HUNTING LANE
WATER AND SEWER EXTENSIONS

CAPITAL PROJECT NO. W-8215
HOWARD COUNTY, MARYLAND

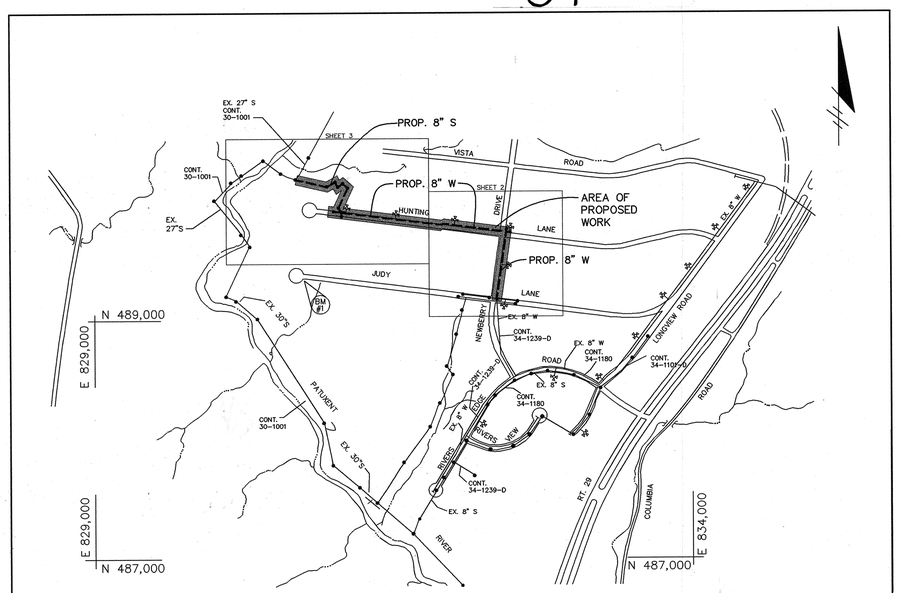
DEPARTMENT OF PUBLIC WORKS
CONTRACT NO. ~~24~~-3957
34

LEGEND

R.O.W. LINE
PROPERTY LINE
PROP. WATER VALVE
PROP. WATER CROSS
OVERHEAD WIRE — OHW —
EX. FENCE LINE — x — x —
EX. GAS — G —
EX. INLET
EX. TREE LINE
EX. POWER POLE
EX. SANITRY SEWER
PROPOSED SANITRY SEWER
EX. WATER VALVE WV
EX. SEWER MANHOLE
PROP. MANHOLE (S)
PROPOSED WATER MAIN
EX. WATER MAIN
EX. STORMDRAIN
EX. WATER METER W
EX. FIRE HYDRANT
EX. ELEC. — E —
PROP. EASEMENT
EX. TELEPHONE — T —
EX. CABLE — C —
BORINGS
PROPOSED FH
BENCH MARKS BM #2
EX. MAILBOX
FLOOD PLAIN
HIGH VISIBILITY FENCE (TREE PROTECTION)
SILT FENCE — SF —
LIMIT OF DISTURBANCE — LOD —
SNOW FENCE — SnF —
CURB INLET PROTECTION CIP
WETLAND
WETLAND BUFFER

HOWARD COUNTY
GOEDETIC SURVEY CONTROL

BM #1	HO. CO. MONUMENT 41CA	
	ELEV.	295.985
	N	550124.854
	E	1342960.933



W & S Code
County Use
Water No. I-E22
Sewer No. 6581000
Test Gradient: 700
Zone: 550

TYPE OF BUILDING: RESIDENTIAL

DRAINAGE AREA: N/A
TREATMENT PLANT: LITTLE PATUXENT
NUMBER OF BUILDABLE LOTS: N/A
NUMBER OF NON-BUILDABLE LOTS: N/A
NUMBER OF W.H.C.: 18
NUMBER OF S.H.C.: 1

VICINITY MAP
SCALE : 1"=600'

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT QUANTITIES	AS-BUILT TYPE	AS-BUILT MANUFACTURER SUPPLIER
8" D.I. PIPE CL. 52	2010 FEET	2097 FEET	DUCTILE IRON CLASS 52	GRIFFIN PIPE
8" VALVE	4 EACH	4	R.S.O.R. GATE V.	MUELLER CO.
8" CAP	3 EACH	3	MJ	U.S. PIPE & FOUNDRY
8" CROSS	1 EACH	1	MJ	U.S. PIPE & FOUNDRY
8"x6" TEE	5 EACH	5	HYDRANT TEE	U.S. PIPE & FOUNDRY
6" VALVE	5 EACH	5	R.S.O.R. GATE V.	MUELLER CO.
FIRE HYDRANT	5 EACH	5	MUELLER HYDRANT	MUELLER CO.
8" PVC PIPE	850 FEET	843	SDR-35 SEWER	J.M. MFG.
STANDARD MANHOLE	4 EACH	4	ASTM C-478	ATLANTIC CONC.
WATERTIGHT MANHOLE	4 EACH	4	ASTM C-478	ATLANTIC CONC.
TYPE A DROP MANHOLE CONN	1 EACH	2	ASTM 3034	J.M. MFG.
ADDITIONAL MH DEPTH	46 VERT. FT.	44.12	ASTM C-478	ATLANTIC CONC.
1" WATER HOUSE CONNECTION	420 L.F.	513	COPPER TUBING	CAMBRIDGE LEE
4" SEWER HOUSE CONNECTION	10 L.F.	78	PVC SDR-35	J.M.MFG.

NAME OF UTILITY CONTRACTOR : COSSENTINO CONTRACTING COMPANY

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

CHECKBOX	
AS-BUILT DATE	
SURVEY AND DRAFTING DIVISION	

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

NRC
Jim Myers 5-22-03
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John R Robertson 5-22-03
HOWARD SOIL CONSERVATION DISTRICT DATE

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL THE DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A MARYLAND DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT"

Ralph E Epson 5/7/03
BUREAU OF ENGINEERING DATE
DEPARTMENT OF PUBLIC WORKS

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICABLE 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 COUNTY SOIL CONSERVATION DISTRICT"

F. Donaldson 2/10/03
RIEMER MUEGGE A DIVISION OF PHR&A
8818 CENTRE PARK DRIVE, COLUMBIA, MD 21045

GENERAL NOTES

1. Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
2. All horizontal controls are based on Maryland State Coordinates.
3. All vertical controls are based on U.S.G.S. data.
4. All pipe elevations shown (~) are invert elevations.
5. Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for bracing of additional poles or damages shall be deducted from money owed the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
6. For details not shown on the drawings, and for materials and construction methods, use the Howard County Design Manual, Volume IV, Standard Specifications and Detail for Construction. (Latest Edition). The contractor shall have a copy of Volume IV on the job.
7. Where test pits have been made on existing utilities, they are noted by the symbol at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the contractor two weeks in advance of construction operations at his own expense.
8. Contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:

State Highway Administration	531-5533
Baltimore Gas & Electric Co. Contractor Services	850-4620
Baltimore Gas & Electric Co. Underground Damage Control	787-9068
Miss Utility	1-800-257-7777
Colonial Pipeline Co.	795-1390
Bureau of Utilities, Howard County Department of Public Works	313-4900

9. Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
10. Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
11. All water mains to be D.I.P. Class 52 unless otherwise noted.
12. Tops of all water mains to have a minimum of 3-1/2' cover unless otherwise noted.
13. Valves adjacent to tees shall be strapped to tees.
14. All fittings shall be buttressed or anchored with concrete in accordance with the Standard Details unless otherwise provided for on the drawings.
15. Fire hydrants shall be set to the bury line elevations shown on the drawings. All fire hydrants shall be restrained and buttressed with concrete in accordance with Standard Details. Soil around the fire hydrant shall be compacted in accordance with Section 1000 and 1005 of the Standard Specifications.
16. The contractor shall not operate any water main valves on the existing water system.
17. All water house connections shall be for inside meter setting unless otherwise noted on plans or in specifications.
18. All sewer mains shall be P.V.C. unless otherwise noted.
19. All manholes shall be 4'-0" inside diameter unless otherwise noted.
20. Manholes shown with 12" and 16" walls are for brick manholes only.
21. Manholes designated W.T. in plan and profile shall have watertight frame and covers, as per Standard Detail G5.52. Where watertight manhole frame and cover is used, set top of frame 1"-6" above finished grade unless otherwise noted on the drawings.
22. House(s) with the symbol "C.N.S." indicates that cellar cannot be served.
23. Manholes can be either brick or precast concrete structures.
24. Contractor is solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs.
25. The fire hydrant shall be installed as per standard detail W.1.11.
26. Fire hydrants will be located 3' FROM BACK OF CURB unless otherwise noted.
27. For sprinkler systems, all townhomes or multi-family dwelling units should have a minimum of 1" connection with a 3/4" meter.
28. The contractor shall notify the Bureau of Highways, Howard County, at (410) 313-7450 at least five (5) working days before any open cut of any County road or boring\jacking operation in County roads for laying water\sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per Section 18.114(a) of the Howard County Code.
29. Howard County DPW is hereby granted permission to access private lots shown on these plans in order to maintain public water and sewer house connections at the curb stops and/or cleanouts.

