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: **MC055**

DATE VERIFIED: **May 16, 2012**

QUALITY ASSURANCE TECHNICIAN: **Leah Hardenbergh**

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA

Stormwater Division

MEMORANDUM

DATE: March 12, 2010

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

FROM: Jo Anna Ripley, Stormwater

PO: 270712

RE: Files Approved for Scanning

General File ID or BMP ID: MC055

PIN: 3830100018

Subdivision, Tract, Business or Owner Name (if known): Saint Bedes Catholic Church

Property Description: Church Site

Site Address: 3686 Ironbound Road

(For Internal use only) **Box** 18 **Drawer:** N/A

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

Comments

James City County Environmental Division Stormwater Management/BMP Record Drawing and Construction Certification Review Tracking Form

Project Name: Saint Bede Catholic Church Dam Improvement
County Plan No.: SP-070-05
Stormwater Management Facility: Private Pond
BMP Phase #: ☐ I ☐ II ☐ III

- ☐ Information Package Received. Date/By: _____
- ☐ Completeness Check:
  - ☒ Record Drawing Date/By: 1/20/09 Peter Farrell
  - ☒ Construction Certification Date/By: 1/20/09 Peter Farrell
  - ☒ RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001Only)
  - ☒ Insp/Maint Agreement # / Date: NA
  - ☒ BMP Maintenance Plan Location: Sheet 4 upper right hand corner of page.
  - ☐ Other: _____
- ☐ Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review
  - ☐ Yes ☐ No Location: _____
- ☐ Assign **County BMP ID Code #**: Code: MC055
- ☒ Preliminary Input/Log into Division's "As-Built Tracking Log"
- ☒ Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)
- ☒ Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
- ☒ Active Project File Review (correspondence, H&H, design computations, etc.).
- ☒ Initial As-Built File setup (File label, folder, copy plan/details/design information, etc.).
- ☒ Inspector Check of RD/CC (forward to Inspector using transmittal for cursory review).
- ☒ Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection).
- ☒ Final Inspection (FI) Performed Date: 9/11/2008
- ☒ Record Drawing (RD) Review Date: 2/24/2009
- ☒ Construction Certification (CC) Review Date: 2/24/2009
- ☒ Actions:
  - ☐ No comments.
  - ☐ Comments. Letter Forwarded. Date: _____
  - ☒ Record Drawing (RD)
  - ☒ Construction Certification (CC)
  - ☒ Construction-Related (CR)
  - ☐ Site Issues (SI)
  - ☐ Other : _____
- ☒ Second Submission: NA
- ☒ Reinspection (if necessary): NA
- ☒ Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.
- ☒ Complete "Surety Request Form".
- ☒ Check/Clean active file of any remaining material and finish "As-Built" file.
- ☒ Add to County BMP Inventory/Inspection schedule (Phase I, II or III).
- ☒ Copy Final Inspection Report into County BMP Inspection Program file.
- ☐ Obtain Digital Photographs of BMP and save into County BMP Inventory.
- ☒ Request mylar/reproducible from As-Built plan preparer.
- ☒ Complete "As-built Tracking Log".
- ☐ Last check of BMP Access Database (County BMP Inventory).
- ☐ Add BMP to JCC Hydrology & Hydraulic database (optional).
- ☐ Add BMP to Municipal BMP list (if a County-owned facility)
- ☐ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Inspector: _____ Date: 3/3/2009

Chief Engineer: _____ Date: 3/18/09

*** See separate checklist, if needed.

RECEIVED
FEB 1 3 2009
ENVIRONMENTAL DIVISION

James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification Forms

(Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMP's shall be designed and constructed in accordance with the manual entitled James City County Guidelines for Design and Construction of Stormwater Management BMP's. Erosion and sediment control policy and approved plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project, including any Best Management Practice (BMP) facilities. In addition, for BMP facilities involving the construction of an impounding structure or dam embankment, certification is required by a Professional Engineer who has inspected the structure during its construction. Currently there are over 20 water quality type BMP's accepted by the County.)

Section 1 - Site Information:

Project Name: Saint Bede Catholic Church
Structure/BMP Name: Existing Pond JCC BMP ID: MC-55
Project Location: 3686 Ironbound Road
BMP Location: Approximately 500' southwest of the southwest corner of the church building
County Plan No.: SP-132-04

Project Type:
- ☐ Residential ☐ Business
- ☐ Commercial ☐ Office
- ☐ Institutional ☐ Industrial
- ☐ Public ☐ Roadway
- X Other Church

Tax Map/Parcel No.: 38-3-01-18
BMP ID Code (if known): MC-55
Zoning District:: R-8
Land Use: Church
Site Area (sf or acres): 42.9+/- acres

Brief Description of Stormwater Management/BMP Facility: SWM pond with earthen dam

Nearest Visible Landmark to SWM/BMP Facility: St Bede Church

Nearest Vertical Ground Control (if known):
☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other
Station Number or Name: JCC 321 Re-set
Datum or Reference Elevation: 78.72
Control Description: Disc in Concrete
Control Location from Subject Facility: Approximately 500' SW of Property

Section 2 - Stormwater Management / BMP Facility Construction Information:

PreConstruction Meeting Held for Construction of SWM/BMP Facility: ☐ Yes ☐ No ☒ Unknown
Approx. Construction Start Date for SWM/BMP Facility: Unknown
Facility Monitored by County Representative during Construction: ☐ Yes ☐ No ☒ Unknown

Name of Site Work Contractor Who Constructed Facility: Bush Construction
Name of Professional Firm Who Routinely Monitored Construction: ECS
Date of Completion for SWM/BMP Facility: Around August, 2007
Date of Record Drawing/Construction Certification Submittal: 9/27/07

(Note: Record Drawing and Construction Certifications are required within thirty (30) days of the completion of Stormwater Management and/or BMP facility construction. Record Drawings and Construction Certifications must be reviewed and approved by the James City County Environmental Division prior to final inspection, acceptance and bond or surety release.)

Section 3 - Owner / Designer / Contractor Information:

Owner/Developer: *(Note: Site Owner or Applicant responsible for development of the project.)*

Name: St Bede Parish
Catholc Diocese of Richmond
Mailing Address: 3686 Ironbound Road
Williamsburg, VA
23188
Business Phone: (757) 229-3700 Fax: _____
Contact Person: Fred Mone

Design Professional: *(Note: Professional Engineer or Certified Land Surveyor responsible for the design and preparation of plans and specifications for the Stormwater Management / BMP facility.)*

Firm Name: Watershed Consulting, PLLC
Mailing Address: PO Box 7216
Richmond, VA 23221
Business Phone: (804) 304-4659
Fax: _____
Responsible Plan Preparer: Erik Allen
Title: _____
Plan Name: St Bede Catholic Church, Dam Improvement Plan
Firm's Project No. _____
Plan Date: 4/29/05 Revised: 11/02/05
Sheet No.'s Applicable to SWM/BMP Facility: Sheets 1 through 4

BMP Contractor: *(Note: Site Work Contractor directly responsible for construction of the Stormwater Management / BMP facility.)*

Name: Bush Construction Company
Mailing Address: 4029 Ironbound Road
Williamsburg, VA 23188
Business Phone: (757) 220-7800
Fax: _____
Contact Person: Linwood Burton
Site Foreman/Supervisor: Larry Slaughter
Specialty Subcontractors & Purpose (for BMP Construction Only): _____

STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

I. Methods and Presentation: *(Required for all Stormwater Management / BMP facilities.)*

XX 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.

XX 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.

XX 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner (Approved County Plan Number and BMP ID Code can be included if known).

XX 4. All plan sheet revision blocks modified to indicate date and record drawing status.

XX 5. All plan sheets have certification statements and certifying professional's signature and seal.

II. Minimum Standards: *(Required for all Stormwater Management / BMP facilities, as applicable.)*

XX 1. All requirements of Section I (Methods and Presentation) apply to this section.

XX 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.

XX 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.

XX 4. Top widths, ~~berm widths and embankment side slopes~~.

XX 5. ~~Show length, width and depth of facility or grading, contours or~~ spot elevations ~~as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Environmental Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.~~

NA 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage volume(s) and/or design depth.

XX 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.

XX 8. Elevation of the principal spillway crest ~~or outlet crest of the structure~~

NA	9.	Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.
NA	10.	Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
NA	11.	Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.
NA	12.	Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**
NA	13.	Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
NA	14.	Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert
NA	15.	Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall
NA	16.	Outfall protection dimension, type and depth of rock and if underlain filter fabric is present
NA	17.	BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
XX	18.	Maintenance plan taken from approved design plan transposed onto record drawing set.
NA	19.	Fencing location and type, if applicable to facility.
NA	20.	BMP vicinity properly cleaned of stockpiles and construction debris.
NA	21.	No visual signs of erosion or channel degradation immediately downstream of facility.
NA	22.	Any other information formally requested by the Environmental Division specific to the constructed SWM/BMP facility.

STORMWATER MANAGEMENT / BMP FACILITIES
RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

III. Group A - Wet Ponds *(Includes A-1 Small Wet Ponds; A-2 Wet Ponds; A-3 Wet Ext Det Ponds.)*

XX	A1.	All requirements of Section II, Minimum Standards, apply to Group A facilities.
NA	A2.	Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
NA	A3.	Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep
NA	A4.	Access for maintenance and equipment is provided to the forebay(s). Access corridors are at least 12 ft. wide, have a maximum slope of 15 percent and are adequately stabilized to withstand heavy equipment or vehicle use.
NA	A5.	Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes.
NA	A6.	Pond liner (if required) provided. Either clay liners, polyliners, bentonite liners or use of chemical soil additives based on requirements of the approved plan.
NA	A7.	Minimum 6 percent slope safety bench extending a minimum of 15 feet outward from normal pool edge and/or an aquatic bench extending a minimum of 10 feet inward from the normal shoreline with a maximum depth of 12 inches below the normal pool elevation, if applicable, per the approved design plans. (Note: Safety benches may be waived if pond side slopes are no steeper than 4H:1V).
NA	A8.	No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure.
NA	A9.	Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility.
NA	A10.	Low flow orifice has a non-clogging mechanism.
NA	A11.	A pond drain pipe with valve was provided.
NA	A12.	Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope.
NA	A13.	End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard.

Section 4 - Professional Certifications:

Certifying Professionals: *(Note: A Registered Professional Engineer or Certified Land Surveyor is responsible for preparation of a Record Drawing, sometimes referred to as an As-Built plan, for the drainage system for the project including any Stormwater Management/BMP Facilities. A Registered Professional Engineer is responsible for the inspection, monitoring and certification of Stormwater Management / BMP facilities during its construction.)*

Record Drawing and Construction Certifications for Stormwater Management / BMP Facilities

Record Drawing Certification

Firm Name: LandMark Design Group, Inc.
Mailing Address: 4029 Ironbound Road, Suite 100
Williamsburg, VA 23188
Business Phone: 757-253-2975
Fax: 757-229-0049

Name: Peter Farrell
Title: Land Surveyor
Signature: Peter Farrell
Date: 01/27/09

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Management / BMP facility. The facility appears to conform with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.

Construction Certification

Firm Name: ECS Mid-Atlantic, LLC
Mailing Address: 108 Ingram St 1
Williamsburg, VA 23188
Business Phone: 229-6677
Fax: 229-9978

Name: Michael J. Galli
Title: Vice president
Signature:
Date: 01/27/09

I hereby certify to the best of my knowledge and belief that this Stormwater Management/BMP facility was monitored and constructed in accordance with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.

COMMONWEALTH OF VIRGINIA
01/27/09
PETER FARRELL
Lic. No. 002036
LAND SURVEYOR

COMMONWEALTH OF VIRGINIA
Lic. No. 030684
1/27/09
PROFESSIONAL ENGINEER

_____ (Seal)

Virginia Registered Professional Engineer or Licensed Land Surveyor

_____ (Seal)

Virginia Registered Professional Engineer

Maintenance Plan

A maintenance program is required to ensure the private pond functions as designed and to provide for reasonable aesthetic conditions. Proper maintenance is encouraged to prevent the introduction of debris and sediment at inflow locations, pretreatment areas, the pond, its principal control structures, and downstream waterways. Following installation and establishment of vegetation in disturbed site areas, inspections for sediment buildups will be performed at least quarterly.

The owner or its designated representative will inspect the dam structure after each significant rainfall event or the following working day if a weekend or holiday occurs. A significant rainfall for this structure is defined as one and a half (1.5) inches or more of gauged rainfall within a 24 hour period. Once per year (more or less) a representative of the County may jointly inspect the structure. Appropriate action, performed at the cost of the owner, will be taken to ensure appropriate maintenance. Keys to locked access points or structures shall be made available to the County upon request.

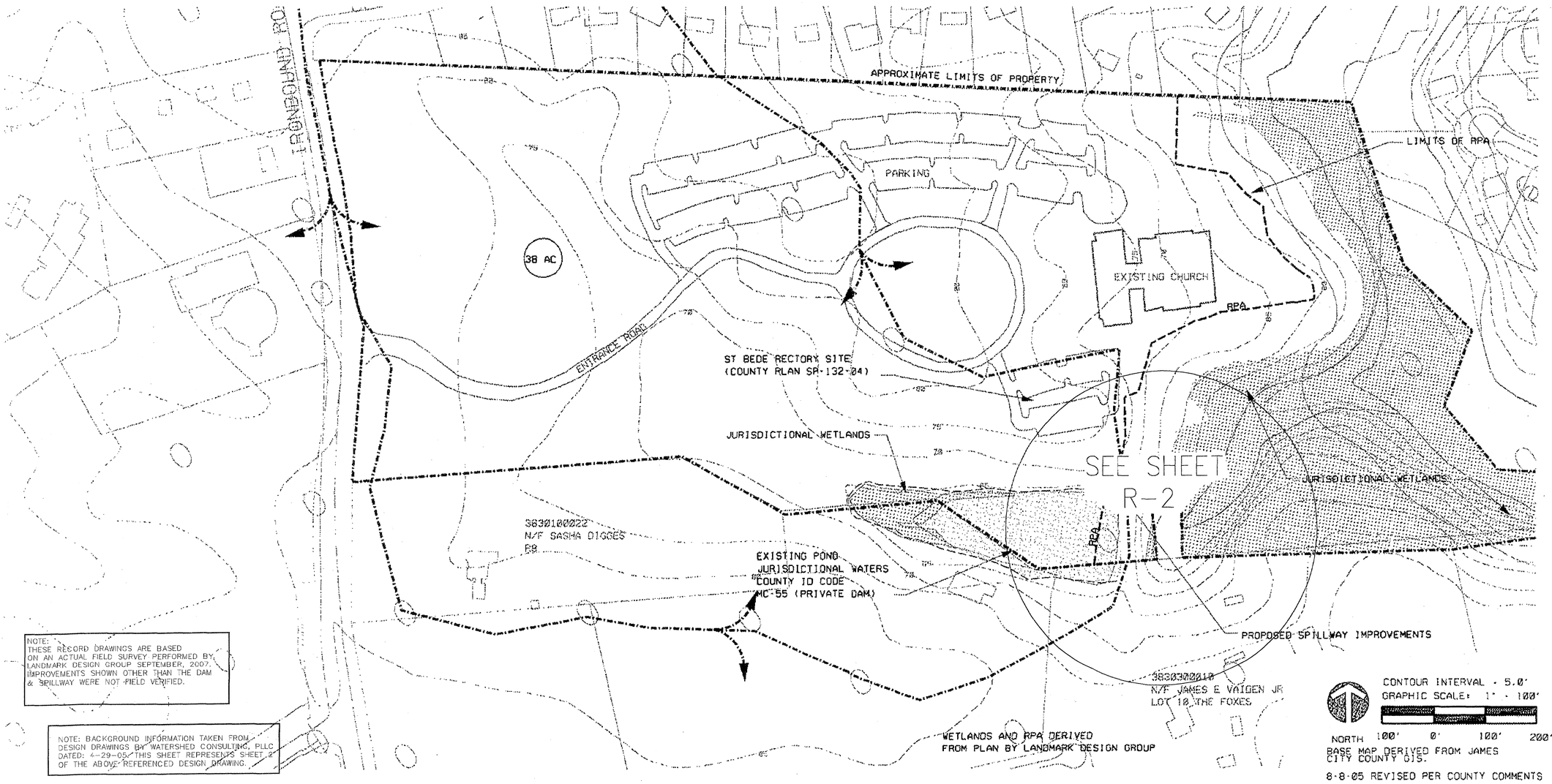
Pond description: The pond collects drainage from a 38 acre watershed. The principal spillway consists of a 4 foot wide concrete ditch located at the northern edge of the dam easement. Storm events which pass less than 3.5 inches of rain in 24-hours should be completely contained in the concrete ditch. During larger storm events, water will inundate the low area adjacent to the concrete ditch. During a 100-year storm, the maximum water level should rise to about 3.6 feet above the invert of the concrete ditch and within 1-feet below the top of the dam.

Inspection and maintenance of the facility will consist of the following additional measures:

1. Perform maintenance mowing of dam grasses at least twice each year. Grasses such as Tall Fescue should be mowed in early summer after emergence of the heads on cool season grasses and in late fall to prevent seeds of annual weeds from maturing. Mowing of legumes can be less frequent. Trees, shrubs, and woody vegetation are not permitted to grow along or on any part of the embankment that was constructed using engineered (compacted) fills.
2. Perform soil sampling on stabilized pond soil areas at least once every 4 years. Soil sampling and testing should be performed by qualified independent soil testing laboratory such as VPI & SU. Apply additional lime and fertilizer in accordance with test recommendations.
3. In stabilized pond areas, if vegetation covers less than 40% of soil surfaces, lime, fertilize, and seed in accordance with recommendations for new seedlings. If vegetation covers more than 40% but less than 70% of soil surfaces, lime, fertilize, and over seed in accordance with current seeding recommendations or requirements of the Virginia Erosion and Sediment Control Handbook (VESCH).
4. Perform quarterly inspections of the spillway for the observance of collected trash and debris. Immediately remove any trash or debris that prevents the movement of water. Remove any trash and litter downstream and at storm drain or channel inflow locations to maintain the integrity of the structure and provide an attractive appearance.
5. Perform yearly structural inspections of the facility for damage. Structural inspection shall be performed on the concrete weir and pond embankment. Exposed metal surfaces shall be re-painted or re-galvanized to minimize rust damage or replaced if rust damage is irreversible. If damage is evident, further investigation by a professional engineer may be required assess the integrity of the structure.
6. Perform quarterly inspections of the graded side slopes of the facility for signs of animal/rodent borrows or slope erosion. Immediately perform necessary repairs, refilling or reseeding.
7. Perform yearly observations of perimeter areas surrounding the facility to ensure changes in land use, topography or access have not occurred and do not affect the operation, maintenance, access, or safety features as provided. Appropriate action is required to ensure adequacy and to provide a clear, safe passage for maintenance vehicles to the engineered embankment and principal flow control structures.
8. Inspect and exercise pond drain valves, if provided, on a regular basis.
9. Record keeping. The owner or designated representative shall keep reasonable, accurate written records of inspections performed for the structure. Records shall document routine maintenance and/or repairs performed. Copies shall be provided to the County upon request.
10. The facility shall not accept additional drainage or be modified in any way without prior consent or approval by the Environmental Division of James City County.

HYDROLOGY SUMMARY

STORM EVENT	PEAK RUNOFF (CFS)	ROUTED FLOW (CFS)	PEAK ELEVATION (FT MSL)
2-YEAR	47	21	60.37
10-YR	102	59	61.7
100-YR	158	112	62.6



NOTE:
THESE RECORD DRAWINGS ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY LANDMARK DESIGN GROUP SEPTEMBER, 2007. IMPROVEMENTS SHOWN OTHER THAN THE DAM & SPILLWAY WERE NOT FIELD VERIFIED.

NOTE: BACKGROUND INFORMATION TAKEN FROM DESIGN DRAWINGS BY WATERSHED CONSULTING, PLLC DATED: 4-29-05. THIS SHEET REPRESENTS SHEET 2 OF THE ABOVE REFERENCED DESIGN DRAWING.

8-8-05 REVISED PER COUNTY COMMENTS

SP-07-05

COMMONWEALTH OF VIRGINIA
9/27/07
PETER FARRELL
LIC. No. 002036
LAND SURVEYOR

5544 Greenwich Road
Suite 200
Virginia Beach, VA 23462
Tel: (757) 473-2030
Fax: (757) 473-2034
Email: lmdg@landmarkdg.com

4900 Ironbound Road
Suite 100
Williamsburg, VA 23188
Tel: (757) 253-2313
Fax: (757) 253-2034
Email: lmdg@landmarkdg.com

LANDMARK DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Scientists

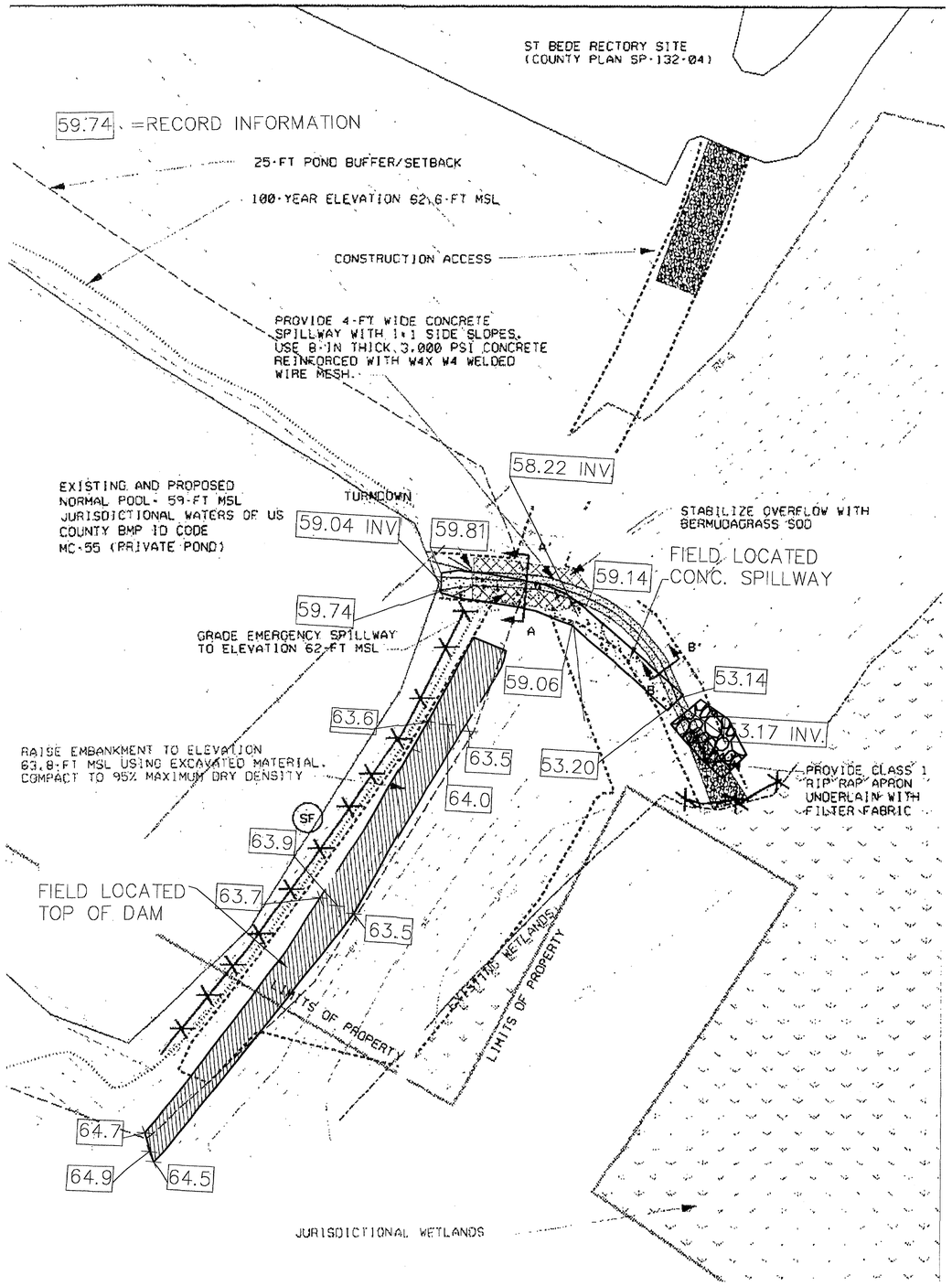
RECEIVED
OCT 22 2008
ENVIRONMENTAL DIVISION

DAM & SPILLWAY RECORD DRAWINGS
ST. BEDE CHURCH
JAMES CITY COUNTY VIRGINIA

Designed: N/A	Date: 09/27/07
Checked: PF	Scale: 1"=20'
File Mgr./Drawn: AST	CADD File name: REC-DAM DWG
Project Number: 197077-000.43	Dwg. File No.: 18076W
Drawing Number	R-1

1 OF 2

MC055_ST_BEDES_DAM_IMPROVEMENT - 010



NOTE: BACKGROUND INFORMATION TAKEN FROM DESIGN DRAWINGS BY WATERSHED CONSULTING, PLLC DATED: 4-29-05. THIS SHEET REPRESENTS SHEET 3 OF THE ABOVE REFERENCED DESIGN DRAWING.

