

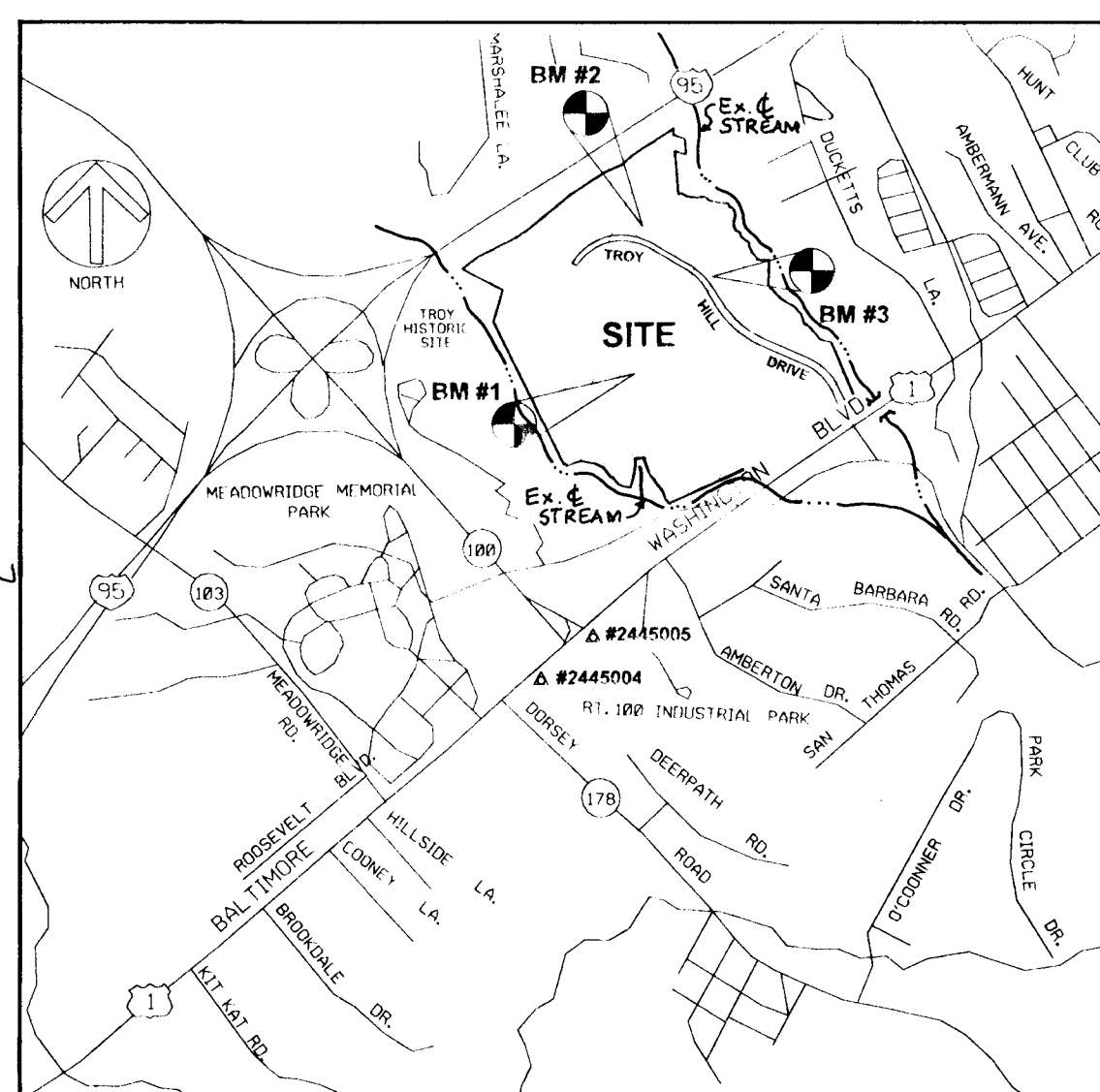
TROY HILL CORPORATE CENTER

PHASE I F-96-136

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INFORMATIONAL
PURPOSES ONLY.
SHTS. 19 & 20 TO REMAIN
PART OF F-96-136
21 - 26
27
28



VICINITY MAP
SCALE: 1" = 2000'

(COORDINATES BASED ON N.A.D. 27, AS PROJECTED BY
HOWARD COUNTY GEOMETRIC CONTROL STATIONS #2445004 AND #2445005.)

1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND TAX MAP NO. 37

BENCHMARK #1

IRON PIN @ TRAVERSE #1066
N 496501.3597 E 869134.4576
ELEV. = 175.92

BENCHMARK #2

IRON PIN @ TRAVERSE #1061
N 498036.6945 E 868791.1502
ELEV. = 242.49

BENCHMARK #3

IRON PIN @ TRAVERSE #1034
N 497636.7437 E 869835.6586
ELEV. = 214.85

OWNER / APPLICANT

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, DETAILS AND SPECIFICATIONS FOR CONSTRUCTION.
- ALL UTILITY COMPANIES SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF CONSTRUCTION.
- ALL INLETS SHALL BE HOWARD COUNTY STANDARD UNIFORM FINISH OTHERWISE SHOWN.
- ALL STREET CURB RETURNS SHALL HAVE 30" RADIUS UNIFORM FINISH OTHERWISE NOTED.
- STORM DRAIN TRENCHES WITHIN RIGHT-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS.
- 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.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES WHERE SHOWN OR NEEDED AS APPROVED BY THE ENGINEER, A MINIMUM OF TWO WEEKS IN ADVANCE OF ANY CONSTRUCTION.
- CONTRACTOR TO NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION AT LEAST 3 DAYS PRIOR TO STARTING WORK SHOWN ON THESE DRAWINGS. (TELEPHONE NO. (410) 313-1880)
- DISTURBED SLOPE AREA TO BE STABILIZED AS SOON AS GRADING IS COMPLETED.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 3500 P.S.I.
- ALL SWALES AND SLOPES SHALL BE PERMANENTLY SEEDED. SEE THE SEED SPECIFICATIONS ON SHEET.
- TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1988 REVISED EDITION.
- PLY-FILTER-X OR EQUAL SHALL BE PLACED UNDER ALL STONE RIP-RAP (FULL WIDTH AND LENGTH OF STONE).
- STONE FOR RIP-RAP SHALL BE AS SPECIFIED ON THESE DRAWINGS. ALL RIP-RAP SHALL BE NON-GROUTED UNLESS OTHERWISE NOTED.
- STUBS FOR 6" PVC UNDERDRAIN PIPE TO BE INSTALLED AT CENTER OF EACH WALL OF EVERY INLET.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
STATE HIGHWAY ADMINISTRATION : 631-6533
BALTIMORE GAS & ELECTRIC COMPANY / CONTRACTOR SERVICES 850-4620
BALTIMORE GAS & ELECTRIC COMPANY / UNDERGROUND DAMAGE CONTROL : 787-9068
BUREAU OF UTILITIES, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS : 313-4900
COLONIAL PIPELINE : 795-1390
MISS UTILITY : 1-800-257-7777
- STREET TREES LOCATION, TYPE, AND NUMBER OF TREES SHOWN ON THIS PLAN ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF THE TREES MAY VARY TO ACCOMMODATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 15.131 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE OFFICE OF PLANNING AND ZONING.
- STREET LIGHTS WILL BE INSTALLED BY B.G.&E. AT LOCATIONS SPECIFIED IN PLANS. (A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.)
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE FOR AND SUBMIT SHOP DRAWINGS THAT INDICATE ALL REQUIRED STIFFENING, BRACING AND SUPPORTS AT ALL FACTORY OR FABRICATED METAL PIPE CONNECTIONS AND APPURTENANCES.
- THE CONTRACTOR IS COMPLETELY RESPONSIBLE TO INSURE THAT ALL CONDITIONS OF CORPS OF ENGINEER, MDE AND DNR WETLAND AND WATERWAY CONSTRUCTION PERMITS ARE STRICTLY ADHERED TO. A PRE-CONSTRUCTION MEETING IS TO BE ARRANGED BY THE CONTRACTOR BETWEEN ALL SUB-CONTRACTORS, THE OWNER, THE ENVIRONMENTAL CONSULTANT AND COUNTY OFFICIALS TO VERIFY COMPLIANCE. A FAILURE TO COMPLY WITH FEDERAL AND STATE PERMIT REGULATIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR TO VERIFY THAT ALL UNDERGROUND UTILITIES UNDERNEATH THE ROADBED AND WITHIN THE RIGHT-OF-WAY HAVE BEEN CONSTRUCTED. TO EACH LOT AND ADJOINING PROPERTY AND LOCATION MARKED IN THE FIELD PRIOR TO PLACEMENT OF STONE SUB-BASE AND PAVING. UTILITIES INCLUDE BUT ARE NOT LIMITED TO WATER, SANITARY SEWER, STORM DRAINS, LATERALS AND CONNECTIONS, TELEPHONE, ELECTRIC, GAS, AND CABLE TV, ETC. CUTTING OF CURB, GUTTER AND PAVEMENTS TO INSTALL SAID CONNECTIONS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- PROPOSED "S" COMBINATION INLETS SHALL MEET BICYCLE SAFETY AS PER HOWARD COUNTY DESIGN MANUAL VOLUME I, SECTION 4.1.1.E.1.C.
- HANDICAP RAMPS MUST MEET A.D.A. REQUIREMENTS.
- PROPOSED DETENTION STORMWATER MANAGEMENT PONDS ARE PRIVATELY OWNED AND MAINTAINED.

TOPOGRAPHIC SURVEY
THIS PLAN IS BASED ON A FIELD RUN SURVEY PERFORMED ON MARCH 2, 1988 BY CHARLES A. IRISH, JR. PROFESSIONAL LAND SURVEYOR (MARYLAND NO. 10708) OF VINA INCORPORATED AND A FIELD RUN SURVEY PERFORMED ON JANUARY 8, 1990 BY ROBERT P. HENRY, PROFESSIONAL LAND SURVEYOR (MARYLAND NO. 10856) OF GEORGE WILLIAM STEPHENS, JR. AND ASSOCIATES, INC.

- WAIVERS/APPROVALS/PERMITS
- WAIVER PETITION FILE #WP91-89 TO PERMIT GRADING AND DEVELOPMENT ACTIVITIES WITHIN 100 YEAR FLOOD PLAIN, TO PERMIT GRADING FILLING AND REMOVAL OF VEGETATION COVER WITHIN WETLANDS AND 25' BUFFER SECTIONS 16.116(A)(1); 16.116(C)(6) APPROVED JULY 12, 1991.
 - CERTAIN PORTIONS OF THE WETLANDS AND WETLAND BUFFERS SHOWN ON THESE PLANS MAY BE FILLED AND/OR IMPACTED IN ACCORDANCE WITH CORPS OF ENGINEERS NATIONWIDE PERMIT CENAB-OP-RP90-00883-3. MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER QUALITY CERTIFICATE 91-WQC-0326 MARYLAND WATER RESOURCES ADMINISTRATION WATERWAYS CONSTRUCTION PERMIT 98-WC-047 AND HOWARD COUNTY WAIVER PETITION FILE #WP 91-169. EXPIRATION DATE NOVEMBER 6, 1997.
 - PRELIMINARY P-90-23 APPROVED AUGUST 9, 1991.
 - WORK IN U.S. ROUTE #1 PERFORMED UNDER S.H.A. PERMIT NO. B-HO-5914-96 F91-24 WATERMAIN CROSSING IN U.S. ROUTE #1 PERFORMED UNDER CONTRACT NO. 44-3502-D.
 - MASS GRADING TO BE ACCOMPLISHED UNDER GP 96-121.
 - WAIVER PETITION FILE #WP 96-91 TO PERMIT PROCESSING A MASS GRADING PLAN WITHOUT AN APPROVED SITE DEVELOPMENT PLAN.

| NO | BY | DATE | REVISION |
|----|-----|---------|---|
| 1 | GWS | 7/16/98 | SHTS. 13 & 14 TO REMAIN. SHTS. 16, 17, 18 FOR INFO. PURPOSES ONLY. SHTS. 19 & 20 TO REMAIN PART OF F-96-136 |

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daneker 8-14-98
CHIEF, BUREAU OF HIGHWAYS
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Surimmonji 8/19/98
CHIEF, DIVISION OF DEVELOPMENT AND RESEARCH
CHIEF, DEVELOPMENT ENGINEERING DIVISION

GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson Maryland 21204 (410) 825-8120
203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800

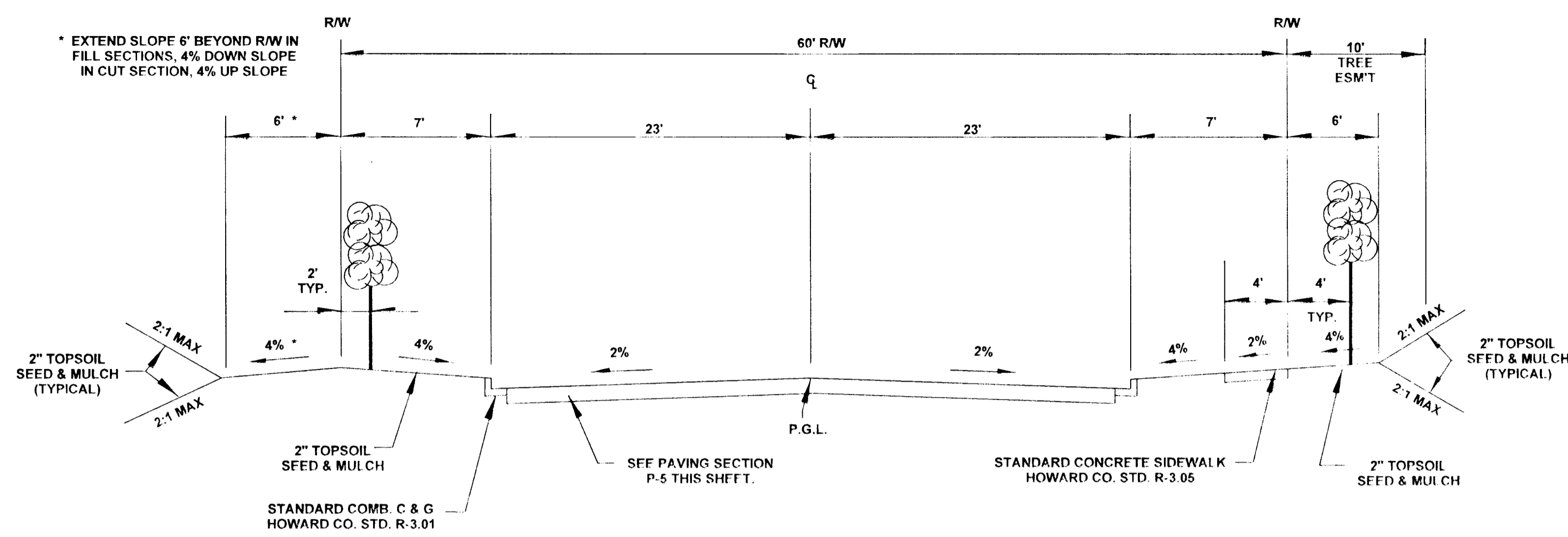


DESIGNED: BWW
DRAFTED: BWW
CHECKED: PWT

COVER SHEET
SCALE: AS SHOWN

TROY HILL CORPORATE CENTER
PHASE I
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1
JUNE 28, 1996
SHEET 1 OF 28

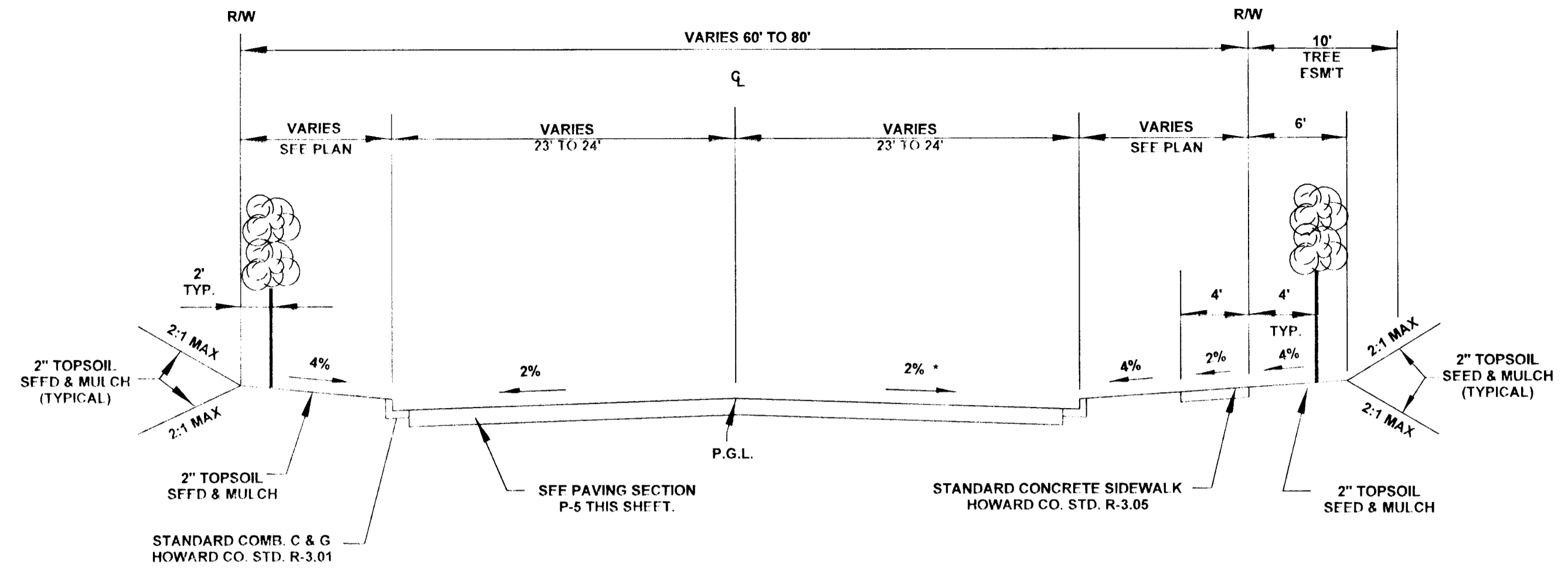
1654



TROY HILL DRIVE TYPICAL SECTION #1

(MINOR COLLECTOR ROAD, DESIGN SPEED = 35 M.P.H.)
STA. 35+00.00 TO STA. 49+84.67

NO SCALE



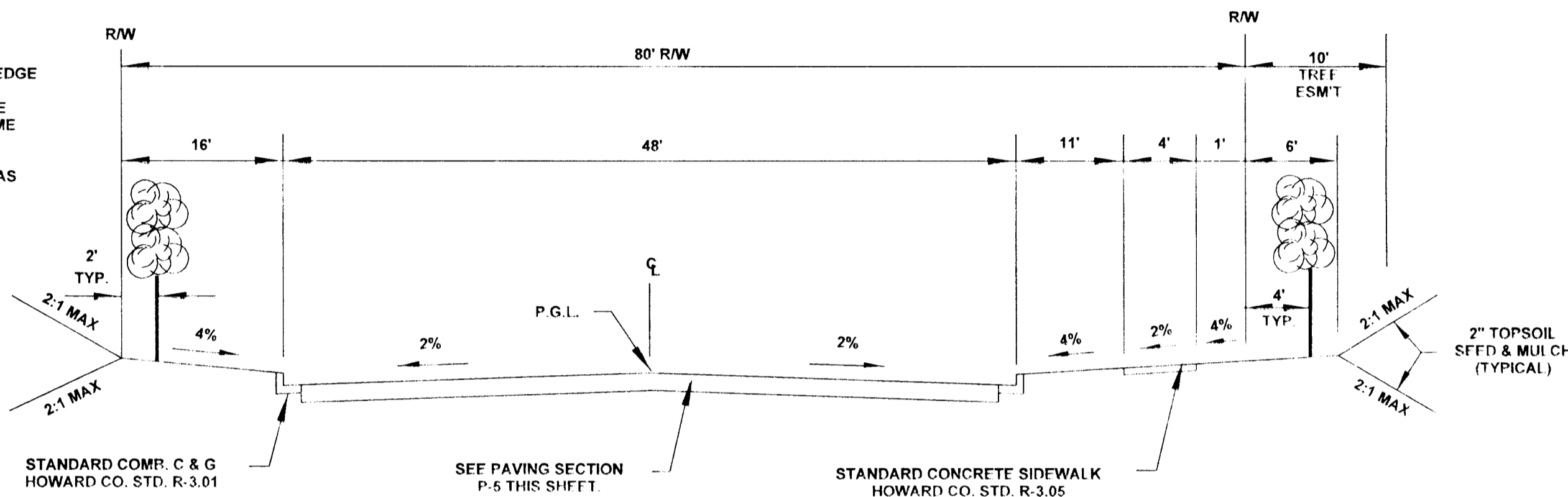
TROY HILL DRIVE TYPICAL SECTION #2

(MAJOR COLLECTOR ROAD, DESIGN SPEED = 40 M.P.H.)
STA. 49+84.62 TO STA. 55+73.58

NO SCALE

* SUPERELEVATION TRANSITION
STA. 53+65.00 TO STA. 56+15.25
FROM -2.0% TO +2.0%

- NOTES:
- GUTTER PAN AT THE MEDIAN EDGE OR THE HIGH SIDE OF SUPER-ELEVATED SECTIONS SHALL BE SLOPED AT 6% AND IN THE SAME DIRECTION AS THE PAVEMENT.
 - ROUNDING SHALL BE DONE AS PER COUNTY STANDARDS.



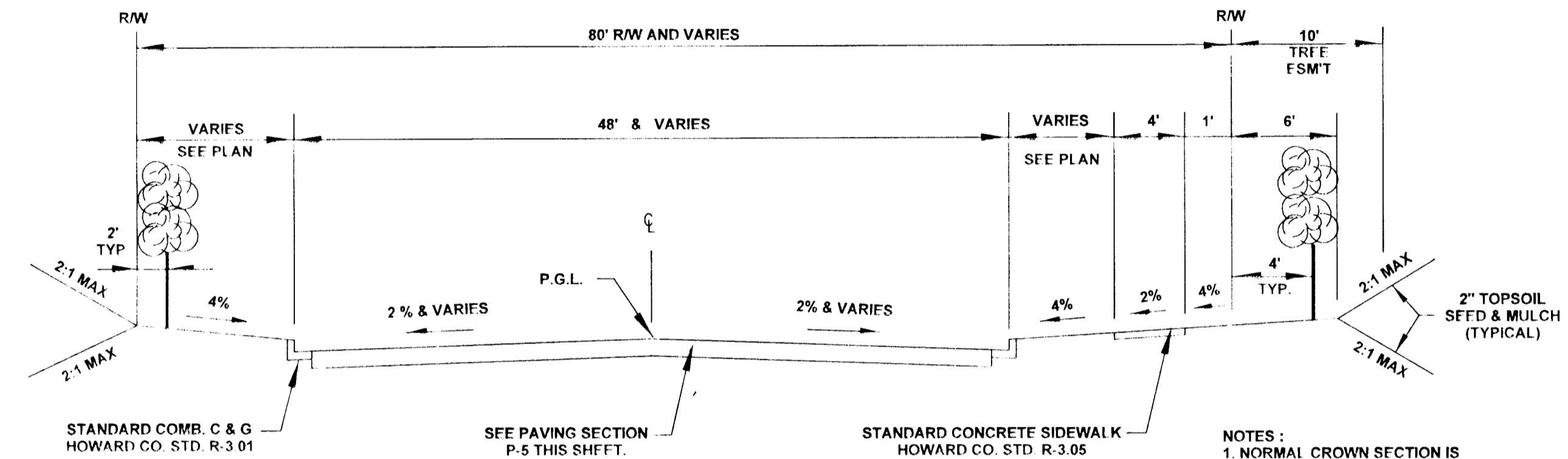
TROY HILL DRIVE TYPICAL SECTION #3

(MAJOR COLLECTOR ROAD, DESIGN SPEED = 40 M.P.H.)
STA. 55+73.58 TO STA. 69+70.04

NO SCALE

GENERAL NOTES:

- BASE WILL BE PRIMED IN ACCORDANCE WITH SECTION 464.03.05 OF THE MSHA STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- A TACK COAT WILL BE APPLIED IN ACCORDANCE WITH SECTION 401.03 OF THE MSHA STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- SIDEWALK TO BE PROVIDED ON RIGHT SIDE OF ROADWAY ONLY.

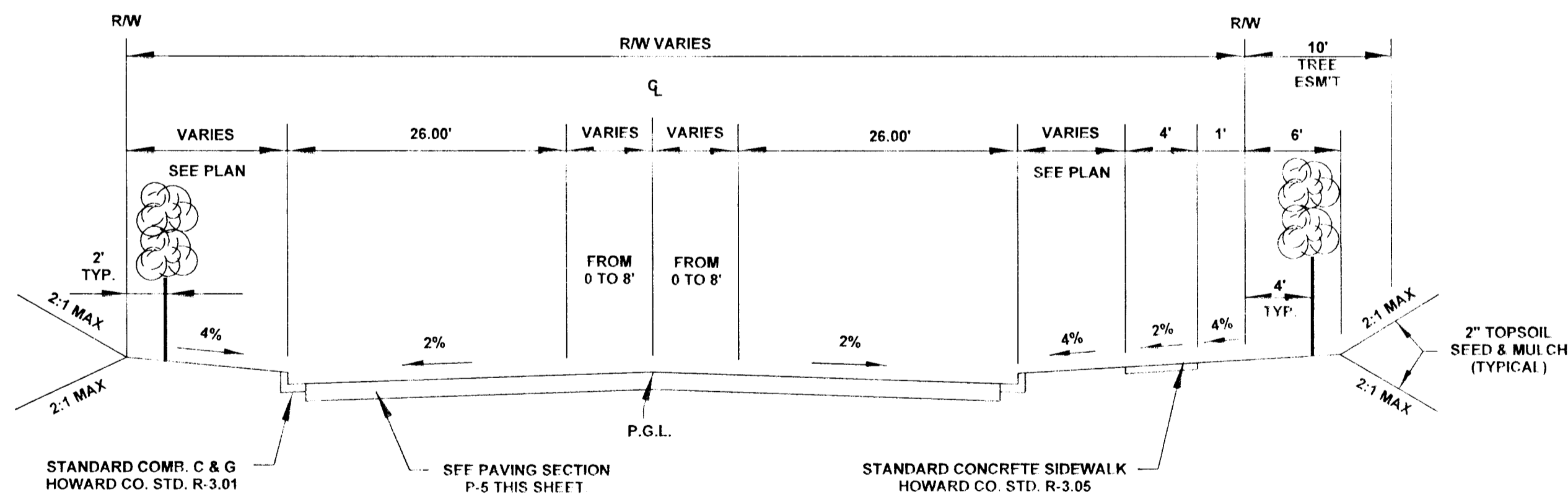


TROY HILL DRIVE TYPICAL SECTION #4

(MAJOR COLLECTOR ROAD, DESIGN SPEED = 40 M.P.H.)
STA. 69+70.04 TO STA. 70+50.04

NO SCALE

- NOTES:
- NORMAL CROWN SECTION IS SUPER-ELEVATED ABOUT P.G.L. AT NORMAL CROWN SLOPE WHERE REQUIRED. SEE CURB ELEVATION CHART ON SHEET 3 OF 28.
 - ROUNDING SHALL BE DONE AS PER COUNTY STANDARDS.
 - GUTTER PAN AT THE MEDIAN EDGE OR THE HIGH SIDE OF SUPER-ELEVATED SECTIONS SHALL BE SLOPED AT 6% AND IN THE SAME DIRECTION AS THE PAVEMENT.



TROY HILL DRIVE TYPICAL SECTION #5

(MAJOR COLLECTOR ROAD, DESIGN SPEED = 40 M.P.H.)
STA. 70+50.04 TO STA. 73+70.04

NO SCALE

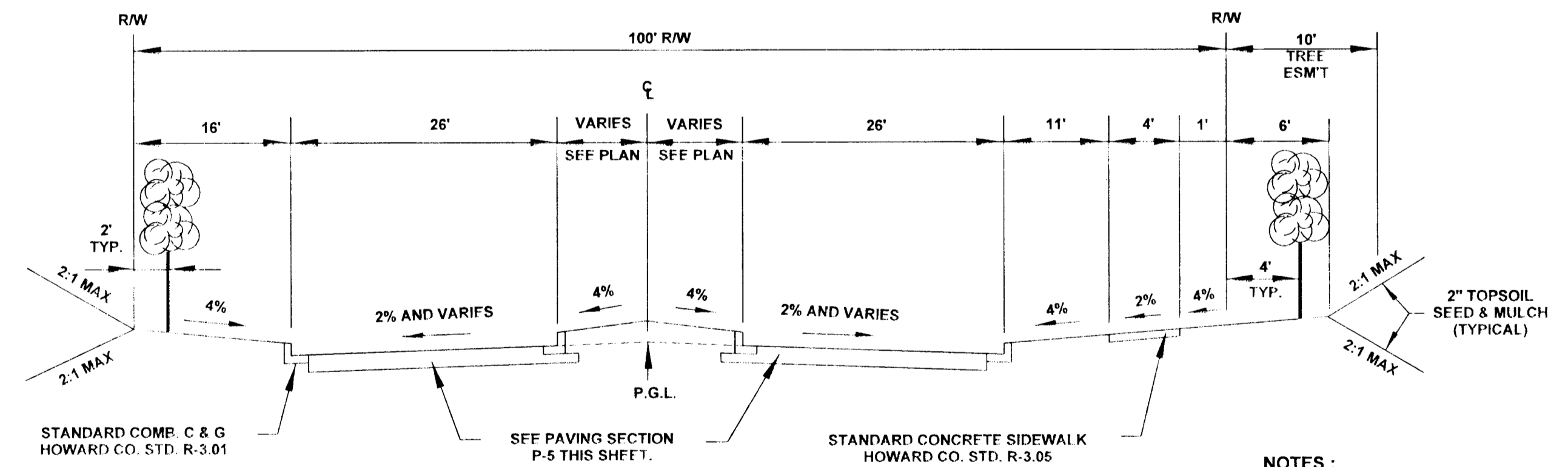
OWNER / APPLICANT

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

- TACK COAT
- 1 1/2" BIT CONC. SURFACE COURSE
 - 6" BIT CONC. BASE COURSE
 - 11" AGGREGATE BASE COURSE

TYPICAL P-5 PAVING SECTION

NO SCALE



TROY HILL DRIVE TYPICAL SECTION #6

(MAJOR COLLECTOR ROAD, DESIGN SPEED = 40 M.P.H.)
STA. 73+70.04 TO STA. 75+67.91

NO SCALE

- NOTES:
- NORMAL CROWN SECTION IS SUPER-ELEVATED ABOUT P.G.L. AT NORMAL CROWN SLOPE WHERE REQUIRED. SEE CURB ELEVATION CHART ON SHEET 3 OF 28.
 - ROUNDING SHALL BE DONE AS PER COUNTY STANDARDS.
 - GUTTER PAN AT THE MEDIAN EDGE OR THE HIGH SIDE OF SUPER-ELEVATED SECTIONS SHALL BE SLOPED AT 6% AND IN THE SAME DIRECTION AS THE PAVEMENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Dangler 8-14-96
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Gina Summanji 8/17/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

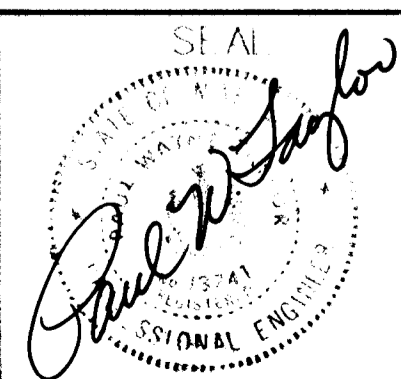
CHIEF, DEVELOPMENT ENGINEERING DIVISION



GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.

Civil Engineers and Land Surveyors

658 Kenilworth Drive, Suite 100
Towson, Maryland 21284 (410) 825-8120
203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800



DESIGNED: BWB

DRAFTED: BWB

CHECKED: PWT

**TROY HILL DRIVE
TYPICAL ROAD SECTIONS**

SCALE: AS SHOWN

**TROY HILL CORPORATE CENTER
PHASE I**

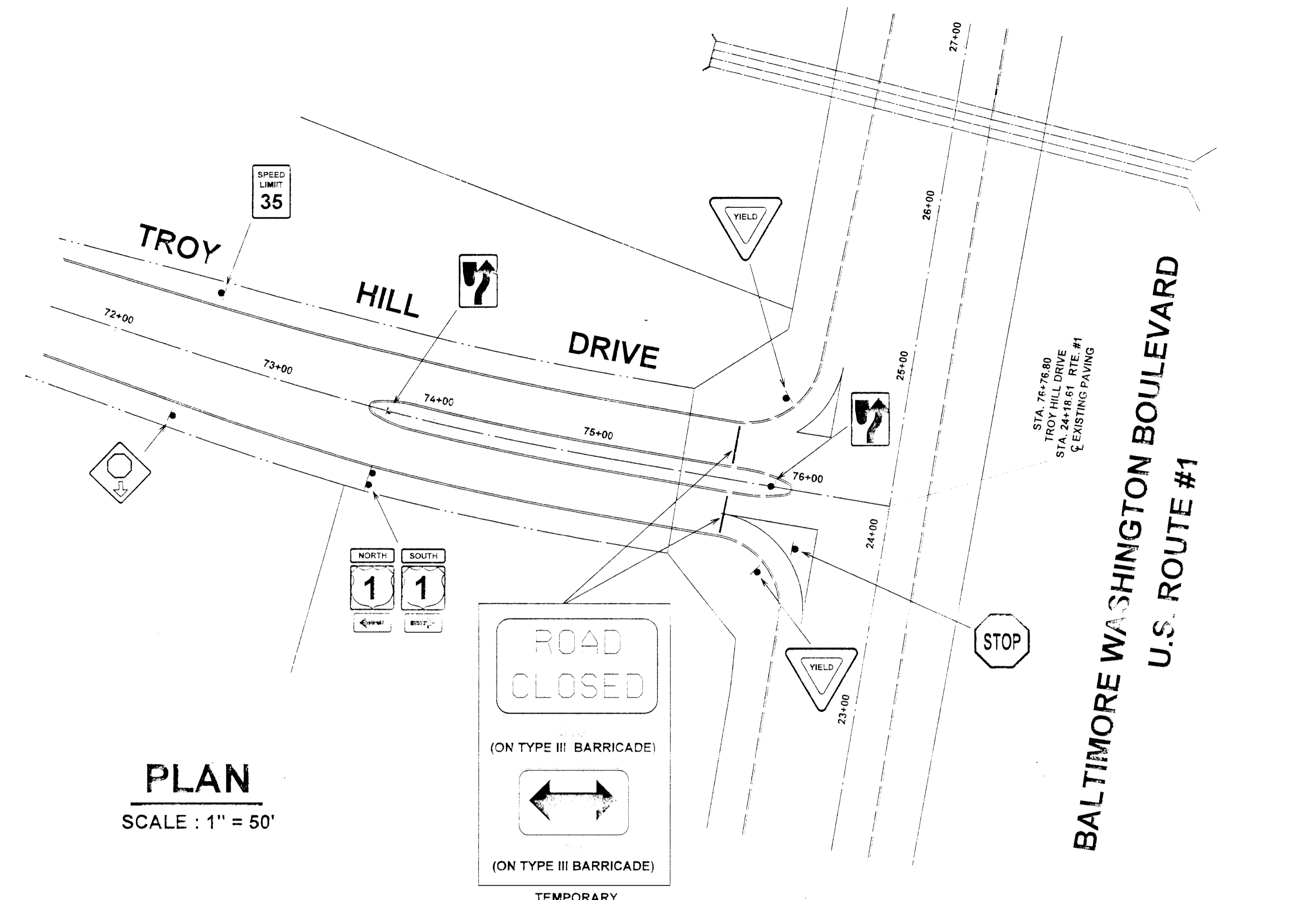
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1

