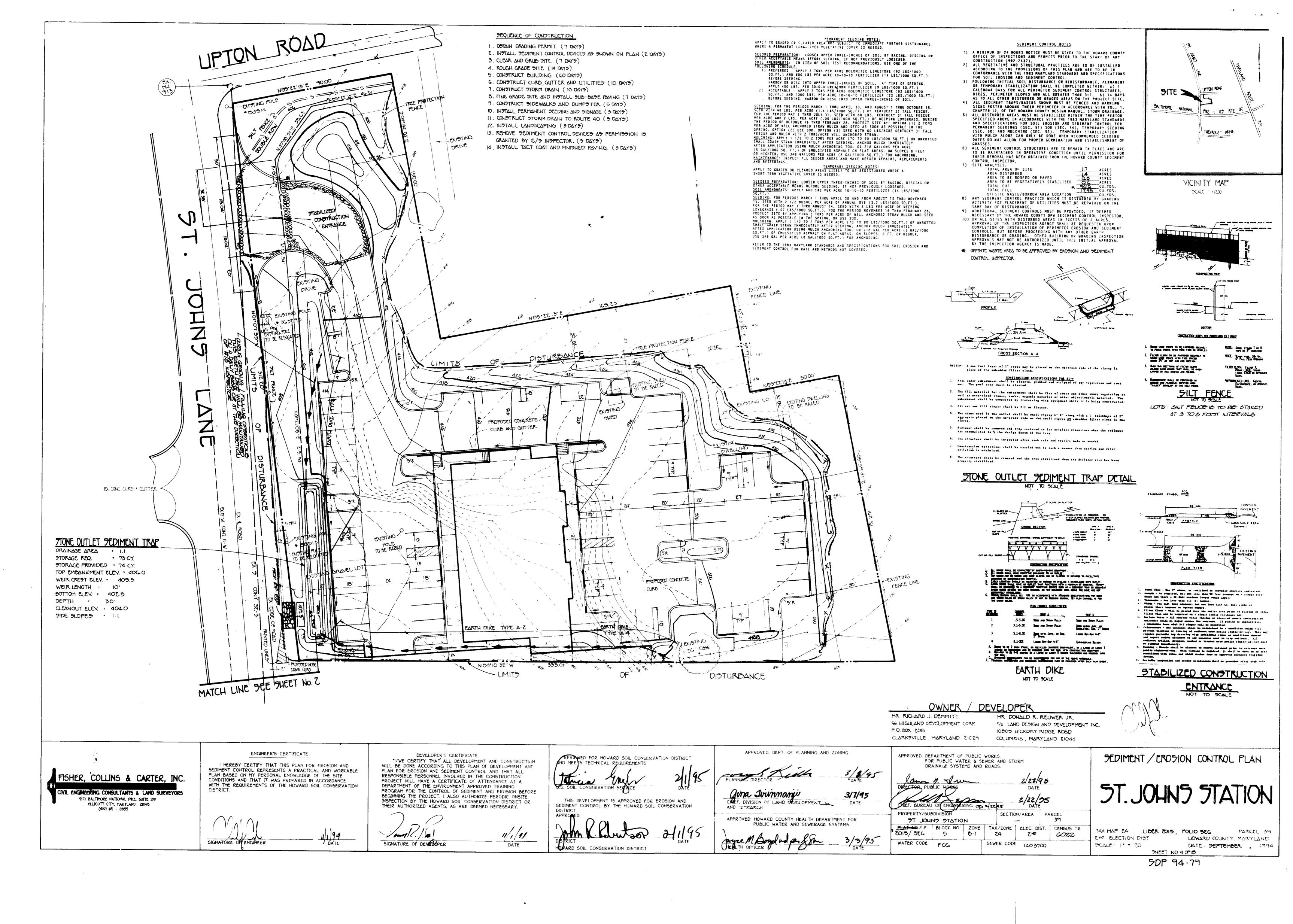
