HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137

INDEX OF DRAWINGS

SHEET NO.	TITLE
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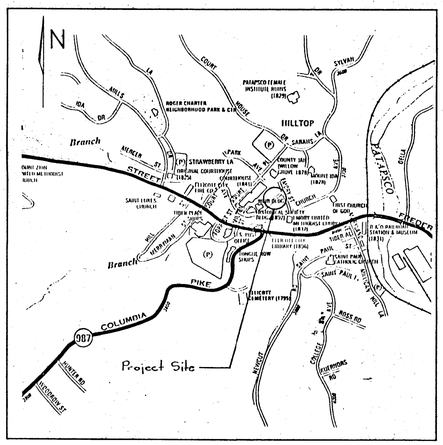
3	GEOMETRIC LAYOUT, WALL ELEVATION AND BORING LOGS
4	TYPICAL SECTIONS AND MISCELLANEOUS DETAILS
5	STANDARD DETAILS AND SEDIMENT AND EROSION CONTROL NOTES



LOCATION MAP
SCALE: 1"=600'

THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS.

RIGHT-OF-WAY LINES AS SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT-OF-WAY AND EASEMENT INFORMATION REFER TO THE APPROPRIATE RIGHT-OF-WAY PLATS.

By the Owner/Developer:

"I/We certify that all development and construction will be done according to this plan, and that any 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 on-site inspection by the Howard Soil Conservation District."

Ronald G. Lapson — 6/10/94
Signature of Owner/Developer — Date
Print name below signature

By the Engineer:

"I 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."

John S. Nolan, PE — 6/9/94
Signature of Engineer — Date
Print name below signature

Review for HOWARD S.C.D. and meets Technical Requirements

J. A. Warfield III 6/14/94
U.S. Soil Conservation Service — Date

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

John R. Robertson 6/16/94
Howard S.C.D. — Date

C179AZ01

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/14/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN S. NOLAN — No. 18658 — REGISTERED PROFESSIONAL ENGINEER

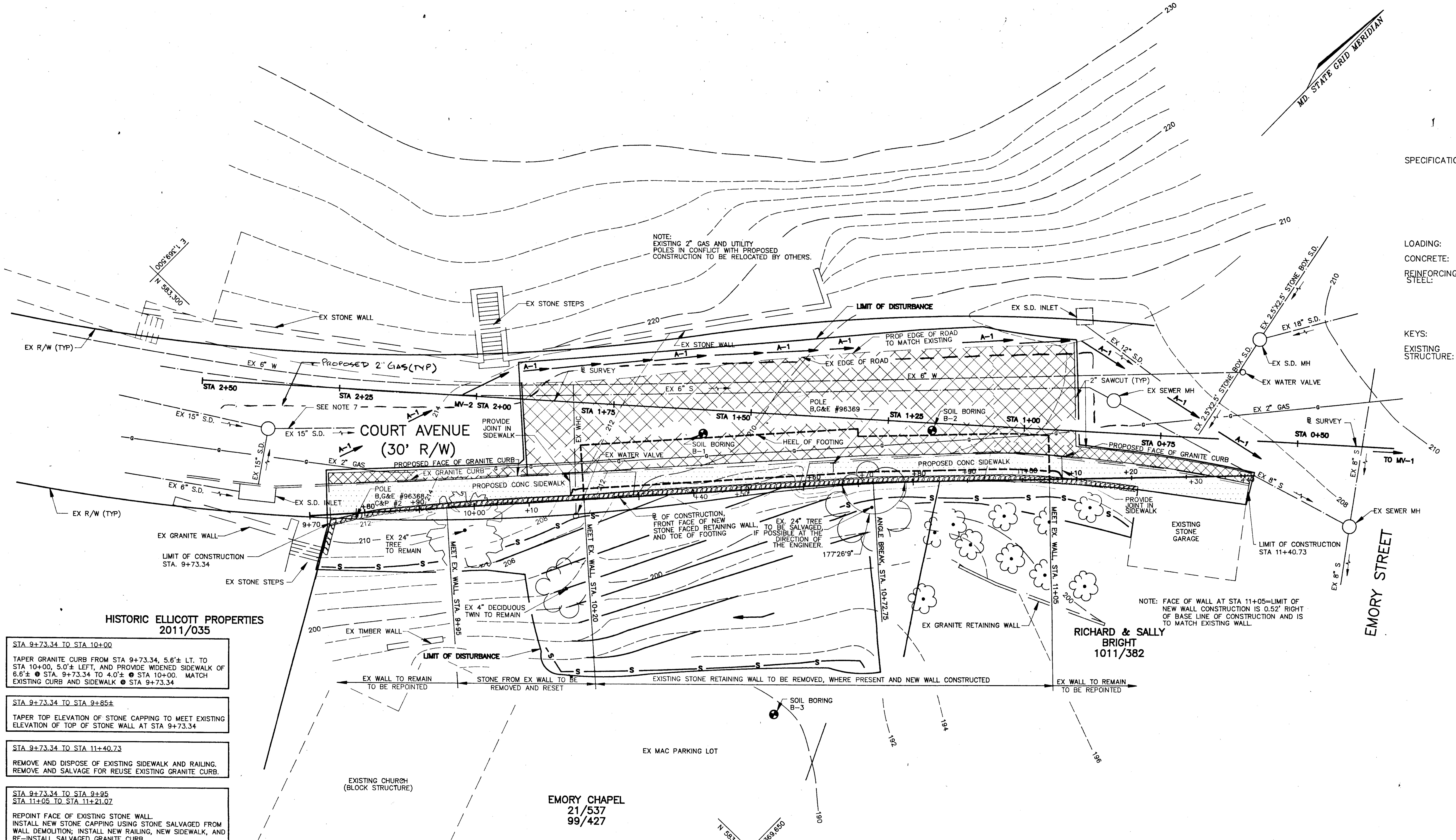
DES: Y.C.W.					
DRN: J.S.N.					
CHK: C.S.N.					
DATE: 05/18/94	BY	NO.	REVISION	DATE	600' SCALE MAP NO. ____ BLOCK NO. ____

TITLE SHEET

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 5



GENERAL NOTES

SPECIFICATIONS: –HOWARD COUNTY DESIGN MANUAL VOLUME IV, DATED OCTOBER 1990
–SHA SPECIFICATIONS DATED OCTOBER 1993

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1992 FOR DESIGN INCLUDING ALL INTERIM SPECIFICATIONS.

CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD FC=1,200 PSI.

REINFORCING STEEL DESIGN: FS=24,000 PSI.

LOADING: 2'–0" SURCHARGE

CONCRETE: ALL CONCRETE SHALL BE MIX NO. 3 (3,500 PSI).

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT

KEYS: ALL KEYS ARE NOMINAL SIZE.

EXISTING STRUCTURE: ALL DIMENSIONS AFFECTED BY THE GEOMETRICS, AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY REINFORCING STEEL, ETC., IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS. THE ± MARKS SHOWN WITH DIMENSIONS AND STATIONS DO NOT INDICATE ANY DEGREE OF PRECISION. THE MARKS (±) INDICATE EXISTING DIMENSIONS AND STATIONS THAT MAY VARY AND DO REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.

STA 9+73.34 TO STA 10+00

TAPER GRANITE CURB FROM STA 9+73.34, 5.6'± LT. TO STA 10+00, 5.0'± LEFT, AND PROVIDE WIDENED SIDEWALK OF 6.6'± @ STA. 9+73.34 TO 4.0'± @ STA 10+00. MATCH EXISTING CURB AND SIDEWALK @ STA 9+73.34

STA 9+73.34 TO STA 9+85±

TAPER TOP ELEVATION OF STONE CAPPING TO MEET EXISTING ELEVATION OF TOP OF STONE WALL AT STA 9+73.34

STA 9+73.34 TO STA 11+40.73

REMOVE AND DISPOSE OF EXISTING SIDEWALK AND RAILING. REMOVE AND SALVAGE FOR REUSE EXISTING GRANITE CURB.

STA 9+73.34 TO STA 9+95
STA 11+05 TO STA 11+21.07

REPOINT FACE OF EXISTING STONE WALL. INSTALL NEW STONE CAPPING USING STONE SALVAGED FROM WALL DEMOLITION; INSTALL NEW RAILING, NEW SIDEWALK, AND RE-INSTALL SALVAGED GRANITE CURB.

STA 10+10 TO STA 11+10

RECONSTRUCT PAVEMENT. INSTALL TO MATCH EX. CROSS SLOPE. SEE PROFILE FOR ELEVATIONS.

STA 10+20 TO STA 11+05

REMOVE EXISTING DETERIORATED STONE WALL AND RECONSTRUCT NEW STONE FACED CONCRETE CANTILEVER RETAINING WALL, SIDEWALK AND INSTALL SALVAGED GRANITE CURB. STONE FACING FOR NEW WALL TO BE FROM STONE SALVAGED FROM WALL DEMOLITION.

STA 11+10± TO STA 11+21.07

TAPER TOP ELEVATION OF STONE CAPPING TO MEET EXISTING ELEVATION OF TOP OF STONE WALL AT STA 11+21.07.

STA 10+18± TO STA 10+20 AND
STA 11+05 TO STA 11+07±

REMOVE SOIL FROM AREA BEHIND EXISTING GRAVITY WALL THAT IS TO REMAIN. EXTEND CONCRETE POUR FOR STEM CONCRETE TO FILL VOID AND INTERLOCK THE WALLS AND TO PROVIDE TIE-IN TO EXISTING WALL.

STA 11+21.07 TO STA 11+40.73

TAPER GRANITE CURB FROM STA 11+21.07, 2.5'± LT. TO STA 11+40.73, 1.3'± RIGHT, AND PROVIDE WIDENED SIDEWALK OF 4.6'± @ STA. 11+21.07 TO 4.0'± @ STA 11+40.73. MATCH EXISTING CURB AND SIDEWALK @ STA 11+40.73.

STA 10+20 AND STA 11+05

PROPOSED BOTTOM OF FOOTING ELEVATION TO MATCH BOTTOM OF FOOTING ELEVATION OF EXISTING STONE WALL THAT IS TO REMAIN. THE CONTRACTOR SHALL TEST PIT THESE AREAS PRIOR TO SUBMISSION OF SHOP DRAWINGS TO LOCATE ACTUAL BOTTOM OF EXISTING WALL FOOTING TO INSURE APPROPRIATE FOOTING STEPS ARE PROVIDED.

STA 9+95± TO STA 10+20

EXISTING STONE OF GRAVITY WALL TO BE REMOVED AND RESET. PROVIDE TRUSS TYPE HORIZONTAL JOINT REINFORCEMENT AND PROVIDE POROUS BACKFILL AND UNDERDRAIN SYSTEM IN ACCORDANCE WITH MARYLAND STANDARD DETAIL NO. RW(0.01)–80–100. USE SYSTEM II.

NOTES:
1. VERTICAL AND HORIZONTAL DATA BASED ON A FIELD SURVEY PERFORMED BY MARKS-VOGEL ASSOCIATES, INC. APRIL, 1994.
2. LOCATION OF EXISTING UTILITIES IS BASED ON A FIELD SURVEY PERFORMED BY MARKS-VOGEL ASSOCIATES, INC. AND EXISTING RECORD DRAWINGS (REFERENCE CONTRACT NOS. C-6-0143, 99C-0177 AND 355-S). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AS NECESSARY.
3. SEE SHEET 3 FOR GEOMETRIC LAYOUT AND STAKE-OUT INFORMATION.
4. SEE SHEET 5 FOR SEDIMENT AND EROSION CONTROL NOTES AND DETAILS.
5. CROWNVETCH SHALL BE PLANTED ON THE EMORY CHAPEL PROPERTY FROM THE FACE OF WALL TO THE TOE OF SLOPE AS DIRECTED BY THE ENGINEER.
6. GRASS SHALL BE PLANTED AT THE DISTURBED AREAS AT THE FACE OF THE WALL ON THE RICHARD AND SALLY BRIGHT PROPERTY AS DIRECTED BY THE ENGINEER.
7. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING 15" STORM DRAIN PRIOR TO WALL EXCAVATION.

SITE PLAN

SCALE: 1"=10'–0"

LEGEND

- STONE WALL FACING OR STONE CAPPING
- PROPOSED SIDEWALK
- PROPOSED ROAD RECONSTRUCTION
- A-1 TYPE A-1 EARTH DIKE
- SILT FENCE
- 2 FT CONTOUR
- 10 FT CONTOUR
- EX SEWER LINE
- EX WATER LINE
- EX STORM DRAIN
- EX RIGHT-OF-WAY
- SOIL BORING
- EX TREE
- EX 2" GAS
- PROP GRADE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/14/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS HS — DATE 6/14/94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER — NO. 16559

DES: Y.C.W.	BY	NO.	REVISION	DATE
DRN: J.S.N.				
CHK: C.S.N.				
DATE: 05/18/94				

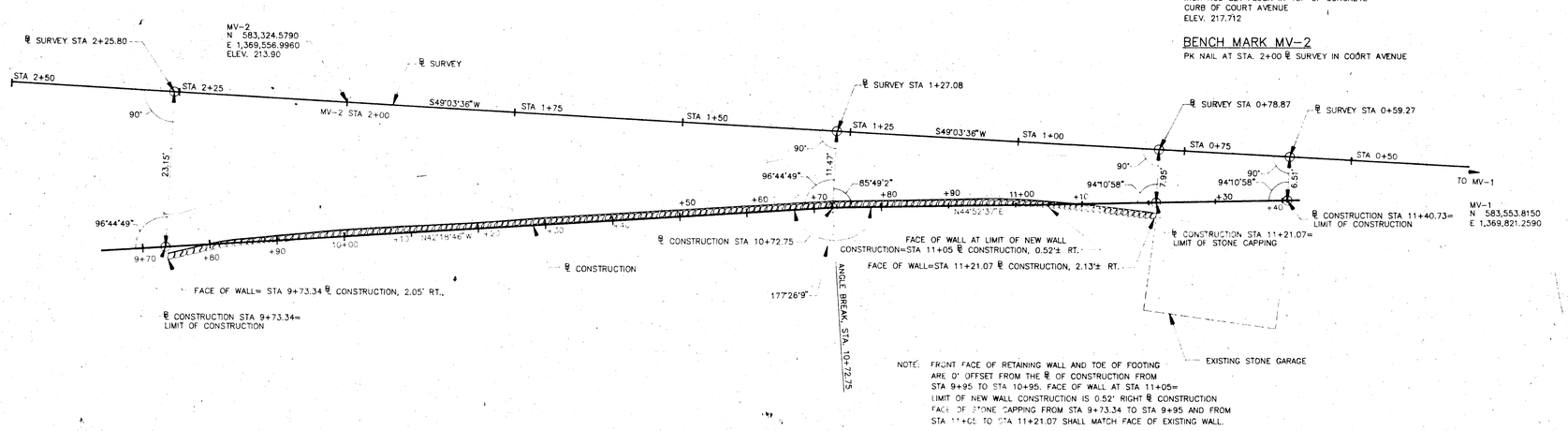
SITE PLAN AND GENERAL NOTES

600' SCALE MAP NO.______ BLOCK NO.______

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

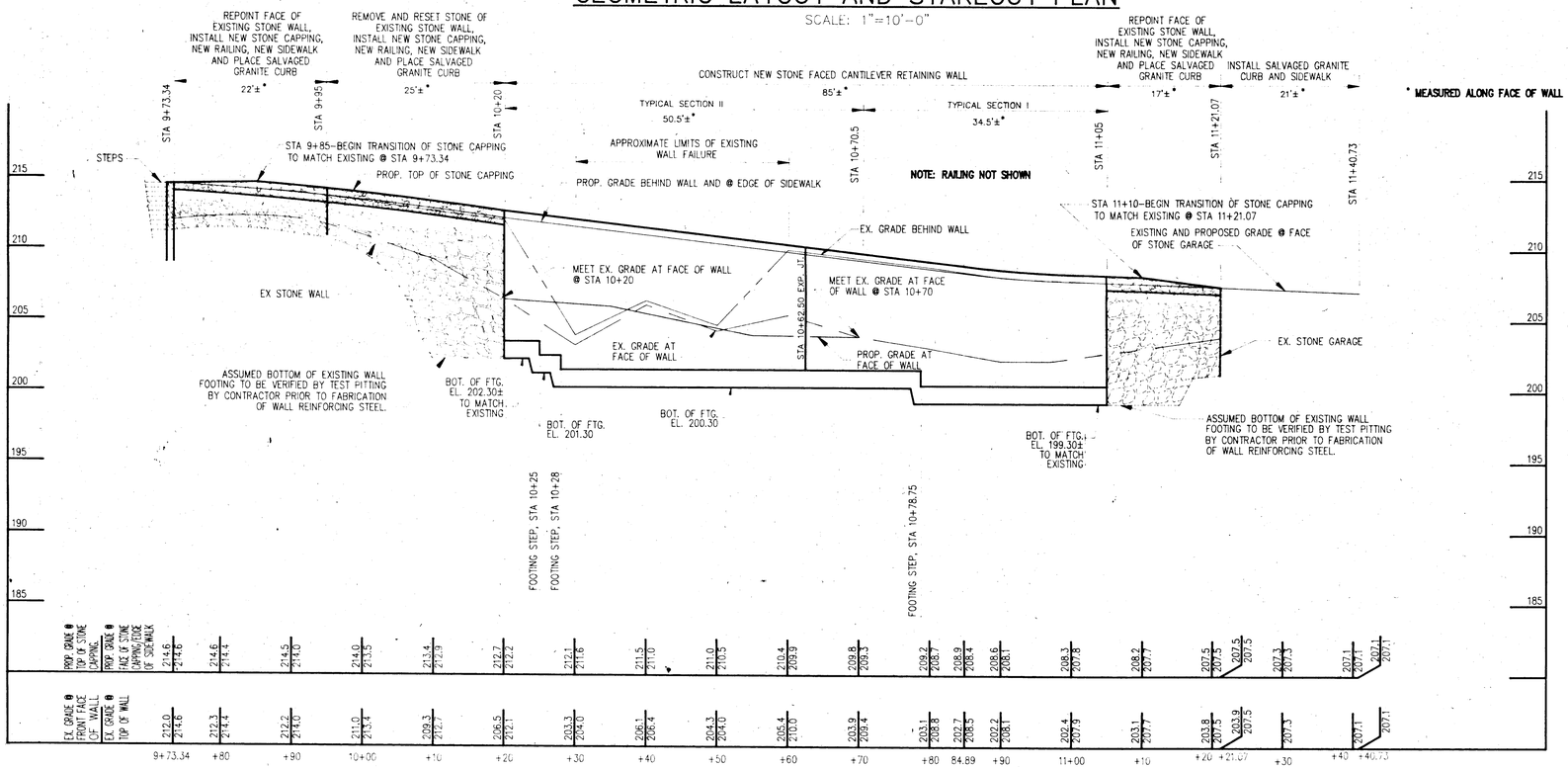
SCALE AS SHOWN

SHEET 2 OF 5



GEOMETRIC LAYOUT AND STAKEOUT PLAN

SCALE: 1"=10'-0"