JUNE 28, 1996
SHEET 2 OF 28

F-96-136

SUPERELEVATION CHART

| STATION | T.C.L.T. | OFFSET FROM CL | CROSS SLOPE | T.C.L.T. FACE OF MEDIAN | OFFSET TO FACE OF MEDIAN | P.G.L. ELEVATION | OFFSET TO FACE OF MEDIAN | T.C.R.T. FACE OF MEDIAN | CROSS SLOPE | OFFSET FROM CL | T.C.R.T. |
|------------|----------|----------------|-------------|-------------------------|--------------------------|------------------|--------------------------|-------------------------|-------------|----------------|----------|
| 54 + 50.00 | 199.18 | 24.00 | -0.02 | | | 199.08 | | | -0.0064 | 24.00 | 199.49 |
| 54 + 75.00 | 198.88 | 24.00 | -0.02 | | | 198.58 | | | -0.0024 | 24.00 | 199.08 |
| 55 + 00.00 | 198.13 | 24.00 | -0.02 | | | 197.59 | | | 0.0015 | 24.00 | 198.69 |
| 55 + 25.00 | 197.89 | 24.00 | -0.02 | | | 197.35 | | | 0.0058 | 24.00 | 198.28 |
| 55 + 50.00 | 197.19 | 24.00 | -0.02 | | | 196.69 | | | 0.0096 | 24.00 | 197.87 |
| 55 + 75.00 | 196.72 | 24.00 | -0.02 | | | 196.22 | | | 0.0133 | 24.00 | 197.49 |
| 56 + 00.00 | 196.20 | 24.00 | -0.02 | | | 195.70 | | | 0.0170 | 24.00 | 197.06 |
| 56 + 25.00 | 195.70 | 24.00 | -0.02 | | | 195.20 | | | 0.02 | 24.00 | 196.62 |
| 56 + 50.00 | 195.20 | 24.00 | -0.02 | | | 194.70 | | | 0.02 | 24.00 | 196.12 |
| 56 + 75.00 | 194.70 | 24.00 | -0.02 | | | 194.20 | | | 0.02 | 24.00 | 195.62 |
| 57 + 00.00 | 194.20 | 24.00 | -0.02 | | | 193.70 | | | 0.02 | 24.00 | 195.12 |
| 57 + 25.00 | 193.71 | 24.00 | -0.02 | | | 193.21 | | | 0.02 | 24.00 | 194.63 |
| 57 + 50.00 | 193.21 | 24.00 | -0.02 | | | 192.71 | | | 0.02 | 24.00 | 194.13 |
| 57 + 75.00 | 192.71 | 24.00 | -0.02 | | | 192.21 | | | 0.02 | 24.00 | 193.63 |
| 58 + 00.00 | 192.22 | 24.00 | -0.02 | | | 191.72 | | | 0.02 | 24.00 | 193.13 |
| 58 + 25.00 | 191.72 | 24.00 | -0.02 | | | 191.22 | | | 0.02 | 24.00 | 192.64 |
| 58 + 50.00 | 191.22 | 24.00 | -0.02 | | | 190.72 | | | 0.02 | 24.00 | 192.14 |
| 58 + 75.00 | 190.72 | 24.00 | -0.02 | | | 190.22 | | | 0.02 | 24.00 | 191.64 |
| 59 + 00.00 | 190.22 | 24.00 | -0.02 | | | 189.72 | | | 0.02 | 24.00 | 191.14 |
| 59 + 25.00 | 189.73 | 24.00 | -0.02 | | | 189.23 | | | 0.02 | 24.00 | 190.65 |
| 59 + 50.00 | 189.23 | 24.00 | -0.02 | | | 188.73 | | | 0.02 | 24.00 | 190.15 |
| 59 + 75.00 | 188.73 | 24.00 | -0.02 | | | 188.23 | | | 0.02 | 24.00 | 189.67 |
| 60 + 00.00 | 188.23 | 24.00 | -0.02 | | | 187.73 | | | 0.02 | 24.00 | 189.18 |
| 60 + 25.00 | 187.73 | 24.00 | -0.02 | | | 187.23 | | | 0.02 | 24.00 | 188.69 |
| 60 + 50.00 | 187.23 | 24.00 | -0.02 | | | 186.73 | | | 0.02 | 24.00 | 188.19 |
| 60 + 75.00 | 186.73 | 24.00 | -0.02 | | | 186.23 | | | 0.02 | 24.00 | 187.70 |
| 61 + 00.00 | 186.23 | 24.00 | -0.02 | | | 185.73 | | | 0.02 | 24.00 | 187.21 |
| 61 + 25.00 | 185.73 | 24.00 | -0.02 | | | 185.23 | | | 0.02 | 24.00 | 186.72 |
| 61 + 50.00 | 185.23 | 24.00 | -0.02 | | | 184.73 | | | 0.02 | 24.00 | 186.23 |
| 61 + 75.00 | 184.73 | 24.00 | -0.02 | | | 184.23 | | | 0.02 | 24.00 | 185.74 |
| 62 + 00.00 | 184.23 | 24.00 | -0.02 | | | 183.73 | | | 0.02 | 24.00 | 185.25 |
| 62 + 25.00 | 183.73 | 24.00 | -0.02 | | | 183.23 | | | 0.02 | 24.00 | 184.76 |
| 62 + 50.00 | 183.23 | 24.00 | -0.02 | | | 182.73 | | | 0.02 | 24.00 | 184.27 |
| 62 + 75.00 | 182.73 | 24.00 | -0.02 | | | 182.23 | | | 0.02 | 24.00 | 183.78 |
| 63 + 00.00 | 182.23 | 24.00 | -0.02 | | | 181.73 | | | 0.02 | 24.00 | 183.29 |
| 63 + 25.00 | 181.73 | 24.00 | -0.02 | | | 181.23 | | | 0.02 | 24.00 | 182.80 |
| 63 + 50.00 | 181.23 | 24.00 | -0.02 | | | 180.73 | | | 0.02 | 24.00 | 182.31 |
| 63 + 75.00 | 180.73 | 24.00 | -0.02 | | | 180.23 | | | 0.02 | 24.00 | 181.82 |
| 64 + 00.00 | 180.23 | 24.00 | -0.02 | | | 179.73 | | | 0.02 | 24.00 | 181.33 |
| 64 + 25.00 | 179.73 | 24.00 | -0.02 | | | 179.23 | | | 0.02 | 24.00 | 180.84 |
| 64 + 50.00 | 179.23 | 24.00 | -0.02 | | | 178.73 | | | 0.02 | 24.00 | 180.35 |
| 64 + 75.00 | 178.73 | 24.00 | -0.02 | | | 178.23 | | | 0.02 | 24.00 | 179.86 |
| 65 + 00.00 | 178.23 | 24.00 | -0.02 | | | 177.73 | | | 0.02 | 24.00 | 179.37 |
| 65 + 25.00 | 177.73 | 24.00 | -0.02 | | | 177.23 | | | 0.02 | 24.00 | 178.88 |
| 65 + 50.00 | 177.23 | 24.00 | -0.02 | | | 176.73 | | | 0.02 | 24.00 | 178.39 |
| 65 + 75.00 | 176.73 | 24.00 | -0.02 | | | 176.23 | | | 0.02 | 24.00 | 177.90 |
| 66 + 00.00 | 176.23 | 24.00 | -0.02 | | | 175.73 | | | 0.02 | 24.00 | 177.41 |
| 66 + 25.00 | 175.73 | 24.00 | -0.02 | | | 175.23 | | | 0.02 | 24.00 | 176.92 |
| 66 + 50.00 | 175.23 | 24.00 | -0.02 | | | 174.73 | | | 0.02 | 24.00 | 176.43 |
| 66 + 75.00 | 174.73 | 24.00 | -0.02 | | | 174.23 | | | 0.02 | 24.00 | 175.94 |
| 67 + 00.00 | 174.23 | 24.00 | -0.02 | | | 173.73 | | | 0.02 | 24.00 | 175.45 |
| 67 + 25.00 | 173.73 | 24.00 | -0.02 | | | 173.23 | | | 0.02 | 24.00 | 174.96 |
| 67 + 50.00 | 173.23 | 24.00 | -0.02 | | | 172.73 | | | 0.02 | 24.00 | 174.47 |
| 67 + 75.00 | 172.73 | 24.00 | -0.02 | | | 172.23 | | | 0.02 | 24.00 | 173.98 |
| 68 + 00.00 | 172.23 | 24.00 | -0.02 | | | 171.73 | | | 0.02 | 24.00 | 173.49 |
| 68 + 25.00 | 171.73 | 24.00 | -0.02 | | | 171.23 | | | 0.02 | 24.00 | 173.00 |
| 68 + 50.00 | 171.23 | 24.00 | -0.02 | | | 170.73 | | | 0.02 | 24.00 | 172.51 |
| 68 + 75.00 | 170.73 | 24.00 | -0.02 | | | 170.23 | | | 0.02 | 24.00 | 172.02 |
| 69 + 00.00 | 170.23 | 24.00 | -0.02 | | | 169.73 | | | 0.02 | 24.00 | 171.53 |
| 69 + 25.00 | 169.73 | 24.00 | -0.02 | | | 169.23 | | | 0.02 | 24.00 | 171.04 |
| 69 + 50.00 | 169.23 | 24.00 | -0.02 | | | 168.73 | | | 0.02 | 24.00 | 170.55 |
| 69 + 75.00 | 168.73 | 24.00 | -0.02 | | | 168.23 | | | 0.02 | 24.00 | 170.06 |
| 70 + 00.00 | 168.23 | 24.00 | -0.02 | | | 167.73 | | | 0.02 | 24.00 | 169.57 |
| 70 + 25.00 | 167.73 | 24.00 | -0.02 | | | 167.23 | | | 0.02 | 24.00 | 169.08 |
| 70 + 50.00 | 167.23 | 24.00 | -0.02 | | | 166.73 | | | 0.02 | 24.00 | 168.59 |
| 70 + 75.00 | 166.73 | 24.00 | -0.02 | | | 166.23 | | | 0.02 | 24.00 | 168.10 |
| 71 + 00.00 | 166.23 | 24.00 | -0.02 | | | 165.73 | | | 0.02 | 24.00 | 167.61 |
| 71 + 25.00 | 165.73 | 24.00 | -0.02 | | | 165.23 | | | 0.02 | 24.00 | 167.12 |
| 71 + 50.00 | 165.23 | 24.00 | -0.02 | | | 164.73 | | | 0.02 | 24.00 | 166.63 |
| 71 + 75.00 | 164.73 | 24.00 | -0.02 | | | 164.23 | | | 0.02 | 24.00 | 166.14 |
| 72 + 00.00 | 164.23 | 24.00 | -0.02 | | | 163.73 | | | 0.02 | 24.00 | 165.65 |
| 72 + 25.00 | 163.73 | 24.00 | -0.02 | | | 163.23 | | | 0.02 | 24.00 | 165.16 |
| 72 + 50.00 | 163.23 | 24.00 | -0.02 | | | 162.73 | | | 0.02 | 24.00 | 164.67 |
| 72 + 75.00 | 162.73 | 24.00 | -0.02 | | | 162.23 | | | 0.02 | 24.00 | 164.18 |
| 73 + 00.00 | 162.23 | 24.00 | -0.02 | | | 161.73 | | | 0.02 | 24.00 | 163.69 |
| 73 + 25.00 | 161.73 | 24.00 | -0.02 | | | 161.23 | | | 0.02 | 24.00 | 163.20 |
| 73 + 50.00 | 161.23 | 24.00 | -0.02 | | | 160.73 | | | 0.02 | 24.00 | 162.71 |
| 73 + 75.00 | 160.73 | 24.00 | -0.02 | | | 160.23 | | | 0.02 | 24.00 | 162.22 |
| 74 + 00.00 | 160.23 | 24.00 | -0.02 | | | 159.73 | | | 0.02 | 24.00 | 161.73 |
| 74 + 25.00 | 159.73 | 24.00 | -0.02 | | | 159.23 | | | 0.02 | 24.00 | 161.24 |
| 74 + 50.00 | 159.23 | 24.00 | -0.02 | | | 158.73 | | | 0.02 | 24.00 | 160.75 |
| 74 + 75.00 | 158.73 | 24.00 | -0.02 | | | 158.23 | | | 0.02 | 24.00 | 160.26 |
| 75 + 00.00 | 158.23 | 24.00 | -0.02 | | | 157.73 | | | 0.02 | 24.00 | 159.77 |
| 75 + 25.00 | 157.73 | 24.00 | -0.02 | | | 157.23 | | | 0.02 | 24.00 | 159.28 |
| 75 + 50.00 | 157.23 | 24.00 | -0.02 | | | 156.73 | | | 0.02 | 24.00 | 158.79 |
| 75 + 75.00 | 156.73 | 24.00 | -0.02 | | | 156.23 | | | 0.02 | 24.00 | 158.30 |



PLAN
SCALE : 1" = 50'

GENERAL NOTES
WORK ZONE TRAFFIC CONTROL TYPICAL

SEE STANDARD NO. MD. 10-01

An arrow panel in the flashing mode shall be used anytime there is a lane closure on a multi-lane highway. Arrow panels shall not be used along two lane two-way roadways unless they display MSHA's "four corner" lamp array.

Vehicles should not occupy or be stopped in a lane beyond a horizontal curve or a vertical curve (hill). Instead vehicles stopping are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If stopping is necessary and no backup vehicle is available place channelizing devices in accordance with general note #3 along with the appropriate signing.

Warning signs mounted on wood post(s) for the over 24 hour operations shall be installed as shown in Figure 6-1, Part VI of the MUTCD. The bottom of the signs mounted on portable supports shall be not less than one foot above the pavement elevation. All signs shall be installed in such a manner as to provide adequate visibility of these signs and all other existing signs on the highway to the driver.

In urban areas along streets where the prevailing speed is 35 MPH or less, and along secondary roads where the Average Daily Traffic (ADT) is less than 1000 vehicles, the minimum size of 36"x36" may be used.

For utility operations advance warning signs may utilize the word "AHEAD" in lieu of distances up to and including 1500 feet. At greater distances, such as 1/2 mile or 1 mile; however, the correct distance value is to be used on such warning signs. Also the UTILITY WORK AHEAD sign may be used in lieu of ROAD CONSTRUCTION, ROAD WORK, or SHOULDER WORK signs only.

No work operations which interferes with the flow of traffic may take place during the peak hours 5 A.M. - 5 P.M. and 3 P.M. - 7 P.M. Monday - Friday unless written approval is received from the SHA District Engineer.

All signs, channelizing devices, etc. shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

OWNER / APPLICANT

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

SEQUENCE OF CONSTRUCTION

CONSTRUCT TROY HILL DRIVE FROM STA. 36+00.00 TO STA. 75+67.91

Traffic Control Signs

- On Troy Hill Drive at U.S. Rte. #1, place one (1), R1-1, "STOP" Sign, 30" x 30" Octagon.
- On Troy Hill Drive median at U.S. Rte. #1 (Sta. 76+00) place one (1), R4-7, "Keep Right" Sign, 24" x 30" rectangle.
- Adjacent to Westbound Troy Hill Drive @ Sta. 72+50 place one (1), R2-1, "SPEED LIMIT 35" Sign, 24" x 30" rectangle.
- On Southbound right-turn channelization for U.S. Rte. #1 to Troy Hill Drive (Sta. 76+00) place one (1), R1-2, "YIELD" Sign, 36" x 36" x 36" triangle.
- Adjacent to Eastbound Troy Hill Drive @ Sta. 72+50 place one (1), w3-1a, "Stop Ahead" Sign, 36" x 36" diamond.
- On Eastbound right-turn channelization for Troy Hill Drive to U.S. Rte. #1 (Sta. 76+00) place one (1), R1-2, "YIELD" Sign, 36" x 36" x 36" Triangle.
- Adjacent to Eastbound Troy Hill Drive @ Sta. 73+75, place one (1) set of Trailblazer Signs indicating U.S. Rte. #1.

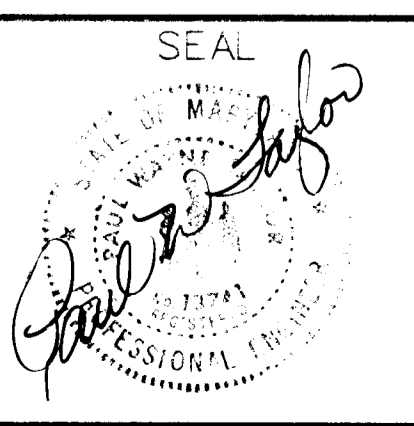
NOTE : All driveway access to Troy Hill Drive shall be controlled by a "Stop" Sign, R1-1, 30" x 30" Octagon.

76524

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Daniels 8-14-96
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Uma Shumany 8/19/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 DATE 8/16/96
 CHEF, DEVELOPMENT ENGINEERING DIVISION



GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 Bel Air, Maryland 21014 (410) 838-3800



DESIGNED : RLM
 DRAFTED : RLM
 CHECKED : PWT

**TROY HILL DRIVE
 MAINTENANCE OF TRAFFIC PLAN
 AND DETAILS**
 SCALE : AS SHOWN

TROY HILL CORPORATE CENTER
 PHASE I
 HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT #1
 JUNE 28, 1996
 SHEET 3 OF 28
 F-96-130

Landscape Notes

I. GENERAL

1. THESE PLANS SHALL BE USED FOR PLANTING INSTALLATION ONLY.
2. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID.
3. THE CONTRACTOR SHALL NOTE THAT IN THE CASE OF ANY DISCREPANCY BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DEMOLITION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID.

2. FOR PLANTING MIX, MIX THOROUGHLY 2/3 APPROVED TOPSOIL (SEE "TOPSOIL") AND 1/3 APPROVED ORGANIC MATTER.
3. FERTILIZER TABLETS OR SPIKES TO BE PLACED AT EACH TREE AND SHRUB AT A RATE OF 1 PER 2" OF TRUNK CALIPER OR GALLON OF ROOTBALL. TABLETS OR SPIKES SHALL NOT BE IN CONTACT WITH THE ROOTBALL.
4. MULCH MATERIAL SHALL BE OF UNIFORM SIZE, FINE SHREDDED TAN/BARK HARDWOOD MULCH OR APPROVED EQUAL. MULCH SHALL BE A REDDISH DARK BROWN COLOR AND SHALL BE LAID TO A UNIFORM MINIMUM DEPTH OF 2 INCHES. MULCH AREAS AROUND TREES AT THE RATE OF 1" OF DIAMETER PER OF TRUNK CALIPER.
5. HYDROGEL ABSORBENT MATERIAL SHALL BE ADDED TO THE PLANTING HOLE FOR EACH TREE AND SHRUB AT THE RATE OF 4 OUNCES PER 2-1/2" CALIPER OR GALLON OF ROOTBALL. HYDROGEL MATERIAL SHALL BE VITERRA "GELSCAPE," "TERRASORB," OR APPROVED EQUAL.

II. LANDSCAPING

A. STANDARDS:

1. ALL PLANT MATERIAL, CONSTRUCTION METHODS AND MATERIAL PLACEMENT SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF "AMERICAN STANDARD FOR NURSERY STOCK," AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC., THE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS," AS PROPOSED BY THE LANDSCAPE CONTRACTORS ASSOCIATION AND THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" OF THE MARYLAND STATE DEPARTMENT OF TRANSPORTATION.
2. ALL TREES SHALL BE DELIVERED TO THE SITE BALLED AND BURGLAPPED. ALL SHRUBS SHALL BE BALLED AND BURGLAPPED OR IN CONTAINERS. ALL GRASSES & PERENNIALS SHALL BE IN CONTAINERS.

B. MAINTENANCE:

1. AFTER THE PLANTING HAS BEEN APPROVED BY THE LANDSCAPE ARCHITECT AND THE OWNER, THE MAINTENANCE OF WATERING AND WEEDING OF SUCH PLANTS AND PLANTED AREAS SHALL BE PROVIDED BY THE OWNER. SINCE THE PLANTS ARE TO BE GUARANTEED BY THE CONTRACTOR, THE CONTRACTOR SHALL PERIODICALLY CHECK THE MAINTENANCE CONDUCTED BY THE OWNER. IF THE CONTRACTOR IS NOT SATISFIED WITH THE MAINTENANCE OF THE PLANTS, A WRITTEN REPORT, IN TRIPPLICATE, STATING APPROPRIATE CHANGES SHALL BE GIVEN IMMEDIATELY TO THE LANDSCAPE ARCHITECT. TWO COPIES WILL BE FORWARDED TO THE OWNER. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING.
2. MAINTAIN TREES UNTIL FINAL ACCEPTANCE, BUT IN NO CASE, LESS THAN 60 DAYS AFTER FINAL ACCEPTANCE OF PLANTING. MAINTAIN ALL PLANTS BY PRUNING, CUL TWINING AND WEEDING AS REQUIRED FOR HEALTHY GROWTH. RESTORE PLANTING SAUCERS, TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES TO PROPER GRADES OR VERTICAL POSITION AS REQUIRED. RESTORE OR REPLACE DAMAGED WRAPPINGS. SPRAY AS REQUIRED TO KEEP ALL PLANTS FREE OF INSECTS AND DISEASE.

C. WATERING

1. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATERING SHALL NOT BE DONE DURING THE HEAT OF THE DAY. CONTRACTOR SHALL PROVIDE A SEPARATE LUMP SUM PRICE IN THE OVERALL LANDSCAPE BID FOR WATERING TO ALL NEW PLANTINGS DURING ONE GROWING SEASON.

D. EXCAVATION:

1. DEPTH AND WIDTH OF EXCAVATION FOR PLANTING OF ALL PLANTS SHALL BE TO TWICE THE DEPTH AND WIDTH OF ROOT BALL OR CONTAINER OF PLANT TO BE INSTALLED, EXCEPT AS NOTED ON DETAILS.

E. TOPSOIL, PLANTING MIX, FERTILIZER, MULCH AND SOIL AMENDMENTS:

1. ALL TOPSOIL SHALL BE WELL GRADED LOAM OF GOOD UNIFORM QUALITY AND SHALL BE A NATURAL FRIABLE SOIL FREE OF OBJECTS LARGER THAN ONE INCH IN ANY DIMENSION, AND FREE OF TOXIC SUBSTANCES, WEEDS AND ANY MATERIAL OF SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH. TOPSOIL SHALL CONTAIN AT LEAST 5% ORGANIC MATTER. IF SUFFICIENT TOPSOIL IS NOT AVAILABLE ON THE SITE TO MEET THE DEPTH AS SPECIFIED HEREIN, THE CONTRACTOR SHALL FURNISH ADDITIONAL TOPSOIL. PRIOR TO TOPSOIL DELIVERY, THE CONTRACTOR SHALL OBTAIN THE LANDSCAPE ARCHITECT'S APPROVAL OF THE SOURCE FROM WHICH TOPSOIL IS TO BE FURNISHED.

F. SUBSTITUTIONS:

1. IF A PLANT IS FOUND NOT TO BE SUITABLE OR AVAILABLE, THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE LANDSCAPE ARCHITECT BEFORE BIDDING. THE OWNER OR LANDSCAPE ARCHITECT WILL THEN SELECT A REASONABLE ALTERNATE OR INFORM ALL LANDSCAPE CONTRACTORS OF THE AVAILABILITY OF THE ORIGINAL PLANT.

G. PRUNING, CLEANUP, PROTECTION OF EXISTING MATERIALS AND RESTORATION

1. THE CONTRACTOR SHALL PRUNE PLANT MATERIAL WITHIN TWO (2) DAYS OF INSTALLATION IN ACCORDANCE WITH THE DETAILS AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
2. DURING COURSE OF PLANTING, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED. LAWN AREAS KEPT CLEAR, AND ALL REASONABLE PRECAUTIONS TAKEN TO AVOID DAMAGE TO ANY EXISTING LAWNS, PAVING, ETC. NOT SCHEDULED FOR REMOVAL. WHEN PLANTING IN AN AREA HAS BEEN COMPLETED, THE AREA SHALL BE CLEANED UP THOROUGHLY. DEBRIS, RUBBISH, SUBSOIL, AND WASTE MATERIALS SHALL BE CLEANED UP AND REMOVED FROM THE PROPERTY. EXISTING GRASS AREAS WHICH HAVE BEEN INJURED BY THE WORK SHALL BE REGRADED AND SODED TO MATCH THE EXISTING LAWN; THE ENTIRE AREA SHALL BE NEAT AND CLEAN TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.
3. CONTRACTOR SHALL, AT ALL TIMES, PROTECT ALL PLANTS AND LAWNS FROM DAMAGE. THE MOVING OF HEAVY EQUIPMENT OR MATERIALS OVER THE LAWN AREAS SHALL BE DONE ON PLANKS OR PONTOONS.
4. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION ALL PAVEMENTS, SODED OR PLANTED AREAS, STRUCTURES OR SUBSTRUCTURES, NOT SCHEDULED FOR REMOVAL, WHICH ARE DISTURBED BY THE CONTRACTOR DURING PLANTING OPERATIONS. SUCH RESTORATION SHALL BE IN A MANNER SATISFACTORY TO THE LANDSCAPE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.

H. FINAL INSPECTION AND GUARANTEE:

1. AFTER PLANTING IS COMPLETED (INCLUDING MULCHING AND CLEANUP) THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING TO REQUEST FINAL INSPECTION OF THE TOTAL PLANTING. THE LANDSCAPE ARCHITECT SHALL MAKE A FINAL INSPECTION VISIT AS SOON AS POSSIBLE. LANDSCAPE ARCHITECT SHALL NOTIFY THE LANDSCAPE CONTRACTOR, IN WRITING, WHEN ALL WORK IS SATISFACTORY COMPLETE. IF WORK IS NOT SATISFACTORY COMPLETE, THE LANDSCAPE ARCHITECT WILL NOTIFY THE LANDSCAPE CONTRACTOR, IN WRITING, AS TO THE DEFICIENCIES IN THE WORK AND THE NECESSARY CORRECTIVE MEASURES. THE LANDSCAPE CONTRACTOR WILL BE GIVEN A REASONABLE AMOUNT OF TIME TO CORRECT THE DEFICIENCIES, AND ANOTHER FINAL INSPECTION WILL BE SCHEDULED BY THE LANDSCAPE ARCHITECT.
2. ALL PLANT MATERIAL AND LAWN AREAS SHALL BE GUARANTEED TO BE IN A VIGOROUS GROWING CONDITION ONE YEAR FROM THE DATE OF FINAL INSPECTION AND ACCEPTANCE. AT THE TERMINATION OF THIS PERIOD, THE CONTRACTOR SHALL HAVE COMPLETED THE PRECEDING MAINTENANCE SCHEDULE. ANY PLANTS INFECTED WITH DISEASE OR INSECTS WILL BE REMOVED OR TREATED. ALL DEAD OR UNACCEPTABLE PLANTS WILL BE REPLACED BY THE SAME PLANTS AND SIZES DESIGNATED ON THE PLANT LIST. THESE PLANTS SHALL BE PLANTED, MULCHED AND GUY AS SPECIFIED HEREIN AND WITHOUT EXTRA COMPENSATION TO THE CONTRACTOR. AT THE COMPLETION OF ALL SUCH WORK AND WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT, THE CONTRACT WILL BE CONSIDERED COMPLETE.

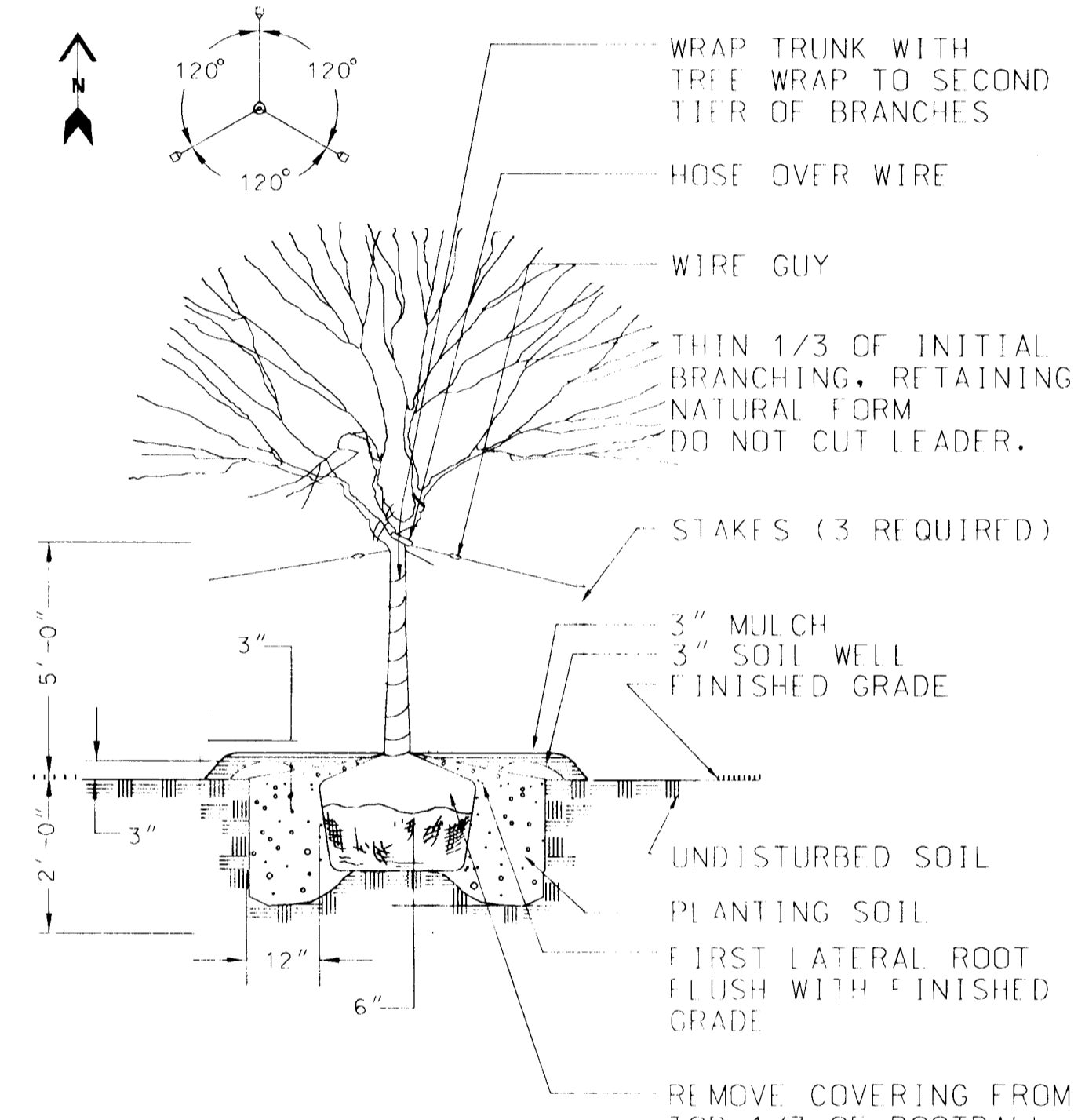
| PLANT LIST | | | | | |
|------------|------|--------------------------------------|---------------------------|-------------|-------|
| KEY | QTY | BOTANICAL NAME | COMMON NAME | SIZE | ROOT |
| Ar | 97 * | Acer rubrum 'Red Sunset' | Red Sunset Maple | 2 1/2" Cal. | B & B |
| Gl | 12 | Gleditsia triacanthos 'Shade Master' | Shade Master Honey Locust | 2 1/2" Cal. | B & B |
| Pc | 16 | Pyrus calleryana 'Aristocrat' | Aristocrat Pear | 2 1/2" Cal. | B & B |
| Qp | 20 | Quercus phellos | Willow Oak | 2 1/2" Cal. | B & B |
| Zs | 47 | Zelkova serrata 'Village Green' | Village Green Zelkova | 2 1/2" Cal. | B & B |
| Wp | 5 * | Pinus strobus | White Pine | 5-6' Ht. | B & B |

* See Sheet 21/22

NOTE : TREE SPACING : A MINIMUM SPACING OF 20'-0" SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

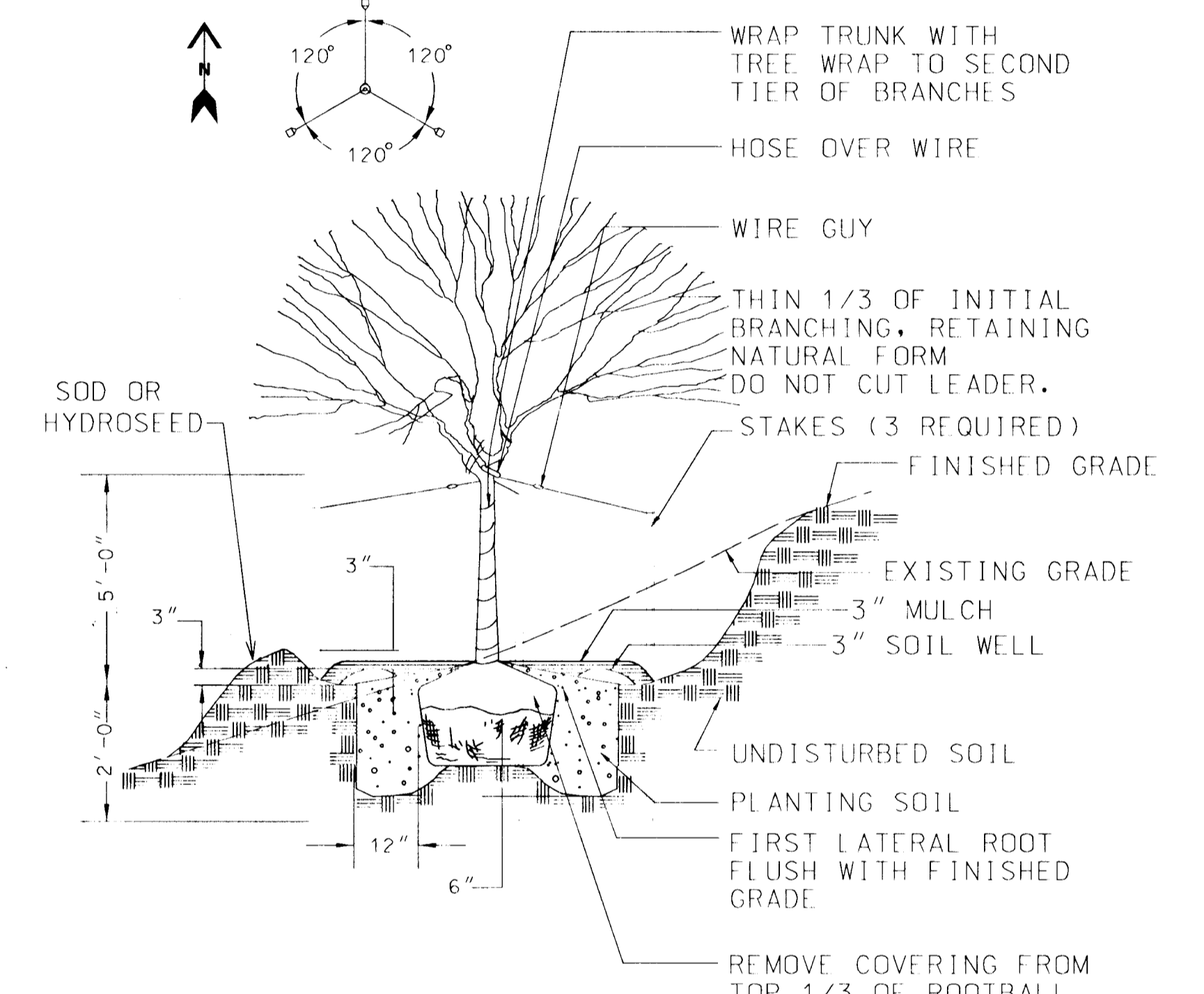
NOTE : 1. ALL PLANT MATERIAL SHALL CONFORM TO HOWARD COUNTY AND " USA STANDARD FOR NURSERY STOCK ", LATEST EDITION
2. TREES TO BE A MINIMUM OF 4 FEET BEHIND CURB.

STAKING DETAIL



Tree Planting Detail
NOT TO SCALE

STAKING DETAIL



Slope Planting Detail
NOT TO SCALE

1654

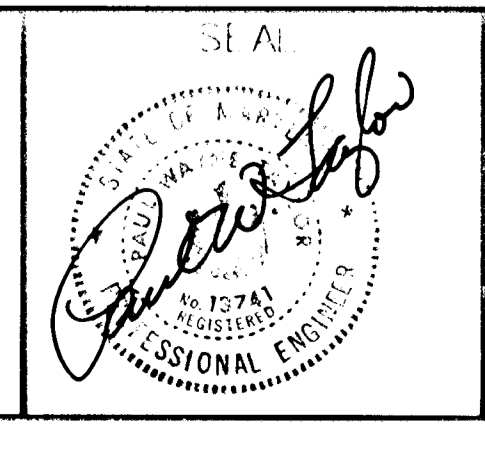
OWNER / APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 8-14-96
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Drummer 8/19/96
CHIEF, DIVISION OF DEVELOPMENT AND RESEARCH TC DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 8/15/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson Maryland 21204 (410) 825-8120
203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800



DESIGNED : KTE
DRAFTED : KTE
CHECKED : PWT

LANDSCAPE DETAILS AND NOTES

SCALE : AS SHOWN

TROY HILL CORPORATE CENTER
PHASE I

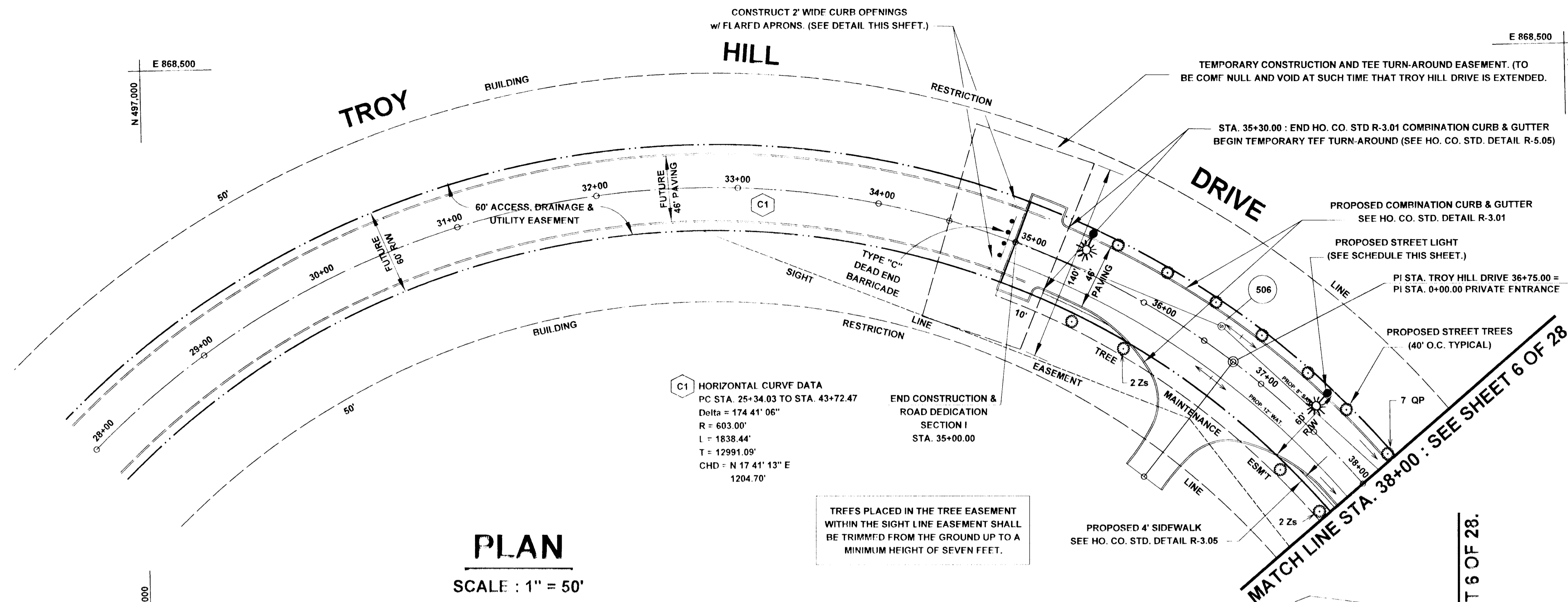
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1

JUNE 28, 1996
SHEET 4 OF 28

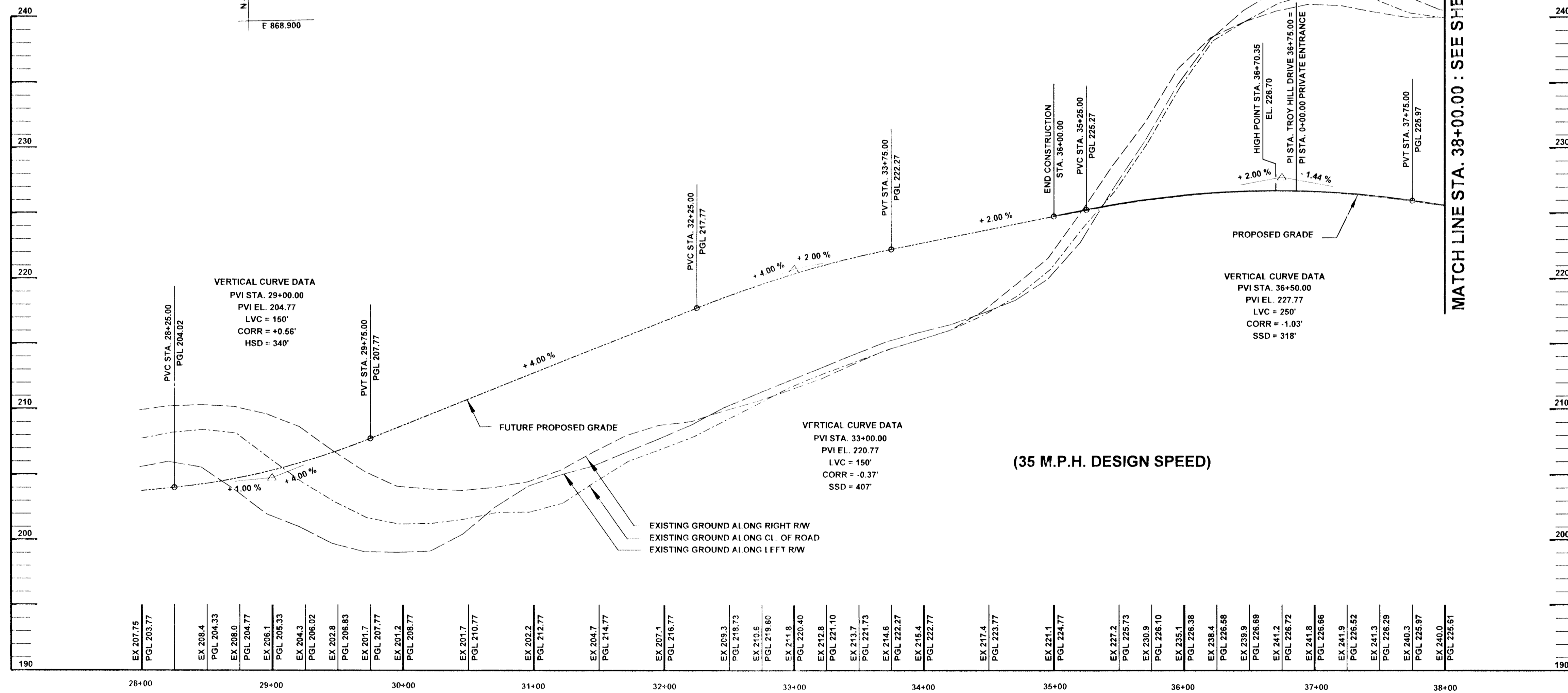
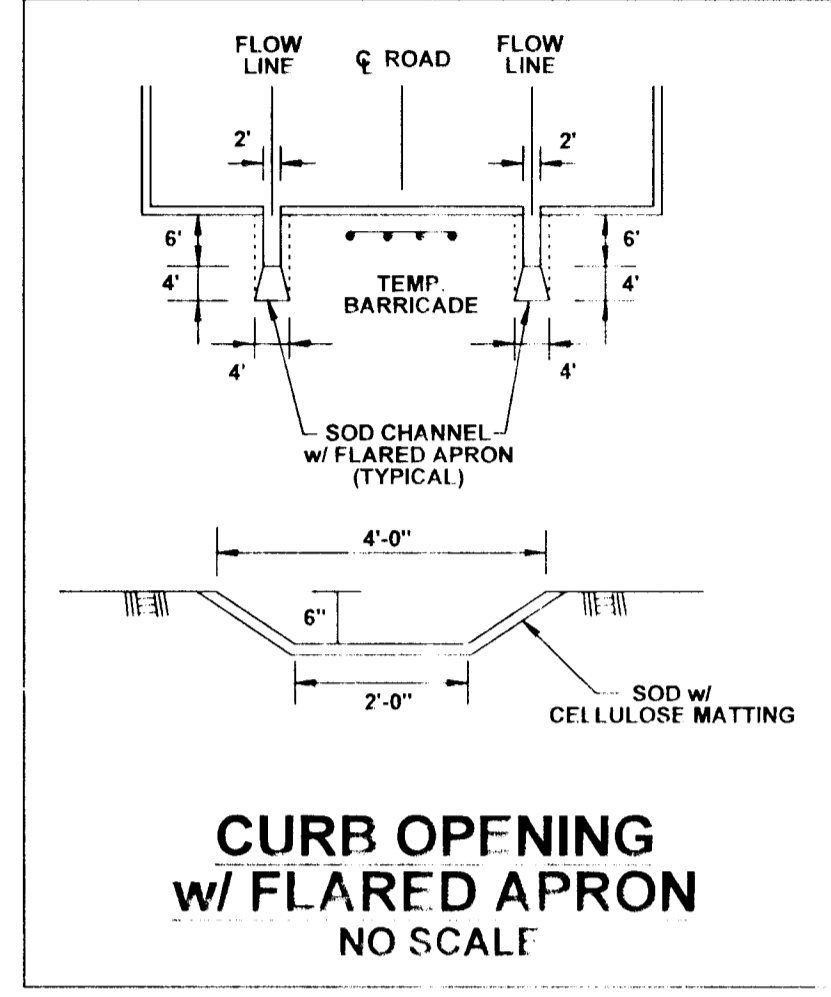
| LIGHTING SCHEDULE | | |
|-------------------|-------------------------------|-----------|
| DWG. NO. | LOCATION (CENTERLINE STATION) | OFFSET |
| 5 | 35+40 | 26' LEFT |
| 5 | 37+40 | 26' LEFT |
| 6 | 39+40 | 26' LEFT |
| 6 | 41+40 | 26' LEFT |
| 6 | 43+40 | 26' LEFT |
| 6 | 45+40 | 26' LEFT |
| 6 | 47+20 | 26' LEFT |
| 6 | 48+80 | 27' LEFT |
| 6 | 50+95 | 27' LEFT |
| 7 | 53+15 | 27' LEFT |
| 7 | 55+40 | 27' LEFT |
| 7 | 57+40 | 28' LEFT |
| 7 | 59+40 | 27' RIGHT |
| 7 | 61+40 | 27' RIGHT |
| 7 | 63+40 | 27' LEFT |
| 8 | 65+40 | 27' RIGHT |
| 8 | 67+40 | 27' LEFT |
| 8 | 69+40 | 27' LEFT |
| 8 | 71+40 | 32' LEFT |
| 8 | 73+40 | 36' RIGHT |
| 8 | 75+47 | 40' RIGHT |
| 8 | 75+50 | 41' LEFT |

Street lights will be installed by B.G.&F. at locations specified in chart above.
(Minimum spacing of 20' shall be maintained between any street light and any tree.)

