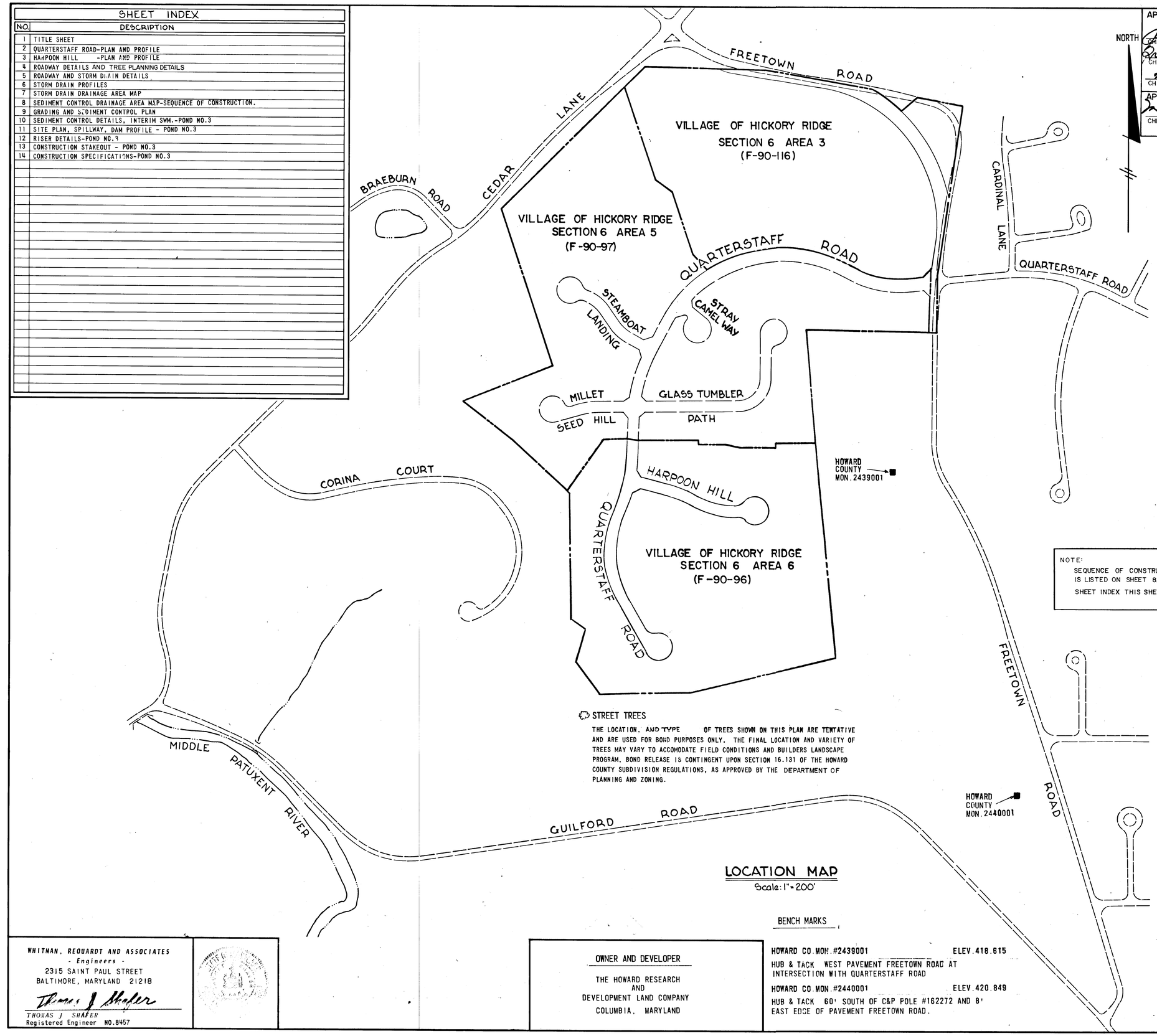
SHEET INDEX

NO.	DESCRIPTION
1	TITLE SHEET
2	QUARTERSTAFF ROAD-PLAN AND PROFILE
3	HARPOON HILL -PLAN AND PROFILE
4	ROADWAY DETAILS AND TREE PLANNING DETAILS
5	ROADWAY AND STORM DRAIN DETAILS
6	STORM DRAIN PROFILES
7	STORM DRAIN DRAINAGE AREA MAP
8	SEDIMENT CONTROL DRAINAGE AREA MAP-SEQUENCE OF CONSTRUCTION.
9	GRADING AND SEDIMENT CONTROL PLAN
10	SEDIMENT CONTROL DETAILS, INTERIM SWM.-POND NO.3
11	SITE PLAN, SPILLWAY, DAM PROFILE - POND NO.3
12	RISER DETAILS-POND NO.3
13	CONSTRUCTION STAKEOUT - POND NO.3
14	CONSTRUCTION SPECIFICATIONS-POND NO.3



NOTE:
SEQUENCE OF CONSTRUCTION IS LISTED ON SHEET 8. SEE SHEET INDEX THIS SHEET.

STREET TREES

THE LOCATION, AND TYPE OF TREES SHOWN ON THIS PLAN ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMODATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 16.131 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.

LOCATION MAP
Scale: 1"=200'

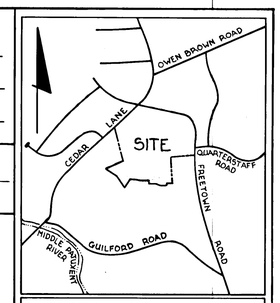
NORTH

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS	DATE 3/29/90
CHIEF, BUREAU OF ENGINEERING	DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE 4/4/90



VICINITY MAP
Scale: 1" = 2,000'

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
2. ALL UTILITY COMPANIES SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF CONSTRUCTION.
3. ALL INLETS SHALL BE HOWARD COUNTY STANDARD UNLESS OTHERWISE SHOWN.
4. ALL STREET CURB RETURNS SHALL HAVE A 30.0' RADII UNLESS OTHERWISE NOTED.
5. STORM DRAIN TRENCHES WITHIN ROAD RIGHTS-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY ROAD CODE.
6. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES WHERE DIRECTED BY THE ENGINEER A MINIMUM OF TWO WEEKS IN ADVANCE OF ANY CONSTRUCTION.
8. TEMPORARY COMPACTED 18" HIGH EARTH FILL DIVERSION DIKES SHALL BE CONSTRUCTED ABOVE THE LIPS OF FILL SLOPES ON THE R.O.W. CONCURRENTLY WITH THE INITIAL GRADING AND DIRECTED TO UNDISTURBED SOD AREAS AT THE END OF EACH DAY.
9. CONTRACTOR TO NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS AT LEAST 3 DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS. TELEPHONE NO.992-2436.
10. ALL DISTURBED SLOPE AREAS TO BE STABILIZED AS SOON AS GRADING IS COMPLETED.
11. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 P.S.I.
12. ALL SWALES AND SLOPES SHALL BE PERMANENTLY SEEDED. SEE THE SEED SPECIFICATIONS ON SHEET 15.
13. TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1988 REVISED EDITION.
14. STABILENKA (FILTER CLOTH T-100) OR EQUAL SHALL BE PLACED UNDER ALL STONE RIP-RAP (FULL WIDTH AND LENGTH OF STONE).
15. STONE FOR RIP-RAP SHALL BE AS SPECIFIED ON THE DRAWINGS. ALL RIP-RAP SHALL BE UNPAVED.
16. USE BARRIER CURB STD. DETAIL R-3.03 FOR ALL CUL-DE-SAC LANDSCAPE ISLANDS
17. LAMP POST - 150 WATT HIGH PRESSURE SODIUM VAPOR PENDANTS MOUNTED AT 14' HEIGHT ON BRONZE POLES

DATE	NO.	REVISION
8-1-90	1	REVISE NOTE 16

VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6
ROAD CONSTRUCTION PLANS
OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
COLUMBIA, MARYLAND

5TH ELECTION DISTRICT OF
HOWARD COUNTY, MARYLAND

DATE: NOV. 10, 1989 SHEET 1 OF 14 SCALE: AS SHOWN

WHITMAN, REQUARDT AND ASSOCIATES
- Engineers -
2315 SAINT PAUL STREET
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
Registered Engineer NO.8457

OWNER AND DEVELOPER

THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
COLUMBIA, MARYLAND

BENCH MARKS

HOWARD CO. MON. #2439001 ELEV. 418.615
HUB & TACK WEST PAVEMENT FREETOWN ROAD AT INTERSECTION WITH QUARTERSTAFF ROAD

HOWARD CO. MON. #2440001 ELEV. 420.849
HUB & TACK 60' SOUTH OF C&P POLE #162272 AND 8' EAST EDGE OF PAVEMENT FREETOWN ROAD.

F-90-96

NOTE: FOR STORM DRAIN PROFILES SEE SHEET 6.

STORM DRAIN STRUCTURE SCHEDULE					
NO.	TYPE	TOP EL.	INV. IN.	INV. OUT	LOCATION
I-1	TYPE "D" INLET 2.5'X2.5'(S.D.4.11)	388.00	381.11	380.61	SEE PLAN AND PROFILE
I-2	A-5 INLET WIDTH 2.5'(S.D.4.01)	403.87	399.27	399.07	℄ INLET 14.36' LEFT ℄ STA.25+85
I-3	A-5 INLET WIDTH 2.5'(S.D.4.01)	413.17	408.38	408.18	℄ INLET 16.36' LEFT ℄ STA.22+90
I-4	A-5 INLET WIDTH 2.5'(S.D.4.01)	413.17	——	408.54	℄ INLET 16.36' RIGHT ℄ STA.22+90
I-5	A-5 INLET WIDTH 2.5'(S.D.4.01)	403.87	——	399.43	℄ INLET 14.36' RIGHT ℄ STA.25+85
I-6	A-5 INLET WIDTH 2.5'(S.D.4.01)	390.64	——	385.13	℄ INLET 1.92' BACK OF L.P. STA.2+10
M-1	STANDARD MANHOLE (G 5.01)	393.66	384.57	383.82	℄ MH.17.08' LEFT ℄ STA.27+85
M-2	STANDARD MANHOLE (G 5.01)	409.71	404.62	404.42	℄ MH.17.08' LEFT ℄ STA.24+64
M-3	STANDARD MANHOLE (G 5.01)	412.02	406.93	406.73	℄ MH.17.08' LEFT ℄ STA.23+55
S-1	TYPE "O" HEADWALL (S.D.5.41)	384.10	380.10	380.00	SEE PLAN AND PROFILE

* WITH DEFLECTORS.
** ALL FOUR SIDES OPEN

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90
CHIEF, BUREAU OF ENGINEERING — DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/1/90

CURVE DATA

PC 19+25.78 TO PI 20+68.84
Δ = 14°22'47" TAN = 71.91'
R = 570.00' CH'D.= 142.68'
ARC.= 143.08' CH'D.BRG.= S08°30'33"W
PI 20+68.84 TO PT 21+43.05

Δ = 07°27'35" TAN = 37.16'
R = 570.00'00" CH'D.= 74.16'
ARC.= 74.21' CH'D.BRG.= S19°25'44"W
PC.22+48.86 TO PT.26+43.24

Δ = 53°10'06" TAN = 212.68'
R = 425.00' CH'D.= 380.39'
ARC.= 394.38' CH'D.BRG.= S03°25'32"E

REV. DATE	REV. NO.	REVISION DESCRIPTION
8-30-90	2	Revise Str. Schedule, add % detail to I-1
8-1-90	1	Dimension R10 STA 10

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH
AND DEVELOPMENT LAND COMPANY

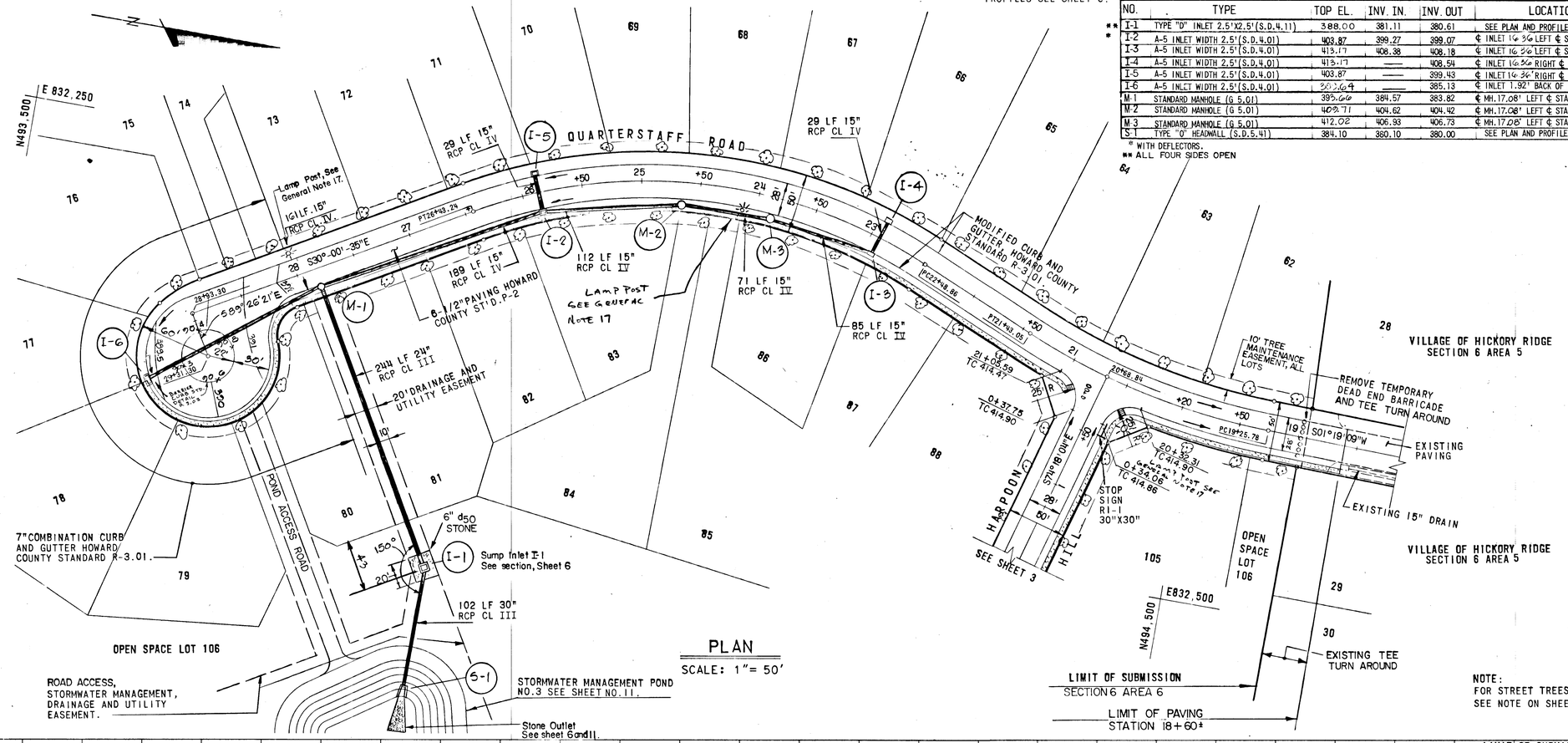
PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
QUARTERSTAFF ROAD
STA.18+93 TO STA.28+02.70