WALL ELEVATION

SCALE: HORIZONTAL 1"=10'-0"
VERTICAL 1"=5'-0"

CONTRACTED WITH: NOLAN ASSOC. BORING # 1 PAGE 1 of 1
PROJECT NAME: Court Ave Howard Co. JOB # 94043
LOCATION: Ellicott City Md.
Datum: Hammer Wt 140 Lbs Hole Diameter 8" Foreman B. J. Taylor
Surface Elev. Ft Hammer Drop 30 In Rock Core Diam Inspector
Date Started 3-23-94 Pipe Size In Boring Method HSA Date Completed 3-23-94

ELEVATION	SOIL DESCRIPTION (Color, Moisture, Density, Modifiers)	STRATA DEPTH	DEPTH SCALE	SAMPLE Type	SAMPLE Number	SAMPLE Blows/6"	SAMPLE N	SAMPLE Recov.	BORING & SAMPLING NOTES
1.3'	Asphalt & Stone Surface	1.3'							
	Brown, Grey Green & White Moist, Med Dense to Very Dense micaceous fine to coarse silty sand w/ decomposed Rock & Quartz.		2.5'	D	1	7 9 12	21	14	
			5.0'	D	2	12 7 3	10	10	
			7.5'	D	3	49 3/4"	3	8	
			10.0'	D	4	50/3"	1/2	3	
			15.0'	D		50/2"		2"	Encountered Rock @ 18.0' Auger Refusal @ 18.3'
18.3'	End of Boring	18.3'							

CONTRACTED WITH: NOLAN ASSOC. BORING # 2 PAGE 1 of 1
PROJECT NAME: Court Ave Howard Co. JOB # 94043
LOCATION: Ellicott City Md.
Datum: Hammer Wt 140 Lbs Hole Diameter 8" Foreman B. J. Taylor
Surface Elev. Ft Hammer Drop 30 In Rock Core Diam Inspector
Date Started 3-23-94 Pipe Size In Boring Method HSA Date Completed 3-23-94

ELEVATION	SOIL DESCRIPTION (Color, Moisture, Density, Modifiers)	STRATA DEPTH	DEPTH SCALE	SAMPLE Type	SAMPLE Number	SAMPLE Blows/6"	SAMPLE N	SAMPLE Recov.	BORING & SAMPLING NOTES
1.3'	Asphalt & Stone Surface	1.3'							
	Brown, Grey, Green, & White Moist Med Dense to Very loose fine to coarse micaceous Silty Sand w/ Decomposed Rock & Quartz		2.5'	D	1	7 8	1	10	Bag Sample Taken from 1.5'-8.5'
			5.0'	D	2	5 2-3	2	5	
			7.5'	D	3	5 2-4	3	5	
			10.0'	D	4	4 5-7	4	5	
			15.0'	D	5	50/3"	5	5"	Encountered Rock @ 14.0' Auger Refusal @ 14.3'
14.3'	End of Boring	14.3'							

CONTRACTED WITH: NOLAN ASSOC. BORING # 3 PAGE 1 of 1
PROJECT NAME: Court Ave Howard Co. JOB # 94043
LOCATION: Ellicott City Md.
Datum: Hammer Wt 140 Lbs Hole Diameter 8" Foreman B. J. Taylor
Surface Elev. Ft Hammer Drop 30 In Rock Core Diam Inspector
Date Started 3-23-94 Pipe Size In Boring Method HSA Date Completed 3-23-94

ELEVATION	SOIL DESCRIPTION (Color, Moisture, Density, Modifiers)	STRATA DEPTH	DEPTH SCALE	SAMPLE Type	SAMPLE Number	SAMPLE Blows/6"	SAMPLE N	SAMPLE Recov.	BORING & SAMPLING NOTES
1.0'	Asphalt & Stone Surface	1.0'							
	Brown, Grey & Black Very Dense Moist fine to coarse micaceous Silty Sand w/ Some Clay & Decomposed Rock.		2.5'	I	1	1 1-3	1	12	
			5.0'	I	2	3 4-5	2	18	
5.5'	Brown, Grey & White Moist Med Dense to Very Dense fine to coarse micaceous Silty Sand w/ Some Clay & Decomposed Rock.	5.5'	7.5'	D	3	8 9-10	3	14	
9.0'	End of Boring	9.0'	10.0'	D	4	5 5-	4	4"	Encountered Rock @ 8.5'

SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost
SAMPLER TYPE: OS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core
GROUNDWATER DEPTH: At Completion 8.0' Ft; After 1 Hrs. 6.0' Ft; After 24 Hrs. Ft
BORING METHOD: HSA - Hollow Stem Auger; CFA - Continuous Flight Auger; DC - Driving Casing; MD - Mud Drilling
* STANDARD PENETRATION TEST DRIVING 2 in. OD SAMPLER 1 Ft WITH 140 lb. HAMMER FALLING 30 in. COUNT MADE AT 6 in. INTERVALS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS — DATE 6/15/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-9651 FAX: (410) 995-1563

STATE OF MARYLAND — CHARLES S. NOLAN — No. 11706 — REGISTERED ENGINEER

DES:	Y.C.W.
DRN:	J.S.N.
CHK:	C.S.N.
DATE:	05/18/94

BY	NO.	REVISION	DATE

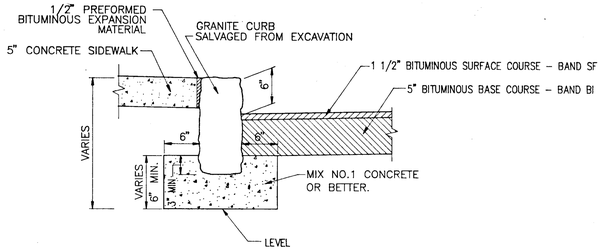
600' SCALE MAP NO. _____ BLOCK NO. _____

GEOMETRIC LAYOUT
WALL ELEVATION AND
BORING LOGS

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 5

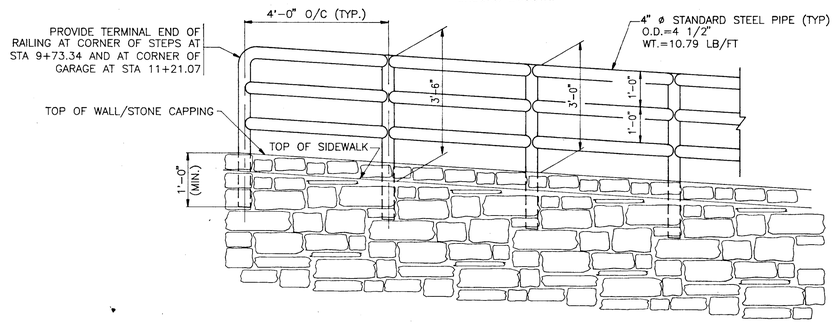


GRANITE CURB DETAIL

NOT TO SCALE

ALL BURRS TO BE GROUND OFF TO PROVIDE A SMOOTH FINISH.

ALL PIPE CONNECTIONS TO BE FULL PENETRATION BUTT WELDS, GROUND SMOOTH.

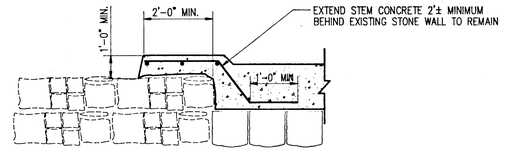


TYPICAL RAILING ELEVATION

SCALE: 1/2"=1'-0"

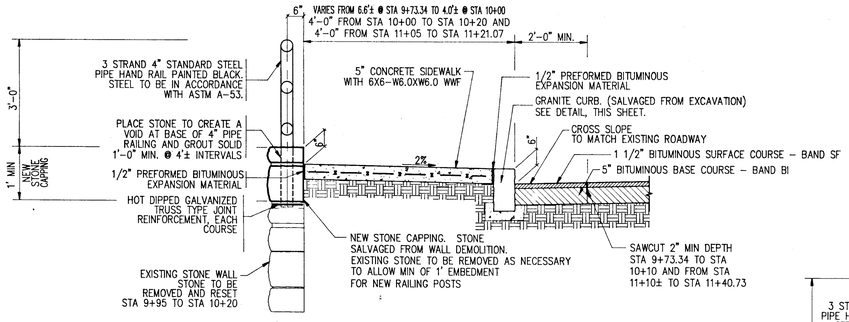
GENERAL RAILING NOTES

1. STEEL SHALL CONFORM TO ASTM A-53, STANDARD STRENGTH.
2. WELDMENTS SHALL BE THOROUGHLY CLEANED AFTER FABRICATION.
3. ENTIRE RAILING SHALL BE PAINTED AS FOLLOWS:
   - A. PRIMER PRETREATMENT CONFORMING TO FEDERAL SPECIFICTION M.I.L.-P-15328 B (FORMULA 117)
   - B. ONE COAT OF SSPC PAINT 25 SHOP COAT – SEE LATEST SHA SPECIFICATION
   - C. ONE COAT OF SSPC PAINT 25 TINTED-FIRST FIELD COAT SEE LATEST SHA SPECIFICATIONS.
   - D. ONE COAT OF GRAY ALKYD – SECOND FIELD COAT. SEE LATEST SHA SPECIFICATIONS.
   - E. A FINISH COAT OF BLACK EQUIPMENT ENAMEL – SEE LATEST SHA SPECIFICATIONS.



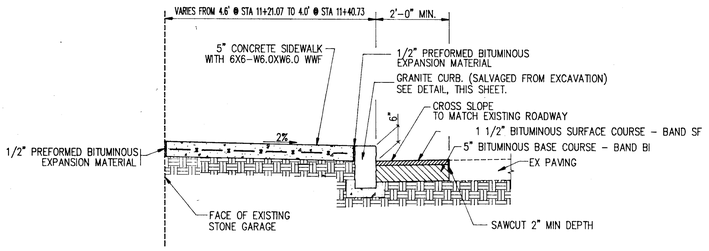
WALL END DETAIL AT EXISTING WALL

NOT TO SCALE



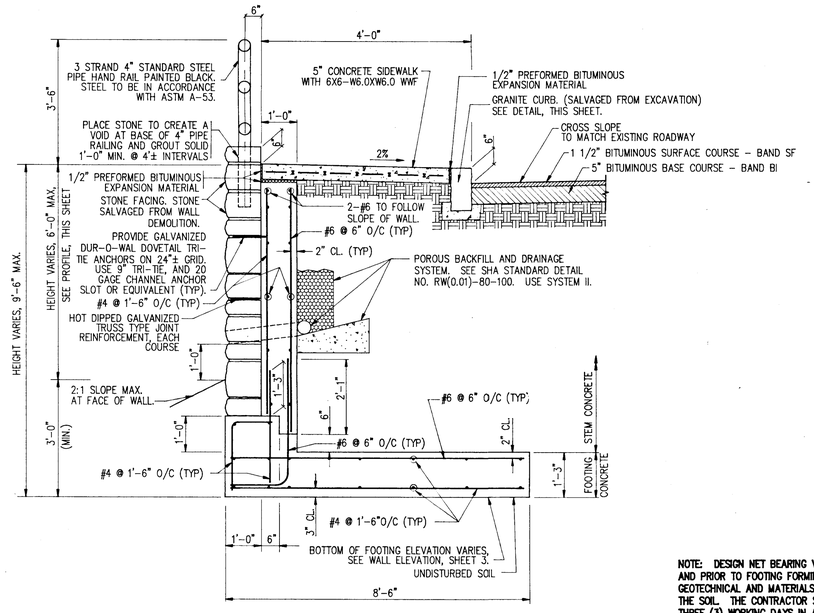
TYPICAL SECTION
STA 9+73.34 TO STA 10+20
STA 11+05 TO STA 11+21.07

SCALE: 1/2"=1'-0"



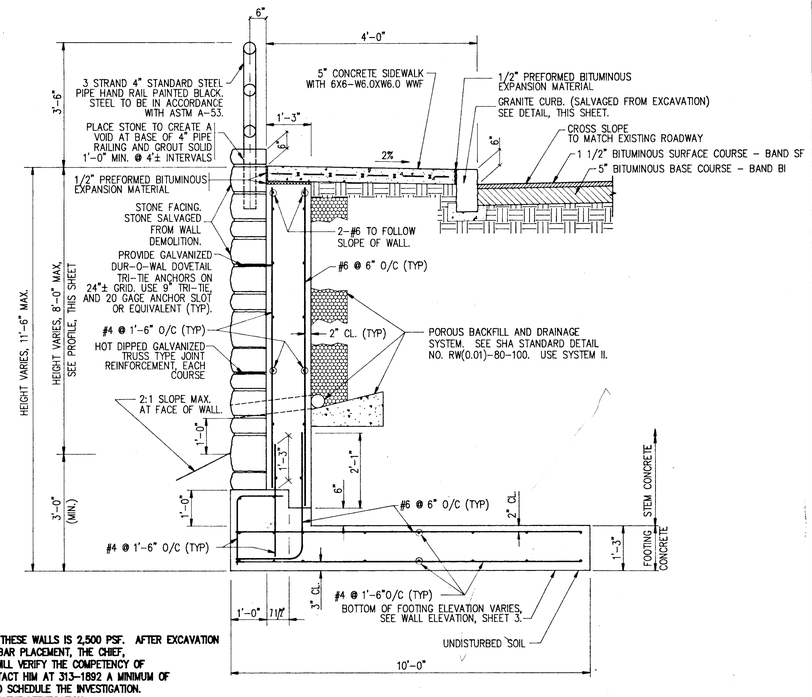
TYPICAL SECTION
STA 11+21.07 TO STA 11+40.73

SCALE: 1/2"=1'-0"



TYPICAL SECTION I
STA 10+70.50 TO STA 11+05

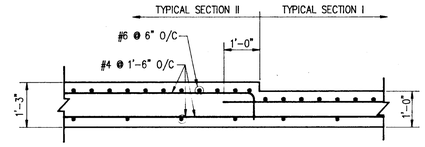
SCALE: 1/2"=1'-0"



TYPICAL SECTION II
STA 10+20 TO STA 10+70.50

SCALE: 1/2"=1'-0"

NOTE: DESIGN NET BEARING VALUE FOR THESE WALLS IS 2,500 PSF. AFTER EXCAVATION AND PRIOR TO FOOTING FORMING AND REBAR PLACEMENT, THE CHIEF, GEOTECHNICAL AND MATERIALS DIVISION WILL VERIFY THE COMPETENCY OF THE SOIL. THE CONTRACTOR SHALL CONTACT HIM AT 313-1892 A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE TO SCHEDULE THE INVESTIGATION. THE ENGINEER SHALL BE PRESENT DURING THE VERIFICATION.



WALL TRANSITION DETAIL

SCALE: 1/2"=1'-0"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/10/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-9651 *FAX: (410) 995-1363*

STATE OF MARYLAND — RONALD C. NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: Y.C.W.					
DRN: J.S.N.					
CHK: C.S.N.					
DATE: 05/18/94	BY	NO.	REVISION	DATE	600' SCALE MAP NO. ____ BLOCK NO. ____

TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 4 OF 5

Bar Size	* LOCATION CATEGORY		
	A	B	C
#3	2'-5"	2'-8"	3'-5"
#4	3'-0"	3'-3"	4'-3"
#5	3'-7"	3'-11"	5'-1"
#6	4'-10"	5'-4"	7'-0"
#7	6'-1"	6'-9"	8'-10"
#8	6'-5"	7'-1"	9'-4"
#9	8'-1"	8'-11"	11'-8"
#10	10'-3"	11'-4"	14'-10"
#11	12'-7"	13'-11"	18'-2"

* LOCATION CATEGORY

A - Bars in horizontal layers at top of pour with 12" or more of concrete below them such as, footings, pier caps, etc.

