

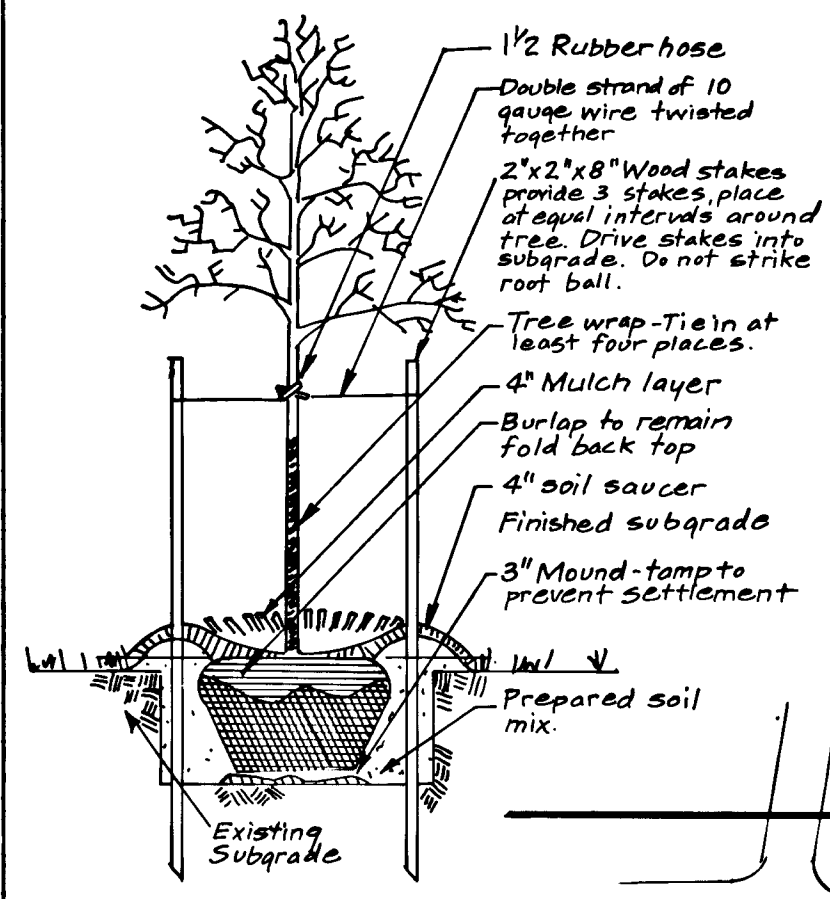
NOTE:
 1. The contractor shall verify location of underground utilities prior to digging, location of trees may be adjusted slightly to meet field conditions.
 2. The location, type & number of trees shown are tentative and are used for bond purposes only. The final location and variety of trees may vary to accommodate field conditions and Builders landscape program. Bond release is contingent upon Section 16.131 of the Howard County subdivision Regulations as approved by the Office of Planning and Zoning.

SYM.	TYPE	SIZE	QUANT.	REMARKS
(2)	LEAFY BRANDED VINE GREEN VINE	2 1/2" HT	24	PLANT LEAVES

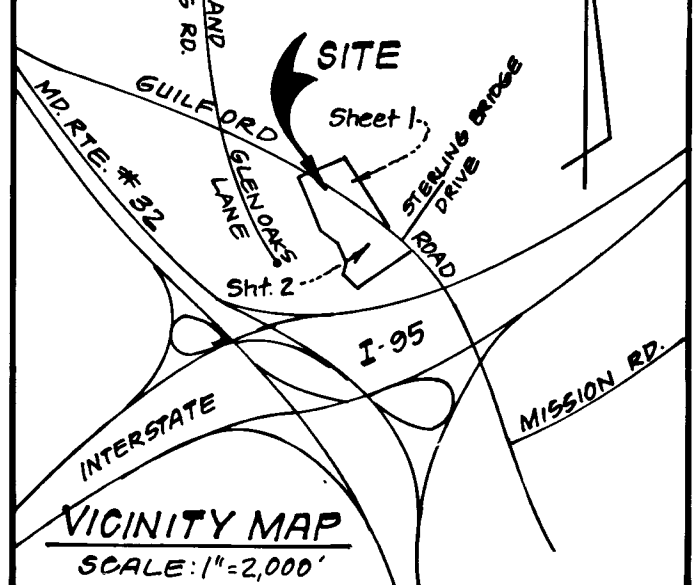
CENTERLINE CURVE DATA						
PC to PT	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
0+51.16 to 1+22.69	56.86'	72°05'11"	71.53'	41.37'	66.21'	N6°57'26"E
1+22.69 to 2+30.20	140.00'	44°00'00"	107.51'	56.56'	104.88'	S60°00'00"E
2+35.31 to 3+46.66	220.00'	29°00'00"	111.35'	56.90'	110.17'	S52°30'00"E

CURB & GUTTER LEGEND:
 SHA TYPE A C & G
 MOD. COMB. C & G
 STD. 7" COMB. C & G
 BARRIER CURB

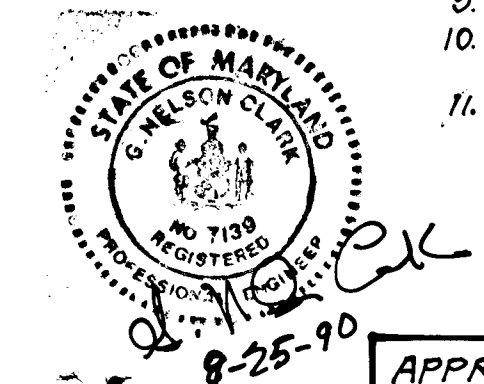
- GENERAL NOTES**
- All work shall be done in accordance with Ho. Co. Design Manual, Vol. II Std. and Specs. and Details for Construction, 1990 Edition.
 - Types of storm drainage refer to the standard details of Ho. Co. & MDSHA.
 - Trench compaction for storm drains within road or street right-of-way limits shall be in accordance with "Ho. Co. Design Manual, Vol. II", Std. G.201.
 - Information concerning underground utilities was obtained from available records but the contractor must determine the exact location and elevation of mains by digging test pits, by hand, at all utility crossings, well in advance of construction.
 - All utility companies shall be notified 24hrs. in advance of construction.
 - All traffic services, parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices", 1988 Revised Edition.
 - Sag and Crest Vertical Curves were designed in accordance with "Ho. Co. Design Manual", Vol. III.
 - Provide conc. sidewalk ramps. See details sht. 3.
 - Design Speed: see Det. sht. 3.
 - The contractor or developer shall contact the Bureau of Construction Inspection 24hrs in advance of commencement of work. Ph. 792-7272.
 - The 24" RCP Under Private Drive A (S-15-S-14) to be privately owned and maintained.



H.D. LASTER, et ux
 L. 252 F. 360



GLENSHIRE TOWNE
 PLATS 6068 & 6069

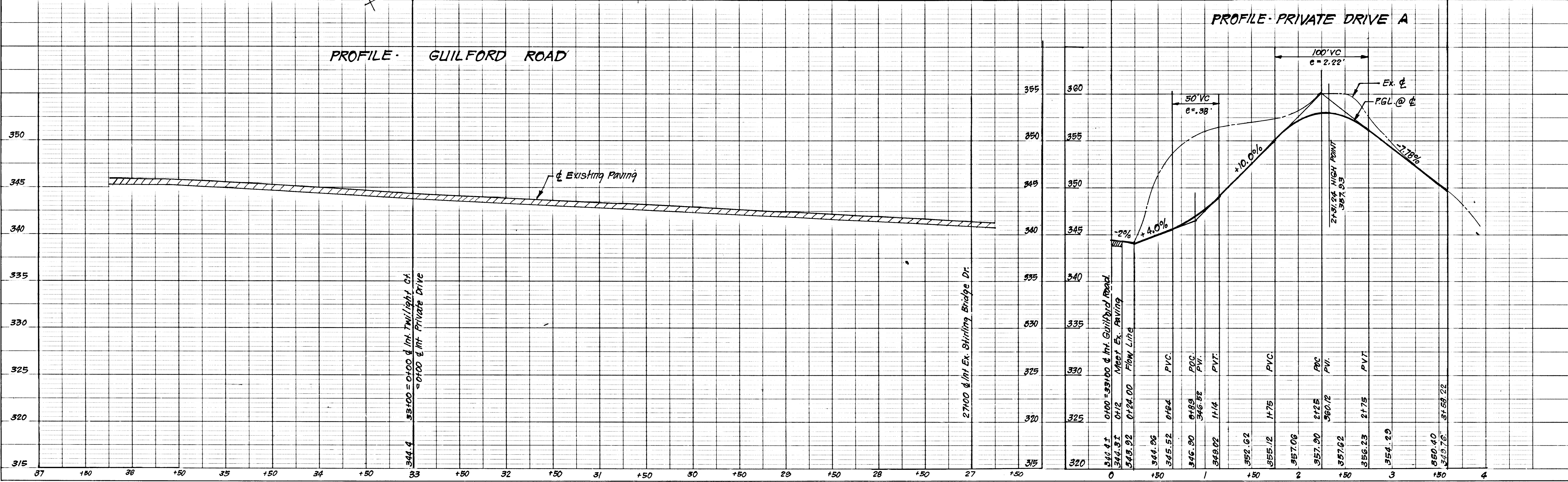
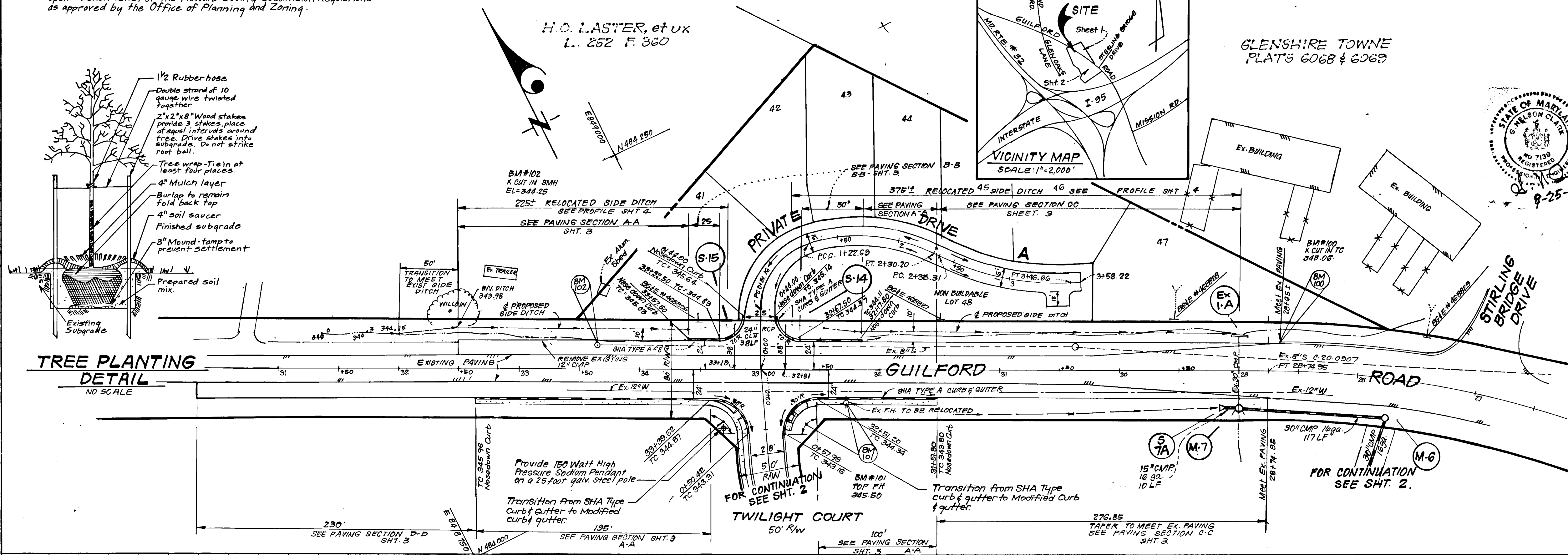


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division
 Chief, Bureau of Engineering
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Community Planning & Land Development

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH.

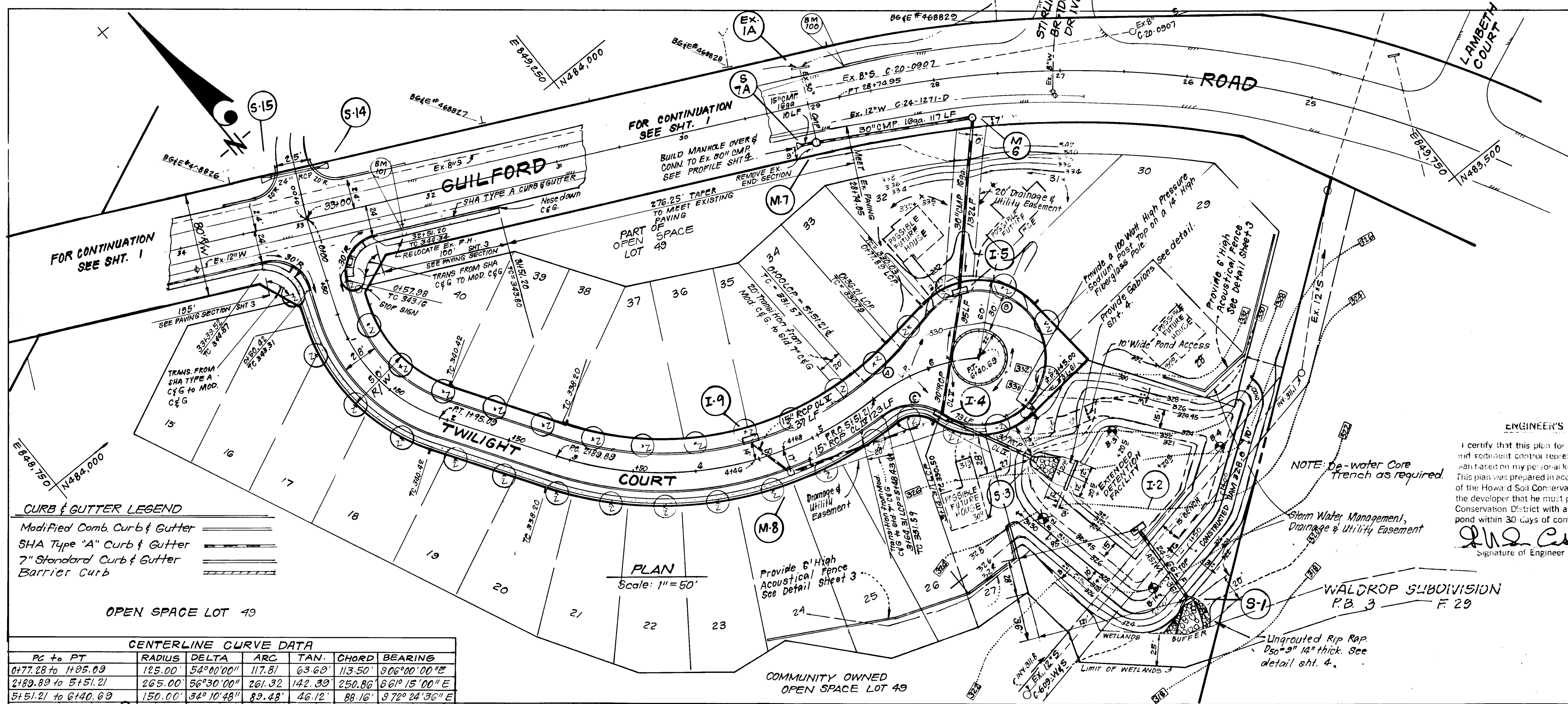
DESIGNED	ROAD CONSTRUCTION PLANS WIDENING ON GUILFORD ROAD PRIVATE COURT A	SCALE AS SHOWN
DRAWN	MAPLESIDE	DRAWING 1 OF 7
CHECKED	VILLAGE OF KINGS CONTRIVANCE SECTION 5 AREA 4	JOB NO. 89-036
DATE	6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO. 89-036-D

FOR: THE HOWARD RESEARCH & DEVELOPMENT LAND CO.
 10275 Little Patuxent Parkway
 Columbia, Maryland 21043



1597

F-91-52



CURB & GUTTER LEGEND
 Modified Comb Curb & Gutter
 SHA Type "A" Curb & Gutter
 7" Standard Curb & Gutter
 Barrier Curb

CENTERLINE CURVE DATA

PC to PT	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
0+77.28 to 1+85.09	125.00	54°00'00"	117.81	63.69	113.50	S06°00'00"E
2+89.89 to 5+51.21	265.00	56°30'00"	261.32	142.39	250.86	S69°15'00"E
5+51.21 to 6+140.69	150.00	34°10'48"	89.48	46.12	88.16	S77°24'36"E
CUL-DE-SAC CURVE DATA (A)	251.00	09°16'00"	36.21	18.12	36.18	N86°22'00"E
CUL-DE-SAC CURVE DATA (B)	52.00	260°20'57"	236.42	0.00	79.38	S37°22'50"W
CUL-DE-SAC CURVE DATA (C)	40.00	71°37'56"	50.00	28.87	46.82	N53°05'01"W

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

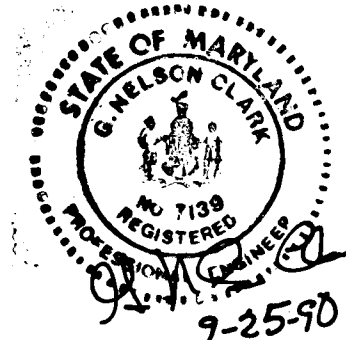
Approved: *Robert J. Zelman* 3/28/91
 Howard S.C.D. Date
F-91-52
 Plan Number

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

John M. Dittler 3/28/91
 Soil Conservation Service Date

Developers Certification:
 "I/we certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

William J. Roberts 9/25/90
 Signature of Developer Date



ENGINEER'S CERTIFICATE
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion.

John M. Dittler 9-25-90
 Signature of Engineer Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Dittler 4/1/91
 Chief, Land Development Division Date

Donna W. Walsland 4/2/91
 Chief, Bureau of Highways Date

John M. Dittler 4-12-91
 Chief, Bureau of Engineering Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Mark J. Caylor 4/3/91
 Chief, Division of Community Planning & Land Development Date

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ROAD CONSTRUCTION PLANS
 TWILIGHT COURT

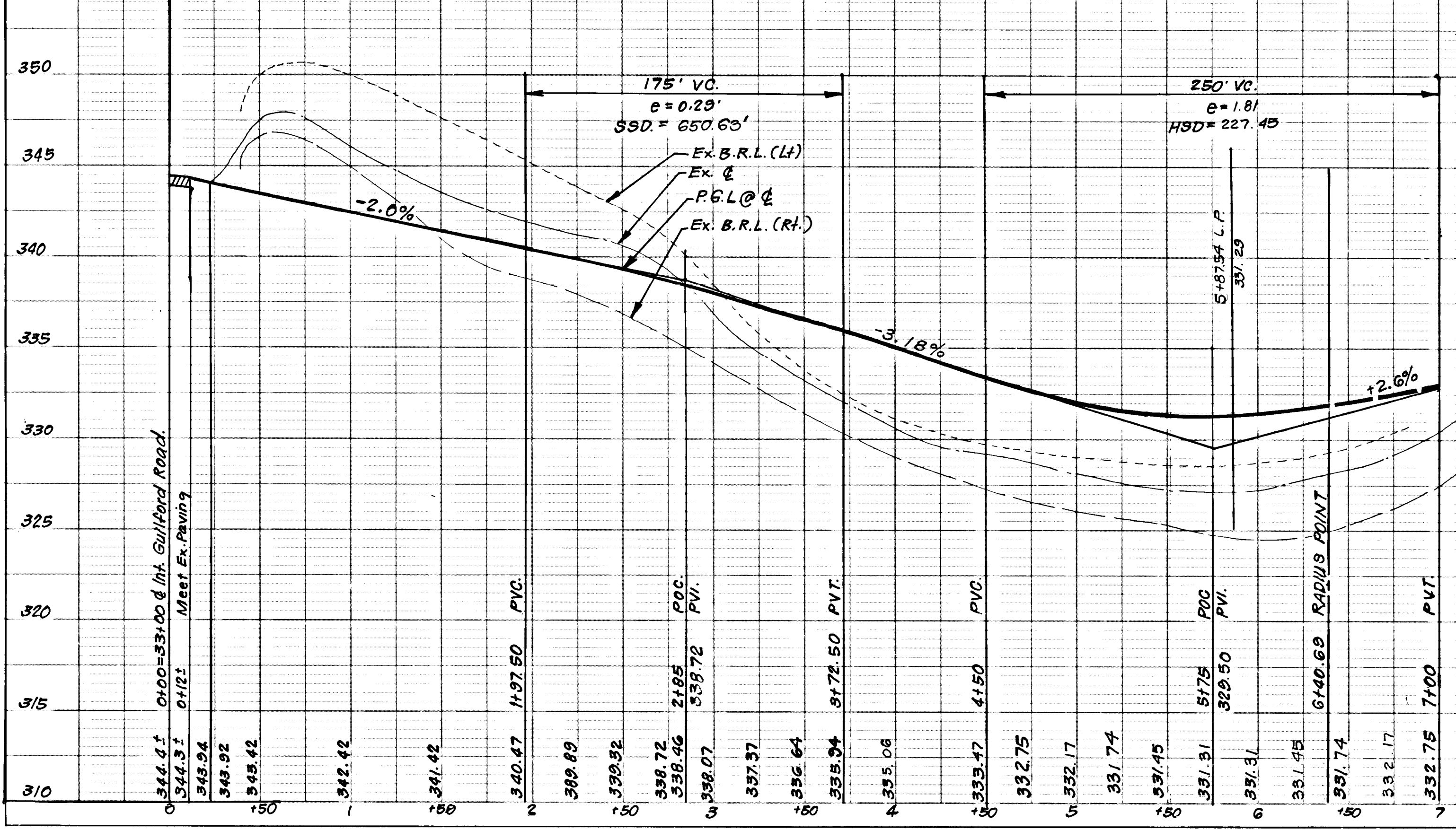
MAPLESIDE
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 5 AREA 4
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

DESIGNED: KIWM
 DRAWN: VLM
 CHECKED: KIWM
 DATE: Sept. -90

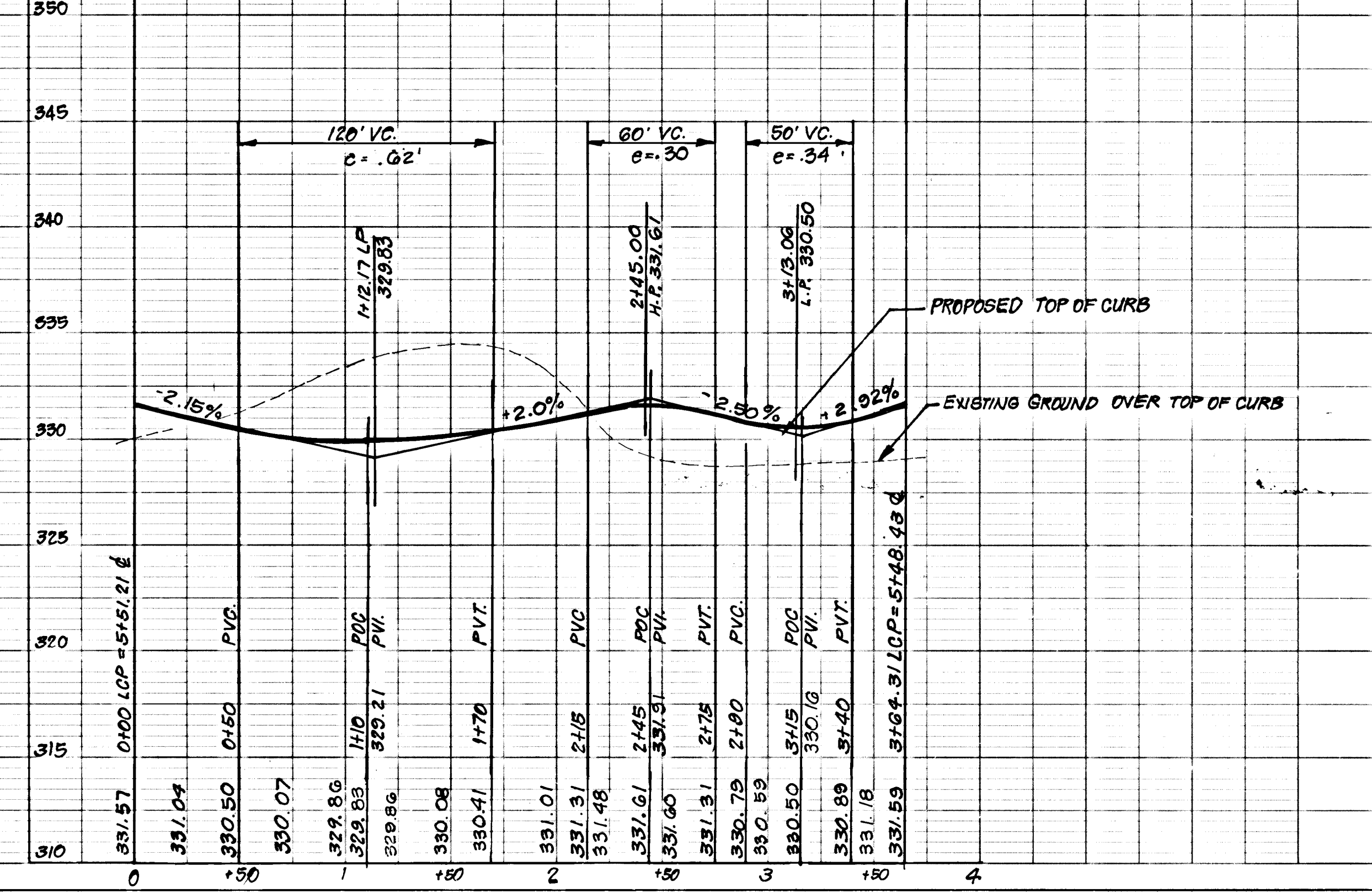
SCALE: As Shown
 DRAWING: 2 OF 7
 JOB NO.: 89-036
 FILE NO.: 89-036-D

