

MD. RTE. NR 97

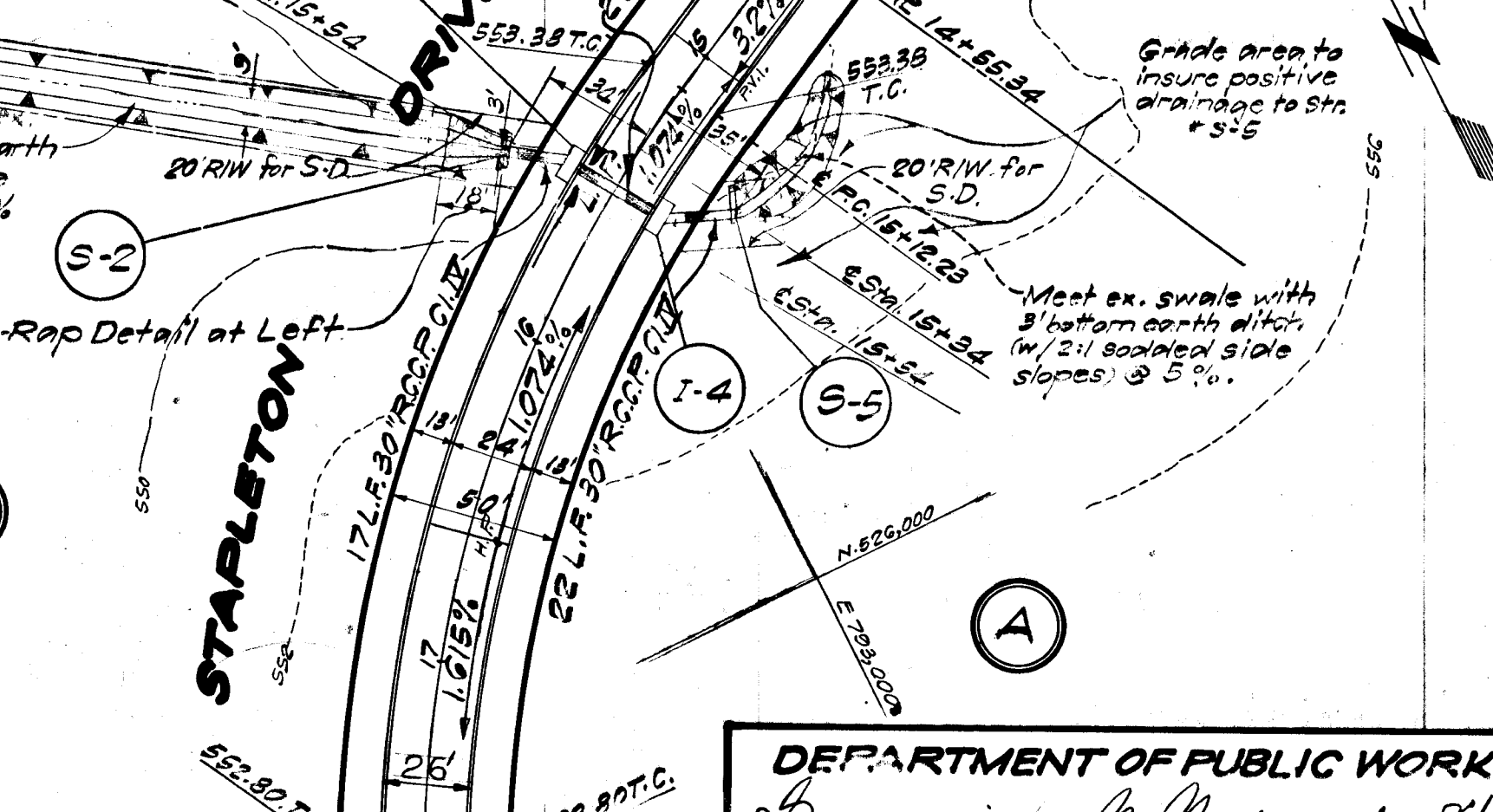
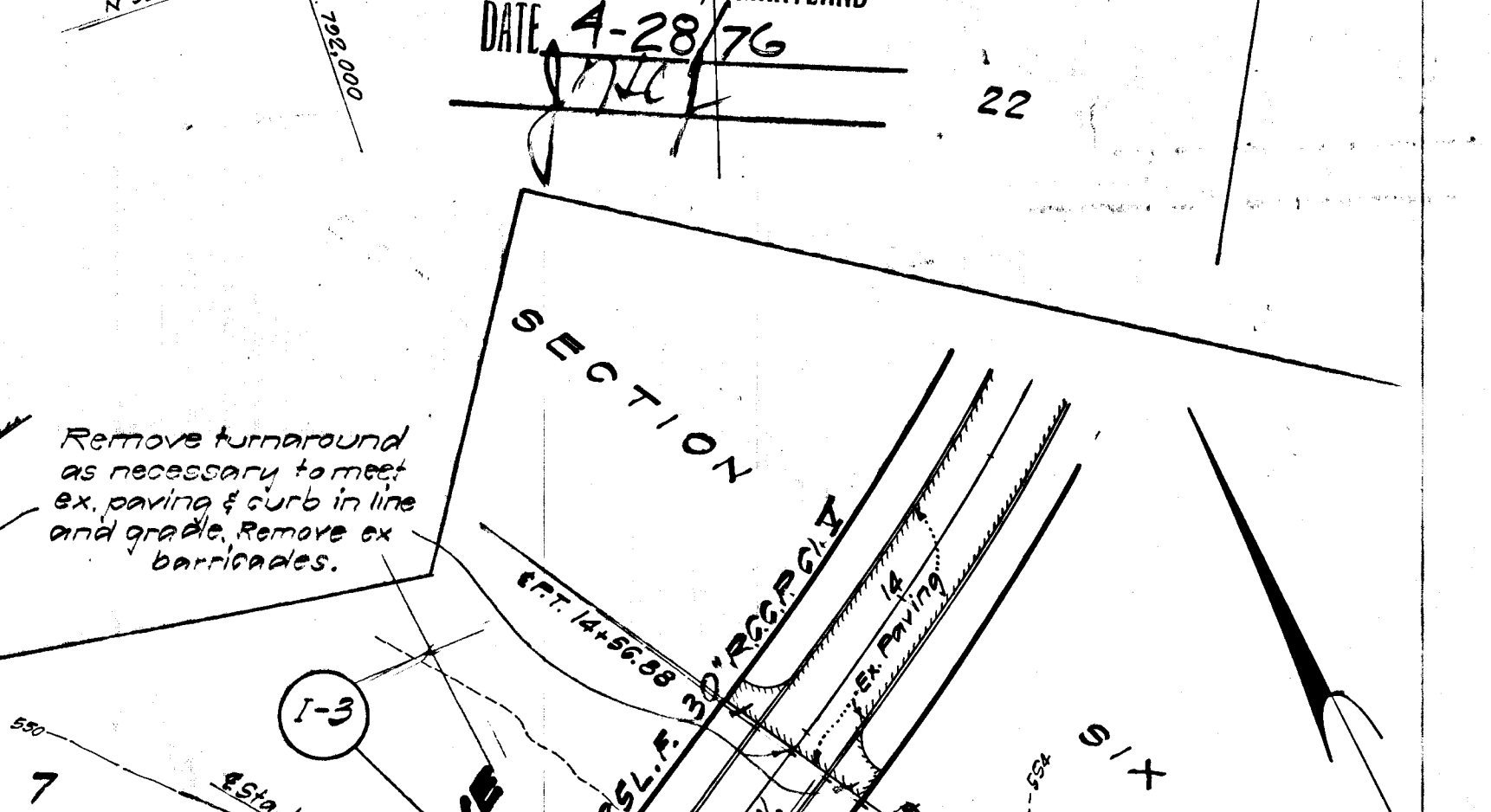
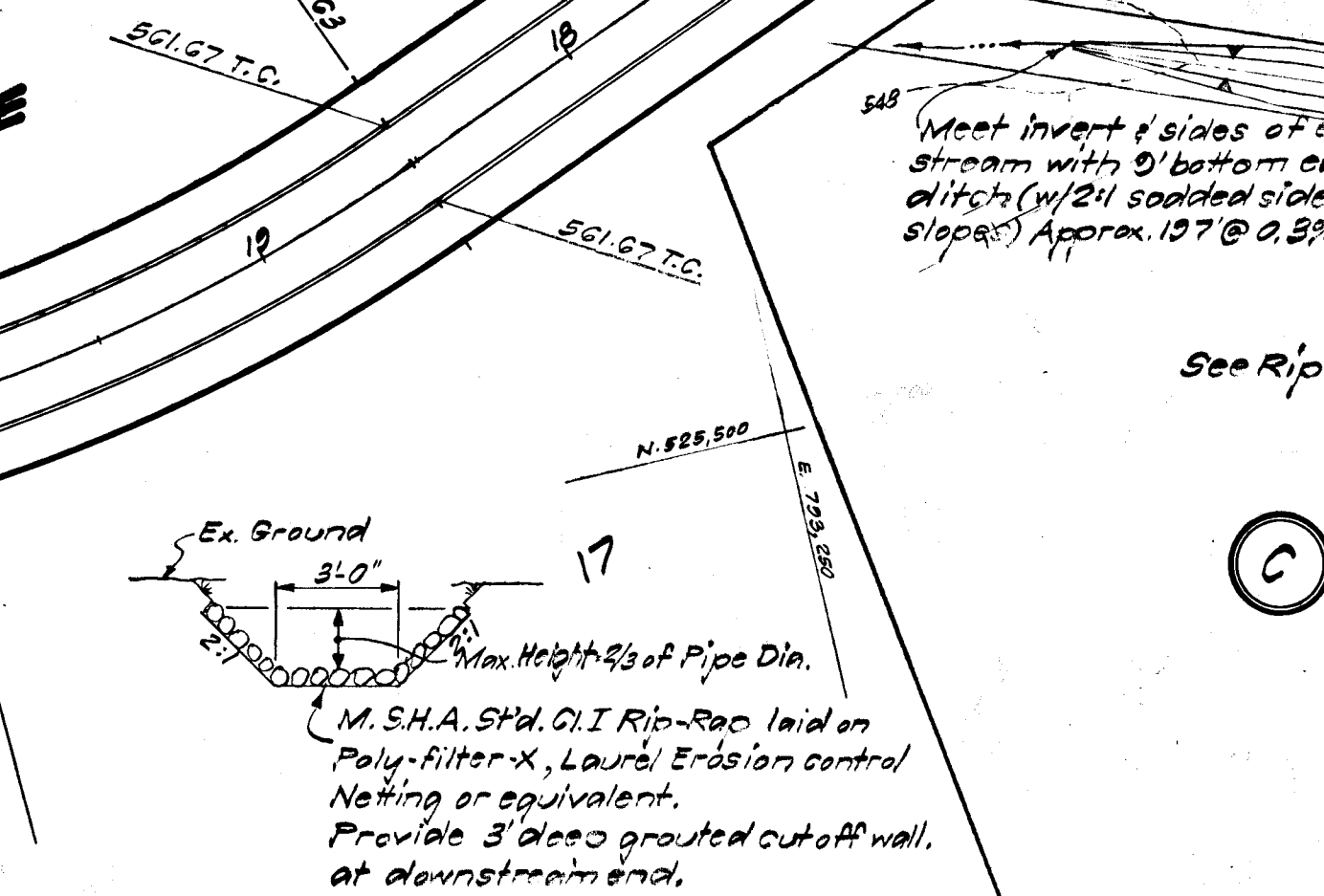
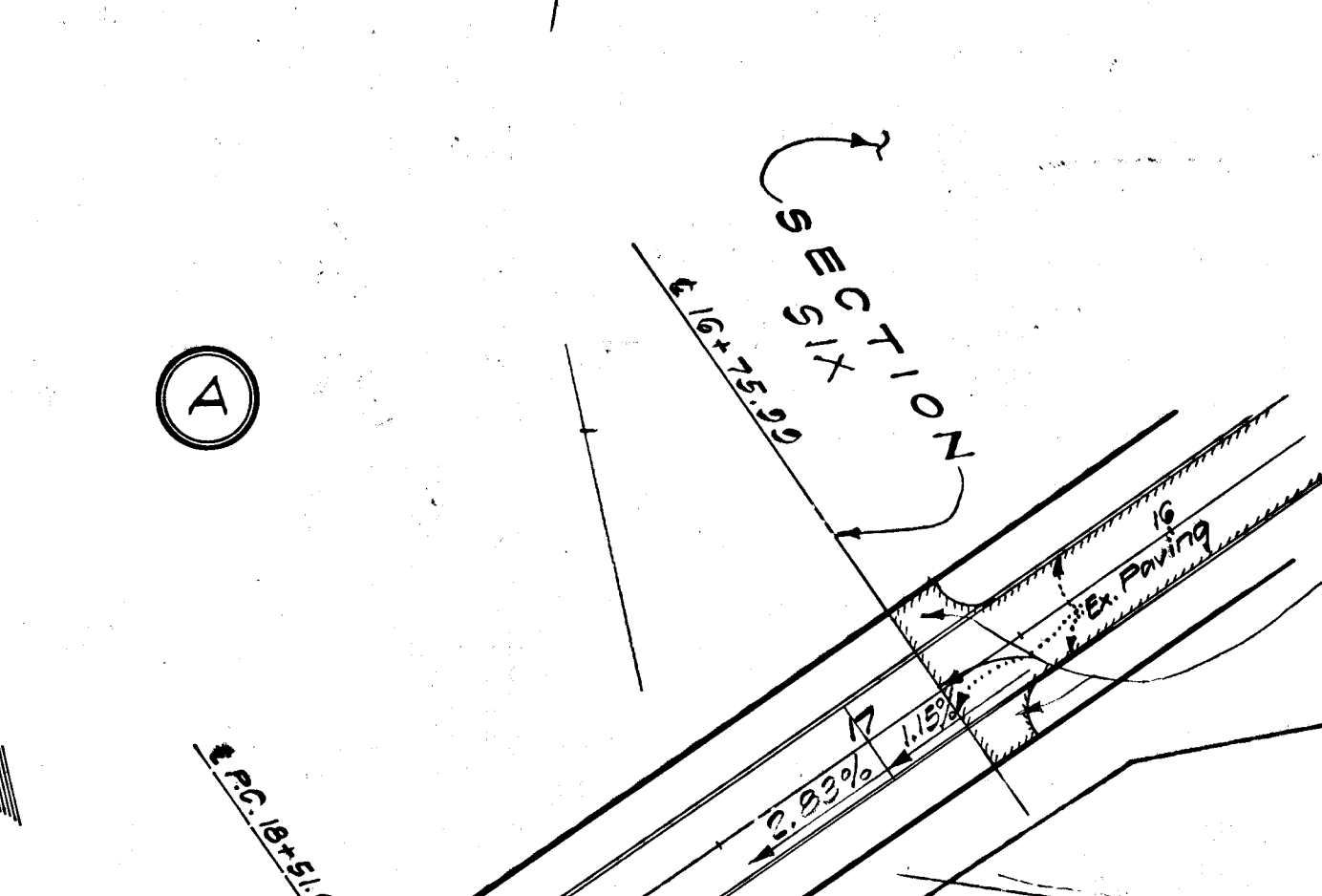
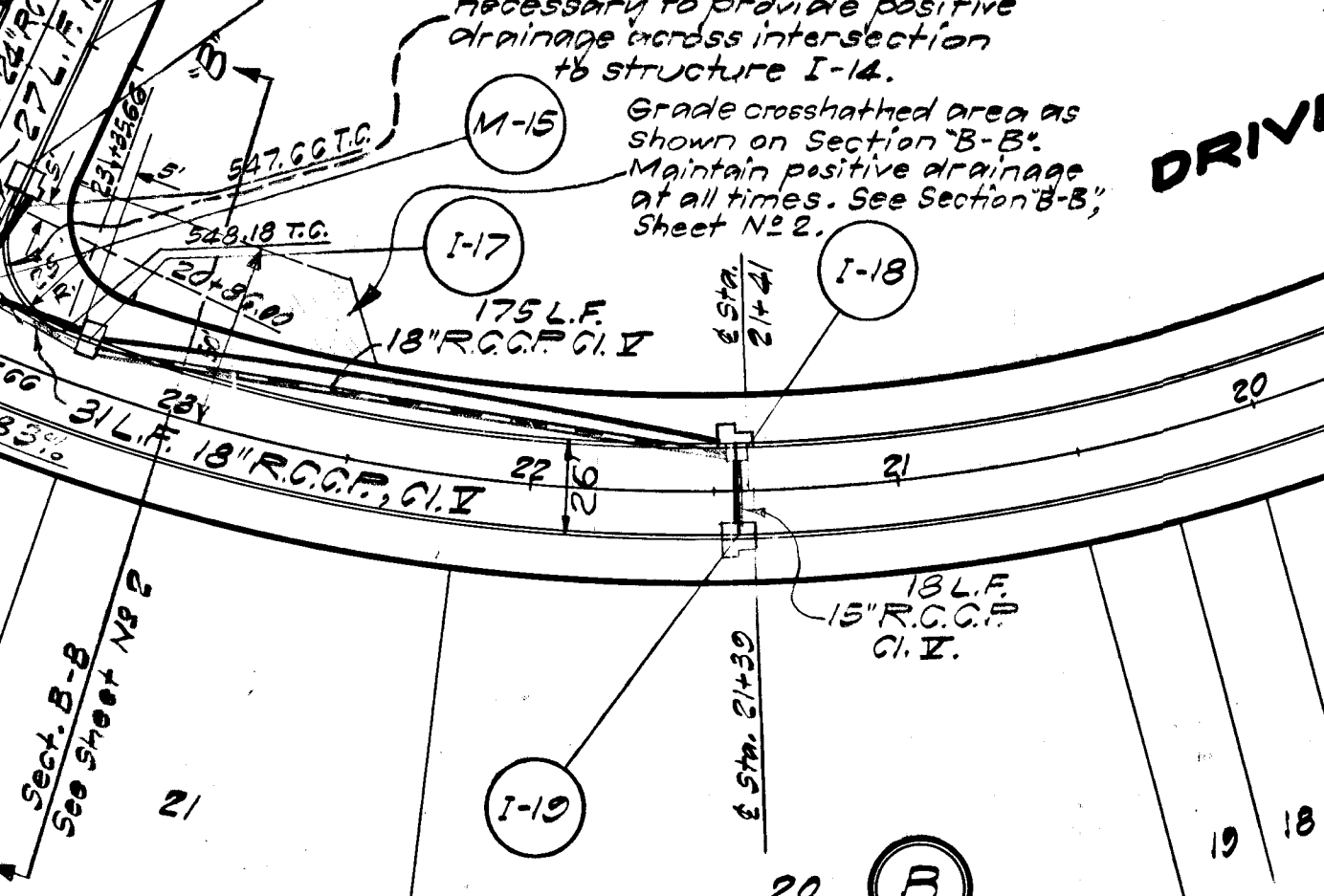
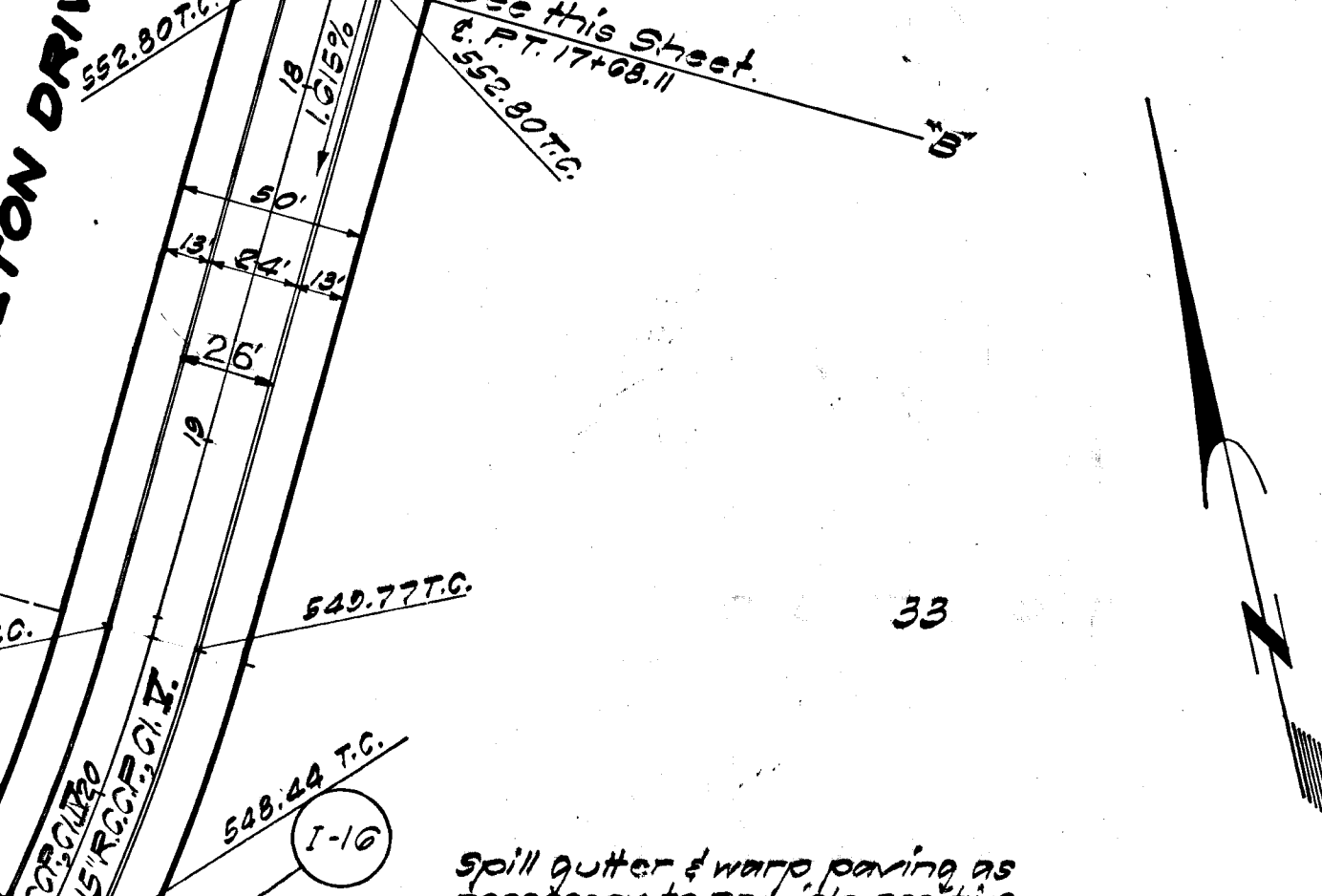
