



FOR CONTINUATION SEE SHEET 3

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	EXISTING SAN. SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
---	EXISTING FENCE
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
+	PROPOSED SPOT ELEVATION
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	15% - 24.9% SLOPES
---	25% OR GREATER SLOPES
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS

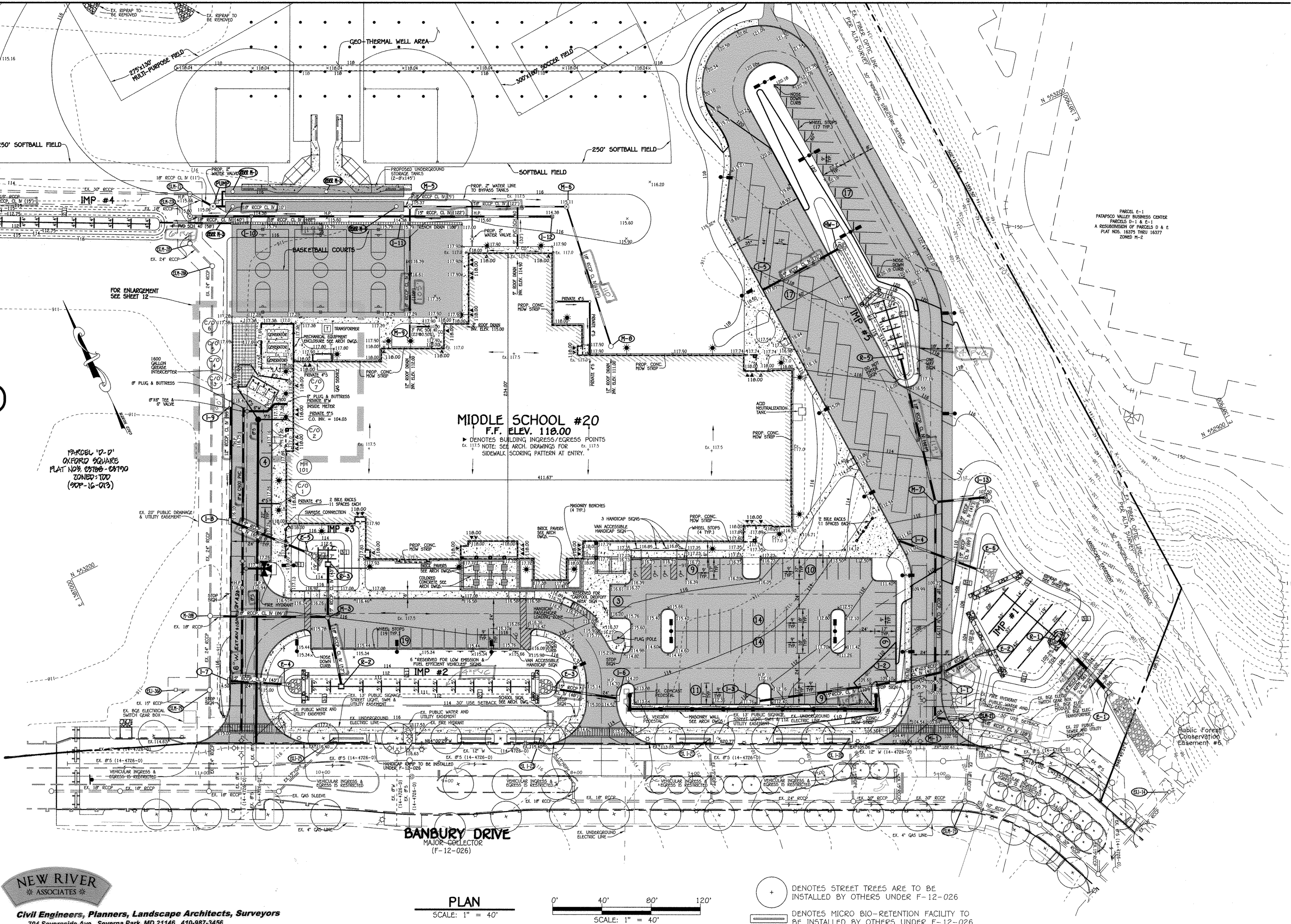
NOTE: PLEASE REFER TO THE SWM GENERAL NOTES ON SHEET 40.

MIDDLE SCHOOL #20 MICRO-BIORETENTION (M-6) INTEGRATED MANAGEMENT (IMP) SUMMARY TABLE							
	ESD,		Re,		Peak Qs/WSEs *		
	Required	Calculated	Required	Provided	Q <sub>1</sub>	Q <sub>10</sub>	
IMP #1		5,952 cf	6,070 cf	766 cf	3.5 cfs @ WSE 103.27	9.8 cfs @ WSE 103.83	
IMP #2		2,446 cf	3,574 cf	424 cf	1.9 cfs @ WSE 111.95	5.0 cfs @ WSE 112.12	
IMP #3		911 cf	839 cf	100 cf	0.8 cfs @ WSE 113.30	1.3 cfs @ WSE 113.37	
IMP #4		1,982 cf	2,527 cf	307 cf	1.4 cfs @ WSE 112.91	3.4 cfs @ WSE 113.05	
IMP #5		2,265 cf	1,497 cf	184 cf	1.9 cfs @ WSE 114.95	5.2 cfs @ WSE 115.13	
<b>TOTAL</b>	<b>12,604 cf<sup>a</sup></b>	<b>13,556 cf<sup>b</sup></b>	<b>14,507 cf<sup>c</sup></b>	<b>1,586 cf</b>	<b>1,781 cf<sup>d</sup></b>		

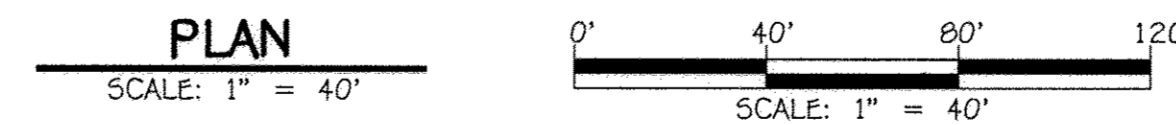
\* Value reflects 75% of the required ESD, after the SWM credit and Rainwater Harvesting volume reductions.  
 \* Value reflects 75% of the calculated ESD, in the IMP drainage area (see ESD Summary Table in Appendix B).  
 \* See stage storage tables in Appendix C.  
 \* See Provided Recharge Volume Table in Appendix B.  
 \* See Appendix C for stage storage/discharge tables and peak discharge (TR-20) calculations.

MIDDLE SCHOOL #20 STORMWATER MANAGEMENT SUMMARY TABLE			
	Required (from LOD ESD calculations)	Provided (see stage storage tables)	Calculated (see ESDv IMP Summary Table)
ESD,	12,604 cf <sup>a</sup>	14,507 cf	13,556 cf
Re,	1,586 cf	1,781 cf	
RWH, <sup>d</sup>	14,013 cf	14,074 cf <sup>d</sup>	
Treated Impervious Area	210,266 sf <sup>b</sup>	202,816 sf <sup>c</sup>	

\* Value reflects 75% of the required ESD, after the SWM credit and Rainwater Harvesting deduction.  
 \* This value is the total proposed site impervious area. Portions not treated on-site will be treated off-site in the road bioretention facilities.  
 \* This value is the sum of the impervious areas in the five (IMP's), RWH storage and non-rooftop disconnection credit.  
 \* RWH<sub>v</sub> = Rainwater Harvesting Volume; RWH volume calculation on page 22 in SWM report.



**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Severnside Ave., Severn Park, MD 21146 410-987-3456



○ DENOTES STREET TREES ARE TO BE INSTALLED BY OTHERS UNDER F-12-026  
 □ DENOTES MICRO BIO-RETENTION FACILITY TO BE INSTALLED BY OTHERS UNDER F-12-026

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10372 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21114  
 (410) 461-2899

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT FACILITIES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE PLANS AND MEETS THE APPROVED PLANS.  
 DATED: 01/14/16  
 D. ANDREW DORSEY, P.E.  
 MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45261

Professional Certification. I 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. 13204, Expiration Date: November 3, 2012.  
 Charles J. Grovo, Sr., P.E.  
 10/29/12 DATE

PREPARED FOR HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

DATE: 11/12/12  
 DESCRIPTION: REVISION BLOCK  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning: 11/12/12  
 Chief, Division of Land Development: 11/12/12  
 Chief, Development Engineering Division: 11/12/12

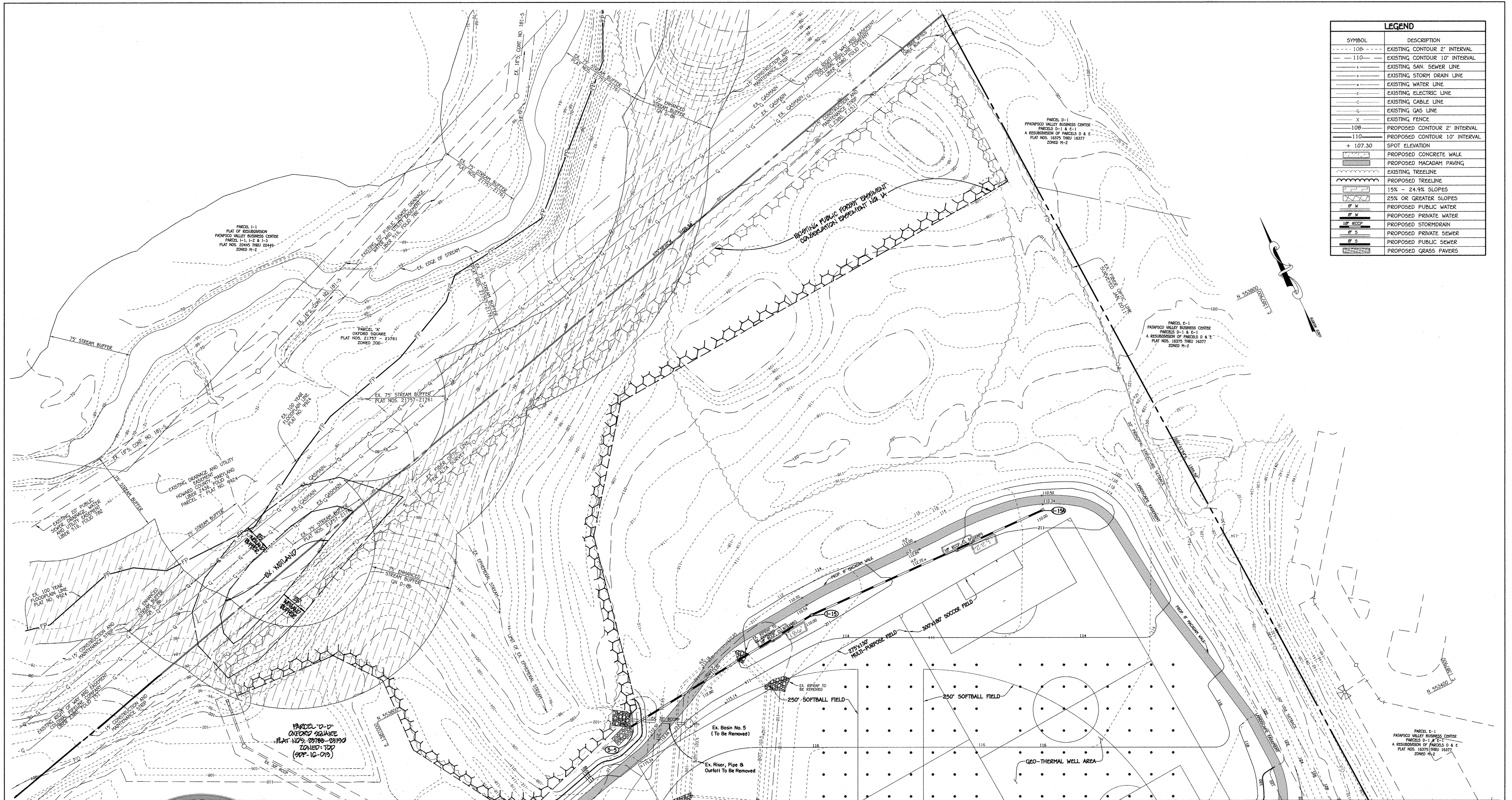
Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'

PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03788-03790	20	TOD	30	FIRST	6012.01

WATER CODE	SEWER CODE
---	---

**SITE DEVELOPMENT PLAN**  
 'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'  
 ZONED TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012  
 AS-BUILT 2 OF 10  
 SHEET 2 OF 50  
 SDP-12-075



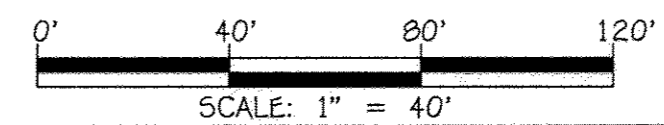
LEGEND	
SYMBOL	DESCRIPTION
--- 100 ---	EXISTING CONTOUR 2' INTERVAL
--- 110 ---	EXISTING CONTOUR 10' INTERVAL
---	EXISTING SAN SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
X	EXISTING FENCE
100	PROPOSED CONTOUR 2' INTERVAL
110	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	15% - 24.9% SLOPES
---	25% OR GREATER SLOPES
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS

**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Severnside Ave., Severn Park, MD 21146 410-887-3456

FOR CONTINUATION SEE SHEET 2

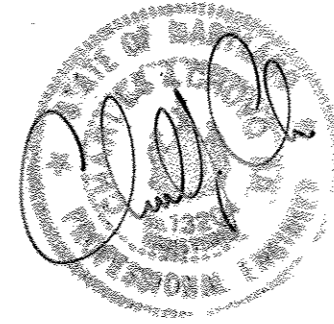
PLAN

SCALE: 1" = 40'



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2295

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE INFORMATION ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED STANDARDS.  
 CHARLES J. BROVO, P.E.  
 MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45281



"Professional Certification: I 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. 13204, Expiration Date: November 3, 2012."

CHARLES J. BROVO, SR., P.E.  
 10/29/12 DATE

DATE	DESCRIPTION	REVISION BLOCK
11/16	REVISED BOUNDARY, PUBLIC POB & TITLED BLOCK, ADDED WETLAND	
	AS-BUILT PLANS	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
	Director - Department of Planning and Zoning	4/15/12 Date
	Chief, Division of Land Development	1/14/13 Date
	Chief, Development Engineering Division	1/15/12 Date

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	SECTION/AREA	PARCEL			
MIDDLE SCHOOL #20	N/A	'D-D'			
FLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03786-03790	20	TOD	38	FIRST	6012.01
WATER CODE			SEWER CODE		

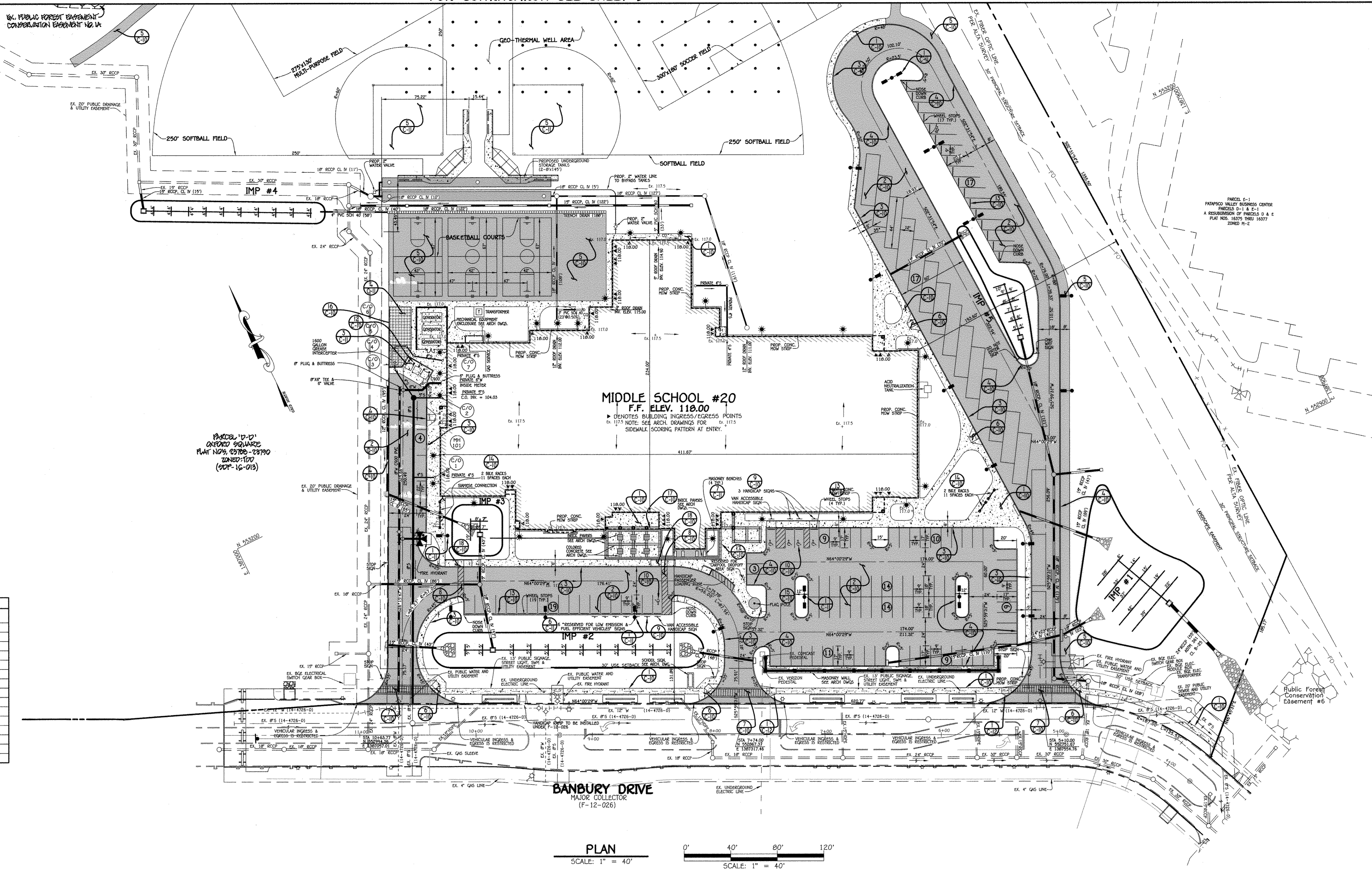
**SITE DEVELOPMENT PLAN**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

AS-BUILT SHEET 3 OF 50 SDP-12-075

FOR CONTINUATION SEE SHEET 5

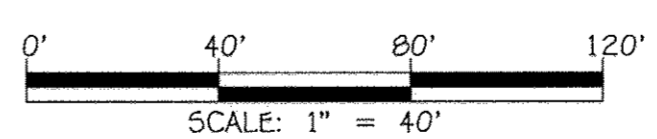


MIDDLE SCHOOL #20  
F.F. ELEV. 118.00  
DENOTES BUILDING INGRESS/EGRESS POINTS  
SEE ARCH. DRAWINGS FOR SIDEWALK SCORING PATTERN AT ENTRY.

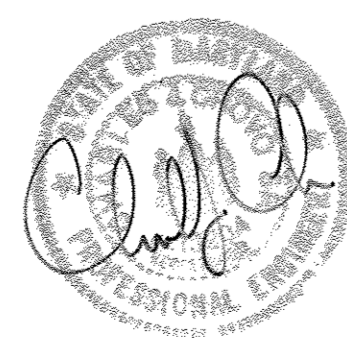
SYMBOL	DESCRIPTION
—	EXISTING SAN SEWER LINE
—	EXISTING STORM DRAIN LINE
—	EXISTING WATER LINE
—	EXISTING ELECTRIC LINE
—	EXISTING CABLE LINE
—	EXISTING GAS LINE
—	EXISTING FENCE
—	PROPOSED CONCRETE WALK
—	PROPOSED MACADAM PAVING
—	PROPOSED PUBLIC WATER
—	PROPOSED PRIVATE WATER
—	PROPOSED STORMDRAIN
—	PROPOSED PRIVATE SEWER
—	PROPOSED PUBLIC SEWER
—	PROPOSED GRASS PAVERS

BANBURY DRIVE  
MAJOR COLLECTOR  
(F-12-026)

PLAN  
SCALE: 1" = 40'



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING, CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2995



"Professional Certification: I 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. 13204, expiration Date: November 3, 2012."

CHARLES J. CROVO, SR., P.E.  
10/29/18  
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

1/15/18  
1/14/18  
1/15/18  
Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	SECTION/AREA
MIDDLE SCHOOL #20	N/A
PLAT NOS.	TOD
02780-02790	38
WATER CODE	SEWER CODE
---	---

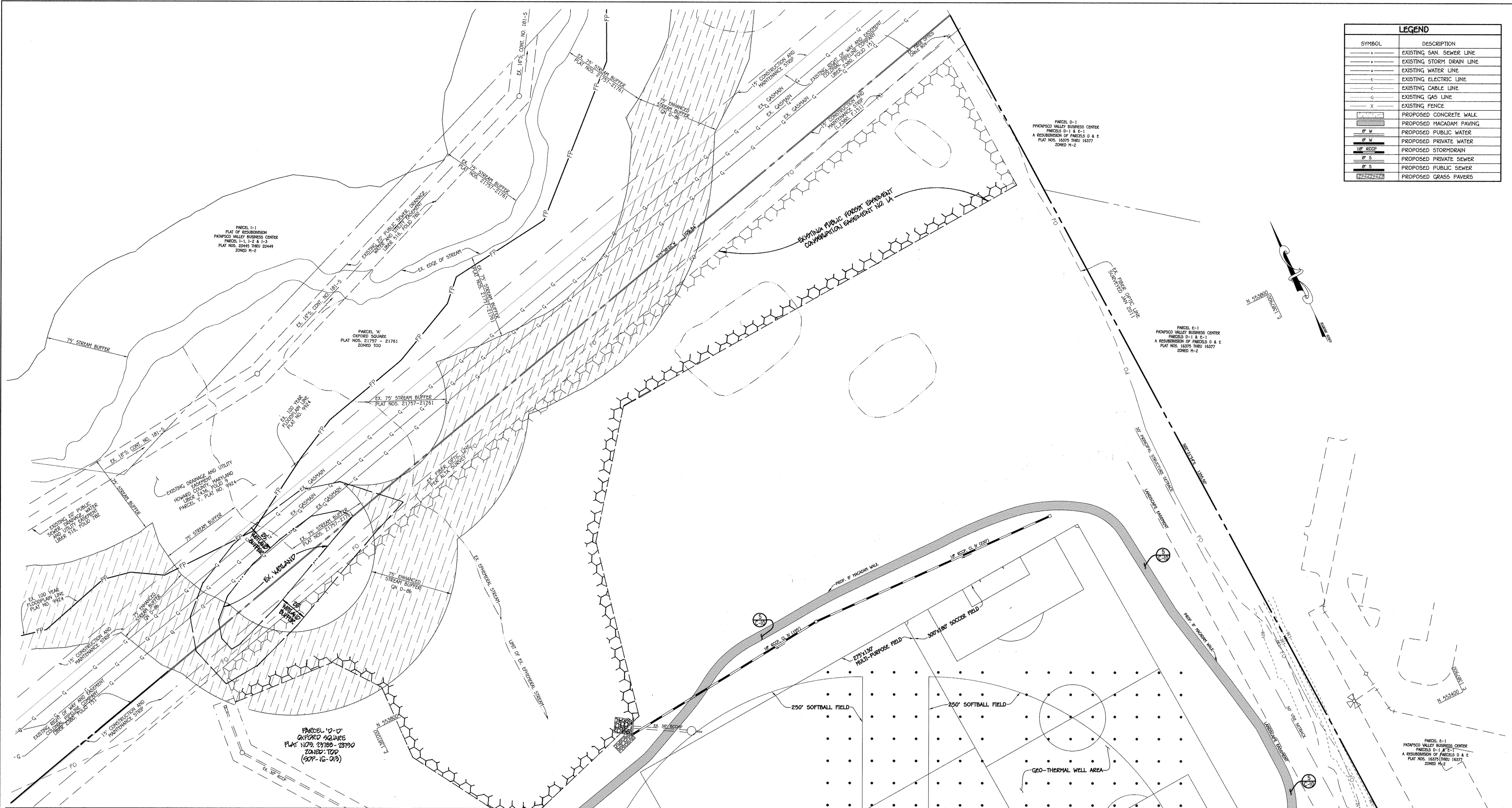
**GEOMETRY PLAN**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 40' DATE: OCTOBER 26, 2012

SHEET 4 OF 50 **SOP-12-075**

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING SAN SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
X	EXISTING FENCE
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS



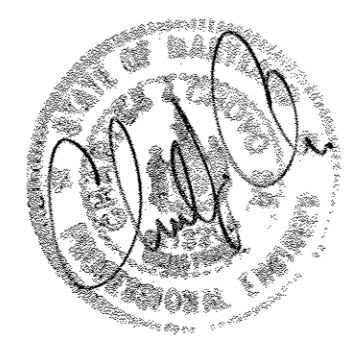
FOR CONTINUATION SEE SHEET 4

PLAN

SCALE: 1" = 40'



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE, PARK - 10572 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2099



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Grovo, Sr.*  
 CHARLES J. GROVO, SR., P.E. 10/29/12 DATE

DATE	DESCRIPTION
10/29/12	REVISED BANBURY, PUBLIC PDE & TITLE BLOCK
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Paul H. Lewis</i>	11/15/12 DATE
Director - Department of Planning and Zoning	
<i>Kevin DeLuna</i>	11/14/12 DATE
Chief, Division of Land Development	
<i>William</i>	11/15/12 DATE
Chief, Development Engineering Division	

PREPARED FOR:  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT					
MIDDLE SCHOOL #20	SECTION/AREA N/A				
PARCEL 'D-D'	PARCEL 'D-D'				
PROJECT DATA					
PLAT NOS. 13708-13700	BLOCK NO. 20	ZONE TOD	TAX MAP 30	ELEC. DIST. FIRST	CENSUS TR. 6012.01
WATER CODE		SEWER CODE			
---	---	---	---		

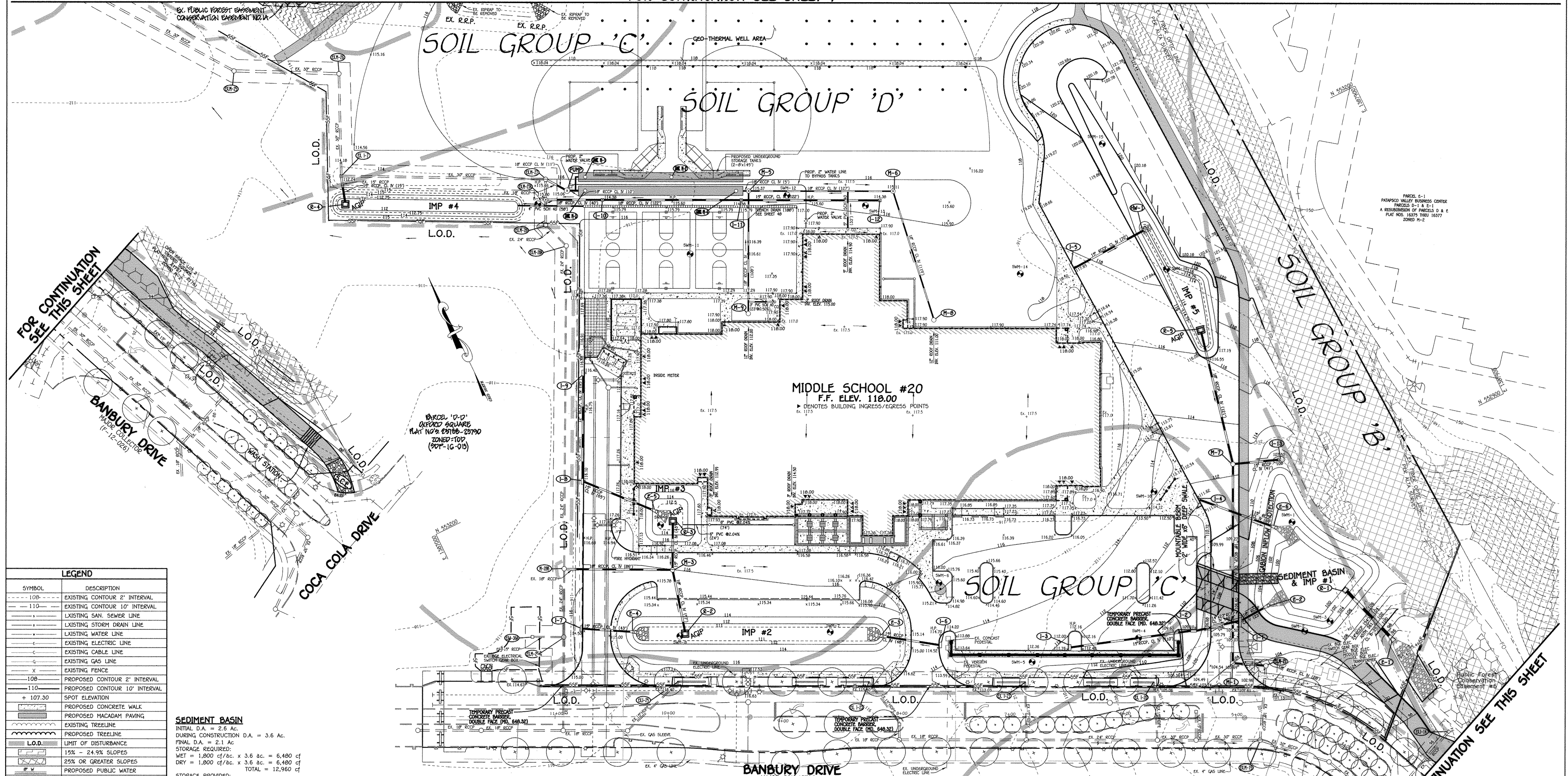
**GEOMETRY PLAN**

**'GREEN NEIGHBORHOOD' MIDDLE SCHOOL #20 OXFORD SQUARE PARCEL 'D-D'**

ZONED TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

SHEET 5 OF 50 **SDP-12-075**

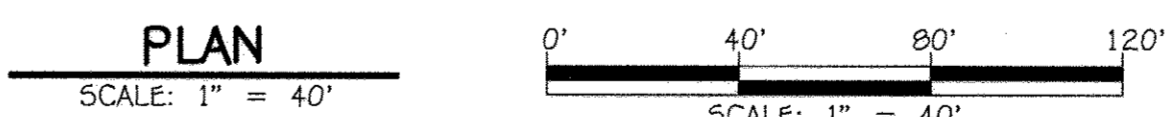
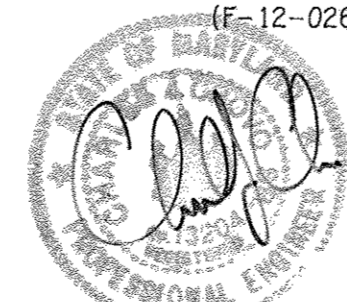
FOR CONTINUATION SEE SHEET 7



LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	EXISTING SAN. SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
X	EXISTING FENCE
10B	PROPOSED CONTOUR 2' INTERVAL
110	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
L.O.D.	LIMIT OF DISTURBANCE
---	15% - 24.9% SLOPES
---	25% OR GREATER SLOPES
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS
---	SOILS DELINEATION
---	SUPER SILT FENCE

**SEDIMENT BASIN**  
 INITIAL D.A. = 2.6 AC.  
 DURING CONSTRUCTION D.A. = 3.6 AC.  
 FINAL D.A. = 2.1 AC.  
 STORAGE REQUIRED:  
 15% - 24.9% SLOPES  
 WET = 1,800 cf/ac. x 3.6 ac. = 6,480 cf  
 DRY = 1,800 cf/ac. x 3.6 ac. = 6,480 cf  
 TOTAL = 12,960 cf  
 STORAGE PROVIDED:  
 WET = 6,925 cf @ ELEV. 102.0  
 DRY = 6,482 cf @ ELEV. 103.3  
 TOTAL = 13,407 cf  
 BOTTOM ELEV. = 100.0  
 STORAGE DEPTH = 3.3'  
 TOP OF EMBANKMENT = 106.0  
 EMBANKMENT SIDE SLOPES: 3:1  
 CLEAN OUT ELEV. = 101.0 @ 3,110 cf  
 RISER TEMPORARY WEIR CREST ELEV. = 103.3  
 SEDIMENT BASIN ORIFICE: 4" @ INV. 98.0  
 Q10 Sediment Basin = 18.8 cfs @ WSE 104.26

**NOTE:** UPON REMOVAL OF THE TEMPORARY ACCESS ROAD, THE CONTRACTOR SHALL REGRADE THE DISTURBED AREAS TO THE PROPOSED GRADES AT BANBURY DRIVE SHOWN ON (F-12-026) AND TO ORIGINAL CONDITIONS OUTSIDE THE ROAD GRADES. STABILIZE WITH PERMANENT SEEDING AND MULCH. ANY DAMAGE TO EXISTING PAVING, CONCRETE CURB, AND CONCRETE SIDEWALK SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895

**ENGINEER'S CERTIFICATE**  
 "I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."  
 Signature of Engineer: *Charles J. Crovo, Sr.* Date: 10/29/12

**DEVELOPER'S CERTIFICATE**  
 "I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."  
 Signature of Developer: *John P. Blanton* Date: 11/01/12

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
 Signature: *Charles J. Crovo, Sr.* Date: 10/29/12  
 CHARLES J. CROVO, SR., P.E.

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *John P. Blanton* Date: 11/01/12  
 John P. Blanton  
 Howard SCD

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Signature: *David H. Coughlin* Date: 1/15/12  
 Director - Department of Planning and Zoning  
 Signature: *John P. Blanton* Date: 1/14/13  
 Chief, Division of Land Development  
 Signature: *John P. Blanton* Date: 1/15/12  
 Chief, Development Engineering Division

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'

PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03700-03772	20	TOD	3B	FIRST	6012.01

WATER CODE	SEWER CODE
---	---

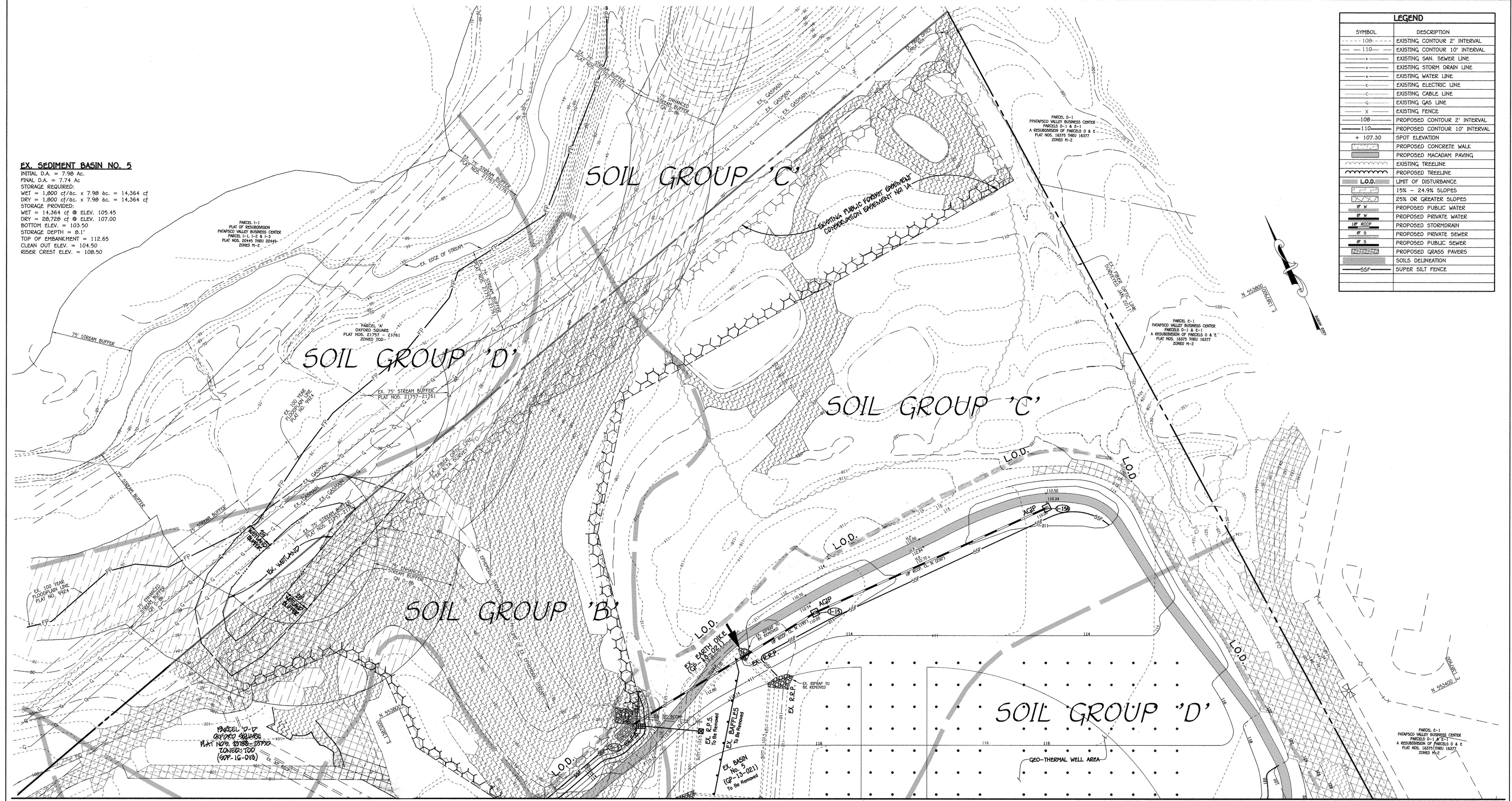
**SEDIMENT AND EROSION CONTROL PLAN**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

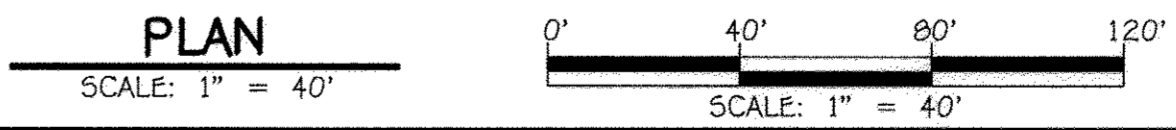
SHEET 6 OF 50 **SDP-12-075**

**EX. SEDIMENT BASIN NO. 5**  
 INITIAL D.A. = 7.98 Ac.  
 FINAL D.A. = 7.74 Ac.  
 STORAGE REQUIRED:  
 WET = 1,800 cf/ac x 7.98 ac. = 14,364 cf  
 DRY = 28,729 cf @ ELEV. 107.00  
 STORAGE PROVIDED:  
 WET = 14,364 cf @ ELEV. 105.45  
 DRY = 28,729 cf @ ELEV. 107.00  
 BOTTOM ELEV. = 103.50  
 STORAGE DEPTH = 8.1'  
 TOP OF EMBANKMENT = 112.65  
 CLEAN OUT ELEV. = 104.50  
 RISE & CREST ELEV. = 108.50



LEGEND	
SYMBOL	DESCRIPTION
--- 108 ---	EXISTING CONTOUR 2' INTERVAL
--- 110 ---	EXISTING CONTOUR 10' INTERVAL
-s-	EXISTING SAN. SEWER LINE
-SD-	EXISTING STORM DRAIN LINE
-w-	EXISTING WATER LINE
-e-	EXISTING ELECTRIC LINE
-g-	EXISTING GAS LINE
-x-	EXISTING FENCE
-108-	PROPOSED CONTOUR 2' INTERVAL
-110-	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
[Hatched]	PROPOSED CONCRETE WALK
[Hatched]	PROPOSED MACADAM PAVING
[Hatched]	EXISTING TREELINE
[Dotted]	PROPOSED TREELINE
[Hatched]	LIMIT OF DISTURBANCE
[Hatched]	15% - 24.9% SLOPES
[Hatched]	25% OR GREATER SLOPES
[Hatched]	PROPOSED PUBLIC WATER
[Hatched]	PROPOSED PRIVATE WATER
[Hatched]	PROPOSED STORMDRAIN
[Hatched]	PROPOSED PRIVATE SEWER
[Hatched]	PROPOSED PUBLIC SEWER
[Hatched]	PROPOSED GRASS PAVERS
[Hatched]	SOILS DELINEATION
[Hatched]	SUPER SILT FENCE

FOR CONTINUATION SEE SHEET 6



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-1000

**ENGINEER'S CERTIFICATE**  
 "I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."  
 Signature of Engineer: *Charles J. Cravo*  
 Date: 10/29/12

**DEVELOPER'S CERTIFICATE**  
 "I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."  
 Signature of Developer: *[Signature]*  
 Date: 11/01/12

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
 Signature: *Charles J. Cravo, Sr., P.E.*  
 Date: 10/29/12

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *[Signature]*  
 Date: 11/12

DATE	DESCRIPTION
6/20/16	REVISED BOUNDARY, PUBLIC PCE & TITLE BLOCK
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	1/15/12
Director - Department of Planning and Zoning	Date
<i>[Signature]</i>	1/14/13
Chief, Division of Land Development	Date
<i>[Signature]</i>	11/5/12
Chief, Development Engineering Division	Date

PREPARED FOR:  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart  
 Parcel Number: 17-D  
 Street Address: 7000 BANBURY DRIVE  
 HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL			
MIDDLE SCHOOL #20	N/A	17-D			
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	3B	FIRST	6012.01
WATER CODE		SEWER CODE			
---		---			

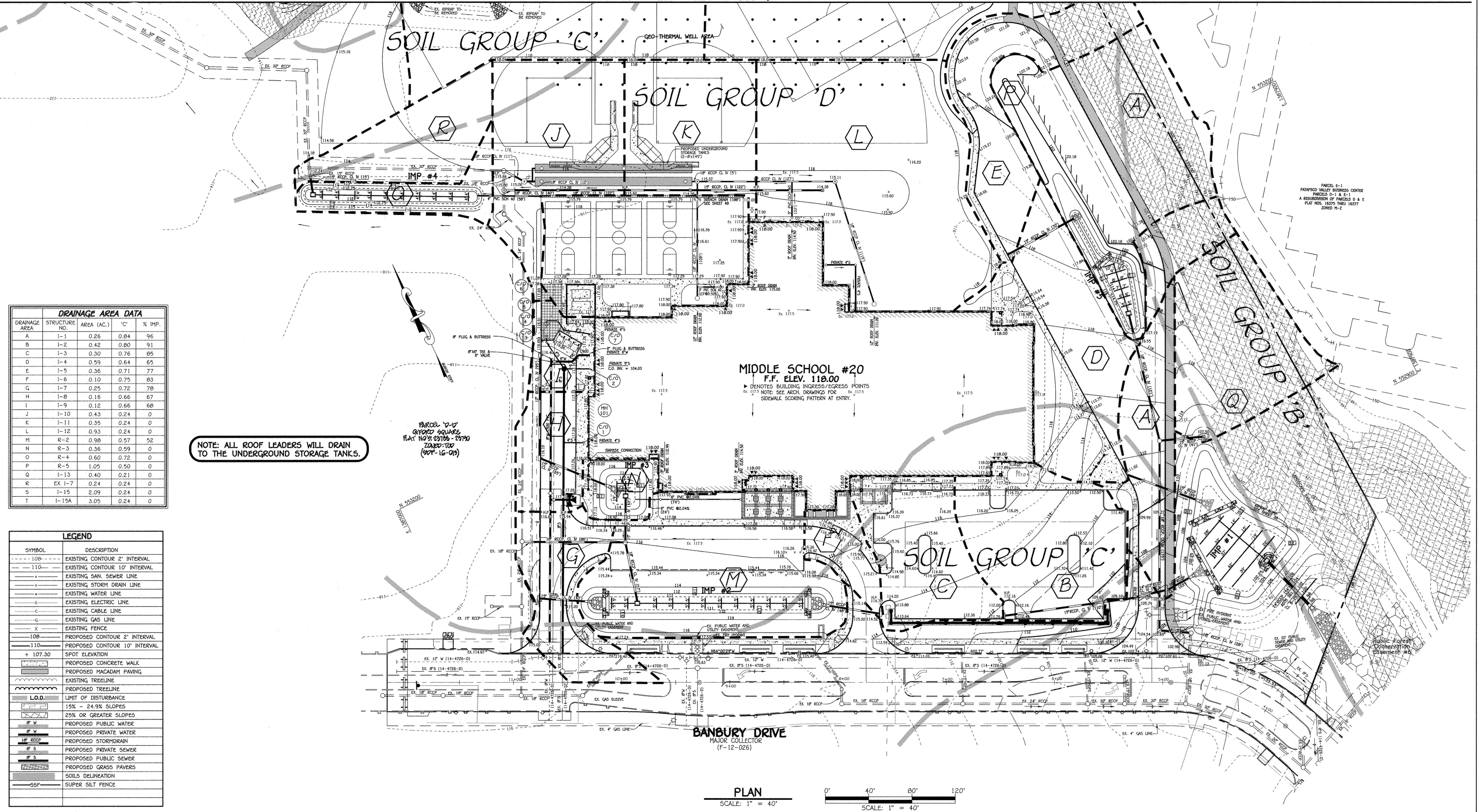
**SEDIMENT AND EROSION CONTROL PLAN**

**'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'**

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

SHEET 7 OF 50 **SDP-12-075**

FOR CONTINUATION SEE SHEET 9



DRAINAGE AREA DATA				
DRAINAGE AREA	STRUCTURE NO.	AREA (AC.)	'C'	% IMP.
A	I-1	0.26	0.84	96
B	I-2	0.42	0.80	91
C	I-3	0.30	0.76	85
D	I-4	0.59	0.64	65
E	I-5	0.36	0.71	77
F	I-6	0.10	0.75	83
G	I-7	0.25	0.72	78
H	I-8	0.16	0.66	67
I	I-9	0.12	0.66	68
J	I-10	0.43	0.24	0
K	I-11	0.35	0.24	0
L	I-12	0.93	0.24	0
M	R-2	0.98	0.57	52
N	R-3	0.36	0.59	0
O	R-4	0.60	0.72	0
P	R-5	1.05	0.50	0
Q	I-13	0.40	0.21	0
R	EX I-7	0.24	0.24	0
S	I-15	2.09	0.24	0
T	I-15A	3.05	0.24	0

NOTE: ALL ROOF LEADERS WILL DRAIN TO THE UNDERGROUND STORAGE TANKS.

LEGEND	
SYMBOL	DESCRIPTION
--- 10' ---	EXISTING CONTOUR 2' INTERVAL
--- 110 ---	EXISTING CONTOUR 10' INTERVAL
---	EXISTING SAN SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
---	EXISTING FENCE
--- 10' ---	PROPOSED CONTOUR 2' INTERVAL
--- 110 ---	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
L.O.D.	LIMIT OF DISTURBANCE
---	15% - 24.9% SLOPES
---	25% OR GREATER SLOPES
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS
---	SOILS DELINEATION
---	SUPER SILT FENCE

PLAN  
SCALE: 1" = 40'

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2099

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Grovo, Sr., P.E.*  
CHARLES J. GROVO, SR., P.E.  
10/29/12 DATE



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

1/15/10 Date  
1/14/13 Date  
4/15/12 Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

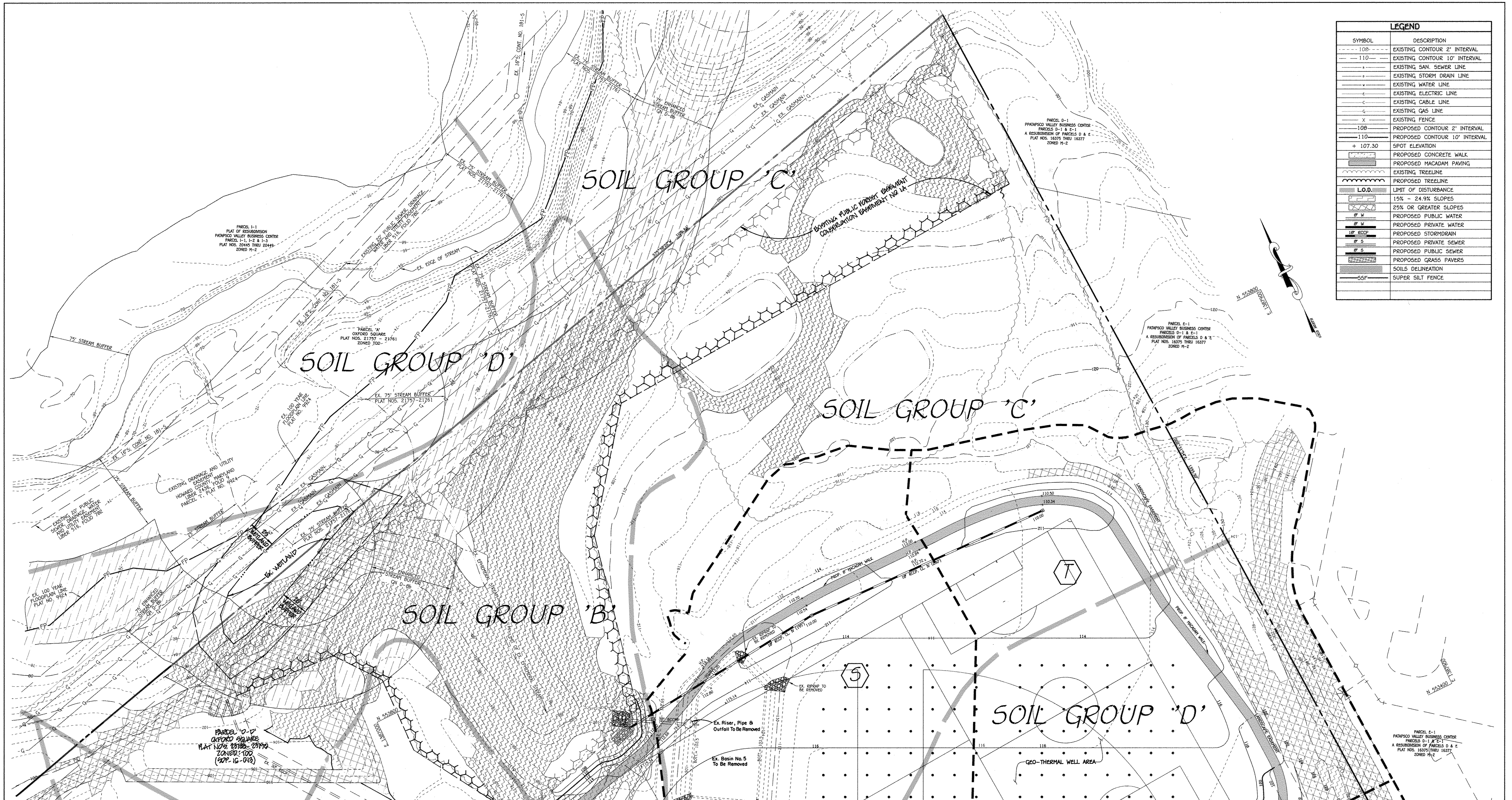
01/20/10 REVISED BIDDING, PUBLIC POE & TITLE BLOCK  
DATE DESCRIPTION REVISION BLOCK

Address Chart  
Parcel Number Street Address  
'D-D' 7000 BANBURY DRIVE  
HANOVER, MD 21076

PROJECT					
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	PARCEL
021168 - 021190	20	TOD	38	FIRST	6012.01
WATER CODE			SEWER CODE		

SOILS AND DRAINAGE AREA MAP  
'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'  
ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 40' DATE: OCTOBER 26, 2012  
SHEET 8 OF 50 SDP-12-075





LEGEND	
SYMBOL	DESCRIPTION
--- 100 ---	EXISTING CONTOUR 2' INTERVAL
--- 110 ---	EXISTING CONTOUR 10' INTERVAL
---	EXISTING SAN. SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
X	EXISTING FENCE
100	PROPOSED CONTOUR 2' INTERVAL
110	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	L.O.D. LIMIT OF DISTURBANCE
---	15% - 24.9% SLOPES
---	25% OR GREATER SLOPES
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS
---	SOILS DELINEATION
---	SUPER SILT FENCE

FOR CONTINUATION SEE SHEET B

PLAN  
SCALE: 1" = 40'



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 (410) 461-7899

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 CHARLES J. GROVO, SR., P.E.  
 10/29/12 DATE

PROFESSIONAL CERTIFICATION: I 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. 13204, Expiration Date: November 3, 2012.

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

DATE	DESCRIPTION
6/20/10	REVISED BOUNDARY, PUBLIC PEG & TITLE BLOCK

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 10B  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart	
Parcel Number	Street Address
10-D	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	10-D

PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03786-03790	20	TOD	3B	FIRST	6012.01

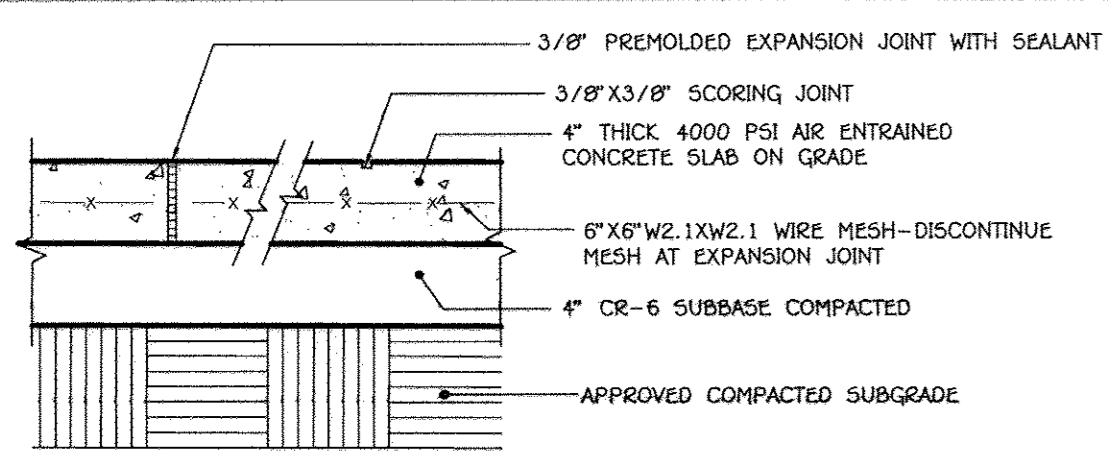
WATER CODE	SEWER CODE
---	---

**SOILS AND DRAINAGE AREA MAP**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 10-D

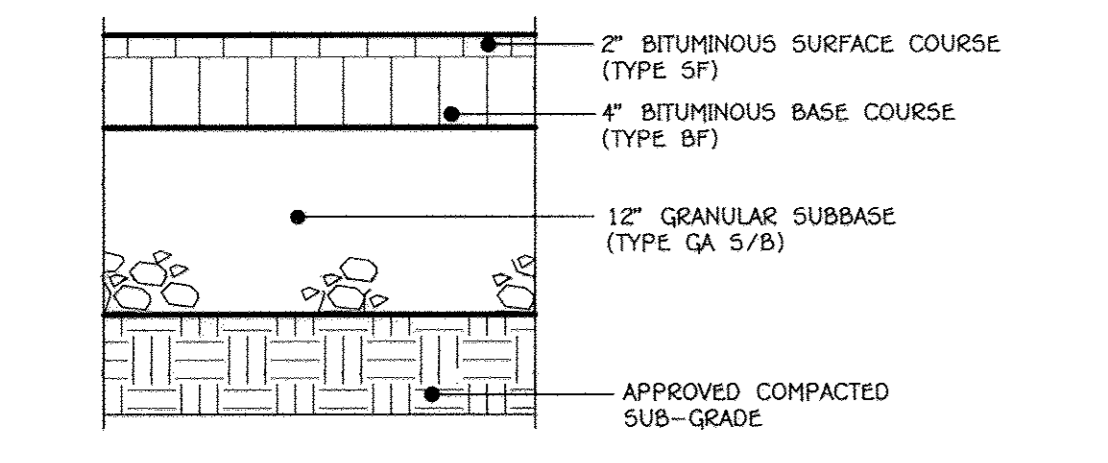
ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

SHEET 9 OF 50 **50P-12-075**

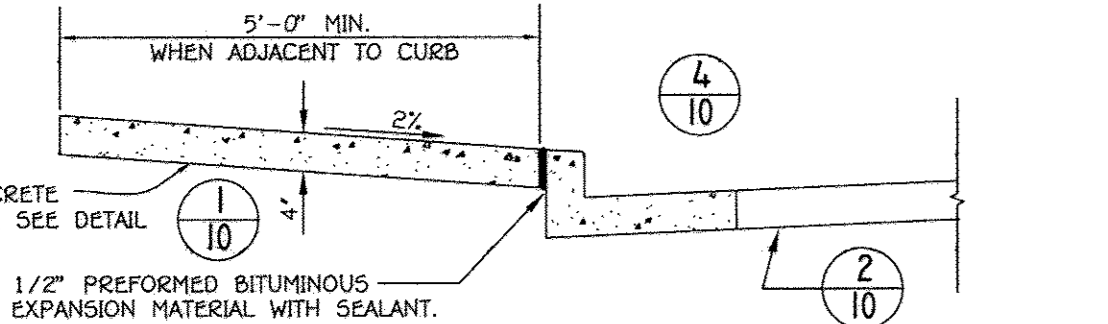


NOTE: INSTALL EXPANSION JOINTS AT MAX. 15'-0" O.C. AND INSTALL SCORING JOINTS AT MAX. 9'-0" O.C.  
SLOPE ACROSS SIDEWALK SHALL BE MIN. 1/8" / FT.

1 CONCRETE WALK DETAIL  
NO SCALE

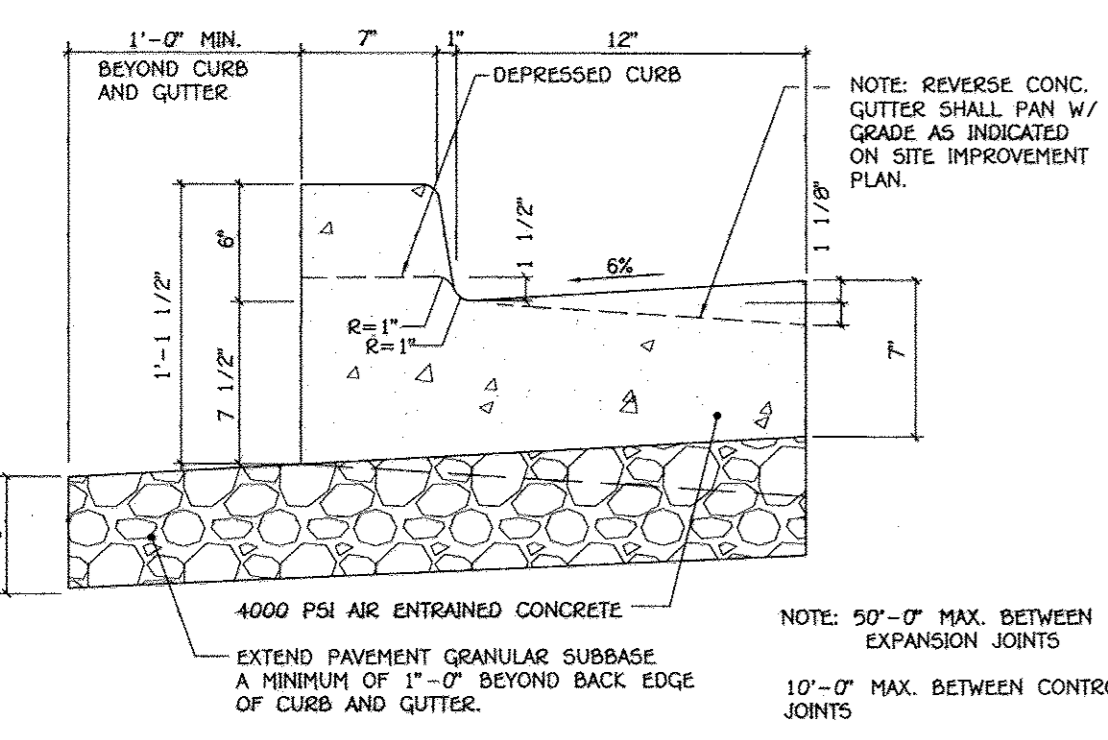


2 HEAVY DUTY ASPHALTIC PAVING DETAIL  
NO SCALE

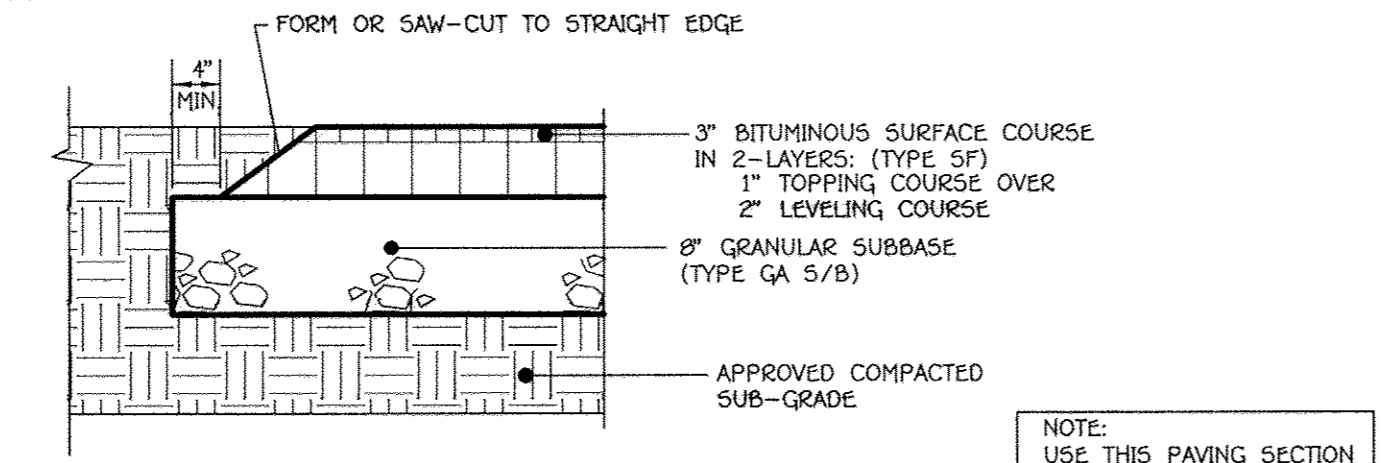


1/2" PREFORMED BITUMINOUS EXPANSION MATERIAL WITH SEALANT.  
NOTES:  
1. SIDEWALK TO BE SCRIBED IN EQUALLY 5'-0" MAXIMUM SQUARES.  
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO MORE THAN 15' APART.  
3. 1/2" PREFORMED BITUMINOUS EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK. FILL WITH SEALANT.  
4. 4000 PSI AIR ENTRAINED CONCRETE SHALL BE USED.  
5. WHEN SIDEWALK ADJUTS CURB, WALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED BITUMINOUS EXPANSION MATERIAL BETWEEN SIDEWALK AND CURB.  
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.  
7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MIN.  
8. SIDEWALK LOCATED 2" OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5' X 5' PAVED SECTION PLACED 200' APART.  
9. PROVIDE 1/2" EXPANSION JOINT WHERE WALKS ABUT EXISTING CONCRETE SURFACES TO REMAIN.

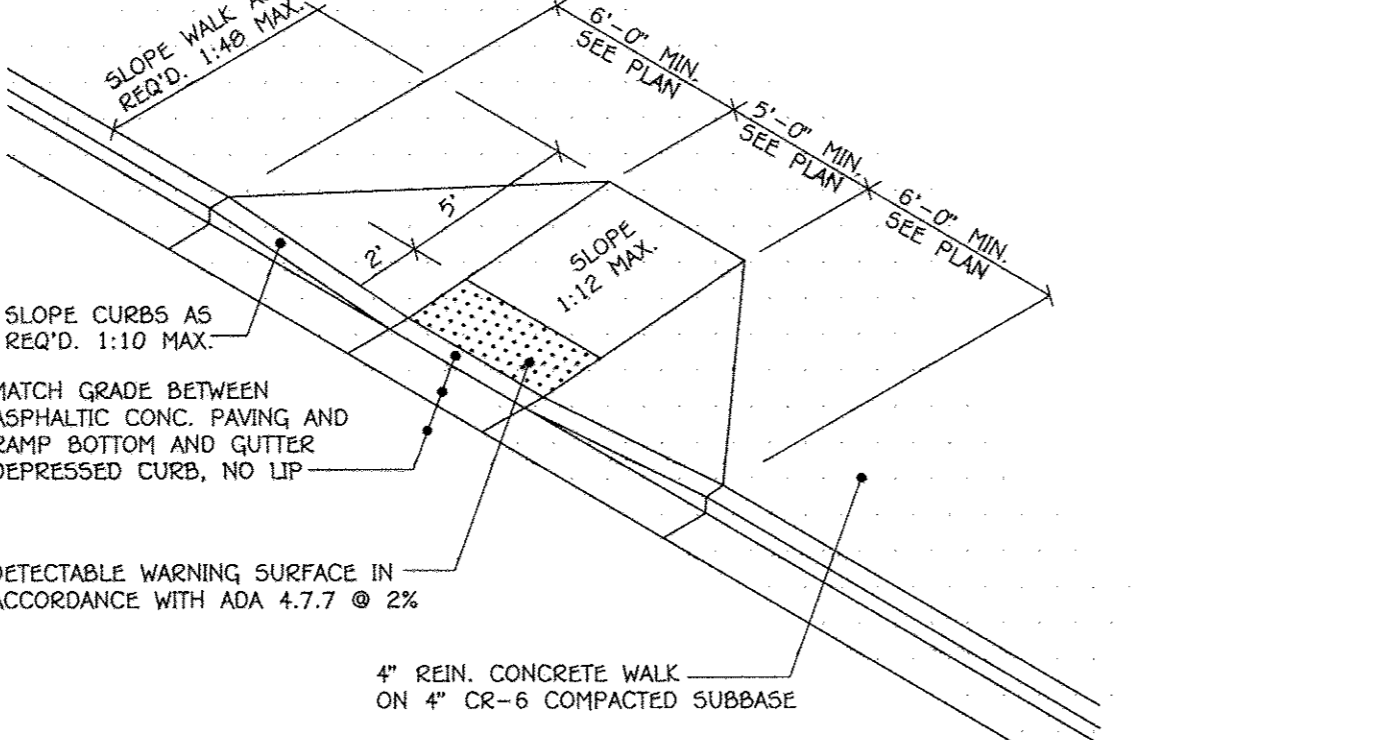
3 CONCRETE SIDEWALK DETAIL  
HOWARD COUNTY STANDARD DETAIL R-3.05  
NO SCALE



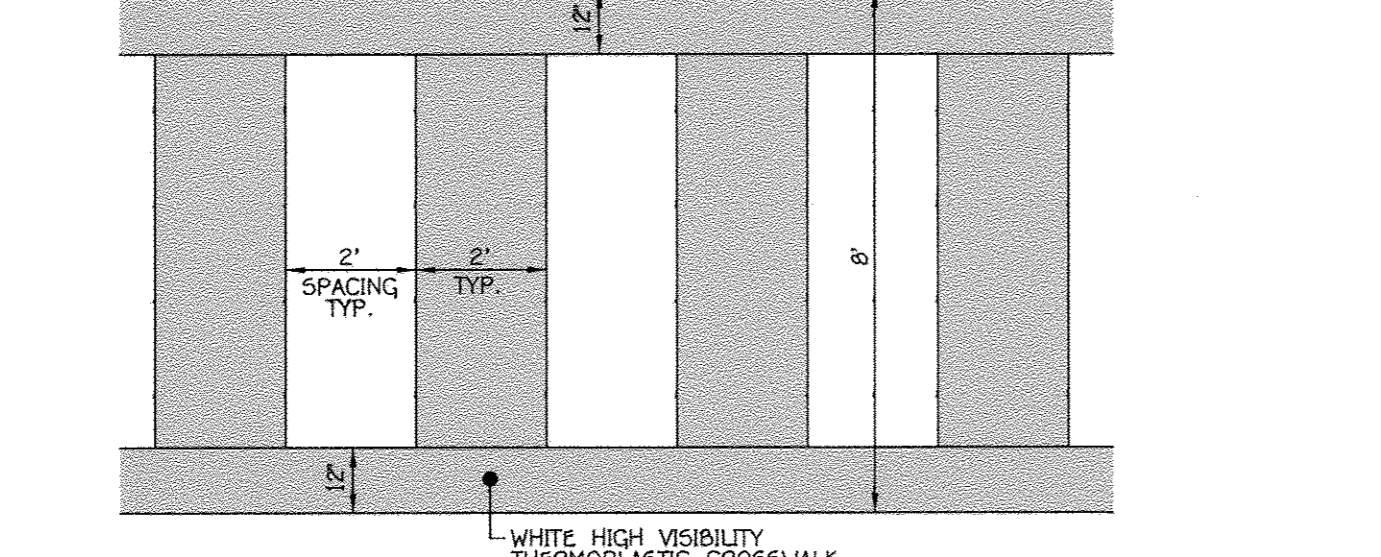
4 STANDARD 6" COMB. CONC. CURB AND GUTTER  
HOWARD COUNTY STANDARD DETAIL R-3.01  
NO SCALE



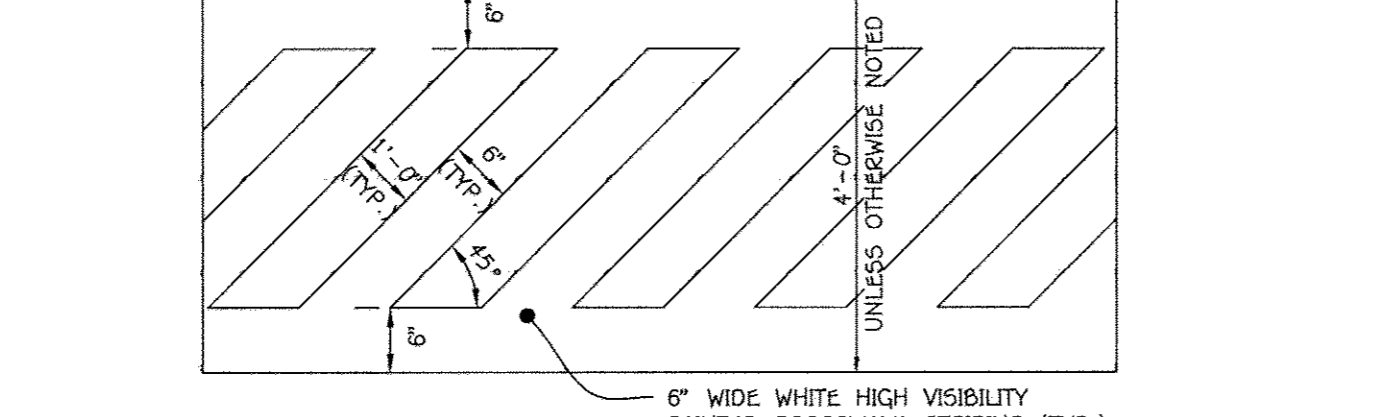
5 PAVED PLAY AREA AND WALKWAY ASPHALTIC PAVING DETAIL  
NO SCALE



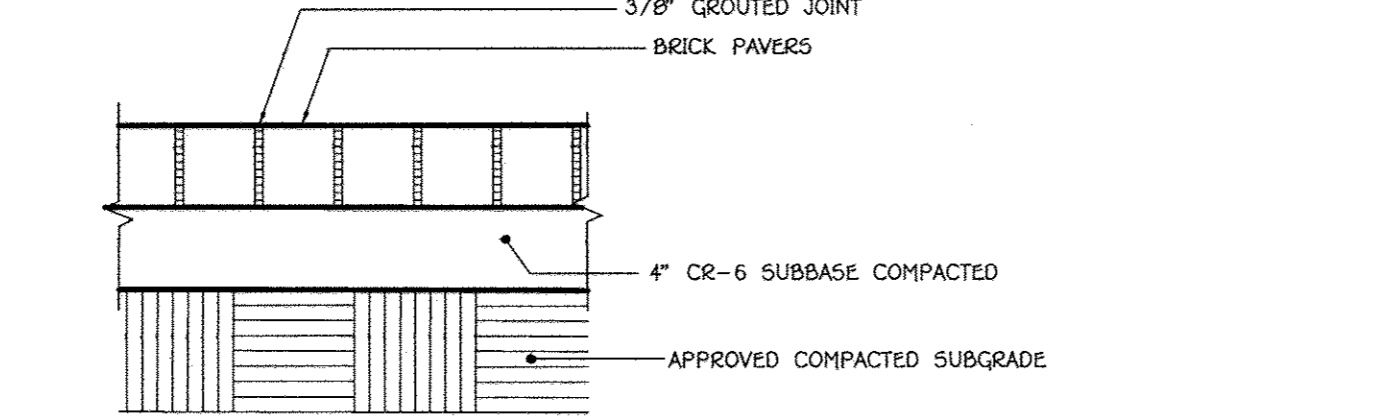
6 SIDEWALK RAMP DETAIL  
NO SCALE



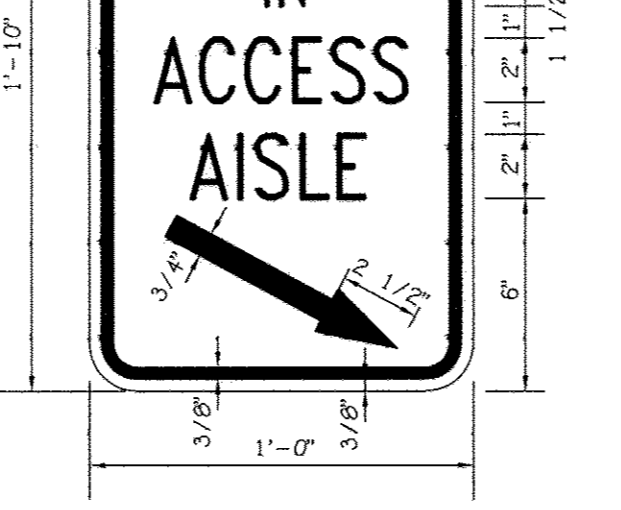
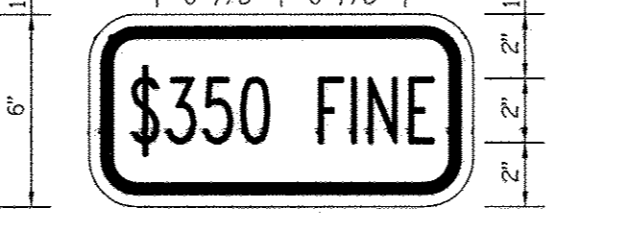
7 PEDESTRIAN CROSSWALK DETAIL - BANBURY DRIVE  
HOWARD COUNTY STANDARD DETAIL T-7.03  
NO SCALE



8 CROSSWALK DETAIL  
NO SCALE

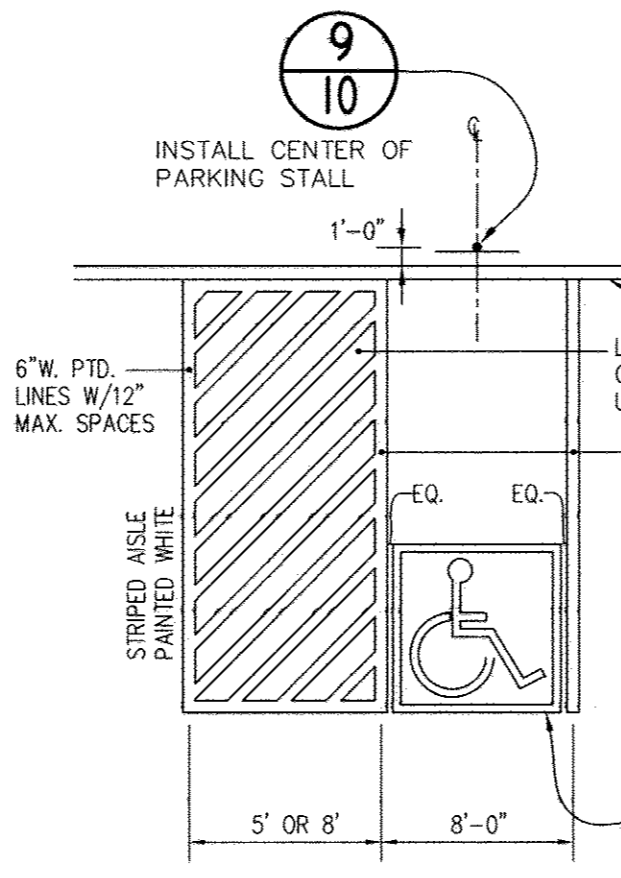


17 BRICK PAVERS DETAIL  
NO SCALE

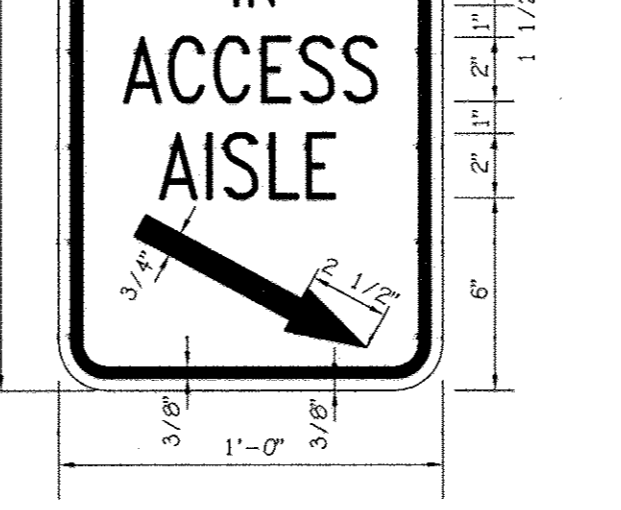


GENERAL NOTES:  
1. SIGNS SHALL MEET DESIGN STANDARDS OF THE FEDERAL HIGHWAY ADMINISTRATION AND CONFORM TO THE STATE OF MARYLAND STANDARD HIGHWAY SIGN BOOKLET DETAIL R7-8.  
2. ONE SIGN IS REQUIRED PER SPACE PLACED AS SHOWN ON SITE IMPROVEMENT PLAN.  
3. SIGNS SHALL BE POLE MOUNTED WITH HOT DIPPED GALVANIZED COUNTY APPROVED PERFORATED CHANNEL POSTS W/TOP OF SIGNS 9'-1" ABOVE FINISHED GRADE OR AS INDICATED ON SITE DRAWINGS.  
4. SIGN SHALL BE ATTACHED TO FLANGED SIDE OF POST. POST SHALL EXTEND INTO GROUND 2'-6" MIN.  
5. COLORS: LEGEND AND BORDER-GREEN SYMBOL-WHITE ON BLUE BACKGROUND BACKGROUND-WHITE.  
6. CONTRACTOR SHALL COORDINATE ARROW DIRECTION WITH LOCATION OF ADJACENT AISLE.  
7. SPACES INDICATED ON SITE DEVELOPMENT PLANS AS "VAN ACCESSIBLE" SHALL BE SIGNED ACCORDINGLY.

