

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITY SHOWN ON THIS PLANS WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED PLANS AND SPECIFICATIONS.

**JAMES A. RUFF** 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE

**PP#2**  
 10,214 SQ FT  
 9,624 (A-2)

**PP#5**  
 3,078 SQ FT  
 2,838 (A-2)

**PP#3**  
 2,592 SQ FT  
 2,391 (A-2)

**PP#4B**  
 6,865-SQ FT  
 4,451 (A-2)

**PP#4A**  
 5,284 SQ FT  
 2,946 (A-2)

**PERVIOUS PAVEMENT #1**  
 10,340  
 10,782-SQ FT  
 (A-2)

**DA2**  
 17,041 SF  
 MB #2

**MB #2**  
 2,464 CF  
 3,334 (M-6)

HOWARD COUNTY, MARYLAND  
 PLAT 2380A-23820  
 275,208 Sq. Ft.  
 6.31791 Ac.  
**6540 WASHINGTON BOULEVARD  
 PROPOSED ELK RIDGE  
 LIBRARY & SENIOR CENTER**  
 ±44,085 SF  
 FFE=163.84

**DA3**  
 15,597 SF  
 MB #3

**DA1**  
 15,904 SF  
 MB #1

**MB #3**  
 2,792 CF  
 3,334 (M-6)

**MB #1**  
 2,867 CF  
 3,334 (M-6)

**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING BUILDING	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING TREE LINE	
EXISTING SOILS	
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	
EXISTING ZONING LINE	
EXISTING WATER	
EXISTING SEWER	
EXISTING COMMUNICATIONS	
EXISTING ELECTRICAL	
EXISTING GAS	
EXISTING STORM DRAIN	
PROPOSED 1' CONTOUR	
PROPOSED 5' CONTOUR	
PROPOSED SPOT ELEVATION	
PROPOSED PERVIOUS PAVING	
PROPOSED MICRO-BIORETENTION FACILITY	
PROPOSED STORM DRAIN	
PROP. CONCRETE SIDEWALK	
PROPOSED TREE LINE	
SOIL BORING LOCATION	

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR STORMWATER MANAGEMENT, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*[Signature]* 6-29-16  
 ENGINEER DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 7/1/16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 8-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 8-16-16  
 DIRECTOR DATE

DATE	NO.	REVISION	BY
6-10-20	1	PERVIOUS PAVEMENT REVISION PJS	PJS

**DEVELOPER**  
 HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

**OWNER**  
 HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

**PROJECT**  
 GREEN BUILDING  
**HCLS ELK RIDGE BRANCH  
 AND 50+ CENTER**

**AREA**  
 TAX MAP 38, PARCEL 'A' PLAT 2380A ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 6540 WASHINGTON BOULEVARD  
 ELK RIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

**TITLE**  
**AS-BUILT  
 STORMWATER  
 MANAGEMENT PLAN**

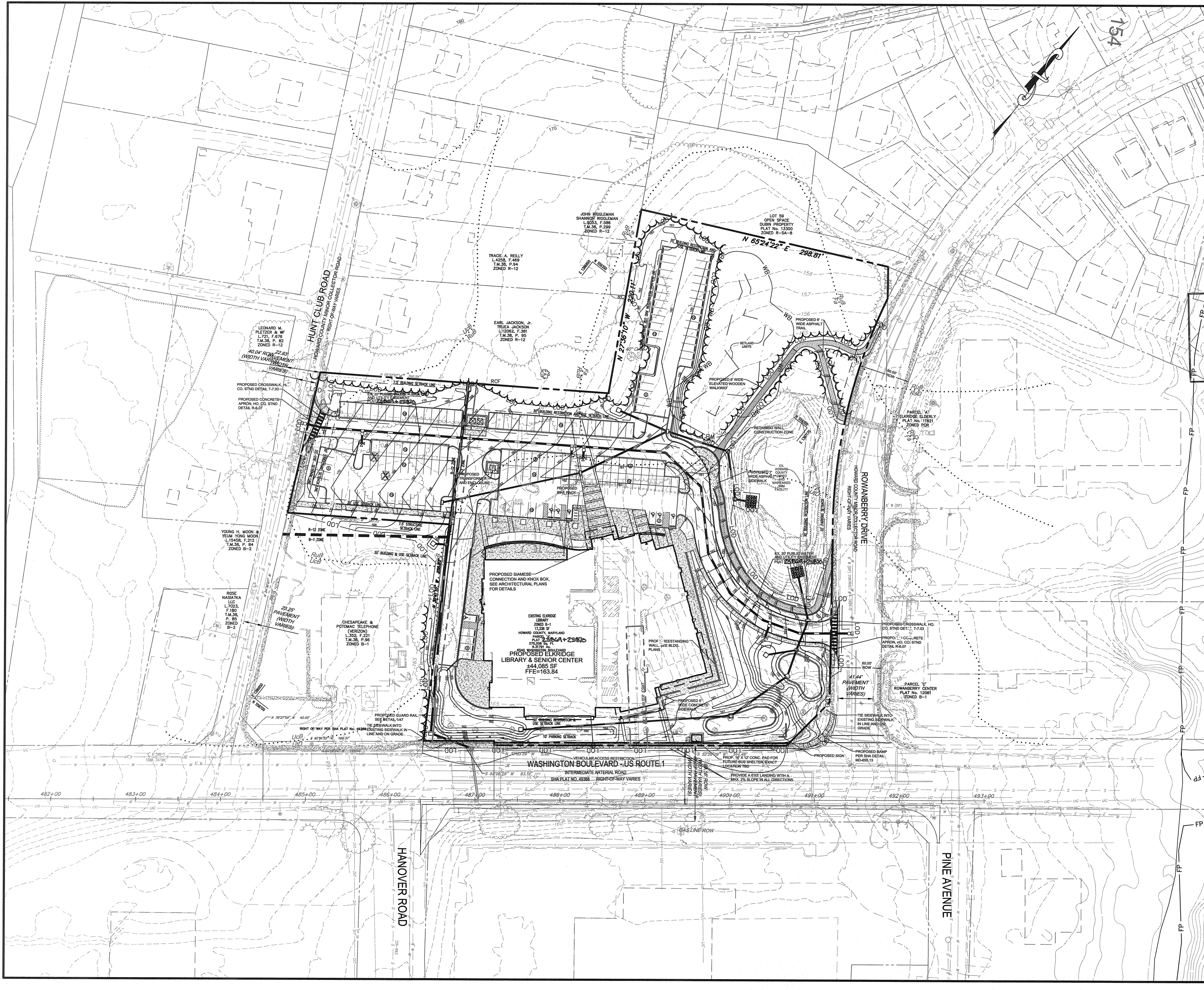
Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

SEAL

DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 15 OF 50

BY: *[Signature]* 6-29-16  
 PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30666, EXPIRATION DATE: 8-31-2027.



**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING BUILDING	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING TREE LINE	
EXISTING SOILS	
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	
EXISTING ZONING LINE	
EXISTING WATER	
EXISTING SEWER	
EXISTING COMMUNICATIONS	
EXISTING ELECTRICAL	
EXISTING GAS	
EXISTING STORM DRAIN	
PROPOSED 1' CONTOUR	
PROPOSED 5' CONTOUR	
PROPOSED STORM DRAIN	
PROP. CONCRETE SIDEWALK	

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A. RUFF** 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE  
 STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 GEOGRAPHIC SCALE 1"=50'  
 25' 0' 50' 100'

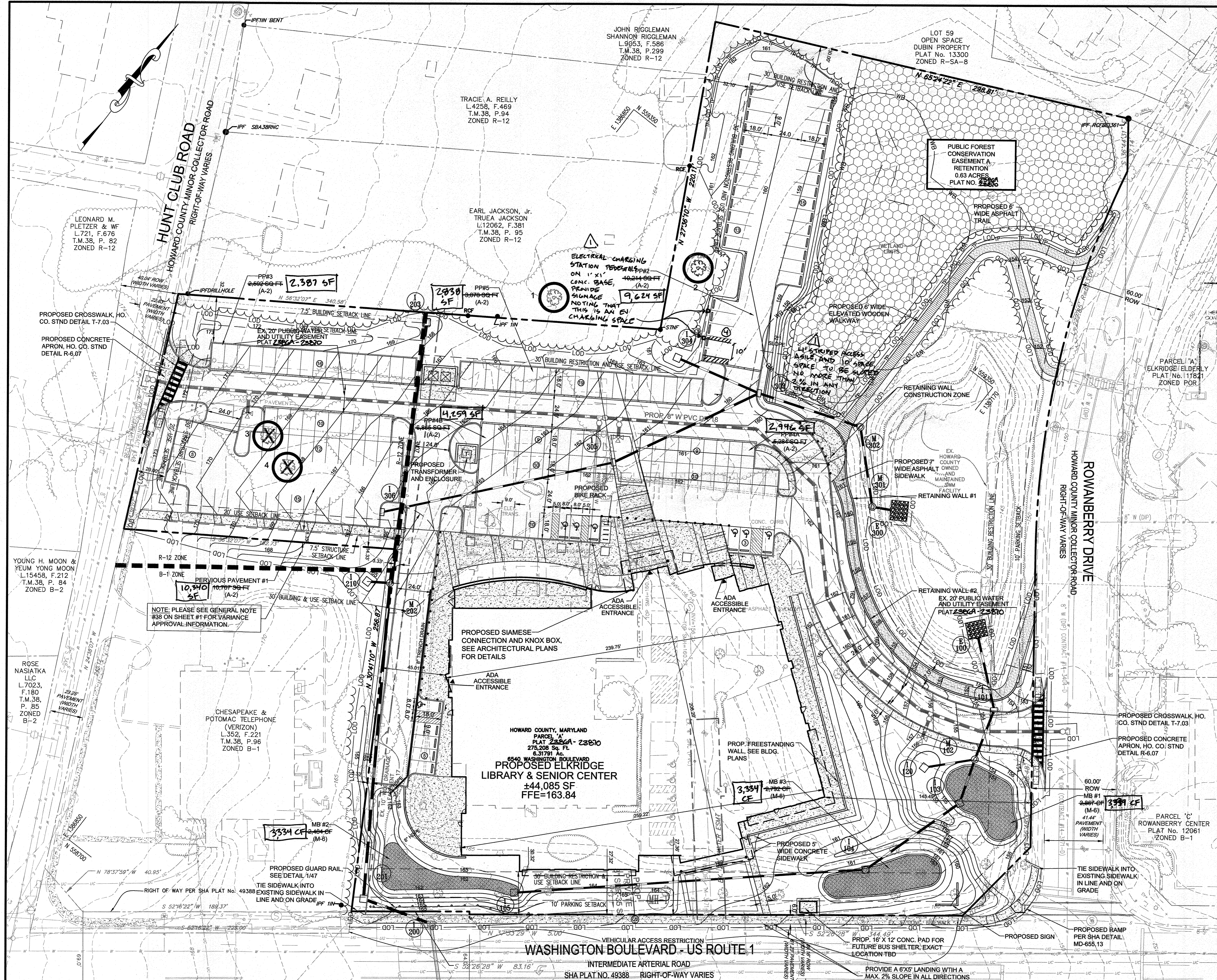
APPROVED: DEPARTMENT OF PLANNING AND ZONING

	7-19-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
	8-16-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
	8-16-16
DIRECTOR	DATE

DATE	NO.	REVISION	BY
DEVELOPER		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	
OWNER		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	
PROJECT		GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER	
AREA		TAX MAP 38, PARCEL 'A' PLAT 2356 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND	
TITLE		OVERALL PLAN	

Pennoni Associates Inc.  
**Pennoni** Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

SEAL  
 STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 50'  
 DRAWING NO. 2 OF 50  
 SDP-16-038



### LEGEND

PROPERTY LINE AND RIGHT-OF-WAY	---
EXISTING BUILDING	[Symbol]
EXISTING 1' CONTOUR	---154---
EXISTING 5' CONTOUR	---155---
EXISTING TREE LINE	[Symbol]
EXISTING WETLANDS	[Symbol]
EXISTING WETLAND BUFFER	WB
EXISTING ZONING LINE	---
EXISTING WATER	[Symbol]
EXISTING SEWER	[Symbol]
EXISTING COMMUNICATIONS	[Symbol]
EXISTING ELECTRICAL	[Symbol]
EXISTING GAS	[Symbol]
EXISTING STORM DRAIN	[Symbol]
PROPOSED 1' CONTOUR	---164---
PROPOSED 5' CONTOUR	---165---
PROPOSED MICRO-BIORETENTION FACILITY	[Symbol]
PROPOSED STORM DRAIN	[Symbol]
PROPOSED WATER	[Symbol]
PROP. CONCRETE SIDEWALK	[Symbol]
PROPOSED TREE LINE	[Symbol]
PROP. FOREST CONSERVATION EASEMENT	[Symbol]

### AS-BUILT CERTIFICATION

I HEREBY CERTIFY BY MY SEAL THAT THE FACILITY SHOWN ON THIS PLANS WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED PLANS AND SPECIFICATIONS

**JAMES A. RVE** 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE 02/19/20  
 GRAPHIC SCALE 1"=30'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 7-19-16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 8-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 8-16-16  
 DIRECTOR DATE

DATE	NO.	REVISION	BY
6-20-23	1	INSTALL 4 CHARGING STATIONS	PSS

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

PROJECT: GREEN BUILDING  
**HCLS ELKRIDGE BRANCH AND 50+ CENTER**

AREA: TAX MAP 38, PARCEL 'A' PLAT 2386A ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: **AS-BUILT SITE DEVELOPMENT PLAN**

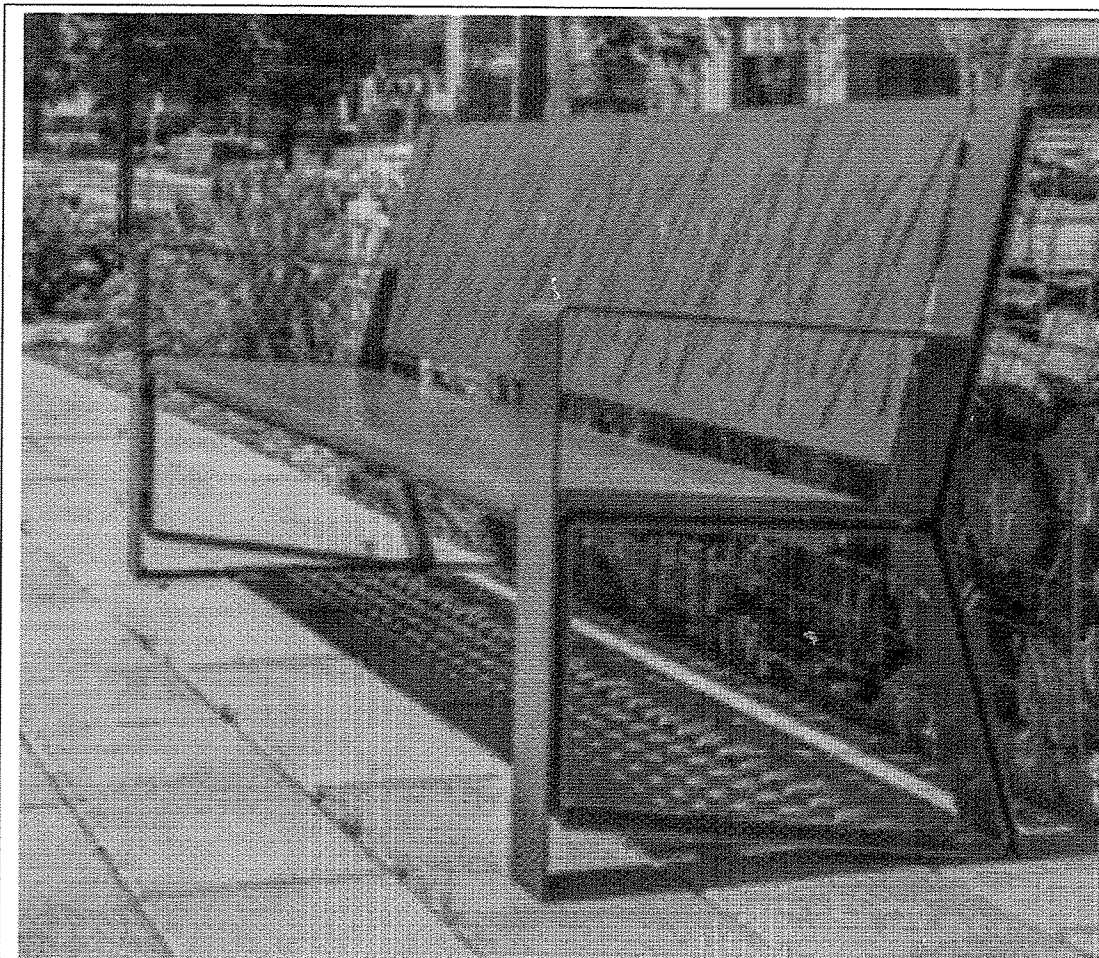
**Pennoni**  
 Engineers • Surveyors • Planners  
 Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

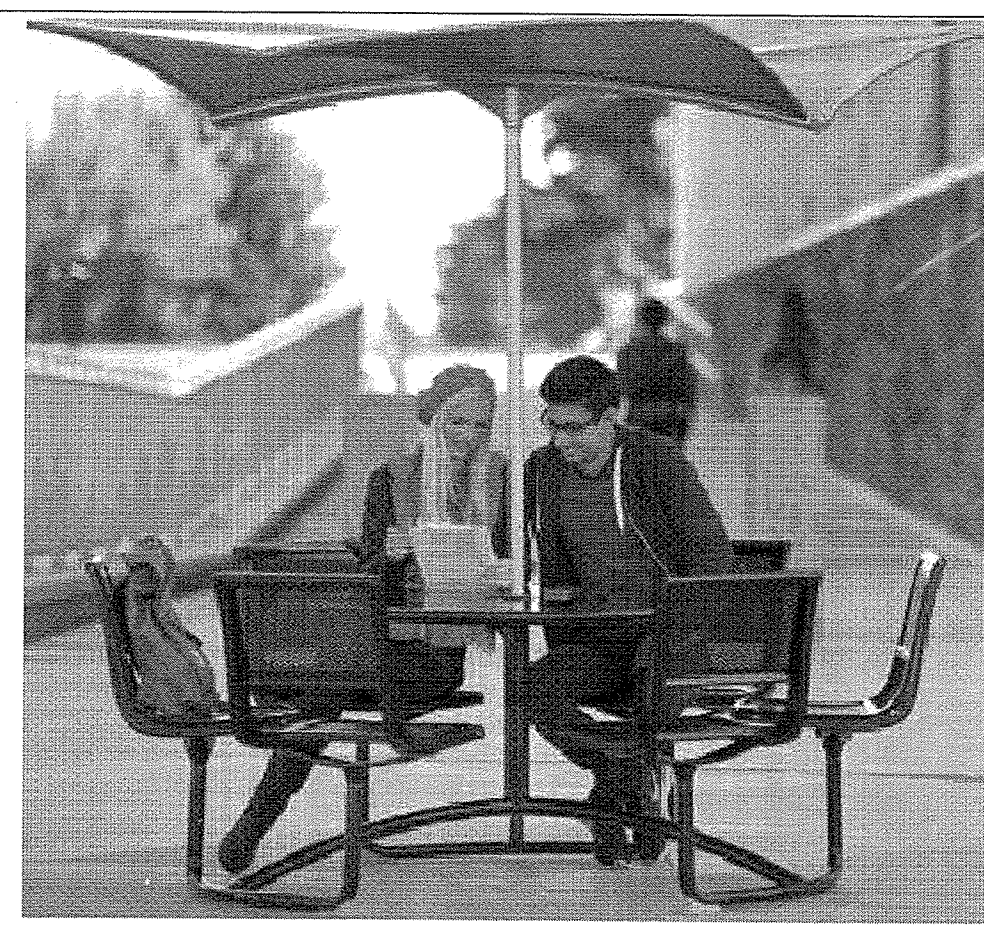
DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 4 OF 50

BY: *[Signature]* 02-21-16  
 PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10366, EXPIRATION DATE: 06-30-2024

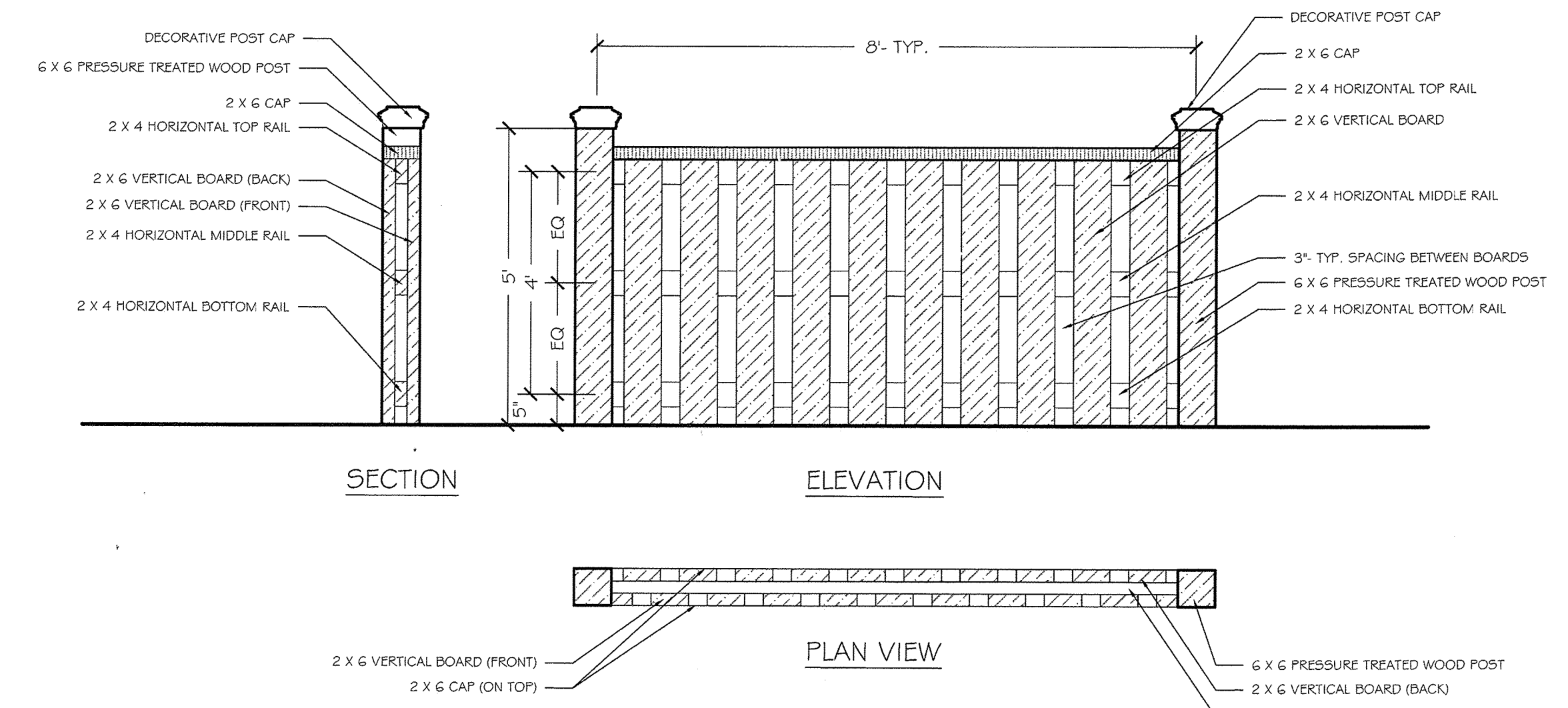
WASHINGTON BOULEVARD - US ROUTE 1  
 INTERMEDIATE ARTERIAL ROAD  
 SHA PLAT NO. 49388 RIGHT-OF-WAY VARIES



PRODUCT: LAKESIDE BENCH-GRASS BACKED.SILVER POWDERCOAT.  
 MANUFACTURER: FORMS SURFACES  
 SIZE: 25" D X 67" W X 35"H  
 QUANTITY: 6  
 INSTALLATION: SURFACE MOUNT



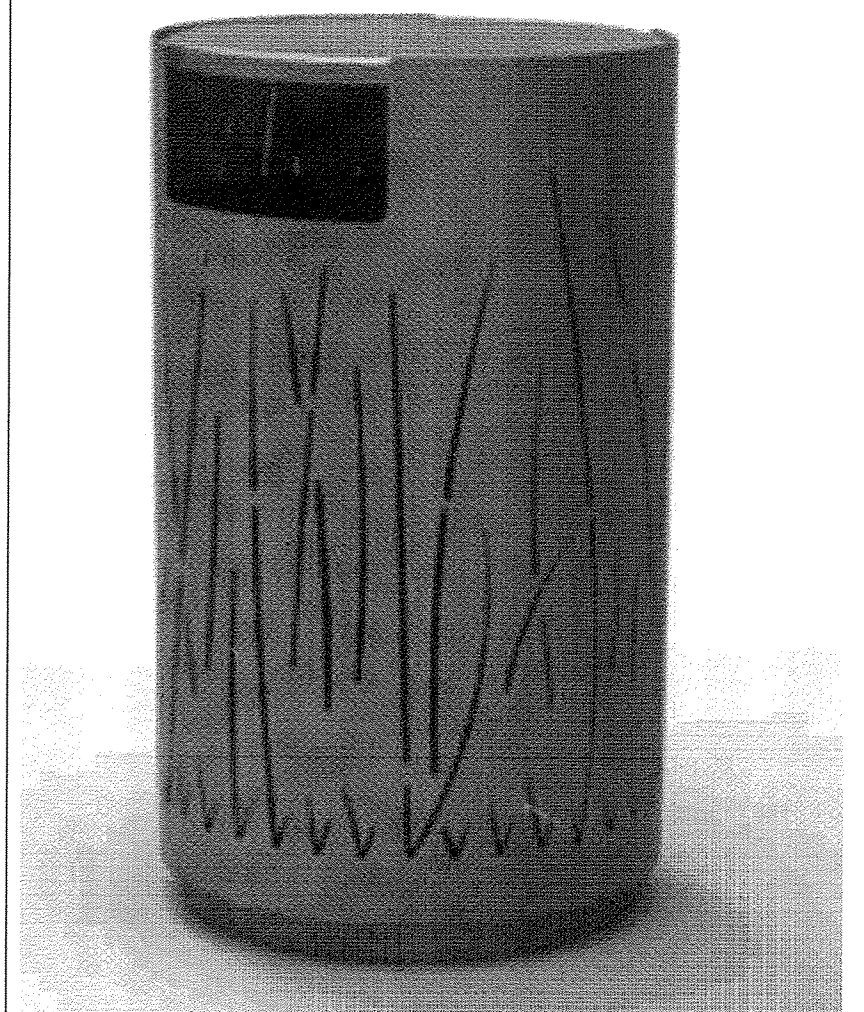
PRODUCT: MINGLE  
 MANUFACTURER: FORMS SURFACES  
 MODEL: BACKED 3 SEAT. WITH UMBRELLA HOLE. SILVER  
 TEXTURE. CATENA TABLE TOP.  
 QUANTITY: 3  
 INSTALLATION: SURFACE MOUNTED.  
 SHADE: UMBRELLA ONLY. SILVER TEXTURE.



NOTE:  
 1. CONTRACTOR TO SUBMIT SHOP DRAWINGS.

**A** LAKESIDE BENCH- LANDSCAPE FORMS  
 NOT TO SCALE

**D** MINGLE & SHADE- FORMS AND SURFACES  
 NOT TO SCALE



PRODUCT: LAKESIDE TRASH RECEPTACLE. GRASS. SIDE OPENING. SILVER POWDERCOAT.  
 MANUFACTURER: FORMS SURFACES  
 SIZE: 21" D X 36" H  
 QUANTITY: 3 TRASH # 3 RECYCLE  
 INSTALLATION: SURFACE MOUNT

Protector LED 1600

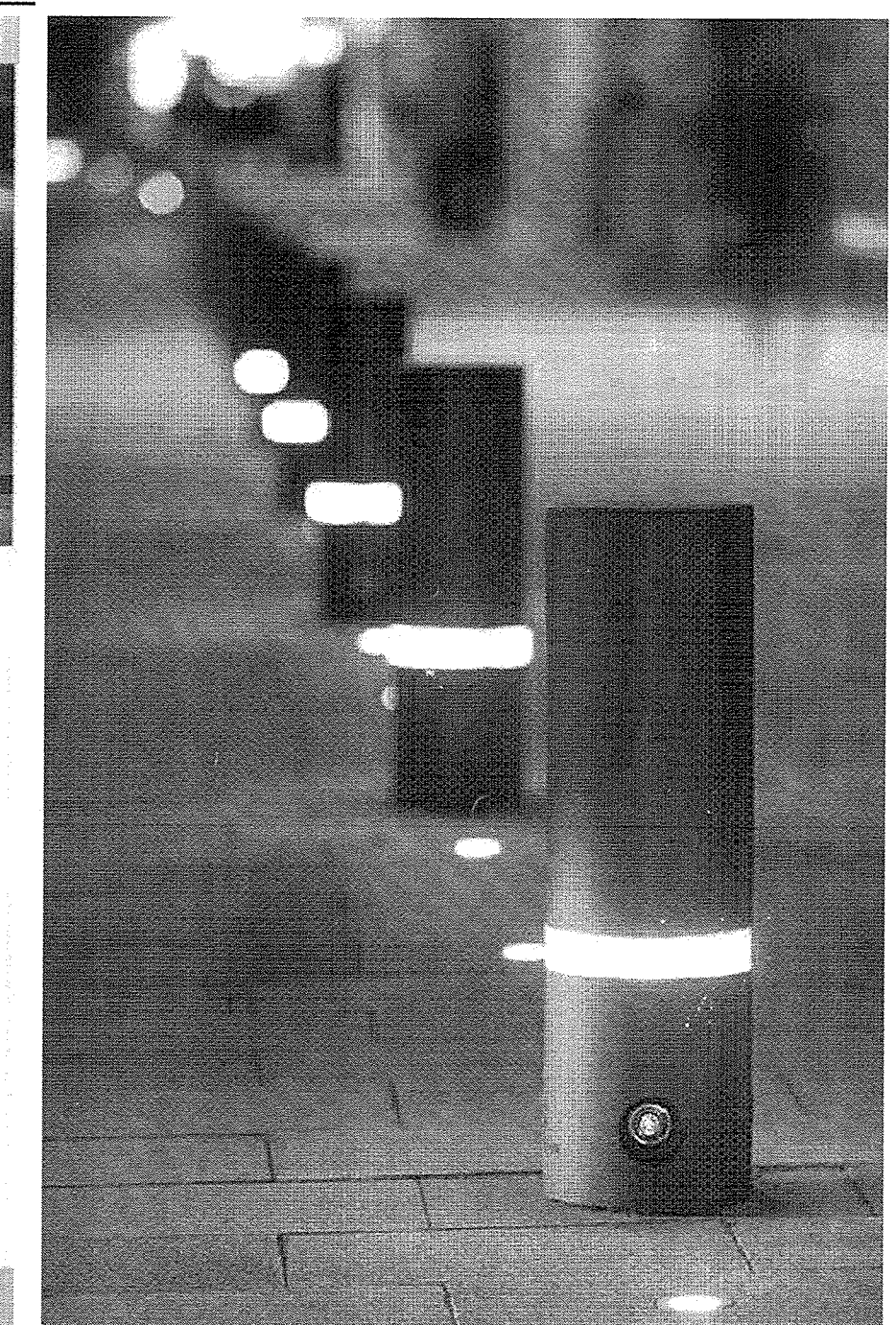
Specifications:  
 Fully extruded lighting bollard made from cast aluminum with a flat top. Housing of cast LED light tubes, each with 1 LED. Protection class IP65 in the bollard area. Internal cable with connector plug, protection class IP68 and 24V low voltage.

Mounting:  
 Only available with Top-Technology, comprising a ground bolt, a junction piece with integrated breaking point and cable guide grooves, two clamping cones, a top head bolt and a lock nut.

Finish:  
 Powder coating in standard RAL colours or RAL 7032 - for details, see catalogue p. 13-21, p. 33 and p. 36.

Technical Information:  
 Light unit: 2 x 18 LED Modules ultra light  
 Voltage supply: CA 120V AC  
 Max. current consumption: 100 mA  
 Total lamp life: 222 h  
 Beam angle: 120°  
 Light color: 6000 K (white)

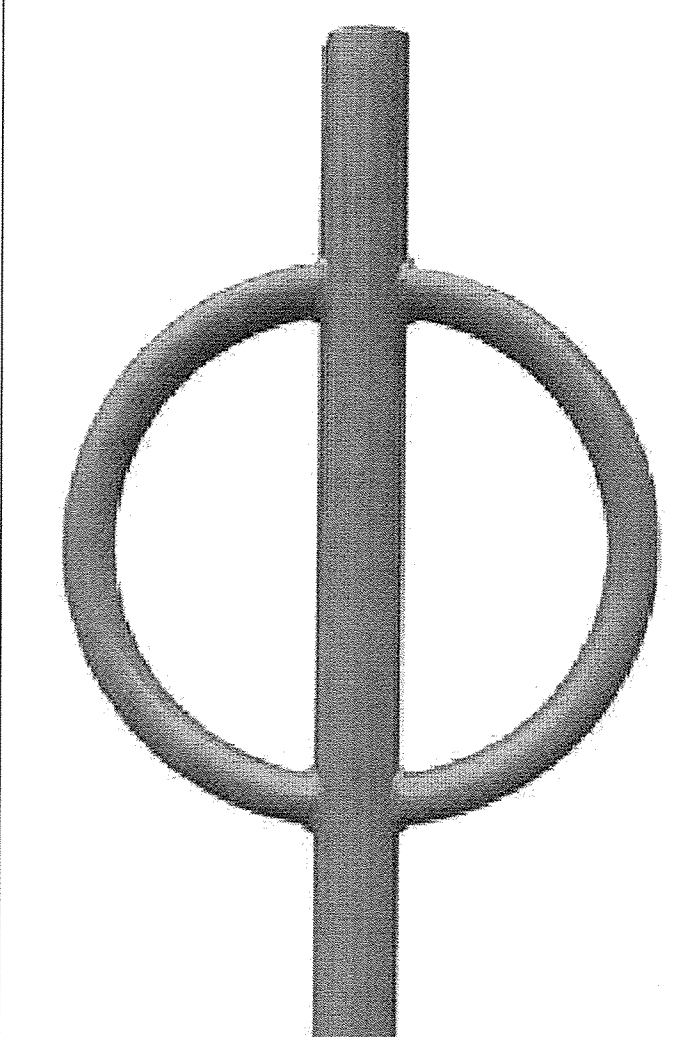
Measurements:  
 Height above ground level: 600 mm  
 Diameter: 100 mm  
 Light tube height: 35 mm  
 Frame: 138 mm  
 Height ground level: 300 mm or 500 mm  
 Height: 133 kg



- NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR FOOTING & REINFORCEMENT INFORMATION.
  2. SEE MEP DRAWINGS FOR LIGHTING & ELECTRICAL INFORMATION.
  3. BOLLARDS TO BE SPACED 6' O.C.- TYP. AT THE BUILDING FRONT & CONCRETE DECK AND 8' O.C.- TYP. AT THE LOADING AREA.
  4. QTY:41

MODEL #: PROTECTOR 1600, CAST IRON, LED LIGHTED

**B** LAKESIDE TRASH RECEPTACLE- FORMS & SURFACES  
 NOT TO SCALE



PRODUCT: BIKE HITCH - 2 BIKE CAPACITY- POWDERCOAT: SILVER COLOR. PROVIDE SAMPLES.  
 MANUFACTURER: DERO  
 QUANTITY: 4  
 INSTALLATION: SURFACE MOUNT  
 \*\*CUSTOM LIBRARY LOGO ON PLATE WITHIN LOOPS  
 SUBMIT SHOP DRAWINGS.

**E** SECURITY BOLLARDS  
 NOT TO SCALE



PRODUCT: OBLIO TREE GRATE. 6'X6'  
 MANUFACTURER: IRON AGE DESIGN  
 FINISH: CAST IRON-NATURAL.  
 QUANTITY: 5

TOP

5'-11 1/2" sq. (1825.5mm)

35" sq. inset-cut for Oblio LED Walkover™ light fixture available from Salsomula USA 916.722.7900 www.salsomula.com catalog # 12251 color and beam width options

12" tree opening break-outs to 20"

attaches to frame (B3) w/ 0.35-20 UNC bottom-hole (square-resistant 1/4" hex)

NOTES:  
 1. Material: cast iron  
 2. Natural finish  
 3. Total thickness: 1 1/2"  
 4. Fit: Iron Age 6" sq. treegrate frame  
 5. No openings > 3/8"  
 6. Ships in 4 pieces  
 7. Due to casting inconsistencies, all dimensions are nominal.  
 8. Patent pending

IRON AGE 2104 SR 152nd st #4 TEL 206.276.0625  
 Burien, WA 98146 FAX 206.257.0318  
 www.ironage.com

**F** OBLIO STYLE TREE GRATE-6' SQ.- IRON AGE  
 NOT TO SCALE

**G** 5' HT. BOARD ON BOARD DECORATIVE FENCE  
 NTS



PRODUCT: EDUCATIONAL SIGN PANEL  
 MANUFACTURER: DAVID ARTHUR SIGNS  
 DIMENSIONS: 18" x 24" x 1/2" THICK PANEL; HIGH PRESSURE COMPOSITE PANEL  
 FINISH: 2" SQUARE ALUMINUM POST- COLOR: BLACK  
 QUANTITY: 2  
 INSTALLATION: EMBEDDED @ 8" DIA X 12" DEEP CONCRETE FOOTING.  
 \*\*NO VISIBLE FASTENERS.  
 \*\*ARCHITECT TO PROVIDE THE CONTENT.

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

JAMES A. RUFF 21774  
 SIGNATURE DATE

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 06/15/10  
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

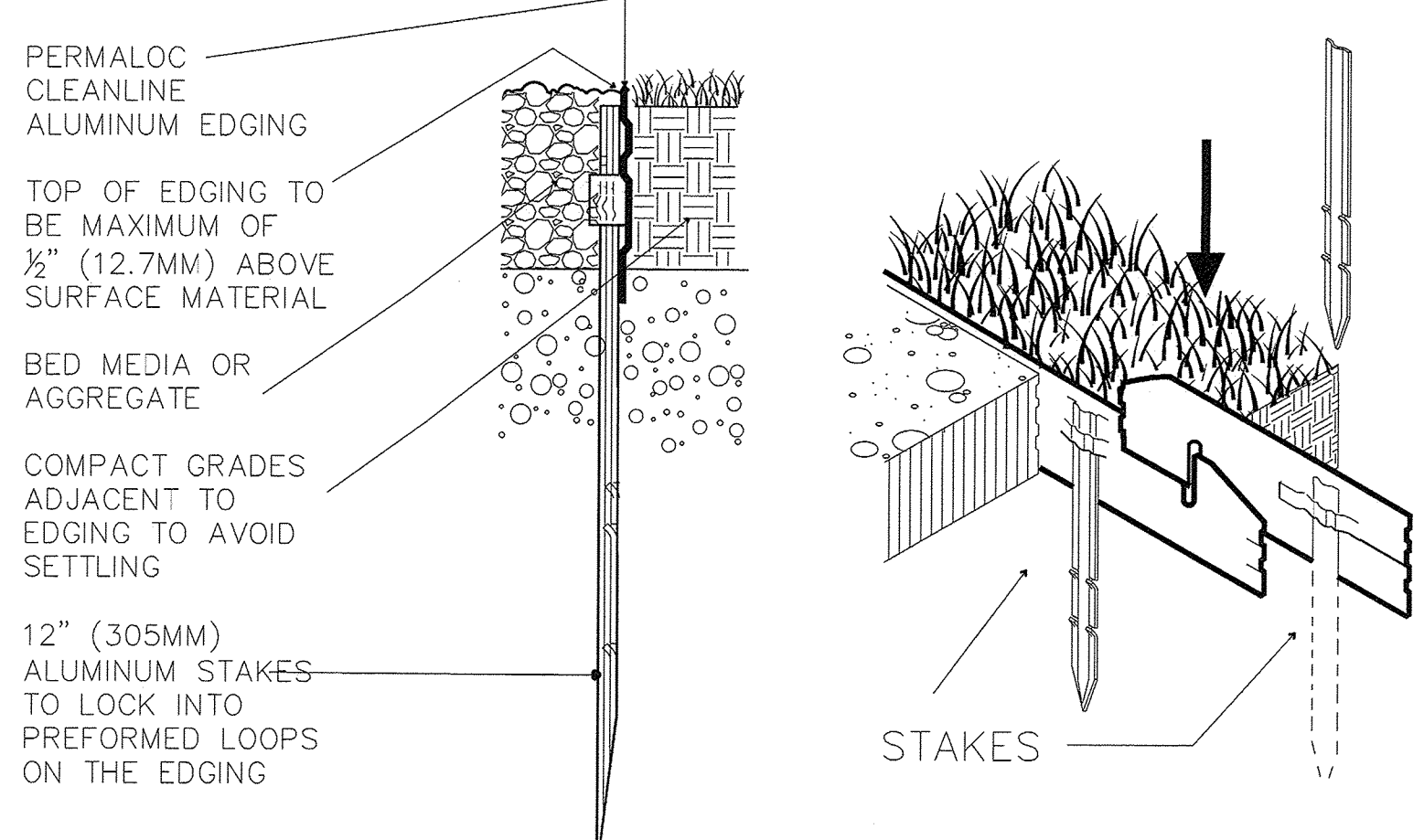
Chief, DEVELOPMENT ENGINEERING DIVISION 7-19-16 DATE

Chief, DIVISION OF LAND DEVELOPMENT 8-16-16 DATE

DIRECTOR 8-16-16 DATE

DATE	NO.	REVISION	BY
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			

**H** EDUCATIONAL SIGN PANEL @ SWM POND & CONCRETE DECK  
 NOT TO SCALE



PRODUCT: ALUMINUM LANDSCAPE EDGING  
 MANUFACTURER: PERMALOC CLEANLINE  
 DIMENSIONS: 12" X 5 1/2"  
 FINISH: BLACK DURAFLEX

**I** METAL LANDSCAPE EDGE  
 NOT TO SCALE

**C** BIKE RACK  
 NOT TO SCALE

PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER

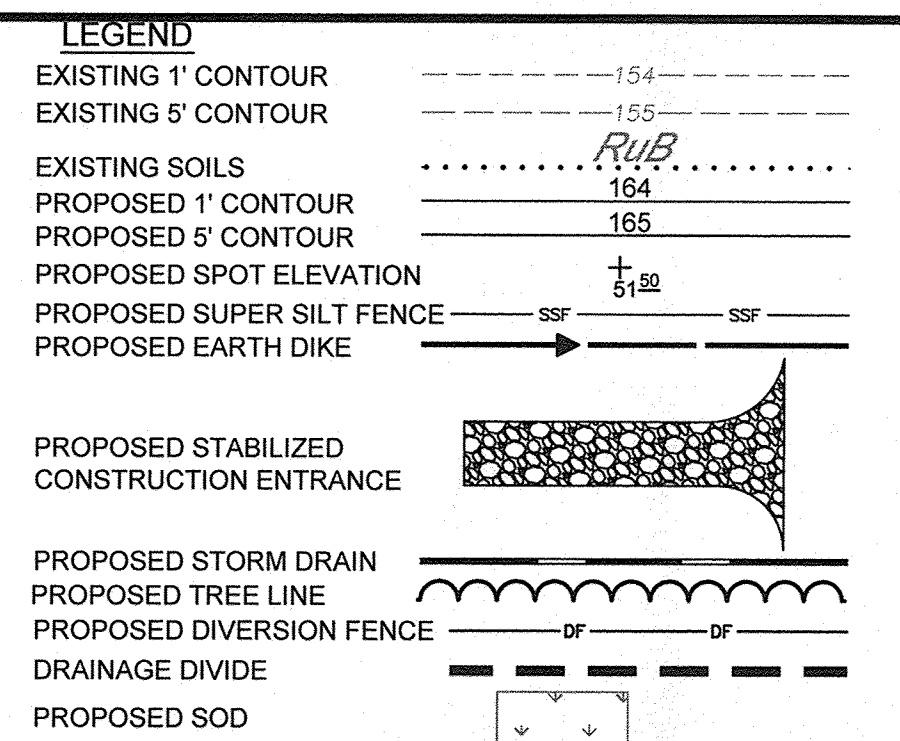
AREA: PLAT NOS. 2306A-2360 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: SITE FURNITURE DETAILS

BRADLEY SITE DESIGN, INC.  
 LANDSCAPE ARCHITECTURE  
 12 W. Madison Street., Suite 204  
 Baltimore, MD 21201  
 P: 443-450-1385  
 www.bradleysitedesign.com

SEAL: PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 808 EXPIRATION DATE: 10/31/2017

SHEET NUMBER: L400  
 DESIGNED BY: SBIES  
 DRAWN BY: ES  
 PROJECT NO.: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: AS SHOWN  
 DRAWING NO. 42 OF 50



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

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) *Sharon L. Cruz* DATE 6-29-16

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) *Richard Casparotti* DATE 7/2/16

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 SIGNATURE OF HOWARD SCD *John R. Klotz* DATE 7/12/16

CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* DATE 7-19-16

CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* DATE 8-15-16

DIRECTOR *[Signature]* DATE 8-16-16

DEVELOPER  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

OWNER  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

PROJECT  
 GREEN BUILDING  
 HCLS ELKRIDGE BRANCH  
 AND 50+ CENTER

AREA  
 TAX MAP 38, PARCEL 'A' PLAT 2350 ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 8540 WASHINGTON BOULEVARD  
 ELKRIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

TITLE  
 GRADING & SEDIMENT CONTROL PLAN - PHASE I

Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

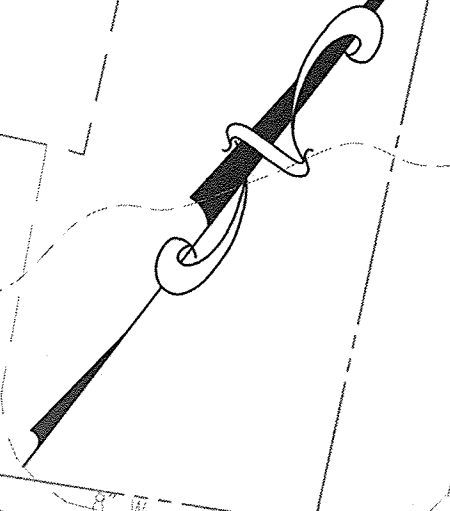
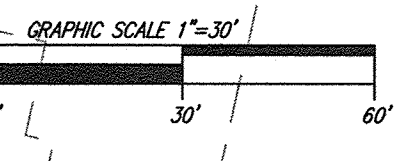
DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 5 OF 50

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 PREPARED BY: *[Signature]* DATE: 8/16/20  
 SIGNATURE: *[Signature]* DATE: 8/16/20

NOTE:  
 ALL SEDIMENT CONTROLS INTERRUPTED BY UTILITY INSTALLATION ARE TO BE REPAIRED IMMEDIATELY.

HOWARD COUNTY, MARYLAND  
 PARCEL 'A'  
 PLAT 2350  
 275,208 Sq. Ft.  
 6.31791 Ac.  
 6540 WASHINGTON BOULEVARD

SEE SHEET 10 FOR TRAP AND BAFFLE DESIGN INFORMATION AND DETAILS.



MATCHLINE - SEE SHEET 47

DIVERSION FENCE DRAINAGE AREA:  
 1.63± AC  
 (70,950± SF)

DIVERSION FENCE DRAINAGE AREA:  
 1.46± AC  
 (63,250± SF)

SUPER SILT FENCE DRAINAGE AREA:  
 0.37± AC  
 (16,641± SF)

TRACIE A. REILLY  
 L.4258, F.469  
 T.M.38, P.94  
 ZONED R-12

EARL JACKSON, Jr.  
 L.12062, F.381  
 T.M.38, P.95  
 ZONED R-12

JOHN RIGGLEMAN  
 HANNON RIGGLEMAN  
 L.9053, F.586  
 T.M.38, P.299  
 ZONED R-12

LOT 59  
 OPEN SPACE  
 DUBIN PROPERTY  
 PLAT No. 13300  
 ZONED R-SA-8

LEONARD M. PLETZER & WF  
 L.721, F.676  
 T.M.38, P.82  
 ZONED R-12

PARCEL 'A'  
 ELKRIDGE/ELDERLY  
 PLAT No. 11821  
 ZONED POR

YOUNG H. MOON & YEUM YONG MOON  
 L.15458, F.212  
 T.M.38, P.84  
 ZONED B-2

ROSE NASIATKA LLC  
 L.7023, F.180  
 T.M.38, P.85  
 ZONED B-2

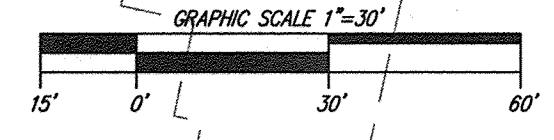
CHESAPEAKE & POTOMAC TELEPHONE (VERIZON)  
 L.352, F.221  
 T.M.38, P.96  
 ZONED B-1

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 PREPARED BY: *[Signature]* DATE: 8/16/20  
 SIGNATURE: *[Signature]* DATE: 8/16/20

WASHINGTON BOULEVARD - US ROUTE 1

INTERMEDIATE ARTERIAL ROAD  
 SHA PLAT NO. 49388 RIGHT-OF-WAY VARIES



**LEGEND**

EXISTING 1' CONTOUR	---	154
EXISTING 5' CONTOUR	---	155
EXISTING SOILS	---	RUB
PROPOSED 1' CONTOUR	---	164
PROPOSED 5' CONTOUR	---	165
PROPOSED SPOT ELEVATION	+	51.52
PROPOSED SUPER SILT FENCE	---	SFF
PROPOSED EARTH DIKE	---	---
PROPOSED STABILIZED CONSTRUCTION ENTRANCE	---	---
PROPOSED STORM DRAIN	---	---
PROPOSED TREE LINE	---	---
PROPOSED DIVERSION FENCE	---	---
AT GRADE INLET PROTECTION	---	AGIP
STANDARD INLET PROTECTION	---	SP
GABION INLET PROTECTION	---	GIB
GUTTER BUDDY® INLET PROTECTION	---	GBIP
PROPOSED SOD	---	---

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

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE  
 Shawn L. Ruff 6/29/16

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE  
 Howard Gasparotti 7/12/16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 John R. Robertson 7/12/16  
 HOWARD SCD DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division 7/19/16  
 Chief, Division of Land Development 8-16-16  
 Director 8/16/16

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

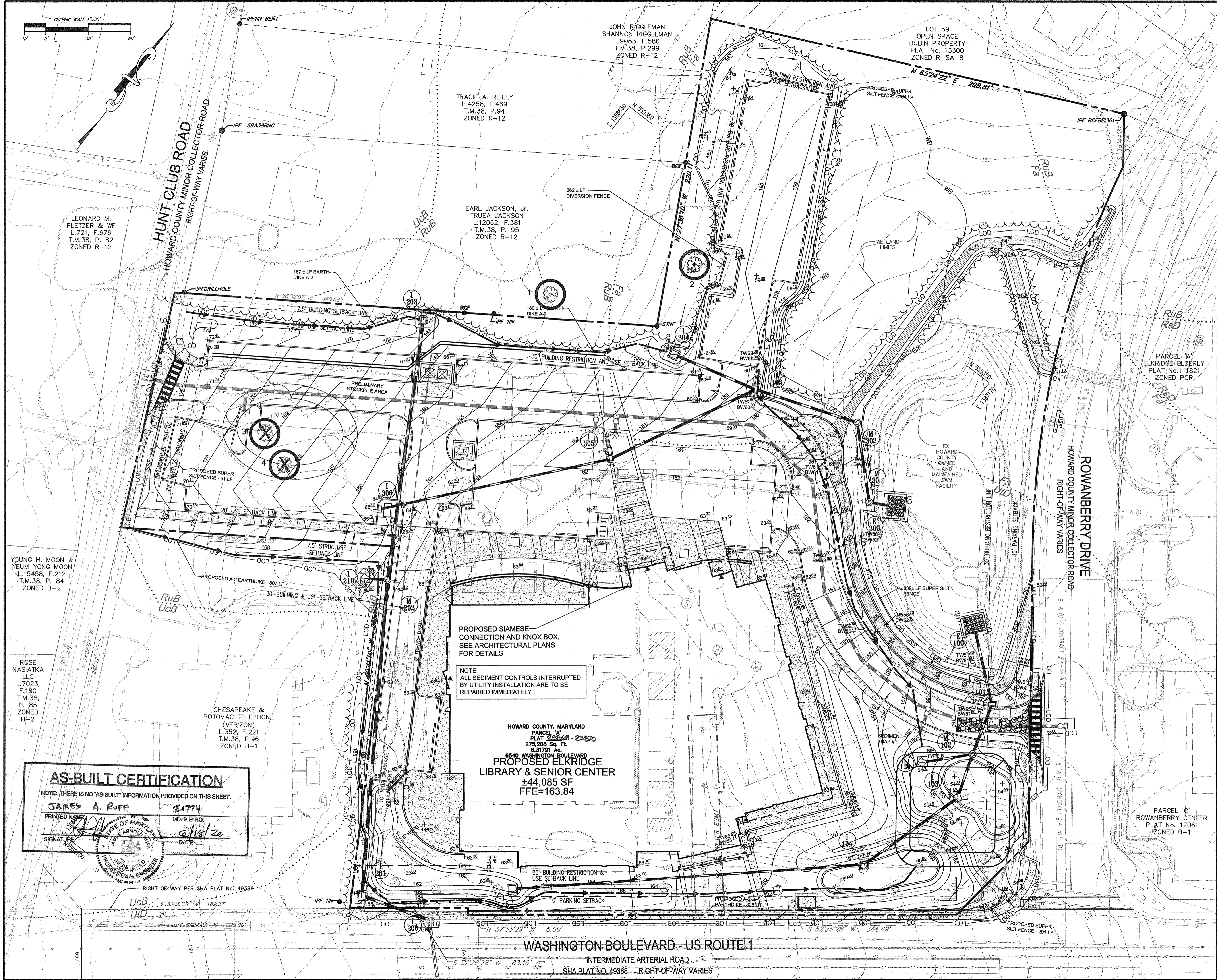
PROJECT: GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 2584 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: GRADING & SEDIMENT CONTROL PLAN - PH II

Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO.: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 6 OF 50



PROPOSED SIAMESE CONNECTION AND KNOX BOX, SEE ARCHITECTURAL PLANS FOR DETAILS

NOTE: ALL SEDIMENT CONTROLS INTERRUPTED BY UTILITY INSTALLATION ARE TO BE REPAIRED IMMEDIATELY.

HOWARD COUNTY, MARYLAND  
 PARCEL 'A' PLAT 2584 - 2587  
 275,208 Sq. Ft.  
 8,317.91 Ac.  
 6540 WASHINGTON BOULEVARD  
 PROPOSED ELKRIDGE LIBRARY & SENIOR CENTER  
 ±44,085 SF  
 FFE=163.84

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 JAMES A. RUFF 2174  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE 6/16/20



BY: 6-29-16  
 PROFESSIONAL CERTIFICATION - I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 2584, CONSTRUCTION DATE: 2-28-2017

## B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

**DEFINITION**  
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

### PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

### CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

### CRITERIA

- A. SOIL PREPARATION
- TEMPORARY STABILIZATION
    - 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.
    - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
    - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

- PERMANENT STABILIZATION
  - A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
    - SOIL PH BETWEEN 6.0 AND 7.0.
    - SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
  - 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.
  - SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
  - SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

- APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
- 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.
- APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.

- 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

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

- AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
- TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
  - 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 ONDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
  - 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.
  - 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.

- TOPSOIL APPLICATION
  - EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
  - 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 SOODING 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.

- 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)

- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATES 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.
- FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOING 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.
- 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.
- 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.
- 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.

## B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

### 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

- ALL SEED MUST MEET THE REQUIREMENTS 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.
- 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.
- 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 KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

- SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISPERSION OF PHYTO-TOXIC MATERIALS.

##### 2. APPLICATION

- DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
  - 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.
  - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDING AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
- DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
  - CULTIPACKER 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.
  - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
  - 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; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
  - 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.
  - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
  - WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

#### B. MULCHING

- MULCH MATERIALS (IN ORDER OF PREFERENCE)
  - 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.
  - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
    - WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
    - WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
    - 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 BEST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
    - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
    - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.5 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

- APPLY MULCH TO ALL SEEDING AREAS IMMEDIATELY AFTER SEEDING.
- WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDING 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.
- WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT 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

- 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:
  - 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.
  - 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.
  - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-20, PETROSET, TERRA TIL, 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.
  - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

## B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

### 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

- 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.
- FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
- 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

7A				Fertilizer Rate (16-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	
8	TALL FESCUE	100	FEB 15-APR 30; AUG 15-NOV 30	1/4-1/2 in.	
9	PERENNIAL RYEGRASS	50	FEB 15-APR 30; AUG 15-NOV 30	1/4-1/2 in.	436 lb/ac (10 lb/1000 sq ft)
11	OATS	72	FEB 15 TO APR 30; AUG 15 TO NOV 30	1/4-1/2 in.	2 tons/ac (90 lb/1000 sq ft)
	PEARL MILLET	20	MAY 1 TO AUG 14	0.5	

## B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

### DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

**PURPOSE**  
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

### CRITERIA

- A. SEED MIXTURES
- GENERAL USE
    - 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.
    - 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.
    - FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
    - 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.
  - TURFGRASS MIXTURES
    - AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
    - 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.
    - KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREA 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.
    - 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.
    - 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.
    - 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.

- IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)

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)

- 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.
- 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

7A				Fertilizer Rate (16-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	
8	TALL FESCUE	100	FEB 15-APR 30; AUG 15-NOV 30	1/4-1/2 in.	
9	PERENNIAL RYEGRASS	50	FEB 15-APR 30; AUG 15-NOV 30	1/4-1/2 in.	436 lb/ac (10 lb/1000 sq ft)
11	OATS	72	FEB 15-APR 30; AUG 15-NOV 30	1/4-1/2 in.	2 tons/ac (90 lb/1000 sq ft)

\* FOR MAY 1 TO AUGUST 14, PLANT WITH MIXTURE CORP. OF PEARL MILLET BASED ON 5% OF THE PERMANENT SEED MIX APPLICATION RATE.

- SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

#### 1. GENERAL SPECIFICATIONS

- CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/4 INCH. AT THE TIME OF CUTTING, MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR

OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION

- SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

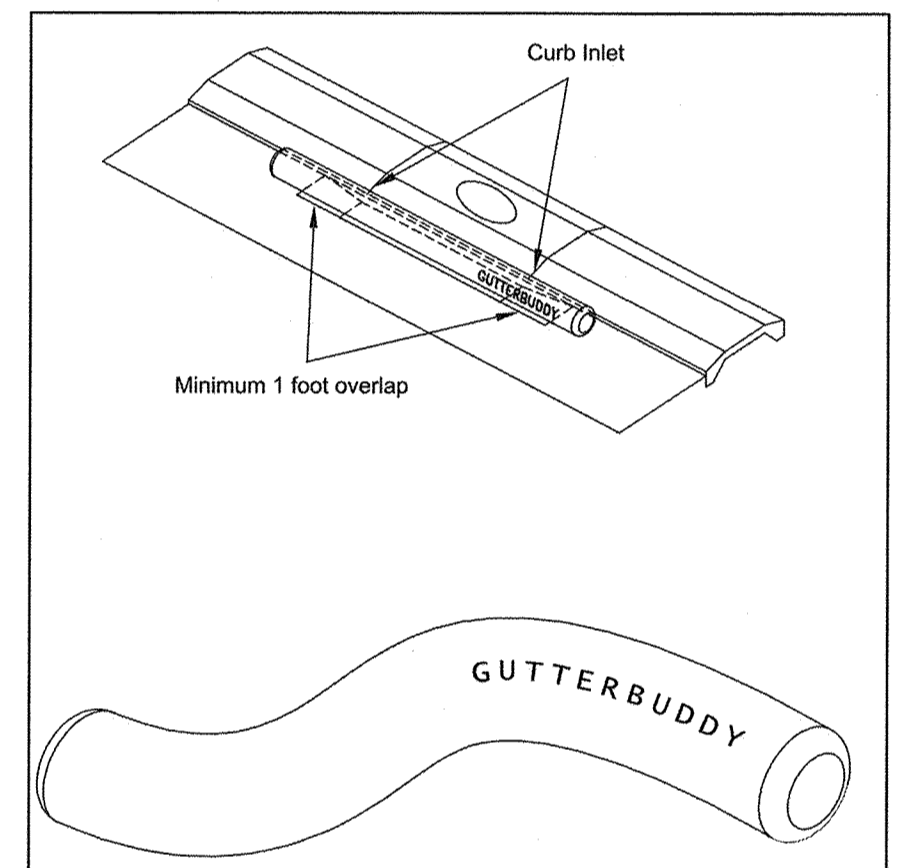
#### 2. SOD INSTALLATION

- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

- WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS, ROLL AND TAMP; PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

#### 3. SOD MAINTENANCE

- IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.



## GUTTER BUDDY (R) DETAILS

## AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

JAMES A. ROSE, P.E. 21714  
 PRINTED NAME: JAMES A. ROSE  
 SIGNATURE: [Signature]  
 MD. P.E. NO. 21714  
 DATE: 6/16/10

**NOTE TO CONTRACTOR**  
 ALL SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THESE PLANS AND THE MDE INSPECTOR. ALL SEDIMENT CONTROL REQUIREMENTS SHALL BE STRICTLY ENFORCED.  
 ALL CONTROLS INTERCEPTED BY UTILITY INSTALLATIONS ARE TO BE REPAIRED IMMEDIATELY.

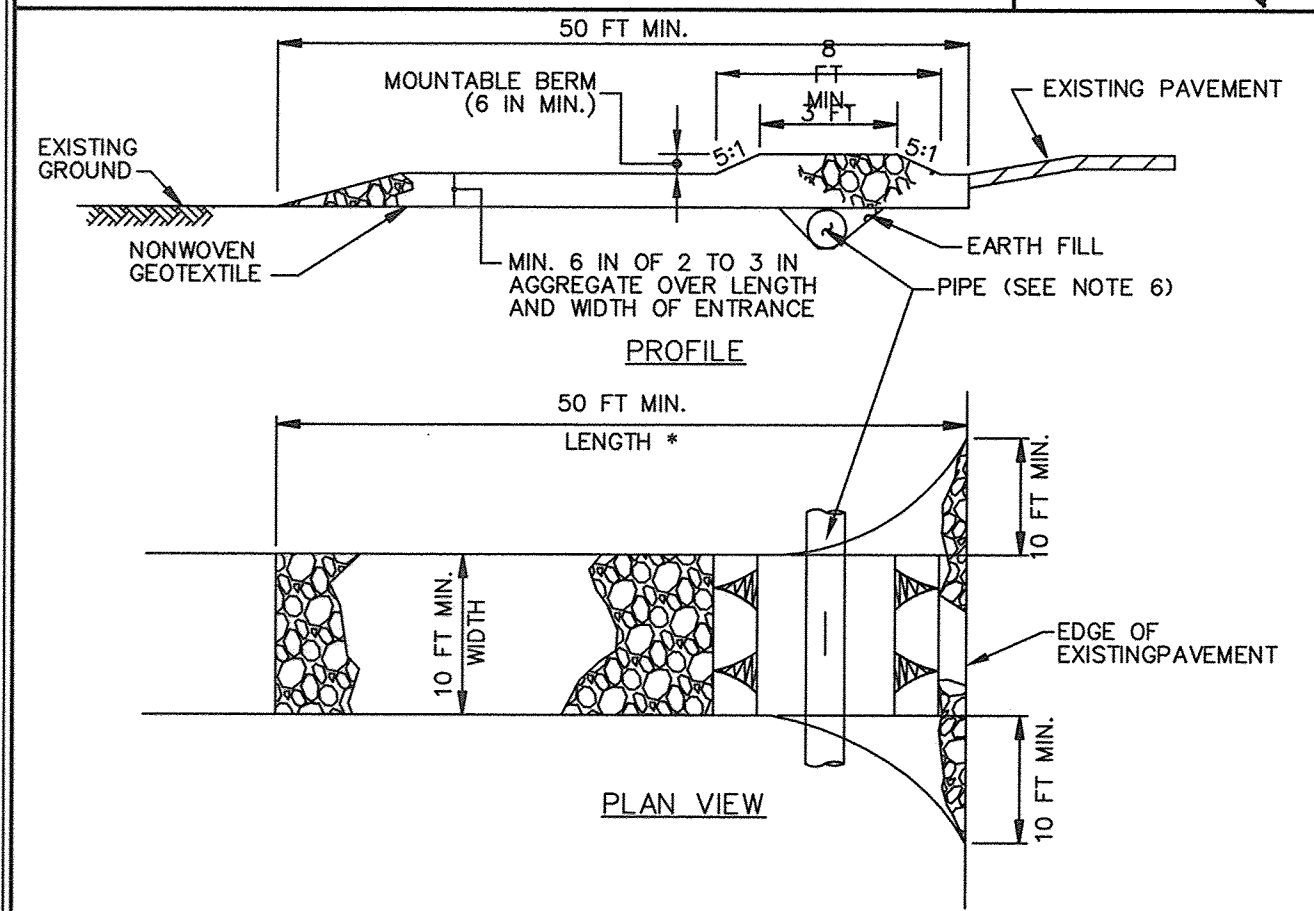
**ENGINEER'S CERTIFICATE**  
 "I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sharon McGee  
 SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)  
 DATE: 6-29-16

**DEVELOPER'S CERTIFICATE**  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE



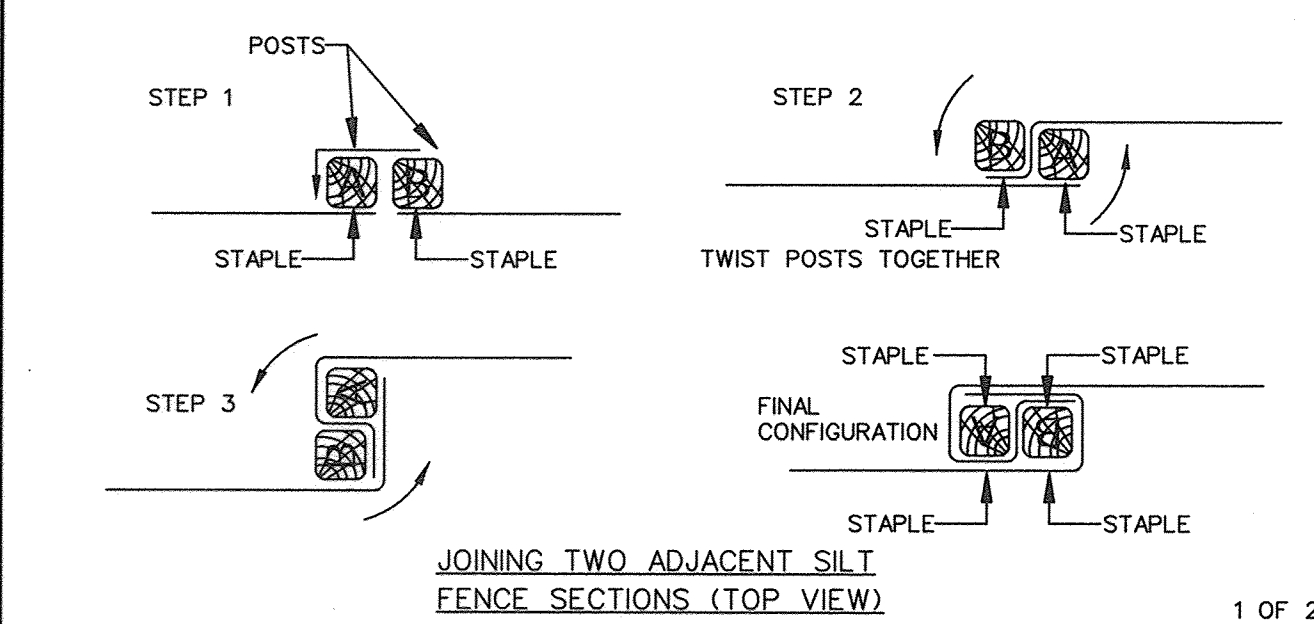
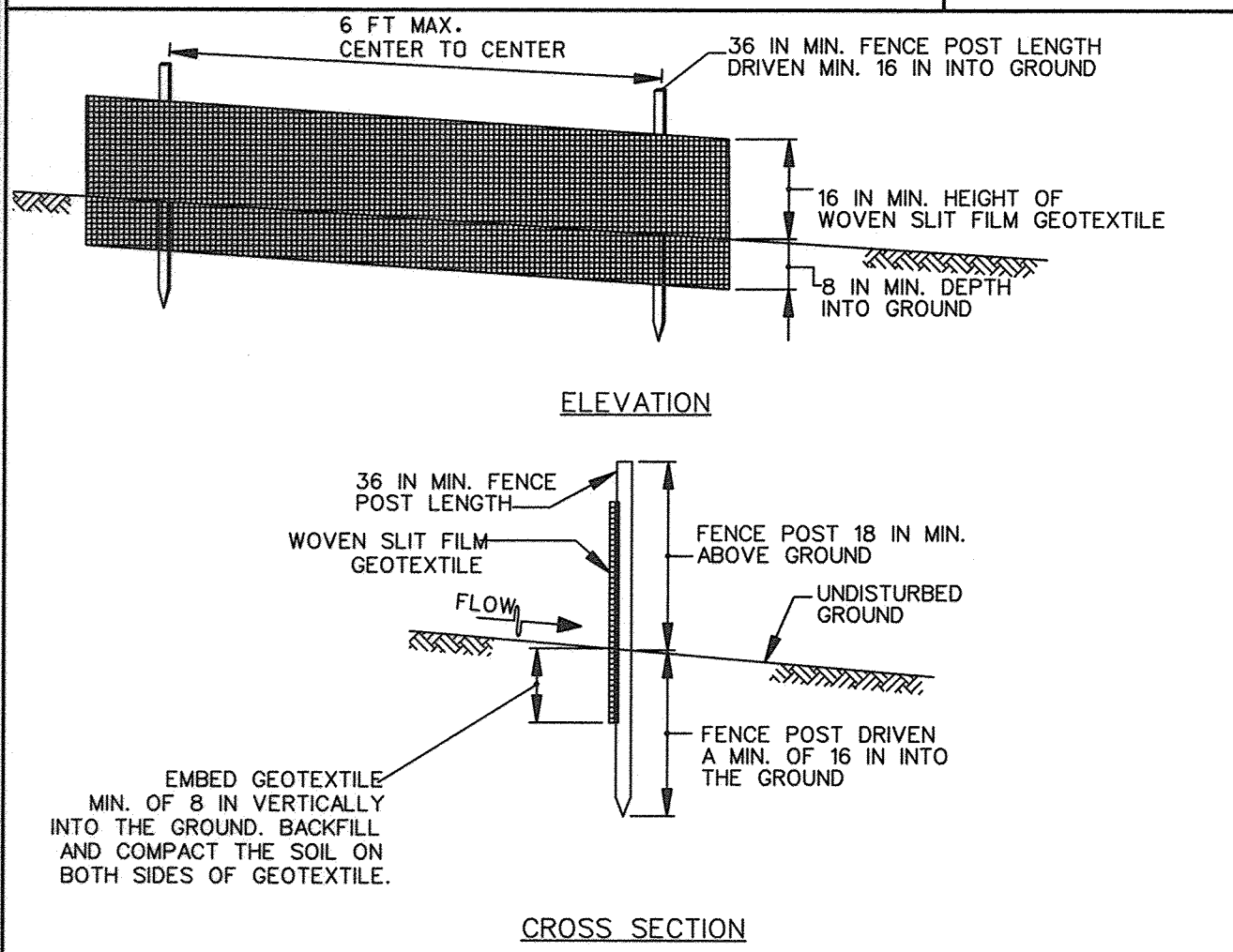
**DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE**



- CONSTRUCTION SPECIFICATIONS**
- 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 TO FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
  - PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAIN 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.
  - PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
  - 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.
  - 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.

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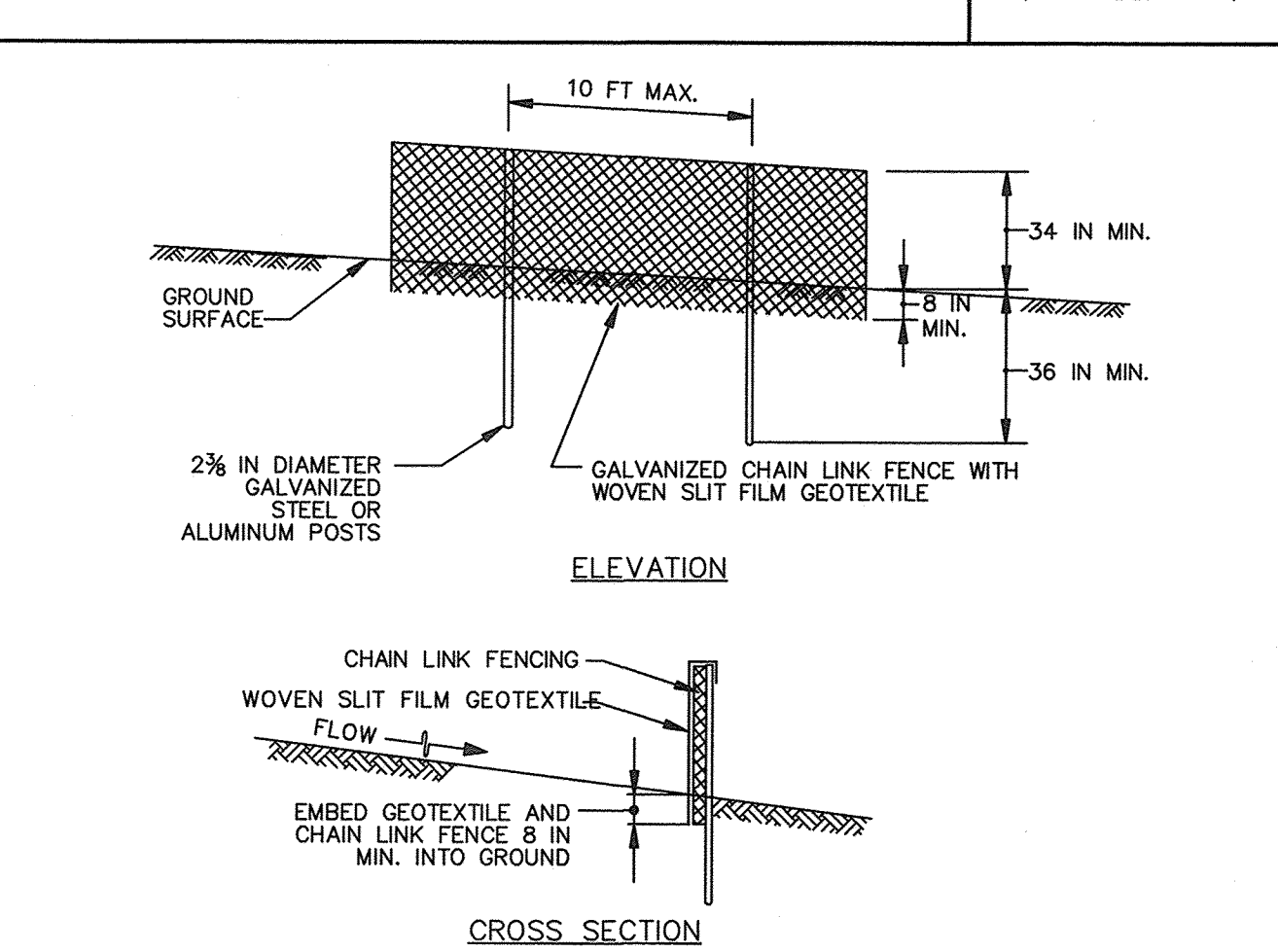
**DETAIL E-1 SILT FENCE**



- CONSTRUCTION SPECIFICATIONS**
- USE WOOD POSTS 1 1/2 X 1 1/2 X 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
  - USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
  - USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
  - PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
  - EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
  - WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
  - EXTEND BOTH ENDS OF THE 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 SILT FENCE.
  - REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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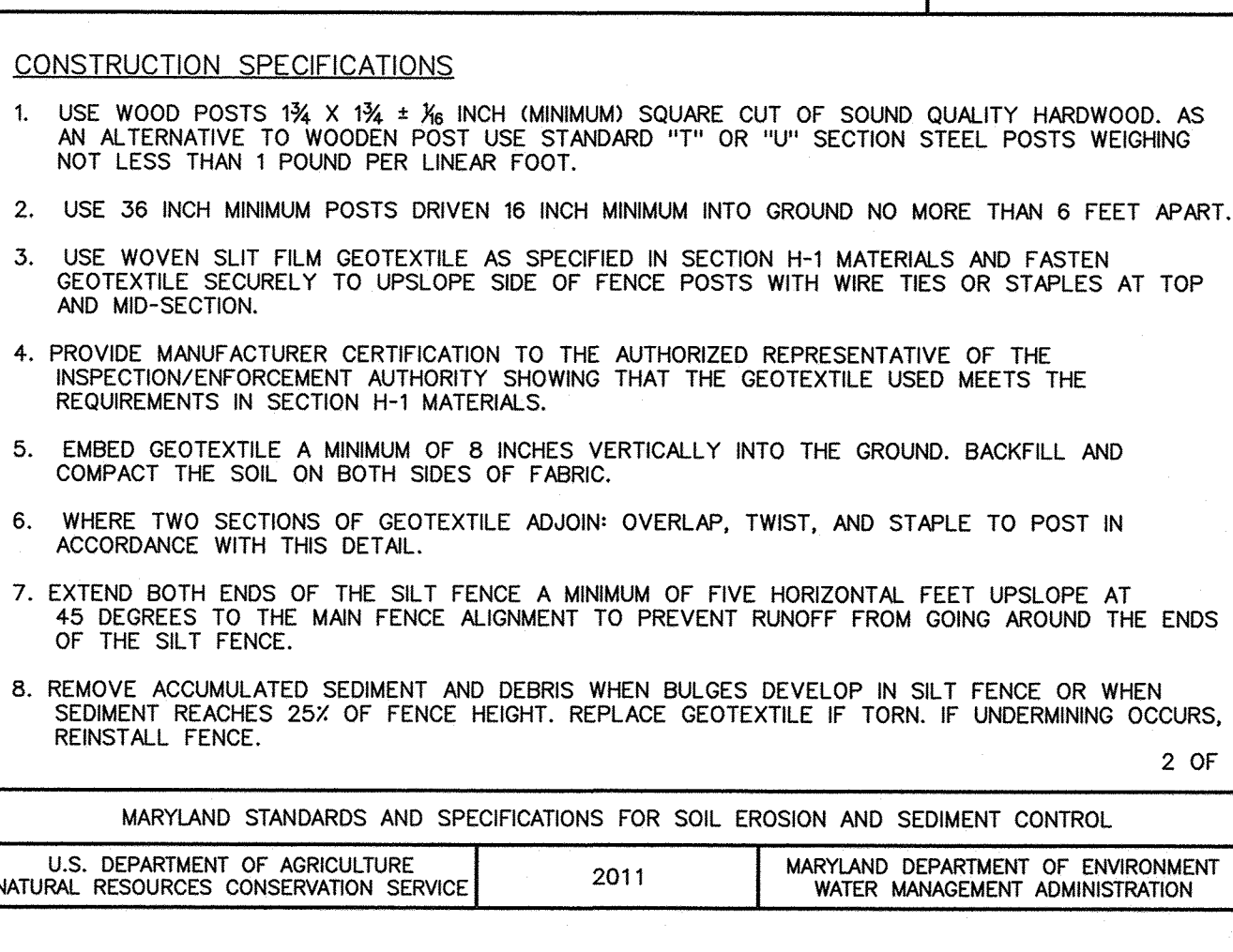
**DETAIL E-3 SUPER SILT FENCE**



- CONSTRUCTION SPECIFICATIONS**
- INSTALL 2 3/8 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.
  - FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 3/8 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
  - FASTEN WOVEN SILT 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.
  - WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
  - 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.
  - PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
  - 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.

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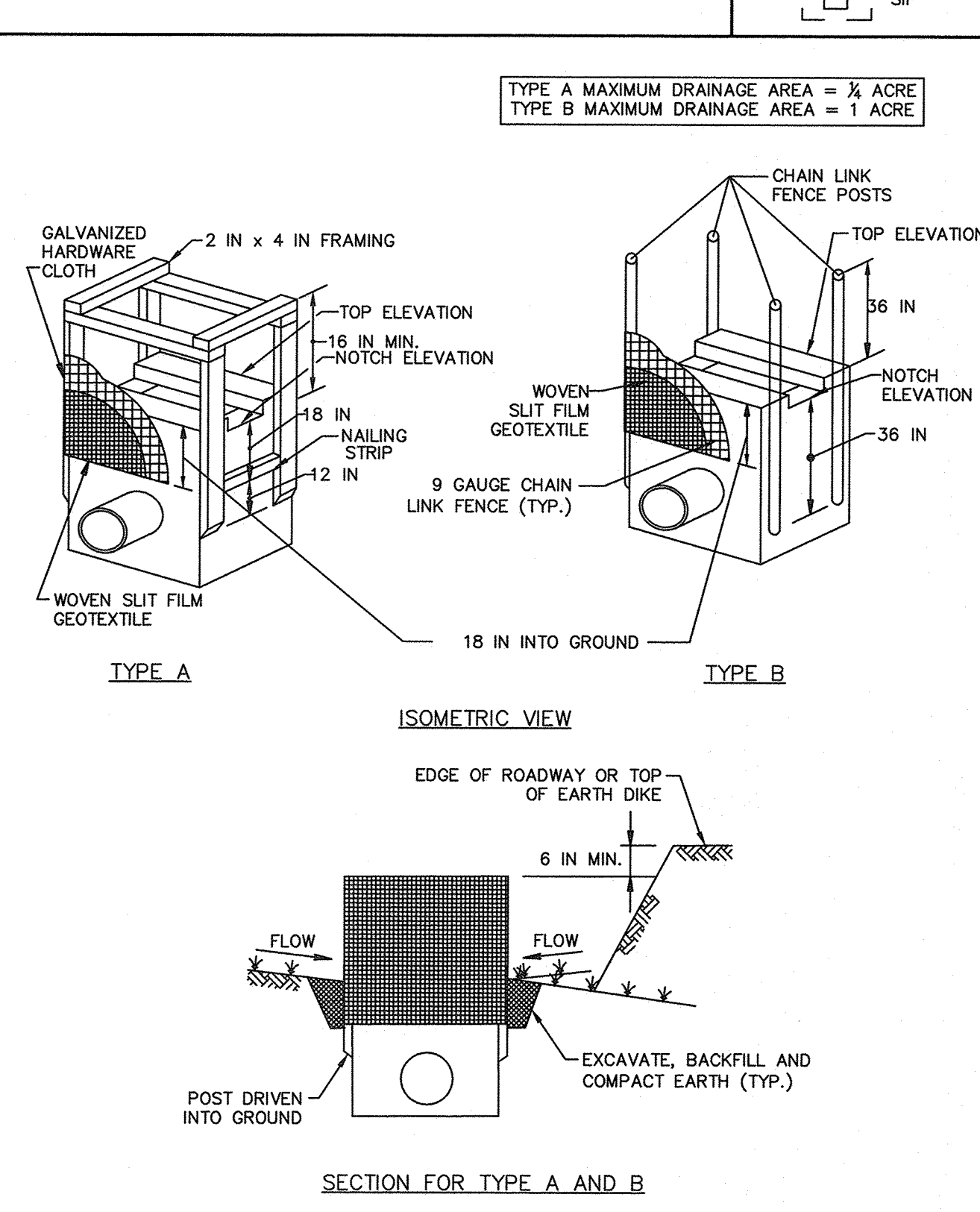
**DETAIL E-1 SILT FENCE**



- CONSTRUCTION SPECIFICATIONS**
- USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
  - FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH 3/8 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 24 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
  - FOR TYPE B, USE 2 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
  - BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
  - 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.
  6. SITE ANALYSIS:  
TOTAL AREA OF SITE: 5.92 ACRES  
AREA DISTURBED: 4.99 ACRES  
AREA TO BE ROOFED OR PAVED: 3.13 ACRES  
AREA TO BE VEGETATIVELY STABILIZED: 1.73 ACRES  
TOTAL CUT: 3,467 CU. YDS.  
TOTAL FILL: 8,185 CU. YDS.
  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 ALL 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.

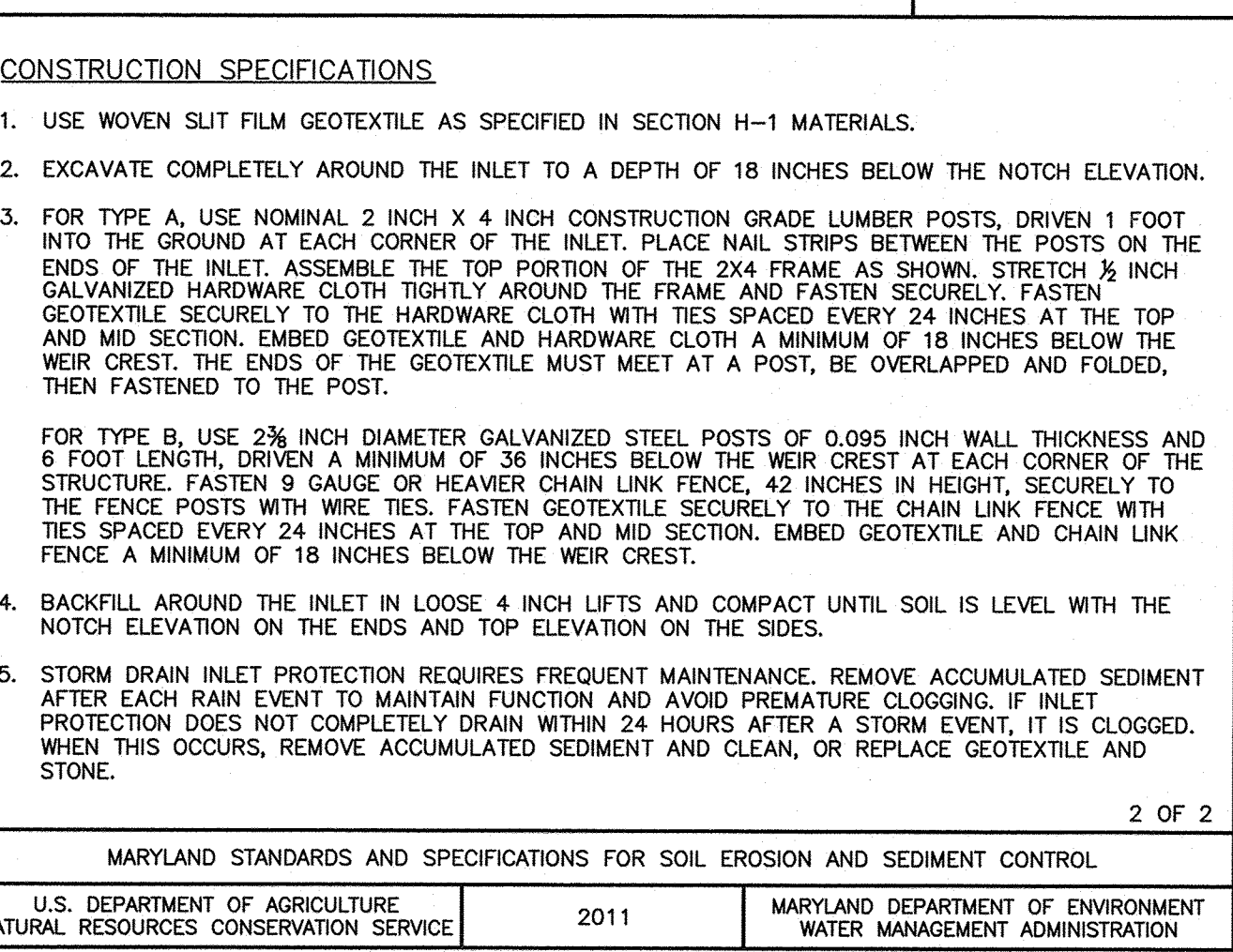
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**DETAIL E-9-1 STANDARD INLET PROTECTION**



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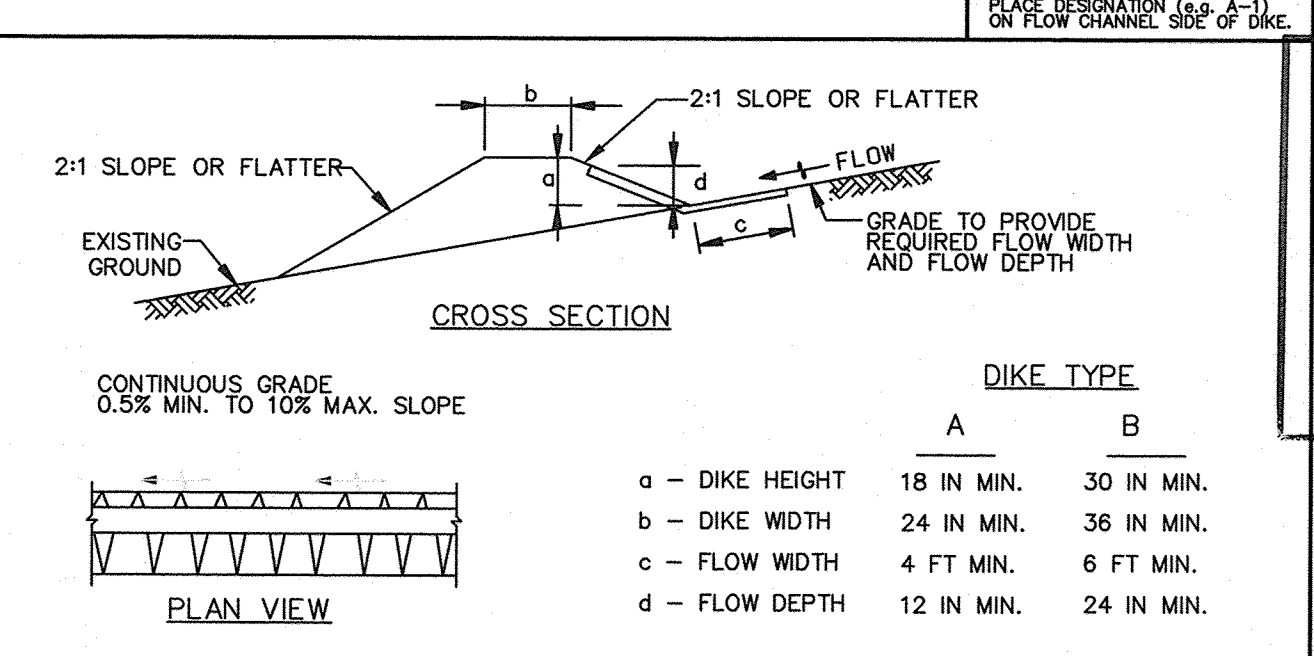
**DETAIL E-9-1 STANDARD INLET PROTECTION**



- CONSTRUCTION SPECIFICATIONS**
- USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
  - FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH 3/8 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 24 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
  - FOR TYPE B, USE 2 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
  - BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
  - 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.
  6. SITE ANALYSIS:  
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• 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.

