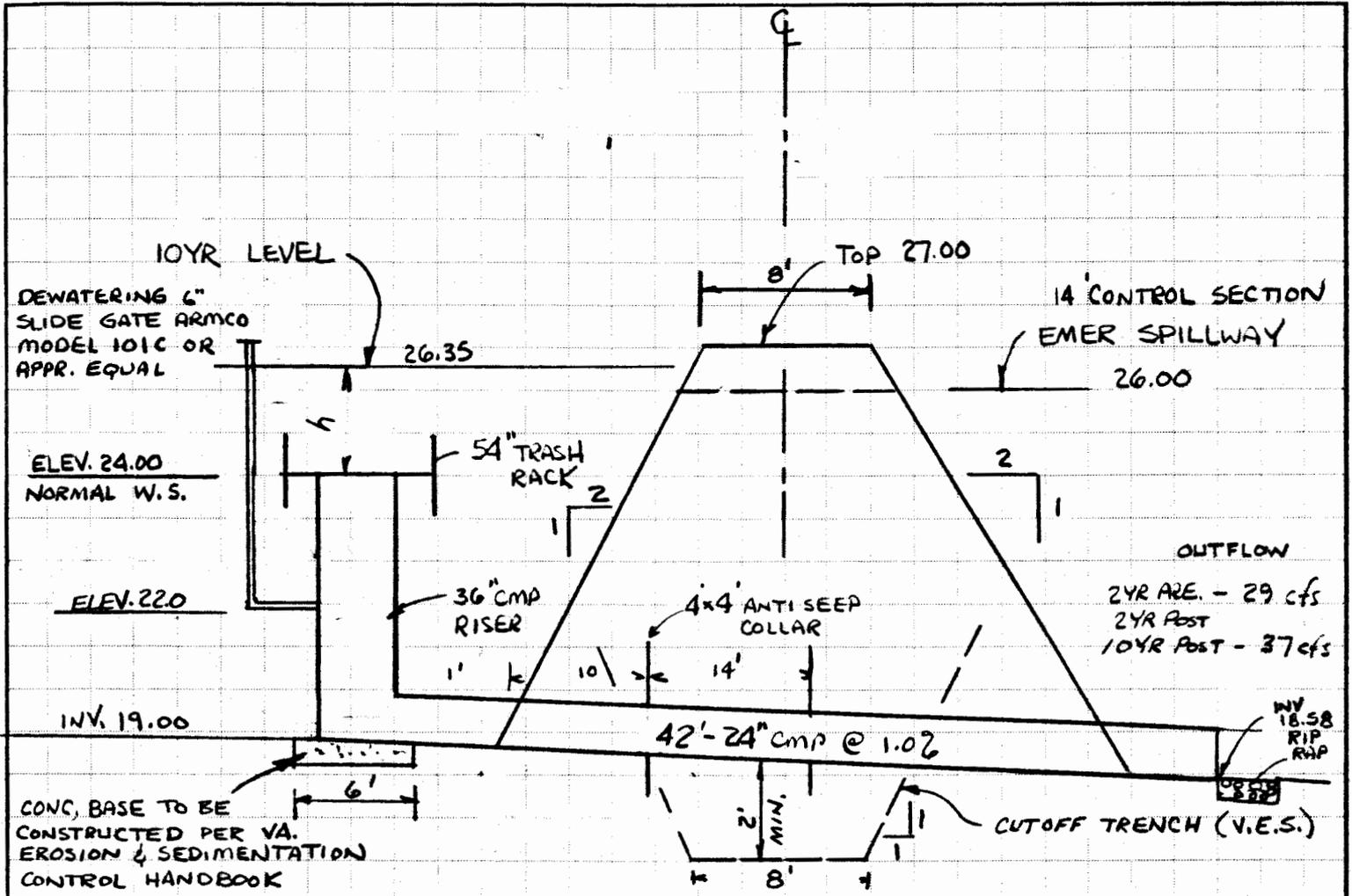
REQ. TOTAL STORAGE - 35Ac x 67 CY/AC x 27 CF/CY = 63315

(E) STAGE	STAGE - STORAGE CONTOUR	AREA	VOL.	(S) Σ VOL	
0	19	200	1622	0	
1	20	3044	4505	1622	
2	21	5966	7605	6127	
3	22	9244	11345	13732	
4	23	13446	16537	25077	
5	24	19628	24432	41614/0	27.5 ~ 0.997 AC PER 1991 AS-BUILT STORAGE BELOW 24.00 PRO W.S.
6	25	29236	35218	24432	
7	26	41200	22050	59650	
		41000	22050	81700	



THE DeYOUNG-JOHNSON GROUP, INC.
 P. O. Box 197
 WILLIAMSBURG, VA 23187
 (804) 253-0673

JOB _____
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 SCALE _____



ELEVATION	STAGE	h	DISCHARGE			STORAGE
			36/24		TOTAL	
19	0	—	—	—	0	0
20	1	—	—	—	0	1622
21	2	—	—	—	0	6127
22	3	—	—	—	0	13732
23	4	—	—	—	0	25077
24	5	—	—	—	0	41614/0
25	6	1	27	—	27	24432
26	7	2	29.2	—	29.2	59650
26.5	7.5	2.5	30.2	+10 EM. SPWY. (14')	40.2	81700

STORAGE ABOVE 24.00
 STORAGE BELOW 24.00



COUNTY ATTORNEY

101-C MOULNES BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6612

Fax: (757) 253-6833

FRANK M. MORTON, III
COUNTY ATTORNEY
E-MAIL ADDRESS: fmmorton@james-city.va.us
(757) 253-6613

LEO P. ROGERS
DEPUTY COUNTY ATTORNEY
E-MAIL ADDRESS: lprogers@james-city.va.us
(757) 253-6614

GREG H. DOHRMAN
ASSISTANT COUNTY ATTORNEY
E-MAIL ADDRESS: ghdohrman@james-city.va.us
(757) 253-6832

April 8, 2003

Mrs. Margaret Mondul
5547 Rolling Woods Drive
Williamsburg, VA 23185



Dear Mrs. Mondul:

RE: Rolling Woods Homeowners' Association of Williamsburg, Inc. / Corrected Easement
and Maintenance Agreement

Enclosed for your file is a copy of the recorded Corrected Easement and Maintenance Agreement
for the above referenced matter.

I want to thank you for your assistance in bringing in files from the homeowner's association and
working with us so that a new agreement could be prepared. Although it took several months to
get the easement corrected and recorded, your perseverance in seeing this through was most
helpful.