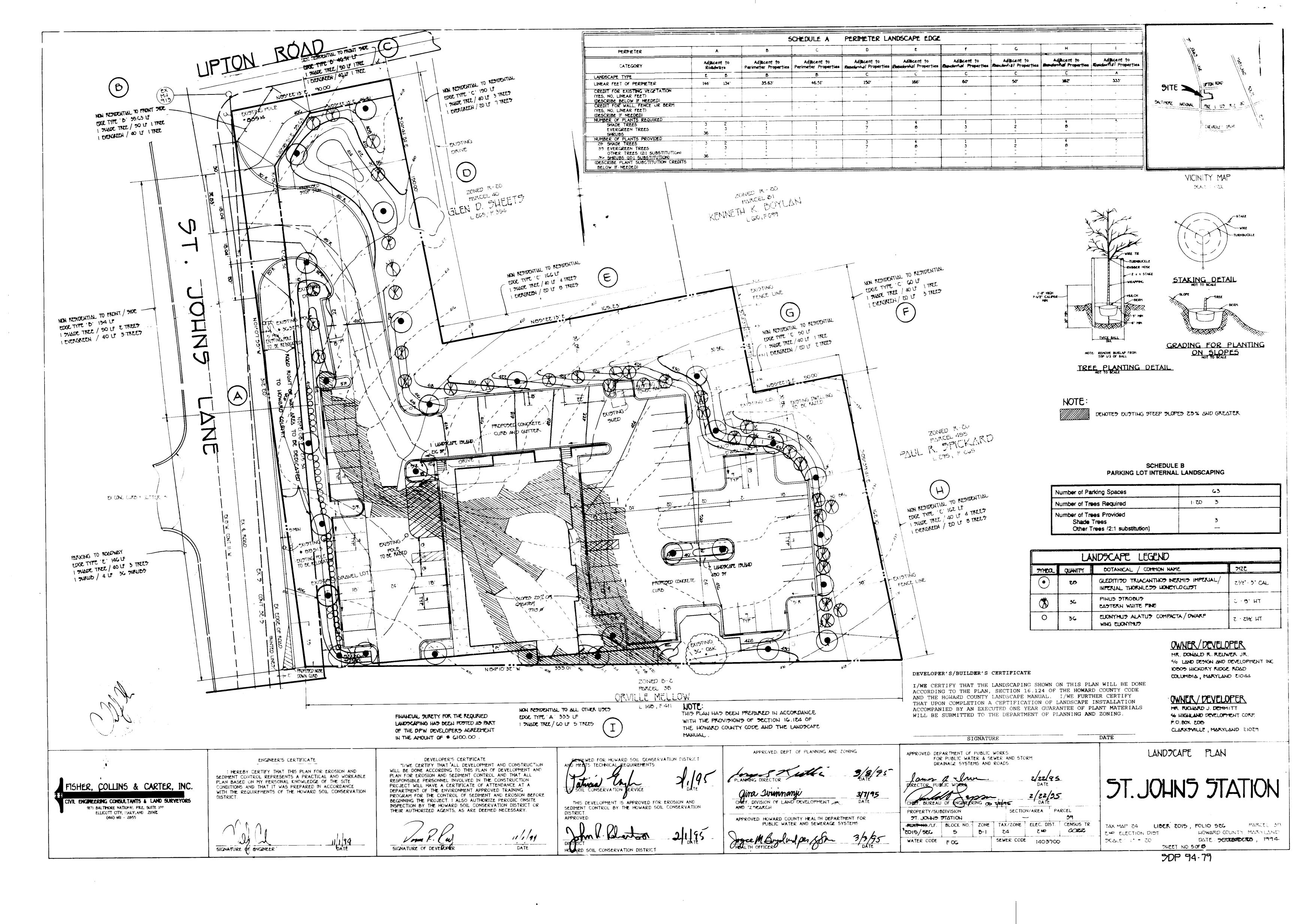
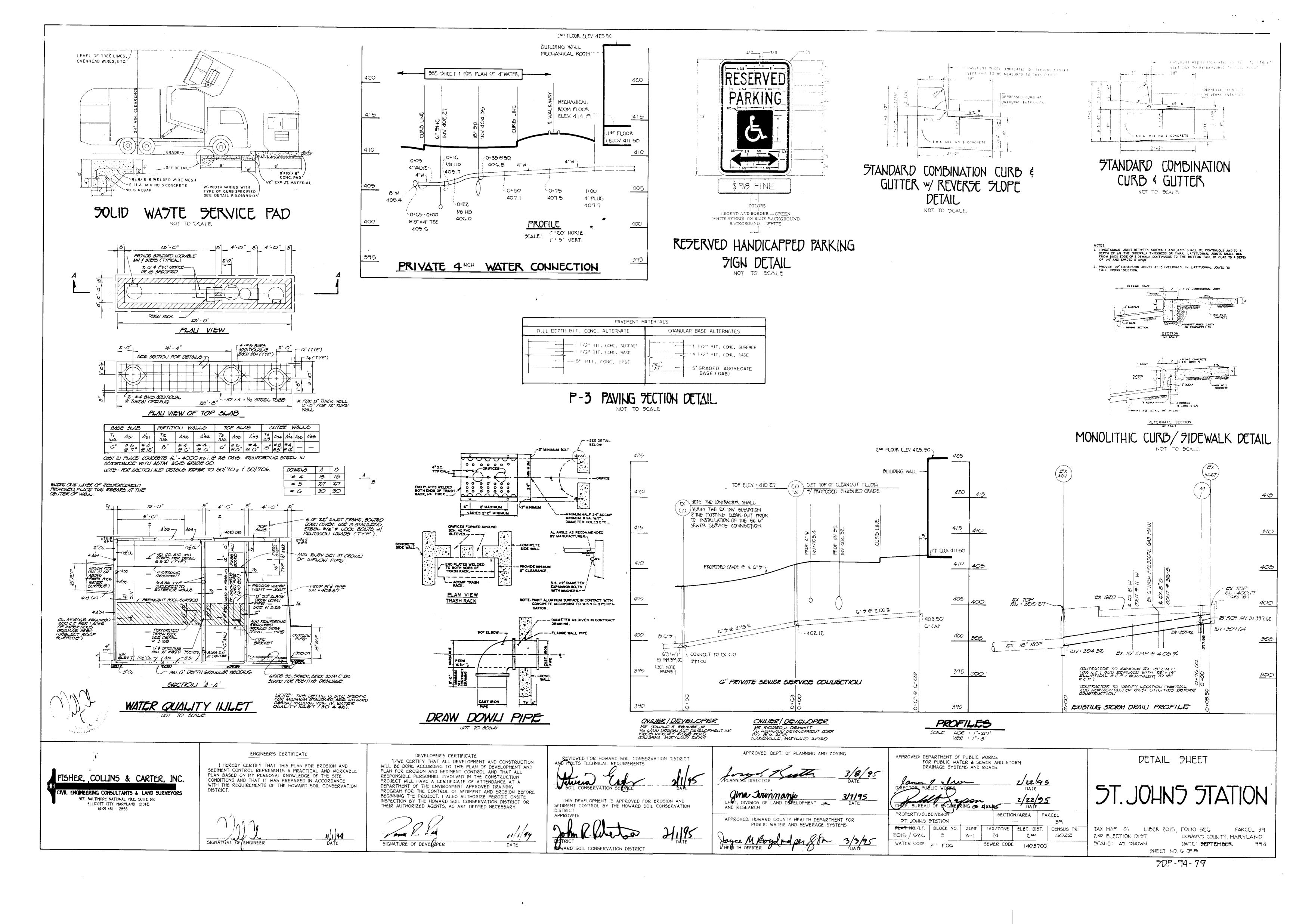