SCALE: AS SHOWN DATE: Nov 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

Thomas J. Shafer
THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

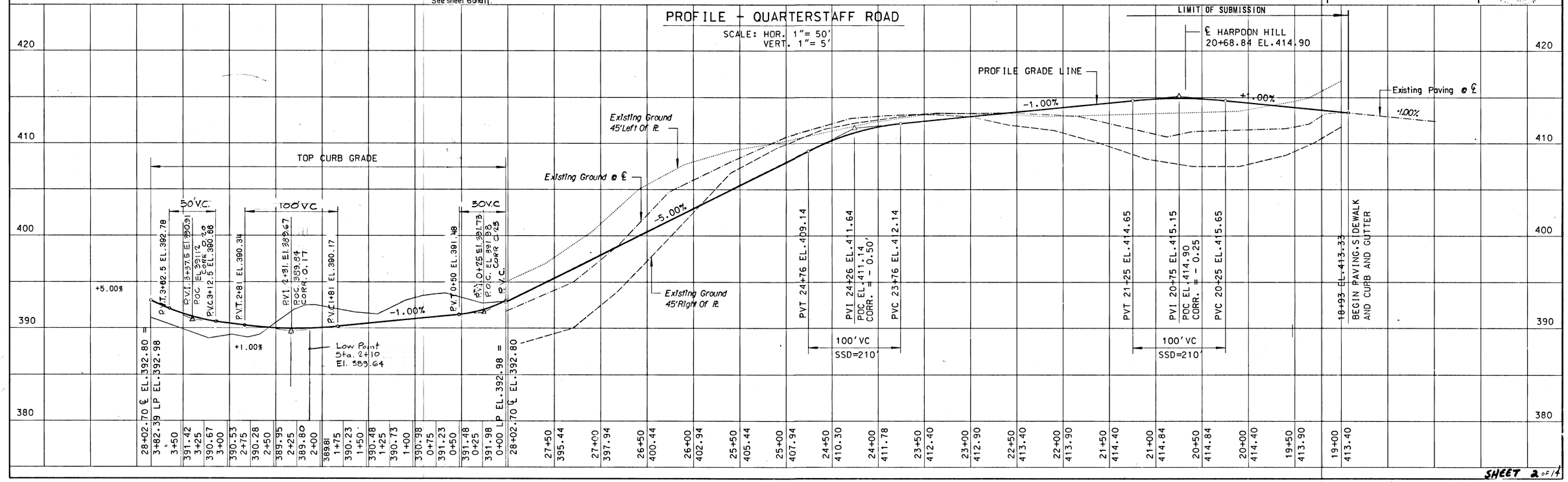


PLAN
SCALE: 1"= 50'

NOTE:
FOR STREET TREES
SEE NOTE ON SHEET 1.

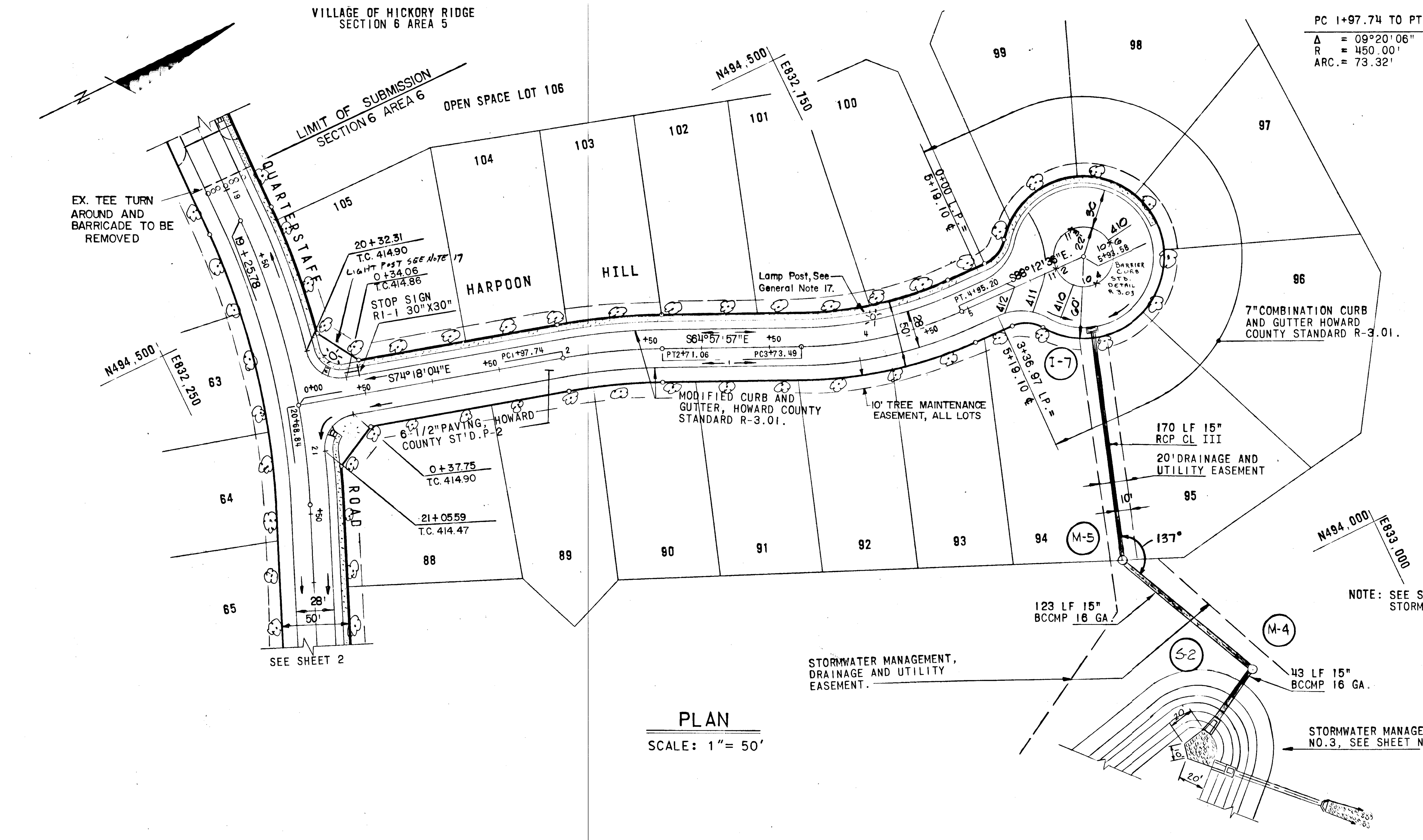
PROFILE - QUARTERSTAFF ROAD

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



SHEET 2 OF 14

F-90-96



CURVE DATA

PC 1+97.74 TO PT.2+17.06

Δ = 09°20'06" TAN. = 36.74'
R = 450.00' CH'D.= 73.24'
ARC.= 73.32' CH'D.BRG.= S69°38'00"E

PC 3+73.49 TO PT.4+95.20

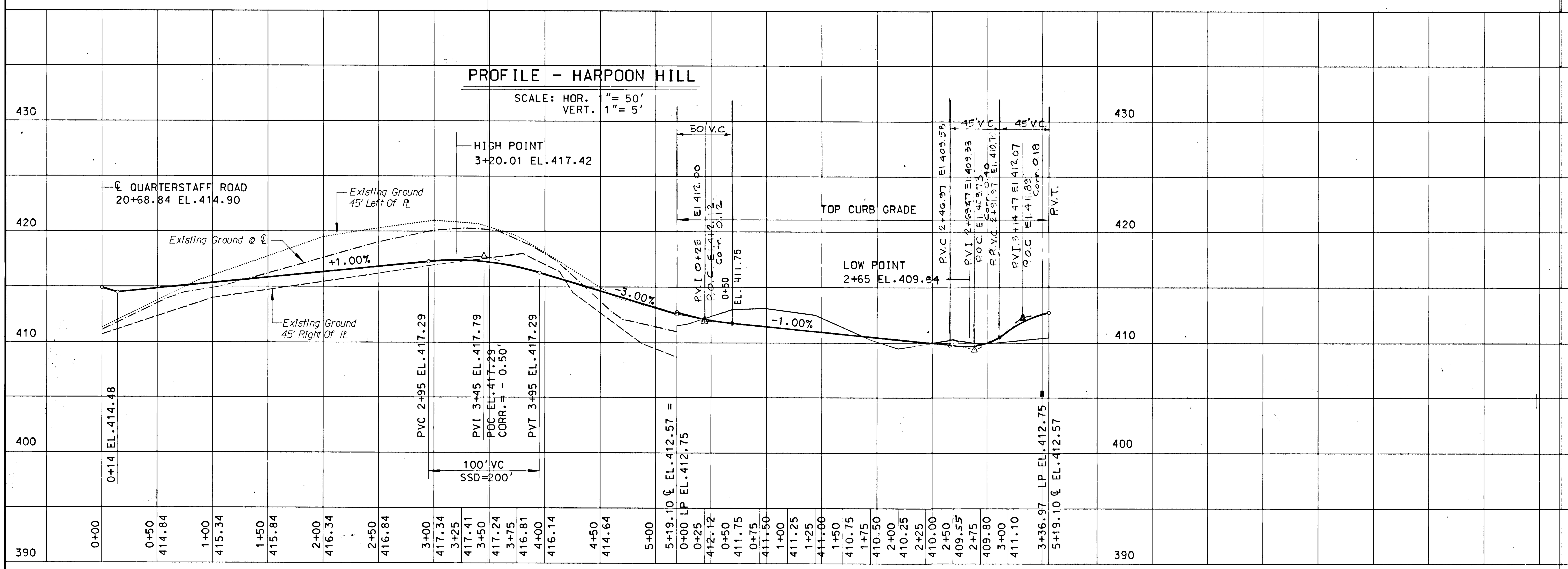
Δ = 23°14'39" TAN.= 61.70'
R. = 300.00' CH'D.= 120.87'
ARC.= 121.71' CH'D. BRG. = S76°35'17"E

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP EL.	INV. IN.	INV. OUT	LOCATION
I-7	A-5 INLET WIDTH 2.5'(S.D.4.01)	409.54	-	405.00	¢ INLET 2.36'BACK LP.STA.2+65
M-4	STANDARD MANHOLE (G 5.01)	390.00	384.06	381.00	SEE PLAN AND PROFILE
M-5	STANDARD MANHOLE (G 5.01)	410.70	403.58	400.40	SEE PLAN AND PROFILE
* S-2	TYPE"O" HEADWALL (S.D.5.41)	383.11	380.11	380.00	SEE PLAN AND PROFILE

* "L" DEMENSION FOR HEADWALL SHALL BE 10'. ALL OTHER DEMENSIONS ARE TAKEN FROM HOWARD COUNTY STANDARD DETAIL (S.D.5.41) FOR 18" PIPE.

NOTE: FOR STREET TREES, SEE NOTE ON SHEET 1.



