FINAL ROAD CONSTRUCTION, GRADING AND SEDIMENT CONTROL PLANS

MT. HEBRON

SECTION 24

LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

ZONING: R-20

TAX MAP NO. 17 GRID No. 10 PARCEL No. 250

SHEET INDEX

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 1-12-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/20/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1/15/10

REVISIONS

NO.	DESCRIPTION	DATE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
CALVIN CIRCLE	PUBLIC ACCESS STREET	25 M.P.H.	50'

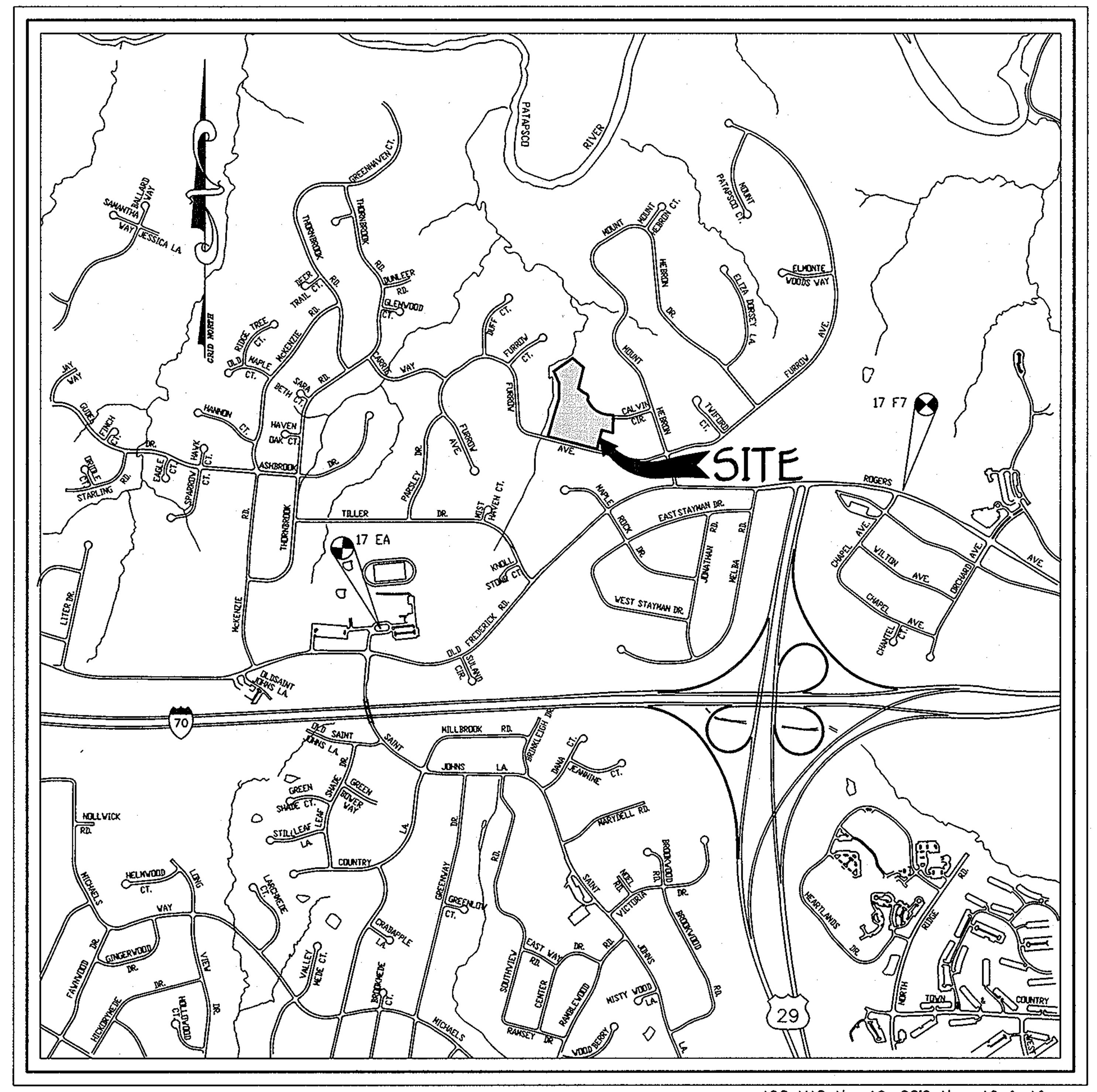
STREET LIGHT CHART

STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
CALVIN CIRCLE	4+33	16'L	100-WATT "PREMIER" H.P.S. VAPOR FIXTURE, POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
CALVIN CIRCLE	6+55	15'L	100-WATT "PREMIER" H.P.S. VAPOR FIXTURE, POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
CALVIN CIRCLE	8+10	15'L	100-WATT "PREMIER" H.P.S. VAPOR FIXTURE, POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FURROW AVENUE	8+62	17.3' R	100-WATT "PREMIER" H.P.S. VAPOR FIXTURE, POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FURROW AVENUE	12+47	19.3' R	100-WATT "PREMIER" H.P.S. VAPOR FIXTURE, POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.

NOTE: STREET LIGHTS SHALL BE SET 3' OFF THE BACK OF CURB.

TRAFFIC CONTROL SIGNS

ROAD NAME	℄ STA.	OFFSET	POSTED SIGN	SIGN CODE
CALVIN CIRCLE	1+75	18'R	SPEED LIMIT 25	R2-1
CALVIN CIRCLE	8+43	---	NO PARKING IN TEE TURNAROUND	



ADC MAP No. 12, GRID Nos. A2 & A3

VICINITY MAP

SCALE: 1" = 1200'

SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 (24) HOURS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
5. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 17 EA AND NO. 17 F7
   HOWARD COUNTY MONUMENT NO. 17 EA N 594,357.618 E 1,357,519.371 ELEV. = 479.462
   HOWARD COUNTY MONUMENT NO. 17 F7 N 595,829.6361 E 1,363,088.3676 ELEV. = 470.1861
6. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED JUNE, 2005 AND WAS APPROVED UNDER P-08-005 ON AUGUST 8, 2008.
7. BACKGROUND INFORMATION:
   A. SUBDIVISION NAME: MT. HEBRON
   B. TAX MAP NO.: 17
   C. PARCEL No.: 250
   D. ZONING: R-20
   E. ELECTION DISTRICT: SECOND
   F. TOTAL TRACT AREA: 8.135 AC.±
   G. NO. OF BUILDABLE LOTS: 12
   H. NO. OF OPEN SPACE LOTS: 1
   I. NO. OF NON-BUILDABLE BULK PARCELS: 1
   J. AREA OF BUILDABLE LOTS: 4.204 AC±
   K. AREA OF OPEN SPACE LOTS: 2.762 AC.±
   L. AREA OF NON-BUILDABLE BULK PARCELS: 0.656 AC.±
   M. TOTAL AREA OF ROADWAY TO BE DEDICATED: 0.513 AC.±
   N. PREVIOUS FILE NOS.: S-06-015 APPROVAL DATE: JUNE 22, 2007, P-08-005 APPROVAL DATE: AUGUST 8, 2008, BA-08-20, 14-4467-D, WP-09-091 APPROVAL DATE: MARCH 24, 2009.
   O. DEED REFERENCES: L.292, F.302; L.558, F.724; L.323, F.136; L.350, F.509; L.347, F.503; L.485, F.717; L.940, F.567.
8. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
9. THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS BECAUSE OF ITS SUBMISSION AFTER MAY 22, 2003.
10. SUBJECT PROPERTY ZONED R-20 PER 02/02/04 COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 7/28/06.
11. a. AREA OF OPEN SPACE REQUIRED = (8.135 x 30%) = 2.441 AC.±
    b. AREA OF CREDITED OPEN SPACE = 2.684 AC.±
    TOTAL AREA OF OPEN SPACE PROVIDED = 2.762 AC.±
    c. AREA OF NON-CREDITED OPEN SPACE = 0.078 AC.±
    d. RECREATIONAL OPEN SPACE REQUIRED = 2400 SF
    e. RECREATIONAL OPEN SPACE PROVIDED = 4,900 SF
12. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. PUBLIC WATER AND SEWER SHALL BE UTILIZED WITHIN THIS DEVELOPMENT. THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PUBLIC (CONTRACT No. 14-4467-D). EXISTING UTILITIES SHOWN HEREON ARE TAKEN FROM CURRENT HOWARD COUNTY CONTRACT DRAWINGS:
    a. EXISTING WATER CONTRACT NO. 298-W
    b. EXISTING SEWER CONTRACT NO. 744-S
13. SOILS INFORMATION TAKEN FROM SOIL MAP No. 10, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY, 1968 ISSUE.
14. THE EXISTING STRUCTURES LOCATED ON SITE ARE TO BE RAZED EXCEPT FOR THE BARN ON PROPOSED LOT 8.
15. BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED JAN. 2003.
16. TOPOGRAPHIC CONTOURS BASED ON FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS AND CARTER, INC. DATED JAN. 2003.
17. THERE ARE AREAS OF STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.b.
18. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 378 SPECIFICATIONS. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF A STONE RESERVOIR. WATER QUALITY AND CHANNEL PROTECTION VOLUME WILL BE PROVIDED BY A MICRO-POOL EXTENDED DETENTION POND. OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUME ARE NOT REQUIRED FOR THIS SITE. THE STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.
19. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
20. THERE ARE NO FLOODPLAIN AREAS LOCATED WITHIN THIS SITE.
21. THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, DATED MARCH, 2006.
22. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD R/W LINE AND NOT THE PIPESTEM LOT DRIVEWAY.
23. NO CEMETERIES EXIST WITHIN THIS SUBDIVISION.
24. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
    a. WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
    b. SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
    c. GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 TURNING RADIUS.
    d. STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H 25 LOADING).
    e. DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
    f. STRUCTURE CLEARANCES - MINIMUM 12 FEET.
    g. MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
25. THE PROPERTY IS LISTED ON THE HISTORIC SITES INVENTORY AS "HO-49, MT. HEBRON". IT IS NOT LOCATED WITHIN THE BOUNDARY OF AN HOWARD COUNTY HISTORIC DISTRICT. SEE THE MINUTES OF THE MAY 4, 2006 HISTORIC DISTRICT COMMISSION FOR ADVISORY COMMENTS.
26. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED AS FOLLOWS:
    A. RETENTION ON-SITE = 1.16 ACRES.
    B. AFFORESTATION ON-SITE = 0.35 ACRES.
    C. TOTAL FOREST EASEMENT PROVIDED = 1.51 ACRES.
    D. TOTAL FOREST SURETY = $17,728.92 DERIVED AS FOLLOWS:
       1. RETENTION (1.16 AC. X 43,560 SQ. FT./AC. X $0.20/SQ. FT. = $10,105.92)
       2. AFFORESTATION (0.35 AC. X 43,560 SQ. FT./AC. X $0.50/SQ. FT. = $7,623.00)
    E. TOTAL FEE-IN-LIEU PAYMENT = $17,968.50 DERIVED AS FOLLOWS:
       1. FEE-IN-LIEU FOREST = (0.55 AC. X 43,560 SQ. FT./AC. X $0.75/SQ. FT. = $17,968.50)
27. A. THE LANDSCAPING SURETY IN THE AMOUNT OF $14,550.00 FOR PERIMETER LANDSCAPE REQUIREMENTS (40 SHADE TREES AND 17 EVERGREEN TREES) OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
    B. THE STREET TREE SURETY IN THE AMOUNT OF $10,800.00 FOR THE REQUIRED 36 STREET TREES SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
28. SIGN POSTS: ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST."
29. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
30. THE PURPOSE OF THE 30' REVERTIBLE SLOPE EASEMENT (L. 10844, F. 109) LOCATED ON THE ADJACENT "THE TRUSTEES OF PRESBYTERY OF BALTIMORE OF THE PRESBYTERY CHURCH U.S.A." PROPERTY IS FOR GRADING ASSOCIATED WITH THE CONSTRUCTION OF A PUBLIC ROAD.
31. OPEN SPACE LOT 13 WILL BE DEDICATED TO HOWARD COUNTY RECREATION AND PARKS.
32. THIS PROPERTY IS SUBJECT TO BA-08-020V FOR A VARIANCE FROM SECTION 108.D.4.1.(a) (ii) OF THE ZONING REGULATIONS FOR THE FRONT BUILDING RESTRICTION LINE ON LOT 8. THIS VARIANCE WAS APPROVED ON JUNE 9, 2008 TO ALLOW FOR A REDUCTION FROM 50' TO 44' IN ORDER TO SUPPORT THE EXISTING BARN, PER COUNTY COMMENT No.1 ON NOVEMEBR 16, 2007. SHOULD THE PLANNING DIRECTOR BE UNSUCCESSFUL IN SECURING A BUYER OF THE FINISHED LOT FOR RESTORATION INTO A RESIDENCE, THE BARN WILL BE REMOVED AND THIS VARIANCE WILL BECOME VOID FOR ANY NEW CONSTRUCTION.
33. THIS PLAN IS SUBJECT TO A WAIVER ~~(HR~~-09-091) FROM THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, 16.116.A.2. AND 16.116.C. WHICH PROHIBITS grading REMOVAL OF VEGETATION OR DISTURBANCE WITHIN STREAMS AND ASSOCIATED BUFFERS. DPZ RECOMMENDS APPROVAL (MARCH 24, 2009) BASED ON THE FOLLOWING:
    1. The pond design, as submitted, was revised to move the grading of the facility out of the stream buffer with the exception of the outfall.
    2. The no-woody zone is still partly located within the buffer; however, there is also a public sewer easement that is also located within the No-woody zone. The public sewer easement requires this area to be maintained clear of trees. If the pond was moved east and the no-woody zone located outside the buffer, this area still could not be wooded due to the public easement.
    3. The small strip of land south and west of the no-woody zone and the public sewer easement has been planted to meet landscaping requirements.
    4. Lot 10 is adjacent to the pond and is within 28 sf of the minimum lot size which will not allow the lot line to move significantly and therefore the pond to be relocated east enough to make a significant change.
34. NON-BUILDABLE BULK PARCEL 'A' RESERVES THE RIGHT TO BE FURTHER SUBDIVIDED.

GENERAL NOTES CONTINUED:

35. AT SITE PLAN STAGE, HOUSES ON LOT 4 AND FUTURE LOTS 14 & 15 (NON-BUILDABLE BULK PARCEL 'A') SHALL UTILIZE A FOUNDATION DRAIN SYSTEM PER GTA REPORT DATED OCTOBER, 2009 THAT WILL TIE INTO THE PROPOSED 6" PVC, SCH. 40 PIPE FROM THE FIELD UNDERDRAIN.
36. THIS PLAT IS SUBJECT TO A WAIVER (WP-09-192) FROM SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, WHICH THE PLANNING DIRECTOR ON MAY 22, 2009 APPROVED A REQUEST TO WAIVE SECTION 16.144(O) - REQUIRING THE SUBDIVISION OR THE FINAL CONSTRUCTION DRAWINGS WITHIN 60 DAYS FROM THE APPROVAL DATE OF THE SUBDIVISION PLAN; SECTION 16.144(P) - REQUIRING THE PAYMENT OF FEES AND POSTING OF FINANCIAL OBLIGATIONS WITHIN 120 DAYS FROM THE APPROVAL DATE OF THE SUBDIVISION PLAN; AND SECTION 16.144(Q) - REQUIRING THE SUBMISSION OF THE FINAL SUBDIVISION PLAN FOR RECORDATION WITHIN 180 DAYS FROM THE APPROVAL DATE OF THE SUBDIVISION PLAN. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
    1) THE ORIGINAL FINAL CONSTRUCTION DRAWINGS (ROAD CONSTRUCTION DRAWINGS AND WATER AND SEWER PLANS) MUST BE SUBMITTED ON OR BEFORE DECEMBER 7, 2009.
    2) THE DEVELOPER'S AGREEMENT AND PAYMENT OF FEES MUST BE COMPLETED BY FEBRUARY 6, 2010.
    3) THE PLAT ORIGINALS MUST BE SUBMITTED TO DPZ BY APRIL 5, 2010.
    4) COMPLIANCE WITH ALL SRC COMMENTS.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

ALDO ... P.E. — DATE 12-15-09

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'
Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 1 Of 15

F-09-019

NOTE:
NO DEMOLITION SHALL OCCUR UNTIL ALL SEDIMENT CONTROL DEVICES ARE IN PLACE.

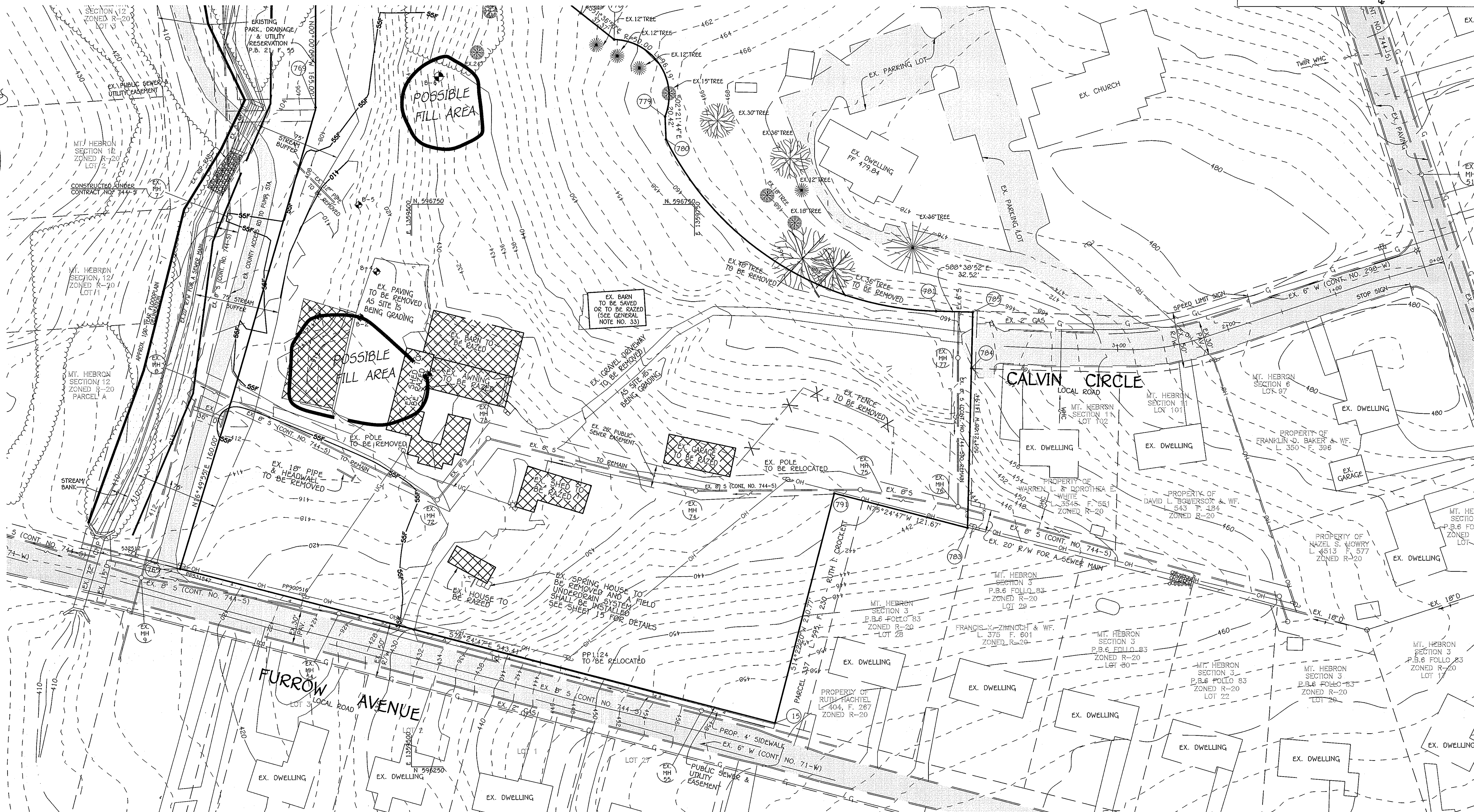
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 1-12-10 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 1/20/10 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 1/15/10 DATE



PLAN
SCALE: 1" = 40'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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(410) 720-3021

ALDO M. VITUCCI, P.E. — 12-3-09 DATE

"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

DEMOLITION PLAN
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

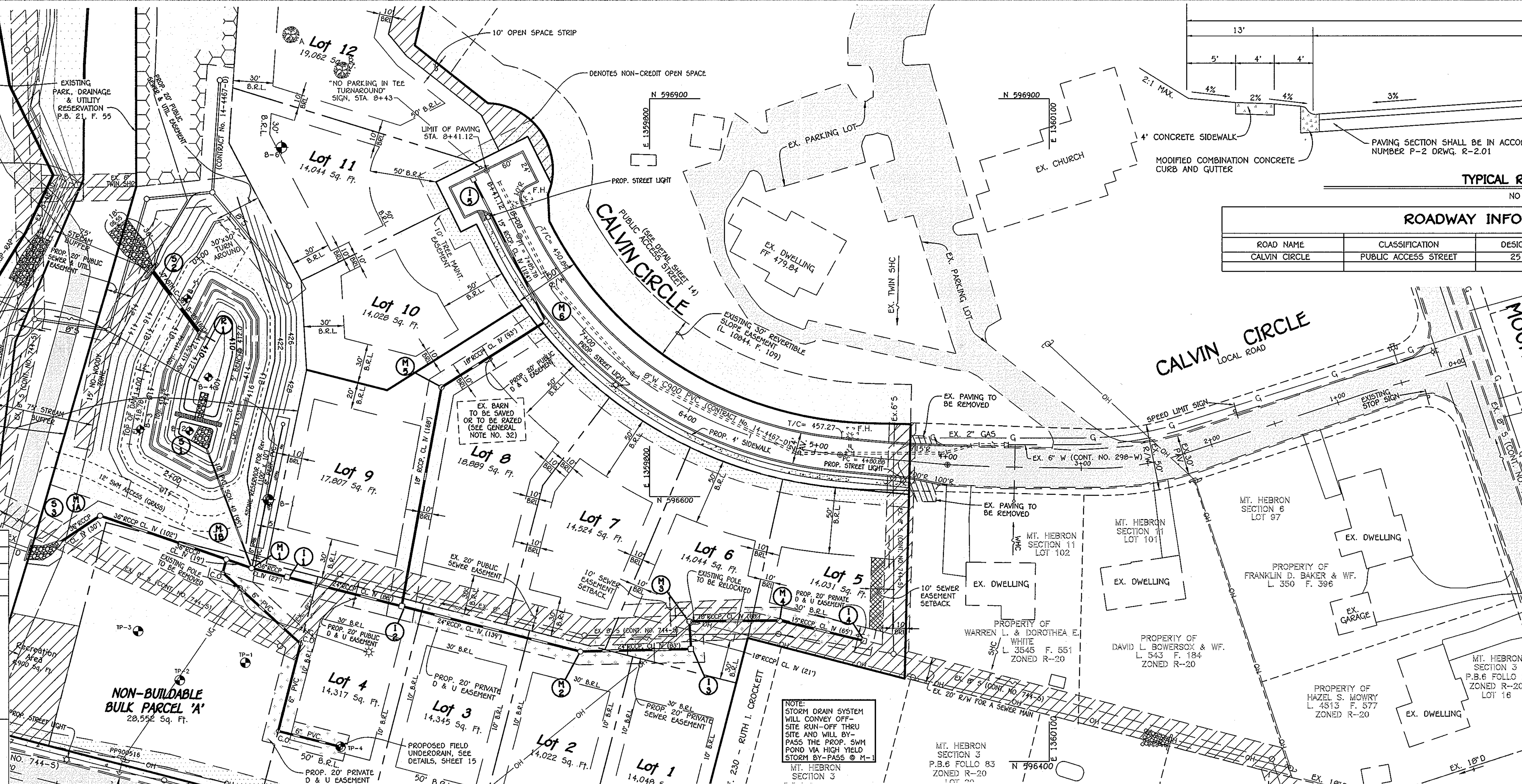
Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 2 Of 15

F-09-019

CL CURVE DATA

CALVIN CIRCLE

STA 4+80.88 TO STA. 7+85.78
RAD. = 300.00'
LENGTH = 304.90'
TAN. = 167.08'
DELTA = 58°13'49"
CHORD = N 55°33'35" W, 291.94'



NO.	DESCRIPTION	DATE

REVISIONS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

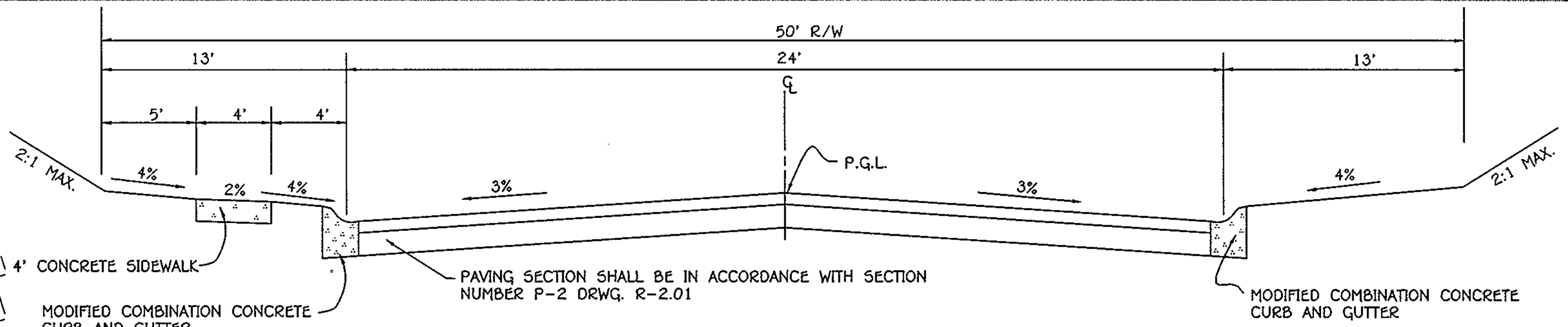
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/20/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/15/10

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-12-10

12-3-09

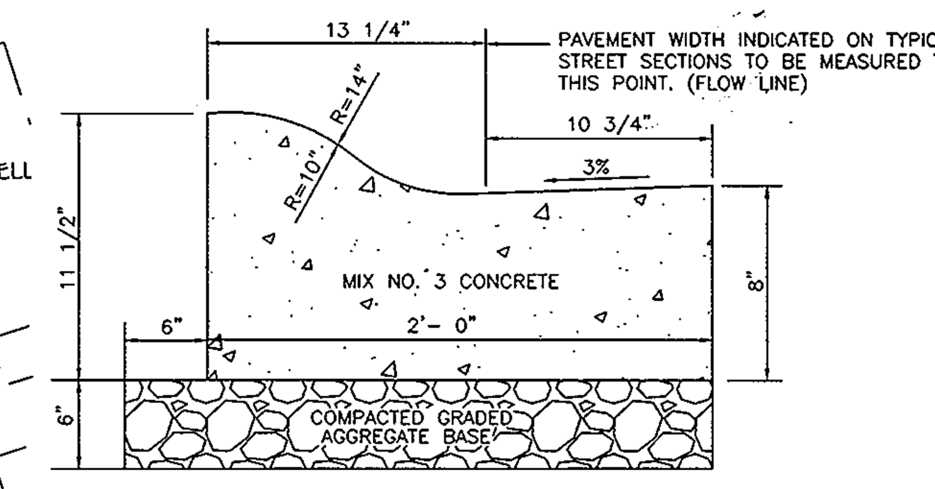


TYPICAL ROADWAY SECTION

NO SCALE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
CALVIN CIRCLE	PUBLIC ACCESS STREET	25 M.P.H.	R-20	4+00 TO 8+41.12	P-2



MODIFIED COMBINATION CURB AND GUTTER

NO SCALE

PLAN

SCALE: 1" = 50'

MT. HEBRON

SECTION 24

LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

ZONED: R-20
TAX MAP NO. 17 GRID NO. 10 PARCEL NO. 250
Second Election District Howard County, Maryland

CALVIN CIRCLE

PLAN AND PROFILE

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

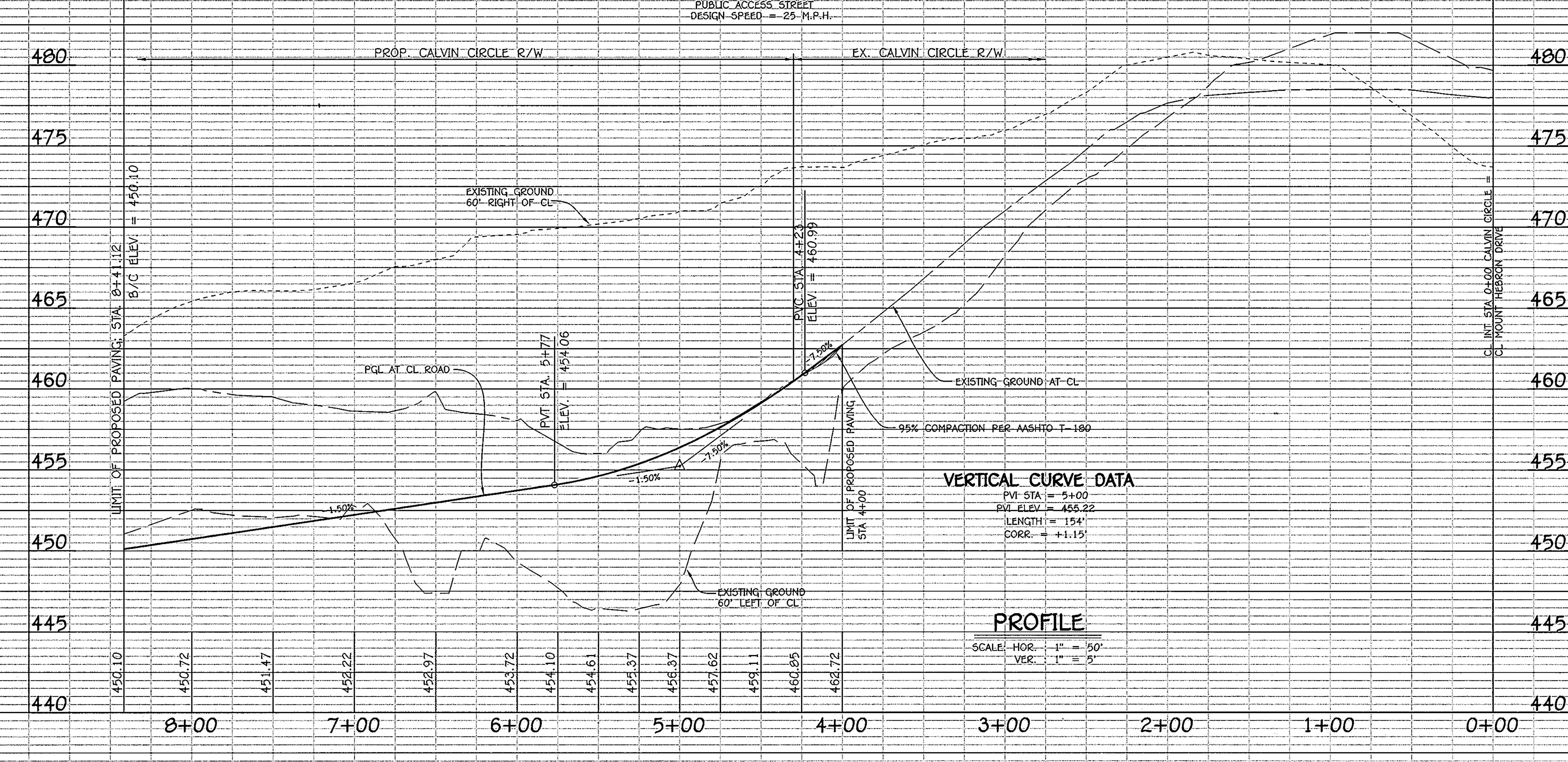
OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

SCALE: AS SHOWN	DATE: DEC. 3, 2009	DWG. NO. 3 OF 15
DES.: R.A.I.	DRN.: J.C.L.	CHK.: A.M.V.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

CALVIN CIRCLE

PUBLIC ACCESS STREET
DESIGN SPEED = 25 M.P.H.



VERTICAL CURVE DATA

PVI STA = 5+00
PVI ELEV = 455.22
LENGTH = 154'
CORR. = +1.15'

PROFILE

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

I:\2005\05024\dwg\FINAL\ADDITIONAL LOTS LAYOUT\05024 SHEET 3 ROAD PLAN.dwg, 12/3/2009 8:16:19 AM, jamesl, 1:1

F-09-019

LEGEND

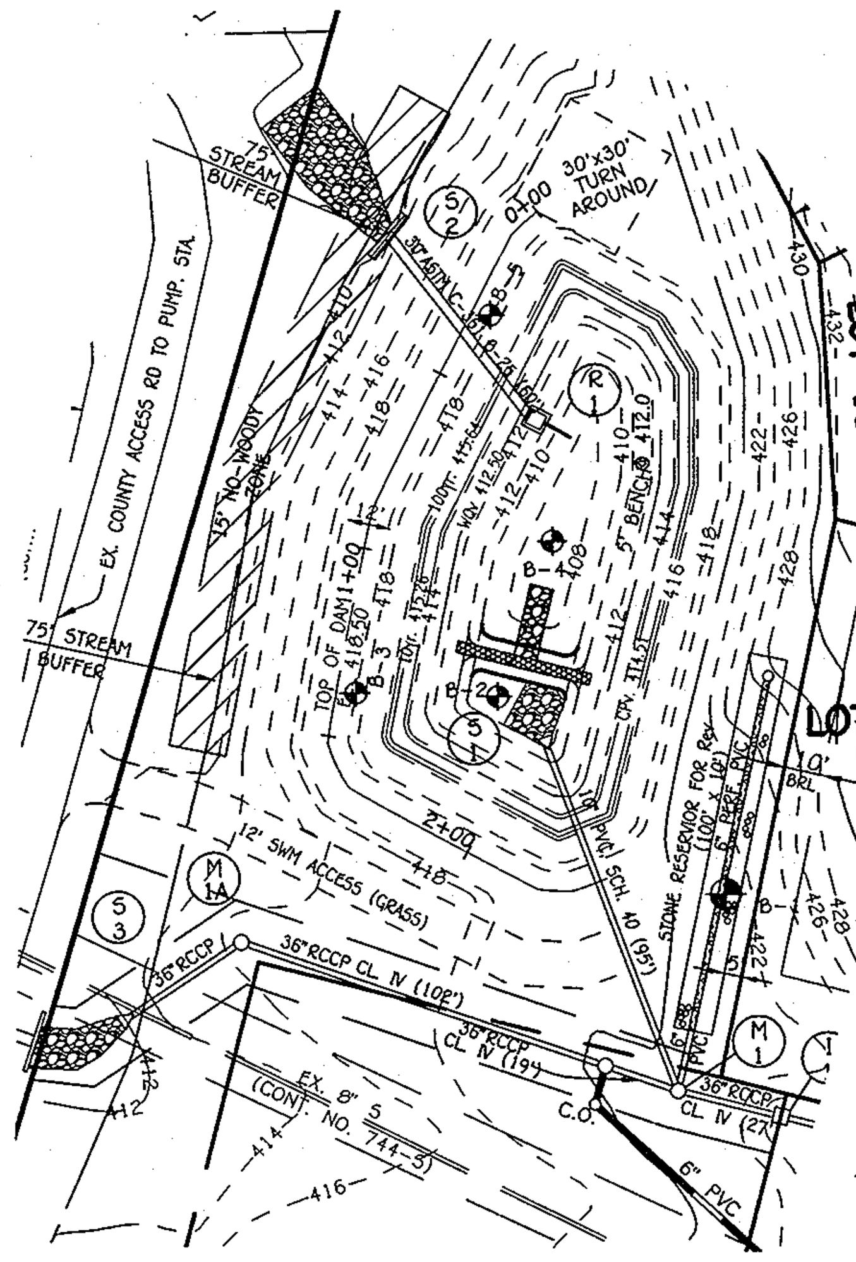
Symbol	Description
18" PSD	PIPE SLOPE DRAIN
—SSF— SSF— SSF—	SUPER-SILT FENCE
—SF— SF— SF—	SILT FENCE
—TP—TP— TP—	TREE PROTECTION FENCE
S.C.E.	STABILIZED CONSTRUCTION ENTRANCE
(arrows)	EARTH DIKE
L.O.D.	LIMITS OF DISTURBANCE
R.P.S. ☒	REMOVABLE PUMPING STATION
F.B.	FILTER BAG
E.C.M.	DENOTES EROSION CONTROL MATTING
(hatch)	DENOTES 25% OR GREATER SLOPES
(stipple)	DENOTES 15% – 24.99% SLOPES
G.I.P.	GABION INFLOW PROTECTION
—OH—	OVERHEAD ELECTRIC
—UG—	UNDERGROUND ELECTRIC

TEMPORARY SEDIMENT BASIN BASIN #1 / POND #1

INITIAL DRAINAGE AREA = 1.21 AC.±
FINAL DRAINAGE AREA = 7.25 AC.±
STORAGE REQUIRED
WET = 1,800 X 7.25 = 13,050 CU. FT.
DRY = 1,800 X 7.25 = 13,050 CU. FT.
STORAGE PROVIDED
WET = 13,050 CU. FT. @ ELEV. 412.90
DRY = 26,100 CU. FT. @ ELEV. 415.25
BOTTOM ELEVATION = 408.00
STORAGE DEPTH = 5.85' (WET) 3.50' (DRY)
TOP OF EMBANKMENT = 419.75
CLEAN OUT ELEVATION = 411.40
WEIR CREST ELEVATION = 415.60
WEIR LENGTH = 7'
FOR 1 YR. TEMP. STORAGE REQ. = 16,553 CU.FT.
STORAGE (DRY) PROVIDED @ 415.25 = 26,136 CU. FT.
Q1 EX. = 0.38 C.F.S.
Q1 CONSTRUCTION = 0.38 C.F.S.
Q1 ULTIMATE = 0.38 C.F.S. (OUT OF BASIN)

STONE OUTLET SEDIMENT TRAP (S.O.S.T.)