If we can be of further assistance, please let me know.

Sincerely,

Leo P. Rogers (mfr)

Leo P. Rogers
Deputy County Attorney

/mfr

Enclosure

cc: Susan B. Tarley, Esquire

bc: ✓ Darryl Cook, Environmental Division

Pat Menichino

From: Pat Menichino
Sent: Friday, August 06, 2010 1:56 PM
To: 'jjkern@aol.com'
Cc: Frances Geissler
Subject: Rolling Woods BMPs

Mr. Kern:

I have been asked to respond to your questions concerning the stormwater management facilities (BMPs) in Rolling Woods. Inspections of the (3) BMPs in Rolling Woods were completed on May 21, 2010. The inspection reports that we have generated will describe the condition of the BMPs and any maintenance/repairs that may be required. We are scheduled to mail out a large number of inspection reports next week. If you would like to set up a meeting to discuss the BMPs I will be happy to meet with you.

Please feel free to call me with any questions you may have.

Thanks,

Pat

Patrick T. Menichino
Stormwater Specialist
James City County Stormwater Division
757-259-1443
pmenichi@james-city.va.us

EXONERATION
OF TAXES

Follow up w/ Anne

3/17-

*She will send a memo stating
exoneration has been authorized.*

MEMO

To: Anne Davis, Treasurer
From: Darryl E. Cook, Environmental Director
Subject: Exoneration of Taxes for (48-3)(2-1)
Date: March 4, 1999

I am requesting that the back taxes owed for tax parcel (48-3)(2-1) be exonerated. The total of the tax bill is approximately \$300. The subject property consists of the common areas for the Rolling Woods subdivision. The taxes are owed by the Diggs Brothers, Inc., the subdivision's developer, which is now a bankrupt corporation. The Rolling Woods Homeowners Association is preparing to have the property transferred to them so that in the future a responsible entity will have control of the property but they do not want to have to pay the developer's tax bill.

The County is very interested in having this transaction occur as within the common area are three stormwater management ponds that have not been maintained for several years. The County, using the remainder of the developer's bond, has performed the maintenance on the ponds that was necessary for the Association to agree to take over the future maintenance responsibilities. If the taxes are not exonerated, the County will be in the position of paying the tax bill itself as it is a greater benefit to have property transferred and the maintenance of the ponds borne by the Association than it is to collect the amount of the taxes owed.

Please let me know if you need any additional information to process this request.

KAUFMAN & CANOLES

— A Professional Corporation —

Attorneys and Counselors at Law

11817 Canon Boulevard
Suite 408
Newport News, VA 23606
757 / 873-6300
fax: 757 / 873-6359

CONFIDENTIAL

FACSIMILE COVER SHEET

TO: *Darryl Cook*
FAX PHONE: 253-6850
OFFICE PHONE: 253-6673

FROM: *Paula Donnelly*
FILE NO.: 47028
FILE NAME: *County of James City*
Date: *Feb. 25, 1999*

TOTAL NUMBER OF PAGES INCLUDING THIS COVER SHEET: 2

IN CASE OF TRANSMISSION PROBLEMS, PLEASE CALL (757) 873-6300.

ADDITIONAL COMMENTS:

*These figures are good thru the end of February.
These figures do not include taxes that were due
Dec. 5, 1998.*

The information transmitted herewith may be confidential and protected by law as attorney-client communications, attorney work product, proprietary information or otherwise. It is intended for the exclusive use of the named recipient. If you are not the named recipient, you are hereby notified that any use, copying, disclosure or distribution of this information may be subject to legal restriction or sanction, and you are requested to notify us by telephone to arrange for return or destruction of this communication.

Chesapeake
757 / 547-7377

Norfolk
757 / 624-3000

Virginia Beach
757 / 491-4000

James City County Taxes Due

Parcel ID: (48-3)(02-0-0001-)

Legal Description: OPEN SPACE S-3 ROLLING WDS

Location:

Land Value: 1000

Building Value: 0

Payment should be made to:
Kaufman and Canoles, P.C.
11817 Canon Boulevard, Ste 408
Newport News, VA 23606

Year	Type	Bill No#	Tax	Penalty	Interest	Admin Fee	Atty Fee	Credits	Total
1990	RE	90003783	\$7.10	\$7.10	\$9.31	\$10.00	\$4.70	\$0.00	\$38.22
1991	RE	91003864	\$7.10	\$7.10	\$8.17	\$10.00	\$4.47	\$0.00	\$36.83
1992	RE	92003957	\$7.30	\$7.30	\$7.23	\$10.00	\$4.37	\$0.00	\$36.19
1993	RE	93004043	\$7.50	\$7.50	\$6.22	\$10.00	\$4.24	\$0.00	\$35.47
1994	RE	94004166	\$8.30	\$8.30	\$5.55	\$10.00	\$4.43	\$0.00	\$36.58
1995	RE	95004362	\$8.40	\$8.40	\$4.27	\$10.00	\$4.21	\$0.00	\$35.28
1996	RE	96004478	\$8.70	\$8.70	\$3.02	\$10.00	\$4.08	\$0.00	\$34.50
1997	RE	97R4534	\$8.70	\$0.87	\$1.12	\$10.00	\$2.14	\$0.00	\$22.82
1998	RE	98R4706	\$4.35	\$0.44	\$0.32	\$10.00	\$1.02	\$0.00	\$16.13
Totals:			\$67.45	\$55.71	\$45.21	\$90.00	\$33.67	\$0.00	\$292.04

1998 - \$4.87 + int.

Total ≈ \$300

Owner: DIGGES BROTHERS, INC, TH

C/O:

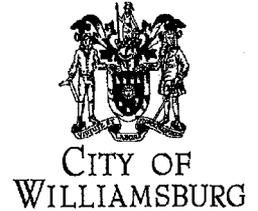
Street: 16 MILE COURSE

City/State: WILLIAMSBURG, VA

231855525



OFFICE OF THE TREASURER
ANN DAVIS, TREASURER
COUNTY OF JAMES CITY
P.O. BOX 8701
WILLIAMSBURG, VIRGINIA 23187-8701
(757) 253-6705
FAX (757) 253-6844

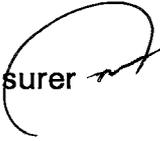


MEMORANDUM

DATE: June 4, 1999



TO: Darryl E. Cook, Environmental Director

FROM: Ann Davis, Treasurer 

SUBJECT: *Notice of Exoneration of Taxes for (48-3)(2-1)*

Based on the information provided by your office, Richard Sebastian, Real Estate Assessor, and I have approved the exoneration of real estate taxes, penalty and interest on the above property. Therefore, neither James City County nor the Rolling Woods Homeowners Association will be assuming any tax liability when ownership of property is transferred.