150 Watt HPS vapor lamp pendant fixture (cutoff) mounted on a 30 ft. galvanized steel pole shall be used for all lighting.



PLAN
SCALE : 1" = 50'



PROFILE
SCALE : HORZ. 1" = 50', VERT. 1" = 5'

OWNER / APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN : COLE SCHNORF

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| EX 207.75 PGL 203.77 | EX 208.4 PGL 204.33 | EX 208.0 PGL 204.77 | EX 208.1 PGL 205.33 | EX 204.3 PGL 206.02 | EX 202.8 PGL 206.86 | EX 201.7 PGL 207.77 | EX 201.2 PGL 208.77 | EX 201.7 PGL 210.77 | EX 202.2 PGL 212.77 | EX 204.7 PGL 214.77 | EX 207.1 PGL 216.77 | EX 209.3 PGL 218.73 | EX 210.5 PGL 219.60 | EX 211.8 PGL 220.40 | EX 212.8 PGL 221.10 | EX 213.7 PGL 221.73 | EX 214.6 PGL 222.27 | EX 215.4 PGL 222.77 | EX 217.4 PGL 223.77 | EX 221.1 PGL 224.77 | EX 227.2 PGL 225.73 | EX 230.9 PGL 226.10 | EX 235.1 PGL 226.38 | EX 238.4 PGL 226.66 | EX 239.9 PGL 226.69 | EX 241.2 PGL 226.72 | EX 241.9 PGL 226.66 | EX 241.3 PGL 226.52 | EX 241.3 PGL 226.29 | EX 240.3 PGL 226.97 | EX 240.0 PGL 226.61 |
|-------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 8-19-96
CHIEF, BUREAU OF HIGHWAYS
APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Swinomy 8/19/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
APPROVED : *[Signature]* 8/19/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION

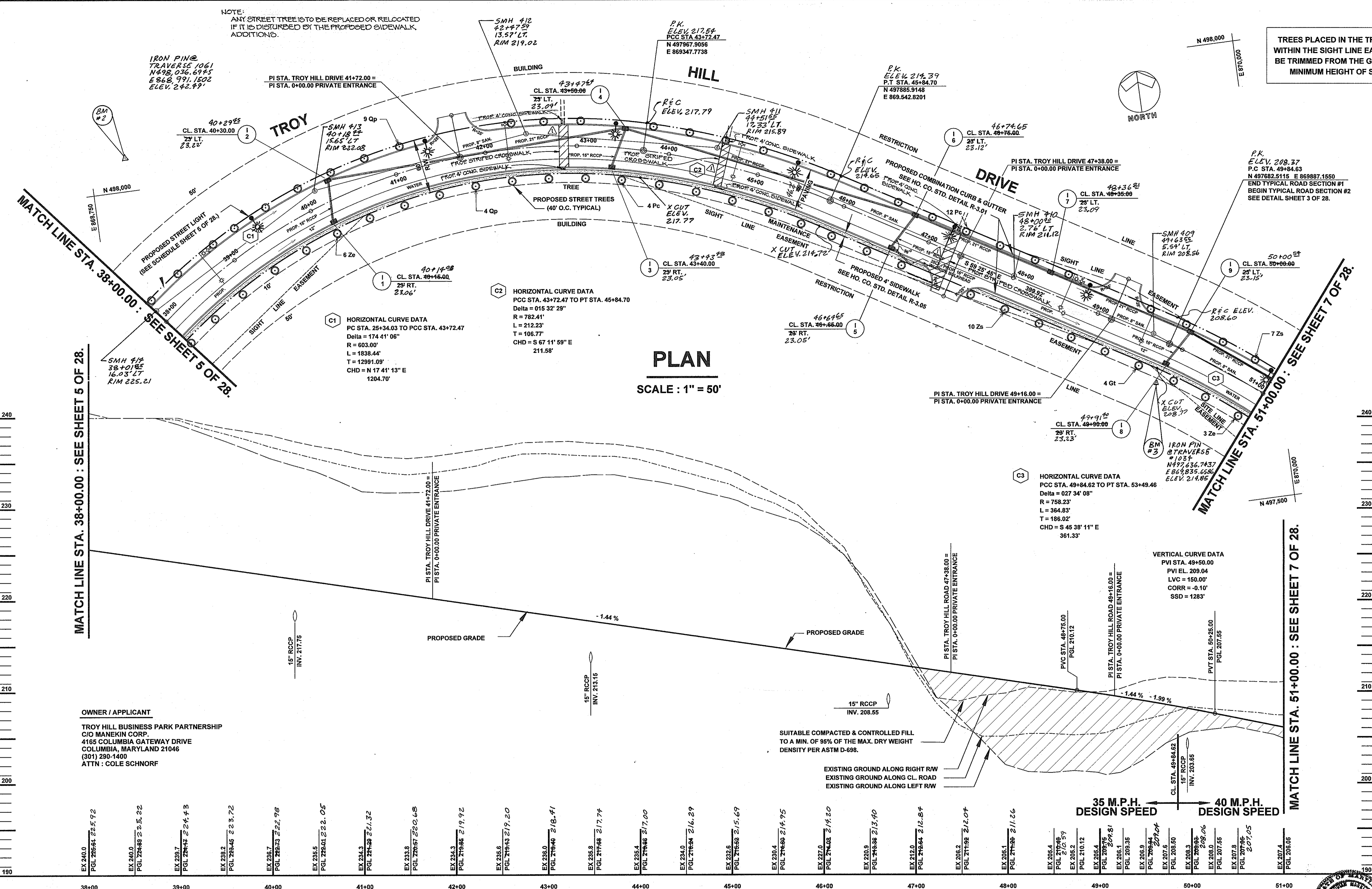
**GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.**
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Fowson Maryland 21044 (410) 825-8120
203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800

DESIGNED : GPT
DRAFTED : BWW
CHECKED : PWT

**TROY HILL DRIVE
ROAD PLAN AND PROFILES
STA. 28+00.00 TO STA. 38+00.00**
SCALE : AS SHOWN

**TROY HILL CORPORATE CENTER
PHASE I**
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1
JUNE 28, 1996
SHEET 5 OF 28

TREES PLACED IN THE TREE EASEMENT WITHIN THE SIGHT LINE EASEMENT SHALL BE TRIMMED FROM THE GROUND UP TO A MINIMUM HEIGHT OF SEVEN FEET.



MATCH LINE STA. 38+00.00 : SEE SHEET 5 OF 28.

MATCH LINE STA. 51+00.00 : SEE SHEET 7 OF 28.

PLAN
SCALE : 1" = 50'

PROFILE
SCALE : HORZ. 1" = 50', VERT. 1" = 5'

OWNER / APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN : COLE SCHNORF

| NO. | BY | REVISION |
|-----|-----|---|
| 1 | GWS | ADDED STRIPED CROSSWALKS AND CONC. SIDEWALKS ACROSS TROY HILL DRIVE |

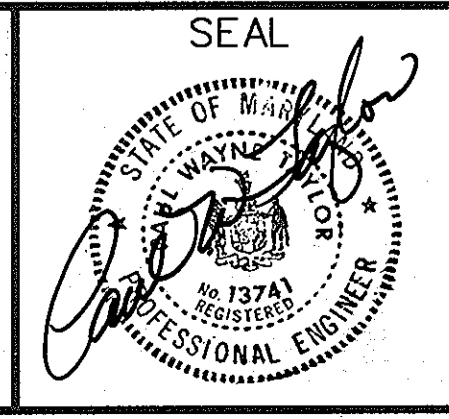


1654

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Owens 8-19-96
CHIEF, BUREAU OF HIGHWAYS
APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Uma Anwar 8/19/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
DATE 8/19/96



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203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800

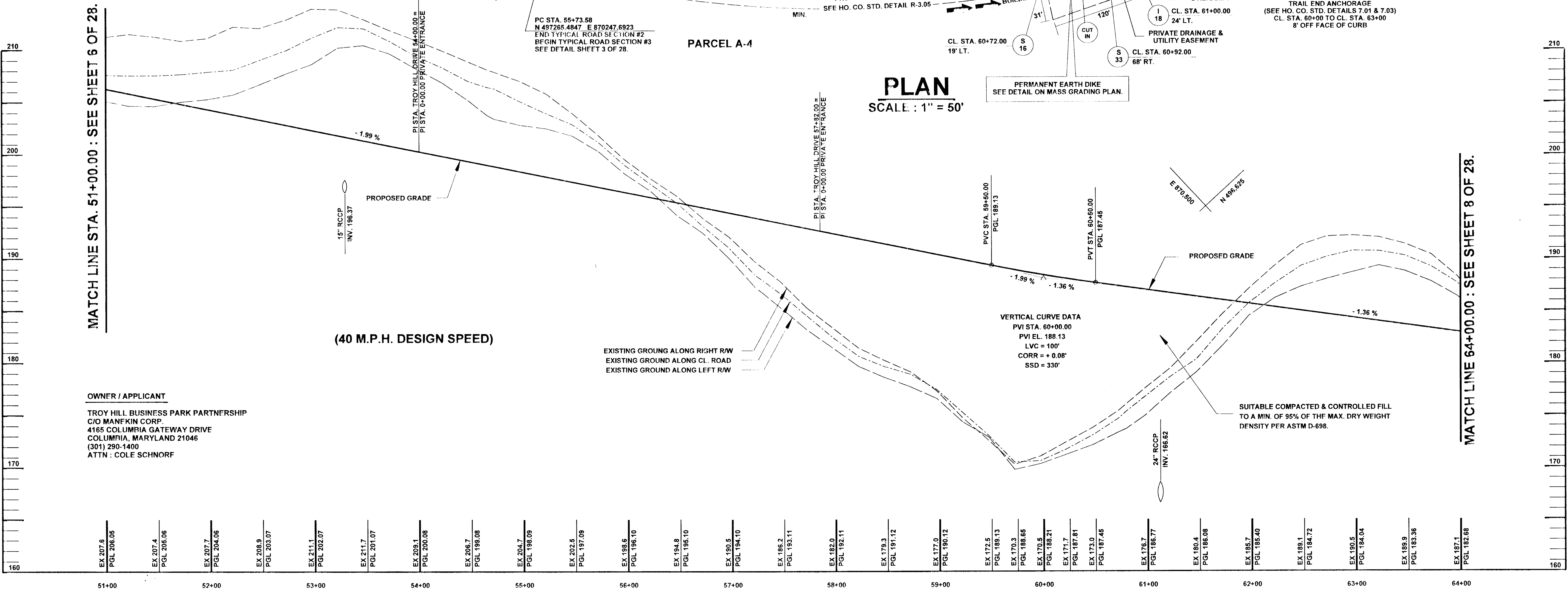
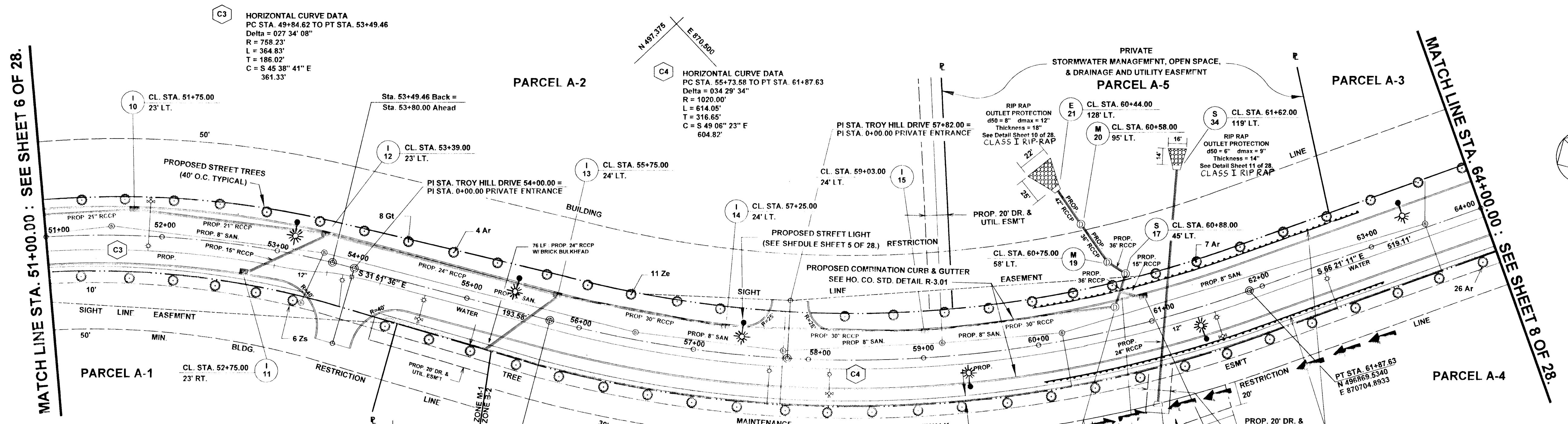


DESIGNED : GPT
DRAFTED : BWW
CHECKED : PWT

TROY HILL DRIVE
ROAD PLAN AND PROFILE
STA. 38+00.00 TO STA. 51+00.00
SCALE : AS SHOWN

TROY HILL CORPORATE CENTER
PHASE I
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1
JUNE 28, 1996
SHEET 6 OF 28
F-96-136 P/N 8130 - ROSHEET3.DGN

1654



OWNER / APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORP
 4165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN: COLE SCHNORF

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| EX 207.6 PGL 206.06 | EX 207.4 PGL 205.06 | EX 207.7 PGL 204.06 | EX 208.9 PGL 203.07 | EX 211.1 PGL 202.07 | EX 211.7 PGL 201.07 | EX 209.1 PGL 200.08 | EX 206.7 PGL 199.08 | EX 204.7 PGL 198.09 | EX 202.5 PGL 197.09 | EX 199.5 PGL 196.10 | EX 194.8 PGL 195.10 | EX 190.5 PGL 194.10 | EX 186.2 PGL 193.11 | EX 182.0 PGL 192.11 | EX 179.3 PGL 191.12 | EX 177.0 PGL 190.12 | EX 172.5 PGL 189.13 | EX 170.3 PGL 188.66 | EX 170.5 PGL 188.21 | EX 171.7 PGL 187.81 | EX 173.0 PGL 187.45 | EX 176.7 PGL 186.77 | EX 180.4 PGL 186.08 | EX 185.7 PGL 185.40 | EX 189.1 PGL 184.72 | EX 190.5 PGL 184.04 | EX 189.9 PGL 183.36 | EX 187.1 PGL 182.88 |
| 51+00 | 52+00 | 53+00 | 54+00 | 55+00 | 56+00 | 57+00 | 58+00 | 59+00 | 60+00 | 61+00 | 62+00 | 63+00 | 64+00 | | | | | | | | | | | | | | | |

PROFILE

SCALE: HORZ. 1" = 50', VERT. 1" = 5'

| REVISION | | |
|---|-----|---------|
| NO. | BY | DATE |
| 1 | GWS | 3/16/98 |
| STORMWATER MANAGEMENT ON PAR. A-5 TO REMAIN PART OF F90-130 | | |

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 8-14-96
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Quina Drummond 8/17/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 8/15/96

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800

DESIGNED: GPT
 DRAFTED: BWW
 CHECKED: PWT

TROY HILL DRIVE ROAD PLANS AND PROFILE
 STA. 51+00.00 TO STA. 64+00.00

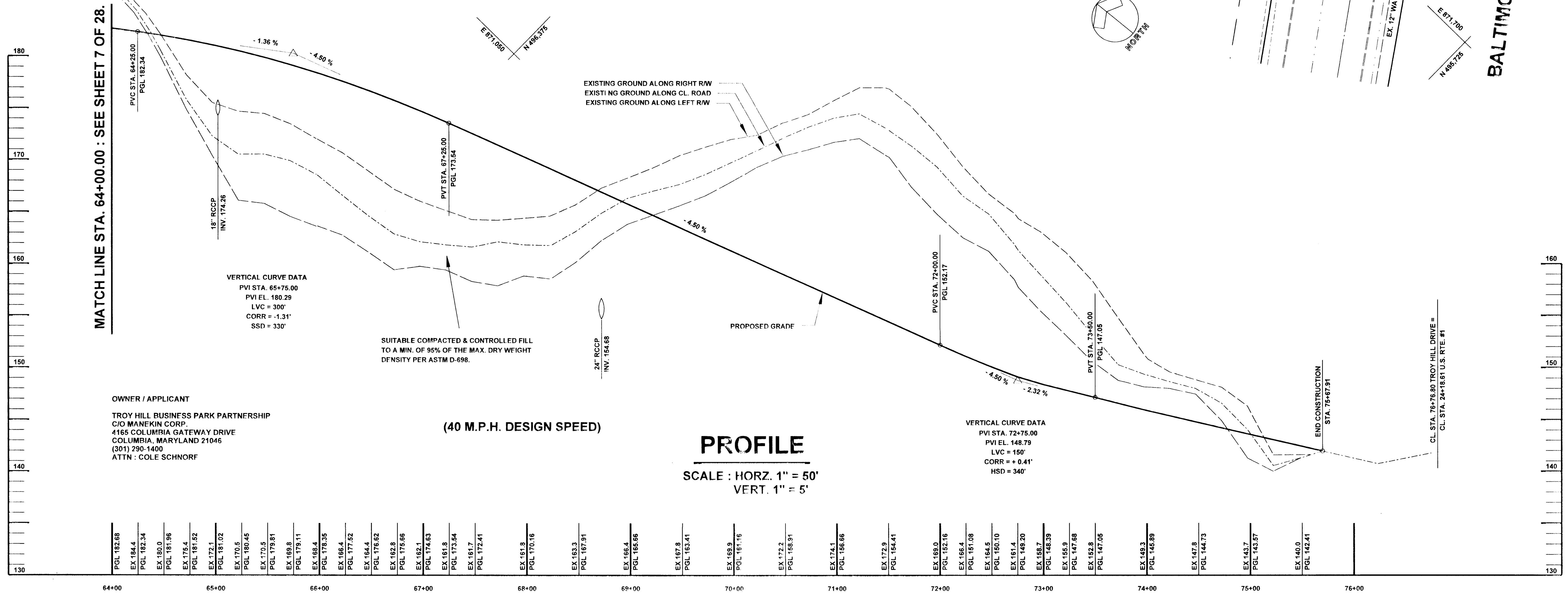
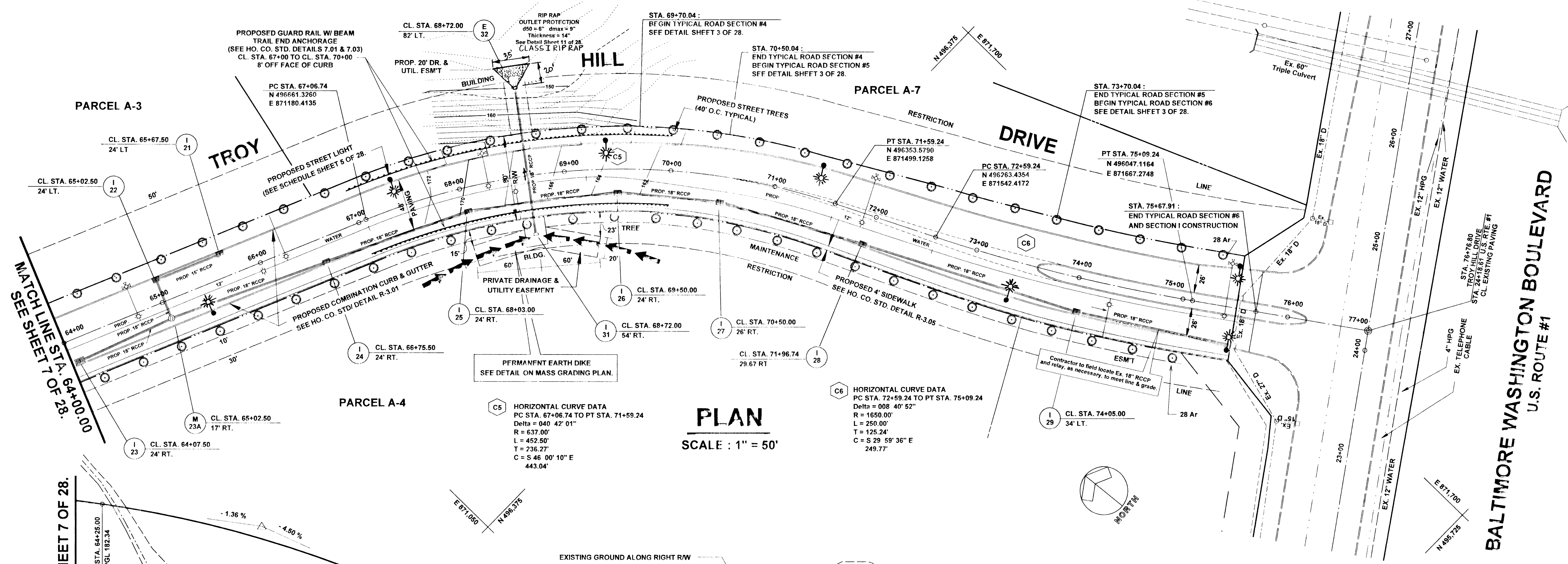
SCALE: 1" = 50'

TROY HILL CORPORATE CENTER
 PHASE I

HOWARD COUNTY, MARYLAND ELECTION DISTRICT #1

JUNE 28, 1996
 SHEET 7 OF 28

16591



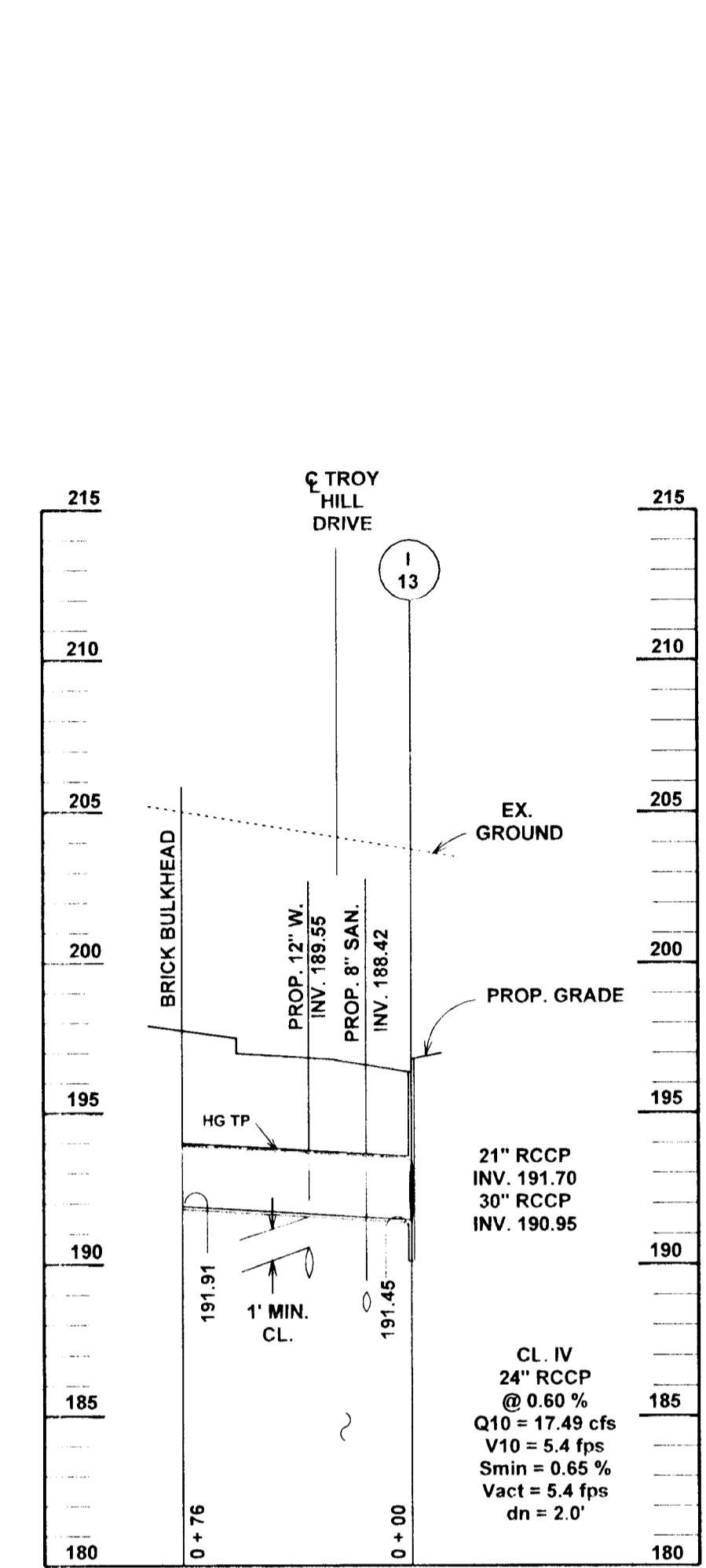
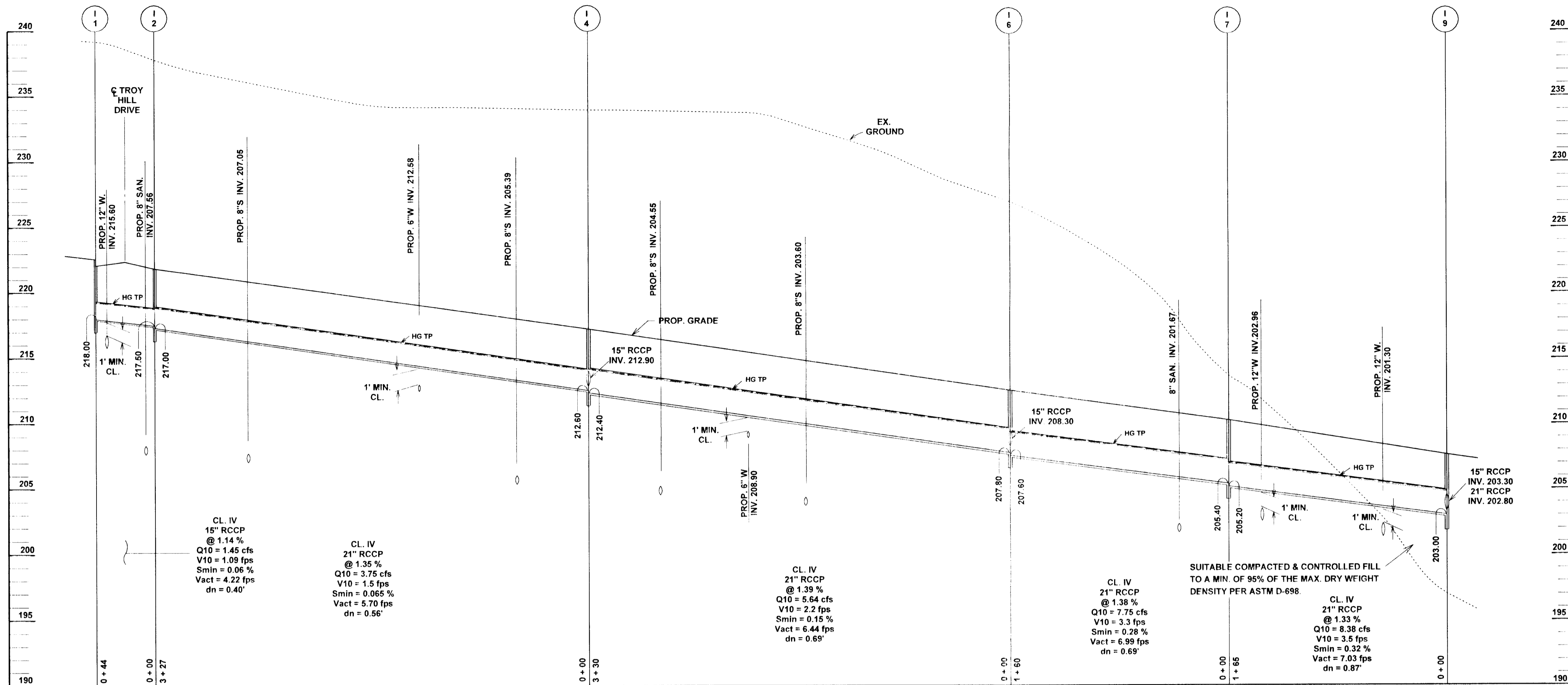
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Danek 8-14-96
 CHIEF, BUREAU OF HIGHWAYS DATE
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Summery 8/17/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH TC DATE
 8/16/96 DATE

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800

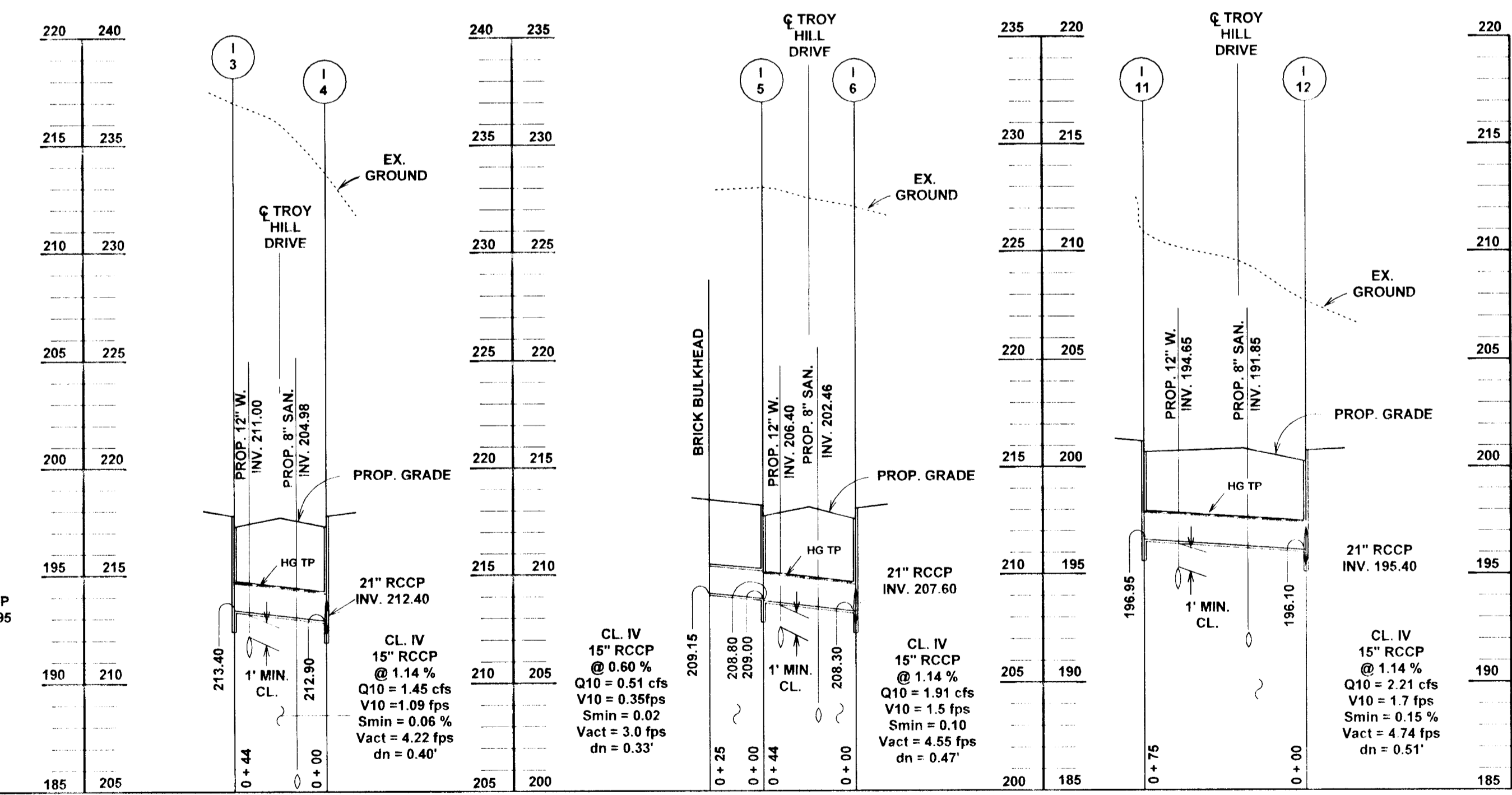
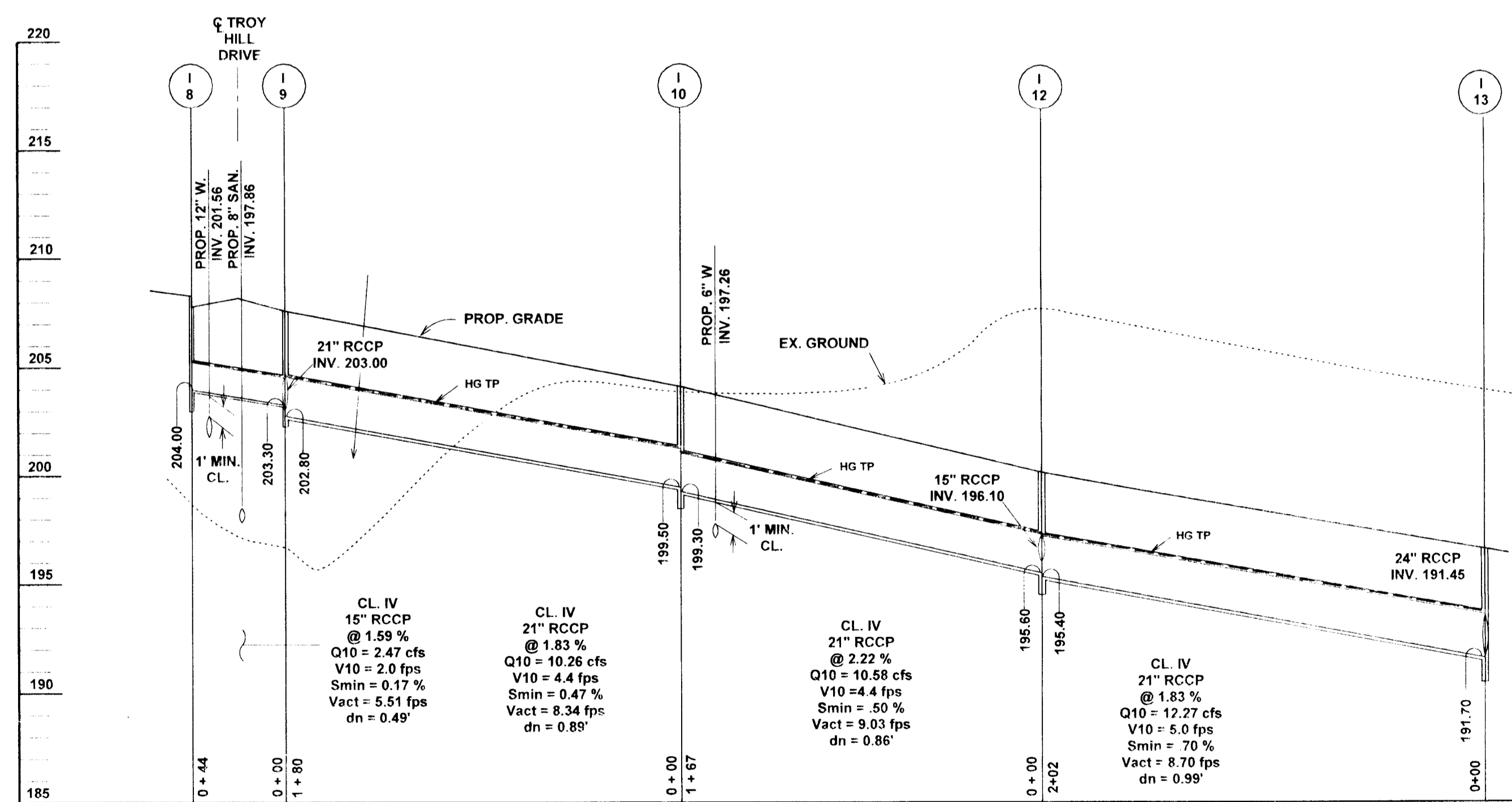
DESIGNED: GPT
 DRAFTED: BWW
 CHECKED: PWT

TROY HILL DRIVE
ROAD PLAN AND PROFILE
STA. 64+00.00 TO STA. 76+76.80
 SCALE: AS SHOWN

TROY HILL CORPORATE CENTER
 PHASE I
 HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT #1
 JUNE 28, 1996
 SHEET 8 OF 28



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



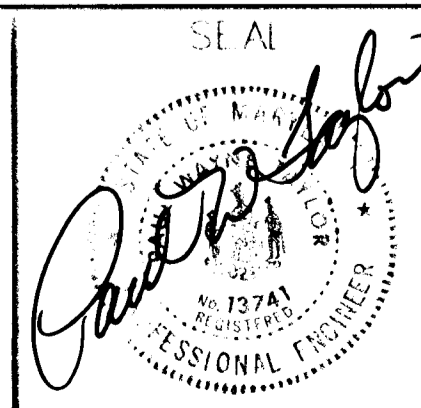
SCALE: HOR: 1" = 50'
VERT: 1" = 5'

OWNER / APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 8-14-96
CHIEF, BUREAU OF HIGHWAYS
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Summari 8/14/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
DATE: 8/14/96
DATE: 8/14/96



GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson Maryland 21204 (410) 825-8170
203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800



DESIGNED: RAM
DRAFTER: EMT
CHECKED: PRC

TROY HILL DRIVE
STORM DRAIN PROFILES

SCALE: AS SHOWN

TROY HILL CORPORATE CENTER
PHASE I

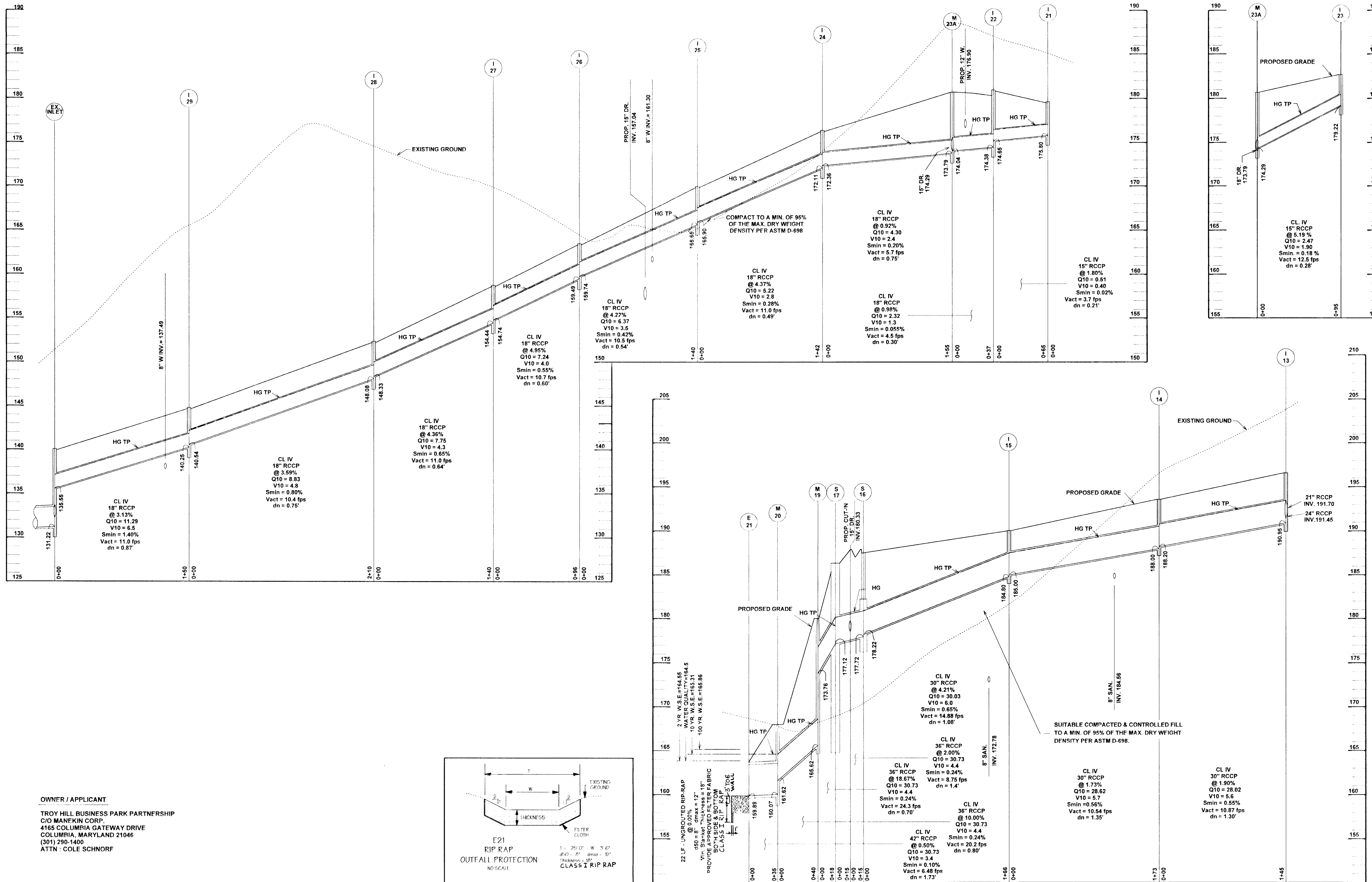
HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1