NOTE:
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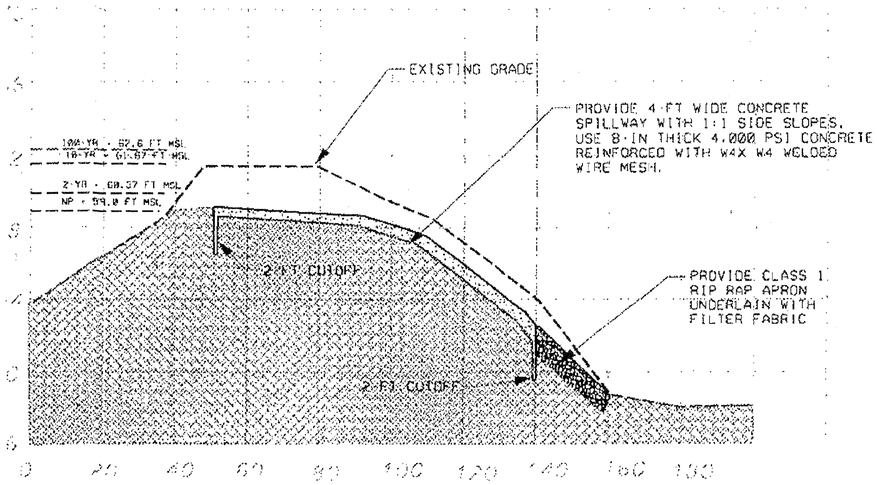
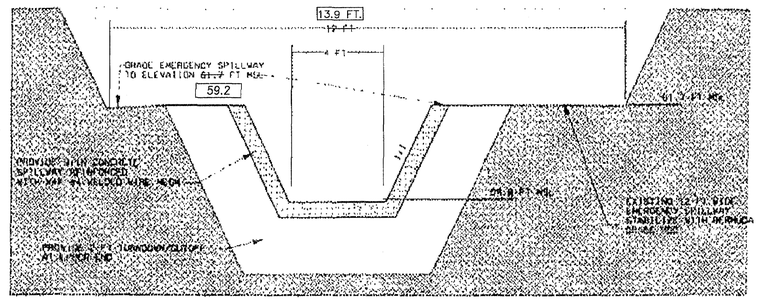
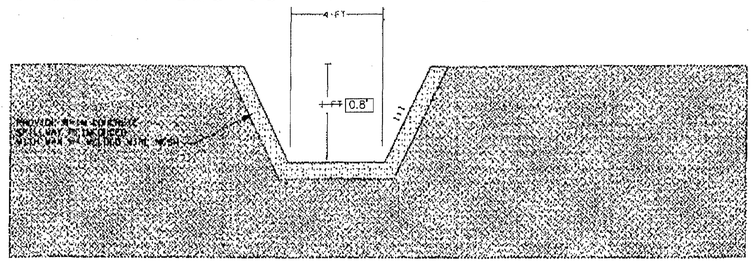


SPILLWAY PROFILE



SPILLWAY SECTION A-A' (NTS)



SPILLWAY SECTION B-B' (NTS)

CONSTRUCTION SEQUENCE

1. INSTALL SILT FENCE AND CONSTRUCTION ENTRANCE.
2. USE MECHANICAL PUMP TO DEWATER LAKE TO ELEVATION 54. DEWATERING SHALL OCCUR OVER A PERIOD OF 48 HOURS AND PUMPS SHALL REMAIN IN PLACE DURING CONSTRUCTION OPERATION. DEWATERING OPERATIONS MUST COMPLY WITH MINIMUM STANDARD AND SPECIFICATION 3.26 OF THE VESCH. THERE MUST BE A FILTERING DEVICE USED FOR DEWATERING OPERATIONS.
3. CUT AND REMOVE ALL TREES. GRUB OUT ALL ROOTS LARGER THAN 1 INCH IN DIAMETER. GRADE TO ADJACENT CONTOUR AND ESTABLISH COVER.
3. PLACE RIP RAP AND FILTER FABRIC AT OUTLET END OF PROPOSED SPILLWAY.
4. EXCAVATE PROPOSED DITCH USING SMALL BACKHOE AND REMOVE MATERIAL FROM SITE. EXCAVATION SHALL ONLY OCCUR IF THE CONTRACTOR HAS CHECKED WEATHER REPORT TO ENSURE WORK CAN BE COMPLETED IN DRY.
5. POUR CONCRETE CHANNEL WITH TURNDOWNS IN ACCORDANCE WITH PLAN.
6. STABILIZE ALL DISTURBED AREAS WITH SPECIFIED SEED MIX. ESTABLISH AND MAINTAIN DENSE COVER OF GRASS. MAINTAIN TO A HEIGHT OF 4-8-INCHES WITH REGULAR MOWING TO DISCOURAGE GROWTH OF WOODY VEGETATION AND TO FACILITATE VISUAL INSPECTION FOR SEEPAGE, SLOUGHS, OR OTHER SIGNS OF STRESS.

SP-070-05

COMMONWEALTH OF VIRGINIA
9/27/07
PETER FARRELL
LIC. No. 002036
LAND SURVEYOR

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Suite 200
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Tel. (757) 229-0070
Fax. (757) 229-0049
Email: lmdg@landmarkdg.com

LANDMARK DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Scientists

DAM & SPILLWAY RECORD DRAWINGS

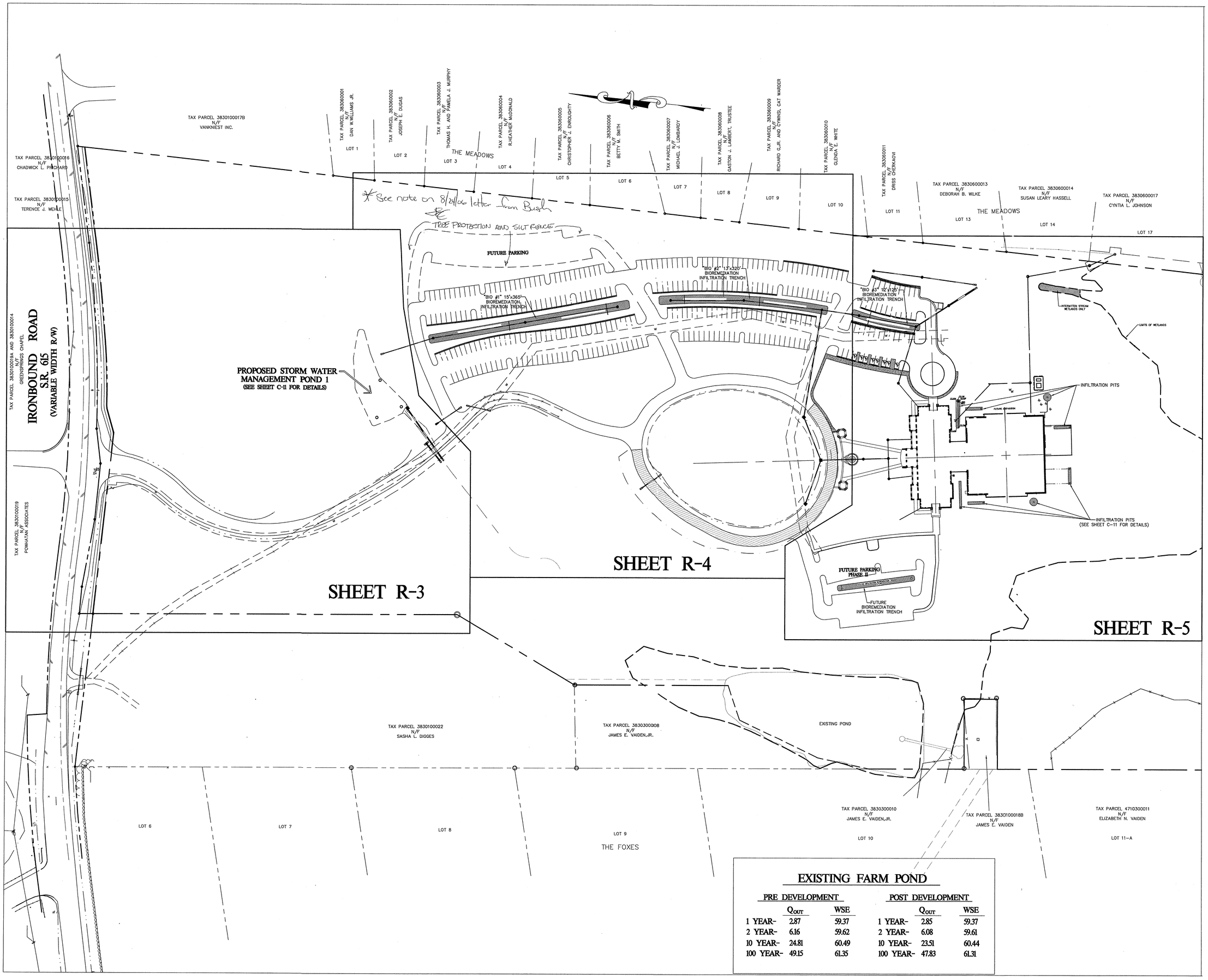
ST. BEDE CHURCH

JAMES CITY COUNTY VIRGINIA

Designed: LMDG	Date: 09/27/07
Checked: PF	Scale: AS-SHOWN
File Mgr./Drawn: AST	CADD File name: REC-DAM .DWG
Project Number: 197077-000.43	Dwg. File No.: 18075W
Drawing Number	R-2

2 OF 2

MC055_ST_BEDES_DAM_IMPROVEMENT - 011



EXISTING FARM POND

PRE DEVELOPMENT	Q_{OUT}	WSE	POST DEVELOPMENT	Q_{OUT}	WSE
1 YEAR-	2.87	59.37	1 YEAR-	2.85	59.37
2 YEAR-	6.16	59.62	2 YEAR-	6.08	59.61
10 YEAR-	24.81	60.49	10 YEAR-	23.51	60.44
100 YEAR-	49.15	61.35	100 YEAR-	47.83	61.31

COMMONWEALTH OF VIRGINIA
6/19/04
PETER FARRELL
No. 002036
LAND SURVEYOR

4029 Ironbound Road
Suite 100
Williamsburg, VA 23188
Tel. (757) 220-2049
Fax. (757) 229-2049
Email: lmdg@landmarkdgb.com

5544 Greenwich Road
Suite 200
Virginia Beach, VA 23462
Tel. (757) 473-2000
Fax. (757) 473-2031
Email: lmdg@landmarkdg.com

LANDMARK DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Consultants

REVISIONS:			
No.	Date	Comment	By

OVERALL PLAN AND SHEET INDEX

STORMWATER MANAGEMENT RECORD DRAWINGS

ST. BEDE CATHOLIC CHURCH

BERKELEY MAGISTERIAL DISTRICT

JAMES CITY COUNTY VIRGINIA

Designed: LMDG	Date: 06-18-04
Checked: AST	Scale: 1"=60'
File Mgr./Drawn: PF	CADD File name: rec-sheet-2
Project Number: 1970077-000.37	Dwg. File No.: 15217W
Drawing Number R-2	

C-111-04

RECEIVED SEP 2004 PLANNING DEPARTMENT

COMMONWEALTH OF VIRGINIA
ALISTAIR J. RAMSAY
No. 1515-B
LAND SURVEYOR

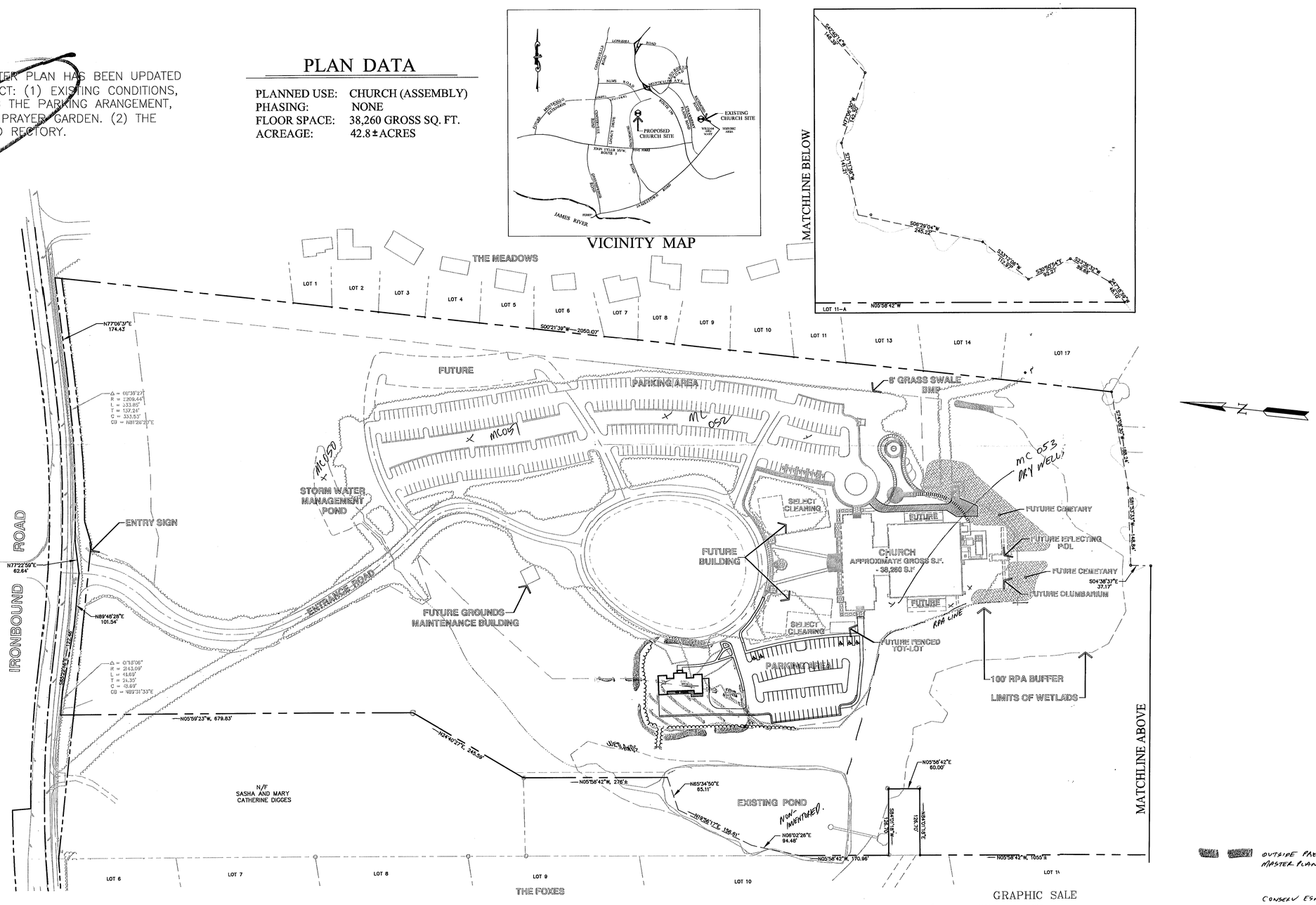
3 THIS MASTER PLAN HAS BEEN UPDATED TO REFLECT: (1) EXISTING CONDITIONS, INCLUDING THE PARKING ARANGEMENT, AND THE PRAYER GARDEN. (2) THE PROPOSED RECTORY.

IT IS UNCLEAR how this was amended w/o ENV Review

PLAN DATA

PLANNED USE:	CHURCH (ASSEMBLY)
PHASING:	NONE
FLOOR SPACE:	38,260 GROSS SQ. FT.
ACREAGE:	42.8 ± ACRES

VICINITY MAP



4029 Ironbound Road
Suite 100
Williamsburg, VA 23188
Tel. (757) 253-2975
Fax. (757) 253-2976
Email: info@landmarkdg.com

3544 Greenwich Road
Suite 200
Virginia Beach, VA 23462
Tel. (757) 473-2000
Fax. (757) 497-7833
Email: virginiabeach@landmarkdg.com

LANDMARK DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Scientists

REVISIONS: No.	Date	Comment	By
1	04/20/00	REVISED PER CLIENT COMMENTS	GSW
2	05/19/04	CORRECTIONS	LPV
3	06/13/04	REVISED PER NOTE	RMJ

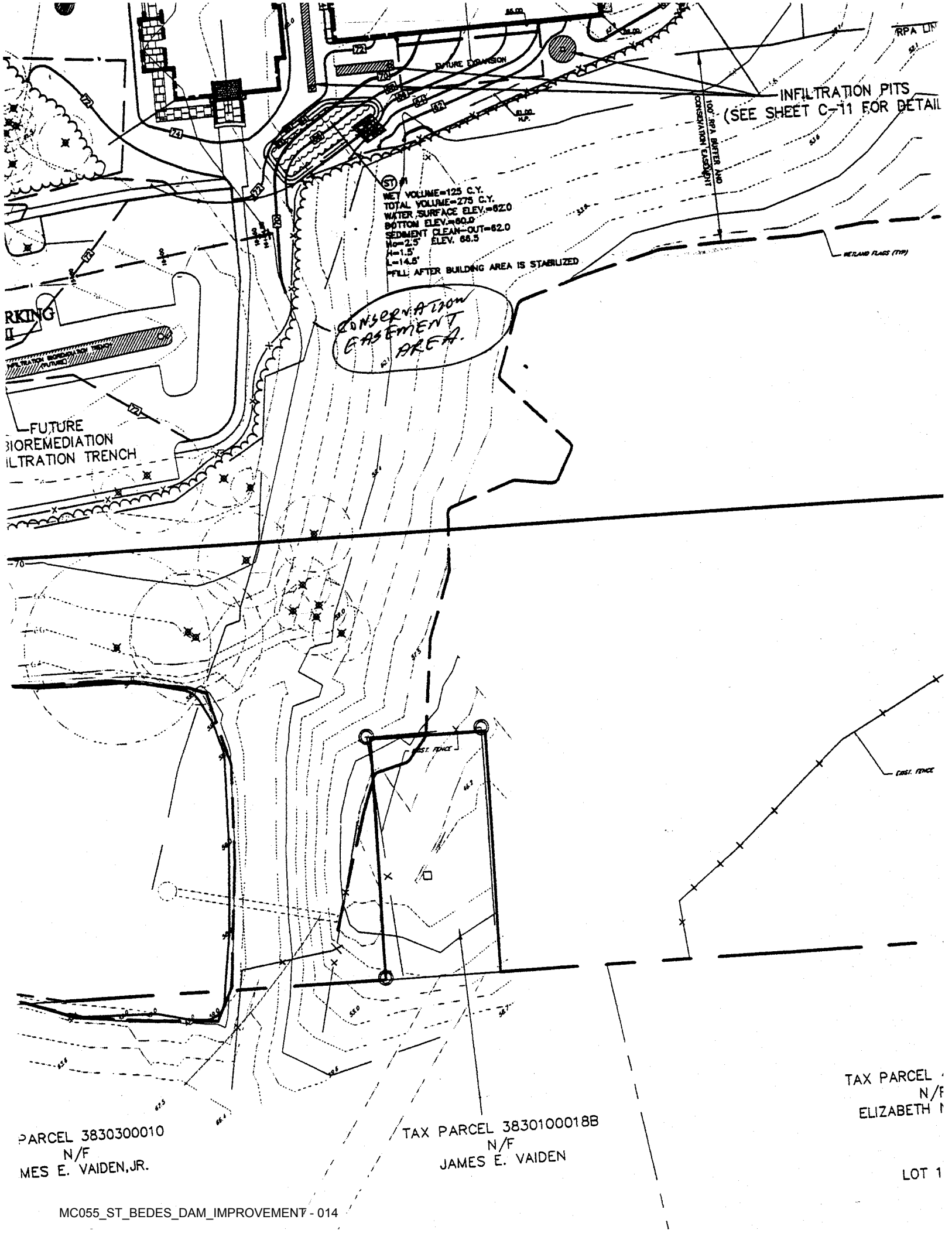
DRAWING STATUS
- Interoffice Review
- Client for Review
- Pre Approval Bidding

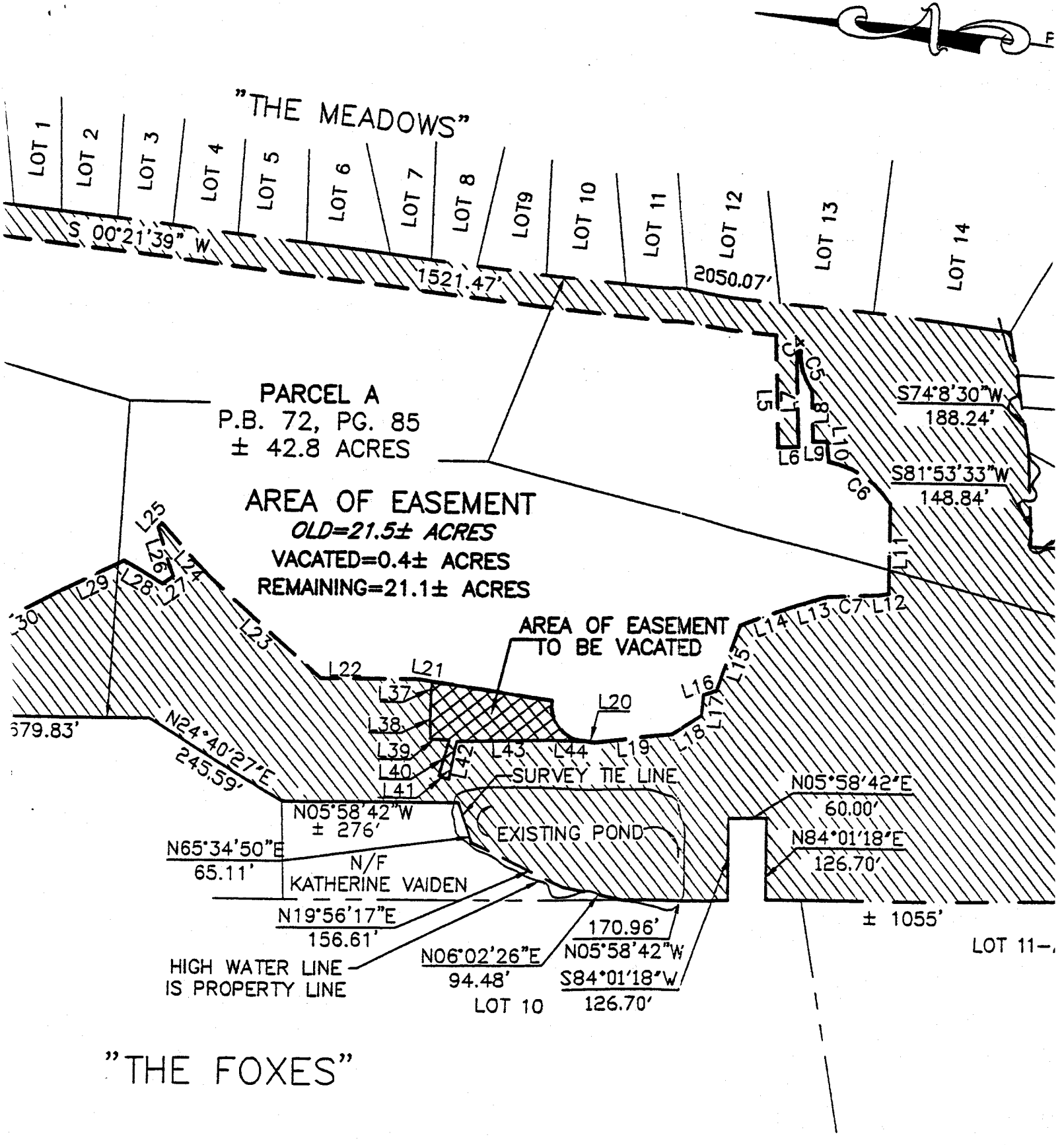
COUNTY APPROVAL
- 1st Submittal
- 2nd Submittal
- 3rd Submittal
- Approved

MASTER PLAN FOR SPECIAL USE PERMIT
ST. BEDE CATHOLIC CHURCH

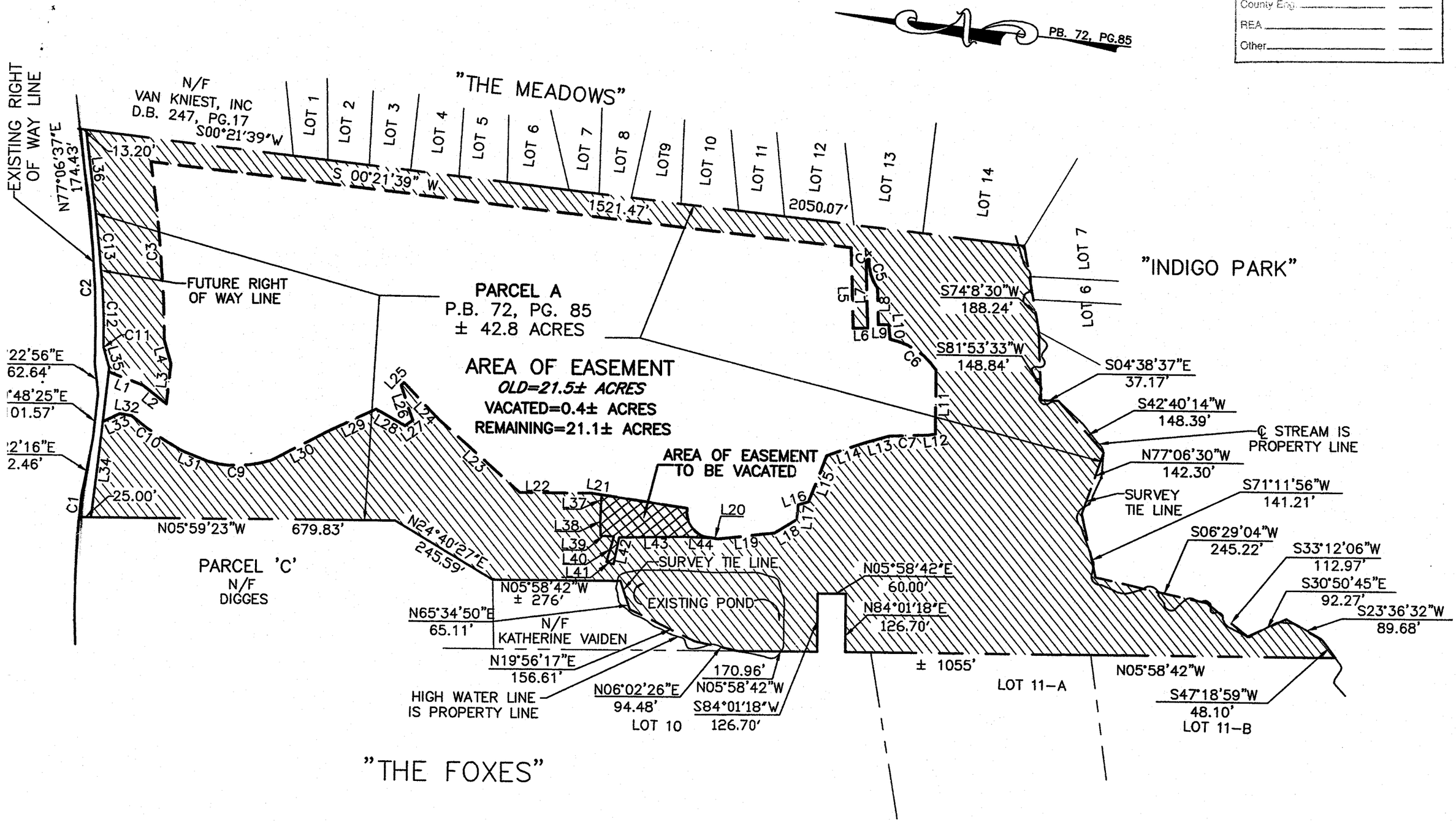
Designed: DEW	Date: 03/21/00
Checked: RSP	Scale: 1"=100'
File Mgr./Drawn: GSW	CADD File name: SUP.dwg
Project Number: 1970077-000.13	Dwg. File No.: 11420W
Drawing Number: C-1	1 OF 1

MC055_ST_BEDES_DAM_IMPROVEMENT - 013


INFILTRATION PITS
(SEE SHEET C-11 FOR DETAIL
FUTURE EXPANSION
100' RPA BUFFER AND CONSERVATION EASEMENT
ST #1
WET VOLUME=125 C.Y.
TOTAL VOLUME=275 C.Y.
WATER SURFACE ELEV.=62.0
BOTTOM ELEV.=60.0
SEDIMENT CLEAN-OUT=62.0
Wo=2.5' ELEV. 68.5
H=1.5'
L=14.5'
FILL AFTER BUILDING AREA IS STABILIZED
WETLAND FLAGS (TYP)
CONSERVATION EASEMENT AREA.
FUTURE
BIOREMEDIATION
ILTRATION TRENCH
EXIST. FENCE
PARCEL 3830300010
N/F
MES E. VAIDEN,JR.
TAX PARCEL 3830100018B
N/F
JAMES E. VAIDEN
TAX PARCEL
N/F
ELIZABETH
LOT 1


"THE MEADOWS"
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
S 00°21'39" W
1521.47'
2050.07'
PARCEL A
P.B. 72, PG. 85
± 42.8 ACRES
AREA OF EASEMENT
OLD=21.5± ACRES
VACATED=0.4± ACRES
REMAINING=21.1± ACRES
AREA OF EASEMENT
TO BE VACATED
S74°8'30"W
188.24'
S81°53'33"W
148.84'
679.83'
N24°40'27"E
245.59'
N05°58'42"W
± 276'
N65°34'50"E
65.11'
N/F
KATHERINE VAIDEN
N19°56'17"E
156.61'
HIGH WATER LINE
IS PROPERTY LINE
SURVEY TIE LINE
EXISTING POND
N06°02'26"E
94.48'
LOT 10
170.96'
N05°58'42"W
S84°01'18"W
126.70'
N05°58'42"E
60.00'
N84°01'18"E
126.70'
± 1055'
LOT 11
"THE FOXES"

