SITE DEVELOPMENT PLAN
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'
TAX MAP No.: 38, GRID No: 20, PARCEL No.: 1003
FIRST ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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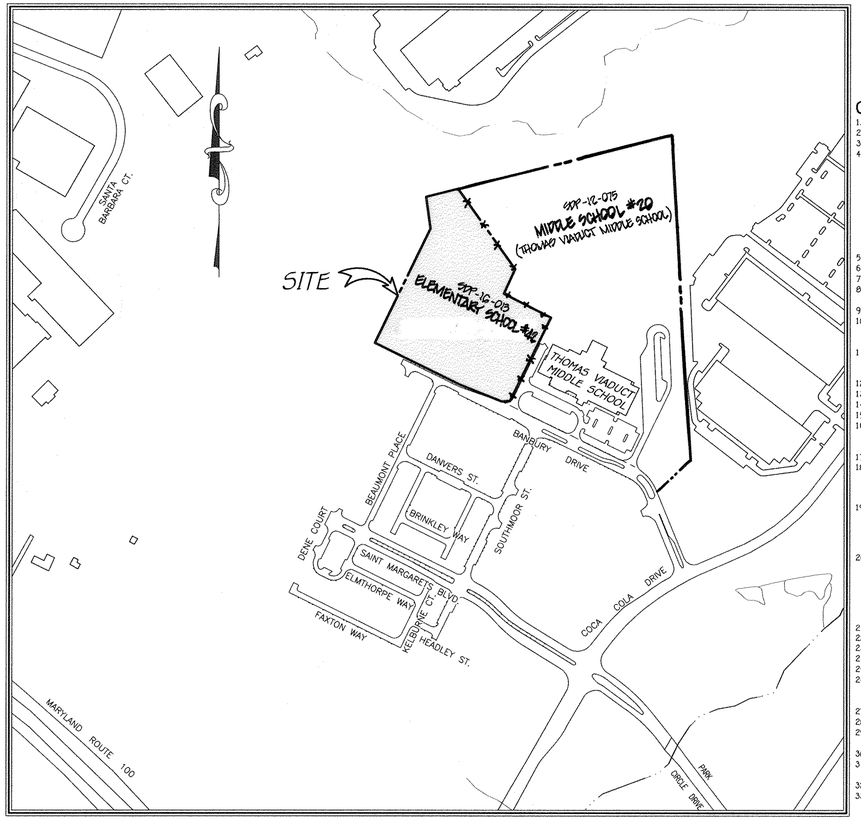
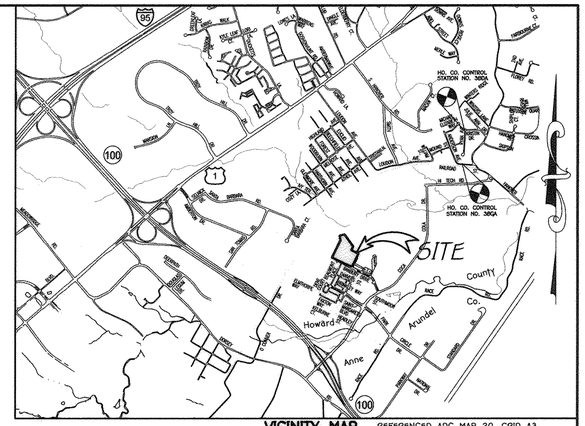
LEGEND

SYMBOL	DESCRIPTION
108	EXISTING CONTOUR 2' INTERVAL
110	EXISTING CONTOUR 10' INTERVAL
s	EXISTING SAN. SEWER LINE
s	EXISTING STORM DRAIN LINE
w	EXISTING WATER LINE
e	EXISTING ELECTRIC LINE
c	EXISTING CABLE LINE
g	EXISTING GAS LINE
X	EXISTING FENCE
108	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
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER
	PROPOSED GRASS PAVERS
	SOILS DELINEATION
SSF	SUPER SILT FENCE



LOCATION MAP
SCALE: 1" = 200'

0' 200' 400' 600'
SCALE: 1" = 200'



VICINITY MAP
SCALE: 1" = 2000'
REFERENCED ADC MAP 20, GRID A3

SITE ANALYSIS DATA

1. Area Tabulation:
   A. Total project area: 28.72D Ac.±
   B. Total area of R/W dedication: 0 Ac.±
   C. Total area of site: 28.72D Ac.±
   D. Building coverage: 3.26 Ac.± (11.3%)
   E. Total area of wetlands: 0 Ac.±
   F. Total area of wetlands buffer: 0 Ac.±
   G. Total area of floodplain: 0 Ac.±
   H. Total area of floodplain buffers: 0 Ac.±
   I. Total area of forest: 2.80 Ac.±
   J. Total area of slopes 15%-25%: 3.05 Ac.± (132,850 SF.)
   K. Total area of slopes 25% and greater: 0.78 Ac.± (34,760 SF.)
   L. There are no erodible soils on this site.
   M. Limit of disturbance: 8.9 Ac.±
   N. Proposed use of site or structure: Institutional; Public School (Elementary)
   O. Total area of green open space: 12.46 Ac.±
   P. Total area of impervious area: 4.5 Ac.±
   Q. Zoned: TOD

2. Parking Space Data: (ELEMENTARY SCHOOL ONLY)
   A. The Number of parking spaces in accordance with the Public School System's requirements = 110
   B. Number of spaces proposed under this site plan = 110 (including 5 handicapped spaces & 6 I.E. & F.E.V spaces)
   C. Total number of bus stacking spaces provided = 18

BENCH MARK INFORMATION

HOWARD COUNTY CONTROL STATION - 38DA — ELEV. = 126.08
N 556,796.3221 FEET
E 1,390,221.4576 FEET

HOWARD COUNTY CONTROL STATION - 38QA — ELEV. = 80.78
N 555,897.3373 FEET
E 1,390,132.0933 FEET

NOTE: SDP-16-013 IS FOR ELEMENTARY SCHOOL #42 ONLY. SEE SDP-12-075 FOR MIDDLE SCHOOL #20.

NOTE: THE PURPOSE OF THIS REDLINE IS TO REMOVE THE PROPERTY LINE BETWEEN PARCEL 'B' AND PARCEL 'B-B' TO BE PARCEL 'D-D' FOR BOTH SCHOOLS.

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE WORKING DAYS PRIOR TO START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY DIGGING AND EXCAVATION WORK.
4. PROJECT BACKGROUND: SUBDIVISION NAME: OXFORD SQUARE
   TAX MAP 38, GRID 20, PARCEL NO. 1003
   ZONING: THIS PROJECT IS ZONED TOD PER ZONING BOARD CASE ZB-1086 M DATED 9/13/10.
   ELECTION DISTRICT: FIRST
   GROSS SITE AREA: 28.72D AC.±
   NUMBER OF BUILDABLE PARCELS: 1
   AREA OF PUBLIC ROADWAY TO BE DEDICATED: 0 AC.±
   AREA OF FLOODPLAIN: 0 AC.±
   AREA OF 25% OR GREATER SLOPES: 0.0 AC.±
   NET AREA OF TRACT: 27.96 AC.±
5. BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER COLLINS AND CARTER, INC. DATED OCTOBER, 2009..
6. THIS SUBDIVISION IS RECORDED AMONG THE LAND RECORDS IN HOWARD COUNTY, MARYLAND AS PLAT NOS. 23706 THRU 23709 (F-15-008).
7. TOPOGRAPHIC CONTOURS BASED ON FIELD RUN SURVEY PERFORMED BY FISHER COLLINS AND CARTER, INC. DATE APRIL 2015.
8. COORDINATES ARE BASED ON NAD 83 MARYLAND COORDINATES SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.
   38DA N 556,796.3221 E 1,390,221.4576 ELEV. 126.08 — 38QA N 555,897.3373 E 1,390,132.0933 ELEV. 80.78
9. NO TRAFFIC STUDY IS REQUIRED SINCE THIS IS A HOWARD COUNTY BOARD OF EDUCATION PROJECT.
10. THIS SDP IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE AMENDED ZONING REGULATIONS PER COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
11. PREVIOUS DPZ FILE NUMBERS: S-87-66, P-87-07, F-88-55, F-89-95, F-90-125, F-91-69, F-93-23, ZB-1086M, WP-11-130, F-11-57, F-12-026, ECP-11-046, WP-11-147, S-11-001, SDP-89-275, SDP-90-041, SDP-93-055, WP12-109, WP-13-058, GP-13-021, SDP-12-075, F-13-095, F-13-108, ZB 1102M, S-15-001, SDP-13-068, F-14-011, SDP-14-004, SDP-14-019, SDP-14-027, SDP-14-071, SDP-14-072, F-15-008, F-15-088, SDP-15-052, SDP-15-053.
12. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
13. EXISTING WATER IS PUBLIC (CONTRACT NO. 14-4726-D, 44-4801-D AND 44-4803-D) AND SEWER IS PUBLIC (CONTRACT NO. 14-4726-D).
14. THERE ARE NO KNOWN GRAVE SITES OR CEMETERIES ON THIS SITE BASED ON A VISUAL SITE VISIT AND BASED ON AN EXAMINATION OF THE HOWARD COUNTY CEMETERY INVENTORY MAP.
15. THE WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY 5, 2010 AND APPROVED UNDER S-11-001.
16. THE FOREST STAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY 5, 2010 AND APPROVED UNDER S-11-001. A NEW FOREST STAND DELINEATION AND WETLANDS DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS INC. DATED AUGUST, 2014 AND SUBMITTED WITH THE F-15-008 PLAN. THE FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT HAVE BEEN MET WITH THE OXFORD SQUARE PLAN F-15-008.
17. THERE IS NO FLOODPLAIN ON PARCEL 'B-B'.
18. SOILS INFORMATION TAKEN ECS SOIL SURVEY DATED NOVEMBER 2, 2009. THE PROPERTY LIES WITHIN THE DEEP RUN TRIBUTARY TO THE PATAPSCO RIVER WATERSHED (2130906). MOST OF THE SUBDIVIDED PARCEL 'Q' (SEE S-11-001 SHEET 7 WHICH INCLUDES PARCEL 'B') CONSISTS OF OVERGROWN FIELD HABITAT THAT DEVELOPED ON A PORTION OF THE SITE THAT WAS MASS GRADED IN THE LATE 1980'S. IT IS DUE TO THIS PREVIOUSLY MASS GRADED CONDITION THAT THE NORMAL HOWARD COUNTY SOIL SURVEY MAPS DATED JULY 1968 DO NOT APPLY. AS A RESULT OF THIS SITE CONDITION,THE OWNER/DEVELOPER HAVE CONTRACTED ECS-MID ATLANTIC, LLC OF HANOVER, MARYLAND. THE SOIL REPORT IS DATED NOVEMBER 2009 WITH AN ADDENDUM DATED FEBRUARY 2010 THAT SUMMARIZED THE SOIL GROUPS REQUIRED FOR THIS SWM REPORT.
19. STORMWATER IS PROVIDED IN ACCORDANCE WITH THE CURRENT MDE, CHAPTER 5, ENVIRONMENTAL SITE DESIGN (ESD) CRITERIA, AND THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME I. THE REQUIRED ESD VOLUME IS COMPOSED OF THREE (3) COMPONENTS: WQv (WATER QUALITY VOLUME), CHANNEL PROTECTION VOLUME (Cpv), AND RECHARGE VOLUME (Rev). WQv IS STORED IN FIVE (5) BMP's (#1 AND #5, ONLY) AND IN SWM #6 (72" CMP's) AT 61.3% AND 38.3%, RESPECTIVELY. Rev IS STORED IN THE AGGREGATE LAYER BELOW THE BMP UNDERDRAINS. SEE THE ESDv SUMMARY TABLE ON SHEET 4. NON-ROOF DISCONNECTION CREDIT IS ALSO PROVIDED TO ADDRESS A SMALL AMOUNT OF ESDv. FLOOD PROTECTION AND EXTREME FLOOD VOLUMES ARE NOT REQUIRED FOR THIS SITE. SEE THE SWM REPORT DATED JANUARY 6, 2016 FOR ADDITIONAL, DETAILED INFORMATION.
20. SWM METHOD: THE SCHOOL SITE CONTAINS NO ENVIRONMENTAL IMPACTS BECAUSE THERE ARE NO WETLANDS, FLOODPLAINS, FORESTS AND ASSOCIATED BUFFERS. THE ESD "PE" WAS TAKEN FROM MDE's TABLE 5.3. THE "PE" IS WEIGHTED TO ACCOUNT FOR THE DIFFERENT HYDROLOGIC SOILS GROUPS. THE BIORETENTION BMP DRAINAGE AREAS WERE DIVIDED SO AS TO BE AS SMALL AS PRACTICABLE. HOWEVER, GIVEN THE PHYSICAL CONSTRAINTS OF THE SITE, AS WELL AS A GOAL OF MAINTAINING THE BOARD OF EDUCATION'S SCHOOL PROGRAM, THREE (3) OF THE FIVE (5) BMP's WERE DESIGNED AS "F-6" FACILITIES BECAUSE THE DRAINAGE AREAS EXCEEDED THE "ESD" MAXIMUM LIMIT. THE REMAINING TWO (2) WILL BE "M-6" BMP's. THIS WILL MEET MDE's CRITERIA OF "ESD TO THE MAXIMUM EXTENT PRACTICABLE". SEE THE SWM REPORT DATED JANUARY 6, 2016 FOR ADDITIONAL, DETAILED INFORMATION.
    NOTE: TWO (2) EXISTING BMP's (ESD #22 AND BMP #4) WILL BE REMOVED DUE TO THE PROPOSED ES #42 CONSTRUCTION. ESD #22 IS NEAR BANBURY DRIVE AT THE ADJACENT MIDDLE SCHOOL (MS #20) DRIVEWAY AND ITS DRAINAGE AREA WAS INCORPORATED INTO THE CURRENT SWM ANALYSIS SO AS TO MODEL AND PROVIDE THE REPLACEMENT ESDv. THE SECOND REMOVED BMP (BMP #4) IS AT THE NORTH END OF THE ES #42 BUS LOOP ON THE ADJACENT MIDDLE SCHOOL #20 PROPERTY. THE "LOST" WQv AND Rev WILL BE PROVIDED IN ES #42 BMP #5 WHILE THE CPv DOES NOT NEED TO BE REPLACED AS THE ADJACENT MIDDLE SCHOOL HAD EXCESS CPv.
21. THE PUBLIC SCHOOL SYSTEM WILL MAINTAIN THE ON-SITE STORMWATER FACILITIES.
22. ANY DAMAGE TO COUNTY AND OR STATE OWNED RIGHT-OF-WAY TO BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
23. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
24. ALL DRIVEWAYS AND PARKING TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY PUBLIC SCHOOL SYSTEM.
25. GUTTER PAN OF CURBS SHALL BE PITCHED TO CONFORM TO THE ADJACENT DRAINAGE PATTERNS OF THE ADJOINING PAVING FOR VEHICULAR USE.
26. ALL PROPOSED RAMPS SHALL BE IN ACCORDANCE WITH CURRENT A.D.A. STANDARDS ACCESSIBILITY GUIDELINES. MAXIMUM SIDEWALK CROSS SLOPE SHALL BE TWO PERCENT. PROVIDE A (5'X5') FIVE FOOT BY FIVE FOOT LEVEL LANDING (MAX. SLOPE 2%) AT THE TOP AND BOTTOM OF ALL RAMPS AND BUILDING ENTRANCES AND EXITS. HANDRAILS SHALL BE PROVIDED ON ALL RAMPS IN ACCORDANCE WITH SECTION 505 OF THE A.D.A STANDARDS ACCESSIBILITY GUIDELINES.
27. ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB OR FACE OF BUILDING UNLESS OTHERWISE NOTED. DIMENSIONS ARE MEASURED PERPENDICULAR OR RADIAL BETWEEN ITEMS UNLESS OTHERWISE NOTED.
28. ALL PROPOSED ON-SITE STORM DRAINS UNDER THIS SITE DEVELOPMENT PLAN LABELED PRIVATE WILL BE MAINTAINED BY THE HOWARD COUNTY PUBLIC SCHOOL SYSTEM.
29. THE EXISTING UTILITIES SHOWN HEREON WERE DERIVED FROM AVAILABLE PUBLIC RECORDS. THE CONTRACTOR MUST DIG TEST PITS BY HAND AT ALL UTILITY CROSSINGS AND CONNECTION POINTS PRIOR TO CONSTRUCTION TO VERIFY THE EXACT LOCATION.
30. TRENCH BEDDING FOR STORM DRAINS STRUCTURES SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD G2.01 CLASS C BEDDING UNLESS OTHERWISE NOTED.
31. ALL OUTSIDE LIGHTING SHALL COMPLY WITH ZONING REGULATIONS SECTION 134 WHICH REQUIRES LIGHTS TO BE INSTALLED TO DIRECT/REFLECT LIGHT DOWNWARDS AND INWARDS ON THE SITE AND AWAY FROM ALL PUBLIC STREETS AND RESIDENTIAL AREAS. "LIGHT TRESPASS ONTO ADJOINING RESIDENTIAL PROPERTIES SHALL BE LIMITED 0.5 FOOT CANDLES."
32. LANDSCAPING IS IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. NO LANDSCAPE SURETY IS REQUIRED SINCE THIS IS A HOWARD COUNTY BOARD OF EDUCATION PROJECT.
33. 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 THE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
33. THE WATER METER WILL BE INSTALLED INSIDE THE BUILDING. THE BUILDING SHALL BE EQUIPPED WITH AN AUTOMATIC FIRE PREVENTION SPRINKLER SYSTEM.
35. A MARYLAND DEPARTMENT OF THE ENVIRONMENT NATIONAL POLLUTANT DISCHARGE NOI PERMIT WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS ON THE JOB SITE OUTLINED IN WWW.EPA.GOV/NPDES/STORMWATER/LATLONG.
36. THIS PLAN IS SUBJECT TO DESIGN ADVISORY PANEL REQUIREMENTS OF WHICH A HEARING WAS HELD ON SEPT. 30, 2015.
37. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS, THEIR REQUIRED BUFFERS OR THEIR EXTENDED GREEN NEIGHBORHOOD BUFFERS, UNLESS THE ACTIVITIES ARE CONSIDERED NECESSARY OR WAIVERS ARE APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING. ACTIVITIES PROPOSED IN WETLANDS, STREAMS, THEIR BUFFERS, AND THEIR EXTENDED GREEN NEIGHBORHOOD BUFFERS AS PART OF THE APPROVED STREAM AND WETLAND RESTORATION AND HABITAT MANAGEMENT PLANS ARE CONSIDERED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING.
38. THIS PROPERTY IS SUBJECT TO A HABITAT MANAGEMENT AGREEMENT WHICH ALLOWS PERIODIC INSPECTIONS BY THE DEPARTMENT OF PLANNING AND ZONING.
39. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
40. AMENITY AREA REQUIREMENTS: T.O.D. DEVELOPMENT SHALL INCLUDE AN AMENITY AREA PER SECTION 127.4.F.1. OF THE ZONING REGULATIONS AND THE ROUTE 1 MANUAL.
    AMENITY AREA REQUIRED = 10.751 ACRES FOR THE ENTIRE PROJECT (107.513 x 10%)
    TOTAL AMENITY AREA PROVIDED = 3.04 ACRES (SDP-16-013) + 0.00 ACRE (SDP-15-053) + 0.45 ACRE (SDP-14-072) + 1.72 ACRE (SDP-14-071) + 0.78 ACRE (SDP-14-027) + 1.07 ACRE (SDP-14-019) + 0.42 ACRE (SDP-14-004) + 1.57 ACRE (SDP-13-068) + 6.49 ACRE (SDP-12-075) + 1.52 ACRES (SDP-15-074) = 17.06 ACRES.
    THE BUS DROP-OFF LOOP ASSOCIATED WITH THIS SDP REDUCES THE AMENITY AREA PROVIDED BY SDP-12-075 BY 0.12 ACRES.
41. THIS PROJECT IS BOUND TO GREEN NEIGHBORHOOD REQUIREMENTS AND CONTRACTOR MUST COMPLY TO REQUIREMENTS.
42. THE MARYLAND AVIATION ADMINISTRATION (MAA) APPROVED THIS PLAN ON JAN 2016 FOR SEDIMENT AND EROSION CONTROL, STORMWATER MANAGEMENT AND LANDSCAPING. PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT, AN APPROVED AIRPORT ZONING PERMIT MUST BE OBTAINED. THE MAA ALSO DETERMINED THAT ALTHOUGH OUTSIDE THE AIRPORT NOISE ZONE, OCCUPANTS OF THIS SUBDIVISION WILL EXPERIENCE NOISE FROM AIRCRAFT OVERFLIGHTS AND OTHER OPERATIONS DUE TO THE PROXIMITY OF THIS SITE TO THE AIRPORT.
43. THIS PLAN IS SUBJECT TO A DESIGN MANUAL WAIVER VOLUME III SECTION 2.9.C TO ALLOW 17 FOOT DEEP PARKING SPACES TO HELP MEET GREEN NEIGHBORHOOD DESIGN REQUIREMENTS. CREDIT A.4.a. THE DESIGN MANUAL WAIVER WAS APPROVED ON JANUARY 11, 2016 FOR 17 FOOT DEEP PARKING SPACES WITH THE EXCEPTION OF THE HANDICAP PARKING SPACES WHICH WILL HAVE A PARKING DEPTH OF 18 FEET.

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — DATE 4/7/16

DATE	DESCRIPTION
04/07/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23706-23709	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

TITLE SHEET

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 1 OF 44

SDP-16-013

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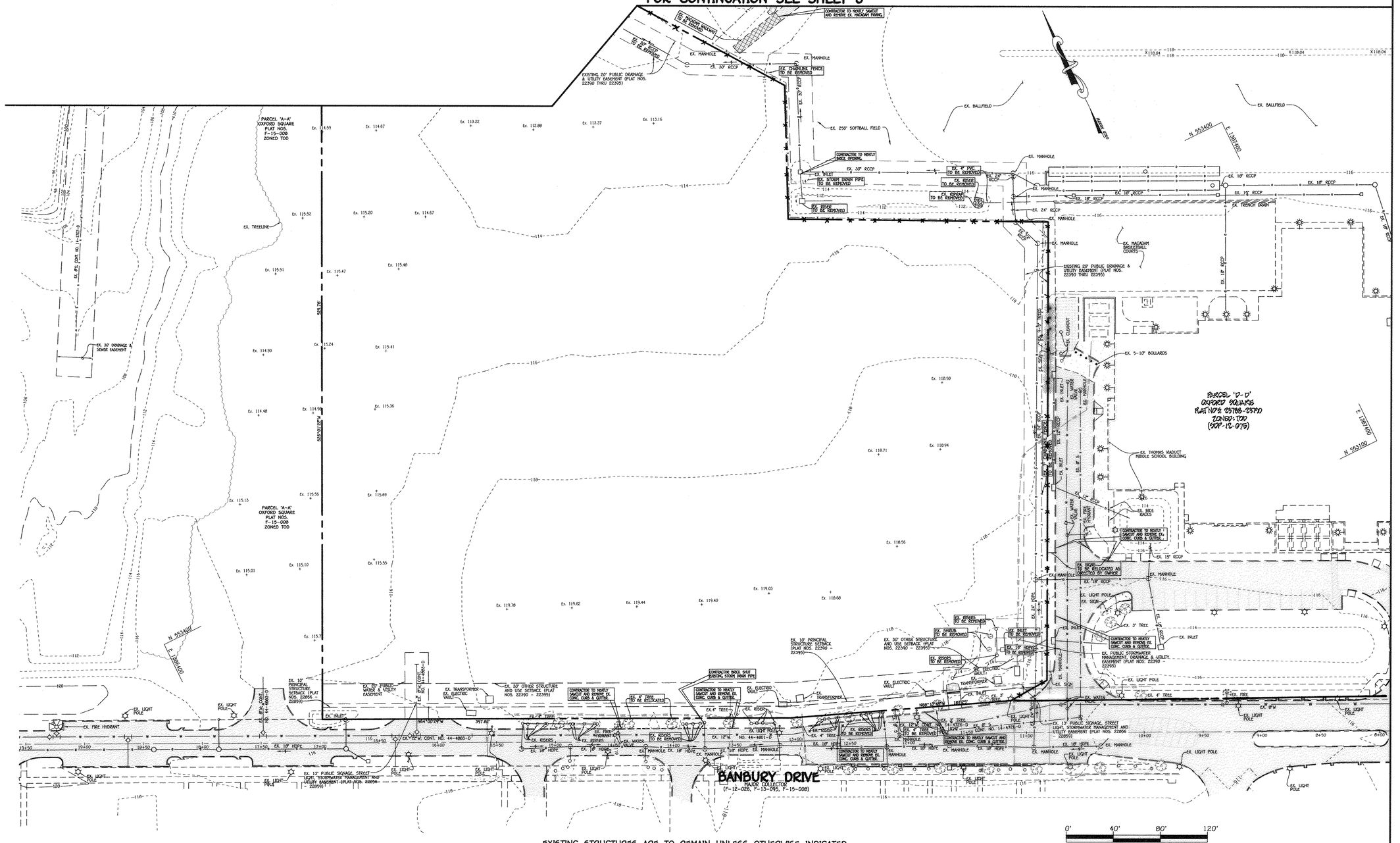
FOR CONTINUATION SEE SHEET 3

LEGEND	
SYMBOL	DESCRIPTION
108	EXISTING CONTOUR 2' INTERVAL
110	EXISTING CONTOUR 10' INTERVAL
S	EXISTING SAN. SEWER LINE
D	EXISTING STORM DRAIN LINE
W	EXISTING WATER LINE
UGE	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND FIBER OPTICS
	EXISTING UNDERGROUND CABLE
G	EXISTING GAS LINE
X	EXISTING CHAINLINK FENCE
	EXISTING WOOD FENCE
	EXISTING CONCRETE WALK
	EXISTING MACADAM PAVING
	EXISTING TREES
	EXISTING TREELINE
	APPROXIMATE DEMOLITION AREA



EXISTING STRUCTURES ARE TO REMAIN UNLESS OTHERWISE INDICATED.

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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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CHARLES J. CROVO, SR., P.E. — 3/31/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL 'A-A' & CONVEYED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'
DATE	DESCRIPTION

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788 - 23790	20	TOD	38	FIRST	6012.01
WATER CODE ____		SEWER CODE ____			

DEMOLITION PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 2 OF 44

SDP-16-013

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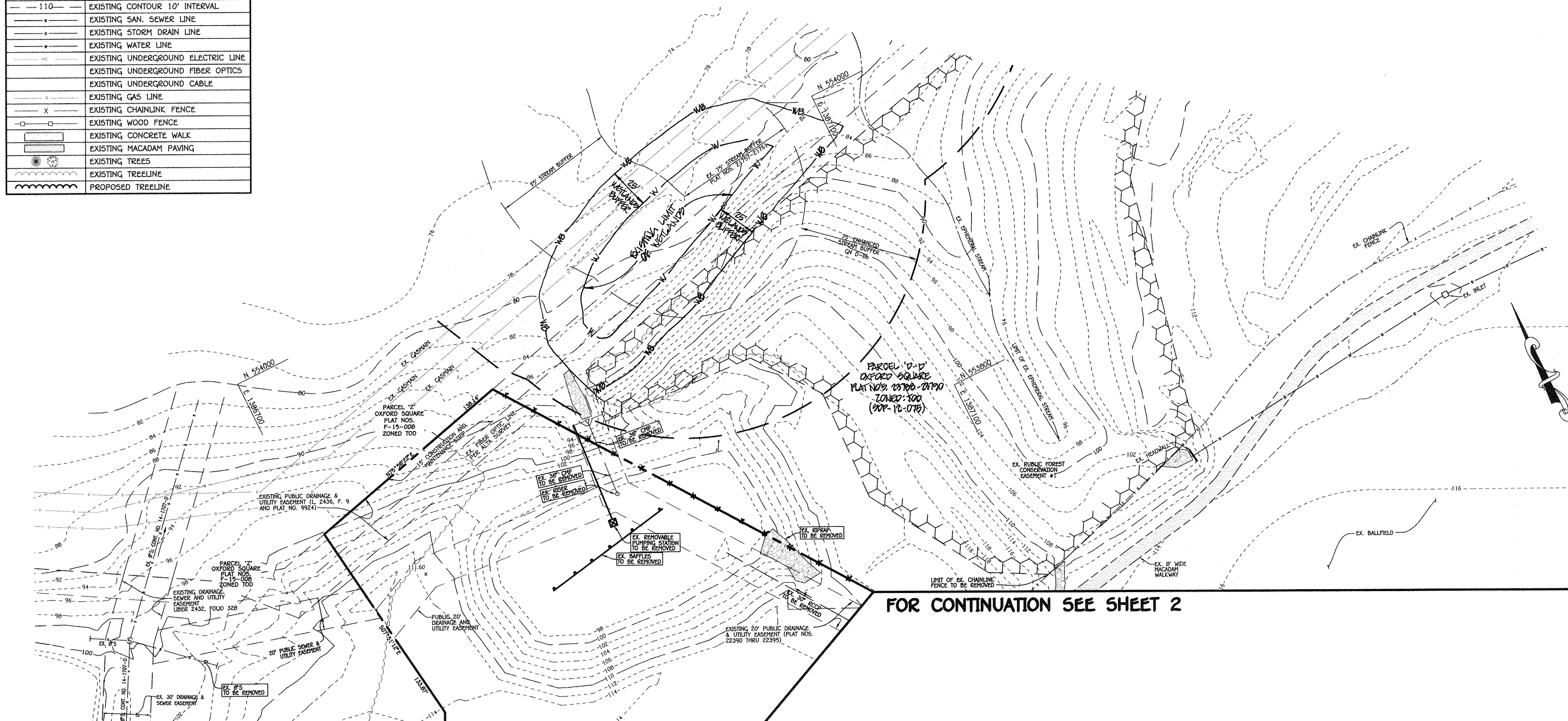
LEGEND	
SYMBOL	DESCRIPTION
- - - - 108 - - - -	EXISTING CONTOUR 2' INTERVAL
— —110— —	EXISTING CONTOUR 10' INTERVAL
——— s ———	EXISTING SAN. SEWER LINE
——— D ———	EXISTING STORM DRAIN LINE
——— W ———	EXISTING WATER LINE
——— UGE ———	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND FIBER OPTICS
	EXISTING UNDERGROUND CABLE
——— G ———	EXISTING GAS LINE
——— X ———	EXISTING CHAINLINK FENCE
—□——□—	EXISTING WOOD FENCE
	EXISTING CONCRETE WALK
	EXISTING MACADAM PAVING
	EXISTING TREES
	EXISTING TREELINE
	PROPOSED TREELINE



FOR CONTINUATION SEE SHEET 2

EXISTING STRUCTURES ARE TO REMAIN UNLESS OTHERWISE INDICATED.

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

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'
	REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

DEMOLITION PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SDP-16-013

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LEGEND	
SYMBOL	DESCRIPTION
- - - - 108 - - - -	EXISTING CONTOUR 2' INTERVAL
— — 110 — —	EXISTING CONTOUR 10' INTERVAL
——— s ———	EXISTING SAN. SEWER LINE
——— o ———	EXISTING STORM DRAIN LINE
——— w ———	EXISTING WATER LINE
——— UGE ———	EXISTING ELECTRIC LINE
C	EXISTING CABLE LINE
——— G ———	EXISTING GAS LINE
——— UFO ———	EXISTING FIBER OPTIC
——— X ———	EXISTING FENCE
——— 108 ———	PROPOSED CONTOUR 2' INTERVAL
——— 110 ———	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER
	PROPOSED RIPRAP
	PROPOSED BRICK
	PROPOSED STAMPED CONC. PAVING
	PROTECTIVE PLAY SURFACE

ELEMENTARY SCHOOL #42

STORMWATER MANAGEMENT SUMMARY TABLE

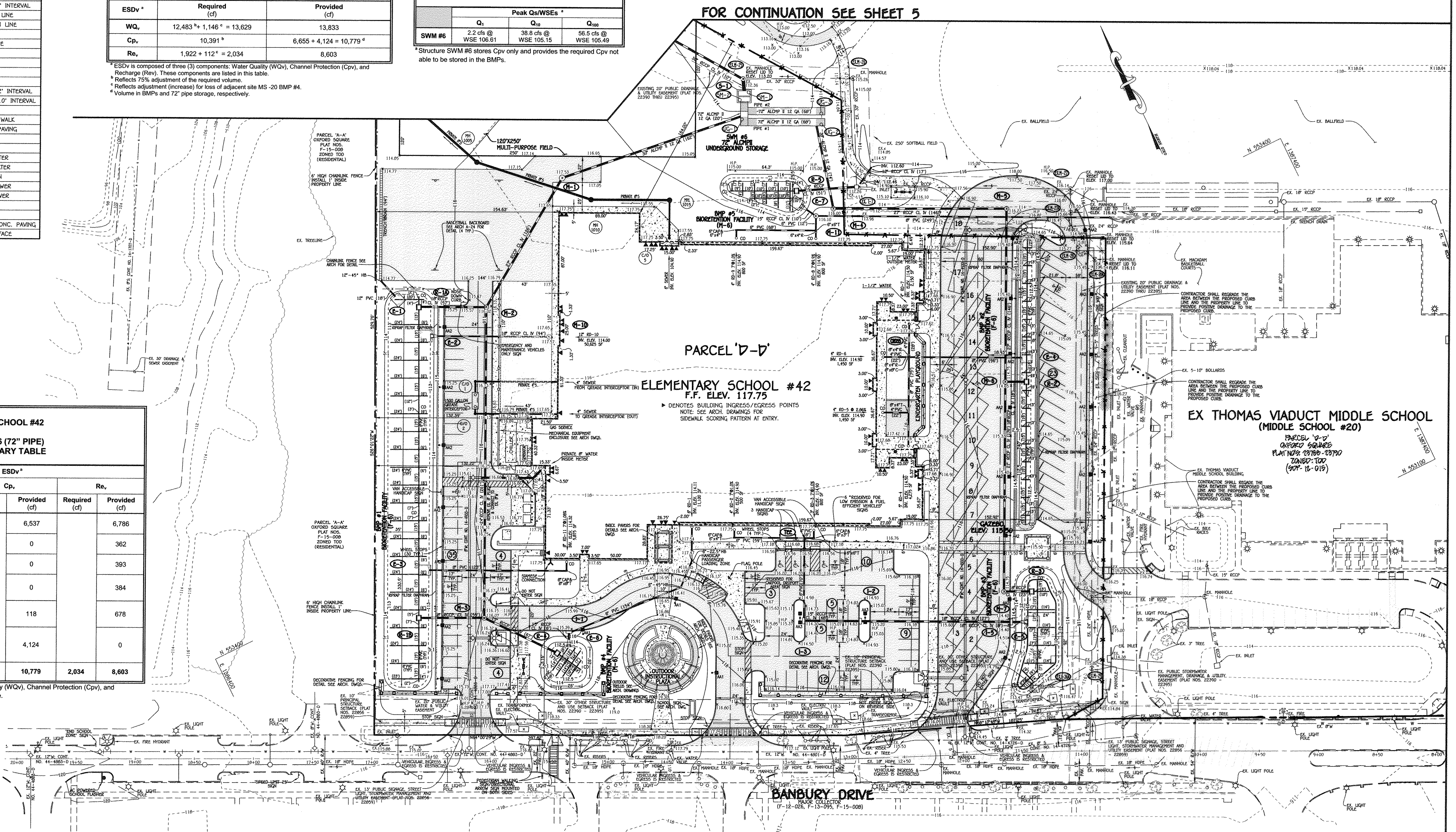
ESDv [a]	Required (cf)	Provided (cf)
WQ_v	12,483 [b] + 1,146 [c] = 13,629	13,833
Cp_v	10,391 [b]	6,655 + 4,124 = 10,779 [d]
Re_v	1,922 + 112 [c] = 2,034	8,603

[a] ESDv is composed of three (3) components: Water Quality (WQv), Channel Protection (Cpv), and Recharge (Rev). These components are listed in this table.
[b] Reflects 75% adjustment of the required volume.
[c] Reflects adjustment (increase) for loss of adjacent site MS -20 BMP #4.
[d] Volume in BMPs and 72" pipe storage, respectively.

ELEMENTARY SCHOOL #42
72' PIPE UNDERGROUND STORAGE (SWM #6) PEAK DISCHARGE SUMMARY TABLE

	Peak Qs/WSEs [a]		
	Q_1	Q_{10}	Q_{100}
SWM #6	2.2 cfs @ WSE 106.61	38.8 cfs @ WSE 105.15	56.5 cfs @ WSE 105.49

[a] Structure SWM #6 stores Cpv only and provides the required Cpv not able to be stored in the BMPs.



ELEMENTARY SCHOOL #42

BMP and SWM #6 (72" PIPE) STORAGE SUMMARY TABLE

	ESDv [a]					
	WQ_v		Cp_v		Re_v	
	Required (cf)	Provided (cf)	Required (cf)	Provided (cf)	Required (cf)	Provided (cf)
BMP #1 (BIORETENTION, F-6)		5,728		6,537		6,786
BMP #2 (BIORETENTION, F-6)		3,154		0		362
BMP #3 (BIORETENTION, F-6)		2,929		0		393
BMP #4 (MICRO-BIORETENTION, M-6)		770		0		384
BMP #5 (MICRO-BIORETENTION, M-6)		1,252		118		678
SWM #6 72" Pipe Storage (Cp STORAGE ONLY)		0		4,124		0
TOTAL	13,629 cf	13,833	10,391	10,779	2,034	8,603

[a] ESDv is composed of three (3) components: Water Quality (WQv), Channel Protection (Cpv), and Recharge (Rev). These components are listed in this table.

NOTE: NO TOPSOIL EXIST ON SITE. CONTRACTOR SHALL IMPORT TOPSOIL THAT HAS BEEN TESTED AND MET SPECIFICATIONS REQUIRED BY OWNER.