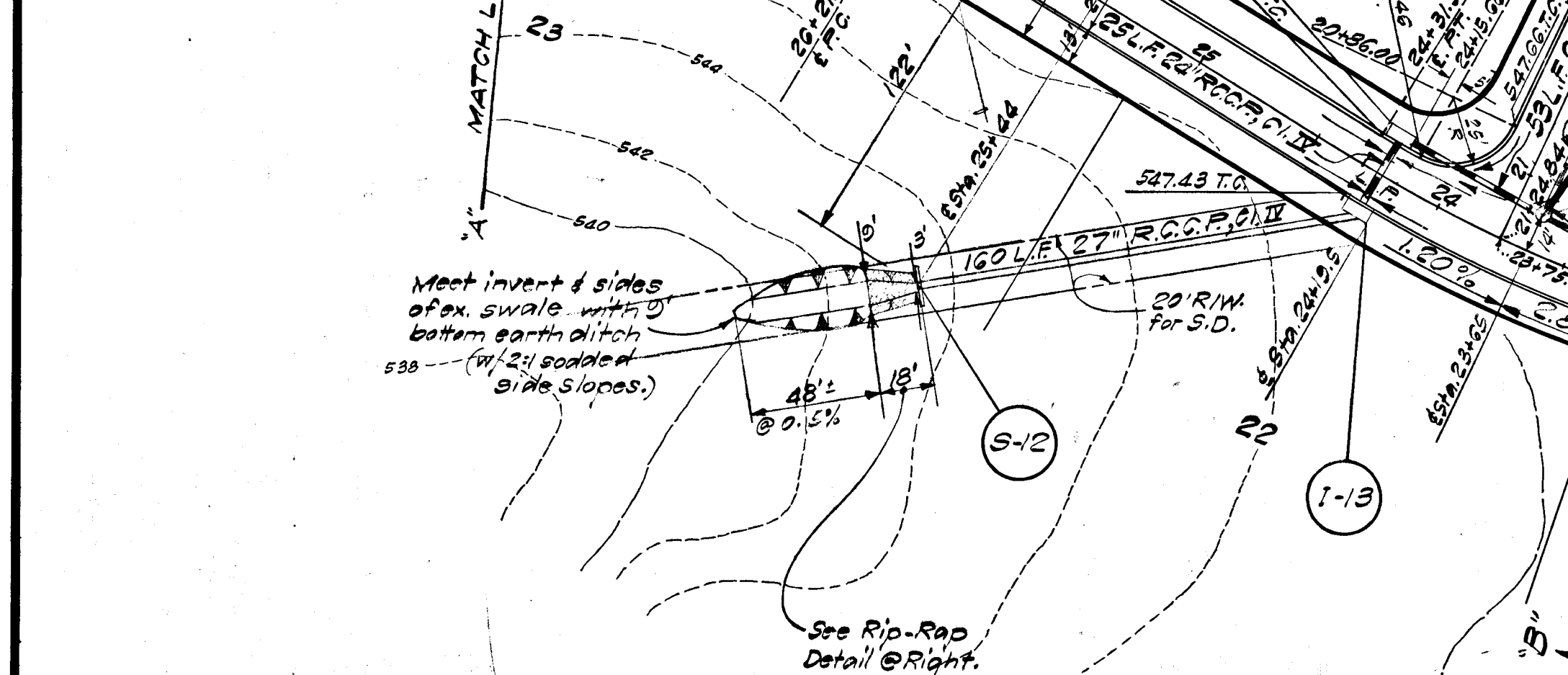
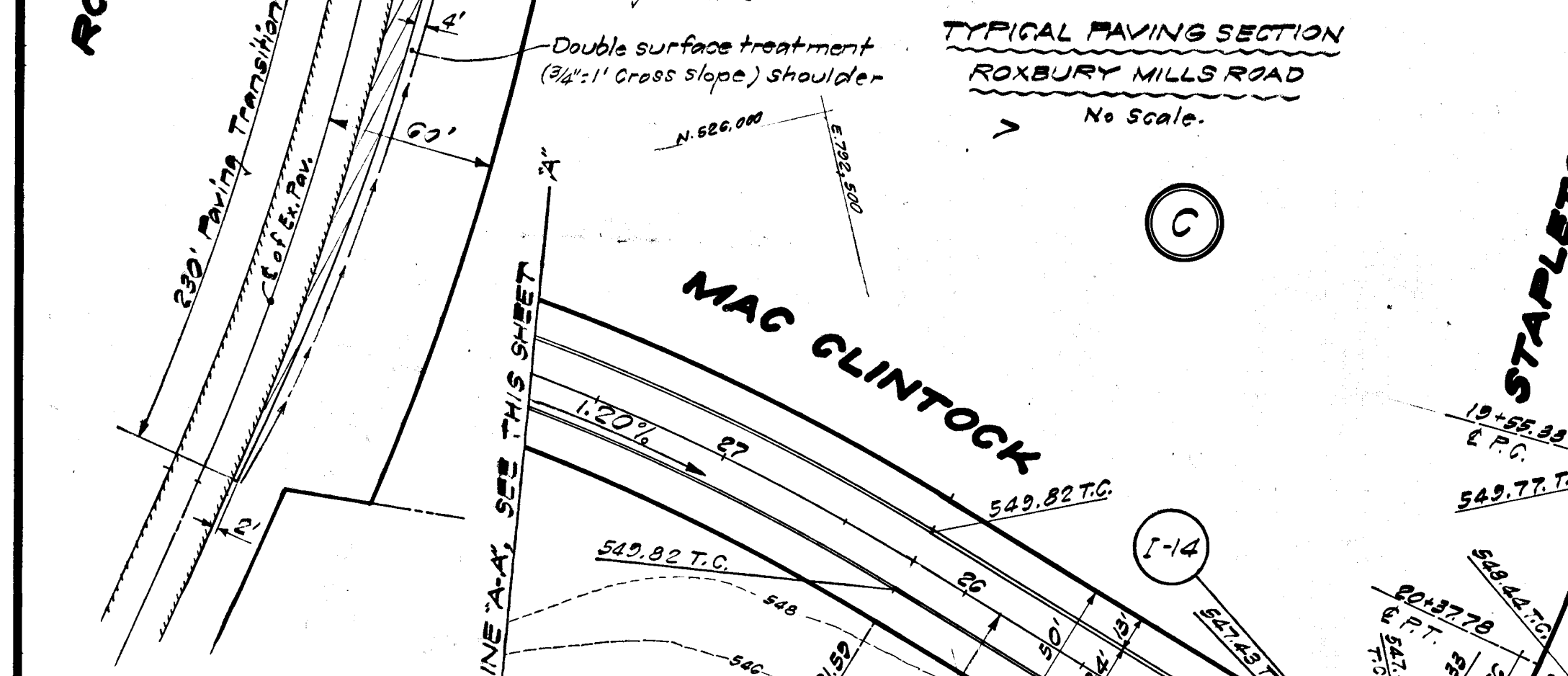
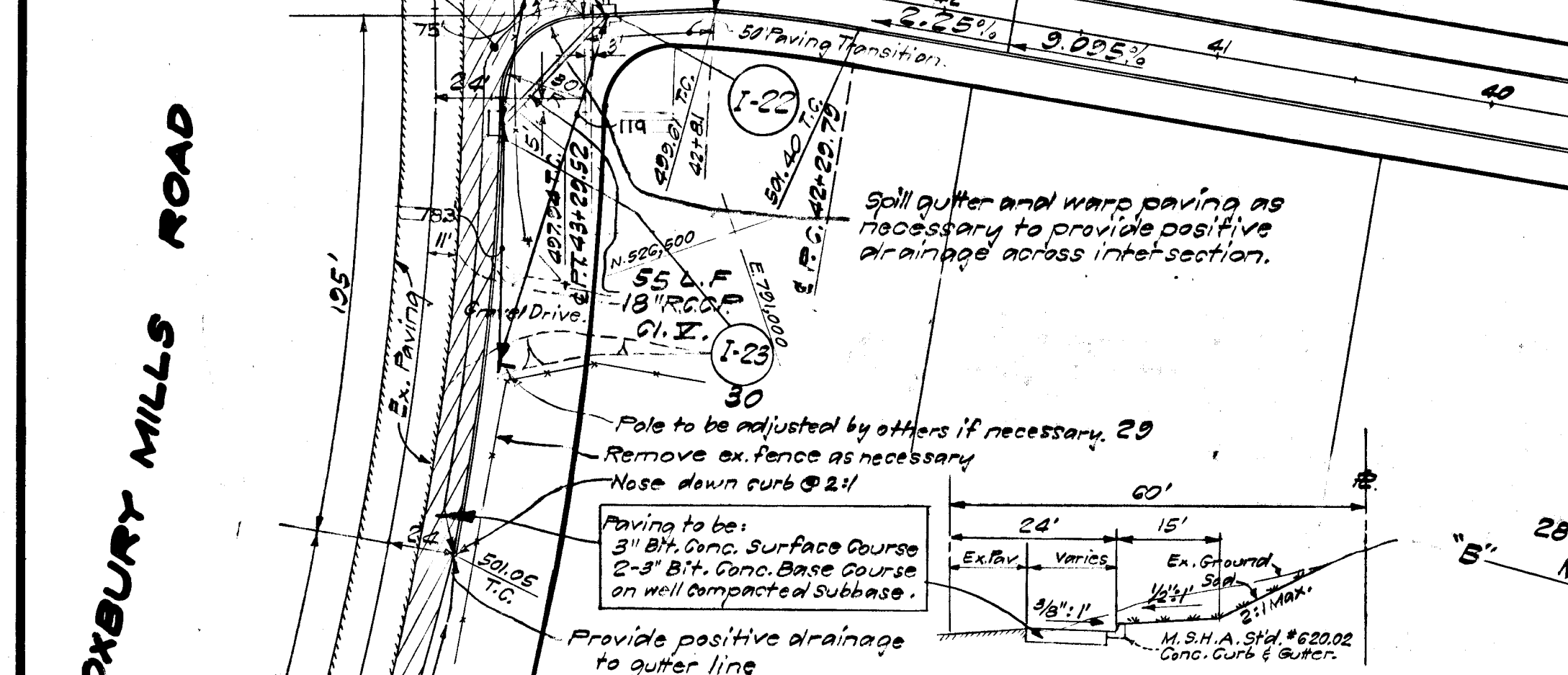
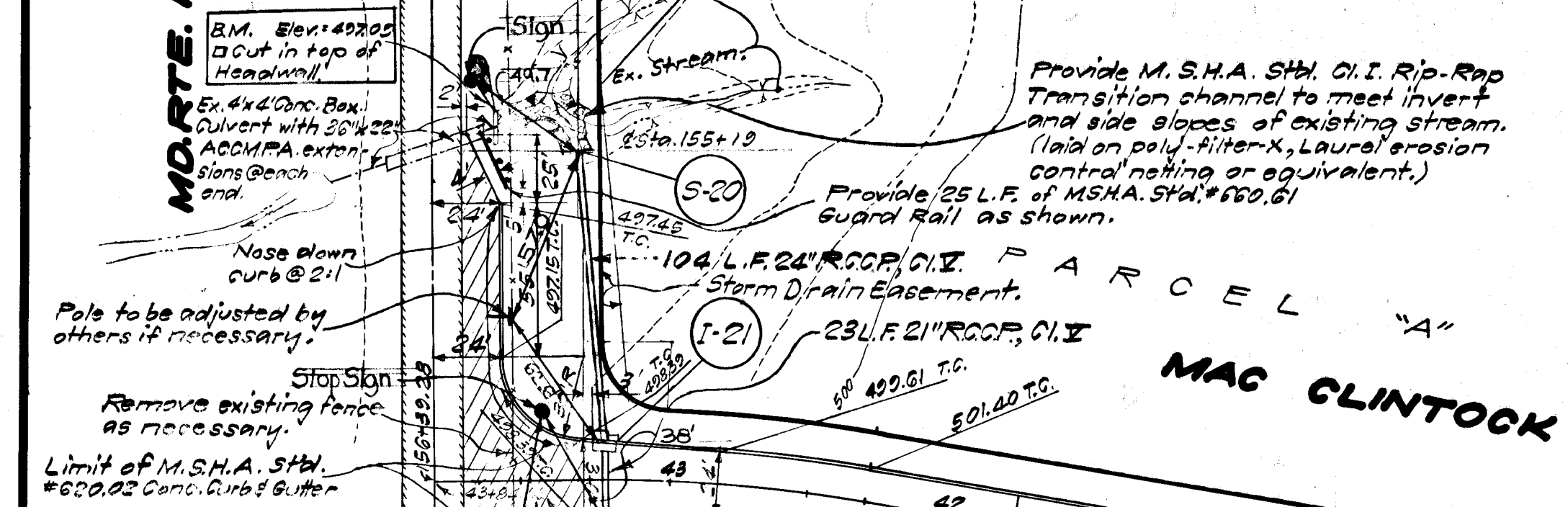
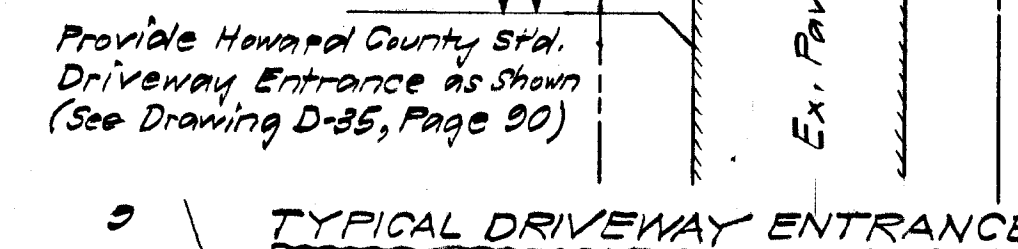
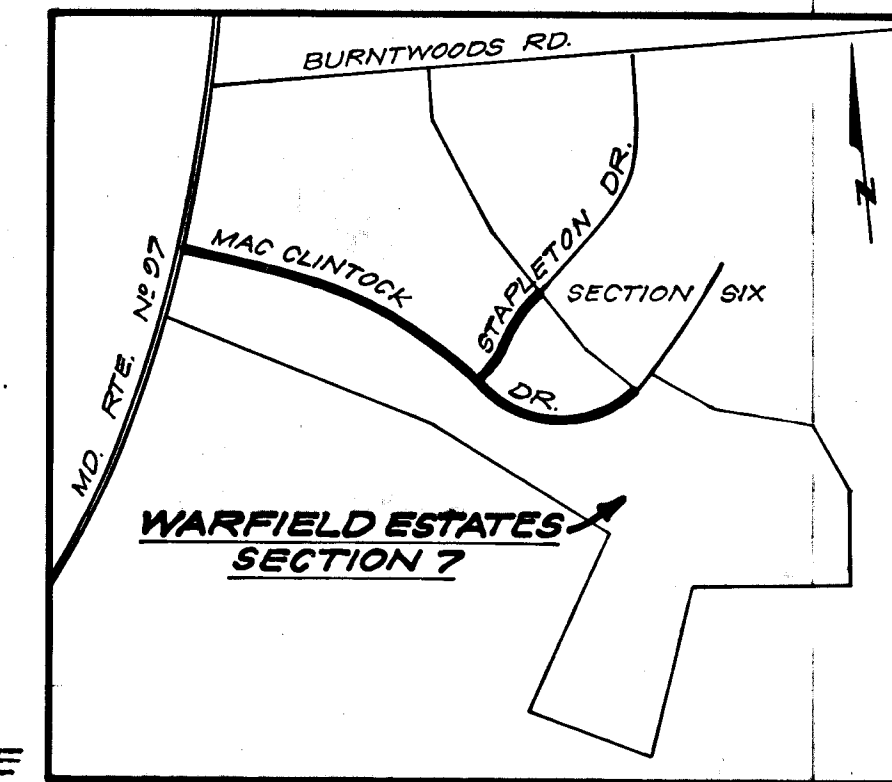
ROXBURY MILLS ROAD