Zoning Adm.		
JCSA		
County Eng.		
REA		
Other		



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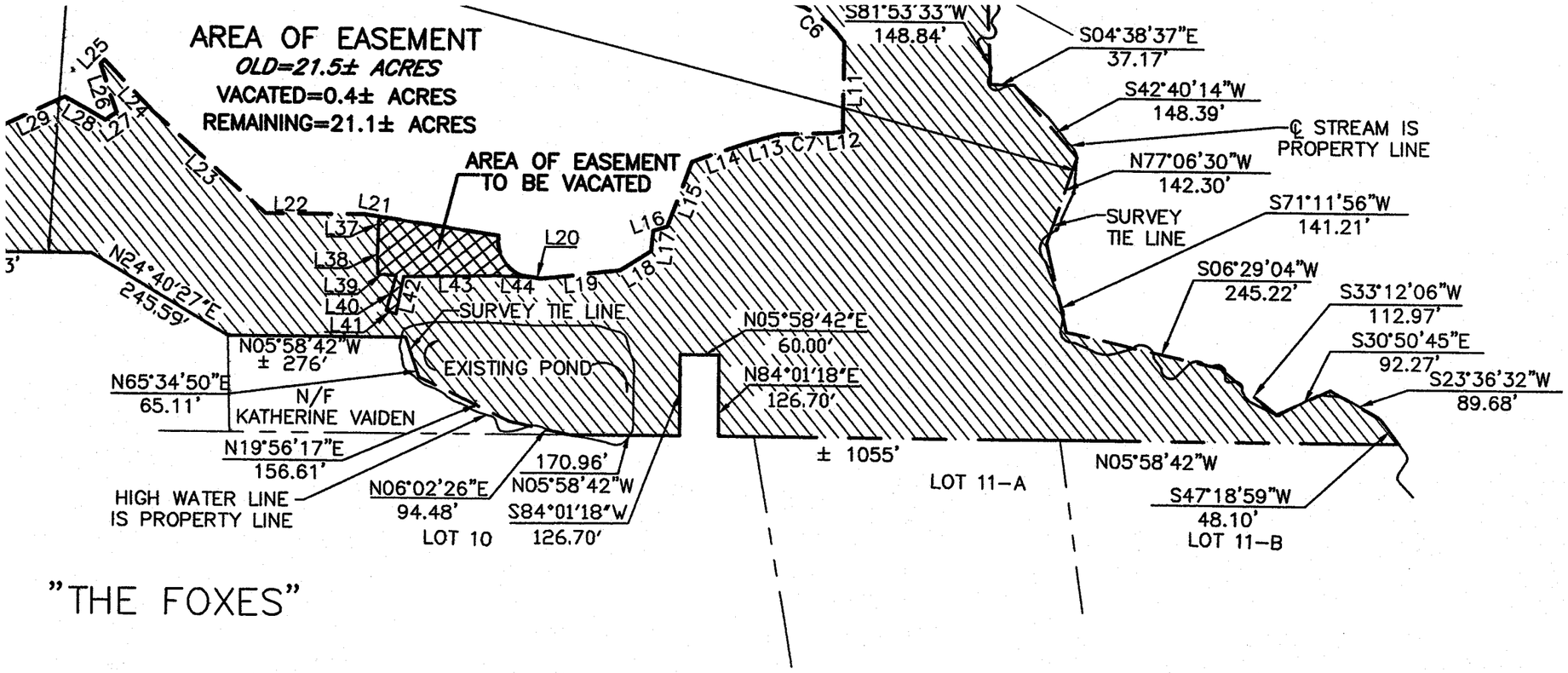
MC055-ST-BEDES-DAM-IMPROVEMENT-016

CURVE TABLE



"THE FOXES"

L29	114.46'	N31°40'00"W
L30	137.36'	N33°54'33"W
L31	61.49'	N15°36'05"E
L32	25.23'	N02°48'02"E
L33	40.23'	N31°55'42"W
L34	327.19'	S89°37'23"E
L35	44.05'	N67°53'46"E
L36	180.22'	N76°57'17"E
L37	55.13'	S85°25'48"W
L38	34.12'	S81°55'35"W
L39	28.61'	S03°38'05"E
L40	57.64'	N80°29'34"W
L41	15.54'	S11°11'31"W
L42	59.14'	S84°51'57"E
L43	142.66'	S06°57'44"E
L44	59.37'	S03°32'40"E

DELTA
18'06"
39'27"
53'59"
°24'34"
°17'42"
°07'45"
04'44"
°41'03"
°16'34"
°33'07"
03'39"
55'00"

AMENDED EASEMENT PLAT
SHOWING
CONSERVATION EASEMENT
FOR
NATURAL OPEN SPACE
ON THE PROPERTY OF
CATHOLIC DIOCESE OF RICHMOND

JAMES CITY COUNTY, VIRGINIA

DATE: 02/03/05 SCALE: 1"=200'

GRAPHIC SCALE

200 0 200 400 600

SCALE: 1"= 200

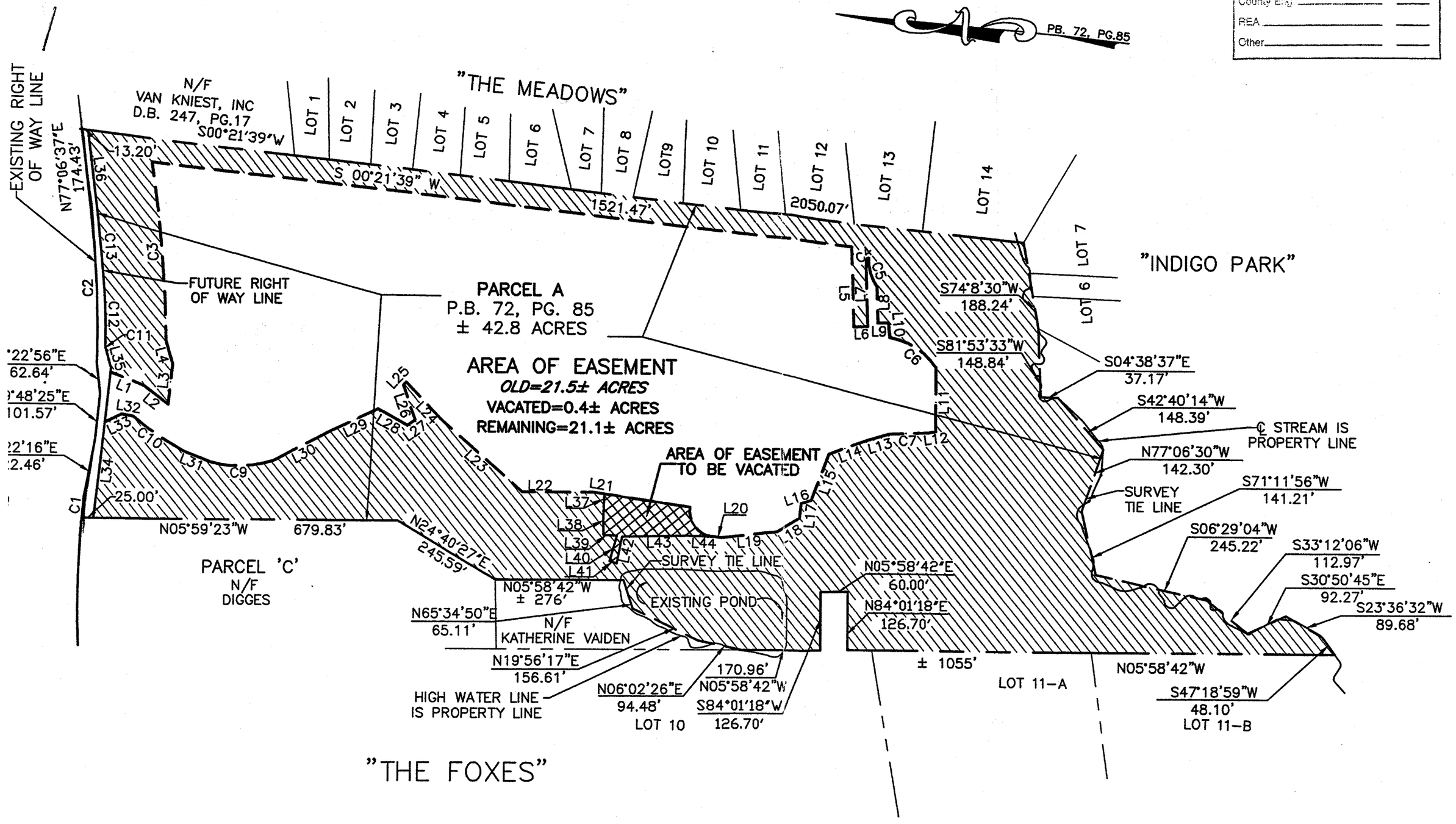
LANDMARK DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Consultants

4029 Ironbound Road
Suite 100
Williamsburg, VA 23188
Tel. (757) 253-2975
Fax (757) 229-0049
Email: lmdg@landmarkdg.com

5544 Greenwich Road
Suite 200
Virginia Beach, VA 23462
Tel. (757) 473-2000
Fax (757) 497-7933
Email: lmdg@landmarkdg.com

DRAWN BY: SDC/PF	PROJ. NO. 1970077-002.00
CHECKED BY: PF	DWG. NO. 15795-W

JCDA		
County Eng.		
REA		
Other		



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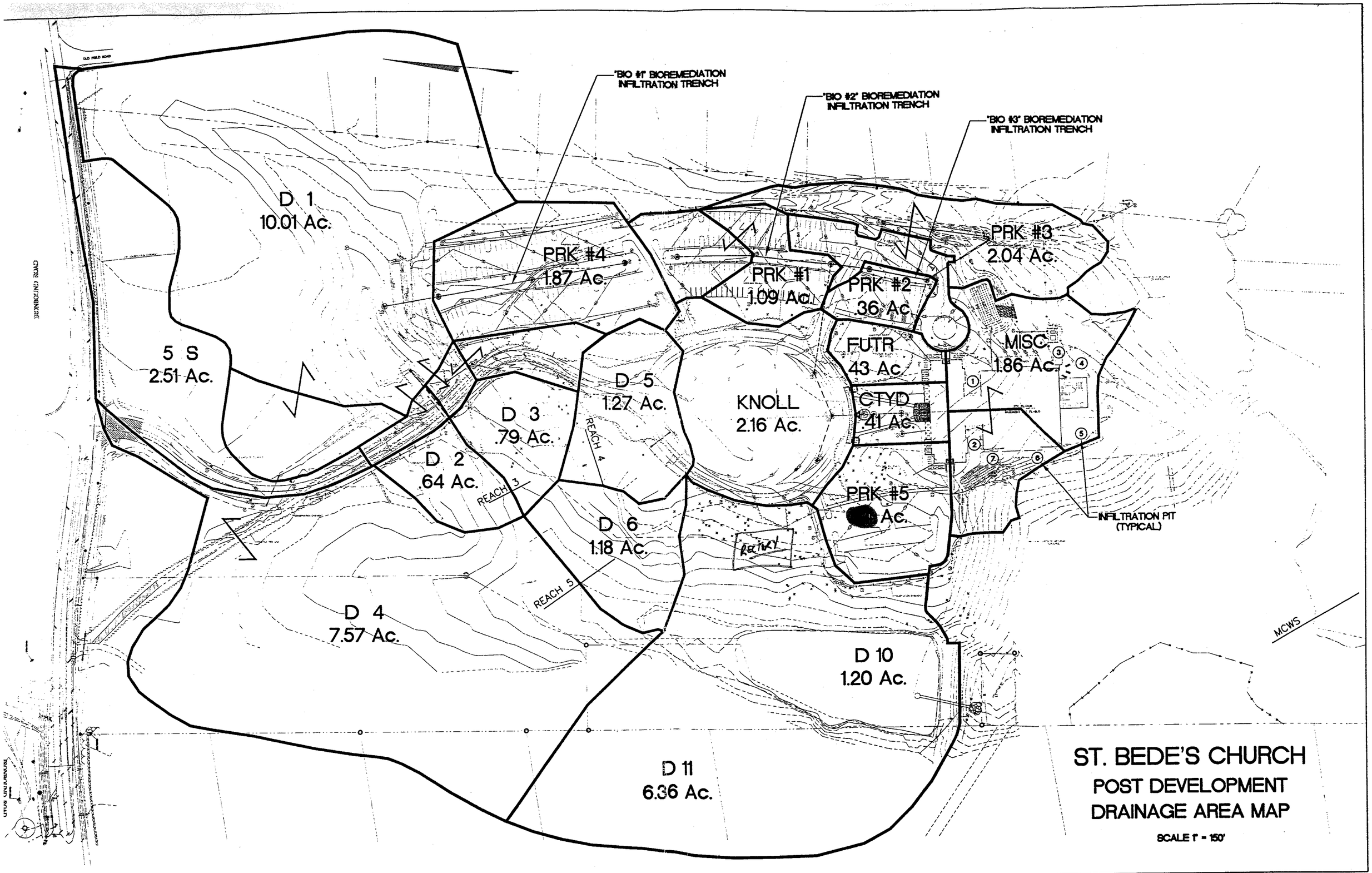
CURVE TABLE


"BIO #1" BIOREMEDIATION INFILTRATION TRENCH
"BIO #2" BIOREMEDIATION INFILTRATION TRENCH
"BIO #3" BIOREMEDIATION INFILTRATION TRENCH
D 1
10.01 Ac.
PRK #4
1.87 Ac.
PRK #1
1.09 Ac.
PRK #2
.36 Ac.
PRK #3
2.04 Ac.
5 S
2.51 Ac.
D 5
1.27 Ac.
D 3
.79 Ac.
KNOLL
2.16 Ac.
FUTR
.43 Ac.
MISC.
1.86 Ac.
CTYD
.41 Ac.
D 2
.64 Ac.
REACH 3
REACH 4
PRK #5
Ac.
D 6
1.18 Ac.
REACH 5
INFILTRATION PIT (TYPICAL)
D 4
7.57 Ac.
D 10
1.20 Ac.
MCWS
D 11
6.36 Ac.
ST. BEDE'S CHURCH
POST DEVELOPMENT
DRAINAGE AREA MAP
SCALE 1" = 150'

St Bede Catholic Church
Hydrologic/Hydraulic Analysis

Revised August, 2005

AUG 2005
RECEIVED
PLANNING DEPARTMENT

SP-70-05

COMMONWEALTH OF VIRGINIA
ERIK L. ALLEN
NO. 024783
8-8-05
PROFESSIONAL ENGINEER

Prepared by
Watershed Consulting, PLLC
PO Box 7216
Richmond, VA 23221
804 304-4659

Hydrology Data

MC055_ST_BEDES_DAM_IMPROVEMENT - 021

St Bede
Curve Number Summary

Existing-development

	HSG	Area	CN	Composite
Residential 1/2 Acre	C	6.7	80	536
Church (20% Imp)	C	21.3	79	1683
Residential 10-acre	C	10.3	77	793
		38.3	79	3012

Future-development

			CN	Composite
Residential 1/2 Acre	C	6.7	80	536
* Church (30% Imp)	C	21.3	81	1725
* Residential 10-acre	C	10.3	80	824
		38.3	81	3085

* Future Development assumes 10-ac lots are subdivided into 2-acre lots and Church expands to 30% impervious cover. These are both very conservative assumptions

TR55 Tc Worksheet

Hydraflow Hydrographs by Intelisolve

Hyd. No. 1

<no description>

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	175.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.50		0.00		0.00		
Land slope (%)	=	2.00		0.00		0.00		
Travel Time (min)	**=**	**32.13**	**+**	**0.00**	**+**	**0.00**	**=**	**32.13**
Shallow Concentrated Flow								
Flow length (ft)	=	0.00		0.00		0.00		
Watercourse slope (%)	=	0.00		0.00		0.00		
Surface description	=	Paved		Paved		Paved		
Average velocity (ft/s)	=	0.00		0.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow								
X sectional flow area (sqft)	=	4.00		0.00		0.00		
Wetted perimeter (ft)	=	6.00		0.00		0.00		
Channel slope (%)	=	1.40		0.00		0.00		
Manning's n-value	=	0.035		0.015		0.015		
Velocity (ft/s)	=	3.84		0.00		0.00		
Flow length (ft)	=	1220.0		0.0		0.0		
Travel Time (min)	**=**	**5.30**	**+**	**0.00**	**+**	**0.00**	**=**	**5.30**

Total Travel Time, Tc ..... 37.42 min

Pond Rating Curve

Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Aug 1 2005, 8:17 AM

Pond No. 1 - New Pond1

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	59.00	51,917	0	0
4.00	63.00	70,000	243,834	243,834

Culvert / Orifice Structures

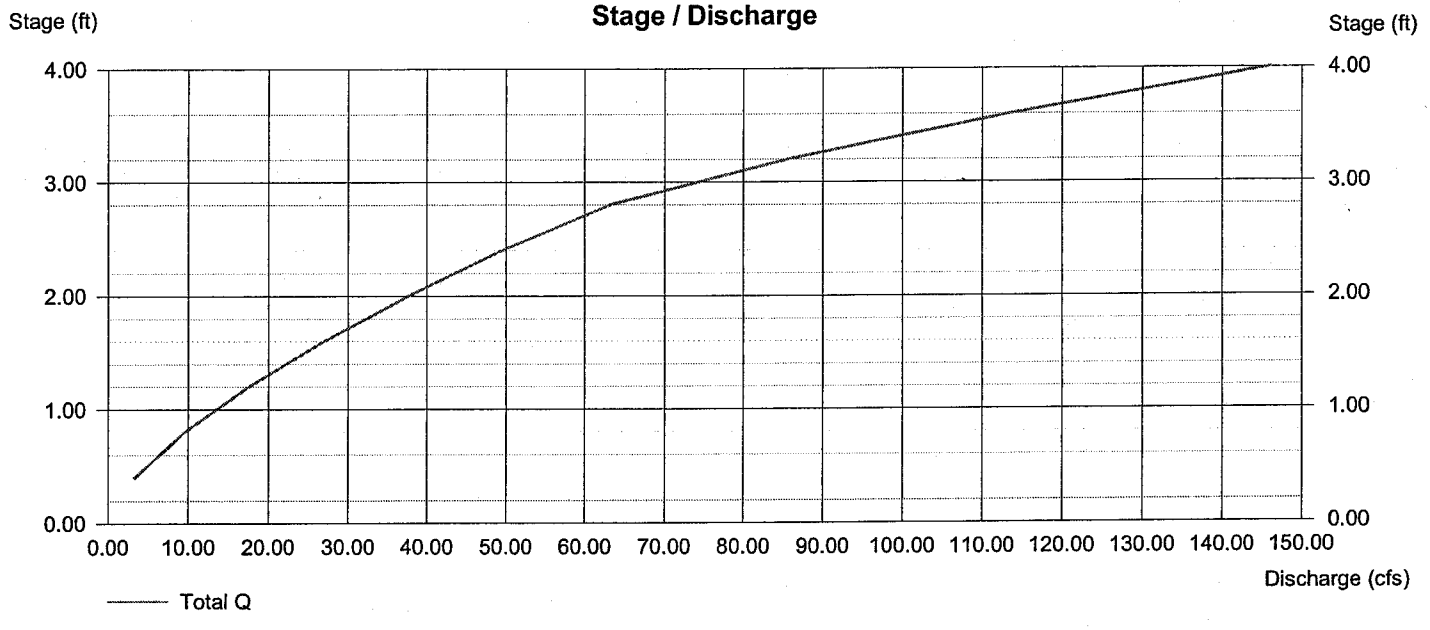
	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	8.00	0.00	0.00
Crest El. (ft)	= 59.00	61.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Ciplti	Ciplti	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydraulic Evaluation of Flume

Lower slope
Worksheet for Trapezoidal Channel

Project Description	
Project File	c:\haestad\fmw\st beede.fm2
Worksheet	st beedes
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.133000	ft/ft
Left Side Slope	1.000000	H : V
Right Side Slope	1.000000	H : V
Bottom Width	4.00	ft
Discharge	112.00	cfs

100 YEAR FLOW

Results		
Depth	0.79	ft
Flow Area	3.76	ft²
Wetted Perimeter	6.22	ft
Top Width	5.57	ft
Critical Depth	2.36	ft
Critical Slope	0.002690	ft/ft
Velocity	29.79	ft/s
Velocity Head	13.79	ft
Specific Energy	14.58	ft
Froude Number	6.39	
Flow is supercritical.		

Pond Routings

MC055_ST_BEDES_DAM_IMPROVEMENT - 028

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	46.83	-------	-------	102.04	-------	-------	157.59	<no description>
2	Reservoir	1	-------	21.49	-------	-------	58.84	-------	-------	112.30	<no description>

Proj. file: ST BEEDES Developed Survey revised 6-05.gpw | Monday, Aug 1 2005, 8:17 AM

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	46.83	6	738	236,647	----	------	------	<no description>
2	Reservoir	21.49	6	762	236,640	1	60.37	83,423	<no description>

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

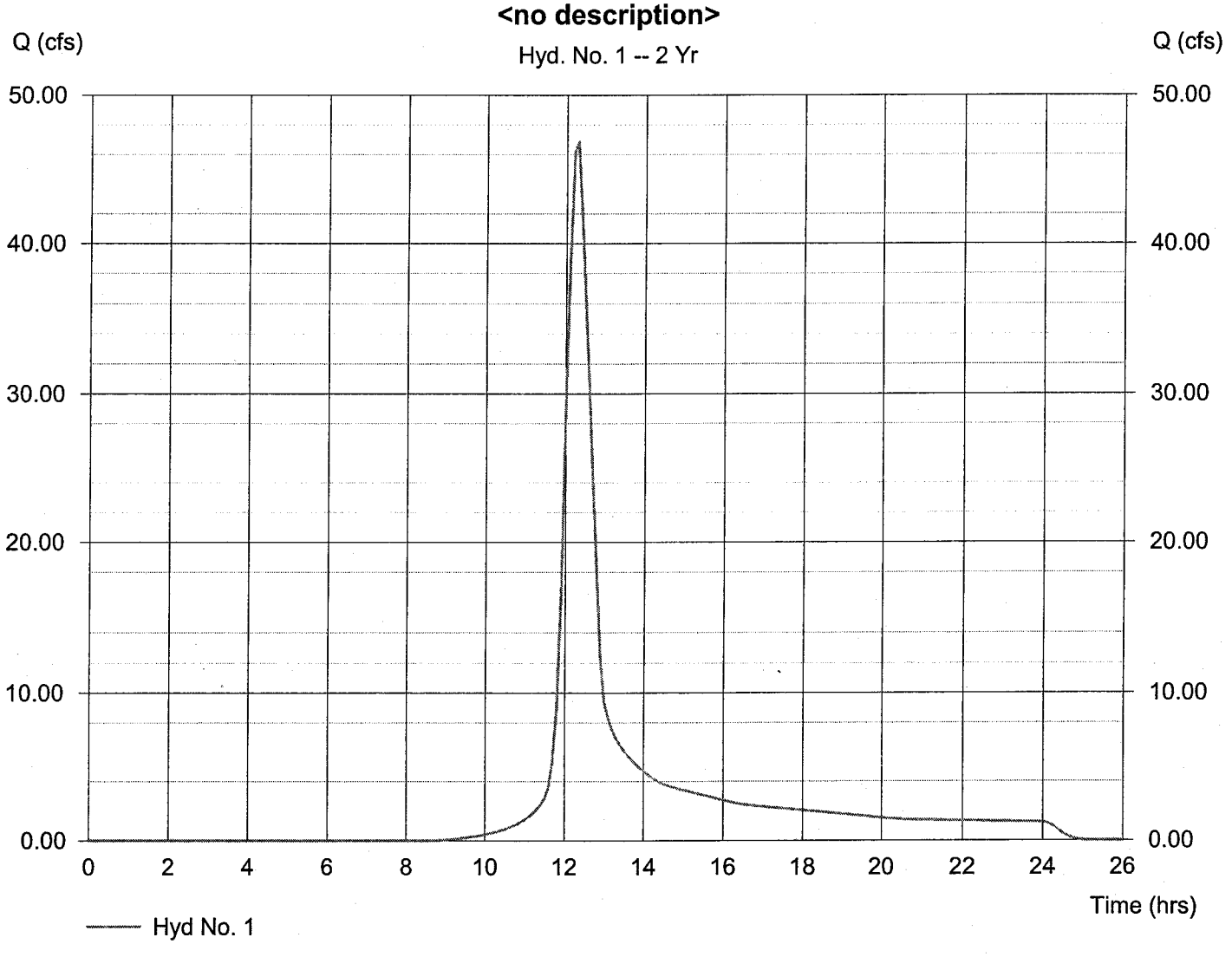
Monday, Aug 1 2005, 8:17 AM

Hyd. No. 1

<no description>

Hydrograph type	= SCS Runoff	Peak discharge	= 46.83 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Drainage area	= 37.00 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 37.42458 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 236,647 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Aug 1 2005, 8:17 AM

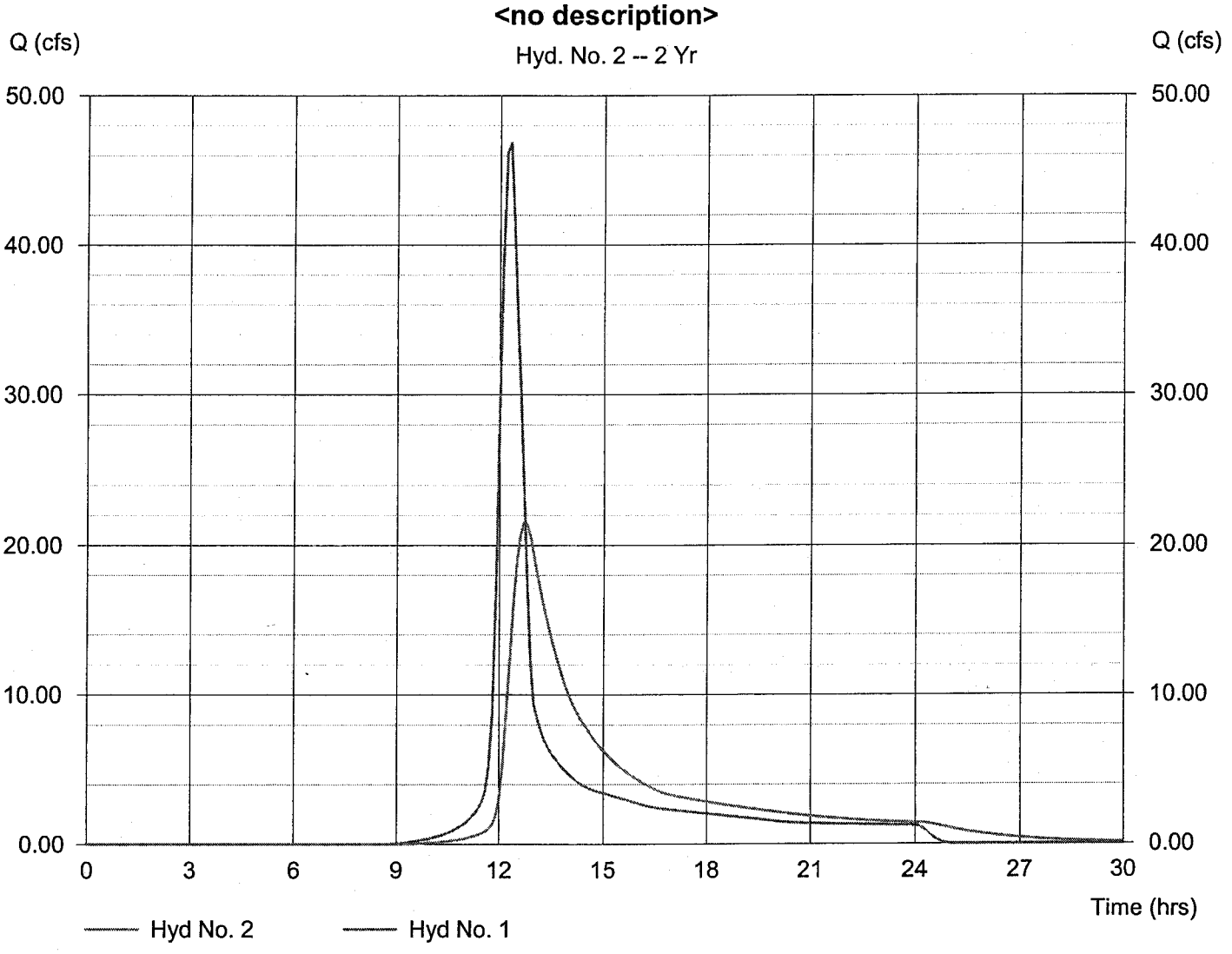
Hyd. No. 2

<no description>

Hydrograph type	= Reservoir	Peak discharge	= 21.49 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 60.37 ft
Reservoir name	= New Pond1	Max. Storage	= 83,423 cuft

Storage Indication method used.