JUNE 28, 1996
SHEET 9 OF 28

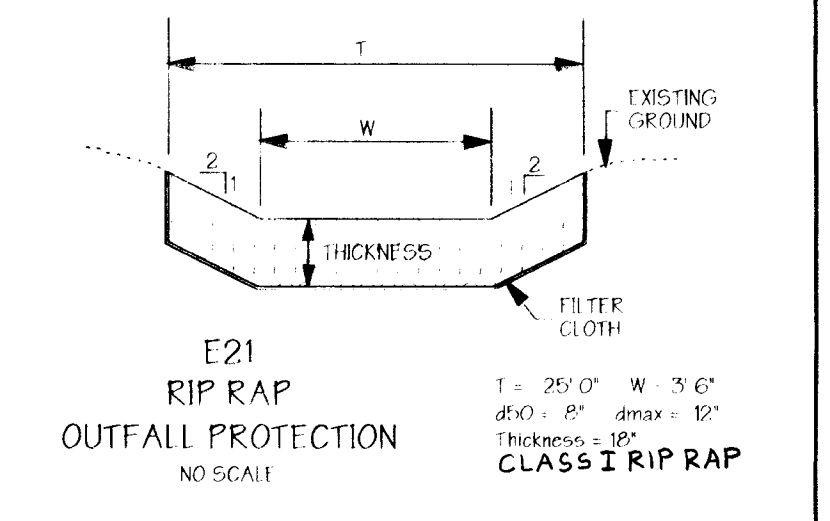
F-96-136

16591

1654



OWNER / APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANFORD CORP.
 4165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN: COLE SCHNORF



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 DATE: 8-14-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development and Research
 DATE: 8/19/96

GWS
 GEORGE W. STEPHENS, JR.
 AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kentworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800

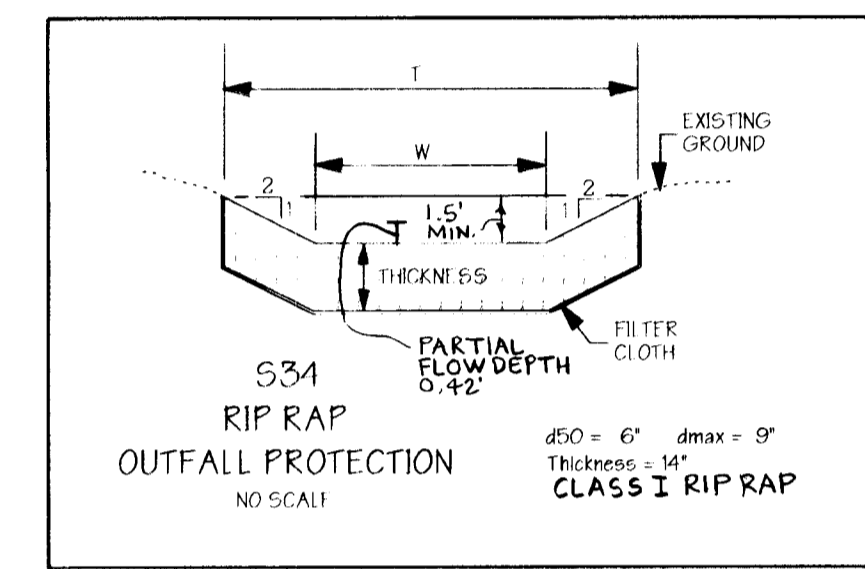
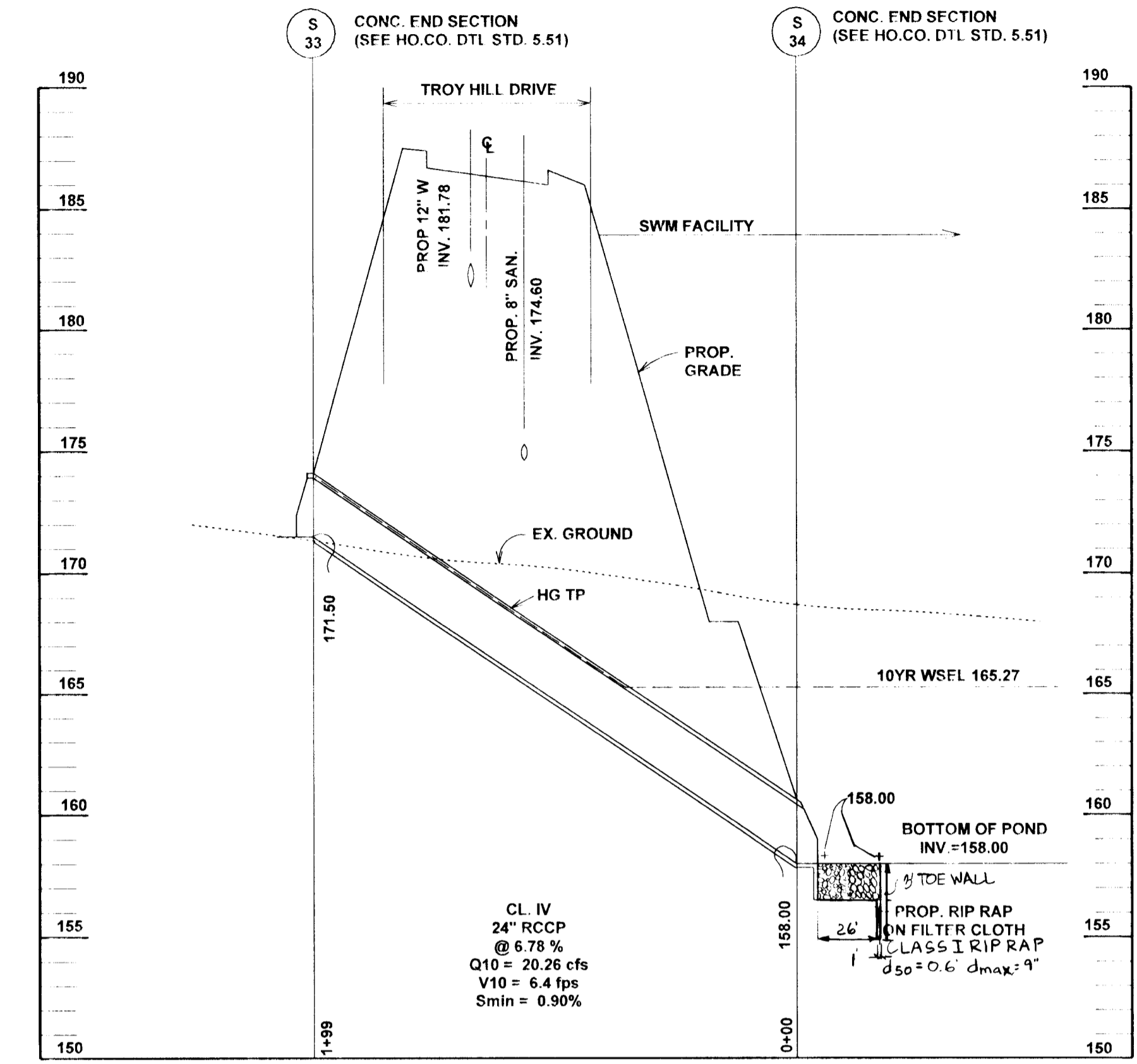
DESIGNED: KE
 DRAFTED: EMT
 CHECKED: PRC

TROY HILL DRIVE STORM DRAIN PROFILES

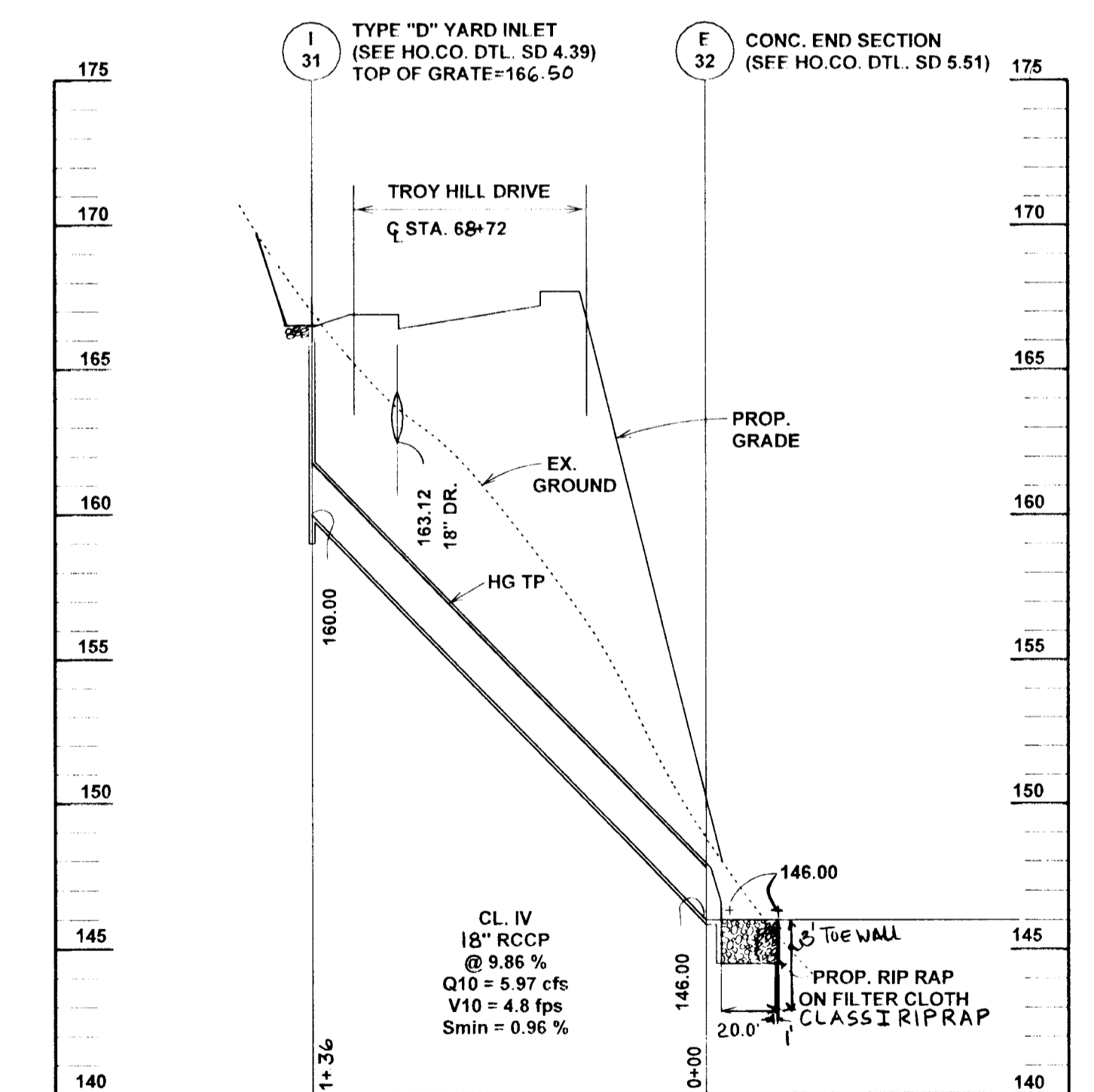
SCALE: HORZ. 1"=50', VERT. 1"=5'

TROY HILL CORPORATE CENTER PHASE I

HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT #1
 JUNE 28, 1996
 SHEET 10 OF 28



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



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

OWNER / APPLICANT

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEIN CORP.
4165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

1354

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Quaker 8-14-96
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Gina Drummond 8/19/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH TC DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 8/15/96
DATE

GWS

GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.

Civil Engineers and Land Surveyors

658 Kenilworth Drive, Suite 100
Towson Maryland 21204 (410) 825-8120
203 East Broadway
Bel Air, Maryland 21014 (410) 838-3800

DESIGNED: GPT

DRAFTED: JW

CHECKED: PWT

TROY HILL DRIVE
STORM DRAIN PROFILES

SCALE: AS SHOWN

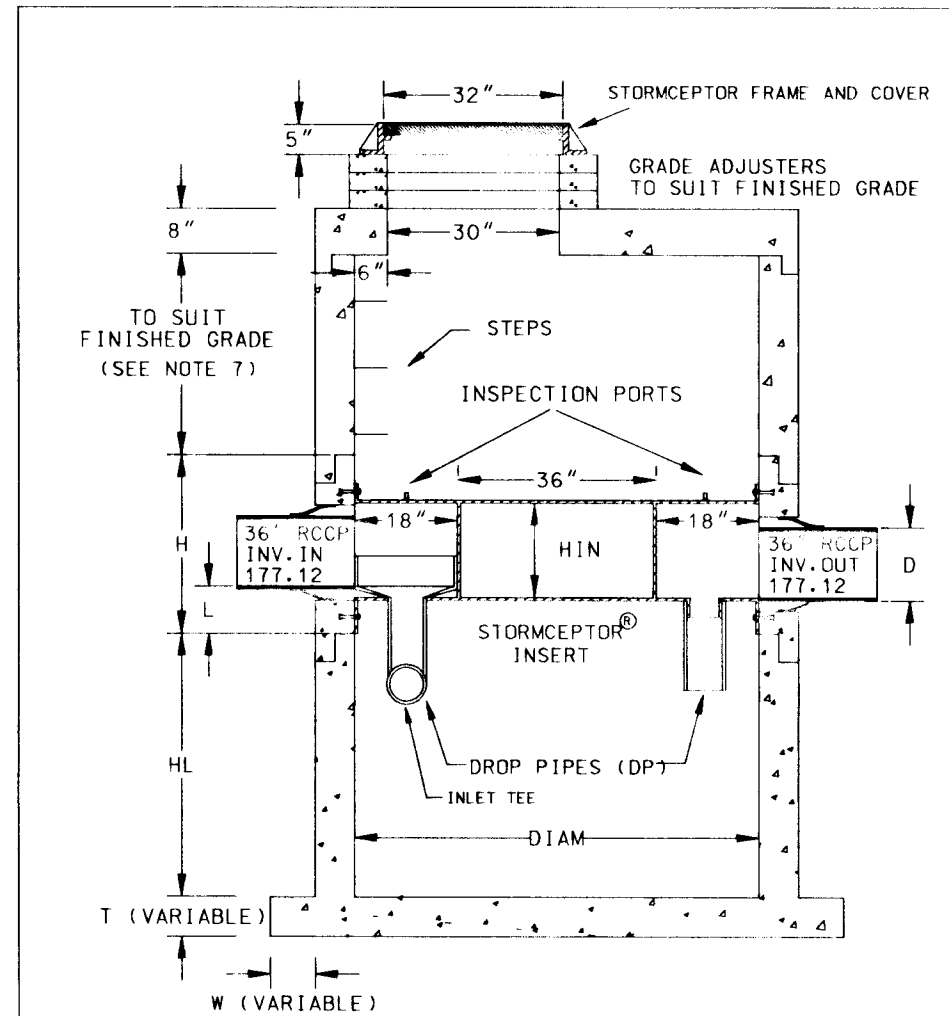
TROY HILL CORPORATE CENTER
PHASE I

HOWARD COUNTY, MARYLAND
ELECTION DISTRICT #1

JUNE 28, 1996
SHEET 11 OF 28

STRUCTURE SCHEDULE

| STR. NO. | TYPE | INVERTS | | | TOP ELEV. | REMARKS |
|-----------|---|---------|--------|--------|-----------|---------|
| | | IN | IN | OUT | | |
| EX. INLET | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 135.55 | | 131.22 | | |
| I-29 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 140.54 | | 140.25 | 144.89 | |
| I-28 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 148.33 | | 148.08 | 152.39 | |
| I-27 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 154.74 | | 154.44 | 159.06 | |
| I-26 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 159.74 | | 159.49 | 163.60 | |
| I-25 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 165.90 | | 165.65 | 170.22 | |
| I-24 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 174.63 | | 172.11 | 175.83 | |
| I-23 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | | | 179.22 | 182.67 | |
| I-22 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 175.18 | | 174.38 | 181.17 | |
| I-21 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | | | 175.80 | 179.79 | |
| I-31 | H.C. STD. SD 4.39 PRECAST TYPE "D" INLET | 160.00 | | | 166.50 | |
| I-18 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 181.23 | | 169.34 | 186.98 | |
| I-15 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 185.00 | | 184.80 | 190.37 | |
| I-14 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 188.20 | | 188.00 | 193.80 | |
| I-13 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 191.70 | 191.45 | 190.95 | 196.79 | |
| I-12 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 195.60 | | 195.40 | 201.49 | |
| I-11 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | | | 196.73 | 201.89 | |
| I-10 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 199.50 | | 199.30 | 204.76 | |
| I-9 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 203.00 | 203.30 | 202.80 | 208.24 | |
| I-8 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | | | 204.06 | 208.42 | |
| I-7 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 205.40 | | 205.20 | 210.91 | |
| I-6 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 207.80 | 208.30 | 207.60 | 213.21 | |
| I-5 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 209.05 | | 208.85 | 213.35 | |
| I-4 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 212.60 | 212.90 | 212.40 | 217.89 | |
| I-3 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | | | 213.45 | 218.03 | |
| I-2 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | 217.50 | | 217.00 | 222.51 | |
| I-1 | HC STD. SD 4.34 DOUBLE "S" COMB. INLET | | | 218.04 | 222.72 | |
| M-19 | HC STD. G 5.13 SHALLOW PRECAST MANHOLE | 173.76 | | 165.60 | 180.50 | |
| M-20 | HC STD. G 5.03 BRICK MANHOLE | 161.62 | | 160.04 | 168.50 | |
| M-23A | HC STD. G 5.03 BRICK MANHOLE | 174.29 | 174.04 | 173.79 | 180.70 | |
| S-16 | HC STD. SD 1.01 BEND STRUCTURE | 178.22 | | 177.72 | 186.77 | |
| S-17 | STORMCEPTOR 3600 - SEE DETAIL THIS SHEET. | 177.12 | | 177.12 | 186.00 | |
| S-33 | HC STD SD 5.51 CONC. END SECTION | 171.50 | | | 173.50 | |
| S-34 | HC STD SD 5.51 CONC. END SECTION | | | 158.00 | 160.00 | |
| E-21 | HC STD. SD 5.11 TYPE "A" HEADWALL | | | 159.89 | 164.89 | |
| E-32 | HC STD SD 5.51 CONC. END SECTION | | | 146.00 | | |



FLAWS AND CAPACITIES*

| MODEL | MAX. TREATED FLOW RATE (gpm)** | SEDIMENT CAPACITY (cu ft) | OIL CAPACITY (US gal) | TOTAL CAPACITY (US gal) |
|----------|--------------------------------|---------------------------|-----------------------|-------------------------|
| STC 3600 | 475 | 390 | 560 | 3720 |

DIMENSIONS *

| MODEL | DIAM (ft) | DROP PIPE DIAM. (in) | HL (in) | T ** (in) | W ** (in) |
|----------|-----------|----------------------|---------|-----------|-----------|
| STC 3600 | 8 | 8 | 118 | 8 | 0 |

- NOTES :
- THE STORMCEPTOR IS PROTECTED BY U.S. PATENT NO. 4,985,148
 - CAST IRON FRAME & COVER TO BE APPROVED BY STORMCEPTOR CORPORATION. "STORMCEPTOR" TO BE EMBROSSED ON COVER
 - BEDDING, BACKFILL AND GENERAL INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER AND A PROFESSIONAL ENGINEER BASED ON SITE SPECIFIC SOILS CONDITIONS. SUBJECT TO THE APPROVAL OF THE REGULATORY AGENCIES.
 - SIZING OF THE STORMCEPTOR SHALL BE IN ACCORDANCE WITH THE GUIDELINES PROVIDED BY STORMCEPTOR CORPORATION. SUBJECT TO THE APPROVAL OF THE REGULATORY AGENCIES.
 - THE STORMCEPTOR SHOULD BE MAINTAINED ANNUALLY AND/OR IMMEDIATELY FOLLOWING ANY KNOWN SPILLS.
 - THE STORMCEPTOR CONFORMS TO ASTM C 478 DESIGN SPECIFICATIONS / STANDARDS
 - THE 72" DIAMETER SECTION SHOULD EXTEND A MIN. OF 5' ABOVE THE INSERT OR TO THE SURFACE FOR ACCESS TO THE INSPECTION PORTS.
 - A MINIMUM OF 1 STEP IS TO BE USED IN THE ACCESS WAY.
 - COVER TO BE OFFSET 9" FROM ACCESS WALL ADJACENT TO INLET INSPECTION PORT.
 - NON-SMOOTH WALL O.D. PIPE TO BE GROUTED IN PLACE
 - MAXIMUM OF 1" FALL FROM INLET TO OUTLET
 - FURTHER TECHNICAL INFORMATION IS AVAILABLE FROM STORMCEPTOR CORPORATION 1 (800) 762-4703

THE PRECAST CONCRETE STORMCEPTOR (STC)

PIPING AND INSERT DIMENSIONS

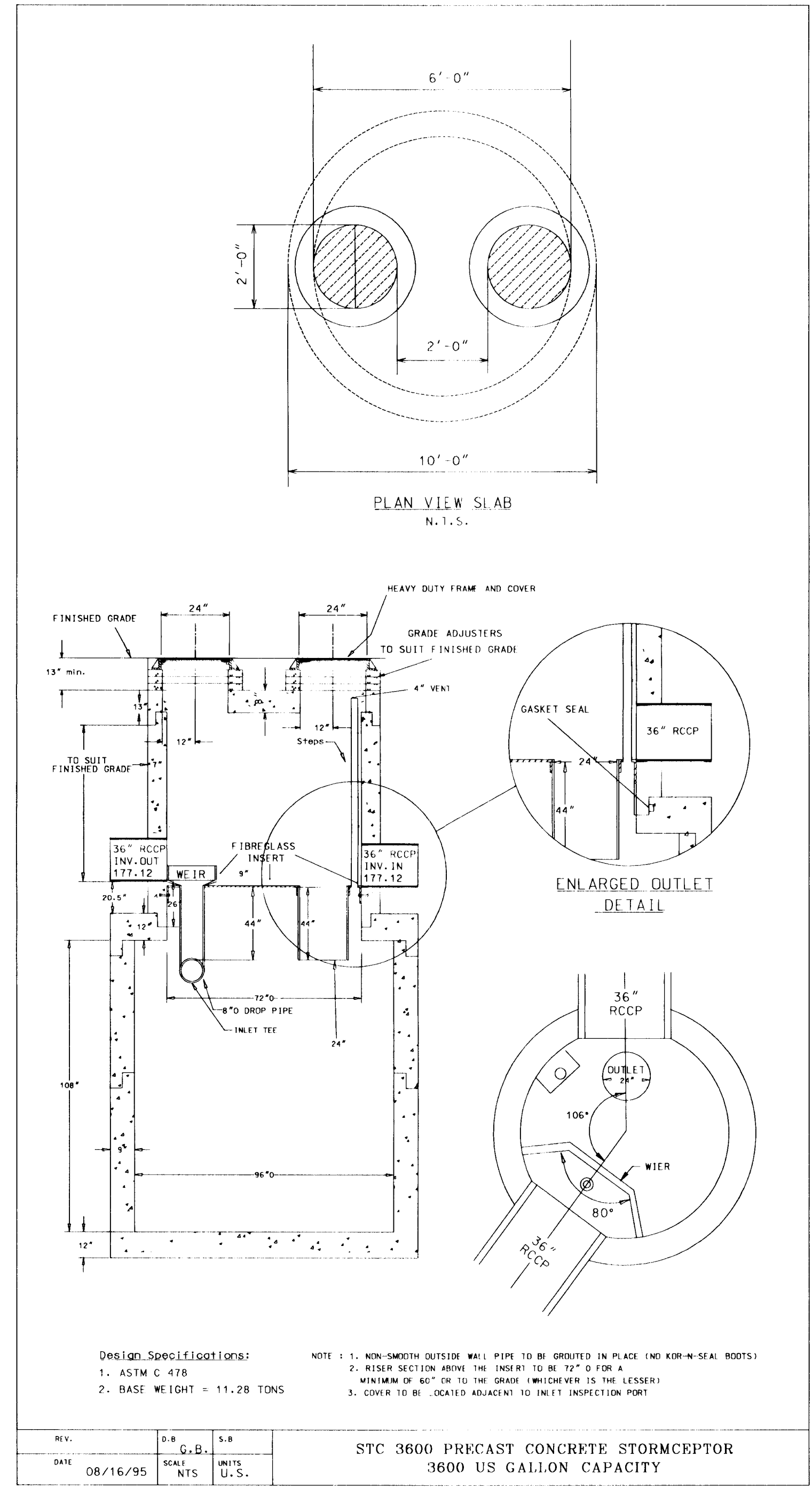
| PIPE DIAMETER D (in) | PIPE MATERIAL | HIN (in) | H (in) | L (in) |
|----------------------|---------------|----------|--------|--------|
| 36 | CONCRETE | 44 | 60 | 13 |

Stormceptor Separator Specifications (Concrete)

S-17

OPERATION AND MAINTENANCE SCHEDULE FOR STORMCEPTOR WATER QUALITY DEVICE

- The Stormceptor water quality structure shall be periodically inspected and cleaned to maintain operation and function. The owner shall inspect the Stormceptor unit yearly at a minimum, utilizing the Stormceptor Inspection/Monitoring Form. Inspections shall be done by using a clear plexiglass tube ("sludge judge") to extract a water column sample. When the sediment depths exceed the level specified in Table 6 of the Stormceptor Technical Manual, the unit must be cleaned.
- The Stormceptor water quality structure shall be checked and cleaned immediately after petroleum spills. The owner shall contact the appropriate regulatory agencies.
- The maintenance of the Stormceptor unit shall be done using a vacuum truck which will remove the water, sediment, debris, floating hydrocarbons, and other materials in the unit. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.
- The inlet and outlet pipes shall be checked for any obstructions at least once every six months. If obstructions are found the owner shall have them removed. Structural parts of the Stormceptor unit shall be repaired as needed.
- The owner shall retain and make the Stormceptor Inspection/Monitoring Forms available to the Howard County officials upon their request.



Design Specifications:

- ASTM C 478
- BASE WEIGHT = 11.28 TONS

NOTE :

- NON-SMOOTH OUTSIDE WALL PIPE TO BE GROUTED IN PLACE (NO KERRIN SEAL ROOTS)
- RISER SECTION ABOVE THE INSERT TO BE 72" O FOR A MINIMUM OF 80" OR TO THE GRADE (WHICHEVER IS THE LESSER)
- COVER TO BE OFFSET ADJACENT TO INLET INSPECTION PORT

STC 3600 PRECAST CONCRETE STORMCEPTOR
3600 US GALLON CAPACITY

S-17

1654

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Casper 8-14-96
 CHIEF, BUREAU OF HIGHWAYS

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Summerville 8/19/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 8/15/96
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 Bel Air, Maryland 21014 (410) 838-3800

DESIGNED : GPT
 DRAFTED : BWB
 CHECKED : PWT

**TROY HILL DRIVE
 STRUCTURE SCHEDULE AND
 STORMWATER MANAGEMENT DETAILS**

SCALE : HORZ. 1"=50', VERT. 1"=5'

**TROY HILL CORPORATE CENTER
 PHASE I**

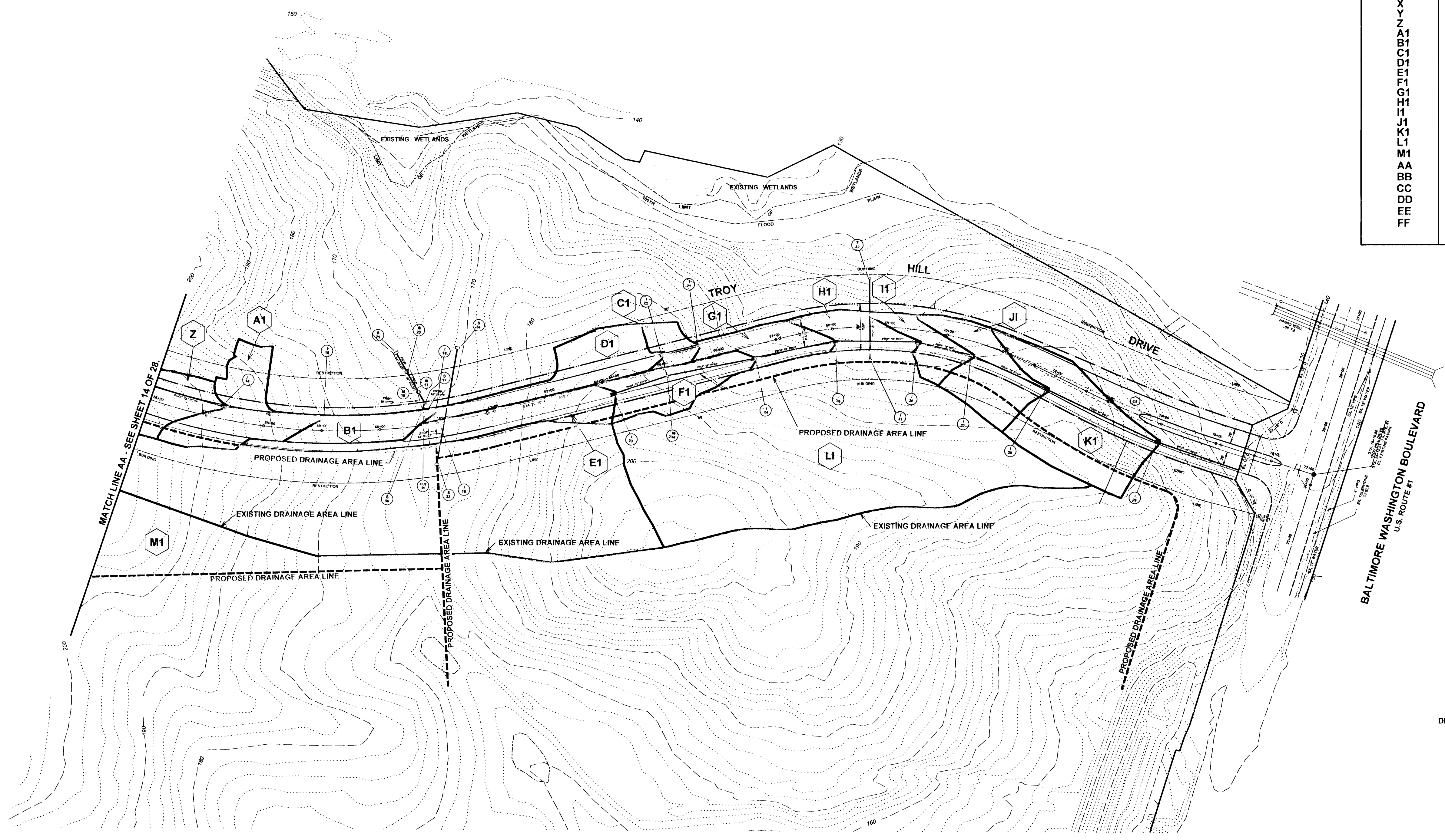
OWNER / APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORP.
 4165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN : COLE SCHNORF

HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT *1

JUNE 28, 1996
 SHEET 12 OF 28

1654
1691

| STORM DRAIN DESIGN DATA | | | | |
|-------------------------|-----------|----------|--------|---------|
| DRAINAGE AREA | AREA (AC) | C-FACTOR | % IMP. | % GRASS |
| L | 0.61 | 0.47 | 33 | 67 |
| M | 0.22 | 0.75 | 82 | 18 |
| N | 0.33 | 0.61 | 58 | 42 |
| O | 0.23 | 0.73 | 78 | 22 |
| P | 0.11 | 0.58 | 55 | 45 |
| Q | 0.29 | 0.60 | 59 | 41 |
| R | 0.42 | 0.49 | 40 | 60 |
| S | 0.37 | 0.41 | 22 | 78 |
| T | 0.60 | 0.48 | 35 | 65 |
| U | 0.11 | 0.81 | 91 | 9 |
| V | 0.11 | 0.81 | 91 | 9 |
| W | 0.57 | 0.46 | 32 | 68 |
| X | 0.10 | 0.80 | 91 | 9 |
| Y | 0.52 | 0.59 | 54 | 46 |
| Z | 0.34 | 0.62 | 59 | 41 |
| A1 | 0.51 | 0.53 | 61 | 39 |
| B1 | 0.22 | 0.86 | 100 | 0 |
| C1 | 0.13 | 0.46 | 31 | 69 |
| D1 | 0.45 | 0.58 | 51 | 49 |
| E1 | 0.51 | 0.501 | 39 | 61 |
| F1 | 0.34 | 0.50 | 38 | 62 |
| G1 | 0.24 | 0.76 | 83 | 17 |
| H1 | 0.20 | 0.74 | 80 | 20 |
| I1 | 0.18 | 0.60 | 55 | 45 |
| J1 | 0.45 | 0.45 | 38 | 62 |
| K1 | 0.84 | 0.47 | 33 | 67 |
| L1 | 3.48 | 0.26 | 0 | 100 |
| M1 | 3.60 | 0.75 | 80 | 20 |
| AA | 0.99 | 0.50 | | |
| BB | 0.60 | 0.53 | | |
| CC | 0.56 | 0.54 | | |
| DD | 1.08 | 0.73 | | |
| EE | 0.19 | 0.54 | | |
| FF | 0.65 | 0.53 | | |



PLAN
SCALE: 1" = 100'

LEGEND
 DRAINAGE AREA ———— (dashed line)
 STRUCTURE ———— (circle)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Robert M. Daniels 8-14-96 DATE
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Summons 8/19/96 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 APPROVED: 8/17/96 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

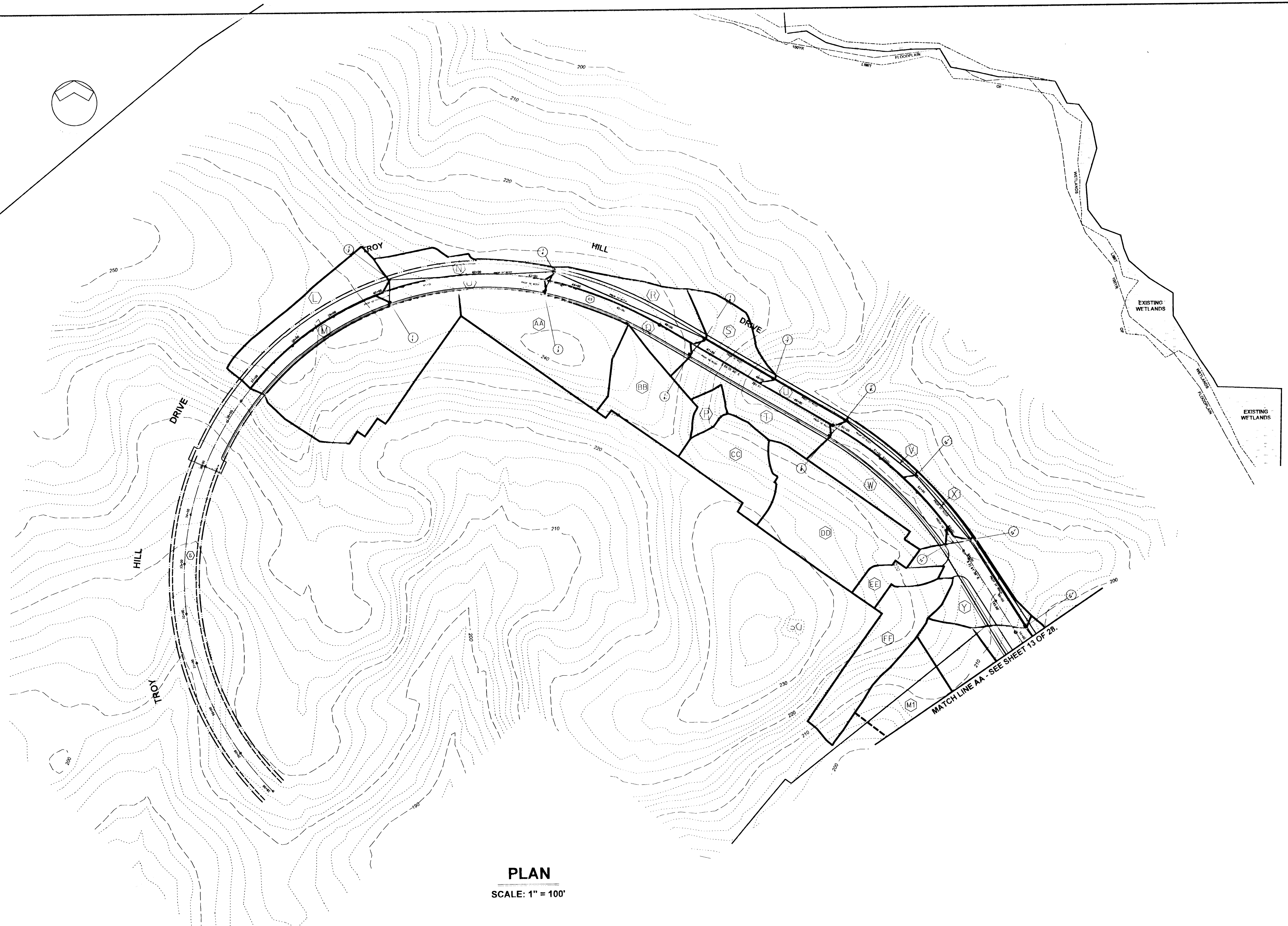
GWS
 GEORGE W. STEPHENS, JR.
 AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800

SEAL
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 13741
 EXPIRES 12/31/96

DESIGNED : BWW
 DRAFTED : BWW
 CHECKED : PWT

DRAINAGE AREA MAP
 SCALE : AS SHOWN

TROY HILL CORPORATE CENTER
 PHASE I
 HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT #1
 JUNE 28, 1996
 SHEET 13 OF 28



PLAN
SCALE: 1" = 100'

1654

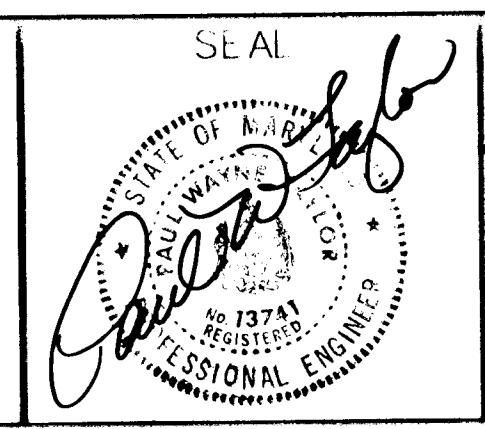
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Charles M. Drake 8-14-96
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Summary 8/19/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 8/15/96
 DATE



**GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.**
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204 (410) 825-8120
 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800