GENERAL NOTES:

- All storm drains shall be constructed in accordance with the latest addition of the "General Specifications of Howard County."
- Types of structures refer to the standard storm drainage details of Howard County, unless otherwise noted.
- All storm drain culvert pipes shall be of R.C.C.P.
- The contractor shall determine the exact location of underground utilities, if any, before starting any construction.
- Any deviations from the plan have to be approved by the Engineer in writing.
- The design speed for Mac Clintock Drive and Stapleton Drive is 30 M.P.H.

BENCH MARKS:

- Square cut in S.W. corner of electric box 20' S & E Burntwoods Road 2200' East of Route 97, 250' West of top of Hill.
- Square cut in N.E. corner of electric box 20' S & E Burntwoods Road 2250' East of Rte. 97 at top of Hill & top of monument N.E. corner of property.



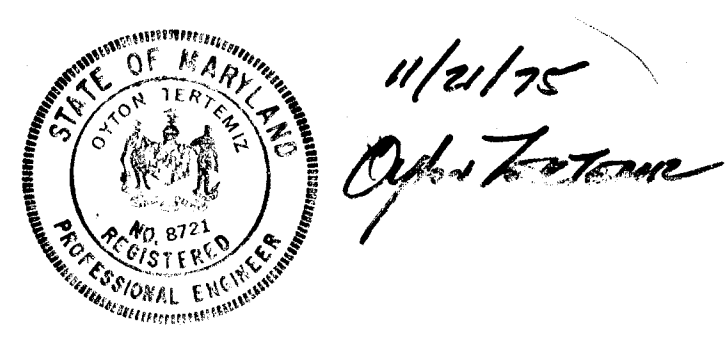
Owner & Developer: Douglas Realty  
 2315 Annapolis Rd.  
 Seabrook, Md. 20821.

PLAN SCALE 1/400'

TYPICAL RIPRAP SECTION FOR STRUCTURES S-12 & S-2 NO SCALE.

DEPARTMENT OF PUBLIC WORKS  
 Branville N. McLeod 8/17/76  
 CHIEF, BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
 J.H. Clum 8/13/76  
 DIVISION OF LAND DEVELOPMENT & RECREATION PLANNING DATE

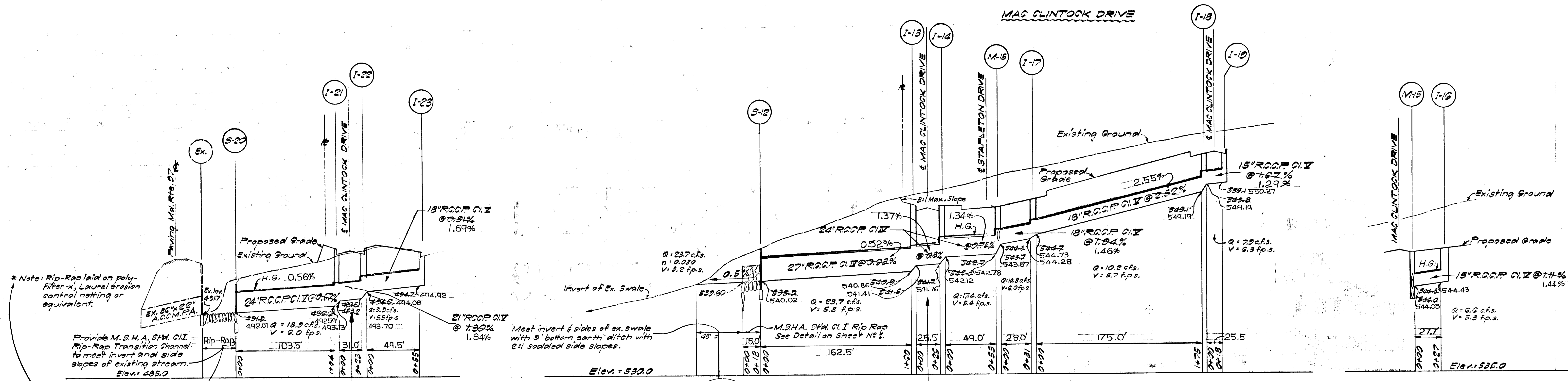


**GREENHORNE & O'MARA, INC.**  
 ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
 6715 KENILWORTH AVE., RIVERDALE, MD.  
 301/277-2121 20840

AS-BUILT  
**STORM DRAINAGE & PAVING PLAN**  
**SECTION 7**  
**WARFIELD ESTATES**  
 4TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

B.R.S. DESIGN	SCALE	As shown
Z.H. DRAWN	SHEET No.	1 of 11
C.T. CHECKED	DATE	Nov. 1975
DATE	JOB No.	130167 S.D.451
	FILE No.	





\* Note: Rip-Rap laid on poly-filter-x, Laurel erosion control netting or equivalent.

Provide M.S.H.A. S.W. C.I. Rip-Rap Transition Channel to meet invert and side slopes of existing stream. Elev: 485.0

PROFILES  
SCALE: HOR. 1"=50'  
VERT. 1"=50'

APPROVED  
DIVISION OF LAND DEVELOPMENT

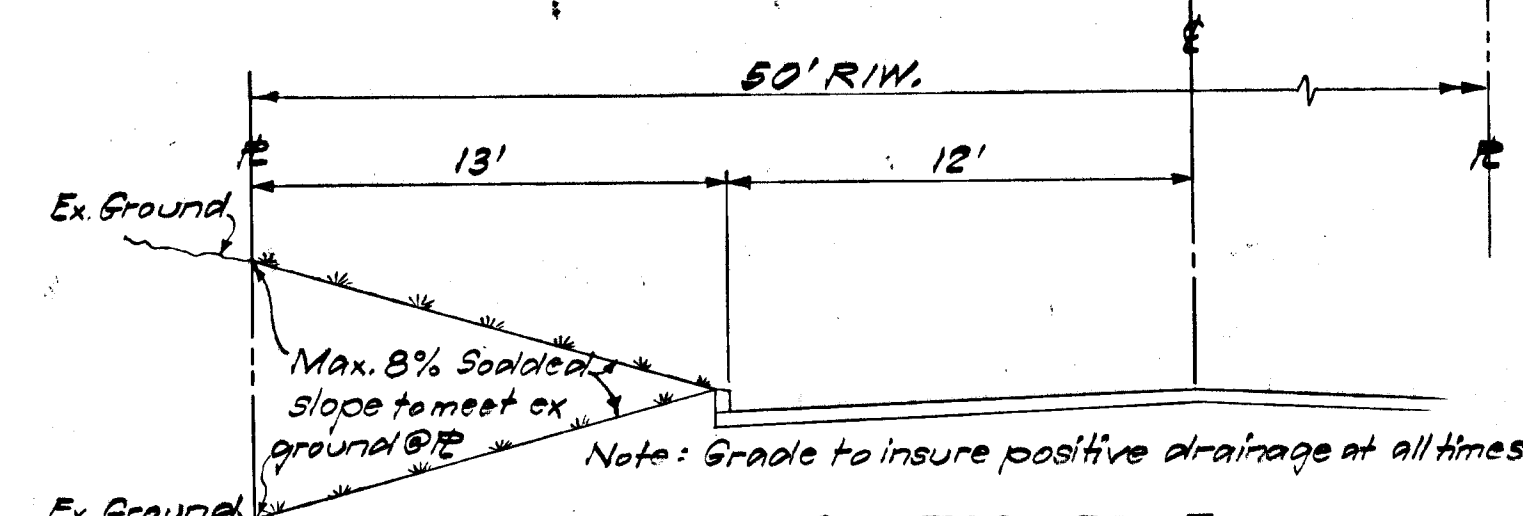
HOWARD COUNTY, MARYLAND  
DATE 4-28-76  
JAC

STRUCTURE SCHEDULE											
No	TYPE	INVERT		INLET ELEV.		INLET ELEV.		PIPE	LENGTH	SLOPE	Notes
		IN	OUT	UPPER	LOWER	UPPER	LOWER				
S-2	C-Endwall	547.97	547.80	547.80	547.80	552.43	552.43	18"	45'	0.52%	D-52
I-3	A-10 Inlet	548.35	548.13	548.00	548.00	552.43	552.43	18"	261'	0.52%	G4-A
I-4	A-10 Inlet	549.30	548.69	549.00	549.00	552.43	552.43	18"	261'	0.52%	G4-A
S-5	E-Endwall	549.54	549.40	-	-	552.43	552.43	18"	261'	0.52%	D-52
S-12	C-Endwall	540.00	530.00	-	-	543.22	543.22	18"	261'	0.52%	D-52
I-13	A-10 Inlet	541.41	540.06	541.50	540.00	547.03	547.03	18"	261'	0.52%	G4-A
I-14	A-10 Inlet	542.12	541.76	542.30	541.70	547.03	547.03	18"	261'	0.52%	G4-A
M-15	S-10 Inlet	542.78	543.77	542.70	542.00	547.03	547.03	18"	261'	0.52%	D-103
I-16	B-10 Inlet	544.43	544.30	544.30	544.30	547.71	547.71	24"	182'	0.52%	G4-B
I-17	A-5 Inlet	544.73	544.28	544.30	544.30	548.06	548.06	27"	120'	0.52%	G4-A
I-18	B-10 Inlet	549.94	549.19	549.80	549.10	552.86	552.86	30"	30'	0.52%	G4-B
I-19	B-10 Inlet	550.27	550.10	550.10	550.10	552.86	552.86	30"	30'	0.52%	G4-B
S-20	C-Endwall	492.01	492.01	492.00	492.00	495.06	495.06	18"	261'	0.52%	D-52
I-21	B-10 Inlet	493.13	492.59	493.20	493.00	497.83	497.83	18"	261'	0.52%	G4-B
I-22	B-10 Inlet	494.08	493.70	494.00	494.00	497.83	497.83	18"	261'	0.52%	G4-B
I-23	W.R.Comb. Inlet	494.12	494.12	494.70	494.70	497.83	497.83	18"	261'	0.52%	G4-B

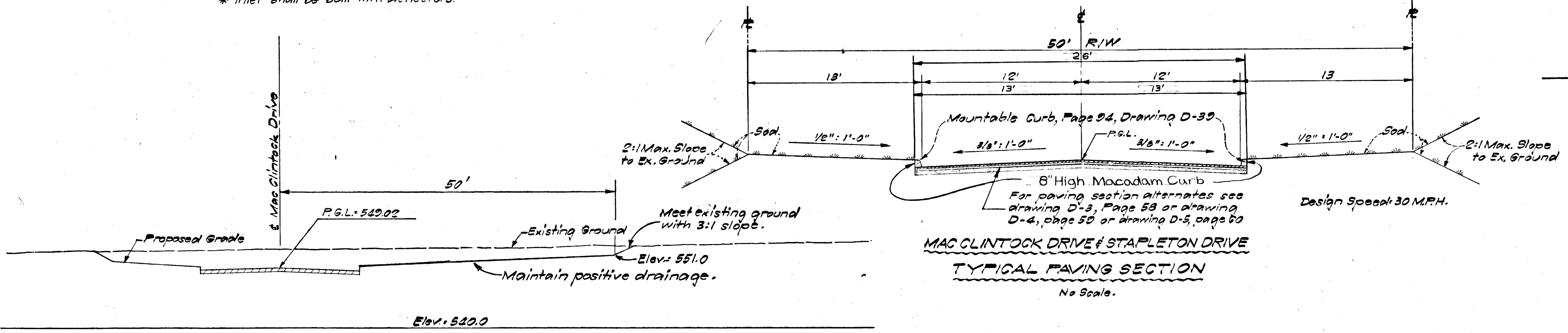
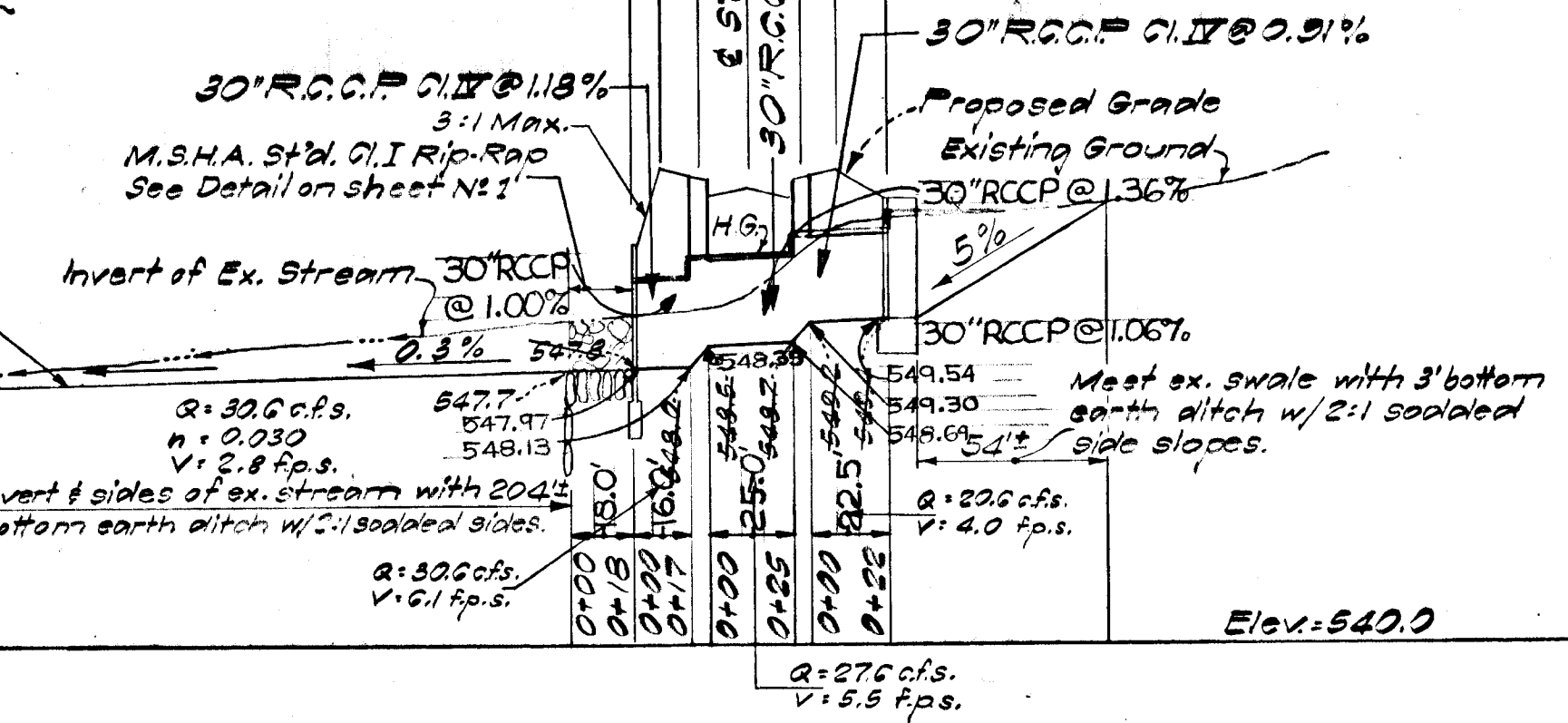
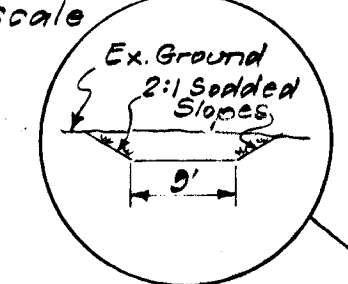
\* Inlet shall be built with deflectors.

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
18"	RCCP	45'
18"	"	261'
24"	"	23'
24"	"	182'
27"	"	120'
30"	"	30'
30"	"	25'

NOTE: All storm drain pipes which have less than 2' of cover shall be covered with "protective fill" as designated by the Howard County Road Code.



MAC CLINTOCK DRIVE  
TYPICAL GRADING WITHIN RIGHT OF WAY  
STA. 30+20.86 TO STA. 34+05.71  
LEFT SIDE ONLY  
No Scale

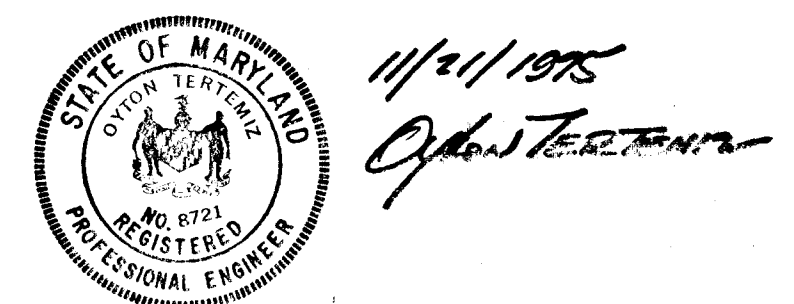


MAC CLINTOCK DRIVE & STAPLETON DRIVE  
TYPICAL PAVING SECTION  
No Scale.

SECTION "B-B", AT & STA. 23+00, MAC CLINTOCK DRIVE.  
SCALE: 1"=10' HOR. & VERT.

Owner & Developer:  
Douglas Realty  
9315 Annapolis Rd.  
Seabrook, Md., 20801

DEPARTMENT OF PUBLIC WORKS  
Francis H. McKeand 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING AND ZONING  
J. A. Claxton 8/13/76  
DIVISION OF LAND DEVELOPMENT DATE  
SUBORDINATION PLANNING



**GREENHORNE & O'MARA, INC.**  
ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
6715 KENILWORTH AVE., RIVERDALE, MD.  
301/277-2121 20840

AS-BUILT  
**STORM DRAINAGE & PAVING PLAN**  
SECTION 7  
**WARFIELD ESTATES**  
4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

B.R.S. DESIGN	
Z.H. DRAWN	SCALE As shown
O.T. CHECKED	SHEET No. 2 OF 11
Nov. 1975 DATE	130167 JOB No. SD-1451 FILE No.