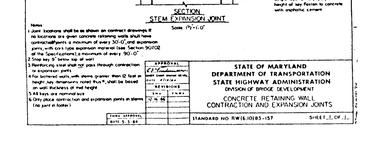
B - All bars not in Category A spaced less than 6 inches apart

C - All bars not in Category A spaced 6 inches or more apart

Note:
1. When bar laps are not specified on the plans, the above dimensions shall be used.
2. Top bars are horizontal or nearly horizontal bars in which more than 12" of fresh concrete is placed below the bars. Lap lengths are required for this material.
3. These bar laps only apply where the Contract Notes indicate "Reinforcing Steel Design by ASTM A615 gr.60"

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
DEVELOPMENT LENGTH DIMENSIONING FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3,5,6 OOPS! 5,6 CONCRETE

APPROVAL — DATE: 6-20-90
REVISIONS — NO. | DATE | BY | APP'D
STANDARD NO. MSE(1)01-81-127 — SHEET 1 OF 1



Bar Size	* LOCATION CATEGORY					
	Development length of straight bars			Development length of hooked bars		
	A	B	C	D	E	F
#3	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#4	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#5	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#6	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#7	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#8	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#9	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#10	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
#11	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"

* Location Category -
A - Bars in horizontal layers at top of pour with 12" or more of concrete below them such as, footings, pier caps, etc.
B - All bars not in Category A spaced less than 6 inches apart
C - All bars not in Category A spaced 6 inches or more apart with at least 3" clear cover measured at the short face of the section.
D - All bars not in Category A spaced less than 6 inches apart with only clear concrete cover at the face of the bar less than 3" clear, and the bars have clear concrete between them not less than 2" clear.
E - All bars not in Category A with fresh concrete placed vertically or horizontally within bars or between bars spaced along the full development length not greater than 3x the size of the diameter of the hooked bar.
F - All bars in Category A with fresh concrete placed vertically or horizontally within bars or between bars spaced along the full development length not greater than 3x the size of the diameter of the hooked bar.

Notes:
1. When development length is not sufficient on the plans the above dimensions shall be used.
2. These development lengths do not apply when bar is straight (uncoated or any other strength reinforcing.
3. These development lengths only apply where the general notes indicate "Reinforcing Steel Design by ASTM A615 Gr. 60"
4. If depth of member does not allow bar development length indicated in Categories A, B and C, then hook shall be added to all bars not conforming per D, E & F

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
DEVELOPMENT LENGTH DIMENSIONING FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3,5,6 OOPS! 5,6 CONCRETE

APPROVAL — DATE: 6-20-90
REVISIONS — NO. | DATE | BY | APP'D
STANDARD NO. MSE(1)01-85-170 — SHEET 1 OF 1

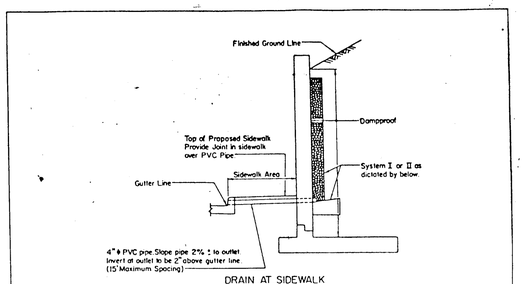
SECTION
STEM CONTRACTION JOINT
Scale: 1½"=1'-0"

SECTION
STEM EXPANSION JOINT
Scale: 1½"=1'-0"

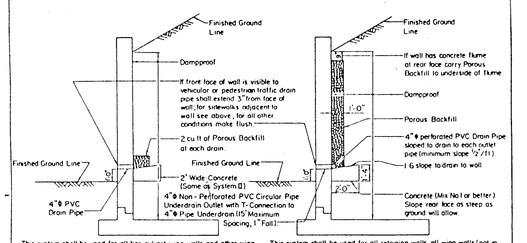
Notes:
1. Joint locations shall be as shown on contract drawings or as approved by the engineer. Contraction joints shall be constructed at a maximum of every 30'-0" and expansion joints, with joint type expansion material (see Section 90702 of the Specifications) a maximum of every 90'-0"
2. Total key 9" below top of wall
3. Reinforcing is required for joints through contraction key expansion joints.
4. For formed walls with stems greater than 12 feet in height, key dimensions noted thus * shall be based on wall thickness at mid height
5. All keys are nominal size
6. Only place construction and expansion joints at stems. (no joint at footer)

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
CONCRETE RETAINING WALL CONTRACTION AND EXPANSION JOINTS

APPROVAL — DATE: 3-3-94
REVISIONS — NO. | DATE | BY | APP'D
STANDARD NO. RW(6)01085-1ST — SHEET 1 OF 1



DRAIN AT SIDEWALK
Scale None



This system shall be used for all box culvert wing walls and other wing walls that are both less than 30' long and less than 16' high (height of wall from bottom of footing to top of highest section) One drain shall be placed at 6' of wall for all walls less than 15' long. For walls between 15' and 30' long, two drains shall be placed, one at each third point.

SYSTEM I
Scale None

This system shall be used for all retaining walls, all wing walls (not in System I.), and all cantilever abutments

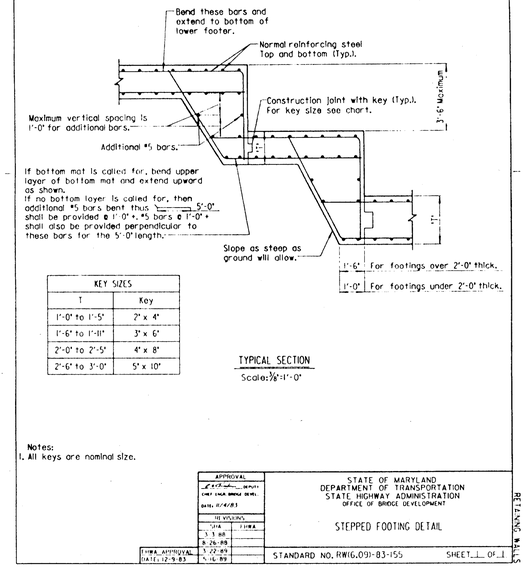
SYSTEM II
Scale None

Note
If exact elevation of drain to be determined by Engineer in the field.
2 Porous Backfill shall be stone conforming to AASHTO M 43, Size No. 57

APPROVAL — CHIEF, DIVISION OF BRIDGE DEVELOPMENT — DATE: 8/24/81
REVISIONS — NO. | DATE | BY | APP'D
SHA | FHWA
9-1-82
1-12-88
FHWA APPROVAL — DATE: 6-20-80

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
RETAINING WALL, WING WALL AND CANTILEVER ABUTMENT DRAINAGE SYSTEMS

STANDARD NO. RW(6.01)-80-100 — SHEET 1 OF 1



KEY SIZES	
T	Key
1'-0" to 1'-5"	2" x 4"
1'-6" to 1'-11"	3" x 6"
2'-0" to 2'-5"	4" x 8"
2'-6" to 3'-0"	5" x 10"

TYPICAL SECTION
Scale: ⅜"=1'-0"

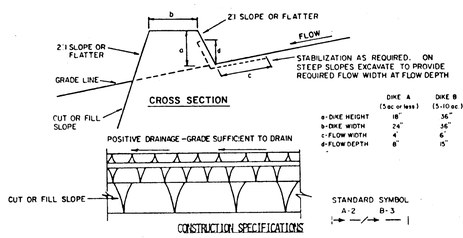
Notes:
1. All keys are nominal size.

APPROVAL — CHIEF, DIVISION OF BRIDGE DEVELOPMENT — DATE: 8/24/81
REVISIONS — NO. | DATE | BY | APP'D
SHA | FHWA
3-1-88
8-26-88
3-27-89
4-16-89
FHWA APPROVAL — DATE: 12-9-83

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF BRIDGE DEVELOPMENT
STEPPED FOOTING DETAIL

STANDARD NO. RW(6.09)-83-155 — SHEET 1 OF 1

EARTH DIKE
not to scale



CROSS SECTION

	DIKE A (5 ac or less)	DIKE B (5-10 ac)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

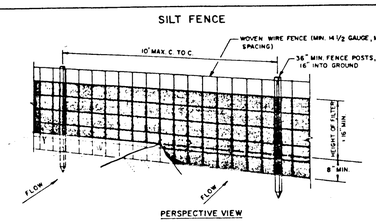
TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSTOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

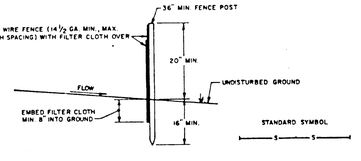
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	EARTH DIKE	STANDARD DRAWING ED-1

SILT FENCE



PERSPECTIVE VIEW



SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FENCE: WOVEN WIRE, 14½ GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABI-LINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	SILT FENCE	STANDARD DRAWING SF-1

12.03

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--In lieu of soil test recommendations, use one of the following schedules:

1. Preferred--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow of disk into upper three inches of soil.

Seeding--For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of will anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance--Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding--For periods March 1 thru April 30 and from August 15 thru October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 348 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec.51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis

Total Area of Site	0.10	Acres
Area Disturbed	0.05	Acres
Area to be roofed of paved	0.05	Acres
Area to be vegetatively stabilized	0.01	Acres
Total Cut	500	Cu. Yds.
Total Fill	50	Cu. Yds.
Offsite Waste/Borrow Area Location	To Be Determined By Contractor	

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be backfilled and stabilized within one working day, whichever is shorter.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL

Approved John R Robertson 6/16/94
(Howard S.C.D.)

Reviewed for HOWARD S.C.D. and meets Technical Requirements
J. R. Warfield 6/10/94
Signature Date
U.S. Soil Conservation Service

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit for the project.
2. Install sediment controls as shown on the site plan.
3. Excavate for wall reconstruction.
4. Construct concrete cantilever retaining wall, and reset stone gravity wall in accordance with the limits shown on the plans.
5. Backfill behind wall.
6. Construct new stone facing for concrete cantilever wall; construct new railing, sidewalk, and replace salvaged granite curb.
7. Repoint face of remaining wall.
8. Reconstruct pavement as shown on the plans and as directed by the engineer.
9. Regrade slope of the front face of retaining wall in accordance with the contours shown on the site plan.
10. After the site is stabilized and permission is granted by the Sediment Control Inspector, remove sediment controls and stabilize any remaining disturbed areas.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/14/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN C. NOLAN — No. 10559 — REGISTERED PROFESSIONAL ENGINEER

DES:	Y.C.W.
DRN:	J.S.N.
CHK:	C.S.N.
DATE:	05/18/94

BY	NO.	REVISION	DATE

STANDARD DETAILS AND SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. ___ BLOCK NO. ___

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

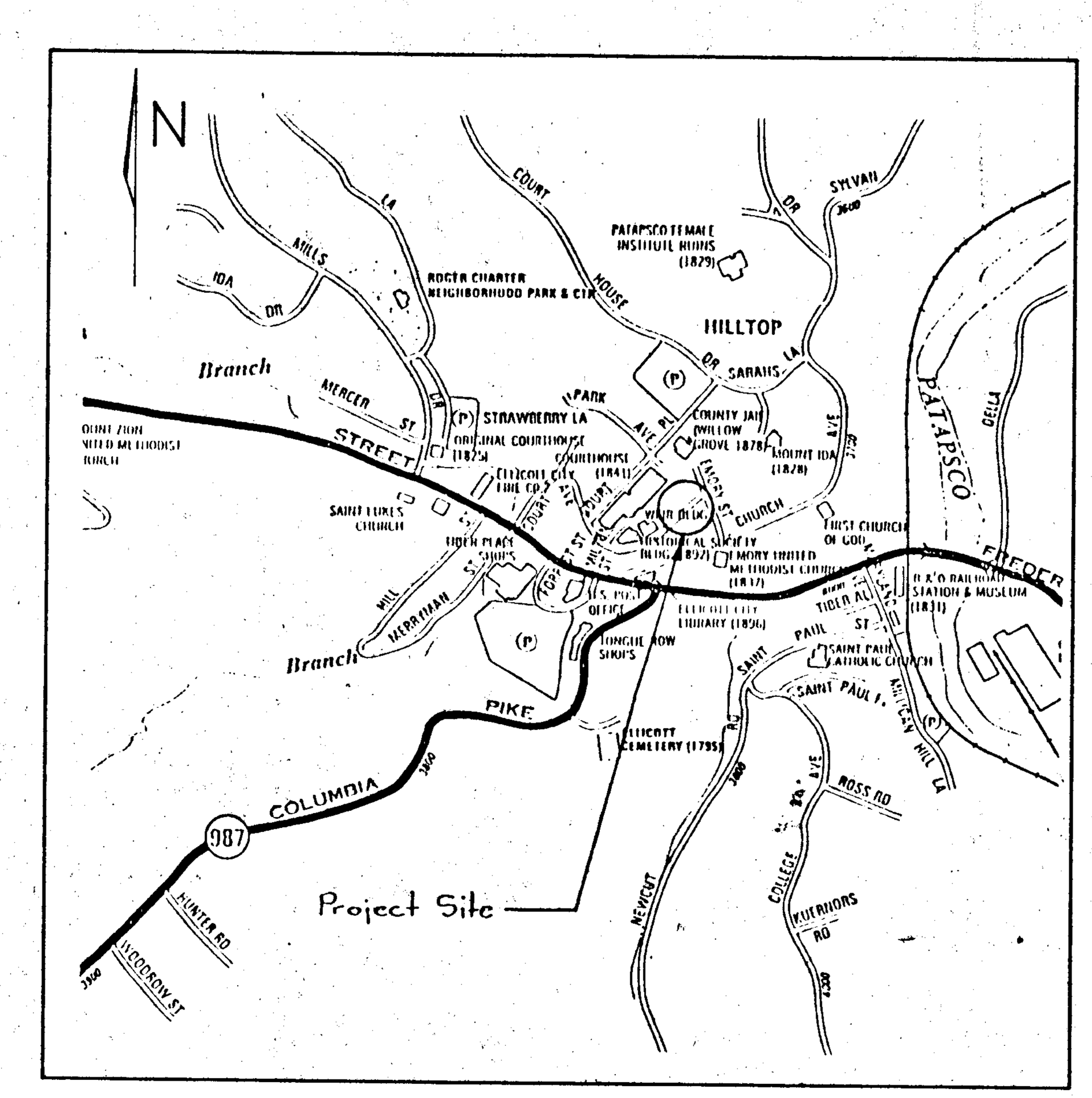
SCALE AS SHOWN

SHEET 5 OF 5

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137

INDEX OF DRAWINGS



LOCATION MAP
SCALE: 1"=600'

THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS.

RIGHT-OF-WAY LINES AS SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT-OF-WAY AND EASEMENT INFORMATION REFER TO THE APPROPRIATE RIGHT-OF-WAY PLATS.

By the Owner/Developer:

"I/We certify that all development and construction will be done according to this plan, and that any 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 on-site inspection by the Howard Soil Conservation District."

Ronald G. Lepson — 6/10/94
Signature of Owner/Developer — Date
Print name below signature

By the Engineer:

"I 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."

John S. Nolan, P.E. — 6/9/94
Signature of Engineer — Date
Print name below signature

Review for HOWARD S.C.D. and meets Technical Requirements

J. G. Warfield 6/16/94
U.S. Soil Conservation Service — Date

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

John R. Robertson 6/16/94
Howard S.C.D. — Date

C179BZ01

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

6/14/94 DIRECTOR OF PUBLIC WORKS	DATE	6/10/94 CHIEF, BUREAU OF ENGINEERING	DATE
6-14-94 CHIEF, BUREAU OF HIGHWAYS	DATE	6/10/94 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT	DATE

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER 16550

DES:	Y.C.W.
DRN:	J.S.N.
CHK:	C.S.N.
DATE:	05/18/94

BY	NO.	REVISION	DATE

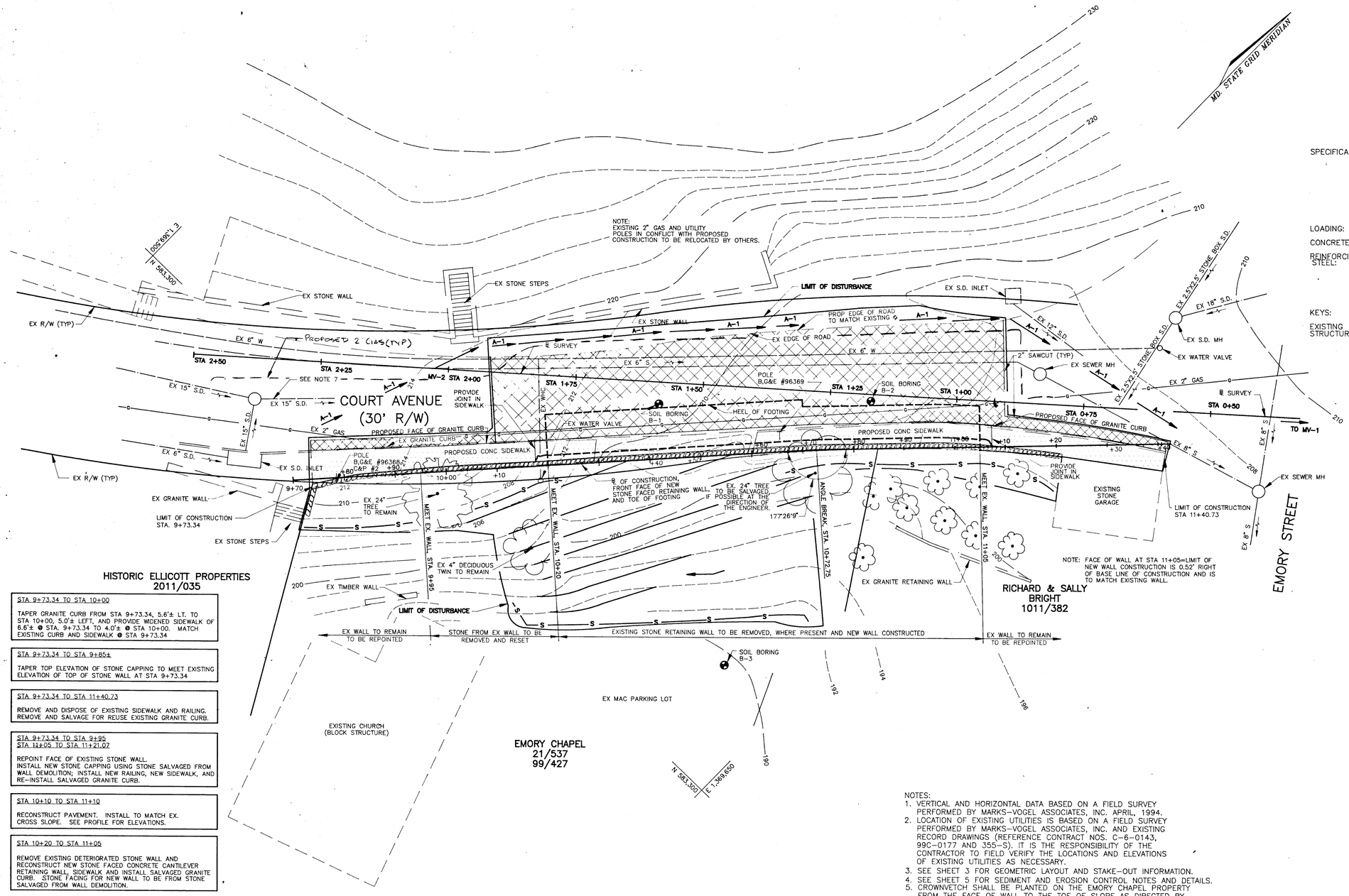
TITLE SHEET

600' SCALE MAP NO.______ BLOCK NO.______

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 5



STA 9+73.34 TO STA 10+00

TAPER GRANITE CURB FROM STA 9+73.34, 5.6'± LT. TO STA 10+00, 5.0'± LEFT, AND PROVIDE WIDENED SIDEWALK OF 6.6'± @ STA. 9+73.34 TO 4.0'± @ STA 10+00. MATCH EXISTING CURB AND SIDEWALK @ STA 9+73.34

STA 9+73.34 TO STA 9+85±

TAPER TOP ELEVATION OF STONE CAPPING TO MEET EXISTING ELEVATION OF TOP OF STONE WALL AT STA 9+73.34

STA 9+73.34 TO STA 11+40.73

REMOVE AND DISPOSE OF EXISTING SIDEWALK AND RAILING. REMOVE AND SALVAGE FOR REUSE EXISTING GRANITE CURB.