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 C-1 EARTH DIKE**

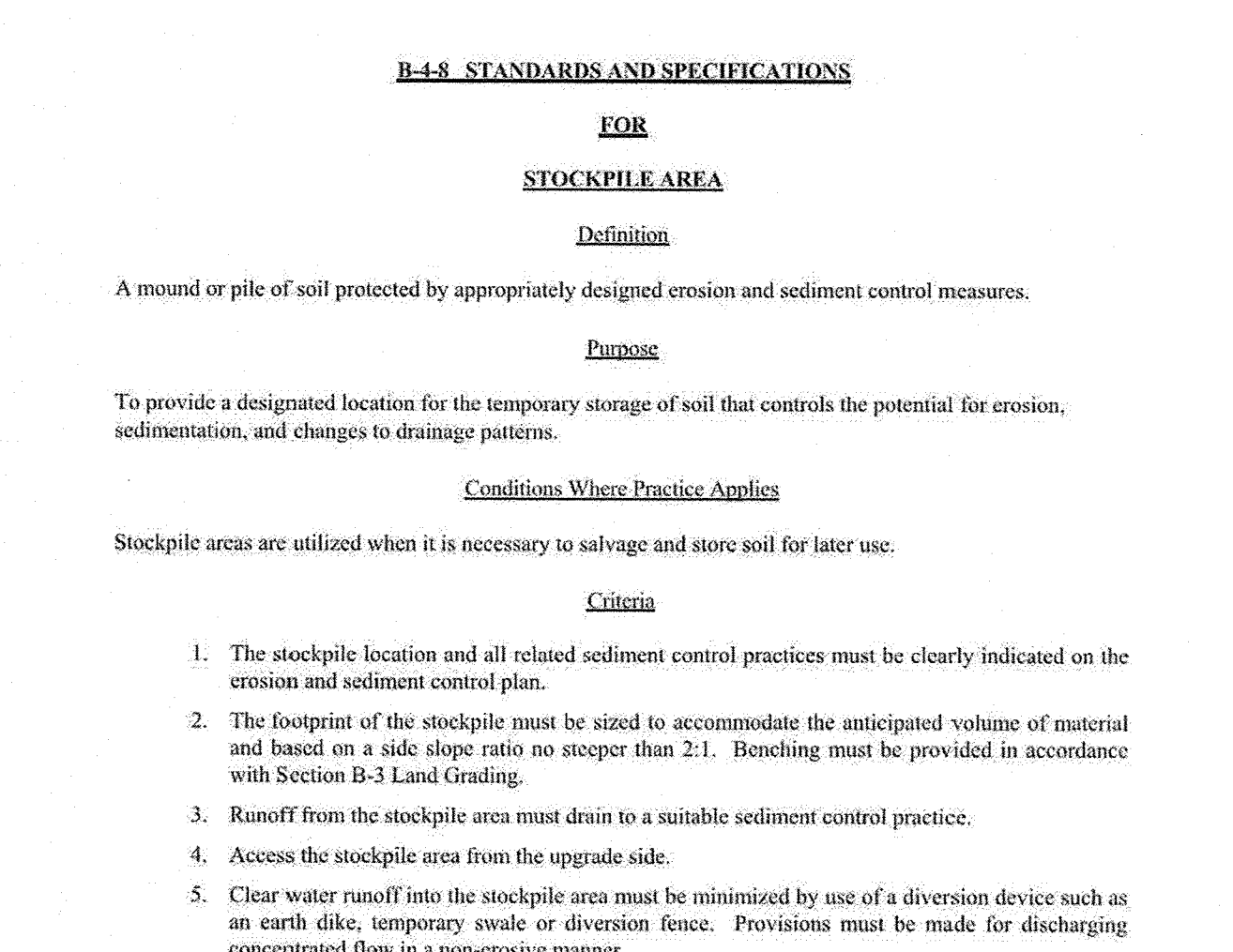


- FLOW CHANNEL STABILIZATION**
- A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
  - A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
  - A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

- CONSTRUCTION SPECIFICATIONS**
- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
  - EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
  - COMPACT FILL.
  - CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
  - PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
  - STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
  - MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
  - UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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-9-1 STANDARD INLET PROTECTION**



- CONSTRUCTION SPECIFICATIONS**
- USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
  - FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH 3/8 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 24 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
  - FOR TYPE B, USE 2 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
  - BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
  - 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.
  6. SITE ANALYSIS:  
TOTAL AREA OF SITE: 5.92 ACRES  
AREA DISTURBED: 4.99 ACRES  
AREA TO BE ROOFED OR PAVED: 3.13 ACRES  
AREA TO BE VEGETATIVELY STABILIZED: 1.73 ACRES  
TOTAL CUT: 3,467 CU. YDS.  
TOTAL FILL: 8,185 CU. YDS.
  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 ALL 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.

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	

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: **JAMES A. RUFF** DATE: **2/17/14**

MD. P.E. NO. **21774**

SIGNATURE: *[Signature]*

**ENGINEER'S CERTIFICATE**

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

SIGNATURE OF ENGINEER: *[Signature]* DATE: **6-29-16**

**DEVELOPER'S CERTIFICATE**

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

SIGNATURE OF DEVELOPER: *[Signature]* DATE: **12/20/16**

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

SIGNATURE: *[Signature]* DATE: **7/12/16**

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: **7-19-16**

CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: **8-16-16**

DIRECTOR: *[Signature]* DATE: **8-16-16**

DATE	NO.	REVISION	BY

**DEVELOPER**: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

**OWNER**: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

**PROJECT**: GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER

**AREA**: TAX MAP 38, PARCEL 'A' PLAT 2386A ZONED B-1 & R-12 GRID NO 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

**TITLE**: SEDIMENT CONTROL DETAILS

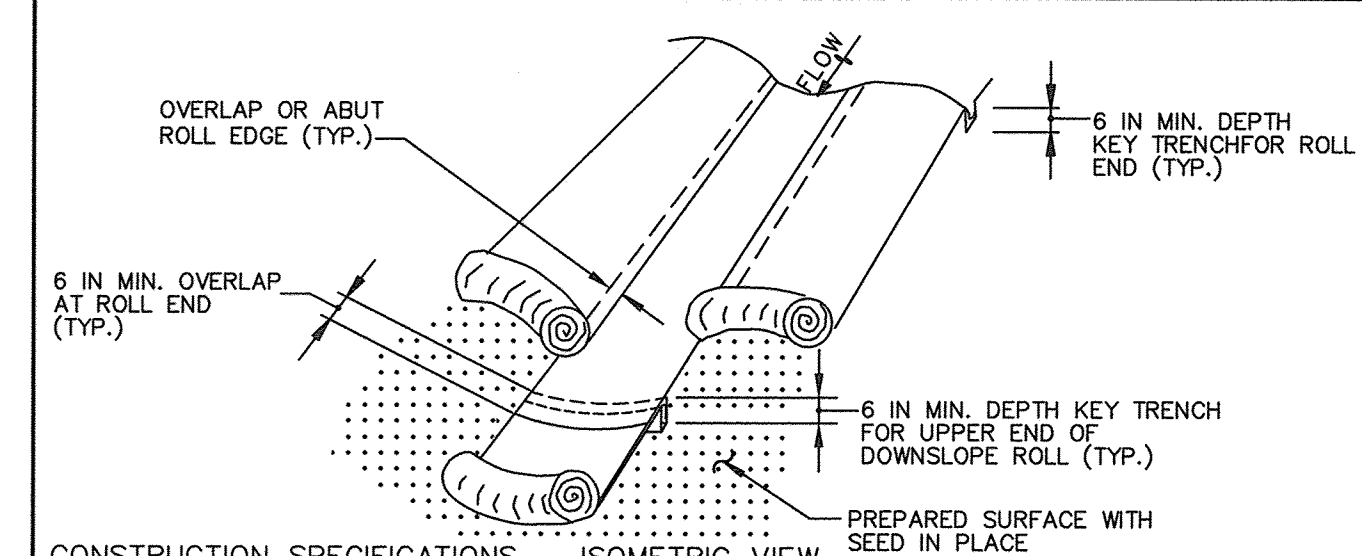
**Pennoni Associates Inc.**  
Engineers • Surveyors • Planners  
Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO: 8 OF 50

**DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION**

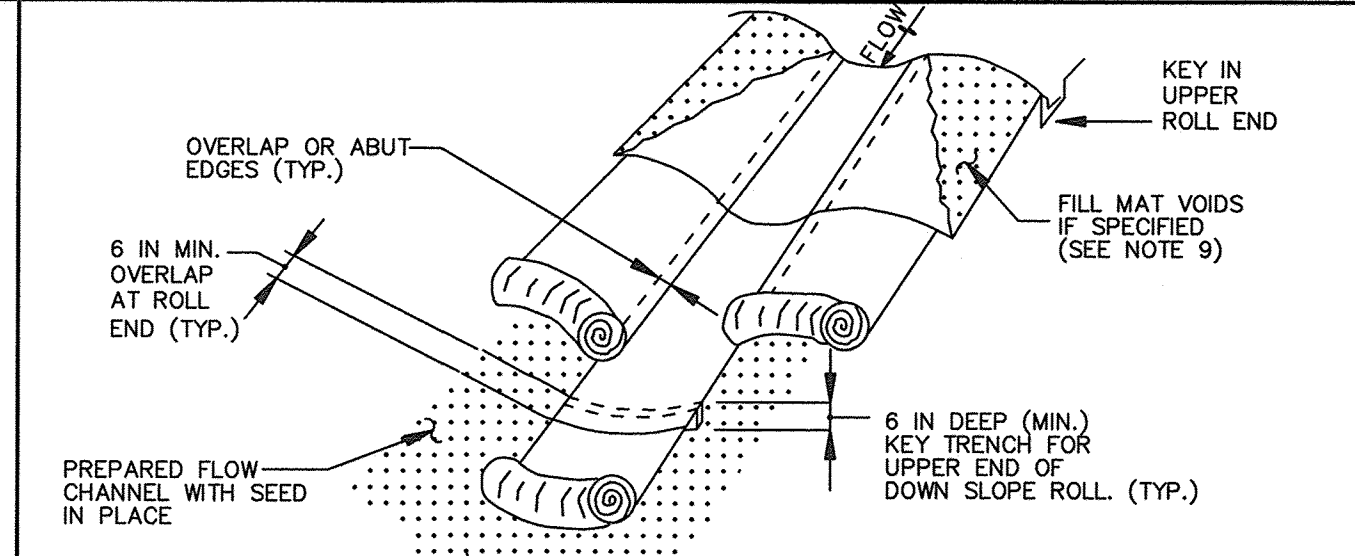
STANDARD SYMBOL  
TSSMC - \* 4.0 lb/ft<sup>2</sup>  
(\* INCLUDE SHEAR STRESS)



- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
  - USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
  - SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
  - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
  - UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
  - KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
  - OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
  - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
  - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

**DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION**

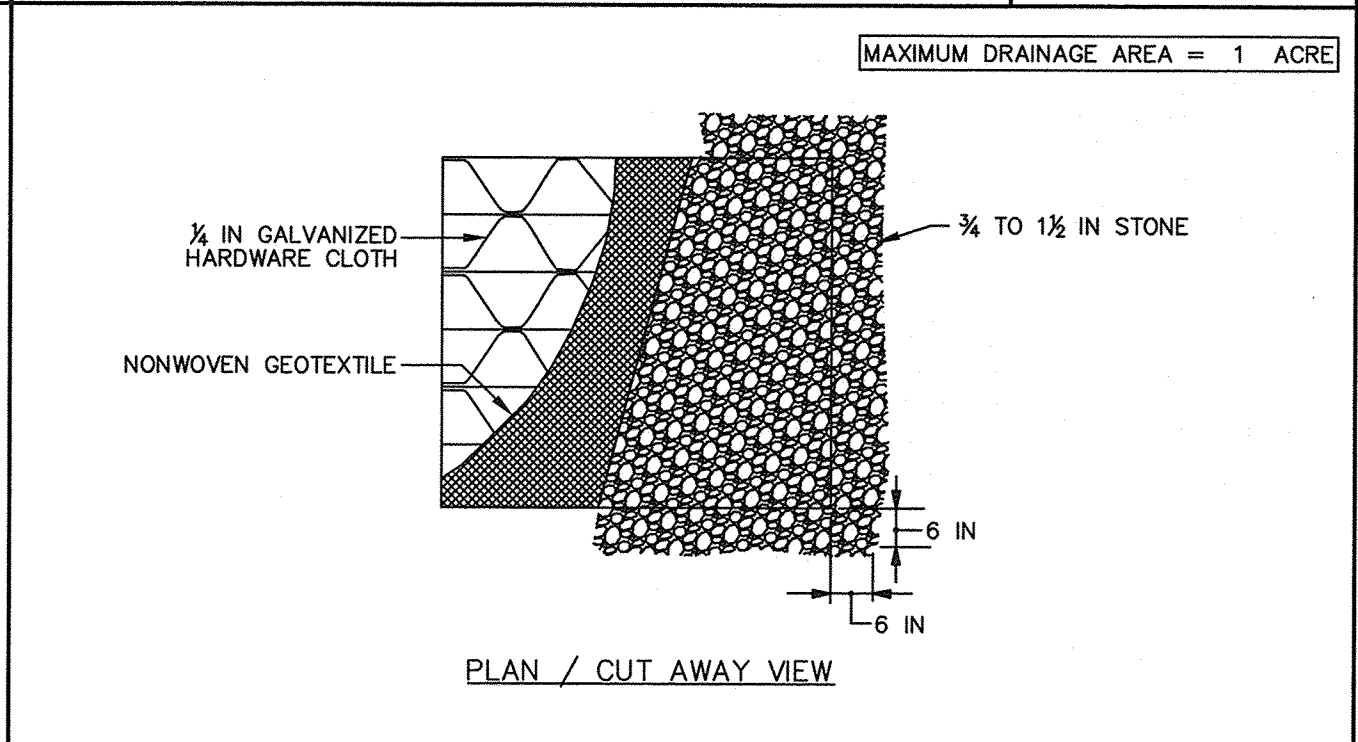
STANDARD SYMBOL  
PSSMC - \* 4.0 lb/ft<sup>2</sup>  
(\* INCLUDE SHEAR STRESS)



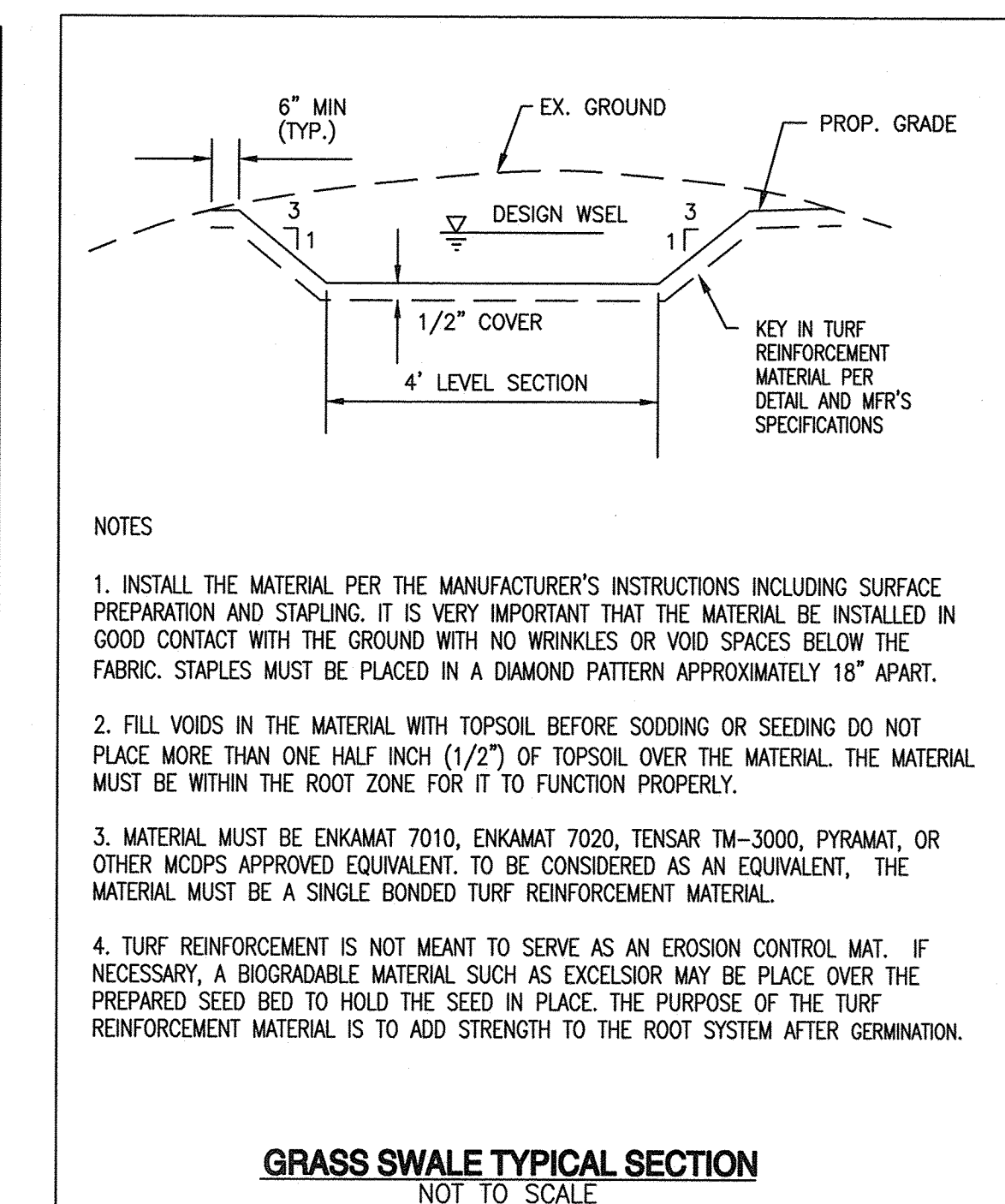
- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
  - USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
  - SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
  - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
  - UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
  - OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
  - KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
  - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
  - IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYPED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
  - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

**DETAIL E-9-2 AT-GRADE INLET PROTECTION**

STANDARD SYMBOL  
AGIP



- CONSTRUCTION SPECIFICATIONS**
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
  - PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
  - 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.



- NOTES**
- INSTALL THE MATERIAL PER THE MANUFACTURER'S INSTRUCTIONS INCLUDING SURFACE PREPARATION AND STAPLING. IT IS VERY IMPORTANT THAT THE MATERIAL BE INSTALLED IN GOOD CONTACT WITH THE GROUND WITH NO WRINKLES OR VOID SPACES BELOW THE FABRIC. STAPLES MUST BE PLACED IN A DIAMOND PATTERN APPROXIMATELY 18" APART.
  - FILL VOIDS IN THE MATERIAL WITH TOPSOIL BEFORE SODDING OR SEEDING DO NOT PLACE MORE THAN ONE HALF INCH (1/2") OF TOPSOIL OVER THE MATERIAL. THE MATERIAL MUST BE WITHIN THE ROOT ZONE FOR IT TO FUNCTION PROPERLY.
  - MATERIAL MUST BE ENKAMAT 7010, ENKAMAT 7020, TENSAR TM-3000, PYRAMAT, OR OTHER MCDPS APPROVED EQUIVALENT. TO BE CONSIDERED AS AN EQUIVALENT, THE MATERIAL MUST BE A SINGLE BONDED TURF REINFORCEMENT MATERIAL.
  - TURF REINFORCEMENT IS NOT MEANT TO SERVE AS AN EROSION CONTROL MAT. IF NECESSARY, A BIODEGRADABLE MATERIAL SUCH AS EXCELSIOR MAY BE PLACED OVER THE PREPARED SEED BED TO HOLD THE SEED IN PLACE. THE PURPOSE OF THE TURF REINFORCEMENT MATERIAL IS TO ADD STRENGTH TO THE ROOT SYSTEM AFTER GERMINATION.

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: JAMES A RUFF  
SIGNATURE: [Signature]  
DATE: 6/14/16

STATE OF MARYLAND PROFESSIONAL ENGINEER

**ENGINEER'S CERTIFICATE**

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

SIGNATURE OF ENGINEER: [Signature]  
DATE: 6-29-16

**DEVELOPER'S CERTIFICATE**

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

SIGNATURE OF DEVELOPER: [Signature]  
DATE: 7/24/2016

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

SIGNATURE: [Signature]  
DATE: 7/12/16

APPROVED: DEPARTMENT OF PLANNING AND ZONING

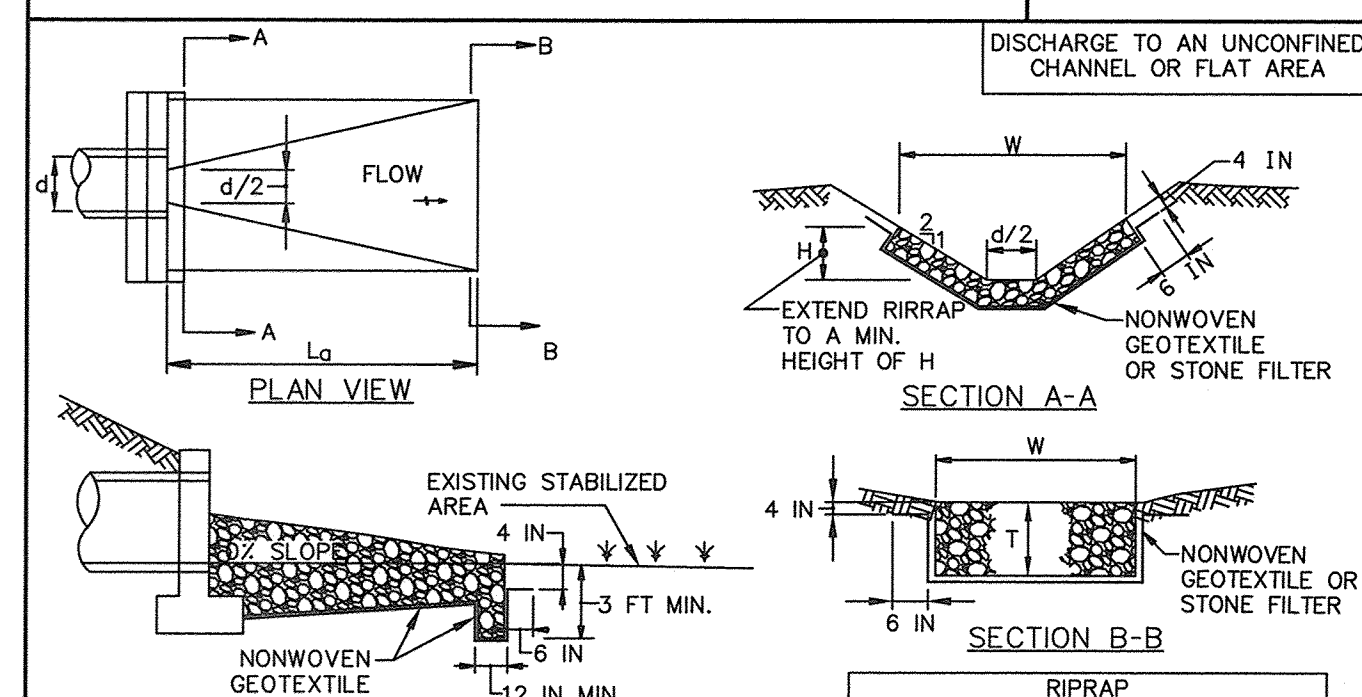
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

**DETAIL D-4-1-C ROCK OUTLET PROTECTION III**

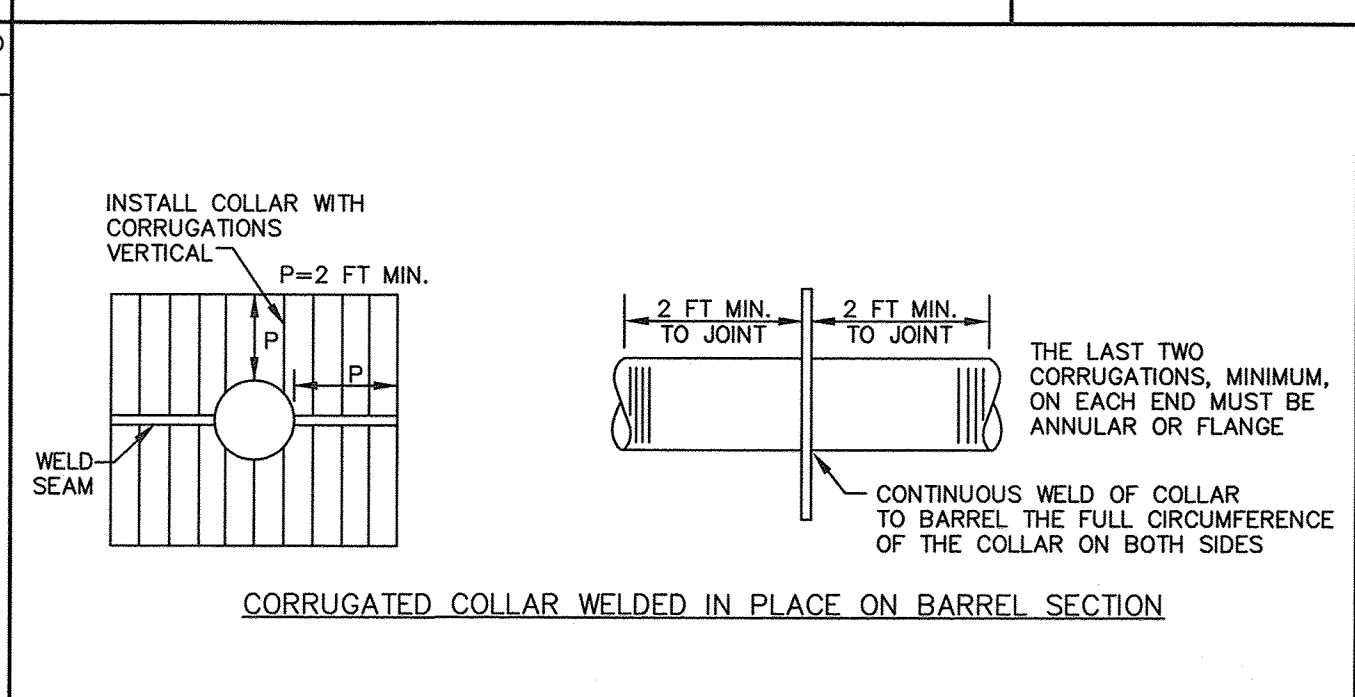
STANDARD SYMBOL  
ROPIII



- CONSTRUCTION SPECIFICATIONS**
- RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
  - USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
  - PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/4 TO 1 1/2 INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  - EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
  - CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
  - WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
  - CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
  - MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

**DETAIL G-2-1 TYPICAL ANTI-SEEP COLLARS**

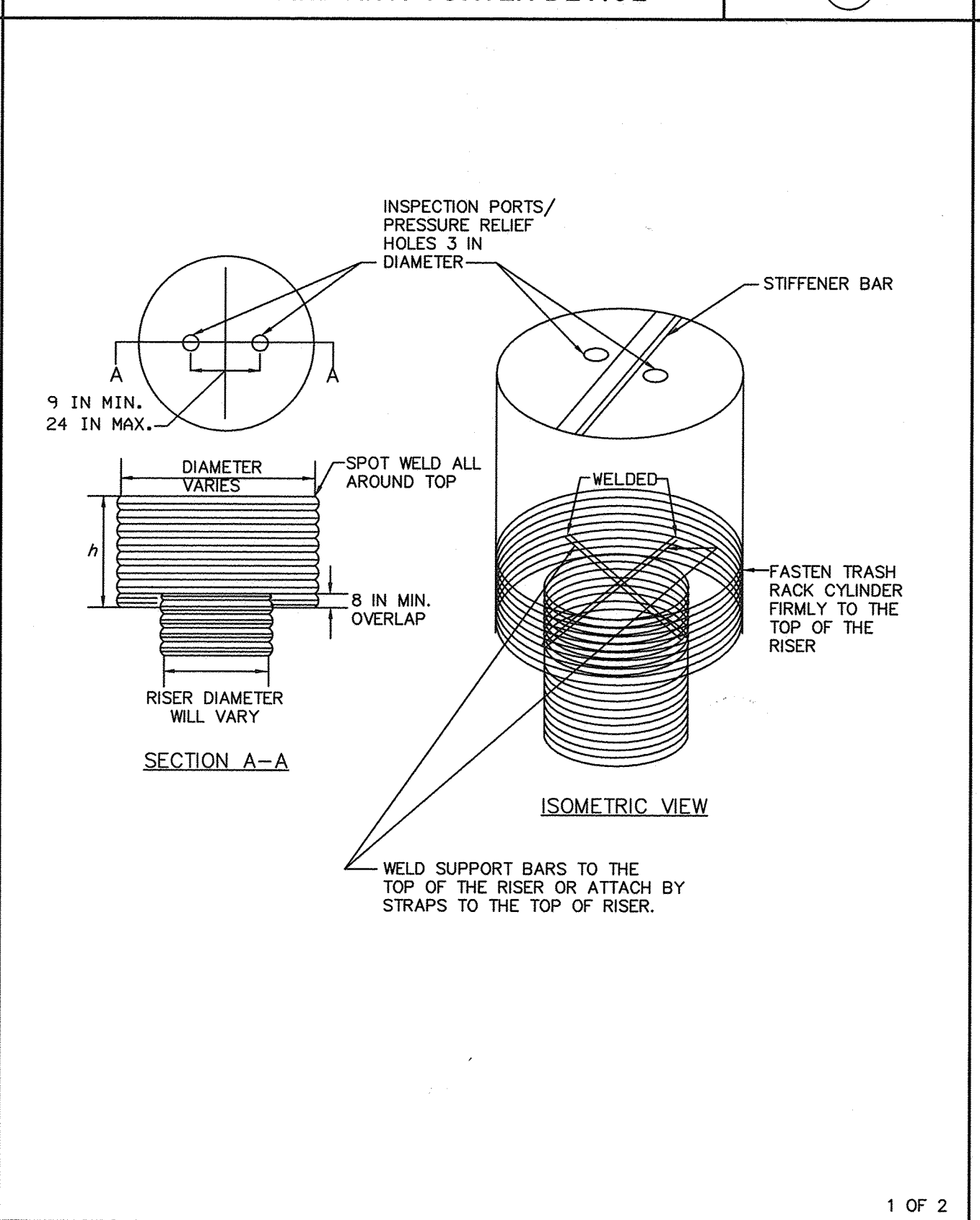
STANDARD SYMBOL



- CONSTRUCTION SPECIFICATIONS**
- PLATES TO BE PRECUT, CLAMPED TOGETHER, PRE-DRILLED, AND LABELED TO FACILITATE WATER TIGHT FIELD ASSEMBLY.
  - CONTINUOUS WELD OF COLLAR TO BARREL THE FULL CIRCUMFERENCE OF THE COLLAR ON BOTH SIDES.
  - USE BUTYL SEALANT BETWEEN PLATE AND FLANGE.

**DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE**

STANDARD SYMBOL  
TR



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

**DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE**

STANDARD SYMBOL  
TR

RISER DIAM. (IN)	TRASH RACK CYLINDER			MINIMUM SIZE SUPPORT BAR	MINIMUM TOP	
	DIAM. (IN)	THICKNESS (GAUGE)	h (IN)		THICKNESS (GAUGE)	STIFFENER
12	18	16	14	#6 REBAR	16	N/A
15	21	16	15	#6 REBAR	16	N/A
18	27	16	16	#6 REBAR	16	N/A
21	30	16	19	#6 REBAR	16	N/A
24	36	16	21	#6 REBAR	14	N/A
27	42	16	21	#6 REBAR	14	N/A
36	54	14	25	#8 REBAR	12	N/A
42	60	14	27	#8 REBAR	12	N/A
48	72	12	29	1 1/2 IN PIPE OR 1 1/2 x 1 1/2 x 1/2 ANGLE	10	N/A
54	78	12	33	1 1/2 IN PIPE OR 1 1/2 x 1 1/2 x 1/2 ANGLE	10	N/A
60	90	12	37	1 1/2 IN PIPE OR 1 1/2 x 1 1/2 x 1/2 ANGLE	8	N/A
66	96	10	41	2 IN PIPE OR 2 x 2 x 3/8 ANGLE	8	2 x 2 x 3/8 ANGLE
72	102	10	44	2 IN PIPE OR 2 x 2 x 3/8 ANGLE	8	2 1/2 x 2 1/2 x 3/8 ANGLE
78	114	10	47	2 1/2 IN PIPE OR 2 x 2 x 3/8 ANGLE	8	2 1/2 x 2 1/2 x 3/8 ANGLE
84	120	10	50	2 1/2 IN PIPE OR 2 1/2 x 2 1/2 x 3/8 ANGLE	8	2 1/2 x 2 1/2 x 3/8 ANGLE

NOTE: THE ABOVE TRASH RACK AND ANTI-VORTEX DEVICE INFORMATION IS FOR CORRUGATED METAL PIPE ONLY. CONCRETE RISERS MUST MEET THE REQUIREMENTS OF MD 376.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

PROJECT: GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL DETAILS

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO.: 9 OF 50

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

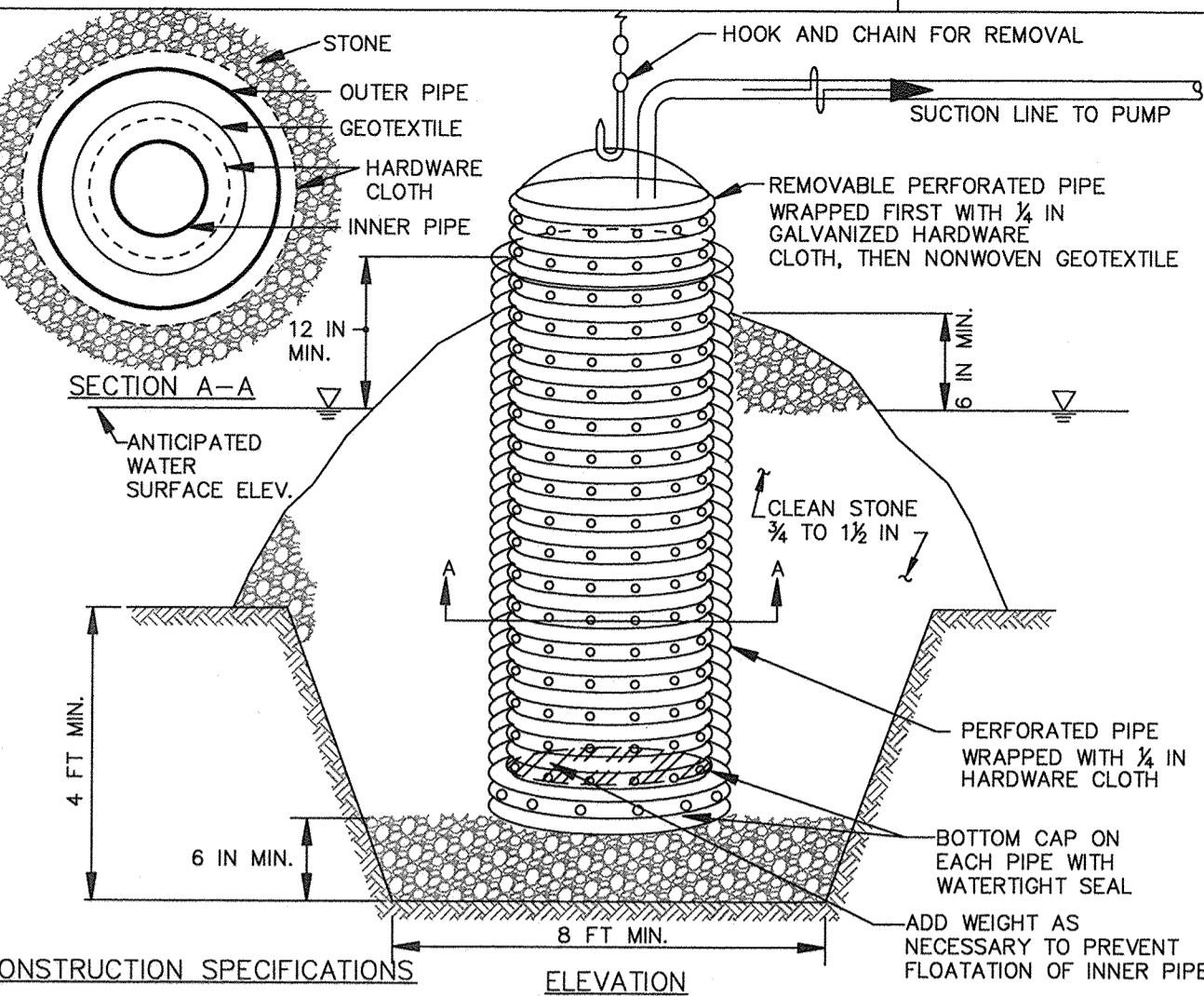
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

SEAL: [Professional Engineer Seal]

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO.: 9 OF 50

**DETAIL F-1 REMOVABLE PUMPING STATION**

STANDARD SYMBOL  
RPS



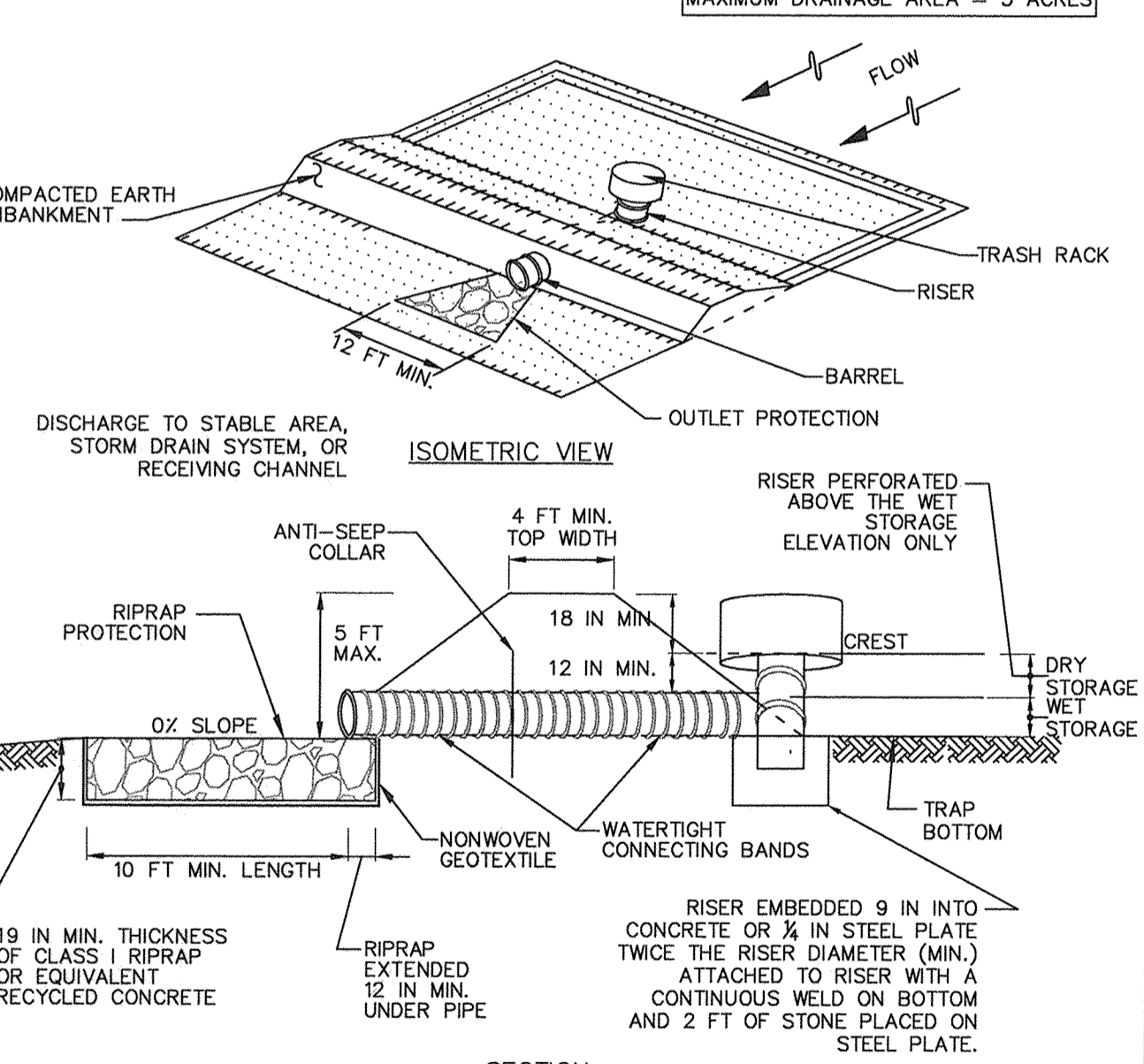
- CONSTRUCTION SPECIFICATIONS**
- USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
  - USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATER TIGHT SEAL.
  - WRAP EACH PIPE WITH 1/4 INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
  - EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
  - SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
  - BACKFILL PIT AROUND THE OUTER PIPE WITH 3/4 TO 1 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
  - DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
  - 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 G-1-1 PIPE OUTLET SEDIMENT TRAP ST-1**

STANDARD SYMBOL  
ST-1



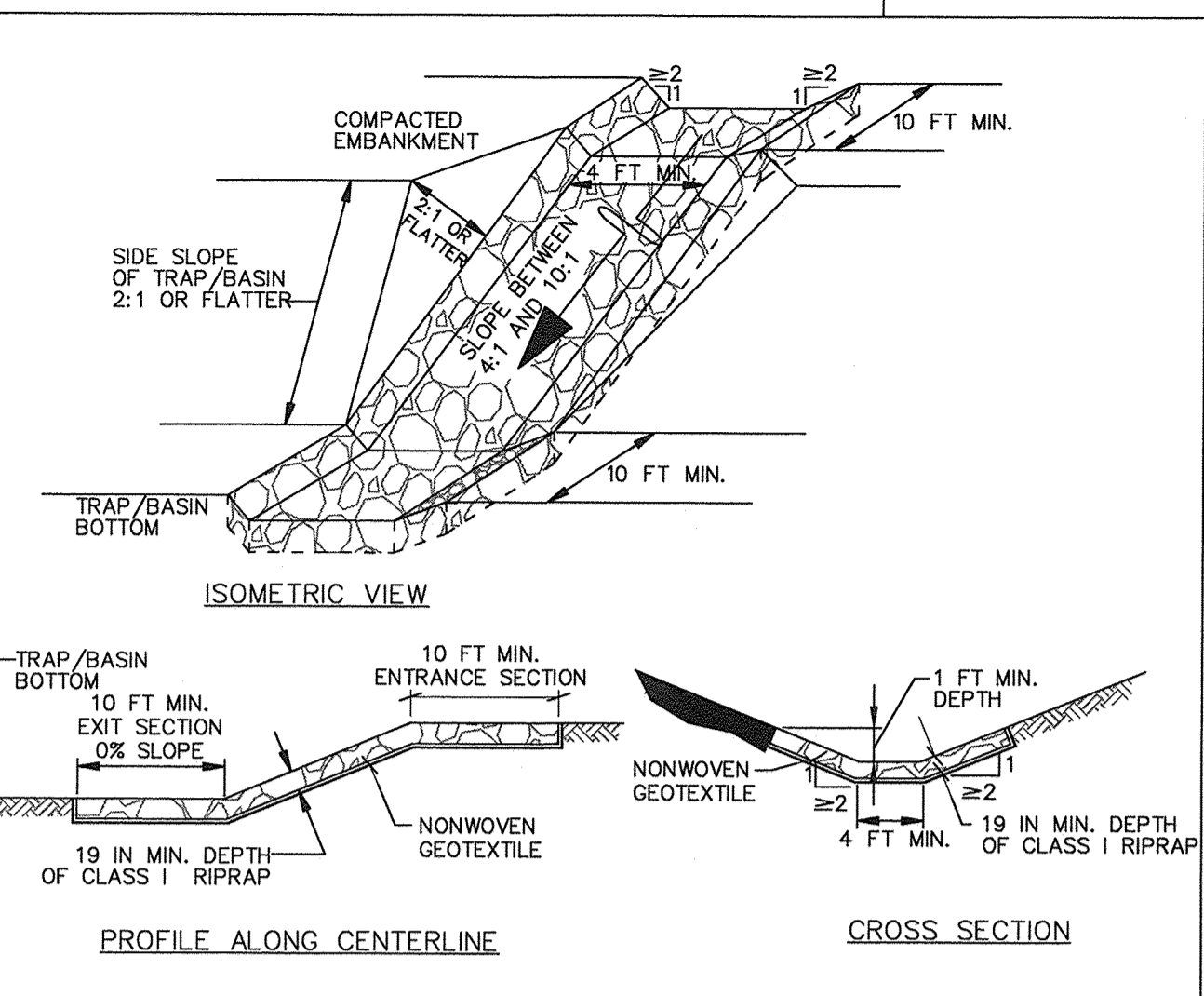
- CONSTRUCTION SPECIFICATIONS**
- CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
  - CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
  - PERFORATE THE RISER WITH 1 INCH DIAMETER HOLES SPACED 6 INCHES ON CENTER WITH THE LOWEST PERFORATIONS AT THE WET STORAGE ELEVATION OR PROVIDE A HORIZONTAL OR VERTICAL DRAW-DOWN DEVICE PERFORATED ACCORDING TO APPROVED PLAN. DO NOT PERFORATE THE RISER WITHIN 6 INCHES OF THE TOP OF THE HORIZONTAL BARREL.
  - SET RISER/BARREL ASSEMBLY PRIOR TO EMBANKMENT CONSTRUCTION. MAKE ALL PIPE CONNECTIONS WATER TIGHT. OFFSET RISER FROM EMBANKMENT TO ACCOMMODATE PLACEMENT OF THE TRASH RACK. ANCHOR THE RISER WITH EITHER A REINFORCED CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
  - USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
  - HAND CEMENT IN 4 INCH LAYERS FILL MATERIAL AROUND THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 FEET OF HAND COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
  - CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
  - MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
  - WRAP THE RISER WITH 1/4 INCH GALVANIZED HARDWARE CLOTH THEN WRAP WITH NONWOVEN GEOTEXTILE. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE. EXTEND HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE ENDS OF GEOTEXTILE COME TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT CLOGGING.
  - USE STRAPS OR CONNECTING BANDS AT THE TOP AND BOTTOM OF THE GEOTEXTILE TO HOLD THE GEOTEXTILE AND HARDWARE CLOTH IN PLACE.
  - USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
  - STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
  - CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO THE APPROVED PLAN AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
  - REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.
  - WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
  - UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

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 D-3-1 RIPRAP INFLOW PROTECTION**

STANDARD SYMBOL  
RRP



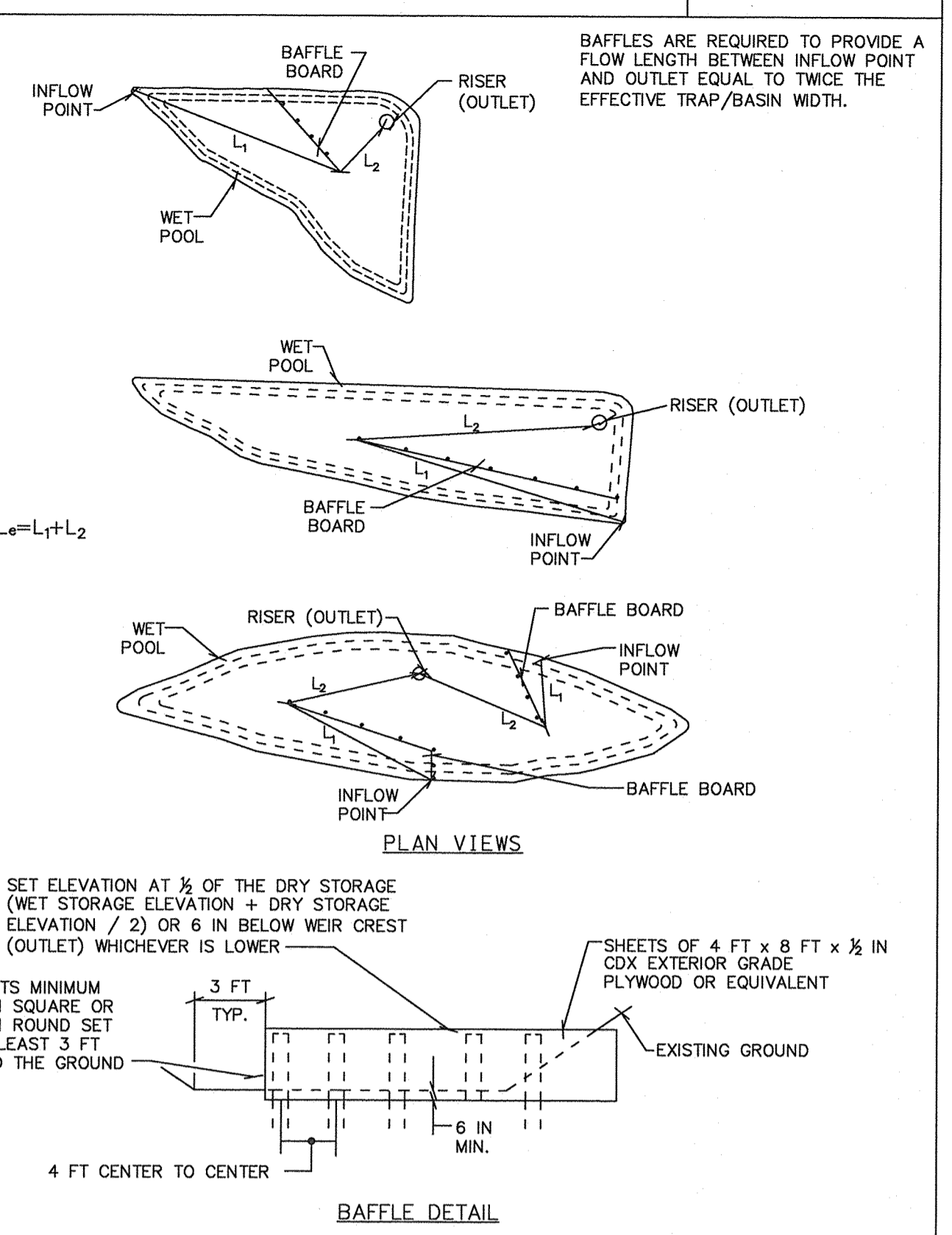
- CONSTRUCTION SPECIFICATIONS**
- PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
  - CONSTRUCT INFLOW CHANNEL WITH CLASS 1 RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES (2 x D<sub>90</sub>) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
  - INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
  - BLEND RIPRAP INTO EXISTING GROUND.
  - 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 G-2-4 BAFFLE BOARDS**

STANDARD SYMBOL  
BB



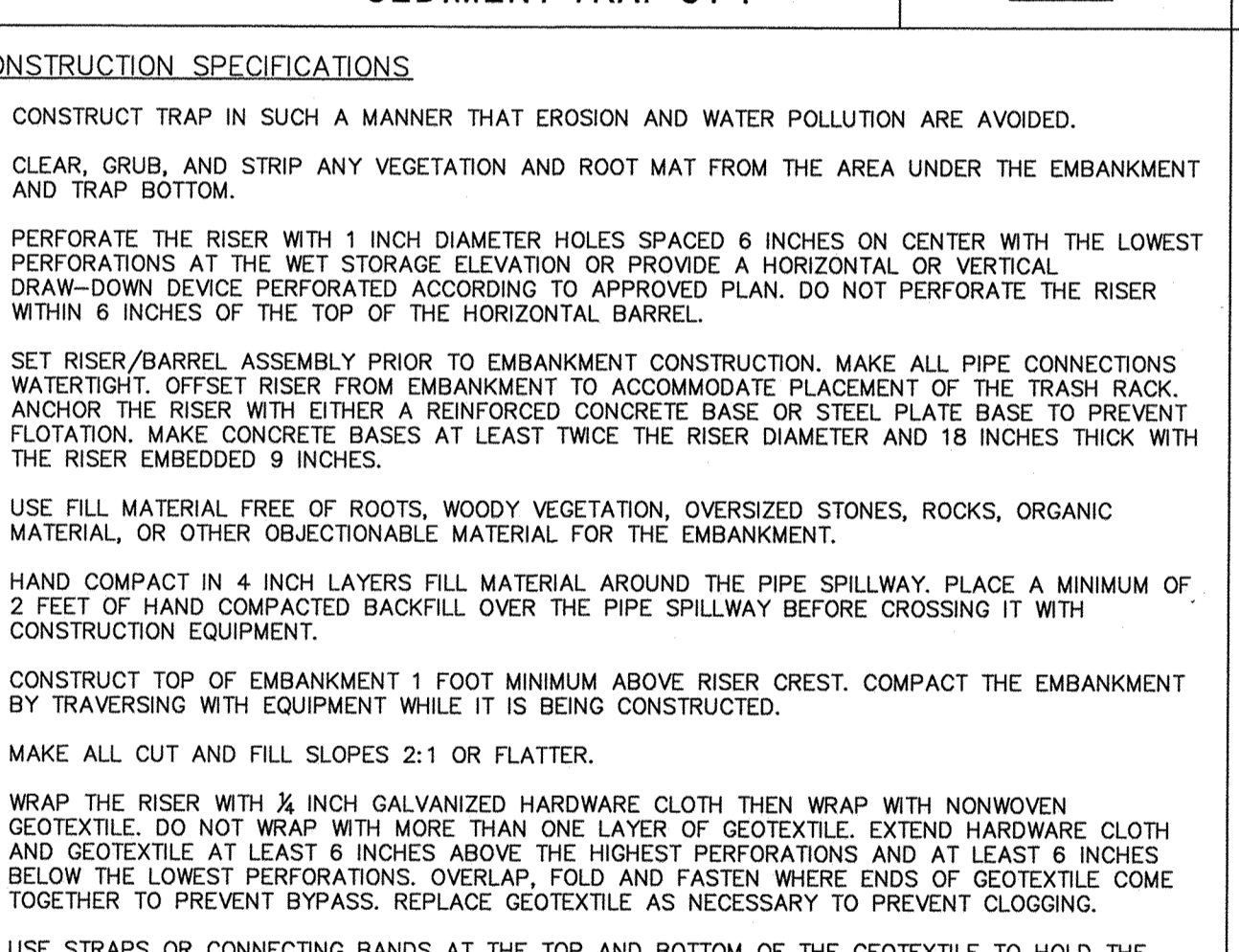
- CONSTRUCTION SPECIFICATIONS**
- BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.
  - SET ELEVATION AT 1/2 OF THE DRY STORAGE (WET STORAGE ELEVATION + DRY STORAGE ELEVATION / 2) OR 6 IN BELOW WET CREST (OUTLET) WHICHEVER IS LOWER.
  - POSTS MINIMUM 4 IN SQUARE OR 5 IN ROUND SET AT LEAST 3 FT INTO THE GROUND.

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 G-1-1 PIPE OUTLET SEDIMENT TRAP ST-1**

STANDARD SYMBOL  
ST-1



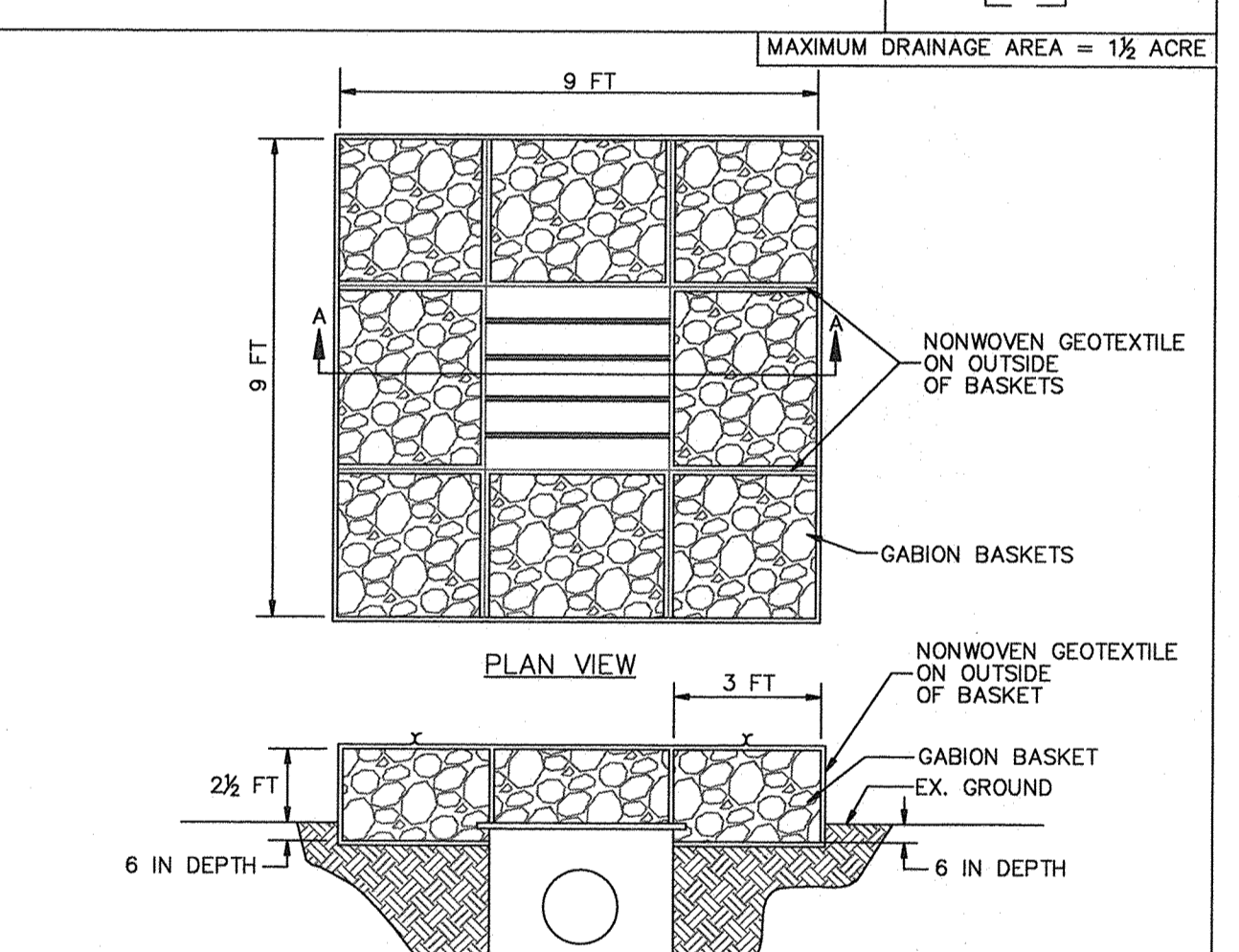
- CONSTRUCTION SPECIFICATIONS**
- USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
  - WRAP 3 FEET X 3 FEET GABION BASKETS (LENGTH VARIABLE) WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVERLAPPING AT THE TOP AND FASTEN THE GEOTEXTILE AT THE TOP OF THE BASKET WITH WIRE FASTENERS (HOG RINGS) AT A MAXIMUM OF 1 FOOT INTERVALS ALONG THE SEAM.
  - AVOID TEARING OR DAMAGING GEOTEXTILE.
  - TRENCH GABION BASKETS TO A DEPTH OF 6 INCHES.
  - PLACE AND INTERLOCK GABION BASKETS WITH NO GAPS.
  - FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR MESH.
  - 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-9-7 GABION INLET PROTECTION**

STANDARD SYMBOL  
GIP



- CONSTRUCTION SPECIFICATIONS**
- USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
  - WRAP 3 FEET X 3 FEET GABION BASKETS (LENGTH VARIABLE) WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVERLAPPING AT THE TOP AND FASTEN THE GEOTEXTILE AT THE TOP OF THE BASKET WITH WIRE FASTENERS (HOG RINGS) AT A MAXIMUM OF 1 FOOT INTERVALS ALONG THE SEAM.
  - AVOID TEARING OR DAMAGING GEOTEXTILE.
  - TRENCH GABION BASKETS TO A DEPTH OF 6 INCHES.
  - PLACE AND INTERLOCK GABION BASKETS WITH NO GAPS.
  - FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR MESH.
  - 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

**SEQUENCE OF CONSTRUCTION**

- PHASE 1**
- COORDINATE ALL UTILITY DISCONNECTION WITH THE APPROPRIATE UTILITY COMPANY AND REMOVE THE UTILITIES ON THE SITE IF NOT TO BE REUSED. OBTAIN THE NECESSARY LETTERS FROM THE UTILITIES NECESSARY TO OBTAIN THE DEMOLITION PERMIT. RETURN ALL METERS TO THE APPROPRIATE UTILITY COMPANY AS DIRECTED BY THOSE COMPANIES. (2 WEEKS)
  - OBTAIN GRADING PERMIT. (1 DAY)
  - STAKEOUT LIMITS OF DISTURBANCE. (1 DAY)
  - CONDUCT A PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR. (1 DAY)
  - BEGIN DEMOLITION ACTIVITIES FOR RENOVATION OF EXISTING BUILDING. NO DISTURBANCE TO THE EXTERIOR SITE AREAS OUTSIDE OF BUILDING FOOTPRINT WILL BE PERMITTED UNTIL ALL SEDIMENT CONTROLS ARE IN PLACE. BEGIN TREE PRESERVATION ACTIVITIES AS OUTLINED IN SEPARATE TREE PRESERVATION SEQUENCE OF CONSTRUCTION IN THIS SET. (10 DAYS)
  - INSTALL STABILIZED CONSTRUCTION ENTRANCE. CLEAR AND GRUB AS NECESSARY TO INSTALL PERIMETER SUPER SILT FENCE AND TREE PROTECTION FENCING. (3 DAYS)
  - UPON APPROVAL OF PERIMETER CONTROL INSTALLATION BY COUNTY INSPECTOR, INSTALL BYPASS STORM DRAIN FROM STRUCTURE I304 TO STRUCTURE E300. INSTALL RIP RAP OUTLET PROTECTION AT STRUCTURE E300 AND SOO AROUND THE THROAT OF THE INLET FOR I304. CONNECT EXISTING STORM DRAIN TEMPORARILY TO STRUCTURE M301 AND ALLOW EXISTING DRAINAGE TO CONTINUE TO EXISTING STORMWATER FACILITY. MAINTAIN A MINIMUM OF 24" PIPE COVER. ALL STORM DRAIN INSTALLATION FOR THIS PHASE WILL REQUIRE SAME DAY STABILIZATION; CONTRACTOR SHALL TRENCH FOR NO MORE PIPE THAN CAN BE INSTALLED IN THE SAME DAY. UPON COMPLETION OF STORM DRAIN INSTALL CLEAN WATER DIVERSION TO STRUCTURE I304. ALL GRADING IN THE VICINITY OF THE CLEAN WATER DIVERSIONS SHALL BE DELAYED UNTIL DIVERSIONS ARE NO LONGER NEEDED. (5 DAYS)
  - INSTALL BYPASS STORM DRAIN FROM STRUCTURE I203 TO STRUCTURE I200 IN US ROUTE 1. MAINTAIN A MINIMUM OF 24" PIPE COVER. INSTALL SOO AROUND THE THROAT OF THE INLET FOR I203 AND I210. ALL STORM DRAIN INSTALLATION FOR THIS PHASE WILL REQUIRE SAME DAY STABILIZATION; CONTRACTOR SHALL TRENCH FOR NO MORE PIPE THAN CAN BE INSTALLED IN THE SAME DAY. (5 DAYS)
  - CLEAR AND GRUB AS NECESSARY TO INSTALL SEDIMENT TRAP. INSTALL STORM DRAIN FROM STRUCTURE I101 TO OUTFALL INTO EXISTING STORMWATER MANAGEMENT FACILITY, STRUCTURE E100. INSTALL RIP RAP OUTLET PROTECTION AT STRUCTURE E100. INSTALL TEMPORARY PIPE FROM STRUCTURE I101 TO SEDIMENT TRAP. INSTALL STORM DRAIN FROM STRUCTURE I105 TO STRUCTURE I104, AND TEMPORARY PIPE FROM STRUCTURE I104 TO SEDIMENT TRAP. ALL STORM DRAIN INSTALLATION FOR THIS PHASE WILL REQUIRE SAME DAY STABILIZATION; CONTRACTOR SHALL TRENCH FOR NO MORE PIPE THAN CAN BE INSTALLED IN THE SAME DAY.
  - UPON COMPLETION OF THE SEDIMENT TRAP INSTALL EARTHDIKES DRAINING TO SEDIMENT TRAP. PLUG TEMPORARY PIPE FROM EXISTING STORM DRAIN AT STRUCTURE M301, AND DIVERT WATER FROM EXISTING STORM DRAIN AND INLETS TO TRAP. (5 DAYS)
- PHASE 2**
- BEGIN REMOVAL OF PAVED SURFACES, CLEARING, AND SITE GRADING. CONSTRUCT RETAINING WALL AROUND EXISTING STORMWATER FACILITY AS SITE GRADING OCCURS. DO NOT CONSTRUCT, EXCAVATE FOR, OR CONSTRUCT SUBGRADE FOR PERVIOUS PAVEMENT AT THIS TIME. (28 DAYS)
  - UPON ESTABLISHMENT OF SUBGRADE, INSTALL WATER MAIN, SANITARY MANHOLE, AND WATER & SEWER HOUSE CONNECTIONS. ANY CONTROLS INTERCEPTED BY UTILITY INSTALLATION ARE TO BE REPAIRED THE SAME DAY.(5 DAYS)
  - BEGIN BUILDING ADDITION AND CONSTRUCTION AND RENOVATION TO EXISTING BUILDING. (12 MONTHS)
  - COMPLETE INSTALLATION OF STORM DRAIN SYSTEM. DELAY CONSTRUCTION OF STORM DRAIN FROM STRUCTURE I101 TO STRUCTURE I104 UNTIL TRAP IS REMOVED. (10 DAYS)
  - INSTALL CURB AND GUTTER AND CONCRETE HEADER CURB. BEGIN CURB AND PARKING LOT CONSTRUCTION AT THE WEST END OF THE SITE NEAR HUNT CLUB ROAD AND WORK TOWARDS ROWANBERRY DRIVE. AS WORK MOVES INTO THE ENTRANCE ROAD, REMOVE PORTION OF EARTH DIKE IN ENTRANCE ROAD AS NECESSARY TO GRADE ENTRANCE ROAD. CONSTRUCT THE STONE SUBGRADE OF THE ASPHALT AND NON PERMEABLE CONCRETE PAVEMENT ON THE SITE. DO NOT CONSTRUCT, EXCAVATE FOR OR CONSTRUCT SUBGRADE FOR PERVIOUS PAVEMENT AT THIS TIME. (15 DAYS)
  - INSTALL ASPHALT AND IMPERVIOUS PAVEMENT. DO NOT CONSTRUCT PERVIOUS PAVEMENT AT THIS TIME. (5 DAYS)
  - PERFORM FINE GRADING, CONSTRUCT SIDEWALKS, BOARDWALK, ASPHALT TRAILS AND ANY OTHER CONSTRUCTION ACTIVITY. (28 DAYS)
  - STABILIZE ALL DISTURBED AREAS. (1 DAY)
  - WITH APPROVAL OF THE INSPECTOR, REMOVE SEDIMENT TRAP, INCLUDING ALL SPOILS, AND STABILIZE, MAKING SURE THE DRAINAGE AREA IS STABILIZED PRIOR TO REMOVAL. COMPLETE STORM DRAIN INSTALLATION FROM STRUCTURE I101 TO STRUCTURE I104. REMOVE TEMPORARY PIPES DRAINING TO AND FROM SEDIMENT TRAP. PERMANENTLY PLUG TEMPORARY PIPE IN STRUCTURE I101. (5 DAYS)
  - REMOVE STABILIZED CONSTRUCTION ENTRANCE AND CONSTRUCT ENTRANCE ON ROWANBERRY DRIVE. (2 WEEKS)
  - CONSTRUCT LANDSCAPE RETAINING WALLS ADJACENT TO THE NEW LIBRARY. (5 DAYS)
  - CONSTRUCT MICRO BIORETENTION FACILITIES AND PERVIOUS PAVEMENTS AND ALL ASSOCIATED UNDERDRAIN/OVERDRAINS. (3 WEEKS)
  - FINISH PAVING AND LANDSCAPING ON THE SITE. (2 WEEKS)
  - INSTALL INLET PROTECTION ALONG US ROUTE 1 AND ROWANBERRY DRIVE FOR CONSTRUCTION OF SIDEWALK ALONG ROUTE 1. (1 DAY)
  - REMOVE EXISTING SIDEWALK AND INSTALL NEW SIDEWALK. STABILIZE WORK AREA AS NEW SIDEWALK IS INSTALLED. (1 WEEK).
  - UPON PERMISSION OF COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 DAYS)

PIPE OUTLET SEDIMENT TRAP ST-1, TRAP NO. 1		
DRAINAGE AREA - INITIAL	3.73	ACRES
DRAINAGE AREA - INTERIM	3.73	ACRES
DRAINAGE AREA - FINAL	3.73	ACRES
TOTAL STORAGE REQUIRED	14,400	CF
TOTAL STORAGE PROVIDED	18,318	CF
WET STORAGE REQUIRED	7,200	CF
WET STORAGE PROVIDED	8,133	CF
DRY STORAGE REQUIRED	7,200	CF
DRY STORAGE PROVIDED	10,185	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	156.00	FT
TRAP BOTTOM ELEVATION	152.00	FT
TRAP BOTTOM DIMENSIONS	60x60	FT x FT
RISER CREST (DRY STORAGE) ELEVATION	156.00	FT
OUTLET (WET STORAGE) ELEVATION	154.00	FT
CLEANOUT ELEVATION	153.00	FT
TOP OF EMBANKMENT ELEVATION	157.50	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	4	FT
PRINCIPAL SPILLWAY MATERIAL	CMP	
RISER DIAMETER	36	IN
BARREL DIAMETER	27	IN
TRASH RACK DIAMETER	54	IN
TRASH RACK HEIGHT	25	IN
ANTI-SEEP COLLAR DIMENSIONS	6.25	FT
OUTLET PROTECTION - LENGTH	12	FT
OUTLET PROTECTION - WIDTH	14	FT
OUTLET PROTECTION - DEPTH	19	IN

**SEDIMENT BAFFLES-TRAP 1**

D = DISTANCE BETWEEN INFLOW AND OUTFLOW  
 A = AREA OF NORMAL FLOW  
 We =  $\frac{A}{L}$  = EFFECTIVE WIDTH  
 Le = TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER  
 D = 41 LF  
 A = 3,578 SF  
 We = 87 LF  
 Le = 182 LF  
 Le > 2(We), THEREFORE BAFFLE DESIGN REQUIREMENTS ARE MET

**ENGINEER'S CERTIFICATE**

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

Signature of Engineer: Sharon L. Crue  
 DATE: 6-29-16

**DEVELOPER'S CERTIFICATE**

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

Signature of Developer: Richard Gasparotti  
 DATE: 7/12/16

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

Signature of Approver: John P. Roberts  
 DATE: 7/12/16

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature of Chief, Development Engineering Division: [Signature]  
 DATE: 7/19/16

Signature of Chief, Division of Land Development: [Signature]  
 DATE: 8-16-16

Signature of Director: [Signature]  
 DATE: 8-16-16

DATE	NO.	REVISION	BY

**DEVELOPER**  
 HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

**OWNER**  
 HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

**PROJECT**  
 GREEN BUILDING  
 HCLS ELKRIDGE BRANCH  
 AND 50+ CENTER

**AREA**  
 TAX MAP 38, PARCEL 'A' PLAT 2830 ZONED B-1 & R-12  
 GRID NO. 7, 1st ELECTION DISTRICT  
 8540 WASHINGTON BOULEVARD  
 ELKRIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

**TITLE**  
 SEDIMENT CONTROL  
 DETAILS

**Pennoni Associates Inc.**  
 Engineers • Surveyors • Planners  
 Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

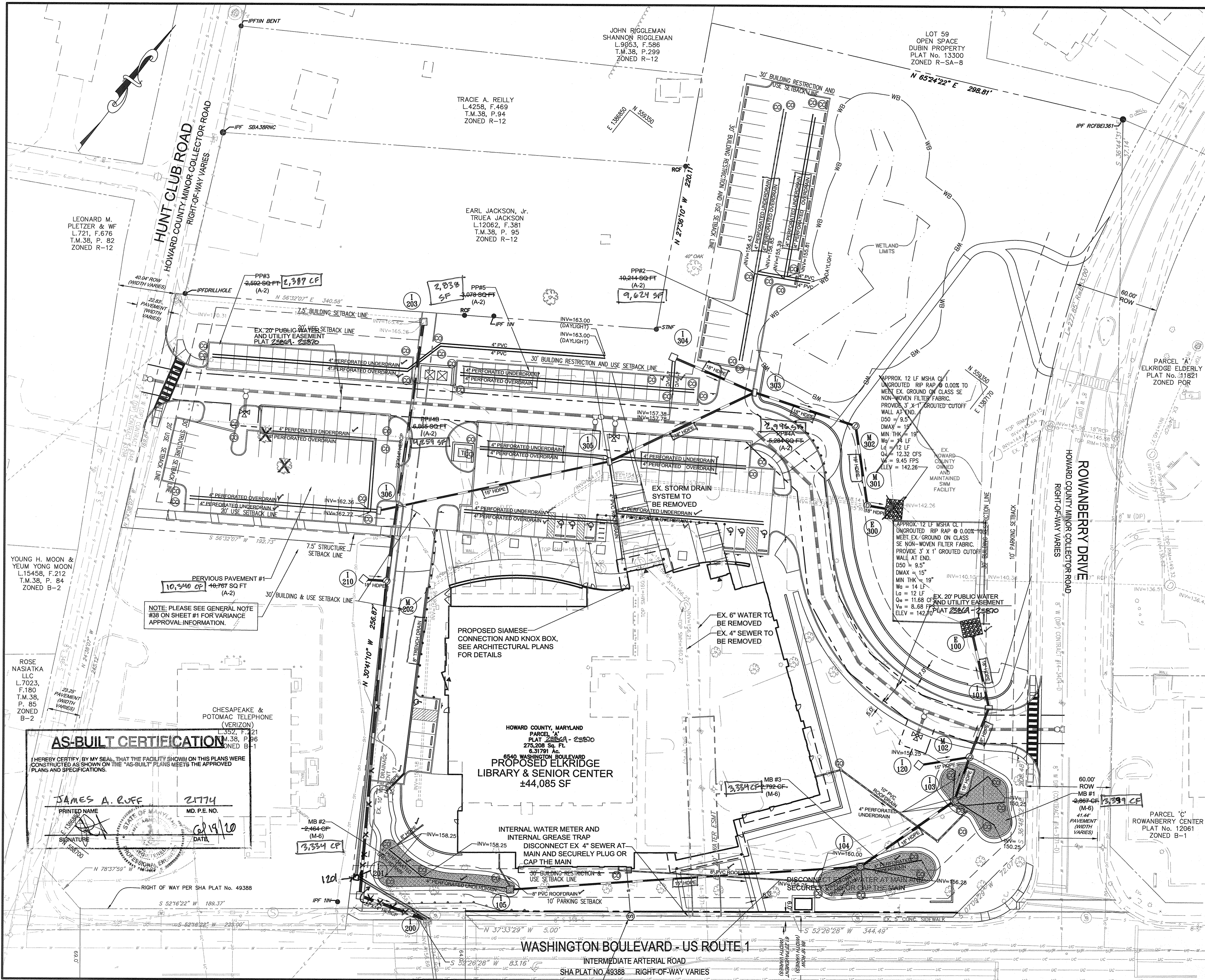
**SEAL**

Signature of Designer: PJS/JSN  
 DATE: JUNE 20, 2016  
 SCALE: AS SHOWN  
 DRAWING NO. 10 OF 50

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

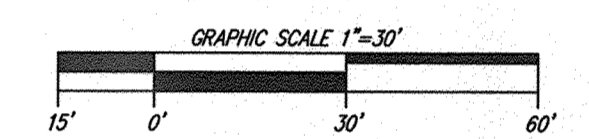
Signature: James A. Ruff  
 DATE: 6/19/20



**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	---
EXISTING BUILDING	▭
EXISTING 1' CONTOUR	---154---
EXISTING 5' CONTOUR	---155---
EXISTING TREE LINE	---RUB---
EXISTING SOILS	---
EXISTING WETLANDS	---
EXISTING WETLAND BUFFER	WB
EXISTING ZONING LINE	---
EXISTING WATER	---
EXISTING SEWER	---
EXISTING COMMUNICATIONS	---
EXISTING ELECTRICAL	---
EXISTING GAS	---
EXISTING STORM DRAIN	---
PROPOSED STORM DRAIN	---
PROPOSED WATER LINE	---
PROPOSED SEWER LINE	---

- NOTES:**
1. ALL ROOF DRAINS SHALL HAVE A MINIMUM 1% SLOPE.
  2. MAINTAIN 2' OF COVER OVER ROOF DRAINS.



APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 7-19-16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION JR DATE

*[Signature]* 8-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 8-16-16  
 DIRECTOR DATE

DATE	NO.	REVISION	BY

**DEVELOPER:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

**OWNER:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

**PROJECT:** GREEN BUILDING HCLS ELKBRIDGE BRANCH AND 50+ CENTER

**AREA:** TAX MAP 38, PARCEL 'A' PLAT 2352A ZONED B-1 & R-12 ELECTION DISTRICT 9250 BENDIX ROAD ELKBRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

**TITLE:** AS BUILT STORM DRAIN PLAN

**Penioni Associates Inc.**  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

SEAL: STATE OF MARYLAND PROFESSIONAL ENGINEER

DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO.: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 11 OF 50

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY BY MY SEAL THAT THE FACILITY SHOWN ON THIS PLANS WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED PLANS AND SPECIFICATIONS.

JAMES A. RUFF 21774  
 PRINTED NAME MD. P.E. NO.  
*[Signature]* 6/19/16  
 SIGNATURE DATE

HOWARD COUNTY, MARYLAND  
 PARCEL 'A'  
 PLAT 2352A - 23570  
 275,208 SQ. FT.  
 8,317 AC.  
 6540 WASHINGTON BOULEVARD  
 PROPOSED ELKBRIDGE  
 LIBRARY & SENIOR CENTER  
 ±44,085 SF

NOTE: PLEASE SEE GENERAL NOTE #38 ON SHEET #1 FOR VARIANCE APPROVAL INFORMATION.

INTERNAL WATER METER AND INTERNAL GREASE TRAP DISCONNECT EX 4" SEWER AT MAIN AND SECURELY PLUG OR CAP THE MAIN

PROPOSED SIAMENSE CONNECTION AND KNOX BOX, SEE ARCHITECTURAL PLANS FOR DETAILS

EX. 6" WATER TO BE REMOVED  
 EX. 4" SEWER TO BE REMOVED

APPROX. 12 LF MSHA CL 1 UNGROUTED RIP RAP @ 0.00% TO MEET EX. GROUND ON CLASS SE NON-WOVEN FILTER FABRIC. PROVIDE 3' X 1' GROUTED CUTOFF WALL AT END.  
 D50 = 9.5"  
 DMAX = 15"  
 MIN THK = 19"  
 W<sub>5</sub> = 12 LF  
 Q<sub>5</sub> = 12.32 CFS  
 V<sub>5</sub> = 9.45 FPS  
 ELEV = 142.26

EX. 20" PUBLIC WATER AND UTILITY EASEMENT PLAT 2352A - 23570

YOUNG H. MOON & YEUM YONG MOON L.15458, F.212 T.M.38, P. 84 ZONED B-2

ROSE NASIATKA LLC L.7023, F.180 T.M.38, P. 85 ZONED B-2

CHESAPEAKE & POTOMAC TELEPHONE (VERIZON) L.352, F.21 M.38, P.96 ZONED B-1

TRACIE A. REILLY L.4258, F.469 T.M.38, P.94 ZONED R-12

JOHN RIGGLEMAN SHANNON RIGGLEMAN L.9953, F.586 T.M.38, P.299 ZONED R-12

LOT 59 OPEN SPACE DUBIN PROPERTY PLAT No. 13300 ZONED R-SA-B

LEONARD M. PLETZER & WF L.721, F.676 T.M.38, P. 82 ZONED R-12

EARL JACKSON, Jr. TRUEA JACKSON L.12062, F.381 T.M.38, P. 95 ZONED R-12

PARCEL 'A' ELKBRIDGE ELDERLY PLAT No. 11821 ZONED POR

PARCEL 'C' ROWANBERRY CENTER PLAT No. 12061 ZONED B-1

WASHINGTON BOULEVARD - US ROUTE 1  
 INTERMEDIATE ARTERIAL ROAD  
 SHA PLAT NO. 49388 RIGHT-OF-WAY VARIES

HUNT CLUB ROAD  
 HOWARD COUNTY MINOR COLLECTOR ROAD  
 RIGHT-OF-WAY VARIES

ROWANBERRY DRIVE  
 HOWARD COUNTY MINOR COLLECTOR ROAD  
 RIGHT-OF-WAY VARIES

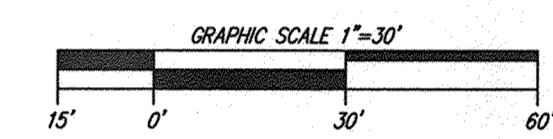
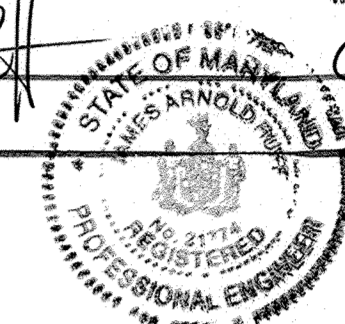
**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING BUILDING	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING TREE LINE	
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	
EXISTING STORM DRAIN	
PROPOSED STORM DRAIN	
PROPOSED TREE LINE	
PROPOSED STORM DRAIN DRAINAGE AREA	

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO 'AS-BUILT' INFORMATION PROVIDED ON THIS SHEET.

JAMES A. RUFF 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE *JAR* DATE 6/14/20



APPROVED: DEPARTMENT OF PLANNING AND ZONING

*William J. Griffin* 7-12-16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*William J. Griffin* 8-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*William J. Griffin* 8-16-16  
 DIRECTOR DATE

DATE	NO.	REVISION	BY
		DEVELOPER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757
		OWNER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

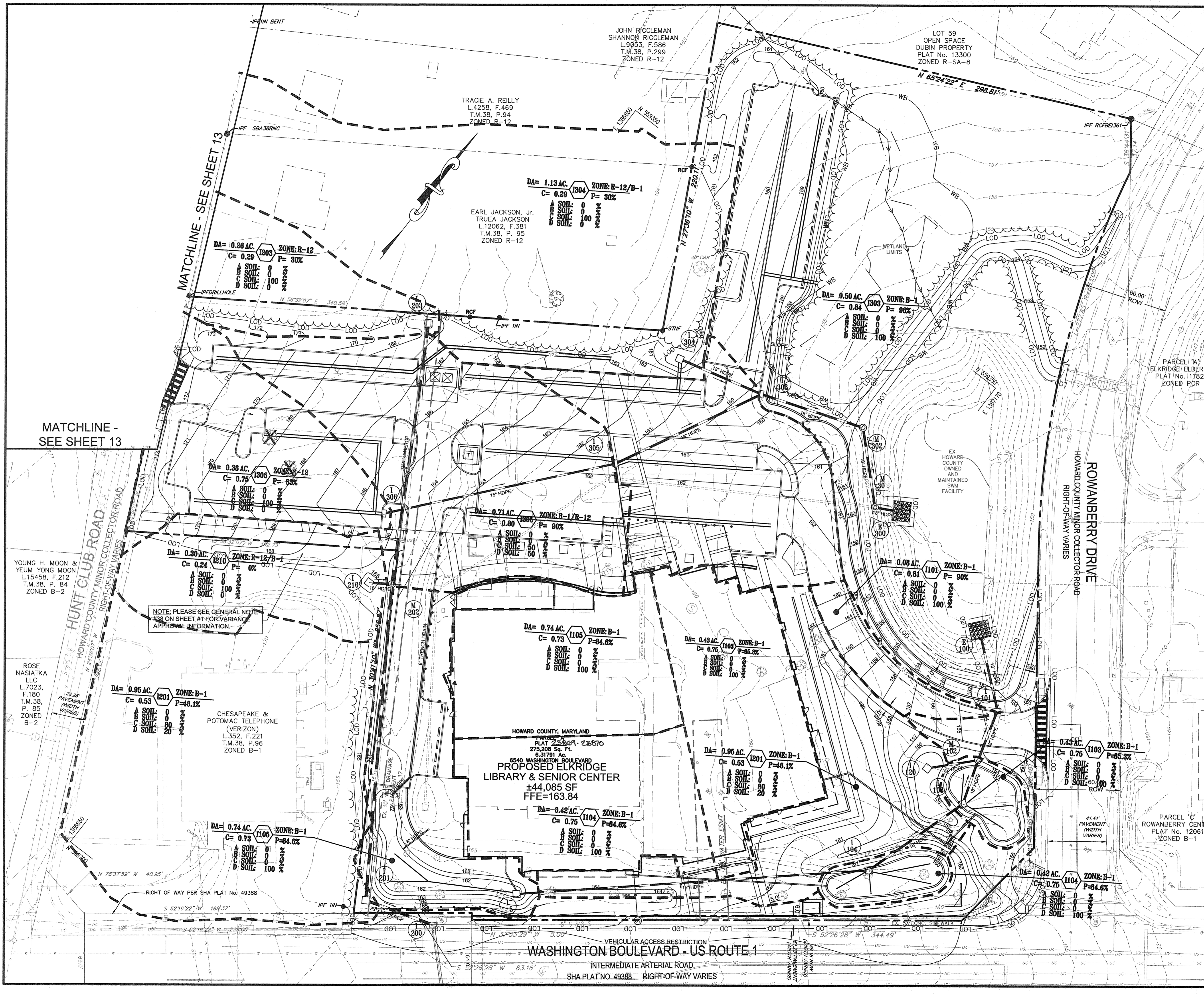
PROJECT  
**GREEN BUILDING  
 HCLS ELKRIIDGE BRANCH  
 AND 50+ CENTER**

AREA  
 TAX MAP 38, PARCEL 'A', PLAT 2354 ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 6540 WASHINGTON BOULEVARD  
 ELKRIIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

TITLE  
**STORM DRAIN  
 DRAINAGE AREA MAP**

Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

SEAL  
  
 DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 12 OF 50



MATCHLINE - SEE SHEET 13

MATCHLINE - SEE SHEET 13

NOTE: PLEASE SEE GENERAL NOTE #38 ON SHEET #1 FOR VARIANCE APPROVAL INFORMATION.