FOR: THE HOWARD RESEARCH & DEVELOPMENT LAND CO.
 10275 Little Patuxent Parkway
 Columbia, Maryland 21043

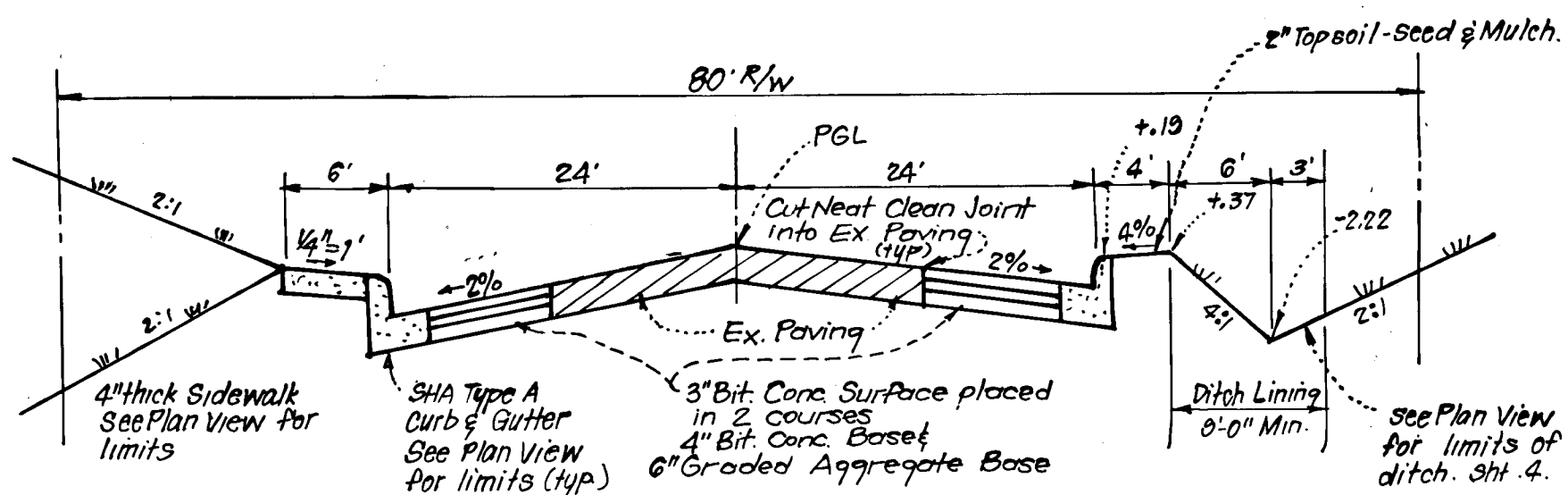
PROFILE - TWILIGHT COURT



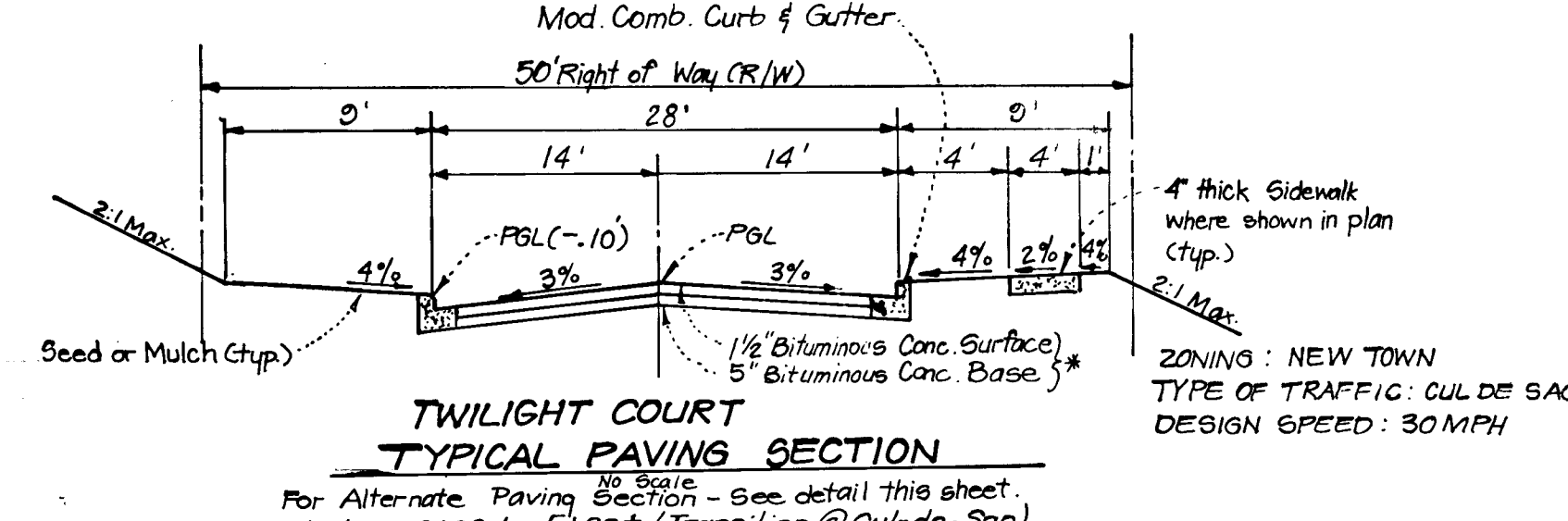
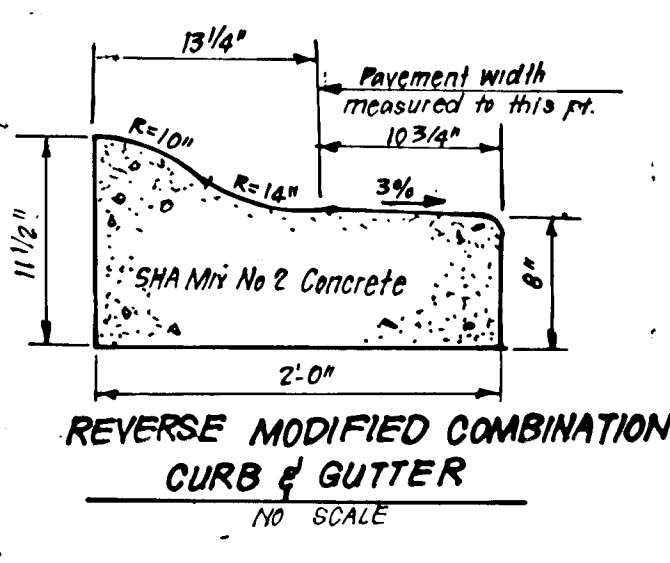
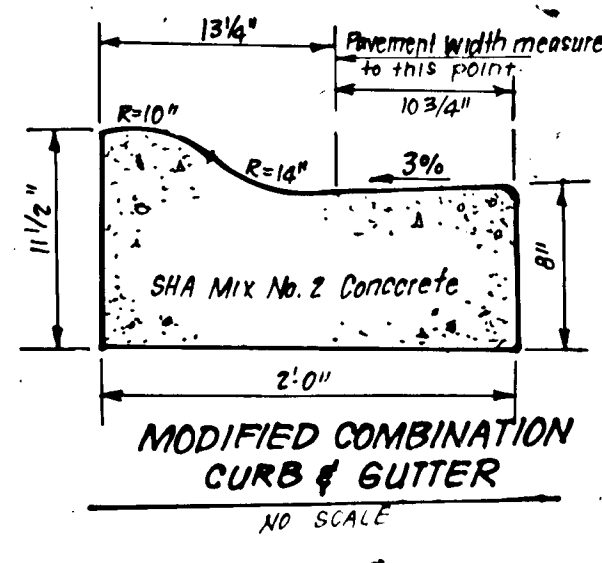
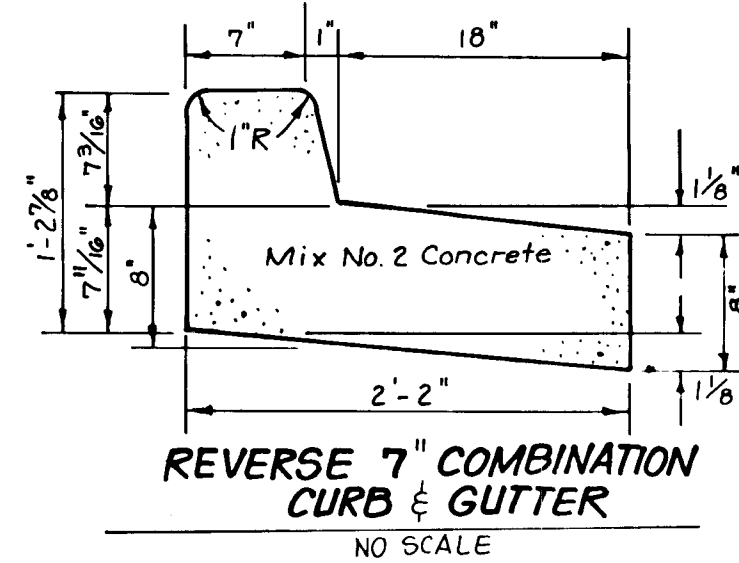
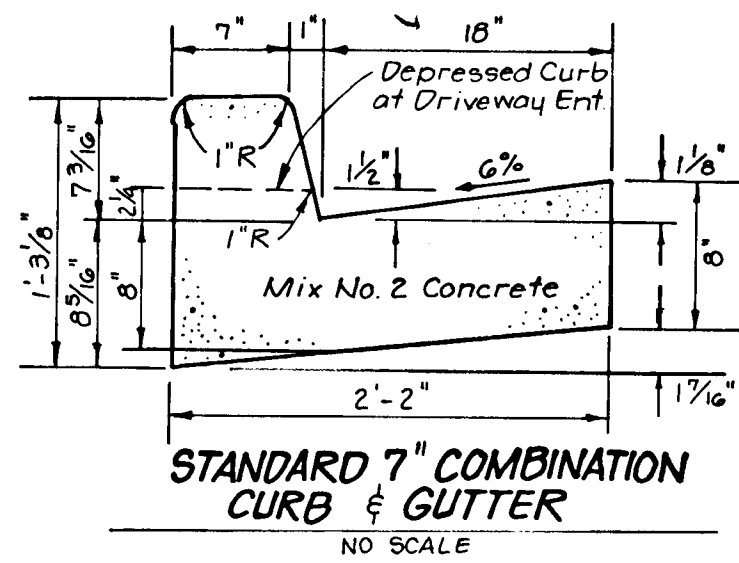
LINEAR CURB PROFILE (LCP) TWILIGHT COURT



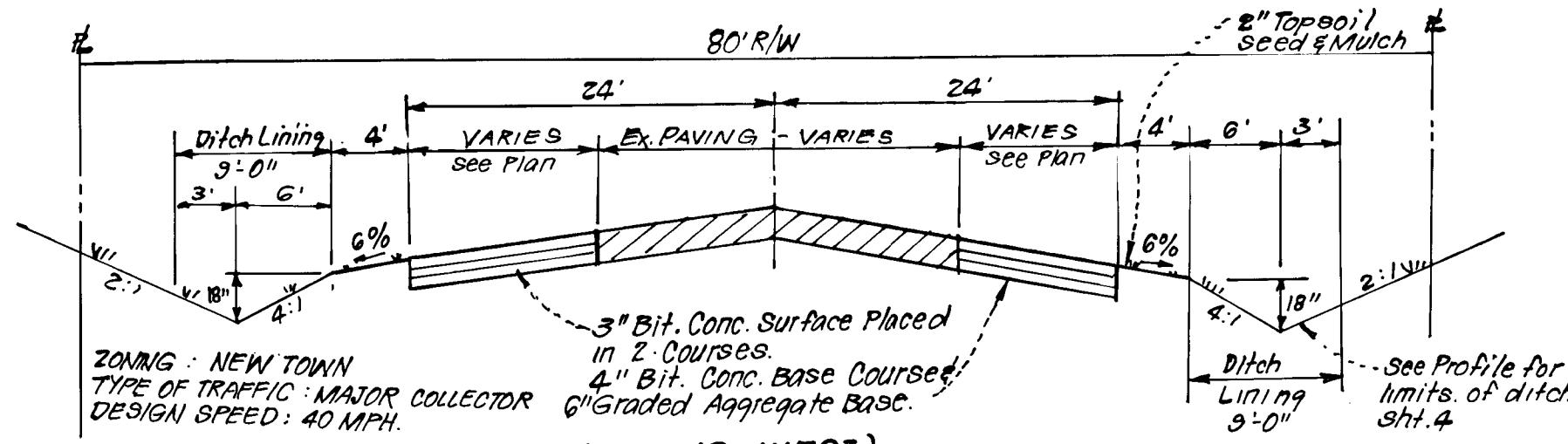
1591



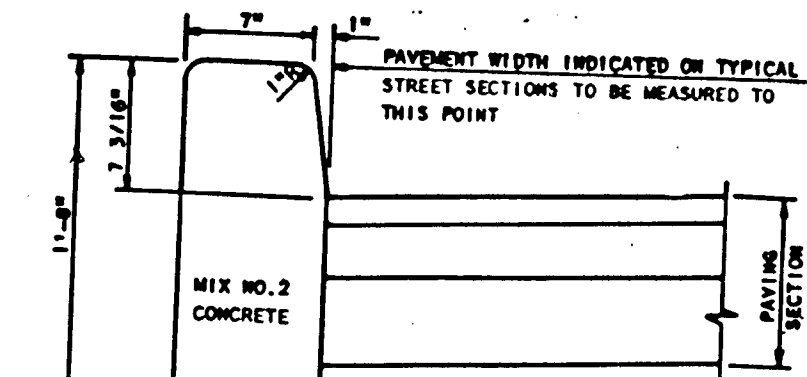
Zoning: New Town
Type of Traffic: Major Collector
Design Speed: 40 mph
(LOOKING WEST)
TYPICAL PAVING SECTION B-B GUILFORD ROAD
(SEE PLAN VIEW FOR LIMITS)
NO SCALE



ZONING: NEW TOWN
TYPE OF TRAFFIC: CUL-DE-SAC
DESIGN SPEED: 30 MPH
TWILIGHT COURT
TYPICAL PAVING SECTION
For Alternate Paving Section - See detail this sheet.
Station 0+00 to 5+30± (Transition @ Cul-de-Sac)



ZONING: NEW TOWN
TYPE OF TRAFFIC: MAJOR COLLECTOR
DESIGN SPEED: 40 MPH
(LOOKING WEST)
TYPICAL PAVING SECTION C-C GUILFORD ROAD
(SEE PLAN VIEW FOR LIMITS)
NO SCALE



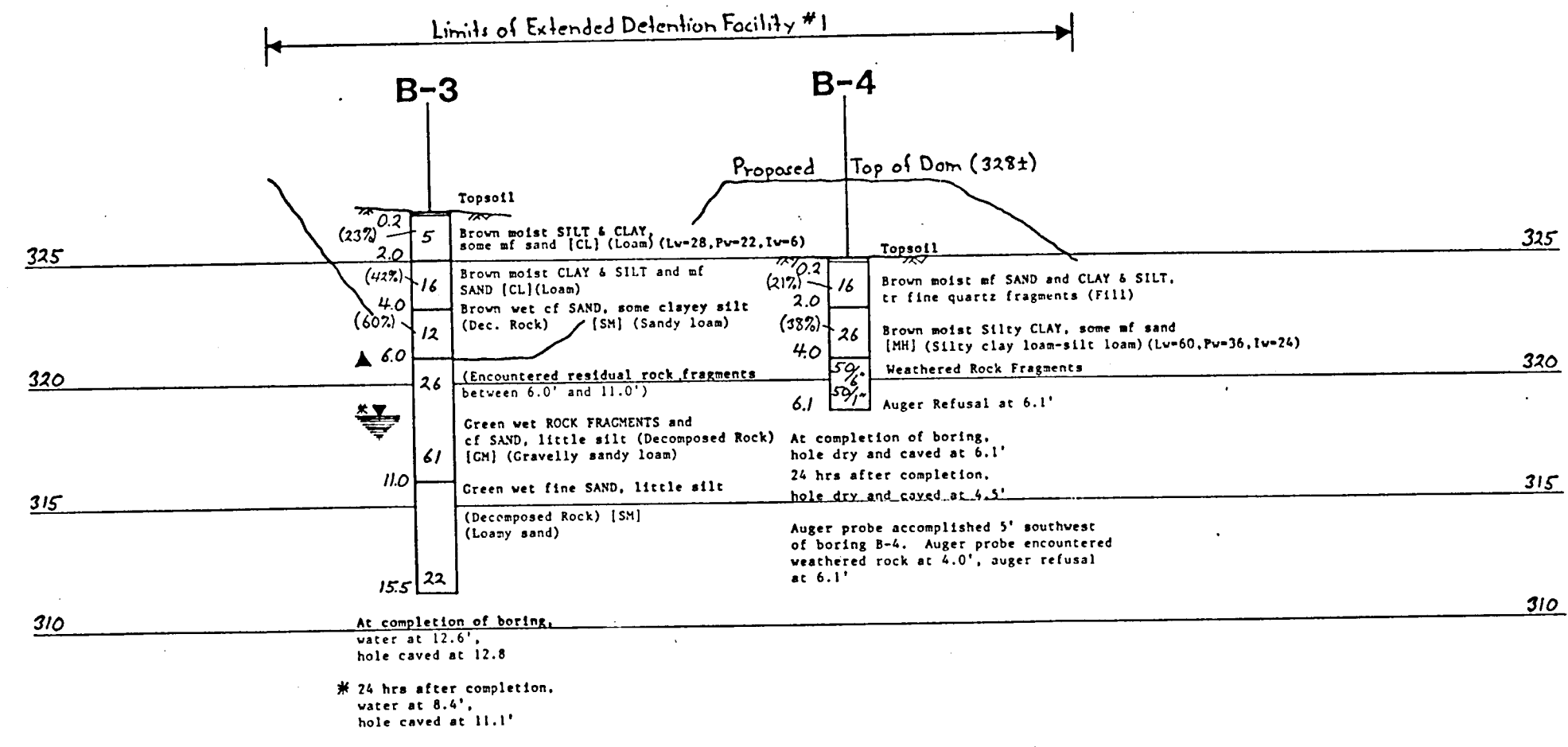
STANDARD BARRIER CURB
NO SCALE
TO BE USED WHERE MONOLITHIC SIDEWALK IS NOT REQUIRED

1 1/2" Bituminous Conc. Surface	1"
2" Bituminous Conc. Base	2"
Prime	
5" Bituminous Crusher Run Base Course or	5" or 4"
4" Dense Graded Stabilized Aggregate Base Course	4"

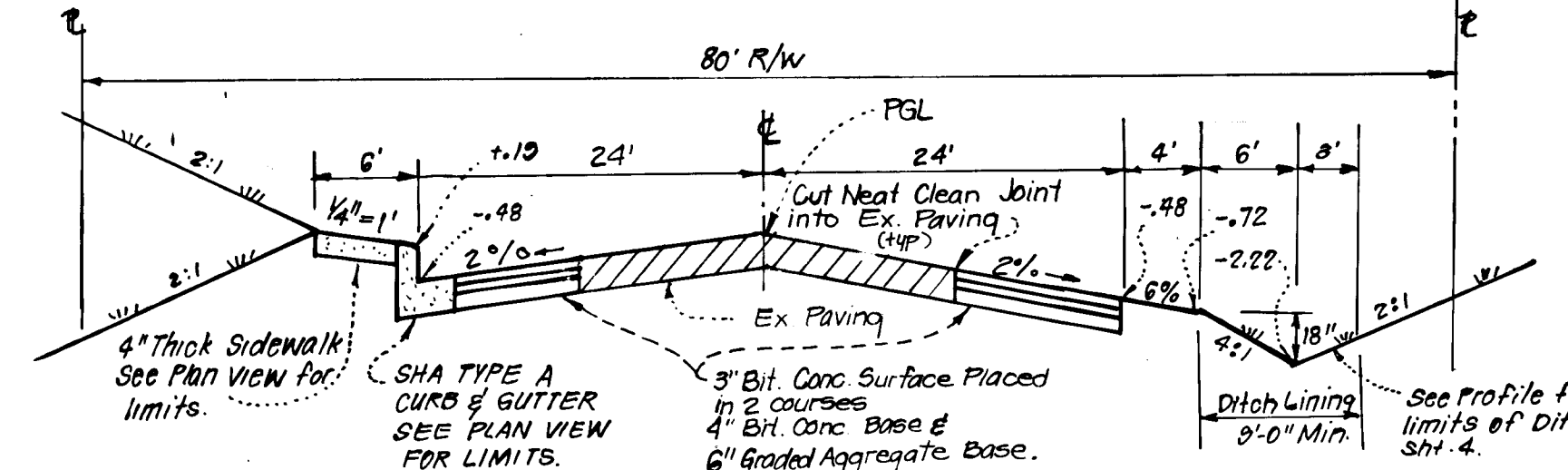
ALTERNATE PAVING SECTION FOR PARKING AREAS
(SECTION P-1)
NO SCALE

Bituminous Conc. Surface	1 1/2"
Bituminous Conc. Base	2 1/2"
Prime	
8" Crusher Run Base (Placed in 2 Courses) or	8" or 6"
6" Dense Graded Stabilized Aggregate Base Course	6"

