

- ### GENERAL NOTES
- All work shall be done in accordance with HoCo Design Manual, Vol. II, Specs. and Details for Construction, 1989 Amendments.
 - Types of storm drainage refer to the Standard details of HoCo & MDSA.
 - Trench Compaction for storm drains within road or street right-of-way limits shall be in accordance with "HoCo Design Manual, Vol. II", Std. G.2-b1.
 - 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 24 hrs. in advance of construction.
 - All traffic services parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices, 1988 Edition."
 - Sag and Crest vertical curves were designed in accordance with "HoCo Design Manual", Vol. II.
 - Provide Conc. Sidewalk Ramps HoCo Std. Type A R4 of where shown in plan.
 - Design Speed: 30 mph.
 - The contractor or developer shall contact the Construction Inspection/Survey Division 24hrs. in advance of commencement of work. Ph. 792-7272.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Jennings 10/25/90
Chief Land Development Division M.L.
Date

Shawville W. Wessand 10/23/90
Chief Bureau of Highways
Date

W.S. ... 10-26-90
Chief Bureau of Engineering
Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Frank S. ... 10/15/90
Chief, Division of Community Planning & Land Development
Date

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS

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

DESIGNED: **KIWM** SCALE: As Shown
DRAWN: **KIWM** DRAWING: **10F5**
CHECKED: **RMQ** JOB NO.: **89-036**
DATE: **KIWM** FILE NO.: **89-036D**

ROAD CONSTRUCTION PLANS
GLEN OAKS LANE
MAPLESIDE
VILLAGE OF KINGS CONTRIVANCE
SECTION 5 AREA 4
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATUKENT PKWY.
COLUMBIA, MD. 21044

STREET TREE TABLE

SYM.	PLANT NAME	SIZE	QUANT.	REMARKS
(+)	ACER SACCHARUM 'Green Mountain'	1 1/2" DBH	2	See Detail Sht. 1
(+)	QUERCUS ALBA	1 1/2" DBH	2	See Detail Sht. 1

1. The contractor shall verify the location of underground utilities prior to digging. Location of trees may be adjusted slightly to meet field conditions.

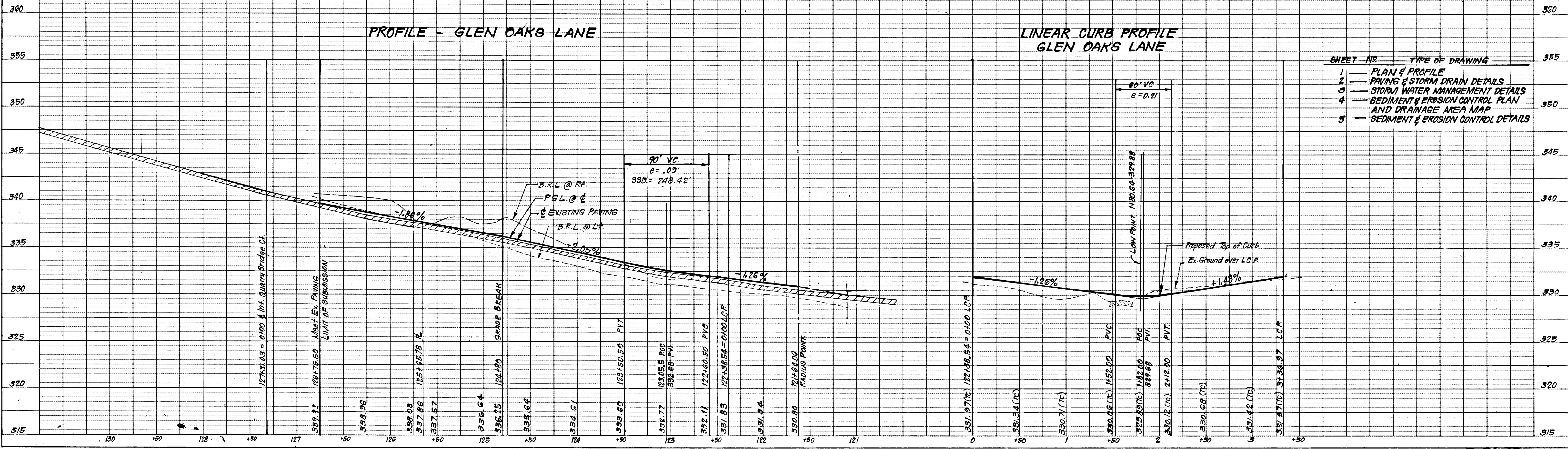
2. The location, type & number of trees shown are tentative and are used for bond purposes only. The field location and variety of trees may vary to accommodate field conditions and builder's landscape program. Bond to be in contingent upon Section 16.131 of the Howard County Subdivision Regulations as approved by the Dept. of Planning and Zoning.

CENTERLINE CURVE DATA

PC TO PT	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
123+01.48 to 123+03.42	300.00	07°06'30"	62.01'	31.04'	61.37'	N30°56'50"W

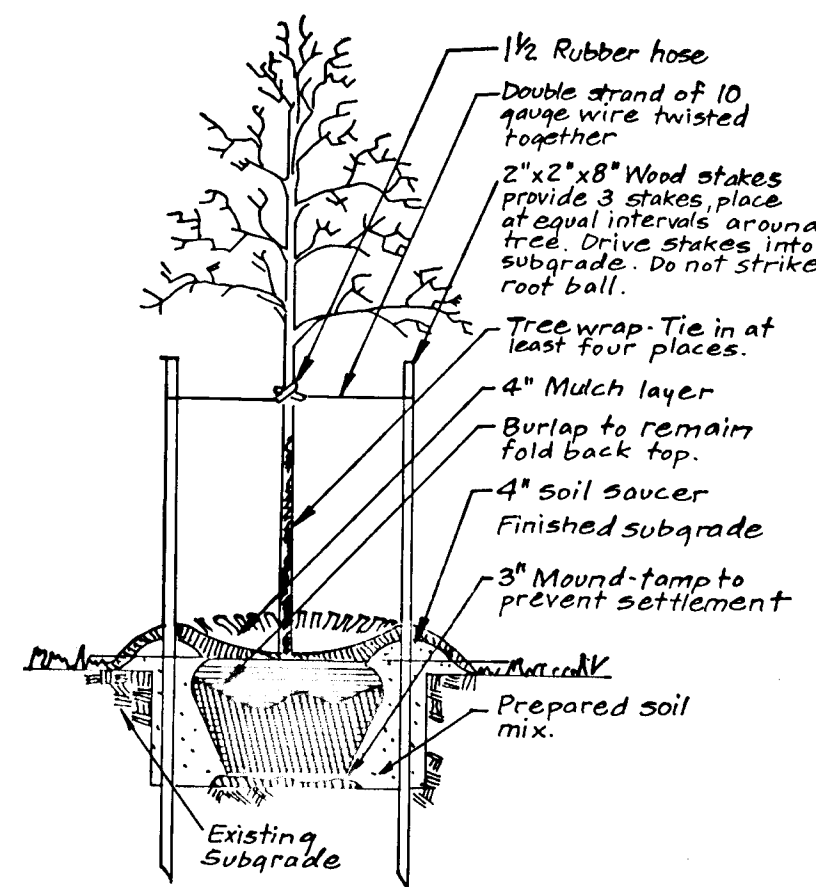
CUL-DE-SAC CURVE DATA

Curve	Radius	Delta	Arc	Tan	Chord	Bearing
A	40.00	54°03'31"	37.74'	20.41'	36.36'	
B	62.00	28°07'02"	261.49'	-	-	
C	40.00	54°03'31"	37.74'	20.41'	36.36'	



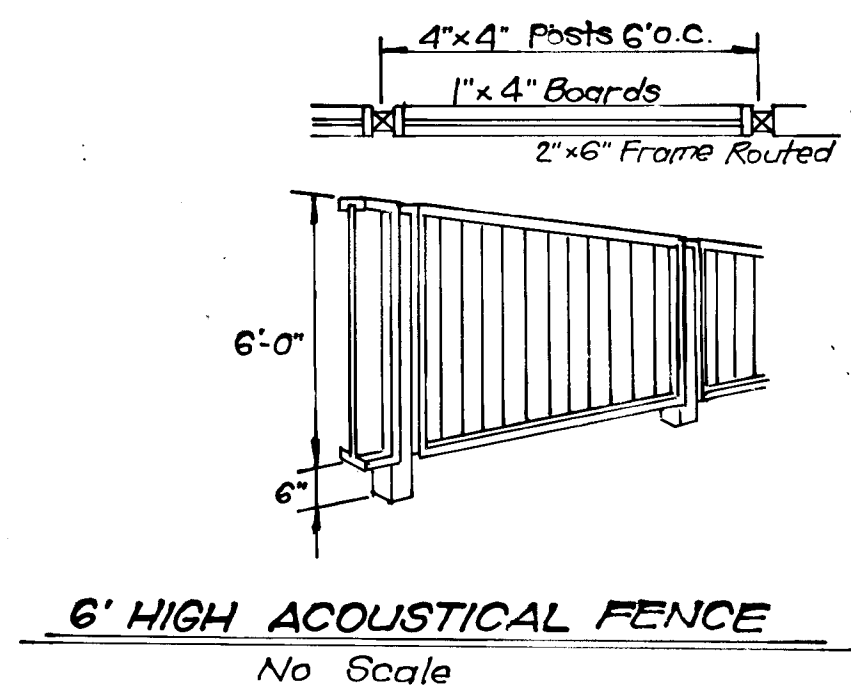
SHEET NO.	TYPE OF DRAWING
1	PLAN & PROFILE
2	PAVING & STORM DRAIN DETAILS
3	STORM WATER MANAGEMENT DETAILS
4	SEDIMENT & EROSION CONTROL PLAN AND DRAINAGE AREA MAP
5	SEDIMENT & EROSION CONTROL DETAILS

1599



TREE PLANTING DETAIL
NO SCALE

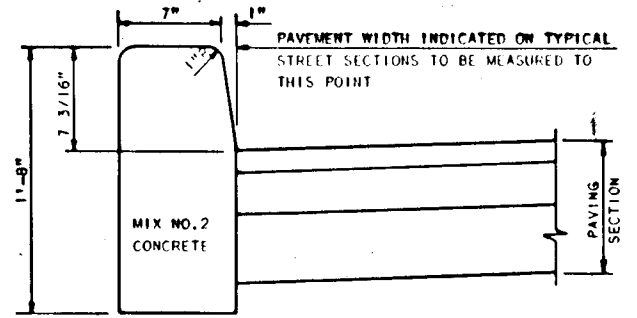
NOTE:
1. The contractor shall verify location of underground utilities prior to digging location of trees may be adjusted slightly to meet field conditions.
2. The location, type & number of trees shown are tentative and are used for bond purposes only. The final location and variety of trees may vary 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.