HOWARD COUNTY, MARYLAND  
 PLAT 2354, 23570  
 275,208 Sq. Ft.  
 6,31791 Ac.  
**PROPOSED ELKRIIDGE  
 LIBRARY & SENIOR CENTER**  
 ±44,085 SF  
 FFE=163.84

PARCEL 'A'  
 ELKRIIDGE ELDERLY  
 PLAT No. 111821  
 ZONED POR

YOUNG H. MOON &  
 YEUM YONG MOON  
 L15458, F.212  
 T.M.38, P. 84  
 ZONED B-2

ROSE NASATKA  
 LLC  
 L.7023,  
 F.180  
 T.M.38,  
 P. 85  
 ZONED B-2

CHESAPEAKE &  
 POTOMAC TELEPHONE  
 (VERIZON)  
 L.352, F.221  
 T.M.38, P.96  
 ZONED B-1

JOHN RIGGLEMAN  
 SHANNON RIGGLEMAN  
 L.9053, F.586  
 T.M.38, P.299  
 ZONED R-12

TRACIE A. REILLY  
 L.4258, F.469  
 T.M.38, P.94  
 ZONED R-12

EARL JACKSON, Jr.  
 TRUEA JACKSON  
 L.12062, F.381  
 T.M.38, P. 95  
 ZONED R-12

LOT 59  
 OPEN SPACE  
 DUBIN PROPERTY  
 PLAT No. 13300  
 ZONED R-SA-8

EX. HOWARD COUNTY OWNED AND MAINTAINED SWM FACILITY

PARCEL 'C'  
 ROWANBERRY CENTER  
 PLAT No. 12061  
 ZONED B-1

VEHICULAR ACCESS RESTRICTION  
**WASHINGTON BOULEVARD - US ROUTE 1**  
 INTERMEDIATE ARTERIAL ROAD  
 SHA PLAT NO. 49388 RIGHT-OF-WAY VARIES

MATCHLINE - THIS SHEET

DA= 3.87 AC. (203) ZONE: R-12  
 C= 0.29 P= 30%  
 A SOIL: 0 0  
 B SOIL: 0 0  
 C SOIL: 100 0  
 D SOIL: 0 0

LEONARD M.V  
 PLETZER & WF  
 L.721, F.676  
 T.M.38, P. 82V  
 ZONED R-12

HUNT CLUB ROAD  
 HOWARD COUNTY MINOR COLLECTOR ROAD  
 RIGHT-OF-WAY VARIES

MATCHLINE - SEE SHEET 12

MATCHLINE - THIS SHEET

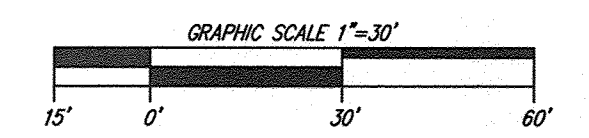
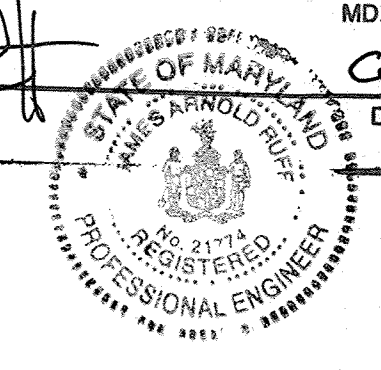
### LEGEND

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING BUILDING	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING TREE LINE	
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	
EXISTING STORM DRAIN	
PROPOSED STORM DRAIN	
PROPOSED TREE LINE	
PROPOSED STORM DRAIN DRAINAGE AREA	

### AS-BUILT CERTIFICATION

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: **JAMES A RIFF** MD. P.E. NO. **21774**  
 SIGNATURE: DATE: **6/18/20**



APPROVED: DEPARTMENT OF PLANNING AND ZONING

7-19-16 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION JP  
 8-16-16 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT p  
 8-16-16 DATE  
 DIRECTOR

DATE	NO.	REVISION	BY
		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	

OWNER: HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

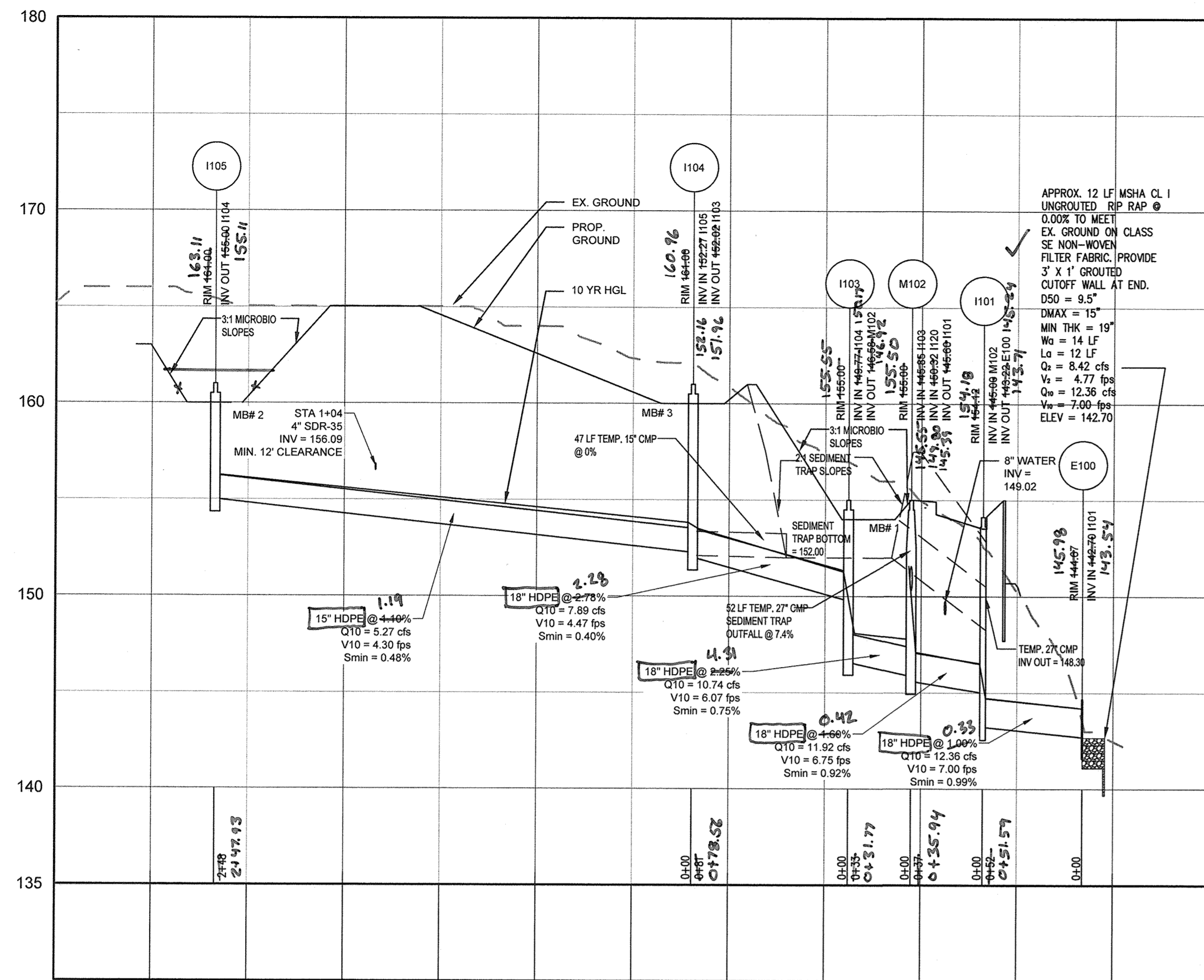
PROJECT: GREEN BUILDING  
 HCLS ELKRIDGE BRANCH  
 AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 238A ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 8540 WASHINGTON BOULEVARD  
 ELKRIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

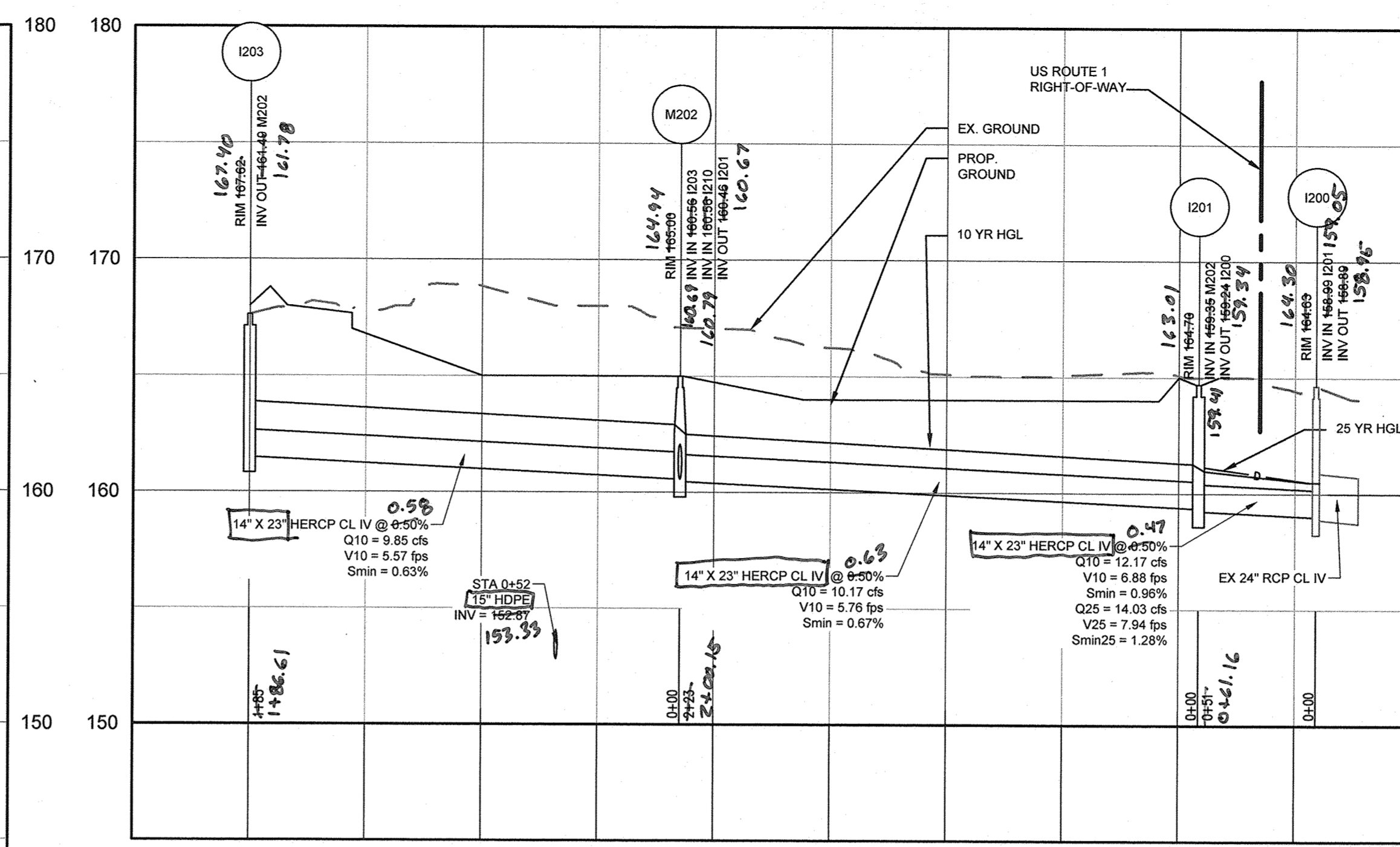
TITLE: **STORM DRAIN DRAINAGE AREA MAP**

Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

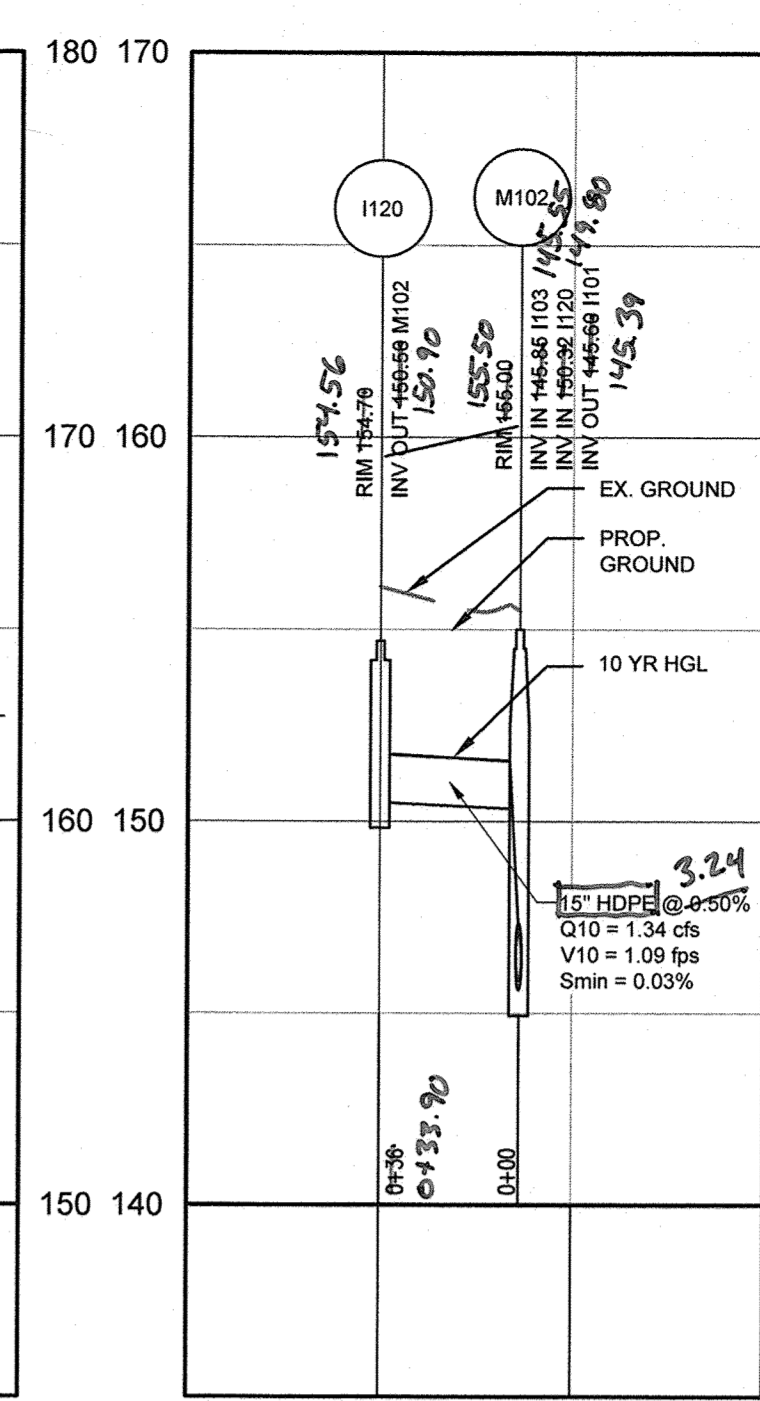
SEAL:   
 DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 BY: 6-29-16  
 DRAWING NO. 13 OF 50



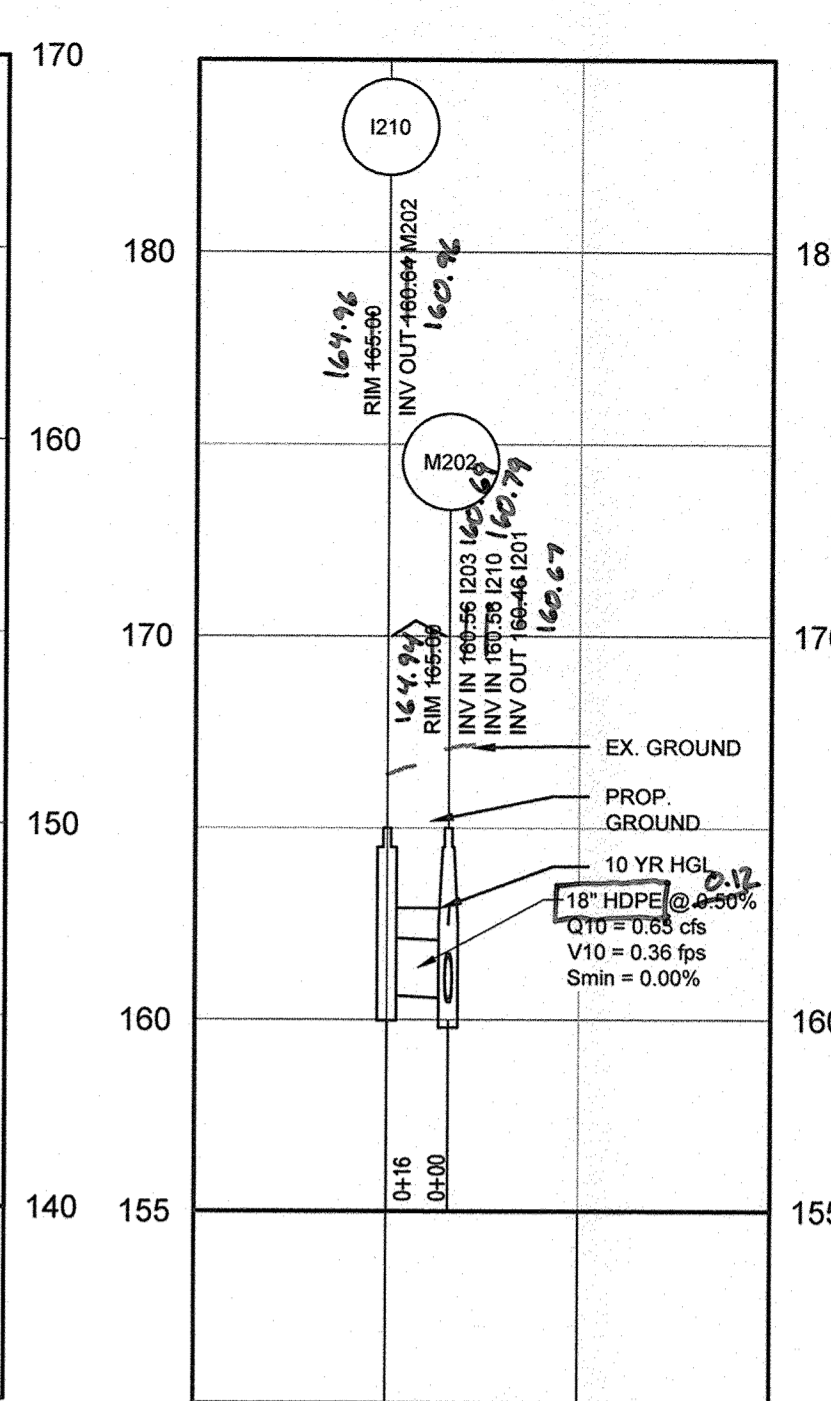
100 SERIES STORM DRAIN 8+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



BYPASS STORM DRAIN (200 SERIES) 7+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



1120 TO M102 3+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



1210 TO M202 3+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED PLANS AND SPECIFICATIONS.

JAMES A. RUFF  
PRINTED NAME  
STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
SIGNATURE

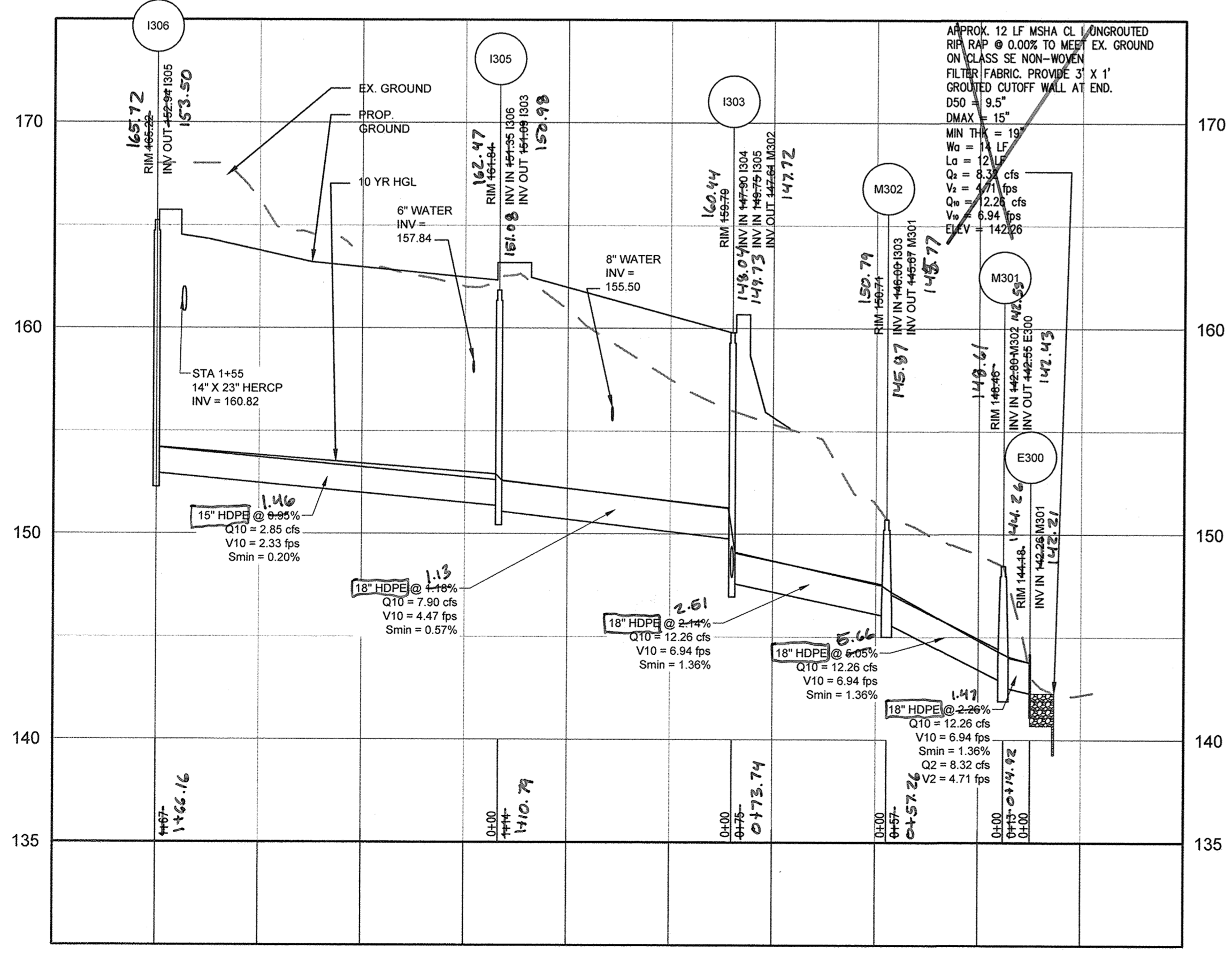
21774  
MD. P.E. NO.  
01/18/20  
DATE

SIZE	TYPE	LINEAR FOOTAGE
4"	PERFORATED PVC UNDERDRAIN	1,792
4"	PERFORATED PVC OVERDRAIN	1,461
4"	PVC	413
8"	HDPE	40
8"	PVC ROOF DRAIN*	169
10"	PVC ROOF DRAIN*	128
15"	HDPE	481
18"	HDPE	534
14"x23"	HERCOP CL IV	458
8"	TRENCH DRAIN	132

\*VERIFY LENGTH AND SIZE OF ROOF DRAIN WITH BUILDING PLUMBING PLANS

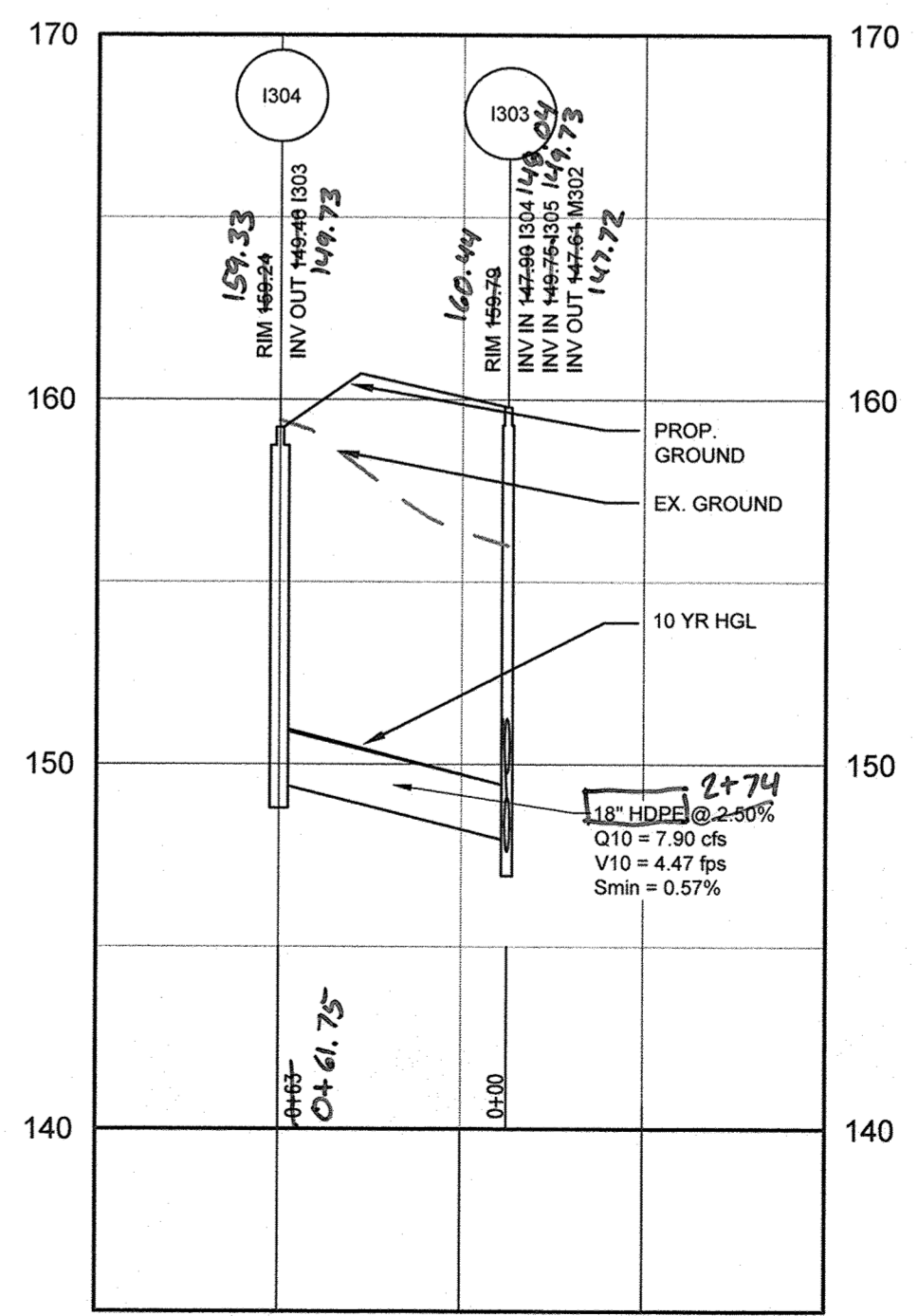
**NOTES:**

- ALL STRUCTURES ARE HOWARD COUNTY STANDARDS UNLESS NOTED OTHERWISE. CONTRACTOR MAY USE PRECAST STRUCTURE WHERE AVAILABLE TO MEET THE STANDARD STRUCTURE SPECIFIED.
- STATIONS ARE GIVEN TO CENTER OF STRUCTURE AT FACE OF CURB FOR CURB INLETS AND TO CENTER OF STRUCTURE FOR ALL OTHER STRUCTURES.
- ELEVATIONS ARE GIVEN TO TOP OF CURB FOR CURB INLETS, TOP OF GRATE FOR GRATE INLETS AND TOP OF LID FOR MANHOLES.
- PIPE LENGTHS ARE GIVEN TO THE CENTER OF THE STRUCTURE. CONTRACTOR SHALL ADJUST LENGTH TO OBTAIN ACTUAL PIPE LENGTHS.
- ALL ROOF DRAINS SHALL HAVE MINIMUM 1% SLOPE.
- ALL ROOF DRAINS SHALL HAVE MINIMUM 2' OF COVER.
- ALL CLEANOUTS LOCATED IN PAVEMENT AREAS SHALL BE TRAFFIC BEARING.
- THE PIPE SCHEDULE IS GIVEN FOR REFERENCE. IN THE EVENT OF A DISCREPANCY BETWEEN THE PIPE SCHEDULE AND THE PLAN, THE INFORMATION ON THE PLAN SHALL TAKE PRIORITY.



300 SERIES STORM DRAIN 7+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

ID	RIM ELEVATION	INV IN (FROM)	INV OUT (TO)	TYPE	LOCATION (NORTHING, EASTING)	DETAIL REFERENCE
E100	145.97	145.97 (18" HDPE @ 0.90%)	1101	TYPE C ENDWALL	559204.2320, 1387270.0769	D-5.21
E300	144.18	144.18 (15" HDPE @ 0.93%)	M301	TYPE C ENDWALL	559237.6752, 1387165.7902	D-5.21
I101	151.14	151.14 (15" HDPE @ 0.93%)	M102	A-5 INLET	559171.1392, 1387309.9164	D-4.01
I103	152.09	152.09 (18" HDPE @ 0.72%)	I104	18" NYOPLAST INLINE DRAIN	559104.2826, 1387339.8210	D-5.21
I104	148.00	148.00 (15" HDPE @ 1.10%)	I105	18" NYOPLAST INLINE DRAIN	559028.8570, 1387307.0129	D-5.21
I105	147.72	147.72 (15" HDPE @ 1.10%)	I106	18" NYOPLAST INLINE DRAIN	558862.4940, 1387121.0565	D-4.14
I120	146.79	146.79 (15" HDPE @ 1.10%)	M102	YARD INLET	559108.8016, 1387295.6940	D-4.14
I200	146.50	146.50 (23" @ 0.90%)	I201	EX. 5' COS INLET	558809.4653, 1387087.7936	D-4.14
I201	146.50	146.50 (23" @ 0.90%)	M202	YARD INLET	558704.2677, 1387039.6620	D-4.14
I203	146.50	146.50 (23" @ 0.90%)	M202	YARD INLET	559142.4693, 1386828.3620	D-4.14
I210	146.50	146.50 (18" HDPE @ 0.90%)	M202	YARD INLET	558972.6205, 1386904.8029	D-4.14
I303	146.79	146.79 (18" HDPE @ 0.90%)	M302	A-5 INLET	559245.9493, 1387042.2464	D-4.01
I304	146.79	146.79 (18" HDPE @ 0.90%)	I303	YARD INLET	559230.4862, 1386981.5876	D-4.01
I305	146.79	146.79 (15" HDPE @ 0.90%)	I303	A-5 INLET	559144.6792, 1386990.8409	D-4.14
I306	146.79	146.79 (15" HDPE @ 0.90%)	I305	A-5 INLET	559017.5098, 1386883.2596	D-4.01
M102	146.00	146.00 (18" HDPE @ 0.90%)	I103	48" MH	559135.2303, 1387320.4741	G-5.12
M202	146.00	146.00 (18" HDPE @ 0.90%)	I203	48" MH	558981.5004, 1386918.1676	G-5.12
M301	146.00	146.00 (18" HDPE @ 0.90%)	M302	48" MH	559231.5896, 1387154.2806	G-5.12
M302	146.00	146.00 (18" HDPE @ 0.90%)	I303	48" MH	559270.9551, 1387113.2348	G-5.12



1304 CONNECTION 3+00  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division JP 7-19-16  
DATE

Chief, Division of Land Development 8-16-16  
DATE

Director 0-16-16  
DATE

DATE	NO.	REVISION	BY

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

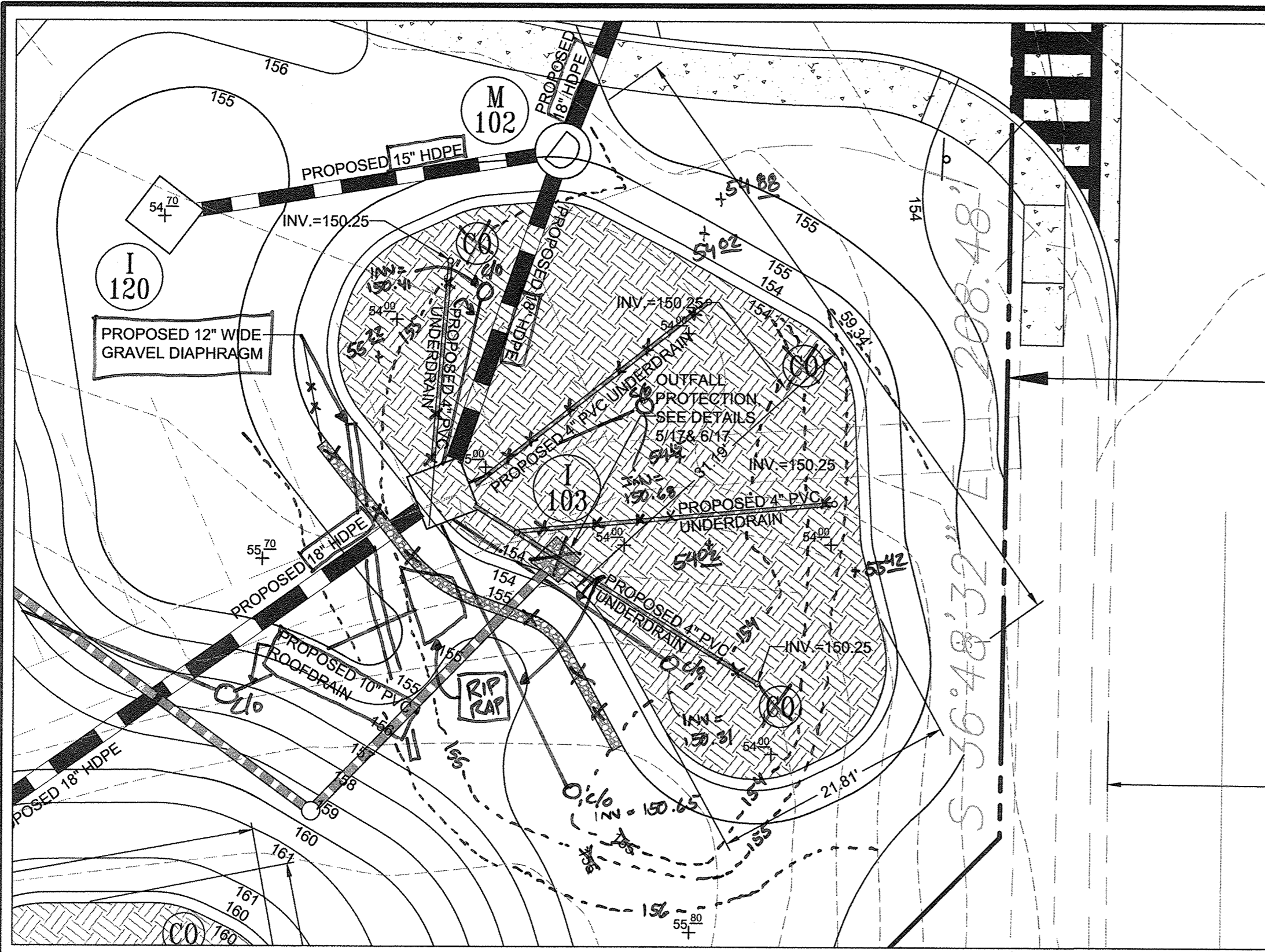
PROJECT: GREEN BUILDING HCLS ELKBRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 2382A ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKBRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: AS-BUILT STORM DRAIN PROFILES & SCHEDULES

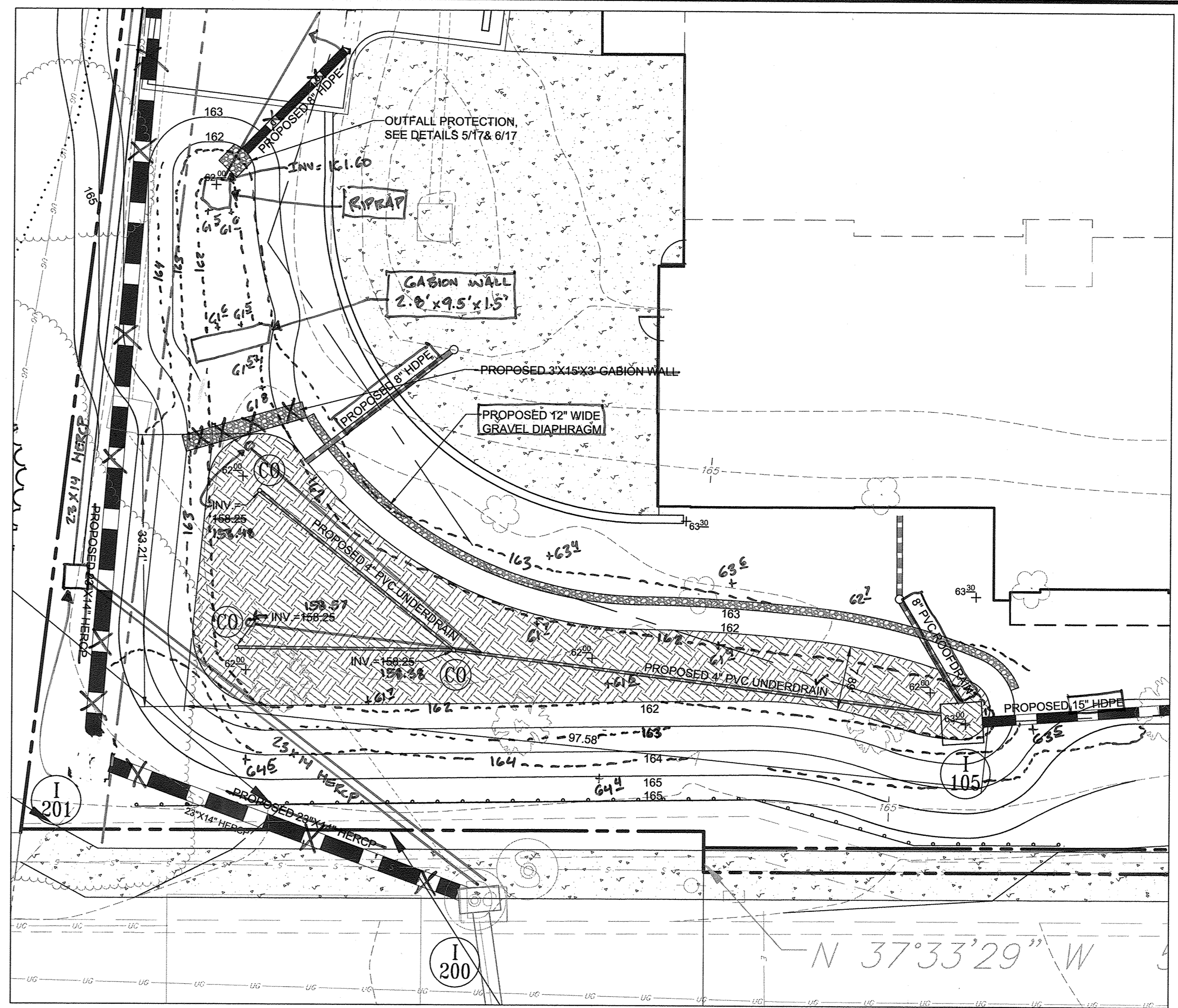
Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects  
8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO.: 14 OF 50



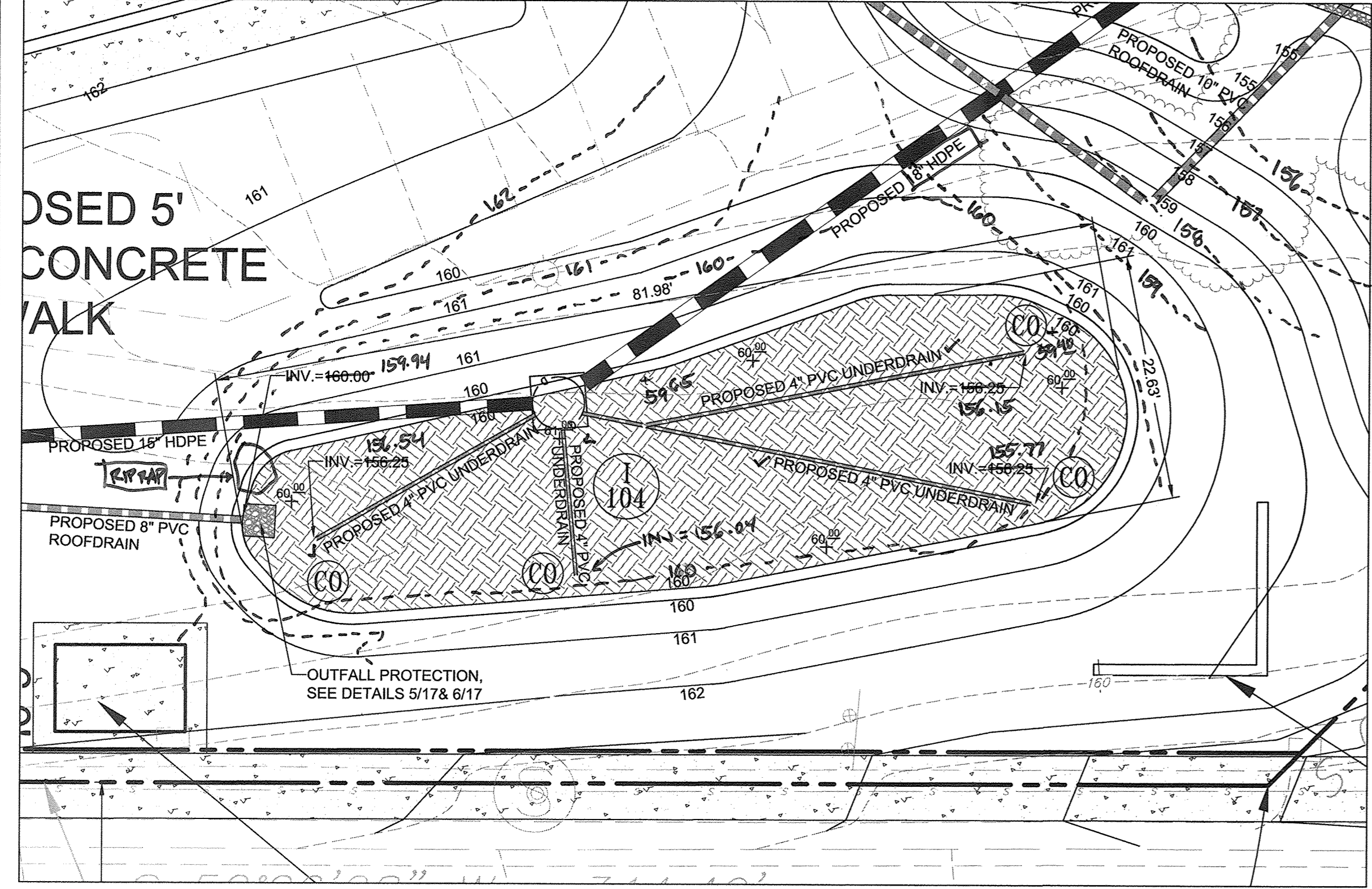
MICRO-BIORETENTION FACILITY #1 DETAIL PLAN

SCALE: 1"=10'



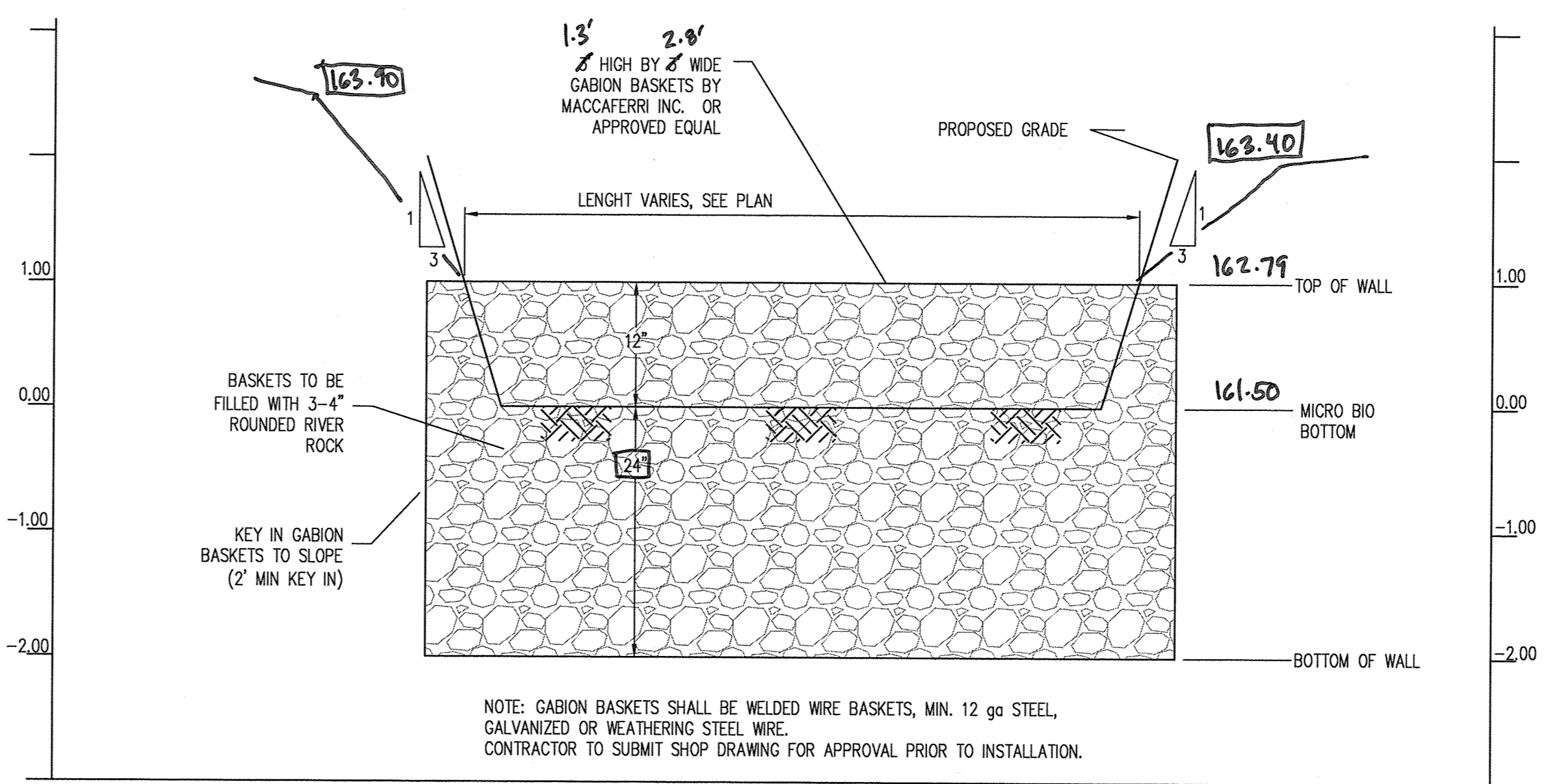
MICRO-BIORETENTION FACILITY #2 DETAIL PLAN

SCALE: 1"=10'



MICRO-BIORETENTION FACILITY #3 DETAIL PLAN

SCALE: 1"=10'



MICROBIO GABION WALL DETAIL

SCALE: HOR: 1"=10'  
VERT: 1"=1'

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY BY MY SEAL THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED PLANS AND SPECIFICATIONS.

**JAMES A. RUFF** 21724  
PRINTED NAME MD. P.E. NO.

*[Signature]* 6/18/20  
SIGNATURE DATE

STATE OF MARYLAND  
JAMES A. RUFF  
REGISTERED PROFESSIONAL ENGINEER  
NO. 21724  
EXPIRES 12/31/2022

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR STORMWATER MANAGEMENT, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ENGINEER: *[Signature]* DATE: 6-29-16

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 7-19-16

CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 8-16-16

DIRECTOR: *[Signature]* DATE: 8-16-16

DATE	NO.	REVISION	BY

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

PROJECT: GREEN BUILDING HCLS ELKBRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 2582 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKBRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: AS-BUILT DETAILED STORMWATER MANAGEMENT PLAN

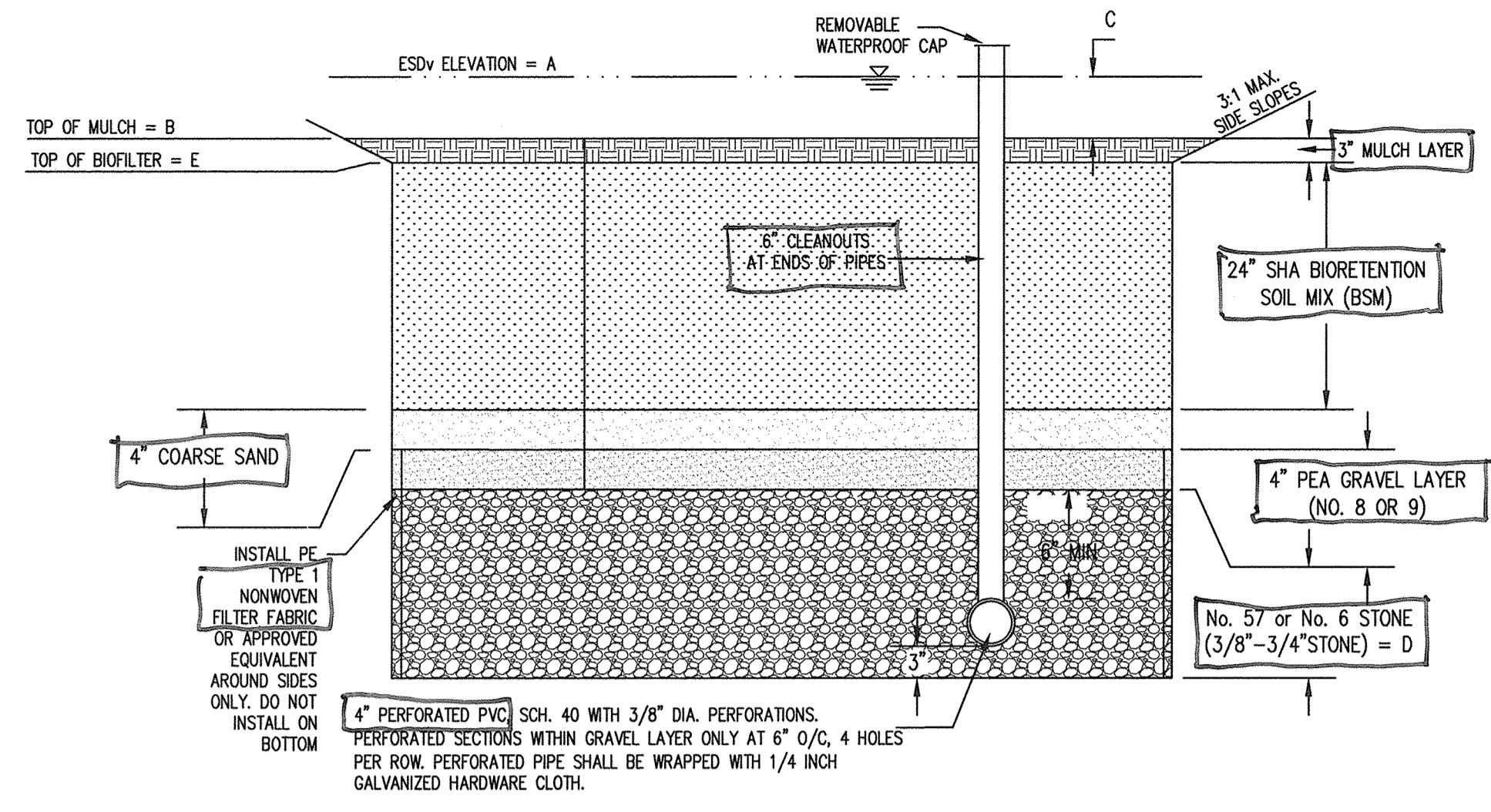
Pennoni Associates Inc.  
Engineers • Surveyors • Planners  
Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

SEAL: *[Professional Engineer Seal]*

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: 1" = 10'  
DRAWING NO. 16 OF 50





**1 MICROBIORETENTION TYPICAL SECTION**  
NOT TO SCALE

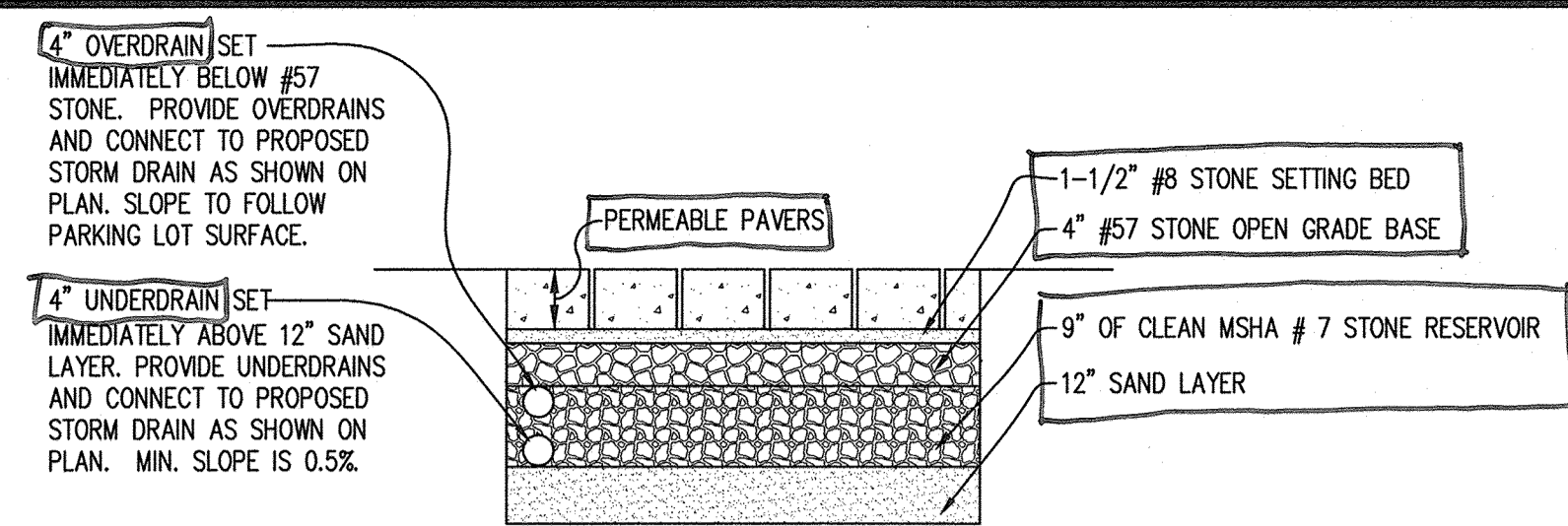
MICRO-BIORETENTION DESIGN DATA			
	1	2	3
A	-155.00- 155.92	+63.00- 162.74	+61.00- 160.43
B	+64.00- 154.32	+62.00- 161.74	+60.00- 159.40
C	12"	12"	12"
D	13"	13"	13"
E	+63.75- 154.07	+61.75- 161.49	+59.75- 159.15
SURFACE AREA AT 'E' (SF)	4,593 1,615	4,369 1,186	4,551 1,812

**MICRO-BIORETENTION SEQUENCE OF CONSTRUCTION**

- DO NOT BEGIN BIORETENTION INSTALLATION UNTIL SITE UPSTREAM OF MICRO-BIORETENTION IS STABILIZED AND FINE GRADING HAS BEEN COMPLETED.
- EXCAVATE MICRO-BIORETENTION. CONSTRUCTION SHALL BE PERFORMED WITH LIGHTWEIGHT, WIDE-TRACKED EQUIPMENT TO MINIMIZE DISTURBANCE AND COMPACTION. EXCAVATED MATERIALS SHALL BE PLACED IN A CONTAINED AREA (1 DAY)
- PLACE STONE AND UNDERDRAINS. (1 DAY)
- PLACE SAND LAYER IN LIFTS OF THREE INCHES. (0.5 DAY)
- PLACE PLANTING SOIL AND OBSERVATION WELLS. (1 DAY)
- PLACE MULCH. (0.5 DAY)
- INSTALL PLANT MATERIAL. (1 DAY)
- STABILIZE MICRO-BIORETENTION AREA. (0.5 DAY)

**SAND SPECIFICATIONS**

- WASHED ASTM C33 FINE AGGREGATE CONCRETE SAND IS UTILIZED FOR STORMWATER MANAGEMENT APPLICATIONS. IN ADDITION TO THE ASTM C-33 SPECIFICATION, SAND MUST MEET ALL OF THE FOLLOWING CONDITIONS.
- SAND MUST MEET GRADATION REQUIREMENTS FOR ASTM C-33 FINE AGGREGATE CONCRETE SAND. AASHTO M-6 GRADATION IS ALSO ACCEPTABLE.
  - SAND MUST BE SILICA BASED. NO LIMESTONE BASED PRODUCTS MAY BE USED. IF THE MATERIAL IS WHITE OR GRAY IN COLOR, IT IS PROBABLY NOT ACCEPTABLE.
  - SAND MUST BE CLEAN. NATURAL, UNWASHED SAND DEPOSITS MAY NOT BE USED. LIKEWISE, SAND THAT HAS BECOME CONTAMINATED BY IMPROPER STORAGE OR INSTALLATION PRACTICES WILL BE REJECTED.
  - MANUFACTURED SAND OR STONE DUST IS NOT ACCEPTABLE UNDER ANY CIRCUMSTANCE.



- NOTES:**
- ALL PERMEABLE PAVERS SHALL BE INSTALLED BY A CERTIFIED INSTALLER.
  - PERMEABLE PAVERS SHALL HAVE A PERMEABILITY RATE OF 8 INCHES PER HOUR OR GREATER. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO PLACEMENT OF ANY PERMEABLE PAVERS.
  - THE BOTTOM OF THE SUB-BASE SHALL BE LEVEL WITH ADJUSTMENTS ACCOMPLISHED BY STEPPING SUBGRADE LEVELS AT 1-FOOT CONTOUR INTERVALS PER THE GEOTECHNICAL REPORT AND ENGINEER'S DIRECTIVE.
  - ALL ADJUSTMENT TO EXISTING GRADE SHALL BE ACCOMPLISHED USING SUB-BASE MATERIAL.
  - SOILS SHALL NOT BE COMPACTED. CONSTRUCTION SHOULD BE PERFORMED WITH LIGHTWEIGHT, WIDE TRACKED EQUIPMENT TO MINIMIZE COMPACTION. EXCAVATED MATERIALS SHALL BE PLACED IN A CONTAINED AREA. LOADED DUMP TRUCKS DELIVERING THE INITIAL SAND MATERIAL SHALL ENTER EACH STEPPED AREA FROM BOTH ENDS AND SHALL LIMIT TRAVEL TO THE MINIMUM WIDTH POSSIBLE TO LIMIT SOIL COMPACTION TO THE MINIMUM AREA POSSIBLE.
  - SUB-BASE SHALL BE CLEAR AND FREE OF FINES. THE SUB-BASE SHALL BE PLACED IN LIFTS AND LIGHTLY ROLLED.
  - OVERDRAINS SHALL FOLLOW THE SLOPE OF THE PARKING LOT, AND SHALL BE SET AT THE ELEVATION SPECIFIED IN THE DETAIL.
  - UNDERDRAINS SHALL HAVE A MINIMUM SLOPE OF 0.5%, AND SHALL BE SET AT THE ELEVATION SPECIFIED IN THE DETAIL.

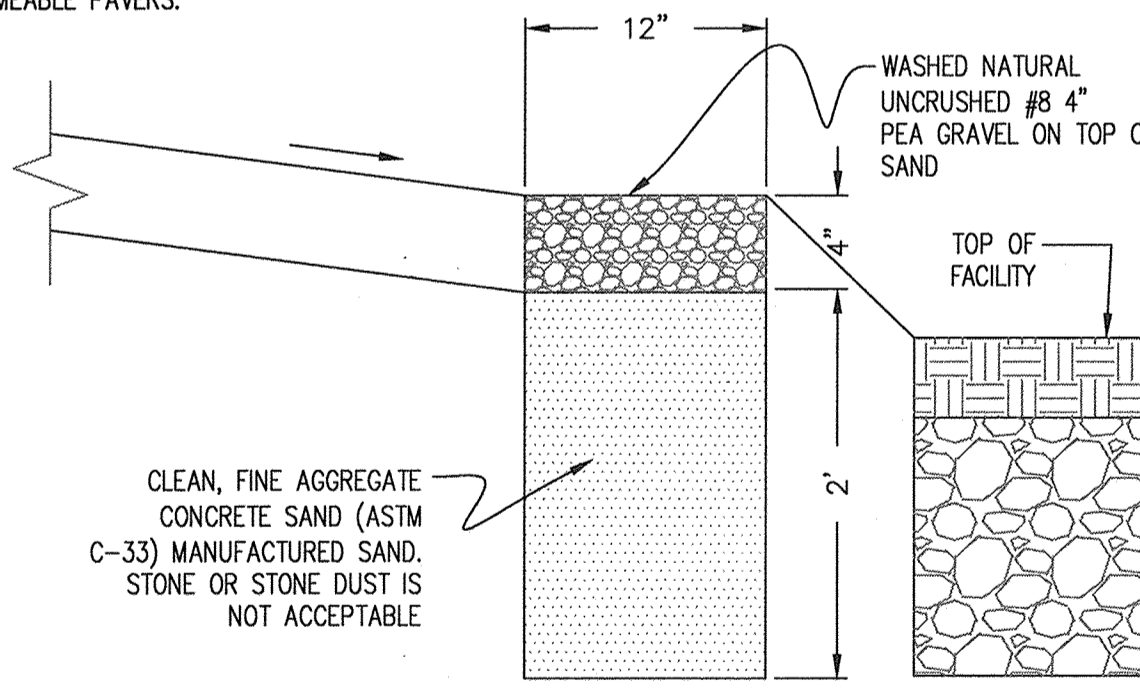
**2 PERMEABLE PAVERS**  
NOT TO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)**

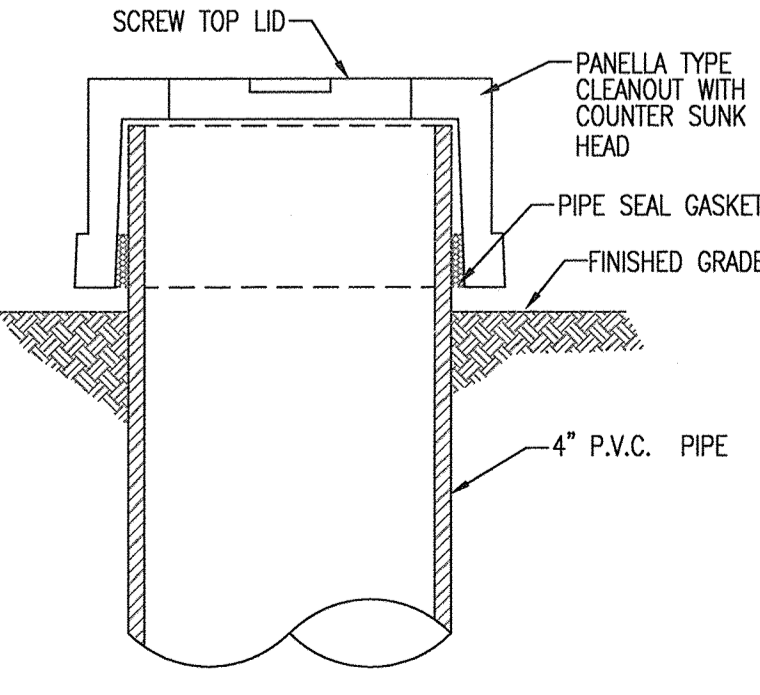
- PAVEMENT SURFACES SHOULD BE SWEPT AND VACUUMED (IF POROUS CONCRETE) TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT AT REGULAR INTERVALS.
- DEICERS SHOULD BE USED IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT. SNOW PLOWING SHOULD BE DONE CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOWMELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

**PERMEABLE PAVEMENT SEQUENCE OF CONSTRUCTION**

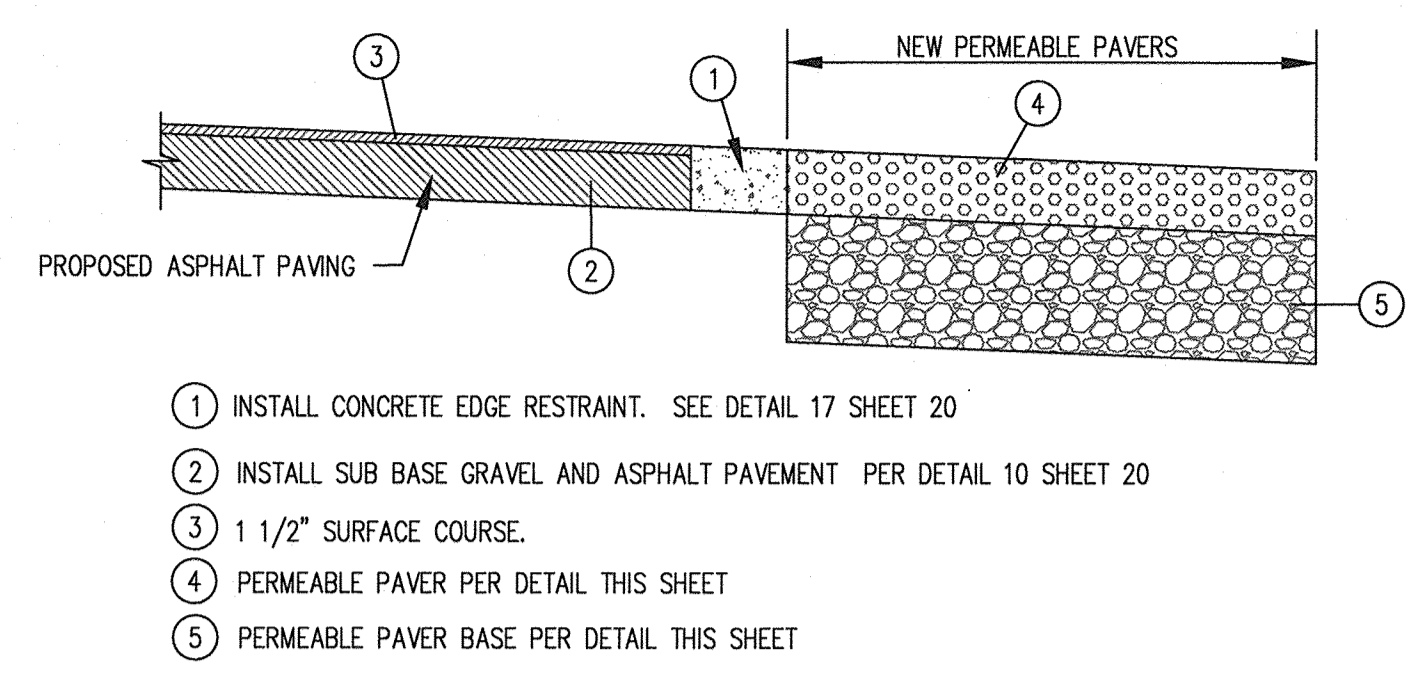
- PERMEABLE PAVEMENT AREAS SHALL BE PROTECTED FROM COMPACTION THROUGHOUT CONSTRUCTION PROCESS.
- UPON STABILIZATION OF ALL AREAS DRAINING ONTO PERMEABLE PAVEMENTS, AND ADJACENT PAVEMENT AND CONCRETE HEADER CURB/CURB AND GUTTER, BEGIN PERMEABLE PAVEMENT INSTALLATION.
- EXCAVATE SUBGRADE BASED ON PERMEABLE PAVEMENT DETAIL AND FINAL GRADES. EXCAVATION SHALL BE PERFORMED WITH LIGHT WEGHT, WIDE TRACKED EQUIPMENT. NOTE THAT BOTTOM OF SUBGRADE IS TO BE LEVEL WITH NO SLOPE.
- INSTALL SUB-BASE IN 4" LIFTS AND LIGHTLY ROLL. INSTALL UNDER AND OVER DRAINS AS SHOWN ON PLANS WITH THE INSTALLATION OF THE SUB-BASE.
- INSTALL PERMEABLE PAVERS.



**5 STONE DIAPHRAGM TYPICAL SECTION**  
NOT TO SCALE



**6 CLEAN-OUT OBSERVATION WELL CAP**  
NOT TO SCALE



**3 PERMEABLE PAVER CONNECTION DETAIL PROPOSED PAVING**  
NOT TO SCALE

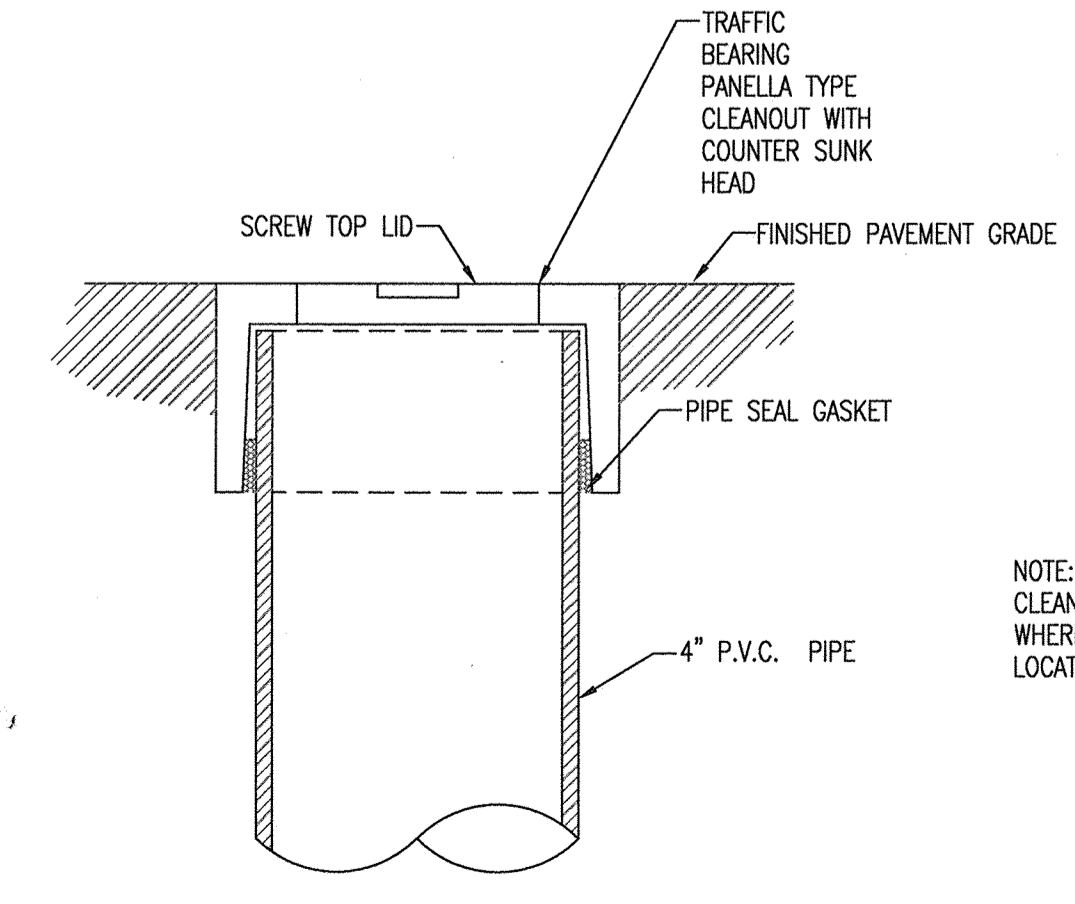
ESDv SUMMARY TABLE			
ESDv REQUIRED	ESDv REQUIRED TO MEET Cpv	ESDv REQUIRED TO MEET Wqv	ESDv PROVIDED
12,480 cf	8,826 cf	3,414 cf	12,662 19,926 cf Δ
	NEW DEVELOPMENT AREA WITH A P <sub>e</sub> OF 2.23'	REDEVELOPMENT AREA WITH A P <sub>e</sub> OF 1.0'	

ESDv AS-BUILT  
14,408 CF

ESDv DEVICE SUMMARY TABLE			
TREATMENT	ESDv REQUIRED TO MEET Cpv	ESDv REQUIRED TO MEET Wqv	ESDv PROVIDED
PERMEABLE PAVEMENT 1	1,900 cf	854 cf	1,445 cf
PERMEABLE PAVEMENT 2	1,800 cf	809 cf	1,369 cf
PERMEABLE PAVEMENT 3	457 cf	205 cf	347 cf
PERMEABLE PAVEMENT 4	2,141 cf	962 cf	1,628 cf Δ
PERMEABLE PAVEMENT 5	542 cf	244 cf	412 cf
MICRO-BIORETENTION 1	2,802 cf	1,259 cf	2,867 cf
MICRO-BIORETENTION 2	2,576 cf	1,157 cf	2,484 cf
MICRO-BIORETENTION 3	2,748 cf	1,235 cf	2,792 cf
TOTAL			12,662 19,926 cf Δ

ESDv AS-BUILT  
14,408 CF

EX. SWM FACILITY SUMMARY				
STORM EVENT	EX. DISCHARGE (cfs)	EX. WSE	PROP. DISCHARGE E (cfs)	PROP. WSE
1-YEAR	2.0	145.0	2.2	145.12
10-YEAR	12.7	147.99	13.4	148.30
100-YEAR	17.6	150.31	18.3	150.70



**7 TRAFFIC BEARING CLEAN-OUT OBSERVATION WELL CAP**  
NOT TO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)**

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A-4.1 AND 2.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

**MICROBIORETENTION SPECIFICATIONS**

- THE UNDERDRAIN PIPE MUST BE 4-INCH DIAMETER SCHEDULE 40 OR STRONGER PERFORATED PVC PIPE AT 0.00% SLOPE. THREE INCHES OF GRAVEL MUST BE PLACED UNDER THE PIPE, WITH A MINIMUM OF 6 INCHES OF GRAVEL OVER THE PIPE. PERFORATIONS MUST BE 3/8 INCH IN DIAMETER AND MUST BE LOCATED 4 INCHES ON CENTER, EVERY 90 DEGREES AROUND THE PIPE. PERFORATED PIPE MUST BEGIN AT LEAST 5 FT. INSIDE THE FILTER MEDIA. FILTER FABRIC MUST NOT BE WRAPPED AROUND THE UNDERDRAIN PIPE.
- 4" INCH CLEAN-OUTS SHOULD BE USED. CLEANOUTS FOR EACH PIPE SHOULD EXTEND 6 INCHES ABOVE THE TOP OF THE PLANTING MEDIA AND HAVE A REMOVABLE CAP.
- THE GRAVEL LAYER SURROUNDING THE UNDERDRAIN PIPES MUST MEET MSHA SIZE #7 (TABLE 901A), AND MUST PROVIDE A MINIMUM OF 6 INCHES COVER OVER THE PIPE, AND MINIMUM 3 INCHES UNDER THE PIPE. NO GEOTEXTILE OR FILTER FABRIC IS ALLOWED ANYWHERE WITHIN THE FILTER MEDIA (STONE OR SAND).
- A MINIMUM 6-INCH FINE AGGREGATE SAND LAYER SHALL BE PROVIDED BELOW THE SOIL FILTER/PLANTING MEDIA. THE SAND MUST BE ASTM C33 FINE AGGREGATE CONCRETE SAND. MANUFACTURED SAND OR STONE DUST IS NOT ACCEPTABLE.

**AS-BUILT CERTIFICATION**

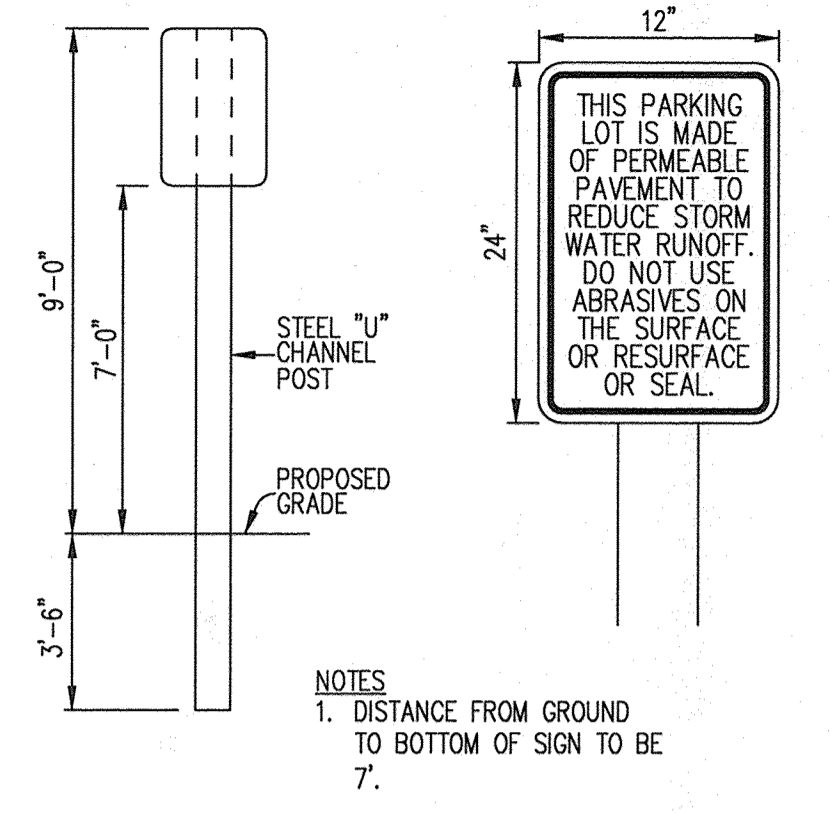
I HEREBY CERTIFY BY MY SEAL, THAT THE FACILITY SHOWN ON THIS PLANS WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEETS THE APPROVED PLANS AND SPECIFICATIONS.

JAMES A. RUFF 21774  
PRINTED NAME MD. P.E. NO.

[Signature] 02/18/20  
SIGNATURE DATE

- THE PLANTING MEDIA MIX SHALL MEET SHA BIORETENTION SOIL MIX STANDARDS. THE SOIL SHALL MEET THE FOLLOWING MINIMUM CRITERIA: A HOMOGENEOUS MIXTURE COMPOSED OF 5 PARTS COARSE SAND, 3 PARTS BASE SOIL, AND 2 PARTS FINE BARK. THE SOIL SHALL BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES. THE PLANTING MATERIAL SHALL BE FLOODED AFTER PLACEMENT. ANY SETTLEMENT THAT OCCURS SHALL BE FILLED BACK TO THE DESIGN ELEVATION.
- THE SURFACE MULCH LAYER WILL CONSIST OF STANDARD FINE SHREDDED AGED HARDWOOD MULCH. THE MULCH SHOULD BE UNIFORMLY TO A DEPTH OF 2 TO 3 INCHES. YEARLY REPLISHING MAY BE NECESSARY. PINE BARK IS NOT ACCEPTABLE.

**4 PERMEABLE PAVEMENT SIGN**  
NOT TO SCALE



BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR STORMWATER MANAGEMENT, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ENGINEER: [Signature] DATE: 6-29-16  
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION, JP DATE: 7-19-16  
CHIEF, DIVISION OF LAND DEVELOPMENT, [Signature] DATE: 8-16-16  
DIRECTOR, [Signature] DATE: 8-16-16

DATE	NO.	REVISION	BY
6-10-20	1	PERMEABLE PAVEMENT REVISION	PJS

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

PROJECT: GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 238A ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: AS-BUILT STORMWATER MANAGEMENT DETAILS

Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects  
8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO. 17 OF 50

BY: [Signature] DATE: 6-29-16  
PROFESSIONAL CERTIFICATION HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 30066 EXP. 03/31/2017

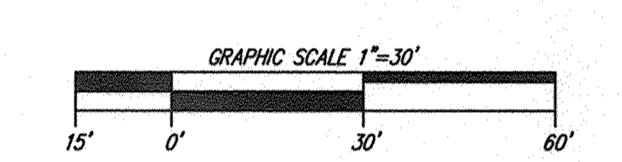


**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	---
EXISTING BUILDING	[Hatched Box]
EXISTING 1' CONTOUR	-154
EXISTING 5' CONTOUR	-155
EXISTING WETLANDS	[Wavy Line]
EXISTING WETLAND BUFFER	WB
PROPOSED MICRO-BIORETENTION FACILITY	[Stippled Box]
PROP. CONCRETE SIDEWALK	[Dotted Box]
PROP. ASPHALT SIDEWALK	[Cross-hatched Box]
PROPOSED PERMEABLE PAVERS	[Diagonal Line Box]
PROPOSED ASPHALT PAVING	[Solid Grey Box]
PROPOSED CONCRETE PAVING	[Stippled Box]
PROPOSED REVERSE CURB	[Dashed Line]
PROPOSED FLUSH CURB, HOWARD COUNTY STANDARD DETAIL R-3.07	[Solid Line]

**NOTES**

1. REFER TO LANDSCAPE ARCHITECTURE PLANS DETAILED PAVING PLAN.
2. ALL CURB RADI ARE 5' UNLESS SPECIFIED.
3. SEE LANDSCAPE ARCHITECTURE PLANS FOR BOLLARD AND BIKE RACK DETAILS.



APPROVED: DEPARTMENT OF PLANNING AND ZONING

<i>[Signature]</i>	7-19-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	8-16-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	8-16-16
DIRECTOR	DATE

DATE	NO.	REVISION	BY

**DEVELOPER**  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

**OWNER**  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-5757

**PROJECT**  
 GREEN BUILDING  
 HCLS ELKRIDGE BRANCH AND 50+ CENTER

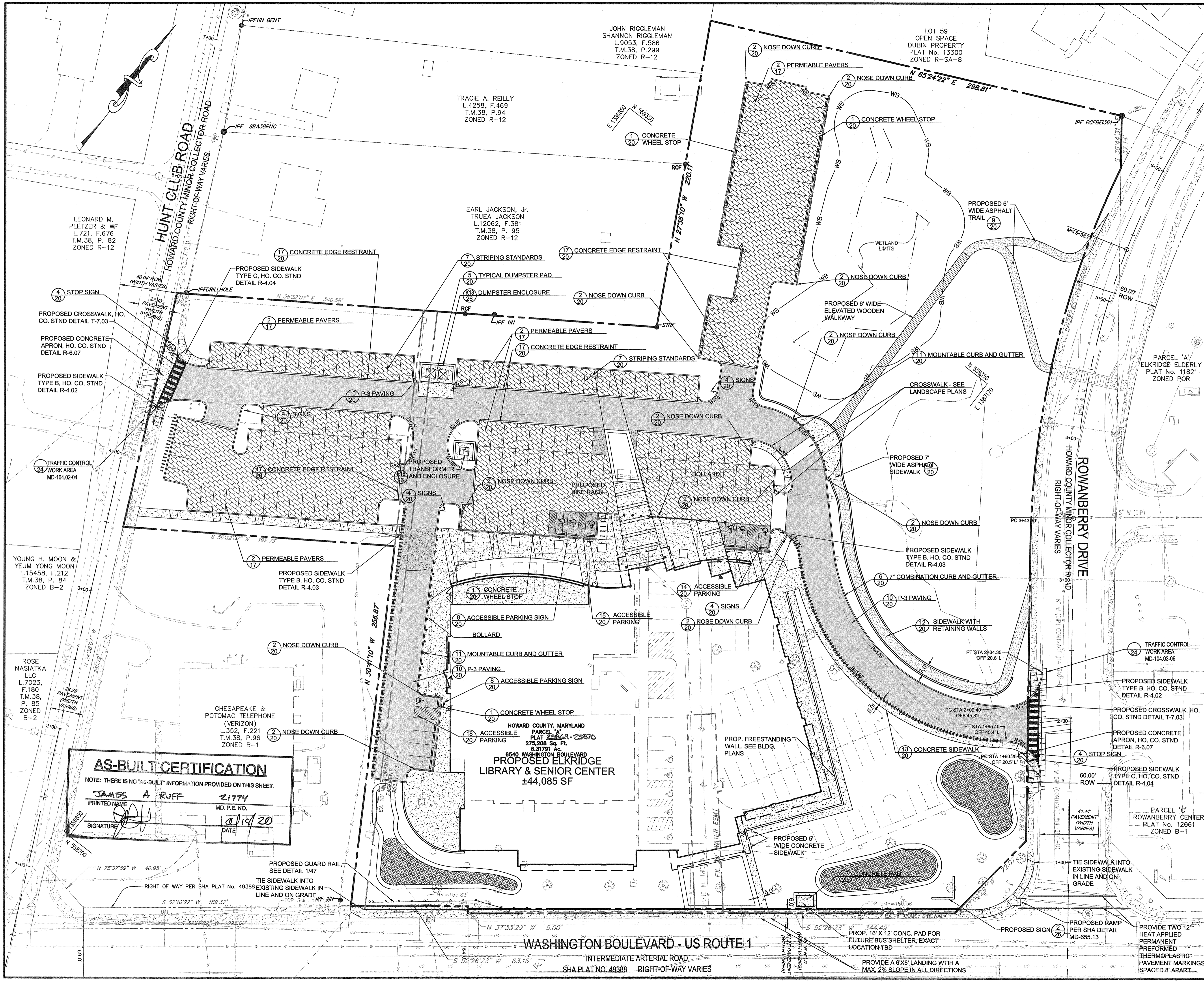
**AREA**  
 TAX MAP 38, PARCEL 'A' PLAT 236A ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 6540 WASHINGTON BOULEVARD  
 ELKRIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

**TITLE**  
 PAVING, STRIPING, AND SIGNAGE PLAN

Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 30'  
 DRAWING NO. 19 OF 50



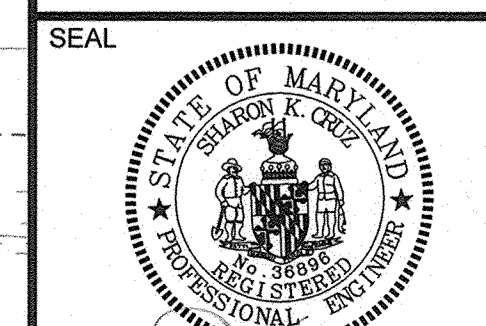
**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

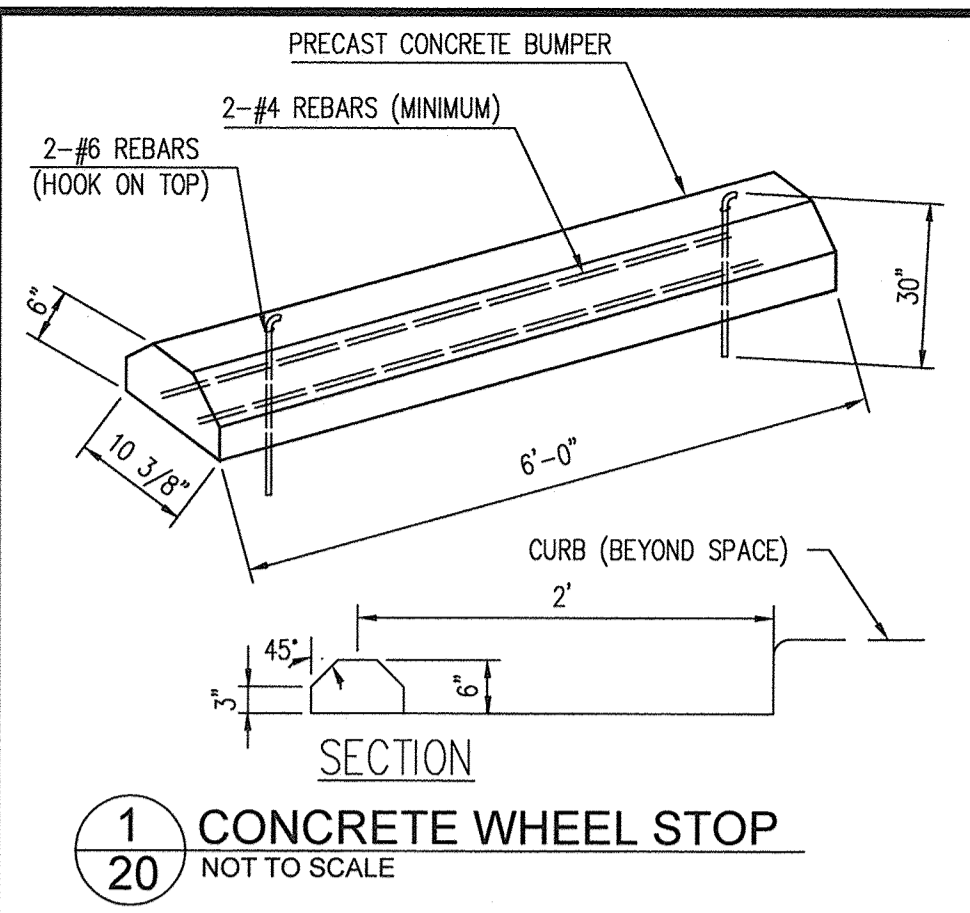
JAMES A. RUFF 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE 6/14/20

HOWARD COUNTY, MARYLAND  
 PARCEL 'A'  
 PLAT 236A-23670  
 6540 WASHINGTON BOULEVARD  
 PROPOSED ELKRIDGE  
 LIBRARY & SENIOR CENTER  
 ±44,085 SF

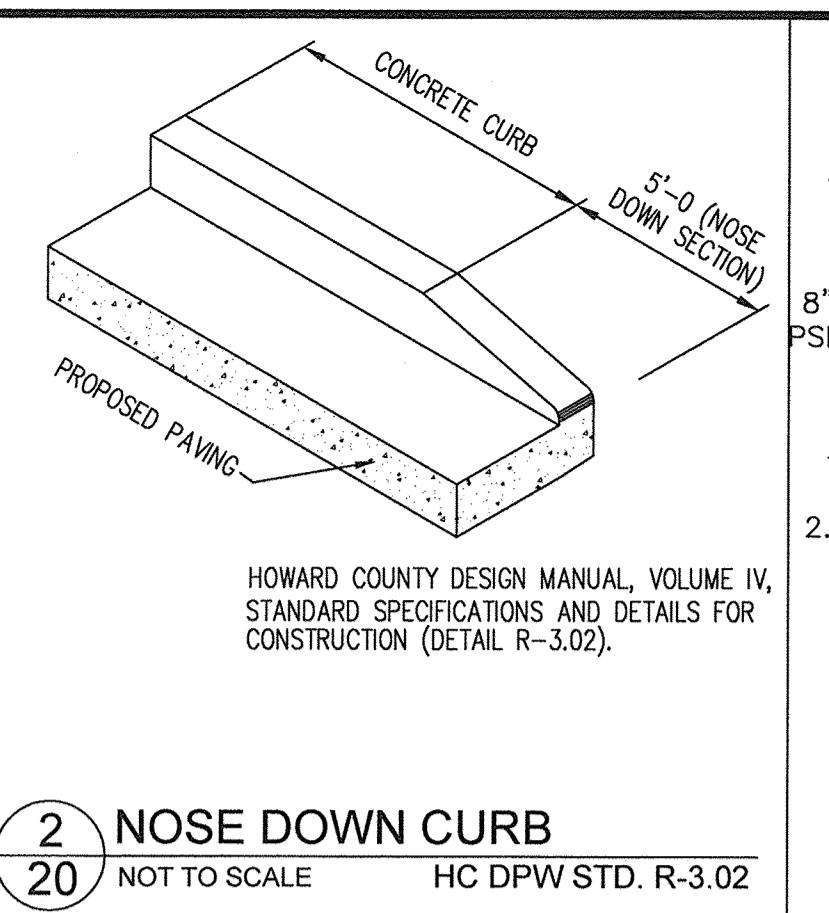
WASHINGTON BOULEVARD - US ROUTE 1  
 INTERMEDIATE ARTERIAL ROAD  
 SHA PLAT NO. 49388 RIGHT-OF-WAY VARIES



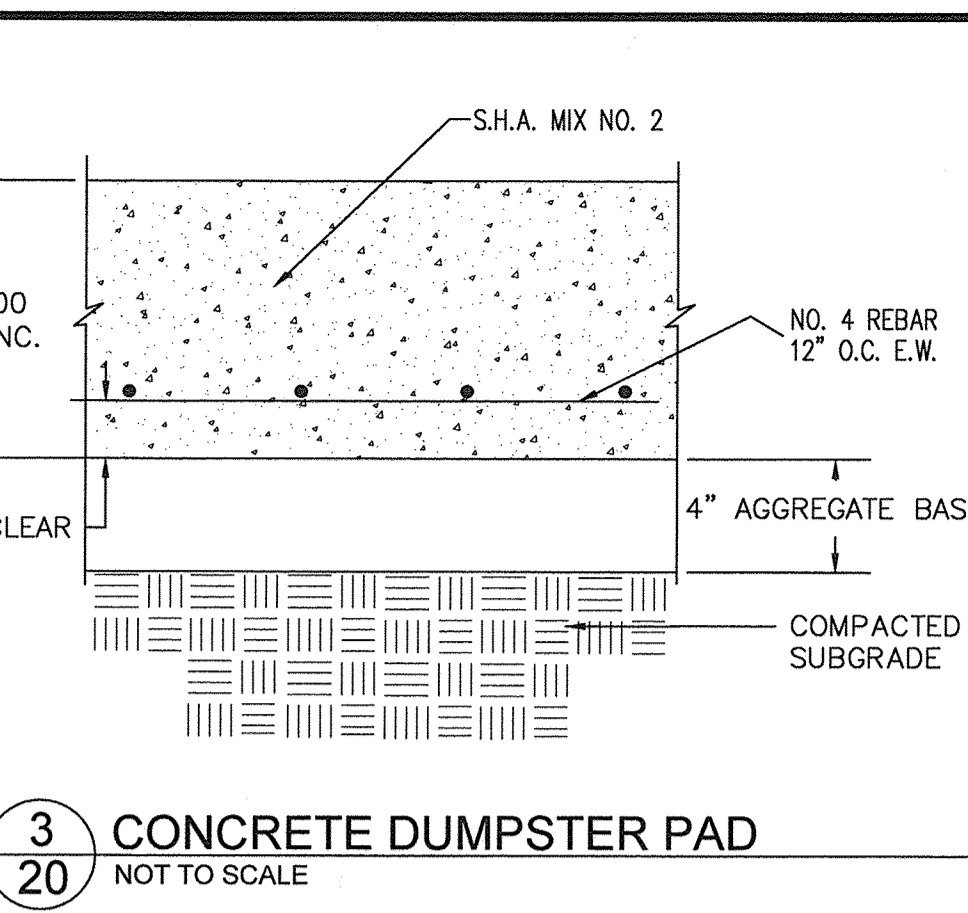
BY: *[Signature]* 6-24-16  
 PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21774, EXPIRATION DATE 12/31/2021.