AS-BUILT  
SECTION SEVEN  
GRADE ESTABLISHMENT  
**STAPLETON DRIVE**  
WARFIELD ESTATES

4th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: HOR. 1" = 50' VERT. 1" = 5'

GREENHORNE & O'MARA, INC.  
ENGINEERS - ARCHITECTS - PLANNERS - SURVEYORS  
4515 KENILWORTH AVENUE, RIVERDALE, MD.  
DATE: 277-2192

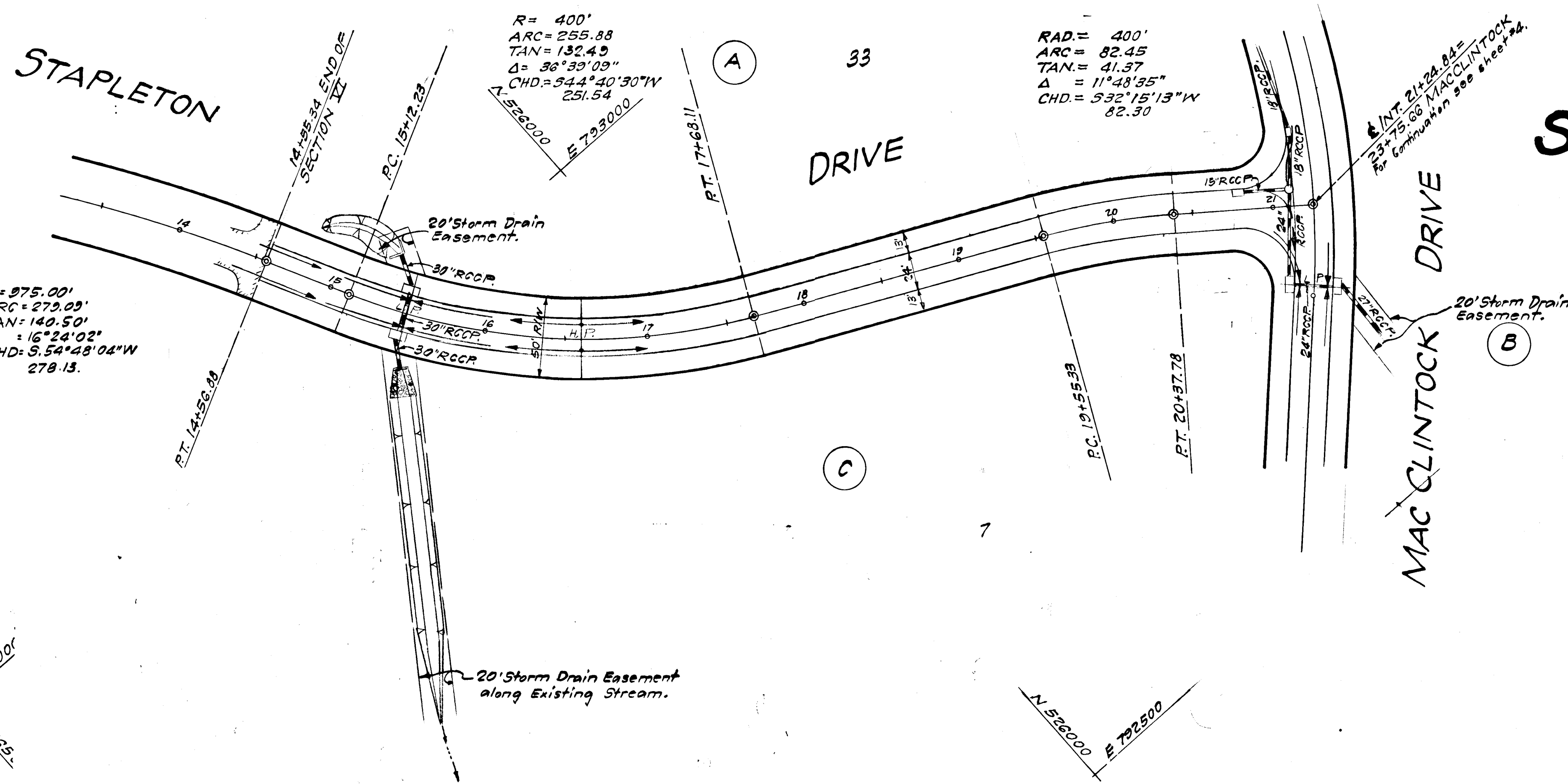
APPROVED  
DIVISION OF LAND DEVELOPMENT

HOWARD COUNTY, MARYLAND  
DATE 4-28-76



For typical section, see Sheet No. 2 of 11

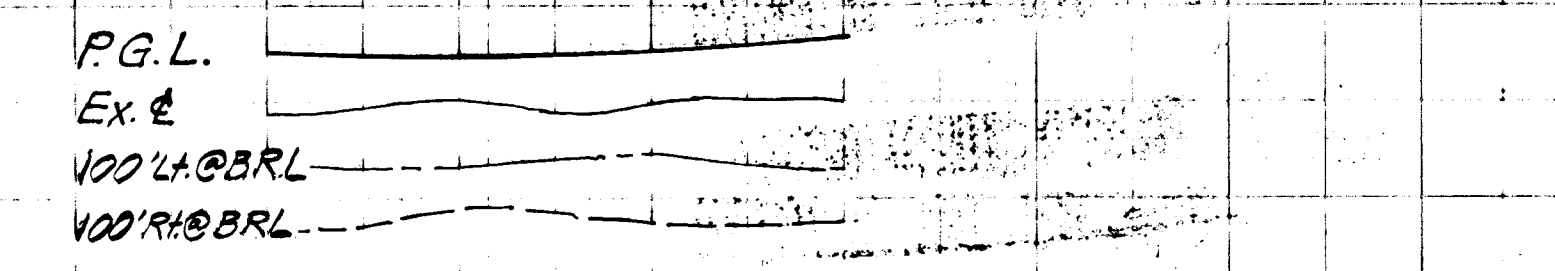
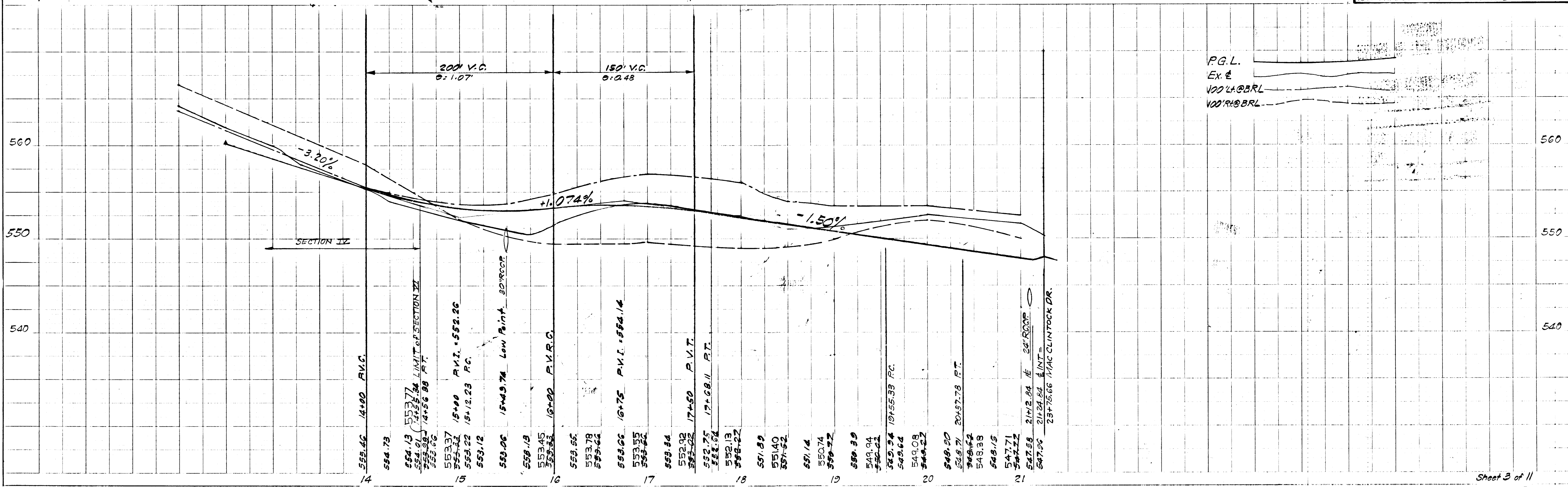
DEPARTMENT OF PUBLIC WORKS  
Granville W. Newland 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING & ZONING  
J. M. Clayton 8/13/76  
DIVISION OF LAND DEVELOPMENT DATE  
TRANSPORTATION PLANNING



**GENERAL NOTES:**

1. Sag V.C. were designed to provide a minimum sight distance of 200'.
2. Crest V.C. were designed to provide a minimum stopping sight distance of 200'.
3. All traffic control services, parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices", 1971 edition.
4. All materials and construction shall be in accordance with Howard County Road Construction Code and Standard Specifications.
5. Base will be primed in accordance with Section C-30-3 as provided in the Howard County Road Construction Code and Standard Specifications.
6. Tack coat is required in accordance with Section C-31-4 of the Howard County Road Construction Code and standard Specifications.
7. Design speed for Mac Clintock Drive and Stapleton Drive is 30 M.P.H.

Owner & Developer:  
Douglas Realty  
2315 Annapolis Rd.  
Seabrook, Md. 20801.



F-76-34



AS-BUILT  
SECTION SEVEN  
GRADE ESTABLISHMENT

# MAC CLINTOCK DRIVE WARFIELD ESTATES

4th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE: HOR. 1" = 50' VERT. 1" = 5'

GREENHORNE & O'MARA INC.  
ENGINEERS - ARCHITECTS - PLANNERS - SURVEYORS  
8715 KENILWORTH AVENUE, RIVERDALE, MD.  
DATE: 1/17/74 877-2122

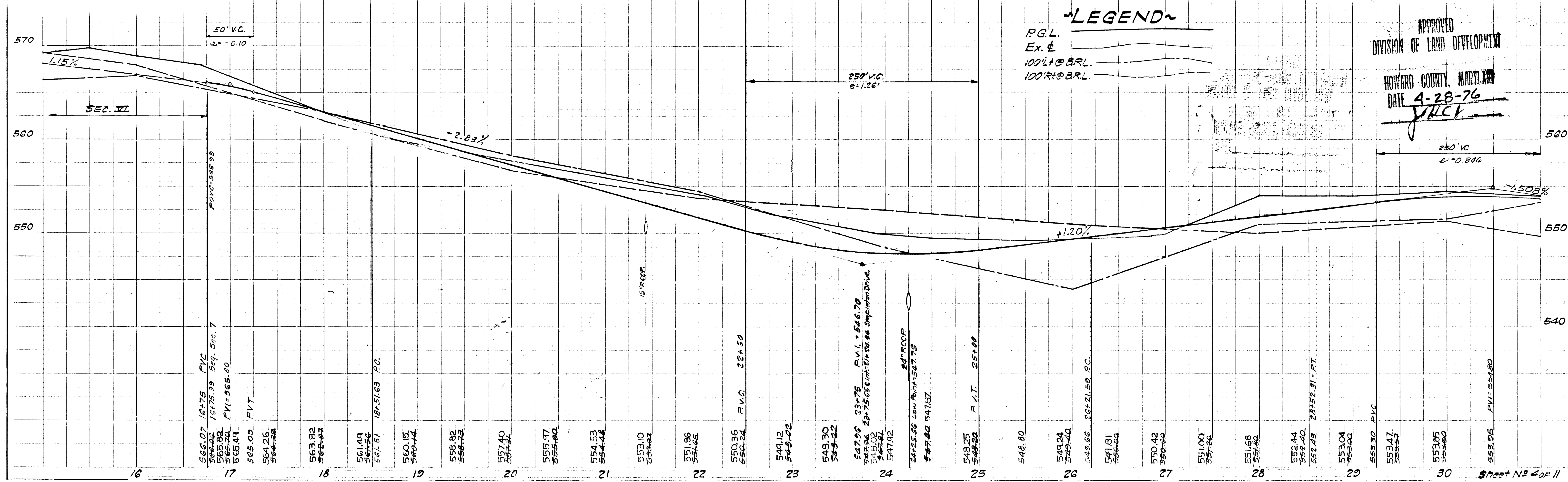


PLAN  
BY: [Signature]  
DATE: [Date]  
NOTES:  
1. ALL NOTES TO BE READ IN CONNECTION WITH THE PLAN.  
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND EASEMENTS.  
3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.  
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES.  
5. THE CONTRACTOR SHALL MAINTAIN THE PROPOSED GRADE ESTABLISHMENT THROUGHOUT THE CONSTRUCTION PERIOD.

DEPARTMENT OF PUBLIC WORKS  
*Granville W. Newland* 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING & ZONING  
*J. H. Clawson* 8/13/76  
DIVISION OF LAND DEVELOPMENT AND TRANSPORTATION PLANNING DATE

Owner and Developer:  
Douglas Realty  
2315 Annapolis Road  
Seabrook, Md. 20789



APPROVED  
DIVISION OF LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE 4-28-76  
*J. H. Clawson*

AS-BUILT  
SECTION SEVEN  
GRADE ESTABLISHMENT

# MAC CLINTOCK DRIVE WARFIELD ESTATES

4th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE: HOR. 1"=50' VERT. 1"=5'

GREENHORN & O'MARA, INC.  
ENGINEERS - ARCHITECTS - PLANNERS - SURVEYORS  
6916 KENILWORTH AVENUE, RIVERDALE, MD.  
DATE: 2/77-2/92

ROXBURY MILLS ROAD  
MD. ROUTE NO 97

☉ CURVE DATA  
RAD. = 680.35  
ARC = 174.96  
TAN = 87.97  
Δ = 14°44'04"  
CHD = N69°21'14"W  
174.43'

☉ CURVE DATA  
RAD. = 750'  
ARC = 200.13  
TAN = 100.69  
Δ = 15°17'32"  
CHD = N63°04'30"W  
199.58'

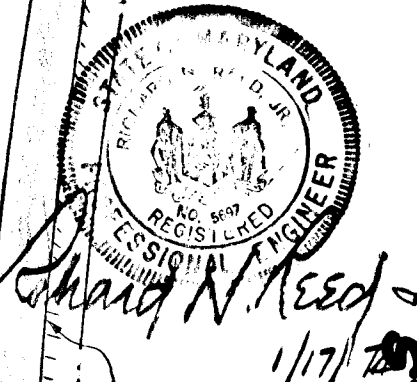
☉ CURVE DATA  
RAD. = 562.83  
ARC = 99.74  
TAN = 50.00  
Δ = 10°09'12"  
CHD = N66°30'20"W  
99.61'

Letcher and Rose Lofgren  
Liber 527 Folio 577

Owner & Developer:  
Douglas Roberts  
3315 Annapolis Rd.  
Seabrook, Md. 20821

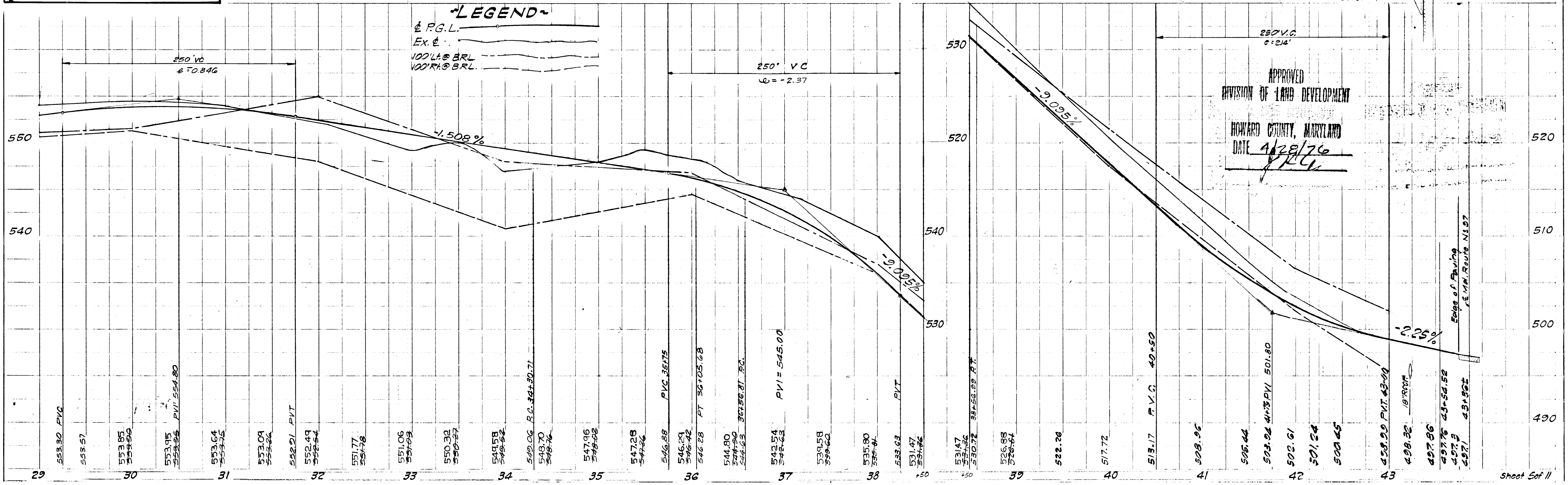
DEPARTMENT OF PUBLIC WORKS  
Granville P. Weiland 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING & ZONING  
J.H. Clavum 8/13/76  
DIVISION OF LAND DEVELOPMENT DATE  
LAND TRANSPORTATION PLANNING

NOTE:  
See Sht. NR20 of 11 for  
typical paving section.



DATE	
BY	
CHECKED	
APPROVED	
NO. 1001	
NO. 1002	
NO. 1003	
NO. 1004	
NO. 1005	
NO. 1006	
NO. 1007	
NO. 1008	
NO. 1009	
NO. 1010	

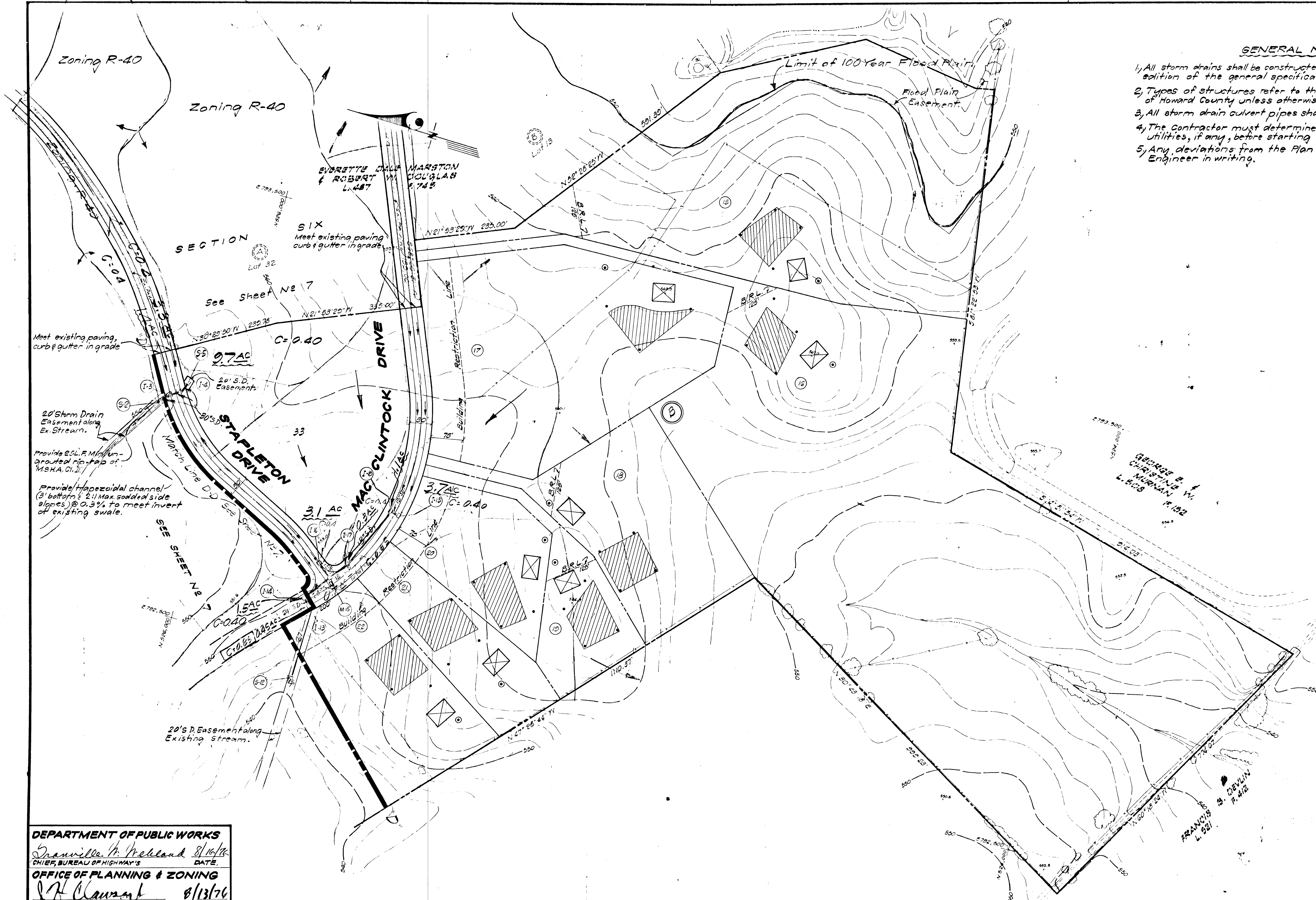
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BY	
CHECKED	
APPROVED	
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NO. 1008	
NO. 1009	
NO. 1010	



APPROVED  
DIVISION OF LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE 4/28/76  
J.H.C.