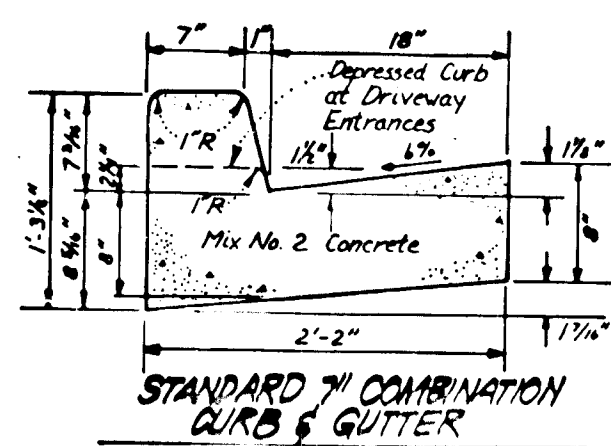
6' HIGH ACOUSTICAL FENCE
No Scale

Bituminous Conc Surface	1/4"
Bituminous Conc Base	2 1/4"
Prime	
8" Crusher Run Base (Placed in 2 Courses)	8"
or	
6" Dense Graded Stabilized Aggregate Base Course	6"

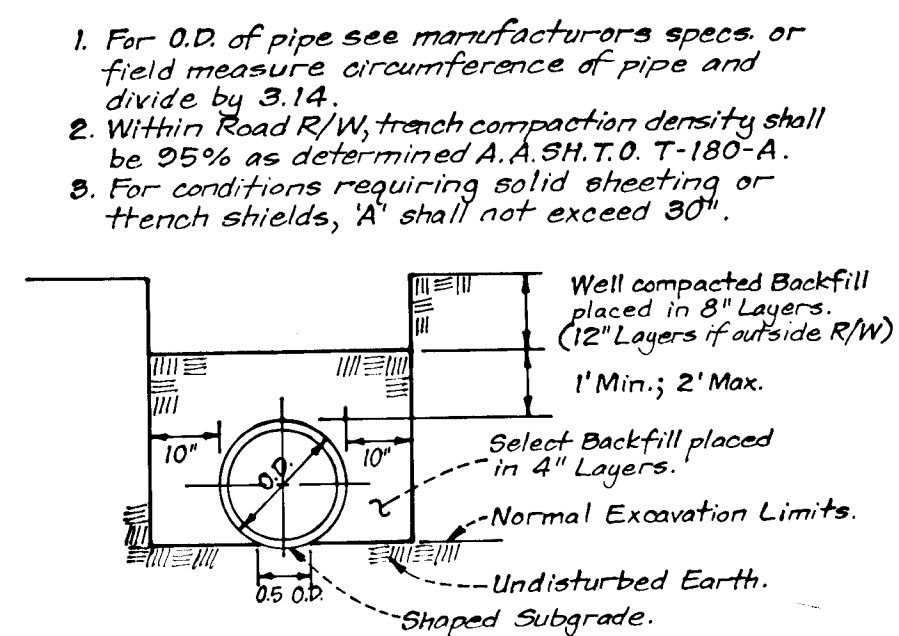
ALTERNATE PAVING SECTION FOR PUBLIC ROADS
(SECTION P-2)



