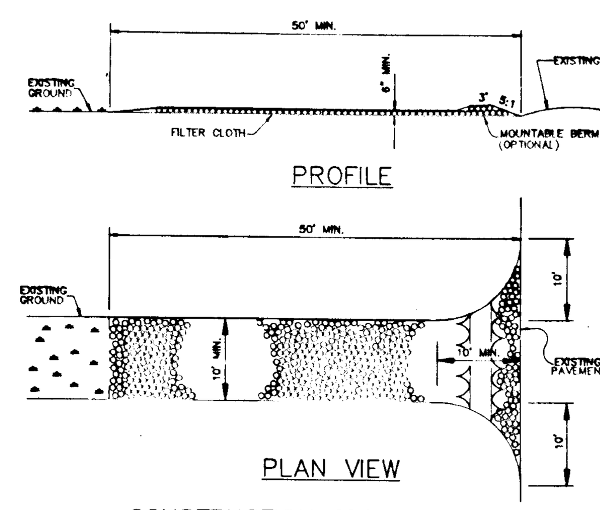


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS AND EGRESS OCCURS.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE RESIDENCE LOT.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM 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

NO SCALE

SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspections 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 AND EROSION CONTROL.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within : a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around the 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 AND EROSION 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	0.59	acres
Area Disturbed	0.34	acres
Area to be roofed or paved	0	acres
Area to be vegetatively stabilized	0.34	acres
Total Cut	845	cu.yds.
Total Fill	70	cu.yds.

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 controls must be provided, if deemed necessary by the Howard County Department of Public Works Sediment Control Inspector.
10. Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
11. Sediment will be removed from traps when its depth reaches clean out elevation shown on the plans.
12. Cut and fill quantities provided under site analysis do not represent bid quantities. These quantities do not distinguish between topsoil, structural fill or embankment material, nor do they reflect consideration of undercutting or removal of unsuitable material. The contractor shall familiarize himself with site conditions which may affect the work.

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. per 1000 sq.ft.).

Seeding : For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushels per acre of annual rye (3.2 lbs. per 1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 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. per 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. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 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.

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. per 1000 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 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. per 1000 sq.ft.).

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

Seeding : For the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 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 (0.05 lbs. per 1000 sq.ft.) of weeping lovegrass. During the period October 16 thru February 28, protect site by one of the following options :

1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.

2) Use sod.

3) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching : Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 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. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance : Inspect all seeded areas and make needed repairs, replacements and reseedings.

MULCHING

Materials and Amounts:

1) Straw -- Straw shall be unrotted small grain applied at the rate of 1 1/2 to 2 tons pre acre (70 to 90 LBS/1000 SF). Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds such as: thistles, Johnsongrass and quackgrass.

Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1000 SF sections and place 70 to 90 LBS (two bales) of mulch in each section.

2) Asphalt emulsion or cutback asphalt at 600 to 1200 GALS per acre (15 to 30 GALS/1000 SF). This is suitable for a limited period of time where travel by people, animals or machines is not a problem.

3) Synthetic soil stabilizers may be used according to manufacturer's recommendations, under suitable conditions.

4) Mulch mattings such as jute or excelsior blanket shall be stapled to the surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch mattings may be used where erosion hazard is not sever. If area is to be mowed, do not use metal staples.

5) Wood chips at the rate of approximately 6 tones per acre (275 LBS/1000 SF) may be used when available and when feasible to use.

6) Crushed rock, stones, gravel or shale blankets. Apply at rate of 20 to 100 tons per acre (900 to 4500 LBS/1000 SF) with coarsest material applied at the highest rate.

Mulch Anchoring

Mulch anchoring shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods, (listed by preference) depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 1 below, should be done on the contour wherever possible, except "tracking" should be done up and down the slope with 1 1/2 inch cleat marks running across the slope.

1) Mulch Anchoring Tool and Tracking. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the surface two (2) inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely -- primarily used on flatter than 3:1 cut and fill slopes to cut the mulch into the soil. "Tracking" is used primarily on slopes steeper than 3:1 cut and fill slopes to cut the mulch into the soil with cleated tracks.

