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: **99102**

DATE VERIFIED: **June 5, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: February 24, 2010

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

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

BMP ID or General File ID 00002

PIN:

Subdivision, Tract, Business or Owner Name (if known): Fords Colony

Property Description: General Files

Site Address:

(For internal use only) **Box:** FC001 **Drawer:** 1

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

Comments:
This general file among other information contains information about a facility that was never built although it was called for on the approved site plan. Facility was originally assigned BMP ID PC148, but was removed from the BMP database and reissued to another BMP.

Stormwater Division

MEMORANDUM

DATE: February 11, 2010

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

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

BMP ID:

PIN:

Tax Map #:

Site Address/Legal Description (if known): Fords Colony Section 3B

(For internal use only) **Box:** 2 **Drawer:** 1

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

Comments: Facility was never built although it was called for on the approved plan. Facility was originally assigned BMP ID PC148, but was removed from the BMP database and reissued to another BMP.

Contents for Stormwater Management Facilities As-built Files

Each File is to contain:

- ☐ 1. Maintenance Agreement
- ☐ 2. Construction certification
- ☐ 3. As-Built plan
- ☐ 4. Design Calculations
- ☐ 6. Correspondence
- ☐ 7. Inspection records
- ☐ 8. Miscellaneous

File - Fords Col - General

DECLARATION OF COVENANTS BOOK 651 PAGE 327

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

THIS DECLARATION, made this 1 st day of November, 19 93, between Realtec Incorporated, and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: All of that parcel of land known as Ford's Colony at Williamsburg, said parcel being in its entirety 2483.61 acres.±, and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

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

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

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

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

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

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

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

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

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

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

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 1st day of November, 1993.

COVENANTOR(S)

President, Realtec, Inc.

ATTEST:

COVENANTOR(S)

ATTEST:

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

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do certify that Drew Mulhare, whose name is signed as such to the foregoing writing bearing date 1st day of November, 1993, this day sworn the same before me in my jurisdiction aforesaid.

GIVEN under my hand this 1st day of November, of 1993.

Kristine Sulik
Notary Public

My Commission expires: 31 January 1996

Approved as to form:

0261U.Wpf
Revised 9/92

VIRGINIA: City of Williamsburg and County of James City, to Wit:
In the Clerk's office of the Circuit Court of the City of Williamsburg and County of James City the 4 day of November, 1993 This Declaration of Covenants was presented with certificate annexed and admitted to record at 3:37 o'clock
Teste: Helene S. Ward, Clerk
by Helene S. Ward
Deputy Clerk

99102_FORDS_COLONY_OVERALL - 005

COPY

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 21st day of JANUARY, 2003, between RENTEC, INC AND FORD'S COLONY AT WILLIAMSBURG HOMEOWNERS ASSOCIATION and all successors in interest, ("COVENANTOR(S),") owner(s) of the following property: FORD'S COLONY AT WILLIAMSBURG, project name, SECTION XII (LOTS 2-72), Document No. 970003361, Deed Book _____, Page No. _____; Instrument No. _____, and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

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

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.

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

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

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

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

Instrument # 030002434
Recorded on Jan. 27, 2003

Revised 01/02

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

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

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

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

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of the date first above written.

COVENANTOR(S)

Print Name/Title DREW R. MULHARE
REALTEC, INC
V.P. OPERATIONS

ATTEST:

_____

COVENANTOR(S)

Print Name/Title DREW R. MULHARE
FORD'S COLONY AT WILLIAMSBURG
HOMEOWNERS ASSOCIATION
MANAGING AGENT

ATTEST:

_____

[redacted]_FORDS_COLONY_OVERALL - 007

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

I hereby certify that on this 21st day of January, 20 03, before the subscribed, a Notary Public of the State of Virginia, and for the City/County of James City, aforesaid personally appeared Drew R. Mulhare and did acknowledge the aforegoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 21st day of January, 20 03.

Lynn W. Combs
Notary Public

My Commission expires: November 30, 2003

Approved as to form:

Leo P. Rogers
County Attorney

This Declaration of Covenants prepared by:

AES CONSULTING ENGINEERS
(Print Name)

(Title)

5248 OLDE TOWNE RD. STE. #1
(Address)

WILLIAMSBURG VA 23188
(City) (State) (Zip)

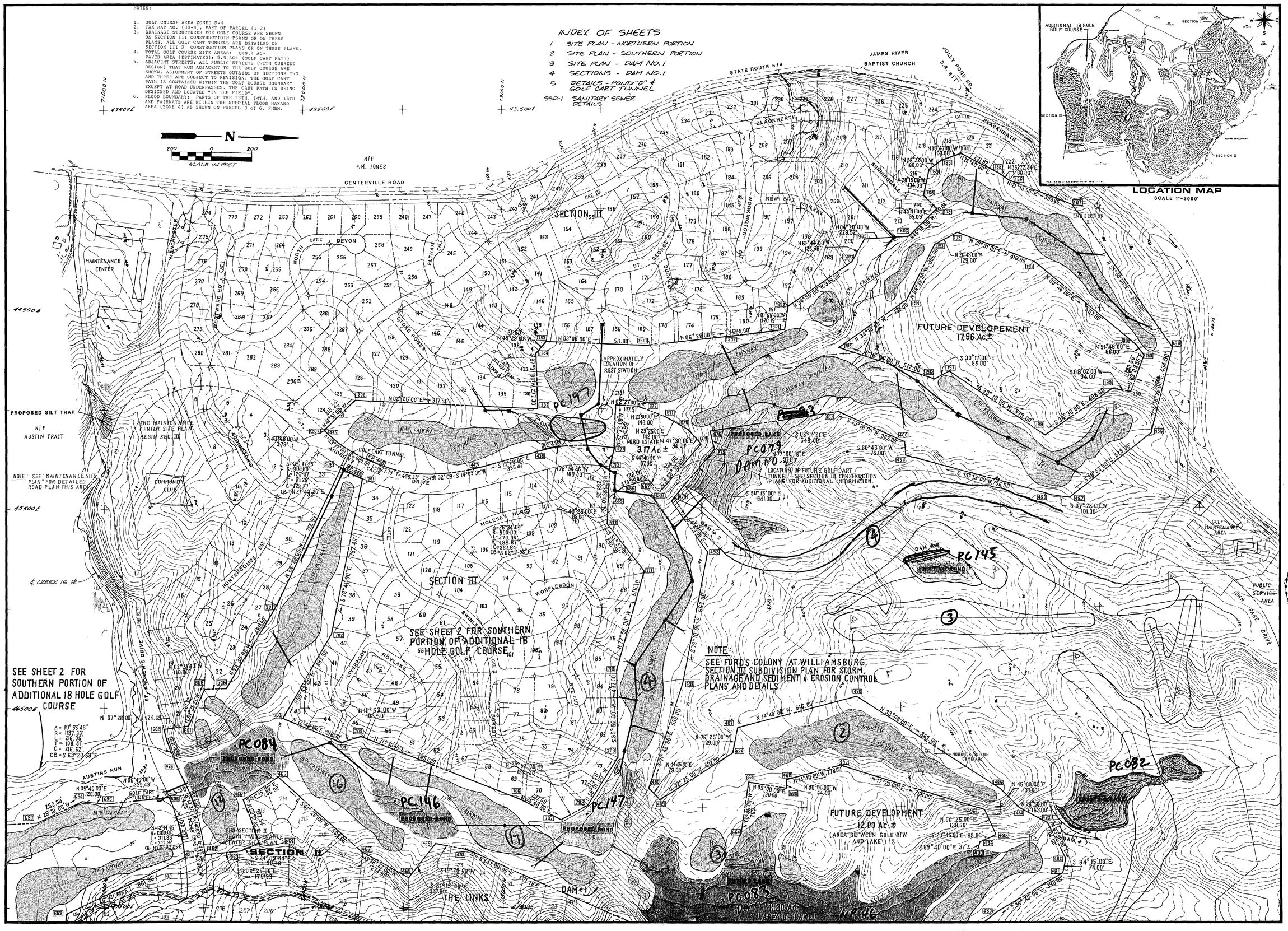
drainage.pre

NOTES:

1. GOLF COURSE AREA ZONED R-4
2. TAX MAP NO. (30-4), PART OF PARCEL (1-2)
3. DRAINAGE STRUCTURES FOR GOLF COURSE ARE SHOWN ON SECTION III CONSTRUCTIOIN PLANS OR ON THESE PLANS. ALL GOLF CART TUNNELS ARE DETAILED ON SECTION III & CONSTRUCTION PLANS OR ON THESE PLANS.
4. TOTAL GOLF COURSE SITE AREAS: 149.4 AC±
5. PAVED AREA (ESTIMATED): 5.5 AC± (GOLF CART PATH)
5. ADJACENT STREETS: ALL PUBLIC STREETS (WITH CURRENT DESIGN) THAT RUN ADJACENT TO THE GOLF COURSE ARE SHOWN. ALIGNMENT OF STREETS OUTSIDE OF SECTIONS TWO AND THREE ARE SUBJECT TO REVISION. THE GOLF CART PATH IS CONTAINED WITHIN THE GOLF COURSE BOUNDARY EXCEPT AT ROAD UNDERPASSES. THE CART PATH IS BEING DESIGNED AND LOCATED "IN THE FIELD".
6. FLOOD BOUNDARY: PARTS OF THE 13TH, 14TH, AND 15TH AND FAIRWAYS ARE WITHIN THE SPECIAL FLOOD HAZARD AREA (ZONE 4) AS SHOWN ON PARCEL 3 of 6, FHBM.

INDEX OF SHEETS

1 SITE PLAN - NORTHERN PORTION
2 SITE PLAN - SOUTHERN PORTION
3 SITE PLAN - DAM NO.1
4 SECTIONS - DAM NO.1
5 DETAILS - POND "D" & GOLF CART TUNNEL
SSD-1 SANITARY SEWER DETAILS



LOCATION MAP
SCALE 1"=2000'

AES, a professional corporation
1761 Jamestown Road, Williamsburg, Va. 23185
804-253-0040
Architecture, Engineering, Surveying, Planning

SITE PLAN
NORTHERN PORTION,
ADDITIONAL 18 HOLE GOLF COURSE
FORD'S COLONY
AT WILLIAMSBURG
OWNER/DEVELOPER: FORD'S COLONY AT WILLIAMSBURG, INC.
JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
PAUL C. SMALL
CERTIFICATE NO. 04267
CERTIFIED PROFESSIONAL ENGINEER

No.	DATE	REVISION / COMMENT / NOTE	BY
1	11/9/87	ADDED MURDOCK / AUSTIN CEMETERY	JHB

Designed JHB	Drawn BB
Scale 1"=200'	Date JAN. 1986
Project No. 5652	
Drawing No. 1	

99102_FORDS_COLONY_OVERALL - 009

EROSION & SEDIMENT CONTROL MEASURES

ALL EROSION & SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE "VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK." THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL APPLICABLE MEASURES CONTAINED THEREIN WHICH MAY BE PERTINENT TO THIS PROJECT.

THE PURPOSE OF SUCH MEASURES INCLUDING (BUT NOT LIMITED TO) THOSE SHOWN ON THIS PLAN SHALL BE TO PRECLUDE THE TRANSPORT OF ALL WATERBORNE SEDIMENTS RESULTING FROM CONSTRUCTION ACTIVITIES FROM ENTERING ONTO ADJACENT PROPERTIES OR INTO STATE WATERS. ALL SEDIMENTS MUST BE CONFINED TO THE PROJECT SITE AT THE LOCATIONS SHOWN ON THIS PLAN.

The following sequence of events and erosion control measures shall be incorporated into the construction schedule for this project and shall apply to all construction activities within the project units.

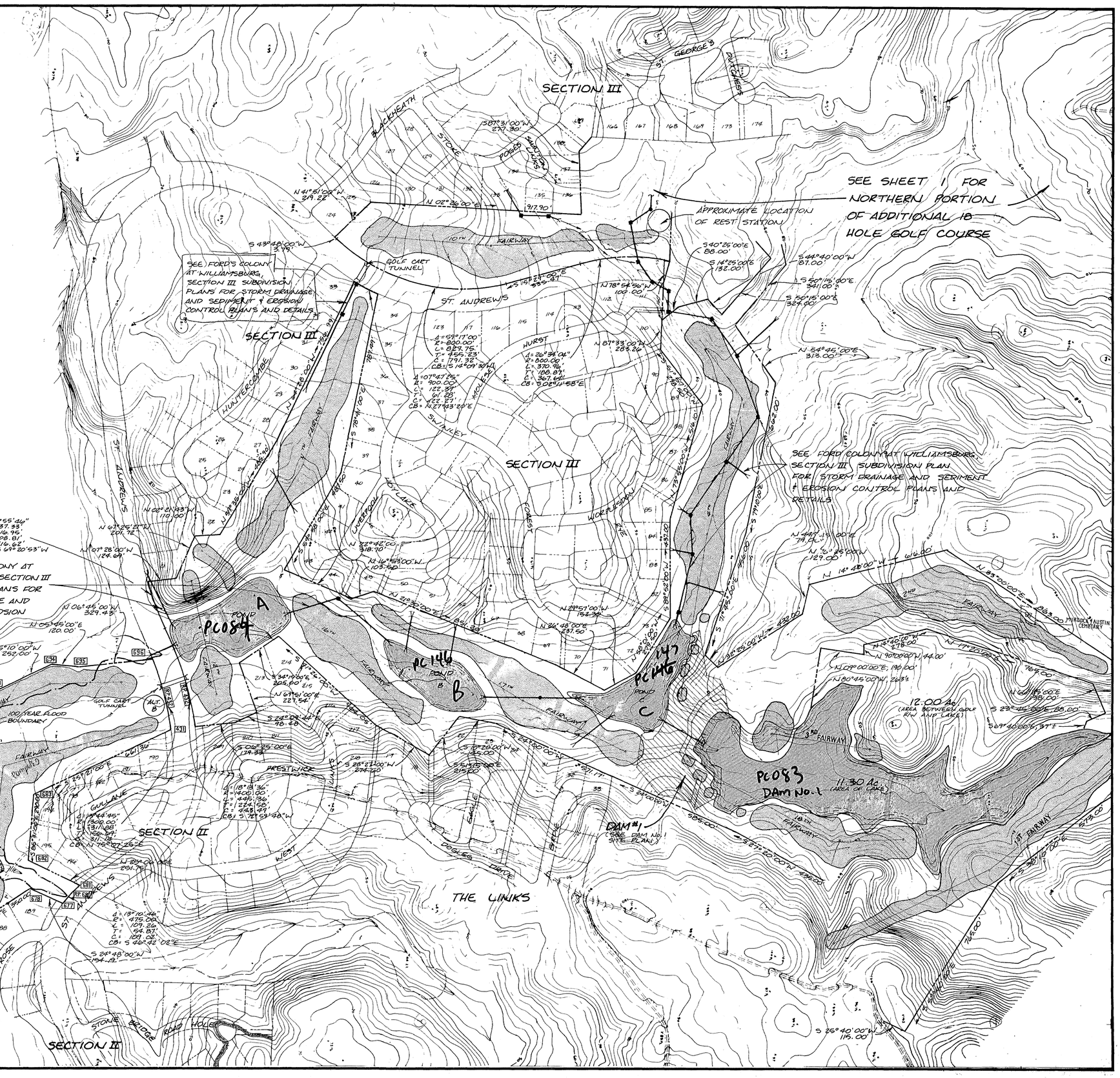
1. LAND CLEARING AND GRUBBING (IF REQUIRED) SHALL BE LIMITED TO AREAS OF WORKABLE SIZE.
2. TEMPORARY SEDIMENT BASINS, DIKES, EROSION CONTROL STONE, STRAW BALE BARRIERS, ETC. SHALL BE PLACED DURING CLEARING, GRUBBING, EARTH MOVING, AND ROUGH GRADING ACTIVITIES. ALL TEMPORARY STRUCTURES SHALL BE CHECKED PERIODICALLY AND CLEANED AS NECESSARY.
3. THE CONTRACTOR SHALL STOCKPILE CLEARING AND GRUBBING DEBRIS AT LOCATION(S) APPROVED BY THE ARCHITECT. DEBRIS SHALL BE HAULED AWAY AS SOON AS PRACTICAL.
4. THE CONTRACTOR SHALL STRIP AND STOCKPILE TOPSOIL AT LOCATION(S) AS DIRECTED BY THE ARCHITECT. STRAW BALE BARRIERS SHALL BE PLACED AT THE TOE OF THE STOCKPILE AFTER STRIPPING OF THE TOPSOIL IS COMPLETE.
5. THE CONTRACTOR SHALL COMPLETE DRAINAGE FACILITIES WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING AT ANY POINT WITHIN THE PROJECT.
6. ALL TEMPORARY EROSION CONTROL MEASURES (SEDIMENT BASINS, STRAW BALE BARRIERS, DIKES, ETC.) SHALL HAVE BEEN INSTALLED PRIOR TO OR DURING CLEARING, GRUBBING, AND/OR ROUGH GRADING ACTIVITIES.
7. TEMPORARY VEGETATIVE COVER SHALL BE PROVIDED IN ALL DISTURBED AREAS WHICH ARE NOT DESIGNATED FOR PAVING, UNDERGROUND UTILITIES, OR STRUCTURAL USES. SUCH AREAS SHALL NOT BE EXPOSED FOR PERIODS EXCEEDING 30 DAYS. TEMPORARY VEGETAL COVER SHALL CONSIST OF SEEDING WITH RYEGRASS AT 60#/ACRE AND MULCHING. TEMPORARY VEGETAL COVER MAY BE ELIMINATED IN FAVOR OF FINAL VEGETAL COVER IF CONSTRUCTION CONDITIONS PERMIT AND THE CONTRACTOR IS SO DIRECTED BY THE OWNER OR ARCHITECT. APPLY FERTILIZER, LIME AND MULCH IN ACCORDANCE WITH NOTE 12.
8. ALL AREAS DESIGNATED FOR PAVING, UNDERGROUND UTILITIES, AND STRUCTURAL USE SHALL BE STABILIZED AS SOON AS PRACTICAL BUT NOT EXCEEDING 30 DAYS FOLLOWING INSTALLATION. NO MORE THAN 300' OF SANITARY SEWER, STORM SEWER, OR WATER LINES ARE TO BE OPEN AT ANY ONE TIME. BASE COURSE MATERIAL SHALL BE PLACED IN ALL STREET AREAS WITHIN 30 DAYS OF FINAL GRADING.
9. ALL STORM WATER MANAGEMENT FACILITIES INCLUDING EROSION CONTROL STONE AND APPROVED SEDIMENT BASINS ARE TO BE INSTALLED AND MADE OPERATIONAL WITHIN 30 DAYS FOLLOWING THE START OF CONSTRUCTION. THE INSTALLATION OF DRAINAGE FACILITIES SHALL TAKE PRECEDENCE OVER ALL OTHER UNDERGROUND UTILITIES.
10. SEDIMENT TRAPS OR BALED STRAW BARRIERS ARE TO BE INSTALLED AT THE PERIMETER OF ALL DROP INLETS AS SOON AS PRACTICAL DURING CONSTRUCTION OF SAME.
11. OUTFALL DITCHES FROM STRUCTURES SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION OF SAME. EROSION CONTROL STONE SHALL ALSO BE INSTALLED WHERE CALLED FOR IMMEDIATELY AFTER CONSTRUCTION OF DITCHES WHERE VELOCITIES EXCEED 10 FPS. (USE VDHST STD. EC-1)
12. FINAL VEGETATIVE COVER (STABILIZATION) SHALL CONSIST OF TOPSOILING, LIMING, FERTILIZING, SEEDING, AND MULCHING TO ASSURE A FIRM STAND OF GRASS AS SOON AS PRACTICAL. SEDIMENT BASINS AND OTHER TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED ONLY WHEN STABILIZATION IS COMPLETE. FINAL VEGETAL COVER SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING:

TOPSOIL:	AT LEAST 2" THICKNESS OBTAINED FROM STOCKPILES ON SITE, FREE OF LARGE DEBRIS.
LIME:	4,000#/ACRE (90#/1000SF)
SEED:	KENTUCKY 31 TALL FESCUE 250#/ACRE (6#/1000 SF)
FERTILIZER:	10/20/10 MIX. 1000#/ACRE (25#/1000 SF)
MULCH:	STRAW OR HAY (LOCALLY OBTAINED) 4000#/ACRE (90#/1000 SF)

13. PAVED DITCHES WILL BE REQUIRED WHEREVER EROSION IS EVIDENT. PARTICULAR NEED SHOULD BE PAID TO THOSE AREAS WHERE GRADES EXCEED 3%.
14. THE OWNER/DEVELOPER AND CONTRACTOR SHALL KEEP ALL PAVED ROADS FREE AND CLEAR OF SEDIMENT OR OTHER DEBRIS. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AND ANY SEDIMENT TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED DAILY BY SHOVELING OR SWEEPING.
15. IT IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER TO INSPECT AND MAINTAIN ALL TEMPORARY AND PERMANENT DRAINAGE, EROSION AND SEDIMENT CONTROL STRUCTURES.

EROSION & SEDIMENT CONTROL PLAN

ALL DISTURBED AREAS OF THE GOLF COURSE SHALL BE TEMPORARILY SEEDED WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING. IN THE EVENT OF LENGTHY GRADING WORK, ALL AREAS NOT SO INVOLVED SHALL BE TEMPORARILY SEEDED. CONTINUOUS SILT FENCING SHALL BE PLACED ALONG THE EDGE OF CLEARING BETWEEN GOLF HOLE 15 AND AUSTIN RUN AND BEHIND GOLF HOLE 14 GREEN. (NOTE: SILT FENCING IS ALREADY IN PLACE AT THE EDGE OF CLEARING ON HOLE 15 ADJACENT TO AUSTIN RUN.) SEDIMENT BASINS THROUGHOUT THE 18 HOLE COURSE WILL BE UTILIZED TO TRAP SEDIMENT FROM ALL GOLF HOLES AND SHOULD BE PERIODICALLY CHECKED TO MONITOR THEIR EFFECTIVENESS. AS SOON AS EACH SEDIMENT BASIN IS GRADED TO APPROPRIATE FINAL CONTOURS, ITS BANKS SHALL BE SEEDED AND THE BASIN PLACED IN SERVICE. ALL OUTFALL DITCHES SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION OF SAME. ANY DITCHES HAVING SIGNIFICANT EROSION PROBLEMS SHALL BE REDRESSED AND SOME FORM OF LINING APPLIED (EC-2, RIP RAP, MIRAFAY, OR PAVING). CONTINUED EROSION PROBLEMS IN DITCHES WILL REQUIRE PAVED LINING. ROCK CHECK DAMS SHALL BE PLACED IN ALL MAJOR OUTFALL DITCHES AT 50' INTERVALS FOR 300' UPSTREAM OF OUTFALL. SILT FENCE BARRIERS SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF EACH ROCK CHECK DAM. EXISTING EROSION AND SEDIMENT CONTROL MEASURES BELOW POND "A" (STREAM FILTER, STRAW BALE BARRIERS AND SILT FENCING) SHALL BE MAINTAINED UNTIL FINAL STABILIZATION IS COMPLETE. EROSION AND SEDIMENT CONTROL MEASURES SHOWN IN SECTION II CONSTRUCTION PLANS WITHIN AND ADJACENT TO THE GOLF COURSE SHOULD BE INCORPORATED INTO THE OVERALL EROSION CONTROL PLAN FOR THE GOLF COURSE. UPON FINAL GRADING, ALL AREAS SHALL BE PERMANENTLY SEEDED PER NOTE 12 ABOVE WITHIN 30 DAYS. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE "VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK." REFER TO THE NOTES ABOVE FOR FURTHER MEASURES WHICH MAY BE NECESSARY IF SITE CONDITIONS WARRANT. SILT FENCES TO BE INSTALLED ALONG THE PERIMETER OF ALL STOCKPILE LOCATIONS.