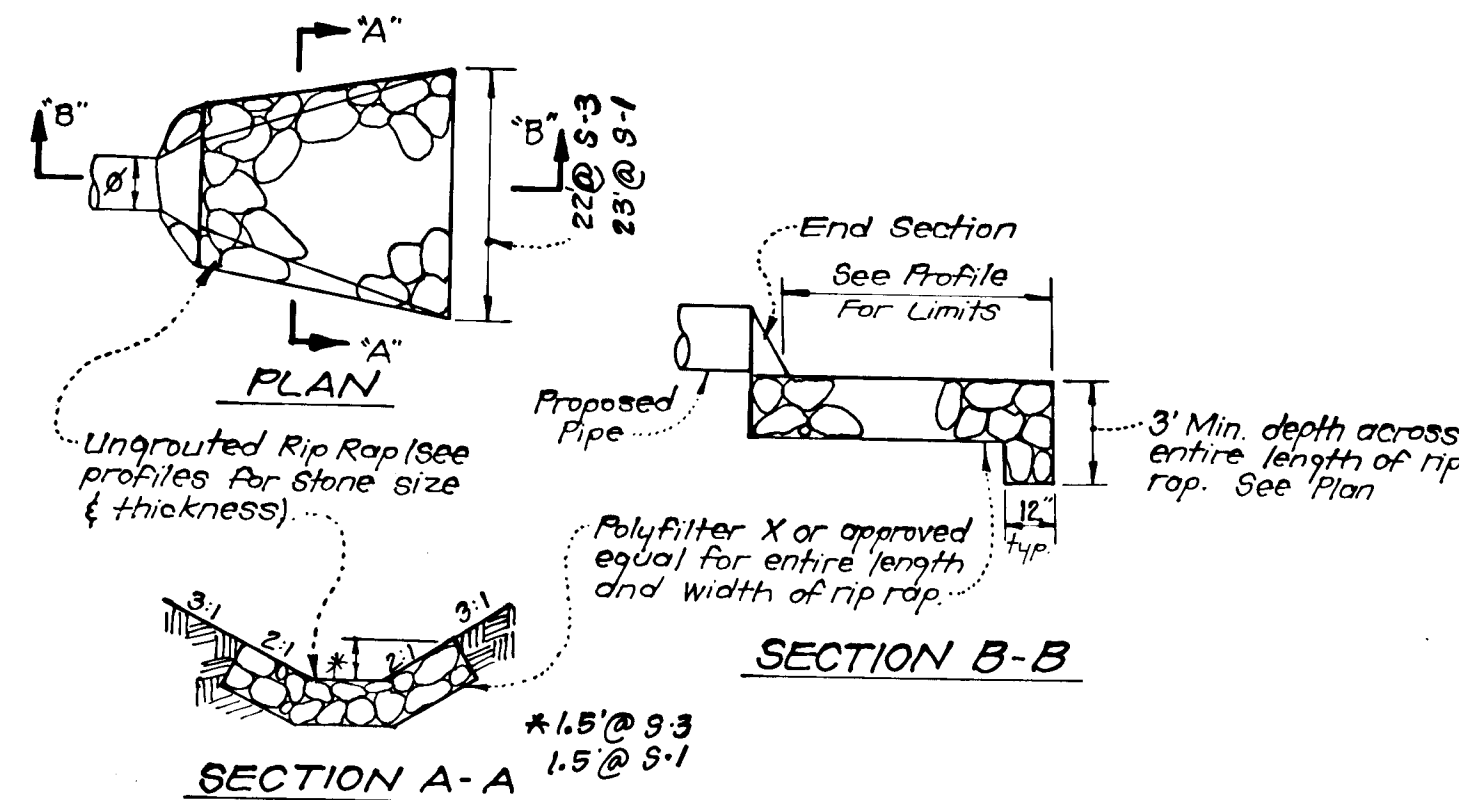
TYPICAL BARRIER CURB
NO SCALE



STANDARD 3/4 COMBINATION CURB & GUTTER
3/4 SCALE



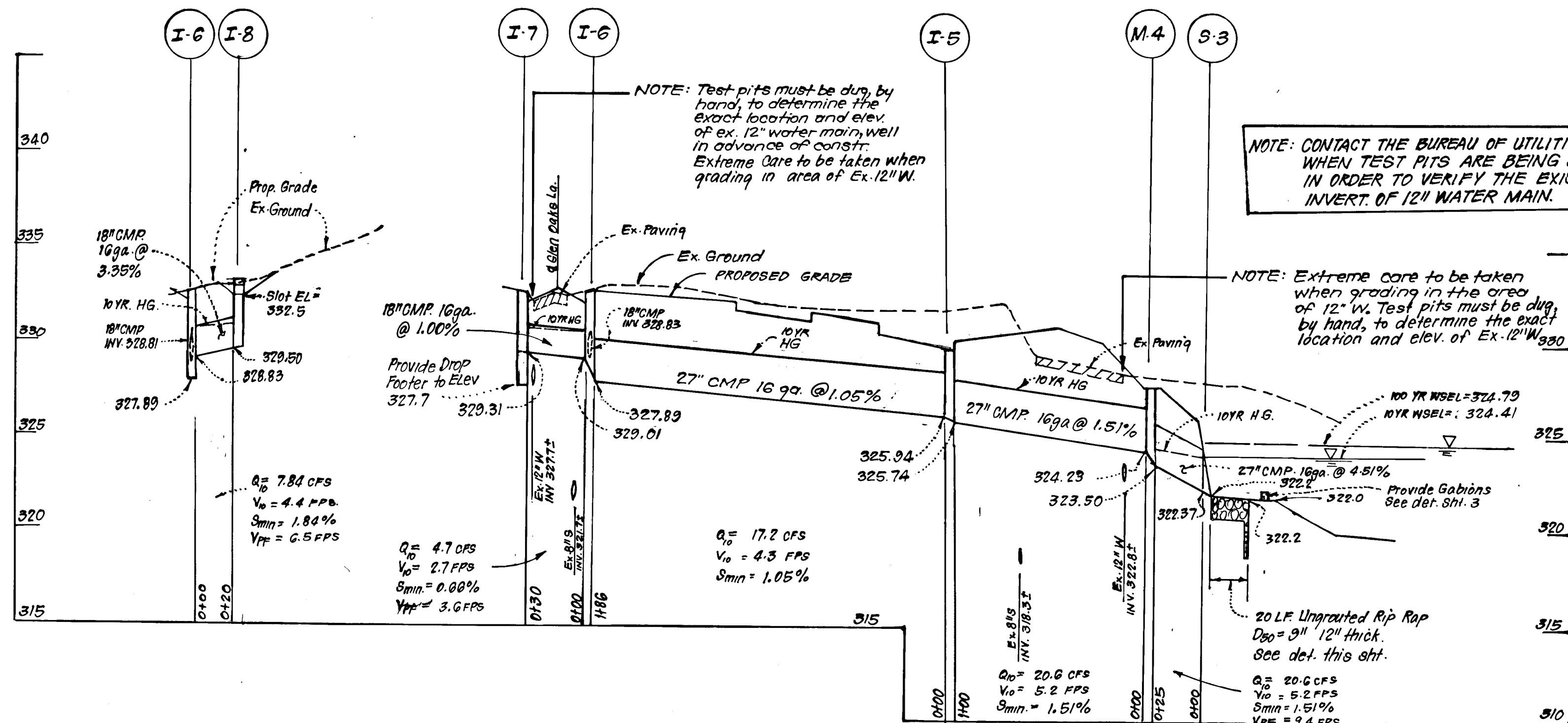
TRENCH COMPACTION DETAIL
NO SCALE



UNGRADED RIP RAP PAVING DETAILS
No Scale

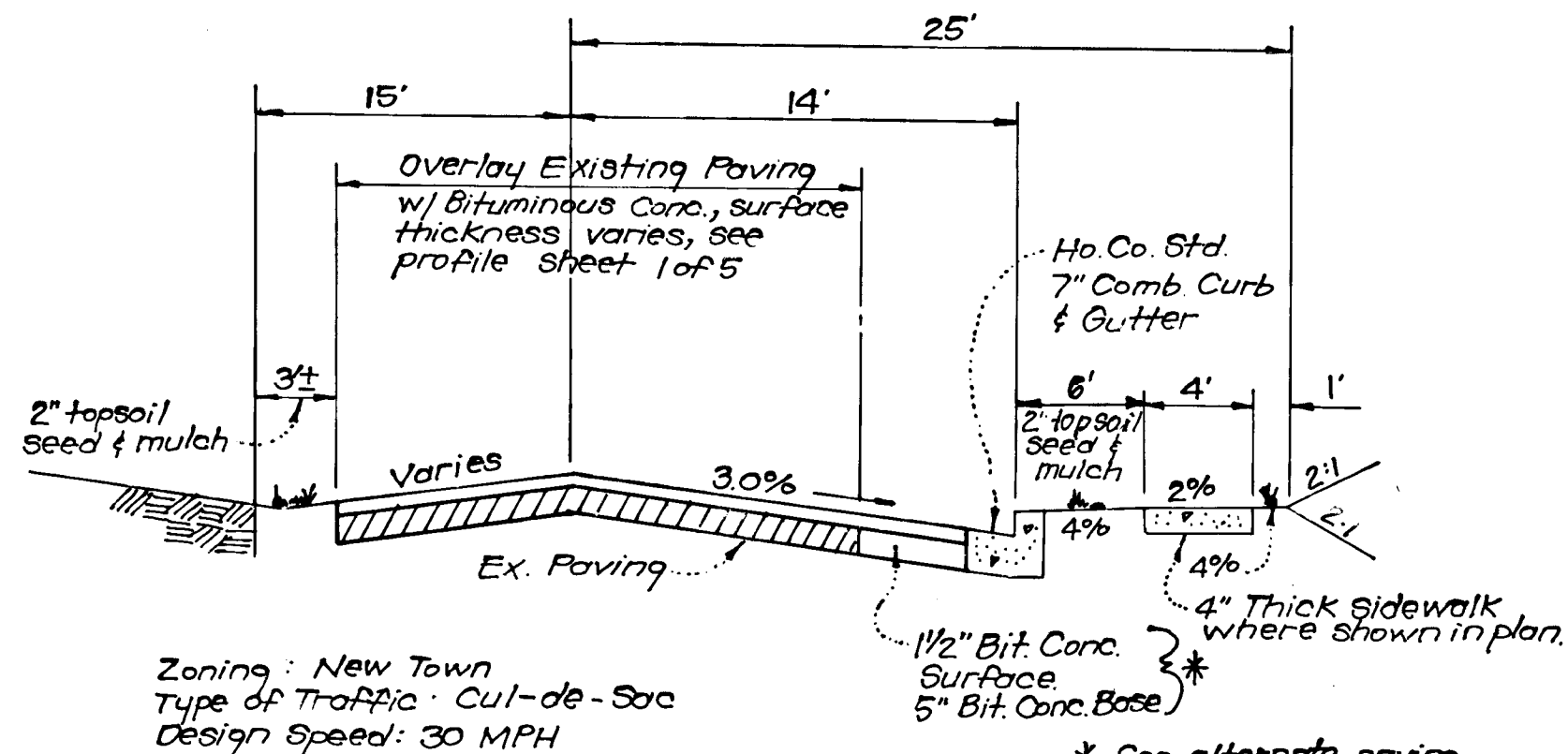
NO.	DESCRIPTION	Inv. in	Inv. out	Top Elevation		REMARKS	LOCATION
				Upper	Lower		
6-1	Conc. End Section	317.93	317.90			Ho. Co. Std. SD 5.51 24" Ø	see plan
I-2	Modified A-5 Inlet	319.50	319.53	325.16		See details sheet 3	see plan
6-3	Metal End Section	322.37	322.20			Ho. Co. Std. SD 5.61 27" Ø	see plan
M-4	Shallow Manhole	324.25	323.50	327.57		Ho. Co. Std. SD 5.05	see plan
I-5	A-10 Inlet	325.94	325.74	329.88		Ho. Co. Std. SD 4.02	6 Str. LCP Sta. 1182 52' LT
I-6	A-10 Inlet	327.89	327.69	332.97	332.78	Ho. Co. Std. SD 4.02	6 Str. LCP Sta. 123+05 14' LT
I-7	A-10 Inlet		329.31	332.97	332.78	Ho. Co. Std. SD 4.02	6 Str. LCP Sta. 123+05 14' RT
I-8	D- Inlet		329.50	333.93		Ho. Co. Std. SD 4.11	see plan

Δ All inverts to be fully developed
* Slots in all 4 sides, Slot Elev = 322.5
† Provide Drop Footer to Elev 327.7



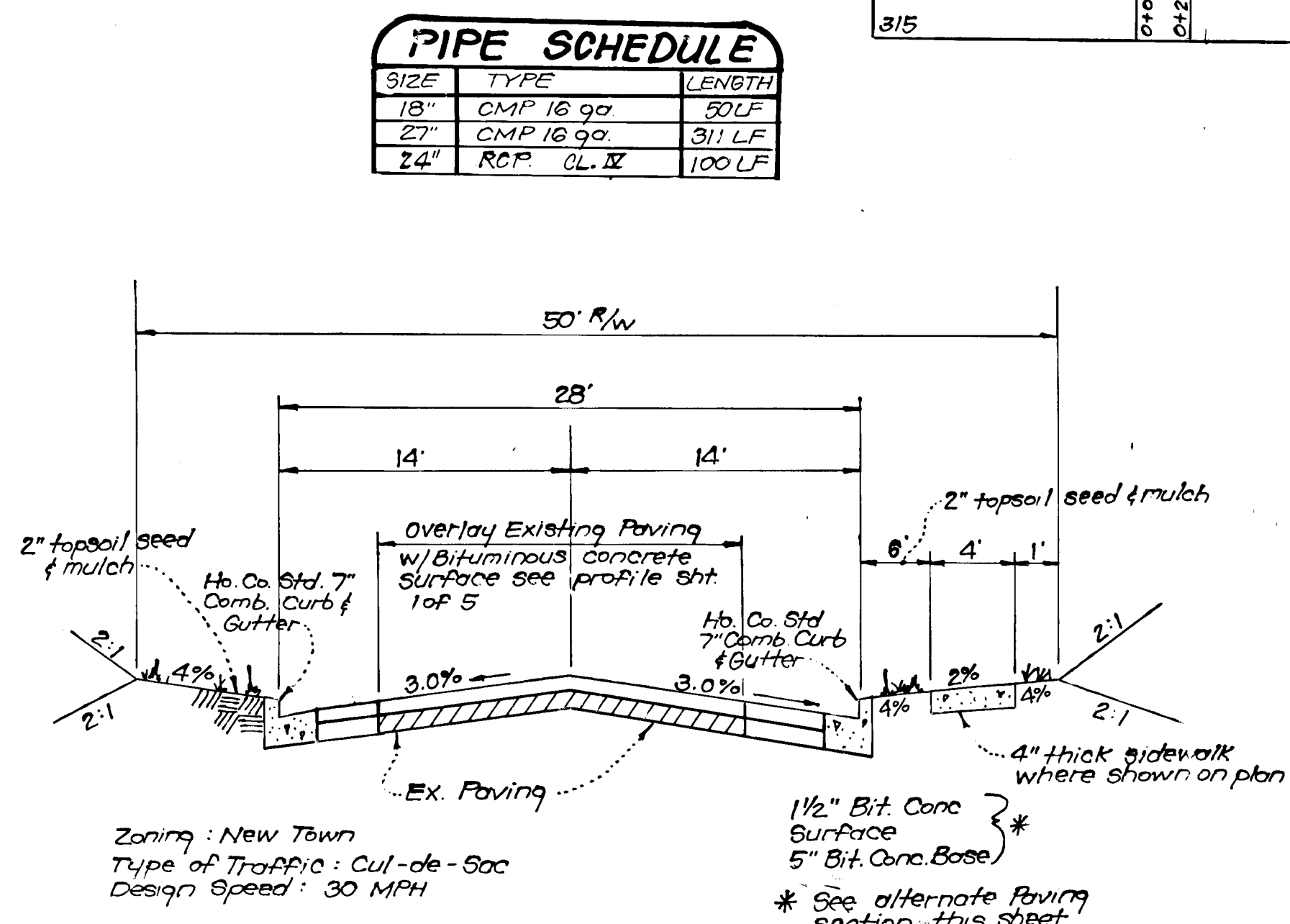
STORM DRAIN PROFILE

SCALES: HORIZ. 1"=50'
VERT. 1"=5'



TYPICAL PAVING SECTION
No Scale

GLEN OAKS LANE STA-123+10 to 126+75



TYPICAL PAVING SECTION
No Scale

GLEN OAKS LANE STA-122+38 to 123+10

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 Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."

William J. Roberts
7/11/90

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erosion and Sediment Control represents a structural and technical 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
7-9-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Alan M. Johnson
Chief, Land Development Division
10/23/90
Shawelle W. Williams
Chief, Bureau of Highways
10-26-90
William J. Roberts
Chief, Bureau of Engineering

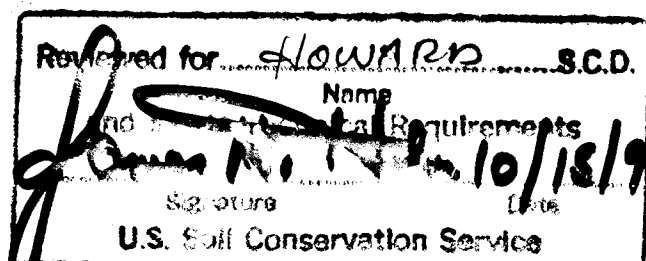
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

David V. Taylor
Chief, Division of Community Planning & Land Development
10/23/90

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	SCALE
KIWM	STORM DRAIN AND PAVING DETAILS	As Shown
DRAWN	MAPLESIDE	DRAWING
RMQ	VILLAGE OF KINGS CONTRIVANCE	2 OF 5
CHECKED	SECTION 5 AREA 4	JOB NO.
KIWM	6TH ELECTION DISTRICT	89-036
DATE	HOWARD COUNTY, MARYLAND	FILE NO.
7-9-90	OWNER: THE HOWARD RESEARCH & DEVELOPMENT CORP	89-036D
	AND 10275 LITTLE PATUXENT PKWY	
	DEVELOPER: COLUMBIA, MD. 21044	



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

Approved: 10/15/90

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 areas or areas. It shall be free of rocks, stumps, wood, rubbish, overcast 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 shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement
 Areas on which fill is to be placed shall be certified 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 bottom 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 traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, 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 plans. The bottom 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 compacting equipment. The material needs to fill the backfilling operation shall be driven over the structure. Under no circumstances shall equipment be driven over any part of a structure. 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
Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with water tight 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: Hexam, Plast-i-Cote, Mac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-791 with water tight coupling bands or flanges.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with water tight 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 design of the 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 the completely watertight. Dimple 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.

- 1. Materials** - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AASHTO Specification C-301.
- 2. Bedding** - All reinforced concrete pipe conduits shall be laid in concrete bedding for their entire length. This 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 the recommendations of the manufacturer of the material. After the joints are sealed for the entire length, 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.