Should you need any further assistance, please contact me at 757/253-6709.



MEMORANDUM
TREASURER



Date: June 4, 1999
To: Darryl E. Cook, Environmental Director
From: Ann Davis, Treasurer
Subject: Notice of Exoneration of Taxes for (48-3)(2-1)

Based on the information provided by your office, Richard Sebastian, Real Estate Assessor, and I have approved the exoneration of real estate tax, penalty and interest for all years outstanding on the above property. Therefore, James City County will not be assuming any tax liability when ownership of the property is conveyed.

Should you need further assistance, please contact me at 757/253-6709

copies: Richard Sebastian
Real Estate Assessor

HERBERT V. KELLY
RAYMOND H. SUTTLE
B.M. MILLNER
RALPH M. GOLDSTEIN
JOHN T. TOMPKINS, III
CONWAY H. SHIELD, III
SVEIN J. LASSEN
DAVID W. OTEY
HERBERT V. KELLY, JR.
RICHARD B. DONALDSON, JR.
DAVID W. OTEY, JR.
MICHAEL B. WARE
ROBYN HYLTON HANSEN
LEONARD C. HEATH, JR.
RAYMOND H. SUTTLE, JR.
GARY A. MILLS

Jones, Blechman, Woltz & Kelly, P.C.
Attorneys and Counselors at Law

600 THIMBLE SHOALS BOULEVARD
POST OFFICE BOX 12888
NEWPORT NEWS, VIRGINIA 23612-2888
(757) 873-8000
FACSIMILE: (757) 873-8103

460 McLAWS CIRCLE, SUITE 220
WILLIAMSBURG, VIRGINIA 23185
(757) 259-5700
FACSIMILE: (757) 259-5717

ALLAN D. JONES, 1875-1954
DANIEL SCHLOSSER, 1915-1977
F.O. BLECHMAN, 1905-1986
ARTHUR W. WOLTZ, 1905-1993

OF COUNSEL
THOMAS N. DOWNING

BRYAN H. SCHEMPF
ROBERT M. BROWN, JR.
COLLEEN K. KILLILEA
DYWONA L. VANTRAPP-KILLER
IRVING B. GOLDSTEIN
MAI LAN ISLER
MATTHEW W. SMITH
HELENA S. MOCK

REPLY TO: Williamsburg

Direct Dial No. 259-5740

Internet E-Mail Address:

To: Ann Davis, Treasurer

Fax Number: 253-6844

From: Colleen K. Killilea

Date: October 17, 2000

Re: Open Space, Rolling Woods, S-3 (48-3)(2-1_

Number of Pages: 2, including cover

Comments:

I noticed in Saturday's gazette that the above-described property was listed as being delinquent in taxes, and was to be sold to pay off those taxes. This property is currently owned by the Digges Brother's and is to be turned over to the Rolling Woods Homeowner's Association. The Homeowner's Association is in the process of entering into a contract with the County for the maintenance of the settlement detention basins located on that property. The matter is scheduled to be on the Board of Supervisor's agenda on October 24th, after which the Homeowner's Association will assume ownership of the property (the deeds are prepared, but not yet recorded).

Last June you exonerated the County of any liability for taxes on that property. A copy of your memo to Darryl Cook is attached. I later asked Darryl about specifically exonerating the Homeowner's Association, and he advised me (on September 28, 1999) that he had received that revised exoneration from your office. I requested a copy, but could not locate it.

I would ask that your records be corrected to reflect this exoneration of taxes, and that Kaufman & Canoles be advised. If you have any questions, please feel free to contact me. I assume that Darryl Cook would also be willing to speak to you on this issue.

Thank you. I hope to hear from you soon



cc: Vernon Dockins, RWHOA President
Darryl Cook, JCC Environmental Division



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) 253-2620

October 29, 1998

Mr. Dave King
Rolling Woods Homeowners' Association
2710 Linden Lane
Williamsburg, VA 23185

RE: Inspection/Maintenance Agreement for the Rolling Woods Ponds

Dear Mr. King:

The maintenance work on the three Rolling Woods ponds that is a prerequisite for turning over the ponds to the Homeowners' Association should begin in a few days. The work is being accomplished by Cinter Construction under contract to the County. As you recall, we went over the scope of work with the Homeowners' Association Board prior to advertisement of the work for bid.

In an earlier meeting with the Homeowners' Association Board, it was agreed that after acceptance of the ponds by the Association, long-term maintenance would be a shared responsibility between the County and the Association. To formalize the arrangement, an Inspection/Maintenance Agreement needs to be executed between the two parties. Therefore, I have enclosed a copy of such an agreement. It is the County's standard Inspection / Maintenance Agreement that is executed for all new development in the County with stormwater management systems with one modification. The modification is the addition of item 9 which presents the maintenance responsibilities of the County. The Agreement needs to be signed by the appropriate person and returned to this office.

If you have any questions concerning the Agreement or the upcoming work, please contact me at 253-6673 if you have any questions.

Sincerely,

Darryl E. Cook, P.E.
Environmental Director



JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670

Fax Number: 757-259-4032

Name: BOB WONDERLICH
Firm or Company: _____
Facsimile Number: 757-258-3795
Number of pages including this transmittal: 6
From: SCOTT J. THOMAS

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

Comments:

INFORMATION FOR SUPPLIER PIPE FOR EXIST. 15"
OUTLET BARREL AT ROLLINGWOOD SELL 3
SWMP #1 REPAIR.

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

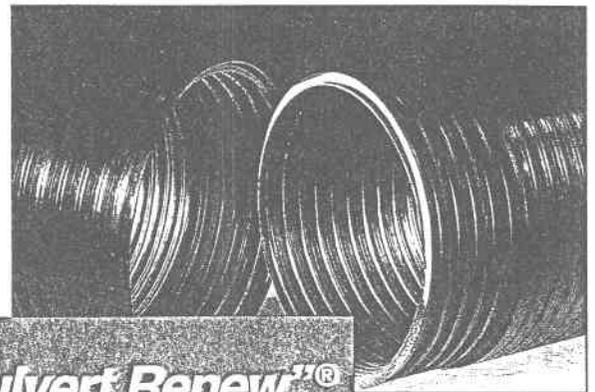
Water Works Supply of VA.
Wendell Stuart 804-730-9050
8338 Old Richfood Road
Mechanicsville, VA 23116

We're Not Just Another Pipe Company

"Thread-Loc"[™] Joint



"Culvert Renew"[®]
"Sewer Renew"[™]
By Poly Systems, Inc.