9 HANDICAP PARKING SIGN DETAIL  
NOT TO SCALE

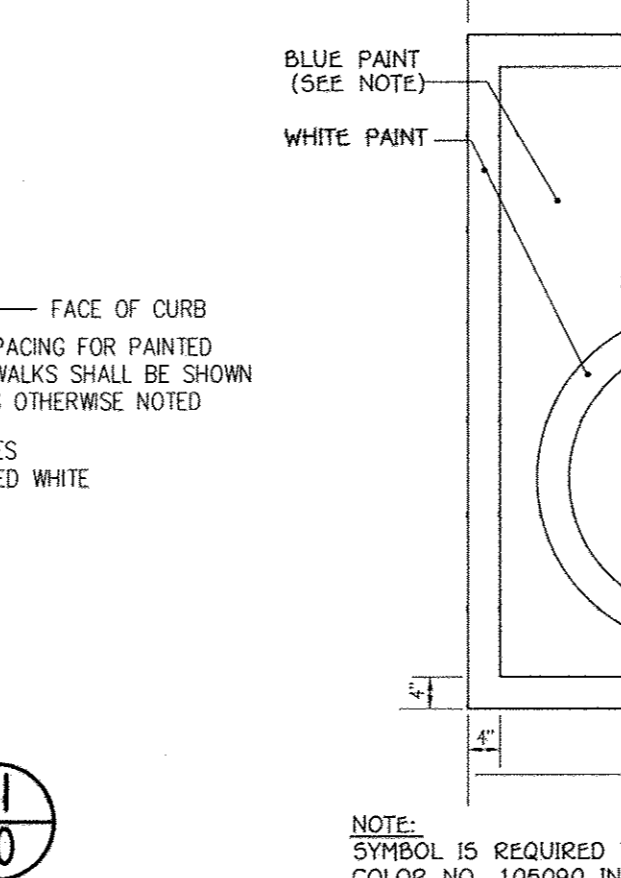


10 ACCESSIBLE SPACE LAYOUT  
NO SCALE

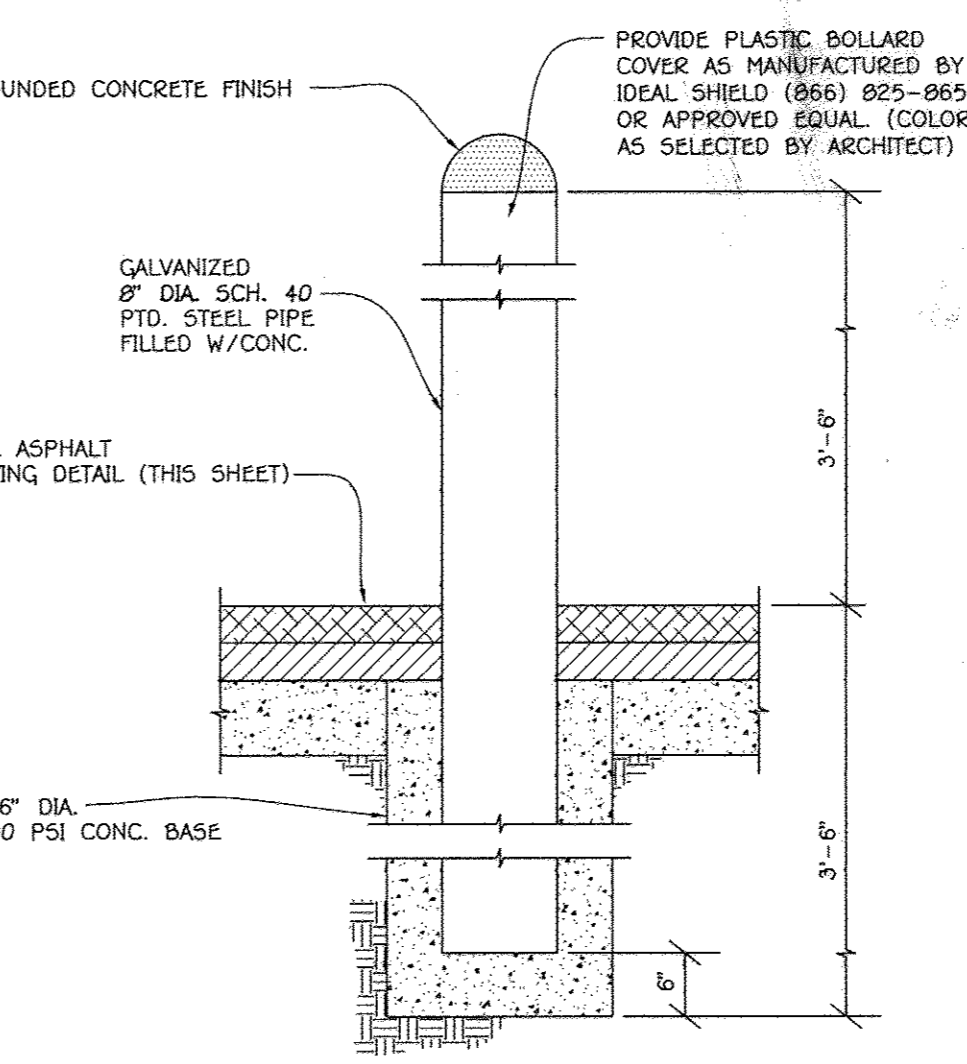


GENERAL NOTES:  
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5. COLORS: LEGEND AND BORDER-GREEN SYMBOL-WHITE ON BLUE BACKGROUND BACKGROUND-WHITE.  
6. CONTRACTOR SHALL COORDINATE ARROW DIRECTION WITH LOCATION OF ADJACENT AISLE.  
7. SPACES INDICATED ON SITE DEVELOPMENT PLANS AS "VAN ACCESSIBLE" SHALL BE SIGNED ACCORDINGLY.

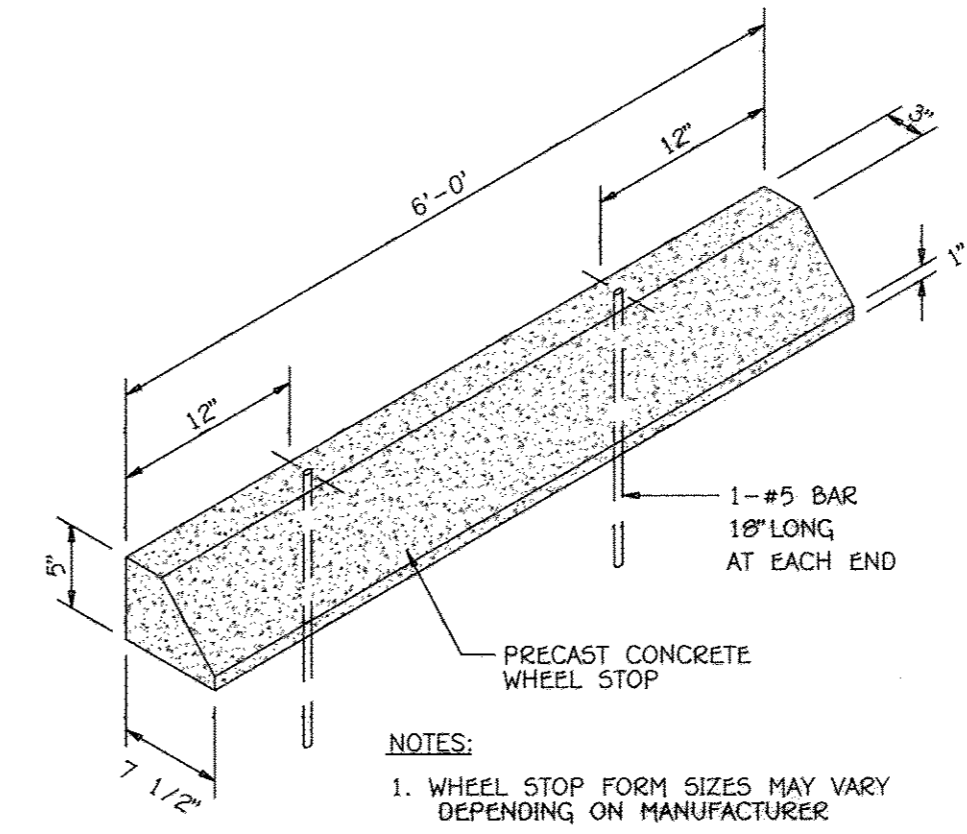
9 HANDICAP PARKING SIGN DETAIL  
NOT TO SCALE



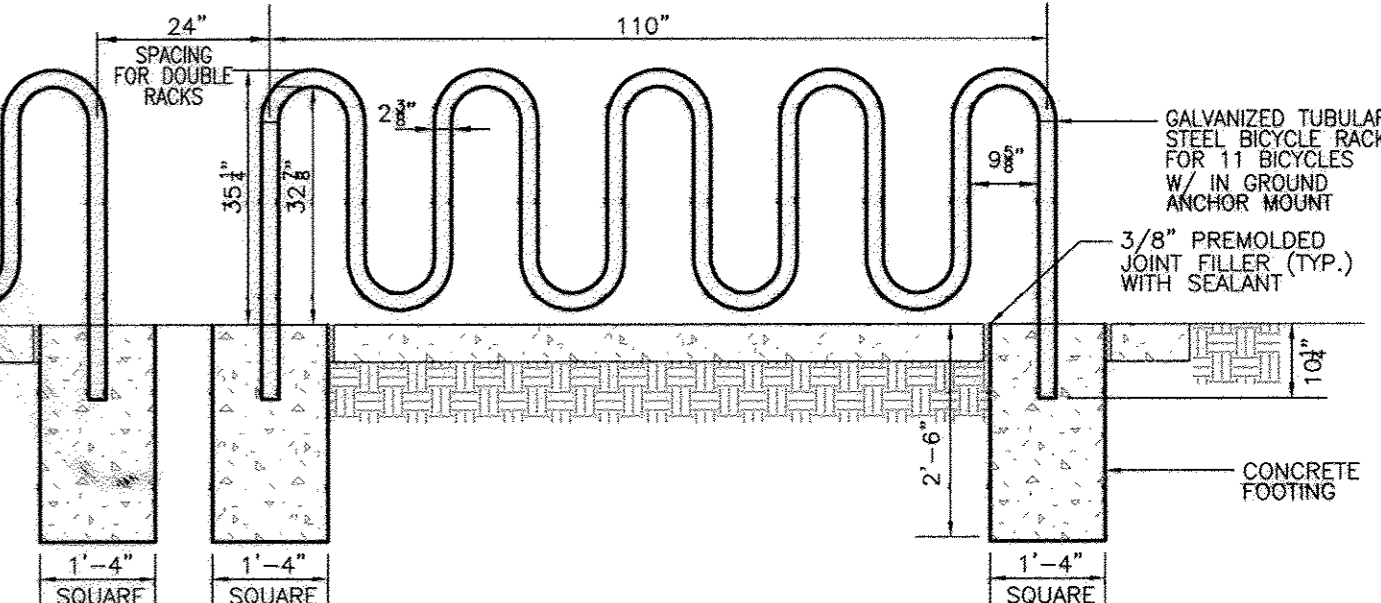
10 ACCESSIBLE SPACE LAYOUT  
NO SCALE



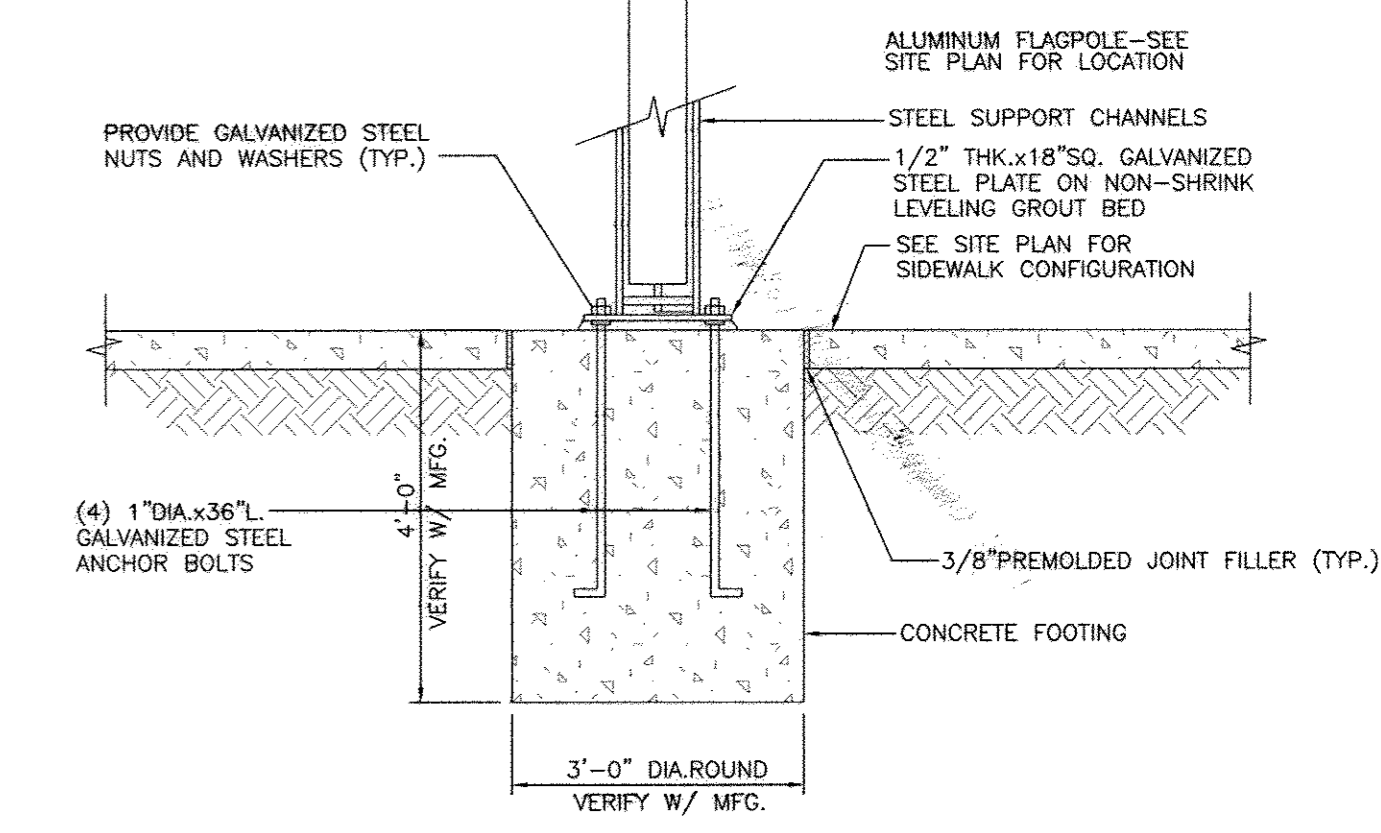
12 BOLLARD DETAIL  
NO SCALE



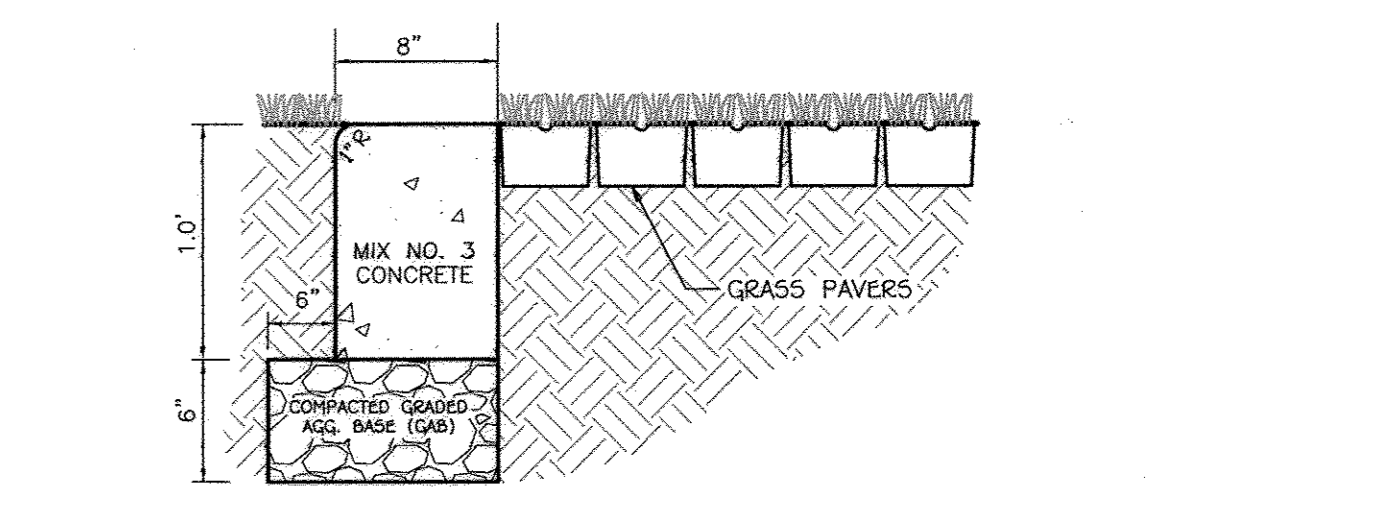
13 WHEEL STOP DETAIL  
NO SCALE



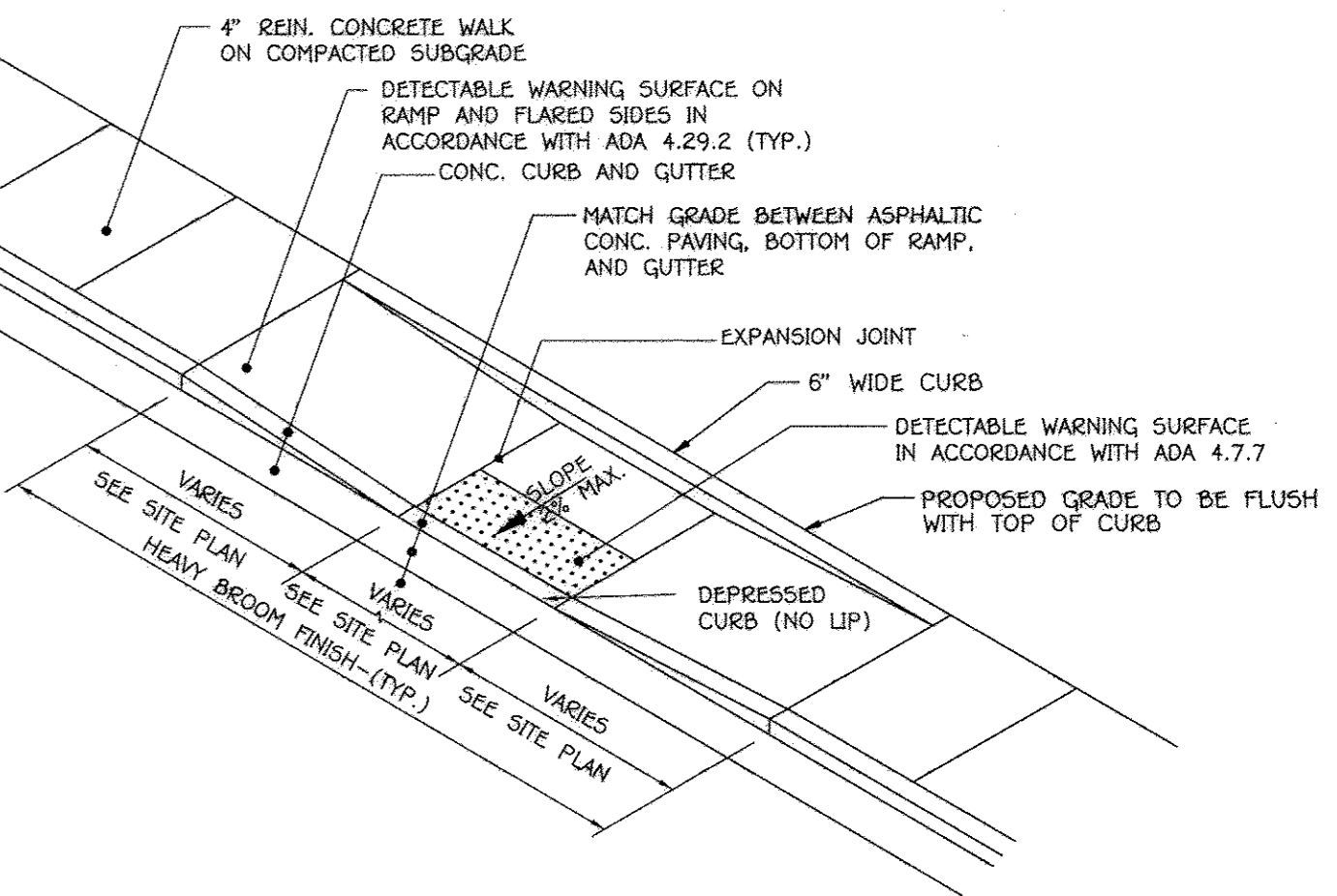
14 BICYCLE RACK DETAIL  
NO SCALE



15 TILT FLAGPOLE DETAIL  
NO SCALE



16 CURB FLUSH  
NO SCALE



18 HANDICAP CURB RAMP DETAIL  
NO SCALE

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CONFIDENTIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 481-2995

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Cravo, Sr., P.E.*  
CHARLES J. CRAVO, SR., P.E. 10/29/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning 1/15/12 DATE  
Chief, Division of Land Development 1/14/13 DATE  
Chief, Development Engineering Division 1/15/12 DATE

DATE	DESCRIPTION
9/30/12	REVISED TITLE BLOCK

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 10B  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

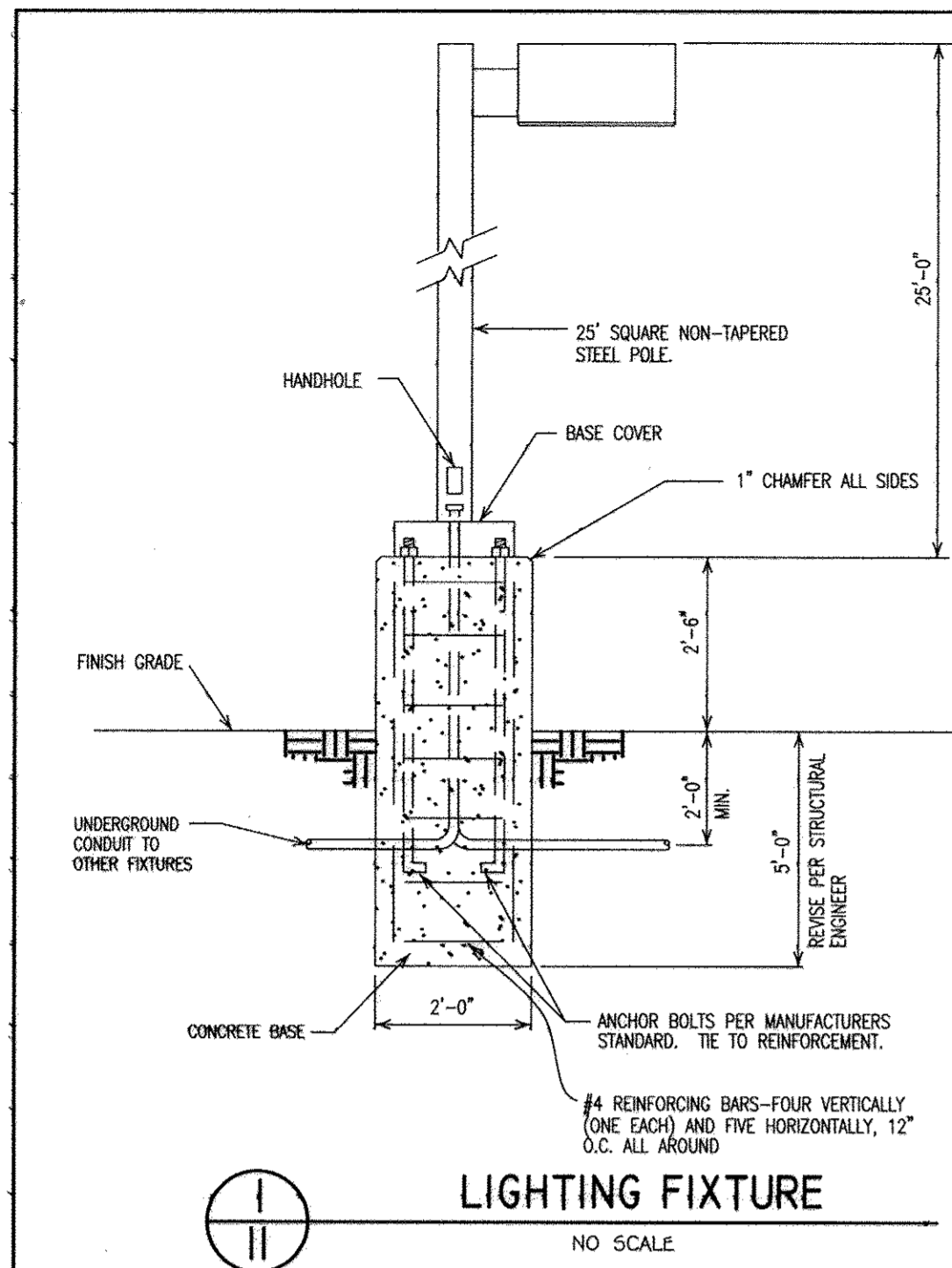
Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	SECTION/AREA
MIDDLE SCHOOL #20	N/A
PLAT NOS.	PARCEL
23162-23170	'D-D'
WATER CODE	SEWER CODE
---	---

**DETAIL SHEET**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

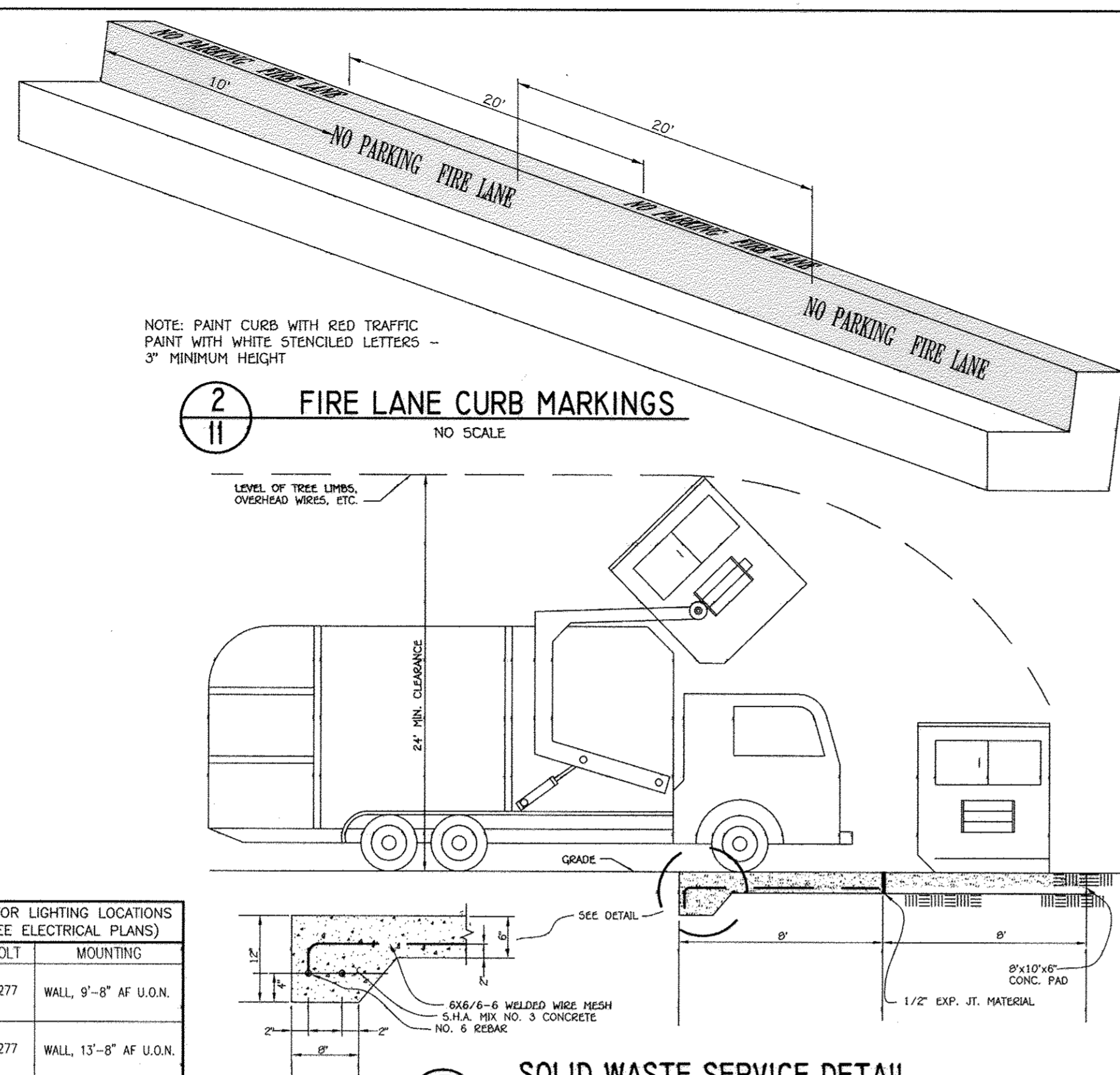
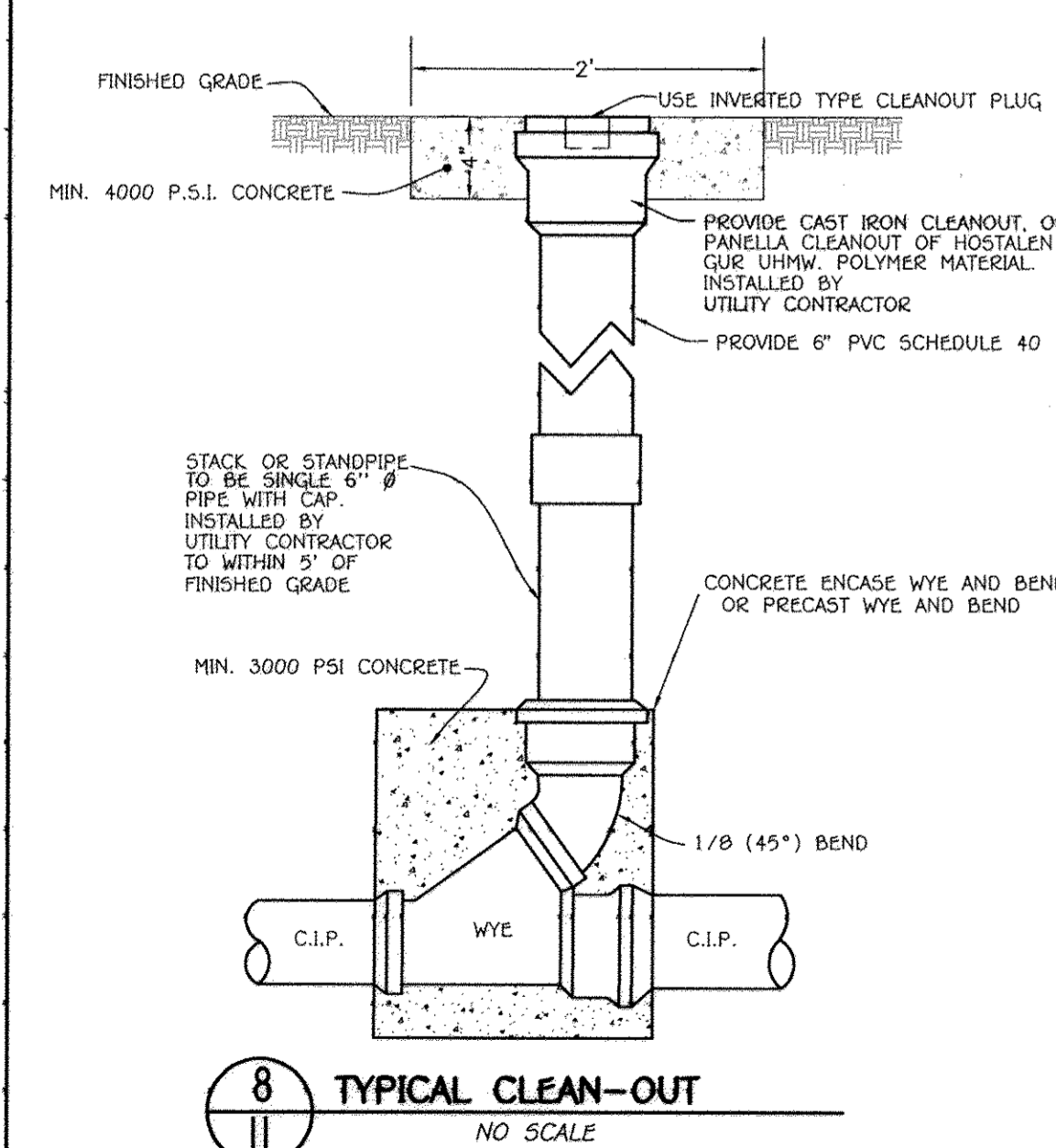
ZONED TO: TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 10 OF 50 50P-12-075



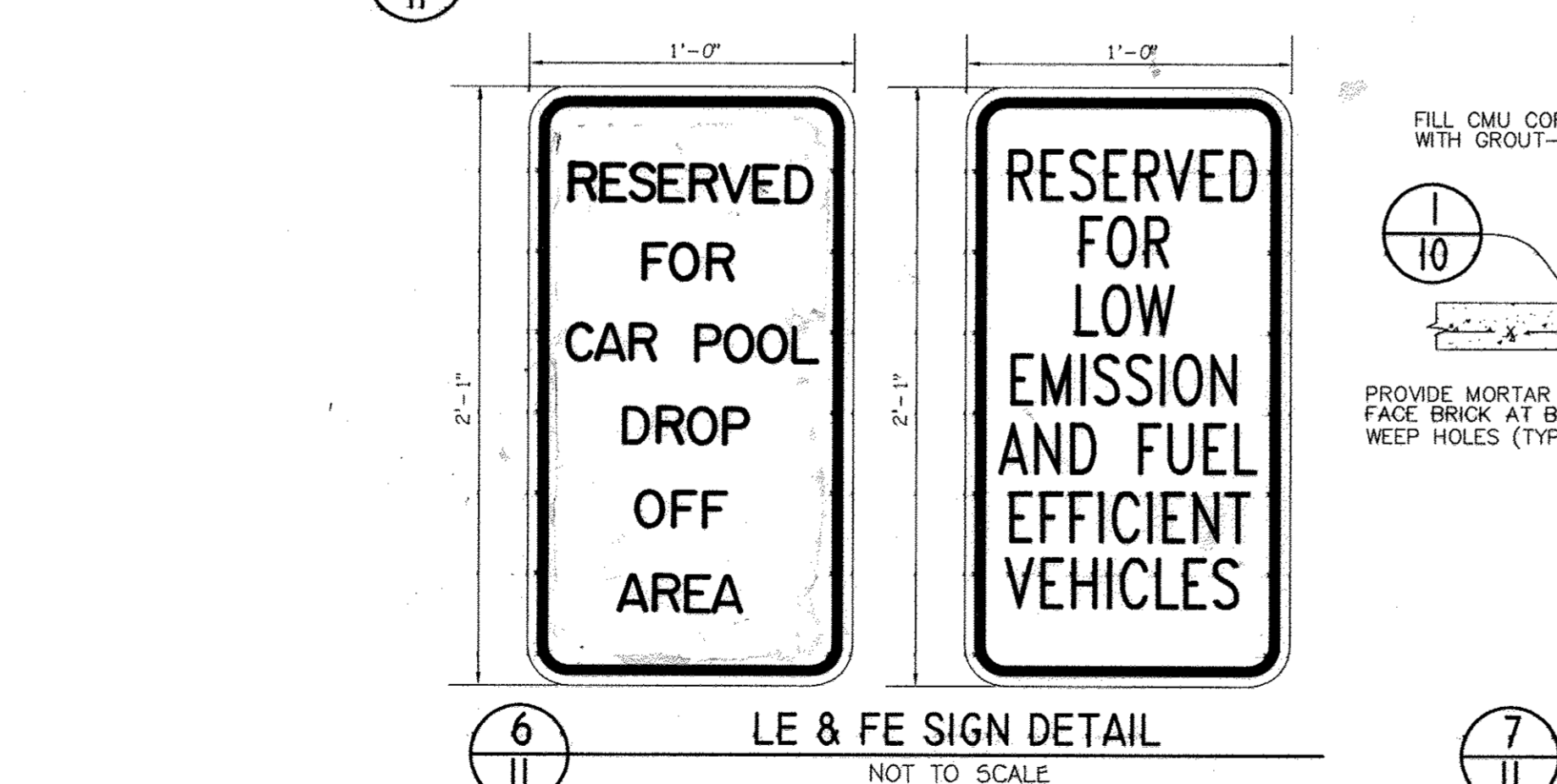
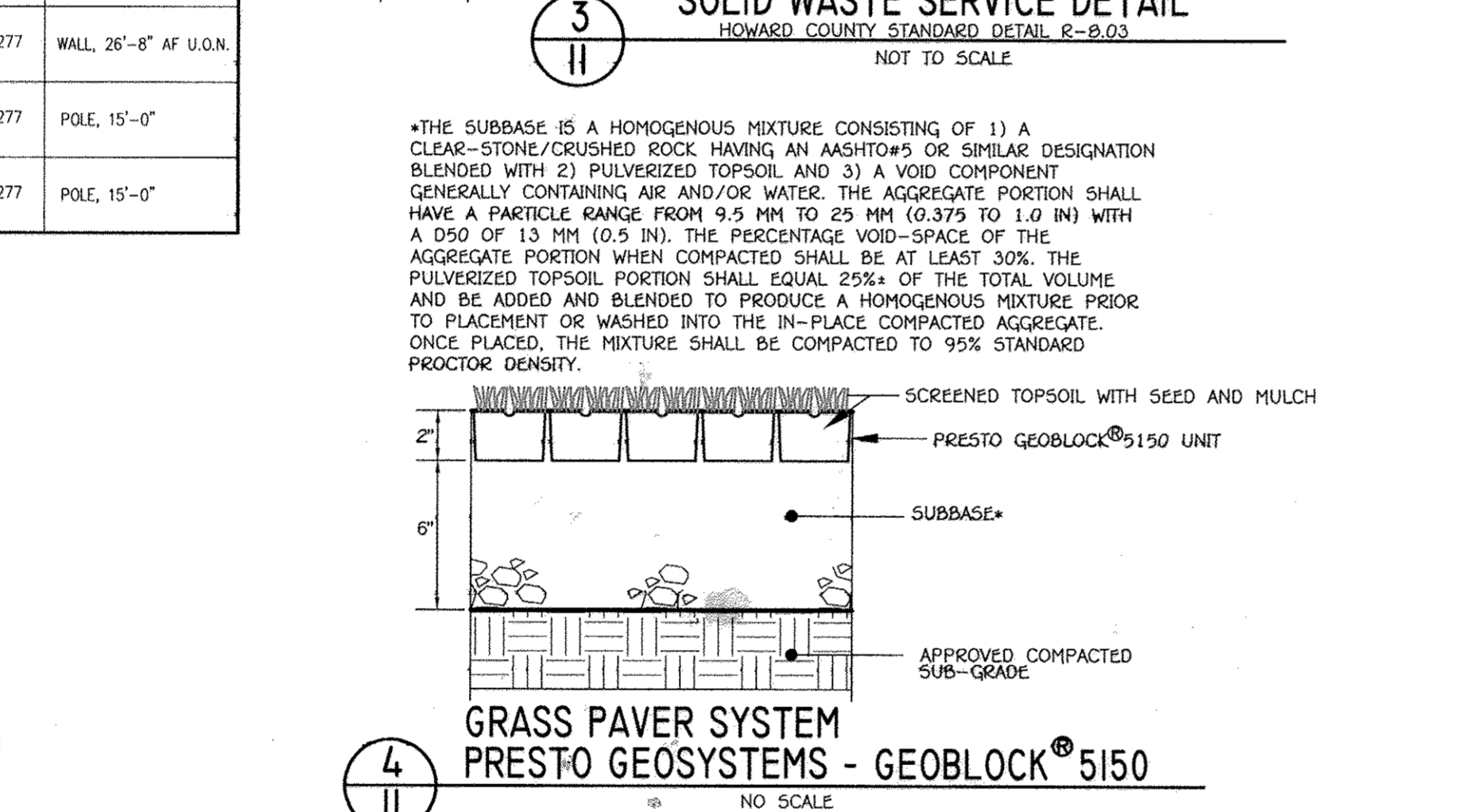
LIGHTING FIXTURE SCHEDULE (FOR LIGHTING LOCATIONS SEE ELECTRICAL PLANS)					
TYPE	DESCRIPTION	LAMP	MANUFACTURER	CATALOG NO.	VOLT MOUNTING
AA	EXTERIOR BUILDING PERIMETER COMPACT FLUORESCENT WALL SCENE FULL CUT-OFF FIXTURE WITH ELECTRONIC BALLAST	(2) 26W CFL	GARCOO	101-MT-226CF-UNV	277 WALL, 9'-8" AF U.O.N.
AA1	EXTERIOR BUILDING PERIMETER COMPACT FLUORESCENT WALL SCENE FULL CUT-OFF FIXTURE WITH ELECTRONIC BALLAST	(1) 42W TRF CFL	GARCOO	101-MT-42TRF-UNV	277 WALL, 13'-8" AF U.O.N.
AA2	EXTERIOR BUILDING PERIMETER METAL HALIDE WALL SCENE, ELECTRONIC BALLAST, FULL CUT-OFF	(1) 150W MH	NULITE	E.A.-150MH-UNV	277 WALL, 26'-8" AF U.O.N.
BB1	DOUBLE UNIT EXTERIOR POLE-MOUNT HD FIXTURE, TYPE III DISTRIBUTION, ELECTRONIC BALLAST, FULL CUT-OFF	(2) 250W MH	LSI	P1H-3-250-F-MT-BLK	277 POLE, 15'-0"
BB	SINGLE UNIT EXTERIOR POLE-MOUNT HD FIXTURE, TYPE III DISTRIBUTION, ELECTRONIC BALLAST, FULL CUT-OFF	(1) 150W MH	LSI	P1H-3-150-F-MT-BLK	277 POLE, 15'-0"

SPECIFIC NOTES:  
 1. PROVIDE GARCOO POLE PRIAS-STB-15'-BLA.  
 2. PROVIDE VACUUM STRUCTURES POLE 1500-50-60-5-4-D1-DBL.  
 3. PROVIDE LITHONIA LIGHTING POLE#RSA-15-0.125DM19AS-DBL.



8 TYPICAL CLEAN-OUT NO SCALE

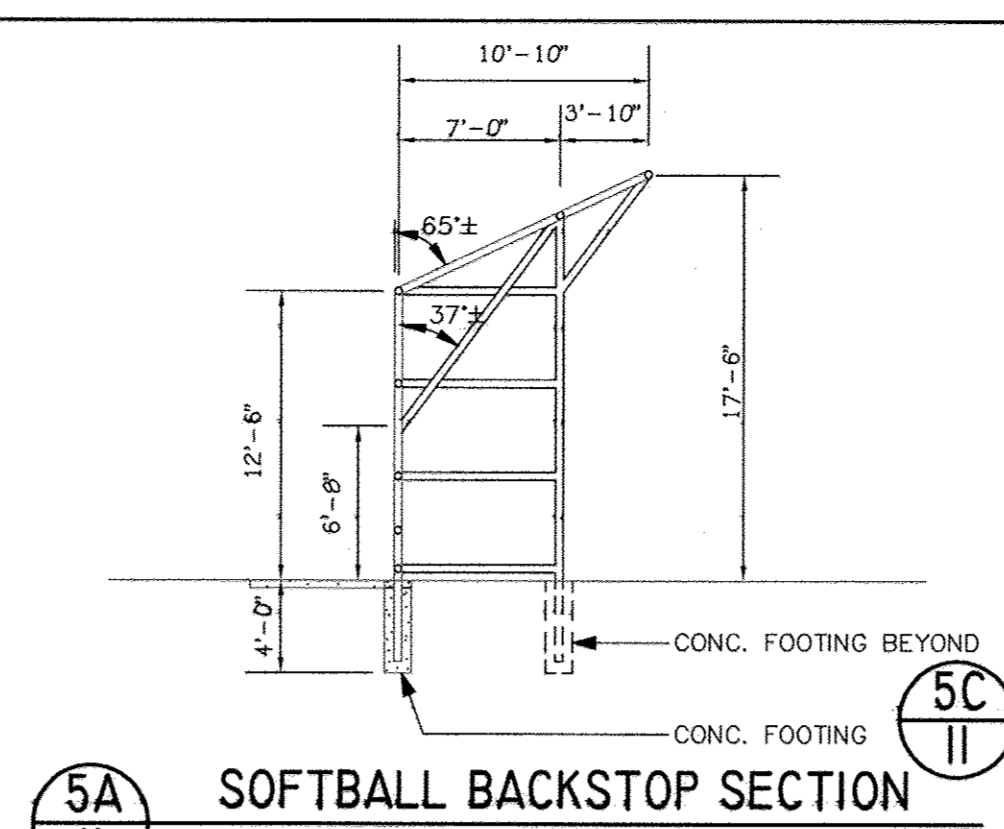
FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 410.481.2000



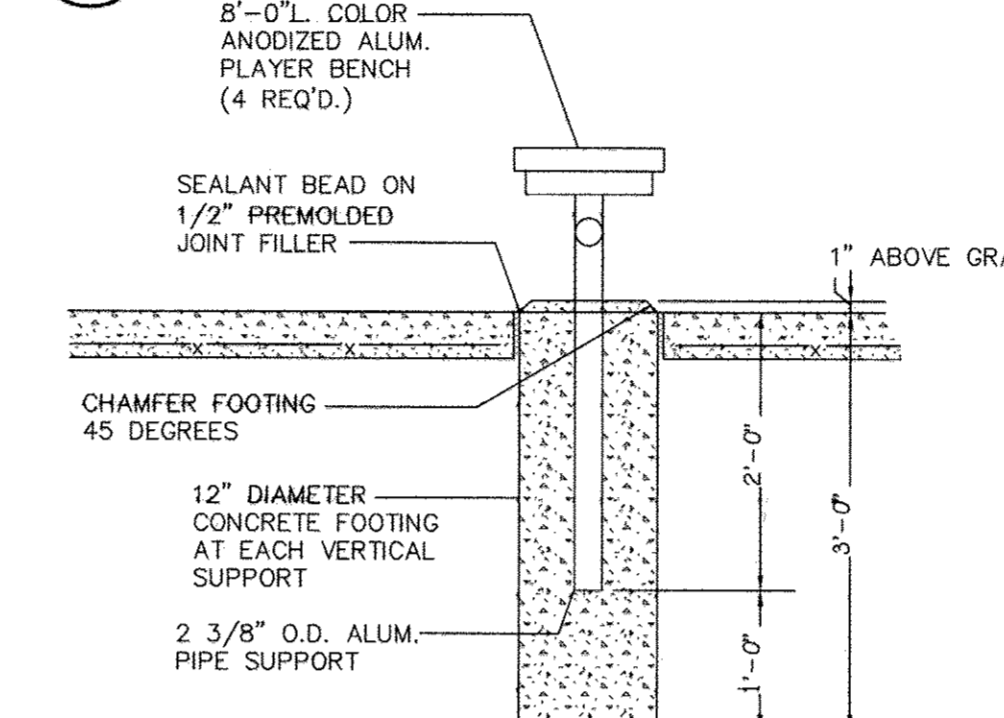
6 LE & FE SIGN DETAIL NOT TO SCALE

"Professional Certification. I 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. 13204. Expiration Date: November 3, 2012."

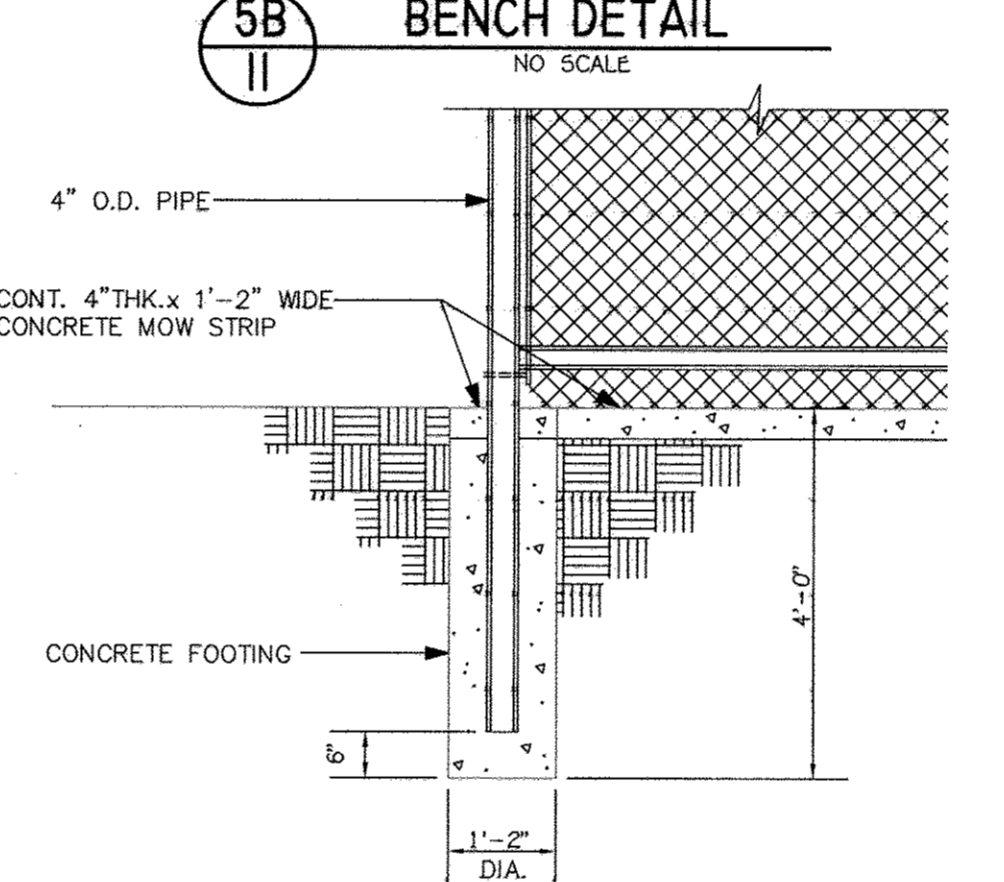
CHARLES J. GROVO, SR., P.E. 10/29/12 DATE



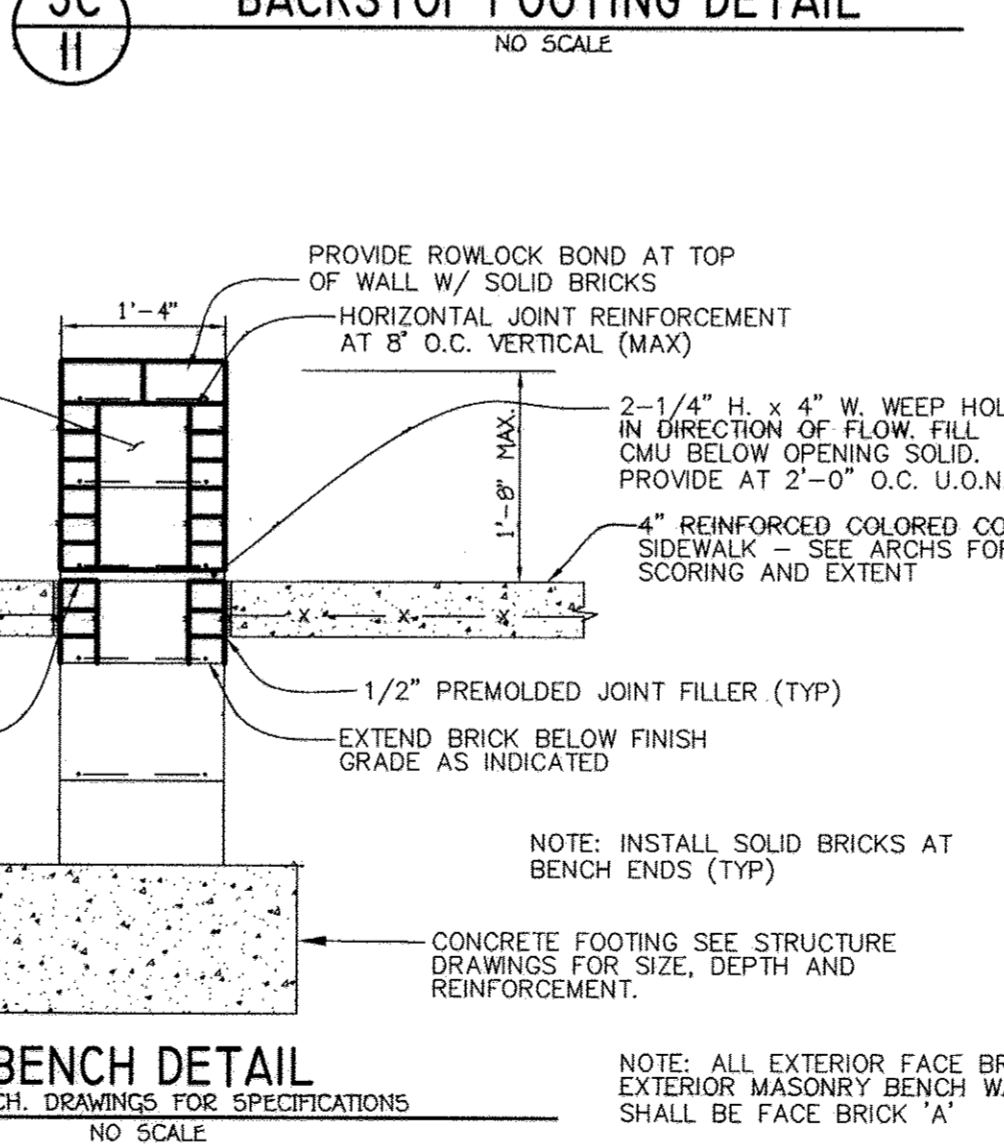
5A SOFTBALL BACKSTOP SECTION NO SCALE



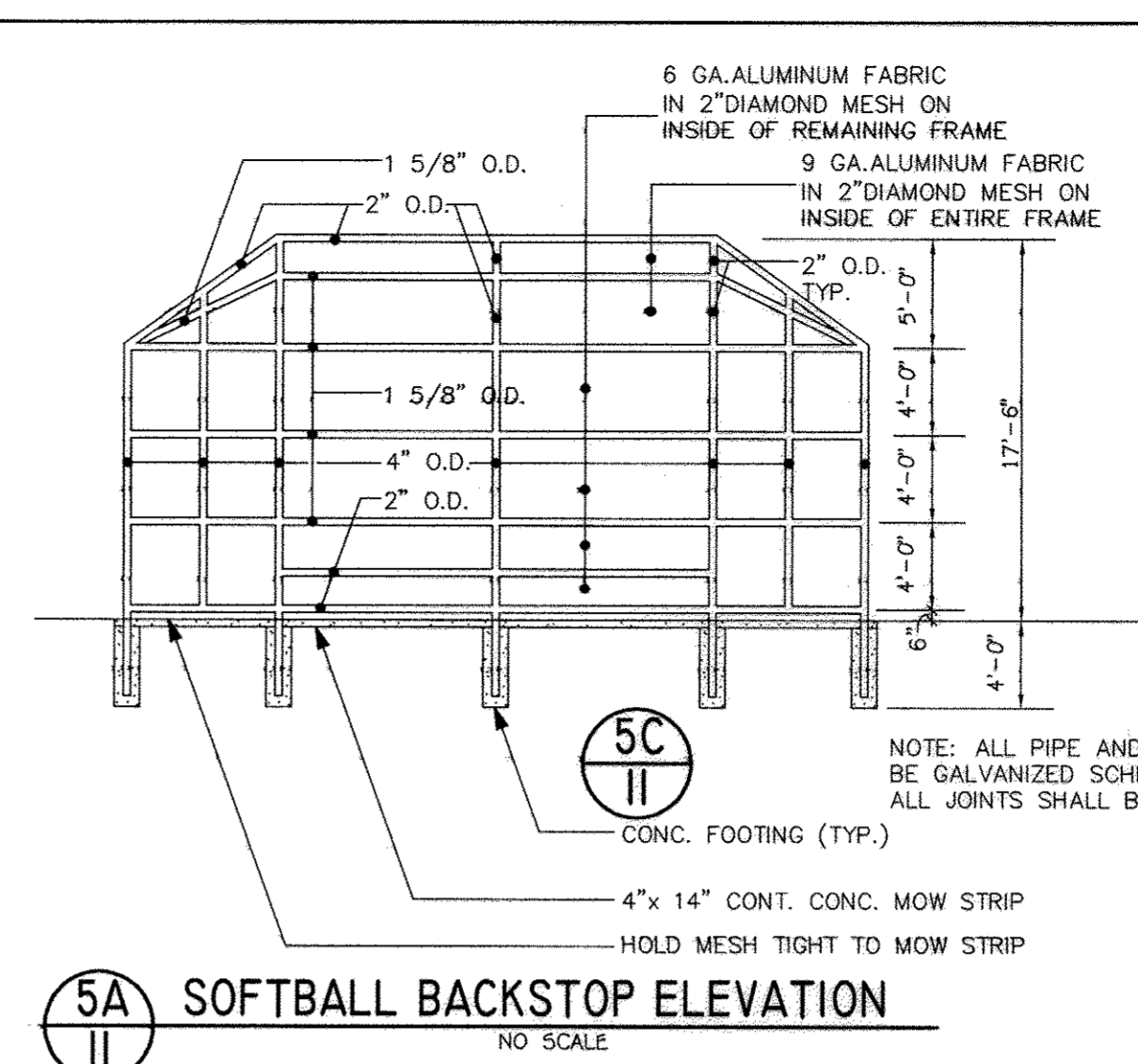
5B BENCH DETAIL NO SCALE



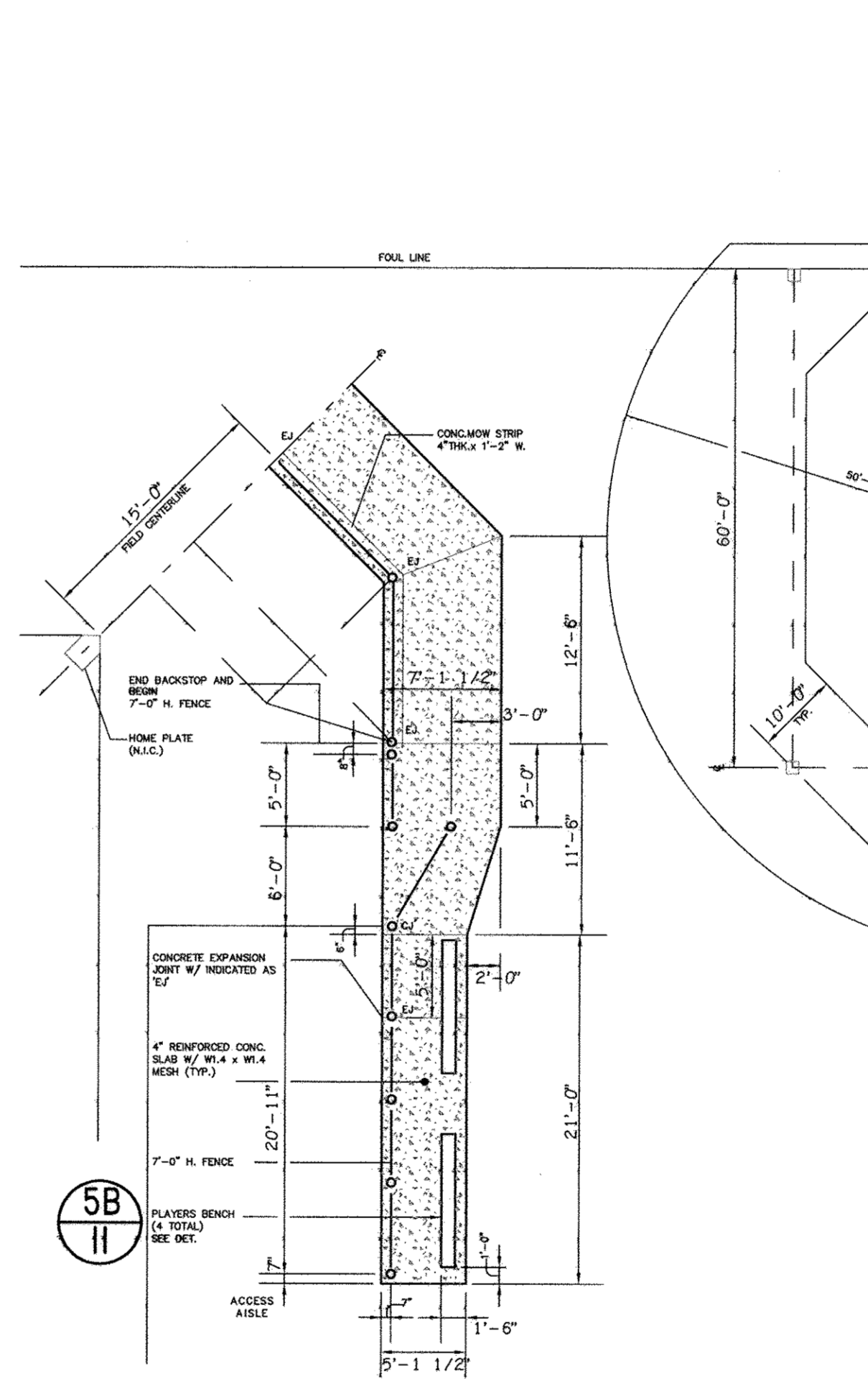
5C BACKSTOP FOOTING DETAIL NO SCALE



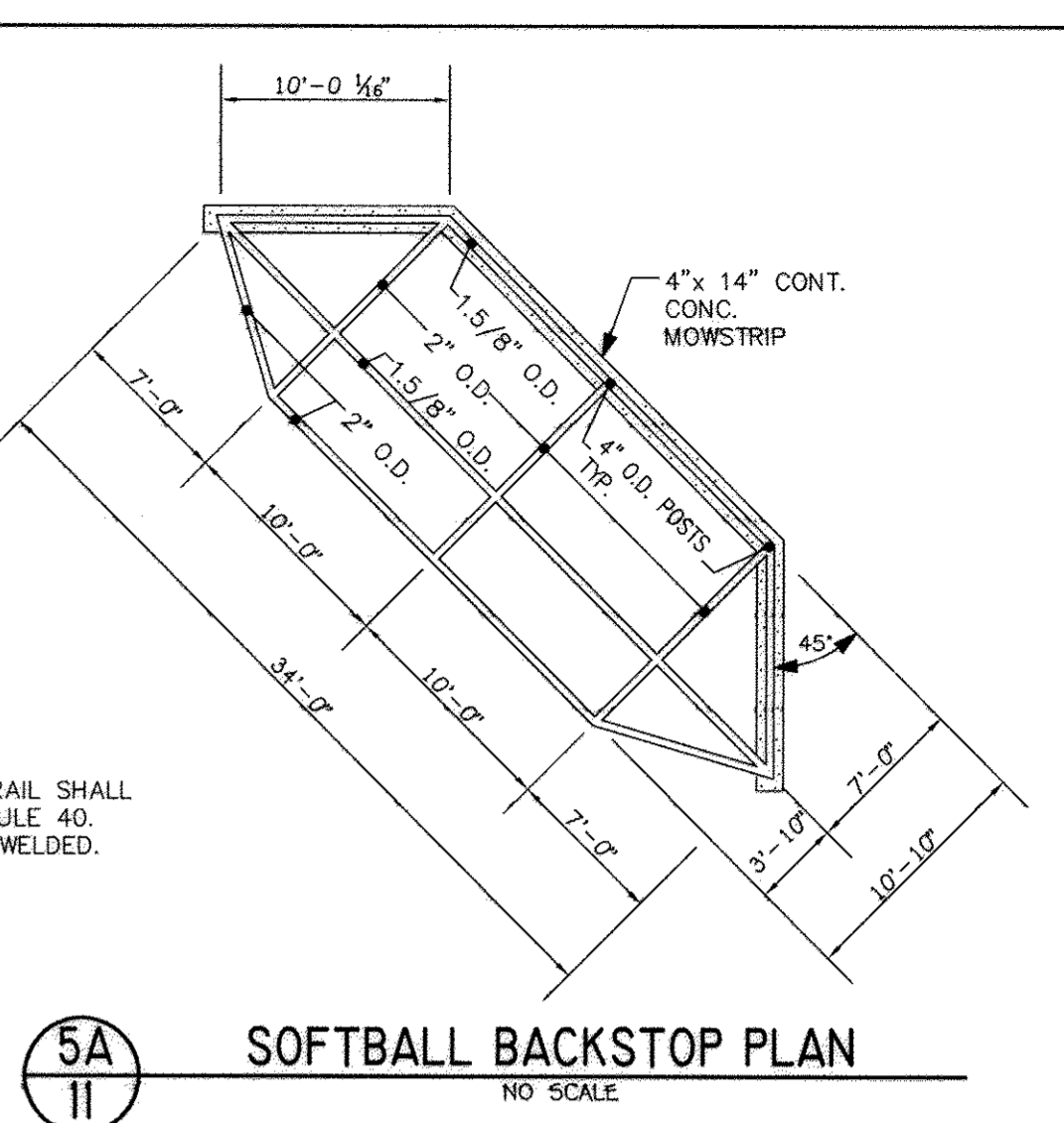
7 BENCH DETAIL NO SCALE



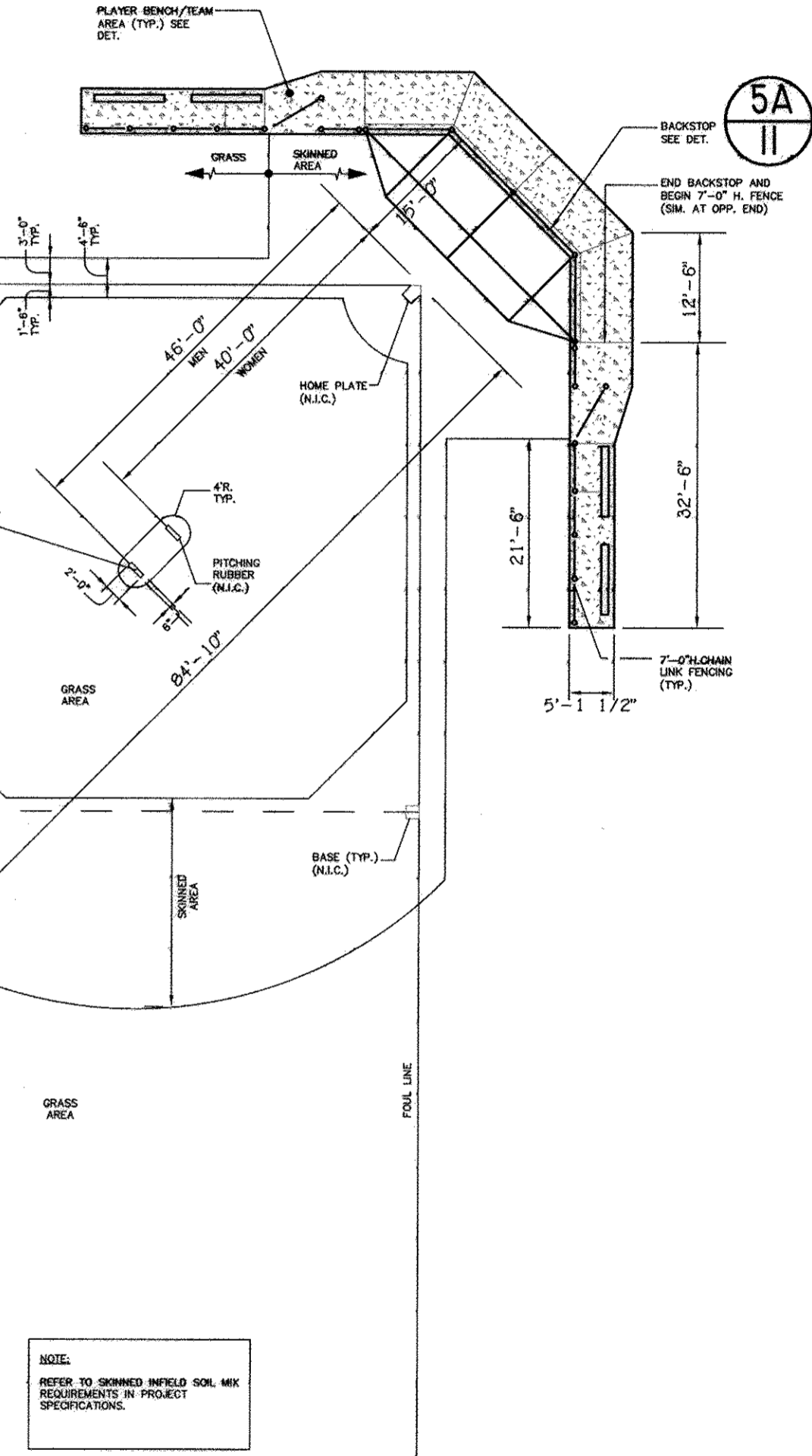
5A SOFTBALL BACKSTOP ELEVATION NO SCALE



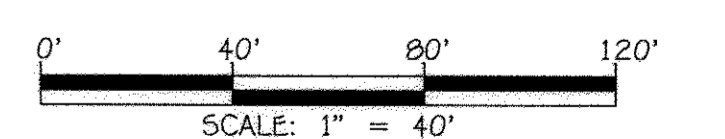
5 SOFTBALL FIELD DETAIL NO SCALE



5A SOFTBALL BACKSTOP PLAN NO SCALE



5 SOFTBALL FIELD DETAIL NO SCALE



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning 1/15/12 DATE

Chief, Division of Land Development 11/11/12 DATE

Chief, Development Engineering Division 11/15/12 DATE

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 10B  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6809

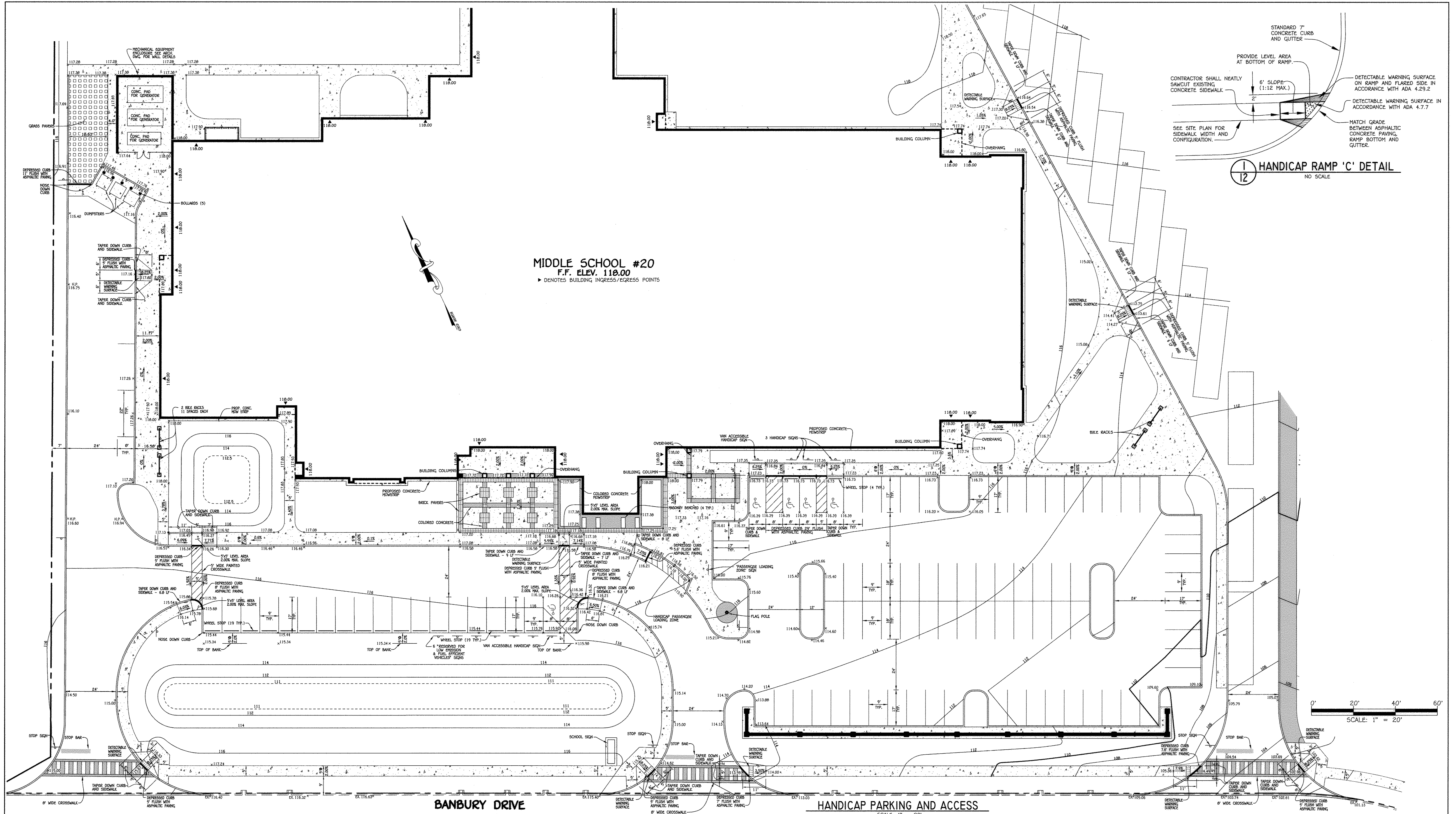
Address Chart			
Parcel Number	Street Address		
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076		
PROJECT	SECTION/AREA	PARCEL	
MIDDLE SCHOOL #20	N/A	'D-D'	
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP ELEC. DIST. CENSUS TR.
25760-25790	20	TOD	3B FIRST 6012.01
WATER CODE	SEWER CODE		
---	---		

DETAIL SHEET

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TO TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 11 OF 50 SDP-12-075



**12** HANDICAP RAMP 'C' DETAIL  
NO SCALE

**BANBURY DRIVE** **HANDICAP PARKING AND ACCESS**  
SCALE: 1" = 20'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10276 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2999

Professional Certification. I 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. 13204, Expiration Date: November 3, 2012.

*Charles J. Grovo*  
CHARLES J. GROVO, SR., P.E.  
10/29/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

*Paula J. Light* 11/27/12 DATE  
*Kate Schuchman* 11/14/12 DATE  
*John Williams* 11/15/12 DATE

DATE	DESCRIPTION
10/29/12	REVISED TITLE BLOCK

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 10B  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart	
Parcel Number	Street Address
17-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	SECTION/AREA
MIDDLE SCHOOL #20	N/A
PLAT NOS.	TAX MAP
23708-23790	20
WATER CODE	SEWER CODE

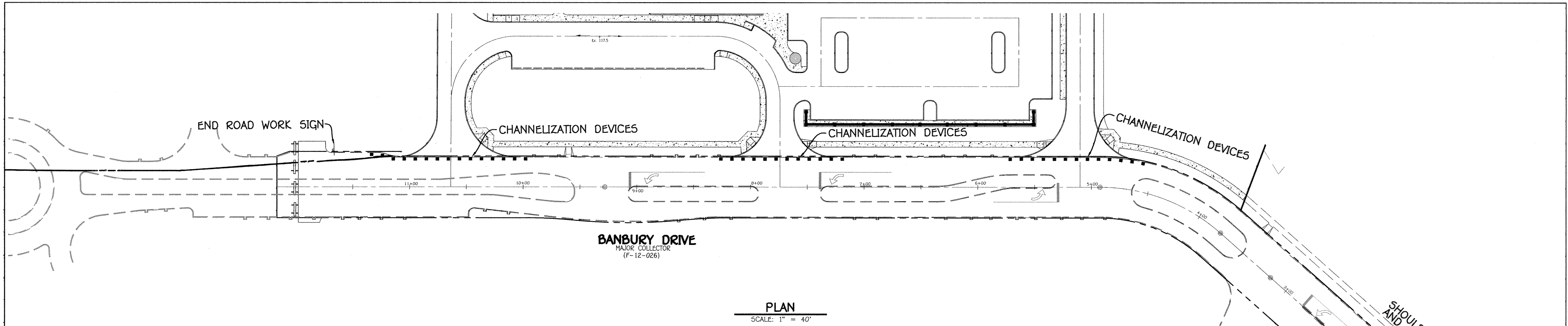
**HANDICAP ACCESS PLAN**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
OXFORD SQUARE  
PARCEL '17-D'

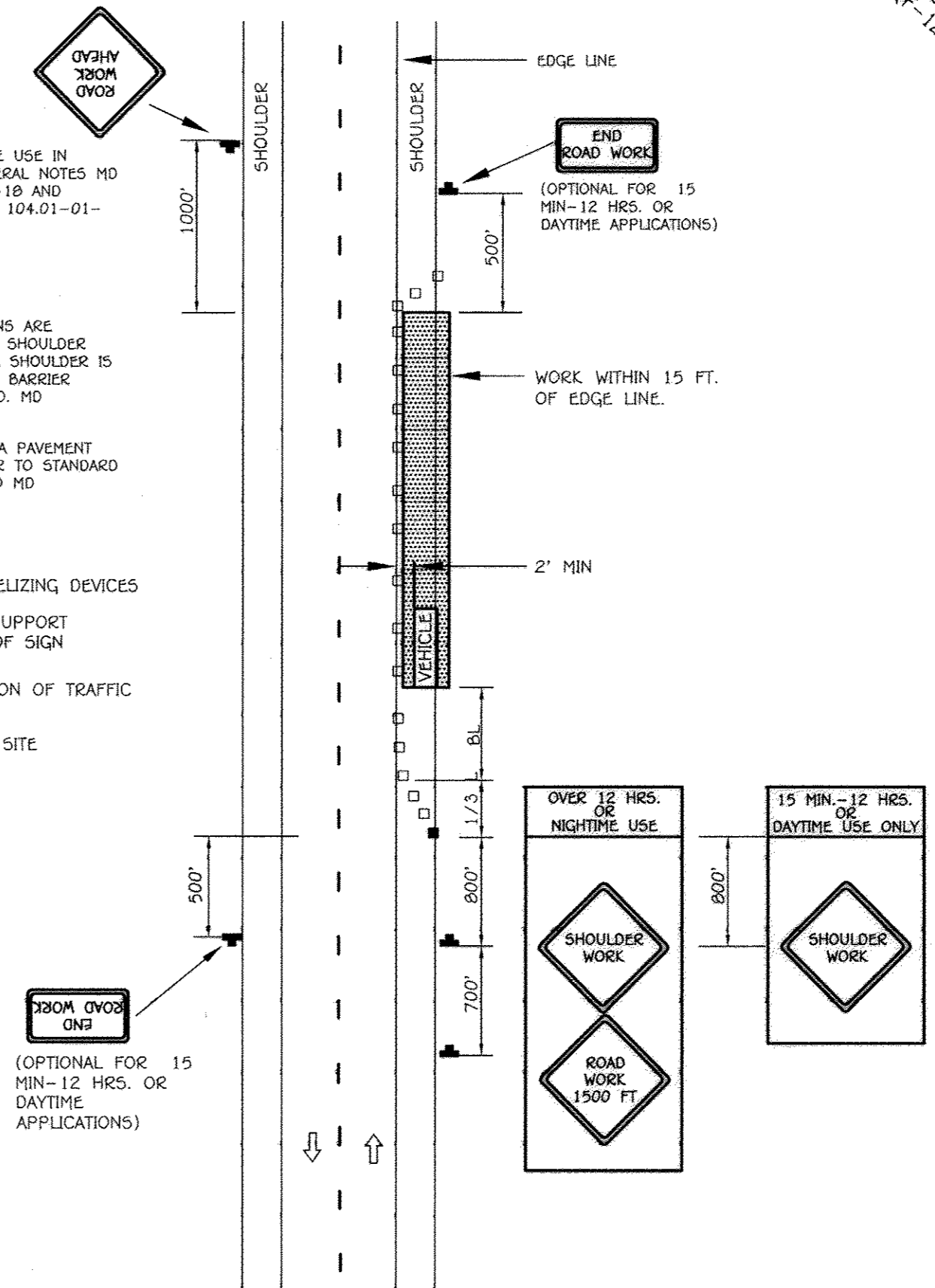
ZONED TO: TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 12 OF 50 **SOP-12-075**





PLAN  
SCALE: 1" = 40'



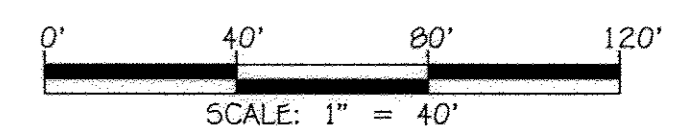
**IMPORTANT:**  
THIS DRAWING SHALL BE USED IN COMBINATION WITH GENERAL NOTES MD 104.00-01-MD 104.00-18 AND STANDARD DETAILS MD 104.01-01-MD 104.01-62

**NOTES:**  
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY A PHYSICAL BARRIER REFER TO STANDARD NO. MD 104.06-14  
WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-11 TO MD 104.06-15.