8 30 90	2	Revise Str. Schedule, add S/o info to M5, label S-2
8-1-90	1	Note added to Cul de sac island
REV. DATE	REV. NO.	REVISION DESCRIPTION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90
CHIEF, BUREAU OF ENGINEERING — DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4/3/90

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 6

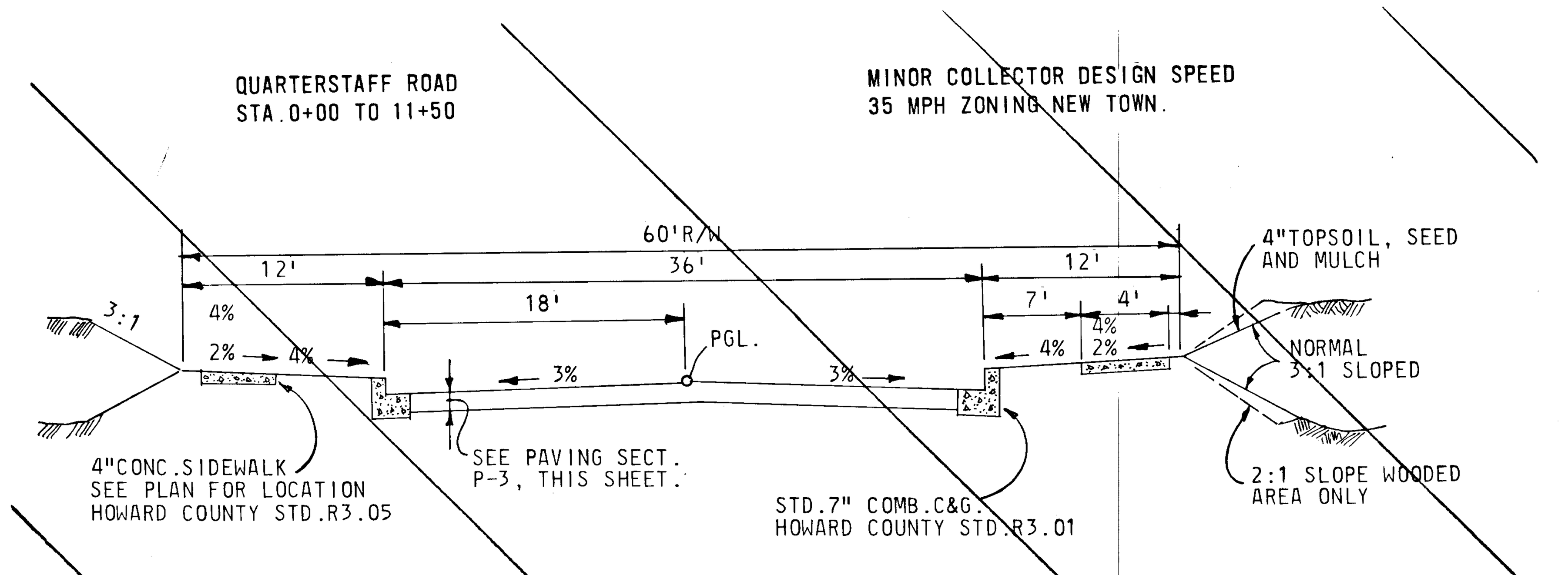
PROJECT TITLE: PLAN AND PROFILE HARPOON HILL

SCALE: AS SHOWN DATE: Nov. 10, 1989

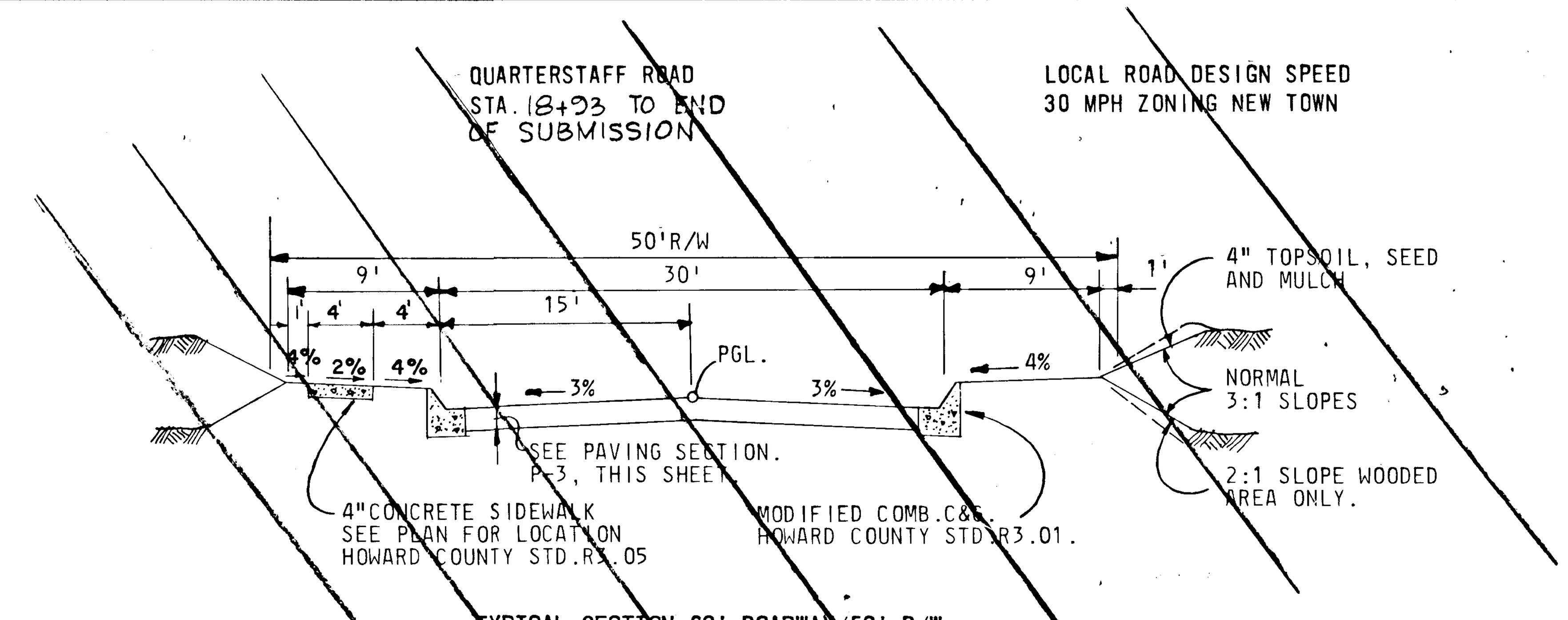
WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

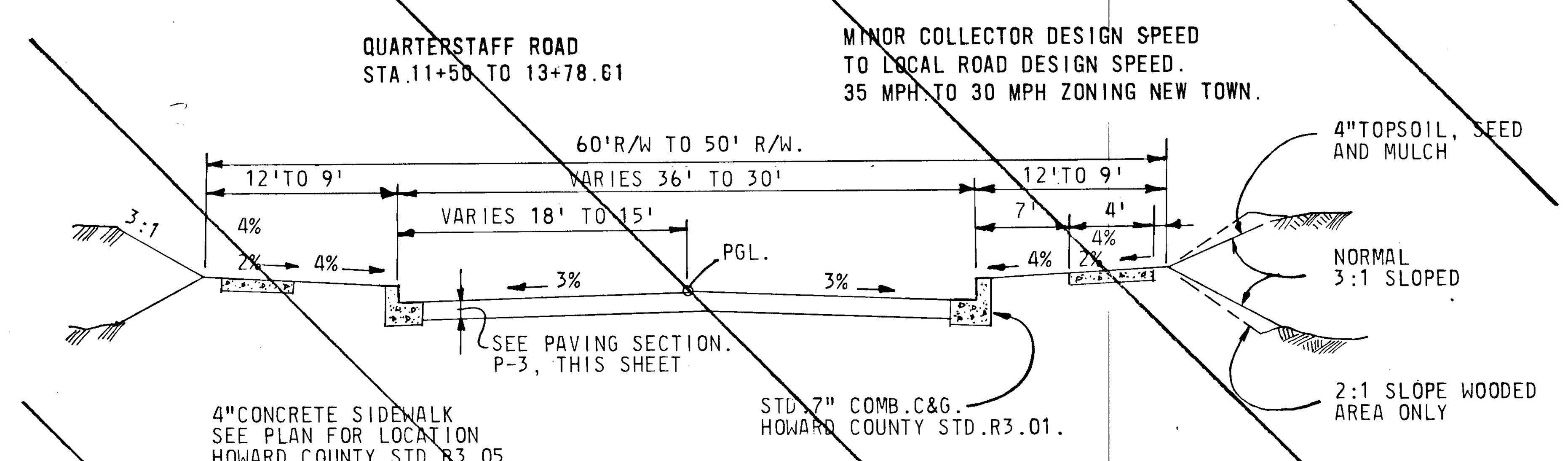
F-90-96



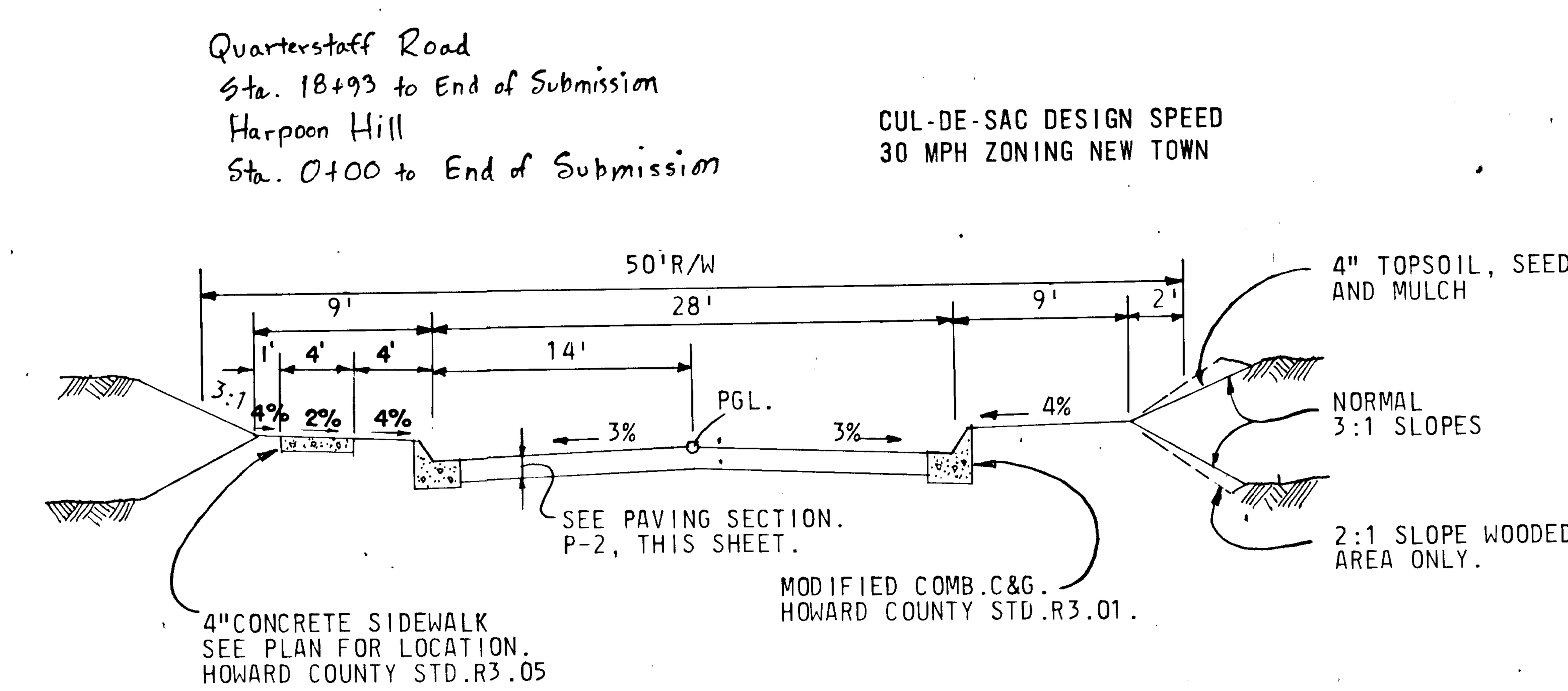
TYPICAL SECTION 36' ROADWAY/60' R/W.
NO SCALE



TYPICAL SECTION 30' ROADWAY/50' R/W.
NO SCALE

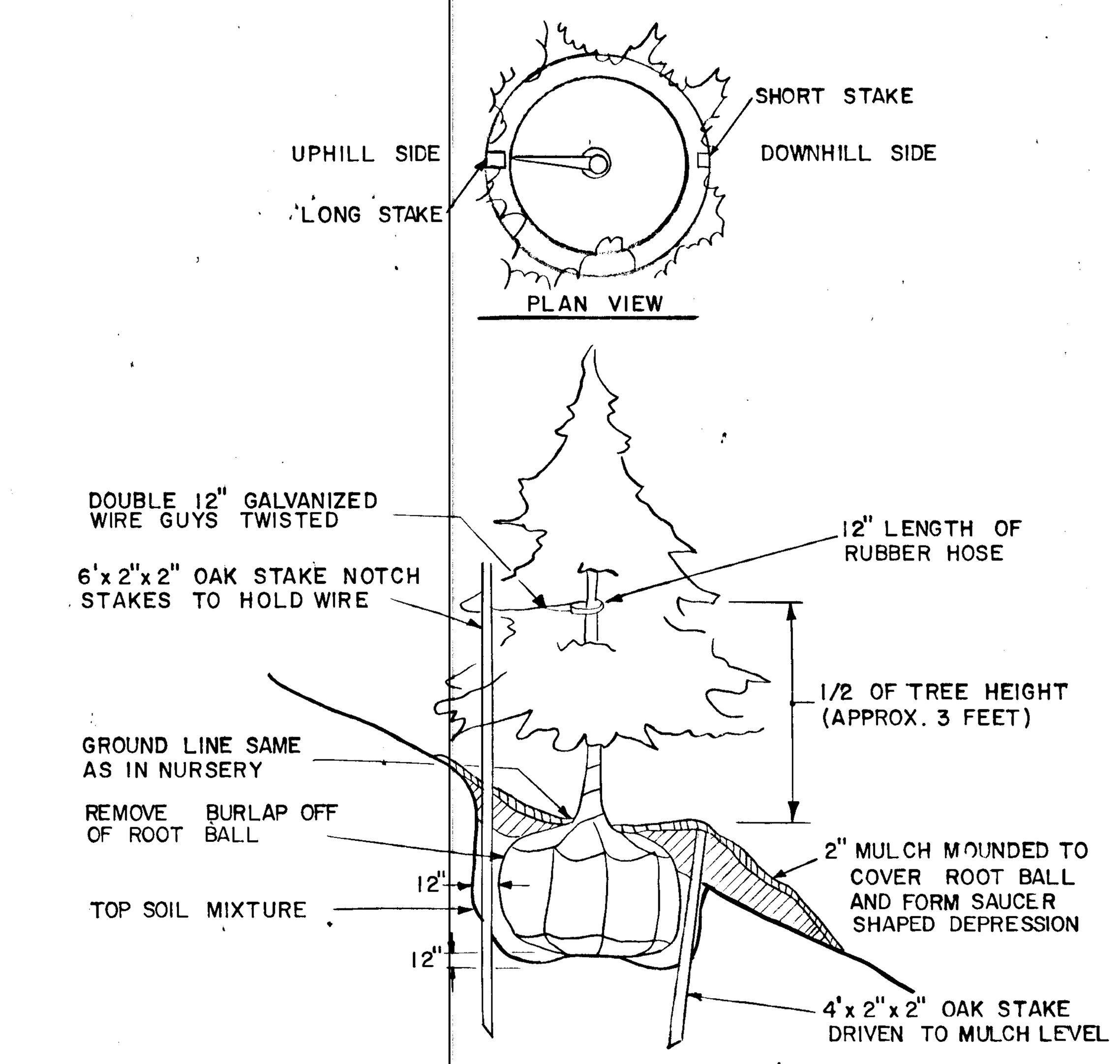


TRANSITION SECTION
NO SCALE



TYPICAL SECTION 28' ROADWAY/50' R/W
NO SCALE

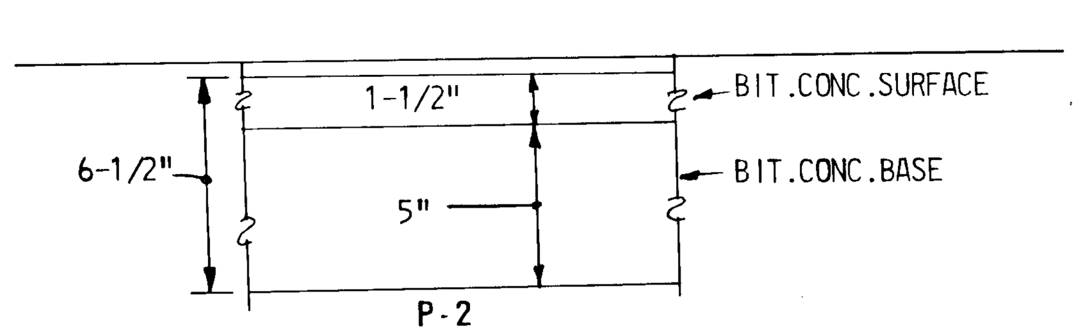
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, LAND DEVELOPMENT DIVISION	DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS	DATE 3/27/90
CHIEF, BUREAU OF ENGINEERING	DATE 4-2-90
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE 4/4/90