INDEX OF DRAWINGS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/21/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

RIEMER MUEGGE
a division of
Patton Harris Rust & Associates, pc
ENGINEERS • SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS • ENVIRONMENTAL SPECIALISTS
8818 Centre Park Drive, Columbia, MD 21045 • tel 410.997.8900 fax 410.997.9282

STATE OF MARYLAND — FRANK DONALDSON — No. 8146 — PROFESSIONAL ENGINEER
FRANK DONALDSON #8146
2/10/03

DES:	H.M.S.
DRN:	R.J.C.
CHK:	G.C.L.
	JANUARY, 2003

BY	NO.	REVISION	DATE

TITLE SHEET

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~-3957
34

SCALE AS SHOWN

SHEET 1 OF 12

AS-BUILT JAN. 27, 2005

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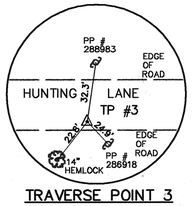
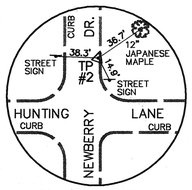


TRAVERSE POINT 3

ELEV. 347.40
N 550532.51
E 1344341.76

NOT TO SCALE



TRAVERSE POINT 2

ELEV. 355.19
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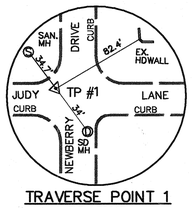
E 1344883.84

NOT TO SCALE



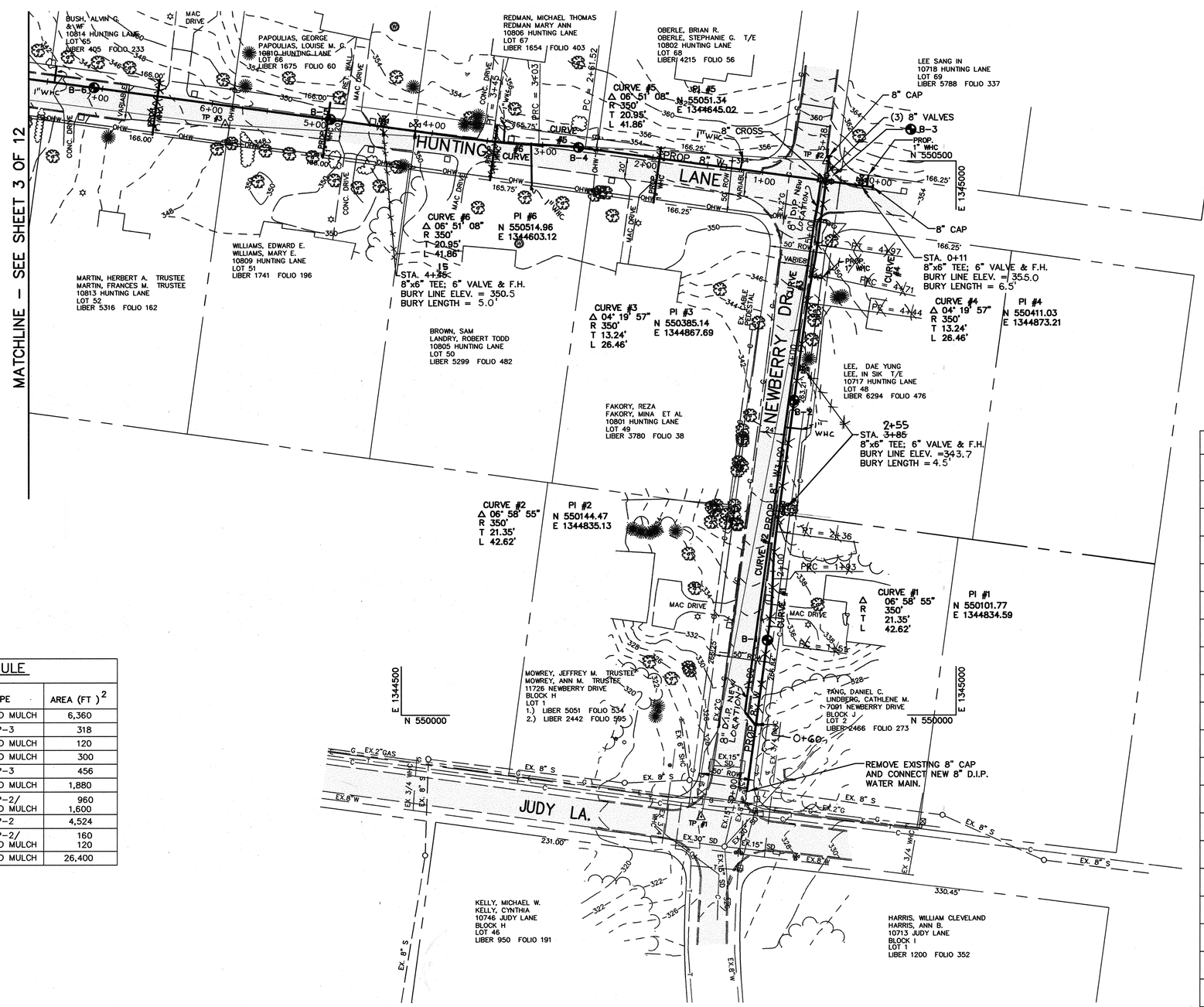
TRAVERSE POINT 1

ELEV. 324.17
N 549908.03
E 1344770.52

NOT TO SCALE

RESTORATION SCHEDULE

LOCATION/ WATER MAIN STATION OR SEWER MANHOLE	TYPE	AREA (FT)^2
0+00 TO 5+20 (NEWBERRY DRIVE)	SEED AND MULCH	6,360
5+20 TO 5+73	PAVING P-3	318
5+73 TO 5+78	SEED AND MULCH	120
0+00 TO 0+25 (HUNTING LANE)	SEED AND MULCH	300
0+25 TO 1+02	PAVING P-3	456
1+02 TO 3+00	SEED AND MULCH	1,880
3+00 TO 6+20	PAVING P-2/ SEED AND MULCH	960 1,600
6+20 TO 13+69	PAVING P-2	4,524
MH-8 TO MH-7	PAVING P-2/ SEED AND MULCH	160 120
MH-7 TO EX. MH-249	SEED AND MULCH	26,400



PLAN
SACLE: 1"=50'

BENCHMARKS

BM #1 CONCRETE MONUMENT
ELEV. 365.31
N 549829.44
E 1345426.44

BM #2 CONCRETE MONUMENT
ELEV. 295.86
N 550124.88
E 1342960.67

WATER MAIN STAKEOUT TABLE

WATER MAIN STATION	DESCRIPTION	NORTHING	EASTING
0+00 (NEWBERRY DRIVE)	CONNECTION POINT	549931.31	1344811.53
1+51	PC	550080.61	1344831.73
1+93	PRC	550123.12	1344834.86
2+36	PT	550165.02	1344837.99
~~2+55~~ ~~2+75~~	8"x6" TEE	550204.25	1344843.22
4+44	PC	550372.02	1344865.91
4+71	PRC	550398.08	1344870.45
4+97	PT	550424.15	1344874.99
5+56	8" CROSS	550482.16	1344882.83
5+61	8" VALVE	550487.12	1344883.50
5+78	8" CAP	550504.46	1344885.85
0+00 (HUNTING LANE)	8" CAP	550476.47	1344924.95
0+11	8"x6" TEE	550477.94	1344914.04
0+38	8" VALVE	550481.49	1344887.79
0+42.5	8" CROSS	550482.16	1344882.83
0+48	8" VALVE	550482.83	1344877.88
2+62	PC	550511.53	1344665.79
3+03	PRC	550514.65	1344624.07
3+45	PT	550517.77	1344582.36
~~4+41~~ ~~4+45~~	8"x6" TEE	550531.14	1344483.50
~~8+76~~ ~~8+80~~	8"x6" TEE	550589.46	1344052.42
10+81	8" VALVE	550616.37	1343853.53
12+85	8"x6" TEE	550643.56	1343900.19
13+69	8" CAP	550655.00	1343568.00