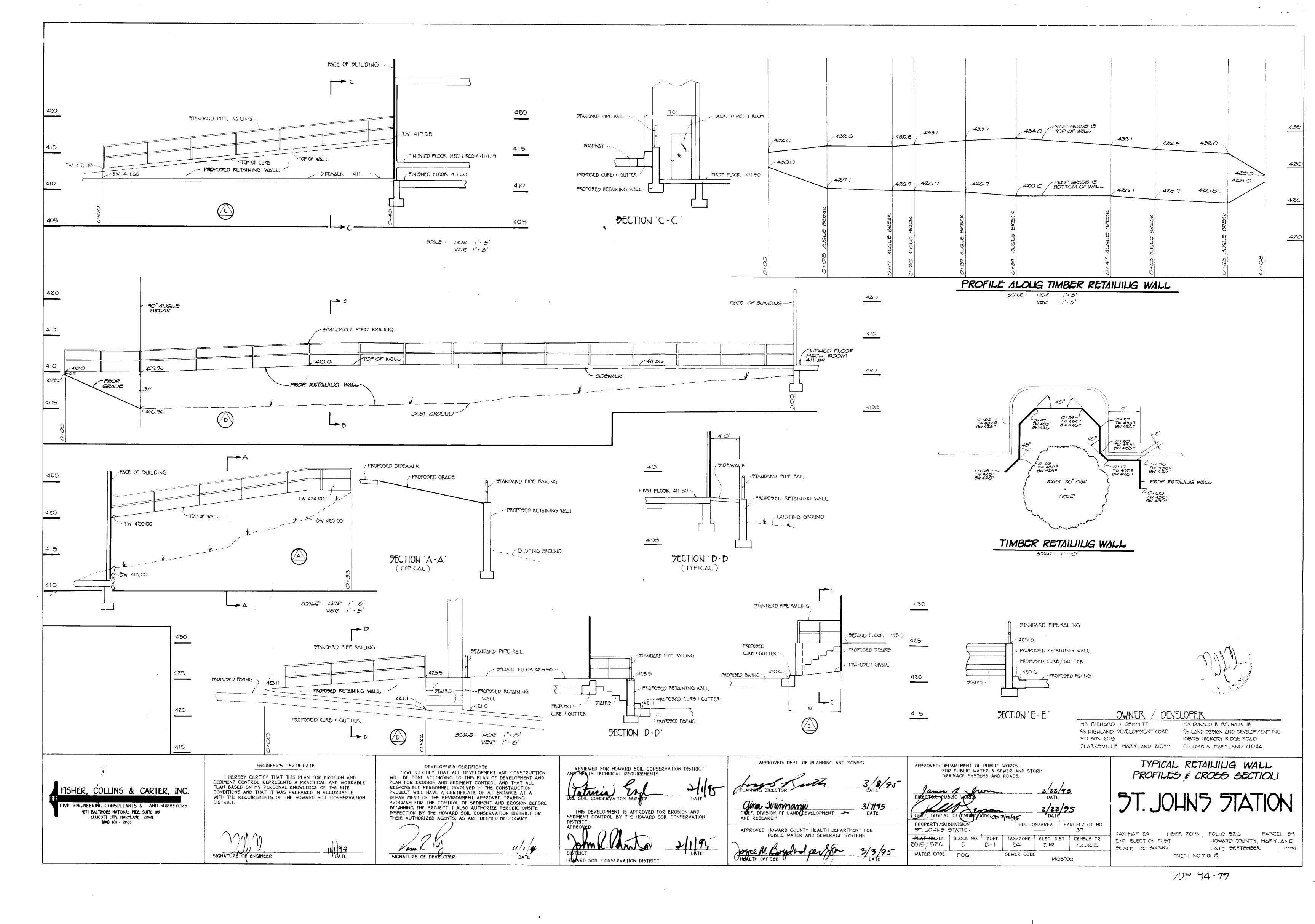