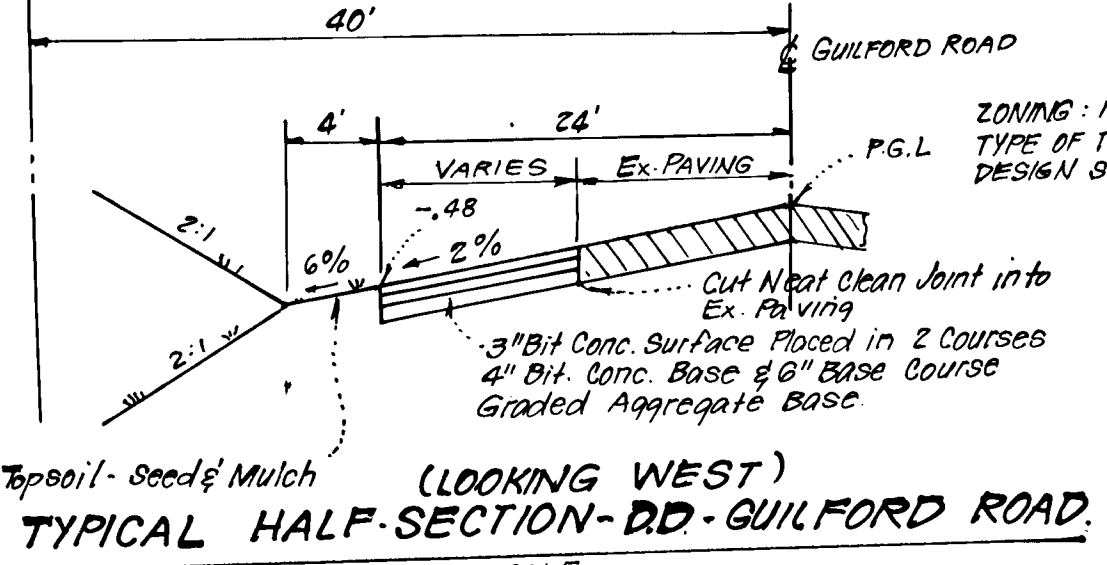
ALTERNATE PAVING SECTION FOR PUBLIC ROADS
(SECTION P-2)
NO SCALE



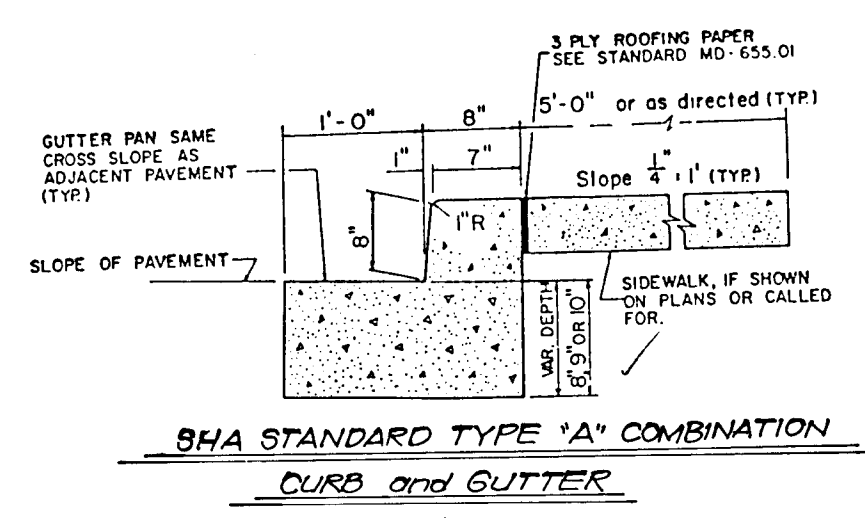
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Horiz. Scale: 0, 20, 40 (ft)
SECTION B-B BORING PROFILE



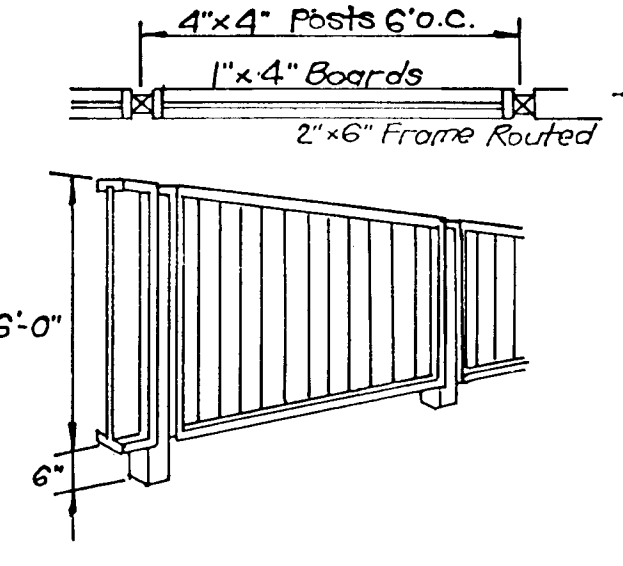
ZONING: NEW TOWN
TYPE OF TRAFFIC: MAJOR COLLECTOR
DESIGN SPEED: 40 MPH
(LOOKING WEST)
TYPICAL PAVING SECTION A-A GUILFORD ROAD
(SEE PLAN VIEW FOR LIMITS)
NO SCALE



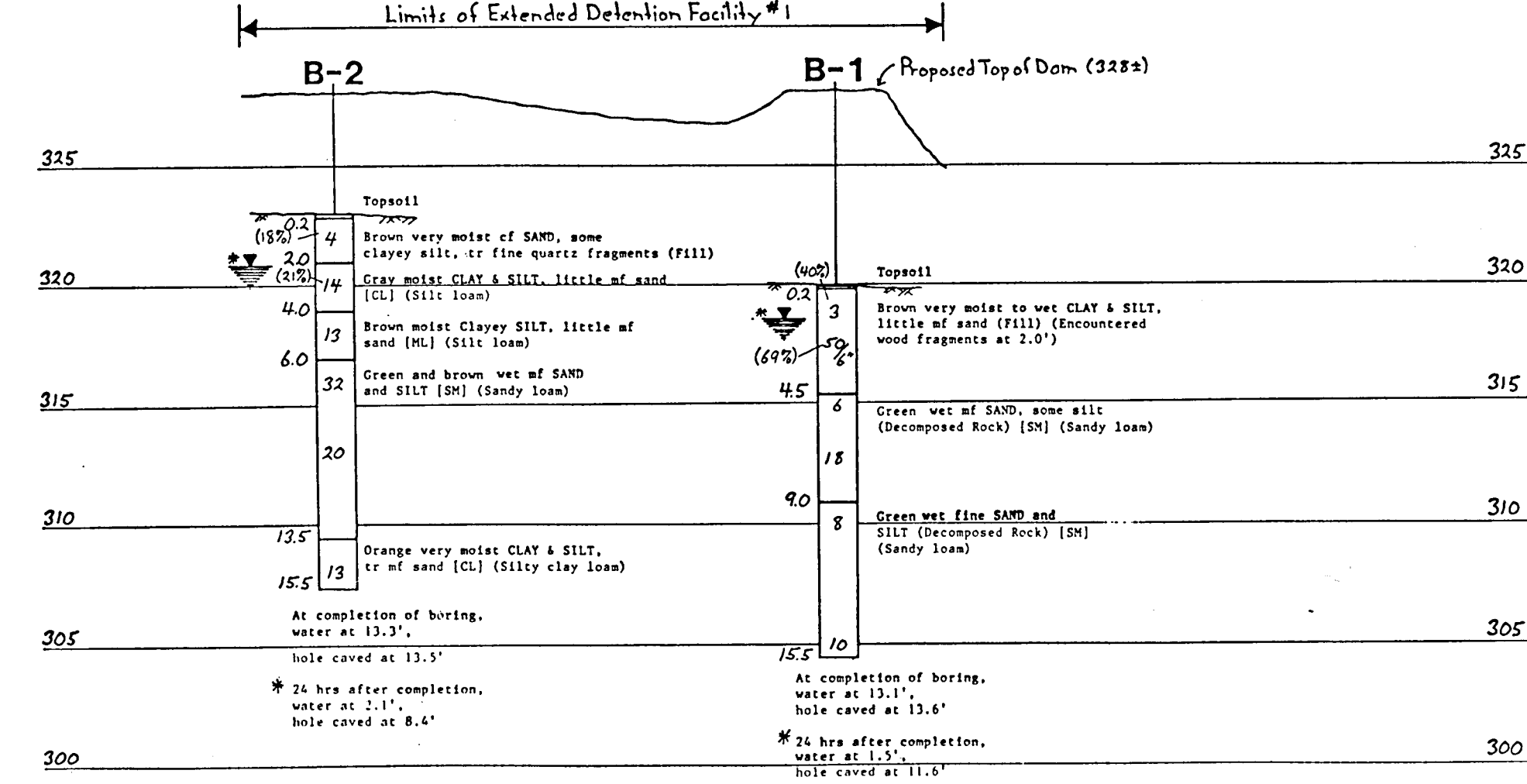
ZONING: NEW TOWN
TYPE OF TRAFFIC: MAJOR COLLECTOR
DESIGN SPEED: 40 MPH
(LOOKING WEST)
TYPICAL HALF-SECTION D-D GUILFORD ROAD
NO SCALE



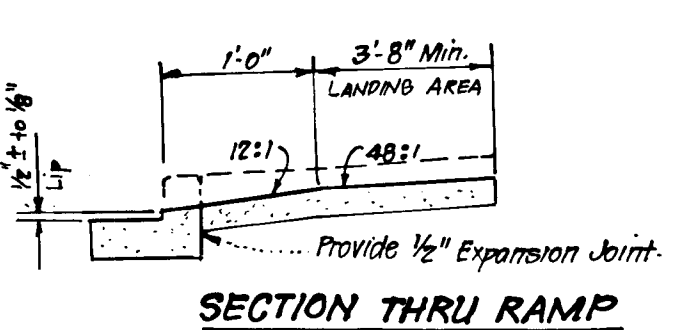
SHA STANDARD TYPE 'A' COMBINATION CURB AND GUTTER
NO SCALE



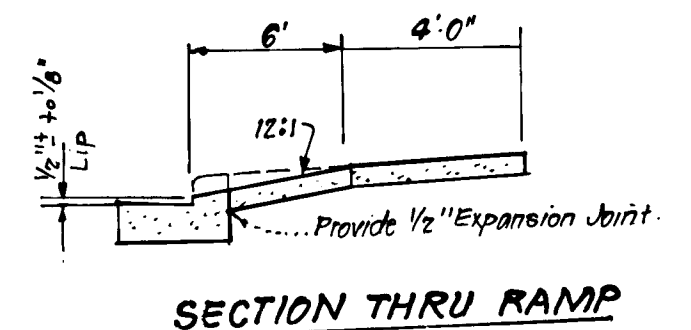
6' HIGH ACOUSTICAL FENCE
NO SCALE



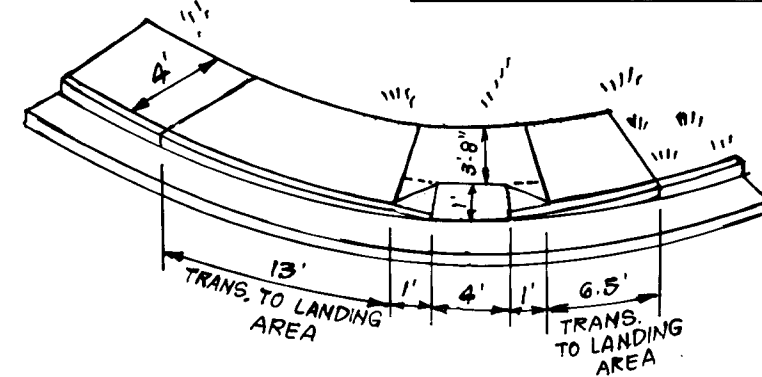
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Horiz. Scale: 0, 20, 40 (ft)
SECTION A-A BORING PROFILE



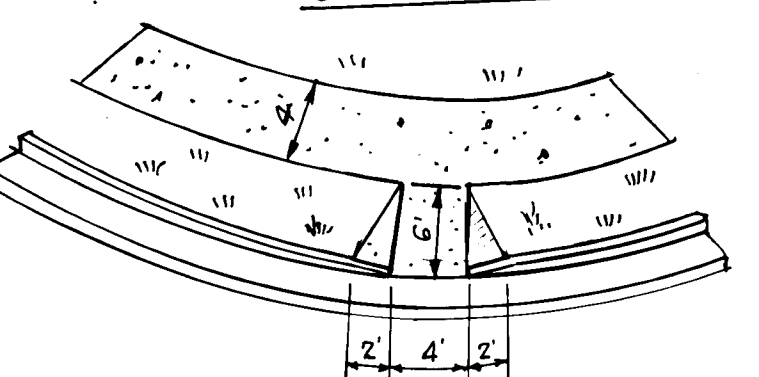
SECTION THRU RAMP



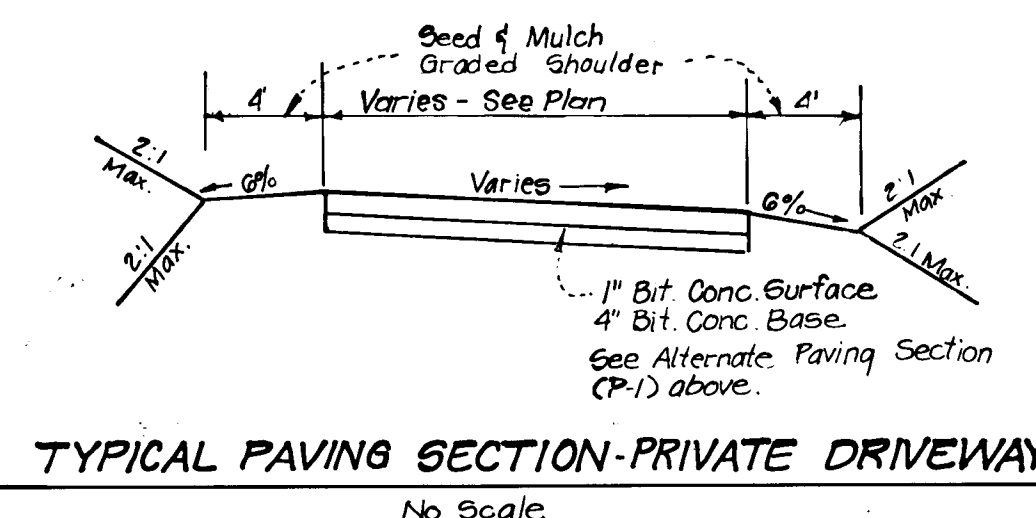
SECTION THRU RAMP



NOTE: FOR DETAILS NOT SHOWN SEE SHA STD NO. MD 655.1B.
DETAIL - SIDEWALK RAMP AT S.W. CORNER OF GUILFORD ROAD & TWILIGHT COURT.
NO SCALE



DETAIL - SIDE WALK RAMP AT S.E. CORNER OF GUILFORD RD & TWILIGHT CT
NO SCALE



TYPICAL PAVING SECTION - PRIVATE DRIVEWAY
NO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
Olga M. Pongora 4/14/91
CHIEF, LAND DEVELOPMENT DIVISION DATE

Brandon W. Welland 4/12/91
CHIEF, BUREAU OF HIGHWAYS DATE

Gregory R. Rouse 4-12-91
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.
Mark J. K. Angell 4/15/91
CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

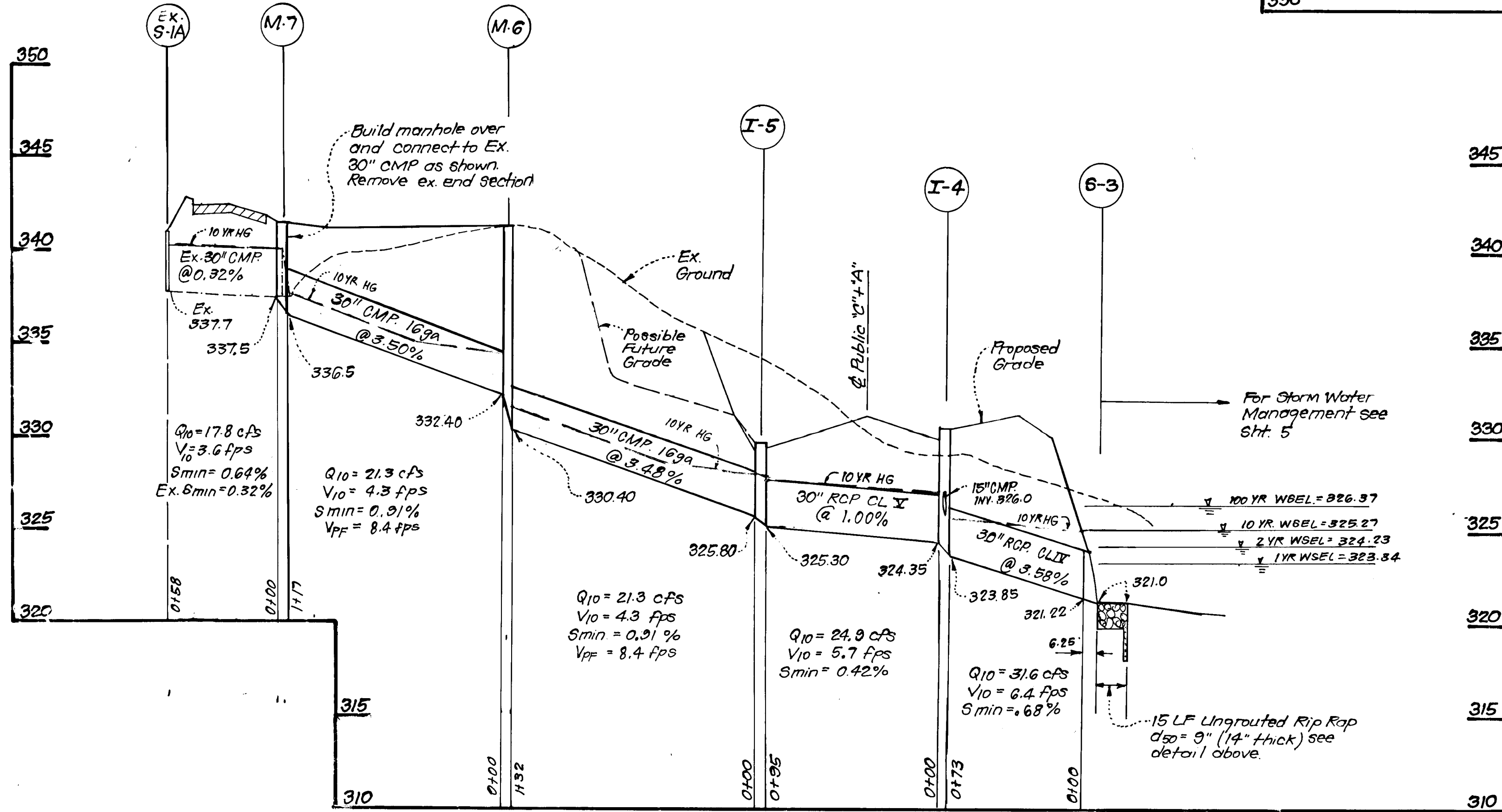
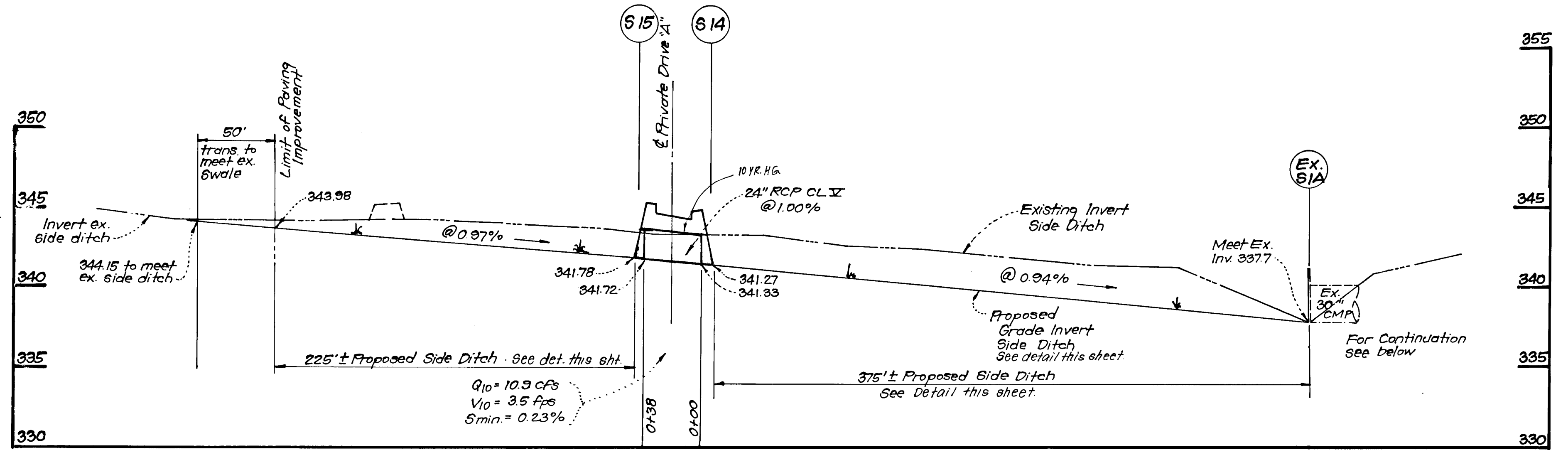
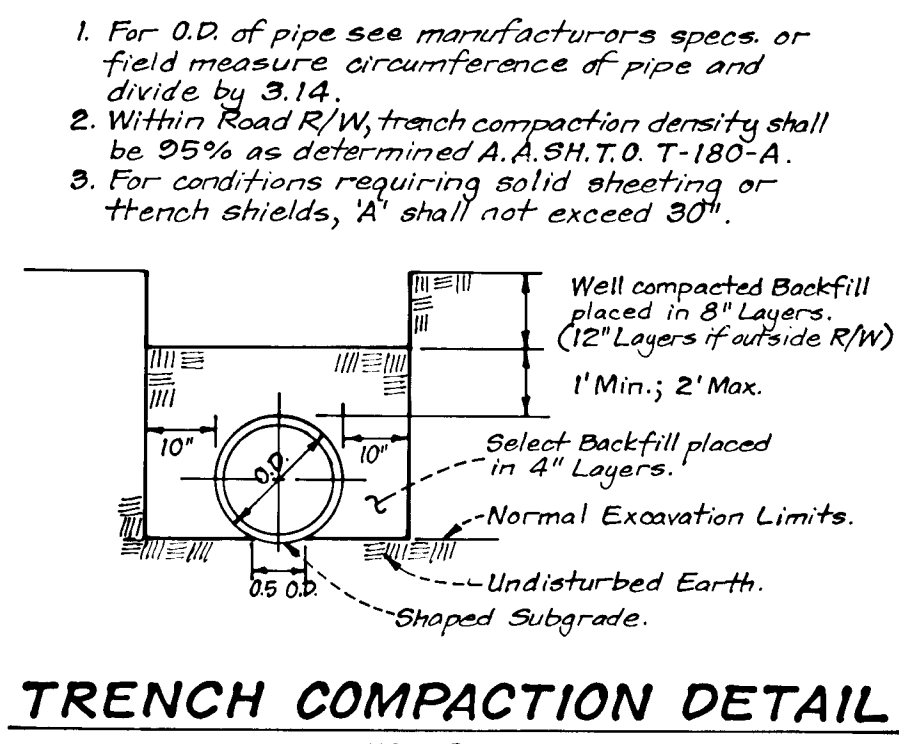
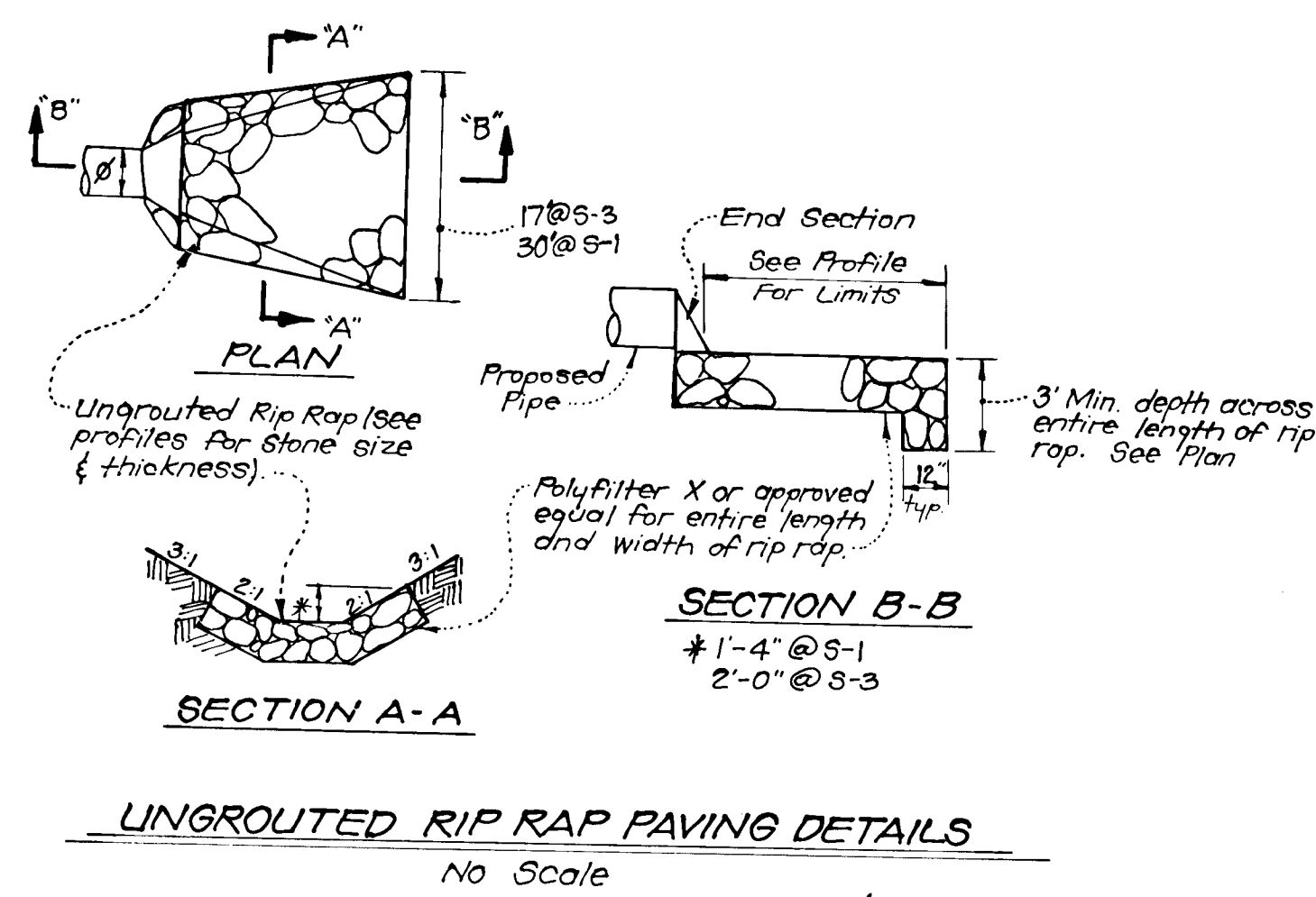
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7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED KIWM	PAVING DETAILS & SOIL BORING PROFILES MAPLESIDE VILLAGE OF KING'S CONTRIVANCE SECTION 5 AREA 4 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE As Shown
DRAWN BAL		DRAWING 3 OF 7
CHECKED KIWM		JOB NO. 89-036
DATE Sept 1990		FILE NO. 89-036.0