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/21/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

RIEMER MUEGGE
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STATE OF MARYLAND — FRANK DONALDSON — No. 8146 — PROFESSIONAL ENGINEER
FRANK DONALDSON #8146
2/10/03

DES: H.M.S.
DRN: R.J.C.
CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE
RJC		AS-BUILT	1/27/05

WATER PLAN

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~ 3957
34

SCALE AS SHOWN

SHEET 2 OF 12

AS-BUILT JAN. 27, 2005

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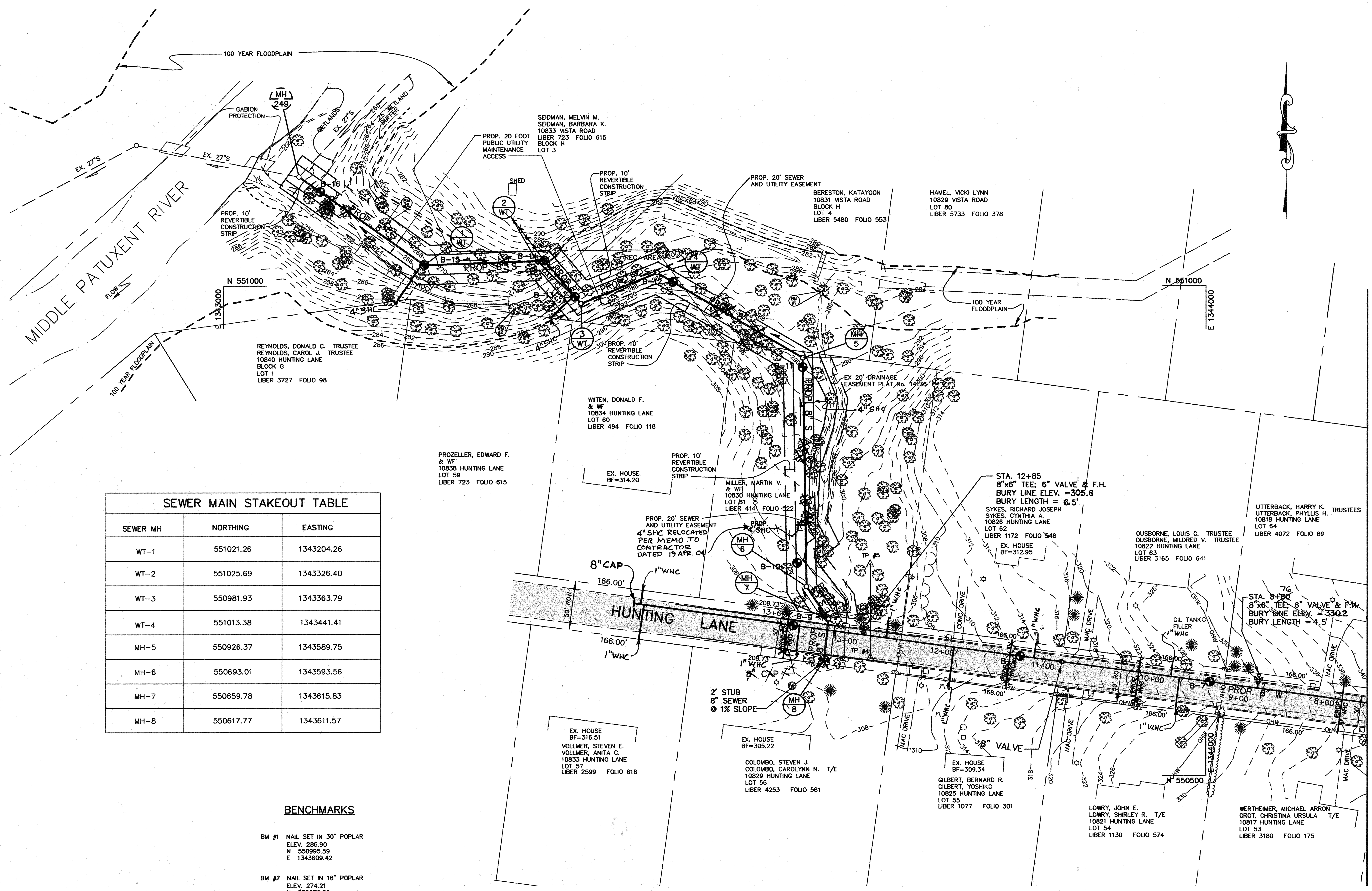
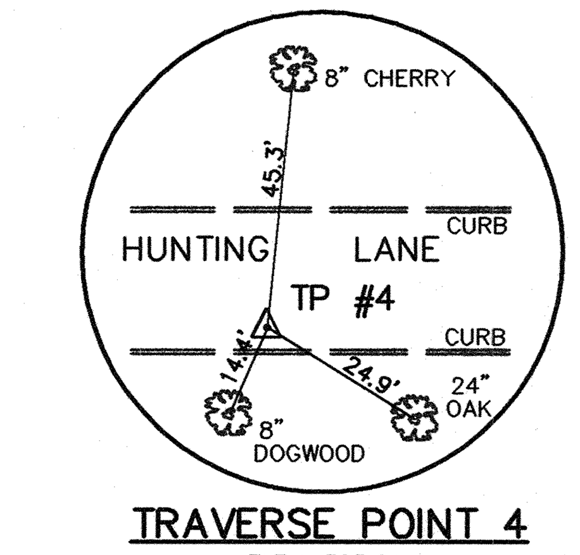


SEWER MAIN STAKEOUT TABLE		
SEWER MH	NORTHING	EASTING
WT-1	551021.26	1343204.26
WT-2	551025.69	1343326.40
WT-3	550981.93	1343363.79
WT-4	551013.38	1343441.41
MH-5	550926.37	1343589.75
MH-6	550693.01	1343593.56
MH-7	550659.78	1343615.83
MH-8	550617.77	1343611.57



TRAVERSE POINT 4

ELEV. 305.91
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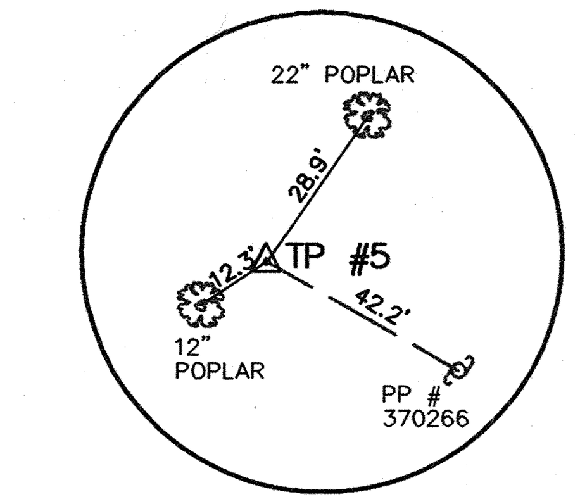

TRAVERSE POINT 5

ELEV. 302.81
N 550715.40
E 1343658.53

BENCHMARKS

BM #1 NAIL SET IN 30" POPLAR
ELEV. 286.90
N 550995.59
E 1343609.42

BM #2 NAIL SET IN 16" POPLAR
ELEV. 274.21
N 550976.52
E 1343296.06

BM #3 NAIL SET IN 15" DOUBLE OAK
ELEV. 276.89
N 551064.31
E 1343162.22

PLAN

SCALE: 1"=50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/21/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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STATE OF MARYLAND — PROFESSIONAL ENGINEER
FRANK DONALDSON #8146
2/10/03

DES: H.M.S.
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CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE
RJC		AS-BUILT	1/27/05