PLANTING DETAIL FOR STEEP SLOPES
NO SCALE

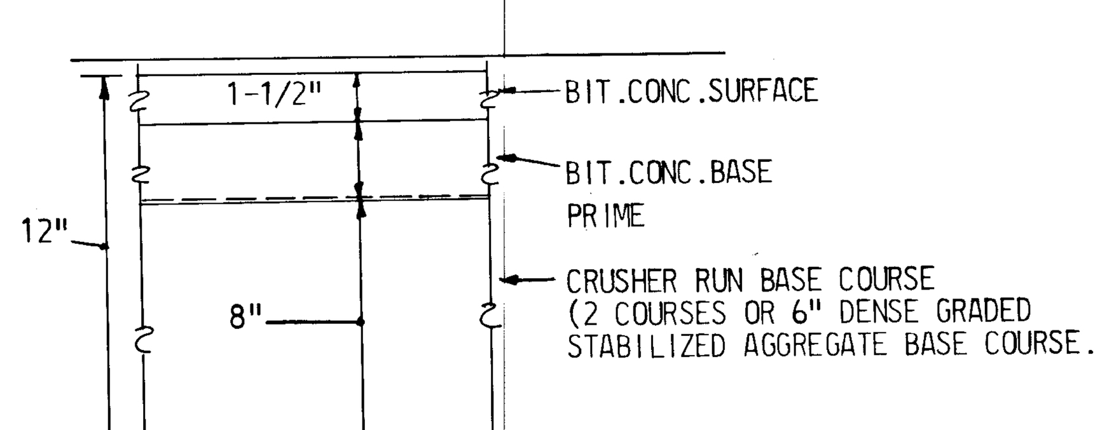
QUANTITY OF TREES	COMMON NAME	BOTANICAL NAME	HEIGHT
85	PIN OAK	QUERCUS PALUSTRIS	40'

ALTERNATE
FULL DEPTH BITUMINOUS CONCRETE



P-2

ALTERNATE
GRANULAR BASE

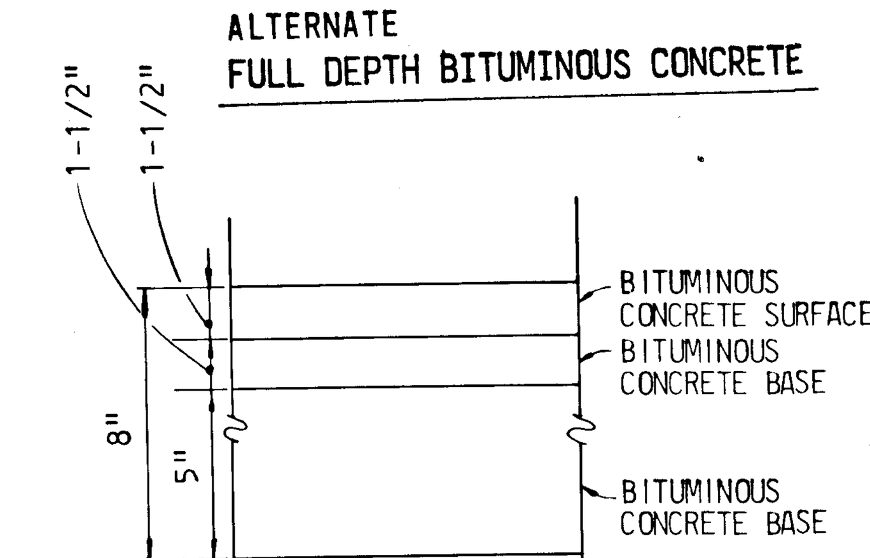


P-2

NOTES: (THIS NOTE APPLIES TO ALL(4) SECTIONS)
1. BASE WILL BE PRIMED IN ACCORDANCE WITH ARTICLE 33.03 AS PROVIDED IN THE MD. S.H.A. SPECIFICATIONS.
2. A TACK COAT WILL BE APPLIED IN ACCORDANCE WITH SECTION 33.07-3 AS PROVIDED IN THE MD. S.H.A. SPECIFICATIONS.

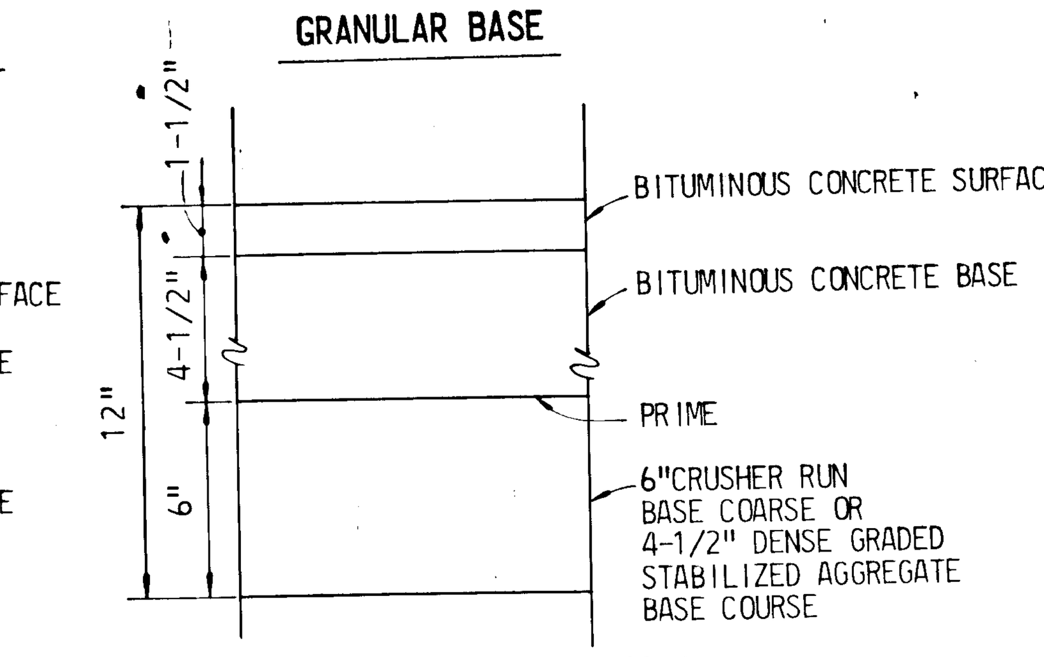
TYPICAL PAVING SECTION
NO SCALE

ALTERNATE
FULL DEPTH BITUMINOUS CONCRETE



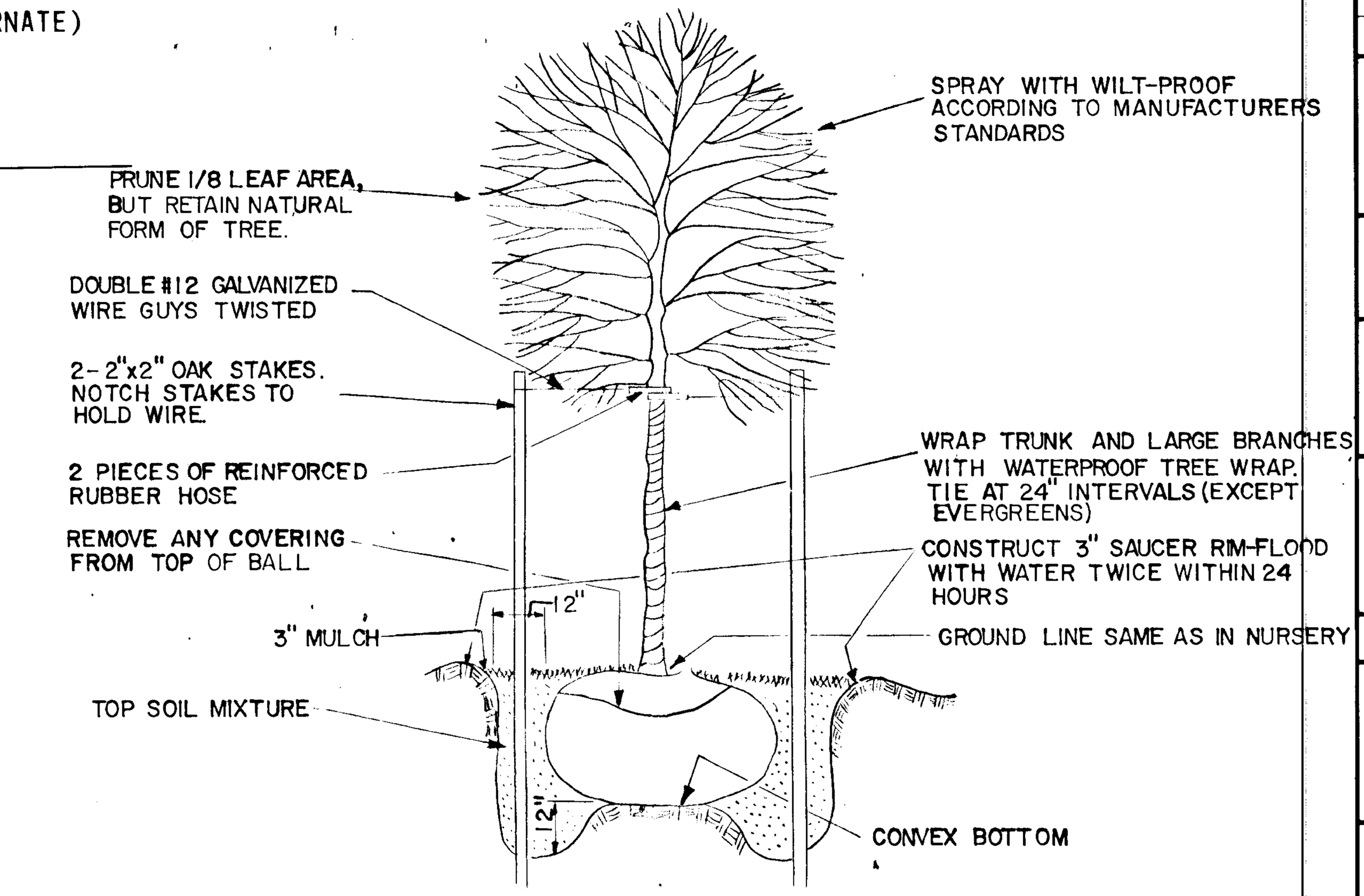
P-3 FULL DEPTH BITUMINOUS CONCRETE

ALTERNATE
GRANULAR BASE



P-3 GRANULAR BASE (ALTERNATE)

TYPICAL PAVING SECTION
NO SCALE



TREE PLANTING DETAIL
NO SCALE

8-1-90	1	Remove 30' Rd Section show 28' Roadway
REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
ROADWAY DETAILS

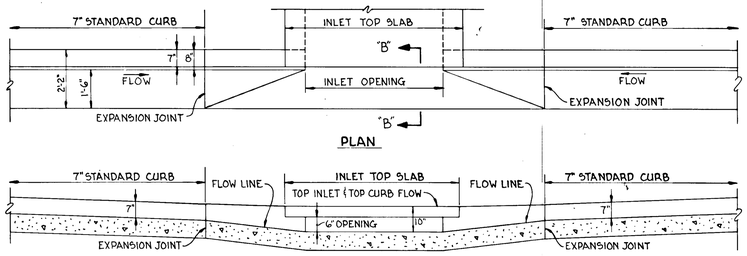
SCALE: No Scale | DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