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

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

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CHARLES J. CROVO, SR., P.E. 4/7/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16
Chief, Division of Land Development — Date 4-18-16
Chief, Development Engineering Division — Date 4-13-16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

SITE IMPROVEMENT PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SDP-16-013

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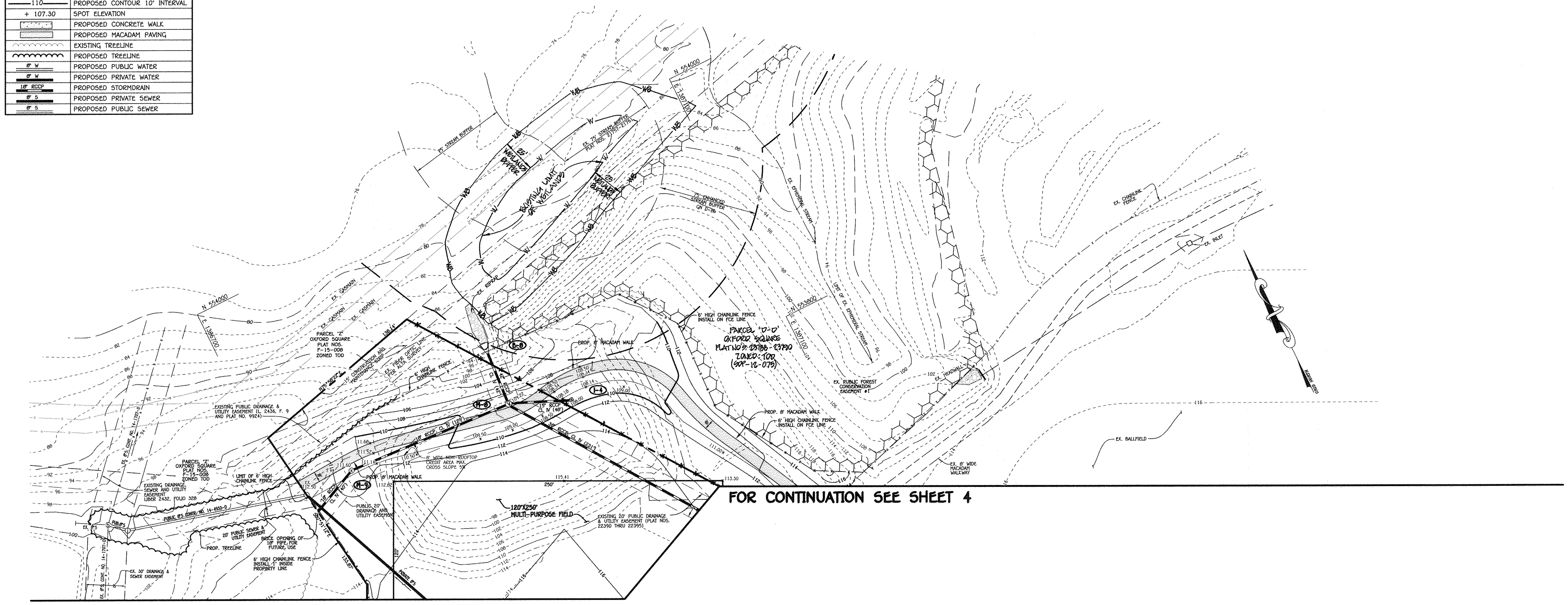
LEGEND	
SYMBOL	DESCRIPTION
- - - - 108 - - - -	EXISTING CONTOUR 2' INTERVAL
— —110— —	EXISTING CONTOUR 10' INTERVAL
——s——	EXISTING SAN. SEWER LINE
——D——	EXISTING STORM DRAIN LINE
——W——	EXISTING WATER LINE
——UGE——	EXISTING ELECTRIC LINE
C	EXISTING CABLE LINE
——G——	EXISTING GAS LINE
——UFO——	EXISTING FIBER OPTIC
—— X ——	EXISTING FENCE
——108——	PROPOSED CONTOUR 2' INTERVAL
——110——	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER



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

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CHARLES J. CROVO, SR., P.E. 3/8/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning	4-18-16 Date
Chief, Division of Land Development	4-13-16 Date
Chief, Development Engineering Division	4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
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8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
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410-313-6805

STATE OF MARYLAND CHARLES J. CROVO SR No. 13204 PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

SITE IMPROVEMENT PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 5 OF 44

SDP-16-013

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FOR CONTINUATION SEE SHEET 7

LEGEND	
SYMBOL	DESCRIPTION
s	EXISTING SAN. SEWER LINE
s	EXISTING STORM DRAIN LINE
w	EXISTING WATER LINE
E	EXISTING ELECTRIC LINE
C	EXISTING CABLE LINE
G	EXISTING GAS LINE
X	EXISTING FENCE
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER
	PROPOSED RIPRAP
	PROPOSED BRICK
	PROPOSED STAMPED CONC. PAVING
	PROTECTIVE PLAY SURFACE

PARCEL 'D-D'

ELEMENTARY SCHOOL #42
F.F. ELEV. 117.75

▶ DENOTES BUILDING INGRESS/EGRESS POINTS
NOTE: SEE ARCH. DRAWINGS FOR SIDEWALK SCORING PATTERN AT ENTRY.

EX THOMAS VIADUCT MIDDLE SCHOOL
(MIDDLE SCHOOL #20)
PARCEL 'D-D'
OXFORD SQUARE
PLAT NOS. 22780 - 22790
ZONED: TOD
(SDP-16-013)

BANBURY DRIVE
MAJOR COLLECTOR
(F-12-026, F-13-095, F-15-008)

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

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL WAIVE & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'
	REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4-13-16 Date

PREPARED FOR
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8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
22780-22790	20	TOD	30	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

GEOMETRY PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 6 OF 44

SDP-16-013

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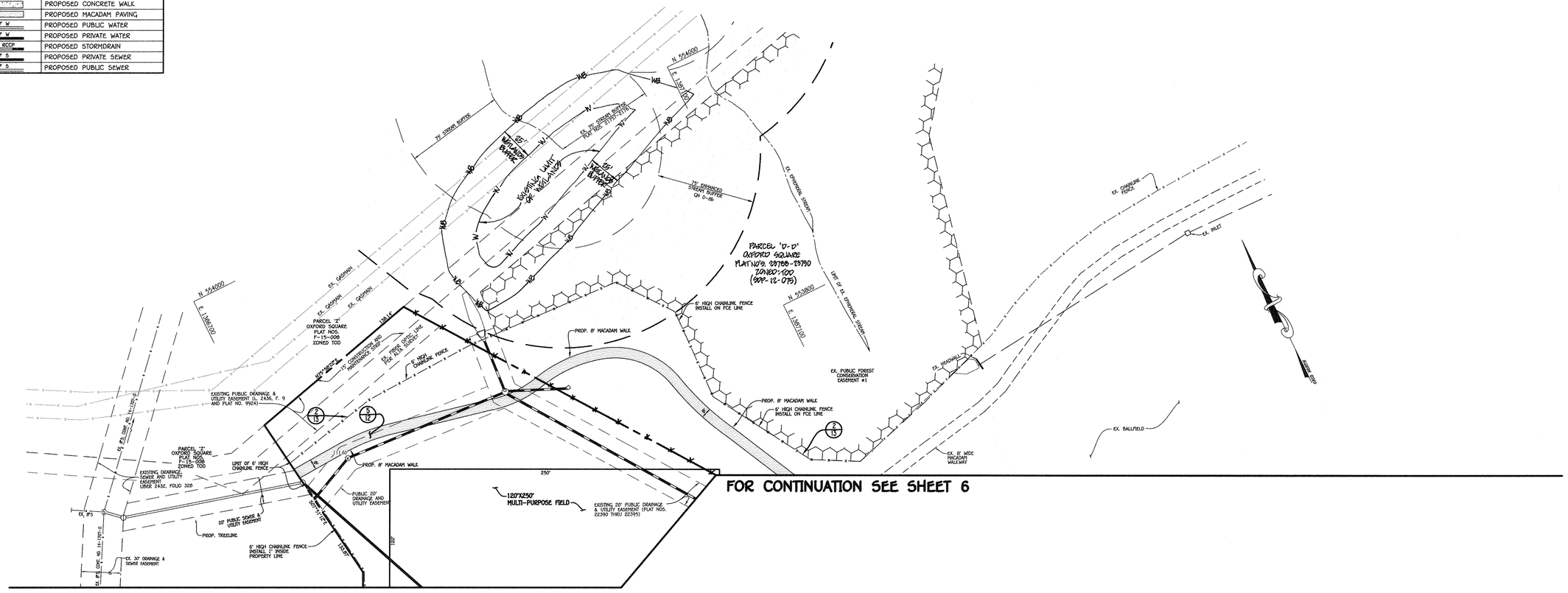
LEGEND	
SYMBOL	DESCRIPTION
——s——	EXISTING SAN. SEWER LINE
——s——	EXISTING STORM DRAIN LINE
——w——	EXISTING WATER LINE
——E——	EXISTING ELECTRIC LINE
C	EXISTING CABLE LINE
——G——	EXISTING GAS LINE
——X——	EXISTING FENCE
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER



FOR CONTINUATION SEE SHEET 6

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

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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CHARLES J. CROVO, SR., P.E. — 3/31/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4/13/16 Date

PREPARED FOR
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STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA	PARCEL
ELEMENTARY SCHOOL #42			N/A	'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
13788-13790	20	TOD	38	FIRST	6012.01
WATER CODE ____		SEWER CODE ____			

GEOMETRY PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 7 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 6-7 GEOMETRY.dwg, SHEET 7, 3/8/2016 3:33:00 PM, 1:1

TEMPORARY SEDIMENT TRAP ST #1 (@ BMP #3)
TRAP TYPE: PIPE OUTLET SEDIMENT TRAP ST-1

INITIAL D.A. = 1.21 Ac.
DURING CONSTRUCTION D.A. = 1.85 Ac.
FINAL D.A. = 1.54 Ac.

STORAGE REQUIRED:
WET = 1,800 cf/ac. x 1.85 ac. = 3,330 cf
DRY = 1,800 cf/ac. x 1.85 ac. = 3,330 cf
TOTAL = 6,660 cf

STORAGE PROVIDED:
WET = 3,403 cf @ ELEV. 111.50
DRY = 3,450 cf @ ELEV. 112.60
TOTAL = 6,853 cf

BASIN BOTTOM ELEV. = 110.0 (MIN. AREA = 1,965 sf)

STORAGE DEPTH = 2.6'

CLEAN OUT ELEVATION = 110.75

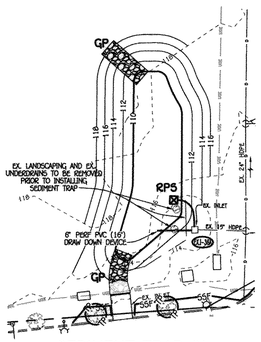
TOP OF EMBANKMENT = 114.3±

SIDE SLOPES: 2.5:1 except as shown

EMBANKMENT: None (EXCAVATED)

BOTTOM DIMENSIONS: CURVILINEAR PER PLAN TO APPROXIMATE BMP #3 SHAPE.

OUTLET DIAMETER = 2" ø ORIFICE @ INV 108.65; USING 16 LF (min.) of 6" PERFORATED PIPE



SEDIMENT TRAP #1
SCALE: 1" = 40'

LEGEND	
SYMBOL	DESCRIPTION
108	EXISTING CONTOUR 2' INTERVAL
110	EXISTING CONTOUR 10' INTERVAL
s	EXISTING SAN. SEWER LINE
s	EXISTING STORM DRAIN LINE
w	EXISTING WATER LINE
e	EXISTING ELECTRIC LINE
c	EXISTING CABLE LINE
G	EXISTING GAS LINE
x	EXISTING FENCE
108	PROPOSED CONTOUR 2' INTERVAL
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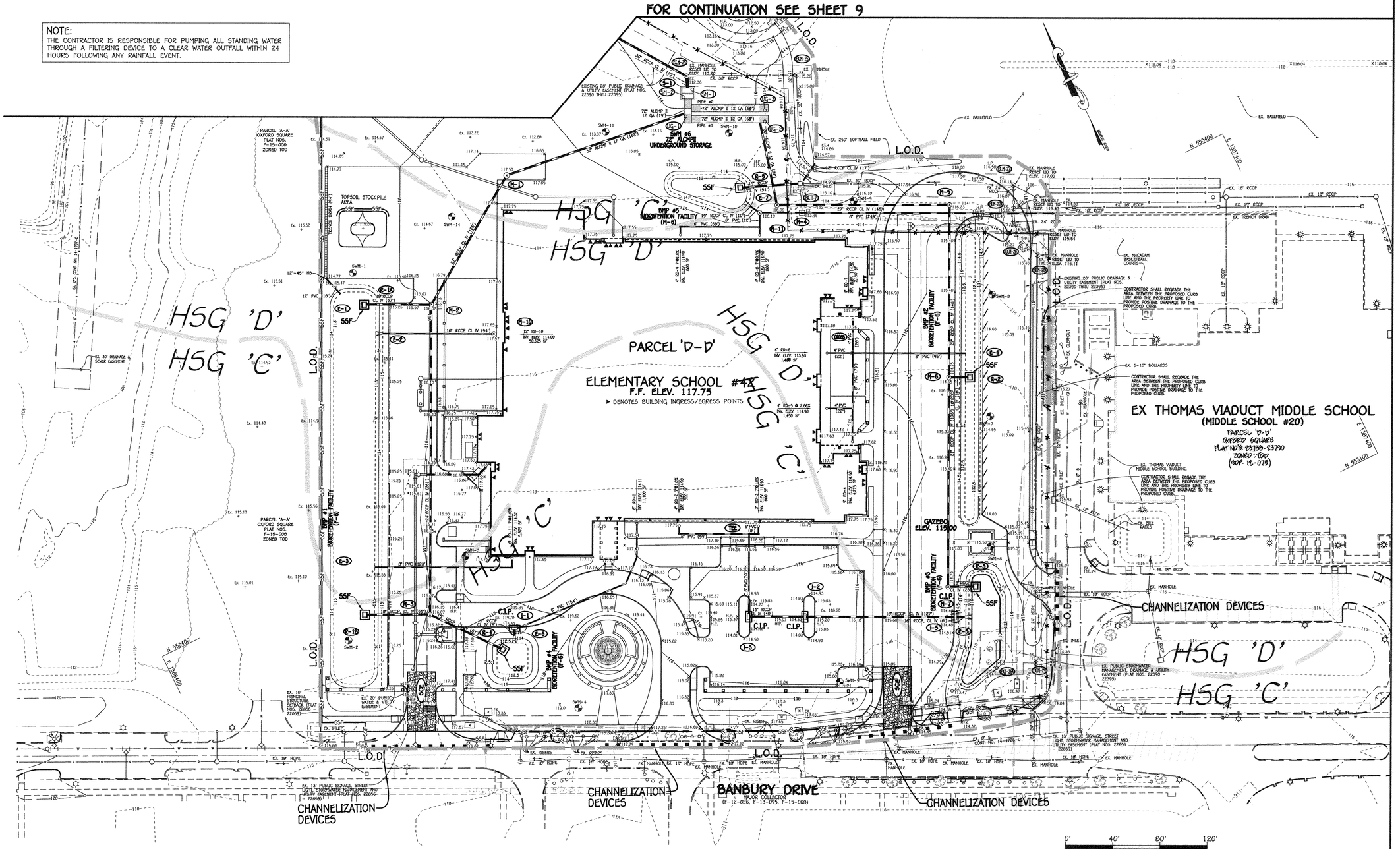
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER
	PROPOSED RIPRAP
	PROPOSED BRICK
	PROPOSED STAMPED CONC. PAVING
	PROTECTIVE PLAY SURFACE
	SOILS DELINEATION
55F	SUPER SILT FENCE
SCE	STABILIZED CONTRUCTION ENTRANCE
TP	TREE PROTECTION
L.O.D.	LIMIT OF DISTURBANCE

NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR PUMPING ALL STANDING WATER THROUGH A FILTERING DEVICE TO A CLEAR WATER OUTFALL WITHIN 24 HOURS FOLLOWING ANY RAINFALL EVENT.

FOR CONTINUATION SEE SHEET 9



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

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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN WAS DESIGNED IN ACCORDANCE WITH THE CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 3/8/16 DATE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/8/16 DATE

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

SIGNATURE OF DEVELOPER — 3/8/16 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 3/8/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

SEDIMENT AND EROSION CONTROL PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

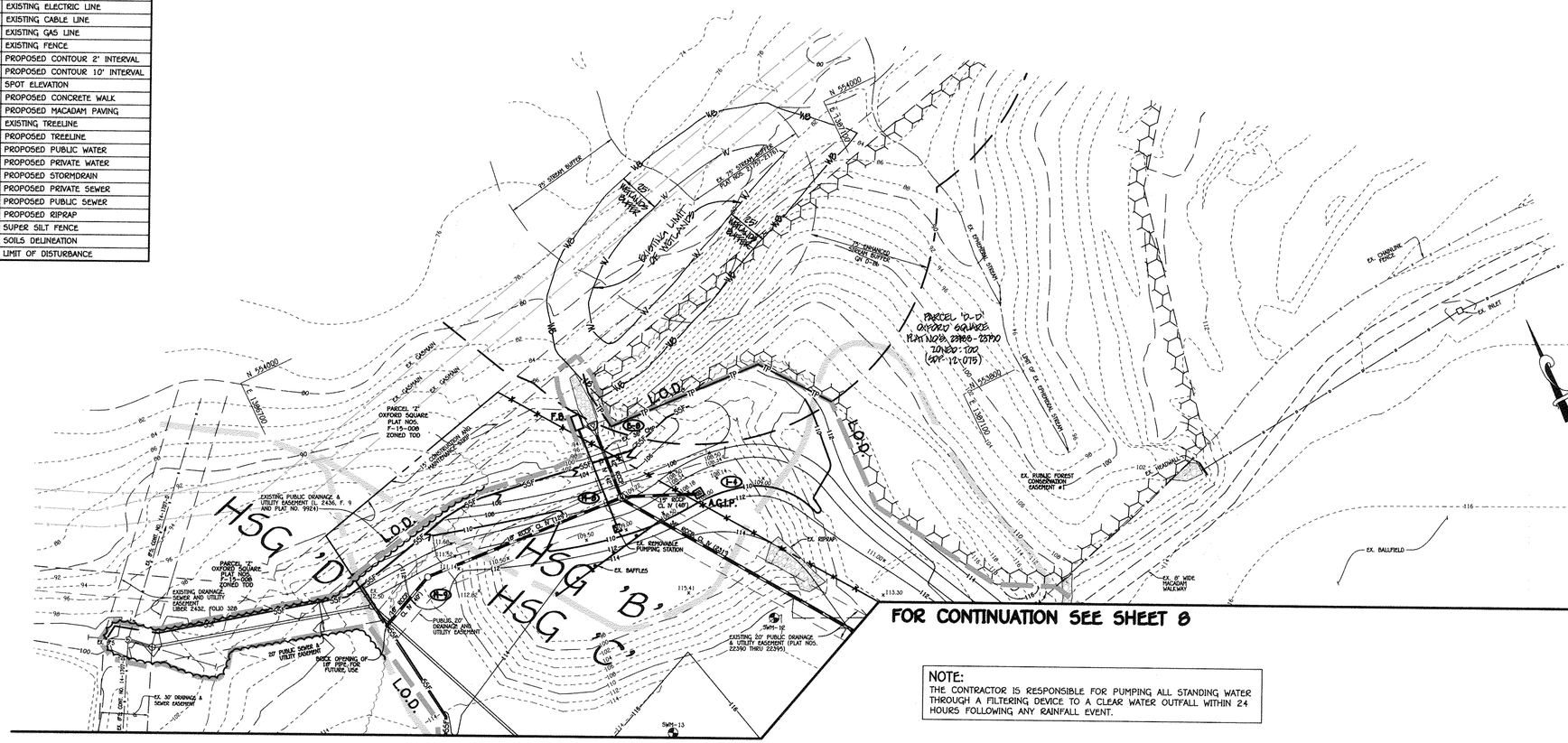
ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 8 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 8-9 SEDIMENT PLAN.dwg, SHEET 8, 3/7/2016 10:14:02 AM, 1:1

LEGEND	
SYMBOL	DESCRIPTION
108	EXISTING CONTOUR 2' INTERVAL
110	EXISTING CONTOUR 10' INTERVAL
S	EXISTING SAN. SEWER LINE
D	EXISTING STORM DRAIN LINE
W	EXISTING WATER LINE
E	EXISTING ELECTRIC LINE
C	EXISTING CABLE LINE
G	EXISTING GAS LINE
X	EXISTING FENCE
108	PROPOSED CONTOUR 2' INTERVAL
110	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREELINE
	PROPOSED TREELINE
8" W	PROPOSED PUBLIC WATER
8" W	PROPOSED PRIVATE WATER
18" RCCP STORM DRAIN	PROPOSED STORMDRAIN
8" S	PROPOSED PRIVATE SEWER
8" S	PROPOSED PUBLIC SEWER
	PROPOSED RIPRAP
SSF	SUPER SILT FENCE
	SOILS DELINEATION
L.O.D.	LIMIT OF DISTURBANCE



FOR CONTINUATION SEE SHEET 8

NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR PUMPING ALL STANDING WATER THROUGH A FILTERING DEVICE TO A CLEAR WATER OUTFALL WITHIN 24 HOURS FOLLOWING ANY RAINFALL EVENT.

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

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

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 3/8/16

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

SIGNATURE OF DEVELOPER — DATE 3/8/16

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — DATE 3/8/16

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 3/8/16

DATE	DESCRIPTION
6/27/16	RENAMED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----	SEWER CODE	----		

SEDIMENT AND EROSION CONTROL PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 9 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 8-9 SEDIMENT PLAN.dwg, SHEET 9, 3/7/2016 10:10:42 AM, 11

FOR CONTINUATION SEE SHEET 11

LEGEND	
SYMBOL	DESCRIPTION
108	EXISTING CONTOUR 2' INTERVAL
110	EXISTING CONTOUR 10' INTERVAL
s	EXISTING SAN. SEWER LINE
D	EXISTING STORM DRAIN LINE
W	EXISTING WATER LINE
E	EXISTING ELECTRIC LINE
C	EXISTING CABLE LINE
G	EXISTING GAS LINE
X	EXISTING FENCE
108	PROPOSED CONTOUR 2' INTERVAL
110	PROPOSED CONTOUR 10' INTERVAL
+ 107.30	SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREELINE
	PROPOSED TREELINE
18" RCCP	PROPOSED STORMDRAIN
	PROPOSED RIPRAP
	PROPOSED BRICK
	PROPOSED STAMPED CONC. PAVING
	PROTECTIVE PLAY SURFACE
	SOILS DELINEATION

SOILS TABLE			
HSG	AREA	% OF LOD	NOTE
B	18,731 SF	4.8%	THIS HSG WAS DETERMINED BY ECS/MARYLAND, LLC. SEE ATTACHED LETTER DATED 2/27/2015 IN SWM REPORT.
C	205,870 SF	52.9%	
D	164,569 SF	42.3%	

DRAINAGE AREA DATA				
DRAINAGE AREA	STRUCTURE NO.	AREA (AC.)	'C'	% IMP.
A	I-1	0.20	0.62	63
B	I-2	0.27	0.69	73
C	I-3	0.61	0.66	70
D	I-4	1.68	0.25	7
E	TRENCH	0.36	0.80	89
F	I-5	0.23	0.79	91

PARCEL 'A-A' OXFORD SQUARE PLAT NOS. F-15-008 ZONED TOD

EXISTING 20' PUBLIC DRAINAGE & UTILITY EASEMENT (PLAT NOS. 22390 THRU 22395)

SWM #6 72" ALDMP UNDERGROUND STORAGE

BMP #5 BIORETENTION FACILITY (M-6)

HSG 'C'

HSG 'D'

PARCEL 'D-D'

ELEMENTARY SCHOOL #42
F.F. ELEV. 117.75

▶ DENOTES BUILDING INGRESS/EGRESS POINTS

EX. BALLFIELD

EX. 250' SOFTBALL FIELD

EX. MACADAM BASKETBALL COURTS

EX. 5-10' BOLLARDS

CONTRACTOR SHALL REGRADE THE AREA BETWEEN THE PROPOSED CURB LINE AND THE PROPERTY LINE TO PROVIDE POSITIVE DRAINAGE TO THE PROPOSED CURB.

EX. THOMAS VIADUCT MIDDLE SCHOOL BUILDING

EX. BBQ RACKS

GAZEBO ELEV. 115.00

EX. PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT (PLAT NOS. 22390 - 22395)

EX. 10' PRINCIPAL STRUCTURE SETBACK (PLAT NOS. 22056 - 22059)

EX. 20' PUBLIC WATER & UTILITY EASEMENT

EX. 13' PUBLIC SIGNAGE, STREET LIGHT, STORMWATER MANAGEMENT AND UTILITY EASEMENT (PLAT NOS. 22056 - 22059)

BANBURY DRIVE
MAJOR COLLECTOR
(F-12-026, F-13-095, F-15-008)

N 553400 E 1387400

N 553100 E 1387600

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

EX THOMAS VIADUCT MIDDLE SCHOOL
(MIDDLE SCHOOL #20)

PARCEL 'A-A'
OXFORD SQUARE
PLAT NO'S. 22788 - 22790
ZONED: TOD
(SDP: 12-019)

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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CHARLES J. CROOD, SR., P.E. — 3/31/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
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COLUMBIA, MARYLAND 21044
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STATE OF MARYLAND — CHARLES J. CROOD — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
22788-22790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

SOILS AND DRAINAGE AREA MAP

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 10 OF 44

SDP-16-013

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LEGEND	
SYMBOL	DESCRIPTION
108	EXISTING CONTOUR 2' INTERVAL
110	EXISTING CONTOUR 10' INTERVAL
s	EXISTING SAN. SEWER LINE
st	EXISTING STORM DRAIN LINE
w	EXISTING WATER LINE
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c	EXISTING CABLE LINE
g	EXISTING GAS LINE
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108	PROPOSED CONTOUR 2' INTERVAL
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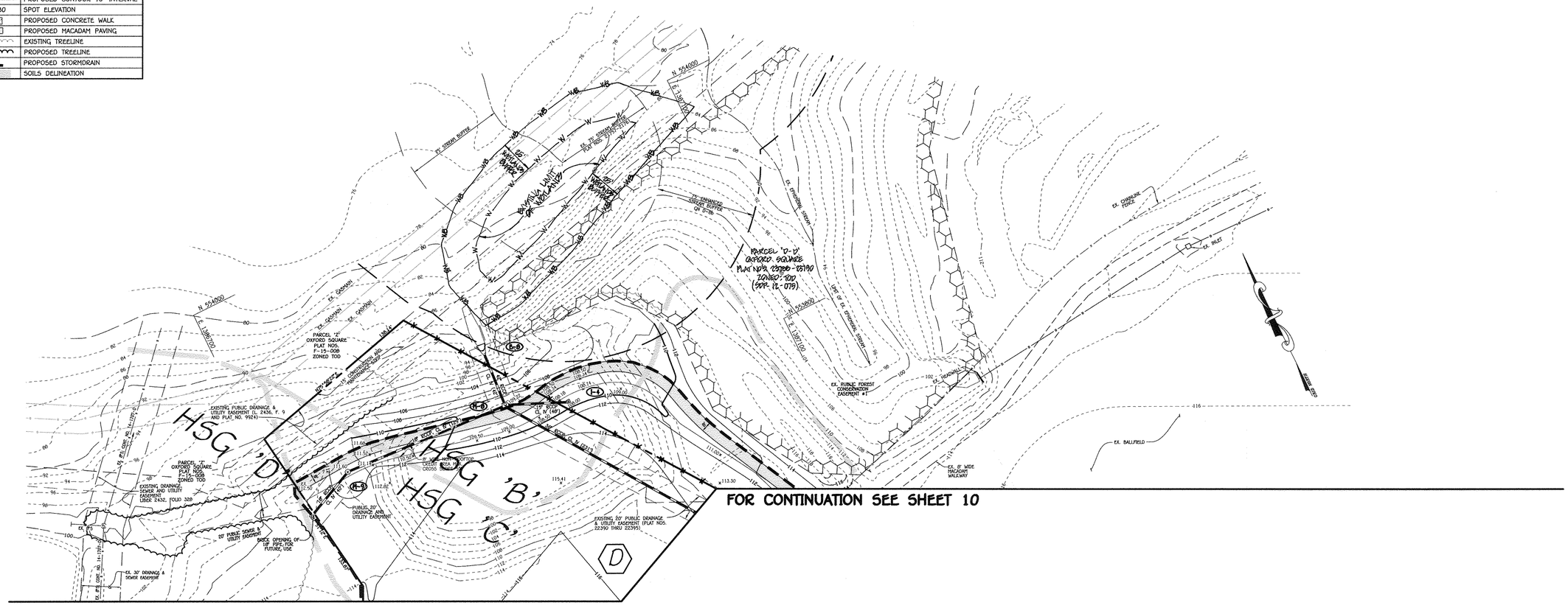
+ 107.30	SPOT ELEVATION
	PROPOSED CONCRETE WALK
	PROPOSED MACADAM PAVING
	EXISTING TREELINE
	PROPOSED TREELINE
18" RCCP	PROPOSED STORMDRAIN
	SOILS DELINEATION



FOR CONTINUATION SEE SHEET 10

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

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CHARLES J. OLCOVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-12-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
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STATE OF MARYLAND — CHARLES J. OLCOVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788 - 23790	20	TOD	30	FIRST	6012.01
WATER CODE	____		SEWER CODE	____	

SOILS AND DRAINAGE AREA MAP

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 11 OF 44

SDP-16-013

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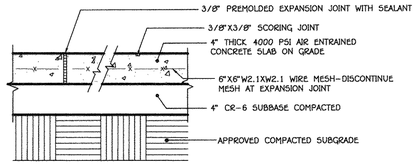
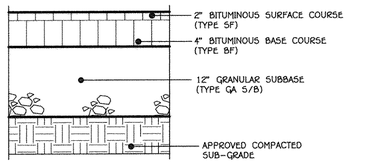


NOTE: INSTALL EXPANSION JOINTS AT MAX. 15'-0" O.C. AND INSTALL SCORING JOINTS AT MAX. 5'-0" O.C.

SLOPE ACROSS SIDEWALK SHALL BE MIN. 1/8" /FT.

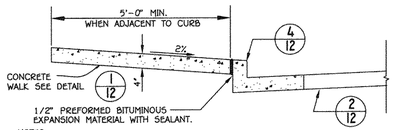
1/12 CONCRETE WALK DETAIL

NO SCALE



2/12 HEAVY DUTY ASPHALTIC PAVING DETAIL

NO SCALE

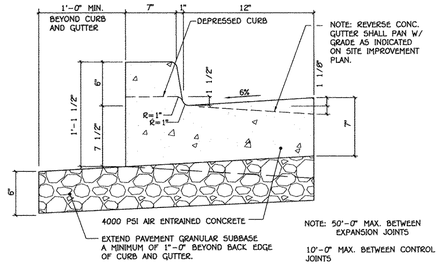


NOTES:
1. SIDEWALK TO BE SCRIBED IN EQUALLY 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO MORE THAN 15' APART.
3. 1/2" PREFORMED BITUMINOUS EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK. FILL WITH SEALANT.
4. 4000 PSI AIR ENTRAINED CONCRETE SHALL BE USED.
5. WHEN SIDEWALK ABUTS 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 40 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.

3/12 CONCRETE SIDEWALK ADJACENT TO CURB DETAIL

HOWARD COUNTY STANDARD DETAIL R-3.05

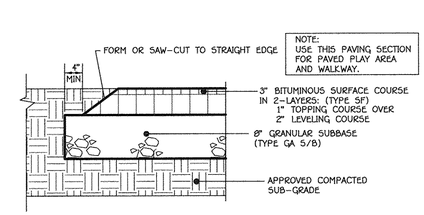
NO SCALE



4/12 STANDARD 6" COMB. CONC. CURB AND GUTTER

HOWARD COUNTY STANDARD DETAIL R-9.01

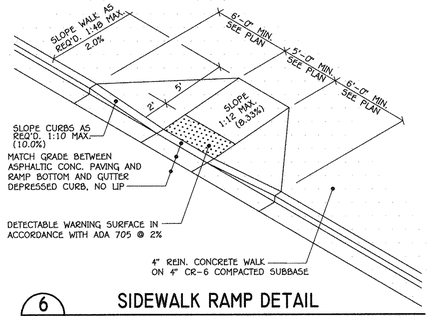
NO SCALE



NOTE: USE THIS PAVING SECTION FOR PAVED PLAY AREA AND WALKWAY.

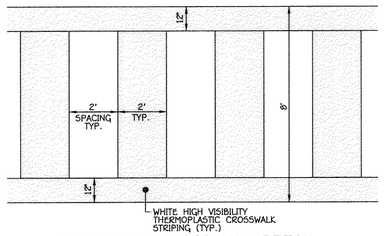
5/12 PAVED PLAY AREA AND WALKWAY ASPHALTIC PAVING DETAIL

NO SCALE



6/12 SIDEWALK RAMP DETAIL

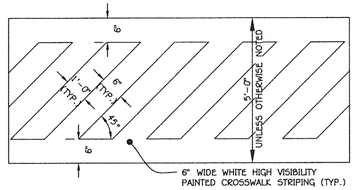
NO SCALE



7/12 PEDESTRIAN CROSSWALK DETAIL

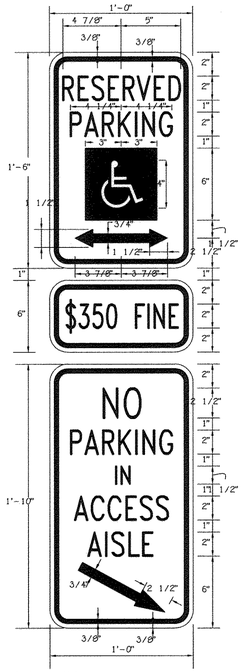
HOWARD COUNTY STANDARD DETAIL T-7.03

NO SCALE



8/12 CROSSWALK DETAIL

NO SCALE

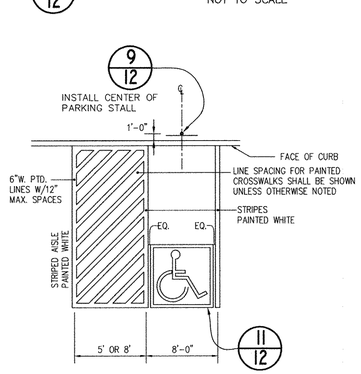


GENERAL NOTES:

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.

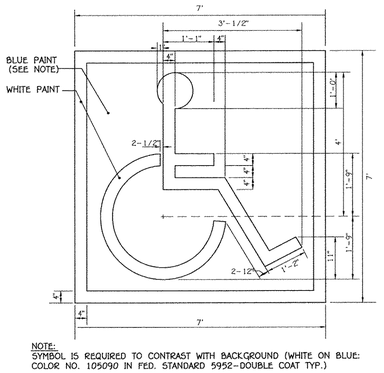
9/12 HANDICAP PARKING SIGN DETAIL

NOT TO SCALE



10/12 ACCESSIBLE SPACE LAYOUT

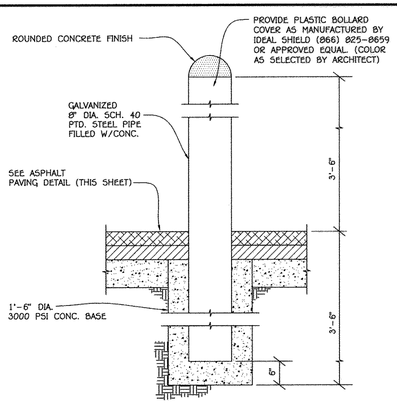
NO SCALE



NOTE:
SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND (WHITE ON BLUE: COLOR NO. 105090 IN FED. STANDARD 595B-DOUBLE COAT TYP.)