OWNER: THE HOWARD RESEARCH & DEVELOPMENT CORP
10255 Little Patuxent Parkway
Columbia, Maryland 21044
DEVELOPER

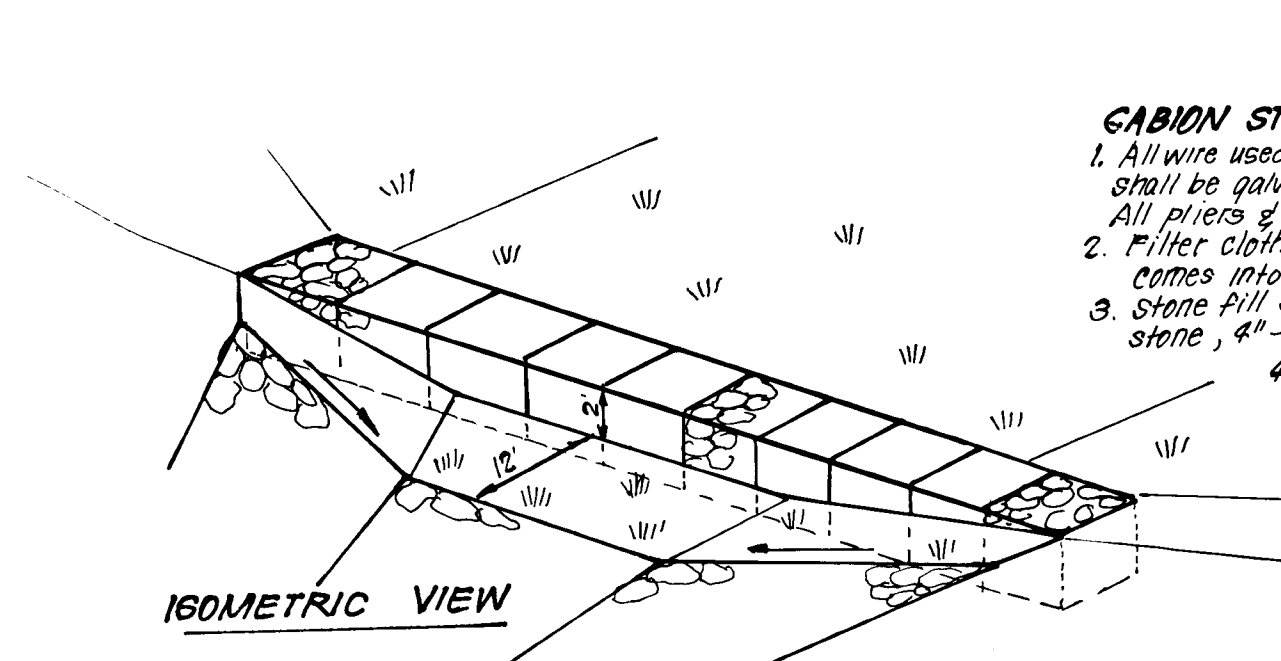


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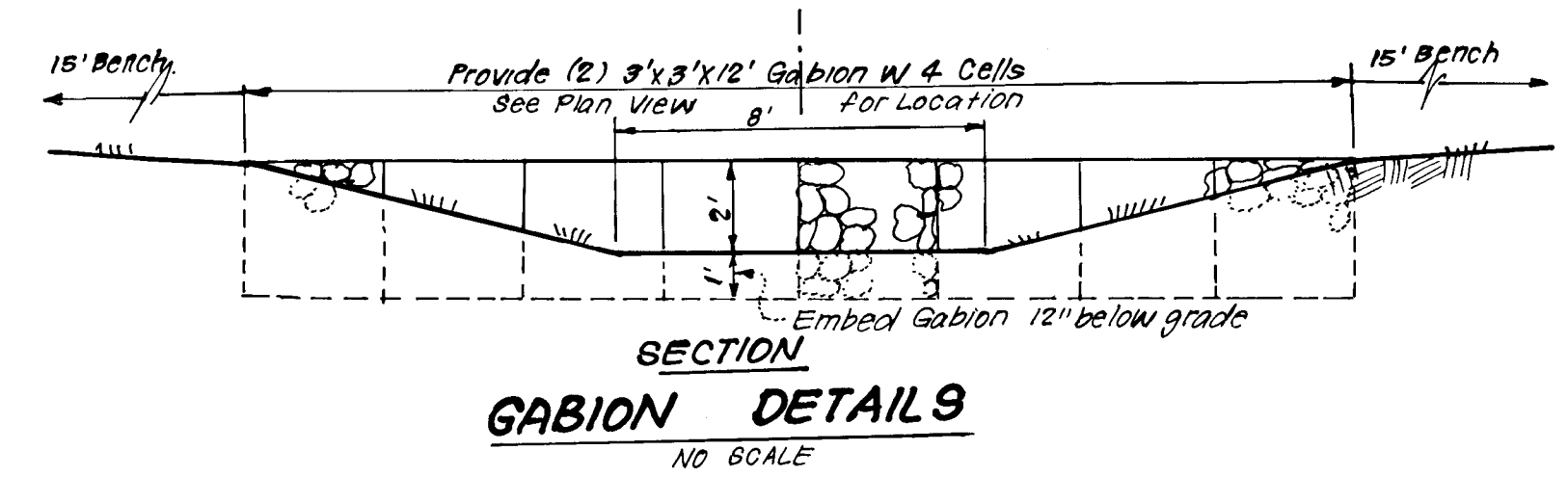
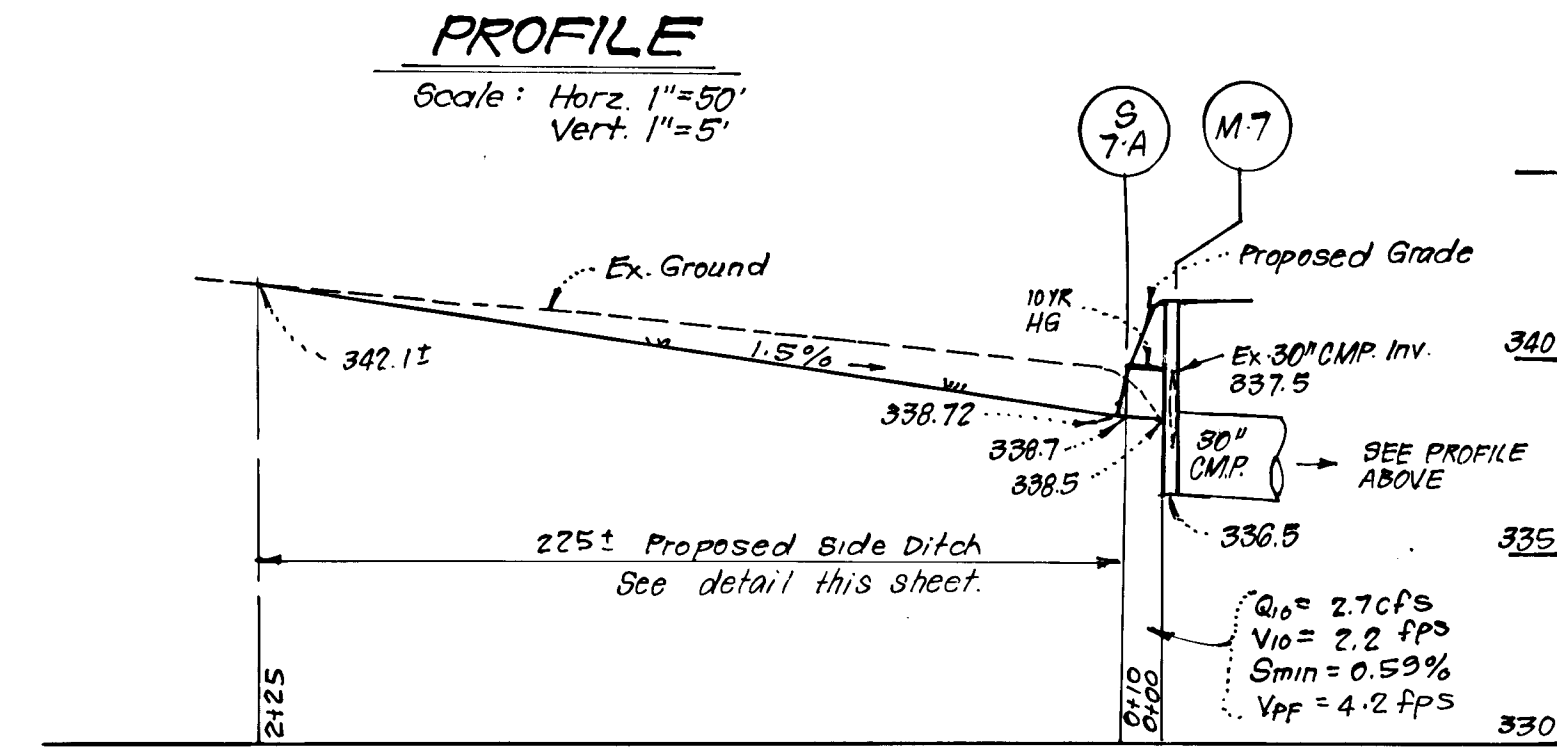
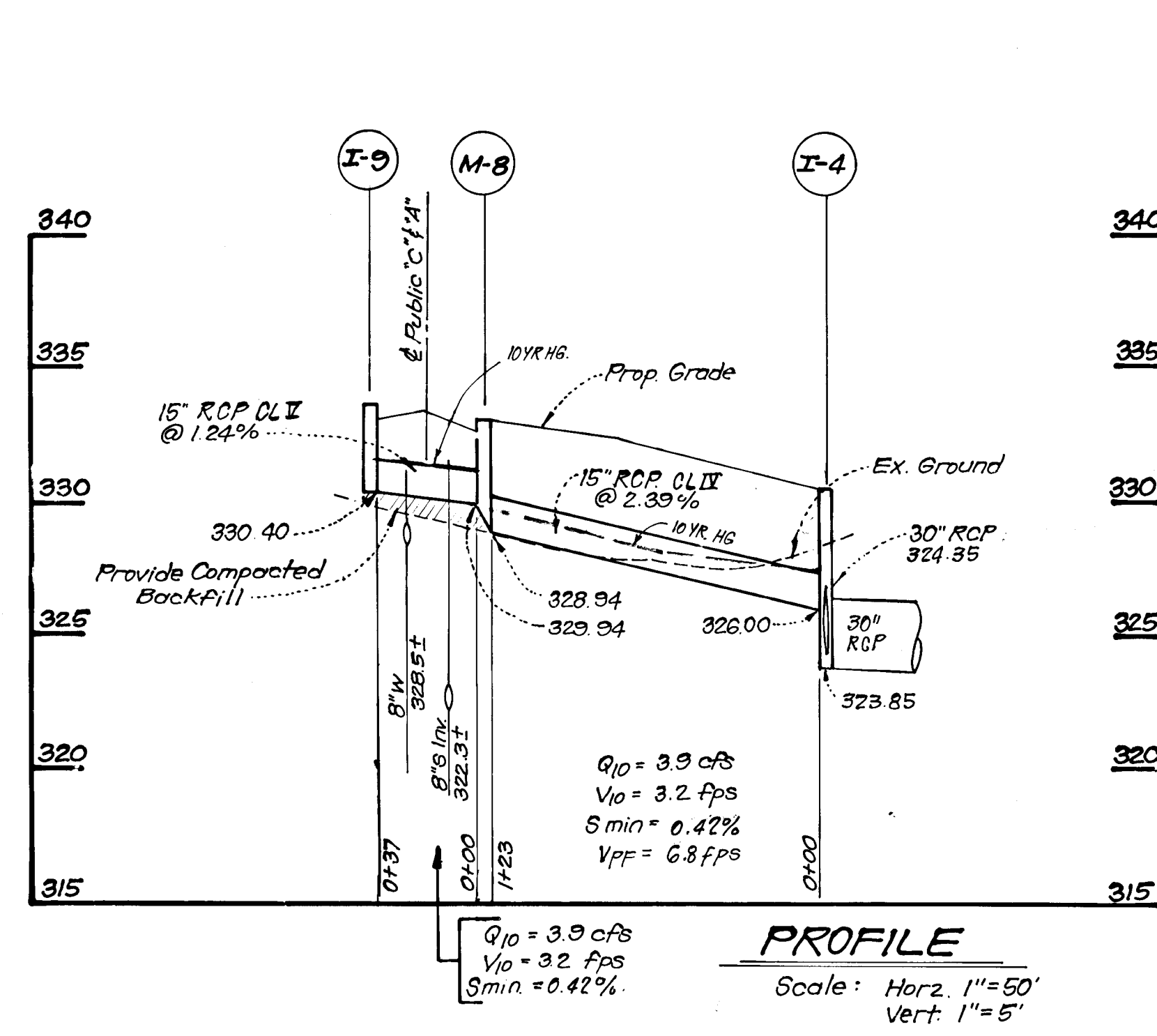
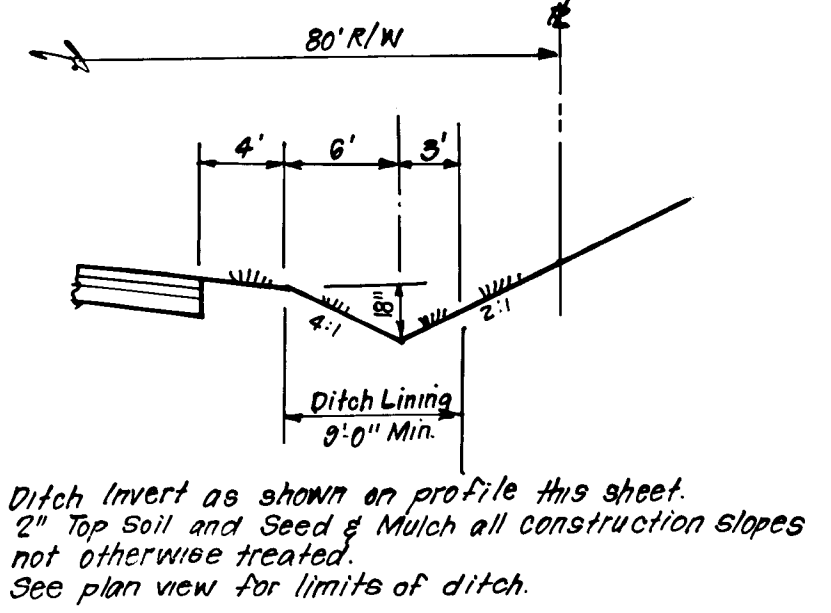


NO	TYPE	INV. IN	INV. OUT	TOP ELEVATION		REMARKS	LOCATION
				UPPER	LOWER		
S-3	Concrete End Section	321.22	321.0			Hb. Co. Std. SD 5.51 30"Ø	See plan
I-4	A-10 Inlet	324.35	323.85	330.50		Hb. Co. Std. SD 4.02 W 2'-6"	4.5ft. LCP Sta. 3+14.31
I-5	A-10 Inlet	325.80	325.30	329.83		Hb. Co. Std. SD 4.02 W 2'-6"	6.5ft. LCP Sta. 1+04.15
M-6	Shallow Manhole	332.40	330.40	341.40		SHA Std. N2 Md 383.01 4'Ø	See Plan
M-7	Shallow Manhole	336.50	336.50	341.40		SHA Std. N2 Md 383.01 4'Ø	See Plan
M-8	Shallow Manhole	329.94	328.94	332.91		Hb. Co. Std. SD 5.05 4'Ø	See Plan
I-9	A-10 Inlet		330.40	333.91	333.56	Hb. Co. Std. SD 4.02 W 2'-6"	See Plan
S-4	Concrete End Section	341.33	341.27			SHA Std. N2 Md 388.01 24"Ø	See Plan
S-15	Concrete End Section	341.78	341.72			SHA Std. N2 Md 388.01 24"Ø	See Plan
S-1	Type A Headwall		319.09			Hb. Co. Std. SD 5.11 24"Ø	See Plan
I-2	Modified A-10 Inlet	320.0	320.0	327.33		See Detail Sheet 5	See Plan
S-7A	Metal End Section	338.72	338.00			Hb. Co. Std. SD 5.61 15"Ø	See Plan

SIZE	TYPE	LENGTH
15"	CMP 16 ga.	10LF
24"	RCP CL II	38LF
30"	CMP 16 ga.	249LF
30"	RCP CL II	95LF
30"	RCP CL III	73LF
24"	ASTM C-361	66LF
15"	RCP CL II	37LF
15"	RCP CL II	123LF



GABION STRUCTURE NOTES:
 1. All wire used in gabion construction shall be galvanized and plastic coated. All pieces & tools shall be plastic coated.
 2. Filter cloth shall be placed whenever gabion comes into contact with soil.
 3. Stone fill shall consist of hard, durable, clean stone, 4"-8" in size or approved by the engineer.
 4. Construction materials and methods shall be in accordance with Maccaferri Gabions, Inc. specs. or equal.



Reviewed for HOWARD COUNTY S.C.D. Requirements
 Signature: Robert W. Ziehm Date: 3/28/91
 U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Approved: Robert W. Ziehm Date: 3/28/91

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources 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 or their authorized agents, as are deemed necessary.
 Signature: William J. Roberts Date: 9/25/90

ENGINEER'S CERTIFICATE
 I/We 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: G. Nelson Clark Date: 9-25-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 Chief, Land Development Division: *John M. Dwyer* 4/14/91
 Chief, Bureau of Highways: *Francis W. Wehlauf* 4/2/91
 Chief, Bureau of Engineering: *William S. Ray* 4-12-91
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.
 Chief, Division of Community Planning & Land Development: *David L. Taylor* 4/15/91

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 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED: KIWM
 DRAWN: BAL
 CHECKED: KIWM
 DATE: Sept 1990

SCALE: As Shown
 DRAWING: 4 OF 7
 JOB NO.: 89-036
 FILE NO.: 89-036 D

OWNER: THE HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 Little Patuxent Parkway
 DEVELOPER: Columbia, Maryland 21044

STORM WATER MANAGEMENT NOTES

I. SITE PREPARATION
 Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.
 Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.
 All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL
Material
 The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversized stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboards) as shown on the plans.
Placement
 Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.
Compaction
 The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traveled by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a motor-powered rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.
 Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.
Cutoff trench
 Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the drawings, with the minimum width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. STRUCTURAL BACKFILL
 Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tamper or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS
 All pipes shall be circular in cross section.
A. Corrugated Metal Pipe
 1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of ASTM Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.
 Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Reson Plastic-Coat, Blac-Klad, and Beh-Co-Loy. Coated corrugated steel pipe shall meet the requirements of ASTM M-243 and M-246.
 Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of ASTM Specification M-274-791 with watertight coupling bands or flanges.
 Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of ASTM Specification M-196 or M-211 with watertight coupling bands or flanges. Coupling bands, anti-seep collars, and sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be less than 9 and greater than 4.
 2. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Watertight coupling bands or flanges shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Diapir bands are not considered to be watertight.
 3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
 4. Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
 5. Backfilling shall conform to structural backfill as shown above.
 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

V. CONCRETE
1. Materials
 a. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.
 b. Water - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
 c. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.
 d. Coarse Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.
 e. Reinforcing Steel - The reinforcing steel or rail steel conforming to ASTM Specification A-615.
 2. Design Mix - The concrete shall be mixed in the following proportions: as measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:1-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.
 3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the system in relation to the mixer and on the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tapping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.
 The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.
 Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.
5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.
6. Consolidating - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.
7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.
8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.
9. Placing Temperature - Concrete may not be placed at temperatures below 30° F with the temperature falling, or 34° with the temperature rising.