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 shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

- 2. Design Mix** - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. gallons of water per 90 pound bag of cement. The proportion 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 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 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, tamping, and vibration without deflection from the prescribed lines. They shall be hammering or prying against 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 form 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.

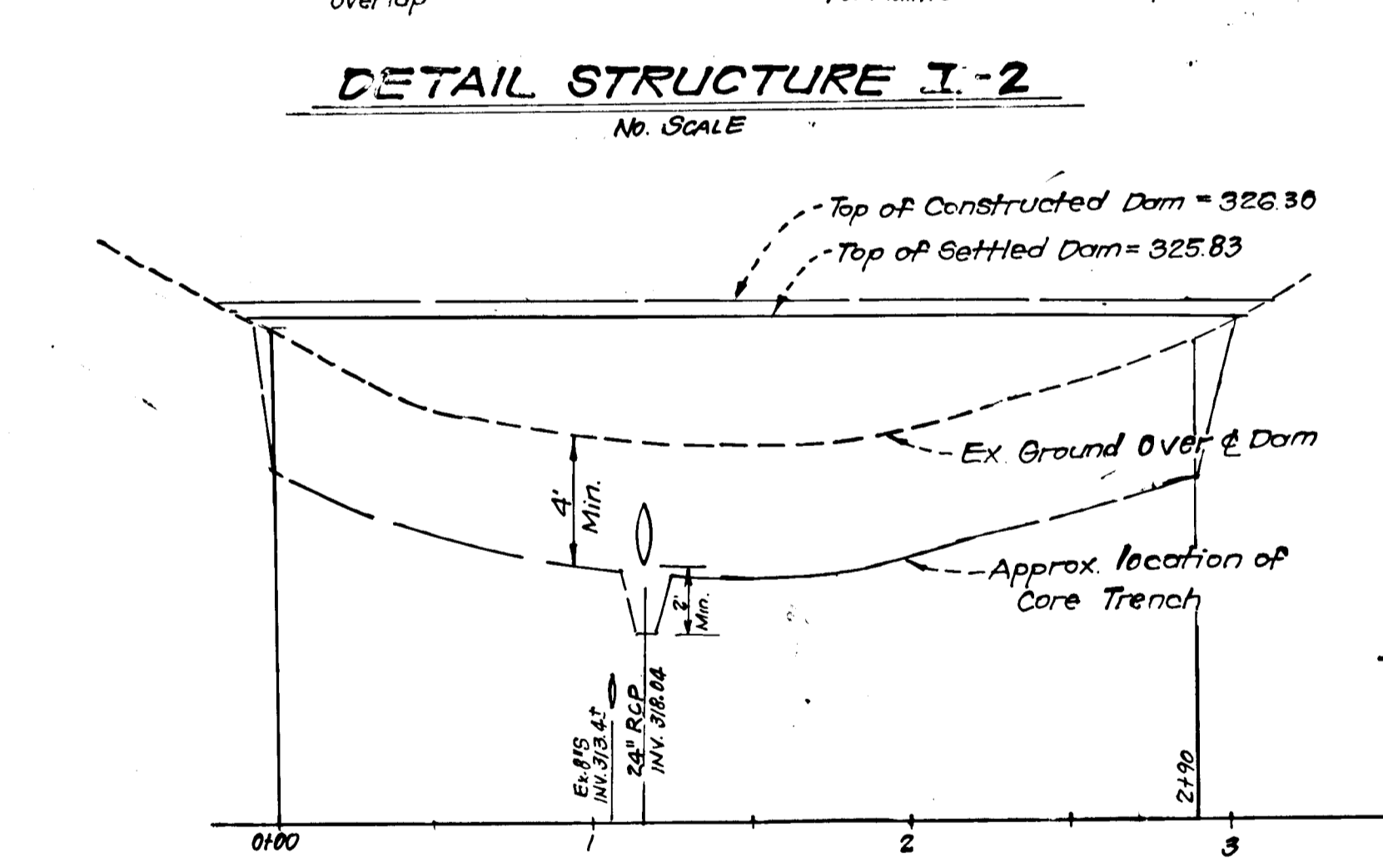
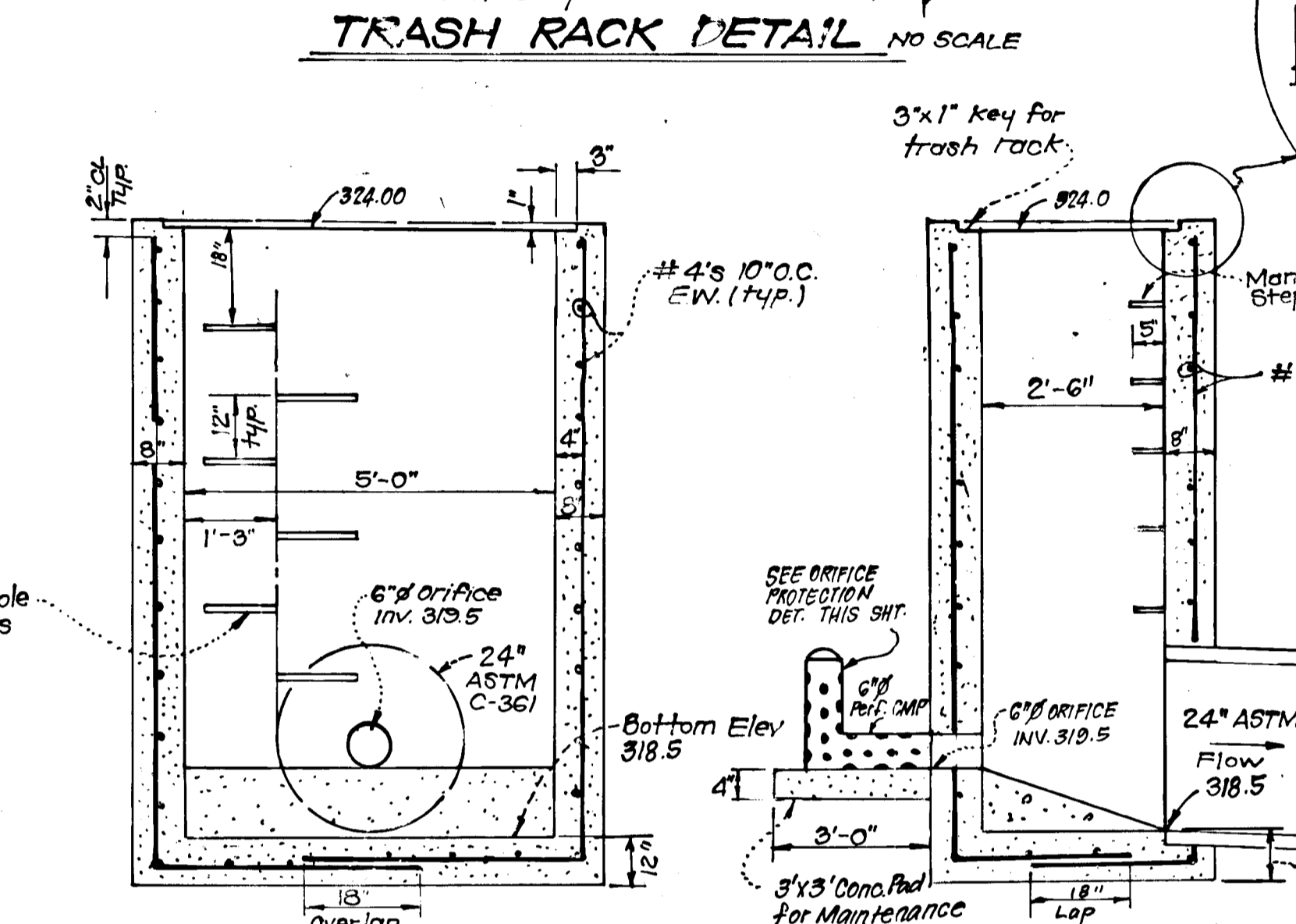
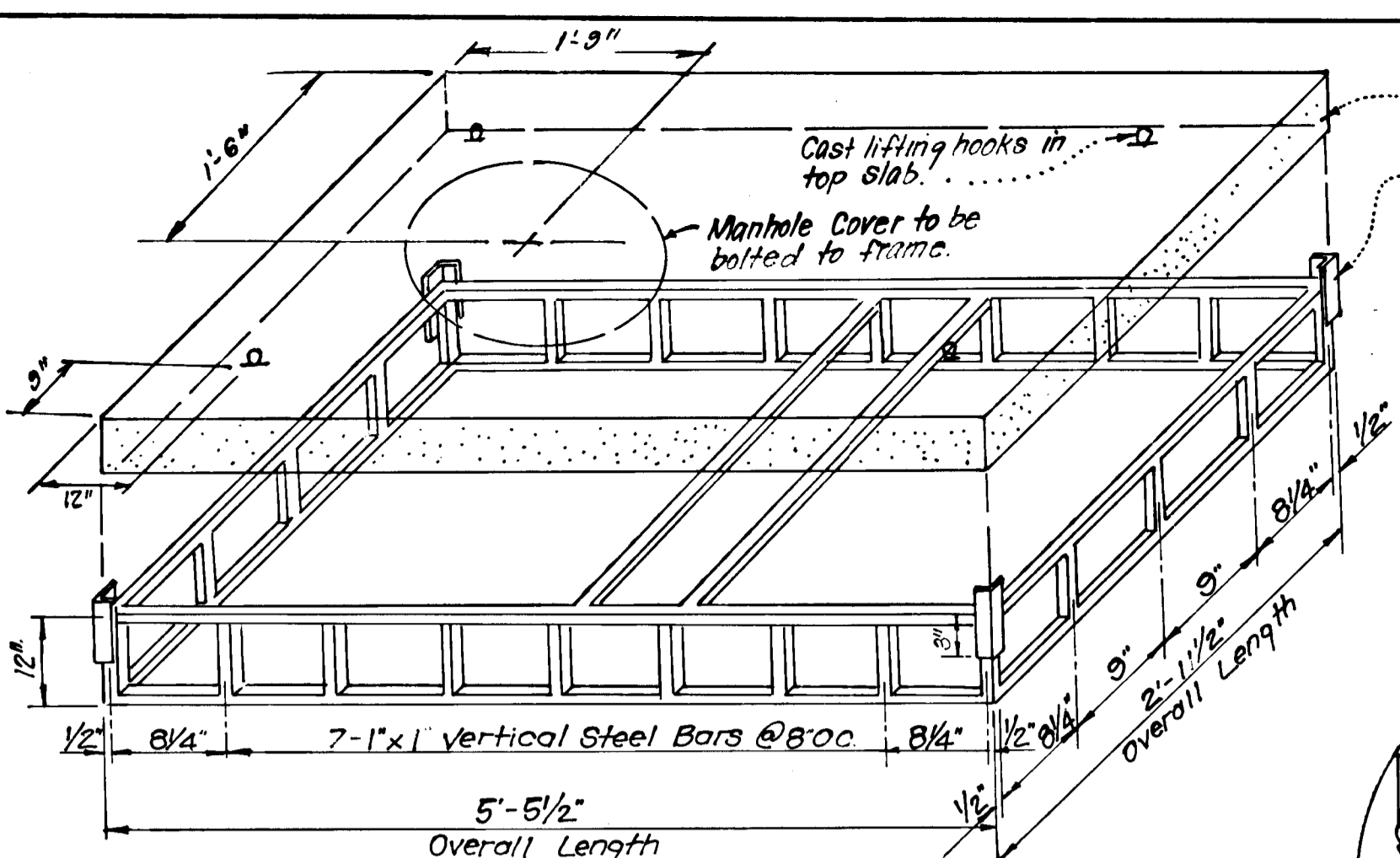
- 9. Placing Temperature** - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

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, lining, fertilizing and mulching (if required) in accordance with the 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. Erosion and sediment control measures shall be followed. Construction during the construction process.