INITIAL DRAINAGE AREA = 0.64 AC.±
FINAL DRAINAGE AREA = 0.64 AC.±
STORAGE REQUIRED
WET = 1,800 X 0.64 = 1,152 CU. FT.
DRY = 1,800 X 0.64 = 1,152 CU. FT.
STORAGE PROVIDED
WET = 1,152 CU. FT. @ ELEV. 410.35
DRY = 2,304 CU. FT. @ ELEV. 411.70
BOTTOM ELEVATION = 408.00
STORAGE DEPTH = 2.35' (WET) 1.35' (DRY)
TOP OF EMBANKMENT = 412.70
CLEAN OUT ELEVATION = 409.30
WEIR CREST ELEVATION = 411.70
WEIR LENGTH = 4'
FOR 1 YR. TEMP. STORAGE REQ. = N/A <2 ac.
STORAGE (DRY) PROVIDED @ 413.70 = 2,304 CU.FT.



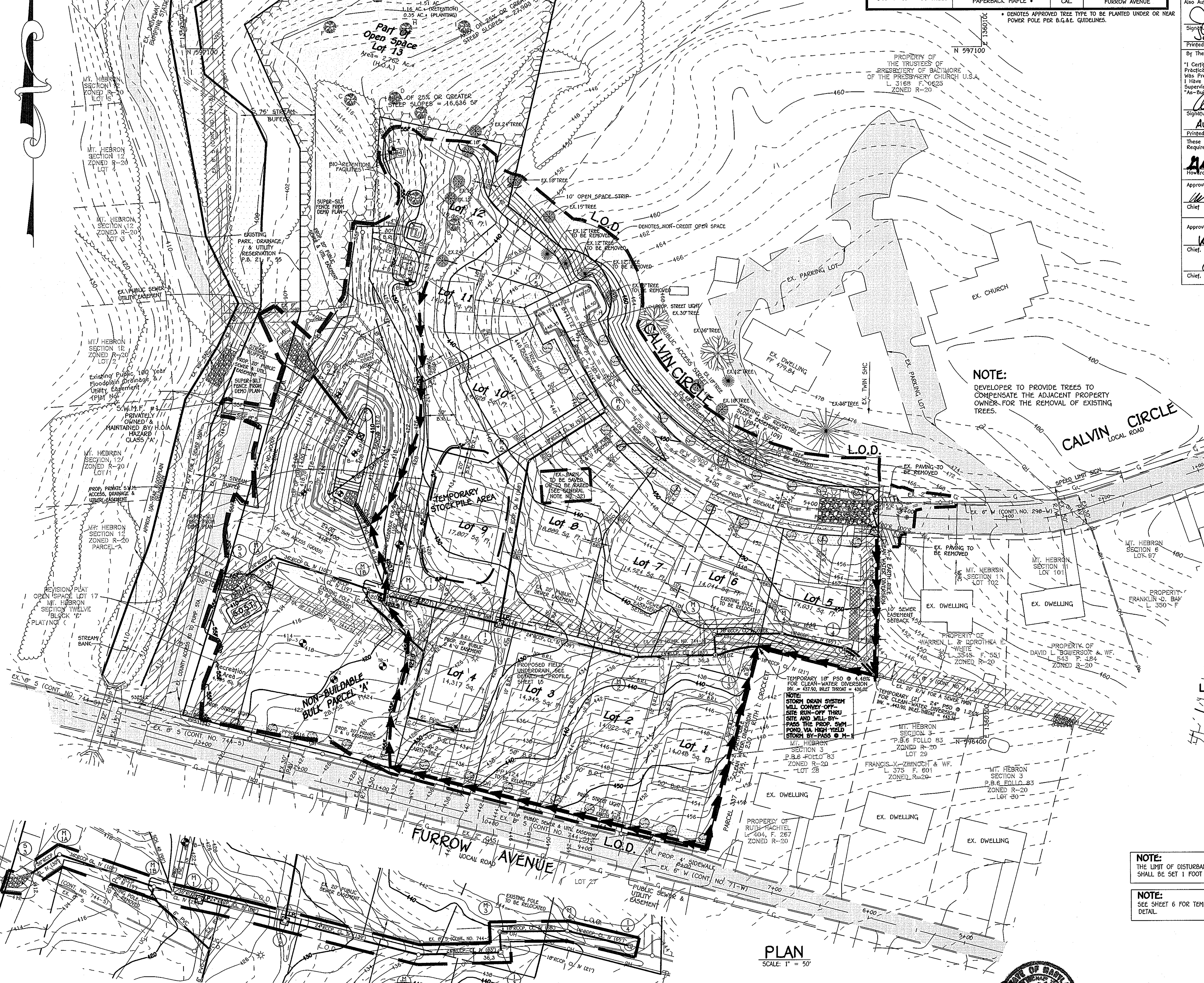
FINAL S.W.M. POND GRADING FOR FOREBAY AND TRAP

SCALE: 1" = 50'

STREET TREE SCHEDULE

QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
441.60' x 2 = 883.20' 883.20' / 40 = 22 TREES	QUERCUS ACUTISSIMA SAWTOOTH OAK	2 1/2–3" CAL.	40' APART ON PUBLIC R/W CALVIN CIRCLE
543' / 40 = 14 TREES	ACER GRISEUM PAPERBACK MAPLE *	2 1/2–3" CAL.	40' APART ON PUBLIC R/W FURROW AVENUE

* DENOTES APPROVED TREE TYPE TO BE PLANTED UNDER OR NEAR POWER POLE PER B.G.&E. GUIDELINES.



PLAN

SCALE: 1" = 50'

PHASE ONE L.O.D. PLAN

SCALE: 1" = 50'

CONTRACTOR NOTE:
THE LIMIT OF DAILY DISTURBANCE SHALL BE LIMITED TO WHAT CAN AND SHALL BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

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] 7/27/10
Signature Of Developer — Date
Jason Van Kirk
Printed Name Of Developer

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] 7-15-10
Signature Of Engineer — Date
ALDO [illegible]
Printed Name Of Engineer

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Geoffrey W. Schoning 8/11/10
Howard Soil Conservation District — Date

Approved: Department Of Public Works
[signature] 8-16-10
Chief Bureau Of Highways — Date

Approved: Department Of Planning And Zoning
[signature] 8/19/10
Chief, Division Of Land Development — Date
[signature] 8/19/10
Chief, Development Engineering Division — Date

AS-BUILT CERTIFICATION

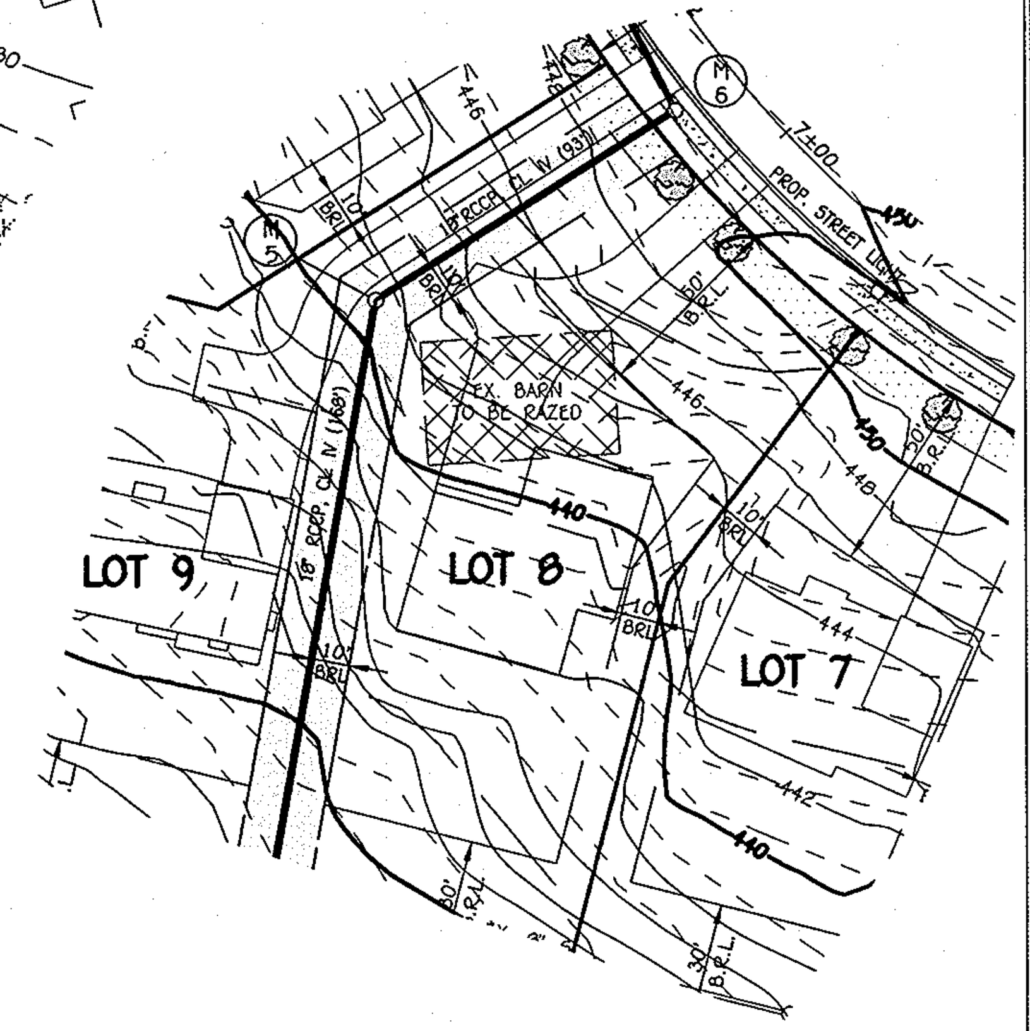
I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. 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 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.

BAFFLE DESIGN DATA

BAFFLE NO. 1
D = 88'
A = 5,150 SQ.FT.
We = A/D = 5150/88 = 58.52'
Le = 128' = LENGTH OF BAFFLE
Le/We = 128/58.52 = 2.19'
2.19' > 2.0' ∴ OK
L1 = 52'
L2 = 76'
SEE BAFFLE DETAIL, SHEET 12



ALTERNATE GRADING FOR LOT 8 WITH PROPOSED DWELLING

SCALE: 1" = 50'

NOTE:
THE LIMIT OF DISTURBANCE ALONG THE EAST BOUNDARY LINE SHALL BE SET 1 FOOT INSIDE THE SUBJECT PROPERTY.

NOTE:
SEE SHEET 6 FOR TEMPORARY FLEXIBLE PIPES AT I-3 AND I-4 DETAIL.

REVISIONS		
NO.	DESCRIPTION	DATE
1	LOWERED ROAD GRADE AND LOT GRADING & RELOCATE RECREATION AREA OUT OF STREAM BUFFER	5/12/10

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

[signature] 7-15-10
ALDO M. VITUCCI, P.E. — DATE
"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

REVISED
STREET TREE, GRADING & SEDIMENT CONTROL PLAN
MT. HEBRON
SECTION 24
LOTS 1 – 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009

F-09-019

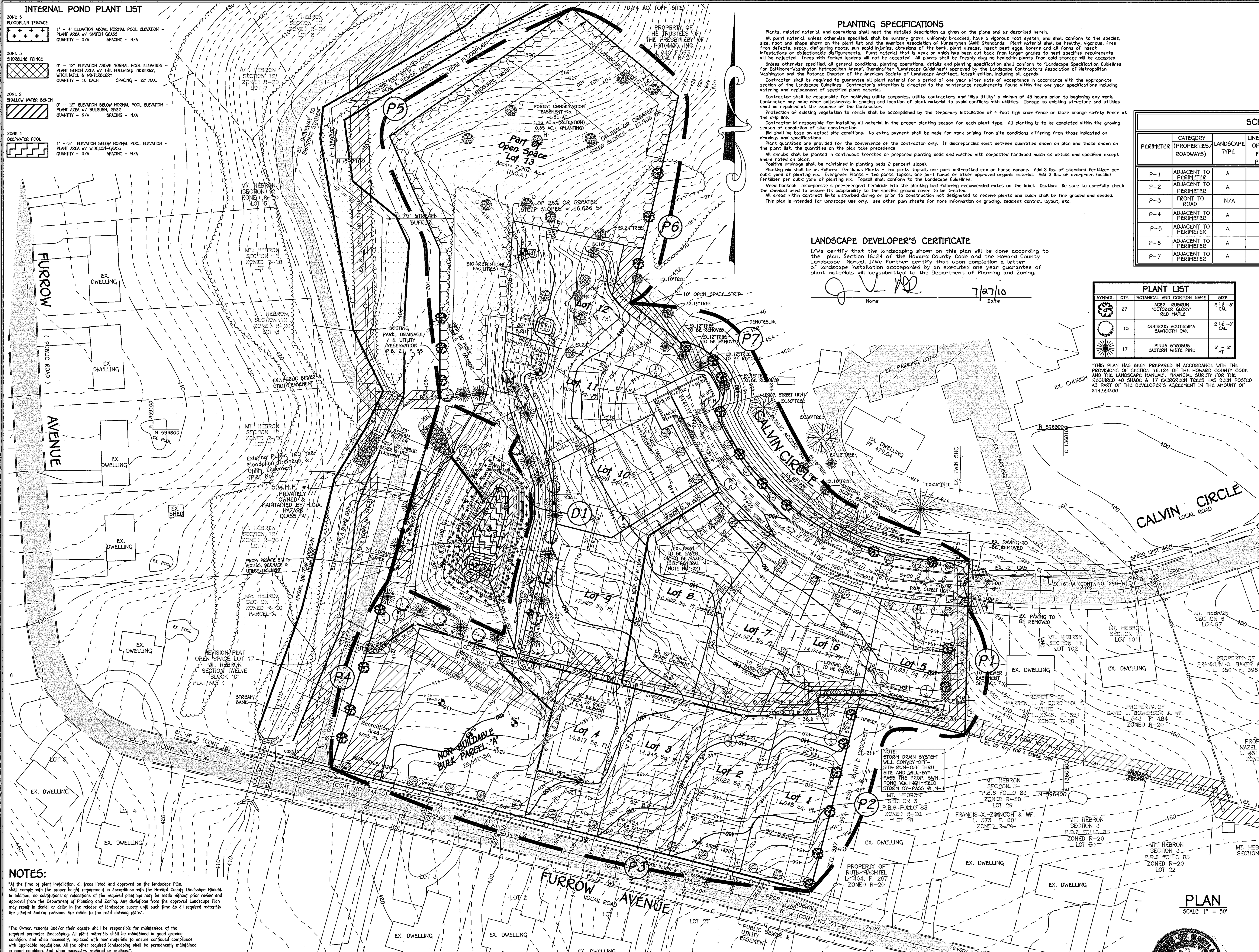
INTERNAL POND PLANT LIST

ZONE 5 FLOODPLAIN TERRACE — 1' - 4' ELEVATION ABOVE NORMAL POOL ELEVATION - PLANT AREA w/ SWITCH GRASS. QUANTITY - N/A SPACING - N/A

ZONE 3 SHORELINE FRINGE — 0" - 12" ELEVATION ABOVE NORMAL POOL ELEVATION - PLANT BENCH AREA w/ THE FOLLWING: INKBERRY, WITCHHAZEL & WINTERBERRY. QUANTITY - 16 EACH SPACING - 12' MAX.

ZONE 2 SHALLOW WATER BENCH — 0" - 12" ELEVATION BELOW NORMAL POOL ELEVATION - PLANT AREA w/ BULRUSH, RIVER. QUANTITY - N/A SPACING - N/A

ZONE 1 DEEPWATER POOL — 1' - 3' ELEVATION BELOW NORMAL POOL ELEVATION - PLANT AREA w/ WIDGEON-GRASS. QUANTITY - N/A SPACING - N/A



PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no healed-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to 'Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas', (hereinafter 'Landscape Guidelines') approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and 'Miss Utility' a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor Id responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be base on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence

All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope).

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded.

This plan is intended for landscape use only. see other plan sheets for more information on grading, sediment control, layout, etc.

LANDSCAPE DEVELOPER'S CERTIFICATE

I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that upon completion a letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

[signature] Name — 7/27/10 Date

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] CHIEF, BUREAU OF HIGHWAYS — 8-16-10 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] CHIEF, DIVISION OF LAND DEVELOPMENT — 8/19/10 DATE

[signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/19/10 DATE

SCHEDULE A - PERIMETER LANDSCAPE EDGE

PERIMETER	CATEGORY (PROPERTIES/ ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED & PROVIDED: SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO PERIMETER	A	139'	NO	NO	2	-	-
P-2	ADJACENT TO PERIMETER	A	332'	NO	NO	6	-	-
P-3	FRONT TO ROAD	N/A	543'	NO	NO	0	-	-
P-4	ADJACENT TO PERIMETER	A	213'	NO	NO	4	-	-
P-5	ADJACENT TO PERIMETER	A	547'	YES (344')	NO	3	-	-
P-6	ADJACENT TO PERIMETER	A	386'	YES (204')	NO	3	-	-
P-7	ADJACENT TO PERIMETER	A	517'	NO	NO	9	-	-

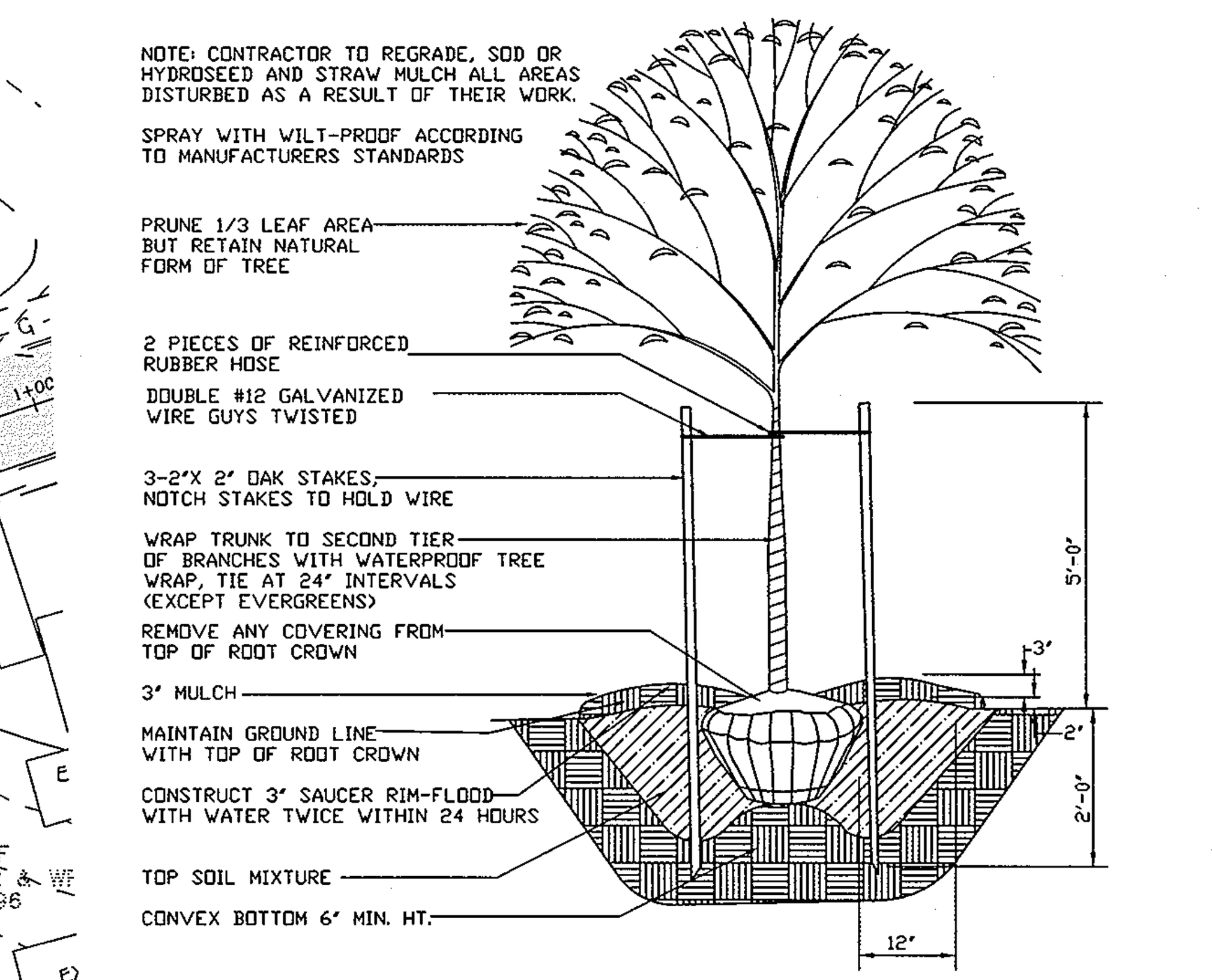
PLANT LIST

SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE
[symbol]	27	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2 -3" CAL.
[symbol]	13	QUERCUS ACUTISSIMA SAWTOOTH OAK	2 1/2 -3" CAL.
[symbol]	17	PINUS STROBUS EASTERN WHITE PINE	6' - 8' HT.

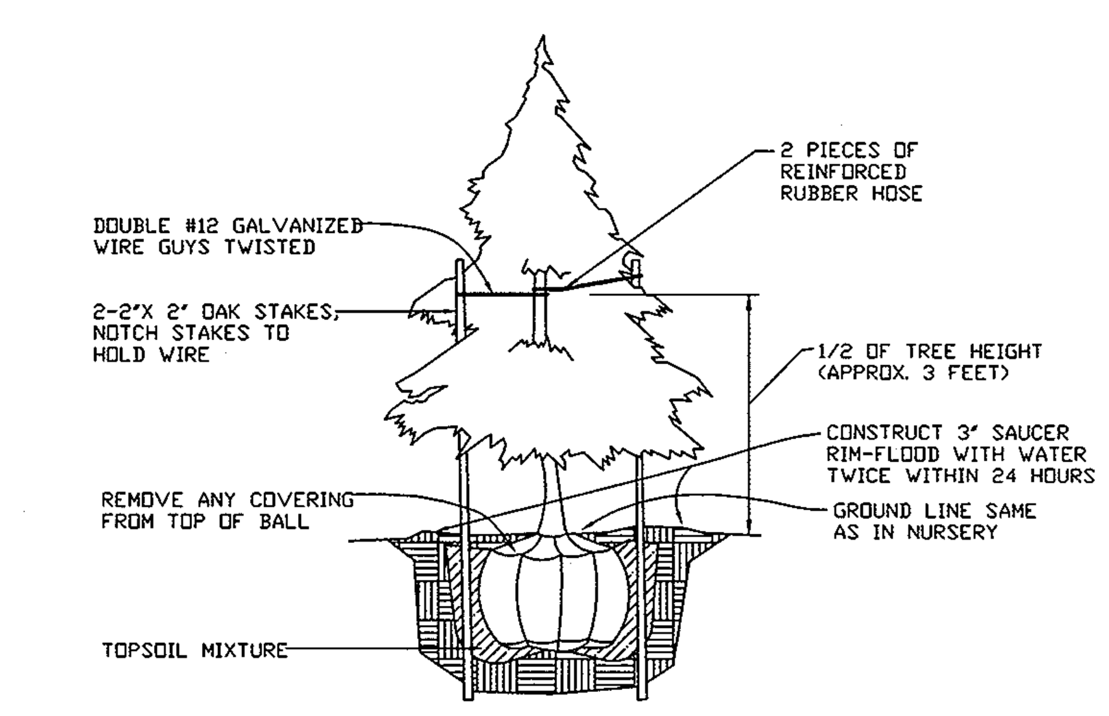
"THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL". FINANCIAL SURETY FOR THE REQUIRED 40 SHADE & 17 EVERGREEN TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $14,550.00

SCHEDULE D - S.W.M. AREA LANDSCAPING

LINEAR FEET OF TYPE 'B' PERIMETER	D-1: 663'
NUMBER OF TREES REQUIRED & PROVIDED: SHADE TREES / EVERGREEN TREES	13 / 17
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO



TREE PLANTING DETAIL



EVERGREEN PLANTING DETAIL

NOTES:

"At the time of plant installation, all trees listed and approved on the landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no subtitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations from the approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the road drawing plans".

"The Owner, tenants and/or their agents shall be responsible for maintenace of the required perimeter landscaping. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced".

PLAN
SCALE: 1" = 50'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

REVISIONS		
NO.	DESCRIPTION	DATE
1	LOWERED ROAD GRADE AND LOT GRADING & RELOCATED REC SPACE OUTSIDE OF STREAM BUFFER	5/12/10

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

[signature/seal] ALDO M. VITUCCI, P.E. — 7-15-10 DATE

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

REVISED
LANDSCAPE PLAN
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'
Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 5 Of 15

F-09-019

I:\2005\05024\dwg\FINAL\REDLINE REVISION\05024 SHEET 5 LANDSCAPE PLAN.dwg, 7/5/2010 7:27:16 AM, jamesd, 1:1

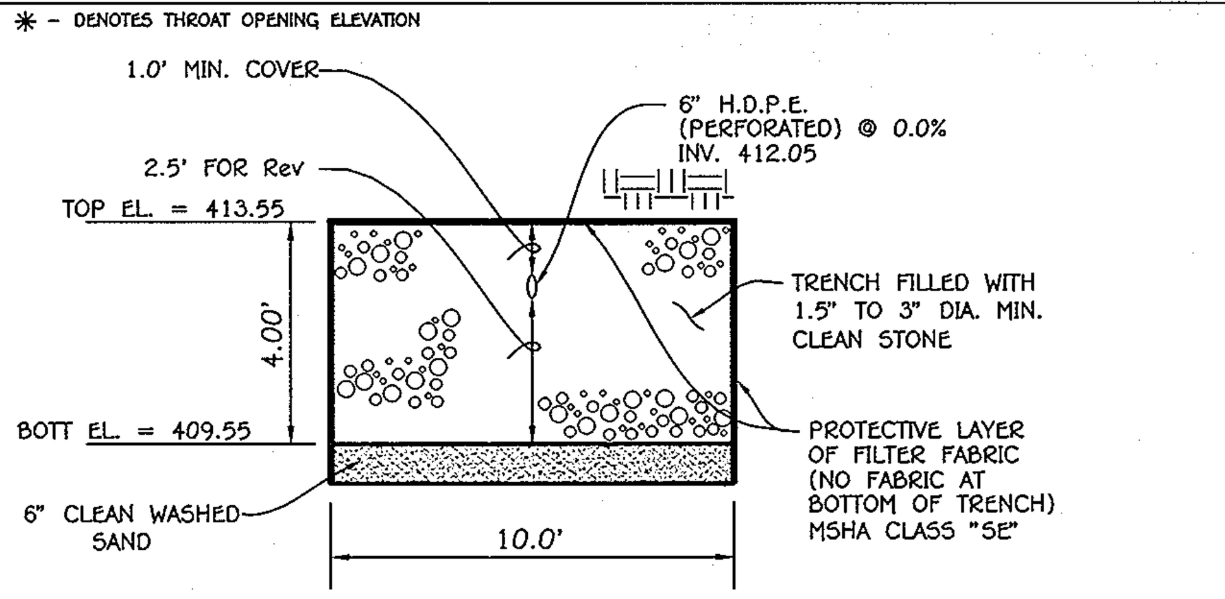
Approved: Department Of Public Works
Chief, Bureau Of Highways — 8-16-10 Date

Approved: Department Of Planning And Zoning
Chief, Division Of Land Development — 8/19/10 Date
Chief, Development Engineering Division — 8/19/10 Date

STRUCTURE SCHEDULE ⚠1

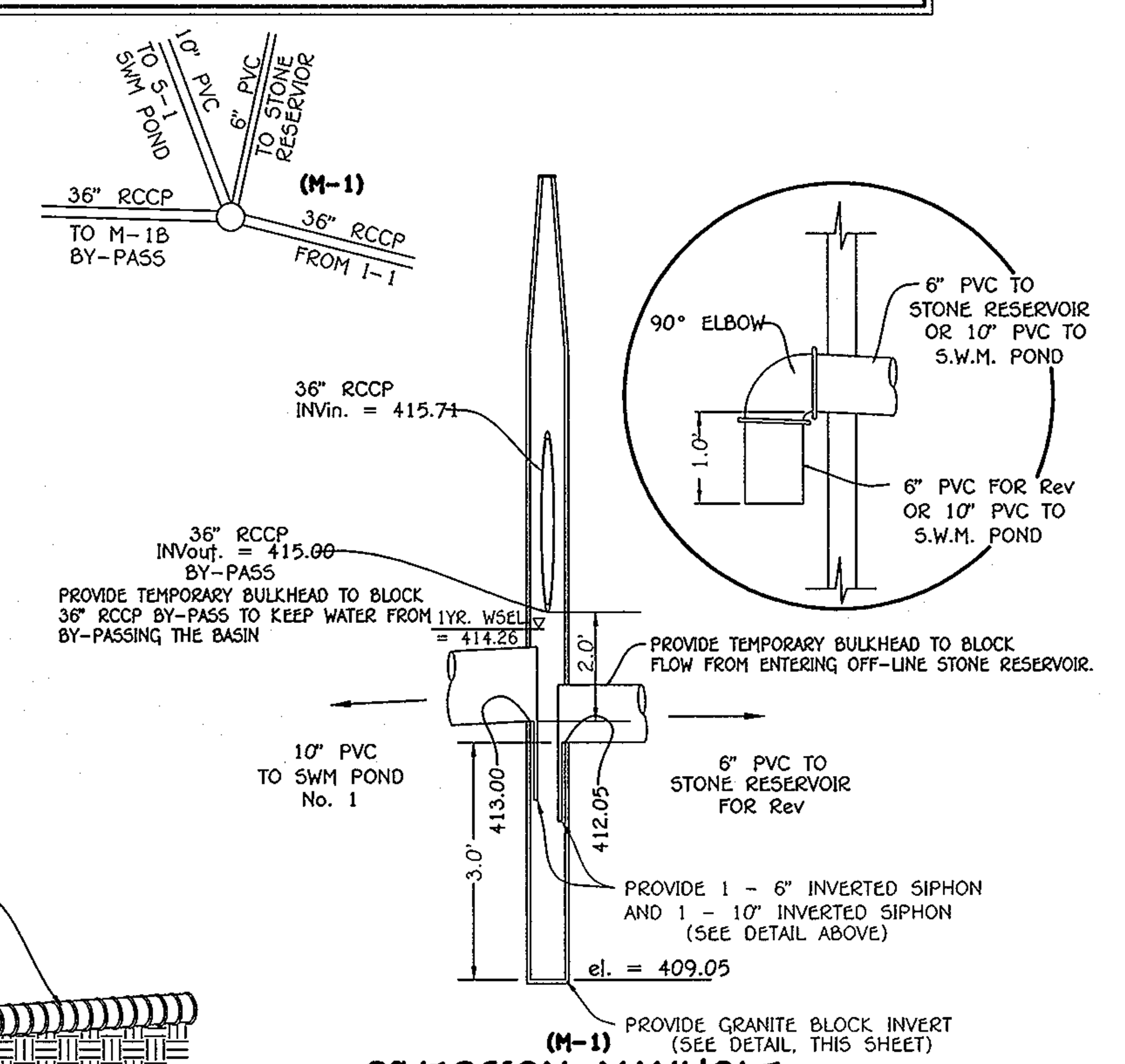
STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	* 421.01	416.85	415.85	N 596539.25 E 1359528.06	-----	---	'D' INLET	D - 4.10
I-2	* 427.48	423.45, 422.06	421.81	N 596517.45 E 1359613.90	-----	---	'D' INLET	D - 4.10
I-3	* 436.02	432.15	431.65	N 596484.91 E 1359830.98	-----	---	'D' INLET	D - 4.10
I-4	* 443.36	-----	440.39	N 596491.15 E 1359960.79	-----	---	'D' INLET	D - 4.10
I-5	447.22	-----	442.78	CALVIN CIRCLE	STA. 8+41.60	11' L	'S' INLET	D - 4.22
M-1	420.81	415.71	413.00, 412.05, 415.00	N 596546.04 E 1359501.39	-----	---	5' STD. MANHOLE	G - 5.13
M-1A	416.35	411.01	409.40	N 596585.50 E 1359387.76	-----	---	5' STD. MANHOLE	G - 5.13
M-1B	420.50	414.37, 417.37(6")	413.87		-----	---	5' STD. MANHOLE	G - 5.13
M-2	436.00	430.50	430.25	N 596483.10 E 1359748.02	-----	---	4' STD. MANHOLE	G - 5.12
M-3	438.82	432.72	432.47	N 596505.97 E 1359829.75	-----	---	4' STD. MANHOLE	G - 5.12
M-4	444.00	438.21	437.96	N 596506.49 E 1359897.60	-----	---	4' STD. MANHOLE	G - 5.12
M-5	441.20	432.82	432.57	N 596682.46 E 1359643.88	-----	---	4' STD. MANHOLE	G - 5.12
M-6	449.40	440.63	440.38	CALVIN CIRCLE	STA. 7+22.64	18' L	4' STD. MANHOLE	G - 5.12
S-1	410.56	410.06	----	N 596636.32 E 1359467.82	----	---	10" MITERED END	-----
S-2	410.05	406.55	----	N 596780.60 E 1359419.22	----	---	TYPE 'C' END WALL	D - 5.21
S-3	412.25	409.25	----	N 596566.51 E 1359359.14	----	---	CONC. END SECTION	D - 5.51
R-1	417.30	407.94	407.92	N 596721.48 E 1359465.35	----	---	CONCRETE RISER	SEE SHEET 9