**1**  
**20** CONCRETE WHEEL STOP  
NOT TO SCALE



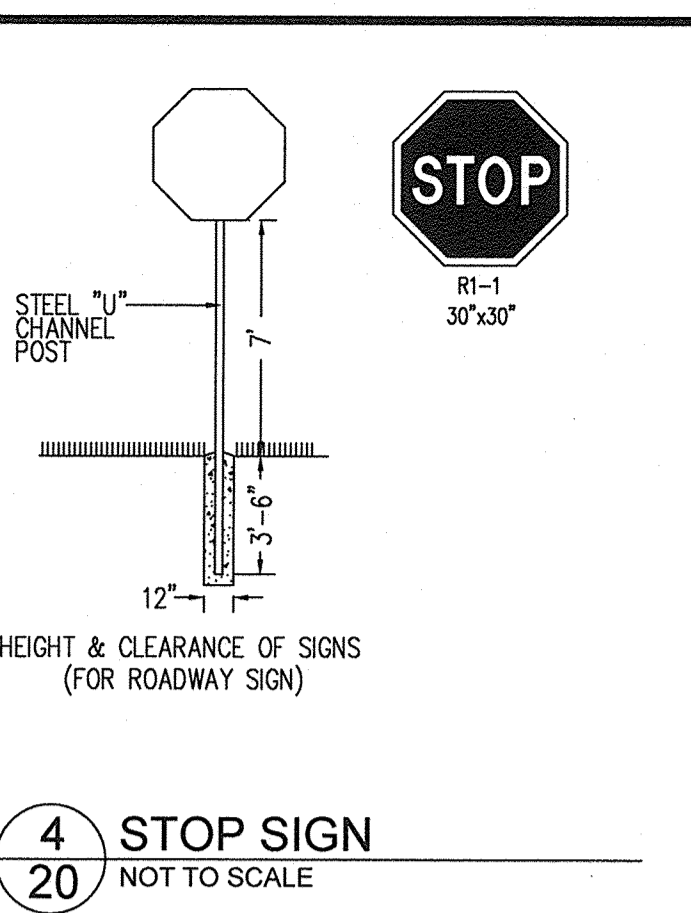
**2**  
**20** NOSE DOWN CURB  
HC DPW STD. R-3.02  
NOT TO SCALE



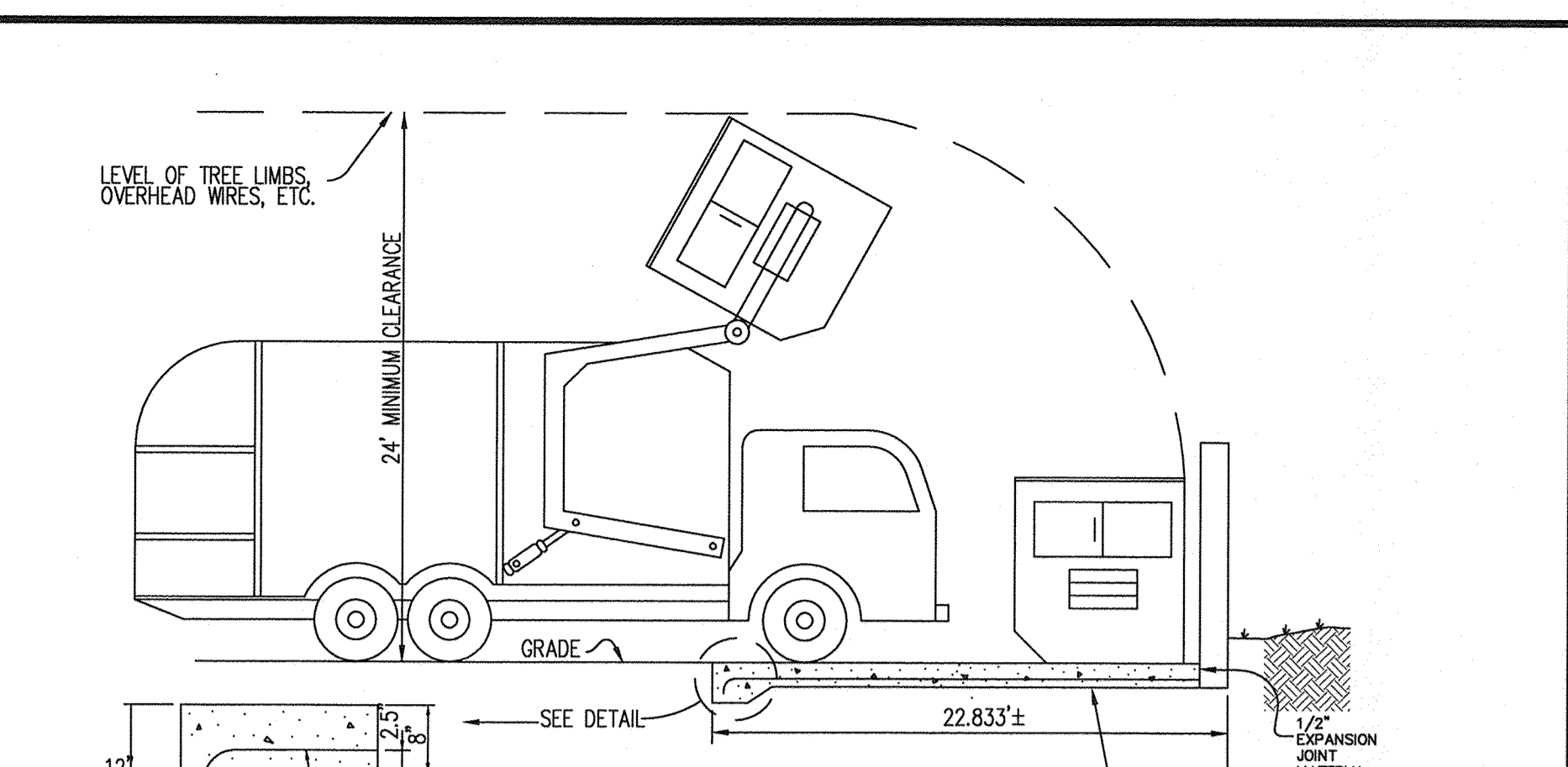
**3**  
**20** CONCRETE DUMPSTER PAD  
NOT TO SCALE

**NOTES:**

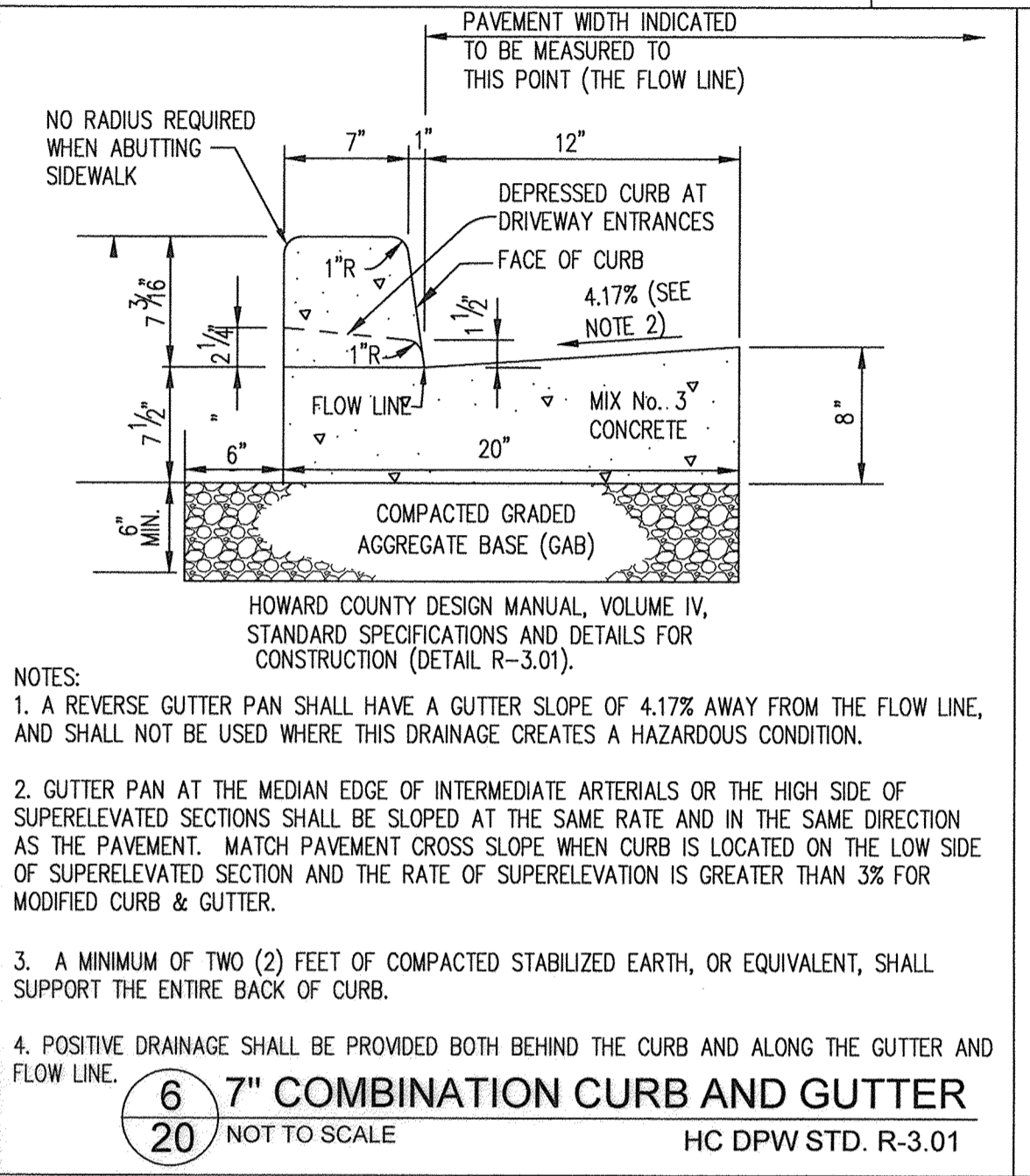
1. ALL FINISHED DRIVEWAY AND PARKING SUBGRADE SHOULD BE CONSTRUCTED AND COMPLY WITH "SITE PREPARATION" SPECIFICATION OF THE GEOTECHNICAL REPORT.
2. PRIOR TO PLACEMENT OF STONE BASE, THE ENTIRE SUBGRADE SHOULD BE PROOFROLLED WITH A 30-TON LOADED DUMP TRUCK. ANY SOFT AND UNSTABLE SUBGRADE SHOULD BE CORRECTED.
3. AFTER APPROVAL OF THE SUBGRADE, THE PAVEMENT SECTION SHALL BE CONSTRUCTED. THE PAVEMENT SECTION SHOULD FOLLOW THE SPECIFICATIONS IN THE GEOTECHNICAL REPORT.



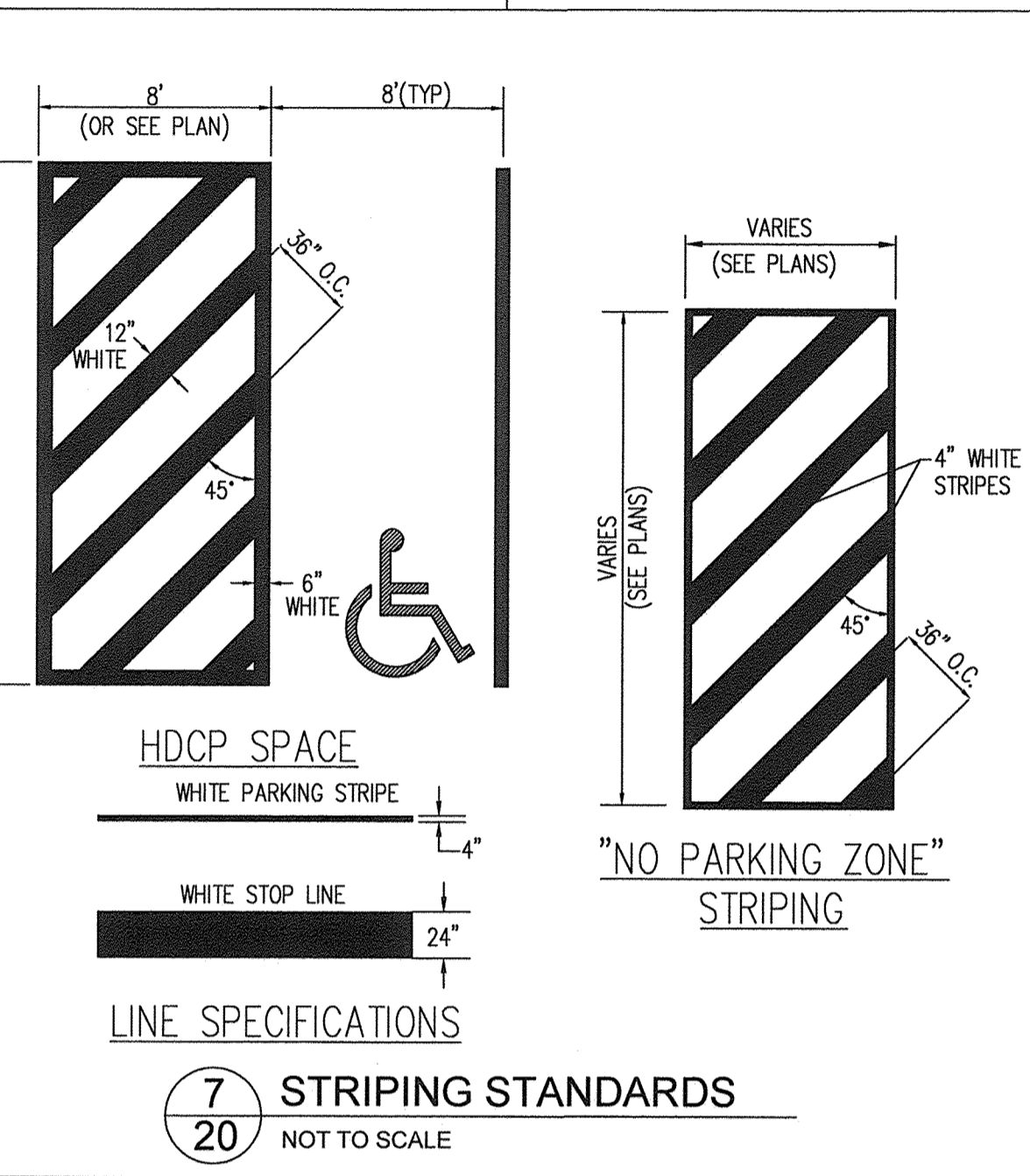
**4**  
**20** STOP SIGN  
NOT TO SCALE



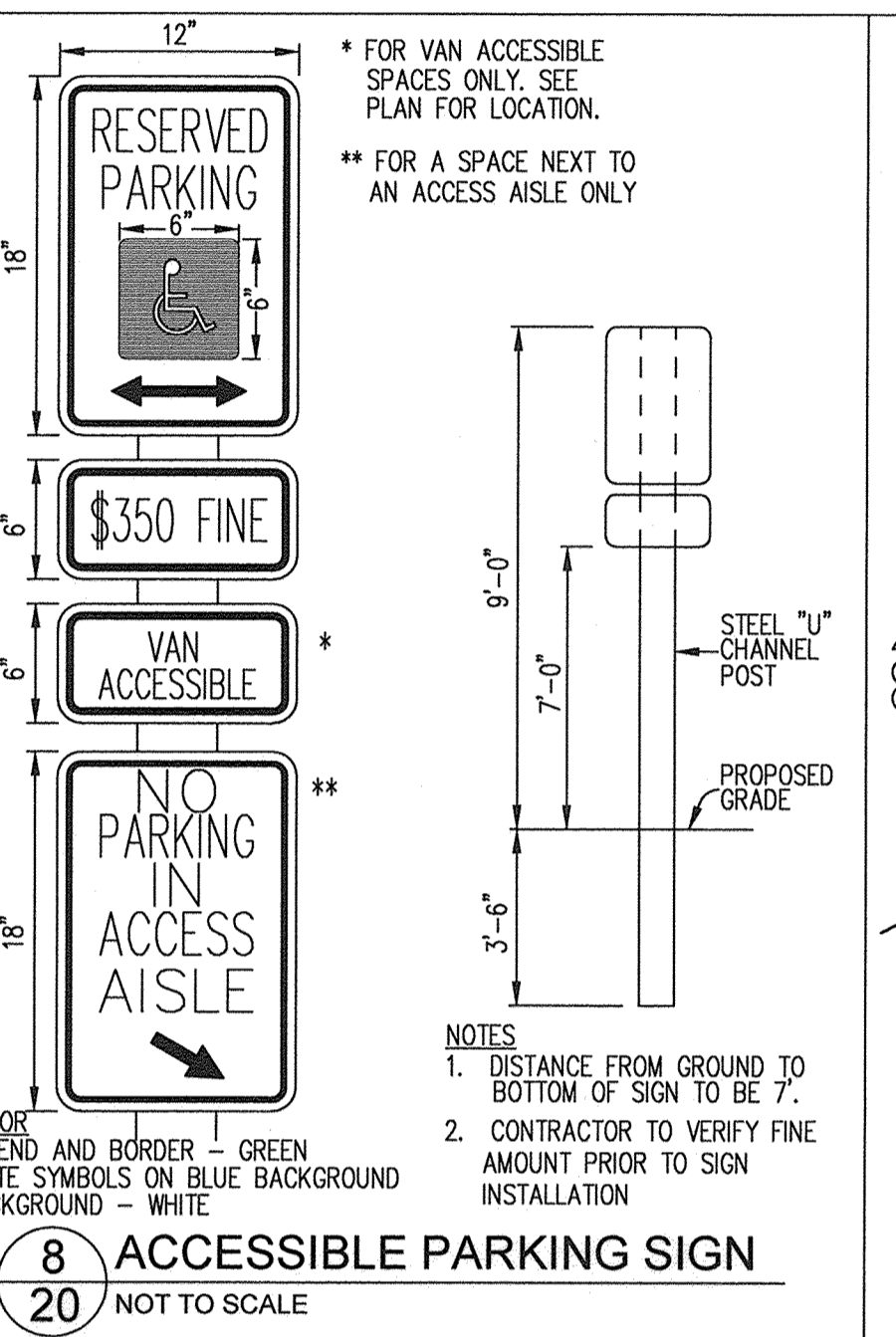
**5**  
**20** TYPICAL DUMPSTER PAD  
NOT TO SCALE



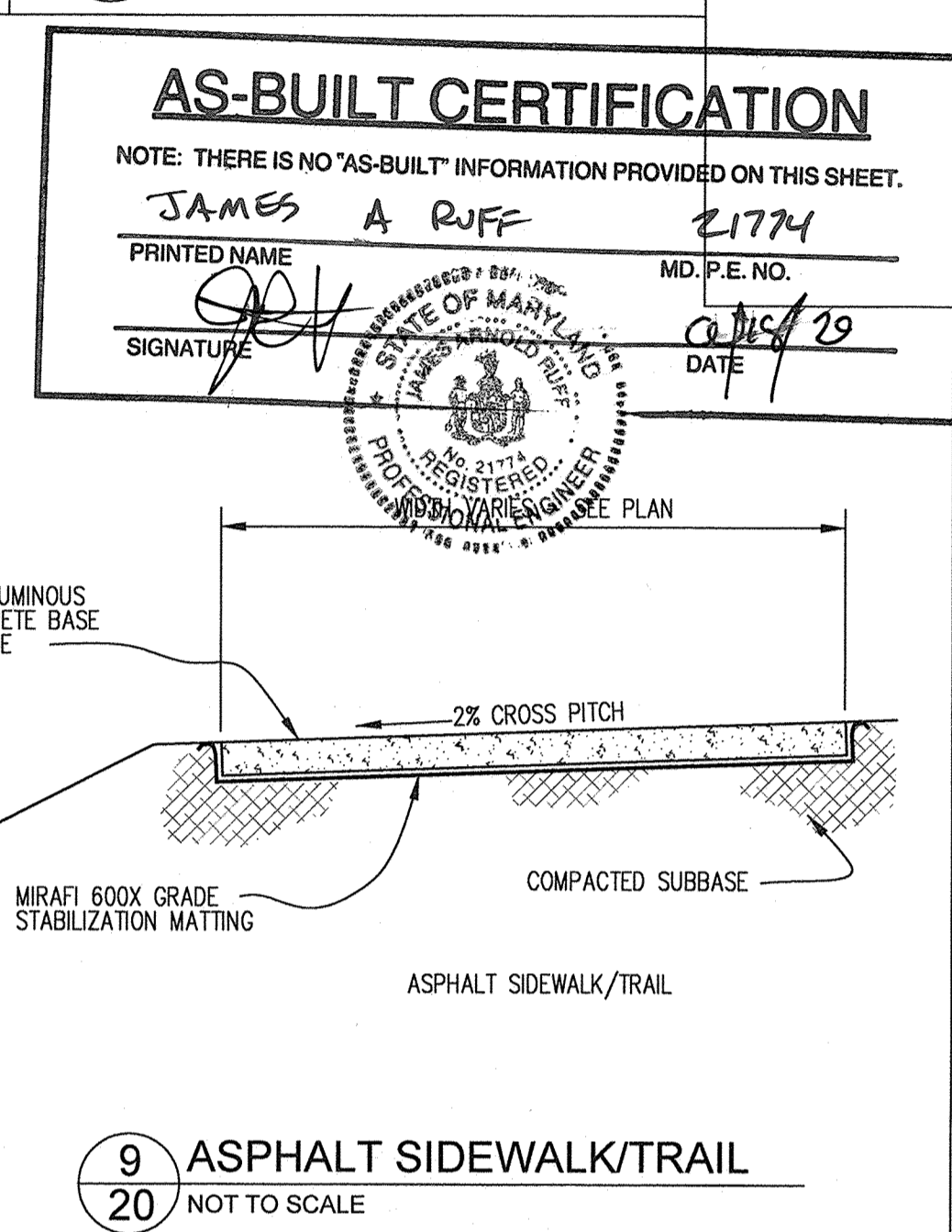
**6**  
**20** 7" COMBINATION CURB AND GUTTER  
HC DPW STD. R-3.01  
NOT TO SCALE



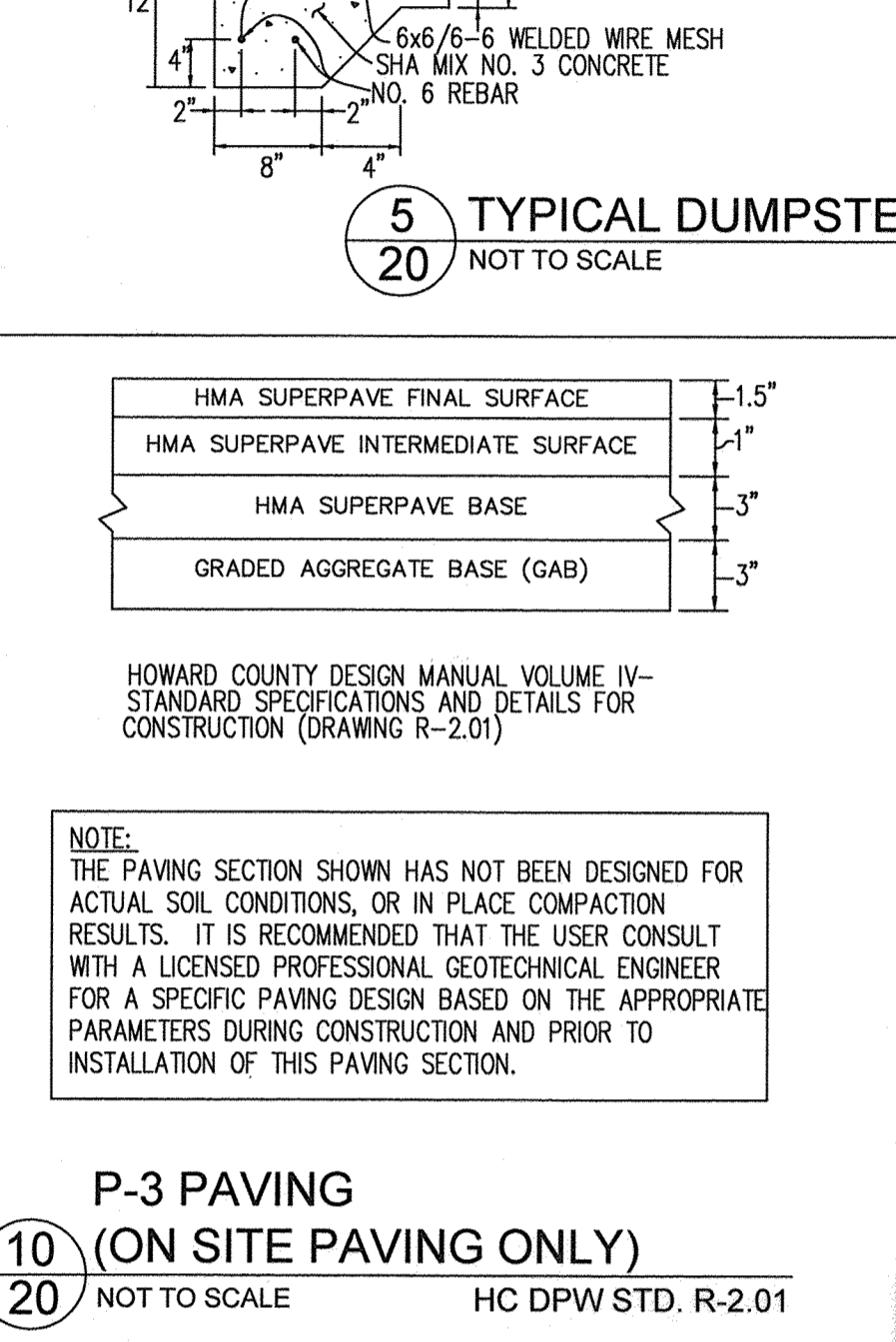
**7**  
**20** STRIPING STANDARDS  
NOT TO SCALE



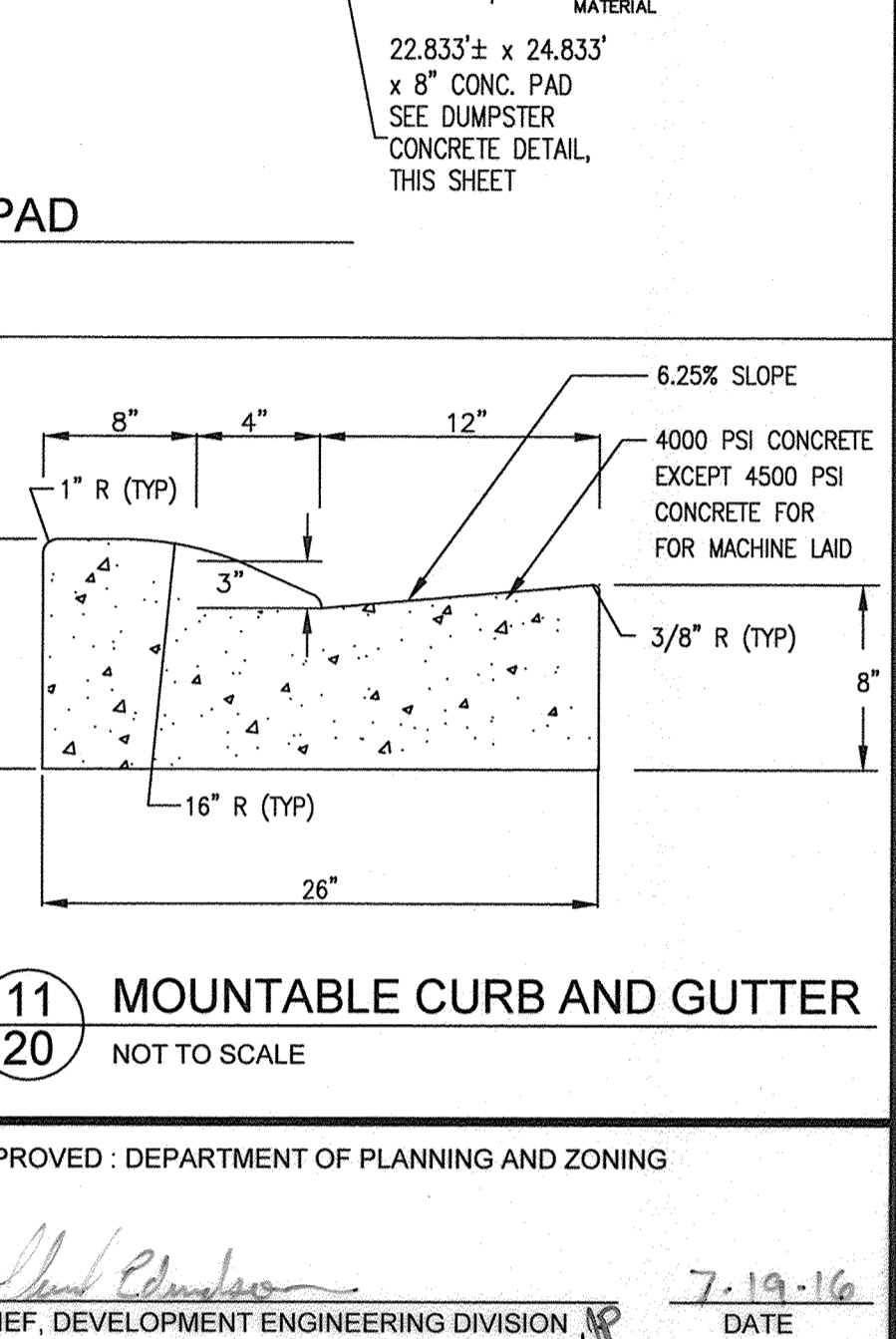
**8**  
**20** ACCESSIBLE PARKING SIGN  
NOT TO SCALE



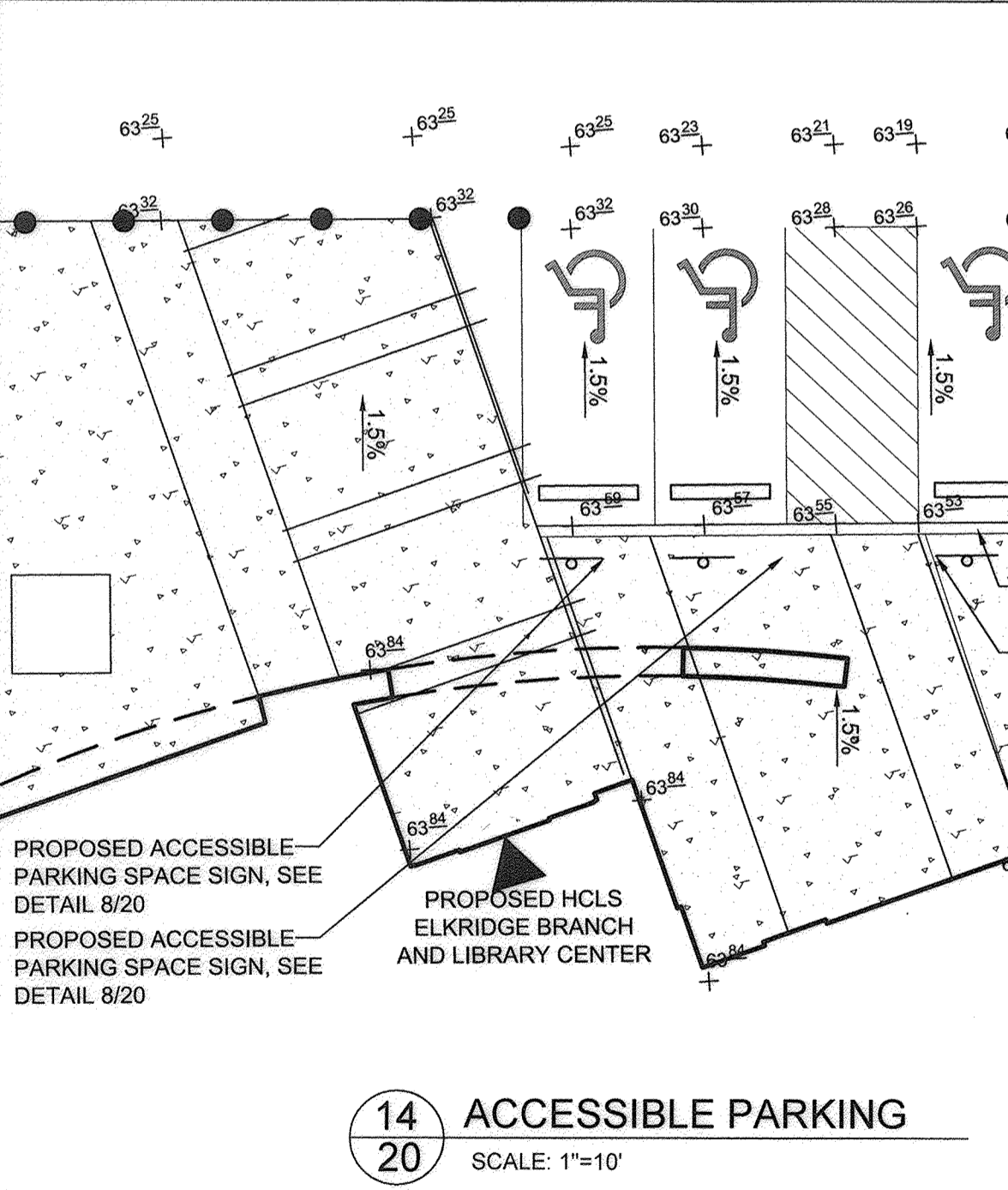
**9**  
**20** ASPHALT SIDEWALK/TRAIL  
NOT TO SCALE



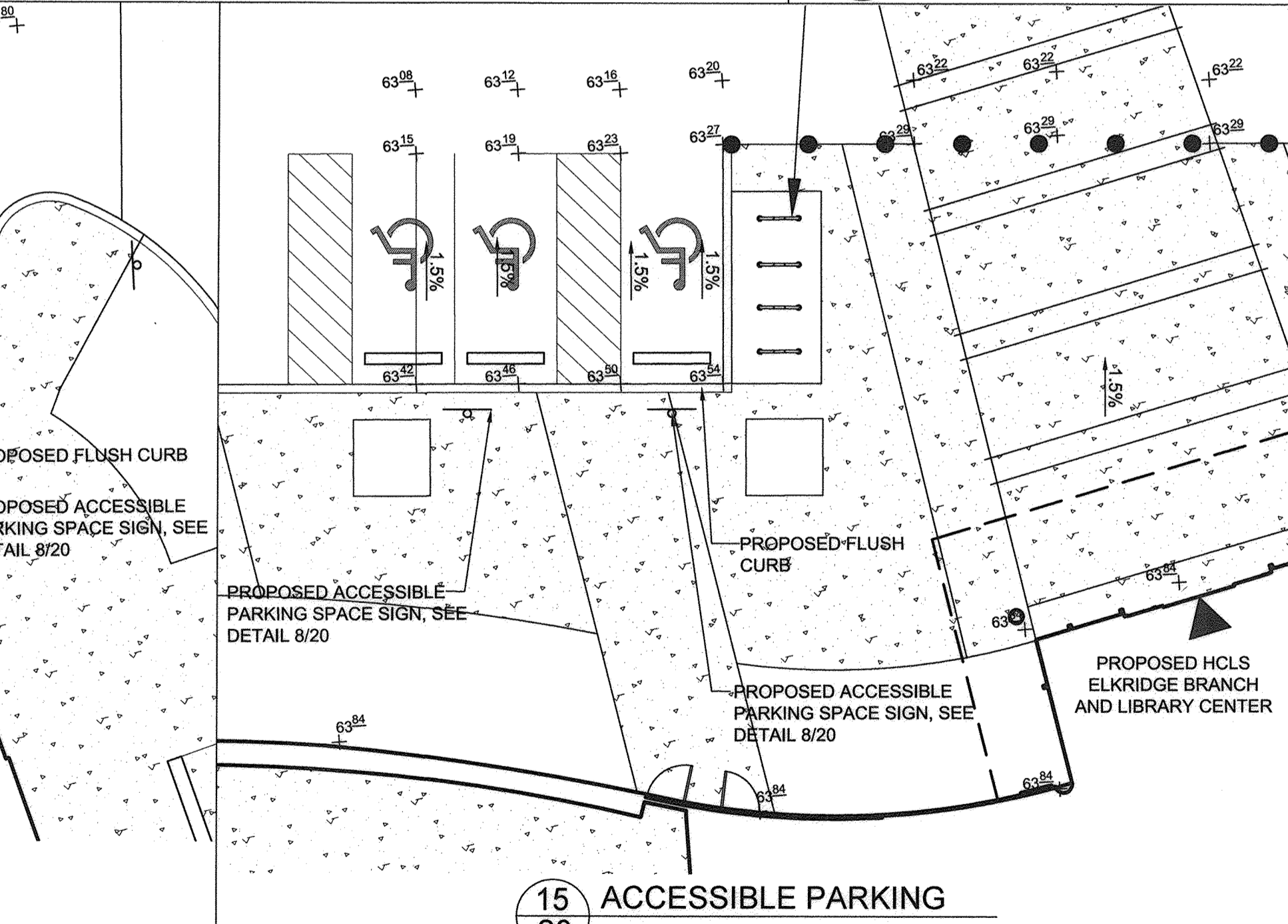
**10**  
**20** P-3 PAVING (ON SITE PAVING ONLY)  
HC DPW STD. R-2.01  
NOT TO SCALE



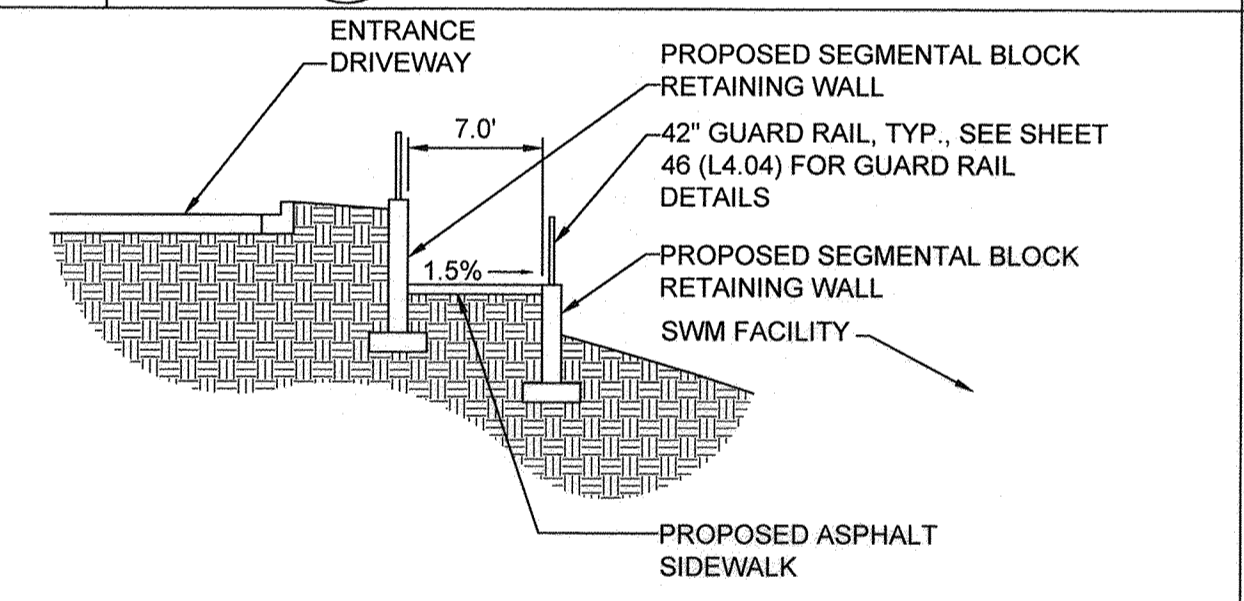
**11**  
**20** MOUNTABLE CURB AND GUTTER  
NOT TO SCALE



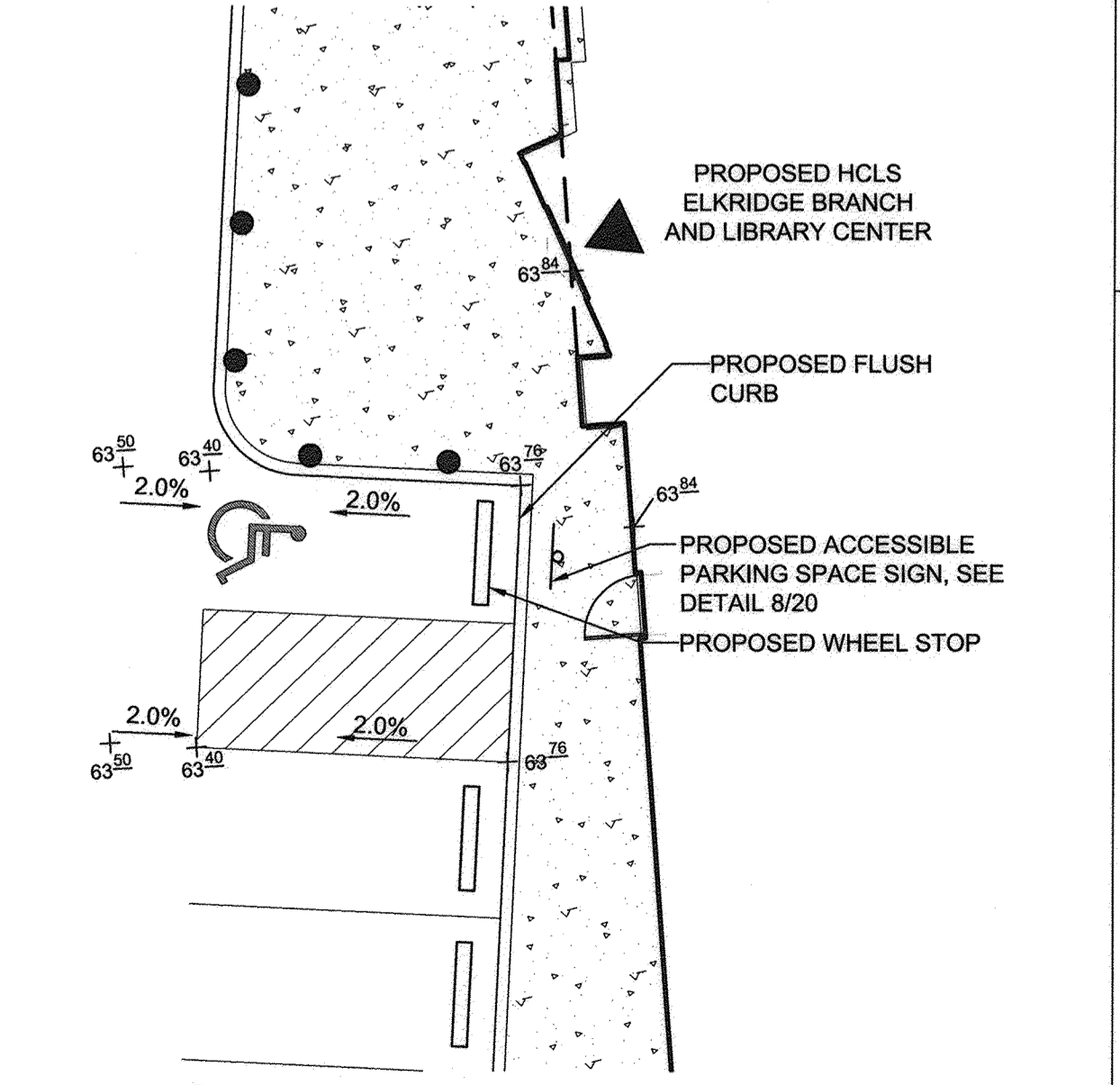
**14**  
**20** ACCESSIBLE PARKING  
SCALE: 1"=10'  
NOT TO SCALE



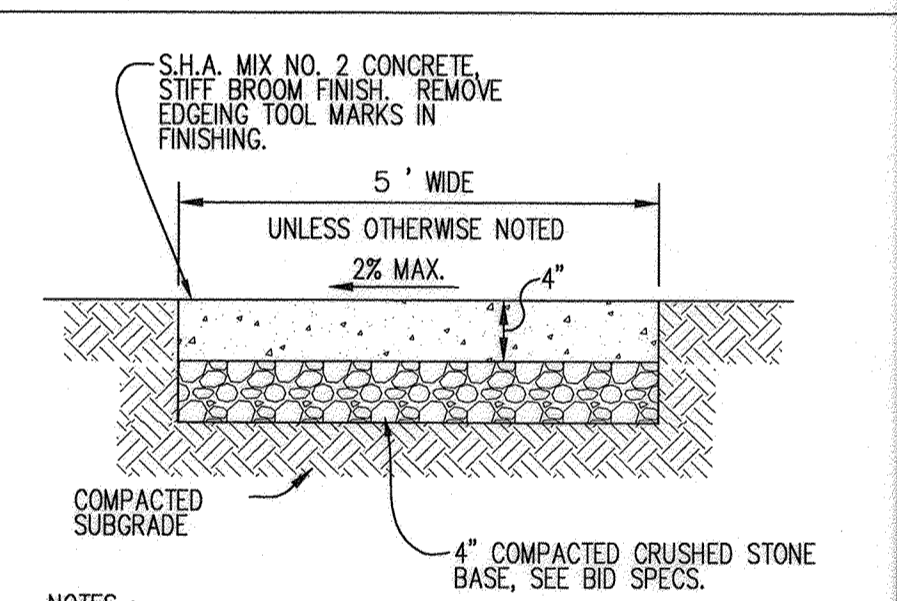
**15**  
**20** ACCESSIBLE PARKING  
SCALE: 1"=10'  
NOT TO SCALE



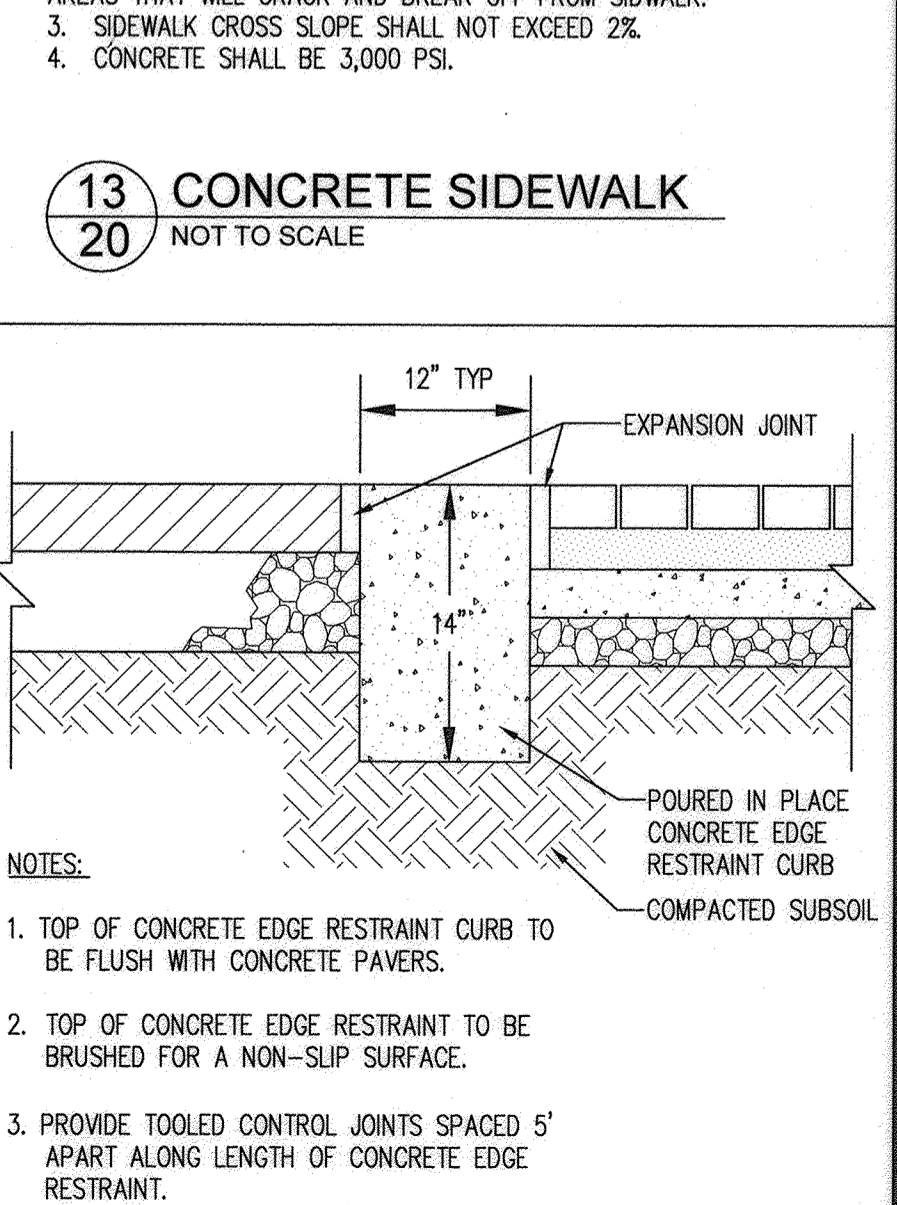
**12**  
**20** SIDEWALK WITH RETAINING WALLS - TYPICAL SECTION  
SCALE: 1"=10'  
NOT TO SCALE



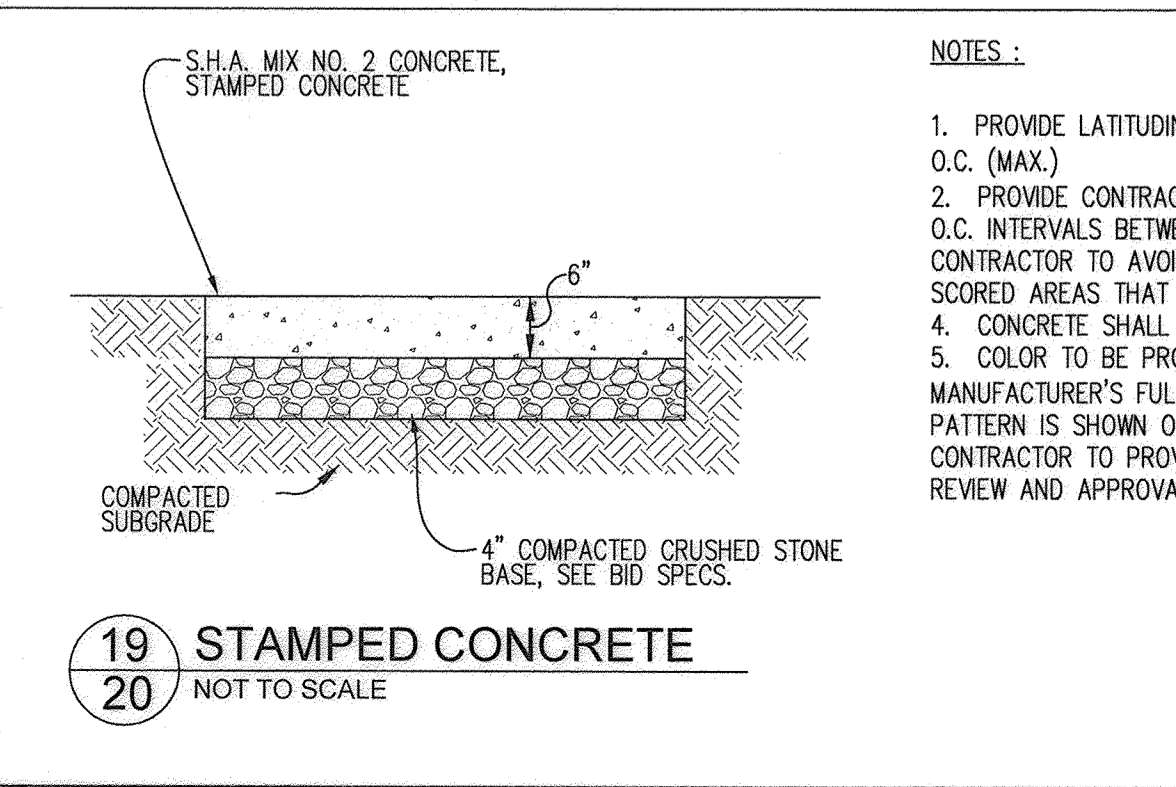
**18**  
**20** ACCESSIBLE PARKING  
SCALE: 1"=10'  
NOT TO SCALE



**13**  
**20** CONCRETE SIDEWALK  
NOT TO SCALE



**17**  
**20** CONCRETE EDGE RESTRAINT  
NOT TO SCALE



**19**  
**20** STAMPED CONCRETE  
NOT TO SCALE

**ACCESSIBILITY NOTES:**

1. ACCESSIBLE ROUTE SHALL BE PROVIDED BETWEEN HANDICAPPED PARKING OR PUBLIC RIGHT OF WAYS TO THE MAIN BUILDING ENTRANCE IN ACCORDANCE WITH CURRENT ADA AND LOCAL STANDARDS. ALL HANDICAPPED RAMPS SHALL BE CONSTRUCTED ACCORDING TO CURRENT ADA AND LOCAL STANDARDS. EXCEPT AS SUPERSEDED IN CURRENT ADA AND LOCAL STANDARDS THE FOLLOWING SHALL APPLY:
  - A) MAXIMUM SIDEWALK CROSS SLOPES SHALL BE 2%.
  - B) A MINIMUM 5' x 5' LANDING AREA WITH A MAXIMUM SLOPE IN ANY DIRECTION OF 2% SHALL BE PROVIDED AT ALL CHANGES IN DIRECTION, TOPS AND BOTTOMS OF RAMPS, AND BUILDING EGRESS POINTS.
  - C) ALL HANDICAPPED PARKING SHALL BE SLOPED NO GREATER THAN 2% IN ANY DIRECTION, INCLUDING A 5' WIDE AREA BEHIND THE PARKING SPACES.
  - D) AN ACCESS ROUTE FROM THE PARKING SPACE(S) TO THE MAIN BUILDING ENTRANCE SHALL BE PROVIDED. ALL SLOPES ALONG THE DIRECTION OF TRAVEL SHALL NOT EXCEED 1:20 UNLESS THEY FALL UNDER CONDITION B) ABOVE. SLOPES IN EXCESS OF 1:20 EXCEPT FOR CURB RAMPS, REQUIRE A HANDRAIL MEETING ADA REQUIREMENTS.

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: JAMES A RUFF 21774  
SIGNATURE: [Signature] DATE: 01/24/20

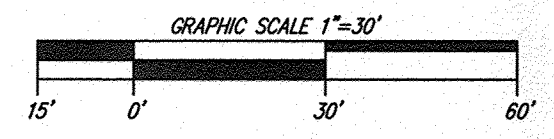
STATE OF MARYLAND PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING			
[Signature]		7-19-16	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION			
[Signature]		8-16-16	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT			
[Signature]		8-16-16	DATE
DIRECTOR			
DATE	NO.	REVISION	BY
		DEVELOPER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757
		OWNER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757
		PROJECT	GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER
		AREA	TAX MAP 38, PARCEL 'A' PLAT 2330 ZONED B-1 & R-12 GRID NO 7, 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND
		TITLE	SITE DETAILS
		Pennoni Associates Inc. Engineers - Surveyors - Planners Landscape Architects	
		8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
SEAL	DESIGNED BY: PJS/JSN		
DRAWN BY: PJS/JSN			DATE: JUNE 20, 2016
PROJECT NO: GRIM1402			SCALE: AS SHOWN
DRAWING NO. 20 OF 50			

**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING BUILDING	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	
PROPOSED 1' CONTOUR	
PROPOSED 5' CONTOUR	
PROP. CONCRETE SIDEWALK	
PROP. ASPHALT SIDEWALK	
ADA ACCESSIBLE ROUTE	

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO 'AS-BUILT' INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A RUFF** 2174  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE 02/18/20



APPROVED: DEPARTMENT OF PLANNING AND ZONING

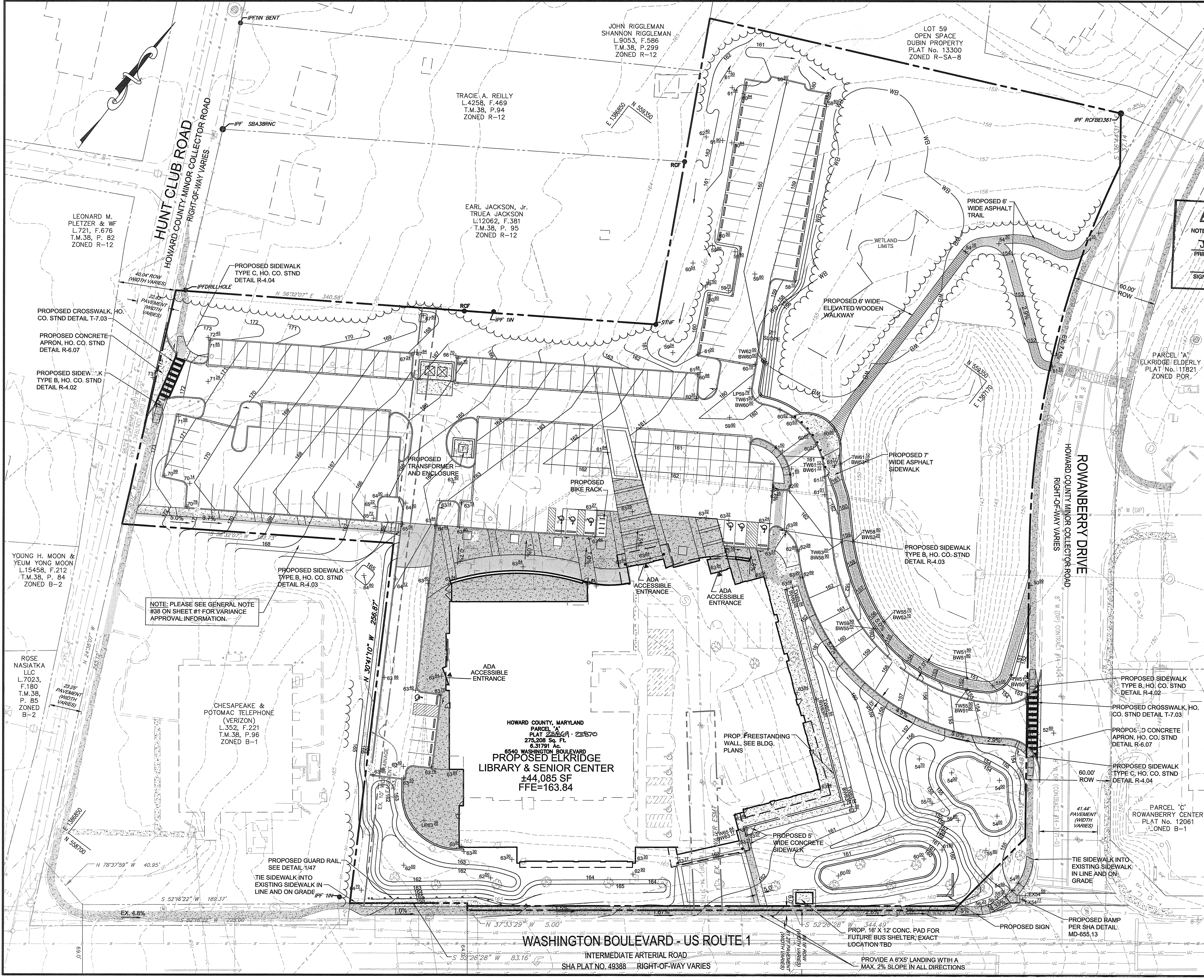
	7-19-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
	2-16-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
	8-15-16
DIRECTOR	DATE

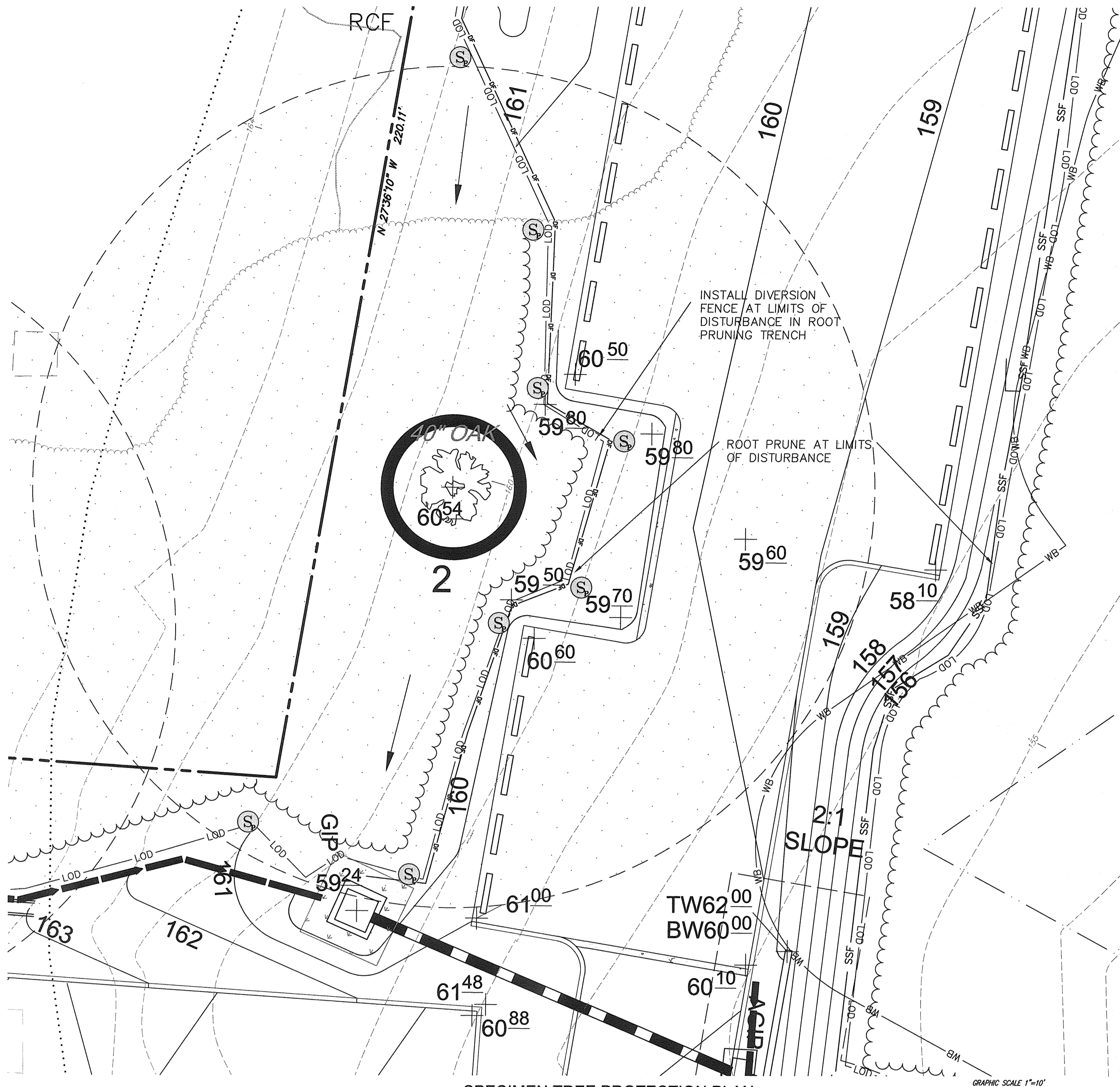
DATE	NO.	REVISION	BY

DEVELOPER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757
OWNER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757
PROJECT	GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER
AREA	TAX MAP 38, PARCEL 'A' PLAT 2352A ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND
TITLE	ADA/PEDESTRIAN ACCESS PLAN

Pennoni Associates Inc.  
**Pennoni** Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

	DESIGNED BY: PJS/JSN
	DRAWN BY: PJS/JSN
	PROJECT NO: GRIM1402
	DATE: JUNE 20, 2016
	SCALE: 1" = 30'
BY:	DATE: 6-29-16
DRAWING NO. 21 OF 50	

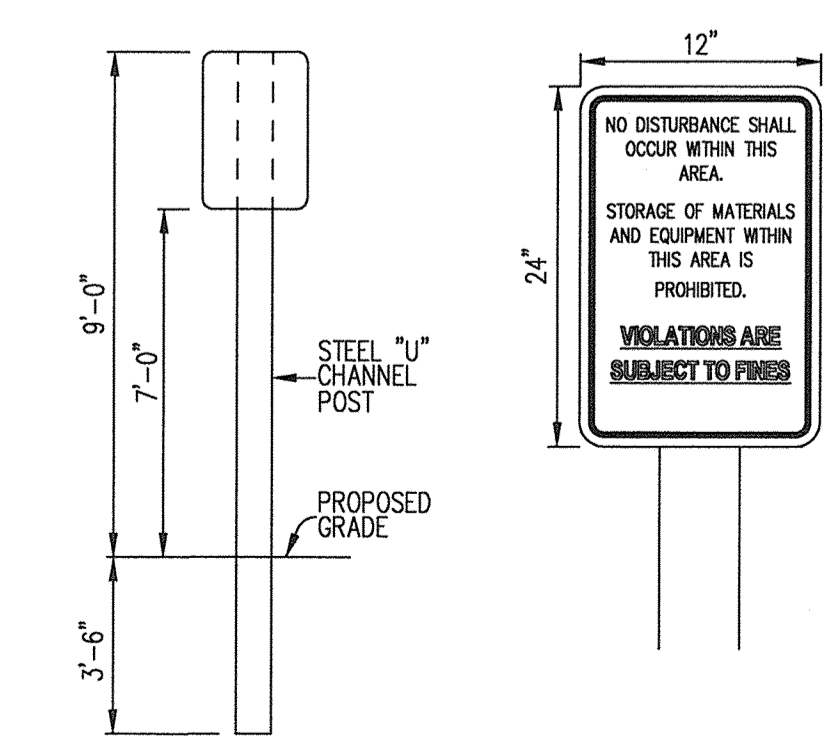




**SPECIMEN TREE PROTECTION PLAN**  
SCALE: 1"=10'

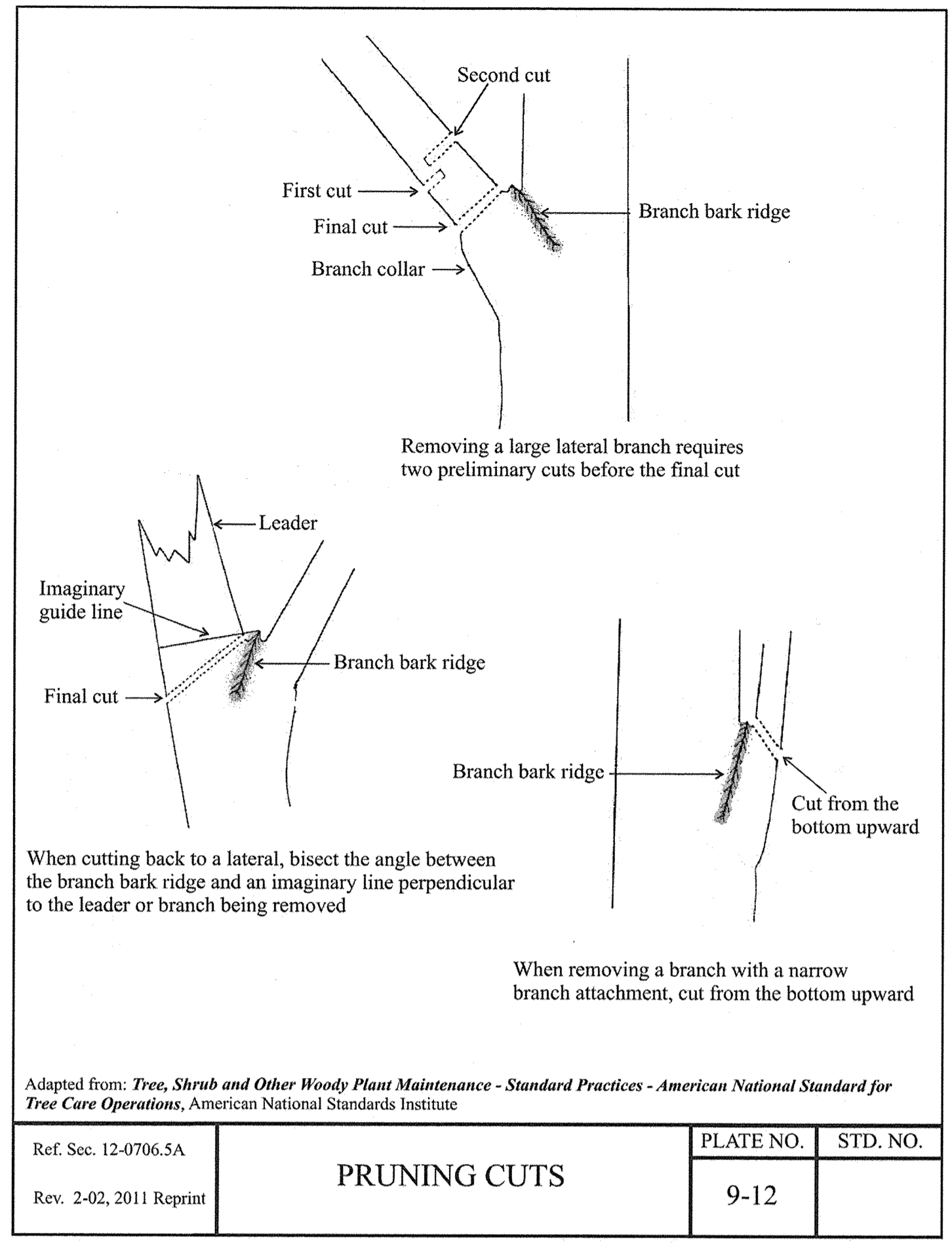
**SPECIMEN TREE PRESERVATION SEQUENCE OF CONSTRUCTION**

1. STAKEOUT LIMITS OF DISTURBANCE AROUND TREE EVERY 10'.
2. CONDUCT A PRECONSTRUCTION MEETING WITH CONTRACTOR, ARBORIST, LANDSCAPE ARCHITECT, AND OWNER. REVIEW LIMITS OF DISTURBANCE AND TREE PRESERVATION MEASURES.
3. CONDUCT TREE MAINTENANCE FOR SPECIMEN TREE AS OUTLINED IN ARBORIST'S REPORT.
4. ROOT PRUNE AT LIMITS OF DISTURBANCE AROUND SPECIMEN TREES 1 AND 2, AND ALONG WOODED EDGE.
5. INSTALL DIVERSION FENCE AND SUPER SILT AT THE ROOT PRUNE LINE AS SHOWN ON THE PLANS.
6. INSTALL TREE PROTECTION FENCE. WHERE SUPER SILT FENCE AND DIVERSION FENCE ARE ALREADY INSTALLED, TREE PROTECTION FENCE IS NOT REQUIRED.
7. POST TREE PROTECTION SIGNS AS NOTED ON THE PLANS.
8. ALL OTHER TREES WITHIN CRITICAL ROOT ZONE SHALL BE REMOVED BY CUTTING TREES FLUSH WITH GROUND USING HAND EQUIPMENT. NO STUMPS SHALL BE REMOVED.
9. INSTALL MULCH AS RECOMMENDED IN ARBORIST REPORT
10. DO NOT PERMIT ANY ACTIVITY WITHIN CRITICAL ROOT ZONE, INCLUDING REMOVAL OF TOPSOIL, STORAGE OF MATERIALS, PARKING OF EQUIPMENT, ETC.
11. ARBORIST SHALL MONITOR INSTALLATION OF ALL TREE PROTECTION MEASURES AND ALL TREE MAINTENANCE ACTIVITY. ARBORIST SHALL MONITOR SITE DURING CONSTRUCTION ON A MONTHLY BASIS AT A MINIMUM.
12. AT COMPLETION OF CONSTRUCTION ALL SILT FENCE AND PROTECTION MEASURES SHALL BE REMOVED. NO DISTURBANCE WITHIN THE CRITICAL ROOT ZONE IS PERMITTED DURING THIS ACTIVITY.

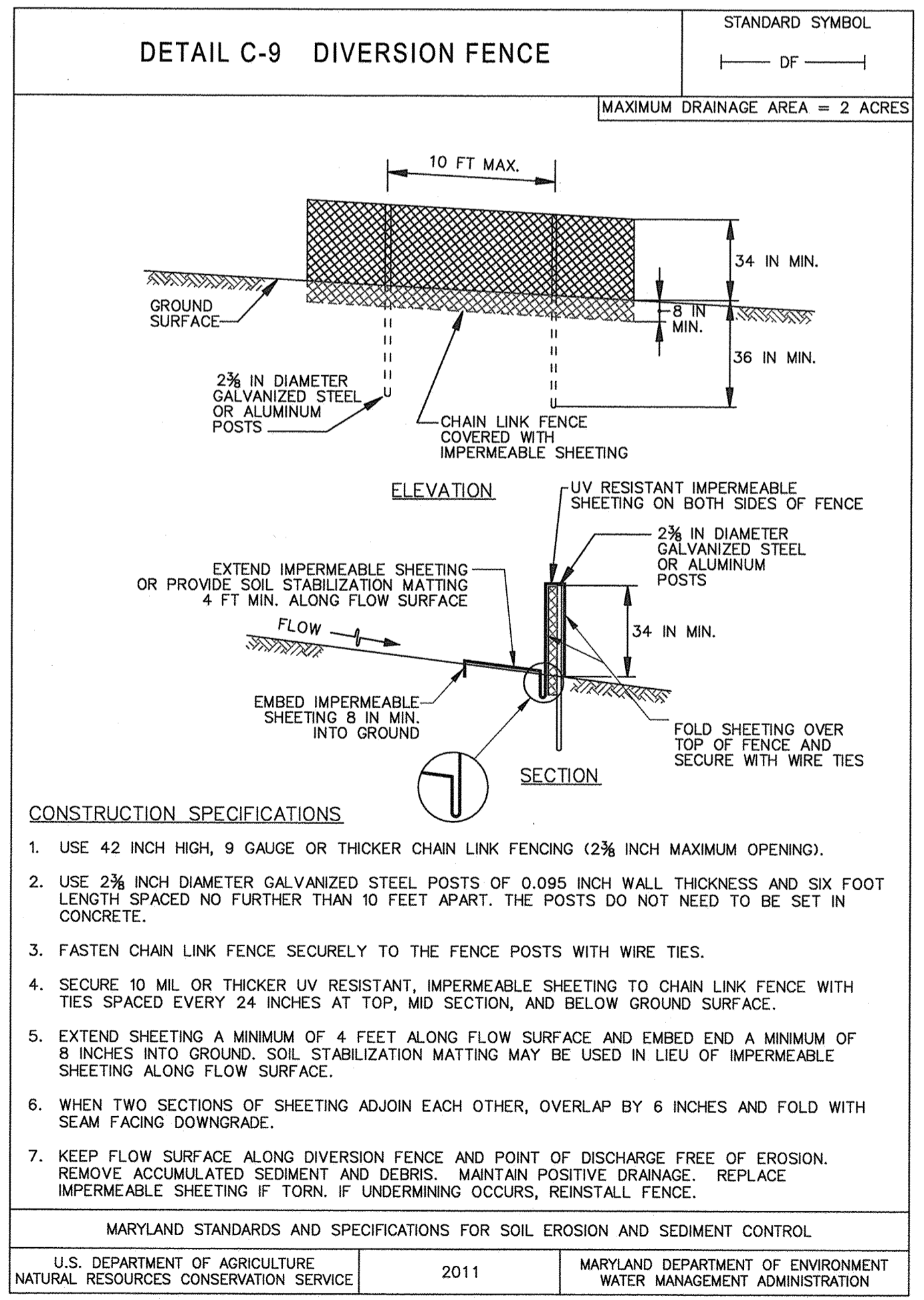


**1 SPECIMEN TREE PROTECTION SIGN**  
22 NOT TO SCALE

- NOTES**
1. DISTANCE FROM GROUND TO BOTTOM OF SIGN TO BE 7'.
  2. SIGNS TO BE PROVIDED IN ENGLISH AND SPANISH.
  3. CONTRACTOR TO PROVIDE A SIGN SAMPLE FOR APPROVAL PRIOR TO POSTING.
- LEGEND**
- EXISTING 1' CONTOUR
  - EXISTING 5' CONTOUR
  - EXISTING SOILS
  - PROPOSED 1' CONTOUR
  - PROPOSED 5' CONTOUR
  - PROPOSED SPOT ELEVATION
  - PROPOSED STORM DRAIN
  - PROPOSED TREE LINE
  - PROPOSED PERVIOUS PAVING
  - CRITICAL ROOT ZONE
  - SPECIMEN TREE PROTECTION SIGN
  - PROPOSED DIVERSION FENCE



Ref. Sec. 12-0706.5A	<b>PRUNING CUTS</b>	PLATE NO.	STD. NO.
Rev. 2-02, 2011 Reprint		9-12	



- CONSTRUCTION SPECIFICATIONS**
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2 3/8" INCH MAXIMUM OPENING).
  2. USE 2 3/8" INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
  3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
  4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
  5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
  6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
  7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN, IF UNDERMINING OCCURS, REINSTALL FENCE.

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

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: **JAMES A RUFF** 2/17/14  
SIGNATURE: [Signature] DATE: 6/29/16

**ENGINEER'S CERTIFICATE**

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

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE  
[Signature] 6-29-16

**DEVELOPER'S CERTIFICATE**

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE  
[Signature] 6-29-16

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION 7-19-16  
CHIEF, DIVISION OF LAND DEVELOPMENT 8-16-16  
DIRECTOR 8-16-16

DATE	NO.	REVISION	BY

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

PROJECT: GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 226 TO ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

**TREE PROTECTION PLAN**

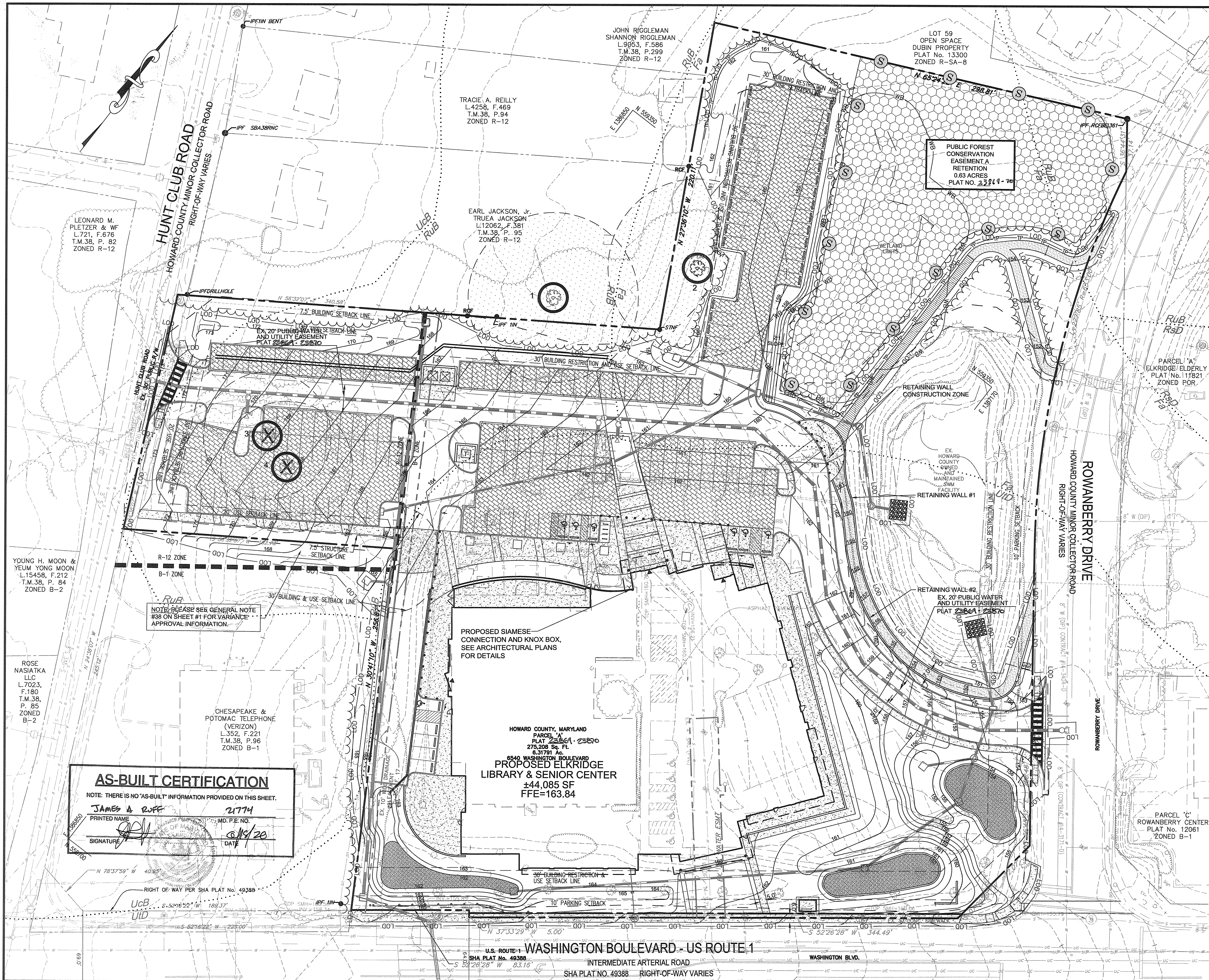
Pennoni Associates Inc.  
Engineers • Surveyors • Planners  
Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

6-29-2016

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: 1" = 10'  
DRAWING NO. 22 OF 50

PETER J. STONE #3068



### LEGEND

- PROPERTY LINE AND RIGHT-OF-WAY: Solid line with dashes
- EXISTING BUILDING: Solid black outline
- EXISTING 1' CONTOUR: Dashed line with '154'
- EXISTING 5' CONTOUR: Dashed line with '155'
- EXISTING TREE LINE: Dotted line with 'RUB'
- EXISTING SOILS: Stippled pattern
- EXISTING WETLANDS: Wavy line pattern
- EXISTING WETLAND BUFFER: Wavy line with 'WB'
- EXISTING ZONING LINE: Thick dashed line
- EXISTING WATER: Solid line with 'W'
- EXISTING SEWER: Solid line with 'S'
- EXISTING COMMUNICATIONS: Solid line with 'C'
- EXISTING ELECTRICAL: Solid line with 'E'
- EXISTING GAS: Solid line with 'G'
- EXISTING STORM DRAIN: Solid line with 'SD'
- PROPOSED 1' CONTOUR: Dashed line with '164'
- PROPOSED 5' CONTOUR: Dashed line with '165'
- PROPOSED PERVIOUS PAVING: Stippled pattern
- PROPOSED MICRO-BIORETENTION FACILITY: Oval pattern
- PROPOSED STORM DRAIN: Solid line with 'SD'
- PROP. FOREST CONSERVATION EASEMENT: Stippled pattern
- PROPOSED TREE LINE: Dotted line with 'RUB'
- CRITICAL ROOT ZONE: Circle with 'S'
- FOREST CONSERVATION SIGN: Circle with 'S'
- TREE PROTECTION FENCING: Line with 'TP'

GRAPHIC SCALE 1"=30'

15' 0' 30' 60'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

7-19-16 DATE

7-16-16 DATE

6-16-16 DATE

DATE	NO.	REVISION	BY

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757

PROJECT: GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA: TAX MAP 38, PARCEL 'A' PLAT 2361 ZONED B-1 & R-12 GRID NO. 7, 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION PLAN

Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects

8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282

6-29-2016

DESIGNED BY: PJS/JSN

DRAWN BY: PJS/JSN

PROJECT NO: GRIM1402

DATE: JUNE 20, 2016

SCALE: 1" = 30'

DRAWING NO. 23 OF 50

PETER J. STONE #3088

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

JAMES A. ROFF 21774

PRINTED NAME MD. P.E. NO.

SIGNATURE DATE 6/15/20

HOWARD COUNTY, MARYLAND

PARCEL PLAT 2361-2350

275,208 Sq. Ft.

6.31791 Ac.

6540 WASHINGTON BOULEVARD

**PROPOSED ELKRIDGE LIBRARY & SENIOR CENTER**

±44,085 SF

FFE=163.84

YOUNG H. MOON & YEUM YONG MOON L.15458, F.212 T.M.38, P. 84 ZONED B-2

LEONARD M. PLETZER & WF L.721, F.676 T.M.38, P. 82 ZONED R-12

TRACIE A. REILLY L.4258, F.469 T.M.38, P.94 ZONED R-12

EARL JACKSON, JR. TRUEA JACKSON L.12062, F.381 T.M.38, P. 95 ZONED R-12

LOT 59 OPEN SPACE DUBIN PROPERTY PLAT No. 13300 ZONED R-SA-8

PUBLIC FOREST CONSERVATION EASEMENT A RETENTION 0.63 ACRES PLAT NO. 2361-70

PARCEL 'A' ELKRIDGE/ ELDERLY PLAT No. 11821 ZONED POR

PARCEL 'C' ROWANBERRY CENTER PLAT No. 12061 ZONED B-1

RIGHT OF WAY PER SHA PLAT No. 49388

UcB UID

N 78°37'59" W 40.95'

S 52°16'22" W 189.37'

S 52°26'28" W 344.49'

N 37°33'29" W 5.00'

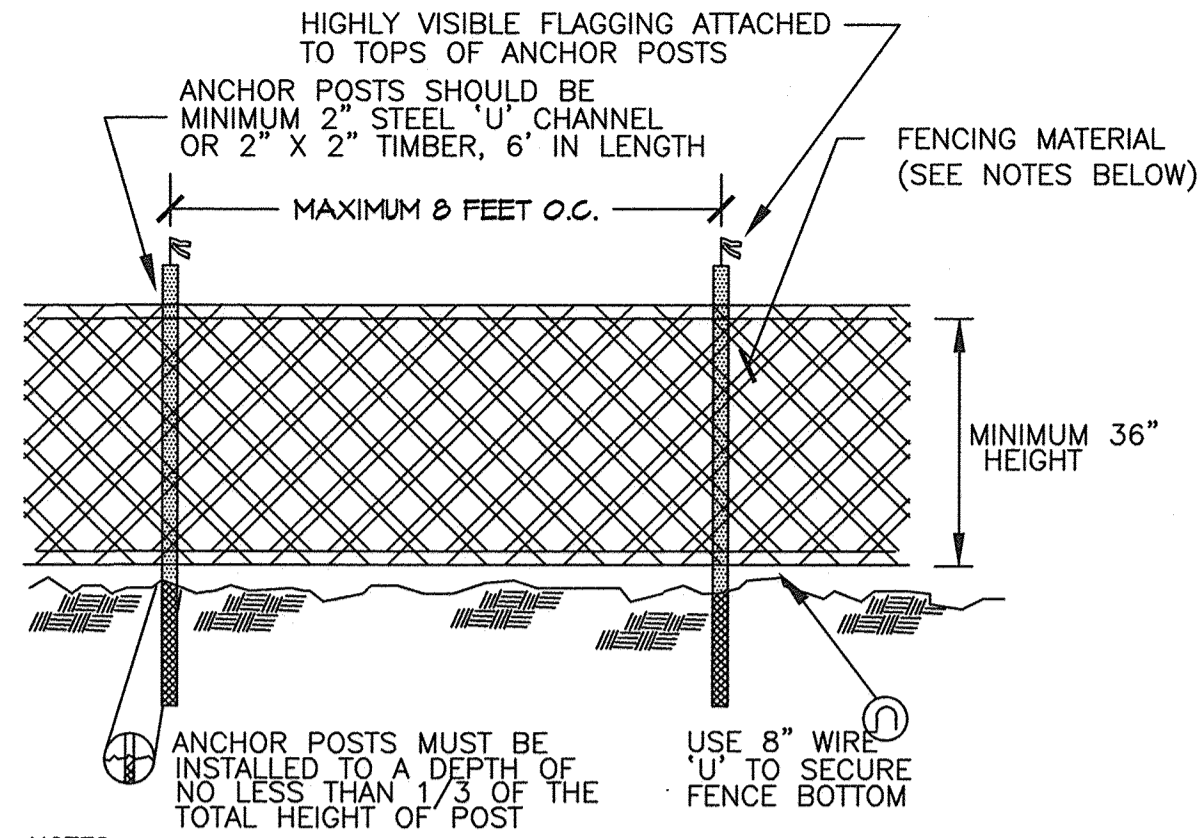
S 37°26'28" W 83.16'

U.S. ROUTE 1 WASHINGTON BOULEVARD - US ROUTE 1 INTERMEDIATE ARTERIAL ROAD SHA PLAT No. 49388 RIGHT-OF-WAY VARIES

**FOREST CONSERVATION PLAN GENERAL NOTES:**

1. THE EXISTING TOPOGRAPHY IS PROVIDED BY PENNONI ASSOCIATES, INC., DATED JUNE 25, 2015, VIRGINIA RESOURCE MAPPING DATED JULY 5, 2014, AND HAS BEEN SUPPLEMENTED BY HOWARD COUNTY GIS INFORMATION.
2. NO CRITICAL HABITATS OF RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
3. NO TREES, SHRUBS, OR PLANTS IDENTIFIED AS RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
4. THERE ARE NO KNOWN CEMETERIES OR BURIAL PLOTS LOCATED ON THE SITE, ACCORDING TO THE HOWARD COUNTY CEMETERIES INVENTORY.
5. THERE IS ONE EXISTING BUILDING PRESENT ON THE SITE.
6. THE FOLLOWING SOILS ARE PRESENT ON THE SITE: FALLSINGTON SANDY LOAM (0-2% SLOPES)-FA, RUSSETT AND BELTSVILLE SOILS (2-5% SLOPES)-RUB, URBAN LAND-CHILLUM-BELTSVILLE COMPLEX (0-5% SLOPES)-UCB, AND URBAN LAND-UDORTHERTS COMPLEX (0-15% SLOPES)-UTB, ACCORDING TO THE NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY.
7. A FOREST STAND DELINEATION FOR THIS PROPERTY WAS COMPLETED BY PENNONI ASSOCIATES, INC. DATED SEPTEMBER 3, 2015.
8. THE HOWARD COUNTY FOREST CONSERVATION MANUAL SUPERCEDES ANY DISCREPANCIES BETWEEN THE MANUAL AND THESE PLANS.
9. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION.
10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY 0.63ACRES OF ON-SITE RETENTION AND A PAYMENT OF A FEE-IN-LIEU OF \$24,503 FOR 0.75 ACRES OF FOREST.
11. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

FOREST CONSERVATION EASEMENT TABLE			
CONSERVATION TYPE	AREA	ACRES	SF
ON-SITE RETENTION	PROPOSED EASEMENT A	0.63	27,423
TOTAL RETENTION		0.63	27,423



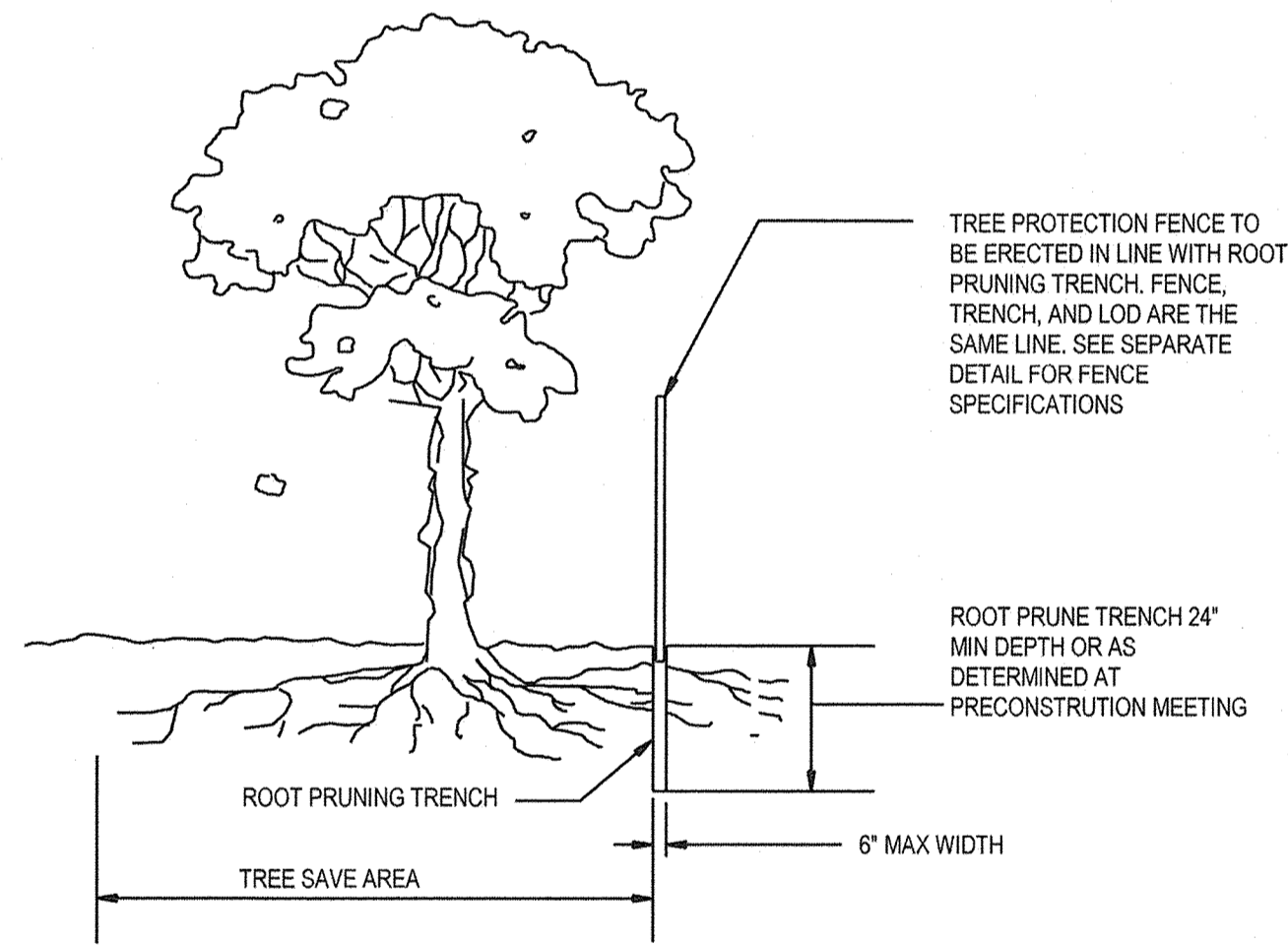
- NOTES:**
1. BLAZE ORANGE MESH OR SUPER SILT FENCE FOR TREE PROTECTION DEVICE, ONLY.
  2. BOUNDARIES OF PROTECTION AREA WILL BE ESTABLISHED PRIOR TO GRADING AND SEDIMENT CONTROL.
  3. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
  4. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

**TREE PROTECTION FENCING**  
NOT TO SCALE

**Howard County Forest Conservation Worksheet**

Project Name: **HCLS ELKCRIDGE BRANCH AND 50+ CENTER**  
County File #: \_\_\_\_\_  
Date: **March 14, 2016**

	Acres
<b>Net Tract Area</b>	
A. Total Tract Area	A = 6.98
B. Existing Impervious Area	B = 2.45
C. Net Tract Area - Net Tract Area = (A-B-C)	C = 4.51
<b>Land Use Category:</b> Institutional Development Area	
D. Afforestation Threshold (Net Tract Area X 15%)	D = 0.68
E. Conservation Threshold (Net Tract Area X 20%)	E = 0.90
<b>Existing Forest Cover</b>	
F. Existing Forest Cover within the Net Tract Area	F = 1.71
G. Area of Forest Above Conservation Threshold	G = 0.81
If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0	
<b>Break Even Point</b>	
H. Break Even (Amount of forest that must be retained so that no mitigation is required)	H = 1.06
(1) If the area of forest above the Conservation Threshold (G) is greater than zero, then H = (0.2 X the area of forest above Conservation Threshold (G)) + the Conservation Threshold (E)	
(2) If the area of forest above the Conservation Threshold (G) is equal to zero, then H = Existing Forest Cover (F)	
I. Forest Clearing Permitted Without Mitigation	I = 0.65
I = Existing Forest Cover (F) - Break Even Point (H)	
<b>Proposed Forest Clearing</b>	
J. Total Area of Forest to be Cleared	J = 1.08
K. Total Area of Forest to be Retained	K = 0.63
K = Existing Forest Cover (F) - forest to be cleared (J)	
<b>Planting Requirements</b>	
If the Total Area of Forest to be Cleared (J) is at or above the Break Even Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0);	
If not, calculate the planting requirement below:	
L. Reforestation for Clearing Above the Conservation Threshold	L = 0.20
(1) if the total area of forest to be retained (K) is greater than the Conservation Threshold (E), then L = the area of forest to be cleared (J) X 0.25; or	
(2) if the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then L = area of forest above Conservation Threshold (G) X 0.25	
M. Reforestation for Clearing Below the Conservation Threshold	M = 0.54
(1) if Existing Forest Cover (F) is greater than Conservation Threshold (E) and the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then M = 2.0 X (the Conservation Threshold (E) - the forest to be retained (K))	
(2) if Existing Forest (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 X Forest to be cleared (J).	
N. Credit for Retention Above the Conservation Threshold	N = 0.00
If the area of forest to be retained (K) is greater than the Conservation Threshold (E), then N = K - E	
P. Total Reforestation Required P = L + M - N	P = 0.75
Q. Total Afforestation Required	Q = 0.00
(1) if Existing Forest Cover (F) is less than the Afforestation Threshold (D) then Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)	
R. Total Planting Requirement R = P + Q	R = 0.75

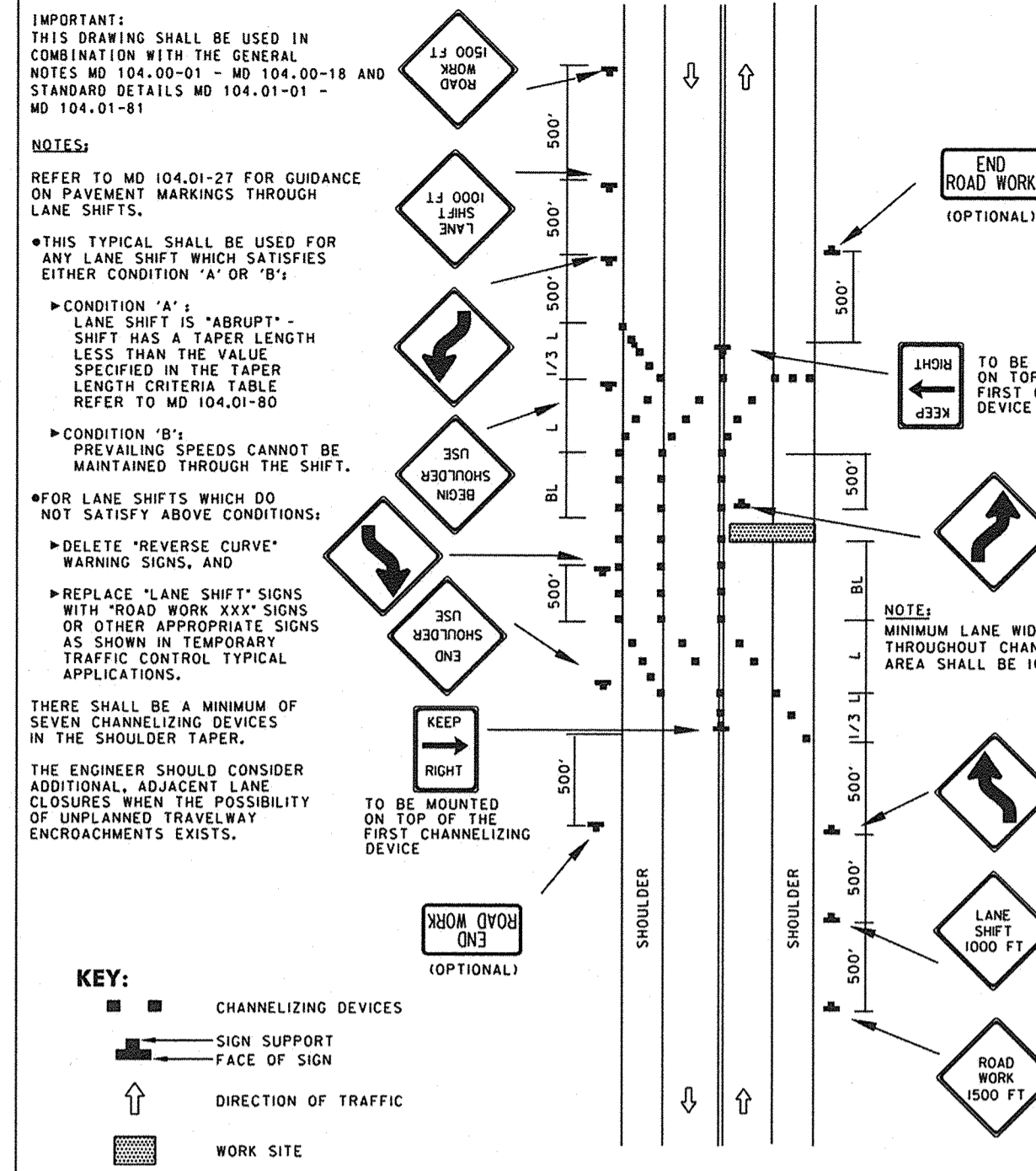


- NOTES:**
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRECONSTRUCTION MEETING.
  2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRECONSTRUCTION MEETING AND FLAGGED PRIOR TO TRENCHING.
  3. EXACT LOCATION OF TRENCH SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FOREST CONSERVATION (FC) INSPECTOR.
  4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FC INSPECTOR.
  5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.
  6. ALL PRUNING MUST BE EXECUTED WITH LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FC INSPECTOR.