VI. STABILIZATION
 All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spill and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.
VII. EROSION AND SEDIMENT CONTROL
 Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

Developers Certification:
 "We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."
 William J. Roberts 9/29/90
 Signature of Developer Date

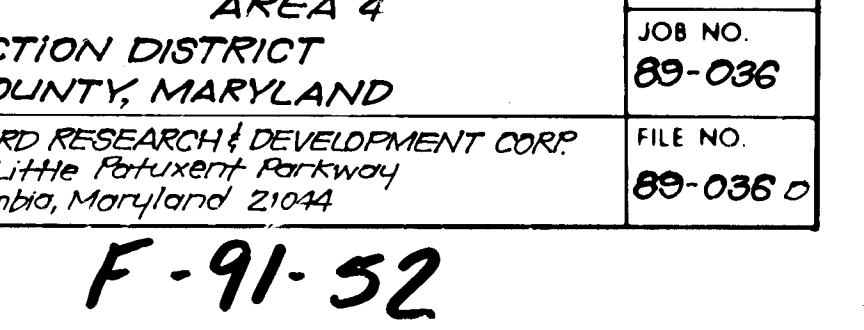
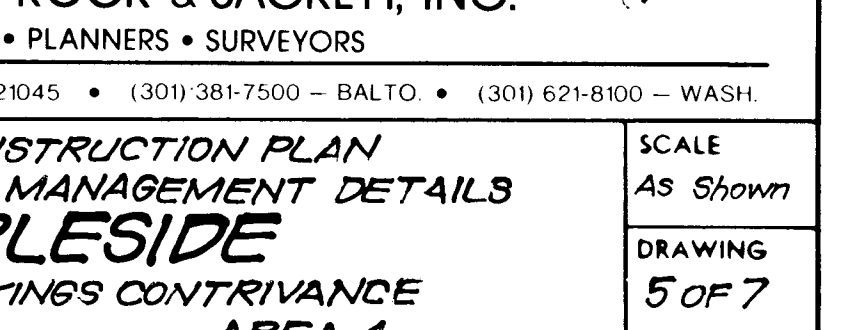
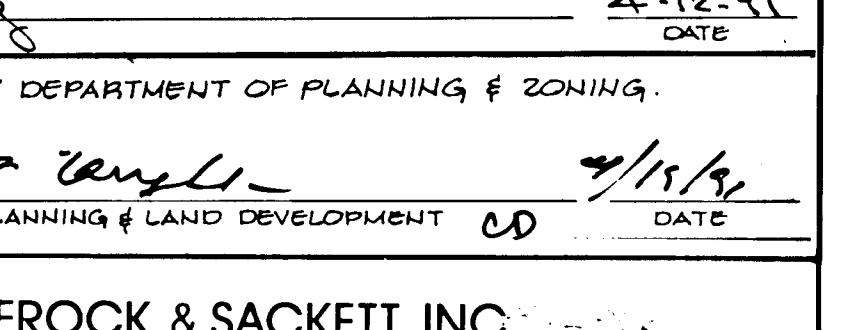
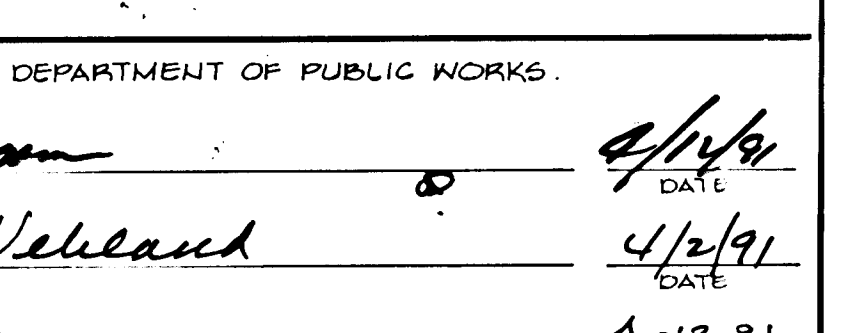
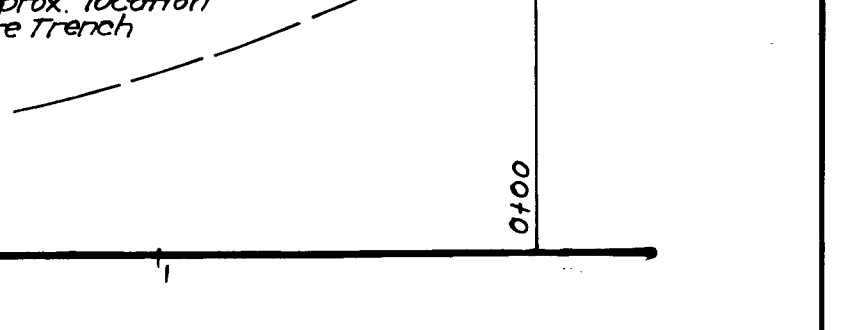
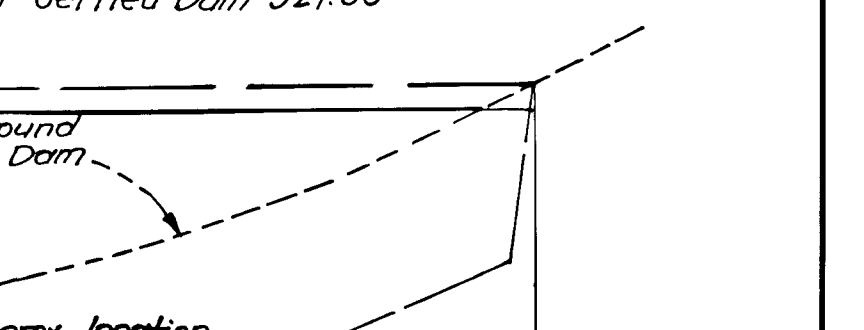
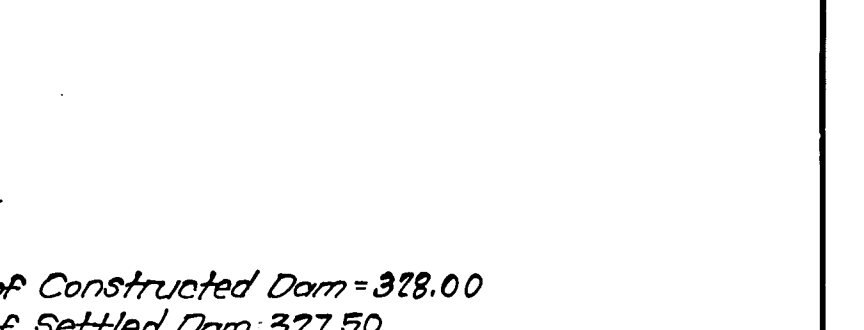
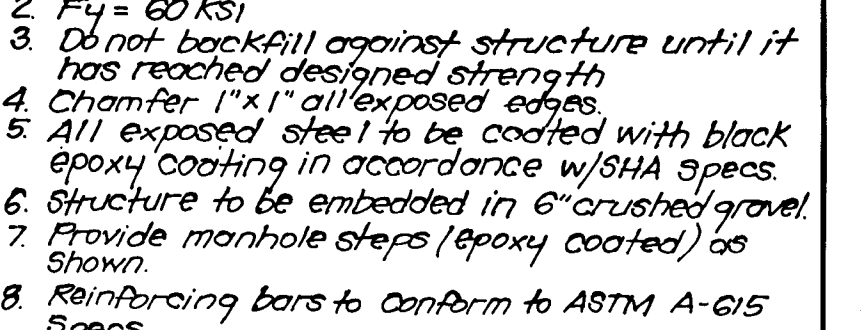
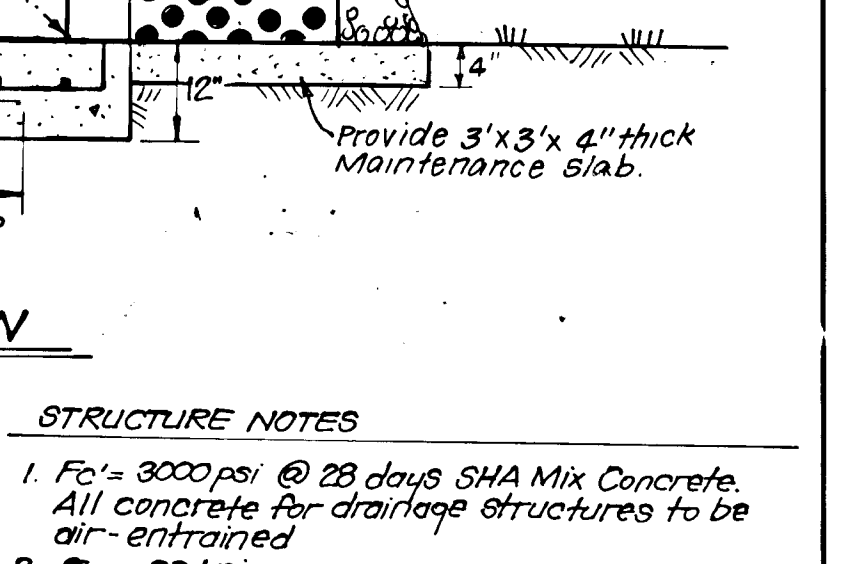
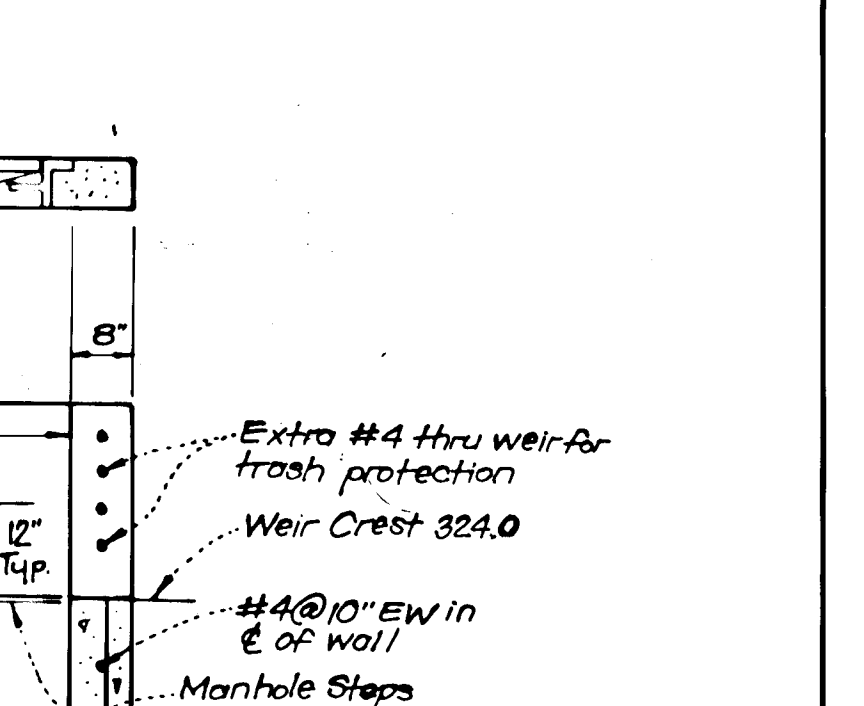
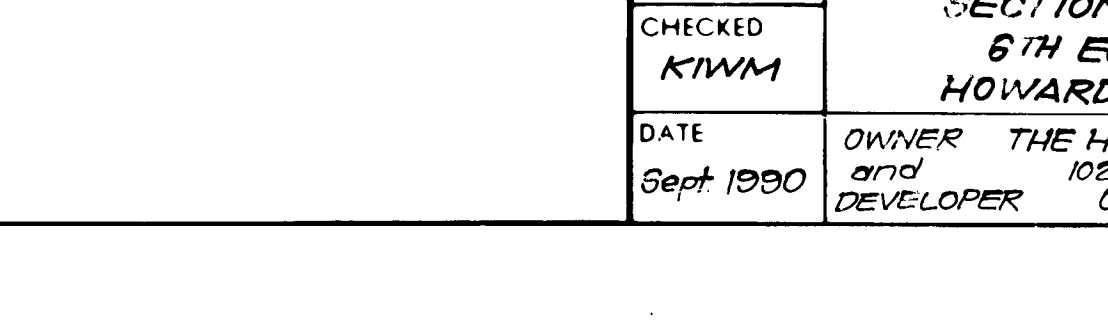
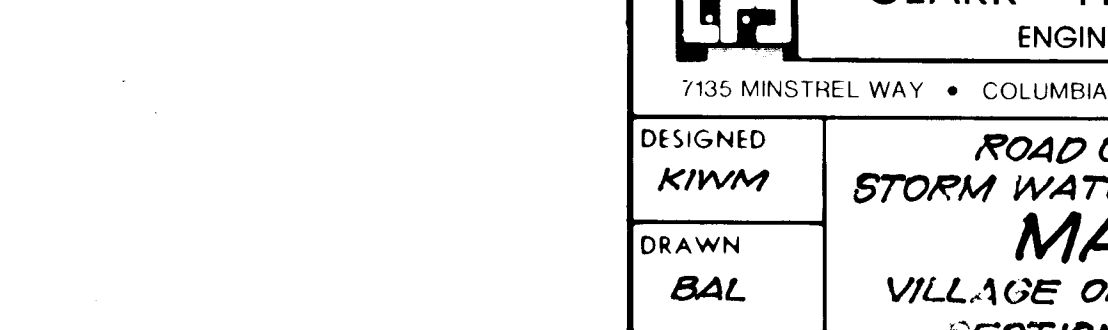
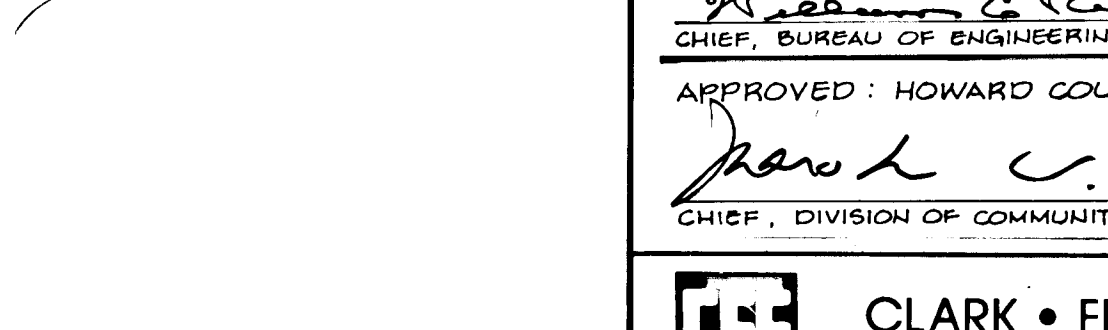
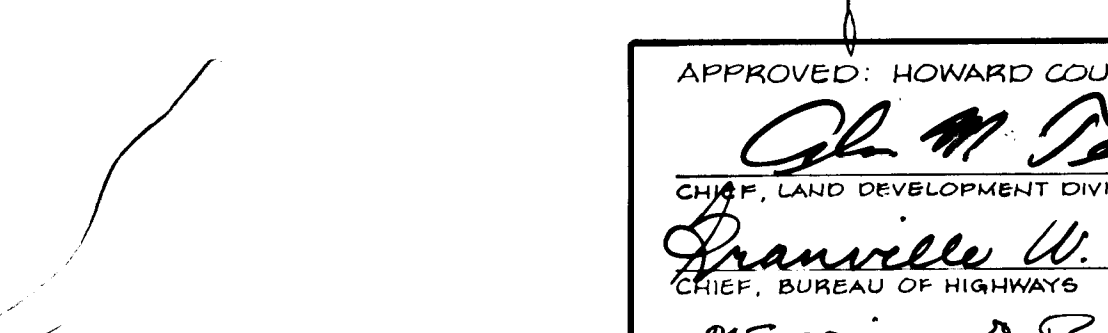
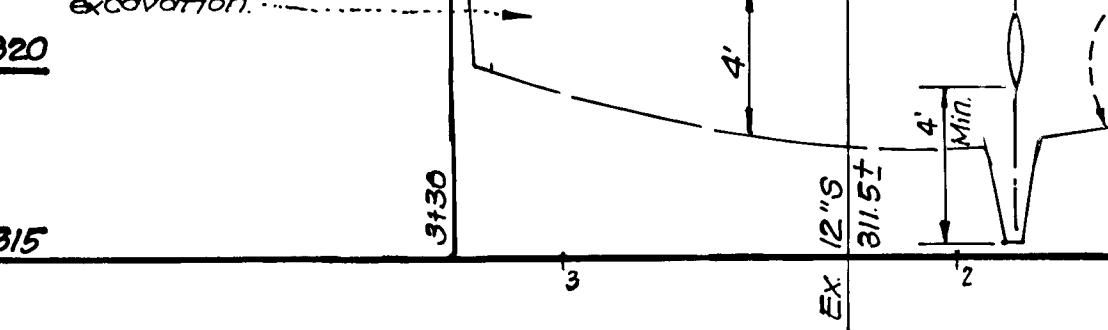
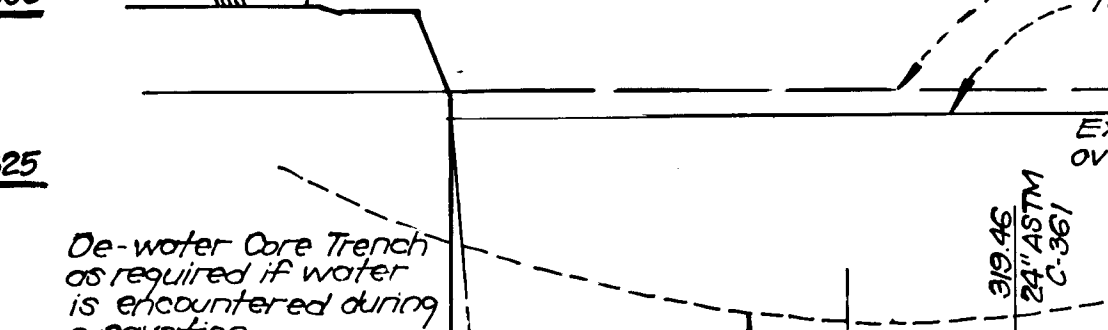
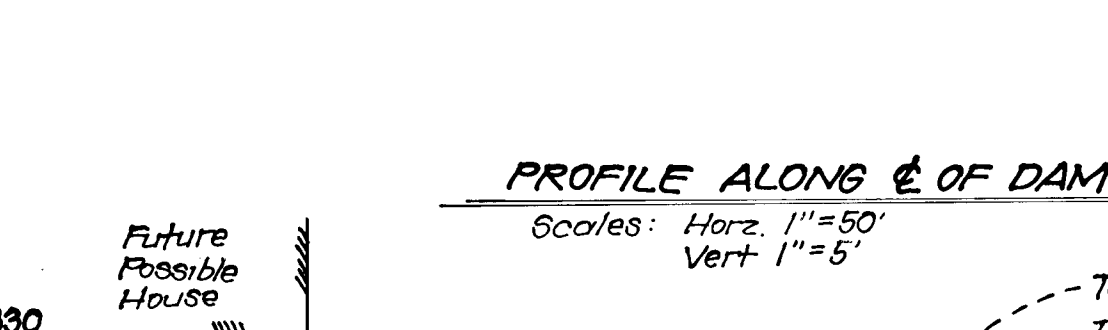
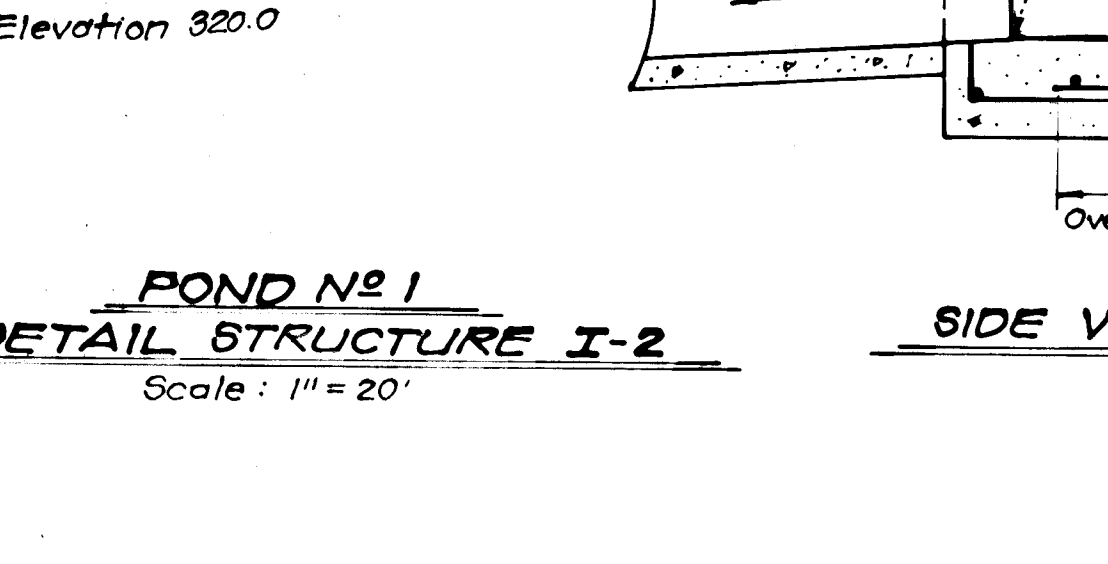
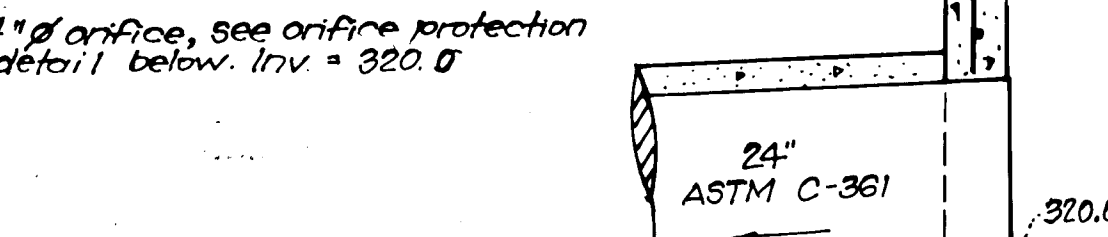
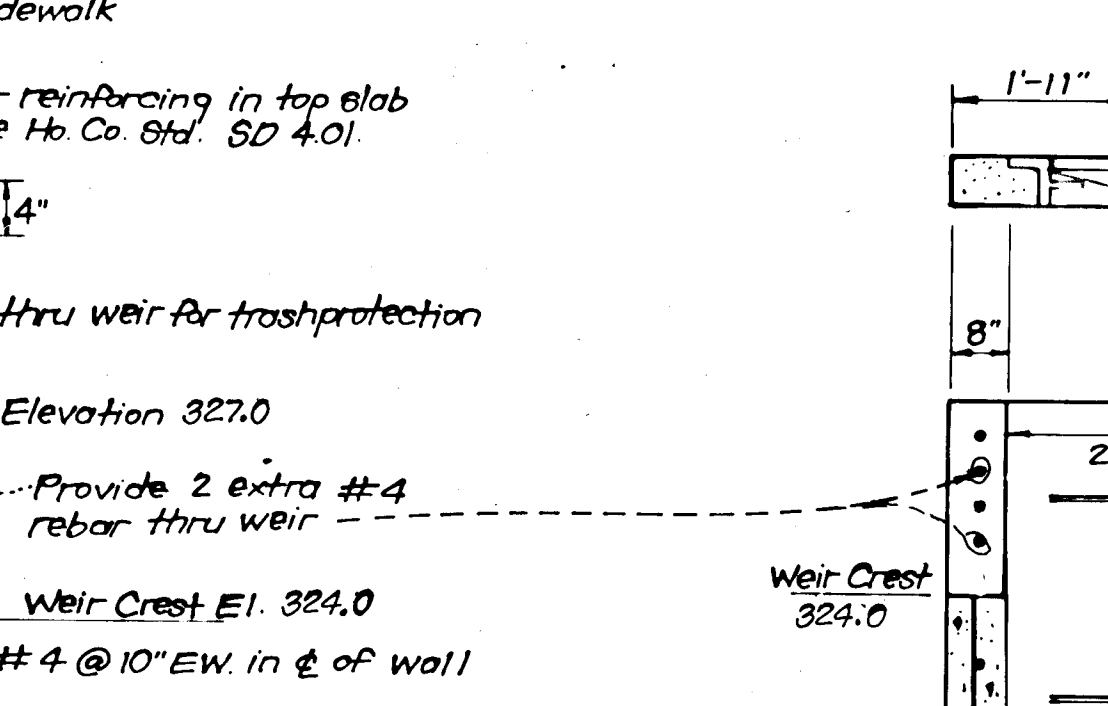
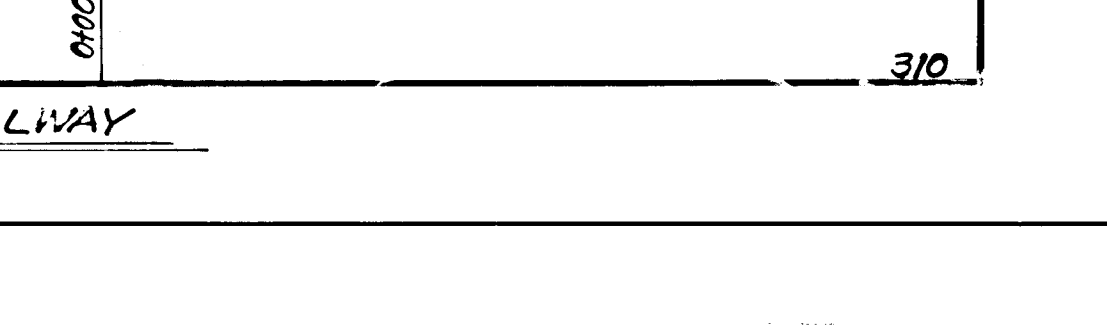
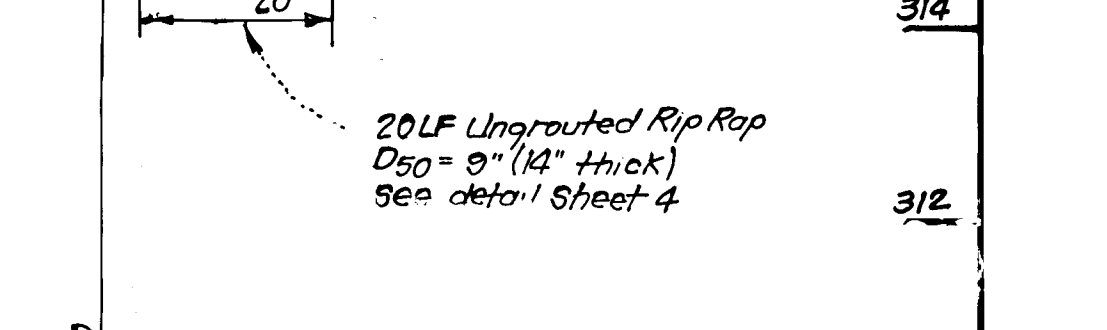
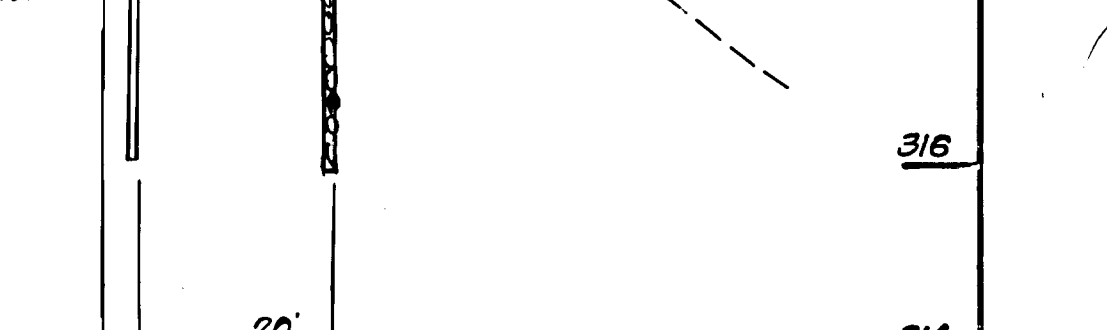
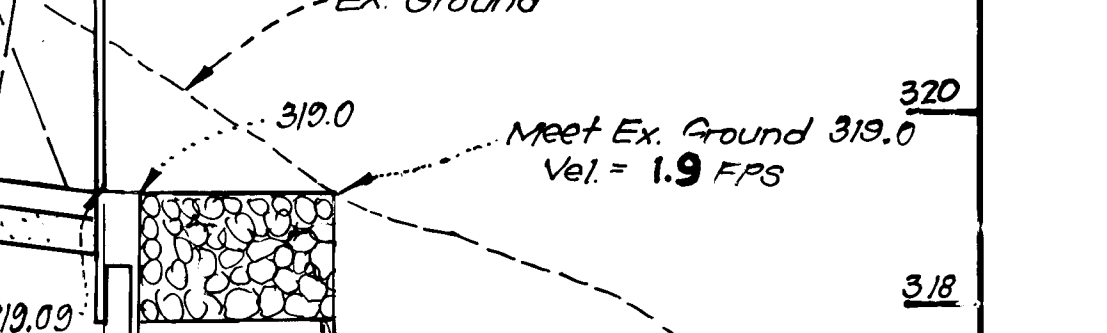
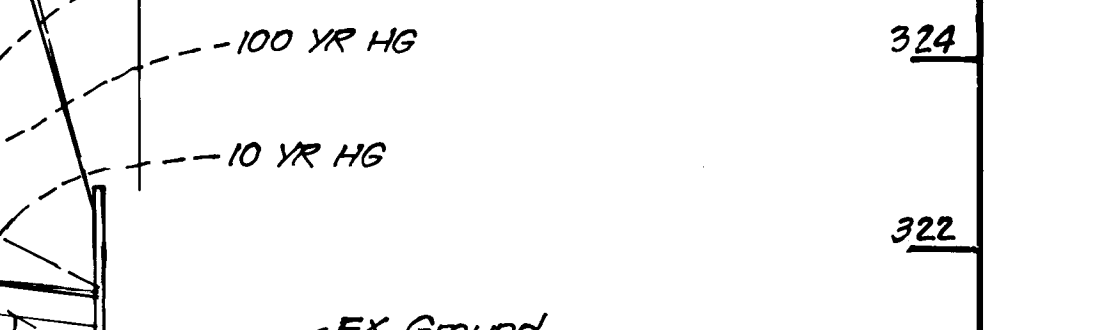