STA 9+73.34 TO STA 9+95
STA 13±05 TO STA 11+21.07

REPOINT FACE OF EXISTING STONE WALL.
INSTALL NEW STONE CAPPING USING STONE SALVAGED FROM WALL DEMOLITION; INSTALL NEW RAILING, NEW SIDEWALK, AND RE-INSTALL SALVAGED GRANITE CURB.

STA 10+10 TO STA 11+10

RECONSTRUCT PAVEMENT. INSTALL TO MATCH EX. CROSS SLOPE. SEE PROFILE FOR ELEVATIONS.

STA 10+20 TO STA 11+05

REMOVE EXISTING DETERIORATED STONE WALL AND RECONSTRUCT NEW STONE FACED CONCRETE CANTILEVER RETAINING WALL SIDEWALK AND INSTALL SALVAGED GRANITE CURB. STONE FACING FOR NEW WALL TO BE FROM STONE SALVAGED FROM WALL DEMOLITION.

STA 11+10± TO STA 11+21.07

TAPER TOP ELEVATION OF STONE CAPPING TO MEET EXISTING ELEVATION OF TOP OF STONE WALL AT STA 11+21.07.

STA 10+18± TO STA 10+20 AND
STA 11+05 TO STA 11+07±

REMOVE SOIL FROM AREA BEHIND EXISTING GRAVITY WALL THAT IS TO REMAIN. EXTEND CONCRETE POUR FOR STEM CONCRETE TO FILL VOID AND INTERLOCK THE WALLS AND TO PROVIDE TIE-IN TO EXISTING WALL.

STA 11+21.07 TO STA 11+40.73

TAPER GRANITE CURB FROM STA 11+21.07, 2.5'± LT. TO STA 11+40.73, 1.3'± RIGHT, AND PROVIDE WIDENED SIDEWALK OF 4.6'± @ STA. 11+21.07 TO 4.0'± @ STA 11+40.73. MATCH EXISTING CURB AND SIDEWALK @ STA 11+40.73.

STA 10+20 AND STA 11+05

PROPOSED BOTTOM OF FOOTING ELEVATION TO MATCH BOTTOM OF FOOTING ELEVATION OF EXISTING STONE WALL THAT IS TO REMAIN. THE CONTRACTOR SHALL TEST PIT *THESE AREAS PRIOR TO SUBMISSION OF SHOP DRAWINGS TO LOCATE ACTUAL BOTTOM OF EXISTING WALL FOOTING TO INSURE APPROPRIATE FOOTING STEPS ARE PROVIDED.

STA 9+95± TO STA 10+20

EXISTING STONE OF GRAVITY WALL TO BE REMOVED AND RESET. PROVIDE TRUSS TYPE HORIZONTAL JOINT REINFORCEMENT AND PROVIDE POROUS BACKFILL AND UNDERDRAIN SYSTEM IN ACCORDANCE WITH MARYLAND STANDARD DETAIL NO. RW(0.01)-80-100. USE SYSTEM II.

SITE PLAN

SCALE: 1"=10'-0"

GENERAL NOTES

SPECIFICATIONS: -HOWARD COUNTY DESIGN MANUAL VOLUME IV, DATED OCTOBER 1990
-SHA SPECIFICATIONS DATED OCTOBER 1993

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1992 FOR DESIGN INCLUDING ALL INTERIM SPECIFICATIONS.

CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD FC=1,200 PSI.

REINFORCING STEEL DESIGN: FS=24,000 PSI.

LOADING: 2'-0" SURCHARGE

CONCRETE: ALL CONCRETE SHALL BE MIX NO. 3 (3,500 PSI).

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT

KEYS: ALL KEYS ARE NOMINAL SIZE.

EXISTING STRUCTURE: ALL DIMENSIONS AFFECTED BY THE GEOMETRICS, AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY REINFORCING STEEL, ETC. IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS. THE ± MARKS SHOWN WITH DIMENSIONS AND STATIONS DO NOT INDICATE ANY DEGREE OF PRECISION. THE MARKS (±) INDICATE EXISTING DIMENSIONS AND STATIONS THAT MAY VARY AND DO REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.

NOTES:
1. VERTICAL AND HORIZONTAL DATA BASED ON A FIELD SURVEY PERFORMED BY MARKS-VOGEL ASSOCIATES, INC. APRIL, 1994.
2. LOCATION OF EXISTING UTILITIES IS BASED ON A FIELD SURVEY PERFORMED BY MARKS-VOGEL ASSOCIATES, INC. AND EXISTING RECORD DRAWINGS (REFERENCE CONTRACT NOS. C-6-0143, 99C-0177 AND 355-S). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AS NECESSARY.
3. SEE SHEET 3 FOR GEOMETRIC LAYOUT AND STAKE-OUT INFORMATION.
4. SEE SHEET 5 FOR SEDIMENT AND EROSION CONTROL NOTES AND DETAILS.
5. CROWNVETCH SHALL BE PLANTED ON THE EMORY CHAPEL PROPERTY FROM THE FACE OF WALL TO THE TOE OF SLOPE AS DIRECTED BY THE ENGINEER.
6. GRASS SHALL BE PLANTED AT THE DISTURBED AREAS AT THE FACE OF THE WALL ON THE RICHARD AND SALLY BRIGHT PROPERTY AS DIRECTED BY THE ENGINEER.
7. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING 15" STORM DRAIN PRIOR TO WALL EXCAVATION.

LEGEND

- STONE WALL FACING OR STONE CAPPING
- PROPOSED SIDEWALK
- PROPOSED ROAD RECONSTRUCTION
- A-1 TYPE A-1 EARTH DIKE
- S—S SILT FENCE
- 2 FT CONTOUR
- 10 FT CONTOUR
- EX SEWER LINE
- EX WATER LINE
- EX STORM DRAIN
- EX RIGHT-OF-WAY
- SOIL BORING
- EX TREE
- EX 2" GAS
- PROP GRADE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 4/4/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6/14/94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 4/4/94

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1963

DES: Y.C.W.
DRN: J.S.N.
CHK: C.S.N.
DATE: 05/18/94

BY	NO.	REVISION	DATE

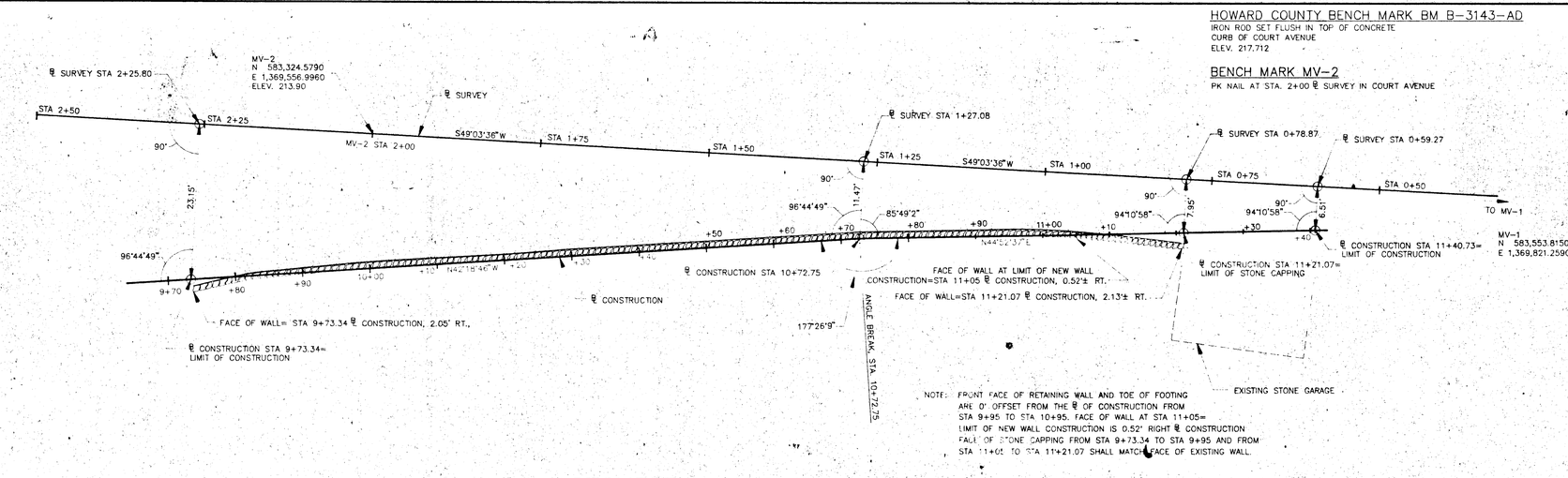
SITE PLAN AND GENERAL NOTES

600' SCALE MAP NO.____ BLOCK NO.____

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 2 OF 5



HOWARD COUNTY BENCH MARK BM B-3143-AD

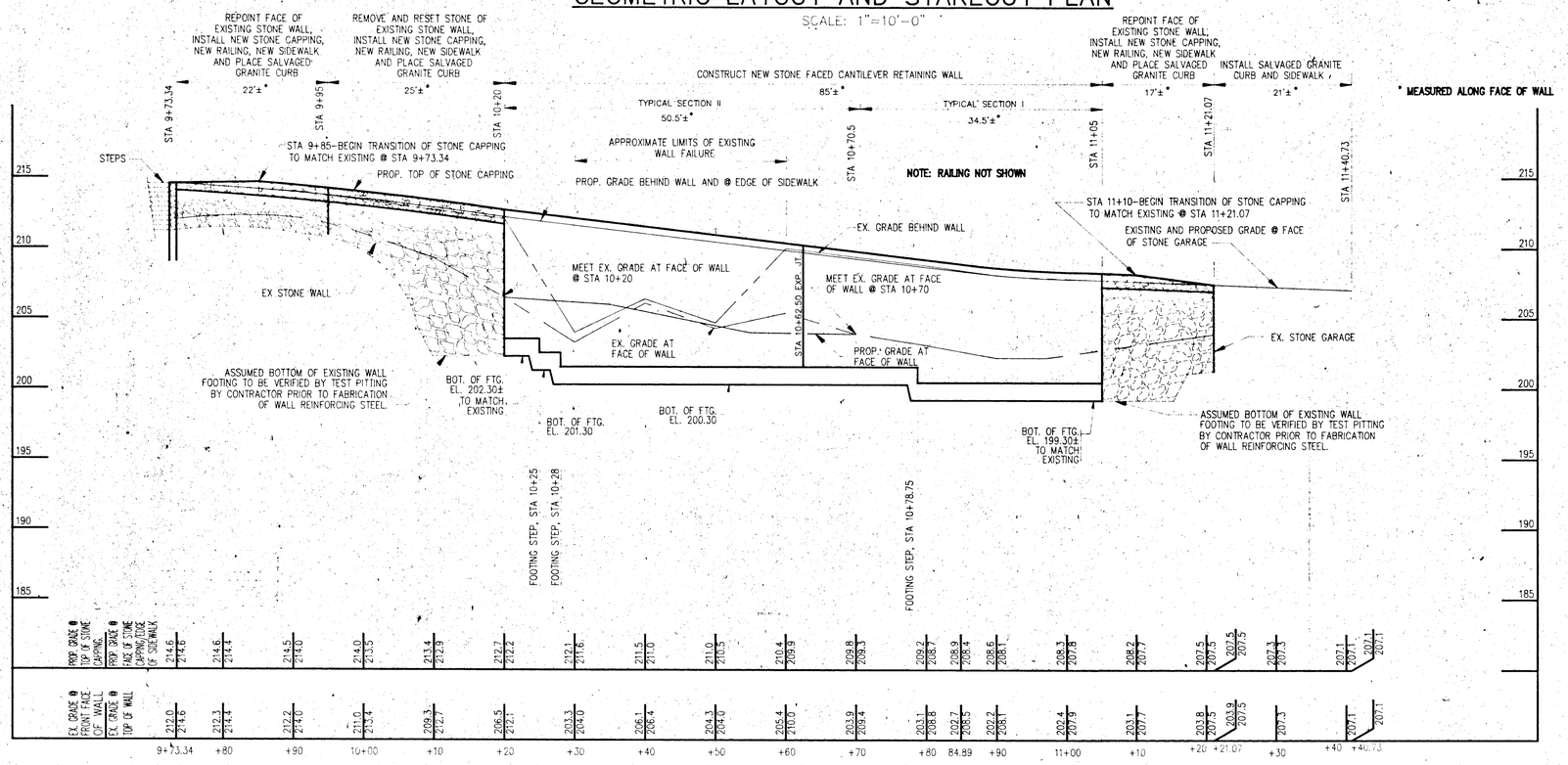
IRON ROD SET FLUSH IN TOP OF CONCRETE CURB OF COURT AVENUE
ELEV. 217.712

BENCH MARK MV-2

PK NAIL AT STA. 2+00 ℄ SURVEY IN COURT AVENUE

GEOMETRIC LAYOUT AND STAKEOUT PLAN

SCALE: 1"=10'-0"



WALL ELEVATION

SCALE: HORIZONTAL 1"=10'-0"
VERTICAL 1"=5'-0"

CONTRACTED WITH: Nolan Assoc. BORING # 1 PAGE 1 of 1
PROJECT NAME: Court Ave Howard Co. JOB # 94043
LOCATION: Ellicott City Md.
Datum: Hammer Wt 140 Lbs Hole Diameter 8" Foreman B. J. Taylor
Surface Elev: Ft Hammer Drop 30 In Rock Core Diam Inspector
Date Started 3-23-94 Pipe Size In Boring Method HSA Date Completed 3-23-94

ELEVATION	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity)	STRATA DEPTH	DEPTH SCALE	SAMPLE (Type, Number, Blows/6", N)	BORING & SAMPLING NOTES
1.3"	Asphalt & Stone	1.3"	0		
	Brown, Grey, Green & White Moist Med Dense to Loose to Very Dense Micacious Fine to Coarse Silty Sand w/ Decomposed Rock & Quartz.		2.5	D 7 9-12 1 1 3/5 14	
				D 12 7-3 2 2 3/5 10	
			5.0	D 49 24/4 3 1 3/5 8	
			7.5	D 50/3" 4 1 3/5 3	
			10.0	D 50/2" 5 2"	Encountered Rock @ 18.0
18.3"	End of Boring	18.3"	15.0		Auger Refusal @ 18.3"

CONTRACTED WITH: Nolan Assoc. BORING # 2 PAGE 1 of 1
PROJECT NAME: Court Ave Howard Co. JOB # 94043
LOCATION: Ellicott City Md.
Datum: Hammer Wt 140 Lbs Hole Diameter 8" Foreman B. J. Taylor
Surface Elev: Ft Hammer Drop 30 In Rock Core Diam Inspector
Date Started 3-23-94 Pipe Size In Boring Method HSA Date Completed 3-23-94

ELEVATION	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity)	STRATA DEPTH	DEPTH SCALE	SAMPLE (Type, Number, Blows/6", N)	BORING & SAMPLING NOTES
1.3"	Asphalt & Stone	1.3"	0		
	Brown, Grey, Green, & White Moist Med Dense to Very loose to Very Dense Fine to Coarse Micacious Silty Sand w/ Decomposed Rock & Quartz		2.5	D 7 7-8 1 1 3/5 10	Bag Sample Taken from 1.5-8.5
				D 5 2-3 2 2 3/5	
			5.0	D 5 2-4 3 2 3/5	
			7.5	D 4 5-7 4 2 3/5	
			10.0		Encountered Rock @ 14.0
14.3	End of Boring	14.3"	15.0	D 50/3" 5 2 3/5 3	Auger Refusal @ 14.3'

CONTRACTED WITH: Nolan Assoc. BORING # 3 PAGE 1 of 1
PROJECT NAME: Court Ave Howard Co. JOB # 94043
LOCATION: Ellicott City Md.
Datum: Hammer Wt 140 Lbs Hole Diameter 8" Foreman B. J. Taylor
Surface Elev: Ft Hammer Drop 30 In Rock Core Diam Inspector
Date Started 3-24-94 Pipe Size In Boring Method HSA Date Completed 3-23-94