- KEY:**
- CHANNELIZING DEVICES
  - SIGN SUPPORT
  - ↑ DIRECTION OF TRAFFIC
  - ▨ WORK SITE

SHOULDER WORK / 2-LANE, 2-WAY  
EQL/LESS THAN 40 MPH

NO SCALE



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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
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(410) 461-2299



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

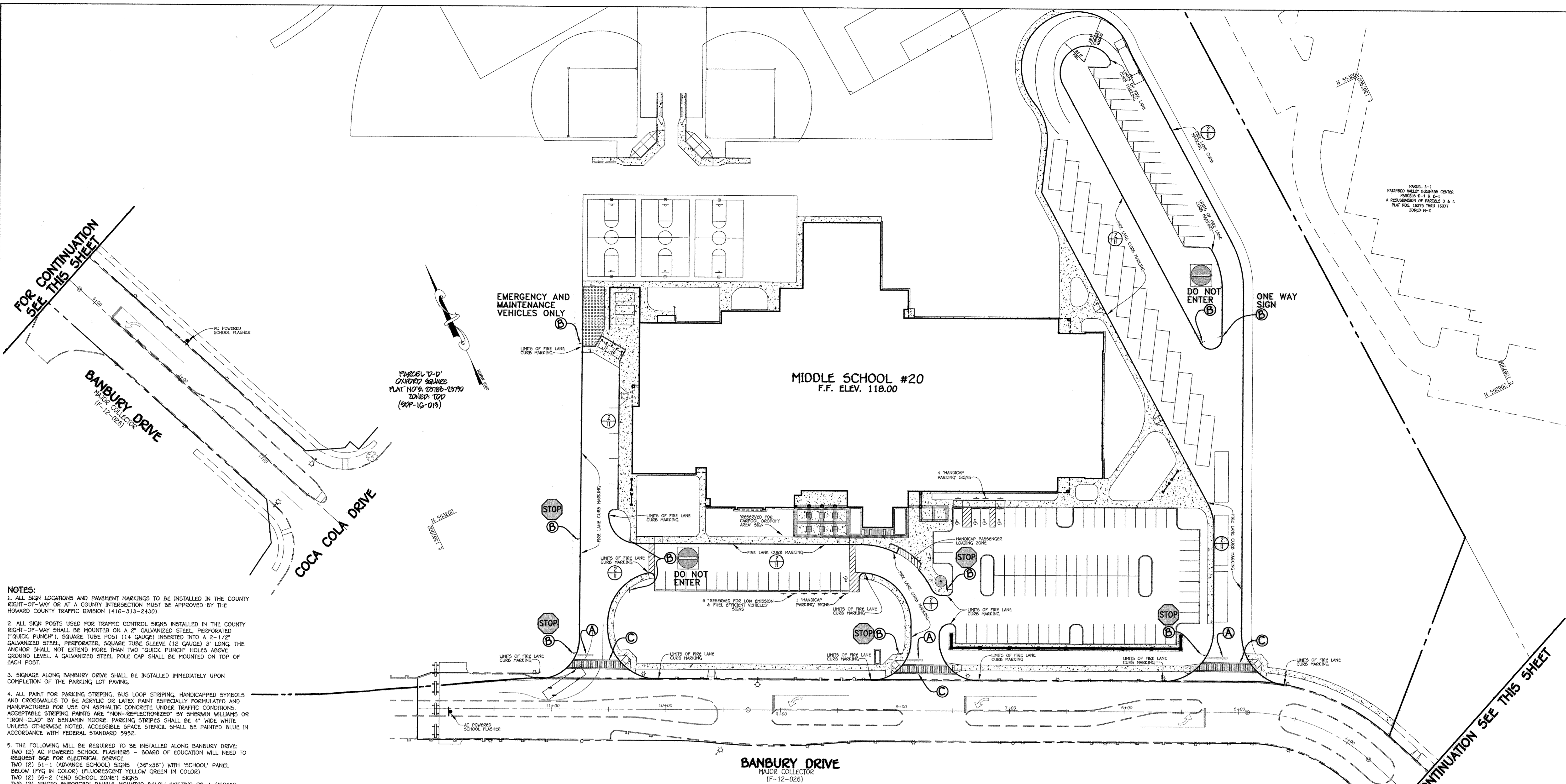
*Charles J. Devo, Sr.*  
CHARLES J. DEVO, SR., P.E. 10/23/12 DATE

DATE	DESCRIPTION
10/23/12	REVISED BOUNDARY & TITLE BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Paul H. Gagliardi</i>	1/15/12 DATE
Director - Department of Planning and Zoning	
<i>V. S. ...</i>	4/11/13 DATE
Chief, Division of Land Development	
<i>...</i>	4/13/12 DATE
Chief, Development Engineering Division	

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 10B  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	MIDDLE SCHOOL #20
PLAT NOS.	27100-27190
BLOCK NO.	20
ZONE	TOD
TAX MAP	3B
ELEC. DIST.	FIRST
CENSUS TR.	6012.01
SECTION/AREA	N/A
PARCEL	'D-D'
WATER CODE	---
SEWER CODE	---

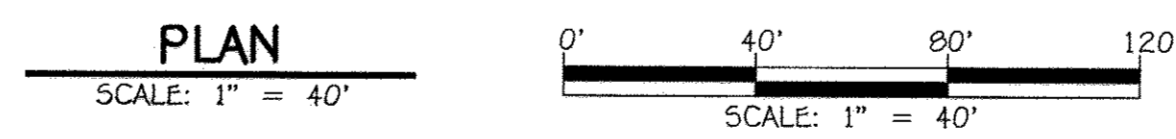
TRAFFIC MAINTENANCE PLAN	
'GREEN NEIGHBORHOOD' MIDDLE SCHOOL #20 OXFORD SQUARE PARCEL 'D-D'	
ZONED TO	TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761
FIRST ELECTION DISTRICT	HOWARD COUNTY, MARYLAND
SCALE: 1" = 40'	DATE: OCTOBER 26, 2012
SHEET 14 OF 50 5DP-12-075	



- NOTES:**
1. ALL SIGN LOCATIONS AND PAVEMENT MARKINGS TO BE INSTALLED IN THE COUNTY RIGHT-OF-WAY OR AT A COUNTY INTERSECTION MUST BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION (410-313-2430).
  2. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
  3. SIGNAGE ALONG BANBURY DRIVE SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE PARKING LOT PAVING.
  4. ALL PAINT FOR PARKING STRIPING, BUS LOOP STRIPING, HANDICAPPED SYMBOLS AND CROSSWALKS TO BE ACRYLIC OR LATEX PAINT ESPECIALLY FORMULATED AND MANUFACTURED FOR USE ON ASPHALTIC CONCRETE UNDER TRAFFIC CONDITIONS. ACCEPTABLE STRIPING PAINTS ARE "NON-REFLECTIONIZED" BY SHERWIN WILLIAMS OR "IRON-CLAD" BY BENJAMIN MOORE. PARKING STRIPES SHALL BE 4" WIDE WHITE. UNLESS OTHERWISE NOTED, ACCESSIBLE SPACE STRIPES SHALL BE PAINTED BLUE IN ACCORDANCE WITH FEDERAL STANDARD 595C.
  5. THE FOLLOWING WILL BE REQUIRED TO BE INSTALLED ALONG BANBURY DRIVE:  
 TWO (2) AC POWERED SCHOOL FLASHERS - BOARD OF EDUCATION WILL NEED TO REQUEST BGE FOR ELECTRICAL SERVICE.  
 TWO (2) 51-1 (ADVANCE SCHOOL) SIGNS (36"x36") WITH "SCHOOL" PANEL BELOW (PYG IN COLOR) (FLUORESCENT YELLOW GREEN IN COLOR)  
 TWO (2) 55-2 ("END SCHOOL ZONE") SIGNS  
 TWO (2) "PHOTO ENFORCED" PANELS MOUNTED BELOW EXISTING R2-1 ("SPEED LIMIT 25") SIGNS. NOTE THESE EXISTING SIGNS MAY NEED TO BE RELOCATED.

**NOTE: THE CONTRACTOR SHALL NOTIFY MR. PARRIS ZIRKENBACH (410-313-5752) AT THE TRAFFIC ENGINEERING DIVISION REGARDING COORDINATION, SCHEDULING AND LOCATION OF THE SCHOOL FLASHERS ALONG WITH SIGN LOCATION PLACEMENT ALONG BANBURY DRIVE.**

- PAVEMENT MARKING LEGEND**
- (A) INSTALL 24" SOLID WHITE PAVEMENT MARKING FOR STOP LINE.
  - (B) INSTALL GROUND MOUNTED SIGN.
  - (C) PEDESTRIAN CROSSWALK. CROSSWALK SHALL BE THE HOWARD COUNTY STANDARD CROSSWALK (REFER TO DETAIL T-7.03 IN THE HOWARD COUNTY DESIGN MANUAL - VOLUME M). THE CROSSWALK SHALL BE INSTALLED WITH THERMOPLASTIC OR PREFORMED, HEAT APPLIED, THERMOPLASTIC.



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SOURCE OFFICE: PARK - 10272 BALDWIN NATIONAL PICE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 441-2005



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*Charles J. Croft, Sr.*  
 CHARLES J. CROFT, SR., P.E.  
 10/29/12 DATE

6/20/12	REVISION BOUNDARY, PUBLIC PCE & TITLE BLOCK
DATE	DESCRIPTION
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Marsha J. Campbell</i>	4/8/12
Director - Department of Planning and Zoning	DATE
<i>Kevin Shelton</i>	11/14/12
Chief, Division of Land Development	DATE
<i>Charles J. Croft, Sr.</i>	11/15/12
Chief, Development Engineering Division	DATE

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

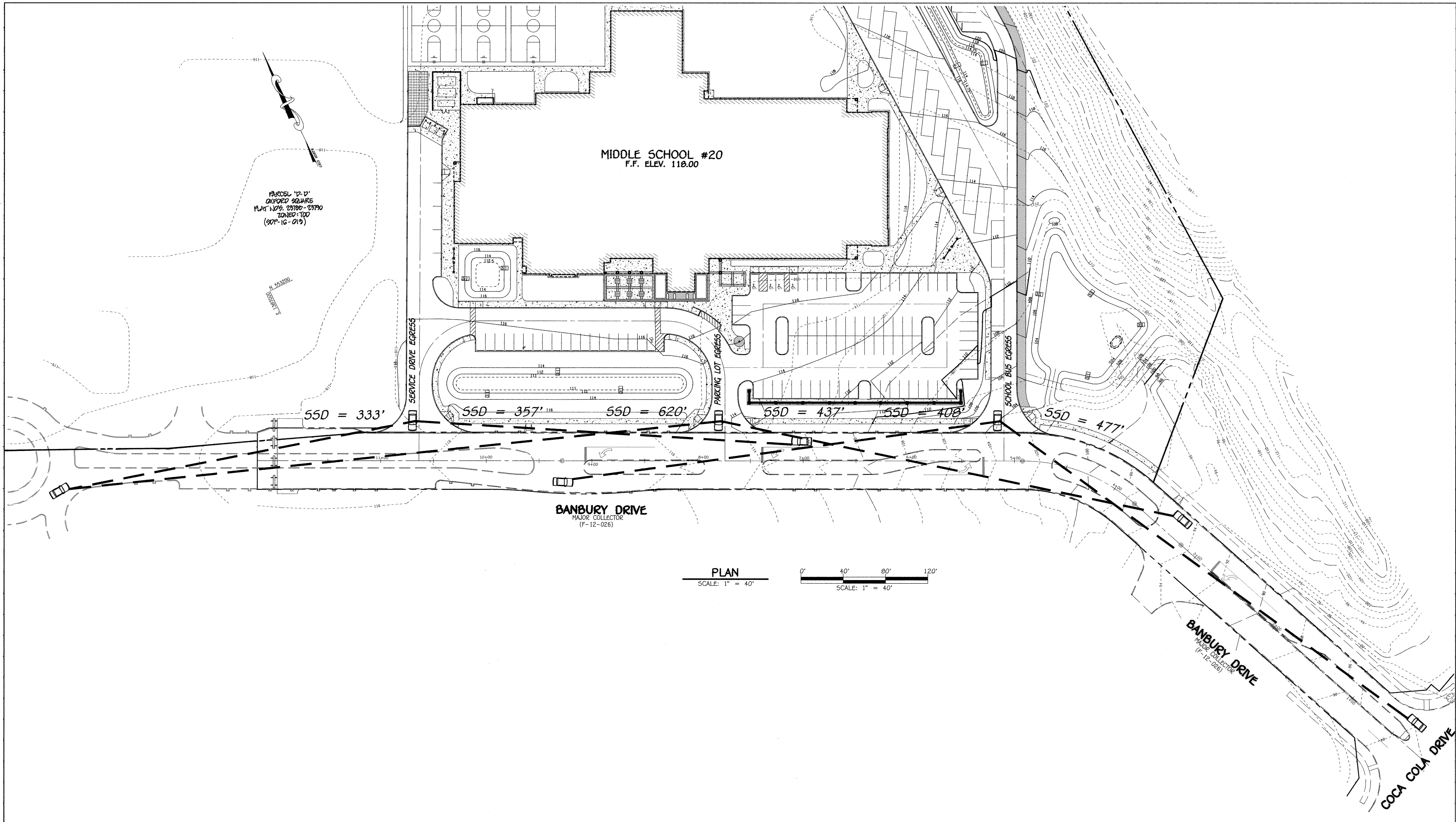
Address Chart	
Parcel Number	Street Address
10-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	SECTION/AREA
MIDDLE SCHOOL #20	N/A
PLAT NOS.	BLOCK NO.
25700-25790	20
ZONE	TAX MAP
TOD	3B
ELEC. DIST.	CENSUS TR.
FIRST	6012.01
WATER CODE	SEWER CODE
---	---

**PAVEMENT MARKING AND SIGNAGE PLAN**

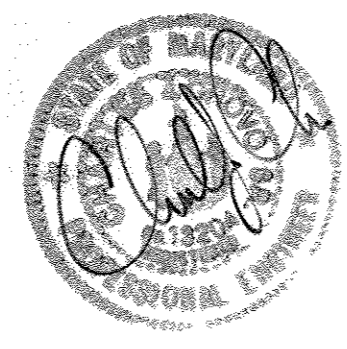
'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

SHEET 15 OF 50 **SDP-12-075**



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 11072 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21142  
(410) 461-7899



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*Charles J. Crovo, Sr.*  
CHARLES J. CROVO, SR., P.E. 10/29/12 DATE

01/20/12	REMOVED BANBURY, PUBLIC POE & TITLE BLOCK
DATE	DESCRIPTION
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Mark A. Cavallaro</i>	1/10/12
Director - Department of Planning and Zoning	Date
<i>Kate Salomon</i>	1/14/12
Chief, Division of Land Development	Date
<i>Charles J. Crovo, Sr.</i>	11/15/12
Chief, Development Engineering Division	Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 100  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT		SECTION/AREA	PARCEL		
MIDDLE SCHOOL #20		N/A	'D-D'		
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03700-03790	20	TOD	3B	FIRST	6012.01
WATER CODE			SEWER CODE		
----			----		

**STOPPING SIGHT DISTANCE PLAN**

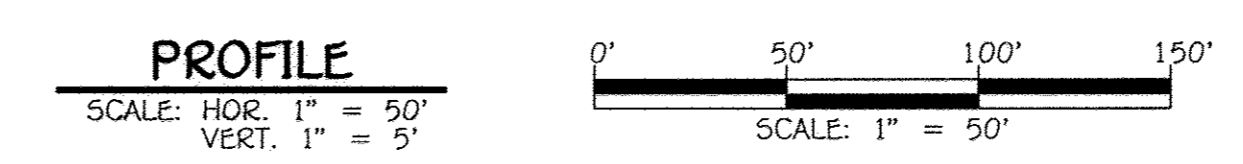
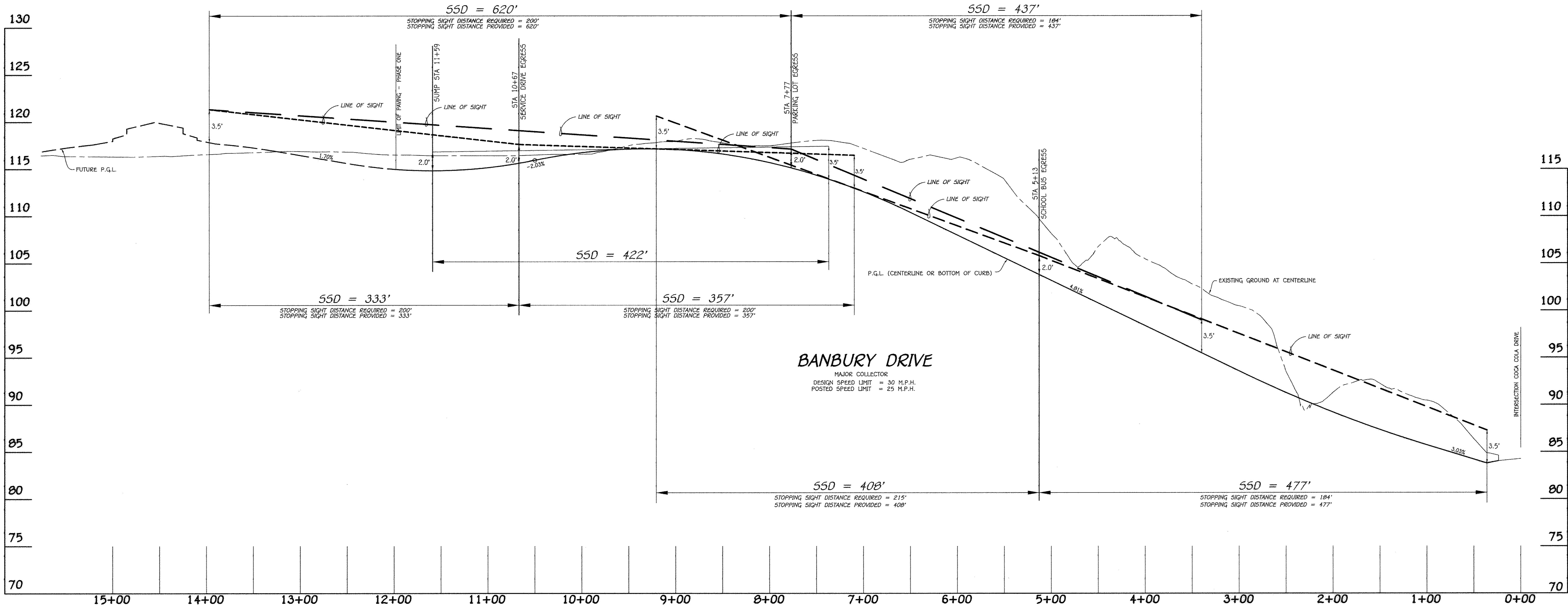
'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 40' DATE: OCTOBER 26, 2012

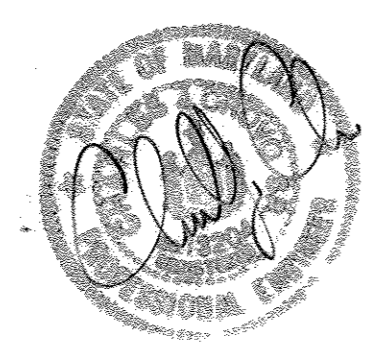
SHEET 16 OF 50 SDP-12-075

1:2009/09/14:dwg/SCSCHOOL PLANS/09/14 SHEET 16-17 SIGHT DISTANCE.dwg, SSD-1, 10/26/2012 8:46:40 AM, 1:1





**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2999



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Grovo*  
 CHARLES J. GROVO, SR., P.E.      10/24/12 DATE

0/20/10	REVISED TITLE BLOCK
DATE	DESCRIPTION
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Paul J. Long</i>	1/15/12 Date
Director - Department of Planning and Zoning	
<i>Paul J. Long</i>	1/14/13 Date
Chief, Division of Land Development	
<i>Paul J. Long</i>	1/15/12 Date
Chief, Development Engineering Division	

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	MIDDLE SCHOOL #20	SECTION/AREA	N/A	PARCEL	'D-D'
PLAT NOS.	20	BLOCK NO.	20	ZONE	30
TOD	30	FIRST	6012.01	ELEC. DIST.	
CENSUS TR.					
WATER CODE	----	SEWER CODE	----		

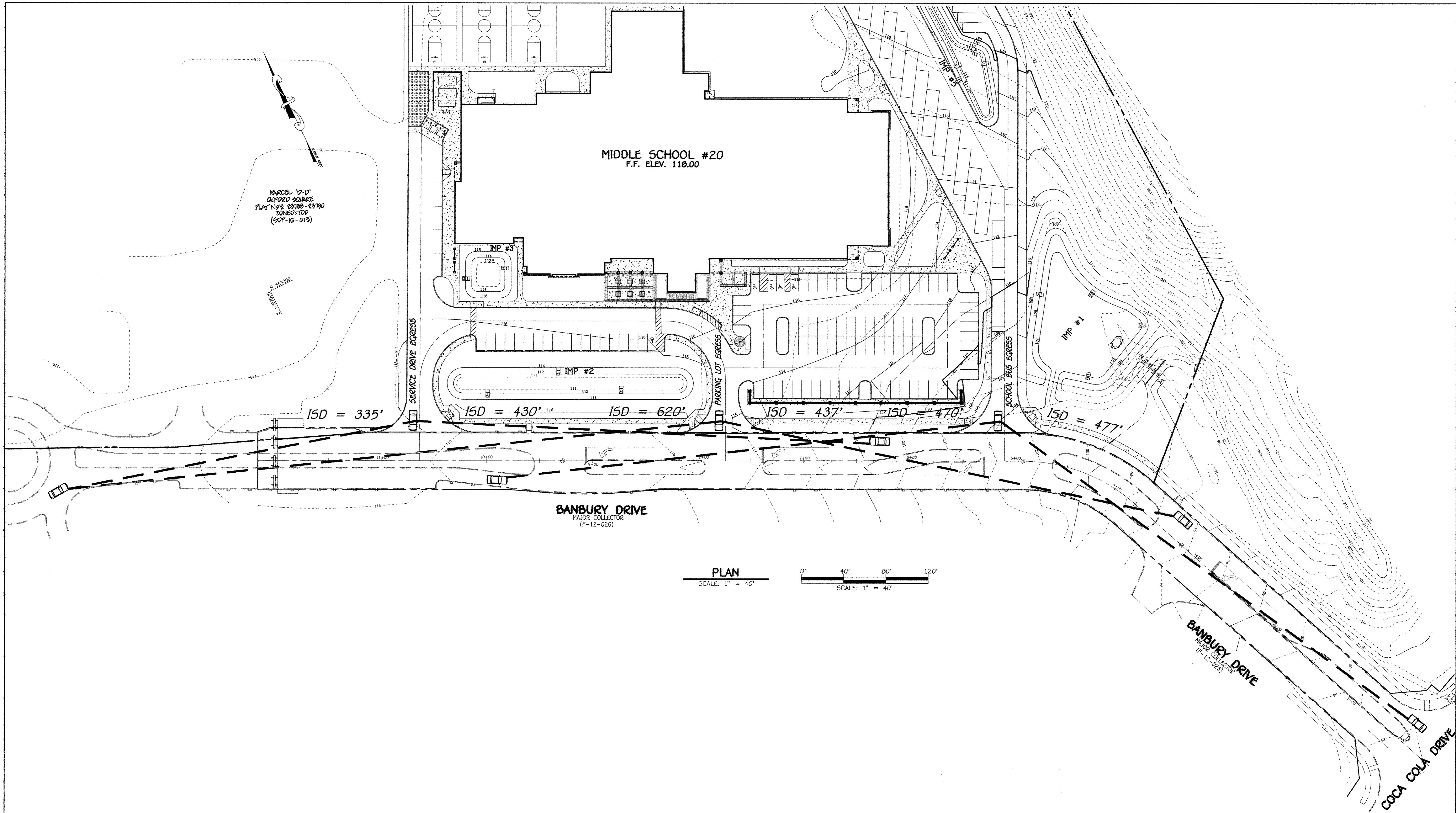
**STOPPING SIGHT DISTANCE PROFILE**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 17 OF 50      SDP-12-075

1:2009/09/14/14/01/SCHOOL PLANS/09/14 SHEET 16-17 SIGHT DISTANCE.dwg, SSD-2, 10/26/2012 8:47:32 AM, 1:1



PLAN  
SCALE: 1" = 40'

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CONTINENTAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2000



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
*Charles J. Crervo*  
CHARLES J. CROVO, SR., P.E. 10/29/12 DATE

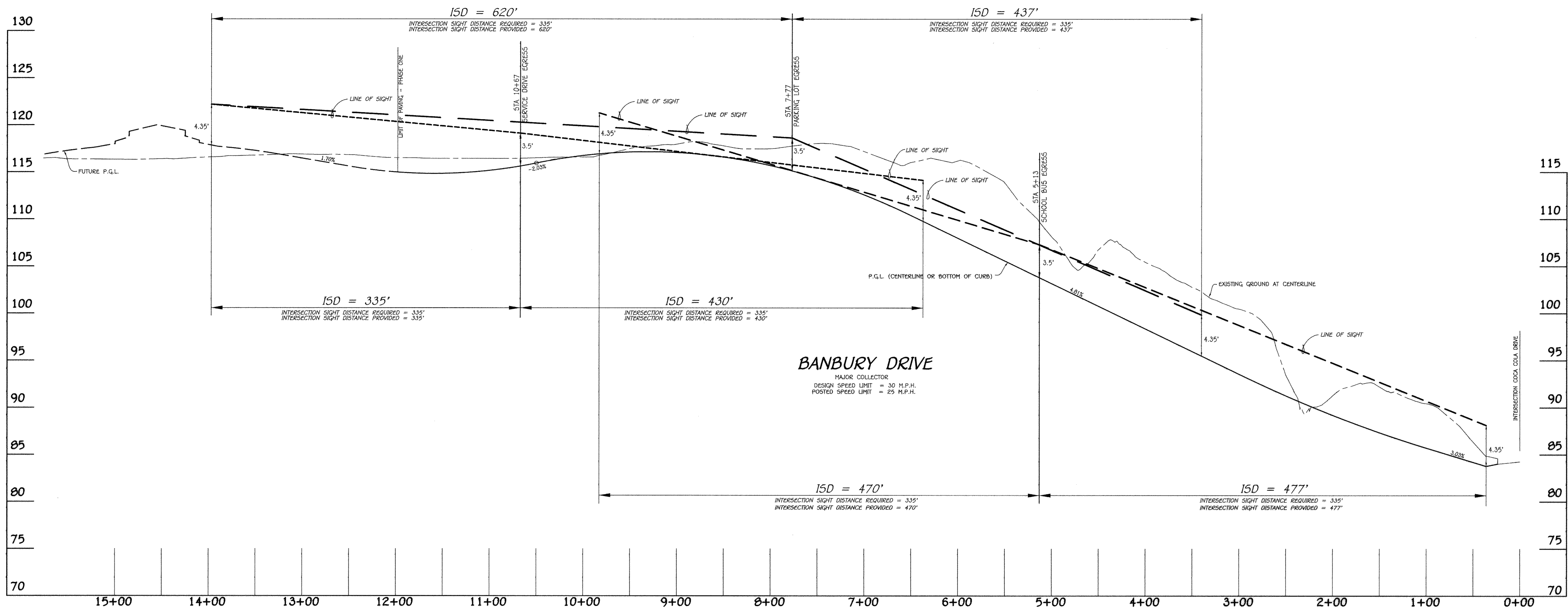
6/20/10	REVISED BOUNDARY, PUBLIC POE & TRIPLE BLOCK
DATE	DESCRIPTION
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Paul J. Gough</i>	1/15/12
Director - Department of Planning and Zoning	Date
<i>Keith Schuch</i>	1/14/13
Chief, Division of Land Development	Date
<i>William C. ...</i>	4/15/10
Chief, Development Engineering Division	Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE				
	HANOVER, MD 21076				
PROJECT		SECTION/AREA	PARCEL		
MIDDLE SCHOOL #20		N/A	'D-D'		
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03180-03790	20	TOD	3B	FIRST	6012.01
WATER CODE		SEWER CODE			
----		----			

INTERSECTION SIGHT DISTANCE PLAN  
  
'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'  
  
ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 40' DATE: OCTOBER 26, 2012  
  
SHEET 10 OF 50 SDP-12-075

I:\2009\09014\dwg\SCHOOL PLANS\09014\_SHEET 10-19 INTERSECTION DISTANCE.dwg, INTERSECTION-DISTANCE.dwg, 10/26/2012 8:49:11 AM, 1:1



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

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 441-2999



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
 Charles J. Cedvo, Sr., P.E. 10/28/12 DATE

DATE	DESCRIPTION
10/28/12	REVISED TITLE BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
11/15/12	Director - Department of Planning and Zoning
11/15/12	Chief, Division of Land Development
11/15/12	Chief, Development Engineering Division

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 10B  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE				
HANOVER, MD 21076					
PROJECT		SECTION/AREA	PARCEL		
MIDDLE SCHOOL #20		N/A	'D-D'		
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
02760-02790	20	TOD	3B	FIRST	6012.01
WATER CODE			SEWER CODE		
----			----		

**INTERSECTION SIGHT DISTANCE PROFILE**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 19 OF 50 **SDP-12-075**

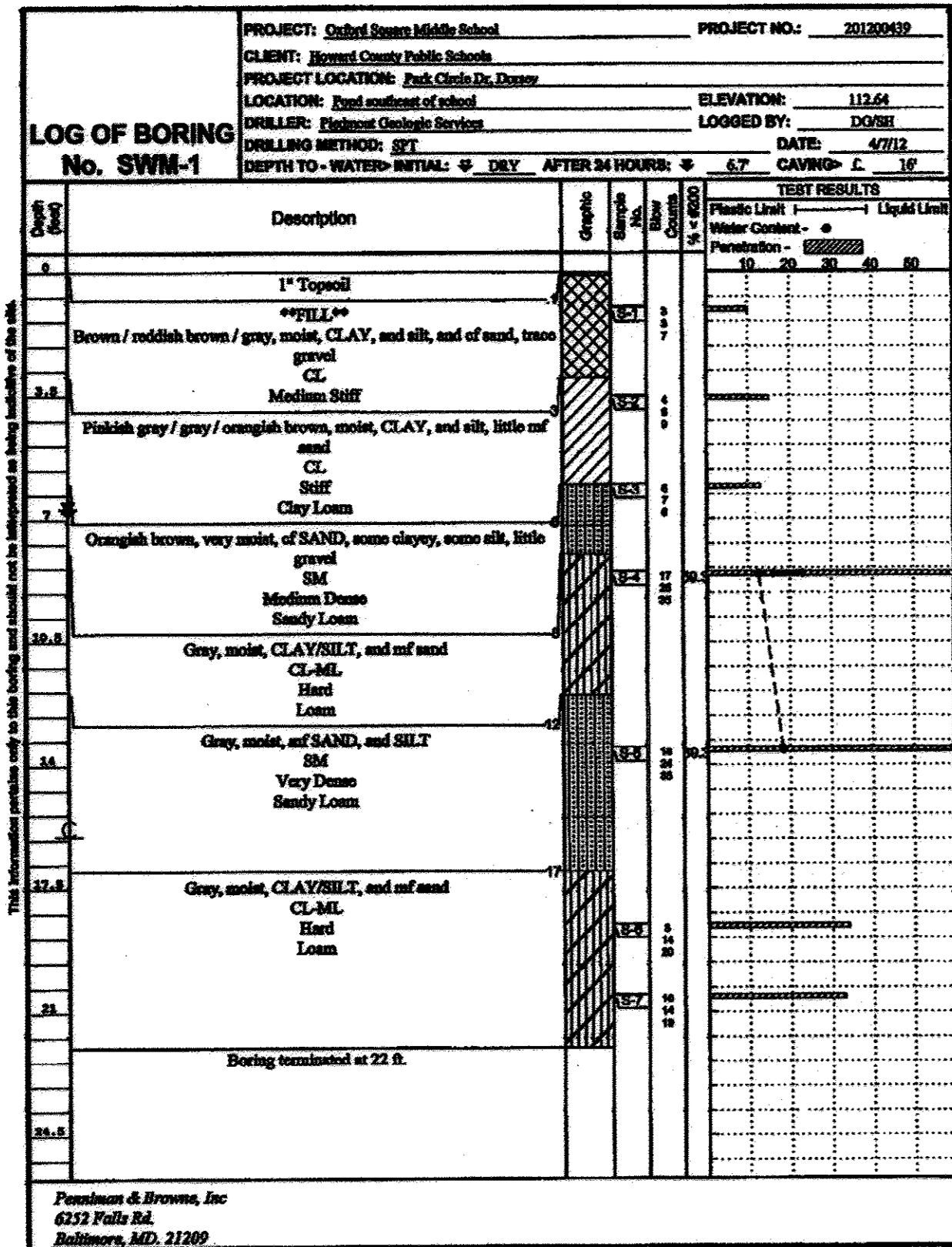


Figure PAGE 1 of 1

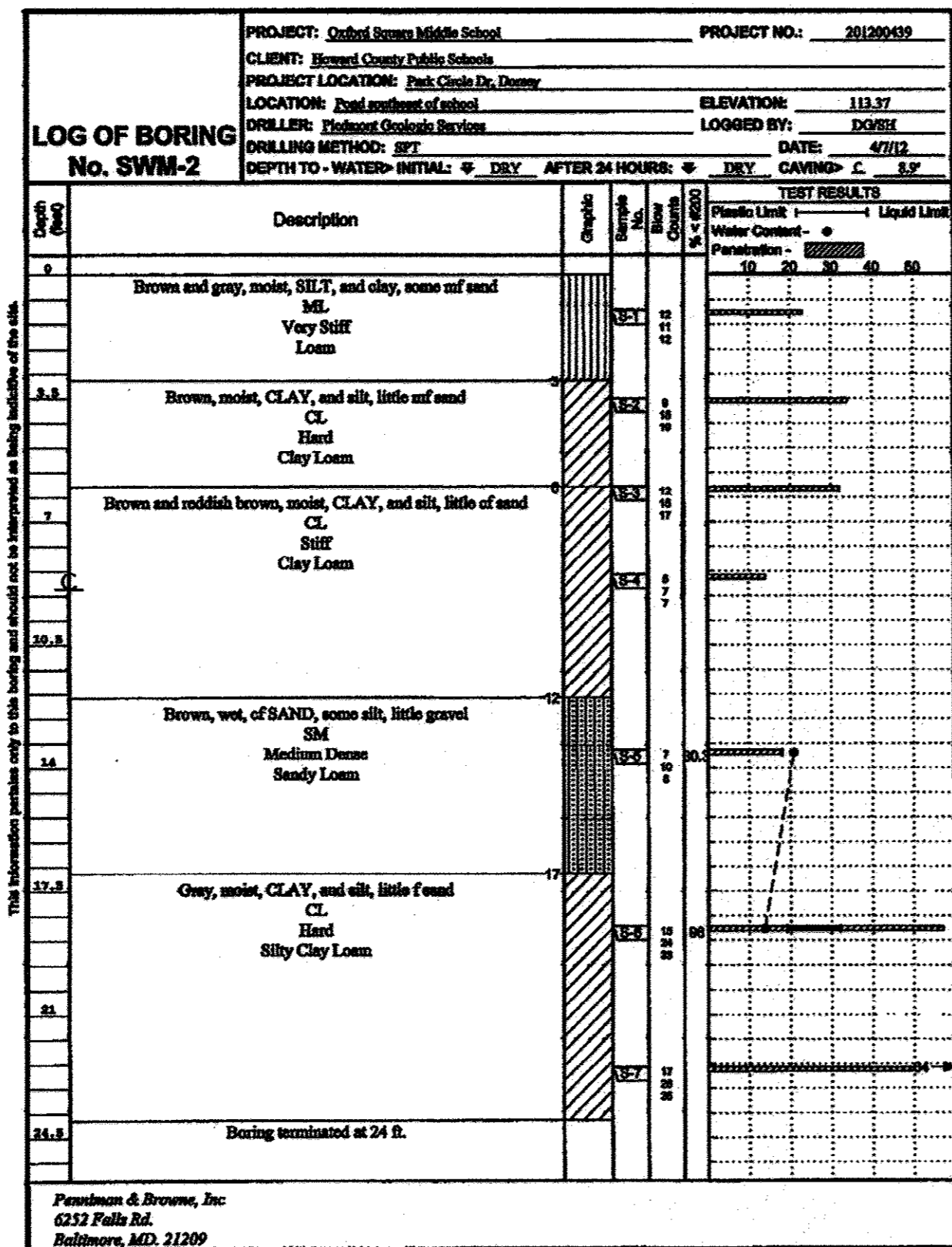


Figure PAGE 1 of 1

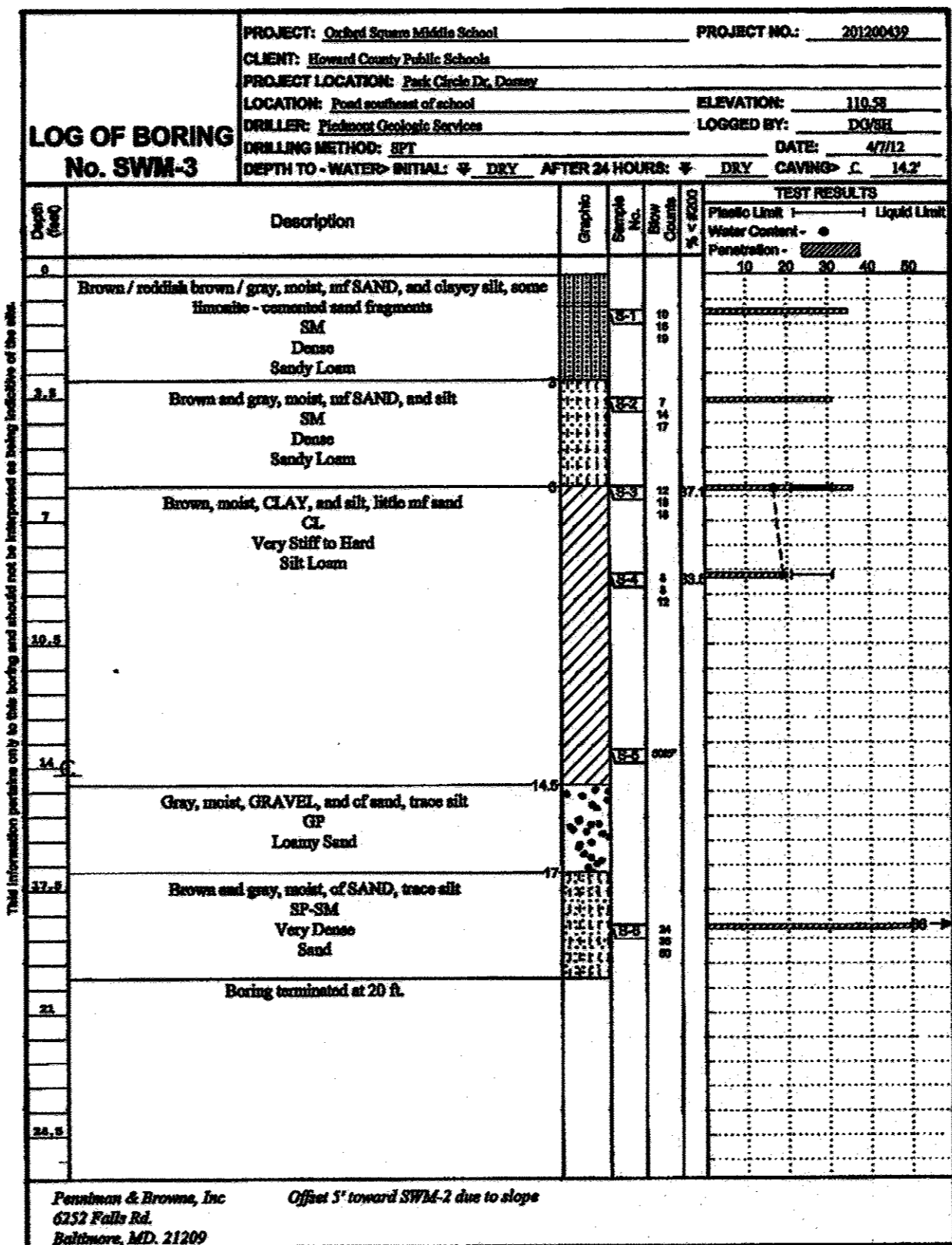


Figure PAGE 1 of 1

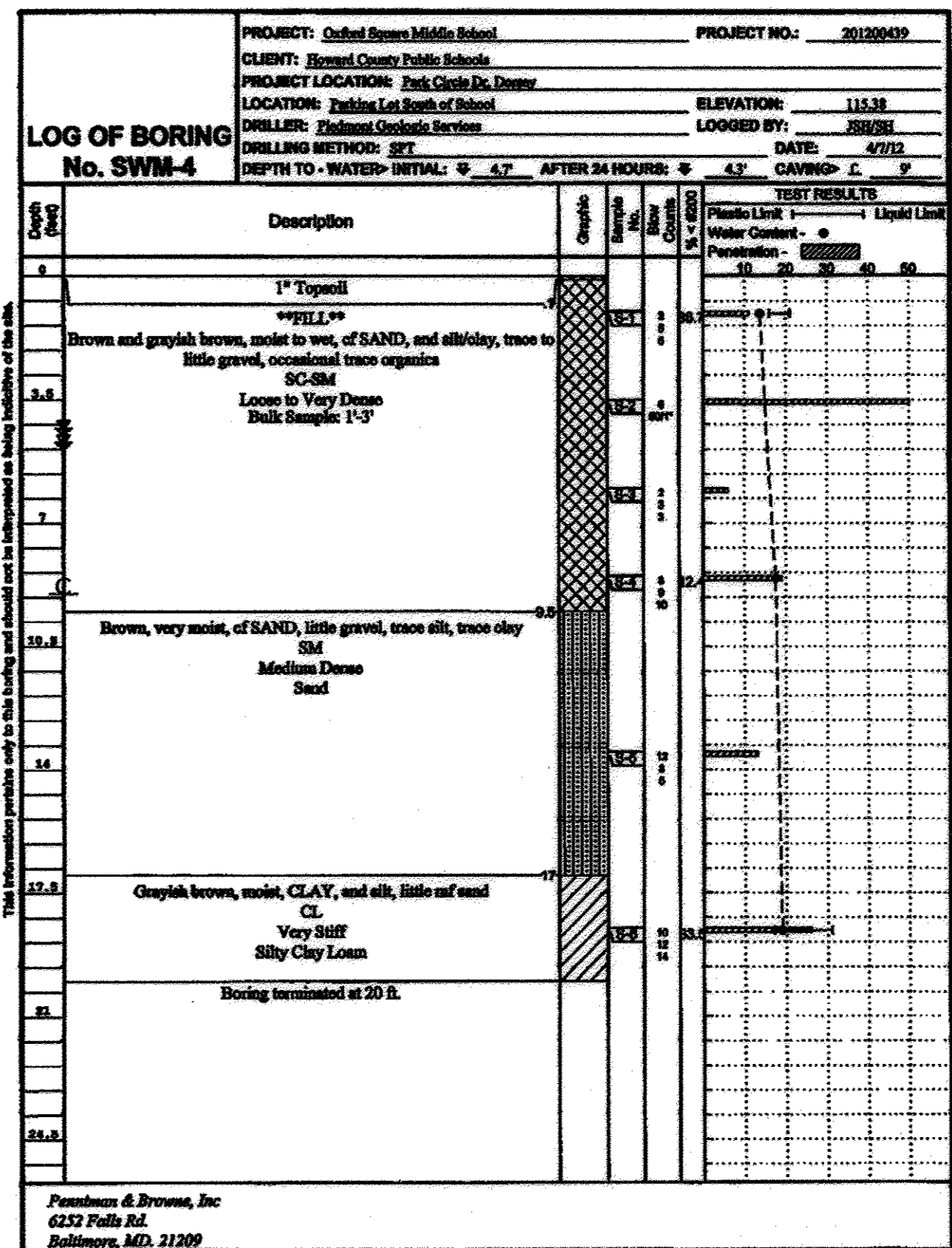


Figure PAGE 1 of 1

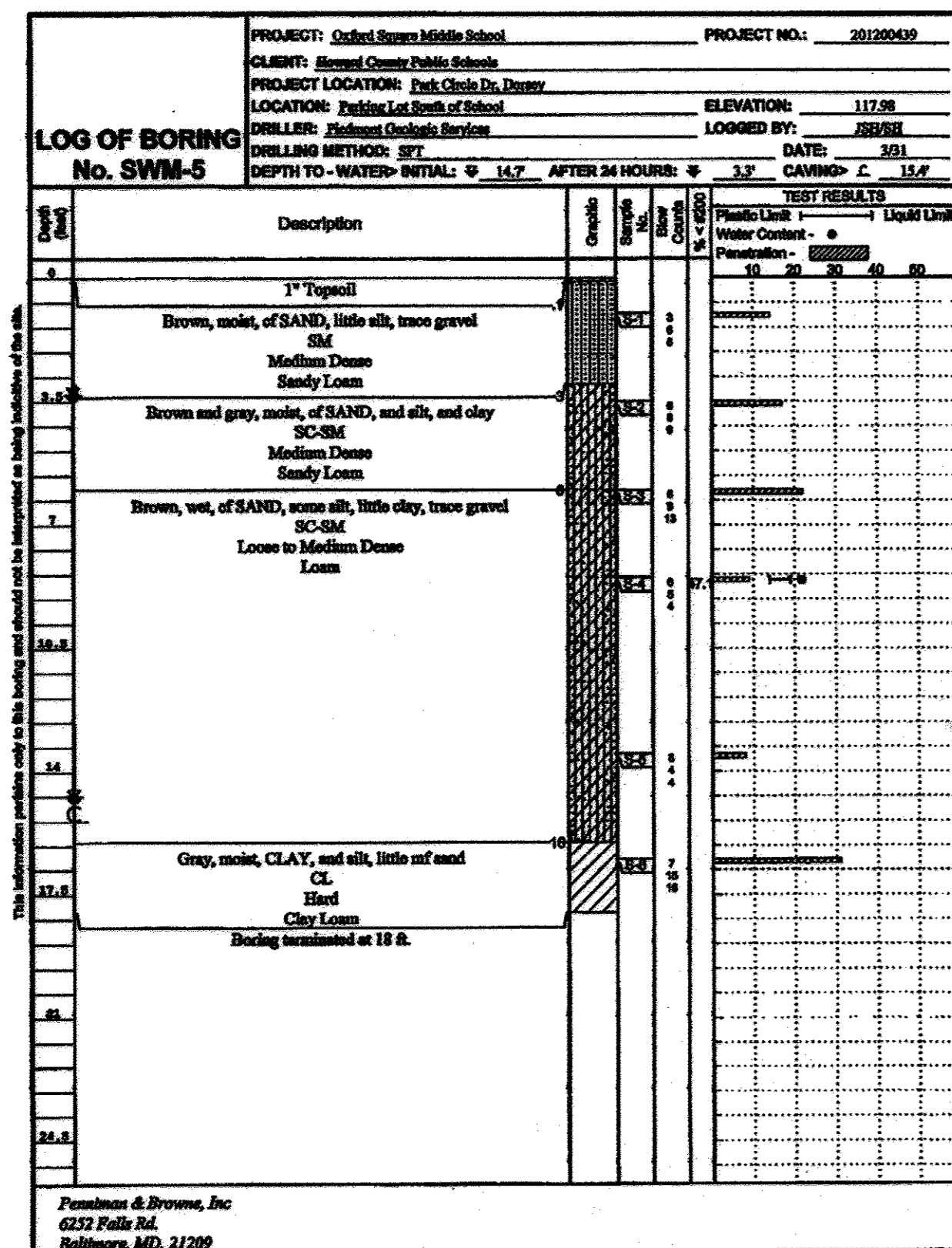


Figure PAGE 1 of 1

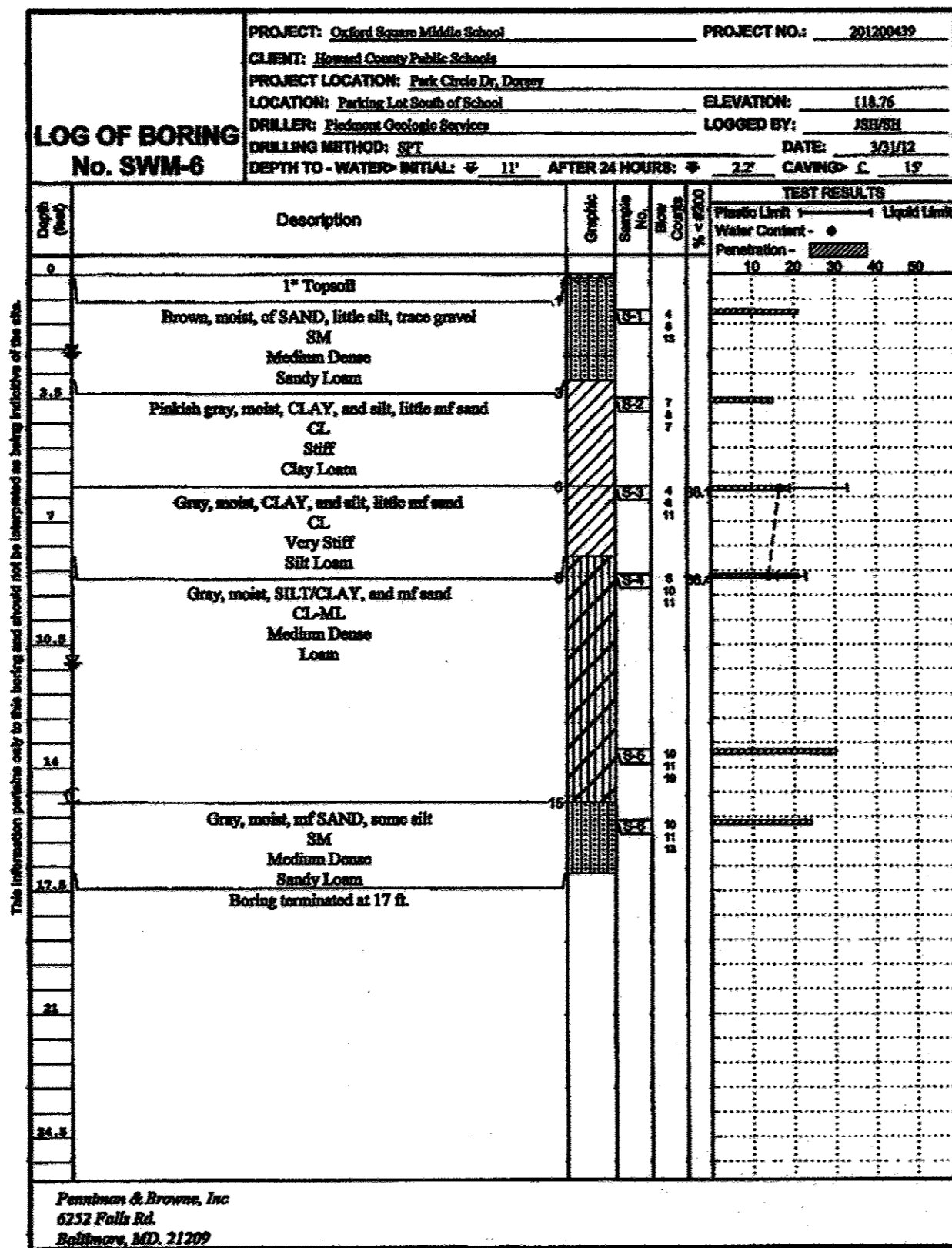


Figure PAGE 1 of 1

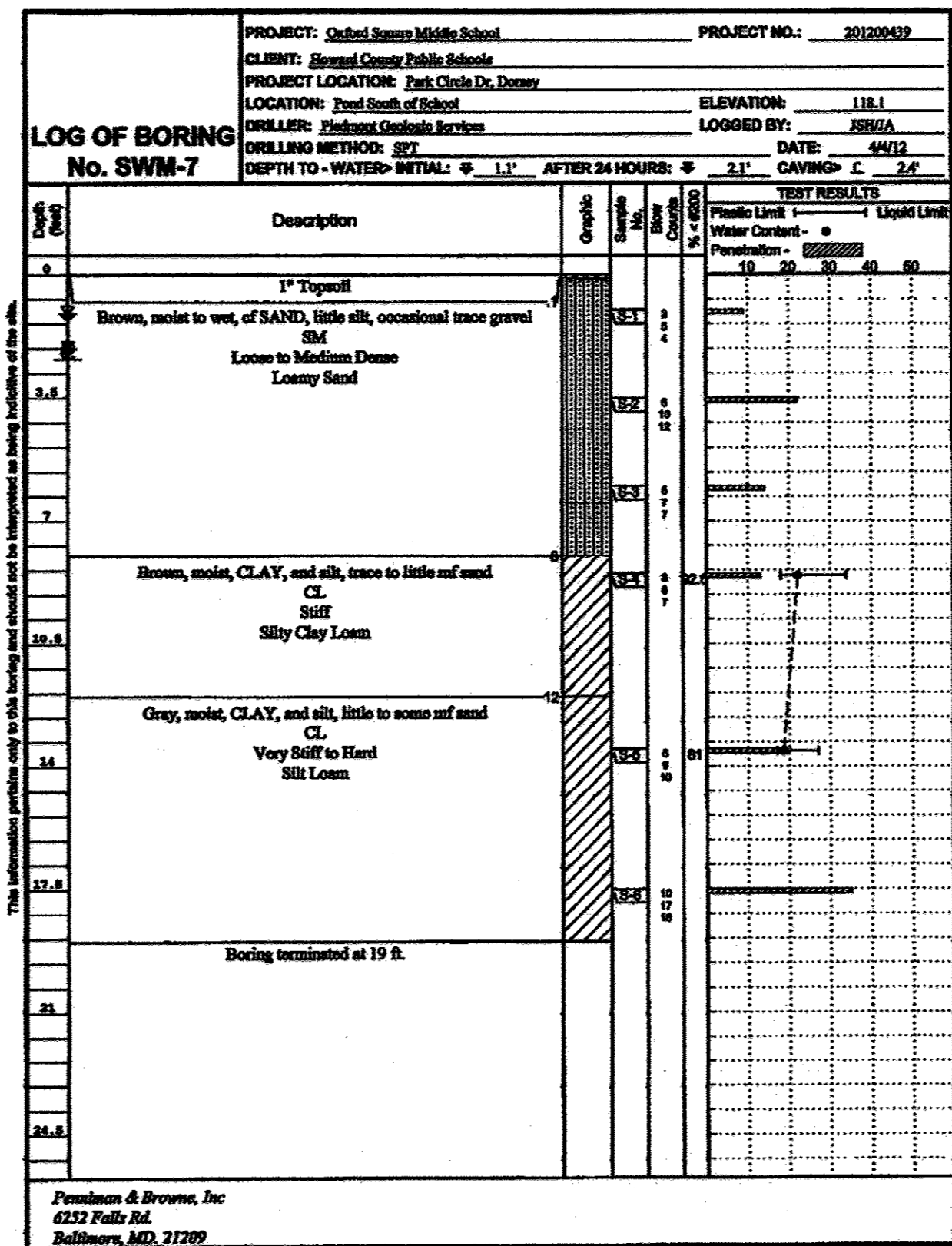


Figure PAGE 1 of 1

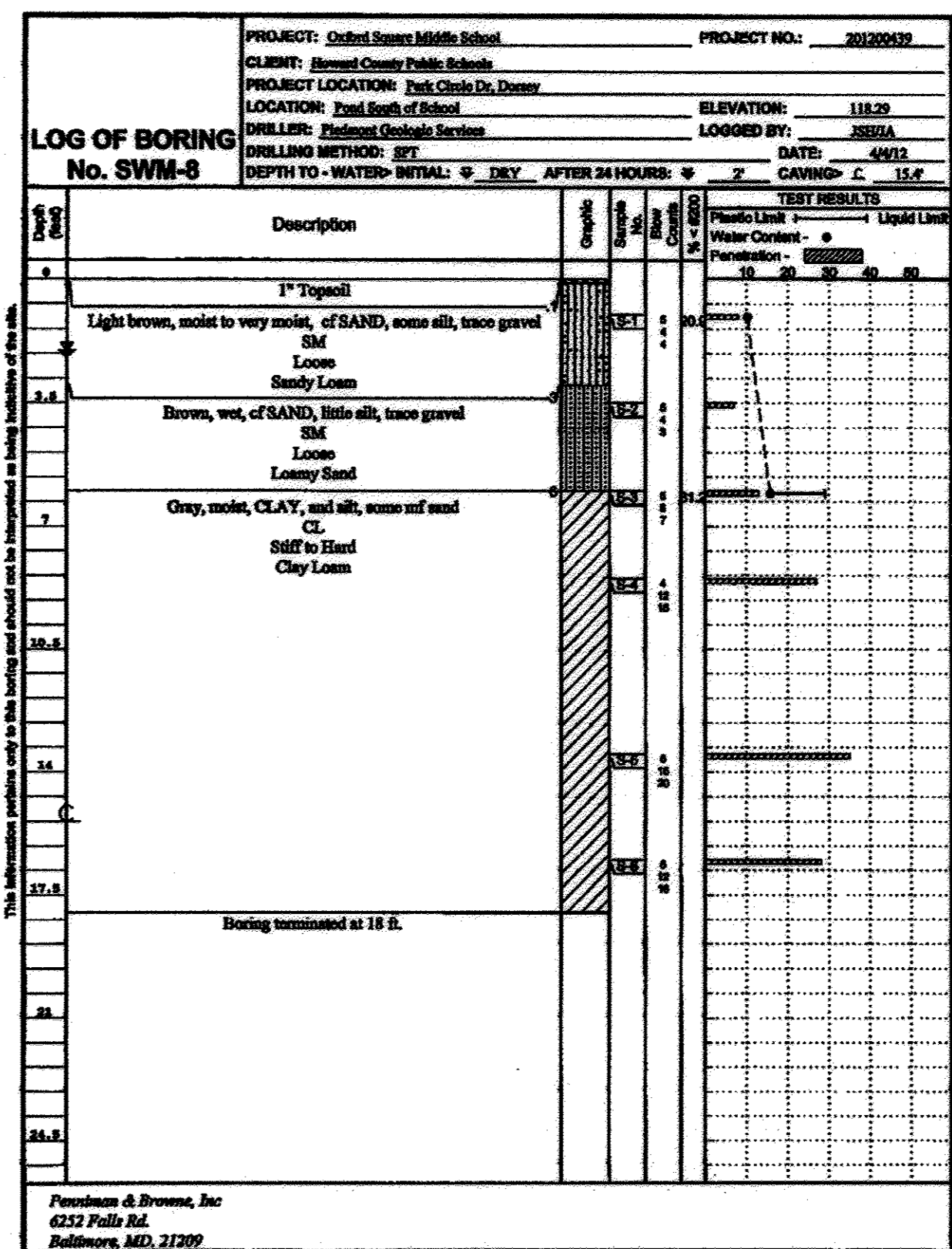
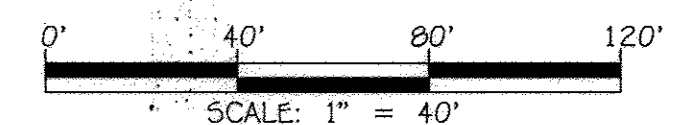


Figure PAGE 1 of 1



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2099



"Professional Certification. I 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. 13204. Expiration Date: November 3, 2012."

*Charles J. Cedeno, Sr.*  
CHARLES J. CEDENO, SR., P.E. 10/23/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

DATE: 4/15/12

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 10B  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart  
Parcel Number: 7000 BANBURY DRIVE  
Street Address: HANOVER, MD 21076

PROJECT: MIDDLE SCHOOL #20  
SECTION/AREA: N/A  
PARCEL: 'D-D'

PLAT NOS.: 03789-03790  
BLOCK NO.: 20  
ZONE: TOD  
TAX MAP: 3B  
ELEC. DIST.: FIRST  
CENSUS TR.: 6012.01

WATER CODE: SEWER CODE

BORING LOGS  
'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 20 OF 50 SDP-12-075