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Architecture, Engineering, Surveying, Planning

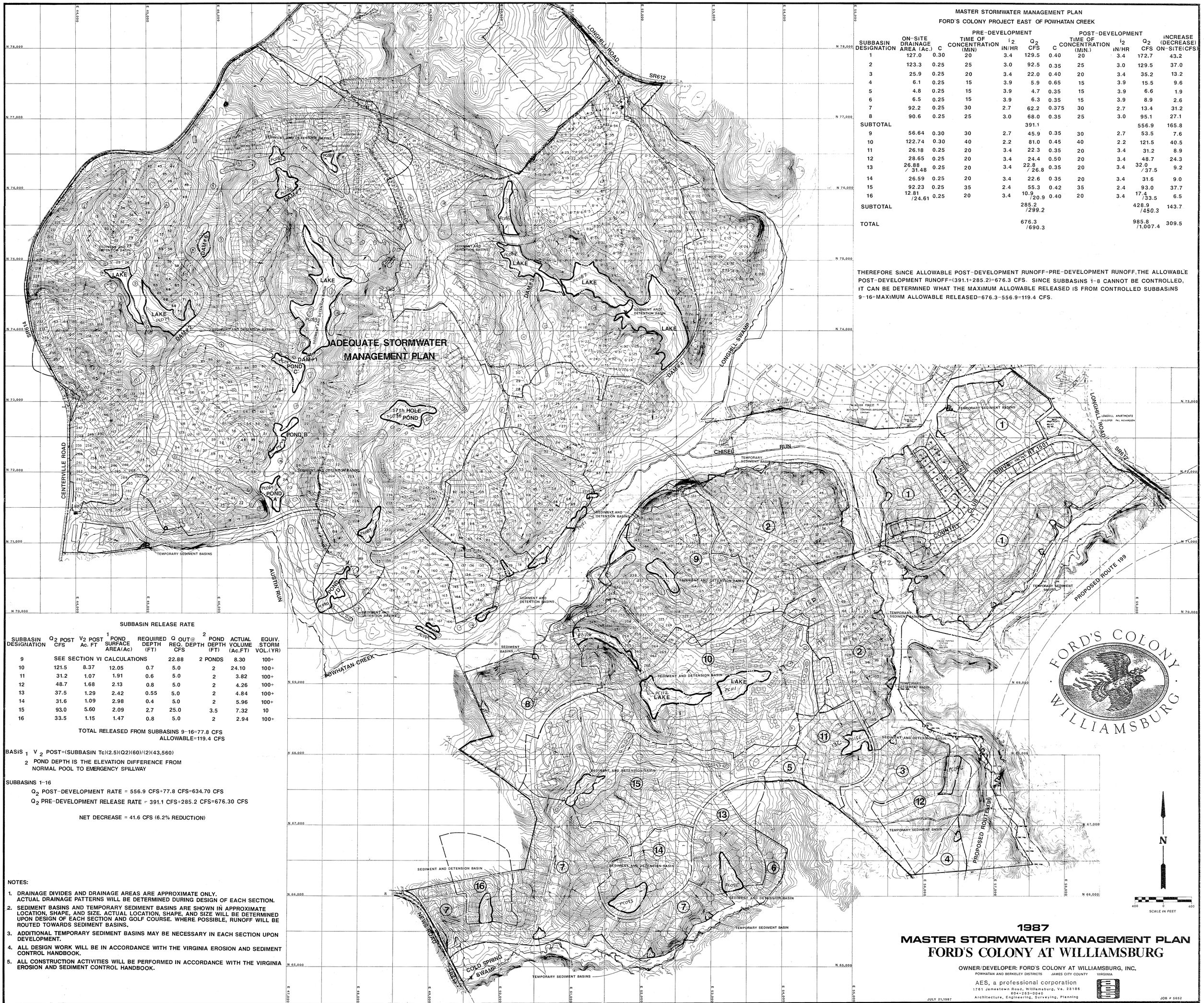
SITE PLAN
SOUTHERN PORTION
ADDITIONAL 18 HOLE GOLF COURSE
FORD'S COLONY
AT WILLIAMSBURG
OWNER / DEVELOPER: FORD'S COLONY AT WILLIAMSBURG, INC.
JAMES CITY COUNTY VIRGINIA

COMMONWEALTH OF VIRGINIA
PAUL C. SMALL
CERTIFICATE NO. 04267
CERTIFIED PROFESSIONAL ENGINEER

No.	DATE	REVISION / COMMENT / NOTE	BY
1	1/15/87	ADDED HURDOCK / AUSTIN CEMETERY	JHB

Designed JHB	Drawn VMB
Scale 1"=200'	Date JAN., 1986
Project No. 5652	
Drawing No. 2	

99102_FORDS_COLONY_OVERALL - 010



MASTER STORMWATER MANAGEMENT PLAN

FORD'S COLONY PROJECT EAST OF POWHATAN CREEK

SUBBASIN DESIGNATION	ON-SITE DRAINAGE AREA (Ac.)	PRE-DEVELOPMENT C	PRE-DEVELOPMENT TIME OF CONCENTRATION (MIN)	PRE-DEVELOPMENT I_2 IN/HR	PRE-DEVELOPMENT Q_2 CFS	POST-DEVELOPMENT C	POST-DEVELOPMENT TIME OF CONCENTRATION (MIN.)	POST-DEVELOPMENT I_2 IN/HR	POST-DEVELOPMENT Q_2 CFS	INCREASE (DECREASE) ON-SITE(CFS)
1	127.0	0.30	20	3.4	129.5	0.40	20	3.4	172.7	43.2
2	123.3	0.25	25	3.0	92.5	0.35	25	3.0	129.5	37.0
3	25.9	0.25	20	3.4	22.0	0.40	20	3.4	35.2	13.2
4	6.1	0.25	15	3.9	5.9	0.65	15	3.9	15.5	9.6
5	4.8	0.25	15	3.9	4.7	0.35	15	3.9	6.6	1.9
6	6.5	0.25	15	3.9	6.3	0.35	15	3.9	8.9	2.6
7	92.2	0.25	30	2.7	62.2	0.375	30	2.7	13.4	31.2
8	90.6	0.25	25	3.0	68.0	0.35	25	3.0	95.1	27.1
SUBTOTAL					391.1				556.9	165.8
9	56.64	0.30	30	2.7	45.9	0.35	30	2.7	53.5	7.6
10	122.74	0.30	40	2.2	81.0	0.45	40	2.2	121.5	40.5
11	26.18	0.25	20	3.4	22.3	0.35	20	3.4	31.2	8.9
12	28.65	0.25	20	3.4	24.4	0.50	20	3.4	48.7	24.3
13	26.88 / 31.48	0.25	20	3.4	22.8 / 26.8	0.35	20	3.4	32.0 / 37.5	9.2
14	26.59	0.25	20	3.4	22.6	0.35	20	3.4	31.6	9.0
15	92.23	0.25	35	2.4	55.3	0.42	35	2.4	93.0	37.7
16	12.81 /24.61	0.25	20	3.4	10.9 /20.9	0.40	20	3.4	17.4 /33.5	6.5
SUBTOTAL					285.2 /299.2				428.9 /450.3	143.7
TOTAL					676.3 /690.3				985.8 /1,007.4	309.5

THEREFORE SINCE ALLOWABLE POST-DEVELOPMENT RUNOFF=PRE-DEVELOPMENT RUNOFF, THE ALLOWABLE POST-DEVELOPMENT RUNOFF=(391.1+285.2)=676.3 CFS. SINCE SUBBASINS 1-8 CANNOT BE CONTROLLED, IT CAN BE DETERMINED WHAT THE MAXIMUM ALLOWABLE RELEASED IS FROM CONTROLLED SUBBASINS 9-16=MAXIMUM ALLOWABLE RELEASED=676.3-556.9=119.4 CFS.

SUBBASIN RELEASE RATE

SUBBASIN DESIGNATION	Q_2 POST CFS	V_2 POST Ac. FT	[1] POND SURFACE AREA(Ac)	REQUIRED DEPTH (FT)	Q OUT@ REQ. DEPTH CFS	[2] POND DEPTH (FT)	ACTUAL VOLUME (Ac.FT)	EQUIV. STORM VOL.(YR)
9	SEE SECTION VI CALCULATIONS				22.88	2 PONDS	8.30	100+
10	121.5	8.37	12.05	0.7	5.0	2	24.10	100+
11	31.2	1.07	1.91	0.6	5.0	2	3.82	100+
12	48.7	1.68	2.13	0.8	5.0	2	4.26	100+
13	37.5	1.29	2.42	0.55	5.0	2	4.84	100+
14	31.6	1.09	2.98	0.4	5.0	2	5.96	100+
15	93.0	5.60	2.09	2.7	25.0	3.5	7.32	10
16	33.5	1.15	1.47	0.8	5.0	2	2.94	100+

TOTAL RELEASED FROM SUBBASINS 9-16=77.8 CFS
ALLOWABLE=119.4 CFS

BASIS [1] V_2 POST=(SUBBASIN Tc)(2.5)(Q2)(60)/(2)(43,560)

[2] POND DEPTH IS THE ELEVATION DIFFERENCE FROM NORMAL POOL TO EMERGENCY SPILLWAY

SUBBASINS 1-16

Q_2 POST-DEVELOPMENT RATE = 556.9 CFS+77.8 CFS=634.70 CFS

Q_2 PRE-DEVELOPMENT RELEASE RATE = 391.1 CFS+285.2 CFS=676.30 CFS

NET DECREASE = 41.6 CFS (6.2% REDUCTION)

NOTES:

1. DRAINAGE DIVIDES AND DRAINAGE AREAS ARE APPROXIMATE ONLY. ACTUAL DRAINAGE PATTERNS WILL BE DETERMINED DURING DESIGN OF EACH SECTION.
2. SEDIMENT BASINS AND TEMPORARY SEDIMENT BASINS ARE SHOWN IN APPROXIMATE LOCATION, SHAPE, AND SIZE. ACTUAL LOCATION, SHAPE, AND SIZE WILL BE DETERMINED UPON DESIGN OF EACH SECTION AND GOLF COURSE. WHERE POSSIBLE, RUNOFF WILL BE ROUTED TOWARDS SEDIMENT BASINS.
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5. ALL CONSTRUCTION ACTIVITIES WILL BE PERFORMED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

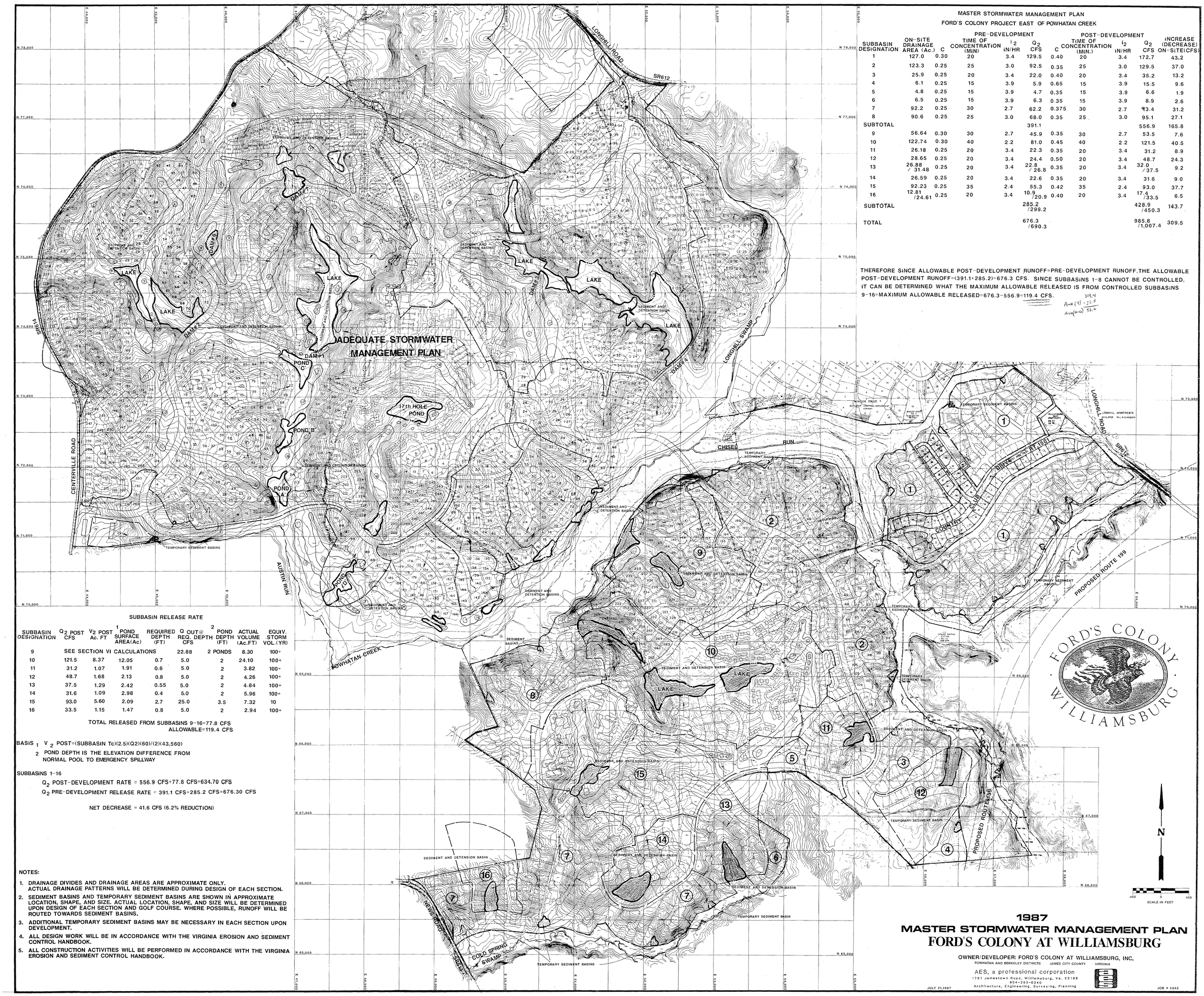
1987
MASTER STORMWATER MANAGEMENT PLAN
FORD'S COLONY AT WILLIAMSBURG

OWNER/DEVELOPER: FORD'S COLONY AT WILLIAMSBURG, INC.
POWHATAN AND BERKELEY DISTRICTS JAMES CITY COUNTY VIRGINIA

AES, a professional corporation
1761 Jamestown Road, Williamsburg, Va. 23185
804-253-0040
Architecture, Engineering, Surveying, Planning

JULY 21,1987

JOB # 5652



MASTER STORMWATER MANAGEMENT PLAN

FORD'S COLONY PROJECT EAST OF POWHATAN CREEK

SUBBASIN DESIGNATION	ON-SITE DRAINAGE AREA (Ac.)	PRE-DEVELOPMENT C	PRE-DEVELOPMENT TIME OF CONCENTRATION (MIN)	PRE-DEVELOPMENT i_2 IN/HR	PRE-DEVELOPMENT Q_2 CFS	POST-DEVELOPMENT C	POST-DEVELOPMENT TIME OF CONCENTRATION (MIN.)	POST-DEVELOPMENT i_2 IN/HR	POST-DEVELOPMENT Q_2 CFS	INCREASE (DECREASE) ON-SITE(CFS)
1	127.0	0.30	20	3.4	129.5	0.40	20	3.4	172.7	43.2
2	123.3	0.25	25	3.0	92.5	0.35	25	3.0	129.5	37.0
3	25.9	0.25	20	3.4	22.0	0.40	20	3.4	35.2	13.2
4	6.1	0.25	15	3.9	5.9	0.65	15	3.9	15.5	9.6
5	4.8	0.25	15	3.9	4.7	0.35	15	3.9	6.6	1.9
6	6.5	0.25	15	3.9	6.3	0.35	15	3.9	8.9	2.6
7	92.2	0.25	30	2.7	62.2	0.375	30	2.7	93.4	31.2
8	90.6	0.25	25	3.0	68.0	0.35	25	3.0	95.1	27.1
SUBTOTAL					391.1				556.9	165.8
9	56.64	0.30	30	2.7	45.9	0.35	30	2.7	53.5	7.6
10	122.74	0.30	40	2.2	81.0	0.45	40	2.2	121.5	40.5
11	26.18	0.25	20	3.4	22.3	0.35	20	3.4	31.2	8.9
12	28.65	0.25	20	3.4	24.4	0.50	20	3.4	48.7	24.3
13	26.88 / 31.48	0.25	20	3.4	22.8 / 26.8	0.35	20	3.4	32.0 / 37.5	9.2
14	26.59	0.25	20	3.4	22.6	0.35	20	3.4	31.6	9.0
15	92.23	0.25	35	2.4	55.3	0.42	35	2.4	93.0	37.7
16	12.81 /24.61	0.25	20	3.4	10.9 /20.9	0.40	20	3.4	17.4 /33.5	6.5
SUBTOTAL					285.2 /299.2				428.9 /450.3	143.7
TOTAL					676.3 /690.3				985.8 /1,007.4	309.5

THEREFORE SINCE ALLOWABLE POST-DEVELOPMENT RUNOFF=PRE-DEVELOPMENT RUNOFF, THE ALLOWABLE POST-DEVELOPMENT RUNOFF=(391.1+285.2)=676.3 CFS. SINCE SUBBASINS 1-8 CANNOT BE CONTROLLED, IT CAN BE DETERMINED WHAT THE MAXIMUM ALLOWABLE RELEASED IS FROM CONTROLLED SUBBASINS 9-16=MAXIMUM ALLOWABLE RELEASED=676.3-556.9=119.4 CFS.

119.4
Area (9) - 22.5
Area (9-16) 96.6

SUBBASIN RELEASE RATE

SUBBASIN DESIGNATION	Q_2 POST CFS	V_2 POST Ac. FT	[1] POND SURFACE AREA(Ac)	REQUIRED DEPTH (FT)	Q OUT@ REQ. DEPTH CFS	[2] POND DEPTH (FT)	ACTUAL VOLUME (Ac.FT)	EQUIV. STORM VOL.(YR)
9	SEE SECTION VI CALCULATIONS				22.88	2 PONDS	8.30	100+
10	121.5	8.37	12.05	0.7	5.0	2	24.10	100+
11	31.2	1.07	1.91	0.6	5.0	2	3.82	100+
12	48.7	1.68	2.13	0.8	5.0	2	4.26	100+
13	37.5	1.29	2.42	0.55	5.0	2	4.84	100+
14	31.6	1.09	2.98	0.4	5.0	2	5.96	100+
15	93.0	5.60	2.09	2.7	25.0	3.5	7.32	10
16	33.5	1.15	1.47	0.8	5.0	2	2.94	100+

TOTAL RELEASED FROM SUBBASINS 9-16=77.8 CFS
ALLOWABLE=119.4 CFS

BASIS 1 V_2 POST=(SUBBASIN Tc)(2.5)(Q2)(60)/(2)(43,560)

2 POND DEPTH IS THE ELEVATION DIFFERENCE FROM NORMAL POOL TO EMERGENCY SPILLWAY

SUBBASINS 1-16

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1987 MASTER STORMWATER MANAGEMENT PLAN FORD'S COLONY AT WILLIAMSBURG

OWNER/DEVELOPER: FORD'S COLONY AT WILLIAMSBURG, INC.
POWHATAN AND BERKELEY DISTRICTS JAMES CITY COUNTY VIRGINIA

AES, a professional corporation
1761 Jamestown Road, Williamsburg, Va. 23185
804-253-0040
Architecture, Engineering, Surveying, Planning

JULY 21,1987 JOB # 5652

LAND USE ANALYSIS

SINGLE-FAMILY

SECTION	AREA (ACRE)	NUMBER OF LOTS	DENSITY	COMMENTS
I	199.3	304	1.53	PB.31,PG.76-86 PB.43,PG.2 PB.43,PG.75
II	167.5	249	1.49	PB.40,PG.83
III	176.0	290	1.65	PB.42,PG.2-12
IIIa	2.6	2	0.78	PB.56,PG.100-101
IIIb	26.9	25	0.93	
IV	8.6	14	1.63	PB.43,PG.17-18
V	12.2	23	1.88	PB.44,PG.74-75
Va	7.4	7	0.94	PB.56,PG.51-52
Vc	84.3	117	1.39	PB.40,PG.37-41 PB.46,PG.12-14
Vb	91.0	147	1.62	PB.47,PG.59-64 PB.56,PG.46
VII	117.0	172	1.47	PB.50,PG.31-40
VIII	91.3	91	0.99	PB.61,PG.3-4
IXa	48.6	83	1.71	PB.56,PG.3-10 PB.59,PG.86-87
IXb	62.4	111	1.78	PB.60,PG.44-45 PB.63,PG.54-65 PB.53,PG.11-13 PB.54,PG.84-85
X	52.4	170	3.25	PB.55,PG.54-56 PB.60,PG.14-21 PB.51,PG.76
Xla	43.8	87	1.99	PB.47,PG.82-89
Xlb	31.3	69	2.21	PB.49,PG.45-50 PB.50,PG.2
XII	44.7	80	1.79	
XIIIa	25.1	41	1.63	
XIIIb	36.2	62	1.71	
XIIIc	27.4	34	1.24	PB.56,PG.81-82
XIIId	5.2	10	1.92	PB.57,PG.66-67
XIIIe	12.6	25	1.98	PB.57,PG.16-17
XIVa	14.0	14	1.00	
XIVb	22.0	37	1.68	
XV	7.0	12	1.71	
XVI	61.0	85	1.39	PB.56,PG.45-47 PB.58,PG.88-89 PB.62,PG.87-88 PB.63,PG.9-10 PB.63,PG.56-59
XVII	47.3	70	1.48	PB.61,PG.17-18
XVIII	20.6	32	1.54	PB.64,PG.28-29
TOTAL	1,505.7 AC.	2,423 LOTS	1.63	

MULTI-FAMILY

SECTION	AREA (ACRE)	NUMBER OF LOTS	DENSITY	COMMENTS
LINKS (B-1)	22.90	80	3.49	PB.43,PG.9-11 PB.43,PG.13-16 PB.46,PG.54-55 PB.46,PG.85-87 PB.49,PG.29-31
MARRIOTT'S MANOR CLUB (D-1)	12.83	120	9.35	PB.53,PG.27
CONDOMINIUMS (D-2)	10.82	80	7.53	
TOTAL	46.35 AC.	280.0 UNITS	6.04	

NON-RESIDENTIAL AMENITY AND SERVICE SITES	AREA (AC).	COMMENTS
1. HOTEL	49.19	PB.54,PG.40
2. GOLF CLUBHOUSE AND PRO-SHOP	6.53	PB.44,PG.37
3. GOLF MAINTENANCE	3.90	PB.52,PG.77
4. DRIVING RANGE, CART STORAGE	12.17	PB.44,PG.37 PB.51,PG.77
5. SALES OFFICE	1.81	PB.52,PG.76
6. ADMINISTRATION BUILDING (FUTURE)	3.28	
7. PUBLIC SERVICE AREA (O.J. MONTAGUE)	28.06	P.B.40,PG.85 P.B.45,PG.63
8. COMMUNITY CLUB (REC. CENTER #1)	7.72	
9. PROJECT MAINTENANCE	10.59	P.B.50,PG.98
10. ADDITIONAL PUBLIC SERVICE AREA (FIRE STA.)	5.78	
11. RECREATION AREA SEC. X	0.95	
12. RECREATION PARK (@ CHISEL RUN)	5.36	
TOTAL	137.29	ACRES