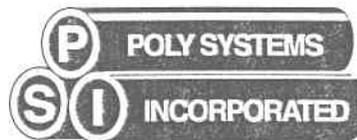


Easy to Install
Labor Friendly

Lightweight

Water Works Supply of Virginia, Inc.
8338 Old Richfood Road
Mechanicsville, VA 23111
804-730-9050

We're



The Polyethylene Pipe Advantage

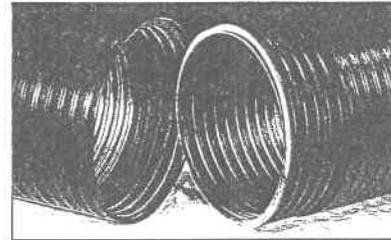
"Culvert Renew"[®] is a profile wall pipe manufactured from PE3408 premium grade, high density, extra high molecular weight, polyethylene resin. It is homogeneous and resistant to environmental stress crack. "Culvert Renew"[®] is 1D sized, manufactured in our plant in Steelville, MO and is suitable but not limited to the following applications:

- CULVERTS AND SANITARY SEWERS
- STORM DRAINS
- OUTFALL PIPING
- INSERTION RENEWAL OF CULVERTS
- MANHOLES AND CATCH BASINS
- DEWATERING PIPE
- INSERTION RENEWAL OF STORM SEWERS
- LANDFILL INSPECTION RISERS
- IRRIGATION PIPE

The profile design of "Culvert Renew"[®] increases pipe stiffness, resistance to deflection and buckling. Pipe stiffness is very high when compared to solid wall polyethylene pipe or other profile wall products.

Pipe Stiffness of Solid Wall F-714 Pipe per ASTM D2412

SDR	ps
41	6.6
32.5	13.6
26	27.2
21	53.1
For E = 95000	



Our "screw together" coupling system is called "Thread-Loc"[™]. When two pipes are threaded together, they form a soil tight connection. This lightweight, strong, easy to install system makes an ideal, cost-effective choice for the insertion renewal of culverts and sewers and for direct burial applications.

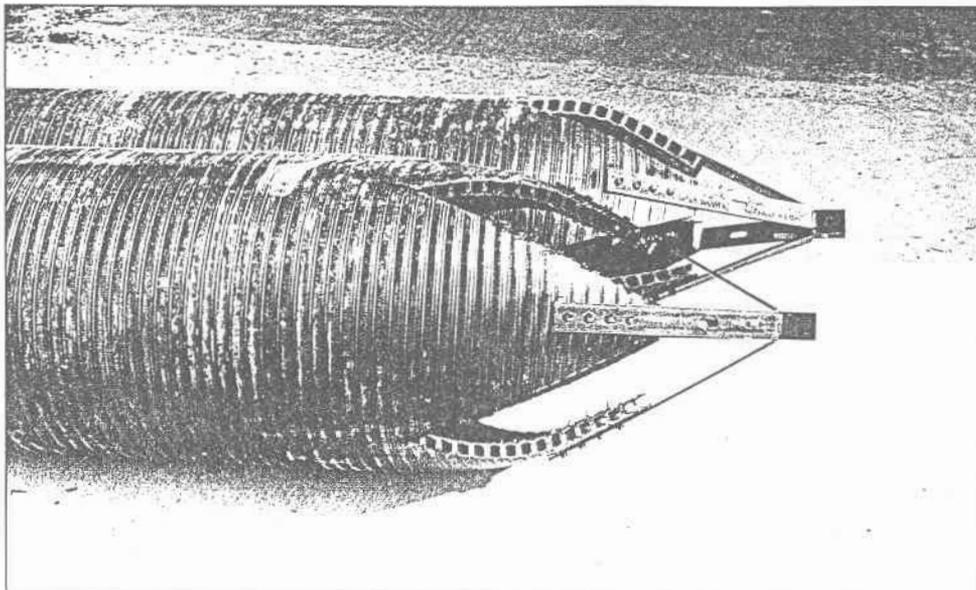
CULVERT RENEW[®] STANDARD DIMENSIONS

Nom Size	ID (IN)	OD (IN)	Allowable Crush Load (LBS/FT ²)	Pipe Stiffness (PSI)	Max Axial Force (LBS)
STANDARD PROFILE					
10	10.00	11.20	4580	46.8	3700
12	12.00	13.47	4360	46.9	5100
15	15.00	16.85	4220	46.5	7700
18	18.00	20.24	4210	47.6	11000
21	21.00	23.65	3920	46.7	14000
24	24.00	27.06	3920	47.1	18500
27	27.00	30.43	3910	47.3	23300
30	30.00	33.82	3820	46.9	28100
36	36.00	40.65	3840	48.3	40800
40	40.00	45.20	3730	47.9	49000
42	42.00	47.47	3720	48.1	53300
LOW PROFILE					
12L	12.00	13.20	3900	27.4	4400
15L	15.00	16.47	3500	24.9	6300
18L	18.00	19.85	3600	27.9	9200
21L	21.00	23.24	3600	30.9	12800
24L	24.00	26.65	3400	32.2	16000
27L	27.00	30.06	3500	34.4	20700
30L	30.00	33.43	3500	35.5	25800
36L	36.00	39.82	3200	28.2	33400
40L	40.00	44.65	3500	36.3	45000
42L	42.00	47.20	3500	42.3	51300

48" ID thru 120" "Culvert Renew"[®] dimensions available upon request.