ELEVATION	SOIL DESCRIPTION (Color, Moisture, Density, Plasticity)	STRATA DEPTH	DEPTH SCALE	SAMPLE (Type, Number, Blows/6", N)	BORING & SAMPLING NOTES
1.0	Asphalt & Stone	1.0	0		
	Brown Orange Black Moist very loose to Very Dense, Fine to Coarse Silty Sand w/ Some Clay & Decomposed Rock	5.5	2.5	I 1 1-3 1 1 3/5 12	
				I 3 4-5 2 2 3/5 18	
			5.0	D 8 9-10 3 3 3/5 14	
			7.5	D 50/4" 4 1 3/5 4	Encountered Rock @ 8.5
9.0	Brown Grey & White Moist Very Dense to Very Dense, Fine to Coarse Silty Sand w/ Decomposed Rock & Micacious	9.0	10.0		
	End of Boring				

SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost
SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core
GROUNDWATER DEPTH: At Completion 8" Ft; After 1 Hrs. 6" Ft; After 24 Hrs. Ft
BORING METHOD: HSA - Hollow Stem Auger; CFA - Continuous Flight Auger; DC - Driving Casing; MD - Mud Drilling

* STANDARD PENETRATION TEST DRIVING 2 in OD SAMPLER 1 Ft WITH 140 lb HAMMER FALLING 30 in. COUNT MADE AT 6 in INTERVALS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS — DATE 6/14/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1363

DES: Y.C.W.
DRN: J.S.N.
CHK: C.S.N.
DATE: 05/18/94

BY	NO.	REVISION	DATE

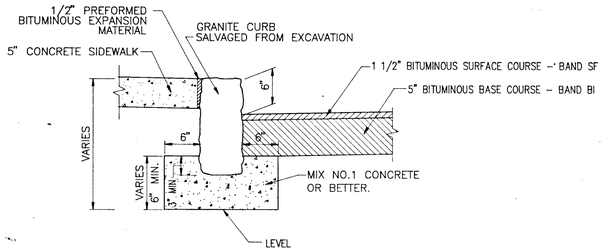
GEOMETRIC LAYOUT
WALL ELEVATION AND
BORING LOGS

600' SCALE MAP NO. _____ BLOCK NO. _____

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 5

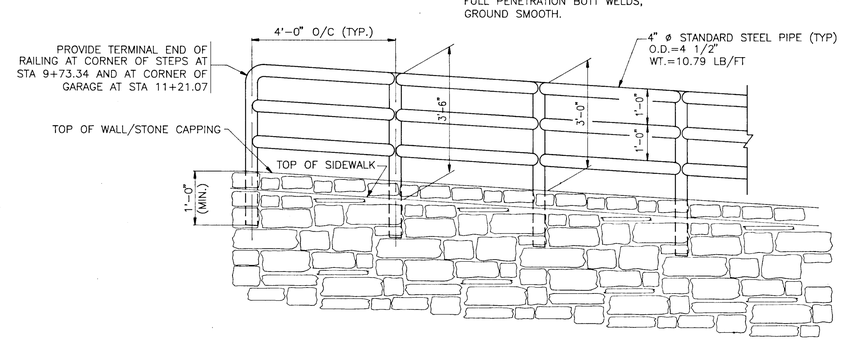


GRANITE CURB DETAIL

NOT TO SCALE

ALL BURRS TO BE GROUND OFF TO PROVIDE A SMOOTH FINISH.

ALL PIPE CONNECTIONS TO BE FULL PENETRATION BUTT WELDS, GROUND SMOOTH.

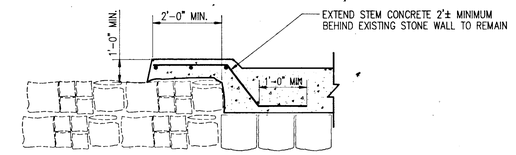


TYPICAL RAILING ELEVATION

SCALE: 1/2"=1'-0"

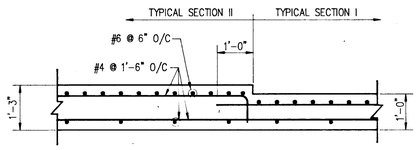
GENERAL RAILING NOTES

1. STEEL SHALL CONFORM TO ASTM A-53, STANDARD STRENGTH.
2. WELDMENTS SHALL BE THOROUGHLY CLEANED AFTER FABRICATION.
3. ENTIRE RAILING SHALL BE PAINTED AS FOLLOWS:
   A. PRIMER PRETREATMENT CONFORMING TO FEDERAL SPECIFICTION M.I.L.-P-15328 B (FORMULA 117)
   B. ONE COAT OF SSPC PAINT 25 SHOP COAT – SEE LATEST SHA SPECIFICATION
   C. ONE COAT OF SSPC PAINT 25 TINTED-FIRST FIELD COAT SEE LATEST SHA SPECIFICATIONS.
   D. ONE COAT OF GRAY ALKYD – SECOND FIELD COAT. SEE LATEST SHA SPECIFICATIONS.
   E. A FINISH COAT OF BLACK EQUIPMENT ENAMEL – SEE LATEST SHA SPECIFICATIONS.



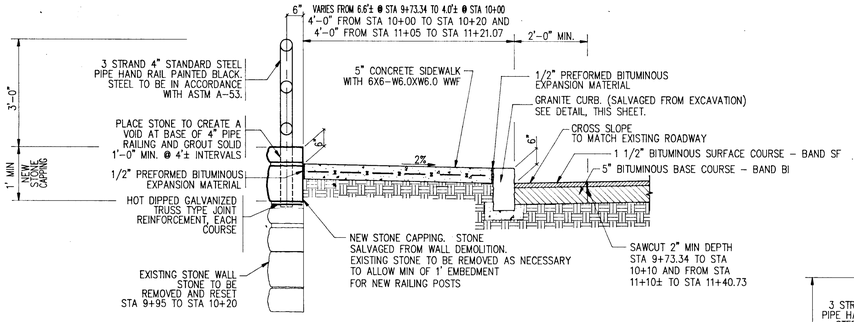
WALL END DETAIL AT EXISTING WALL

NOT TO SCALE



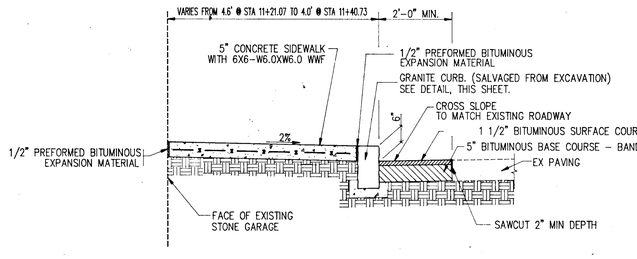
WALL TRANSITION DETAIL

SCALE: 1/2"=1'-0"



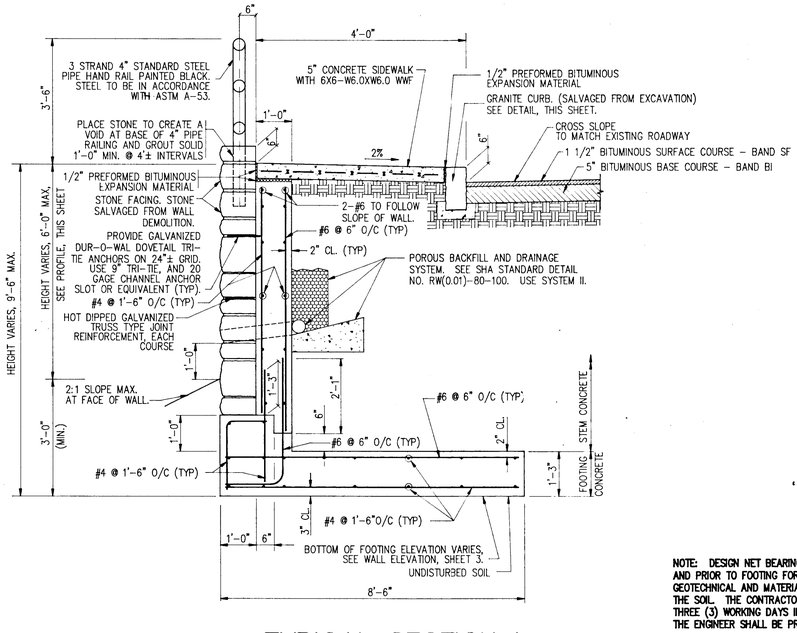
TYPICAL SECTION
STA 9+73.34 TO STA 10+20
STA 11+05 TO STA 11+21.07

SCALE: 1/2"=1'-0"



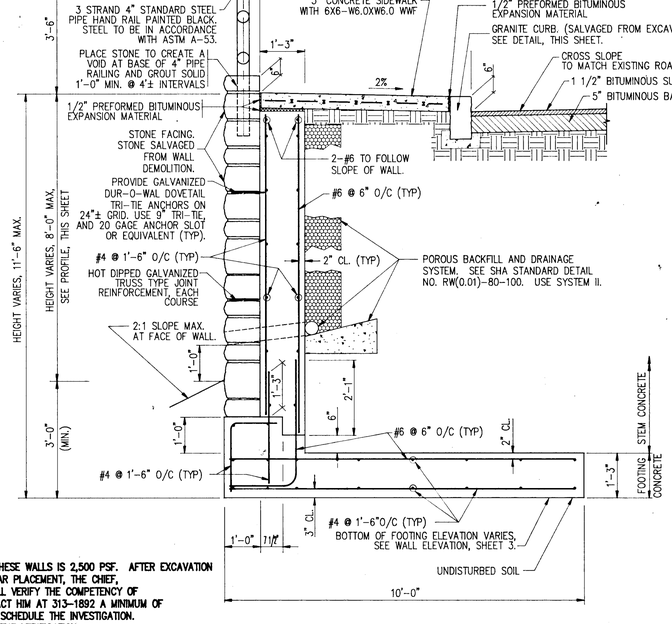
TYPICAL SECTION
STA 11+21.07 TO STA 11+40.73

SCALE: 1/2"=1'-0"



TYPICAL SECTION I
STA 10+70.50 TO STA 11+05

SCALE: 1/2"=1'-0"



NOTE: DESIGN NET BEARING VALUE FOR THESE WALLS IS 2,500 PSF. AFTER EXCAVATION AND PRIOR TO FOOTING FORMING AND REBAR PLACEMENT, THE CHIEF, GEOTECHNICAL AND MATERIALS DIVISION WILL VERIFY THE COMPETENCY OF THE SOIL. THE CONTRACTOR SHALL CONTACT HIM AT 313-1892 A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE TO SCHEDULE THE INVESTIGATION. THE ENGINEER SHALL BE PRESENT DURING THE VERIFICATION.

TYPICAL SECTION II
STA 10+20 TO STA 10+70.50

SCALE: 1/2"=1'-0"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

*DIRECTOR OF PUBLIC WORKS — DATE 6/10/94
CHIEF, BUREAU OF ENGINEERING — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
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P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1963

STATE OF MARYLAND — CHARLES NOLAN HOUSER — REGISTERED PROFESSIONAL ENGINEER

DES:	Y.C.W.
DRN:	J.S.N.
CHK:	C.S.N.
DATE:	05/18/94

BY	NO.	REVISION	DATE

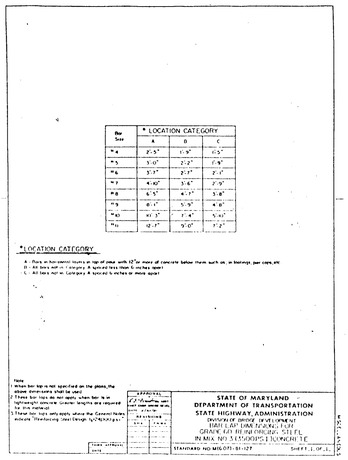
TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS

600' SCALE MAP NO._____ BLOCK NO._____

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 4 OF 5



Bar Size	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-3"
#5	3'-0"	2'-2"	1'-6"
#6	3'-7"	2'-7"	1'-9"
#7	4'-10"	3'-6"	2'-5"
#8	5'-3"	4'-1"	3'-0"
#9	6'-1"	5'-3"	4'-0"
#10	7'-1"	7'-4"	5'-4"
#11	12'-3"	9'-0"	7'-2"

*LOCATION CATEGORY

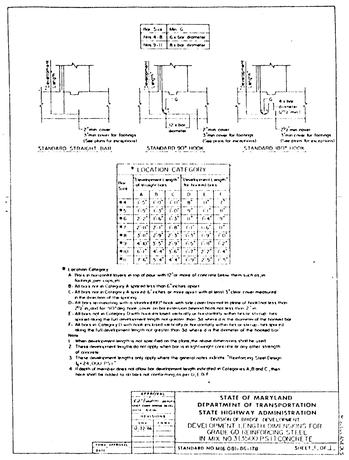
A - Runs in horizontal layers or top of slabs with 12" or more of concrete below them; such as, or footings, pier caps, etc.
B - All bars not in Category A spaced less than 6 inches apart
C - All bars not in Category A spaced 6 inches or more apart

Note:
1. When bar size is not specified on the plans, the given bar size shall be used.
2. If bars for laps do not apply, when bar is in tightly confined concrete (ceiling) lengths are required to be increased by 50%.
3. If bar size table does not apply, refer to the Current Notes, Volume "Reinforcing Steel Design" (LRFD/AASHTO).

APPROVAL	
Chief, Bureau of Engineering	Date
Chief, Bureau of Highways	Date
Chief, Division of Transportation Projects and Watershed Management	Date

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
REINFORCING STEEL
DEVELOPMENT & LENGTH OF LAP JOINTS FOR
GRADE 60 REINFORCING STEEL
IN MIX NO. 5 (5,000 PSI) CONCRETE

STANDARD NO. MSE-DB1-86-178 SHEET 7 OF 12



Bar Size	Min. l_d
Hrs. A, B, & C	#4 thru #8 bar diameter
Hrs. B-III & C	#4 thru #8 bar diameter

* LOCATION CATEGORY						
Bar Size	Development length for straight bars			Development length for hooked bars		
	A	B	C	D	E	F
#3	1'-3"	1'-0"	0'-9"	0'-9"	0'-9"	0'-9"
#4	1'-7"	1'-3"	0'-11"	0'-9"	0'-9"	0'-9"
#5	2'-0"	1'-7"	1'-2"	0'-9"	0'-9"	0'-9"
#6	2'-5"	1'-11"	1'-5"	0'-9"	0'-9"	0'-9"
#7	3'-4"	2'-7"	1'-11"	0'-11"	0'-9"	0'-9"
#8	3'-10"	3'-0"	2'-2"	1'-1"	0'-9"	0'-9"
#9	4'-10"	3'-9"	2'-9"	1'-4"	0'-11"	0'-9"
#10	5'-11"	4'-7"	3'-4"	1'-7"	1'-1"	0'-9"
#11	7'-1"	5'-6"	4'-0"	1'-11"	1'-4"	0'-9"

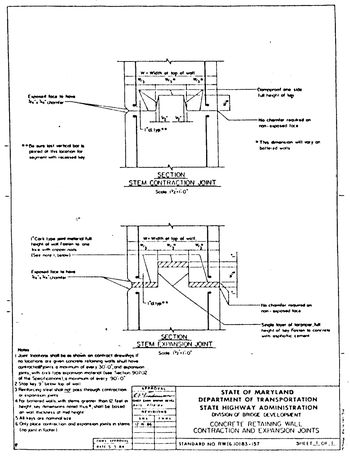
* Location Category
A - This is a horizontal layers or top of slabs with 12" or more of concrete below them; such as, or footings, pier caps, etc.
B - All bars not in Category A spaced less than 6" inches apart
C - All bars not in Category A spaced 6" inches or more apart with at least 5" clear cover measured at the direction of the spacing
D - All bars in members with a standard #90° hook with side cover (normal to plane of hook) not less than 2½" as used for 180° deg. hook. Cover on bar extension beyond hook not less than 2" as used for 180° deg. hook. Cover on bar extension beyond hook not less than 2" as used for 180° deg. hook. Cover on bar extension beyond hook not less than 2" as used for 180° deg. hook.
E - All bars in Category D with hook and side cover not less than 2½" as used for 180° deg. hook. Cover on bar extension beyond hook not less than 2" as used for 180° deg. hook.
F - All bars in Category D with hook and side cover not less than 2½" as used for 180° deg. hook. Cover on bar extension beyond hook not less than 2" as used for 180° deg. hook.

Notes:
1. When development length is not specified on the plans, the values given in the table shall be used.
2. These development lengths do not apply when bar is in tightly confined concrete (ceiling) lengths are required to be increased by 50%.
3. If bar size table does not apply, refer to the Current Notes, Volume "Reinforcing Steel Design" (LRFD/AASHTO).
4. The development length may be reduced by the ratio of required area to provided area.
5. Tension development lengths may not be less than 12 inches.
6. Where development length does not allow for development length extended in Category A, B and C, then hook shall be noted to at least not conforming as per U.S. D.O.T.

APPROVAL	
Chief, Bureau of Engineering	Date
Chief, Bureau of Highways	Date
Chief, Division of Transportation Projects and Watershed Management	Date

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
REINFORCING STEEL
DEVELOPMENT & LENGTH OF LAP JOINTS FOR
GRADE 60 REINFORCING STEEL
IN MIX NO. 5 (5,000 PSI) CONCRETE

STANDARD NO. MSE-DB1-86-178 SHEET 7 OF 12



SECTION
STEM CONTRACTION JOINT
Scale: 1"=1'-0"

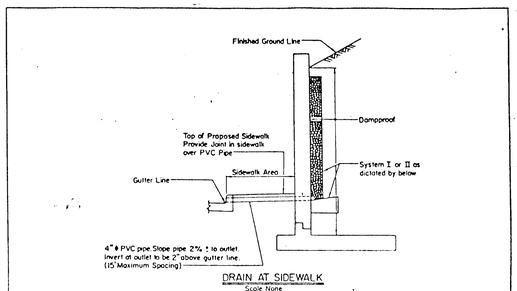
SECTION
STEM EXTENSION JOINT
Scale: 1"=1'-0"

Notes:
1. Joint locations shall be as shown on contract drawings or as approved by engineer.
2. Keep top 3" below top of wall.
3. Reinforcing steel shall not pass through contraction joints.
4. Where concrete is placed against soil, the concrete shall extend to the bottom of the excavation a minimum of 6" below the bottom of the lowest adjacent footing.
5. All keys are nominal size.
6. Only place mortar on joint and expansion joints in stems. (no joint in footer.)