**ROOT PRUNING DETAIL**

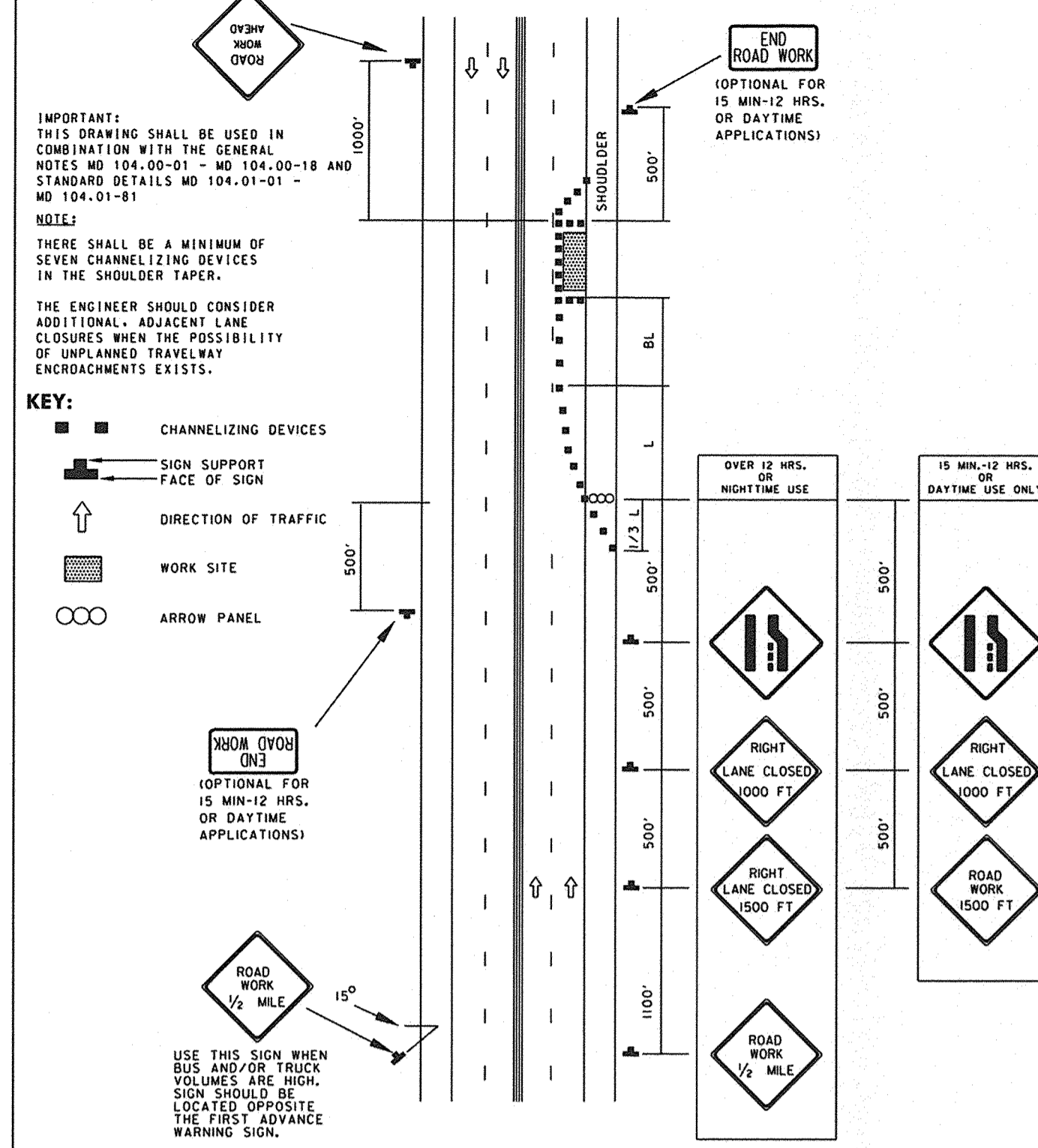
NTS

**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**



**Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**LANE SHIFT RIGHT OR LEFT SIDE/2-LANE, 2-WAY EQL/LESS THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY**  
STANDARD NO. **MD 104.02-04**

**TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION**



**Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**RIGHT LANE CLOSURE/UNDIV. EQL/LESS THAN 40 MPH**  
STANDARD NO. **MD 104.03-06**

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A. RUFF** 21774  
PRINTED NAME MD. P.E. NO.  
SIGNATURE DATE 6/19/20



APPROVED: DEPARTMENT OF PLANNING AND ZONING

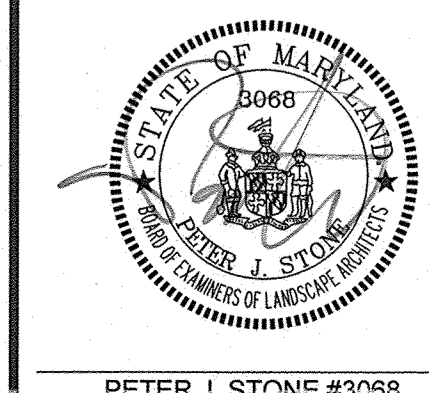
*Phil Clark* 7-19-16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*Kurt Salas* 3-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*Nadine J. J. J.* 2-16-16  
DIRECTOR DATE

DEVELOPER	OWNER	PROJECT	AREA
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	GREEN BUILDING <b>HCLS ELKCRIDGE BRANCH AND 50+ CENTER</b>	TAX MAP 38, PARCEL 'A' PLAT 2250 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKCRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

**TITLE FOREST CONSERVATION NOTES AND DETAILS/TRAFFIC CONTROL DETAILS**

Pennoni Associates Inc.  
Engineers • Surveyors • Planners  
Landscape Architects  
8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

6-29-2016  
DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO. 24 OF 50





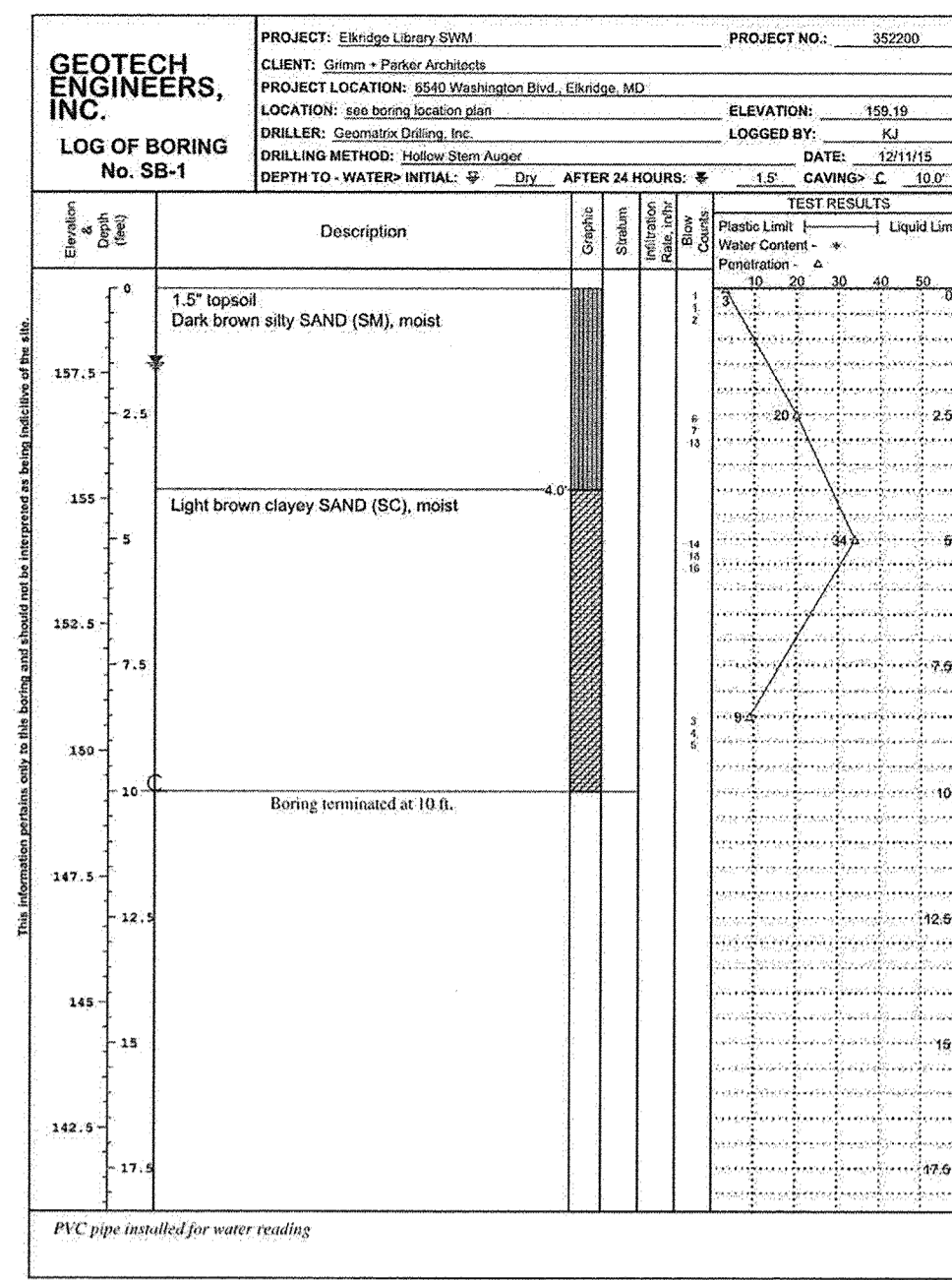


Figure PAGE 1 of 1

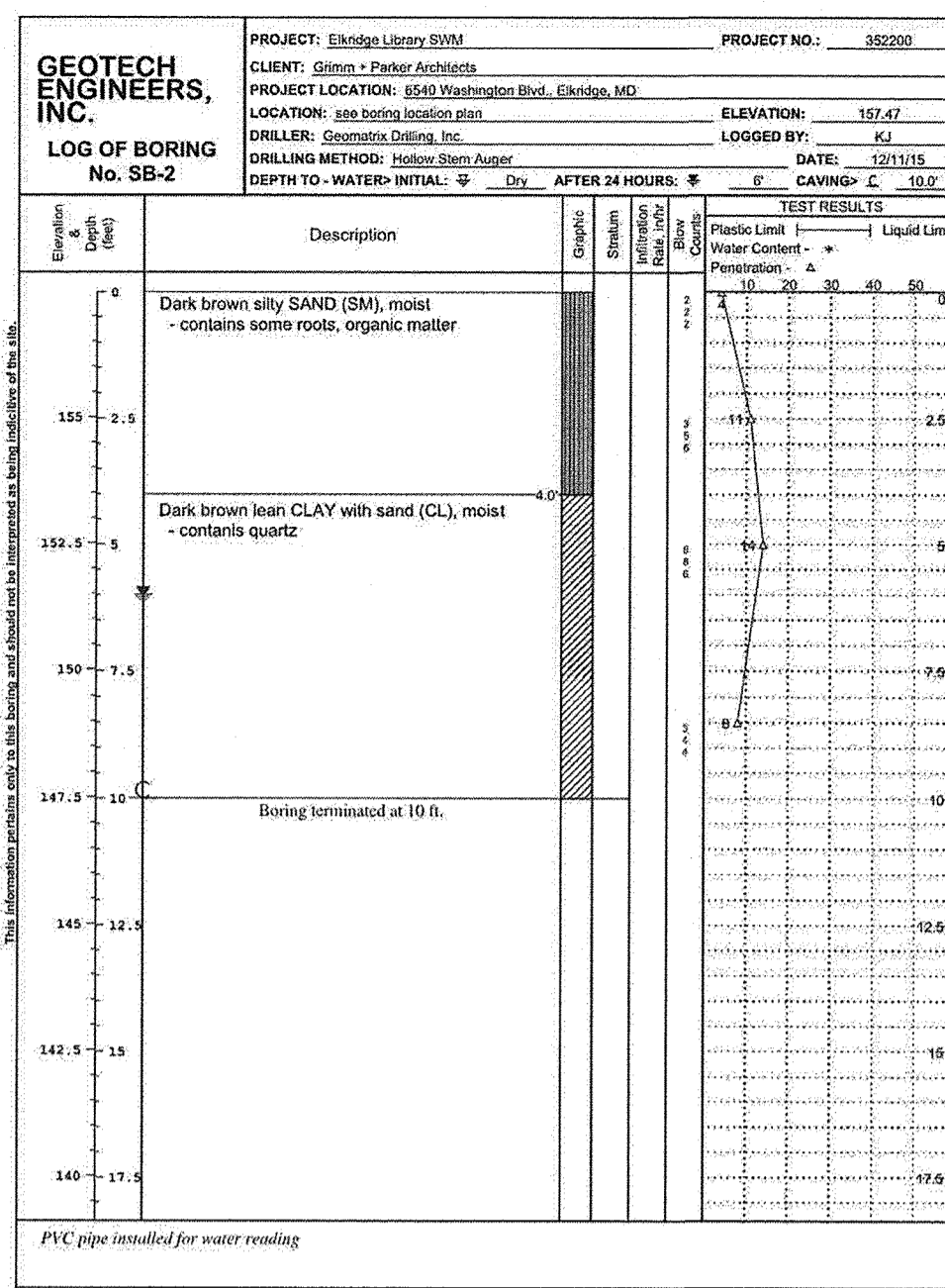


Figure PAGE 1 of 1

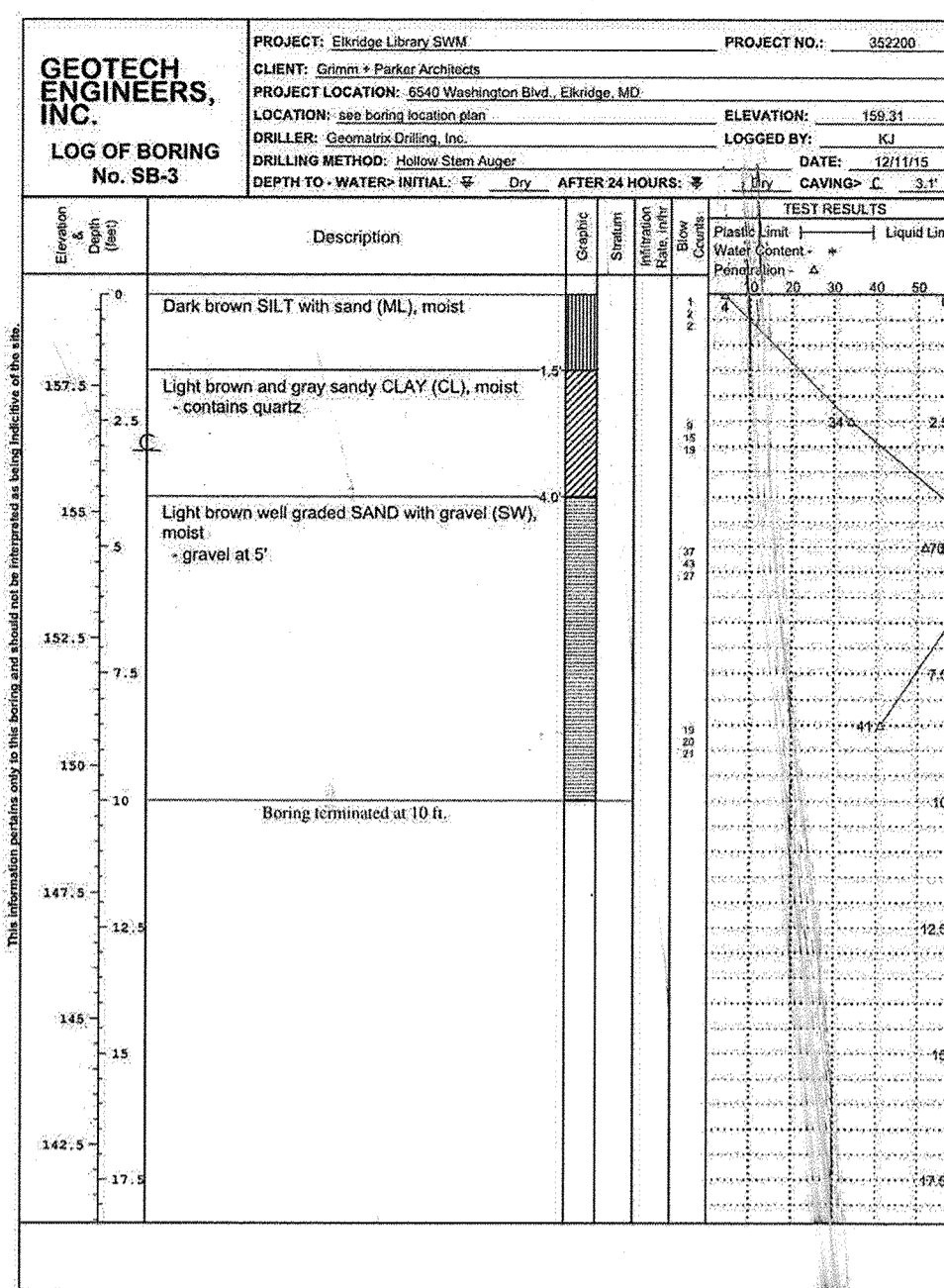


Figure PAGE 1 of 1

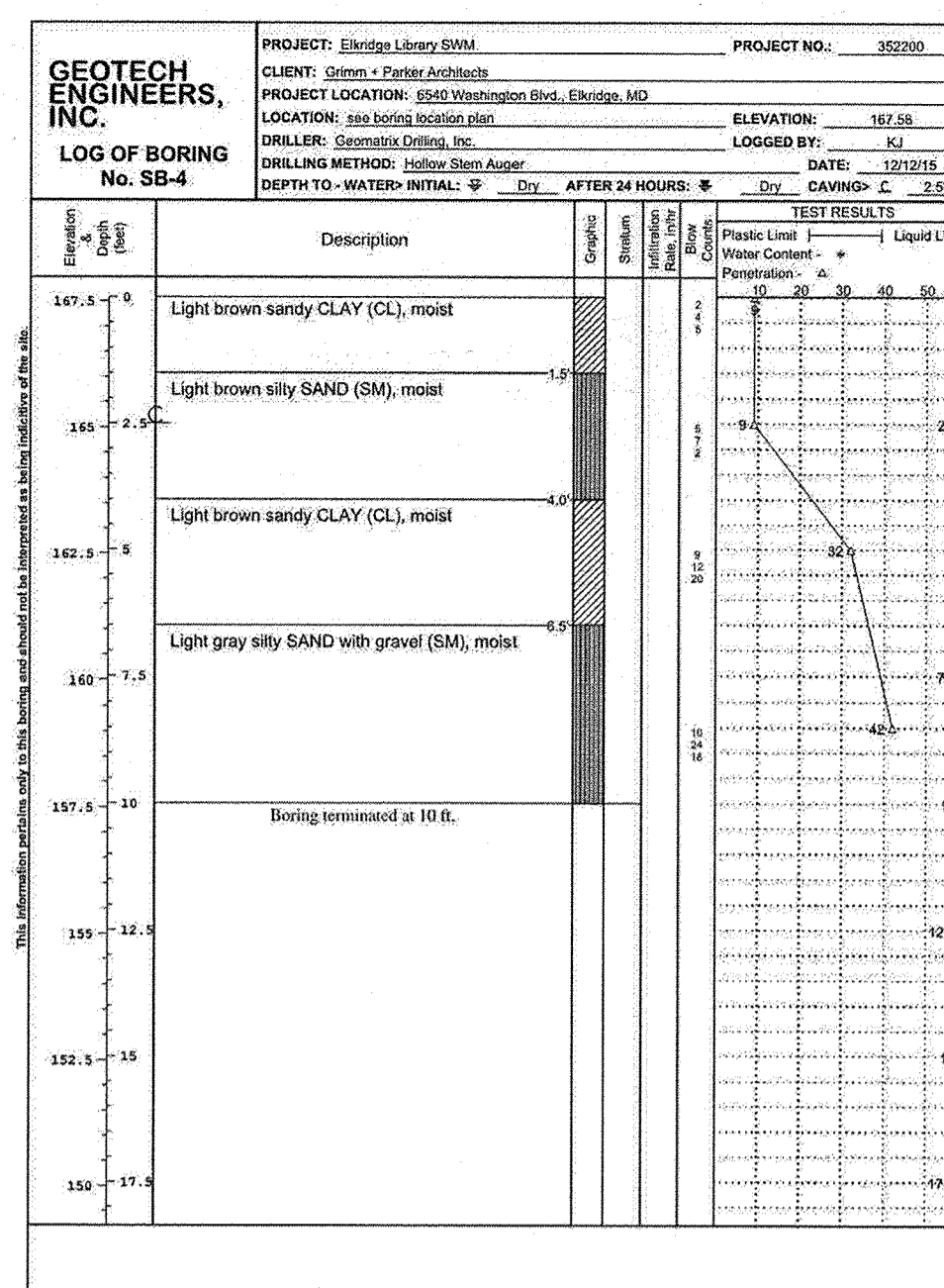


Figure PAGE 1 of 1

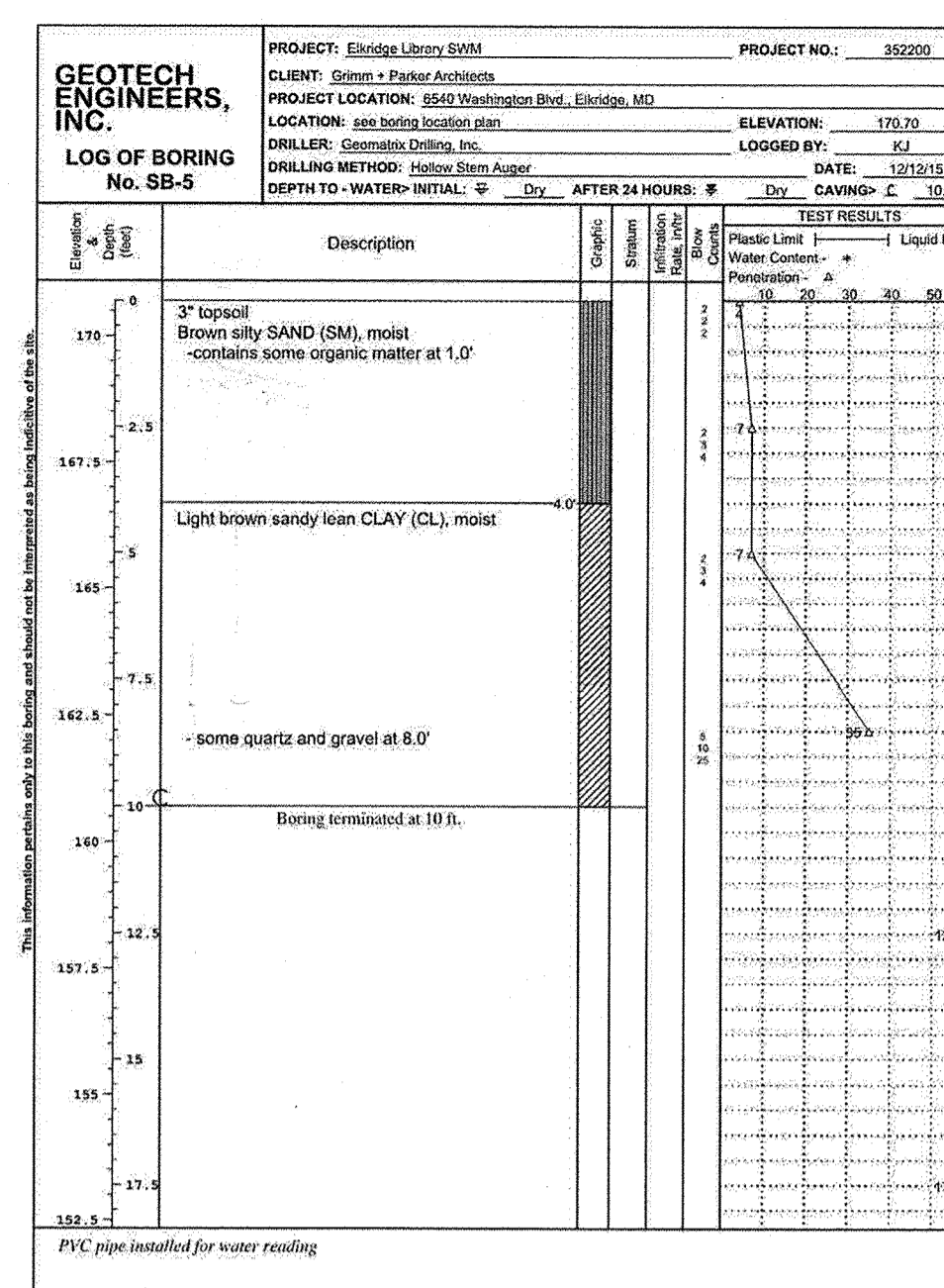


Figure PAGE 1 of 1

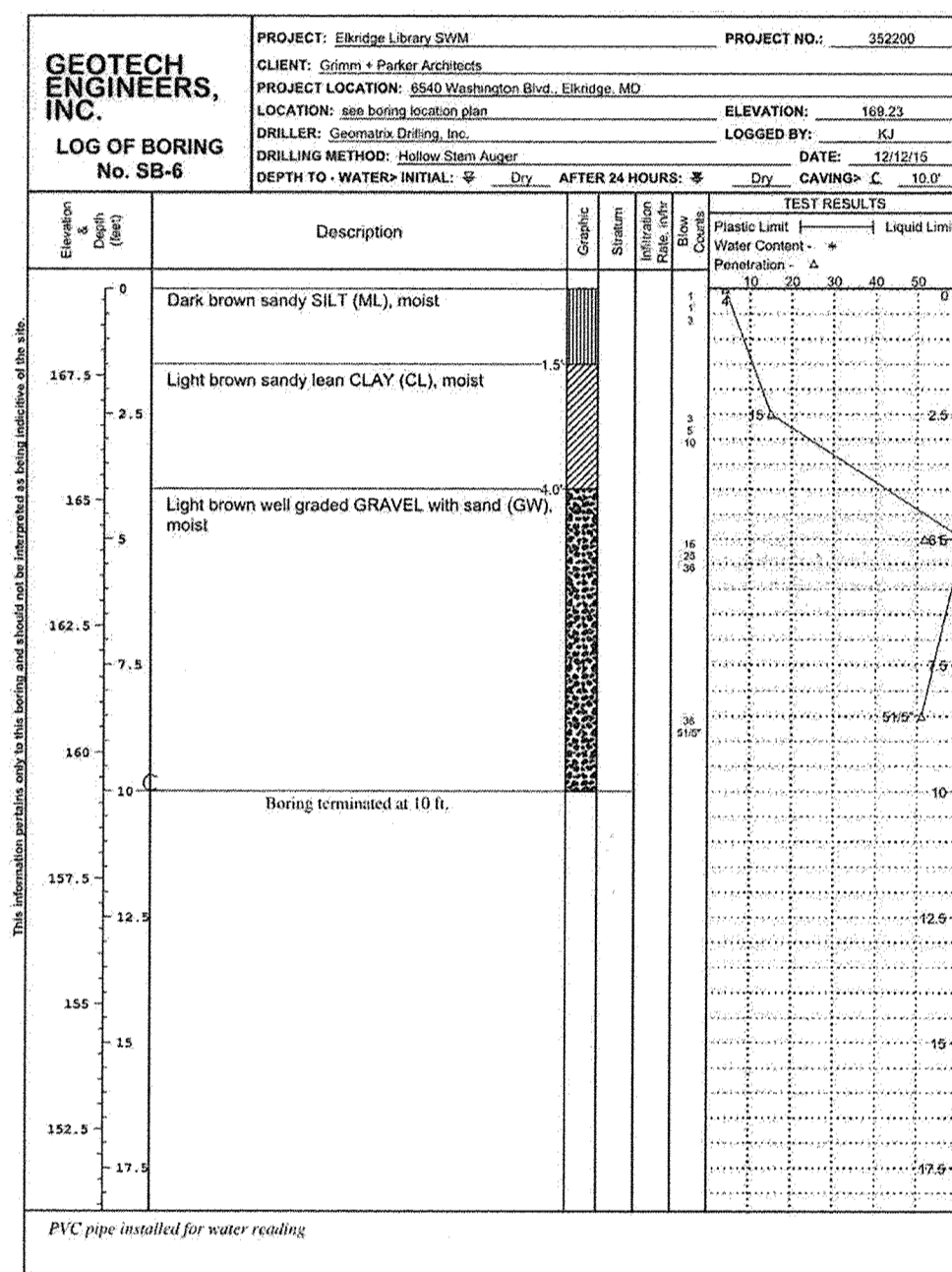


Figure PAGE 1 of 1

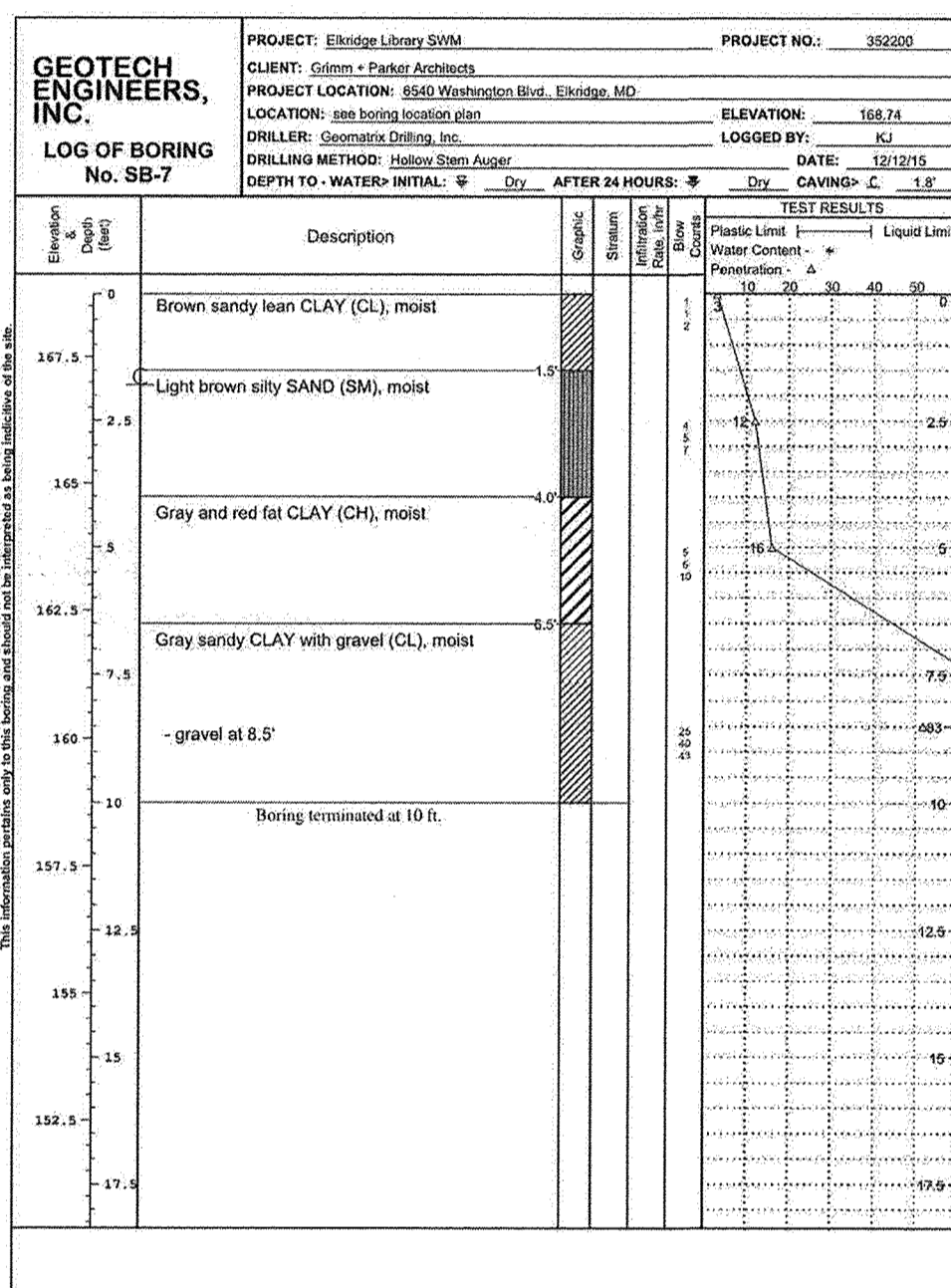


Figure PAGE 1 of 1

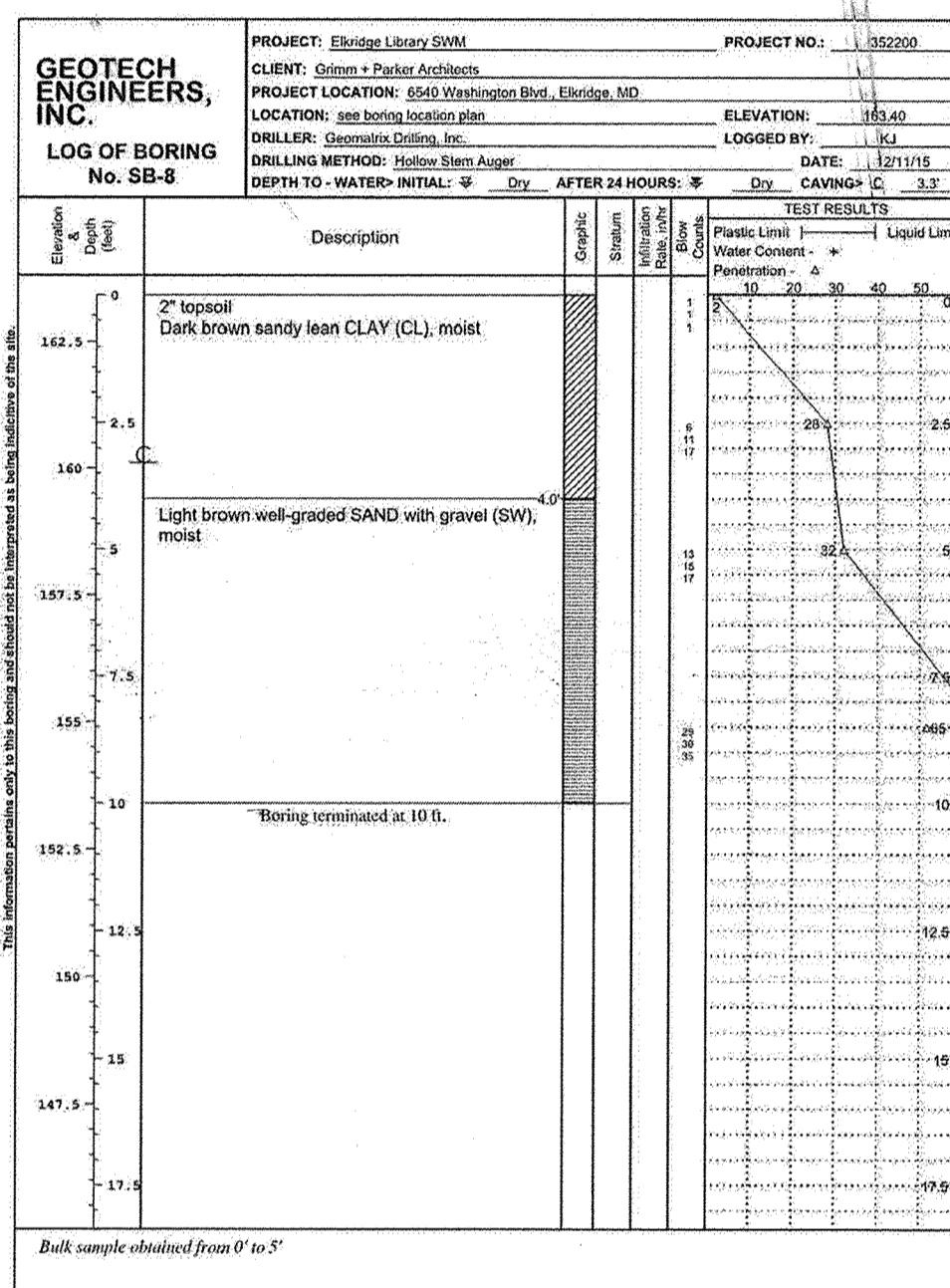


Figure PAGE 1 of 1

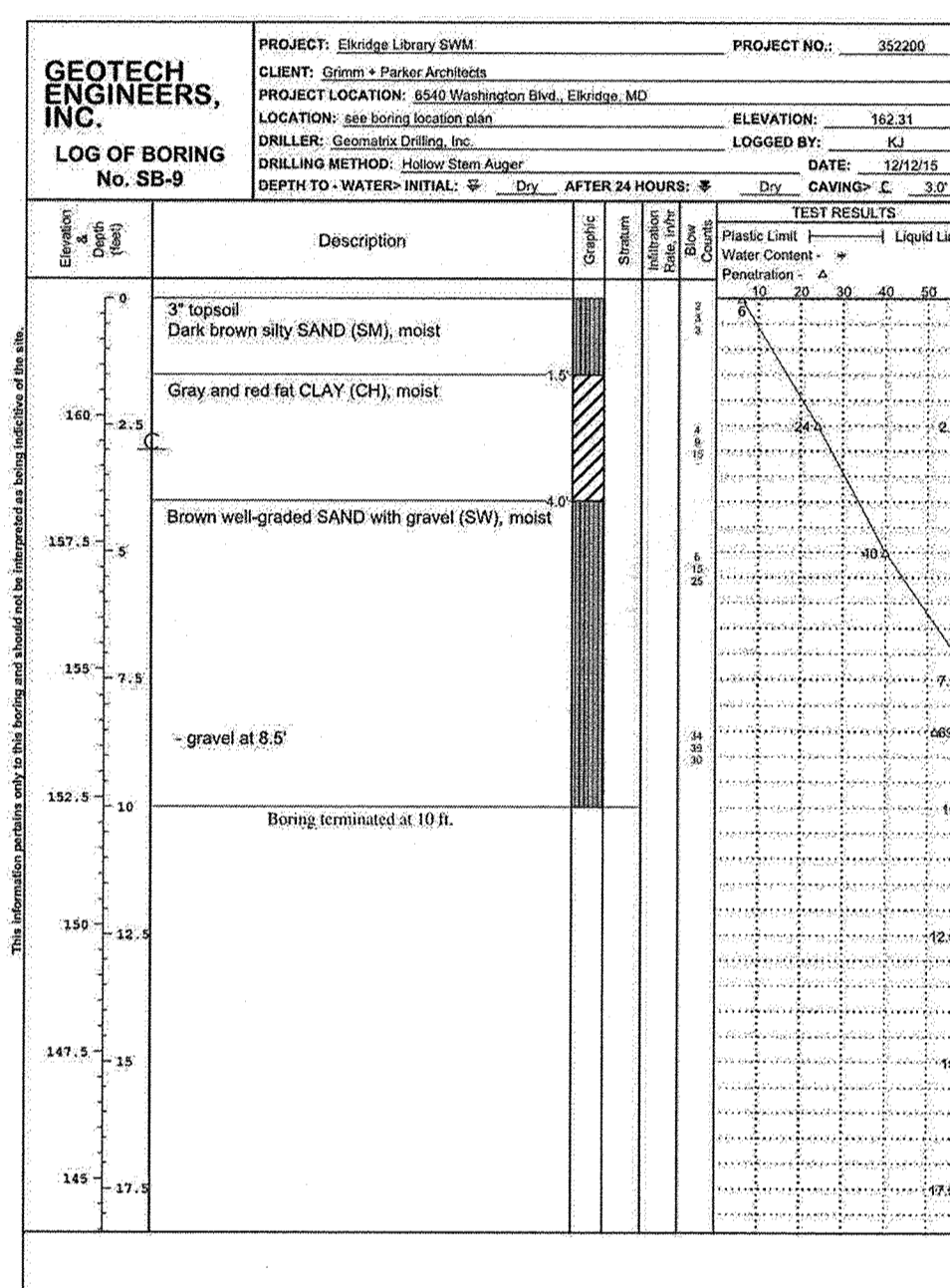


Figure PAGE 1 of 1

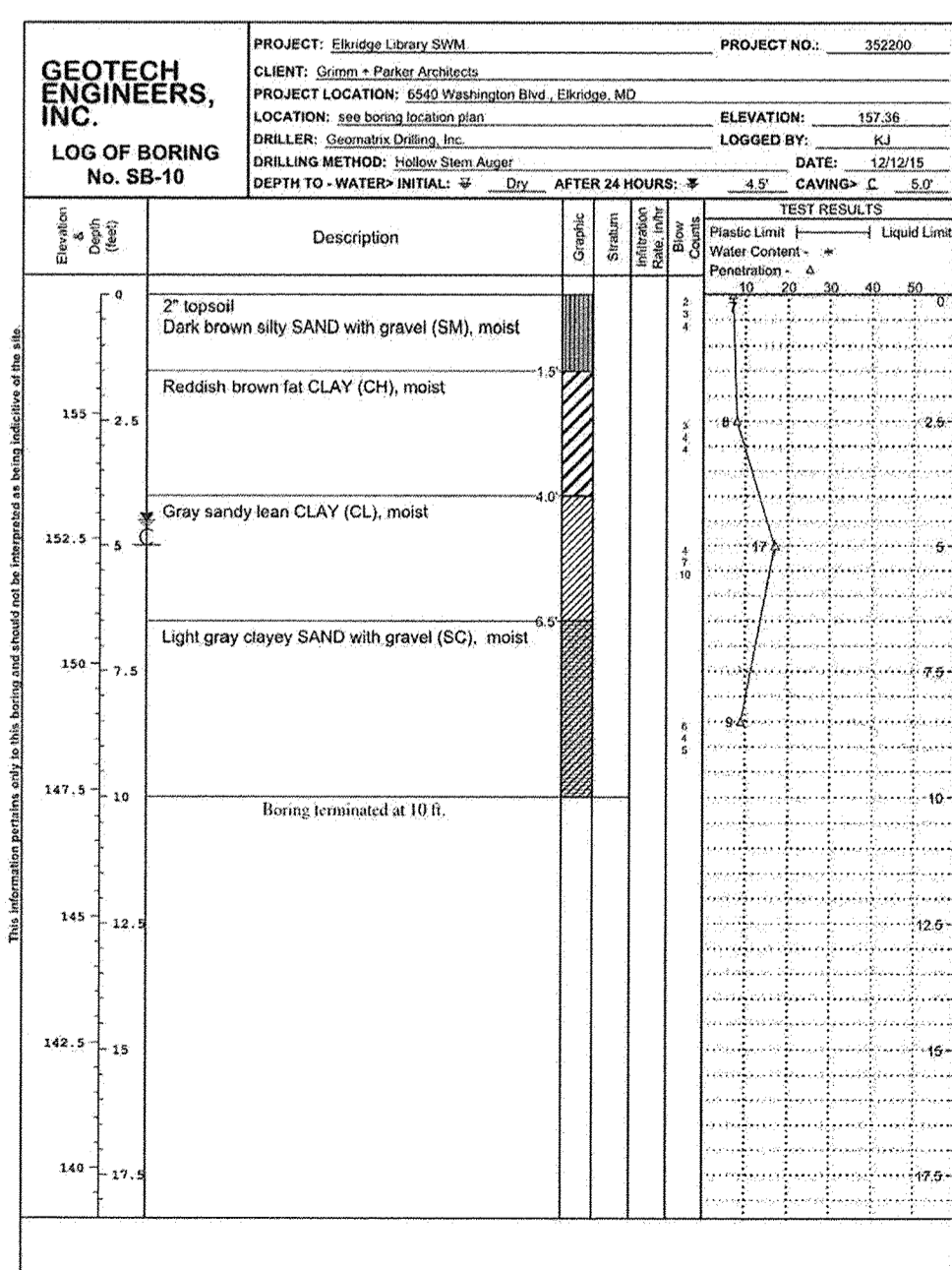


Figure PAGE 1 of 1

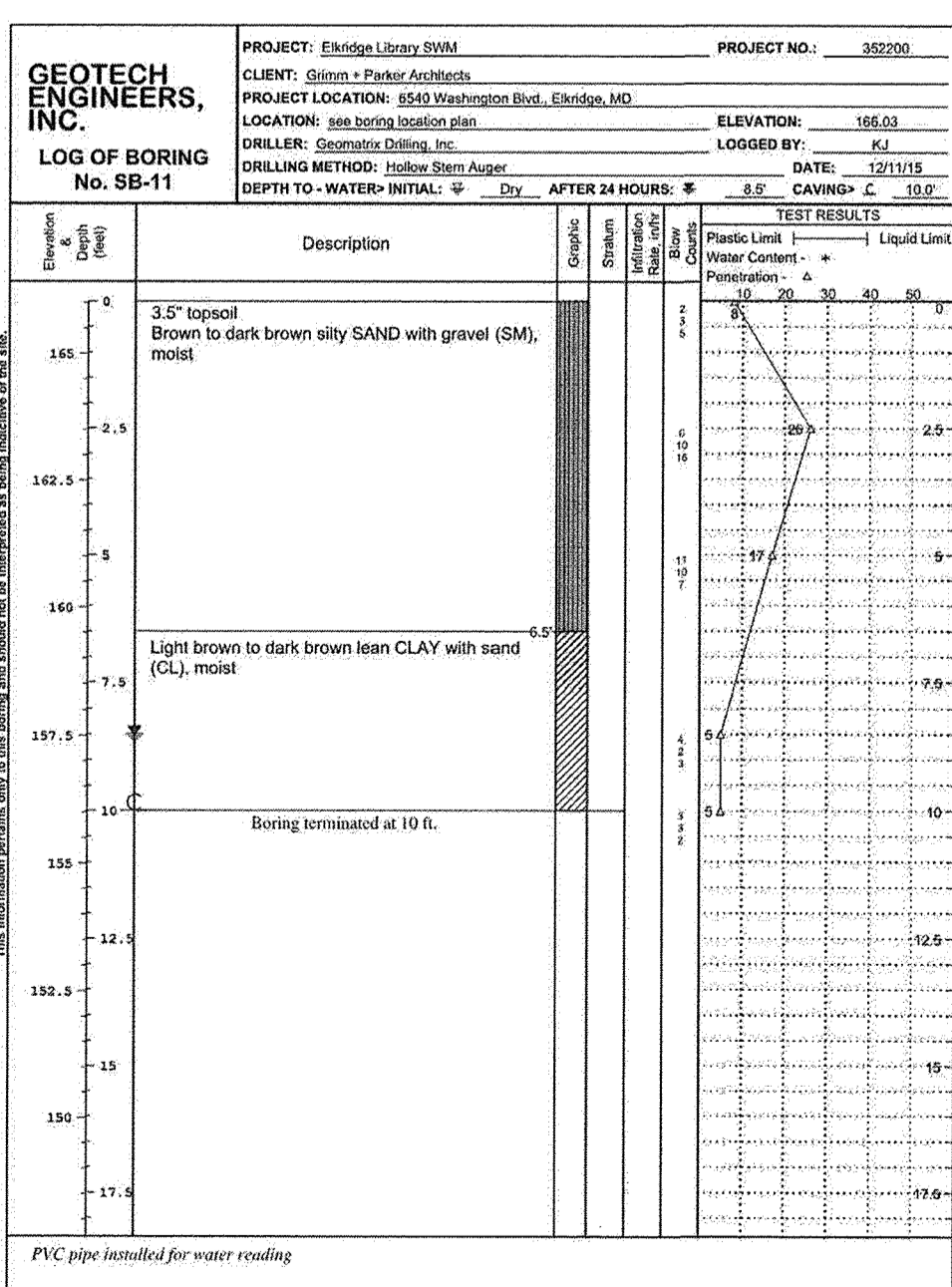


Figure PAGE 1 of 1

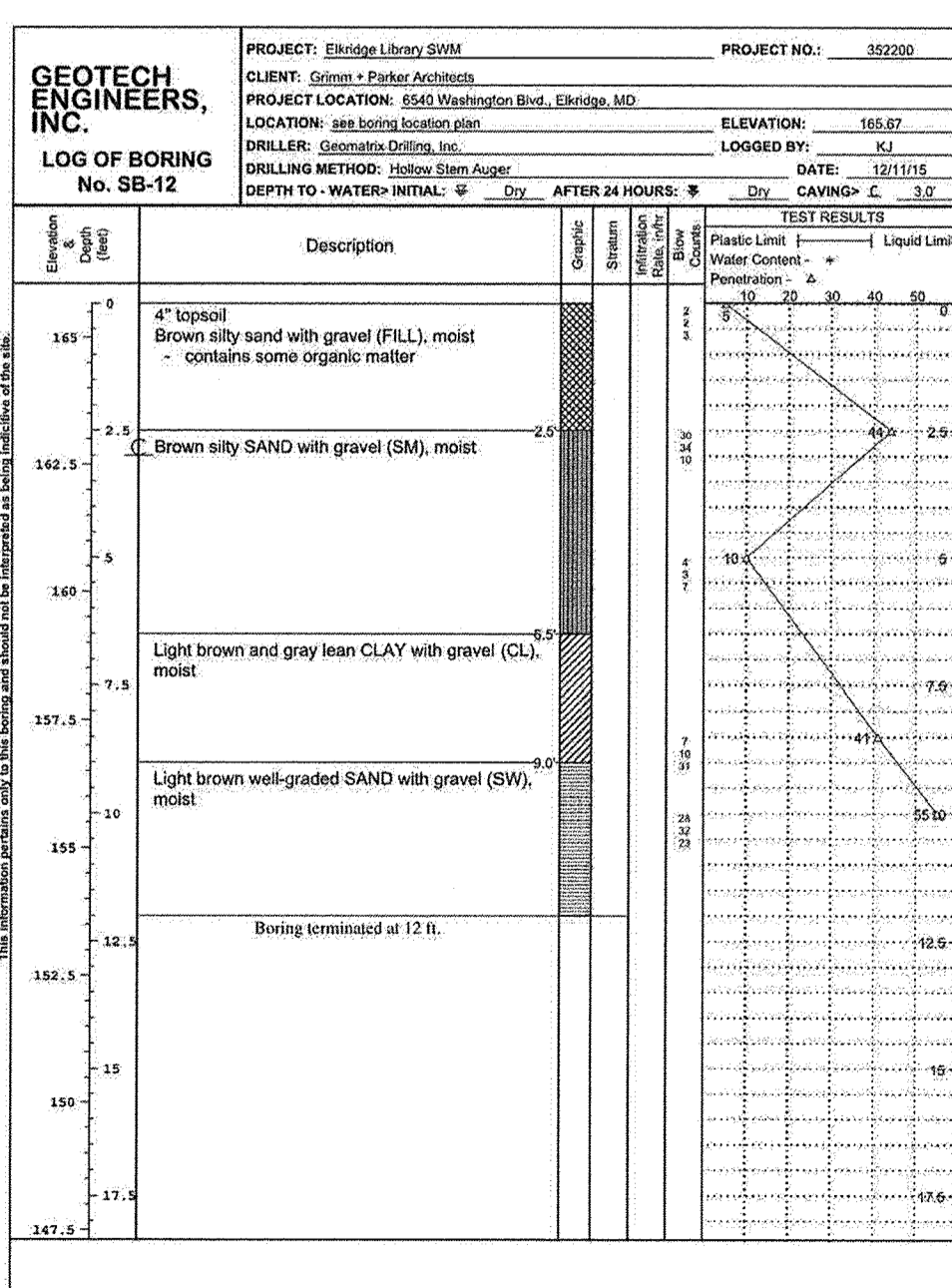


Figure PAGE 1 of 1

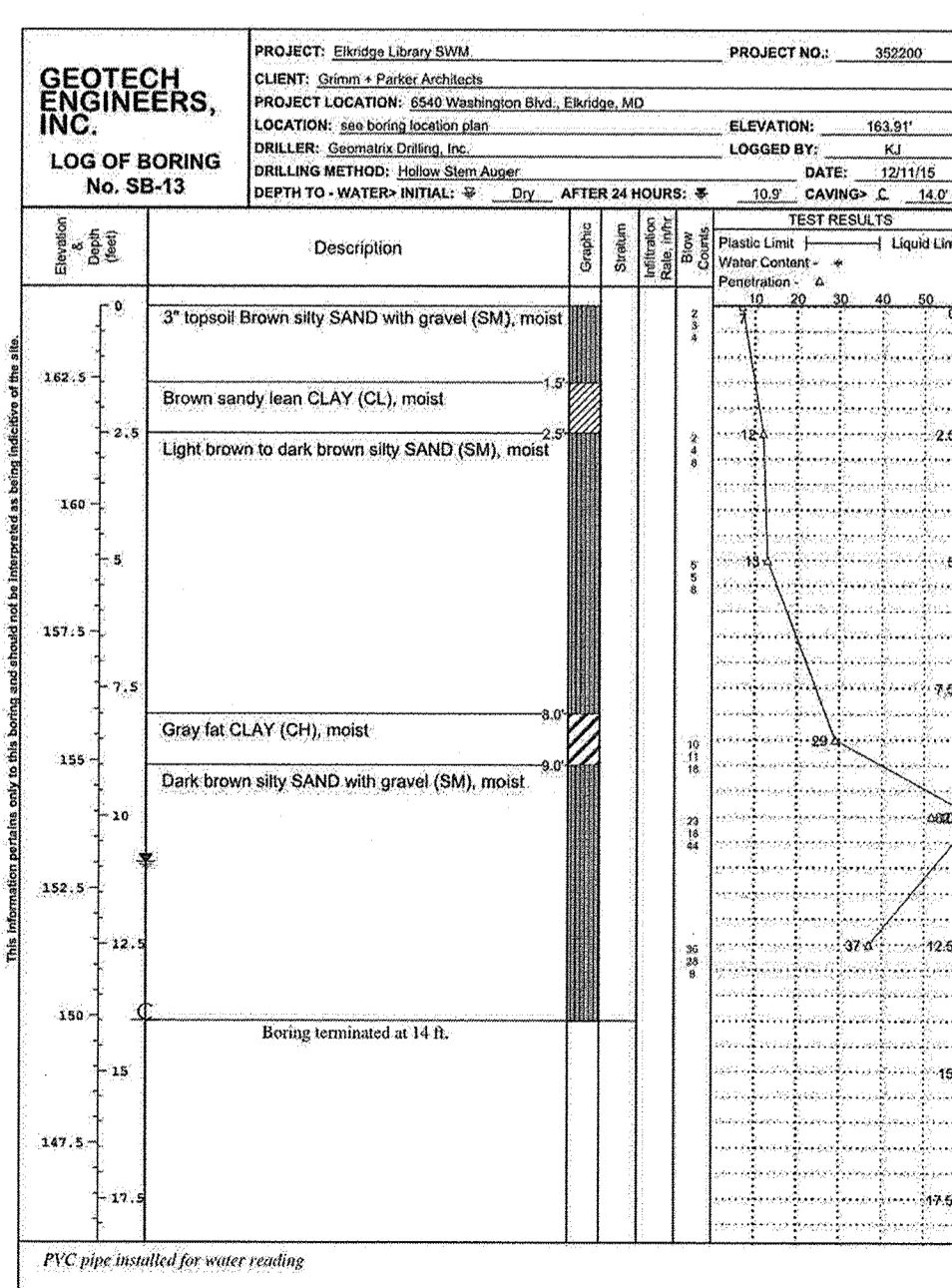


Figure PAGE 1 of 1

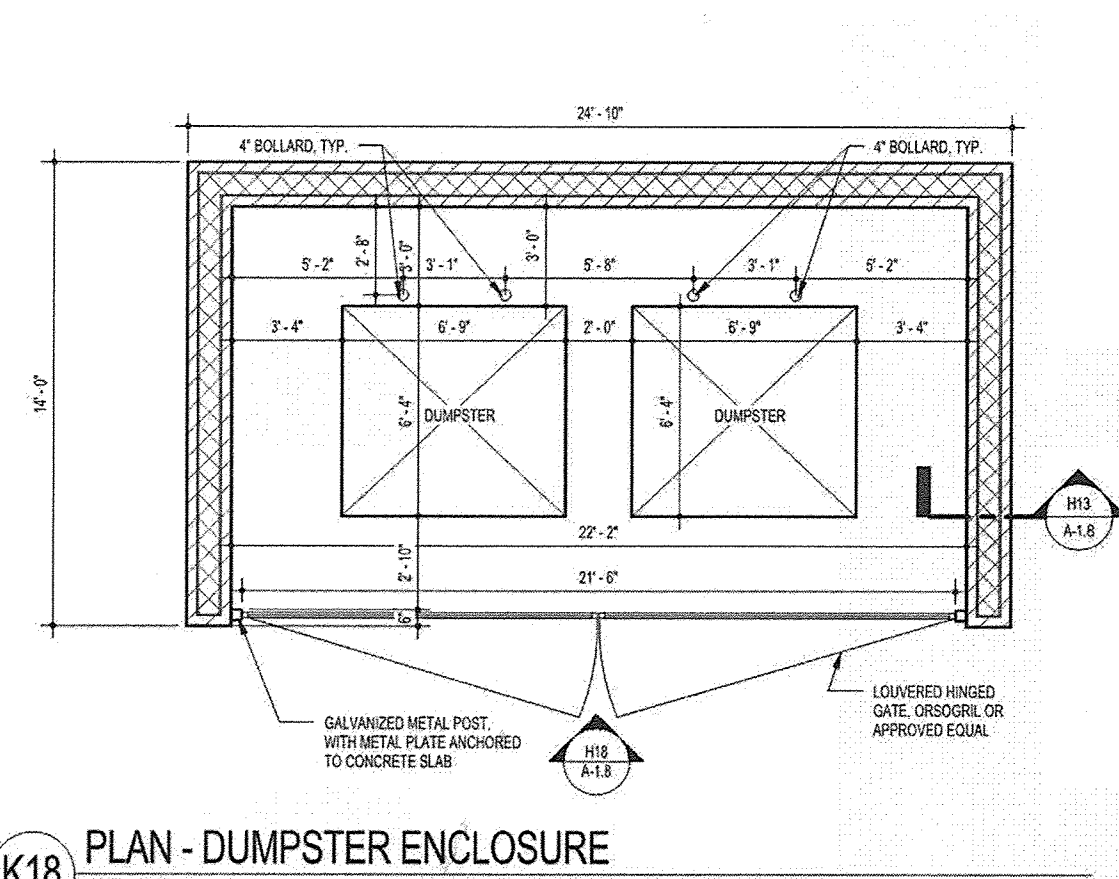
**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 JAMES A. RUFF 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE 01/18/20

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 7-19-16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
 [Signature] 2-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 [Signature] 8-16-16  
 DIRECTOR DATE

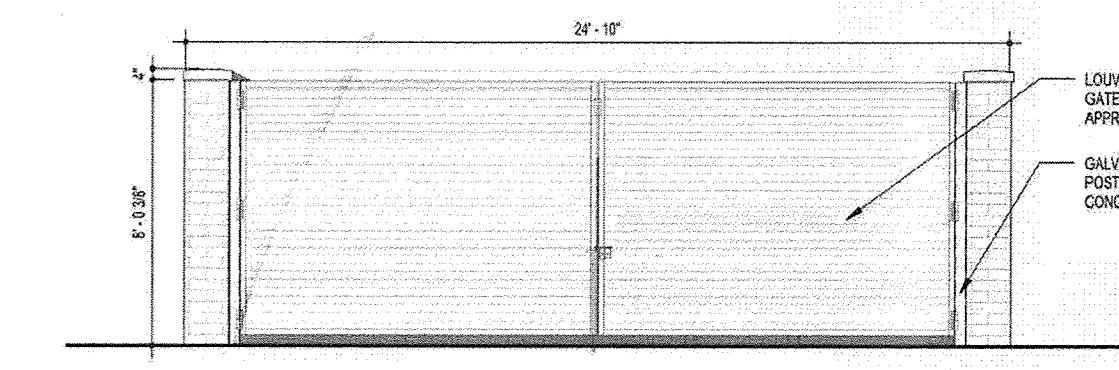
DATE	NO.	REVISION	BY
DEVELOPER			
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757			
OWNER			
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757			
PROJECT			
GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER			
AREA			
TAX MAP 38, PARCEL 'A' PLAT 2250 ZONED B-1 & R-12 GRID NO. 7, 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			

TITLE  
**SOIL BORING LOGS**  
 Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

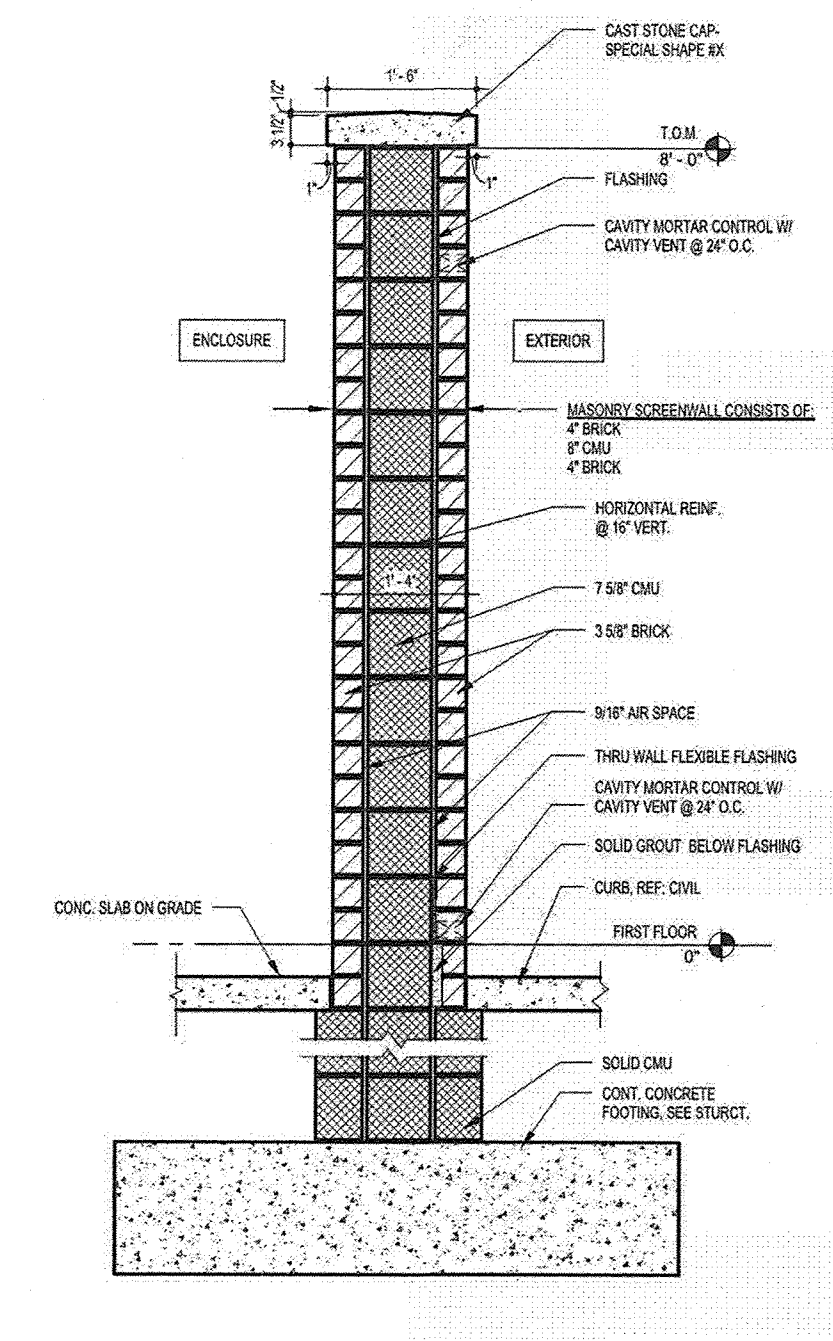
SEAL  
 [Professional Engineer Seal]  
 DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: AS SHOWN  
 DRAWING NO. 25 OF 50



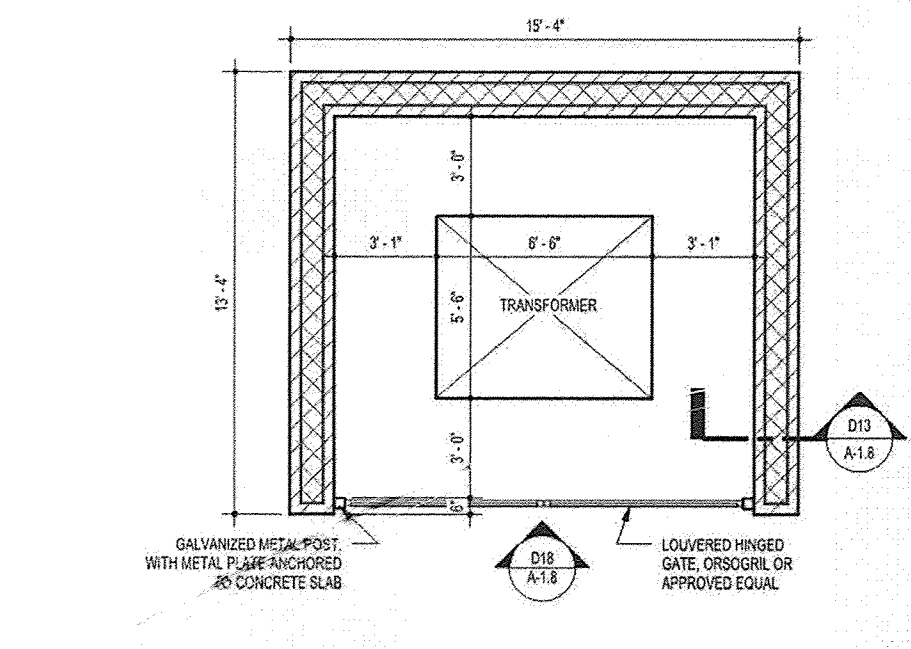
**K18 PLAN - DUMPSTER ENCLOSURE**  
14" = 1'-0"



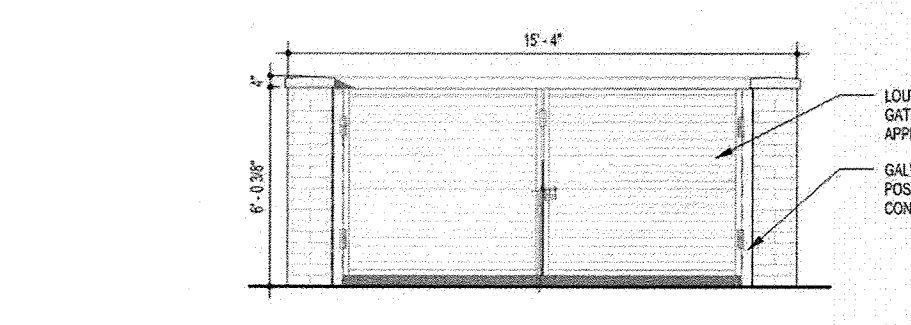
**H18 ELEVATION - DUMPSTER ENCLOSURE**  
14" = 1'-0"



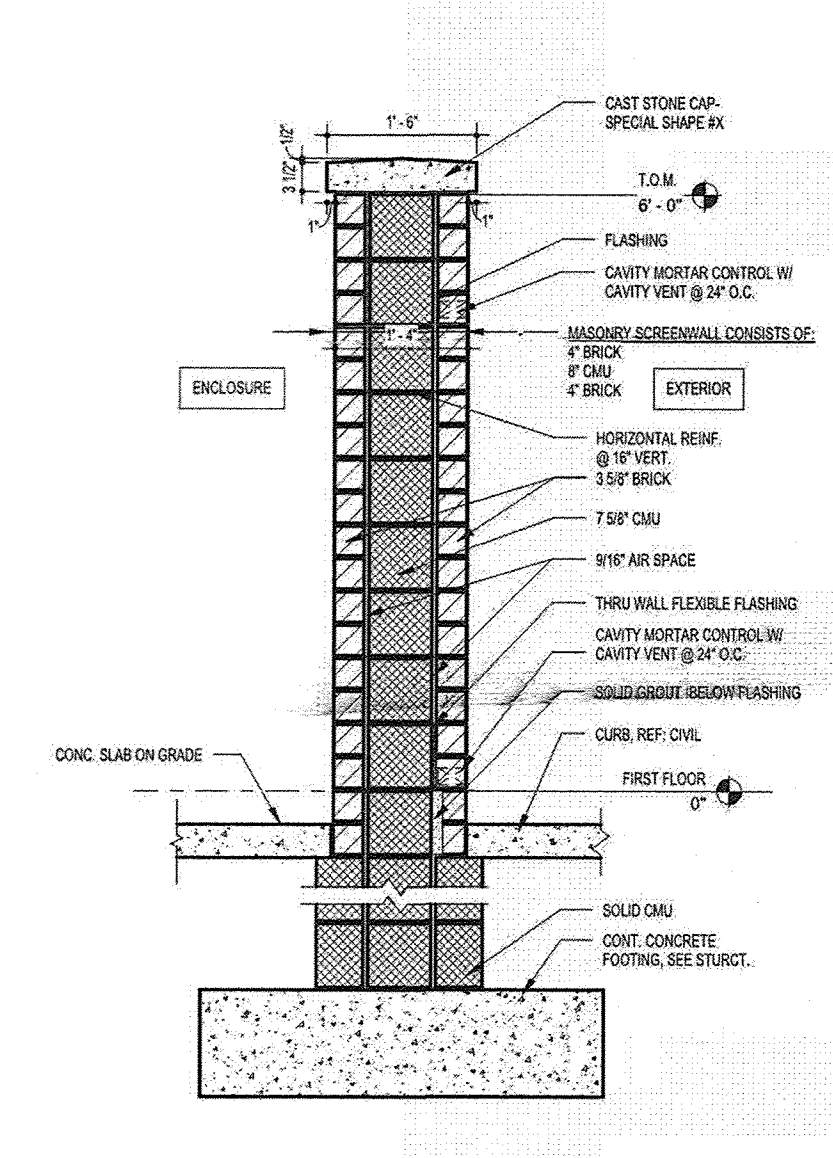
**H13 SECTION - DUMPSTER SCREENWALL**  
3/4" = 1'-0"



**E18 PLAN - TRANSFORMER ENCLOSURE**  
14" = 1'-0"



**D18 ELEVATION - TRANSFORMER ENCLOSURE**  
14" = 1'-0"



**D13 SECTION - TRANSFORMER SCREENWALL**  
3/4" = 1'-0"

NOTE: SEE ARCHITECTURAL PLANS FOR FINAL CONSTRUCTION DETAILS.

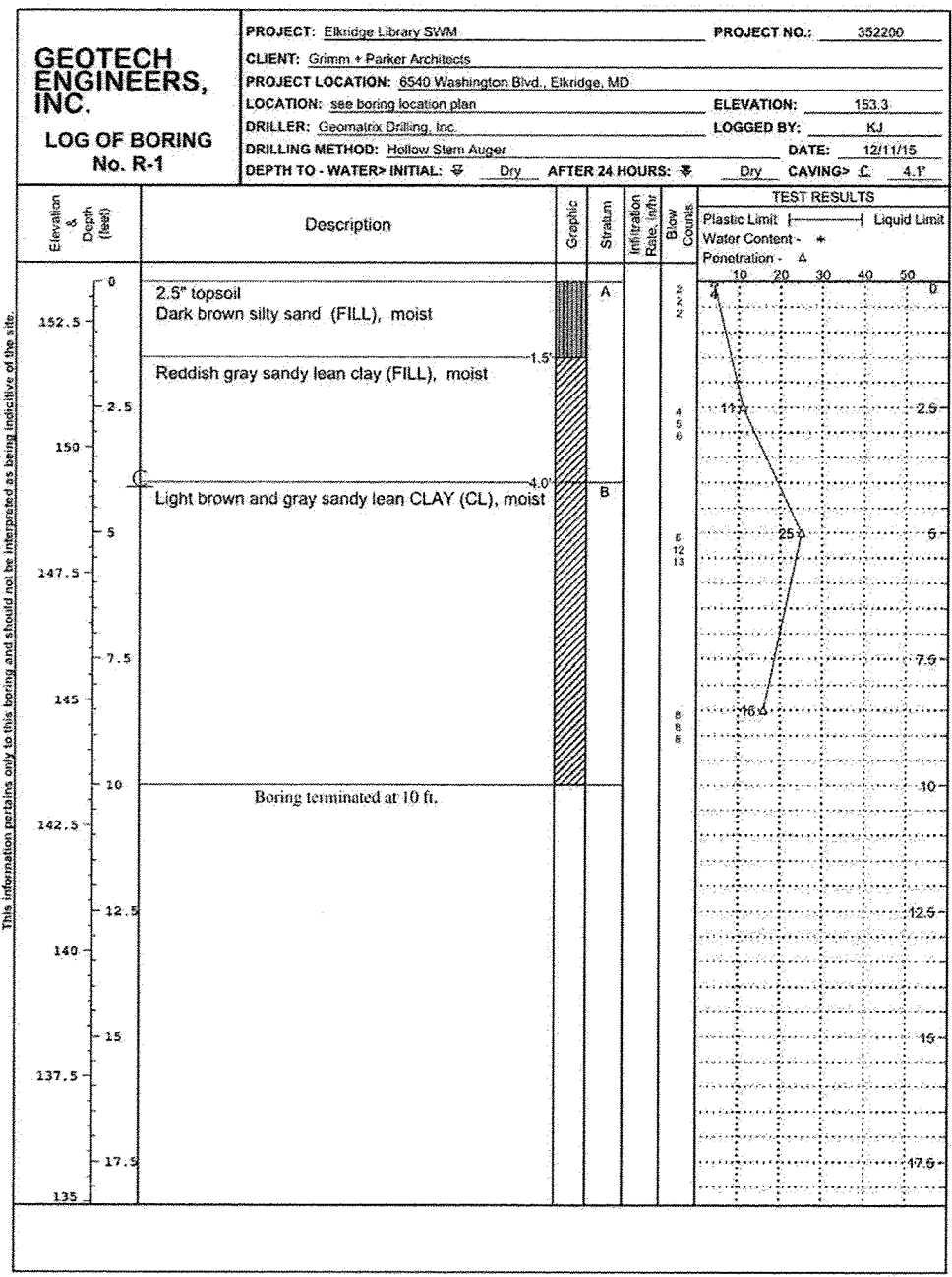


Figure PAGE 1 of 1

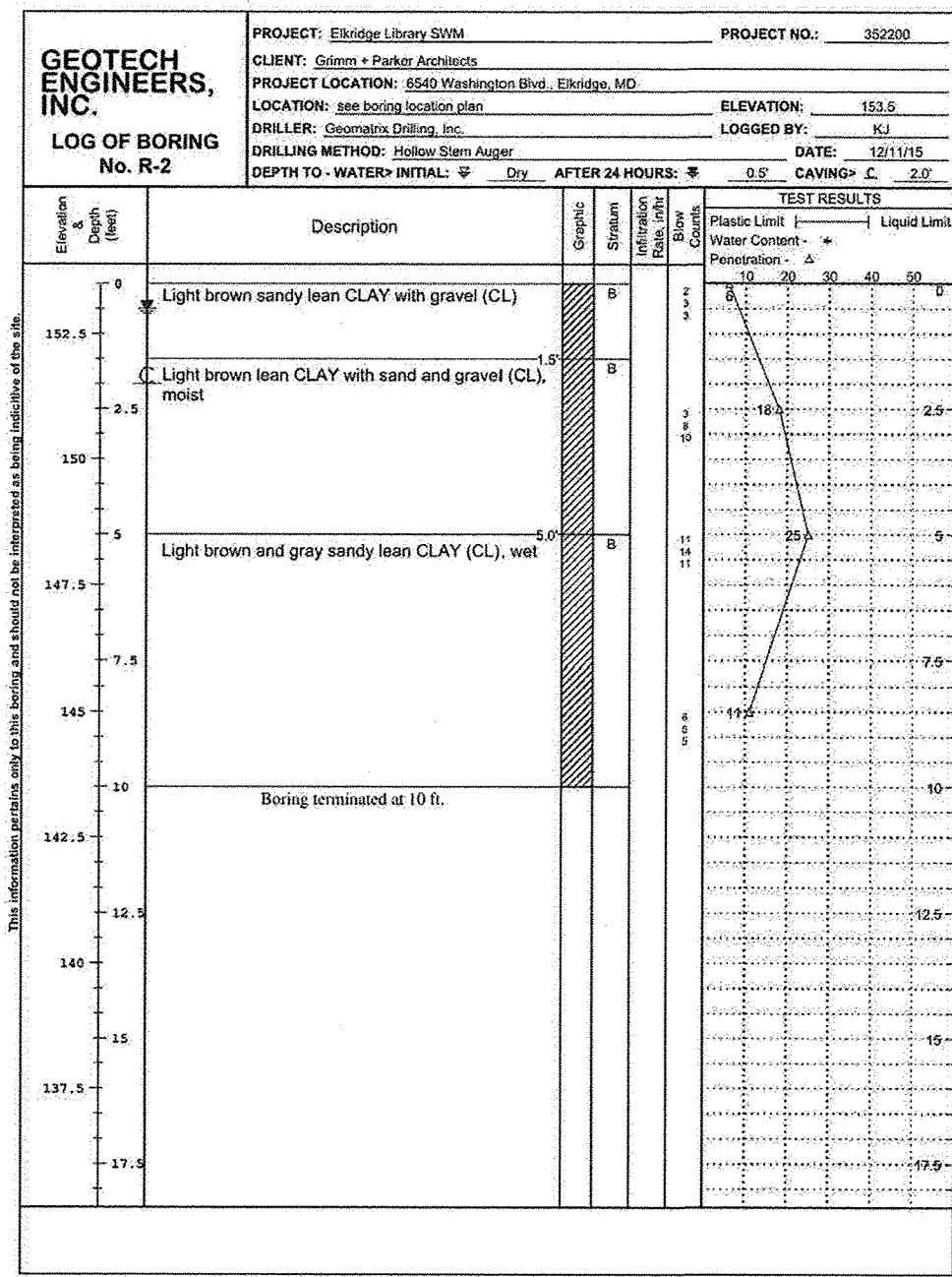


Figure PAGE 1 of 1

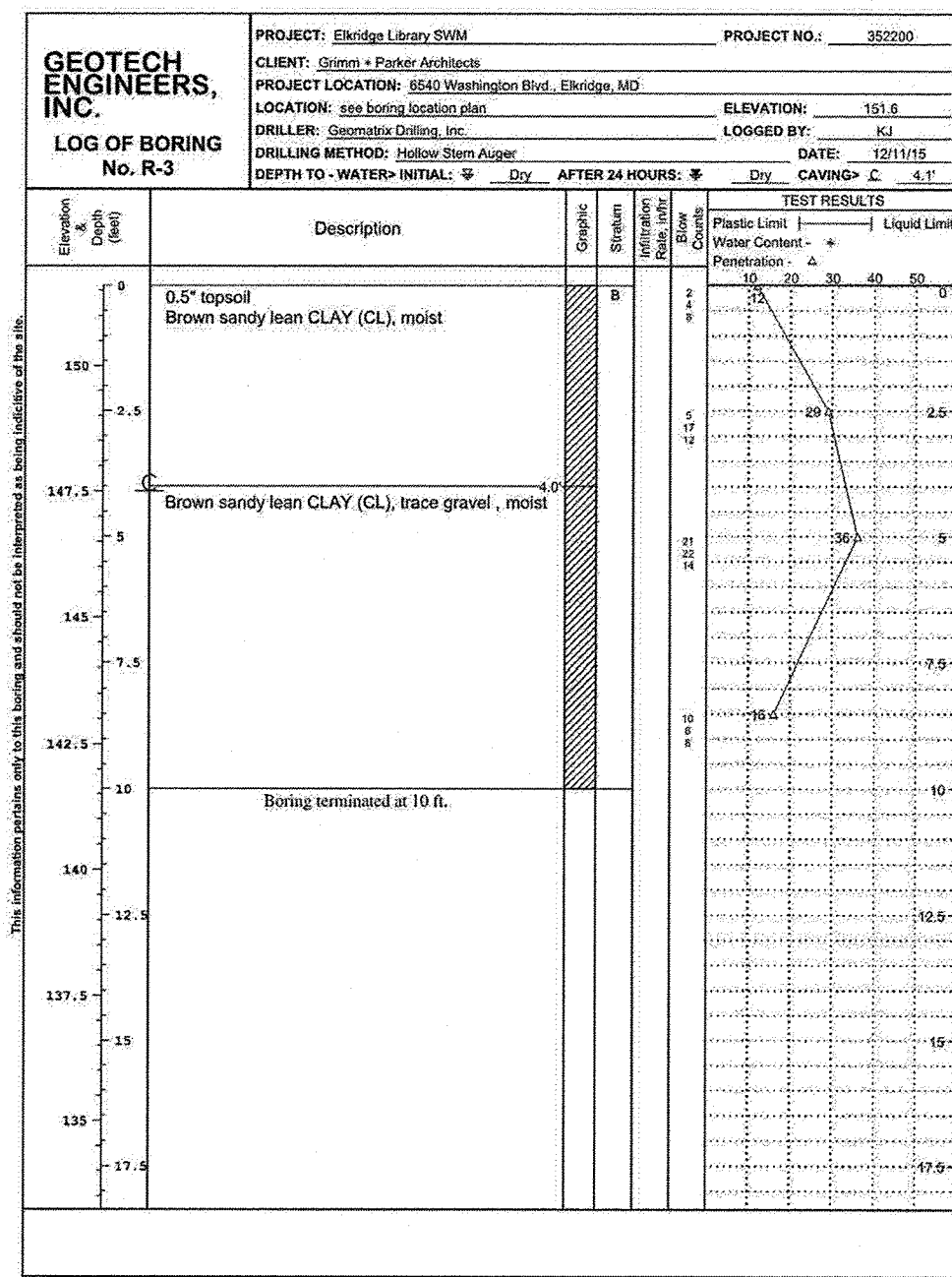


Figure PAGE 1 of 1

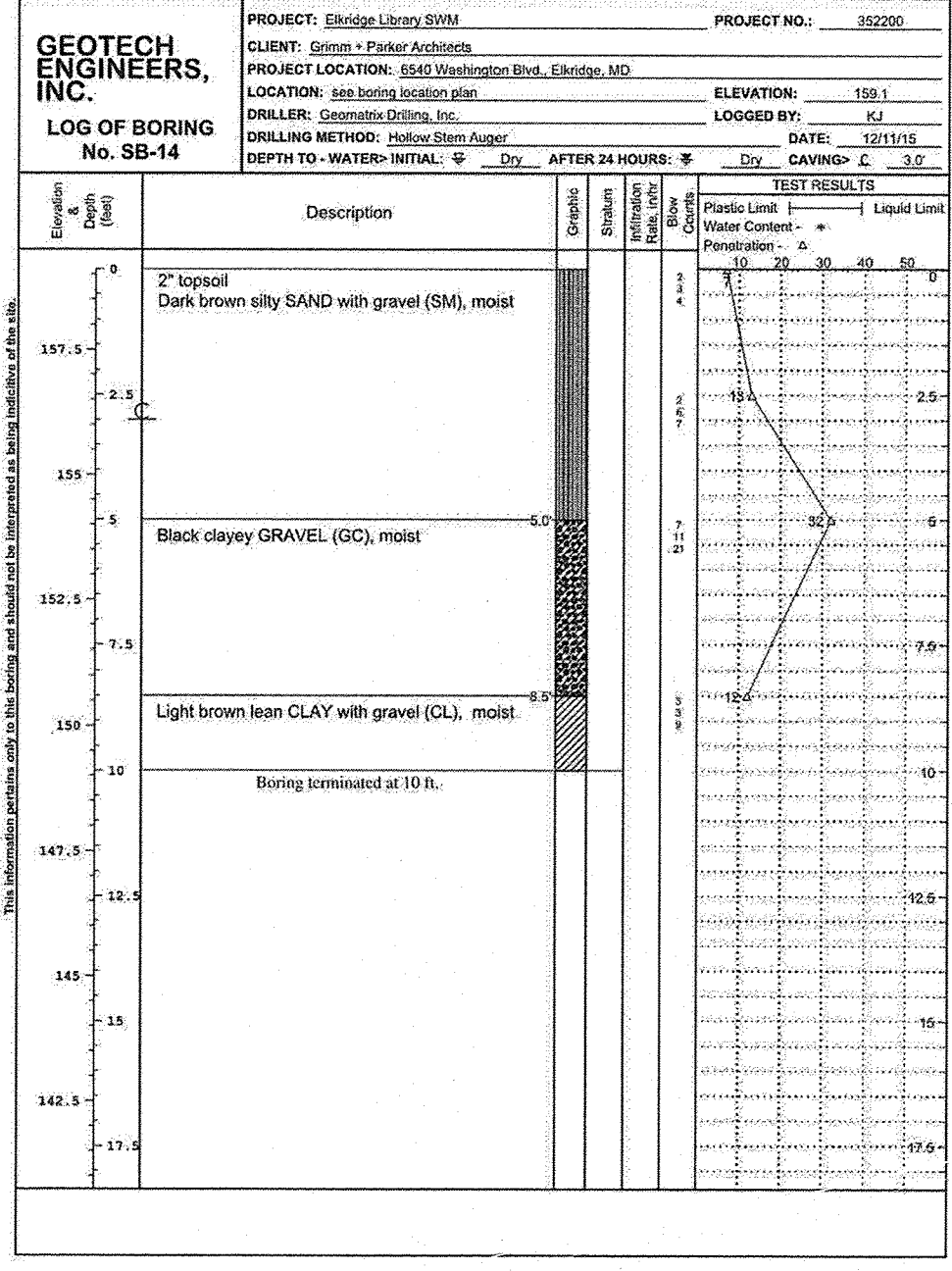


Figure PAGE 1 of 1

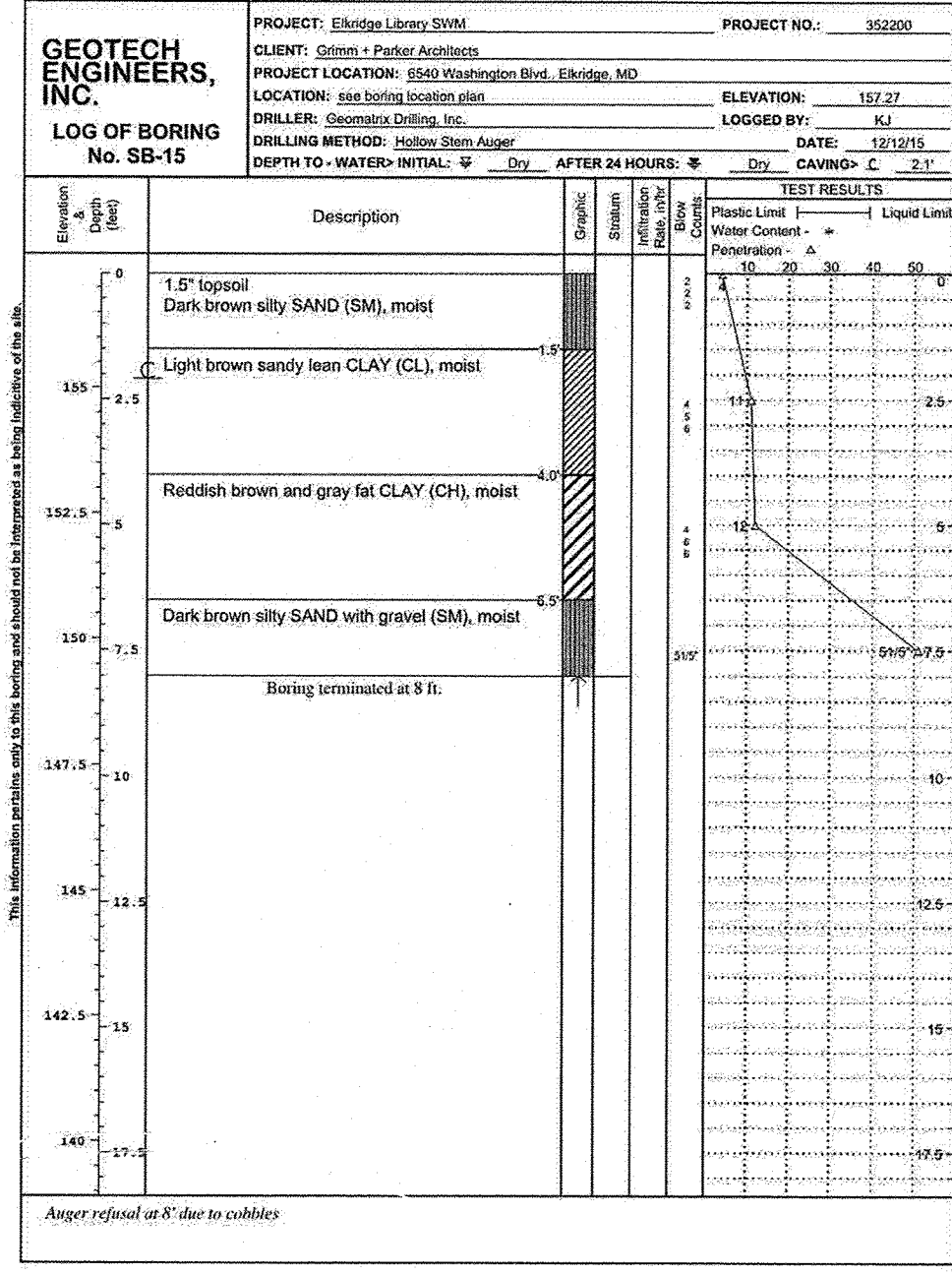


Figure PAGE 1 of 1

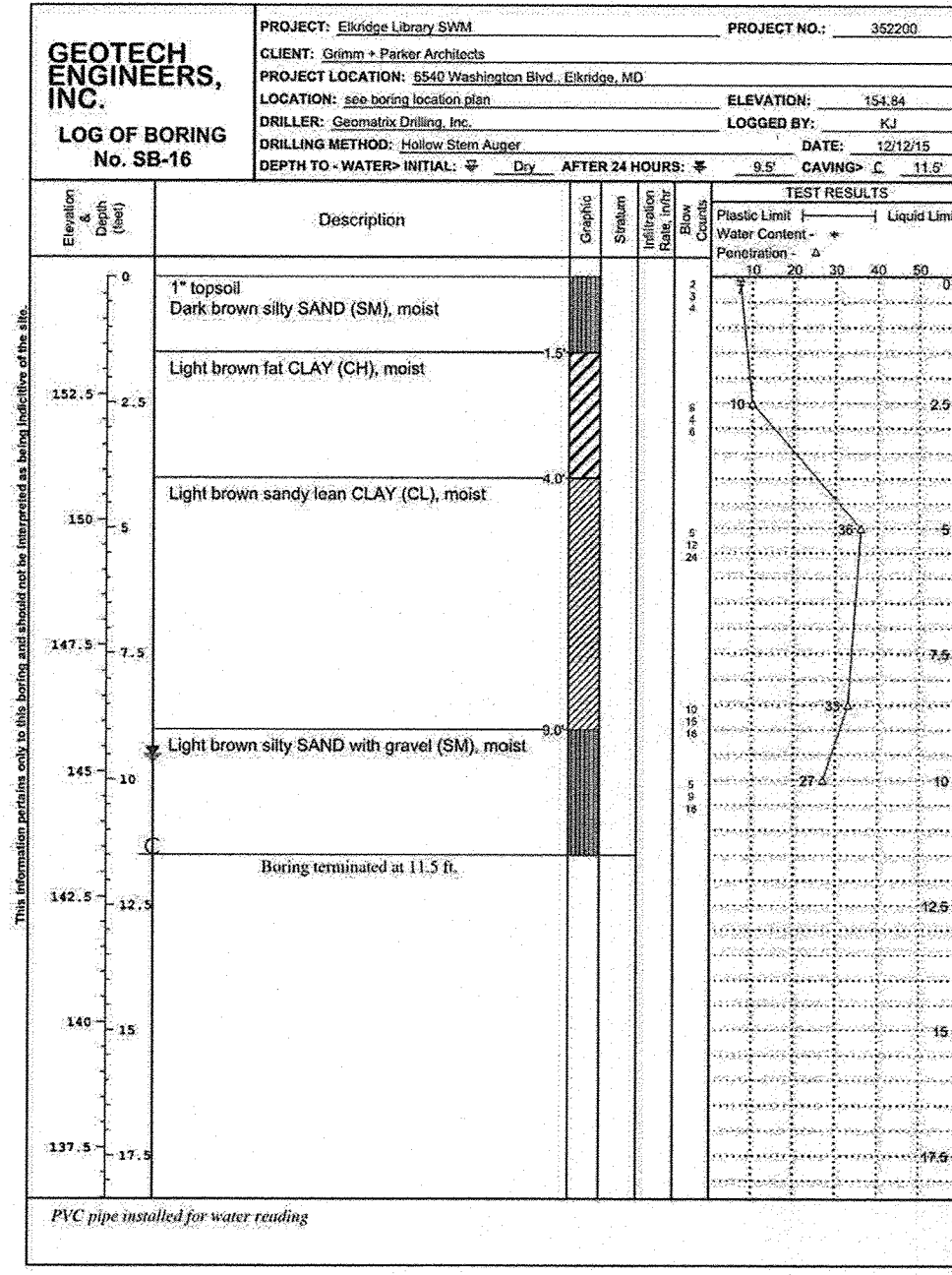


Figure PAGE 1 of 1

**AS-BUILT CERTIFICATION**  
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A. RUFF** 21774  
PRINTED NAME MD. P.E. NO.  
SIGNATURE DATE 6/17/20  
STATE OF MARYLAND PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
**Chad Chudson** 7-19-16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
**Mark Stroma** 8-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
**William J. Blui** 8-16-16  
DIRECTOR DATE