"CULVERT RENEW"[®] ADVANTAGES

- STRONG AND TOUGH
- LIGHTWEIGHT
- CORROSION AND CHEMICAL RESISTANT
- WEATHER RESISTANT
- HIGH FLOW PROPERTIES
- EASY TO JOIN
- COST EFFECTIVE
- EASY INSERTION WITH PULLING ATTACHMENT



*Corrugated Metal Culvert Flow Capacity When Lined With "Culvert Renew" [®]		
Original Corrugated Metal Pipe ID	"Culvert Renew" [®] Pipe ID	Percentage Of Original CMP Flow
12"	10"	164%
15"	12"	147%
18"	15"	164%
21"	15"	109%
24"	18"	124%
27"	21"	136%
30"	24"	147%
33"	27"	156%
36"	30"	156%
48"	36"	124%
54"	40"	120%
60"	42"	103%

*PE Liner ID Required For Various Flows % vs Concrete Sewers/Culverts			
Existing Sewer Inside Diameter ID	Liner ID Required 100% Flow	Liner ID Required 95% Flow	Liner ID Required 90% Flow
12	9.96	9.74	9.48
15	12.45	12.15	11.85
16	13.28	12.96	12.64
18	14.94	14.58	14.22
21	17.43	17.01	16.59
24	19.92	19.44	18.96
27	22.41	21.87	21.33
30	24.90	24.30	23.70
36	29.88	29.16	28.44
42	34.86	34.02	33.18
48	39.84	38.88	38.10
54	44.82	43.74	42.86

*Based on the following Mannings "n" values. CMP Pipe .024 • Concrete Pipe .015 • "Culvert Renew"[®] .009

SHORT FORM ENGINEERING SPECIFICATION

CULVERT RENEW® – SEWER RENEW™ – Large Diameter Closed Profile, Culvert/Sewer Pipe

I. THE PRODUCT: The pipe shall be a helical-spiral manufactured with a smooth internal and external surface, inside diameter sized, hollow-wall closed profile, HDPE pipe. Standard profile pipe shall exhibit a pipe stiffness of 46 psi when tested in accordance with ASTM D-2412, and in accordance with municipal and highway specifications including ASHTO design specification, section 18, paragraphs 18, 4.0, 18, 4.1, etc. Low profile pipe stiffness shall be in accordance with Dimensions Chart. The approved pipe joint must be physically interlocked in a manner to develop the tensile strength of the pipe; and to manage thermally induced seasonal contraction. It must be capable of being pushed (or jacked) into the host pipeline, and being pulled into the host pipeline without joint separation. The approved connection is the Thread-Loc™ connection which threads the helical spiral together forming an integral joint. The OD and ID joint surfaces shall be substantially flush with the pipe OD and ID. The approved pipe and joint product are: Culvert Renew®. Alternate pipe products may be submitted with documentation in order to petition for a review for approval by the specification authority or engineer of record.

II. THE MATERIAL: The material from which the pipe is extruded shall be high density polyethylene "pipe grade" material listed by the Plastic Pipe Institute (PPI) as a PE 3408 resin; and exhibiting the physical properties described within the polyethylene material standard, ASTM D-3350, with a cell classification of 345434C as follows:

PROPERTY	SPECIFICATION	UNITS	NOMINAL VALUES
Material Designation	PPI/ASTM	–	PE3408
Material Classification	ASTM D-1248	–	III C 5 P34
Cell Classification	ASTM D-3350	–	345434C
Density – Pipe	ASTM D-1505	gm/cm3	0.955
Flexural Modulus	ASTM D-790	psi	140,000
Tensile Strength-Pipe	ASTM D-638	psi	3400
ESCR (Condition C)	ASTM D-1693	F20 Hrs	>5000
HDB @ 73.4F	ASTM D-2837	psi	1600
UV Stabilizer	ASTM D-1603	%Carbon Black	2 Minimum
Brittleness Temperature	ASTM D-746	F	-150

The manufacturer shall provide certification that the pipe was manufactured from one specific resin in compliance with these specifications.

III. DIMENSIONS: Pipe sizes, inside diameters, and typical dimensions shall conform with those listed. The outside and inside diameter shall be hydraulically "smooth" and of a constant pipe dimension along the pipe length.

STANDARD PROFILE

NOMINAL ID (IN.)	NOMINAL OD (IN.)	NOMINAL ID (IN.)	NOMINAL OD (IN.)
10.00	11.20	24.00	27.06
12.00	13.47	27.00	30.43
15.00	16.85	30.00	33.82
18.00	20.24	36.00	40.65
19.50	21.74	40.00	45.20
21.00	23.65	42.00	47.47

LOW PROFILE

NOMINAL ID (IN.)	NOMINAL OD (IN.)	NOMINAL ID (IN.)	NOMINAL OD (IN.)
12.00	13.20	27.00	30.06
15.00	16.47	30.00	33.43
18.00	19.85	36.00	39.82
21.00	23.24	40.00	44.65
24.00	26.65	42.00	47.20

IV. MARKING: Each pipe segment shall be identified with the product name, pipe stiffness designation, and manufacturing data.

V. INSTALLATION: For slip lining or insertion renewal, the pipe shall be installed in compliance with the manufacturer's guidelines. Completion of the joint shall be effected by use of a strap wrench device with a suitable (4 foot minimum) bar or lever to tighten the pipe. The pipe shall be kept level with support slings, rollers or other devices as approved by the owner or engineer. Chemical grouting or mastic sealing of the joint shall be done to manufacturer's recommendations.

Direct burial, bedding, backfill, and general installation requirements should comply with the specifications and guidelines of ASTM D-2321.



P.O. Box 1157
3 Industrial Drive
Steelville, MO 65565

Office – 573-775-3300
Fax – 573-775-3388
Toll Free – 800-829-3904

Slipliner Pipe Specification

The outlet barrel slipliner pipe^{to} consist of approximately 65 feet of 10 inch nominal diameter closed profile, high density polyethylene Culvert Renew culvert/sewer pipe as manufactured by Polysystems, Inc. of Steelville, MO or approved equal. The pipe shall consist of standard profile, helical-spiral type with a smooth internal and external surface, inside diameter sized, hollow-wall closed profile PE 3408 high density polyethylene. The pipe joint must be a screw type joint connection which threads the helical spiral together forming an integral joint capable of being easily pushed or jacked into the host pipe.