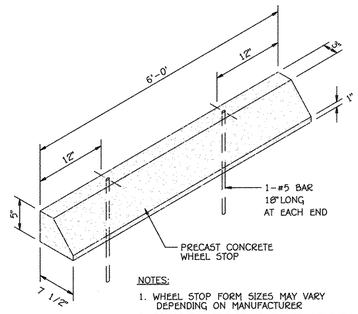
11/12 HANDICAP SPACE STENCIL LAYOUT

NO SCALE



12/12 BOLLARD DETAIL

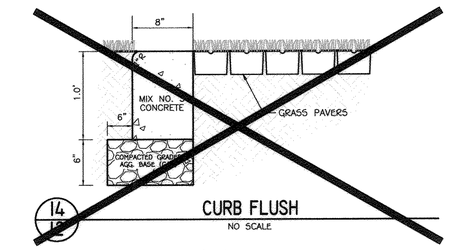
NO SCALE



NOTES:
1. WHEEL STOP FORM SIZES MAY VARY DEPENDING ON MANUFACTURER
2. CONCRETE STRENGTH SHALL BE 4,000 P.S.I. AIR ENTRAINED

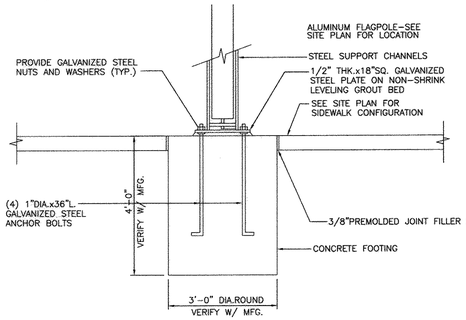
13/12 WHEEL STOP DETAIL

NO SCALE



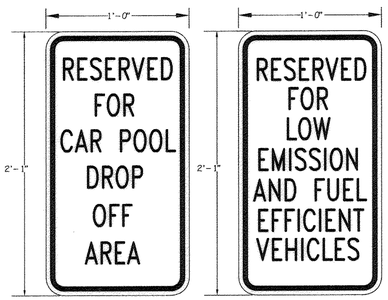
14/12 CURB FLUSH

NO SCALE



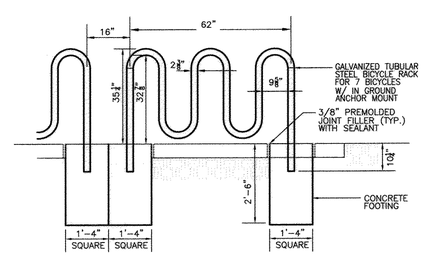
15/12 TILT FLAGPOLE DETAIL

NO SCALE



16/12 LE & FE SIGN DETAIL

NOT TO SCALE



17/12 BICYCLE RACK DETAIL

NO SCALE

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROND, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-3' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROND — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	30	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

DETAIL SHEET

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: NONE DATE: MARCH 7, 2016

SHEET 12 OF 44

SDP-16-013

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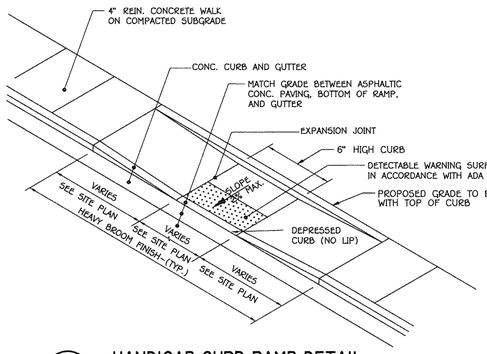
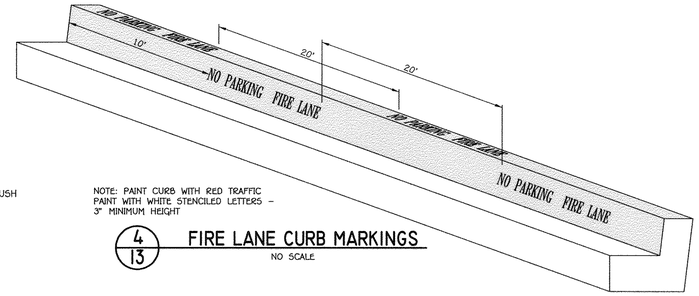


1/13 HANDICAP CURB RAMP DETAIL

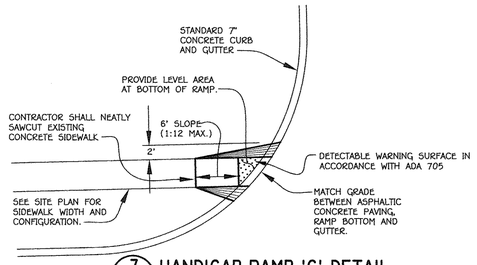
NO SCALE



NOTE: PAINT CURB WITH RED TRAFFIC PAINT WITH WHITE STENCILED LETTERS - 3" MINIMUM HEIGHT

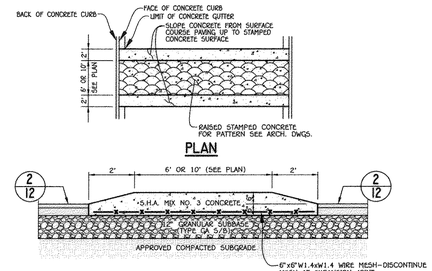
4/13 FIRE LANE CURB MARKINGS

NO SCALE



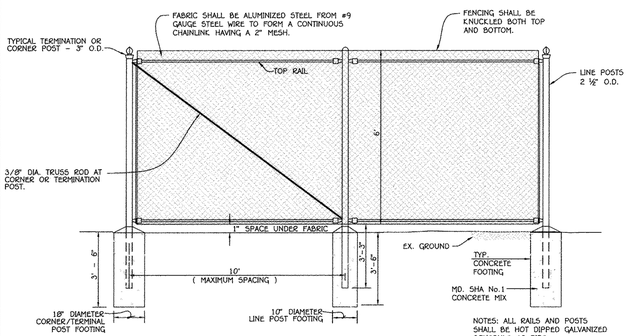
7/13 HANDICAP RAMP 'C' DETAIL

NO SCALE



10/13 FLAT TOP SPEED HUMP

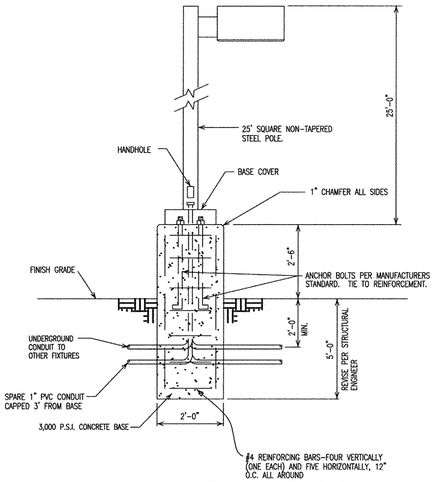
NO SCALE



2/13 CHAIN LINK FENCE DETAIL

HOWARD COUNTY STANDARD DETAIL G-7.21

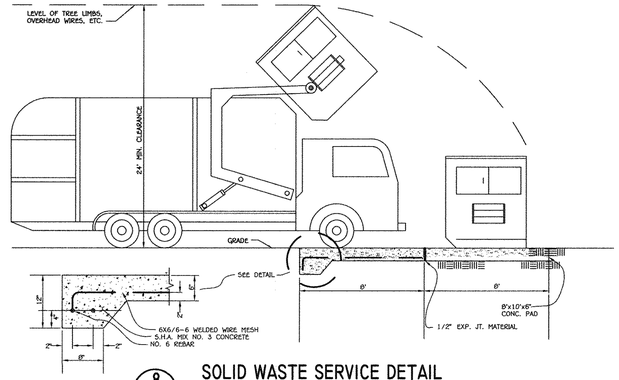
NO SCALE



5/13 LIGHTING FIXTURE

SEE ELECT. DETAIL B/EO.3 FOR INFORMATION

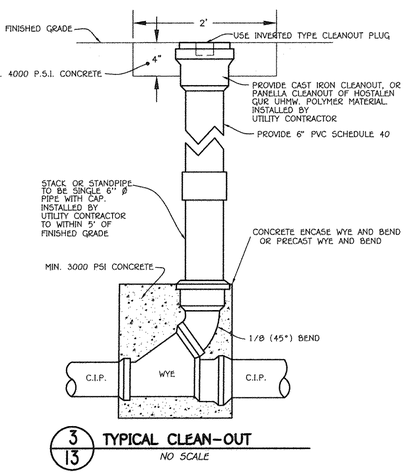
NO SCALE



8/13 SOLID WASTE SERVICE DETAIL

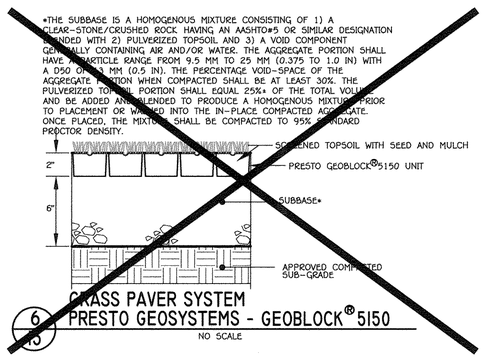
HOWARD COUNTY STANDARD DETAIL S-8.03

NOT TO SCALE



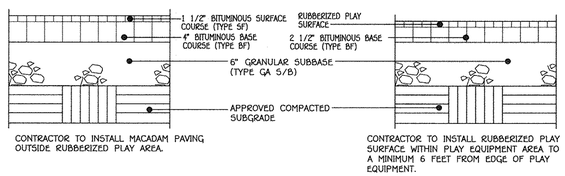
3/13 TYPICAL CLEAN-OUT

NO SCALE



6/13 GRASS PAVER SYSTEM
PRESTO GEOSYSTEMS - GEOBLOCK® 5150

NO SCALE



9/13 PLAYGROUND PROTECTIVE PLAY SURFACE DETAIL

NO SCALE

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DATE	DESCRIPTION
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Director - Department of Planning and Zoning — 4-18-16 Date

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Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
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410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

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	HANOVER, MD 21076

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ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25780 - 25790	20	TOD	30	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

DETAIL SHEET

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: NONE DATE: MARCH 7, 2016

SHEET 13 OF 44

SDP-16-013

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ELEMENTARY SCHOOL #42
F.F. ELEV. 117.75

▶ DENOTES BUILDING INGRESS/EGRESS POINTS
NOTE: SEE ARCH. DRAWINGS FOR SIDEWALK SCORING PATTERN AT ENTRY.

MACADAM PLAY AREA

RUBBERIZED PLAY AREA

MECHANICAL EQUIPMENT ENCLOSURE SEE ARCH. DWG FOR WALL DETAILS

CHILLER

CONDENSATOR

TAPER DOWN CURB AND SIDEWALK – 7 LF

5' WIDE CROSSWALK

VAN ACCESSIBLE HANDICAP SIGN

DEPRESSED CURB 5' FLUSH WITH ASPHALTIC PAVING

DETECTABLE WARNING SURFACE

BOLLARDS (5)

DUMPSTERS

WHEEL STOPS (60 TYP.)

BACK PAVERS FOR DETAILS SEE ARCH. DWG.

TAPER DOWN CURB AND SIDEWALK – 17 LF

TAPER DOWN CURB AND SIDEWALK – 6 LF

DO NOT ENTER SIGNS

TAPER DOWN CURB AND SIDEWALK – 13 LF BOTH SIDES

2 BIKE RACKS, 7 SPACES EACH

STOP SIGN

STOP BAR

6" HIGH CURB

TAPER DOWN CURB & SIDEWALK 6' LF

DEPRESSED CURB 6" FLUSH WITH ASPHALTIC PAVING

6' WIDE CROSSWALK

DEPRESSED CURB 5" FLUSH WITH ASPHALTIC PAVING

TAPER DOWN CURB & SIDEWALK 8' LF

EX. TAPERED CURB

EX. DEPRESSED CURB

4' TAPERED CURB

DETECTABLE WARNING SURFACE

3 HANDICAP SIGNS

VAN ACCESSIBLE HANDICAP SIGN

6 "RESERVED FOR LOW EMISSION & FUEL EFFICIENT VEHICLES" SIGNS

TAPER DOWN CURB AND SIDEWALK – 8 LF

WHEEL STOPS (4 TYP.)

RESERVED FOR CARPOOL DROP-OFF AREA SIGN

FLAG POLE

TAPER DOWN CURB – 2 LF

DEPRESSED CURB 5' FLUSH WITH ASPHALTIC PAVING

TAPER DOWN CURB & SIDEWALK

HANDICAP-PASSENGER LOADING ZONE

FILL ENTIRE LANDING AREA WITH DETECTABLE WARNING SURFACE

8" HIGH CURB

DEPRESSED CURB 11" FLUSH WITH ASPHALTIC PAVING

SCHOOL SIGN, SEE ARCH. DWG.

STOP SIGN & DO NOT ENTER SIGN ON REVERSE SIDE

TAPER DOWN CURB & SIDEWALK 6' LF

DEPRESSED CURB 7" FLUSH WITH ASPHALTIC PAVING

TAPER DOWN CURB – 2 LF

GAZEBO
ELEV. 115.50

ONE WAY SIGN

6" HIGH CURB

TAPER DOWN CURB AND SIDEWALK – 8 LF

TAPER DOWN CURB AND SIDEWALK – 10 LF

TAPER DOWN CURB AND SIDEWALK – 12 LF

5' WIDE CROSSWALK

DETECTABLE WARNING SURFACE

DEPRESSED CURB 5' FLUSH WITH ASPHALTIC PAVING

EX. STOP SIGN

EX. VALET

DEPRESSED CURB 9" FLUSH WITH ASPHALTIC PAVING

TAPER DOWN CURB & SIDEWALK 9' LF

DO NOT ENTER SIGN

TAPER DOWN CURB & SIDEWALK 8' LF

TAPER DOWN CURB & SIDEWALK 5' LF

STOP BAR

BANBURY DRIVE

SCALE: 1" = 20'

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8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
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410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

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PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25700 - 25710	20	TOD	38	FIRST	6012.01
WATER CODE			SEWER CODE		

HANDICAP ACCESS PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 20' DATE: MARCH 7, 2016

SHEET 14 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 14 HANDICAP.dwg, HC ACCESS, 1:1

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION

A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

2. PERMANENT STABILIZATION

A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

I. SOIL PH BETWEEN 6.0 AND 7.0.
II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.

3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.

5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

6. TOPSOIL APPLICATION A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

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

3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.

4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

TEMPORARY SEEDING NOTES (B-4-4)

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.1):				FERTILIZER RATE (10-20-20)	LIME RATE
SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
BARLEY	96	3/1 - 5/15, 8/15 - 10/15	1"	436 LB/AC (10 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)
OATS	72	3/1 - 5/15, 8/15 - 10/15	1"		
RYE	112	3/1 - 5/15, 8/15 - 10/15	1"		

PERMANENT SEEDING NOTES (B-4-5)

A. SEED MIXTURES

1. GENERAL USE

A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.

C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY. D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

2. TURFGRASS MIXTURES

A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.

B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:
SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A) CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B) SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.3): 8					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
8	TALL FESCUE	100	MAR. 1-MAY 15 AUG. 1-OCT. 15	1/4-1/2 IN.	45 LBS. PER ACRE (1.0 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA (B-4-8)

DEFINITION

THE MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

CONDITIONS WHERE PRACTICE APPLIES

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THA 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (B-4-3)

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING
1. SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENT OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.

C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEETP INOCULANT AS COOK AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEEDCONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

2. APPLICATION
A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
1. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
2. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
1. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
2.APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
1. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P O (PHOSPHORUS), 200 POUNDS PER ACRE; K O (POTASSIUM), 200 POUNDS PER ACRE.
2. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
3. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
4. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO UNIFORM FIBROUS PHYSICAL STATE.
1. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOT TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
2. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
3. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
4. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BY PHYTO-TOXIC.
5. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED TO A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
1. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
2. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
4. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4-15 FEET WIDE AND 300 TO 3,000 FEET LONG.

DUST CONTROL

DEFINITION
CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.

CONDITIONS WHERE PRACTICE APPLIES
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS
TEMPORARY METHODS
1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
3. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF THE SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
4. IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
5. BARRIERS - SOLID BOARD FENCES SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALE DIKES AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

PERMANENT METHODS
1. PERMENENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
2. TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES: A. PRIOR TO THE START OF EARTH DISTURBANCE,

B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,

C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT, D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).

5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.

6. SITE ANALYSIS:

TOTAL AREA OF SITE:	8.0 ACRES
AREA DISTURBED:	9.1 ACRES
AREA TO BE ROOFED OR PAVED:	5.0 ACRES
AREA TO BE VEGETATIVELY STABILIZED:	4.1 ACRES
TOTAL CUT:	12883 CU. YDS.
TOTAL FILL:	21473 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION:	N/A

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND A11 CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:

- INSPECTION DATE
- INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
- NAME AND TITLE OF INSPECTOR
- WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
- BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
- EVIDENCE OF SEDIMENT DISCHARGES
- IDENTIFICATION OF PLAN DEFICIENCIES
- IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
- IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
- COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
- PHOTOGRAPHS
- MONITORING/SAMPLING
- MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED

OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).

9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.

10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.

11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.

13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.

14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.

15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):

- USE I AND IP MARCH 1 - JUNE 15
- USE III AND IIIP OCTOBER 1 - APRIL 30
- USE IV MARCH 1 - MAY 31

16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND

B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR PUMPING ALL STANDING WATER THROUGH A FILTERING DEVICE TO A CLEAR WATER OUTFALL WITHIN 24 HOURS FOLLOWING ANY RAINFALL EVENT.

ELEMENTARY SCHOOL - SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (1 DAY)

2. NOTIFY MISS UTILITY (1-800-257-7777) 48 HOURS BEFORE STARTING WORK. NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410-313-1855) 24 HOURS BEFORE STARTING WORK, AND NOTIFY THE BALTIMORE GAS ELECTRIC CO. (410-291-5739) FIVE (5) WORKING DAYS PRIOR TO STARTING WORK.

3. INSTALL ALL PERIMETER CONTROLS: 2 SCE's WITH WASH RACK AT EACH ENTRANCE, SEDIMENT TRAP #1, REMOVABLE PUMPING STATION, FILTER BAG, PERIMETER SUPER SILT FENCE, TREE PROTECTION FENCE AND PERIMETER CONSTRUCTION FENCING. (1 WEEK)

4. BEGIN SITE AND SCHOOL PAD GRADING. MAINTAIN POSITIVE DRAINAGE IN FRONT OF SCHOOL TO PRECLUDE PONDING IN THE VICINITY OF BMP #4. (3 WEEKS)

5. BEGIN CONSTRUCTION OF SCHOOL BUILDING AND CONCURRENTLY INSTALL:
INSTALL WATER MAINS.
INSTALL SEWER MAIN AND BUILDING CONNECTIONS.
INSTALL ELECTRICAL CONDUITS.
GAS MAINS.
CABLE. (2 MONTHS)

6. ALL CONSTRUCTION WASTE GENERATED FROM THE CONSTRUCTION OF NEW WORK AT THIS SITE SHALL BE COMBINED TOGETHER IN COMMON BINS AND TRANSFERRED BY AN INDEPENDENT RECYCLER TO A MATERIAL RECOVERY FACILITY (MRF) FOR REMOTE SORTING AND WEIGHING OF ALL WASTE INCLUDING WASTE WHICH IS DIVERTED FROM LANDFILLS.

7. CONSTRUCT SWM #6 (72" DIA PIPES-1) WITHOUT CONNECTION TO EX. M-25. (3 WEEKS)

8. INSTALL STORM DRAINS AND EXCAVATE BMP #1, #2, #4 AND #5. DO NOT CONSTRUCT UNDERDRAINS OR INSTALL PLANTS FOR BMP"S AT THIS TIME. IMMEDIATELY PLACE INLET PROTECTION AT ALL NEW INLETS. PLACE SUPER SILT FENCE AROUND ALL RISERS WHEN CONSTRUCTED. (2 MONTHS)

9. INSTALL CURB AND GUTTER AND BASE PAVING. (2 WEEKS)

10. INSTALL SIDEWALKS, LIGHTING AND LANDSCAPING. (2 WEEKS)

11. COMPLETE SCHOOL BUILDING CONSTRUCTION. (12 MONTHS)

12. THOROUGHLY FLUSH CLEAN THE STORM DRAIN TO THE BMP'S. (2 DAYS)

13. WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, DRAIN WATER USING PUMPING STATION AND CONVERT SEDIMENT TRAP #1 AND COMPLETE ALL OTHER BMP's INTO PERMANENT SWM FACILITIES. ALL BMP DRAINAGE AREA MUST HAVE FULLY ESTABLISHED 3" GRASS OR PAVEMENT. THIS WORK INCLUDES, REMOVING SEDIMENT, RE-GRADING TO DESIGN ELEVATIONS, INSTALLING FOREBAYS, UNDERDRAINS, STONE AND PLANTING SOILS LAYERS AND MULCH. STABILIZE PONDS WITH PERMANENT SEEDING AND INSTALL POND LANDSCAPING. (2 WEEKS)

14. WITH APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, DRAIN WATER USING PUMPING STATION AND FILTER BAG AND CLEAN EXISTING SEDIMENT BASIN. ONCE SITE HAS BEEN STABILIZED, REMOVAL OF EXISTING BASIN CAN BEGIN. REMOVE EXISTING RISER AND STORM DRAIN, INSTALL STORM DRAINS FROM E-8 TO M-8 TO I-4 AND FROM M-8 TO M-9 TO STUB, THEN EXTEND EXISTING STORM DRAIN PIPES TO M-8 AND FILL BASIN. (2 WEEKS)

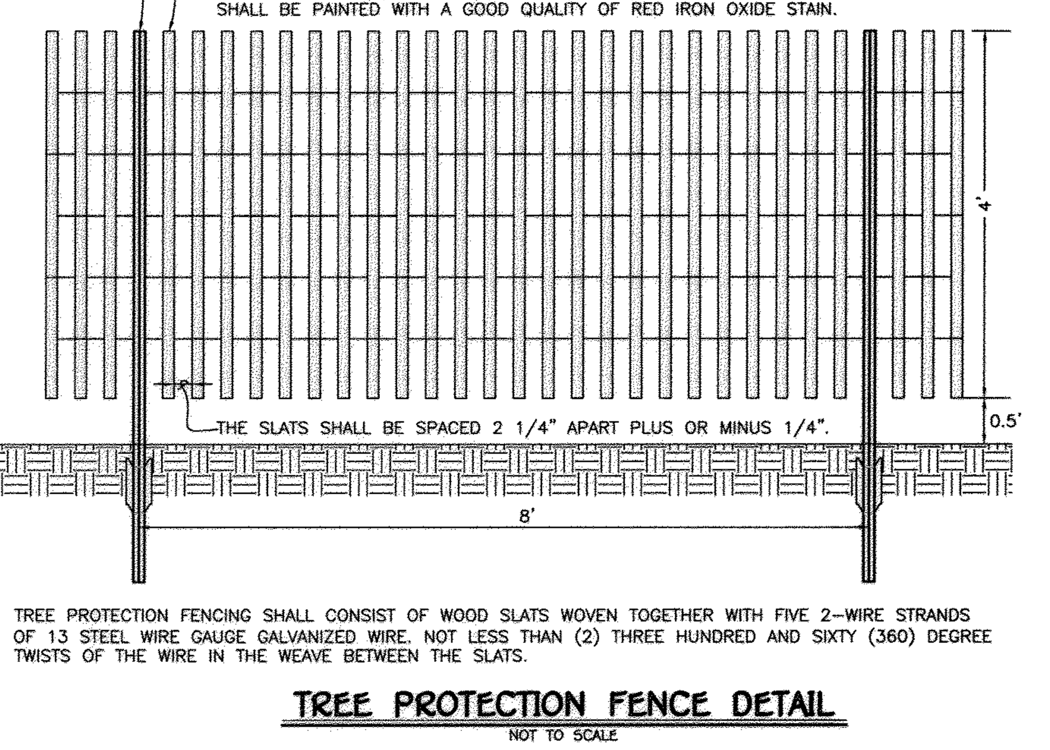
15. INSTALL PLAY FIELDS AND STABILIZE IN ACCORDANCE WITH THE PERMANENT SEEDING AND MULCH AND/OR SOD AS INDICATED ON PLANS. THE CONTRACTOR SHALL ALSO FINE GRADE ALL AREAS WITHIN THE LIMITS OF DISTURBANCE THAT WERE DISTURBED DURING THE BUILDING CONSTRUCTION AND STABILIZE WITH PERMANENT SEEDING AND MULCH. CONTACT GROUNDS MAINTENANCE SUPERVISOR GREG CONNOR AT 410-313-2577 FOR INSPECTION ONE WEEK PRIOR TO FINE GRADING OF THE SITE. (1 WEEK)

16. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS. (1 DAY)

17. INSTALL SURFACE COURSE PAVING. (1 WEEK)

18. FOLLOWING SUCCESSFUL STABILIZATION (I.E., FULLY-ESTABLISHED VEGETATION (3" GRASS OR PAVING) OF ALL DISTURBED AREAS, OBTAIN PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR TO REMOVE ALL REMAINING SEDIMENT & EROSION CONTROL DEVICES AND THEN STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS WITH PERMANENT SEEDING.

EROSION AND SEDIMENT CONTROL NOTE:
THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON ALL SEDIMENT CONTROL DEVICES/PRACTICES ON A DAILY BASIS, AND IMMEDIATELY AFTER A RAINFALL.



TREE PROTECTION FENCING SHALL CONSIST OF WOOD SLATS WOVEN TOGETHER WITH FIVE 2-WIRE STRANDS OF 13 STEEL WIRE GAUGE GALVANIZED WIRE. NOT LESS THAN (2) THREE HUNDRED AND SIXTY (360) DEGREE TWISTS OF THE WIRE IN THE WEAVE BETWEEN THE SLATS.

TREE PROTECTION FENCE DETAIL
NOT TO SCALE

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

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 3/8/16

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

Scott W. Washington — SIGNATURE OF DEVELOPER — DATE 3/8/16

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — DATE 3/8/16

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 3/8/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Director - Department of Planning and Zoning — Date 4-18-16
Chief, Division of Land Development — Date 4-18-16
Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

SEDIMENT AND EROSION CONTROL NOTES AND SEQUENCE OF CONSTRUCTION

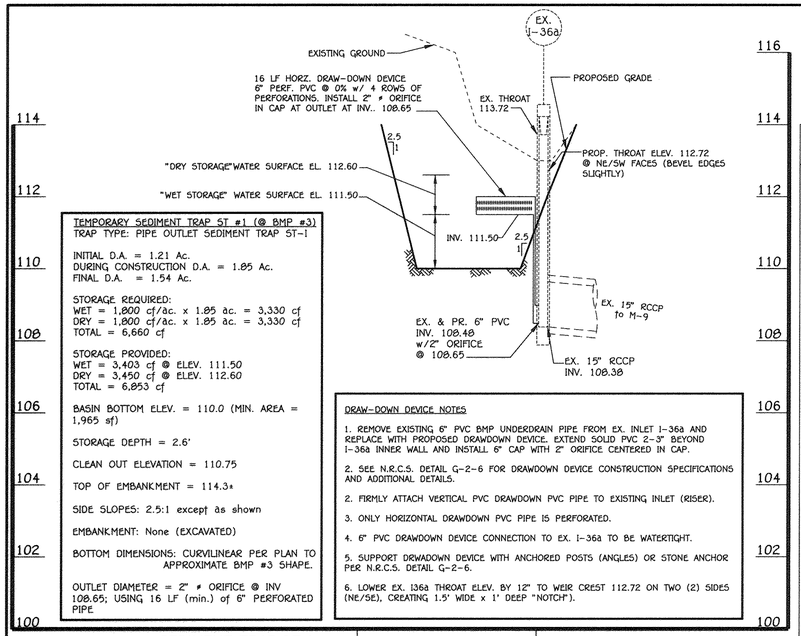
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: NONE DATE: MARCH 7, 2016

SHEET 15 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 15 SEDIMENT DETAILS.dwg, DETAIL SHEET, 3/7/2016 10:28:38 AM, 1:1



TEMPORARY SEDIMENT TRAP ST #1 (@ BMP #3)
TRAP TYPE: PIPE OUTLET SEDIMENT TRAP ST-1

INITIAL D.A. = 1.21 Ac.
DURING CONSTRUCTION D.A. = 1.85 Ac.
FINAL D.A. = 1.54 Ac.

STORAGE REQUIRED:
WET = 1,800 cf/ac. x 1.85 ac. = 3,330 cf
DRY = 1,800 cf/ac. x 1.85 ac. = 3,330 cf
TOTAL = 6,660 cf

STORAGE PROVIDED:
WET = 3,403 cf @ ELEV. 111.50
DRY = 3,450 cf @ ELEV. 112.60
TOTAL = 6,853 cf

BASIN BOTTOM ELEV. = 110.0 (MIN. AREA = 1,965 sf)

STORAGE DEPTH = 2.6'

CLEAN OUT ELEVATION = 110.75

TOP OF EMBANKMENT = 114.3±

SIDE SLOPES: 2.5:1 except as shown

EMBANKMENT: None (EXCAVATED)

BOTTOM DIMENSIONS: CURVILINEAR PER PLAN TO APPROXIMATE BMP #3 SHAPE.

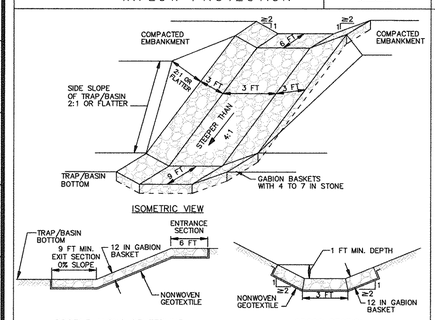
OUTLET DIAMETER = 2" ø ORIFICE @ INV 108.65; USING 16 LF (min.) of 6" PERFORATED PIPE

DRAW-DOWN DEVICE NOTES

1. REMOVE EXISTING 6" PVC BMP UNDERDRAIN PIPE FROM EX. INLET I-36a AND REPLACE WITH PROPOSED DRAWDOWN DEVICE. EXTEND SOLID PVC 2-3" BEYOND I-36a INNER WALL AND INSTALL 6" CAP WITH 2" ORIFICE CENTERED IN CAP.
2. SEE N.R.C.S. DETAIL G-2-6 FOR DRAWDOWN DEVICE CONSTRUCTION SPECIFICATIONS AND ADDITIONAL DETAILS.
2. FIRMLY ATTACH VERTICAL PVC DRAWDOWN PVC PIPE TO EXISTING INLET (RISER).
3. ONLY HORIZONTAL DRAWDOWN PVC PIPE IS PERFORATED.
4. 6" PVC DRAWDOWN DEVICE CONNECTION TO EX. I-36a TO BE WATERTIGHT.
5. SUPPORT DRWADOWN DEVICE WITH ANCHORED POSTS (ANGLES) OR STONE ANCHOR PER N.R.C.S. DETAIL G-2-6.
6. LOWER EX. I36a THROAT ELEV. BY 12" TO WEIR CREST 112.72 ON TWO (2) SIDES (NE/SE), CREATING 1.5' WIDE x 1' DEEP "NOTCH".

SEDIMENT TRAP ST-1 OUTFALL PROFILE
SCALE: HORZ: 1" = 20' VERT: 1" = 2'

DETAIL D-3-2 GABION INFLOW PROTECTION
STANDARD SYMBOL: GP



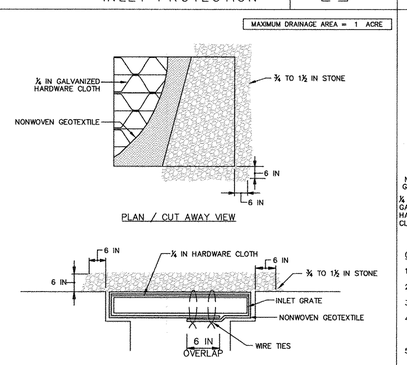
CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-2 AT-GRADE INLET PROTECTION
STANDARD SYMBOL: AGIP



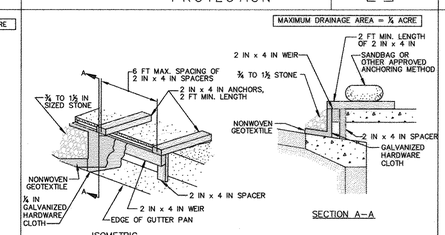
CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION
STANDARD SYMBOL: CIP



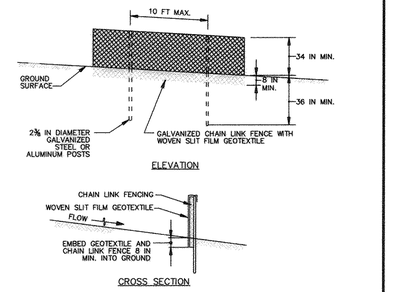
CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE
STANDARD SYMBOL: SSF



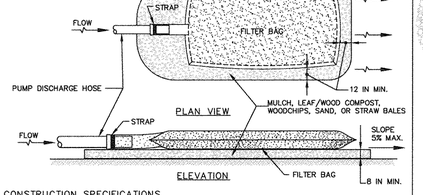
CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG
STANDARD SYMBOL: FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPCITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

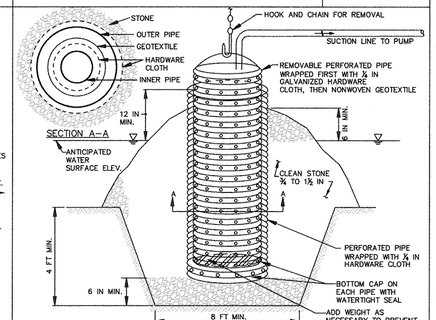
GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-1 REMOVABLE PUMPING STATION
STANDARD SYMBOL: RPS



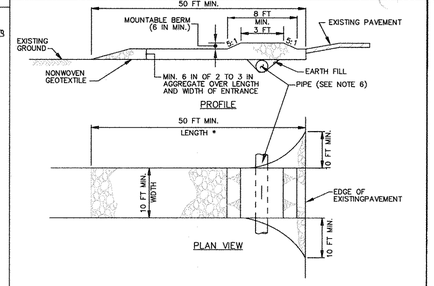
CONSTRUCTION SPECIFICATIONS

1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE
STANDARD SYMBOL: SCE



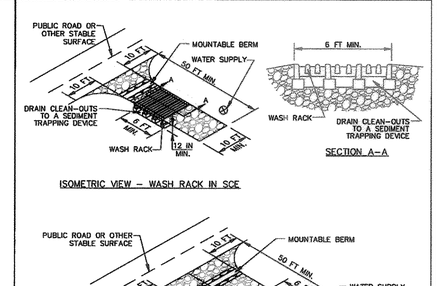
CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

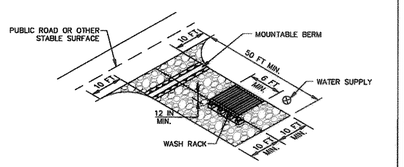
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-2 WASH RACK OPTION
STANDARD SYMBOL: WR



ISOMETRIC VIEW - WASH RACK IN SCE



ISOMETRIC VIEW- WASH RACK ALONG SCE

CONSTRUCTION SPECIFICATIONS

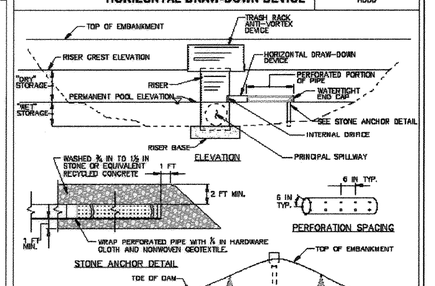
1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE.
3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B.4

DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE
STANDARD SYMBOL: HDDD



CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (60% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

G.48

0' 20' 40' 60'
SCALE: 1" = 20'

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

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 3/8/16

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

SIGNATURE OF DEVELOPER — DATE 3/9/16

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — DATE 3/8/16

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 3/8/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16
Chief, Division of Land Development — Date 4-18-16
Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23700-23790	20	TOD	30	FIRST	6012.01
WATER CODE ----		SEWER CODE ----			

SEDIMENT AND EROSION CONTROL DETAIL SHEET

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 16 OF 44

SDP-16-013

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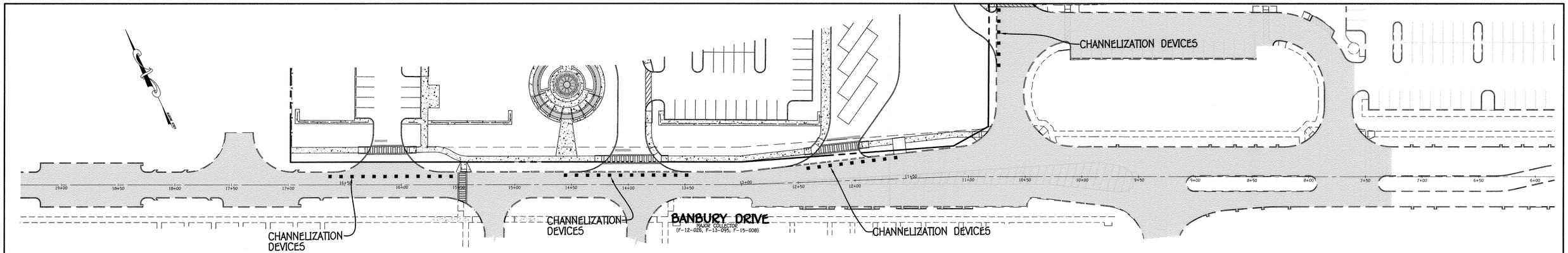
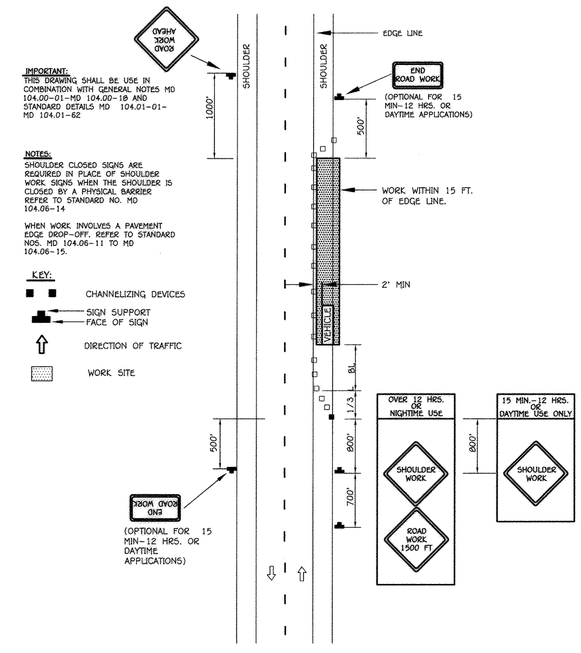


PLAN
SCALE: 1" = 40'



IMPORTANT:
THIS DRAWING SHALL BE USE 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 / FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH
NO SCALE

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

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/24/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-13-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25788-25790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

TRAFFIC MAINTENANCE PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 17 OF 44

SDP-16-013

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LEGEND	
SYMBOL	DESCRIPTION
(stippled box)	PROPOSED CONCRETE WALK
(shaded box)	PROPOSED MACADAM PAVING
(shaded box)	PROTECTIVE PLAY SURFACE
— x —— x —	PROPOSED FENCE

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 STENCIL SHALL BE PAINTED BLUE IN ACCORDANCE WITH FEDERAL STANDARD 5952.

5. THE FOLLOWING WILL BE REQUIRED TO BE INSTALLED ALONG BANBURY DRIVE:
ONE (1) AC POWERED SCHOOL FLASHER – BOARD OF EDUCATION WILL NEED TO REQUEST BGE FOR ELECTRICAL SERVICE
TWO (2) S1-1 (ADVANCE SCHOOL) SIGNS (36"x36") WITH 'SCHOOL' PANEL BELOW (FYG IN COLOR) (FLUORESCENT YELLOW GREEN IN COLOR)
ONE (1) S5-2 ('END SCHOOL ZONE') SIGN
ONE (1) 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 BEFORE ANY SIGNS, SCHOOL FLASHERS OR MARKERS ARE ORDERED AND/OR INSTALLED.

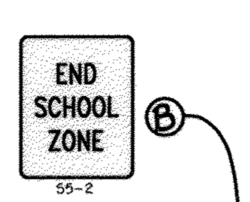
PAVEMENT MARKING LEGEND

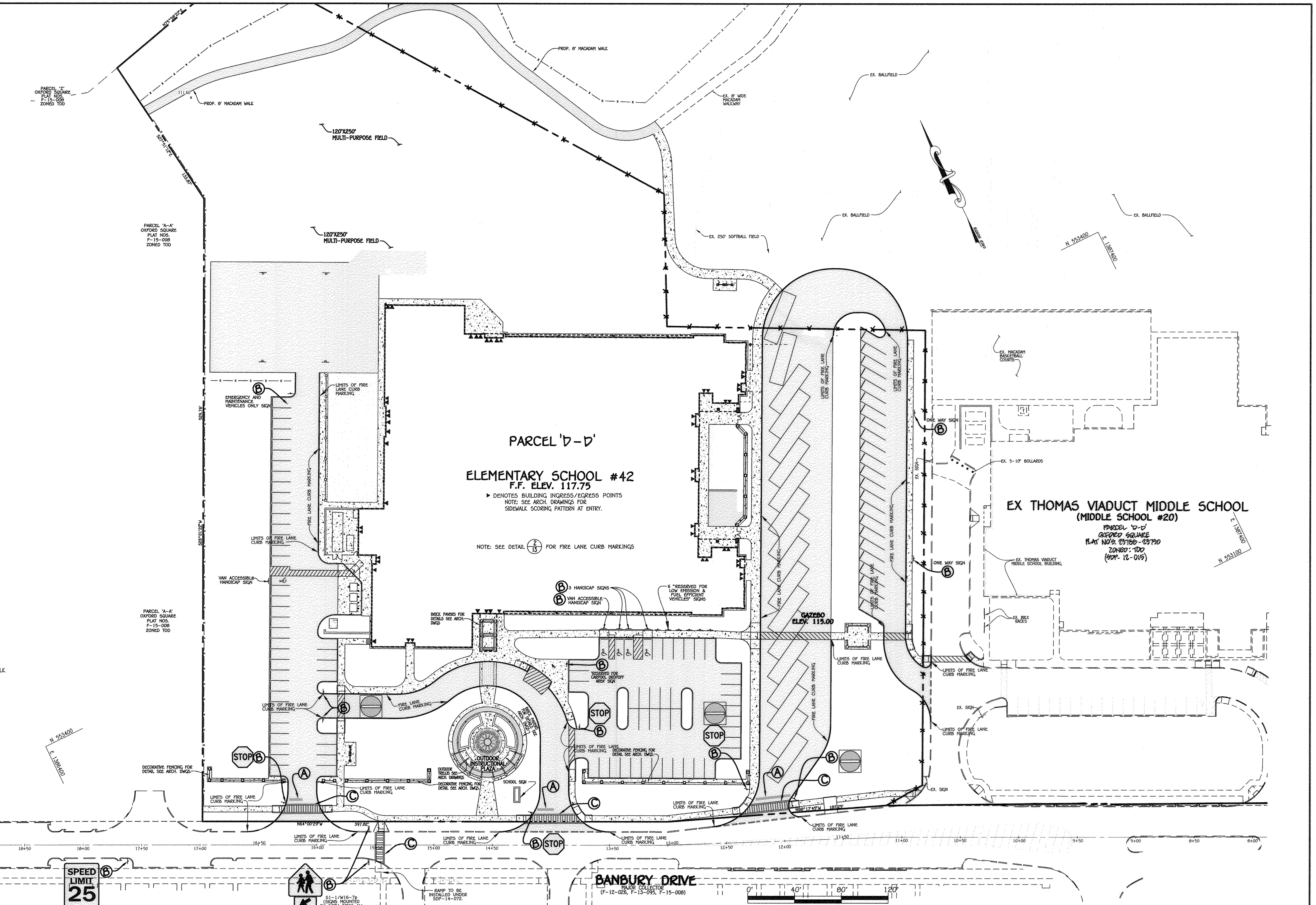
(A) INSTALL 24" SOLID WHITE PAVEMENT MARKING FOR STOP LINE.