Station 37+00 to Station 43+54.52 MACCLINTOCK DRIVE





**GENERAL NOTES**

- 1, All storm drains shall be constructed in accordance with the latest edition of the general specifications of Howard County.
- 2, Types of structures refer to the standard storm drainage details of Howard County unless otherwise noted.
- 3, All storm drain culvert pipes shall be of R.C.C.P.
- 4, The Contractor must determine the exact location of underground utilities, if any, before starting any construction.
- 5, Any deviations from the Plan have to be approved by the Engineer in writing.

APPROVED  
DIVISION OF LAND DEVELOPMENT

HOWARD COUNTY, MARYLAND  
DATE: 4-28-76

*[Signature]*

DEPARTMENT OF PUBLIC WORKS  
*Granville M. Ireland* 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING & ZONING  
*J.R. Clouston* 8/13/76  
DIVISION OF LAND DEVELOPMENT DATE

*11/11/75*  
*O'Neil*



No.	REVISION	DATE	BY



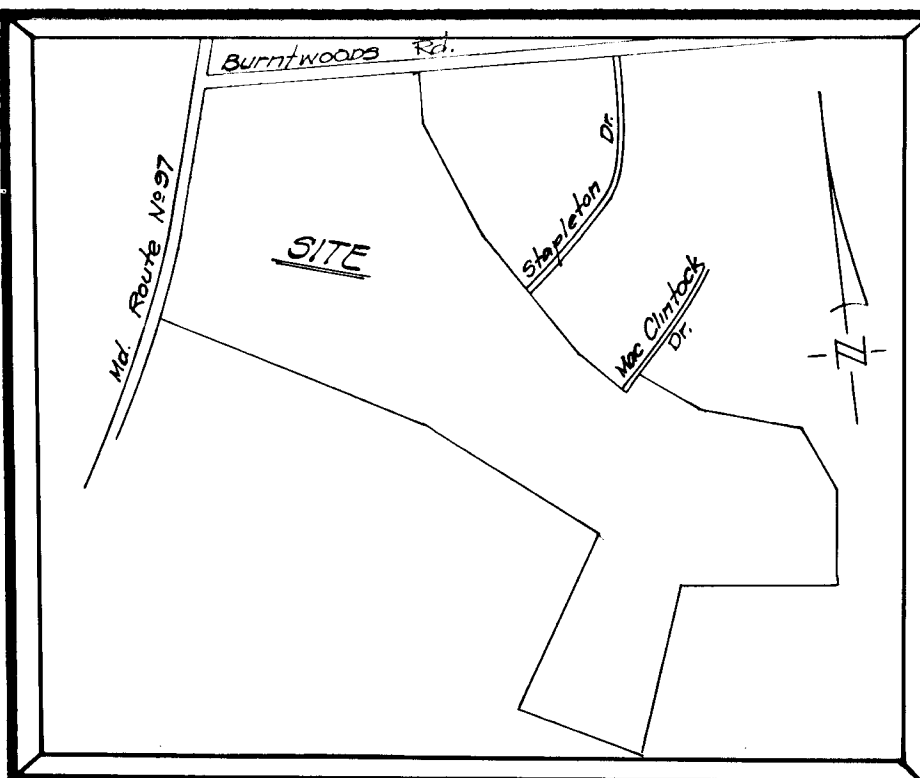
**GREENHORNE & O'MARA, INC.**  
ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
6715 KENILWORTH AVE., RIVERDALE, MD.  
301/277-2121 20840

STORM DRAINAGE AREA MAP  
SECTION 7  
**WARFIELD ESTATES**  
4th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

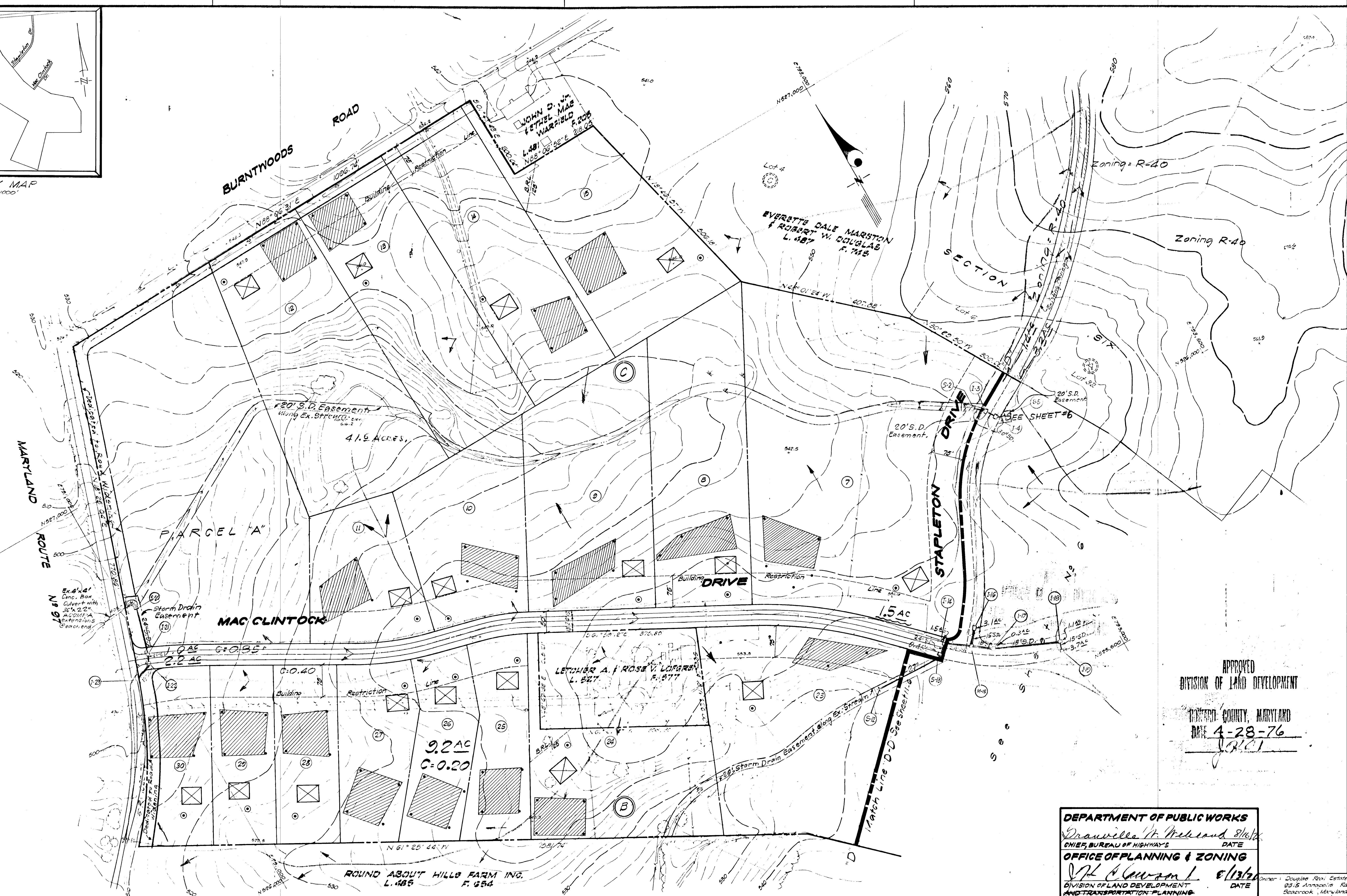
B.R.S. DESIGN	SCALE: 1"=100'
Lilly & DRAWN BY	6 OF 11
O.T. CHECKED	SHEET
Nov 1975 DATE	12/16/76 JOB No. SD-1331 FILE No.

Owner: Douglas Real Estate  
3312 Annapolis Road  
Beebrook, Maryland





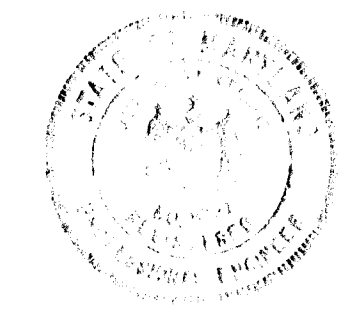
VICINITY MAP  
SCALE: 1"=1000'



APPROVED  
DIVISION OF LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE 4-28-76  
JAC

DEPARTMENT OF PUBLIC WORKS  
Doraville H. Meland, State  
CHIEF, BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING & ZONING  
J.H. [Signature] 6/13/76  
DIVISION OF LAND DEVELOPMENT AND TRANSPORTATION PLANNING DATE  
Owner: Douglas R. Estelle  
83.5 Armonia Rd  
Bearsbrook, Maryland

*Mattas*  
*Doris [Signature]*



No.	REVISION	DATE	BY

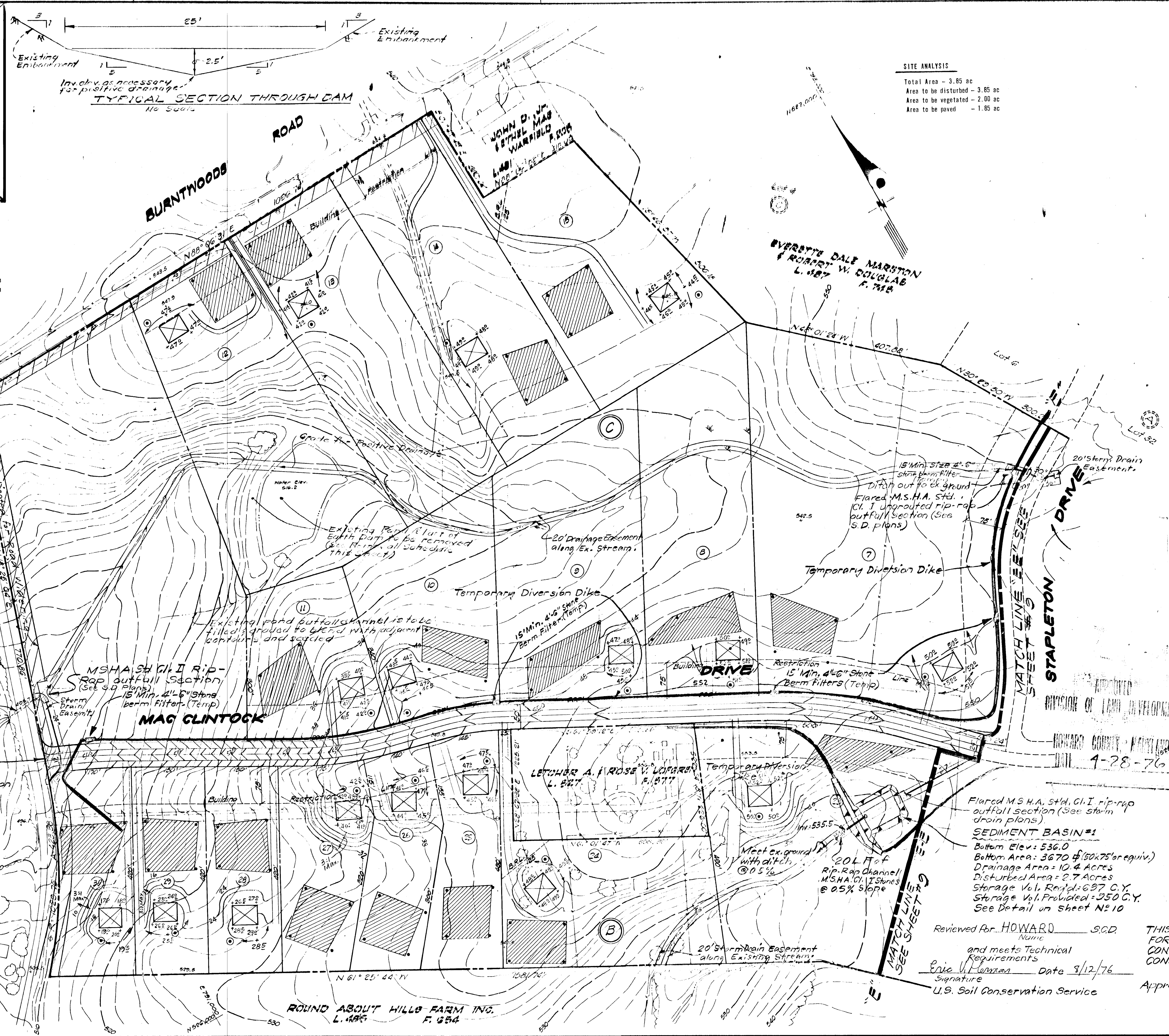
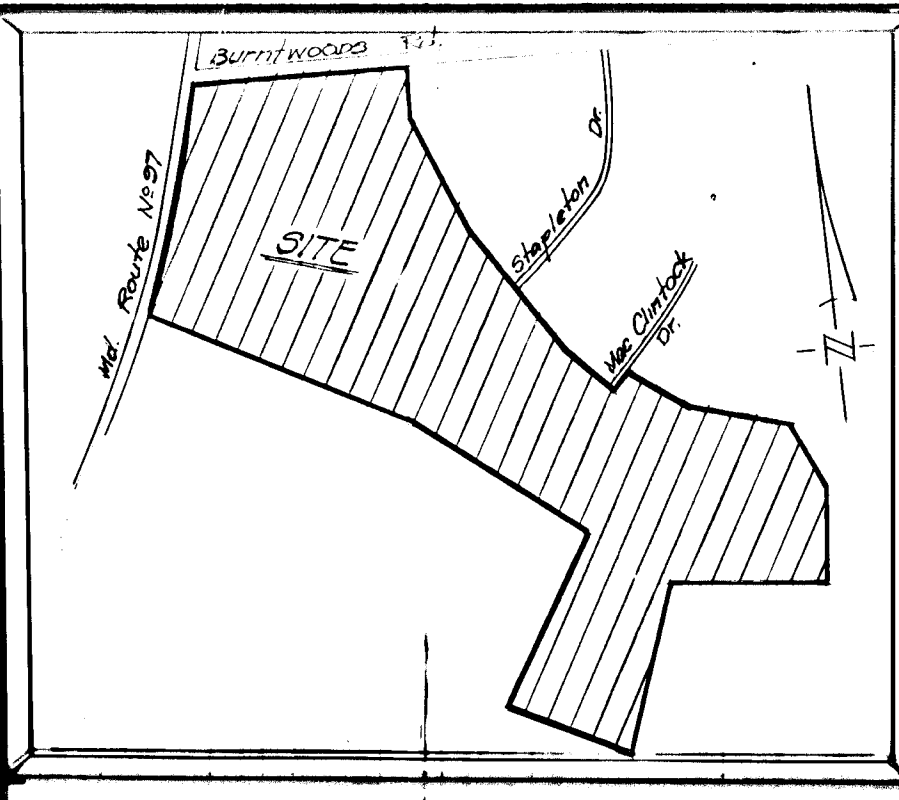


**GREENHORNE & O'MARA, INC.**  
ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
6715 KENILWORTH AVE., RIVERDALE, MD.  
301/277-2121 20840

STORM DRAINAGE AREA MAP  
SECTION 7  
**WARFIELD ESTATES**  
4th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

B.R.S. DESIGN	SCALE: 1"=100'
DATE DRAWN	7 OF 11
CHECKED	SHEET
DATE	139167 SD-1331
JOB No.	FILE No.





- SEQUENCE OF OPERATIONS FOR POND DRAINAGE**
1. existing pond is to be drained such that no downstream hazard is created and no erosion will occur.
  2. portion of existing dam is to be removed within proposed drainage easement as shown on this plan. (see typical section)
  3. any unsuitable sediment on the pond bottom will be mixed with good soil to provide a stable base for seeding.
  4. all disturbed areas and pond bottom are to be seeded.
  5. the existing pond outfall channel is to be filled as noted on this plan.

**SITE ANALYSIS**  
 Total Area - 3.85 ac  
 Area to be disturbed - 3.85 ac  
 Area to be vegetated - 2.00 ac  
 Area to be paved - 1.85 ac

**DEVELOPER'S CERTIFICATE**  
 "I certify that all development and/or construction will be done according to this plan of development and plan for Erosion and Sediment Control, and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."  
 Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.

Signature of Developer: *John W. Douglas* Date: 11/26/75

**ENGINEER'S CERTIFICATE**  
 "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."  
 Signature of Engineer: *Eric V. Verma* Date: *1/12/76*

- SEDIMENT CONTROL NOTES**
1. All erosion and sediment control measures are to be constructed and maintained in accordance with applicable published "Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas," and/or HSCD Stds. & Specs.
  2. All points of construction ingress and egress will be protected to prevent tracking of mud onto public ways.
  3. All sediment will be prevented from entering any storm drainage system (i.e., through use of sand bags, gravel, boards or other applicable methods.) at the end of each working day.
  4. A grading permit will be obtained from the Department of Public Works prior to start of any earthwork, construction, etc. on dedicated street rights-of-way.
  5. Construction or installation of all temporary or permanent structures and pipes to be prior to initial grading.
  6. All sodding and/or seeding & mulching is to be done concurrently with fine grading and in accordance with "Critical Area Stabilization" Specification sheet # 11
  7. Base course is to be installed without delay after utilities are completed.
  8. Minor field adjustments may be made to accomplish intended purpose.
  9. All temporary diversion dikes, are to be temporarily stabilized as per Critical Area Stabilization Specs. Sheet, #11 immediately after grading.
  10. Continuous inspection and maintenance of all sediment control structures must be provided to insure intended purpose is accomplished. Devices are to remain until drainage area is permanently stabilized and then be cleaned, filled, graded, and disturbed area permanently stabilized.
  11. After removal of temporary sediment structures the disturbed area must be permanently stabilized per Permanent Stabilization Specs. Sheet # 11
  12. All storm drainage inlets must be sandbagged to prevent sediment from getting into the storm drainage system until site above inlet is permanently stabilized at the end of each working day.
  13. No sediment control structures will be removed without permission from the sediment control inspector from the Howard County Department of Licenses and permits.
  14. Howard County Soil Conservation Dist. shall be notified at least 24 hrs prior to start of grading.
  15. All sediment control measures will be installed and stabilized temporarily, as per specifications in sheet # 11 before any construction takes place.
  16. All other disturbed areas to be stabilized permanently by sodding or seeding as per sheet # 11

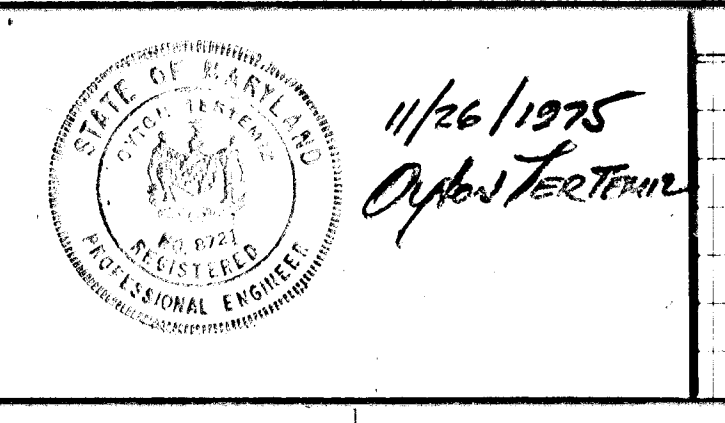
Reviewed for HOWARD S.C.D. Name: *Eric V. Verma* and meets Technical Requirements  
 Signature: *Eric V. Verma* Date: 3/12/76  
 U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Approved: *Richard J. John* Date: 3-12-76  
 Howard S.C.D.