WATER AND SEWER PLAN

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~ 34-3957

SCALE AS SHOWN

SHEET 3 OF 12

AS-BUILT JAN. 27, 2005

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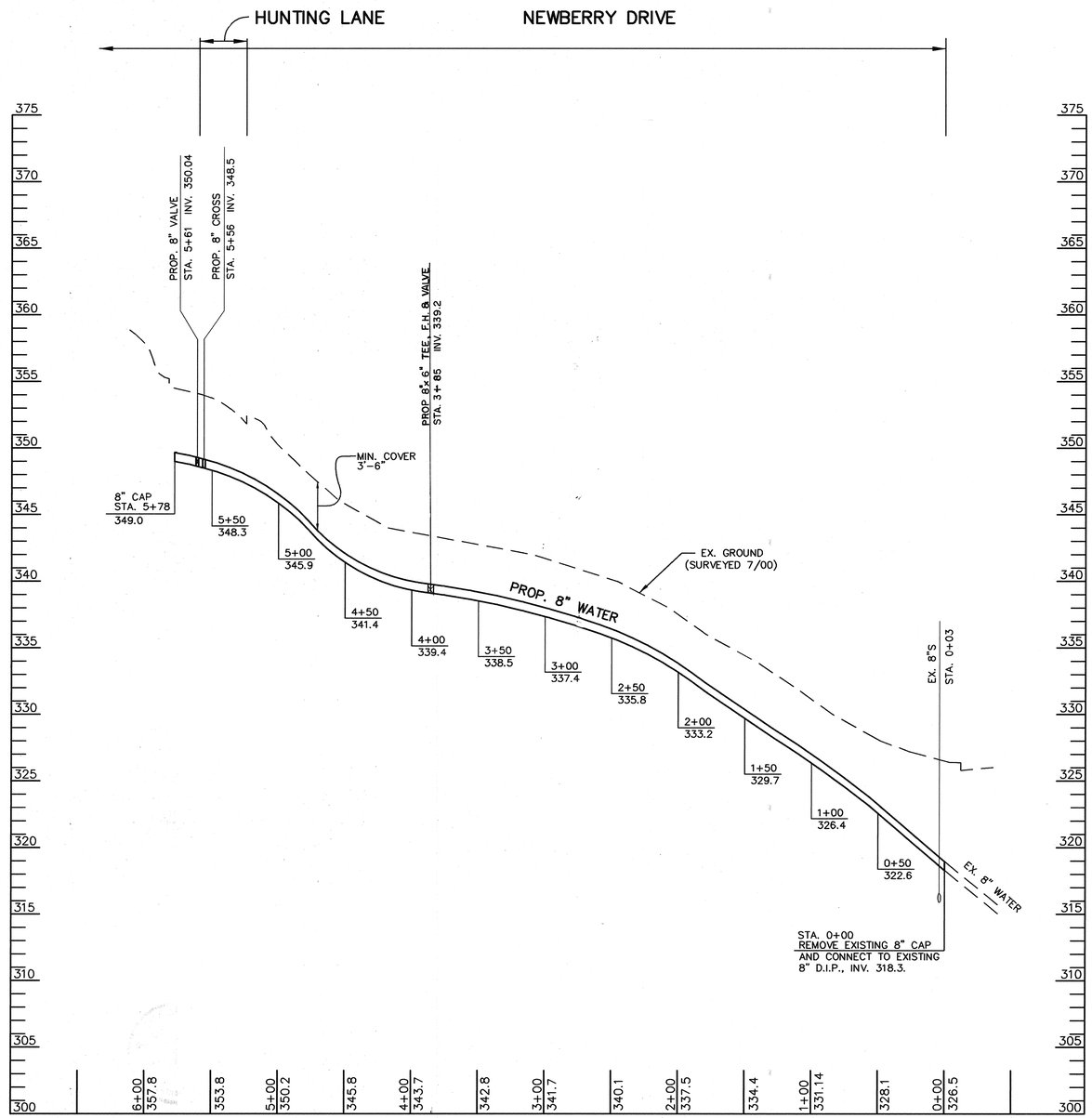

PROFILE

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/2/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/1/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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FRANK DONALDSON #8146 — 2/10/03

DES: H.M.S.
DRN: R.J.C.
CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE

WATER PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 24-3957
34

SCALE AS SHOWN

SHEET 4 OF 12

AS-BUILT JAN. 27, 2005

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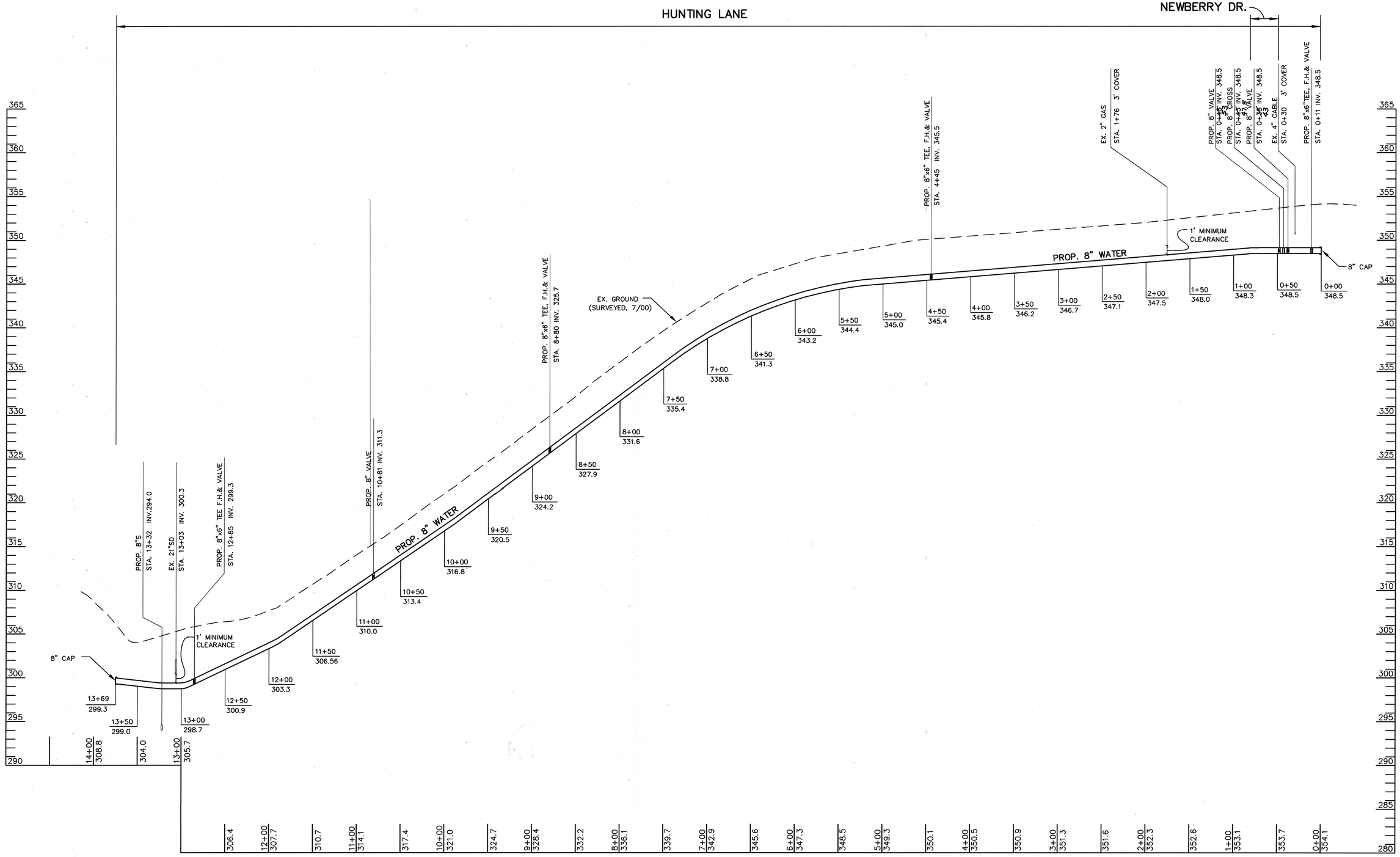

PROFILE

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/2/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/2/03 RMD
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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FRANK DONALDSON #8146
2/10/03