LOCAL CONTACT:

WATERWORKS SUPPLY OF VIRGINIA, INC.
8338 OLD RICHFORD ROAD
MECHANICSVILLE VA. 23111
ATTN: WESLEY HEATH
PH: 804-730-9050
FAX: 804-730-4520



SCOTT J. THOMAS, P.E.
CIVIL ENGINEER

ENVIRONMENTAL DIVISION

101 MOUNTS BAY ROAD, P.O. Box 8784 (757) 253-6639
WILLIAMSBURG, VIRGINIA 23187-8784 FAX: (757) 259-4032
E-MAIL: scottt@james-city.va.us

STANDARD RCP SIZES

SUPPLEMENTAL DATA

71

Illustration 5.2 (Continued) — Dimensions and Approximate Weights of Concrete Pipe

ASTM C 76 Reinforced Concrete Culvert, Storm Drain and Sewer Pipe, Tongue and Groove Joints						
WALL A			WALL B		WALL C (V)	
Internal Diameter, inches	Minimum Wall Thickness, inches	Approximate Weight, pounds per foot	Minimum Wall Thickness, inches	Approximate Weight, pounds per foot	Minimum Wall Thickness, inches	Approximate Weight, pounds per foot
12	1 $\frac{3}{8}$	79	2	93	—	—
15	1 $\frac{7}{8}$	103	2 $\frac{1}{4}$	127	—	—
18	2	131	2 $\frac{1}{2}$	168	—	—
21	2 $\frac{1}{4}$	171	2 $\frac{3}{4}$	214	—	—
24	2 $\frac{1}{2}$	217	3	264	3 $\frac{3}{4}$	366
27	2 $\frac{5}{8}$	255	3 $\frac{1}{4}$	322	4	420
30	2 $\frac{3}{4}$	295	3 $\frac{1}{2}$	384	4 $\frac{1}{4}$	476
33	2 $\frac{7}{8}$	336	3 $\frac{3}{4}$	451	4 $\frac{1}{2}$	552
36	3	383	4	524	4 $\frac{3}{4}$	654
42	3 $\frac{1}{2}$	520	4 $\frac{1}{2}$	686	5 $\frac{1}{4}$	811
48	4	683	5	867	5 $\frac{3}{4}$	1011
54	4 $\frac{1}{2}$	864	5 $\frac{1}{2}$	1068	6 $\frac{1}{4}$	1208
60	5	1064	6	1295	6 $\frac{3}{4}$	1473
66	5 $\frac{1}{2}$	1287	6 $\frac{1}{2}$	1542	7 $\frac{1}{4}$	1735
72	6	1532	7	1811	7 $\frac{3}{4}$	2015
78	6 $\frac{1}{2}$	1797	7 $\frac{1}{2}$	2100	8 $\frac{1}{4}$	2410
84	7	2085	8	2409	8 $\frac{3}{4}$	2660
90	7 $\frac{1}{2}$	2395	8 $\frac{1}{2}$	2740	9 $\frac{1}{4}$	3020
96	8	2710	9	3090	9 $\frac{3}{4}$	3355
102	8 $\frac{1}{2}$	3078	9 $\frac{1}{2}$	3480	10 $\frac{1}{4}$	3760
108	9	3446	10	3865	10 $\frac{3}{4}$	4160

Large Sizes of Pipe Tongue and Groove Joint			
Internal Diameter Inches	Internal Diameter Feet	Wall Thickness Inches	Approximate Weight, pounds per foot
114	9 $\frac{1}{2}$	9 $\frac{1}{2}$	3840
120	10	10	4263
126	10 $\frac{1}{2}$	10 $\frac{1}{2}$	4690
132	11	11	5148
138	11 $\frac{1}{2}$	11 $\frac{1}{2}$	5627
144	12	12	6126
150	12 $\frac{1}{2}$	12 $\frac{1}{2}$	6647
156	13	13	7190
162	13 $\frac{1}{2}$	13 $\frac{1}{2}$	7754
168	14	14	8339
174	14 $\frac{1}{2}$	14 $\frac{1}{2}$	8945
180	15	15	9572

These tables are based on concrete weighing 150 pounds per cubic foot and will vary with heavier or lighter weight concrete.

condition, since a greater trench width is usually required for HE pipe. For shallow cover, where live load requirements control the design, loading is almost identical to that for an equivalent size circular pipe with the same invert elevation.

Vertical Elliptical (VE) Pipe Vertical elliptical concrete pipe is

James City County Stormwater Division Stormwater Management Facility (SWMF) Inspection Report

Score Definitions: 0-N/A, 1-Adequate, 2-Routine Maintenance, 3-Non-routine repair, 4-Urgent repair(s), item has failed or is failing.

BMP ID # MC024 PIN 4830200001 Responsible Party: ROLLING WOODS

Site Address: _____ District: 4

Location (other): BASIN 1- 5801 HAWTHORNE LOT 48

Date: 7/16/2008 Inspector: SJ

(3 or 4 requires attention):

Structure Type: Retention

Total Score 

Criteria	Score	Comments: (Listed below are the items/tasks that should be rectified/ completed prior to re-inspection)
1. Forebay Score:	0	
2. Inlet(s):	2	Sediment debris woody vegetation at the outfall of inlet
*3. Outlet:	1	
*4. Principal Spillway:	2	
5. Emergency Spillway:	2	
6. Basin Bottom and Side Slopes:	1	
7. Safety Devices:	0	
*8. Embankments:	2	Ground cover too short/bare spots
*9. Structural Components:	1	
*10. Media:	0	

James City County Stormwater Division Stormwater Management Facility (SWMF) Inspection Report

Score Definitions: 0-N/A, 1-Adequate, 2-Routine Maintenance, 3-Non-routine repair, 4-Urgent repair(s), item has failed or is failing.

Criteria	Score	Comments: (Listed below are the items/tasks that should be rectified/ completed prior to re-inspection)
11. Routine Maintenance:	1	
12. Condition of Aquatic Environment:	2	Excessive algae growth or invasive plant dominance
13. Vegetation:	1	
*14. Storage Volume:	1	
15. Debris/Sediment Accumulation:	2	Excessive debris sediment or floatable material
16. Standing Water:	1	
17. Safety and Aquatic Bench:	0	
18. Side Slope Vegetation:	1	
19. Other:		

Checked below identify corrective work required on your stormwater management facility.

- Remove all trees and other woody vegetation from the embankment (earthen dam) and also within 10' of the toe of the embankment slope.
- Remove all trees and other woody vegetation from within 10' of the principal spillway, any principal inlet devices, and the principal outfall.
- Remove all trees and other woody vegetation from within 10' of any inlet structures, such as: pipes, end sections, concrete channels, flumes, rip rap channels, etc.
- Remove all trees and other woody vegetation from within the emergency spillway and also from within 10' of the spillway.
- Investigate the cause of any settlement, sink holes, subsidence, or erosion, noted on the report and develop and implement an appropriate plan to correct the deficiencies noted permanently.
- Remove all accumulated sediment, leaves and debris from within any pipes, end sections, concrete channels, emergency spillways, flumes, rip rap channels, etc. and dispose of the material in an appropriate method and location.
- Stabilize any disturbed, unstable, denuded or bare soil areas, by installing top soil and planting a permanent grass seed to establish an effective grass ground cover over these areas.
- All grassed areas of the BMP such as: access roads, emergency spillways, embankments (earthen dam), or other non-treed areas, shall be maintained at a minimum grass height of 8", and should not be subjected to low mowing.
- Trees and woody vegetation should be cut flush with the ground, and smaller trees and limbs (less than 4" dia) may be processed with a wood chipper and dispersed in natural areas.