Thomas J. Shafer
THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

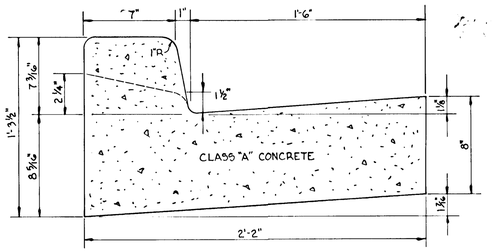
SHEET 4 OF 14

F-90-96



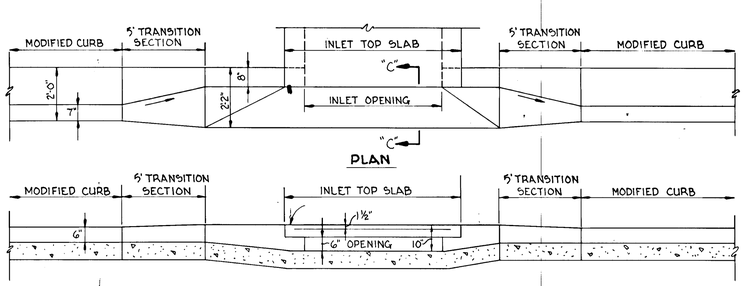
SECTION ALONG FLOW LINE

SUMPED "A" INLETS - STANDARD CURB



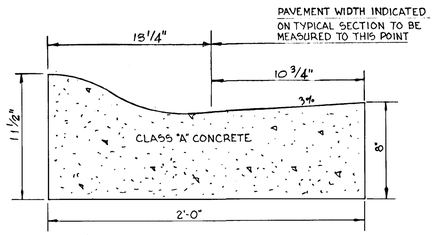
STANDARD 7" COMBINATION CURB & GUTTER

No Scale



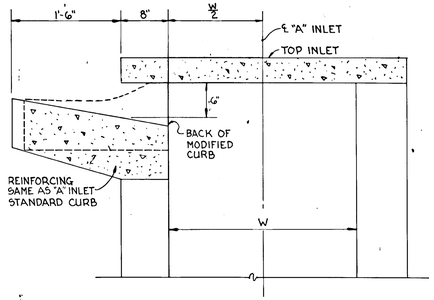
SECTION ALONG FLOW LINE

"A" INLETS - MODIFIED CURB



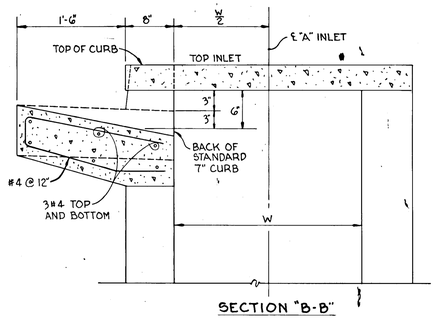
MODIFIED COMBINATION CURB & GUTTER

No Scale



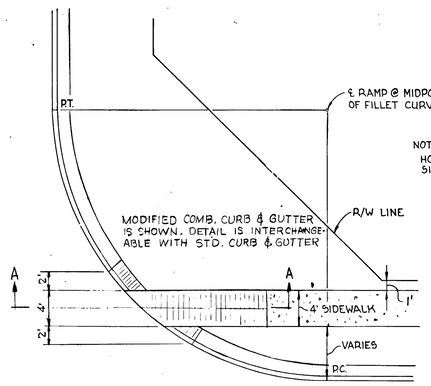
SECTION "C-C"

"A" INLET MODIFIED CURB

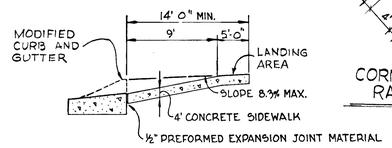


SECTION "B-B"

"A" INLET STANDARD CURB



PLAN



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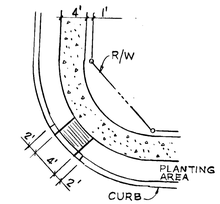


CORNER HANDICAP RAMP DETAIL

HANDICAP RAMP DETAIL

No Scale

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90

CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90

CHIEF, BUREAU OF ENGINEERING — DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/27/90

REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
ROADWAY AND STORM DRAIN DETAILS

SCALE: No Scale DATE: Nov. 10 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

SHT. 5 OF 14

F-90-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

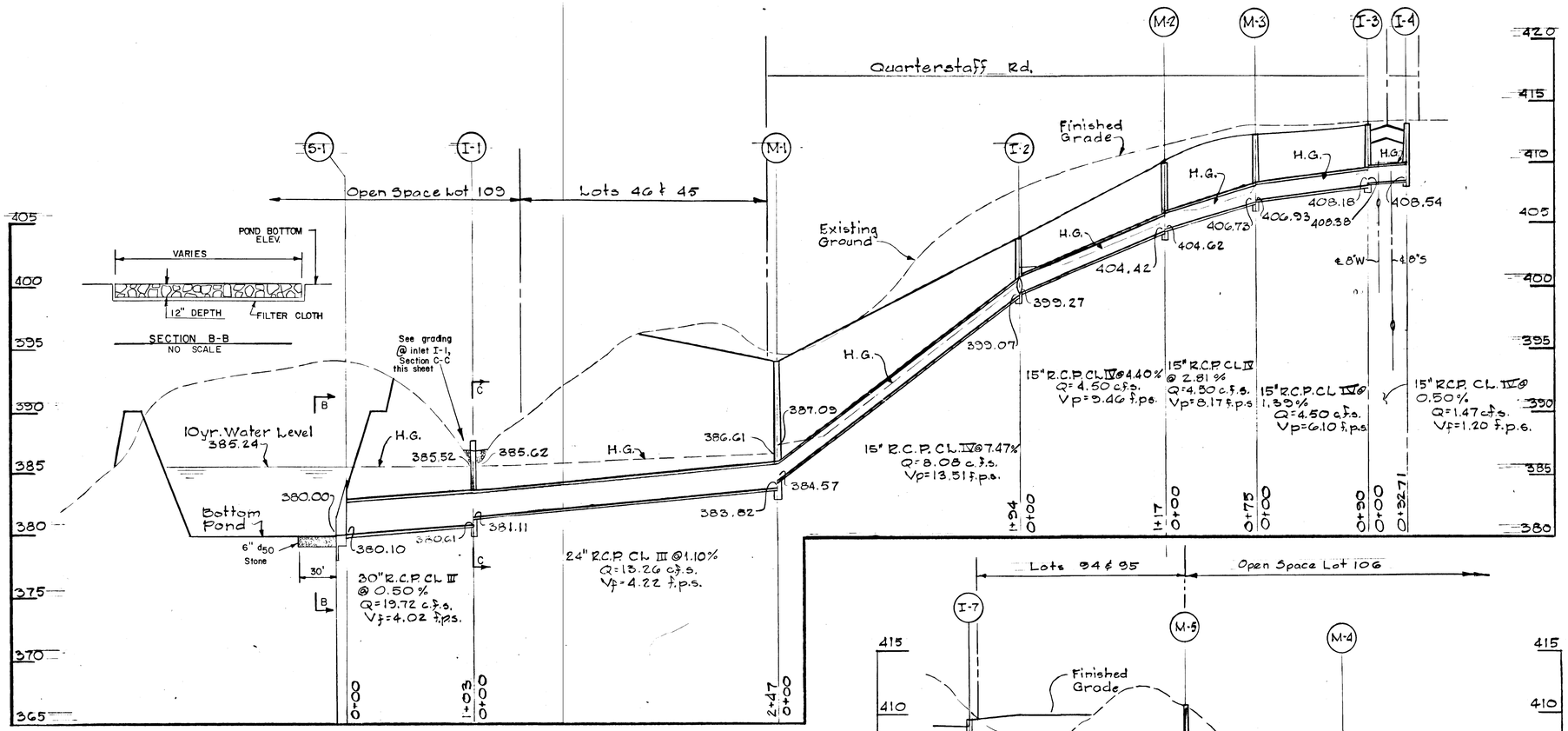
CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90

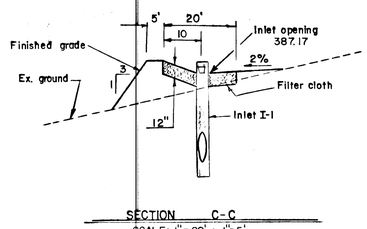
CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90

CHIEF, BUREAU OF ENGINEERING — DATE 4.2.90

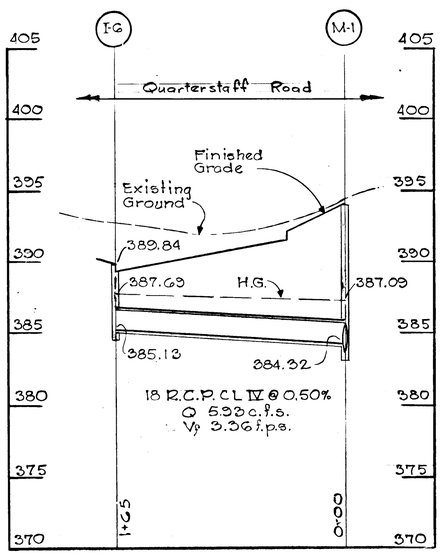
APPROVED: DEPARTMENT OF PLANNING AND ZONING

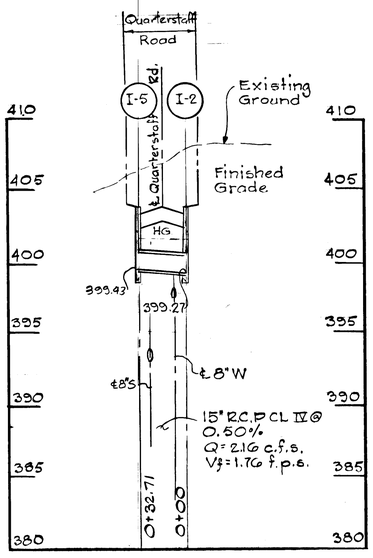
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/3/90

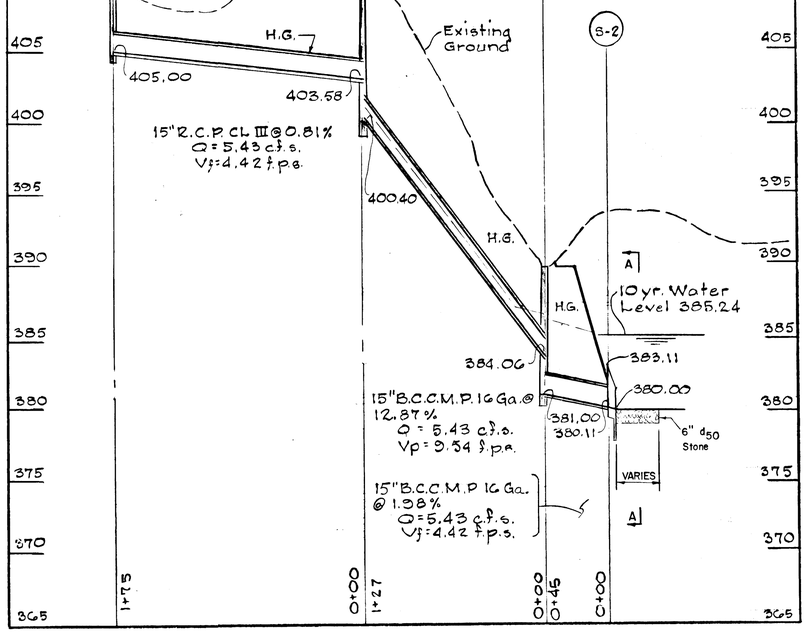


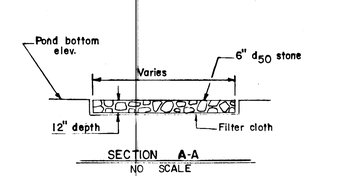


SECTION C-C
SCALE: 1"=20' ; 1"=5'









SECTION A-A
NO SCALE

REV. DATE	REV. NO.	REVISION DESCRIPTION
8-30-90	1	Revise stations, inverts and slopes

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
STORM DRAIN PROFILES

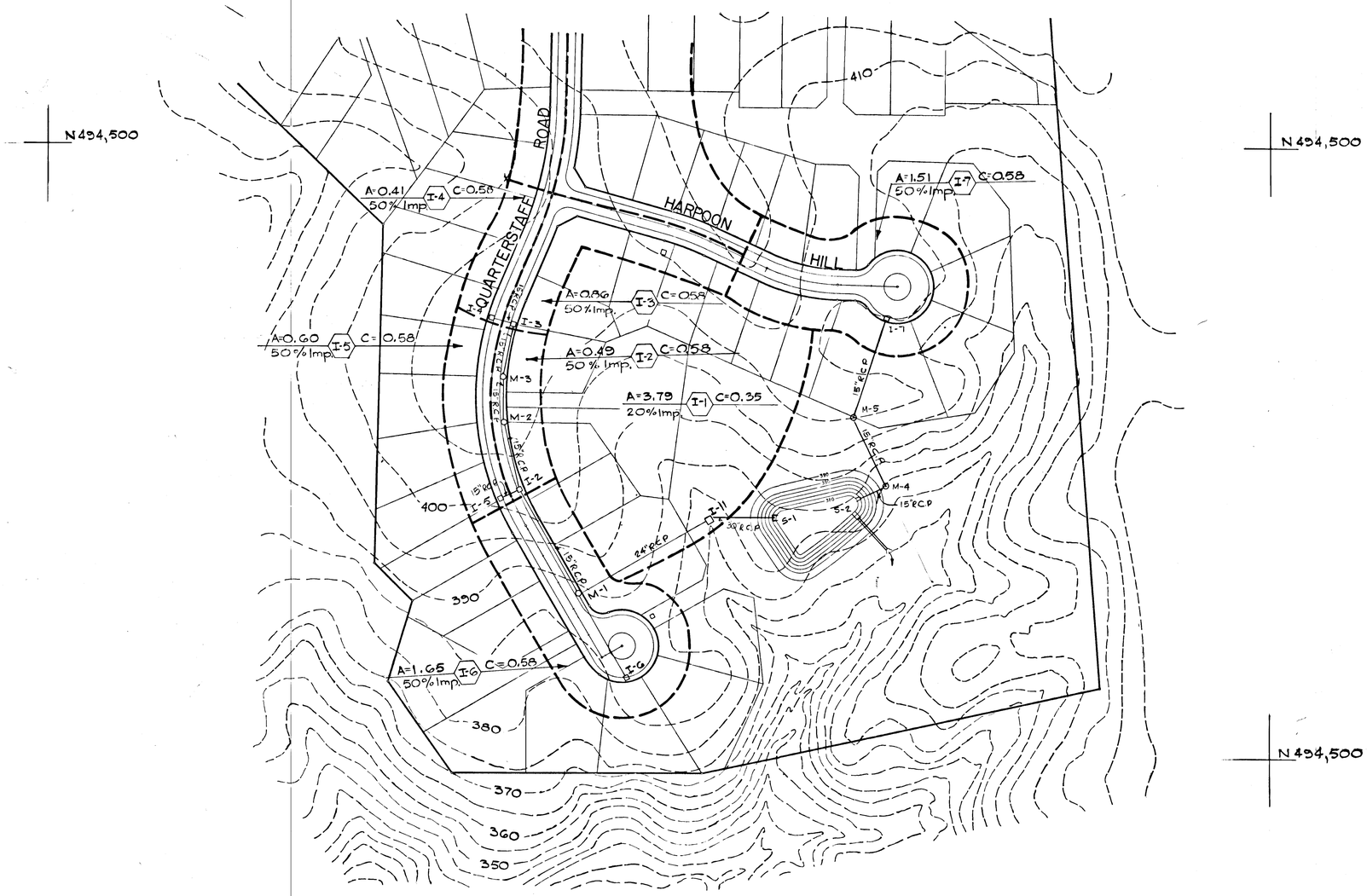
SCALE: 1"=50' 1"=5' DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