DESIGNED : BWW
 DRAFTED : BWW
 CHECKED : PWT

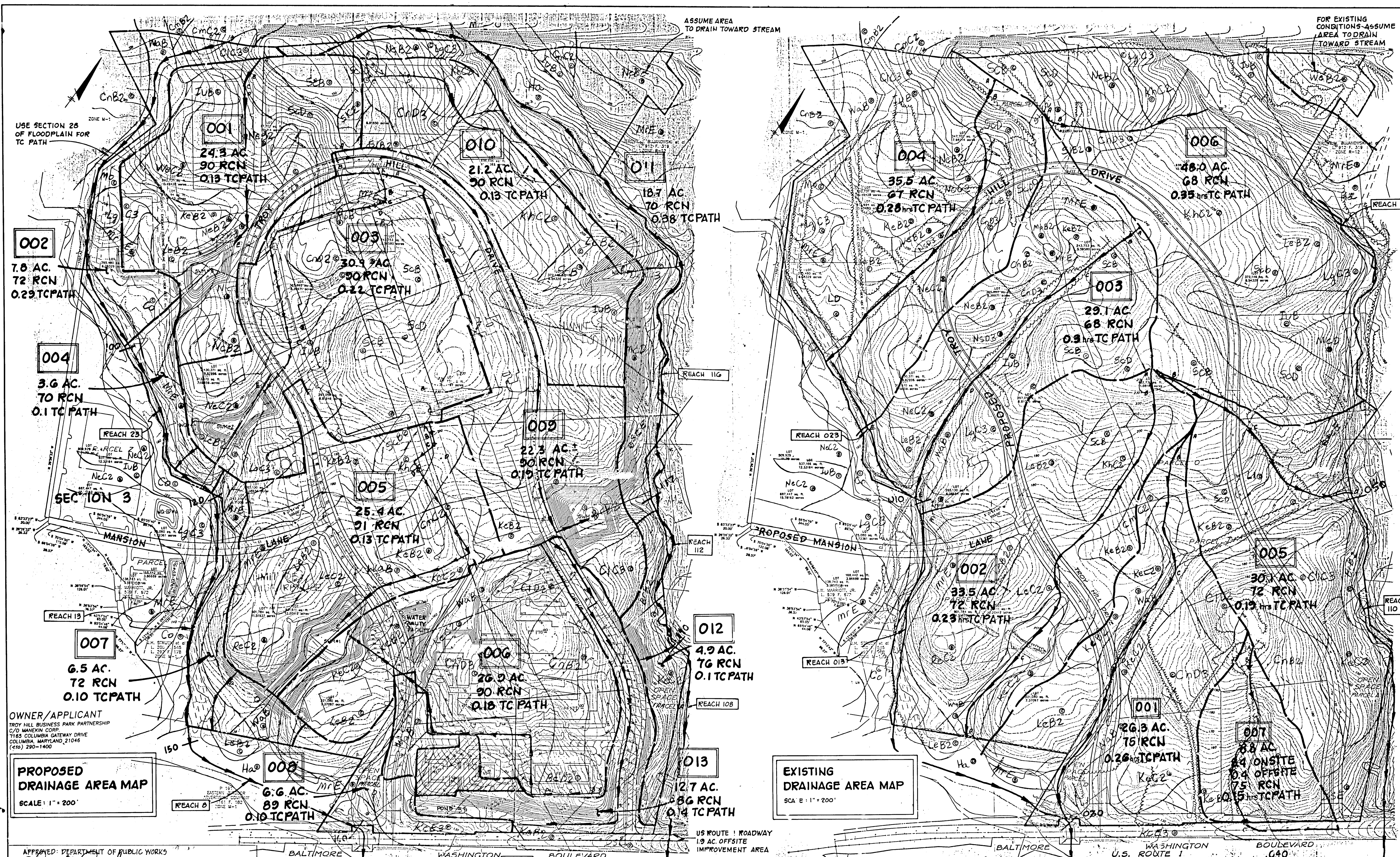
DRAINAGE AREA MAP

SCALE : AS SHOWN

**TROY HILL CORPORATE CENTER
PHASE I**

HOWARD COUNTY, MARYLAND
ELECTION DISTRICT *1

JUNE 28, 1996
SHEET 14 OF 28



OWNER/APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP
7185 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

PROPOSED DRAINAGE AREA MAP
SCALE: 1" = 200'

EXISTING DRAINAGE AREA MAP
SCALE: 1" = 200'

APPROVED: DEPARTMENT OF PUBLIC WORKS
Richard M. Mueller
CHIEF, BUREAU OF HIGHWAYS
8-19-96
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Anna Summerville
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
8/19/96
DATE

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
8/15/96
DATE

ENGINEER
**GEORGE WILLIAM STEPHENS JR.
AND ASSOCIATES, INC.**
658 KENILWORTH DRIVE
SUITE 100
TOWSON, MARYLAND 21204
(301) 825-8120



| BY | NO | REVISION | DATE |
|----|----|----------|------|
| | | | |
| | | | |
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| | | | |
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**DRAINAGE AREA MAP
STORM WATER MANAGEMENT**

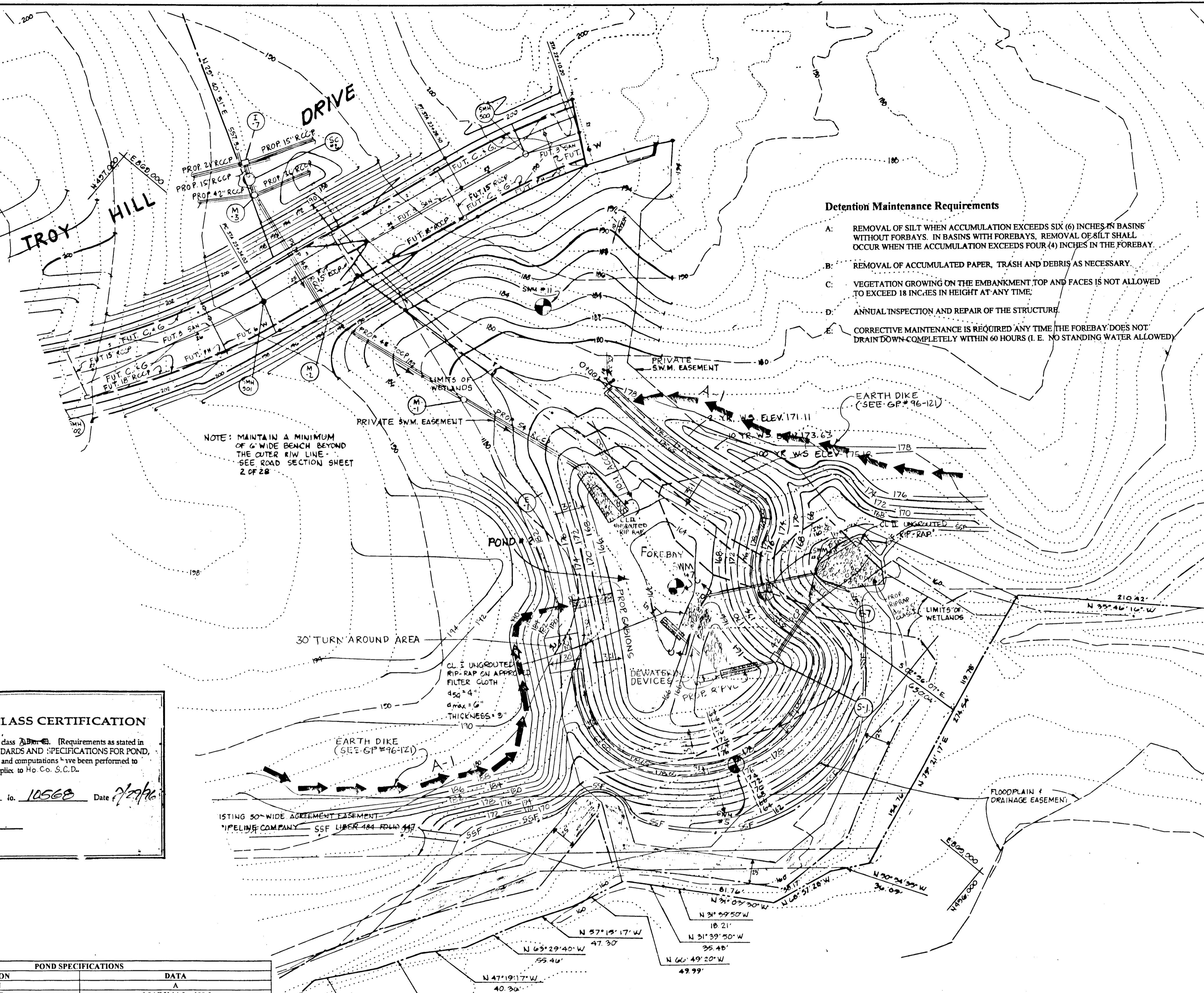
**TROY HILL CORPORATE CENTER
PHASE 1
PARCEL A-1**

HOWARD COUNTY, MD. ELECTION DISTRICT #1
SCALE: AS SHOWN DATE: MAY 20, 1996

FILE NOS. S90-05, P90-25, F91-24

SCALE: AS SHOWN
SHEET NO. 15 OF 28

F-96-136



- Detention Maintenance Requirements**
- A: REMOVAL OF SILT WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FOREBAYS. IN BASINS WITH FOREBAYS, REMOVAL OF SILT SHALL OCCUR WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.
 - B: REMOVAL OF ACCUMULATED PAPER, TRASH AND DEBRIS AS NECESSARY.
 - C: VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.
 - D: ANNUAL INSPECTION AND REPAIR OF THE STRUCTURE.
 - E: CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME THE FOREBAY DOES NOT DRAIN DOWN COMPLETELY WITHIN 60 HOURS (I.E. NO STANDING WATER ALLOWED).

NOTE: MAINTAIN A MINIMUM OF 6' WIDE BENCH BEYOND THE OUTER R/W LINE. SEE ROAD SECTION SHEET 2 OF 28

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

Signature _____ PE No. _____
Date _____

Certify means to state or declare a professional opinion based upon on-site inspections and material tests which are conducted during construction. The on-site inspections and material tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards And Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

HOWARD SOIL CONSERVATION DISTRICT

DEVELOPER & ENGINEER CERTIFICATES

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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and 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 of Developer: R. E. ... Date: 7/29/96
Print name below signature: R. COLPAX ...

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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

Signature of Engineer: R. Lumbarger Date: 8/16/96
Print name below signature: RICHARD LUMBARGER

CONSULTANT'S HAZARD CLASS CERTIFICATION

I certify that this pond meets all requirements for hazard class A. (Requirements as stated in the SOIL CONSERVATION SERVICE - MARYLAND STANDARDS AND SPECIFICATIONS FOR POND, CODE 378, NOVEMBER 1992.) All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Ho. Co. S.C.D.

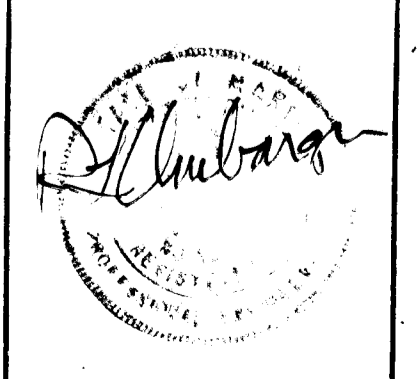
Signature: R. Lumbarger No. 10568 Date: 8/16/96
Print Name: RICHARD LUMBARGER

| POND SPECIFICATIONS | | DATA |
|----------------------------|----------|----------------------|
| STRUCTURE CLASSIFICATION | | A |
| STORAGE X HEIGHT PRODUCT | | 6.9AF X 14.5 = 100.5 |
| WATERSHED AREA TO THE POND | | 30.9AC |
| POND TYPE | | DRY |
| FREEBOARD | REQUIRED | PROVIDED |
| | 2.0' | 2.0' |
| IMPERVIOUS AREA | | 20.1AC |
| TOP OF EMBANKMENT | | 178.0 |

| POND SUMMARY | | | | | |
|--------------|-----------------------|--------------------------|-----------------------|------------------------------|---|
| Design Storm | Facility Inflow (cfs) | Facility Discharge (cfs) | Total Discharge (cfs) | Water Surface Elevation (ft) | Storage Vol. with Water Quality (Ac-Ft) |
| 2-YR | 79.24 | 6.91 | 6.91 | 171.11 | 3.35 |
| 10-YR | 140.79 | 33.03 | 33.03 | 173.63 | 5.12 |
| 100-YR | 208.14 | 103.13 | 103.13 | 175.18 | 6.92 |

OWNER/APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
7185 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHMORF

ENGINEER
GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES, INC.
658 KENILWORTH DRIVE
SUITE 100
TOWSON, MARYLAND 21284
(301) 825-1120



DESIGNED: _____
DRAWN: _____
CHECKED: _____

| BY | NO | REVISION | DATE |
|----|----|----------|------|
| | | | |
| | | | |
| | | | |

PRIVATE POND DETENTION / STORM CEPTOR

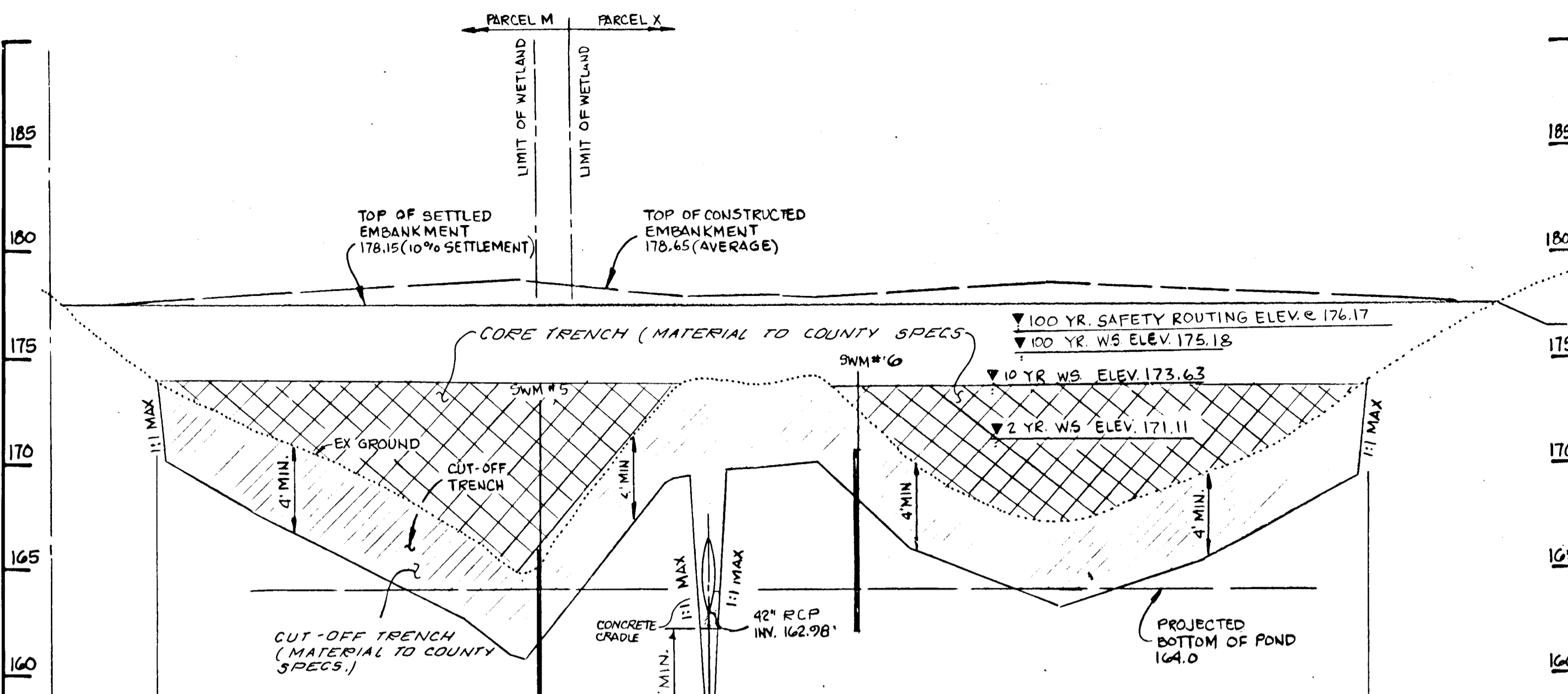
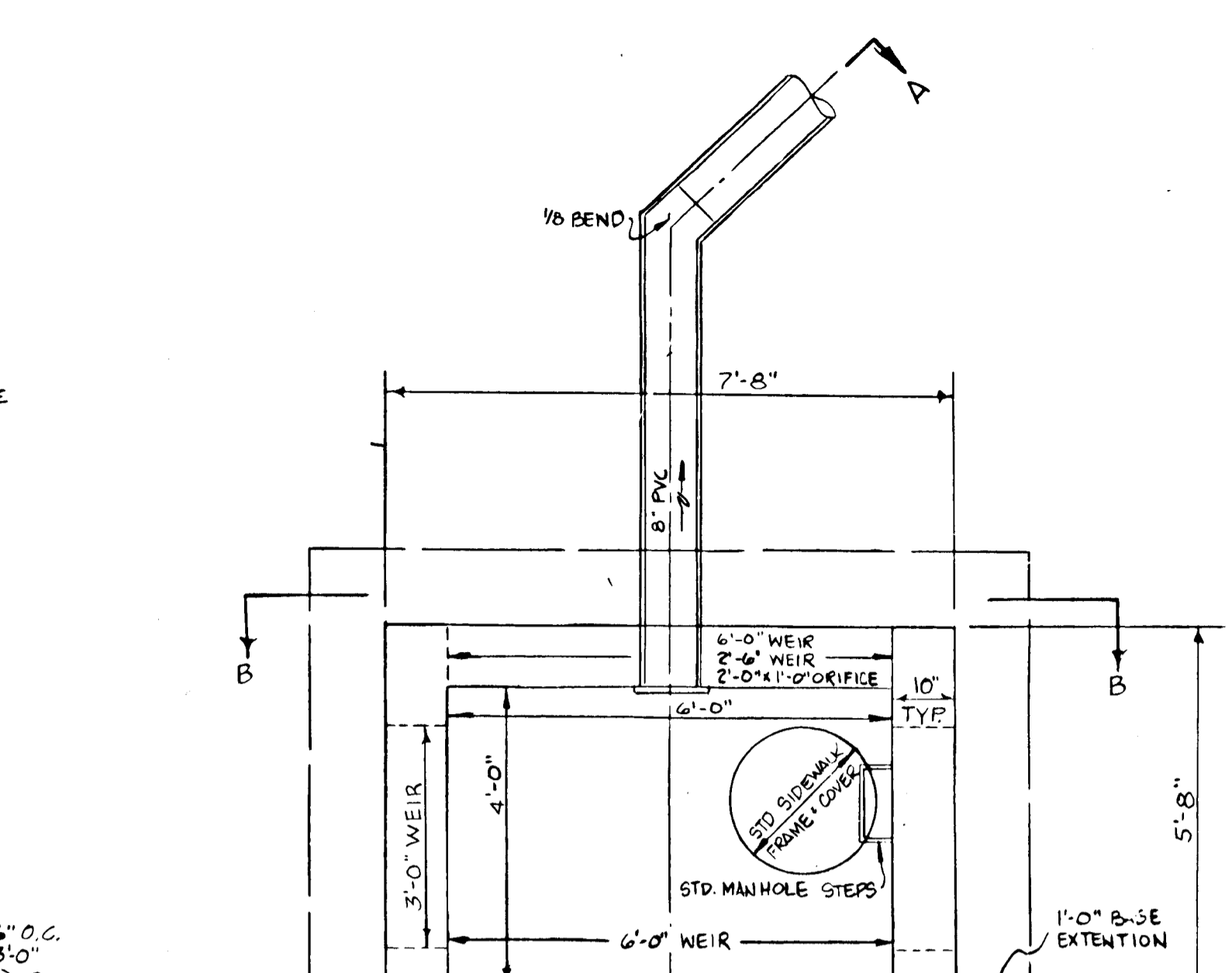
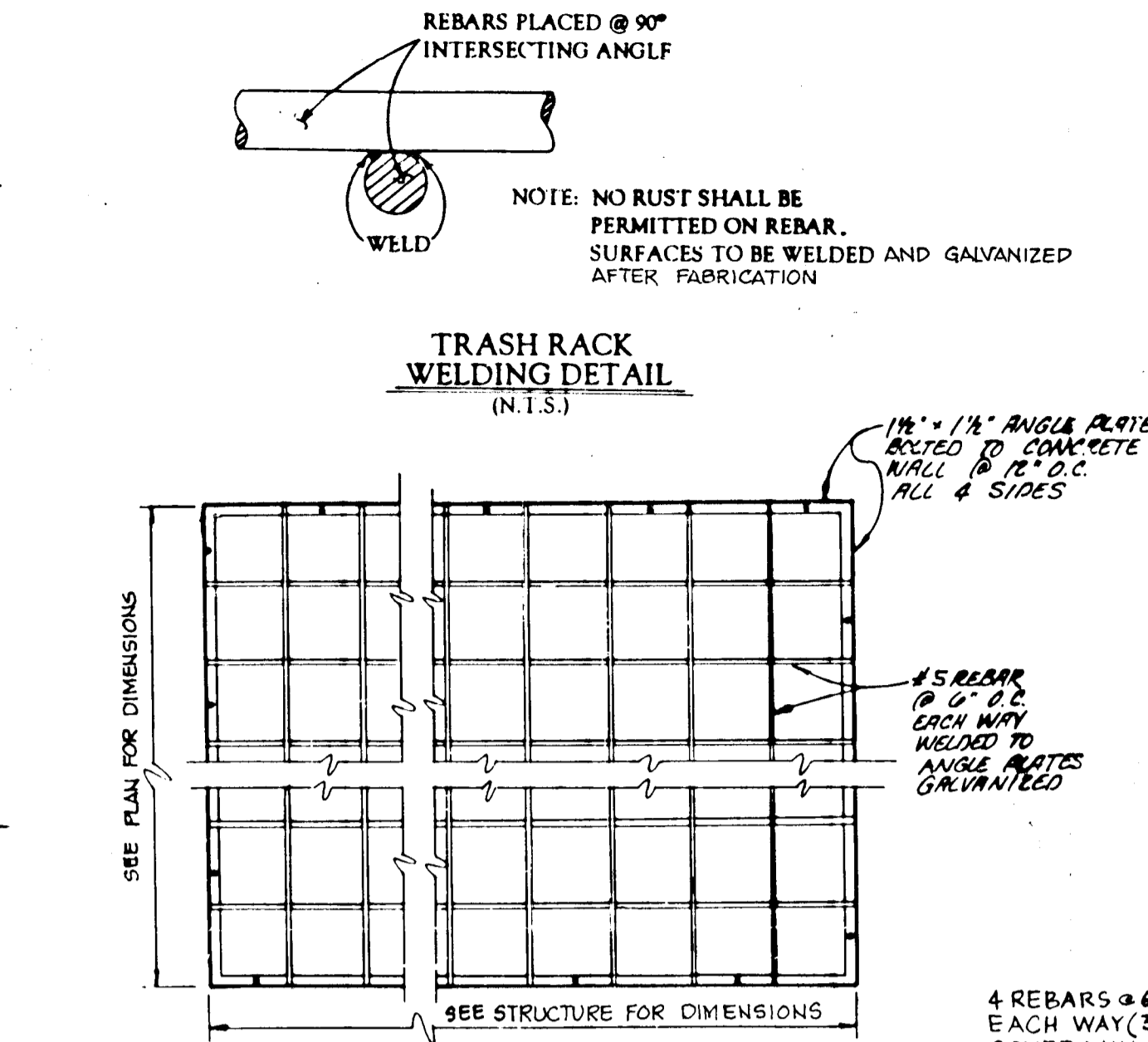
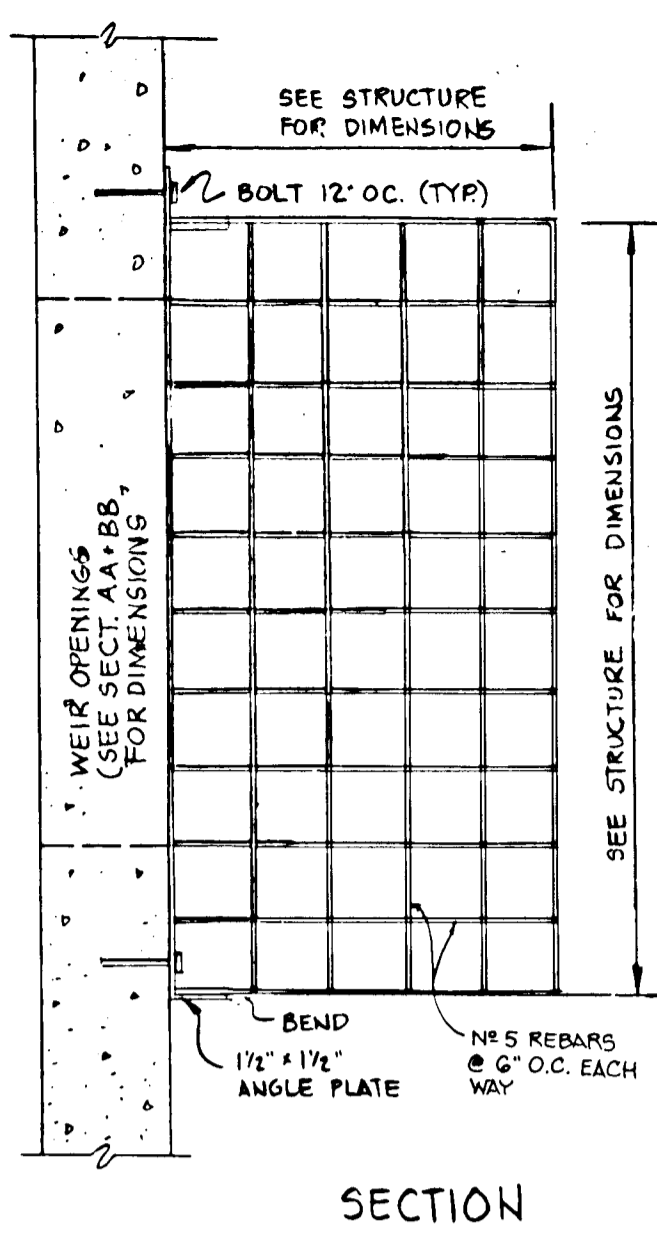
SEDIMENT CONTROL & STORM WATER MANAGEMENT
POND #2

TROY HILL CORPORATE CENTER PHASE 1 PARCEL A-1

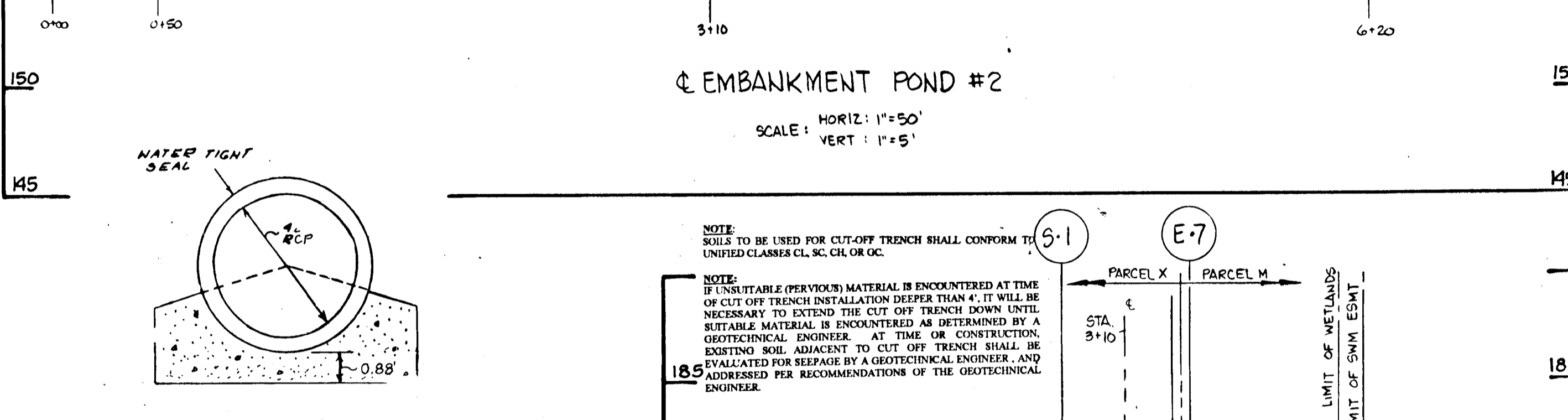
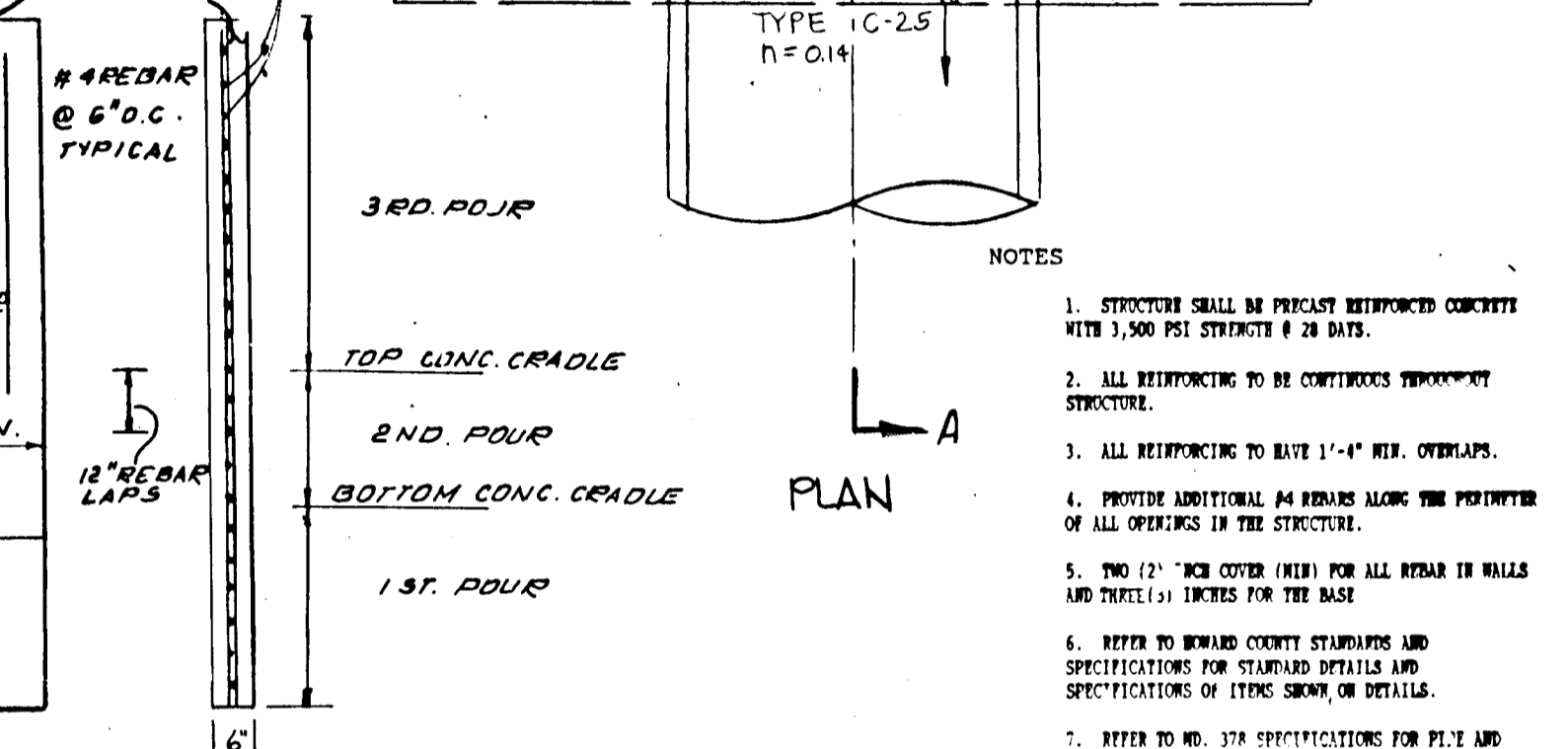
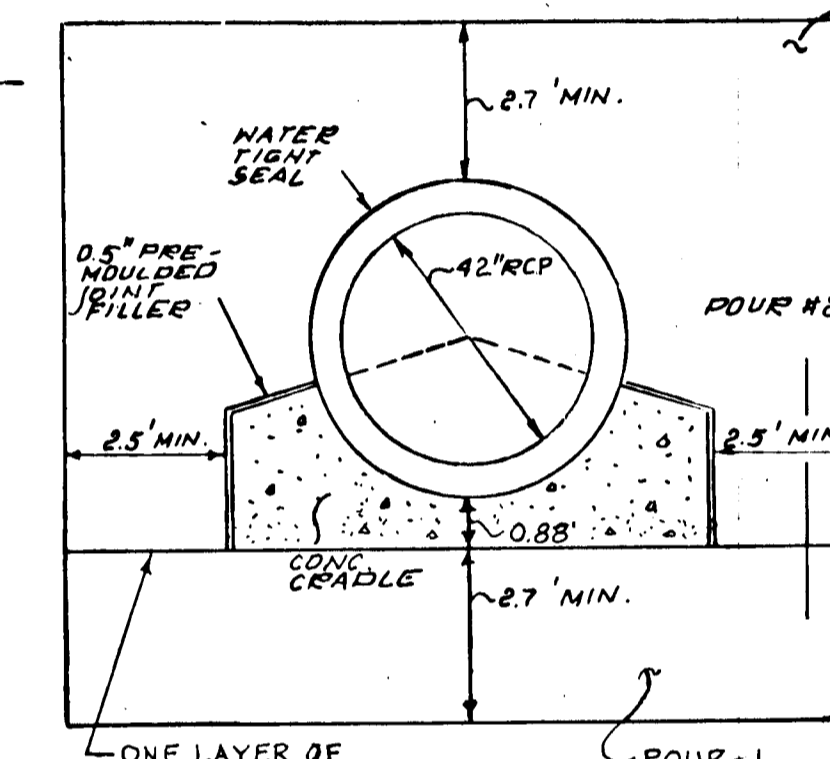
HOWARD COUNTY, MD. ELECTION DISTRICT #1
SCALE: AS SHOWN DATE: MAY 20, 1996
FILE NOS. S90-05, P90-25, F91-24

SCALE: 1" = 50'
SHEET NO. 16 OF 28

16591



TRASH RACK DETAIL
NOT TO SCALE



HOWARD SOIL CONSERVATION DISTRICT

DEVELOPER & ENGINEER CERTIFICATES

() 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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and 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."

R. Colfax 7/19/96
 Signature of Developer Date
 Print name below signature

() 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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

R. Umbarger 8/16/96
 Signature of Engineer Date
 Print name below signature

() 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.

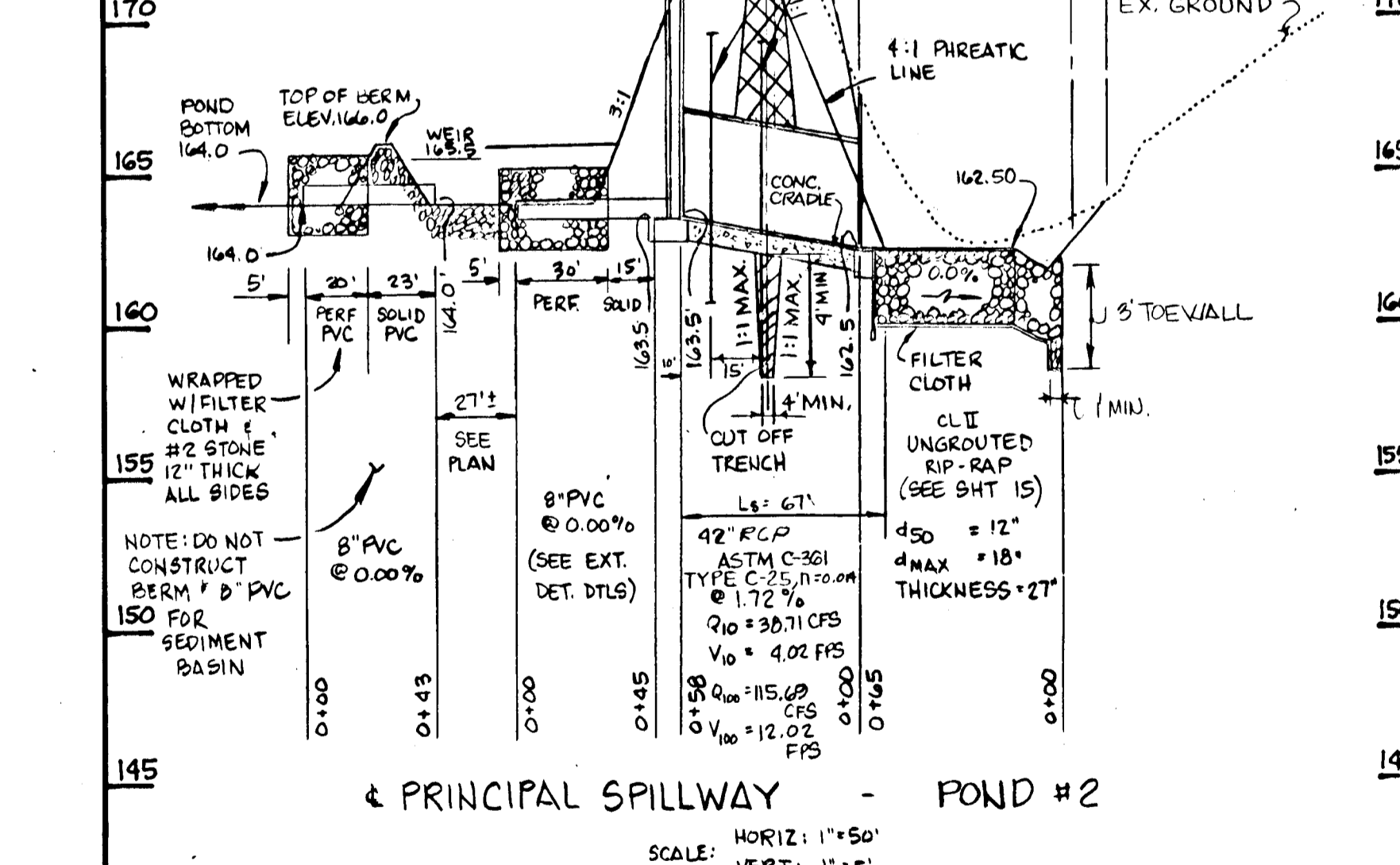
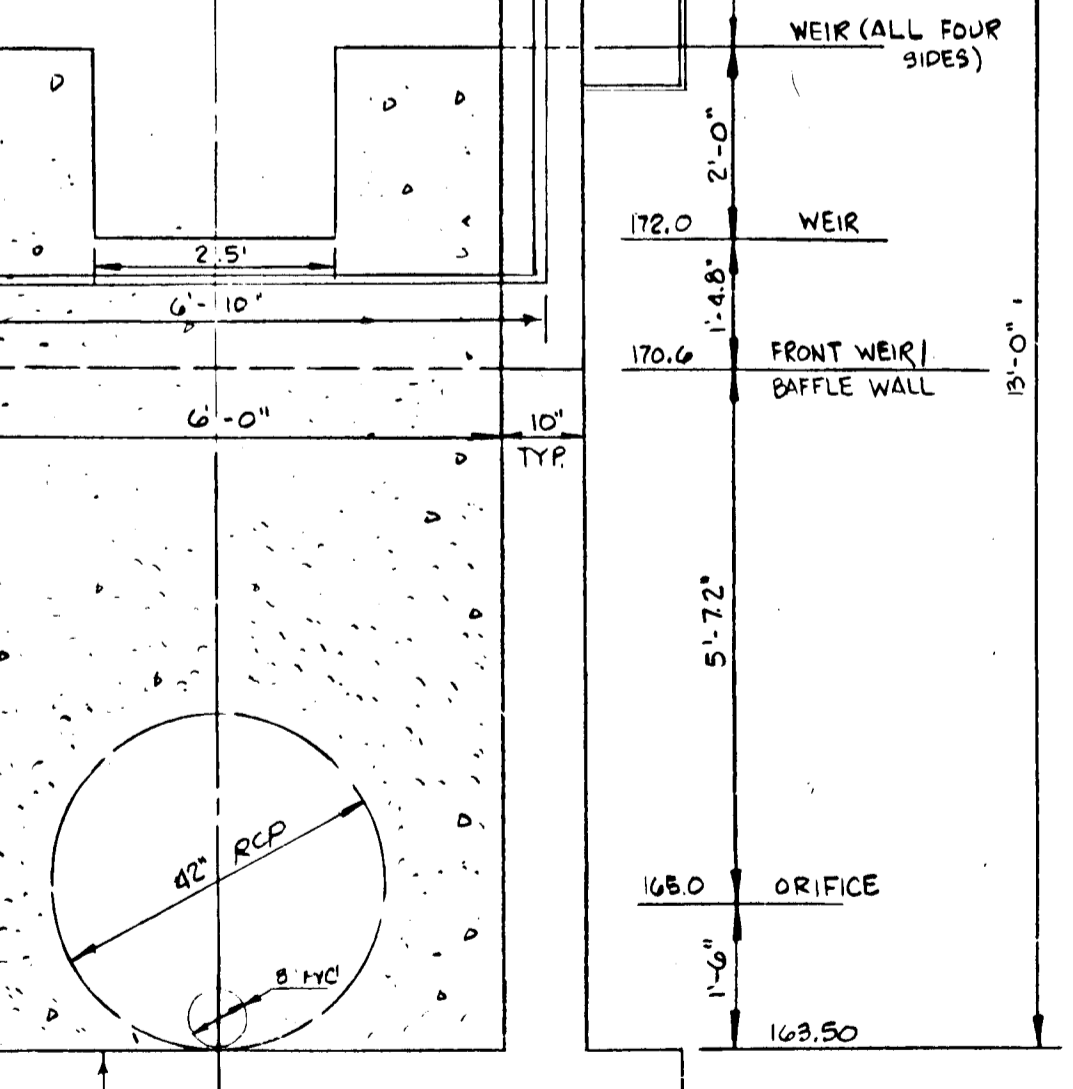
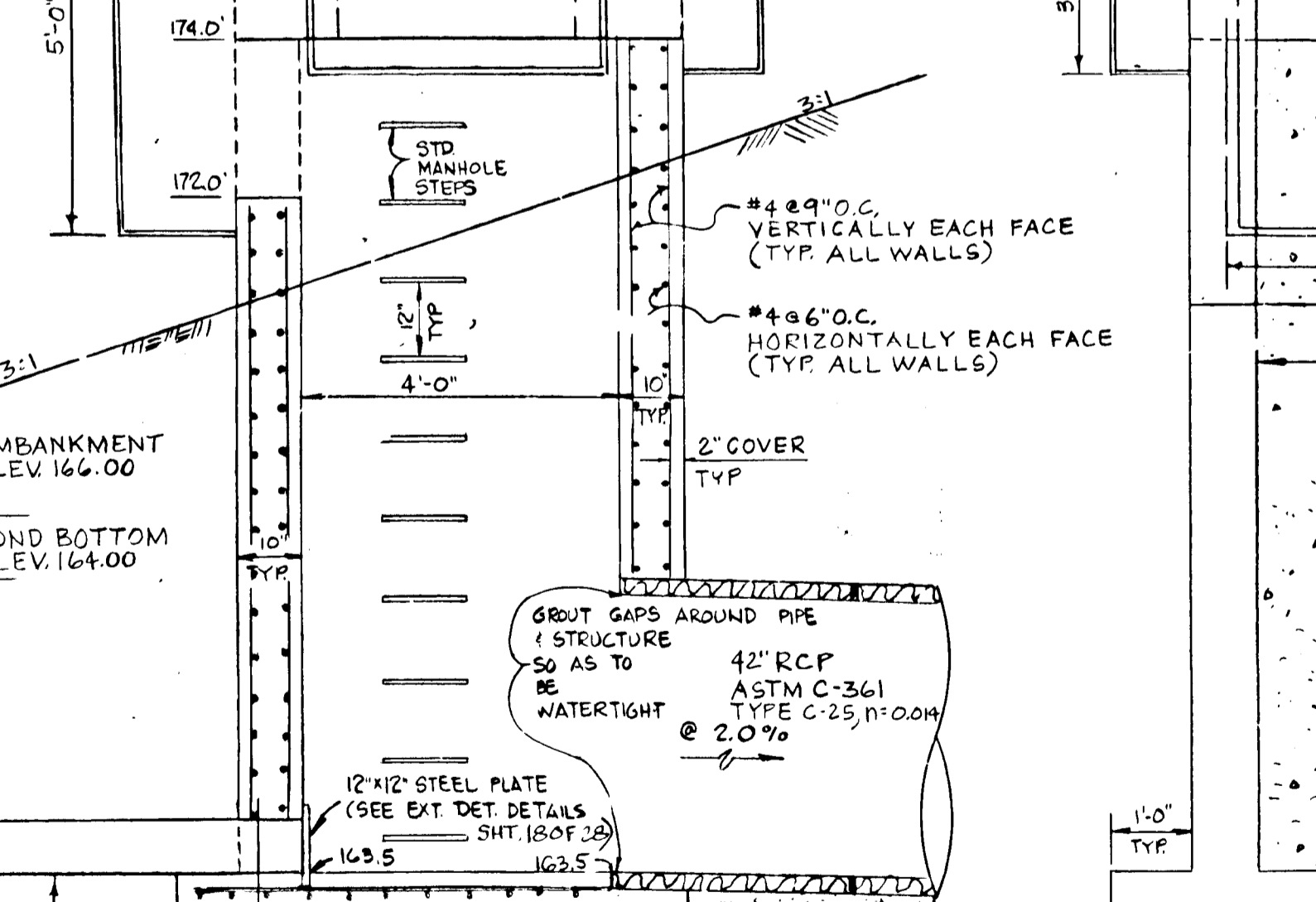
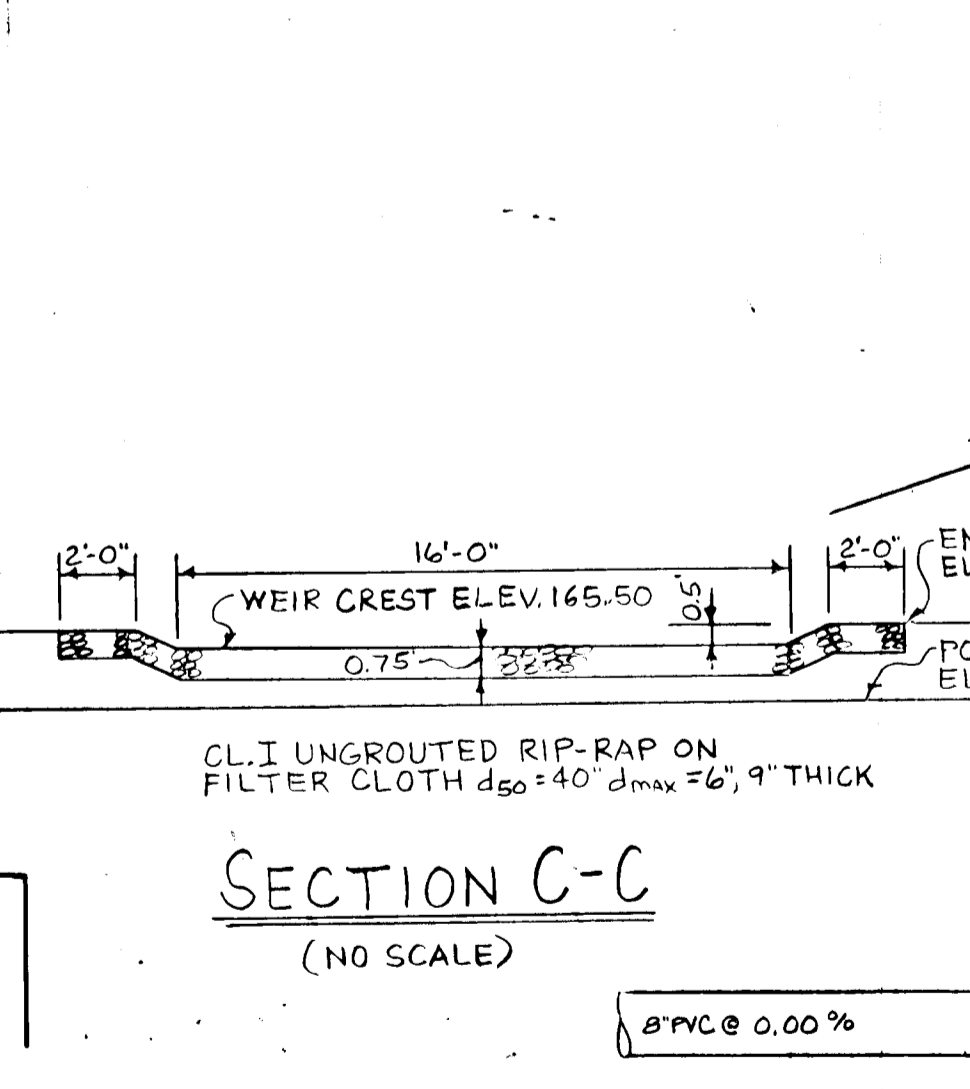
G. G. W. Hill 8/16/96
 Signature Date
 Print name below signature