Hydrograph Volume = 236,640 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	102.04	6	732	512,744	----	------	------	<no description>
2	Reservoir	58.84	6	756	512,737	1	61.67	162,845	<no description>

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

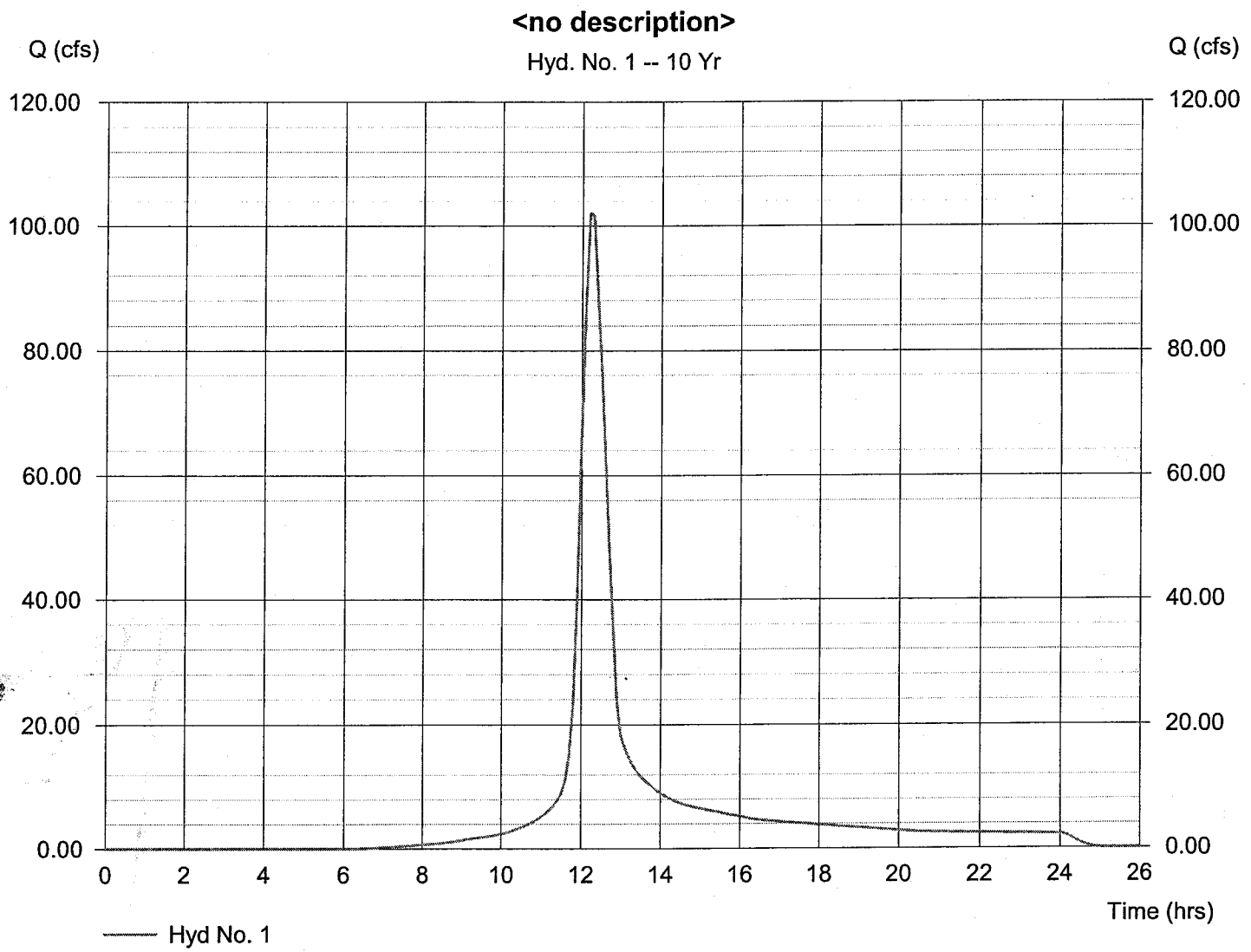
Monday, Aug 1 2005, 8:17 AM

Hyd. No. 1

<no description>

Hydrograph type	= SCS Runoff	Peak discharge	= 102.04 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Drainage area	= 37.00 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 37.42458 min
Total precip.	= 5.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 512,744 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Aug 1 2005, 8:17 AM

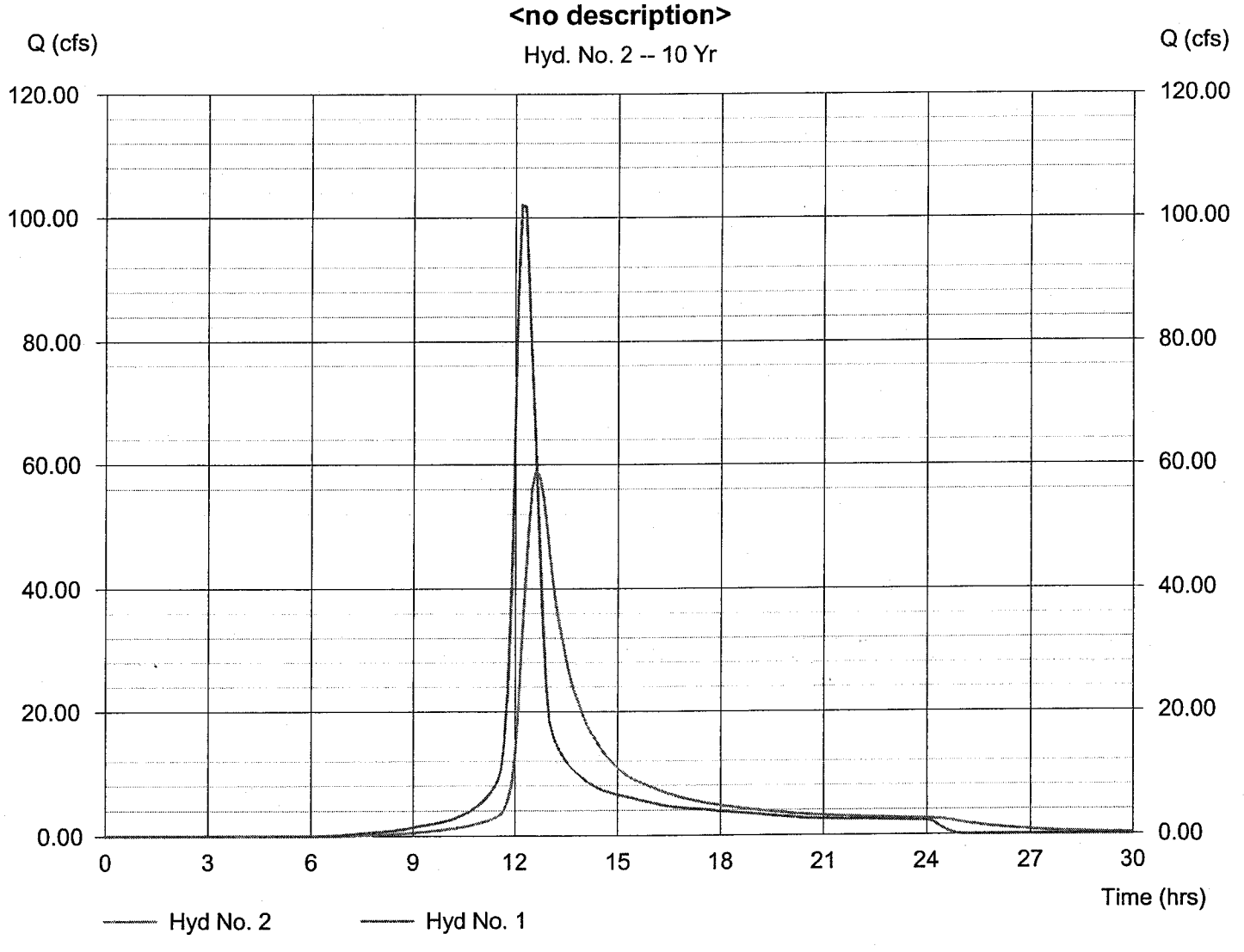
Hyd. No. 2

<no description>

Hydrograph type	= Reservoir	Peak discharge	= 58.84 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 61.67 ft
Reservoir name	= New Pond1	Max. Storage	= 162,845 cuft

Storage Indication method used.

Hydrograph Volume = 512,737 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Aug 1 2005, 8:17 AM

Pond No. 1 - New Pond1

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	59.00	51,917	0	0
4.00	63.00	70,000	243,834	243,834

Culvert / Orifice Structures

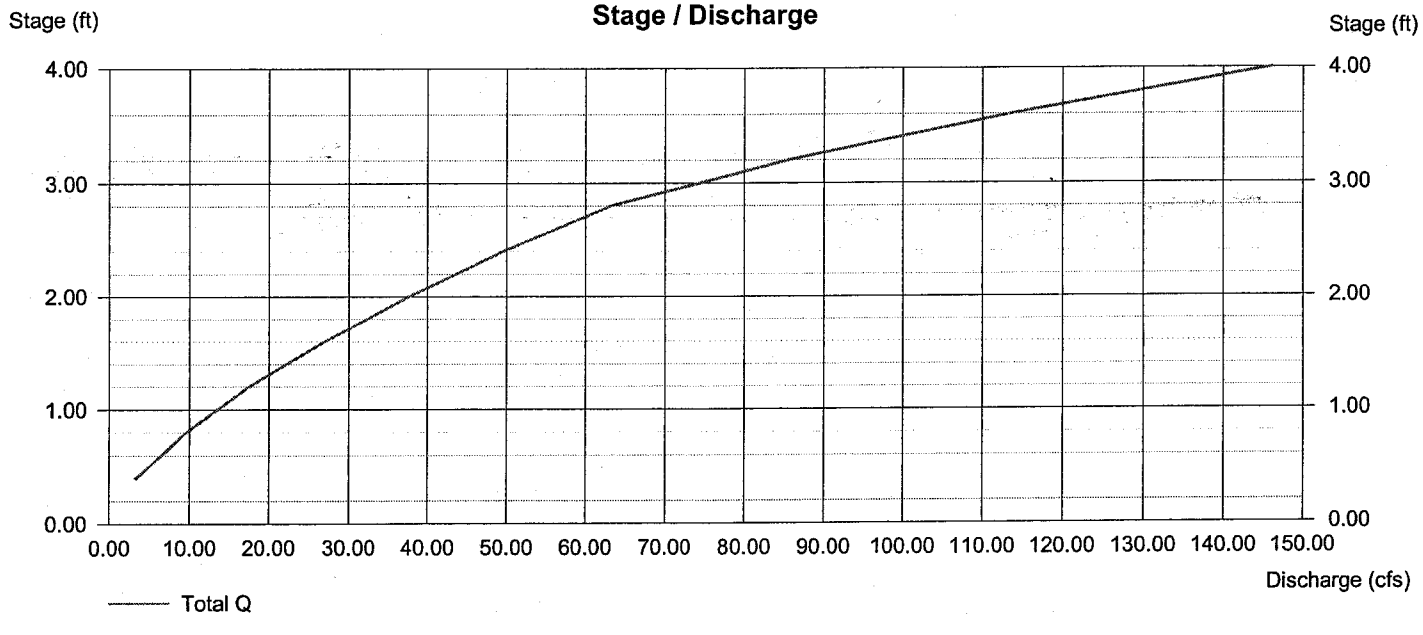
	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	8.00	0.00	0.00
Crest El. (ft)	= 59.00	61.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Ciplti	Ciplti	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	157.59	6	732	795,348	----	------	------	<no description>
2	Reservoir	112.30	6	750	795,339	1	62.58	218,212	<no description>

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

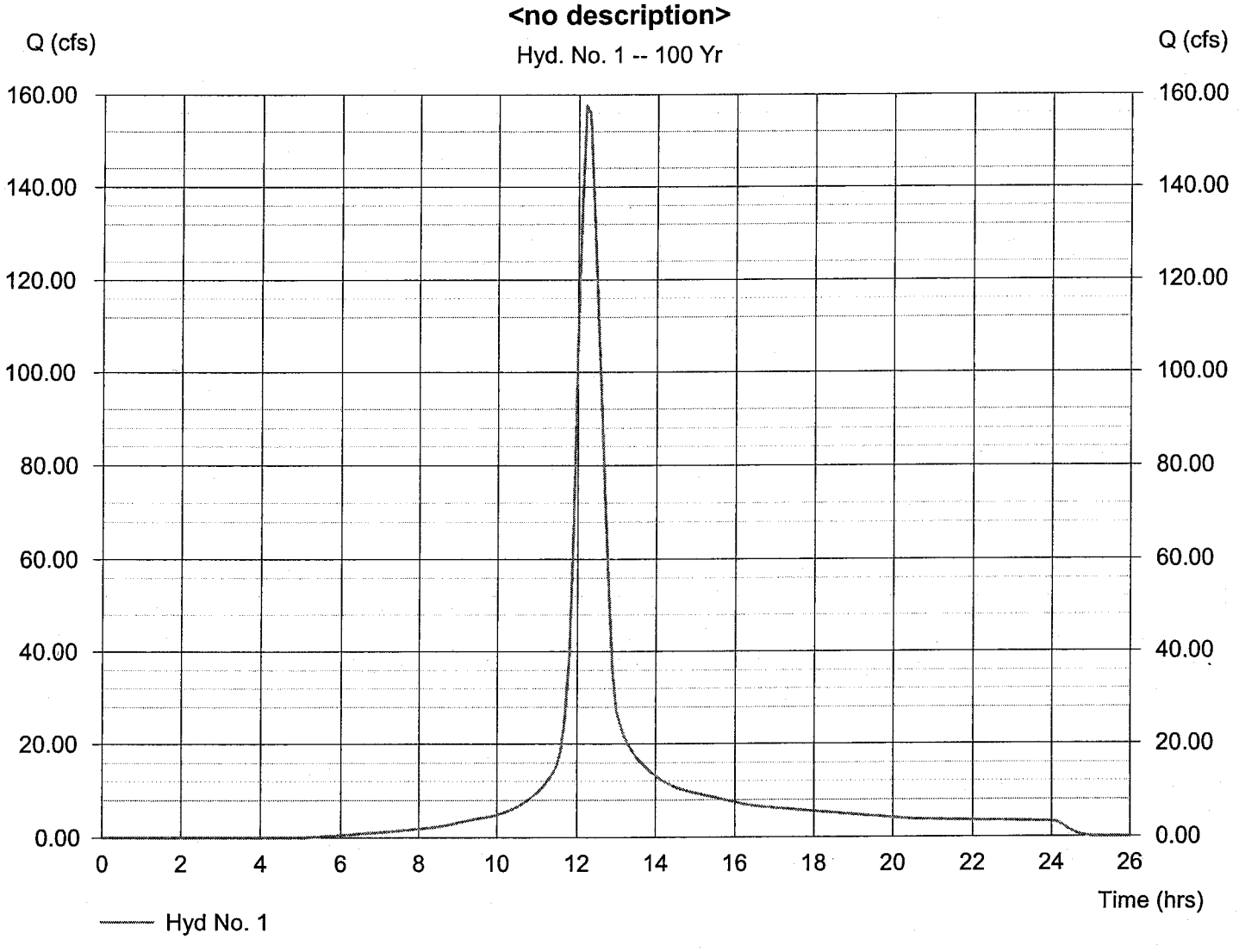
Monday, Aug 1 2005, 8:17 AM

Hyd. No. 1

<no description>

Hydrograph type	= SCS Runoff	Peak discharge	= 157.59 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Drainage area	= 37.00 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 37.42458 min
Total precip.	= 8.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Volume = 795,348 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Aug 1 2005, 8:17 AM

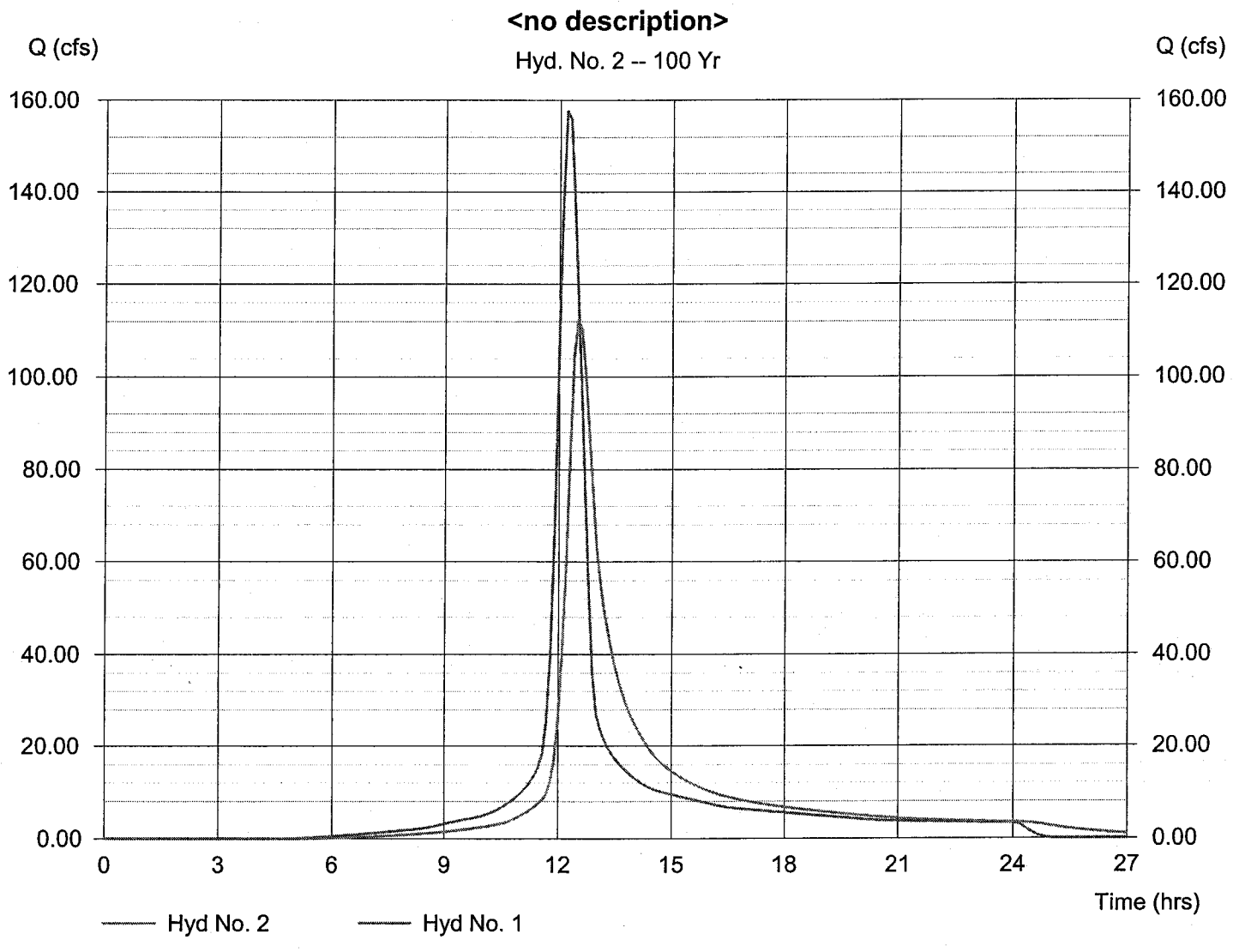
Hyd. No. 2

<no description>

Hydrograph type	= Reservoir	Peak discharge	= 112.30 cfs
Storm frequency	= 100 yrs	Time interval	= 6 min
Inflow hyd. No.	= 1	Max. Elevation	= 62.58 ft
Reservoir name	= New Pond1	Max. Storage	= 218,212 cuft

Storage Indication method used.

Hydrograph Volume = 795,339 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve — Monday, Aug 1 2005, 8:17 AM

Pond No. 1 - New Pond1

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	59.00	51,917	0	0
4.00	63.00	70,000	243,834	243,834

Culvert / Orifice Structures

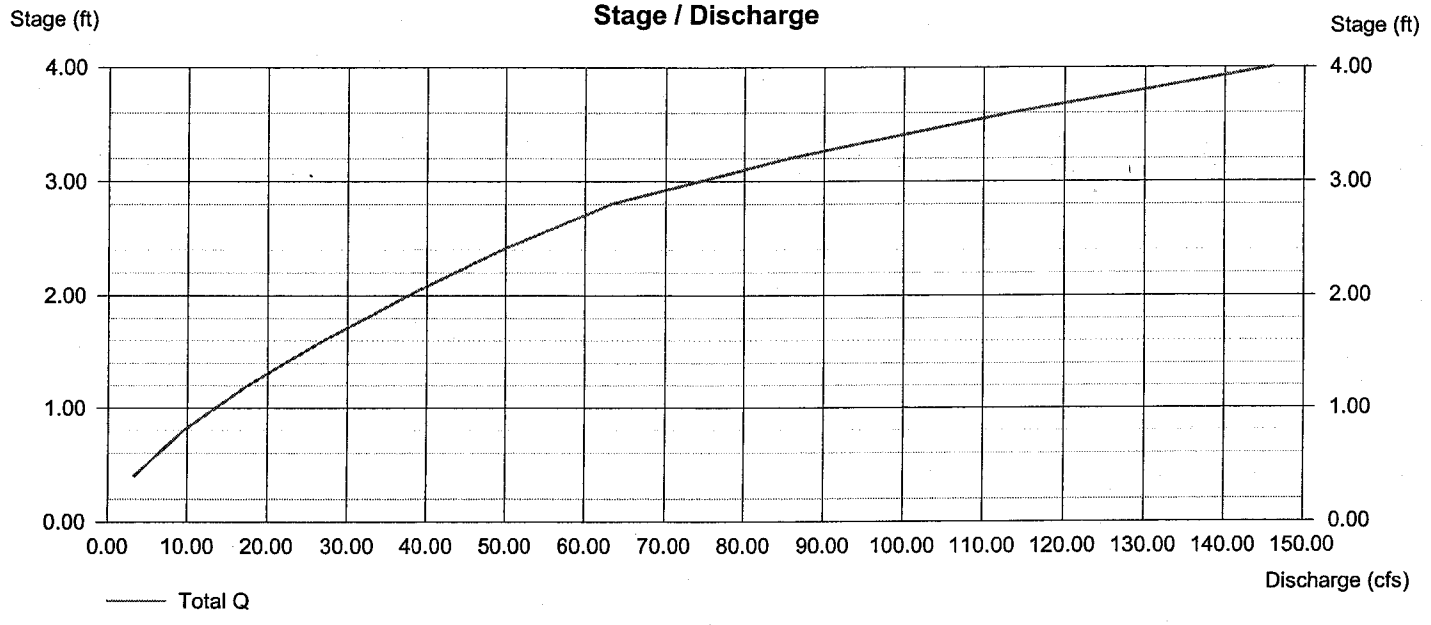
	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

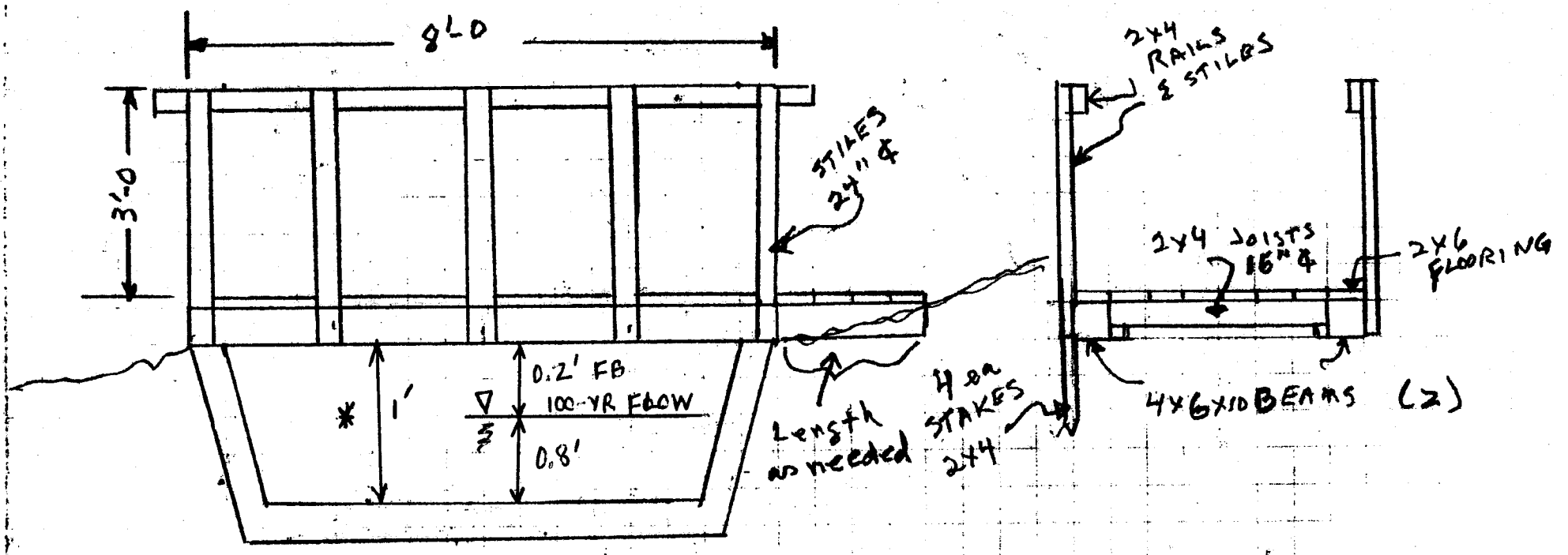
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	8.00	0.00	0.00
Crest El. (ft)	= 59.00	61.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Ciplti	Ciplti	---	---
Multi-Stage	= No	No	No	No

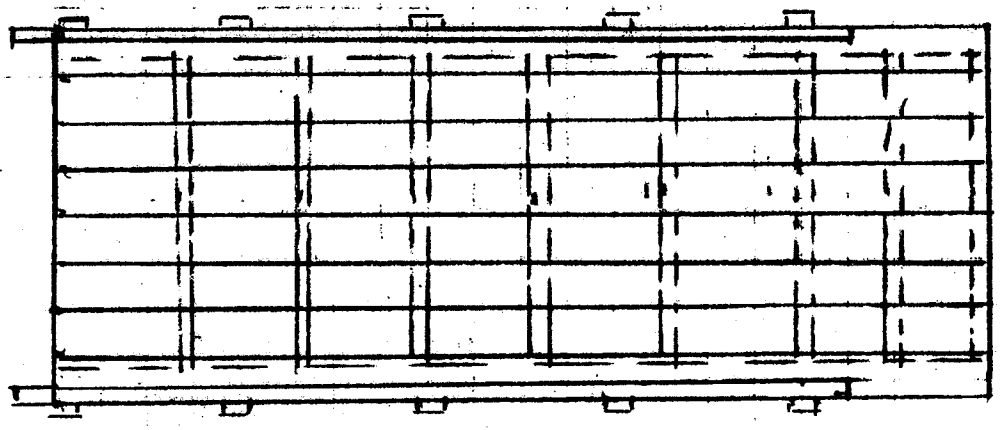
Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.