(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 IV). THE CROSSWALK SHALL BE INSTALLED WITH THERMOPLASTIC OR PREFORMED, HEAT APPLIED, THEMOPLASTIC. (7/12)

(D) PEDESTRIAN CROSSWALK. PAINTED 5" WIDE SOLID WHITE LINES. (8/12)





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ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director – Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-8-16

Chief, Development Engineering Division — Date 4-13-16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

PAVEMENT MARKING AND SIGNAGE PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' — DATE: MARCH 7, 2016

SDP-16-013

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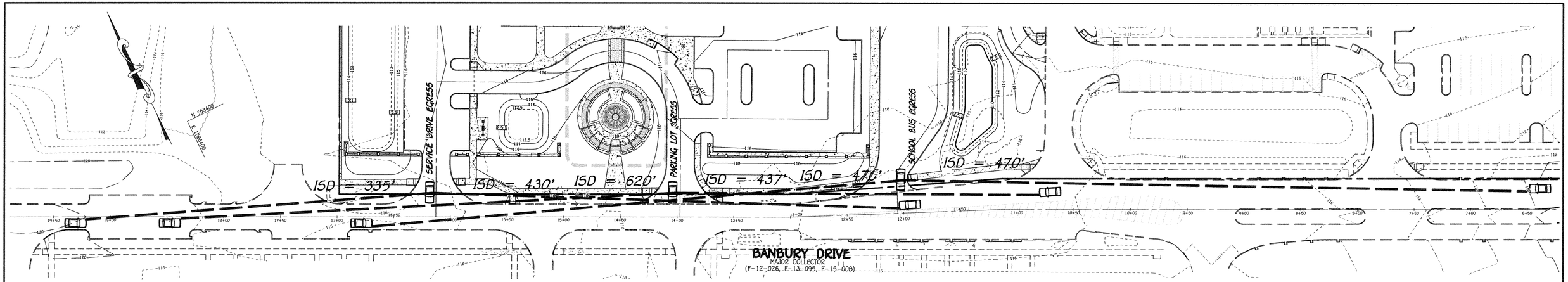
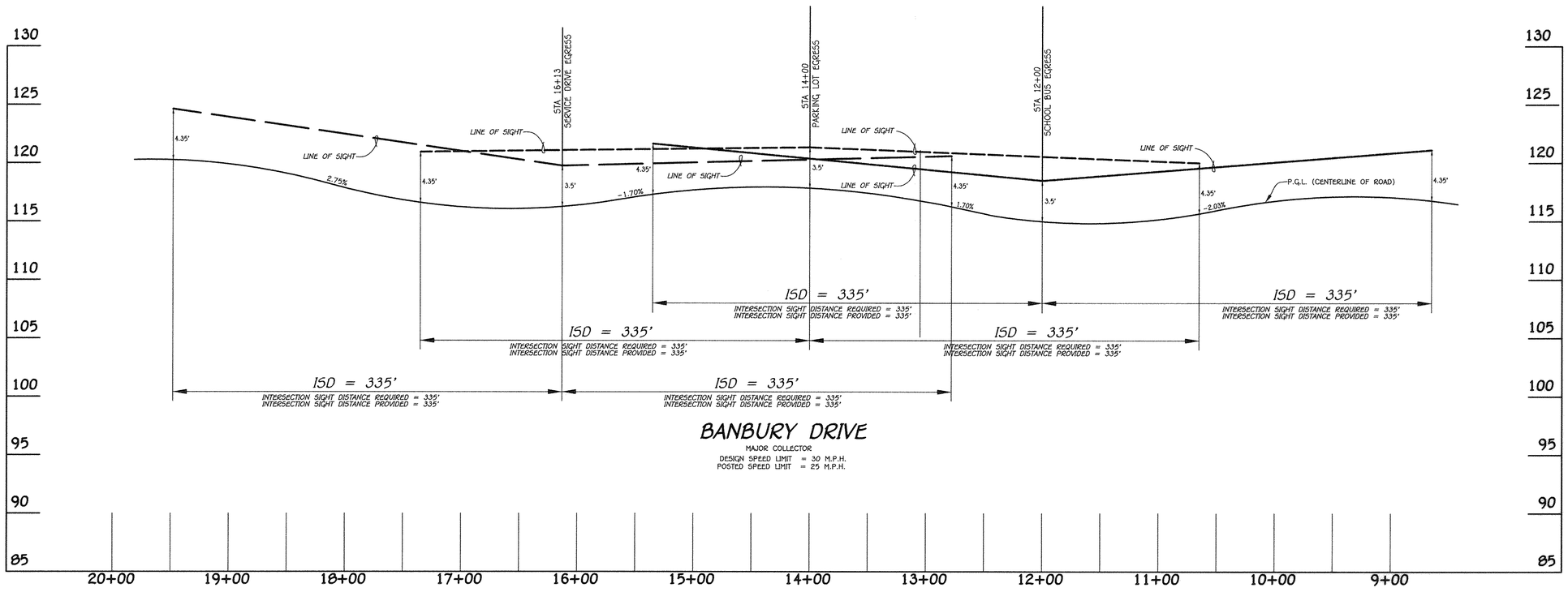


PLAN
SCALE: 1" = 40'

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



BANBURY DRIVE
MAJOR COLLECTOR
DESIGN SPEED LIMIT = 30 M.P.H.
POSTED SPEED LIMIT = 25 M.P.H.

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

0' 50' 100' 150'
SCALE: 1" = 50'

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ELLICOTT CITY, MARYLAND 21042
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"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROJO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/7/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4-13-16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

CHARLES J. CROJO — No. 13204 — PROFESSIONAL ENGINEER — STATE OF MARYLAND

Address Chart	
Parcel Number	Street Address
'D-1'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788 - 23790	20	TOD	38	FIRST	6012.01
WATER CODE ____		SEWER CODE ____			

INTERSECTION SIGHT DISTANCE PLAN AND PROFILE

'GREEN NEIGHBORHOOD'

ELEMENTARY SCHOOL #42

OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 19 OF 44

SDP-16-013

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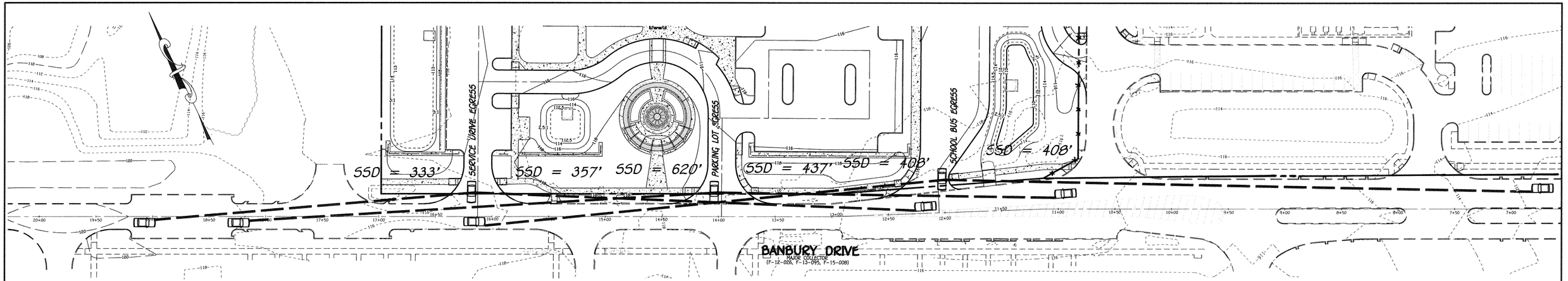
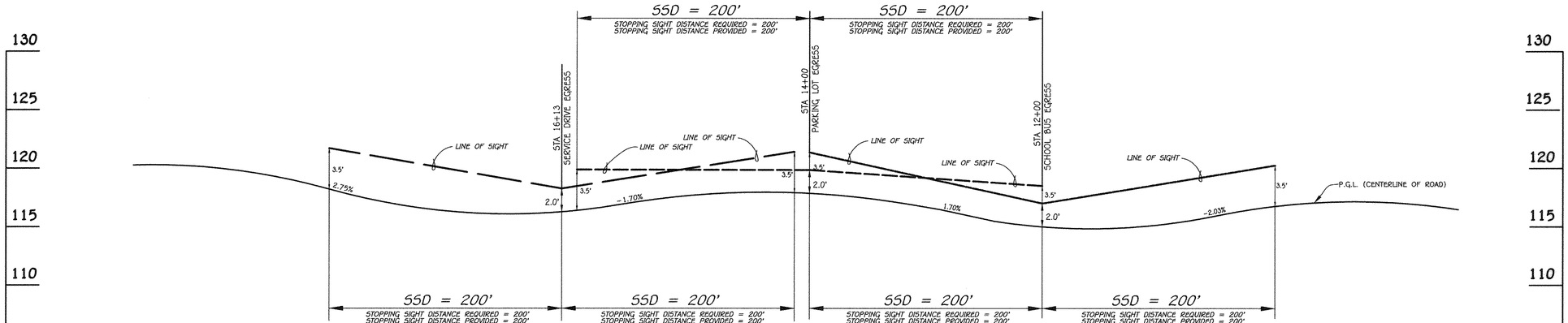
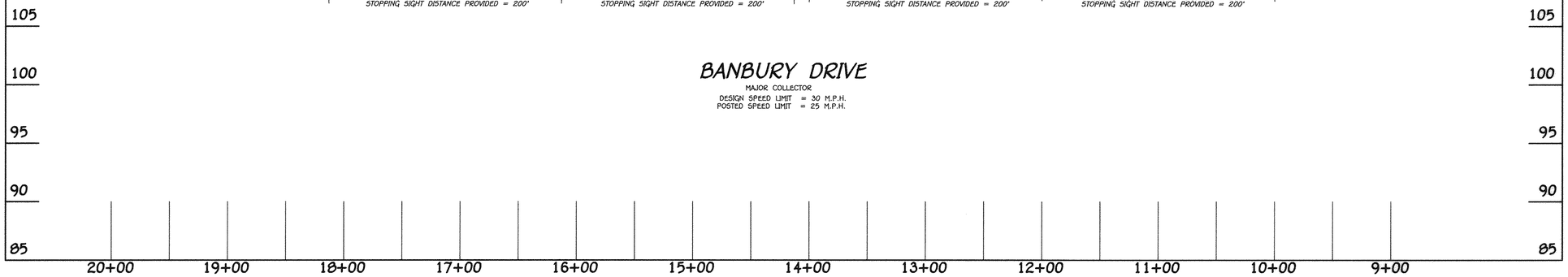


PLAN
SCALE: 1" = 40'

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



BANBURY DRIVE
MAJOR COLLECTOR
DESIGN SPEED LIMIT = 30 M.P.H.
POSTED SPEED LIMIT = 25 M.P.H.



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

0' 50' 100' 150'
SCALE: 1" = 50'

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
4/7/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4.12.16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25700-25720	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

STOPPING SIGHT DISTANCE PLAN AND PROFILE

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 20 OF 44

SDP-16-013

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HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-1
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: V. Velasquez
Surf. Elev.: 115.87 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
115 / 0	D	Brown, moist, stiff, sandy CLAY. (CL; Possible Fill)	Topsoil - 3"	14"		3-5-6	11	
112.5 / 2.5	I							
110 / 5	D	Brown to tan, moist,medium dense to very dense, SAND, some clay. (SP-SC; Sandy Clay Loam, Possible Fill)	Groundwater was not encountered while drilling.	14"		5-5-7	12	
107.5 / 7.5	D			16"		5-6-8	14	
105 / 10	D			16"		12-17-20	37	
102.5 / 12.5	I			20"		20-27-29-33	56	
100 / 15		Bottom of boring at 12.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	5.3 ft.
AFTER 24 HRS.	Dry ft.	5.3 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-2
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: V. Velasquez
Surf. Elev.: 115.94 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
115 / 0	D	White to tan, moist, medium dense, silty SAND, trace gravel. (SM; Fill)	Topsoil - 3"	14"		6-10-10	20	
112.5 / 2.5	D							
110 / 5	D	Gray to brown, moist, medium dense to dense, SAND, trace clay. (SP-SC; Sandy Loam; Possible Fill)	Groundwater was not encountered while drilling.	16"		4-6-8	14	
107.5 / 7.5	D			18"		6-8-11	19	
105 / 10	D			14"		6-14-20	34	
102.5 / 12.5	D			20"		17-18-17-18	45	
100 / 15		Bottom of boring at 12.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	5.1 ft.
AFTER 24 HRS.	Dry ft.	5.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-3
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: V. Velasquez
Surf. Elev.: 119.03 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
117.5 / 0	I	Light brown to brown, moist, medium dense, silty SAND, trace gravel and organics. (SM; Fill)	Topsoil - 3"	14"		9-6-5	11	
115 / 2.5	I							
112.5 / 5	I	Gray to brown, moist, medium dense, clayey SAND, trace gravel. (SC; Possible Fill)		14"		5-7-6	13	
110 / 7.5	I							
107.5 / 10	D	Gray to brown, moist, stiff, sandy CLAY. (CL; Possible Fill)	Groundwater was not encountered while drilling.	18"		6-5-6	11	
105 / 12.5	D							
102.5 / 15	D	Tan to brown, moist, medium dense, SAND, trace silt. (SP- SM; Sandy Loam; Possible Fill)		14"		6-12-16	28	
100 / 17.5		Bottom of boring at 12.0'.		24"		11-11-17-22	28	

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	5.6 ft.
AFTER 24 HRS.	Dry ft.	5.6 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-4
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: V. Velasquez
Surf. Elev.: 118.81 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
117.5 / 0	I	Brown, moist, loose, silty SAND, trace gravel. (SM; Fill)	Topsoil - 3"	16"		5-4-5	9	
115 / 2.5	I							
112.5 / 5	I	Gray to brown, moist, stiff to very stiff, CLAY, some to trace sand. (CL; Possible Fill)		14"		4-6-6	12	
110 / 7.5	I		Groundwater was not encountered while drilling.	16"		5-5-6	11	
107.5 / 10	I							
105 / 12.5	D			16"		5-7-12	19	
102.5 / 15	D	Brown to tan, moist, medium dense, SAND, trace clay. (SP- SC; Sandy Loam; Possible Fill)		20"		7-12-15-22	27	
100 / 17.5		Bottom of boring at 12.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	5.0 ft.
AFTER 24 HRS.	Dry ft.	4.9 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-5
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: V. Velasquez
Surf. Elev.: 117.64 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
117.5 / 0	D	Brown, moist, dense, clayey SAND, trace gravel. (SC; Possible Fill)	Topsoil - 3"	12"		11-17-15	32	
115 / 2.5	I							
112.5 / 5	I	Gray to brown, moist, stiff, sandy CLAY. (CL; Possible Fill)		14"		7-6-7	13	
110 / 7.5	I							
107.5 / 10	D	Brown, moist, dense, clayey SAND. (SC; Sandy Clay Loam; Possible Fill)	Groundwater was not encountered while drilling.	14"		5-7-8	15	
105 / 12.5	D							
102.5 / 15	D			16"		7-11-10	21	
100 / 17.5		Bottom of boring at 12.0'.		18"		7-11-12-13	23	

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	5.2 ft.
AFTER 24 HRS.	Dry ft.	5.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-6
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 118.62 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
117.5 / 0	D	Brown to dark brown, moist, very stiff, sandy SILT, trace gravel. (ML; Fill)		18"		9-9-11	20	
115 / 2.5	I	Brown to gray, moist, stiff, silty CLAY. (CL; Possible Fill)		18"		7-12-12	24	
112.5 / 5	I	Gray to brown, moist, medium dense, clayey SAND. (SC; Possible Fill)	Groundwater was not encountered while drilling.	16"		6-12-12	24	
110 / 7.5	D			3"		9-7-11	18	
107.5 / 10	I	Dark gray, moist, stiff to very stiff, CLAY, trace sand. (CL; Clay)		12"		6-8-11	19	
105 / 12.5	I			18"		5-5-5	10	
102.5 / 15		Bottom of boring at 14.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	9.0 ft.
AFTER 24 HRS.	Dry ft.	9.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-7
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 119.13 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
117.5 / 0	D	Dark gray to brown, moist, medium dense to dense, silty SAND, trace gravel. (SM; Fill)		18"		11-7-5	12	
115 / 2.5	D			18"		16-16-15	31	
112.5 / 5	I	Gray, moist, hard, sandy CLAY. (CL; Possible Fill)	Groundwater was not encountered while drilling.	18"		15-16-17	33	
110 / 7.5	D	Light brown to tan, moist, medium dense, clayey SAND. (SC; Possible Fill)		18"		6-7-7	14	
107.5 / 10	I	Dark gray to gray, moist, stiff to very stiff, CLAY. (CL; Clay)		3"		7-8-9	17	
105 / 12.5	I			18"		3-4-4	8	
102.5 / 15		Bottom of boring at 15.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	12.0 ft.
AFTER 24 HRS.	Dry ft.	12.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-8
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 116.51 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/17/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/17/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
115 / 0	I	White to tan, moist, very stiff, CLAY, trace sand. (CL; Possible Fill)	Topsoil - 1"	18"		8-11-13	24	
112.5 / 2.5	I			18"		9-8-8	16	
110 / 5	I	Gray to dark gray, moist, loose, clayey SAND. (SC; Possible Fill)	Groundwater was not encountered while drilling.	18"		4-5-4	9	
107.5 / 7.5	I			18"		8-7-5	12	
105 / 10	I	Dark Gray, moist, stiff, CLAY, trace sand. (CL; Clay)		12"		3-4-4	8	
102.5 / 12.5		Bottom of boring at 12.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	6.0 ft.
AFTER 24 HRS.	Dry ft.	6.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-9
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 114.24 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
112.5 / 0	I	Brown to tan, moist, medium stiff to stiff, sandy CLAY. (CL; Sandy Clay; Possible Fill)	Topsoil - 2"	15"		6-9-6	15	
110 / 2.5	I			18"		3-3-2	5	
107.5 / 5	I		Groundwater was not encountered while drilling.	18"		2-2-3	5	
105 / 7.5	I			18"		3-3-3	6	
102.5 / 10	I		Boring backfilled upon completion due to safety concerns.					
100 / 12.5	I							
97.5 / 15		Bottom of boring at 9.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	6.0 ft.
AFTER 24 HRS.	Dry ft.	6.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-10
Location: Howard County, Maryland Job #: 15360A

SAMPLER
Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 112.97 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
112.5 / 0	D	Gray to tan, moist, medium dense, SAND, trace clay. (SP- SC; Possible Fill)	Topsoil - 1"	18"		5-8-7	15	
110 / 2.5	D			18"		6-5-5	10	
107.5 / 5	D		Groundwater was not encountered while drilling.	18"		4-5-6	11	
105 / 7.5	I	Brown to gray, moist, loose to medium dense, clayey SAND. (SC; Sandy Clay Loam; Possible Fill)		18"		5-5-3	8	
102.5 / 10	I							
100 / 12.5	I			18"		5-6-7	13	
97.5 / 15		Bottom of boring at 15.0'.						

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	11.0 ft.
AFTER 24 HRS.	Dry ft.	11.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/24/16 DATE

DATE	DESCRIPTION
6/7/16	REVISED PARCEL NAMES & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'B-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'B-1'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT				SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42				N/A		'B-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.	
23788-23790	20	TOD	30	FIRST	6012.01	
WATER CODE	____		SEWER CODE	____		

BORING LOGS

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'B-1'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 21 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 21-22 BORINGS.dwg, BORING LOGS-1, 3/8/2016 2:29:52 PM, 1:1

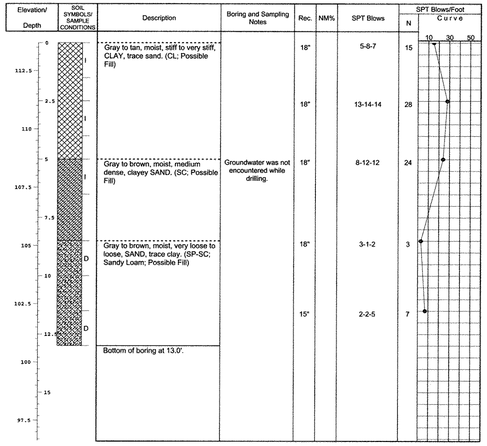
HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-11
Location: Howard County, Maryland Job #: 15360A

SAMPLER

Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 113.70 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015



Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
113.5 / 0	I	Gray to tan, moist, stiff to very stiff, CLAY, trace sand. (CL; Possible Fill)	Groundwater was not encountered while drilling.	18"		5-8-7	15	
110 / 3.5	I			18"		13-14-14	28	
107.5 / 6	I	Gray to brown, moist, very loose to loose, clayey SAND. (SC; Possible Fill)		18"		8-12-12	24	
105 / 8.5	D	Gray to brown, moist, very loose to loose, SAND, trace clay. (SP-SC; Sandy Loam; Possible Fill)		18"		3-1-2	3	
102.5 / 11	D			15"		2-2-5	7	
100 / 13.5		Bottom of boring at 13.0'.						
97.5 / 16								

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	8.5 ft.
AFTER 24 HRS.	Dry ft.	8.5 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

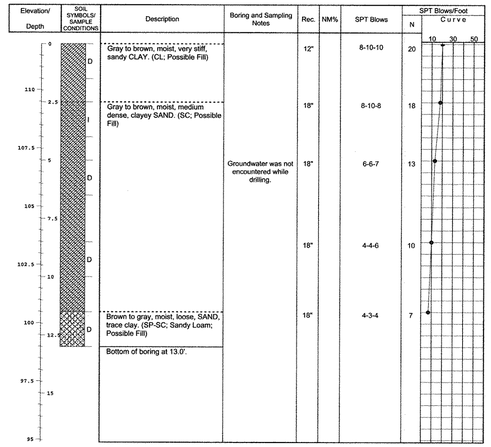
HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-12
Location: Howard County, Maryland Job #: 15360A

SAMPLER

Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 111.97 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015



Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
113.5 / 0	D	Gray to brown, moist, very stiff, sandy CLAY. (CL; Possible Fill)	Groundwater was not encountered while drilling.	12"		8-10-10	20	
110 / 3.5	I			18"		8-10-8	18	
107.5 / 6	D	Gray to brown, moist, medium dense, clayey SAND. (SC; Possible Fill)		18"		6-6-7	13	
105 / 8.5	D			18"		4-4-6	10	
102.5 / 11	D	Brown to gray, moist, loose, SAND, trace clay. (SP-SC; Sandy Loam; Possible Fill)		18"		4-3-4	7	
100 / 13.5		Bottom of boring at 13.0'.						
97.5 / 16								
95 / 18.5								

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	8.5 ft.
AFTER 24 HRS.	Dry ft.	8.5 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

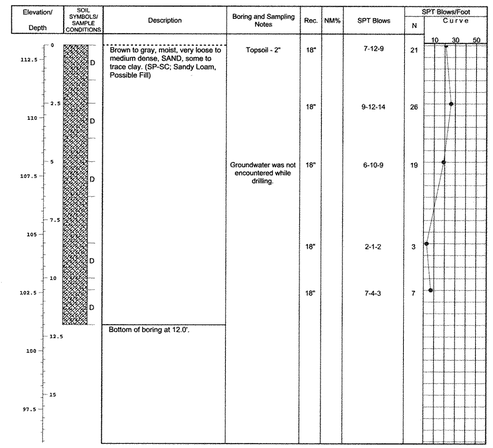
HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-13
Location: Howard County, Maryland Job #: 15360A

SAMPLER

Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: B. Van Doren
Surf. Elev.: 113.13 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015



Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
113.5 / 0	D	Brown to gray, moist, very loose to medium dense, SAND, some to trace clay. (SP-SC; Sandy Loam, Possible Fill)	Topsoil - 2"	18"		7-12-9	21	
110 / 3.5	D		Groundwater was not encountered while drilling.	18"		9-12-14	26	
107.5 / 6	D			18"		6-10-9	19	
105 / 8.5	D			18"		2-1-2	3	
102.5 / 11	D			18"		7-4-3	7	
100 / 13.5		Bottom of boring at 12.0'.						
97.5 / 16								

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	6.5 ft.
AFTER 24 HRS.	Dry ft.	6.5 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

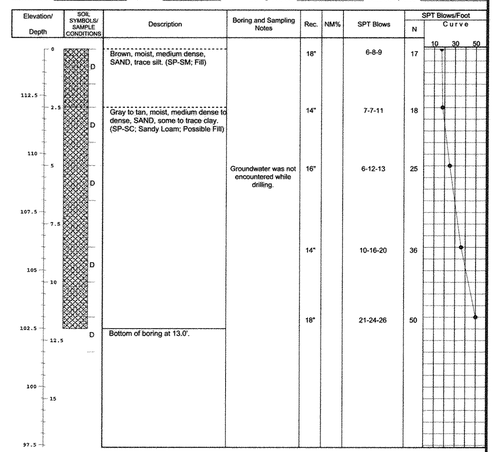
HILLIS - CARNES
ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: **Oxford Square E.S.** Boring No.: SWM-14
Location: Howard County, Maryland Job #: 15360A

SAMPLER

Datum: ____ Hammer Wt.: 140 lbs. Hole Diameter: 6.0 Foreman: V. Velasquez
Surf. Elev.: 114.48 ft Hammer Drop: 30 in. Rock Core Diameter: ____ Inspector: ____
Date Started: 8/18/2015 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 8/18/2015



Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
114.5 / 0	D	Brown, moist, medium dense, SAND, trace silt. (SP-SM; Fill)	Groundwater was not encountered while drilling.	18"		6-8-9	17	
112.5 / 2	D	Gray to tan, moist, medium dense to dense, SAND, some to trace clay. (SP-SC; Sandy Loam; Possible Fill)		14"		7-7-11	18	
110 / 4.5	D			16"		6-12-13	25	
107.5 / 7	D			14"		10-16-20	36	
105 / 9.5	D			18"		21-24-26	50	
102.5 / 12	D	Bottom of boring at 13.0'.						
100 / 14.5								
97.5 / 17								

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

	GROUND WATER	CAVE IN DEPTH
AT COMPLETION	Dry ft.	5.0 ft.
AFTER 24 HRS.	Dry ft.	5.0 ft.
AFTER ___ HRS.	____ ft.	____ ft.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

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CHARLES J. CROVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16
Chief, Division of Land Development — Date 4-18-16
Chief, Development Engineering Division — Date 4-13-16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25786-25790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

BORING LOGS

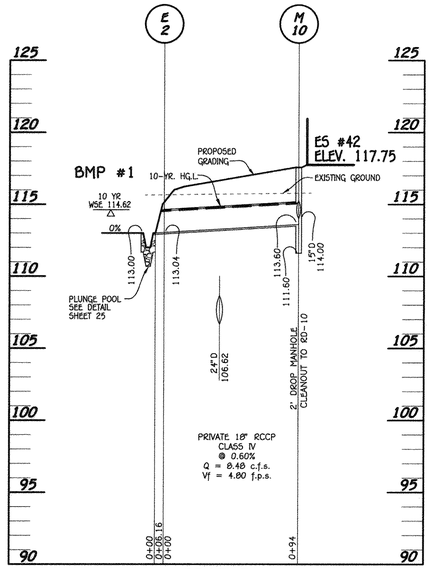
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

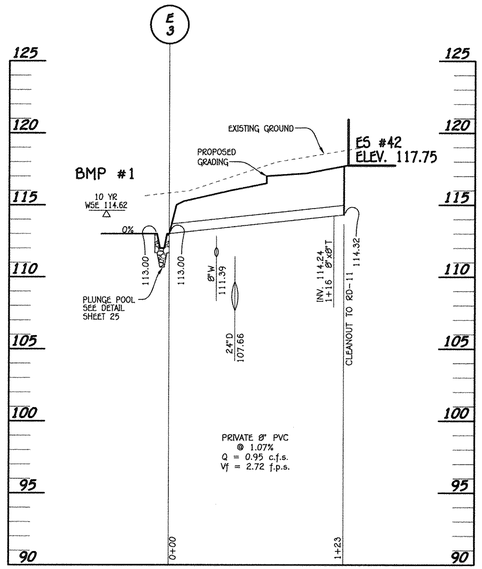
ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

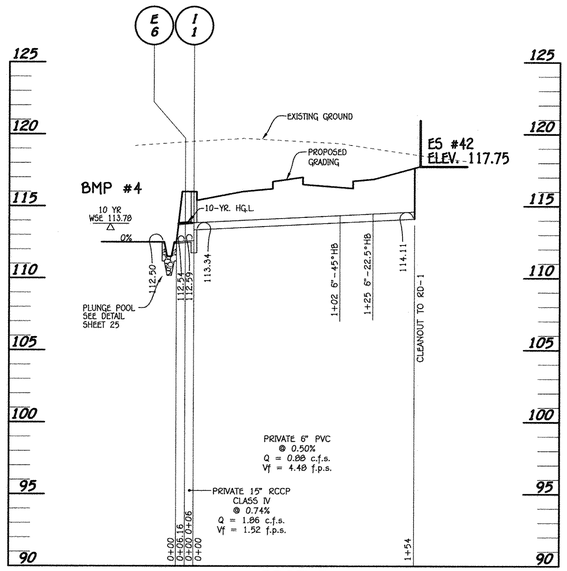
SHEET 22 OF 44

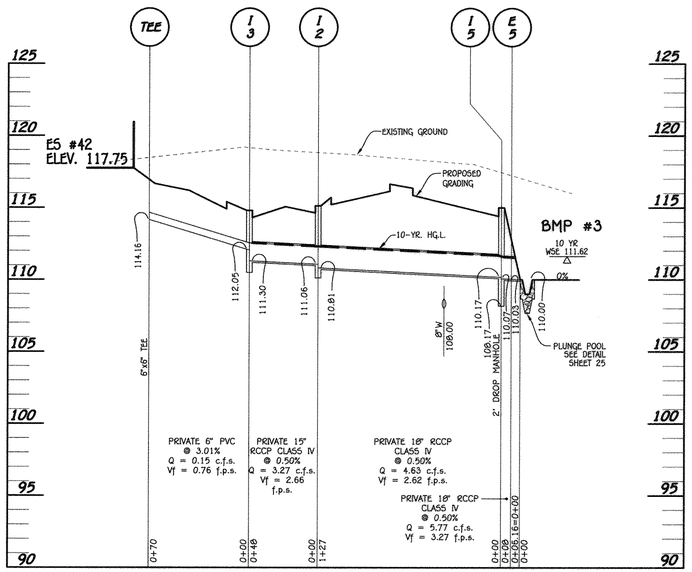
SDP-16-013

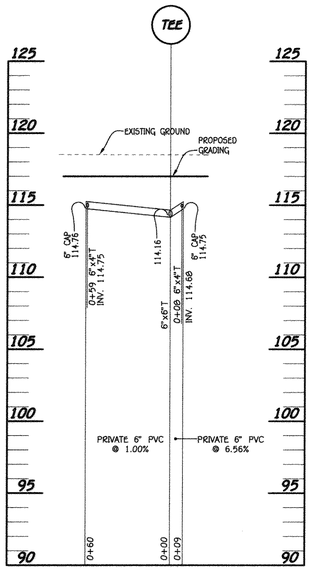
I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 21-22 BORINGS.dwg, BORING LOGS-2, 3/8/2016 2:30:48 PM, 1:1

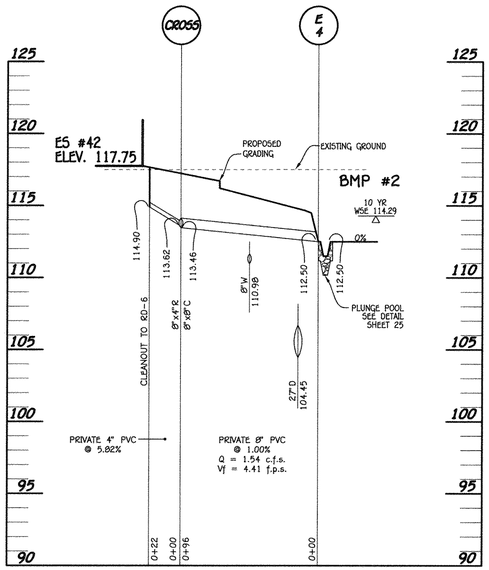


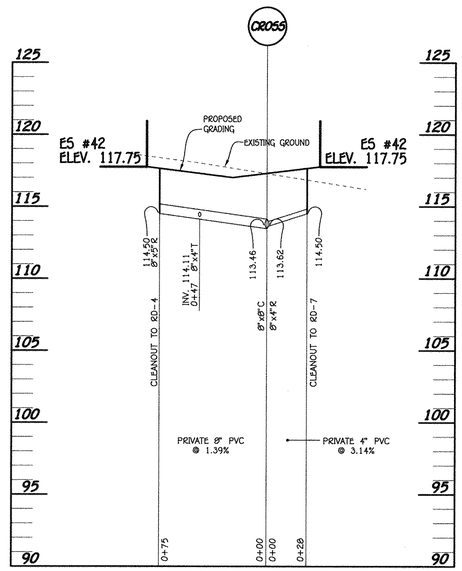


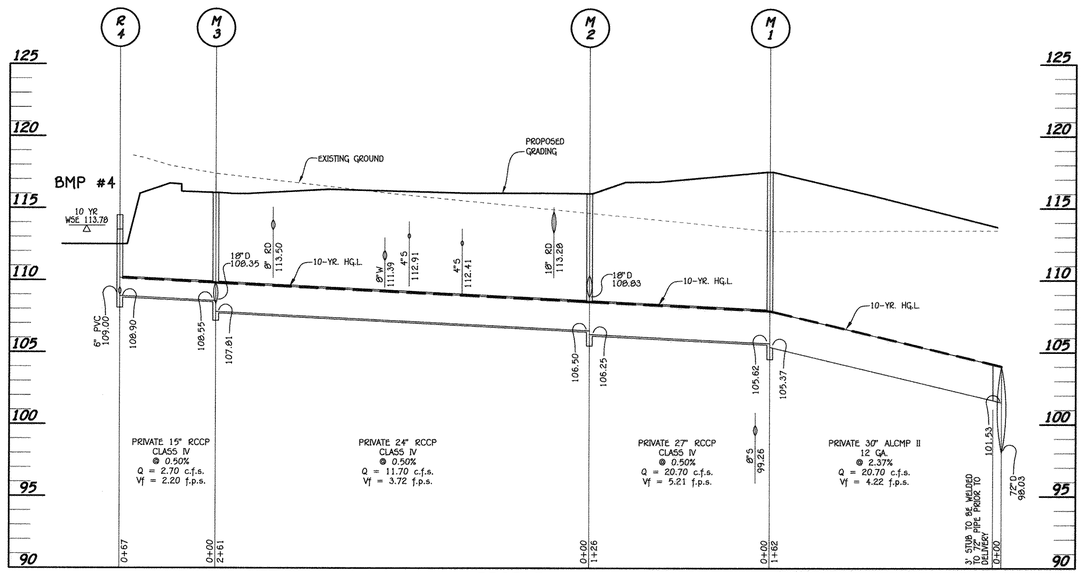












0' 50' 100' 150'
SCALE: 1" = 50'

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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
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CHARLES J. CROVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-12-16

Chief, Development Engineering Division — Date 4-13-16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			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	----	

STORM DRAIN PROFILES

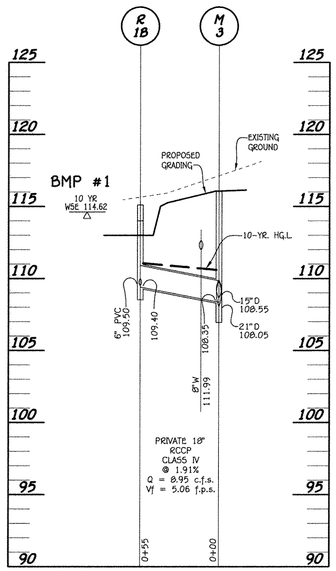
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 23 OF 44

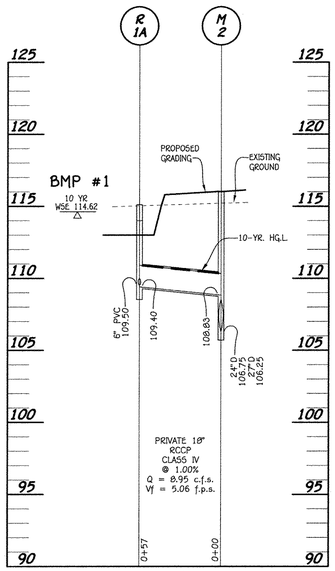
SDP-16-013

I:\2009\09016\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 23-24-25-26 STORM PROFILES.dwg PROFILES-1, 3/21/2016 11:29:44 AM, 1:1



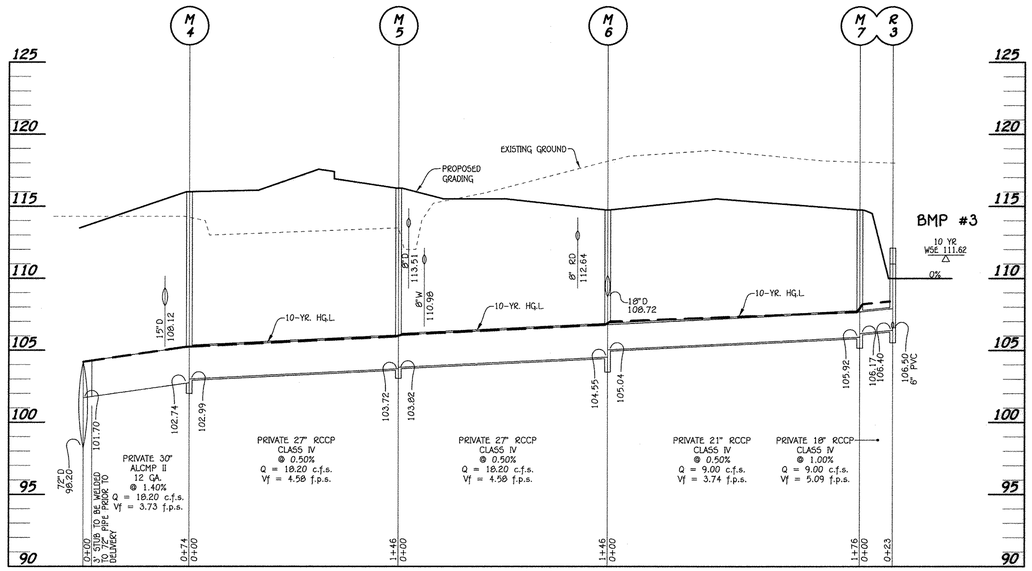
PROFILE

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



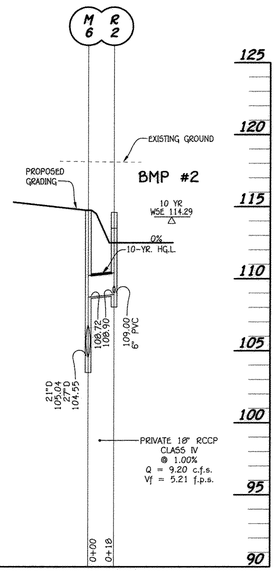
PROFILE

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



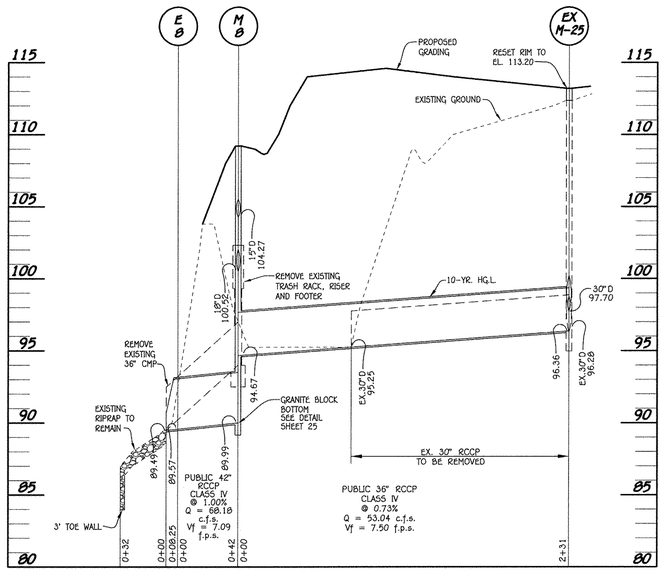
PROFILE

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



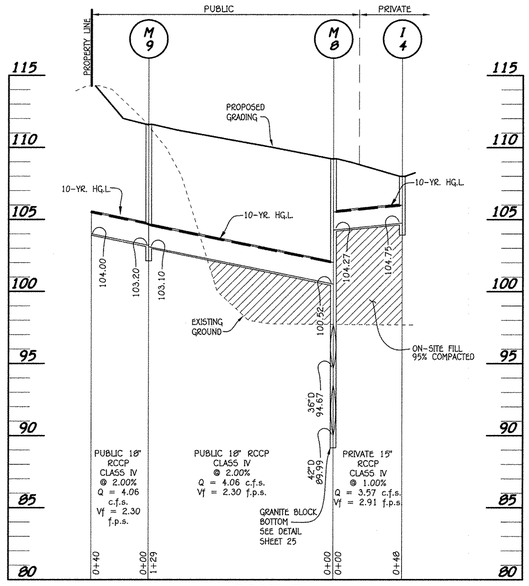
PROFILE

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



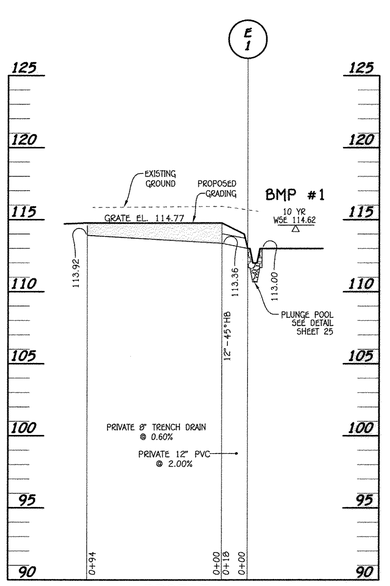
PROFILE

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



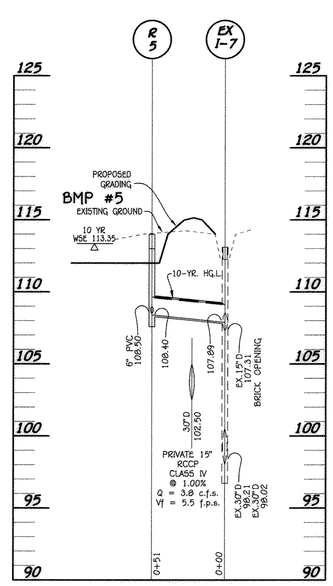
PROFILE

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



PROFILE

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



PROFILE

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

0' 50' 100' 150'

SCALE: 1" = 50'

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CHARLES J. CROVO, SR., P.E.