GOLF COURSES		
1. ORIGINAL 18 HOLE	178.85	PB.44,PG.38
2. ADDITIONAL 9 HOLE "LINKS" COURSE	77.68	PB.44,PG.38
3. CHAMPIONSHIP 18 HOLE COURSE	159.42	PB.52,PG.53-54
4. WILLIAMSBURG WEST 9 HOLE COURSE	81.28	
TOTAL	497.21	ACRES
LAKES, RESERVES AND MISC. OPEN SPACE TOTAL	328.83	ACRES
TOTAL PROJECT ACREAGE	2,013.21	ACRES

FORD'S COLONY · WILLIAMSBURG ·

GRAPHIC SCALE
600' 0' 600' 1200'
SCALE: 1" = 600'

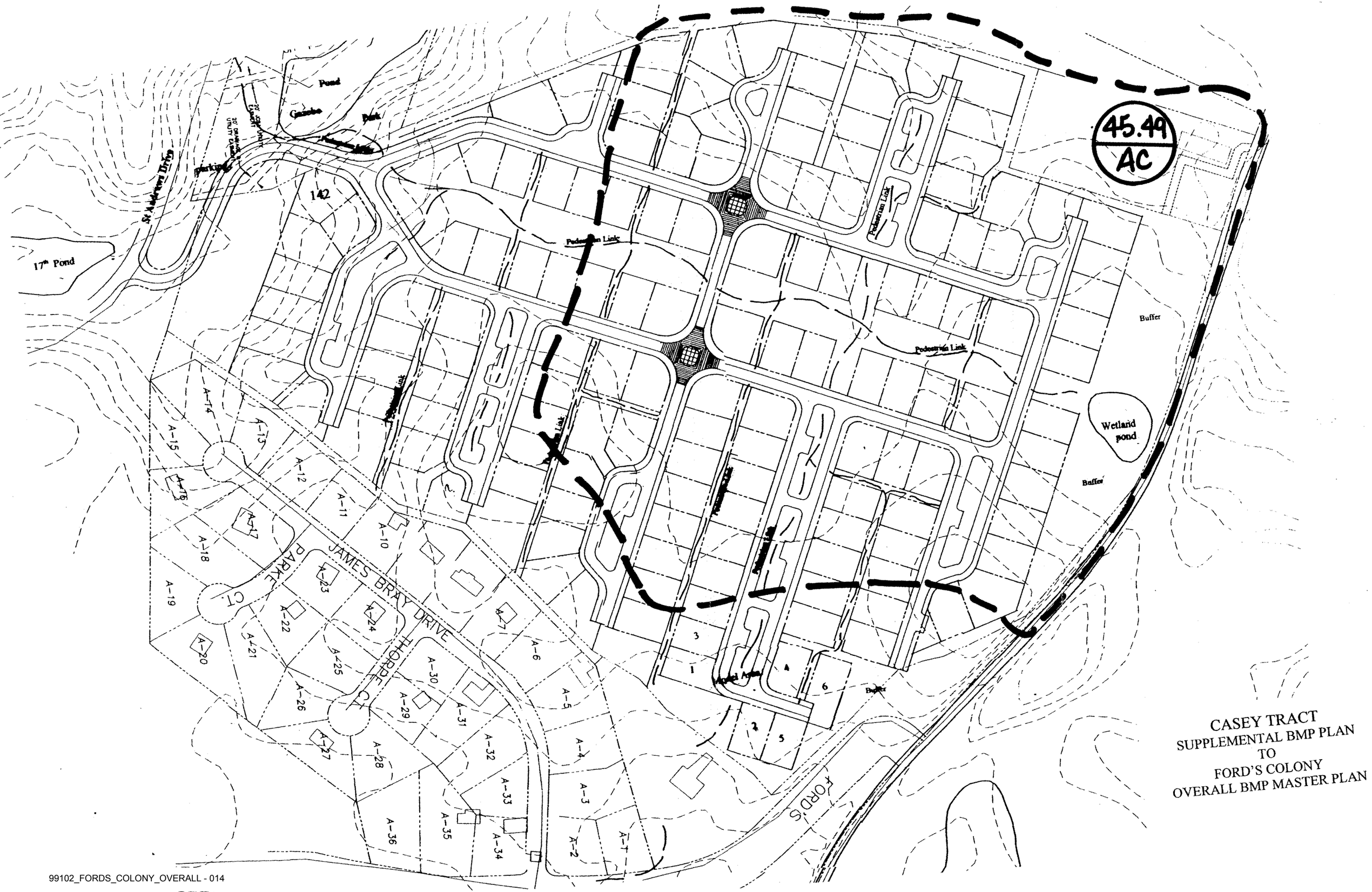
REVISED OVERALL LAND PLAN
FORD'S COLONY @ WILLIAMSBURG

OWNER/DEVELOPER: REALTEC, INCORPORATED

POWHATAN/BERKELEY DISTRICT JAMES CITY COUNTY VIRGINIA

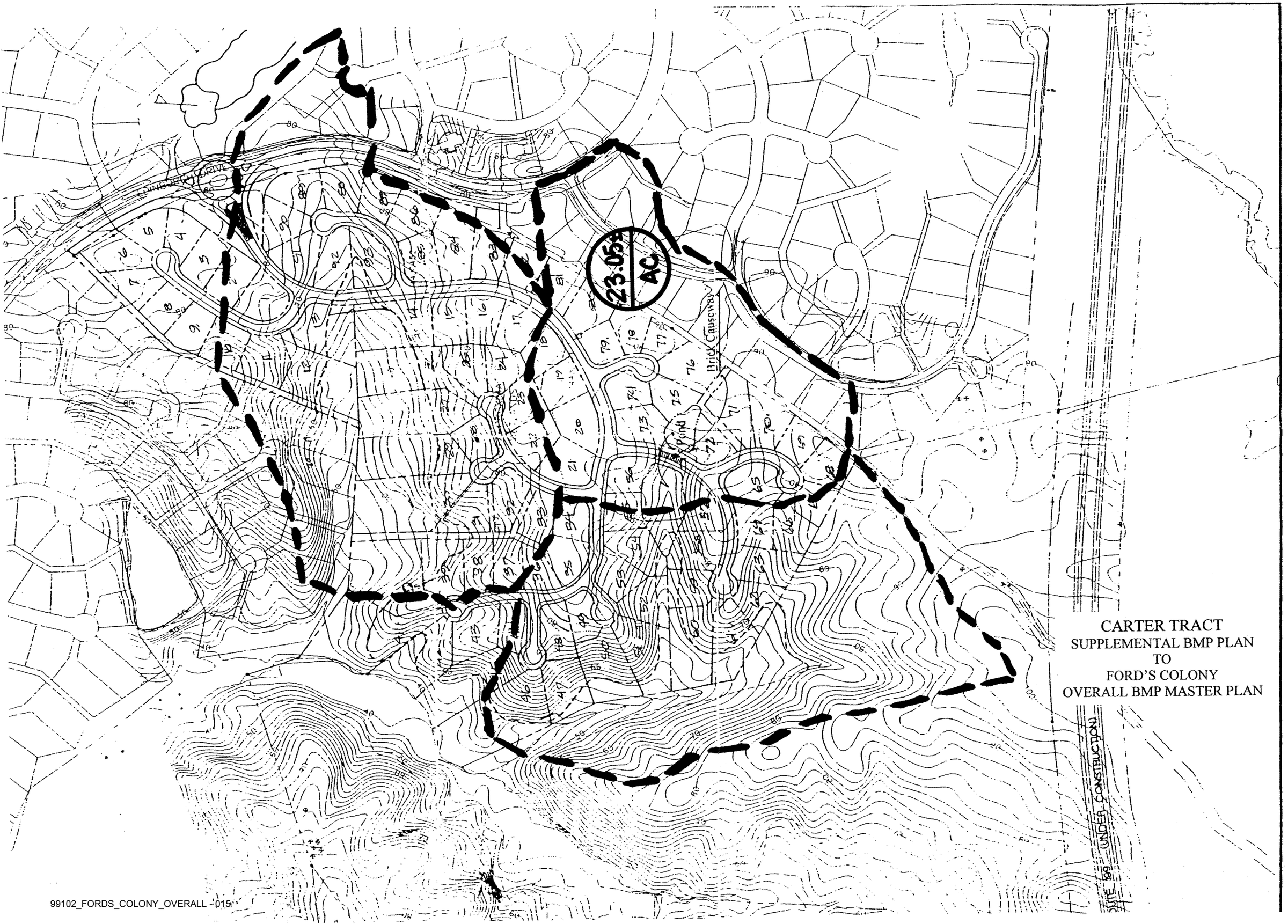
AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994

OCTOBER, 1996 JOB NO. 5652 SCALE: 1"=600'



CASEY TRACT
SUPPLEMENTAL BMP PLAN
TO
FORD'S COLONY
OVERALL BMP MASTER PLAN

99102_FORDS_COLONY_OVERALL - 014



CARTER TRACT
SUPPLEMENTAL BMP PLAN
TO
FORD'S COLONY
OVERALL BMP MASTER PLAN

WILFORD-NEW TRACT
SUPPLEMENTAL BMP PLAN TO FORD'S COLONY OVERALL BMP MASTER PLAN

99102_FORDS_COLONY_OVERALL - 016

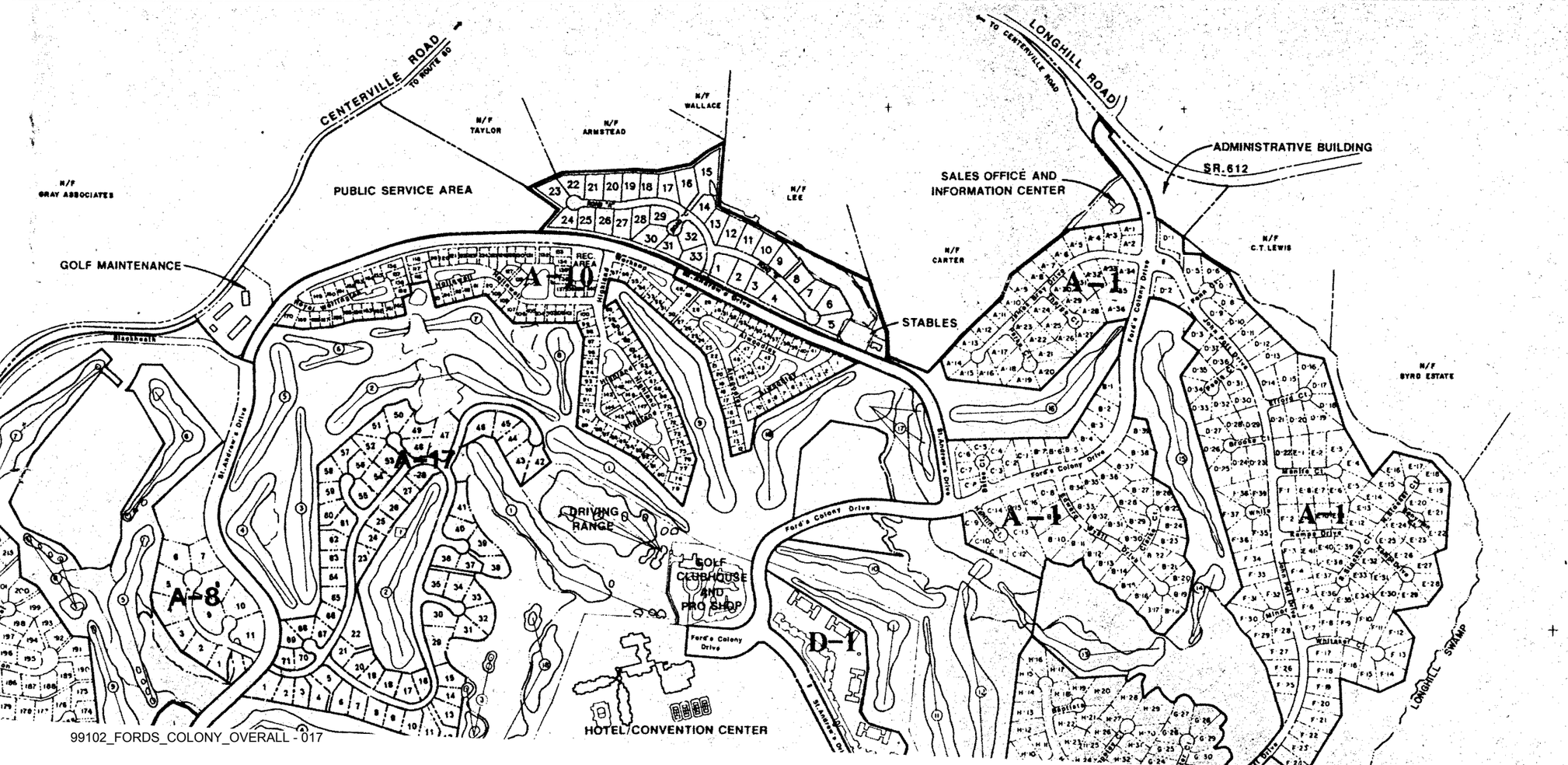
FORD'S COLONY AT WILLIAMSBURG
REALTEC INCORPORATED

JAMES CITY COUNTY, VIRGINIA

SECTION III-B

LOTS 1 - 25

CONSTRUCTION PLANS



99102_FORDS_COLONY_OVERALL - 017

COPY- FORD'S COLONY
SECTION 3B, S-61-96
(PC 148)

LATERAL/SERVICE
MANHOLE
CLEAN OUT

PAVEMENT
ASPHALT/BITUMINOUS PAVEMENT
CONCRETE PAVEMENT
GRAVEL/DIRT
BORE & JACK CASING
PAVEMENT REPLACEMENT

PROPERTY
R.O.W.
PROPERTY LINE
EASEMENT
SECTION
IRON PIN
CONCRETE MONUMENT

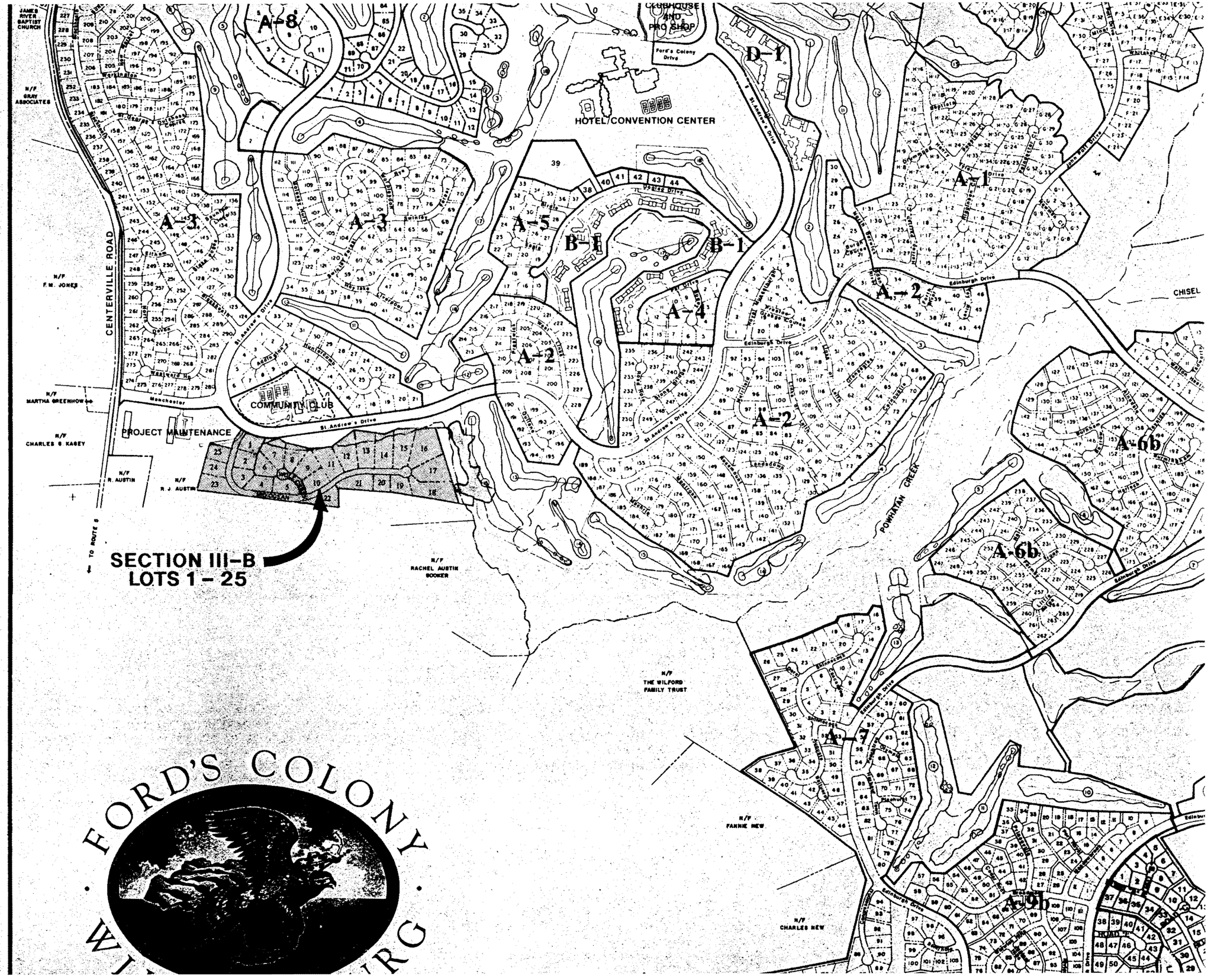
FEATURES
FENCE
GUARD RAIL
MAIL BOX
PAPER BOX
ELECTRIC POLE/PEDESTAL
ELECTRIC UNDERGROUND
TELEPHONE POLE/PEDESTAL
TELEPHONE UNDERGROUND
TELEPHONE MANHOLE
GUY WIRE
GAS LINE
GAS VALVE
WELL
SEPTIC TANK/DRAINFIELD
GRAVE
TREE/SHRUB
CULVERTS
SIGNS

GRADING
CONTOUR
SPOT ELEVATION
BENCH MARK
STREAM, DRAINAGE, DITCH, OR SWALE

PROVIDE CERTIFICATION THAT
LL STREETS WAS IN ACCORDANCE
RUCTION STANDARDS TO SATISFY
ELINES FOR CERTIFICATION
CONSTRUCTION.

CE SHALL BE HELD ON-SITE BETWEEN THE
ROJECT ENGINEER AND THE CONTRACTOR
DISTURBING PERMIT. THE CONTRACTOR
N TO THE COUNTY PRIOR TO THE
DETAILING THE SEQUENCE OF CONSTRUCTION
TALLATION OF EROSION CONTROL MEASURES.

99102_FORDS_COLONY_OVERALL - 018



STER

WILLIAMSBURG
NCE CENTER

PI STA 10+00 ROAD "A"
STA 82+95± EXIST. ST. ANDREWS DRIVE

EX. 18" RCP
(TO BE REMOVED AND REUSED)

SS#1-2
MH-1
RIM=64.30
INV.=57.00

EX. MH
INV.=47.29

APPROX. 60 LF OF
EX. CONC. DITCH
TO BE REMOVED

75 LF OF 24"
ASCP TYPE II
@ 1.33%

TIE PROP. 24" CMP
INTO EX. CONC. DITCH

EX. MH
INV.=46.45

RR EXIST. DITCH TO BE RIP-RAP
(RIP RAP TYPE AS APPROVED
EQUIVALENT TO CLASS A1 RIP
CONFORM TO EXIST. DITCH SEC
SECTION APPROXIMATING A TR
BOTTOM, 1:1 SS, AND A MINIM
SHALL REGRADE CHANNEL IN
DIMENSIONS DO NOT EXIST. CO
BETWEEN STONE AND UNDERLY
EDITION OF VESCH. MINIMUM S
SEDIMENT BASIN NOTE THIS SH

100 LF OF 18"
ASCP TYPE II
@ 4.70%

SS#1-2A
DI-7
TOP=64.3±
INV.=61.7

EX. INV.
IN=63.42

APPROX. 150 L.F. OF
EX. CONC. SWALE TO
BE REMOVED, AREA
SHALL BE REGRADED
TO ENSURE POSITIVE
DRAINAGE OVER CURB

CE

CIP

TC=
65.70
TC=
67.31

TIE TO EX.
18" CMP
W/ MH-1

38 LF OF 18"
ASCP TYPE II
@ 23.61%

APPROX. 70 LF
OF EX. 18" CMP
TO REMAIN

EX. INV.
= 75.83

SS#1-3A
STA 11+30
MH-1
RIM=75.90
INV.=71.87

EXIST.
18" CMP

EXIST. FILL
AREA

GUY
PP

SIGN

EX 12" WM

SF

TC=
67.31 TC=
65.20

120 LF OF 18"
ASCP TYPE II
@ 4.08%

SS#1-1
ES-2
INV.=56.0±

EX. INV.
OUT=60.86

EX. BIKE PATH

LIMITS OF TEMP
SEDIMENT BASI

FG=
81.5±

12" WM

EX. 12" WM

SS#1-3
STA 11+35
1-CI GRATE
TOP=71.05 (@BC)
INV.=62.90

PRIVATE
AINAGE
EMENT

SS#1-5A
STA 12+50
1-CI GRATE
TOP=68.05 (@BC)
INV.=65.55

AREA TO BE FILLED
AS NECESSARY TO
ENSURE POSITIVE
DRAINAGE OVER CURB

LOT 1

20' JCSA UTILITY
EASEMENT

CD

FG=
77.5±

LOT 25

50 LF OF 12"
ASCP TYPE II
@ 1.30%

155 LF OF 18"
ASCP TYPE II
@ 1.05%

SYSTEM #1

10' PRIVATE DRAINAGE
EASEMENT TO FOLLOW
℄ OF EX. DITCH

LOT 7

LOT 8

ROX.
C-3

PROVIDE APPROX.
210 LF OF EC-3
LINED SWALE
MIN. DEPTH=1.0'

SS#1-5
STA 12+96.04
1-CI GRATE
TOP=68.05 (@BC)
INV.=64.90

SS#1-4
STA 12+96.04
1-CI GRATE
TOP=67.52 (@BC)
INV.=64.52

FG=
55.0±

OP PROVIDE RIP RAP APRON
(10' LG X 4' WIDE @ OUTLET
X 12' WIDE @ END, MIN. 1.5'
CONSISTING OF CLASS A1 ST
APPROX. 7 CY REQ'D)

FG=
76.5±

FG=
72.0±

22 LF OF 15"

80 LF OF 15"
ASCP TYPE II

20' PRIVATE

99102_FORGE COLONY OVERALL - 019

ROAD NAMES:
ROAD "A" - MID OCEAN
ROAD "B" - WOLF CREEK

10' PRIVATE DRAINAGE EASEMENT TO FOLLOW ℄ OF DITCH

IS ALONG

PROP. SWM/BMP POND
NP=23.0

PROPOSED SURVEY LINE FOR TIE ONLY

N38°52'05"E 438.67'

162.44' 169.78' 106.45'

100' RPA BUFFER LINE

S16°57'23"E 243.73'

S14°19'43"E 161.20'

S26°18'22"E 116.45'

S15°32'18"E 116.69'

S12°53'36"E 184.20'

S04°05'54"W 175.83'

N12°54'48"E 345.63'

OT 15
424 SF±
295 Ac ±

LOT 16
75372 SF±
1.730 Ac ±

VARIABLE WIDTH CONSERVATION EASEMENT TO COINCIDE WITH 100' RPA BUFFER LINE AND ℄ OF STREAM

℄ CUL-DE-SAC STA 31+88.60

31'

L=45.16' N64°40'04"E 314.27'

OPEN SPACE
117466 SF
2.697 Ac

S16°57'23"E 252.39'

L=229.35'

L=53.56'

LOT 17
56264 SF
1.292 Ac

S53°57'34"E 94.49'

L=34.48'

S89°53'28"E 286.01'