* - DENOTES THROAT OPENING ELEVATION

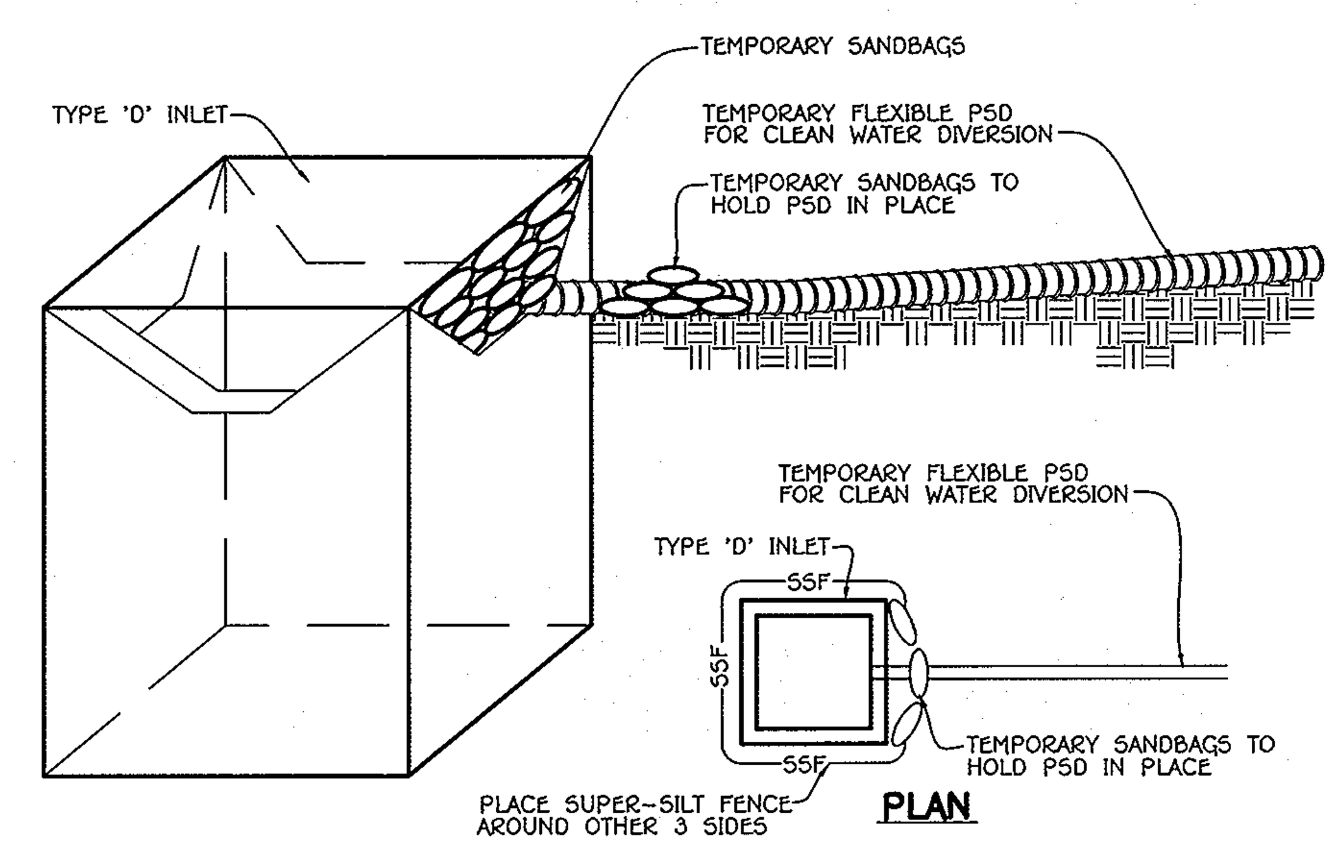


OFF-LINE STONE RESERVOIR SECTION FOR Rev
NO SCALE

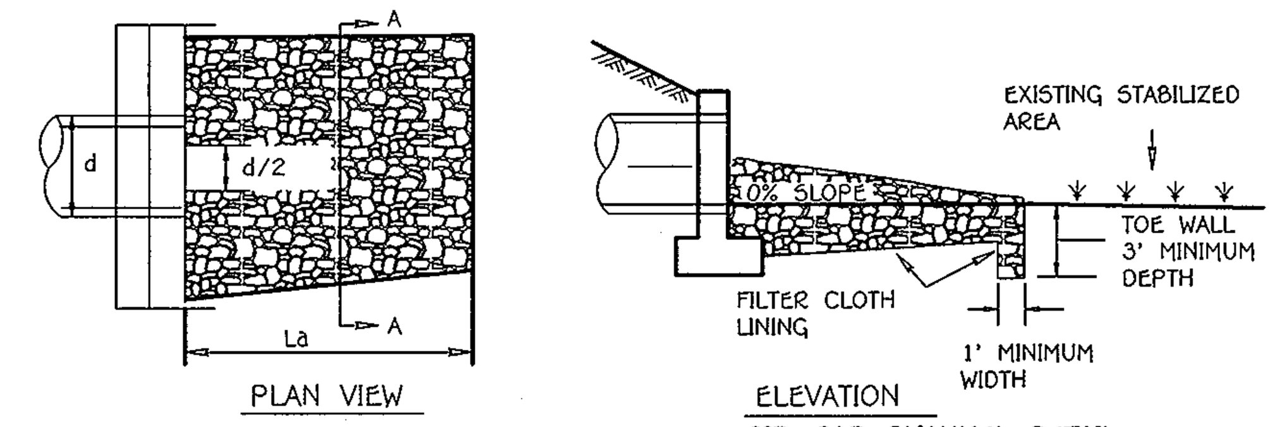
NOTE:
STONE RESERVOIR TO MEET PART OF GROUND WATER RECHARGE REQUIREMENT



(M-1) DIVERSION MANHOLE
NO SCALE



TEMPORARY FLEX PIPE AT INLET I-3 & I-4
NO SCALE



RIP-RAP CHANNEL DETAIL
NO SCALE

RIP-RAP CHANNEL DESIGN DATA

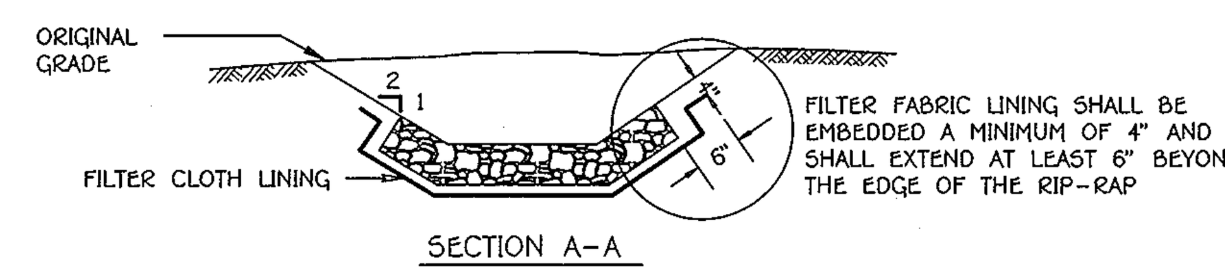
STRUCTURE	AREA	WETTED PERIMETER	R	$R^{2/3}$	S	$S^{1/2}$	W	d	N	V (f.p.s.)	Q (c.f.s.)	RIP-RAP SIZE D_{50}	RIP-RAP SIZE D_{MAX}	BLANKET THICKNESS
S-1	3.63	6.01	0.6040	0.7133	0.0500	0.0707	1'	1.12'	0.04	1.88	6.80	9.5"	15"	19"
S-2	17.60	20.38	0.8636	0.9064	0.0500	0.0707	16'	0.98'	0.04	2.38	41.80	9.5"	15"	19"
S-3	9.41	13.62	0.6909	0.7806	0.0235	0.1533	10'	0.81'	0.04	4.45	42.19	9.5"	15"	19"

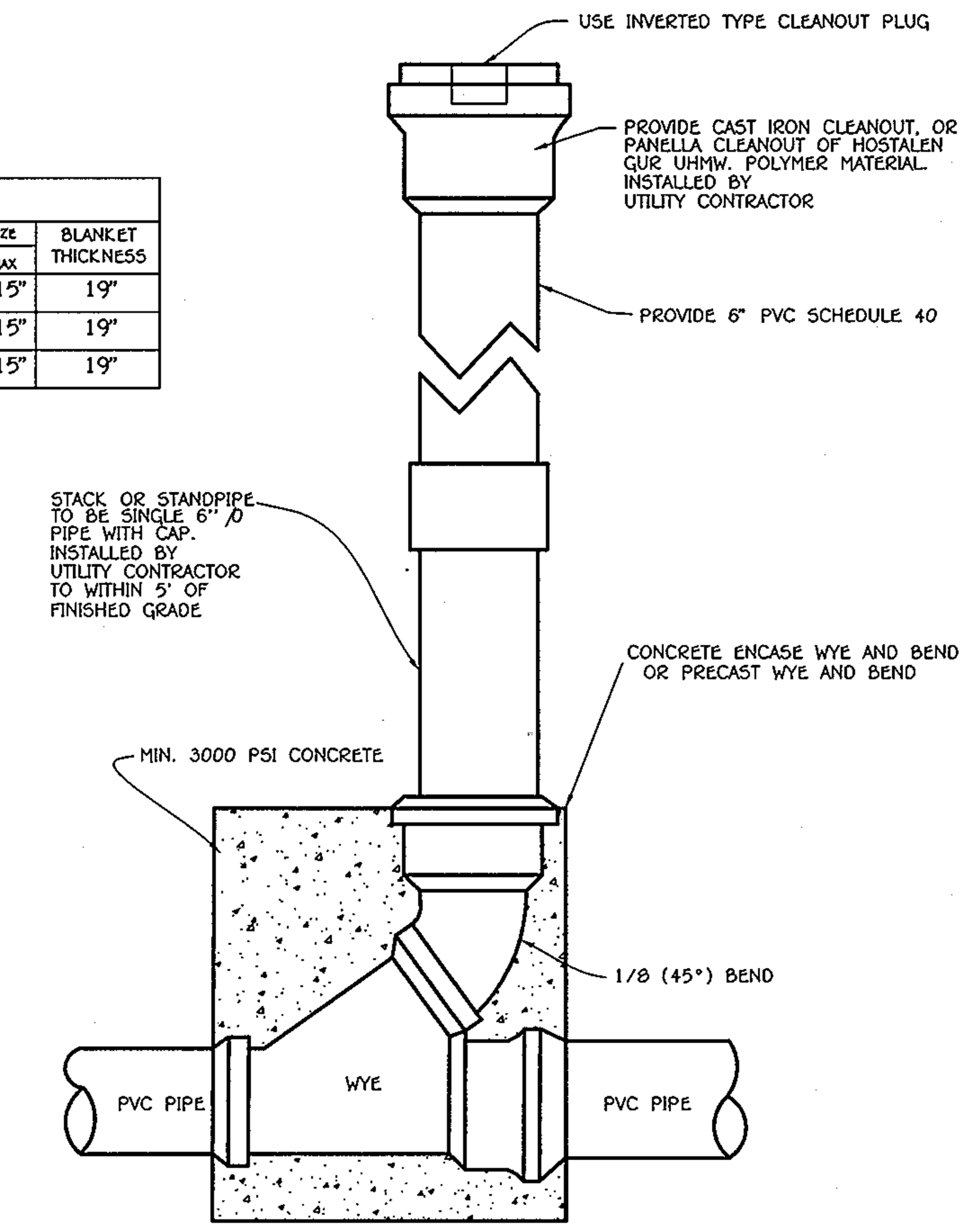
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional shall hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

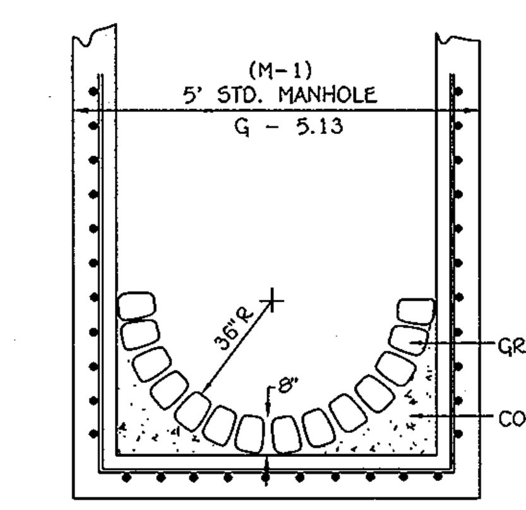
PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	RCCP, CL. IV	189 L.F.
18"	RCCP, CL. IV	350 L.F.
24"	RCCP, CL. IV	310 L.F.
36"	RCCP, CL. IV	178 L.F.
6"	PVC, SCH. 40	219 L.F.
10"	PVC, SCH. 40	95 L.F.
6"	PERF. PVC, SCH. 40	99 L.F.



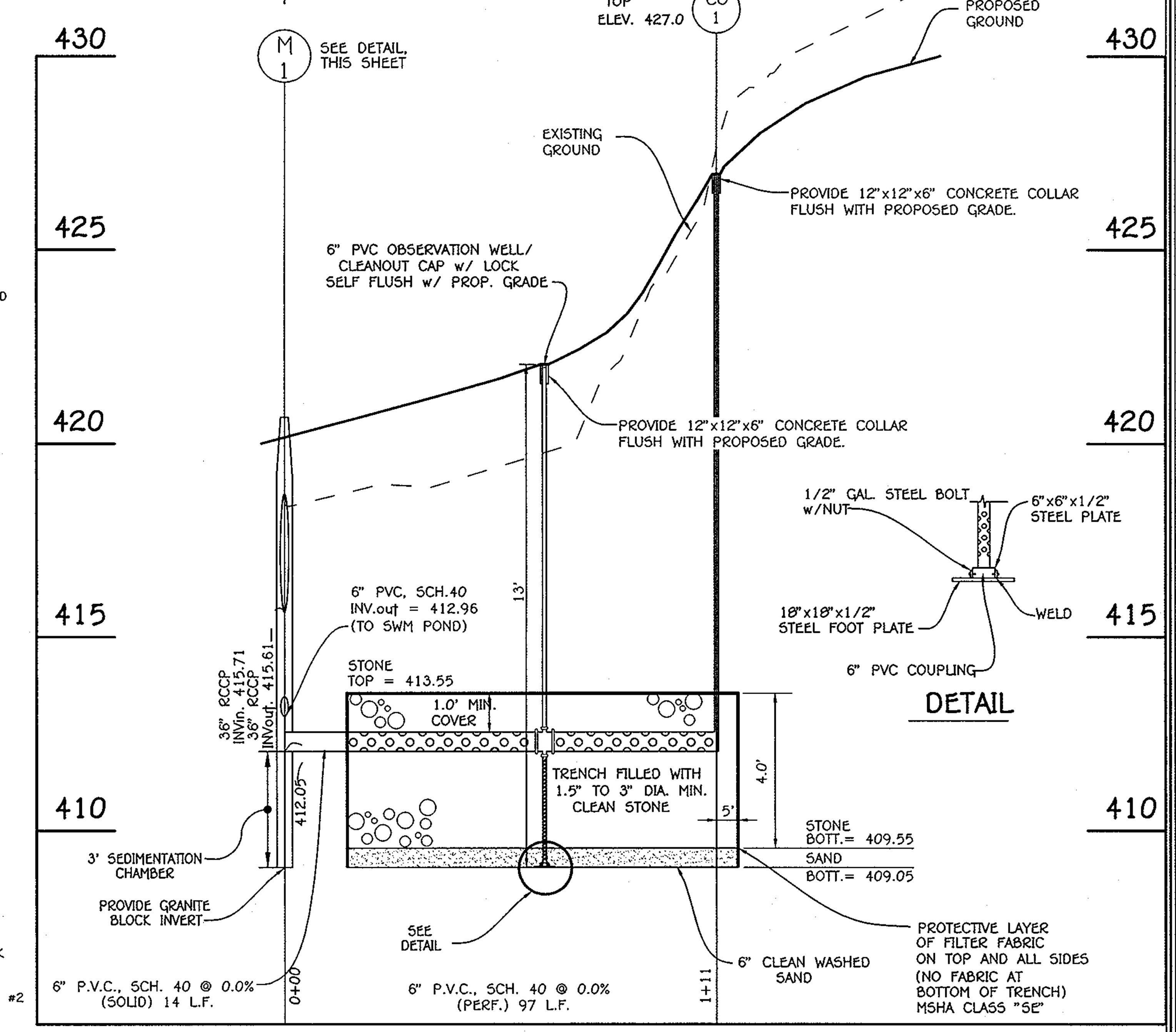


CLEAN-OUT DETAIL
NO SCALE

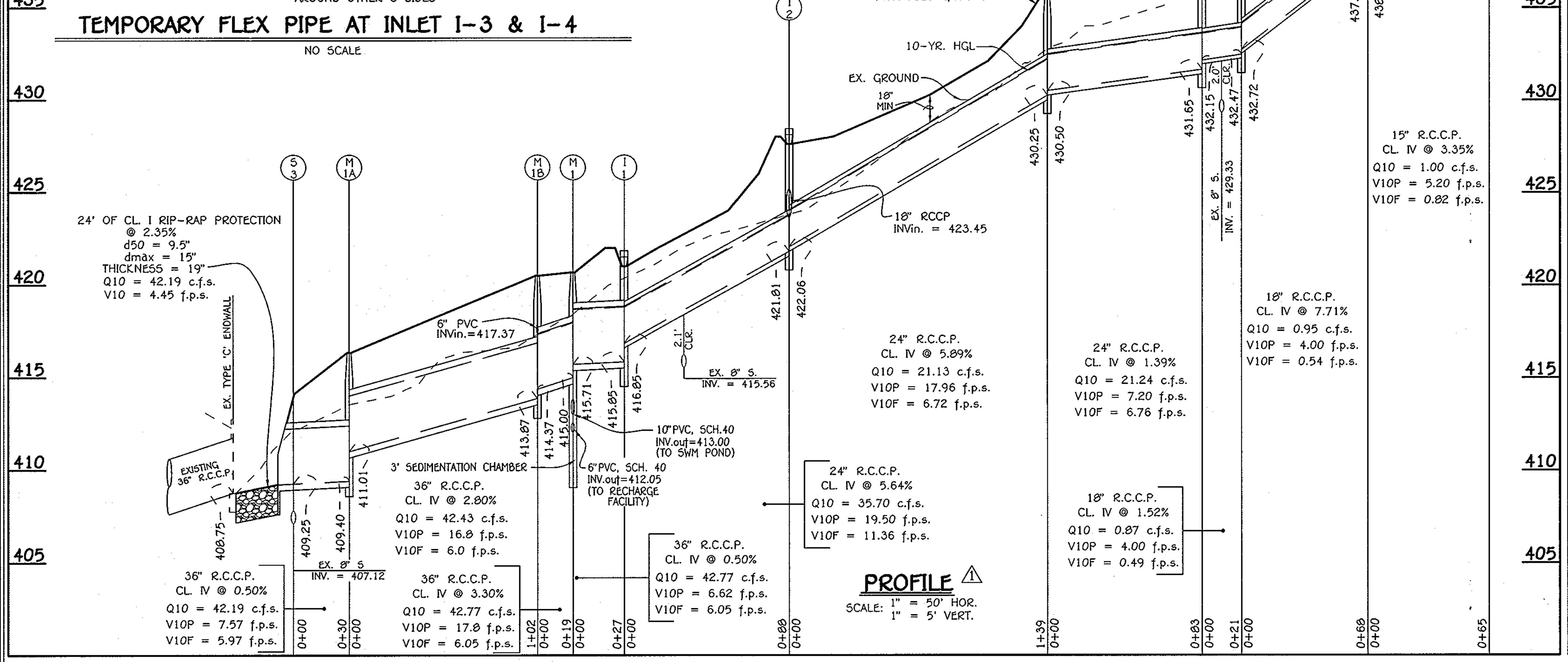


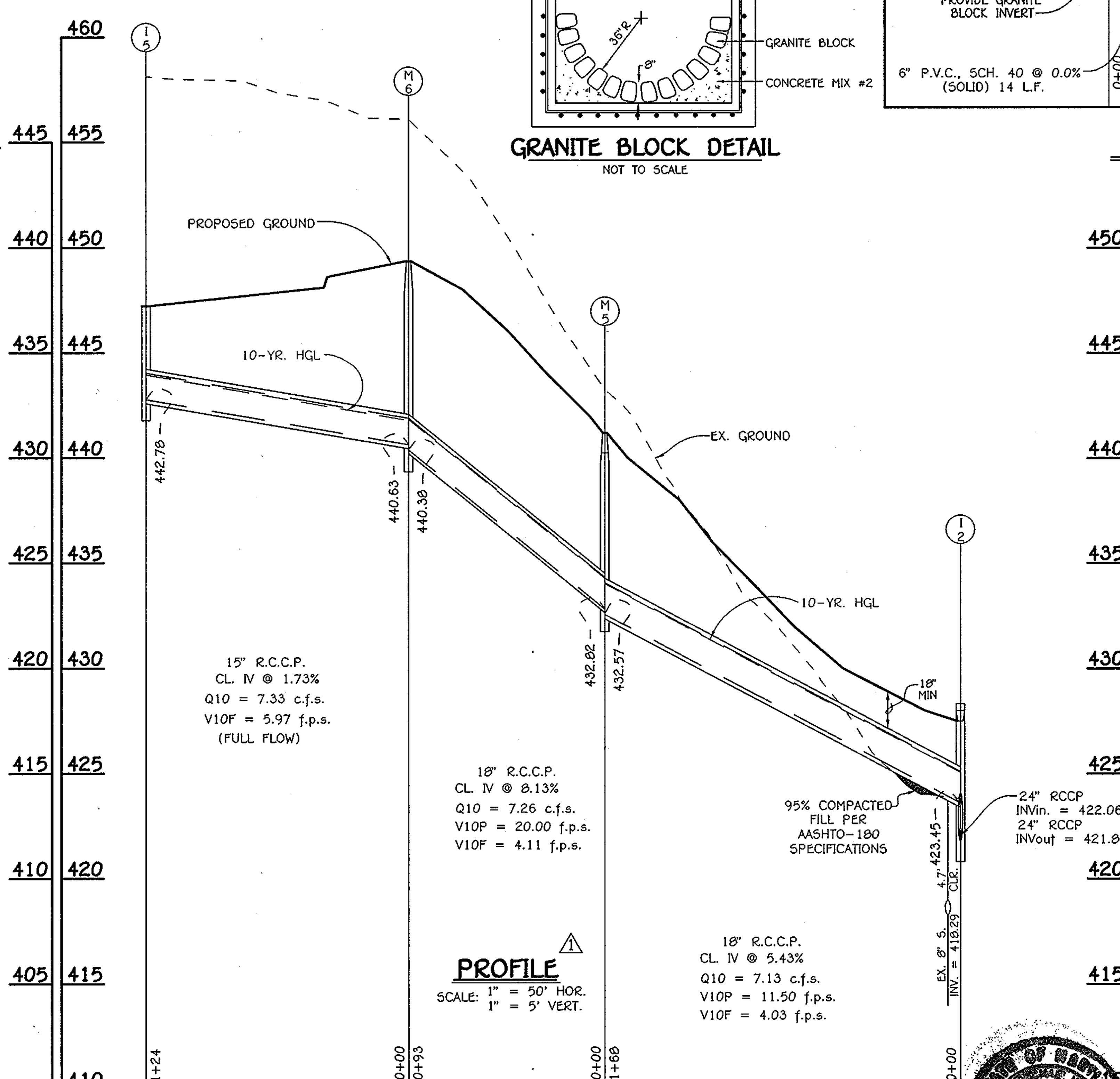
GRANITE BLOCK DETAIL
NOT TO SCALE

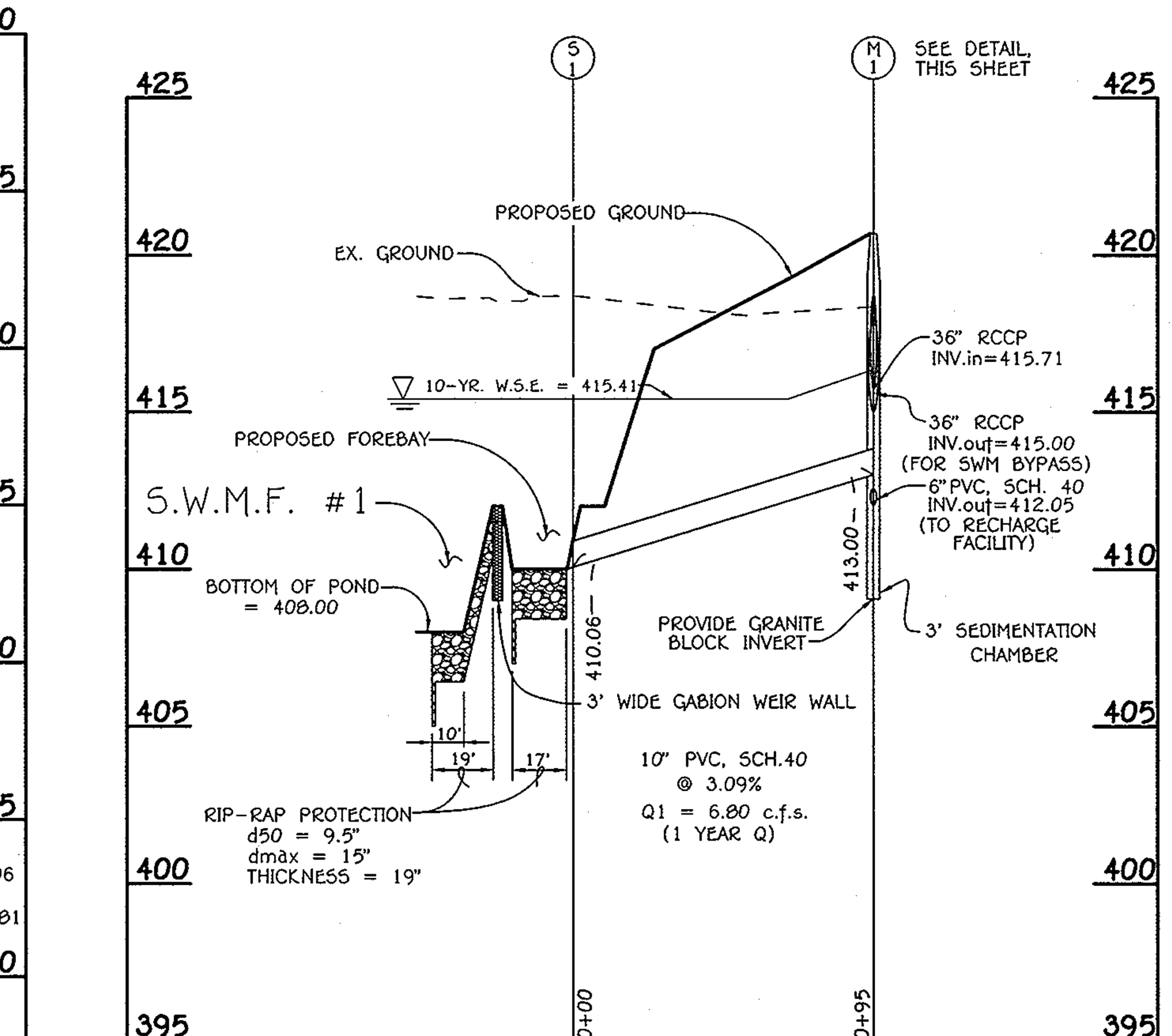
PRIVATELY OWNED AND MAINTAINED BY H.O.A.



OFF-LINE STONE RESERVOIR FOR Rev REQUIREMENT
SCALE: HOR. : 1" = 30'
VER. : 1" = 3'







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

REVISED
STORM DRAIN PROFILES
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'
Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 6 Of 15

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED STORM DRAIN PROFILES PER GRADING CHANGES	5/12/10

ALDO M. VITUCCI, P.E. — 7-15-10 DATE
"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

F-09-019

I:\2005\05024\dwg\FINAL\REDLINE REVISION\05024 SHEET 6 SD PROFILES.dwg, 7/5/2010 7:30:00 AM, jamesl, 1:1

Approved: Department Of Public Works

Chief Bureau Of Highways — Date: 8-16-10

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 8/19/10

Chief, Development Engineering Division — Date: 8/19/10

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
I-1	A	0.50 AC.	0.42	R-20	25%
I-2	B	1.82 AC.	0.41	R-20	22%
I-3 (BY-PASS)	C	7.98 AC.	0.39	R-20	20%
I-4	D	0.31 AC.	0.43	R-20	26%
I-5	E	2.31 AC.	0.42	R-20	25%
I-6	F	0.26 AC.	0.65	R-20	58%

PLAN

SCALE: 1" = 50'

REVISED

STORM DRAIN

DRAINAGE AREA MAP

MT. HEBRON

SECTION 24

LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20

Tax Map No. 17 Grid No. 10 Parcel No. 250

Second Election District

Howard County, Maryland

Date: December 3, 2009

Sheet 7 Of 15

ALDO M. VITUCCI, P.E. — DATE 7-15-10

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

REVISIONS		
NO.	DESCRIPTION	DATE
1	LOWERED ROAD GRADE AND LOT GRADING & RELOCATE REC AREA OUT OF STREAM BUFFER	5/12/10

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

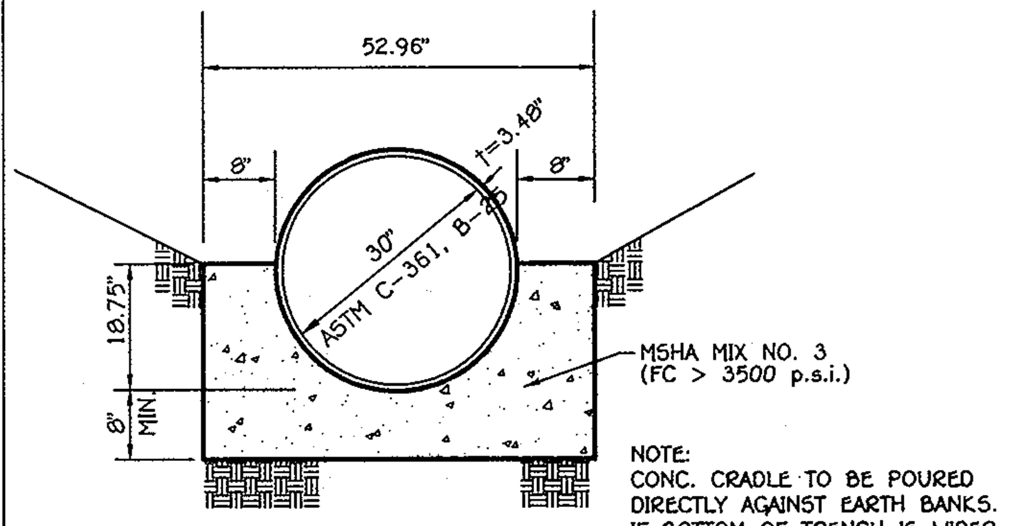
OWNER

MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER

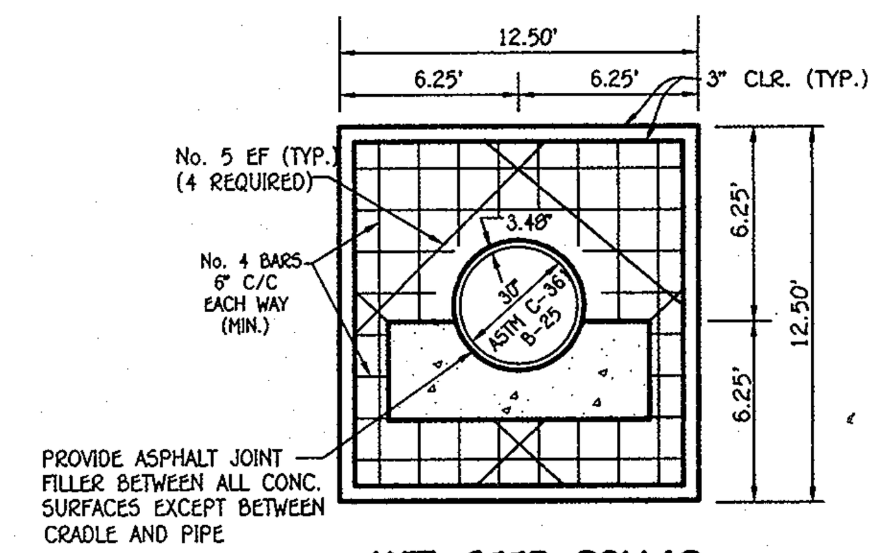
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

F-09-019



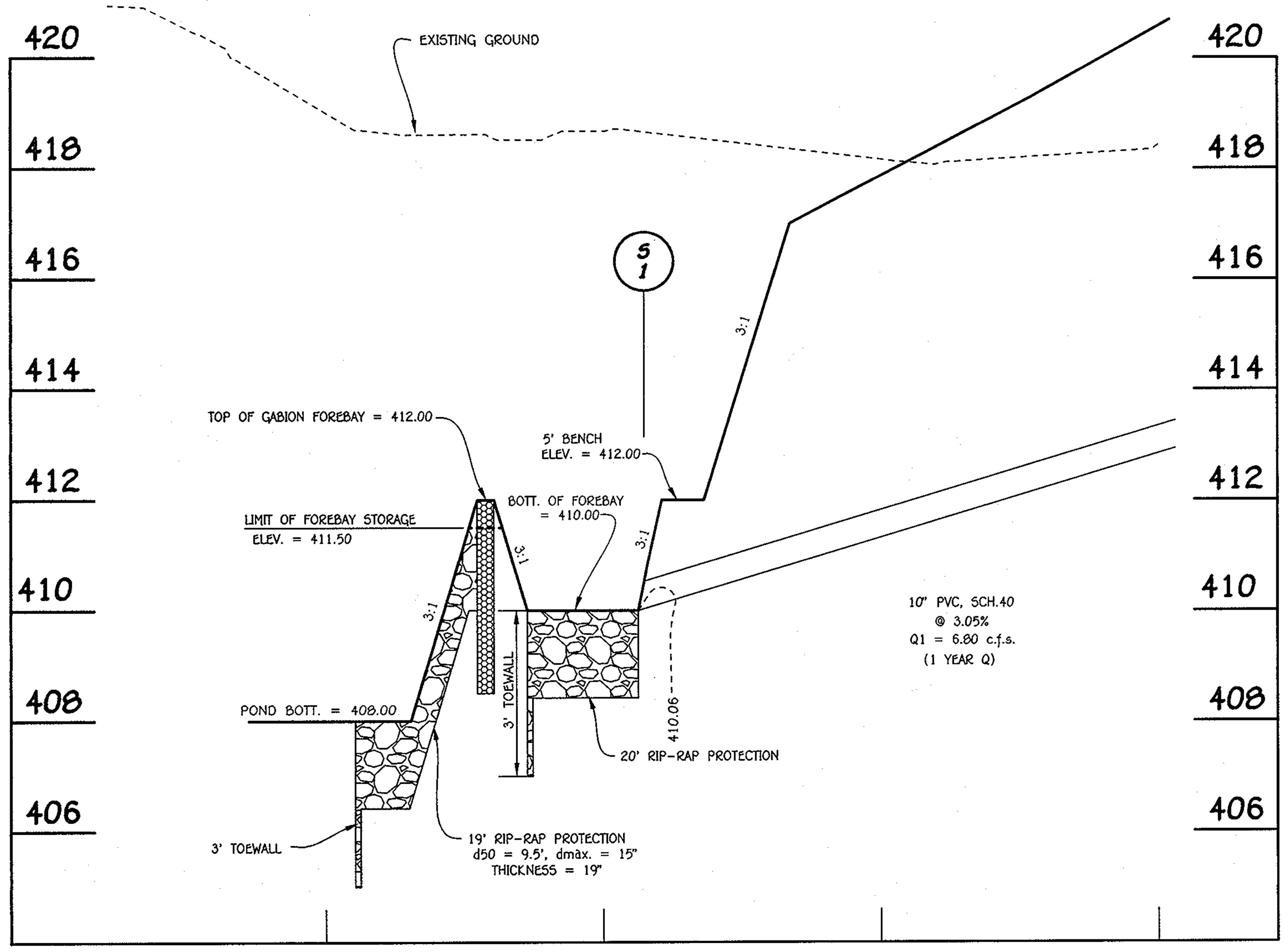
A2 CRADLE

NO SCALE



ANTI-SEEP COLLAR

NO SCALE



SECTION THRU GABION FOREBAY

SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

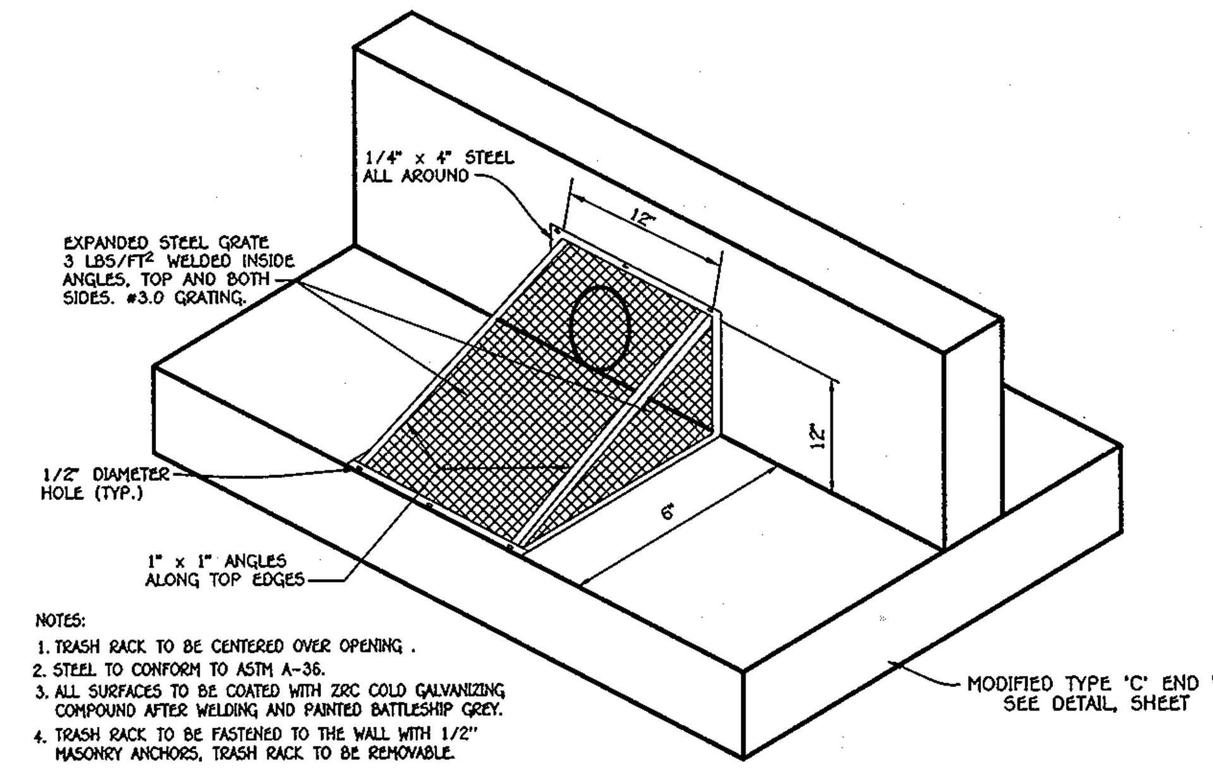
OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BY H.O.A. STORMWATER MANAGEMENT FACILITIES

ROUTINE MAINTENANCE

1. Facility shall be inspected annually and after major storms. Inspections shall be preformed during wet weather to determine if the pond is functioning properly.
2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes and maintenance access should be mowed as needed.
3. Debris and litter shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet area shall be repairer as soon as it is noticed.