3/21/16
DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINE PARCELS 'B' & 'B-1' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-12-16 Date

Chief, Development Engineering Division — 4-13-16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-1'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788 - 23790	20	TOD	30	FIRST	6012.01
WATER CODE ____			SEWER CODE ____		

STORM DRAIN PROFILES

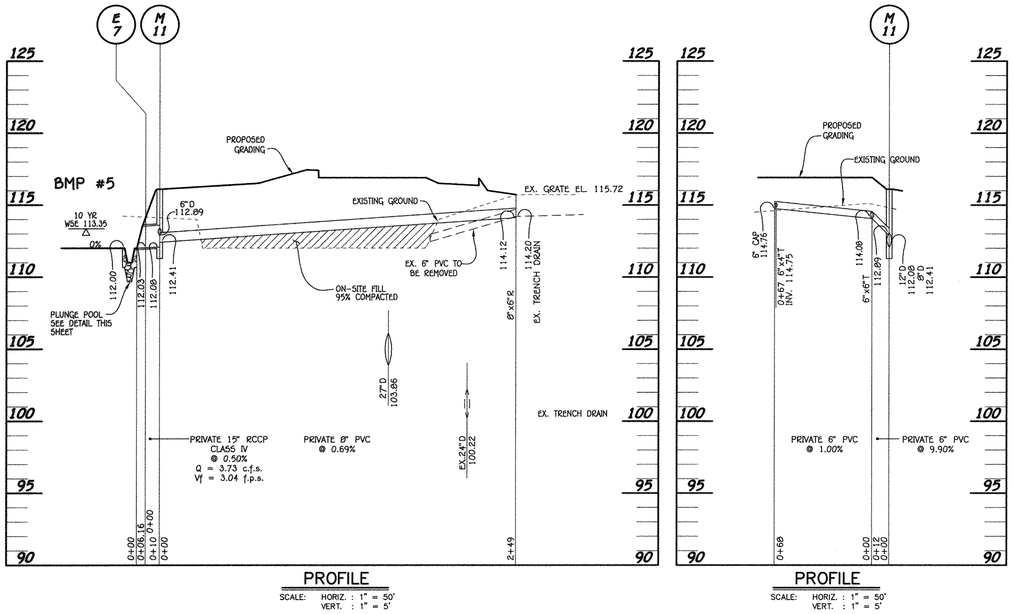
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 24 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 23-24-25-26 STORM PROFILES.dwg, PROFILES-2, 3/8/2016 1:38:42 PM, 1:1



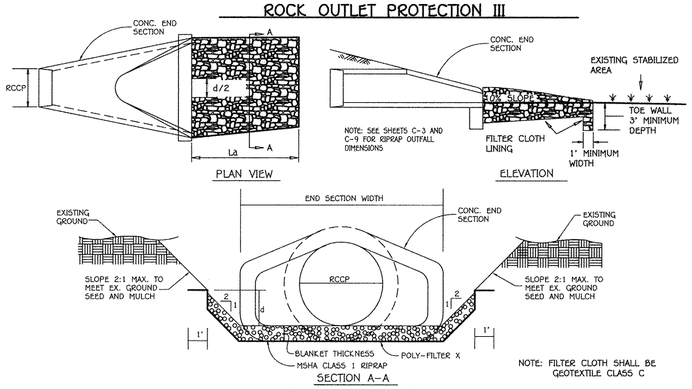
PROFILE

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

PROFILE

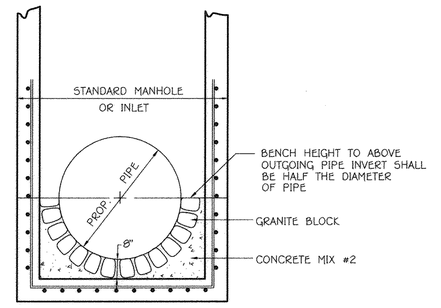
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'

ROCK OUTLET PROTECTION III



RIP RAP CHANNEL DETAIL

NO SCALE



GRANITE BLOCK DETAIL

NOT TO SCALE

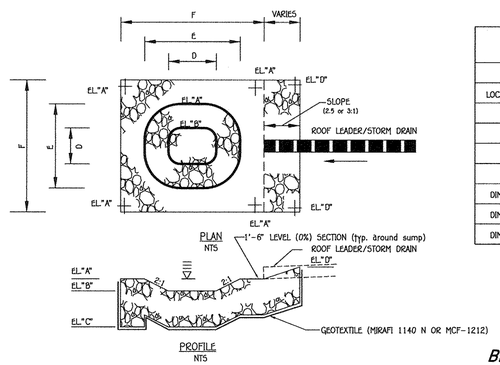
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.

3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional 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.

4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



BMP #1-#5 PLUNGE POOL DETAIL

NTS

BMP ROOF LEADER/STORM DRAIN OUTFALL SUMP ELEVATION TABLE

	BMP #1	BMP #1	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5
LOCATION/SIZE	E-1/8"	E-2/18"	E-3/8"	E-4/8"	E-5/18"	E-6/15"	E-7/12"
EL. A	113.00	113.00	113.00	112.50	110.00	112.50	112.00
EL. B	112.00	112.00	112.00	111.50	109.00	111.50	111.00
EL. C	110.75	110.75	110.75	110.25	107.75	110.25	109.75
EL. D	113.50	113.50	113.50	113.00	110.50	113.00	112.00
DIMENSION D	1'-6"	4'-0"	1'-6"	1'-8"	3'-0"	2'-6"	2'-7"
DIMENSION E	5'-6"	8'-0"	5'-6"	5'-8"	7'-0"	6'-6"	6'-7"
DIMENSION F	8'-6"	11'-0"	8'-6"	8'-8"	10'-0"	9'-6"	9'-7"

PLUNGE POOL NOTES:
1. USE: MSHA CL I RIPRAP (DO NOT USE STONE > 9" ø) ON GEOTEXTILE (MIRAFI 1160N), 15" THICK. MIRAFI 1160 N IS A NON-WOVEN FABRIC WITH SMALL PORES TO MINIMIZE FLOW INTO AGGREGATE LAYER.
2. SEE PLAN FOR EXACT SHAPE OF OUTFALL SUMP.
3. DIMENSIONS "D" and "E" ARE CENTERED ON DIMENSION "F".

STRUCTURE SCHEDULE

STRUCTURE NO.	OWNERSHIP AND MAINTENANCE	TOP ELEVATION	INV.IN	INV.OUT	COORDINATES	WIDTH	TYPE	REMARKS
I-1	PRIVATE	115.89	113.34 (6")	112.59 (15")	N 553291.03 E 1386679.12	2.50'	A-5 INLET	D-4.01
I-2	PRIVATE	115.13	111.06 (15")	110.81 (18")	N 553191.09 E 1386902.53	2.50'	A-5 INLET	D-4.01
I-3	PRIVATE	114.80	112.05 (6")	111.30 (15")	N 553211.00 E 1386862.18	2.50'	A-5 INLET	D-4.01
I-4	PRIVATE	108.00 ✻✻✻	-	104.75 (15")	N 553816.13 E 1386926.17	2.58'	S INLET	D-4.22 & D-4.93
I-5	PRIVATE	114.90	110.17 (18")	110.07 (18")	N 553134.62 E 1387016.94	2.50'	A-5 INLET	D-4.01
M-1	PRIVATE	117.53	105.62 (27")	105.37 (30")	N 553635.83 E 1386840.06	5'	STD. MANHOLE	G - 5.13
M-2	PRIVATE	116.02	108.83 (18") 106.50 (24")	106.25 (27")	N 553566.13 E 1386734.94	5'	STD. MANHOLE	G - 5.13
M-3	PRIVATE	116.07	108.55 (15") 108.35 (18")	107.81 (24")	N 553331.74 E 1386619.26	4'	STD. MANHOLE	G - 5.12
M-4	PRIVATE	116.00	102.99 (27")	102.74 (30")	N 553512.51 E 1387034.77	4'	STD. MANHOLE	G - 5.12
M-5	PRIVATE	116.23	103.82 (27")	103.72 (27")	N 553448.40 E 1387166.22	4'	STD. MANHOLE	G - 5.12
M-6	PRIVATE	114.75	108.72 (18") 105.04 (21")	104.55 (27")	N 553317.90 E 1387101.82	4'	STD. MANHOLE	G - 5.12
M-7	PRIVATE	114.75	106.17 (18")	105.92 (21")	N 553159.67 E 1387023.73	4'	STD. MANHOLE	G - 5.12
M-8	PRIVATE	109.22	104.27(19") 100.52(18") 94.67(36") 89.99(42")	89.99 (42")	N 553834.49 E 1386881.97	6'	STD. MANHOLE	S-5.13 OFFSET MH FRAME, COVER & STEPS ON NORTH SIDE
M-9	PRIVATE	111.60	103.60 (18")	103.50 (18")	N 553842.30 E 1386752.79	4'	STD. MANHOLE	G - 5.12
M-10	PRIVATE	117.57	114.00 (15")	113.60 (18")	N 553520.60 E 1386771.75	4'	STD. MANHOLE	G - 5.12
M-11	PRIVATE	116.10	112.89 (6") 112.41 (8")	112.08 (15")	N 553513.35 E 1387018.86	4'	STD. MANHOLE	G - 5.12
R-1A	PRIVATE	115.10 ✻✻✻	109.50 (6")	109.40 (18")	N 553591.06 E 1386683.71	3'	MOD. K INLET	SEE SHEET 41
R-1B	PRIVATE	115.10 ✻✻✻	109.50 (6")	109.40 (18")	N 553355.94 E 1386569.56	3'	MOD. K INLET	SEE SHEET 41
R-2	PRIVATE	114.60 ✻✻✻	109.00 (6")	108.90 (18")	N 553310.10 E 1387117.88	3'	MOD. K INLET	SEE SHEET 41
R-3	PRIVATE	112.10 ✻✻✻	106.50 (6")	106.40 (18")	N 553149.45 E 1387044.79	3'	MOD. K INLET	SEE SHEET 41
R-4	PRIVATE	114.50 ✻✻✻	109.00 (6")	108.90 (15")	N 553286.59 E 1386644.61	3'	MOD. K INLET	SEE SHEET 41
R-5	PRIVATE	114.00 ✻✻✻	108.50 (6")	108.40 (15")	N 553539.48 E 1387013.22	3'	MOD. K INLET	SEE SHEET 41
E-1	PRIVATE	113.67	-	113.00 (8")	N 553608.02 E 1386669.72	8"	-	D - 5.51
E-2	PRIVATE	114.55	-	113.00 (18")	N 553562.19 E 1386687.46	18"	CONC. END SECTION	D - 5.51
E-3	PRIVATE	113.67	-	113.00 (8")	N 553388.40 E 1386594.81	8"	-	-
E-4	PRIVATE	113.17	-	112.50 (8")	N 553329.96 E 1387123.38	8"	-	-
E-5	PRIVATE	111.53	-	110.00 (18")	N 553130.60 E 1387025.09	18"	CONC. END SECTION	D - 5.51
E-6	PRIVATE	113.70	-	112.50 (15")	N 553284.16 E 1386675.69	15"	CONC. END SECTION	D - 5.51
E-7	PRIVATE	113.00	-	112.00 (12")	N 553526.80 E 1387011.05	12"	-	-
E-8	PRIVATE	93.07	-	89.49 (42")	N 553875.50 E 1386884.64	42"	CONC. END SECTION	D - 5.51

✻✻✻ - DENOTES GRATE ELEVATION

PIPE SCHEDULE (PRIVATE)

SIZE	CLASS	LENGTH
3"	PVC SCH 40	14 L.F.
4"	PVC SCH 40	86 L.F.
6"	PERF PVC	1802 L.F.
6"	PVC SCH 40	373 L.F.
8"	PVC SCH 40	550 L.F.
12"	PVC SCH 40	34 L.F.
15"	RCCP, CLASS IV	225 L.F.
18"	RCCP, CLASS IV	551 L.F.
21"	RCCP, CLASS IV	437 L.F.
27"	RCCP, CLASS IV	418 L.F.
30"	RCCP, CLASS IV	79 L.F.
36"	RCCP, CLASS IV	231 L.F.
42"	RCCP, CLASS IV	42 L.F.
30"	ALCMP, 12 GA	236 L.F.
72"	ALCMP, 12 GA	154 L.F.

0' 50' 100' 150'

SCALE: 1" = 50'

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/24/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-8' INTO PARCEL 'D-7'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-7'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT				SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42				N/A		'D-7'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.	
23706-23790	20	TOD	38	FIRST	6012.01	
WATER CODE ____			SEWER CODE ____			

STORM DRAIN PROFILES, DETAILS AND STRUCTURE SCHEDULE

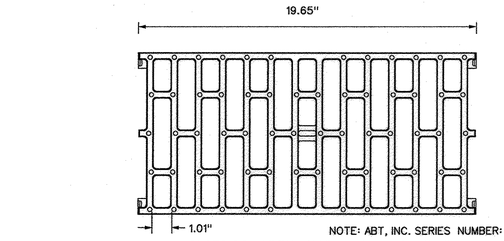
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-7'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 25 OF 44

SDP-16-013

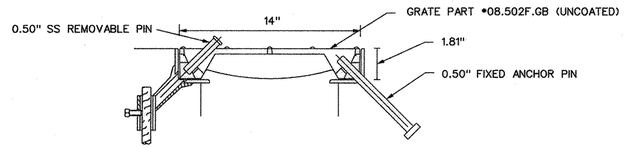
I:\2005\05901\dwg\ELEMENTARY SCHOOL #42 PLANS\05914 SDP SHEET 23-24-25-26 STORM PROFILES.dwg PROFILES-3, 3/21/2016 11:30:40 AM, 1:1



NOTE: ABT, INC. SERIES NUMBER: TR12-12.502E.GB-G22E

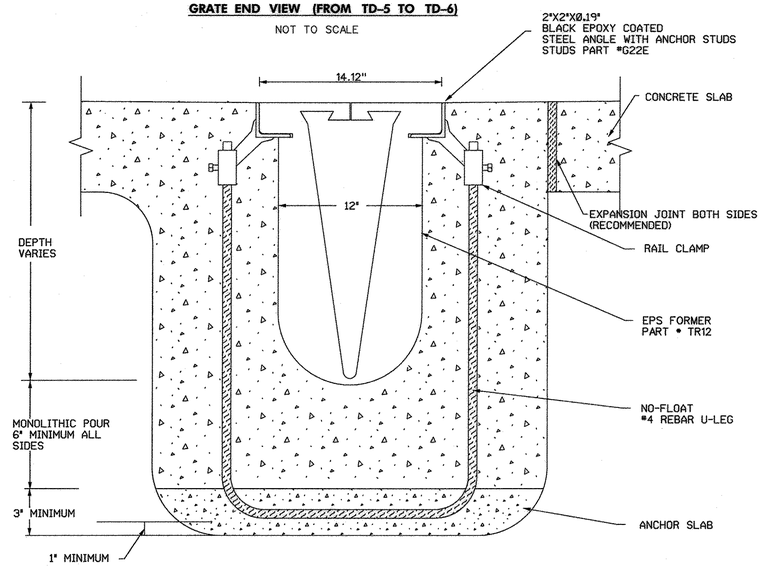
GRATE TOP VIEW (FROM TD-5 TO TD-6)

NOT TO SCALE



GRATE END VIEW (FROM TD-5 TO TD-6)

NOT TO SCALE



1. TRENCH DRAIN PARTS AND DETAILS SHALL CONFORM TO ABT, INC. PRODUCTS.

2. GRATING – TR08.B-08.502F.GB-G22E GRATES SHALL COMPLY WITH ALL THE REQUIREMENTS OF AASHTO M306.

3. FORMS – TR08.B FORMWORK ASSEMBLY MUST BE PREVENTED FROM FLOATING DURING CONCRETE PLACEMENT WITHOUT PENETRATING THE SUB GRADE. FORMWORK TO BE ANCHORED TO THE EARTH USING STEEL NO-FLOAT LEGS AND AN ANCHOR SLAB POUR. TIE WIRES THAT ASSURE CONSTANT FRAME SPACING AND GRATE SEAT DIMENSION TO BE PROVIDED.

4. BLACK EPOXY COATED 2.0" x 2.0" x 0.19" STEEL ANGLE CONFORMING TO ASTM A36. STANDARD HEADED CONCRETE ANCHOR STUDS @SECT GRATE RETAINER ANCHOR LUGS PROVIDING A FRAME ANCHORING DEVICE EVERY 9.84". GRATE FRAMES TO PROVIDE A MINIMUM OF 1.25 SQUARE INCHES CONCRETE BEARING WITH 3.25 SQUARE INCHES OF CONCRETE CONTACT PER INCH OF TRENCH LENGTH. GRATES ARE RETAINED NON-RIGIDLY AT ALL CORNERS. NON-THREADED REMOVABLE 0.5" STAINLESS STEEL PINS LOCATED ON 3.28' CENTERS ALONG THE FRAMES BISECTED BY 0.5" NON-REMOVABLE GRATE RETAINING DEVICE ON 3.28' CENTERS. GRATE RETAINER PERFORMANCE SHALL NOT DEGRADE WITH SERVICE LOADS OR THERMAL CYCLING.

5. POST CONSTRUCTION INSPECTION: FORMWORK IS TO BE FULLY REMOVED, WITHOUT EXCEPTION, TO ALLOW FOR INSPECTION AND IF NEEDED REPAIR OF ANY VOIDS AND OR CONCRETE CONSOLIDATION ISSUES BELOW FRAME, TRENCH WALLS AND INVERT. GRATE AND GRATE RETAINER SHALL BE PERFORMED TO ENSURE THAT ALL GRATES AND RETAINERS ARE INSTALLED AND ARE PROPERLY SEATED IN PLACE.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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CHARLES J. CROVO, SR., P.E. — DATE 3/31/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-8-16

Chief, Development Engineering Division — Date 4-13-16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
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410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
22788 - 22790	20	TOD	38	FIRST	6012.01
WATER CODE ____			SEWER CODE ____		

STORM DRAIN DETAIL

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 26 OF 44

SDP-16-013

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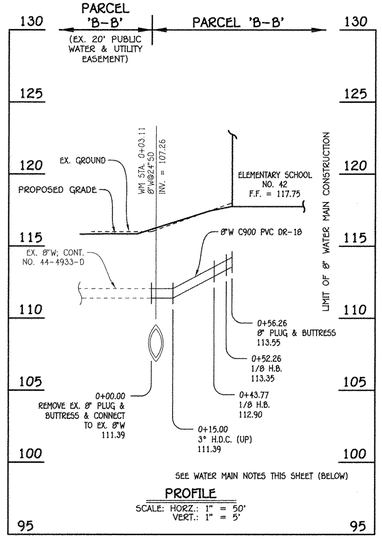
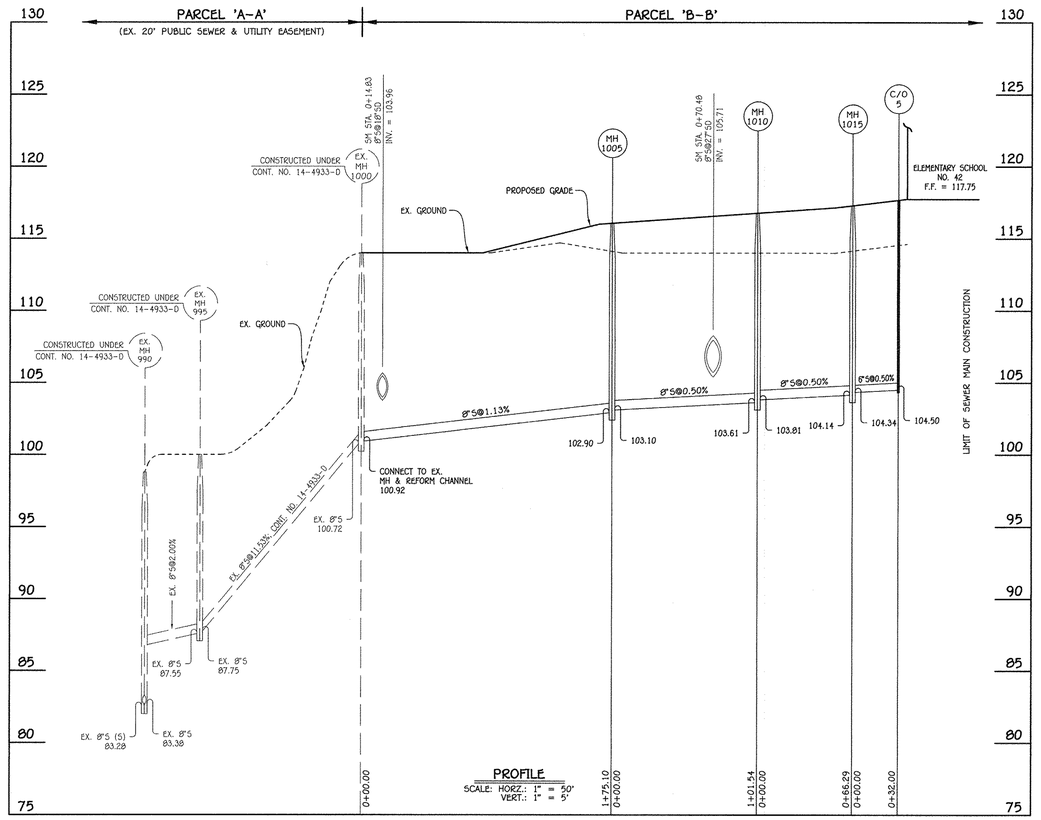


8" WATER MAIN: ELEMENTARY SCHOOL No. 42

WATER MAIN TABULATION CHART			
W.M. STA.	APPURTENANCE	NORTHING	EASTING
8" WATER MAIN: ELEMENTARY SCHOOL NO. 42			
0+00.00	EX. 8" PLUG & BUTTRESS	553438.92	1386668.69
0+43.77	1/8 H.B.	553419.55	1386707.95
0+52.26	1/8 H.B.	553422.27	1386715.98
0+56.26	8" PLUG & BUTTRESS	553425.86	1386717.75

WATER MAIN NOTES:

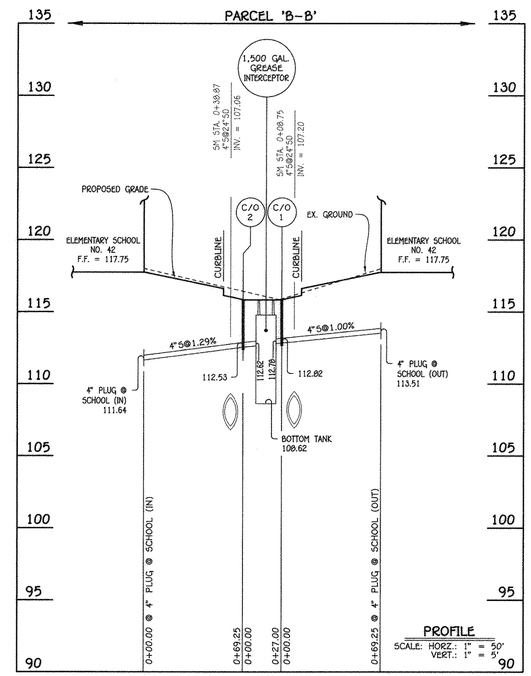
1. ALL WATER MAINS SHALL BE AWWA C900 PVC PIPE; DR-18.
2. ALL PIPE BEDDING, TRACER WIRE, LOCATING TAPE AND OTHER APPURTENANCES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV - WATER AND SEWER STANDARDS FOR AWWA C900 PVC WATER PIPE INSTALLATION.
3. DEFLECTION COUPLINGS SHALL BE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



8" / 6" SEWER MAIN: ELEMENTARY SCHOOL No. 42

MANHOLE TABULATION CHART			
NO.	NORTHING	EASTING	RIM ELEVATION
1005	553679.25	1386781.00	116.06
1010	553608.75	1386854.07	117.77
1015	553579.41	1386913.51	117.29
C/O 5	553550.72	1386899.35	117.68

NOTE: SET MH RIMS FLUSH W/PROPOSED GRADE.



4" SEWER MAIN & GREASE INTERCEPTOR: ELEMENTARY SCHOOL No. 42

MANHOLE TABULATION CHART			
NO.	NORTHING	EASTING	RIM ELEVATION
4" PLUG@SCHOOL WALL	553458.95	1386749.51	---
C/O 1	553489.60	1386687.42	115.83
C/O 2	553509.33	1386697.15	115.83
4" PLUG@SCHOOL WALL	553483.16	1386761.46	---

NOTE: SET CLEAN-OUTS FLUSH W/PROPOSED GRADE.

0' 50' 100' 200'

SCALE: 1" = 50'

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CHARLES J. CROVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAMES & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning	4-18-16 Date
Chief, Division of Land Development	4-18-16 Date
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PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	30	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

SEWER & WATER MAINS PROFILES, CHARTS & NOTES

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 27 OF 44

SDP-16-013

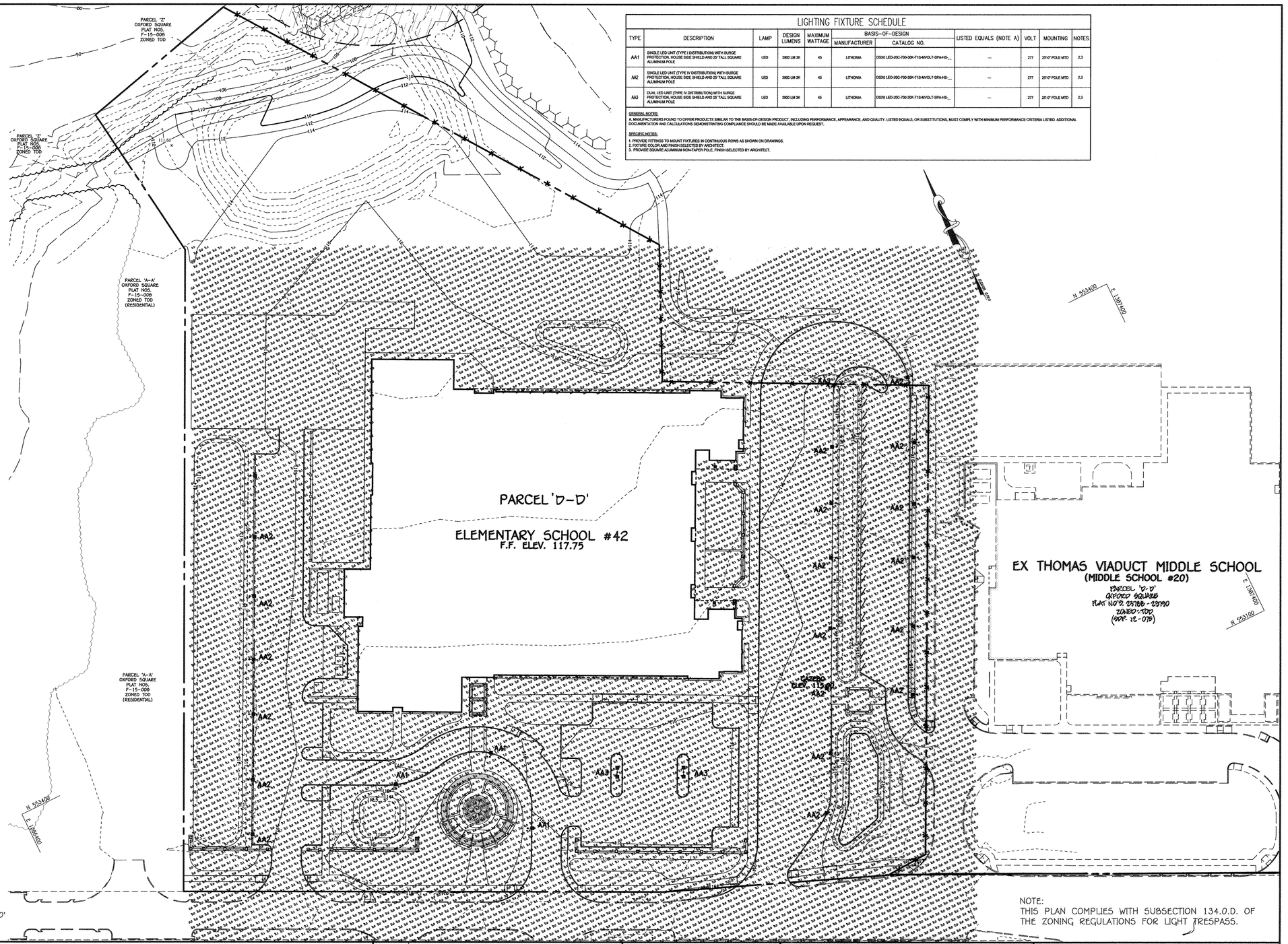
I:\2009\09014\dwg\Water & Sewer Contracts\4005 - Contract No. 14-4933-d (SDP-16-013) Elementary School #42\Finals\09014-4005 Water and Sewer Contract Plan.dwg, 3/11/2016 10:58:38 AM, Upstairs 1500 (temporary).pc3

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMP	DESIGN LUMENS	MAXIMUM WATTAGE	BASIS-OF-DESIGN MANUFACTURER	BASIS-OF-DESIGN CATALOG NO.	LISTED EQUALS (NOTE A)	VOLT	MOUNTING	NOTES
AA1	SINGLE LED UNIT (TYPE I DISTRIBUTION) WITH SURGE PROTECTION, HOUSE SIDE SHIELD AND 25' TALL SQUARE ALUMINUM POLE	LED	3900 LM 3K	45	LITHONIA	DSX0 LED-20C-700-30K-T1S-MVOLT-SPA-HS_	--	277	25'-0" POLE MTD	2,3
AA2	SINGLE LED UNIT (TYPE IV DISTRIBUTION) WITH SURGE PROTECTION, HOUSE SIDE SHIELD AND 25' TALL SQUARE ALUMINUM POLE	LED	3900 LM 3K	45	LITHONIA	DSX0 LED-20C-700-30K-T1S-MVOLT-SPA-HS_	--	277	25'-0" POLE MTD	2,3
AA3	DUAL LED UNIT (TYPE IV DISTRIBUTION) WITH SURGE PROTECTION, HOUSE SIDE SHIELD AND 25' TALL SQUARE ALUMINUM POLE	LED	3900 LM 3K	45	LITHONIA	DSX0 LED-20C-700-30K-T1S-MVOLT-SPA-HS_	--	277	25'-0" POLE MTD	2,3

GENERAL NOTES:
A. MANUFACTURERS FOUND TO OFFER PRODUCTS SIMILAR TO THE BASIS-OF-DESIGN PRODUCT, INCLUDING PERFORMANCE, APPEARANCE, AND QUALITY. LISTED EQUALS, OR SUBSTITUTIONS, MUST COMPLY WITH MINIMUM PERFORMANCE CRITERIA LISTED. ADDITIONAL DOCUMENTATION AND CALCULATIONS DEMONSTRATING COMPLIANCE SHOULD BE MADE AVAILABLE UPON REQUEST.

SPECIFIC NOTES:
1. PROVIDE FITTINGS TO MOUNT FIXTURES IN CONTINUOUS ROWS AS SHOWN ON DRAWINGS.
2. FIXTURE COLOR AND FINISH SELECTED BY ARCHITECT.
3. PROVIDE SQUARE ALUMINUM NON-TAPER POLE, FINISH SELECTED BY ARCHITECT.



NOTE:
THIS PLAN COMPLIES WITH SUBSECTION 134.0.D. OF THE ZONING REGULATIONS FOR LIGHT TRESPASS.

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CIMBVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'D' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4-13-16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CIMBVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

PHOTOMETRICS DIAGRAM

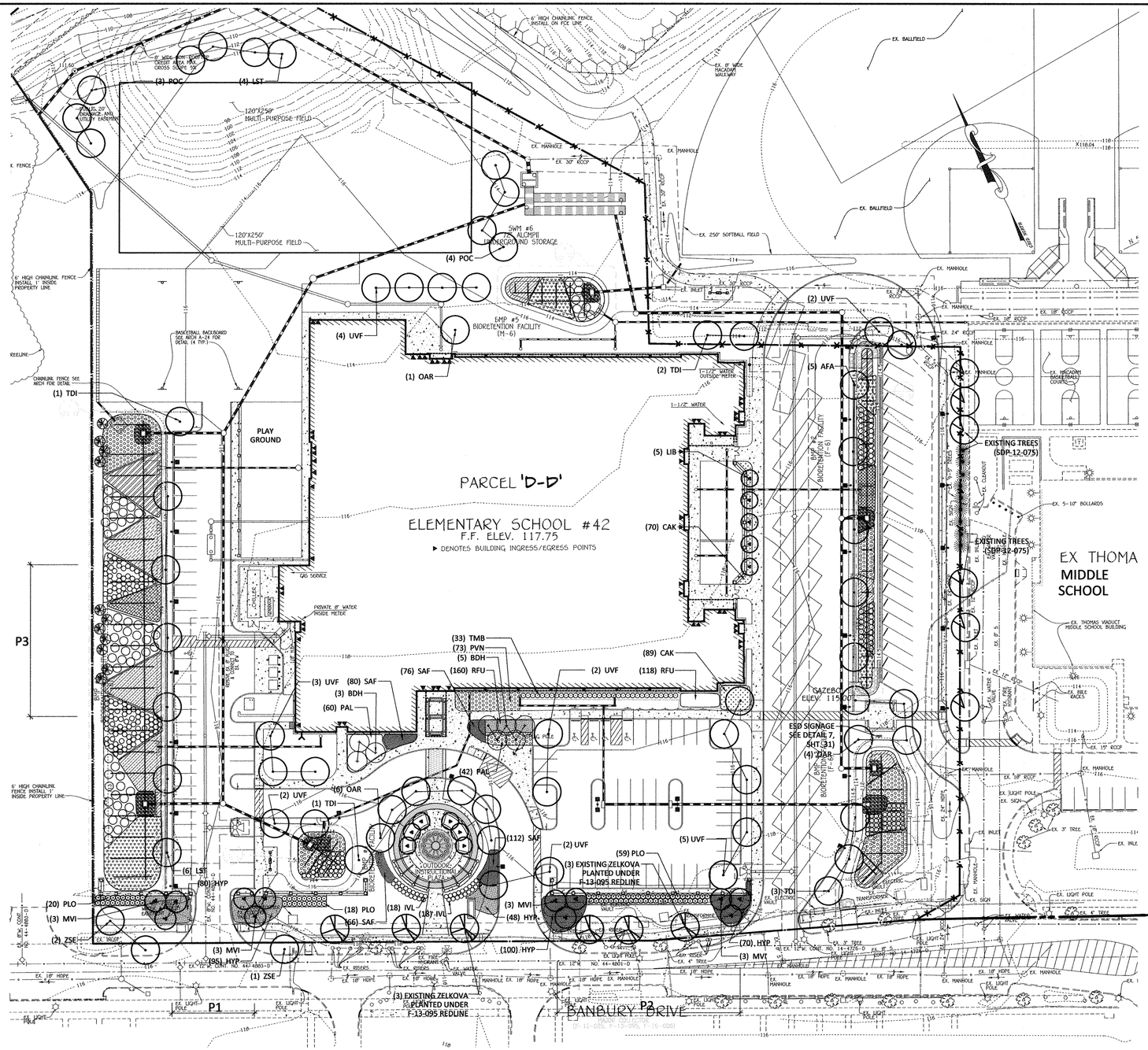
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

SHEET 28 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 28 PHOTOMETRICS PLAN.dwg PHOTO-1, 3/9/2016 11:51:37 AM, 11



01 PLANTING PLAN
1" = 40'-0"

PLANTING SCHEDULE (INCLUDED IN SDP LANDSCAPE REQUIREMENTS)					
QTY.	KEY	BOTANICAL NAME COMMON NAME	SIZE	CONT.	REMARKS
TREES - DECIDUOUS SHADE					
5	AFA	Acer x freemanii 'Autumn Blaze' Freeman Red Maple	2-1/2 - 3" cal.	B & B	Seedless
8	BDH	Betula nigra River Birch	8'-10' ht. min.	B & B	Multistem/4 canes min.
10	LST	Liquidambar styraciflua Sweet Gum	2-1/2 - 3" cal.	B & B	
11	OAR	Oxydendron arboreum Sourwood	2-1/2 - 3" cal.	B & B	
7	POC	Platanus occidentalis American Sycamore	2-1/2 - 3" cal.	B & B	
7	TDI	Taxodium distichum Baldcypress	2-1/2 - 3" cal.	B & B	
20	UVF	Ulmus americana 'Valley Forge; Valley Forge American Elm	2-1/2 - 3" cal.	B & B	
3	ZSE	Zelkova serrata 'Green Vase' Green Vase Zelkova	2-1/2 - 3" cal.	B & B	
TREES - EVERGREEN					
11	IOP	Ilex opaca 'Jersy Night' American Holly	6'-8' ht. min.	B & B	Male Only
TREES - ORNAMENTAL					
11	LIB	Lagerstroemia x 'Biloxi' Biloxi Crapemyrtle	10 - 12' ht. min.	B & B	Multistem/4 canes min.
12	MVI	Magnolia virginiana australis Evergreen Sweetbay Magnolia	10-12' ht. min.	B & B	Multistem/4 canes min.
SHRUBS					
393	HYP	Hypericum 'Hidcote' St. John's Wort	18 - 24" ht.	Cont.	30" O.C.
36	IVL	Itea virginica 'Little Henry Dwarf Sweetspire	18 - 24" ht.	Cont.	30" O.C.
97	PLO	Prunus laurocerasus 'Otto Lukyen' Dwarf Cherry Laurel	24"-30" Ht.	Cont.	36" O.C.
33	TMB	Taxus x media 'Brownii' Anglojap Yew	30"-36" ht.	Cont.	4' O.C.
ORNAMENTAL GRASSES AND PERENNIALS					
159	CAK	Calamagrostis acutiflora 'Karl Foerster' Feather Reed Grass	1 gal.	Cont.	24" O.C.
102	PAL	Pennisetum alopecuroides Fountain grass	2 gal.	Cont.	36" O.C.
73	PVN	Panicum virgatum 'Northwind' Northwind Blue Panicum	2 gal.	Cont.	36" O.C.
278	RFU	Rudbeckia fuldiga Black Eyed Susan	1 gal.	Cont.	18" O.C.
334	SAF	Sedum 'Autumn Fire' Autumn Fire Stonecrop	1 gal.	Cont.	18" O.C.
ESD PLANTS					
390	ASL	Aster laevis Smooth Aster	1 gal.		18" O.C.
174	CAL	Clethra alnifolia Summersweet	18 - 24"" ht.	Cont.	42" o.c.
65	HVI	Hamamelis virginiana Common Witchhazel	30"-36" ht.	Cont.	as shown
87	ITH	Itea virginica 'Little Henry' Virginia Sweetspire	24"-30" ht.	Cont.	36" O.C.
354	PVN	Panicum virgatum 'Northwindl' Heavy Metal Switchgrass	2 gal.	Cont.	36" O.C.
300	PVS	Panicum virgatum 'Shenandoah' Shenandoah Red Switchgrass	2 gal.	Cont.	36" O.C.
345	EFI	Eupatorium fistulosum Joe Pye Weed	1 gal.		24" O.C.
650	SRU	Solidago rugosa 'Firepower' Firepower Goldenrod	1 gal.		18" O.C.
409	VNO	Vernonia noveboracensis Ironweed	1 gal.		24" O.C.