ALL WOOD ST.



* PER APPROVED PLAN SP-70-05; CBE-05-055

St Bede BRIDGE
9/18/08

Eng Div

Rectory BLDG

File

B—

I searched Land Records for this.

The "Existing Farm Pond Analyses" — St. Bedes.

See me. We will need to talk about what the "allowables" would be. Amt

Subject _____

Computed _____ Checked _____

LANDMARK DESIGN GROUP

Project # _____

Client _____

Date _____ Sheet # _____

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants

23

EXISTING FARM POND

	PRE DEVELOPMENT		POST DEVELOPMENT	
	Q_{OUT}	WSE	Q_{OUT}	WSE
1 YEAR	2.87	59.37	2.85	59.37
2 YEAR	6.16	59.62	6.08	59.61
10 YEAR	24.81	60.49	23.51	60.44
100 YEAR	49.15	61.35	47.83	61.31

"Farm Pond Analyses" by LMDG (SP-28-01)

Allowable 2-YEAR 6.16 CFS
10-YEAR 24.81 CFS

Pond Improvement, Eric Allen (SP-70-05)

2-YEAR 21.49 CFS
10-YEAR 58.84 CFS

RISER at EL. 59.00
E.S @ EL. 61.70

1-YR.

Pond POND: EXISTING FARM POND

Inflow	=	7.37 cfs @	12.58 hrs, Volume=	1.673 af	
Outflow	=	2.87 cfs @	13.76 hrs, Volume=	1.463 af,	Atten= 61%, Lag= 70.8 min
Primary	=	2.87 cfs @	13.76 hrs, Volume=	1.463 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.37' Storage= 29,057 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 213.4 min calculated for 1.461 af (87% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	6.89 cfs @	11.88 hrs, Volume=	1.593 af	
Outflow	=	2.85 cfs @	13.89 hrs, Volume=	1.387 af,	Atten= 59%, Lag= 120.7 min
Primary	=	2.85 cfs @	13.89 hrs, Volume=	1.387 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.37' Storage= 28,992 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 215.5 min calculated for 1.385 af (87% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

2-YR.

Pond POND: EXISTING FARM POND

Inflow	=	13.78 cfs @	12.56 hrs,	Volume=	2.757 af	
Outflow	=	6.16 cfs @	13.44 hrs,	Volume=	2.535 af,	Atten= 55%, Lag= 53.1 min
Primary	=	6.16 cfs @	13.44 hrs,	Volume=	2.535 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.62' Storage= 44,083 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 168.3 min calculated for 2.535 af (92% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	12.60 cfs @	12.59 hrs, Volume=	2.721 af	
Outflow	=	6.08 cfs @	13.64 hrs, Volume=	2.504 af,	Atten= 52%, Lag= 63.1 min
Primary	=	6.08 cfs @	13.64 hrs, Volume=	2.504 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.61' Storage= 43,772 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 166.7 min calculated for 2.504 af (92% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

10-YR

Pond POND: EXISTING FARM POND

Inflow	=	47.00 cfs @	12.46 hrs, Volume=	7.119 af	
Outflow	=	24.81 cfs @	12.98 hrs, Volume=	6.864 af,	Atten= 47%, Lag= 31.3 min
Primary	=	24.81 cfs @	12.98 hrs, Volume=	6.864 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 60.49' Storage= 98,232 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 107.8 min calculated for 6.850 af (96% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	39.01 cfs @	12.59 hrs, Volume=	7.279 af	
Outflow	=	23.51 cfs @	13.13 hrs, Volume=	7.030 af,	Atten= 40%, Lag= 32.0 min
Primary	=	23.51 cfs @	13.13 hrs, Volume=	7.030 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 60.44' Storage= 95,155 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 106.9 min calculated for 7.030 af (97% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

100-YR

Pond POND: EXISTING FARM POND

Inflow	=	82.71 cfs @	12.41 hrs, Volume=	11.880 af	
Outflow	=	49.15 cfs @	12.85 hrs, Volume=	11.604 af,	Atten= 41%, Lag= 26.4 min
Primary	=	49.15 cfs @	12.85 hrs, Volume=	11.604 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 61.35' Storage= 151,321 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 87.0 min calculated for 11.604 af (98% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	72.65 cfs @	12.53 hrs, Volume=	12.262 af	
Outflow	=	47.83 cfs @	12.98 hrs, Volume=	11.992 af,	Atten= 34%, Lag= 26.5 min
Primary	=	47.83 cfs @	12.98 hrs, Volume=	11.992 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 61.31' Storage= 148,707 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 85.5 min calculated for 11.992 af (98% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 259-4032 E-MAIL: devtman@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
MOSQUITO CONTROL (757) 259-4116

September 30, 2005

MC-055 RPA
0 S-057 Slopes

Mr. Eric Allen
Watershed Consulting
P.O. Box 7216
Richmond, VA 23221

RE: RPA Waiver Request for Improvements to Saint Bede's Pond Dam
County Plan No. SP-070-05

Dear Mr. Allen:

Pursuant to your letter request of August 8, 2005, a waiver from the Chesapeake Bay Preservation Ordinance to allow encroachment into the Resource Protection Area (RPA) and to impact steep slopes for modifications to an existing dam embankment is **approved**. The project impacts approximately 9000 square feet of the RPA involving clearing and grading to allow for improvement of the dam's spillway and to remove trees from the embankment. These actions will help protect the dam from failure preventing environmental damage and also allow the pond to continue to perform some beneficial functions of a fully designed stormwater BMP such as improved water quality, providing habitat, and some attenuation of storm flows. The steep slope impacts are approximately 500 square feet associated with the construction access road to the pond.

The Ordinance allows for waivers to be granted administratively for modifications to existing nonconforming structures in the RPA such as the pond and its dam embankment provided certain findings are made. The findings presented in Section 23-12(1) are that there will be no increase in nonpoint source pollution load and that any land disturbance exceeding 2500 square feet comply with the erosion and sediment control requirements of the Ordinance. In this situation, the RPA begins at the base of the dam so most of the impacts are to an engineered fill section, not a natural buffer. While there is some additional impervious area being added, this is for the construction of a concrete channel that will stop an existing erosion problem. The modifications will also improve the ability of the pond to serve as a BMP facility. Finally, the site plan for the work includes the erosion control measures necessary to comply with the Ordinance.

Approval of the waiver is conditioned on the implementation of the approved site plan for the work, SP-070-05, and providing as-built plans and construction certification for the completed dam improvements. Please note that this waiver does not constitute approval for any work on the dam improvements, that will have to wait until the land disturbing permit is issued for the project. The exception request will become null and void if construction of the improvements have not commenced within 12 months of the date of this letter. Please contact me at 253-6670 if you have any questions.

Sincerely,

Darryl E Cook

Darryl E. Cook, P.E.
Environmental Director

WATERSHED CONSULTING, PLLC

RECEIVED
FEB 19 2009
ENVIRONMENTAL DIVISION

February 9, 2009

Mr. Scott Thomas
James City County Environmental Division
101-E Mounts Bay Road
Williamsburg, VA 23187

RE: St. Bede Catholic Church

Dear Mr. Thomas:

Attached is a "Stormwater Management/BMP Facilities Record Drawing and Construction Certification" form for a pond repair located at St. Bede Catholic Church in James City County, Virginia. The record drawing certification was prepared by LandMark Design Group, Inc. and the Construction Certification was prepared by ECS Mid-Atlantic, LLC.

Watershed Consulting, PLLC also executed a visual inspection of the dam December 22, 2008. Based on our visual inspection and information provided by Landmark Design Group, Bush Construction, and ECS, the dam appears to have been constructed in accordance with plans and specifications.

If you have any questions, please feel free to call.

Sincerely,

Erik Allen,
Watershed Consulting, PLLC

CC: Mark Renaldi
Al Jaroszewicz

SP-132-04
St. Bedes Rectory Building & Parking
MC 055 – Upgrades to exist private dam
✓ Scott, I am ok with it.
✓ Bill C.
___ Greg J.
Review & process file for close-out.

• PO Box 7216 • Richmond • Virginia 23221 • (804) 304-4659 •

Scott Thomas

From: Akuras424@aol.com
Sent: Sunday, September 21, 2008 3:52 PM
To: Scott Thomas
Subject: St. Bede
Attachments: St Bede Bridge 9 19 080001.jpg

Dear Mr. Thomas. Thank you for the help in our quest to make the path over the spillway safe for walkers. Attached is a sketch of our proposed temporary bridge. I estimate the cost at about $150 for material (labor is free), so it is no great deal if it needs to be removed in the future. It is much cheaper than broken legs. Please review.

Looking for simple solutions to your real-life financial challenges? Check out WalletPop for the latest news and information, tips and calculators.

GREG FYI

DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671

E-MAIL: devtman@james-city.va.us
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ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678

MOSQUITO CONTROL
(757) 259-4116

September 26, 2008

Mr. Jack Carey, MMM Group
St. Bede Catholic Church
3686 Ironbound Road
Williamsburg, VA 23188

Re: Amendment to Existing Chesapeake Bay Exception
Temporary Bridge Structure at Existing St. Bedes Pond
County Plan No. E&S-024-08; SP-70-05; CBE-05-055

Dear Mr. Carey:

The Environmental Division is in receipt of an email from Mr. Kuras dated September 21, 2008 for proposed placement of a temporary bridge structure over the existing concrete emergency spillway on the existing dam situated on the St. Bede property. The purpose of the structure is to provide a safe means for pedestrians who walk to the church grounds from the adjacent subdivision. The existing stormwater basin is situated at the south end of the church property and is further identified with County BMP ID Code MC 055. The spillway and proposed temporary bridge structure is situated at the north end of the existing dam embankment.

This spillway on this dam was recently modified and constructed as part of approved County Plan No. SP-70-05 and Land-Disturbing Permit # 07-026. An administrative Chesapeake Bay Exception was previously issued for these dam improvements (copy attached; CBE-05-055). Pursuant to the provisions of 23-14(e) of the County's Chesapeake Bay Preservation ordinance, an administrative exception is hereby **granted** for the temporary bridge structure. The exception will be issued as an amendment to previously issued Chesapeake Bay Exception CBE-05-055. This approval also allows for construction of the temporary bridge structure within dedicated conservation easement area.

Applicable conditions are as follows:

1. The structure must be temporary in nature. It can be anchored for stability and safety purposes, but must have the ability to be moved should emergency conditions become apparent or occur.
2. The temporary structure must be situated in an area that is considered to be a "maintained" portion of the dam.
3. No new tree clearing is authorized for access or construction purposes for the temporary bridge; however, tree clearing for existing dam maintenance is allowed.
4. The bottom of beams/joist for the temporary structure shall not be situated in the flow area of the concrete spillway as any obstruction of the spillway could threaten the stormwater function or structural integrity of the stormwater basin.
5. A building permit will be necessary through Codes Compliance.
6. Notify our assigned Division inspector when you know work is to about to commence.

It does not appear that a land-disturbing permit is necessary through our Division for this project. The assigned Division inspector for this area is Mr. Greg Johnson. He can be contacted at 253-6683 or by email at gregj@james-city.va.us . This amendment will become null and void if work is not started within 12 months of the date of this letter. Thank you for your efforts to protect the Chesapeake Bay and it's tributaries from the effects of non-point source pollution associated with land use activities. Please contact me at 253-6639 if you have any questions about this exception or any of its associated conditions.

Sincerely,

Scott J. Thomas, P.E.
Director
Environmental Division

SJT/sjt
Attachments

ChesBay\AdminWaiver\CBE05055_amended

DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
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PLANNING (757) 253-6685 planning@james-city.va.us
COUNTY ENGINEER (757) 253-6678
MOSQUITO CONTROL (757) 259-4116

September 30, 2005

09-055 WR
09-057 Slopes

Mr. Eric Allen
Watershed Consulting
P.O. Box 7216
Richmond, VA 23221

RE: RPA Waiver Request for Improvements to Saint Bede's Pond Dam
County Plan No. SP-070-05

Dear Mr. Allen:

Pursuant to your letter request of August 8, 2005, a waiver from the Chesapeake Bay Preservation Ordinance to allow encroachment into the Resource Protection Area (RPA) and to impact steep slopes for modifications to an existing dam embankment is **approved**. The project impacts approximately 9000 square feet of the RPA involving clearing and grading to allow for improvement of the dam's spillway and to remove trees from the embankment. These actions will help protect the dam from failure preventing environmental damage and also allow the pond to continue to perform some beneficial functions of a fully designed stormwater BMP such as improved water quality, providing habitat, and some attenuation of storm flows. The steep slope impacts are approximately 500 square feet associated with the construction access road to the pond.

The Ordinance allows for waivers to be granted administratively for modifications to existing nonconforming structures in the RPA such as the pond and its dam embankment provided certain findings are made. The findings presented in Section 23-12(1) are that there will be no increase in nonpoint source pollution load and that any land disturbance exceeding 2500 square feet comply with the erosion and sediment control requirements of the Ordinance. In this situation, the RPA begins at the base of the dam so most of the impacts are to an engineered fill section, not a natural buffer. While there is some additional impervious area being added, this is for the construction of a concrete channel that will stop an existing erosion problem. The modifications will also improve the ability of the pond to serve as a BMP facility. Finally, the site plan for the work includes the erosion control measures necessary to comply with the Ordinance.

Approval of the waiver is conditioned on the implementation of the approved site plan for the work, SP-070-05, and providing as-built plans and construction certification for the completed dam improvements. Please note that this waiver does not constitute approval for any work on the dam improvements, that will have to wait until the land disturbing permit is issued for the project. The exception request will become null and void if construction of the improvements have not commenced within 12 months of the date of this letter. Please contact me at 253-6670 if you have any questions.

Sincerely,

Darryl E Cook

Darryl E. Cook, P.E.
Environmental Director

Saint Bede Catholic Church

3686 Ironbound Road
P.O. Box 5400
Williamsburg, Virginia 23188

Church Office

September 22, 2006

Ms. Tina Cook and/or Scott Thomas
James City County, Development Management
P.O. Box 8784
Williamsburg, VA 23187-8784

Re: Case No. SP-70-05 St. Bede Church Dam Project

The purpose of this letter is to address permission from the off-site property owner regarding referenced case/project.

Permission granted by signature below.

Elizabeth N. Vaiden

Elizabeth N. Vaiden
4521 The Foxes
GPIN 38303000010
Lot 10 The Foxes

Witnessed: G. Vaiden

Phone: 757-229-3631 · fax: 757-229-7845 · e-mail: stboffice@bedeva.org

The St. Bede Catholic Church Pond Improvement Project can start when a land-disturbance permit is issued from the county. The work centers around installation of a concrete spillway which in part requires bringing the dam level to a uniform height. The nature of this work, placement of compacted fill, is adjacent to GPIN 3830300010; Vaiden parcel, Lot 10 The Foxes and notification/permission is required before a permit is issued.

Date Record Created:

Created By: Scott Thomas

Effective Year_Declaration of Covenants:

WS_BMPNO: MC055

WATERSHED	MC
BMP ID NO	055
PLAN NO	SP-070-05
TAX PARCEL	(38-3)(1-18)
PIN NO	3830100018
CONSTRUCTION DATE	9/1/2008
PROJECT NAME	Private Dam - Digges/Vaiden Pond
FACILITY LOCATION	Ironbound Road
CITY-STATE	Williamsburg, Va. 23185
CURRENT OWNER	St. Bede Catholic Church
OWNER ADDRESS	3686 Ironbound Road
OWNER ADDRESS 2	
CITY-STATE-ZIP CODE	Williamsburg, VA 23188
OWNER PHONE	
MAINT AGREEMENT	No
EMERG ACTION PLAN	No

Get Last BMP No

Return to Menu

Other affected parcels:

PIN_NO2:

PIN_NO3:

PIN_NO4:

PIN_NO5:

PIN_NO6:

PIN_NO7:

PIN_NO8:

PIN_NO9:

MAINTENANCE PLAN	No	CTRL STRUC DESC	Conc flume
SITE AREA acre	42.8	CTRL STRUC SIZE inches	4 feet wide
LAND USE	Church	OTLT BARRL DESC	
old BMP TYP	Farm Pond	OTLT BARRL SIZE inch	
JCC BMP CODE	A2 Wet Pond		
POINT VALUE		EMERG SPILLWAY	Yes
		DESIGN HW ELEV	61.7
		PERM POOL ELE	59.00
SVC DRAIN AREA acres	38.3	2-YR OUTFLOW cfs	21.50
		10-YR OUTFLOW cfs	58.80
		REC DRAWING	Yes
SERVICE AREA DESCRI	Church (30% imp), 2 ac & 0.5 SF lots		
IMPERV AREA acres	0.00	CONSTR CERTI	Yes
RECV STREAM	UT of Mill Creek		
EXT DET-WQ-CTRL	No	LAST INSP DATE	9/1/2008
WTR QUAL VOL acre-ft		INTERNAL RATING	
CHAN PROT CTRL	No	MISC/COMMENTS	
CHAN PROT VOL acre-ft			
SW/FLOOD CONTROL	No	Near St. Bedes and the Foxes, GPINS 3830100018/380300010. 1.2 ac. pool.	
GEOTECH REPORT	No		

Inspected by: Project Engineer

Additional Comments: This is an older pond that was upgraded for this project

7/13/2001

PROJECT NAME ST Bedes
LMDG JOB NO. 1970077

TABLE 2

WORKSHEET FOR BMP POINT SYSTEM

JUL 2001 RECEIVED ENVIRONMENTAL DIVISION

TOTAL SITE	=	42.8	ACRES
RPA	=	10.47	ACRES (form. 11.13 ac.)
STRUCTRUAL SITE AREA	=	32.33	ACRES

A. STRUCTURAL BMP POINT ALLOCATION

REDUCED DUE TO REMOVAL OF CULVERT AT ENT. ROAD (1.4 AC.)

	BMP	BMP POINTS		FRACTION OF SITE SERVED BY BMP			WEIGHTED BMP POINTS
4	Pond #1 Infiltration Basin, 1"/ac	* ~~10~~ 9.3357	x	~~1.4~~	/ 32.33	=	4.0427 ~~1.330~~
1	Median biofilters/swales to creek	8	x	1.55	/ 32.33	=	0.384
1	Median biofilters/swales for [redacted]	8	x	[redacted]	/ 32.33	=	0.282
2	Rear roof runoff treatment - infiltration trench @ 1 "/imp. ac	10	x	0.50	/ 32.33	=	0.155

TOTAL WEIGHTED STRUCTURAL BMP POINTS: 4.8637 ~~5.151~~

B. NATURAL OPEN SPACE CREDIT

FRACTION OF SITE			NATURAL OPEN SPACE CREDIT		POINTS FOR NATURAL OPEN SPACE
20.45 /	42.8	x	(0.1 per 1%)	=	4.778
0.54 /	42.8	x	(0.15 per 1%)	=	~~0.189~~ 0.33

0.941 AC.
SEE MAP

TOTAL NATURAL OPWN SPACE CREDIT: ~~4.967~~ 5.108

C. TOTAL WEIGHTED POINTS

9.9717

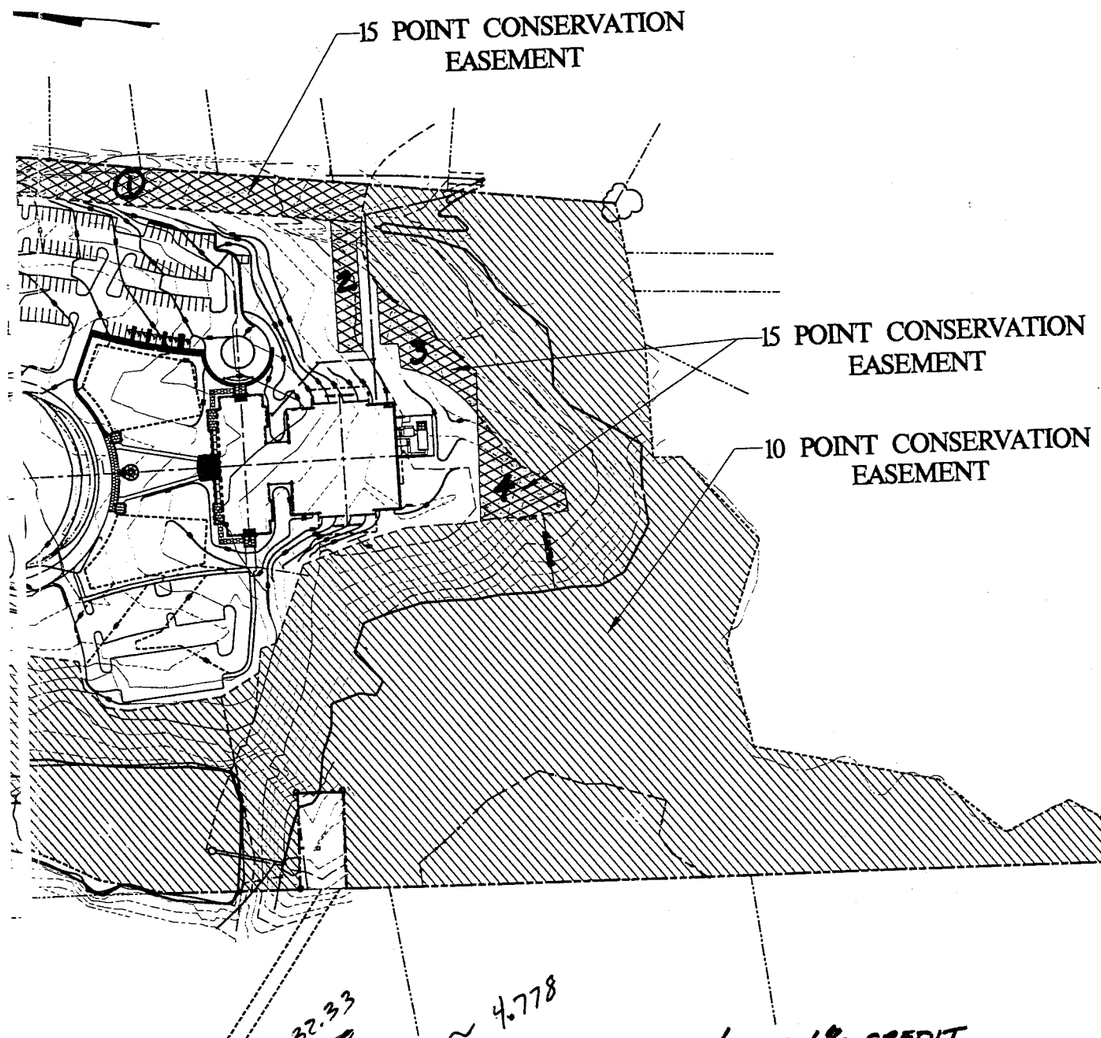
4.8637 ~~5.15~~	+	5.108 ~~4.97~~	=	~~10.118~~
STRUCTURAL BMP POINTS		NATURAL OPEN SPACE POINTS		TOTAL

* 9.3 weighted due to series-treatment train approach. 50% REMOVAL EFFICIENCY FOR D.A. TO POND #1 thru bioretention cells.

∴ 10 points achieved.

SH
01-30-01

revisedSt BedesJCC 10POINT BMP SHEET.xls

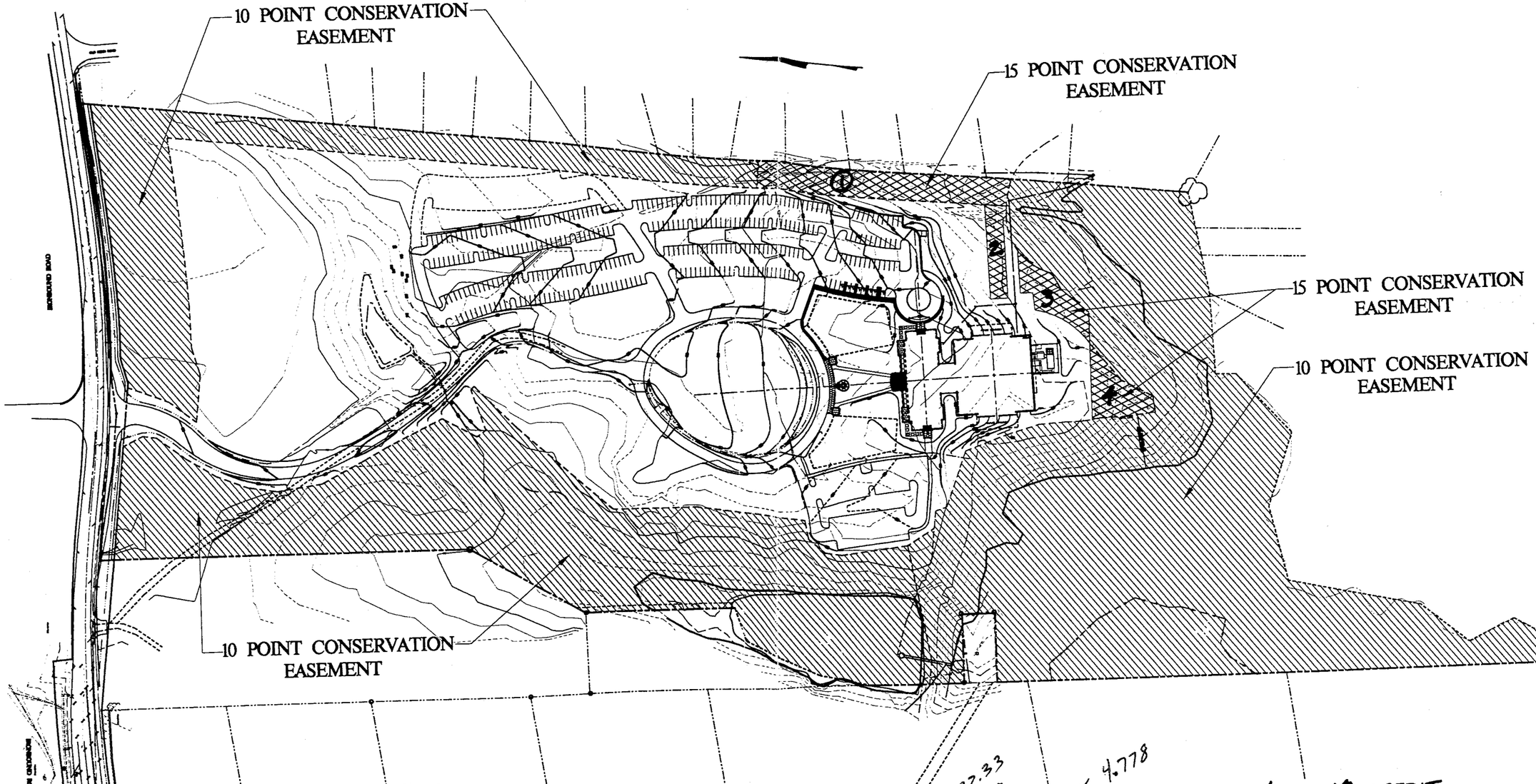


SITE ~~42.8~~ 32.33
20.45 AC @ 0.1 ~ 4.778
20.13/42.8 = 0.4703 47.03%
4.703
4.778 - 4.703 = 0.0750 points

0.15 pt per 1% CREDIT

1	400 x 50	=	0.459 AC.
2	150 x 35	=	0.121 AC.
3	50 x 150	=	0.172 AC.
4	½(110)(150)	=	0.189 AC.
			0.9410 AC.