Thomas J. Shafer
THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

SHT. 6 OF 14

F-90-96



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS	DATE 3/27/90
CHIEF, BUREAU OF ENGINEERING	DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE 3/29/90

REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH
AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
DRAINAGE AREA MAP

SCALE: 1"= 100' DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

SHT. 7 of 14

F-90-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

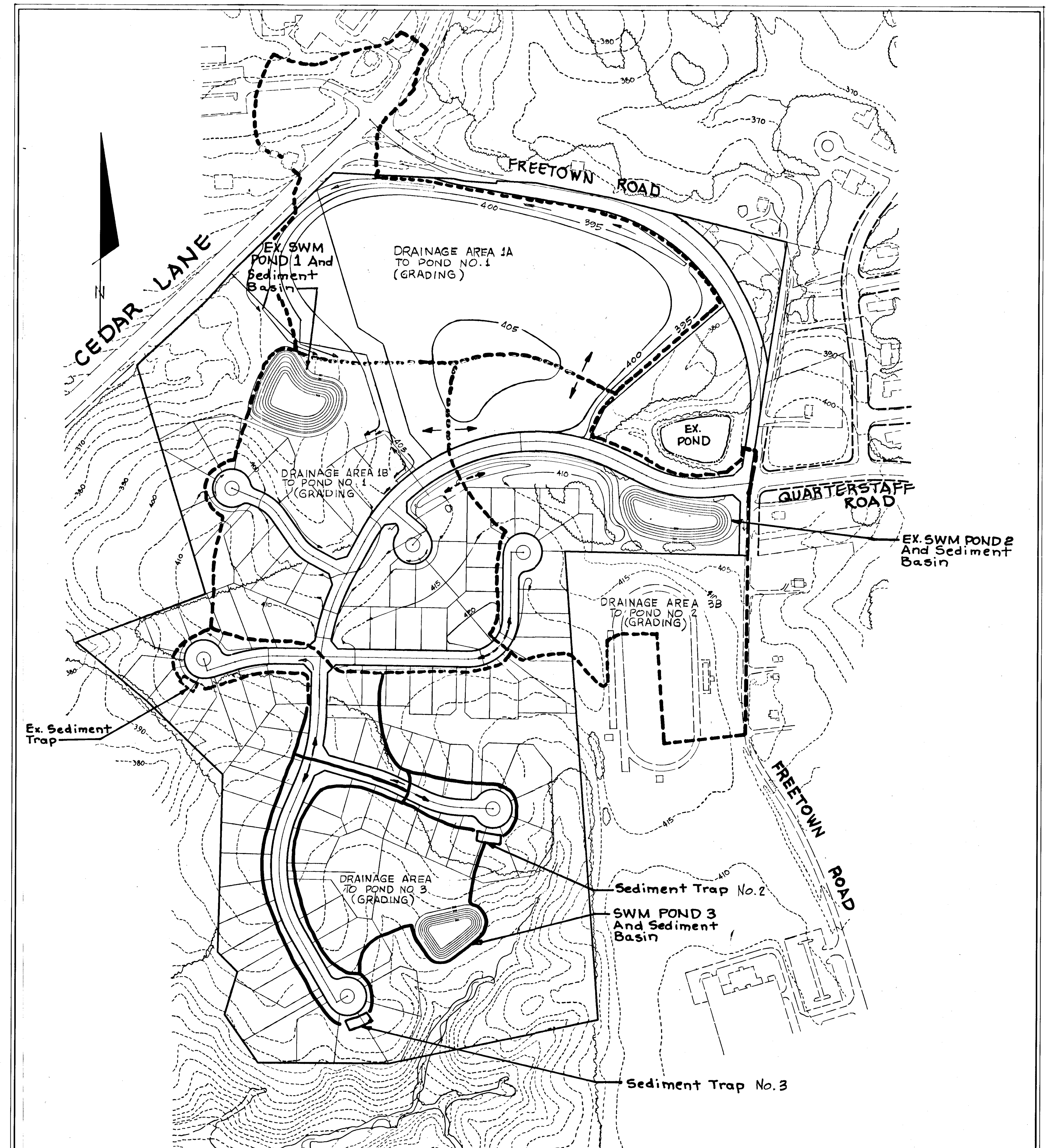
3/30/90	
CHIEF, LAND DEVELOPMENT DIVISION	DATE
3/27/90	
CHIEF, BUREAU OF HIGHWAYS	DATE
4-2-90	
CHIEF, BUREAU OF ENGINEERING	DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

4/4/90	
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE

--SEQUENCE OF CONSTRUCTION--

1. OBTAIN GRADING PERMIT.
2. PLACE STABILIZED CONSTRUCTION ENTRANCE.
3. CLEAR AND GRUB AREAS FOR SEDIMENT CONTROL FACILITIES ONLY.
4. INSTALL DIKES, SILT FENCES AND SEDIMENT TRAPS 2 AND 3.
5. STRIP AND GRADE HARPOON HILL AND QUARTERSTAFF ROADS.
6. CONSTRUCT 30" SPILLWAY AND POND NO.3 (SEDIMENT BASIN).
7. CONSTRUCT STORM DRAIN OUTFALLS FROM POND NO.3.
8. INSTALL UTILITIES AND STORM DRAINS.
9. COMPLETE ROADWAY CONSTRUCTION AND STABILIZE ALL GRADED AND DISTURBED AREAS.
10. REMOVE SEDIMENT FROM POND 3 AND STABILIZE POND GRADED AREAS.
11. AFTER INSPECTION AND APPROVAL BY THE SEDIMENT CONTROL INSPECTOR, THE SILT FENCES, DIKES AND SEDIMENT TRAPS 2 AND 3 MAY BE REMOVED.



SEDIMENT CONTROL- INTERIM SWM

* Drainage Area Pond 3 = 9.1 Acres
Drainage Area Trap 2 = 1.5 Acres
Drainage Area Trap 3 = 2.5 Acres

* Includes Trap Areas 2 and 3

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.

3/23/90
U.S. SOIL CONSERVATION SERVICE — DATE

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

3/23/90
HOWARD S.C.D. — DATE

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 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".

2-19-90
JOSEPH H. NECKER JR. — DATE

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".

11-10-89
THOMAS J. SHAFER P.E. NO.8457 — DATE

REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH
AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
SEDIMENT CONTROL DRAINAGE AREA MAP

SCALE: 1"= 200' — DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

F-90-96

SEE PLAN - LIMIT OF SUBMISSION, THIS SHEET

QUARTERSTAFF ROAD

Limit of Disturbance

Drainage Area Line

SEDIMENT TRAP NO. 2

SEDIMENT TRAP NO. 3

POND NO. 3

25' Wetland Buffer

75' Stream Buffer

Wetlands

Ex. stream

75' Stream Buffer

A-1 A-2 A-3 A-4

N

N494,500

N494,000

N493,500

E832,000

E832,500

E833,000

SEDIMENT TRAP 2

Trap Type V
Drainage Area = 1.5 Ac
Storage required = 0.06 AF
Storage provided = 0.06 AF
Weir Crest Elev = 407.0
Top Elevation = 408.0
Bottom Elev = 408.0
Sediment. Elev = 406.0
Outlet length = 6'

SEDIMENT TRAP 3

Trap Type V
Drainage Area = 2.5 Ac
Storage required = 0.10AF
Storage provided = 0.10AF
Outlet length = 10'
Weir Crest Elev = 386.0
Top Elevation = 387.0
Bottom Elev = 382.0
Sediment Elev = 385.0

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

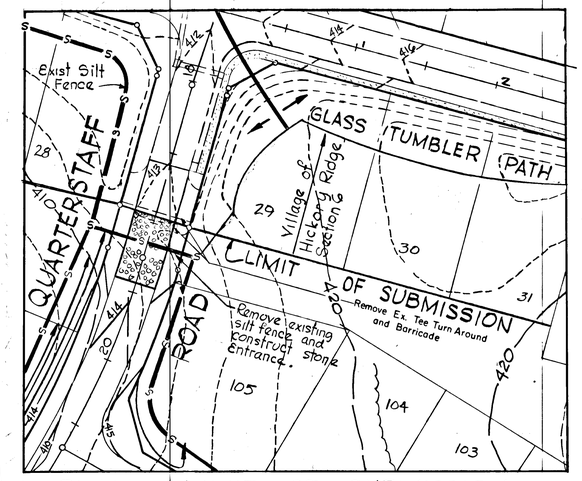
CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90

CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90

CHIEF, BUREAU OF ENGINEERING — DATE 4.2.90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/1/90



PLAN - LIMIT OF SUBMISSION

Scale: 1" = 50'

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".

THOMAS J. SHAFER P.E. NO. 8457 — DATE 11-9-89

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 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".

JOSEPH H. NECKER, JR. — DATE 11-9-89

REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH
AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:

GRADING AND SEDIMENT CONTROL PLAN

SCALE: 1" = 50' — DATE: 11-10-89

WHITMAN, REQUARDT AND ASSOCIATES
Engineers
BALTIMORE, MARYLAND 21218

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

U.S. SOIL CONSERVATION SERVICE — DATE 3/23/90

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

HOWARD S.C.D. — DATE 3/23/90

Thomas J. Shafer
THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

SHT. 9 OF 14

F-90-96

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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 redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chaper 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	9.1	Acres
Area Disturbed	5.0	Acres
Area to be roofed or paved	—	Acres
Area to be vegetatively stabilized	2.0	Acres
Total Cut	10,000	Cu. yds
Total Fill	10,000	Cu. yds
Offsite waste/borrow area location		—

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 DPW 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.

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

Matinenance - 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)

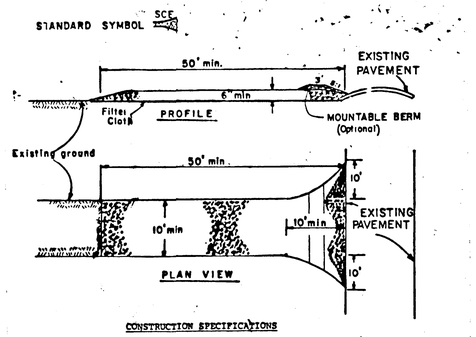
Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2½ bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect 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 1½ 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 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.

STABILIZED CONSTRUCTION ENTRANCE

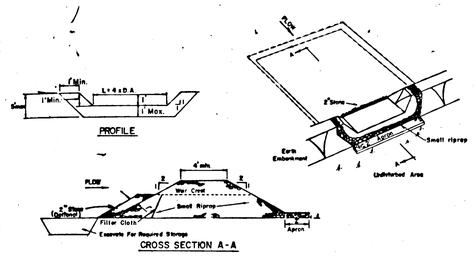
not to scale



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 length 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 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.

STONE OUTLET SEDIMENT TRAP V

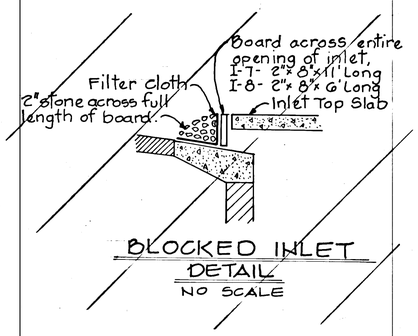


CROSS SECTION A-A

OPTION: A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.