FUTURE 15TH FAIRWAY

34'

19
SF
Ac

S14°26'40"E 163.04'

LOT 18
63034 SF
1.447 Ac

N16°57'23"W 198.74'

72.59'

N80°20'44"W 601.90' 413.53'

15.78'

N78°09'51"W 110.50'

N/F
OROTHY W. WALLACE

100' RPA BUFFER LINE

LIMITS OF WETLANDS

LIMITS OF WETLANDS

PC 148

99102_FORDS_COLONY_OVERALL - 020

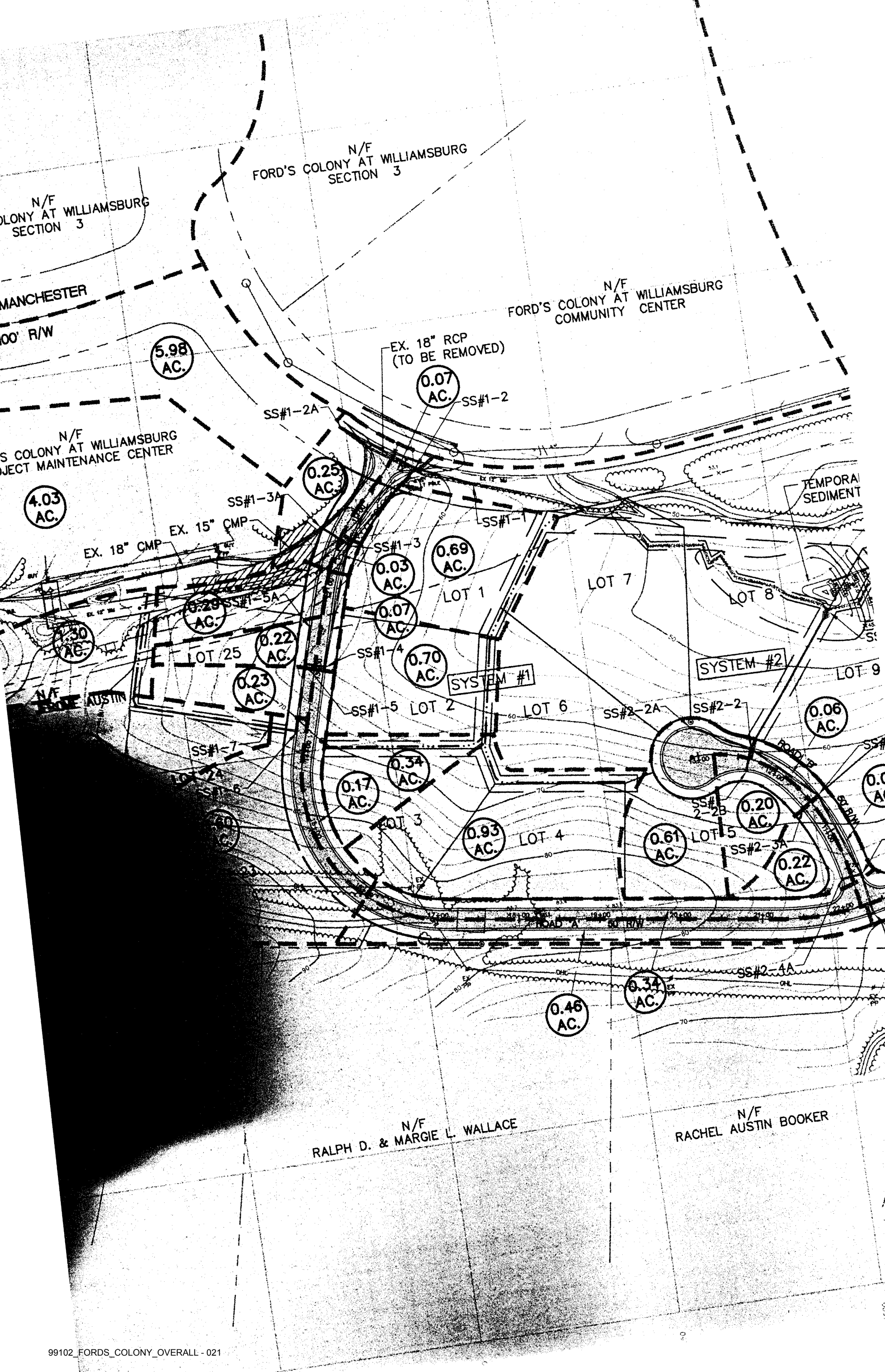
No.	DATE
3	10/7/96
2	10/1/96
1	8/19/96

COMMONWEALTH OF VIRGINIA
STEVEN O. WIGLEY
10-9-96
No. 019307
PROFESSIONAL ENGINEER

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

CONSULTING ENGINEERS

PRELIMINARY PLAN
FORD'S COLONY
AT WILLIAMSBURG
SECTION III-B, (LOTS 1 - 25)
OWNER / DEVELOPER : REALTEC INCORPORATED
JAMES CITY DISTRICT JAMES CITY COUNTY VIRGINIA


N/F
FORD'S COLONY AT WILLIAMSBURG
SECTION 3
N/F
FORD'S COLONY AT WILLIAMSBURG
COMMUNITY CENTER
N/F
OLONY AT WILLIAMSBURG
SECTION 3
MANCHESTER
00' R/W
N/F
S COLONY AT WILLIAMSBURG
OJECT MAINTENANCE CENTER
N/F
AUSTIN
N/F
RALPH D. & MARGIE L. WALLACE
N/F
RACHEL AUSTIN BOOKER
5.98 AC.
4.03 AC.
0.25 AC.
0.07 AC.
0.29 AC.
0.22 AC.
0.23 AC.
0.03 AC.
0.69 AC.
0.07 AC.
0.70 AC.
0.34 AC.
0.17 AC.
0.93 AC.
0.46 AC.
0.34 AC.
0.61 AC.
0.20 AC.
0.22 AC.
0.06 AC.
EX. 18" RCP
(TO BE REMOVED)
SS#1-2
SS#1-2A
SS#1-3A
EX. 15" CMP
EX. 18" CMP
SS#1-1
SS#1-3
SS#1-5A
SS#1-4
SS#1-5
SS#1-7
SS#1-6
SS#2-2A
SS#2-2
SS#2-2B
SS#2-3A
SS#2-4A
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 24
LOT 25
SYSTEM #1
SYSTEM #2
TEMPORA
SEDIMENT
ROAD "A" 50' R/W
ROAD "B"
50' R/W

NOTE:

THIS SHEET TO BE USED FOR DRAINAGE AREA INFORMATION ONL

FORD'S COLONY AT WILLIAMSBURG COMMUNITY CENTER N/F

FORD'S COLONY AT SECTION N/F

EXIST. ST. ANDREWS DRIVE

100' R/W

TEMPORARY SEDIMENT BASIN

LIMITS OF WETLANDS

LOT 7

LOT 8

LOT 9

LOT 10

LOT 11

LOT 12

LOT 13

LOT 14

LOT 15

LOT 20

LOT 21

LOT 22

SYSTEM #2

SYSTEM #3

SS#2-1

SS#2-2

SS#2-2A

SS#2-2B

SS#2-3

SS#2-3A

SS#2-4

SS#2-4A

SS#2-5

SS#3-1

SS#3-3

SS#3-3A

SS#3-4

0.06 AC.

0.07 AC.

0.10 AC.

0.11 AC.

0.20 AC.

0.22 AC.

0.30 AC.

0.34 AC.

0.40 AC.

0.61 AC.

0.65 AC.

ROAD B

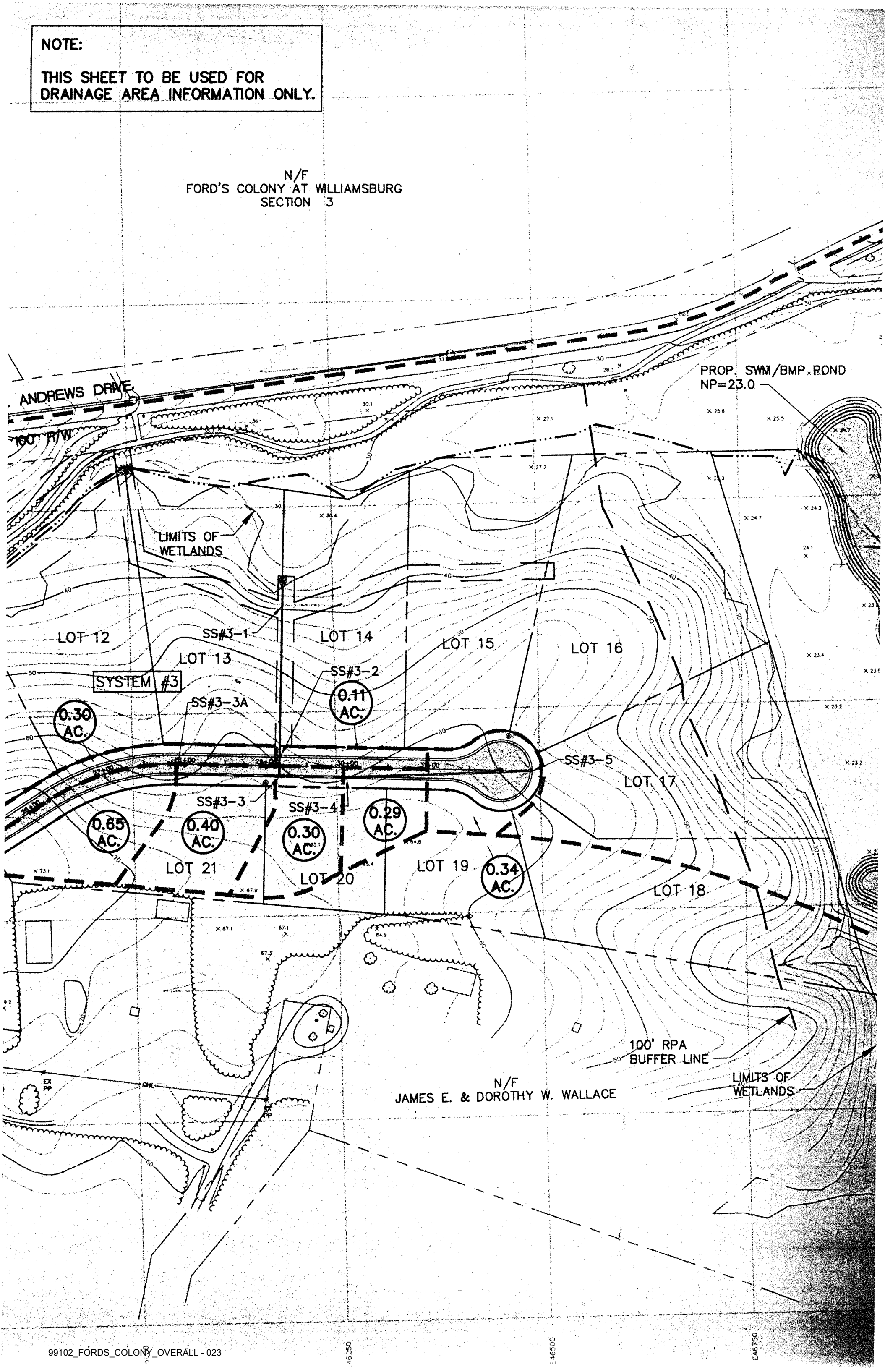
50' R/W

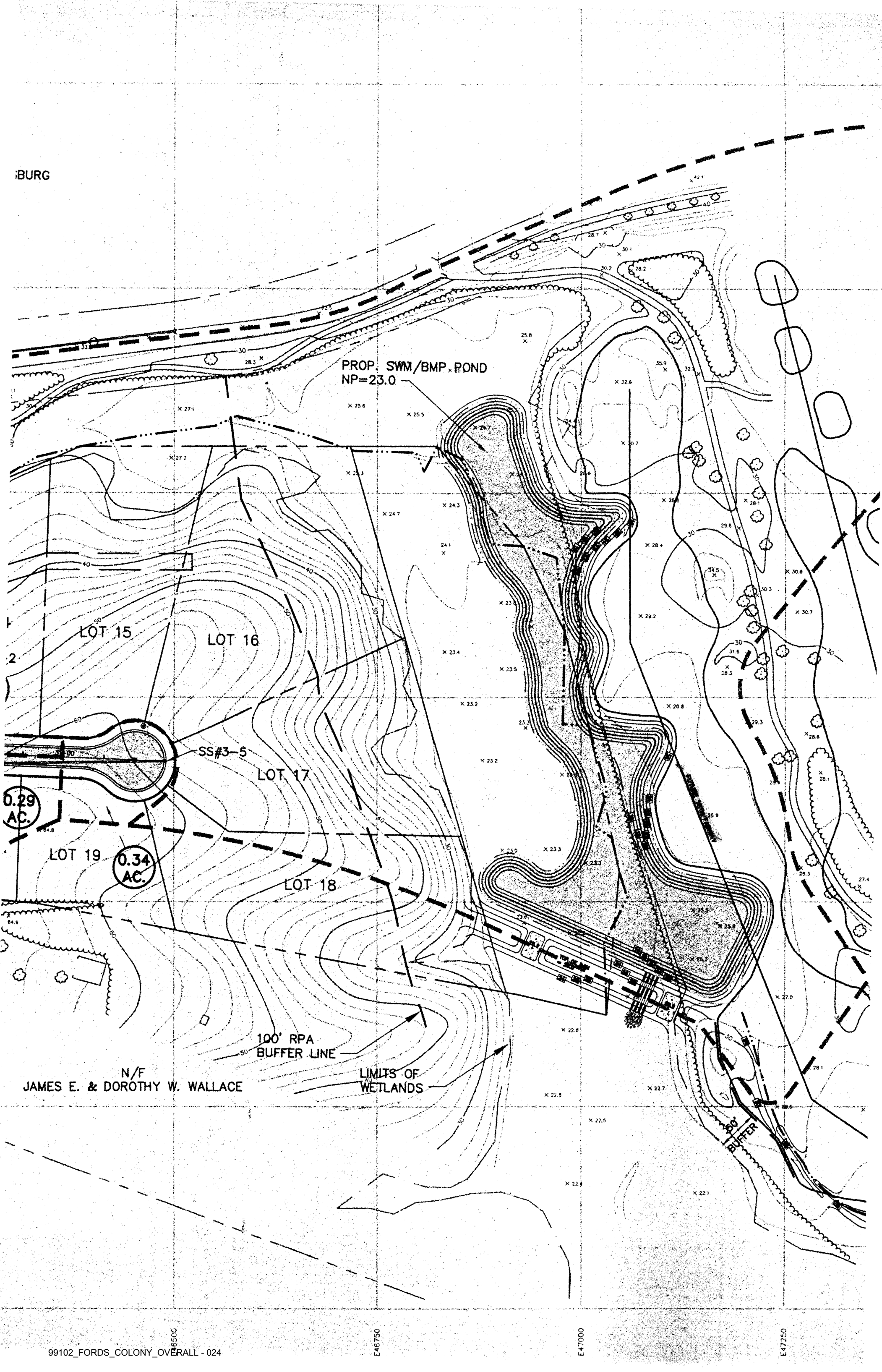
N/F RACHEL AUSTIN BOOKER

99102_FORDS_COLONY_OVERALL - 022

NOTE:

THIS SHEET TO BE USED FOR DRAINAGE AREA INFORMATION ONLY.




BURG
PROP. SWM/BMP POND
NP=23.0
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19
0.29 AC.
0.34 AC.
SS#3-5
100' RPA
BUFFER LINE
LIMITS OF
WETLANDS
N/F
JAMES E. & DOROTHY W. WALLACE
50' BUFFER
E46500
E46750
E47000
E47250

32+28
GRATE
57.25 (@BC)
54.75

LOT 17

WETLANDS

PROP. SWM/BMP POND
NP=23.0
100 YR HIGH WATER
EL.=27.6

FUTURE 15TH FAIRWAY

LOT 18

SILT FENCE PLACED
AT TOE OF SLOPE

SEE SHEET 13
FOR SECTION A-A

TOP OF DAM
= 29.0

TRAPEZOIDAL
CONCRETE SPILLWAY
20' WIDE BOTTOM,
1.5' DEEP, W/ 3:1 SS
CREST EL=25.2

4 - 55 L.F. OF
30" RCP @ 0.91%
INV.IN=23.0
INV.OUT=22.5

PROVIDE RIP RAP APRON
(30' LG X 15' WIDE @ OUTLET
X 22' WIDE @ END, MIN. 1.5' DEEP)
CONSISTING OF CLASS I STONE
(APPROX. 31 CY REQ'D)

TRAPEZOIDAL
CONCRETE SPILLWAY
20' WIDE BOTTOM,
1.5' DEEP, W/ 3:1 SS
CREST EL=25.2

MIN. 50' BUFFER

LIMIT OF
WETLANDS

ALL COORDINATE ANY
-SITE STOCKPILE,
TAGING, OR STORAGE
JAMES CITY COUNTY
SPECTOR FOR THIS

NOTE:
THIS PLAN SET INDICATES REVISIONS
TO THE LIMITS OF THE 15th FAIRWAY
AS SHOWN ON THE JAMES CITY COUN
APPROVED "ADDITIONAL 18 HOLE GOL
COURSE" SITE PLAN DATED JAN. 198
SEE SHEET 6 FOR DETAILED
INFORMATION ON REVISED GRADING
AND FAIRWAY LIMITS.

GRAPHIC SCALE
50' 0' 50' 100'
SCALE: 1" = 50'

E46750
E47000
E47250

VARIBLE WIDTH CONSERVATION EASEMENT TO COINCIDE WITH 100' RPA BUFFER LINE AND ℄ OF STREAM

5' WIDE 0% SLOPE SAFETY BENCH EL=22.0

LIMITS OF WETLANDS

PROP. SWM/BMP POND
NP=23.0
100 YR HIGH WATER
EL.=27.6

FUTURE 15TH FAIRWAY

SEE SHEET 13 FOR SECTION A-A

TOP OF DAM = 29.0

TRAPEZOIDAL CONCRETE SPILLWAY
20' WIDE BOTTOM, 1.5' DEEP, W/ 3:1 SS
CREST EL=25.2

4 - 55 L.F. OF 30" RCP @ 0.91%
INV.IN=23.0
INV.OUT=22.5

PROVIDE RIP RAP APRON (30' LG X 15' WIDE @ OUTLET X 22' WIDE @ END, MIN. 1.5' DEEP) CONSISTING OF CLASS I STONE (APPROX. 31 CY REQ'D)

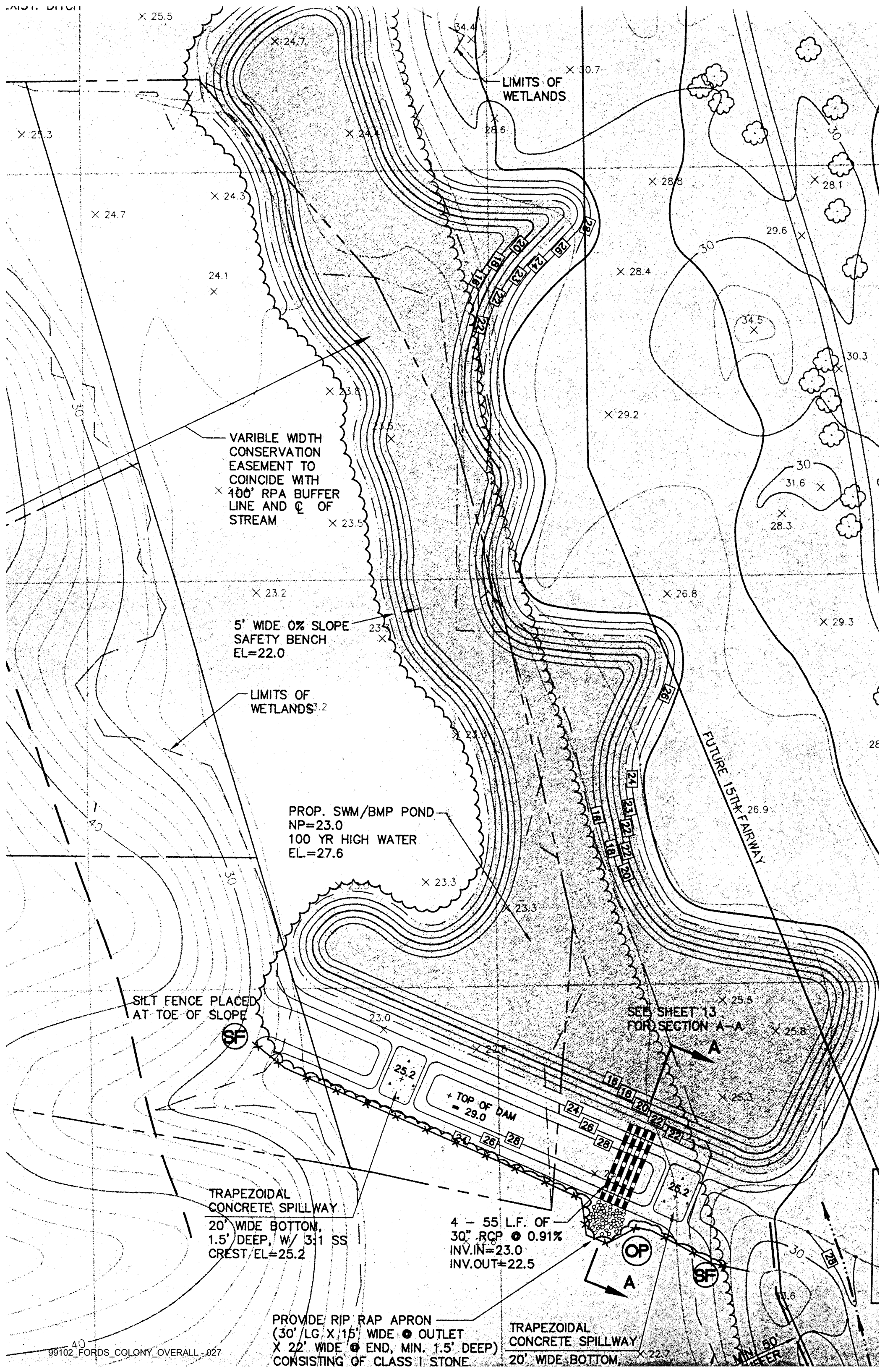
TRAPEZOIDAL CONCRETE SPILLWAY
20' WIDE BOTTOM, 1.5' DEEP, W/ 3:1 SS
CREST EL=25.2