Removeable
 4\"/>

1/8\"/>

TRASH RACK NOTES:
 1. All steel shall 1\"/>

STRUCTURE NOTES:
 1. $f_c = 3000 \text{ psi}$ @ 28 days S&A Mix Concrete.
 2. All concrete structures to be air-entrained.
 3. $f_y = 60 \text{ ksi}$.
 4. Do not backfill against structure until it has reached design strength.
 5. Chamfer (1\"/>

1. All steel shall 1\"/>

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

APPROVED: *[Signature]*
 Chief, Bureau of Highways
 10-26-90 Date

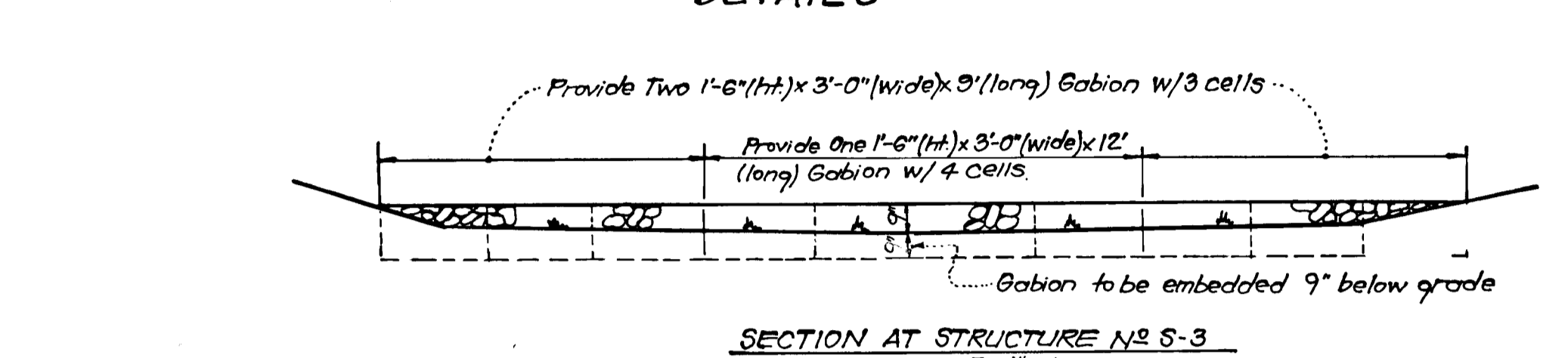
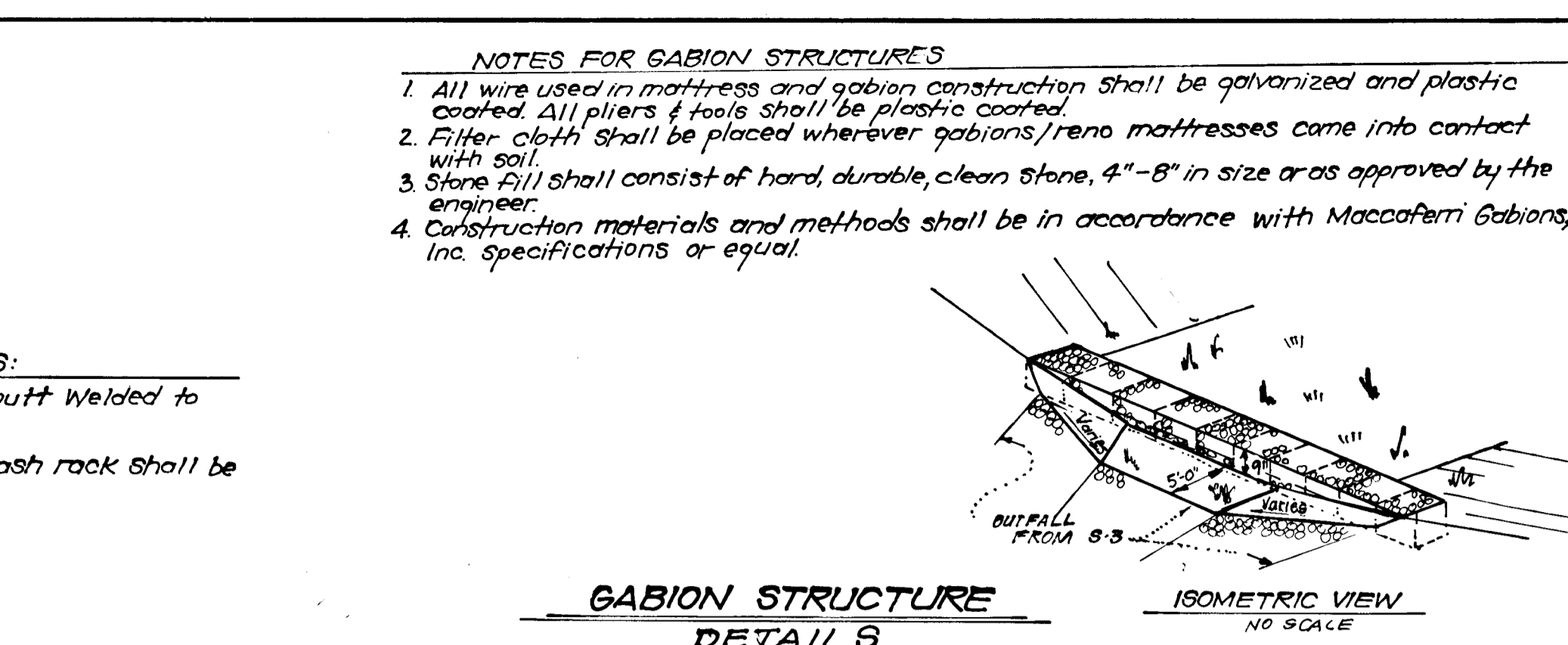
APPROVED: *[Signature]*
 Chief, Bureau of Engineering
 10-26-90 Date

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING.
[Signature]
 Chief, Division of Community Planning & Land Development
 10-26-90 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.