2) Mulch Nettings. Staple lightweight biodegradable paper, plastic or cotton netting over the mulch according to manufacturer's recommendations.

3) Liquid Mulch Binders. Applications of liquid binder should be heavier at edges where wind catches mulch, in valleys and at crests of banks. The remainder of the area should be uniform in appearance. Caution should be used with asphalt in residential and similar areas.

a. Cutback asphalt -- rapid curing (RC-70, RC-250 and RC-800) or medium curing (MC-250 or MC-800). Apply at the rate of 200 gallons per acre (5 GAL/1000 SF) on flat areas on don slopes less than 8 feet high. On slopes 8 feet or more high, apply at the rate of 348 gallons per acre (8 GALS/1000 SF).

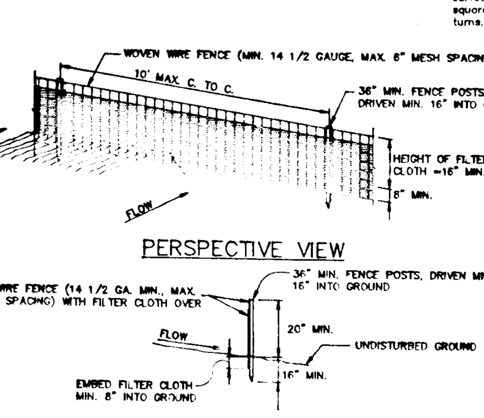
b. Emulsified asphalt -- (SS-1, CSS-1, SMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply at the rate of 200 gallons per acre (5 GAL/1000 SF) on flat areas and on slopes less than 8 feet high. On slopes 8 feet or more high, apply at the rate of 348 gallons per acre (8 GALS/1000 SF).

All asphalt designations are from the Asphalt Institute Specifications.

c. Synthetic binders such as Acrylic DLR (AGH-Tac), DCA-70, Petroset or Terra Tac may be used at rates recommended by the manufacture to anchor mulch material.

4) Wood Cellulose Fiber Binder. The fiber binder shall be applied at a net dry weight of 750 LBS per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 LBS of wood cellulose fiber per 100 gallons.

5) Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross within a square pattern. Secure twine around each peg with two or more round turns.



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

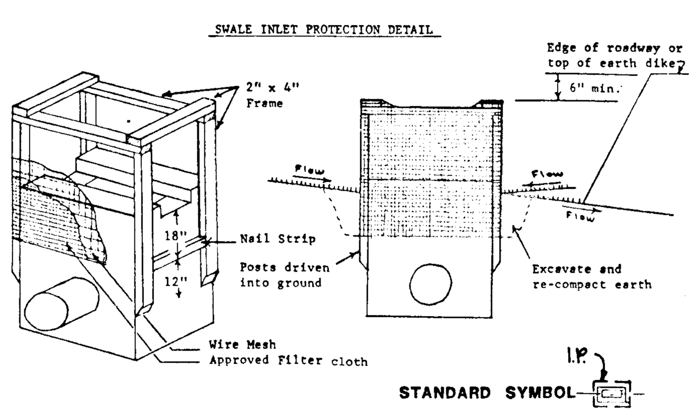
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES AND STAPLES.
2. FILTER CLOTH TO BE FASTENED TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES (6") AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULDES" DEVELOP IN THE SILT FENCE

POSTS : STEEL, EITHER T OR U TYPE OR 2" HARDWOOD.
FENCE : WOVEN WIRE, 14 Ga.,6" MAX. MESH OPENING.
FILTER CLOTH : FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
PREFABRICATED UNIT : GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE DETAIL

NO SCALE

SWALE INLET PROTECTION DETAIL



Procedure

A. A swale, ditchline or yard inlet protection.

1. Excavate completely around inlet to a depth of 18" below notch elevation.
2. Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
4. Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
5. Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
7. This structure must be inspected frequently and the filter fabric replaced when clogged.