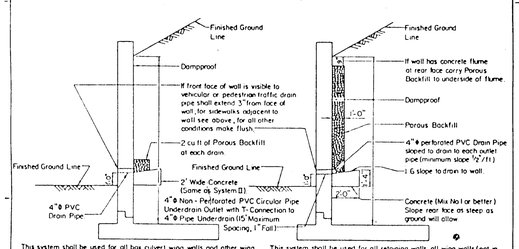
APPROVAL	
Chief, Bureau of Engineering	Date
Chief, Bureau of Highways	Date
Chief, Division of Transportation Projects and Watershed Management	Date

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
CONCRETE RETAINING WALL
CONTRACTION AND EXPANSION JOINTS

STANDARD NO. RW1S.00183-157 SHEET 3 OF 3



DRAIN AT SIDEWALK
Scale: None



SYSTEM I
Scale: None

This system shall be used for all box culvert wing walls and other wing walls that are both less than 30' long and less than 15' high (height of wall from bottom of footing to top of highest section). One drain shall be placed at ℄ of wall for all walls less than 15' long. For walls between 15' and 30' long, two drains shall be placed, one at each third point.

SYSTEM II
Scale: None

This system shall be used for all retaining walls, all wing walls (not in System I), and all cantilever abutments.

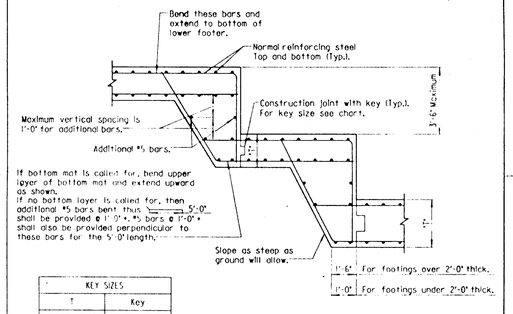
Note
1. Exact elevation of drain to be determined by Engineer in the field.
2. Porous Backfill shall be stone conforming to AASHTO M 43, Size No. 57

APPROVAL	
Chief, Bureau of Engineering	Date
Chief, Bureau of Highways	Date
Chief, Division of Transportation Projects and Watershed Management	Date

REVISIONS	
SHA	FHWA
9-1-82	
1-12-88	
FHWA APPROVAL	
DATE 6-20-80	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
RETAINING WALL, WING WALL, AND CANTILEVER ABUTMENT DRAINAGE SYSTEMS

STANDARD NO. RW(0.01)-80-100 SHEET 1 OF 1



Notes:
1. All keys are nominal size.

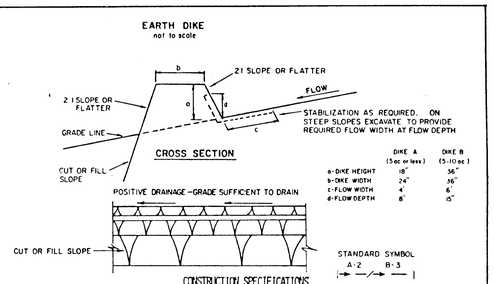
APPROVAL	
Chief, Bureau of Engineering	Date
Chief, Bureau of Highways	Date
Chief, Division of Transportation Projects and Watershed Management	Date

REVISIONS	
SHA	FHWA
7-1-88	
7-26-88	
1-22-89	
5-16-89	
FHWA APPROVAL	
DATE 12-9-83	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF BRIDGE DEVELOPMENT

STEPPED FOOTING DETAIL

STANDARD NO. RW1G.091-83-155 SHEET 1 OF 1



EARTH DIKE
not to scale

CROSS SECTION

	DIKE A (5 ac or less)	DIKE B (5-10 ac.)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

POSITIVE DRAINAGE -GRADE SUFFICIENT TO DRAIN

STANDARD SYMBOL
A-2 B-3

CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

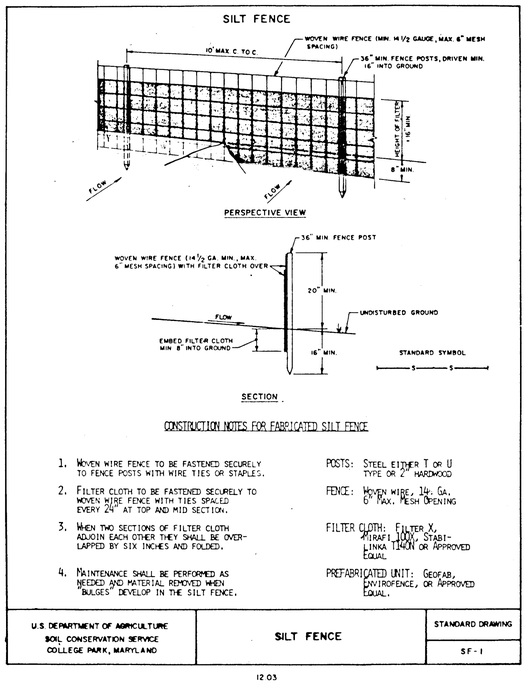
FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	EARTH DIKE	STANDARD DRAWING ED-1



SILT FENCE

PERSPECTIVE VIEW

SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FENCE: WOVEN WIRE, 14½ GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABI-LINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	SILT FENCE	STANDARD DRAWING SF-1

12.03

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--In lieu of soil test recommendations, use one of the following schedules:

1. Preferred--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow of disk into upper three inches of soil.

Seeding--For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance--Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be disturbed where a short-term vegetative cover is needed.

Seedbed preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding--For periods March 1 thru April 30 and from August 15 thru October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 348 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec.51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis

Total Area of Site	0.10	Acres
Area Disturbed	0.05	Acres
Area to be roofed of paved	0.05	Acres
Area to be vegetatively stabilized	0.01	Acres
Total Cut	500	Cu. Yds.
Total Fill	50	Cu. Yds.
Offsite Waste/Borrow Area Location	To Be Determined By Contractor	

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be backfilled and stabilized within one working day, whichever is shorter.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL ONLY.

Approved John R. Robertson 6/16/94
Howard S.C.D.

Reviewed for Howard S.C.D. and meets the minimal Requirements

J. E. Warfield Jr. Date 6/10/94
Signed
U.S. Soil Conservation Service

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit for the project.
2. Install sediment controls as shown on the site plan.
3. Excavate for wall reconstruction.
4. Construct concrete cantilever retaining wall, and reset stone gravity wall in accordance with the limits shown on the plans.
5. Backfill behind wall.
6. Construct new stone facing for concrete cantilever wall; construct new railing, sidewalk, and replace salvaged granite curb.
7. Repoint face of remaining wall.
8. Reconstruct pavement as shown on the plans and as directed by the engineer.
9. Regrade slope of the front face of retaining wall in accordance with the contours shown on the site plan.
10. After the site is stabilized and permission is granted by the Sediment Control Inspector, remove sediment controls and stabilize any remaining disturbed areas.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/14/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 *FAX: (410) 995-1363*

STATE OF MARYLAND — MICHAEL CHRISTOPHER LEE — 18659 — REGISTERED PROFESSIONAL ENGINEER

DES: Y.C.W.					
DRN: J.S.N.					
CHK: C.S.N.					
DATE: 05/18/94	BY	NO.	REVISION	DATE	

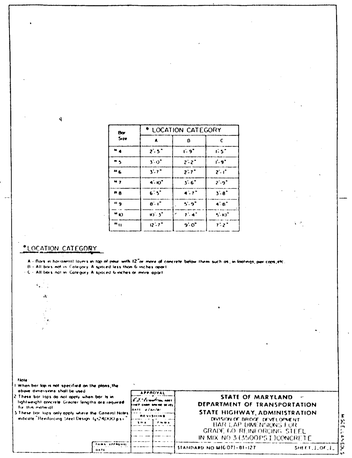
STANDARD DETAILS AND SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. _____ BLOCK NO. _____

COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 5



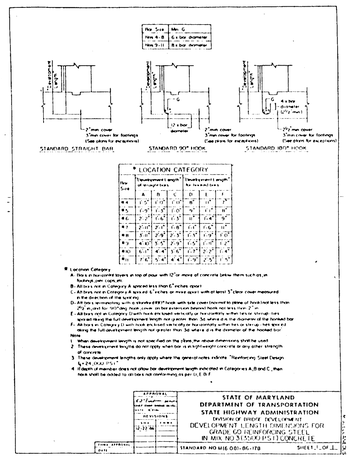
Bar Size	* LOCATION CATEGORY		
	A	B	C
#3	2'-5"	1'-8"	1'-3"
#4	3'-0"	2'-0"	1'-6"
#5	3'-7"	2'-5"	1'-9"
#6	4'-4"	2'-11"	2'-2"
#7	5'-1"	3'-5"	2'-6"
#8	5'-9"	4'-1"	3'-0"
#9	6'-6"	4'-5"	3'-3"
#10	7'-3"	4'-11"	3'-7"
#11	8'-0"	5'-5"	4'-0"

*LOCATION CATEGORY

A - Zone in horizontal layers at top of pour with 12" or more of concrete below them such as, in footings, pier caps, etc.
B - All bars not in Category A spaced less than 6 inches apart.
C - All bars not in Category A spaced 6 inches or more apart.

Notes:
1. When bar top is not specified on the plans, the above dimensions shall be used.
2. These bar lap's do not apply where bar is in tension and where splices are staggered and not over one-half bar lap's apart.
3. These bar lap's only apply where the General Notes welcome "Reinforcing Steel Design" (LRFD) apply.

APPROVAL — STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3,500) PSI CONCRETE
STANDARD NO. MD.517.01-07 — SHEET 1 OF 1



Bar Size	Min. C
No. 3 - 6	6 x bar diameter
No. 7 - 11	8 x bar diameter

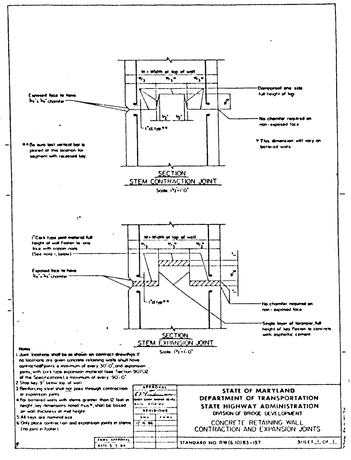
STANDARD STRAIGHT BAR — STANDARD 90° HOOK — STANDARD 180° HOOK

Bar Size	* LOCATION CATEGORY				Development length** for hooked bars		
	Development length** for straight bars						
	A	B	C	D	E	F	G
#3	1'-3"	1'-0"	1'-0"	1'-0"	0'-7"	0'-9"	0'-6"
#4	1'-7"	1'-3"	1'-0"	1'-0"	0'-9"	0'-9"	0'-6"
#5	2'-0"	1'-6"	1'-0"	1'-0"	0'-11"	0'-9"	0'-6"
#6	2'-4"	1'-9"	1'-0"	1'-0"	1'-1"	0'-9"	0'-6"
#7	3'-3"	2'-5"	1'-0"	1'-0"	1'-4"	0'-9"	0'-6"
#8	3'-8"	2'-9"	1'-0"	1'-0"	1'-6"	0'-9"	0'-6"
#9	4'-2"	3'-1"	1'-0"	1'-0"	1'-8"	0'-9"	0'-6"
#10	4'-8"	3'-6"	1'-0"	1'-0"	1'-10"	0'-9"	0'-6"
#11	5'-2"	3'-10"	1'-0"	1'-0"	2'-0"	0'-9"	0'-6"

* Location Category
A - Zone in horizontal layers at top of pour with 12" or more of concrete below them such as, in footings, pier caps, etc.
B - All bars not in Category A spaced less than 6" inches apart.
C - All bars not in Category A spaced 6" inches or more apart with at least 3" clear cover measured in the direction of the bar dim.
D - All bars in enclosing walls or shafts #57 hook with side cover (normal to plane of hook) not less than 2½" as used for stirrup hook cover, unless protection beyond hook is provided.
E - All bars in Category D with hook with side cover (normal to plane of hook) less than 2½" as used for stirrup hook cover, unless protection beyond hook is provided.
F - All bars in Category D with hook with back cover (in direction perpendicular to plane of hook) less than 2" as used for stirrup hook cover, unless protection beyond hook is provided.
G - All bars in Category D with hook with back cover (in direction perpendicular to plane of hook) not less than 2½" as used for stirrup hook cover, unless protection beyond hook is provided.

** Minimum development length is not less than 12 inches.
1. When development length is not sufficient for the use of a standard hook, a straight bar may be used.
2. These development lengths do not apply where the general notes indicate "Reinforcing Steel Design (LRFD)".
3. Length of member does not allow the development length indicated in Category A, B and C, then hook shall be added to obtain but not exceeding as per U.S. B.P.

APPROVAL — STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3,500) PSI CONCRETE
STANDARD NO. MD.517.01-86-178 — SHEET 1 OF 1

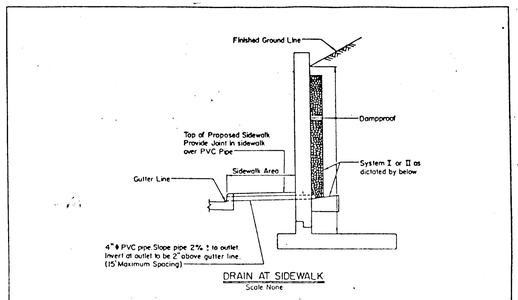


SECTION
STEM CONTRACTION JOINT
Scale: 1"=1'-0"

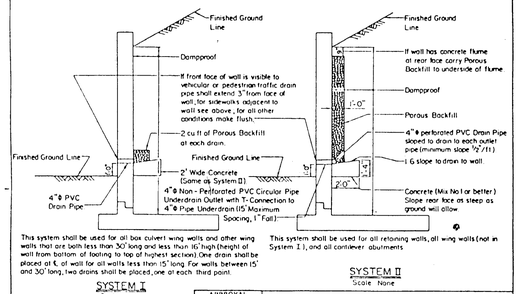
SECTION
STEM EXTENSION JOINT
Scale: 1"=1'-0"

Notes:
Joint treatment shall be as shown on contract drawings if no locations are given concrete retaining walls shall have contraction joints at maximum of every 30'-0" and expansion joints at maximum of every 90'-0" or as shown on plan (whichever is the shorter distance).
1. Stop key 9" below top of wall.
2. Reinforcing steel shall not pass through contraction joints.
3. Expansion joints shall be formed using premolded joint filler, 1" thick, for the full length, height, and dimensions noted thick which shall be faced on each thickness of wall height.
4. All keys are nominal size.
5. Only place joints in cut and expansion joints in plans. (no joint in footer)

APPROVAL — STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
CONCRETE RETAINING WALL CONTRACTION AND EXPANSION JOINTS
STANDARD NO. RW(6.10)83-137 — SHEET 2 OF 2



DRAIN AT SIDEWALK
Scale: None



SYSTEM I
Scale: None

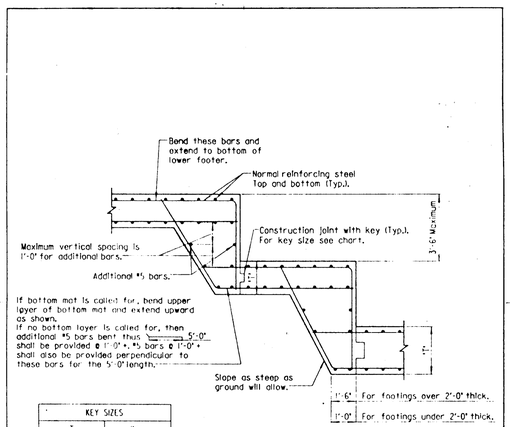
SYSTEM II
Scale: None

Note
1. Exact elevation of drain to be determined by Engineer in the field.
2. Porous Backfill shall be stone conforming to AASHTO M-43, Size No. 57

APPROVAL — STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
RETAINING WALL, WING WALL, AND CANTILEVER ABUTMENT DRAINAGE SYSTEMS

REVISIONS	SHA	FHWA
9-1-82		
1-12-88		

FHWA APPROVAL DATE 6-20-80
STANDARD NO. RW(0.01)-80-100 — SHEET 1 OF 1

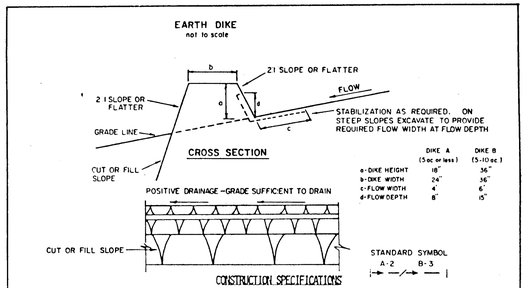


Notes:
1. All keys are nominal size.