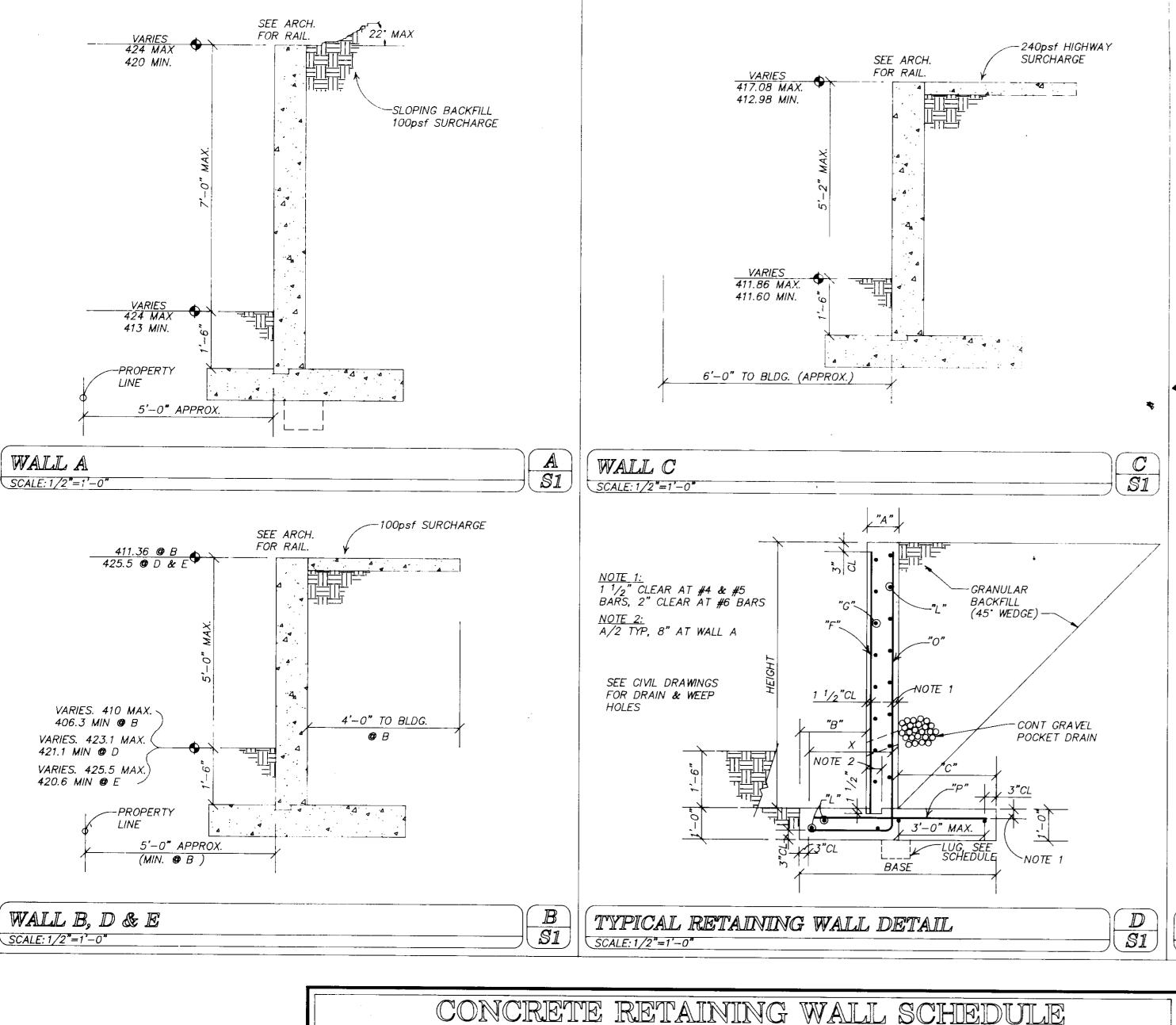
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2 Nov 94 McCORMAC ENGINEERING ASSOCIATES STRUCTURAL ENGINEERS 8289 MAIN STREET SUITE 202 ELLICOTT CITY, MARYLAND 21043