DES: H.M.S.				
DRN: R.J.C.				
CHK: G.C.L.				
JANUARY, 2003	RJC		AS - BUILT	1/27/05
	BY	NO.	REVISION	DATE

WATER PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~ 3957
34

SCALE AS SHOWN

SHEET 5 OF 12

AS-BUILT JAN. 27, 2005

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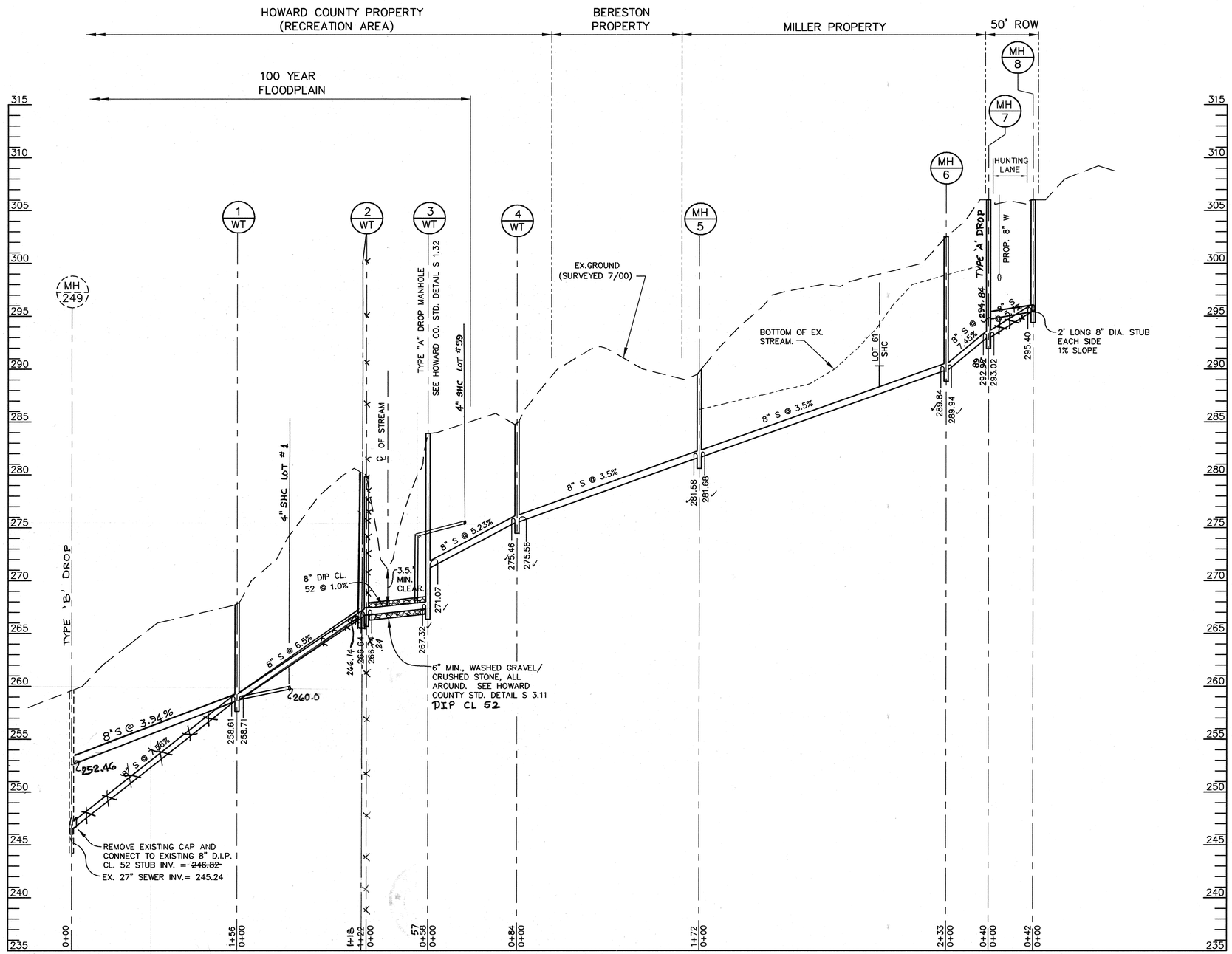

PROFILE

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/16/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/17/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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FRANK DONALDSON #8146
2/10/03

DES: H.M.S.
DRN: R.J.C.
CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE
RJC		AS-BUILT	1/27/05

SANITARY SEWER PROFILE

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~ 3957
34

SCALE AS SHOWN

SHEET 6 OF 12

AS-BUILT JAN. 27, 2005

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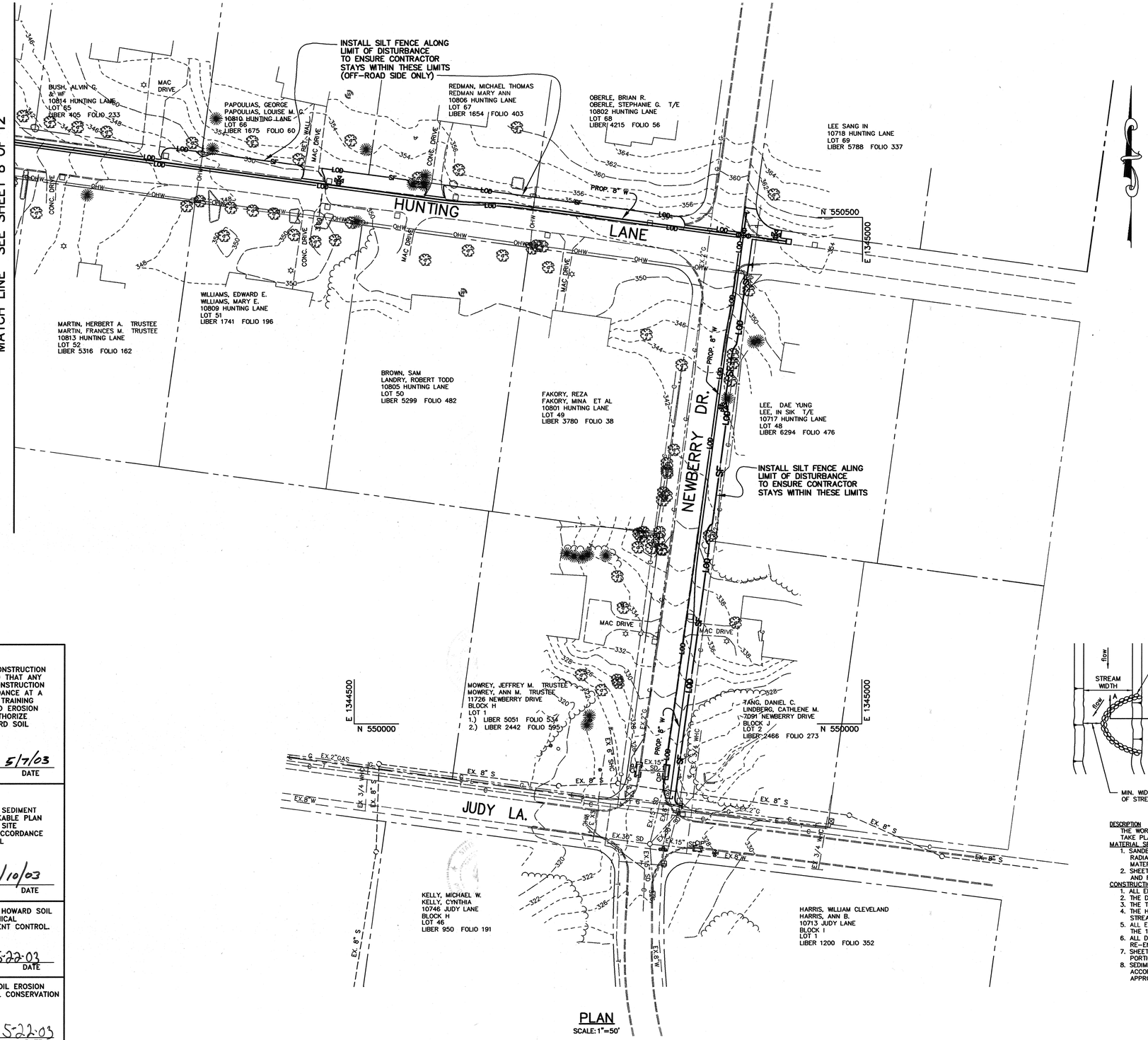
MATCH LINE SEE SHEET 8 OF 12



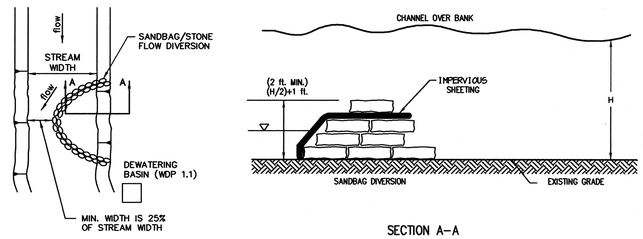
PLAN
SCALE:1"=50'

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1) No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2) Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
3) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
4) Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
5) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
6) Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
7) All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Uniola sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. **Kentucky 31 fescue shall not be utilized in wetland or buffer areas.** The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8) After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9) To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:

   Use I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.