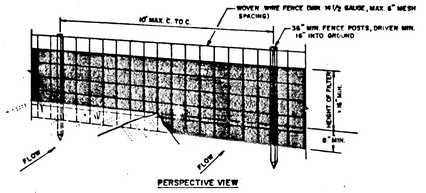
CONSTRUCTION SPECIFICATIONS FOR ST-V

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small riprap 4"-8" along with a 1' thickness of 2" aggregate placed on the up-grade side on the small riprap on embedded filter cloth in the riprap.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap.
6. The structure shall be inspected after each rain and repairs made as needed.
7. Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

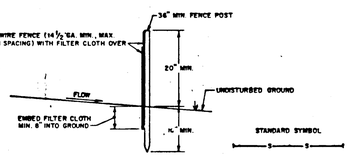


BLOCKED INLET DETAIL
NO SCALE

SILT FENCE



PERSPECTIVE VIEW



SECTION

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

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

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

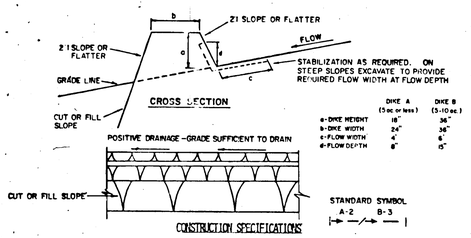
FENCE: WOVEN WIRE, 14½ GA. 6" MAX. MESH OPENING

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

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

EARTH DIKE

not to scale



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

CONSTRUCTION SPECIFICATIONS

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

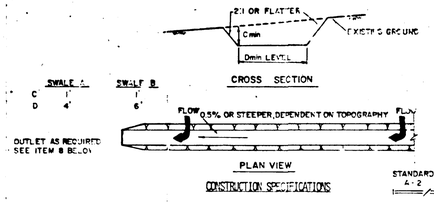
FLOW CHANNEL STABILIZATION

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

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

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

TEMPORARY SWALE



CONSTRUCTION SPECIFICATIONS

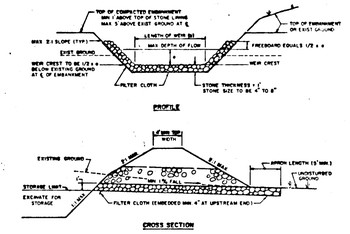
1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC OR LESS)	B (5 AC - 10 AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR; SOD	LINED RIP-RAP 4-8" RECYCLED CONCRETE EQUIVALENT
4	8.1-20%	LINED 4-8" RIP-RAP	ENGINEERED DESIGN

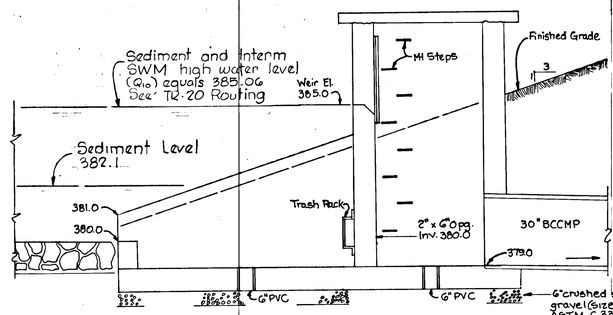
9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

RIPRAP OUTLET SEDIMENT TRAP ST-VI



CONSTRUCTION SPECIFICATIONS FOR ST-VI

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
3. All fill s opes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be four (4) to eight(8) inches (riprap). To provide a filtering effect, a layer of filter cloth shall be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
8. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 15 acres or less.



RISER STRUCTURE POND #3
(Sediment Control - Interim SWM)
Scale: 3/8 = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, LAND DEVELOPMENT DIVISION	DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS	DATE 3/27/90
CHIEF, BUREAU OF ENGINEERING	DATE 4-2-90
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE 4/4/90

REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 6

PROJECT TITLE: SEDIMENT CONTROL DETAILS

SCALE: No Scale DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
Engineers
BALTIMORE, MARYLAND 21218

Thomas J. Shafer
THOMAS J. SHAFER
Registered Engineer NO. 8457

SHT. 10 OF 14

F-90-96

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 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."

JOSEPH H. NECKER, JR. 11-9-89 Date

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

U.S. Soil Conservation Service Date 3-23-90

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

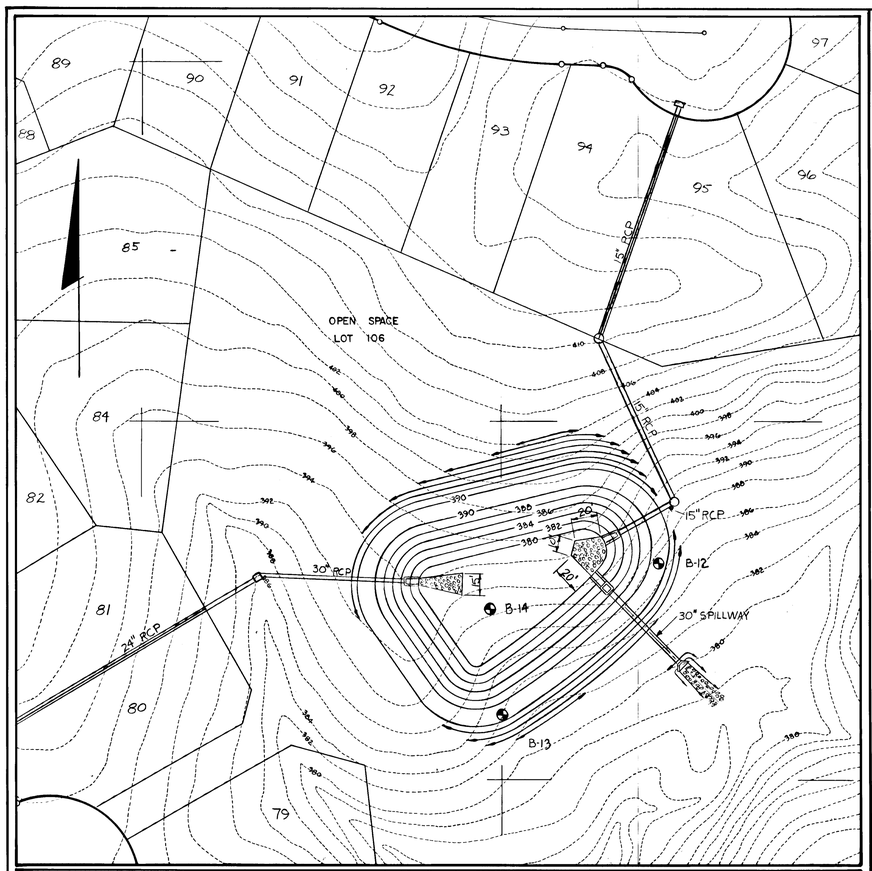
Howard S.C.D. Date 3-23-90

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."

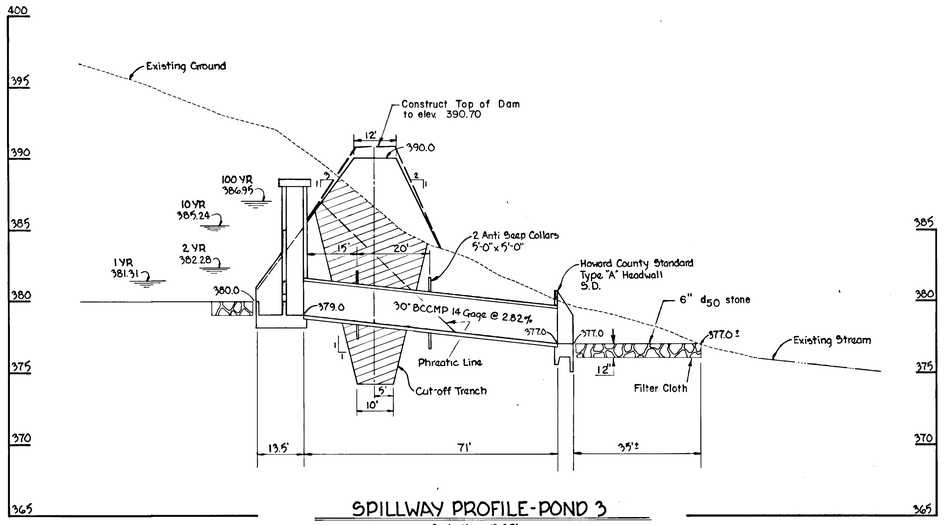
Thomas J. Shafer 11-10-89 Date

42



SITE PLAN - SWM POND 3

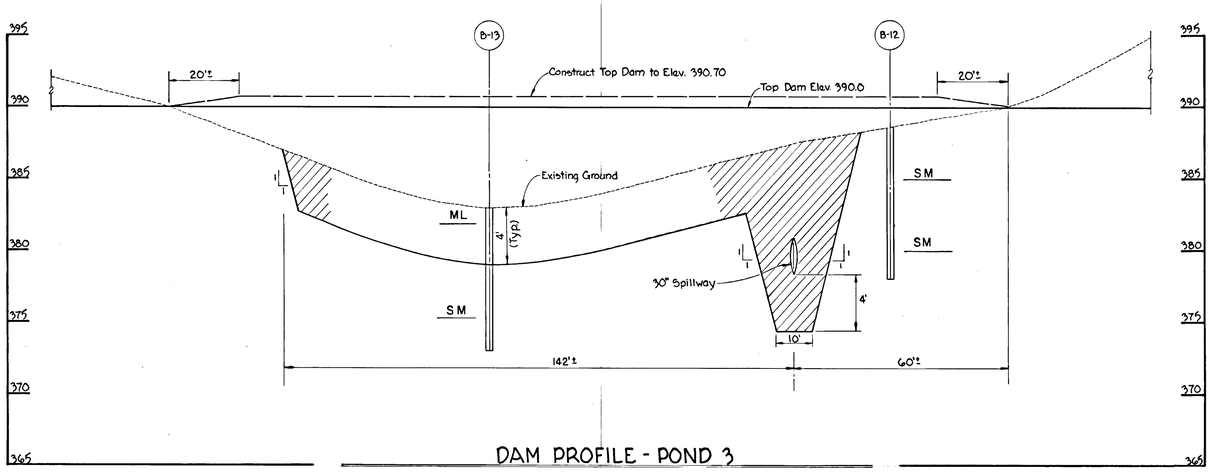
Scale: 1" = 50'



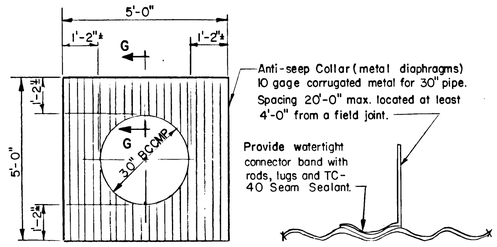
SPILLWAY PROFILE - POND 3

Scale: Horz. 1" = 20'
Vert. 1" = 5'

Note:
ML, CL, MH, or CH soils only will be allowed in the Core Trench.



DAM PROFILE - POND 3



ELEVATION SECTION G-G

ANTI-SEEP COLLAR DETAILS

Not to Scale

BY THE DEVELOPER:
"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 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".

JOSEPH H. NECKER, JR. — 11-9-89 DATE

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.

U.S. SOIL CONSERVATION SERVICE — 3-23-90 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 5-23-90 DATE

BY THE ENGINEER:
"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 AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION".

THOMAS J. SHAFER, Registration No. 8457 — 11-10-89 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 3/30/90 DATE

CHIEF, BUREAU OF HIGHWAYS — 3/27/90 DATE

CHIEF, BUREAU OF ENGINEERING — 4-2-90 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 3/4/90 DATE

DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 6

PROJECT TITLE:
STORMWATER MANAGEMENT POND NO 3

SCALE: As Shown — DATE: 11-10-89

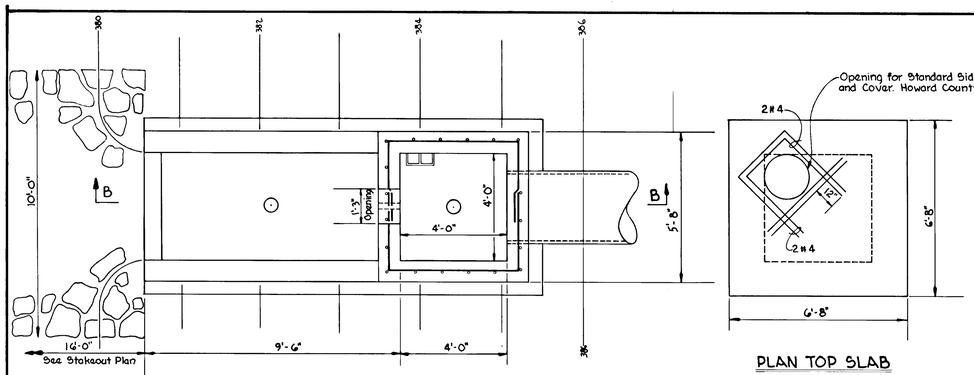
WHITMAN, REQUARDT AND ASSOCIATES
Engineers
BALTIMORE, MARYLAND 21218

Thomas J. Shafer
THOMAS J. SHAFER
Registered Engineer No. 8457

SHT. 11 of 14

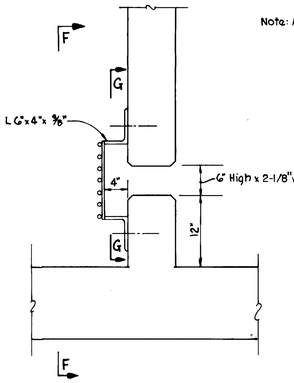
F-90-96

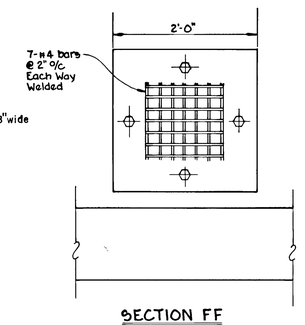
42



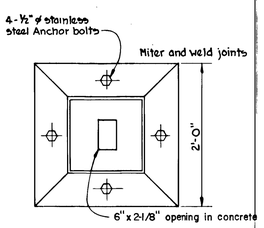
SECTION A-A

PLAN TOP SLAB



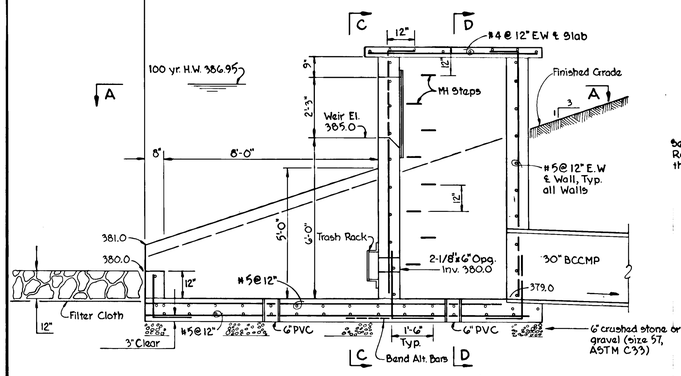


SECTION FF

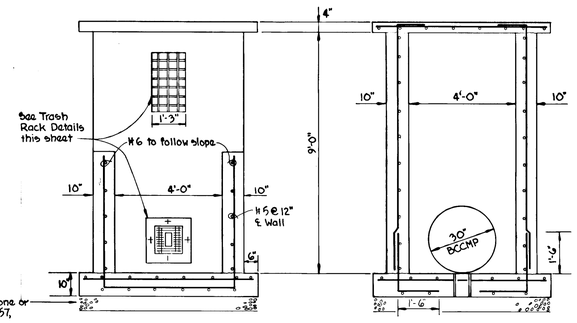


SECTION GG

ORIFICE TRASH RACK



SECTION BB

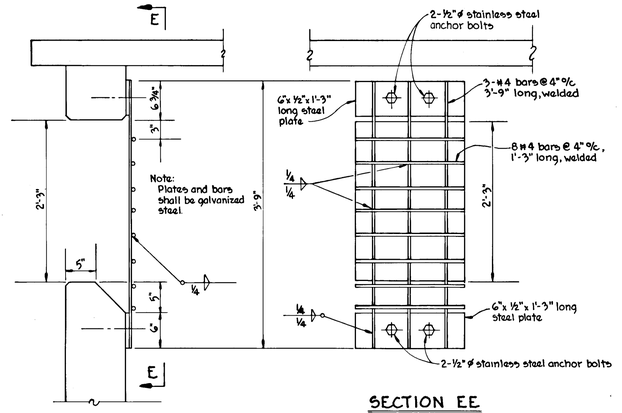


SECTION CC

SECTION DD

RISER STRUCTURE - POND 3

Scale: 3/8" = 1'-0"



SECTION EE

WEIR TRASH RACK

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, LAND DEVELOPMENT DIVISION	DATE 3/30/90
CHIEF, BUREAU OF HIGHWAYS	DATE 3/27/90
CHIEF, BUREAU OF ENGINEERING	DATE 4-2-90
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE 4/5/90

BY THE DEVELOPER:

"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 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".