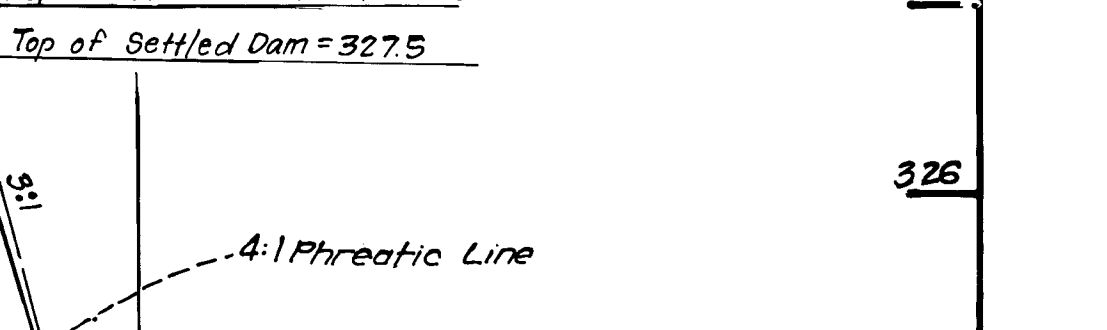
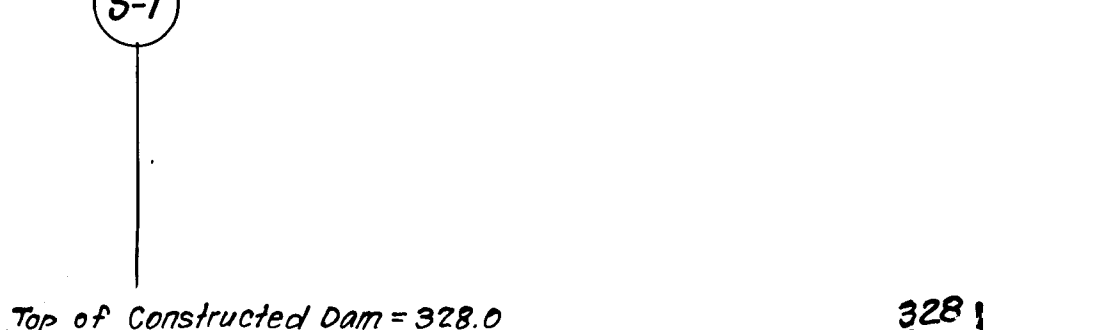
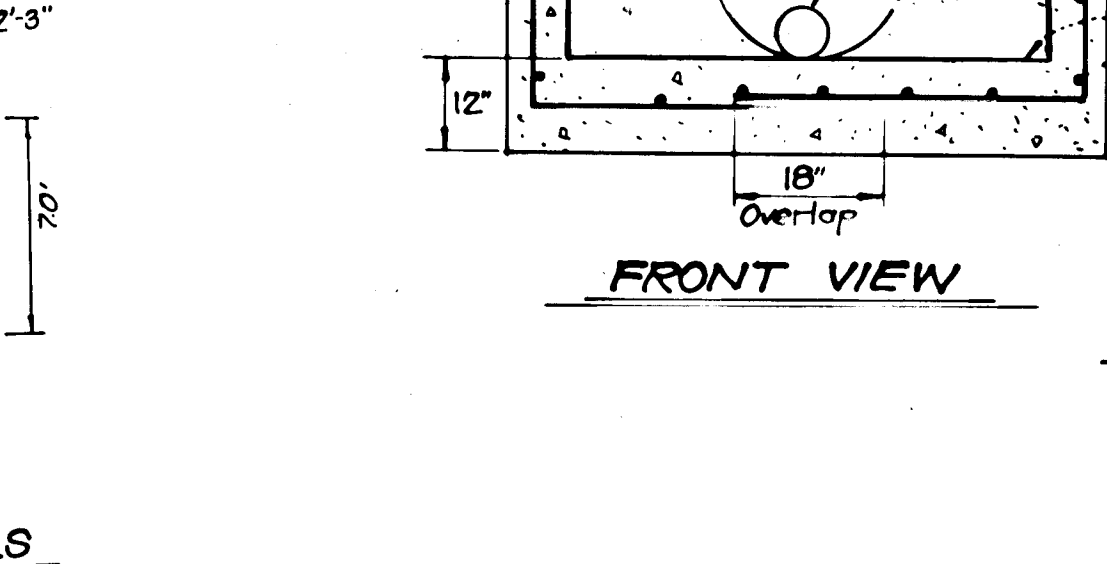
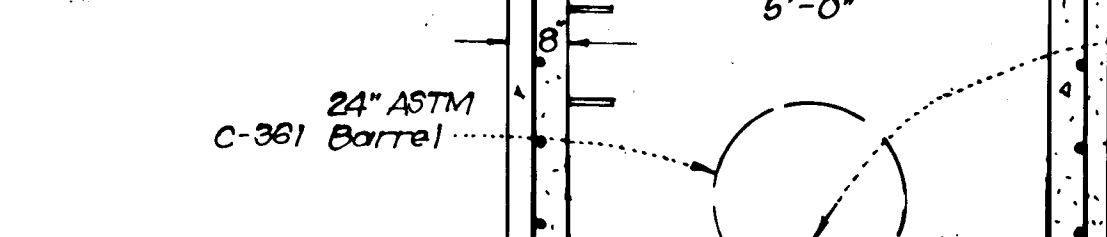
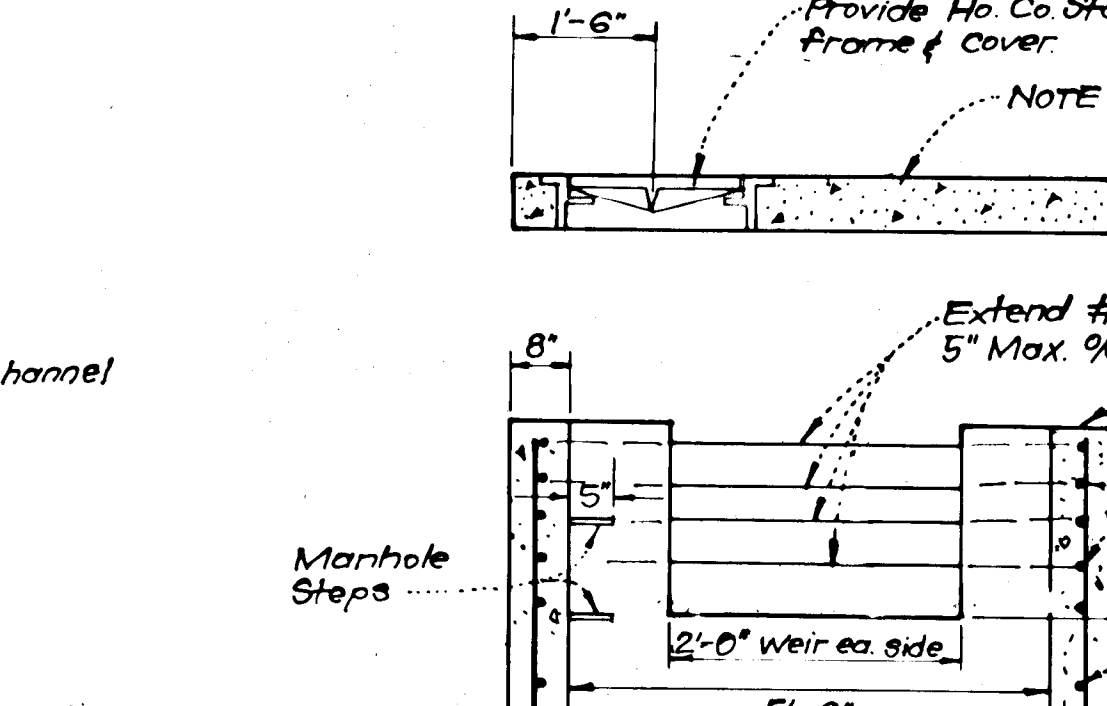
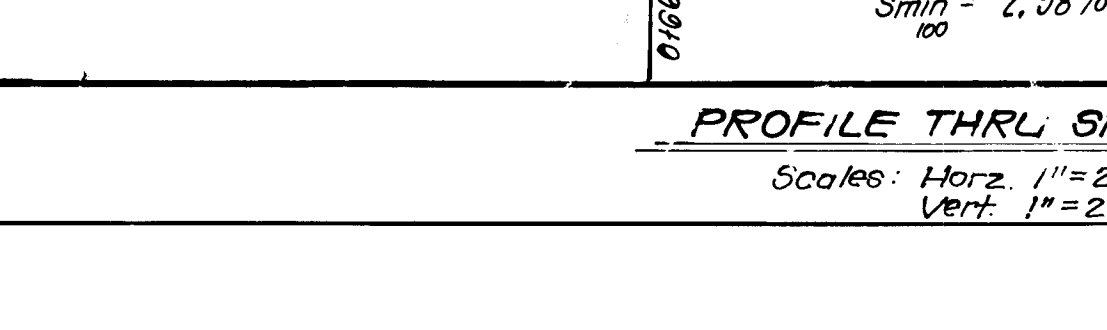
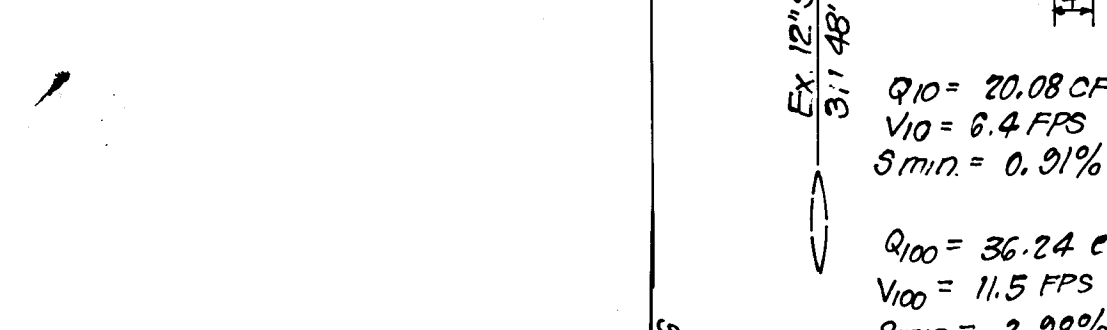
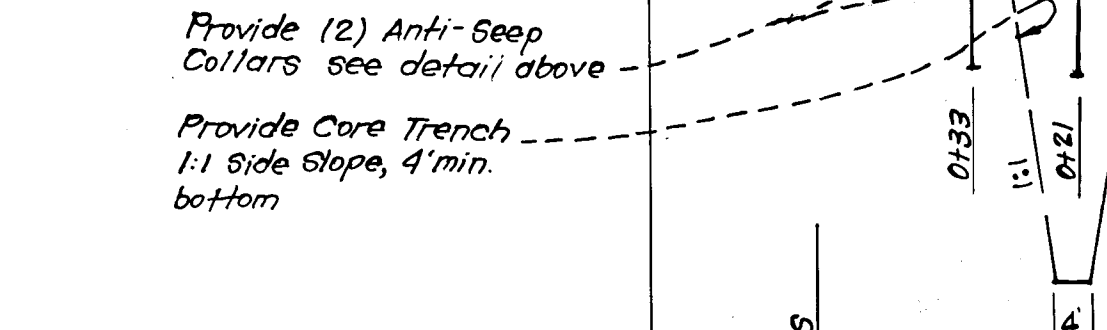
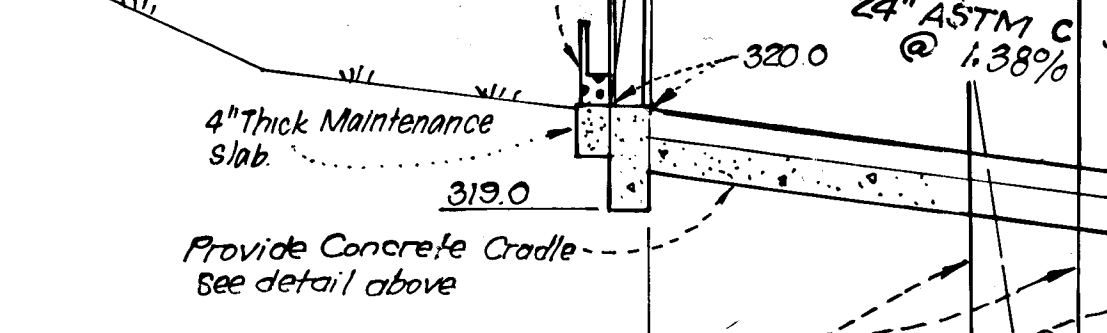
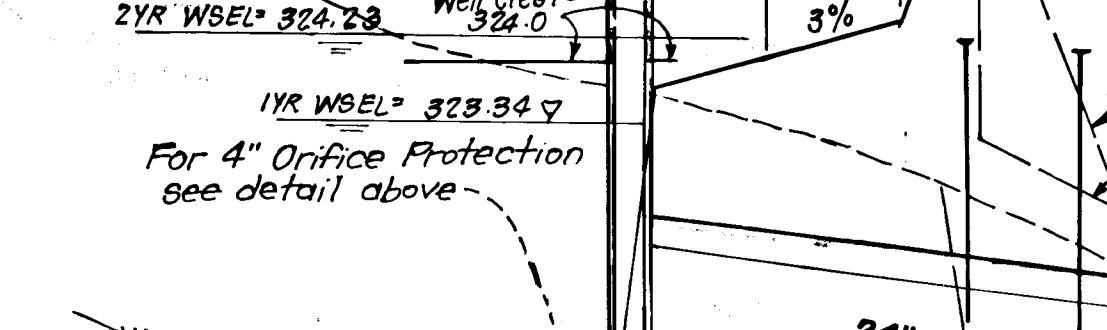
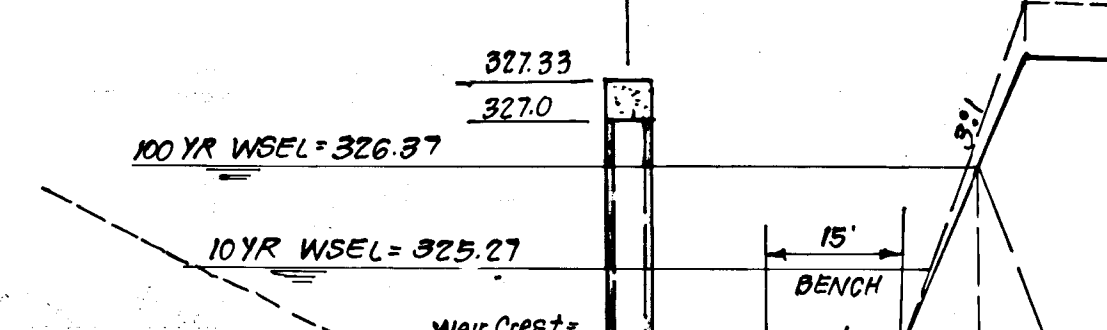
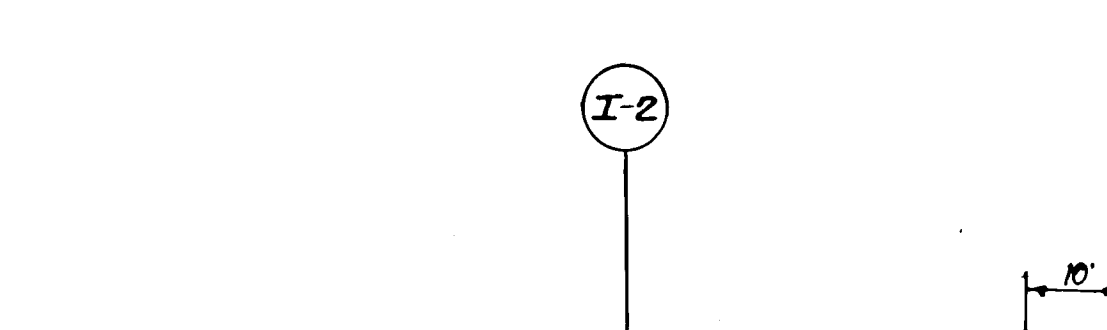
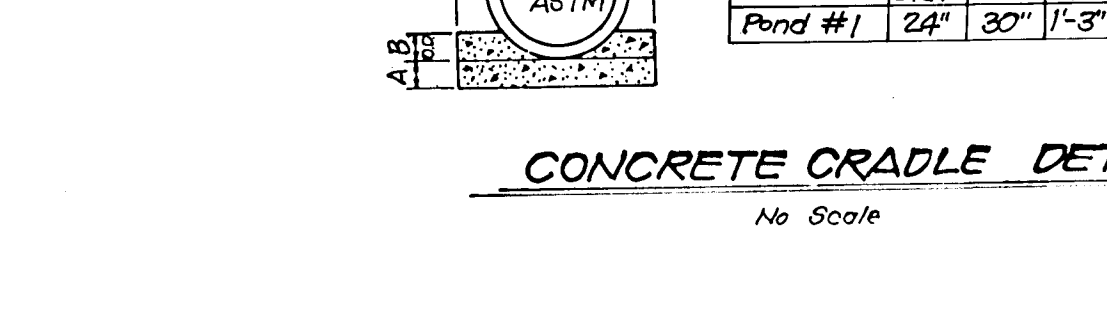
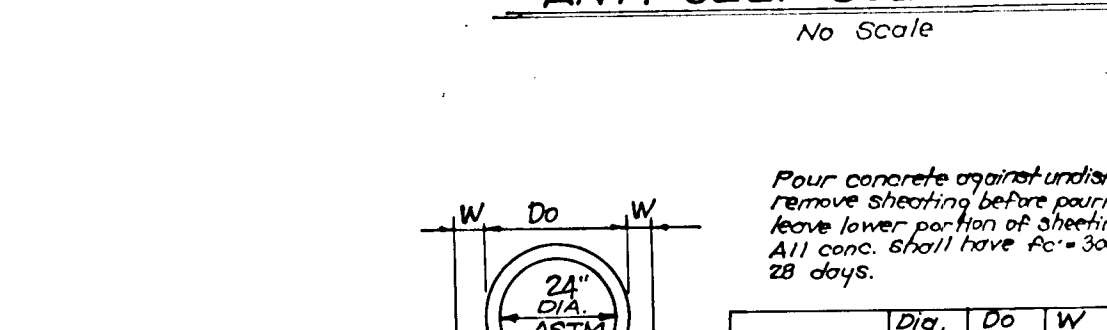
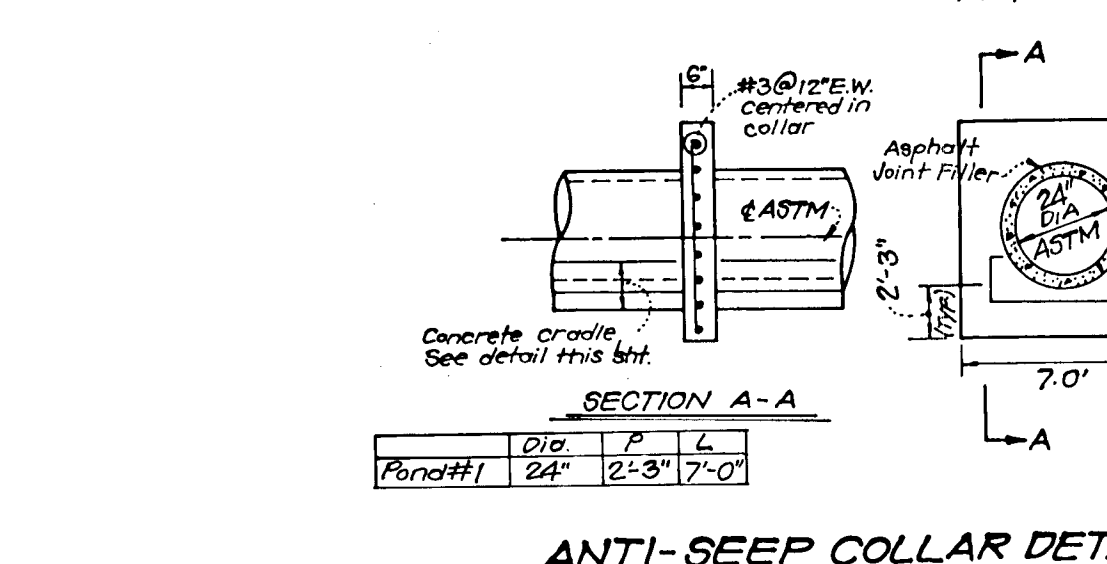
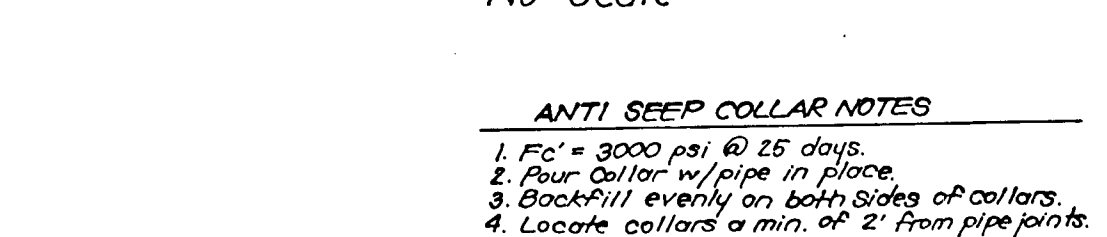
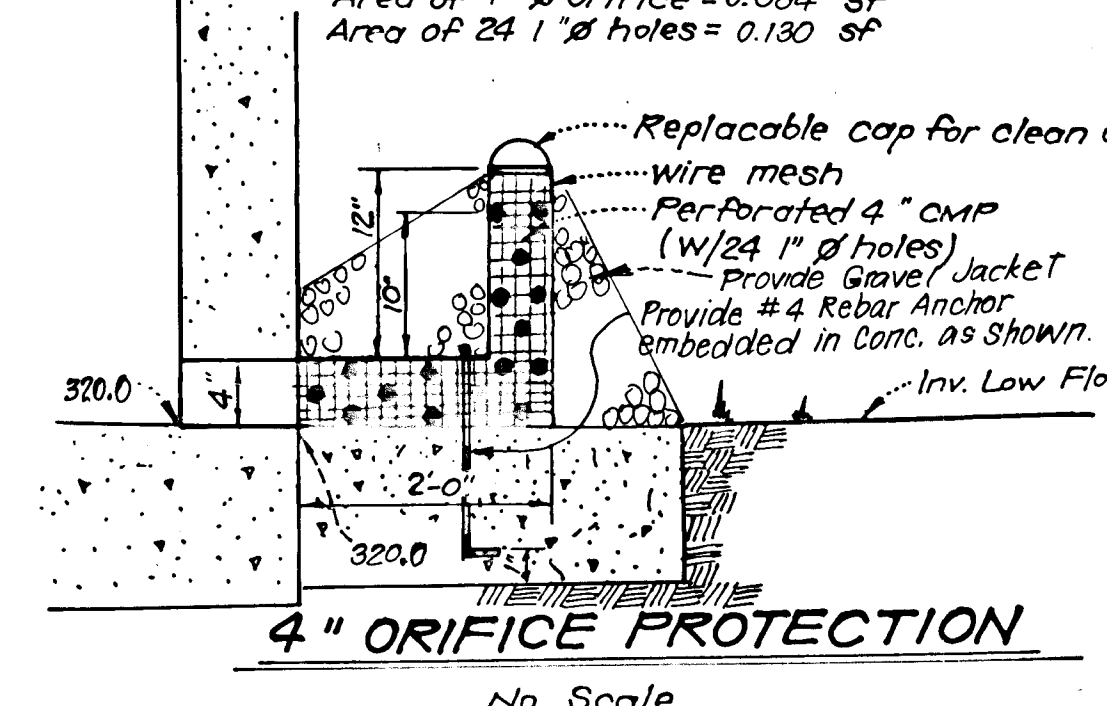
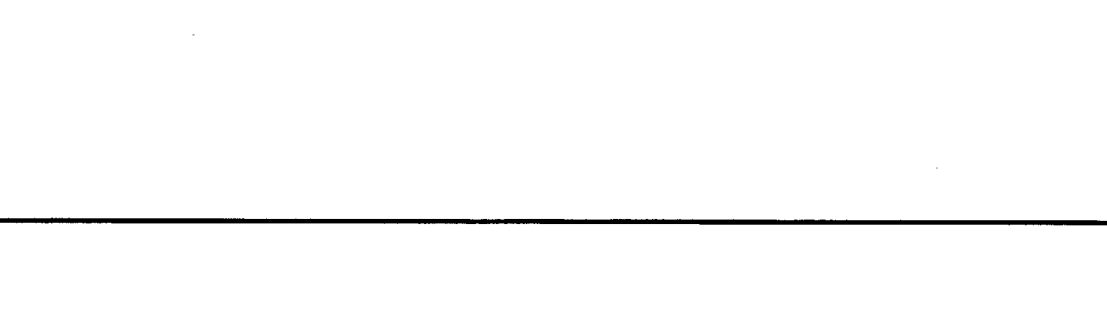
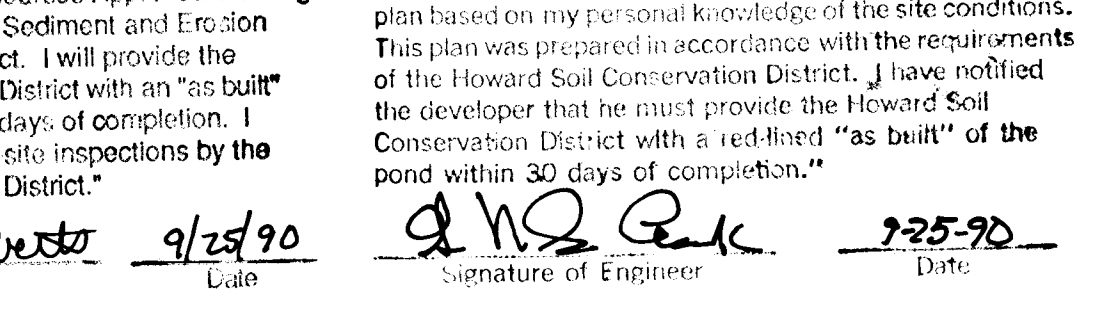
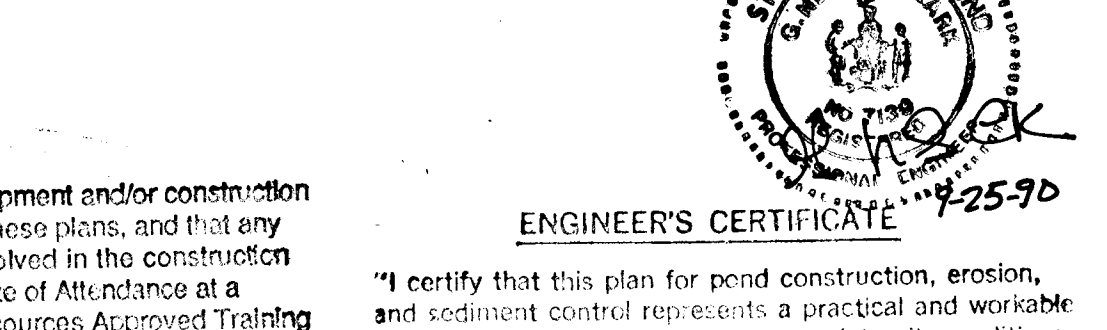
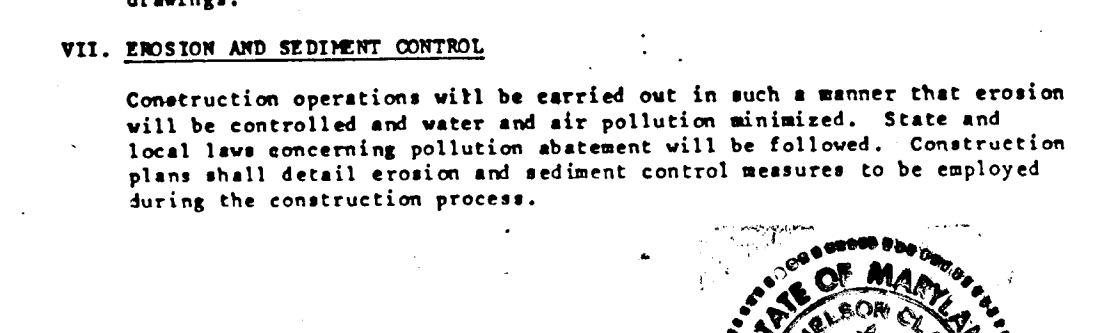
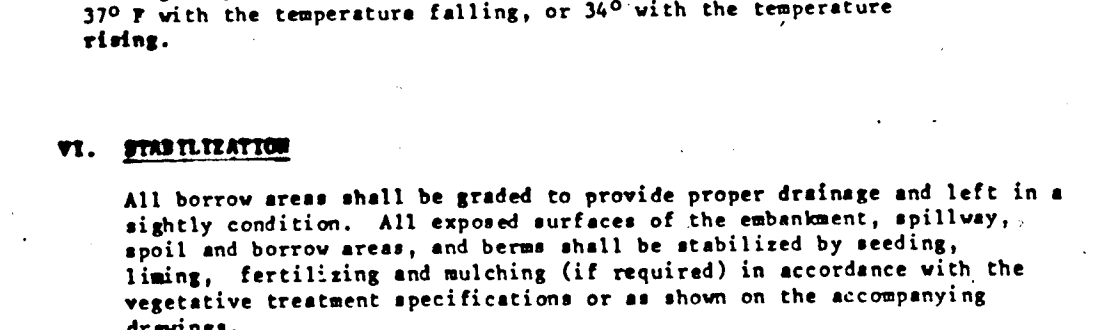
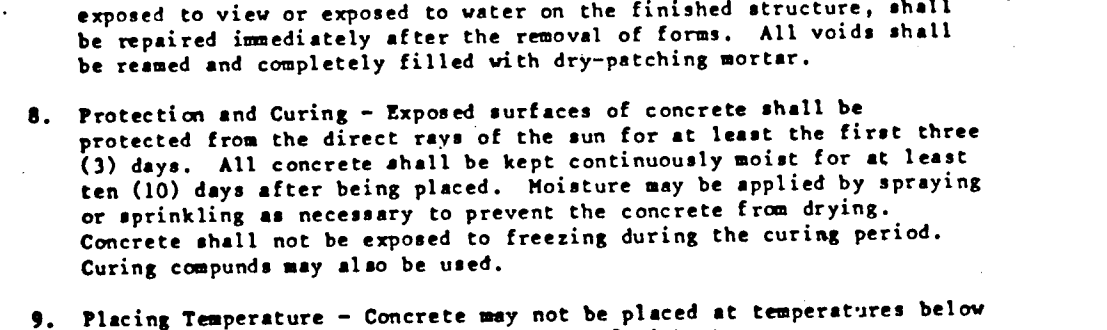
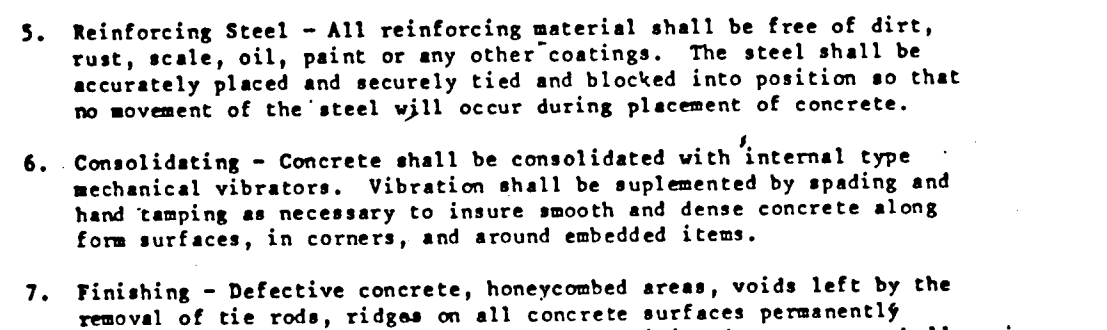
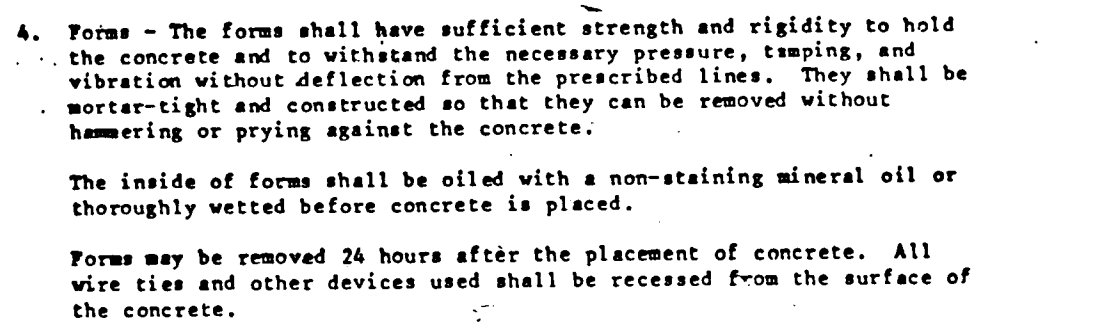
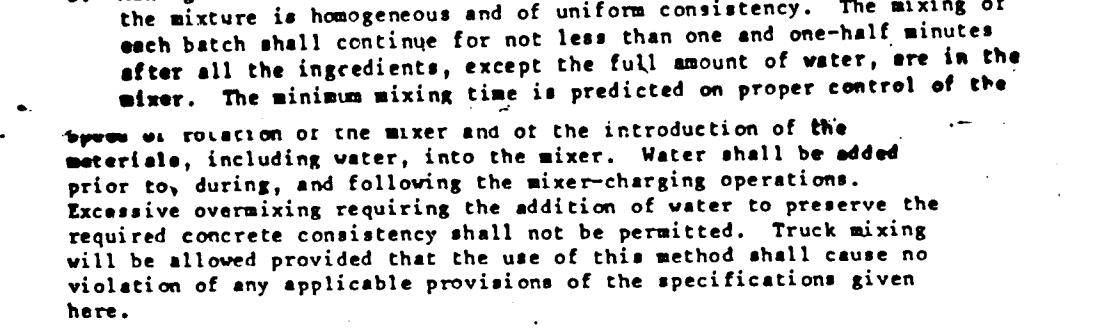
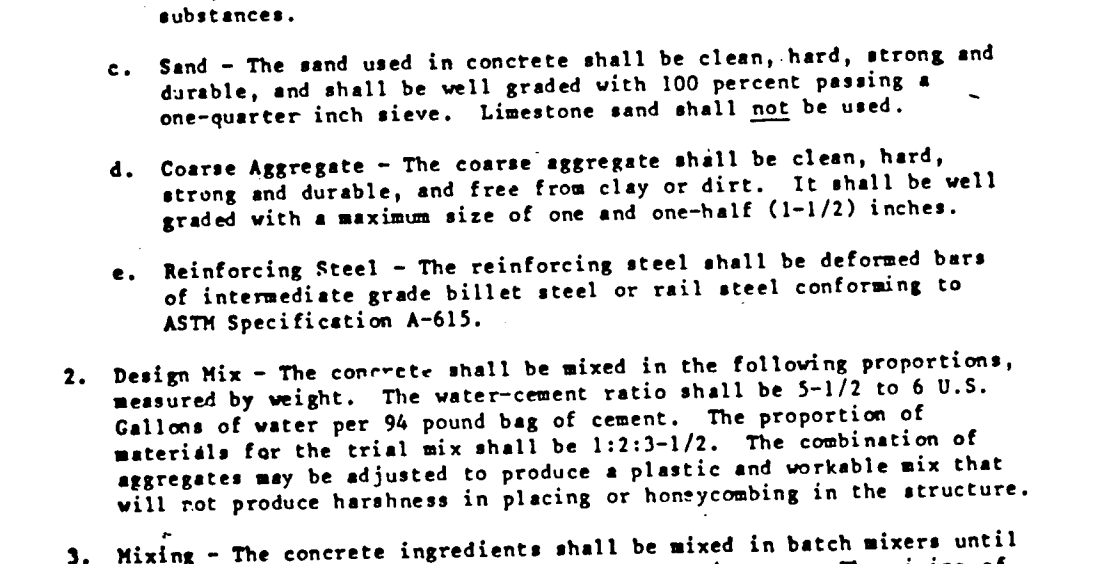
ENGINEER'S CERTIFICATE
 "I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."
 [Signature] 9-25-90
 Signature of Engineer Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for all pond construction, soil erosion and sediment control.
 Approved: [Signature] 3/28/91
 F-91-52