10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11) Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.



SECTION A–A

DESCRIPTION
THE WORK SHALL CONSIST OF INSTALLING A FLOW DIVERSION STRUCTURE WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS CULVERT CONSTRUCTION OR STORM DRAIN CONSTRUCTION.

MATERIAL SPECIFICATIONS
1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRAVIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (i.e., SAND, FINE GRAVEL, ETC.).
2. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

CONSTRUCTION REQUIREMENTS
1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
3. THE TOP WIDTH OF DIKE IS TO BE FROM 2 – 4 FEET.
4. THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE HALF THE DISTANCE FROM STREAM BED TO STREAM BANK PLUS ONE FOOT, AS INDICATED ON THE CROSS-SECTION VIEW.
5. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOOD PLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WRA.
6. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED FROM A SUMP PIT PRIOR TO RE-ENTERING THE SYSTEM.
7. SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18 – INCH OVERLAP.
8. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THE REMOVAL.

SANDBAG DIVERSION (WPD 2.3)

BY THE DEVELOPER :

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

DEVELOPER — DATE 5/7/03

BY THE ENGINEER :

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

ENGINEER — DATE 2/10/03

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

NATURAL RESOURCES CONSERVATION SERVICE — DATE 5-22-03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5-22-03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/21/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

RIEMER MUEGGE
a division of
Patton Harris Rust & Associates, pc
ENGINEERS • SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS • ENVIRONMENTAL SPECIALISTS
8816 Centre Park Drive, Columbia, MD 21045 • tel 410.997.8900 fax 410.997.9282

STATE OF MARYLAND — FRANK N. DONALDSON — No. 8146 — REGISTERED PROFESSIONAL ENGINEER

FRANK DONALDSON #8146 — 2/10/03

JANUARY, 2003

BY	NO.	REVISION	DATE

DES: H.M.S.
DRN: R.J.C.
CHK: G.C.L.

SEDIMENT AND EROSION CONTROL PLAN

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~-3957
34

SCALE AS SHOWN

SHEET 7 OF 12

AS-BUILT JAN. 27, 2005

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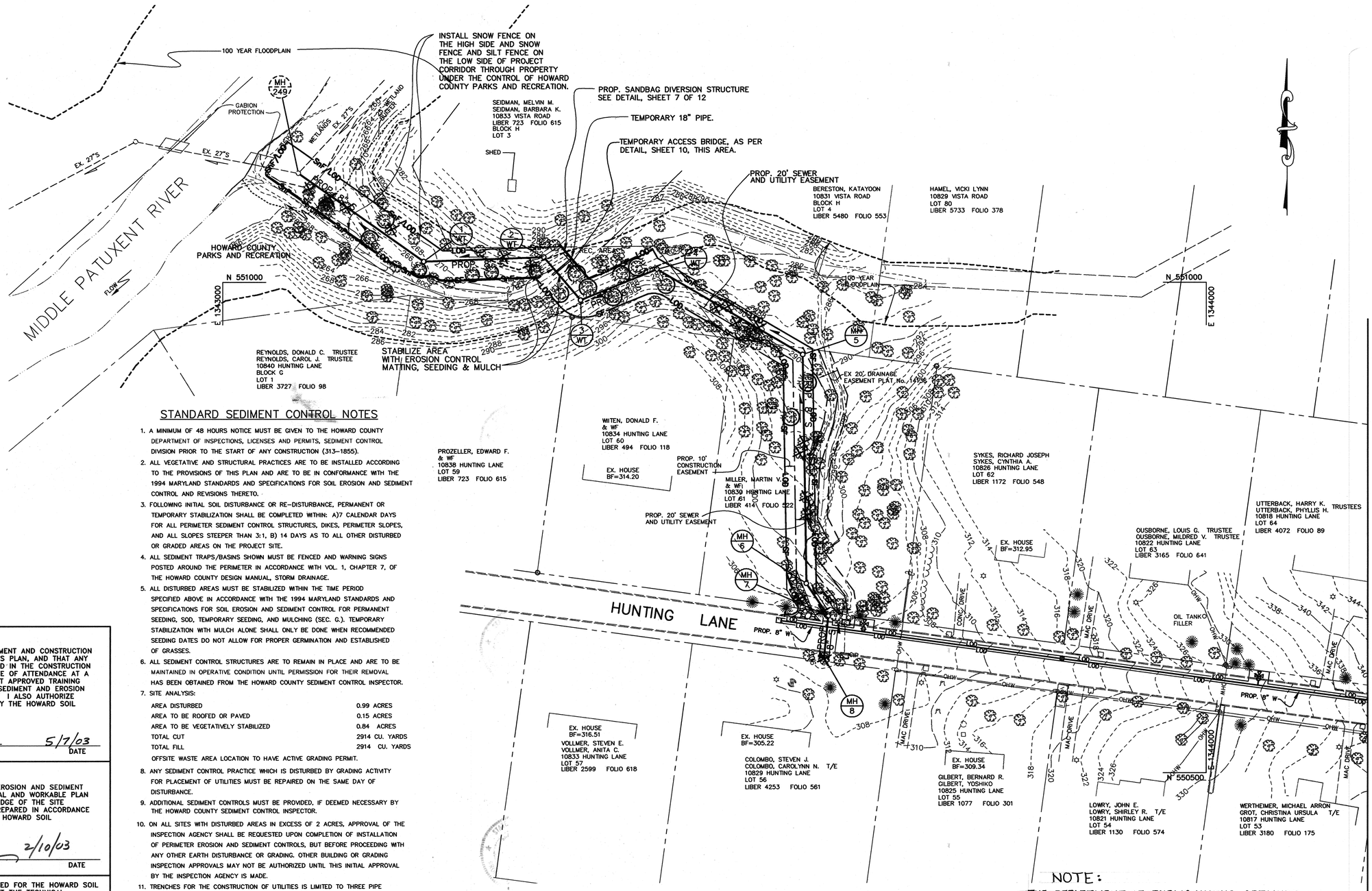

PLAN
SCALE: 1"=50'

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A)7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G.). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

AREA DISTURBED	0.99 ACRES
AREA TO BE ROOFED OR PAVED	0.15 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.84 ACRES
TOTAL CUT	2914 CU. YARDS
TOTAL FILL	2914 CU. YARDS

   OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT.
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
14. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

BY THE DEVELOPER :

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

DEVELOPER — DATE 5/7/03

BY THE ENGINEER :

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

ENGINEER — DATE 2/10/03

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

NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/21/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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STATE OF MARYLAND — FRANK M. DONALDSON — NO. 21146 — REGISTERED PROFESSIONAL ENGINEER
FRANK DONALDSON #8146
2/10/03

DES: H.M.S.
DRN: R.J.C.
CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE
RJC		AS-BUILT	1/27/05

SEDIMENT AND EROSION CONTROL PLAN

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 24-3957
34

SCALE AS SHOWN

SHEET 8 OF 12

MATCHLINE - SEE SHEET 7 OF 12

NOTE:
THE DEPARTMENT OF PUBLIC WORKS OBTAINED THE RIGHT TO REMOVE ALL TREES WITHIN THE 20-FOOT SEWER AND UTILITY EASEMENT AND 10-FOOT CONSTRUCTION EASEMENTS IN ACCORDANCE WITH GENERAL CONDITIONS OF RIGHT-OF-ENTRY ISSUED BY THE DEPARTMENT OF RECREATION AND PARKS AUGUST 13, 2003.