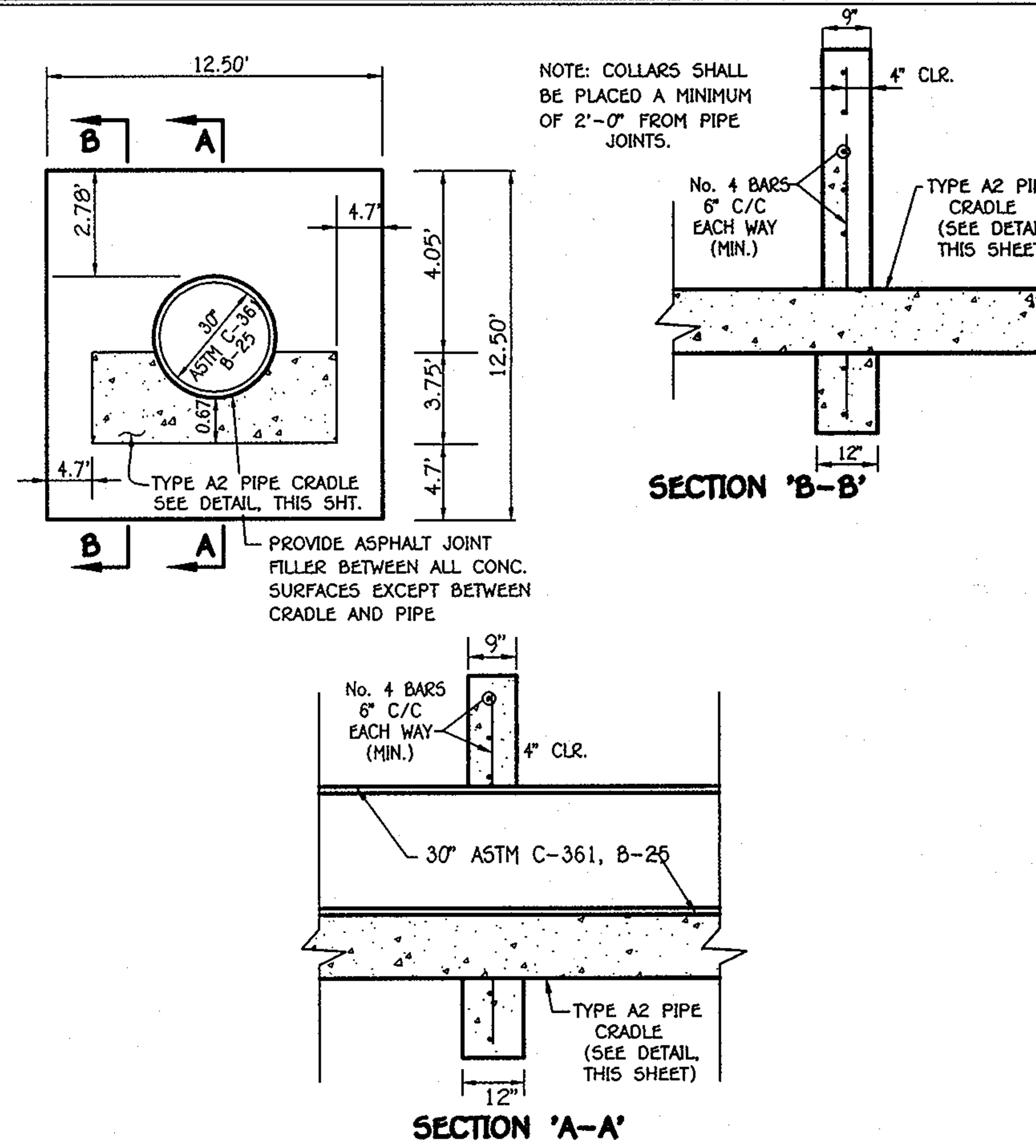
NON-ROUTINE MAINTENANCE

1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.
2. Sediment shall be removed from the pond, and forebay, no later than when the capacity of the pond or forebay, is half full of sediment, or, when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works



EXPANDED METAL TRASH RACK

NOT TO SCALE



SECTION 'A-A'

TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR

NO SCALE

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

The areas of the proposed SWM facilities should be stripped of topsoil and any other unsuitable materials from the embankment or structure areas in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his-representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or hiss representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the Geotechnical Engineer should be present to, monitor. placement and compaction of-fill for the embankment and cut-off trench. In accordance with NRCS-MD Code No. 378 Pond.StandardslSpecifications, soils considered suitable for the center of embankment and cut-off trench shall conform to. Unified Soil Classification GC, SC, CH; or CL and must. have. at least 30% passing the #200 sieve.

It is our professional opinion that in addition to the soil materials described above a fine-grained soil, including Silt (ML) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with NRCS-MD Code, No, 378 specifications.

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 — 12-3-09 Date

Jason Van Kirk
Printed Name Of Developer

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 — 12-3-09 Date

Aldo M. Vitucci
Printed Name Of Engineer

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — 1/5/10 Date

Approved: Department Of Public Works

Chief Bureau Of Highways — 1-12-10 Date

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — 1/20/10 Date

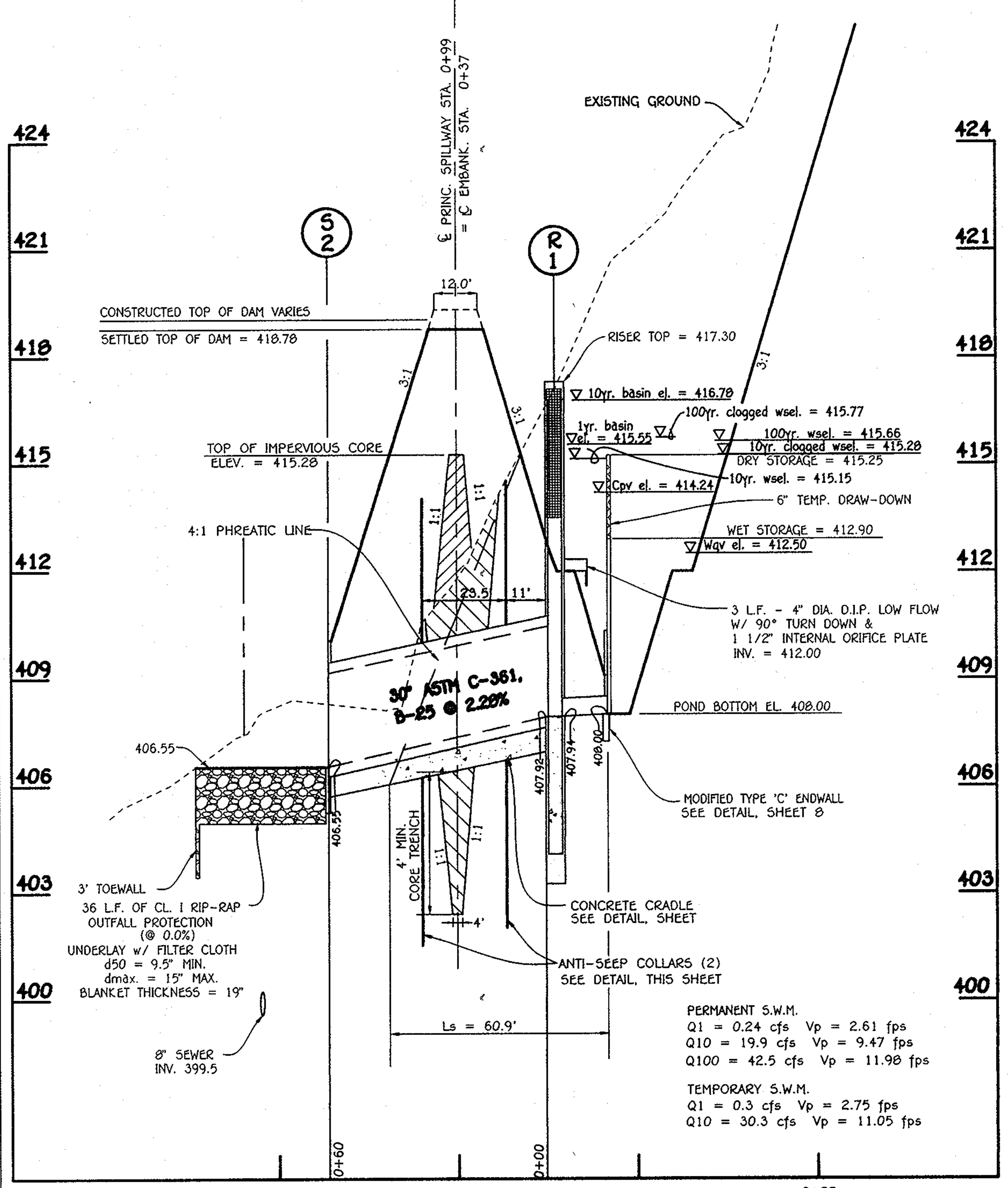
Chief, Development Engineering Division — 1/15/10 Date

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.

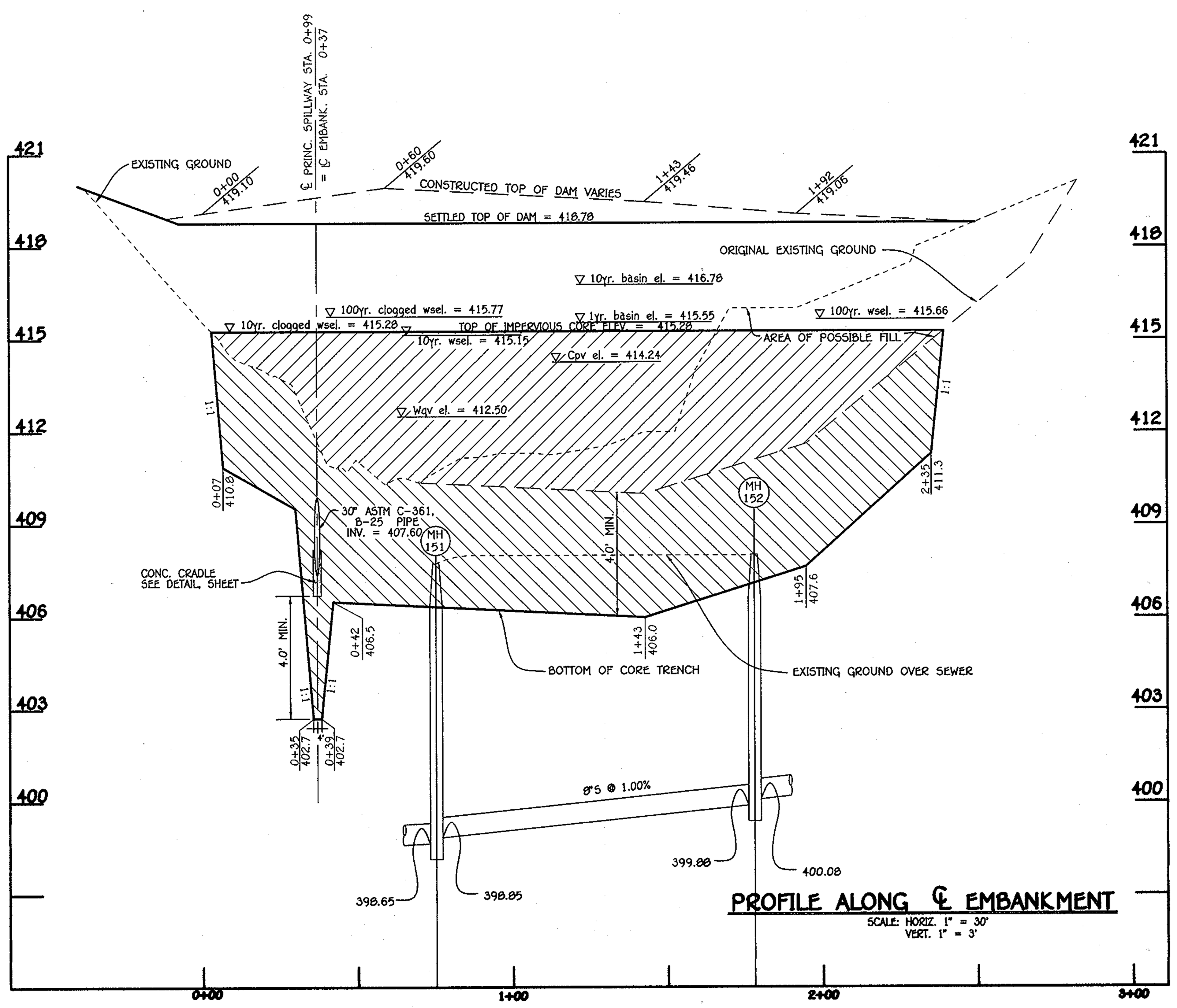
Signature — P.E. No. — Date:

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 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.



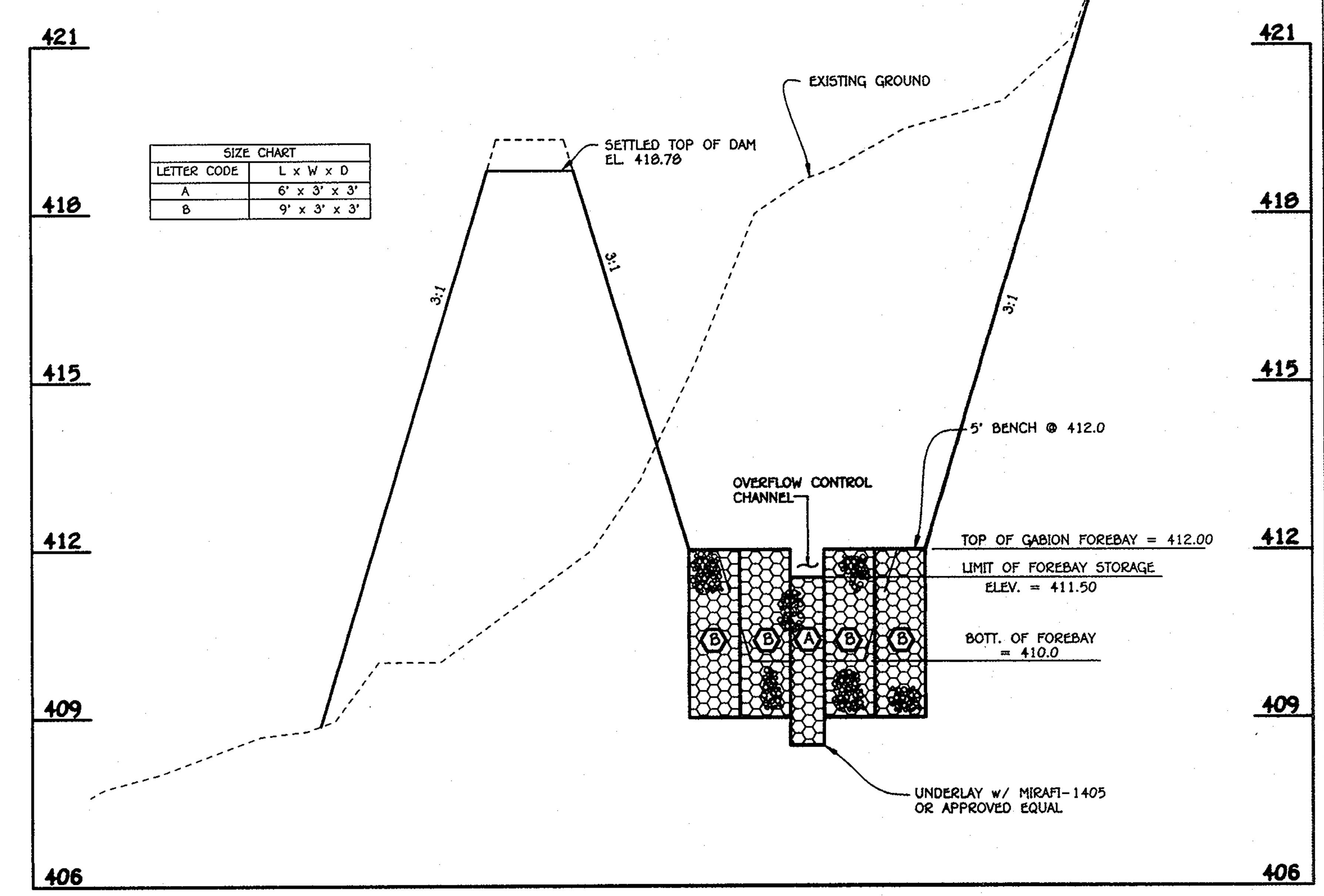
PRINCIPLE SPILLWAY PROFILE

SCALE: HOR. : 1" = 30'
VERT. : 1" = 3'



PROFILE ALONG ℄ EMBANKMENT

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'



SIZE CHART	
LETTER CODE	L x W x D
A	6' x 3' x 3'
B	9' x 3' x 3'

GABION FOREBAY PROFILE

SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

FISHER, COLLINS & CARTER, INC.
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ALDO M. VITUCCI, P.E. — 12-3-09 DATE

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

STORMWATER MANAGEMENT DETAILS
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 8 Of 15

F-09-019

I:\2005\05024\dwg\FINAL\ADDITIONAL LOTS LAYOUT\05024 SHEET 8 & 9 STORMWATER MANAGEMENT NOTES AND DETAILS.dwg, 12/3/2009 8:27:39 AM, jamesl, 1:1

STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. 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, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

EARTH FILL

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction 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.

When required by the reviewing agency the 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 that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Stel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling banks or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections– All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least%50f its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Stucture Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (Anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" – 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

Stabilization

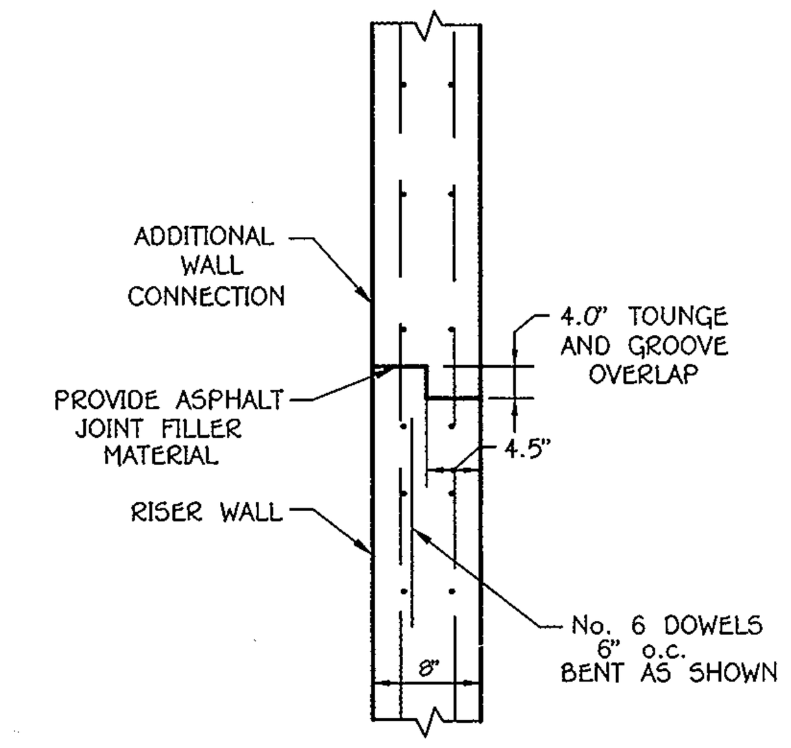
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

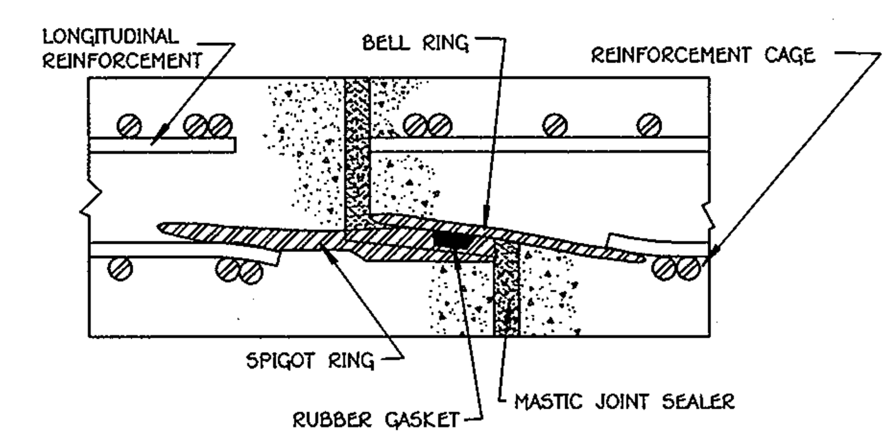
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.



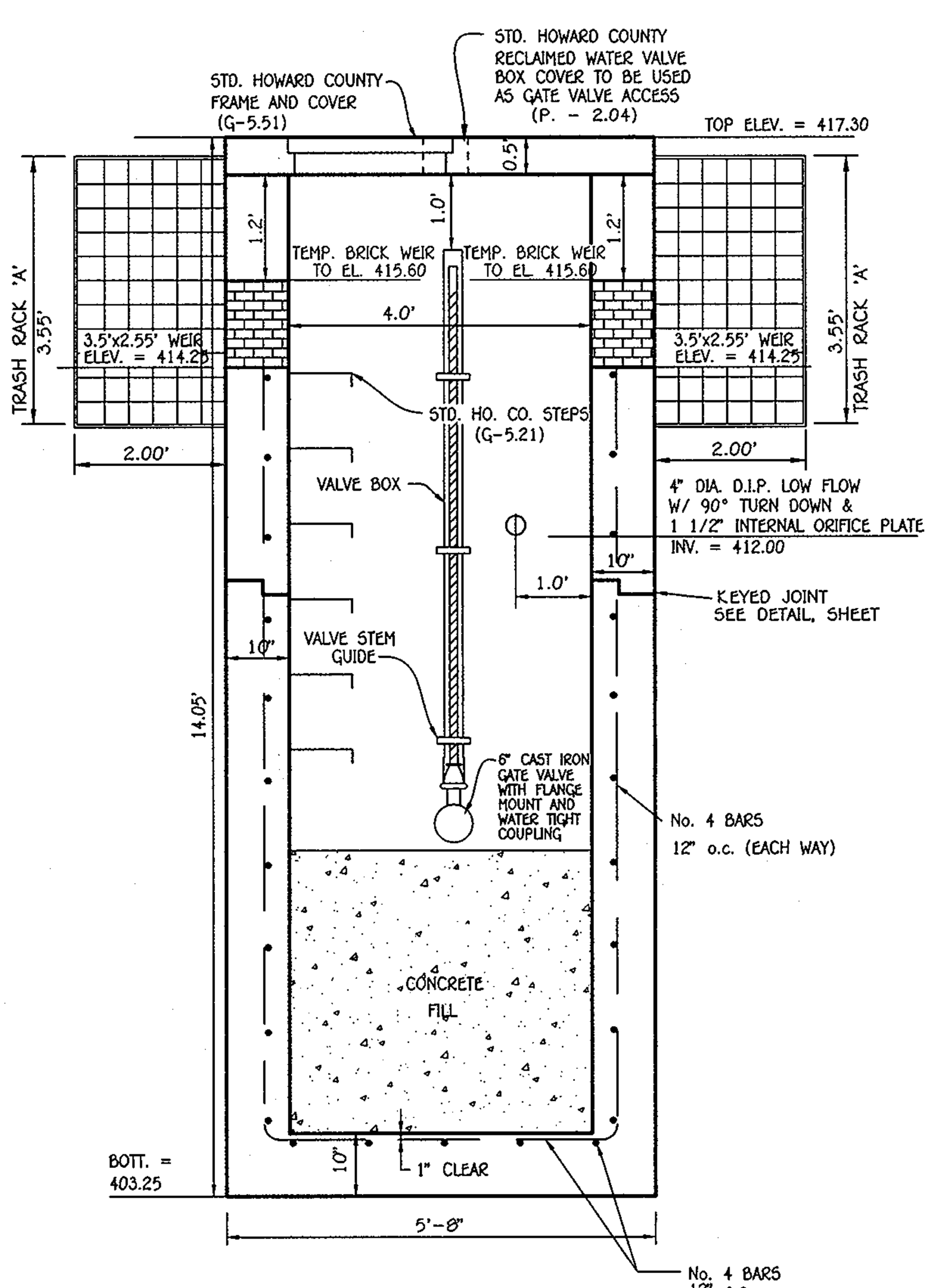
KEYED JOINT DETAIL
WALL SECTION TO WALL SECTION
(NO SCALE)



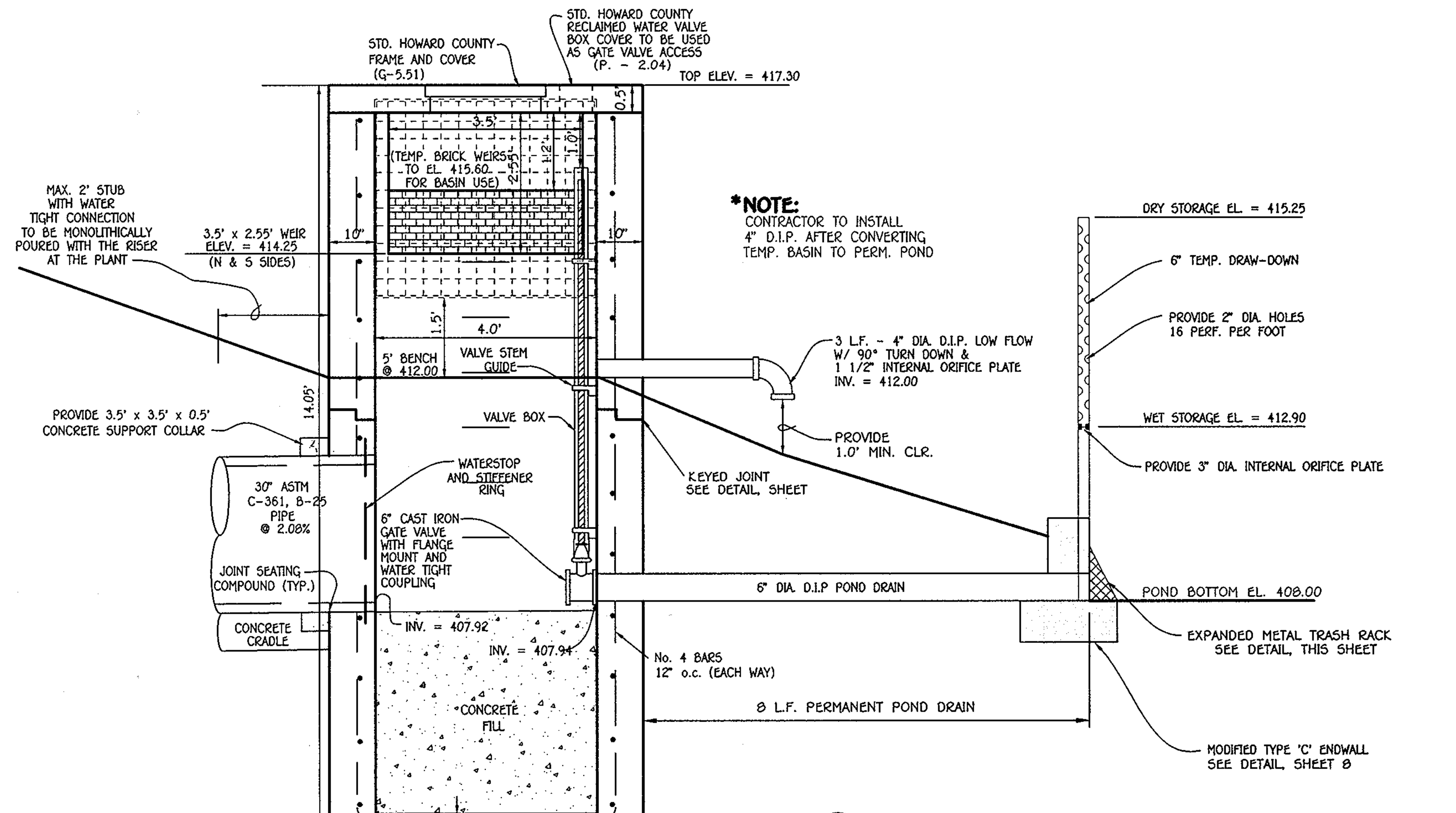
NOTE: PROVIDE MASTIC JOINT SEALER FROM OUTSIDE OF PIPE JOINTS PRIOR TO INSTALLING BARREL UNDERGROUND

ASTM DESIGNATION C361
DIAMETERS 12 THRU 168 INCH
PRESSURES TO 125 FEET OF HEAD

CONCRETE PIPE JOINT DETAIL
(NO SCALE)

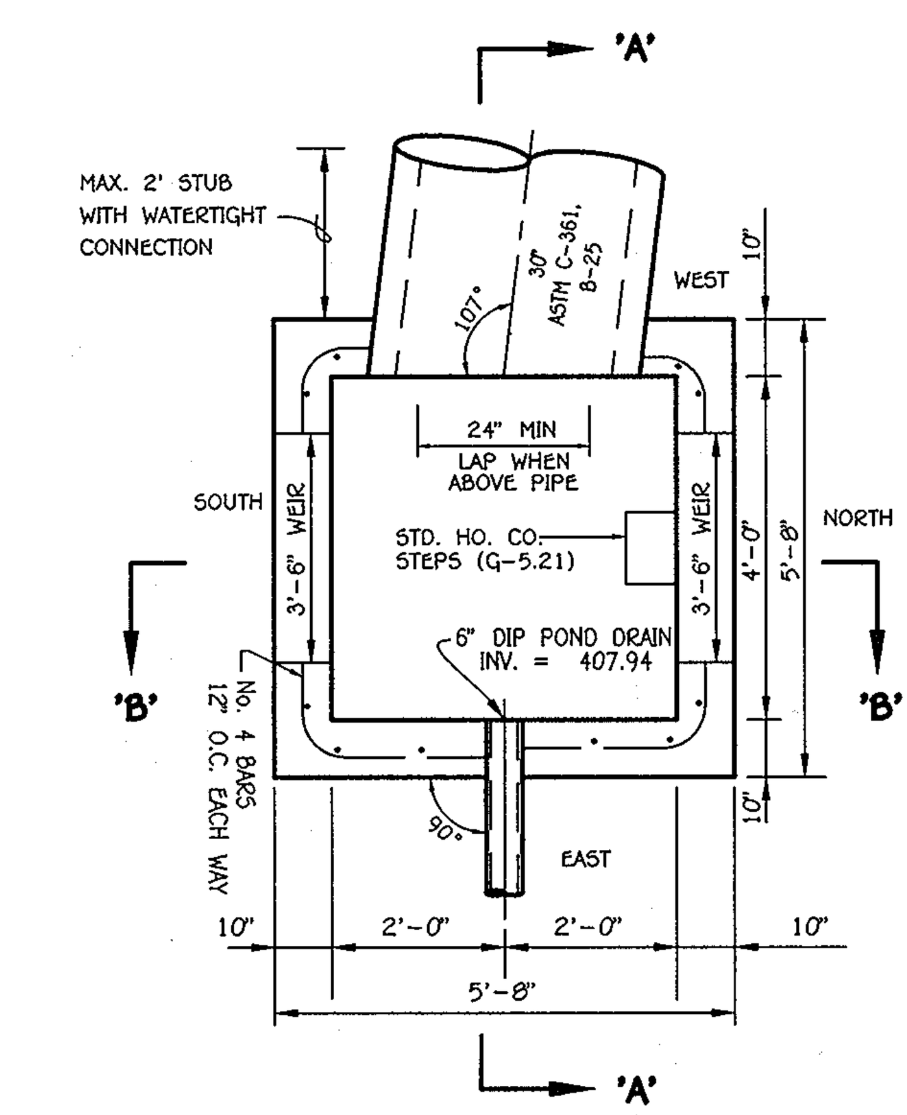


PROFILE VIEW B
R1 CONCRETE RISER DETAIL
SCALE : 1" = 2'



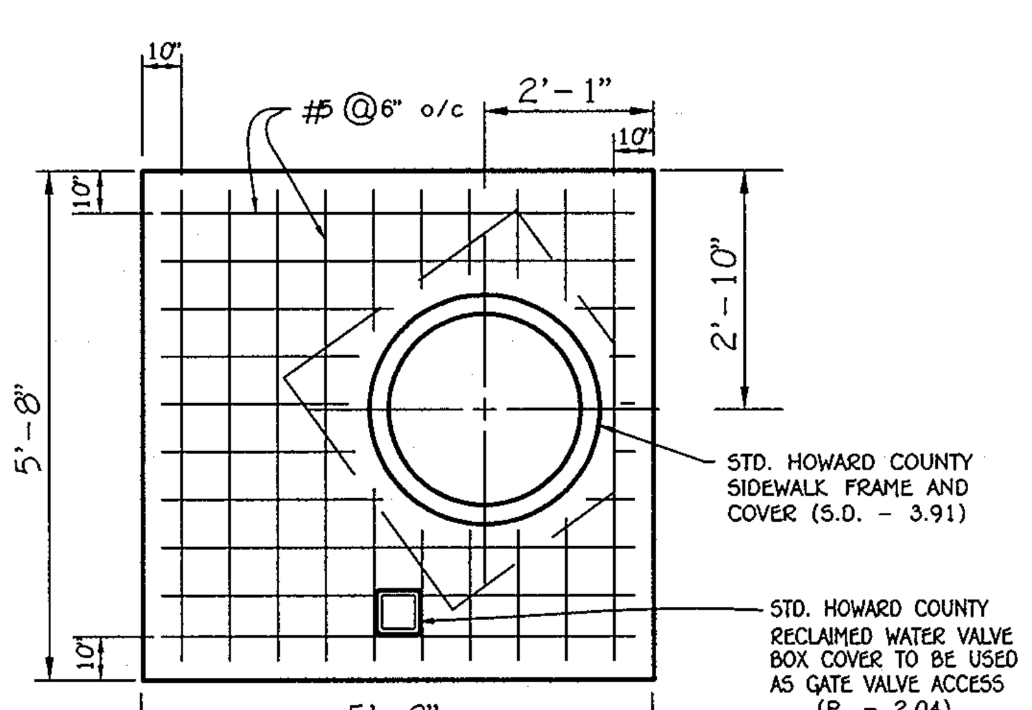
PROFILE VIEW A

R1 CONCRETE RISER DETAIL
SCALE : 1" = 2'