1" = 200'
SCALE



SITE 32.33
20.45 AC @ 0.1 ~ 4.778
20.13/42.8 = 0.4703
47.03%
4.703
4.778 - 4.703 = 0.0750 points

0.15 pt per 1% CREDIT

1	400 x 50	= 0.459 AC.
2	150 x 35	= 0.121 AC.
3	50 x 150	= 0.172 AC.
4	½(110)(150)	= 0.189 AC.
		0.9410 AC.

1" = 200'
SCALE

JUL 2001
RECEIVED
ENVIRONMENTAL DIVISION

CHESAPEAKE BAY ACT - RPA EXCEPTIONS

CBE- 05-055 | Get Last CBE# | DATE REC' | FISCAL YEAR 2005

LAST NAME OR AGENT'S COMPANY: WATERSHED CONSULTING

FIRST NAME OR AGENT'S NAME: ERIC ALLEN

PHONE: (804) 304-4659 | HOUSE #: 3686 | STREET: IRONBOUND ROAD | SP OR LINE #: SP-070-05

SUBDIVISION:

PROJECT (NON-SF ONLY): ST BEDES DAM IMPROVEMENT PLAN

CBB HEARING:

EXCEPTION DESC	ACTION	DATE	POSSIBLE DATE VOID	ACCEPT REC'D
RPA/MOD TO DAM BAN	GRANTED	09/30/2005	09/26/2009	☑

MITITAGION PLAN RE	DATE ACCEPTED	DATE INSPECTED	SURETY AMOUNT	SURETY TYPE
☐			$0	

SURETY #	SURETY COMPANY	SURETY EXPIRATION

SURETY RELEASED	SURETY COMMENT	AREA OR INITIAL
☐		SJT

PROJECT RELEASED	PROJECT CLOSED	FEE PAID:	PIN #
☐			3830100018

COMMENT: ALSO STEEP SLOPECBS-05-057
9/26/08 AMMENDED TO INCLUDE CONSTRUCTION OF TEMPORARY BRIDGE STRUCTURE WITHIN DEDICATED CE AREA. E&S-024-08

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: **MC055**

DATE VERIFIED: **December 6, 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

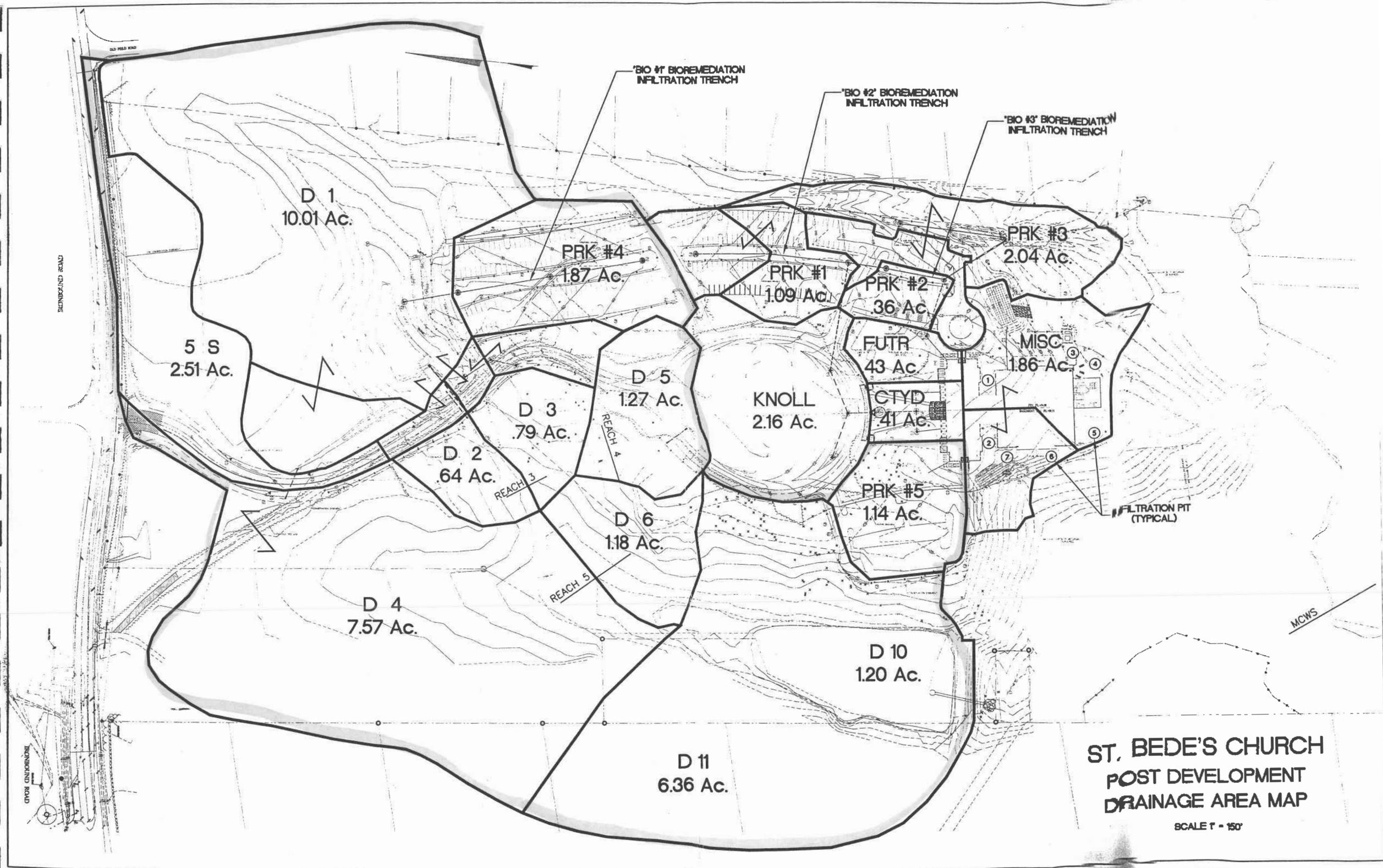
Re: Files Approved for Scanning

General File ID or BMP ID:	**MC055**
PIN:	**3830100018**
Owner Name (if known):	**CATHOLIC DIOCESE**
Legal Property Description:	**PT INDIGO DAM S-1**
Site Address:	**3686 IRONBOUND ROAD**

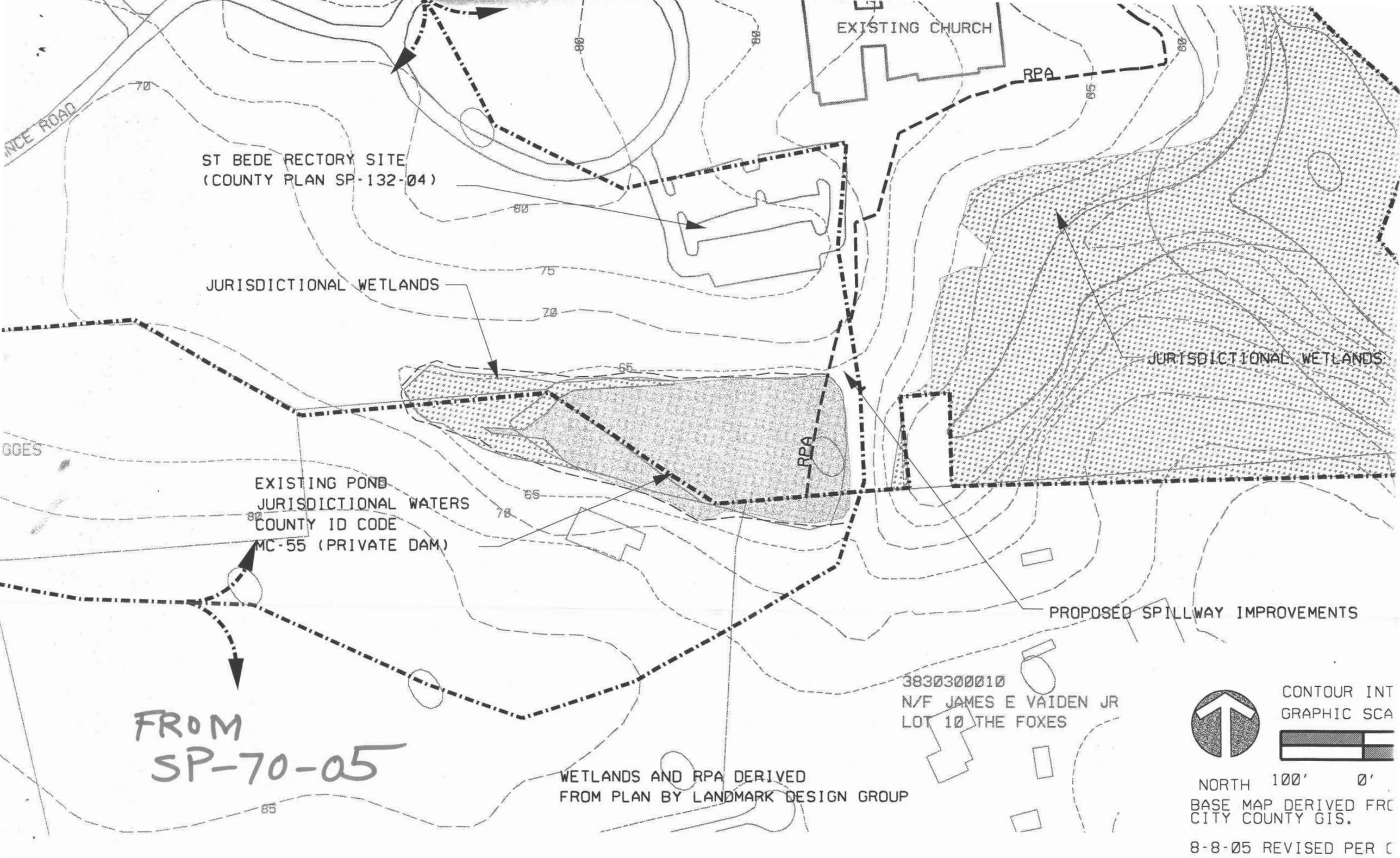
(For internal use only):

Box # 3

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



MC055_DIGGS_VAIDEN_FARM_POND - 003


EXISTING CHURCH
RPA
ST BEDE RECTORY SITE
(COUNTY PLAN SP-132-04)
JURISDICTIONAL WETLANDS
JURISDICTIONAL WETLANDS
RPA
EXISTING POND
JURISDICTIONAL WATERS
COUNTY ID CODE
MC-55 (PRIVATE DAM)
PROPOSED SPILLWAY IMPROVEMENTS
3830300010
N/F JAMES E VAIDEN JR
LOT 10 THE FOXES
FROM
SP-70-05
WETLANDS AND RPA DERIVED
FROM PLAN BY LANDMARK DESIGN GROUP
CONTOUR INT
GRAPHIC SCA
NORTH
100'
0'
BASE MAP DERIVED FRC
CITY COUNTY GIS.
8-8-05 REVISED PER C

VDOT	
Planning	
Environ.	
Zoning Adm.	
JCSA	
County Eng.	
REA	
Other	

PROJECT NARRATIVE:

THE PROPOSED PROJECT CONSISTS OF UPGRADING AN EXISTING POND LOCATED ON THE ST BEDE CATHOLIC CHURCH PROPERTY IN JAMES CITY COUNTY, VIRGINIA. THE POND'S CORRUGATED METAL PRINCIPAL SPILLWAY IS NO LONGER FUNCTIONAL AND STORM FLOWS CURRENTLY EXIT THE POND VIA A LOW POINT ALONG THE NORTHERN FACE OF THE DAM.

THE POND DOES NOT SERVE AS A STORMWATER MANAGEMENT POND. HOWEVER, THE CHURCH DESIRES TO INCORPORATE THESE IMPROVEMENTS TO MINIMIZE THE POTENTIAL FOR DAM FAILURE DURING LARGE STORM EVENTS.

IMPROVEMENTS INCLUDE CONSTRUCTION OF A CONCRETE OVERFLOW SPILLWAY IN THE LOW AREA ALONG THE NORTH FACE OF THE DAM. THE SPILLWAY WILL BE 4-FEET WIDE AND WILL BE RECESSED WITHIN THE EXISTING EARTH SPILLWAY. EXCESS MATERIAL FROM SPILLWAY CONSTRUCTION WILL BE PLACED ON TOP OF THE EXISTING DAM. THE SPILLWAY HAS BEEN DESIGNED TO CONVEY A 10-YEAR STORM EVENT. THE EXISTING EMERGENCY SPILLWAY WILL CONVEY THE 100-YEAR STORM EVENT WHILE MAINTAINING A 1-FOOT FREEBOARD.

ADDITIONAL IMPROVEMENTS INCLUDE REMOVAL OF TREES FROM THE DAM FACE. EFFORTS WILL BE MADE TO PREVENT THE ESTABLISHMENT OF TREES ON THE DAM.

GENERAL NOTES:

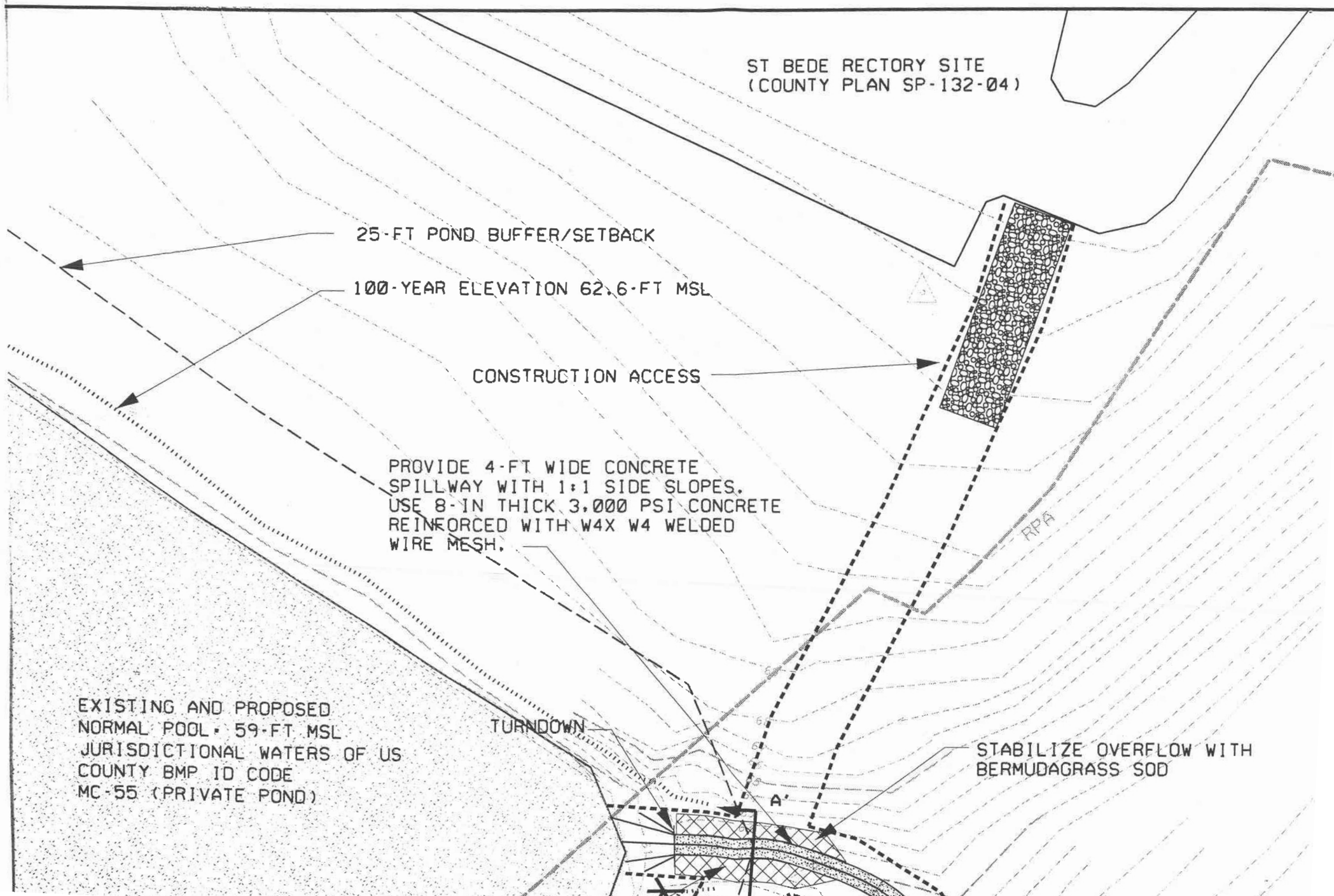
1. THE PROJECT RESULTS IN NO INCREASE IN IMPERVIOUS COVER.
2. THE PROJECT DOES NOT INCREASE PEAK RUNOFF RATES.
3. NO WORK IS PROPOSED WITHIN VDOT ROW.
4. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH STATE, FEDERAL, AND LOCAL STANDARDS.
5. THE CONTRACTOR SHALL CALL MISS UTILITY PRIOR TO EXECUTION OF LAND DISTURBANCE.
6. A LAND DISTURBING PERMIT AND PRECONSTRUCTION CONFERENCE ARE REQUIRED FOR THE PROJECT.
7. THE EXISTING POND IS NOT A WATER QUALITY OR QUANTITY CONTROL BMP IN ACCORDANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN FOR ST. BEDES SP-28-01. THE SITE DEVELOPMENT PLAN ACHIEVES 10-BMP POINTS WITHOUT USE OF THE FARM POND.
8. AN ASBUILT SURVEY AND CONSTRUCTION CERTIFICATION ARE REQUIRED FOR THIS PROJECT. ASBUILTS MUST BE SUBMITTED TO JAMES CITY COUNTY ENVIRONMENTAL DIVISION.

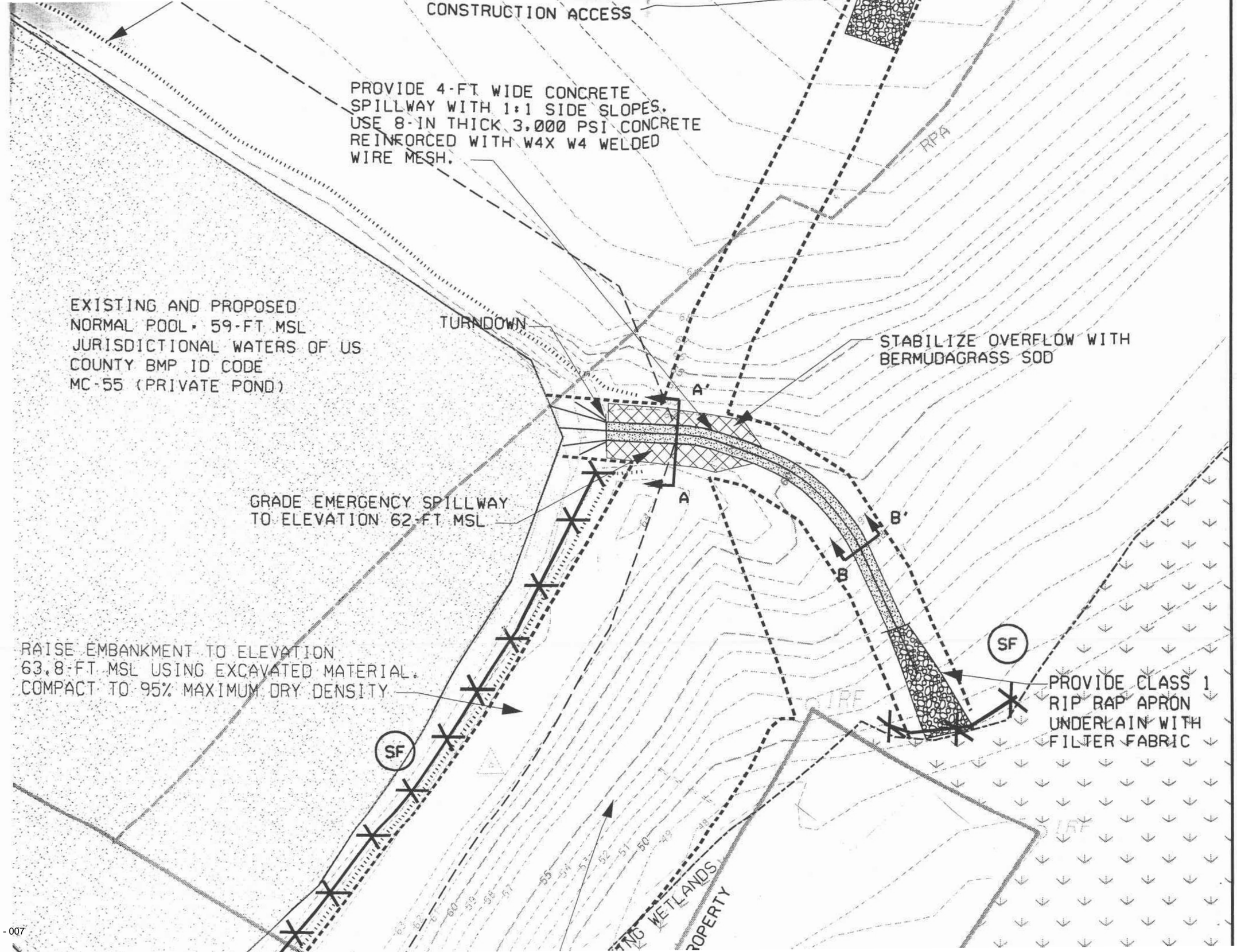
AILS

PROJECT MANAGER:	EA
DESIGNED:	EA
DRAWN:	EA
JOB NUMBER:	

WATERSHED CONSULTING PLLC

MC055_DIGGS_VAIDEN_FARM_POND - 005


ST BEDE RECTORY SITE
(COUNTY PLAN SP-132-04)
25-FT POND BUFFER/SETBACK
100-YEAR ELEVATION 62.6-FT MSL
CONSTRUCTION ACCESS
PROVIDE 4-FT WIDE CONCRETE
SPILLWAY WITH 1:1 SIDE SLOPES.
USE 8-IN THICK 3,000 PSI CONCRETE
REINFORCED WITH W4X W4 WELDED
WIRE MESH.
RPA
EXISTING AND PROPOSED
NORMAL POOL - 59-FT MSL
JURISDICTIONAL WATERS OF US
COUNTY BMP ID CODE
MC-55 (PRIVATE POND)
TURNDOWN
STABILIZE OVERFLOW WITH
BERMUDAGRASS SOD
A'


CONSTRUCTION ACCESS
PROVIDE 4-FT WIDE CONCRETE SPILLWAY WITH 1:1 SIDE SLOPES. USE 8-IN THICK 3,000 PSI CONCRETE REINFORCED WITH W4X W4 WELDED WIRE MESH.
RPA
EXISTING AND PROPOSED NORMAL POOL - 59-FT MSL JURISDICTIONAL WATERS OF US COUNTY BMP ID CODE MC-55 (PRIVATE POND)
TURNDOWN
STABILIZE OVERFLOW WITH BERMUDAGRASS SOD
A'
A
B'
B
GRADE EMERGENCY SPILLWAY TO ELEVATION 62-FT MSL
SF
RAISE EMBANKMENT TO ELEVATION 63.8-FT MSL USING EXCAVATED MATERIAL. COMPACT TO 95% MAXIMUM DRY DENSITY
SF
PROVIDE CLASS 1 RIP RAP APRON UNDERLAIN WITH FILTER FABRIC
WETLANDS
PROPERTY

RIP RAP APRON
UNDERLAIN WITH
FILTER FABRIC

SF

LIMITS OF PROPERTY

EXISTING WETLANDS

LIMITS OF PROPERTY

N

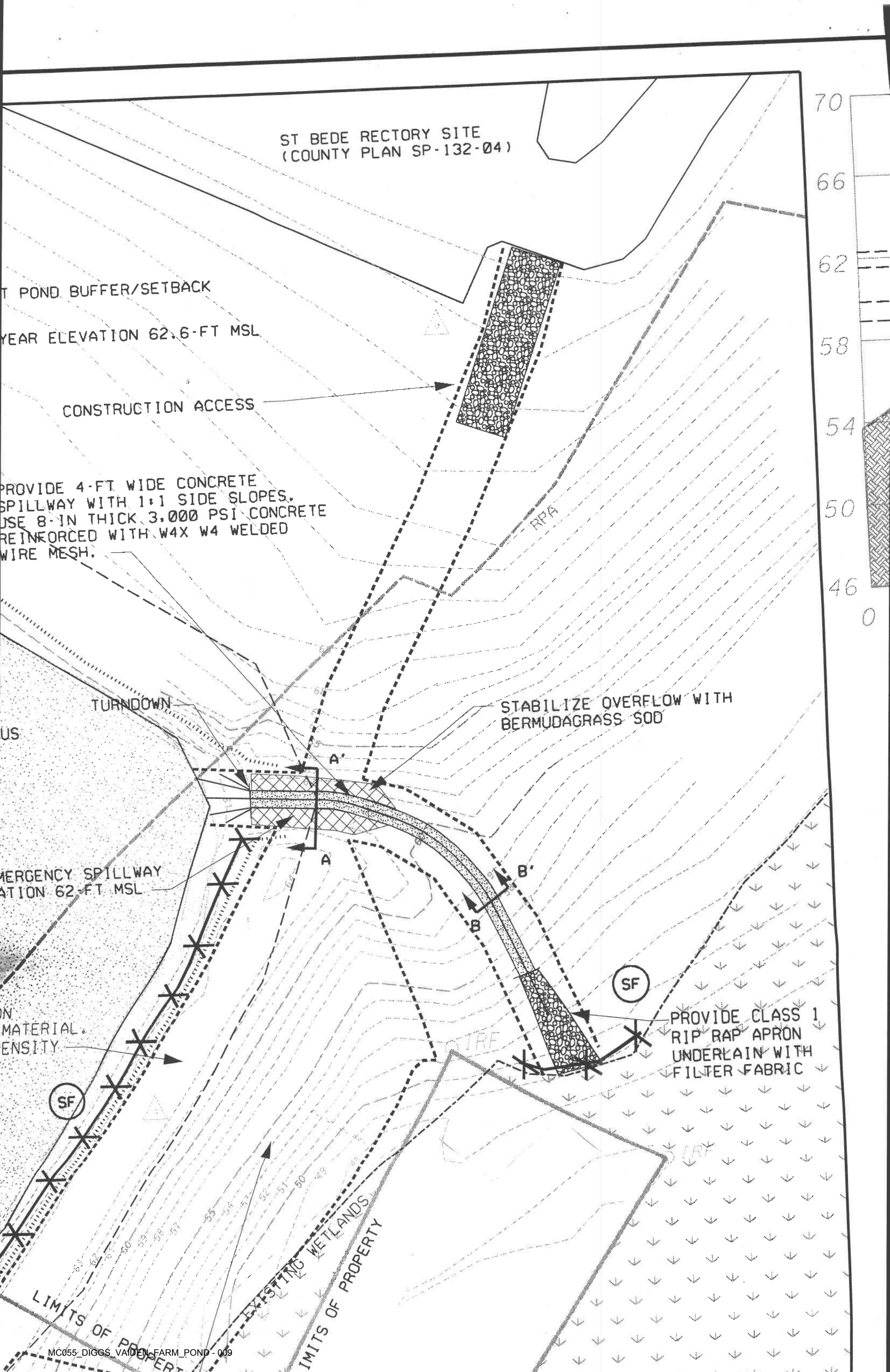
CUT TREES FROM EXISTING DAM EMBANKMENT.
MAINTENANCE EFFORTS SHALL BE MADE TO
PREVENT ESTABLISHMENT OF TREES ON DAM.
GRUB OUT ALL ROOTS LARGER THAN 1-INCH IN
DIAMETER. GRADE TO ADJACENT CONTOUR AND
ESTABLISH COVER.