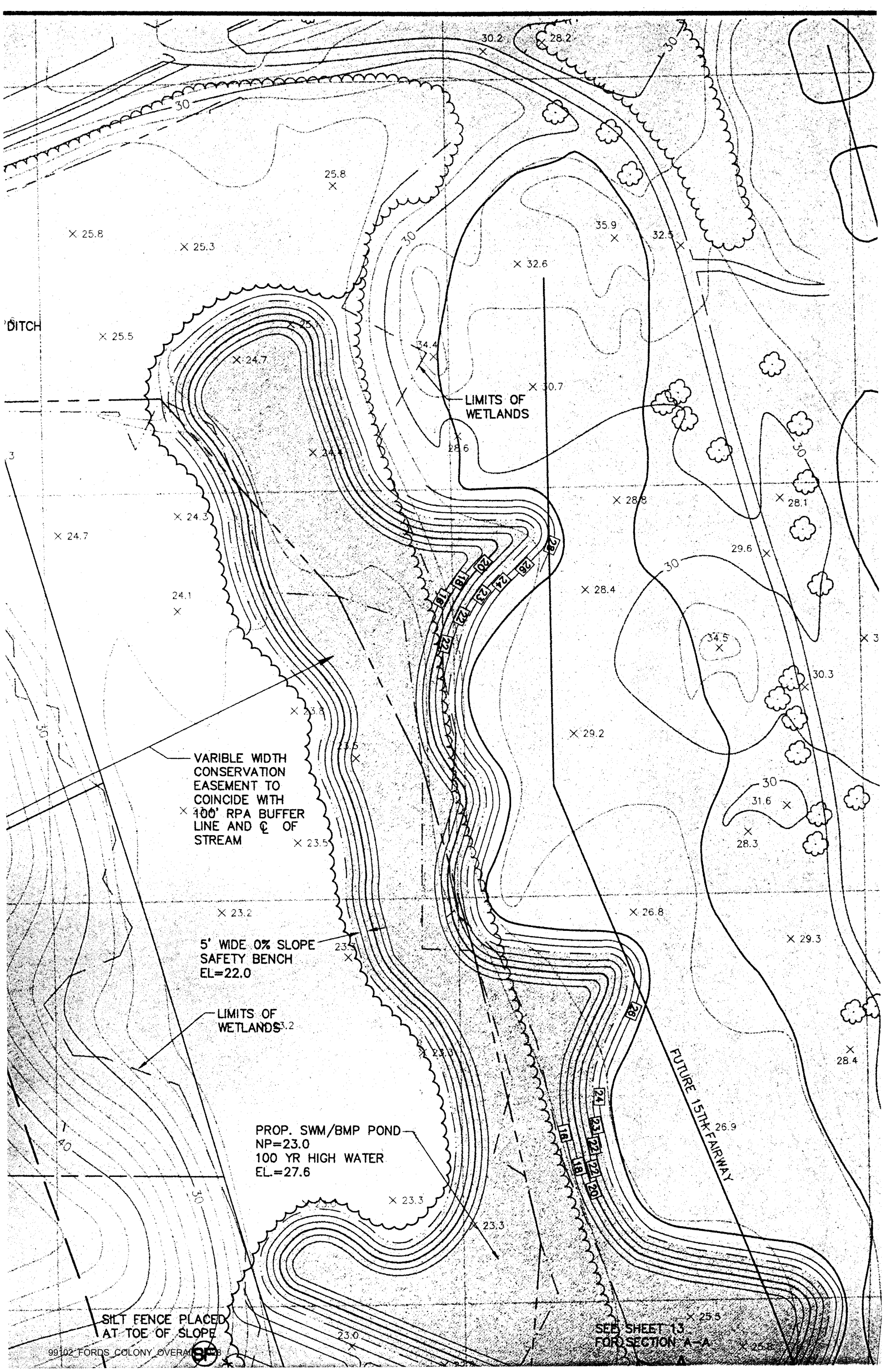
MIN. 50' BUFFER

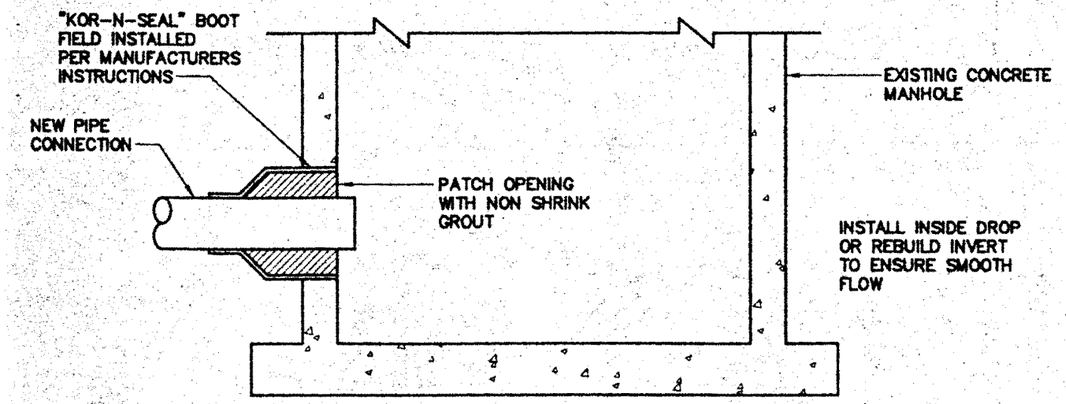
LIMIT OF WETLANDS

NOTE:
THIS PLAN SET INDICATES REVIS
TO THE LIMITS OF THE 15th FA
AS SHOWN ON THE JAMES CITY
APPROVED "ADDITIONAL 18 HOL
COURSE" SITE PLAN DATED JAN
SEE SHEET 6 FOR DETAILED
INFORMATION ON REVISED GRAD
AND FAIRWAY LIMITS.

GRAPHIC SCALE
50' 0' 50' 100'
SCALE: 1" = 50'


LIMITS OF WETLANDS
VARIBLE WIDTH CONSERVATION EASEMENT TO COINCIDE WITH 100' RPA BUFFER LINE AND ℄ OF STREAM
5' WIDE 0% SLOPE SAFETY BENCH EL=22.0
LIMITS OF WETLANDS
PROP. SWM/BMP POND NP=23.0 100 YR HIGH WATER EL.=27.6
FUTURE 15TH FAIRWAY
SILT FENCE PLACED AT TOE OF SLOPE
SF
SEE SHEET 13 FOR SECTION A-A
A
TOP OF DAM 29.0
TRAPEZOIDAL CONCRETE SPILLWAY
20' WIDE BOTTOM, 1.5' DEEP, W/ 3:1 SS CREST EL=25.2
4 - 55 L.F. OF 30" RCP @ 0.91% INV.IN=23.0 INV.OUT=22.5
OP
PROVIDE RIP RAP APRON (30' LG X 15' WIDE @ OUTLET X 22' WIDE @ END, MIN. 1.5' DEEP) CONSISTING OF CLASS I STONE
TRAPEZOIDAL CONCRETE SPILLWAY
20' WIDE BOTTOM,
MIN. 50' BUFFER

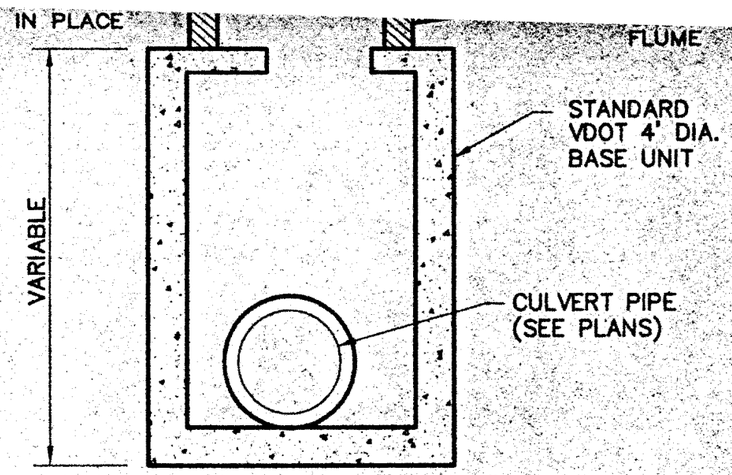

LIMITS OF WETLANDS
VARIBLE WIDTH CONSERVATION EASEMENT TO COINCIDE WITH 100' RPA BUFFER LINE AND ℄ OF STREAM
5' WIDE 0% SLOPE SAFETY BENCH EL=22.0
LIMITS OF WETLANDS
PROP. SWM/BMP POND NP=23.0 100 YR HIGH WATER EL.=27.6
FUTURE 15TH FAIRWAY
SILT FENCE PLACED AT TOE OF SLOPE
SEE SHEET 13 FOR SECTION A-A
DITCH



NOTE:
USE CORE DRILL PROCEDURE TO CORE HOLE IN MANHOLE

NEW GRAVITY SEWER TO EXISTING MANHOLE CONNECTIONS

D-SEWCON

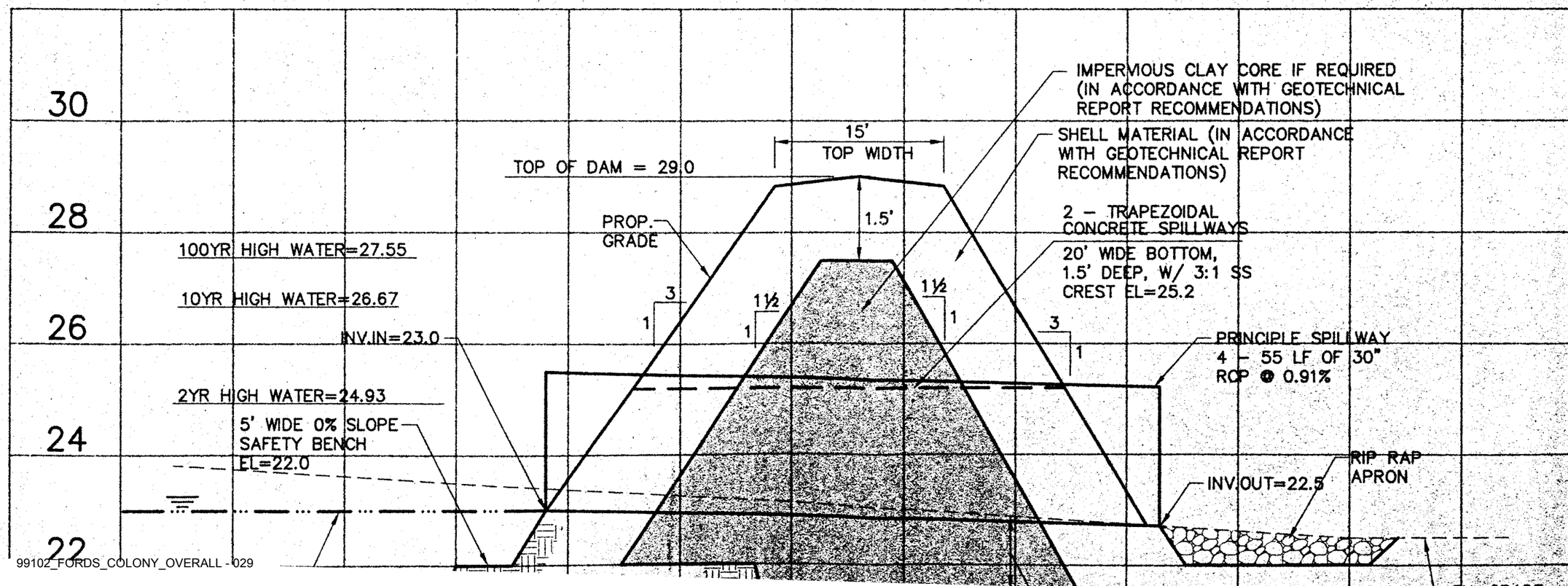


PROFILE

CAST IRON GRATE DETAIL

N.T.S.

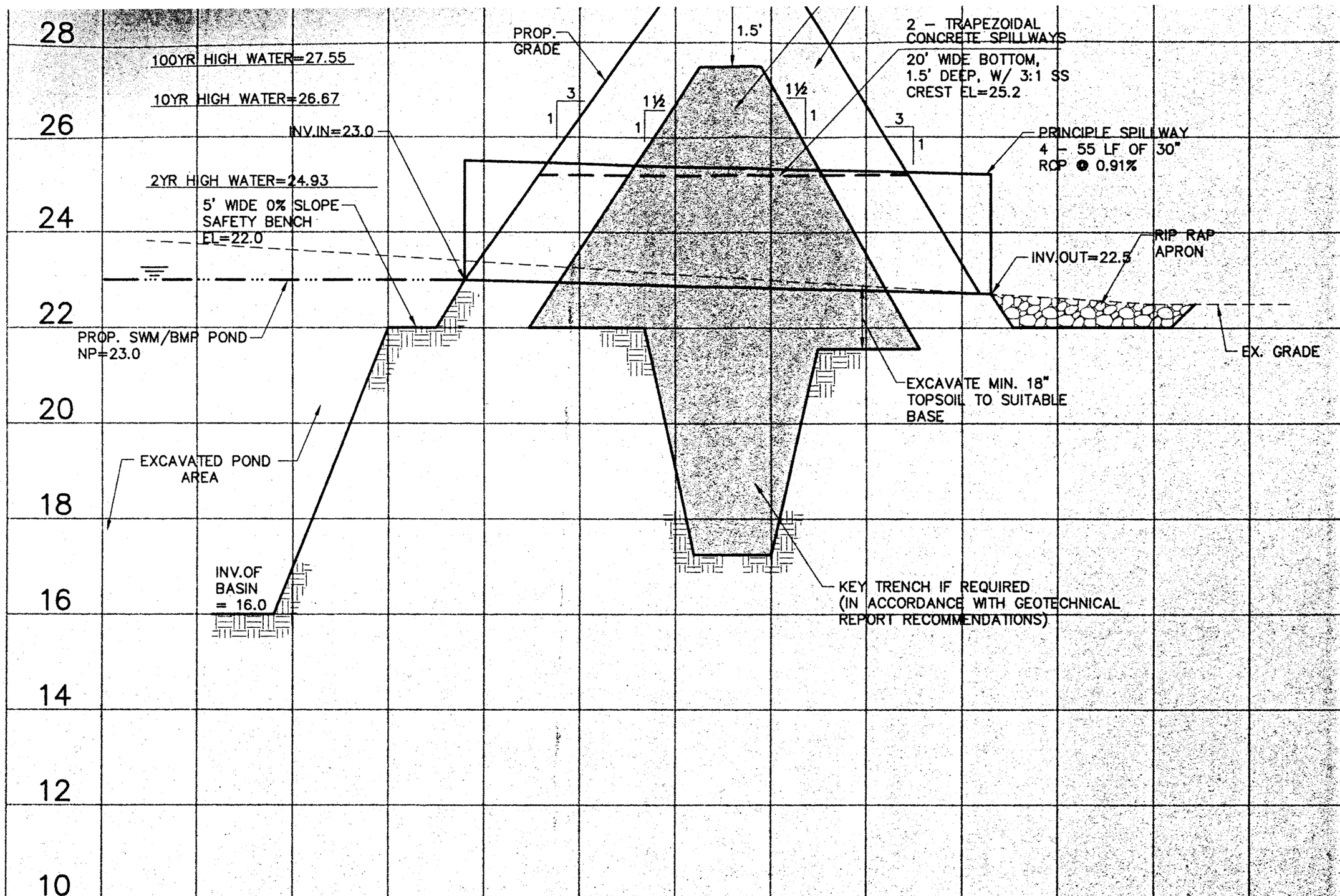
D-CIGRAT



99102_FORDS_COLONY_OVERALL - 029

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

COMMONWEALTH OF VIRGINIA
STEVEN O. WIGLEY
No. 019307
PROFESSIONAL ENGINEER



TYPICAL DAM SECTION A-A

SCALE: HORIZ: 1"=10'
VERT: 1"=2'

NOTES AND DETAILS
FORD'S COLONY
AT WILLIAMSBURG
SECTION III-B (LOTS 1 - 25)
OWNER / DEVELOPER: REALTEC INCORPORATED
JAMES CITY COUNTY, VIRGINIA

Designed	Drawn
CAH	GG
Scale	Date
NONE	7/18/96

Project No.
5852-3B

Drawing No.
13

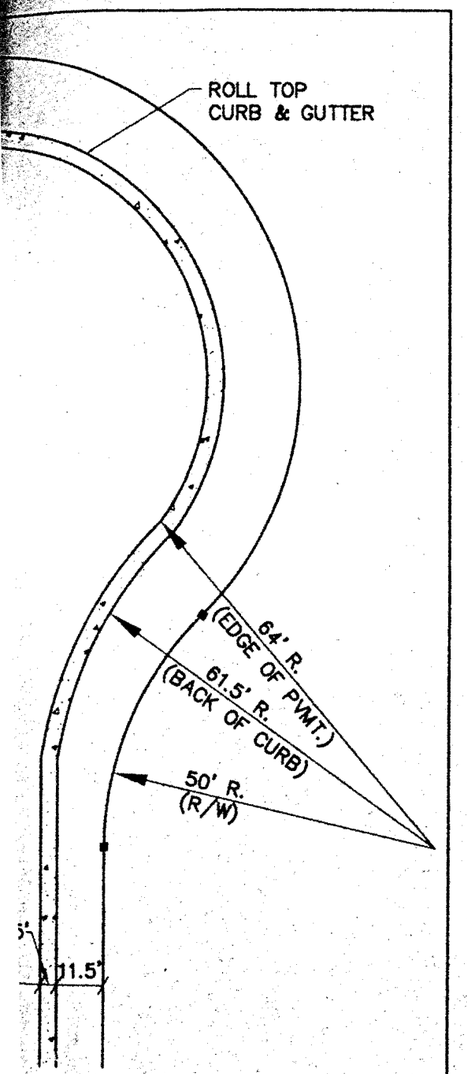
99102_FORDS_COLONY_OVERALL - 030

A TOTAL THICKNESS OF AT LEAST 4.5
NOT BE REQUIRED ON AGGREGATE

LS SHALL BE IN ACCORDANCE WITH
PROVISIONS.

CLEANOUT DETAIL

NOT TO SCALE



AC DETAIL

RADIUS

E DETAILS\F-COLNY\D-CULDSC

DAM CONSTRUCTION NOTES

1. A GEOTECHNICAL SUBSURFACE EXPLORATION AT THE PROPOSED DAM SITE SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE. THE GEOTECHNICAL INVESTIGATION WILL DETERMINE KEY TRENCH DEPTH AND WIDTH ACCORDINGLY. THE GEOTECHNICAL CONSULTANT SHALL SUBMIT TO OWNER/CONTRACTOR HIS/HER RECOMMENDATIONS FOR DAM DESIGN, TRENCH WIDTH, DEPTH, ETC. THESE RECOMENDATIONS ARE HEREBY MADE A PART OF THE DAM'S CONSTRUCTION SPECIFICATIONS. ADDITIONALLY, THE GEOTECHNICAL CONSULTANT WILL ENSURE PROPER MATERIALS AND DAM CONSTRUCTION METHODS ARE USED DURING CONSTRUCTION. AFTER CONSTRUCTION, THE GEOTECHNICAL CONSULTANT SHALL SUBMIT A LETTER DEMONSTRATING THE DAM WAS BUILT IN ACCORDANCE WITH THEIR REPORTS RECOMENDATIONS.

2. SITE PREPARATION:
THE CONTRACTOR SHALL STRIP ALL AREAS OF THE PERMANENT CONSTRUCTION TO REMOVE ALL UNSUITABLE MATERIALS. THE UNSUITABLE MATERIALS TO BE REMOVED BY STRIPPING SHALL INCLUDE ALL TOPSOIL, DEBRIS AND VEGETABLE MATTER, INCLUDING STUMPS AND ROOTS, AND ALL OTHER MATERIALS WHICH MAY BE UNSUITABLE FOR USE IN THE PERMANENT CONSTRUCTION.

3. EMBANKMENT: THE EXPOSED SUBGRADE SOILS SHALL BE CAREFULLY INSPECTED BY THE GEOTECHNICAL ENGINEER. ANY UNSUITABLE MATERIALS THUS EXPOSED SHALL BE REMOVED AND REPLACED WITH A WELL COMPACTED, SUITABLE MATERIAL. DENSITY TESTING, AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER, SHALL BE PERFORMED AT THIS TIME.

THE EMBANKMENT SHALL BE KEYED INTO THE UNDISTURBED (EXISTING) SOIL STRATUM. EMBANKMENT SHOULD BE KEYED AT LEAST 4 FEET INTO THE STRATUM OR AS SPECIFIED BY THE SOILS ENGINEER (WIDTH = 6 FT. MINIMUM). THE EMBANKMENT FOUNDATION AND ABUTMENTS SHALL BEAR ON FIRM AND STABLE EXISTING SUBGRADE WHICH HAS BEEN PREPARED SO AS TO REMOVE ALL ORGANIC, LOOSE, AND GENERALLY UNSUITABLE MATERIAL.

ALL MATERIALS TO BE USED FOR BACKFILL OR COMPACTED FILL SHALL BE INSPECTED AND, IF NECESSARY, TESTED BY THE SOILS ENGINEER IN ACCORDANCE WITH ASTM D2487 PRIOR TO PLACEMENT TO DETERMINE IF THEY ARE SUITABLE FOR THE INTENDED USE.

THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED BORROW AREAS. IT SHALL BE CLEAN MINERAL SOIL, FREE OF ROOTS, WOOD VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. MATERIALS TO BE USED FOR THE CONSTRUCTION OF THE SHELL SHALL BE SELECT BACKFILL FREE OF STUMPS, ROOTS, ROCKS, TRASH, ETC. AND SHALL BE MORE PERVIOUS THAN THE IMPERVIOUS CLAY CORE. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED A MINIMUM DEPTH OF 4 INCHES PRIOR TO PLACEMENT OF FILL. THE FILL MATERIAL'S MOISTURE CONTENT SHALL BE +3 TO −2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D2216 (I.E. IN GENERAL THE FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE, SO THAT IT CAN BE FORMED INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION). FILL MATERIAL WILL BE PLACED IN 6 TO 8-INCH CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL. FIRST LIFT ON SUBGRADE MAY BE PLACED AT A DEPTH UP TO 36 INCHES TO BRIDGE SUBGRADE WITH OVER OPTIMUM MOISTURE CONTENT. COMPACTION, AS NOTED ON PLAN, SHALL BE OBTAINED GENERALLY BY USING A SHEEPSFOOT COMPACTOR. FINISHED GRADES SHALL BE MERGED NATURALLY INTO THE EXISTING GRADES.

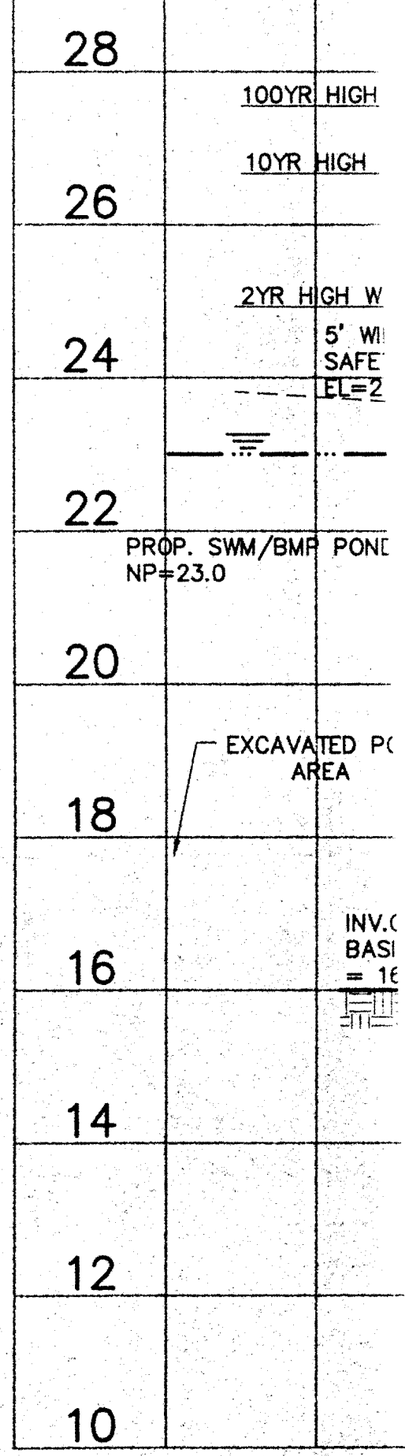
4. CUTOFF TRENCH/KEY TRENCH: THE TRENCH SHALL BE EXCAVATED ALONG THE CENTERLINE OF THE DAM. THE MINIMUM DEPTH SHALL BE AS DETERMINED BY THE GEOTECHNICAL ENGINEER . THE BOTTOM WIDTH WIDTH SHALL BE WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHALL BE KEPT DRAINED DURING THE BACKFILLING-COMPACTING OPERATIONS.