NOTE:
SEE SHEET 30 FOR ESD PLANTING PLAN ENLARGEMENTS.

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

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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CHARLES J. CROVO, SR., P.E. — DATE 3/31/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'D' & 'D-B' INTO PARCEL 'D-D'
DATE	REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4-13-16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA	PARCEL
ELEMENTARY SCHOOL #42			N/A	'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788 - 23790	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

LANDSCAPE PLAN

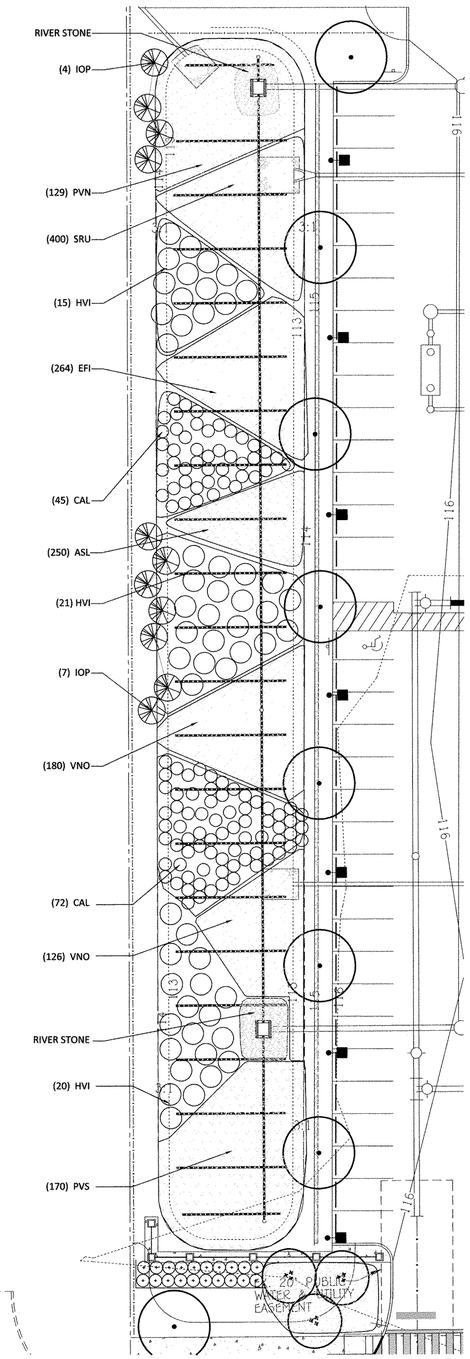
'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 40' DATE: MARCH 7, 2016

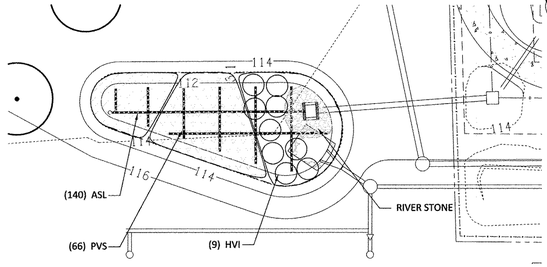
SHEET 29 OF 44

SDP-16-013

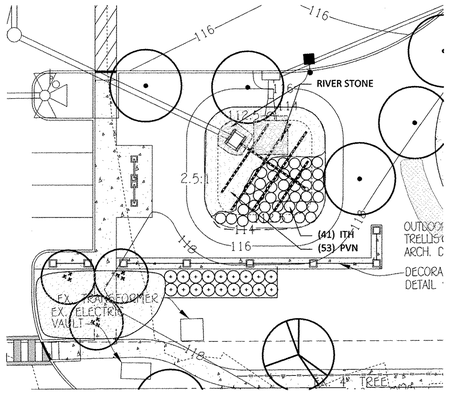
I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 29 LANDSCAPE.dwg, Planting Plan, 3/8/2016 2:04:28 PM, 1:1



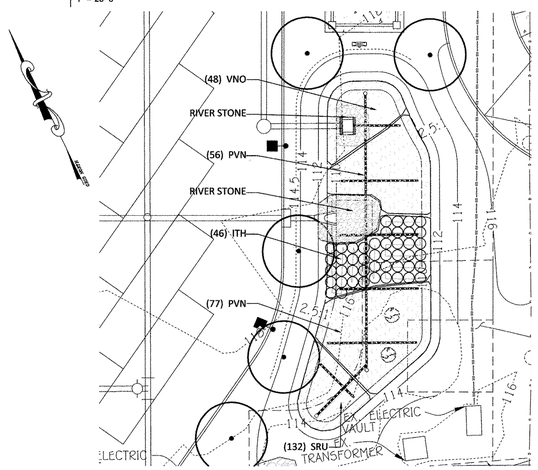
1 SWM PLANTING PLAN
1" = 20'-0"



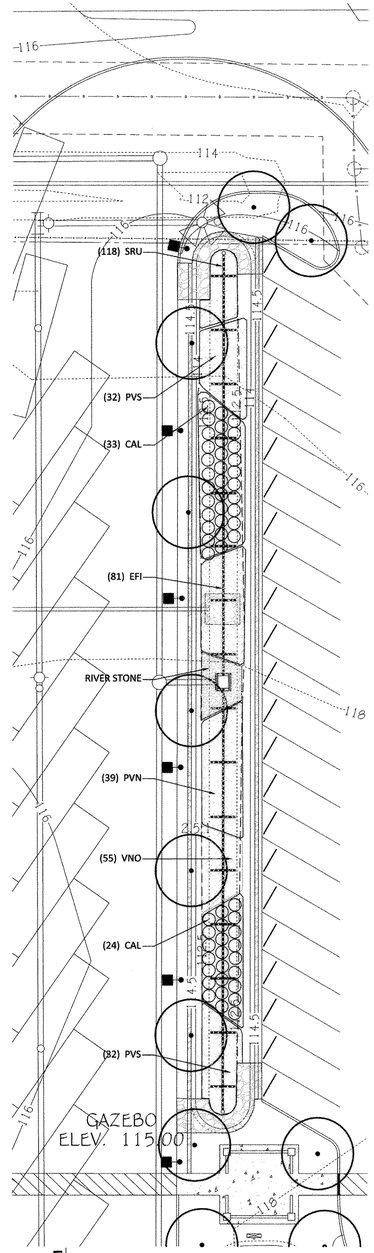
2 SWM PLANTING PLAN
1" = 20'-0"



3 SWM PLANTING PLAN
1" = 20'-0"



4 SWM PLANTING PLAN
1" = 20'-0"



5 SWM PLANTING PLAN
1" = 20'-0"

0' 20' 40' 60'
SCALE: 1" = 20'

NOTE:
SEE SHEET 29 FOR FOR OVERALL SITE TREE AND SHRUB PLANTING PLAN.

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CHARLES J. CROVO, SR., P.E.

3/22/16
DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'D' & 'D-1' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-2016

Chief, Development Engineering Division — Date 4.13.16

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STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-1'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
28788-28790	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

LANDSCAPE PLAN

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 20' DATE: MARCH 7, 2016

SHEET 30 OF 44

SDP-16-013

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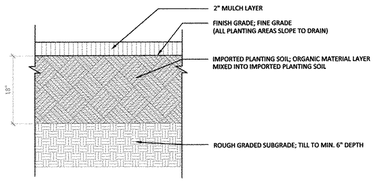
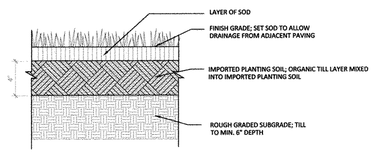


PLANTING BED PREP. NOTES

1. ROTOTILL SUBGRADE TO A MIN. DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND AMENDMENTS.
2. PLACE PRE-MIXED PLANTING SOIL ON TOP OF TILLED SUBGRADE TO DEPTH AS INDICATED ON PLANS IN 6" LIFTS.
3. FINE GRADE FINISHED PLANTING BED PRIOR TO MULCHING.
4. PLANT PER DETAILS AND SPECIFICATIONS.
5. FERTILIZE AS REQUIRED.
6. PROTECT PREPARED PLANTING BEDS FROM SUBSEQUENT CONSTRUCTION ACTIVITY.

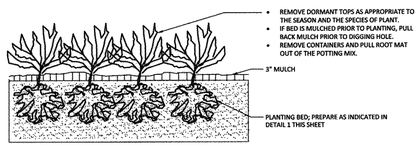
1 PLANTING BED PREPARATION - TYPICAL
N.T.S.



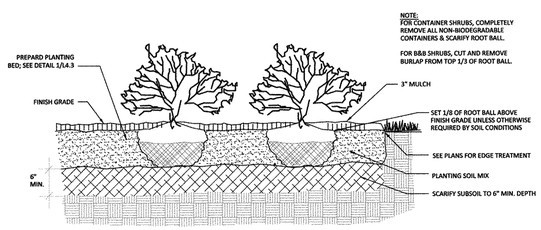
SOD BED PREP. NOTES

1. ROTOTILL SUBGRADE TO A MIN. DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND AMENDMENTS.
2. PLACE PRE-MIXED PLANTING SOIL ON TOP OF TILLED SUBGRADE TO DEPTH OF 4".
3. FINE GRADE FINISHED SOD AREA PRIOR TO SODDING.
4. FERTILIZE AS REQUIRED.
5. PROTECT PREPARED SOD AREAS FROM SUBSEQUENT CONSTRUCTION ACTIVITY.

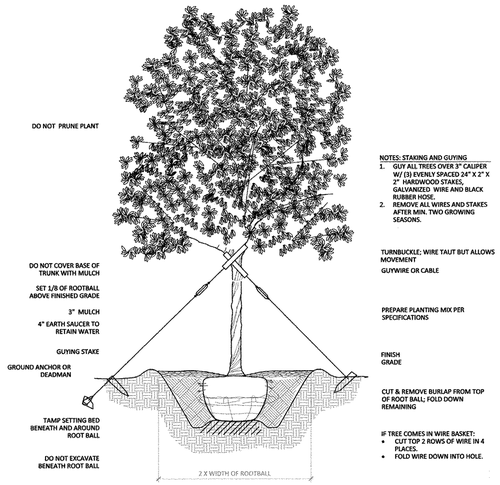
2 SOD BED PREPARATION - TYPICAL
N.T.S.



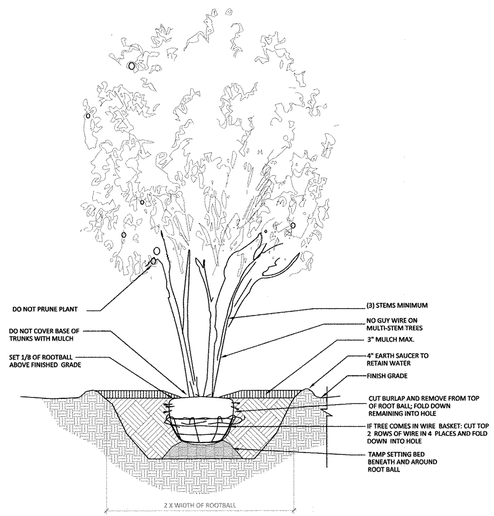
3 GROUNDCOVER PLANTING - TYPICAL
N.T.S.



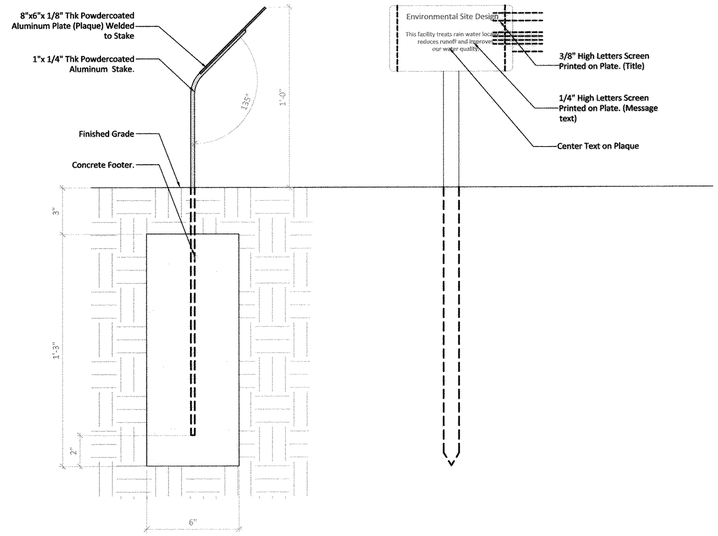
4 SHRUB PLANTING - TYPICAL
N.T.S.



5 DECIDUOUS TREE PLANTING - TYPICAL
N.T.S.



6 MULTI-STEM TREE PLANTING - TYPICAL
N.T.S.



7 ESD INTEPRETIVESIGN
N.T.S.

8 TABULATION TABLES
N.T.S.

SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	P1	P2	P3	PERIMETER TOTALS	LANDSCAPING TOTALS
CATEGORY	Buffer – Parking Adj. to Roadway	Buffer – Parking Adj. to Roadway	Dumpster Screening		
LANDSCAPE TYPE	E	E	D		
LINEAR FEET OF PERIMETER	34 LF	130 LF	107'		
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 IF NEEDED)	YES, 26 LF PIER & FENCE	YES, 142 LF PIER & FENCE	YES, 43 LF ENCLOSURE WALL		
NUMBER OF PLANTS REQUIRED					
SHADE TREES (1:60 W/ FENCE)	1	2	1	4	4
EVERGREEN TREES	–	–	6	6	6
SHRUBS (1:10 LF W/ FENCE)	3	13	–	16	16
NUMBER OF PLANTS PROVIDED					
SHADE TREES	0	0	0	0	71
EVERGREEN TREES	–	–	7	7	11
OTHER TREES (2:1 SUBSTITUTION)	2	4	–	6	17
SHRUBS (10:1 SUBSTITUTION)	10	25	–	35	619
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	–	–	–	–	–

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	110
NUMBER OF TREES REQUIRED (1/20 SP)	6
NUMBER OF TREES PROVIDED	
SHADE TREES	6
OTHER TREES (2:1 SUBSTITUTION)	-

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DATE	DESCRIPTION
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REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-6-16

Chief, Development Engineering Division — Date 4.13.16

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23788 - 23790	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

LANDSCAPE CHARTS AND DETAIL SHEET

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 31 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 31 LANDSCAPE.dwg, Details, 3/8/2016 2:07:17 PM, 1:1

PLANTING NOTES:

1. 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.

2. CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK. ALL GENERAL NOTES FROM SHEET 1, SHALL APPLY.

3. 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.

4. 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 PERCEDENCE.

5. 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.

6. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BUT NOT OTHERWISE PLANTED, PAVED OR MULCHED SHALL BE SEEDED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

7. ALL EXPOSED EARTH WITHIN THE LIMITS OF THE PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH PER PLANTING DETAILS.

8. THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING IF SOIL OR DRAINAGE CONDITIONS ARE ENCOUNTERED WHICH MAY BE DETRIMENTAL TO THE GROWTH OF PLANTS.

9. NO SUBSTITUTION SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR HIS REPRESENTATIVE.

10. 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."

PLANTING SPECIFICATIONS

PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN.

ALL PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED, HAVE A VIGOROUS ROOT SYSTEM, AND SHALL CONFORM TO THE SPECIES, SIZE, ROOT AND SHAPE SHOWN ON THE PLANT LIST AND THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN SCALD INJURIES, ABRASIONS OF THE BARK, PLANT DISEASE, INSECT PEST EGGS, BORERS AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FRESHLY DUG; NO HEALED-IN PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

UNLESS OTHERWISE SPECIFIED, ALL GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATION SHALL CONFORM TO "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS", (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE POTOMAC CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECT, LATEST EDITION, INCLUDING ALL AGENDA.

CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THE LANDSCAPE GUIDELINES. CONTRACTOR'S ATTENTION IS DIRECTED TO THE MAINTENANCE REQUIREMENTS FOUND WITHIN THE ONE YEAR SPECIFICATIONS INCLUDING WATERING AND REPLACEMENT OF SPECIFIED PLANT MATERIAL.

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-ROTTED COW OR HORSE MANURE. ADD 3 LBS. OF STANDARD FERTILIZER PER CUBIC YARD OF PLANTING MIX. EVERGREEN PLANTS – TWO PARTS TOPSOIL, ONE PART HUMUS OR OTHER APPROVED ORGANIC MATERIAL. ADD 3 LBS. OF EVERGREEN (ACIDIC) FERTILIZER PER CUBIC YARD OF PLANTING MIX. TOPSOIL SHALL CONFORM TO THE LANDSCAPE GUIDELINES.

WEED CONTROL: INCORPORATE A PRE-EMERGENT HERBICIDE INTO THE PLANTING BED FOLLOWING RECOMMENDED RATES ON THE LABEL. CAUTION: BE SURE TO CAREFULLY CHECK THE CHEMICAL USED TO ASSURE ITS ADAPTABILITY TO THE SPECIFIC GROUND COVER TO BE TREATED.

ALL AREAS WITHIN CONTRACT LIMITS DISTURBED DURING OR PRIOR TO CONSTRUCTION NOT DESIGNATED TO RECEIVE PLANTS AND MULCH SHALL BE FINE GRADED AND SEEDED.

Construction Period Protection Program

A. Forest Protection Techniques

1. Soil Protection Area (Critical Root Zone)

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

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

2. Fencing And Signage

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

B. Pre-Construction Meeting

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

C. Storage Facilities/Equipment Cleaning

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

D. Sequence of Construction

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

Below find a sequence of construction.

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

E. Construction Monitoring

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

F. Activities Permitted During Construction

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

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

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

G. Post-Construction Meeting

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

Post-Construction Management Plan

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

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

A. Signage

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

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.

Scott W. Washington — NAME

3/2/16 — DATE

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

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

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-D' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	30	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

LANDSCAPE NOTES

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 30 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 32 OF 44

SDP-16-013

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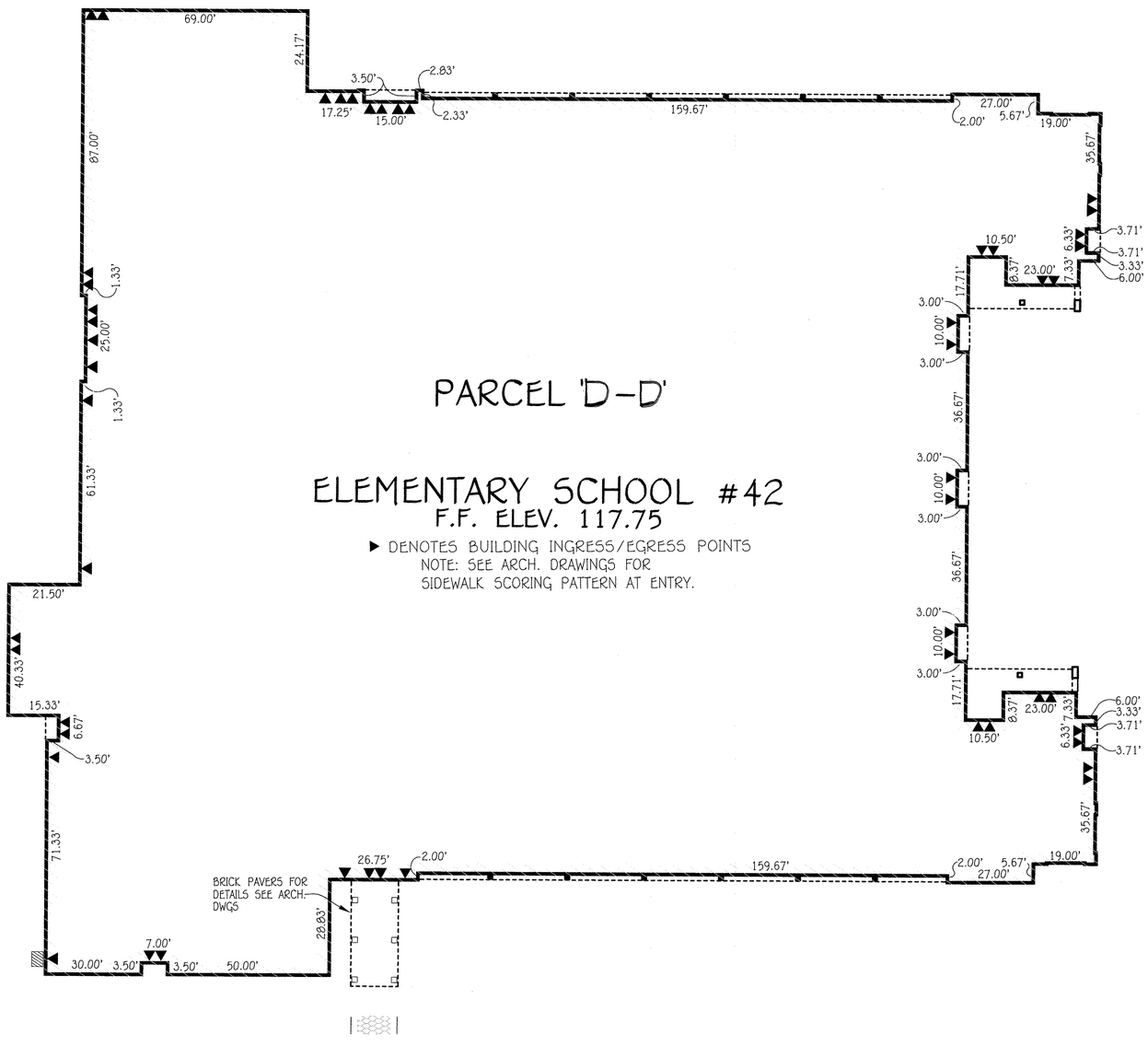

PARCEL 'D-D'

ELEMENTARY SCHOOL #42

F.F. ELEV. 117.75

▶ DENOTES BUILDING INGRESS/EGRESS POINTS
NOTE: SEE ARCH. DRAWINGS FOR SIDEWALK SCORING PATTERN AT ENTRY.

BUILDING DIMENSIONS

SCALE: 1" = 20'

0' 20' 40' 60'

SCALE: 1" = 20'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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CHARLES J. CROVO, SR., P.E. — 3/24/16 DATE

DATE	DESCRIPTION
	REVISION BLOCK
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'D' & 'B-B' INTO PARCEL 'D-D'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4/13/16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
22788-25790	20	TOD	38	FIRST	6012.01
WATER CODE ----		SEWER CODE ----			

BUILDING DIMENSIONS

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 20' DATE: MARCH 7, 2016

SHEET 33 OF 44

SDP-16-013

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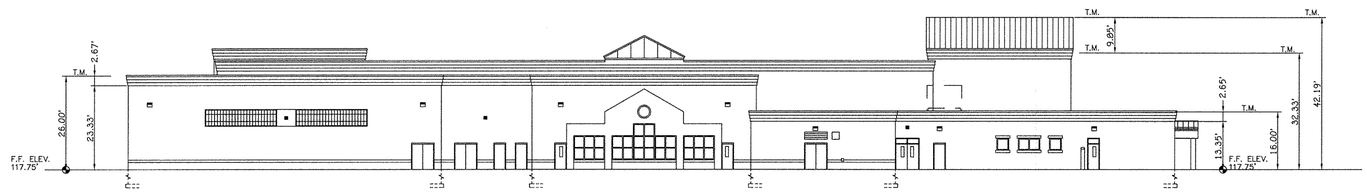
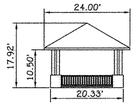


SIDE ELEVATION (WEST-FACING)

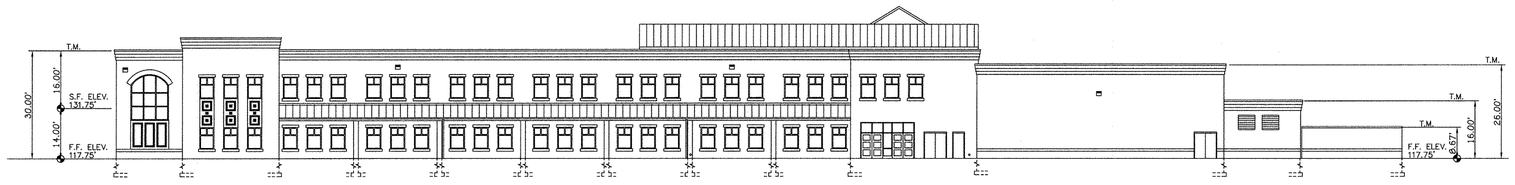
FRONT ELEVATION (SOUTH-FACING)



GAZEBO ELEVATION
(NORTH AND SOUTH)

SIDE ELEVATION (EAST-FACING)

GAZEBO ELEVATION
(EAST AND WEST)



REAR ELEVATION (NORTH-FACING)

BUILDING ELEVATIONS

SCALE: 1" = 20'

0' 20' 40' 60'

SCALE: 1" = 20'

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CHARLES J. CROVO, SR., P.E. — DATE 3/31/16

DATE	DESCRIPTION
6/21/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-13-16

Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
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410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO, SR. — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

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'D-D'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25788 - 25790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

BUILDING ELEVATIONS

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 20' DATE: MARCH 7, 2016

SHEET 34 OF 44

SDP-16-013

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GREEN NEIGHBORHOOD COMPLIANCE CHECKLIST

Credit No.	Credit	Champion (Name, Role)	Requirement	Site Development Plan GN Strategies	Documentation Location	... Points	... Points
A	**Innovative / Integrated Design Process**					**4**	**4**
A-1	Green Development Plan	PCM/Petitoner; HCM/Planners	Show s how plans meet criteria, includes checklist, natural resource inventory and energy analysis	Provide documentation	GN Report GN Plan	REQ'D	
A-2	Interdisciplinary Project Team	PCM/Petitoner	Includes U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Accredited professional, ecologist / environmental professional / landscape architect, and engineer	The design team includes a LEED AP professional, an ecologist, a civil engineer, an architect and landscape architect.	GN Plan	REQ'D	
A-3	Third Party Certification	PCM/Petitoner	Certification of credits by independent LEED accredited professional	Alexander Design Studio	GN Plan	REQ'D	
A-4a	Innovative Design A	HCM/Planners	Green Streets	Green Streets	GN Report GN Plan SDP-16-013 Sheet 4	1	1
A-4b	Innovative Design B	HCM/Planners	Priority Parking for Fuel Efficient Cars	Reserve 5% for Priority Parking for Fuel Efficient Cars	GN Report GN Plan SDP-16-013 Sheet 4	1	1
A-4c	Innovative Design C	HCM/Planners	Compact Development	Residential Development w ill exceed 20 DU/AC	GN Plan GN Report	1	1
A-4d	Innovative Design D	HCM/Planners	Walkable Streets	More than 80% building frontage oriented tow ards public spaces; Less than 20% service and garage openings to public spaces.	GN Report GN Plan SDP-16-013 Sheet 4	1	1
B	**Location, Linkages & Community Context**					**27**	**8**
B-1a	Redevelopment Site	HCM/Planners FCC/Civil	Reuse of previously developed site (minimum 25% existing impervious, w ith sliding scale for credits based on amount or % impervious)	More than 25% area previously developed (former sand and gravel operation).	GN Plan Reference: Sketch Plan (S-15-001)	4	2
B-1b	Redevelopment Site (Brow nfield)	N/A	Brow nfield cleanup of redev elopment site	N/A	N/A	8	0
B-2	Historic Buildings	N/A	Preserve, restore or rehabilitate historic properties	N/A	N/A	1	0
B-3a	Transit Access & Amenities for Reduced Auto Dependence (Stop)	HCM/Planners	Site is served by transit stop w ithin 1/2 mile (1 point) or 1/4 mile (2 points) w alk from property	Private Shuttle Service w ith 2 stops (94% DU w ithin 1/4 mile w alking distance)	GN Plan Reference: Sketch Plan (S-15-001)	2	2
B-3b	Transit Access & Amenities for Reduced Auto Dependence (Shelter)	HCM/Planners	Provide county-specified transit shelter w ith benches and lighting at transit stop w ithin 1/2 mile of property and provided pedestrian link to stop if none currently exists	Provide HoCo transit approved shelter for private shuttle service	GN Plan Reference: SDP-13-068	4	4
B-4	Proximity to Community Resources	N/A	Credit for 1/2 mile proximity to existing or proposed community resources such as schools, parks, library, post office, etc.	N/A	N/A	5	0
C	**Compact, Complete & Connected Development**					**27**	**25**
C-1	Diversity of Uses	HCM/Planners	1 point per different landuse; minimum 100 sf for each non-residential per DU. Minimum of 149,200 SF each of office, institutional and civic use, per 1,492 DU	Provide 3 Uses: Institutional, Civic and Office	GN Plan SDP-16-013 Sheet 4, 5 References: Sketch Plan (S-15-001)	3	3
C-2	Planned Service Area	HCM/Planners	Locate the project w ithin the Planned Service Area	The project is w ithin the Planned Service Area	GN Plan	5	5
C-3a	Pedestrian System (Path)	HCM/Planners	Provide an off-site pathw ay/trail system w ith 2 connections to internal or external sidew alks, w ith minimal environmental impacts, long-term maintenance	Provide a shared use path system	GN Plan SDP-16-013 Sheet 4, 5 References: Sketch Plan (S-15-001)	2	2
C-3b	Pedestrian System (Connections)	N/A	Provide an off-site pathw ay/trail connection	N/A	N/A	2	0
C-3c	Pedestrian System (Amenities)	HCM/Planners	Provide at least tw o different pedestrian experience features	Provide pedestrian amenities at trailheads, the law n, school and residential new s	GN Plan SDP-16-013 Sheets 4, 5 References: Sketch Plan (S-15-001)	2	2
C-4	Connected On-site Street Netw ork	HCM/Planners	Provide a gridded street netw ork	More than 75% connected streets	GN Plan Reference: Sketch Plan (S-15-001)	2	2
C-5	Parking does not exceed Required Minimum	HCM/Planners	Surface parking lots do not exceed required parking ratios (1 point); plan takes advantage of shared parking provisions parking structure provided (in deck or beneath building; does not include garages w ithin individual units) (4 points)	Provide common parking structures (4 points)	GN Plan Reference: Sketch Plan (S-15-001)	4	4
C-6	Exceed Minimum Open Space Requirements	HCM/Planners	1 point for every 5% above required minimum open space for the TOD zone. 1 point for every 10% of non-buildable HOA parcels above 50% of the site (up tp 3 points).	Provide more than 25% increase in amenity space above the required minimum amenity space (TOD zoning regulations)	GN Report GN Plan SDP-16-013 Sheets 4, 5, 36 Reference: Sketch Plan (S-15-001)	5	5
C-7	Green Spaces and Amenity Areas	HCM/Planners	Open space along public/private roads available for public use	Publicly accessible open space w ill be provided at the Law n and Barn community building on Parcel 'I' and the community poolhouse and pool on OS Lot #107.	GN Plan Reference: SDP-15-074 Sketch Plan (S-15-001) SDP-13-068	2	2

D	Environmental Preservation					52	32
D-1	Stream Restoration or Wetland Creation or Restoration	EcoScience	Restoration of degraded on-site stream channel; on-site restoration of degraded w etland or creation of additional w etlands (sliding scale based on % or length of stream restored and % or acres of w etland created or restored)	Provide w etland restoration for Wetland 'D' (+/- 80,810 SF)	References: Sketch Plan (S-15-001) SDP-15-045	16	16
D-2	Habitat Management Plan	EcoScience	Prepare and implement plan that identifies, conserves and enhances natural resources and ecological communities (may include clean up of debris, removal of invasives, etc.)	Provide Habitat Management Plan	Reference: Sketch Plan (S-15-001) SDP-15-045	4	4
D-3	25% Steep Slope Preservation	N/A	Protect all existing steep slopes as defined by County regulations required; provide 25' minimum buffer at top of 25% slope (2 points)	N/A	N/A	2	0
D-4	15% Slope Preservation	FCC/Civil HCM/Planners	Protect existing 15%+ slopes (protect minimum 1/2 acre, w ith sliding scale based on area or % protected)	Preserve betw een 26-50% of 15%-24.9% slopes	GN Plan Reference: Sketch Plan (S-15-001)	4	2
D-5	Minimize Grading and Site Disturbance	FCC/Civil HCM/Planners	Minimize limit of disturbance: leave at least 20% of site undisturbed (1 point), 30% (2 points), 40% (3 points); balancecut and fill on site (2 points); retaining w alls 3-5.9' (deduct 1 point) retaining w alls 6-8.9' (deduct 2 points), w alls 9' and higher (deduct 3 points), no new created steep slopes over 25% (1 point); amend soil nutrients in turf and planting areas (1 point)	Balance Cut and Fill on entire site-- 2 points Minimize Retaining Walls-- 0 points No new > 25% Steep slopes- 1 point Leave more than 20% of site undisturbed -- 1 points	GN Plan Reference: Sketch Plan (S-15-001)	5	4
D-6	Exceed Minimum Forest Conservation Requirements	EcoScience FCC/Civil; HCM/Planners	1 point for every 10% of pre-existing forest retained above break even point; 1 point for every 10% of on-site forest planted in excess of afforestation obligation	N/A	N/A	5	0
D-7	Save Trees above 12" Minimum Caliper	N/A	1 point for protecting each 25% of all specimen trees (does not include specimen trees w ithin forest conservation area or w ithin forests that are being cleared)	N/A	N/A	4	0
D-8a	Exceed Minimum Stream Buffer Requirements	FCC/Civil;	75' buffer required for perennial and intermittent streams inside PSA, 100' buffer required for perennial and intermittent streams outside PSA	75' buffer required for perennial and intermittent streams inside PSA,	GN Plan SDP-16-013 Sheets 5 Reference: Sketch Plan (S-15-001)	REQ'D	
D-8b	Exceed Minimum Stream Buffer Requirements	EcoScience FCC/Civil; HCM/Planners	2 points for each additional 25' of buffer provided in excess of requirements in D-8a outside w etland buffer or floodplain	Provide 150 FT Stream Buffer (75 FT enhanced buffer)-- 6 points	GN Plan SDP-16-013 Sheets 5 Reference: Sketch Plan (S-15-001)	6	6
D-9	Exceed Minimum Wetland Buffer Requirements	EcoScience FCC/Civil; HCM/Planners	2 points for each additional 25' of w etland buffer buffer outside stream buffer or floodplain	N/A	N/A	4	0
D-10	Floodplain Buffer	N/A	1 point for each 25' of buffer to floodplain outside required or provided w etland or stream buffer	N/A	N/A	2	0

E	Site Landscape Improvements					10	3
E-1	Landscaping exceeds Minimum Requirements and Reduces Heat Island Effect	N/A	1 point for each 10% increase in number of plants (must be native plants) provided above total minimum required in Landscape Manual; retain or plant trees on south and w est sides of buildings and increase trees w ithin parking areas and along sidew alks and paths	Provide 20% increase in Landscape Requirements	GN Plan GN Report SDP-16-013 Sheets 29-32	5	2
E-2	Native Plants	N/A	1 point for 80%, 2 points for 90%, 3 points for 100% of all plants native to w ithin 200 miles of site	N/A	N/A	3	0
E-3	No Invasive Plants	HCM/Planners	No plants that are on DNR, USDA or Cooperative Extension Service lists of invasive plants	Will not plant invasive plants	GN Plan SDP-16-013 Sheets 29-32	REQ'D	
E-4	Limit Turf	HCM/Planners	Turf does not exceed 30% of unpaved site (1 point); no turf on new created steep slopes 25%+ or in densely shaded areas (1 point); nonturf areas must be planted in native vegetation	Will not plant conventional turf in densely shaded areas and on newly created >25% steep slopes	GN Report GN Plan SDP-16-013 Sheets 29-32	2	1
F	**Water Conservation / Efficiency / Management**					**17**	**11**
F-1	Rainw ater Harvesting System	Straughan	Collect and make use of w ater runoff from minimum 50% of roof area; provide storage system and monitoring device and maintenance / management program	Provide rainw ater harvesting for middle school and the middle school recreational fields	GN Plan Reference: Sketch (S-15-001) SDP(SDR-12-075)	5	5
F-2	Water-Permeable Walkw ays	N/A	Use w ater-permeable materials in 50% or more of pathw ays; provide maintenance program	N/A	N/A	4	0
F-3a	Low Impact Development (LID) Stormw ater Treatment	FCC/Civil	Meets minimum Design Manual requirements; no dry ponds allow ed	No dry ponds	GN Plan SDP-16-013 Sheets 37-44	REQ'D	
F-3b	Low Impact Development (LID) Stormw ater Treatment	FCC/Civil	Exceeds Design Manual requirements; maximize use of bioretention (esp. for parking lots), rain gardens, rain barrels, stormw ater w etlands, green roof, etc.	Will provide 51% w ater quality volume stored and infiltrated/re-used On-Site	GN Report GN Plan SDP-16-013 Sheets 37-44	8	6
G	**Energy Efficiency**					**13**	**0**
G-1	Light Pollution Reduction	FCC/Civil; HCM/Planners	Shield all site lighting fixtures to reduce light and spillover below county code requirements, install sensors or timers on all exterior site lighting fixtures.	N/A	N/A	4	0
G-2	Solar Orientation	N/A	Orient 50% (1 point) or 75% (2 points) or 100% (3 points) of buildings to make available for solar strategies	N/A	N/A	3	0
G-3	Infrastructure Energy Efficiency	N/A	Select high efficiency fixtures for parking lot and other site light fixtures	N/A	N/A	6	0

H	Materials Beneficial to the Environment / Waste Management					17	7
H-1	Environmentally Preferable Site Products	Straughan FCC/Civil; HCM/Planners	Select products from a list including: recycled materials (concrete, asphalt, tires, plastic, etc.), materials w ith recycled content, salvaged or engineered materials;	N/A	N/A	8	0
H-2	Reduce Heat-Island Effect of Paving	N/A	Use light-colored or high-albedo materials and/or porous paving w ith a minimum Solar Reflective Index of 0.6 or over for at least 30% of the site hardscape	N/A	N/A	2	0
H-3	Site Construction Waste Management	Straughan	Develop and implement a construction w aste management plan to divert, reuse, recycle or reduce the amount of site material sent to the landfill by 25% (2 points) or 50% (3 points) or 75% (4 points)	Divert 75% or more site construction w aste	GN Report	4	4
H-4	Regionally Provided Materials	Straughan FCC/Civil; HCM/Planners	20% of common and public infrastructure materials from w ithin 200 miles	Use regionally produced materials for 20% of total site materials	GN Report:	3	3
I	**Operations and Maintenance Education**					**0**	**0**
I-1	HOA Documents	Straughan;	Include information about green site features and maintenance requirements in HOA documents	Provide HOA document	Reference: SDP-13-068 SDP-15-053	REQ'D	
I-2	Maintenance Manual for Ow ner / HOA / Manager	Straughan	Provide a manual that includes information on how to maintain the green features of the site, including paving materials, landscaping and stormw ater management LID and encourages additional green activities such as recycling, gardening, etc.	Provide manual	Reference: SDP-13-068 SDP-15-053	REQ'D	
I-3	Public Aw areness of Sustainable Community	Straughan; HCM	Develop a program to advertise the environmental benefits of the community	Implement public aw areness strategy	GN Report SDP-16-013 Sheet 29-31 Reference: SDR-13-068;	REQ'D	

TOTAL GREEN NEIGHBORHOOD SITE POINTS	**167**	90
Number of points required to obtain Green Neighborhood Allocations	**90**	

WATER QUALITY CHART

BMP FACILITY	WATER QUALITY PROVIDED (CF)
BMP NO.1 (F-C)	5,788 CF
BMP NO.2 (F-C)	3,154 CF
BMP NO.3 (F-C)	2,990 CF
BMP NO.4 (M-C)	770 CF
BMP NO.5 (M-C)	1,956 CF
TOTAL	13,833 CF

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

CHIEF, RESOURCE CONSERVATION DIVISION — 3.30.16 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, LEED AP — LEED ACCREDITATION NUMBER 10007917 — DATE 3/10/16

Third Party Certification

By affixing my signature below, the undersigned does hereby declare and affirm to How ard 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	Title	LEED ACCREDITATION NUMBER	Date
CHARLES ALEXANDER	PRESIDENT	ALEXANDER DESIGN STUDIO	3.17.16
Name	Organization		

Submission (mark "X" w here applicable): ___ Site Development Plan (SDP-16-013)

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"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. OLCOVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
5/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. OLCOVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-1'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
25706 - 25710	20	TOD	38	FIRST	6012.01
WATER CODE ____		SEWER CODE ____			

GREEN NEIGHBORHOOD COMPLIANCE CHECKLIST

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 35 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 35-36 GREEN NEIGHBORHOOD.dwg GN SHEET 35, 11

GREEN NEIGHBORHOOD NOTES:

A-2 THE DESIGN AND DEVELOPMENT TEAM INCLUDES A LEED AP (MATTHEW FITZSIMMONS- HORD COPLAN MACHT), ENVIRONMENTAL PROFESSIONAL (JOHN CANOLES- ECO-SCIENCE PROFESSIONALS, INC.), LANDSCAPE ARCHITECT (JOSH KILRAIN- HORD COPLAN MACHT) AND AN ENGINEER (CHARLES CROVOS, PE- FISHER COLLINS & CARTER)

A-3 THE THIRD PARTY CERTIFICATION IS PROVIDED BY CHARLES ALEXANDER, LEED-AP OF ALEXANDER DESIGN STUDIOS.