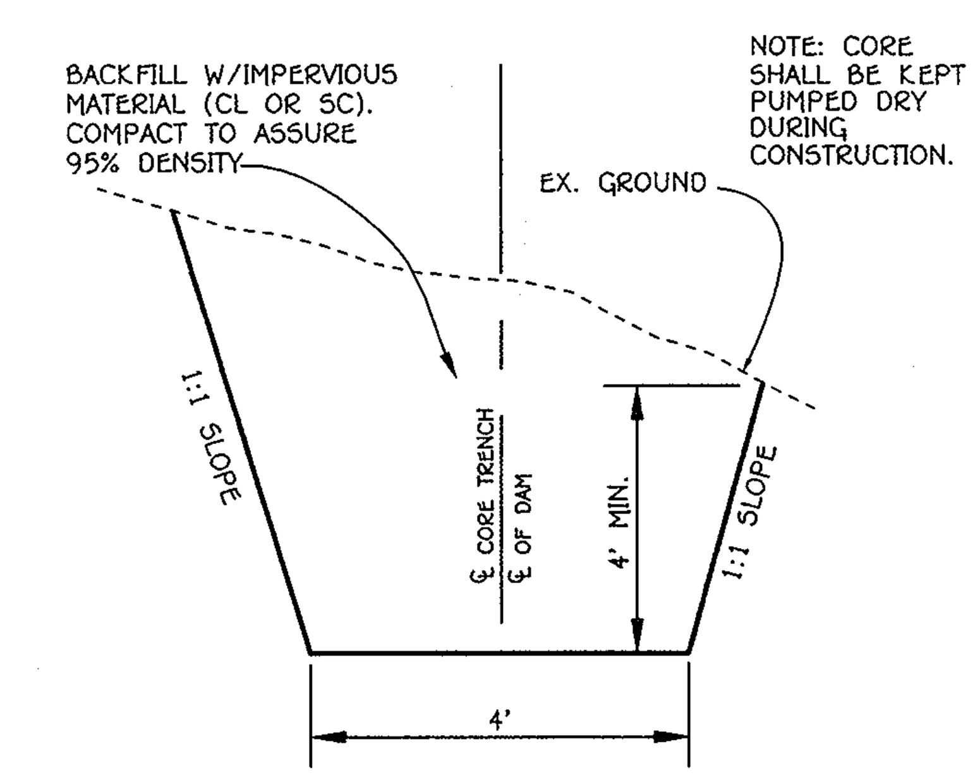


RISER PLAN VIEW
NO SCALE

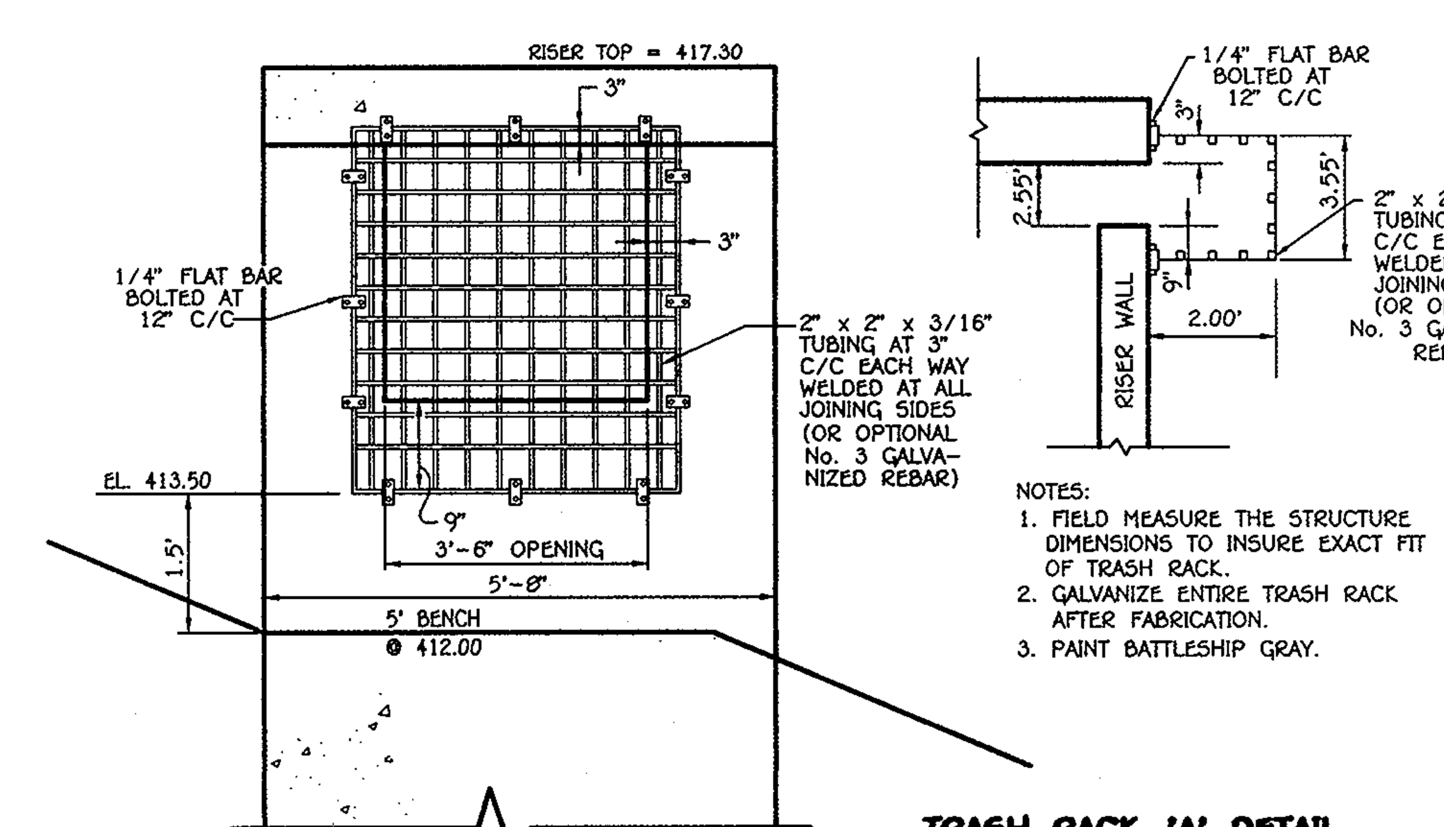
NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (FC > 3,500 P.S.I.)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.H. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPLICES SHALL BE LAP SPLICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWN.



TOP SLAB DETAIL
NO SCALE



CORE TRENCH DETAIL
NOT TO SCALE



NOTES:
1. FIELD MEASURE THE STRUCTURE DIMENSIONS TO INSURE EXACT FIT OF TRASH RACK.
2. GALVANIZE ENTIRE TRASH RACK AFTER FABRICATION.
3. PAINT BATTLESHIP GRAY.

TRASH RACK 'A' DETAIL
(NO SCALE)

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of 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 — 12-3-09 Date
Jason Van Kirk
Printed Name Of Developer

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 — 12-3-09 Date
Printed Name Of Engineer

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District — 1/5/10 Date

Approved: Department Of Public Works
Chief Bureau Of Highways — 1-12-10 Date

Approved: Department Of Planning And Zoning
Chief, Division Of Land Development — 1/20/10 Date
Chief, Development Engineering Division — 1/15/10 Date

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 — P.E. 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 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.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

ALDO M. VITUCCI, P.E. — 12-3-09 DATE
"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

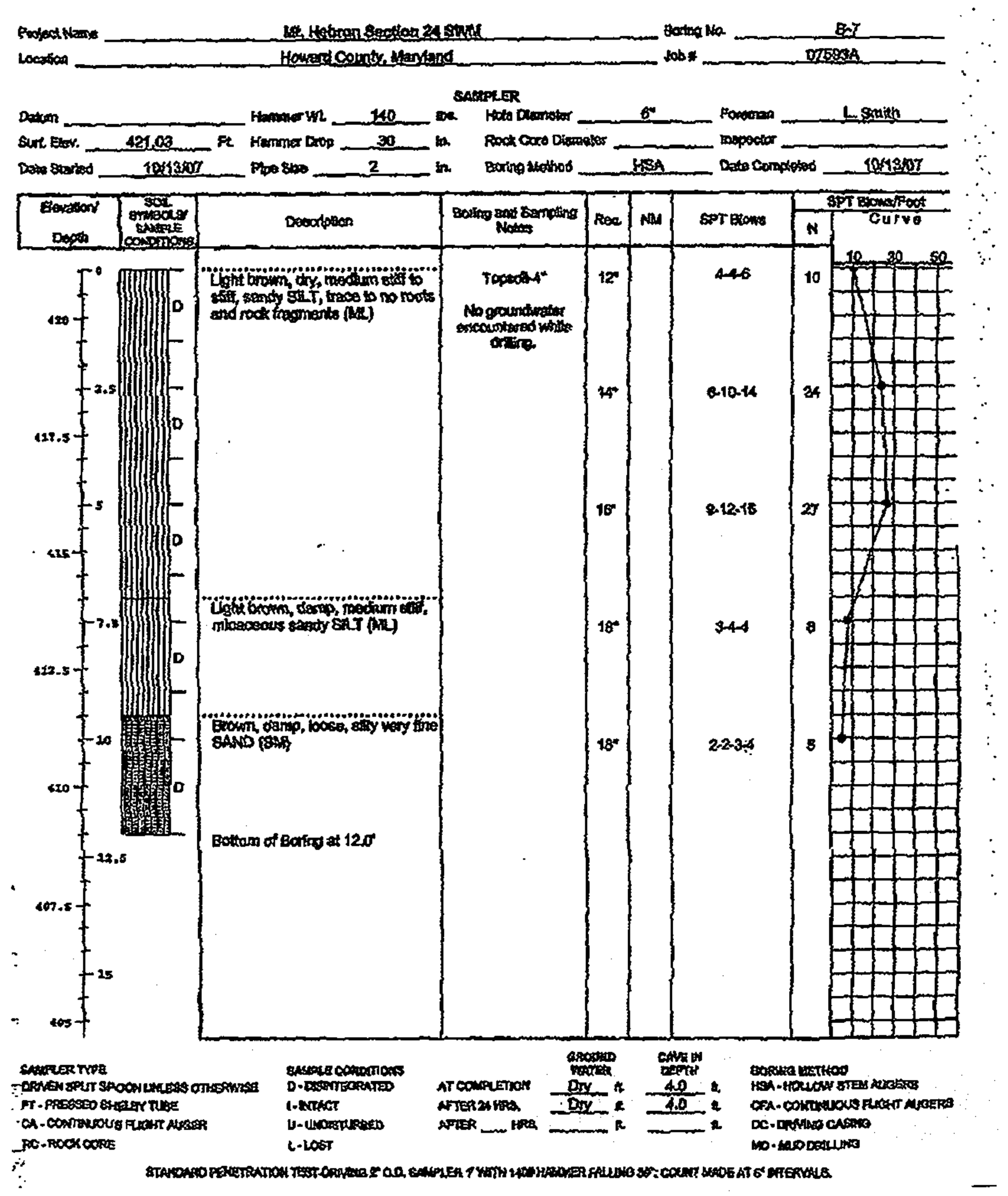
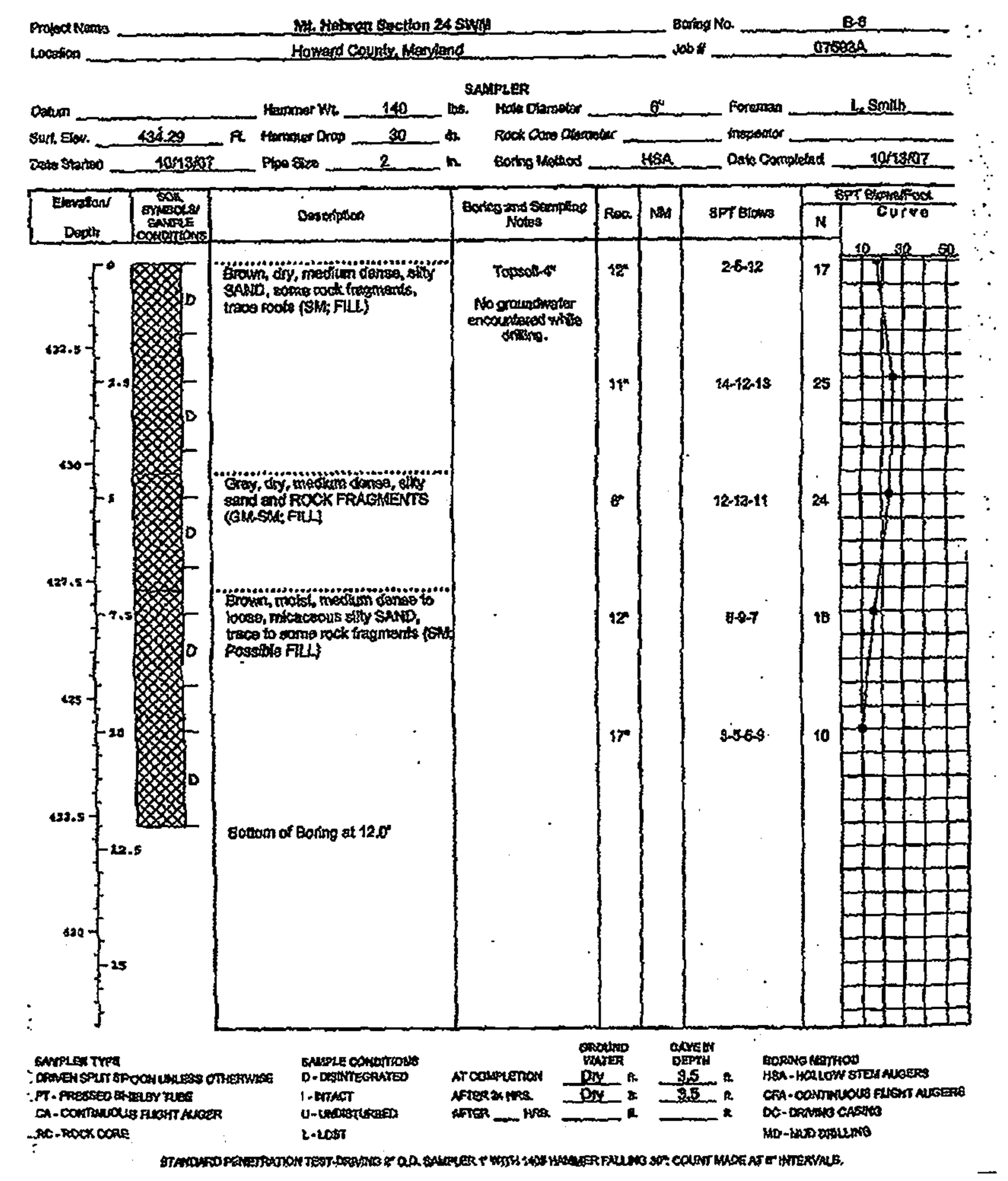
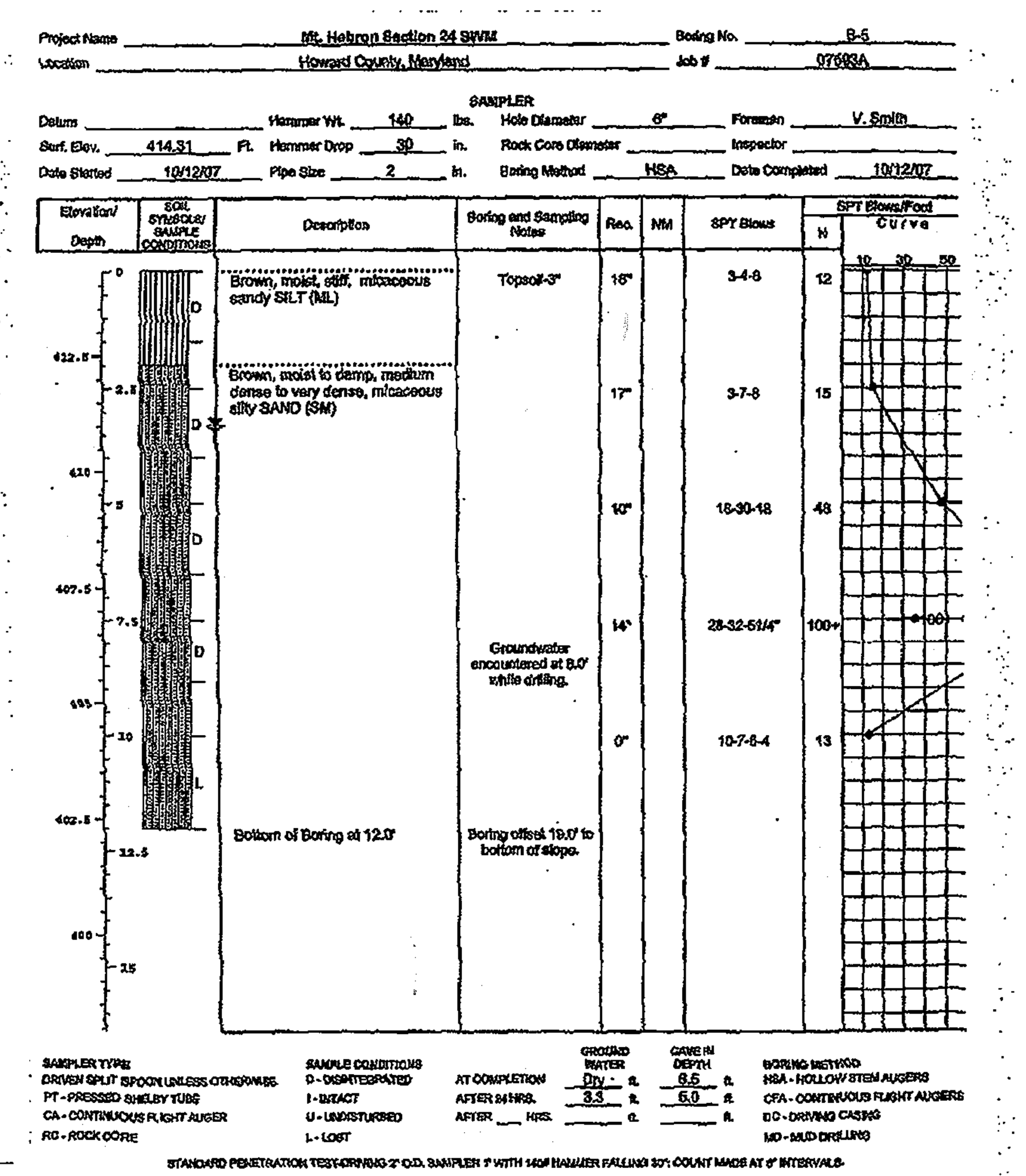
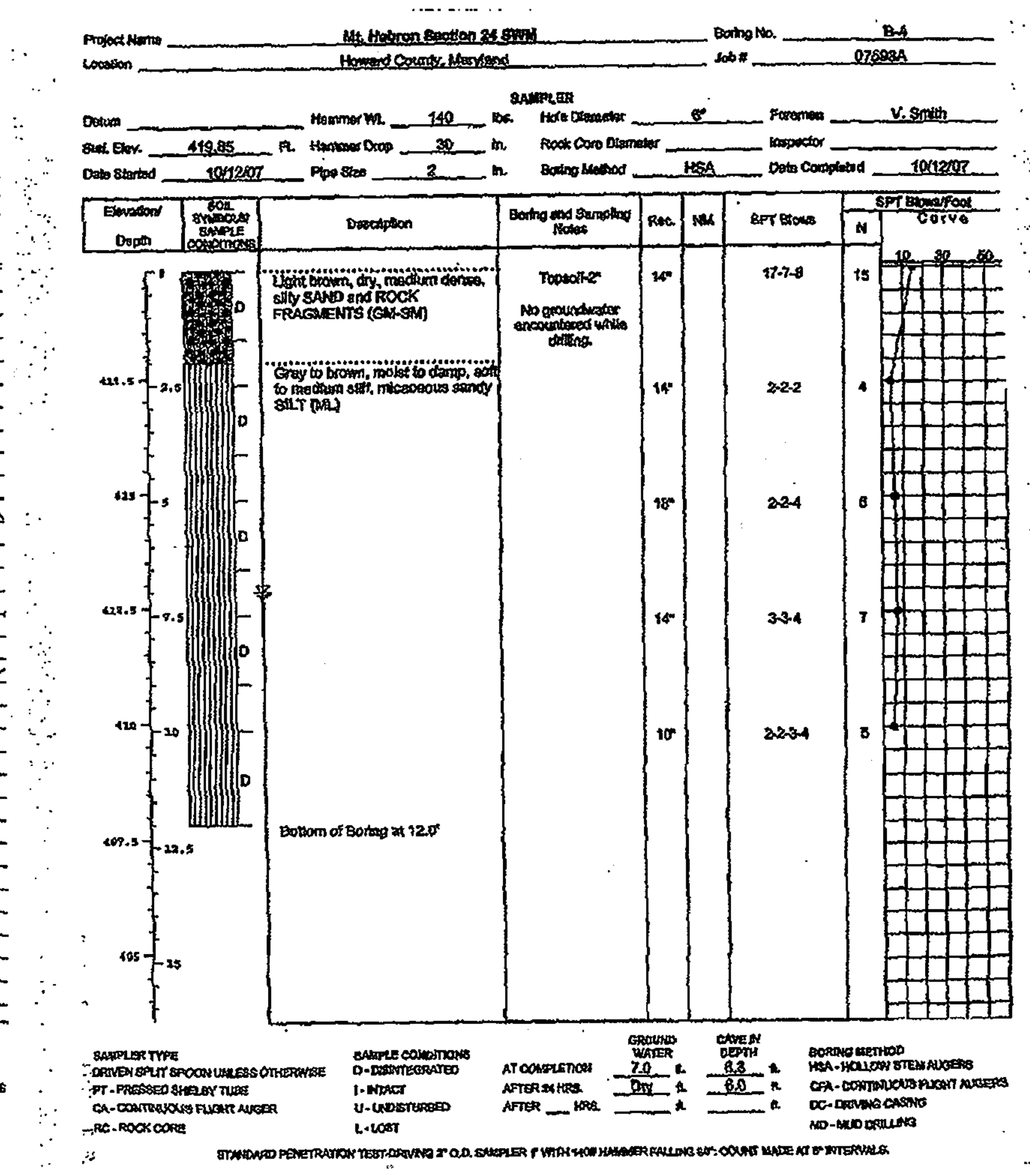
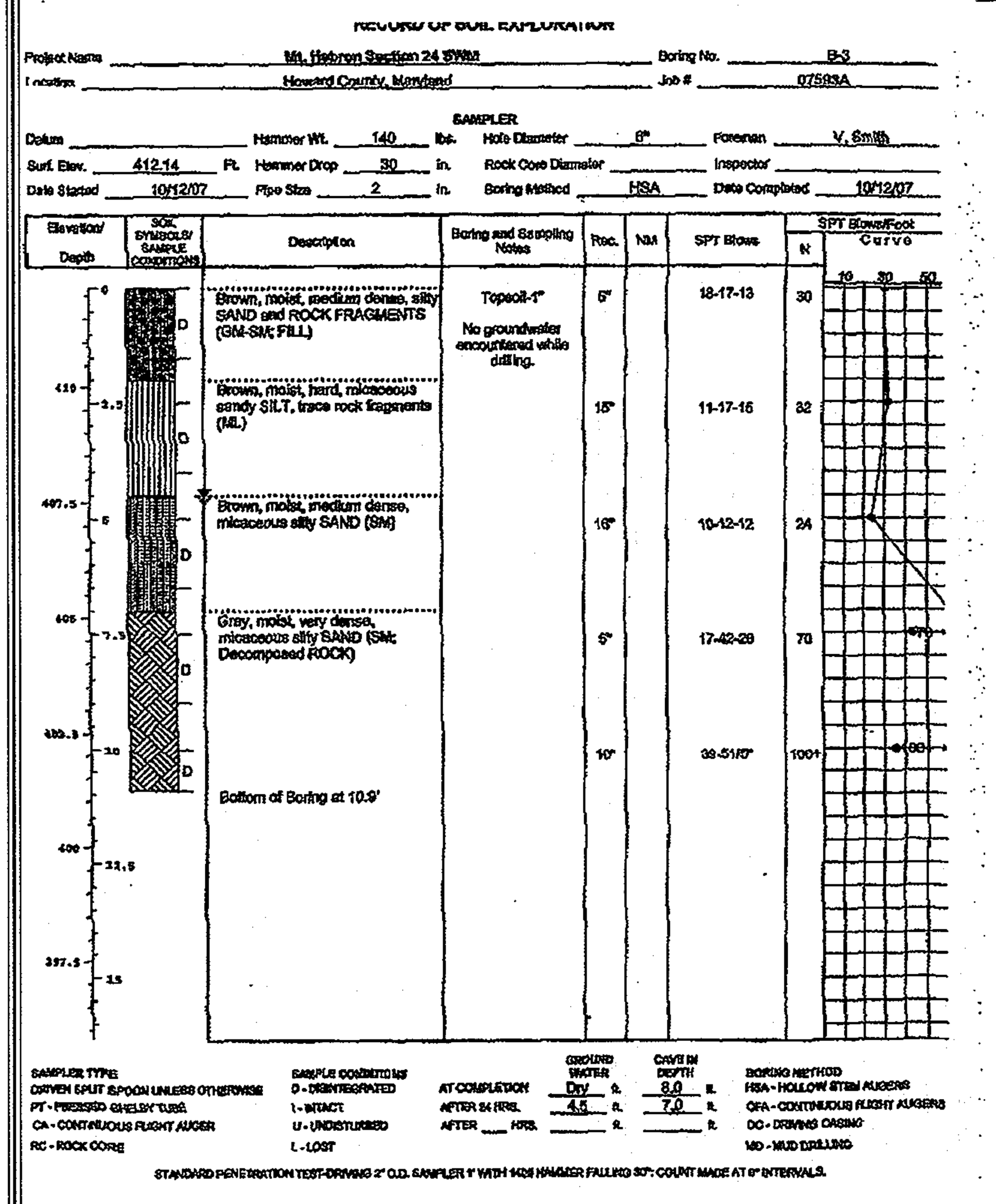
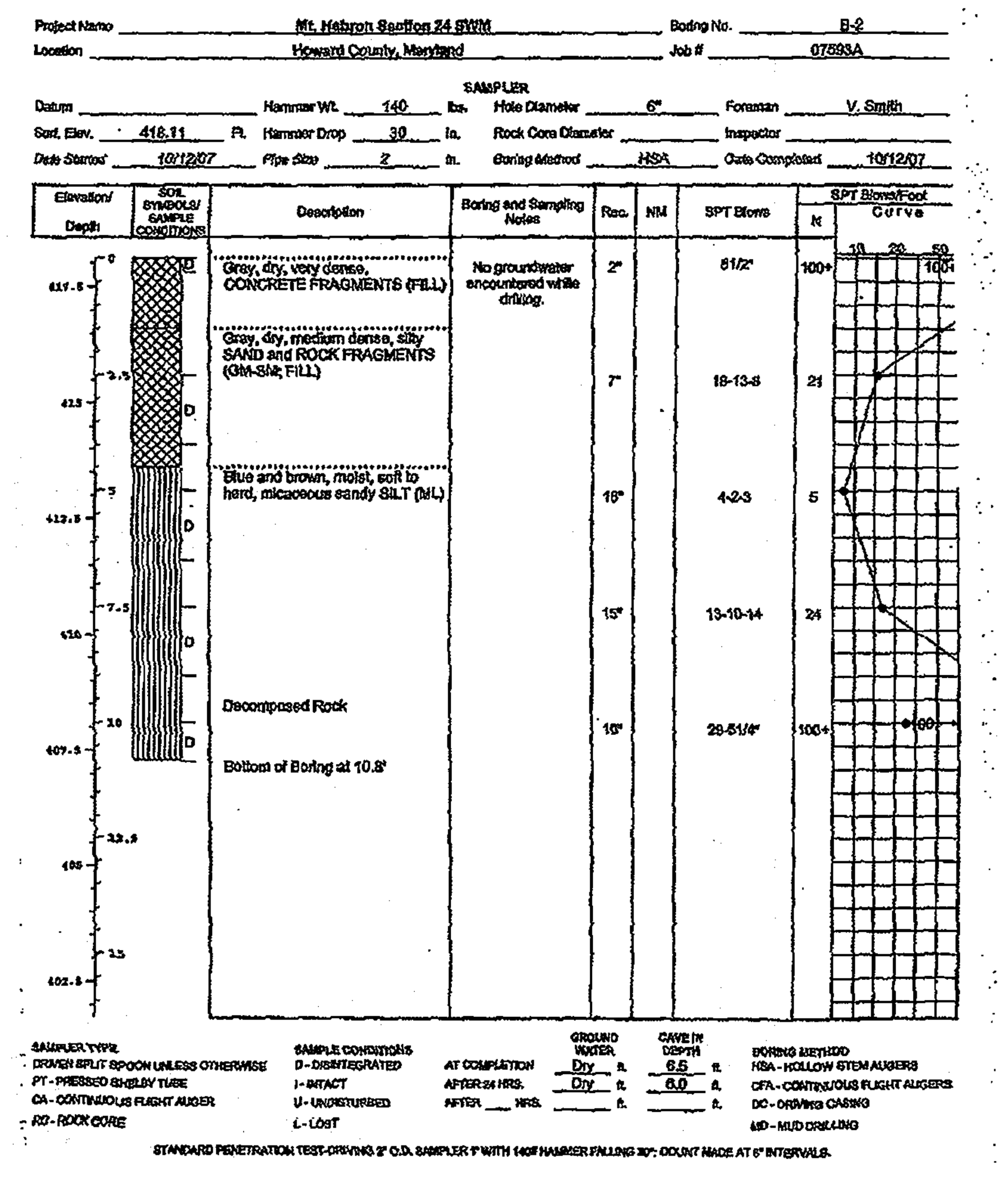
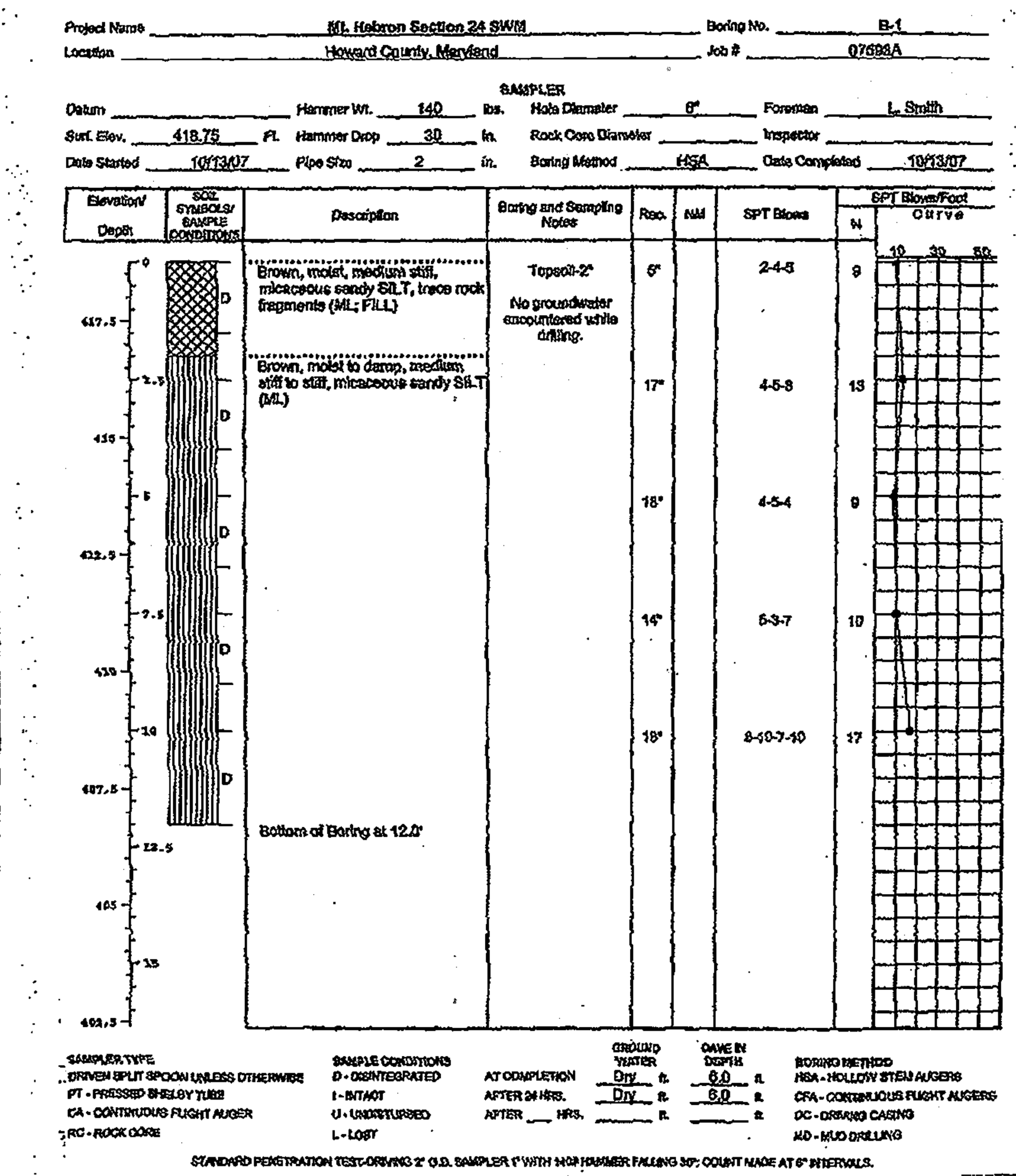
STORMWATER MANAGEMENT
NOTES & DETAILS
MT. HEBRON
SECTION 24
LOTS 1 – 12, OPEN SPACE LOT 13
AND NON-BUILDABLE BULK PARCEL 'A'
Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 9 Of 15

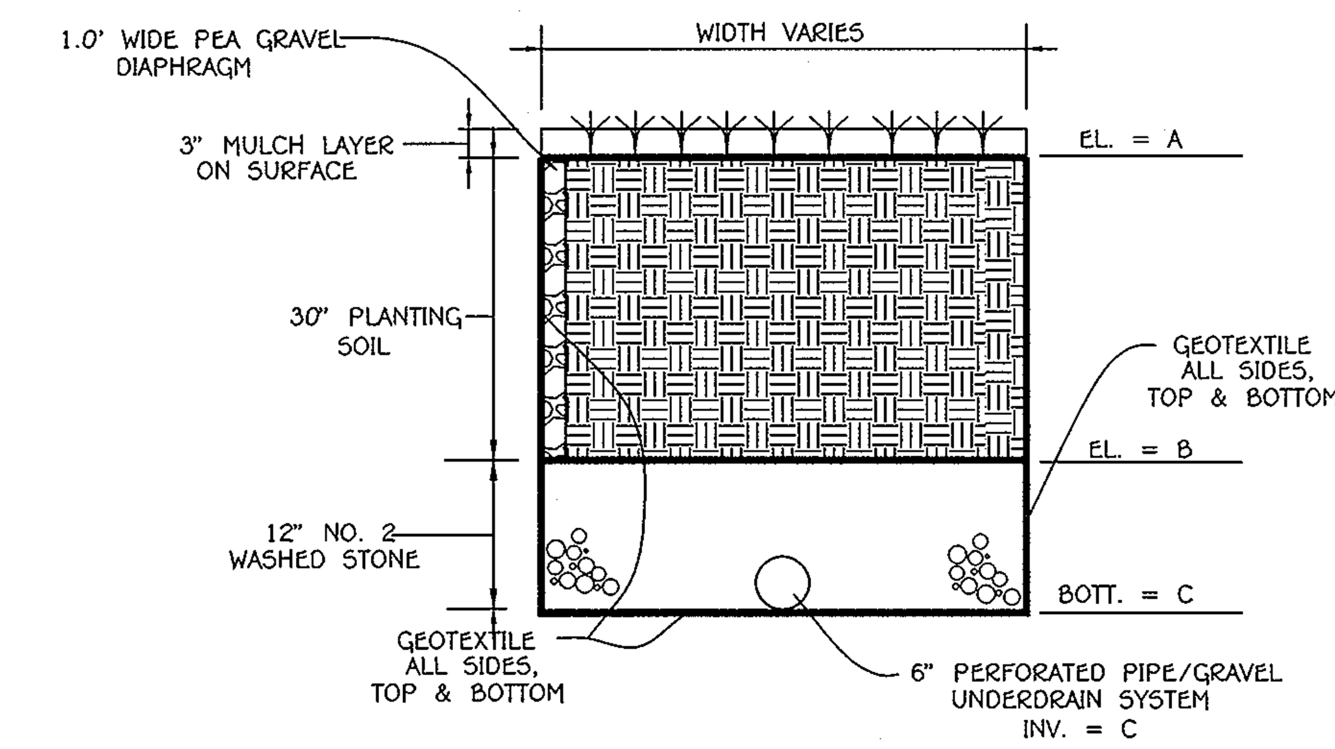
F-09-019

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	8-16-10 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	8/19/10 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	8/19/10 DATE