5. PRINCIPAL SPILLWAY: THE BOTTOM OF THE SPILLWAY RISER FOUNDATION BASE EXCAVATION SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER TO ENSURE THAT ALL UNSUITABLE AND LOOSE MATERIALS ARE REMOVED AND THAT ACCEPTABLE BEARING CONDITIONS EXIST IN THE FOUNDATION'S BASE.

ALL JOINTS IN THE PRINCIPAL SPILLWAY STRUCTURE SHALL BE OF WATERTIGHT CONSTRUCTION. PERVIOUS MATERIALS SUCH AS SAND, GRAVEL OR CRUSHED STONE SHALL NOT BE USED AS BACKFILL AROUND THE BARREL. FILL MATERIAL SHALL BE PLACED AROUND THE PIPE IN 4-INCH LAYERS AND COMPACTED BY HAND TO THE SAME DENSITY AS THE EMBANKMENT. A MINIMUM OF TWO FEET OF FILL SHALL BE HAND-COMPACTED OVER THE BARREL BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.

6. VEGETATIVE STABILIZATION: FINAL VEGETATIVE COVER (STABILIZATION) SHALL CONSIST OF TOPSOILING, LIMING, FERTILIZING, SEEDING, AND MULCHING TO ASSURE A FIRM STAND OF GRASS AS SOON AS PRACTICAL. SEDIMENT BASINS AND OTHER TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED ONLY WHEN STABILIZATION IS COMPLETE. FINAL VEGETAL COVER SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING:

TOPSOIL:	AT LEAST 2" THICKNESS OBTAINED FROM STOCKPILES ON SITE, FREE OF LARGE DEBRIS.
LIME:	4,000#/ACRE (90#/1,000 S.F.)
SEED:	KENTUCKY 31 TALL FESCUE 250#/ACRE (6#/1,000 S.F.)
FERTILIZER:	10/20/10 MIX, 1,000#/ACRE (25#/1,000 S.F.)
MULCH:	STRAW OR HAY (LOCALLY OBTAINED) 4,000#/ACRE (90#/1,000 S.F.)



SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT TIME OF CONSTRUCTION TO INSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED. DIVISION OF CODE COMPLIANCE APPROVAL WILL BE REQUIRED FOR OTHER DEVIATIONS FROM THE APPROVED PLANS.

. THE CONTRACTOR SHALL PLACE SOIL STOCKPILES AT THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY THE ENGINEER. SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. OFF-SITE WASTE OR BORROW AREAS SHALL BE APPROVED BY THE DIVISION OF CODE COMPLIANCE PRIOR TO THE IMPORT OF ANY BORROW OR EXPORT OF ANY WASTE TO OR FROM THE PROJECT SITE.

. THE CONTRACTOR SHALL COMPLETE DRAINAGE FACILITIES WITHIN 30 DAYS FOLLOWING COMPLETION OF PRECEDENCE OVER ALL UNDERGROUND UTILITIES. OUTFALL DITCHES FROM DRAINAGE STRUCTURES SHALL BE ROUGH GRADING AT ANY POINT WITHIN THE PROJECT. THE INSTALLATION OF DRAINAGE FACILITIES SHALL TAKE STABILIZED IMMEDIATELY AFTER CONSTRUCTION OF SAME. THIS INCLUDES INSTALLATION OF EROSION CONTROL STONE OR PAVED DITCHES WHERE REQUIRED. ANY DRAINAGE OUTFALLS REQUIRED FOR A STREET MUST BE COMPLETED BEFORE STREET GRADING OR UTILITY INSTALLATION BEGINS.

. PERMANENT OR TEMPORARY SOIL STABILIZATION MUST BE APPLIED TO ALL DENUDED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING AND THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.

0. NO MORE THAN 300 FEET OF SANITARY SEWER, STORM SEWER, WATERLINES, OR UNDERGROUND UTILITY LINES ARE TO BE OPEN AT ONE TIME. FOLLOWING INSTALLATION OF ANY PORTION OF THESE ITEMS, ALL DISTURBED AREAS ARE TO BE IMMEDIATELY STABILIZED (I.E., THE SAME DAY).

1. IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY, OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING IN ACCORDANCE WITH SPECIFICATION 3.35. SEEDING WILL THEN TAKE PLACE AS SOON AS THE SEASON PERMITS.

2. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION, ON THIS SITE PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME, AND FERTILIZER IN ACCORDANCE WITH SPECIFICATION 3.32, PERMANENT SEEDING. IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.

3. ALL SLOPES STEEPER THAN 3:1 SHALL REQUIRE THE USE OF EROSION CONTROL BLANKETS SUCH AS ACCORDANCE WITH SPECIFICATION 3.35, MULCHING AND MANUFACTURER'S INSTRUCTIONS. NO EXCELSIOR BLANKETS TO AID IN THE ESTABLISHMENT OF A VEGETATIVE COVER. INSTALLATION SHALL BE IN SLOPES SHALL BE CREATED STEEPER THAN 2:1.

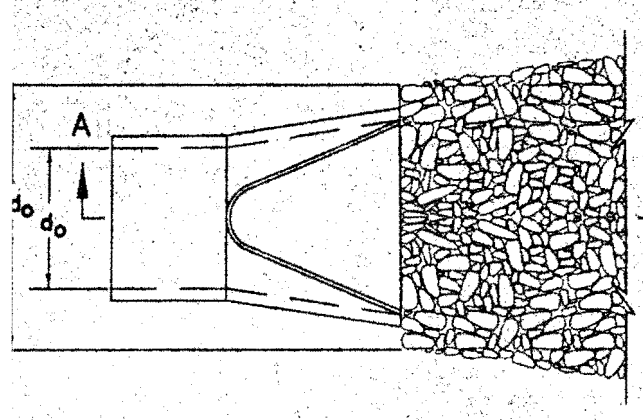
4. INLET PROTECTION IN ACCORDANCE WITH SPECIFICATION 3.07 SHALL BE PROVIDED FOR ALL STORM DRAIN INLETS AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION OF SAME.

5. TEMPORARY LINERS, SUCH AS POLYETHYLENE SHEETS, SHALL BE PROVIDED FOR ALL PAVED DITCHES UNTIL THE PERMANENT CONCRETE LINER IS INSTALLED.

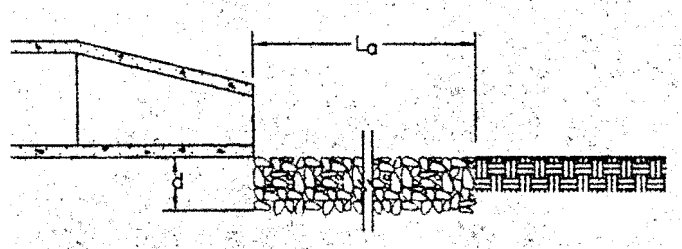
6. PAVED DITCHES SHALL BE REQUIRED WHEREVER EROSION IS EVIDENT. PARTICULAR ATTENTION SHALL BE PAID TO THOSE AREAS WHERE GRADES EXCEED 3 PERCENT.

7. TEMPORARY EROSION CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.

8. AS-BUILT DRAWINGS MUST BE PROVIDED FOR ALL DETENTION/BMP FACILITIES. ALSO UPON COMPLETION, THE CONSTRUCTION OF ALL DETENTION/BMP FACILITIES SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER WHO INSPECTED THE STRUCTURE DURING CONSTRUCTION. THE CERTIFICATION SHALL STATE THAT TO THE BEST OF HIS/HER JUDGEMENT, KNOWLEDGE, AND BELIEF, THE STRUCTURE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVAL PLANS AND SPECIFICATIONS.



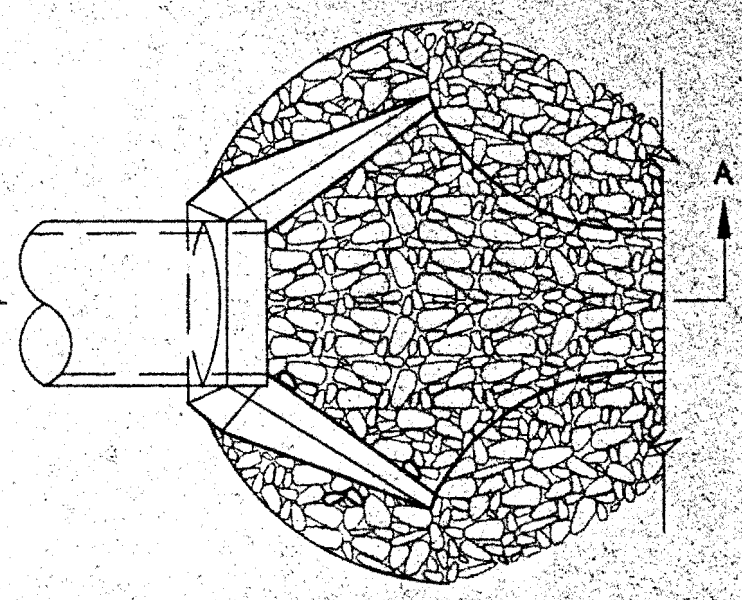
PLAN



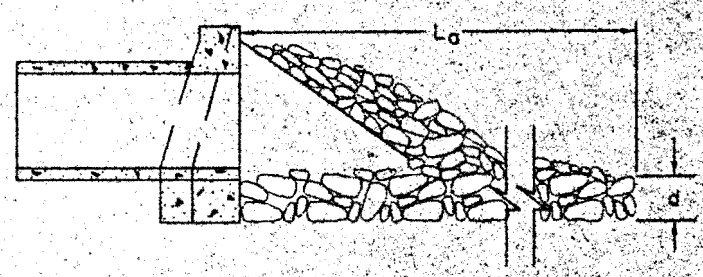
SECTION A–A

Pipe outlet To Flat Area With No Defined Channel

1. Apron lining may be riprap, grouted riprap, or concrete.
2. L_a is the length of the riprap apron as calculated using Plates 1.36d and 1.36e.
3. d=1.5 times the maximum stone diameter but not less than 6 inches.



PLAN



SECTION A–A

Pipe Outlet To Well-Defined Channel

OP OUTLET PROTECTION

NOT TO SCALE

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

CONSULTING ENGINEERS

NOTES AND DETAILS

FORD'S COLONY AT WILLIAMSBURG

SECTION III-B (LOTS 1 - 25)

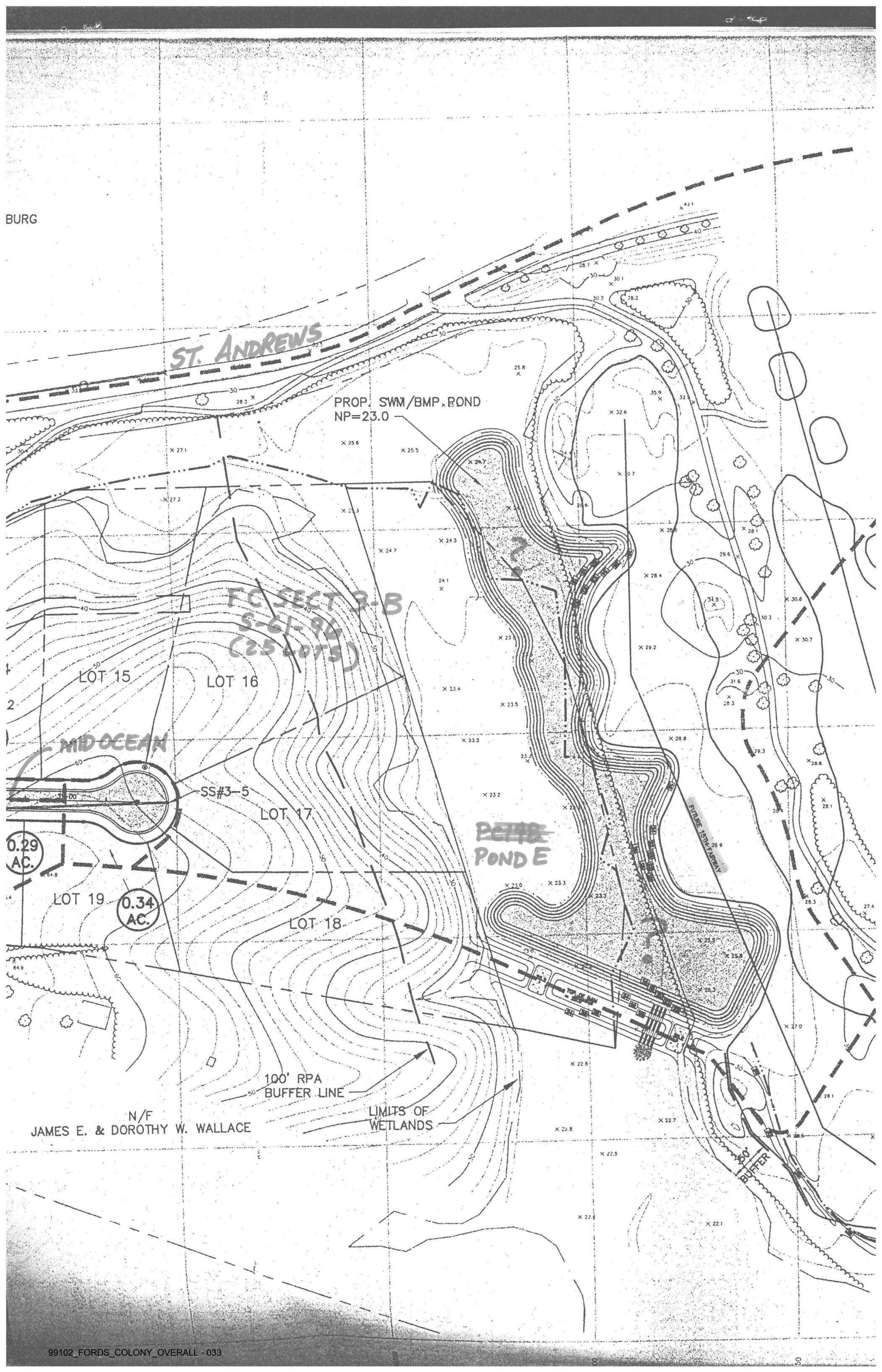
OWNER / DEVELOPER : REALTEC INCORPORATED

POWHATAN DISTRICT JAMES CITY COUNTY VIRGINIA

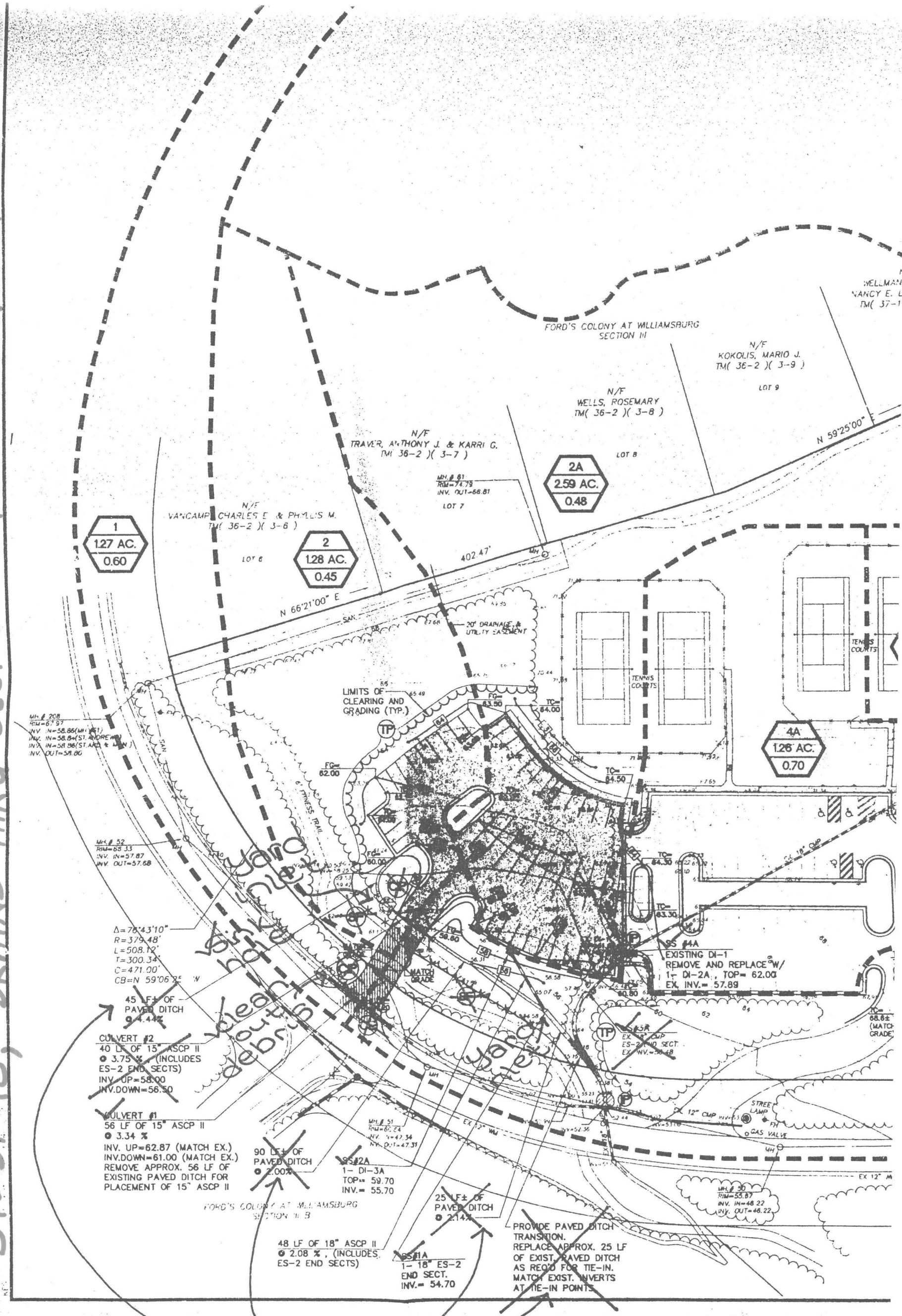
Designed	Drawn
CAH	GG
Scale	Date
NONE	7/18/96

Project No. 5852-3B

Drawing No. 12


BURG
ST. ANDREWS
PROP. SWM/BMP POND
NP=23.0
FC SECT 3-B
5-6-96
(25 LOTS)
LOT 15
LOT 16
MID OCEAN
SS#3-5
LOT 17
0.29 AC.
LOT 19
0.34 AC.
LOT 18
PONDE
FUTURE 15TH FAIRWAY
100' RPA BUFFER LINE
LIMITS OF WETLANDS
N/F
JAMES E. & DOROTHY W. WALLACE
50' BUFFER

COPY - FORDS COLONY COMMUNITY CTR. AMEND #2
SP-31-98; DRAINS THRU SECT 3-B CHANNEL TO PC 148



N/F
HENION, JAMES T. & GAYLE H.
TM(37-1)(3-11)

LOT 11

N/F
WELLMAN, ROBERT & NANCY E. LIVING TRUST
TM(37-1)(3-10)

LOT 10

RYAN, ARTHU
TM(37

LOT 12

FORD'S COLONY AT WILLIAMSBURG
SECTION III

N/F
KOKOLIS, MARIO J.
TM(36-2)(3-9)

LOT 9

N/F
WELLS, ROSEMARY
TM(36-2)(3-8)

LOT 8

N/F
TRAVER, ANTHONY J. & KARRI G.
TM(36-2)(3-7)

LOT 7

N/F
VANCAMP, CHARLES E. & PHYLLIS M.
TM(36-2)(3-6)

LOT 6

2A
2.59 AC.
0.48

2
1.28 AC.
0.45

250.00'
N 59°25'00" E
6' FITNESS TRAIL
402.47'
N 66°21'00" E
20' DRAINAGE & UTILITY EASEMENT
LIMITS OF CLEARING AND GRADING (TYP.)
TENNIS COURTS
TENNIS COURTS
5A
0.28 AC.
0.70
4A
1.26 AC.
0.70
3
0.36 AC.
0.70
EX. DI
TOP=68.71
INV.=66.12
EX. DI
TOP=73.50
INV.=71.18
EX. DI
TOP=69.06
INV.=66.12
EXISTING DI-1
REMOVE AND REPLACE W/
1- DI-2A, TOP= 62.00
EX. INV.= 57.89
MATCH GRADE
TC=70.3± (MATCH GRADE)
TC=68.6± (MATCH GRADE)
EX. 18" CMP
EX. 12" CMP
EX. 12" WM
STREET LAMP
GAS VALVE
FIRE DEPT. CONN.
S 82°32'00" W
ST. ANDREWS DRIVE
MH. # 30
RIM=55.87
INV. IN=48.22
INV. OUT=48.22
MH. # 51
RIM=62.64
INV. IN=47.34
INV. OUT=47.31
MH. # 61
RIM=74.79
INV. OUT=66.81
MH. # 59
RIM=79.75
INV. IN=6
INV. OUT=
PICKET

5 LF± OF PAVED DITCH
4.44%

T #2
OF 15" ASCP II
% (INCLUDES END SECTS)
=58.00
WN=56.50

RT #1
OF 15" ASCP II
4 %
IP=62.87 (MATCH EX.)
WN=61.00 (MATCH EX.)
E APPROX. 56 LF OF
NG PAVED DITCH FOR
MENT OF 15" ASCP II

90 LF± OF PAVED DITCH
@ 2.00%

SS #2A
1- DI-3A
TOP= 59.70
INV.= 55.70

25 LF± OF PAVED DITCH
@ 2.14%

48 LF OF 18" ASCP II
@ 2.08 %, (INCLUDES ES-2 END SECTS)

SS #1A
1- 18" ES-2 END SECT.
INV.= 54.70

PROVIDE PAVED DITCH TRANSITION.
REPLACE APPROX. 25 LF OF EXIST. PAVED DITCH AS REQ'D FOR TIE-IN.
MATCH EXIST. INVERTS AT TIE-IN POINTS.

FORD'S COLONY AT WILLIAMSBURG
SECTION III B

Visit have clean out debris

OK per DEC on 4-29-02.

No.	DATE	REVISION / COMMENT / NOTE
4	3/12/98	AMENDMENT #2
3	01/22/98	REVISIONS PER JCC COMMENTS
2	12/8/97	REVISIONS PER JCC COMMENTS
1	10/28/97	REVISIONS PER JCC AND CLIENT COMMENTS

LEGEND

2A / 2.59 AC. / 0.48 — DRAINAGE AREA ID. / ACREAGE / C FACTOR

N/F RYAN, ARTHUR E. & MARGRET E. TM(37-1)(3-12)

LOT 12

N/F PADDEN, NORMAN W. & THERESA C. TM(37-1)(3-13)

LOT 13

N/F HUCKABY, FRANK W. TM(37-1)(3-14)

LOT 14

FORD'S COLONY AT WILLIAMSBURG SECTION III

N/F LACOE, WAYNE G. & JUNE C. TM(37-1)(3-15)

LOT 15

N/F GROR, LORE TM(37-1)(3-16)

LOT 16

N/F MORELAND, STEPHEN T., JR. & SUSAN P. TM(37-1)(3-17)

LOT 17

20' DRAINAGE & UTILITY EASEMENT

LIMITS OF CLEARING AND GRADING (TYP.)

PICKET FENCE

POOL

STORAGE BLDG.