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for all pond construction, soil erosion and sediment control.
 Approved: [Signature] 3/28/91
 F-91-52

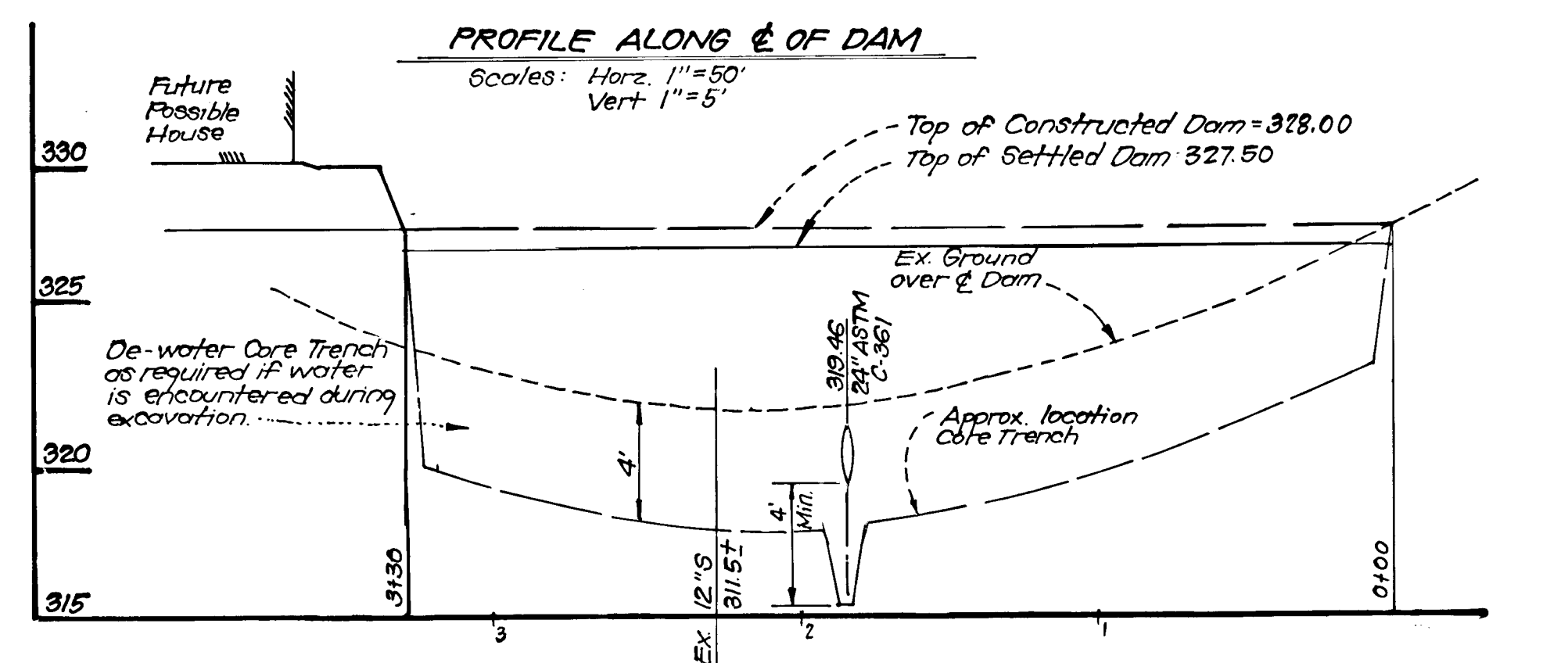
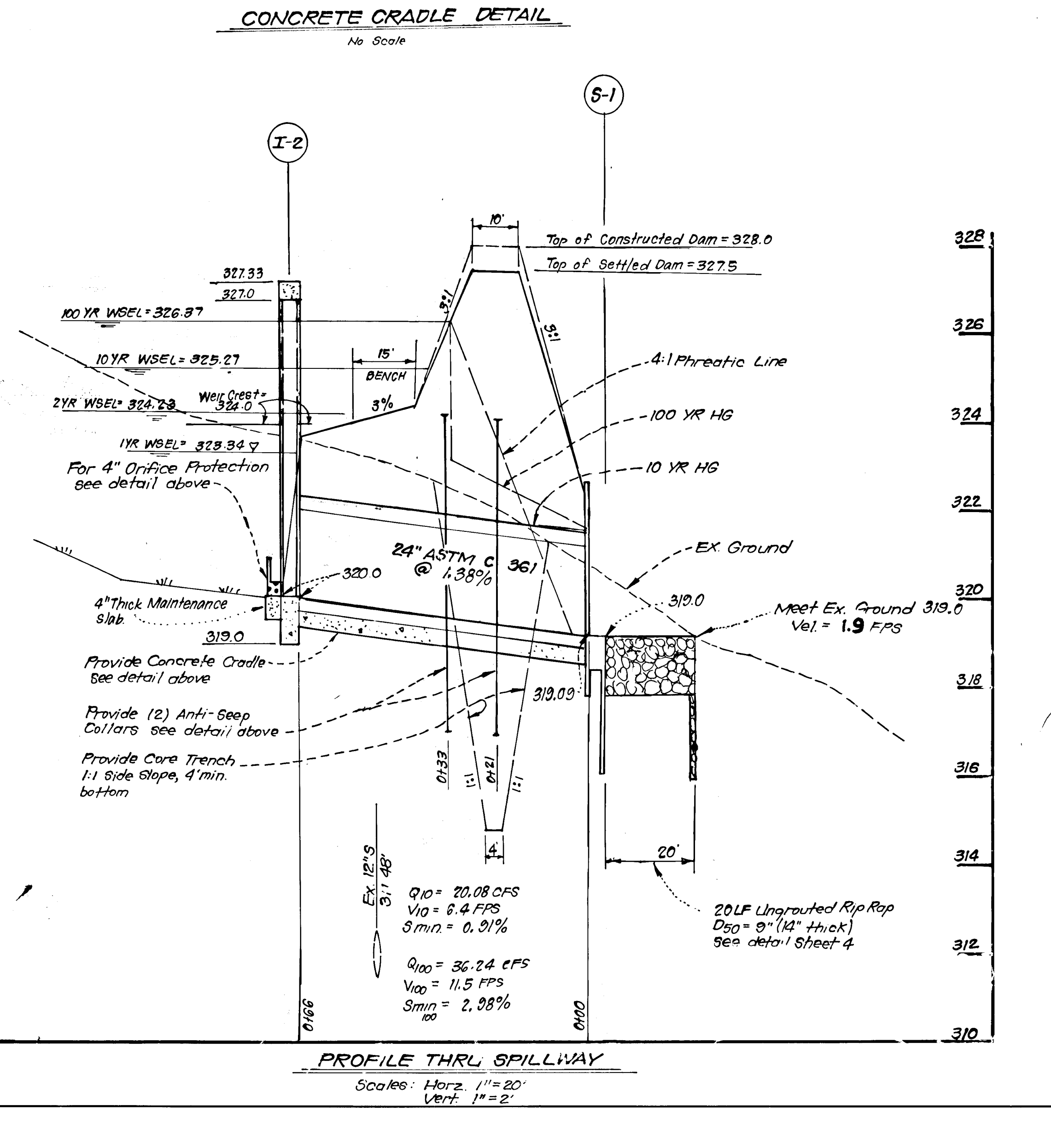
Reinforced Concrete Pipe
 1. Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWWA Specification C-301.
 2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. The bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3", or as shown on the drawings.
 3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.
 4. Backfilling shall conform to structural backfill as shown above.
 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.
 C. For pipes of other materials, specific specifications shall be shown on the drawings.

ANTI SEEP COLLAR NOTES
 1. FC = 3000 psi @ 28 days
 2. Pour collar w/ pipe in place
 3. Backfill evenly on both sides of collars
 4. Locate collars a min. of 2' from pipe joints.