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED LOT GRADING	5/12/10

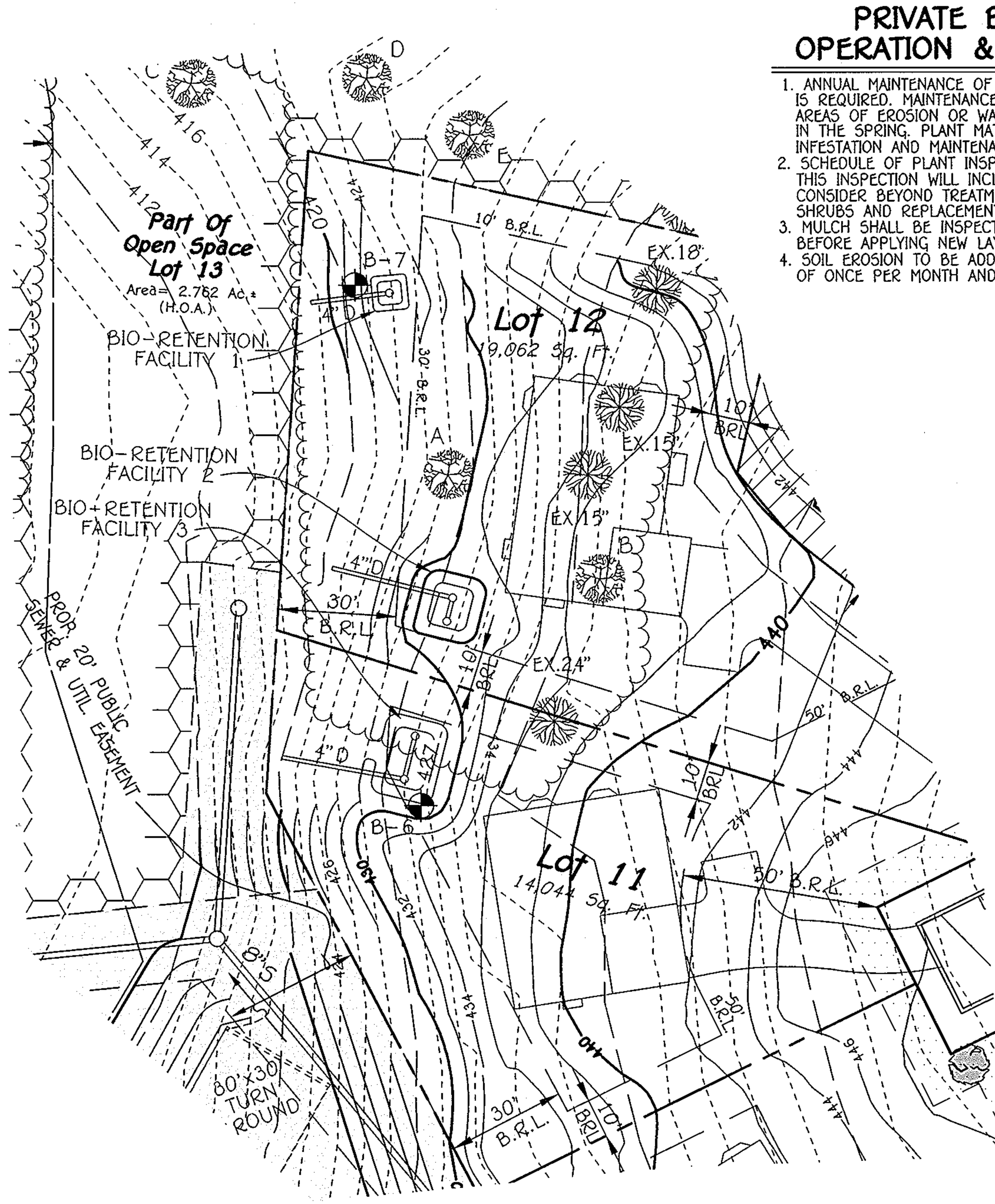


TYPICAL SECTION - BIO-RETENTION FACILITY

NO SCALE

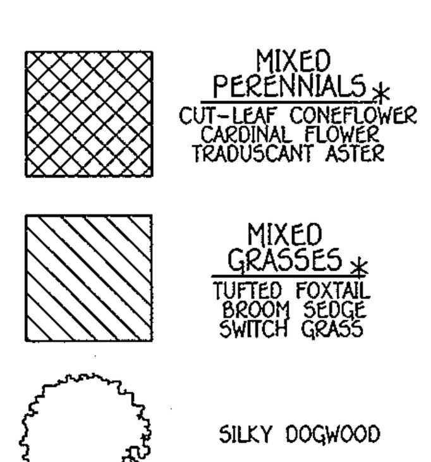
PRIVATE BIO-RETENTION FILTER OPERATION & MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDER BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS. WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



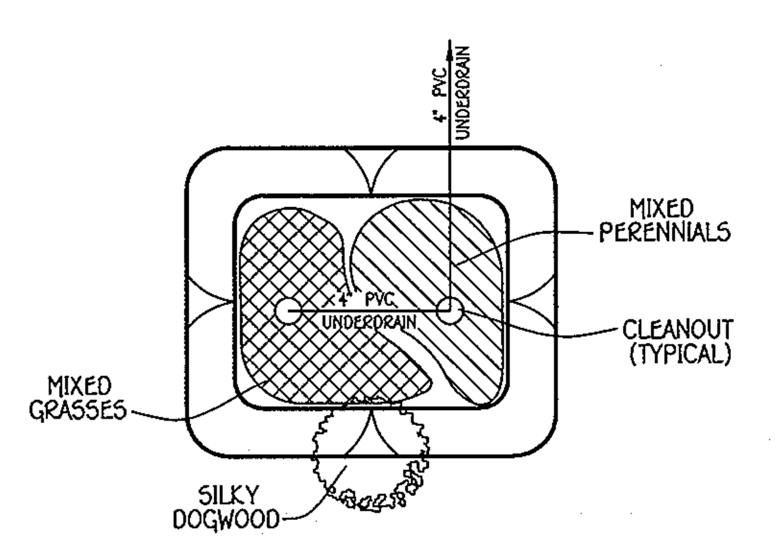
PLAN VIEW - BIO-RETENTION FACILITY

SCALE: 1" = 30'



*SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING

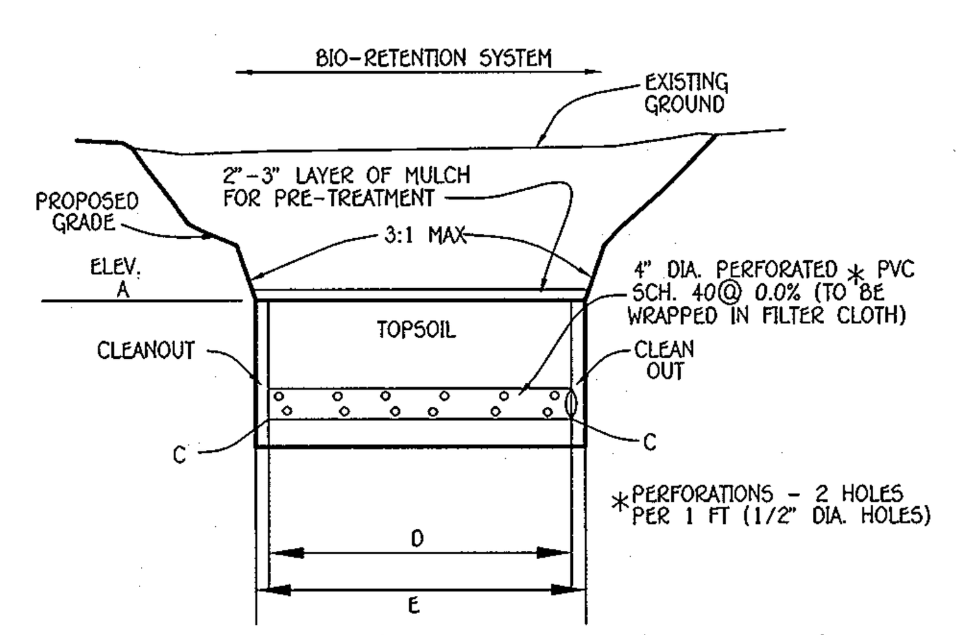
NOTES:
PLANT MATERIAL MUST COVER AT LEAST 50% OF THE SURFACE AREA OF THE FILTER



BIO-RETENTION FILTER PLANTING DETAIL

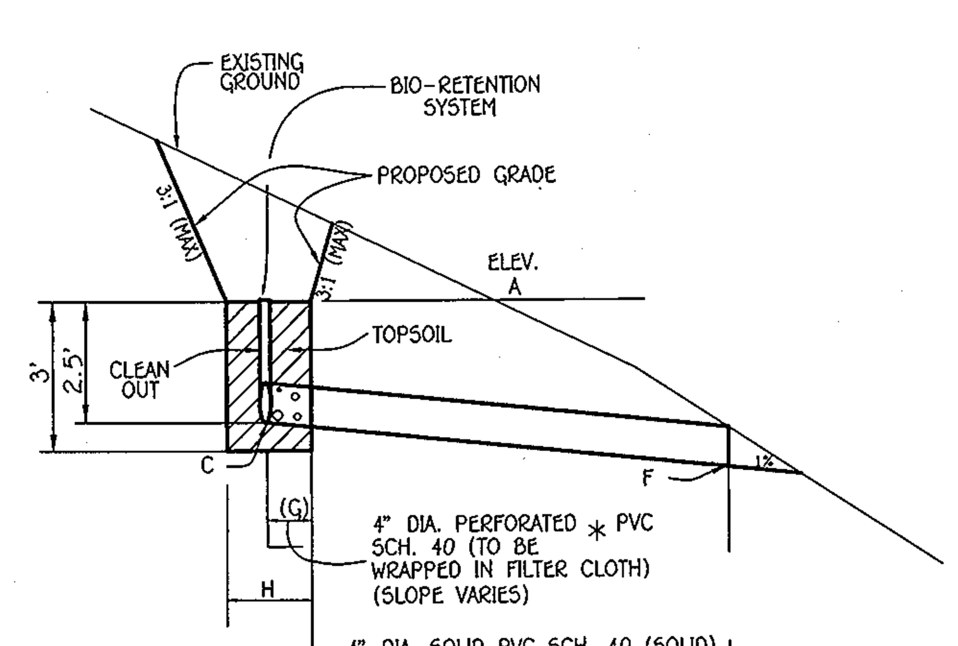
NOT TO SCALE

BIO-RETENTION	MIXED PERENNIALS	MIXED GRASSES	SILKY DOGWOOD	
1	15	15	1	
2	25	25	1	
3	30	30	1	
MAXIMUM SPACING	1 FT.	1 FT.	PLANT AWAY FROM INFLOW LOCATION	



PROFILE ALONG 4" PVC UNDERDRAIN

NO SCALE



PROFILE ALONG 4" PVC OUTLET

NO SCALE

BIO-RETENTION FILTER DATA									
BIO-RETENTION FILTER	A	B	C	D	E	F	G	H	I
1	423.0	420.5	419.5	4.0'	6.0'	417.5	3.0'	6.0'	18'
2	429.0	426.5	425.5	9.0'	11.0'	421.5	5.0'	10.0'	26'
3	427.0	424.5	423.5	13.0'	15.0'	420.0	5.0'	10.0'	26'

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ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

ALDO M. VITUCCI, P.E. — 7-15-10 DATE
"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

REVISED
SOIL BORINGS & PRIVATE BIO-RETENTION DETAILS
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13
AND NON-BUILDABLE BULK PARCEL 'A'
Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 10 Of 15

F-09-019

I:\2005\05024\dwg\FINAL\REDLINE REVISION\05024 SHEET 10 soil borings.dwg, 7/5/2010 7:32:59 AM, jamesl, 1:1

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 12-3-09 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary."

Signature Of Developer — 12-3-09 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 1/5/10 Date

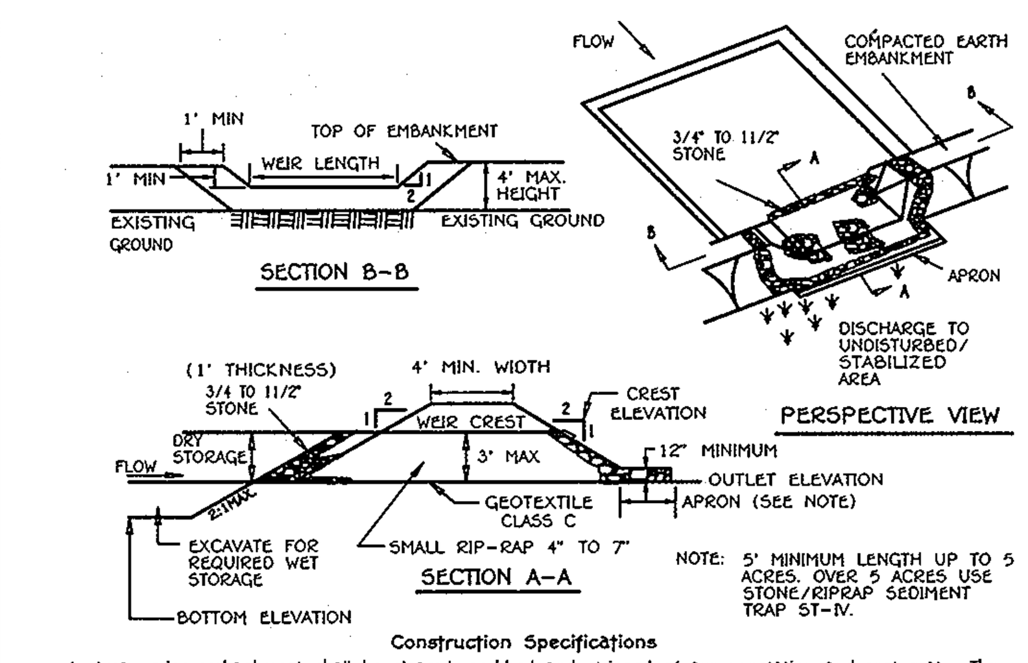
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — 1/20/10 Date

Chief, Development Engineering Division — 1/15/10 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 1-12-10 Date

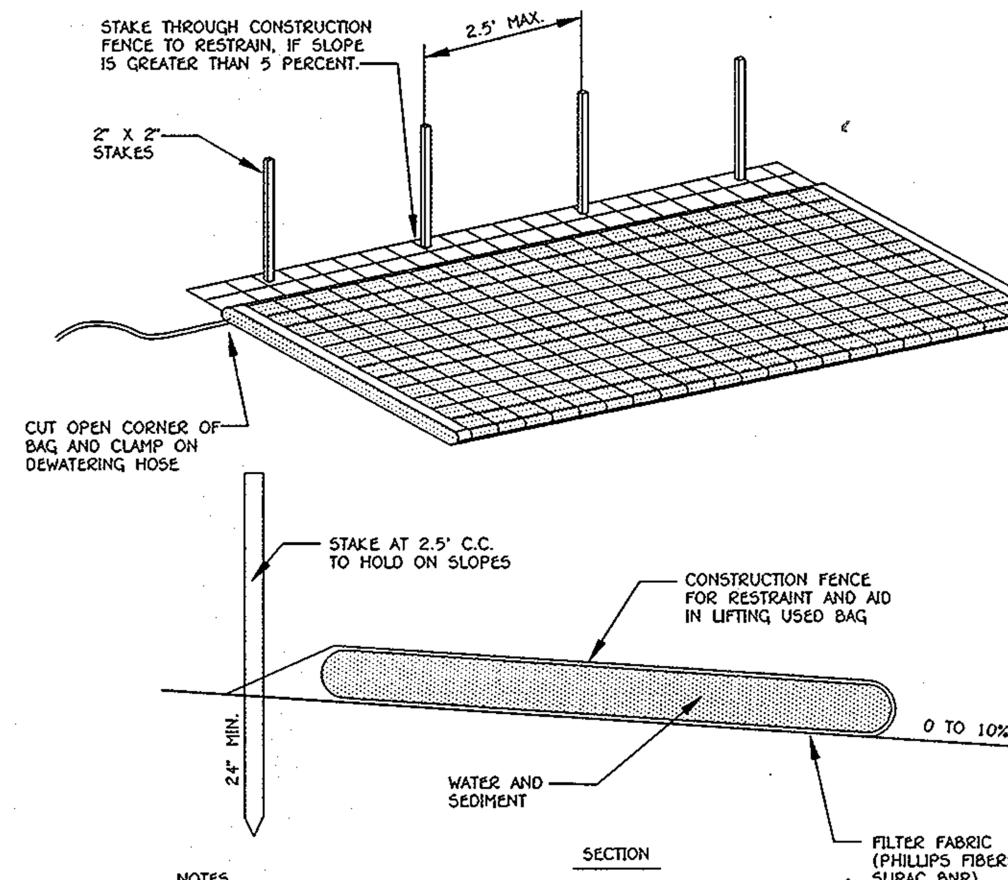


Construction Specifications

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 11/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
6. The structure shall be inspected periodically and after each rain and repairs made as needed.
7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration 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.
8. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.
9. Refer to Section D for specifications concerning trap dewatering.
10. Minimum trap depth shall be measured from the weir elevation.
11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.
12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.
13. Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

STONE OUTLET SEDIMENT TRAP - ST II

NOT TO SCALE



NOTES

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
2. WITDH AND LENTH SHALL BE AS SHOWN IN THE TABLE.
3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISHARGE LINE.
4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT.
5. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

AVAILABLE FROM:

INDIAN VALLEY INDUSTRIES, INC., P.O. BOX 810, JOHNSON CITY, NEW YORK 13790, (800) 659-5111 OR A.C.F. ENVIRONMENTAL, 1801-A WILLIS ROAD, RICHMOND, VIRGINIA 23237, TOLL FREE 1-800-448-3636 OR PRICE AND COMPANY, INC., 425 36TH STREET, WYOMING, MI. 49548, (616) 530-8230

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

FILTER BAG DETAIL

NOT TO SCALE

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration O(up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary of 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 analyses.
   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 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 warrantee of the producer.
   iii. Lime materials 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 to a depth of 3" to 5" 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 roughened condition. Sloped areas (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. In corporate lime and fertilizer into the top 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 is if lovegrass or serecia lespedezas 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 Standard and Specification 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 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 like stones and branches, and ready the area for seed and 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 (steeper 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 inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically 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°-80° F. 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 seeded, or a cultipacker seeder.
      a. 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 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. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. 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, reasonable 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 the 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 that will be phytol-toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., 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 areas 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 of the seeding season, mulch along 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 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons 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 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.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be 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 may 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' to 15' feet wide and 300 to 3,000 feet long.

I Incremental Stabilization - Cut Slopes
   i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (Refer to Figure 3 below):
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.

J. Incremental Stabilization of Embankments - Fill Slopes
   i. Embankments shall be constructed in lifts as prescribed on the plans.
   ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15", or when the grading operation ceases as prescribed in the plans.
   iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
   iv. Construction sequence: Refer to Figure 4 (below).
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding
   i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.
   ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Seed Mixture (Hardiness Zone 6b) From Table 26					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	RYE	140	3/1 - 4/30, 8/15 - 11/15	1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)
2	BARLEY	150	3/1 - 4/30, 5/1 - 8/14, BY 10/15	1"		

SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance.

A. Seed mixtures - Permanent Seeding
   i. 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 the 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, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
   ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
   iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone 6b) From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
	TALL FESCUE (85%) KENTUCKY BLUEGRASS (5%) PERENNIAL RYEGRASS (10%)	125 15 10	3/1 - 5/15 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15 8/15 - 10/15	1" - 2"				

PIPE SLOPE DRAIN

NOT TO SCALE

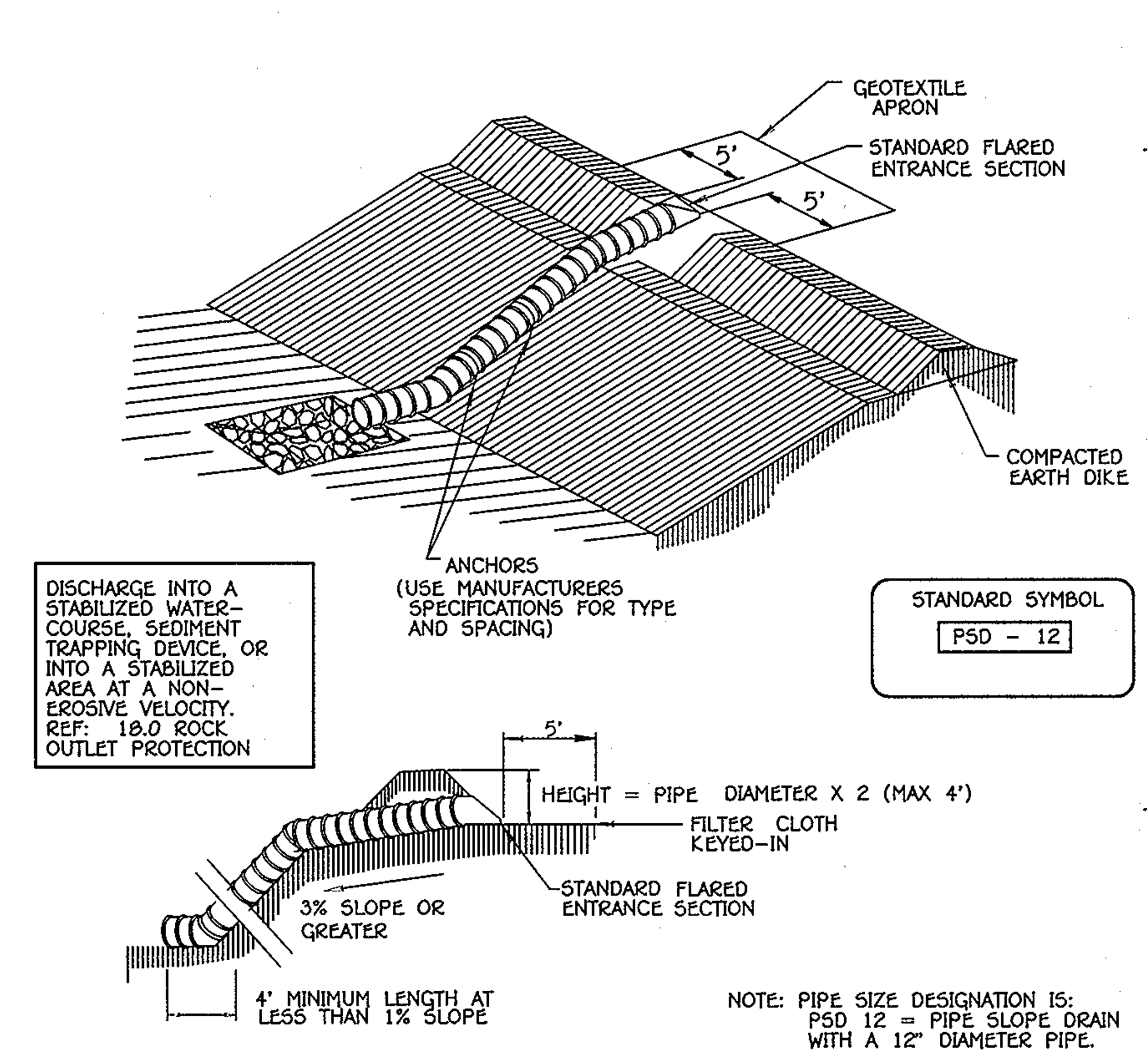
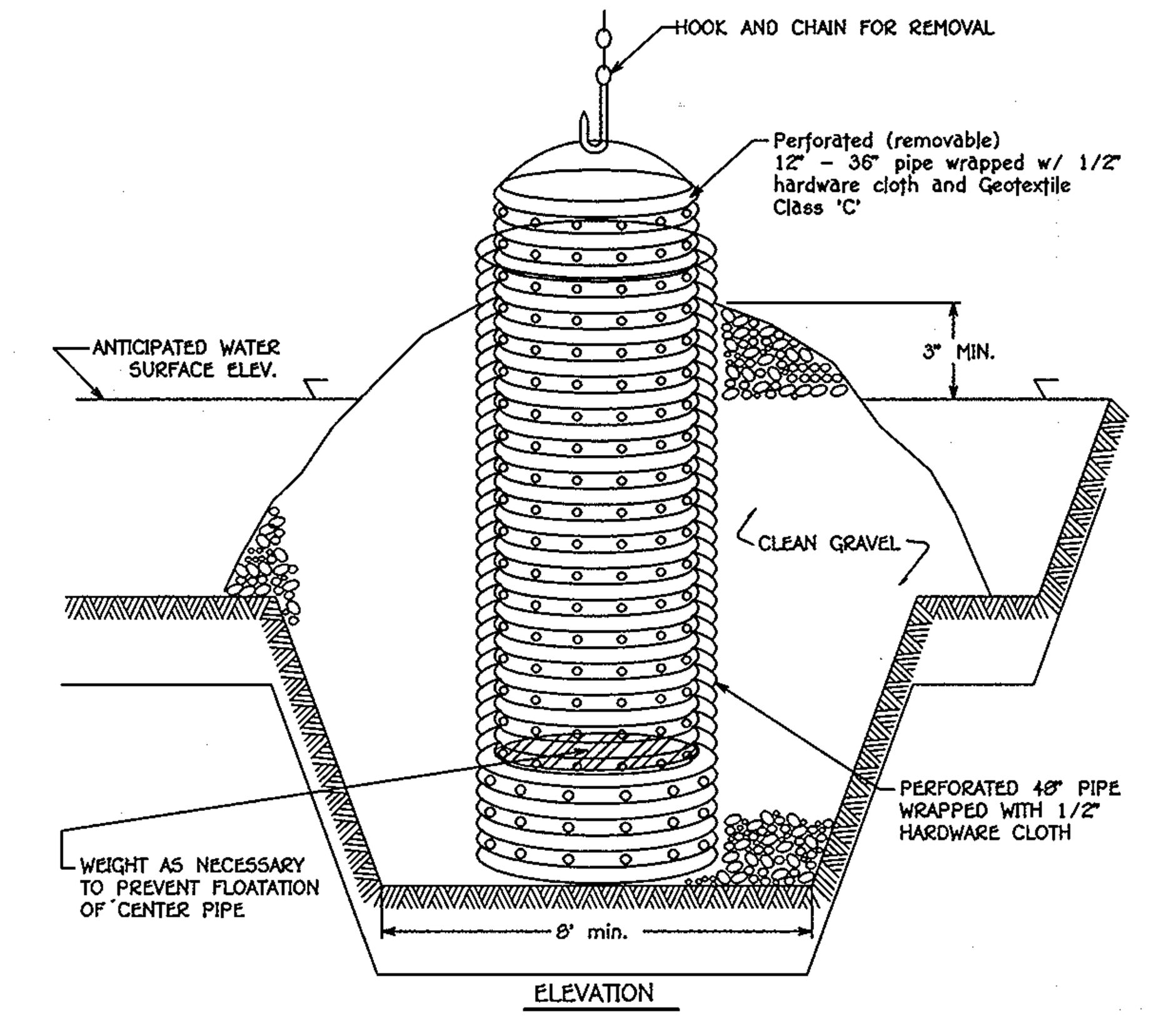


Table 6 Design Criteria for Pipe Slope Drain

Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

REMOVABLE PUMPING STATION

NOT TO SCALE

PIPE SLOPE DRAIN

Construction Specifications - Pipe Slope Drain

1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
4. A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides.
5. The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers.
6. The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
7. All pipe connections shall be watertight.
8. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyance that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
9. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity.
10. Inspection and any required maintenance shall be performed periodically and after each rain event.
11. The inlet must be kept open at all times.

TOPSOIL SPECIFICATIONS

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 growth.

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 Experimental 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. Regardlestopsoil 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 1 1/2" 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 the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at a 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 10.0 Vegetative Stabilization - 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 6.5r 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 permitdissipation of phyto-toxic materials.

Note: Topsoil substitutes or 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 10.0 Vegetative Stabilization - Section 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:

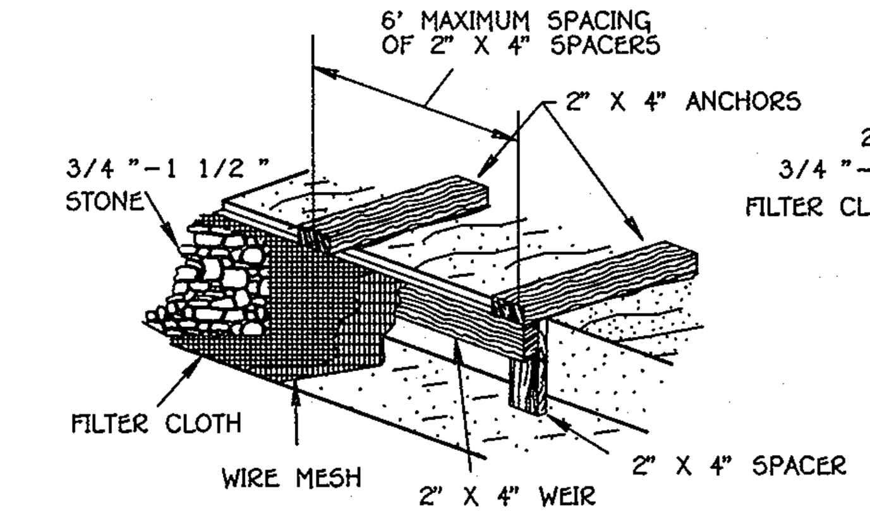
i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements.

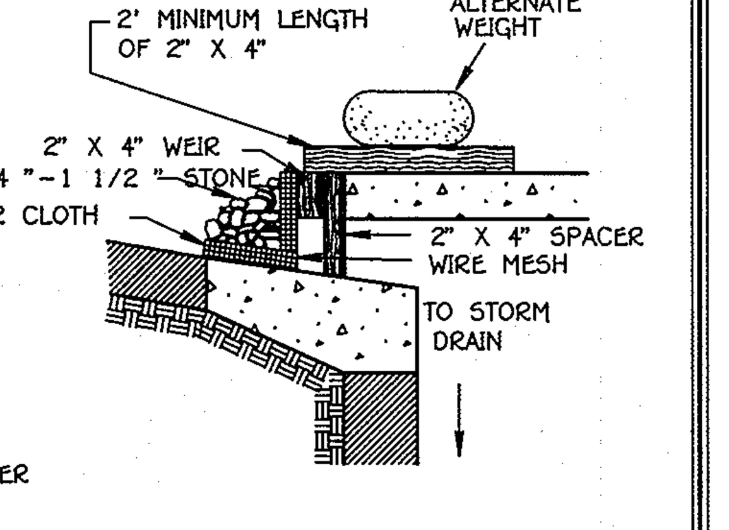
a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) bt the Maryland Department of the Environment under COMAR 26.04.06.

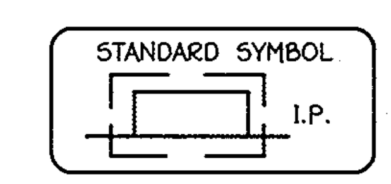
b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. 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.







MAX. DRAINAGE AREA = 1/4 ACRE

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.

CURB INLET PROTECTION

NOT TO SCALE

SEDIMENT CONTROL NOTES & DETAILS
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 11 Of 15

12-3-09
DATE

"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

F-09-019

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 12-3-09 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary."