HOWARD COUNTY REVIEWED  
 Owner: Douglas Real Estate  
 8915 Annapolis Rd  
 Beltsville, Maryland

DEPARTMENT OF PUBLIC WORKS  
*Francis W. McElwain* 8/16/76  
 CHIEF, BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
*J. C. Wainwright* 8/13/76  
 DIVISION OF LAND DEVELOPMENT DATE



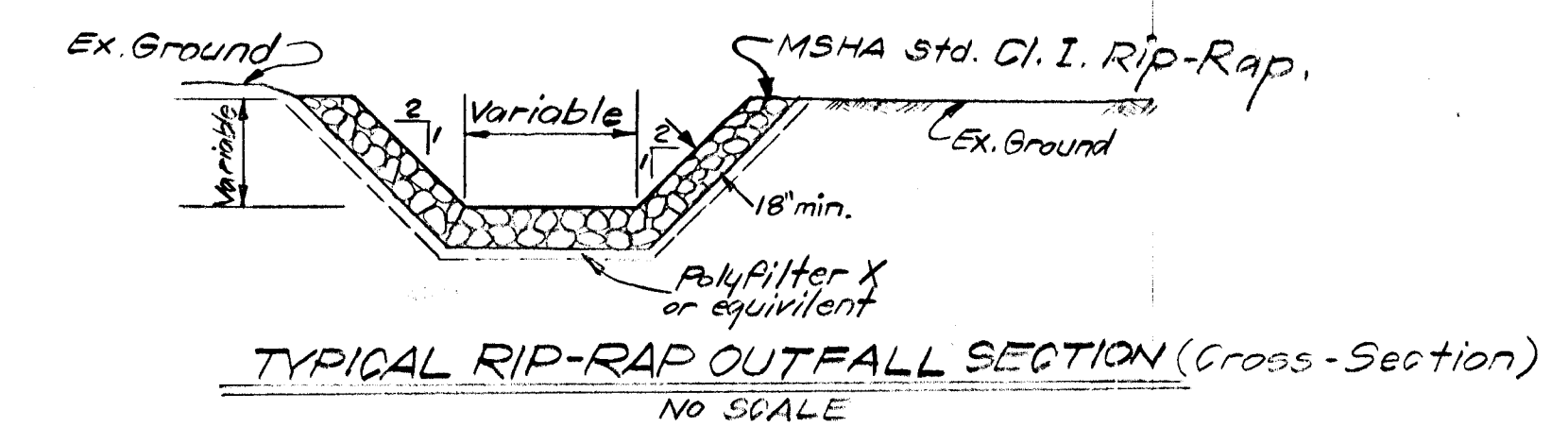
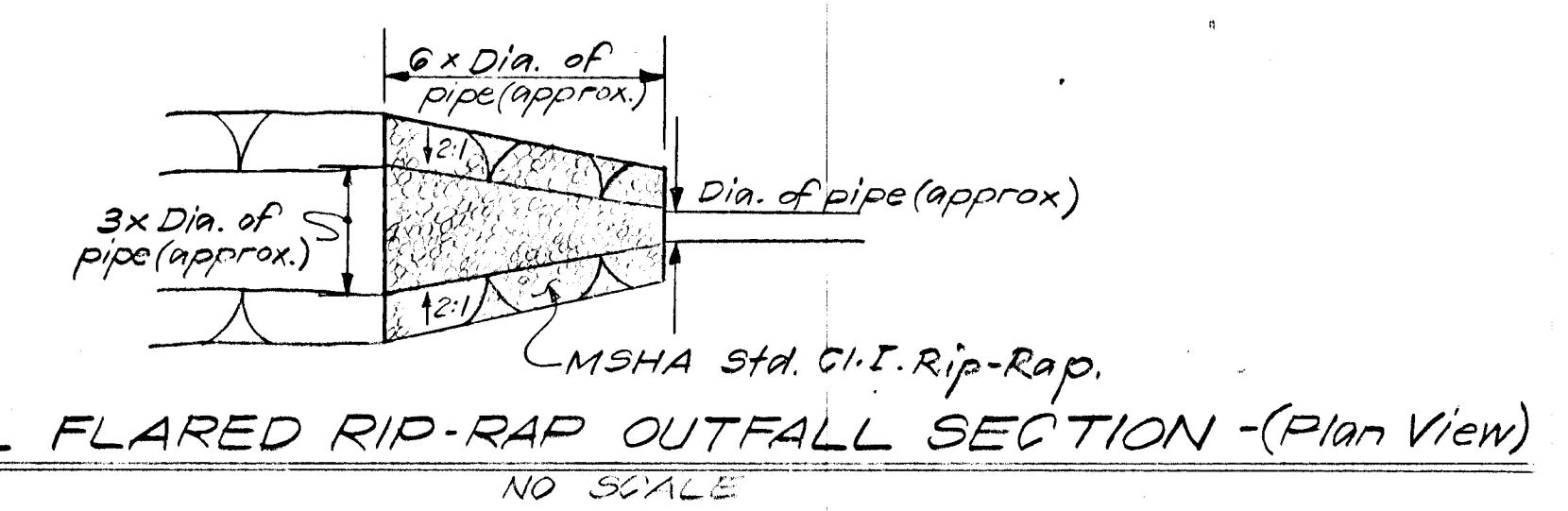
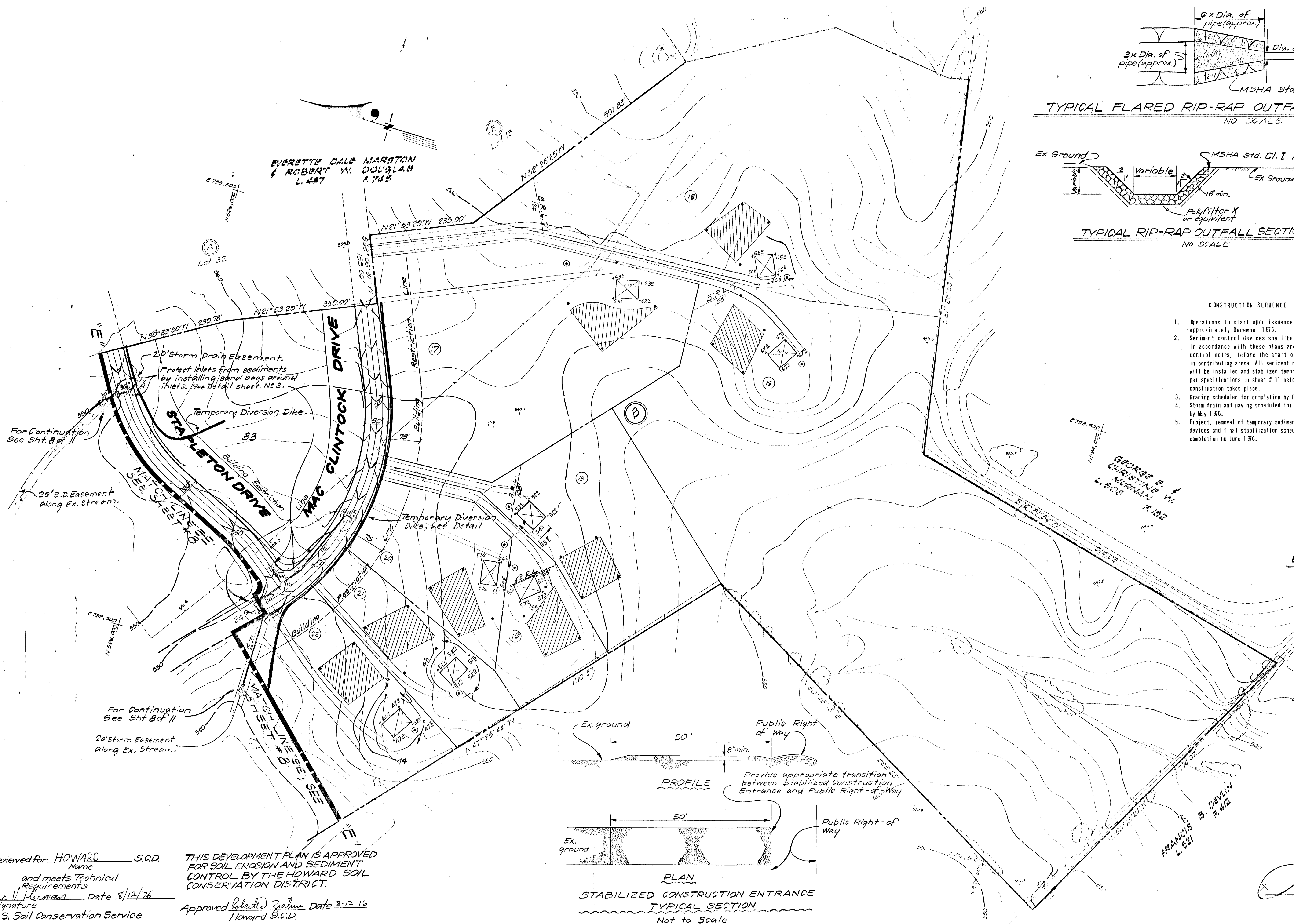
No.	REVISION	DATE	BY

**GREENHORNE & O'MARA, INC.**  
 ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
 6715 KENILWORTH AVE., RIVERDALE, MD.  
 301/277-2121 20840

SEDIMENT CONTROL PLAN  
 SECTION 7  
**WARFIELD ESTATES**  
 4th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

K/D DESIGN 1/28	SCALE: 1"=100'
Lilly DRAWN	B OF 11
T.C. CHECKED	SHEET
NOV 1975 DATE	JOB No. 5243-X FILE No.





- CONSTRUCTION SEQUENCE**
1. Operations to start upon issuance of permit, approximately December 1975.
  2. Sediment control devices shall be installed in accordance with these plans and sediment control notes, before the start of grading in contributing area. All sediment control measures will be installed and stabilized temporarily, as per specifications in sheet # 11 before any construction takes place.
  3. Grading scheduled for completion by Feb. 1976.
  4. Storm drain and paving scheduled for completion by May 1976.
  5. Project, removal of temporary sediment control devices and final stabilization scheduled for completion by June 1976.

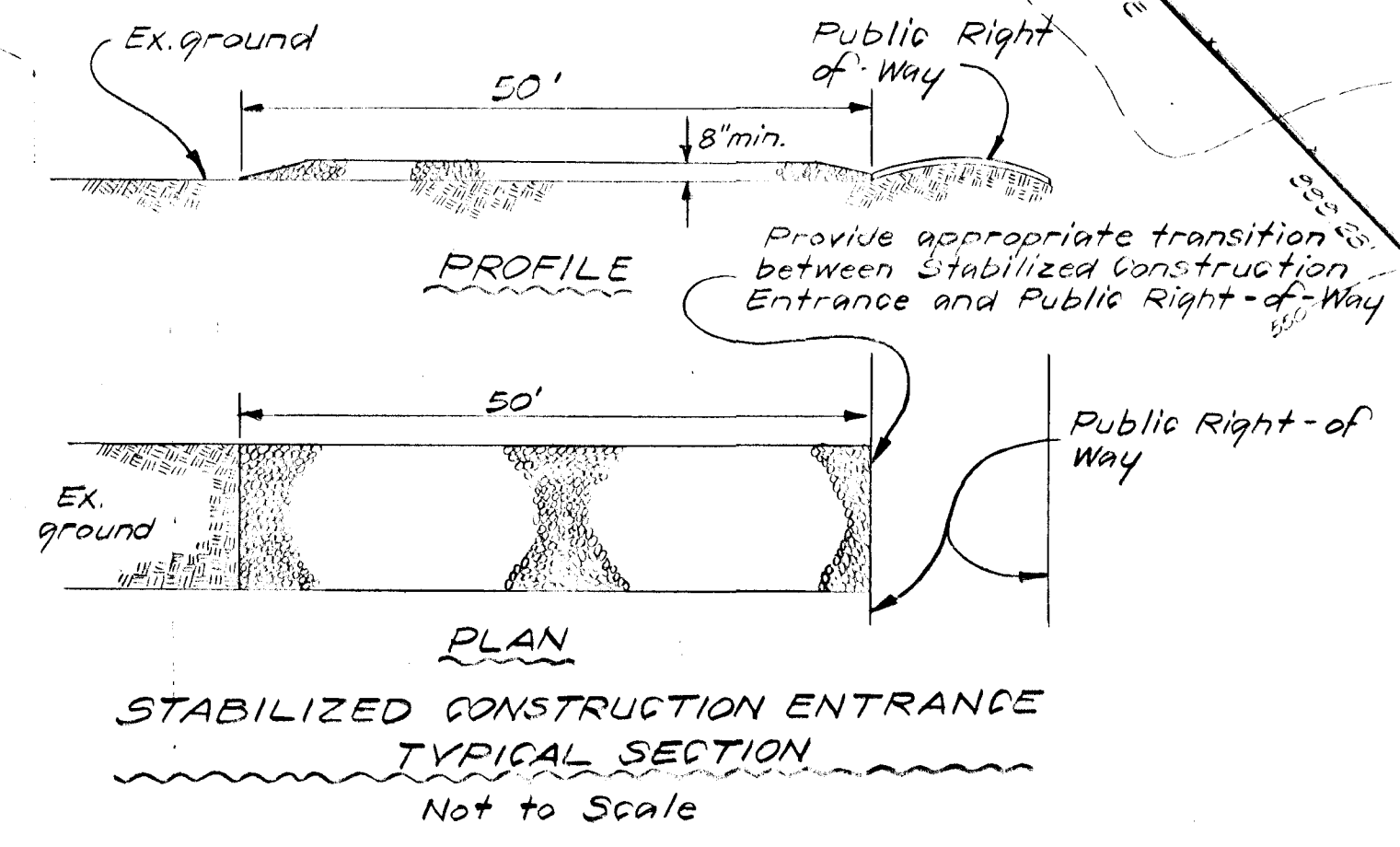
**ENGINEERS CERTIFICATE:**  
I certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer: *Opfer T. Terrell* Date: *11/26/75*

**APPROVED**  
DIVISION OF LAND DEVELOPMENT  
HOWARD COUNTY, MARYLAND  
DATE: *1-28-76*

**DEVELOPERS CERTIFICATE:**  
I certify that all development and/or construction will be done according to this plan of development and plan for Erosion and Sediment Control and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary.  
Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.

Signature of Developer: *Robert Zetum* Date: *11/26/75*

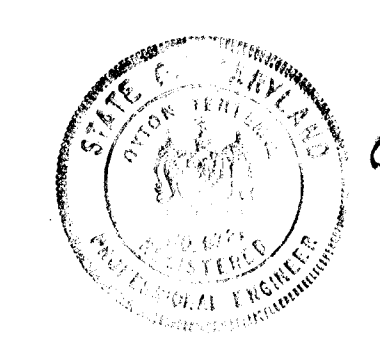


Reviewed for: HOWARD S.C.D. Name  
and meets Technical Requirements  
Signature: *Eric W. Newman* Date: *8/12/76*  
U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
Approved: *Robert Zetum* Date: *8-12-76*  
Howard S.C.D.

DEPARTMENT OF PUBLIC WORKS  
*Drayville W. McLeod* 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE

OFFICE OF PLANNING AND ZONING  
*J. L. Cannon* 8/13/76  
DIVISION OF LAND DEVELOPMENT DATE  
URBAN SUBDIVISION PLANNING



*11/26/1975*  
*Opfer T. Terrell*

**GREENHORNE & O'MARA, INC.**  
ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
6715 KENILWORTH AVE., RIVERDALE, MD.  
301/277-2121 20840

**SEDIMENT CONTROL PLAN**  
SECTION 7  
**WARFIELD ESTATES**  
4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

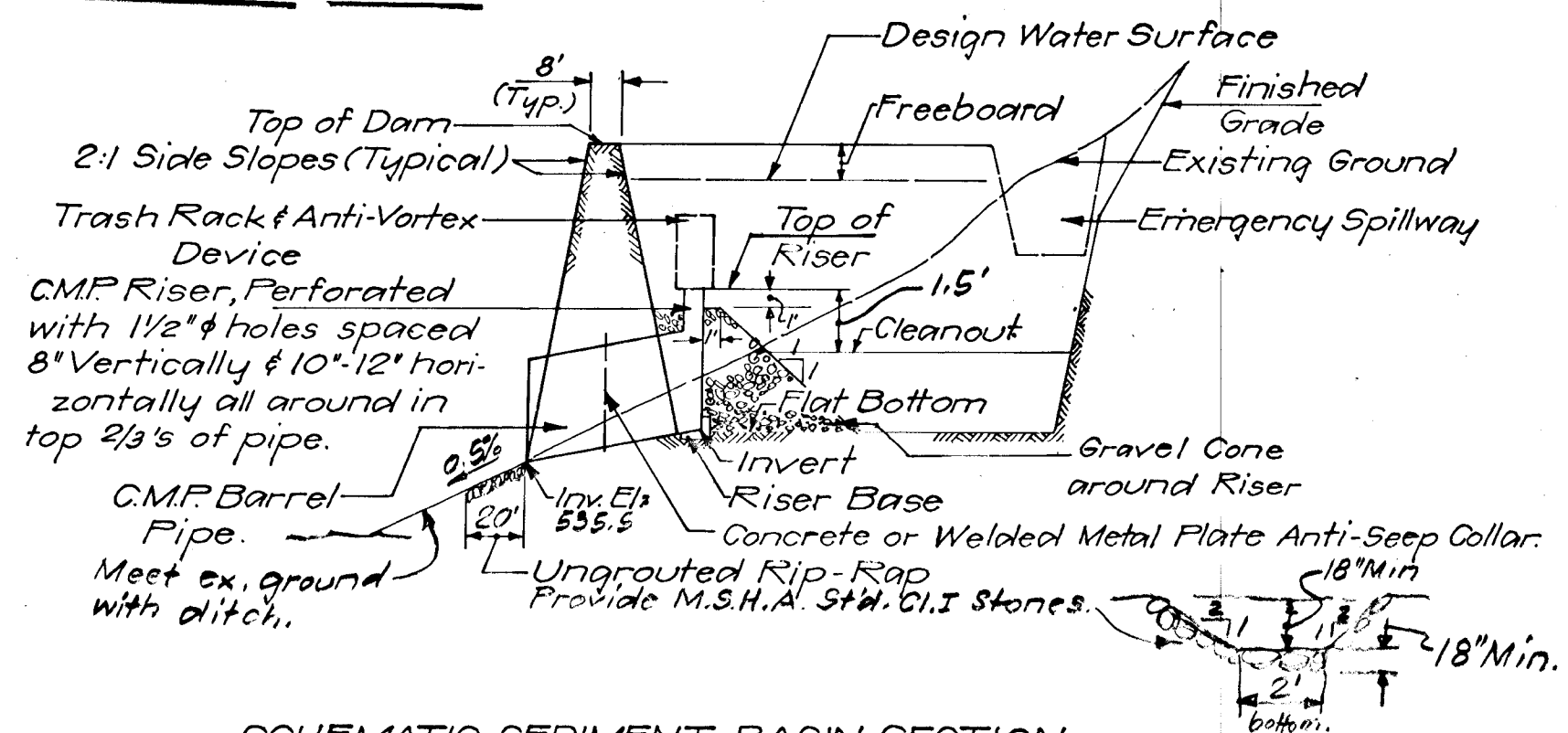
K. D. DESIGN 73 SCALE: 1"=100'  
Lilly DRAWN  
T.C. CHECKED SHEET 9 OF 11  
Nov 1975 DATE JOB No. 5249-x