APPROVAL — STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF BRIDGE DEVELOPMENT
STEPPED FOOTING DETAIL

REVISIONS	SHA	FHWA
1-1-88		
8-26-88		
1-22-93		
5-16-94		

FHWA APPROVAL DATE 12-9-83
STANDARD NO. RW(G.09)-83-155 — SHEET 1 OF 1



EARTH DIKE
not to scale

CROSS SECTION

	DIKE A (5 ac or less)	DIKE B (5-10 ac.)
a - DIKE HEIGHT	18"	36"
b - DIKE WIDTH	24"	36"
c - FLOW WIDTH	4'	6'
d - FLOW DEPTH	8"	15"

POSITIVE DRAINAGE - GRADE SUFFICIENT TO DRAIN

STANDARD SYMBOL

CONSTRUCTION SPECIFICATIONS

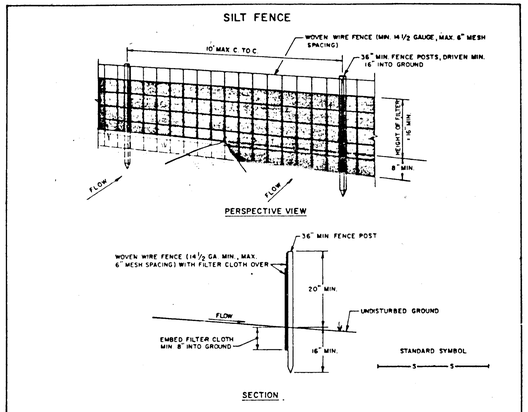
1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	EARTH DIKE	STANDARD DRAWING
		ED-1



SILT FENCE

PERSPECTIVE VIEW

SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 14½ GA. 6" MAX. MESH OPENING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABI-LINKA T140N OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	SILT FENCE	STANDARD DRAWING
		SF-1

12 03

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--In lieu of soil test recommendations, use one of the following schedules:

1. Preferred--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow of disk into upper three inches of soil.

Seeding--For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of will anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance--Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding--For periods March 1 thru April 30 and from August 15 thru October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 348 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec.51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis

Total Area of Site	0.10	Acres
Area Disturbed	0.05	Acres
Area to be roofed or paved	0.05	Acres
Area to be vegetatively stabilized	0.01	Acres
Total Cut	500	Cu. Yds.
Total Fill	50	Cu. Yds.
Offsite Waste/Borrow Area Location	To Be Determined By Contractor	

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be backfilled and stabilized within one working day, whichever is shorter.

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

Approved John R. Robertson 6/16/94
Howard S.C.D.

Reviewed for HOWARD S.C.D.
by
and meets Technical Requirements
J. L. Warfield Jr. Date 6/10/94
Signed
U.S. Soil Conservation Service

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit for the project.
2. Install sediment controls as shown on the site plan.
3. Excavate for wall reconstruction.
4. Construct concrete cantilever retaining wall, and reset stone gravity wall in accordance with the limits shown on the plans.
5. Backfill behind wall.
6. Construct new stone facing for concrete cantilever wall; construct new railing, sidewalk, and replace salvaged granite curb.
7. Repoint face of remaining wall.
8. Reconstruct pavement as shown on the plans and as directed by the engineer.
9. Regrade slope of the front face of retaining wall in accordance with the contours shown on the site plan.
10. After the site is stabilized and permission is granted by the Sediment Control Inspector, remove sediment controls and stabilize any remaining disturbed areas.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/14/94
CHIEF, BUREAU OF ENGINEERING — DATE 6/10/94
CHIEF, BUREAU OF HIGHWAYS — DATE 6-14-94
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 6/10/94

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
P.O. BOX 2579
COLUMBIA, MARYLAND 21045
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — DONALD C. NOLAN — No. 10858 — REGISTERED PROFESSIONAL ENGINEER

DES: Y.C.W.				
DRN: J.S.N.				
CHK: C.S.N.				
DATE: 05/18/94	BY	NO.	REVISION	DATE

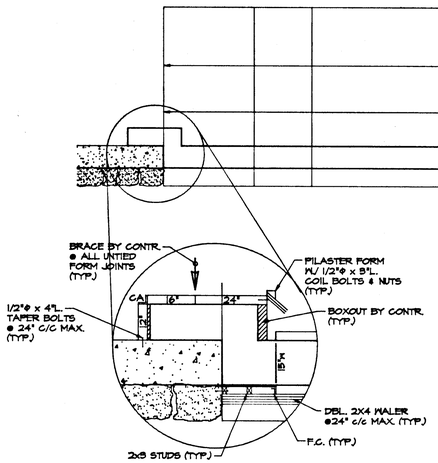
STANDARD DETAILS AND SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. ... BLOCK NO. ...

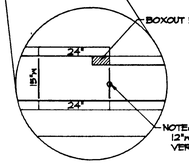
COURT AVENUE RETAINING WALL
CAPITAL PROJECT J-4137
ELECTION DISTRICT NO. 2
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 5



DETAIL A 1
SCALE:1/2"=1'-0"



DETAIL B 1
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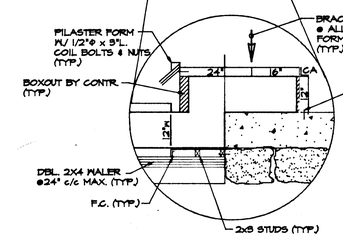
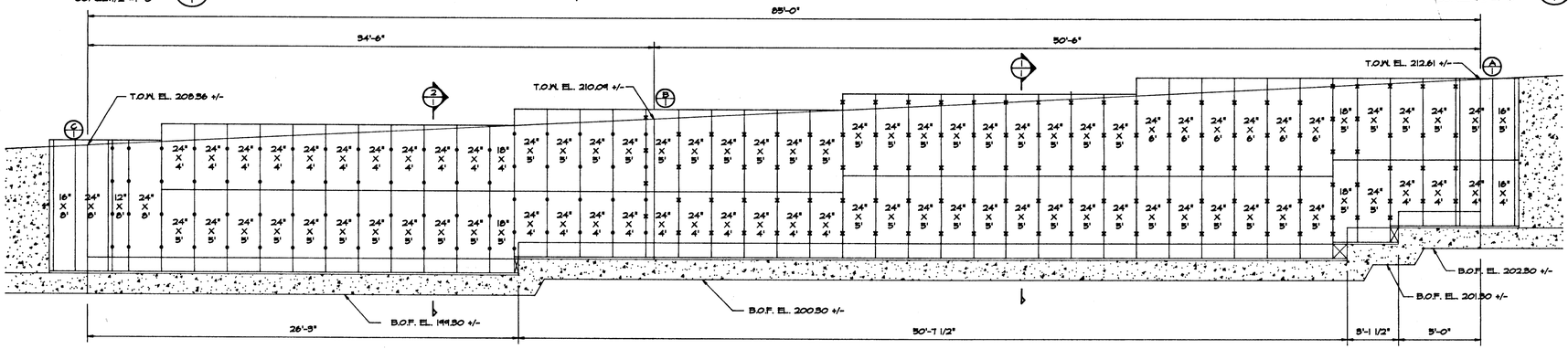
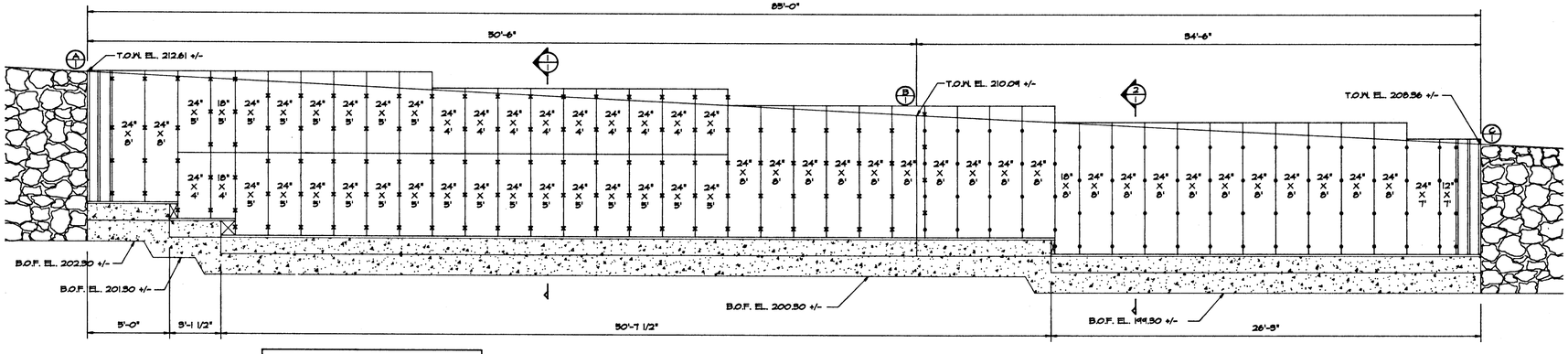


DETAIL C 1
SCALE:1/2"=1'-0"



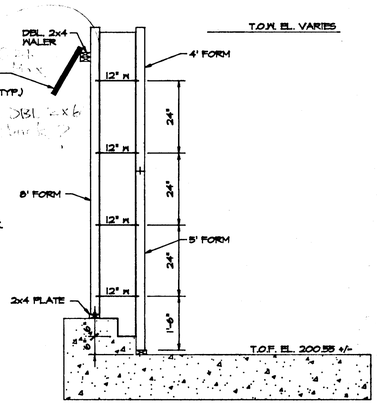
• DENOTES LOCATION OF 12" WIRE LOOP TIES
x DENOTES LOCATION OF 15" WIRE LOOP TIES

RETAINING WALL ELEVATION BB 1
SCALE:1/4"=1'-0"



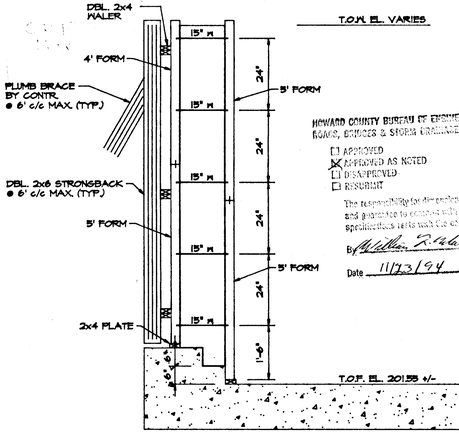
• DENOTES LOCATION OF 12" WIRE LOOP TIES
x DENOTES LOCATION OF 15" WIRE LOOP TIES

RETAINING WALL ELEVATION AA 1
SCALE:1/4"=1'-0"



SECTION 2 1
SCALE:1/2"=1'-0"

APPROVED AS SUBMITTED — REVISE AND RETURN
APPROVED AS NOTED — NOT ACCEPTABLE
Review is for general compliance with contract documents. No contract requirements are waived.
NOLAN ASSOCIATES, INC.
Date: 10/21/94



HOWARD COUNTY BUREAU OF ENGINEERING
ROADS, BRIDGES & STORM DRAINAGE DIVISION
☐ APPROVED
☒ APPROVED AS NOTED
☐ DISAPPROVED
☐ RESUBMIT
The responsibility for the accuracy, correctness and adequacy of this design and proposed construction shall remain with the engineer and/or specifications writer and not the reviewer.
By
Date 11/23/94

SECTION 1 1
SCALE:1/2"=1'-0"

Contractor to certify wall location prior to submittal to the Engineer for review. See Note 10, Bd of Pub. Co. Specs

C179C2Ø1

NOTES OR SPECIAL CONDITIONS:

DWG MK	DEFINITION	DWG MK	DEFINITION
24"P	HANDSET FORM PANEL, 24" WIDE	408	4"WIDEx 8' LONG CRANESET PANEL
9(24)	9 PANELS, EACH 24" WIDE	SW06	TWO SCx6.7 STEEL WALE x 6' LONG
IC	6"x 6" INSIDE CORNER PANEL	SW12	TWO 8Cx11.5 STEEL WALE x 12'
CA	3" x 3" OUTSIDE CORNER ANGLE	CLIP E	ANGLE CONN. PANEL TO WALER
8"W	TIE FOR 8" THICK WALL	SF46	SCAFFOLD FRAME, 4' WIDE X 6' HIGH
6"MF	6" WIDE METAL FILLER PANEL	XB4	X-BRACE FOR SF SPA @ 4' O.C.
WWB	660 LB CAP WALKWAY BRACKET	C01	COUPLERS FOR SF
10" PF	10" WIDE PILASTER PANEL	R1	5/8" ø PIN FOR SF
4"x45	4"x4"x45° CORNER PANEL	SC-2	SCREW JACK FOR SF,1.9" ø x 26" THD
6" WF	6" WOOD FILLER, BY CONTR	PH69	6"x 9" BASE PLATE FOR SF
FC	STEEL SUPPORT ANGLE @ WF	UH48	4"x 8" U-HEAD FOR SF
W & B	WOOD WALE & BRACE, BY CONTR	12" ST	SNAPTIE FOR WOOD FORM, 12" WALL
BLKHD	WOOD BULKHEAD, BY CONTR	BIP	BUILT-IN-PLACE WOOD FORM
BOX	WOOD BOXOUT, BY CONTR	TOC	TOP OF CONCRETE

CONCRETE FORM DESIGN NOTES:

FORM TYPE	ALUMINUM FRAME	STEEL FRAME	OTHER:
DESIGN PRESSURE, PSF	421 PSF		
ACI POUR RATE EQUIV	6/hr		
ACI TEMPERATURE EQUIV	70 DEG.		
WALER TYPE	WOOD		
WALER SIZE	DBL. 2X4 WALER		
SCAFFOLD CLASS	-		
DECK JOIST TYPE	-		
FORM SKIN OR DECKING	15MM IIPLY BIRCH		
TIE TYPE	WIRE LOOP		
TIE ULT TENS STRENGTH	7500 lbs.		
TIE BREAKBACK	1"		

CONCRETE FORMS AND TIES ARE DESIGNED PER ACI 347-78, ANSI A10.9-70, OSHA 29CFR1926.700 & 701, AND AIA 201-77-2.2.4 SPECIFICATIONS.

ANY ILLUSTRATION FURNISHED ABOVE BY FORM SERVICES, INC., IS TO PROVIDE A SUGGESTED METHOD OF ASSEMBLY OF FSI PRODUCTS ONLY. SUCH ILLUSTRATION IS NOT DIRECTIVE, AND DOES NOT CONTAIN ENGINEERING DETAIL ON FSI PRODUCTS, NOR DOES IT INFER ENGINEERING ANALYSIS BY FORM SERVICES, INC. OF THE STRUCTURE UNDER CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE LESSEE OR BUYER TO PREPARE ALL DRAWINGS FOR CONSTRUCTION PURPOSES CONSISTENT WITH SAFE PRACTICES AND OVERALL PROJECT OBJECTIVES.

REV.	DESCRIPTION	DATE
1	REV. RET. WALL END DETAILS	10-4
2		
3		
4		

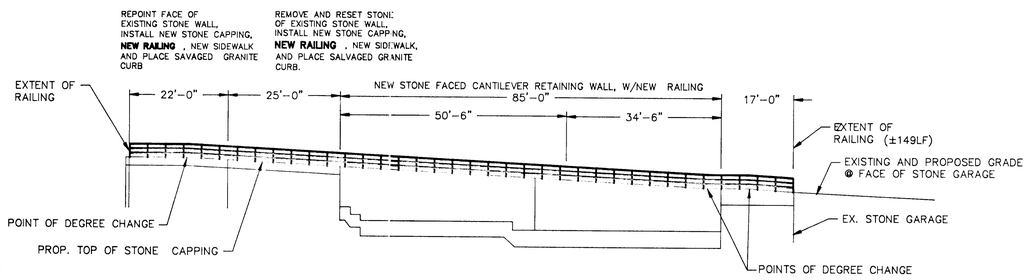
FORM SERVICES CONTACTS
SALES & CONTRACT INFO: GENE DORE
DRAWINGS & DETAILS: MARK AUSFRESSER
SUPPLIES & SHIPMENTS:

FORM SERVICES, INC.
CONCRETE FORMING EQUIPMENT & ACCESSORIES
BALTO. METRO 789-5900
WATS (Md., Va., Pa., Del., W. Va., Wash. D.C.) 800-638-3395
P.O. Box 60, Linthicum Heights, Md. 21090-0060
"TECHNICAL SUPPORT BEHIND EVERY PRODUCT"

WARWICK CONSTRUCTION
COURT AVENUE RETAINING WALL
ELLICOTT CITY, MD.
CAPITAL PROJECT # J-4187
"NEW RETAINING WALL"
DRN. BY CHAPPY ON 9/24/94 CHK. BY ON

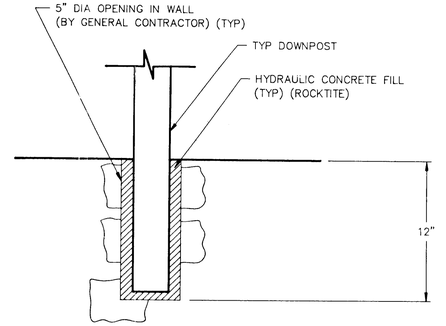
PROJ. NO: 94248
SHEET NO: 1
REV. NO: 1

DRAWING STYLE FORM # 4648



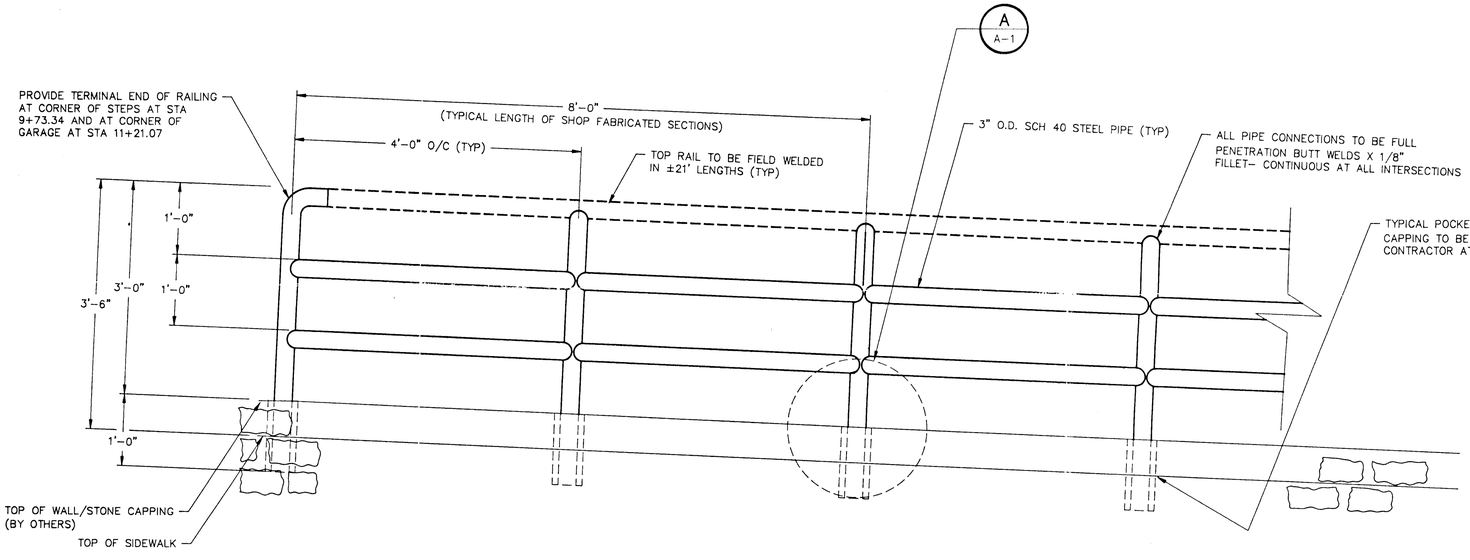
RAILING ELEVATION

SCALE: 3/16"=1'-0"