**POND NO 1
 DETAIL STRUCTURE I-2**
 Scale: 1" = 20'

STRUCTURE NOTES
 1. FC = 3000 psi @ 28 days SHA Mix Concrete. All concrete for drainage structures to be air-entrained.
 2. Fy = 60 KSI
 3. Do not backfill against structure until it has reached designed strength.
 4. Chamfer 1"x1" all exposed edges.
 5. All exposed steel to be coated with black epoxy coating in accordance w/SHA specs.
 6. Structure to be embedded in 6" crushed gravel.
 7. Provide manhole steps (epoxy coated) as shown.
 8. Reinforcing bars to conform to ASTM A-615 Specs.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 [Signature] 4/14/91
 CHIEF, LAND DEVELOPMENT DIVISION
 [Signature] 4/21/91
 CHIEF, BUREAU OF HIGHWAYS
 [Signature] 4-12-91
 CHIEF, BUREAU OF ENGINEERING
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.
 [Signature] 7/15/91
 CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT

CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.
 DESIGNED: KIVM
 DRAWN: BAL
 CHECKED: KIVM
 DATE: Sept 1990
**ROAD CONSTRUCTION PLAN
 STORM WATER MANAGEMENT DETAILS
 MAPLESIDE
 VILLAGE OF KING'S CONTRIVANCE
 SECTION 5 AREA 4
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND**
 SCALE: As Shown
 DRAWING: 5 OF 7
 JOB NO: 89-036
 FILE NO: 89-036 D

F-91-52

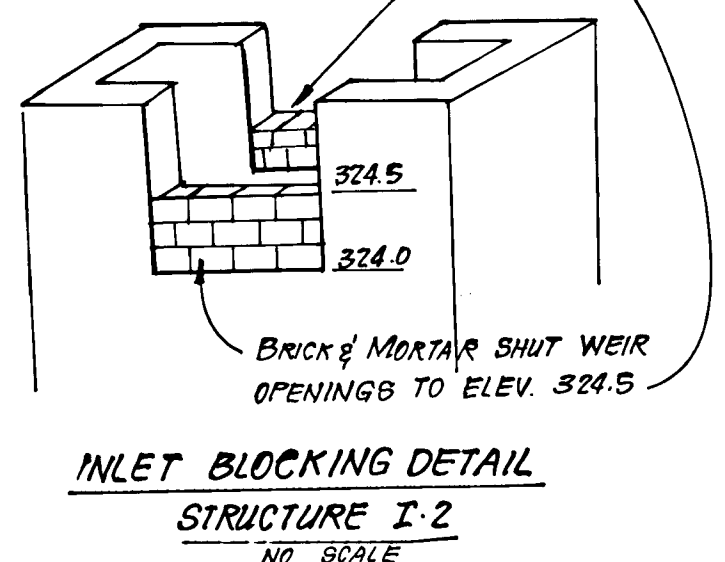
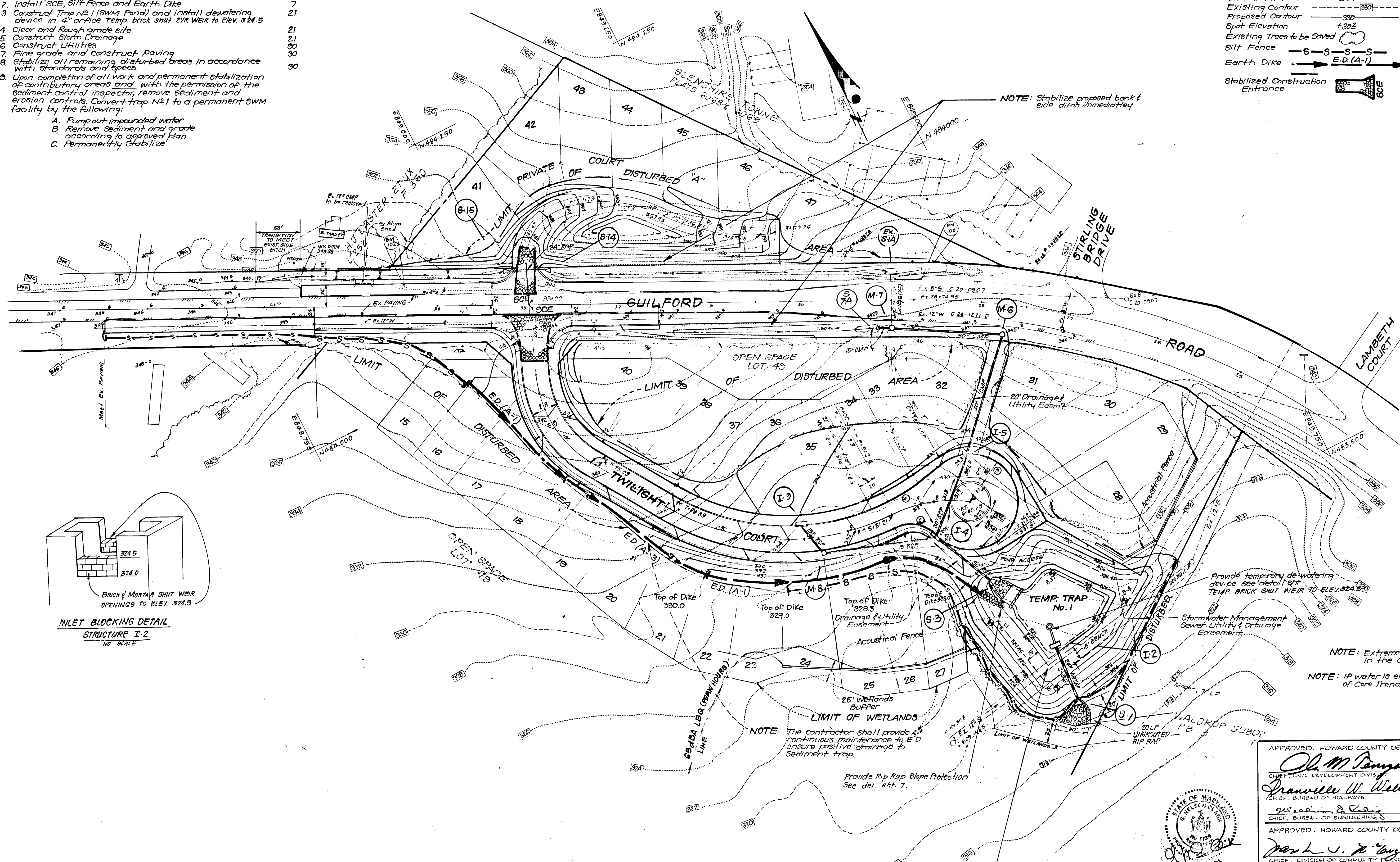
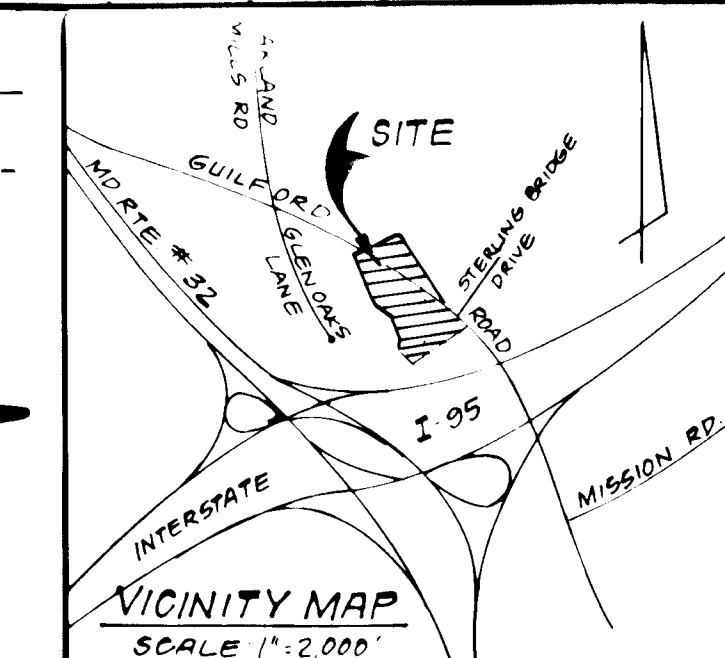
CONSTRUCTION SEQUENCE

No. of Days

1. Obtain grading permit 7
2. Install SCE, Silt Fence and Earth Dike 7
3. Construct Trap No. 1 (SWM Pond) and install dewatering device in 4" orifice temp brick shut 2YR Weir to Elev. 324.5 21
4. Clear and Rough grade site 21
5. Construct Storm Drainage 21
6. Construct Utilities 30
7. Fine grade and construct paving 30
8. Stabilize all remaining disturbed areas in accordance with standards and specs. 30
9. Upon completion of all work and permanent stabilization of contributory areas and, with the permission of the Sediment Control Inspector, remove sediment and erosion controls. Convert trap No. 1 to a permanent SWM facility by the following:
 - A. Pump out impounded water
 - B. Remove Sediment and grade according to approved plan
 - C. Permanently Stabilize

LEGEND

- Contour Interval 2 Ft
- Existing Contour
- Proposed Contour
- Spot Elevation
- Existing Trees to be Saved
- Silt Fence
- Earth Dike
- Stabilized Construction Entrance



NOTE: Stabilize proposed bank & side ditch immediately

NOTE: Extreme care to be taken when grading in the area of Ex. 12" Sewer

NOTE: If water is encountered during construction of Core Trench - dewater as required.

NOTE: The contractor shall provide continuous maintenance to E.D. and ensure positive drainage to Sediment trap

TEMP SEDIMENT TRAP No. 1

Drainage Area = 13.5 Acres
 Storage Required = 24,300 CF
 *Storage Provided at Elev. 324.50 = 28,750 CF
 Depth = 5'
 Top of Constructed Embankment = 328.00
 Bottom Elev. 320.0
 Clean out Elev. 322.5
 3:1 Side Slopes

NOTE: TRAP TO BE INSPECTED & CLEANOUT AS REQUIRED AFTER EACH RAINFALL.

*TEMP BRICK SHUT 2YR WEIR OPENINGS TO ELEV. 324.50 SEE DETAIL THIS SHEET

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erection 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.

William J. Roberts
 9-25-90
 DATE

Approved for *Shawna J. Stewart* S.C.D.
 Signature *William J. Roberts* 3/20/91
 U.S. Soil Conservation Service
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources 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 or their authorized agents, as are deemed necessary."

William J. Roberts 9/25/90
 Signature of Developer/Builder
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Oliver M. Pennington 4/14/91
 CHIEF, LAND DEVELOPMENT DIVISION
Granville W. Weisbach 4/12/91
 CHIEF, BUREAU OF HIGHWAYS
James B. King 4-12-91
 CHIEF, BUREAU OF ENGINEERING

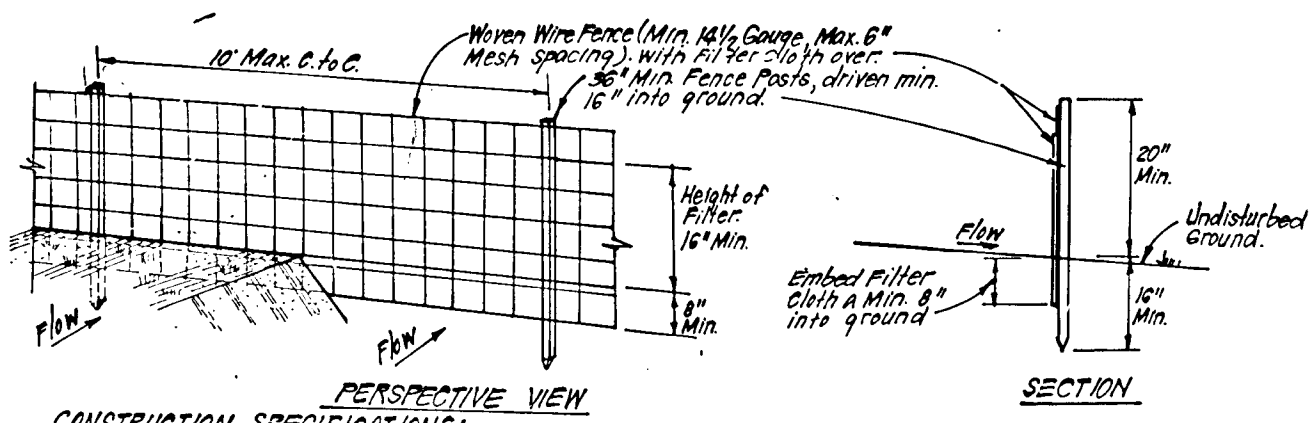
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Mark S. J. Taylor 4/12/91
 CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT

CLARK • FINEPROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED KIWM	SEDIMENT & EROSION CONTROL PLAN AND ROAD CONSTRUCTION PLAN MAPLESIDE VILLAGE OF KINGS CONTRIVANCE SECTION 5 AREA 4 6TH ELECTION DISTRICT HOWARD COUNTY MARYLAND	SCALE 1" = 50'
DRAWN BAL		DRAWING 6 OF 7
CHECKED KIWM		JOB NO. 89-036
DATE Sept 1990		OWNER THE HOWARD RESEARCH & DEVELOPMENT CORP 10275 LITTLE PARKWAY Columbia, Maryland 21044

1597

F-91-52



CONSTRUCTION SPECIFICATIONS:

- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
- Filter cloth to be fastened securely to woven wire fence with ties spaced every 24\"/>
- When 2 sections of filter cloth adjoin each other they shall be overlapped by 6\"/>
- Maintenance shall be performed as needed and material removed when "clumps" develop in silt fence.

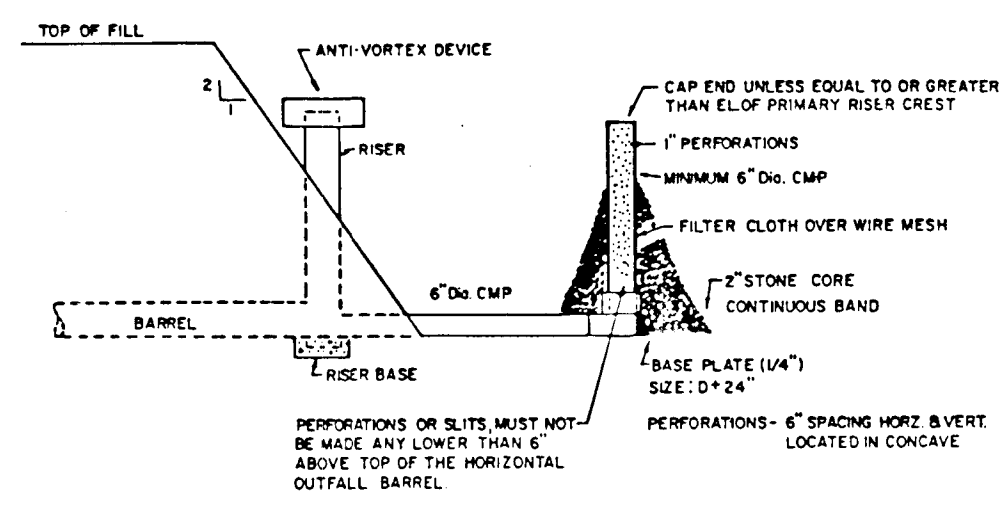
POSTS: Steel, either T-11 Type or 2\"/>

FENCE: Woven Wire, 14 1/2 Gauge, 6\"/>

FILTER CLOTH: Filter Cloth, 100% Silt Retention, 1/4\"/>

PREFABRICATED UNIT: 6\"/>

SILT FENCE DETAIL (9)
NO SCALE



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, discing or other acceptable means before seeding, if not previously loosened.

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

- Preferred:** Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc 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).
- Acceptable:** Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (22 lbs/1000 sq ft) before seeding. Harrow or disc 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 ft or higher, use 345 gal per acre (8 gal/1000 sq ft) for anchoring.

Maintenance: Inspect all seeded 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, discing 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 November 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 1 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 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 345 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 rate and methods not covered.

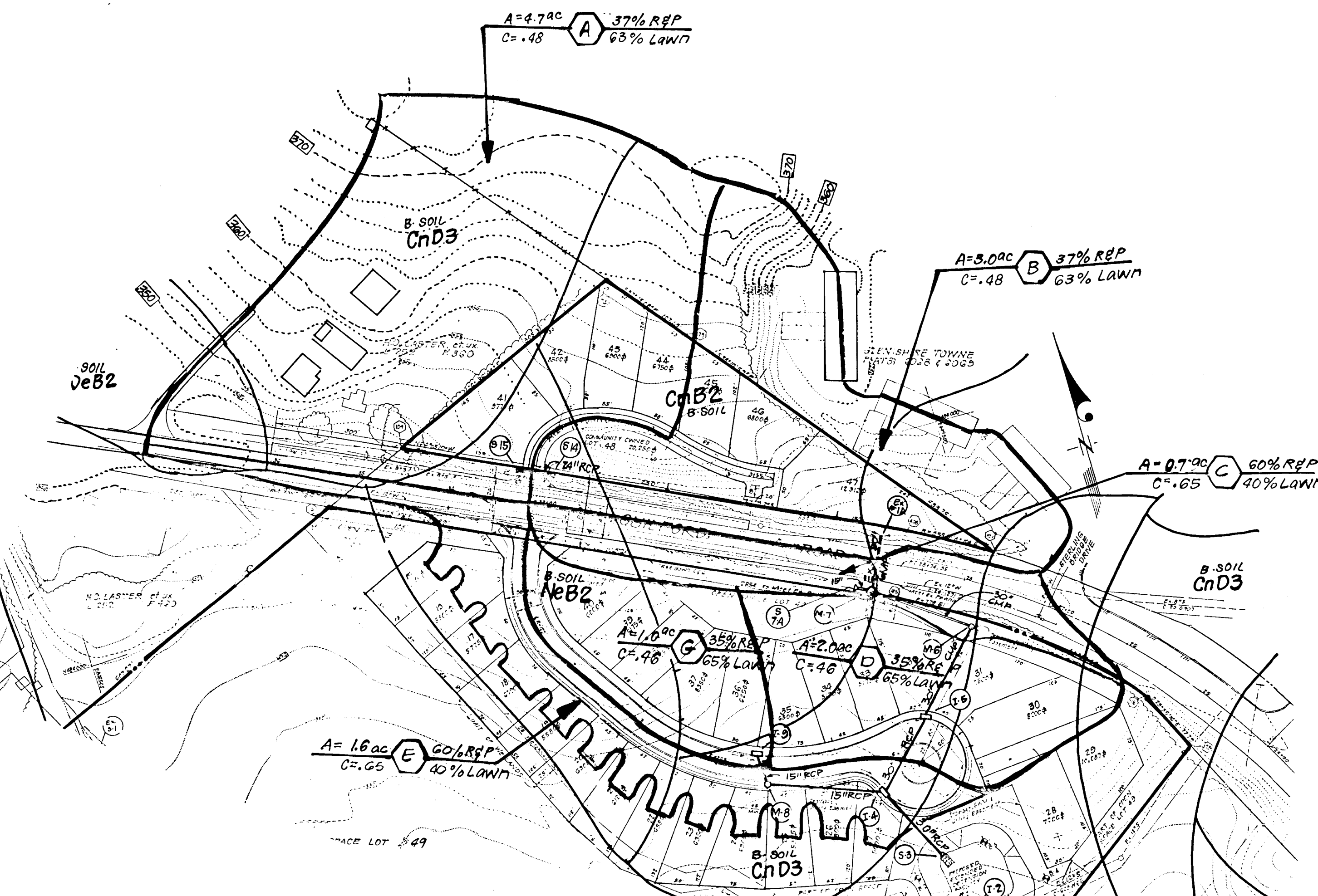
SEEDING ANALYSIS:

Total Area of Site	6.75 Acres
Area Disturbed	4.64 Acres
Area to be seeded or paved	1.3 Acres
Area to be vegetatively stabilized	3.34 Acres
Total Cut	7780 Cu. Yds
Total Fill	1600 Cu. Yds
Offsite waste/borrow area Local	*

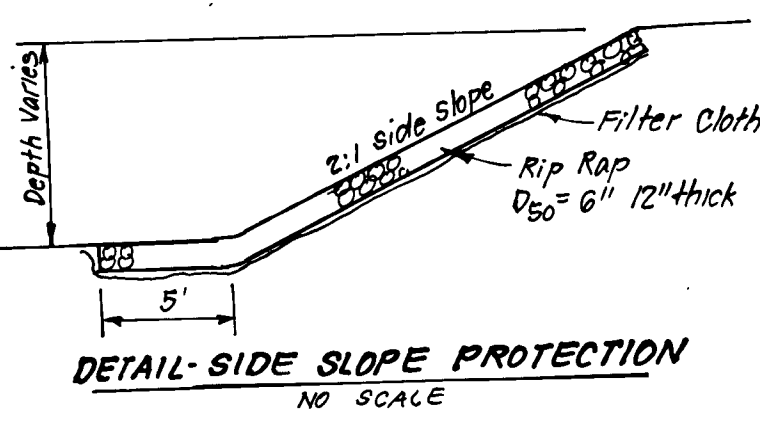
CONSTRUCTION SPECIFICATIONS:

- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County SWM sediment control inspector.
- 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.
- If houses are to be constructed on an "As-Built" basis, at Andrus, Single lot Sediment Control as shown below shall be implemented. N/A
- All pipes to be blocked at the end of each day (see detail below). N/A
- The total amount of straw bale dikes/silt fence equals 1025 L.P.F.

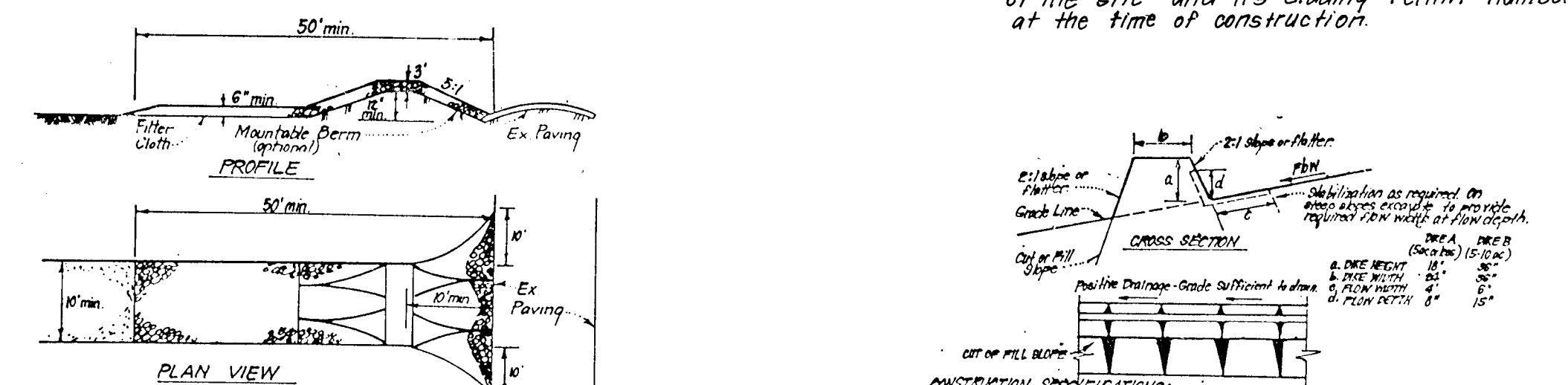
* It is the responsibility of the contractor to identify spoil/borrow site and notify HSCD of the site and its Grading Permit number at the time of construction.



DRAINAGE AREA MAP
Scale: 1"=100'



DETAIL-SIDE SLOPE PROTECTION
NO SCALE



CONSTRUCTION SPECIFICATIONS:

- Stone size - Use 2\"/>
- Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
- Thickness - Not less than six (6) inches.
- Width - Ten (10) feet minimum, but not less than the full width of points where ingress or egress occurs.
- Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be repaired on a single family residence lot.
- Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mound-side berm with 2:1 slopes will be permitted.
- Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic raking, dressing, with additional stone as conditions demand and repair work or clearance of any impediments to trap sediment. All sediment spilled, trapped, washed or tracked onto public rights-of-way must be removed immediately.
- Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area established with stone and which drains into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each run.

STABILIZED CONSTRUCTION ENTRANCE (SCE)
NO SCALE

Reviewed for HOWARD COUNTY S.C.D. Name and Title: [Signature] Date: 3/28/91 U.S. Soil Conservation Service

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources 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 or their authorized agents, as are deemed necessary."

Signature: [Signature] Date: 9/25/90

ENGINEER'S CERTIFICATE

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

Signature: [Signature] Date: 9-25-90
G. Nelson Clark

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

[Signature] DATE: 4/14/91
[Signature] DATE: 4/12/91
[Signature] DATE: 4-12-91

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

[Signature] DATE: 4/15/91

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DESIGNED	KIWM	SCALE	As Shown
DRAWN	BAL	DRAWING	7 OF 7
CHECKED	KIWM	JOB NO.	89-036
DATE	OWNER	FILE NO.	89-036-0

OWNER: THE HOWARD RESEARCH & DEVELOPMENT CORP and DEVELOPER: 10275 Little Patuxent Parkway Columbia, Maryland 21044

1591

F-91-52