**ENGINEERS CERTIFICATE**  
 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.

Signature of Engineer Date

*Ogden T. ...* 11/26/75

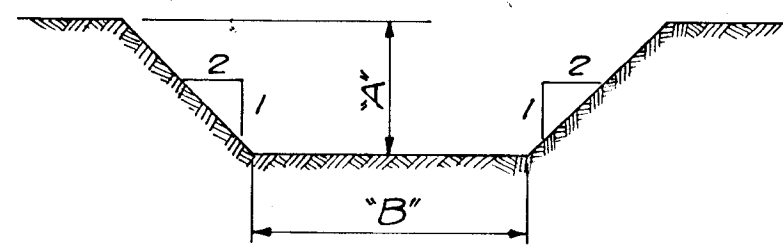


SCHEMATIC SEDIMENT BASIN SECTION  
NO SCALE

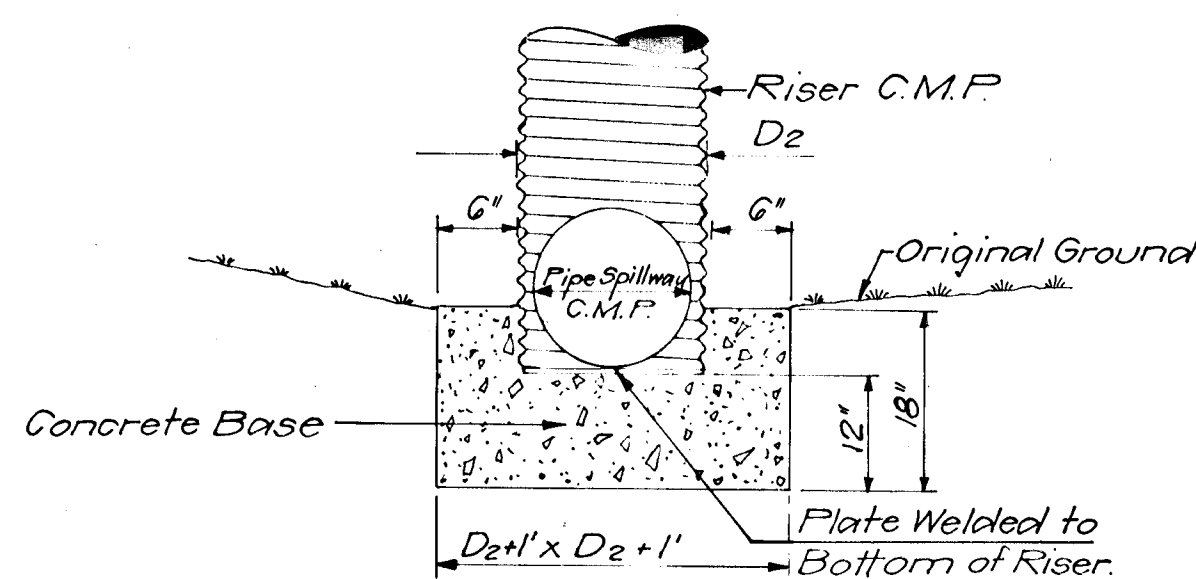
ITEM	SEDIMENT BASIN TABLE
Top of Dam Elev.	543.0
Bottom Elev. (Basin)	536.0
Bottom Area	3670 sq
Top of Riser Elev.	540.0
Cleanout Elev.	538.5
Invert Elev. at Riser	536.0
Invert Elev. at Outfall	535.0
Riser Pipe Size	30"
Barrel Pipe Size	21"
Riser Pipe Length	4.5' *
Barrel Pipe Length	40'
Emergency Spillway Inv. Elev.	
Drainage Area	10.4 Ac.
Disturbed Area	2.7 Ac.
Storage Volume Req'd.	697 C.Y.
Storage Volume Provided	950 C.Y.

\* Includes 0.5 for embedding.

ITEM	BASIN NUMBER
"A"	
"B"	



TYPICAL SECTION OF EMERGENCY SPILLWAY  
NO SCALE



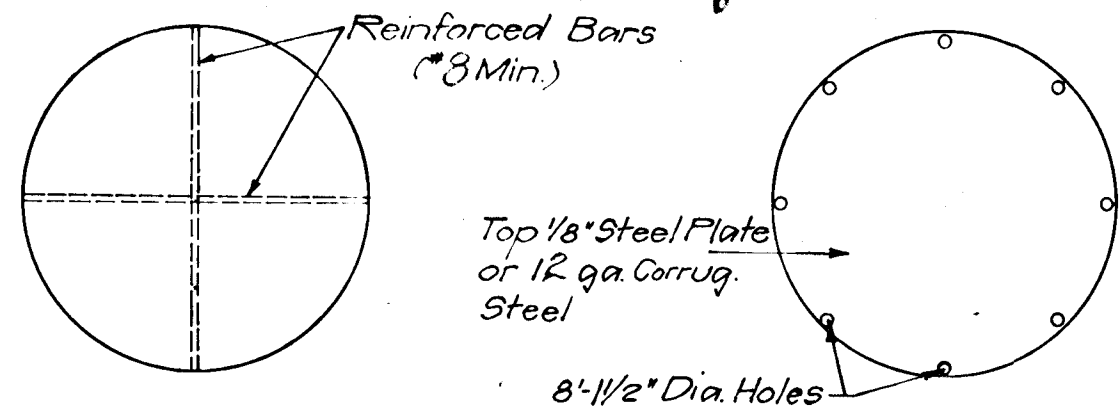
NOTE:  
All joints & connections of C.M.P. to be securely fastened & water tight.

CROSS SECTION OF CONCRETE BASE  
NO SCALE

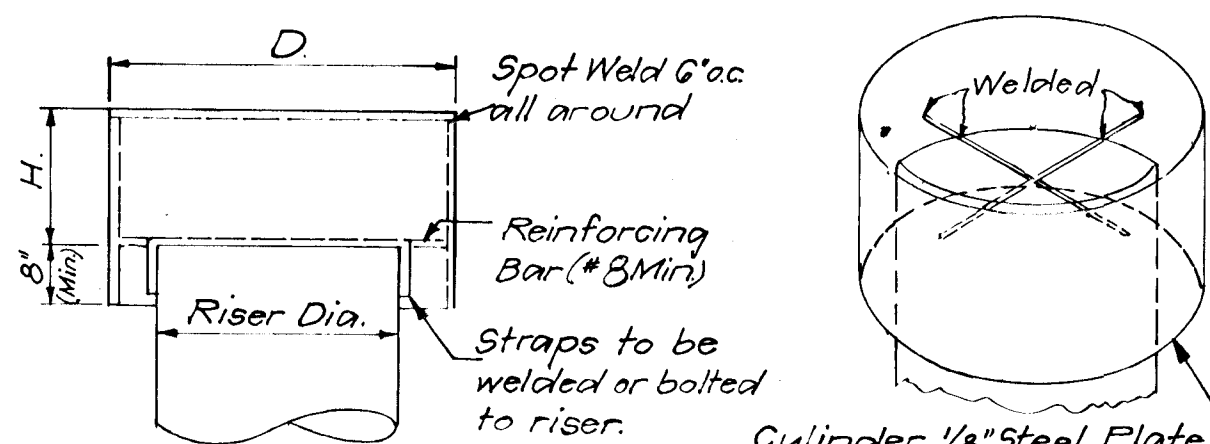
**DEVELOPERS CERTIFICATE**  
 I certify that all development and/or construction will be done according to this plan of development and plan for Erosion and Sediment Control, and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary.  
 Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.

Signature of Developer Date

*Ogden T. ...* 11/26/75



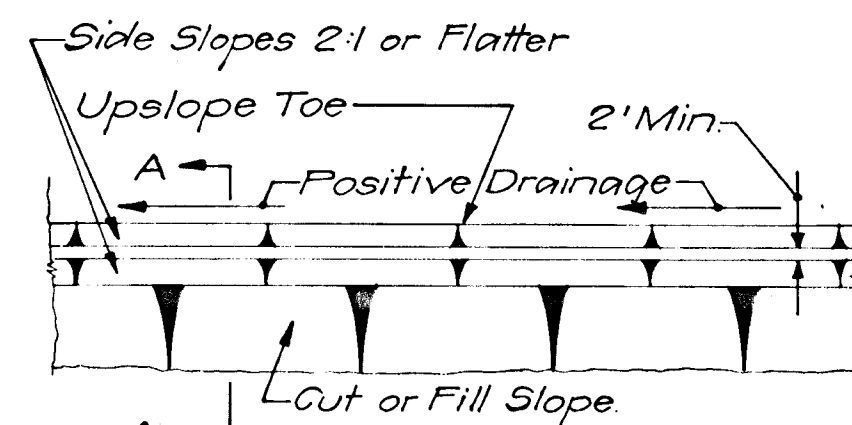
PLAN VIEW



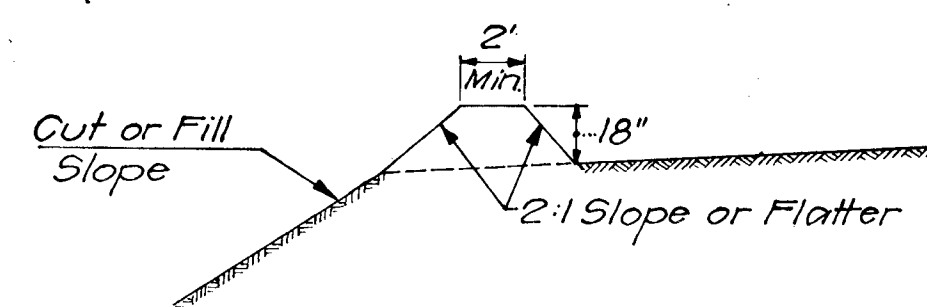
ELEVATION

DETAIL OF TRASH RACK AND ANTI-VORTEX DEVICE  
NO SCALE

RISER DIA.	D	H
16	27	8
21	30	4
24	36	13
27	42	15
36	54	17
42	60	17
48	66	21



PLAN

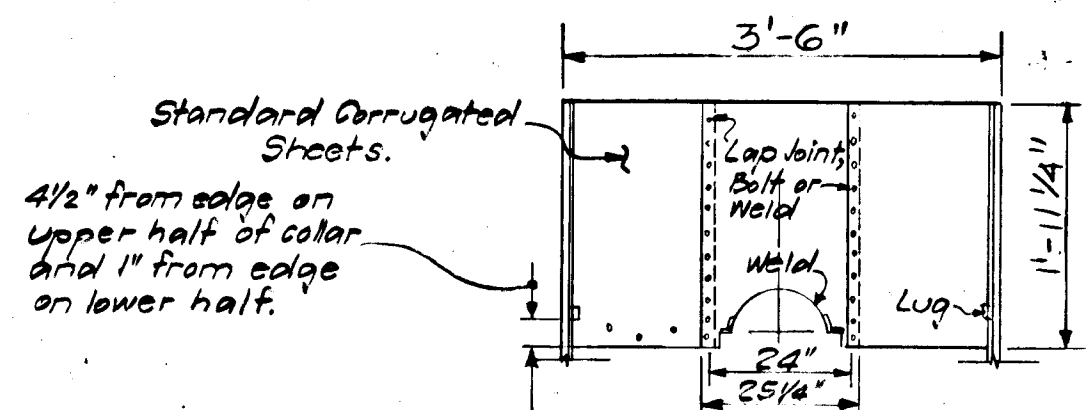


SECTION 'A-A'

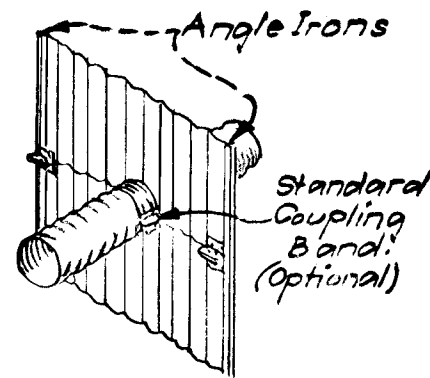
NOTES:

- 1, All dikes must be machine compacted.
- 2, All diversion dikes must have positive grade draining to a stabilized outlet.
- 3, Diverted runoff will outlet onto a stabilized, undisturbed area, a prepared level spreader, or into a grade stabilization structure.
- 4, Periodic inspection & required maintenance must be provided.

DIVERSION DIKE  
NO SCALE



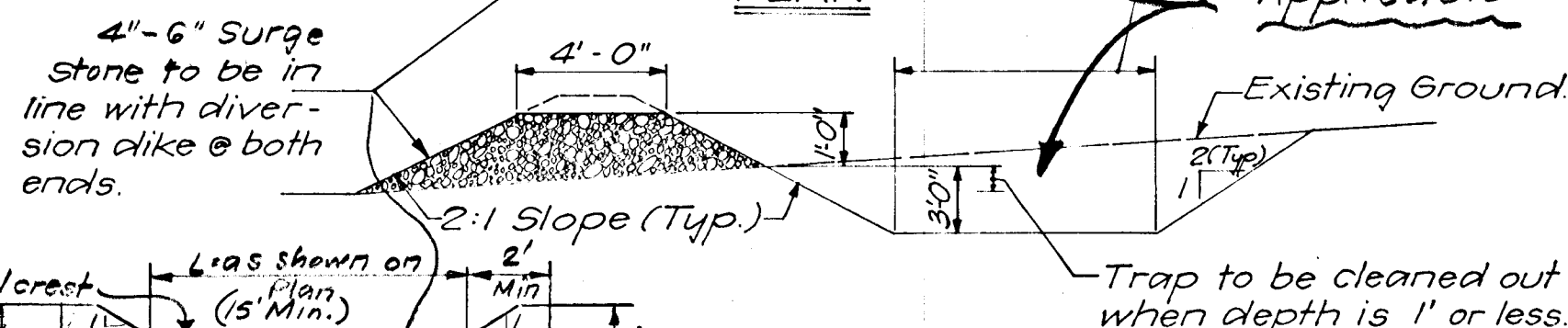
- NOTES:
- 1, Holes "match punched" in shop to permit field bolting.
  - 2, Galvanized bolts to be furnished with collar.
  - 3, Lap between two sections to receive extra bituminous coating at time of assembly.



NOTE: Form 18" high dike of sand bags around inlet. Stagger sand bags.

SAND BAG DETAIL  
NO SCALE

DRAINAGE AREA	SEDIMENT TRAP VOLUME	BOTTOM DIM'S
1.0 Acre	1820 FT <sup>3</sup>	15' x 25'
0.5 "	910 "	10' x 15'
0.25 "	455 "	5' x 10'
1.75 "	3185 "	30' x 50'

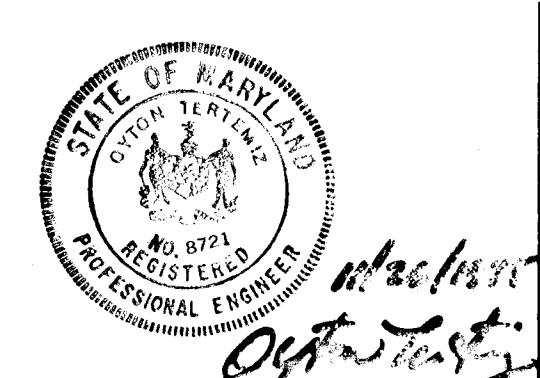


SECTION 'A-A'

STONE BERM FILTER DETAIL  
NO SCALE

APPROVED  
 DIVISION OF LAND DEVELOPMENT  
 HOWARD COUNTY, MARYLAND  
 DATE 4-28-76  
*[Signature]*

DEPARTMENT OF PUBLIC WORKS  
*Ernestine M. McLeod* 8/16/76  
 CHIEF, BUREAU OF HIGHWAYS  
 OFFICE OF PLANNING AND ZONING  
*[Signature]* 8/13/76  
 DIVISION OF LAND DEVELOPMENT  
 TRANSPORTATION PLANNING



No.	REVISION	DATE	BY

**GREENHORNE & O'MARA, INC.**  
 ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
 6715 KENILWORTH AVE., RIVERDALE, MD.

SEDIMENT CONTROL DETAILS  
 SECTION 7  
**WARFIELD ESTATES**  
 4TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

K.I.D. DESIGN 72	
Z.H. DRAWN	SCALE As Shown
T.C. CHECKED	SHEET No. 10 OF 11
Nov. 1975 DATE	5019-X FILE No.



U.S.S.C.S. INTERIM  
STANDARD AND SPECIFICATIONS

FOR  
CRITICAL AREA STABILIZATION - SEEDING & MULCHING  
CONDITIONS WHERE PRACTICE APPLIES

**TEMPORARY SEEDINGS**  
On graded or cleared areas which may be subjected to erosion for up to 12 months, and where temporary seeding will normally produce sufficient growth to retard erosion.

**PERMANENT SEEDINGS**  
1. Graded or cleared areas subject to erosion for approximately 1 to 2 years and where a semi-permanent seeding will normally produce sufficient growth to retard erosion.  
2. Graded or cleared areas subject to erosion and where a permanent, long-lived vegetative cover is needed.

**MULCHING ONLY**  
Graded or cleared areas which are subject to erosion for 6 mos. or less; where seedings may not have a suitable growing season to produce an erosion retardant cover, but which can be stabilized with a mulch cover.

**SPECIFICATIONS**

**TEMPORARY AND PERMANENT SEEDINGS, AND SEEDING WITH BERMOGRASS**  
Vegetation cannot be expected to provide an erosion control cover and prevent soil slippage on a soil that is NOT stable due to its structure, water movement or excessive slope.

**Minimum Soil Conditions** needed for the establishment and maintenance of a long-lived vegetation cover:  
a. Enough fine-grained materials (over 30% silt and clay) to provide the capacity to hold at least a moderate amount of available moisture. Excessively porous sands which have moisture supplies consistently too low for growth of plants cannot be maintained in good cover regardless of other soil factors.  
b. Sufficient pore space to permit adequate root penetration.  
c. No concentrations of toxic elements.

**I. SITE PREPARATION**

**TEMPORARY AND PERMANENT SEEDINGS,**  
a. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring.  
b. Install needed erosion control practices such as interceptor ditches, berms and terraces, contour ripping, erosion stops and desilting basins.

**MULCHING**  
a. Grade, as needed and feasible, to permit the use of conventional equipment for applying and anchoring mulch.  
b. Install needed erosion control practices such as interceptor ditches, berms and terraces, contour ripping, erosion stops and desilting basins.  
c. Loosen the soil to a depth of 2-3 inches by discing or harrowing.