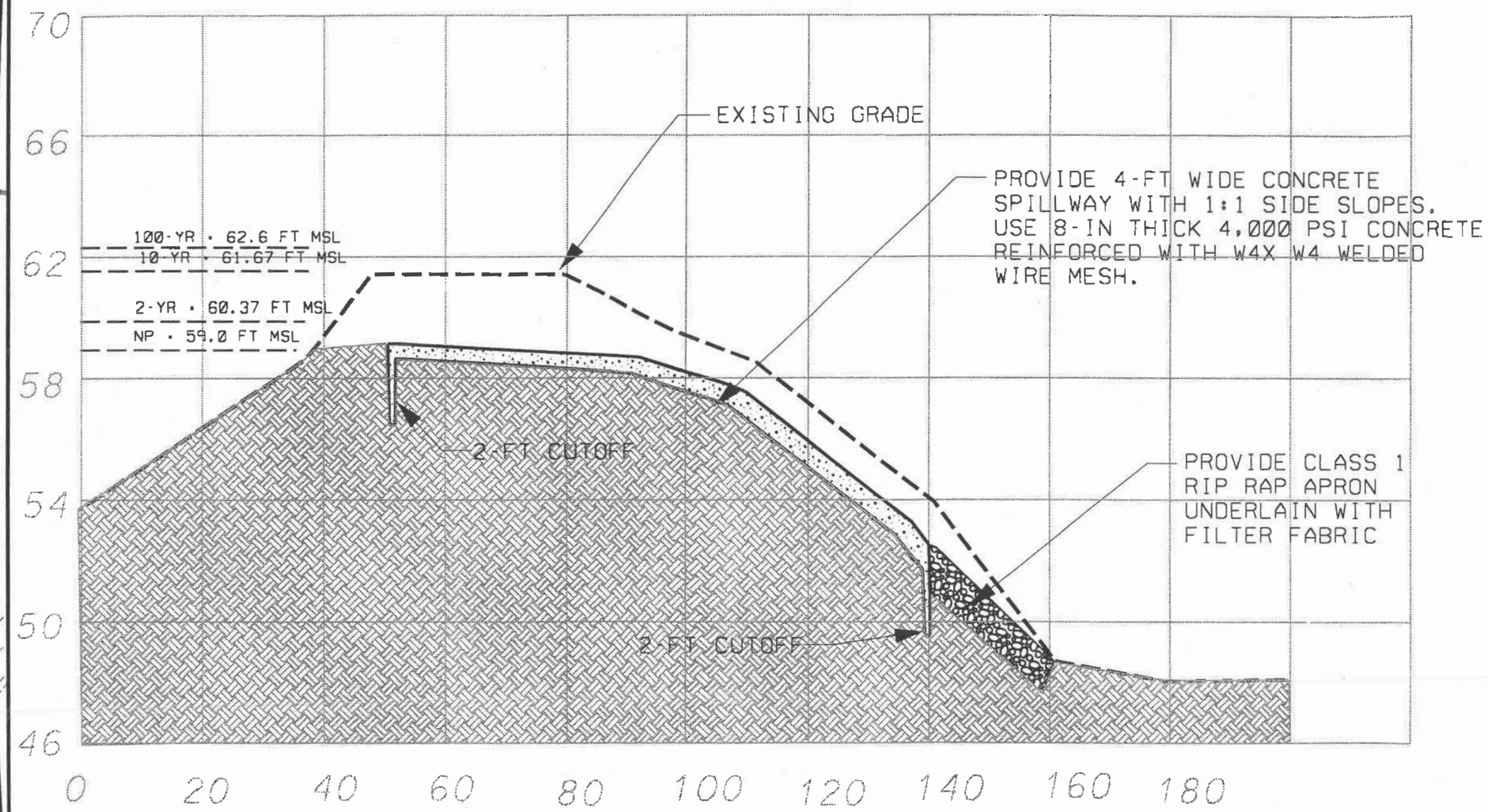
JURISDICTIONAL WETLANDS

CONTOUR INTERVAL = 1.0'
GRAPHIC SCALE: 1" = 20'

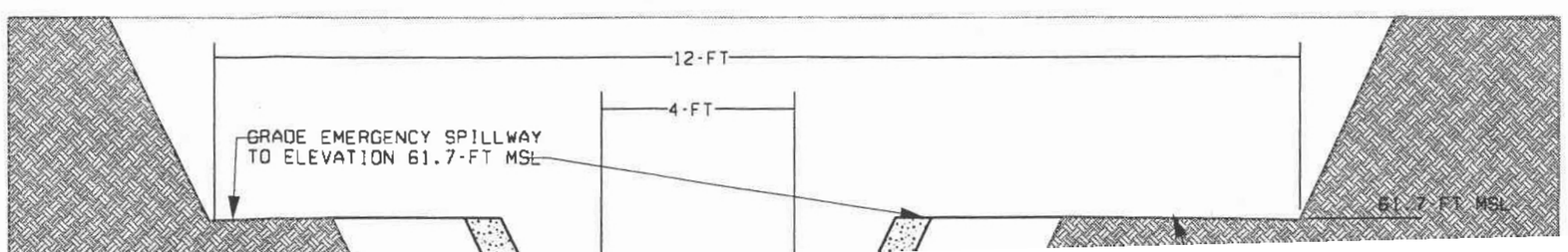
NORTH 40' 0' 20' 40'

BASE MAP DERIVED SURVEY PROVIDED
BY AES AND LANDMARK SITE PLAN.

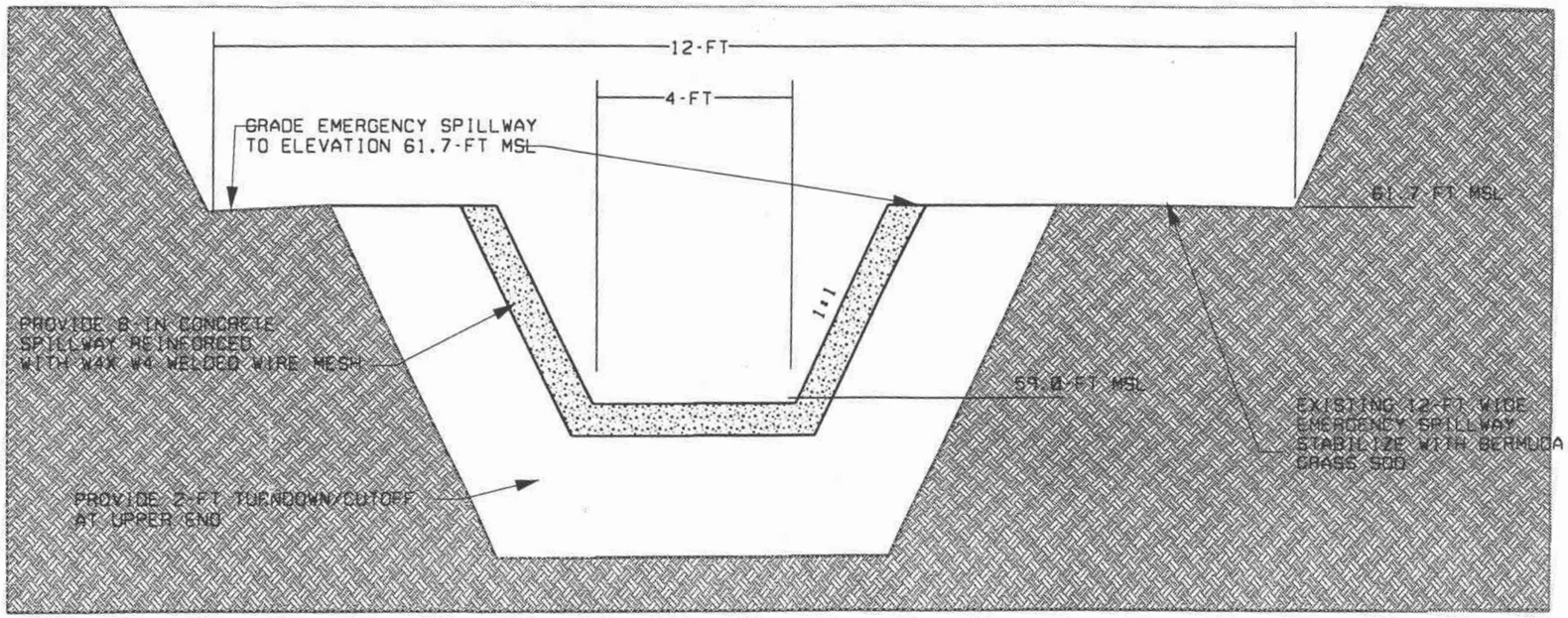

ST BEDE RECTORY SITE
(COUNTY PLAN SP-132-04)
T POND BUFFER/SETBACK
YEAR ELEVATION 62.6-FT MSL
CONSTRUCTION ACCESS
PROVIDE 4-FT WIDE CONCRETE
SPILLWAY WITH 1:1 SIDE SLOPES.
USE 8-IN THICK 3,000 PSI CONCRETE
REINFORCED WITH W4X W4 WELDED
WIRE MESH.
RPA
TURNDOWN
US
STABILIZE OVERFLOW WITH
BERMUDAGRASS SOD
A'
A
B'
B
MERGENCY SPILLWAY
ATION 62-FT MSL
SF
PROVIDE CLASS 1
RIP RAP APRON
UNDERLAIN WITH
FILTER FABRIC
ON
MATERIAL.
ENSITY
SF
EXISTING WETLANDS
LIMITS OF PROPERTY
LIMITS OF PROPERTY
70
66
62
58
54
50
46
0



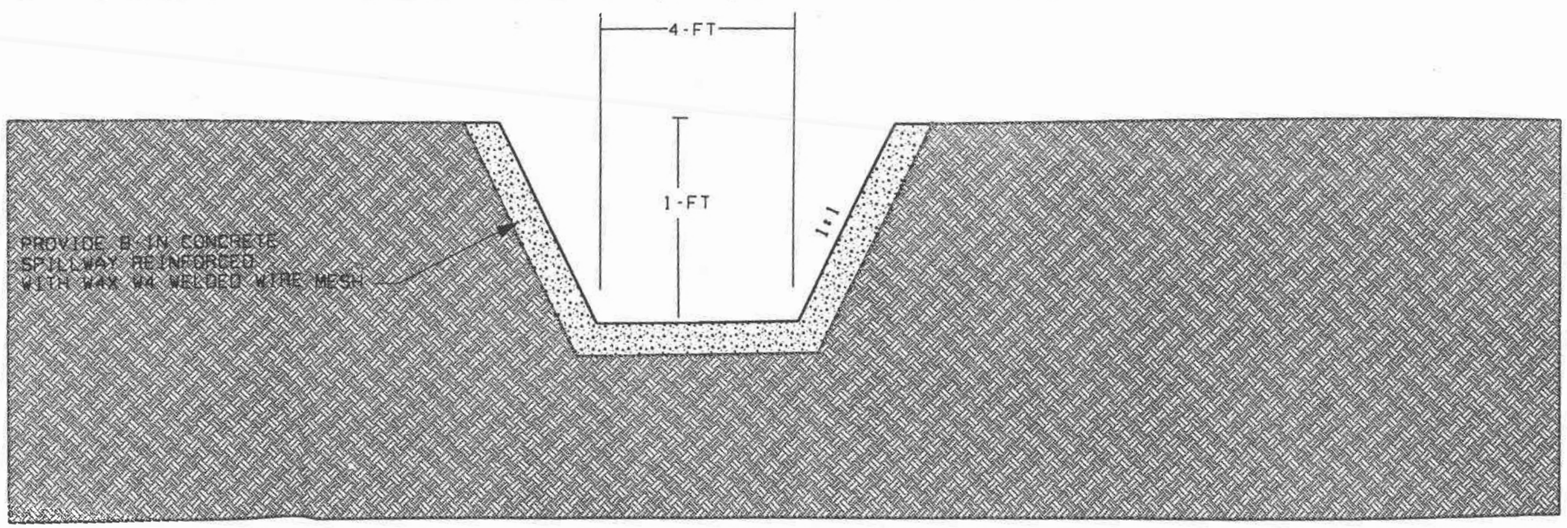
SPILLWAY PROFILE



SPILLWAY PROFILE

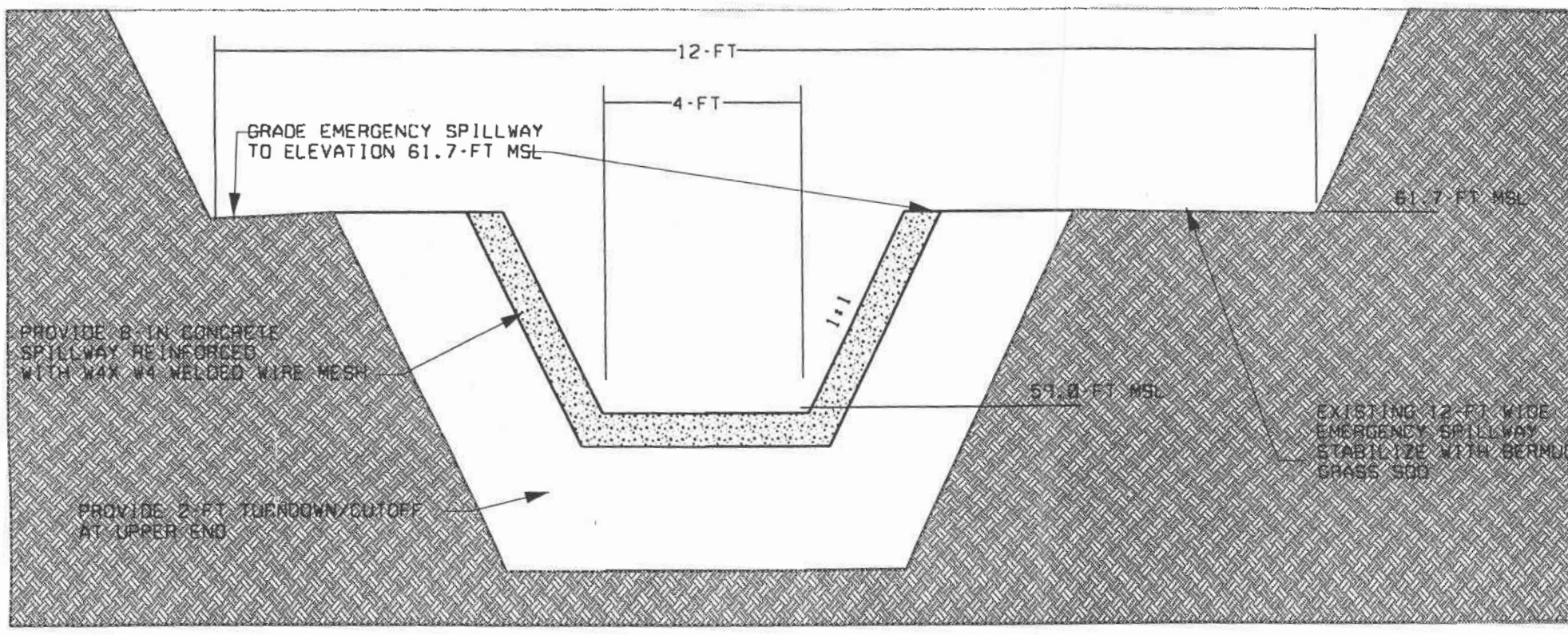


SPILLWAY SECTION A-A' (NTS)

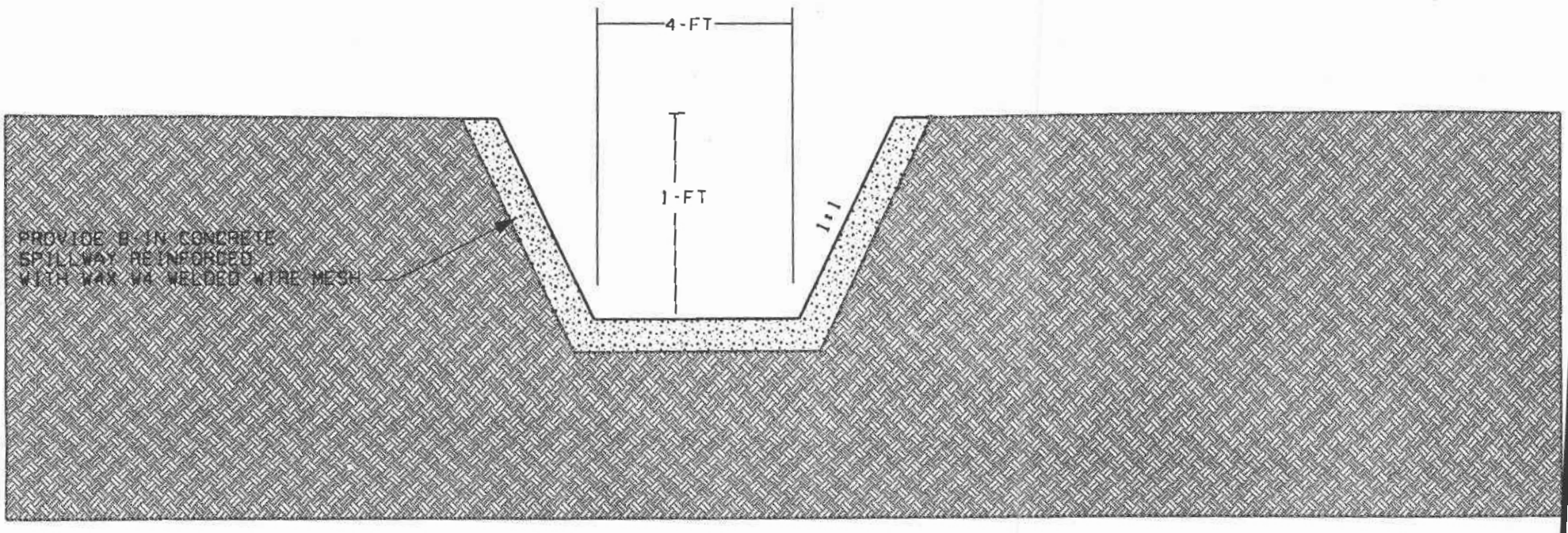


SPILLWAY SECTION B-B' (NTS)

SPILLWAY PROFILE



SPILLWAY SECTION A-A' (NTS)



SPILLWAY SECTION B-B' (NTS)

CONSTRUCTION SEQUENCE

1. INSTALL SILT FENCE AND CONSTRUCTION ENTRANCE.

2. USE MECHANICAL PUMP TO DEWATER LAKE TO ELEVATION 54. DEWATERING SHALL OCCUR OVER A PERIOD OF 48- HOURS AND PUMPS SHALL REMAIN IN PLACE DURING CONSTRUCTION OPERATION. DEWATERING OPERATIONS MUST COMPLY WITH MINIMUM STANDARD AND SPECIFICATION 3.26 OF THE VESCH. THERE MUST BE A FILTERING DEVICE USED FOR DEWATERING OPERATIONS.

3. CUT AND REMOVE ALL TREES. GRUB OUT ALL ROOTS LARGER THAN 1 INCH IN DIAMETER. GRADE TO ADJACENT CONTOUR AND ESTABLISH COVER.

3. PLACE RIP RAP AND FILTER FABRIC AT OUTLET END OF PROPOSED SPILLWAY.

4. EXCAVATE PROPOSED DITCH USING SMALL BACKHOE AND REMOVE MATERIAL FROM SITE. EXCAVATION SHALL ONLY OCCUR IF THE CONTRACTOR HAS CHECKED WEATHER REPORT TO ENSURE WORK CAN BE COMPLETED IN DRY.

5. POUR CONCRETE CHANNEL WITH TURNDOWNS IN ACCORDANCE WITH PLAN.

6. STABILIZE ALL DISTURBED AREAS WITH SPECIFIED SEED MIX. ESTABLISH AND MAINTAIN DENSE COVER OF GRASS. MAINTAIN TO A HEIGHT OF 4-8-INCHES WITH REGULAR MOWING TO DISCOURAGE GROWTH OF WOODY VEGETATION AND TO FACILITATE VISUAL INSPECTION FOR SEEPAGE, SLOUGHS, OR OTHER SIGNS OF STRESS.

TO PRECLUDE THE TRANSPORT OF ALL
ONTO ADJACENT PROPERTIES OR
CONFINE SEDIMENT TO THE PROJECT SITE.
ES. IN ADDITION TO THESE NOTES, ALL
APPLY TO THIS PROJECT.

NTAINED IN ACCORDANCE WITH THE
CONTRACTOR SHALL BE THOROUGHLY
INENT TO THIS PROJECT, INCLUDING
NTROL PLAN IS FOUND TO BE
THE PROVISIONS OF THE APPROVED

N FOR LAND-DISTURBING ACTIVITIES, THE
E LAND-DISTURBER SHALL BE AN
RGINIA DEPARTMENT OF CONSERVATION
OUT THE LAND-DISTURBING ACTIVITY.
L NOT BE APPROVED UNTIL PROPER
E LAND-DISTURBER CHANGES BETWEEN
HE ENVIRONMENTAL DIVISION SHALL BE
TRUCTION MEETING.

THE DEVELOPER, THE PROJECT
SSUANCE OF THE LAND DISTURBING
COUNTY FOR APPROVAL PRIOR TO THE
S REQUIRED TO ATTEND THE

BY A TEMPORARY CONSTRUCTION ENTRANCE TO
T FROM THE VIRGINIA DEPARTMENT OF
N STATE RIGHT-OF-WAYS. WHERE SEDIMENT
HLY CLEANED AT THE END OF EACH DAY (STD

DIKES (STD & SPEC 3.09 AND 3.12).
DED TO TRAP SEDIMENT ON-SITE MUST BE
PRIOR TO ANY UPSLOPE LAND DISTURBANCE
S MUST BE SEEDED AND MULCHED
N CONTROL MEASURES BY THE OWNER OR
Y NECESSARY MAINTENANCE OF THE
PAIR OF MEASURES DAMAGED BY ANY

EITHER REDIRECTING FLOWS FROM TRANSVERSING
ER DOWNSLOPE WITHOUT CAUSING EROSION.
D. & SPEC. 3.15) SHALL BE INSTALLED PRIOR

AT TIME OF CONSTRUCTION TO INSURE THEIR
WILL BE REQUIRED FOR OTHER DEVIATIONS

HOWN ON THE PLAN. SOIL STOCKPILES SHALL BE
E WASTE OR BORROW AREAS SHALL BE APPROVED
R EXPORT OF ANY WASTE TO OR FROM THE

DAYS FOLLOWING COMPLETION OF ROUGH
AINAGE FACILITIES SHALL TAKE PRECEDENCE OVER
URES SHALL BE STABILIZED IMMEDIATELY AFTER
LLATION OF EROSION CONTROL STONE OR PAVED
REET MUST BE COMPLETED BEFORE STREET

TO DENUDED AREAS WITHIN SEVEN DAYS AFTER
IL STABILIZATION SHALL BE APPLIED WITHIN
ILL REMAIN DORMANT FOR LONGER THAT 30
E TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

OR UNDERGROUND UTILITY LINES ARE TO BE
E ITEMS. ALL DISTURBED AREAS ARE TO BE

G THE MONTHS OF DECEMBER, JANUARY OR
35). SEEDING WILL THEN TAKE PLACE AS SOON

N THIS PLAN SHALL MEAN THE SUCCESSFUL
PERLY PREPARED SEEDBED CONTAINING THE
. IRRIGATION SHALL BE REQUIRED AS NECESSARY

SION CONTROL BLANKETS AND MATTINGS TO AID IN
IN ACCORDANCE WITH STD. & SPEC. 3.35.
TTING AND MANUFACTURERS INSTRUCTIONS. NO

ED FOR ALL STORM DRAIN AND CULVERT INLETS

VIDED FOR ALL PAVED DITCHES UNTIL THE

N IS EVIDENT. PARTICULAR ATTENTION SHALL BE

DT TO BE REMOVED UNTIL ALL DISTURBED AREAS
LCHED. AFTER THE PROJECT AND STABILIZATION
REMOVED WITHIN 30 DAYS.

) AT LEAST 75 PERCENT OF THE LOTS WITHIN THE
TY (UNRELATED TO THE DEVELOPER) FOR THE
LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR
OF THE LOTS TO ANOTHER BUILDER DOES NOT
L NOT BE REMOVED WITHOUT THE EXPRESS

ARE BOTH REQUIRED FOR NEWLY CONSTRUCTED
ACTIVITIES SHALL BE ADEQUATELY
ION IN ACCORDANCE WITH THE CURRENT
TER MANAGEMENT/BMP FACILITIES.
INSTRUCTIONS.

MS OUTSIDE VDOT RIGHTS-OF-WAY SHALL BE
TY COUNTY ENVIRONMENTAL DIVISION.
L DESIGN AND CONSTRUCTION

MAINTENANCE PLAN

A MAINTENANCE PROGRAM IS REQUIRED TO ENSURE THE PRIVATE POND FUNCTIONS AS DESIGNED AND TO PROVIDE FOR REASONABLE AESTHETIC CONDITIONS. PROPER MAINTENANCE IS ENCOURAGED TO PREVENT THE INTRODUCTION OF DEBRIS AND SEDIMENT AT INFLOW LOCATIONS, PRETREATMENT AREAS, THE POND, ITS PRINCIPAL CONTROL STRUCTURES AND DOWNSTREAM WATERWAYS. FOLLOWING INSTALLATION AND ESTABLISHMENT OF VEGETATION IN DISTURBED SITE AREAS, INSPECTIONS FOR SEDIMENT BUILDUPS WILL BE PERFORMED AT LEAST QUARTERLY.

THE OWNER OR ITS DESIGNATED REPRESENTATIVE WILL INSPECT THE DAM STRUCTURE AFTER EACH SIGNIFICANT RAINFALL EVENT OR THE FOLLOWING WORKING DAY IF A WEEKEND OR HOLIDAY OCCURS. A SIGNIFICANT RAINFALL FOR THIS STRUCTURE IS DEFINED AS ONE AND A HALF (1.5) INCHES OR MORE OF GAUGED RAINFALL WITHIN A 24 HOUR PERIOD. ONCE PER YEAR (MORE OR LESS) A REPRESENTATIVE OF THE COUNTY MAY JOINTLY INSPECT THE STRUCTURE. APPROPRIATE ACTION, PERFORMED AT THE COST OF THE OWNER WILL BE TAKEN TO ENSURE APPROPRIATE MAINTENANCE. KEYS TO LOCKED ACCESS POINTS OR STRUCTURES SHALL BE MADE AVAILABLE TO THE COUNTY UPON
REQUEST.