Signature Of Developer — 12-3-09 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 1/8/10 Date

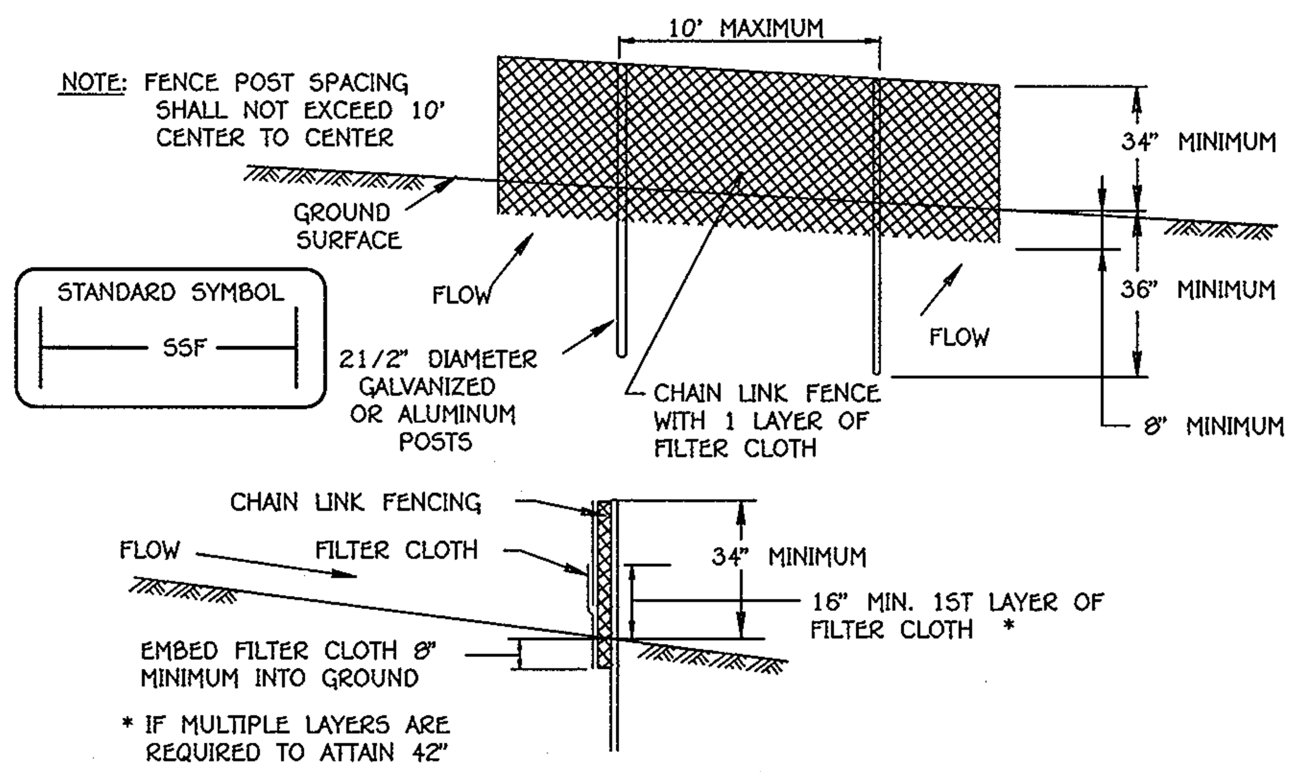
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — 1/20/10 Date

Chief, Development Engineering Division — 1/15/10 Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 1-12-10 Date



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth 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:

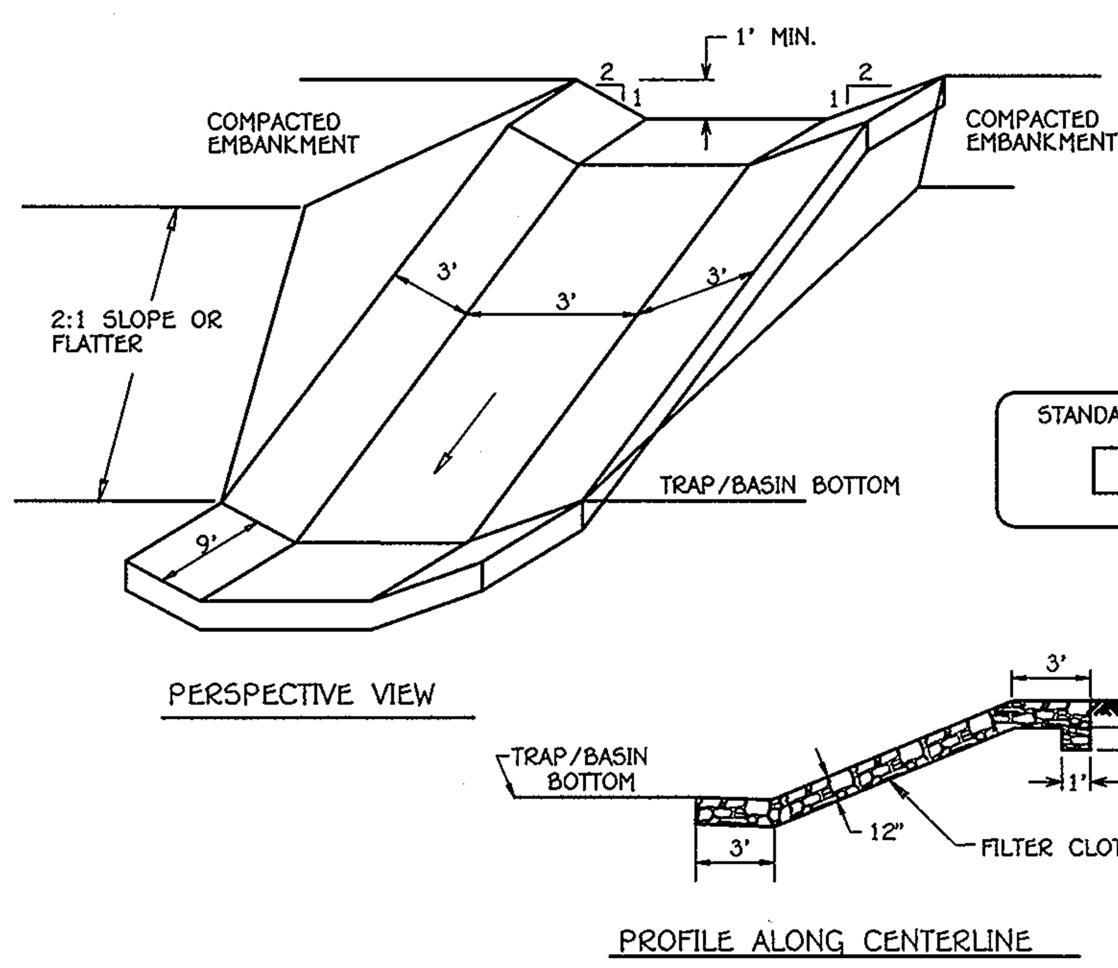
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

SUPER SILT FENCE

NOT TO SCALE

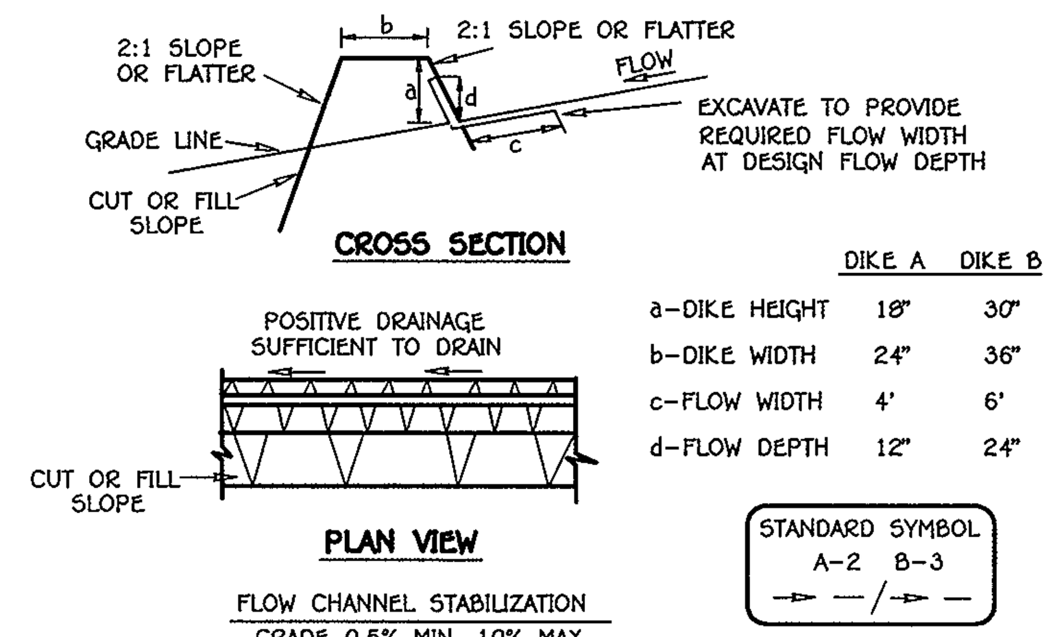


Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" - 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

GABION INFLOW PROTECTION

NOT TO SCALE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

STANDARD SYMBOL A-2 B-3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than%1
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

EARTH DIKE

NOT TO SCALE

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMITS. (2 WEEKS)

2. NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-313-1870 AT LEAST 24 HOURS BEFORE STARTING ANY WORK. IN ADDITION, NOTIFY AT&T PRIOR TO ANY ACTIVITY WITHIN THEIR EASEMENT.

3. INSTALL SUPER-SILT FENCE PER DEMO PLAN (SHEET 2) AND STABILIZED CONSTRUCTION ENTRANCE. RAZE EXISTING STRUCTURES. (2 WEEKS)

4. INSTALL SILT FENCE, SUPER-SILT FENCE, STORM DRAIN FROM I-4 TO S-3 (SEE PHASE ONE PLAN VIEW, SHEET 4) AND BLOCK OFF INLETS I-1 & I-2 WITH INLET PROTECTION. INSTALL 18" TEMP. FLEXIBLE PIPES INTO I-4 & I-3 FOR CLEAN-WATER DIVERSION (SEE DETAIL, SHEET 6). THE LIMIT OF DAILY DISTURBANCE SHALL BE LIMITED TO WHAT CAN AND SHALL BE BACKFILLED AND STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.
OBTAIN PERMISSION FROM SEDIMENT CONTROL INSPECTOR BEFORE PROCEEDING. (2 WEEKS)

5. INSTALL SEDIMENT CONTROL BASIN AND STONE OUTLET SEDIMENT TRAP. (1 WEEK)

6. INSTALL EARTH DIKES TO STORM DRAIN RUNS AND INSTALL FIELD DRAIN FOR LOT 4 AS SHOWN ON PLANS FOR PERIMETER CONTROLS. OBTAIN PERMISSION FROM INSPECTOR AFTER CONSTRUCTING THESE RUNS. (1 WEEK)

7. AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR, GRADE SITE TO SUBGRADE AND STABILIZE USING TEMPORARY SEEDING NOTES. ADJUST THE LOCATION OF THE TEMP. 18" FLEXIBLE PIPE AS NEEDED TO CAPTURE THE OFF-SITE CLEAN WATER RUNOFF AND CARRY IT THRU THE SITE (2 WEEKS)

8. INSTALL ROADWAY BASE COURSE PAVING. (1 WEEK)

9. STABILIZE ALL DISTURBED AREAS. (1 DAY)

10. APPLY TACK COAT TO BASE COURSE PAVING AND LAY SURFACE COURSE. (1 WEEK)

11. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. (4 WEEKS)

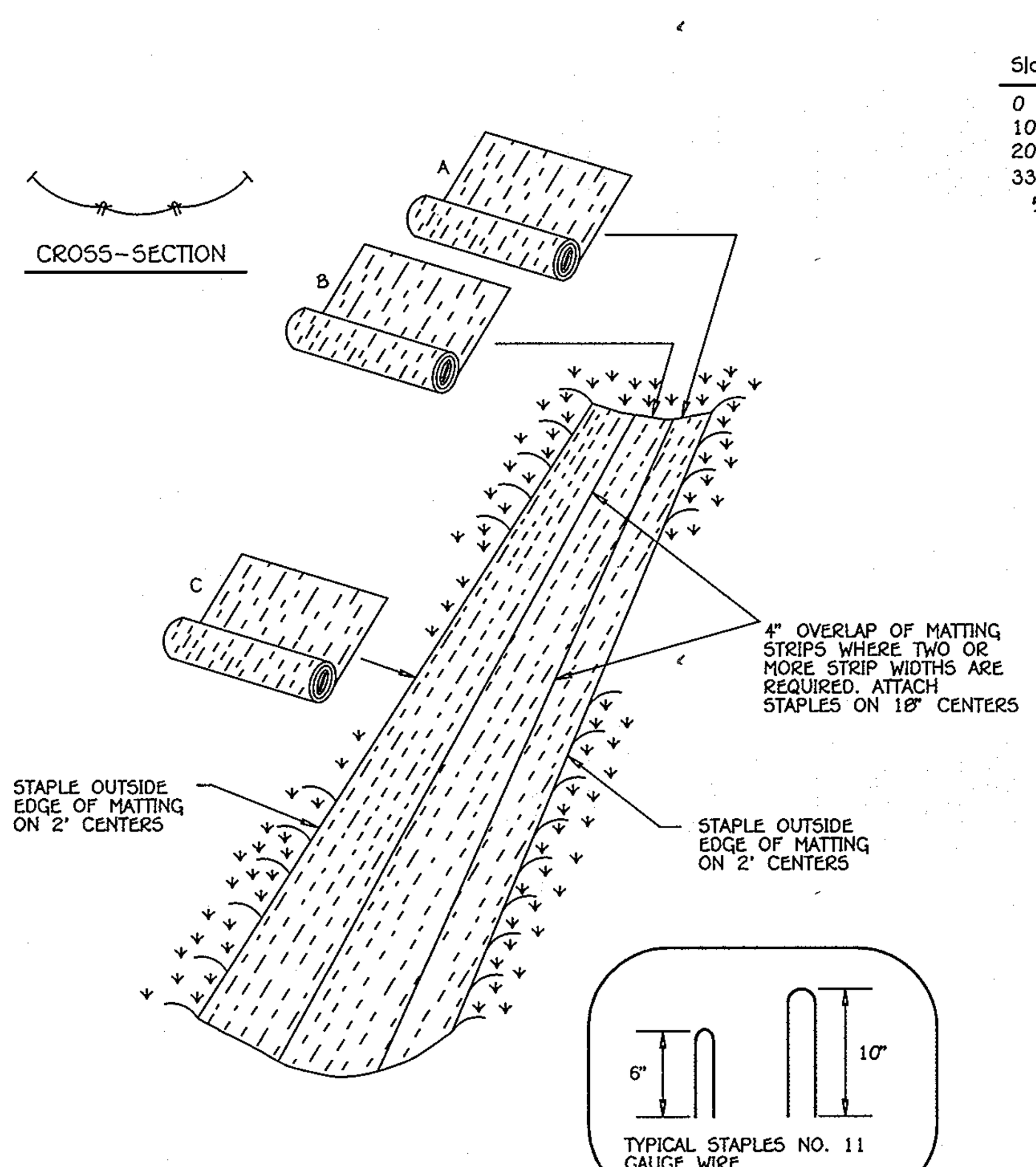
12. UPON COMPLETION OF ROADWAY CONSTRUCTION, STABILIZE AREAS AND REMOVE TEMPORARY DEVICES INCLUDING THE TWO (2) BULKHEADS LOCATED WITHIN M-1. (1 DAY)

13. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

14. AFTER CONSTRUCTION OF THE FINAL STORMWATER FACILITY HAS BEEN COMPLETED, THE DEVELOPER MUST HAVE AN AS-BUILT PLAN PREPARED AND SUBMITTED TO HOWARD COUNTY BY THE PROJECT ENGINEER.

NOTE: CONTRACTOR SHALL CLEAN AND RESTORE THE RECEIVING PONDS OF ANY AND ALL SEDIMENT, TO THEIR ORIGINALLY DESIGNED GRADE.

NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENT FROM SEDIMENT BASIN NO. 1 AND STONE OUTLET SEDIMENT TRAP WHEN CLEANOUT ELEVATIONS ARE REACHED. ALL SEDIMENT MUST BE PLACED UPSTREAM OF AN APPROVED BASIN DEVICE.



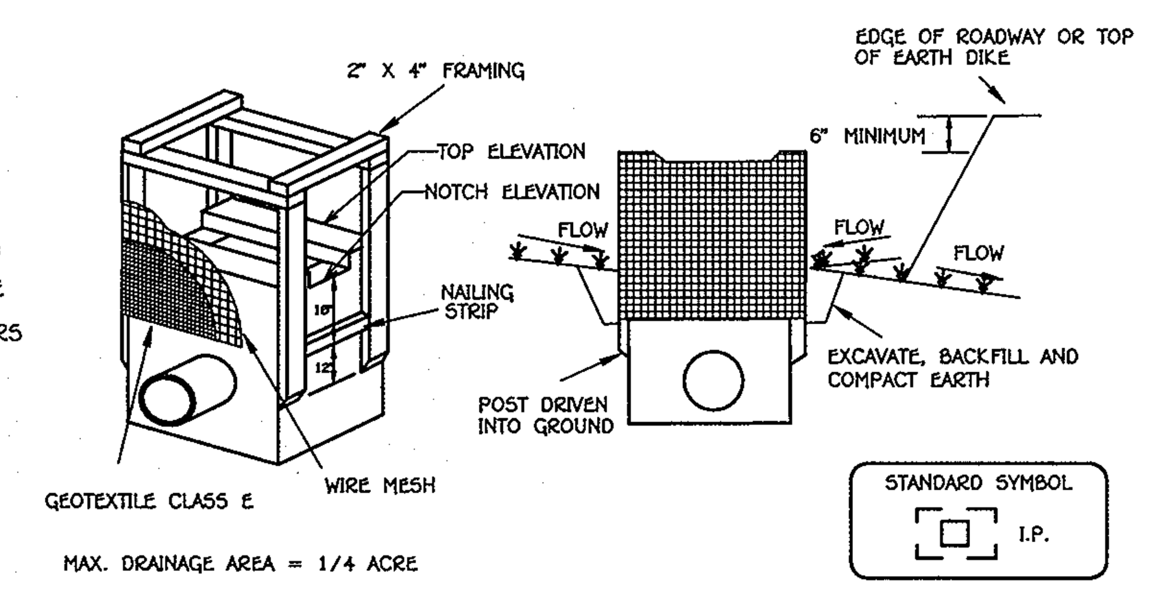
Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

EROSION CONTROL MATTING

NOT TO SCALE



STANDARD SYMBOL I.P.

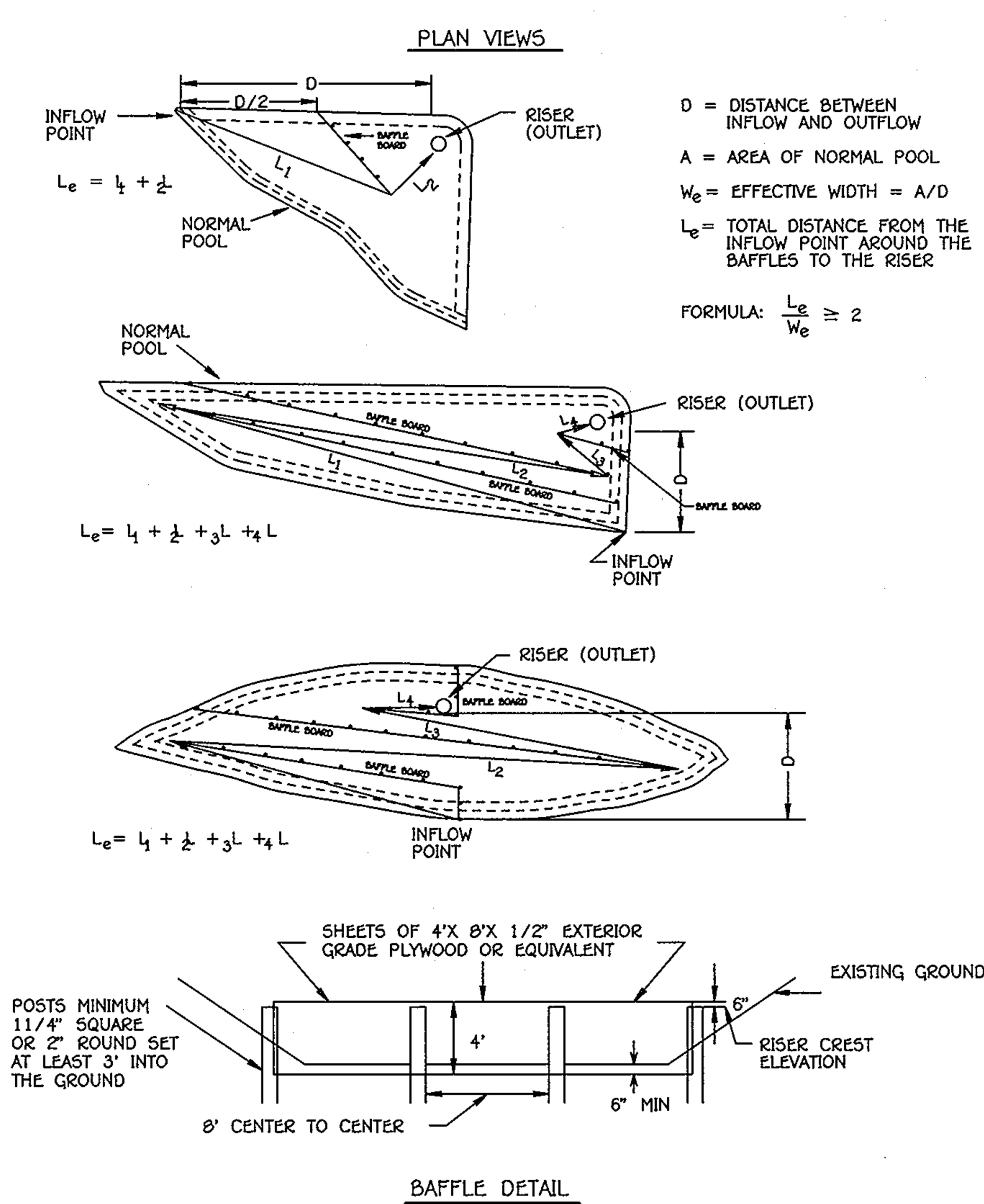
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

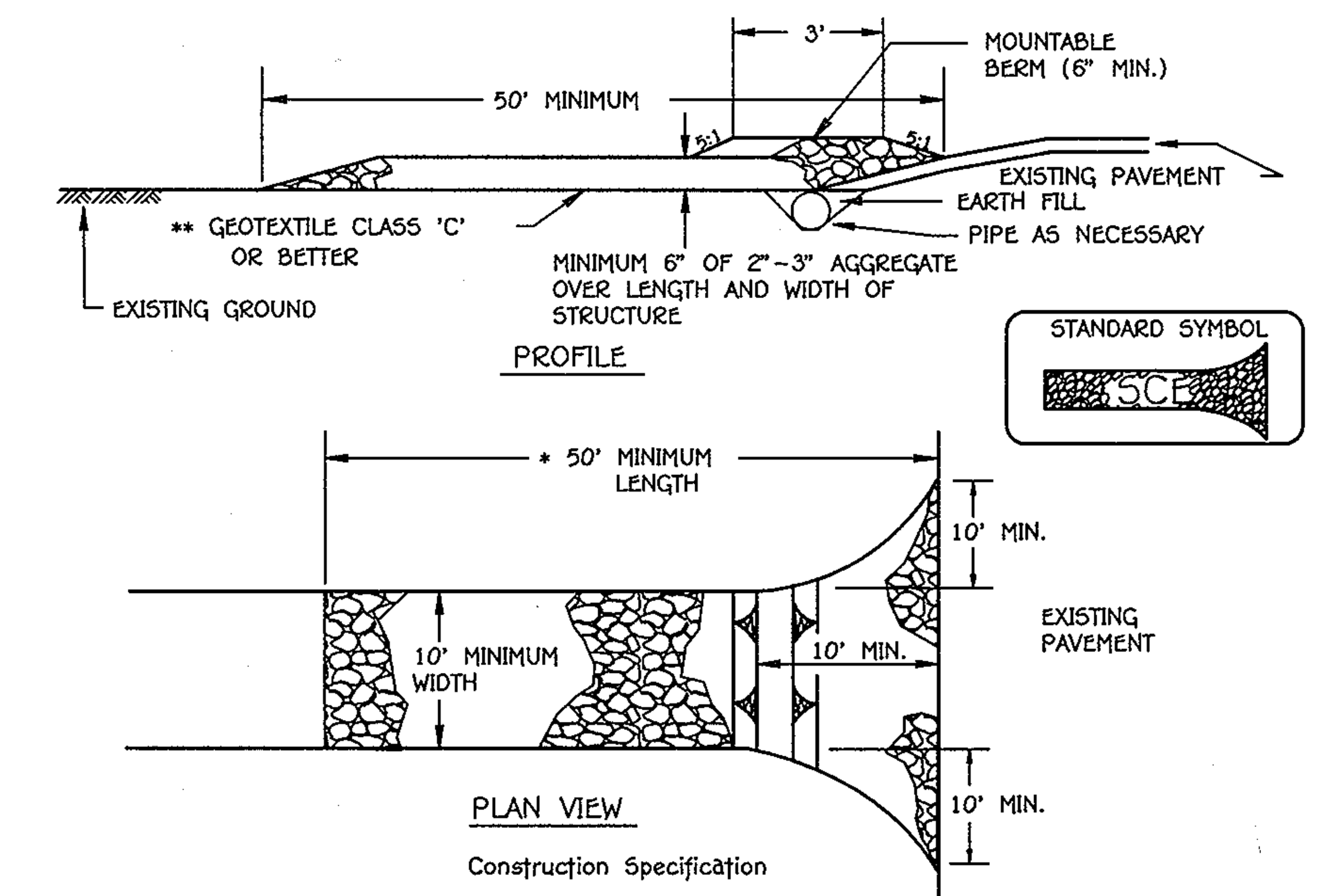
STANDARD INLET PROTECTION

NOT TO SCALE



SEDIMENT BASIN BAFFLES

NOT TO SCALE



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.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

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 MOST CURRENT 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 THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7) SITE ANALYSIS:

TOTAL AREA OF SITE	8.135 ACRES
AREA DISTURBED	3.92 ACRES
AREA TO BE ROOFED OR PAVED	1.45 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.47 ACRES
TOTAL CUT (UNADJUSTED)	22,011 CU.YDS.
TOTAL FILL (UNADJUSTED)	20,513 CU.YDS.
ONSITE BORROW AREA LOCATION	N/A CU.YDS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY 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.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

ALDO M. VITUCCI, P.E. — 12-3-09 DATE

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

SEDIMENT CONTROL NOTES & DETAILS

MT. HEBRON

SECTION 24

LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 12 Of 15

F-09-019

SPECIMEN TREE LIST

SYMBOL	COMMON NAME	SIZE	CONDITION
A	TULIP POPLAR	48" DBH	GOOD
B	TULIP POPLAR	46" DBH	GOOD
C	TULIP POPLAR	44" DBH	GOOD
D	TULIP POPLAR	46" DBH	GOOD
E	TULIP POPLAR	44" DBH	GOOD
F	AMERICAN BEECH	30" DBH	GOOD
G	AMERICAN BEECH	36" DBH	GOOD
H	TULIP POPLAR	40" DBH	GOOD
I	TULIP POPLAR	46" DBH	GOOD
J	TULIP POPLAR	46" DBH	GOOD
K	TULIP POPLAR	48" DBH	GOOD

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 8-16-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/19/10

REVISIONS

NO.	DESCRIPTION	DATE
1	LOWERED ROAD GRADE AND LOT GRADING & RELOCATE RECREATION AREA OUT OF STREAM BUFFER	5/12/10

FOREST CONSERVATION WORKSHEET

NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	8.13
B. DEDUCTIONS (CRITICAL AREA, AREA RESTRICTED BY LOCAL OR PROGRAM)	0.0
C. NET TRACT AREA NET TRACT AREA = TOTAL TRACT (A) - DEDUCTIONS (B)	8.13
LAND USE CATEGORY: MEDIUM DENSITY RESIDENTIAL	
D. AFFORESTATION THRESHOLD (NET TRACT AREA (C) x 15%)	1.22
E. CONSERVATION THRESHOLD (NET TRACT AREA (C) x 20%)	1.63
EXISTING FOREST COVER	
F. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	1.6
G. AREA OF FOREST ABOVE CONSERVATION TRESHOLD	0
IF THE EXISTING FOREST COVER (F) IS GREATER THAN THE CONSERVATION TRESHOLD (E), THEN G = F - E; OTHERWISE G = 0.	
BREAK-EVEN POINT	
H. BREAK-EVEN POINT (AMOUNT OF FOREST THAT MUST BE RETAINED SO THAT NO MITIGATION IS REQUIRED)	1.6
(1) IF THE AREA OF FOREST ABOVE CONSERVATION TRESHOLD (G) IS GREATER THAN 0, THEN H = (0.2 x THE AREA OF FOREST ABOVE CONSERVATION TRESHOLD (G)) + THE CONSERVATION TRESHOLD (E);	
(2) IF THE AREA OF FOREST ABOVE CONSERVATION TRESHOLD (G) IS EQUAL TO 0, THEN H = EXISTING FOREST COVER (F)	
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION	0
I = EXISTING FOREST COVER (F) - BREAKEVEN POINT (H)	
PROPOSED FOREST CLEARING	
J. TOTAL AREA OF FOREST TO BE CLEARED	0.45
K. TOTAL AREA OF FOREST TO BE RETAINED	1.16
K = EXISTING FOREST COVER (F) - FOREST TO BE CLEARED (J)	
PLANTING REQUIREMENTS	
IF THE TOTAL AREA OF FOREST TO BE RETAINED (K) IS AT OR ABOVE THE BREAKEVEN POINT (H), NO PLANTING IS REQUIRED, AND NO FURTHER CALCULATIONS ARE NECESSARY (L=0, M=0, P=0, Q=0, R=0).	
OTHERWISE, CALCULATE THE PLANTING REQUIREMENTS(S) AS FOLLOWS:	
L. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION TRESHOLD	0
(1) IF THE TOTAL AREA OF FOREST TO BE RETAINED (K) IS GREATER THAN THE CONSERVATION TRESHOLD (E), THEN L = THE AREA OF FOREST TO BE CLEARED (J) x 0.25;	
(2) IF THE FOREST TO BE RETAINED (K) IS LESS THAN OR EQUAL TO THE CONSERVATION TRESHOLD (E), THEN L = AREA OF FOREST ABOVE CONSERVATION TRESHOLD (G) x 0.25	
M. REFORESTATION FOR CLEARING BELOW THE CONSERVATION TRESHOLD	0.9
(1) IF EXISTING FOREST COVER (F) IS GREATER THAN THE CONSERVATION TRESHOLD (E) AND THE FOREST TO BE RETAINED (K) IS LESS THAN OR EQUAL TO THE CONSERVATION TRESHOLD (E), THEN M = 2.0 x (CONSERVATION TRESHOLD (E) - FOREST TO BE RETAINED (K))	
(2) IF EXISTING FOREST COVER (F) IS LESS THAN OR EQUAL TO THE CONSERVATION TRESHOLD (E), THEN M = 2.0 x FOREST TO BE CLEARED (J)	
N. CREDIT FOR RETENTION ABOVE THE CONSERVATION TRESHOLD	0
IF THE AREA OF FOREST TO BE RETAINED (K) IS GREATER THAN THE CONSERVATION TRESHOLD (E), THEN N = K - E; OTHERWISE N = 0	
P. TOTAL REFORESTATION REQUIRED P = L + M - N	0.9
Q. TOTAL AFFORESTATION REQUIRED	
IF EXISTING FOREST COVER (F) IS LESS THAN THE AFFORESTATION TRESHOLD (D), THEN Q = AFFORESTATION TRESHOLD (D) - EXISTING FOREST COVER (F)	0
R. TOTAL PLANTING REQUIREMENT R = P + Q	0.9

PLAN
SCALE: 1" = 50'

REVISED

FOREST CONSERVATION PLAN
MT. HEBRON
SECTION 24
LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20

Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 13 Of 15

F-09-019

"Professional Engineer's Certification hereby certify that these documents were prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

ALDO M. [illegible] — 7/15/10 DATE

OWNER
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Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

I:\2005\05024\dwg\FINAL\REDLINE REVISION\05024 SHEET 13 FOREST PLAN.dwg, 7/9/2010 8:07:16 AM, jjames1,

CONSTRUCTION PERIOD PRACTICES

The construction period extends from final approval of the development proposal until the release of all required guarantees specified for forest conservation requirements in the developers agreement.

CONSTRUCTION PERIOD SUPERVISION

As part of the construction period management and planting program, the developer shall designate an individual or firm to be fully responsible for implementing the requirements of approved forest conservation plan or requesting modifications of previously approved requirements concerning planting techniques, species or maintenance needs. Those responsible for implementation of the approved forest conservation plan during the construction period shall conform to the professional qualifications cited in Chapter VI of this manual.

PROTECTING AND MANAGING FOREST RETENTION AREAS

Forest retention stands are extremely vulnerable to damage, long term decline, and death stemming from improper design and construction practices. Saving forests and specimen trees during the construction process requires site planning, engineering practices and construction methods that respect the biological needs of trees. A few fundamental horticultural principals are the basis of the protection guidelines and requirements cited in this manual:

- A tree's root system can be large, extending well beyond the dripline of the crown. Typically, root system are very shallow, in the most cases being only 12" - 18" deep.
- Trees generally do not have tap roots.
- There are about as many roots as there are twigs and branches. If roots die, branches will die to keep the tree in balance.
- Tree roots need a balance of water and air in the soil. Air only penetrates 12" - 18" into the soil. Stress and decline in tree health results when soil is piled on top of existing roots or roots are suddenly forced to sit in waterlogged soil or overly dry soils due to topography changes during construction.
- Soil compacted to bulk densities of 1.7 gram/cubic centimeters or greater cannot support root growth. Existing roots in heavily compacted soils usually die.
- Trees growing in disturbed or titled soils usually die back in proportion to the root are disturbed. Even minor disturbances such as tilling within the root zone for lawn installation will cause harm.
- Trees, especially large trees, may take a long time to show the effects of construction damage. Trees may die 5 or even 10 years after being weakened by construction activity. Secondary stresses such as insects, disease, or drought may kill weekened trees while the same stress would not have affected a healthy tree.

SOIL PROTECTION ZONE

The soil protection zone must be protected from construction activity and other stresses (e.g. flooding) to protect the forest stand from damage. The forest retention practices for a development must address the specific needs and stresses the proposal may cause. Nevertheless, the need to define the soil protection zone (critical root area) for forest areas is the one factor common to all retention efforts.

The extent of the root system is quite large. The ratio of root expansion to crown spread can be 2:1 or larger on open grown specimen trees and can be significantly larger (up 5:1) for trees growing in the interior of forest stands. Furthermore, the minimum requirement for root protection varies from species and from soil type to soil type. For open grown trees, it is generally accepted that protecting the soil within the dripline of the tree is adequate to save the treee in most cases. For trees that have been part of forest communities, however, the soil protection zone may have to be modified to reflect a more complex relationship between crown spread and root growth.

Techniques for management of the soil protection zone are described in detail in Appendix G.

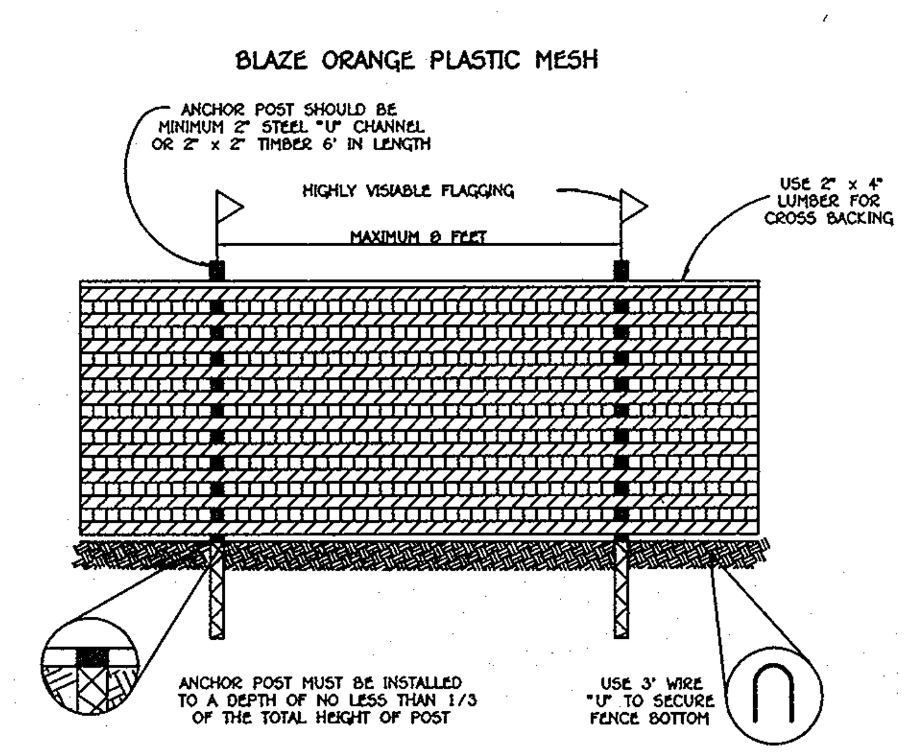
BEST MANAGEMENT PRACTICES DURING CONSTRUCTION

Many of the construction period measures cited in the manual are for areas that should not be diturbed. The desire to protect areas within the limit of disturbance can be easily nullified by poor construction site management. The required construction period management program must therefore specify how construction activities will be managed to protect forest retention areas. The following should be depicted on site construction documents and/or forest conservation plans; they shall also be itemized in the developers agreement.

- storage of equipmetn and materials
- disposal of construction debris
- washing of equipment, disposal of wastewater from concrete operations, etc.
- employee parking
- temporary structures such as trailers, sanitary facilities, etc.

Unless specifically exempted by the approved forest conservation plan, any use of forest retention area for these activities or other intrusion shall be a violation of the approved forest conservation plan.

Because reforestation and afforestation typically may involve disturbances greater than 5,000 square feet, proper sediment and erosion controls may be required. Developers should refer to the Howard County Soil Conservation District for current standards, specifications and requirements. It may be necessary to protect forest retention areas from erosion and sedimentation caused by implementation of reforestation or afforestation plantings.



1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

NOT TO SCALE

CONSTRUCTION PERIOD PLANTING PROCODURES

The measures to protect forest retention areas emphasize isolating them from development impacts. Reforestation or afforestation, in contrast, will often occur on land already disturbed be development activities or may be located on land which will require substantial preparation enable forest plantings to survive and thrive. Reforestation and afforestation plantings may also require a great deal of management once they are installed. Appendix H provides guideline specifications for proper planting, including techniques for site preparation and management. The following issues are of particular concern.

- General site preparation for planting: For undisturbed sites, disturbance of soils should be limited to the planting field for each plant. For disturbed areas, soils should be treated by incorporating natural mulch within the top 12 inches, or with needed amendments such as organic mulch or leaf mold compost are preferred.
- Stream buffer planting: Borders of streams and other waterways may have been damaged before reforestation and afforestation and therefore may need more extensive restoration work before reforestation or afforestation can be successful. The following are guidelines for any work within a riparian zone.
  - Correct any erosion problems
  - Minimize or eliminate any chemical use
  - Maintain an undisturbed leaf layer and understory
  - Eliminate exotics
- Steep slope planting: In areas of steep slopes or erodible soils, the preferred method of reforestation or afforestation is the use of seedlings to minimize disturbance. Planting on open or disturbed steep slopes eventually will stabilized them. Until the roots become established, however, there may still be erosion problems. Monitoring the stability of the soil will be important to the survival of the trees.
- Post-planting Considerations: For areas of large-scale disturbance, soils must be stabilized using a non-turf building ground cover or engineering fabric. To protect against intrusion and to prevent damage of planted areas, all reforestation and afforestation sites must be be posted with appropriate signs and fenced.