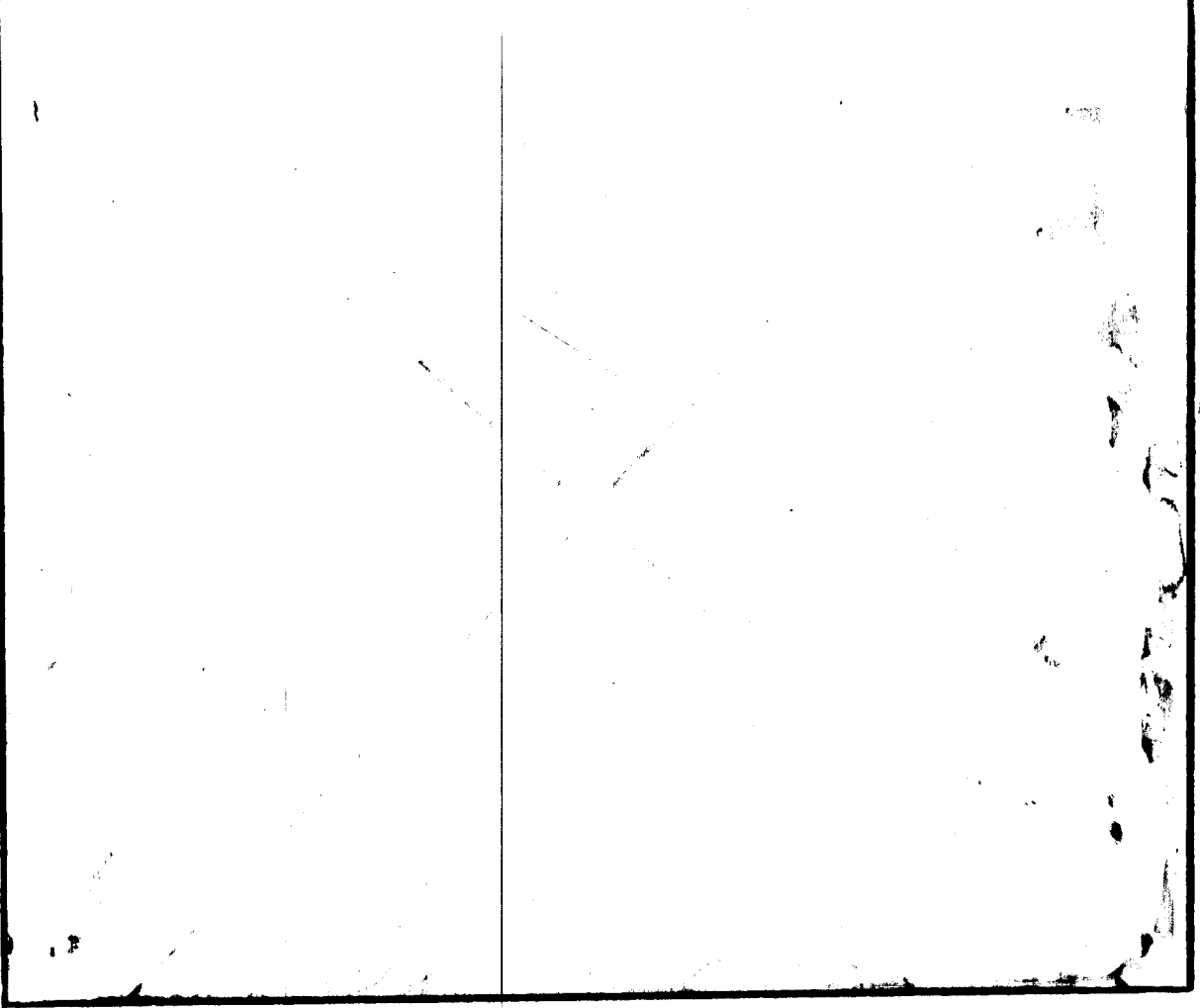
**II. SEEDBED PREPARATION**

**TEMPORARY SEEDING**  
a. Apply 4,000 pounds per acre or 22 pounds per 1,000 sq. ft. of pulverized dolomitic limestone and 600 to 800 pounds per acre or 13.8 to 18.4 pounds per 1,000 sq. ft. of 10-20-10 or equivalent fertilizer. If soils are reasonably uniform, lime and fertilizer according to soil test.  
b. Harrow or disc lime and fertilizer into the soil to a depth of at least 3 inches. Continue tillage until a reasonably uniform, fine firm seedbed has been prepared. On sloping land, the final harrowing or discing operation should be on the contour, wherever feasible.

**PERMANENT SEEDING**  
a. Apply 4,000 pounds per acre or 22 pounds per 1,000 sq. ft. of pulverized dolomitic limestone, 600 to 1,000 pounds per acre or 13.8 to 23 pounds per 1,000 sq. ft. of 0-20-20 superphosphate, or its equivalent (a higher rate of phosphate is normally needed with soils having a low silt-plus-clay content) and 1,000 pounds per acre or 23 pounds per 1,000 sq. ft. of 10-10-10 fertilizer or its equivalent. If soils are reasonably uniform, lime and fertilizer according to soil test.  
b. Harrow or disc lime and fertilizer into the soil to a depth of 2-3 inches. Continue tillage until a reasonably uniform fine, firm seedbed has been prepared. On sloping land, the final harrowing or discing operation should be on the contour wherever feasible.

**III. SEEDING**

**TEMPORARY AND PERMANENT SEEDINGS**  
a. Select a mixture from Table 1 for Temporary seedings; Select a mixture from Table 2 for Permanent seeding.  
b. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydro-seeder (slurry includes seed and fertilizer) preferably on a firm, moist seedbed. Normal coverage is from 1/4 to 1/2 inch.  
c. Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag; or following mulch application, with the mulch anchoring tool or pick chain. On sloping land, seeding operations should be on the contour wherever possible.



**IV. MULCHING**

a. Mulch Materials should be unweathered, unchopped, small grain straw (preferably wheat) at the rate of 1 1/2 to 2 tons per acre, or 70 to 90 pounds per thousand sq. ft. Wet straw may contain many viable seeds which may provide serious competition for grass and legume seedlings unless clipped.  
b. Spread uniformly by hand or mechanically so that approximately 75% of the soil surface will be covered. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square feet sections and place 3 bales, 100 lbs. of mulch for distribution within each section.  
c. Mulch anchoring should be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes and costs. On sloping land, practices 3, 4 and 5 below should be done on the contour wherever feasible.

- Mulch nettings - Stable light weight paper, jute, cotton or plastic nettings to the soil surface according to manufacturer's recommendations. Netting is usually available in rolls 4 feet wide and up to 300 feet long.
  - Mulch anchoring tool - A tractor drawn implement especially designed to punch and anchor mulch into the surface soil. This practice affords maximum erosion control, but its use is limited to those slopes upon which the tractor can operate safely. Tool penetration should be 2 - 3 inches.
  - Pick Chain - This rolling spiked-chain implement can be operated on slopes of 3:1 gradient or steeper. It is attached to a tractor or truck which operates along the top of the slope. The pick chain can also be used for seedbed preparation and mixing lime and fertilizer with the soil.
  - Asphalt Mulch Tie-down (use one of the following)
    - Liquid asphalt - rapid curing (RC-70, RC-750 or RC-800) or medium curing (MC-750 or MC-800) Apply .1 gal/sq. yd.
    - Emulsified asphalt - (SS-1, SS-K, SM-K, MS-2, RS-1, RS-2, RS-2K, or RS-3K) Apply .04 gal/sq. yd.
- Apply to area has uniform appearance.  
6. Synthetic binders.

**V. MAINTENANCE**

**PERMANENT SEEDINGS**  
Maintenance is a vital factor in maintaining an adequate vegetative erosion control cover. See Table 3.  
a. Irrigation - If soil moisture is deficient, supply new seedlings with adequate water for plant growth until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.  
b. Repairs - Inspect all seeded areas for failures and make necessary repairs, re-plantments, and reseedings within the planting season, if possible.  
1. If stand is inadequate, overseed and fertilize using half of the rates originally applied.  
2. If stand is over 60% damaged, re-establish following original lime, fertilizer, seedbed preparation and seeding recommendations.

Mowed mowing height for critical areas is 2 inches, however they may be mowed to a half inch height. The closer the mowing height, the more nitrogen feeding is required.

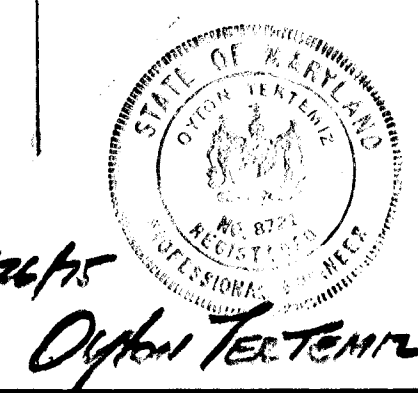


TABLE 1  
TEMPORARY SEEDINGS AND SEEDING DATES

Seeding Rate Rate Acre	Lbs. 1000 sq. ft.	PIEDMONT		
		Mar. 1 - May 15	May 15 - Aug. 1	Aug. 15 - Nov. 1
35 lbs. Italian Ryegrass	.80	X		By 9/1

TABLE 2  
PERMANENT SEEDINGS AND SEEDING DATES

SEEDING MIXTURE	Seeding Rate lbs. 1000 acre sq. ft.	SEEDING PERIODS	
		Piedmont May 1	Aug. 1 Oct. 15
3. S.P. Kentucky 31 tall fescue or P. Sericea lespedeza (incubated)	50 1.13 20 0.48	X	X

APPROVED  
DIVISION OF LAND DEVELOPMENT  
DATE 4-28-76  
SPL

\*Hulled seed for spring and unhulled seed for fall seedings. Increase listed seeding rate by 25% when using unhulled seed.  
NOTE: Seedings with sericea lespedeza or birdsfoot trefoil should be used only when cover will remain 2 or more years.  
\*\*SP - Semi-Permanent P - Permanent

TABLE 3  
MAINTENANCE FERTILIZATION AND MOWING FOR PERMANENT SEEDINGS

Mixture Number	Seeding Mixtures	Formulation	Fertilization Rate		Time	Mowing
			lbs. ac.	Lbs 1000 sq. ft.		
2, 6, 8, 9	Tall fescue makes up 70% or more of cover	10-10-10	500	11.5	Fall, Yearly, or as needed	*Not closer than 4 inches if occasional mowing is desired.
3, 10	Fairly uniform stand of tall fescue & sericea lespedeza or sweet clover	5-10-10	500	11.2	Fall Year following establishment and every 4 to 5 yrs. thereafter.	Not required. Not closer than 4 inches if occasional mowing is desired and then in fall after sericea seed has matured

\*Keep mowers off slopes that might be damaged by wheel tracks

INTERIM  
STANDARD AND SPECIFICATION  
FOR  
CRITICAL AREA STABILIZATION (WITH SOD)  
CONDITIONS WHERE PRACTICE APPLIES

SPECIFICATIONS

SECTION I - FERTILIZER AND LIME MATERIALS AND FINAL SOIL PREPARATION

NOTE: Specifications given in this section apply both to areas where topsoil has been added and to areas where soil from existing site is used.

A. General: The contractor shall furnish all labor, material and equipment required to complete the work described herein in strict accordance with the drawings and or terms of the contract.  
B. Materials: Soil tests shall be made to determine the exact requirements for both lime and fertilizer. Soil tests shall be conducted by a state laboratory or recognized commercial laboratory.

1. Fertilizers: All fertilizers shall be uniform in composition, free flowing and suitable for application with approved equipment. Fertilizer shall be delivered to the site fully labeled according to applicable State Fertilizer Laws and shall bear the name, trade name or trade-mark, and warranty of the producer. Fertilizer application rates shall be determined by soil tests. (Under unusual circumstances where there is insufficient time for a complete soil test, fertilizer materials which supply 2% lbs. actual N per 1000 sq. ft., 2% lbs. actual P<sub>2</sub>O<sub>5</sub> per 1000 sq. ft., and 2% lbs. actual K<sub>2</sub>O per 1000 sq. ft. can be applied.) Fertilizer shall be distributed evenly over the area to be sodded.  
2. Lime: Lime material shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Ground limestone shall be ground to such fineness that at least 50% will pass through a 100-mesh sieve and 98 to 100% will pass through a 20-mesh sieve. Application rates for liming materials shall be determined by soil tests. (Under unusual circumstances where there is insufficient time for a complete soil test, lime shall be applied at a minimum rate of 50 pounds of ground limestone or its equivalent per 1000 sq. ft.) Lime shall be distributed uniformly over the entire area to be sodded.

C. Grading:  
1. Tillage: Lime and fertilizer shall be uniformly mixed into the top 4 inches of soil by discing, harrowing, or other approved methods.  
2. Final Grading: Any undulations or irregularities in the surface resulting from fertilizing, liming, tilling or other causes shall be leveled prior to sodding. Flooded, washed out or areas damaged otherwise shall be reconstructed and all grades re-established by the contractor in accordance with the drawings and/or other applicable specifications.

D. Clean Up: Prior to sodding, the surface shall be cleared of all trash, debris and stones larger than 1 1/2 inches in diameter, and of all roots, brush, wire, grade stakes and other objects that would interfere with planting or maintenance operations.  
E. Acceptance: Acceptance shall be given by the general contractor, owner, architect or their agent upon satisfactory completion of each section or area as indicated on the drawings or as otherwise specified.  
F. General Contractor's Responsibility: The general contractor shall be responsible for maintaining the accepted areas which are to be sodded until the effective date to begin sodding operations. The effective sodding date shall be specified in a written notice from the general contractor.

SECTION II - SOD MATERIALS AND INSTALLATION

A. General: The contractor shall furnish all labor, material and equipment required to complete the work described herein in strict accordance with the drawings and or terms of the contract. All previously established grades shall be maintained in conformance with the drawings and/or other specifications.

B. Materials:  
1. Class of Sod and Composition: Class of turfgrass sod shall be approved or better (Architect to specify State "Certified Sod", State "Approved Sod" or other. See "Explanation of Classes of Turfgrass Sod" on p. 7, 200, Appendix B-3). Turfgrass sod shall be composed of (See Note) (Architect to specify one mixture or variety of grass. See "Explanation of Composition of Turfgrass Sod" on p. 7, 200, Appendix B-4).  
2. Thickness of Cut: Sod shall be machine cut at a uniform soil thickness of 3/4 inches, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.  
3. Pad Size: Individual pieces of sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard width and lengths shall be 5%. Broken pads and thin or uneven ends will not be acceptable.  
4. Strength of Sod Sections: Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section.  
5. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.  
6. Time Limitations: Sod shall be harvested, delivered and installed within a period of 36 hours. Sod not transplanted within this period shall be inspected and approved by the inspecting officer or his representative prior to its installation.

Installation:  
NOTE: To help insure proper turfgrass establishment, sod should always be installed on areas that have been prepared in accordance with Section I of these specifications (Fertilizer and Lime Materials and Final Soil Preparation)

- Moistening the Soil: During periods of high temperature and after all unevenness in the soil surface has been corrected, the soil shall be lightly irrigated immediately prior to laying the sod.
  - Starter Strip: The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to insure that the sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which could cause air drying of the roots.
  - Sloping Surfaces: On sloping areas where erosion may be a problem, sod shall be laid with staggered joints and secured by tamping, pegging, or other approved methods.
  - Watering and Rolling: Contractor shall water sod immediately after installation to prevent excessive drying during progress of the work. As sodding is completed in any one section, the entire area shall be rolled. It shall then be thoroughly irrigated to a depth sufficient that the underside of the new sod pad and soil immediately below the sod are thoroughly wet. The general contractor shall be responsible for having adequate water available at the site prior to and during installation of the sod. Complete operation to be finished within 48 hours of laying of the sod.
- D. Acceptance: Acceptance of the installed sod shall be on a daily basis within 14 hours of completion of an area or section unless otherwise specified.  
E. Disclaimer: The contractor shall not be held liable for damages incurred to sod caused by deicing compounds, fertilizers, pesticides or other materials not applied by him or under his supervision, nor for those caused by acts of God or vandalism.  
F. Guarantee: The contractor shall guarantee work covered by this specification to the extent that all installed sod shall be uniform in color and quality and reasonably free of visible imperfections at acceptance.  
G. General Contractor's Responsibility: The general contractor shall be responsible for maintaining the accepted sodded areas until the effective date for turf maintenance operations (Section III: Maintenance of Installed Sod) to begin. The effective date shall be specified in a written notice from the general contractor.

SECTION III - MAINTENANCE OF INSTALLED SOD

A. General: The contractor shall furnish all labor, material and equipment required to complete the work described herein in strict accordance with the drawings and or terms of the contract. The general contractor shall supply adequate water to the site.  
B. Watering:

- First Week: The contractor shall provide all labor and arrange for all watering necessary for establishment of the sod. Sod on sod pads shall be kept moist at all times. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least 4 inches. Watering should be done during the heat of the day to help prevent wilting.
- Second and Subsequent Weeks: The contractor shall water the sod as required to maintain adequate moisture in the upper 4 inches of soil necessary for the promotion of deep root growth.

C. Mowing: The first mowing shall not be attempted until the sod is firmly rooted and secure in place. Not more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2 and 3 inches unless otherwise specified.  
D. Time Limitation: Duration of maintenance responsibilities shall be for 30 days unless otherwise specified.  
E. Disclaimer: The contractor shall not be held liable for damage incurred to sod caused by deicing compounds, fertilizers, pesticides and other materials not applied by him or under his supervision nor those caused by acts of God or vandalism.  
F. Guarantee: The contractor shall guarantee work covered by this specification to the extent that all sod shall be uniform in color and quality and shall be reasonably free of weeds, diseases or other visible imperfections at acceptance.

NOTE - SOD COMPOSITION  
Tall fescue 80% to 100% Kentucky 31 Kentucky bluegrass 5% to 20% Merion, Fiking, Kenblue, Penstar, South Dakota Certified or winners.  
NOTE - When Kentucky bluegrass are included in the mixture, merion should comprise half of bluegrass portion.

DEVELOPERS CERTIFICATE

I certify that all development and/or construction will be done according to this plan of development and plan for Erosion and Sediment Control and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.  
Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.

Signature of developer: *O'Neil Terrence* date: 11/26/75  
Reference: MD Va. Pub. - 1, Guideline Specifications: Soil Preparation and Sodding'

DEPARTMENT OF PUBLIC WORKS  
*Strawville W. McLeod* 8/16/76  
CHIEF, BUREAU OF HIGHWAYS DATE  
OFFICE OF PLANNING AND ZONING  
*M. Clausen* 8/13/76  
DIVISION OF LAND DEVELOPMENT DATE  
& RECONSTRUCTION PLANNING

ENGINEERS CERTIFICATE  
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.  
Signature of engineer: *O'Neil Terrence* date: 11/26/75



GREENHORNE & O'MARA, INC.  
ENGINEERS · ARCHITECTS · PLANNERS · SURVEYORS  
6715 KENILWORTH AVE., RIVERDALE, MD.  
301/277-2121 20840

STANDARD SPECIFICATIONS FOR CRITICAL AREA STABILIZATION			
FOR SEDIMENT CONTROL PLAN SECTION 7 WARFIELD ESTATES HOWARD COUNTY, MARYLAND			
K.D. DESIGN 73	24.	DRAWN	SCALE —
T.C. CHECKED	SHEET No. 11 OF 11	DATE	JOB No. 5248-X FILE No.
Nov. 1975			