(410)750-3902 FAX (410)750-0678 PROJECT # 94054

	1.		T	T	T							
WALL TYPE	MAX HEIGHT (ft.)	BASE	В	A	С	REINFORCEMENT						
						0-BARS		F-BARS	P-BARS L-BARS G	G-BARS	LUG	
						SIZE/ SPACING	X	SIZE/ SPACING	SIZE/LENGTH/ SPACING	SIZE/ SPACING	SIZE/ SPACING	REQ'D
A	4'-0"	5'-0"	1'-6"	1'-0"	2'-6"	#4@9	2'-1"	#4 © 18	#4 @ 9x4'-6"	#4@18	#4@12	NONE
A	8'-6"	8'-0"	2'-6"	1'-0"	4'-6"	#6@8	3'-1"	#4@ 18	#6 @ 8x7'-6"	#4 @ 18	#4 @ 12	12"x16"D
B,D,E	4'-0"	3'-4"	1'-0"	0'-10"	1'-6"	#4@9	1'-5"	#4 © 18	#4 @ 9x2'-6"	#4 @ 18	#4@12	NONE
B,D,E	6'-7"	4'-4"	1'-0"	0'-10"	2'-6"	#4@9	1'-5"	#4@ 18	#4 @ 9x3'-10"	#4 @ 18	#4@12	NONE
С	4'-0"	4'-0"	1'-0"	1'-0"	2'-0"	#4099	1'-7"	#4 @ 18	#4 @ 9x3'-6"	#4 @ 18	#4@12	NONE
C	6'-8"	5'-0"	1'-6"	1'-0"	2'-6"	#4@9	2'-1"	#4 @ 18	# 4@ 9x4'-6"	#4@18	#4 @ 12	NONE
		,					-					
					<u> </u>							

- A. ALL CONSTRUCTION SHALL CONFORM WITH THE PROVISIONS OF THE BOCA NATIONAL BUILDING CODE/1990 AND ITS SUPPLEMENTS AND ANY ADDITIONAL SUPPLEMENTS ADOPTED BY HOWARD COUNTY, MARYLAND.
- B. RETAINING WALL DESIGN LOADS:

TIMBER RETAINING WALL

- THE RETAINING WALLS SHOWN ON THIS SHEET HAVE BEEN DESIGNED ASSUMING THAT THE BACKFILL MATERIAL WILL HAVE THE FOLLOWING PROPERTIES:
- A GRANULAR, NON-COHESIVE MATERIAL PRODUCING A TRIANGULAR PRESSURE DIAGRAM Ka = .35 MAXIMUM; A CORRESPONDING Kp = 2.85UNIT WEIGHT = 120 PCF; EQUIVALENT FLUID PRESSURE = 42 PCF

─8"x8" STRETCHER

-8"x8" HEADER

-DRIFT PINS

SEE NOTE 2

+8"x8" STRETCHER

+8"x8" HEADER □ @8'-0"oc MAX

>-8"x8"x0'-8" BLOCKS

BTWN. HEADERS. TOE

NAIL TO HEADER w/

TYPICAL

TYPICAL

MAXIMUM HEIGHT = 10'-0" 2-16d NAILS

NOTES FOR BOTH TYPE 1 AND TYPE 2 RETAINING WALLS

1) ALL TIMBERS TO BE 8"x8" SOUTHERN

PINE #2 PRESSURE TREATED TIMBERS

PROCEDURES, AND MIN. UNIT STRESSES

ALL FABRICATION, ERECTION, OTHER

SHALL CONFORM TO THE CURRENT

"NATIONAL DESIGN SPECIFICATION

DRIFT PINS @ INTERSECTION OF ALL

HEADERS AND STRETCHERS. DRIFT PINS

THIRD MEMBER. DRIFT PIN HOLES TO BE

3/4" Ø. PROVIDE 2" EDGE DISTANCE FOR

TO BE OF SUFFICIENT LENGTH TO PENETRATE THRU 2 MEMBERS AND 4" MIN. INTO THE

ALL PINS. PROVIDE 3/8" GAP @ ALL BUTT JOINTS

FOR WOOD CONSTRUCTION".