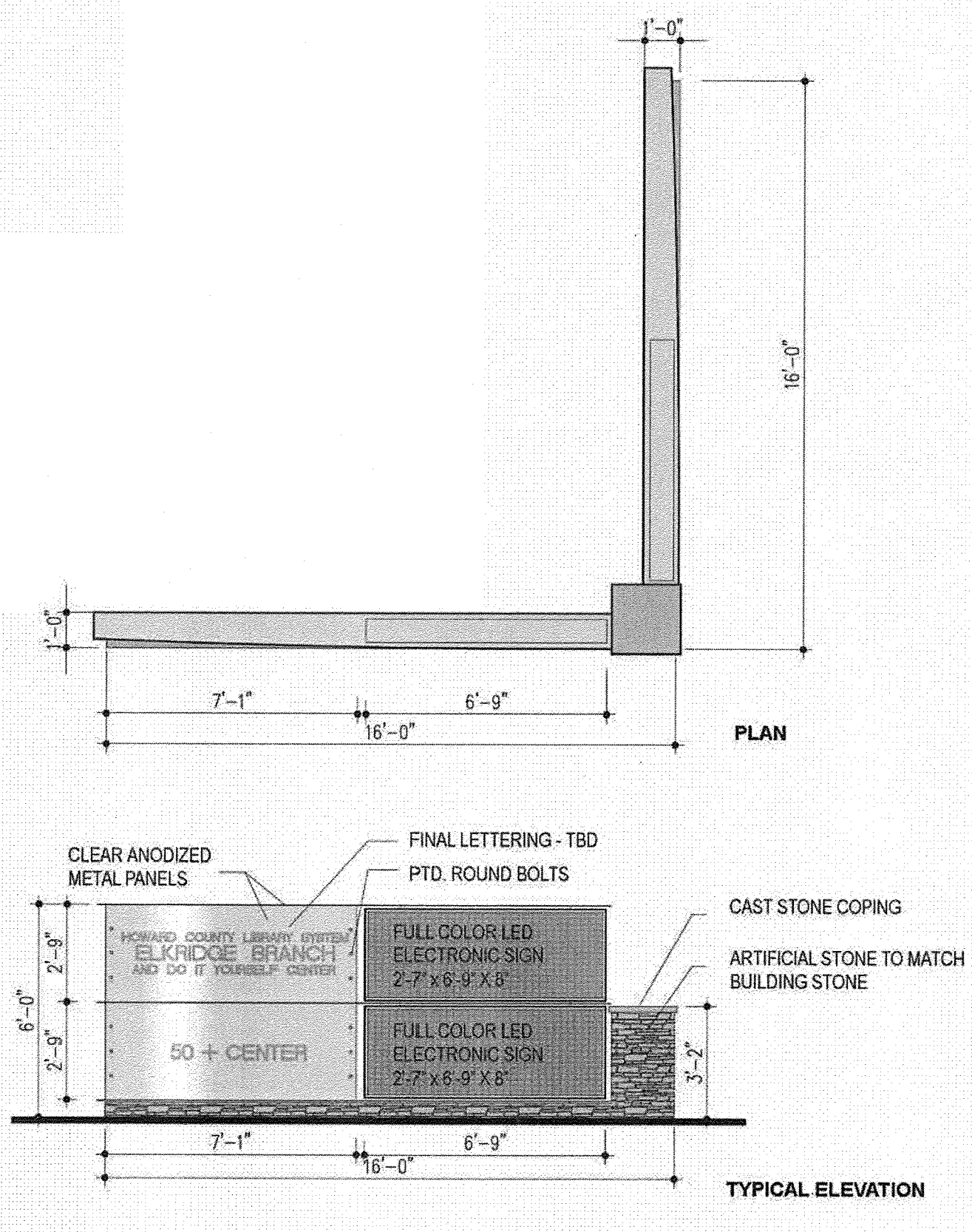
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757  
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757  
PROJECT: GREEN BUILDING  
**HCLS ELKRIDGE BRANCH AND 50+ CENTER**  
AREA: TAX MAP 38, PARCEL 'A' PLAT 2320 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21076-0000 HOWARD COUNTY, MARYLAND

TITLE: **SITE DETAILS AND SOIL BORING LOGS**

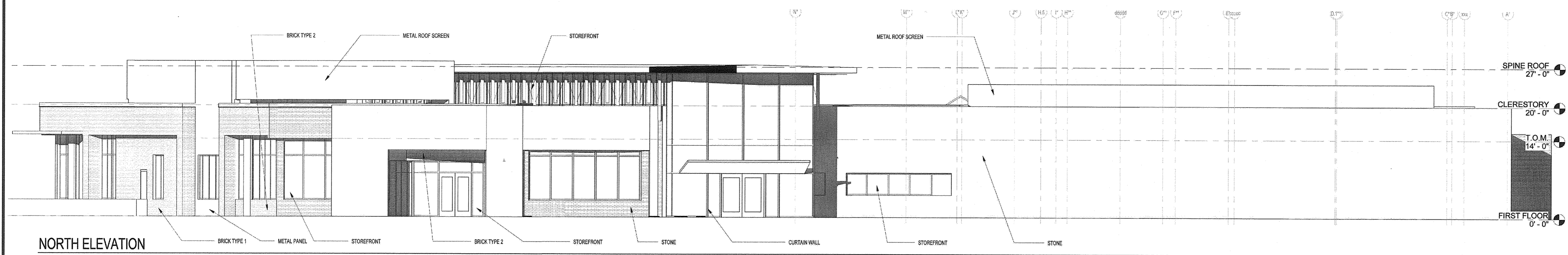
**Pennon** Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects  
8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
DRAWN BY: PJS/JSN  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: AS SHOWN  
DRAWING NO. 26 OF 50  
SDP-16-038

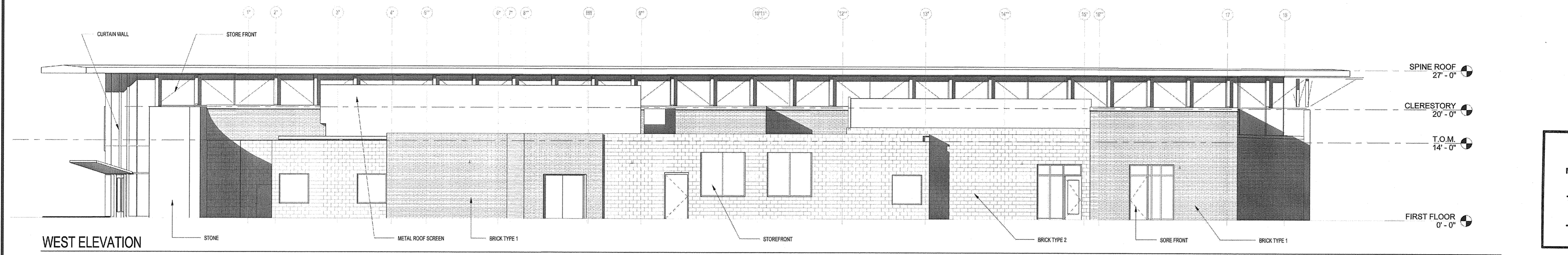
NOTE: SEE ARCHITECTURAL PLANS FOR FINAL CONSTRUCTION DETAILS. FINAL SIGN DESIGN AND TEXT TO BE CONFIRMED BY THE LIBRARY SYSTEM AS PART OF THE SIGN PERMIT DRAWINGS



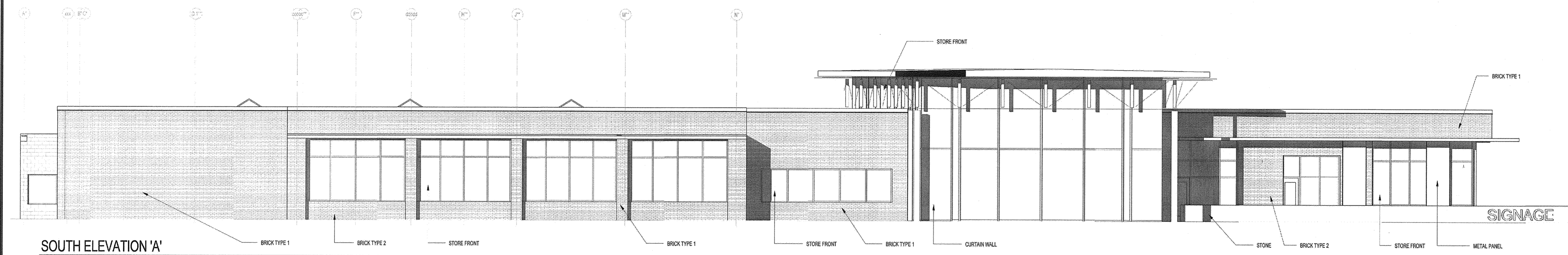
**2 SIGN DETAIL**  
26 NOT TO SCALE



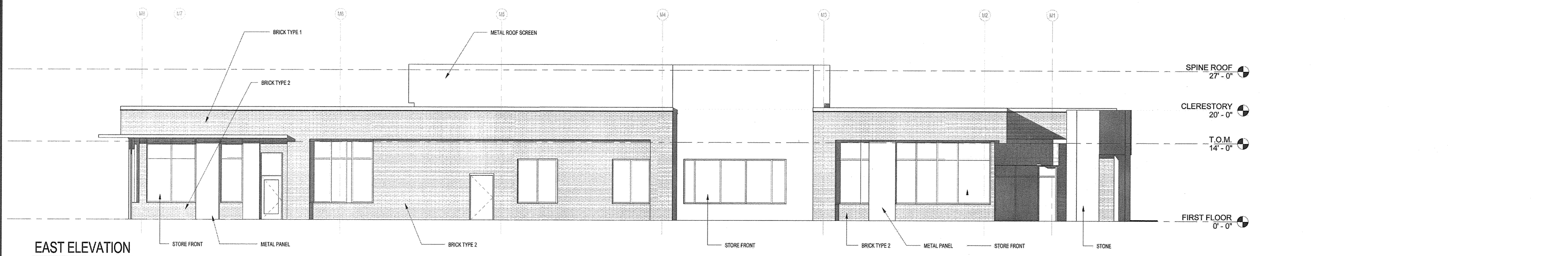
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION 'A'



EAST ELEVATION

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 PRINTED NAME: **JAMES A RUFF** 2174  
 SIGNATURE: *[Signature]* DATE: *6/29/16*  
 MD. P.E. NO. *061528*

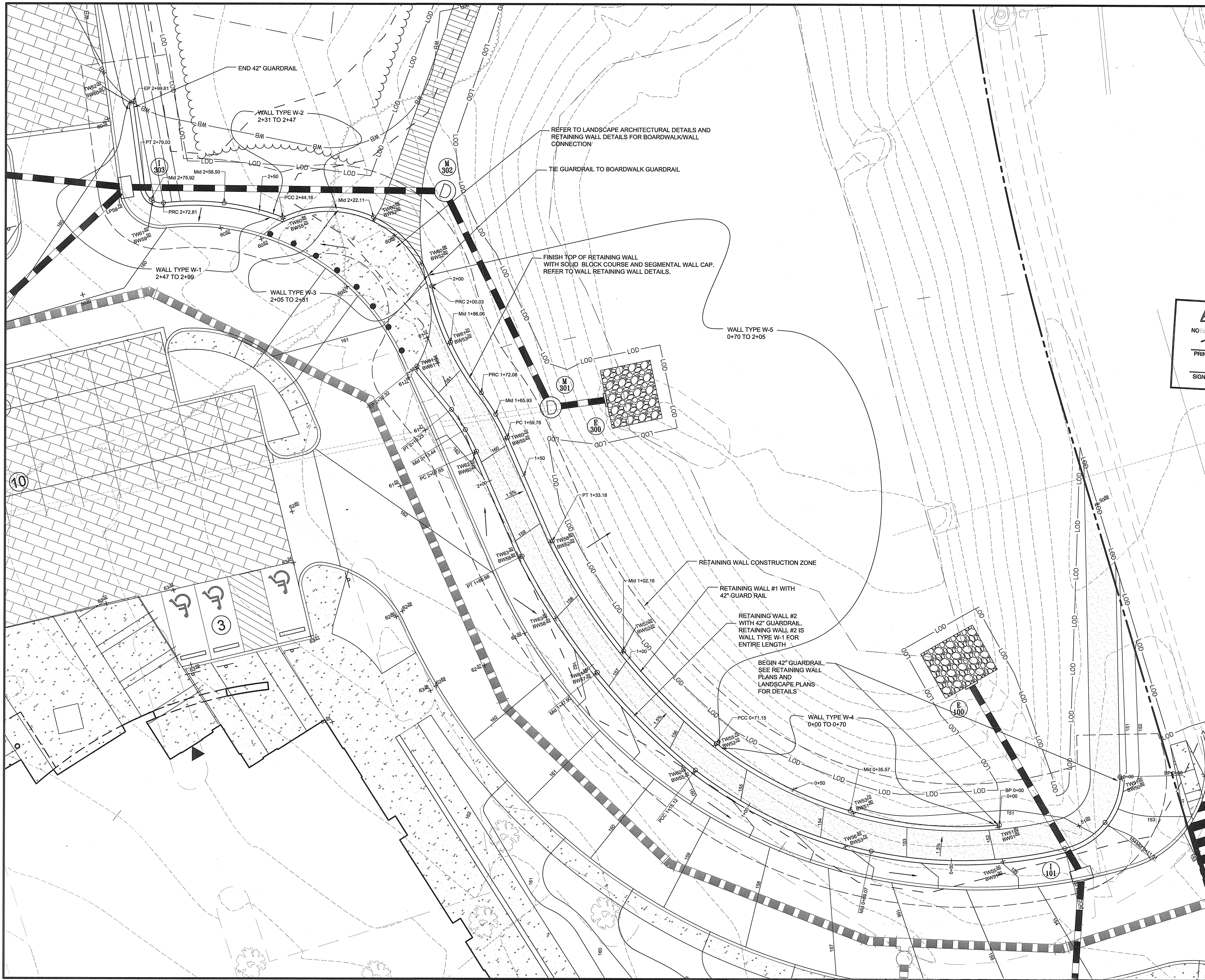
APPROVED: DEPARTMENT OF PLANNING AND ZONING

<i>[Signature]</i>	7-19-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	9-16-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	9-16-16
DIRECTOR	DATE

DATE	NO.	REVISION	BY
DEVELOPER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757			
OWNER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757			
PROJECT GREEN BUILDING HCLS ELK RIDGE BRANCH AND 50+ CENTER			
AREA TAX MAP 38, PARCEL 'A' PLAT 255Q ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELK RIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			
TITLE ARCHITECTURAL ELEVATIONS			

**Pennoni** Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: NOT TO SCALE  
 DRAWING NO. 27 OF 50



**LEGEND**

PROPERTY LINE AND RIGHT-OF-WAY	
EXISTING BUILDING	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING TREE LINE	
EXISTING WETLANDS	
EXISTING WETLAND BUFFER	
EXISTING ZONING LINE	
EXISTING WATER	
EXISTING SEWER	
EXISTING COMMUNICATIONS	
EXISTING ELECTRICAL	
EXISTING GAS	
EXISTING STORM DRAIN	
PROPOSED 1' CONTOUR	
PROPOSED 5' CONTOUR	
PROPOSED PERVIOUS PAVING	
PROPOSED MICRO-BIORETENTION FACILITY	
PROPOSED STORM DRAIN	
PROPOSED WATER	
PROP. CONCRETE SIDEWALK	
PROPOSED TREE LINE	

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO 'AS-BUILT' INFORMATION PROVIDED ON THIS SHEET.  
 PRINTED NAME: **JAMES A RUFF** 21774  
 SIGNATURE: *[Signature]* MD. P.E. NO. *[Signature]*  
 DATE: *[Signature]*  
 SCALE: 1"=10'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

<i>[Signature]</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	7-19-16 DATE
<i>[Signature]</i> CHIEF, DIVISION OF LAND DEVELOPMENT	8-26-16 DATE
<i>[Signature]</i> DIRECTOR	8-26-16 DATE

DATE	NO.	REVISION	BY
DEVELOPER		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	
OWNER		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	
PROJECT		GREEN BUILDING HCLS ELKBRIDGE BRANCH AND 50+ CENTER	
AREA		TAX MAP 38, PARCEL 'A' PLAT 233A ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKBRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND	
TITLE		RETAINING WALL PLAN	

Pennoni Associates Inc.  
 Engineers • Surveyors • Planners  
 Landscape Architects  
 8818 Centre Park Drive, Suite 200 Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

SEAL:   
 DESIGNED BY: PJS/JSN  
 DRAWN BY: PJS/JSN  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1" = 10'  
 DRAWING NO. 28 OF 50

# GENERAL NOTES

## FOUNDATIONS

- FOUNDATIONS ARE TO BE DESIGNED FOR A BEARING CAPACITY OF 3000 PSF BASED ON THE GEOTECHNICAL REPORT PREPARED BY GEOTECH ENGINEERS, INC. DATED 12/22/2015. FOUNDATIONS SHALL BEAR ON NATURAL UNDISTURBED SOIL 1'-0" BELOW ORIGINAL GRADE. A GEOTECHNICAL ENGINEER REGISTERED IN THE LOCAL JURISDICTION SHALL VERIFY SOIL PRESSURE IN THE FIELD. IF FOUND TO BE LESS THAN THE REQUIRED BEARING PRESSURE, THE FOUNDATIONS WILL HAVE TO BE REDESIGNED.

## CONCRETE:

- ALL CONCRETE FOR FOUNDATIONS SHALL BE  $f'_c=3000$  PSI NORMAL WEIGHT CONCRETE AT 28 DAYS. ALL CONCRETE EXPOSED TO THE WEATHER SHALL BE  $f'_c=4000$  PSI NORMAL WEIGHT CONCRETE AND SHALL BE AIR ENTRAINED PER ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (LATEST LOCAL APPROVED EDITION) FOR SEVERE EXPOSURE.

## PLANT-ABLE SEGMENTAL RETAINING WALLS:

- THE NOTES AND DETAILS PROVIDED ARE FOR BIDDING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN THE WALLS AND COORDINATE WITH MANUFACTURER OF MODULAR FACING CONCRETE UNITS TO INSURE THE STRUCTURE INTEGRITY OF THE WALLS. DESIGN MUST MEET THE REQUIREMENTS OF "NCMA DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS, 3RD EDITION, 2009."

- THE PLANT-ABLE SEGMENTAL RETAINING WALLS SHALL BE DESIGNED FOR THE FOLLOWING MINIMUM SAFETY FACTORS:

- SLIDING ..... 1.5
- OVERTURNING ..... 2.0
- PULL OUT CAPACITY OF GRID ..... 1.5
- STABILITY OF FACING ..... 1.5
- GLOBAL STABILITY ..... 1.4

- THE PLANT-ABLE SEGMENTAL RETAINING WALLS SHALL BE DESIGNED FOR THE FOLLOWING SOIL PARAMETERS AND SURCHARGES:

### REINFORCED BACKFILL:

- MOIST SOIL DENSITY ..... 120 PCF
- FRICTION ANGLE ..... 30 DEGREES
- COHESION ..... 0
- ACTIVE COEFFICIENT,  $K_a$  ..... 0.33
- PASSIVE COEFFICIENT,  $K_p$  ..... 3.0

### FOUNDATION SOILS:

- MOIST SOIL DENSITY ..... 120 PCF
- FRICTION ANGLE ..... 30 DEGREES
- COHESION ..... 0
- FRICTIONAL SLIDING COEFFICIENT ..... 0.6
- BEARING CAPACITY ..... 3000 PSF
- PASSIVE COEFFICIENT,  $K_p$  ..... 3.0

### SURCHARGE:

- UPPER TIER LIVE LOAD ..... 250 PSF
- LOWER TIER LIVE LOAD ..... 100 PSF PLUS SURCHARGE FROM THE UPPER WALL PLUS SURCHARGE FROM THE GUARDRAIL

- PLANT-ABLE SEGMENTAL RETAINING WALL UNITS SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 3000 PSI AND SHALL BE MANUFACTURED AND TESTED PER ASTM C1372 AND ASTM C140.

- GEOSYNTHETIC REINFORCING SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCING APPLICATIONS. GEOGRIDS SHALL BE MANUFACTURED FROM HIGH TENSILE POLYESTER YARN OR HIGH DENSITY POLYETHYLENE, AND SHALL MEET THE FOLLOWING:

- ASTM D 4595 - STANDARD TEST FOR TENSILE PROPERTIES OF GEOTEXTILES BY THE WIDE-WIDTH STRIP METHOD
- ASTM D 5262 - STANDARD TEST METHOD FOR EVALUATING THE UNCONFINED TENSION CREEP AND CREEP RUPTURE BEHAVIOR OF GEOSYNTHETICS
- ASTM D 5321 - STANDARD TEST METHOD FOR DETERMINING THE SHEAR STRENGTH OF SOIL-GEOSYNTHETIC AND GEOSYNTHETIC-GEOSYNTHETIC INTERFACES BY DIRECT SHEAR
- ASTM D 5818 - STANDARD PRACTICE FOR EXPOSURE AND RETRIEVAL OF SAMPLES TO EVALUATE INSTALLATION DAMAGE OF GEOSYNTHETICS
- ASTM D 6706 - STANDARD TEST METHOD FOR MEASURING GEOSYNTHETIC PULLOUT RESISTANCE IN SOIL

- THE GEOSYNTHETIC REINFORCING MUST EXTEND 1'-0" MINIMUM BEYOND THE "COULOMB" FAILURE PLANE AND SHALL HAVE A MINIMUM LENGTH OF THE LARGER OF 0.60 x H OR 4'-0".

- ALIGNMENT PINS SHALL BE 1/2" IN DIAMETER AND FABRICATED FROM PULTRUDED FIBERGLASS. ALIGNMENT PINS MAY ALSO BE FABRICATED FROM ASTM A36 OR A82 STEEL AND GALVANIZED IN CONFORMANCE WITH ASTM A123 (AASHTO, M-111) WHEN SPECIFIED ON THE CONSTRUCTION DRAWINGS.

- THE UNIT DRAINAGE FILL MATERIAL IN AND FOR A NORMAL DISTANCE 12 INCHES OR AS INDICATED ON THE CONSTRUCTION DRAWINGS SHALL CONSIST OF WASHED STONE MATERIAL COMPLYING TO THE FOLLOWING GRADATION:

SIEVE SIZE	PERCENT PASSING
1"	100
3/4"	100-75
No.4	0-10
No.50	0-5

- STRUCTURE BACKFILL MATERIAL BEHIND THE UNIT DRAINAGE FILL SHALL BE SELECTED BACKFILL THAT MUST CONFORM TO THE DECEMBER 22, 2015 GEOTECHNICAL REPORT PREPARED BY GEOTECH ENGINEERS, INC.

## PLANT-ABLE SEGMENTAL RETAINING WALLS (CONTINUED):

- UNIT DRAINAGE AND STRUCTURE FILL SHALL BE PLACED AFTER THE ERECTION OF EACH COURSE OF UNITS. STRUCTURE BACKFILL SHALL BE PLACED IN SUCH A MANNER AS TO AVOID ANY DAMAGE OR DISTURBANCE OF THE WALL MATERIALS OR MISALIGNMENT OF THE FACING UNITS OR REINFORCING ELEMENTS. THE STRUCTURE BACKFILL SHALL BE PLACED SLIGHTLY HIGHER THAN LEVEL OF THE CONNECTION.

- STRUCTURE BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY PER ASTM D 698, STANDARD PROCTOR.

- THE MAXIMUM LIFT THICKNESS AFTER COMPACTION SHALL NOT EXCEED 8 INCHES (200mm). THE CONTRACTOR SHALL DECREASE THIS LIFT THICKNESS, IF NECESSARY, TO OBTAIN THE SPECIFIED DENSITY.

- AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LEVEL OF BACKFILL AWAY FROM THE WALL FACE. IN ADDITION, THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

- THE PLANT-ABLE SEGMENTAL RETAINING WALL CONTRACTOR MUST HAVE AT LEAST 5 YEARS OF EXPERIENCE IN THE DESIGN AND CONSTRUCTION OF SIMILAR WALLS.

## MISCELLANEOUS:

- ITEMS AND CONDITIONS NOTED OR IDENTIFIED IN SECTIONS AND DETAILS APPLY TO AREAS SIMILAR IN CONDITION TO THOSE DENOTED BY SECTION CUT OR DETAIL MARK.

- THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES BETWEEN THE STRUCTURAL DOCUMENTS AND ANY OTHER DOCUMENTS OR EXISTING CONDITIONS FOR RESOLUTION PRIOR TO PROCEEDING WITH FABRICATION OR CONSTRUCTION.

- SHOP DRAWINGS FOR ALL STRUCTURAL ITEMS MUST BE SUBMITTED BY THE CONTRACTOR. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, THE FIRM COLUMBIA ENGINEERING INC. WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND/OR THE DESIGN OF THE PROJECT.

- REPRODUCTIONS OF CONTRACT DOCUMENTS WILL NOT BE ACCEPTED AS SHOP DRAWINGS.

- SIGNED AND SEALED SHOP DRAWINGS AND COMPUTATIONS SHALL BE SUBMITTED FOR ARCHITECT/ENGINEER REVIEW FOR THE FOLLOWING ITEMS:

- PLANT-ABLE SEGMENTAL RETAINING WALLS

- ALL SHOP DRAWINGS USED FOR WORK SHALL BEAR THE STAMP OF THE ARCHITECT/ENGINEER AND SHALL BE MARKED "REVIEWED" OR "REVIEWED AS NOTED".

- LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE.

- ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17 AND ALL LOCAL ORDINANCES. THE OWNER SHALL HIRE AN EXPERIENCED, QUALIFIED INSPECTOR TO PERFORM ALL THE REQUIRED INSPECTION WORK. THE ENGINEER WILL NOT PERFORM THE REQUIRED INSPECTION AS A PART OF HIS DESIGN SERVICE. THE ENGINEER MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS AND SUCH VISITS ARE NOT TO BE CONSTRUED AS MEETING INSPECTION REQUIREMENTS UNLESS THE ENGINEER SPECIFICALLY SO STATES IN WRITING.

## DESIGN CODES:

- INTERNATIONAL BUILDING CODE ..... 2015
- NCMA DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS, 3RD EDITION, 2009
- HOWARD COUNTY DESIGN MANUAL - VOLUME III

## CONSTRUCTION NOTES:

- NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALLS.
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.

- THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST PER ASTM STP-399.

- THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH EIGHT-INCH LIFT MUST BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.

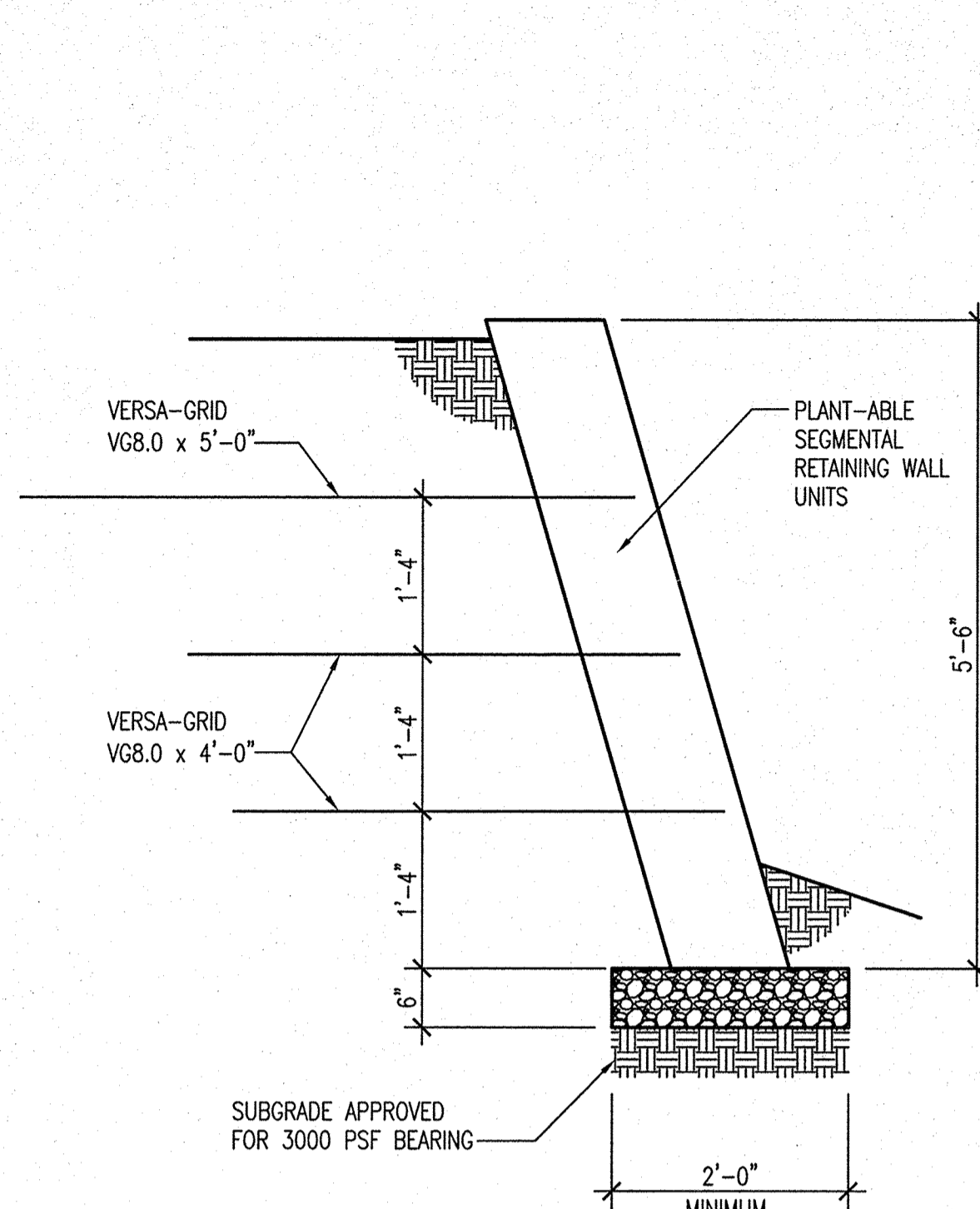
- ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORINGS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO CONSTRUCTION.

- WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.

- WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD COUNTY RIGHT-OF-WAY OR EASEMENT.

## NOTES:

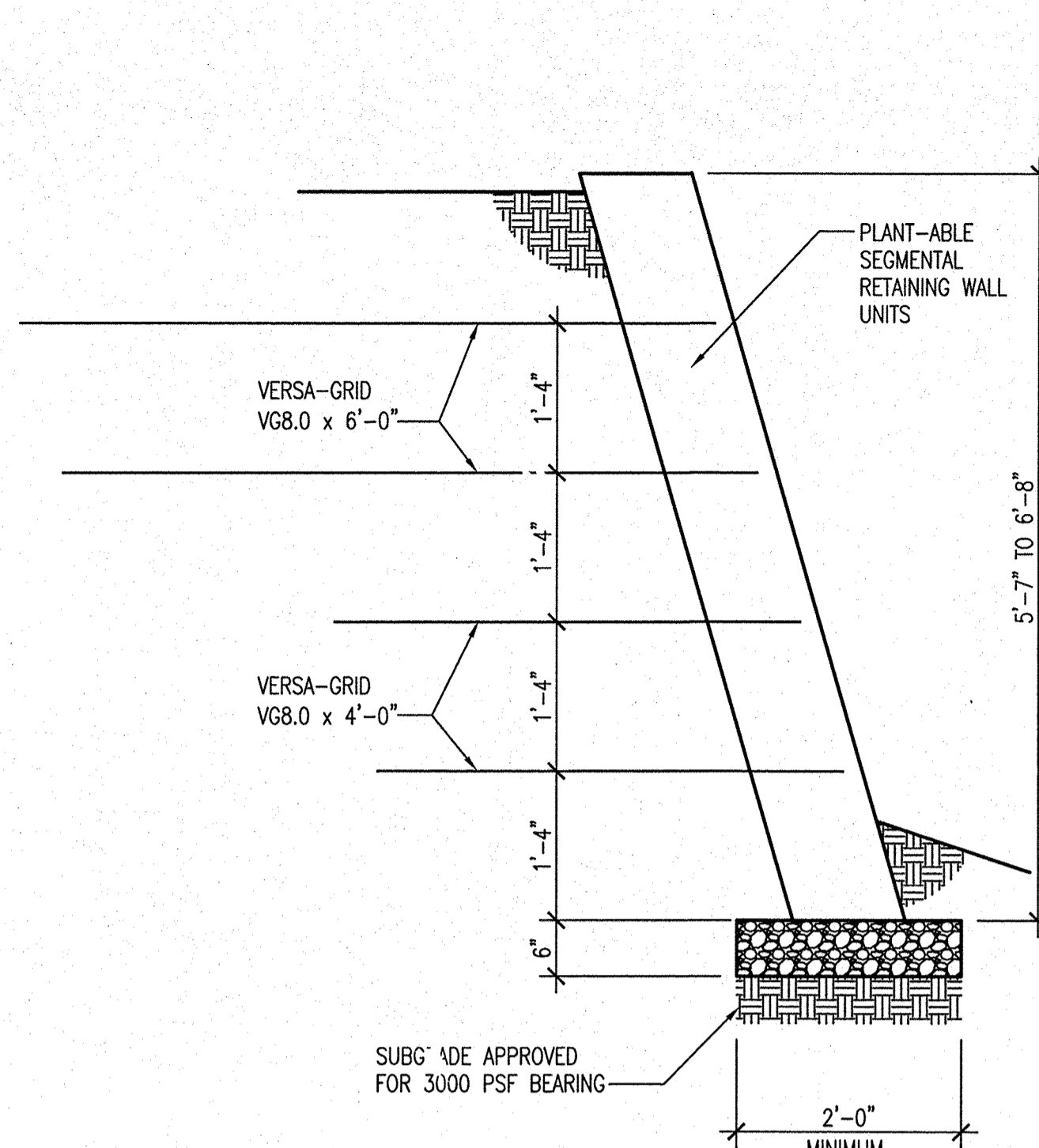
- REFER TO TYPICAL SECTIONS IN DRAWING 30 FOR PARTS NOT SHOWN.
- WALL TYPE APPLIES AT LOWER SECTION OF DOUBLE TIER WALL.



## NOTES:

- REFER TO TYPICAL SECTIONS IN DRAWING 30 FOR PARTS NOT SHOWN.
- REINFORCING NOT REQUIRED FOR WALLS LESS THAN 18" TALL.

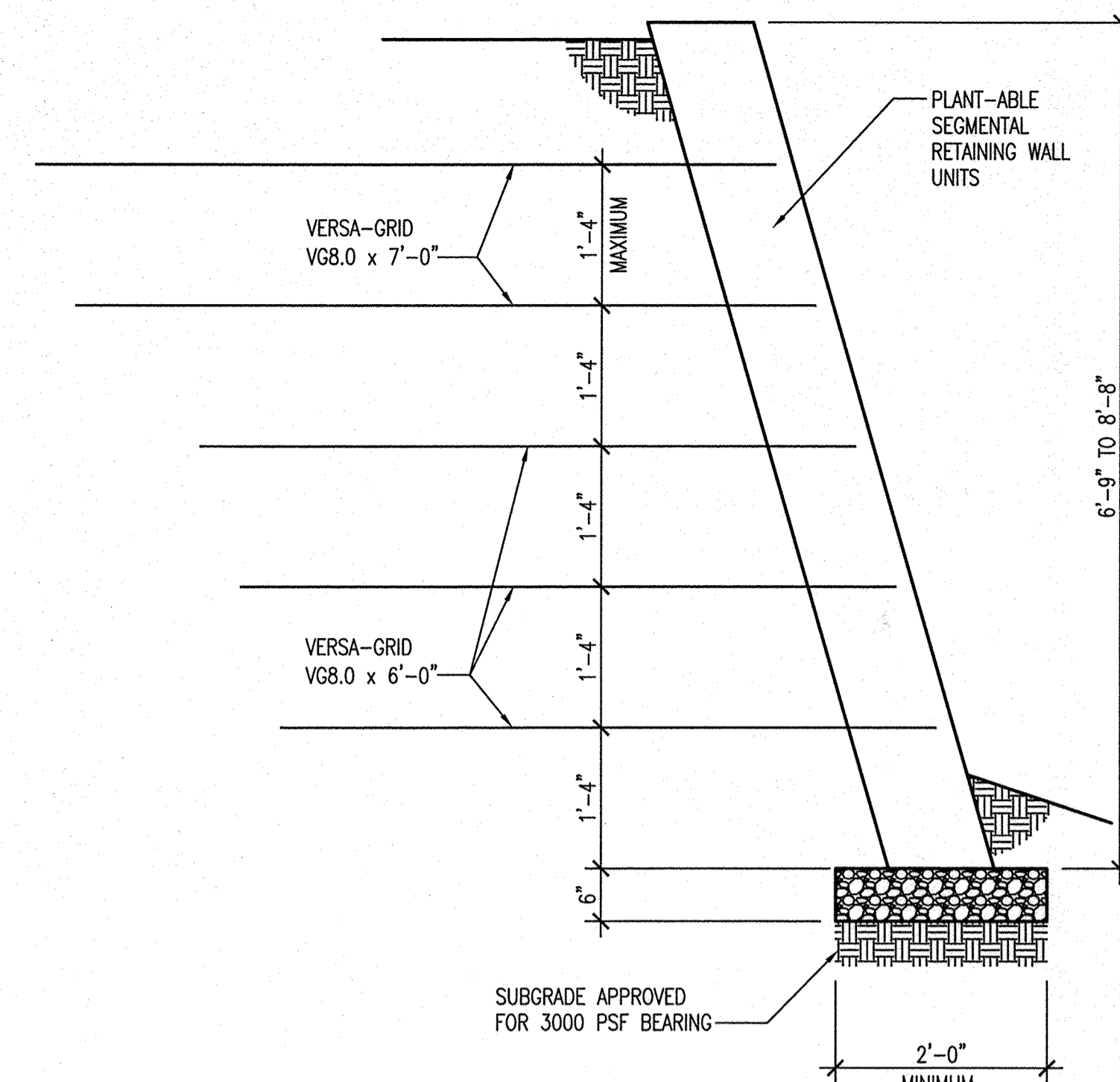
WALL TYPE W-1



## NOTES:

- REFER TO TYPICAL SECTIONS IN DRAWING 30 FOR PARTS NOT SHOWN.

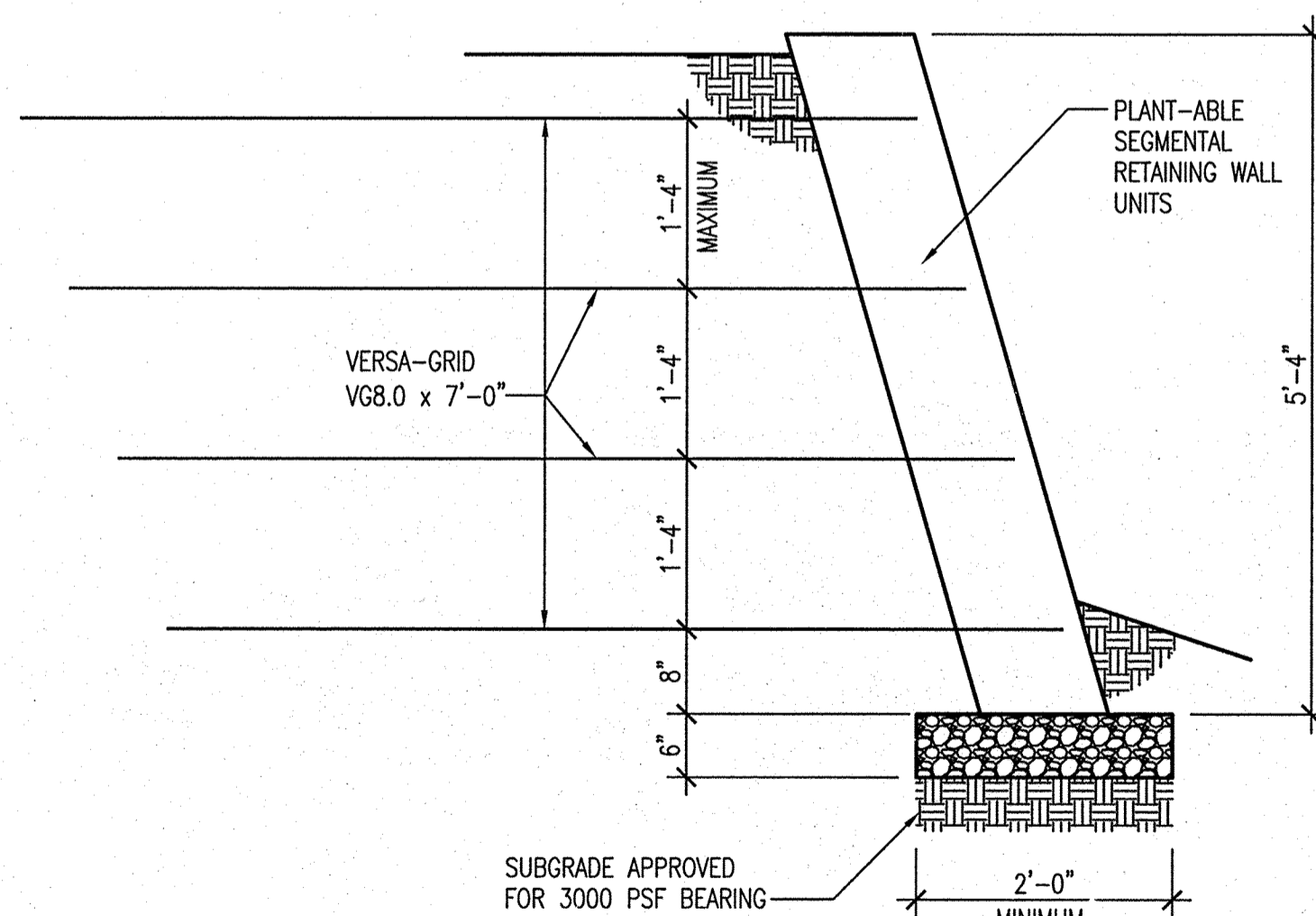
WALL TYPE W-2



## NOTES:

- REFER TO TYPICAL SECTIONS IN DRAWING 30 FOR PARTS NOT SHOWN.

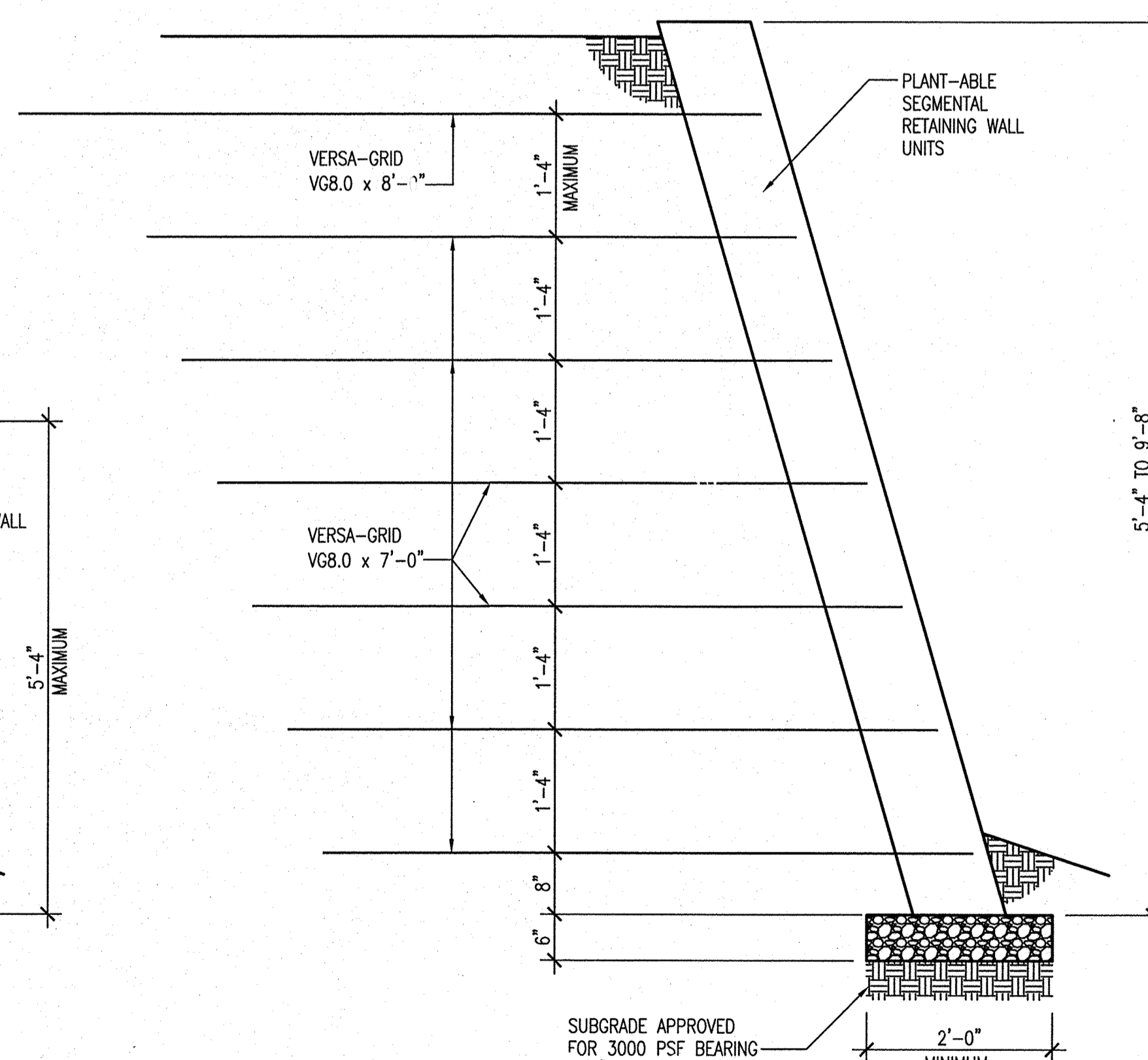
WALL TYPE W-3



## NOTES:

- REFER TO TYPICAL SECTIONS IN DRAWING 30 FOR PARTS NOT SHOWN.
- WALL TYPE APPLIES AT LOWER SECTION OF DOUBLE TIER WALL.

WALL TYPE W-4



## NOTES:

- REFER TO TYPICAL SECTIONS IN DRAWING 30 FOR PARTS NOT SHOWN.
- WALL TYPE APPLIES AT LOWER SECTION OF DOUBLE TIER WALL.

WALL TYPE W-5

APPROVED: DEPARTMENT OF PLANNING AND ZONING			
Chief, Development Engineering Division	<i>[Signature]</i>	7-19-16	DATE
Chief, Division of Land Development	<i>[Signature]</i>	8-16-16	DATE
Director	<i>[Signature]</i>	8-16-16	DATE

DATE	NO.	REVISION	BY

DEVELOPER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700
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OWNER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700
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PROJECT	HCLS ELKRIDGE BRANCH AND 50+ CENTER
---------	--

AREA	FLAT NOS. 2380A - 2380C TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 8540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND
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TITLE	RETAINING WALL GENERAL NOTE*
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Pennoni Associates Inc. Engineers - Surveyors - Planners Landscape Architects	
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DESIGNED BY: RC
DRAWN BY: MT
PROJECT NO.: GRIM1402
DATE: JUNE 20, 2016
SCALE: N.T.S.
DRAWING NO. 29 OF 50

**AS-BUILT CERTIFICATION**

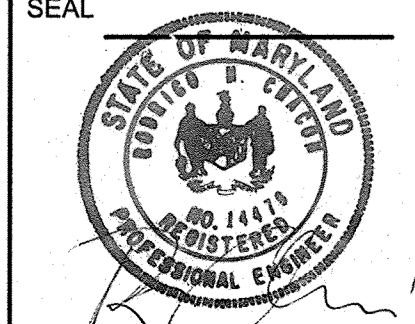
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

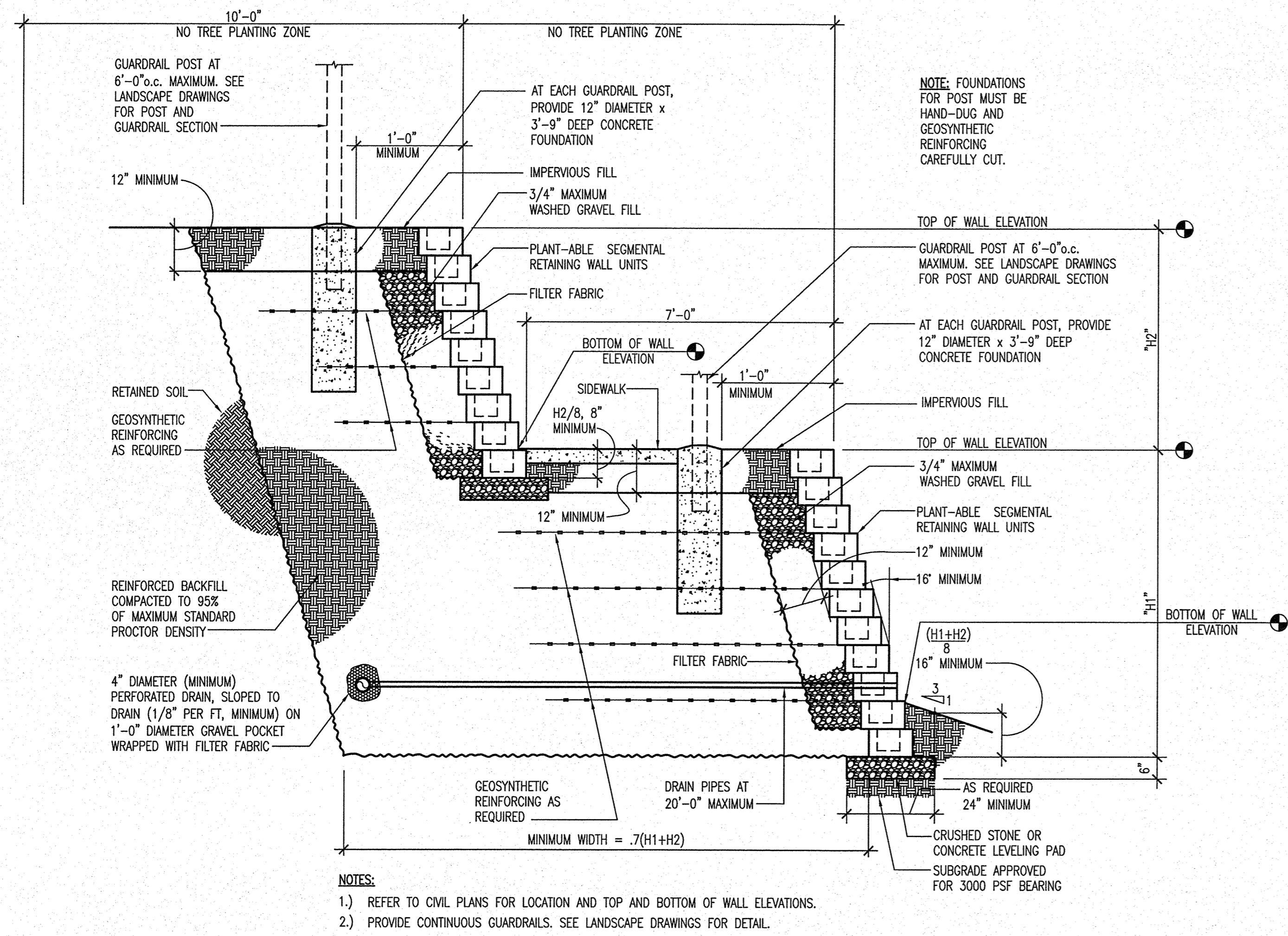
**JAMES A. RUFF** 21774  
PRINTED NAME MD. P.E. NO.  
*[Signature]* 6/16/20  
SIGNATURE DATE

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
No. 21774 REGISTERED  
1988 08/26/2017

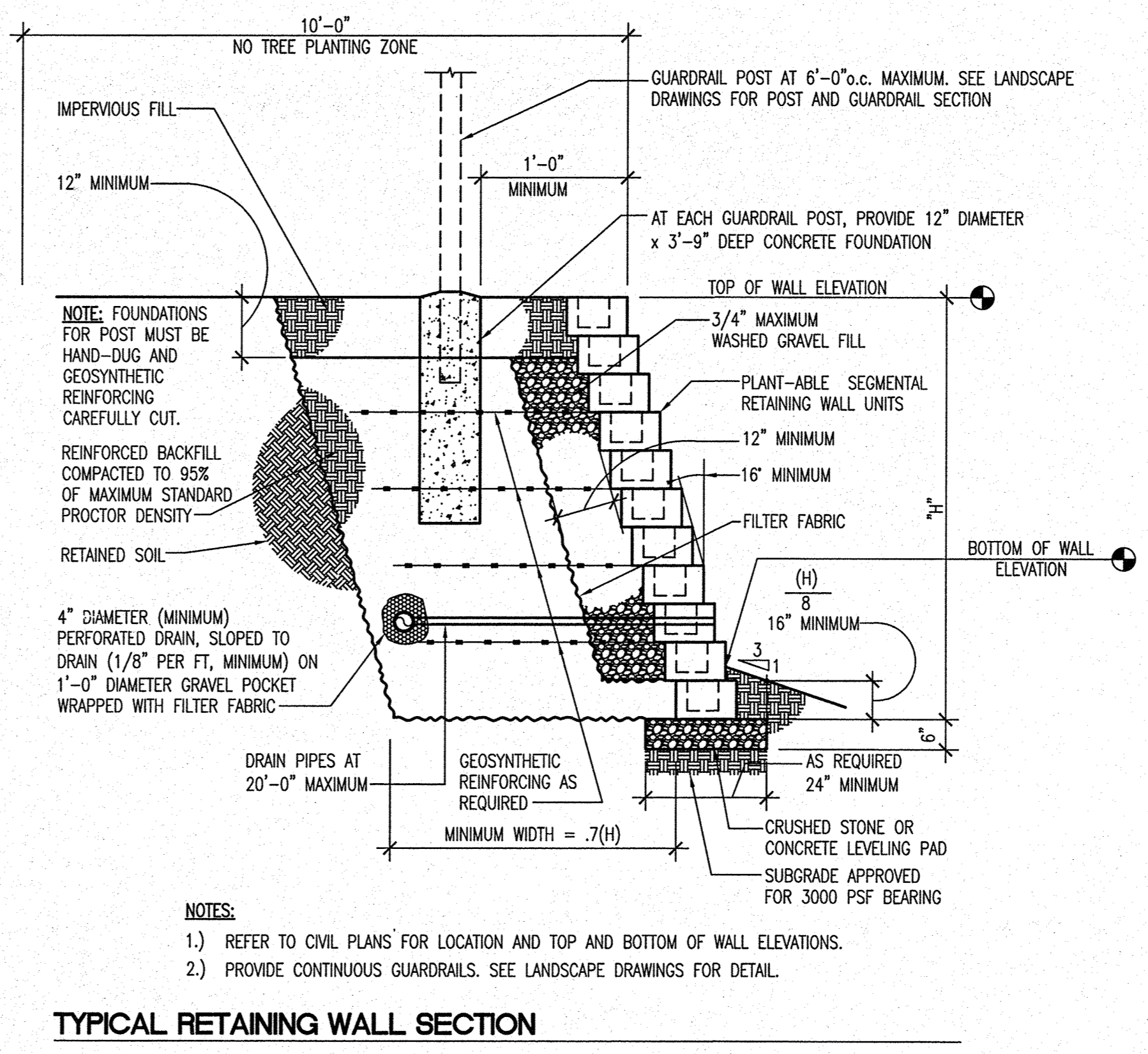


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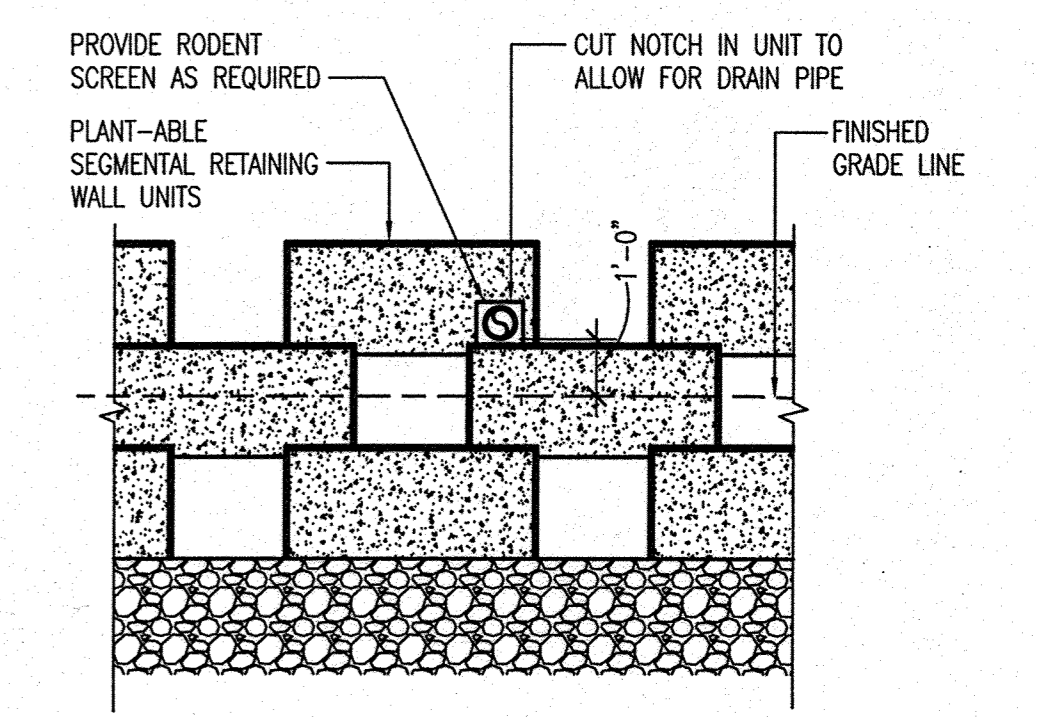
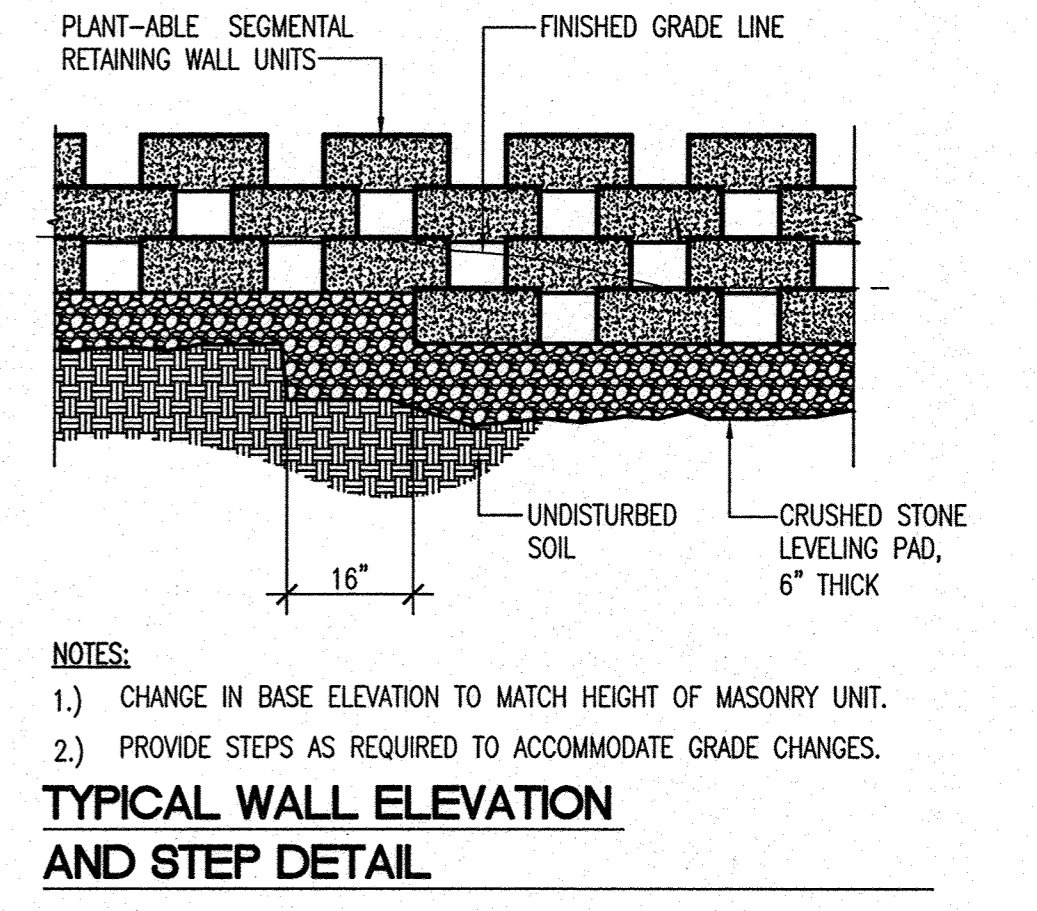




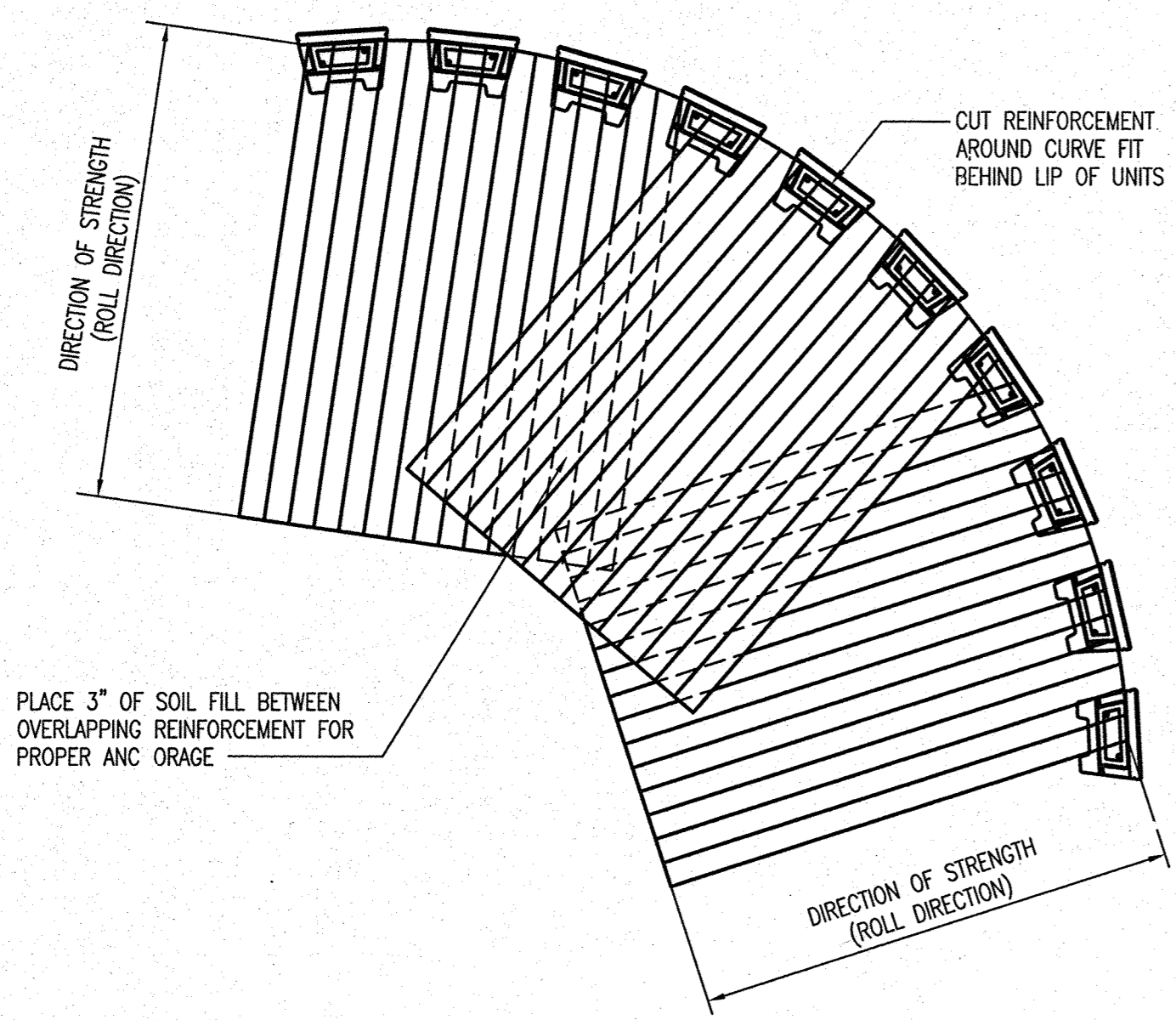
TYPICAL TIERED RETAINING WALL SECTION



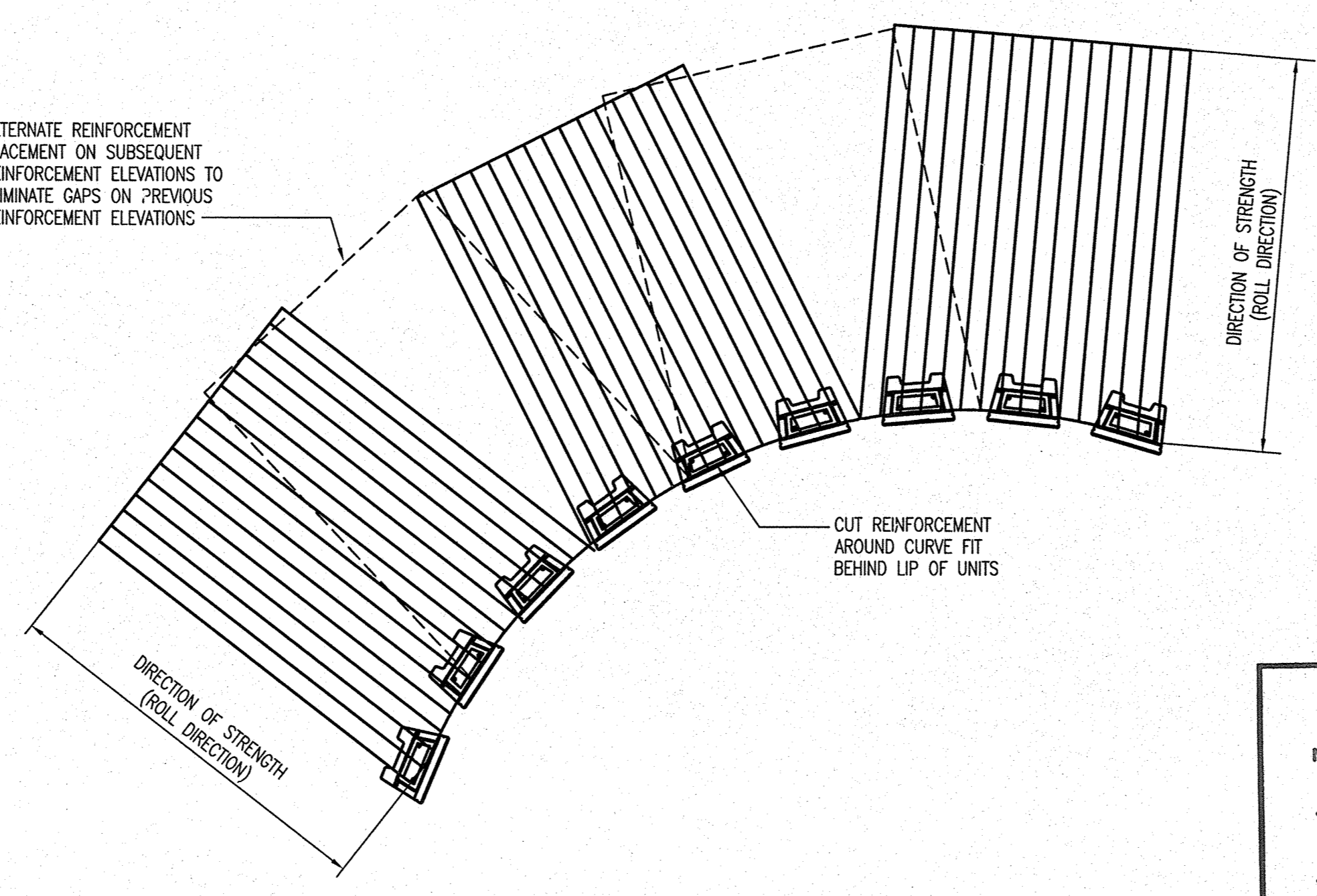
TYPICAL RETAINING WALL SECTION



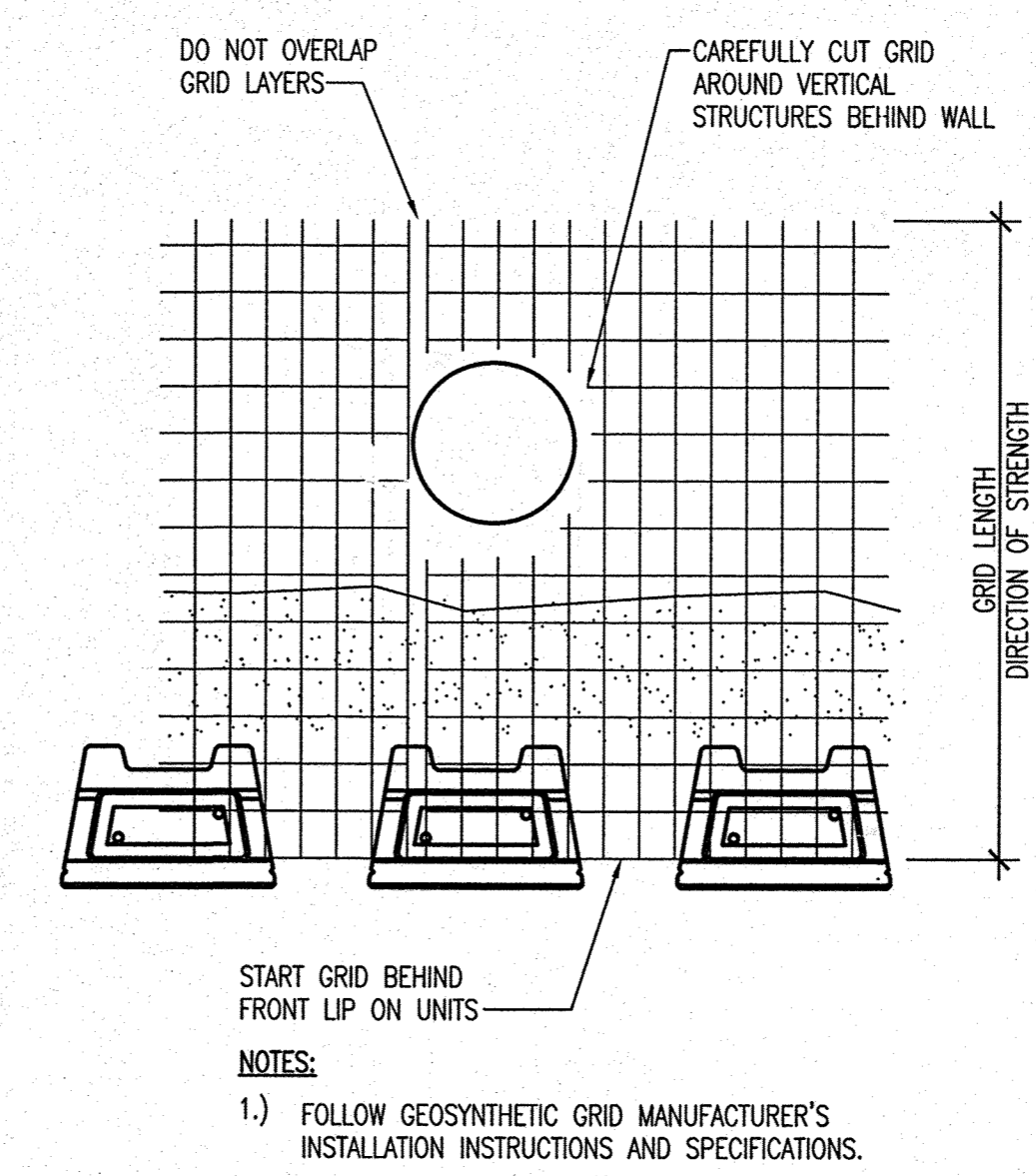
TYPICAL "WEEP PIPE" DETAIL



TYPICAL GEOSYNTHETIC PLACEMENT - CONVEX CURVE DETAIL

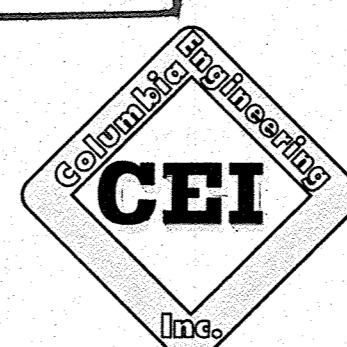


TYPICAL GEOSYNTHETIC PLACEMENT - CONCAVE CURVE DETAIL



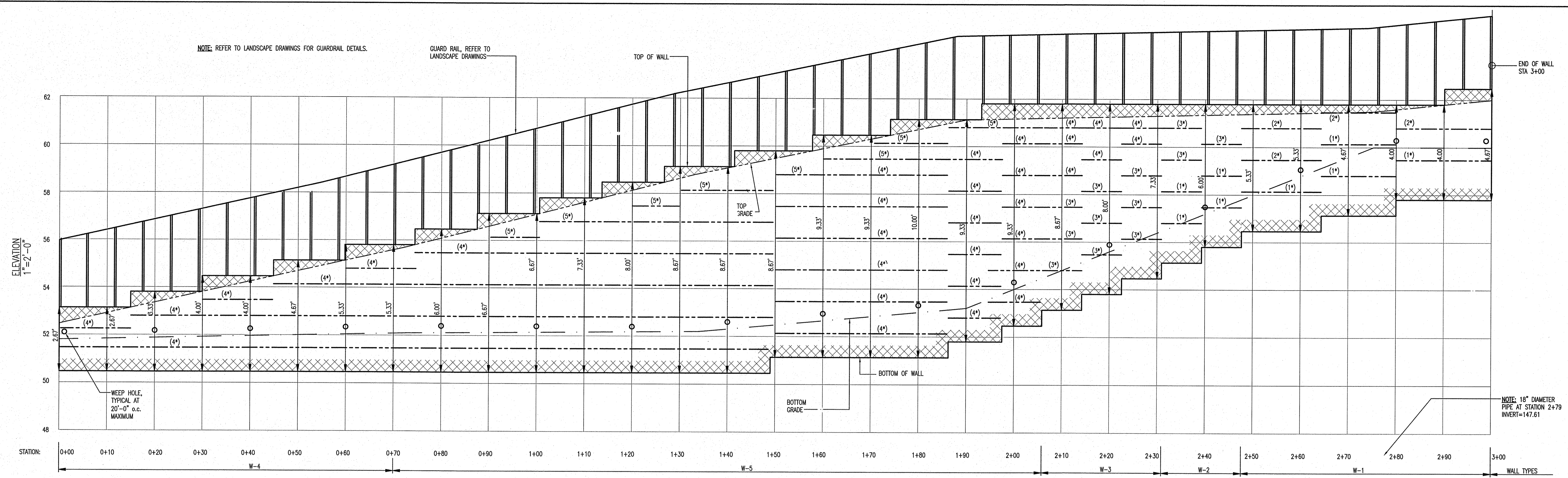
GEOSYNTHETIC AT STRUCTURES BEHIND WALL DETAIL

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A RUFF** 21774  
 PRINTED NAME MD. P.E. NO.  
 SIGNATURE DATE  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MARYLAND  
 No. 14413

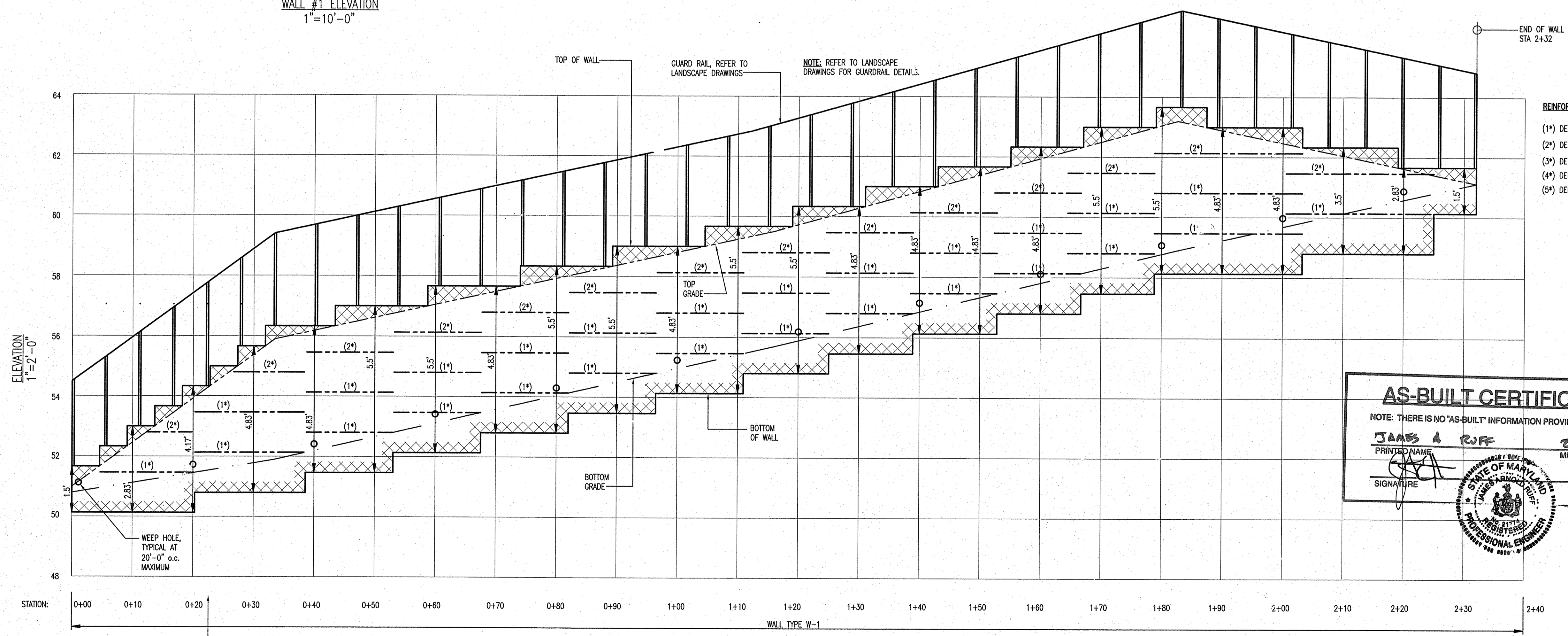


**Columbia Engineering Inc. Structural Engineers**  
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 Columbia, Maryland 21045  
 rchacon@columbiaengineering.com

APPROVED: DEPARTMENT OF PLANNING AND ZONING			
<i>Chad Clark</i>	7-19-16	DATE	
CHIEF, DEVELOPMENT ENGINEERING DIVISION			
<i>Walter Schulz</i>	8-16-16	DATE	
CHIEF, DIVISION OF LAND DEVELOPMENT			
<i>Neil M. Joffe</i>	8-16-16	DATE	
DIRECTOR			
DATE	NO.	REVISION	EY
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER			
AREA: PLAT NOS. 2386A-2387D TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			
TITLE: RETAINING WALL TYPICAL SECTIONS AND DETAILS			
Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects			
8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282			
SEAL	DESIGNED BY: RC		
	DRAWN BY: MT		
	PROJECT NO: GRIM1402		
	DATE: JUNE 20, 2016		
	SCALE: N.T.S.		
	DRAWING NO. 30 OF 50		



WALL #1 ELEVATION  
1"=10'-0"



WALL #2 ELEVATION  
1"=10'-0"

REINFORCING LEGEND

(1\*) DENOTES VERSA-GRID VG 8.0 x 4'-0"

(2\*) DENOTES VERSA-GRID VG 8.0 x 5'-0"

(3\*) DENOTES VERSA-GRID VG 8.0 x 6'-0"

(4\*) DENOTES VERSA-GRID VG 8.0 x 7'-0"

(5\*) DENOTES VERSA-GRID VG 8.0 x 8'-0"

**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

JAMES A. RUFF 21774  
PRINTED NAME MD. P.E. NO.