SOILS DATA

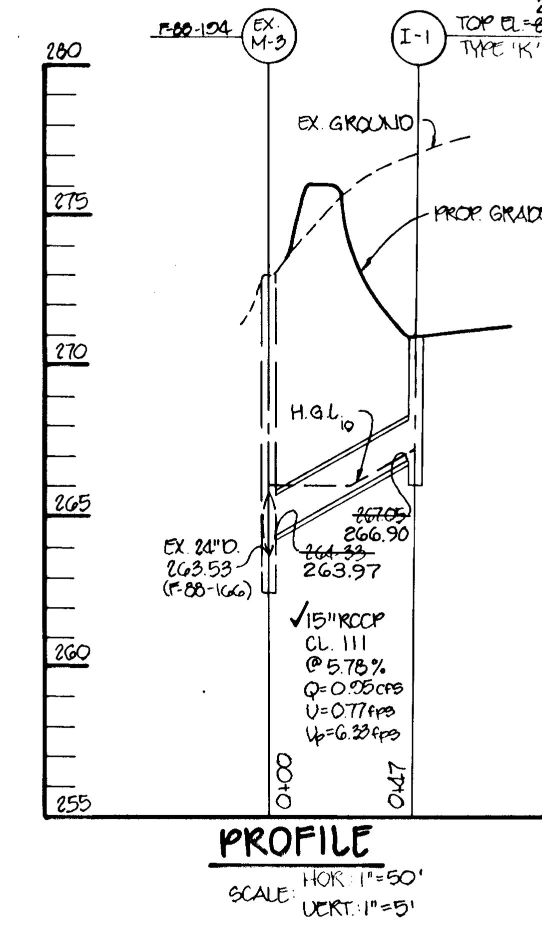
ALL SOILS ON-SITE ARE BeC2, BELTSVILLE SILT LOAM. TYPE 'C' SOIL. (SITE WAS PREVIOUSLY GRADED UNDER GP-93-11)

STRUCTURE SCHEDULE

STRUCTURE	LOCATION	INV. IN	INV. OUT	TOP	DETAIL NO.
I-1	N. 472525.5 E. 846586.5	–	~~267.05~~ 266.90	~~270.8~~ 270.5	SD4.12 SD4-13

LEGEND

DRAINAGE DIVIDE
LIMIT OF DISTURBANCE
SILT FENCE
INLET PROTECTION (I.P.)