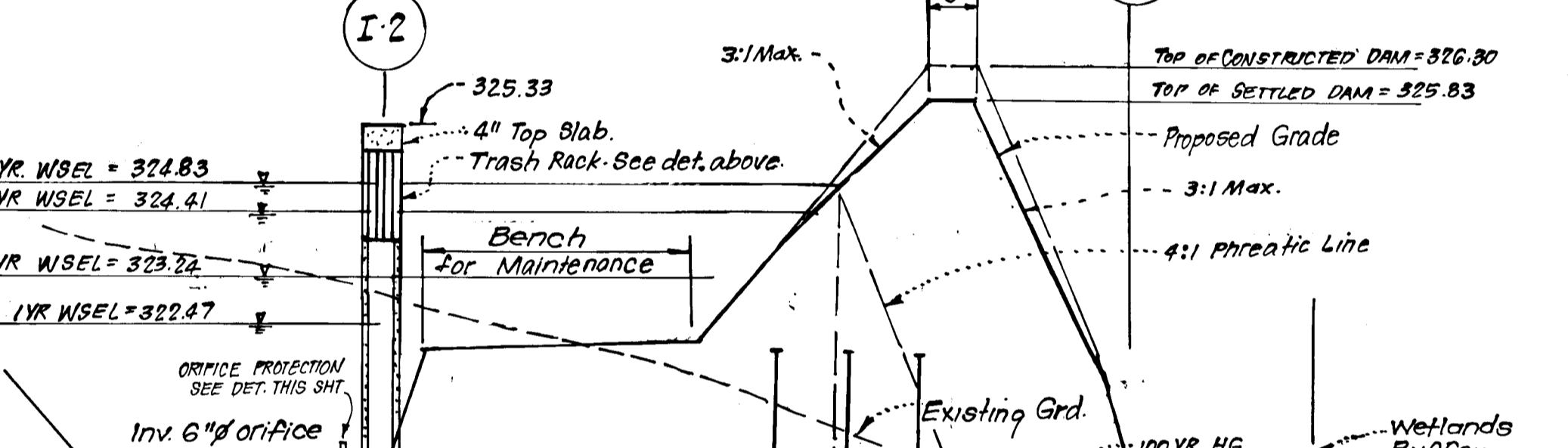
DESIGNED BY: KIWM
 DRAWN BY: BAL
 CHECKED BY: BAL
 DATE: 7-9-90

OWNER AND DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORP.
 110275 LITTLE PATUXENT PKWY. COLUMBIA, MD. 21044



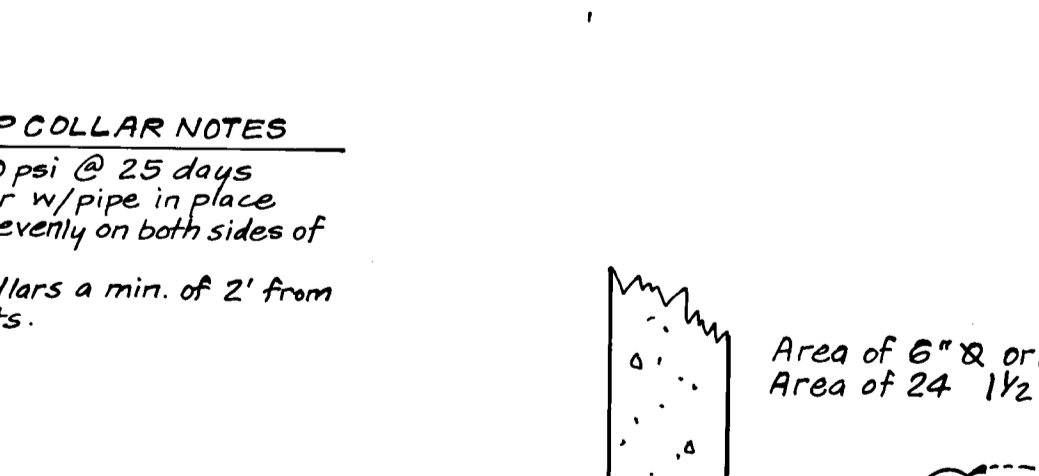
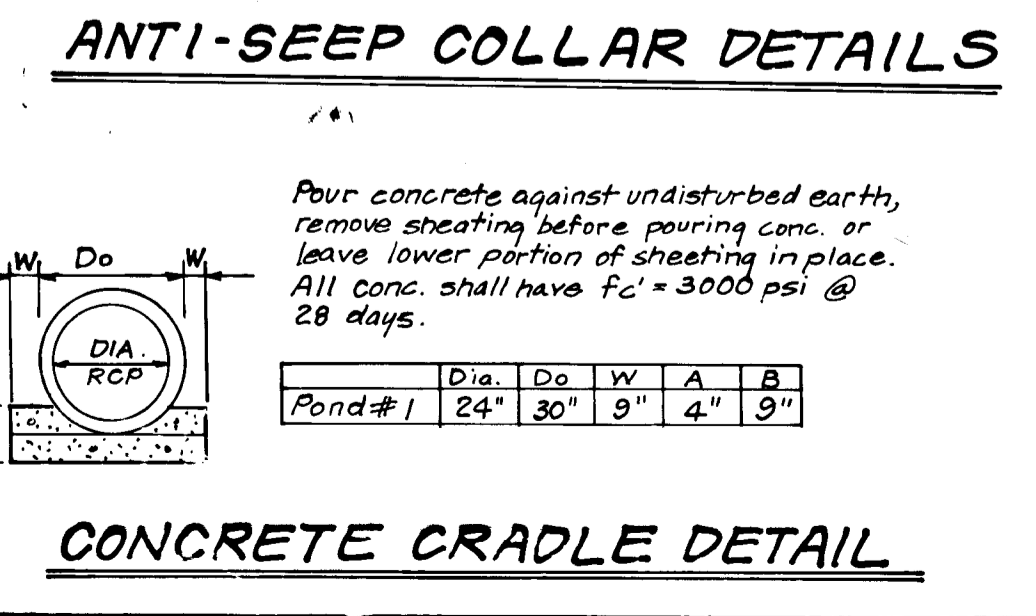
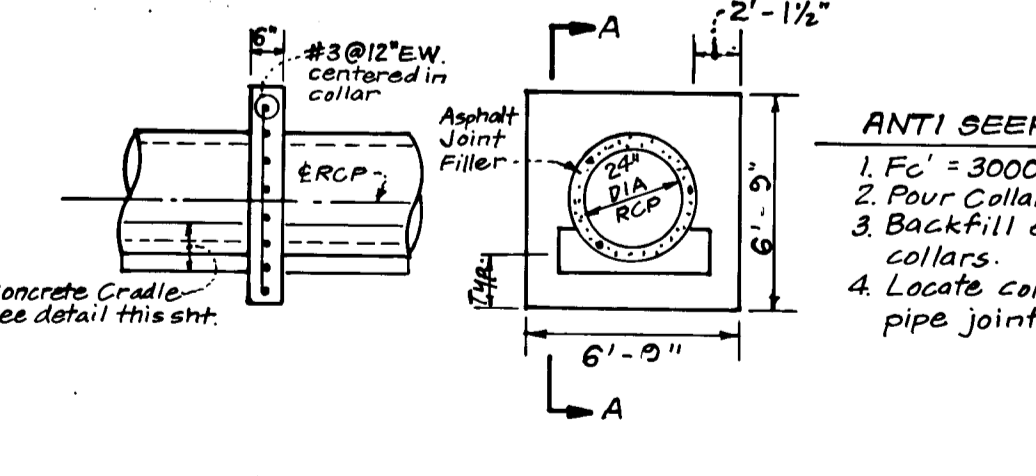
Provide Two 1-6\"/>

Provide One 1-6\"/>



PROVIDE 3\"/>

20 LF. Ungraded Rip Rap $d_{50} = 6\"/>$



ANTI SEEP COLLAR NOTES
 1. $f_c = 3000 \text{ psi}$ @ 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.

Area of 6\"/>

6\"/>

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 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.

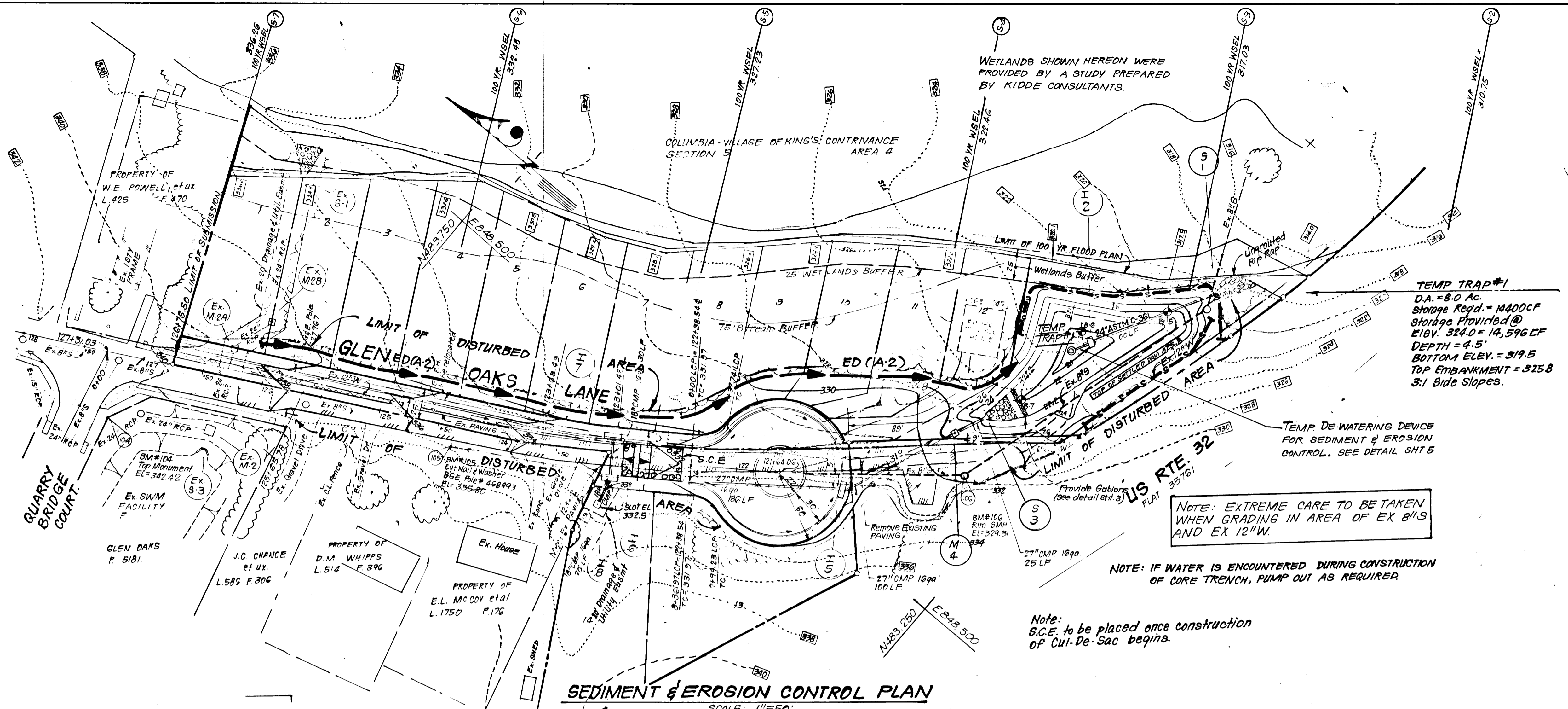
[Signature] 7/1/90
 Signature of Developer Date

Signature of Engineer 7-9-90
 Date

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

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: 3 OF 5
 JOB NO.: 89-036
 FILE NO.: 89-036D



WETLANDS SHOWN HEREON WERE PROVIDED BY A STUDY PREPARED BY KIDDE CONSULTANTS.

TEMP TRAP #1
 D.A. = 8.0 AC.
 Storage Req'd. = 14400 CF
 Storage Provided @ Elev. 324.0 = 14,596 CF
 DEPTH = 4.5'
 BOTTOM ELEV. = 319.5
 TOP EMBANKMENT = 325.8
 3:1 Side Slopes.

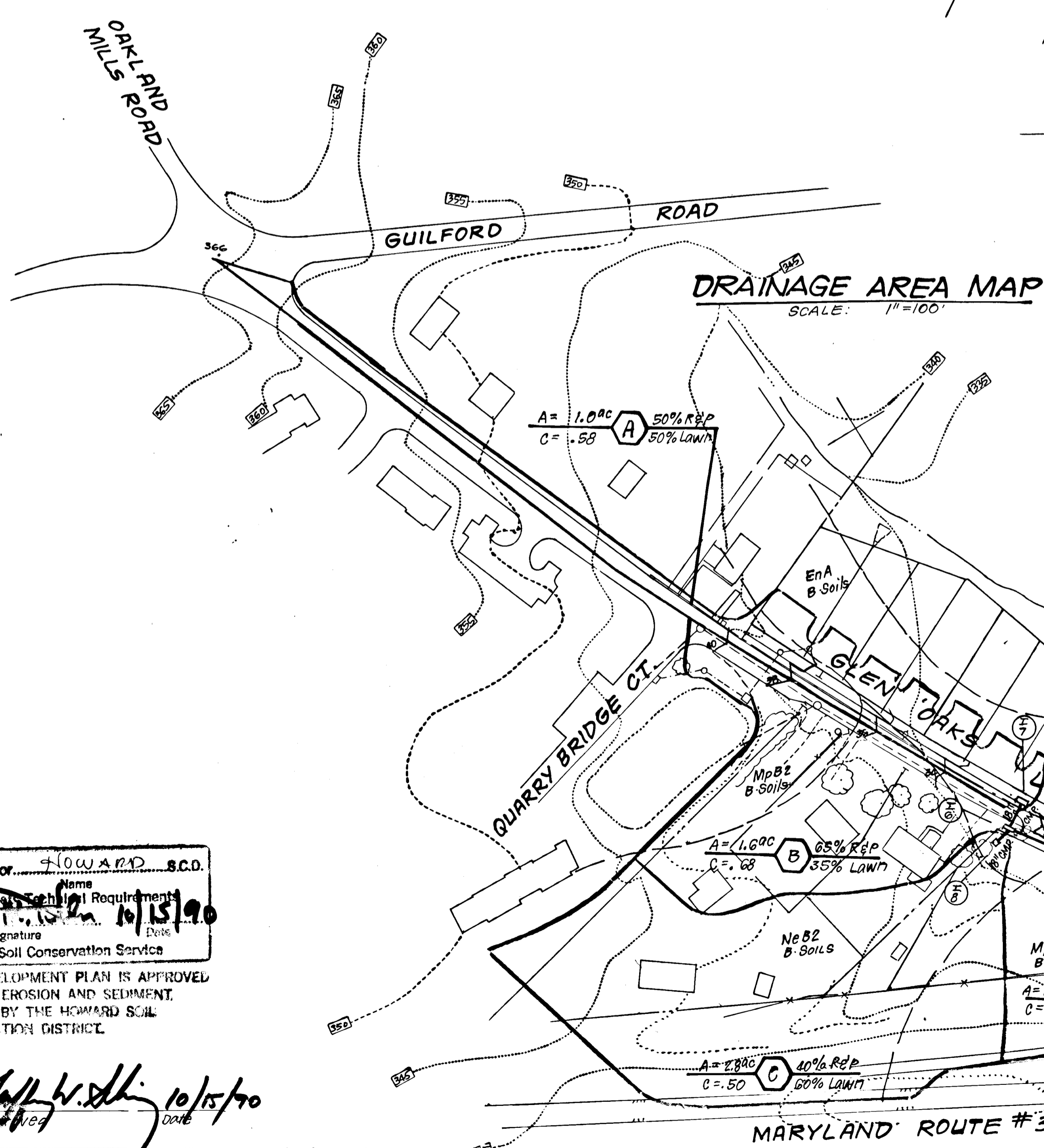
TEMP DEWATERING DEVICE FOR SEDIMENT & EROSION CONTROL. SEE DETAIL SHT 5

NOTE: EXTREME CARE TO BE TAKEN WHEN GRADING IN AREA OF EX B'S AND EX 12"W.