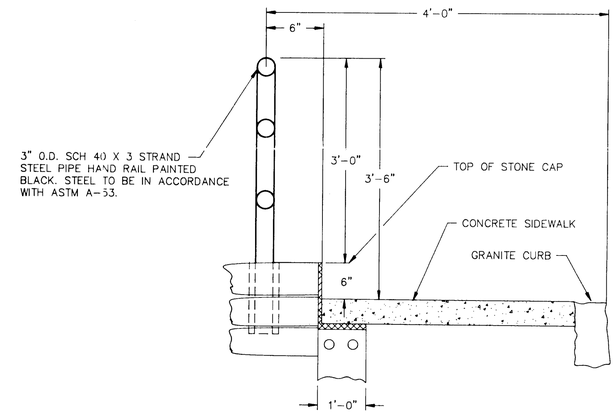
A/A-1 DOWNPOST INSTALLATION DETAIL

SCALE: 6"=1'-0"



TYPICAL RAILING ELEVATION

SCALE: 3"=1'-0"



RAILING SECTION

SCALE: 3"=1'-0"

NOTES:

1. STEEL SHALL CONFORM TO ASTM A-53, STANDARD STRENGTH.
2. WELDMENTS SHALL BE THOROUGHLY CLEANED AFTER FABRICATION.
3. ALL BURRS TO BE GROUND OFF TO PROVIDE A SMOOTH FINISH.
4. ALL PRE-TREATMENT, SHOP PRIMER, FINISH PAINT AND TOUCH-UP FIELD PRIMER AND PAINT TO BE 100% PRODUCTS BY SHERWIN-WILLIAMS.
5. TOP RAILING, SHOWN IN DASHED LINES, IS TO BE FIELD WELDED IN ±21 FOOT LENGTHS.

X.

X.

BLACKWELL'S WELDING, INC.
9416 FIFTH STREET
LAUREL, MARYLAND 20723

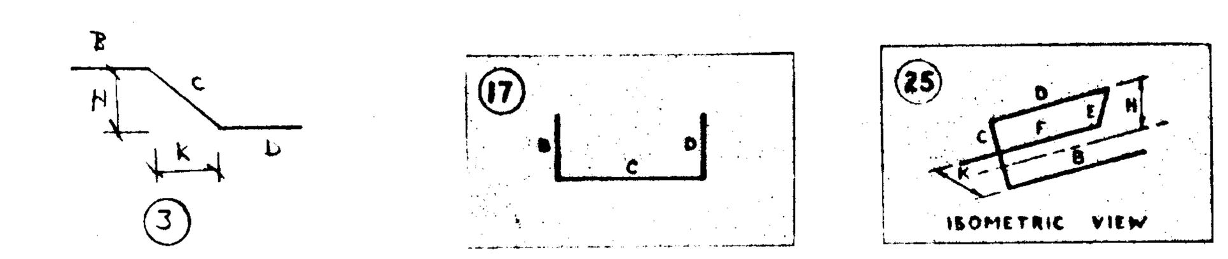
TITLE: COURT AVENUE RETAINING WALL RAILING
ELLICOTT CITY, MD.

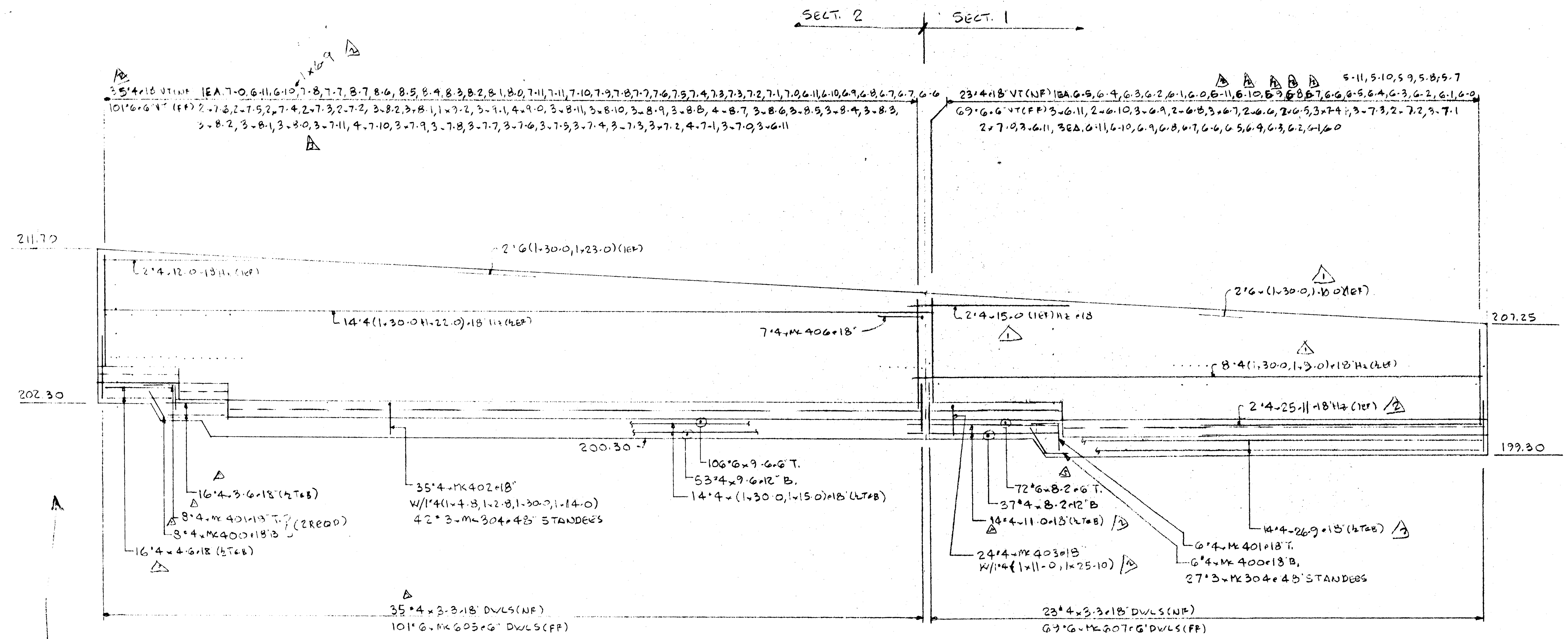
SIZE	DWG NO.	
D	BW24000	A1
SCALE 3/16" = 1'		SHEET 1 OF 1

-179-91

JOB NUMBER	CUSTOMER NAME	JOB NAME
6062B1	WARWICK SUP & EQUIP CO	COURT AVE RET. WALL

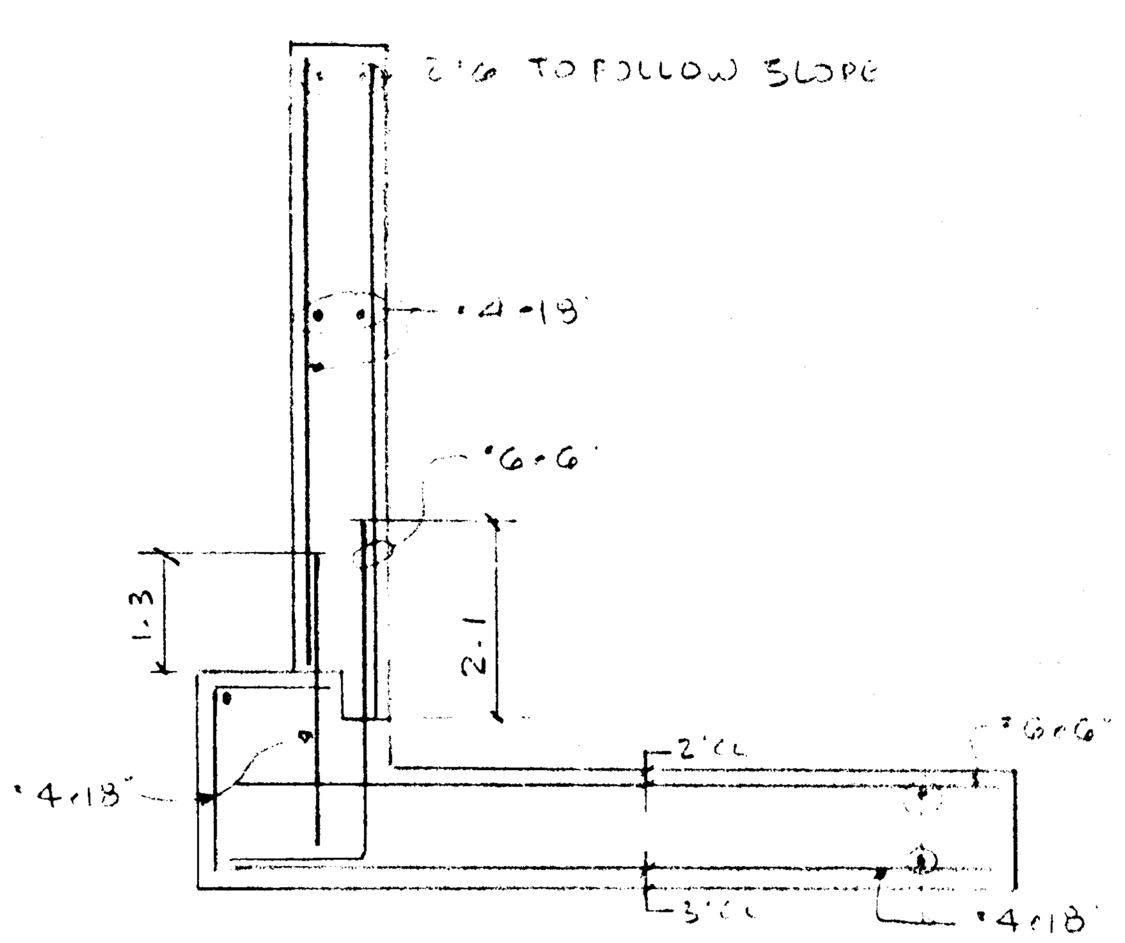
SIZE	SAW CUT CD	THEOR LENGTH FT	THEOR LENGTH IN	BAR MARK	BEND TYPE	A	B	C	D	E	F/R	G	H	J	K	O
4				400	3		1-9	1-11½					1-9			
4				401	17		1-9	1-9								
4				402	17		1-10	1-3								
4				403	17		1-10	1-2								
3				304	25		1-6	+	0-8	+	1-6		0-6¼		0-3¼	
6				605	17		1-10	3-7								
4				406	17		0-11	1-8								
6				607	17		1-7	3-7								
4				408	3		1-0	1-1½	2-0 (3)				1-0		0-6	



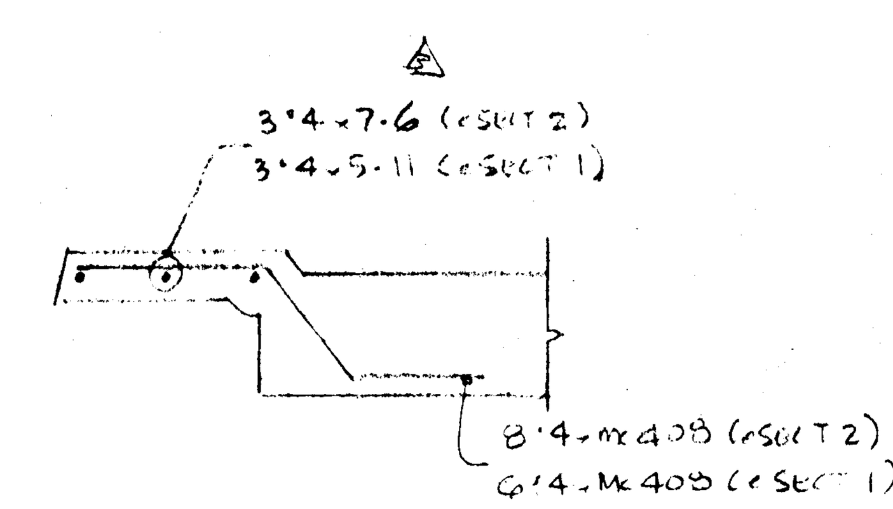


ELEVATION

Make transition to existing wall
as per direction from County Engineer.



TYP WALL SECTION



WALL END DET @ EXIST

HOWARD COUNTY BUREAU OF ENGINEERING
ROADS, BRIDGES & STORM DRAINAGE DIVISION
☐ APPROVED
☒ APPROVED AS NOTED
☐ DISAPPROVED
☐ RESUBMIT
The responsibility for dimensions, quantities and guarantee to conform with the contract and specifications rests with the contractor.
By William J. Malecki
Date 11/3/94

Warwick Supply & Equip. Co. Inc.
CERTIFYS FOLLOWING ITEMS:
1. EXACT WALL LENGTH HAS BEEN VERIFIED
2. EXISTING FOOTING ELEVATION AT
STA. 10+20 = 208.24 AND STA. 11+05 = 200.83
[signature]
11/1/94

☐ APPROVED AS SUBMITTED ☐ REVISE AND RETURN
☑ APPROVED AS NOTED ☐ NOT ACCEPTABLE
Review is for general compliance with contract documents. No contract requirements are waived.
NOLAN ASSOCIATES, INC.
By [signature] Date: 11/2/94

NO.	DATE	ISSUED FOR	
4	10-28-94	FINAL APPROVAL	10P
3	10-24-94	FINAL APPROVAL	10P
2	10-13-94	APPROVAL	10P
1	9-21-94	APPROVAL	10P

LEGEND
O.F. - Outside Face
I.F. - Inside Face
E.F. - Each Face
H. - Horizontal
V. - Vertical
Dwls. - Dowels
E.R. - Each Row
Ftg. - Footing
B.S. - Brick Shelf
El. - Elevation
E.W. - Each Way
T.F. - Top of Footing
B.F. - Bottom of Footing
T.W. - Top of Wall
B.W. - Bottom of Wall
@ - Each at
U.O.N. - Unless otherwise noted
ϕ - Diameter
℄ - Center Line
N.F. - Near Face
F.F. - Far Face
G.B. - Grade Beam
MK. - Mark
N.I.C. - not in contract

BAR LAPS
NUMBER OF BAR DIAMETERS
AS INDICATED BELOW (1-0 MIN. LAP)

BAR SIZE

	3	4	5	6	7	8	9	10	11
20	1-0	1-0	1-1	1-3	1-6	1-8	1-11	2-2	2-5
24	1-0	1-0	1-3	1-6	1-9	2-0	2-4	2-7	2-10
30	1-0	1-3	1-7	1-11	2-3	2-6	2-10	3-3	3-7
36	1-2	1-6	1-11	2-3	2-8	3-0	3-5	3-10	4-3
40	1-3	1-8	2-1	2-6	2-11	3-4	3-10	4-3	4-9

1. ALL BAR LENGTHS HAVE BEEN DETAILED IN 3" INCREMENTS WHERE POSSIBLE, IN ACCORDANCE WITH STANDARD PRACTICE . . .
2. THIS DRAWING TO BE USED IN CONJUNCTION WITH ARCHITECTURAL AND STRUCTURAL ENGINEER'S PLANS . . .
3. DRAWING CANNOT BE ACCEPTED FOR FABRICATION UNLESS ALL QUESTIONS ARE ANSWERED . . .
4. WE CANNOT BE HELD RESPONSIBLE FOR CONSTRUCTION DIMENSIONS INDICATED ON THIS DRAWING . . .

ALL REINFORCING: GR. 60

ALL BAR SPLICES

	DATE	DESCRIPTION
4	10-28-94	Per Approval
3	10-24-94	Minor

Brocker / TAYLOR-DAVIS
REINFORCING STEEL FABRICATORS
1700 7th AVENUE, YORK, PA, (717) 846-7865 • 6900 QUAD AVENUE, BALTIMORE, MD, (301) 288-5500 • 407 OLD AIRPORT ROAD, NEW CASTLE, DE, (302) 322-1711

STRUCTURE	COURT AVE RET. WALL
LOCATION	ELLICOTT CITY, MD
ARCHITECT	
ENGINEER	NOLAN ASSOC
DRAWN BY: I.G. / DATE: 9-20-94	CHECKED BY / DATE
CONTRACTOR	WARWICK SUPPLY & EQUIP CO.
DRAWING COVERS	REINF COMP.
DRAWING NO.	6062B1-1

172682
A & E INC. BALTIMORE

C179E201 C