2) PROVIDE 4- 3/4" Ø GALVANIZED

TYPICAL

TYPE

200

MAXIMUM HEIGHT = 7'-4"

©8'−0"oc MAX

TYPICAL

- COEFFICIENT OF FRICTION, SOIL TO CONCRETE FOOTING = .50 (WITHOUT SF) THE EXISTING GEOTECHNICAL REPORT BY ITE, INC., BALTIMORE MARYLAND DATED 6 JANUARY 1994 DOES NOT EVALUATE THE ON-SITE SOILS FOR USE AS A BACKFILL MATERIAL BEHIND THE SITE RETAINING WALLS. THEREFORE THE ON-SITE SOIL MAY NOT BE SUITABLE FOR BACKFILL BEHIND THE RETAINING WALLS. THE SERVICES OF A MARYLAND LICENSED GEOTECHNICAL ENGINEER SHALL BE OBTAINED TO SELECT A SUITABLE GRANULAR BACKFILL MATERIAL SUCH THAT THE ASSUMED PRESSURES FOR WHICH THE WALLS HAVE BEEN DESIGNED WILL NOT BE EXCEEDED.
- WALLS A, B, D, AND E HAVE BEEN DESIGNED FOR A SURCHARGE LOAD APPLIED AT THE UPPER SOIL SURFACE OF 100 PSF. WALL C HAS BEEN DESIGNED FOR A HIGHWAY SURCHARGE LOAD OF 240 PSF.
- ALL WALLS HAVE BEEN DESIGNED TO SUSTAIN A HORIZONTAL LOAD OF 50 POUNDS PER FOOT (OR A SINGLE CONCENTRATED LOAD OF 200 POUNDS) APPLIED AT THE TOP OF A 3'-6" TALL RAILING MOUNTED ON TOP OF THE WALLS. THE WALLS HAVE NOT BEEN DESIGNED FOR ANY OTHER IMPACT LOADS APPLIED TO THE RAILINGS (FOR EXAMPLE FROM CARS OR TRUCKS).
- THE WALLS HAVE BEEN DESIGNED FOR THE DIFFERENCES IN GRADE SHOWN ON THE CIVIL ENGINEER'S DRAWINGS AND SUMMARIZED HEREIN. SHOULD THE GRADE DIFFERENCES EXCEED THE MAXIMUMS INDICATED ON THIS SHEET, NOTIFY McCORMAC ENGINEERING ASSOCIATES IN ORDER THAT THE WALL(S) MAY BE REDESIGNED. C. ALL STRUCTURAL COMPONENTS HAVE BEEN DESIGNED FOR THE DEAD LOADS SHOWN ON THE PLANS AND THE LIVE LOADS SHOWN ABOVE. IT IS THE CONTRACTOR'S

RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE

PROPER DESIGN AND CONSTRUCTION OF THOSE ITEMS NECESSARY TO FACILITATE CONSTRUCTION INCLUDING BUT NOT LIMITED TO FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC. D. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING WORK PRIOR TO FABRICATION OF ANY NEW MATERIALS. THE CONTRACTOR

SHALL COORDINATE WITH ALL NEW AND EXISTING UTILITIES.

E. LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE. A CONCRETE STRUCTURE MAY NOT SUPPORT ITS DESIGN LIVE LOADS FOR 28 DAYS. CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES, AND **FXCAVATIONS.**

- F. DO NOT BACKFILL AGAINST WALLS UNTIL THE WALLS HAVE BEEN PROPERLY CURED AND THE CONCRETE HAS ATTAINED THEIR FULL 28 DAY STRENGTH.
- G. ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH THE BUILDING CODE AND ALL LOCAL ORDINANCES. THE OWNER OR CONTRACTOR (SEE SPECIFICATIONS) SHALL HIRE AN EXPERIENCED, QUALIFIED INSPECTOR TO PERFORM ALL THE REQUIRED INSPECTION WORK. McCORMAC ENGINEERING ASSOCIATES (THE ENGINEER) WILL NOT PERFORM THE REQUIRED INSPECTION AS A PART OF THÈIR DESIGN SERVICE. THE ENGINEER MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. SUCH SITE VISITS ARE NOT TO BE CONSTRUED AS MEETING ANY INSPECTION REQUIREMENTS UNLESS THE ENGINEER SPECIFICALLY SO STATES IN WRITING.
- H. ALL RAILINGS SHALL BE DESIGNED FOR ALL APPLICABLE DEAD LOADS AND FOR ALL LIVE, WIND, AND SEISMIC LOADS AS SPECIFIED IN THE LOCAL BUILDING CODE.