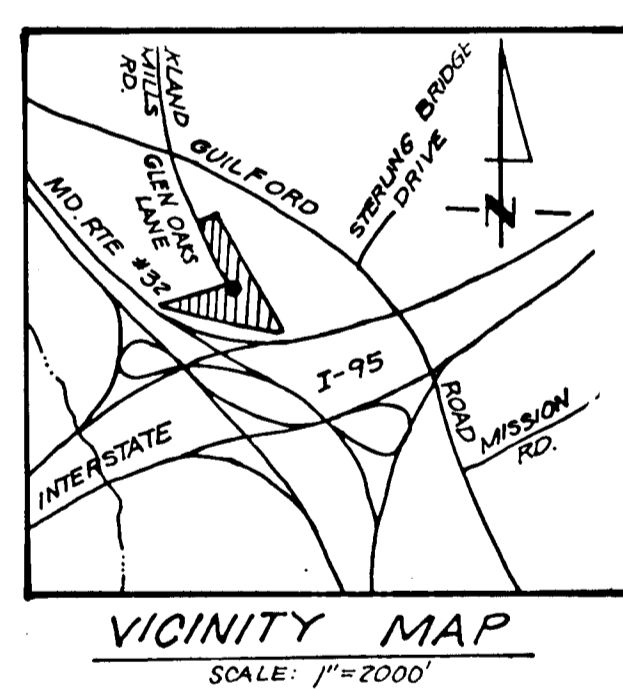
NOTE: IF WATER IS ENCOUNTERED DURING CONSTRUCTION OF CORE TRENCH, PUMP OUT AS REQUIRED.

Note: S.C.E. to be placed once construction of Cul-De-Sac begins.

SEDIMENT & EROSION CONTROL PLAN
 SCALE: 1"=50'

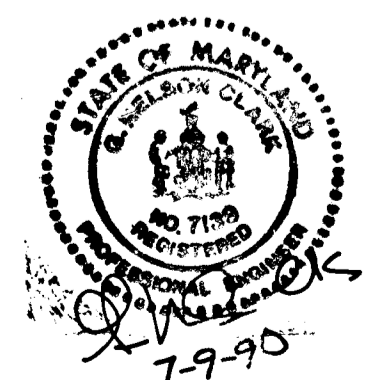


DRAINAGE AREA MAP
 SCALE: 1"=100'



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 Environment, Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.
 Signature: William J. Roberts Date: 7/11/90

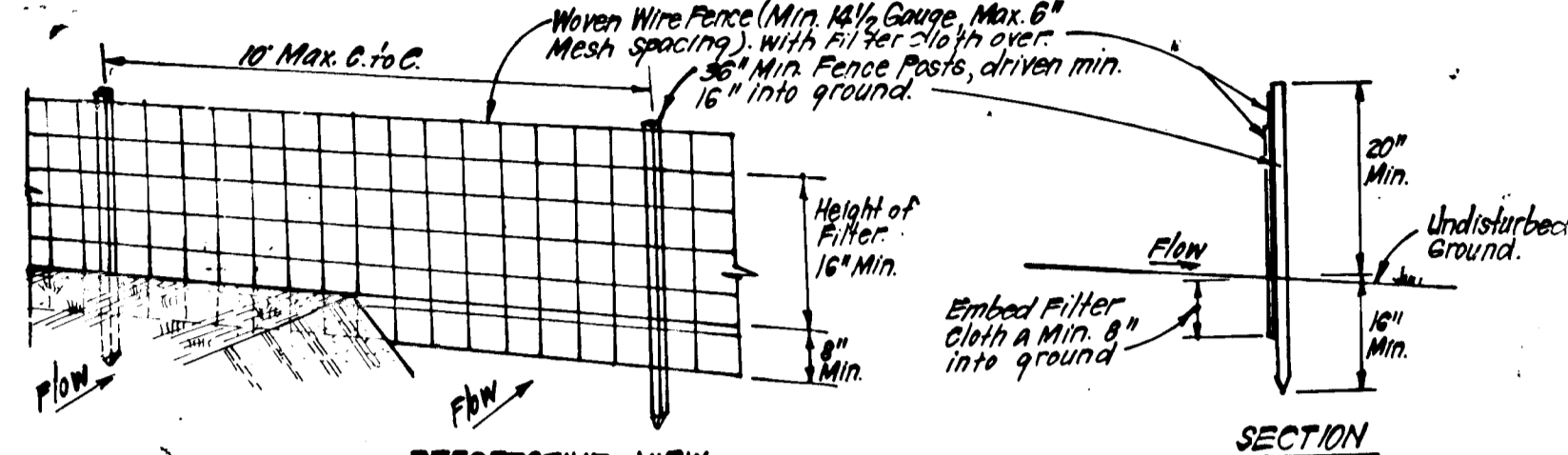
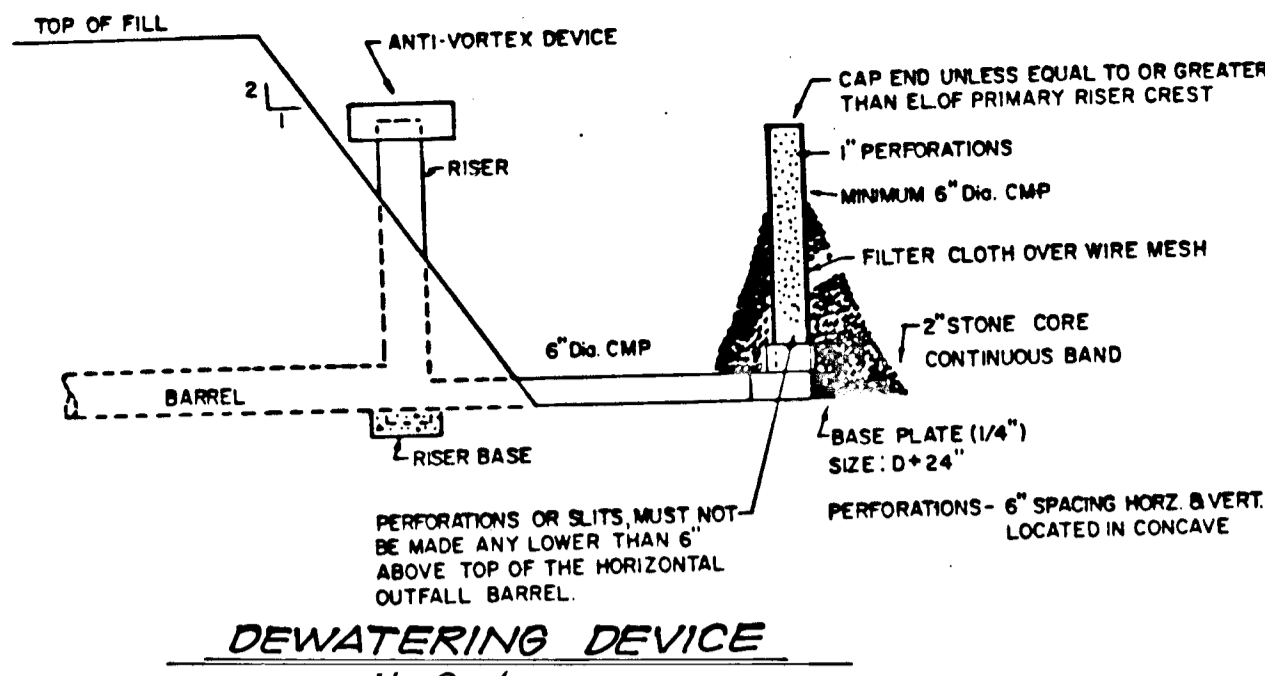
ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature: G. Nelson Clark Date: 7-9-90



Reviewed for: HOWARD S.C.D.
 and meeting all Requirements
 Signature: [Signature] Date: 10/15/90
 U.S. Soil Conservation Service
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

1597
[Signature] Date: 10/15/90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
<u>[Signature]</u>	10/2/90	Date
Chief, Land Development Division MK		
<u>[Signature]</u>	10/23/90	Date
Chief, Bureau of Highways		
<u>[Signature]</u>	10-26-90	Date
Chief, Bureau of Engineering		
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING		
<u>[Signature]</u>	10/1/90	Date
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) 624-8100 - WASH.		
DESIGNED	SEDIMENT & EROSION CONTROL PLAN AND DRAINAGE AREA MAP MAPLESIDE VILLAGE OF KINGS CONTRIVANCE SECTION 5 AREA 4 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE
KIWM		As Shown
DRAWN		DRAWING
RMQ		4 OF 5
CHECKED		JOB NO.
KIWM	89-036	FILE NO.
DATE	7-9-90	89-036D
OWNER	THE HOWARD RESEARCH & DEVELOPMENT CORP.	
AND	10275 Little Patuxent Pkwy	
DEVELOPER	COLUMBIA, MD. 21044	



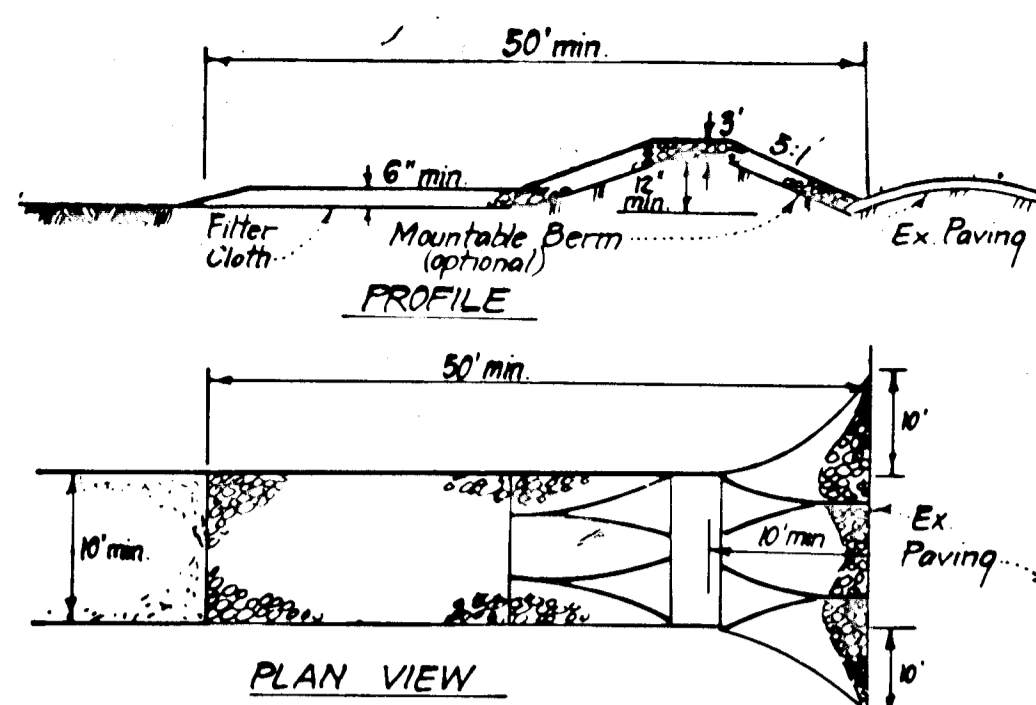
- CONSTRUCTION SPECIFICATIONS:**
1. Woven wire fence to be fastened securely to fence posts with wire ties or staples.
 2. Filter cloth to be fastened securely to woven wire fence with ties spaced every 36\"/>