B-1a THE 118.5 ACRE DEVELOPMENT CONSISTS OF 30.4 ACRES OF PREVIOUSLY DEVELOPED LAND (25.7% OF THE OXFORD SQUARE DEVELOPMENT).

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, EXCEPT FOR THE UNITS FURTHERS NORTH ON PARCEL 'Z'.

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.

C-1 OXFORD SQUARE WILL PROVIDE THREE DIVERSE USES OTHER THAN RESIDENTIAL: INSTITUTIONAL (MIDDLE SCHOOL BUILDING AND OUTDOOR CLASSROOM SPACE, ELEMENTARY SCHOOL), CIVIC (SCHOOL'S RECREATIONAL PLAYING FIELDS AND SHARED-USE PATH) AND OFFICE.

C-2 OXFORD SQUARE IS LOCATED WITHIN THE EXISTING PLANNED WATER AND SEWER SERVICE AREA.

C-3c OXFORD SQUARE WILL PROVIDE A MINIMUM OF TWO PEDESTRIAN SYSTEM AMENITY EXPERIENCES: 1) SHARED USE PATH AND NATURE TRAIL (TRAIL SIGNS AND MARKERS, BENCHES, LITTER RECEPTACLES, INFORMATIONAL SIGNS, BIKE RACKS), 2) THE LAWN (BENCHES, EXTERIOR LIGHTING, SHADE TREES, INFORMATIONAL SIGNS), 3) RESIDENTIAL COURTYARDS AND MEWS (BENCHES), AND 4) SCHOOL SITES (PLAYING FIELDS, BENCHES, BIKE RACKS)

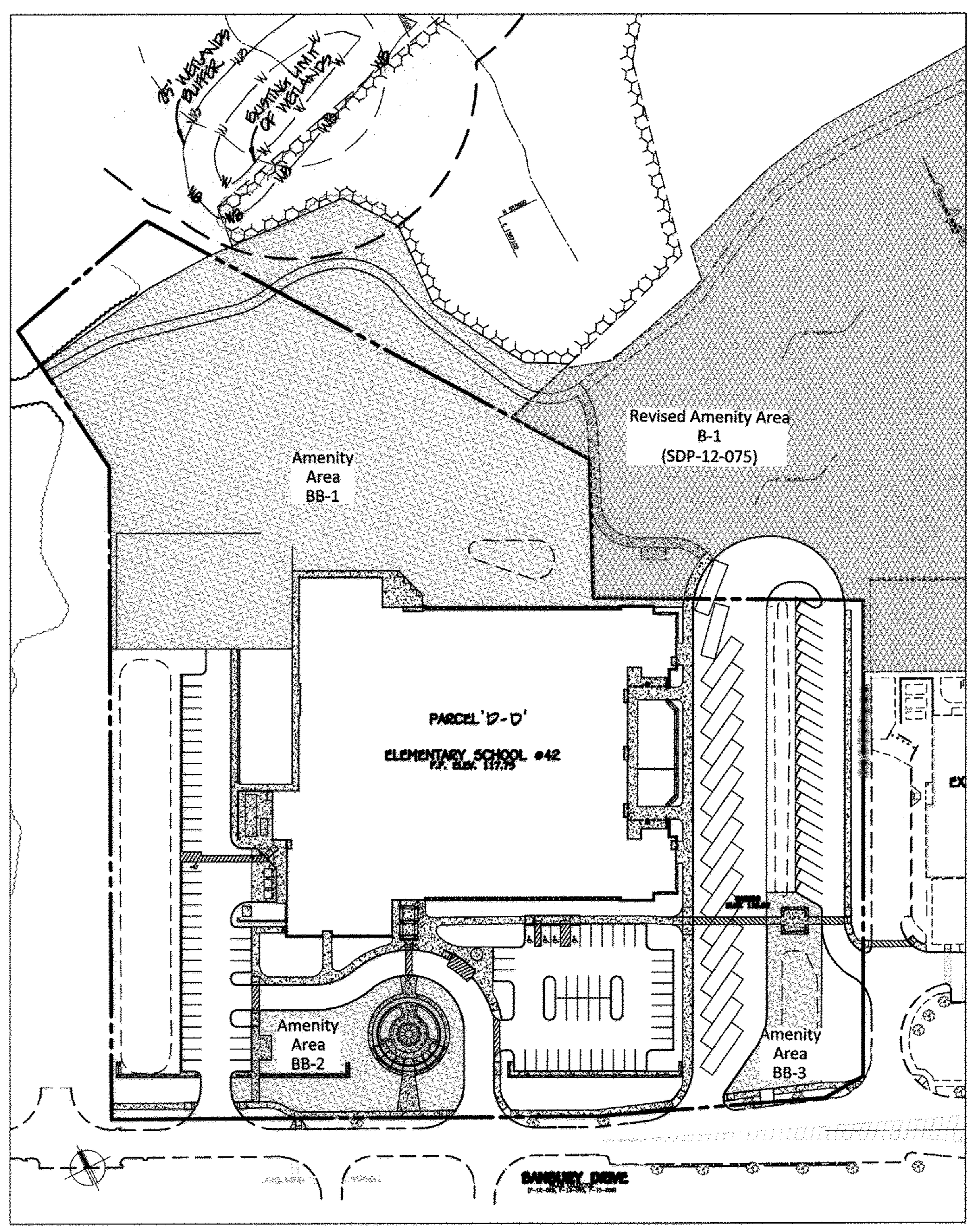
D-8b OXFORD SQUARE WILL PROVIDE A MINIMUM 75 FT ENHANCED STREAM BUFFER.

E-3 OXFORD SQUARE WILL NOT PLANT INVASIVE PLANTS.

E-4 OXFORD SQUARE WILL NOT PLANT TURF IN DENSELY SHADED AREAS.

F-3b OXFORD SQUARE WILL PROVIDE AT LEAST 51% WATER QUALITY VOLUME STORED AND INFILTRATED/RE-USED ON-SITE.

AMENITY SPACE (1"=100')



GREEN NEIGHBORHOOD CALCULATIONS & TABLES:

A-4b Priority Parking for Low-Emitting and Fuel Efficient Vehicles

	Overall Development	SDP
Total Number of Off-Street Parking Spaces:	1,164 Spaces	110 Spaces
Total Number of Proposed Preferred Parking Spaces:	63 Spaces	6 Spaces
Percent of Preferred Parking Spaces:	**5.4%**	**5.5%**

Note: Overall Development calculations summarize all filed Site Development Plans.

A-4c Compact Development

	Complete Build-Out
Total Dwelling Units:	1,492 DU
Residential Land Area:	50.8 AC
Residential Density:	**29.39 DU/AC**

A-4d Walkable Streets

	Complete Build-Out	SDP
Length of Buildings Frontage Oriented Towards the Public Space:	12,352 FT	168 FT
Total Length of Building Frontage:	14,620 FT	317 FT
% of Building Frontage Oriented Towards the Public Spaces:	**84.5%**	**53.0%**
Length of Building Frontage with Service or Garage Openings:	1,222 FT	0 FT
Length of Building Frontage Oriented Towards Public Spaces (including Service and Garage openings):	13,574 FT	168 FT
% of Building Frontage with Service or Garage Openings:	**9.0%**	**0.0%**

B-1a Redevelopment Site

Gross Site Area:	118.5 Acres
Area of Existing Development (Acres):	30.4 Acres
Percent of Previously Developed:	**25.7%**

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

Residential Buildings within 1/4 Mile (<1,320 FT)	Total Number of Qualifying Units	Percent of all Units
All Buildings except the most distant building on Parcel 'Z'	1,402 DU	94%

C-1 Diversity of Uses

Residential Uses		Number of Units	Percent of Total Units
Apartments and Townhouses		1,492 DU	**100%**

Nonresidential Uses		Area	SF per Dwelling Unit
Office:		166,000 SF	**111 SF/DU**
Institutional:	Middle School	95,747 SF	
	Middle School Outdoor Classroom Space	2,500 SF	
	Elementary School	117,222 SF	
	Institutional Subtotal:	**215,469 SF**	**144 SF/DU**
Civic:	Recreational Playing Fields (School Site)	236,139 SF	
	Northern Shared- Use Path (8 FT wide)	22,968 SF	
	Southern Shared-Use Path (8 FT wide)	8,016 SF	
	Civic Subtotal:	**267,123 SF**	**179 SF/DU**

Note: Parcel 'B-B' provides Elemenatry School and 3,912 SF of the Northern Shared Use Path.

C-3a Pedestrian System (Paths and Trails)

Northern Shared Use Path: Width of Path: 8 FT
Length: 2,871 FT (0.54 Miles)

Southern Shared Use Path: Width of Path: 8 FT
Length: 1,002 FT (0.19 Miles)

Nature Path Width of Path: 8 FT
Length: 1,129 FT (0.21 Miles)

Note: Parcel 'B-B' contributes 489 Linear Feet of the Northern Shared Use Path.

C-4 Street Connections

Street Name / ID (per S-15-001)	Street Length	Qualifying Street Length
Saint Margarets Boulevard	1,684 FT	1,684 FT
Banbury Drive	2,491 FT	2,491 FT
Southmoor Street	960 FT	960 FT
Dene Court	514 FT	- FT
Crowley Street	1,136 FT	947 FT
Danvers Street	465 FT	465 FT
Beaumont Place	1,450 FT	1,450 FT
Dunstead Street	240 FT	- FT
Headley Street	120 FT	- FT
Pattison Street	120 FT	- FT
Road I	736 FT	736 FT
Alden Way	554 FT	554 FT
Marston Way	1,613 FT	928 FT

Summary		
Total Street Length:	**12,083** FT	
Total Connected Street Length:		**10,215** FT
Percent Connected Streets:	**84.5%**	

C-5 Parking Does Not Exceed Required Minimum

Number of Spaces within a Common Parking Structure: 1,708 spaces
Note: No parking structures will be constructed with this SDP.

C-6 Exceed Minimum Open Space

Net Acreage:	107.51 AC
Required Amenity Space (TOD: 10% of Net Acreage):	10.75 AC
Provided Amenity Space:	23.12 AC
Percent Increase above the Minimum Required:	**115.0%**

Note: This SDP contributes 3.04 Acres. This is 0.21 Acres less than projected on S-15-001. The extension of the bus loop proposed by this SDP reduces the Middle School's Amenity Area by 0.11 Acres as developed under SDP-12-75.

C-7 Green Spaces and Amenity Areas

Parcel	Road Frontage	Amenity Type	Amenity Area
Open Space 1: Lawn and Barn Parcel 'I' (SDP-15-074)	+/-108 FT (length along Banbury Drive)	Lawn: passive recreation and gathering space Barn: learning, meeting and performance space	66,292 SF (1.52 AC)
Open Space 2: Pool House and Pool O.S. Lot #107 (SDP-13-068)	+/-138 FT (length along Dene Court)	Pool house, Pool, Fitness Room, and Warming Kitchen	11,282 SF (0.26 AC)

D-4 15% Slope Preservation

	GN Boundary
Total Area of Slopes 15-24.9%:	506,841 SF
Area of Undisturbed Slopes 15-24.9%:	200,866 SF
Percent of Undisturbed Slopes:	**39.6 %**

Note: 1. The area of undisturbed slopes is the summation of slopes impacted by the greatest extent of LODs accumulated from the entire development.
2. Includes area of development per Sketch Plan and future environmental restoration work.

D-5 Minimize Grading and Site Disturbance

	Complete Build Out
Gross Area of Site	118.5 AC
Existing Impervious Cover	30.4 AC
Area of Site	88.1 AC
Area of Site to Remain Undisturbed	24.2 AC
Precent of Site to Remain Undistrubed:	**27.5 %**
Ratio of Cut to Fill:	**1.16 Ratio**
Retaining Wall:	**<3 FT**

Note: 1. Complete Build Out Calculations are based on the aggregate greatest extent of LOD's from entire development.
2. No dirt will be imported or exported from Oxford Square.

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:	1,352.3 FT
Percent of Stream Buffer Outside Other Buffers:	**68.2 %**

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

CHIEF, RESOURCE CONSERVATION DIVISION — DATE 3-30-16

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I hereby certify that this plan represnets 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, LEED AP — LEED ACCREDITATION NUMBER 10007912 — DATE 3/18/16

E-1 Landscaping

Plants Required	Shade Trees	Evergreen	Shrubs	Total	Percent
Number of Plants Required by Landscape Manual	10	6	16	32	
Number Excess Plants Required for GN Credit	2	2	4	8	**25.0**
Landscape Manual and GN Requirements	12	8	20	40	

Plants Provided

Plants Provided	Shade Trees	Shade Tree (Substitute)	Evergreen	Evergreen (Substitute)	Other Trees (Substitute)	Shrubs	Shrub (Substitute)	Total
Number of Plants Provided to Meet Landscape Manual	10	0	6	0		16	0	32
Number of Plants Provided to Meet GN Credits	61		0	2	0	4		67
Total Number of Plants Provided	71	0	6	2	0	20	0	99

Notes: 1. Required Shade Trees (5 AFA, 3 ZSE, 2 BDH)=12 shade trees
2. Excess Shade Tree (6 BDH+ 10 LST + 11 OAR +7 POC + 7 TDI + 20 UVF)= 61 native shade trees
3. Required Evergreen Trees (6 IOP) = 6 evergreens
4. Excess Evergreen Substitute (2 MVI)= 2 evergreens
5. Required Shrubs (16 HYP)= 16 shrubs
6. Excess Native Shrubs (4 IVL))= 4 shrubs
7. This plan provides 59 additional native shade trees over the project's 20% goal.

0' 100' 200' 300'
SCALE: 1" = 100'

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CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Director - Department of Planning and Zoning — 4-18-16 Date
Chief, Division of Land Development — 4-18-16 Date
Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO SR — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT	SECTION/AREA	PARCEL
ELEMENTARY SCHOOL #42	N/A	'D-D'

PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01

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

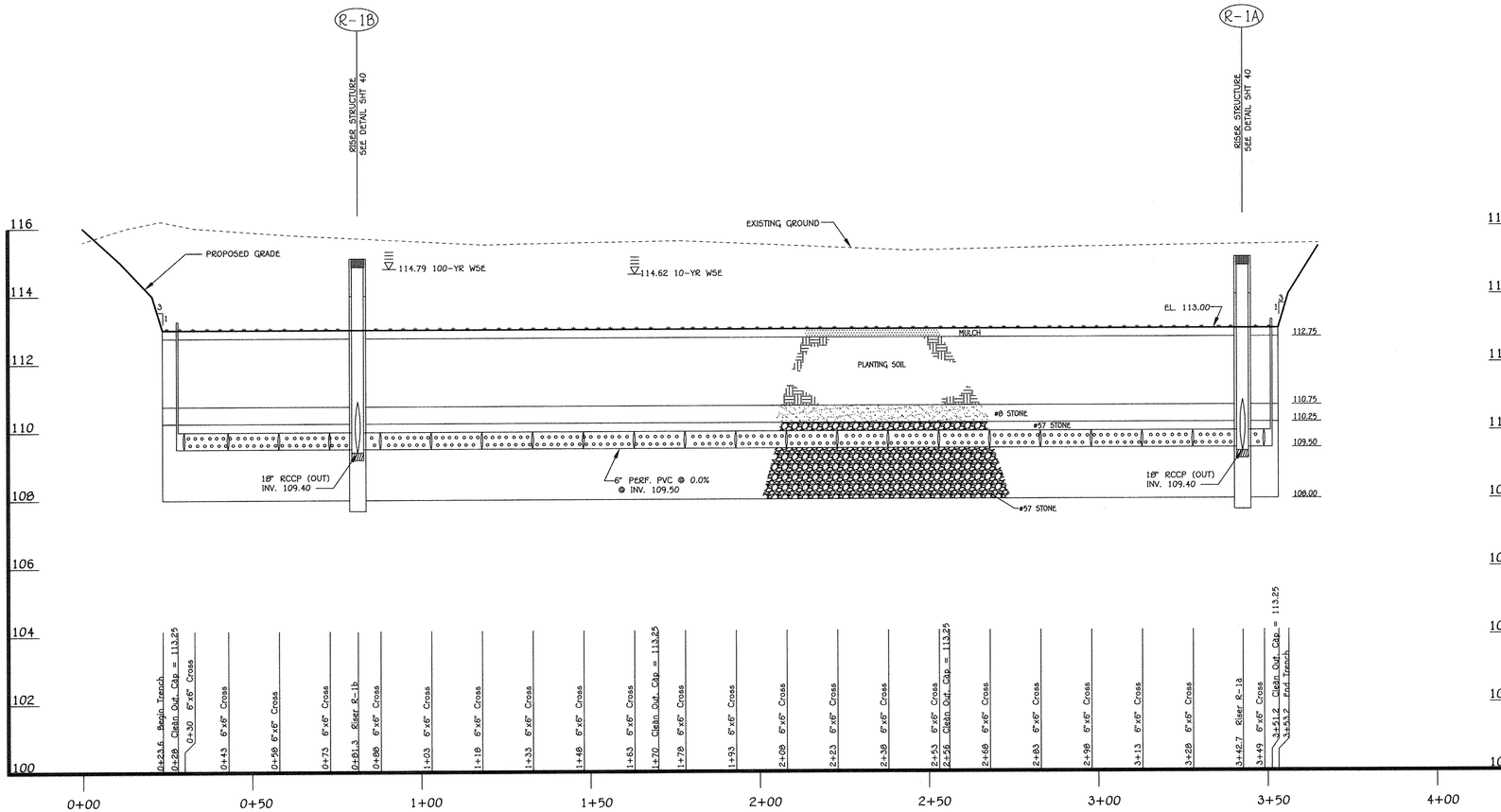
GREEN NEIGHBORHOOD NOTES AND TABLES

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1" = 100' DATE: MARCH 7, 2016

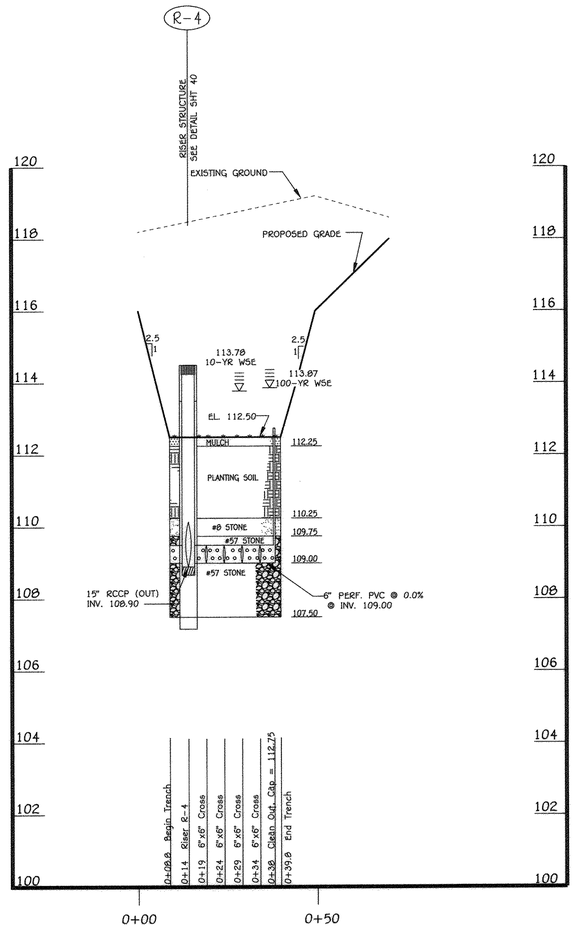
SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 35-36 GREEN NEIGHBORHOOD.dwg, GN Sheet 36, 1:1



BMP #1 UNDERDRAIN PROFILE

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'



BMP #4 UNDERDRAIN PROFILE

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'

NOTES:
1. SEE BIORETENTION FACILITY TYPICAL SECTION SHT 40
2. FILTER FABRIC NOT SHOWN IN PROFILES FOR CLARITY.

0' 20' 40' 60'
SCALE: 1" = 20'

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CHARLES J. GROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'D' & 'B-8' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-13-16 Date

Chief, Development Engineering Division — 4-13-16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. GROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-1'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

BIORETENTION FACILITY #1 AND #4 PROFILES

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 37 OF 44

SDP-16-013

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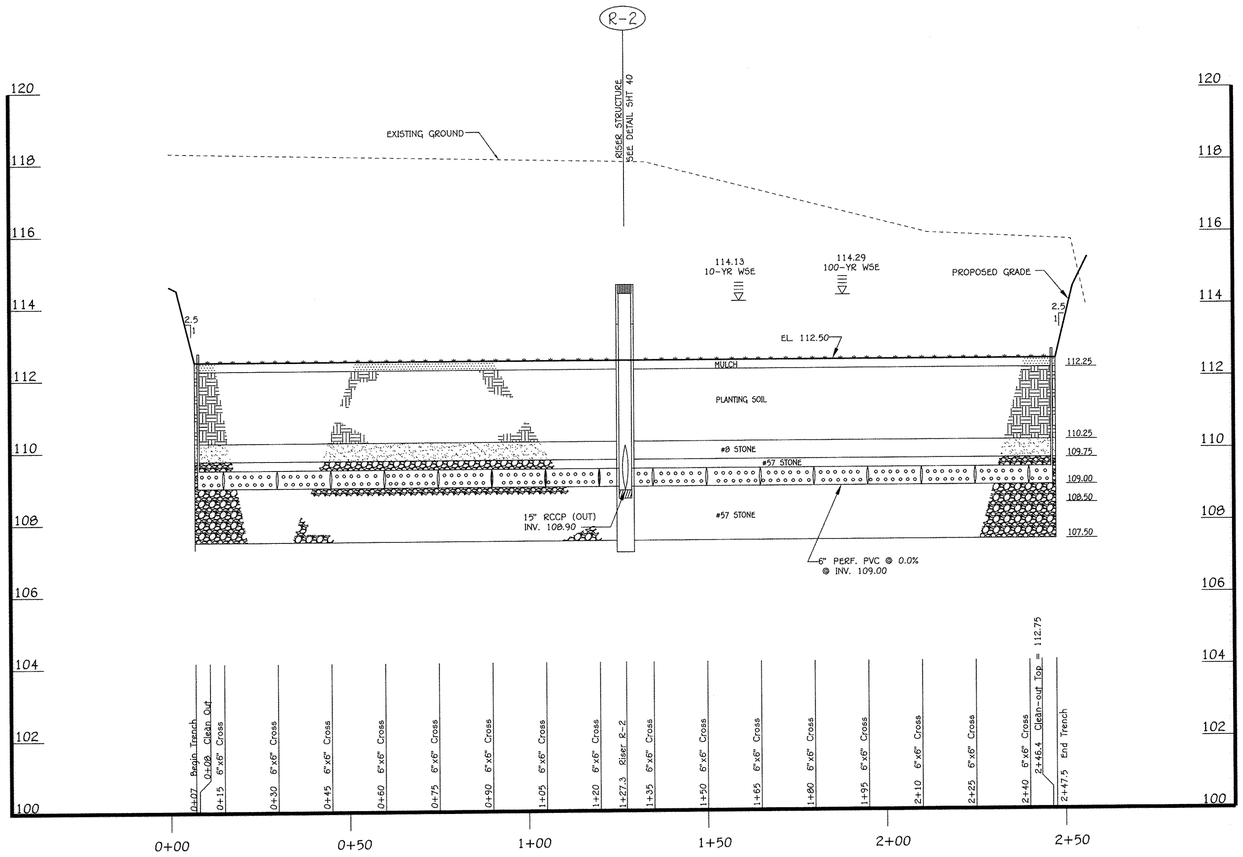
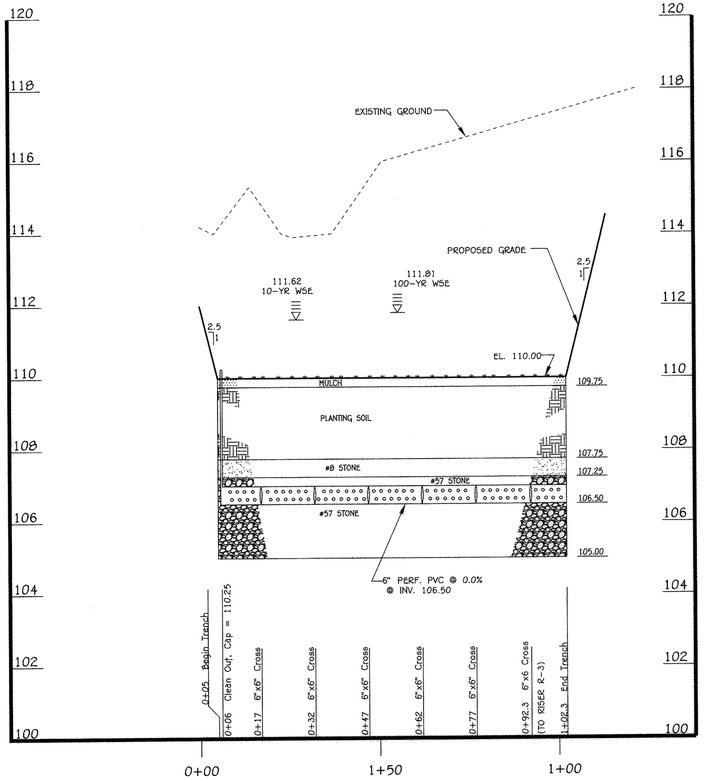


BMP #2 UNDERDRAIN PROFILE

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'

NOTES:
1. SEE BIORETENTION FACILITY TYPICAL SECTION SHT 40
2. FILTER FABRIC NOT SHOWN IN PROFILES FOR CLARITY.



BMP #3 UNDERDRAIN PROFILE

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'

0' 20' 40' 60'
SCALE: 1" = 20'

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
0/07/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-25-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE ____			SEWER CODE ____		

BIORETENTION FACILITY #2 AND #3 PROFILES

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 38 OF 44

SDP-16-013

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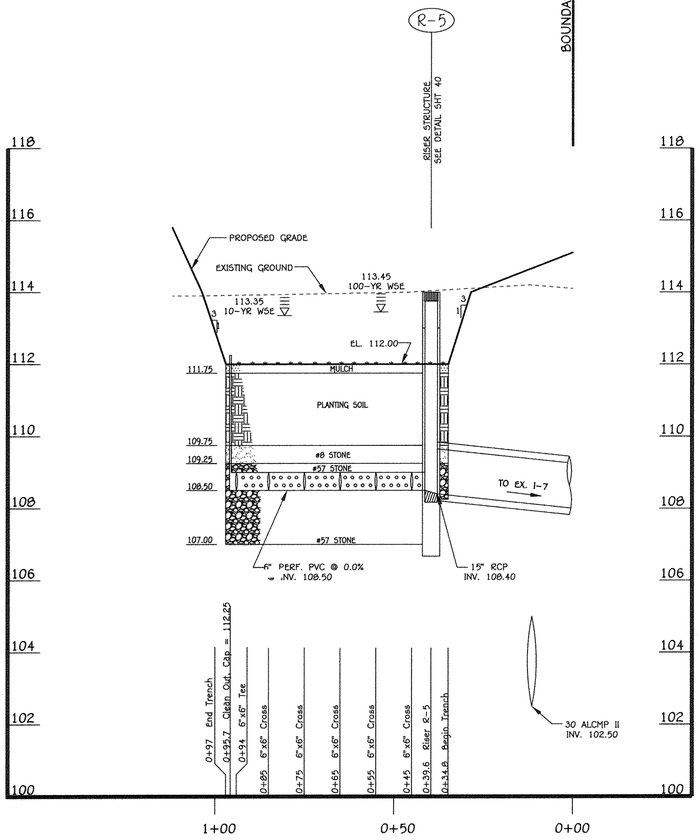
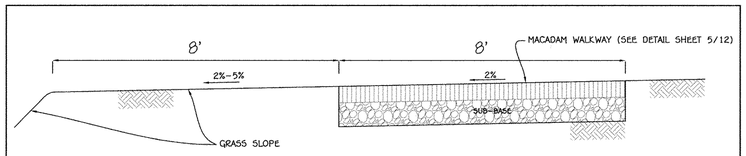


BMP #5 UNDERDRAIN PROFILE

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'



GRASS STRIP TYPICAL SECTION ADJACENT TO PERIMETER BALLFIELD PATH SCALE: 1" = 2'

NOTES
1. THIS GRASS STRIP DETAIL SHOWS THE TYPICAL SECTION ADJACENT TO THE PERIMETER ASPHALT PATH NORTH OF THE MULTI-PURPOSE FIELD (NORTH END OF SCHOOL PROPERTY). SEE PLAN FOR LIMITS AND GRASS STRIP GRADING.
2. THE PURPOSE OF THIS GRASS STRIP IS TO PROVIDE NON-ROOFTOP DISCONNECTION STORMWATER CREDIT FOR THE SEGMENT OF THE ASPHALT PATH (i.e., WHERE GRADING ALLOWS CREDIT).

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood.		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row, minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3, F_c = 3500 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures), and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone **(AASHTO)** #10 are not acceptable. No calcium carbonated or dolomite sand substitutions are acceptable. No "rock dust" can be used for sand.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

B.4.C Specifications for Micro-Bioretention. Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content - Media shall have a clay content of less than 5%.
- pH Range – Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are

Appendix B.4. Construction Specifications for Environmental Site Design Practices

excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains

Underdrains should meet the following criteria:

- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- Perforations - If perforated pipe is used, perforations should be ⅜" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a ¼" (No. 4 or 4x4) galvanized hardware cloth.
- Gravel The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
- The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to provide a clean-out port and monitor performance of the filter.
- A 4" layer of pea gravel (⅛" to ⅜" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

These practices may not be constructed until all contributing drainage area has been stabilized

0' 20' 40' 60'
SCALE: 1" = 20'

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CHARLES J. CROVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-D' INTO PARCEL 'D-D'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-8-16

Chief, Development Engineering Division — Date 4/13/16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart	
Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-D'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23760 - 23790	20	TOD	38	FIRST	6012.01
WATER CODE ____			SEWER CODE ____		

BIORETENTION FACILITY DETAILS BMP #5 PROFILE

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 39 OF 44

SDP-16-013

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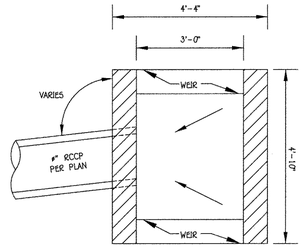
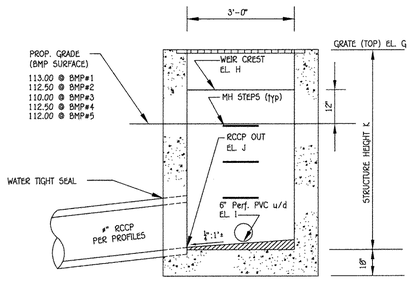


PLAN (SHOWN W/O GRATE)



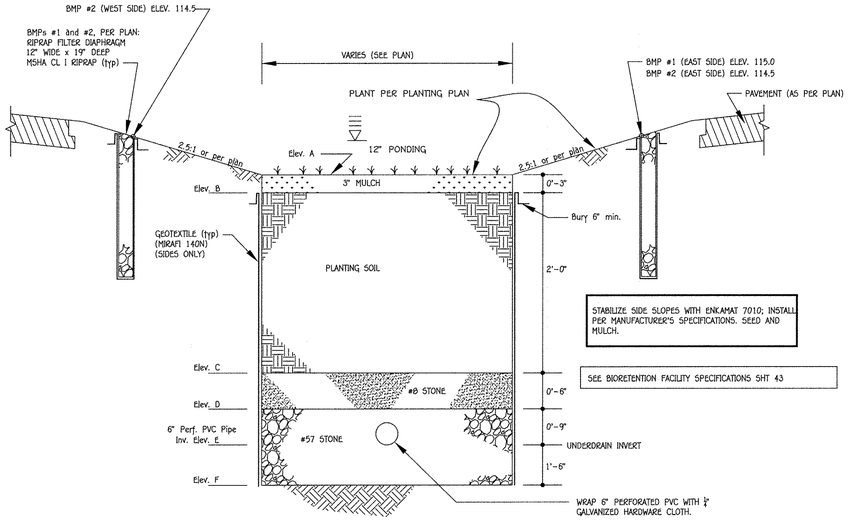
ELEVATION

NOTES:
1. SEE MSHA STD DETAIL MD-378.11 FOR DETAILS NOT SHOWN ABOVE.
2. ALL STRUCTURAL REQUIREMENTS SHALL CONFORM TO THE D-INLET (DETAIL D-4.10) REQUIREMENTS DUE TO THE INCREASED INLET DEPTH.
3. USE DOUBLE OPENING WITH NO CONCRETE GUTTER APPROACHES.
4. SLOPE RISER INVERT 1/4":1' TOWARD RCCP OUTFALL.
5. PROVIDE STEPS PER HOCO STD. DETAIL G-5.21.
6. CHAMFER EXPOSED EDGES 3/4"x3/4".
7. ORIENT INLET AS SHOWN ON SDP (GRATE SUPPORT WALL IS HATCHED).
8. THE 6" UNDERDRAIN ENTERS SIDE OF INLET OR OPPOSITE THE RCP OUTFALL. SEE PLAN FOR LOCATION OF 6" UNDERDRAIN CONNECTION TO INLET.