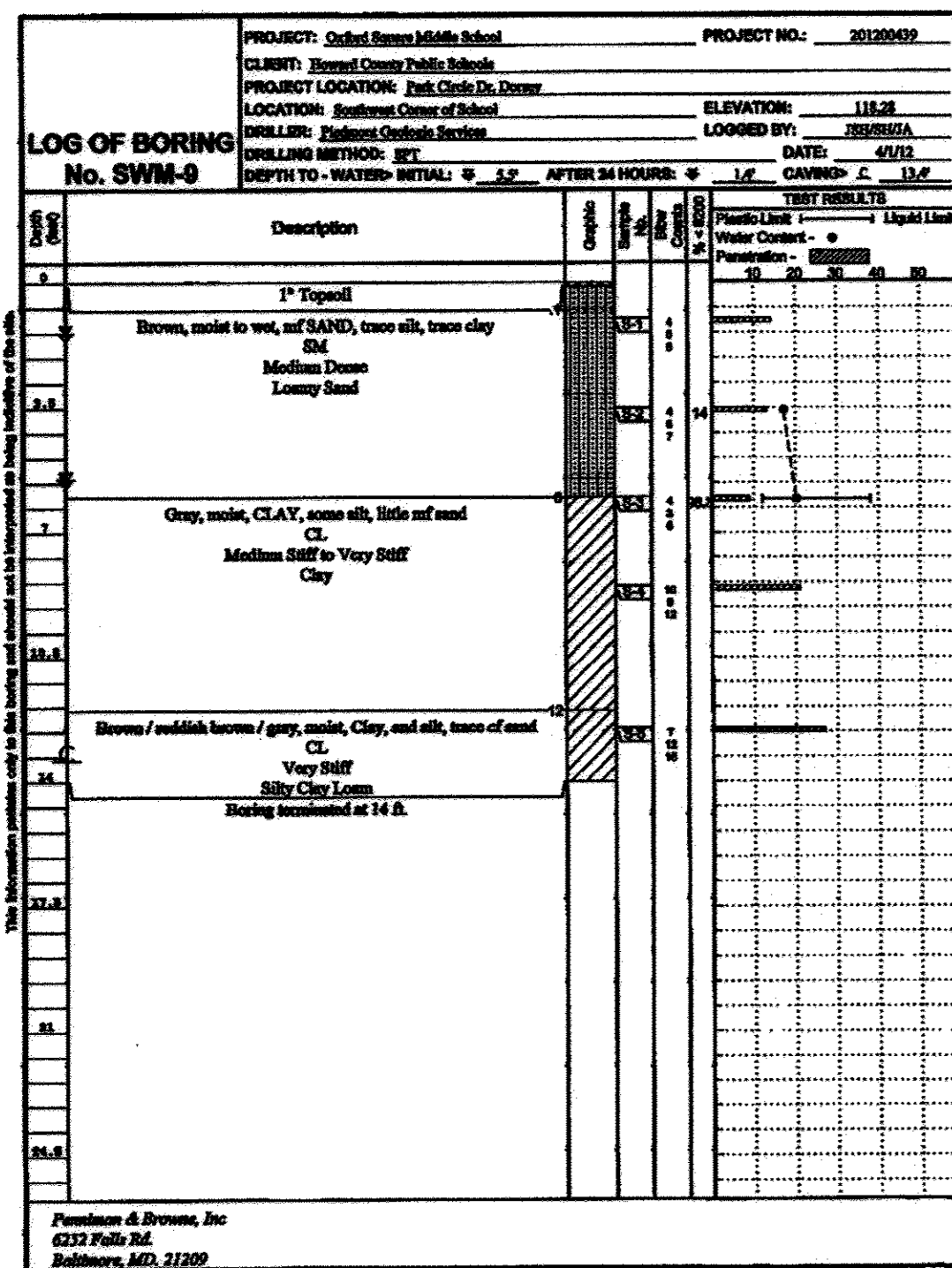


Figure PAGE 1 of 1

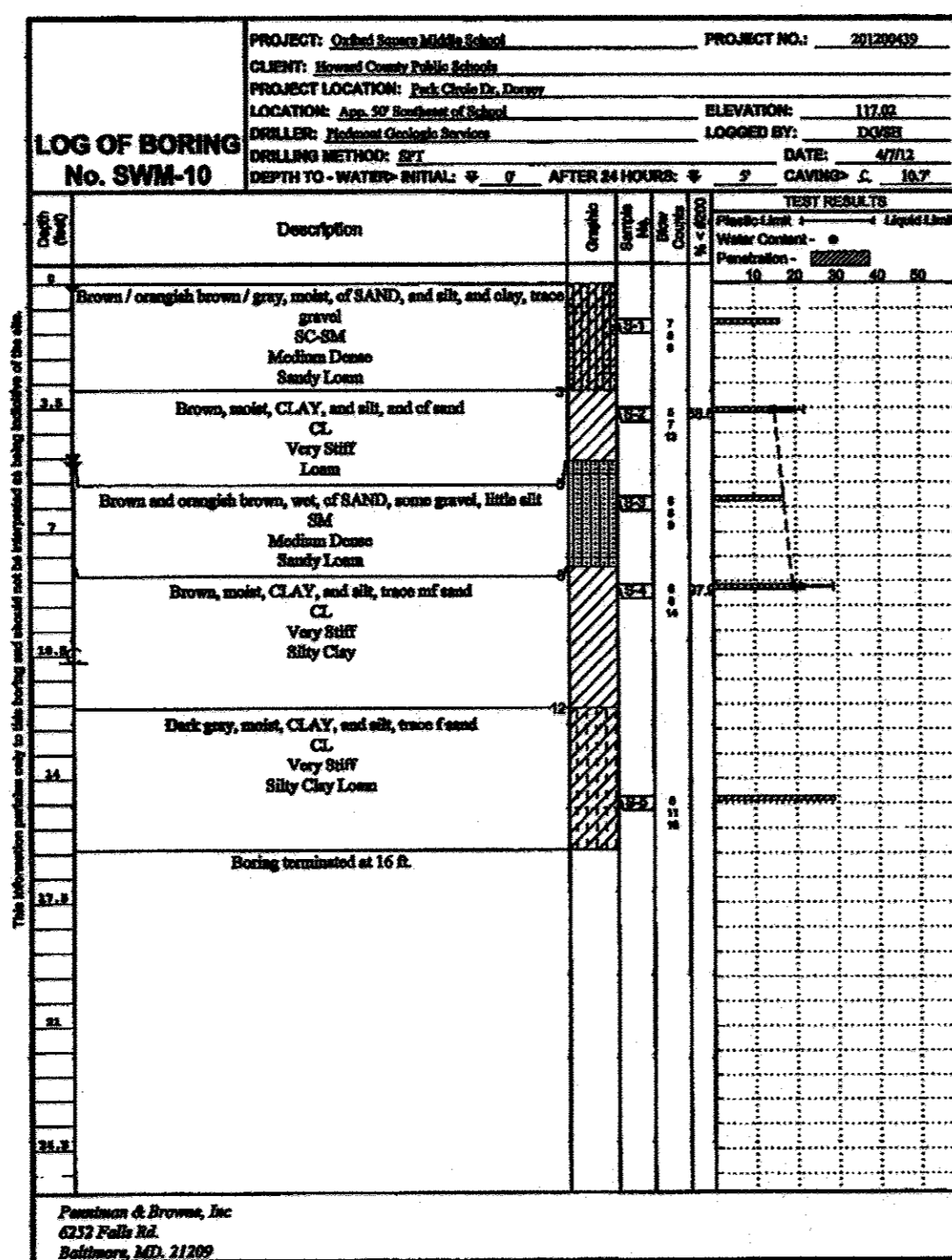


Figure PAGE 1 of 1

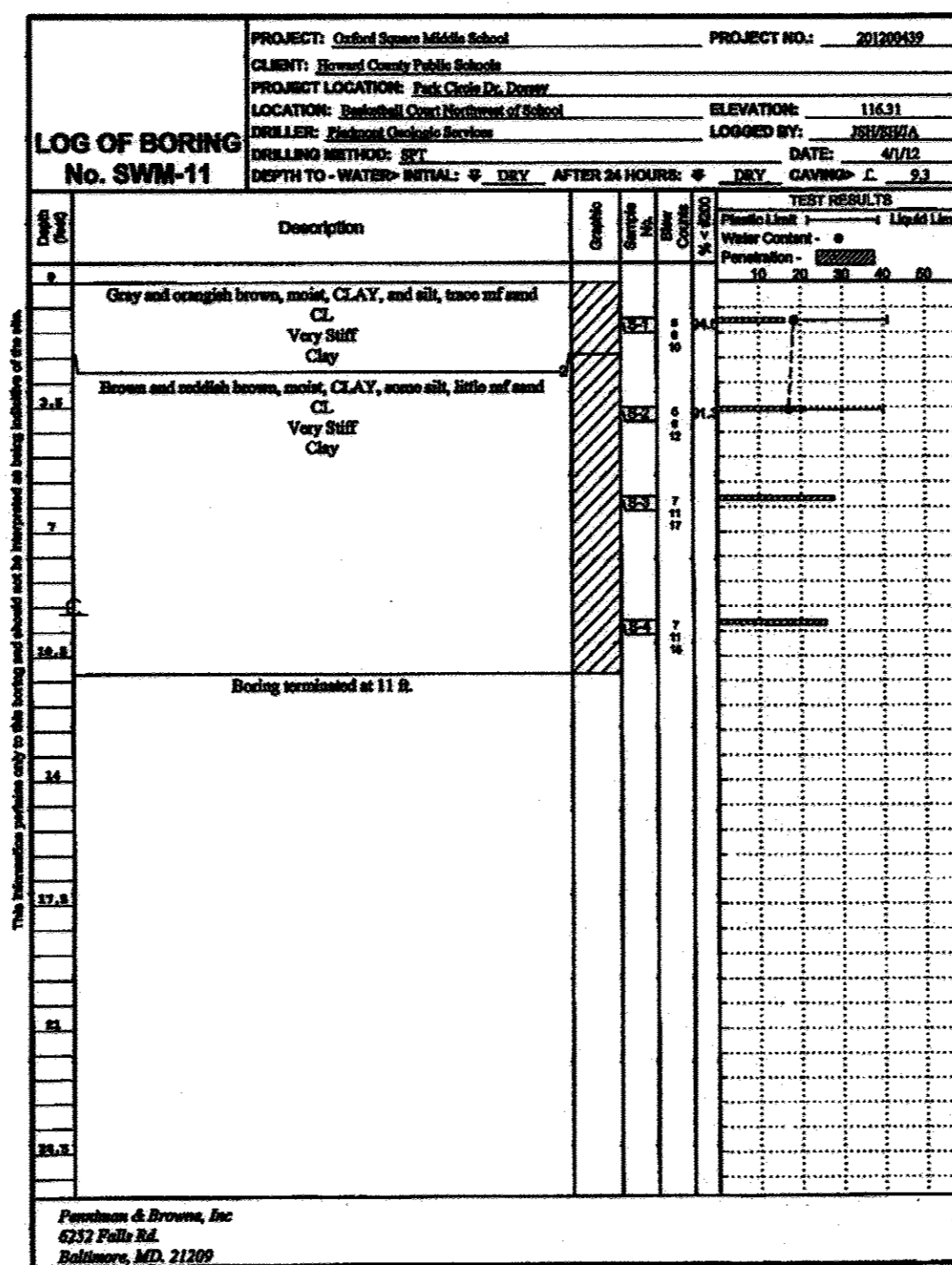


Figure PAGE 1 of 1

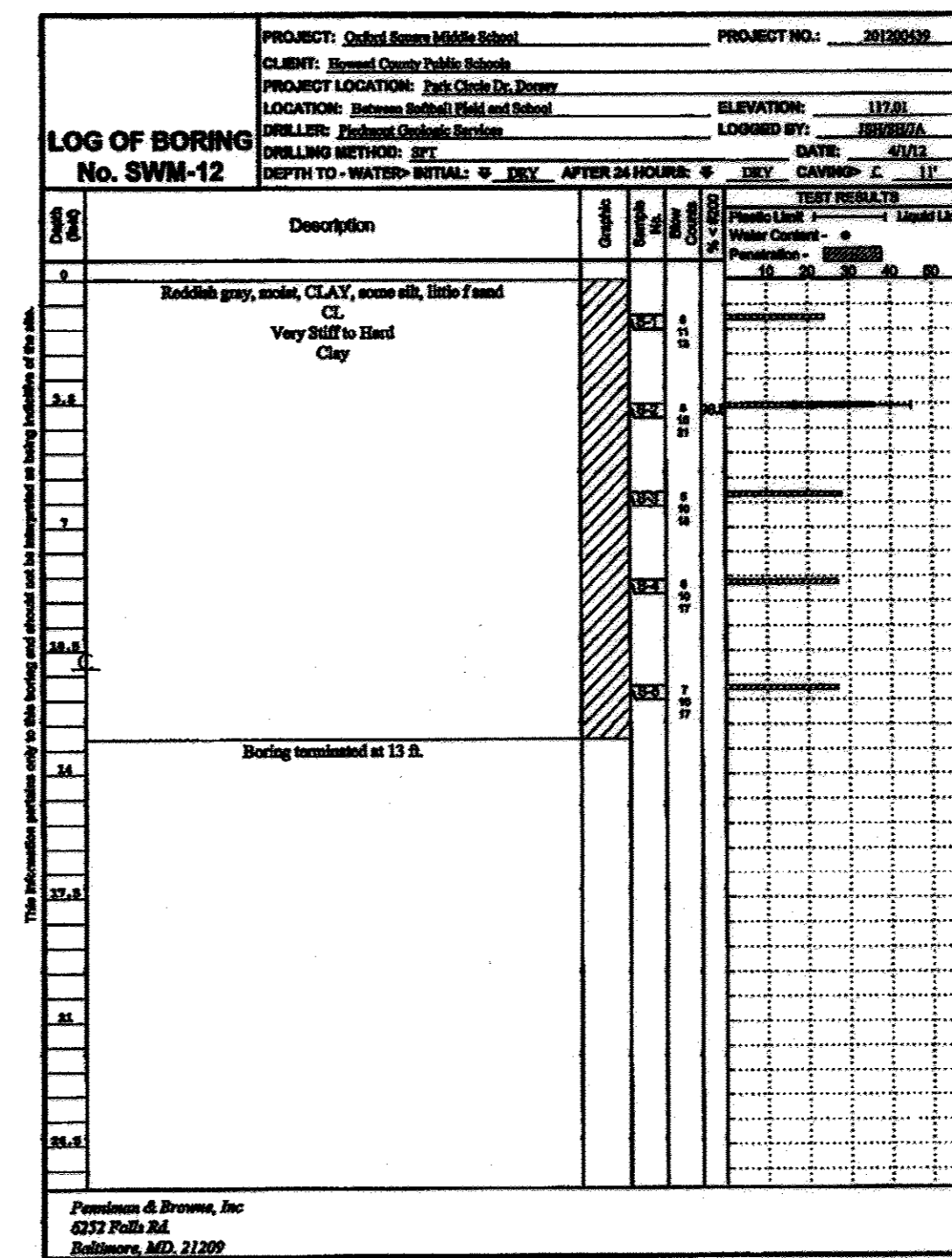


Figure PAGE 1 of 1

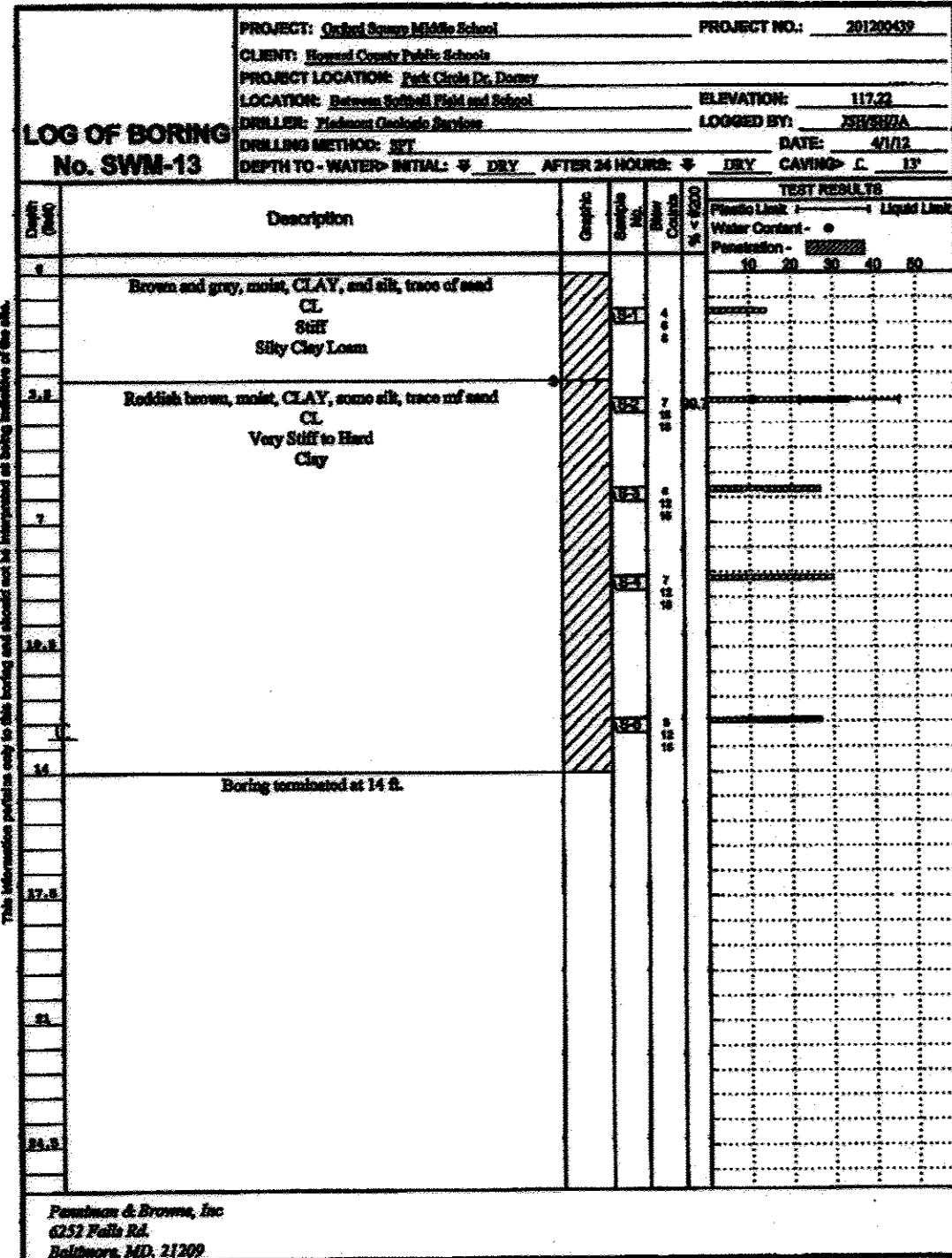


Figure PAGE 1 of 1

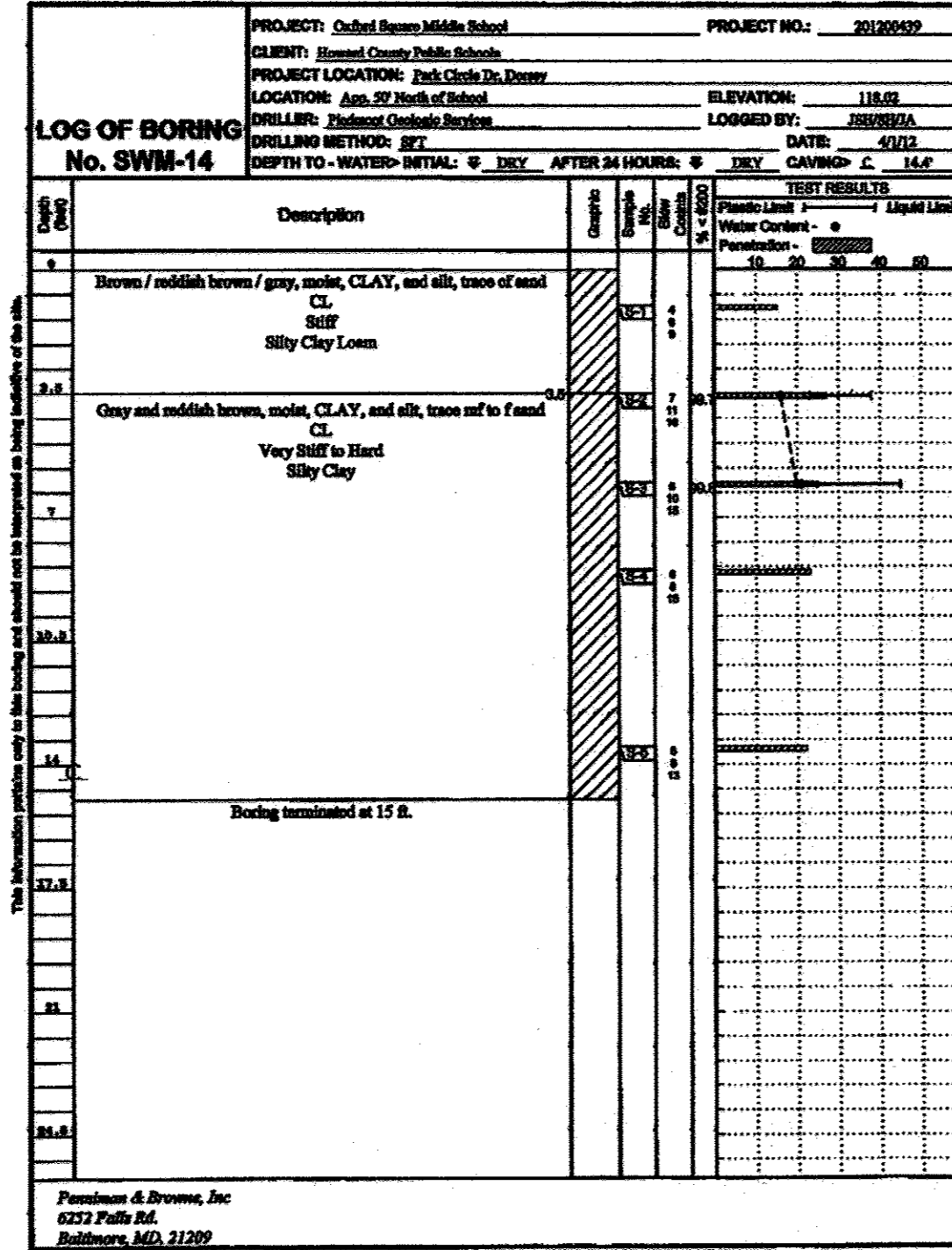


Figure PAGE 1 of 1

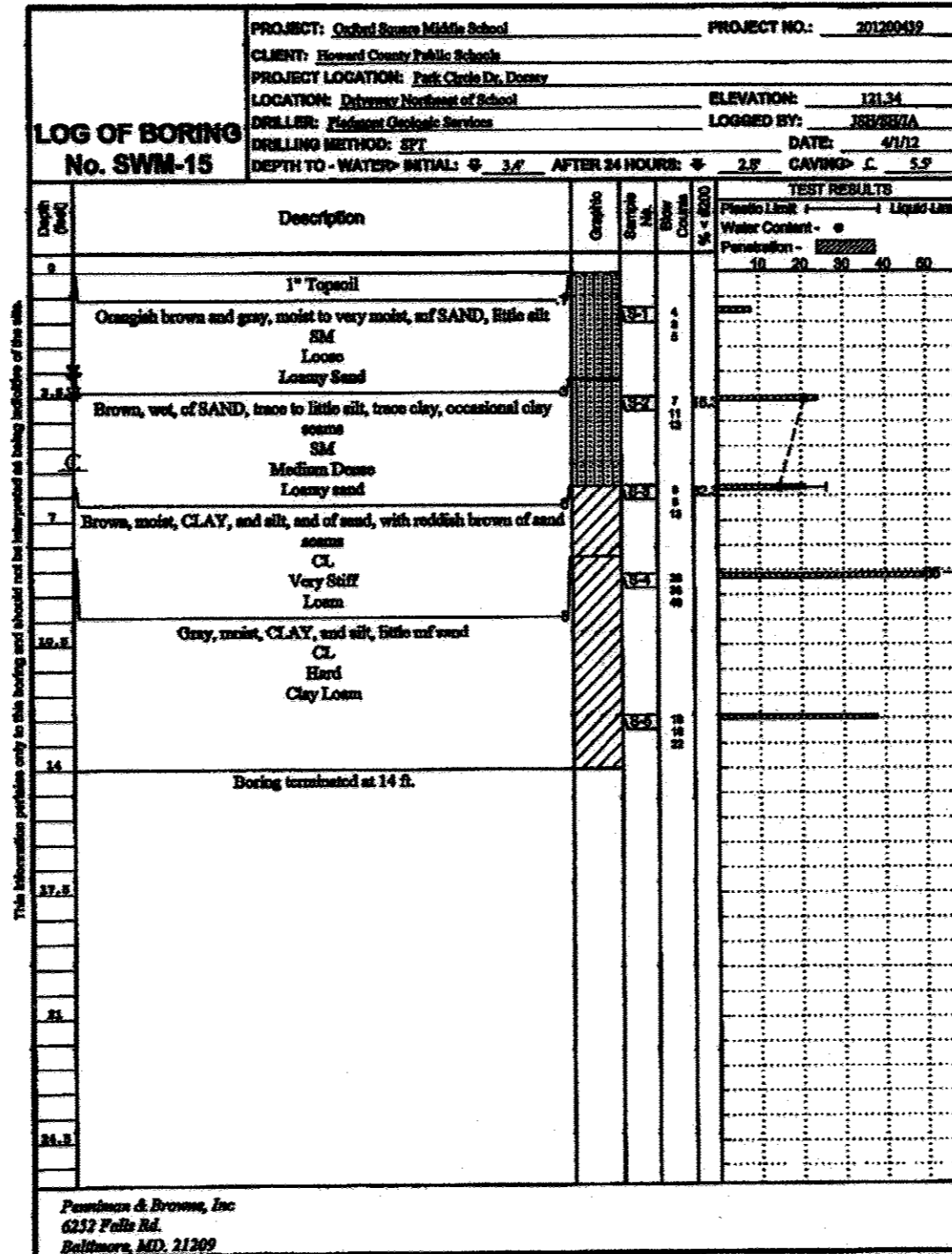


Figure PAGE 1 of 1

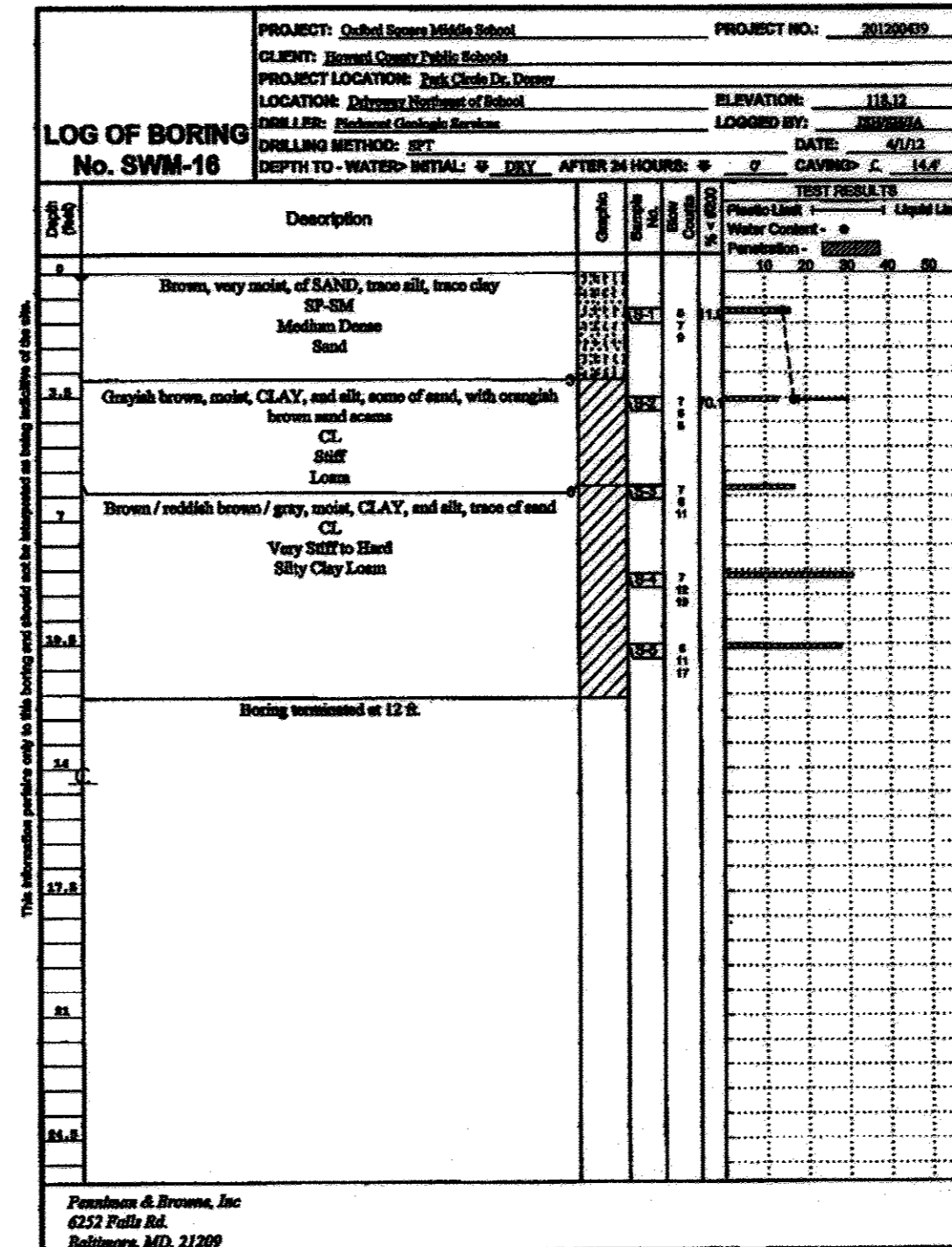
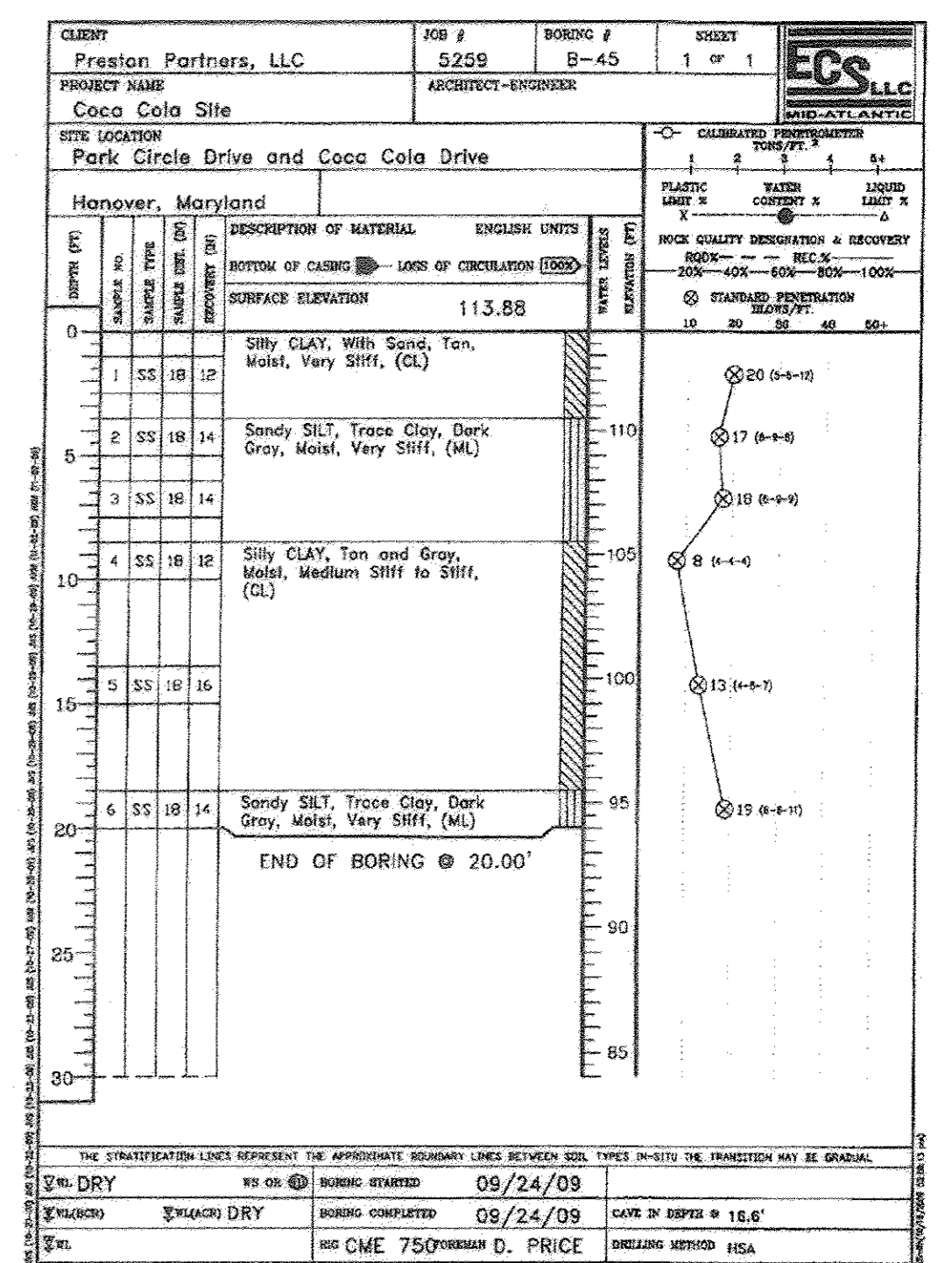


Figure PAGE 1 of 1



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 441-2099



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Cravo, Sr.*  
CHARLES J. CRAVO, SR., P.E. 10/21/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart

Parcel Number	Street Address
'D'	7000 BANBURY DRIVE HANOVER, MD 21076

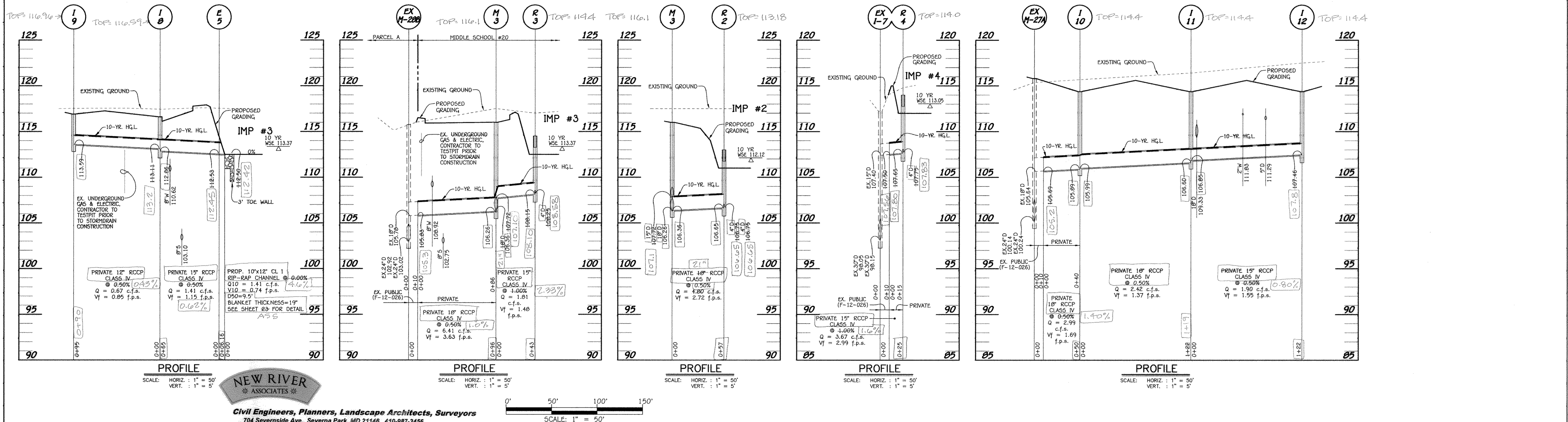
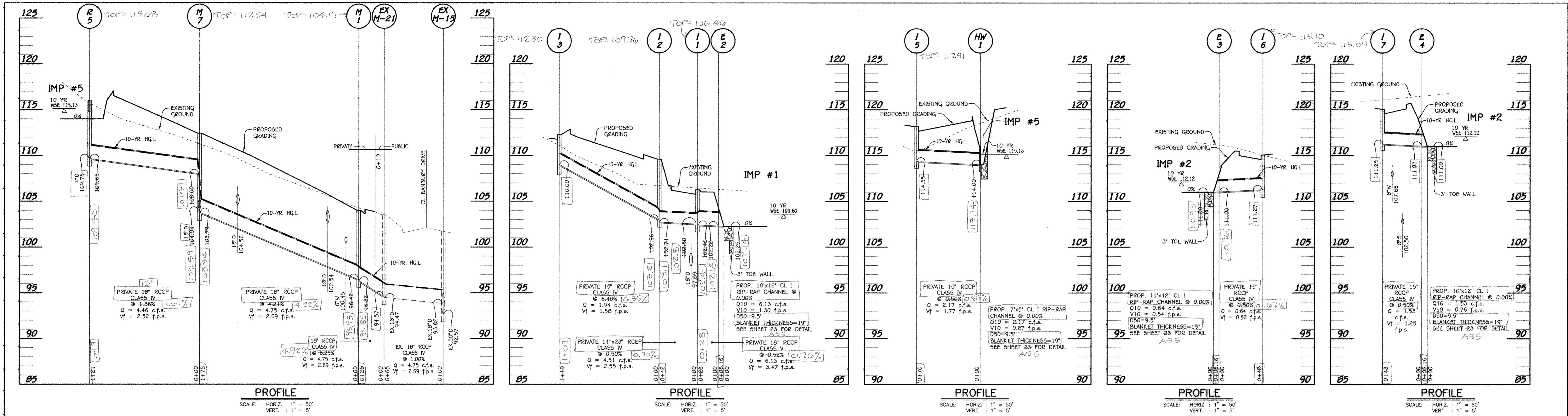
PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D'
PLAT NOS.	BLOCK NO.	ZONE
23766-23790	20	TOO
TAX MAP	ELEC. DIST.	CENSUS TR.
3B	FIRST	6012.01
WATER CODE	SEWER CODE	

**BORING LOGS**

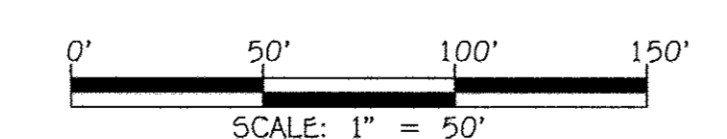
'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TO TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 21 OF 50 50P-12-075



**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Severnside Ave., Severna Park, MD 21146 410-987-3456



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL FLD  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-7299

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT FACILITIES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS.  
 DATED: 01/19/16  
 D. ANDREW DORSEY, P.E.  
 MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45261

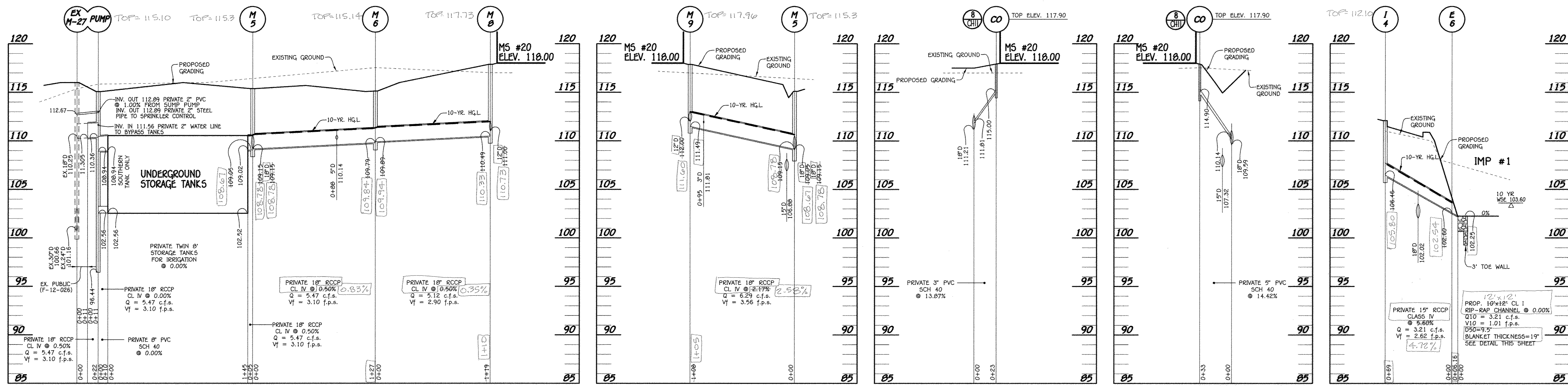
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012.  
 CHARLES J. CROVO, SR., P.E.  
 DATE: 1/28/12

DATE	DESCRIPTION
1/16/12	AS-BUILT PLAN
1/16/12	REVISED TILE BLOCK
1/16/12	REVISED TILE BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
1/16/12	Director - Department of Planning and Zoning
1/16/12	Chief, Division of Land-Development
1/16/12	Chief, Development Engineering Division

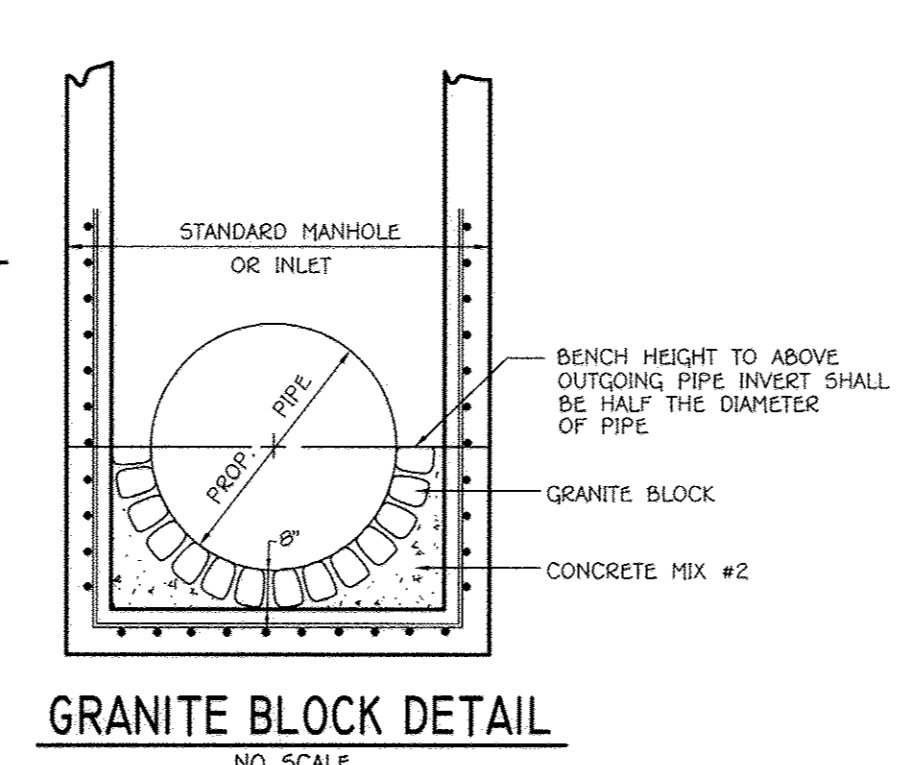
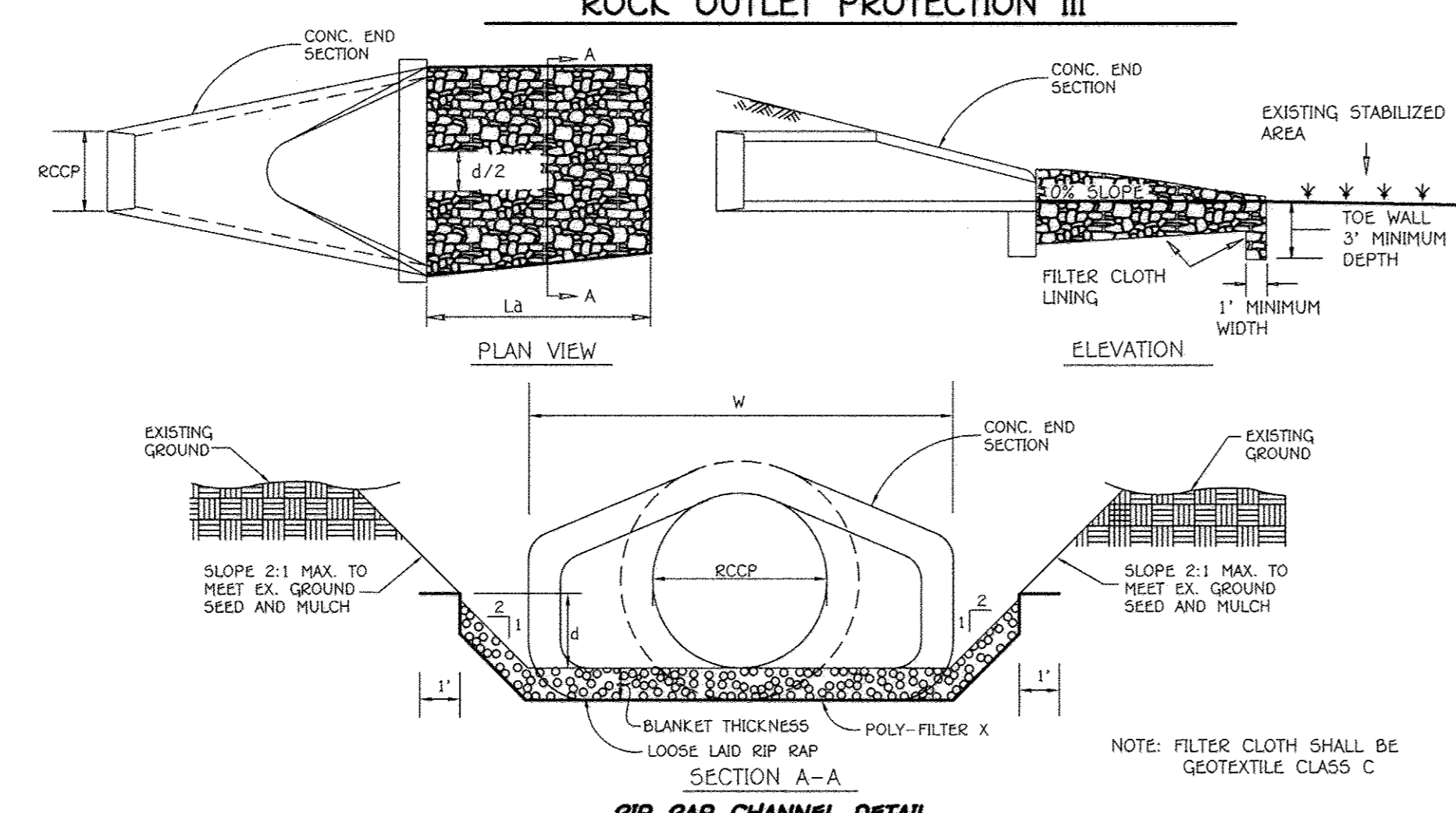
PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart		
Parcel Number	Street Address	
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076	
PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'
PLAT NOS.	BLOCK NO.	ZONE
23780-23790	20	TOD
WATER CODE	TAX MAP	ELEC. DIST.
---	38	FIRST
	CENSUS TR.	
	6012.01	
	SEWER CODE	
	---	

**STORM DRAIN PROFILES**  
 'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'  
 ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
 AS-BUILT 4 OF 16  
 SHEET 22 OF 50  
 SDP-12-075



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



**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.)	OP-RIP SIZE D <sub>50</sub> D <sub>max</sub>	BLANKET THICKNESS
E-1	6.7	16.0	5.0	2.9	0.005	0.07	14"	3"	0.04	1.47	9.8	9.5" 15"	19"
E-2	4.7	13.7	4.1	2.5	0.005	0.07	12"	4"	0.04	1.30	6.13	9.5" 15"	19"
E-3	1.1	12.4	1.1	1.1	0.005	0.07	12"	1"	0.04	0.54	0.64	9.5" 15"	19"
E-4	2.0	12.8	1.9	1.5	0.005	0.07	12"	2"	0.04	0.76	1.53	9.5" 15"	19"
E-5	1.9	12.7	1.8	1.5	0.005	0.07	12"	2"	0.04	0.74	1.41	9.5" 15"	19"
E-6	3.1	13.1	2.8	2.0	0.005	0.07	12"	3"	0.04	1.01	3.21	9.5" 15"	19"
HW-1	2.5	12.8	2.3	1.7	0.005	0.07	5"	2"	0.04	0.87	2.17	9.5" 15"	19"

**CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS**

- 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.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small 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.
- 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 homogeneous 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.

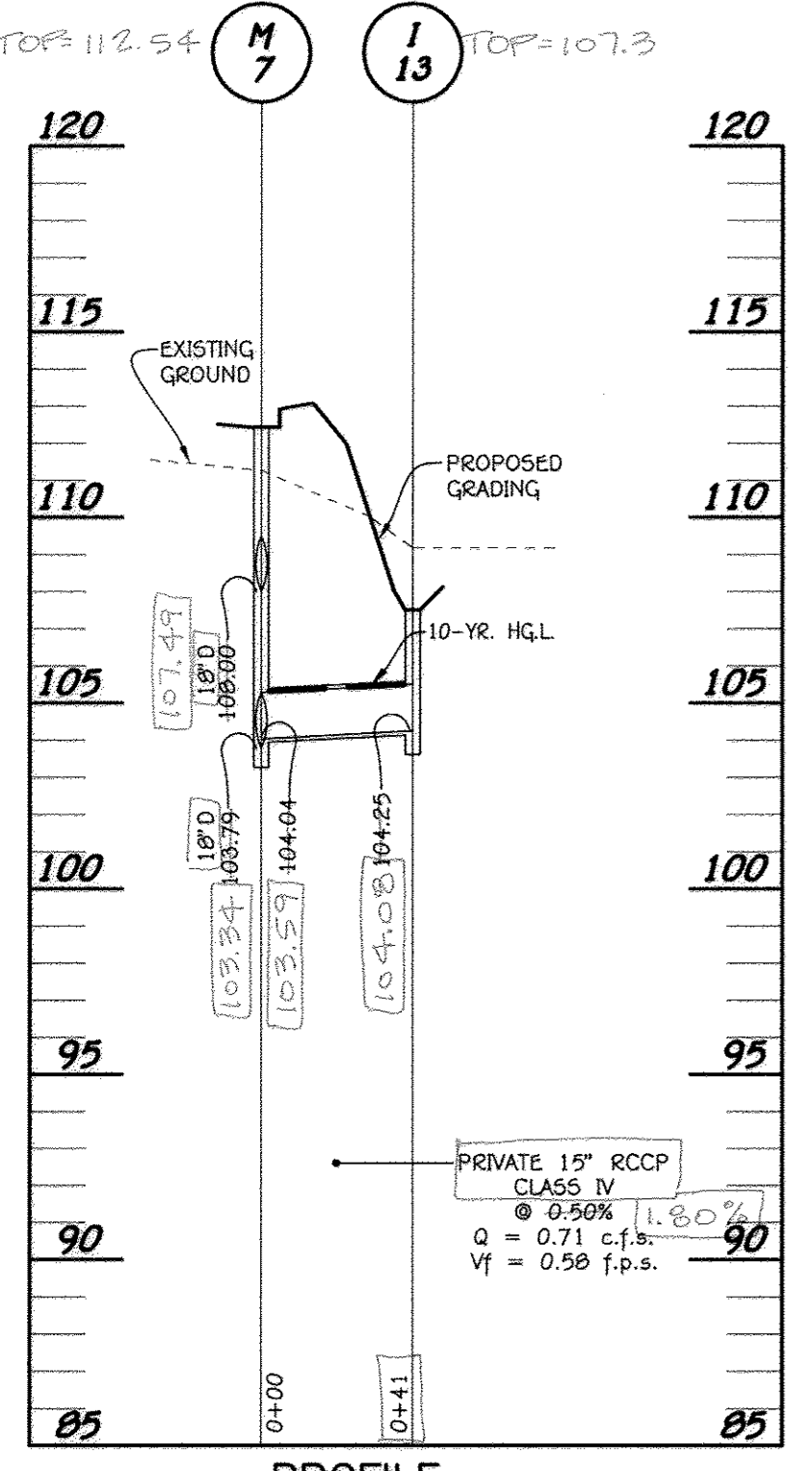
**PIPE SCHEDULE (PRIVATE)**

SIZE	CLASS	LENGTH
4"	PERF PVC	1017 L.F.
5"	PVC, SCH. 40	23 L.F.
5"	PVC, SCH. 40	33 L.F.
4"	PVC, SCH. 40	58 L.F.
96"	HDPE	290 L.F.
12"	RCCP, CLASS IV	90 95 L.F.
15"	RCCP, CLASS IV	626 L.F.
18"	RCCP, CLASS IV	1434 L.F.
24"	RCCP, ASTM 361	56 54 L.F.
14"x23"	RCCP, CLASS IV	42 L.F.
18"	RCCP, CLASS V	28 23 L.F.

**STRUCTURE SCHEDULE**

STRUCTURE NO.	OWNERSHIP AND MAINTENANCE	TOP ELEVATION	INV. IN	INV. OUT	COORDINATES	WIDTH	TYPE	REMARKS
I-1	PRIVATE	106.25**	102.50 (18")	102.40 (18")	N 952822.55 E 1387802.57	2.5'	A-10 INLET	D - 4.03
I-2	PRIVATE	109.60**	103.09 (15')	102.84 (18")	N 952825.52 E 1387537.92	2.5'	A-5 INLET	D - 4.01
I-3	PRIVATE	112.26**	-	110.00 (15')	N 952827.43 E 1387457.67	2.5'	A-5 INLET	D - 4.01
I-4	PRIVATE	112.12**	-	106.46 (15')	N 952935.56 E 1387617.99	2.5'	A-10 INLET	D - 4.03
I-5	PRIVATE	118.15**	-	114.35 (15')	N 953164.53 E 1387607.87	2.5'	A-10 INLET	D - 4.03
I-6	PRIVATE	115.08**	-	111.27 (15')	N 952919.18 E 1387356.09	2.5'	A-5 INLET	D - 4.01
I-7	PRIVATE	115.00**	-	111.25 (15')	N 953088.92 E 1387080.42	2.5'	A-5 INLET	D - 4.01
I-8	PRIVATE	116.60**	-	112.86 (15')	N 953184.88 E 1387137.63	2.5'	A-5 INLET	D - 4.01
I-9	PRIVATE	116.90**	-	113.59 (12')	N 953270.14 E 1387179.70	2.5'	A-5 INLET	D - 4.01
I-10	PRIVATE	114.38**	-	105.89 (18")	N 953400.01 E 1387260.09	2.58'	S INLET W/RET. GRATE	D-4.22 & D-4.93
I-11	PRIVATE	114.38**	-	106.60 (18")	N 953346.41 E 1387370.05	2.58'	S INLET W/RET. GRATE	D-4.22 & D-4.93
I-12	PRIVATE	114.38**	-	107.46 (15')	N 953292.89 E 1387479.82	2.58'	S INLET W/RET. GRATE	D-4.22 & D-4.93
I-13	PRIVATE	107.50**	-	104.25 (15')	N 952934.33 E 1387696.97	2.58'	S INLET W/RET. GRATE	D-4.22 & D-4.93
M-1	PRIVATE	104.00	96.42 (18")	96.32 (18")	N 952791.62 E 1387598.03	4'	STD. MANHOLE	G - 5.12
M-3	PRIVATE	116.00	107.72 (15'), 106.36 (18")	106.26 (18")	N 953280.88 E 1387173.88	4'	STD. MANHOLE	G - 5.12
M-5	PRIVATE	115.37	109.25 (18"), 109.15 (18")	109.05 (18")	N 953345.19 E 1387324.91	4'	MANHOLE	SEE SHEET 49
M-6	PRIVATE	115.11	107.99 (18")	107.79 (18")	N 953295.01 E 1387493.72	4'	STD. MANHOLE	G - 5.12
M-7	PRIVATE	112.43	104.04 (15'), 100.00 (18")	103.39 (18")	N 952846.74 E 1387558.58	4'	STD. MANHOLE	G - 5.12
M-8	PRIVATE	117.86	111.00 (12')	110.49 (18")	N 953777.86 E 1387476.77	4'	STD. MANHOLE	G - 5.12
M-9	PRIVATE	117.86	112.00 (12')	111.49 (18")	N 953254.06 E 1387332.23	4'	STD. MANHOLE	G - 5.12
R-1	PRIVATE	104.25**	98.00(4')	-	N 952807.08 E 1387698.72	3'	MOD. C INLET	SEE SHEET 36
R-2	PRIVATE	113.00**	106.75(4'), 106.75(4')	106.65 (18")	N 953255.59 E 1387159.28	3'	MOD. C INLET	SEE SHEET 36
R-3	PRIVATE	114.50**	108.25(4')	108.15 (15')	N 953119.28 E 1387192.85	3'	MOD. C INLET	SEE SHEET 36
R-4	PRIVATE	114.00**	107.75(4')	107.65 (15')	N 953495.86 E 1387054.36	3'	MOD. C INLET	SEE SHEET 36
R-5	PRIVATE	116.00**	109.75(4')	109.65 (18")	N 953066.89 E 1387684.33	3'	MOD. C INLET	SEE SHEET 36
PUMP	PRIVATE	115.06	-	-	N 953066.89 E 1387684.33	5'	STD. MANHOLE	SEE SHEET 44
E-1	PRIVATE	97.40	-	95.40 (24")	N 953420.58 E 1387234.38	-	CONC. END SECTION	D - 5.51
E-2	PRIVATE	103.78	102.28	102.25 (18")	N 952824.11 E 1387627.20	-	CONC. END SECTION	D - 5.51
E-3	PRIVATE	112.28	111.03	111.00 (15')	N 952945.44 E 1387318.04	-	CONC. END SECTION	D - 5.51
E-4	PRIVATE	112.28	111.03	111.00 (15')	N 953484.52 E 1387116.39	-	CONC. END SECTION	D - 5.51
E-5	PRIVATE	113.78	112.53	112.50 (15')	N 953136.97 E 1387180.13	-	CONC. END SECTION	D - 5.51
E-6	PRIVATE	103.85	102.60	102.25 (15')	N 952855.62 E 1387664.67	-	CONC. END SECTION	D - 5.51
S-5	PRIVATE	106.85	-	104.60 (18")	N 953693.86 E 1387205.05	-	TYPE 'C' HEADWALL	D - 5.21
I-15	PRIVATE	110.00*	105.85 (18")	105.75 (18")	N 953713.00 E 1387400.32	2.5'	D INLET	D - 4.10
I-15A	PRIVATE	110.00*	-	107.00 (18")	N 953706.33 E 1387632.33	2.5'	D INLET	D - 4.10
HW-1	PRIVATE	116.00	-	114.00 (15')	N 953167.59 E 1387677.12	-	TYPE 'C' HEADWALL	D - 5.21

\* - DENOTES THROAT OPENING ELEVATION ON ALL FOUR SIDES  
 \*\* - DENOTES TOP OF CURB ELEVATION AT CENTERLINE OF INLET  
 \*\*\* - DENOTES GRATE ELEVATION  
 'A' INLET COORDINATES ARE AT CENTERLINE OF INLET AT FACE OF CURB.  
 'S' INLETS SHALL HAVE RETICULAR GRATES.



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

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PKCE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461 - 2895

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE INFORMATION ON THIS PLAN WAS CONSTRUCTED  
 AS SHOWN ON THE DRAWINGS AND MEETS THE APPROVED PLANS  
 DATE: 01/19/16

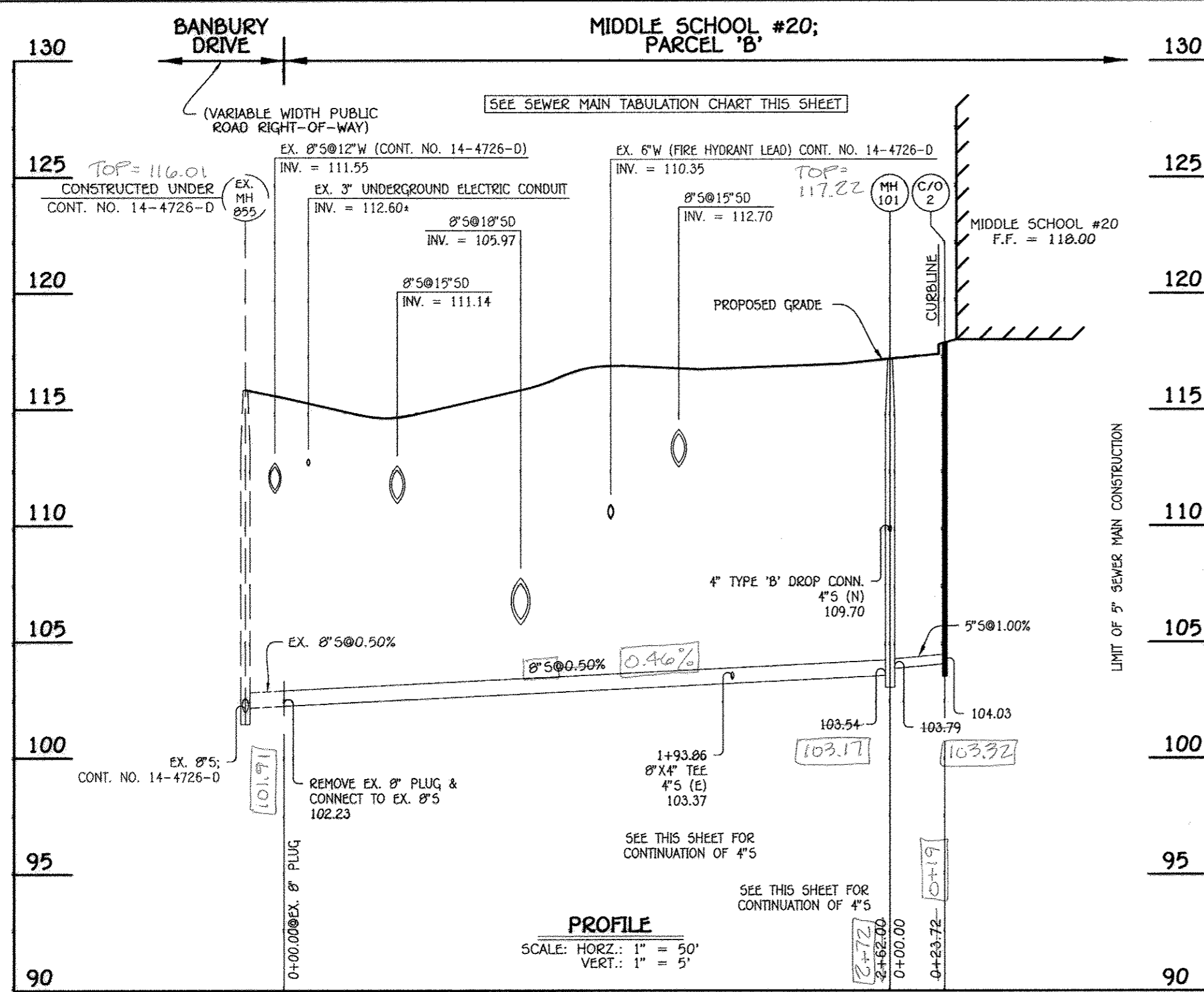
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012.  
 CHARLES J. PROVO, SR., P.E. 1/19/13 DATE  
**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Severnside Ave., Severna Park, MD 21146 410-987-3456

AD-BUILT PLAN  
 REVISION BLOCK  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning 4/10/12 DATE  
 Chief, Division of Land Development 11/13 DATE  
 Chief, Development Engineering Division 11/15/12 DATE

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart  
 Parcel Number: 7-0  
 Street Address: 7000 BANBURY DRIVE  
 HANOVER, MD 21076  
 PROJECT: MIDDLE SCHOOL #20  
 SECTION/AREA: N/A  
 PARCEL: 7-0  
 PLAT NOS.: 23166-23170  
 BLOCK NO.: 20  
 ZONE: TOD  
 TAX MAP: 38  
 ELEC. DIST.: FIRST  
 CENSUS TR.: 6012.01  
 WATER CODE: ---  
 SEWER CODE: ---

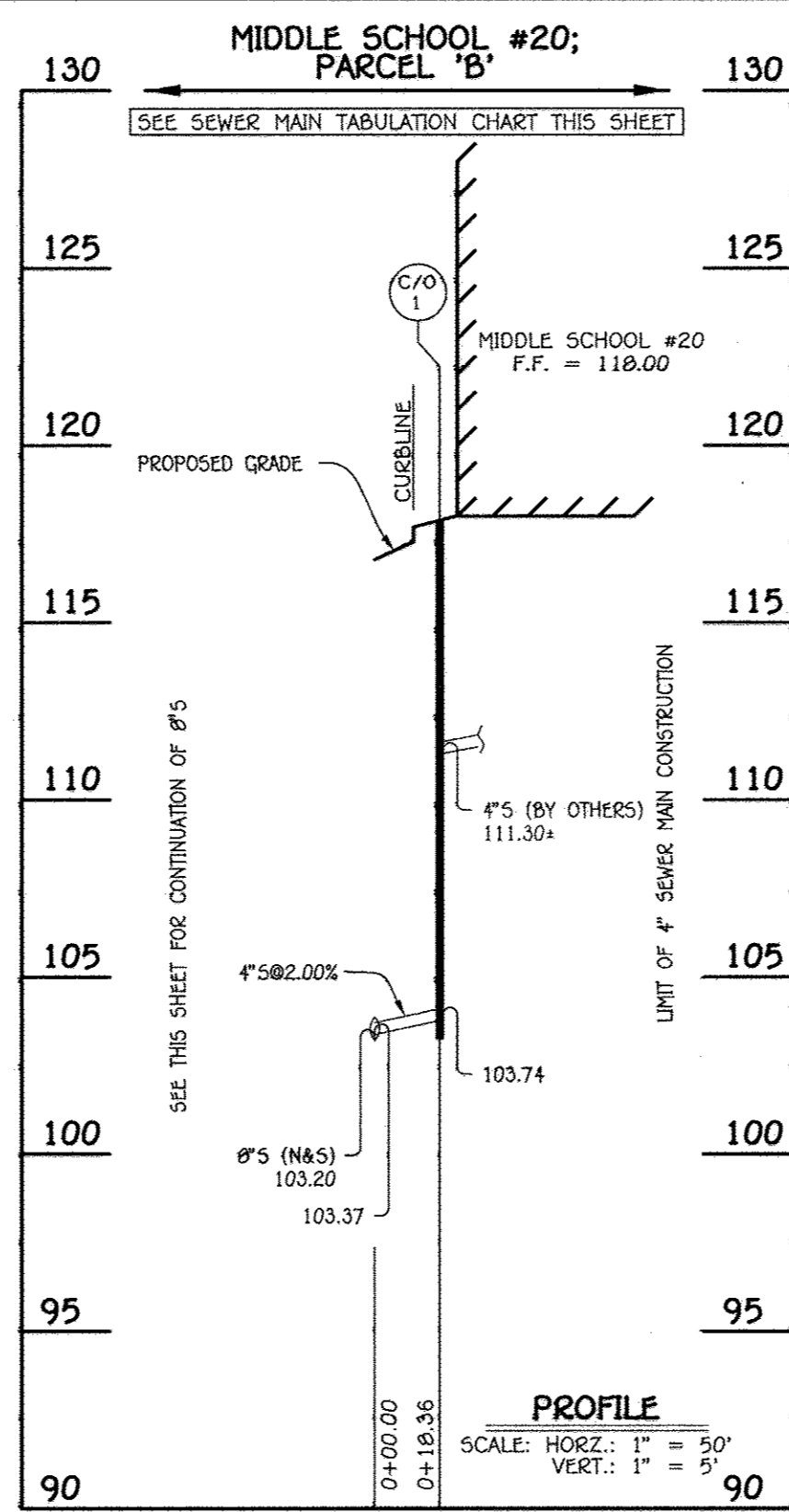
**STORM DRAIN PROFILES, DETAILS AND STRUCTURE SCHEDULE**  
 'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'  
 ZONED TO TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
 AS-BUILT 5 OF 16  
 SHEET 23 OF 50  
 SDP-12-075



8" & 5" SEWER MAIN: MIDDLE SCHOOL #20

SEWER MAIN TABULATION CHART			
NO.	NORTHING	EASTING	RIM ELEVATION
EX. 8" PLUG	553014.61	1387077.07	---
101	553249.58	1387192.96	447.45
C/O 2	553239.19	1387214.28	117.85

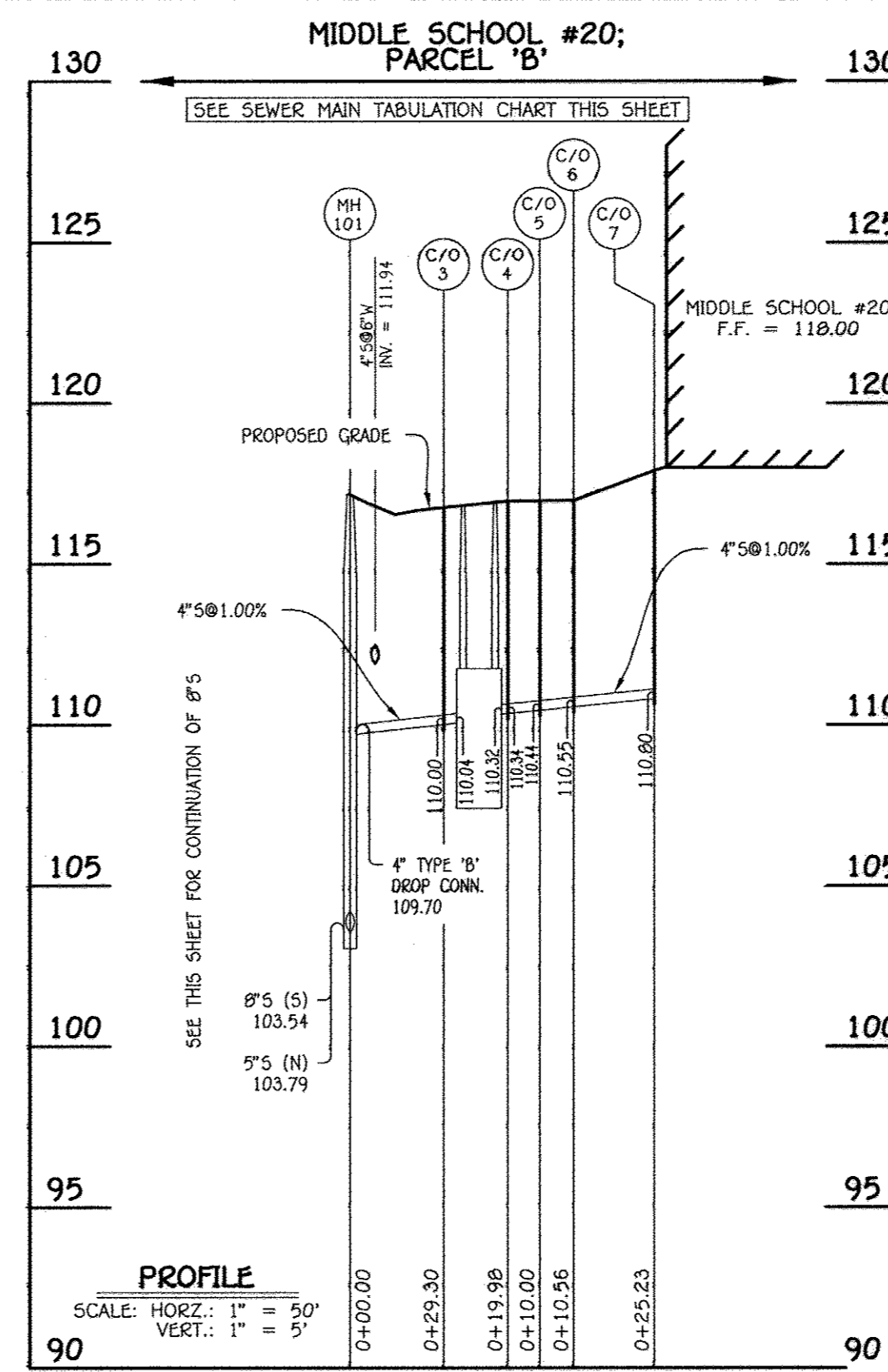
NOTE: SET MH & C/O RIMS FLUSH W/PROPOSED GRADE.



4" SEWER MAIN: MIDDLE SCHOOL #20

SEWER MAIN TABULATION CHART			
NO.	NORTHING	EASTING	RIM ELEVATION
C/O 1	553180.35	1387179.30	117.85

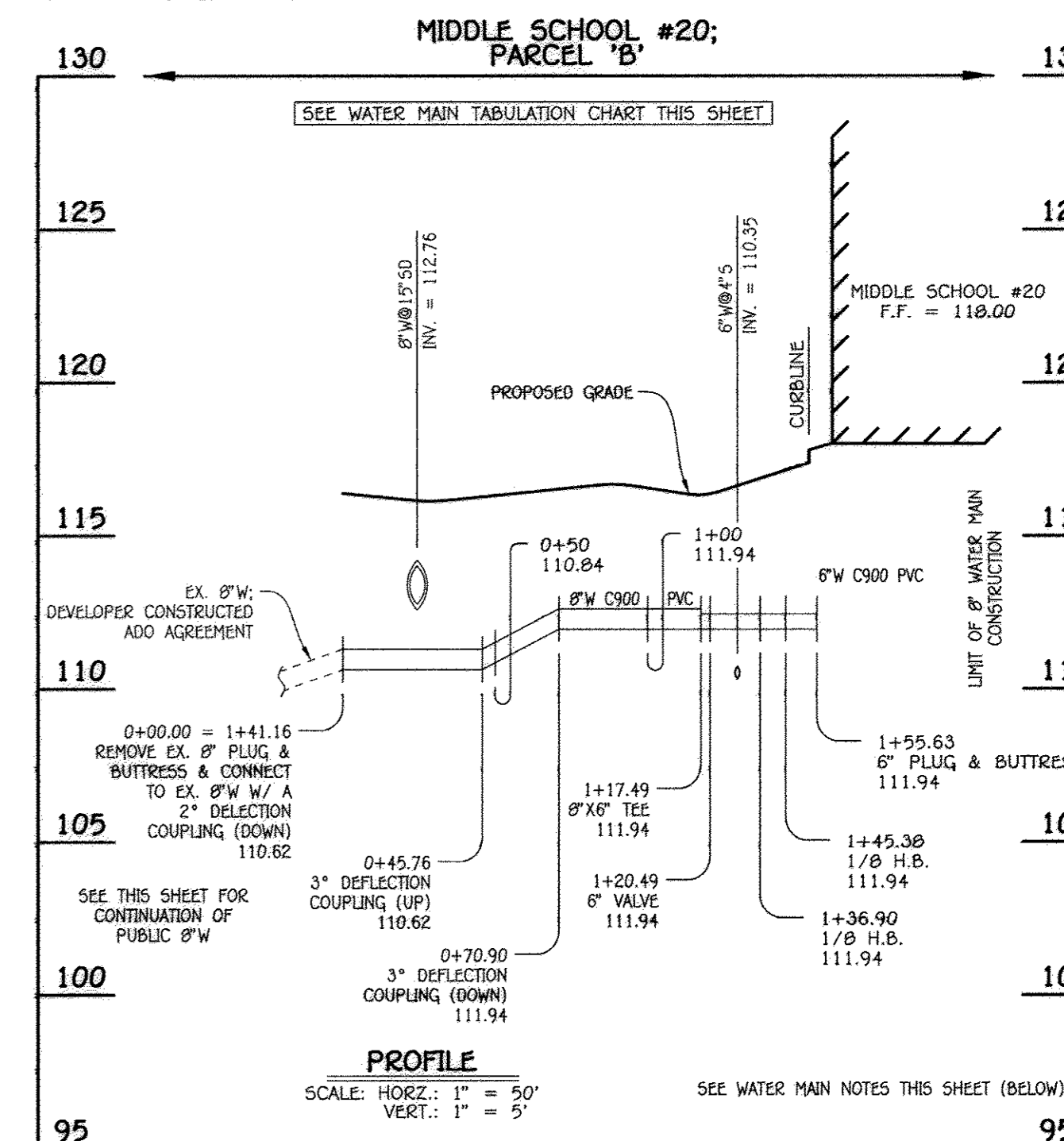
NOTE: SET C/O RIM FLUSH W/PROPOSED GRADE.



4" SEWER MAIN TO GREASE INTERCEPTOR: MIDDLE SCHOOL #20

SEWER MAIN TABULATION CHART			
NO.	NORTHING	EASTING	RIM ELEVATION
C/O 3	553278.62	1387189.07	116.75
C/O 4	553296.54	1387197.92	116.95
C/O 5	553292.11	1387208.88	116.95
C/O 6	553281.68	1387208.53	116.95
C/O 7	553267.42	1387229.34	117.90

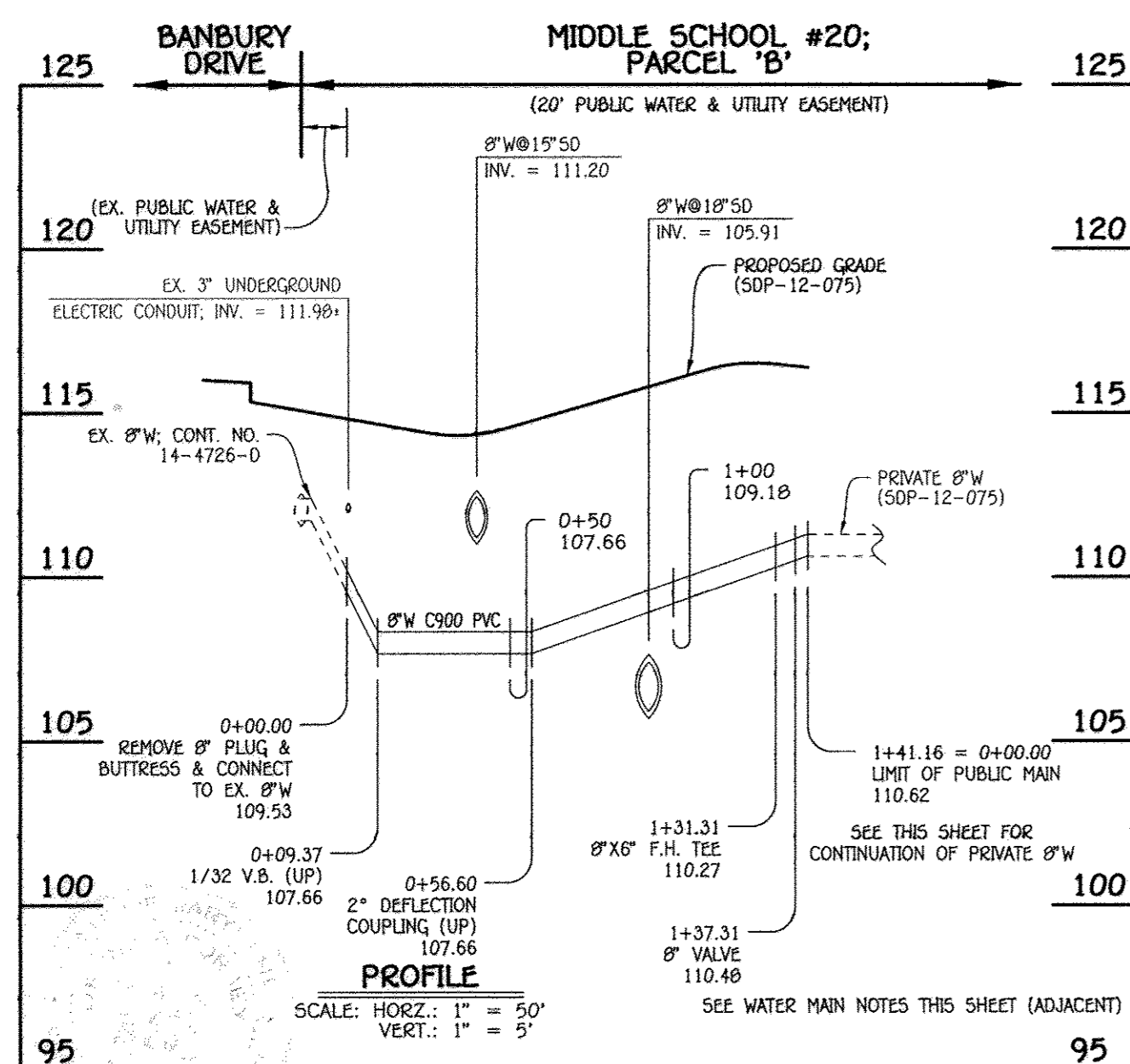
NOTE: SET C/O RIM FLUSH W/PROPOSED GRADE.



8" WATER MAIN: MIDDLE SCHOOL #20

WATER MAIN TABULATION CHART			
W.M. STA.	APPURTENANCE	NORTHING	EASTING
8" WATER MAIN: MIDDLE SCHOOL #20			
0+00.00	EX. 8" PLUG & BUTTRESS	553155.43	1387133.15
1+17.49	8" X 6" F.H. TEE	553260.80	1387185.12
1+20.49	8" VALVE	553259.48	1387187.81
1+36.90	1/8" H.B.	553252.22	1387202.53
1+45.38	1/8" H.B.	553254.94	1387210.56
1+55.63	8" PLUG & BUTTRESS	553250.41	1387219.75

- WATER MAIN NOTES:
1. ALL WATER MAINS SHALL BE AWWA C900 PVC PIPE; DR-18.
  2. ALL PIPE BEDDING, TRACER WIRE, LOCATING TAPE AND OTHER APPURTENANCES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II - WATER AND SEWER STANDARDS FOR AWWA C900 PVC WATER PIPE INSTALLATION.
  3. DEFLECTION COUPLINGS SHALL BE CERTAIN-TEED PVC HIGH DEFLECTION COUPLINGS.
  4. ALL WATER HOUSE CONNECTIONS AND TAPS SHALL BE PERFORMED USING A SADDLE.



8" WATER MAIN: MIDDLE SCHOOL #20

WATER MAIN TABULATION CHART			
W.M. STA.	APPURTENANCE	NORTHING	EASTING
8" WATER MAIN: MIDDLE SCHOOL #20			
0+00.00	EX. 8" PLUG & BUTTRESS	553028.84	1387070.71
1+31.31	8" X 6" F.H. TEE	553146.60	1387128.80
1+37.31	8" VALVE	553151.98	1387131.45
1+41.16	8" PLUG & BUTTRESS	553155.43	1387133.15

**NEW RIVER ASSOCIATES**  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Severnside Ave., Severna Park, MD 21146 410-987-3456

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Provo, Sr.*  
CHARLES J. PROVO, SR., P.E. 10/23/12 DATE

AS-BUILT ENGINEER CONSULTANT CERTIFICATION  
I HEREBY CERTIFY THAT THE WORK SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS.  
DATE: 10/23/12  
MARYLAND REGISTERED PROFESSIONAL ENGINEER NO. 45281

11/10	AS-BUILT PLAN
11/10	REPAVED TILE BLOCK
DATE	DESCRIPTION
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Paul D. Long Jr.</i>	11/15/12 DATE
Director - Department of Planning and Zoning	
<i>Walter D. ...</i>	11/14/12 DATE
Chief, Division of Land Development	
<i>...</i>	11/15/12 DATE
Chief, Development Engineering Division	

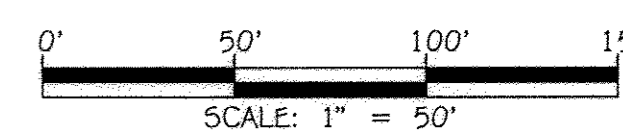
PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart					
Parcel Number	Street Address				
10-D	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
MIDDLE SCHOOL #20	20	TOD	3B	FIRST	6012.01
WATER CODE	SEWER CODE				
----	----				

WATER & SEWER MAINS: PROFILES & CHARTS

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TO: TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
AS-BUILT 6 OF 16  
SHEET 24 OF 50 5DP-12-075



1:10/09/09:14:00g:\SCHOOL PLANS\08114 SHEET 22-24 - 48 PROFILES.dwg, PROFILE SHEET 24, 10/26/2012 9:04:45 AM, 1:1

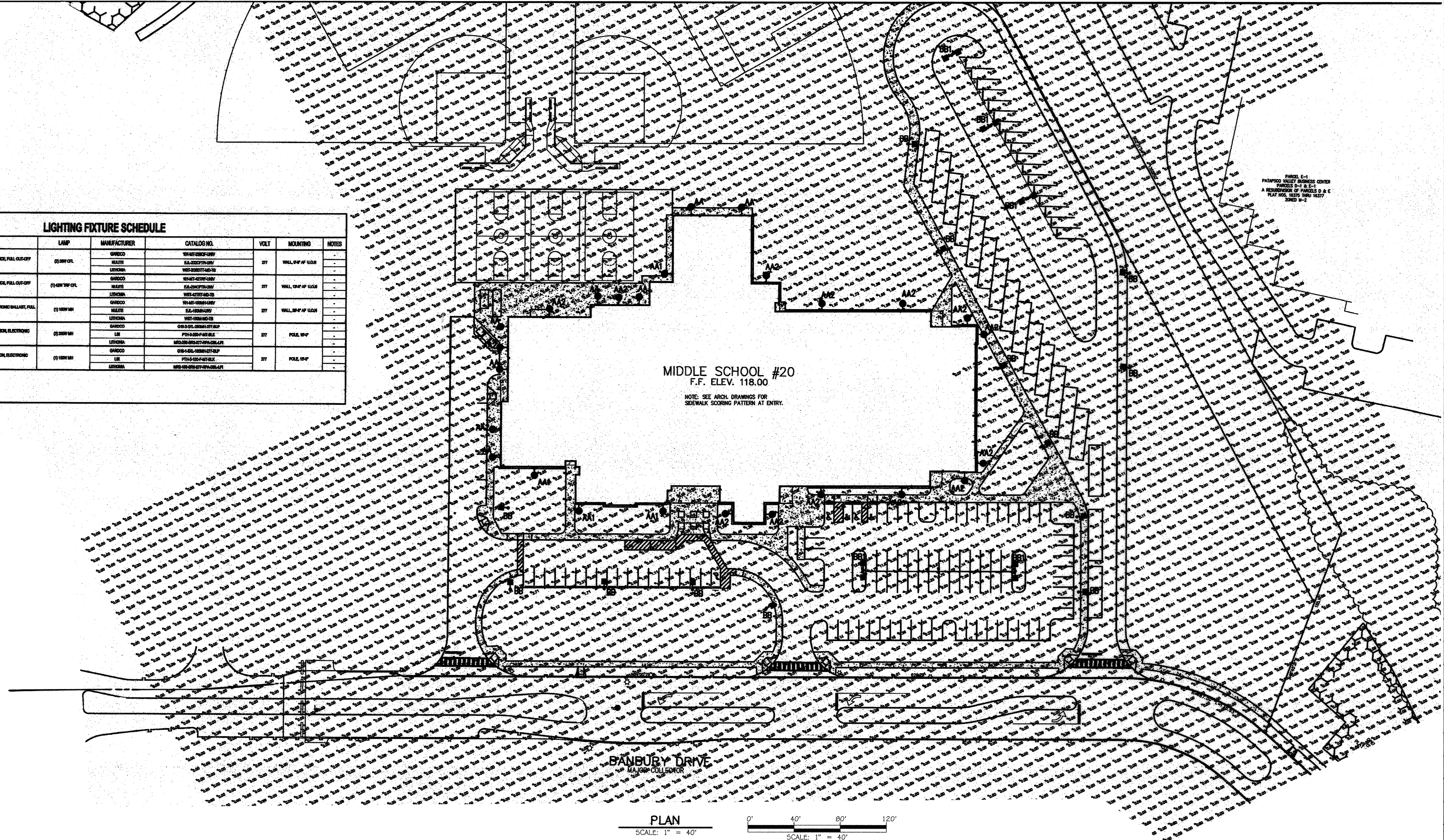


FOR CONTINUATION SEE SHEET 26

**LIGHTING FIXTURE SCHEDULE**

ITEM NO.	DESCRIPTION	LAMP	MANUFACTURER	CATALOG NO.	VOLT	MOUNTING	NOTES
AA	EXTERIOR BUILDING PERIMETER COMPACT FLUORESCENT WALL SCONES, FULL CUT-OFF FIXTURE WITH ELECTRONIC BALLAST	(2) 8W CFL	OSRAM	9448220071400	277	WALL, 8" AF UOIN	-
AA1	EXTERIOR BUILDING PERIMETER COMPACT FLUORESCENT WALL SCONES, FULL CUT-OFF FIXTURE WITH ELECTRONIC BALLAST	(1) 4W TWP CFL	OSRAM	923481421071400	277	WALL, 10" AF UOIN	-
AA2	EXTERIOR BUILDING PERIMETER METAL HALIDE WALL SCONES, ELECTRONIC BALLAST, FULL CUT-OFF	(1) 100W MH	OSRAM	9144248884400	277	WALL, 10" AF UOIN	-
BB1	DOUBLE UNIT EXTERIOR POLYCARBONATE FIXTURE, TYPE III DISTRIBUTION, ELECTRONIC BALLAST, FULL CUT-OFF	(2) 200W MH	OSRAM	0103391488841071400	277	POLE, 10' F	-
BB	SINGLE UNIT EXTERIOR POLYCARBONATE FIXTURE, TYPE III DISTRIBUTION, ELECTRONIC BALLAST, FULL CUT-OFF	(1) 100W MH	OSRAM	0103391488841071400	277	POLE, 10' F	-

REVISIONS:  
 1. PROVIDE OSRAM POLE FIXTURES PER PLAN.  
 2. PROVIDE VANDERBILT STRUCTURES POLE #100-40-65-4-05-001.  
 3. PROVIDE LITVON LIGHTING POLE #RBA-10-125-001-001.



PLAN  
 SCALE: 1" = 40'  
 SCALE: 1" = 40'

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE, PEARL - 10272 BALTHAZOR NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 410.461.2000

**James Posey Associates**  
 Engineering Your Vision  
 Celebrating a Century of Excellence

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

DATE: 4/15/12

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

STATE OF MARYLAND  
 SHARAD E. LIVING  
 PROFESSIONAL ENGINEER  
 No. 12393

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

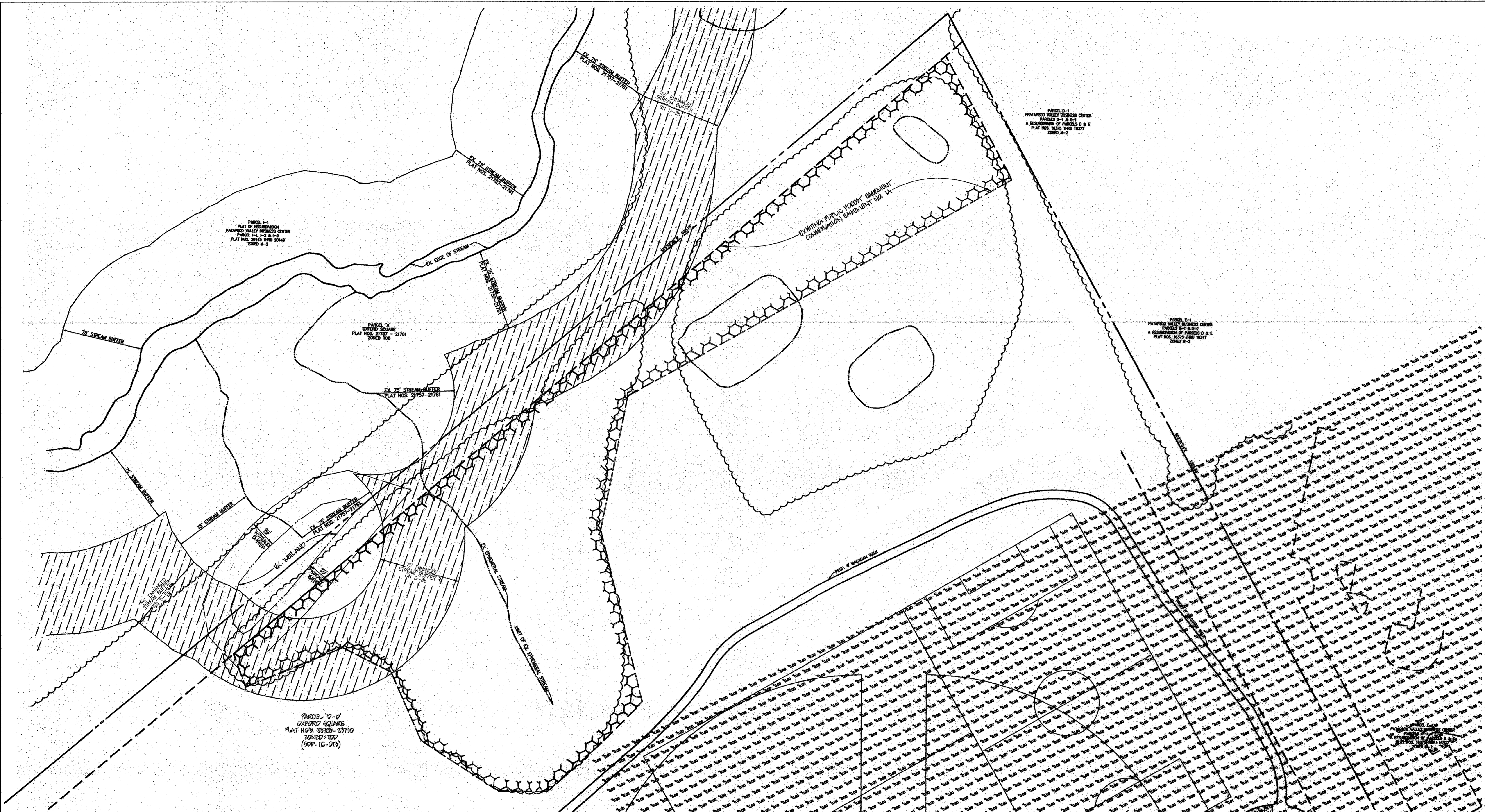
PROJECT	MIDDLE SCHOOL #20	SECTION/AREA	N/A	PARCEL	'D-D'
PLAT NOS.	20	ZONE	TOD	TAX MAP	3B
ELEC. DIST.	FIRST	CENSUS TR.	6012.01	WATER CODE	---
SEWER CODE	---				

**PHOTOMETRICS DIAGRAM**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 25, 2012

SHEET 25 OF 50 **SDP-12-075**



FOR CONTINUATION SEE SHEET 25

PLAN

SCALE: 1" = 40'



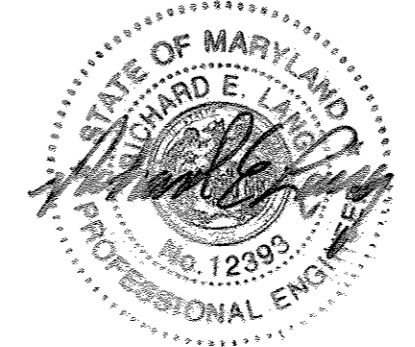
SCALE: 1" = 40'

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-3899

**James Posey Associates**  
 Engineering Your Vision  
 Celebrating a Century of Excellence

DATE	DESCRIPTION	REVISION BLOCK
07/20/16	REVISED BOUNDARIES, PUBLIC POB & TITLE BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>[Signature]</i>	Director - Department of Planning and Zoning	1/15/12 Date
<i>[Signature]</i>	Chief, Division of Land Development	1/14/13 Date
<i>[Signature]</i>	Chief, Development Engineering Division	11/15/12 Date

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805



Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	PARCEL
MIDDLE SCHOOL #20	20	TOD	3B	FIRST	'D-D'
PLAT NOS.					CENSUS TR.
22186-22190					6012.01
WATER CODE			SEWER CODE		

**PHOTOMETRICS DIAGRAM**

**'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'**

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 25, 2012

SHEET 26 OF 50 **SDP-12-075**

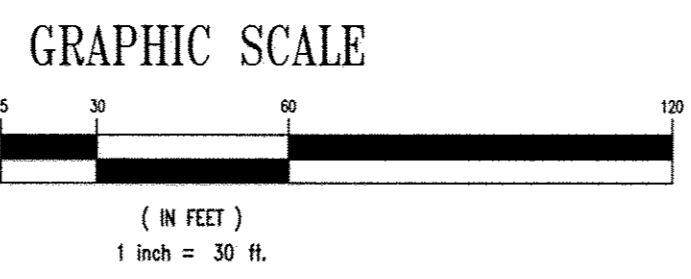
I:\2009\09014\dwg\SCHOOL PLANS\09014.SHEET 25-26 PHOTOMETRICS.dwg, PHOTO-2, 10/25/2012 8:13:03 AM, 1:1



**LEGEND**

SYMBOL	PART NO.#	DESCRIPTION
	SSAK24P516N54 ETH	TORO CUSTOM COMMAND SERIES CONTROLLER, 24 STATION W/ BLUE HEAT SERIES ETHERNET MODEM
	TWRS	TORO WIRELESS RAIN SENSOR
	102P1.5	IRRITROL 102 SERIES NORMALLY OPEN MASTER VALVE, 1.5"
	P220-26-06 P220-26-04	TORO P220 SERIES ELECTRIC VALVE, 1.5" FOR FLOWS OF 30-56 GPM TORO P220 SERIES ELECTRIC VALVE, 1" FOR FLOWS OF 5-30 GPM
	P220-27-06 P220-27-04	TORO P220 SERIES ELECTRIC VALVE W/ PRESSURE REGULATOR, 1.5" FOR FLOWS OF 30-56 GPM TORO P220 SERIES ELECTRIC VALVE W/ PRESSURE REGULATOR, 1" FOR FLOWS OF 5-30 GPM
	644-02-42	TORO 640 SERIES SPRINKLER, #42 NOZZLE, 14 GPM @ 80 PSI
	TR70XTSS-02	TORO TR70XT SERIES SPRINKLER NOZZLES: 90#-#7, 180#-#12, 270#-#20
	590GF-6	TORO 590GF SERIES SPRAY SPRINKLER WITH 15' PRECISION SERIES NOZZLES
	T-113-IRR-x	NIBCO BRONZE THREADED GATE VALVE, LINE-SIZED
	474-01	TORO QUICK COUPLER VALVE, 1"
	SDR 21	PVC Class 200 MAIN LINE, SIZES AS NOTED
	SDR 21	PVC Class 200 LATERAL LINE 2" FOR FLOWS OF 35-56 GPM PVC Class 200 LATERAL LINE 1.5" FOR FLOWS OF 15-35 GPM PVC Class 200 LATERAL LINE 1" FOR FLOWS OF 0-15 GPM SLEEVE - TWO TIMES THE SIZE OF THE PIPE
		POINT OF CONNECTION - BY OTHERS AT CISTERNA/PUMP LOCATION MANHOLE: M.E.P. CONTRACTOR TO PROVIDE 3" PVC STUB FOR CONNECTION TO IRRIGATION SYSTEM
		PROPOSED LOCATION OF PUMP SYSTEM CONTROL ENCLOSURE (REFER TO SHEET #x-x FOR ENCLOSURE INSTALLATION DETAIL DRAWINGS)

- IRRIGATION NOTES:**
- Irrigation system designed for 10-56 GPM at a constant pressure of 80 PSI downstream of the P.O.C.. Contractor shall verify these parameters and notify owner's representative if they cannot be met.
  - Contractor shall verify all site measurements and their accuracy prior to construction. A new irrigation design may be required if major discrepancies exist between actual site layout and this plan.
  - Irrigation system design drawing is diagrammatic in nature. Field adjustments may be necessary.
  - System to be installed per manufacturer's specifications. Consult Mechanical, Electrical, and Plumbing drawings to coordinate these trades with the irrigation layout. If any discrepancies or conflicts arise, communicate them to the owner's representative.
  - All mainline to be SDR 21 Class 200 PVC pipe sized as noted.
  - Mainline and valves are shown in hardscape areas for clarity only. Mainline and valves should be installed in planting bed or turf areas when possible.
  - Control wires shall be UL-approved for direct burial in ground.
  - All field wire above grade or within structure to be installed in conduit per local code.
  - All underground splices and connection of wiring to remote control valves to utilize 3M water proof splice kits in appropriate size valve box.
  - Depth of irrigation piping: 24" on mainline; 18" on laterals.
  - Underground utilities to be verified before any installation begins.
  - Controller to be grounded per manufacturer's specifications.
  - All mainline to be SDR 21 Class 200 PVC pipe sized as noted. Any piping 3" and greater shall be gasket-joint. Pipe under 3" shall be solvent-weld. All pipe 3" and over shall utilize gasketed ductile iron fittings, installed with manufactured joint restraints or properly engineered concrete thrust blocks.
  - All sprinkler heads shall utilize manufactured 'o'-ring swing joints, sized to match inlet of sprinkler. Swing joints shall be installed according to manufacturer's specifications.
  - In order to maintain the integrity of the irrigation system, sprinklers, valves, and controllers, must be as specified. Alternate products will be considered at the discretion of the owner. Alternate product submittals must include a complete new system design by and Irrigation Association Certified Irrigation Designer (Commercial or Residential Option), installation details, product performance data, hydraulic data, and a list of product references.