The Kern Company

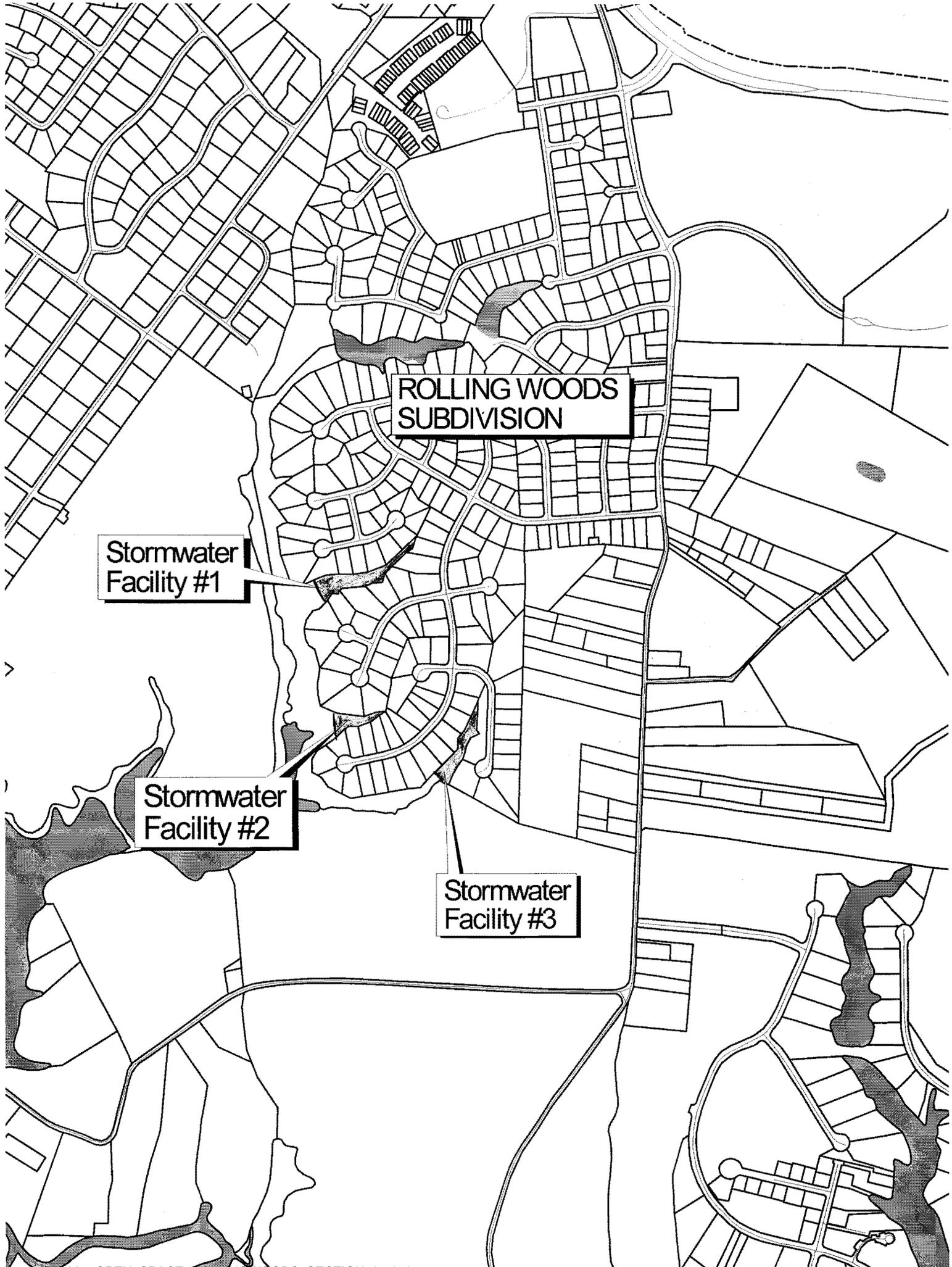
JOHN KERN

Ph: 619-820-1257
Fax: 866-250-5794
Email: jjkern@aol.com

www.kerncompany.com

110 West "C" St., Ste. 1300
San Diego, CA 92101

2816 Hidden Lake Dr.
Williamsburg, VA 23185



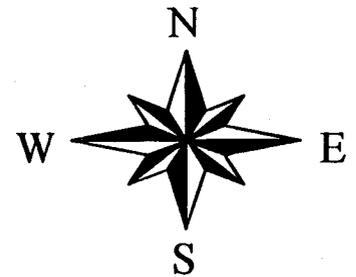
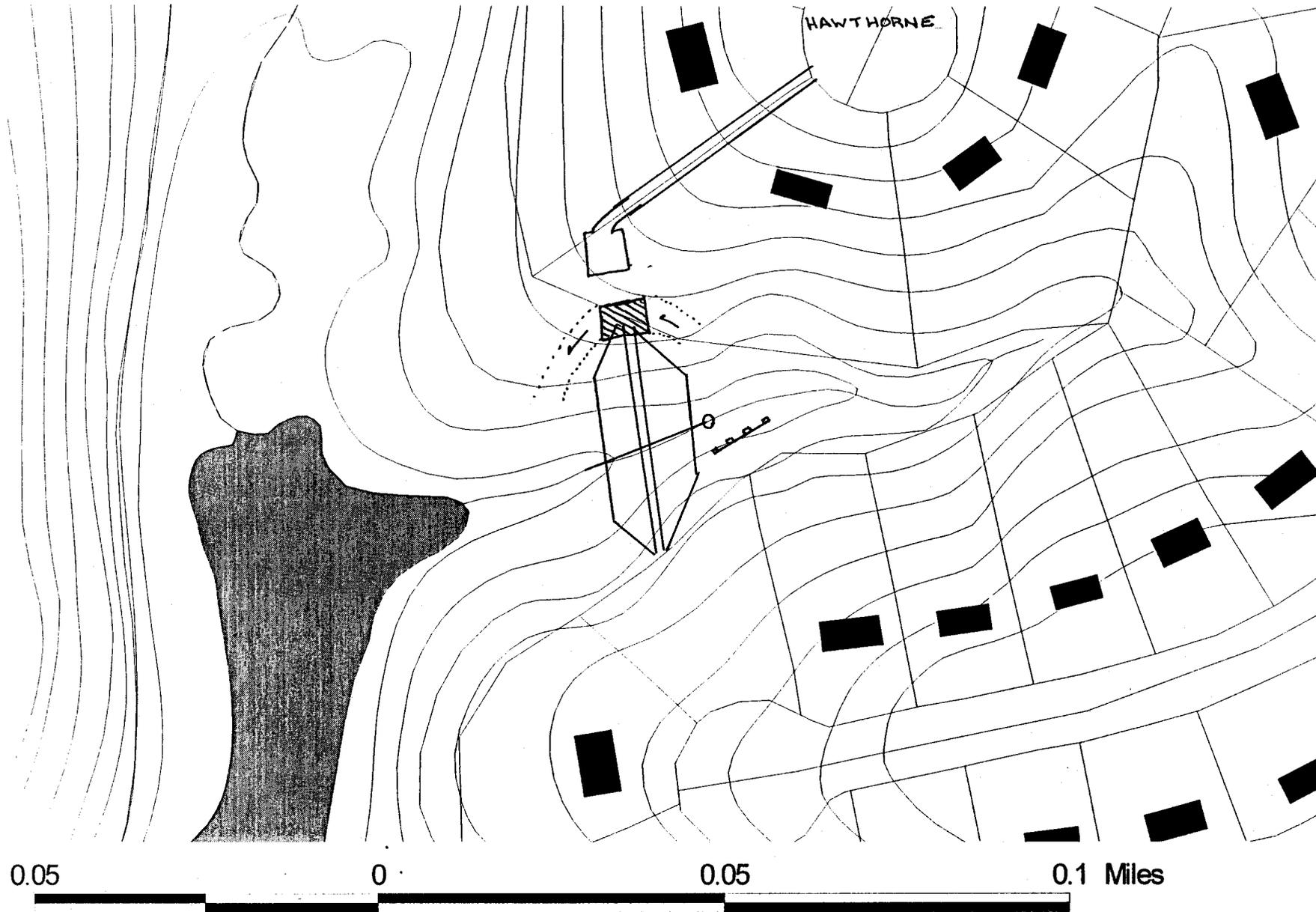
**ROLLING WOODS
SUBDIVISION**

**Stormwater
Facility #1**

**Stormwater
Facility #2**

**Stormwater
Facility #3**

ROLLING WOODS POND # 2





BASIN #1
HANTHORNE
MC024

ROLLINGWOODS
SECT 3

James City County Environmental Division

PROJECT NAME: Rollingswood Section 3, Stormwater Management Pond # 1 Repair

DATE: February 17, 2000

PREPARED BY: Scott J. Thomas, P.E.

ENGINEERS ESTIMATE

Item Description:	Quantity	Unit	Unit Cost	Total Cost
A. Mobilization	1	L.S.	\$ 2,000.00	\$ 2,000.00
B. Misc. Clearing & Grubbing	400	S.F.	\$ 1.25	\$ 500.00
C. Erosion & Sediment Control	1	L.S.	\$ 1,610.00	\$ 1,610.00
D. Cofferdam / Dewatering	1	L.S.	\$ 2,000.00	\$ 2,000.00
E. New 24 inch Diameter Riser	12	V.L.F.	\$ 50.00	\$ 600.00
F. Concrete Riser Base	1	C.Y.	\$ 250.00	\$ 250.00
G. Drain Valve Mechanism	1	EA.	\$ 1,200.00	\$ 1,200.00
H. 10 inch HDPE Barrel Reliner	65	L.F.	\$ 25.00	\$ 1,625.00
I. Existing Riser Abandonment	30	L.F.	\$ 15.00	\$ 450.00
SUBTOTAL				\$ 10,235.00
CONTINGENCY (10 %)				\$ 1,025.00
TOTAL PROJECT ESTIMATE				\$ 11,260.00

JAMES CITY COUNTY
REQUEST FOR QUOTATION
STORMWATER MANAGEMENT POND REPAIRS
ROLLING WOODS SUBDIVISION

The project consists of the repair of three pond dam structures located in the Rolling Woods subdivision. Attached are a vicinity sketch, site plan and details of the repair and restoration of the three areas. The following presents the scope of work for each pond:

POND NUMBER 2

Description of Item	Quantity	Unit Price	Total Price