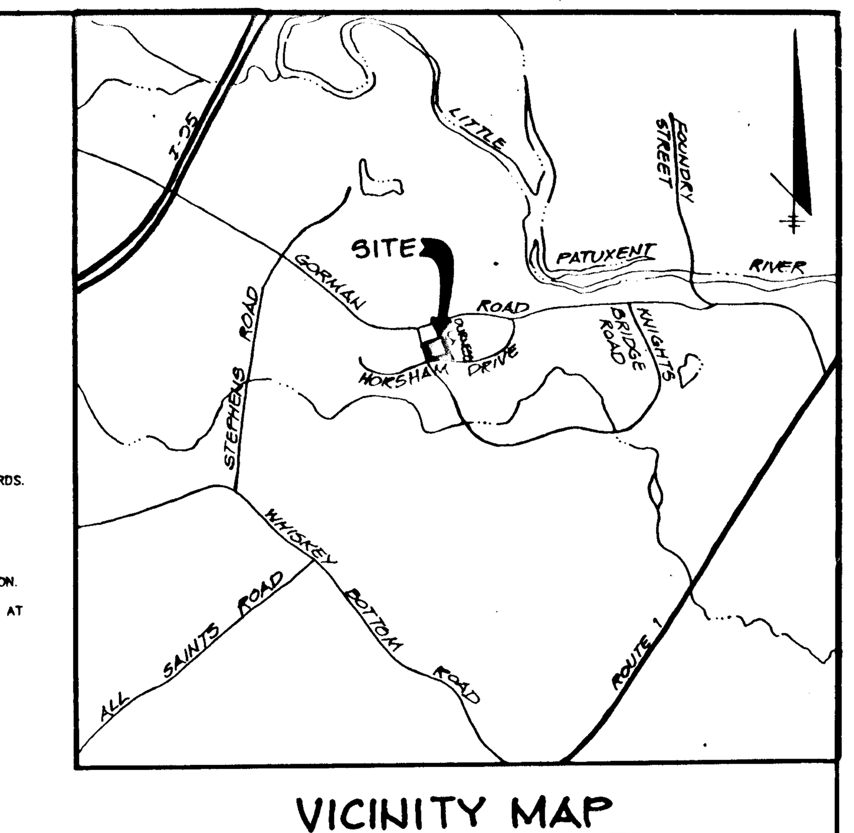


GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
2. APPROXIMATE LOCATION EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
3. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
4. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY	1-800-257-777
BELL TELEPHONE SYSTEM	393-3649
LONG DISTANCE CABLE DIVISION	393-3553 or 3554
BALTIMORE GAS AND ELECTRIC CO.	539-8000
HOWARD COUNTY BUREAU OF UTILITIES	313-4900
HOWARD COUNTY CONSTRUCTION/ INSPECTION DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK)	313-1800
COLONIAL PIPELINE	795-1390

5. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
6. STORM DRAIN TRENCHES WITHIN ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNT DESIGN MANUAL, VOLUME IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1989 AMENDMENTS.
7. INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1988 EDITION.
8. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
9. ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
10. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION.
11. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
12. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
13. SUBJECT PROPERTY ZONED: R-SC
14. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAS BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
15. ALL STORM DRAIN PIPE BEDDING SHALL BE CLASS "C" AS SHOWN IN FIG. 11.4, VOLUME 1 OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE NOTED.
16. SEE DEPT. OF PLANNING AND ZONING FILE NO's.: SP-93-23, S-86-57, S-87-06, P-87-10, P-88-32, F-88-166, F-88-104
17. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME III – ROAD AND BRIDGES, PAGE 4A-26.
18. WATER QUALITY FOR THE ROOFTOPS WILL BE PROVIDED ON THE SITE DEVELOPMENT PLANS
19. A FEE IN LIEU OF STORMWATER MANAGEMENT WAS APPROVED ON AUGUST 26, 1993.