**PLAN**  
SCALE: 1" = 30'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
BELLGATE CITY, MARYLAND 21042  
(410) 461-1200

Professional Certification. I 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. 13204. Expiration Date: November 3, 2012.

*Charles J. Casvo*  
CHARLES J. CASVO, SR., P.E.  
10/29/12 DATE

DATE	DESCRIPTION
6/20/10	REVISED BOUNDARY, PUBLIC EDE & TITLE BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

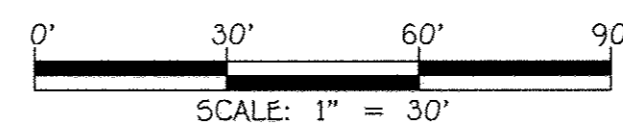
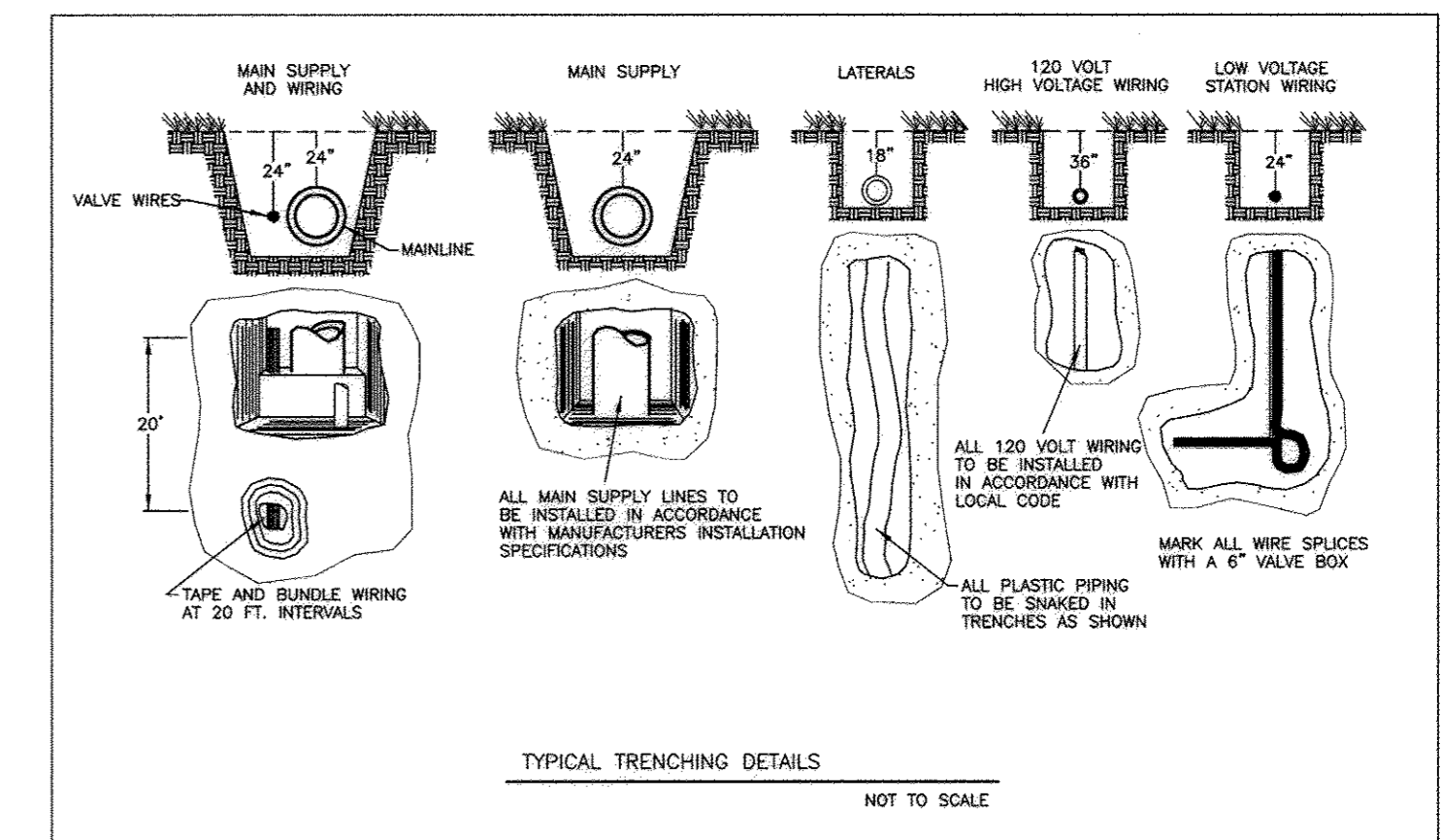
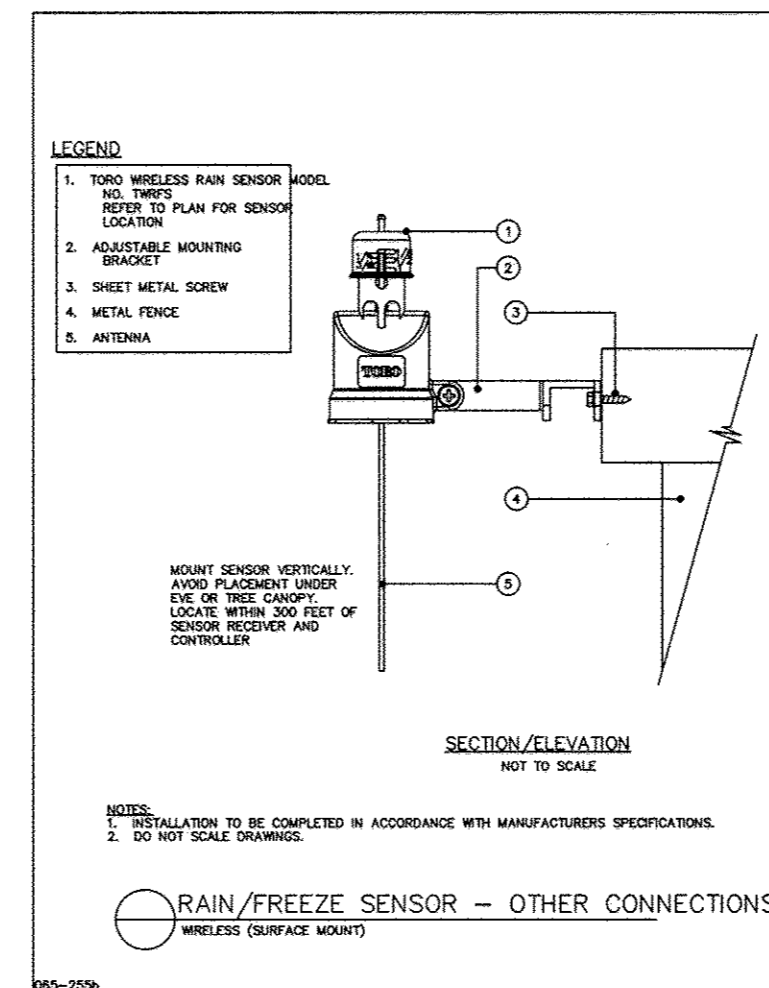
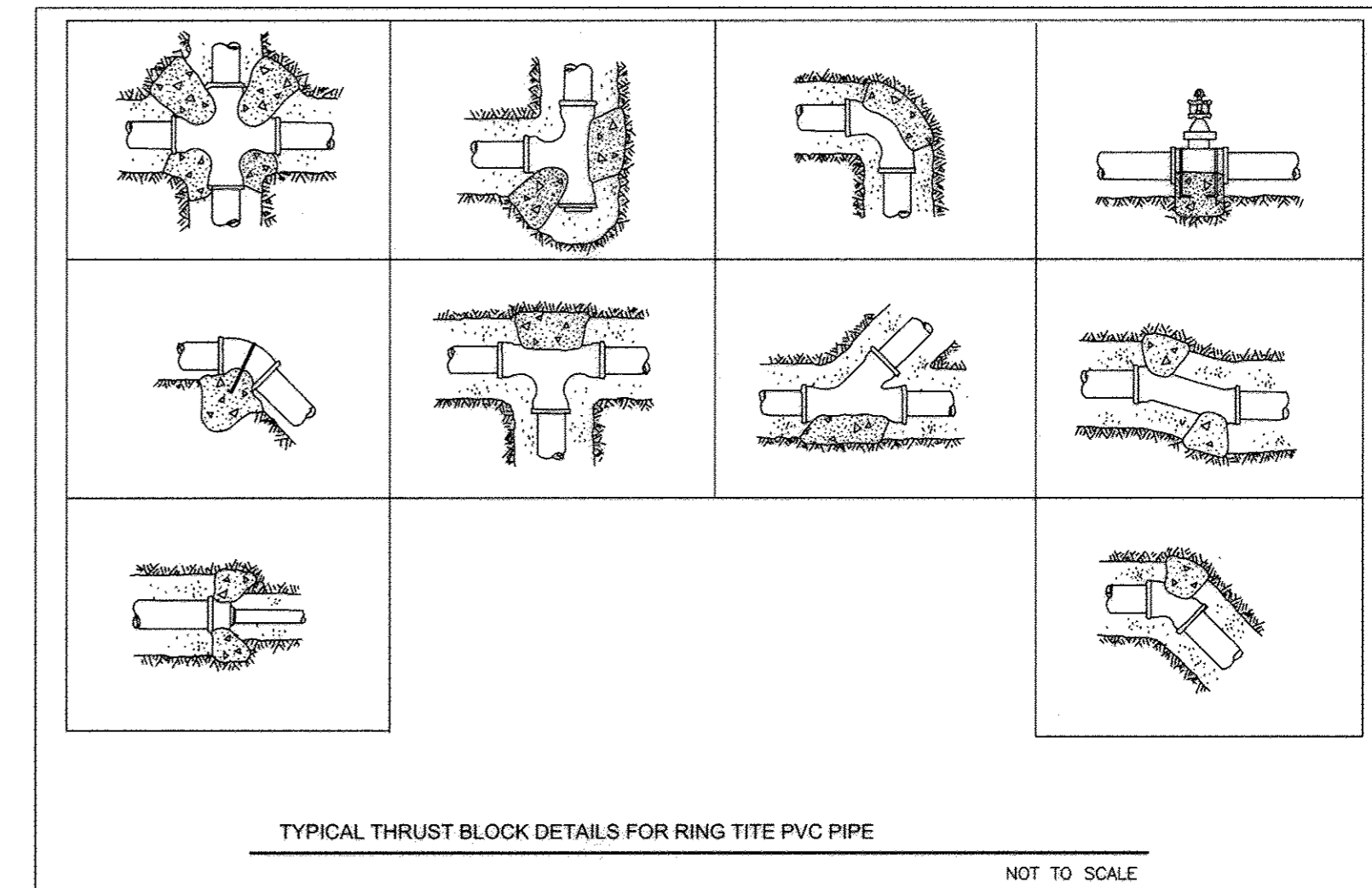
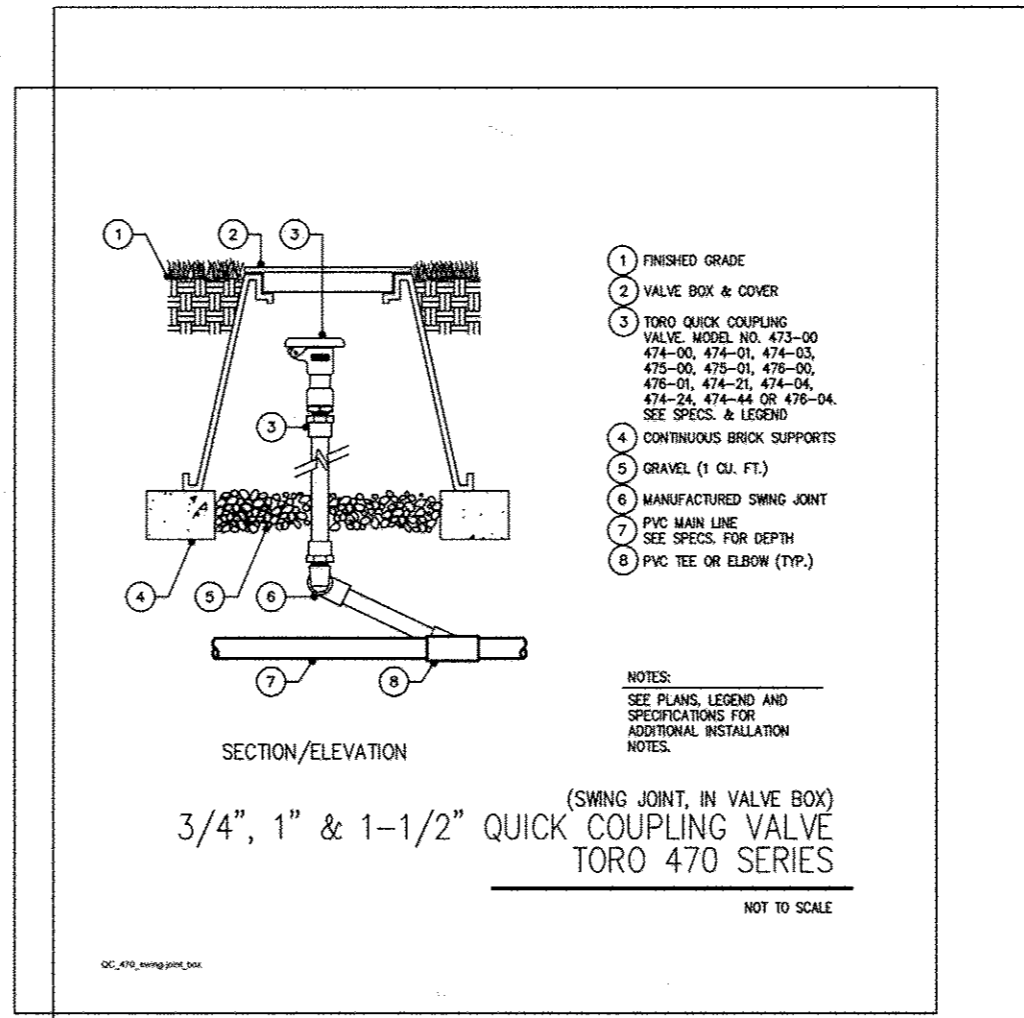
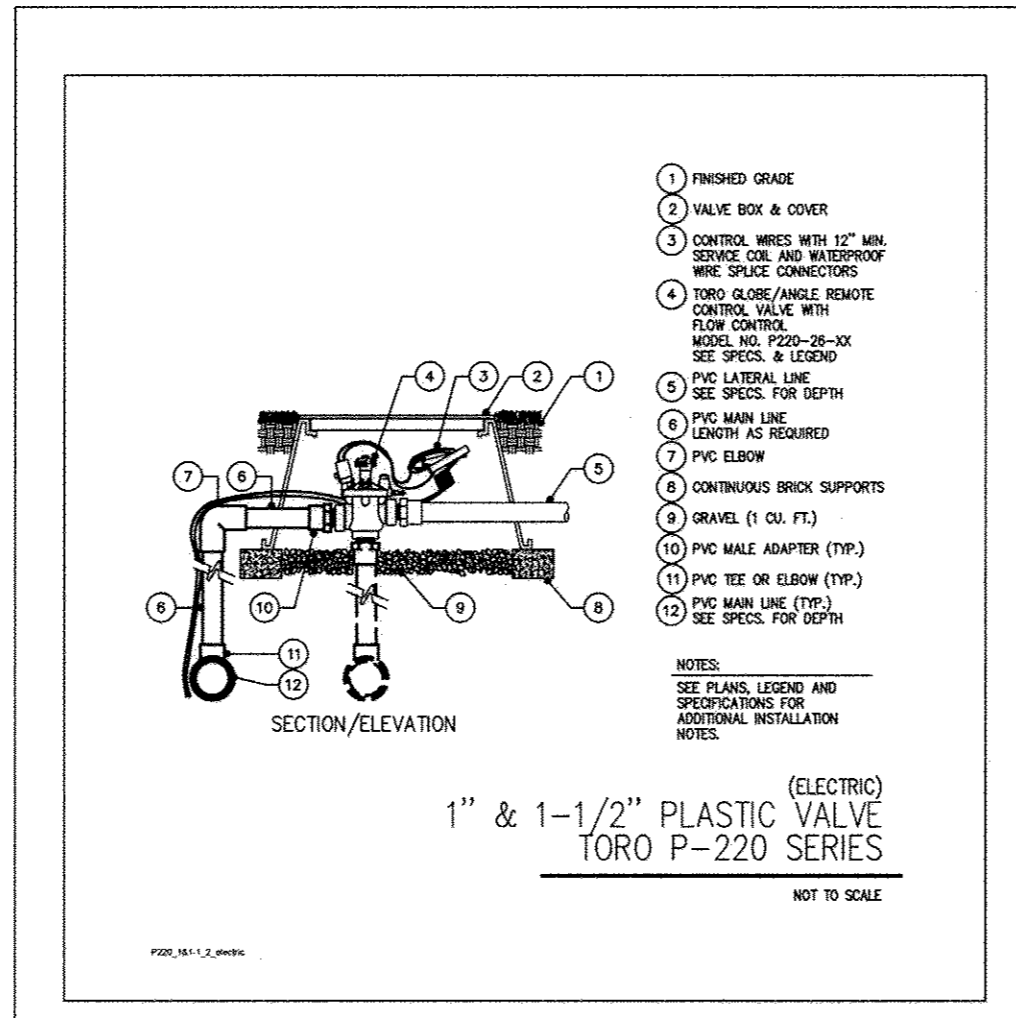
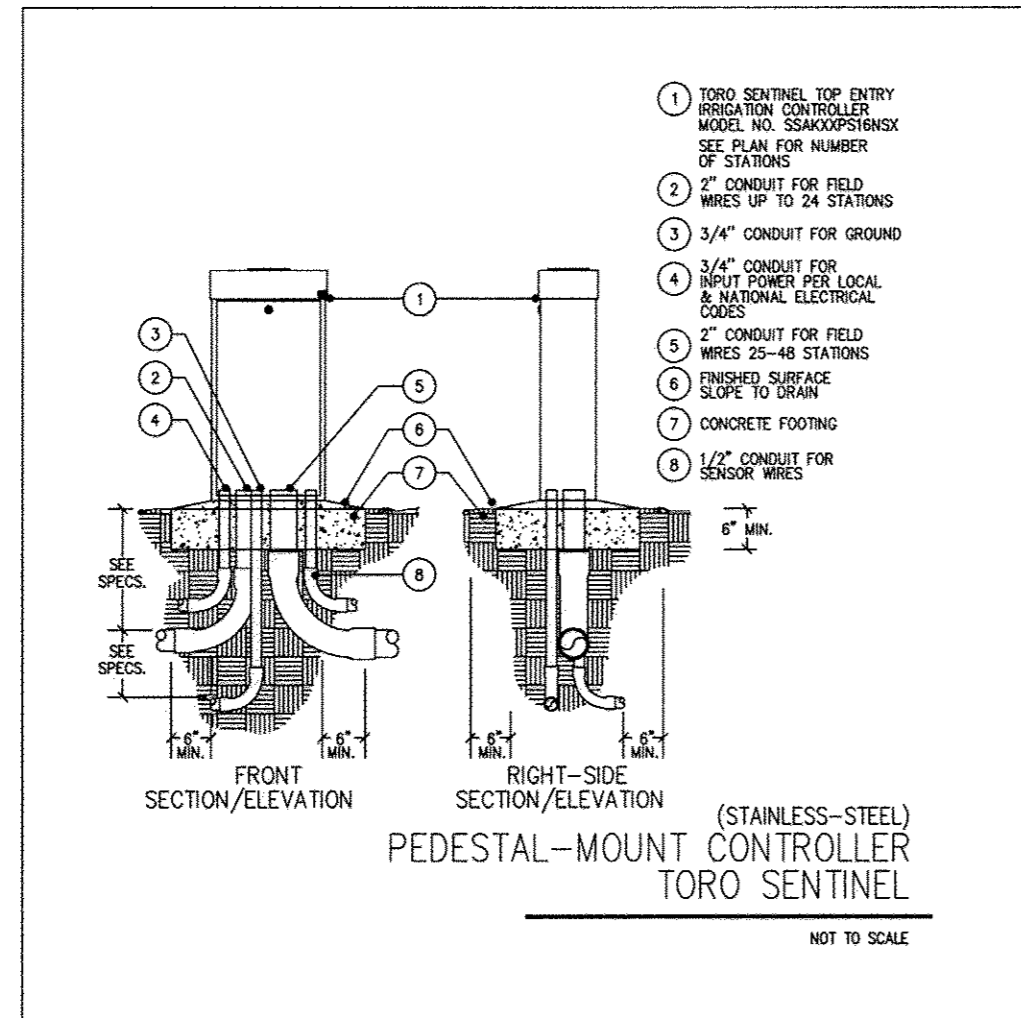
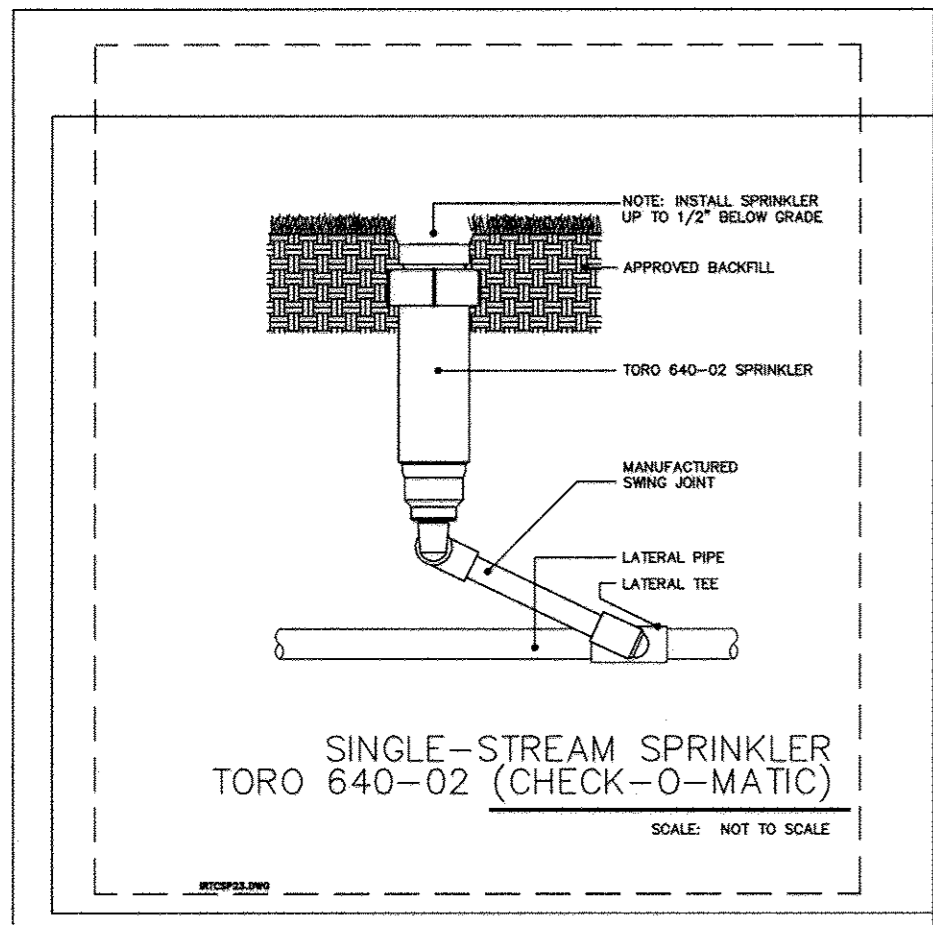
**IRRIGATION SYSTEM DESIGN**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
OXFORD SQUARE  
PARCEL 'D-D'

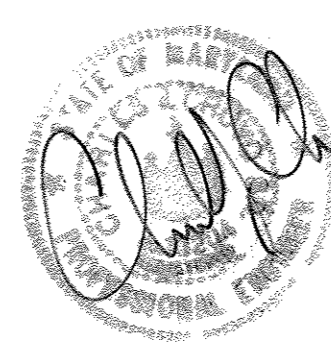
ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 30' DATE: OCTOBER 26, 2012

SHEET 27 OF 50 **SDP-12-075**

E:\2009\09014\dwg\SCHOOL PLANS\09014\_SHEET 27-28 IRRIGATION PLANS.dwg



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLCOTT CITY, MARYLAND 21042  
(410) 461-2099



"Professional Certification. I 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. 13204. Expiration Date: November 3, 2012."

*Charles J. Carvo*  
CHARLES J. CARVO, SR., P.E.  
10/29/12  
DATE

DATE	DESCRIPTION
10/20/12	REVISED TITLE BLOCK
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Mark H. Lewis</i>	10/25/12
Director - Department of Planning and Zoning	Date
<i>K. J. ...</i>	11/14/12
Chief, Division of Land Development	Date
<i>...</i>	11/15/12
Chief, Development Engineering Division	Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	MIDDLE SCHOOL #20	SECTION/AREA	N/A	PARCEL	'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
	20	TOD	3B	FIRST	6012.01
WATER CODE	---		SEWER CODE	---	

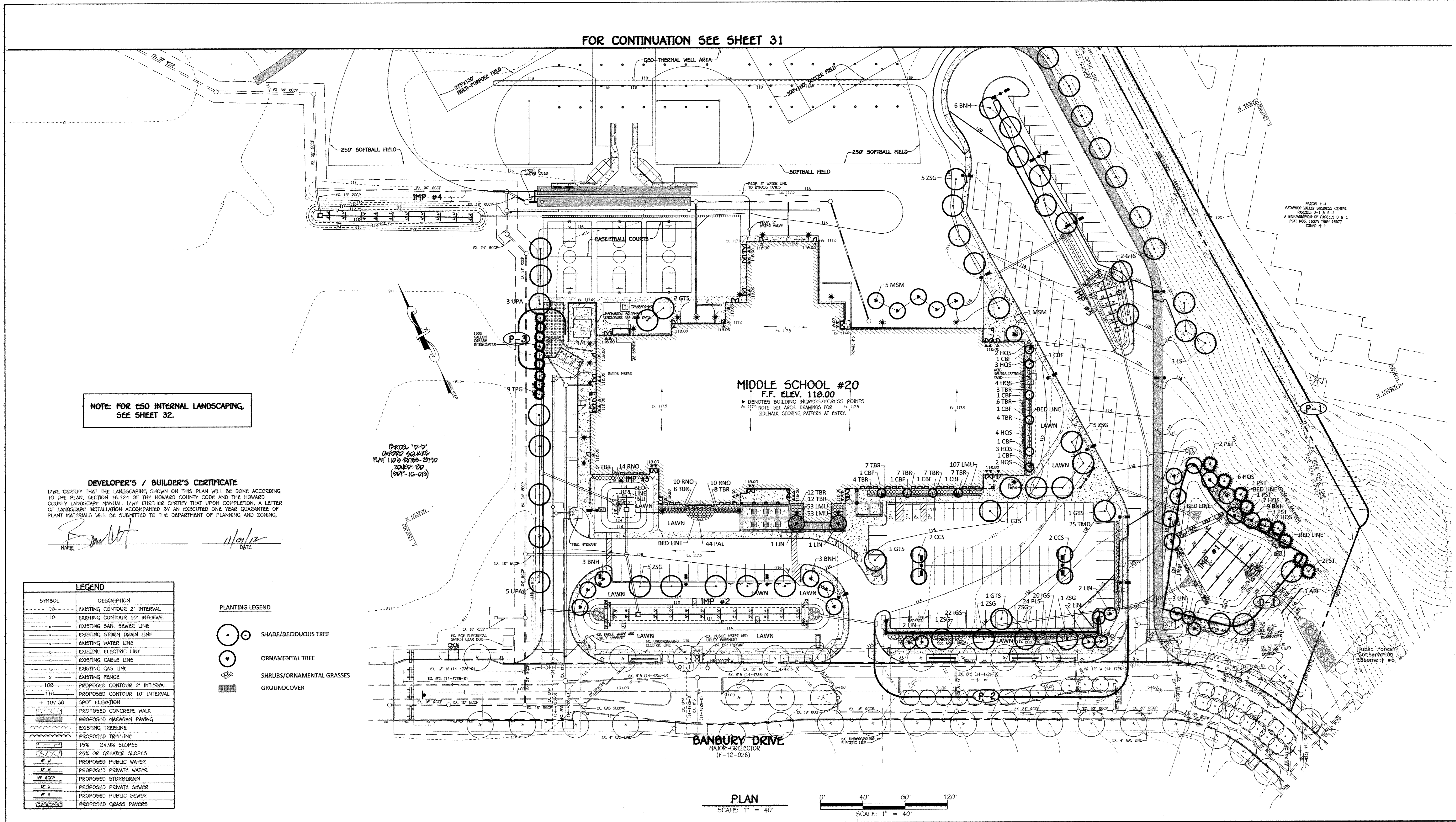
IRRIGATION SYSTEM DESIGN

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 30' DATE: OCTOBER 26, 2012

SHEET 28 OF 50 **50P-12-075**

FOR CONTINUATION SEE SHEET 31



NOTE: FOR ESD INTERNAL LANDSCAPING, SEE SHEET 32.

**DEVELOPER'S / BUILDER'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.

NAME: *[Signature]* DATE: 11/01/12

PARCEL 'D-D'  
OXFORD SQUARE  
PLAT NOS. 02700-02710  
ZONED PD  
(907-16-013)

**PLAN**  
SCALE: 1" = 40'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKY.  
ELICOTT CITY, MARYLAND 21042  
(410) 461-0999



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*[Signature]*  
CHARLES J. CROVO, SR., P.E. DATE: 10/26/12

DATE	DESCRIPTION
10/26/12	GRID/16 REAR BOUNDARY, PUBLIC PDS & TITLE BLOCK
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	11/01/12
Director - Department of Planning and Zoning	Date
<i>[Signature]</i>	11/13/12
Chief, Division of Land Development	Date
<i>[Signature]</i>	11/15/12
Chief, Development Engineering Division	Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	SECTION/AREA				
MIDDLE SCHOOL #20	N/A				
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
02700-02710	20	3B	FIRST	6012.01	
WATER CODE	SEWER CODE				
---	---				

**LANDSCAPE PLAN**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
OXFORD SQUARE  
PARCEL 'D-D'

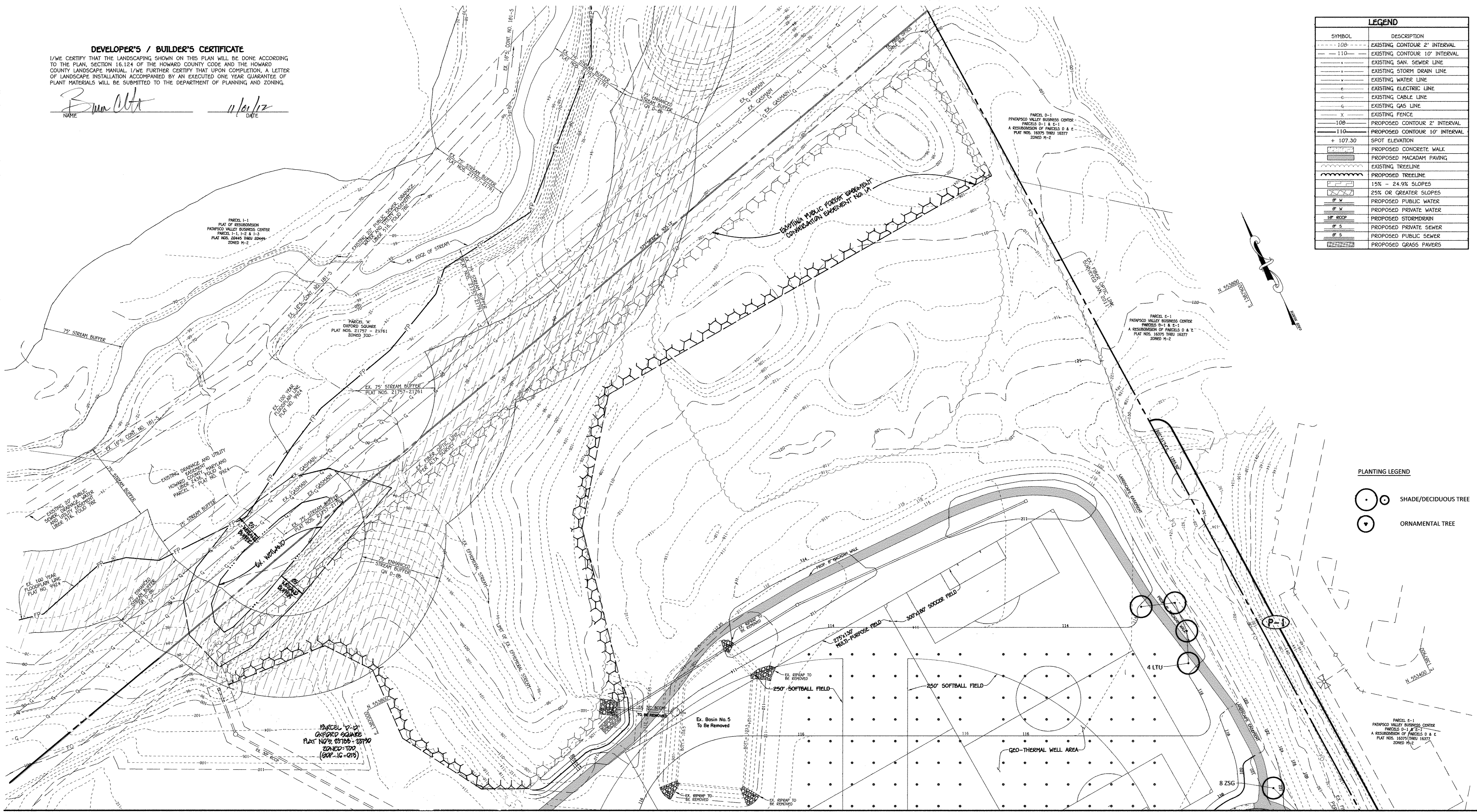
ZONED TO: PD  
TAX MAP No.: 3B  
GRID No.: 20  
PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: 1" = 40'  
DATE: OCTOBER 26, 2012

SHEET 29 OF 50  
SDP-12-075

**DEVELOPER'S / BUILDER'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.

NAME Bruce Gist DATE 10/12/12

LEGEND	
SYMBOL	DESCRIPTION
---108---	EXISTING CONTOUR 2' INTERVAL
---110---	EXISTING CONTOUR 10' INTERVAL
---	EXISTING SAN. SEWER LINE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	EXISTING ELECTRIC LINE
---	EXISTING CABLE LINE
---	EXISTING GAS LINE
X	EXISTING FENCE
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
---	PROPOSED CONCRETE WALK
---	PROPOSED MACADAM PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	15% - 24.9% SLOPES
---	25% OR GREATER SLOPES
---	PROPOSED PUBLIC WATER
---	PROPOSED PRIVATE WATER
---	PROPOSED STORMDRAIN
---	PROPOSED PRIVATE SEWER
---	PROPOSED PUBLIC SEWER
---	PROPOSED GRASS PAVERS

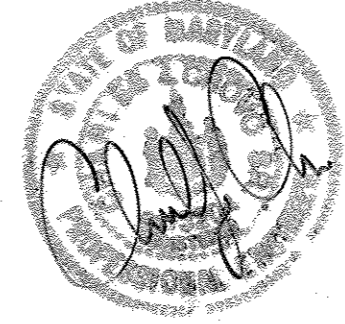


PLANTING LEGEND	
○	SHADE/DECIDUOUS TREE
●	ORNAMENTAL TREE

FOR CONTINUATION SEE SHEET 30

PLAN  
 SCALE: 1" = 40'

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-1095



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

Charles J. Cedvo, Sr.  
 CHARLES J. CEDVO, SR., P.E. DATE 10/12/12

DATE	DESCRIPTION
6/20/10	REVISED BOUNDARY, PUBLIC POE & TITLE BLOCK
REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<u>Paul H. Lytle</u>	DATE <u>1/15/12</u>
Director - Department of Planning and Zoning	
<u>Kevin J. Dwyer</u>	DATE <u>11/11/13</u>
Chief, Division of Land Development	
<u>William J. ...</u>	DATE <u>6/15/12</u>
Chief, Development Engineering Division	

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	SECTION/AREA	PARCEL			
MIDDLE SCHOOL #20	N/A	'D-D'			
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03708-03790	20	TOD	3B	FIRST	6012.01
WATER CODE			SEWER CODE		
---			---		

**LANDSCAPE PLAN**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 40' DATE: OCTOBER 26, 2012

SHEET 30 OF 50 **5DP-12-075**

1: 2009/09/14 14:00:00 SCHOOL PLANS (08/14) PLAN (09/14) LAND-2, 10/26/2012 10:15:00 AM, 1:1

## Construction Period Protection Program

### A. Forest Protection Techniques

- 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 A. 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.
- 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 be placed along all LOD lines that occur within 35 feet of existing trees. Signage will be placed along the edge of the FCE every 100 feet. Fencing will consist of 42" orange mesh fence or superior site fence. See Forest Conservation Plan for standard specifications.
- 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.
- 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. Washing of equipment will be prohibited from all forest retention areas. Washwater resulting from equipment cleaning will be contained to prevent runoff into wetlands, streams and other environmentally sensitive areas.
- 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 initiated 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.
- 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.
- 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.
- 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 request a post-construction meeting to review the project. The meeting will allow the County inspector to verify that all Forest Conservation Element areas have been properly retained and that all post construction protection measures (sediment signage) have been installed.

### Post-Construction Management Plan

The post-construction management plan will further ensure that all Forest Conservation Element 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:

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

QTY.	KEY	BOTANICAL NAME COMMON NAME	SIZE	CONT.	REMARKS
<b>TREES - DECIDUOUS SHADE</b>					
3	ARF	Acer x freemanii 'Autumn Blaze'	3" - 3-1/2" cal.	B & B	Seedless
23	BNH	Betula nigra 'Heritage'	10-12' ht. min.	B & B	Multistem/3 trunks min.
10	CBF	Carpinus betulus 'Fastigiata'	3" - 3-1/2" cal.	B & B	Matched
8	GTS	Gleditsia triacanthos inermis 'Shademaster'	3" - 3-1/2" cal.	B & B	
3	LS	Liquidambar styraciflua American Sweetgum	2-1/2" - 3" cal.	B & B	
4	LTU	Liriodendron tulipifera Tulip Poplar	2-1/2" - 3" cal.	B & B	
8	UPA	Ulmus parvifolia 'Frontier'	2-1/2" - 3" cal.	B & B	
27	ZSG	Zelkova serrata var. 'Greenvase' Japanese Zelkova	2-1/2" - 3" cal.	B & B	
<b>TREES - EVERGREEN</b>					
9	TPG	Thuja x plicata 'Green Giant' Green Giant Arborvitae	10'-12' Ht.	B & B	
9	PST	Pinus strobus Eastern White Pine	10'-12' Ht.	B & B	unshaded
<b>TREES - ORNAMENTAL</b>					
4	CCS	Cercis canadensis Eastern Redbud	8'-10' Ht.	B & B	Single stem
11	LIN	Lagerstroemia indica 'Arapaho' Red Crapemyrtle	8'-10' Ht.	B & B	Multistem/4 trunks min.
6	MSM	Magnolia x soulangiana Saucer Magnolia	10'-12' Ht.	B & B	Multistem/3 trunks min.
<b>SHRUBS</b>					
87	CLA	Clethra alnifolia 'Pinkspire' Sweet Pepperbush	24"-30" Ht.	Cont.	40" o.c.
117	CSE	Cornus sericea Red Osier Dogwood	18"-24" Ht.	Cont.	48" o.c.
38	HQS	Hydrangea quercifolia 'Snow Queen' Oakleaf Hydrangea	24"-30" Ht.	Cont.	40" o.c.
42	IGS	Ilex glabra 'Shamrock' Inkberry Holly	24"-30" Ht.	Cont./B&B	40" o.c./Male Only
186	ITV	Itea virginica 'Little Henry' Sweetspire	18"-24" Spd.	Cont.	36" o.c.
24	PLS	Prunus laurocerasus 'Schipkaensis' Cherry Laurel	24"-30" Ht.	Cont.	36" o.c.
34	RNO	Rosa x 'Noaschnee' Flower Carpet White Groundcover Rose	24"-30" Ht.	Cont./B&B	30" o.c.
91	TBR	Taxus baccata 'Repens' Spreading English Yew	24"-30" Spd.	B & B	36" o.c./Male Only
25	TMD	Taxus media 'Densifloris' Spreading English Yew	24"-30" Spd.	B & B	36" o.c./Male Only
<b>GRASSES</b>					
44	PAL	Pennisetum alopecuroides Fountain Grass	1 Gal.	Cont.	30" O.C.
293	PVS	Panicum virgatum 'Shenandoah' Red Switchgrass	1 Gal.	Cont.	36" O.C.
213	LMU	Liriope muscari 'Big Blue' Big Blue Lilyturf	2 qt.	Cont.	18" O.C.
<b>PERENNIALS</b>					
60	EPM	Eupatorium purpureum atropurpureum Purple Joe Pye Weed	1 Gal.	Cont.	42" O.C.
387	EPU	Echinacea purpurea 'Magnus' Purple Coneflower	1 Gal.	Cont.	18" O.C.
109	VNO	Vernonia noveboracensis New York Ironweed	1 Qt.	Cont.	24" O.C.

### PLANTING NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF HOWARD COUNTY CODE AND LANDSCAPE MANUAL AND IS TO BE USED FOR PLANTING ONLY. LANDSCAPING SHALL BE PROVIDED AS SHOWN ON THIS PLAN SHEET. NO SURETY IS REQUIRED SINCE THIS IS A HOWARD COUNTY BOARD OF EDUCATION PROJECT.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK. ALL GENERAL NOTES FROM SHEET 1, SHALL APPLY.
- FIELD VERIFY UNDERGROUND UTILITY LOCATIONS AND EXISTING CONDITIONS BEFORE STARTING PLANTING WORK. EVEN WHERE PLANT LOCATIONS ARE DIMENSIONED, CONTACT CONSTRUCTION MANAGER IF ANY RELOCATION ARE REQUIRED.
- PLANT QUANTITIES SHOWN ON PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON THE PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN SHALL TAKE PRECEDENCE.
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE A.A.N. SPECIFICATIONS, AND BE INSTALLED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BUT NOT OTHERWISE PLANTED, PAVED OR MULCHED SHALL BE SEEDED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- ALL EXPOSED EARTH WITHIN THE LIMITS OF THE PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH PER PLANTING DETAILS.
- THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING IF SOIL OR DRAINAGE CONDITIONS ARE ENCOUNTERED WHICH MAY BE DETRIMENTAL TO THE GROWTH OF PLANTS.
- NO SUBSTITUTION SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR HIS REPRESENTATIVE.
- REFER TO OTHER SITE DWGS. FOR ADDITIONAL SEEDING REQUIREMENTS.

Note: THERE IS NO LANDSCAPING SURETY FOR THE LANDSCAPE PLAN.

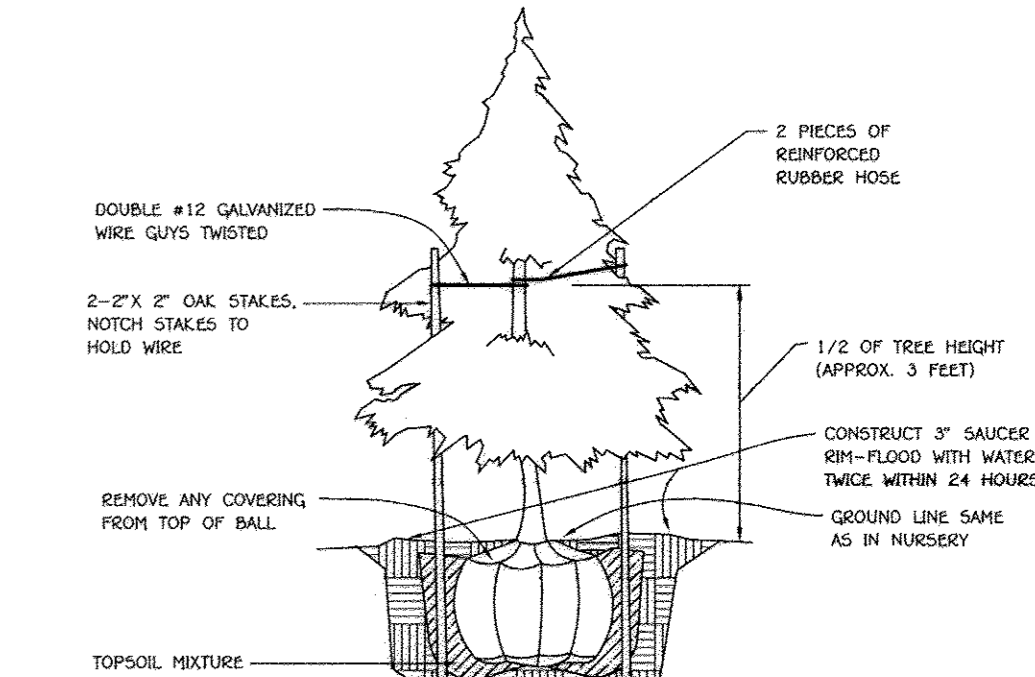
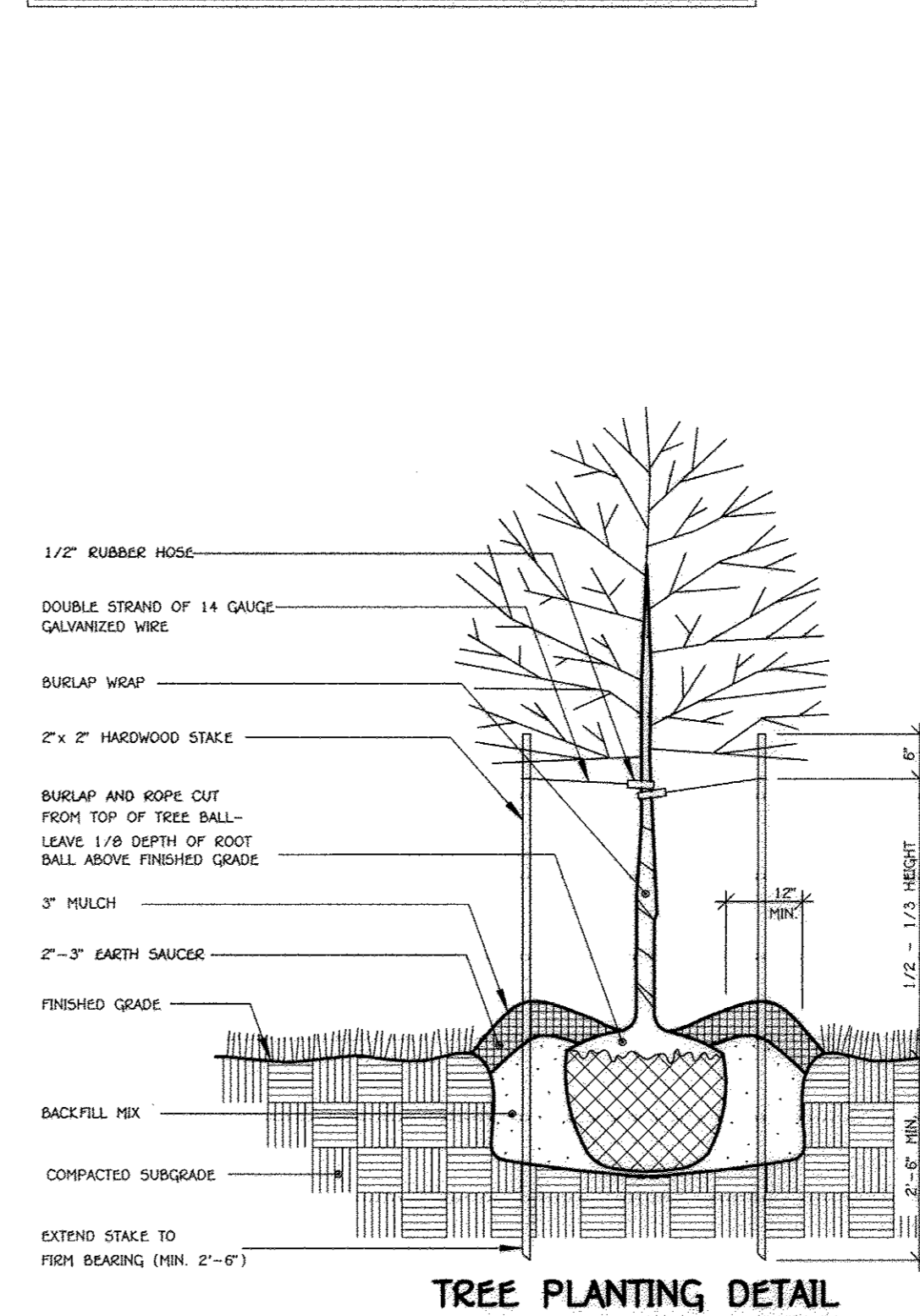
NOTE: TREE AND SHRUB TYPES ARE ONLY AN RECOMMENDATION, THESE MAY BE REVISED TO A COUNTY APPROVED EQUIVALENT FROM THE HOWARD COUNTY LANDSCAPE MANUAL. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

SCHEDULE D (D-1) STORMWATER MANAGEMENT AREA LANDSCAPING	
LINEAR FEET OF PERIMETER	445'
LANDSCAPE TYPE	B
NUMBER OF TREES REQUIRED	
SHADE TREES	9
EVERGREEN TREES	11
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED	
SHADE TREES	12
EVERGREEN TREES	9
SHRUBS (10:1 SUBSTITUTION)	20

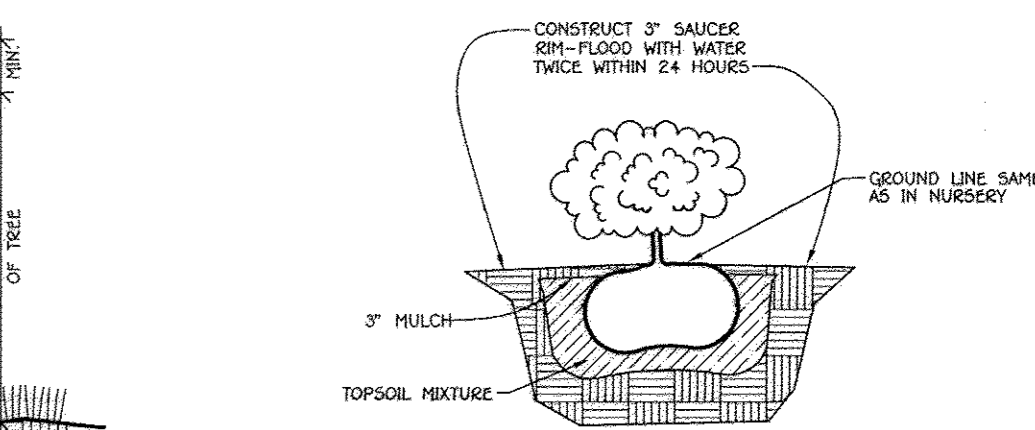
### PLANTING SPECIFICATIONS

- 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 NURSEMEYEN (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, BORES AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISTURFMENTS. 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 HEALD-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 AMENDMENTS.
- 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.
- 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.
- 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-SORTED COV. 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.

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	119
NUMBER OF TREES REQUIRED (1/20 SP)	6
NUMBER OF TREES PROVIDED	
SHADE TREES	21
OTHER TREES (2:1 SUBSTITUTION)	-



### EVERGREEN PLANTING DETAIL



### SHRUB PLANTING DETAIL

0' 40' 80' 120'  
SCALE: 1" = 40'

SCHEDULE A PERIMETER LANDSCAPE EDGE (P-#)			
PERIMETER	P1	P2	P3
CATEGORY	Non-Res. Adjacent to Non-Res.	Buffer - Parking Adj. to Roadway	Dumpster Screening
LANDSCAPE TYPE	A	E	D
LINEAR FEET OF PERIMETER	925'	240'	92'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO
NUMBER OF PLANTS REQUIRED			
SHADE TREES	15	6	2
EVERGREEN TREES	-	60	-
SHRUBS	-	-	-
NUMBER OF PLANTS PROVIDED			
SHADE TREES	15	4	2
EVERGREEN TREES	-	-	9
OTHER TREES (2:1 SUBSTITUTION)	-	4	-
SHRUBS (10:1 SUBSTITUTION)	-	66	-
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-	-	-

### DEVELOPER'S / BUILDER'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.

NAME: Bruce Clutz DATE: 10/26/10

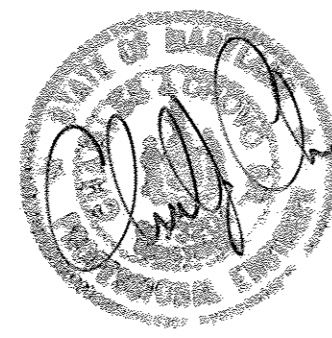
"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."

CHARLES J. KROVO, SR., P.E. DATE: 10/26/10

PREPARED FOR HOWARD COUNTY PUBLIC SCHOOL SYSTEM 10910 Maryland Route 108 Ellicott City, Maryland 21042 Attention: Bruce Gist 410-313-6805	Address Chart Parcel Number <b>'D-1'</b> Street Address 7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT MIDDLE SCHOOL #20	SECTION/AREA N/A
PARCEL <b>'D-1'</b>	
PLAT NOS. <b>23700-23700</b>	BLOCK NO. 20
ZONE TOO	TAX MAP 3B
ELEC. DIST. FIRST	CENSUS TR. 6012.01
WATER CODE ----	SEWER CODE ----
DATE <u>10/26/10</u>	DATE <u>11/13/10</u>
DATE <u>11/15/12</u>	DATE <u>11/15/12</u>

LANDSCAPE NOTES AND DETAIL SHEET			
'GREEN NEIGHBORHOOD' MIDDLE SCHOOL #20 OXFORD SQUARE PARCEL 'D-1'			
ZONED TO	TAX MAP No.	GRID No.	PARCEL No.
FIRST ELECTION DISTRICT	HOWARD COUNTY, MARYLAND	SCALE: AS SHOWN DATE: OCTOBER 26, 2012	
SHEET 31 OF 50		SDP-12-075	

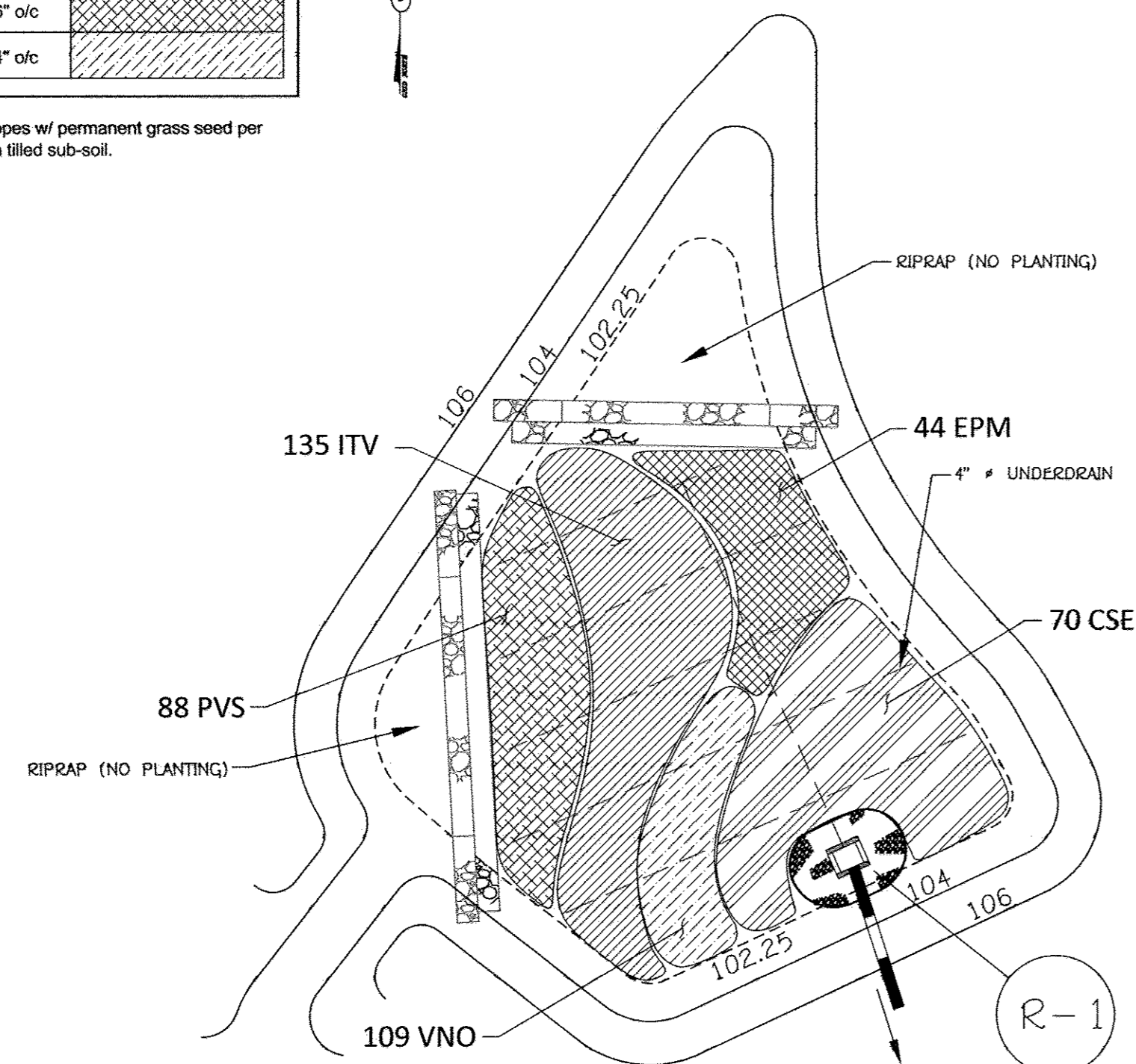
FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-0999



**IMP #1 MICRO-BIORETENTION PLANTING SCHEDULE**

PLANT NAME	SIZE	KEY	REMARKS	SYMBOL
Eupatorium purpureum atropurpureum Purple Joe Pye Weed	1 Gallon	EPM	42" o/c	[Symbol]
Itea virginica 'Little Henry' Sweetspire	18"-24" Spd	ITV	36" o/c	[Symbol]
Cornus sericea Red Osier Dogwood	18"-24" Ht.	CSE	48" o/c	[Symbol]
Panicum virgatum 'Shenandoah' Red Switchgrass	1 Gallon	PVS	36" o/c	[Symbol]
Vernonia noveboracensis New York Ironweed	1 Quart	VNO	24" o/c	[Symbol]

Plant IMP level surface as shown an even distribution density. Stabilize side slopes w/ permanent grass seed per NRCS specifications or sod. Side slopes shall be at least 4" of clean top-soil on tilled sub-soil.



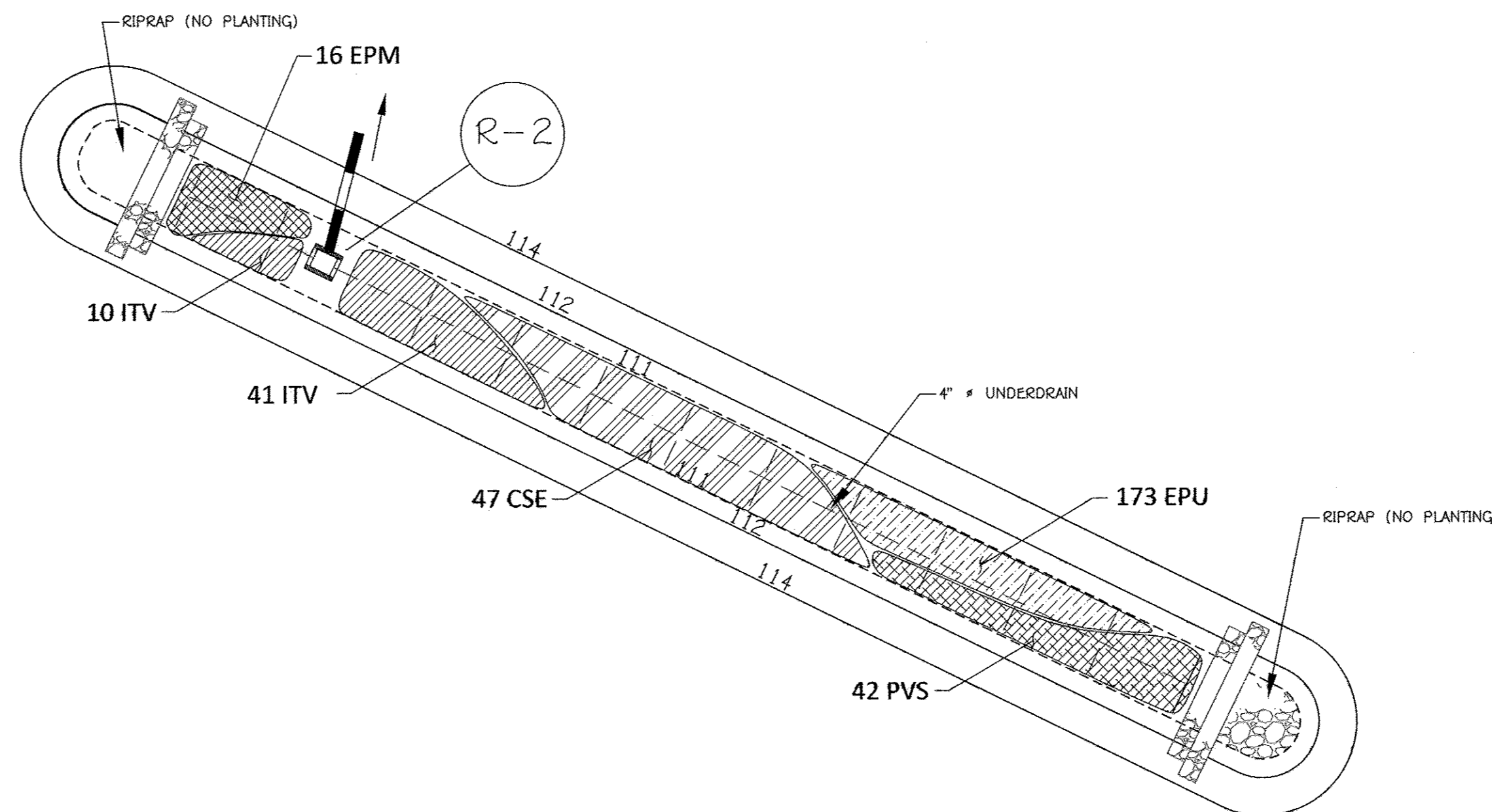
**IMP #1 PLANTING PLAN**

SCALE:  
1" = 20'

**IMP #2 MICRO-BIORETENTION PLANTING SCHEDULE**

PLANT NAME	SIZE	KEY	REMARKS	SYMBOL
Eupatorium purpureum atropurpureum Purple Joe Pye Weed	1 Gallon	EPM	42" o/c	[Symbol]
Itea virginica 'Little Henry' Sweetspire	18"-24" Spd	ITV	36" o/c	[Symbol]
Echinacea purpurea 'Magnus' Purple Coneflower	1 Gallon	EPU	18" o/c	[Symbol]
Cornus sericea Red Osier Dogwood	18"-24" Ht.	CSE	48" o/c	[Symbol]
Panicum virgatum 'Shenandoah' Red Switchgrass	1 Gallon	PVS	36" o/c	[Symbol]

Plant IMP level surface as shown an even distribution density. Stabilize side slopes w/ permanent grass seed per NRCS specifications or sod. Side slopes shall be at least 4" of clean top-soil on tilled sub-soil.



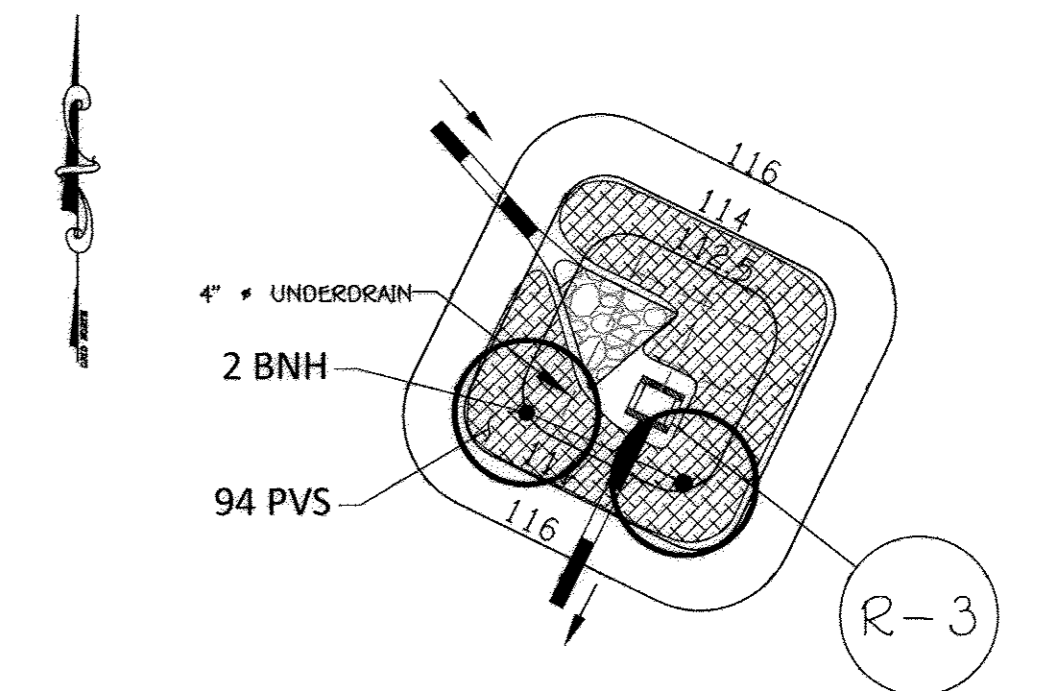
**IMP #2 PLANTING PLAN**

SCALE:  
1" = 20'

**IMP #3 MICRO-BIORETENTION PLANTING SCHEDULE**

PLANT NAME	SIZE	KEY	REMARKS	SYMBOL
Panicum virgatum 'Shenandoah' Red Switchgrass	1 Gallon	PVS	36" o/c	[Symbol]
Betula nigra 'Heritage' River Birch	10'-12" Ht. Min.	BNH	Multistem/ 3 trunks min.	[Symbol]

Plant IMP level surface as shown an even distribution density. Stabilize side slopes w/ permanent grass seed per NRCS specifications or sod. Side slopes shall be at least 4" of clean top-soil on tilled sub-soil.



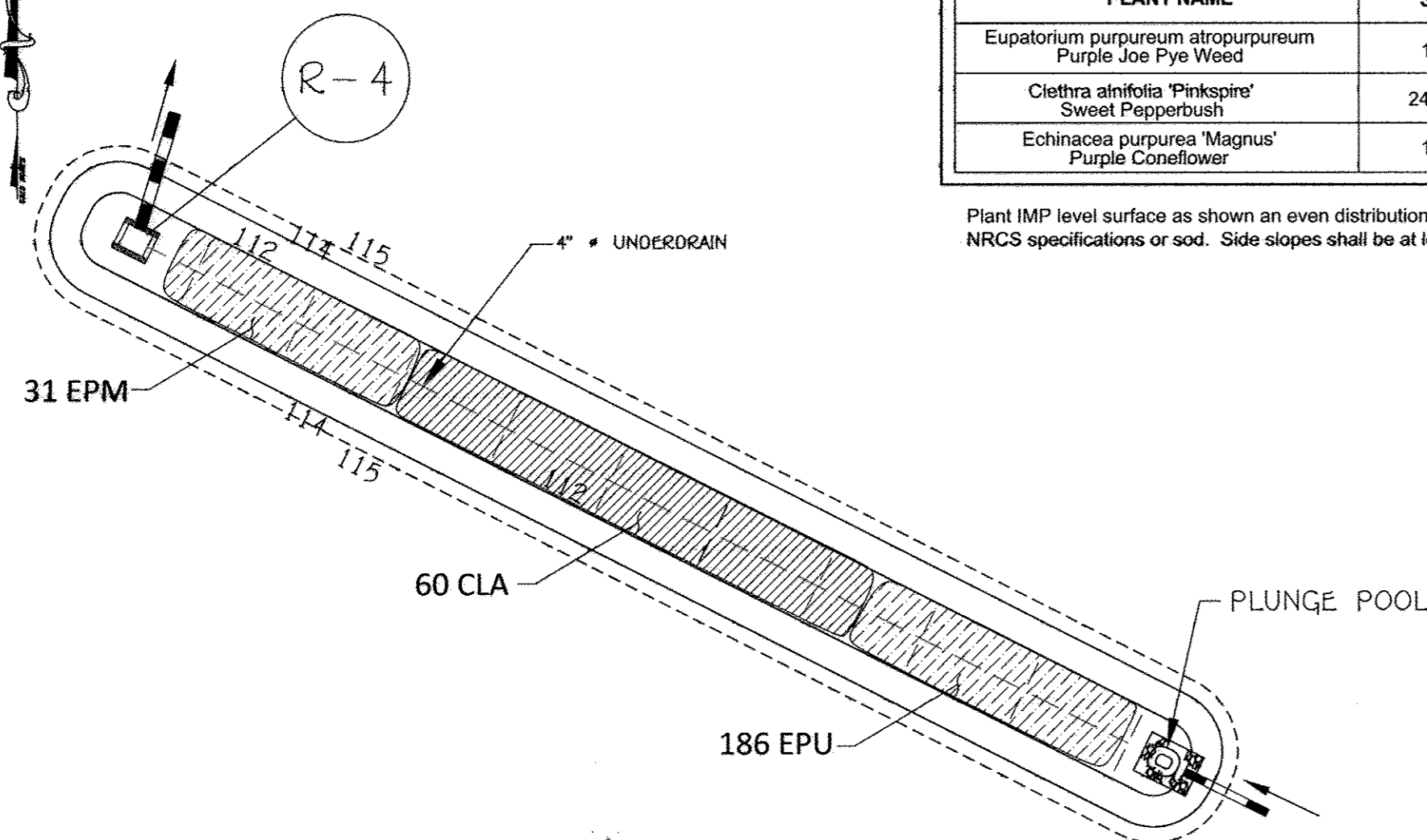
**IMP #3 PLANTING PLAN**

SCALE:  
1" = 20'

**IMP #4 MICRO-BIORETENTION PLANTING SCHEDULE**

PLANT NAME	SIZE	KEY	REMARKS	SYMBOL
Eupatorium purpureum atropurpureum Purple Joe Pye Weed	1 Gallon	EPM	42" o/c	[Symbol]
Clethra alnifolia 'Pinkspire' Sweet Pepperbush	24"-30" Ht.	CLA	40" o/c	[Symbol]
Echinacea purpurea 'Magnus' Purple Coneflower	1 Gallon	EPU	18" o/c	[Symbol]

Plant IMP level surface as shown an even distribution density. Stabilize side slopes w/ permanent grass seed per NRCS specifications or sod. Side slopes shall be at least 4" of clean top-soil on tilled sub-soil.



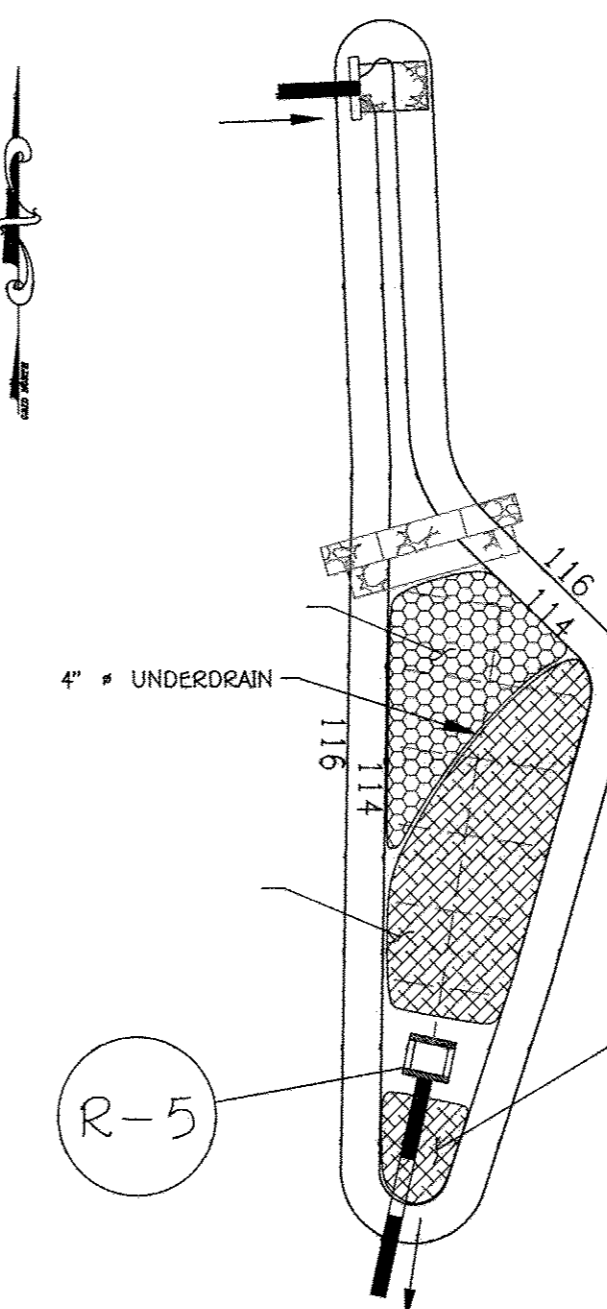
**IMP #4 PLANTING PLAN**

SCALE:  
1" = 20'

**IMP #5 MICRO-BIORETENTION PLANTING SCHEDULE**

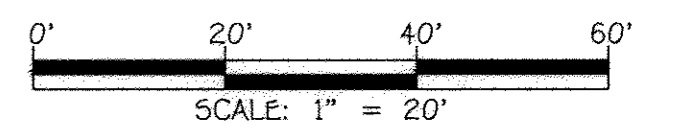
PLANT NAME	SIZE	KEY	REMARKS	SYMBOL
Panicum virgatum 'Shenandoah' Red Switchgrass	1 Gallon	PVS	36" o/c	[Symbol]
Clethra alnifolia 'Pinkspire' Sweet Pepperbush	24"-30" Ht.	CLA	40" o/c	[Symbol]
Panicum virgatum 'Shenandoah' Red Switchgrass	1 Gallon	PVS	36" o/c	[Symbol]

Plant IMP level surface as shown an even distribution density. Stabilize side slopes w/ permanent grass seed per NRCS specifications or sod. Side slopes shall be at least 4" of clean top-soil on tilled sub-soil.



**IMP #5 PLANTING PLAN**

SCALE:  
1" = 20'



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-1999



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. McCoy, Sr.*  
CHARLES J. MCCOY, SR., P.E.  
10/28/12 DATE

DATE	DESCRIPTION
9/20/10	REVISED TITLE BLOCK
DATE	REVISION BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Mark J. Coyle</i>	4/15/12 DATE
Director - Department of Planning and Zoning	
<i>Ketzel</i>	1/14/13 DATE
Chief, Division of Land Development	
<i>John</i>	4/15/12 DATE
Chief, Development Engineering Division	

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	SECTION/AREA	PARCEL			
MIDDLE SCHOOL #20	N/A	'D-D'			
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03788-03790	20	TOD	38	FIRST	6012.01
WATER CODE	---		SEWER CODE	---	

**INTEGRATED MANAGEMENT PRACTICES  
#1-#5 PLANTING PLANS**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TO: TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: 1" = 20' DATE: OCTOBER 26, 2012



**CORE TRENCH NOTE:**  
 IF UNSUITABLE (PERVIOUS) MATERIAL IS ENCOUNTERED GREATER THAN 4 FT, THE CUT-OFF TRENCH SHALL BE EXTENDED UNTIL SUITABLE MATERIAL IS ENCOUNTERED AS DETERMINED BY A GEOTECHNICAL ENGINEER. CUT-OFF TRENCH FILL MATERIAL SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL. OTHER SOILS TYPES MAY BE USED IF APPROVED BY THE GEOTECHNICAL ENGINEER AND CONSTRUCTION IS SUPERVISED BY THE GEOTECHNICAL ENGINEER.

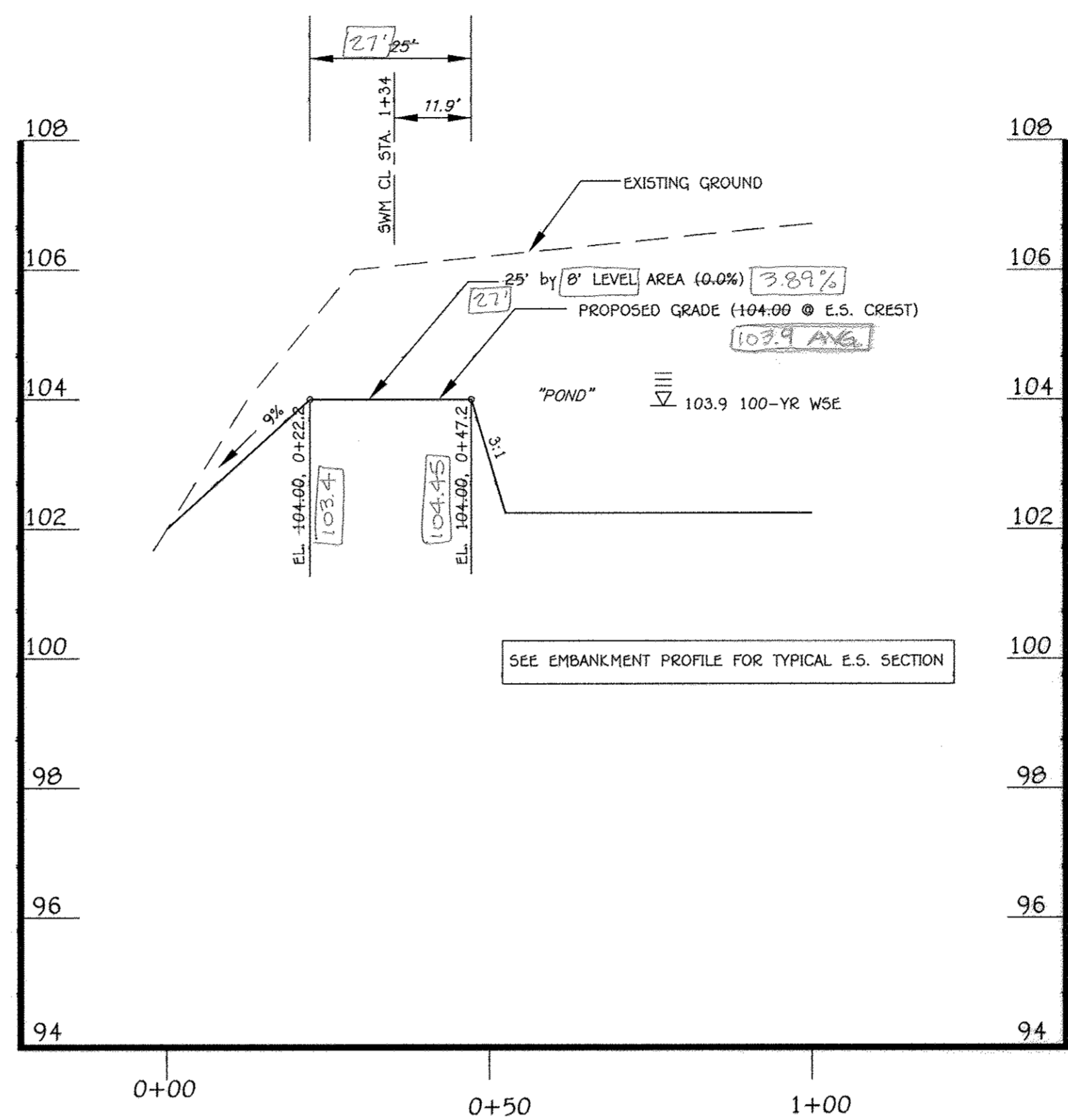
- IMP #1 NOTES**
1. Bioretention Facility IMP #1 shall be constructed to the latest edition of NRCS's Pond Standard MD-378.
  2. Bioretention Facility IMP #1 shall be converted to a SWM facility after ALL upstream areas have been stabilized (i.e., established vegetation or paved) including the pond slopes.