11-9-89
JOSEPH H. NECKER, JR. — DATE

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.

3/23/90
U.S. SOIL CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

3/23/90
HOWARD SOIL CONSERVATION DISTRICT — DATE

BY THE ENGINEER:

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Thomas J. Shafer 11-10-89
THOMAS J. SHAFER — DATE
Registration No. 8457

DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
5TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 6

PROJECT TITLE:
STORMWATER MANAGEMENT POND NO. 3

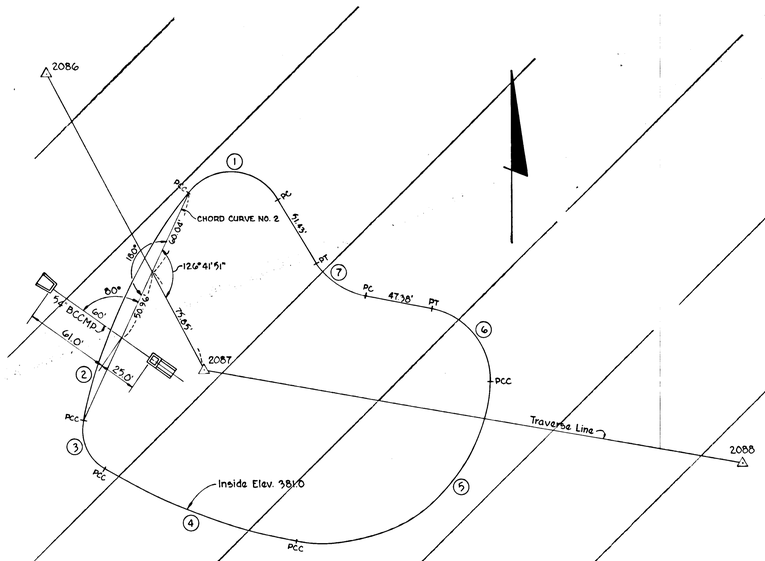
SCALE: As Shown — DATE: Nov 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
Engineers
BALTIMORE, MARYLAND 21218

Thomas J. Shafer
THOMAS J. SHAFER
Registered Engineer No. 8457

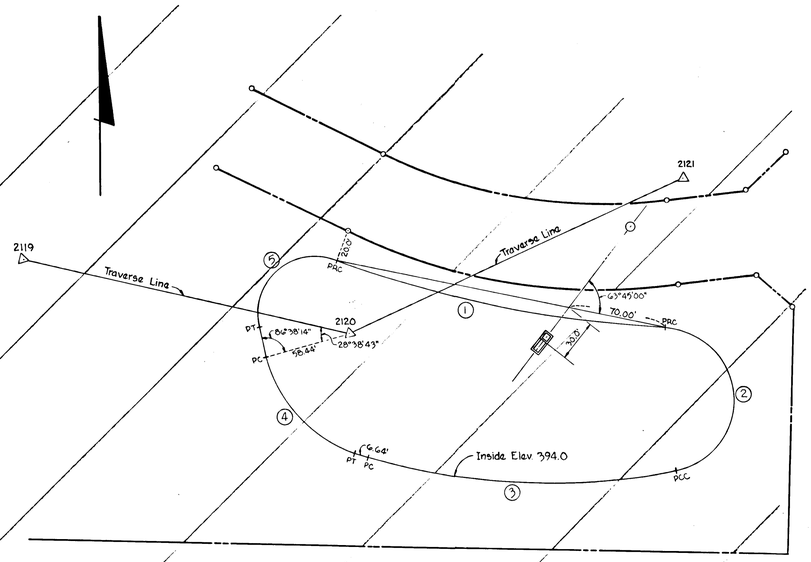
SHT. 12 OF 14

F-90-96



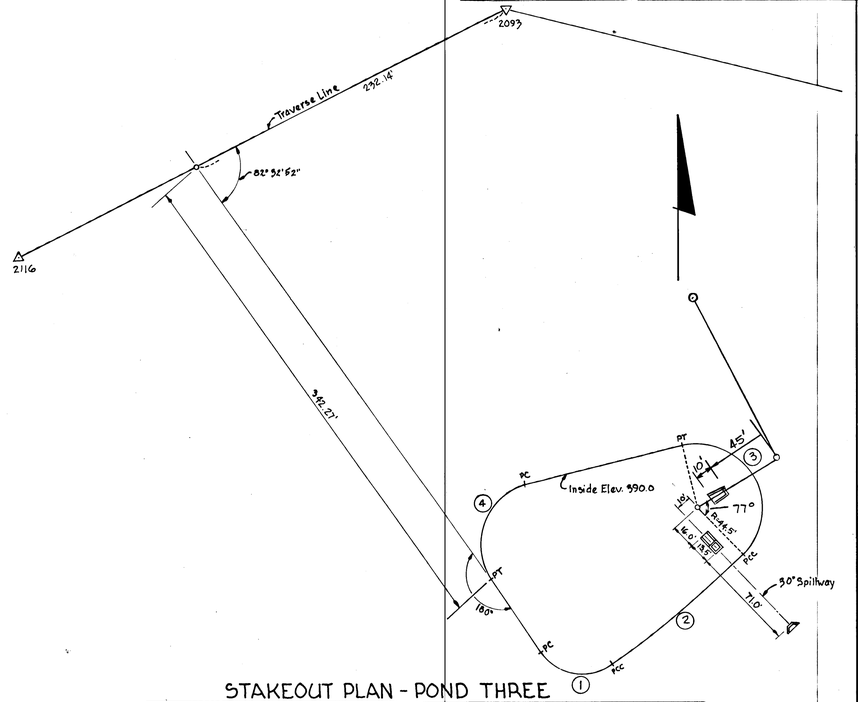
STAKEOUT PLAN - POND ONE

Scale: 1" = 50'



STAKEOUT PLAN - POND TWO

Scale: 1" = 50'



STAKEOUT PLAN - POND THREE

Scale: 1" = 50'

CURVE DATA TABLE - POND ONE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	38.00'	112°00'00"	74.28'	56.34	63.01'	N 86° 15' 00" W
2	400.00'	25° 15' 00"	176.28'	89.59	174.86'	S 25° 07' 30" W
3	31.50'	71° 40' 00"	39.40'	22.75	36.88'	S 23° 20' 00" E
4	400.00'	20° 30' 00"	143.12'	72.33	142.35'	S 69° 25' 00" E
5	115.00'	99° 00' 00"	198.71'	134.65	174.89'	N 50° 50' 00" E
6	50.00'	80° 15' 00"	70.03'	42.14	64.45'	N 38° 47' 30" W
7	50.00'	48° 40' 00"	42.47'	22.61	41.20'	N 54° 35' 00" W

CURVE DATA TABLE - POND TWO

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	750.00'	17°50'00"	233.44'	117.67	232.50'	S 78° 10' 00" E
2	144.86'	166°00'00"	144.86'	407.22	99.25'	S 04° 05' 00" E
3	450.00'	27°35'00"	216.64'	110.46	214.55'	N 87° 17' 30" W
4	90.00'	60°55'00"	95.69'	52.93	91.24'	N 43° 02' 30" W
5	40.00'	123° 20'00"	86.10'	74.18	70.42'	N 49° 05' 00" E

CURVE DATA TABLE - POND THREE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	35.00'	90°00'00"	54.98'	35.00	49.50'	S 79° 30' 30" E
2	750.00'	09°00'00"	117.81'	59.03	117.69'	N 51° 00' 00" E
3	44.50'	149°30'00"	116.11'	163.22	85.87'	N 28° 15' 00" W
4	42.50'	111°30'00"	82.71'	62.42	70.26'	S 21° 15' 00" W

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90

CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90

CHIEF, BUREAU OF ENGINEERING — DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4/5/90

BY THE DEVELOPER:

"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 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".

JOSEPH H. NECKER, JR — DATE 11-9-89

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.

U.S. SOIL CONSERVATION SERVICE — DATE 3-23-90

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 3-23-90

BY THE ENGINEER:

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THOMAS J. SHAFER
Registration No. 8457 — DATE 11-10-89

DATE	REV. NO.	REVISION DESCRIPTION
8/30/90	1	add S/D information

COLUMBIA
5TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH
AND DEVELOPMENT LAND COMPANY

PROJECT AREA: VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE:
STORMWATER MANAGEMENT
POND 3 CONSTRUCTION STAKEOUT

SCALE: As Shown — DATE: Nov 10, 89

WHITMAN, REQUARDT AND ASSOCIATES
Engineers
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
Registered Engineer No. 8457

SHT. 13 of 14

F-90-96

CONSTRUCTION SPECIFICATIONS

1. 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.

2. 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, oversize 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 freeboard) 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 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.

3. 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 tampers 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.

4. 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 AASHTO 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: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 AND M-246.
2. CONNECTIONS - All connections with pipes must be completely watertight. Watertight coupling 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 - Backfilling shall conform to structural backfill as shown above.
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

5. 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.

5. CONCRETE - Continued

1. MATERIALS

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 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honey-combing in the structure.
3. **MIXING** - The concrete ingredients shall be mixed in bach 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 speed of rotation of the mixer and of 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, tamping, 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 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 voilds 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 continously 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.

6. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications.

7. 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 show detail erosion and sediment control measures to be employed during the construction process. See Sheet 9.

PERMANENT SEEDING

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

1. **SEEDED PREPARATION** Loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.
2. **SOIL AMENDMENTS**: Apply 2 ton per acre Dolomitic Limestone (92 lbs. /1,000 sq.ft.) and 600 lbs. per acre 0-20 fertilizer (14 lbs. /1,000 sq.ft.) Harrow or disc lime and fertilizer into upper three inches of soil. At time of seeding, apply 400 lbs. per acre (9.2 lbs. /1,000 sq.ft.) of 38-0-0 Ureaform fertilizer and 500 lbs. per acre (11.5 lbs. /1,000 sq.ft.) of 10-20-20 fertilizer.
3. **SEEDING**: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 45 lbs. per acre (1.4 lbs. /1,000 sq.ft.) of Kentucky 31 Tall Fescue

   For the period May 1 thru July 31, seed with 45 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs./1,000 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.
4. **EROSION CONTROL FABRIC**: "HOLD GRO", Gulf State Paper Corporation, P.O.B. NO 3199 Tuscaloosa, Alabama, 34504,or an approved equal. Install as recommended by the manufacturer.
5. **MAINTENANCE**: Inspect all seeded areas and make needed repairs, replacements and reseedings.
6. Add Crown Vetch Liquminous Seed to mixture on 2:1 slopes. Seed mixture shall be sown at the rate of 45 pounds/acre with Crown Vetch sown at 15 pound/acre. Inoculant for Crown Vetch shall be at the rate of 6.7 oz. Powder or liquid culture per 20 pounds Crown Vetch. Seed inoculated with liquid culture shall be sown within 24 hours after treatment: Seed inoculated with powdered culture shall be sown within 48 hours after treatment. The seeding contractor may elect to apply the inoculated Lequme Seed dry and in a separate operation prior to applying an aqueous mixture, or he may apply them in the aqueous mixture with the seed and commercial fertilizer using four times the quantity of inoculum recommeded for dry leguminous seed application.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE 3/30/90

CHIEF, BUREAU OF HIGHWAYS — DATE 3/27/90

CHIEF, BUREAU OF ENGINEERING — DATE 4-2-90

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 3/26/90

BY THE DEVELOPER:

"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 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."

JOSEPH H. NECKER, JR. — DATE 11-9-89

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.

U.S. SOIL CONSERVATION SERVICE — DATE 3-23-90

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 3-23-90

BY THE ENGINEER:

"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 AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

THOMAS J. SHAFER — DATE 11-10-89

Registration No. 8457

REV. NO.	REV. DATE	REVISIONS

COLUMBIA
5TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH
AND DEVELOPMENT LAND COMPANY

PROJECT AREA: VILLAGE OF HICKORY RIDGE
SECTION 6 AREA 6

PROJECT TITLE: STORMWATER MANAGEMENT
CONSTRUCTION SPECIFICATIONS

SCALE: No Scale — DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

THOMAS J. SHAFER
Registered Engineer NO. 8457

SHT. 14 of 14

F-90-96

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