BIORETENTION FACILITY STRUCTURE ELEVATION TABLE

	R-1a (BMP#1)	R-1b (BMP #1)	R-2 (BMP #2)	R-3 (BMP #3)	R-4 (BMP #4)	R-5 (BMP #5)	
ELEV. G	115.10	115.10	114.60	112.10	114.50	114.00	Top of Grate
ELEV. H	114.00	114.00	113.50	111.00	113.50	113.00	Weir Crest
ELEV. I	109.50	109.50	109.00	106.50	109.00	108.50	Inv. 6" Perfor. u/d
ELEV. J	109.40	109.40	108.90	106.40	108.90	108.40	RCCP Invert Out
HEIGHT K	5'-11"	5'-11"	5'-11"	5'-11"	5'-10"	5'-10"	Structure Height

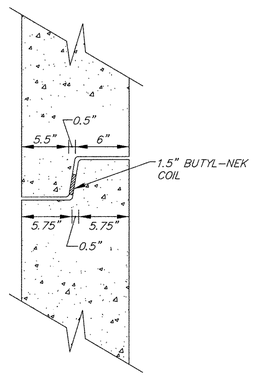
RISER STRUCTURES R-1A,R-1B, R-2, R-3 R-4 & R-5
MODIFIED K-INLET TYPICAL SECTION
NTS



BIORETENTION FACILITY TYPICAL SECTION
NTS

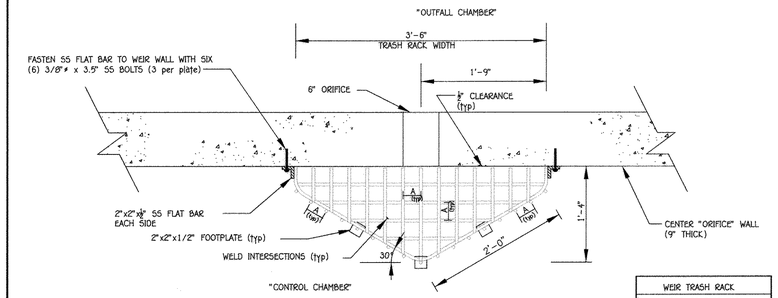
BIORETENTION FACILITY
TRENCH ELEVATION TABLE

	BMP #1	BMP #2	BMP #3	BMP #4	BMP #5
Elev. A	113.00	112.50	110.00	112.50	112.00
Elev. B	112.75	112.25	109.75	112.25	111.75
Elev. C	110.75	110.25	107.75	110.25	109.75
Elev. D	110.25	109.75	107.25	109.75	109.25
Elev. E	109.50	109.00	106.50	109.00	108.50
Elev. F	108.00	107.50	105.00	107.50	107.00



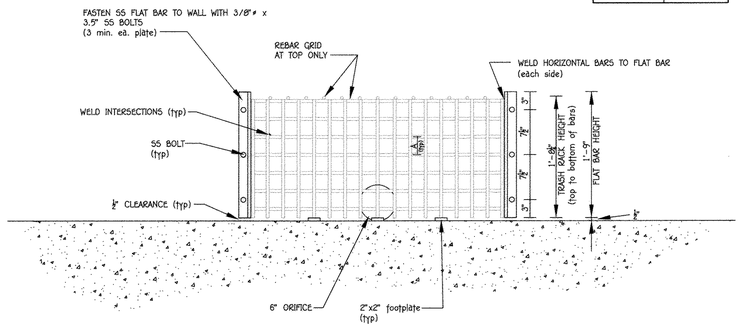
RISER JOINT DETAIL
NTS

NOTES:
1. Riser joints shall join evenly and be watertight. Parge joints after installation.
2. 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.



S-1 PLAN VIEW
SCALE 1" = 1'

WEIR TRASH RACK	
#4 BAR SPACING TABLE	
DIMENSION	VALUE
A	3"



FRONT VIEW
SCALE 1" = 1'

TRASH RACK NOTES
1. REBAR FORMS A "CAGE" TRASH RACK WITH A TRIANGULAR PLAN SHAPE WITH REBAR GRID AT TOP ONLY.
2. THE TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION AND PAINTED "BATTLESHIP GRAY" (2 COATS).
3. USE #4 SMOOTH STEEL BARS. BENDING RADIUS = 3"; BEVEL REBAR ENDS AS NECESSARY.
4. ALL REBAR CONNECTIONS/INTERSECTIONS SHALL BE WELDED.
5. STAINLESS STEEL (SS) BOLTS SHALL BE "REMOVABLE" (I.E., INSTALL WITH SLEEVE IN WEIR WALL).
6. TRASH RACK IS SYMMETRICAL AND CENTERED ON THE 6" ORIFICE.
7. FISHER, COLLINS & CARTER, INC. TO REVIEW SHOP DRAWING.

STRUCTURE S-1
TRASH RACK DETAIL
SCALE 1" = 1'

SWM #6 OUTFALL STRUCTURE (S-1) DETAIL
Scale: 1" = 2'

0' 1' 2' 3'
SCALE: 1" = 2'

FISHER, COLLINS & CARTER, INC.
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CHARLES J. CROVO, SR., P.E. — 3/31/16 DATE

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-D' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-13-16 Date

Chief, Development Engineering Division — 4.13.16 Date

PREPARED FOR
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HARRIET TUBMAN BUILDING
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Attention: SCOTT WASHINGTON
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STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

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BIORETENTION FACILITY RISER DETAILS AND TRENCH TYPICAL SECTION

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ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
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SHEET 40 OF 44

SDP-16-013

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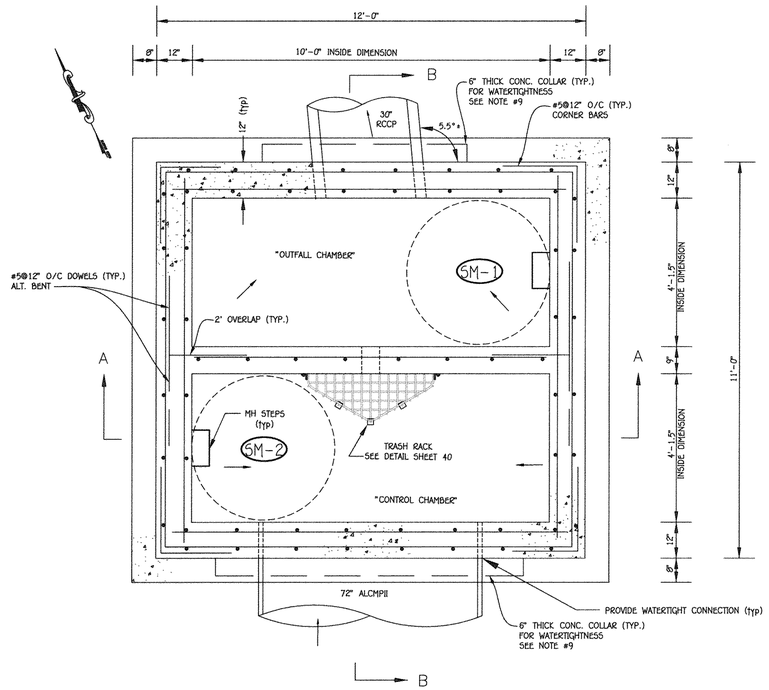
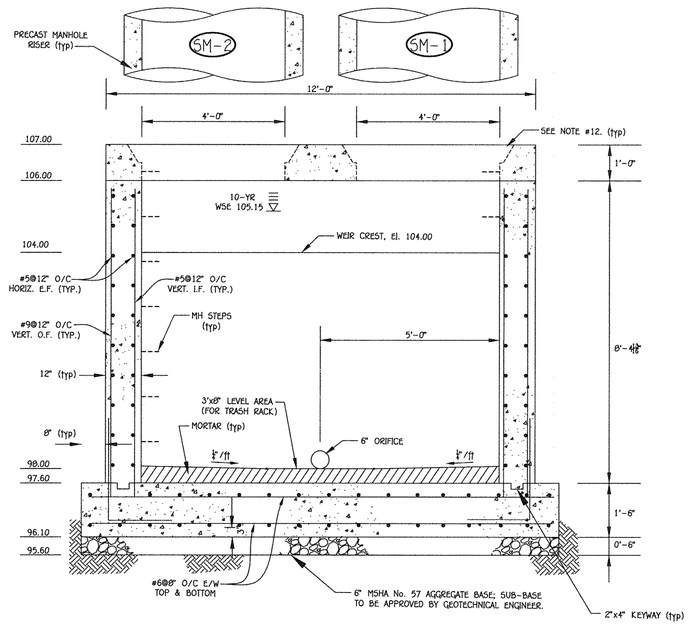
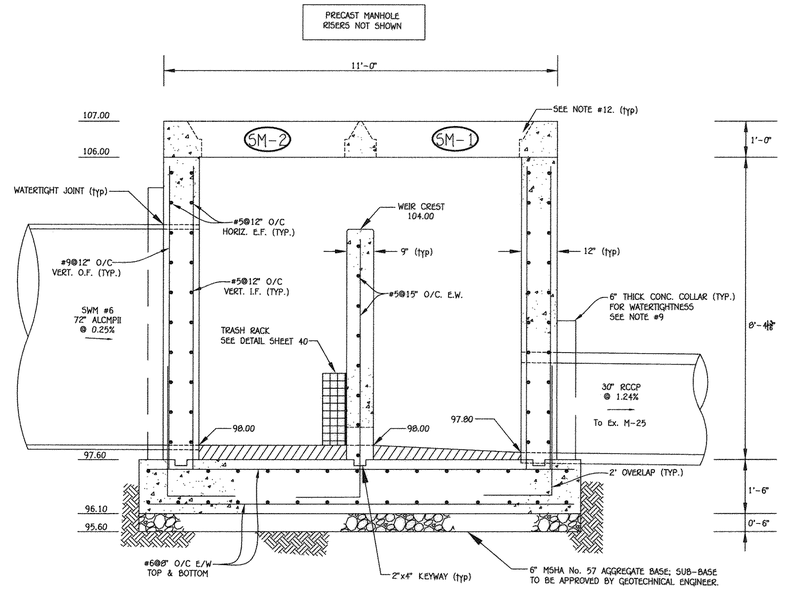


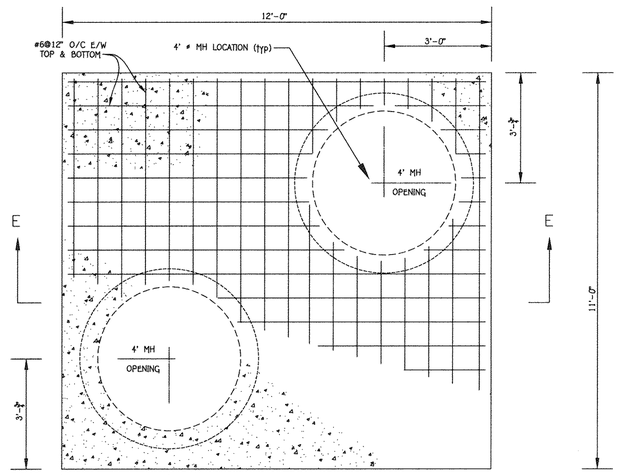
PLAN w/o TOP SLAB



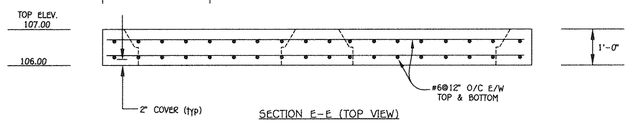
SECTION A-A w/o TRASH RACK



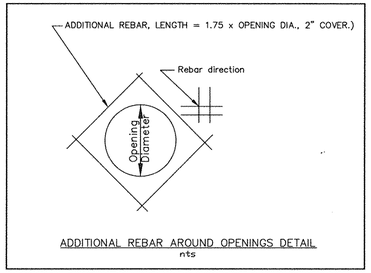
SECTION B-B



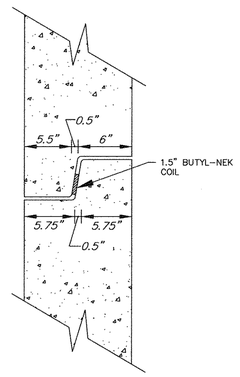
PLAN – TOP SLAB



SECTION E-E (TOP VIEW)



ADDITIONAL REBAR AROUND OPENINGS DETAIL
nts



RISER JOINT DETAIL
NTS

NOTES: (FOR PRECAST CONSTRUCTION ONLY)
1. Riser joints shall join evenly and be watertight. Parge joints after installation.

2. 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.

STRUCTURE S-1 NOTES AND SPECIFICATIONS

1. Structure material for all walls and base shall be air-entrained, 4,000 psi concrete. The concrete shall be compliant with the ACI building code for concrete structures.

2. Reinforcement shall shall be deformed steel, free of rust, and meet ASTM A615, grade 60, with 2" cover except as shown.

3. Compact backfill to 95% per ASTM T-99.

4. Reinforcement is partially shown and is typical for each respective wall, base and top slab. The structure shall be steel-bar reinforced throughout.

5. Horizontal rebar shall extend into the adjacent riser with a 2'-0" L-shaped overlap.

6. Vertical dowels shall extend horizontally into adjacent base slab with a 2'-0" L-shape overlap.

7. Place four (4) additional rebars at a 45 degree angle around all openings as shown on detail this sheet.

8. Chamfer internal wall (weir crest) ledges 3/4" x 3/4".

9. All connections must be watertight. Use water stops or 6" thick concrete collars around pipes, extending 12" beyond O.D. and reinforce with #4@12" rebar, o/c, e/w. Apply non-shrink grout to seal collar to wall.

10. Provide steps per MSHA Std. Detail MD-383.92 or approved equal.

11. Access manholes to be per Howard County Detail G5.11. Align manhole steps with steps in structure S-1. Manhole F&C to be located over steps.
Howard County Detail G5.11. Align manhole steps with steps in structure S-1. Manhole F&C to be located over steps.

12. Place a complementary circular groove (with gasket) in the 4' diameter openings in the top slab as shown, to place and accept manhole risers. The S-1 fabricator shall coordinate with manhole fabricator so that the manhole rings and top slab fit snugly and appropriately together.

13. The top slab shall NOT be structurally attached to the walls.

14. If riser is supplied in sections, the joints shall be watertight per riser joint detail shown on this sheet. Bolt sections together at each joint with three (3) rustproof, 2" x 6" (1/4" thick) flat bar connections with 1/2" bolts embedded in to riser.

15. Use provided dimensions; do not scale drawings.

16. The sub-base shall be approved by the on-site Geotechnical engineer. The geotechnical engineer shall confirm the minimum bearing pressure of 2,500 psf and other backfill criteria.

17. At the low flow 6" orifice, "smooth" upstream and downstream circumference edges with ⅜" ± radius).

18. Install trash rack per detail, Sht 40.

19. The mortar in the inverts shall be "Weber.color 877" manufactured by Weber Saint-Gobain.

20. The contractor shall coat the ends of the 72" ALCMPII with a zinc chromate primer coming in contact with concrete/grout at structure S-1.

SWM #6 OUTFALL STRUCTURE (S-1) DETAIL

Scale: 1" = 2'

0' 1' 2' 3'
SCALE: 1" = 2'

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
04/11/16	REVISED PARCEL NAME & COMBINED PARCELS 'E' & 'B-1' INTO PARCEL 'D-1'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director – Department of Planning and Zoning — Date 4/18/16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4/13/16

4

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-1'	7030 BANBURY DRIVE
	HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			N/A		'D-1'
PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23768-23770	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

RISER STRUCTURE (S-1) DETAIL

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 41 OF 44

SDP-16-013

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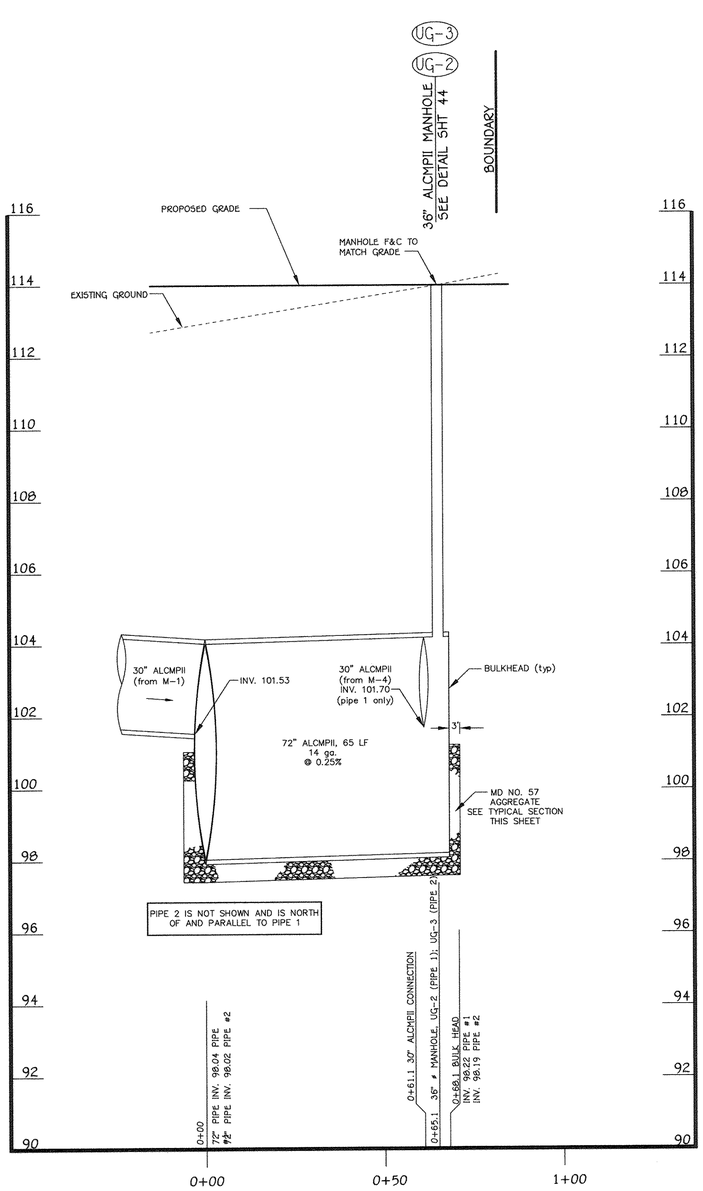
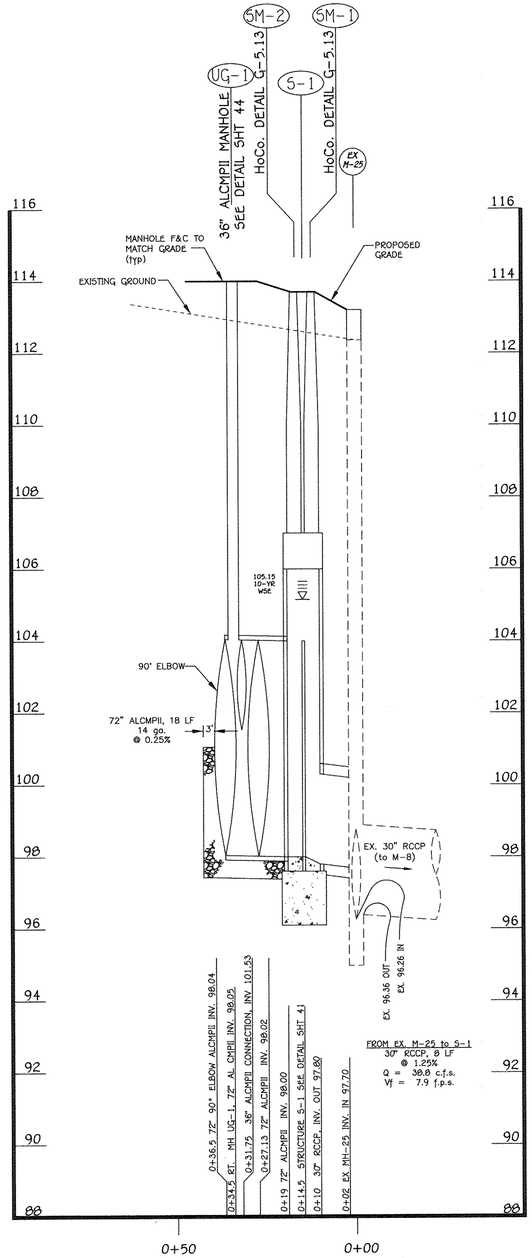


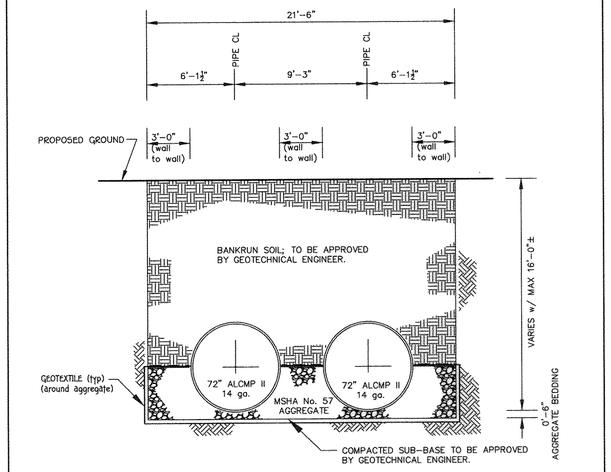
SWM #6 - 72" ALCMP II PROFILE (PIPES 1 AND 2)

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'



EX. MH -25 TO S-1 TO UG-1 PROFILE

SCALE:
HORZ: 1" = 20'
VERT: 1" = 2'



SWM #6 - 72" ALCMP II TYPICAL SECTION THROUGH PIPES #1 AND #2

SCALE: 1" = 5'

SWM #6 (72" PIPE) NOTES AND SPECIFICATION REFERENCES

1. The 72" ALCMPII pipes (14 ga. with 3"x1" corrugations) to be manufactured by Contech Engineered Solutions, LLC. Construction shall follow manufacturer's specifications and recommendations.

2. The aluminized steel coils shall conform to the applicable requirements of AASHTO M274 OR ASTM 929. The CSP shall be manufactured per the applicable requirements of AASHTO M36 or ASTM A760.

3. Provide aggregate pipe bedding as shown.

4. Pipe to be sloped to drain to Structure S-1 @ 0.25% (0.05%±).

5. Manholes to be 36" ALCMPII, with welded steps/rungs per CONTECH specifications.

6. Contractor shall submit SWM #6 shop drawings for review.

7. Foundation/Bedding Preparation

   Prior to placing the bedding, the foundation must be constructed to a uniform and stable grade. in the event that unsuitable foundation materials are encountered during excavation, they shall be removed and brought back to the grade with a fill material as approved by the on-site geotechnical engineer. Once the foundation preparation is complete, 6" minimum of the well-graded granular material shall be placed as the bedding as shown.

8. Backfill

   The backfill shall be an A1, A2 or A3 granular fill per AASHTO M145, or a well-graded granular fill as approved by the site geotechnical engineer. The material shall be placed in 8" loose lifts and compacted to 90% AASHTO T-99 standard proctor density. When placing the first lifts of backfill it is important to make sure that the backfill is properly compacted under and around the pipe haunches. Backfill shall be placed such that there is no more than a two lift (16") differential between any of the pipes at any time during the backfill process. The backfill shall be advanced along the length of the detention system at the same rate to avoid differential loading on the pipe. Other alternate backfill material may be allowed depending on site specific conditions, as approved by site geotechnical engineer.

9. Handling and Assembly: Shall be in accordance with recommendations of the national corrugated steel pipe association (NCSPA).

10. Installation: Shall be in accordance with AASHTO standard specifications for highway bridges, section 26, division ii or ASTM A798 and in conformance with the project plans and specifications. If there are any inconsistencies or conflicts, the contractor should discuss and resolve with the site engineer. It is the responsibility of the contractor to follow OSHA guidelines for safe practices.

0' 20' 40' 60'
SCALE: 1" = 20'

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CHARLES J. CROVO, SR., P.E. — 3/21/16 DATE

DATE	DESCRIPTION
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — 4-18-16 Date

Chief, Division of Land Development — 4-18-16 Date

Chief, Development Engineering Division — 4.13.16 Date

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STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

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23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE	----		SEWER CODE	----	

SWM #6 (72" PIPE) PROFILE AND SECTION

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-1'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 42 OF 44

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OPERATION AND MAINTENANCE SCHEDULE FOR BIORETENTION BMPs #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.

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: SHOULD STORMWATER POND FOR MORE THAN 24 HOURS, THE TOP 6 INCHES (MINIMUM) OF THE SOIL LAYER SHALL BE REMOVED AND REPLACED. THE OLD SOILS SHALL BE PROPERLY DISPOSED OF.
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.

OPERATION AND MAINTENANCE SCHEDULE FOR A PRIVATELY OWNED AND MAINTAINED UNDERGROUND SWM FACILITY (SWM #6/S-1)

1. THE UNDERGROUND STORMWATER MANAGEMENT (SWM) FACILITY IS PRIVATELY OWNED AND MAINTAINED. THE OWNER IS RESPONSIBLE FOR PERIODICALLY INSPECTING AND MAINTAINING THIS FACILITY SO THAT IT REMAINS IN GOOD WORKING ORDER AND FUNCTIONS AS INTENDED.

2. THE 72" ALCMP11 SWM FACILITY (SWM #6) SHALL BE INSPECTED AT LEAST ONCE A YEAR AND AFTER MAJOR STORMS (3"/24 hours). THE INSPECTION SHALL TAKE PLACE DURING WET WEATHER (WHEN SAFE) TO DETERMINE IF FACILITY IS OPERATING AS INTENDED.

3. AT LEAST ANNUALLY, OR WHEN SEDIMENT REACHES 2" DEPTH AT ANY LOCATION, THE SEDIMENT SHALL BE FLUSHED DOWN TO STRUCTURE S-1 AND MANUALLY REMOVED OR VACUUMED. DEBRIS THAT COULD POTENTIALLY BLOCK THE OUTFALL MUST BE REMOVED UPON DISCOVERY.

4. THE FACILITY SHALL BE IMMEDIATELY CLEANED AFTER PETROLEUM SPILLS. HE OWNER SHALL NOTIFY THE APPROPRIATE REGULATORY AGENCIES OF THE SPILL AND CLEAN-UP OPERATIONS.

5. ALL SEDIMENT/DEBRIS/OIL SHALL BE PROPERLY AND LEGALLY DISPOSED IN EITHER A LICENSED WASTE FACILITY OR A SANITARY LANDFILL. THE OUTFALL ORIFICE SHALL BE BLOCKED DURING THE CLEANING/MAINTENANCE OPERATION.

6. INSPECT STRUCTURAL COMPONENTS: ALL STRUCTURAL COMPONENTS (MANHOLES, 6" PVC TRASH RACK, AIR VENTS, STORM DRAIN CONNECTIONS, PIPE JOINTS, AND STRUCTURE S-1) SHALL BE REPAIRED UPON DETECTION OF ANY STRUCTURAL PROBLEMS (e.g., CRACKING, LEAKING, ETC.).

GENERAL STORMWATER MANAGEMENT NOTES

1. STORMWATER MANAGEMENT HAS BEEN PROVIDED WITH FIVE (5) BIORETENTION FACILITIES AND ONE (1) PIPE STORAGE FACILITY. PLEASE REFER TO THE SWM REPORT PREPARED BY FISHER, COLLINS, & CARTER, INC. DATED OCTOBER 16, 2015.

2. ALL CONSTRUCTION SHALL MEET THE LATEST EDITION OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS, 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 BIORETENTION FACILITY SPECIFICATIONS ON THIS SHEET.

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 CHANGES.

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 BIORETENTION FACILITIES MAY BE GRADED, HOWEVER, THE TRENCH MATERIAL (PLANTING SOIL, AGGREGATE, PIPE, GEOTEXTILE) SHALL NOT BE INSTALLED UNTIL ALL UPSTREAM AREAS HAVE BEEN STABILIZED (i.e., THICK GRASS COVER, OR PAVED).

8. ALL STORMWATER MANAGEMENT FACILITIES FOR THIS PROJECT WILL BE PRIVATELY OWNED AND MAINTAINED.

BMP BIORETENTION FACILITY NOTES AND SPECIFICATIONS

1. REFER TO THE LATEST MARYLAND SWM DESIGN MANUAL FOR BIORETENTION SPECIFICATIONS FOR INFORMATION NOT LISTED HEREIN AND FOR ADDITIONAL INFORMATION. THE MDE SWM DESIGN MANUAL'S APPENDIX B.4 HAS BEEN REPRODUCED ON SHT 39. THE 3/4"ø PERFORATION SPECIFICATION BELOW SHALL BE USED IN LIEU OF THE MDE PERFORATION SPECIFICATION IN APPENDIX B.4.

2. THE BIORETENTION BMP MATERIALS ARE AS FOLLOWS:
- PLANTING SOIL: PER SPECIFICATIONS OUTLINED IN MDE'S 2000 SWM MANUAL, APPENDIX B.4, THE PLANTING SOIL SHALL MEET THE FOLLOWING: LOAMY SAND @ 60-65% AND COMPOST 35-40%, OR, 30% SANDY LOAM, 30% COARSE SAND, & 40% COMPOST. SEE MDE APPENDICES A.2.3, B.4.7 and TABLE A.3 FOR ADDITIONAL INFORMATION). IN ADDITION, THE PLANTING SOIL SHALL BE MIXED/DESIGNED SO THAT ITS COEFFICIENT OF PERMEABILITY (k) IS EQUAL TO OR GREATER THAN 1.1 ft/day. DO NOT MECHANICALLY COMPACT PLANTING SOIL, HOWEVER, SOIL CAN BE "WATERED" TO FACILITATE SETTLING.
- PVC UNDERDRAIN PIPE OUTSIDE BMP: SCHEDULE 40. SOLID PIPE WITH MINIMUM SLOPE OF 0.5% OR AS PER PLAN.
- PVC UNDERDRAIN IN BMP: SCHEDULE 40 AND PERFORATED WITH 3/4"ø HOLES. WRAP UNDERDRAIN WITH GALVANIZED 1/4" HARDWARE CLOTH (WELDED WIRE MESH). PROVIDE 4 - 3/4" ø HOLES EVENLY SPACED AROUND THE 6" UNDERDRAIN PIPE CIRCUMFERENCE, SPACE PERFORATIONS ALONG PIPE AT 6" ON CENTER. ADJACENT SETS OF PERFORATIONS SHALL BE STAGGERED AT 45°. PERFORATIONS MUST TOTAL 3.5 sq. inch PER LF OF PIPE.
- STONE AGGREGATE: MSHA SPECIFICATIONS AS SHOWN ON TYPICAL SECTION; AGGREGATE MUST BE WASHED, AND BE FREE OF FINES, SAND, DIRT & DEBRIS.
- GEOTEXTILE: Mirafi 140 N, NON-WOVEN FABRIC.
- MULCH: SHREDDED, WELL-AGED (6-12 MONTHS) HARDWOOD MULCH; NO WOOD CHIPS OR PINE MULCH.

3. THE CONTRACTOR SHALL UNDER NO CIRCUMSTANCES ALLOW SURFACE DRAINAGE INTO THE MICRO-BIORETENTION BMPs UNTIL ALL UPSTREAM AREAS HAVE BEEN STABILIZED (i.e., PAVED, OR HAVE WELL-ESTABLISHED VEGETATION.

4. BOARDS SHALL NOT BE LEFT IN PLACE DURING THE CONSTRUCTION OF THE BIORETENTION BMP.

5. GEOTEXTILE (FILTER FABRIC) SHALL BE PLACED AGAINST EXCAVATED VERTICAL 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.

6. THE CONTRACTOR SHALL PROVIDE TO THE OWNER INDEPENDENT CERTIFICATION THAT THE PLANTING SOILS AND OTHER BIORETENTION MATERIALS MEET THE SPECIFICATIONS.

7. THE BIORETENTION FACILITIES SHALL BE VEGETATED (TOP LEVEL SURFACE ONLY) IN ACCORDANCE WITH THE PLANTING PLAN AND THE BMP SPECIFICATIONS IN MDE's CURRENT STORMWATER MANAGEMENT DESIGN MANUAL.

8. INSTALL CLEANOUTS (SOLID PVC PIPE) AS SHOWN. THE CLEANOUT TOP SHALL EXTEND 3" ABOVE TOP OF MULCH.

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CHARLES J. CROVO, SR., P.E. — DATE 3/24/16

DATE	DESCRIPTION
04/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'B-1' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4/13/16

PREPARED FOR
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HARRIET TUBMAN BUILDING
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410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

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PLAT NOS.	BLOCK NO.	ZONE	TAX MAP	ELEC. DIST.	CENSUS TR.
23788-23790	20	TOD	38	FIRST	6012.01
WATER CODE ----			SEWER CODE ----		

BIORETENTION FACILITY SPECIFICATIONS, NOTES & DETAILS

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
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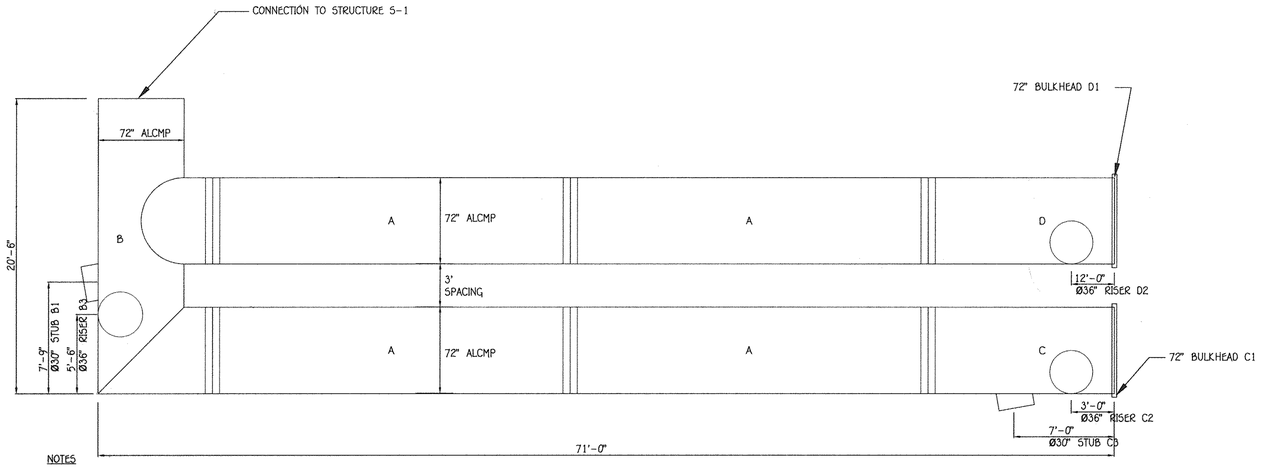
SHEET 43 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 43 BMP SPECS NOTES AND DETAILS.dwg, SHEET 43, 3/8/2016 13:25:10 PM, 1:1

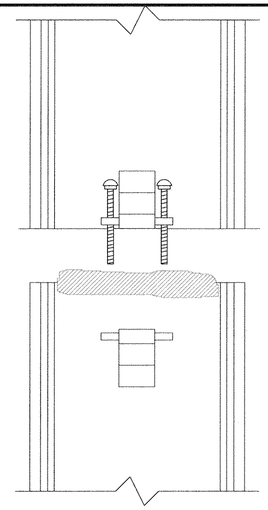


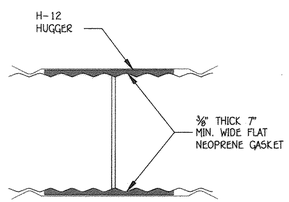
NOTES

- 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 A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- THE PIPES ARE LABELED WITH ALPHA DESIGNATION. THESE DESIGNATIONS CORRELATE WITH THE ALPHA-NUMERIC PIPE FITTINGS (I.E. RISERS, PIPE STUBS, BULKHEADS) LABELS.

SWM#6 PLAN VIEW

SCALE: 1" = 5'





FLAT GASKET

GENERAL NOTES

1. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   12" THRU 48", 1-PIECE
   54" THRU 96", 2-PIECE
   102" THRU 144", 3-PIECES

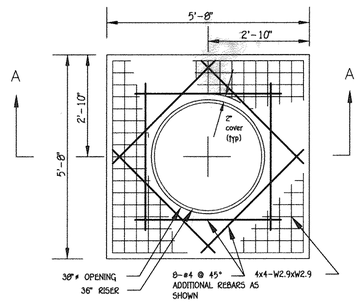
2. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS

3. REROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2⅔" x ½". DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES

CONNECTION DETAIL
SINGLE BOLT, BAR AND STRAP

2 / P2 **H-12 HUGGER BAND DETAIL**

SCALE: N.T.S.



PLAN

MANHOLE COLLAR NOTES

1. CONCRETE FOR COLLAR BE AIR-ENTRAINED, 4,000 PSI CONCRETE. THE CONCRETE SHALL BE COMPLIANT WITH THE ACI BUILDING CODE FOR CONCRETE STRUCTURES.

2. REINFORCEMENT SHALL SHALL BE DEFORMED STEEL, FREE OF RUST, AND MEET ASTM A615, GRADE 60, WITH 2" COVER.

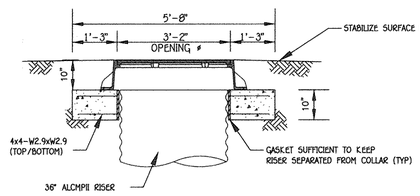
3. COMPACT COLLAR BACKFILL TO 90% PER ASTM T-99.

4. REINFORCEMENT IS PARTIALLY SHOWN BUT IS TYPICAL FOR WHOLE COLLAR.

5. PLACE ADDITIONAL #4 REBARS (AT 45° and 0°) AROUND 36" OPENING AS SHOWN.

6. USE NEENAH FOUNDRY F&C R-1740-D WITH INSIDE 36"ø OPENING FOR THE THREE (3) MANHOLES (RISERS) ON THE 72" ALCMPII. THE COVER SHALL BE VENTED WITH 9 (NINE) 1"ø HOLES SPACED PER MANUFACTURER'S RECOMMENDATIONS.

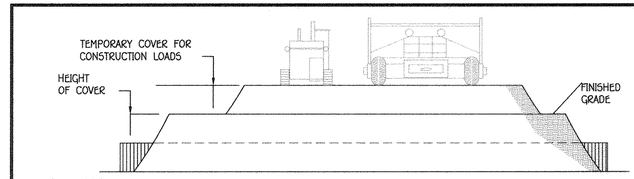
7. MANHOLE COVER ELEVATION PER STORM DRAIN STRUCTURE TABLE.



SECTION A-A

SWM#6 MANHOLE F&C DETAIL (FOR UG-1, 2 AND 3)

NTS



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
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	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.

SWM #6 CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

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

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY 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, 2016."

CHARLES J. CROVO, SR., P.E. — DATE 3/21/16

DATE	DESCRIPTION
6/27/16	REVISED PARCEL NAME & COMBINED PARCELS 'B' & 'D-B' INTO PARCEL 'D-D'

REVISION BLOCK

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director - Department of Planning and Zoning — Date 4-18-16

Chief, Division of Land Development — Date 4-18-16

Chief, Development Engineering Division — Date 4.13.16

PREPARED FOR
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
HARRIET TUBMAN BUILDING
8045 HARRIET TUBMAN LANE
COLUMBIA, MARYLAND 21044
Attention: SCOTT WASHINGTON
410-313-6805

STATE OF MARYLAND — CHARLES J. CROVO — No. 13204 — PROFESSIONAL ENGINEER

Address Chart

Parcel Number	Street Address
'D-D'	7030 BANBURY DRIVE HANOVER, MD 21076

PROJECT			SECTION/AREA		PARCEL
ELEMENTARY SCHOOL #42			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 ----		

SWM #6 DETAILS

'GREEN NEIGHBORHOOD'
ELEMENTARY SCHOOL #42
OXFORD SQUARE
PARCEL 'D-D'

ZONED: TOD TAX MAP No.: 38 GRID No.: 20 PARCEL No.: 1003
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH 7, 2016

SHEET 44 OF 44

SDP-16-013

I:\2009\09014\dwg\ELEMENTARY SCHOOL #42 PLANS\09014 SDP SHEET 44 SWM #6 DETAILS.dwg SHEET 44 3/21/2016 11:00:05 AM 1:1