- A. ANY REVIEW OF STRUCTURAL ITEM SHOP DRAWINGS BY McCORMAC ENGINEERING ASSOCIATES (THE ENGINEER) IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE.
- B. AT THE TIME OF SHOP DRAWING SUBMISSION, THE GENERAL CONTRACTOR SHALL STATE IN WRITING ANY DEVIATIONS OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS BEFORE SUBMISSION AND MAKE ALL CORRECTIONS AS HE DEEMS NECESSARY AND SHALL CERTIFY ON EACH DRAWING AS FOLLOWS:
 - "I CERTIFY THAT THE CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN MET AND ALL DIMENSIONS, CONDITIONS, AND QUANTITIES ARE VERIFIED AS SHOWN AND/OR AS CORRECTED ON THIS DRAWING,

(FOR GENERAL CONTRACTOR)

- C. SUBMIT SHOP DRAWINGS FOR SPECIFIC AREAS IN THEIR ENTIRETY. SUBMIT A SUITABLE NUMBER OF COPIES OF SHOP DRAWINGS SO THAT McCORMAC ENGINEERING ASSOCIATES WILL RECEIVE ONE REPRODUCIBLE AND TWO BLUELINE PRINTS. THE REPRODUCIBLE AND ONE PRINT WILL BE RETURNED AFTER REVIEW.
- D. ALL CHANGES AND ADDITIONS MADE ON RE-SUBMITTALS MUST BE CLEARLY FLAGGED AND NOTED. THE PURPOSE OF THE RE-SUBMITTALS MUST BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. THE REVIEW OF THE RE-SUBMITTALS WILL BE LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMISSION.
- E. THE STRUCTURAL CONTRACT DOCUMENTS ARE NOT TO BE REPRODUCED FOR USE AS SHOP
- F. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY THE GENERAL CONTRACTOR. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, McCORMAC ENGINEERING ASSOCIATES WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION OR FOR THE DESIGN OF THE PROJECT.

FOUNDATIONS

- A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF AS TO THE LOCATION OF ANY UTILITIES IN THE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THE UTILITIES AND/OR ANY CONSEQUENTIAL DAMAGES. SHOULD ANY SUCH DAMAGE OCCUR THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.
- B. WALLS HAVE BEEN DESIGNED TO PRODUCE FOOTINGS CONFORMING TO THE ALLOWABLE BEARING PRESSURES INDICATED IN THE GEOTECHNICAL REPORT SUBMITTED BY ITE, INC. DATED 6 JANUARY 1994. THE REQUIRED SOIL BEARING CAPACITY IS 4,000 PSF. FOOTINGS SHALL BEAR ON NATURAL UNDISTURBED SOIL, 1'-0" BELOW ORIGINAL GRADE OR CONTROLLED STRUCTURAL FILL. THE BOTTOM OF FOOTINGS SHALL BE 2'-6" BELOW FINISHED GRADE ON THE LOW SIDE OF THE WALL. CONTRACTOR SHALL HIRE A MARYLAND LICENSED GEOTECHNICAL ENGINEER TO VERIFY THE ALLOWABLE SOIL PRESSURE IN THE FIELD. IF FOUND TO BE LESS THAN 4,000 PSF, THE WALLS WILL HAVE TO BE REDESIGNED.
- C. SLABS FOR SIDEWALKS AND PAVEMENTS AND FILL UNDER THESE ELEMENTS ARE NOT PART OF THIS DESIGN. REFER TO THE CIVIL ENGINEER'S DRAWINGS.

4. CAST IN PLACE CONCRETE

- A. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST APPROVED (BY LOCAL GOVERNMENT) EDITIONS OF THE FOLLOWING A.C.I. AND A.S.T.M. DOCUMENTS:
- SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS ACI-302,1R FLOOR AND SLAB CONSTRUCTION BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI-318
- ACI-214 COMPRESSION TESTS CCLD WEATHER ACI-315 DETAILING ACI-347 FORMWORK
- ACI-305 HOT WEATHER PROPORTIONS OF CONCRETE ACI-211 ACI-304 PLACING CONCRETE ACI-ASCE/423 UNBONDED TENDONS ASTM C94 READY-MIX CONCRETE
- B. ALL FIELD AND LAB TESTING OF CONCRETE SHALL CONFORM TO THE LATEST APPROVED (BY LOCAL GOVERNMENT) EDITIONS OF ASTM:
- FIELD CYLINDER SPECIMENS ASTM C31 ASTM C143 SLUMP TEST
- ASTM C231 AIR CONTENT (WHEN REQUIRED) LAB TESTING CYLINDERS SAMPLING FRESH CONCRETE ASTM C172 HARDENED CORES (WHEN REQUIRED)
- UPON COMPLETION OF CONCRETE TESTING, THE AGENCY SHALL CERTIFY THEIR
- RESULTS AS FOLLOWS: "I CERTIFY THAT THE FIELD AND LAB TESTING CONFORMS TO THE ASTM
- DOCUMENTS AND GOOD PRACTICE.