AS-BUILT JAN. 27, 2005

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SEQUENCE OF CONSTRUCTION

1. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS (410) 313-2455 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON-SITE AND OBTAIN GRADING PERMIT. (1 DAY)
2. CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES ONLY. (10 DAYS)
3. INSTALL ALL SEDIMENT AND EROSION CONTROL MESURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE. (10 DAYS)
4. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS UPON COMPLETION OF SAID INSTALLATION. (1 DAY)
5. WITH THE APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, CLEAR AND GRUB THE REMAINDER OF THE SITE AND STABILIZE IMMEDIATELY. (10 DAYS)
6. BEGIN EXCAVATION AND INSTALLATION OF UTILITIES. WORK SHALL BE LIMITED TO THREE (3) PIPE LENGTHS PER STANDARD NOTE NO. 11. STABILIZE WORK AREA AT THE END OF EACH WORK DAY. (80 DAYS)
7. CONNECT TO EXISTING UTILITIES WHERE APPLICABLE. (5 DAYS)
8. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE. (2 DAYS)
9. STABILIZE ALL DISTURBED AREAS. (2 DAYS)
10. FOLLOWING APPROVAL FROM THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMAINING AREAS. (2 DAYS)

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

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

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
  a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
  b. 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.
  c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
  d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. 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

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS 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 EXPERIMENTATION STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
  i. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY 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 CONTRASTING 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 1½" IN DIAMETER.
  ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
  iii. WHERE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/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.

II. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
  I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN <u>20.0 VEGETATIVE STABILIZATION</u> – SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
  i. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
    a. 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.
    b. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
    c. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
    d. 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 DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES TO AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY MAY BE USED IN LIEU OF NATURAL TOPSOIL.
  II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN <u>20.0 VEGETATIVE STABILIZATION</u> – BSECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION
  I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
  II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" – 8" HIGHER IN ELEVATION.
  III. 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 SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
  IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN 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, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
    I. COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
      A. COMPOSTED 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.
      B. COMPOSTED 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.
      C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
      D. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

SECTION I VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

  i. INSTALL SEDIMENT AND EROSION CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS OR SEDIMENT CONTROL BASINS

  ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

  iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS):

  i. 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 TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.

  ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION. FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME. TRADE NAME OR TRADEMARK AND WARRANTEE OF THE PRODUCER.

  iii. LIME MATERIAL SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98-100% WILL PASS THROUGH A #20 MESH SIEVE.

  iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION:

  i. TEMPORARY SEEDING

    a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL, AT A DEPTH OF 3-6" BY MEANS 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 SMOOTH BUT LEFT IN THE ROUGHEST CONDITION. SLOPED AREA (GREATER THAN 3:1) SHOULD BE TRACKED 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 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

  ii. PERMANENT SEEDING.

    a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:

      1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.

      2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).

      3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.

      4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.

      5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

      6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARDS AND SPECIFICATIONS FOR TOPSOIL.

    b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED 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. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS SUCH AS STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (GREATER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS

  i. 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 ON THIS JOB.
    NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

  ii. INOCULANT – THE INOCULATION FOR TREATING LEGUME SEEDS IN THE MIXTURE SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED ESPECIALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING:

  i. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.

    a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN, MAXIMUM OF 100 LB TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 LBS/AC. K20 (POTASSIUM): 200 LBS/AC.

    b. 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.

    c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

  ii. DRYSEEDING: THIS INCLUDES USE OF CONVENTIONAL, DROP OR BROADCAST SPREADERS.

    a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL. AT THE RATES PRESCRIBED FOR TEMPORARY OR PERMANENT SEEDING. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

    b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

  iii. DRILL OR CULTIPACKER SEEDING. MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

    a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

    b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

  i. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW. REASONABLY BRIGHT IN COLOR AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY, AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

  ii. WOOD CELLULOSE FIBER MULCH (WCFM)

    a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

    b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN A PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

    c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

    d. WCFM 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 ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

    e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS WHAT WILL BE PHYTO-TOXIC.

    f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM. DIAMETER APPROXIMATELY 1MM, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.
    NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREA WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS – MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

  i. IF GRADING IS COMPLETED OUTSIDE THE SEEDING SEASON, MULCH ALONE 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.

  ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 25 TONS/ACRE.

  iii. WOOD CELLULOSE FIBER USED A S A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (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 (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD.

  i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. A MINIMUM OF TWO (2) INCHES. 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.

  ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

  iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

  iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4-15 FEET WIDE AND 300-3,000 FEET LONG.

SECTION II TEMPORARY SEEDING

A. APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

  i. SEEDBED PREPARATION : LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

  ii. SOIL AMENDMENTS : APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.).

  iii. SEEDING : FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS. PER 1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.07 LBS. PER 1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

  iv. MULCHING : APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 1000 SQ.FT.) FOR ANCHORING.

B. REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SECTION III PERMANENT SEEDING

A. APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

  i. SEEDBED PREPARATION : LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

  ii. SOIL AMENDMENTS : IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES :

    a. PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS. PER 1000 SQ.FT.).

    b. ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

  iii. SEEDING : FOR THE PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS. PER 1000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE(0.05 LBS. PER 1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY ONE OF THE FOLLOWING OPTIONS :

    a. 2 TONS PER ACRE OF WELL ANCHORED MULCH STRAW AND SEED AS SOON AS POSSIBLE IN THE SPRING.

    b. USE SOD.

    c. SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW.

  iv. MULCHING : APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE(5 GALLONS PER 1000 SQUARE FEET) OF EMULSIFIED ASPHALT ON FLAT AREAS; ON SLOPES 8 FEET OR HIGHER, USE 347 GALLONS PER ARCE(8 GALLONS PER 1000 SQUARE FEET) FOR ANCHORING.

  v. MAINTENANCE : INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

SECTION IV SOD

A. GENERAL SPECIFICATIONS

  i. 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.

  ii. SOD SHALL BE MACHINE CUT 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 SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

  iii. 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 FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

  iv. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

  v. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

  i. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

  ii. THE FIRST ROW 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. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

  iii. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

  iv. 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

  i. 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". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

  ii. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

  iii. 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 3" UNLESS OTHERWISE SPECIFIED.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/21/03
DIRECTOR OF PUBLIC WORKS DATE

5/7/03
CHIEF, BUREAU OF ENGINEERING DATE

RMB 5/21/03
CHIEF, BUREAU OF UTILITIES DATE

5-7-03
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

RIEMER MUEGGE
a division of:
Patton Harris Rust & Associates, pc
ENGINEERS • SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS • ENVIRONMENTAL SPECIALISTS
8818 Centre Park Drive, Columbia, MD 21045 • tel 410.997.8900 fax 410.997.9282

FRANK H. DONALDSON
FRANK DONALDSON #8146
2/10/03

DES: H.M.S.
DRN: R.J.C.
CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE

SEDIMENT AND EROSION CONTROL
NOTES AND DETAILS

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~ 34-3957

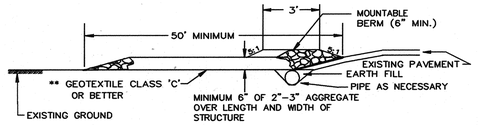
SCALE AS SHOWN

SHEET 9 OF 12

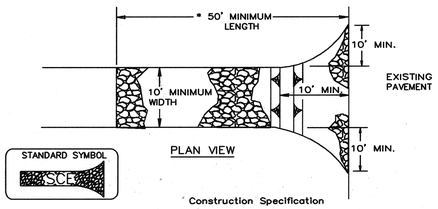
AS-BUILT JAN. 27, 2005

P:\project\00162\ESC-NOTES.dwg, Model, 02/06/03 02:16:39 PM, CARMICHAEL

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



PROFILE



PLAN VIEW

STANDARD SYMBOL: SCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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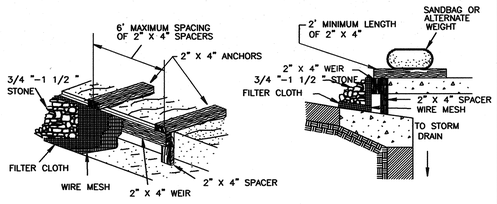
DETAIL 23C - CURB INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

STANDARD SYMBOL: CIP

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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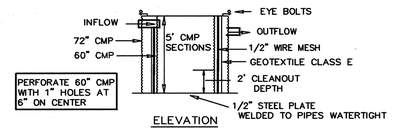
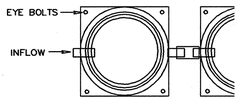
DETAIL 21 - PORTABLE SEDIMENT TANK