**EMBANKMENT CONSTRUCTION NOTES**

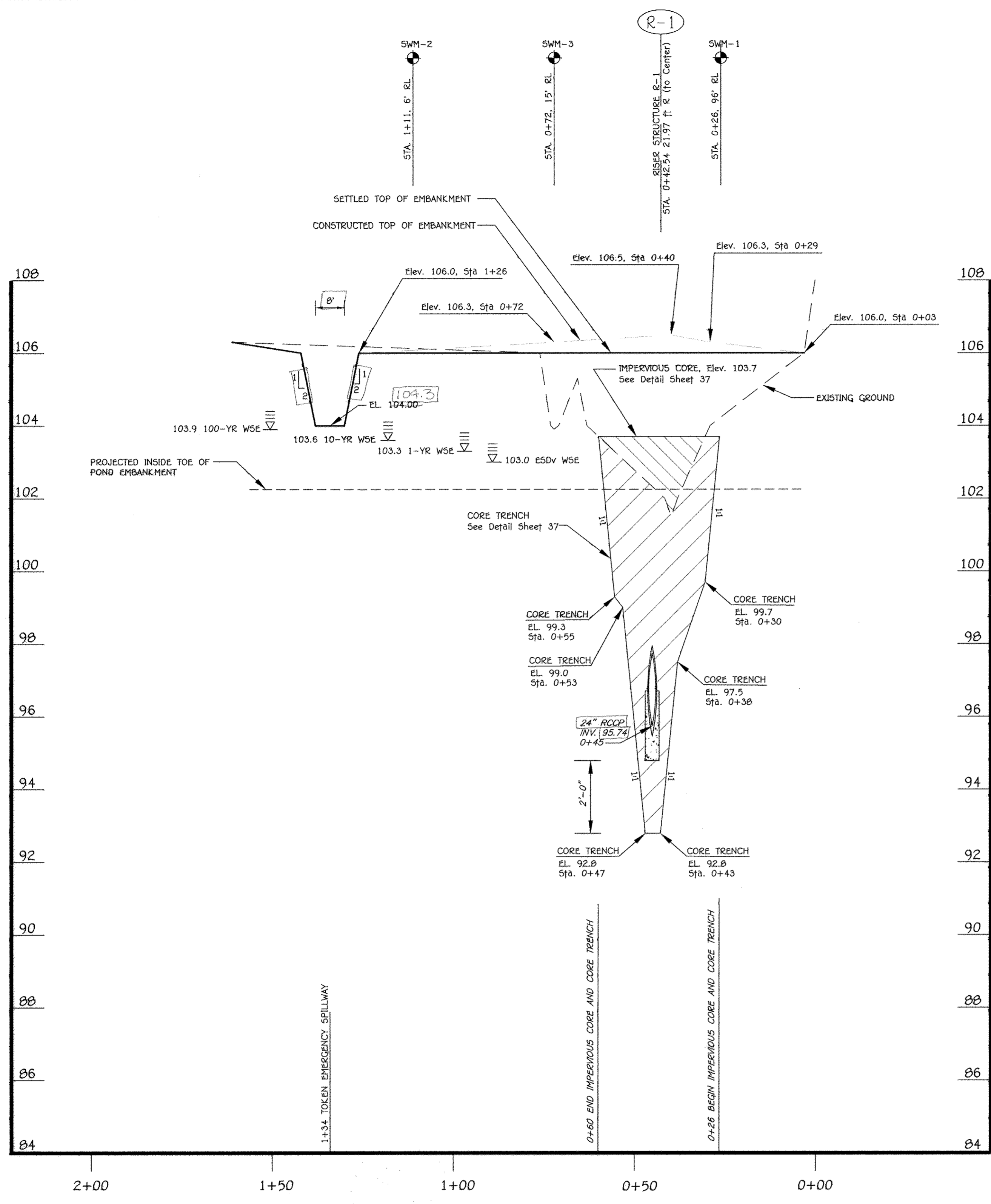
THE AREA OF THE PROPOSED SWM POND SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOF-ROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR REPRESENTATIVE USING 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 MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL.

**AS-BUILT STRUCTURE SCHEDULE**

STRUCTURE NO.	TOP ELEV.		DESIGN		AS-BUILT		INV. IN.		INV. OUT.	
	DESIGN	AS-BUILT	DESIGN	PIPE	AS-BUILT	PIPE	DESIGN	PIPE	AS-BUILT	PIPE
I-1	106.25	106.46	102.5	18 IN	102.8	18 IN	102.4	18 IN	102.40	18 IN
I-2	109.6	109.76	103.09	15 IN	103.21	15 IN	102.84	18 IN	103.10	18 IN
I-3	112.26	112.30	-	-	-	-	110.0	15 IN	110.00	15 IN
I-4	112.12	112.10	-	-	-	-	106.46	15 IN	105.80	15 IN
I-5	118.15	117.91	-	-	-	-	114.35	15 IN	114.35	15 IN
I-6	115.08	115.10	-	-	-	-	111.27	15 IN	111.27	15 IN
I-7	115.08	115.09	-	-	-	-	111.25	15 IN	111.25	15 IN
I-8	116.6	116.59	113.11	12 IN	113.2	12 IN	112.86	15 IN	112.86	15 IN
I-9	116.9	116.96	-	-	-	-	113.59	12 IN	113.59	12 IN
I-10	114.38	114.40	105.99	18 IN	105.99	18 IN	105.89	18 IN	105.89	18 IN
I-11	114.38	114.40	106.85	15 IN	106.85	15 IN	106.6	18 IN	106.60	18 IN
I-12	114.38	114.40	-	-	-	-	107.46	15 IN	107.80	15 IN
I-13	107.5	107.30	-	-	-	-	104.25	15 IN	104.08	15 IN
M-1	104.0	104.07	95.42	18 IN	95.95	18 IN	96.32	18 IN	95.85	18 IN
M-3	116.0	116.10	107.72	15 IN	107.10	15 IN	106.26	18 IN	106.26	18 IN
M-5	115.37	115.30	106.36	18 IN	106.36	21 IN	109.05	18 IN	108.67	18 IN
M-6	115.11	115.14	109.89	18 IN	109.94	18 IN	109.79	18 IN	109.84	18 IN
M-7	112.43	112.54	104.04	15 IN	103.59	15 IN	103.79	18 IN	103.34	18 IN
M-8	117.86	117.73	111.0	12 IN	110.73	12 IN	110.49	18 IN	110.33	18 IN
M-9	117.86	117.96	112.0	12 IN	111.60	12 IN	111.49	18 IN	111.49	18 IN
R-1	104.25	104.38	98.0	4 IN	98.00	4 IN	95.91	-	96.03	-
R-2	113.0	113.18	106.75	4 IN	106.65	4 IN	106.65	18 IN	106.65	21 IN
R-3	114.5	114.40	108.25	4 IN	108.58	4 IN	108.15	15 IN	108.10	15 IN
R-4	114.0	114.00	107.75	4 IN	107.83	4 IN	107.65	15 IN	107.80	15 IN
R-5	116.0	115.68	109.75	4 IN	109.75	4 IN	109.65	18 IN	109.40	18 IN
PUMP	115.06	115.10	-	-	-	-	-	-	-	-
E-1	97.4	-	-	-	-	-	95.4	24 IN	95.57	24 IN
E-2	103.78	-	102.28	-	102.18	-	102.25	18 IN	102.14	18 IN
E-3	112.28	-	111.03	-	110.96	-	111.0	15 IN	110.93	15 IN
E-4	112.28	-	111.03	-	111.03	-	111.0	15 IN	111.0	15 IN
E-5	113.78	-	112.53	-	112.45	-	112.5	15 IN	112.42	15 IN
E-6	103.85	-	102.6	-	112.54	-	102.25	15 IN	102.25	15 IN
S-5	106.85	-	-	-	-	-	104.6	18 IN	104.75	18 IN
I-15	110.0	110.23	105.85	18 IN	105.85	18 IN	105.75	18 IN	105.75	18 IN
I-15A	110.0	110.08	-	-	-	-	107.0	18 IN	107.10	18 IN
HW-1	116.0	-	-	-	-	-	114.0	15 IN	113.74	15 IN



**IMP #1 EMERGENCY (TOKEN) SPILLWAY CENTERLINE PROFILE**  
 SCALE:  
 HORIZ. 1" = 20'  
 VERT. 1" = 2'



**IMP #1 FACILITY EMBANKMENT CENTERLINE PROFILE**

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

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT THE WORK SHOWN ON THIS PLAN WAS CONSTRUCTED IN ACCORDANCE WITH THE AS-BUILT AND MEETS THE APPROVED PLANS AND MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 CHARLES J. CREVO, SR., P.E.  
 MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45081

**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Sevenside Ave., Severna Park, MD 21146 410-987-3456

**ENGINEER'S CERTIFICATE**  
 I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.  
 Signature of Engineer: [Signature] Date: 10/21/12

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
 Signature: [Signature] Date: 10/23/12

**DEVELOPER'S CERTIFICATE**  
 "I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."  
 Signature of Developer: [Signature] Date: 11/14/12

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: [Signature] Date: 11/14/12

**AS-BUILT PLAN**

DATE	11/16
REVISION BLOCK	REVISED TITLE BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	[Signature] Date: 11/16/12
Director - Department of Planning and Zoning	[Signature] Date: 11/14/12
Chief, Division of Land-Development	[Signature] Date: 11/15/12
Chief, Development Engineering Division	[Signature] Date: 11/15/12

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

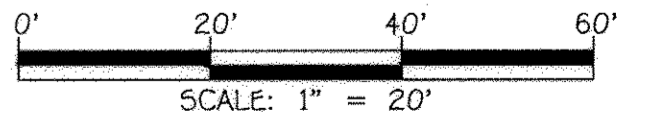
**Address Chart**

Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	MIDDLE SCHOOL #20				
SECTION/AREA	N/A				
PARCEL	'D-D'				
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
07188-03770	20	TOD	38	FIRST	6012.01
WATER CODE	SEWER CODE				

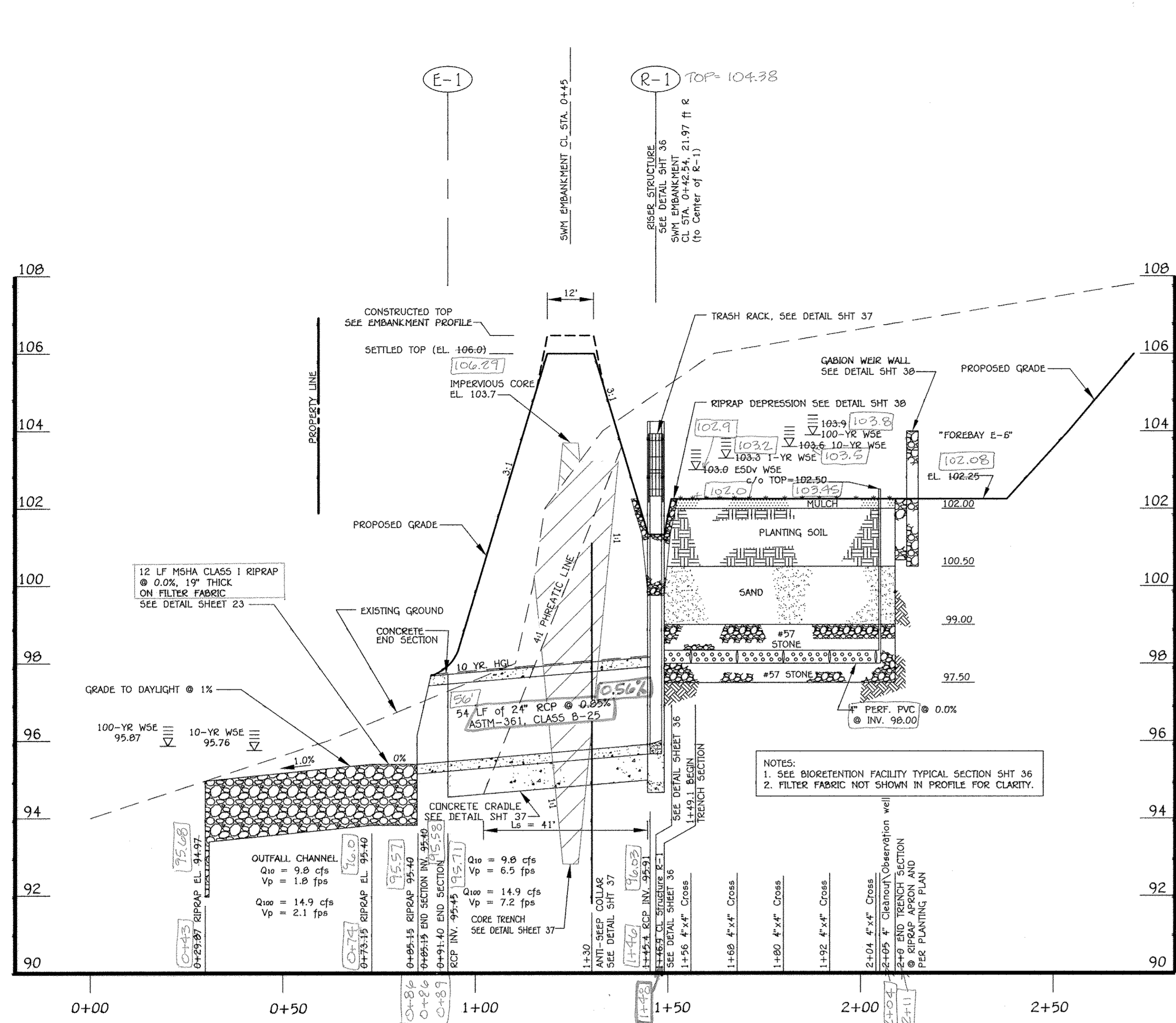
**IMP #1 EMBANKMENT & E.S. PROFILES**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

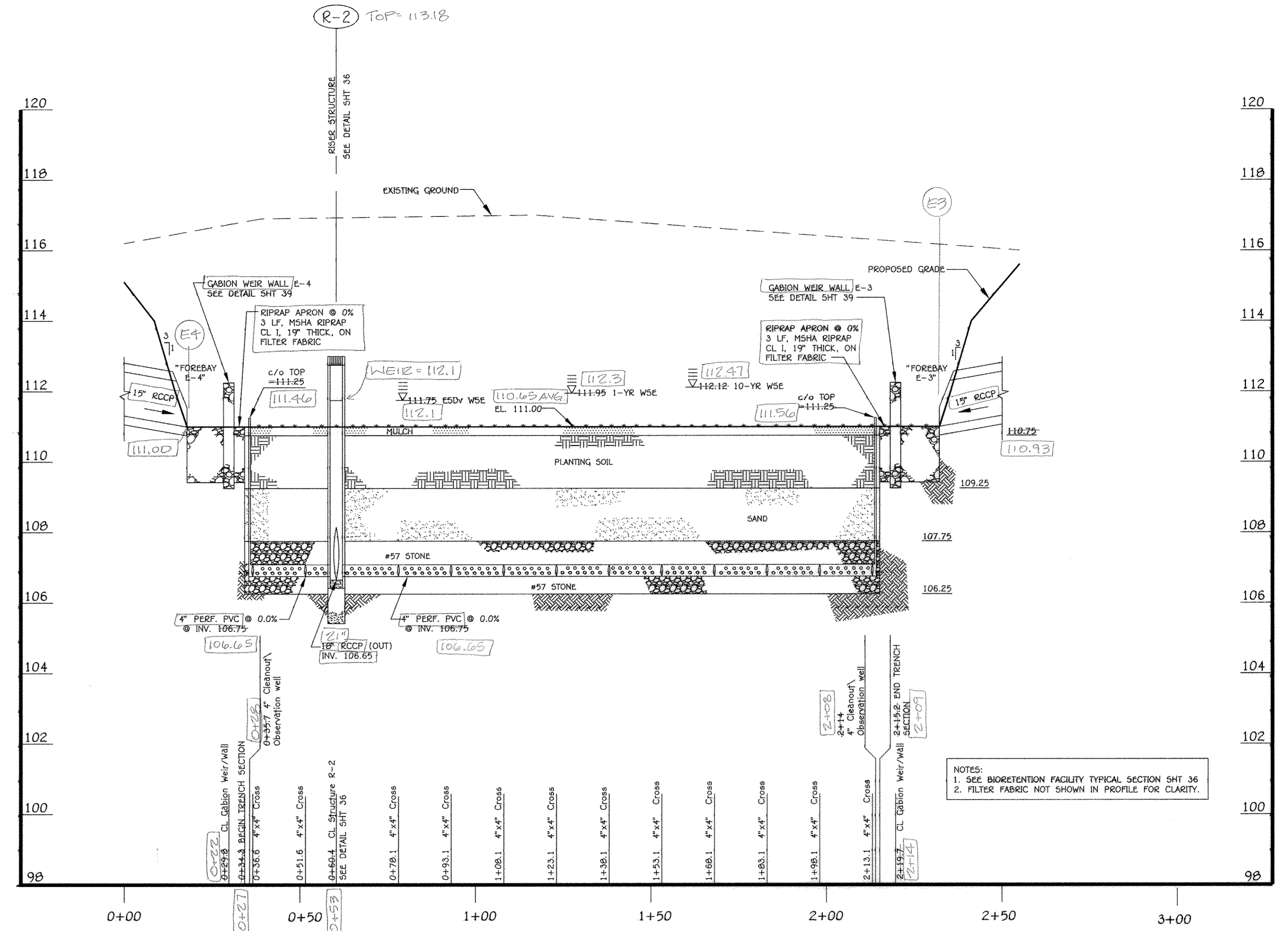
ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
 AS-BUILT 7 OF 16  
 SHEET 33 OF 50



I:\2009\09014\HOWARD\SCHOOL PLANS\09014 SHEET 32-40 SWM.dwg, SHEET 33, 10/26/2012 9:40:57 AM, 1:1



ESTIMATED VOLUME IN IMP#1  
WEIR ELEVATION: 102.9  
ABOVE GRADE STORAGE VOLUME: 127 CY

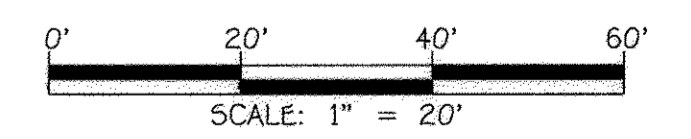


ESTIMATED VOLUME IN IMP#2  
WEIR ELEVATION: 112.1  
ABOVE GRADE STORAGE VOLUME: 143 CY



**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
I HEREBY CERTIFY THAT THE UTILITIES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS.  
*[Signature]* DATE: 01/19/16  
D. ANDREW DORSEY, PE  
MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45281

**NEW RIVER ASSOCIATES**  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Severnside Ave., Severn Park, MD 21146 410-987-3456



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-7000

**ENGINEER'S CERTIFICATE**  
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."  
*[Signature]* DATE: 10/24/12  
Signature of Engineer

**DEVELOPER'S CERTIFICATE**  
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."  
*[Signature]* DATE: 11/12/12  
Signature of Developer

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
*[Signature]* DATE: 10/24/12  
CHARLES J. GOVO, SR., P.E.

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
*[Signature]* DATE: 11/12/12  
ward SCD

1/1/16 AS-BUILT PLAN

0/20/16 REVISED TITLE BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 10B  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

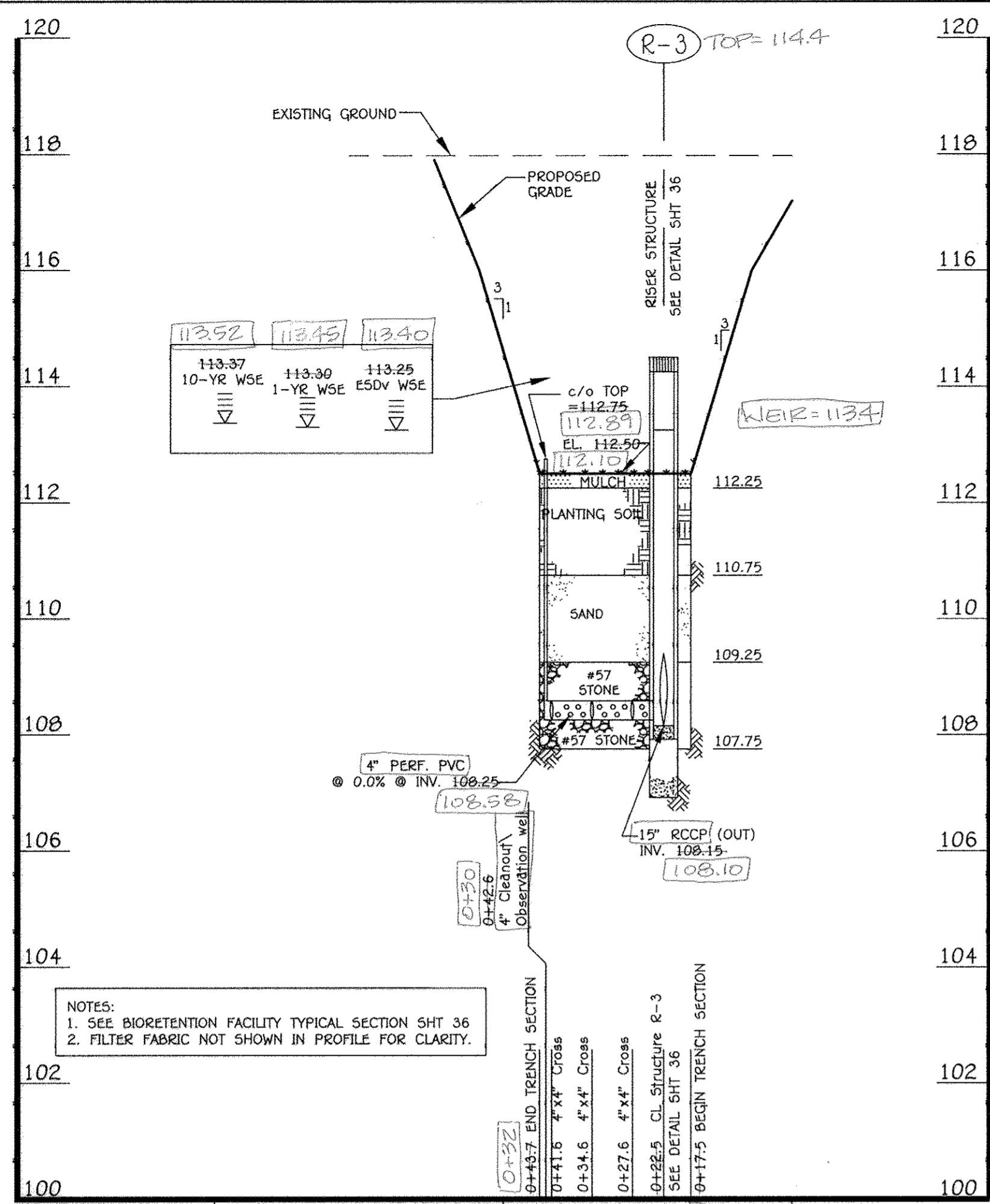
Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	MIDDLE SCHOOL #20	SECTION/AREA	N/A	PARCEL	'D-D'
PLAT NOS.	20	BLOCK NO.	3B	ZONE	FIRST
23760-23790	20	TOD	3B	ELEC. DIST.	6012.01
WATER CODE	---		SEWER CODE	---	

**STORMWATER IMP #1-#2 PROFILES**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

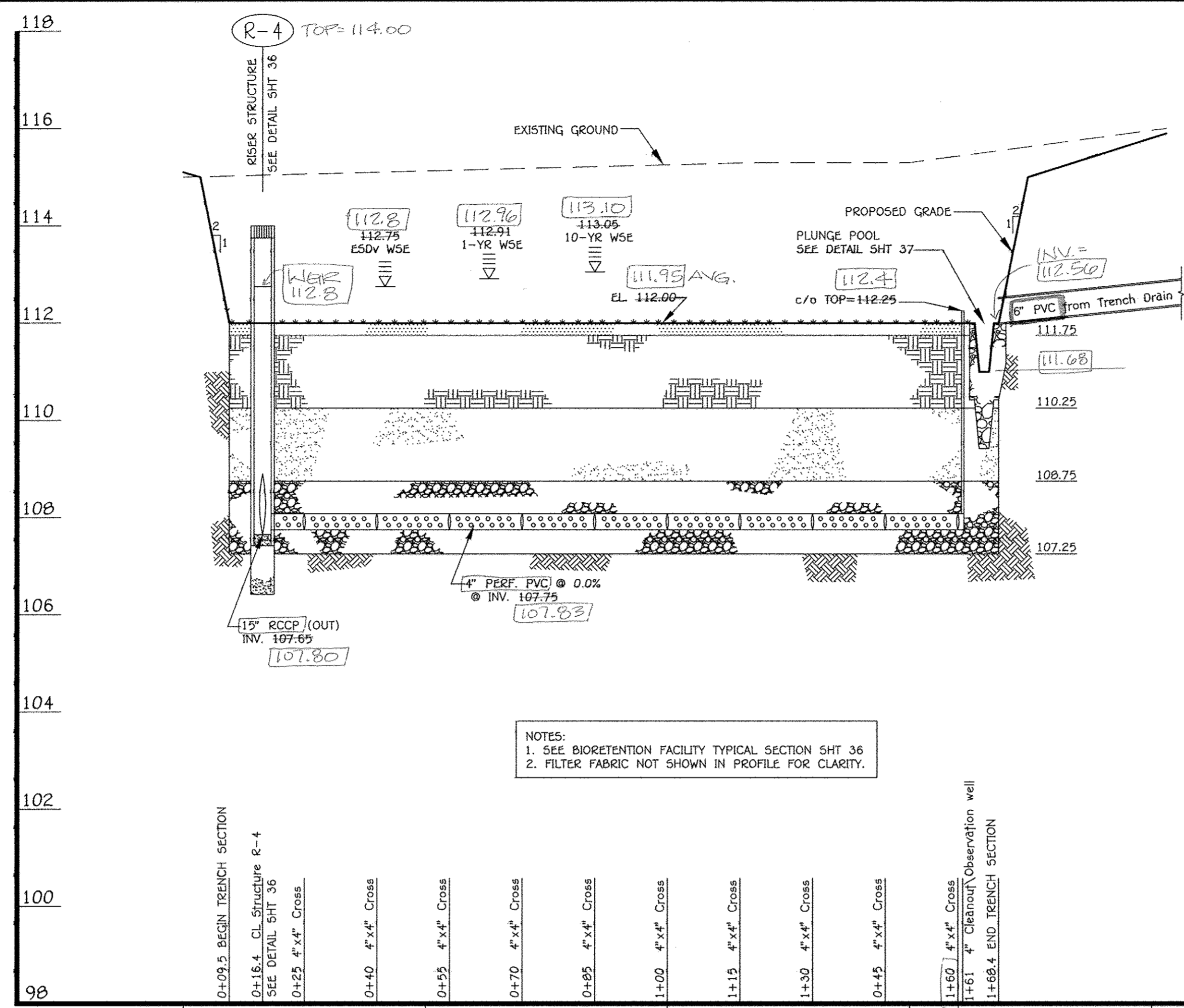
ZONED TO: TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
AS-BUILT OF 10  
SHEET 34 OF 50

SDP-12-075



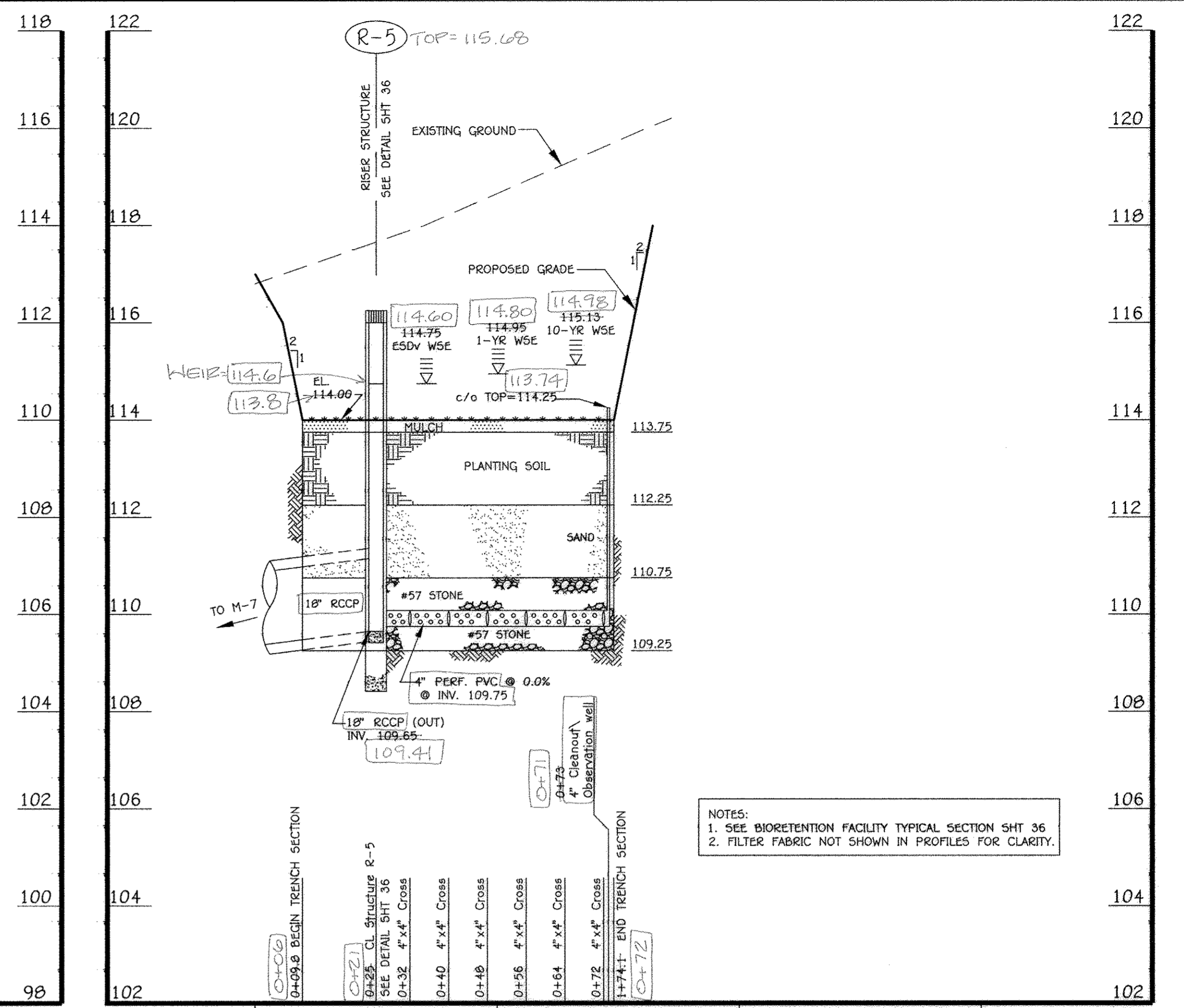
IMP #3 UNDERDRAIN PROFILE  
SCALE: HORIZ. 1" = 20', VERT. 1" = 2'

ESTIMATED VOLUME IN IMP #3  
WEIR ELEVATION: 113.4  
ABOVE GRADE STORAGE VOLUME: 25 CY



IMP #4 UNDERDRAIN PROFILE  
SCALE: HORIZ. 1" = 20', VERT. 1" = 2'

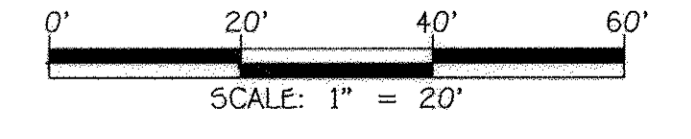
ESTIMATED VOLUME IN IMP #4  
WEIR ELEVATION: 112.8  
ABOVE GRADE STORAGE VOLUME: 81 CY



IMP #5 UNDERDRAIN PROFILE  
SCALE: HORIZ. 1" = 20', VERT. 1" = 2'

ESTIMATED VOLUME IN IMP #5  
WEIR ELEVATION: 114.6  
ABOVE GRADE STORAGE VOLUME: 28 CY

**NEW RIVER ASSOCIATES**  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Sovernside Ave., Soverna Park, MD 21146 / 410-987-3456



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 441-2099

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
I HEREBY CERTIFY THAT THE PLANES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLAN AND MEETS THE APPROVED PLAN SPECIFICATIONS.  
*D. Andrew Dorsey* 01/19/16  
D. ANDREW DORSEY, P.E. DATE  
MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45261

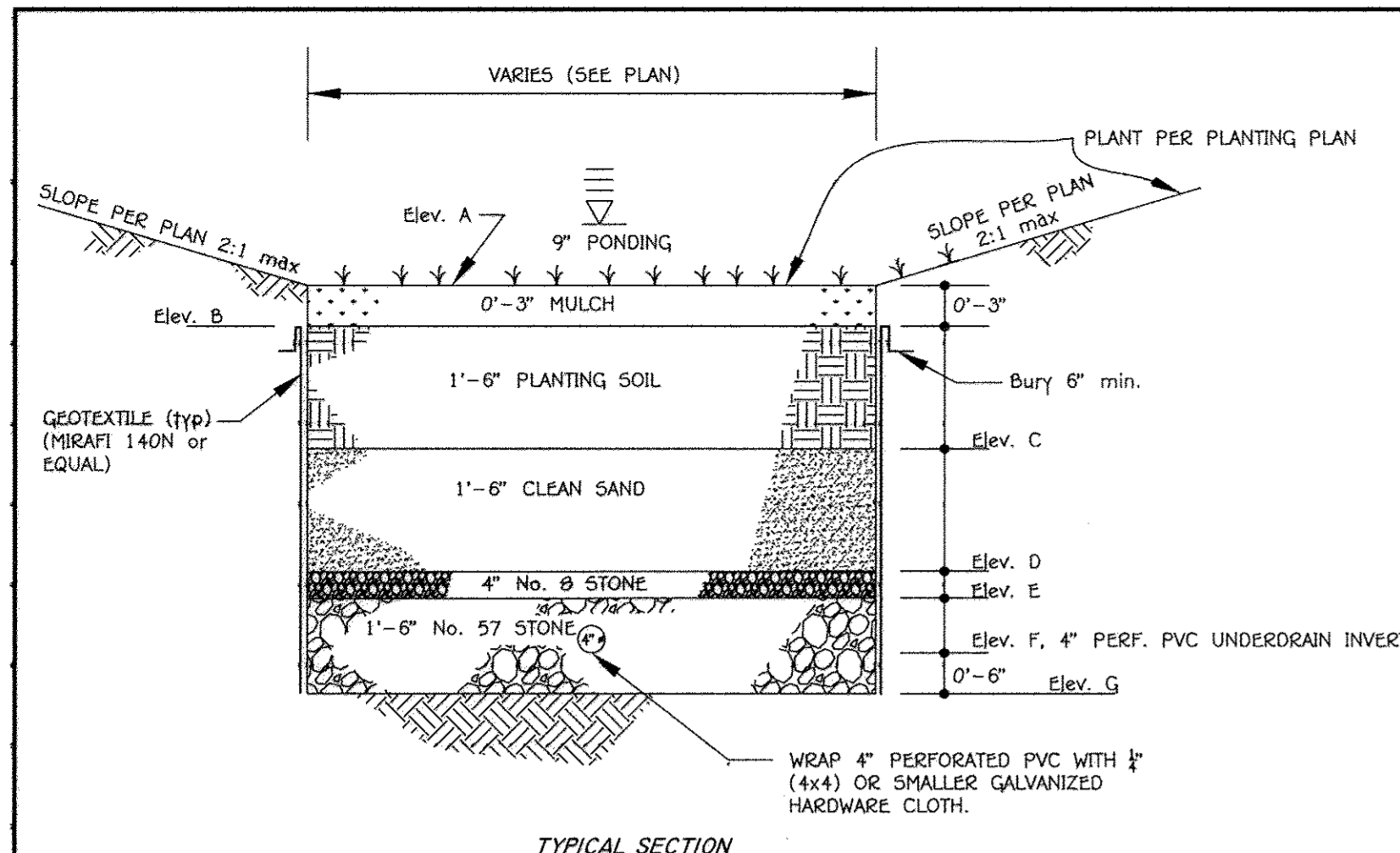
"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13204, Expiration Date: November 3, 2012."  
*Charles J. Cravo, Sr.* 10/21/12  
CHARLES J. CRAVO, SR., P.E. DATE

11/10 AS-BUILT PLAN  
0/20/16 REVISED TITLE BLOCK  
DATE DESCRIPTION REVISION BLOCK  
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Mark A. Long* 4/10/16  
Director - Department of Planning and Zoning  
*Kevin Schuch* 11/14/13  
Chief, Division of Land Development  
*William* 10/15/12  
Chief, Development Engineering Division

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart					
Parcel Number		Street Address			
17-17		7000 BANBURY DRIVE HANOVER, MD 21076			
PROJECT		SECTION/AREA	PARCEL		
MIDDLE SCHOOL #20		N/A	17-17		
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
05180-02790	20	TOD	3B	FIRST	6012.01
WATER CODE		SEWER CODE			
----		----			

**STORMWATER IMP #3, #4 AND #5 PROFILES**  
**'GREEN NEIGHBORHOOD'**  
**MIDDLE SCHOOL #20**  
**OXFORD SQUARE**  
**PARCEL '17-17'**  
ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
AS-BUILT 9 OF 10  
SHEET 35 OF 50  
**SDP-12-075**

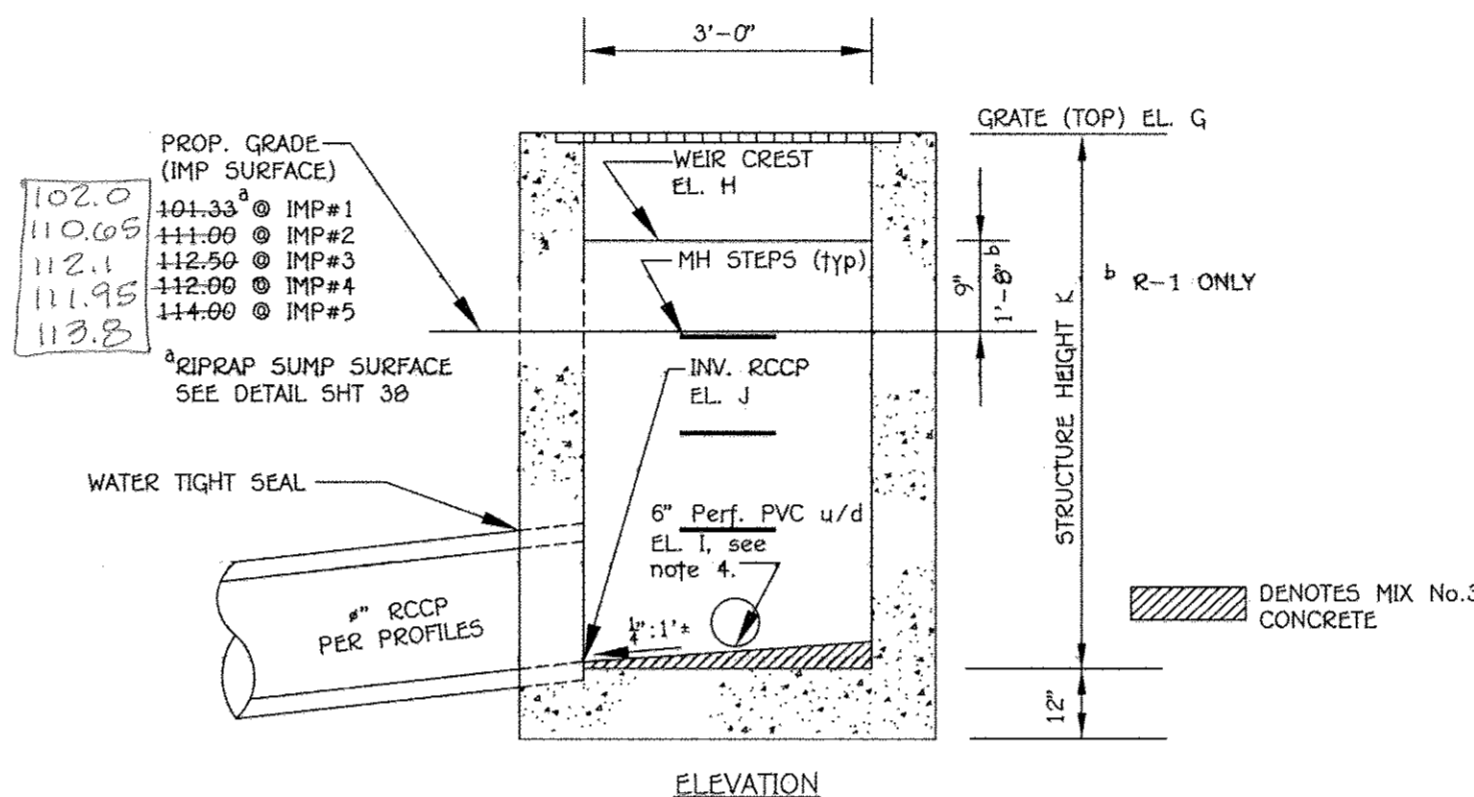
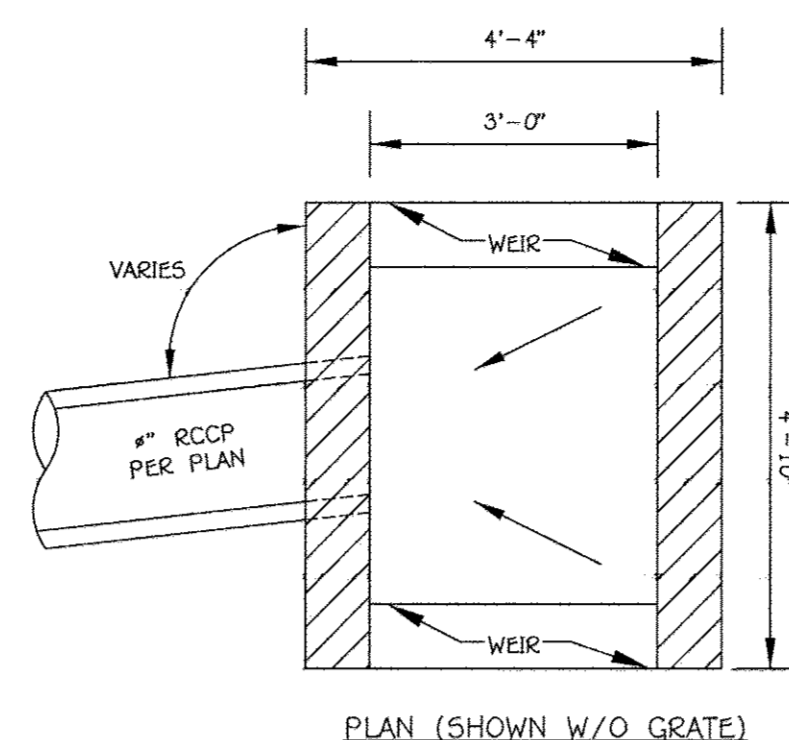


	IMP #1	IMP #2	IMP #3	IMP #4	IMP #5
Elev. A	102.00	110.00	112.50	114.00	114.00
Elev. B	102.00	110.75	112.25	111.75	113.75
Elev. C	100.50	109.25	110.75	110.25	112.25
Elev. D	99.00	107.75	109.25	108.75	110.75
Elev. E	98.67	107.42	108.92	108.42	110.42
Elev. F	98.00	106.75	108.25	107.75	109.75
Elev. G	97.50	106.25	107.75	107.25	109.25

**IMP MICRO-BIORETENTION FACILITY NOTES AND SPECIFICATIONS**

- THE LIMITS OF THE TYPICAL SECTION (i.e., PLANTING SOIL, SAND ETC.) IS THE ENTIRE LEVEL SURFACE OF THE MICRO-BIORETENTION FACILITIES EXCLUDING THE FOREBAY AREAS AND THE RIPRAP GABION APRONS.
- REFER TO THE 2000 MARYLAND SWM DESIGN MANUAL FOR BIORETENTION SPECIFICATIONS (PG. B.3.7) FOR INFORMATION NOT LISTED HEREIN AND FOR ADDITIONAL INFORMATION.
- THE BIORETENTION IMP MATERIALS ARE AS FOLLOWS:
  - PLANTING SOIL: PER PLANTING SOIL SPECIFICATIONS OUTLINED IN THE LATEST MDE SOIL SPECIFICATIONS.
  - PVC PIPE: SCHEDULE 40, PERFORATED PIPE SHALL HAVE NO SLOPE (0.0%).
  - STONE AGGREGATE: MSHA SPECIFICATIONS AS SHOWN ON TYPICAL SECTION; AGGREGATE MUST BE FREE OF FINES, DIRT & DEBRIS.
  - GEOTEXTILE: PER MDE SWM MANUAL OR MIRAFI 140N.
  - MULCH: SHREDDDED, WELL-AGED (6-12 MONTHS) HARDWOOD MULCH; NO WOOD CHIPS OR PINE MULCH.
- THE CONTRACTOR SHALL UNDER NO CIRCUMSTANCES ALLOW SURFACE DRAINAGE INTO THE MICRO-BIORETENTION IMPs UNTIL ALL UPSTREAM AREAS HAVE BEEN STABILIZED (i.e., PAVED, OR HAVE WELL-ESTABLISHED VEGETATION).
- BOARDS SHALL NOT BE LEFT IN PLACE DURING THE CONSTRUCTION OF THE BIORETENTION IMP.
- GEOTEXTILE (FILTER FABRIC) SHALL BE PLACED AGAINST EXCAVATED SURFACES. SCARIFY EARTH PRIOR TO GEOTEXTILE PLACEMENT. INSTALL GEOTEXTILE PER MANUFACTURER'S SPECIFICATIONS/RECOMMENDATIONS AND USE A 2 FT MINIMUM OVERLAP AND NOTCH ENDS WITH A 6" MINIMUM BURY OR EQUIVALENT ANCHORING METHOD.
- THE CONTRACTOR SHALL OBTAIN INDEPENDENT CERTIFICATION THAT THE SOILS AND OTHER MATERIALS MEET THE SPECIFICATIONS DURING THE AS-BUILT STAGE.
- THE BIORETENTION FACILITIES SHALL BE VEGETATED IN ACCORDANCE WITH THE PLANTING SCHEDULE PER MDE SPECIFICATIONS IN THE 2000 SWM DESIGN MANUAL.
- USE PERFORATED PVC PIPE INSIDE THE BIORETENTION FACILITIES AND WRAP PERFORATED PIPE WITH 1/4" HARDWARE CLOTH TO PREVENT AGGREGATE FROM ENTERING THE PERFORATIONS.
- INSTALL CLEANOUTS/OBSERVATION WELLS (SOLID PVC PIPE) AS SHOWN. THE CLEANOUT/OBSERVATION WELL TOP SHALL EXTEND 3" ABOVE TOP OF MULCH.

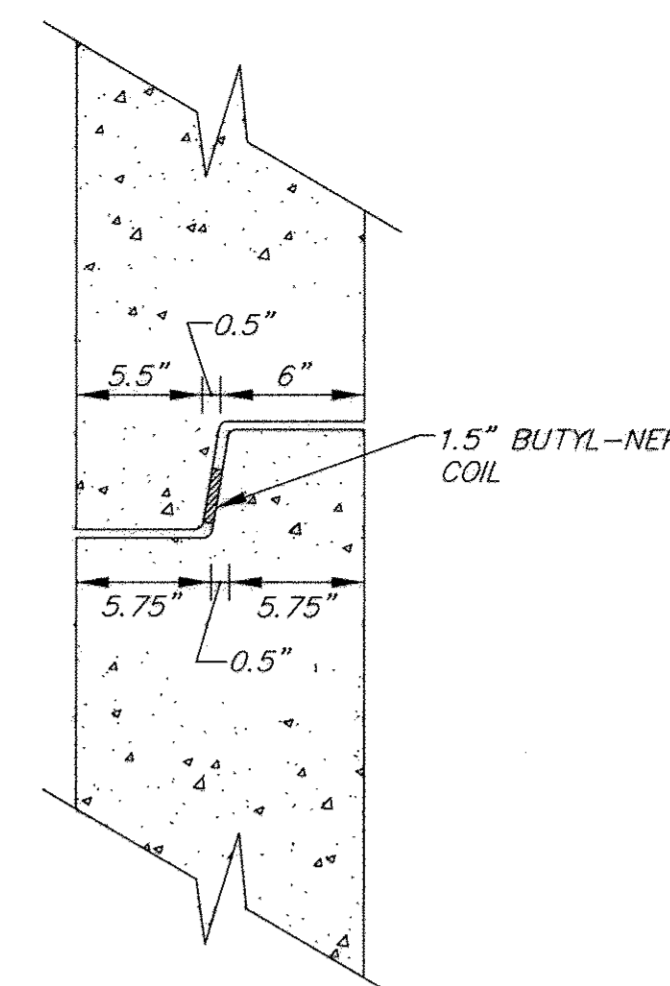
**IMP MICRO-BIORETENTION FACILITY (M-6) TYPICAL SECTION**  
NTS



- NOTES:
- SEE MSHA STD DETAIL MD-378.11 FOR DETAILS NOT SHOWN ABOVE.
  - ALL STRUCTURAL REQUIREMENTS (INCLUDING WALLS) SHALL CONFORM TO THE D-INLET (DETAIL D-4.10) REQUIREMENTS DUE TO THE INCREASED INLET DEPTH.
  - USE DOUBLE OPENING WITH NO CONCRETE GUTTER APPROACHES.
  - PVC UNDERDRAIN MAY ENTER INLET AT AN ANGLE TO MAINTAIN IN CENTER OF IMP. SEE SITE DEVELOPMENT PLAN (SDP) FOR UNDERDRAIN ENTRANCE WALL LOCATION.
  - SLOPE RISER INVERT 1/4" TOWARD RCCP OUTFALL.
  - PROVIDE STEPS PER HOCO STD. DETAIL G-5.21.
  - CHAMFER EXPOSED EDGES 1/4".
  - ORIENT INLET AS SHOWN ON SDP (GRATE SUPPORT WALL IS HATCHED).
  - INSTALL TRASH RACKS ON WEIR OPENINGS PER DETAIL ON R-1 ONLY.

	R-1 (IMP #1)	R-2 (IMP #2)	R-3 (IMP #3)	R-4 (IMP #4)	R-5 (IMP #5)	
ELEV. G	104.35	113.00	114.00	114.00	116.00	Top of Grate
ELEV. H	103.00	111.75	113.25	112.75	114.75	Weir Crest
ELEV. I	98.00	106.75	108.25	107.75	109.75	Inv. 4\"/>
ELEV. J	95.91	106.65	108.15	107.65	109.65	RCCP Invert Out
HEIGHT K	8'-7"	6'-7"	6'-7"	6'-7"	6'-7"	Structure Height

**RISER STRUCTURES R-1, R-2, R-3 R-4 & R-5 MODIFIED K-INLET TYPICAL SECTION**  
NTS



**RISER JOINT DETAIL**  
NTS

- NOTES:
- Riser joints shall join evenly and be watertight. Parge joints after installation.
  - The referenced joint and joint sealant material is used by Frederick Precast, Inc. Similar joints may be used with shop drawing approval by the engineer.

**NEW RIVER ASSOCIATES**  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Severnside Ave., Severn Park, MD 21144 410-987-3456

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELIJAH CITY, MARYLAND 21042  
(410) 461-2000

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
I HEREBY CERTIFY THAT THE FACILITIES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE ORIGINAL PLANS AND MEETS THE APPROVED PLANS.  
ANDREW BOSSER, P.E.  
MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45261

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

CHARLES J. CROVO, SR., P.E.  
10/24/12 DATE

11/16 AS-BUILT PLAN  
02/20/16 REVISED TITLE BLOCK

DATE DESCRIPTION REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning  
Chief, Division of Land Development  
Chief, Development Engineering Division

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

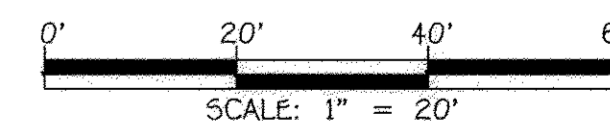
Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	SECTION/AREA	PARCEL			
MIDDLE SCHOOL #20	N/A	'D-D'			
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03700-03700	20	TOD	38	FIRST	6012.01
WATER CODE			SEWER CODE		
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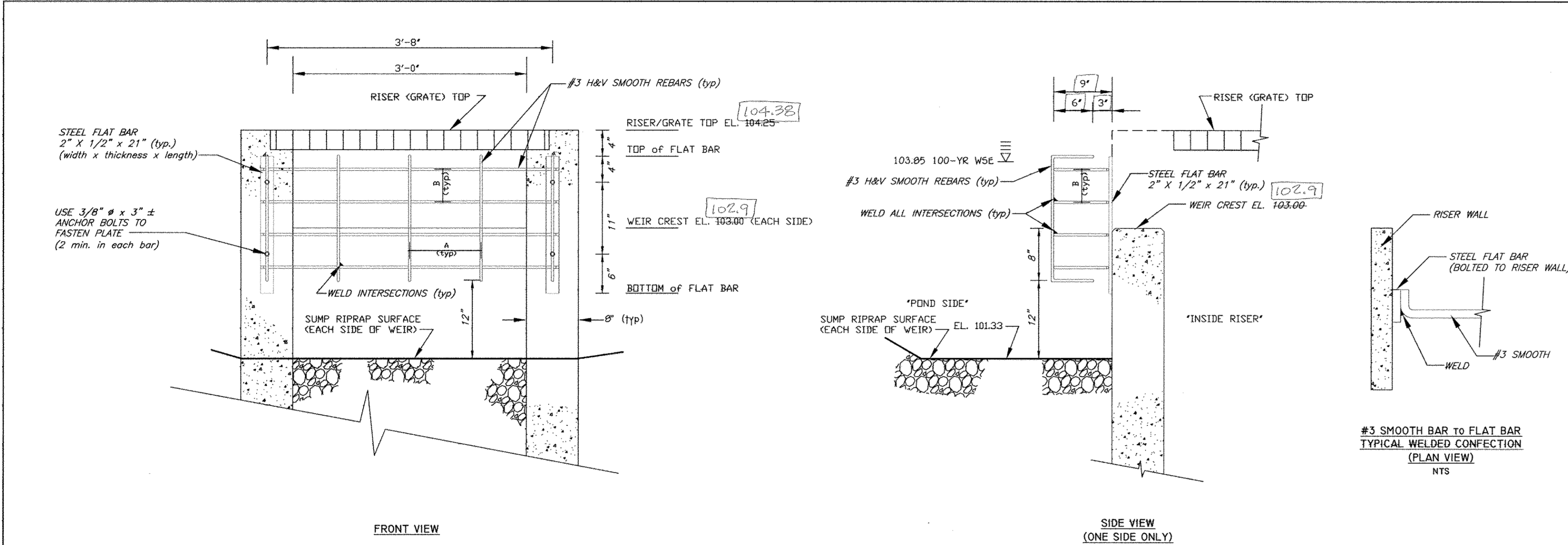
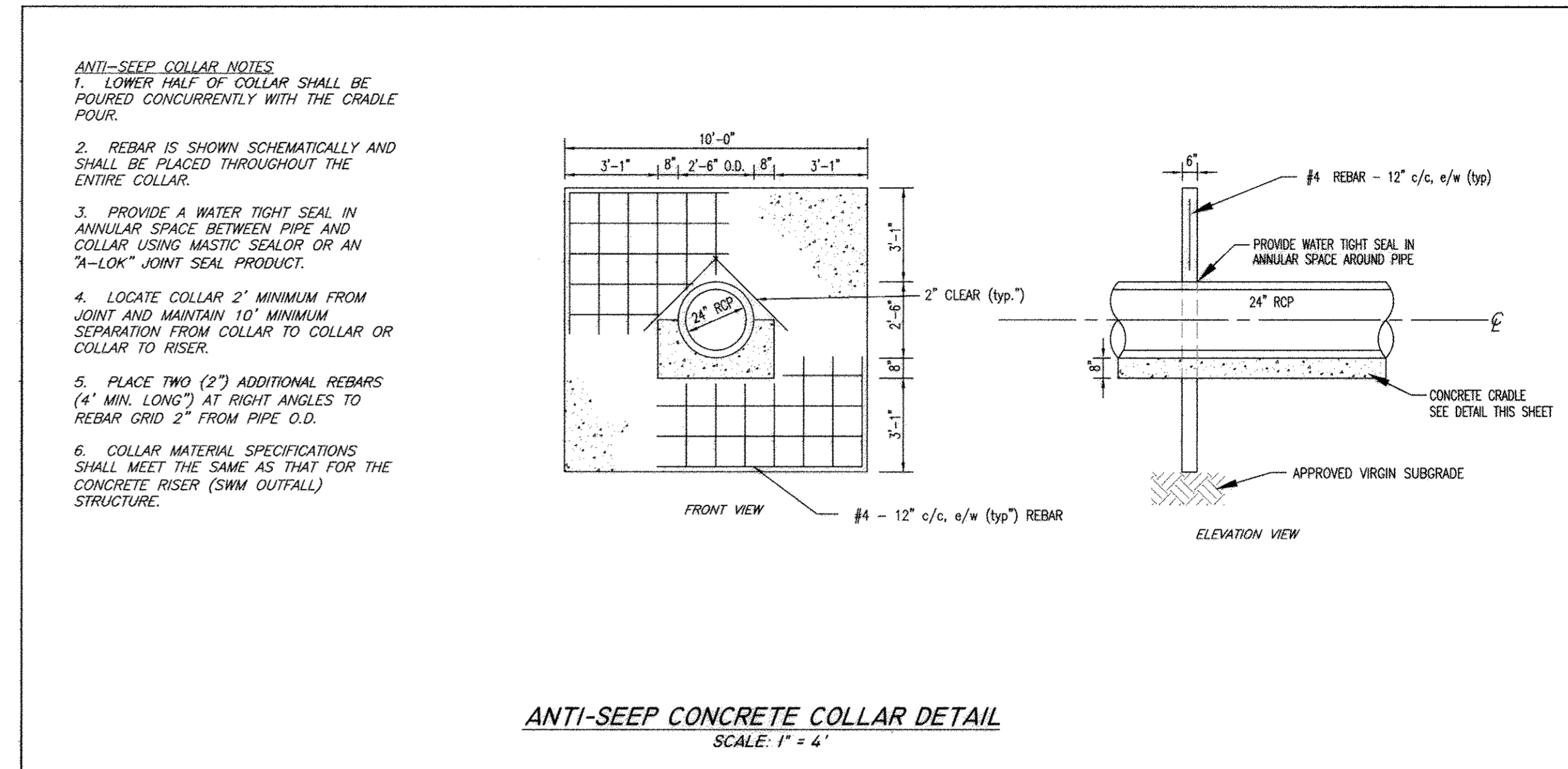
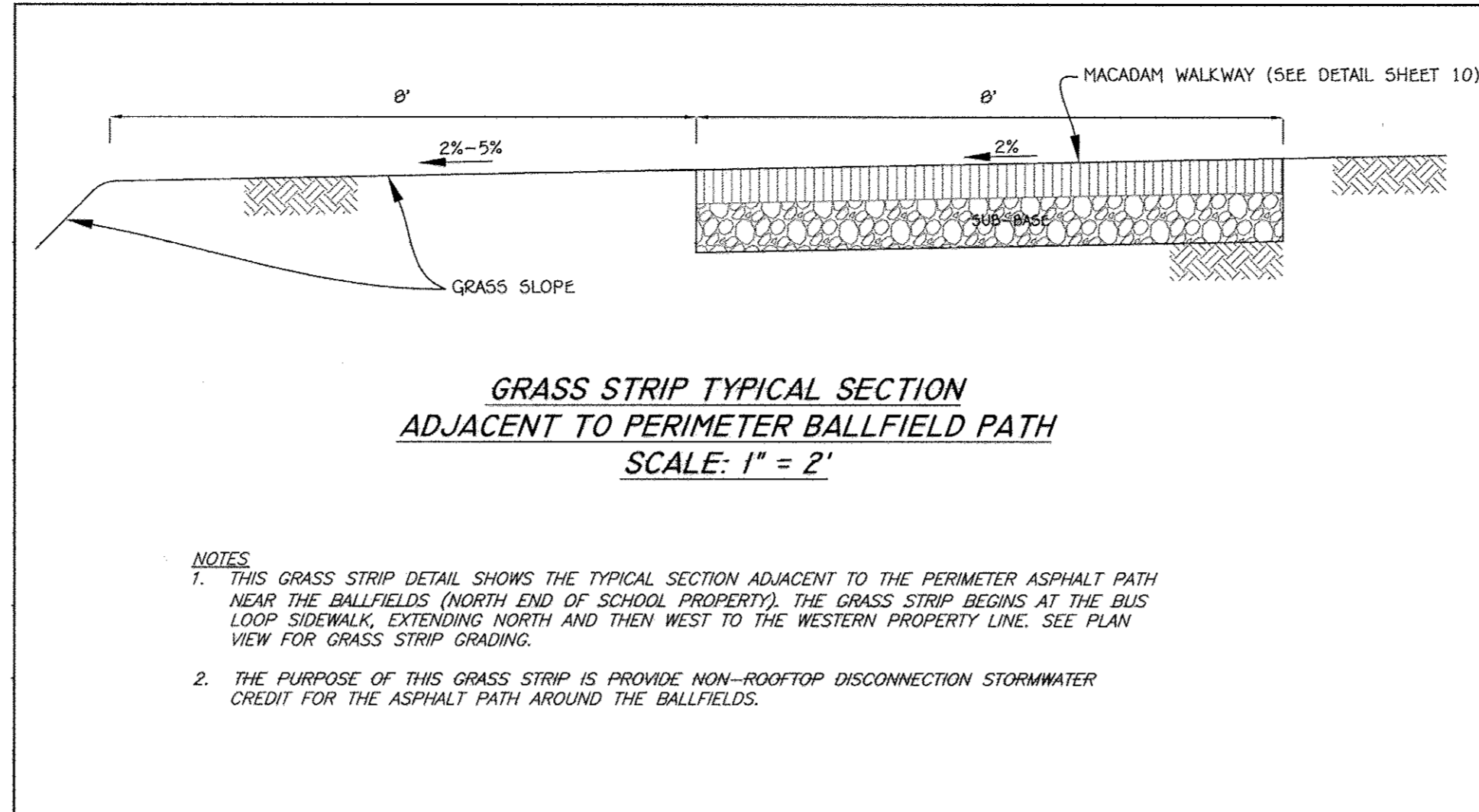
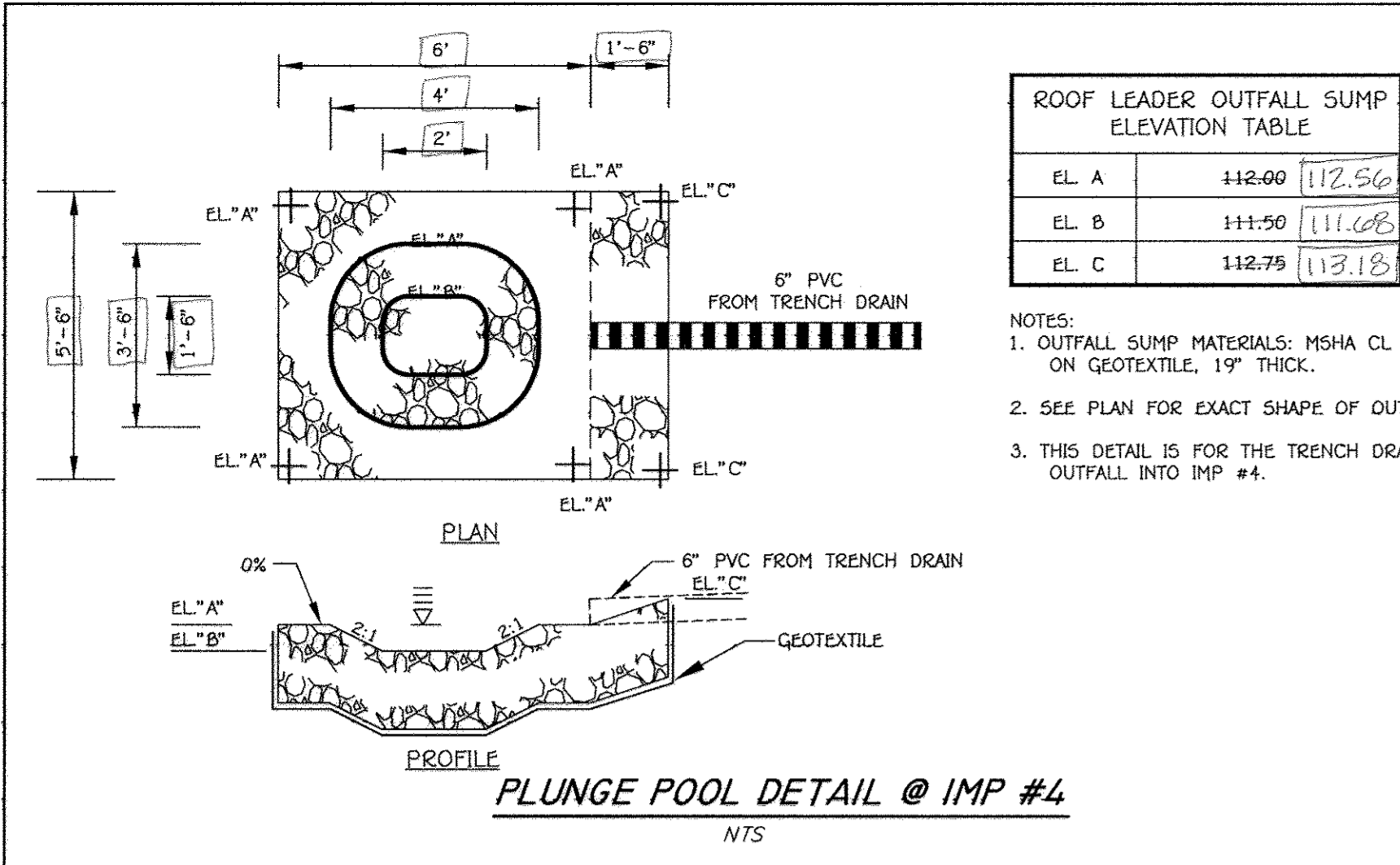
**IMP #1-#5 RISER DETAILS AND IMP TYPICAL SECTIONS**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TO: TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

AS-BUILT 10 OF 16  
SHEET 36 OF 50  
SDP-12-075

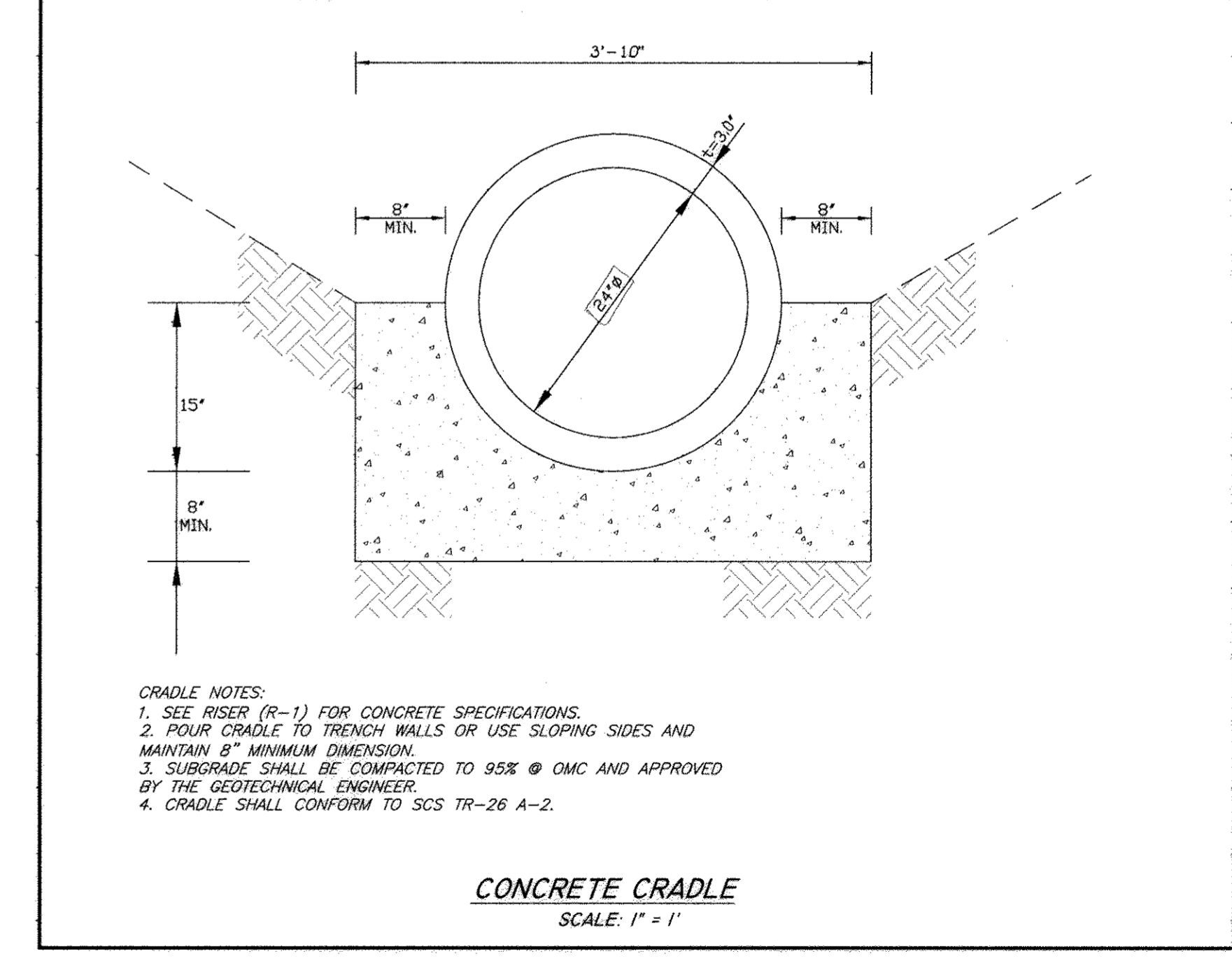
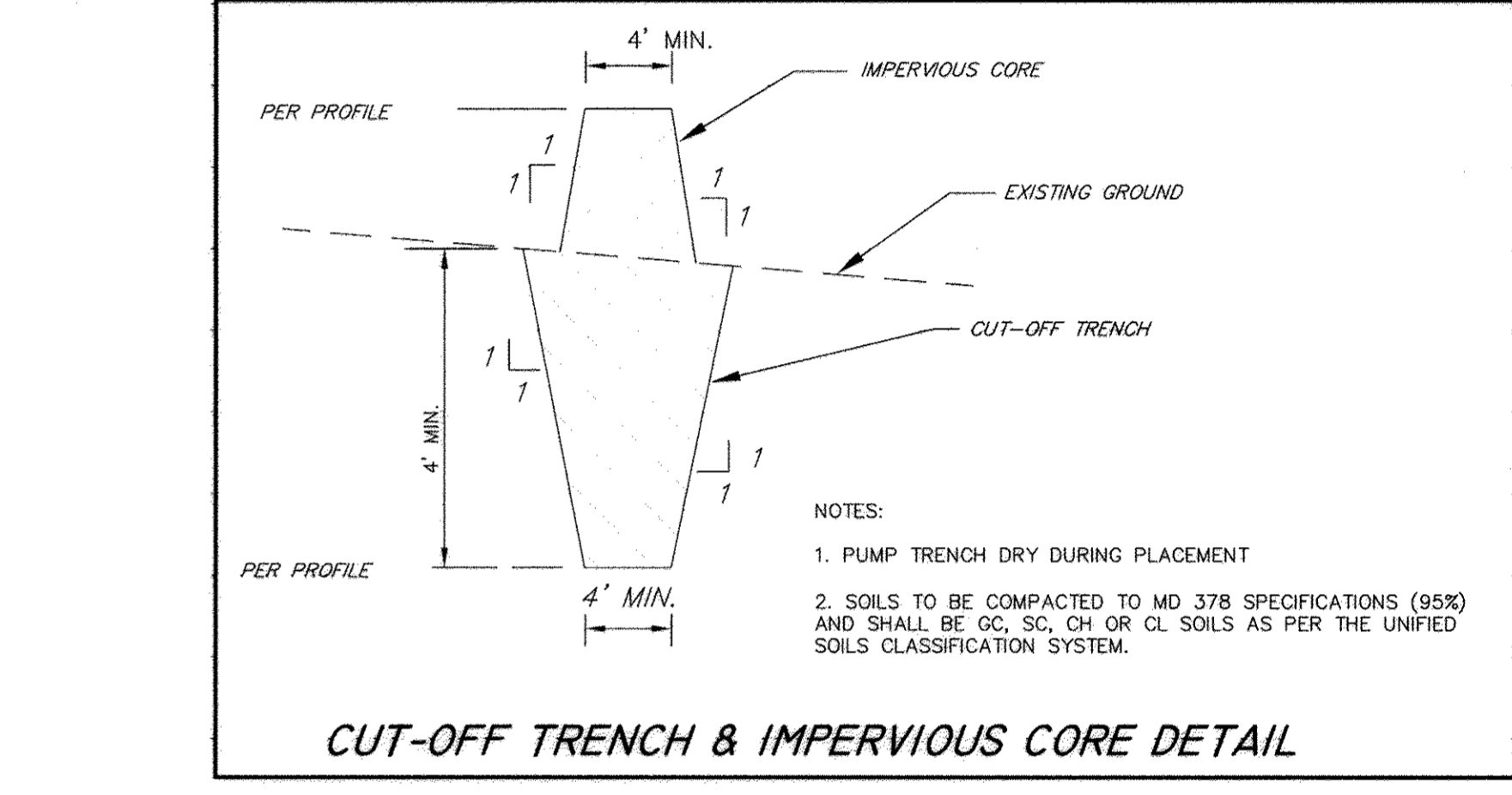




**TRASH RACK NOTES**

- See SWM Riser Detail S-1 for structure dimensions not shown on this detail.
- Detail shown is typical for both (opposite) sides.
- The trash rack shall be galvanized (2 coats) after fabrication and painted "battleship gray" (2 coats) and conform to Howard County Specifications.
- Rebar shall be #3 smooth steel bars.
- The trash rack fabricator may substitute angle bars for flat bars.
- The trash rack shall be installed so as to extend 8" below the weir crest with 12" clearance above the riprap surface (clearance measured from concrete pad to center of lowest horizontal bar).
- The concrete riser shall be field-measured prior to the trash rack fabrication to ensure a reasonable trash rack fit. The fabricator can make minor adjustments to the trash rack dimensions (1/4"±) to maintain the overall dimensions and covering the openings as shown. The maximum opening dimension (i.e., along diagonal) shall not exceed 15" and 7.5" for the weir and orifice trash racks, respectively.
- Trash Rack Bottom Dimension Calculation: Each side => 100-yr weir flow depth = 0.85'; weir width = 3'; Flow Area = 0.85' x 3' = 2.6 sf. Area under trash rack = outside bottom width x protrusion = 0.75' x 3.66' = 2.7 sf. Trash rack bottom area > weir flow area (i.e., 2.7 sf > 2.6 sf) OK
- A Trash Rack is only required on R-1.

DIMENSION	VALUE
A	11"±
B	5"±



**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT THIS AS-BUILT PLAN WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PERMITS AND MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 DATE: 01/19/16  
 SIGNATURE: [Signature]

**WEIR TRASH RACK DETAIL**  
 R-1 ONLY  
 SCALE: 1" = 1'

**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Severnside Ave., Severn Park, MD 21146 410-887-3456

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21142  
 (410) 461-7899

**ENGINEER'S CERTIFICATE**  
 I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.  
 DATE: 10/29/12  
 SIGNATURE: [Signature]

**DEVELOPER'S CERTIFICATE**  
 I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.  
 DATE: 11/6/12  
 SIGNATURE: [Signature]

**Professional Certification.** I 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. 13204, Expiration Date: November 3, 2012.  
 DATE: 10/29/12  
 SIGNATURE: CHARLES J. GROVO, SR., P.E.