POND DESCRIPTION: THE POND COLLECTS DRAINAGE FROM A 38-ACRE WATERSHED. THE PRINCIPAL SPILLWAY CONSISTS OF A 4-FOOT WIDE CONCRETE DITCH LOCATED AT THE NORTHERN EDGE OF THE DAM EMBANKMENT. STORM EVENTS WHICH PASS LESS THAN 3.5-INCHES OF RAIN IN 24-HOURS SHOULD BE COMPLETELY CONTAINED IN THE CONCRETE DITCH. DURING LARGER STORM EVENTS, WATER WILL INUNDATE THE LOW AREA ADJACENT TO THE CONCRETE DITCH. DURING A 100-YEAR STORM, THE MAXIMUM WATER LEVEL SHOULD RISE TO ABOUT 3.6 FEET ABOVE THE INVERT OF THE CONCRETE DITCH AND WITHIN 1-FEET BELOW THE TOP OF DAM.

INSPECTION AND MAINTENANCE OF THE FACILITY WILL CONSIST OF THE FOLLOWING ADDITIONAL MEASURES:

1. PERFORM MAINTENANCE MOWING OF DAM GRASSES AT LEAST TWICE EACH YEAR. GRASSES SUCH AS TALL FESCUE SHOULD BE MOWED IN EARLY SUMMER AFTER EMERGENCE OF THE HEADS ON COOL SEASON GRASSES AND IN LATE FALL TO PREVENT SEEDS OF ANNUAL WEEDS FROM MATURING. MOWING OF LEGUMES CAN BE LESS FREQUENT. TREES, SHRUBS AND WOODY VEGETATION ARE NOT BE PERMITTED TO GROW ALONG OR ON ANY PART OF THE EMBANKMENT EMBANKMENT THAT WAS CONSTRUCTED USING ENGINEERED (COMPACTED) FILLS.

2. PERFORM SOIL SAMPLING ON STABILIZED POND SOIL AREAS AT LEAST ONCE EVERY 4 YEARS. SOIL SAMPLING AND TESTING SHOULD BE PERFORMED BY QUALIFIED INDEPENDENT SOIL TESTING LABORATORY SUCH AS VPI&SU. APPLY ADDITIONAL LIME AND FERTILIZER IN ACCORDANCE WITH TEST RECOMMENDATIONS.

3. IN STABILIZED POND AREAS, IF VEGETATION COVERS LESS THAN 40 % OF SOIL SURFACES, LIME, FERTILIZE AND SEED IN ACCORDANCE WITH RECOMMENDATIONS FOR NEW SEEDLINGS. IF VEGETATION COVERS MORE THAN 40 % BUT LESS THAN 70 % OF SOIL SURFACES, LIME, FERTILIZE AND OVER SEED IN ACCORDANCE WITH CURRENT SEEDING RECOMMENDATIONS OR REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH).

4. PERFORM QUARTERLY INSPECTIONS OF THE SPILLWAY FOR THE OBSERVANCE OF COLLECTED TRASH AND DEBRIS. IMMEDIATELY REMOVE ANY TRASH OR DEBRIS THAT PREVENTS THE MOVEMENT OF WATER. REMOVE ANY TRASH AND LITTER DOWNSTREAM AND AT STORM DRAIN OR CHANNEL INFLOW LOCATIONS TO MAINTAIN THE INTEGRITY OF THE STRUCTURE AND PROVIDE AN ATTRACTIVE APPEARANCE.

5. PERFORM YEARLY STRUCTURAL INSPECTIONS OF THE FACILITY FOR DAMAGE. STRUCTURAL INSPECTION SHALL BE PERFORMED ON THE CONCRETE WEIR AND POND EMBANKMENT. EXPOSED METAL SURFACES SHALL BE RE-PAINTED OR RE-GALVANIZED TO MINIMIZE RUST DAMAGE OR REPLACED IF RUST DAMAGE IS IRREVERSIBLE. IF DAMAGE IS EVIDENT, FURTHER INVESTIGATION BY A PROFESSIONAL ENGINEER MAY BE REQUIRED TO ASSESS THE INTEGRITY OF THE STRUCTURE.

6. PERFORM QUARTERLY INSPECTIONS OF THE GRADED SIDE SLOPES OF THE FACILITY FOR SIGNS OF ANIMAL/RODENT BORROWS OR SLOPE EROSION. IMMEDIATELY PERFORM NECESSARY REPAIRS, REFILLING OR RESEEDING.

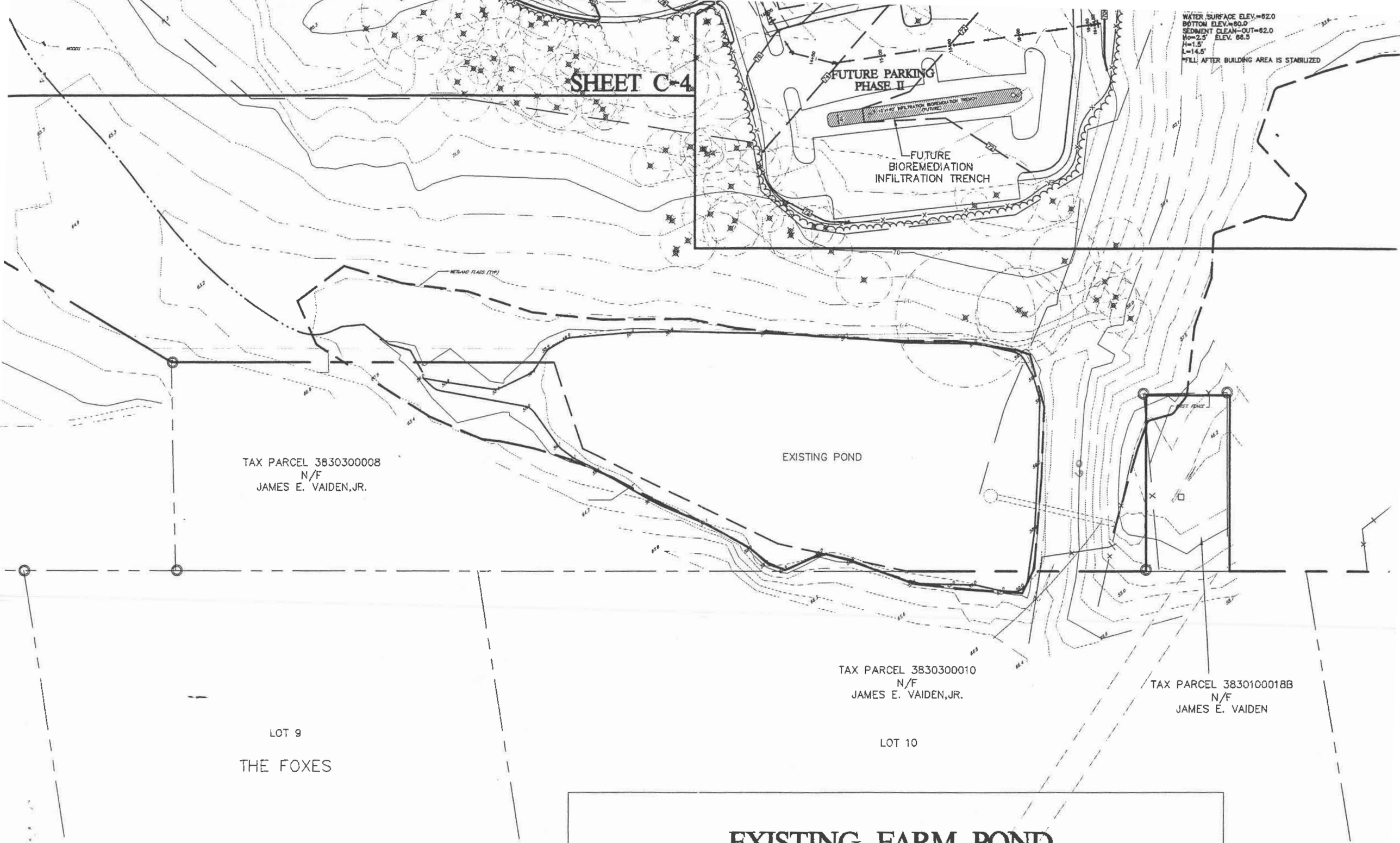
7. PERFORM YEARLY OBSERVATIONS OF PERIMETER AREAS SURROUNDING THE FACILITY TO ENSURE CHANGES IN LAND USE, TOPOGRAPHY OR ACCESS HAVE NOT OCCURRED AND DO NOT AFFECT THE OPERATION, MAINTENANCE, ACCESS OR SAFETY FEATURES AS PROVIDED. APPROPRIATE ACTION IS REQUIRED TO ENSURE ADEQUACY AND TO PROVIDE A CLEAR, SAFE PASSAGE FOR MAINTENANCE VEHICLES TO THE ENGINEERED EMBANKMENT AND PRINCIPAL FLOW CONTROL STRUCTURES.

8. INSPECT AND EXERCISE POND DRAIN VALVES, IF PROVIDED, ON A REGULAR BASIS.

9. RECORD KEEPING. THE OWNER OR DESIGNATED REPRESENTATIVE SHALL KEEP REASONABLE, ACCURATE WRITTEN RECORDS OF INSPECTIONS PERFORMED FOR THE STRUCTURE. RECORDS SHALL DOCUMENT ROUTINE MAINTENANCE AND/OR REPAIRS PERFORMED. COPIES SHALL BE PROVIDED TO THE COUNTY UPON REQUEST.

10. THE FACILITY SHALL NOT ACCEPT ADDITIONAL DRAINAGE OR BE MODIFIED IN ANY WAY WITHOUT PRIOR CONSENT OR APPROVAL BY THE ENVIRONMENTAL DIVISION OF JAMES CITY COUNTY.

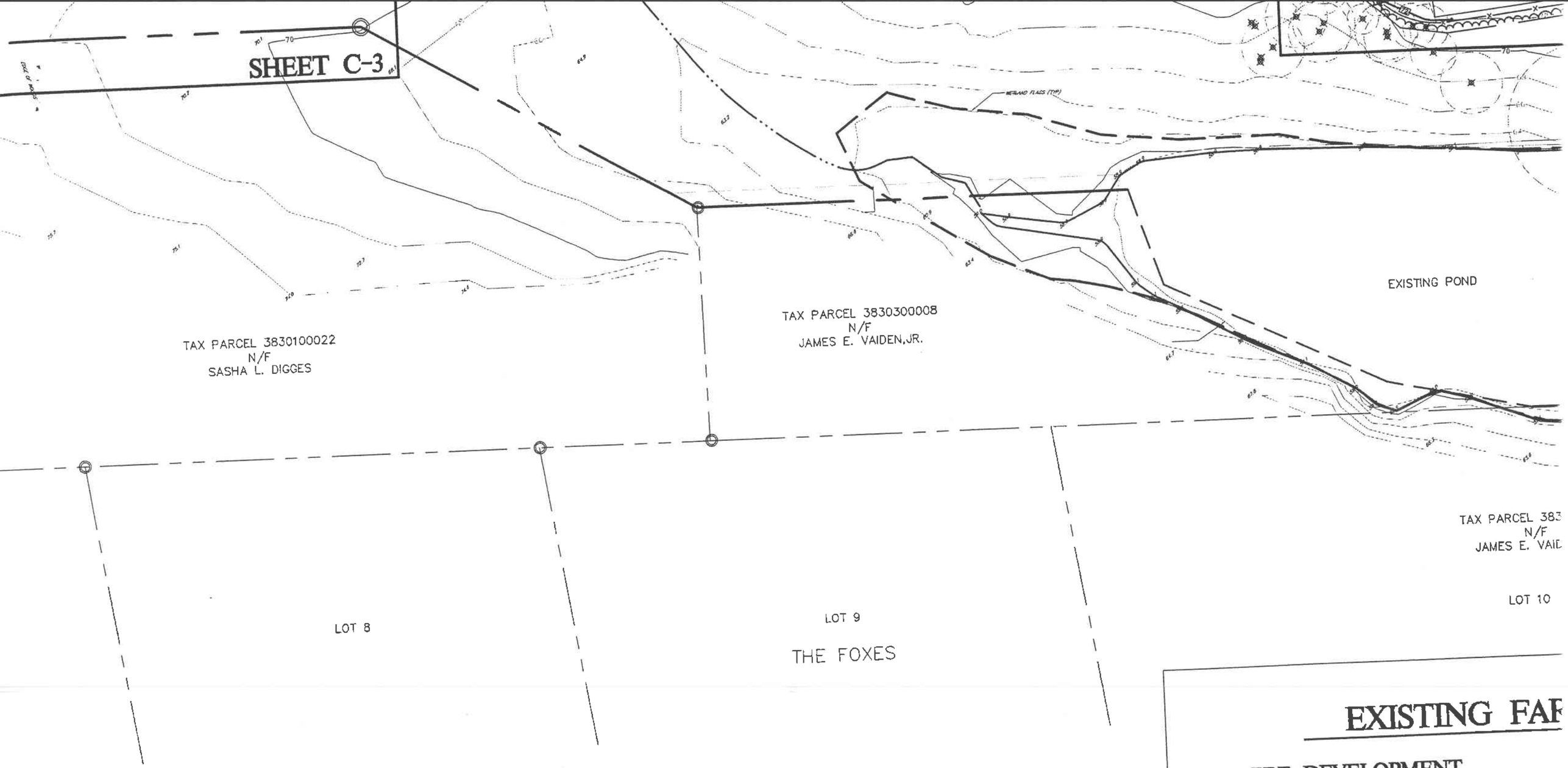
(END)



EXISTING FARM POND

PRE DEVELOPMENT

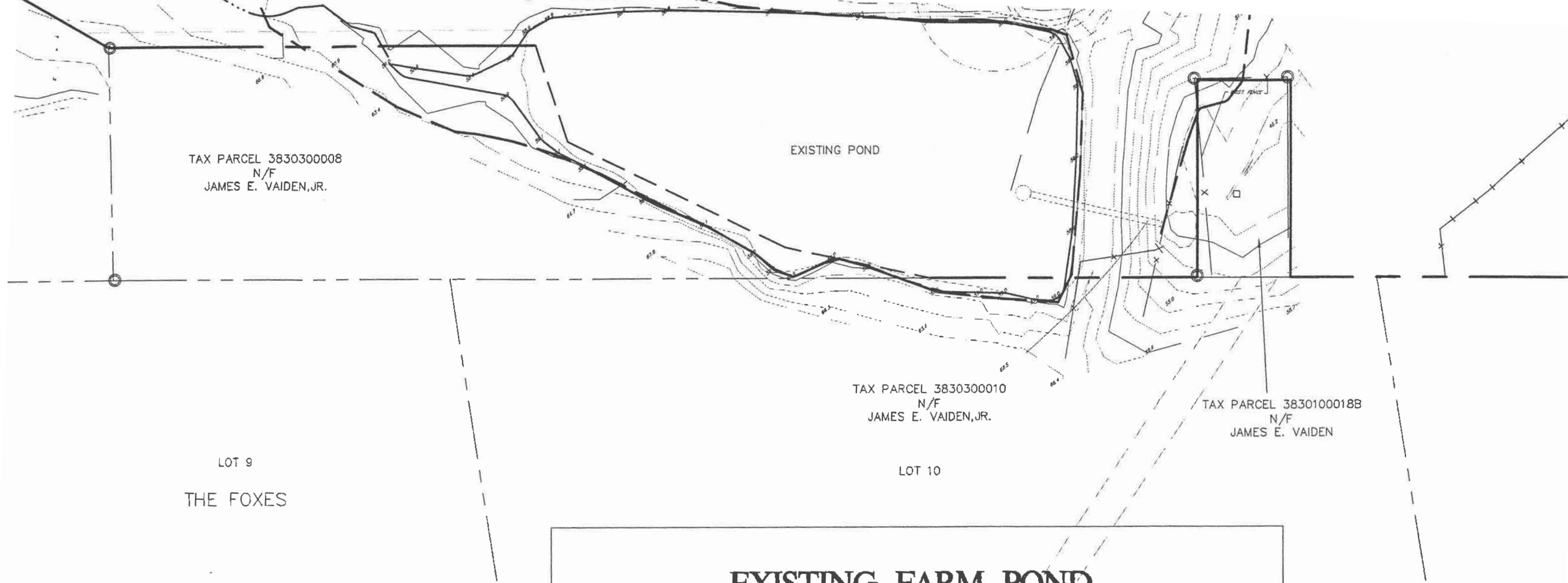
POST DEVELOPMENT



EXISTING FAI

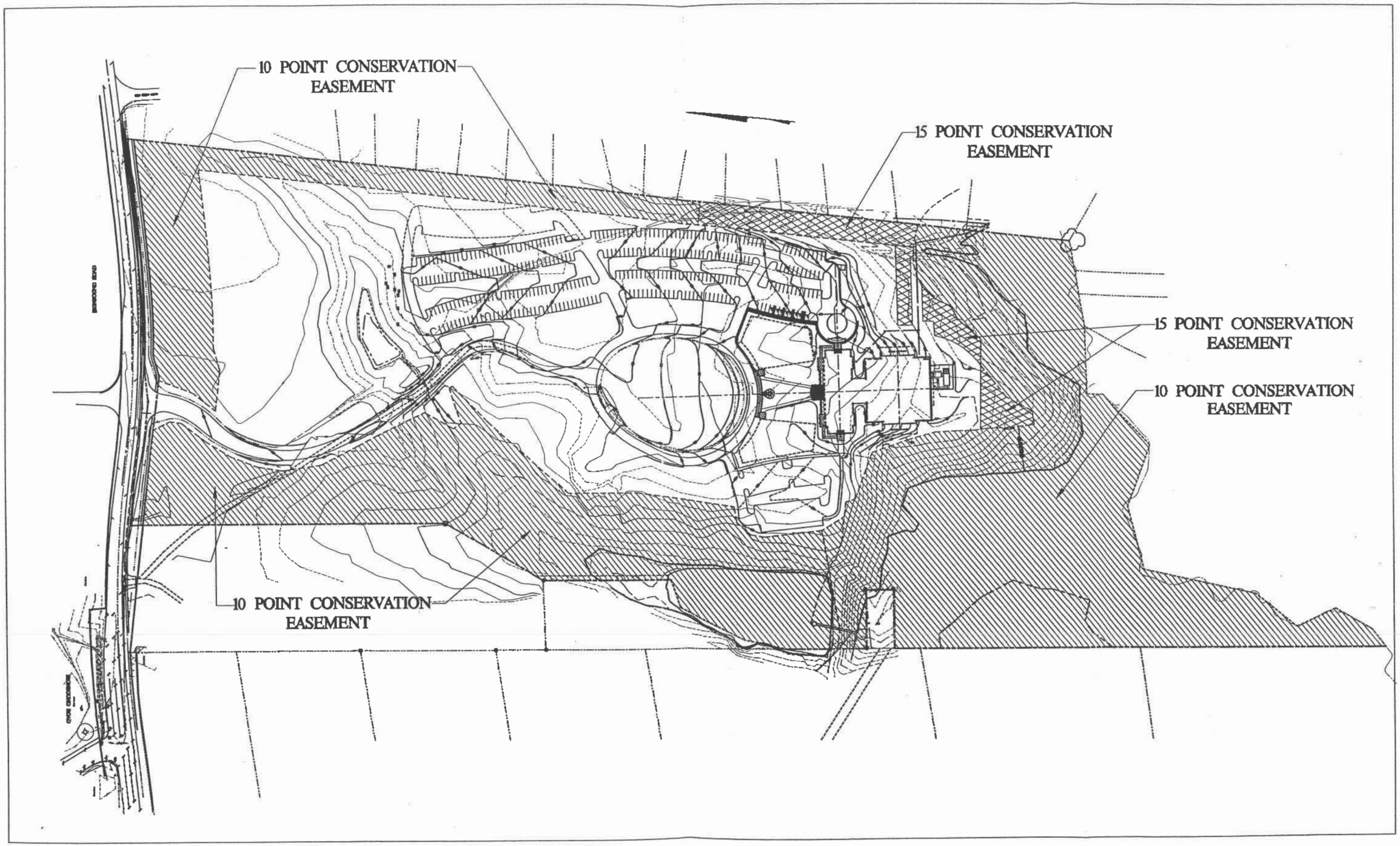
PRE DEVELOPMENT

	Q_{OUT}	WSE
1 YEAR-	2.87	59.37
2 YEAR-	6.16	59.62
10 YEAR-	24.81	60.49
100 YEAR-	49.15	61.35



EXISTING FARM POND

PRE DEVELOPMENT	Q_{OUT}	WSE	POST DEVELOPMENT	Q_{OUT}	WSE
1 YEAR-	2.87	59.37	1 YEAR-	2.85	59.37
2 YEAR-	6.16	59.62	2 YEAR-	6.08	59.61
10 YEAR-	24.81	60.49	10 YEAR-	23.51	60.44
100 YEAR-	49.15	61.35	100 YEAR-	47.83	61.31


10 POINT CONSERVATION EASEMENT
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10 POINT CONSERVATION EASEMENT

Pond POND: EXISTING FARM POND

Inflow	=	7.37 cfs @	12.58 hrs, Volume=	1.673 af	
Outflow	=	2.87 cfs @	13.76 hrs, Volume=	1.463 af,	Atten= 61%, Lag= 70.8 min
Primary	=	2.87 cfs @	13.76 hrs, Volume=	1.463 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.37' Storage= 29,057 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 213.4 min calculated for 1.461 af (87% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	6.89 cfs @	11.88 hrs,	Volume=	1.593 af
Outflow	=	2.85 cfs @	13.89 hrs,	Volume=	1.387 af, Atten= 59%, Lag= 120.7 min
Primary	=	2.85 cfs @	13.89 hrs,	Volume=	1.387 af

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.37' Storage= 28,992 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 215.5 min calculated for 1.385 af (87% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond POND: EXISTING FARM POND

Inflow	=	13.78 cfs @	12.56 hrs,	Volume=	2.757 af	
Outflow	=	6.16 cfs @	13.44 hrs,	Volume=	2.535 af,	Atten= 55%, Lag= 53.1 min
Primary	=	6.16 cfs @	13.44 hrs,	Volume=	2.535 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.62' Storage= 44,083 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 168.3 min calculated for 2.535 af (92% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	12.60 cfs @	12.59 hrs,	Volume=	2.721 af	
Outflow	=	6.08 cfs @	13.64 hrs,	Volume=	2.504 af,	Atten= 52%, Lag= 63.1 min
Primary	=	6.08 cfs @	13.64 hrs,	Volume=	2.504 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 59.61' Storage= 43,772 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 166.7 min calculated for 2.504 af (92% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond POND: EXISTING FARM POND

Inflow	=	47.00 cfs @	12.46 hrs, Volume=	7.119 af	
Outflow	=	24.81 cfs @	12.98 hrs, Volume=	6.864 af,	Atten= 47%, Lag= 31.3 min
Primary	=	24.81 cfs @	12.98 hrs, Volume=	6.864 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 60.49' Storage= 98,232 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 107.8 min calculated for 6.850 af (96% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	39.01 cfs @	12.59 hrs, Volume=	7.279 af	
Outflow	=	23.51 cfs @	13.13 hrs, Volume=	7.030 af,	Atten= 40%, Lag= 32.0 mir
Primary	=	23.51 cfs @	13.13 hrs, Volume=	7.030 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 60.44' Storage= 95,155 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 106.9 min calculated for 7.030 af (97% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond POND: EXISTING FARM POND

Inflow	=	82.71 cfs @	12.41 hrs, Volume=	11.880 af	
Outflow	=	49.15 cfs @	12.85 hrs, Volume=	11.604 af,	Atten= 41%, Lag= 26.4 min
Primary	=	49.15 cfs @	12.85 hrs, Volume=	11.604 af	

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 61.35' Storage= 151,321 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 87.0 min calculated for 11.604 af (98% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Pond UNC: UNCHANGED FARM POND

Inflow	=	72.65 cfs @	12.53 hrs,	Volume=	12.262 af
Outflow	=	47.83 cfs @	12.98 hrs,	Volume=	11.992 af, Atten= 34%, Lag= 26.5 mir
Primary	=	47.83 cfs @	12.98 hrs,	Volume=	11.992 af

Routing by Stor-Ind method, Time Span= 9.00-29.00 hrs, dt= 0.04 hrs

Peak Elev= 61.31' Storage= 148,707 cf
Flood Elev= 62.00' Storage= 191,079 cf
Plug-Flow detention time= 85.5 min calculated for 11.992 af (98% of inflow)
Storage and wetted areas determined by Irregular sections

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.90	52,309	1,090.6	0	0	52,309
62.00	71,465	1,343.9	191,079	191,079	101,526
64.00	92,645	1,646.0	163,653	354,732	173,466

Primary OutFlow (Free Discharge)
↑—1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	59.00'	**5.0' long Broad-Crested Rectangular Weir** Head (feet) 0.50 1.00 1.50 Coef. (English) 2.53 2.63 2.72

Subject _____

Computed _____ Checked _____

LANDMARK DESIGN GROUP

Project # _____

Client _____

Date _____ Sheet # _____

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants

23

EXISTING FARM POND

st. Bedes

	PRE DEVELOPMENT		POST DEVELOPMENT	
	Q_{OUT}	WSE	Q_{OUT}	WSE
1 YEAR	2.87	59.37	2.85	59.37
2 YEAR	6.16	59.62	6.08	59.61
10 YEAR	24.81	60.49	23.51	60.44
100 YEAR	49.15	61.35	47.83	61.31

MEMORANDUM

APR 2000
RECEIVED
ENVIRONMENTAL DIVISION

DATE: APRIL 4, 2000

TO: ENVIRONMENTAL
COUNTY ENGINEER
FIRE
LEE SCHNAPPINGER
JCSA
VDOT (2)
HEALTH (OLD COLONY)

FROM: CHRISTOPHER JOHNSON, PLANNER

SUBJECT: SUP-15-00 / HW-1-00. ST. BEDE CATHOLIC CHURCH

ITEMS ATTACHED:
- TRAFFIC STUDY
- MASTER PLAN
- ENVIRONMENTAL INVENTORY
- GROUND PROFILE
- STORMWATER MANAGEMENT REPORT
- ARCHAEOLOGICAL REPORT
- ADEQUATE PUBLIC FACILITIES REPORT
- LANDSCAPING PLAN
- BUILDING ELEVATIONS

INSTRUCTIONS: PLEASE REVIEW AND COMMENT. THIS CASE WILL BE PRESENTED AT THE MAY 1, 2000 PLANNING COMMISSION MEETING. PLEASE RETURN COMMENTS AS SOON AS POSSIBLE TO ALLOW STAFF TIME TO DISCUSS POTENTIAL ISSUES WITH THE APPLICANT IN ADVANCE OF PREPARING THE STAFF REPORT.

RETURN BY: APRIL 14, 2000

The stormwater report does not explicitly state that the existing pond is to be used as a stormwater management facility, but if it is to be used, the other pond owners will need to be in agreement with its use as a BMP. Rehabilitation of the pond will also be necessary to bring it into an acceptable condition for the increased stormwater runoff generated by the project.

DEC 4/14/00