CERTIFICATION OF COMPLETION

At the end of the construction period, the designated qualified professional shall convey to the Department of Planning And Zoning certification that all forest retention areas have been preserved, all reforestation and afforestation plantings have been installed as required by the forest conservation plan, and that all protection measures required for the post-construction period have been put in place. Appendix J contains a sample format for such certification. Planting must occur before June 30th to be credited toward the current growing season.

Upon review of the certification document for completeness and acuracy, the Department will notify the developer of the beginning of the post-construction management period.

POST-CONSTRUCTION MANAGEMENT PRACTICES

Many of the protection and management practices for the construction period must be continued for atleast 2 growing seasons following official notification of completion of the development (or a specific phase of the overall development if phasing has been approved). The responsibility to meet the survival standards requires adequate watering, replanting, thinning or other appropriate measures. Also, inappropriate uses or intrusions must not occur, a responsibilty that requires the knowledge and cooperation of the new occupants of the development.

Construction Period Protection Program

A. Forest Protection Techniques

1. Soil Protection Area (Critical Root Zone)

The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface.

The limit of disturbance (LOD) line depicted on the plan shows the proposed extent of construction activities. Eco-Science Professionals, or another qualified professional designated by the developer, will assist in the field flagging of the LOD to ensure that the Critical Root Zone for the Forest Retention Area is determined in accordance with the in-Field Edge Determination Guidelines in Appendix B. Eco-Science Professionals, or another qualified professional, will also assess the condition of the new forest edge to determine if selective thinning or pruning is needed to improve the condition of the edge.

2. Fencing and Signage

All forest retention areas will be protected from unauthorized intrusion by appropriate signage and fencing. Signage and fencing will be installed prior to any construction activity. Installation of these devices will be supervised by Eco-Science Professionals or another qualified professional. Fencing will placed along all LOD lines that occur within 35 feet of existing treelines. Signage will be placed along the edge of the FCE every 100 feet. Fencing will consist of blaze orange mesh fence or super silt fence. See Forest Conservation Plan for standard specifications.

B. Pre-Construction Meeting

Upon staking of limits of disturbance and installation of all signage, a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all tree protection measures outlined in the FCP are in place, that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

C. Storage Facilities/Equipment Cleaning

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas shown within the limit of disturbance. Meaning of equipment will be prohibited from all forest retention areas. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into wetlands, streams and other environmentally sensitive areas.

D. Sequence of Construction

The following timetable represents the proposed timetable for construction of the proposed project. The construction start date for this project has not been formalized. The actual project start date is predicated on the issuance of all necessary permits and approvals for the project. The items outlined in the Forest Conservation Plan will be enacted upon commencement of the project.

Below find a sequence of construction.

1. Install all tree protection signage, fencing, and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County inspector.
3. Grade site and construct improvements. Stabilize all disturbed areas in accordance with grading plan.
4. Remove sediment control. Replace any forest retention signage in poor condition.
5. Hold post-construction meeting with County inspectors to assure compliance with FCP.

E. Construction Monitoring

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan. This will include inspections to ensure that signage is properly maintained and that no unauthorized intrusions have been made into forest retention areas.

F. Activities Permitted During Construction

The forest conservation plan will allow the following activities within forest resources during the construction phase of the project:

1. Passive recreation (birdwatching, hiking, etc.)

These activities will not damage or negatively impact the forest resources on the property.

G. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that all Forest Conservation Easement areas have been properly retained and that all post construction protection measures (permanent signage) have been installed.

Post-Construction Management Plan

The post-construction management plan will further ensure that all Forest Conservation Easement Areas are maintained. The developer will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan for the subject property:

A. Signage

Signage indicating the limits of the forest retention areas shall be maintained.

FCE Planting Area # 1 - 0.35 acres

Planting required: (350 WHIPS PER ACRE) x 0.35 x 350 = 123 WHIPS
Planting provided: (88 whips and 20 - 1" trees)

Qty	Species	Size	Spacing
10	Acer rubrum - Red maple	1" cal.	15' o.c.
10	Quercus alba - White oak	1" cal.	15' o.c.
			20 Total 1" caliper trees
11	Acer rubrum - Red maple	2-3' whip	11' o.c.
11	Cercis canadensis - Red bud	2-3' whip	11' o.c.
11	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.
11	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.
11	Prunus serotina - Black cherry	2-3' whip	11' o.c.
11	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.
11	Quercus alba - White oak	2-3' whip	11' o.c.
11	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.
			88 Total whip plantings

1" CAL. TREES = 200/ACRE (20 TREES/200) = 0.10 AC.
WHIPS w/shelters = 350/ACRE = (350 x 0.25 AC. (0.35 - 0.10)) = 88 WHIPS

Plant Spacing Diagram

X	X	X	X
Y	G	M	
M	Y	M	G
X	G	G	
M	Y	X	Y

Key
X - 2" or 1" caliper trees along perimeter at required spacing, random species placement
Y,G,M,X - whip species planted randomly within planting area at required spacing.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-12-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/20/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/15/10

REVISIONS

NO.	DESCRIPTION	DATE

Tree Shelters - installation Specifications

After planting the tree in accordance with proper tree planting directions, pound or press the stake Into the ground at a distance from the tree equal to about one-half the diameter of the protector.

The stake should be on the side of the tree toward the prevailing wind: e.g., if the prevailing wind is from the west, the stake should be on the west side of the tree.

The top of the stake should be several inches higher than the top locKtie that secures the protector to the stake. See table below for stake sizes.

Tree Pro

1. Fold the collar back over the outside of the protector, with the smooth side of the protector on the inside. The purpose of the collar is to provide a soft rim so the trees' bark won't be damaged.

2. With the holes lined up, slide the lockties through both holes in each side wall and look the tie two or three clicks to keep it from falling out See table below for the number of lockties.

3. Carefully slide the protector down over the top of the tree and the loses down over the stake. PLEASE NOTE: If the trees have branches, carefully gather them together with their tips facing up before lowering the protector.

4. Make sure the bottom of the protector is In good contact with the ground. PLEASE NOTE: Proper protector installation does not require the protector to be pressed down into the ground because doing so can sometimes cause rodent problems. Mice, votes and other animals often build nests Inside protectors that are too firmly planted in the ground.

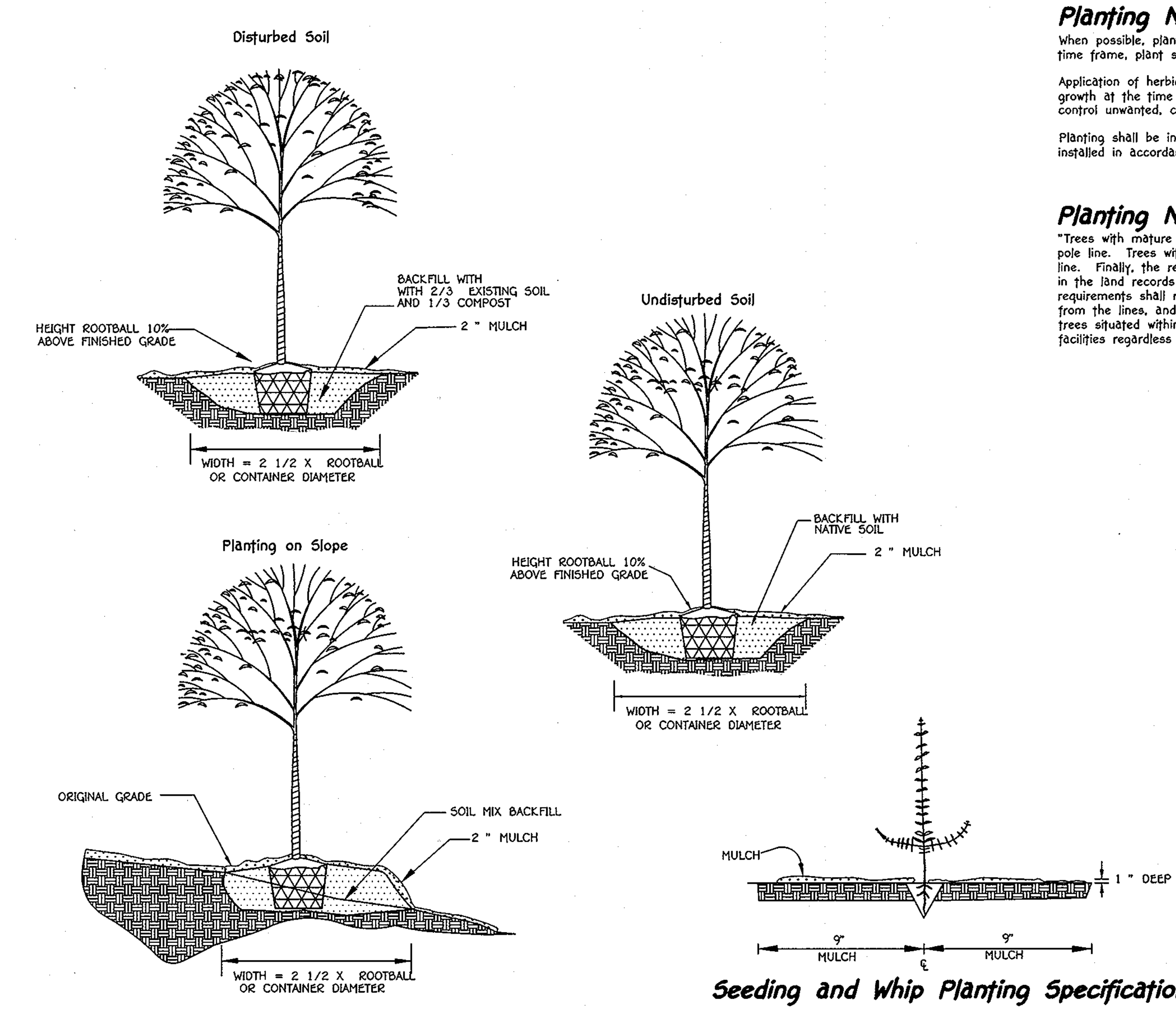
5. Tighten ties.

PROTECTOR SIZE	NUMBER OF TIES*	MINIMUM STAKE SIZE
12"	1	18"
18"	1	24"
24"	2	30"
30"	2	36"
36"	3	36"
48"	3	48"
60"	PRE-INSERTED	60"
72"	PRE-INSERTED	72"

BIRD NETS

Nets are provided for 48", 80" and 72" protectors only. They are usually not necessary for smaller sizes. Installing protectors without Bird Nets Is hazardous to bluebirds arid other insect-eating birds. Installation is fast, simple and the responsible thing to do. Simply slide the net over the top of the protector.

Without bird nets, birds trapped inside protectors will not only die, they can also destroy the tree as they try to escape. Please inspect your trees periodically to make sure the net is in place. The mesh must be removed before the tree emerges from the protector, otherwise, they can deform tire tree.



Seeding and Whip Planting Specification

Planting/Soil Specifications

1. Installation of bareroot plant stock shall take place between March 15 - April 20; b&b/container stock March 15 -May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
2. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
4. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plants shall be fertilized with Osmocote 8-6-12.
5. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
6. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Sediment control shall be installed in accordance with general construction plan for site.
2. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
3. Upon completion of the planting, signage shall be installed as shown.
4. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of 2 years.
2. Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the 1st growing season, as needed. During second growing season, once a month during May-September, if needed.
3. Invasive exotics and noxious weeds will be removed, as required, from planting areas mechanically and/or with limited herbicide application (see groundcover note where appropriate). Old field successional species will be retained.
4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

1. A 75 percent survival rate of forestation plantings will be required at the end of 2 growing seasons. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season. Wild trees arising from natural regeneration may be counted up to 50 percent towards the total survival number if they are healthy, native species at least 12 inches tall.

Surety for Forestation

THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF 1.15 ACRES ON-SITE FOREST, 0.35 ACRES OF ON-SITE AFFORESTATION AND A FEE-IN-LIEU PAYMENT FOR 0.55 AC. OF AFFORESTATION.

A. TOTAL FOREST SURETY = $17,728.92 DERIVED AS FOLLOWS:
   1. RETENTION (1.16 AC. X 43,560 SQ. FT./AC. X $0.20/SQ. FT. = $10,105.92)
   2. AFFORESTATION (0.35 AC. X 43,560 SQ. FT./AC. X $0.50/SQ. FT. = $7,623.00)

B. TOTAL FEE-IN-LIEU PAYMENT = $17,968.50 DERIVED AS FOLLOWS:
   1. FEE-IN-LIEU FOREST = (0.55 AC. X 43,560 SQ. FT./AC. X $0.75/SQ. FT. = $17,968.50)

Planting Notes

When possible, plants shall be installed within 24 hours of delivery. If installation cannot be performed within this time frame, plant stock shall be watered and protected from dessication

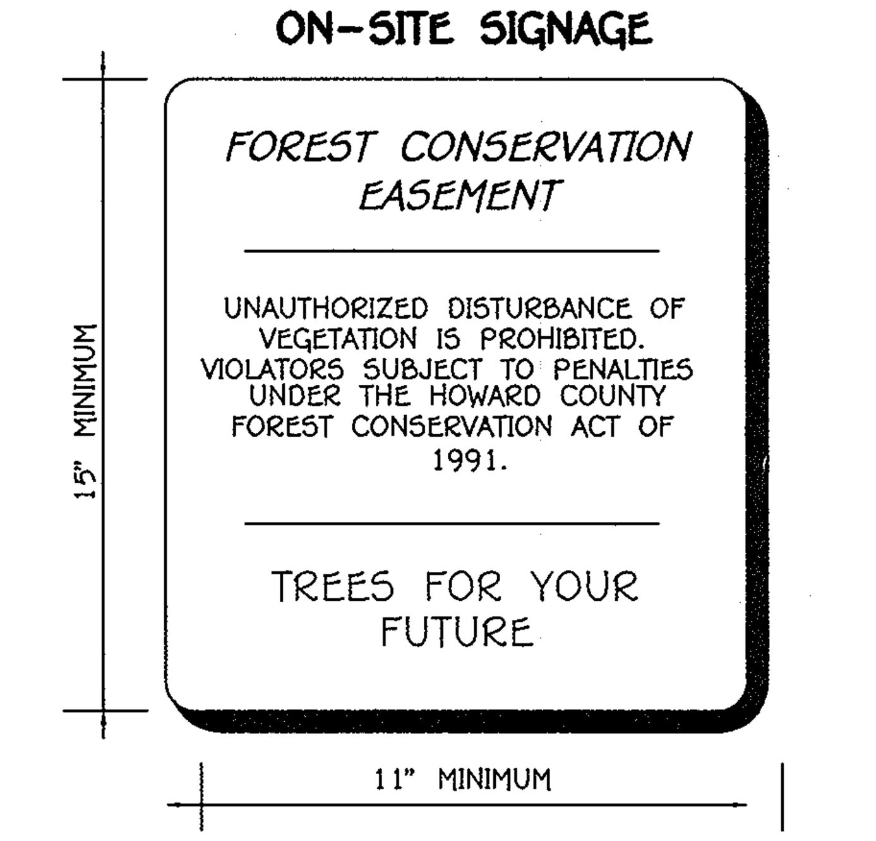
Application of herbicide, Round-up or equivalent, may be used to reduce plant competition from old field successional growth at the time of installation. Mowing, re-application of herbicide, or a combination thereof, may be used to control unwanted, competing vegetation.

Planting shall be installed within one year or two growing seasons of subdivision approval. Plantings shall be installed in accordance with the time schedule included in Note 1 of the planting /Seeding Specifications.

Planting Note per B.G.&E.

"Trees with mature heights greater than 25' shall not be planted within 20' of either side of the utility pole line. Trees with mature heights greater than 40' shall not be planted within 45' of the utility pole line. Finally, the recorded plat/drawing and associated Forest Conservation easement documents recorded in the land records of Howard County shall note that trees retained or planted to comply with FCA requirements shall meet the conditions prescribed above for mature tree heights and planting distances from the lines, and that BGE shall have the right without mitigation requirements to remove or prune any trees situated within the Forest Conservation area that BGE deems to pose a hazard to the overhead facilities regardless of the distance of the tree or trees from the overhead lines."

ON-SITE SIGNAGE



ALDO M. [illegible], P.E. — DATE 12-15-09

"Professional certification: I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

FOREST CONSERVATION NOTES & DETAILS

MT. HEBRON

SECTION 24

LOTS 1 - 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 14 Of 15

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B
JOHN P. CANOLES

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

F-09-019

ELEVATION (ft.)	SAMPLE DEPTH	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
417.0	0			Brown, moist, Silty SAND with Boulders. (Fill)	Topsoil: 6 inches Boulders were 1 - 2 inches in diameter 1" Diameter PVC pipe set during backfill Water at 6.5 feet after 72 hours Water at 5.5 feet after 7 days
411.0	5	ML		Light brown, micaceous, wet, Sandy SILT.	
408.0				Test Pit Terminated at 9 feet	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive, Suite A
Laurel, Maryland 20707

LOG OF TEST PIT NO. TP-1

Sheet 1 of 1

ELEVATION (ft.)	SAMPLE DEPTH	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
418.0	0			Light brown, moist, micaceous, Silty SAND with Cobbles and Asphalt. (Fill)	Topsoil: 6 inches 1" Diameter PVC pipe set during backfill Water at 7.5 feet after 72 hours Water at 6.5 feet after 7 days
414.0		ML		Dark Gray, moist, micaceous, Sandy SILT.	
412.0	5	SM		Gray, wet, micaceous, Silty SAND.	
410.0				Test Pit Terminated at 8 feet	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive, Suite A
Laurel, Maryland 20707

LOG OF TEST PIT NO. TP-2

Sheet 1 of 1

ELEVATION (ft.)	SAMPLE DEPTH	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
414.0	0			Brown, very moist, micaceous, Sandy SILT.	Topsoil: 4 inches 1" Diameter PVC pipe set during backfill Water at 3.5 feet after 72 hours Water at 3.5 feet after 7 days
410.5		ML		Black, very moist, micaceous, Sandy SILT, trace organic	
410.0		SM		Brown very moist, micaceous, Silty SAND	
	5				
405.0				Test Pit Terminated at 9 feet.	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive, Suite A
Laurel, Maryland 20707

LOG OF TEST PIT NO. TP-3

Sheet 1 of 1

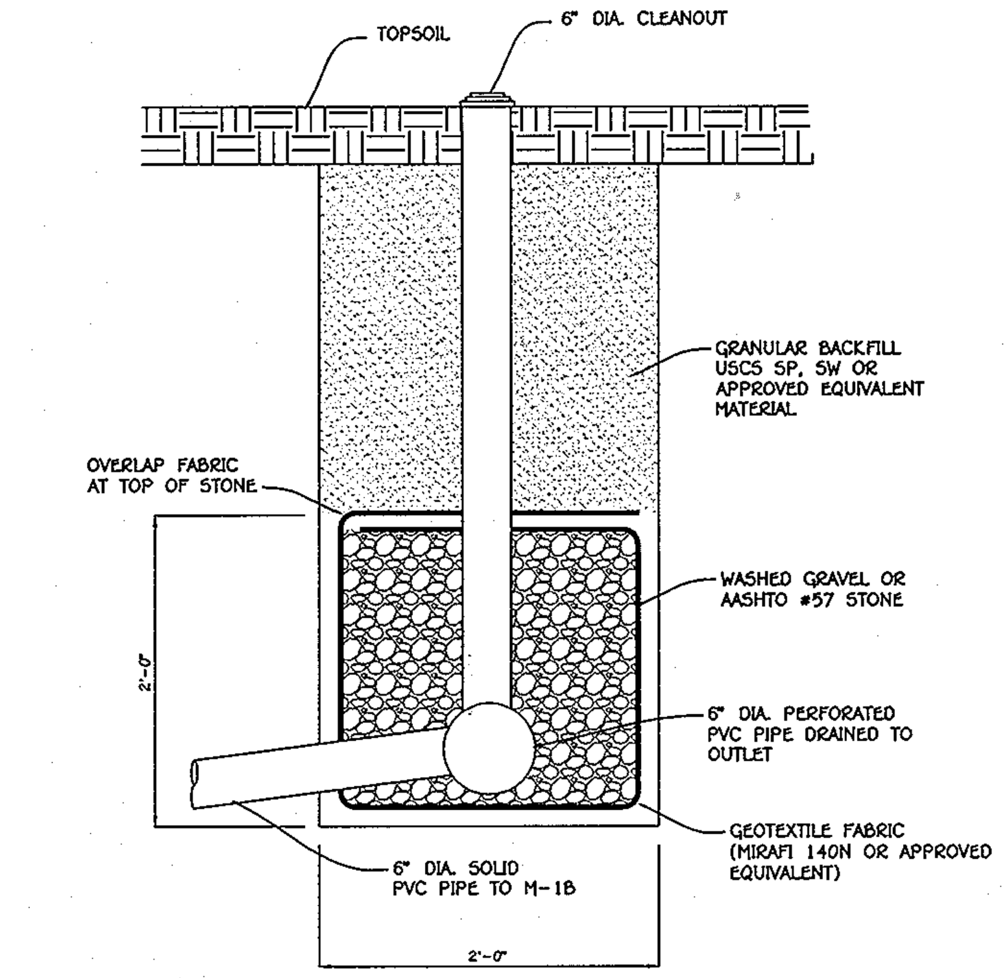
ELEVATION (ft.)	SAMPLE DEPTH	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
426.0	0			Brown, moist, micaceous, Silty SAND. (Fill)	Topsoil: 6 inches 1" Diameter PVC pipe set during backfill Water at 4.5 feet after 72 hours Water at 4.5 feet after 7 days
422.5		SM		Brown, moist, micaceous, Silty SAND.	
419.0	5			Test Pit Terminated at 7 feet	

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive, Suite A
Laurel, Maryland 20707

LOG OF TEST PIT NO. TP-4

Sheet 1 of 1



TYPICAL FIELD UNDERDRAIN DETAIL

NO SCALE

Conclusions and Recommendations

GTA understands that this groundwater data will be utilized for planning and design of final basement and foundation levels and possible foundation underdrain systems. Based on the test pit data and existing ground surface elevations, construction of basements within the proposed lots is considered feasible provided the standard level of care is taken during construction and the recommendations presented herein are followed.

GTA recommends construction of basement floor levels a minimum of four feet above the highest groundwater level observed in the explorations on each lot. The explorations encountered groundwater, generally at depths greater than 3.5 feet below existing grades. Standard perimeter drains connected to a sump-pump system shall be provided for all basement units if the basement floor is held four feet above groundwater.

If the basement floor elevation is planned at four feet above the groundwater on each lot, existing fill soils will be present below the proposed slabs and footings. There is risk associated with constructing structures on undocumented and likely uncontrolled fill soils. To eliminate the risk associated with building structures on undocumented/uncontrolled fill soils, the existing fill soils should be removed and replaced with controlled fill.

Alternately, a gravity outfall can be constructed for the perimeter drains. If a gravity outfall is provided for the perimeter drains, the basement floors can be lowered such that the footings of the proposed single-family homes will be founded within or close to the natural soils. The perimeter drains should be set a minimum of one foot below the proposed basement levels. The civil engineer should set the proposed basement elevations and design the gravity outfall for the perimeter drains to allow for the system to function with the existing storm drain and stormwater management systems to control the groundwater.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 8-16-10
CHIEF, BUREAU OF HIGHWAYS — DATE

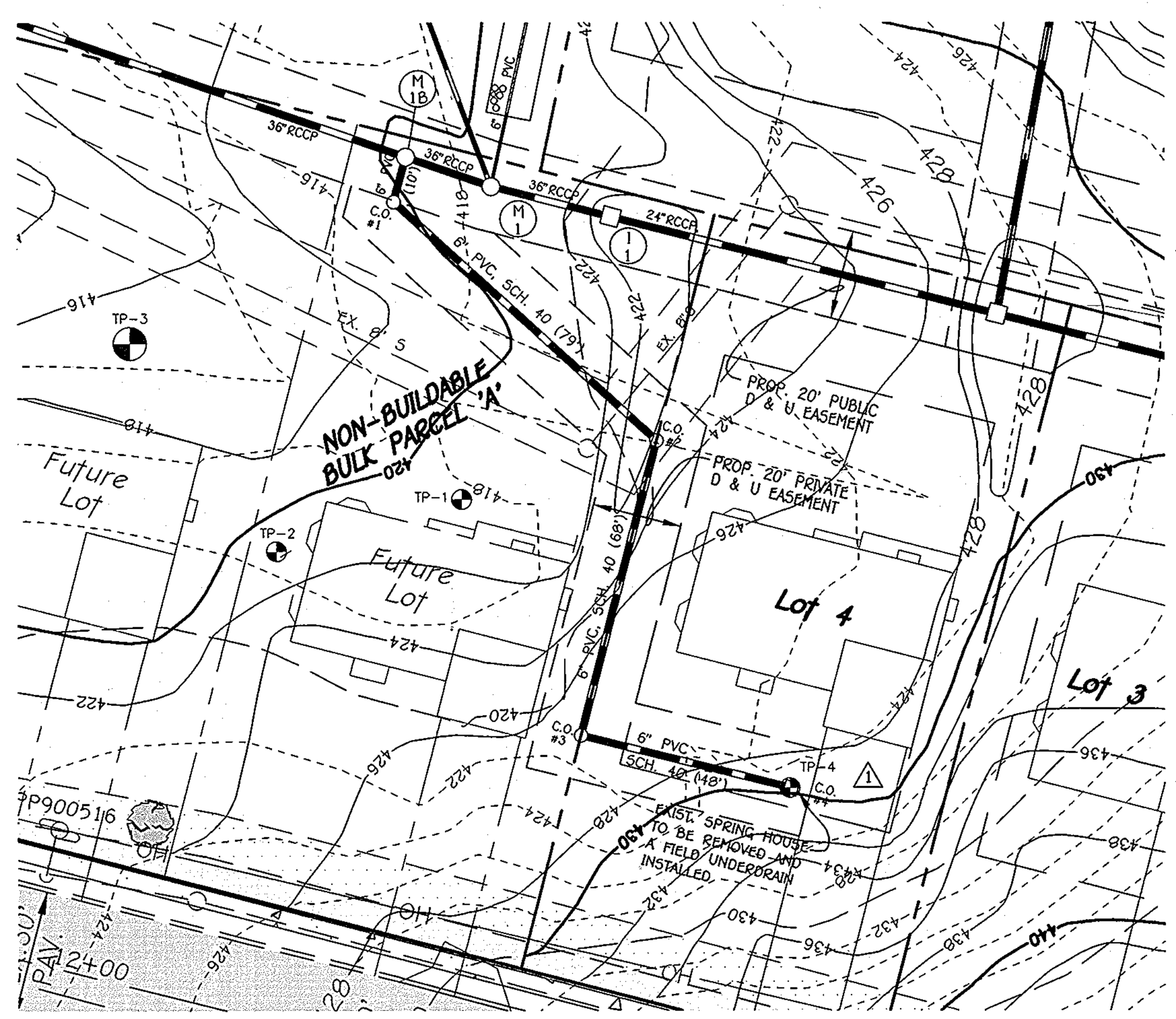
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 8/19/10
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 8/9/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

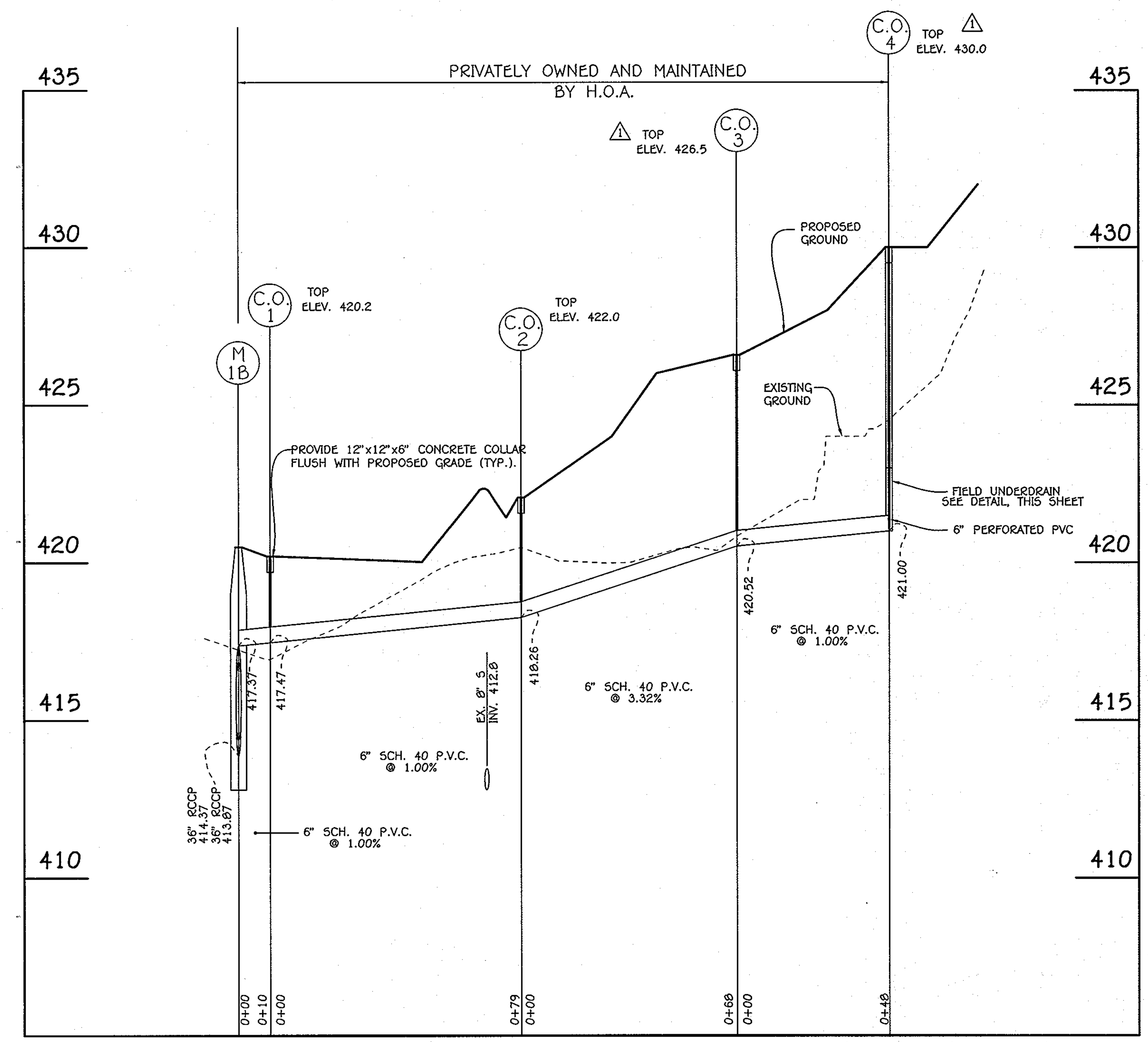
REVISIONS		
NO.	DESCRIPTION	DATE
1	LOWERED LOT GRADING AND REVISED UNDERDRAIN CLEAN-OUT TOP ELEVATIONS	5/19/10

Recommended Minimum Basement Slab Elevation with Pumped Perimeter Drain			
Lot	Highest Elevation of Ground Water Encountered (El)	Lowest Elevation of Existing Fill Encountered (El)	Recommended Minimum Basement Slab Elevation with Pumped Perimeter Drain (El)
4	421.5	422.5	425.5
14	411.5	411	415.5
15	411.5	410.5	415.5



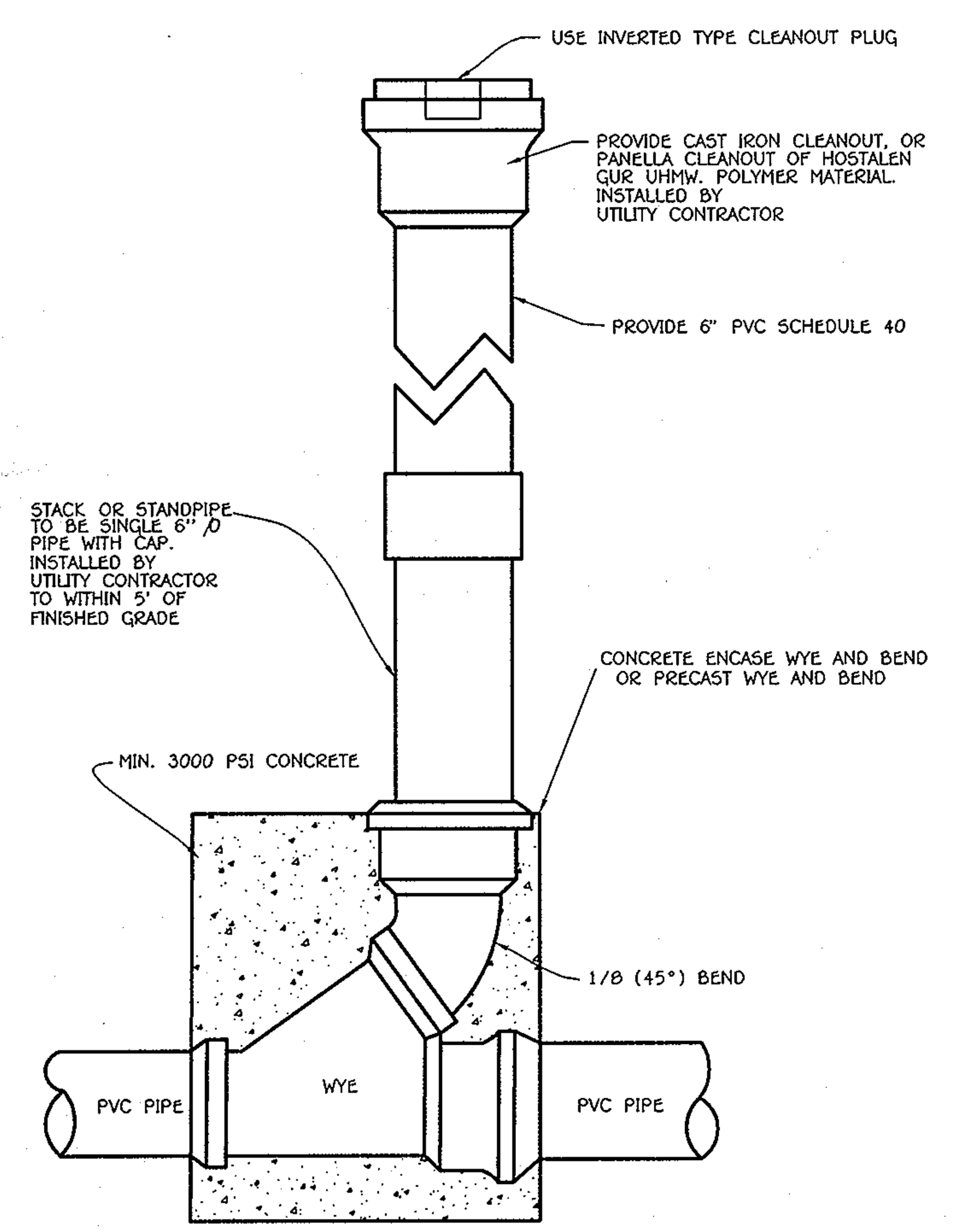
PLAN

SCALE: 1" = 30'



FIELD UNDERDRAIN PROFILE

SCALE: HOR. : 1" = 30'
VER. : 1" = 3'



CLEAN-OUT DETAIL

NO SCALE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

OWNER
MT. HEBRON, INC.
C/O MR. H. JONES BAKER, JR.
5400 VANTAGE POINT ROAD
APT. 1209
COLUMBIA, MARYLAND 21044
(410) 992-1005

OWNER/DEVELOPER
ELM STREET DEVELOPMENT
5074 DORSEY HALL DRIVE
SUITE 205
ELLICOTT CITY, MD. 21042
ATTN: MR. JASON VAN KIRK
(410) 720-3021

[seal: STATE OF MARYLAND]
ALDO M. VITTUCCI, P.E. — 7-15-10 DATE

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-11."

REVISED

MT. HEBRON

SECTION 24

LOTS 1 – 12, OPEN SPACE LOT 13 AND NON-BUILDABLE BULK PARCEL 'A'

Zoned: R-20
Tax Map No. 17 Grid No. 10 Parcel No. 250
Second Election District
Howard County, Maryland
Date: December 3, 2009
Sheet 15 Of 15

F-09-019

I:\2005\05024\dwg\FINAL\REDLINE REVISION\05024 SHEET 15 TP DETAILS.dwg, 7/5/2010 8:11:33 AM, jamesl, 1:1