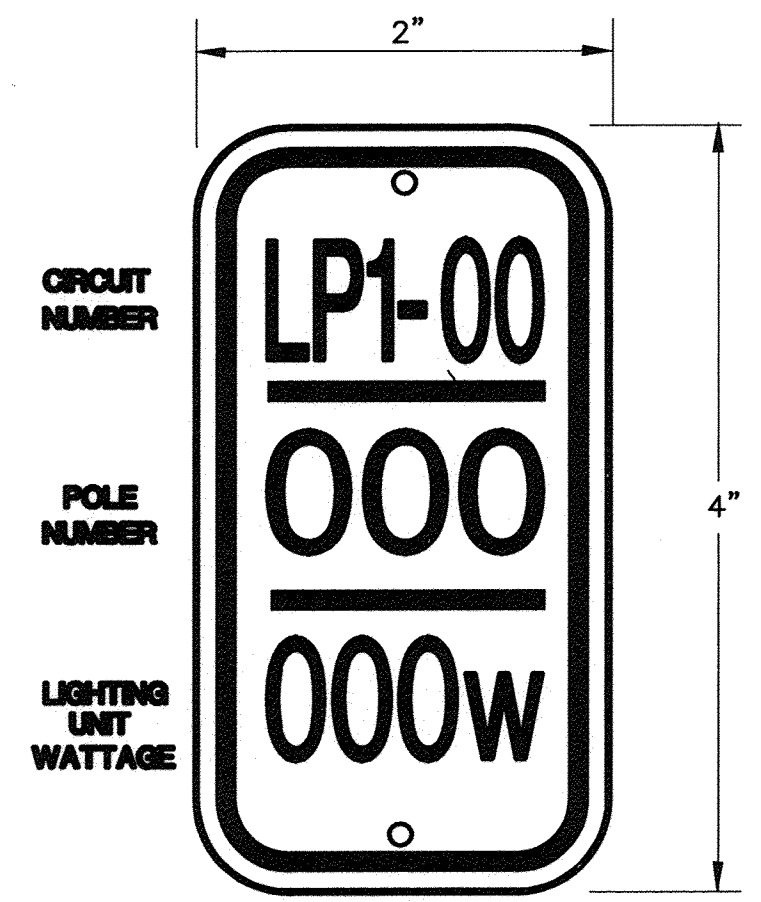
[Signature] 6/19/20  
SIGNATURE DATE

STATE OF MARYLAND  
PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING			
[Signature]			7-19-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION			DATE
[Signature]			8-24-16
CHIEF, DIVISION OF LAND DEVELOPMENT			DATE
[Signature]			8-24-16
DIRECTOR			DATE
DATE	NO.	REVISION	BY
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER			
AREA: FLAT NOS. 2386A-2387D TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			
TITLE: RETAINING WALL ELEVATION			
Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects 8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282			
SEAL	DESIGNED BY: RC		
	DRAWN BY: MT		
	PROJECT NO: GRIM1402		
	DATE: JUNE 20, 2016		
	SCALE: AS NOTED		
BY: [Signature]			DRAWN BY: 31 OF 50

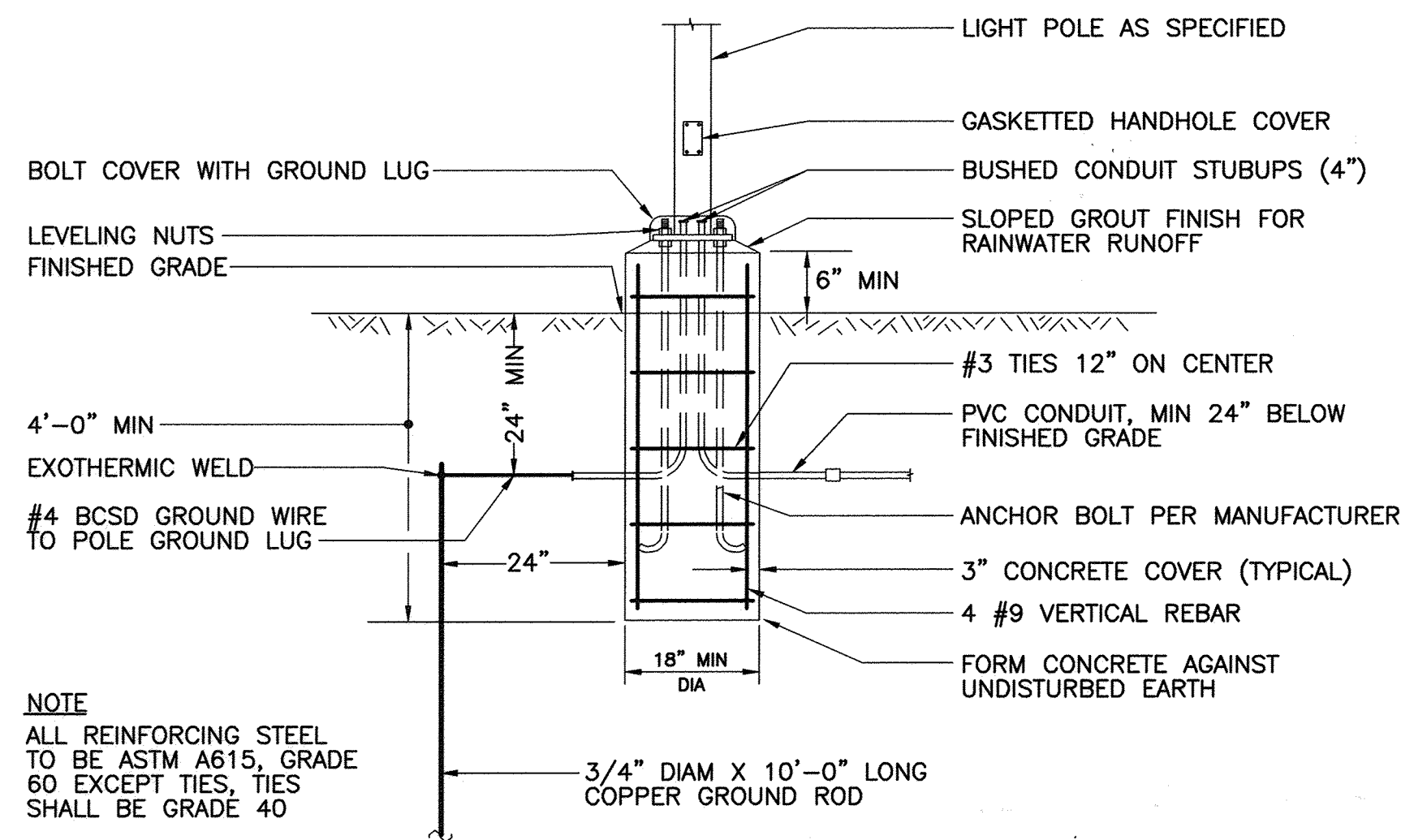


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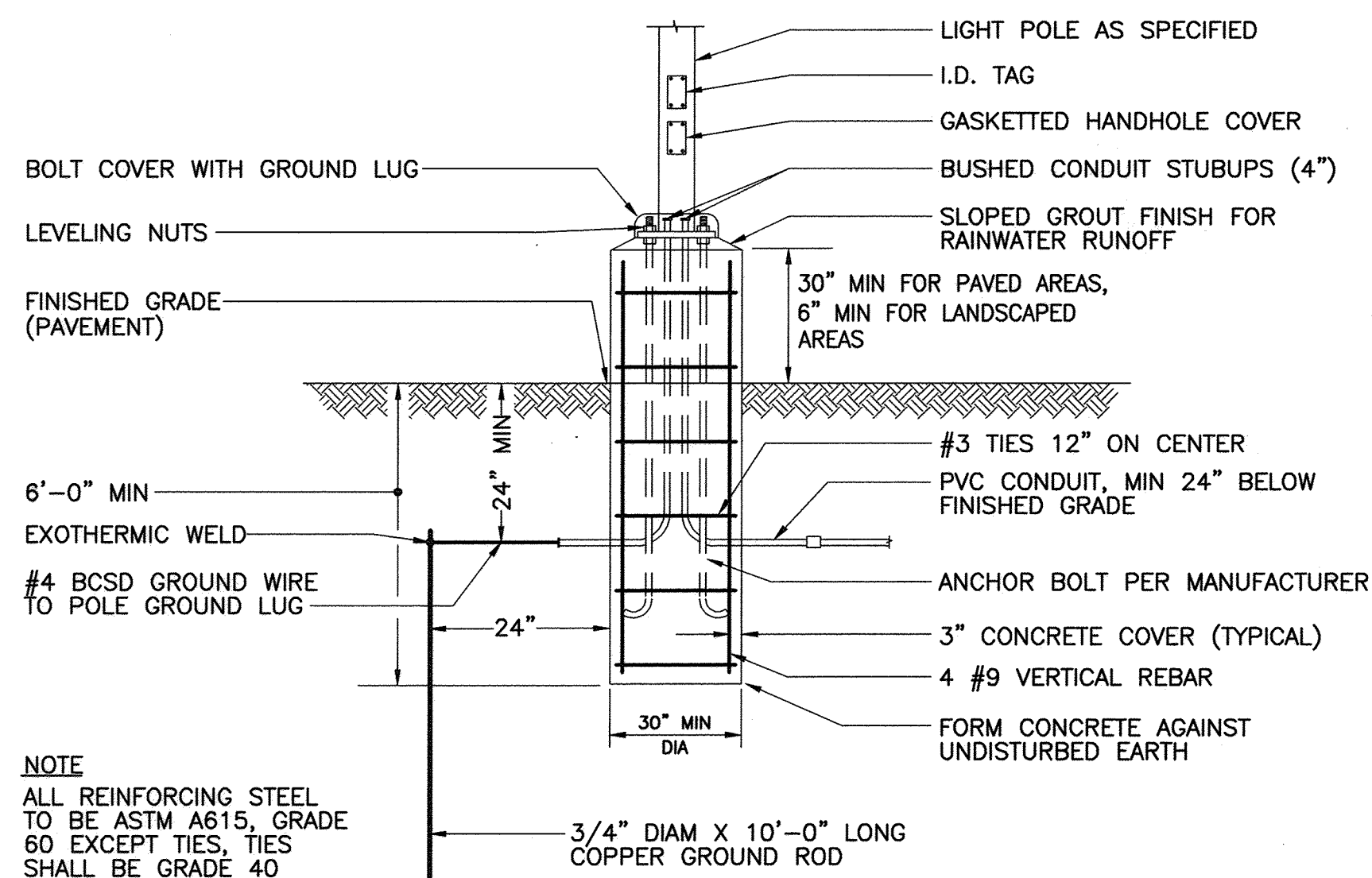
NOTE: POLE IDENTIFICATION TAG SHALL BE E/G SILVER/WHITE REFLECTIVE SHEETING, BLACK LEGEND ADHERED TO .080 ALUMINUM REMOVABLE PLATE. LETTERING SHALL BE 3/4". PLACE TAG TO FACE THE SHOULDER/CURB.

**LIGHTING POLE IDENTIFICATION TAG**  
NO SCALE



NOTE: ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 EXCEPT TIES, TIES SHALL BE GRADE 40

**WALKWAY - POLE BASE**  
NO SCALE



NOTE: ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 EXCEPT TIES, TIES SHALL BE GRADE 40

**PARKING AREA POLE BASE**  
NO SCALE

**ELECTRICAL LEGEND**

(MOUNTING HEIGHTS ARE TO CENTERLINE OF WALL MOUNTED DEVICES AND TO THE BOTTOM OF LIGHTING FIXTURES UNLESS OTHERWISE NOTED.)

**LIGHTING**

FLUORESCENT FIXTURE - 2'x4'. UPPERCASE LETTER INDICATES FIXTURE TYPE, NUMBER INDICATES CIRCUIT DESIGNATION, LOWER CASE LETTER WHERE APPLICABLE INDICATES SWITCH CONTROL DEVICE.

FLUORESCENT FIXTURE - 1'x4" AND STRIP LIGHT, TYPE AS NOTED.

FIXTURE CIRCUITED TO PROVIDE TWO LEVELS OF ILLUMINATION. REFER TO SCHEDULE FOR SWITCHING/BALLAST REQUIREMENT.

LIGHTING FIXTURE - WALL MOUNTED, TYPE AS NOTED.

EXIT SIGN - CEILING, WALL MOUNTED - MOUNT 7'-6" AFF OR 6" ABOVE DOOR FRAME.

LIGHTING FIXTURES CONNECTED TO EMERGENCY CIRCUIT.

ADJUSTABLE TRACK FIXTURES WITH 2 CKT TRACK; TYPE AS NOTED; NUMBER OF FIXTURES AS SHOWN ON PLAN.

CEILING MOUNTED DOWNLIGHT

POLE MOUNTED SITE LIGHTING FIXTURE; TYPE AS NOTED

**POWER**

TO GROUND

ELECTRIC HANDHOLE. REFER TO DETAIL FOR INFORMATION

EXTERIOR JUNCTION BOX (IN-GRADE). REFER TO DETAIL FOR INFORMATION

**CONDUIT**

HOMERUN TO PANELBOARD; NUMBER OF ARROWHEADS INDICATE NUMBER OF CIRCUITS; REFER TO PANEL SCHEDULES FOR MINIMUM WIRE AND CONDUIT SIZES

CONDUIT OR WIRE CONCEALED IN CEILING SPACE, WALL OR SURFACE MOUNTED WHERE NO CEILING EXISTS

CONDUIT OR WIRE ROUTED IN OR BELOW FLOOR SLAB.

CONDUIT CONCRETE ENCASED BELOW GRADE OR FLOOR SLAB.

**MISCELLANEOUS**

1 DENOTES REFERENCE TO DRAWING NOTE

1/E/# DENOTES REFERENCE TO DETAIL NUMBER/DRAWING NUMBER

**ABBREVIATIONS**

A AMPERE, AMPERES  
AFF ABOVE FINISHED FLOOR  
AFG ABOVE FINISHED GRADE  
AHU AIR HANDLING UNIT  
AHJ AUTHORITY HAVING JURISDICTION  
AIC AMPERE INTERRUPTING CAPACITY  
AL ALUMINUM  
AWG AMERICAN WIRE GAUGE  
BDA BIDIRECTIONAL AMPLIFIER  
BF BALLAST FACTOR  
BGE BALTIMORE GAS & ELECTRIC  
CATV CABLE TELEVISION  
CCTV CLOSED CIRCUIT TELEVISION  
C CONDUIT  
CB CIRCUIT BREAKER  
CFU CEILING FAN COIL UNIT  
CLG CEILING, CEILING MOUNTED  
CTR COUNTER TOP RECEPTACLE  
DIA DIAMETER  
DWG DRAWING  
E EMERGENCY  
EC ELECTRICAL CONTRACTOR  
ECB ENCLOSED CIRCUIT BREAKER  
EF EXHAUST FAN  
EMCS ENERGY MANAGEMENT CONTROL SYSTEM

EPO EMERGENCY POWER OFF  
ETR EXISTING TO REMAIN  
EWG ELECTRIC WATER COOLER  
EX EXISTING  
FA FIRE ALARM  
FAAP FIRE ALARM ANNUNCIATOR PANEL  
FACP FIRE ALARM CONTROL PANEL  
FLA FULL LOAD AMPERES  
FO FIBER OPTIC  
FSS FUSED SAFETY SWITCH  
GFI GROUND FAULT INTERRUPTING  
G GROUND  
GW GROUND WIRE  
H HIGH  
HOA HAND-OFF-AUTOMATIC  
HP HORSEPOWER  
IDF INTERMEDIATE DISTRIBUTION FRAME  
IMC INTERMEDIATE METAL CONDUIT  
K KELVIN  
KCMIL THOUSAND CIRCULAR MILS  
KVA KILOWATT-AMPERES  
KW KILOWATT

LRA LOW  
MCA LOCKED ROTOR AMPERES  
MCB MINIMUM CIRCUIT AMPERES  
MDF MAIN CIRCUIT BREAKER  
MLO MAIN DISTRIBUTION FRAME  
MOCB MAIN LUGS ONLY  
MPOP MAXIMUM OVERCURRENT PROTECTION  
MTD MAIN POINT OF PRESENCE MOUNTED  
MH MOUNTING HEIGHT/MANHOLE  
NEC NATIONAL ELECTRICAL CODE  
NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
NF/SF NONFUSED SAFETY SWITCH  
NIC NOT IN CONTRACT  
NO NUMBER  
OC ON CENTERS  
P POLE, POLES  
PA PA SYSTEM  
PHASE  
PNL PANEL  
PTZ PAN TILT ZOOM  
PVC POLYVINYL CHLORIDE  
RAF RETURN AIR FAN  
RGS RIGID GALVANIZED STEEL REMOVE EXISTING  
RX SURGE PROTECTION DEVICE  
SPD TAP SECTION  
TAP TOE KICK  
TR TAMPER RESISTANT  
TYP TYPICAL  
UH UNIT HEATER  
V VOLT, VOLTS  
VFCU VERTICAL FAN COIL UNIT  
VR VANDAL RESISTANT  
WP WEATHERPROOF  
W WATTS, WIRE, WIRES  
XFMR TRANSFORMER  
TTB TELEPHONE TERMINAL BOARD  
UTP UNSHIELDED TWISTED PAIR  
UON UNLESS OTHERWISE NOTED

**GENERAL NOTES:**

1. THE ELECTRICAL CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DRAWINGS OF ALL OTHER TRADES ON THE PROJECT. ELECTRICAL OR SYSTEMS CONNECTIONS INDICATED ON ARCHITECTURAL, MECHANICAL, CIVIL, STRUCTURAL, KITCHEN AND ALL OTHER DRAWINGS WHICH ARE PART OF THIS PROJECT, SHALL BE CONSIDERED A PART OF THIS CONTRACT AND SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AT NO EXTRA COST TO THE OWNER.
2. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE AND AS SUCH SHALL NOT BE SCALED. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF DEVICES AND EQUIPMENT AND DIMENSIONAL INFORMATION PRIOR TO ROUGH-IN. COORDINATE LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN OF SERVICE EQUIPMENT AND WIRING.
3. COORDINATE MOUNTING HEIGHTS OF ALL DEVICES WITH ARCHITECTURAL PLANS, SECTIONS, ELEVATIONS AND CASEWORK DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT ROUTING OF WIRING AND CONDUITS AND SHALL BE RESPONSIBLE FOR SIZING ALL BRANCH CIRCUIT WIRING TO LIMIT VOLTAGE DROP TO 3%. CONTRACTOR SHALL SIZE CONDUIT TO ACCOMMODATE WIRING PER NEC. 20 AMPERE CIRCUITS SHALL BE SIZED AS FOLLOWS:

20 AMPERE CIRCUITS				
120 VOLT		277 VOLT		MINIMUM CONDUIT SIZE
WIRING LENGTH	WIRE SIZE	WIRING LENGTH	WIRE SIZE	
0' - 60'	#12	0' - 130'	#12	3/4"
60' - 100'	#10	130' - 210'	#10	3/4"
100' - 150'	#8	210' - 340'	#8	3/4"
150' - 240'	#6	340' - 540'	#6	3/4"
OVER 240'	#4	OVER 540'	#4	1"

NOTES:  
BRANCH CIRCUITS IN PANELBOARDS WITH 200% RATED NEUTRAL BUS, ECM MOTORS AND ALL DIMMED LIGHTING CIRCUITS SHALL HAVE DEDICATED NEUTRAL CONDUCTORS.

- WIRING AND CONDUIT SIZES INDICATED IN PANEL SCHEDULES ARE MINIMUM ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT WIRING AND CONDUIT SIZES. CONTRACTOR SHALL PROVIDE SPLICE BLOCKS AND REDUCING PINS AS REQUIRED TO TERMINATE WIRING AND MAKE FINAL CONNECTIONS.
5. ELECTRICAL BOXES IN FIRE RATED PARTITIONS SHALL NOT EXCEED 16 SQUARE INCHES IN AREA (IF 4"x4"), SHALL BE MADE OF STEEL, AND SHALL BE SUCH THAT THE CUMULATIVE AREA OF BOX "CUTOUPS" IN THE FIREWALL DOES NOT EXCEED 100 SQUARE INCHES PER 100 SQUARE FEET OF WALL AREA. ELECTRICAL BOXES ON OPPOSITE SIDES OF THE SAME FIREWALL SHALL BE SEPARATED BY A HORIZONTAL AND VERTICAL DISTANCE OF NOT LESS THAN 24 INCHES. THE ELECTRICAL CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS, AS NECESSARY, TO ELECTRICAL BOX LOCATIONS TO ENSURE COMPLIANCE WITH THIS REQUIREMENT SINCE BOX LOCATIONS ARE TYPICALLY NOT DIMENSIONED ON THE DRAWINGS. CONSULT ARCHITECT IF CLARIFICATION IS REQUIRED.
  6. FIRE ALARM EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED, INCLUDING WATER INGRESS, TEMPERATURE AND HUMIDITY.

**AS-BUILT CERTIFICATION**  
NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
JAMES A RUFF 2174  
PRINTED NAME MD. P.E. NO.  
DATE 6/19/20  
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE 7-19-16  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE 8-16-16  
DIRECTOR  
DATE 8-16-16

EXTERIOR LIGHTING FIXTURE SCHEDULE									
TYPE	DESCRIPTION	MANUFACTURER	CATALOG NO.	VOLTS	INPUT WATTS	LAMP	MOUNTING	REMARKS	
P2	LED FULL CUTOFF EXTERIOR AREA FIXTURE WITH IES TYPE II ASYMMETRIC DISTRIBUTION, EXTRUDED AND DIE CAST ALUMINUM HOUSING, REMOVABLE DRIVER TRAY ASSEMBLY, TGIC POWDERCOAT PAINT, UL WET LOCATION AND IP66 20 FT STRAIGHT SQUARE STEEL POLE FINISHED TO MATCH FIXTURE	LITHONIA	DSXD-LED-40C-700-40K-T2M-MVOLT B2-U0-G2	277	91	LED ARRAY, 4000K, 10974 LUMENS	POLE	FIXTURE HEIGHT INCLUDING POLE BASE SHALL NOT EXCEED 20'-0"	
P3	LED FULL CUTOFF EXTERIOR AREA FIXTURE WITH IES TYPE III ASYMMETRIC DISTRIBUTION, EXTRUDED AND DIE CAST ALUMINUM HOUSING, REMOVABLE DRIVER TRAY ASSEMBLY, TGIC POWDERCOAT PAINT, UL WET LOCATION AND IP66 20 FT STRAIGHT SQUARE STEEL POLE FINISHED TO MATCH FIXTURE	LITHONIA	DSXD-LED-40C-700-40K-T3M-MVOLT B2-U0-G3	277	91	LED ARRAY, 4000K, 10974 LUMENS	POLE	FIXTURE HEIGHT INCLUDING POLE BASE SHALL NOT EXCEED 20'-0"	
P4	LED FULL CUTOFF EXTERIOR AREA FIXTURE WITH IES TYPE IV FORWARD THROW DISTRIBUTION, EXTRUDED AND DIE CAST ALUMINUM HOUSING, REMOVABLE DRIVER TRAY ASSEMBLY, TGIC POWDERCOAT PAINT, UL WET LOCATION AND IP66 20 FT STRAIGHT SQUARE STEEL POLE FINISHED TO MATCH FIXTURE	LITHONIA	DSXD-LED-40C-700-40K-1FTM-MVOLT B2-U0-G2	277	91	LED ARRAY, 4000K, 10957 LUMENS	POLE	FIXTURE HEIGHT INCLUDING POLE BASE SHALL NOT EXCEED 20'-0"	
P4H	SAME AS TYPE P4 WITH HOUSE-SIDE SHIELD	LITHONIA	DSXD-LED-40C-700-40K-1FTM-MVOLT B1-U0-G2	277	91	LED ARRAY, 4000K, 8815 LUMENS	POLE	FIXTURE HEIGHT INCLUDING POLE BASE SHALL NOT EXCEED 20'-0"	
W	16"W X 7"H X 9"D FULL CUTOFF LED WALL SCENCE WITH FULL CUTOFF DISTRIBUTION, DIE CAST ALUMINUM HOUSING AND DOOR FRAME, SILICONE GASKETING, UL LISTED FOR WET LOCATION, IP65 RATED	LITHONIA	WST-LED-2-SR4	277	24	LED ARRAY, 4000K, 1927 LUMENS	SURFACE/WALL 10'-0" AFF UON		

**LIGHTING NOTES**  
1. REFER TO INTERIOR/EXTERIOR LIGHTING SPECIFICATIONS FOR ADDITIONAL LED AND DRIVER INFORMATION. PROVIDE DRIVER FOR VOLTAGE AS INDICATED.  
2. PROVIDE ALL MOUNTING HARDWARE AND ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION SUITABLE FOR THE MOUNTING TYPE AND CONFIGURATION.  
3. COORDINATE LIGHTING FIXTURES INDICATED ON DRAWINGS WITH ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS.  
4. ALL FINISH SELECTIONS SHALL BE AS APPROVED BY THE ARCHITECT.  
5. MANUFACTURERS SHALL PROVIDE POINT-BY-POINT CALCULATIONS FOR PARKING AND DRIVEWAY AREAS PRIOR TO APPROVAL FOR REVIEW. FIXTURES MAY UTILIZE IES TYPES II, III, IV, AND/OR TYPE V IN COMBINATION AS REQUIRED.  
6. MAINTAINED AVERAGE ILLUMINATION SHALL BE MINIMUM 1.00 FOOTCANDLES, WITH MINIMUM 0.20 FOOTCANDLES AND UNIFORMITY RATIO NOT TO EXCEED 20:1 MAXIMUM-TO-MINIMUM, AND 5:1 AVERAGE-TO-MINIMUM.  
7. PRODUCTS WHICH MAY BE INCLUDED INTO THE WORK ARE LIMITED TO MANUFACTURER AND MODEL NUMBER LISTED OR APPROVED EQUAL UNLESS OTHERWISE NOTED.  
8. PROVIDE HOUSESIDE SHIELDS FOR FIXTURES WHERE INDICATED ON PLANS.

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER

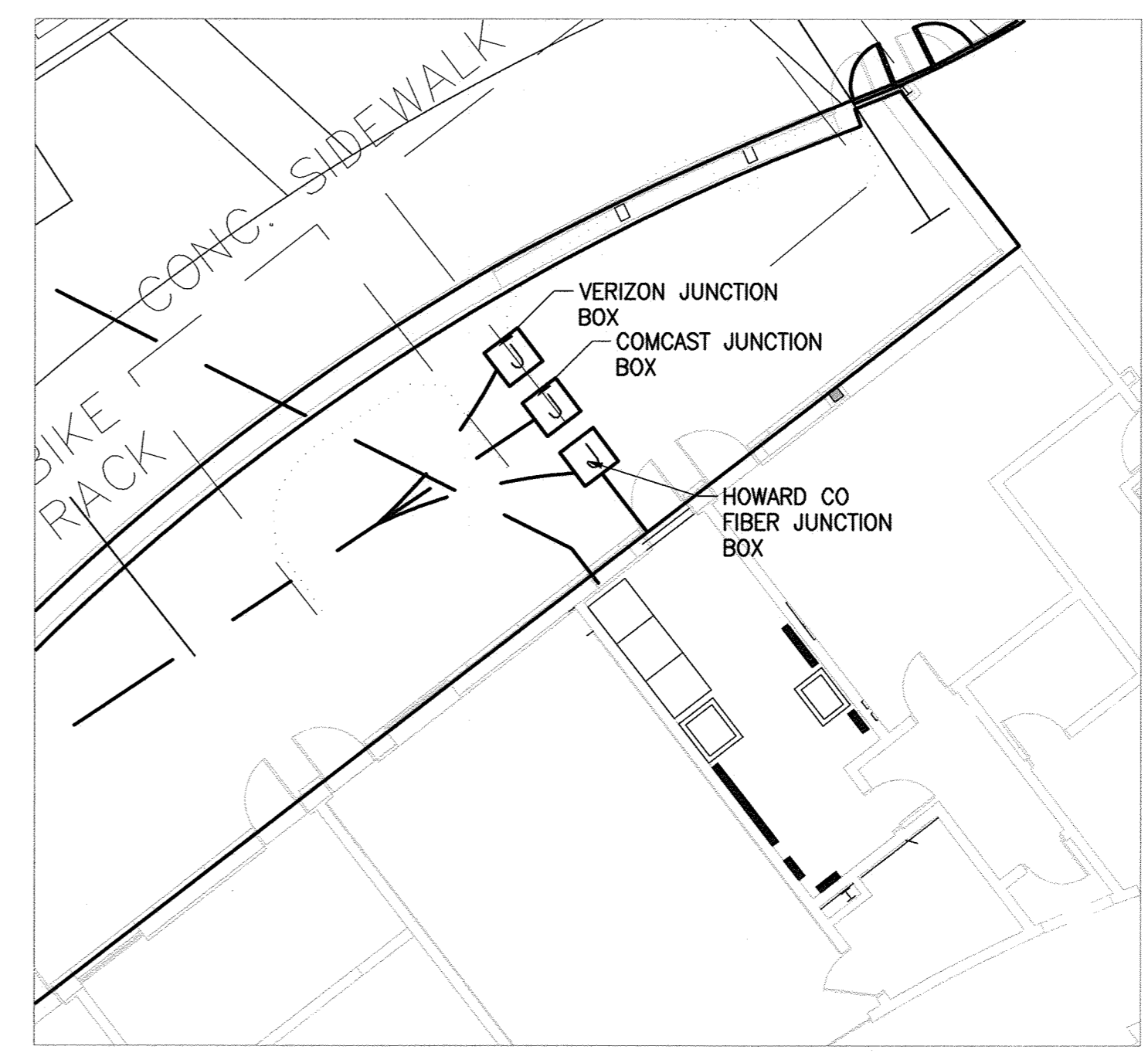
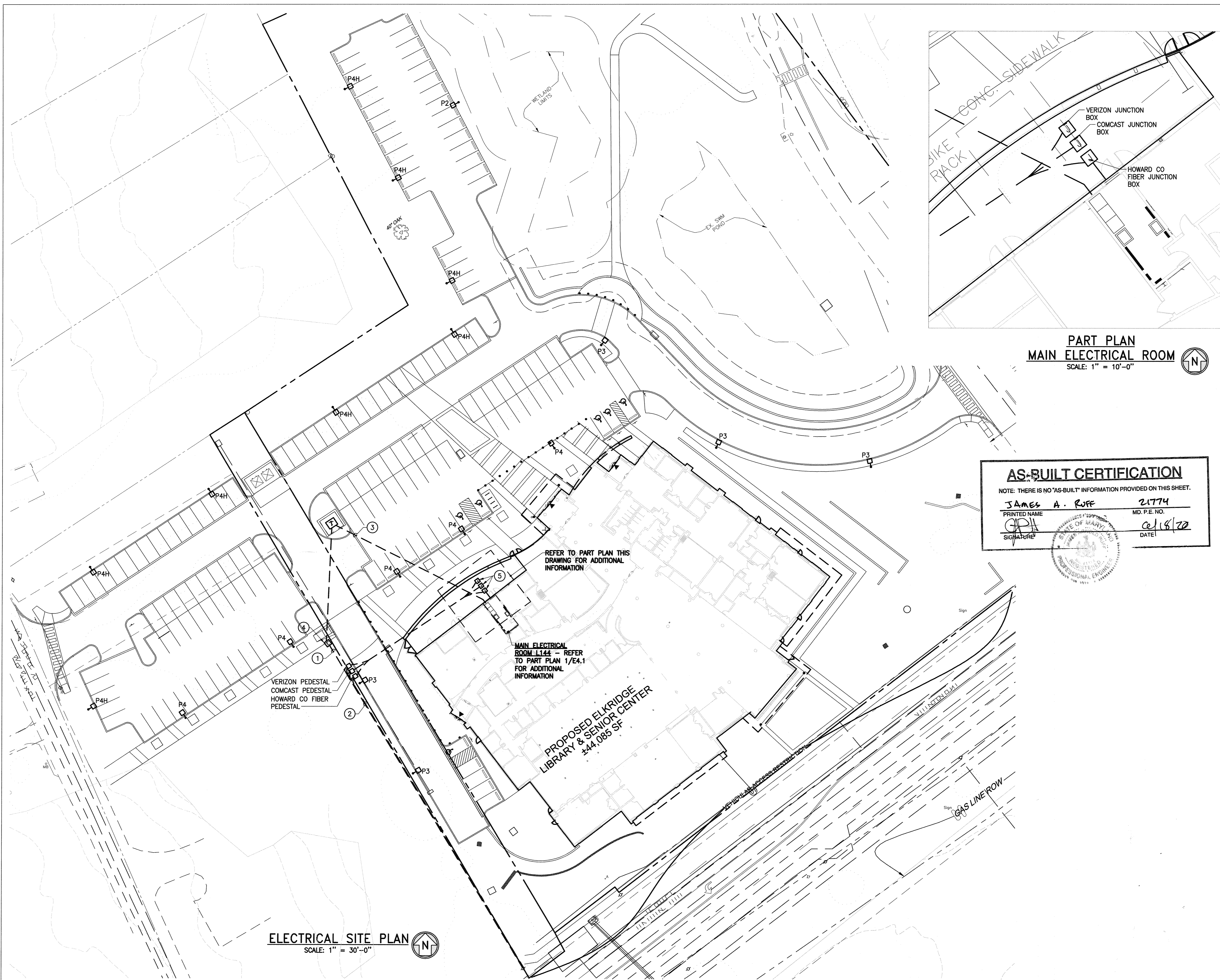
AREA: PLAT NOS. 2386A, 23870 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 8540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: LEGEND, SCHEDULES & ABBREVIATIONS

Gipe Associates Inc. Consulting Engineers  
849 Fairmount Ave Suite 102 Baltimore, MD 21286  
Baltimore, Maryland (410)832-2420  
Easton, Maryland (410)822-8688  
W.O.# 14122

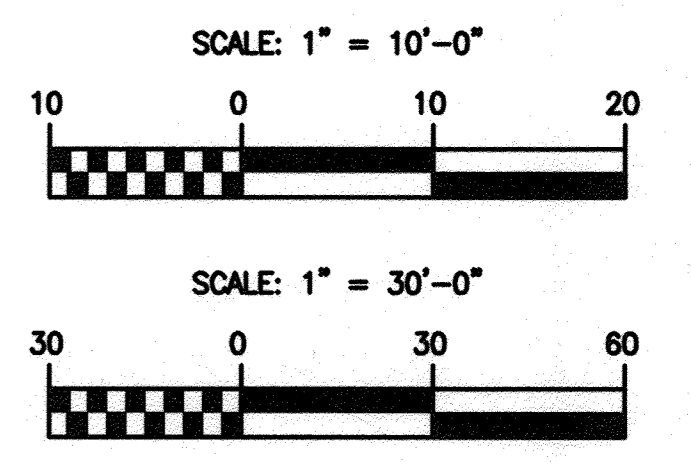
SEAL: E-01  
DESIGNED BY: KTC/LPL  
DRAWN BY: KTC/LPL  
PROJECT NO: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: NONE  
DRAWING NO. 32 OF 50





**DRAWING NOTES:**

- ① (2) 5" DIRECT BURIED SCHEDULE 80 PVC C. FOR BGE PRIMARY CABLING. 2HX1V CONFIGURATION, TRANSITION TO STACKED CONFIGURATION AT TRANSFORMER PAD AS REQUIRED. PROVIDE CONCRETE REINFORCED ENCASUREMENT WHERE CONDUITS CROSS OTHER UTILITIES 5' ON EITHER SIDE. ROUTE WITH TOP A MINIMUM OF 36" BELOW GRADE WITH A MAXIMUM OF TWO 90 DEGREE BENDS TOTAL. WIDE SWEEP BENDS SHALL BE 35' RADIUS MINIMUM TO BE CONSIDERED A STRAIGHT PULL BY BGE. PROVIDE CONCRETE ENCASUREMENT WHERE CONDUITS ARE STACKED AT TRANSFORMER PADS PER BGE REQUIREMENTS. COORDINATE EXACT LOCATION OF TERMINATION POINT IN FIELD WITH BGE.
- ② (1) 4" DIRECT BURIED SCHEDULE 40 PVC C. FOR COMCAST, (1) 4" DIRECT BURIED SCHEDULE 40 PVC C. FOR HOWARD COUNTY FIBER (WITH (2) 1-1/4" & (1) 1-1/2" INNERDUCTS) AND (2) 4" DIRECT BURIED SCHEDULE 40 PVC C. FOR VERIZON. PROVIDE CONCRETE REINFORCED ENCASUREMENT WHERE CONDUITS CROSS OTHER UTILITIES 5' ON EITHER SIDE.
- ③ 8-WAY (4H X 2H) CONCRETE ENCASED DUCTBANK FOR BGE SECONDARY FEEDERS.
- ④ ELECTRIC HANDHOLE.
- ⑤ EXTERIOR JUNCTION BOX.



**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A. RUFF** 21774  
 PRINTED NAME MD. P.E. NO.  
*JAR* **08/18/20**  
 SIGNATURE DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

<i>Hal Chabon</i>	7/19/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Wesley D. ...</i>	8-16-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>N. ...</i>	8-16-16
DIRECTOR	DATE

DATE	NO.	REVISION	BY
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
PROJECT: HCLS ELKBRIDGE BRANCH AND 50+ CENTER			
AREA: <b>FLAT Nos. 2386A - 2387D</b> TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 8540 WASHINGTON BOULEVARD ELKBRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			
TITLE: <b>ELECTRICAL SITE PLAN</b>			

**Gipe Associates Inc.**  
 Consulting Engineers  
 849 Fairmount Ave Suite 102 Baltimore, MD 21286  
 Baltimore, Maryland (410)832-2420  
 Easton, Maryland (410)822-8688  
 W.O.# 14122

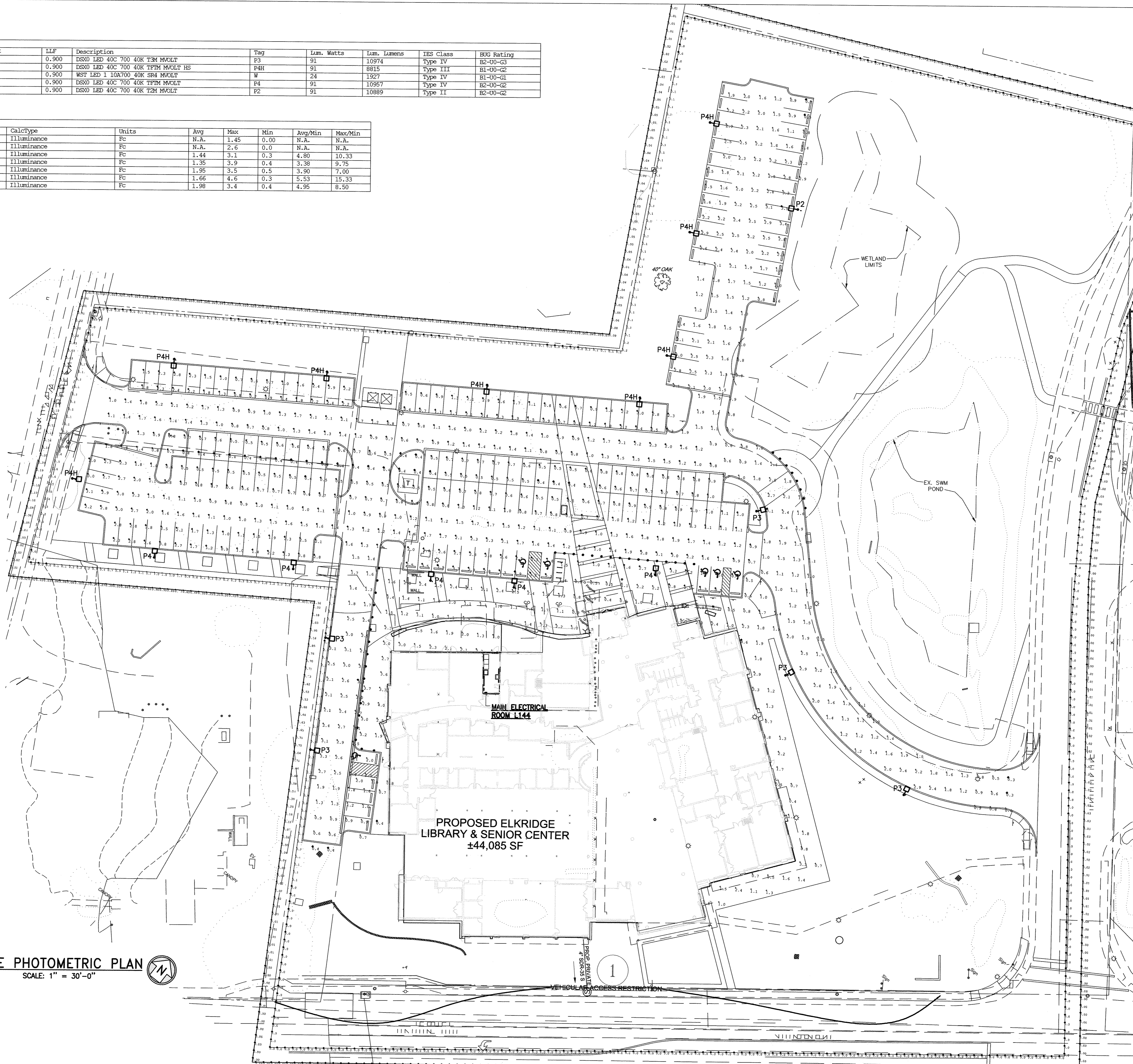
SEAL:

DESIGNED BY: KTC/LPL  
 DRAWN BY: KTC/LPL  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: AS NOTED  
 DRAWING NO. 33 OF 50

**ELECTRICAL SITE PLAN**  
 SCALE: 1" = 30'-0"

Symbol	Qty	Arrangement	LLF	Description	Tag	Lum. Watts	Lum. Lumens	IES Class	BIG Rating
+	5	SINGLE	0.900	DSXO LED 40C 700 40K T3M MCOLT	P3	91	10974	Type IV	B2-U0-G3
+	8	SINGLE	0.900	DSXO LED 40C 700 40K TFM MCOLT HS	P4H	91	8915	Type III	B1-U0-G2
+	17	SINGLE	0.900	WST LED 1 10A700 40K SR4 MCOLT	W	24	1927	Type IV	B1-U0-G1
+	5	SINGLE	0.900	DSXO LED 40C 700 40K TFM MCOLT	P4	91	10957	Type IV	B2-U0-G2
+	1	SINGLE	0.900	DSXO LED 40C 700 40K T3M MCOLT	P2	91	10889	Type II	B2-U0-G2

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
2009 LEED 10 FT BOUNDARY	Illuminance	Fc	N.A.	1.45	0.00	N.A.	N.A.
2009 LEED BOUNDARY	Illuminance	Fc	N.A.	2.6	0.0	N.A.	N.A.
DRIVEWAY	Illuminance	Fc	1.44	3.1	0.3	4.80	10.33
PARKING A	Illuminance	Fc	1.35	3.9	0.4	3.38	9.75
PARKING B	Illuminance	Fc	1.95	3.5	0.5	3.90	7.00
PLAZA	Illuminance	Fc	1.66	4.6	0.3	5.53	15.33
SERVICE DRIVE	Illuminance	Fc	1.98	3.4	0.4	4.95	8.50



**SITE PHOTOMETRIC PLAN**  
SCALE: 1" = 30'-0"

**AS-BUILT CERTIFICATION**  
NOTE: THERE IS NO 'AS-BUILT' INFORMATION PROVIDED ON THIS SHEET.

PRINTED NAME: **JAMES A RUFF** 21774 MD. P.E. NO.  
SIGNATURE: [Signature] DATE: 02/14/20

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
SCALE: 1" = 30'-0"  
30 0 30 60

DATE	NO.	REVISION	BY

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: [Signature] 7-19-16 DATE

Chief, Division of Land Development: [Signature] 8-16-16 DATE

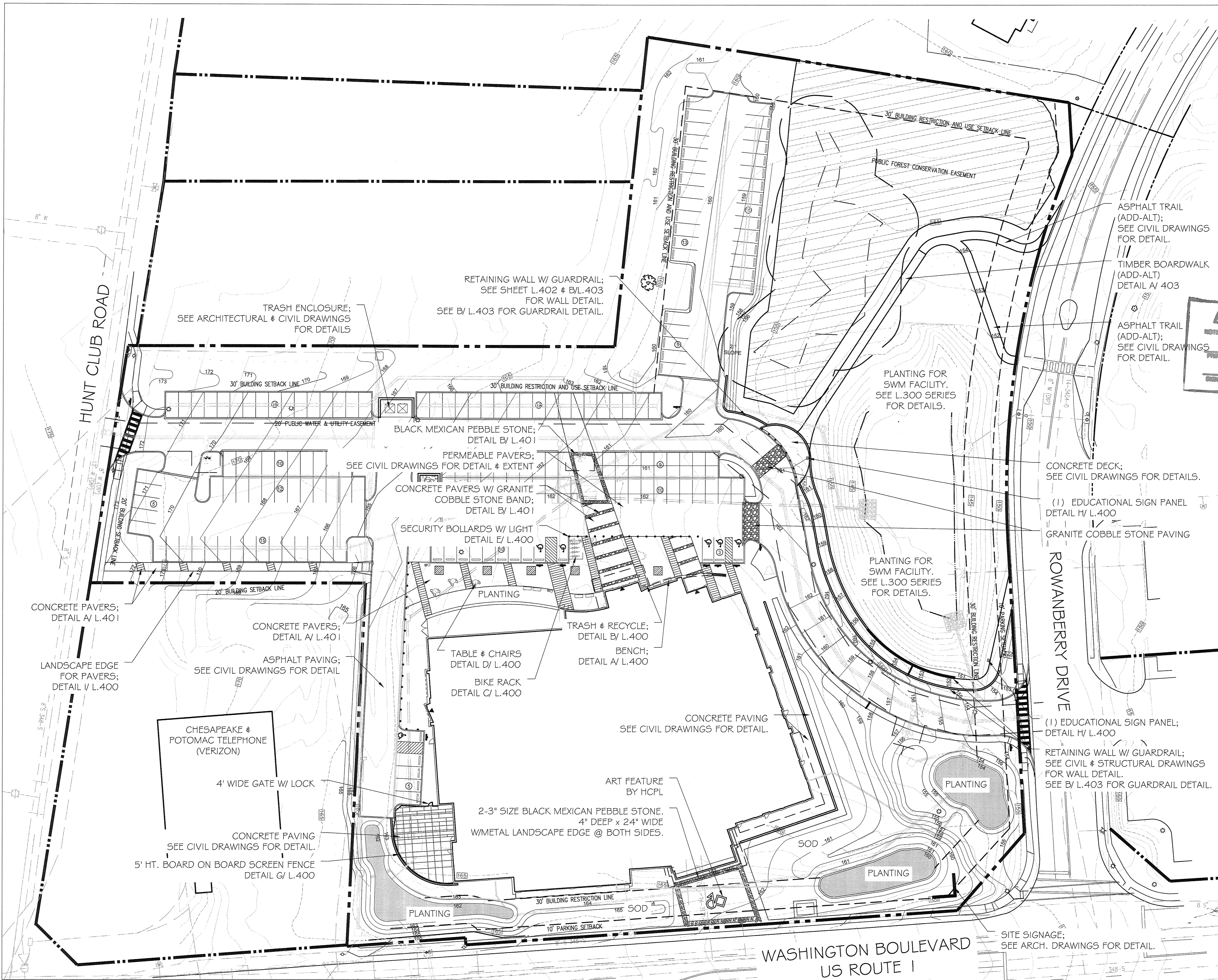
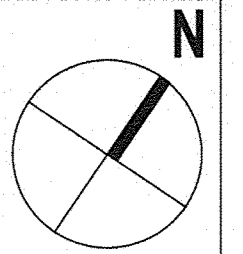
Director: [Signature] 8-16-16 DATE

DEVELOPER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700
OWNER	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700
PROJECT	<b>HCLS ELKRIDGE BRANCH AND 50+ CENTER</b>
AREA	PLAT NOS. 2386A, 23870 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 8540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE  
**SITE PHOTOMETRIC PLAN**

**Gipe Associates Inc.**  
Consulting Engineers  
849 Fairmount Ave Suite 102 Baltimore, MD 21286  
Baltimore, Maryland (410)832-2420  
Coston, Maryland (410)822-8688  
W.O.# 14122

SEAL	E-0.3
DESIGNED BY: KTC/LPL	
DRAWN BY: KTC/LPL	
PROJECT NO: GRIM1402	
DATE: JUNE 20, 2016	
SCALE: 1" = 30'-0"	
DRAWING NO. 34 OF 50	



HUNT CLUB ROAD

ROWANBERRY DRIVE

WASHINGTON BOULEVARD  
US ROUTE 1

TRASH ENCLOSURE;  
SEE ARCHITECTURAL & CIVIL DRAWINGS  
FOR DETAILS

RETAINING WALL W/ GUARDRAIL;  
SEE SHEET L.402 & B/L.403  
FOR WALL DETAIL.  
SEE B/L.403 FOR GUARDRAIL DETAIL.

ASPHALT TRAIL  
(ADD-ALT);  
SEE CIVIL DRAWINGS  
FOR DETAIL.

TIMBER BOARDWALK  
(ADD-ALT)  
DETAIL A/ 403

ASPHALT TRAIL  
(ADD-ALT);  
SEE CIVIL DRAWINGS  
FOR DETAIL.

PLANTING FOR  
SWM FACILITY.  
SEE L.300 SERIES  
FOR DETAILS.

CONCRETE DECK;  
SEE CIVIL DRAWINGS FOR DETAILS.

(1) EDUCATIONAL SIGN PANEL  
DETAIL H/ L.400

GRANITE COBBLE STONE PAVING

PLANTING FOR  
SWM FACILITY.  
SEE L.300 SERIES  
FOR DETAILS.

(1) EDUCATIONAL SIGN PANEL;  
DETAIL H/ L.400

RETAINING WALL W/ GUARDRAIL;  
SEE CIVIL & STRUCTURAL DRAWINGS  
FOR WALL DETAIL.  
SEE B/L.403 FOR GUARDRAIL DETAIL.

SITE SIGNAGE;  
SEE ARCH. DRAWINGS FOR DETAIL.

**AS-BUILT CERTIFICATION**  
NOTE: THERE IS NO TO-BUILT INFORMATION PROVIDED ON THIS SHEET.

**JAMES A ROFF** 21774  
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

**CP10**

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*David Clark* 7-19-16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Ved Strohman* 8-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*William J. J. J.* 8-16-16  
DIRECTOR DATE

DATE	NO.	REVISION	BY


DEVELOPER: HOWARD COUNTY  
DEPARTMENT OF PUBLIC WORKS  
BUREAU OF FACILITIES  
9250 BENDIX ROAD  
COLUMBIA, MARYLAND 21045  
ATTN: MARK STROMDAHL  
PHONE: 410-313-2700

OWNER: HOWARD COUNTY  
DEPARTMENT OF PUBLIC WORKS  
BUREAU OF FACILITIES  
9250 BENDIX ROAD  
COLUMBIA, MARYLAND 21045  
ATTN: MARK STROMDAHL  
PHONE: 410-313-2700

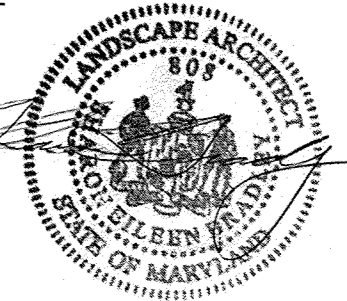
PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER


AREA: PLAT Nos. 2306A, 23070  
TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12  
GRID NO. 7, 1st ELECTION DISTRICT  
6540 WASHINGTON BOULEVARD  
ELKRIDGE, MARYLAND 21075-0000  
HOWARD COUNTY, MARYLAND

TITLE: MATERIALS PLAN



BRADLEY SITE DESIGN, INC.  
LANDSCAPE ARCHITECTURE  
12 W. Madison Street., Suite 204  
Baltimore, MD 21201  
P: 443-450-1385  
www.bradleysitedesign.com

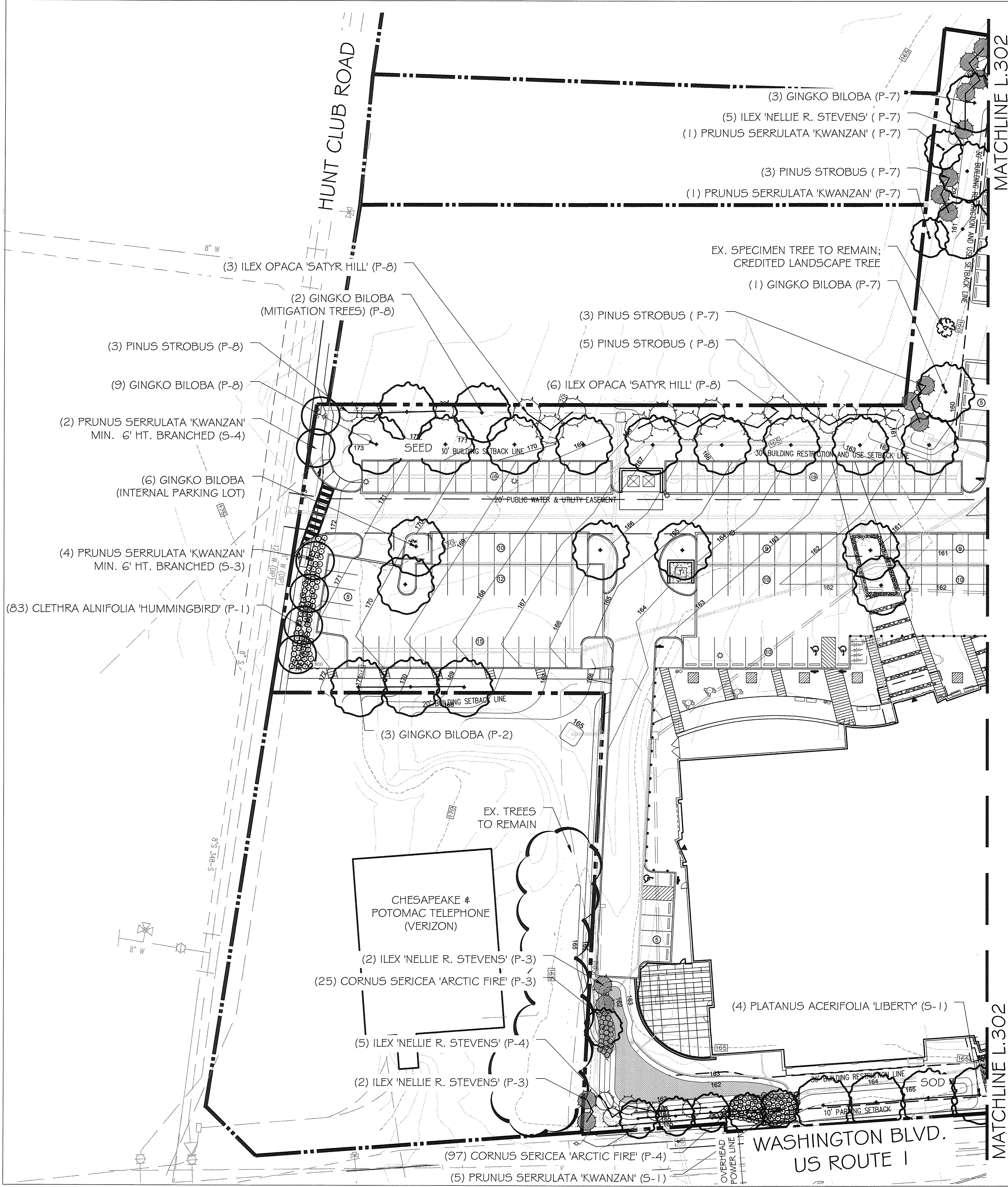
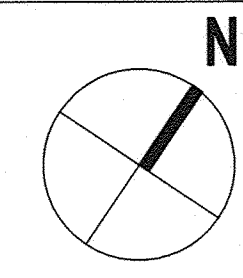
SEAL: 

BY: 

SHEET NUMBER: L.100  
DESIGNED BY: SB/ES  
DRAWN BY: ES  
PROJECT NO.: GRIM1402  
DATE: JUNE 20, 2016  
SCALE: 1"= 30'-0"  
DRAWING NO. 35 OF 50







**SHA LANDSCAPE NOTES:**

**SHA Standard Specifications.** Landscape construction and materials installed within the Maryland State Highway Administration right of way shall conform to SHA 2008 Standard Specifications for Construction and Materials, including all revisions and supplements, and any requirements of these notes. Landscape construction shall conform to Sections 701 thru 716, and landscape materials shall conform to Section 920. SHA Standard Specifications shall supersede all other specifications for work within the SHA right of way.

**SHA Standard Details.** Tree installation within the SHA right of way shall conform to SHA Standard Details of the Book of Standards.

**Soil Restoration.** Areas of pavement removal, excavation or drilling in landscaped areas shall remove excavated debris and restore the subgrade with approved subsoil and topsoil placed in conformance with Section 701 of the SHA Standard Specifications.

1. A layer of approved topsoil at least 4 inch depth shall be placed on all disturbed areas flatter than 2:1 and in all channels prior to seeding, sodding or other landscaping, unless otherwise specified.
2. A layer of approved topsoil at least 2 inch depth shall be placed on all disturbed areas 2:1 and steeper prior to seeding, sodding or other landscaping, unless otherwise is specified.
3. Bioretention Soil Mix (BSM) shall be installed in conformance with the plans and pertinent specifications.

**Turfgrass Sod Establishment.** shall be performed in all disturbed areas of the SHA right of way, or within the areas indicated in the plans, in conformance with Section 708 of the SHA Standard Specifications.

**Roadside Tree Permit.** Tree removal, tree installation, and tree root and branch pruning in the SHA right of way shall conform to the requirements of the Roadside Tree Permit (RTP) of the Maryland Dept. of Natural Resources or Forest Conservation Act (FCA) Approval of the local authority.

1. A copy of the RTP or FCA Approval shall be submitted to the SHA Office of Environmental Design before work is performed, and a copy of the RTP or FCA Approval shall be reproduced in the plans or be in possession of the applicant at the project site when the permitted work is performed.
2. A Maryland Licensed Tree Expert shall perform the specified tree operations in conformance with the SHA Standard Specifications and ANSI A300 Standards for Tree Care Operations.

**Trees and Other Plant Material Installation.** Trees, shrubs, perennials, annuals, bulbs, landscape beds and similar materials installed in the SHA right of way shall be installed in conformance with Section 710 and 711 of the SHA Standard Specifications. Tree and shrubs shall be pruned at the time of installation to ensure sidewalk clearance for pedestrians is maintained to a height of 8 feet.

**Future Maintenance.** Additional maintenance that may be required after hardscape, street furniture, or plant materials are installed and accepted by SHA such as replacement, watering, weeding, mulching or pest control may be provided by the applicant when a permit for the proposed work is issued by the SHA District Office.

**Erosion & Sediment Control Manager.** Soil disturbance such as grading, excavation, soil placement or other activities that involve soil disturbance within the SHA right of way shall be supervised by an Erosion and Sediment Control Manager with a valid SHA "Yellow Card" in conformance with SHA 2008 Specifications for Construction and Materials and any applicable Erosion and Sediment Control Permit.

**Temporary Stabilization.** Temporary Mulch shall be applied in conformance with Section 704 to ensure that areas of soil disturbance are protected from rainfall and flowing water.

1. Temporary straw mulch or temporary matting mulch shall be applied to flat areas and slopes flatter than 4:1; temporary matting mulch shall be applied to slopes 4:1 and steeper and within channels.
2. Temporary stabilization shall be performed at the end of each working day to provide 'same day stabilization' unless other requirements are approved.

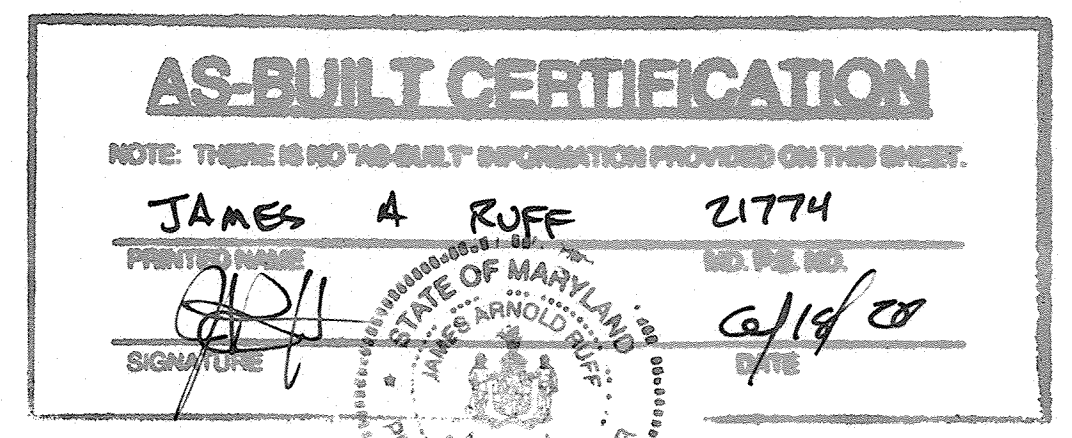
**Roadway Pavement Removal.** Areas of roadway pavement removal within the SHA right of way shall be excavated to remove pavements, aggregate base, and compacted soil to a minimum depth of 10 inches below the pavement surface, or as necessary to remove all materials unsuitable for landscaping. The excavated areas shall be restored with subsoil and topsoil as part of Soil Restoration

**Excavation and Debris Removal.** Debris related to the demolition of sidewalks, driveways, curbs, trees, stumps, roots, fencing, pipes, and other materials that may interfere with landscape installation or future maintenance within the SHA right of way shall be excavated as necessary for their complete removal and disposal.

**LANDSCAPE 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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

DEVELOPER SIGNATURE: *[Signature]*



**NOTE:**

THIS PLAN IS FOR SDP SUBMISSION ONLY.  
THIS DOES NOT COVER THE WHOLE PLANTING PLAN.

**NOTES:**

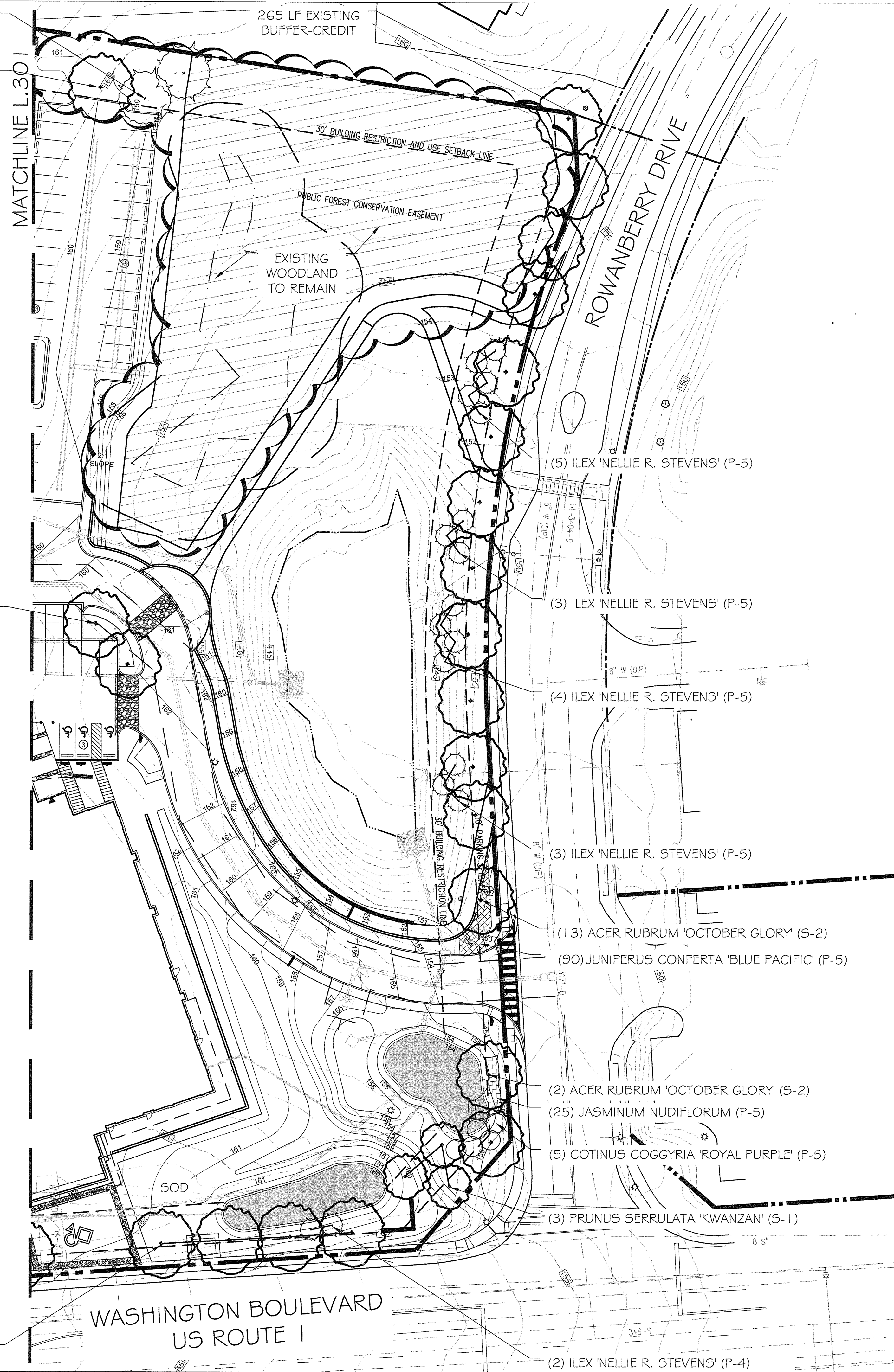
1. MAINTAIN MIN. 5' SOD CLEARANCE BETWEEN THE SIDEWALK AND PLANTING EDGE AS SHOWN ON THE DRAWINGS. - TYP.
2. STREET TREES TO BE PLANTED 10' OFF FROM THE SIDEWALK- TYP.

APPROVED : DEPARTMENT OF PLANNING AND ZONING			
<i>[Signature]</i>		7-12-16	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION JP			
<i>[Signature]</i>		8-16-16	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT JP			
<i>[Signature]</i>		8-16-16	DATE
DIRECTOR			
DATE	NO.	REVISION	BY
DEVELOPER			
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER			
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
PROJECT			
HCLS ELKRIDGE BRANCH AND 50+ CENTER			
AREA			
FLAT Nos. 2366A, 2367A TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			
TITLE			
PLANTING PLAN- I - SDP			
BRADLEY SITE DESIGN, INC. LANDSCAPE ARCHITECTURE 12 W. Madison Street., Suite 204 Baltimore, MD 21201 P: 443-450-1385 www.bradleysitedesign.com			
SEAL	SHEET NUMBER : L.301		
	DESIGNED BY: SB/ES		
	DRAWN BY: ES		
	PROJECT NO: GRIM1402		
	DATE : JUNE 20, 2016		
SCALE : 1"= 30'-0"			
DRAWING NO. 38 OF 50			
SDP-16-038			



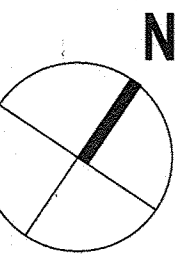
(2) PINUS STROBUS (P-6)

(1) GINGKO BILOBA (P-6)



NOTES:

1. MAINTAIN MIN. 5' SOD CLEARANCE BETWEEN THE SIDEWALK AND PLANTING EDGE AS SHOWN ON THE DRAWINGS.- TYP.
2. STREET TREES TO BE PLANTED 10' OFF FROM THE SIDEWALK- TYP.



**AS-BUILT CERTIFICATION**  
 HERE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

DESIGNED BY: JAMES A RUFF 21774  
 DATE: 6/18/20

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER

LANDSCAPE 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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

DEVELOPER SIGNATURE: JAR

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Johnson 7-19-16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 88 DATE

Mark Stromdahl 8-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT 98 DATE

Maria Joplin 8-16-16  
 DIRECTOR DATE

DATE	NO.	REVISION	BY

DEVELOPER HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-2700


OWNER HOWARD COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF FACILITIES  
 9250 BENDIX ROAD  
 COLUMBIA, MARYLAND 21045  
 ATTN: MARK STROMDAHL  
 PHONE: 410-313-2700

PROJECT  
**HCLS ELKRIDGE BRANCH  
 AND 50+ CENTER**

AREA  
**PLAT NOS. 2306A-2307D**  
 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 6540 WASHINGTON BOULEVARD  
 ELKRIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

TITLE  
**PLANTING PLAN- II - SDP**

BRADLEY SITE DESIGN, INC.  
 LANDSCAPE ARCHITECTURE  
 12 W. Madison Street., Suite 204  
 Baltimore, MD 21201  
 P: 443-450-1305  
 www.bradleysitedesign.com

SEAL  


SHEET NUMBER: **L.302**

DESIGNED BY: SB/ES

DRAWN BY: ES

PROJECT NO: GRIM1402

DATE: JUNE 20, 2016

SCALE: 1"= 30'-0"

DRAWING NO. **39** OF **50**

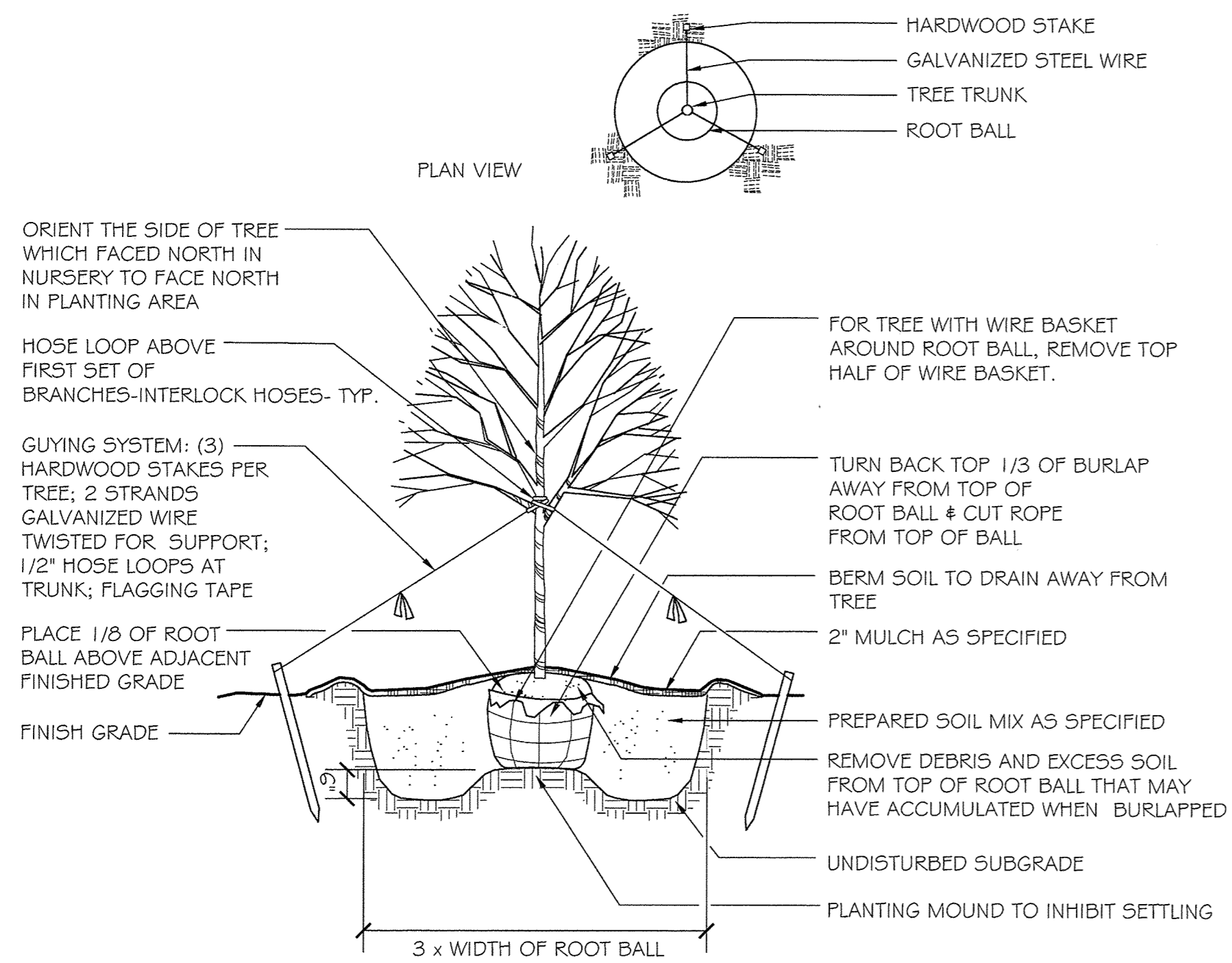
NOTE:

THIS PLAN IS FOR SDP SUBMISSION ONLY. THIS DOES NOT COVER THE WHOLE PLANTING PLAN.

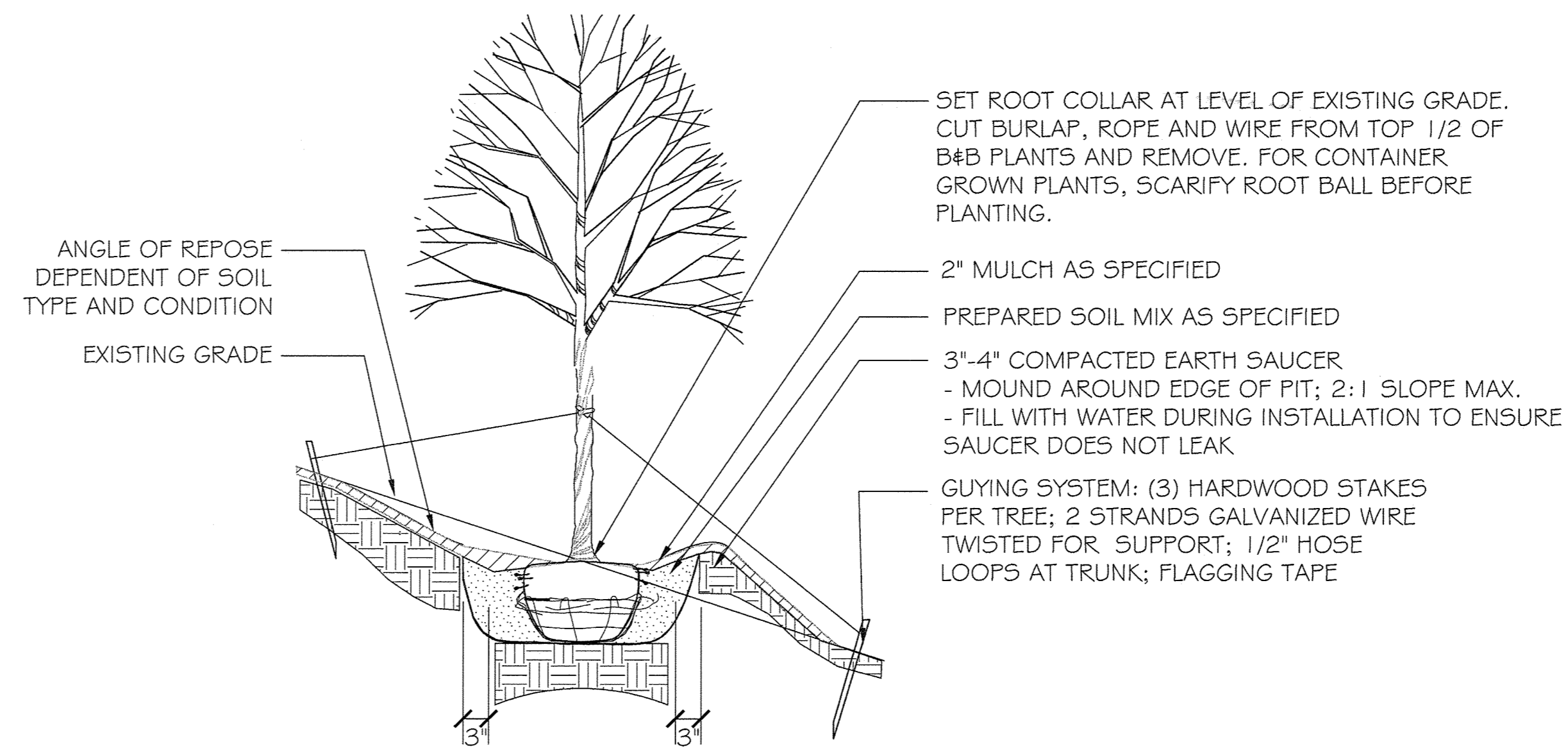


(4) PLATANUS ACERIFOLIA 'LIBERTY' (S-1)

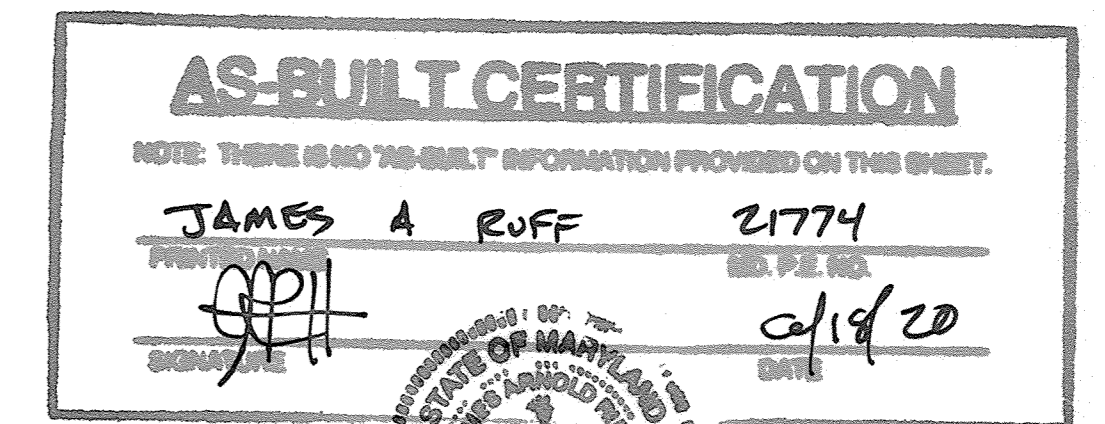
(2) ILEX 'NELLIE R. STEVENS' (P-4)



**A** DECIDUOUS TREE PLANTING (OVER 3" CALIPER)  
NOT TO SCALE

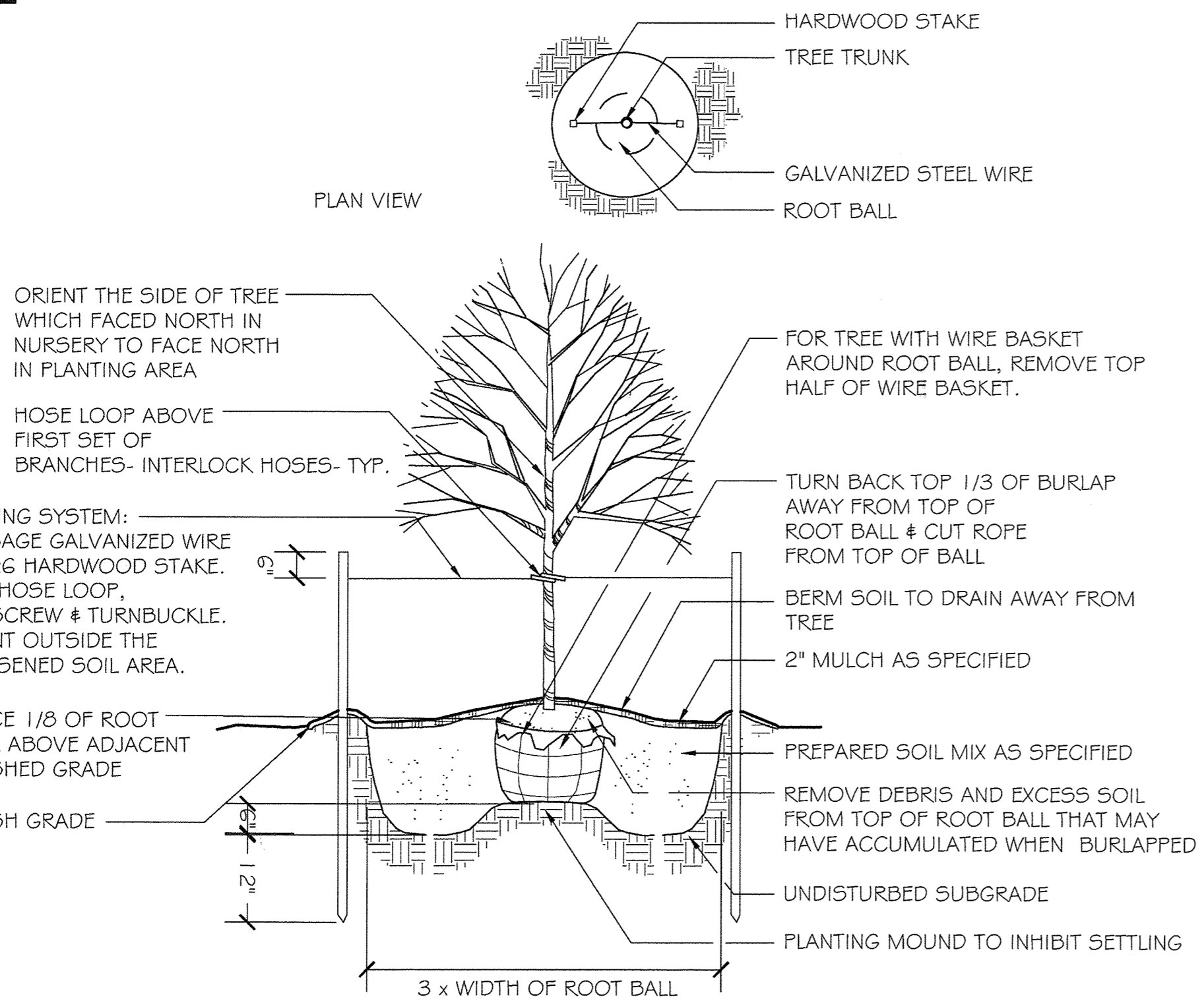


**C** ON-SLOPE TREE PLANTING PLAN  
NOT TO SCALE

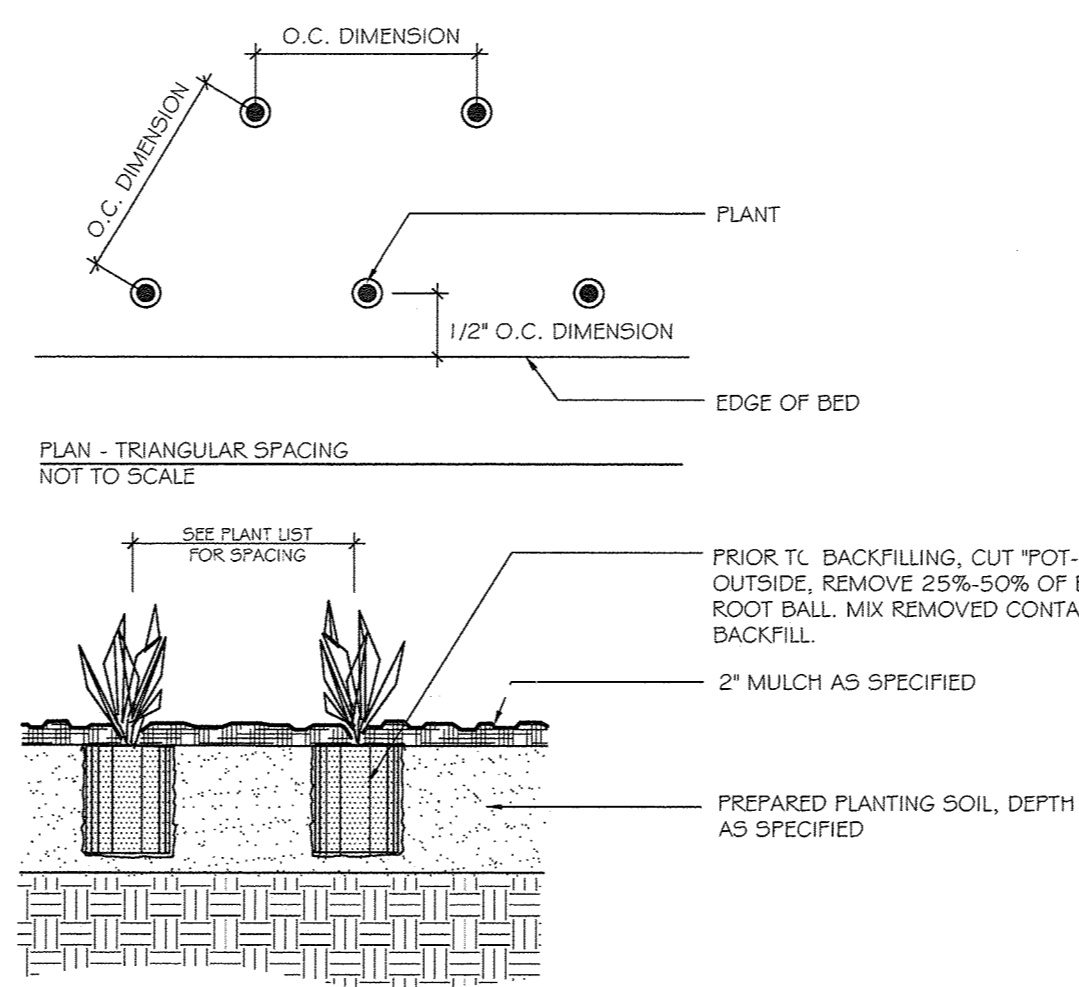


LANDSCAPE CERTIFICATE  
"I WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE, AND THE HOWARD COUNTY LANDSCAPE MANUAL. I WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

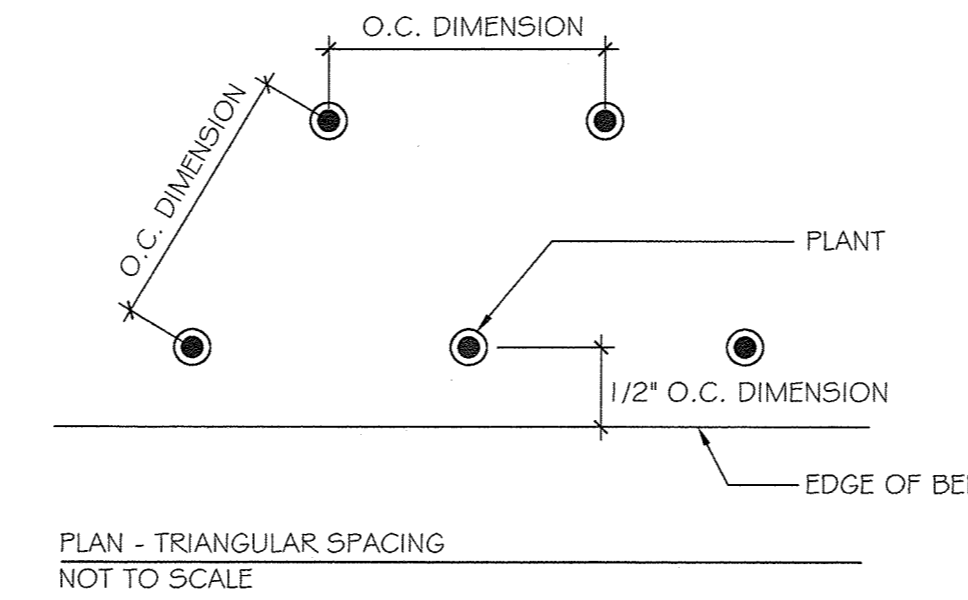
DEVELOPER SIGNATURE: *Tilgath*



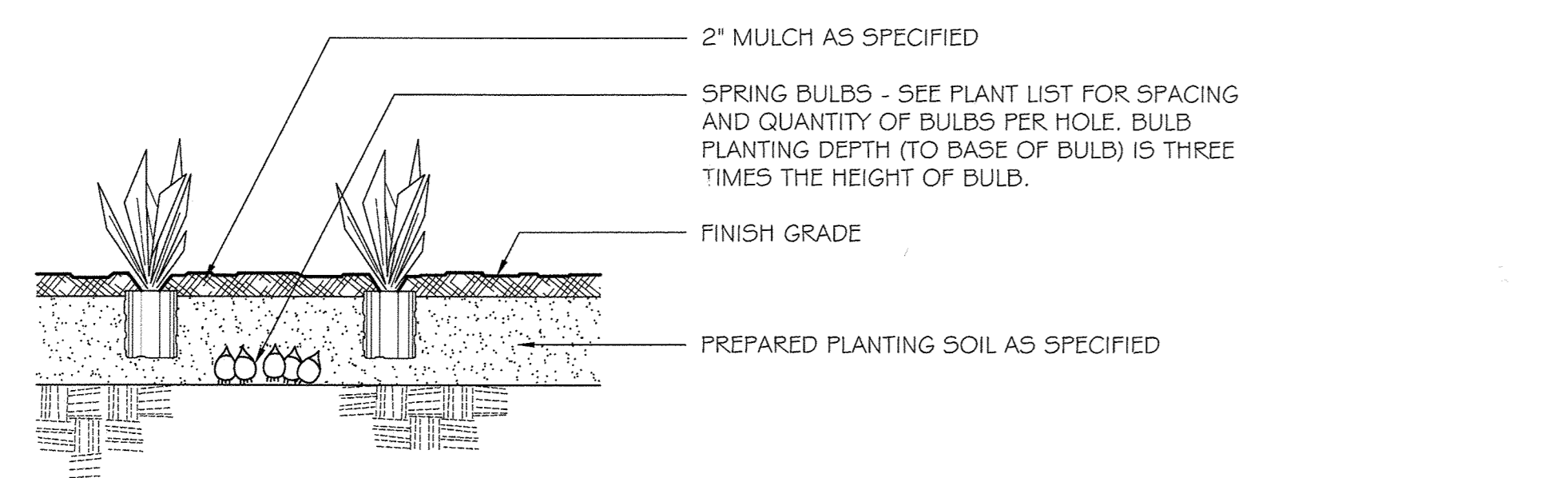
**B** DECIDUOUS TREE PLANTING (UNDER 3" CALIPER)  
NOT TO SCALE



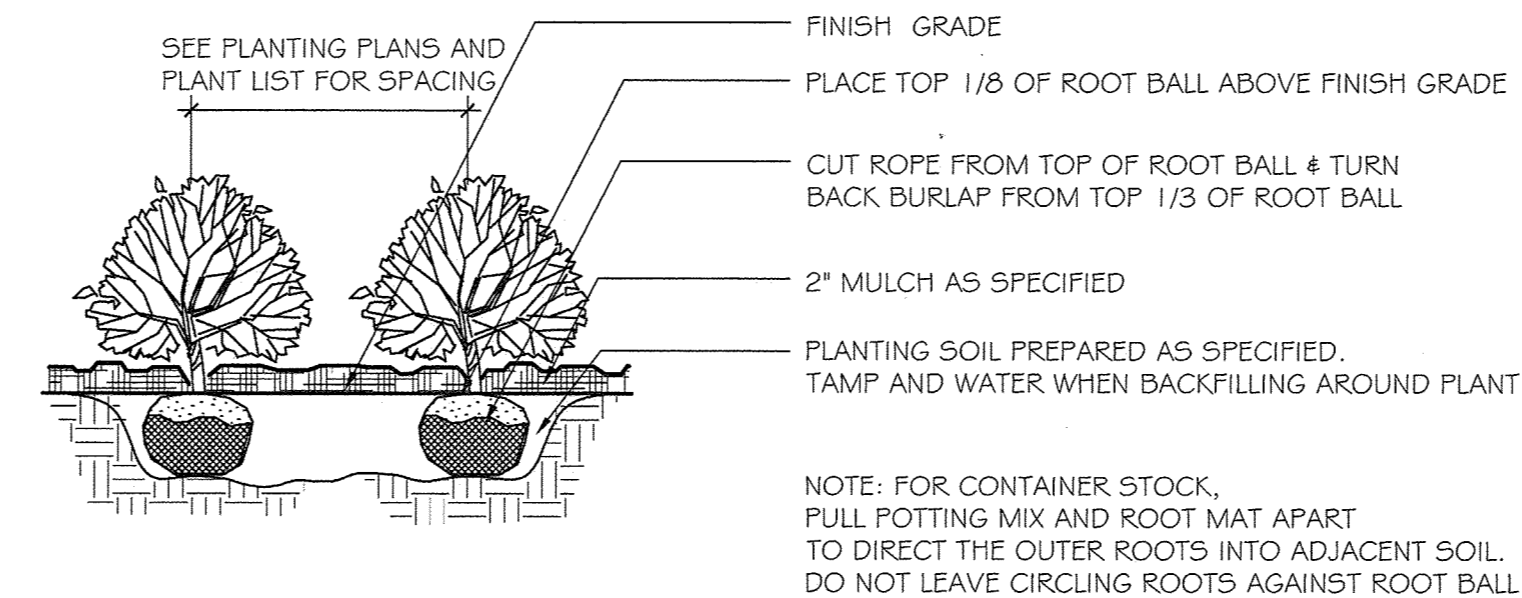
**D** PERENNIAL PLANTING  
NOT TO SCALE



**E** SHRUB PLANTING  
NOT TO SCALE



**F** BULB PLANTING  
NOT TO SCALE



**E** SHRUB PLANTING  
NOT TO SCALE

APPROVED : DEPARTMENT OF PLANNING AND ZONING			
<i>Chad...</i>	CHIEF, DEVELOPMENT ENGINEERING DIVISION	7.19.11	DATE
<i>Mark Stroma...</i>	CHIEF, DIVISION OF LAND DEVELOPMENT	8.16.11	DATE
<i>William...</i>	DIRECTOR	8.16.11	DATE

DATE	NO.	REVISION	BY

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA: PLAT NOS. 2386A-2387D TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: PLANTING DETAILS - SDP

BRADLEY SITE DESIGN, INC. LANDSCAPE ARCHITECTURE 12 W. Madison Street., Suite 204 Baltimore, MD 21201 P: 443-450-1385 www.bradleysitedesign.com

SEAL	SHEET NUMBER : L.303
	DESIGNED BY : SB/ES
	DRAWN BY : ES
	PROJECT NO : GRIM1402
	DATE : JUNE 20, 2016
	SCALE : AS SHOWN
	DRAWING NO. 40 OF 50



SDP PLANT LIST					
QTY.	BOTANICAL/COMMON NAME	SIZE	SPACING	REMARKS	NATIVE
<b>SHADE TREES</b>					
15	ACER RUBRUM 'OCTOBER GLORY' Red Maple	3-3 1/2" cal.	As Shown	Strong Single Leader/Specimen	YES
23	GINGKO BILOBA Ginkgo Tree	3-4" cal.	As Shown	Strong Single Leader/Specimen	NO
8	PLATANUS ACERIFOLIA 'LIBERTY' Liberty London Plane Tree	3-3 1/2" cal.	As Shown	Strong Single Leader/Specimen	NO
<b>ORNAMENTAL TREES</b>					
16	PRUNUS SERRULATA 'KWANZAN' Kwanzan Flowering Cherry	2-2 1/2" cal.			
<b>EVERGREEN TREES</b>					
9	ILEX OPACA 'SATYR HILL' American Holly	8-10' ht.	As Shown	Single Strong Leader/Specimen	YES
31	ILEX 'NELLIE R. STEVENS' Nellie Stevens Holly	8-10' ht.	As Shown	Single Strong Leader/Specimen	YES
16	PINUS STROBUS White Pine	6-8' ht.	As Shown	Single Strong Leader/Specimen	YES
<b>SHRUBS</b>					
83	CLETHRA ALNIFOLIA 'HUMMINGBIRD' Summersweet Pepperbush	24-30" ht.	36" O.C.	Appropriate for Rain Garden	YES
122	CORNUS SERICEA 'ARCTIC FIRE' Red Twig Dogwood	36" ht.	36" O.C.		YES
5	COTINUS COGGYRIA 'ROYAL PURPLE' Purple Smoke Bush	48" ht.	72" O.C.		NO
25	JASMINUM NUDIFLORUM Winter Jasmine	30" ht.	30" O.C.		NO
90	JUNIPERUS CONFERTA 'BLUE PACIFIC' Blue Pacific Shore Juniper	24" ht.	24" O.C.		NO

SCHEDULE A - PERIMETER LANDSCAPE EDGE												
PERIMETER	CATEGORY PROPERTIES / ROADWAYS	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	SHADE TREES REQUIRED	EVERGREEN TREES REQUIRED	SHRUBS REQUIRED	SHADE TREES PROVIDED	EVERGREEN TREES PROVIDED	SHRUBS PROVIDED (10:1 SUB)	OTHER TREES PROVIDED (2:1 SUB)	
P-1	PARKING TO ROAD	E	170 LF	--	4	--	43	--	--	83--8.3 PU	--	
P-2	NON-RESIDENTIAL TO NON-RESIDENTIAL	A	193 LF	--	3	--	--	3	--			
P-3	NON-RESIDENTIAL TO NON-RESIDENTIAL	A	257 LF	--	4	--	--	--	4--2 PU	25--2.5 PU		
P-4	NON-RESIDENTIAL TO ROAD	B	428 LF	--	9	11	--	--	7--3.5 PU	97--9.7 PU	5--2.5 PU	
P-5	NON-RESIDENTIAL TO ROAD	B	596 LF	--	12	15	--	--	15	120--12 PU	--	
P-6	NON-RESIDENTIAL TO RESIDENTIAL	C	299 LF	YES, 265 LF	1	2	--	1	2	--	--	
P-7	NON-RESIDENTIAL TO RESIDENTIAL	C	220 LF	YES, (1) SHADE TREE	6	11	--	4	11	--	2--1 PU	
P-8	NON-RESIDENTIAL TO RESIDENTIAL	C	341 LF	--	9	17	--	11	17			

**NOTE:**

P-4: LANDSCAPING ALTERNATIVE COMPLIANCE IS BEING UTILIZED TO SATISFY THE REQUIREMENTS OF THIS PERIMETER.