THE TOT-LOT WILL BE FINAL GRADED AFTER THE PLAY EQUIPMENT HAS BEEN CHOSEN

S 82°32'00" W 878.93'

S 39°21'00" E 325.98'

100' R/W

EX 12" WM

SAN

MH.# 58 RIM=58.52 INV. IN=51.98 INV. OUT=51.94

MH.# 59 RIM=79.75 INV. IN=68.63 INV. OUT=68.53

MH.# 59-A RIM=78.53 INV. IN=65.72 INV. OUT=65.63

MH.# 203 RIM=40.83 INV. IN=31.50(MH.#204) INV. IN=31.51(MH.#58) INV. OUT=31.47

MH.# 204 RIM=34.36 INV. IN=44.65 INV. OUT=44.62

CULVERT #3
65 LF OF 12" ASCP II
@ 4.61%
INV. UP=58.00
INV.DOWN=55.00

3 / 0.36 AC / 0.79

GRAPHIC SCALE
40' 0' 40' 80'
SCALE: 1" = 40'

Hgt not cleared and broaded on pm 9-02. ok pm

Yard inlet ok pm

Tot lot needs to be removed

COMMONWEALTH OF VIRGINIA — STEVEN G. WHEELER — 3/9/98 — No. 016307 — PROFESSIONAL ENGINEER

5246 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 253-0040
Fax (804) 220-8994
CONSULTING ENGINEERS

GRADING, DRAINAGE, SEDIMENT AND EROSION CONTROL PLAN

COMMUNITY CLUB AMENDMENT #2

FORD'S COLONY AT WILLIAMSBURG

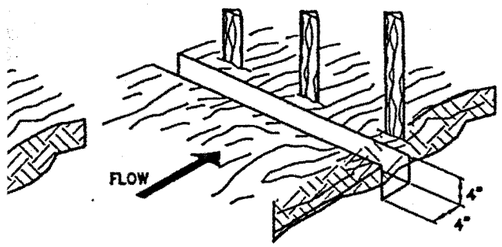
OWNER / DEVELOPER: REALTEC INCORPORATED

POWHATAN DISTRICT — JAMES CITY COUNTY — VIRGINIA

Designed	Drawn
SOW	LBA
Scale	Date
1"=40'	MAR 1998
Project No.	
5652-40	
Drawing No.	
2	

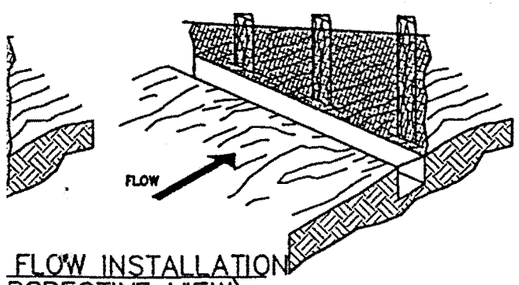
3/16

2. EXCAVATE A 4" x 4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.

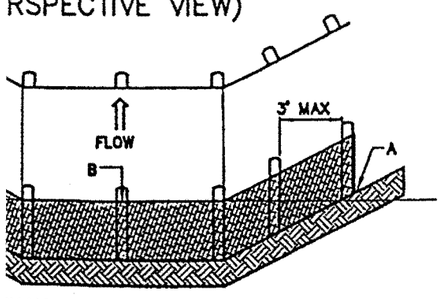


AL TO STAKES
HE TRENCH.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



FLOW INSTALLATION
RSPECTIVE VIEW)



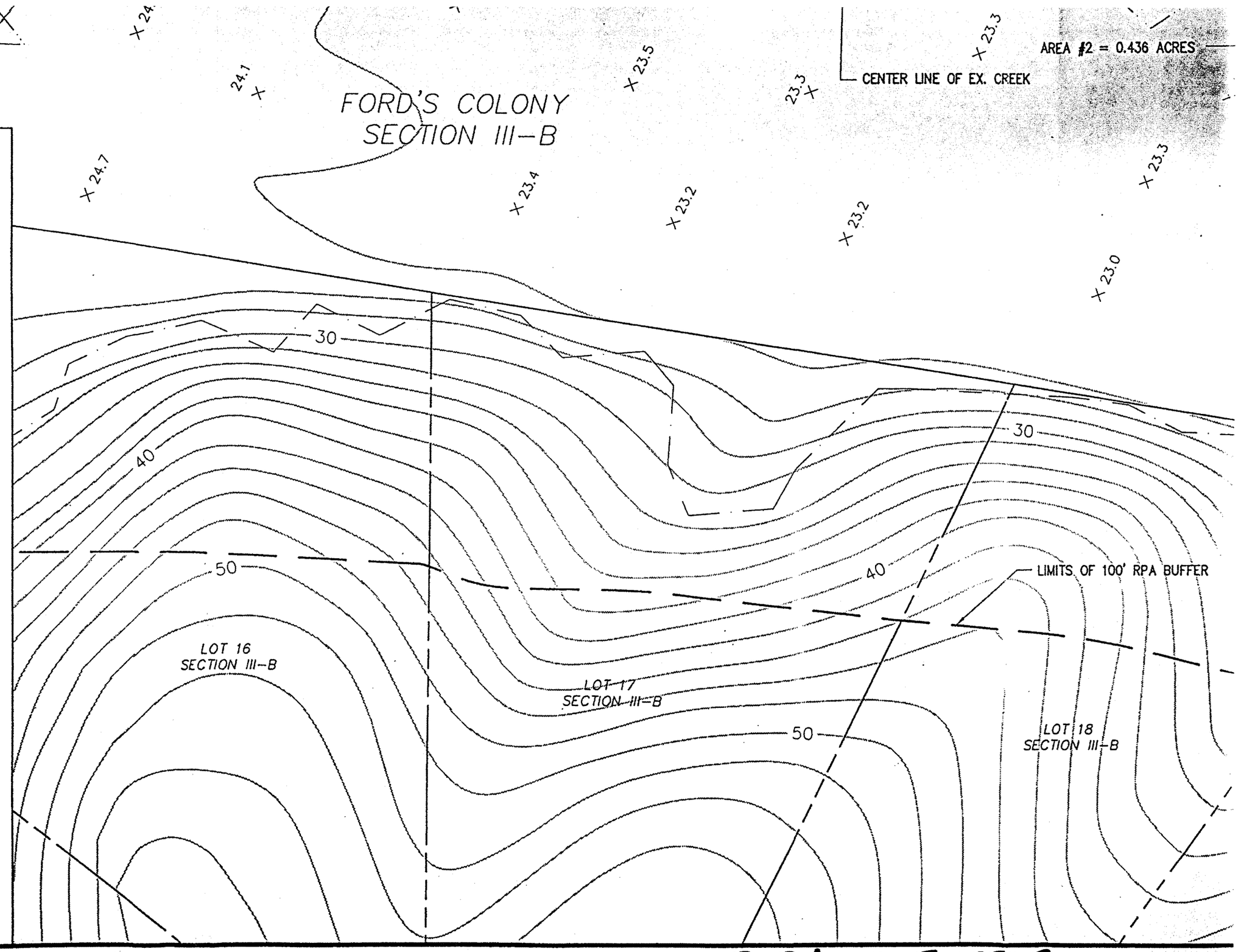
HALL BE HIGHER THAN POINT B

AGEWAY INSTALLATION
RONT ELEVATION)

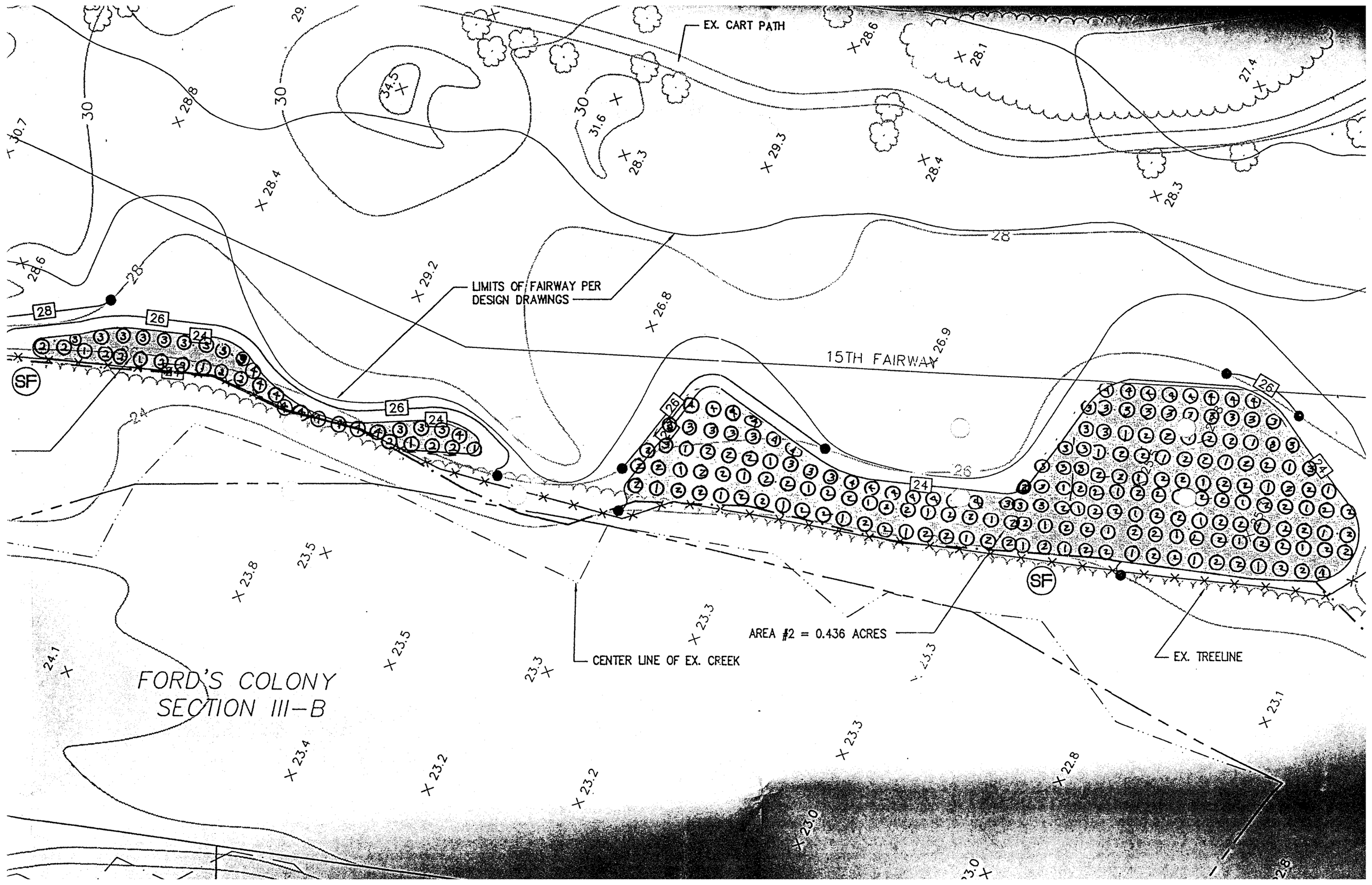
CTION OF A SILT FENCE
OUT WIRE SUPPORT)

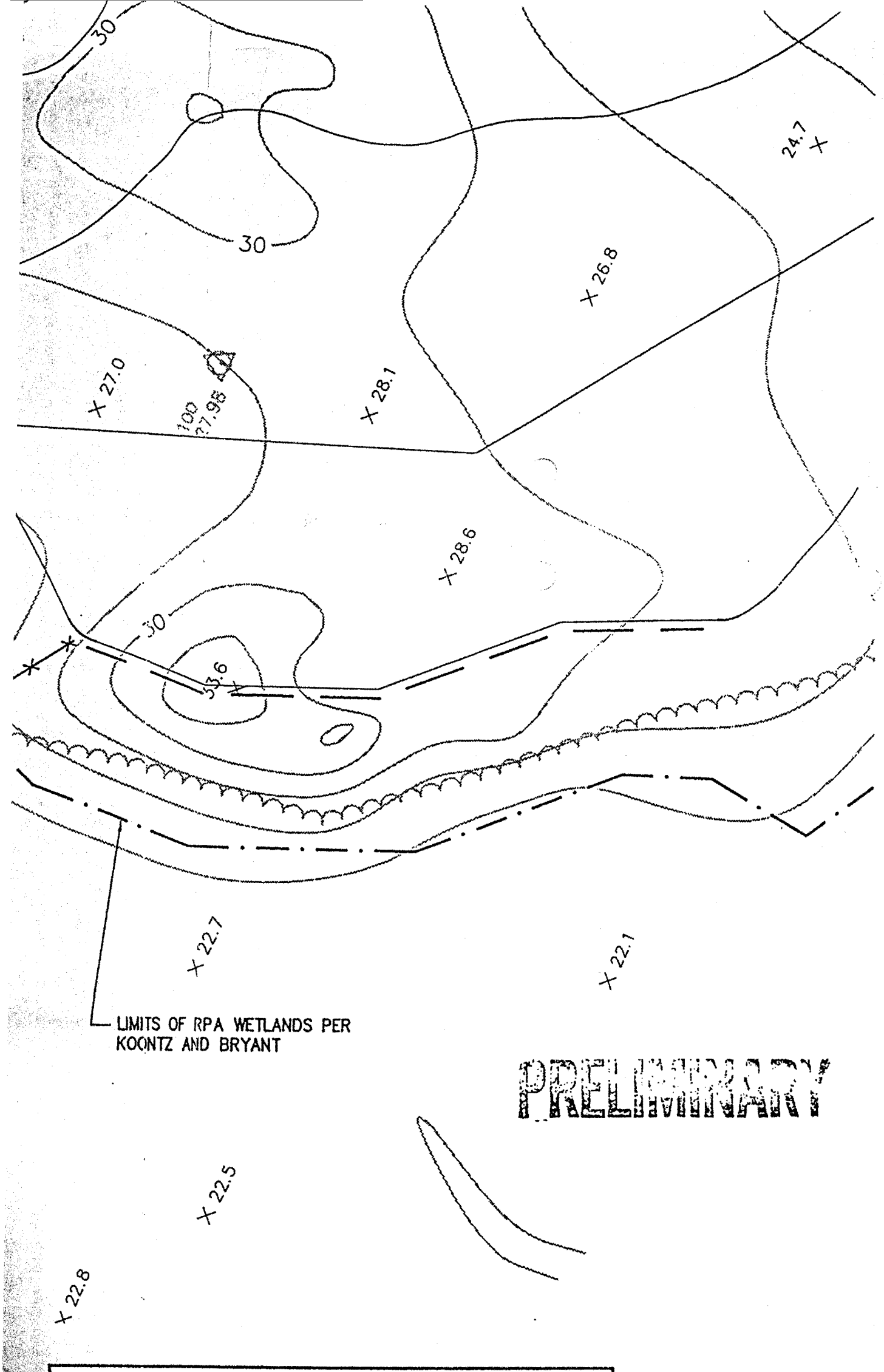
N.T.S.

D-SFWOW.dwg



S-86-00 FC SEC 30


EX. CART PATH
LIMITS OF FAIRWAY PER DESIGN DRAWINGS
15TH FAIRWAY
AREA #2 = 0.436 ACRES
CENTER LINE OF EX. CREEK
EX. TREELINE
FORD'S COLONY SECTION III-B
SF
SF



PRELIMINARY

NOTE: SEE SUPPLEMENTAL PAGE INDICATING REQUIRED PLANTING IN WETLAND RESTORATION AREA

U. S. ARMY CORPS OF ENGINEERS
RECEIVED
MAY 31 2002
BY

INDICATES WETLANDS RESTORATION AREA

AREA #1 = 0.066 AC.
AREA #2 = 0.436 AC.

TOTAL AREA TO BE RESTORED = 0.502 AC.

COMMONWEALTH OF VIRGINIA
MARC VAN KEN
No. 28
PROFESSIONAL ENGINEER
5/14/02

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CONSULTING ENGINEERS

GRADING PLAN - BLACKHEATH HOLE #15
FORD'S COLONY AT WILLIAMSBURG
SECTION XXX - MITIGATION AREA
OWNER / DEVELOPER : REALTEC INCORPORATED
POWHATAN DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
CBR	CBR
Scale	Date
1"=40'	5/14/02
Project No.	
5652-30-1	
Drawing No.	
1	

STORM SEWER TABULATION

DATA FILE: RECENTER.ST3
RAINFALL FILE: jcc.RN3
PRINTED: 08-27-1997

10 YEAR DESIGN STORM Q = CIA I = 65.128/ (Tc + 13.200) ^ 0.769

LINE No.	INC AREA (AC)	RNOFF COEFF (C)	INC C*A	SUM C*A	TIME CONC (MIN)	RNFAL INT I (IPH)	TOTAL FLOW Q=CA*I, AdQ (CFS)		PIPE CAP (CFS)	SIZE HT/W (IN)	PIPE LEN (FT)	PIPE SLOPE (%)	HYD GRD SLOPE (%)	VEL UP/DN (FPS)	HYD GRD UP/DOWN (FT)	INVERT UP/DOWN (FT)	COMMENTS/ DOWNSTREAM LINE #
4	1.7	0.35	0.6	0.6	20.0	4.41	2.62		15.6	15	22	5.000	2.391	4.08	60.21	59.30	4 - 3
							2.62	0.0		15				2.14	59.68	58.20	3
3	0.9	0.70	0.6	1.2	20.1	4.40	5.23		8.2	15	29	1.379	0.260	4.86	59.31	58.29	3 - 2
							5.23	0.0		15				4.26	59.24	57.89	2
2	0.0	0.00	0.0	1.4	20.3	4.38	5.98		16.2	18	29	2.379	1.818	5.17	58.82	57.89	2 - 1
							5.98	0.0		18				4.32	58.30	57.20	1
1	1.7	0.40	0.7	2.0	20.4	4.36	8.89		10.1	18	54	0.926	0.926	6.42	58.30	57.20	1 - out
							8.89	0.0		18				6.42	57.80	56.70	OUTFALL

5	0.3	0.70	0.2	0.2	7.5	6.34	1.11		26.1	18	210	6.181	5.947	2.91	71.73	71.18	5 - 1
							1.11	0.0		18				0.85	59.24	58.20	2

STORM SEWER DESIGN / ANALYSIS

Return Period = 10 Yrs
Rainfall file: jcc

Run Date: 08-27-1997
File: RECENTER.ST3

LINE 1 / Q = 8.89 / HT = 18 / WID = 18 / N = .013 / L = 54 / JLC = 0

1 - out / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	57.80	13.15	56.70	6.42	58.44	15.97	N/A	1.38
UPSTRM	58.30	13.15	57.20	6.42	58.94	15.97	2.79	1.38

Drainage area (ac) =	1.68	Slope of invert (%) =	0.9259
Runoff coefficient =	0.40	Slope energy grade line (%) =	0.9259
Time of conc (min) =	20.44	Critical depth (in) =	13.65
Inlet time (min) =	15.00	Natural ground elev. (ft) =	61.50
Intensity (in/hr) =	4.36	Upstream surcharge (ft) =	0.00
Cumulative C*A =	2.04	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	8.89	Line capacity (cfs) =	10.10
Q catchment (cfs) =	3.36	Inlet length (ft) =	0.00
Q carryover (cfs) =	6.35	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	9.71	Ponding width (ft) =	N/A

Note: Normal depth assumed

LINE 2 / Q = 5.98 / HT = 18 / WID = 18 / N = .013 / L = 29 / JLC = 1

2 - 1 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	58.30	13.15	57.20	4.32	58.59	15.38	2.79	1.38
UPSTRM	58.82	11.19	57.89	5.17	59.24	17.46	1.79	1.16

Drainage area (ac) =	0.00	Slope of invert (%) =	2.3793
Runoff coefficient =	0.00	Slope energy grade line (%) =	2.2514
Time of conc (min) =	20.28	Critical depth (in) =	11.19
Inlet time (min) =	0.00	Natural ground elev. (ft) =	61.19
Intensity (in/hr) =	4.38	Upstream surcharge (ft) =	0.00
Cumulative C*A =	1.37	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	5.98	Line capacity (cfs) =	16.20
Q catchment (cfs) =	0.00	Inlet length (ft) =	0.00
Q carryover (cfs) =	6.35	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	6.35	Ponding width (ft) =	N/A

LINE 3 / Q = 5.23 / HT = 15 / WID = 15 / N = .012 / L = 29 / JLC = 1

3 - 2 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	59.24	15.00	57.89	4.26	59.52	0.00	2.04	1.23
UPSTRM	59.31	12.29	58.29	4.86	59.68	11.54	2.15	1.08

Drainage area (ac)	= 0.85	Slope of invert (%)	= 1.3793
Runoff coefficient	= 0.70	Slope energy grade line (%)	= 0.5520
Time of conc (min)	= 20.12	Critical depth (in)	= 10.98
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 61.70
Intensity (in/hr)	= 4.40	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 1.19	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 5.23	Line capacity (cfs)	= 8.22
Q catchment (cfs)	= 2.62	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 2.62	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 5.25	Ponding width (ft)	= N/A

LINE 4 / Q = 2.62 / HT = 15 / WID = 15 / N = .012 / L = 22 / JLC = 1

4 - 3 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	59.68	15.00	58.20	2.14	59.75	0.00	2.25	1.23
UPSTRM	60.21	7.78	59.30	4.08	60.47	14.99	1.45	0.64

Drainage area (ac)	= 1.70	Slope of invert (%)	= 5.0000
Runoff coefficient	= 0.35	Slope energy grade line (%)	= 3.2450
Time of conc (min)	= 20.00	Critical depth (in)	= 7.78
Inlet time (min)	= 20.00	Natural ground elev. (ft)	= 62.00
Intensity (in/hr)	= 4.41	Upstream surcharge (ft)	= 0.00
Cumulative C*A	= 0.60	Additional Q (cfs)	= 0.00
Q = CA * I (cfs)	= 2.62	Line capacity (cfs)	= 15.64
Q catchment (cfs)	= 2.62	Inlet length (ft)	= 0.00
Q carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.0000
Q captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.0000
Q bypassed (cfs)	= 2.62	Ponding width (ft)	= N/A

LINE 5 / Q = 1.11 / HT = 18 / WID = 18 / N = .013 / L = 210 / JLC = 1.1

5 - 1 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	59.24	12.46	58.20	0.85	59.25	14.98	1.48	1.31
UPSTRM	71.73	4.82	71.18	2.91	71.86	15.94	.81	0.38

Drainage area (ac) =	0.25	Slope of invert (%) =	6.1810
Runoff coefficient =	0.70	Slope energy grade line (%) =	5.9351
Time of conc (min) =	7.50	Critical depth (in) =	4.82
Inlet time (min) =	7.50	Natural ground elev. (ft) =	73.50
Intensity (in/hr) =	6.34	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.17	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	1.11	Line capacity (cfs) =	26.11
Q catchment (cfs) =	1.11	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	1.11	Ponding width (ft) =	N/A

ENVIRONMENTAL
DIVISION

LD-269
Rev 3-83

Project: FORD'S COLONY COMMUNITY CENTER

Plan Sheet No. ____ Designer ____
Rev. Date ____ Date 3/12

Sheet 1 of 3

HYDROLOGICAL DATA:
D.A. = 1.27 AC.