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

Richard Umbarger 8/16/96
 Signature Date
 Print name below signature

- NOTE:**
- LOCATE 2" MIN. FROM ALL PIPE JOINTS
 - ALL MATERIAL TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIALS SPECIFICATIONS
 - THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT
 - COLLAR SHALL PROJECT A MINIMUM OF TWO FEET FROM THE EXTERIOR OF THE CONCRETE CRADLE AND THE PIPE ON ALL FOUR SIDES

- NOTES:**
- STRUCTURE SHALL BE PRECAST REINFORCED CONCRETE WITH 3,000 PSI STRENGTH @ 28 DAYS.
 - ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
 - ALL REINFORCING TO HAVE 1"-4" MIN. OVERLAPS.
 - PROVIDE ADDITIONAL #4 REBAR ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
 - TWO (2) 12" DIA. COVER (FEET) FOR ALL REBAR IN WALLS AND THRU-UP LINES FOR THE BASE.
 - REFER TO BUREAU COUNTY STANDARDS AND SPECIFICATIONS FOR RELATED DETAILS AND SPECIFICATIONS OF ITEMS SHOWN OR DETAILS.
 - REFER TO MD. 37A SPECIFICATIONS FOR PIPE AND STONE APPROPRIATE DETAILS.
 - ALL REBARS TO BE GALVANIZED.



OWNER/APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORP.
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN: COLE SCHWORF

ENGINEER
 GEORGE WILLIAM STEPHENS JR.
 AND ASSOCIATES, INC.
 658 KENILWORTH DRIVE
 SUITE 100
 TOWSON, MARYLAND 21284
 (410) 825-8120

DESIGNED: KJ
DRAWN: CDT
CHECKED: TC

SEDIMENT CONTROL & STORM WATER MANAGEMENT DETAILS POND #2

APPROVED: DEPARTMENT OF PUBLIC WORKS
Richard M. Danaher 8-14-96
 Chief, Bureau of Highways Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Ann J. Williams 8/19/96
 Chief, Division and Land Development and Research Date

[Signature] 8/15/96
 Chief, Development Engineering Division Date

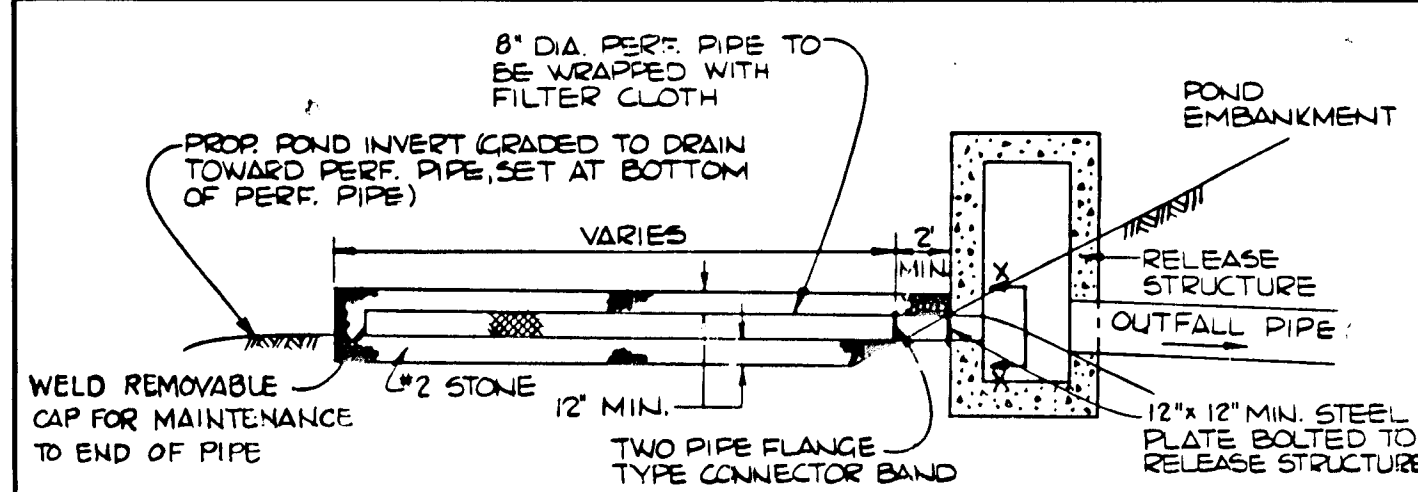
APPROVED: DEPARTMENT OF PUBLIC WORKS
Richard M. Danaher 8-14-96
 Chief, Bureau of Highways Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Ann J. Williams 8/19/96
 Chief, Division and Land Development and Research Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Ann J. Williams 8/19/96
 Chief, Division and Land Development and Research Date

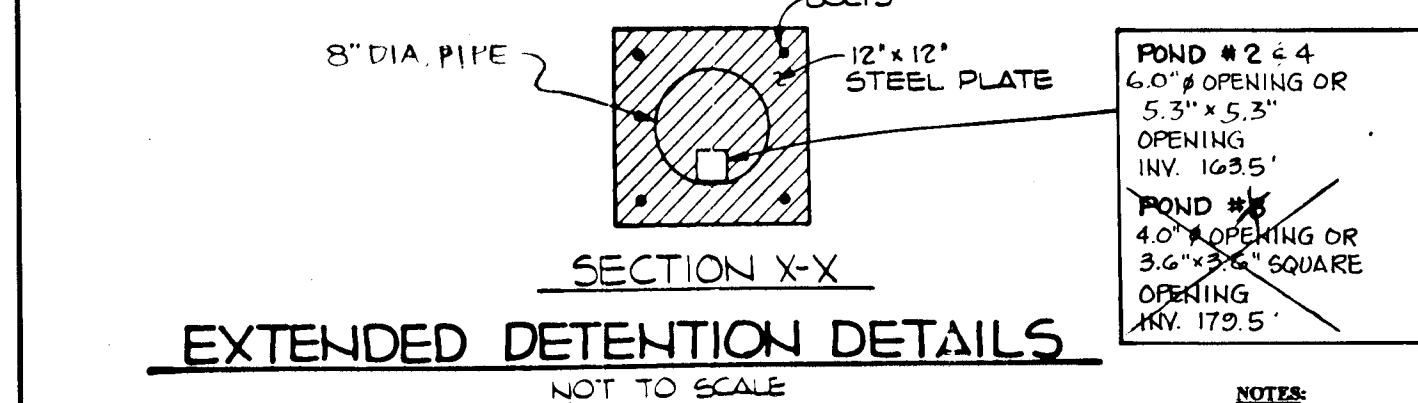
TROY HILL CORPORATE CENTER
 PHASE I
 PARCEL A-1
 HOWARD COUNTY, MD. ELECTION DISTRICT #1
 SCALE: AS SHOWN DATE: MAY 20, 1996
 FILE NOS. S90-05, P90-25, F91-24

1/25/96

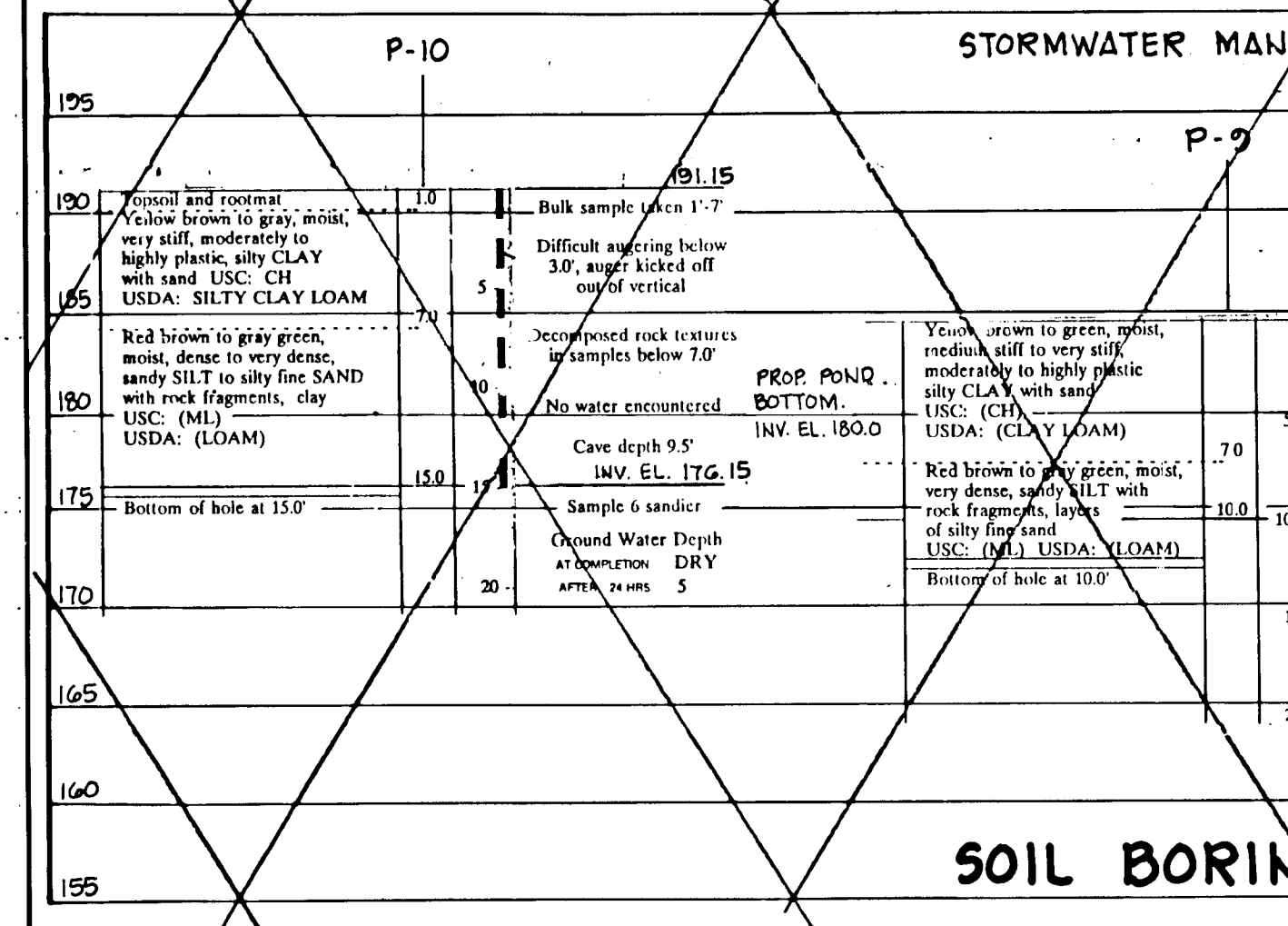
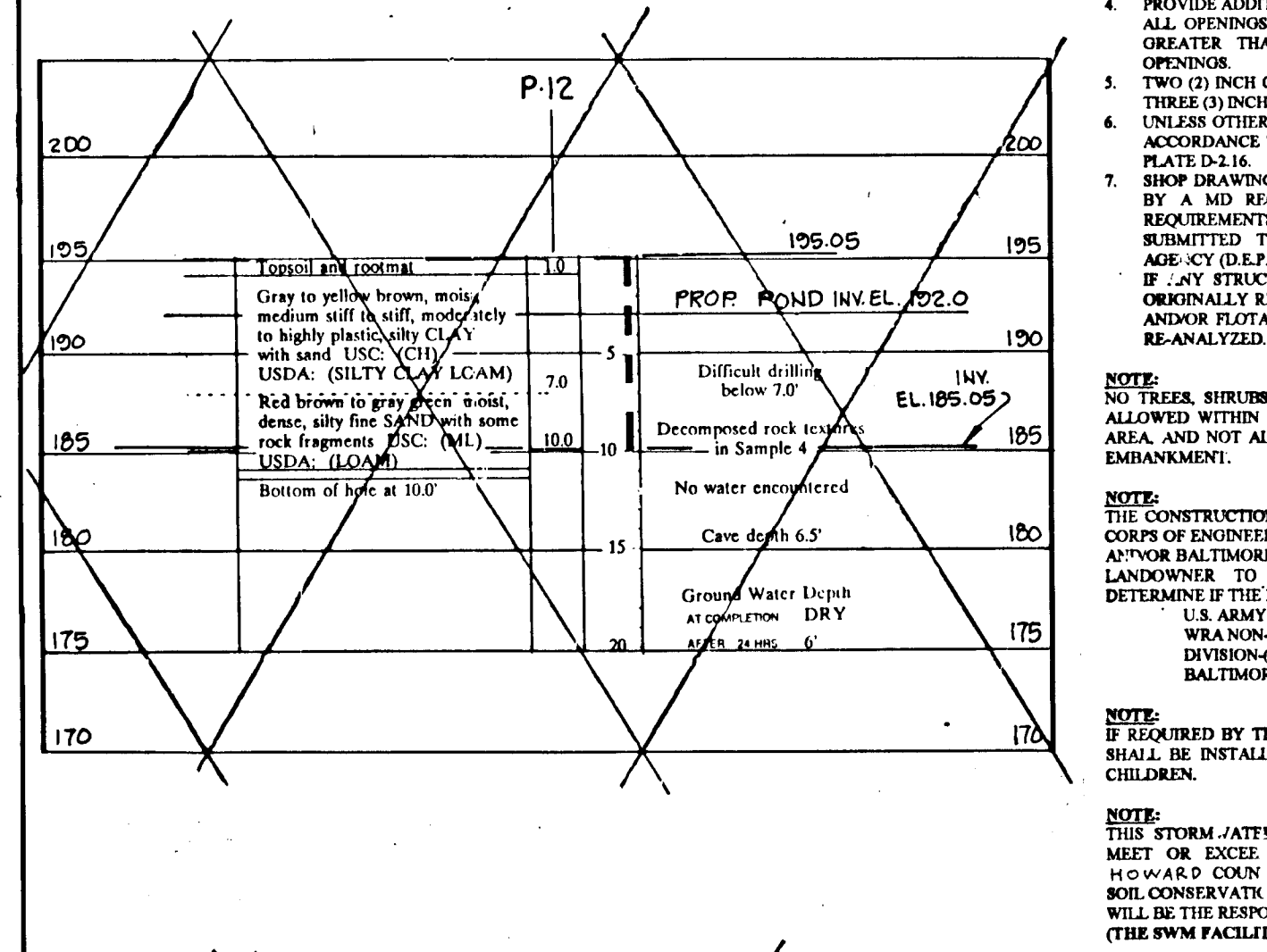


DEVELOPER & ENGINEER CERTIFICATES
By The Developer:
By The Engineer:

- NOTES:
1. PERFORATED PIPE SHALL BE BANNED TO LOW FLOW PIPE.
2. PERFORATED PIPES SHALL BE SECURELY WRAPPED WITH APPROVED FILTER CLOTH AND COVERED ON ALL SIDES WITH 12" MIN. OF #2 STONE.



EXTENDED DETENTION DETAILS NOT TO SCALE



OWNER/APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

These specifications are appropriate to all ponds within the scope of the standard work practice manual. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation
AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORK SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL.

Structure Backfill
BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CORRESPONDING TO THAT SPECIFIED FOR THE TYPE AND QUALITY OF THE STRUCTURE.

Soil Boring Logs
SOIL BORING LOGS FOR STORMWATER MANAGEMENT POND #1 - SECTION 1

Soil Boring Logs
SOIL BORING LOGS FOR STORMWATER MANAGEMENT POND #2

Soil Boring Logs
SOIL BORING LOGS FOR STORMWATER MANAGEMENT POND #2

APPROVED: DEPARTMENT OF PUBLIC WORKS
APPROVED: DEPARTMENT OF PLANNING AND ZONING

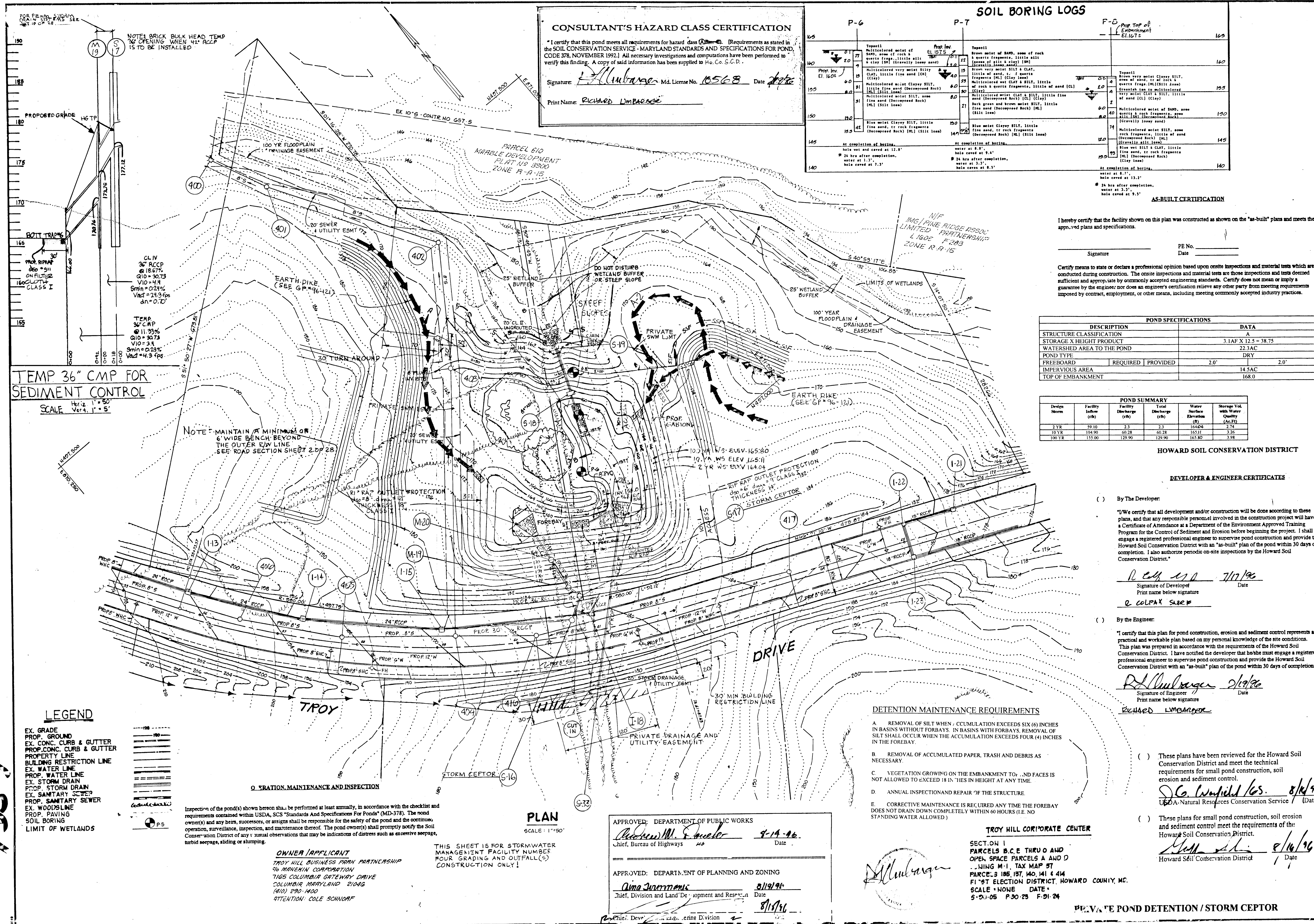
ENGINEER
GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES, INC.
658 KENILWORTH DRIVE
TOWSON, MARYLAND 21284

REVISION table with columns for REVISION, BY, NO, DATE. Includes entries for design and drawing updates.

SEDIMENT CONTROL & STORM WATER MANAGEMENT DETAILS POND #2

TROY HILL CORPORATE CENTER PHASE I PARCEL A-1
HOWARD COUNTY MD. SCALE: AS SHOWN
ELECTION DISTRICT #1 DATE: MAY 20, 1996
FILE NOS. S90-05, P90-25, F91-24

SOIL BORING LOGS for Stormwater Management Pond #1, #2, and #3, showing detailed soil profiles and groundwater data for multiple borings.



CONSULTANT'S HAZARD CLASS CERTIFICATION

*I certify that this pond meets all requirements for hazard class (A) (Requirements as stated in the SOIL CONSERVATION SERVICE - MARYLAND STANDARDS AND SPECIFICATIONS FOR POND, CODE 378, NOVEMBER 1992.) All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Ho. Co. S.C.D.

Signature: *R. Allubarger* Md. License No. 10568 Date: 7/17/96

Print Name: *Richard Allubarger*

SOIL BORING LOGS

| Boring No. | Depth (ft) | Soil Description | Remarks |
|------------|------------|---|---------|
| P-6 | 0-10 | Topsoil | |
| | 10-15 | Multicolored silty clay (CL) (Gravelly loamy sand) | |
| | 15-20 | Multicolored very moist silty clay (CL) (Gravelly loamy sand) | |
| | 20-25 | Multicolored moist clayey silt (ML) (Silt loam) | |
| P-7 | 0-10 | Topsoil | |
| | 10-15 | Brown moist silty clay (CL) (Gravelly loamy sand) | |
| | 15-20 | Multicolored moist clayey silt (ML) (Silt loam) | |
| | 20-25 | Multicolored moist silty clay (CL) (Gravelly loamy sand) | |
| P-8 | 0-10 | Topsoil | |
| | 10-15 | Multicolored moist clayey silt (ML) (Silt loam) | |
| | 15-20 | Multicolored moist silty clay (CL) (Gravelly loamy sand) | |
| | 20-25 | Multicolored moist silty clay (CL) (Gravelly loamy sand) | |

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plans and meets the approved plans and specifications.

Signature: _____ PE No. _____ Date: _____

Certify means to state or declare a professional opinion based upon onsite inspections and material tests which are conducted during construction. The onsite inspections and material tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer; nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

POND SPECIFICATIONS

| DESCRIPTION | DATA |
|----------------------------|-----------------------------|
| STRUCTURE CLASSIFICATION | A |
| STORAGE X HEIGHT PRODUCT | 3.1AF X 12.5 = 38.75 |
| WATERSHED AREA TO THE POND | 22.3AC |
| POND TYPE | DRY |
| FREEBOARD | REQUIRED PROVIDED 2.0' 2.0' |
| IMPERVIOUS AREA | 14.5AC |
| TOP OF EMBANKMENT | 168.0 |

POND SUMMARY

| Design Storm | Facility Inflow (cfs) | Facility Discharge (cfs) | Total Discharge (cfs) | Water Surface Elevation (ft) | Storage Vol. with Water Quality (AC-Ft) |
|--------------|-----------------------|--------------------------|-----------------------|------------------------------|---|
| 2 YR | 59.10 | 2.3 | 2.3 | 164.04 | 2.74 |
| 10 YR | 104.90 | 60.78 | 60.78 | 165.11 | 3.26 |
| 100 YR | 155.00 | 129.90 | 129.90 | 165.80 | 3.98 |

HOWARD SOIL CONSERVATION DISTRICT

DEVELOPER & ENGINEER CERTIFICATES

() 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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and 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."

R. Allubarger 7/17/96
Signature of Developer Date
Print name below signature

E. Colfax SUREP
Signature of Engineer Date
Print name below signature

() 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/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

R. Allubarger 7/19/96
Signature of Engineer Date
Print name below signature

Richard Allubarger
Signature of Engineer Date
Print name below signature

() 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.

D.G. Wainfield 8/14/96
Signature of Engineer Date
Print name below signature

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

[Signature] 8/14/96
Signature of Engineer Date
Print name below signature

DETENTION MAINTENANCE REQUIREMENTS

A. REMOVAL OF SILT WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FORBAYS. IN BASINS WITH FORBAYS, REMOVAL OF SILT SHALL OCCUR WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.

B. REMOVAL OF ACCUMULATED PAPER, TRASH AND DEBRIS AS NECESSARY.

C. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.

D. ANNUAL INSPECTION AND REPAIR OF THE STRUCTURE.

E. CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME THE FOREBAY DOES NOT DRAIN DOWN COMPLETELY WITHIN 60 HOURS (I.E. NO STANDING WATER ALLOWED.)

TROY HILL CORPORATE CENTER

SECTION 1
PARCELS B,C,E THRU O AND
OPEN SPACE PARCELS A AND D
ZONING M-1, TAX MAP 37
PARCELS 185, 187, 180, 141 & 414
F1 ST ELECTION DISTRICT, HOWARD COUNTY, MD.
SCALE: NONE DATE: 5-21-05 P.30-23 P.21-24

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature] 9-14-96
Chief, Bureau of Highways Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 8/19/96
Chief, Division and Land Development and Res. Date

TEMP 36" CMP FOR SEDIMENT CONTROL

SCALE: Horiz. 1" = 50'
Vert. 1" = 5'

LEGEND

- EX. GRADE
- PROP. GROUND
- EX. CONC. CURB & GUTTER
- PROP. CONC. CURB & GUTTER
- PROPERTY LINE
- BUILDING RESTRICTION LINE
- EX. WATER LINE
- PROP. WATER LINE
- EX. STORM DRAIN
- PROP. STORM DRAIN
- EX. SANITARY SEWER
- PROP. SANITARY SEWER
- EX. WOODS LINE
- PROP. PAVING
- SOIL BORING
- LIMIT OF WETLANDS

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards and Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continuous operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

OWNER/APPLICANT

TROY HILL BUSINESS PARK PARTNERSHIP
% MONEKIN CORPORATION
1165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400
ATTENTION: COLE SCHNORF

THIS SHEET IS FOR STORMWATER MANAGEMENT FACILITY NUMBER FOUR GRADING AND OUTFALL(S) CONSTRUCTION ONLY!

GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES, INC.
655 KEILWORTH DRIVE
TOWSON, MARYLAND 21284
(301) 825-8120

TROY HILL CORPORATE CENTER
PHASE 1
PARCEL A-1

SEDIMENT CONTROL
STORM WATER MANAGEMENT
PLAN
FOR
POND #4

REVISIONS

| NO. | DESCRIPTION | DATE |
|-----|-----------------------------------|------|
| 1 | BY G.W.S. 9/16/96 | |
| 2 | POND 2 TO REMAIN PART OF P.30-136 | |

DATE: MAY 20, 1996
DES. DWN.
SCALE: 1" = 50'
PROJECT/FILE NO.
SHEET NO. 19 OF 28

POND CONSTRUCTION SPECIFICATIONS

NOTE: IN ADDITION TO THESE SPECIFICATIONS SEE GEOTECHNICAL RECOMMENDATIONS IN THE SOILS REPORT.

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MONITORING ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

Site Preparation

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, YARDS, BURNERS, AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCING, RUBBER AND OTHER OBSTRUCTIONAL MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, LOGS, FENCING, RUBBER AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DEPOSITED OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN STRUCTURED, A REPRESENTATIVE OF THE COUNTY WILL BE FURNISHED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

Earth Fill

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBER, RUBBER, RUBBER, RUBBER, RUBBER OR OTHER OBSTRUCTIONAL MATERIAL. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT SHALL BE CLASSIFIED TO UNIFORM SOIL CLASSIFICATION CL, SC, CH OR CL OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE PREPARED TO RECEIVE THE FILL MATERIAL. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 8 INCH THICK LAYERS BEFORE COMPACTED LAYERS WHICH ARE TO BE CONTROLLED OVER THE ENTIRE LENGTH OF THE EMBANKMENT. THE MOST PERMISSIBLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNHILL PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

CONSTRUCTION - THE MOVEMENT OF THE HAIRING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVELLED BY NOT LESS THAN ONE TREAD TRACK OF THE EQUIPMENT OR COMPACTOR SHALL BE KEPT BY A MINIMUM OF FOUR COMPLETE PASSES OF A REEFER/TRACTOR, RUBBER TREAD OR VIBRATION ROLLER. THE FILL MATERIAL SHALL BE SUFFICIENTLY MOISTURE THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THE REQUIRED DENSITY AND TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD D-155.

Stabilization

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SHORTLY CONDITION. ALL DOWN-SLOPE SURFACES OF THE EMBANKMENT, BORROW AREAS, AND BORROW AREAS AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE MARYLAND SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-343) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

STORMWATER MANAGEMENT FACILITY WILL BE STABILIZED WITH PERMANENT BUREL REEDS AT 100% DENSITY.

1. SEEDING PREPARATION - LOOSEN UPPER 3 INCHES OF SOIL. BAKING (DLCAN) 0 OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

2. SOIL AMENDMENTS - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.), 400 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) AND 400 LBS. PER ACRE OF 30-0-0 UREA FERTILIZER (2 LBS/1000 SQ. FT.) HARBOR OR 0-0-0 UREA FERTILIZER (2 LBS/1000 SQ. FT.) AT TIME OF SEEDING. APPLY 400 LBS. OF 0-2 LBS. (1000 SQ. FT.) OF 30-0-0 UREA FERTILIZER AND 500 LBS. PER ACRE (1.1 LBS/1000 SQ. FT.) OF 10-10-10 FERTILIZER.

3. SEEDING - FOR THE PERIOD MARCH 1 THROUGH APRIL 30 SEED WITH 40 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND 15 LBS. PER ACRE DOCKLATCH CROWN VETCH. FOR THE PERIOD OF MAY 1 THROUGH JULY 31 SEED WITH 40 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE DOCKLATCH CROWN VETCH. FOR THE PERIOD OF AUGUST 1 THROUGH OCTOBER 15 SEED WITH 40 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND 20 LBS. PER ACRE DOCKLATCH CROWN VETCH. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT THE SITE BY OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW. FOR THE PERIOD OF MARCH 1 THROUGH FEBRUARY 28 DOCKLATCH CROWN VETCH SHALL BE APPLIED DURING THE SEEDING PERIOD. SEEDING SHALL BE APPLIED THROUGH APRIL 30 AT THE RATE OF 15 LBS. PER ACRE.

4. MULCHING - APPLY 1.5 TO 3 TONS PER ACRE OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. DAMAGED OR MISSING MULCH SHALL BE REPLACED WITH 20 GALLONS PER ACRE OF UNROTTED MULCH. ON FLAT AREAS OF SLOPE 8 FEET OF HORIZONTAL, USE 340 GALLONS PER ACRE FOR ANCHORING.

5. MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDING.

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. THE APPROVED EROSION CONTROL PLAN SHALL BE FOLLOWED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.

Filter Cloth

FILTER CLOTH SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 919.12. FILTER CLOTH SHALL BE PLACED UNDER ALL EXCAVATIONS AND STRUCTURES WHICH MAY REQUIRE DRAINING THE WATER TO SLUMP FROM WHICH THE WATER SHALL BE PUMPED.

Cut-off Trench - THE CUT-OFF TRENCH SHALL BE EXCAVATED INTO EXISTING MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE LESS THAN THE BOTTOM WIDTH OF THE FILL. THE TRENCH SHALL BE GRADED BY THE EQUIPMENT USED FOR EXCAVATION. THE TRENCH SHALL BE 18 INCHES DEEP. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW THE EXISTING GROUND SURFACE. THE TRENCH SHALL BE 18 INCHES WIDE AT THE TOP AND 12 INCHES WIDE AT THE BOTTOM. THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TAMPER TO A MINIMUM DENSITY AND MINIMUM PERMEABILITY. IF UNSUITABLE MATERIAL IS ENCOUNTERED AT THE TIME OF CUT-OFF TRENCH INSTALLATION DEEPER THAN 4 FEET, IT WILL BE NECESSARY TO EXTEND THE CUT-OFF TRENCH DOWN UNTIL SUITABLE MATERIAL IS ENCOUNTERED AS DETERMINED BY A GEOTECHNICAL ENGINEER. SOILS TO BE USED FOR CUT-OFF TRENCH BACKFILL SHALL CONFORM TO UNIFIED CLASSIFICATION CL, SC, CH OR CC.

Interlock Core - THE CORE SHALL BE FILLED ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE FILL SHALL BE GOVERNED BY THE EQUIPMENT USED, WITH MINIMUM WIDTH BEING FOUR FEET. THE TOP WIDTH SHALL BE SHOWN ON THE PLAN. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TAMPER TO A MINIMUM DENSITY AND MINIMUM PERMEABILITY.

Structure Backfill

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND SPECIFICATION AS SHOWN ON THE PLANS. THE ADJOINING LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPER OR OTHER MANUALLY DIRECTED COMPACTOR EQUIPMENT. THE MATERIAL TO BE PLACED UNDER THE PIPE SHALL BE COMPACTED TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET HORIZONTALLY TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER THE STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

Flow Control

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPOOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-361.
2. BEDDING - ALL REINFORCED CONCRETE PIPE JOINTS SHALL BE BEDDED IN A CONCRETE BEDDING FOR THE ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND ON THE SIDES OF THE PIPE AT LEAST 10% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.
3. LAYING PIPE - BELL AND SPOOT JOINTS SHALL BE PLACED 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. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT.
4. BACKFILLING SHALL CONFORM TO STRUCTURE BACKFILL.
5. OTHER DETAILS (ANTI-SEEP COLLAR, VALVES, ETC) SHALL BE AS SHOWN ON THE DRAWINGS.

Concrete

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 606. MIX NO. 3.

Reinforcing Steel in the Concrete Structures

REINFORCING STEEL MUST BE ASTM A 615, GRADE 60, STEEL. ANCHORS AND ANCHOR BARS MUST BE ASTM A 36.

Rock Riprap

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 905. THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THE RIPRAP IS PLACED SHALL BE NEARLYLY HOMOGENEOUS WITH THE LARGER ROCKS UNLESS OTHERWISE SPECIFIED. THE RIPRAP SHALL BE PLACED IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOID BETWEEN THE LARGER ROCKS. THE RIPRAP SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 919.12.

Care of Water During Construction

ALL WORK ON PERMANENT STRUCTURES SHALL 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. THE APPROVED EROSION CONTROL PLAN SHALL BE FOLLOWED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.

Anti-seep Collar

SCALE: 1" = 3'

Gabions

GABIONS SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 912.