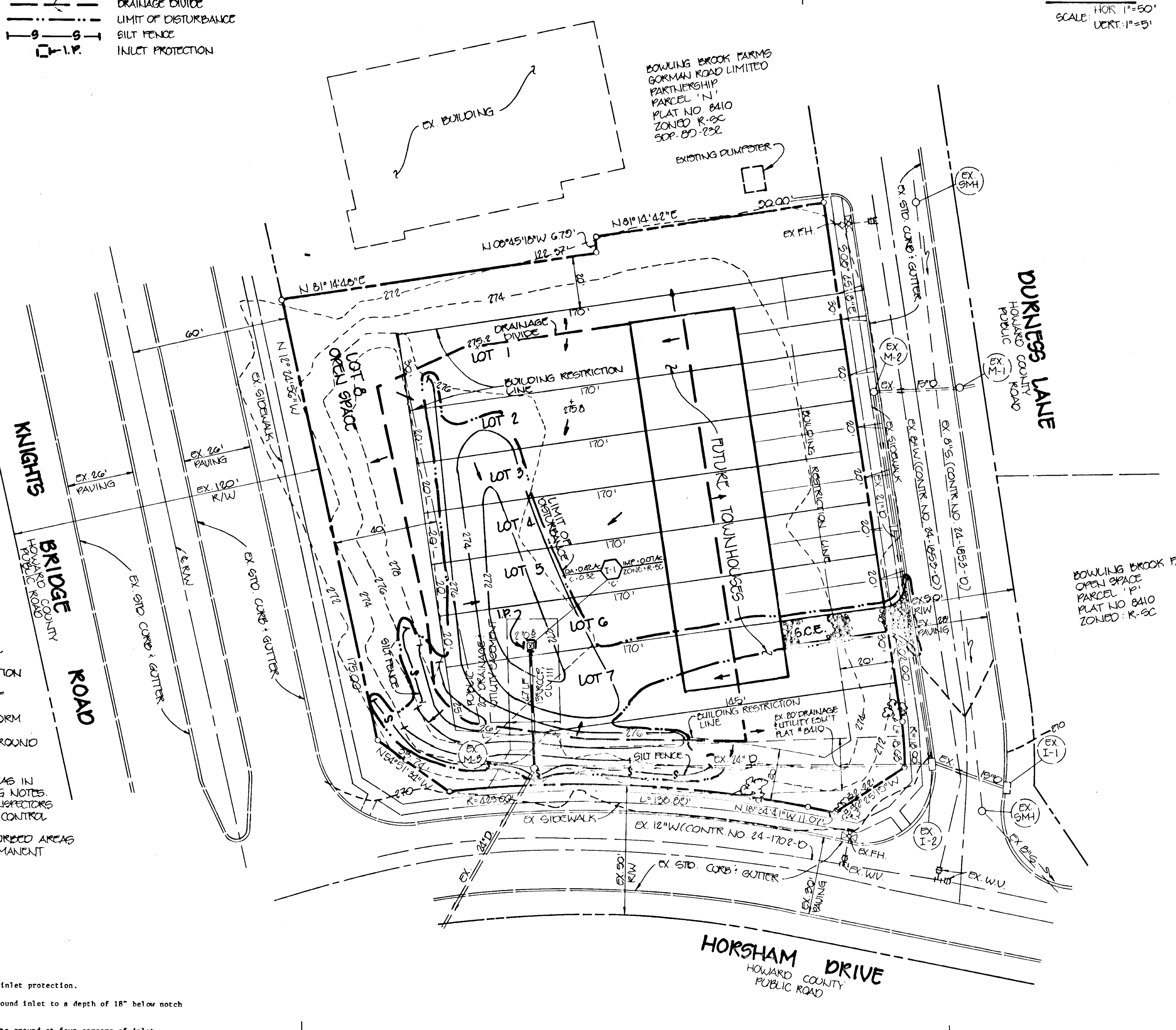


VICINITY MAP

SCALE : 1" = 2000'

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT AND ALL OTHER NECESSARY PERMITS.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE.
3. ROUGH GRADE SITE TO LIMIT OF DISTURBANCE.
4. INSTALL TYPE 'K' INLET AND STORM DRAIN PIPE.
5. INSTALL INLET PROTECTION AROUND INLET I-1.
6. FINE GRADE SITE PER PLAN.
7. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE SEEDING NOTES.
8. WITH THE SEDIMENT CONTROL INSPECTORS APPROVAL REMOVE SEDIMENT CONTROL DEVICES.
9. STABILIZE ALL REMAINING DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.



PLAN

SCALE : 1" = 30'

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

U.S. SOIL CONSERVATION SERVICE — DATE 4/11/94

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/11/94

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — DATE 4/26/94

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, LAND DEVELOPMENT DIVISION — DATE 4/21/94

CHIEF, BUREAU OF HIGHWAYS — DATE 4-18-94

CHIEF, BUREAU OF ENGINEERING — DATE 4/21/94

DATE	NO	REVISION

AS BUILT CERTIFICATE

CHRISTOPHER J. REID # 19949 — DATE 12-15-98
~~JAYKANT D. PAREKH #19148~~

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — DATE 3-29-94

BY THE ENGINEER :

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

J. Parekh — ENGINEER — DATE 3.29.94

OWNER / DEVELOPER
GORMAN ROAD LIMITED PARTNERSHIP
c/o JAMES F. KNOTT DEVELOPMENT CORPORATION
110 WEST ROAD, SUITE 203
TOWSON, MARYLAND 21204
(410) 321-1000

PROJECT: BOWLING BROOK FARMS
PARCEL 'O' LOTS 1 - 8

AREA: TAX MAP 47 PARCEL 'O' ZONE R-SC
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PLAN & DETAILS, GRADING & SEDIMENT CONTROL PLAN, DRAINAGE AREA MAP

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive • Suite 200 • Columbia, Maryland 21045
301-997-8900 • FAX: 301-997-9282

3.29.94
DATE

JAYKANT D. PAREKH #19148

S-86-57 P-87-10 F-88-166 F-93-41
S-87-06 P-88-32 F-88-104 SP-93-23

DESIGNED BY :	J.C.O.
DRAWN BY :	J.C.O.
PROJECT NO :	90003
DATE :	MARCH 29, 1994
SCALE :	AS SHOWN
DRAWING NO.	1 OF 1

AS-BUILT 12-15-98

F-94-68

1271

MARYLAND BLUEPRINT CO., INC. N37709