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

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

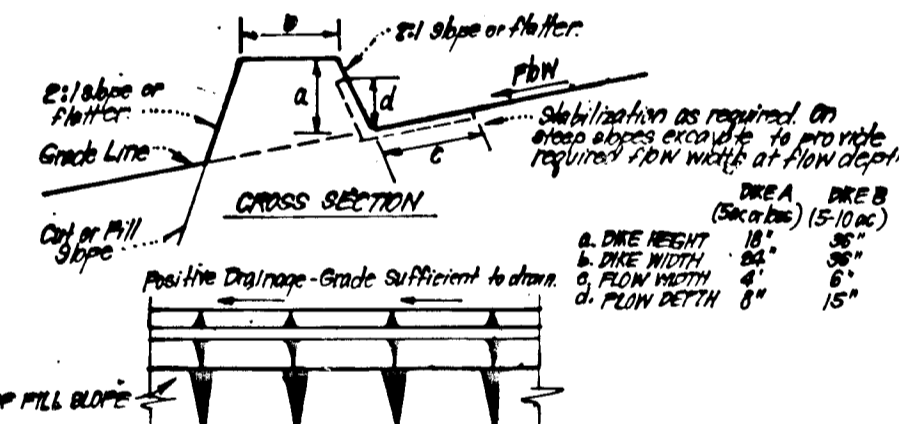
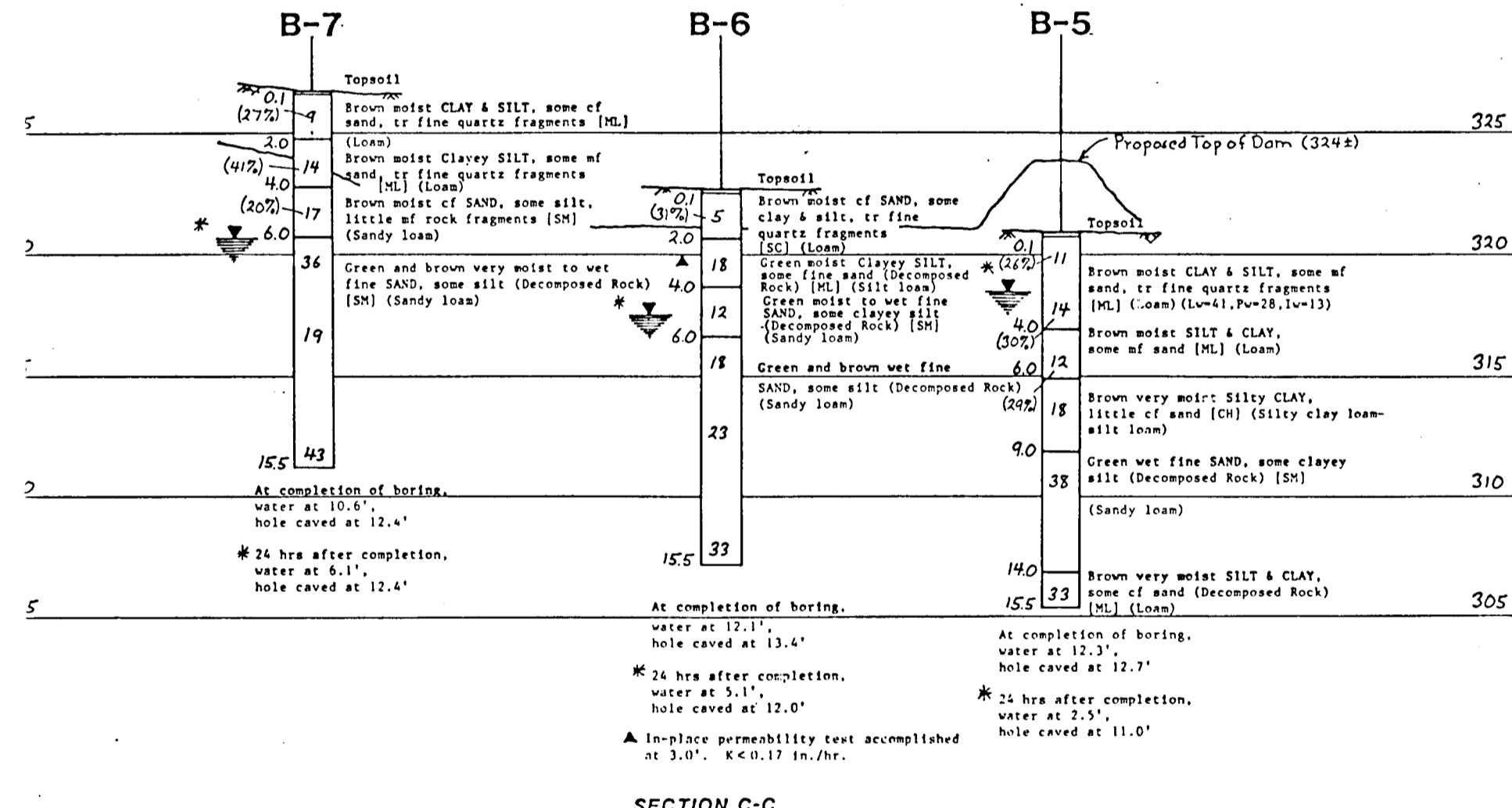
FILTER CLOTH: Filter Cloth, Min. 6\"/>

PRE-FABRICATED UNIT: See Job Environment, or Approval equal.



- CONSTRUCTION SPECIFICATIONS:**
1. Stone size - Use 2\"/>
 - 2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
 - 3. Thickness - Not less than six (6) inches.
 - 4. Width - Ten (10) feet minimum, but not less than the full width at points where ingress or egress occurs.
 - 5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
 - 6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5-1 slopes will be permitted.
 - 7. 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 top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
 - 8. 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 stabilized with stone and which drains into an approved sediment trapping device.
 - 9. Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE (SCE)
NO SCALE



- CONSTRUCTION SPECIFICATIONS:**
1. All dikes shall be constructed by earth-moving equipment.
 2. All dikes shall have positive drainage to an outlet.
 3. Top width may be wider and side slopes may be flatter if desired to facilitate crossing by construction traffic.
 4. Filter location should be adjusted as needed to utilize a stabilized slope with a minimum of erosion.
 5. Earth dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.
 6. Stabilization shall be: (A) in accordance with standard specifications for seed and straw mulch or straw mulch if not in seeding season, (B) flow channel as per chart below.
- | TYPE OF TREATMENT | CHANNEL SLOPE | DIKE A | DIKE B |
|-------------------|---------------|----------------------------|-----------------------------------|
| 1 | 0.5-2.0% | Seed & Straw Mulch | Seed or Straw Mulch |
| 2 | 3.1-8.0% | Seed & Straw Mulch | Seed with or without Straw |
| 3 | 8.1-15.0% | Seed with or without Straw | Seed with or without Straw, 2\"/> |
| 4 | 15.1-20.0% | Seed with or without Straw | Seed with or without Straw, 2\"/> |
- A. Stone to be 1 1/2\"/>

B. Rip Rap to be 4\"/>

C. Approved equipment can be substituted for any of the above materials.

7. Periodic inspection and required maintenance must be provided after each rain.

EARTH DIKE DETAIL (E.D.)
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:

- 1) 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).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow 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 rotted 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 or flac areas. On slopes 8 feet or higher, use 348 gallons 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 redistributed 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 25 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

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

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

- SEDIMENT CONTROL NOTES**
- 1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
 - 2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
 - 3) Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
 - 4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
 - 5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
 - 6) All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
 - 7) Site Analysis:

Total Area of Site	9.5963 Acres
Area Disturbed	1.72 Acres
Area to be roofed or paved	0.55 Acres
Area to be vegetatively stabilized	1.24 Acres
Total Cut	1085 Cu. yds
Total Fill	749 Cu. yds
Offsite waste/borrow area location	Undetermined
 - 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
 - 9) Additional sediment control must be provided, if deemed necessary by the Howard County DPM sediment control inspector.
 - 10) On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
 - 11) If houses are to be constructed on an "As-Sold" basis, at random, Single Lot Sediment Control as shown below shall be implemented. N/A
 - 12) All pipes to be blocked at the end of each day (see detail below). N/A
 - 13) The total amount of straw bale dikes/silt fence equals 350 L.F.

- CONSTRUCTION SEQUENCE**
1. Obtain Grading Permit. 7 Days
 2. Install SCE, Silt Fence and ED. 7 Days
 3. Construct Trap #1 (SWM Pond) and install dewatering device in 6\"/>
 - 4. Clear and rough grade site. 21 Days
 - 5. Construct storm drainage. 21 Days
 - 6. Construct utilities. 90 Days
 - 7. Fine grade and construct paving. 30 Days
 - 8. Stabilize all remaining disturbed areas in accordance with standards and specifications. 30 Days
 - 9. Upon approval of the sediment control inspector remove sediment and erosion control and convert Trap #1 to SWM Pond. 30 Days
- * SCE to be placed when construction on Cul-de-Sac begins.

Approved for: **HOWARD COUNTY** S.C.D.
Name: _____
Signature: _____
Date: 10/15/90
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: William J. Roberts Date: 7/11/90

ENGINEER'S CERTIFICATE

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Signature: William J. Clark Date: 7-9-90



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Signature: Alan J. ... Date: 10/25/90
 Signature: James H. ... Date: 10/23/90
 Signature: ... Date: 10-26-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

Signature: ... Date: 11/15/90

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

DESIGNED KIWM	ROAD CONSTRUCTION PLANS AND SEDIMENT & EROSION CONTROL DETAILS	SCALE As Shown
DRAWN BAL	MAPLESIDE	DRAWING 50P5
CHECKED KIWM	VILLAGE OF KINGS CONTRIVANCE SECTION 5 AREA 4	JOB NO. 89-036
DATE JULY 1990	OWNER: THE HOWARD RESEARCH & DEVELOPMENT CORP and DEVELOPER: 10275 LITTLE PATUXENT PARKWAY Columbia, Maryland 21044	FILE NO. 89-036

1597