Outfall Protection

PROTECTION FOR RIPRAP OR GABION OUTFALLS SHALL BE PREPARED TO THE REQUIRED LINE AND GRADE. ANY FILL REQUIRED IN THE STRUCTURE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL. ALL ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED IN THE RIPRAP OR GABION. ALL STONE SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE STONE IN PLACE SHALL BE NEARLYLY HOMOGENEOUS WITH THE LARGER ROCKS. THE RIPRAP SHALL BE PLACED IN CONTACT ONE TO ANOTHER, WITH THE SMALLER ROCKS FILLING THE VOID BETWEEN THE LARGER ROCKS. STONE FOR OUTFALLS MAY BE PLACED BY EXCAVATION. RIPRAP OR GABION OUTFALLS SHALL BE CONSTRUCTED TO FULL COVER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID ANY DISPLACEMENT OF UNDERLYING MATERIALS. THE CONTRACTOR SHALL AVOID DAMAGE TO THE FILTER BLANKET OR CLOTH DURING PLACEMENT OF RIPRAP. HAND PLACEMENT SHALL BE REQUIRED AS NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORK. FILTER CLOTH SHALL BE PLACED UNDER ALL RIPRAP AND GABIONS.

Fence

CONTRACT FENCING IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 6901 AND 6902. USE SPECIFICATIONS FOR A 6" FENCE, SUBSTITUTING 42" WOODEN PICKETS FOR 4" LINE PICKETS. CONSTRUCT THE GATE IN ACCORDANCE WITH THE S.H.A. STANDARD DETAIL 9901 WITH 42" FABRIC. THE FABRIC USED FOR THE FENCE AND GATE MUST CONFORM TO AASHTO DESIGNATION M-18174. DARK VINYL COATING IS REQUIRED FOR THE FENCE PICKETS AND WIRE FABRIC. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER THE FENCE OR GATE PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS.

General Notes

1. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS SHALL BE ADVISED OF ALL CONSTRUCTION AND MATERIALS SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 606. MIX NO. 3.
2. SOIL CONSERVATION SERVICE MARYLAND STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-343) OR AS SHOWN ON THE DRAWINGS.
3. MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 919.12.
4. STORMWATER MANAGEMENT APPROVED UNDER 101-044 HOWARD COUNTY ONLY.

Notes

1. LOCATE 2" MIN. FROM ALL PIPE JOINTS.
2. ALL MATERIAL TO BE IN ACCORDANCE WITH CONSTRUCTION AND MATERIALS SPECIFICATIONS.
3. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT.
4. COLLAR SHALL PROTECT A MINIMUM OF TWO FEET FROM THE EXTERIOR OF THE CONCRETE CRADLE AND THE PIPE ON ALL FOUR SIDES.

Notes

1. STRUCTURE SHALL BE PRECAST REINFORCED CONCRETE WITH 3,500 PSI STRENGTH & 28 DAYS.
2. ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
3. ALL REINFORCING TO HAVE 1" MIN. OVERLAPS.
4. PROVIDE ADDITIONAL #5 REBARS ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
5. TWO (2) INCH COVER (MIN) FOR ALL REBAR IN WALLS AND THREES (3) INCHES FOR THE BASE.
6. REFER TO HOWARD COUNTY STANDARDS AND SPECIFICATIONS FOR STANDARD DETAILS AND SPECIFICATIONS OF ITEMS SHOWN ON SECTIONS.
7. REFER TO MD. 378 SPECIFICATIONS FOR PIPE AND STONE AGGREGATE DETAILS.
8. ALL REINFORCED STEEL TO BE GALVANIZED.

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III. STANDARD SPECIFICATIONS

FOR

AGROSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

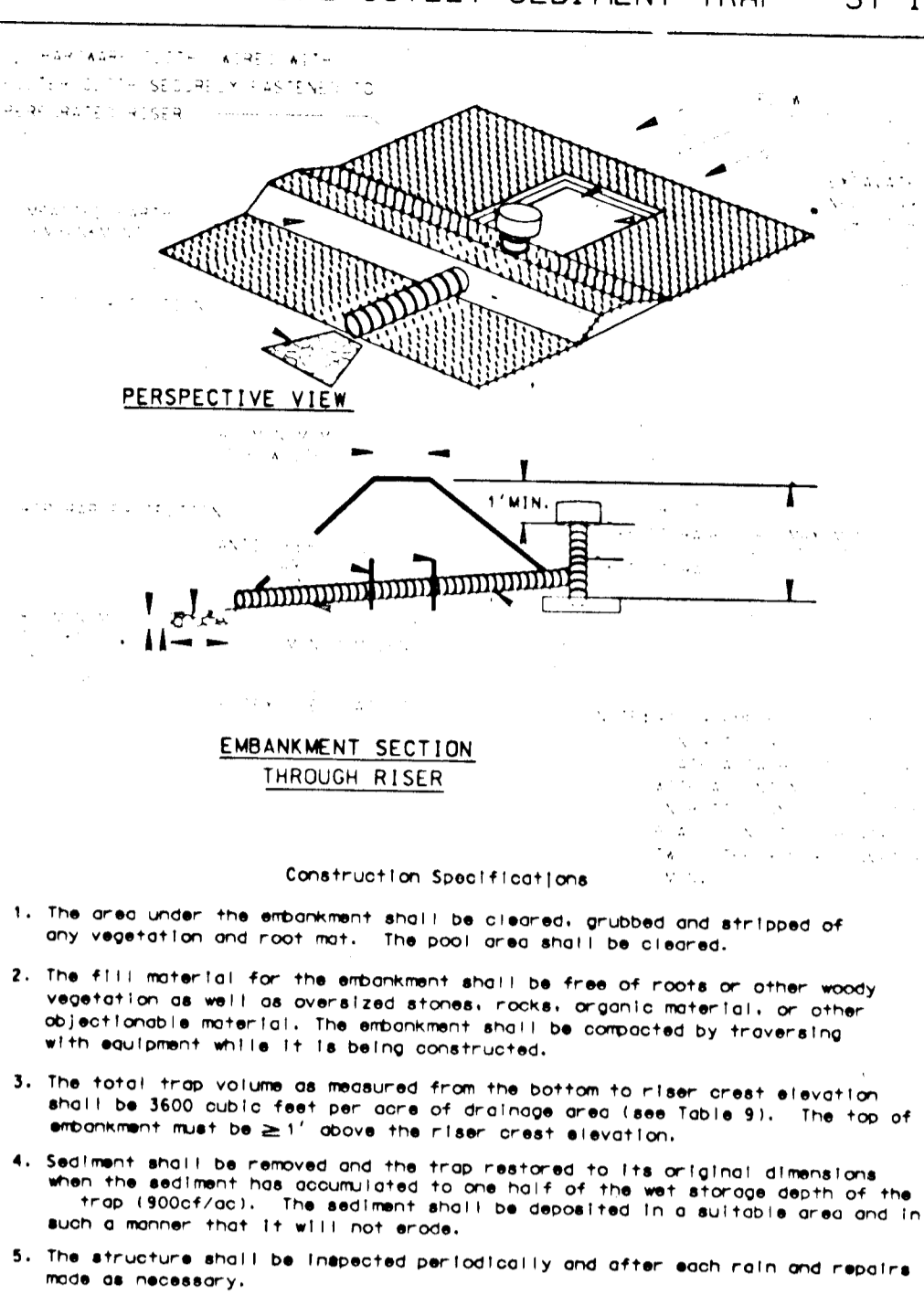
- This practice is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

- Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
 - Topsoil shall be a loam, sandy loam, clay loam, silt loam, silty clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of coarse-grained textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
 - Topsoil must be free of plants or plant parts such as bromelads, grass, quackgrass, Johnsrass, weeds, roots, ivy, dillies, or others as specified.
 - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 lbs/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- For sites having disturbed areas under 5 acres:
 - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- For sites having disturbed areas over 5 acres:
 - On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 - pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - Organic content of topsoil shall be not less than 1.0 percent by weight.
 - Topsoil having suitable salt content greater than 500 parts per million shall not be used.
 - No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dispersion of phytotoxic materials.

- When topsoiling, maintain seeded erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fences and Sediment Traps and Basins.
 - Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
 - Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seeding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from spreading or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil shall not be placed while the topsoil or subsoil is a frozen or muddy condition, when the subsoil is excessively wet or is a condition that may otherwise be detrimental to proper grading and seedbed preparation.
- VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composed sludge and amendments may be applied as specified below:
- Composed Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
 - Composed sludge shall be supplied by, or originate from, a person or persons that are permitted at the time of acquisition of the compost by the Maryland Department of the Environment under COMAR 26.04.06.
 - Composed sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - Composed sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - Composed sludge shall be amended with a potassium fertilizer applied at the rate of 4 lbs/1,000 square feet, and 1/3 the normal lime application rate.
- Reference: Guideline Specifications, Soil Preparation and Seeding, MD-YA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.

DETAIL 8 - PIPE OUTLET SEDIMENT TRAP - ST 1

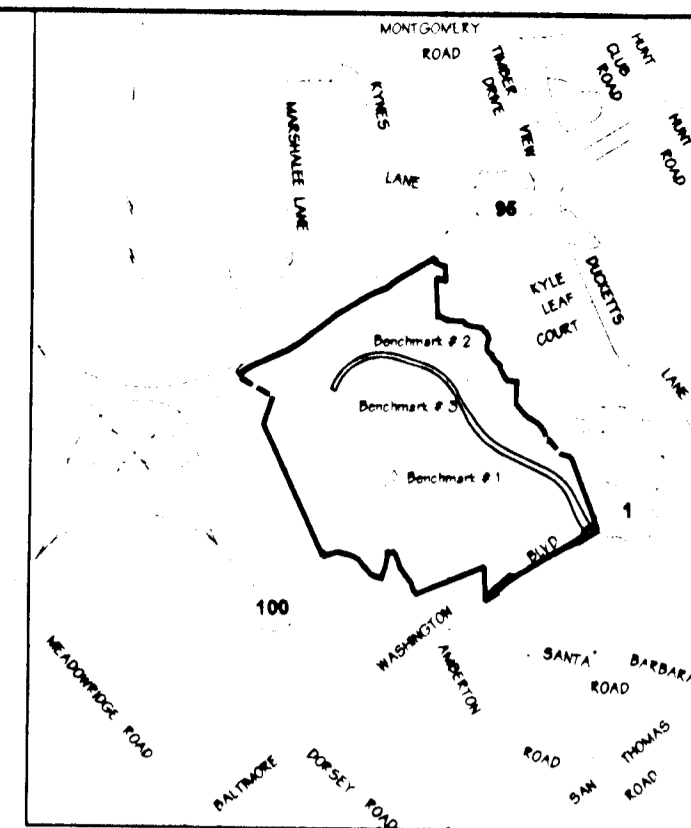


PIPE OUTLET SEDIMENT TRAP - ST 1

- Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
- The structure shall be removed and area stabilized when the drainage area has been properly stabilized.
- All cut and fill slopes shall be 2:1 or flatter.
- All pipe connections shall be watertight.
- Above the wet storage elevation, the riser shall be perforated with 1/2" wide 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal barrel.
- The riser shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.
- Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
- Fill material along the pipe spillway shall be hand compacted in 4" layers. A minimum of 2" of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.
- The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/2" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2" of stone, gravel or formed earth on the plate.
- Anti-see-saw collars shall be constructed in accordance with plans first table 16 and Details 13 and 11.
- Concrete trash rack and anti-vortex device design details are on Detail 16.
- Refer to Section D for dewatering requirements of sediment traps.
- Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.
- Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

SEQUENCE OF OPERATIONS

- OBTAIN GRADING PERMIT (1 DAY)
 - NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS AND LICENSES INSPECTOR 48 HOURS BEFORE BEGINNING WORK (1 DAY)
 - STAKE LIMIT OF DISTURBANCE (6 DAYS)
 - CLEAR GRUB AND INSTALL SILT FENCE NORTH SIDE OF SITE BEGINNING AT U.S. ROUTE 1 (8 DAYS)
 - INSTALL SEDIMENT AND EROSION CONTROL MEASURES FROM STATION 68+00 TO U.S. ROUTE 1. INSTALL CLEAN WATER PIPE FROM H-1 TO E-3 AS SOON AS POSSIBLE. FIT TO INSTALL PIPE TO BE TAKEN FROM TRAP #1 (4 DAYS)
 - BEGIN CLEARING, GRUBBING AND GRADING ONLY IN THOSE AREAS WITH CONTROLS IN PLACE (1 DAY)
 - INSTALL TRAPS 5 AND 6 AND MEASURES BETWEEN 58+00 AND 65+00. INSTALL E-1 TO E-2 AS SOON AS POSSIBLE (5 DAYS)
 - BEGIN CLEARING, GRUBBING AND GRADING ONLY IN THOSE AREAS WITH CONTROLS IN PLACE (1 DAY)
 - STABILIZE SLOPES E-1-E-2 CROSSING (1 DAY)
 - INSTALL TRAPS 2, 3, 4, AND 8 AND REMAINING SEDIMENT CONTROL MEASURES NORTH SIDE OF SITE (7 DAYS)
 - BEGIN CLEARING, GRUBBING AND GRADING ONLY IN THOSE AREAS WITH CONTROLS IN PLACE (1 DAY)
 - INSTALL REMAINING SILT FENCE (3 DAYS)
 - CLEAR GRUB AND INSTALL TRAP #7 AND SEDIMENT BASIN #1 (8 DAYS)
 - INSTALL REMAINING SEDIMENT CONTROL MEASURES (4 DAYS)
 - ALL TRAPS AND SEDIMENT BASIN TO BE MAINTAINED AND ALL AREAS TO BE STABILIZED IN ACCORDANCE WITH 1994 SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- GRADING IN DRAINAGE AREA OF EACH TRAP MAY COMMENCE ONLY UPON PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.
- INCREMENTAL STABILIZATION TO BE UTILIZED THROUGHOUT THE GRADING OPERATION.
- CONTROLS ARE TO REMAIN THROUGH F96-136 AND MAY BE REMOVED ONLY UPON PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.
- NOTE: SEE SEQUENCE OF CONSTRUCTION FOR POND NO. 4 ON SHEET 22 OF 28. POND #4 MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING AREAS TO TRAPS 5 AND 6 ARE PERMANENTLY STABILIZED AND PERMISSION IS GRANTED BY THE INSPECTOR TO PROCEED.
- NOTES: IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUB-GRADE. WHERE FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUB-GRADE.
24. ALL TRAPS AND SEDIMENT BASIN TO BE MAINTAINED AND ALL AREAS TO BE STABILIZED IN ACCORDANCE WITH 1994 SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- GRADING IN DRAINAGE AREA OF EACH TRAP MAY COMMENCE ONLY UPON PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.
- CONTROLS ARE TO REMAIN THROUGH F96-136 AND BE REMOVED ONLY UPON PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.



Vicinity Map
SCALE: 1" = 2000'

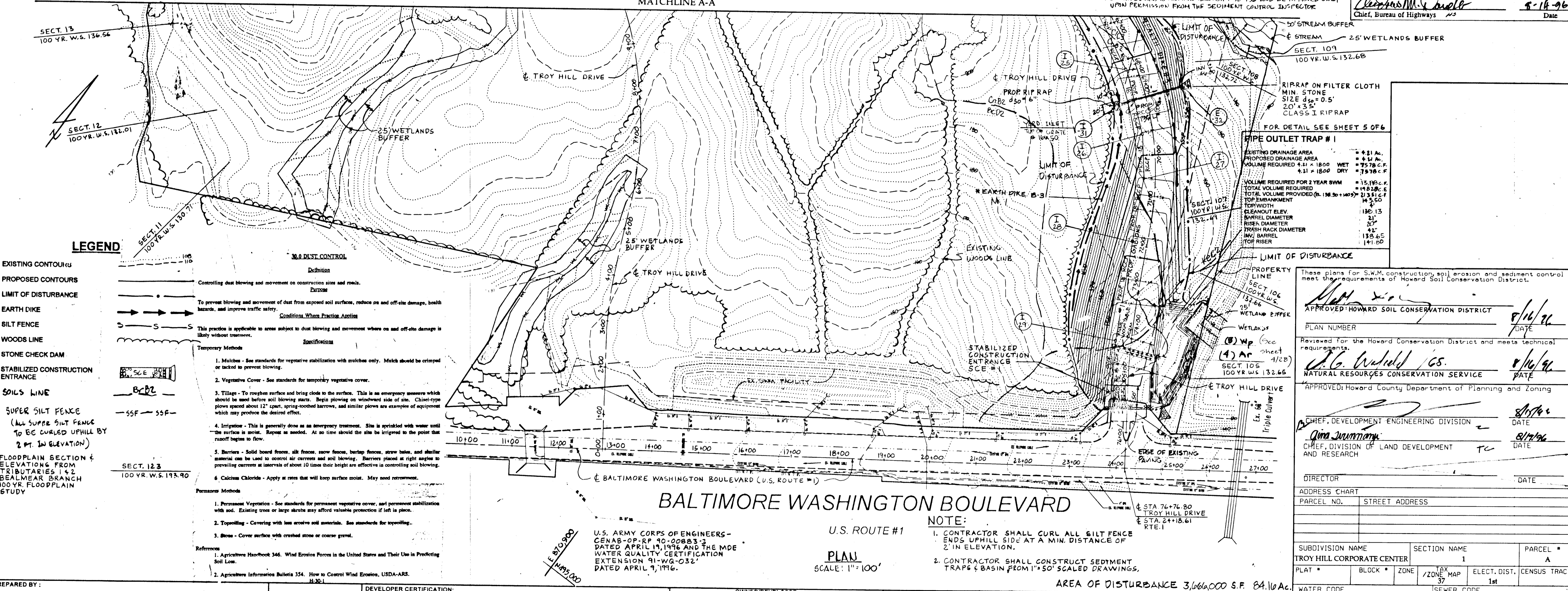
Benchmarks

- Benchmark # 1 Iron Pin @ Traverse # 1066
N 496,501.3597 E 869,154.4576 Elev. 175.92
- Benchmark # 2 Iron Pin @ Traverse # 1061
N 498,036.6945 E 868,791.1502 Elev. 242.49
- Benchmark # 3 Iron Pin @ Traverse # 1034
N 497,636.7437 E 869,835.6586 Elev. 214.85

SEQUENCE OF OPERATIONS - CONT'D
NOTE: CONTRACTOR TO BEGIN GRADING U.S. ROUTE 1 PROCEEDING NORTHWESTERLY SUCH THAT NO MORE THAN 20 ACRES IS UNSTABILIZED AT ANY ONE TIME

APPROVED: DEPARTMENT OF PUBLIC WORKS
Charles M. ...
Chief, Bureau of Highways
8-14-96
Date

MATCHLINE A-A



BALTIMORE WASHINGTON BOULEVARD

U.S. ROUTE #1

PLAN SCALE: 1" = 100'

- NOTE:**
- CONTRACTOR SHALL CURL ALL SILT FENCE ENDS UPHILL SIDE AT A MIN. DISTANCE OF 2' IN ELEVATION.
 - CONTRACTOR SHALL CONSTRUCT SEDIMENT TRAPS & BASIN FROM 1" = 50' SCALED DRAWINGS.
- AREA OF DISTURBANCE 3,666,000 S.F. 84.16 AC.

U.S. ARMY CORPS OF ENGINEERS
CENAB-OP-RP 40-02883-2
DATED APRIL 11, 1976 AND THE MDE
WATER QUALITY CERTIFICATION
EXTENSION 91-WQ-032
DATED APRIL 7, 1996.

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
668 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

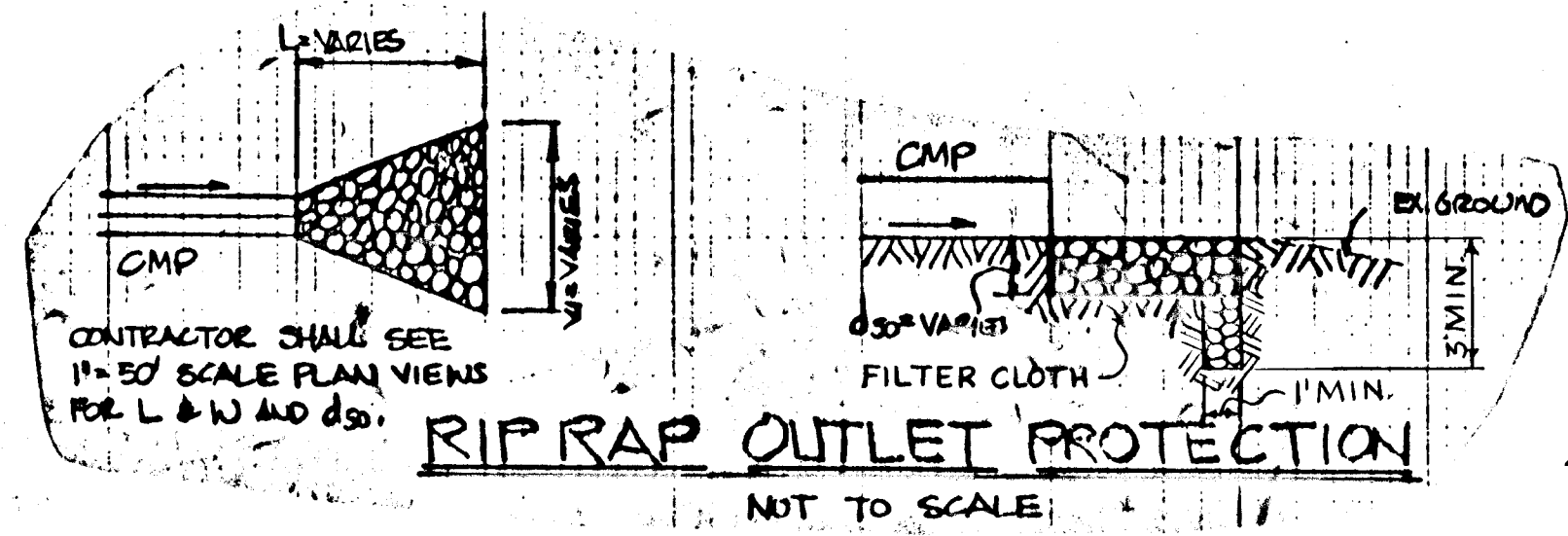
DEVELOPER CERTIFICATION:
I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I/We authorize periodic on-site inspection by the Howard Soil Conservation District.
Developer Name: *Robert Umlinger*
Date: 7/29/96

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
c/o MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND
21146
410-290-1400

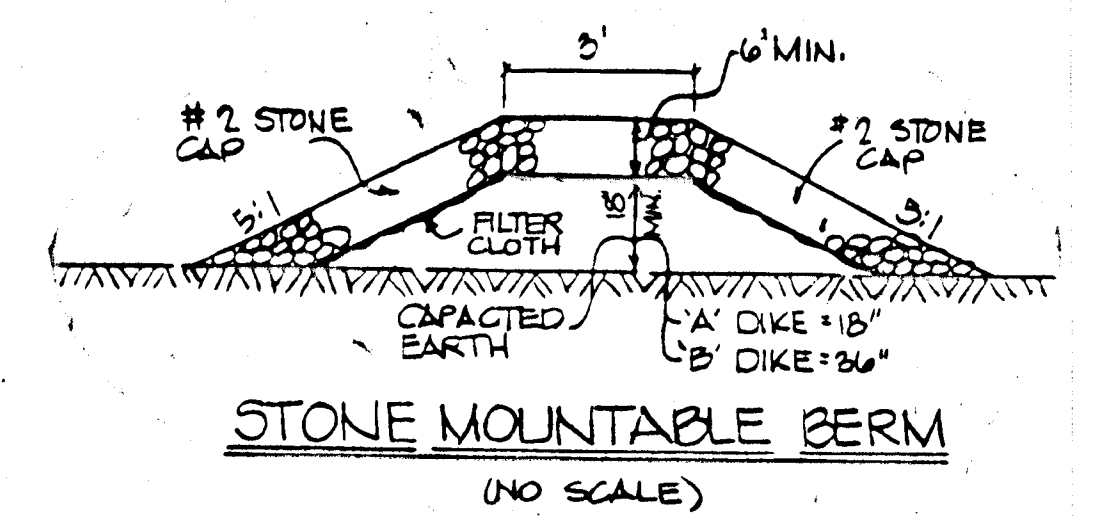
ENGINEER CERTIFICATION:
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Engineer: *Robert Umlinger*
Date: 7/29/96
PE # 10568

MASS GRADING SEDIMENT CONTROL PLAN
FOR
TROY HILL CORPORATE CENTER
PHASE 1 PARCEL A
HOWARD COUNTY, MARYLAND
1st ELECTION DISTRICT
SCALE: AS SHOWN
FEBRUARY 29, 1996

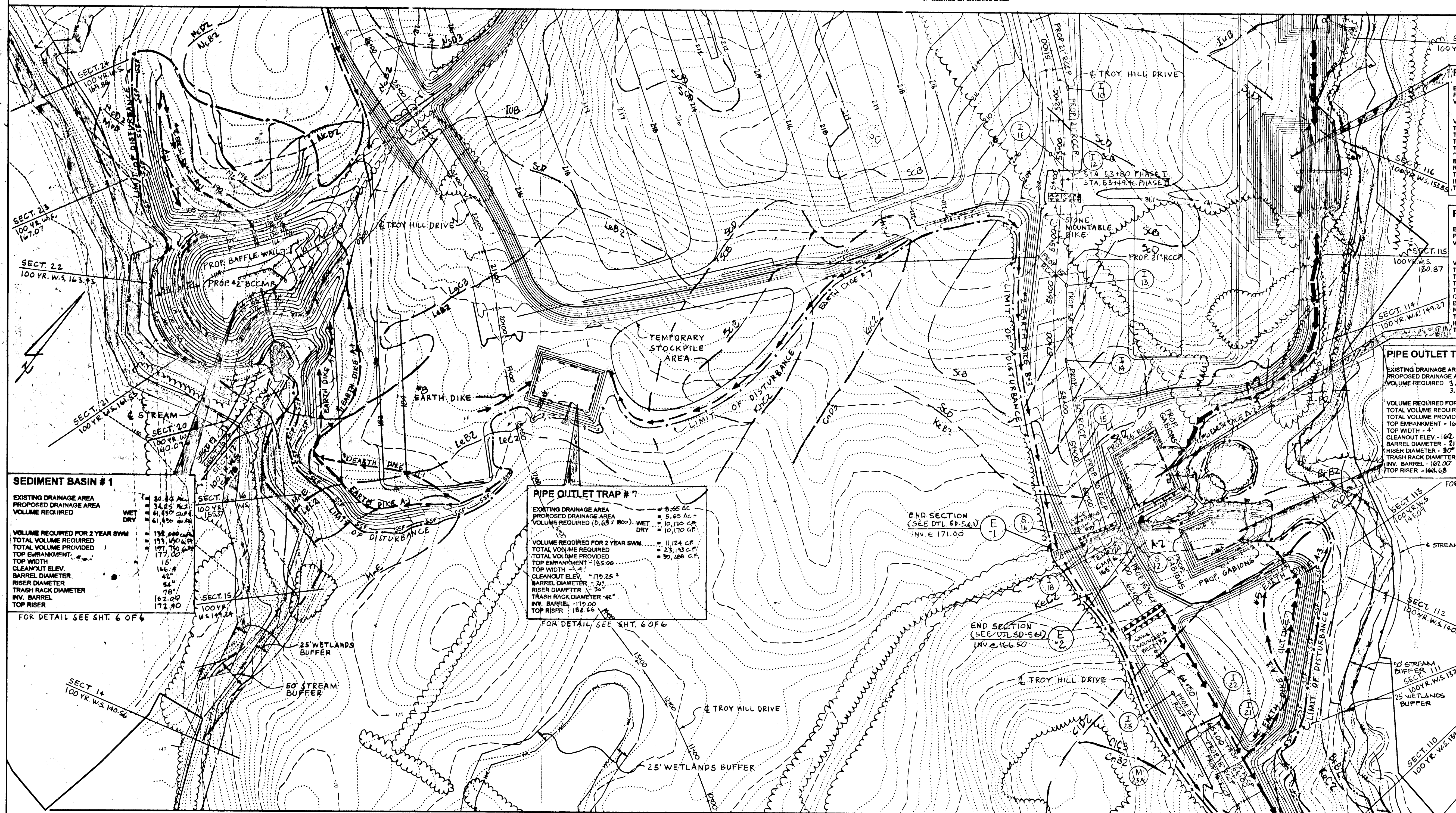
1654



- SEQUENCE OF CONSTRUCTION FOR POND # 4
1. Temp. 24" C.M.P. from E-1 to E-2 & Traps #5 & #6 to be installed under Mass Grading Plan GP-96-121.
 2. Permanent 24" R.C.C.P. from S-33 to S-34 to be constructed & blocked @ S-33 (1 day). Drainage to continue through E-1 to E-2.
 3. Install utilities except for a portion of proposed sanitary sewer running through trap #6. See sheet 25 of 28 of F-96-136 (3 days).
 4. Install temp. 36" C.M.P. from M-19 to Trap #6 (2 days).
 5. Install silt fence at toe of embankment (1 day) (SEE SHEET PD OF 12).
 6. Contractor is to install embankment and release structure. Maintaining drainage through pond from traps #5 & #6 (5 days).
 7. Upon completion of release structure & embankment, remove trap #5 & #6 with permission from sediment control inspector and construct remaining portion of prop. #1 san. (2 days).
 8. Complete pond #4 grading and construction and unblock S-33. Backfill temp. 24" C.M.P. from E-1 to E-2 (1 day).
 9. Stabilize all disturbed areas.



MATCHLINE B-B



SEDIMENT BASIN #1

| | |
|--------------------------------|---|
| EXISTING DRAINAGE AREA | 34.85 AC. |
| PROPOSED DRAINAGE AREA | 34.85 AC. |
| VOLUME REQUIRED | WET = 61,450 CU FT DRY = 177,700 CU FT |
| VOLUME REQUIRED FOR 2 YEAR SWM | 198,000 CU FT |
| TOTAL VOLUME REQUIRED | 198,000 CU FT |
| TOTAL VOLUME PROVIDED | 198,000 CU FT |
| TOP EMBANKMENT | 177.70 |
| TOP WIDTH | 15' |
| CLEANOUT ELEV. | 166.4' |
| BARREL DIAMETER | 42" |
| RISER DIAMETER | 36" |
| TRASH RACK DIAMETER | 78" |
| INV. BARREL | 162.00 |
| TOP RISER | 172.40 |

FOR DETAIL SEE SHT. 6 OF 6

PIPE OUTLET TRAP #7

| | |
|--------------------------------|--|
| EXISTING DRAINAGE AREA | 8.65 AC. |
| PROPOSED DRAINAGE AREA | 8.65 AC. |
| VOLUME REQUIRED | WET = 10,100 CU FT DRY = 10,170 CU FT |
| VOLUME REQUIRED FOR 2 YEAR SWM | 11,124 CU FT |
| TOTAL VOLUME REQUIRED | 23,133 CU FT |
| TOTAL VOLUME PROVIDED | 23,133 CU FT |
| TOP EMBANKMENT | 165.00 |
| TOP WIDTH | 14' |
| CLEANOUT ELEV. | 170.25' |
| BARREL DIAMETER | 24" |
| RISER DIAMETER | 30" |
| TRASH RACK DIAMETER | 42" |
| INV. BARREL | 170.00 |
| TOP RISER | 182.66 |

FOR DETAIL SEE SHT. 6 OF 6

PIPE OUTLET TRAP #8

| | |
|--------------------------------|--|
| EXISTING DRAINAGE AREA | 8.50 AC. |
| PROPOSED DRAINAGE AREA | 8.50 AC. |
| VOLUME REQUIRED | WET = 13,084 CU FT DRY = 13,084 CU FT |
| VOLUME REQUIRED FOR 2 YEAR SWM | 33,777 CU FT |
| TOTAL VOLUME REQUIRED | 46,861 CU FT |
| TOTAL VOLUME PROVIDED | 46,861 CU FT |
| TOP EMBANKMENT | 167.00 |
| TOP WIDTH | 4' |
| CLEANOUT ELEV. | 154.13' |
| BARREL DIAMETER | 24" |
| RISER DIAMETER | 30" |
| TRASH RACK DIAMETER | 48" |
| INV. BARREL | 158.52 |
| TOP RISER | 164.24 |

FOR DETAIL SEE SHT. 5 OF 6

PIPE OUTLET TRAP #6

| | |
|--------------------------------|--|
| EXISTING DRAINAGE AREA | 8.07 AC. |
| PROPOSED DRAINAGE AREA | 8.50 AC. |
| VOLUME REQUIRED | WET = 9,900 CU FT DRY = 9,900 CU FT |
| VOLUME REQUIRED FOR 2 YEAR SWM | 18,763 CU FT |
| TOTAL VOLUME REQUIRED | 28,663 CU FT |
| TOTAL VOLUME PROVIDED | 28,663 CU FT |
| TOP EMBANKMENT | 171.00 |
| TOP WIDTH | 4' |
| CLEANOUT ELEV. | 169.20 |
| BARREL DIAMETER | 24" |
| RISER DIAMETER | 30" |
| TRASH RACK DIAMETER | 42" |
| INV. BARREL | 164.25 |
| TOP RISER | 168.12 |

FOR DETAIL SEE SHT. 5 OF 6

PIPE OUTLET TRAP #5

| | |
|--------------------------------|--|
| EXISTING DRAINAGE AREA | 3.51 AC. |
| PROPOSED DRAINAGE AREA | 3.51 AC. |
| VOLUME REQUIRED | WET = 6,318 CU FT DRY = 6,318 CU FT |
| VOLUME REQUIRED FOR 2 YEAR SWM | 10,655 CU FT |
| TOTAL VOLUME REQUIRED | 16,973 CU FT |
| TOTAL VOLUME PROVIDED | 16,973 CU FT |
| TOP EMBANKMENT | 166.50 |
| TOP WIDTH | 4' |
| CLEANOUT ELEV. | 162.08 |
| BARREL DIAMETER | 24" |
| RISER DIAMETER | 30" |
| TRASH RACK DIAMETER | 42" |
| INV. BARREL | 162.00 |
| TOP RISER | 164.68 |

FOR DETAIL SEE SHT. 5 OF 6

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT *[Signature]* 8/16/96

PLAN NUMBER _____ DATE _____

Reviewed for the Howard Conservation District and meets technical requirements.

APPROVED: NATURAL RESOURCES CONSERVATION SERVICE *[Signature]* 8/16/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING *[Signature]* 8/16/96

CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH *[Signature]* DATE _____

DIRECTOR _____ DATE _____

ADDRESS CHART

| | |
|------------|----------------|
| PARCEL NO. | STREET ADDRESS |
| | |

MATCHLINE A-A

PLAN SCALE: 1"=100'

APPROVED: DEPARTMENT OF PUBLIC WORKS *[Signature]* 8-14-96

Chief, Bureau of Highways

PREPARED BY: **GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

DEVELOPER CERTIFICATION: 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, also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer Name: *[Signature]* R. COLPAX SNICE Date: 7/29/96

OWNER/DEVELOPER: **TROY HILL BUSINESS PARK PARTNERSHIP c/o MANEKIN CORPORATION**
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

ENGINEER CERTIFICATION: 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.

Engineer: *[Signature]* R. UMBARGER Date: 7/29/96
PE # 10568

MASS GRADING SEDIMENT CONTROL PLAN FOR TROY HILL CORPORATE CENTER PHASE 1 PARCEL A

HOWARD COUNTY, MARYLAND 1st ELECTION DISTRICT SHEET 22 of 28 SCALE: AS SHOWN FEBRUARY 29, 1996

4.3.96



PIPE OUTLET TRAP # 2

EXISTING DRAINAGE AREA = 510 AC
 PROPOSED DRAINAGE AREA = 442 AC
 VOLUME REQUIRED (100 YR 5% RCP) WET DRY = 8,442 CF

VOLUME REQUIRED FOR 2 YEAR SWM = 17,197 CF
 TOTAL VOLUME REQUIRED = 25,639 CF
 TOTAL VOLUME PROVIDED = 25,639 CF

TOP EMBANKMENT = 197.0
 TOP WIDTH = 4'
 CLEANOUT ELEV. = 192.75
 BARREL DIAMETER = 24"
 RISER DIAMETER = 30"
 TRASH RACK DIAMETER = 42"
 INV. BARREL = 192.75
 TOP RISER = 195.30

SEE DETAIL SHT. 5 OF 6
 B3 EARTH DIKE

PIPE OUTLET TRAP # 3

EXISTING DRAINAGE AREA = 672 AC
 PROPOSED DRAINAGE AREA = 680 AC
 VOLUME REQUIRED (100 YR 5% RCP) WET DRY = 2,346 CF

VOLUME REQUIRED FOR 2 YEAR SWM = 25,935 CF
 TOTAL VOLUME REQUIRED = 28,281 CF
 TOTAL VOLUME PROVIDED = 28,281 CF

TOP EMBANKMENT = 192.8
 TOP WIDTH = 4'
 CLEANOUT ELEV. = 185.10
 BARREL DIAMETER = 24"
 RISER DIAMETER = 30"
 TRASH RACK DIAMETER = 42"
 INV. BARREL = 184.30
 TOP RISER = 186.30

SEE DETAIL SHT. 5 OF 6

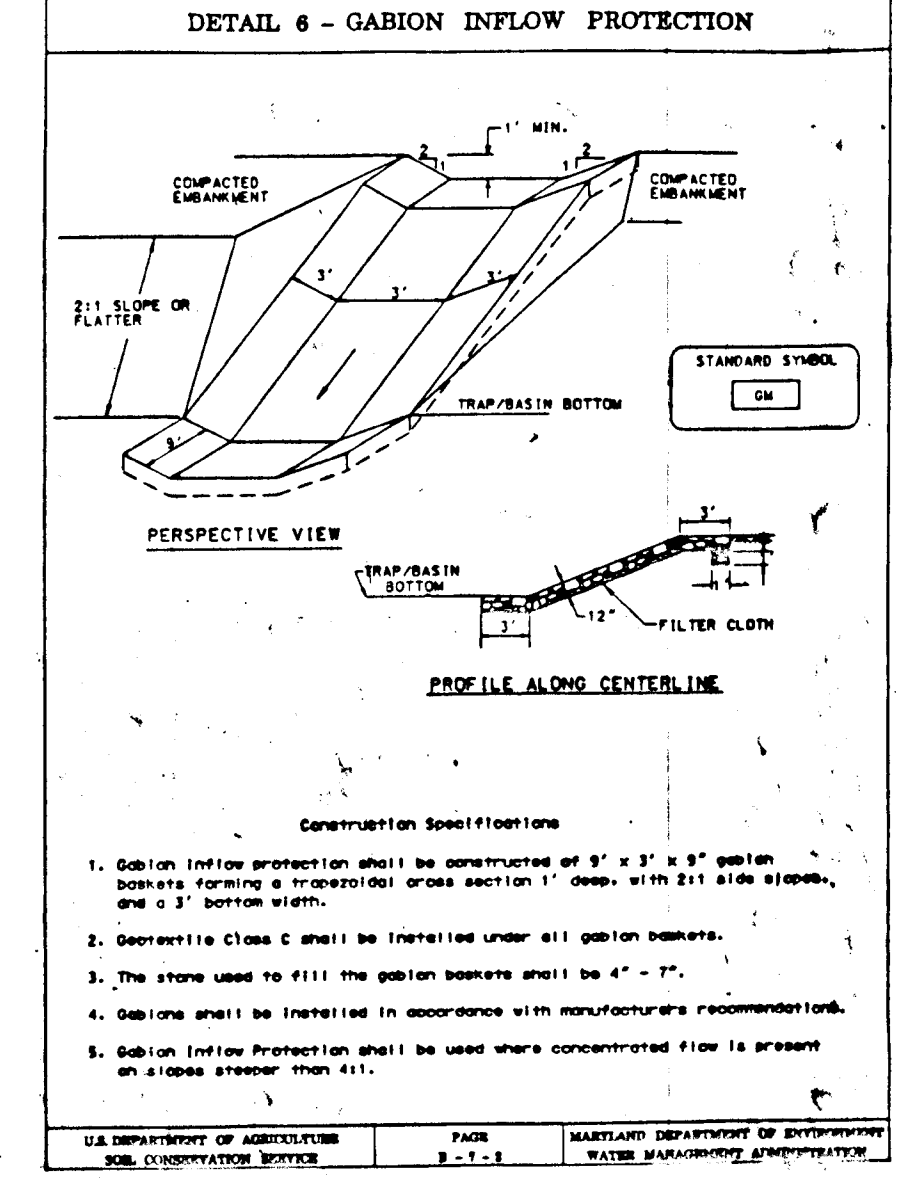
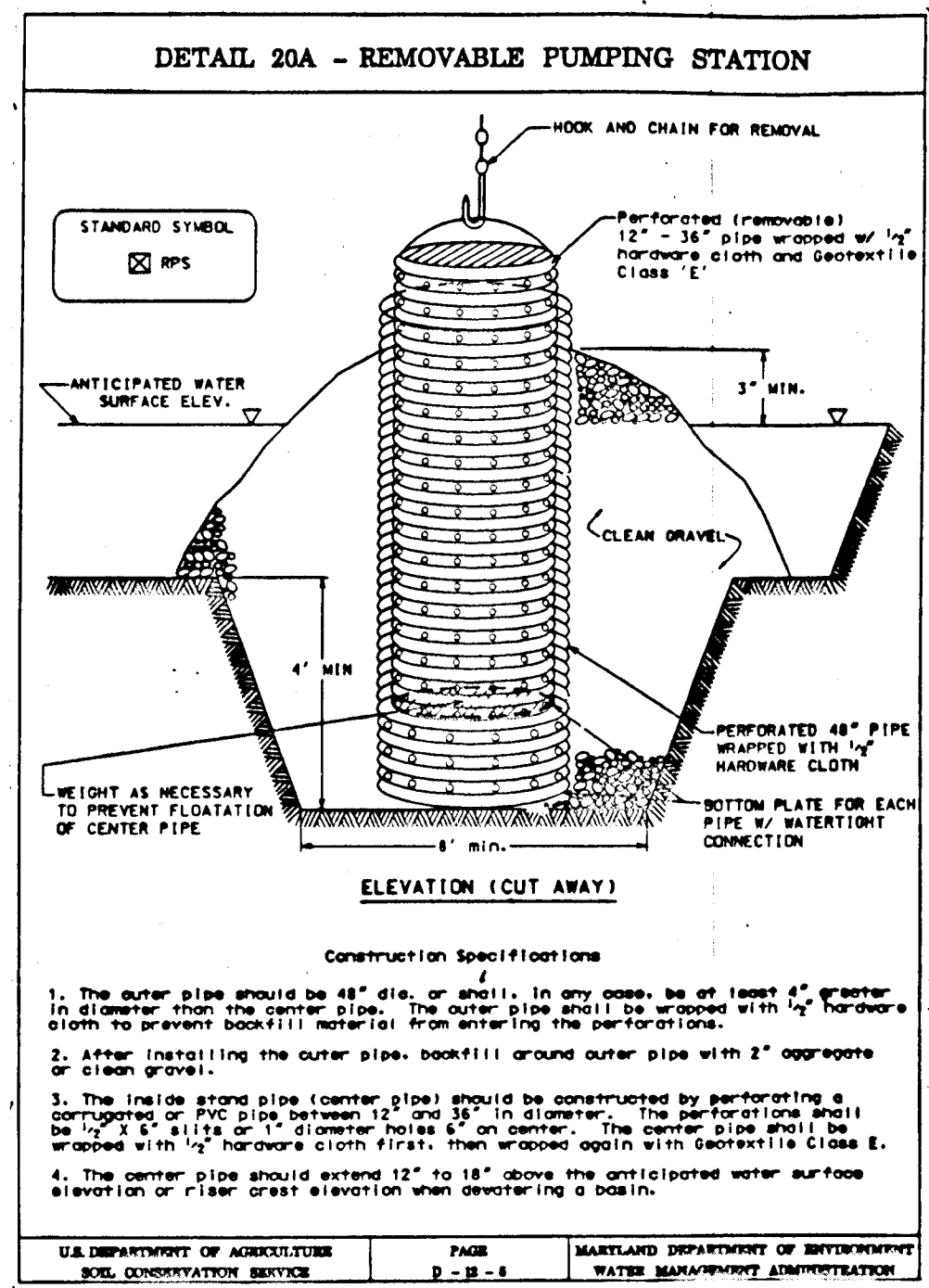
PIPE OUTLET TRAP # 4

EXISTING DRAINAGE AREA = 201 AC
 PROPOSED DRAINAGE AREA = 206 AC
 VOLUME REQUIRED (100 YR 5% RCP) WET DRY = 17,904 CF

VOLUME REQUIRED FOR 2 YEAR SWM = 36,809 CF
 TOTAL VOLUME REQUIRED = 54,713 CF
 TOTAL VOLUME PROVIDED = 54,713 CF

TOP EMBANKMENT = 162.5
 TOP WIDTH = 4'
 CLEANOUT ELEV. = 162.85
 BARREL DIAMETER = 24"
 RISER DIAMETER = 30"
 TRASH RACK DIAMETER = 42"
 INV. BARREL = 162.00
 TOP RISER = 166.60

SEE DETAIL SHT. 5 OF 6



MATCHLINE B-B
 PLAN
 SCALE: 1" = 100'

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 DATE: 8/16/96

PLAN NUMBER: 1
 DATE: 8/16/96

Reviewed for the Howard Conservation District and meets technical requirements.
 O.G. Winkler
 NATURAL RESOURCES CONSERVATION SERVICE
 DATE: 8/16/96

APPROVED: Howard County Department of Planning and Zoning
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 Date: 8/16/96

CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 Date: 8/19/96

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 8-19-96

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120

DEVELOPER CERTIFICATION:
 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 inspection by the Howard Soil Conservation District.