ELEVATION



PLAN VIEW

STANDARD SYMBOL: ☒ PST

Construction Specifications

1. The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.

2. An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.

3. Tanks may be connected in series.

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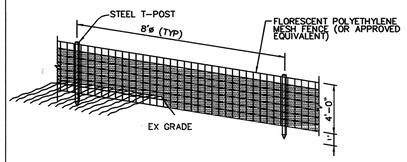
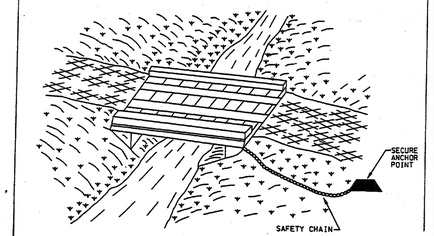
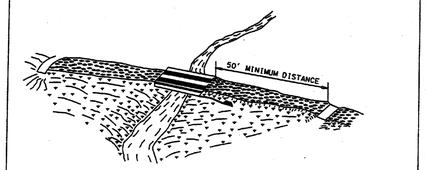


HIGH VISIBILITY SAFETY FENCE ELEVATION DETAIL

NOT TO SCALE

DETAIL 35 TEMPORARY ACCESS BRIDGE





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SILT FENCE

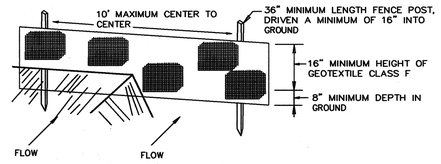
Silt Fence Design Criteria

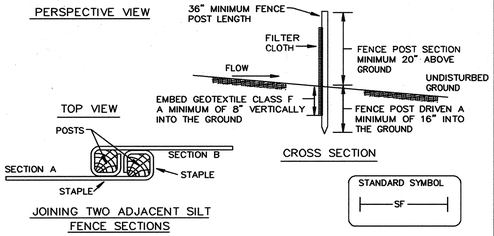
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE





STANDARD SYMBOL: SF

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 1-3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TEMPORARY ACCESS BRIDGE

Construction Specifications

1. Restriction– Construction, use, or removal of temporary access bridge will not normally have any time of year restrictions since construction, use, or removal should not affect the stream or its banks, unless the bridge is built with a pier(s) in the water.

2. Bridge Placement– A temporary bridge structure shall be constructed at or above the bank elevation to prevent the entrapment of floating materials and debris.

3. Abutments– Abutments shall be placed parallel to, and on, stable banks.

4. Bridge Span– Bridges shall be constructed to span the entire channel. If the channel width exceeds 8 feet, (as measured from top-of-bank to top-of-bank), then a footing, pier, or bridge support may be constructed within the waterway. One additional footing, pier, or bridge support will be permitted for each additional 8 foot width of the channel. However, no footing, pier, or bridge support will be permitted within the channel for waterways less than 8 feet wide.

5. Stringers– Stringers shall either be logs, sawn timber, prestressed concrete beams, or other approved materials.

6. Deck Material– Decking materials shall be of sufficient strength to support the anticipated load. All decking members shall be placed perpendicular to the stringers, butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway below.

7. Run Planks (optional)– Run planking shall be securely fastened to the length of the span. One run plank shall be provided for each track of the equipment wheels. Although run planks are optional, they may be necessary to properly distribute loads.

8. Curbs or fenders– curbs or fenders ma be installed along the outer sides of the deck. Curbs or fenders are an option which will provide additional safety.

9. Bridge Anchors– Bridges shall be securely anchored at only one end using steel cable or chain. Anchoring at only one end will prevent channel obstruction in the event that floodwaters float the bridge. Acceptable anchors are large trees, large boulders, or driven steel anchors. Anchoring shall be sufficient to prevent the bridge from floating downstream and possibly causing an obstruction to the flow.

10. Stabilization– All areas distributed during installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Areas Stabilization With Permanent Seeding."

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 29 - 9A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/2/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/2/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

RIEMER MUEGGE
a division of:
Patton Harris Rust & Associates, pc
ENGINEERS • SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS • ENVIRONMENTAL SPECIALISTS
8816 Centre Park Drive, Columbia, MD 21045 • tel 410.997.8900 fax 410.997.9282

STATE OF MARYLAND — FRANK DONALDSON — No. 8146 — REGISTERED PROFESSIONAL ENGINEER
FRANK DONALDSON #8146
2/10/03

DES: H.M.S.				
DRN: R.J.C.				
CHK: G.C.L.				
JANUARY, 2003	BY	NO.	REVISION	DATE

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~-3957
34

SCALE AS SHOWN

SHEET 10 OF 12

AS-BUILT JAN. 27, 2005

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MATCH LINE SEE SHEET 12 OF 12

HUNTING LANE

NEWBERRY DR.

JUDY LA.

MAC DRIVE

CONC. DRIVE

RET. WALL

OHW

FLAGGER

END ROAD WORK G20-2a

ONE LANE ROAD 1500 FT

ONE LANE ROAD 1000 FT

ROAD WORK 1/2 MILE

ROAD WORK 1000 FEET

PHASE 1 AT INTERSECTION

PHASE 2 AT INTERSECTION

PHASE 3 AT INTERSECTION

TYPICAL DAILY WORK ZONE

BUFFER

PLAN
SCALE: 1"=50'

MAINTENANCE OF TRAFFIC LEGEND:

- TEMPORARY PLASTIC DRUMS FOR M.O.T.
- TEMPORARY TRAFFIC SIGN FOR M.O.T.
- TEMPORARY WORK ZONE
- FLAGGER
- DIRECTION OF TRAFFIC FLOW

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/6/03

CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03

CHIEF, BUREAU OF UTILITIES — DATE 5/21/03

CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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LANDSCAPE ARCHITECTS • ENVIRONMENTAL SPECIALISTS
8818 Centre Park Drive, Columbia, MD 21045 • tel 410.997.8900 fax 410.997.9282

STATE OF MARYLAND — FRANK R. DONALDSON — PROFESSIONAL ENGINEER

FRANK DONALDSON #8146
2/10/03

DES: H.M.S.					
DRN: R.J.C.					
CHK: G.C.L.					
JANUARY, 2003	BY	NO.	REVISION	DATE	

TRAFFIC CONTROL PLAN

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~ 3957
34

SCALE AS SHOWN

SHEET 11 OF 12

AS-BUILT JAN. 27, 2005

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1. ALL LANES MUST BE REOPENED TO TRAFFIC DURING NON-WORKING HOURS. WORK TO TAKE PLACE DURING THE HOURS OF 9:00 A.M. TO 3:00 P.M., MONDAY THRU FRIDAY ONLY.
2. ALL APPROACHES AT INTERSECTIONS, AS WELL AS COMMERCIAL AND RESIDENTIAL DRIVEWAYS, MUST REMAIN OPEN AT ALL TIMES DURING CONSTURCTION.
3. FLAGGERS MUST BE USED WITHIN ALL INTERSECTIONS.
4. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
5. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCED WARNING SIGNS.
6. STEEL PLATES MUST BE USED TO COVER ANY EXCAVATION THAT HAS OCCURRED ALONG THE ROADWAY BY THE END OF EACH WORKDAY.
7. WORK ZONE SHOULD COVER LENGTH OF DAILY PIPE PLACEMENT.
8. REFERENCE PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR LANE CLOSURE FOR ONE LANE-TWO WAY TRAFFIC CONTROL.

MAINTENANCE OF TRAFFIC LEGEND:

- TEMPORARY PLASTIC DRUMS FOR M.O.T.
- TEMPORARY TRAFFIC SIGN FOR M.O.T.
- TEMPORARY WORK ZONE
- FLAGGER
- DIRECTION OF TRAFFIC FLOW

MATCHLINE - SEE SHEET 11 OF 12

PLAN
SCALE: 1"=50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 5/2/03
CHIEF, BUREAU OF ENGINEERING — DATE 5/7/03
CHIEF, BUREAU OF UTILITIES — DATE 5/21/03
CHIEF, WATER AND SEWER DESIGN DIVISION — DATE 5-7-03

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STATE OF MARYLAND — FRANK N. DONALDSON — NO. 8146 — REGISTERED PROFESSIONAL ENGINEER
FRANK DONALDSON #8146
2/10/03

DES: H.M.S
DRN: R.J.C.
CHK: G.C.L.
JANUARY, 2003

BY	NO.	REVISION	DATE

TRAFFIC CONTROL PLAN

600' SCALE MAP NO. 41 BLOCK NO. 5 & 6

HUNTING LANE
WATER & SEWER EXTENSION
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. ~~24~~-3957

SCALE AS SHOWN

SHEET 12 OF 12

AS-BUILT JAN. 27, 2005

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