1. Clear temporary construction easement of trees and other vegetation.	LS		500
2. Remove and dispose of any trees and clearing debris necessary to complete the repairs.	LS		2000
3. Remove and dispose of all trees and woody vegetation from the entire dam structure. Remove all stumps from dam structure.	LS		2000
4. Install silt fence at the downstream toe of the dam slope.	200LF		1400
5. Remove and dispose of wooden baffle structure in pond.	LS		300
6. Construct emergency spillway in natural ground on northern end of dam. Spillway is to be 8 feet wide, at an elevation one foot above that of the crest of the riser pipe.	LS		900
7. Replace existing anti-vortex device with a 36" CMP anti-vortex device/trash rack. Top must have a locking access hatch.	LS		1000
8. Remove any debris/sediment accumulated around riser structure.	LS		500
9. Regrade and provide a minimum 3 inches of topsoil to the entire dam structure.	LS		2000
10. Stabilize entire dam structure with seed and excelsior matting. Matting is to be properly anchored and pinned in accordance with manufacturer's specifications.	SY		3000
11. Stabilize construction and access easements with topsoil, seed and straw.	LS		1000
<i>Contractors Profit + overhead</i>			4000
TOTAL PRICE			19000.

14600

Notes:

- All work will conform with the 1992 edition of the Virginia Erosion and Sediment Control Handbook.
- Stabilization with seed and mulch means preparing the seedbed including 3 inches of topsoil, providing an appropriate seed mixture, and covering the newly stabilized areas in accordance with Specification 1.66, Permanent Seeding, in the Virginia Erosion and Sediment Control Handbook.

Contractor _____
Address _____
Telephone _____
Fax _____

Authorized Signature/Title

Name - Printed

Date