DEVELOPER Name: R. C. ... Date: 7/29/96

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP c/o MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 410-290-1400

ENGINEER CERTIFICATION:
 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.

Engineer: R. Umberger Date: 8/16/96
 Name: R. Umberger PE: RSCPE

| | | | | |
|----------------------------|---------|--------------|------------|--------------|
| SUBDIVISION NAME | | SECTION NAME | | PARCEL # |
| TROY HILL CORPORATE CENTER | | 1 | | A |
| PLAT # | BLOCK # | ZONE | ZONING MAP | ELECT. DIST. |
| | | | 37 | 1st |
| WATER CODE | | SEWER CODE | | |

MASS GRADING SEDIMENT CONTROL PLAN FOR TROY HILL CORPORATE CENTER PHASE 1 PARCEL A

HOWARD COUNTY, MARYLAND
 1st ELECTION DISTRICT

SHEET 23 of 28
 SCALE: AS SHOWN
 FEBRUARY 29, 1996

Stabilization Specifications

Section I - Vegetative Stabilization Methods and Materials

- A. Site Preparation**
1. Install erosion and sediment control structures before topsoil or permanent such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
 2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary operations.
 3. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)**
1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples may be taken for engineering purposes only also be used for chemical analysis.
 2. Fertilizers will be uniform in composition, free flowing and suitable for accurate application by approved equipment. Rates may be substituted for fertilizer with approval from the appropriate regulatory authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 3. Lime materials shall be ground limestone hydrated or burnt lime may be substituted which contains at least 56% total available calcium oxide. Plus impurities shall be ground to such fineness that at least 56% will pass through a #100 mesh sieve and 98% will pass through a #200 mesh sieve.
 4. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.
 5. Soil Amendments (the only one of the following schedules)
 - a. Preferred - Apply 2 tons per acre dolomitic limestone (82 lbs./1000 lbs.) and 500 lbs. per acre 18-18-18 fertilizer (14 lbs./1000 lbs.) before seeding, harrow or disc into upper three inches of soil. At time of seeding, apply 1 lb. per acre 38-8-8 sulfur fertilizer (13 lbs./1000 lbs.)
 - b. Acceptable - Apply 2 tons per acre dolomitic limestone (82 lbs./1000 lbs.) and 1000 lbs. per acre 18-18-18 fertilizer (14 lbs./1000 lbs.) before seeding, harrow or disc under three inches of soil.

- C. Seed Preparation**
1. Temporary Seeding
 - a. Seeded preparation shall consist of loosening soil to a depth of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged south but left in the roughened condition. Sloped areas greater than 3:1 should not be broken leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.
 2. Permanent Seeding
 - a. Suitable soil conditions required for permanent vegetative establishment
 - i. Soil pH shall be between 6.0 and 7.0.
 - ii. Soluble salts shall be less than 500 parts per million (ppm).
 - iii. The soil shall contain less than 4% clay but enough fine grained material D₃₀ silt plus clay to provide the capacity to hold a moderate amount of moisture. In exception to (i) if loess or siltstone is present, it is to be graded, then a sandy soil (C₂₀) silt plus clay would be acceptable.
 - iv. Soil shall contain 1% minimum organic matter by weight.
 - v. Soil must contain sufficient pore space to permit adequate root penetration.
 - vi. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 - b. Areas previously graded in accordance with the drainage shall be maintained in a true and even grade. Then surface or otherwise loosened to a depth of 3 - 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
 - c. Apply soil amendments as per soil test or as included on the plans.
 - d. Soil amendments into the top 3 - 5" of topsoil by disking or other suitable means. Lawn areas should be rolled to smooth the surface, remove large objects like stones and branches and ready the area for seed application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes less than 3:1 should be broken leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 3 - 5" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- D. Seed Specifications**
1. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material in this job.
 2. Inoculant - The inoculant for treating legume seed in the seed mixture shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species inoculant shall not be used later than the date indicated on the container. All fresh inoculant should be packed in the four lines the recommended rate when hydroseeding. NOTE: It is very important to keep inoculant as cool as possible until use. Temperatures above 75 - 90 degrees F. can weaken bacteria and make inoculant less effective.

- E. SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.**
- NOTE: Methods of Seeding**
1. Hydroseeding Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer, broadcast or drop seeder, or a catpooker seeder).
 2. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen maximum of 100 lbs. per acre total soluble nitrogen (200 lbs./acre) phosphorus 200 lbs./acre.
 3. Lime - use only ground agricultural limestone. Up to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 4. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
 5. Dry Seeding This includes use of conventional drop or broadcast spreaders.
 - a. Seed spread dry shall be incorporated into the soil at the rates prescribed on the Temporary or Permanent Seeding Summary or Table 25 or 26. The seed area shall then be rolled with a weighted roller to provide good seed to soil contact.
 - b. Where practical, seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 - c. Catpooker Seeding Mechanized seeders that apply and cover seed with soil.
 - d. Catpooker seeders are required to bury the seed in such a fashion as to provide at least 1/4" of soil covering. Seeded must be firm after planting.
 - e. Where practical, seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

- F. Mulch Specifications (In order of preference)**
1. Straw shall consist of thoroughly threshed wheat or oat straw, reasonably bright in color and shall not be dusty, moldy, rotting, or excessively dry and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
 2. Wood Cellulose Fiber Mulch (MCF)
 - a. MCF shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - b. MCF shall be dried green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread layer.
 - c. MCF, including dye, shall contain no germination or growth inhibiting factors.
 - d. MCF materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other approved materials to form a homogeneous slurry. The mulch material shall form a blanket-like ground cover and application having moisture absorption and germination properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - e. MCF material shall contain no elements or compounds at concentration levels that will be phytotoxic.
 - f. MCF must conform to the following physical requirements: fiber length to approximately 1/8" diameter approximately 1 mm, pH range of 4.8 to 8.5, ash content of 1.8% maximum and water holding capacity of 90% maximum.

- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.**
- Mixing Seeded Areas - Mulch shall be applied to areas where site conditions are appropriate.**
1. If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.

1. When straw mulch is used, it shall be applied over all soil exposed by the construction process. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and shall be applied so that the soil surface is not dry. If a mulch churning tool is to be used, the rate should be increased to 1.5 tons/acre.
2. Wood cellulose fiber mulch used as a mulch shall be applied at a net dry weight of 1500 lbs. per acre. The wood cellulose fiber shall be spread with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
3. Seeding Straw Mulch Anchoring Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods by professional, depending on erosion hazard.
 - a. A mulch anchoring tool is a tractor draw implement designed to punch and anchor mulch into the soil a minimum of 2" in depth. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
 - b. Wood cellulose fiber may be used for anchoring straw. The fiber mulch shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - c. Application of liquid binders should be heavier at the edges where wind catches mulch such as in valleys and on the crests of banks. The remainder of area should appear uniform after final application. Synthetic binders - such as Acrylic U.A. (Ugo-Tech), D.A. (Tetra), Terra Seal, LL, Terra Seal 64 or other approved resin may be used at rates recommended by the manufacturer to anchor mulch.
 - d. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4 to 10 feet wide and 200 to 2500 feet long.

Section II - Temporary Seeding

- Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For long term duration of vegetative cover, Permanent Seeding is required.
- A. Seed Mixtures - Permanent Seeding**
1. select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, steep banks, dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 242 - Critical Area Planting for special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
 2. For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
 3. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs./1000 sq. ft. (58 lbs./ac) in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

- Section III - Permanent Seeding**
- Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.
- A. Seed Mixtures - Permanent Seeding**
1. select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, steep banks, dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 242 - Critical Area Planting for special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
 2. For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
 3. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs./1000 sq. ft. (58 lbs./ac) in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

- Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).**
- A. General specifications**
1. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.
 2. Sod shall be sown out at a uniform soil thickness of 3/4" plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the supplier's width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent broken ends and both or uneven ends will not be acceptable.
 3. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a fine grass on the upper 18" percent of the section.
 4. Sod shall not be harvested or transplanted when moisture content is excessively dry or wet, may adversely affect its survival.
 5. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not to be replanted within this period shall be approved by an agronomist or soil scientist prior to its installation.
 6. Site Preparation - Fertilizer and Lime application rates will be determined by soil test. Under unusual circumstances where there is insufficient time for a complete soil test, fertilizer and lime may be applied in amounts shown on v.t. below.
 - a. Prior to sodding, the surface will be cleared of all brick debris, and all root, stumps, wire, grade stakes and other objects that would interfere with planting, fertilizing, or maintenance operations.
 - b. Where soil is acid or composed of heavy clay, ground limestone will be spread at the rate of 2 tons per acre (8000 lbs./1000 sq. ft.) in all soils (1000 lbs. per acre (25 lbs./1000 sq. ft.) of 18-18-18 fertilizer or equivalent will be uniformly applied and mixed into the top three inches of soil with the required time.
 - c. All areas receiving sod will be uniformly fine graded. Hard packed earth will be scarified prior to placement of sod.

- B. Sod Installation**
1. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
 2. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Lines that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which could cause drying of the roots.
 3. Whenever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and lapped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.
 4. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

- C. Sod Maintenance**
1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.
 2. After the first week of watering is required as necessary to maintain adequate moisture content.
 3. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 2 1/2 inches after mowing.

- Section IV - Turfgrass Establishment**
- Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and rolled to prepare a proper seedbed. Stones and debris over 1/2" inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.
- NOTE:** Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable source of consumer protection and assures a pure genetic line.

- A. Turfgrass Mixtures**
1. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive maintenance. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivar Seeding Rates 1.5 to 2.8 pounds/1000 square feet. A mixture of three bluegrass cultivars should be chosen ranging from a minimum of 18% to a maximum of 52% of the mixture by weight.
 2. Kentucky Bluegrass/Perennial Ryegrass - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive maintenance. Certified Perennial Ryegrass Cultivars - such as Acrylic U.A. (Ugo-Tech), D.A. (Tetra), Terra Seal, LL, Terra Seal 64 or other approved resin may be used at rates recommended by the manufacturer to anchor mulch. A mixture of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 18% to 32% of the mixture by weight.

3. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium maintenance in full sun to medium shade. Recommended mixture includes certified Tall Fescue Cultivars - such as Acrylic U.A. (Ugo-Tech), D.A. (Tetra), Terra Seal, LL, Terra Seal 64 or other approved resin may be used at rates recommended by the manufacturer to anchor mulch. A mixture of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from a minimum of 18% to a maximum of 32% of the mixture by weight.
 4. Kentucky Bluegrass/Fine Fescue - Shade Turfgrass - For use in areas with shade in bluegrass lawns. For establishment in high quality, intensively managed, turf areas. Mixture includes certified Kentucky Bluegrass Cultivars - such as Acrylic U.A. (Ugo-Tech), D.A. (Tetra), Terra Seal, LL, Terra Seal 64 or other approved resin may be used at rates recommended by the manufacturer to anchor mulch. A mixture of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from a minimum of 18% to a maximum of 32% of the mixture by weight.
- NOTE:** Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Memo 777, Turfgrass Cultivar Recommendations for Maryland.

- B. Ideal times of seeding**
- Western MD: March 15-June 1, August 1-October 1 (Hardiness Zones - 5a, 6a)
- Central MD: March 1-May 15, August 15-October 15 (Hardiness Zones - 6a)
- Southern MD, Eastern Shore: March 1-May 15, August 15-October 15 (Hardiness Zones - 7a, 7b)

- C. Irrigation**
- If soil moisture is deficient, supply new seedlings with adequate water (or plant growth regulator) if any seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

- D. Repairs and Maintenance**
- Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.
1. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.
 2. If the stand provides less than 40% ground coverage, reseedling following original line, fertilizer, seeded preparation and seeding recommendations.
 3. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.
 4. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawn and other medium to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 111.

Fertilizer Rates

| Fertilizer Rate (10-10-10) | Lime Rate | Temporary Seeding | | | Permanent Seeding | | |
|-----------------------------|-----------------------------|---------------------------|----------------------------|----------------------------|-----------------------------|------|-----|
| | | N | P2O5 | K2O | N | P2O5 | K2O |
| 600 lb/acre (1000000 sq ft) | 2 tons/acre (1000000 sq ft) | 90 lb/acre (225000 sq ft) | 175 lb/acre (437500 sq ft) | 175 lb/acre (437500 sq ft) | 2 tons/acre (1000000 sq ft) | | |


Table 25 - Permanent Seeding for Low Maintenance Areas

| MIXTURE | SEED MIXTURE (IF AVAILABLE) | SEEDING RATE | SITE CONDITIONS | PLANTING DATES | RECOMMENDED PLANTING DATES | | | | | | | | | | | | |
|---------|--|--------------|-----------------|-----------------|----------------------------|------|------|------|------|------|-------|-------|-------|------|------|---|---|
| | | | | | 1-31 | 3-31 | 5-15 | 6-15 | 8-15 | 9-30 | 10-31 | 11-30 | 12-31 | 1-31 | 2-28 | | |
| 1 | TALL FESCUE (70% CANADIAN BLUEGRASS (30%); KENTUCKY BLUEGRASS (10%); REDTOP (20%) | 150 | 3-4 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | X |
| 2 | TALL FESCUE (60% PERENNIAL RYEGRASS (40%); REDTOP (20%) | 150 | 3-4 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 3 | TALL FESCUE (60% PERENNIAL RYEGRASS (40%); KENTUCKY BLUEGRASS (5%); PLUS CROWN VETIVER OR P. ALPEA | 125 | 2-3 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 4 | RED FESCUE OR CHEERING FESCUE (60%); PERENNIAL RYEGRASS (40%) | 80 | 3-4 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 5 | TALL FESCUE (60% PERENNIAL RYEGRASS (40%); PLUS CROWN VETIVER OR P. ALPEA | 125 | 2-3 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 6 | KEEPING LOGEGRASS (25%); BERBERIS LESPEDEZA (75%) | 4 | 0-6 | DRY TO VERY DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 7 | TALL FESCUE (60%); KEEPING LOGEGRASS (25%); PLUS PERENNIAL RYEGRASS (15%) | 10 | 2-3 | DRY TO VERY DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 8 | RED CANARYGRASS (75%); REDTOP (25%) | 40 | 3-4 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 9 | TALL FESCUE (60%); POA TRIVIALIS (20%); BIRDFOOT TREPFLOR (20%) | 125 | 2-3 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 10 | TALL FESCUE (60%); HARD FESCUE (20%); PLUS PERENNIAL RYEGRASS (20%) | 125 | 3-4 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |
| 11 | HARD FESCUE (100%) | 75 | 1-2 | MOIST TO DRY | 5a | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | | | 6a | X | X | X | X | X | X | X | X | X | X | X | |

Table 26 - Temporary Seeding Rates, Depths, and Dates

| SPECIES | MINIMUM SEEDING RATE | PLANTING DEPTH | RECOMMENDED PLANTING DATES | | | | | | | | | | | | | | |
|-----------------------------------|---------------------------------|----------------|----------------------------|------|------|------|------|------|-------|-------|-------|------|------|---|---|---|---|
| | | | 1-31 | 3-31 | 5-15 | 6-15 | 8-15 | 9-30 | 10-31 | 11-30 | 12-31 | 1-31 | 2-28 | | | | |
| C-100SE ONE: BARLEY GRASS RYE | 2.5 lb (22 lbs) 2.5 lb (20 lbs) | 2-3 | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| BARLEY OR RYE PLUS FOXTAIL/MILLET | 50 lbs | 3-4 | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | | |
| KEEPING LOGEGRASS | 4 lbs | 0-9 | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | | |
| ANNUAL RYEGRASS | 50 lbs | 1-5 | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | | |
| MILLET | 50 lbs | 1-5 | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | | | 1-2 | X | X | X | X | X | X | X | X | X | X | X | X | | |

PREPARED BY:



GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 CIVIL Engineers and Land Surveyors
 656 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 826-8120

DEVELOPER CERTIFICATION:

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 inspection by the Howard Soil Conservation District.

Developer Name: *R. Cole* Date: *7/29/96*

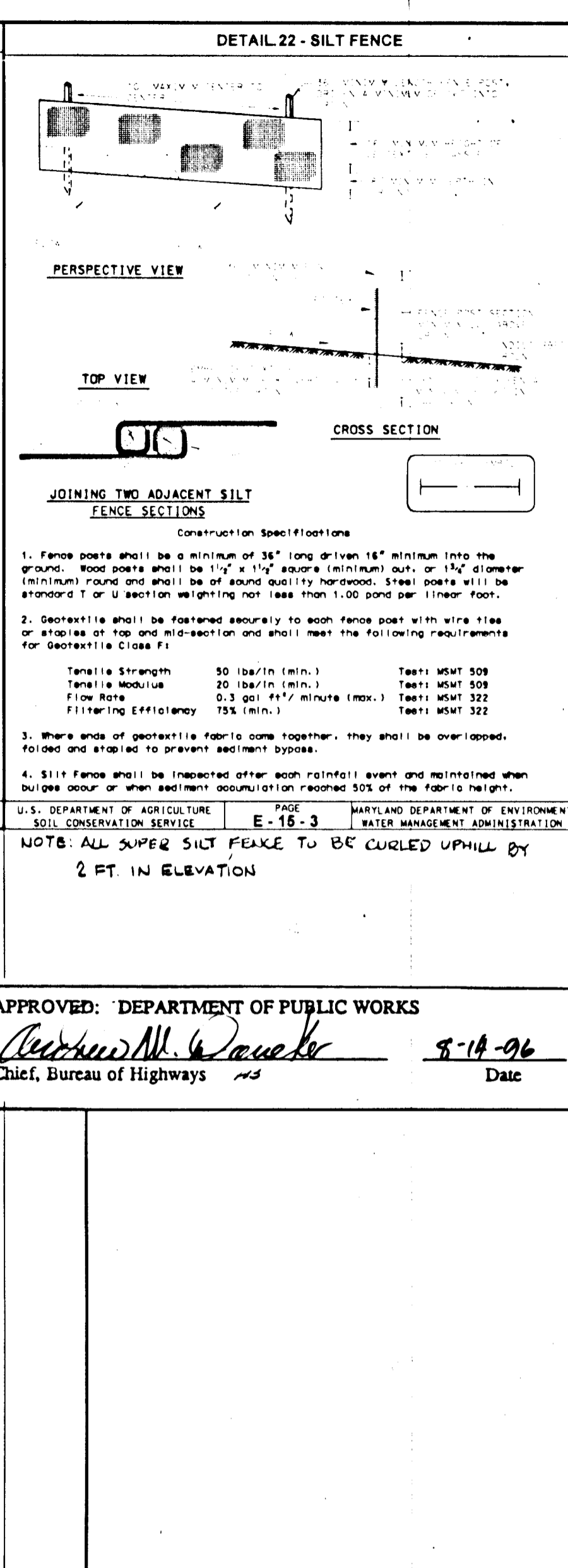
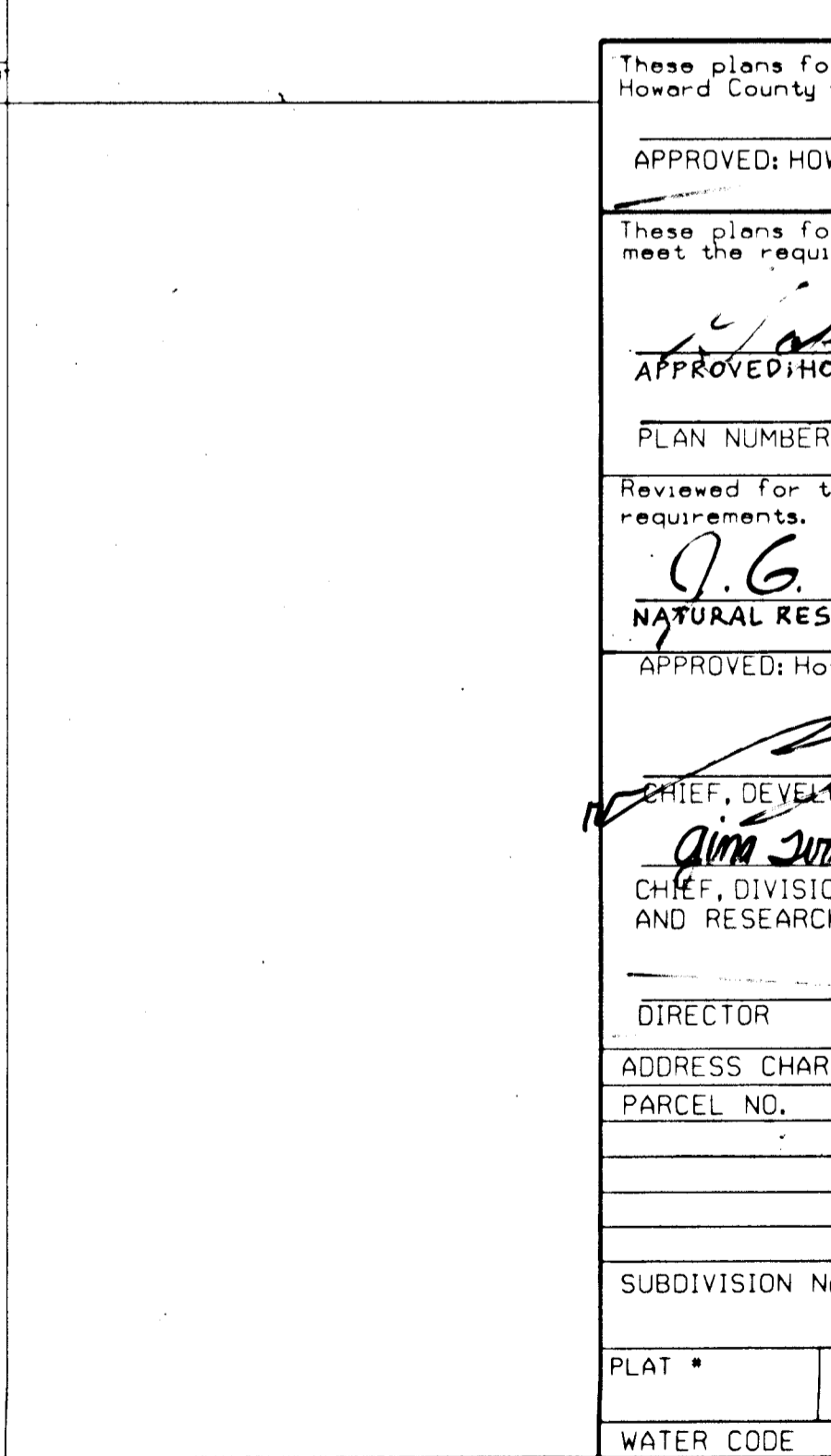
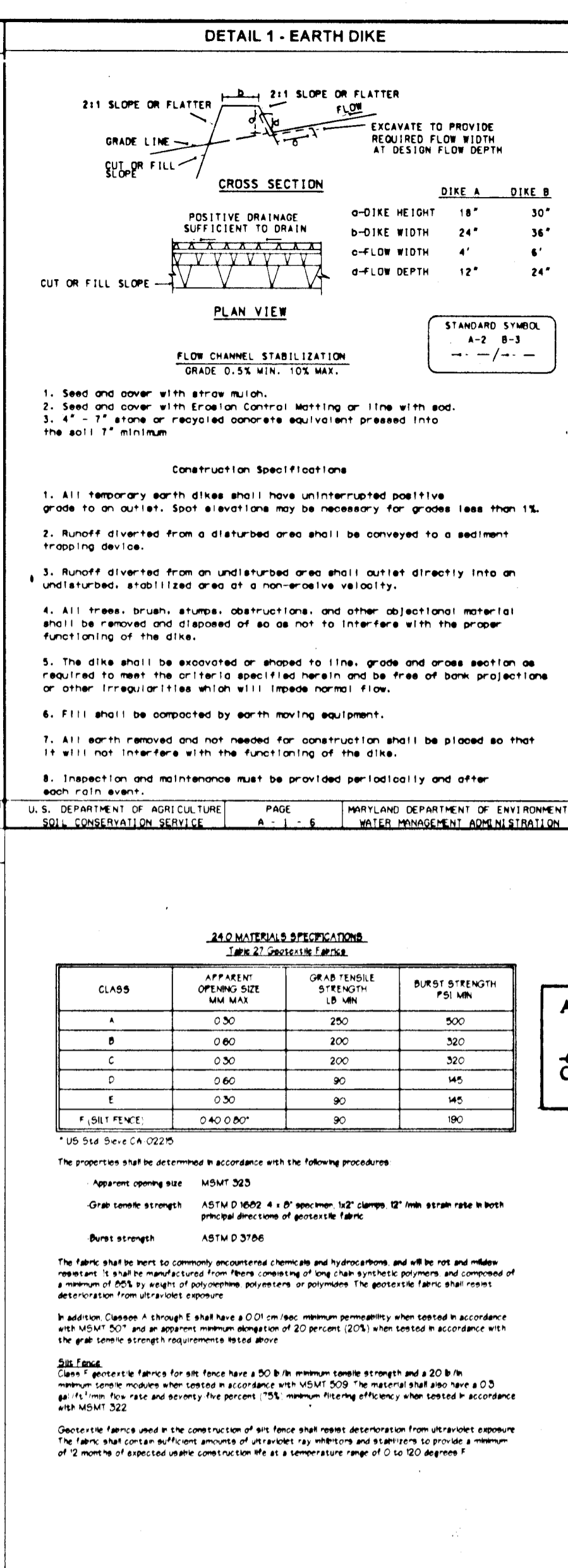
OWNER/DEVELOPER

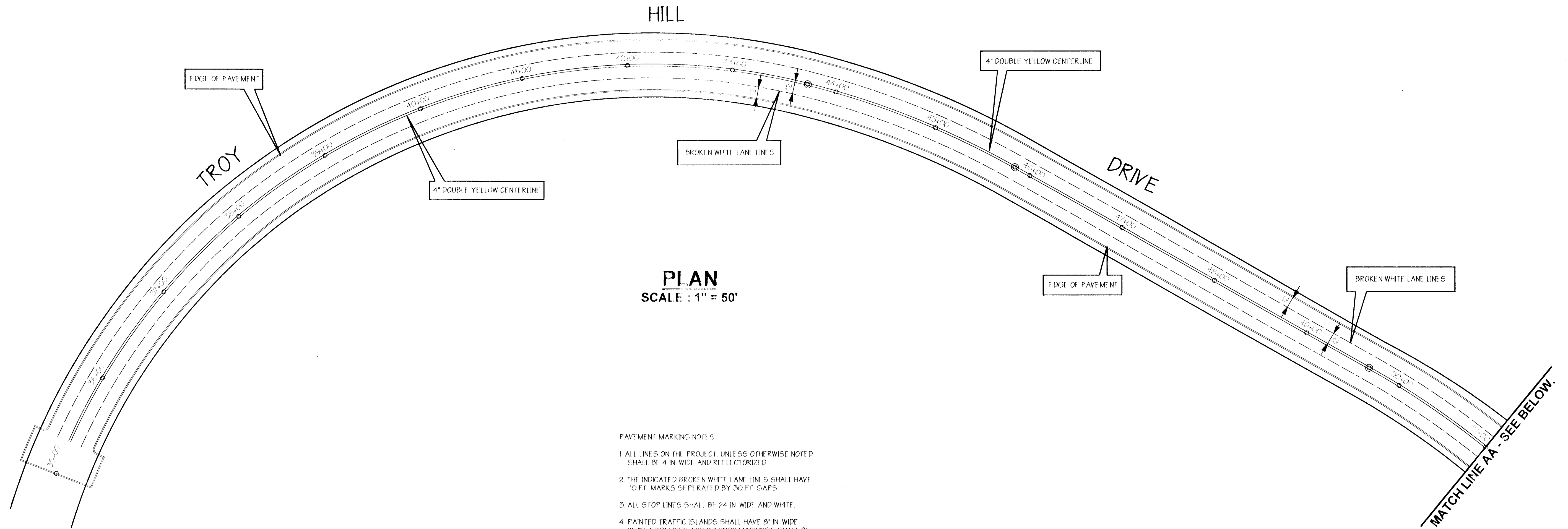
TROY HILL BUSINESS PARK PARTNERSHIP
 c/o MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 410-290-1400

ENGINEER CERTIFICATION:

I certify that this plan for erosion and sediment control represents a practical, 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.

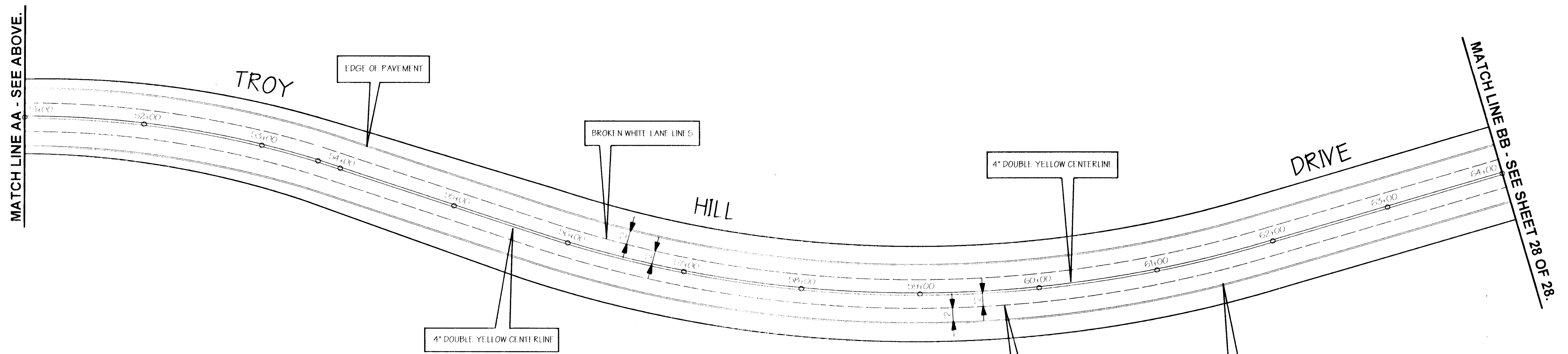
Engineer: *R. Umbarger* Date: *7/29/96*
 Name: *R. Umbarger* PE # *10568*





PLAN
SCALE : 1" = 50'

- PAVEMENT MARKING NOTES
1. ALL LINES ON THE PROJECT UNLESS OTHERWISE NOTED SHALL BE 4 IN. WIDE AND REFLECTORIZED.
 2. THE INDICATED BROKEN WHITE LANE LINES SHALL HAVE 10 FT. MARKS SEPARATED BY 30 FT. GAPS.
 3. ALL STOP LINES SHALL BE 24 IN. WIDE AND WHITE.
 4. PAINTED TRAFFIC ISLANDS SHALL HAVE 8" WIDE WHITE EDGE LINES AND CHEVRON MARKINGS SHALL BE 24 IN. WIDE AND WHITE WITH 25 FT. BETWEEN MARKINGS.
 5. PAINTED MEDIANS SHALL HAVE 8" WIDE YELLOW EDGELINES AND HATCHING SHALL BE 24 IN. WIDE AND WHITE WITH 25 FT. BETWEEN MARKINGS.
 6. ALL PAVEMENT MARKINGS INSTALLED IN ACCORDANCE WITH THE MUTCD AND MARYLAND SUPPLEMENTS.



PLAN
SCALE : 1" = 50'

1654

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Decker 8-14-96
 CHIEF, BUREAU OF HIGHWAYS DATE
 APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Strumansky 8/19/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 8/18/96 DATE



GEORGE W. STEPHENS, JR.
 AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson Maryland 21204 (410) 825-8120
 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800



DESIGNED : RLM
 DRAFTER : RLM
 CHECKED : PWT

TROY HILL DRIVE
 PAVEMENT STRIPING PLAN

SCALE : AS SHOWN

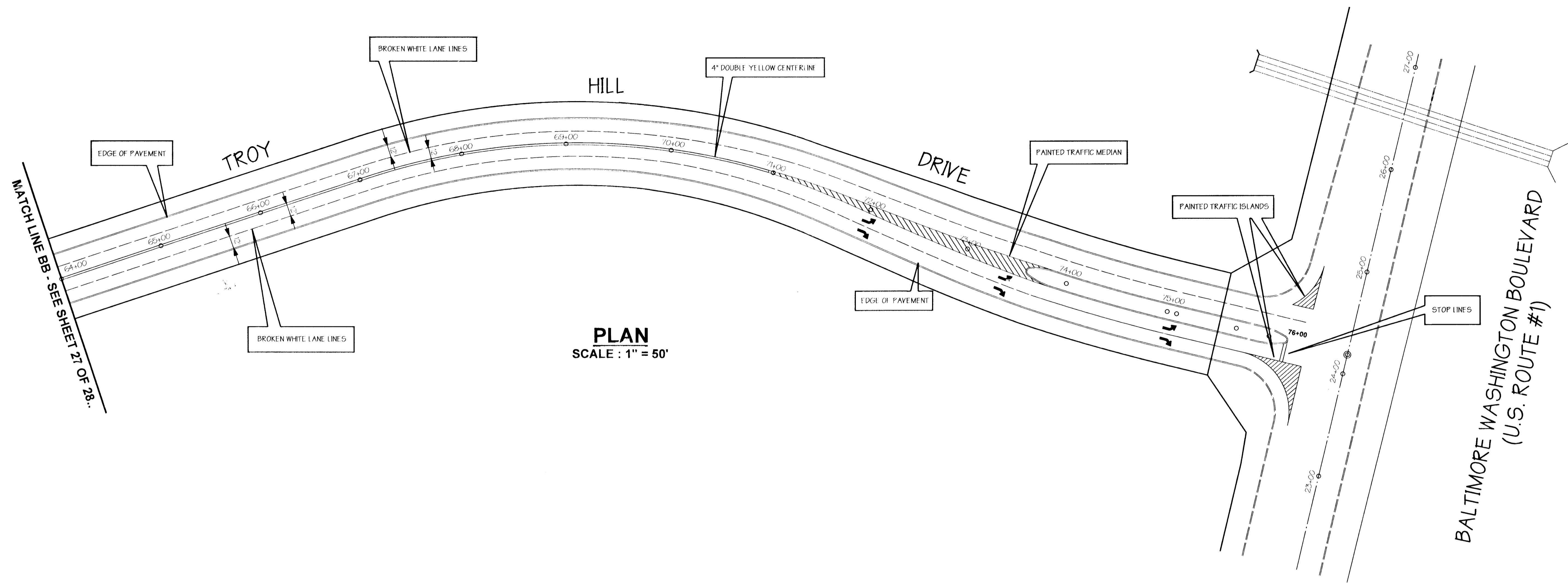
TROY HILL CORPORATE CENTER
 PHASE I

HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT #1

JUNE 28, 1996
 SHEET 27 OF 28

F-96-136

17N 8150 - STRIP.DGN



PLAN
SCALE : 1" = 50'

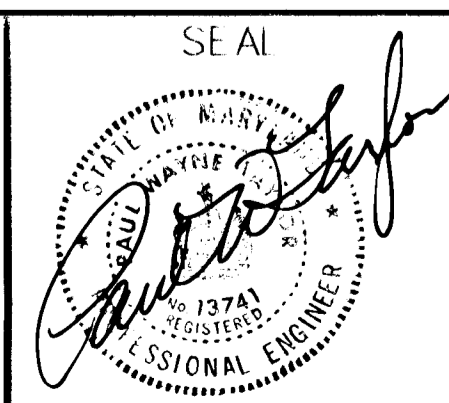
- PAVEMENT MARKING NOTES :
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 3. ALL STOP LINES SHALL BE 24 IN WIDE AND WHITE.
 4. PAINTED TRAFFIC ISLANDS SHALL HAVE 8" IN WIDE, WHITE EDGELINES AND CHEVRON MARKINGS SHALL BE 24 IN WIDE AND WHITE WITH 25 FT. BETWEEN MARKINGS.
 5. PAINTED MEDIANS SHALL HAVE 8" WIDE, YELLOW EDGELINES AND HATCHING SHALL BE 24 IN WIDE AND WHITE WITH 25 FT. BETWEEN MARKINGS.
 6. ALL PAVEMENT MARKINGS INSTALLED IN ACCORDANCE WITH THE MUTCD AND MARYLAND SUPPLEMENTS.

1654

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Arthur M. Daniels 8-14-96
 CHIEF, BUREAU OF HIGHWAYS 113 DATE
 APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Gina Summari 8/19/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH TC DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/1/96 DATE



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 203 East Broadway
 Bel Air, Maryland 21014 (410) 838-3800



DESIGNED : RLM
 DRAFTED : RLM
 CHECKED : PWT

TROY HILL DRIVE
 PAVEMENT STRIPING PLAN
 AND LIGHTING SCHEDULE

SCALE : AS SHOWN

TROY HILL CORPORATE CENTER
 PHASE I

HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT #1

JUNE 28, 1996
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