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
 DATE: 11/1/12  
 SIGNATURE: [Signature]

**AS-BUILT PLAN**  
 REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

DATE: 1/15/12

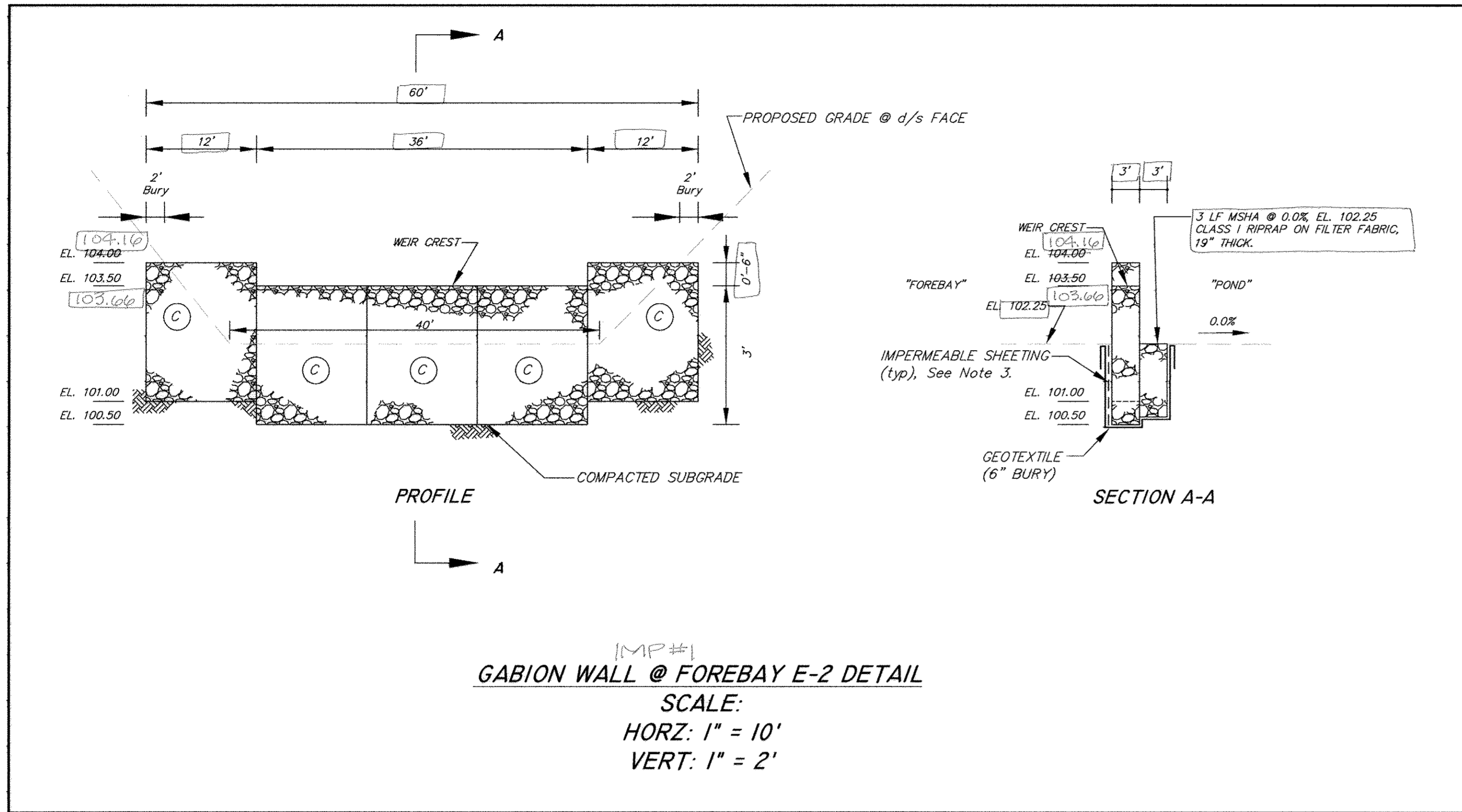
PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
10-D	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	MIDDLE SCHOOL #20				
SECTION/AREA	N/A				
PARCEL	10-D				
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25788-25190	20	TOD	38	FIRST	6012.01
WATER CODE	SEWER CODE				

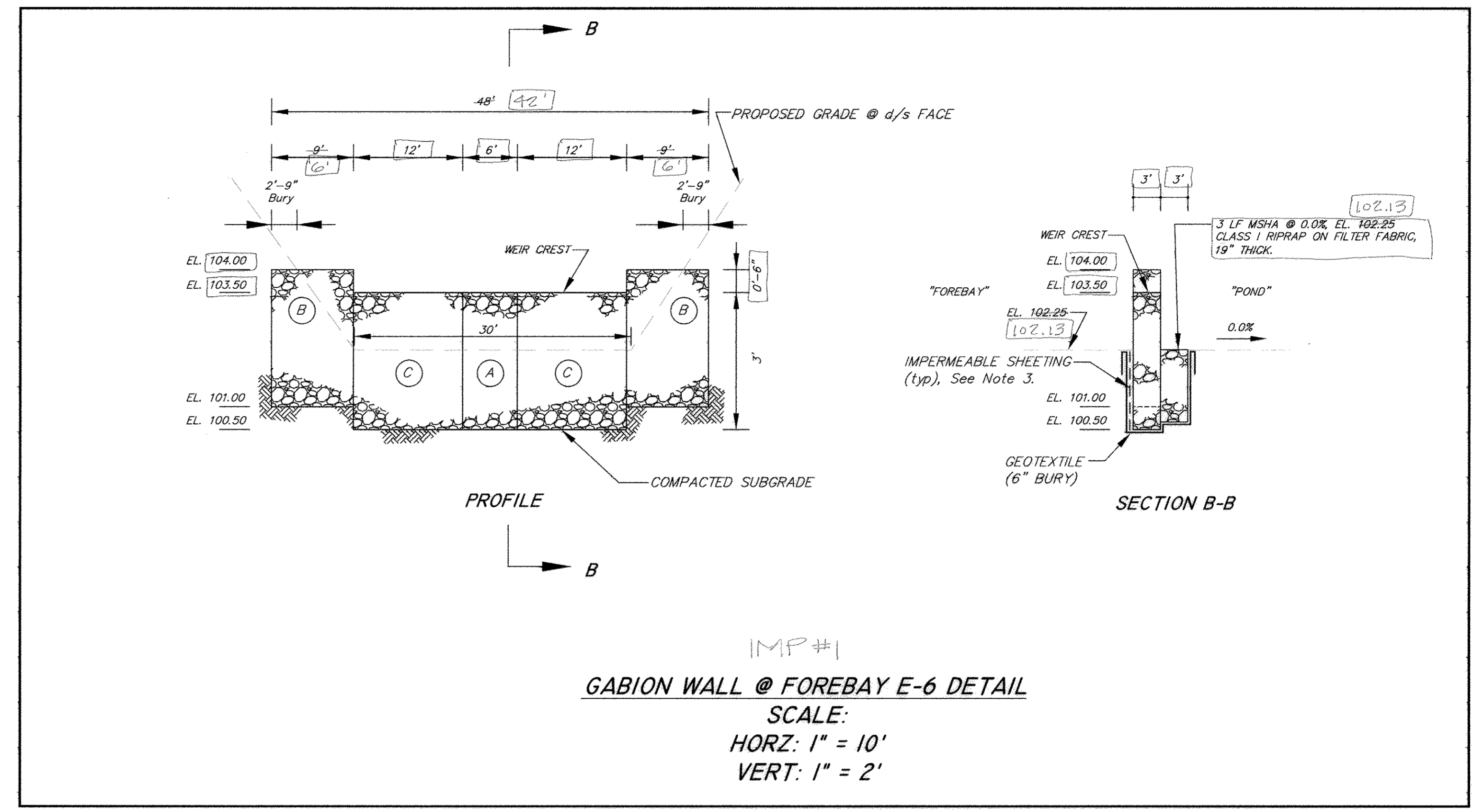
**IMP DETAILS**

**'GREEN NEIGHBORHOOD'**  
**MIDDLE SCHOOL #20**  
**OXFORD SQUARE**  
**PARCEL 'D-D'**

ZONED TO: TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT: HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
 AS-BUILT 11 OF 16  
 SHEET 37 OF 50 **SDP-12-075**



IMP #1  
**GABION WALL @ FOREBAY E-2 DETAIL**  
 SCALE:  
 HORZ: 1" = 10'  
 VERT: 1" = 2'

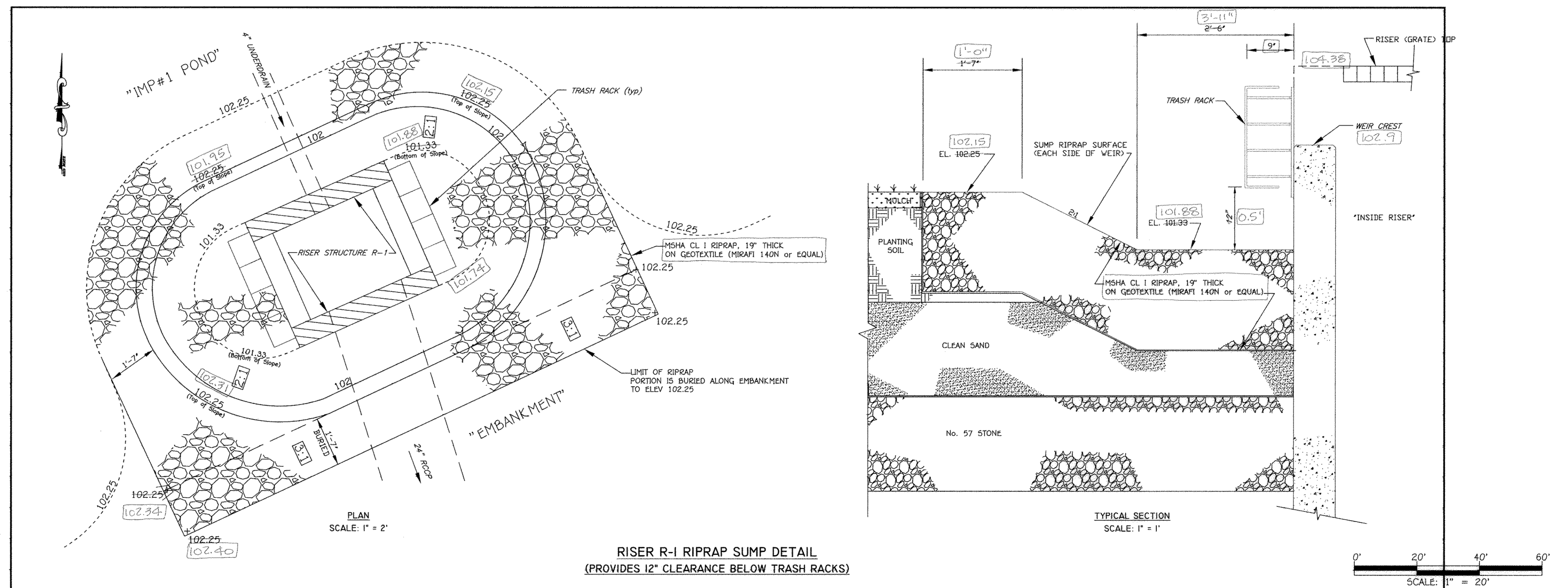


IMP #1  
**GABION WALL @ FOREBAY E-6 DETAIL**  
 SCALE:  
 HORZ: 1" = 10'  
 VERT: 1" = 2'

FOREBAY GABION SCHEDULE						
Gabion Basket Quantities						
MANUF. LETTER CODE/ DIMENSIONS	IMP #1		IMP #2		IMP #5	
	FOREBAY E-2	FOREBAY E-6	FOREBAY E-3	FOREBAY E-4	FOREBAY HW-1	TOTAL
A 6'x3'x3'	-	1	3	3	2	9
B 9'x3'x3'	-	2	1	1	1	5
C 12'x3'x3'	5	2	-	-	-	7

**GABION/FOREBAY WEIR OUTFALL NOTES**

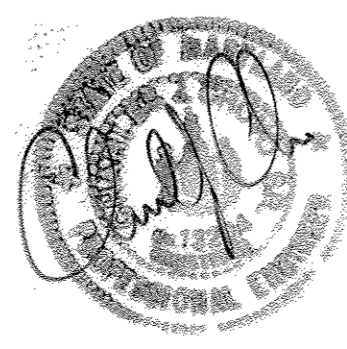
- Gabions shall be manufactured by Maccaferri Gabions Inc. or approved equal. The installation shall follow the manufacturer's specifications and installation guidelines.
- The gabion baskets shall be PVC coated and filled with clean 4" - 7" stone. Gabion stone shall be carefully placed as to create a tight interlocking stone wall with minimal voids.
- One sheet of 8 mil or greater vinyl/plastic sheeting or Mirafi MCF-1212 shall be placed on the buried upstream (forebay side) face of the gabion baskets next to the filter fabric. Use 2 ft overlap where applicable.
- Geotextile fabric (Mirafi 600x or approved equal) shall be placed against all buried gabions (including the buried top of gabions) including the impermeable layer on the upstream buried face.
- Gabions shall be carefully placed with no damaged wire. Earth foundation shall be firm. Fill soil around gabions shall be well-compacted (95%).
- Gabions shall be fastened together with lacing or rings per manufacturer's recommendations/specifications. Rings shall be per ASTM A975-97 section 6.3. Spacing shall not exceed 6". See Maccaferri's Gabion installation guide.
- Minimum Gabion embedment into side slope is a 2'-0" bury.
- Additional gabions may be needed to meet the minimum embedment into the side slopes. Gabions can be "nested".



**RISER R-1 RIPRAP SUMP DETAIL**  
 (PROVIDES 12" CLEARANCE BELOW TRASH RACKS)

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-1000

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT FACILITIES SHOWN ON THIS PLAN WAS CONSTRUCTED  
 SHOWING ON THE AS-BUILT  
 AND MEETS THE APPROVED PLANS  
**DATE: 01/19/16**  
 ANDREW BORSEY, P.E.  
 MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45261



**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Sevenside Ave., Severna Park, MD 21146 410-987-3456

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
 CHARLES J. CROVO, SR., P.E.  
 DATE: 1/14/13

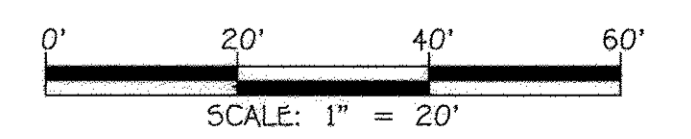
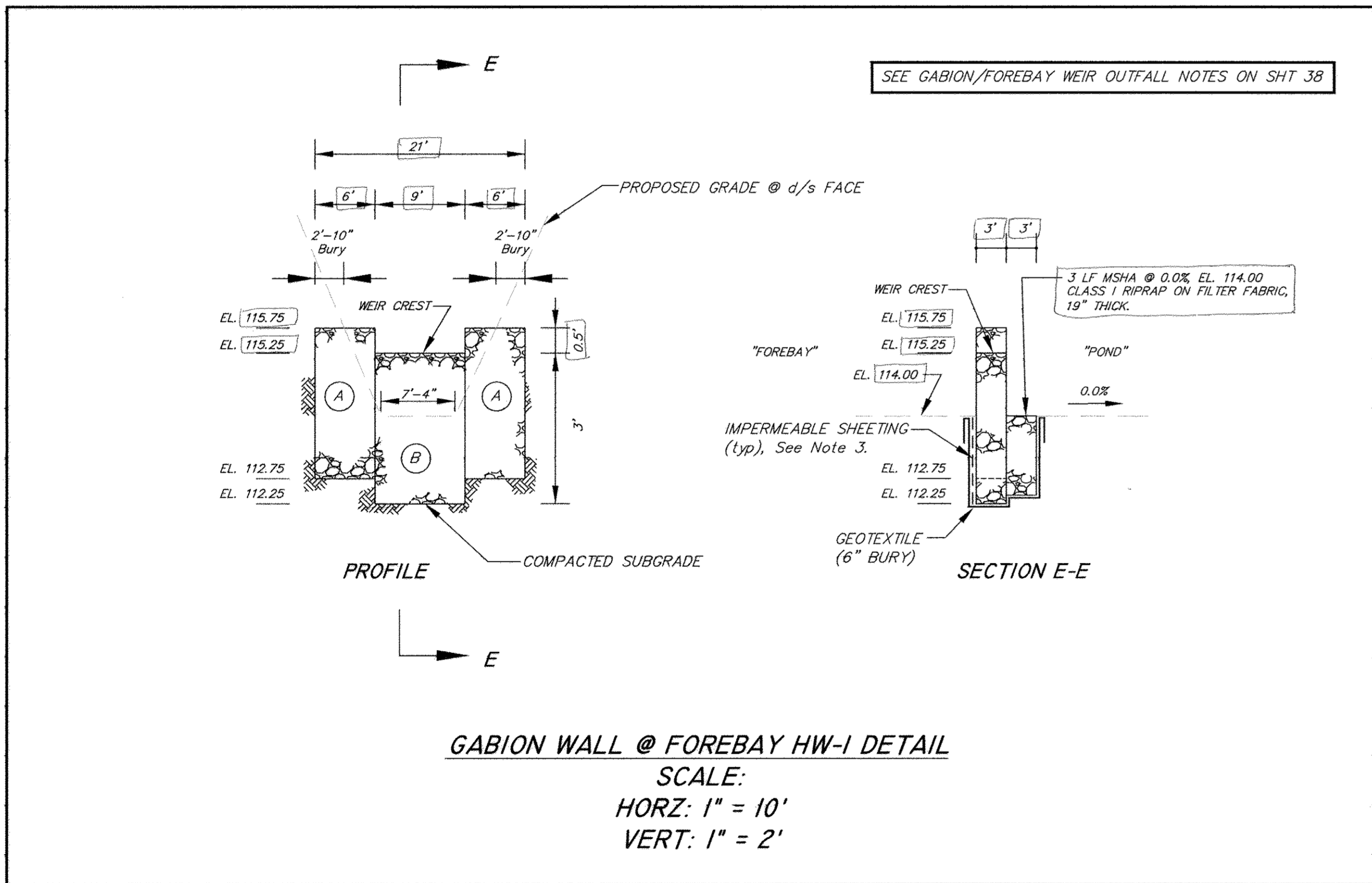
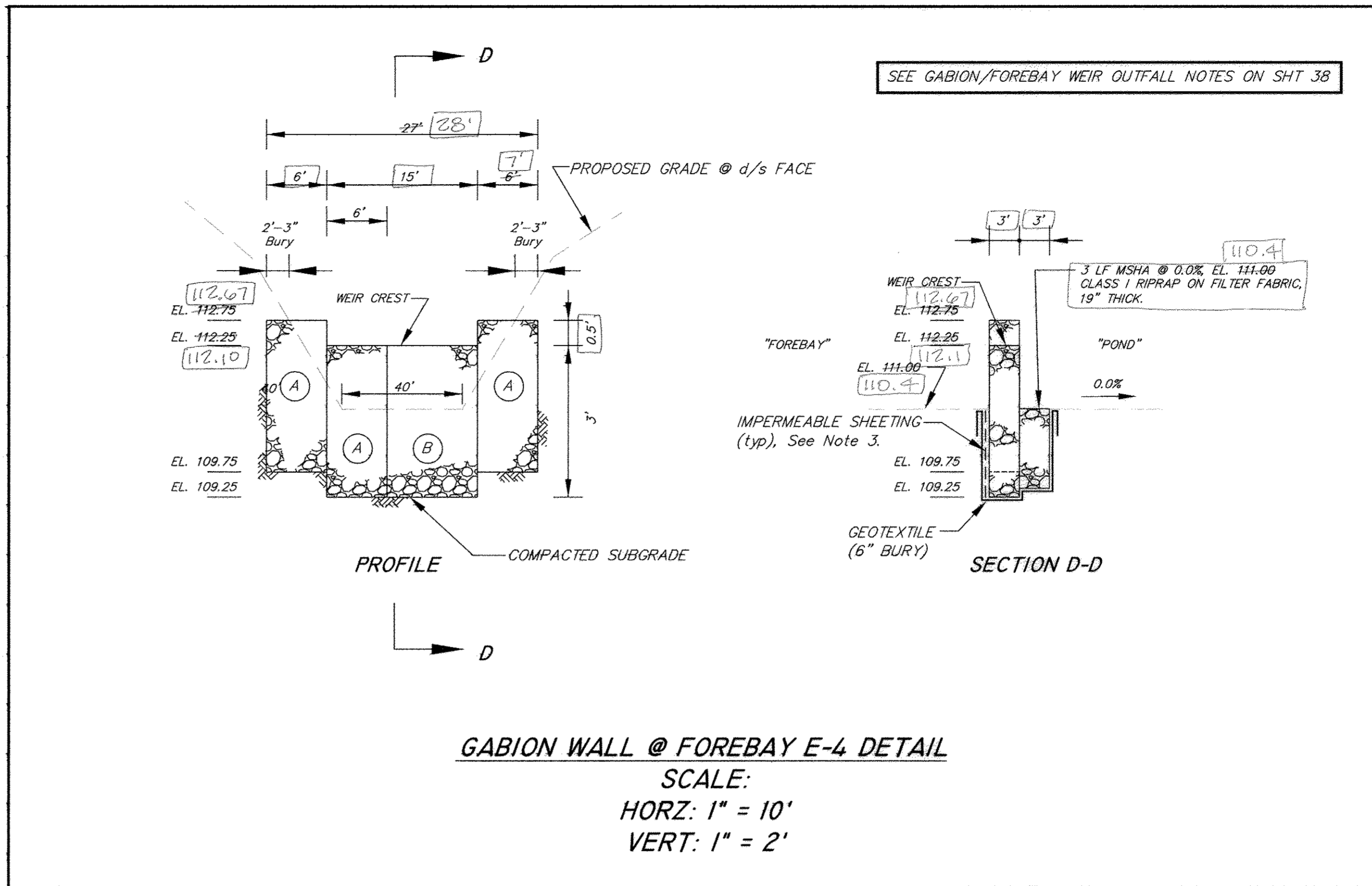
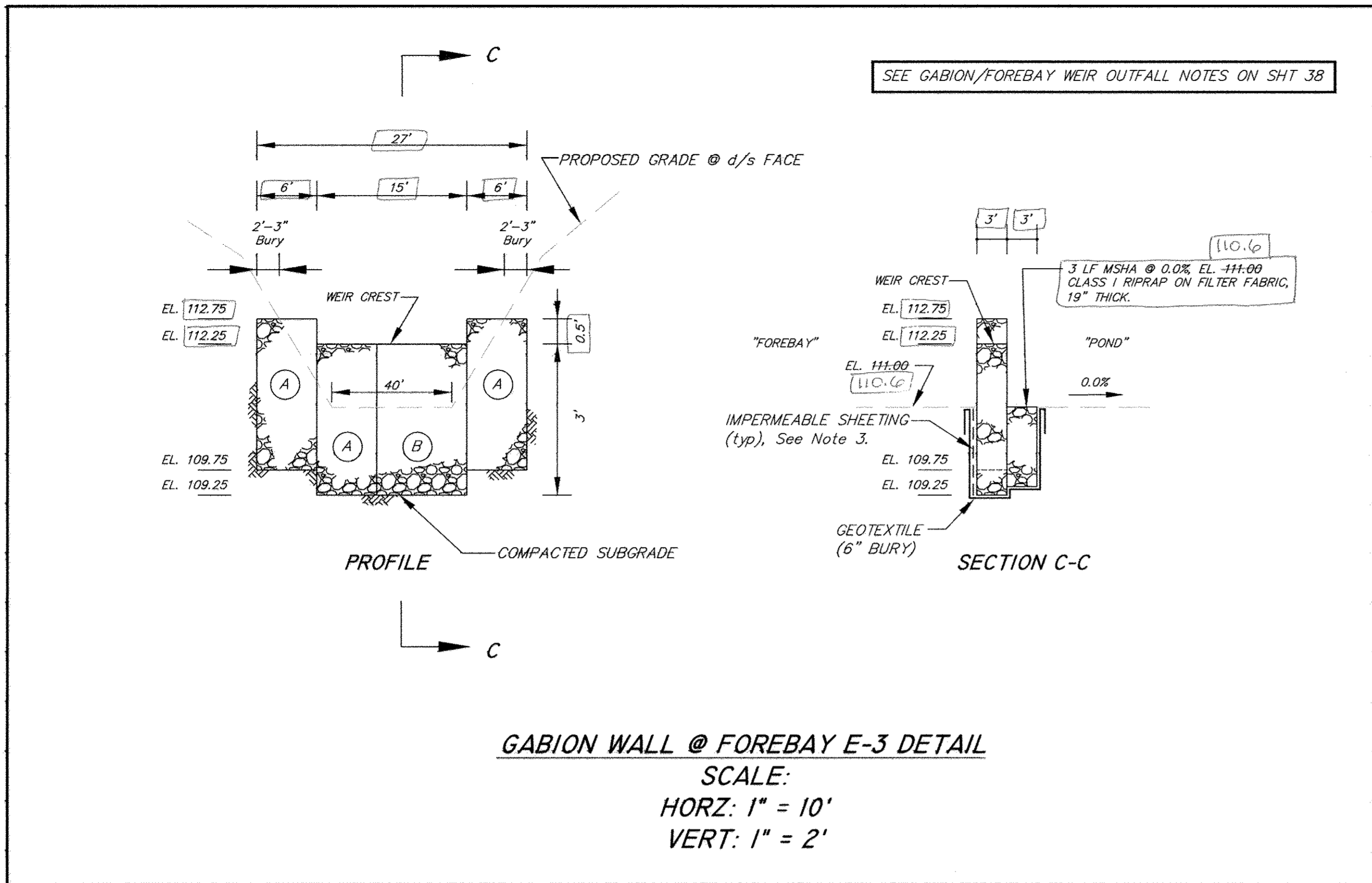
DATE	DESCRIPTION
1/14/13	AS-BUILT PLAN
1/14/13	REVISED TITLE BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning  
 Chief, Division of Land-Development  
 Chief, Development Engineering Division

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart					
Parcel Number	Street Address				
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076				
PROJECT	MIDDLE SCHOOL #20	SECTION/AREA	N/A	PARCEL	'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
03706-03790	20	TOD	38	FIRST	6012.01
WATER CODE	---		SEWER CODE	---	

**IMP DETAILS**  
 'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'  
 ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012  
 AS-BUILT 12 OF 16  
 SHEET 38 OF 50  
 SDP-12-075



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-7099

AS-BUILT ENGINEER CONSULTANT CERTIFICATION  
I HEREBY CERTIFY THAT THE AS-BUILT DRAWING ON THIS PLAN WAS CONSTRUCTED  
AND CORRECTED TO REFLECT THE ACTUAL CONSTRUCTION OF THE PROJECT.  
DATE: 01/15/16



Professional Certification. I 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. 13204. Expiration Date: November 3, 2012.

CHARLES J. CROVO, SR., P.E. 10/23/12 DATE

NEW RIVER ASSOCIATES  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Severnside Ave., Severna Park, MD 21146 410-987-3456

11/16 AS-BUILT PLAN  
GLOBE REVID TITLE BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Paul L. Gaylor Director - Department of Planning and Zoning 1/15/16 Date  
Katschauer Chief, Division of Land Development 1/14/13 Date  
Chief, Development Engineering Division 1/15/12 Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL			
MIDDLE SCHOOL #20	N/A	'D-D'			
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23766-23790	20	TOD	3B	FIRST	6012.01
WATER CODE	SEWER CODE				
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IMP DETAILS

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

AS-BUILT 13 of 16  
SHEET 39 of 50 50P-12-075

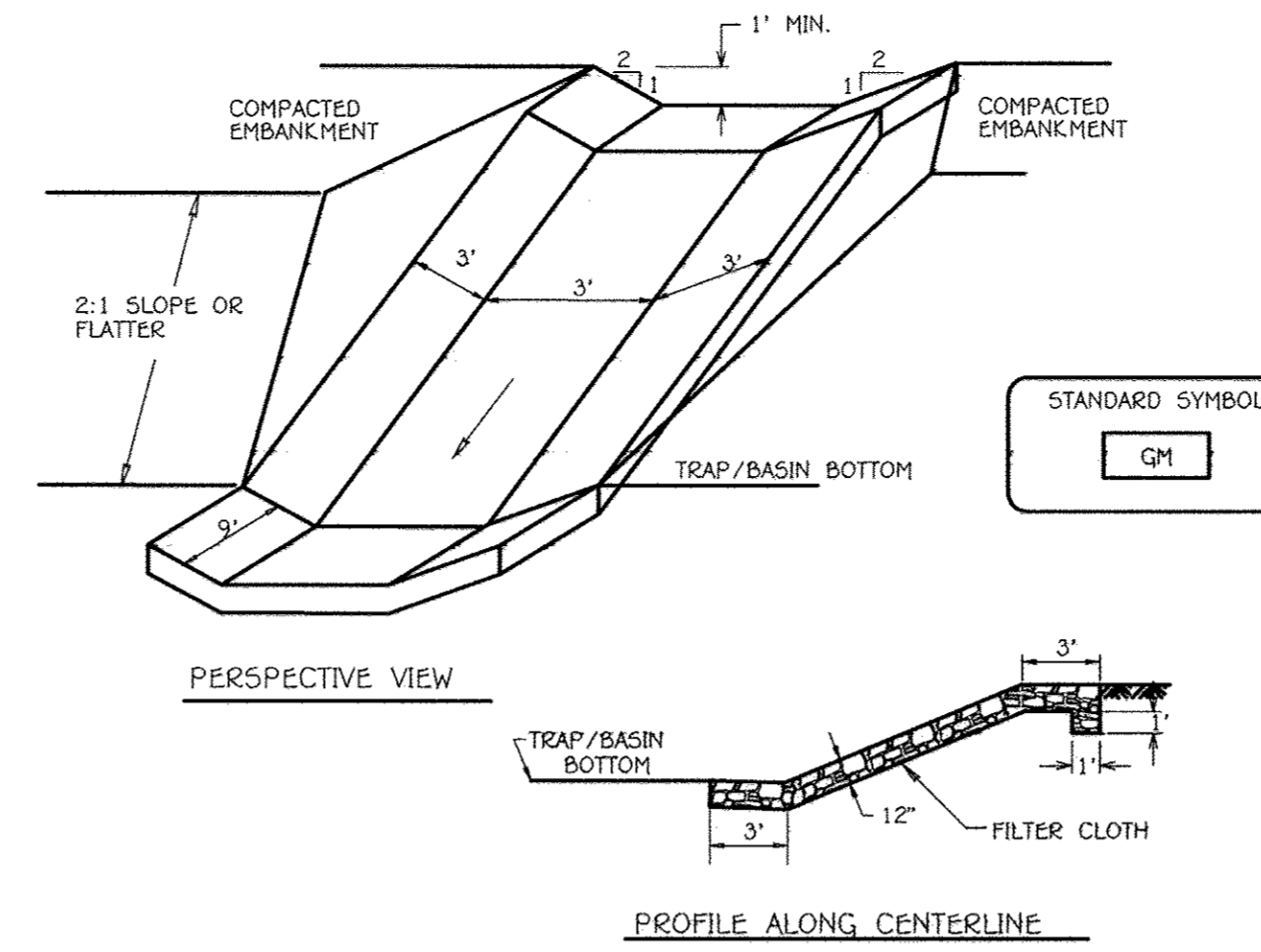
**OPERATION AND MAINTENANCE SCHEDULE FOR MICRO BIORETENTION IMPs #1 - #5**

THE BIORETENTION FACILITIES SHALL BE INSPECTED AT LEAST TWICE PER YEAR (ONCE EACH IN THE SPRING AND FALL) AND AFTER HEAVY STORMS. THE OWNER IS RESPONSIBLE FOR MAINTAINING A DETAILED LOG OF THE MAINTENANCE INSPECTION FINDINGS AND A HISTORY OF THE COMPLETED WORK. THE LOG SHALL BE MADE AVAILABLE TO HOWARD COUNTY DPZ AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UPON REQUEST.

MICRO-BIORETENTION FACILITY COMPONENTS TO BE INSPECTED AND MAINTAINED INCLUDE THE ITEMS AS FOLLOWS:

1. PLANT MATERIAL: PLANTS SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION. REMOVE AND REPLACE DEAD OR DYING VEGETATION CONSIDERED BEYOND TREATMENT (SEE NOTE BELOW). MAINTENANCE ALSO INCLUDES PRUNING, AND REPLACEMENT OF DEFICIENT STAKES AND WIRE.
2. MULCH LAYER: SHALL BE REPLACED ONCE EVERY SPRING DUE TO THE HEAVY METALS GENERATED FROM THE PARKING LOT. THE OWNER SHALL PROPERLY DISPOSE OF THE OLD MULCH SO AS NOT TO CAUSE STORMWATER CONTAMINATION ELSEWHERE. WASHED OUT AREAS SHALL BE REPAIRED AS NECESSARY.
3. SOIL LAYER: THE TOP 6 INCHES (MINIMUM) OF THE SOIL LAYER SHALL BE REPLACED IF STORMWATER PONDS FOR MORE THAN 24 HOURS FOLLOWING A 1- OR 2-YEAR STORM EVENT OR 48 HOURS FOLLOWING A 10-YEAR STORM EVENT.
4. SPILLWAY OUTFALL, INTERIOR SLOPES: ERODED AREAS SHALL BE REPAIRED (FILLED IN AND SEEDED) AS NEEDED. BARE AREAS SHALL BE TREATED AND RE-SEEDED.
5. INLET: REPAIR CRACKS, DAMAGED CONCRETE, ETC. AS NECESSARY.
6. REMOVE AND PROPERLY DISPOSE ACCUMULATED SEDIMENT GREATER THAN ONE (1) INCH.

- NOTES:
1. IF SPECIFIC PLANTS ARE NOT SURVIVING, THE PLANT TYPE SHOULD CHANGED TO BETTER SUITED SPECIES.
  2. PLANT WATERING MAY BE NEEDED DURING PROLONGED DRY PERIODS.

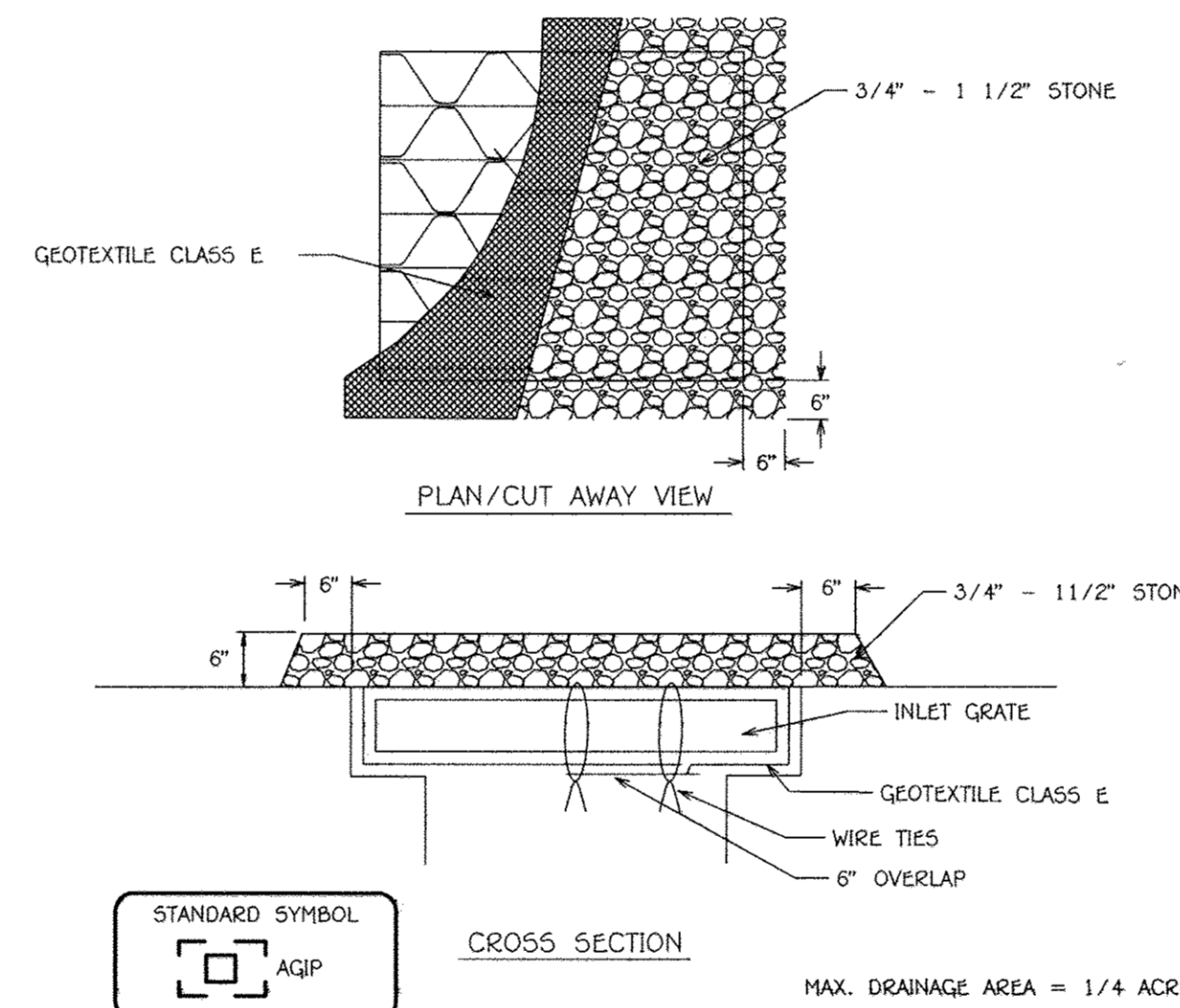


Construction Specifications

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



Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 1 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

**AT GRADE INLET PROTECTION**

**GENERAL STORMWATER MANAGEMENT NOTES**

1. STORMWATER MANAGEMENT HAS BEEN PROVIDED WITH FIVE (5) MICRO-BIORETENTION FACILITIES. PLEASE REFER TO THE SWM REPORT PREPARED BY FISHER, COLLINS, & CARTER, INC. DATED JULY 2, 2012.
2. ALL CONSTRUCTION SHALL MEET THE LATEST EDITION OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS, SMALL EARTHEN DAM SPECIFICATION MD-37B, AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S CURRENT STORMWATER DESIGN MANUAL, OR AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CONSULT THE ENGINEER SHOULD THERE BE ANY DISCREPANCIES. SEE MICRO-BIORETENTION FACILITY SPECIFICATIONS ON SHEET 36.
3. THE UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL TEST PIT ALL KNOWN EXISTING UTILITIES TO VERIFY SIZE, SHAPE, LOCATION, AND TYPE PRIOR TO PERFORMING CONSTRUCTION. ANY UTILITY DAMAGED DUE TO CONSTRUCTION MUST BE REPAIRED IMMEDIATELY.
4. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. IF THE CONTRACTOR MAKES FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CORRECTIONS.
5. CONTRACTOR SHALL NOTIFY MISS UTILITY 1-800-257-7777 AND THE HOWARD COUNTY DEPARTMENT OF INSPECTION LICENSES & PERMITS THREE (3) WORKING DAYS BEFORE BEGINNING CONSTRUCTION.
6. FISHER, COLLINS & CARTER, INC. IS NOT RESPONSIBLE FOR THE CONTRACTOR'S UTILIZATION OF MEN, MATERIALS, EQUIPMENT, OR SAFETY MEASURES IN THE PERFORMANCE OF ANY WORK FOR THIS PROJECT. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR PERFORMING THE WORK CORRECTLY AND IN CONFORMANCE WITH CODE/SPECIFICATION REQUIREMENTS.
7. THE IMPs MAY BE GRADED, HOWEVER, THE PLANTING SOIL IN THE IMPs SHALL NOT BE INSTALLED UNTIL ALL UPSTREAM AREAS HAVE BEEN STABILIZED (i.e., THICK GRASS COVER, OR PAVED).
8. THE STORMWATER MANAGEMENT BIORETENTION IMPs FOR THIS PROJECT WILL BE PRIVATELY OWNED AND MAINTAINED.
9. THE IMPs SHALL BE AT LEAST 10 FT FROM THE SCHOOL BUILDING (TEMPORARY BUILDINGS EXCLUDED) AS MEASURED FROM THE 9" DEPTH WATER SURFACE ELEVATION TO THE BUILDING.
10. THE RUNOFF FROM THE ASPHALT PATH AROUND THE BALL FIELDS FIRST SHEET FLOWS TO A GRASS FILTER STRIP THEN SHEET FLOWS TO A CONSERVATION AREA FOR A SIGNIFICANT PORTION OF ITS LENGTH. THIS "TREATMENT TRAIN" OF DISCONNECTION AND SHEET FLOW TO CONSERVATION AREA MEETS THE ESD VOLUME FOR THE PATH AREA. IN ADDITION, WATER QUANTITY MANAGEMENT IS STILL PROVIDED FOR THE PATH AREA ELSEWHERE. THEREFORE, THE REQUIRED ESOV IS EXCEEDED.
11. THE BALL FIELDS CONTAIN GEOTHERMAL WELLS.
12. THE CONSTRUCTION OF THE IMP #1 EMBANKMENT SHALL FOLLOW MD-37B CONSTRUCTION STANDARDS AS SHOWN ON SHEET 40. HOWEVER, NRCS DOES NOT REQUIRE THIS FACILITY TO MEET MD-37B.

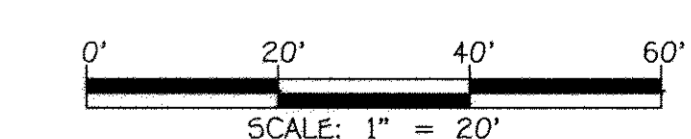
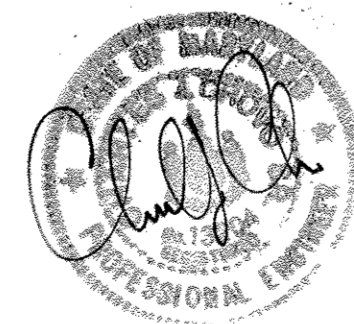
**OPERATION AND MAINTENANCE SCHEDULE FOR RAIN WATER HARVESTING SYSTEM**

THE RAINWATER HARVESTING SYSTEM (UNDERGROUND CHAMBERS) SHALL BE INSPECTED AT LEAST TWICE PER YEAR (ONCE EACH IN THE SPRING AND FALL) AND AFTER HEAVY STORMS. THE OWNER IS RESPONSIBLE FOR MAINTAINING A DETAILED LOG OF THE MAINTENANCE INSPECTION FINDINGS AND A HISTORY OF THE COMPLETED WORK. THE LOG SHALL BE MADE AVAILABLE TO HOWARD COUNTY DPZ AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UPON REQUEST.

SPECIFIC COMPONENTS TO BE INSPECTED AND MAINTAINED INCLUDE THE ITEMS AS FOLLOWS:

1. REMOVE DEBRIS.
2. EXAMINE STRUCTURES FOR SIGNS OF STRUCTURAL ISSUES (DAMAGE, CORROSION, ETC).
3. REMOVE AND PROPERLY DISPOSE ACCUMULATED SEDIMENT GREATER THAN ONE (1) INCH.

- NOTE:
1. THE RAINWATER HARVESTING STORAGE SHALL BE 80% EMPTIED MINIMUM) WHEN A 2" OR GREATER RAINFALL EVENT IS FORECASTED. THIS IS TO ALLOW STORAGE TO PROVIDE QUANTITY MANAGEMENT NEEDED TO PROTECT DOWNSTREAM WATERWAYS.



**Pond MD-37B: N.R.C.S. - JANUARY 2000 CONSTRUCTION SPECIFICATIONS FOR SMALL EARTHEN DAMS**

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-37B. 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. 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 that specified for the core of the embankment or other embankment materials.

**Pipe Conduits**

- All pipes shall be circular in cross section.
- Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:
1. Materials - Reinforced concrete pipe shall have bell and 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 and compacted 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. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure 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 requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements 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, in-stall, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavation and 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 slightly 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 ac-companying 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.



<p><b>ENGINEER'S CERTIFICATE</b></p> <p>"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."</p> <p>Signature of Engineer: <i>Charles J. Cervo, Sr.</i> Date: 10/29/12</p>	
<p><b>DEVELOPER'S CERTIFICATE</b></p> <p>"I/we certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."</p> <p>Signature of Developer: <i>[Signature]</i> Date: 11/01/12</p>	

"Professional Certification, I 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. 13204, Expiration Date: November 3, 2012."

Signature: *Charles J. Cervo, Sr.* Date: 10/29/12  
CHARLES J. CERVO, SR., P.E.

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

Signature: *[Signature]* Date: 10/11/12  
Howard SCD

DATE	DESCRIPTION
6/20/10	REVISED TITLE BLOCK
DATE	REVISION BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
Director - Department of Planning and Zoning	<i>[Signature]</i> 11/15/12 Date
Chief, Division of Land Development	<i>[Signature]</i> 11/16/12 Date
Chief, Development Engineering Division	<i>[Signature]</i> 11/16/12 Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	SECTION/AREA
MIDDLE SCHOOL #20	N/A
PLAT NOS.	PARCEL
23789-23790	12-12'
BLOCK NO.	ZONE
20	3B
TAX MAP	ELEC. DIST.
3B	FIRST
TOOD	CENSUS TR.
---	6012.01
WATER CODE	SEWER CODE
---	---

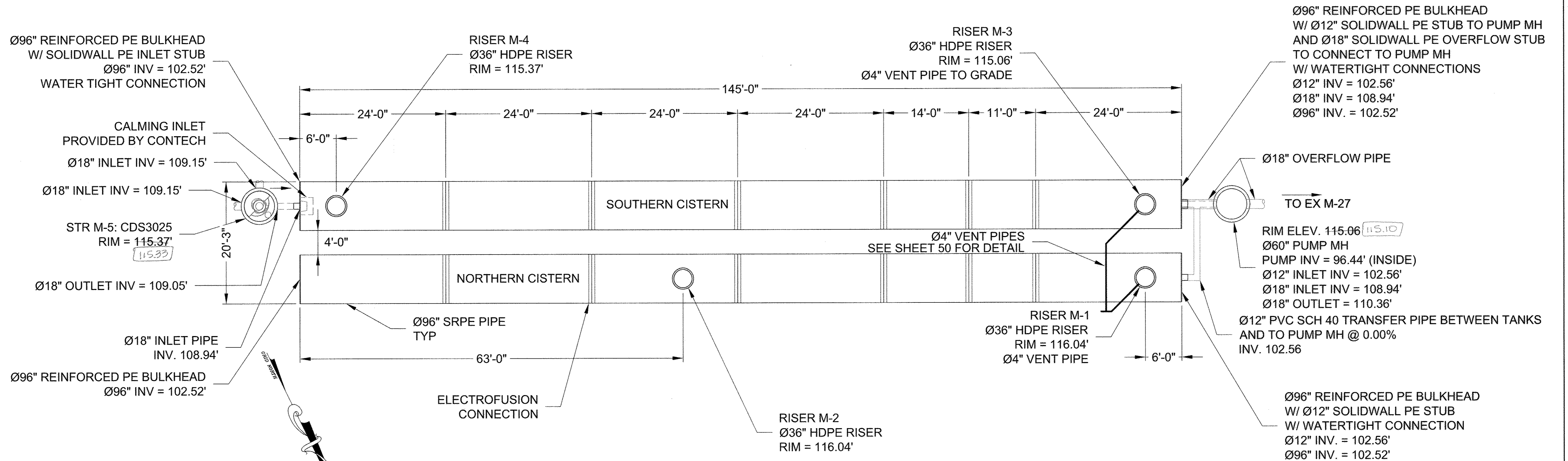
**IMP SPECIFICATIONS & NOTES**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 40 OF 50 SDF-12-075



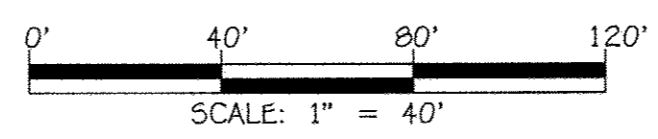


**PLAN VIEW**  
 SCALE: NONE  
 VOLUME: 105,000 GAL.  
 LOADING: H20/H25  
 SYSTEM INV = 102.52'

ITEM NUMBER	ITEM DESCRIPTION	QTY	UNITS	PROVIDED BY
1	Ø96", STEEL REINFORCED POLYETHYLENE BARREL	290'-0"	LF	CONTECH
2	Ø96", REINFORCED PE BULKHEAD	4	EA	CONTECH
3	Ø36" HDPE RISER	4	EA	CONTECH
4	Ø18" PE PIPE STUB (WATERTIGHT CONNECTION)	2	EA	CONTECH
5	Ø12" PE PIPE STUB (WATERTIGHT CONNECTION)	2	EA	CONTECH
6	CALMING INLET	1	EA	CONTECH
7	RISER FRAME AND COVER	4	EA	NEENAH R-1792-KL

- NOTES**
- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
  - ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
  - ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM D3350.
  - ALL RISERS AND STUBS ARE HIGH DENSITY POLYETHYLENE UNLESS OTHERWISE NOTED.
  - RISERS TO BE FIELD TRIMMED TO GRADE.
  - FLOTATION CONTROL IS CRITICAL AND THE RESPONSIBILITY OF THE CONTRACTOR. THE INFORMATION IS SUBMITTED AS A GUIDELINE ONLY. CONTECH IS NOT RESPONSIBLE FOR THE USE AND INTERPRETATION OF THIS INFORMATION.
  - FIELD INSTALLED ELECTROFUSION JOINTS PERFORMED AFTER BACKFILL. SYSTEM MUST BE DEWATERED TO BELOW CISTERN INVERT AND PIPE DRY FOR ELECTROFUSION PROCESS TO OCCUR.

**NEW RIVER ASSOCIATES**  
 Civil Engineers, Planners, Landscape Architects, Surveyors  
 704 Severnside Ave., Severn Park, MD 21156 • 410-278-3456



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING, CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-1099

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
 I HEREBY CERTIFY THAT FACILITIES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS

*Andrew Dorsei*  
 ANDREW DORSEY, P.E.  
 MARYLAND REGISTERED PROFESSIONAL ENGINEER - NO. 45261  
 DATE: 01/15/16

"Professional Certification: I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Crovo*  
 CHARLES J. CROVO, SR., P.E.  
 DATE: 10/27/12

1/1/16 AS-BUILT PLAN  
 0/20/16 RAMP/TITLE BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning: 4/15/12  
 Chief, Division of Land Development: 1/14/13  
 Chief, Development Engineering Division: 11/15/12

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention: Bruce Gist  
 410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'
PLAT NOS.	BLOCK NO.	ZONE
03700-03790	20	TOD
TAX MAP	ELEC. DIST.	CENSUS TR.
3B	FIRST	6012.01
WATER CODE	SEWER CODE	
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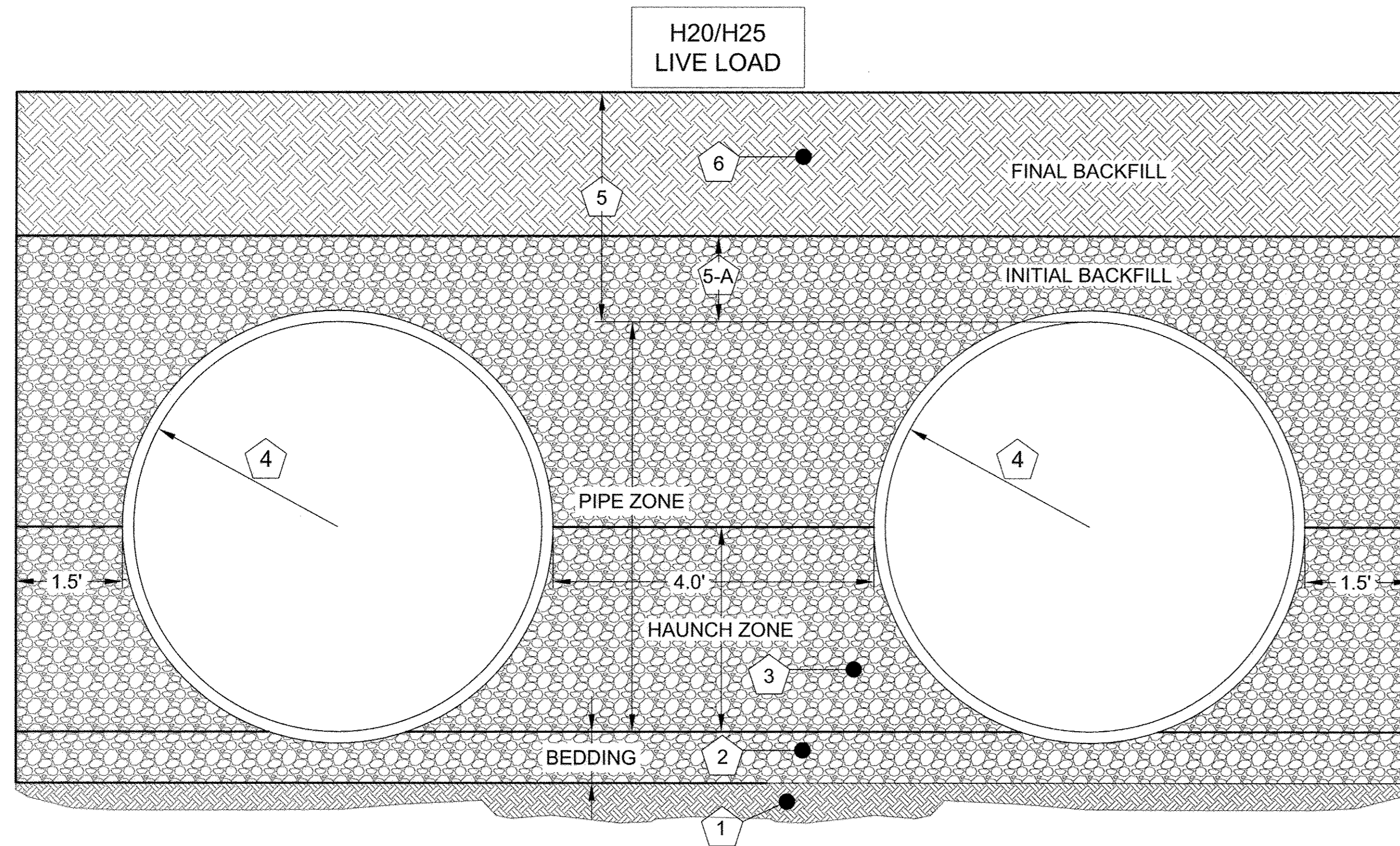
**96" DIA. URBANGREEN SRPE CISTERN**

'GREEN NEIGHBORHOOD'  
 MIDDLE SCHOOL #20  
 OXFORD SQUARE  
 PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012

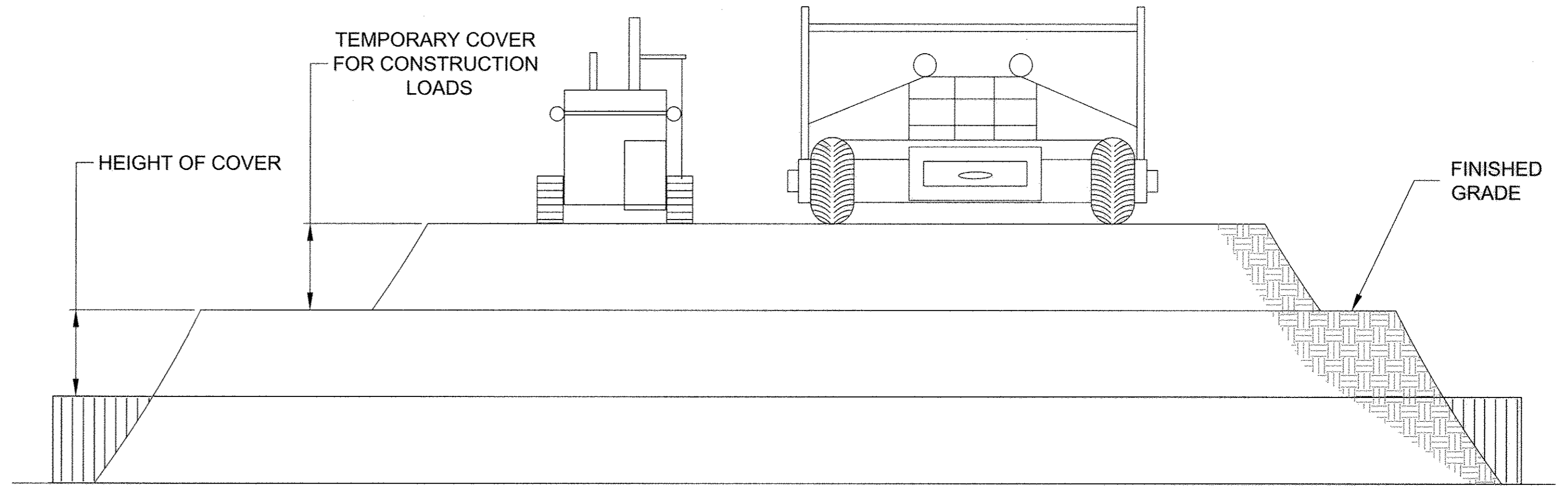
AS-BUILT 14 OF 16  
 SHEET 41 OF 50  
 SDP-12-075

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- 1) FOUNDATION TO BE WELL CONSOLIDATED & STABLE. FILL MATERIAL MUST BE COMPACTED TO 90% STANDARD DENSITY AND APPROVED BY A GEOTECHNICAL ENGINEER OR REPRESENTATIVE.
- 2) BEDDING MATERIAL SHALL MEET ASTM D2321 CLASS I, II, III OR APPROVED EQUAL, COMPACTED TO 90% STANDARD DENSITY. THE TOP 6" SHALL NOT BE COMPACTED AND BE LOOSE, ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE.
- 3) INITIAL BACKFILL & HAUNCHING ZONE MATERIAL TO MEET ASTM D2321 CLASS I, II, III OR APPROVED EQUAL, COMPACTED TO 90% STANDARD DENSITY (A NATIVE MATERIAL CAN BE UTILIZED THAT MEETS ASTM D2321 OR APPROVED EQUAL SPECIFICATION).
  - FOR COVER HEIGHTS THAT ARE AT 75% OF MAXIMUM OR EXCEED COVER LIMITS INITIAL BACKFILL MATERIAL TO BE CLASS I OR II AS PER ASTM 2321.
  - 120" TO USE CLASS 1 ONLY
  - ALL LIFTS TO BE DONE IN CONTROLLED MANNER, TO PREVENT UNEVEN LOADING LIFTS SHOULD NOT EXCEED 6" TO 8" LIFT HEIGHTS OR BY GEOTECH ON-SITE.
- 4) (SRPE) STEEL REINFORCED PIPE.
- 5) MINIMUM HEIGHT OF COVERS PER DIAMETER (DISTANCE AS MEASURED FROM TOP-OF-PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT):  
24" MINIMUM FOR PIPE DIAMETERS 96"
- 5-A) FOR INSTALLATION COVERS THAT EXCEED MINIMUM HEIGHTS OF COVER; MINIMUM HEIGHT OF INITIAL BACKFILL ABOVE PIPE:  
12" MINIMUM FOR PIPE DIAMETERS 96"
- 6) FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS PER THE SHOP DWGS, SPECIFICATIONS, AND ENGINEER-OF-RECORD. MAY INCLUDE APPROVED NATIVE MATERIALS.
- 7) OTHER STRUCTURAL BACKFILL INCLUDING NATIVE MATERIALS MAY BE USED AS DIRECTED BY THE PROJECT ENGINEER. BACKFILL MATERIALS ARE DEFINED UNDER ASTM D2321. GEOTEXTILE SHOULD BE USED AS REQUIRED TO PREVENT SOIL MIGRATION.
- 8) STANDARD SPACING BETWEEN PARALLEL PIPE RUNS TO BE = PIPE DIA./2. SPACING BELOW THE AFOREMENTIONED FORMULA FOR PIPE DIAMETERS IS ALLOWED BASED ON PROJECT REQUIREMENTS AND APPROVAL/DESIGN BY CONTECH ENGINEERED SOLUTIONS.

**96" DIAMETER URBANGREEN CISTERN BACKFILL DETAIL**  
SCALE: N.T.S.



**CONSTRUCTION LOADS:**

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
96	MINIMUM COVER (FT)			
	3.0	3.5	4.0	4.5

*\*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.*

CONTRACTOR TO AVOID HEAVY EQUIPMENT/VEHICLES ON RWH CISTERNS. HOWEVER, IF UNAVOIDABLE FOLLOW THIS TABLE.

**CONSTRUCTION LOADING DIAGRAM**

SCALE: N.T.S.

**SPECIFICATION FOR STEEL REINFORCED POLYETHYLENE PIPE**

**SCOPE**

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE STEEL REINFORCED POLYETHYLENE PIPE DETAILED IN THE PROJECT PLANS.

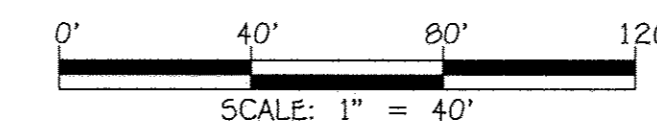
**MATERIAL**

VIRGIN HIGH DENSITY POLYETHYLENE PRESSURE-RATED RESINS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF CELL CLASSIFICATION 345464 C AS DEFINED AND DESCRIBED IN THE LATEST VERSION OF ASTM D3350 "STANDARD SPECIFICATION FOR POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS".

**PIPE AND FITTINGS**

ALL FITTINGS SHALL BE FABRICATED FROM STEEL REINFORCED POLYETHYLENE PIPE. ANY FITTINGS 24"Ø AND BELOW WILL BE HDPE PIPE.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.



**INSTALLATION**

**PRE-CONSTRUCTION MEETING**

PRIOR TO INSTALLATION OF THE DRAINAGE SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE DRAINAGE SYSTEM, THE GENERAL CONTRACTOR, SUB CONTRACTORS AND THE ENGINEER.

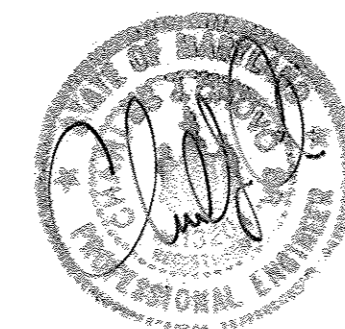
**INSTALLATION OF PIPE:**

IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR PROJECT ENGINEER TO ENSURE THAT ALL QUESTIONS ABOUT INSTALLATION ARE ADDRESSED PRIOR TO APPROVAL OF SYSTEM. ALL DETAILS FOR INSTALLATION ARE LOCATED IN THIS DRAWING PACKAGE ANY QUESTIONS CONCERNING THESE STANDARD DETAILS CAN BE ADDRESSED BY YOUR CONTECH REPRESENTATIVE PRIOR TO APPROVAL.

BACKFILL SHALL BE PLACED TO THE PROPER ELEVATION OVER THE SYSTEM AS OUTLINED IN THE PLANS. MINIMUM COVER FOR CONSTRUCTION LOADING NEEDS TO BE DETERMINED BASED ON THE TYPE OF EQUIPMENT THAT IS PLANNED FOR CONSTRUCTION. PROPER COVER FOR CONSTRUCTION EQUIPMENT SHALL BE DETERMINED PRIOR TO THE PRE-CONSTRUCTION MEETING BY THE ENGINEER.

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FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461 - 2895



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
*Charles J. Grovo*  
CHARLES J. GROVO, SR., P.E.  
11/29/12 DATE

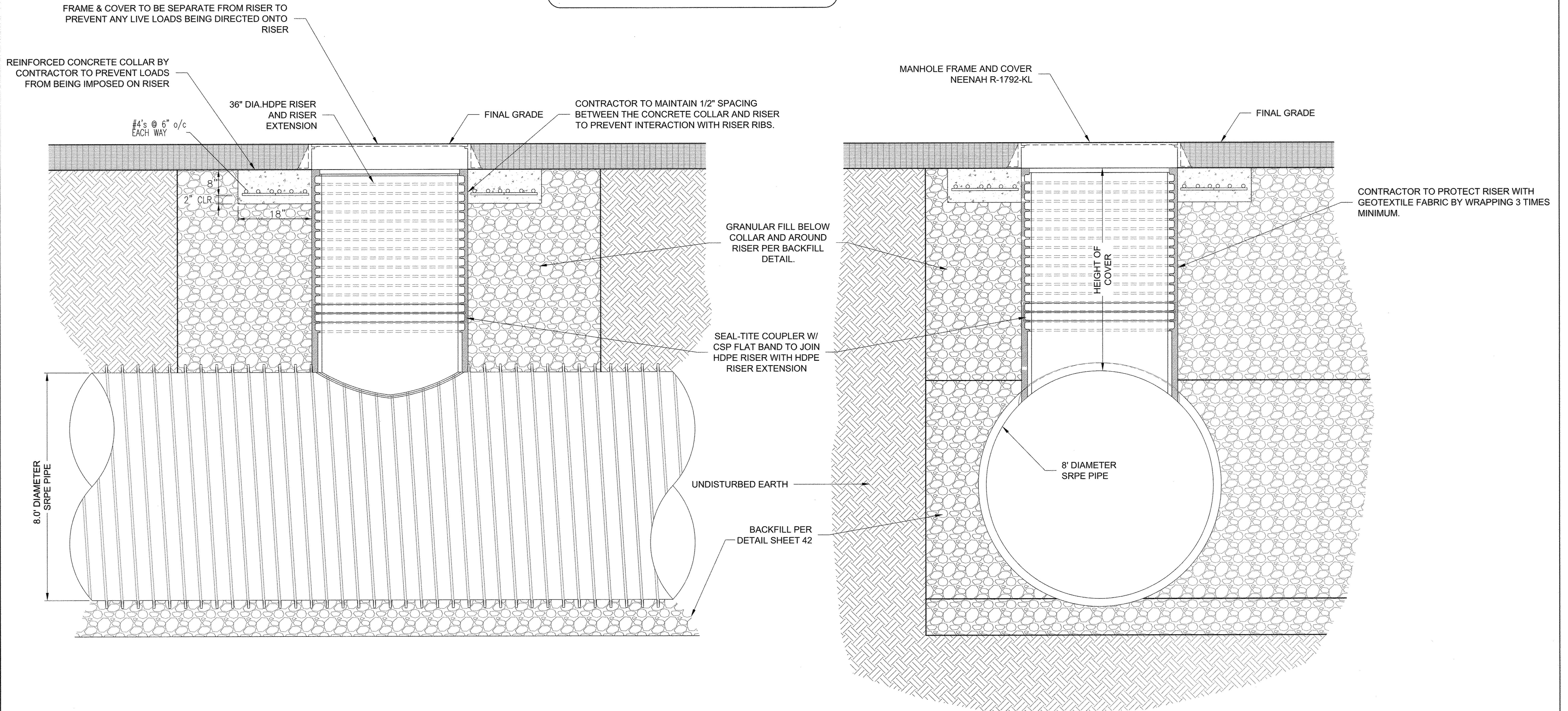
DATE	DESCRIPTION	DATE
6/20/16	REVISED TITLE BLOCK	
	REVISION BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>[Signature]</i>	Director - Department of Planning and Zoning	4/18/12 Date
<i>[Signature]</i>	Chief, Division of Land Development	11/14/13 Date
<i>[Signature]</i>	Chief, Development Engineering Division	11/15/12 Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 10B  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart			
Parcel Number	Street Address		
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076		
PROJECT	SECTION/AREA	PARCEL	
MIDDLE SCHOOL #20	N/A	'D-D'	
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP
03108-03790	20	TOD	3B
		ELEC. DIST.	CENSUS TR.
		FIRST	6012.01
WATER CODE		SEWER CODE	
----		----	

<b>96" DIA. URBANGREEN SRPE CISTERN</b>			
'GREEN NEIGHBORHOOD' <b>MIDDLE SCHOOL #20</b> OXFORD SQUARE PARCEL 'D-D'			
ZONED TOD	TAX MAP No.: 3B	GRID No.: 20	PARCEL No.: 761
FIRST ELECTION DISTRICT	HOWARD COUNTY, MARYLAND		
SCALE: AS SHOWN	DATE: OCTOBER 26, 2012		
SHEET 42 OF 50			<b>SDP-12-075</b>

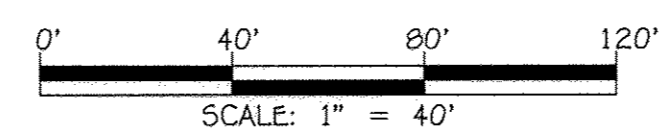
NOTE FOR MAINTENANCE: ACCESS TO UNDERGROUND CISTERNS WILL REQUIRE AN LADDER.



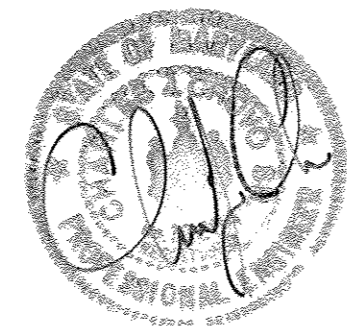
ELEVATION VIEW

STANDARD RISER INSTALLATION DETAIL  
SCALE: N.T.S.

SECTION VIEW



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(410) 461-1999



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*Charles J. Grovo*  
CHARLES J. GROVO, SR., P.E.  
10/21/12 DATE

DATE	DESCRIPTION	REVISION BLOCK
01/20/16	REVISED TITLE BLOCK	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>Paul H. Lyle</i>	Director - Department of Planning and Zoning	4/17/12 Date
<i>Kevin D. ...</i>	Chief, Division of Land Development	1/14/13 Date
<i>...</i>	Chief, Development Engineering Division	11/15/12 Date

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart						
Parcel Number	Street Address					
12-D	7000 BANBURY DRIVE HANOVER, MD 21076					
PROJECT	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.	PARCEL
MIDDLE SCHOOL #20	20	TOD	38	FIRST	6012.01	12-D
PLAT NOS.	20					
WATER CODE	---		SEWER CODE			

**96" DIA. URBANGREEN SRPE CISTERN**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL '12-D'

ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 43 OF 50 **SDP-12-075**

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**PUMP STATION SPECIFICATIONS:**  
**NAME:** HOWARD COUNTY MIDDLE SCHOOL #20  
**STATION MODEL:** SHSTV-1-(?K)-7.5/1-480-3-56-80  
**STATION TOTAL PERFORMANCE:** 56GPM @ 80PSI  
**PUMP HORSEPOWER:**  
 PUMP NO.1 7.5HP (3600RPM, 215' TDH)  
**MIN SUGGESTED CIRCUIT BREAKER:** 40 AMP  
**POWER REQUIREMENTS:** 480V, 60HZ, 3PHZ, 28 FLA  
**SKYHARVESTER SYSTEM COMPONENTS**  
 A 7.5HP SUBMERSIBLE PUMP AND MOTOR  
 B FLOW INDUCER SLEEVE FOR MOTOR COOLING  
 C CHECK VALVE  
 D PRESSURE RELIEF VALVE  
 E SYSTEM DISCHARGE ISOLATION VALVE  
 F UV ISOLATION VALVE ea.  
 G PUMP FLOW SENSOR  
 H PRESSURE GAUGE  
 I POTABLE FLOW SENSOR  
 J 5 MICRON AUTOMATIC FILTER ASSEMBLY (2)  
 K UL 508 CONTROL PANEL ASSEMBLY  
 L LEVEL SENSOR & FLOAT ASSEMBLY  
 M FILTER FLUSH VALVE  
 N PRESSURE TRANSDUCER W/ GAUGE ASSEMBLY  
 O UV UNIT RATED FOR 30GPM ea (2)  
 P NEMA 4X REMOTE DISCONNECT  
 Q 1 HP SUMP PUMP  
 R ALUMINUM ENCLOSURE  
 S FORMED AND PAINTED STEEL SKID & PIPING  
 T FILTER ISOLATION VALVE  
 U AIR BLEED VALVE  
 V BLIND FLANGE  
 W PUMP DISCHARGE PIPE  
 X HEAT EXCHANGER  
 Y FLEX CONNECTOR  
 Z SOLENOID VALVE FOR POTABLE FILL  
 AA OPTOCOUPLER

**DESCRIPTION OF OPERATION (RAINWATER):**  
 -TANK FULL, WATER SYSTEM PRESSURIZED.

PUMP WILL START VIA PRESSURE DROP SENSED IN WATER MAINLINE AND REGULATE A CONSTANT PRESSURE AT VARIABLE FLOW RATE. PUMP WILL RETIRE BASED UPON AN ADJUSTABLE MINIMUM WATER DEMAND (FLOW) AND SUSTAINED REGULATE PRESSURE.

WATER WILL BE DRAWN OUT OF TANK. ONCE USER ADJUSTABLE LEVEL SETPOINT IS SATISFIED THE AUTOMATIC VALVE WILL ALLOW POTABLE WATER TO ENTER INTO THE TANK. IF LEVEL CONTINUES TO DROP PUMP WILL SHUT DOWN ON LOW LEVEL ALARM. PUMP WILL RE-ENABLE UPON USER DEFINED SET POINT. TANK FILL LOGIC IS INDEPENDENT FROM PUMP ENABLE-DISABLE LOGIC. AUTOMATIC FILL VALVE CONTROLS SHALL MAINTAIN A MINIMUM WATER LEVEL, LEAVING THE MOST AMOUNT OF ROOM TO CAPTURE THE NEXT RAIN EVENT, WHILE MAINTAINING PROPER LEVEL FOR PUMP. CONTROL SYSTEM WILL TOTALIZE ALL WATER PUMPED AND ALL POTABLE MAKE UP WATER USED.

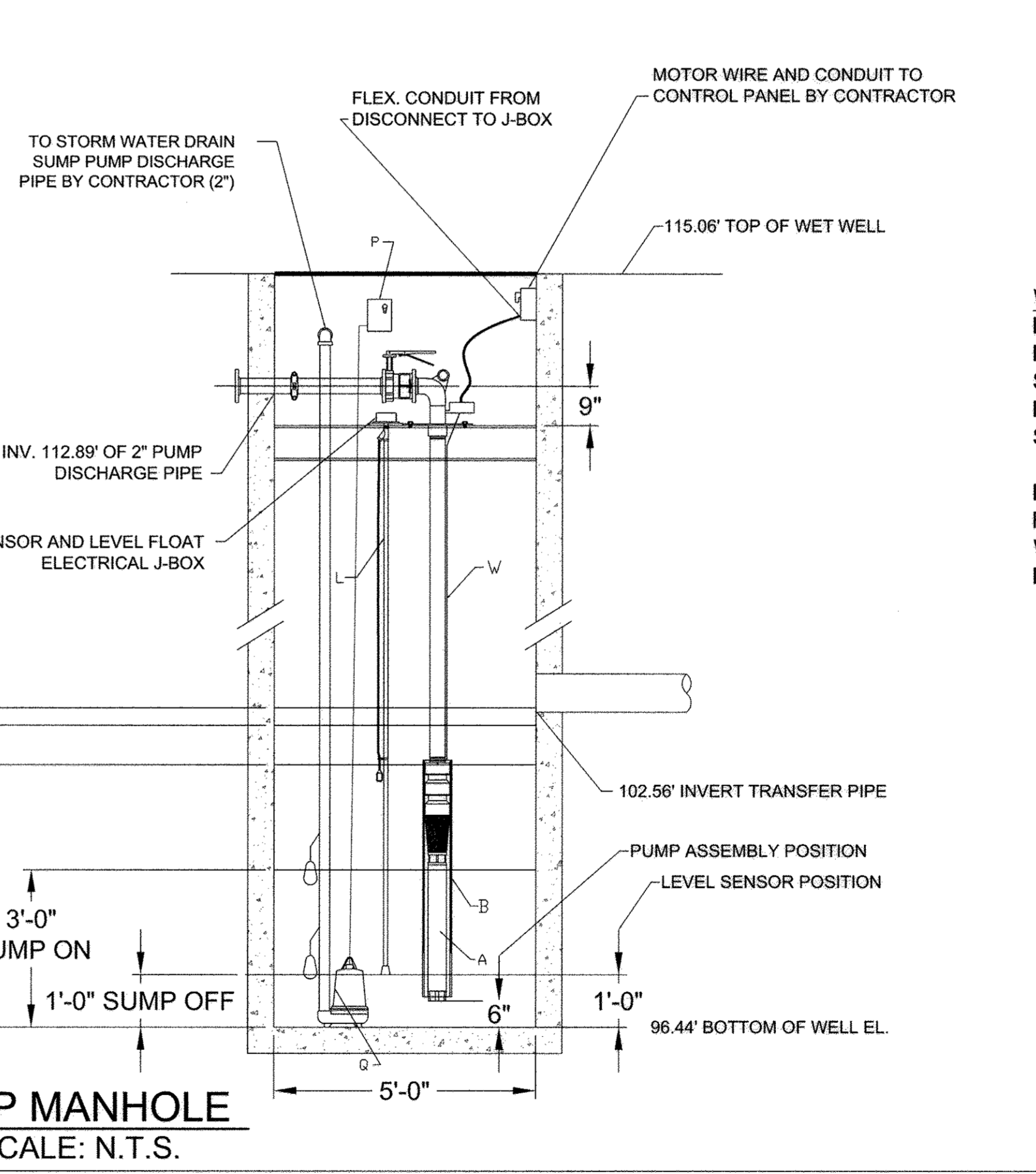
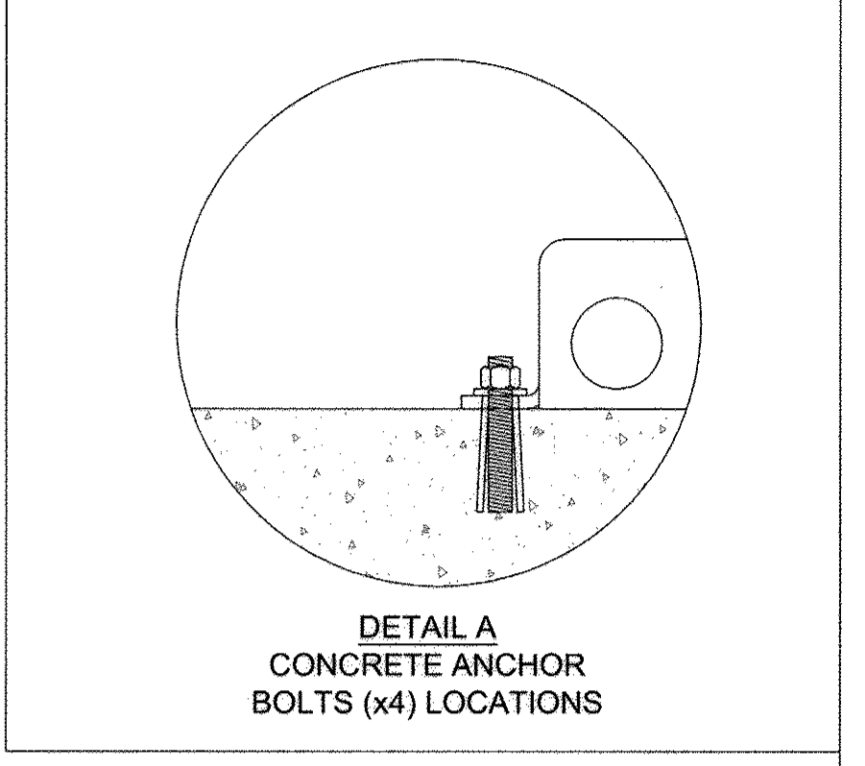
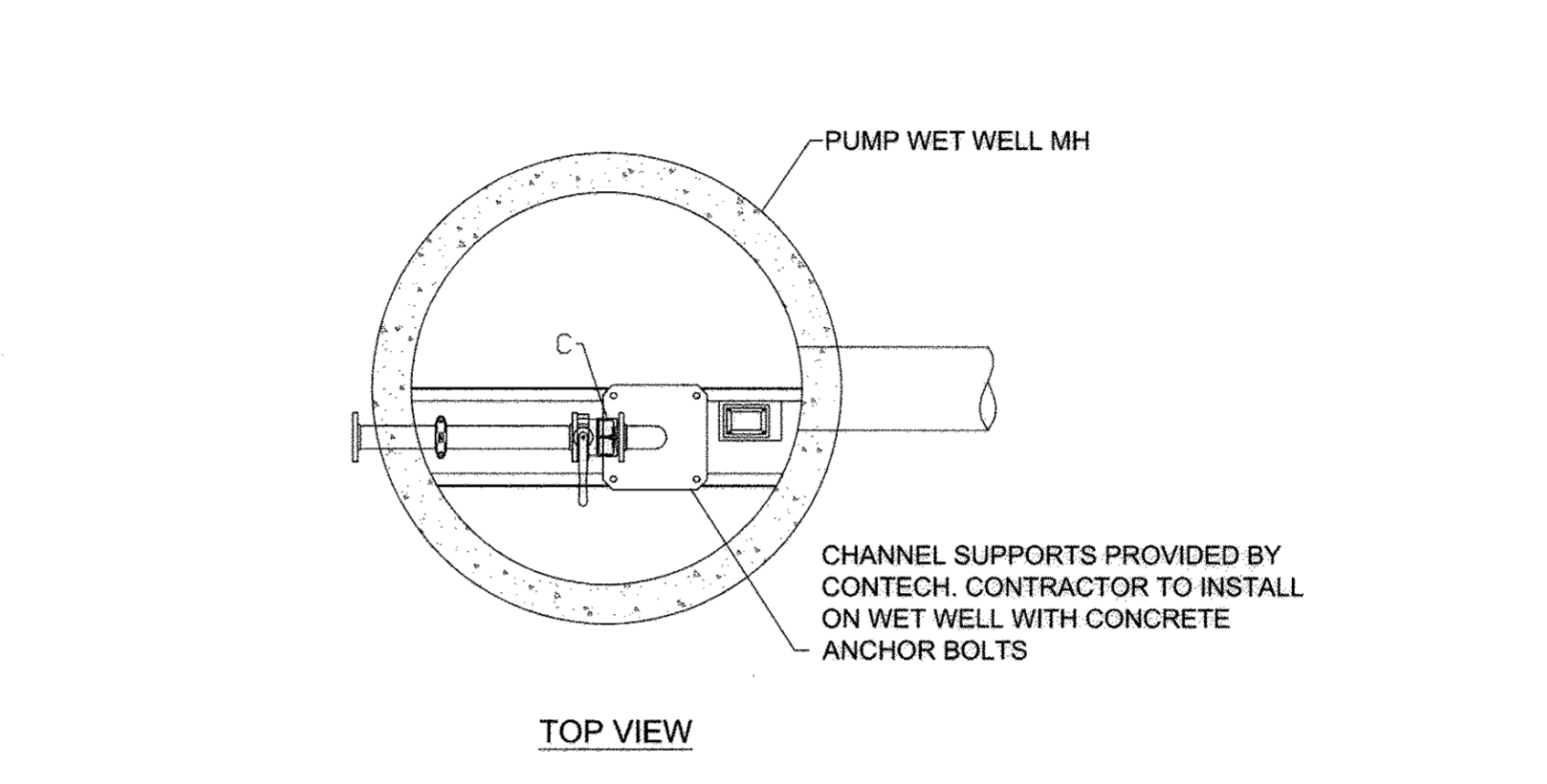
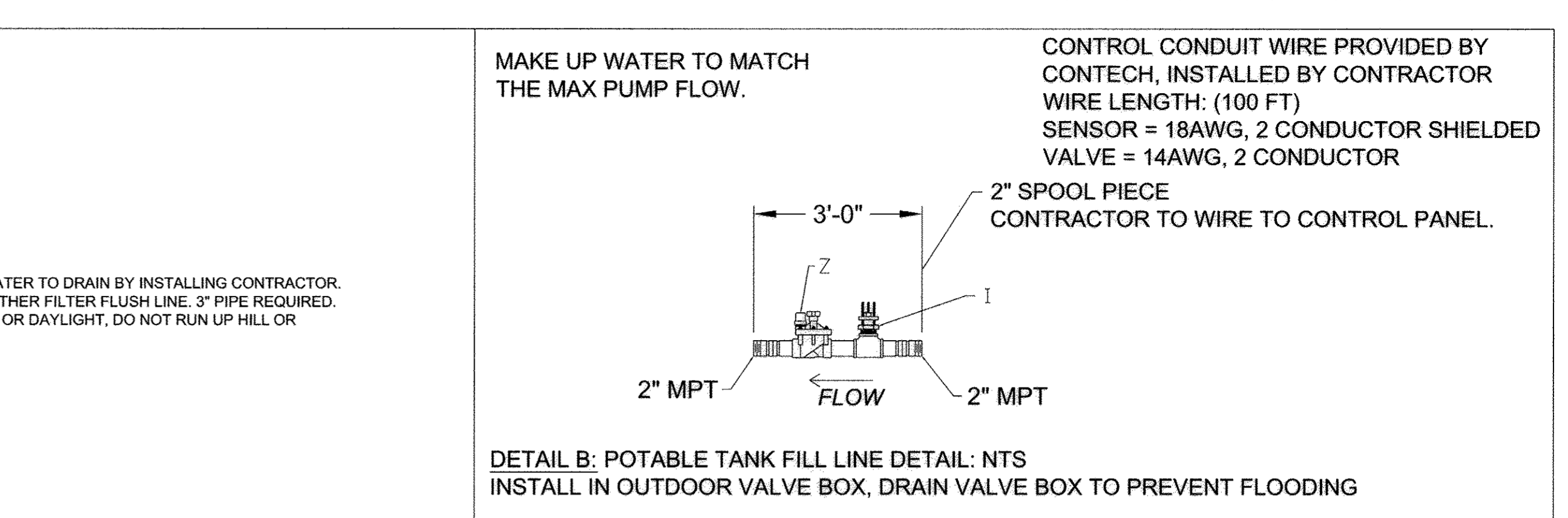
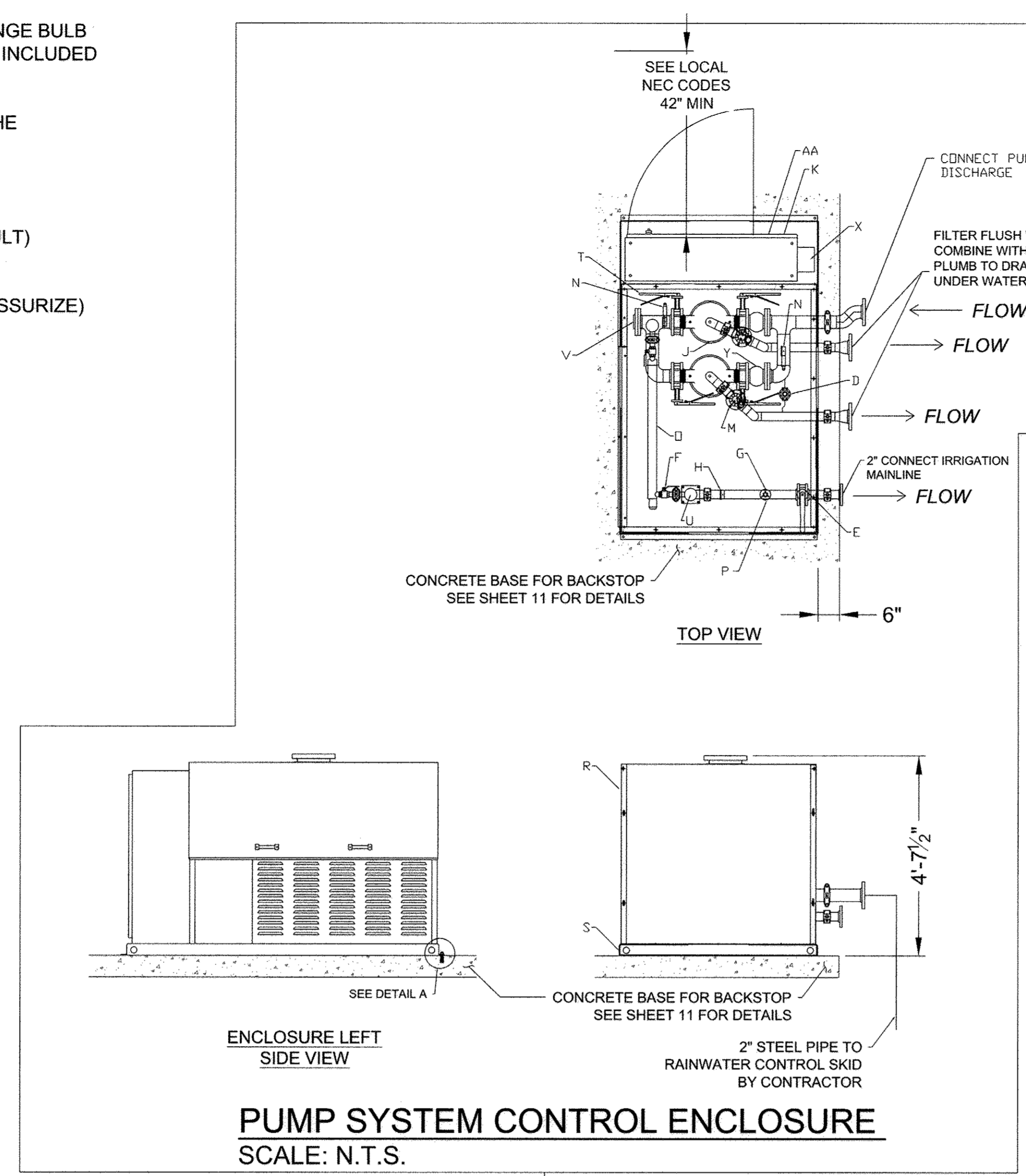
AUTOMATIC DISCHARGE FILTRATION SHALL BE FLUSHED UPON (3) INPUTS. DIFFERENTIAL PRESSURE, GALLONS PUMPED, AND TIMED INTERVAL WHICHEVER OCCURS FIRST. FILTER SHALL ALSO HAVE ALARM AFTER (3) FLUSH CYCLES AND PRESSURE DIFFERENTIAL IS NOT RESTORED TO CLEAN SLUSH.