(FOR AGENCY)"

- C. ALL CONCRETE, EXCEPT AS NOTED, SHALL BE (F'C=3,000 PSI) STONE AGGREGATE CONCRETE AT 28 DAYS. ALL CONCRETE SHALL BE AIR ENTRAINED.
- D. AT INTERVALS NOT EXCEEDING 25 FEET, PROVIDE WEAKENED PLANE CONTROL JOINTS FULL HEIGHT OF THE STEM. AT THESE JOINTS, STOP ALTERNATE HORIZONTAL BARS (EACH FACE) SO THAT ONLY ALTERNATE HORIZONTAL BARS CONTINUE THROUGH THE JOINT. THE JOINT MAY BE FORMED OR SAW CUT AT THE PROPER TIME LATER. THE JOINTS SHALL BE SEALED WITH APPROPRIATE CAULKING MATERIAL.
- E. ALL FORMWORK SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "FORMWORK FOR CONCRETE", SPECIAL PUBLICATION NO. 4 AND ACI'S "STANDARD RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" (ACI-347, LATEST LOCAL APPROVED EDITION).

5. REINFORCING STEEL

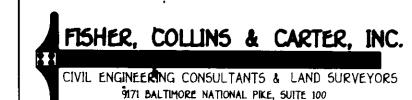
- A. EXCEPT AS NOTED, ALL REINFORCING SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO ASTM DESIGNATION A-615 (LATEST LOCAL APPROVED EDITION). GRADE 60. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE ACI'S "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" (ACI 315, LATEST LOCAL APPROVED EDITION).
- B. BEND HORIZONTAL WALL REINFORCING 1'-0" MINIMUM AROUND ALL CORNERS OR PROVIDE 4'-0" LONG CORNER BARS TO MATCH HORIZONTAL REINFORCING.
- C. UNLESS OTHERWISE NOTED IN STRUCTURAL DRAWINGS, PROVIDE CONCRETE PROTECTION FOR REINFORCING AS FOLLOWS:
- CAST AGAINST EARTH EXPOSED TO EARTH OR WEATHER: NO. 6 AND LARGER BARS NO. 5 AND SMALLER BARS
- 1-1/2"

OWNER MR. RICHARD J. DEMMITT

% HIGHLAND DEVELOPMENT CORP. P.O. DOX 208

CLARKSVILLE, MARYLAND 21029

MR. DONALD R. REUWER JR. % LAND DESIGN AND DEVELOPMENT INC. 10805 HICKORY RIDGE ROAD COLUMBIA, MARYLAND 21044

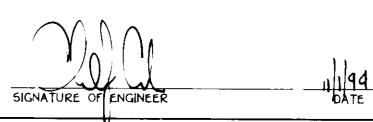


ELLICOTT CITY, MARYLAND 21042

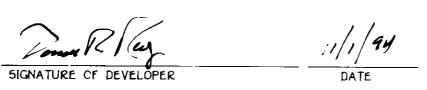
(410) 461 - 2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.



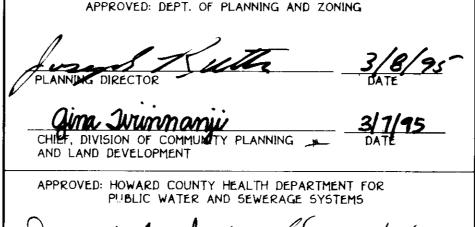
DEVELOPER'S CERTIFICATE "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.





THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. APPROVE

HOWARD SOIL CONSERVATION DISTRICT



APPROVED: DEPARTMENT OF PUBLIC WORKS. FOR PUBLIC WATER & SEWER AND STORM DRAINAGE SYSTEMS AND ROADS. 2/22/95 HEF, BUREAU OF PROPERTY/SUBDIVISION SECTION/AREA PARCEL/LOT NO. ST JOHNS STATION PLAT NO./LF. BLOCK NO. ZONE TAX/ZONE | ELEC. DIST. | CENSUS TR. 2015 / 52G 5 D-1 24 74 ८०८८ WATER CODE FOG SEWER CODE

140 3700

RETAINING WALL DETAILS

LIBER ZOIS TAX MAP 74 ZNO ELECTION DIST. SCALE: AS SHOWN

FOLIO 5ZG PARCEL 39 HOWARD COUNTY, MARYLAND DATE: SEPTEMBER

SHEET B OF B