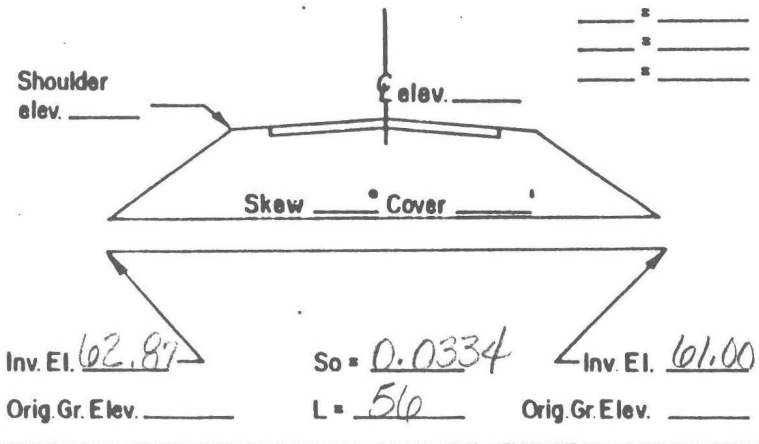
C=0.60
i_{10}=5.00 in/hr

CULVERT #1
56 LF OF 15" ASCP II
@ 3.34%

AHW Controls
100 yr. Flood plain ____ elev. ____
Design AHW depth ____ elev. ____
Structures ____ elev. ____

STATION ____

freq. TW elev.
____ = ____
____ = ____
____ = ____
____ = ____
____ = ____



DISCHARGES USED
Q 10 = 3.8 CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS

RISK ASSESSMENT ADT ____
Detours Available ____, Length ____
Overtopping Stage ____
Flood Plain Management ____
Criteria and Significant Impact ____

240 A

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONTROL Ke	dc	$\frac{dc+D}{2}$	ho	H	LSo	HW	CONT. HW. ELEV.	OUTLET VELOCITY C.M.	Smooth	End Treat.	COMMENTS
15" ASCP II	3.8		1.0	1.25	.5	.75	1.0	1.0	.8	1.87	0					INLET CONTROL

Design Flood Exceed Prob. ____ Elev ____
Overtop Flood Exceed Prob. ____ Elev ____

LD-269
Rev 3-83

Project: FORD'S COLONY COMMUNITY CENTER

Plan Sheet No. ____ Designer ____
Rev. Date ____ Date 3/12

Sheet 2 of 3

HYDROLOGICAL DATA:
D.A. = 1.28 AC.

C = 0.45
i_{10} = 5.81 in/hr

CULVERT #2

40 LF OF 15" ASCP II
@ 3.75%

FOR L < 50':

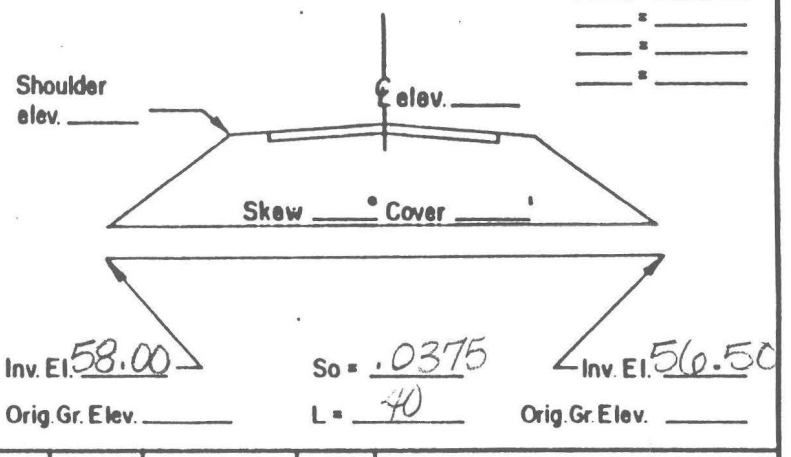
$$H = \left(1 + K_e + \frac{29 n^2 L}{R^{1.33}}\right)\frac{V^2}{2g}$$

$$V = \frac{0.59}{n} d^{2/3} S^{1/2} \qquad R = \frac{d}{4}$$

AHW Controls
100 yr. Flood plain ____ elev. ____
Design AHW depth ____ elev. ____
Structures ____ elev. ____

STATION ____

freq. TW elev.
____ = ____
____ = ____
____ = ____
____ = ____
____ = ____



DISCHARGES USED
Q 10 = 3.3 CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS

RISK ASSESSMENT ADT ____
Detours Available ____, Length ____
Overtopping Stage ____
Flood Plain Management ____
Criteria and Significant Impact ____

240 A

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONTROL Ke	dc	(dc+D)/2	ho	H	LSo	HW	CONT. HW. ELEV.	OUTLET VELOCITY C.M.	OUTLET VELOCITY Smooth	End Treat.	COMMENTS
15" ASCP II	3.3		0.93	1.16	.5	.65	.95	.95	2.2	1.5	1.65					OUTLET CONTROL
																W/ FRBD ∴ OK

Design Flood Exceed Prob. ____ Elev ____
Overtop Flood Exceed Prob. ____ Elev ____

LD-269
Rev 3-83

Project: FORD'S COLONY COMMUNITY CENTER

Plan Sheet No. ____ Designer ____
Rev. Date ____ Date 3/16

Sheet 3 of 3

HYDROLOGICAL DATA:
D.A. = 0.36 AC.

C = 0.7
i_{10} = 5.00 in/hr

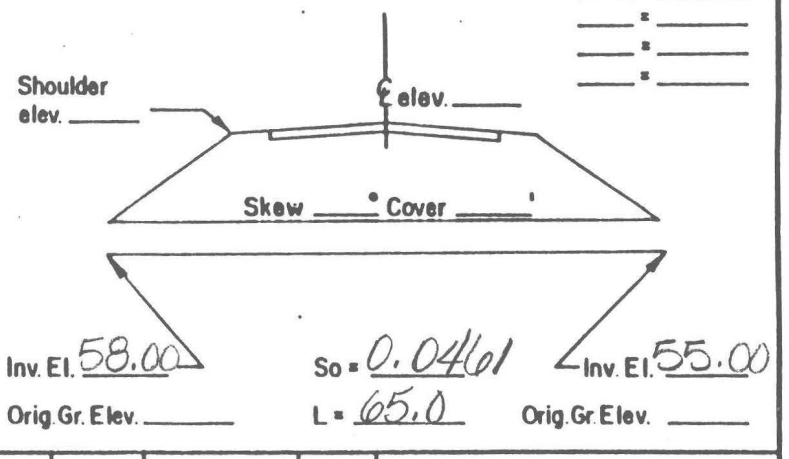
CULVERT #3

65 LF OF 12" ASCP II
@ 4.61%

AHW Controls
100 yr. Flood plain ____ elev. ____
Design AHW depth ____ elev. ____
Structures ____ elev. ____

STATION ____

freq. TW elev.
____ = ____
____ = ____
____ = ____
____ = ____
____ = ____



DISCHARGES USED
Q 10 = 1.26 CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS
Q ____ = ____ CFS

RISK ASSESSMENT
ADT ____
Detours Available ____, Length ____
Overtopping Stage ____
Flood Plain Management ____
Criteria and Significant Impact ____

240 A

CULVERT TYPE & SIZE	Q	Q/B	HEADWATER COMPUTATIONS									CONT. HW. ELEV.	OUTLET VELOCITY		End Treat.	COMMENTS
			INLET CONT.		OUTLET CONTROL											
			HW/D	HW	Ke	dc	$\frac{dc+D}{2}$	ho	H	LSo	HW		C.M.	Smooth		
12" ASCP II	1.26		.74	.74	.5	.4	.7	.7	.8	3.0	0					INLET CONTROL

Design Flood Exceed Prob. ____ Elev ____
Overtop Flood Exceed Prob. ____ Elev ____

STORM SEWER DESIGN / ANALYSIS

Return Period = 10 Yrs
Rainfall file: jcc

Run Date: 03-10-1998
File: FCSWMTN1.ST3

LINE 1 / Q = 6.83 / HT = 18 / WID = 18 / N = .024 / L = 38 / JLC = 1

SS#3A - SS#4A / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	57.35	10.38	56.48	6.47	58.00	17.79	-1.5	1.06
UPSTRM	58.76	10.38	57.89	6.47	59.41	17.79	2.61	1.06

Drainage area (ac) =	1.26	Slope of invert (%) =	3.7105
Runoff coefficient =	0.70	Slope energy grade line (%) =	3.7105
Time of conc (min) =	7.50	Critical depth (in) =	11.97
Inlet time (min) =	7.50	Natural ground elev. (ft) =	62.00
Intensity (in/hr) =	6.34	Upstream surcharge (ft) =	0.00
Cumulative C*A =	1.08	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	6.83	Line capacity (cfs) =	10.96
Q catchment (cfs) =	5.59	Inlet length (ft) =	2.20
Q carryover (cfs) =	1.37	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	6.96	Ponding width (ft) =	N/A

Note: Normal depth assumed

LINE 2 / Q = 1.37 / HT = 18 / WID = 18 / N = .024 / L = 228 / JLC = .75

SS#4A - SS#5A / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	59.41	18.00	57.89	0.78	59.42	0.00	2.61	1.77
UPSTRM	71.72	5.36	71.16	3.11	71.87	16.46	.83	0.44

Drainage area (ac) =	0.28	Slope of invert (%) =	5.8202
Runoff coefficient =	0.70	Slope energy grade line (%) =	5.4130
Time of conc (min) =	5.00	Critical depth (in) =	5.36
Inlet time (min) =	5.00	Natural ground elev. (ft) =	73.50
Intensity (in/hr) =	7.00	Upstream surcharge (ft) =	0.00
Cumulative C*A =	0.20	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	1.37	Line capacity (cfs) =	13.72
Q catchment (cfs) =	1.37	Inlet length (ft) =	2.50
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	1.37	Ponding width (ft) =	N/A

STORM SEWER DESIGN / ANALYSIS

Return Period = 10 Yrs
Rainfall file: jcc

Run Date: 03-18-1998
File: FCSWMTN2.ST3

LINE 1 / Q = 7.88 / HT = 18 / WID = 18 / N = .024 / L = 48 / JLC = 1

SS#1A - SS#2A / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	55.77	12.85	54.70	5.84	56.30	15.21	-1.65	1.35
UPSTRM	57.36	15.41	55.70	4.89	57.73	12.64	2.5	1.61

Drainage area (ac) =	2.59	Slope of invert (%) =	2.0833
Runoff coefficient =	0.48	Slope energy grade line (%) =	2.1993
Time of conc (min) =	7.50	Critical depth (in) =	12.85
Inlet time (min) =	7.50	Natural ground elev. (ft) =	59.70
Intensity (in/hr) =	6.34	Upstream surcharge (ft) =	0.16
Cumulative C*A =	1.24	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	7.88	Line capacity (cfs) =	8.21
Q catchment (cfs) =	7.88	Inlet length (ft) =	2.50
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	7.88	Ponding width (ft) =	N/A

Ford's Colony at Williamsburg 27-Jun-97

Subbasin Release Rates

A Comparison of the Design Release Rates
to the 1987 Master Stormwater Management Plan

Subbasin Designation	Ford's Colony Section/Pond	2yr. Post Q Out (cfs)	Actual Design 2yr. Post Q Out (cfs)	Difference From Appr. Q Out (cfs)
9	6	22.88	18.5	4.38
10	6 & 14	5	12.3	-7.3
11	13c	5	2.9	2.1
12	16	5	4.7	0.3
13	9a	5	5.8	-0.8
14	9b	5	5.33	-0.33
15	11 & 12 Fairway	25	16.4	8.6
16	7	5	6.77	-1.77
	Total =	77.88	72.7	
			Difference =	5.18

Scott Thomas

From: Scott Thomas
Sent: Friday, November 04, 2005 1:47 PM
To: 'Grimes, Jason A.'
Subject: SSC Criteria in JCC

Jason

I got your voicemail about application of SSC criteria to various infill-type projects at Ford's Colony. Since adoption by the board on December 14, 2004 the SSC criteria applies to any plan of development within defined SSC areas in Powhatan Creek and within the PSA area in Yarmouth Creek. There is no grandfathering or exception as it is applied to new plans of development. Based on the Powhatan Creek plan and the Stormwater Master Plan, the best I can tell is it would only apply to those projects in Ford's Colony within the portion of Subwatershed 203 labeled as "the stem", which is in the southwest corner appearing to consist mostly of Sections 3B and Section 2, and catchment 205-105-1, which is up along Longhill Road within Section 32 (see attached map).

This was a quick assessment, if you need to discuss it further let me know.

Scott J. Thomas, P.E.
James City County
Environmental Division

Note:

Although called for on approved plan, it appears this facility was never built. Conditional approval was granted for Land-Disturbing with the provision that the BMP Pond E could not be constructed until a wetland permit was issued. County requested the BMP be eliminated due to RPA and due to 10 points were achieved under the master plan without need for the BMP. AES contested that the facility was necessary.

It appears wetland permit was never obtained, land-disturbing proceeded and the facility was never constructed.

The facility was originally assigned a County BMP ID code of PC 148 but was stricken from the GIS and Access database. The AB file was retained for record purposes only.

Scott J. Thomas
05-8-02

CONSULTING ENGINEERS

5248 Olde Towne Road, Suite 1, Williamsburg, Virginia 23188

September 20, 1996

James City County
Department of Development Management
101-E Mounts Bay Road
Williamsburg, Virginia 23185

Attention: Mr. Gary A. Pleskac

RE: Ford's Colony Section III-B
James City County Case No. S-61-96
AES Project No. 5652-3B

Dear Mr. Pleskac:

The following is an itemized letter of response to conditions set forth in James City County's letter dated September 18, 1996.

Planning Department:

1. A note to this effect has been added to Sheet 1.

2. Two monuments on the exterior subdivision boundary will be referenced to JCC geodetic control network on the subdivision plat.

3. No natural open space areas are planned for dedication to James City County for this project.

4. Noted.

5. All street lights in Ford's Colony are private.

6. A note to this effect has been added to Sheet 1.

7. Street names have been provided on Sheet 1.

Richard A. Costello, P.E. • Andrew M. Snyder, P.E. • G. Archer Marston, III, P.E.
G.T. Wilson, Jr., C.L.S. • Steven O. Wigley, P.E. • G. Donald Gartrell, III, P.E.

(804) 253-0040 FAX (804) 220-8994

12. The proposed SWM/BMP pond has been approved as part of the Ford's Colony Master BMP Plan. AES and Ford's Colony consider the pond to be an integral part of the Ford's Colony land plan and ,therefore, do not wish to delete the pond from the plans for this subdivision. A meeting between AES, Ford's Colony, and Bernard Farmer of JCC Code Compliance on this issue is forthcoming.

13. A conservation easement has been provided as requested.

14. Drainage calculations for system #3 have been provided.

15. The drainage areas have been revised.

16. An exception request is attached.

17. The areas of wetland disturbance for this project are limited to the proposed SWM/BMP facility and one utility crossing. Any required permits for these areas of disturbance will be pursued with the Corps of Engineers.

18. A meeting between AES, Ford's Colony, and James City County on this issue is forthcoming.

<u>James City Service Authority:</u>

1. The waterline layout has been revised.

2. A detail has been provided.

3. A note to this effect is on Sheet 1 of the construction plans.

4. The sanitary sewer layout has been revised.

5. Sanitary sewer service connections have been provided for lots 9,10, and 11.

6. Flow results for the water main on St. Andrew's Drive are attached.

7. Noted.

ERASED FROM DATABASE

WATERSHED	PC	MAINTENANCE PLAN	No	CTRL STRUC DESC	None
BMP ID NO	148	SITE AREA acre	29.64	CTRL STRUC SIZE inches	
PLAN NO	S-61-96	LAND USE	Resid Planned Co	OTLT BARRL DESC	Four RCP C
TAX PARCEL	(30-04)(01-02)	old BMP TYP	Wet Pond	OTLT BARRL SIZE inch	30
PIN NO	3040100002	JCC BMP CODE			
CONSTRUCTION DATE		POINT VALUE		EMERG SPILLWAY	No
PROJECT NAME	Fords Colony Sec 3-B			DESIGN HW ELEV	27.55
FACILITY LOCATION	Behind (east) 148 Mid Ocean Lot 18			PERM POOL ELE	23.0
CITY-STATE	Williamsburg, Va. 23188	SVC DRAIN AREA acres		2-YR OUTFLOW cfs	0.00
CURRENT OWNER	Ford's Colony Country Club Inc.			10-YR OUTFLOW cfs	0.00
OWNER ADDRESS	240 Ford's Colony Drive			REC DRAWING	No
OWNER ADDRESS 2		SERVICE AREA DESCRI	SF Sec 3-B, Comm Center, Roads		
CITY-STATE-ZIP CODE	Williamsburg, Va. 23188	IMPERV AREA acres	0.00	CONSTR CERTI	No
OWNER PHONE		RECV STREAM	UT of Powhatan Creek		
MAINT AGREEMENT	No	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	2/21/2002
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft		INTERNAL RATING	4
		CHAN PROT CTRL	No	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0	Between Sec 3-B Mid Ocean and FW # 15 Blackheath.	
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No

Return to Menu

2/10/10
Note PC148, the number was re-used for a BMP in the Point @ Jamestown Subdivision

VOID
DATA HARD COPY FOR REF ONLY

James City County
Department of Code Compliance
P.O. Box JC
Williamsburg, VA 23187

Jamestown·1607
JAMES CITY COUNTY

LAND DISTURBING PERMIT

Application

LANDOWNER

NAME REALTEC INCORPORATED DATE AUG 30, 1996

ADDRESS (STREET) ONE FORD'S COLONY DRIVE

P.O. BOX WILLIAMSBURG VA 23188 PHONE 258.4230

PROJECT SECTION III-B FORD'S COLONY AT WILLIAMSBURG LOTS 1-25

LOCATION (USE STREET ADDRESS) ST. ANDREW'S DRIVE / MID OCEAN

TOTAL SIZE OF TRACT OR LOT

TOTAL AREA TO BE DISTURBED

DESCRIPTION OF LAND DISTURBING ACTIVITY INSTALLATION OF ROADS, WATER, SEWER AND DRAINAGE UTILITIES FOR SUBDIVISION.

RIGHT OF ENTRY

I, _____, (Signature) hereby grant designated officials of James City County, Virginia, the right to enter my property for the purpose of inspection or monitoring for compliance with the approved erosion and sediment plan on the above-referenced project.

Released 8/27/99

PLAN IMPLEMENTATION

I, _____, (Signature) certify that I fully understand the provisions of the James City County, Virginia, Erosion and Sediment Control Ordinance and agree to carry out the approved erosion and sedimentation control plan on the above-referenced project. I also understand that the approved erosion and sedimentation control plan becomes null and void on ~~February 30~~ 4/3 1997 and no further work subject to Chapter 5A of the County Code shall be allowed unless and until an additional or updated erosion and sedimentation control plan has been submitted and approved in accordance with Chapter 5A or unless all requirements of the approved control plan have been completed by ~~February 30~~ 4/3, 1997 in accord with such plan and verified by the on-site inspection by the Administrator or his designee.

- -

(For office use only)

PERMIT NO. 97-28 BOND AMOUNT $ 225,000

REVIEWED BY Darryl E Cook DATE 9/27/96

SPECIFIC REQUIREMENTS Construction / clearing to be limited to station 26+00 until issue related to pond construction is resolved. Construction of sewer line from MH 3B-3 to MH 3B-10 and BMP adjacent to 15th Fairway will not occur until wetlands permit is received from Army Corps of Engineers.

APPROVED BY Bernard Farmer ADMINISTRATOR - EROSION AND SEDIMENT CONTROL ORDINANCE

DATE 10/3/96

Renewal of E&S plan requested by:

_____

Renewal Reviewed By: Joan Williamson

Renewal Date: 3/24/97

Renewal Approved By: Darryl E Cook

Updated Erosion and Sedimentation Control Plan becomes null and void on: 10/3/97

CODE COMPLIANCE REVIEW COMMENTS
FORDS COLONY SECTION 3-B DEL
PLAN NO. S-61-96
September 30, 1996

✓1. On the sales road plan, sheet 6, provide a sediment trap at the drainage outfall between lots 13 and 14.

✓2. Provide EC-2 erosion control matting on the left side of Road A from stations 13+00 to 15+00 and 25+25 to 27+25, and on the right side of Road B from station 10+50 to 12+50.

✓3. Provide filter fabric below the riprap lining proposed for the existing channel to the north of the subdivision.

NA 4. The master stormwater management plan for Ford's Colony shows that the BMP proposed for this site only achieves 0.07 additional BMP points while the overall site achieves 10.28 points. Considering stormwater quantity, the BMP only reduces the 2-year storm from 85 cfs to 70 cfs. Finally, the BMP is located in an RPA and would impact a large area of wetlands. Given the small potential benefits of the BMP, the BMP shall be eliminated as the overall Fords Colony project can still achieve the 10 point criteria

✓5. Provide conservation easement plats for the RPA areas located on lots 16, 17 and 18.

6. Provide evidence that any required wetlands permits have been obtained.

✓7. Locate the sewer on lots 16-18 outside of the RPA.

status? permit shall prohibit const of pond until permit obtained.

check on A1 stone RR - size?

CODE COMPLIANCE REVIEW COMMENTS
FORDS COLONY SECTION 3-B
PLAN NO. S-61-96
August 23, 1996 DEC

1. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.

2. A Subdivision Agreement, with surety, shall be executed with the County prior to recordation of lots.

3. Water and sewer inspection fees must be paid prior to the issuance of a Land Disturbing Permit.

4. Provide the following Erosion Control measures and details for the sales road plan, sheet 6. Include a schedule for construction of all sediment traps to include all dimensions of storage and outlet structure.
   a. Provide a sediment trap at the outfall of SS-1.
   b. Provide a sediment trap at the drainage outfall between lots 7 and 8.
   c. Provide a sediment trap at the drainage outfall between lots 13 and 14. ?
   d. Provide a sediment trap at the drainage outfall between lots 16 and 17.
   e. Identify the rock check dams and specify their spacing.

5. Provide ditch calculations for sales road drainage ditches and the ditch behind and beside lot 25. - see comments on calcs
   check this on computer

6. Provide the following erosion control information on sheets 4 and 5:
   a. Delete double row of silt fence on lots 7 and 8.
   b. Provide EC-2 liner on all sewer easements located on steep slopes or highly erodible soils.
   c. Extend storm sewer system 3 to stream, rather than releasing runoff onto highly erodible soils.
   d. Provide for stream bank stabilization in all areas where sanitary sewer crosses stream.
   e. Once the drainage outfall on lots 7/8 is redirected to lots 8/9, a sediment trap must be provided to control the runoff from this outfall.

7. Show any temporary soil stockpile areas, staging and equipment storage areas.

8. Identify any off-site land disturbing areas required with proper erosion control measures.

9. The existing receiving channel to the north of the subdivision is currently inadequate by inspection and will become more unstable with the additional runoff generated by this development. The channel will need improvements to ensure it is adequate for the post-development 2-year storm velocity.

check A1 RR size - velocity in channel

It may be possible with selective placement of riprap or other stream restoration techniques to make the channel adequate instead of improving its entire length.

10. Place the existing drainage ditch shown on lots 7-9, and 11-16 into a drainage easement for future maintenance purposes.

11. Provide one foot deep drainage swales with a minimum slope of one percent in the following locations:
    a. In the sanitary sewer easement behind lots 1 through 4.
    b. In the sanitary sewer easement between lots 2 and 3 connecting with swale described in 14a.

12. The master stormwater management plan for Ford's Colony shows that the BMP proposed for this site only achieves 0.07 additional BMP points while the overall site achieves 10.28 points. Considering stormwater quantity, the BMP only reduces the 2-year storm from 85 cfs to 70 cfs. Finally, the BMP is located in an RPA and would impact a large area of wetlands. Given the small potential benefits of the BMP, the BMP shall be eliminated as the overall Fords Colony project can still achieve the 10 point criteria

13. Provide conservation easements for the RPA areas located on lots 16, 17 and 18.

14. Provide drainage calculations for storm drain system 3.

15. It is unclear what is the correct drainage areas for SS#1-7 and 1-5A. The plans indicate a diversion of a portion of the 0.95 acre watershed to the north of the 4.8 acre watershed for SS#1-7 while the plan states the drainage area as only 4.8 acres. The calculations for SS1-5A show a 0.8 acre drainage area while the plans indicate 0.22 acres. Please clarify.

16. Submit a request to the Director of Code Compliance for an exception to disturb slopes in excess of 25%. State what special measures, sodding etc., will be undertaken to restabilize these slopes.

17. Provide evidence that any required wetlands permits have been obtained.

18. Locate the sewer on lots 16-18 outside of the RPA.

99102_FORDS_COLONY_OVERALL - 061