OWNER RESPONSIBLE FOR WATER METER, BACKFLOW PREVENTOR AND ANY OTHER REGULATING DEVICES THAT MAY BE REQUIRED AND ASSOCIATED WITH CITY WATER. MAKE UP WATER LINE SHOULD BE SIZED TO DELIVER MIN. OF 56 GPM TO TANK.

SUMP PUMP TO CONTAIN AN HOA SWITCH. WHEN SWITCH IS IN AUTO, PUMP WILL OPERATE VIA FLOAT SWITCH SETTINGS. WHEN SWITCH IS IN HAND, PUMP WILL RUN, AND ONLY STOP VIA LOW LEVEL FLOAT FOR SUMP PUMP.

UV UNITS WILL BE ACTIVE 24/7 - 365. CHANGE BULB EVERY 365 DAYS. TIMER AND ALARM ARE INCLUDED TO NOTIFY USER.  
 SYSTEM CONTROL PANEL SHALL HAVE THE FOLLOWING ALARMS AT MINIMUM  
 -HIGH DISCHARGE PRESSURE  
 -LOW DISCHARGE PRESSURE  
 -VFD FAULT  
 -LOW LOW LEVEL SHUT DOWN (HARD FAULT)  
 -LOW LEVEL ALARM (SOFT FAULT)  
 -FILTER ALARM  
 -PIPE FILL ALARM (SYSTEM CAN NOT PRESSURIZE)  
 -LOSS OF PHASE OR PHASE REVERSAL  
 -HIGH VOLTAGE  
 -LOW VOLTAGE  
 -CONTROL POWER ALARM  
 -UV BULB ALARM & TIMER

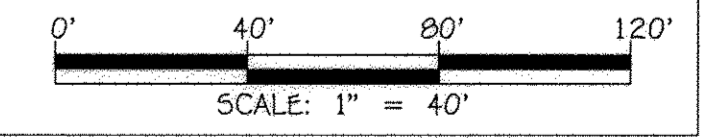
**CONTROL PANEL TO INCLUDE:**  
 -COLOR TOUCHSCREEN OPERATOR INTERFACE  
 -FILTER CONTROLS AND DISPLAY  
 -MULTIPLE FLOW SENSOR DISPLAY AND TOTALIZERS  
 -PSI DISPLAY AND SET POINTS  
 -PUMP RUNNING STATUS & RUN-TIME HRS  
 -LEVEL CONTROLS AND DISPLAY IN "INCHES" & "GALLONS"  
 -USER ABILITY TO ADJUST ALL SYSTEM PARAMETERS  
 -VFD PRESSURE REGULATION FOR ENERGY EFFICIENCY  
 -BRANCH CIRCUIT PROTECTION  
 -U.L. 508 LISTED CONTROL PANEL ASSEMBLY  
 -PROGRAMABLE PLC "programmable logic controller"  
 -NON-FUSABLE MAIN DISCONNECT  
 -HOA (hand, off, auto) SWITCH FOR PUMP  
 -EMERGENCY STOP BUTTON  
 -SERIAL MODBUS COMMUNICATION



**WIRE SCHEDULE (PROVIDED BY CONTRACTOR):**  
 LEVEL SENSOR: 18AWG (2) COND. SHIELDED  
 IRR LEVEL FLOAT: 14AWG (2) COND.  
 SUMP LEVEL FLOAT: 14AWG (2) COND.  
 IRR MOTOR: 8AWG (3) COND. PLUS GROUND  
 SUMP MOTOR: 10AWG (3) COND. PLUS GROUND

**INTERNET CONNECTION:**  
 RJ45 PLUG, CAT5E OR CAT6 CABLE  
 WIRE TO TIA/EIA-568 T568B STANDARD  
 DO NOT EXCEED 328FT

WATER CONSERVATION SYSTEM SHALL BE PROVIDED BY A SINGLE SOURCE MFG. CONTACT CONTECH ENGINEERED SOLUTIONS



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 CONFEDERAL SQUARE OFFICE PARK - 10572 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2299

Professional Certification. I 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. 13204, Expiration Date: November 3, 2012.

*Charles J. Grovo, Sr., P.E.*  
 CHARLES J. GROVO, SR., P.E. 10/23/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Mark P. Layth* 1/15/12 DATE  
 Director - Department of Planning and Zoning

*Kathy Decker* 1/14/13 DATE  
 Chief, Division of Land Development

*William J. ...* 1/15/12 DATE  
 Chief, Development Engineering Division

PREPARED FOR  
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
 10910 Maryland Route 108  
 Ellicott City, Maryland 21042  
 Attention Bruce Gist  
 410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'
PLAT NOS.	BLOCK NO.	ZONE
23706-23710	20	TOD
		TAX MAP
		38
		ELEC. DIST.
		FIRST
		CENSUS TR.
		6012.01
WATER CODE	SEWER CODE	
----	----	

**URBANGREEN RWH MECHANICAL SYSTEM**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
 OXFORD SQUARE  
 PARCEL 'D-D'

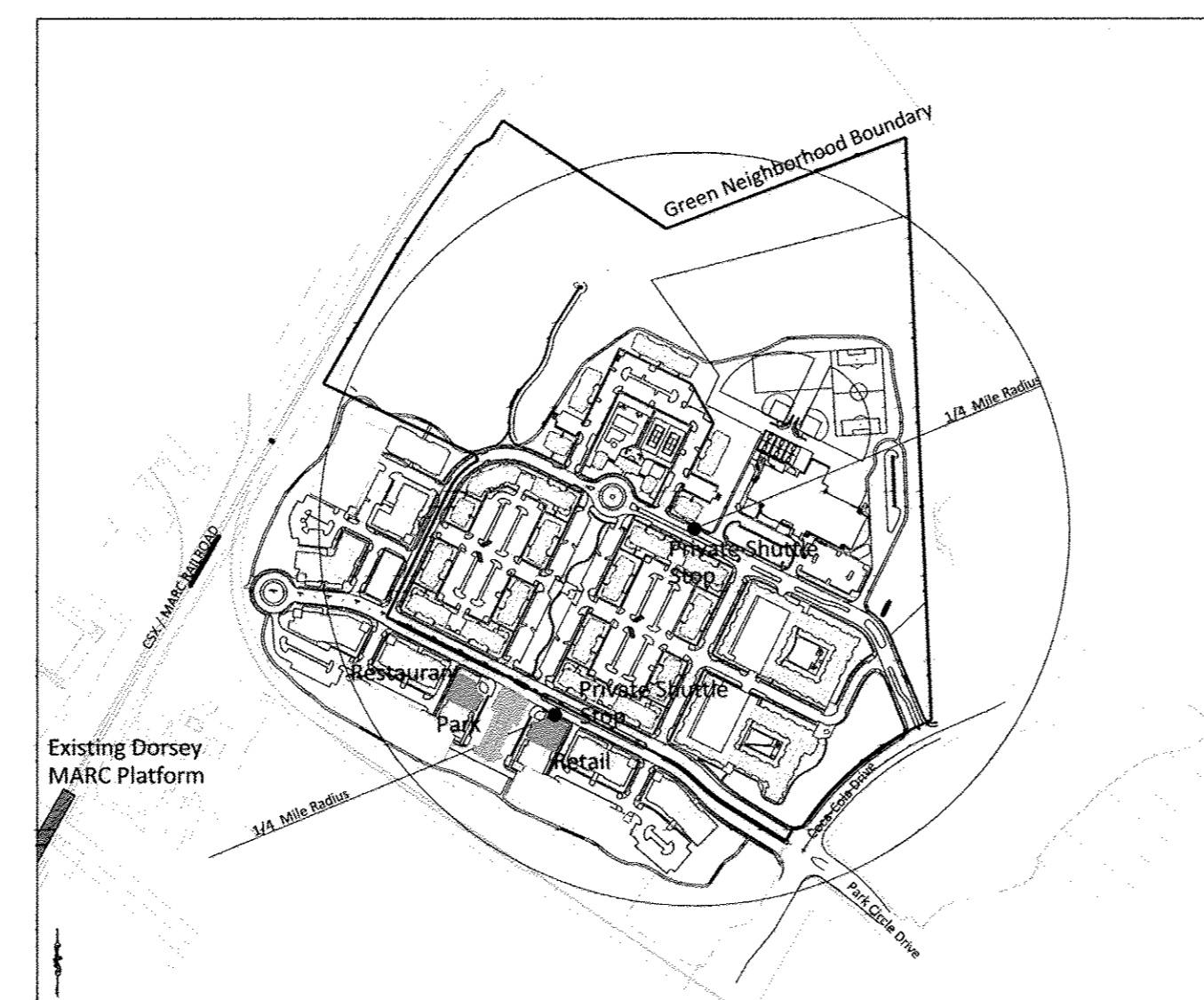
ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: OCTOBER 26, 2012

SHEET 44 OF 50 **50P-12-075**

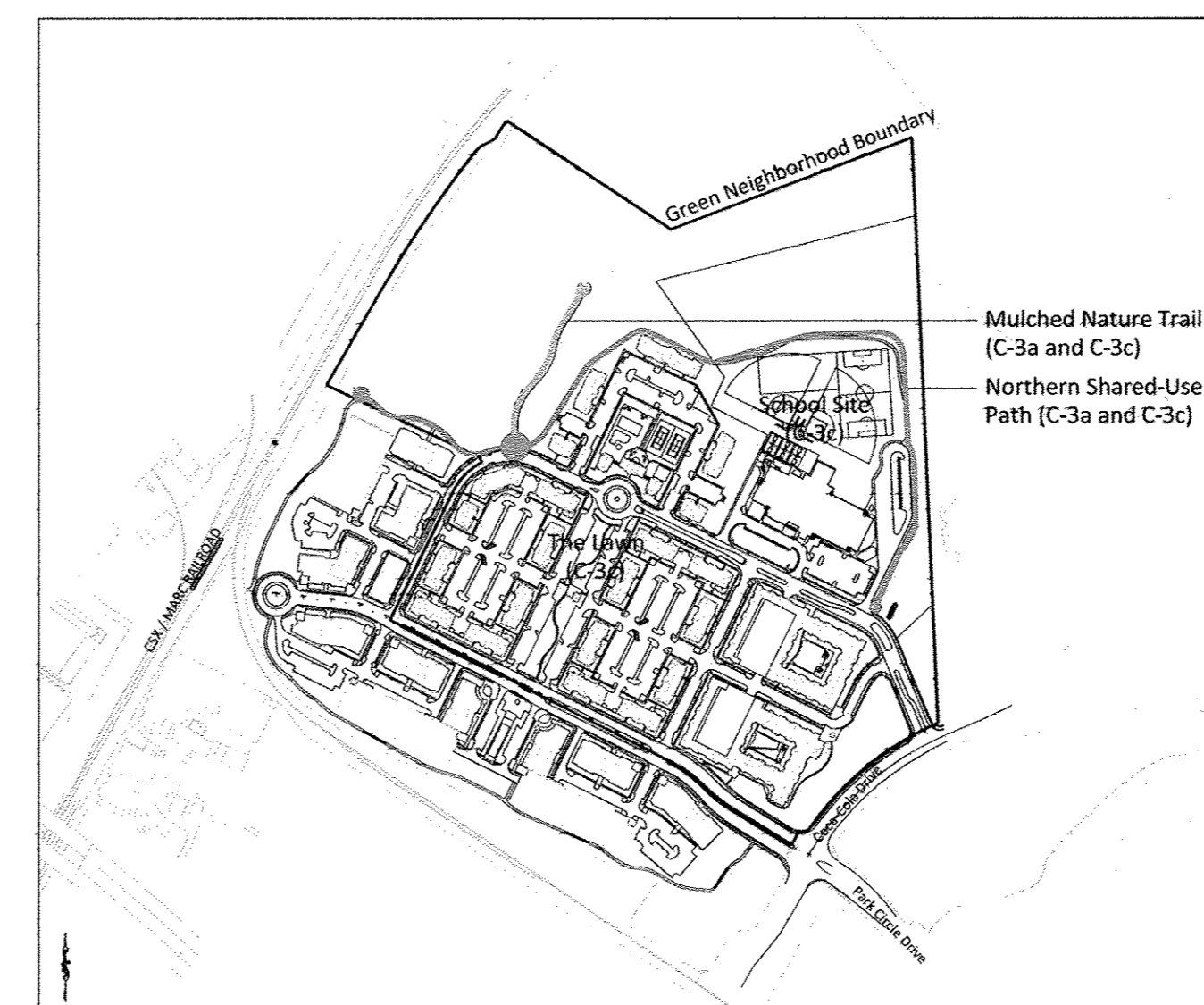
**GREEN NEIGHBORHOOD NOTES:**

- A-2 THE DESIGN AND DEVELOPMENT TEAM INCLUDES A LEED AP (MICHAEL J. SMITH- TCA Architects and MATTHEW FITZSIMMONS- HORD COPLAN MACT), Architect (Michael A. Lahovin AIA- TCA Architects), LANDSCAPE ARCHITECT (JOSH KILRAIN ASLA, RLA- HORD COPLAN MACT) AND AN ENGINEER (ALDO VITUCCI- FISHER, COLLINS & CARTER INC.)
- A-3 THE THIRD PARTY CERTIFICATION IS PROVIDED BY CHARLES ALEXANDER, LEED-AP OF ALEXANDER DESIGN STUDIOS.
- B-3a THE 82.2 ACRES GREEN NEIGHBORHOOD BOUNDARY AREA CONSISTS OF 24.4 ACRES OF PREVIOUSLY DEVELOPED LAND (29.7% OF THE OVERALL OXFORD SQUARE GREEN NEIGHBORHOOD SITE AREA).
- B-3a OXFORD SQUARE WILL PROVIDE TWO TRANSIT STOPS FOR THE PROPOSED PRIVATE SHUTTLE SERVICE CONNECTING OXFORD SQUARE TO THE DORSEY MARC COMMUTER RAIL STATION. THE STOPS WILL BE WITHIN 1/4 WALKING DISTANCE TO ALL DWELLING UNITS.
- B-3b OXFORD SQUARE WILL PROVIDE ONE SHELTER AT ONE OF THE PRIVATE SHUTTLE STOPS. THE SHELTER WILL COMPLY WITH COUNTY APPROVED CRITERIA INCLUDING BENCHES AND LIGHTING.
- B-4 OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY IS WITHIN 1/4 MILE WALKING DISTANCE OF THREE COMMUNITY RESOURCES: RESTAURANT, RETAIL AND PARK SPACE.
- C-1 OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY WILL PROVIDE TWO DIVERSE USES OTHER THAN RESIDENTIAL: INSTITUTIONAL (MIDDLE SCHOOL BUILDING AND OUTDOOR CLASSROOM SPACE) AND CIVIC (SCHOOL'S RECREATIONAL PLAYING FIELDS AND SHARED-USE PATH).
- C-2 OXFORD SQUARE IS LOCATED WITHIN THE EXISTING PLANNED WATER AND SEWER SERVICE AREA.
- C-3c OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY WILL PROVIDE A MINIMUM OF TWO PEDESTRIAN SYSTEM AMENITY EXPERIENCES: 1) SHARED USE PATH AND NATURE TRAIL (TRAIL SIGNS AND MARKERS, BENCHES, LITTER RECEPTACLES, EXTERIOR LIGHTING, INFORMATIONAL SIGNS, BIKE RACKS), 2) THE LAWN (BENCHES, EXTERIOR LIGHTING, SHADE TREES, INFORMATIONAL SIGNS), AND 3) MIDDLE SCHOOL SITE (RECREATIONAL PLAYING FIELDS, SEATING, BIKE RACKS).
- D-6 PUBLIC FOREST CONSERVATION EASEMENT #1 LOCATED IN THE NORTHERN PORTION OF HOWARD COUNTY MIDDLE SCHOOL'S SITE CONTRIBUTES 1.84 ACRES OF AFFORESTATION TO OXFORD SQUARE'S TOTAL FOREST CONSERVATION GOAL.
- D-8b OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY WILL PROVIDE A MINIMUM 75 FT ENHANCED STREAM BUFFER.
- D-9 OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY WILL PROVIDE A MINIMUM 50 FT ENHANCED WETLAND BUFFER.
- E-3 OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY WILL NOT PLANT INVASIVE PLANTS.
- E-4 OXFORD SQUARE GREEN NEIGHBORHOOD BOUNDARY WILL USE NATIVE PLANTS WHEN PLANTING BEDS ARE LOCATED IN DENSELY SHADED AREAS.
- F-3b OXFORD SQUARE WILL PROVIDE 25%-50% WATER QUALITY VOLUME STORED AND INFILTRATED/RE-USED ON-SITE.

**B-3a, B-3b & B-4 VICINITY MAP (Scale: 1"= 600')**



**C-3a, C-3b, C-3c VICINITY MAP (Scale 1"=600')**



APPROVED  
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
GREEN NEIGHBORHOOD PLAN FOR SITES

*Beth Bryson* 12-3-12  
CHIEF, RESOURCE CONSERVATION DIVISION DATE

LEED ACCREDITED PROFESSIONAL CERTIFICATE  
GREEN NEIGHBORHOOD PLAN FOR SITES

I hereby certify that this plan represents a practical and workable plan for achieving the targeted credits and point total shown on the Green Neighborhood for Sites Compliance Checklist.

*Matthew J. Fitzsimmons* 10007912 10/16/12  
MATTHEW J. FITZSIMMONS, LEED AP LEED ACCREDITATION NUMBER DATE

**GREEN NEIGHBORHOOD CALCULATIONS & TABLES**

**A-4b Priority Parking for Low-Emitting and Fuel Efficient Vehicles<sup>1</sup>**

<b>Howard County Middle School #20</b>	
Total Number of Off-Street Parking Spaces:	119 Spaces
Total Number of Proposed Preferred Parking Spaces:	6 Spaces
Percent of Preferred Parking Spaces:	5%

<b>Complete Build Out (Sketch Plan S-11-001)</b>	
Total Number of Off-Street Parking Spaces:	2,055 Spaces
Total Number of Proposed Preferred Parking Spaces:	104 Spaces
Percent of Preferred Parking Spaces:	5%

**A-4c Compact Development**

Total Dwelling Units:	954 DU
Residential Land Area:	33.0 AC
Residential Density:	28.9 DU/AC

**A-4d Walkable Streets**

	Overall GN Development <sup>1</sup>	Middle School
Length of Buildings Frontage Oriented Towards the Public Space:	5,737 FT	263 FT
Total Length of Building Frontage:	6,430 FT	411 FT
% of Building Frontage Oriented Towards the Public Spaces:	89.2 %	64.0 %
Length of Building Frontage with Service or Garage Openings:	240 FT	0 FT
Total Length of Building Frontage (Oriented Towards Public Spaces):	5,737 FT	263 FT
% of Building Frontage with Service or Garage Openings:	4.2 %	0.0 %

<sup>1</sup> Overall GN Development Frontage Calculation is based on Approved Sketch Plan (S-11-001) modified to reflect changes to building frontage per Middle School SDP

**B-1a Redevelopment Site**

Gross Site Area:	82.2 Acres
Area of Existing Development (Acres):	24.4 Acres
Percent of Previously Developed:	29.7%

**B-3a Transit Access & Amenities for Reduced Auto Dependence (Stop)**

Building Number for Units within 1/4 Mile	Total Number of Qualifying Units	Percent of all Units
Buildings 10- 34 (Sketch Plan S-11-001)	954 DU	100%

**B-4 Proximity to Community Resources**

Community Resources	Walking Distance to Resource
Restaurant	0-1,320 FT
Retail	0-1,320 FT
Park	0-1,320 FT
<b>Number of Qualifying Resources:</b>	<b>3 Resources</b>

**C-1 Diversity of Uses**

Residential Uses	Number of Units	Percent of Total Units
Apartments	954 DU	100%
Nonresidential Uses		
Institutional:	Area	SF per Dwelling Unit
School	95,747 SF	
Outdoor Classroom Space	2,500 SF	
	98,247 SF	103 SF/DU
Civic:	Area	SF per Dwelling Unit
Recreational Playing Fields (School Site)	230,598 SF	
Shared-Use Path (8 FT wide)	31,509 SF <sup>1</sup>	
Civic Subtotal:	262,107 SF	275 SF/DU

<sup>1</sup> 12,801 SF of the Shared-Use Path will be constructed on the Middle School site.

**C-3a Pedestrian System (Paths and Trails)**

	Overall GN Development <sup>1</sup>
Shared Use Path:	Width of Path: 8 FT Length: 3,262 FT (0.6 Miles)
Mulch Nature Trail	Width of Path: 5 FT Length: 595 FT

**C-4 Street Connections**

Street Name / ID	Street Length	Qualifying Street
Road A	1,683 FT	Yes
Road B	2,838 FT	Yes
Road C	807 FT	Yes
Road D	740 FT	Yes
Road E (North and South)	1,450 FT	Yes
Summary		
Total Street Length:	7,518 FT	
Total Connected Street Length:	7,518 FT	
Percent Connected Streets:	100.0%	

**C-5 Parking Does Not Exceed Required Minimum**

Number of Surface Parking Required:	2,043 spaces
Number of Spaces Provided:	2,238 spaces
Number of Shared Spaces (On-Street):	310 spaces
Number of Spaces within a Common Parking Structure:	1,128 spaces
Number of Spaces within Walk Up Integral Garages:	40 spaces
Number of Spaces in Surface Parking Lots:	760 spaces

**C-6 Exceed Minimum Open Space**

	Complete Build Out <sup>1</sup>	Middle School SDP <sup>2</sup>
Net Acreage*:	75.0 AC	
Required Amenity Space (TOD: 10% of Net Acreage):	7.5 AC	
Provided Amenity Space:	11.9 AC	6.6 AC
Percent Increase above the Minimum Required:	58.7 %	

\* Net Acreage= Gross Acreage less floodplain, less steep slopes within GN boundary.  
<sup>1</sup> Middle School Site Development Plan's amenity space contribution.  
<sup>2</sup> Proposed Complete Build Out amenity area as described in Sketch Plan S-11-001 GN Report submission (06/09/2011).

**C-7 Green Spaces and Amenity Areas**

Parcel	Road Frontage	Amenity Type	Amenity Area
Open Space 1: Clubhouse and Pool	314 FT	Residential Community Clubhouse, Pool, Other Active, and Passive Recreational Spaces	59,741 SF (1.37 AC)
Open Space 2: The Nature Trail	160 FT	Nature Trail, Benches, Trail Signage, Educational Signage	31,448 SF (0.72 AC)

**D-4 15% Slope Preservation**

	Complete Build Out <sup>1</sup>	Middle School SDP <sup>2</sup>
Total Area of Slopes 15-24.9%:	430,065 SF	132,833 SF
Area of Undisturbed Slopes 15-24.9%:	258,913 SF	97,374 SF
Percent of Undisturbed Slopes:	60.2 %	73.3 %

<sup>1</sup> Calculations are based on the Middle School Site Development Plan submission and do not reflect the complete project build out.  
<sup>2</sup> Calculations include Complete Build Out disturbances described in Final Plan submission (05/09/12) in addition to changes made to the Middle School Site, as described in the Site Development Plan.

**D-5 Minimize Grading and Site Disturbance**

	Complete Build Out <sup>2</sup>	Middle School SDP <sup>1</sup>
Gross Area of Site	82.2 AC	82.2 AC
Existing Impervious Cover	24.4 AC	24.4 AC
Area of Site	57.8 AC	57.8 AC
Area of Site to Remain Undisturbed	25.0 AC	56.5 AC
Percent of Site to Remain Undisturbed:	43.3 %	97.7 %
Ratio of Cut to Fill:	1.13 Ratio	1.13 Ratio
Retaining Wall:	0 FT	0 FT

<sup>1</sup> Calculations are based on the Middle School Site Development Plan submission and do not reflect the complete project build out.  
<sup>2</sup> Calculations include Complete Build Out disturbances described in Final Plan submission (05/09/12) in addition to changes made to the Middle School Site, as described in the Site Development Plan.

**D-6 Exceed Minimum Forest Conservation Requirements**

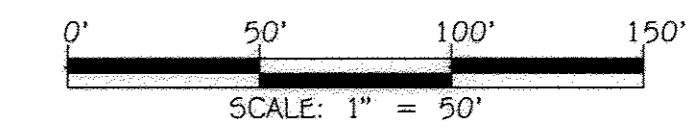
Afforestation Obligation:	3.50 AC
Afforestation Provided in Excess of Obligation:	1.75 AC
Percentage of Provided in Excess of Obligation:	50.00 %

**D-8b Exceed Minimum Stream Buffer Requirements**

Total Stream Buffer Width:	150 FT
Width of Buffer Exceeding Requirements:	75 FT
Total Length of Stream Buffer:	1,984.2 FT
Length of Stream Buffer Outside Other Buffers:	1,230.0 FT
Percent of Stream Buffer Outside Other Buffers:	62.0 %

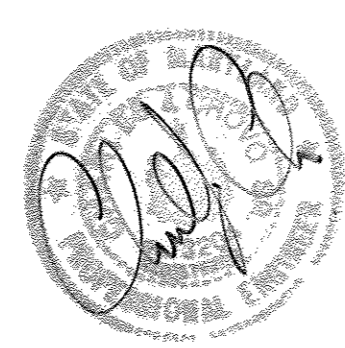
**D-9 Exceed Minimum Wetland Buffer Requirements**

Total Width of Wetland Buffer:	75 FT
Width of Buffer Exceeding Requirements:	50 FT
Total Length of Wetland Buffer:	2,874.7 FT
Length of Wetland Buffer Outside Other Buffers:	2,046.6 FT
Percent of Wetland Buffer Outside Other	71.2 %



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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461 - 2099



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
*Charles J. Cravo, Sr., P.E.*  
 CHARLES J. CRAVO, SR., P.E. 10/28/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Director - Department of Planning and Zoning  
 Chief, Division of Land Development  
 Chief, Development Engineering Division

9/20/12 REVISION TITLE BLOCK  
 DATE DESCRIPTION REVISION BLOCK

10/15/12  
11/14/12  
11/15/12

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'

PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23166-23190	20	TOD	3B	FIRST	6012.01

WATER CODE	SEWER CODE
------------	------------

**GREEN NEIGHBORHOOD NOTES AND CALCULATIONS**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 3B GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 19, 2012

SHEET 45 OF 50 **SDP-12-075**

E:\2009\09014\dwg\SCHOOL PLANS\09014-SHEET 45 GREEN CHARTS.dwg, 1:200, 10/19/2012 10:33:50 AM, 1:1

GREEN NEIGHBORHOOD COMPLIANCE CHECKLIST

Table with columns: Credit No., Credit, Champion (Name, Role), Requirement, Sketch Plan (S-11-001) Strategies, Final Plan (F-12-026) Strategies, Site Development Plan (SDP-12-076) Strategies, Documentation Location, and a grid for tracking completion.

Table with columns: Credit No., Credit, Champion (Name, Role), Requirement, Sketch Plan (S-11-001) Strategies, Final Plan (F-12-026) Strategies, Site Development Plan (SDP-12-076) Strategies, Documentation Location, and a grid for tracking completion.

Table with columns: Credit No., Credit, Champion (Name, Role), Requirement, Sketch Plan (S-11-001) Strategies, Final Plan (F-12-026) Strategies, Site Development Plan (SDP-12-076) Strategies, Documentation Location, and a grid for tracking completion.

Number of points required to obtain Green Neighborhood Allocations 90

Third Party Certification

By affixing my signature below, the undersigned does hereby declare and affirm to How and County that the targeted Green Neighborhood Site credits and point total as specified in this Green Neighborhood Site Compliance Checklist are reasonable and achievable.

Signature of Charles Alexander, LEED Accredited Professional, dated 10-17-12.

Professional Certification: I 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. 13204, Expiration Date: November 3, 2012.

Signature of Charles J. Crovo, Sr., P.E., dated 10/16/12.

APPROVED: DEPARTMENT OF PLANNING AND ZONING. Director: Bruce Gist, dated 1/15/12. Chief, Development Engineering Division: dated 1/15/12.

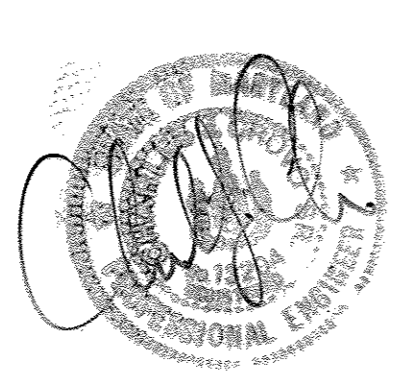
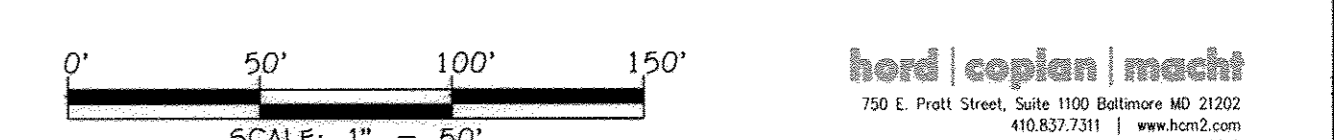
PREPARED FOR HOWARD COUNTY PUBLIC SCHOOL SYSTEM, 10910 Maryland Route 108, Ellicott City, Maryland 21042.

Address Chart table showing Parcel Number (D-D), Street Address (7000 BANBURY DRIVE), and other details.

GREEN NEIGHBORHOOD CHARTS. 'GREEN NEIGHBORHOOD' MIDDLE SCHOOL #20, OXFORD SQUARE, PARCEL 'D-D'. ZONED TOD TAX MAP No. 38, GRID No. 20, PARCEL No.: 761. SHEET 46 OF 50. SOD-12-075.

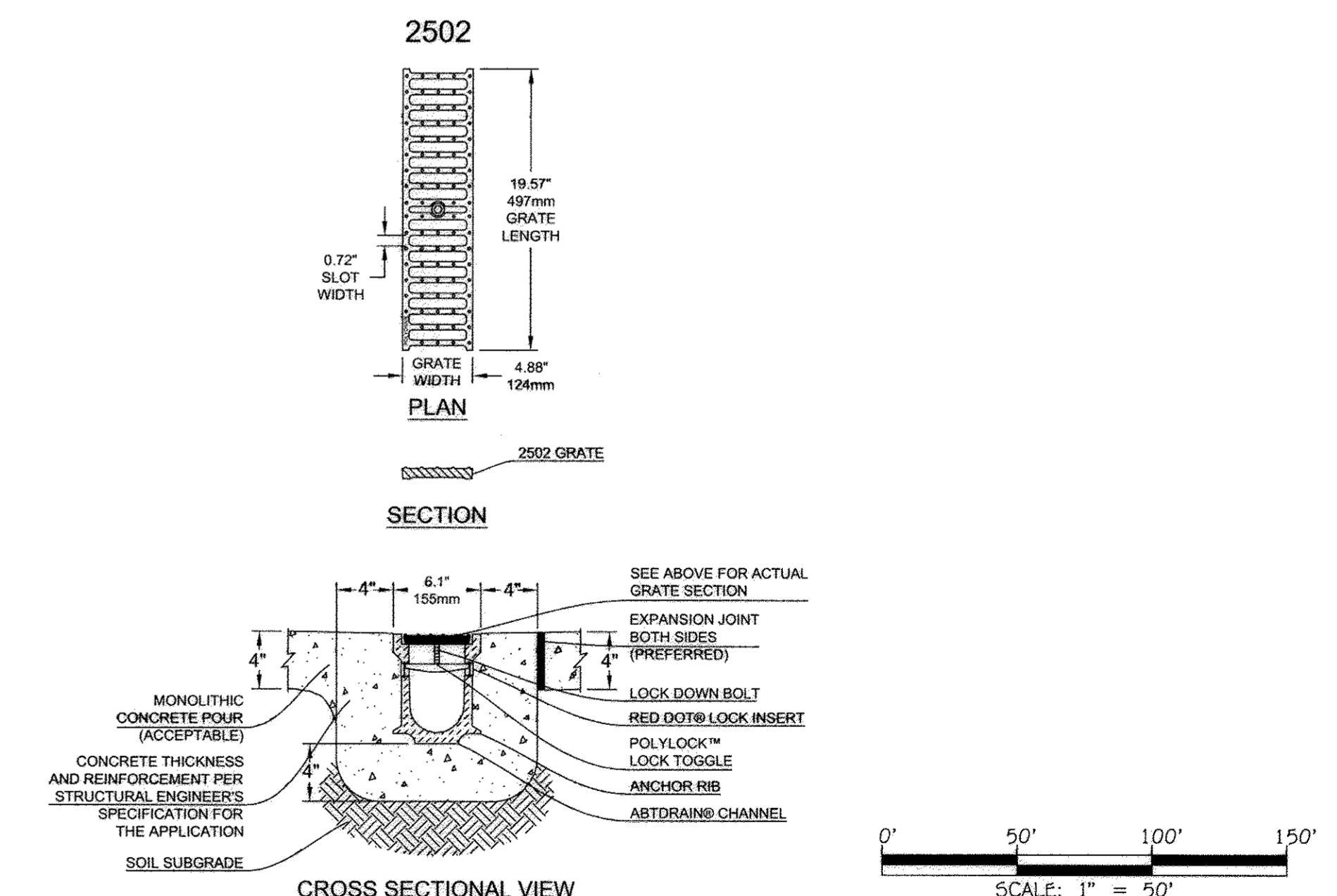
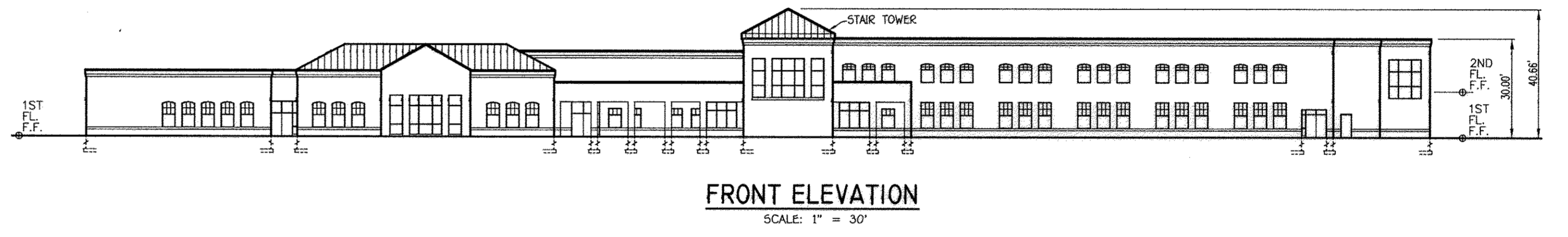
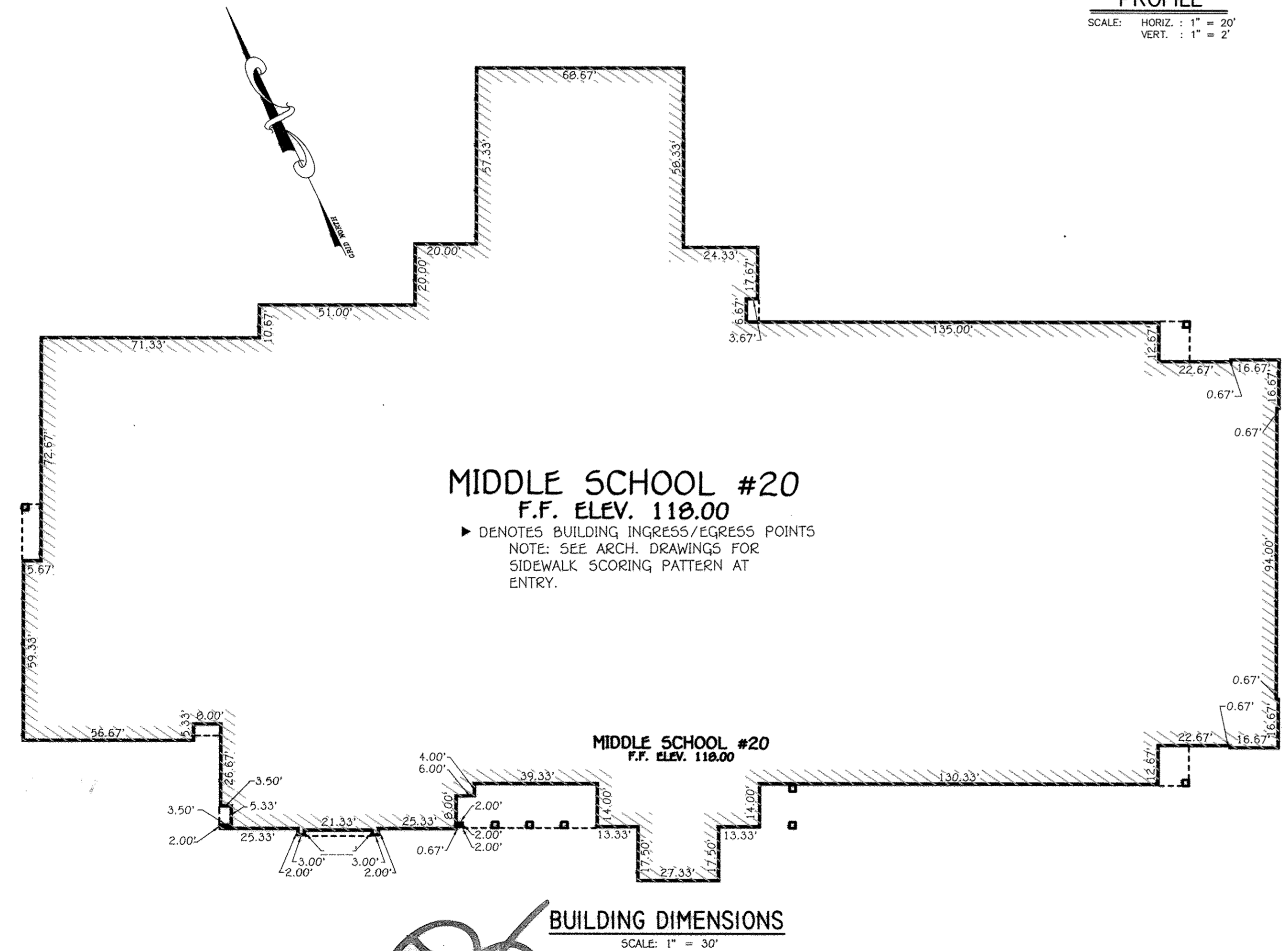
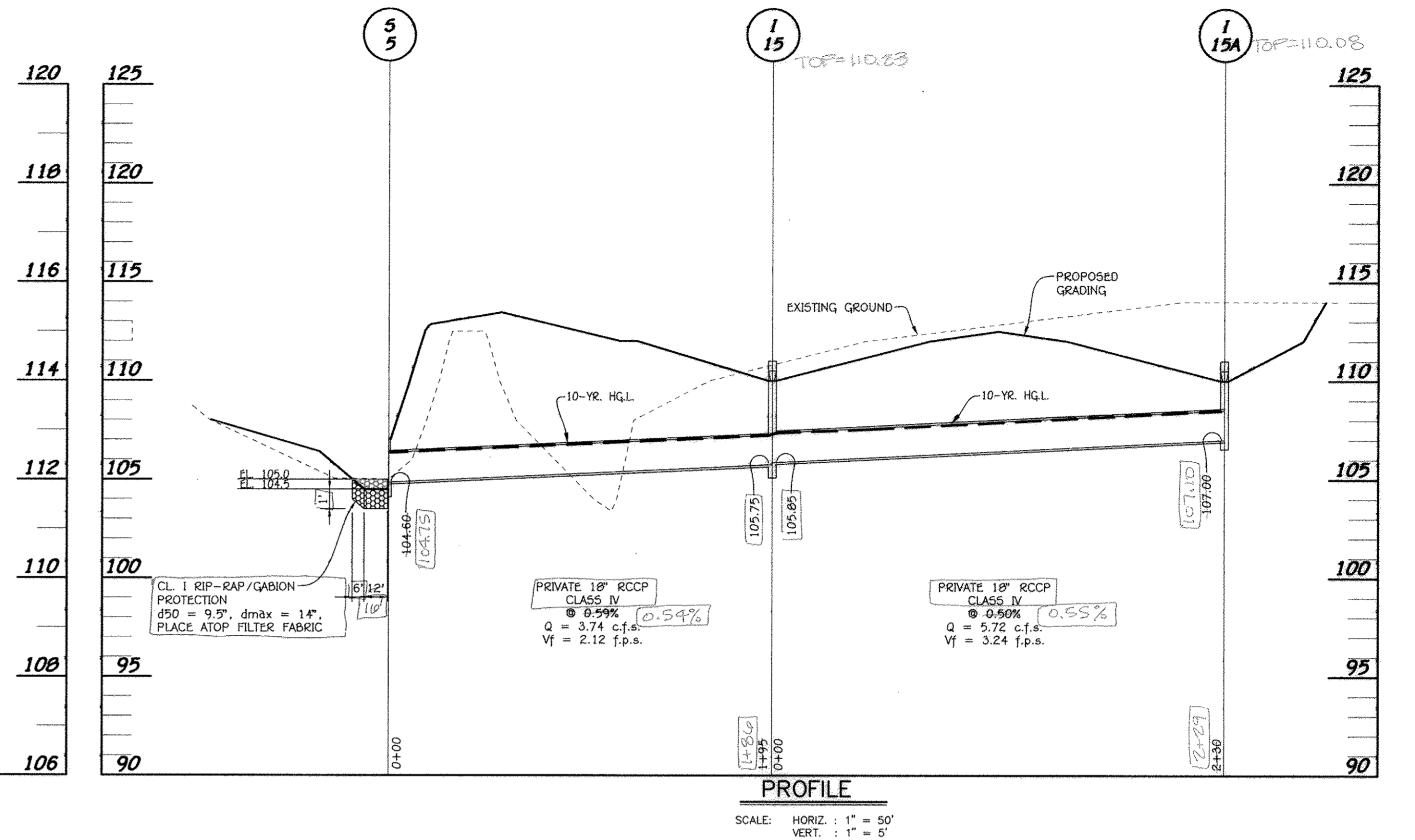
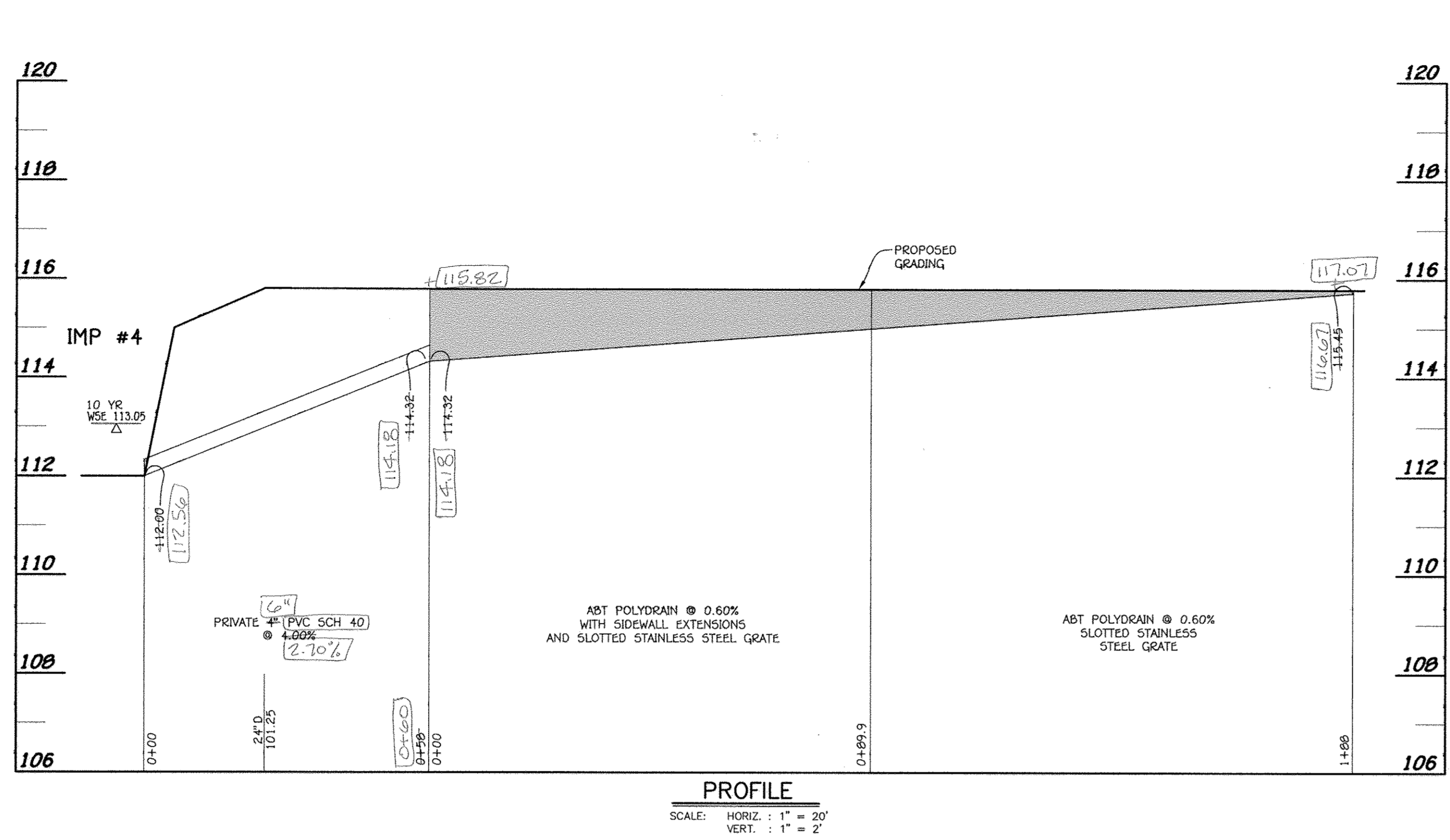
APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING GREEN NEIGHBORHOOD PLAN FOR SITES. Signature of Beth Breyer, dated 12-3-12.

LEED ACCREDITED PROFESSIONAL CERTIFICATE GREEN NEIGHBORHOOD PLAN FOR SITES. Signature of Matthew J. Fitzsimmons, LEED AP, dated 10/16/12.



1:2009/09/01 4:40 PM SCHOOL PLANS 06/014 SHEET 46 GREEN CHARTS.dwg, L\_200, 10/16/2012 7:52:27 AM, 1:1





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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
410.461.2000

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
I HEREBY CERTIFY THAT ACTIVITIES SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS.

**NEW RIVER ASSOCIATES**  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Severnside Ave., Severna Park, MD 21146 410-987-3456

"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."

*Charles J. Carvo, Sr.*  
CHARLES J. CARVO, SR., P.E. 10/29/12 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Frank McLoughlin* 1/15/13 Date  
Director - Department of Planning and Zoning

*Kate Deane* 1/14/13 Date  
Chief, Division of Land Development

*John...* 1/15/13 Date  
Chief, Development Engineering Division

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 100B  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'
PLAT NOS.	BLOCK NO.	ZONE
07106 - 07790	20	TOD
		TAX MAP
		30
		ELEC. DIST.
		FIRST
		6012.01
WATER CODE	SEWER CODE	
----	----	

**STORM DRAIN PROFILES, BUILDING DIMENSIONS AND FRONT BUILDING ELEVATION**

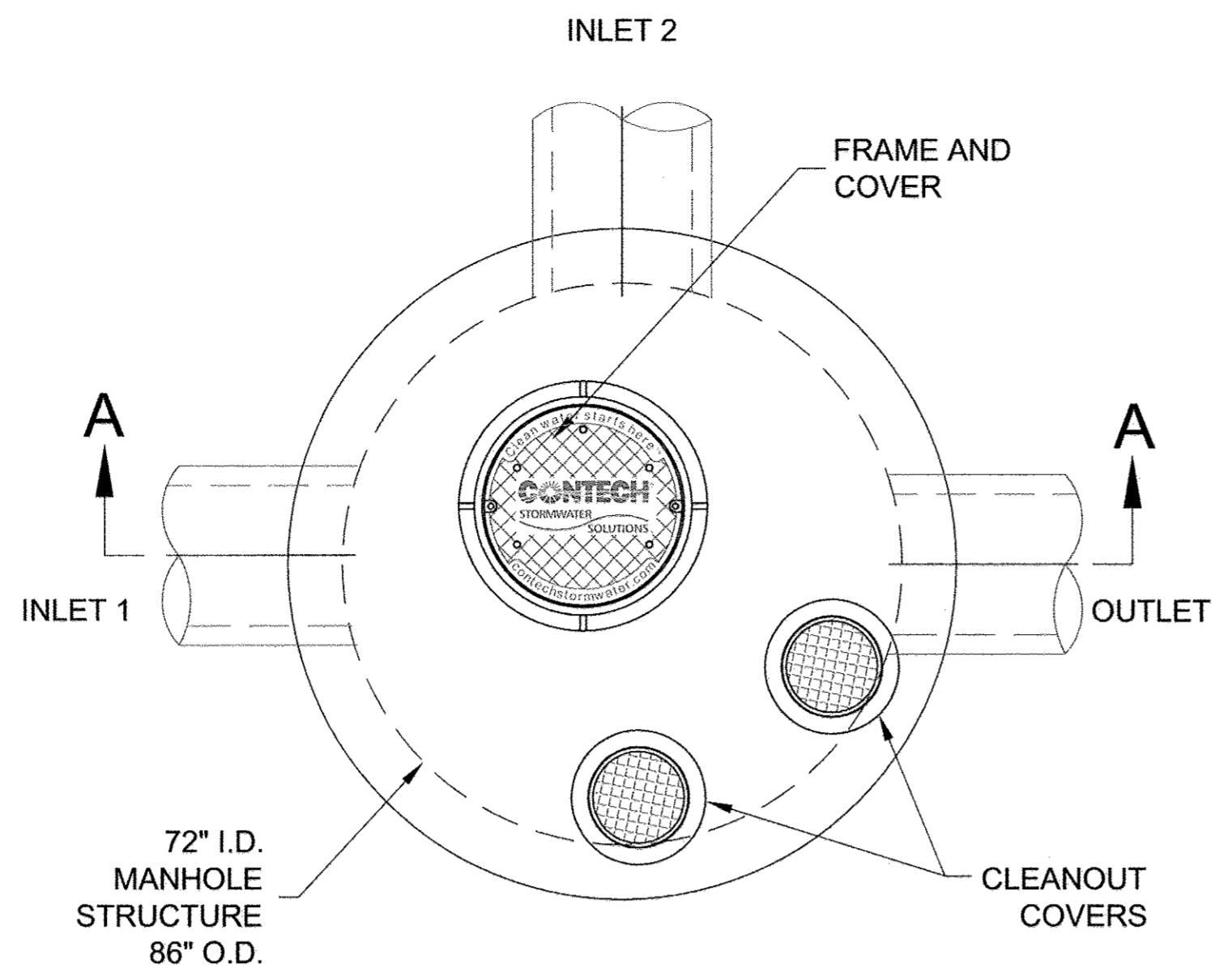
'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

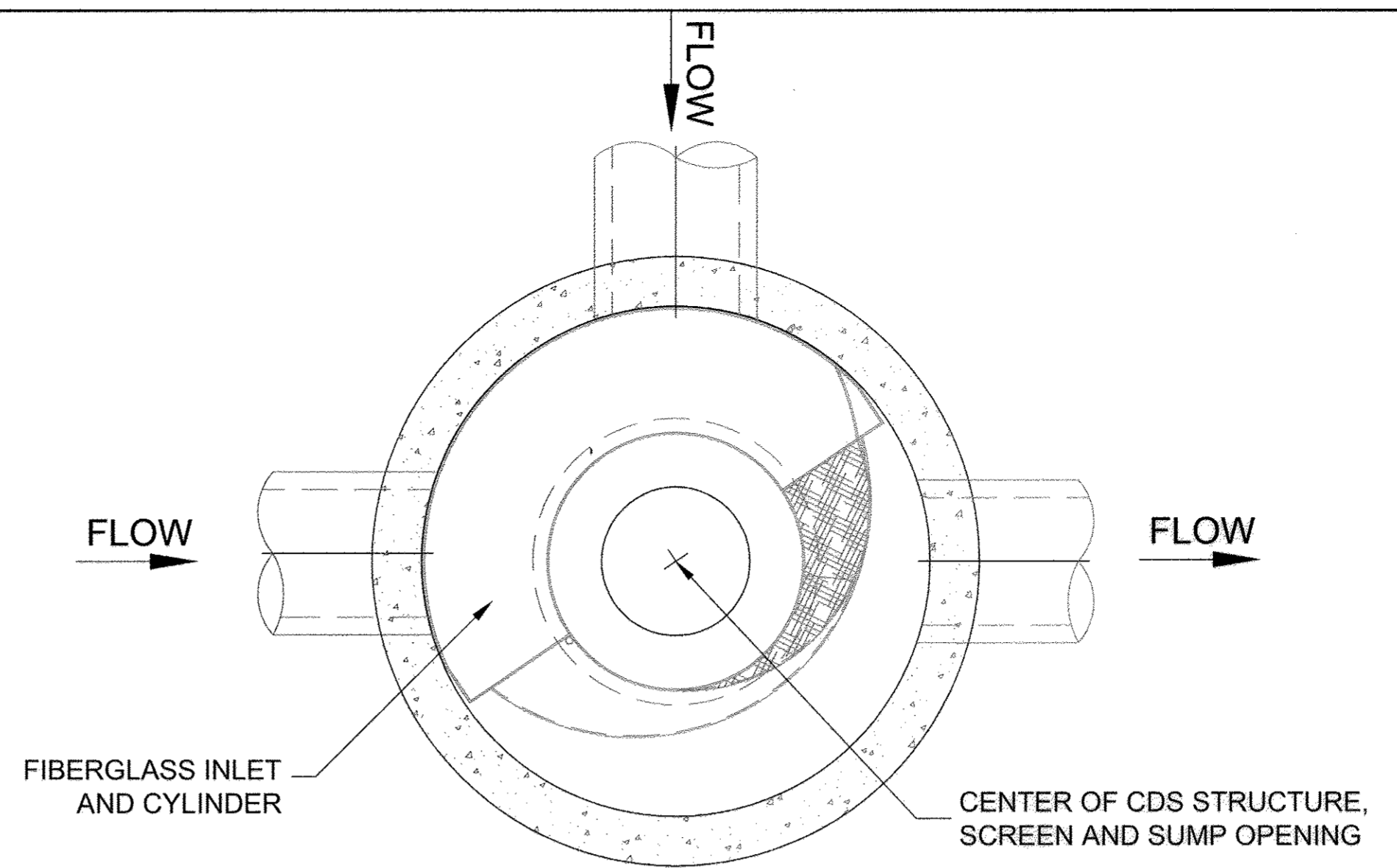
AS-BUILT 15 OF 16  
SHEET 48 OF 50

SDP-12-075

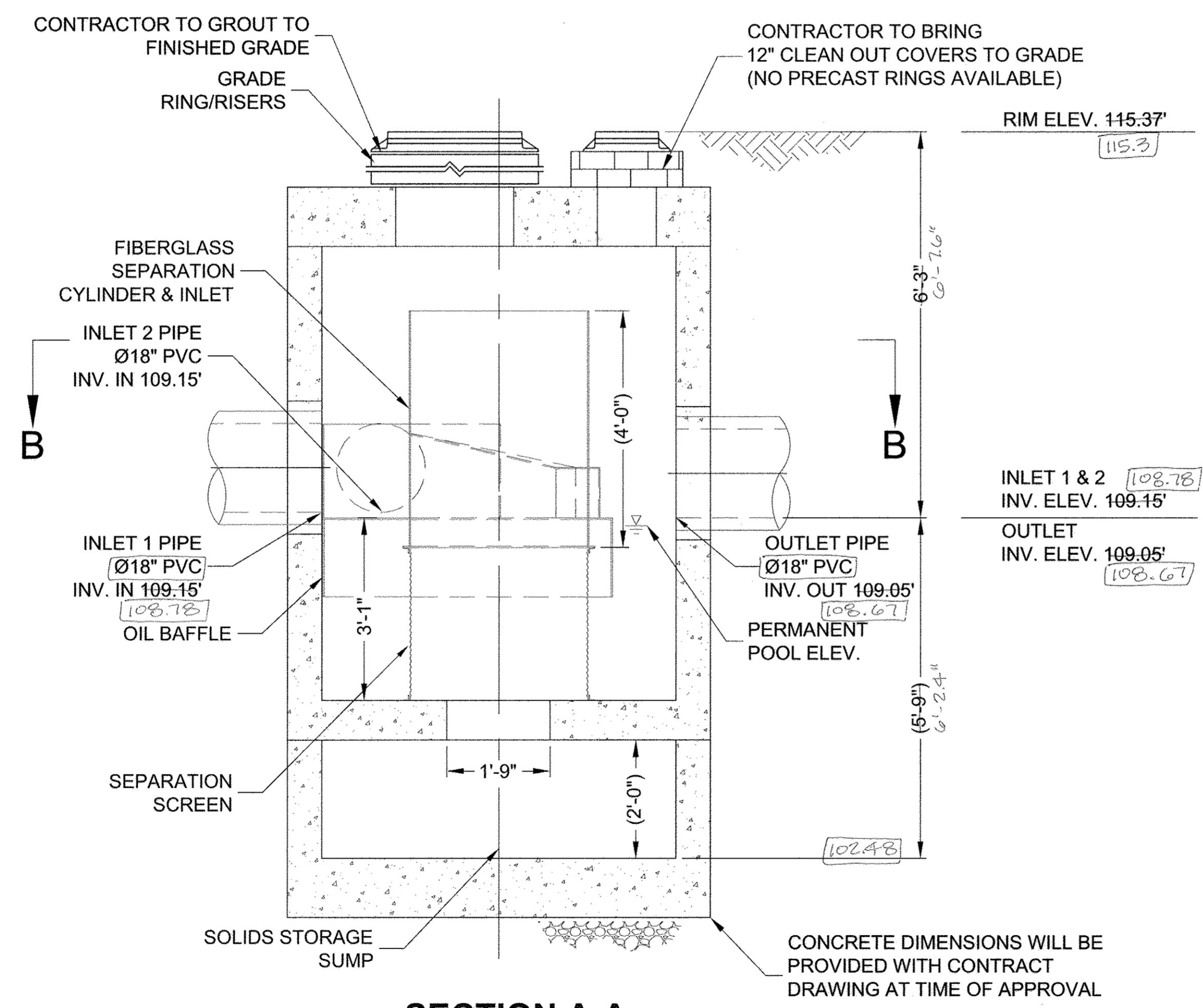




**PLAN VIEW**



**SECTION B-B**



**SECTION A-A**

**MATERIALS LIST - PROVIDED BY CONTECH**

COUNT	DESCRIPTION	INSTALLED BY
1	FIBERGLASS INLET & CYLINDER	CONTECH
1	2400 MICRON SEP. SCREEN	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	GRADE RINGS/ RISERS	CONTRACTOR

**SITE DESIGN DATA**

WATER QUALITY FLOW RATE	2.4 CFS
PEAK FLOW RATE	9.8 CFS
RETURN PERIOD OF PEAK FLOW	10 YRS

**GENERAL NOTES**

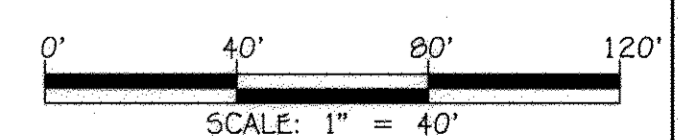
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY BE PROVIDED ON SHOP DRAWINGS.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS REPRESENTATIVE. [www.contech-cpi.com](http://www.contech-cpi.com)
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

**INSTALLATION NOTES**

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD WATERTIGHT JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

**M-5 RWH PRE-TREATMENT UNIT (CDS-3025)**

**NEW RIVER ASSOCIATES**  
Civil Engineers, Planners, Landscape Architects, Surveyors  
704 Sovernside Ave., Severna Park, MD 21156-4100-987-3456



FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2099

**AS-BUILT ENGINEER CONSULTANT CERTIFICATION**  
I HEREBY CERTIFY THAT THE WORK SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN AND MEETS THE APPROVED PLANS.  
*[Signature]*  
DATE: 01/16/16  
MARYLAND REGISTERED PROFESSIONAL ENGINEER NO. 45261

Professional Certification. I 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. 13204, Expiration Date: November 3, 2012.  
*[Signature]*  
CHARLES J. GROVO, SR., P.E. 10/21/12 DATE

1/16 AS-BUILT PLAN  
01/16/16 REVISED TITLE BLOCK

DATE	DESCRIPTION	REVISION BLOCK
1/16/12	DATE	

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Director - Department of Planning and Zoning 1/16/12 DATE  
Chief, Division of Land Development 1/14/13 DATE  
Chief, Development Engineering Division 1/15/12 DATE

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention Bruce Gist  
410-313-6805

Address Chart

Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
MIDDLE SCHOOL #20	N/A	'D-D'

PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23786 - 23790	20	TOD	38	FIRST	6012.01

WATER CODE: ---- SEWER CODE: ----

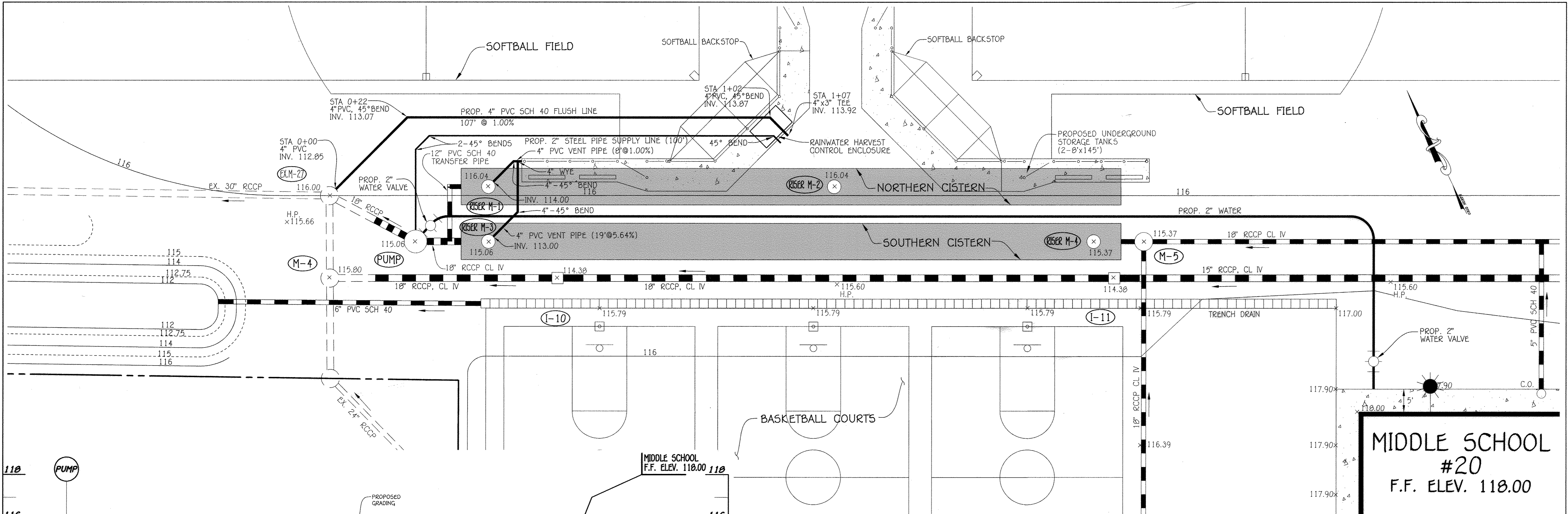
**MANHOLE M-5 DETAIL**

'GREEN NEIGHBORHOOD'  
MIDDLE SCHOOL #20  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: OCTOBER 26, 2012

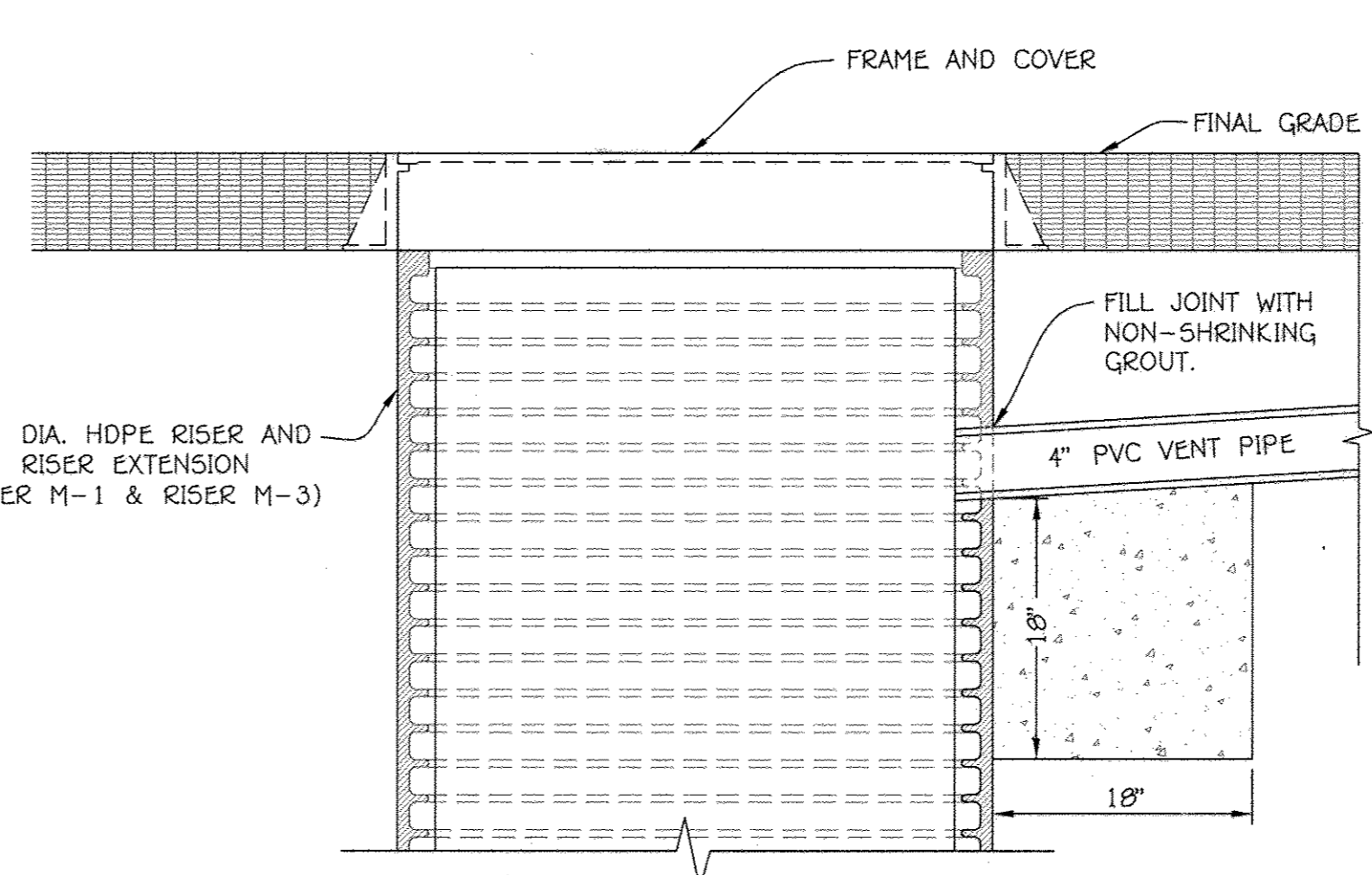
AS-BUILT 16 OF 16  
SHEET 49 OF 50 **SOP-12-075**

11/2009/09014/MSCHOOL PLANS/09014 SHEET - 49 STORAGE TANKS.dwg, CDS3025-6-C PRO, 11/6/2012 12:58:36 PM, 110.5

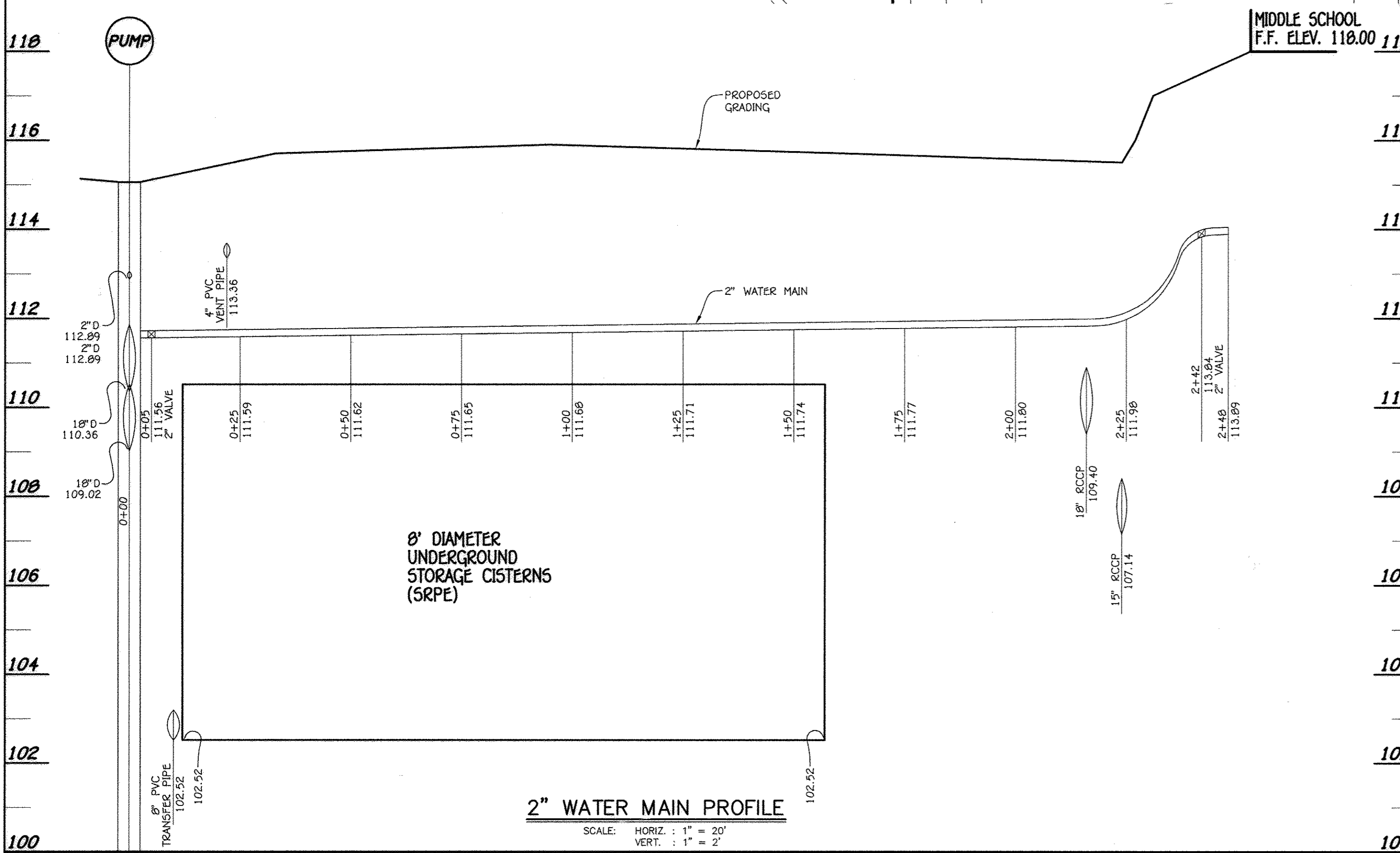


**MIDDLE SCHOOL #20**  
F.F. ELEV. 118.00

**PLAN**  
SCALE: 1" = 10'



**FIELD CONNECTION FOR 4" VENT PIPE**  
NOT TO SCALE



**2" WATER MAIN PROFILE**  
SCALE: HORIZ. : 1" = 20'  
VERT. : 1" = 2'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALDORRE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21142  
(410) 461-2000



"Professional Certification. I 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. 13204, Expiration Date: November 3, 2012."  
*Charles J. Grovo, Sr.*  
CHARLES J. GROVO, SR., P.E. 10/29/12 DATE

DATE	DESCRIPTION
10/29/12	REVISION BLOCK
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	11/12/12 Date
Director - Department of Planning and Zoning	
<i>[Signature]</i>	11/14/13 Date
Chief, Division of Land Development	
<i>[Signature]</i>	11/15/12 Date
Chief, Development Engineering Division	

PREPARED FOR  
HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
10910 Maryland Route 108  
Ellicott City, Maryland 21042  
Attention: Bruce Gist  
410-313-6805

Address Chart	
Parcel Number	Street Address
'D-D'	7000 BANBURY DRIVE HANOVER, MD 21076
PROJECT	SECTION/AREA
MIDDLE SCHOOL #20	N/A
PLAT NOS.	BLOCK NO.
2378D-03790	20
WATER CODE	SEWER CODE
---	---

**PLAN VIEW FOR IRRIGATION SYSTEM**

'GREEN NEIGHBORHOOD'  
**MIDDLE SCHOOL #20**  
OXFORD SQUARE  
PARCEL 'D-D'

ZONED TOD TAX MAP No.: 38 GRID No.: 20 PARCEL-No.: 761  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 10' DATE: OCTOBER 26, 2012

SHEET 50 OF 50 **SDP-12-075**