P-8: EXTRA TWO SHADE TREES ARE BEING PLANTED TO SATISFY THE MITIGATION PLANTINGS PER WF-16-094

STREET TREES					
S1	WASHINGTON BOULEVARD- US ROUTE 1	SIDEWALK IN RIGHT-OF-WAY	428 LF RIGHT-OF-WAY LESS THAN 6 FEET FROM CURB TO SIDEWALK	428 LF / 40 = 11 LARGE TREES REQUIRED	8 SHADE TREES & 3 FLOWERING TREES PROVIDED
S2	ROWANBERRY DRIVE	SIDEWALK IN RIGHT-OF-WAY	598 LF RIGHT-OF-WAY LESS THAN 6 FEET FROM CURB TO SIDEWALK	598 LF / 40 = 15 LARGE TREES REQUIRED	15 TREES PROVIDED
S3	HUNT CLUB ROAD	SIDEWALK IN RIGHT-OF-WAY	110 LF RIGHT-OF-WAY LESS THAN 6 FEET FROM CURB TO SIDEWALK	110 LF / 30 = 4 SMALL TREES REQUIRED	4 FLOWERING TREES PROVIDED
S4	HUNT CLUB ROAD	SIDEWALK IN RIGHT-OF-WAY	60 LF RIGHT-OF-WAY GREATER THAN 6 FEET FROM CURB TO SIDEWALK	60 LF / 30 = 2 SMALL TREES REQUIRED	2 FLOWERING TREES PROVIDED

SCHEDULE B- PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	166
NUMBER OF TREES REQUIRED	8
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUB)	8 SHADE TREES

**NOTE:**

- STORMWATER MANAGEMENT FACILITY IS EXISTING TO REMAIN.
- SMALL TREES BENEATH POWER LINES AT HUNT CLUB ROAD AND WASHINGTON BOULEVARD-US ROUTE 1

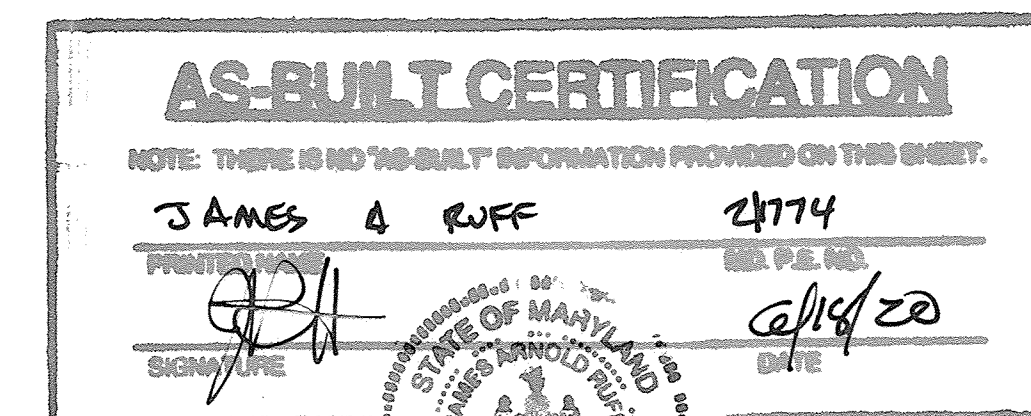
**GENERAL NOTES:**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL BY PROVIDING 46 SHADE TREES, 56 EVERGREEN TREES, 16 ORNAMENTAL TREES AND 325 SHRUBS. THERE IS NO LANDSCAPE SURETY FOR COUNTY CAPITAL PROJECTS.
- THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSEYMEN.
- ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
- AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THE PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

**LANDSCAPE 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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

DEVELOPER SIGNATURE: James A. Ruff



**APPROVED - DEPARTMENT OF PLANNING AND ZONING**

Paul E. ... 7-19-16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Victor ... 8-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nadine ... 8-11-16  
DIRECTOR DATE

DATE NO. REVISION BY

DEVELOPER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

OWNER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

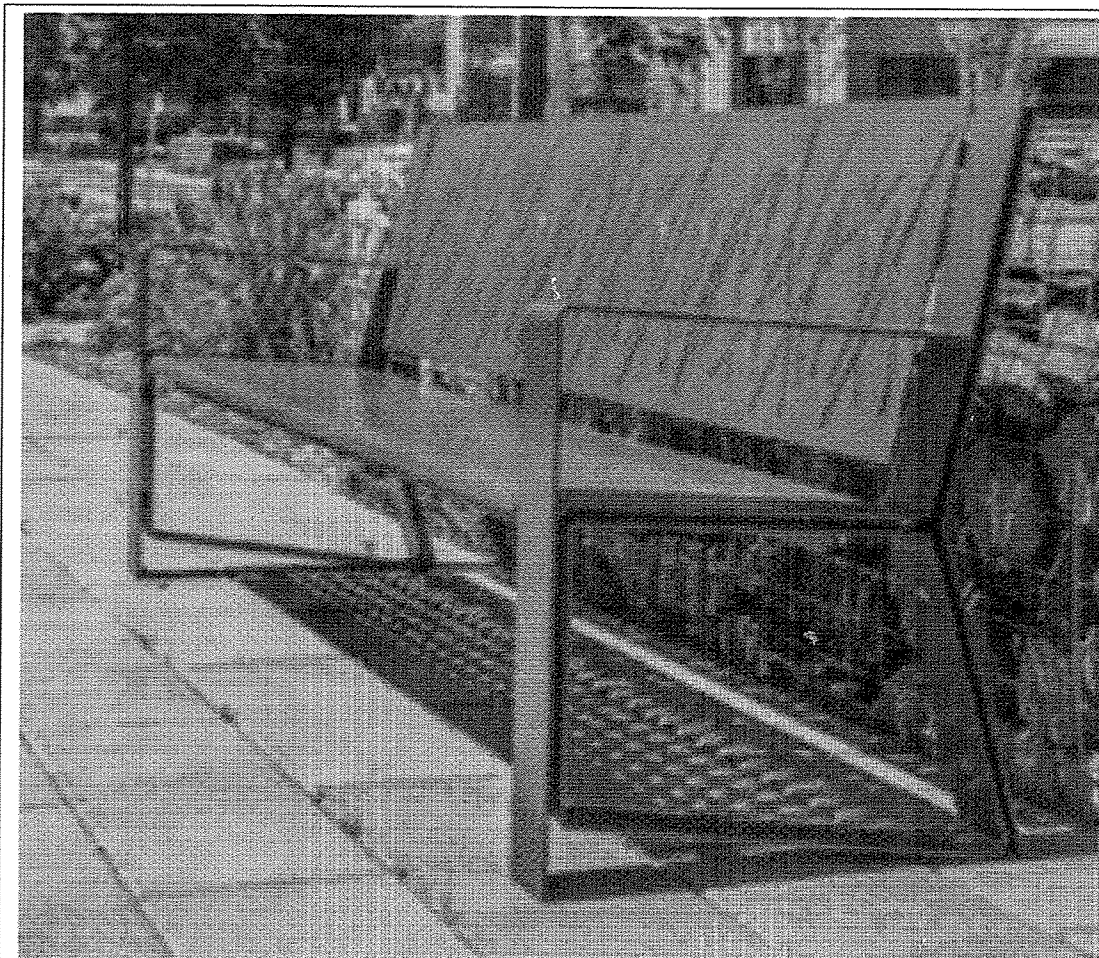
PROJECT HCLS ELKRIDGE BRANCH AND 50+ CENTER

AREA FLAT Nos. 286A-2870 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

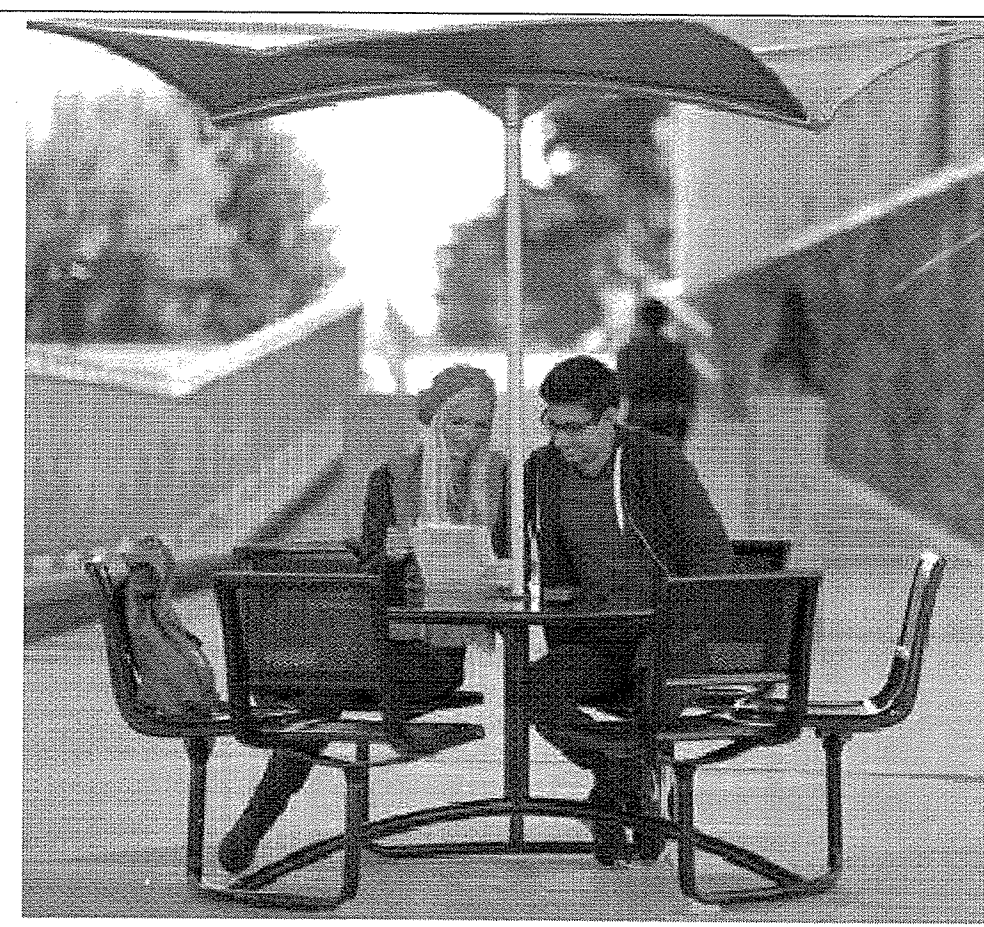
TITLE PLANTING SCHEDULE & REQUIREMENTS - SDP

BRADLEY SITE DESIGN, INC. LANDSCAPE ARCHITECTURE 12 W. Madison Street., Suite 204 Baltimore, MD 21201 P: 443-450-1395 www.bradleysitedesign.com

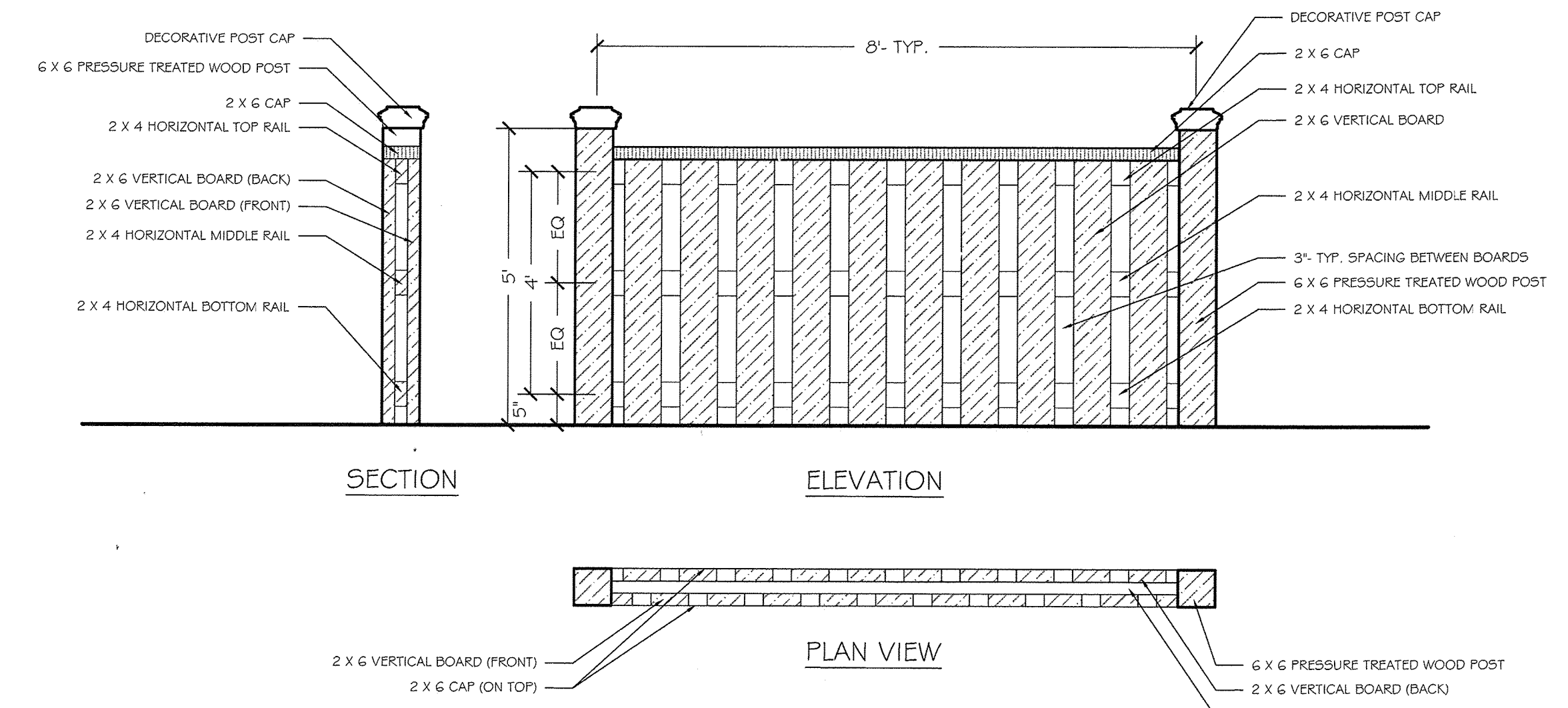
SEAL SHEET NUMBER: L-304 DESIGNED BY: SB/ES DRAWN BY: ES PROJECT NO: GRIM1402 DATE: JUNE 20, 2016 SCALE: AS SHOWN DRAWING NO. 41 OF 50



PRODUCT: LAKESIDE BENCH-GRASS BACKED.SILVER POWDERCOAT.  
 MANUFACTURER: FORMS SURFACES  
 SIZE: 25" D X 67" W X 35"H  
 QUANTITY: 6  
 INSTALLATION: SURFACE MOUNT



PRODUCT: MINGLE  
 MANUFACTURER: FORMS SURFACES  
 MODEL: BACKED 3 SEAT. WITH UMBRELLA HOLE. SILVER  
 TEXTURE. CATENA TABLE TOP.  
 QUANTITY: 3  
 INSTALLATION: SURFACE MOUNTED.  
 SHADE: UMBRELLA ONLY. SILVER TEXTURE.

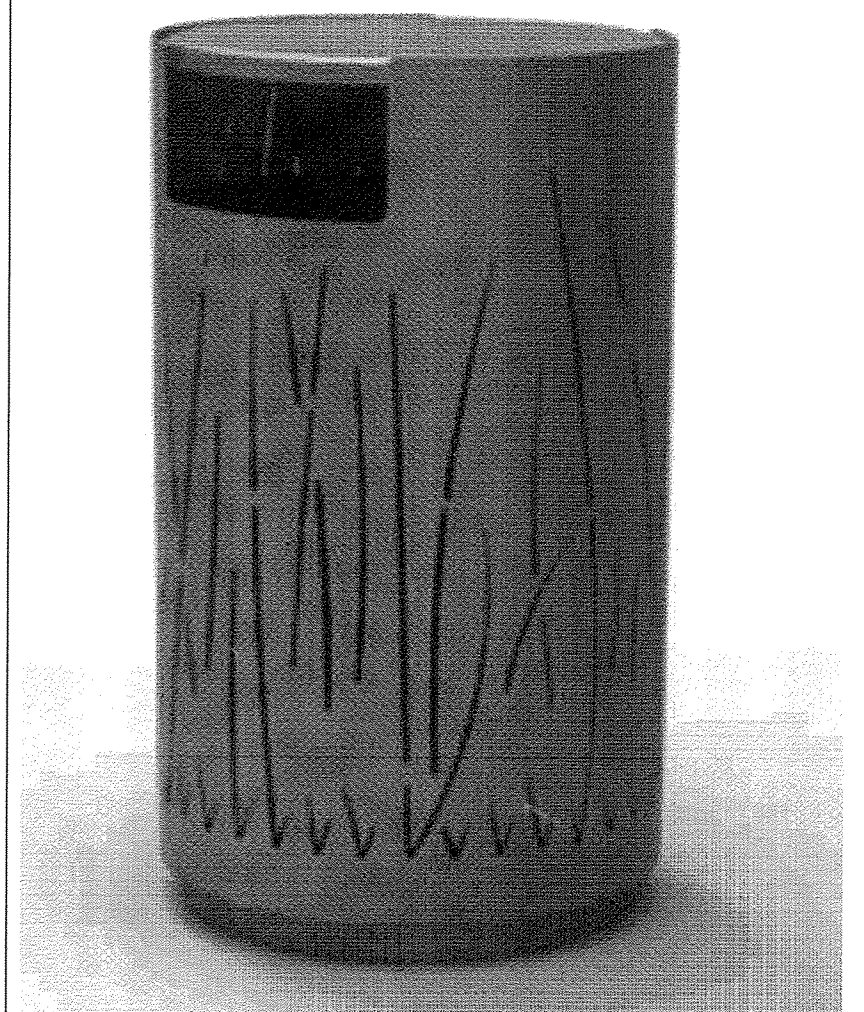


FENCE MATERIAL: COMPOSITE WOOD. SUBMIT SAMPLES.

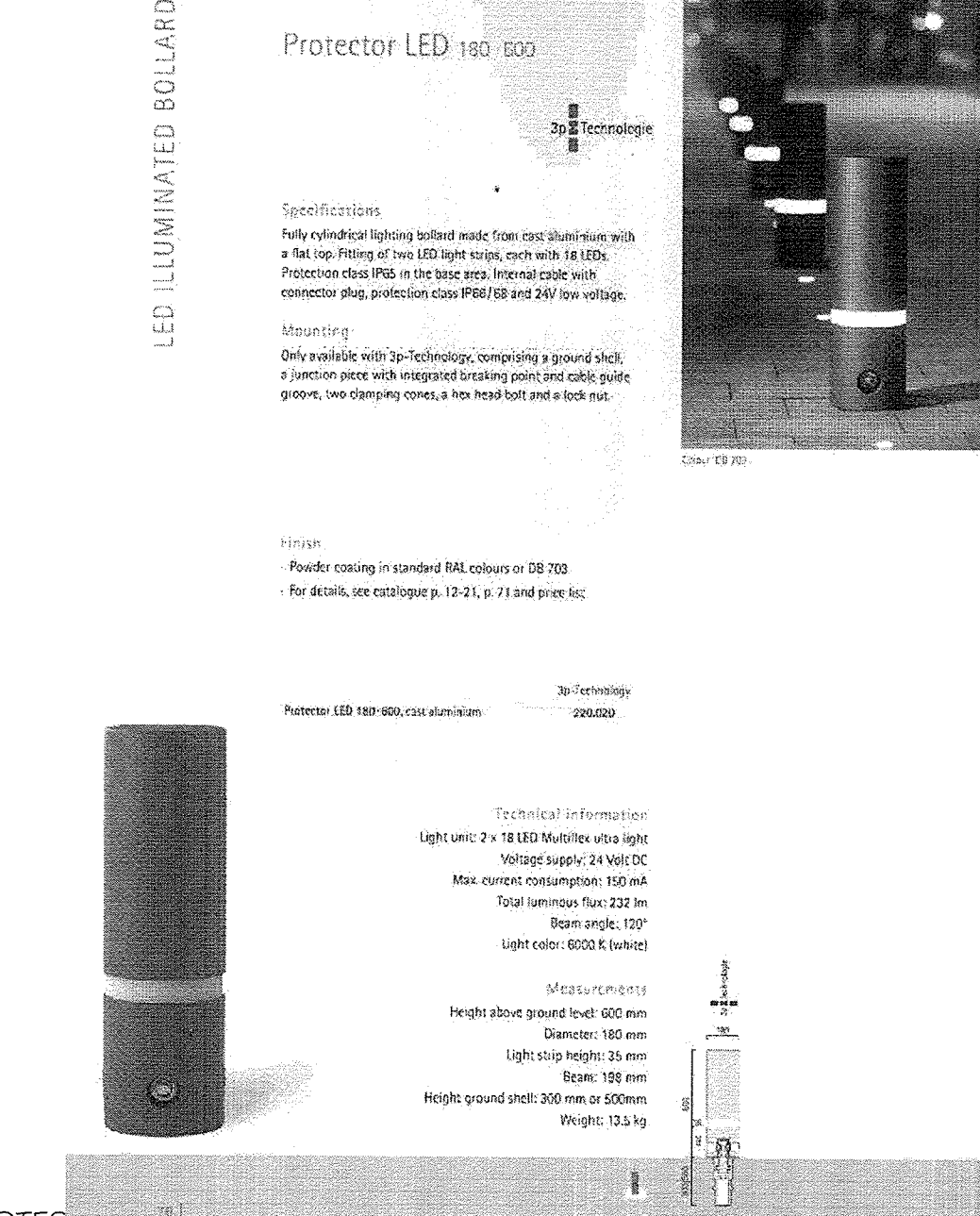
NOTE:  
 1. CONTRACTOR TO SUBMIT SHOP DRAWINGS.

**A** LAKESIDE BENCH- LANDSCAPE FORMS  
 NOT TO SCALE

**D** MINGLE & SHADE- FORMS AND SURFACES  
 NOT TO SCALE



PRODUCT: LAKESIDE TRASH RECEPTACLE. GRASS. SIDE OPENING. SILVER POWDERCOAT.  
 MANUFACTURER: FORMS SURFACES  
 SIZE: 21" D X 36" H  
 QUANTITY: 3 TRASH # 3 RECYCLE  
 INSTALLATION: SURFACE MOUNT

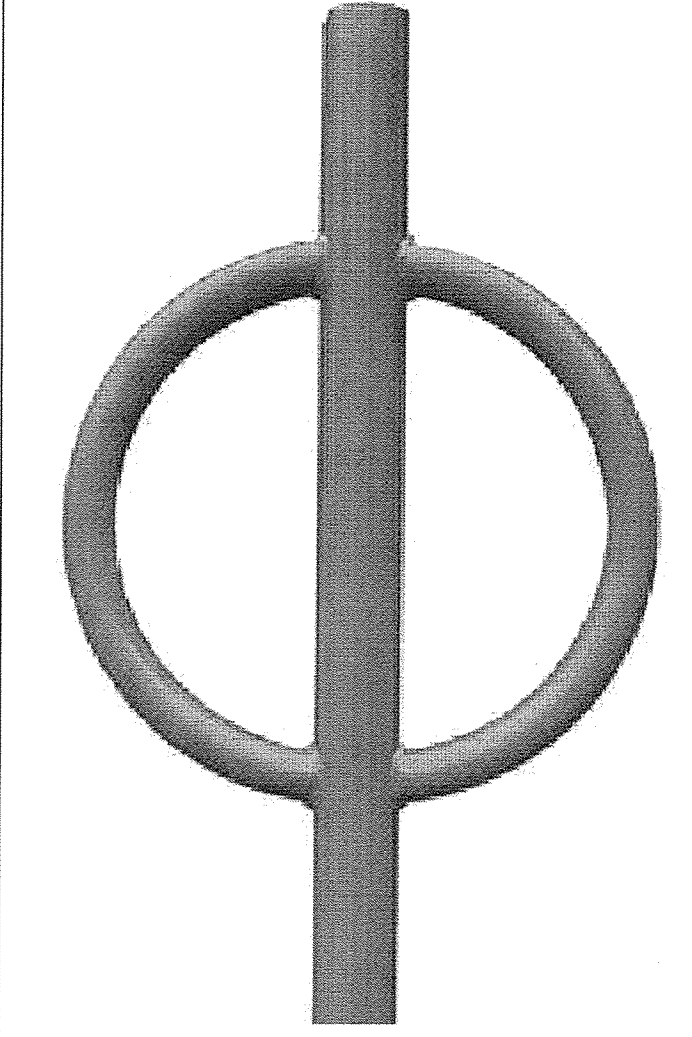


- NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR FOOTING & REINFORCEMENT INFORMATION.
  2. SEE MEP DRAWINGS FOR LIGHTING & ELECTRICAL INFORMATION.
  3. BOLLARDS TO BE SPACED 6' O.C.- TYP. AT THE BUILDING FRONT & CONCRETE DECK AND 8' O.C.- TYP. AT THE LOADING AREA.
  4. QTY:41

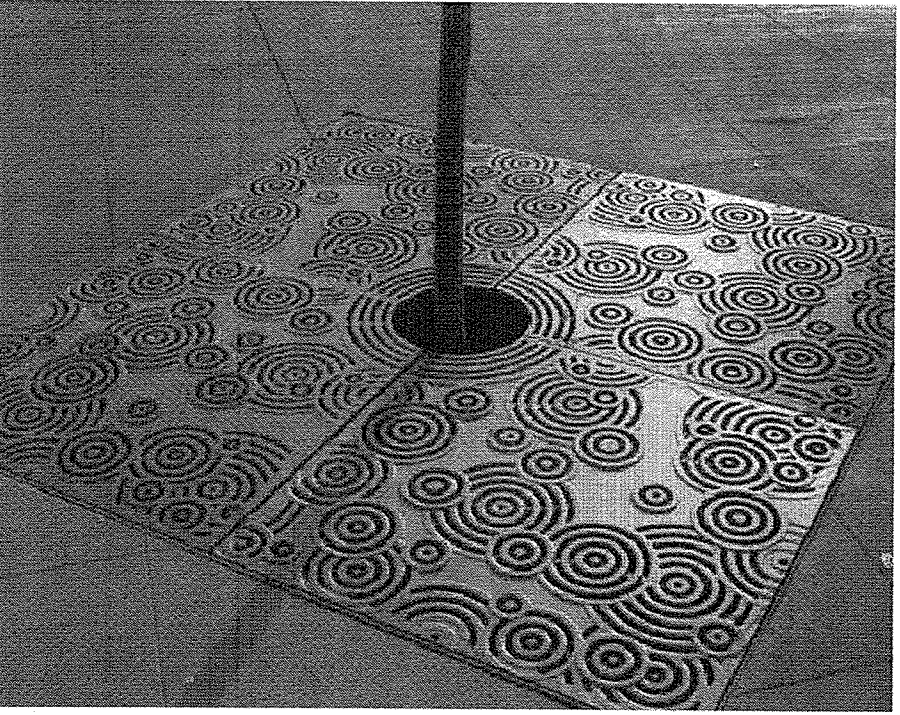
MODEL #: PROTECTOR 1600, CAST IRON, LED LIGHTED

**B** LAKESIDE TRASH RECEPTACLE- FORMS & SURFACES  
 NOT TO SCALE

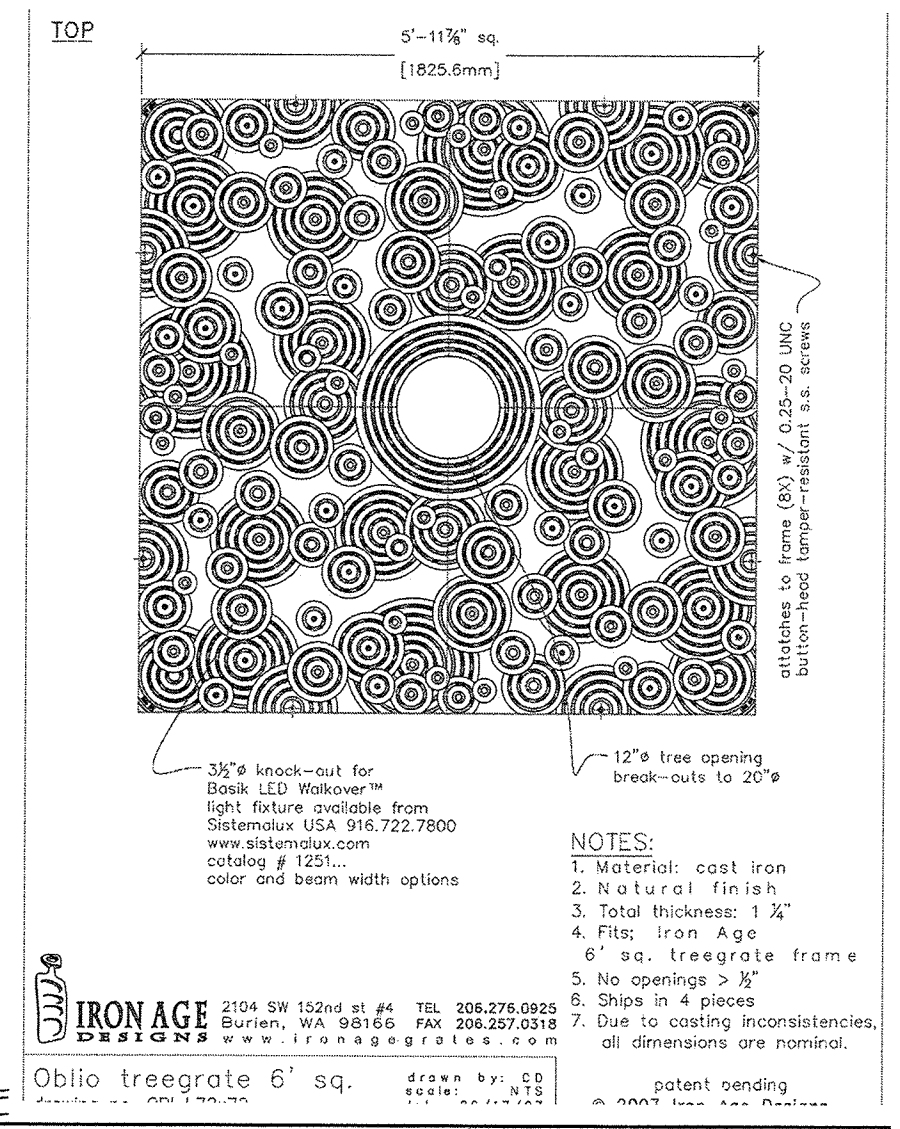
**E** SECURITY BOLLARDS  
 NOT TO SCALE



PRODUCT: BIKE HITCH - 2 BIKE CAPACITY- POWDERCOAT: SILVER COLOR. PROVIDE SAMPLES.  
 MANUFACTURER: DERO  
 QUANTITY: 4  
 INSTALLATION: SURFACE MOUNT  
 \*\*CUSTOM LIBRARY LOGO ON PLATE WITHIN LOOPS  
 SUBMIT SHOP DRAWINGS.



PRODUCT: OBLIO TREE GRATE. 6'X6'  
 MANUFACTURER: IRON AGE DESIGN  
 FINISH: CAST IRON-NATURAL.  
 QUANTITY: 5



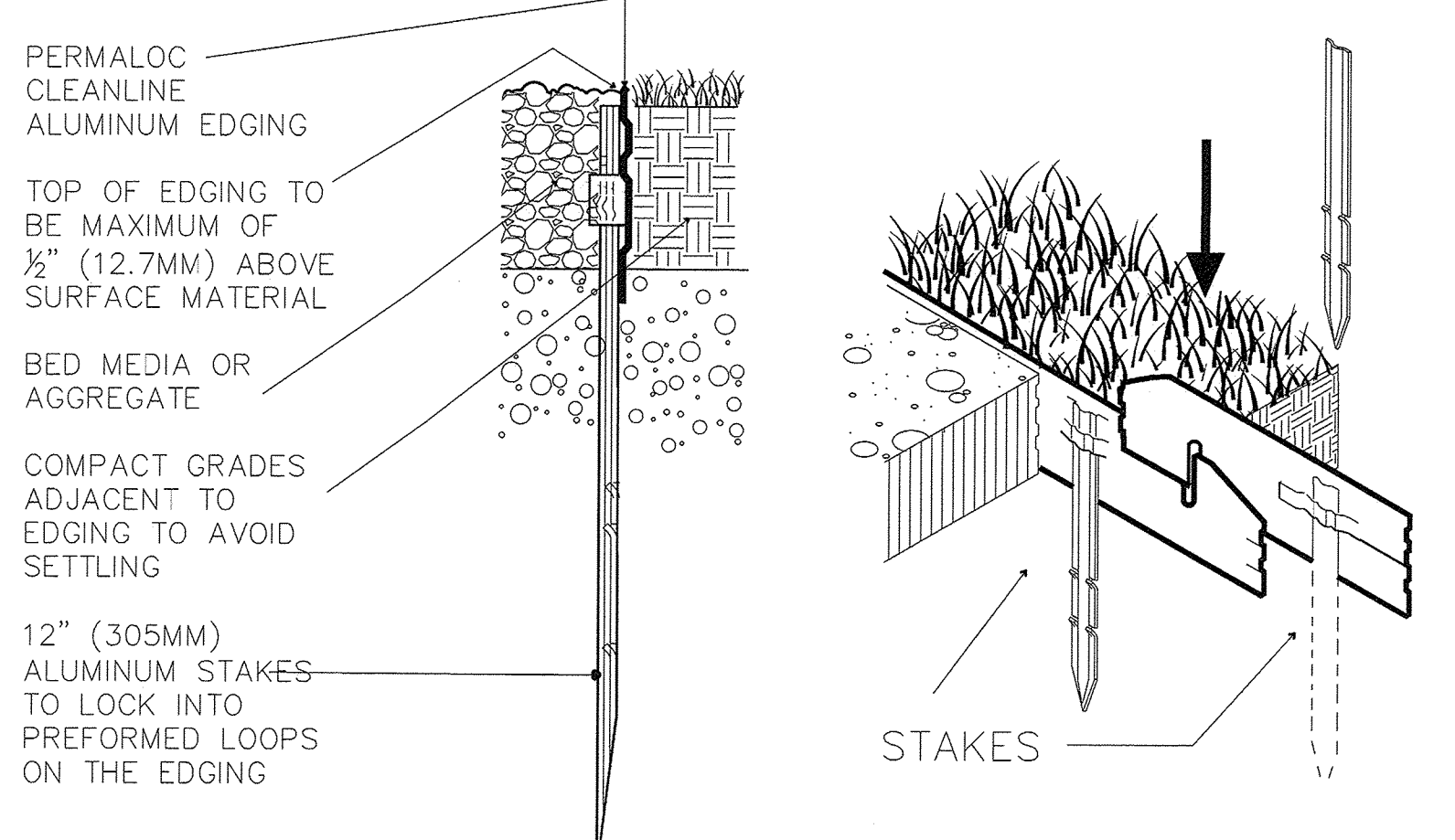
**F** OBLIO STYLE TREE GRATE-6' SQ.- IRON AGE  
 NOT TO SCALE

**G** 5' HT. BOARD ON BOARD DECORATIVE FENCE  
 NTS



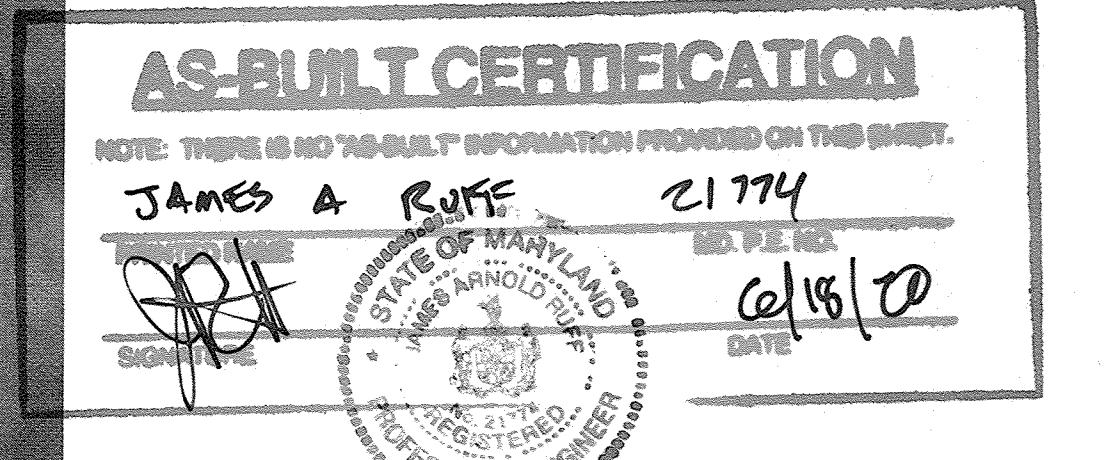
PRODUCT: EDUCATIONAL SIGN PANEL  
 MANUFACTURER: DAVID ARTHUR SIGNS  
 DIMENSIONS: 18" x 24" x 1/2" THICK PANEL; HIGH PRESSURE COMPOSITE PANEL  
 FINISH: 2" SQUARE ALUMINUM POST- COLOR: BLACK  
 QUANTITY: 2  
 INSTALLATION: EMBEDDED @ 8" DIA X 12" DEEP CONCRETE FOOTING.  
 \*\*NO VISIBLE FASTENERS.  
 \*\*ARCHITECT TO PROVIDE THE CONTENT.

**H** EDUCATIONAL SIGN PANEL @ SWM POND & CONCRETE DECK  
 NOT TO SCALE



PRODUCT: ALUMINUM LANDSCAPE EDGING  
 MANUFACTURER: PERMALOC CLEANLINE  
 DIMENSIONS: 6" X 5 1/2"  
 FINISH: BLACK DURAFLEX

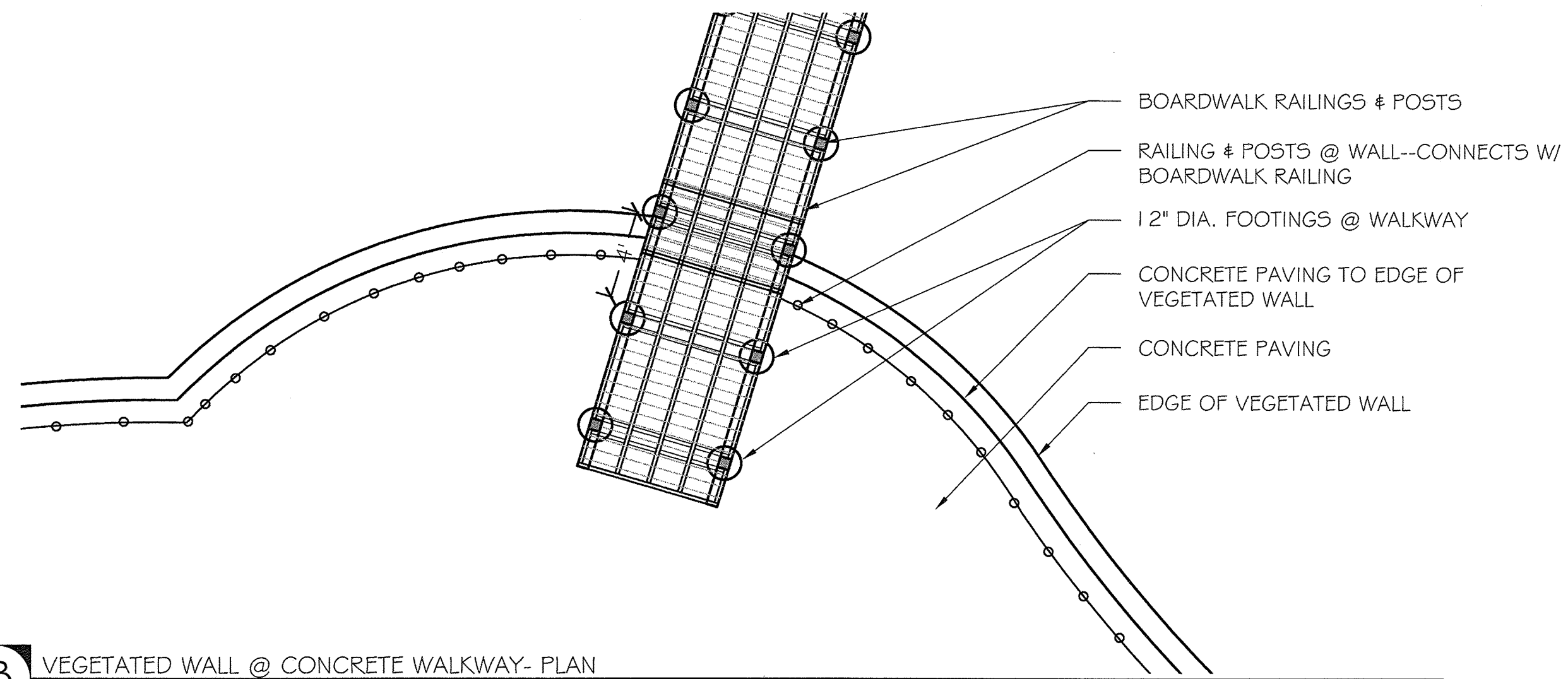
**I** METAL LANDSCAPE EDGE  
 NOT TO SCALE



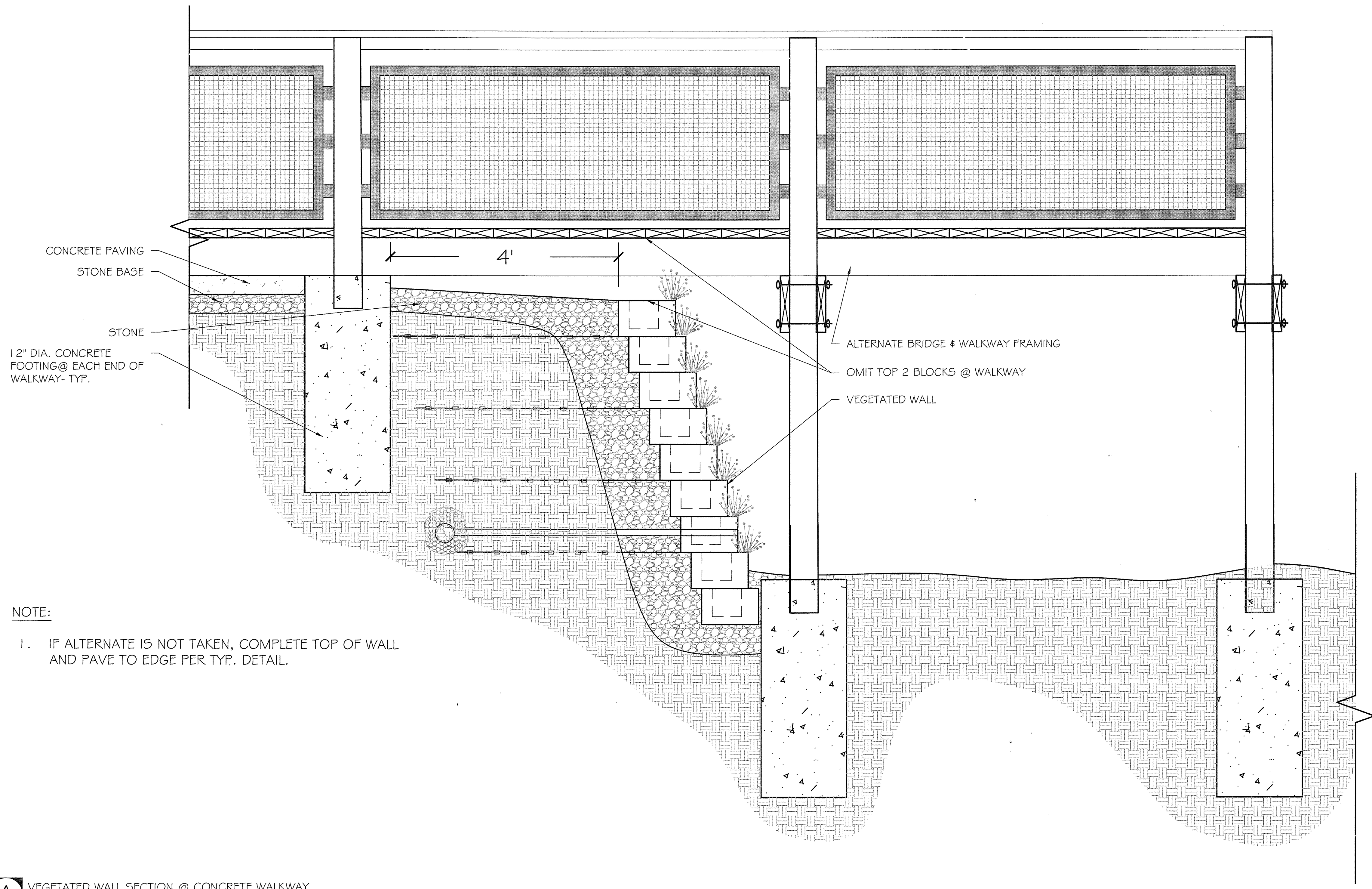
APPROVED: DEPARTMENT OF PLANNING AND ZONING			
[Signature]		7-19-16	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION			
[Signature]		8-16-16	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT			
[Signature]		8-16-16	DATE
DIRECTOR			

DATE	NO.	REVISION	BY
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER			
AREA: PLAT NOS. 2306A-2360 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND			
TITLE: SITE FURNITURE DETAILS			
BRADLEY SITE DESIGN, INC. LANDSCAPE ARCHITECTURE 12 W. Madison Street., Suite 204 Baltimore, MD 21201 P: 443-450-1385 www.bradleysitedesign.com			
SEAL: [Professional Seal]		SHEET NUMBER: L400	
DESIGNED BY: SBIES		DRAWN BY: ES	
PROJECT NO.: GRIM1402		DATE: JUNE 20, 2016	
SCALE: AS SHOWN		DRAWING NO. 42 OF 50	





**B** VEGETATED WALL @ CONCRETE WALKWAY- PLAN  
 3/16" = 1'-0"



NOTE:  
 1. IF ALTERNATE IS NOT TAKEN, COMPLETE TOP OF WALL AND PAVE TO EDGE PER TYP. DETAIL.

**A** VEGETATED WALL SECTION @ CONCRETE WALKWAY  
 1" = 1'-0"

**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 JAMES A. ROFF 21774  
 PROFESSIONAL LANDSCAPE ARCHITECT  
 SIGNATURE: [Signature] DATE: 6/18/20  
 STATE OF MARYLAND  
 PROFESSIONAL LANDSCAPE ARCHITECT  
 LICENSE NO. 21774

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]	7-19-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
[Signature]	8-16-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
[Signature]	8-16-16
DIRECTOR	DATE

DATE	NO.	REVISION	BY
DEVELOPER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			

PROJECT  
**HCLS ELKRIDGE BRANCH AND 50+ CENTER**

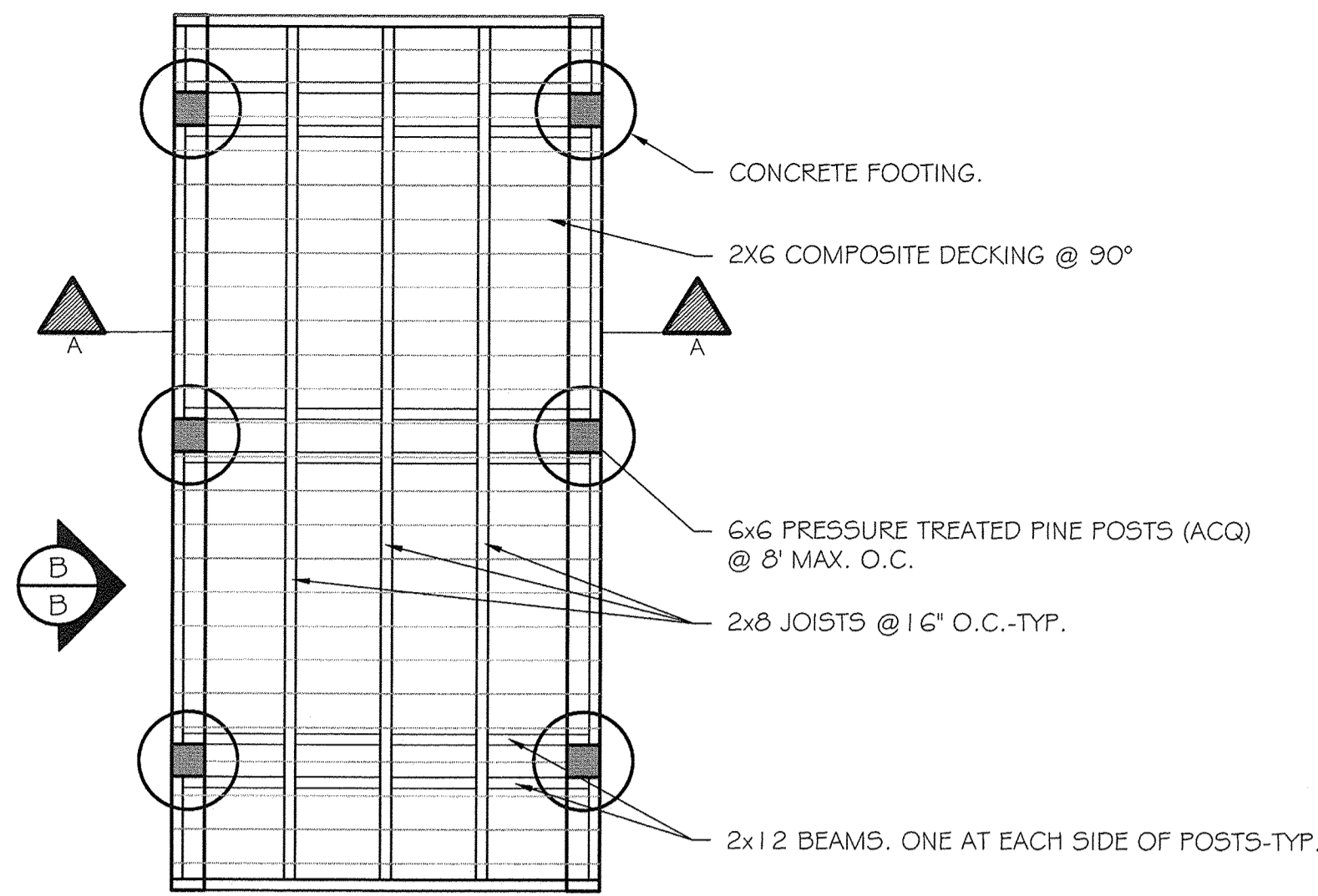
AREA  
 PLAT NOS. 22869-22870  
 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12  
 GRID NO. 7 1st ELECTION DISTRICT  
 8540 WASHINGTON BOULEVARD  
 ELKRIDGE, MARYLAND 21075-0000  
 HOWARD COUNTY, MARYLAND

TITLE  
**CONSTRUCTION DETAILS**

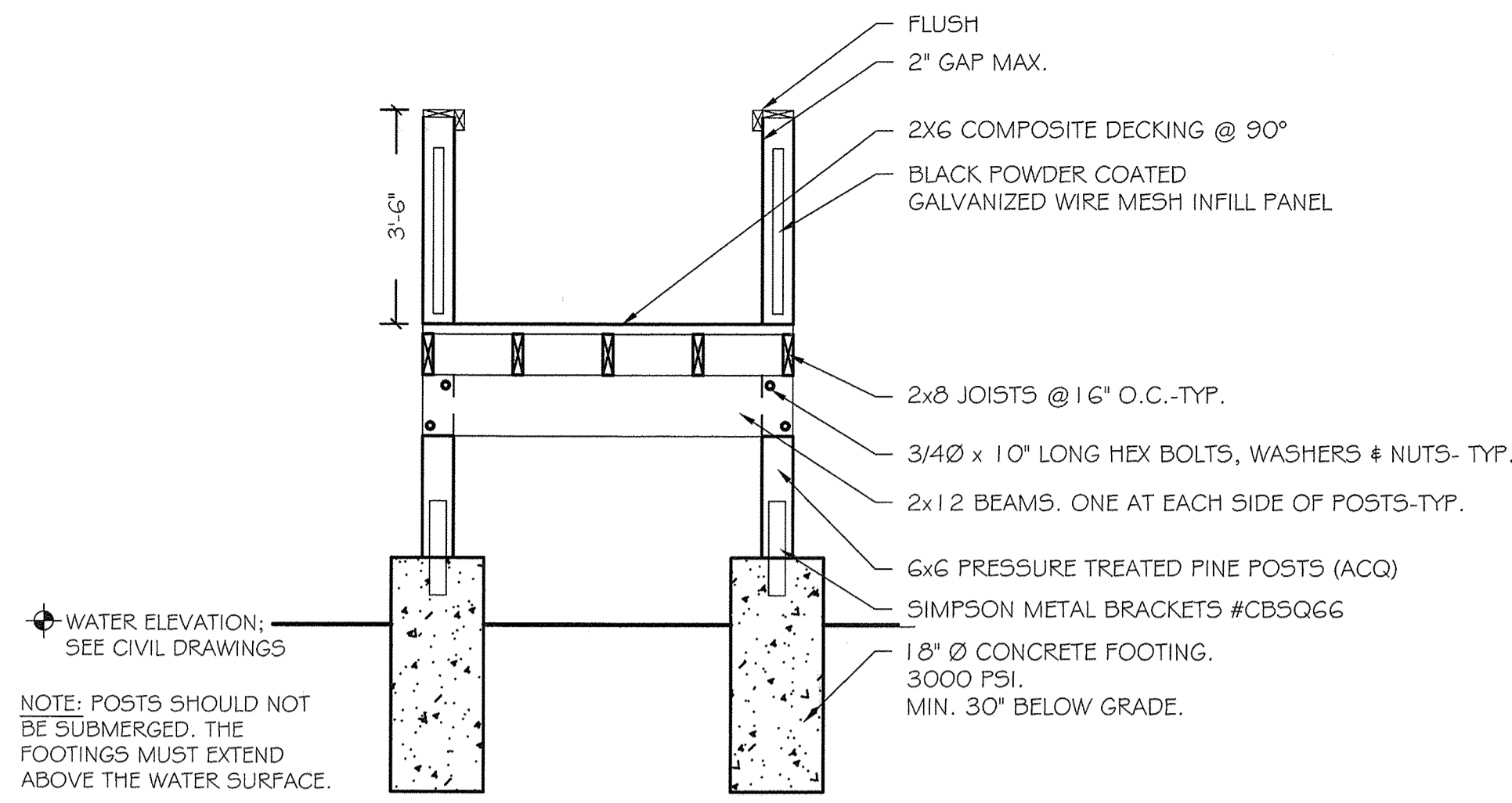
BRADLEY SITE DESIGN, INC.  
 LANDSCAPE ARCHITECTURE  
 12 W. Madison Street., Suite 204  
 Baltimore, MD 21201  
 P: 443-450-1385  
 www.bradleysitedesign.com

SEAL	SHEET NUMBER: L.402
[Seal]	DESIGNED BY: SB/ES
	DRAWN BY: ES
	PROJECT NO: GRIM1402
	DATE: JUNE 20, 2016
	SCALE: AS SHOWN
	DRAWING NO. 44 OF 50

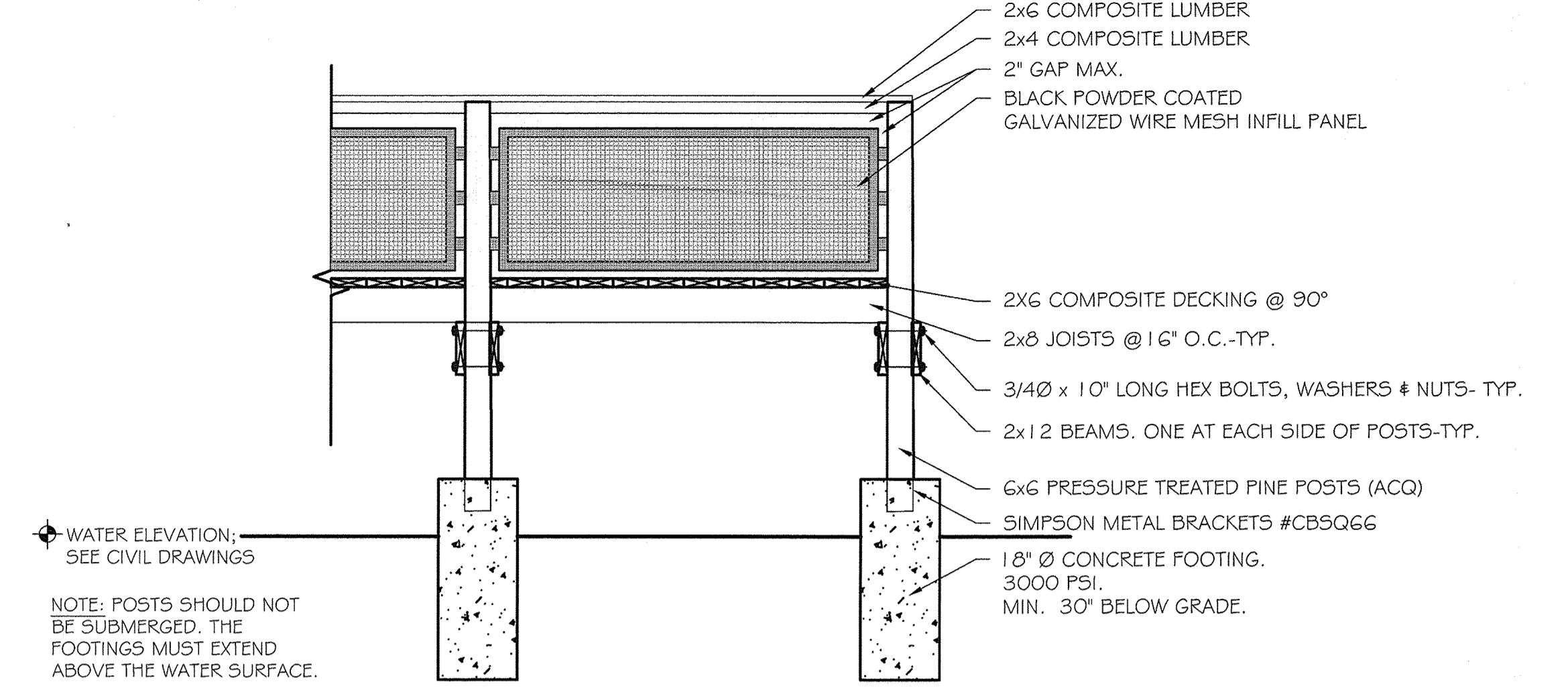
BY:  
 PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21774, EXPIRATION DATE 01/01/2018



PLAN VIEW

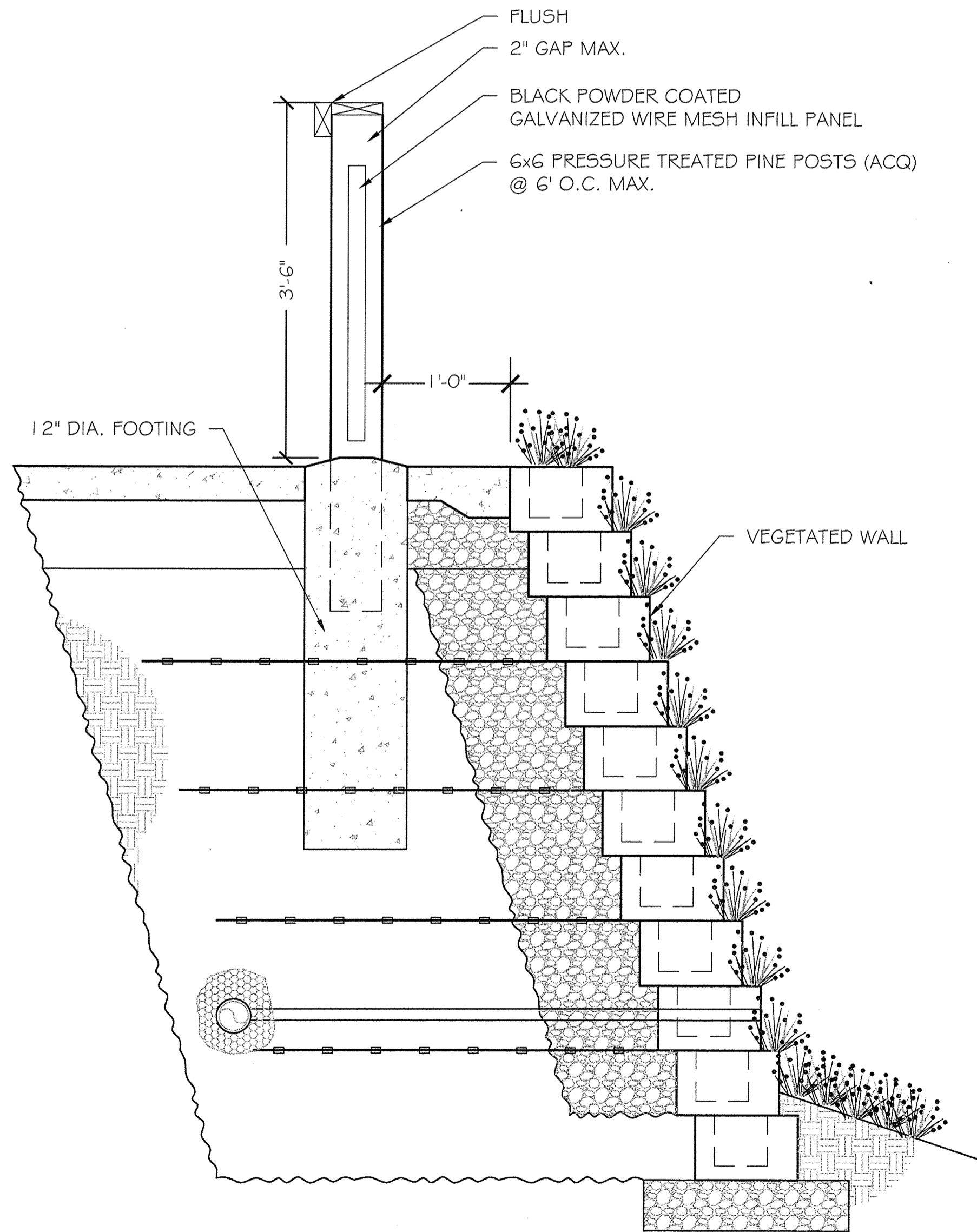
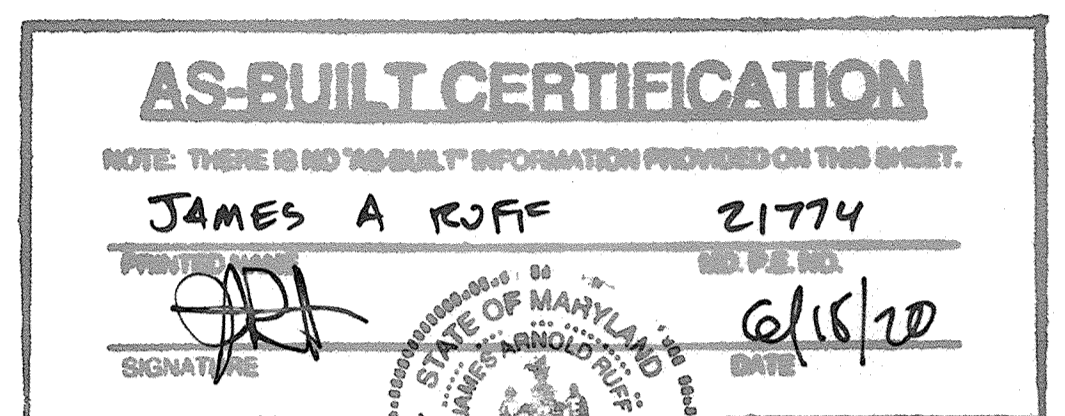


CROSS SECTION A-A

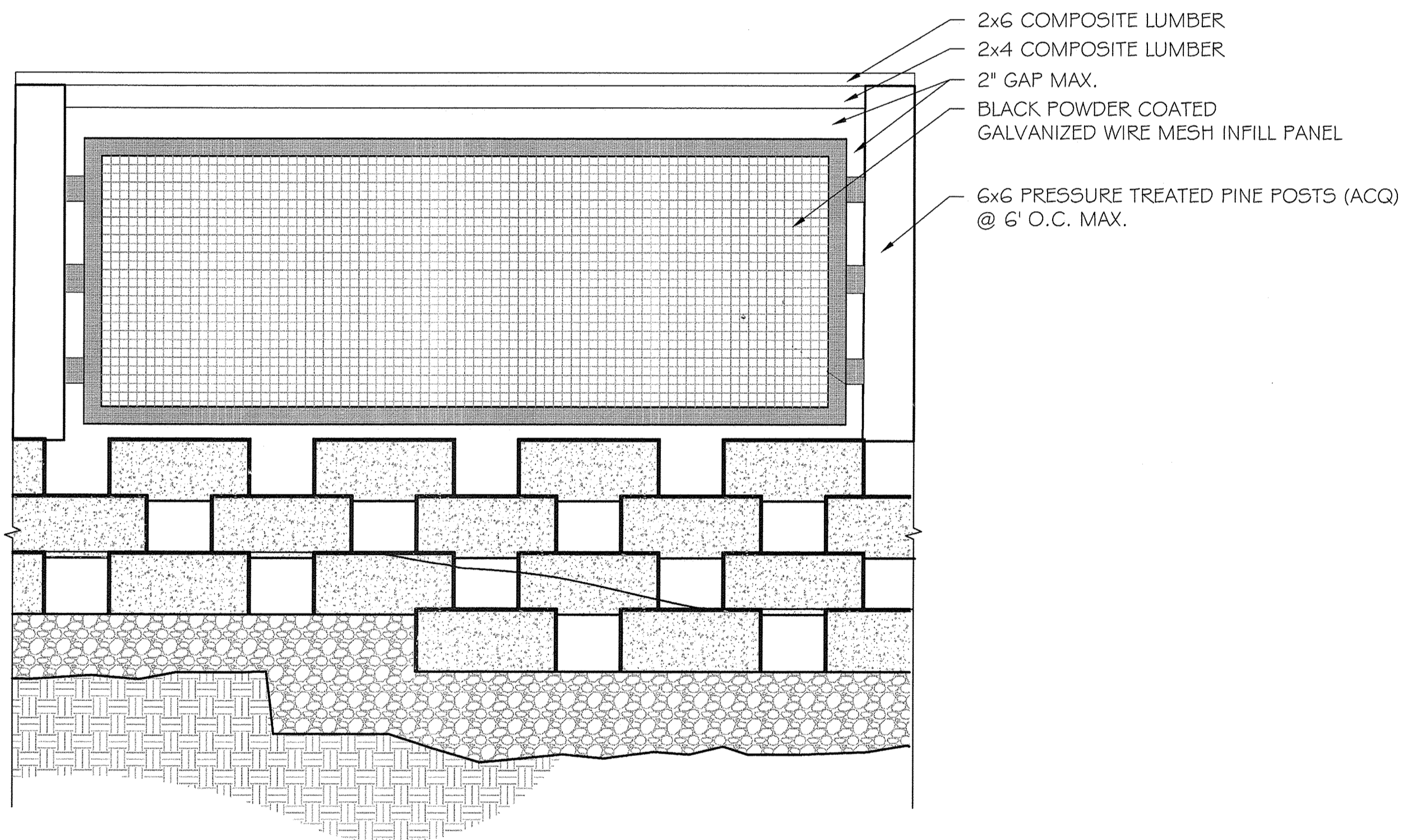


SIDE VIEW B-B

**A** BOARDWALK DETAIL- (ADD-ALT)  
1/2" = 1'-0"



SECTION



NOTES:

1. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD.
2. POSTS: 6"x6" PRESSURE TREATED WOOD.
3. RAILINGS: 6"x6" PRESSURE TREATED WOOD.
4. REFER TO CIVIL DRAWINGS FOR LOCATION OF TOP AND BOTTOM OF WALL ELEVATIONS.
5. REFER TO STRUCTURAL ENGINEER FOR WALL DETAIL.
6. ALL CONNECTORS, ANCHORS, AND FASTENERS SHALL BE EITHER ZMAX OR POST BATCH HOT-DIP GALVANIZED STEEL.
7. SUBMIT SAMPLES FOR INFILL PANEL AND COMPOSITE RAILING.

ELEVATION

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD.
2. POSTS: 6"x6" PRESSURE TREATED WOOD.
3. BEAMS: 2"x12" PRESSURE TREATED WOOD. 1 EACH SIDE OF POSTS, ATTACHED TO POSTS WITH (2) 3/4" DIAMETER X 10" LONG HEX BOLTS, WASHERS, AND NUTS.
4. JOISTS: 2"x8" PRESSURE TREATED WOOD, SPACED AT 16" ON CENTER MAXIMUM.
5. BLOCKING: 2"x8" PRESSURE TREATED WOOD, NAILED OFFSET PERPENDICULAR TO JOISTS.
6. DECKING: 2"x6" COMPOSITE LUMBER, ATTACHED 90° TO JOISTS.
7. RAILINGS: 6"x6" PRESSURE TREATED WOOD.
8. REFER TO CIVIL DRAWINGS FOR EXTENT OF BOARDWALK AND ELEVATION.
9. ALL CONNECTORS, ANCHORS, AND FASTENERS SHALL BE EITHER ZMAX OR POST BATCH HOT-DIP GALVANIZED STEEL.
10. SUBMIT SAMPLES FOR INFILL PANEL AND COMPOSITE DECKING. PROVIDE SHOP DRAWINGS FOR THE BOARDWALK.
11. GUARDRAIL IS REQUIRED ON THE RETAINING WALL WHERE THE GRADE DIFFERENCE IS GREATER THAN 30". SEE CIVIL DRAWINGS FOR GRADING.
12. STRUCTURAL ENGINEER REVIEW AND APPROVAL IS REQUIRED WHERE THE BOARDWALK POSTS ARE TALLER THAN 5'.

**B** GUARDRAIL DETAIL @ RETAINING WALL  
1" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Chad...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	7.19.16 DATE
<i>Ver...</i> CHIEF, DIVISION OF LAND DEVELOPMENT	9.16.16 DATE
<i>Walter...</i> DIRECTOR	8.16.16 DATE

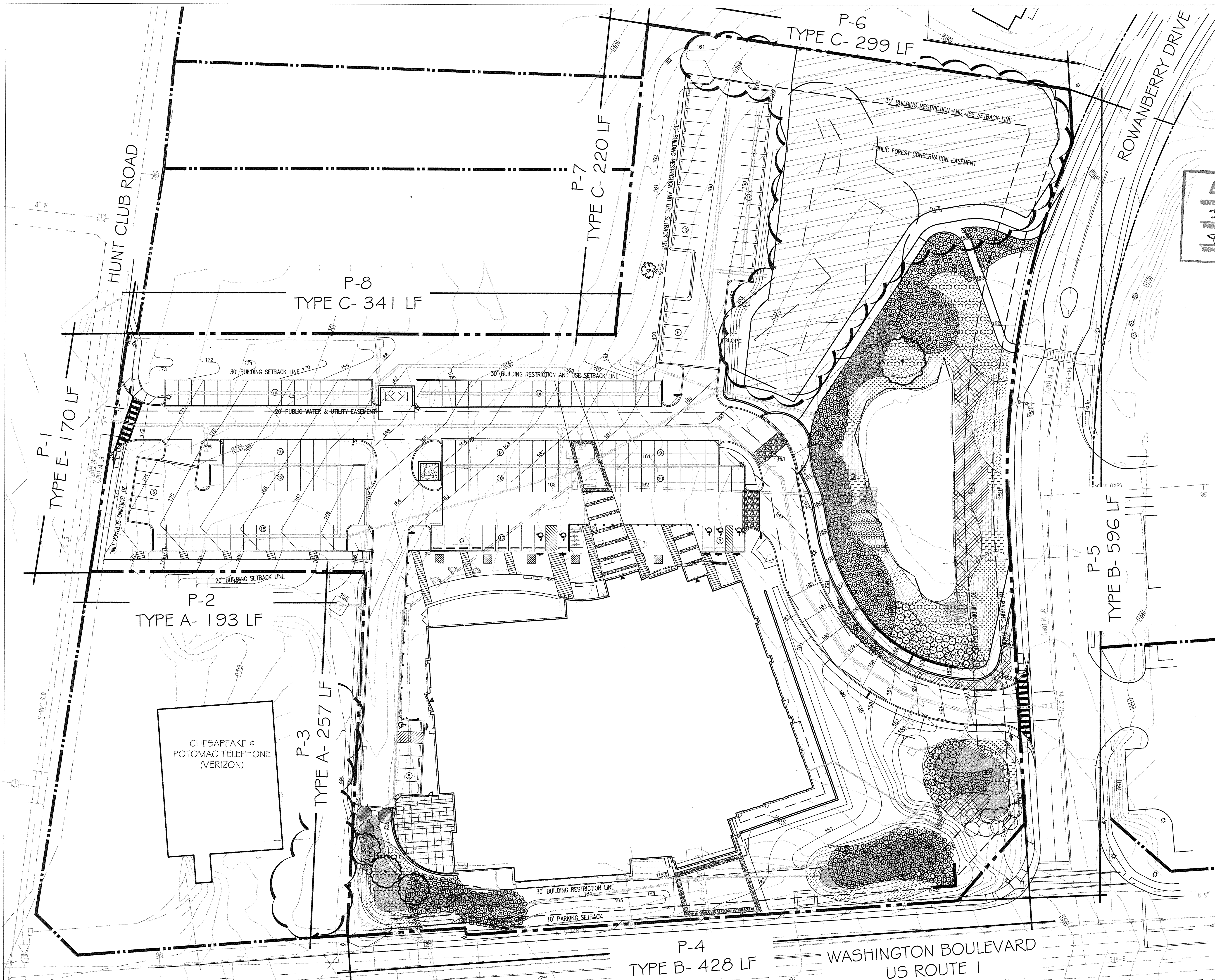
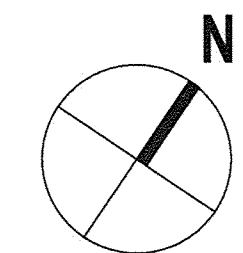
DATE	NO.	REVISION	BY
DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			

PROJECT	HCLS ELKRIDGE BRANCH AND 50+ CENTER
AREA	PLAT Nos. 22869-22870 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE	CONSTRUCTION DETAILS
-------	----------------------

BRADLEY SITE DESIGN, INC.  
LANDSCAPE ARCHITECTURE  
12 W. Madison Street., Suite 204  
Baltimore, MD 21201  
P: 443-450-1385  
www.bradleysitedesign.com

SEAL	SHEET NUMBER: L403
	DESIGNED BY: SB/ES
	DRAWN BY: ES
	PROJECT NO.: GRIM1402
	DATE: JUNE 20, 2016
	SCALE: AS SHOWN
	DRAWING NO. 45 OF 50



**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
**JAMES A. ROFF** 21774  
 PROFESSIONAL LANDSCAPE ARCHITECT NO. PE. NO.  
 SIGNATURE DATE 6/19/20

LANDSCAPE 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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

DEVELOPER SIGNATURE: *Wilgitt*



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Chad...* 7-19-16 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Mark Stroma...* 8-16-16 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*William Joffe* 8-16-16 DATE  
 DIRECTOR

DATE	NO.	REVISION	BY

DEVELOPER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700  
 OWNER: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700

PROJECT: HCLS ELKRIDGE BRANCH AND 50+ CENTER

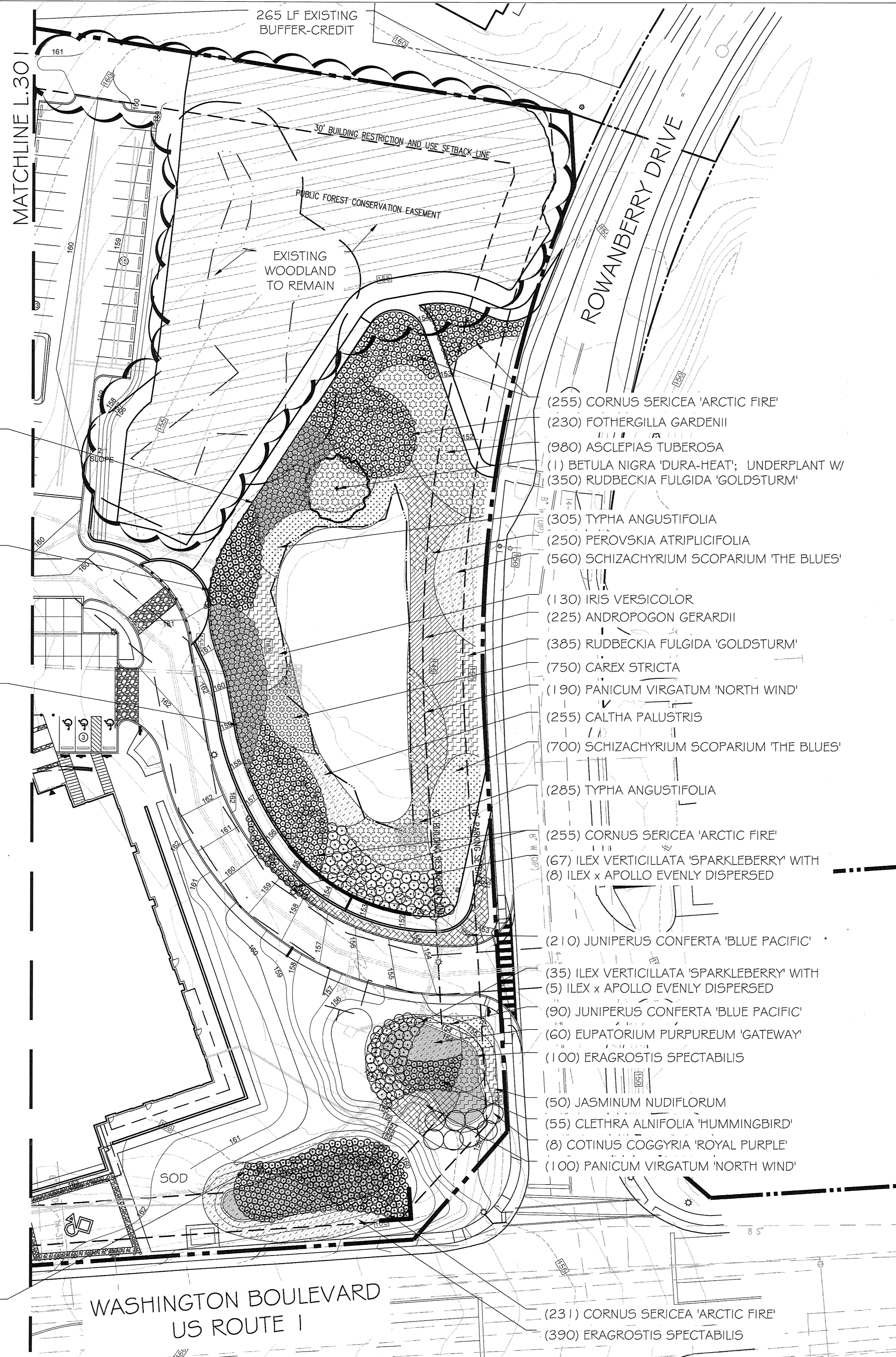
AREA: PLAT NO. 2386A-23870 TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND

TITLE: OVERALL PLANTING PLAN - SWM

BRADLEY SITE DESIGN, INC. LANDSCAPE ARCHITECTURE 12 W. Madison Street., Suite 204 Baltimore, MD 21201 P: 443-450-1385 www.bradleysitedesign.com

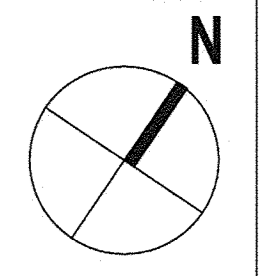
SEAL: [Professional Seal of James A. Roff, Landscape Architect No. PE. No. 21774, State of Maryland]  
 SHEET NUMBER: L300  
 DESIGNED BY: SB/ES  
 DRAWN BY: ES  
 PROJECT NO: GRIM1402  
 DATE: JUNE 20, 2016  
 SCALE: 1"=30'-0"  
 DRAWING NO. 46 OF 50





NOTES:

1. MAINTAIN MIN. 5' SOD CLEARANCE BETWEEN THE SIDEWALK AND PLANTING EDGE AS SHOWN ON THE DRAWINGS.- TYP.
2. STREET TREES TO BE PLANTED 10' OFF FROM THE SIDEWALK- TYP.



**AS-BUILT CERTIFICATION**  
 NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.  
 JAMES A. RUFF 21774  
 PROFESSIONAL ENGINEER  
 STATE OF MARYLAND  
 REGISTERED PROFESSIONAL ENGINEER  
 SIGNATURE: [Signature] DATE: 06/16/16

LANDSCAPE 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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

DEVELOPER SIGNATURE: [Signature]

APPROVED: DEPARTMENT OF PLANNING AND ZONING			
[Signature]	7.19.16	DATE	
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR			
[Signature]	8.16.16	DATE	
CHIEF, DIVISION OF LAND DEVELOPMENT			
[Signature]	8.16.16	DATE	
DIRECTOR			

DATE	NO.	REVISION	BY
DEVELOPER			
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			
OWNER			
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-2700			

PROJECT	
HCLS ELKRIDGE BRANCH AND 50+ CENTER	
AREA	
PLAT NOS. 2386A-2387D TAX MAP 38, PARCELS 97 & 478 ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND	

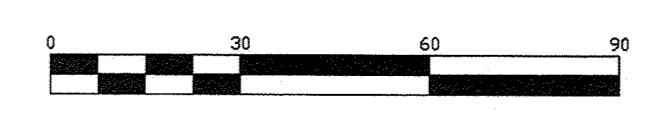
TITLE	
PLANTING PLAN- II - SWM	

BRADLEY SITE DESIGN, INC.  
 LANDSCAPE ARCHITECTURE  
 12 W. Madison Street., Suite 204  
 Baltimore, MD 21201  
 P: 443-450-1385  
 www.bradleysitedesign.com

SEAL	SHEET NUMBER: L.302
[Seal]	DESIGNED BY: SB/ES
	DRAWN BY: ES
	PROJECT NO: GRIM1402
	DATE: JUNE 20, 2016
	SCALE: 1"= 30'-0"
	DRAWING NO. 48 OF 50

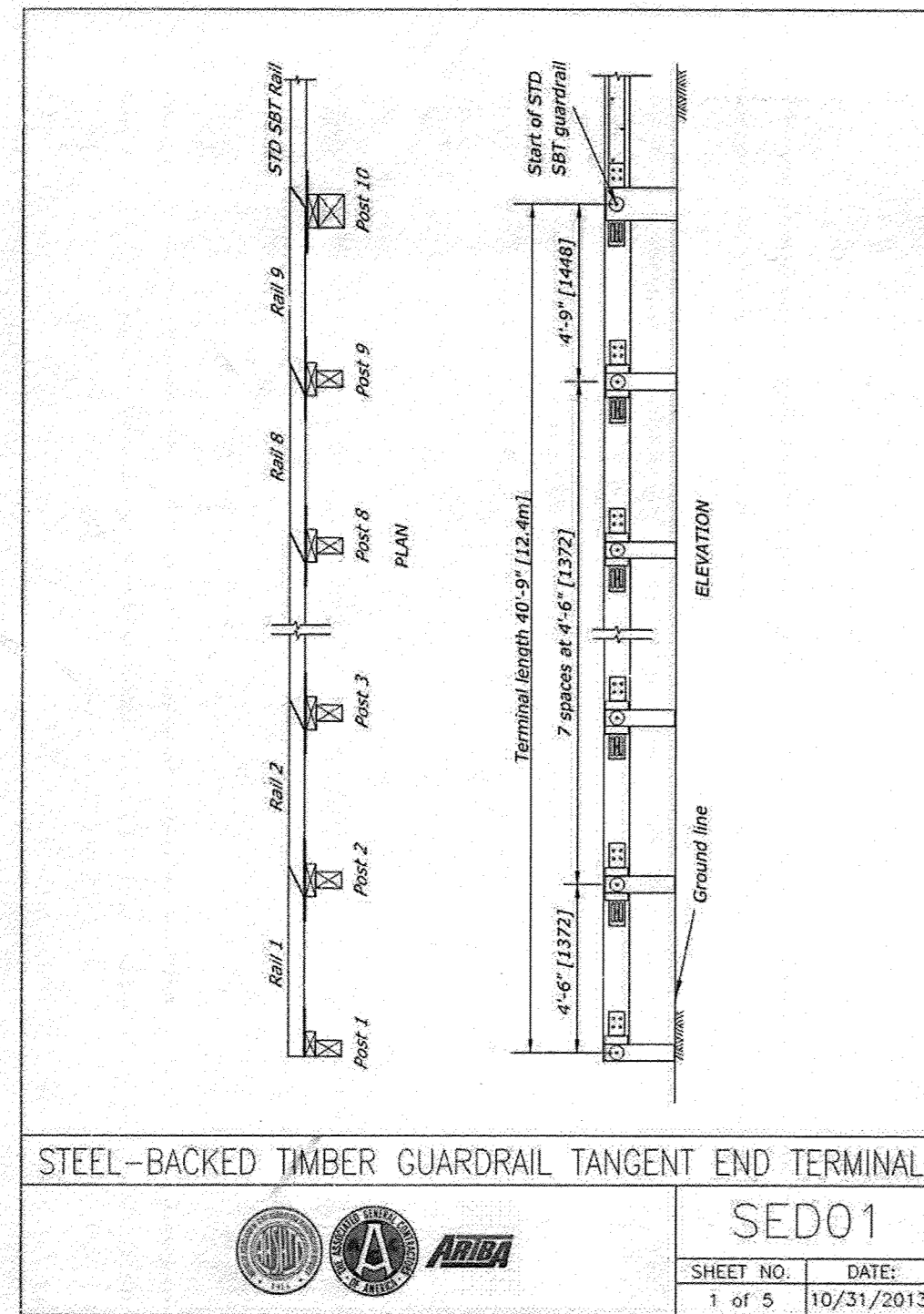
NOTE:

THIS PLAN IS FOR STORMWATER PLANTING ONLY. THIS DOES NOT COVER THE WHOLE PLANTING PLAN









**INTENDED USE**

SED01 is an *NCHRP Report 350 TL-2 Steel Backed Timber (SBT) Guardrail Tangent End Terminal*. The overall length is 40 ft. 9 in. [12.42 m], and it consists of nine (9) wood rail segments and nine (9) wood posts. The rail segments' cross-sectional area is 6 in. x 10 in. [150 mm x 250 mm], similar to the cross-section of the steel-backed timber SBT barrier rail segments. The length of the first rail segment is 5 ft. 3 in. [1.6 m]. The last rail segment (number 9) is 5 ft. 9 in. [1.75 m] in length. The remaining rails (numbers 2-8) are 5 ft. 6 in. [1.676 m] in length. These rail segment lengths are about half the rail segment lengths of the SBT barrier and were selected such that the spacing between the posts is 4 ft. [1.22 m].

Both ends of the rail segments are cut at a 1:2 (26-degree) angle, with the exception of first rail segment, which has one end at 90 degree, and the last rail segment, which has one end cut at a 1:1 (45 degree) angle. The first rail of the SBT guardrail is also cut at a 1:1 (45 degree) angle to fit the end of the terminal.

The steel splices and wood block-outs are connected to the posts using 5/8 in. [16 mm] diameter bolts. The bolts are 15 in. [380 mm] in length. The steel splices are 6 in. x 30 in. x 3/8 in. [150 mm x 750 mm x 10 mm]. The wood block-outs are 12 in. x 9 in. x 4 in. [300 mm x 225 mm x 100 mm]. Both are of similar size to the original SBT barrier.

**APPROVALS**

Federal Highway Administration (FHWA) Eligibility Letter CC-116, May 6, 2011.

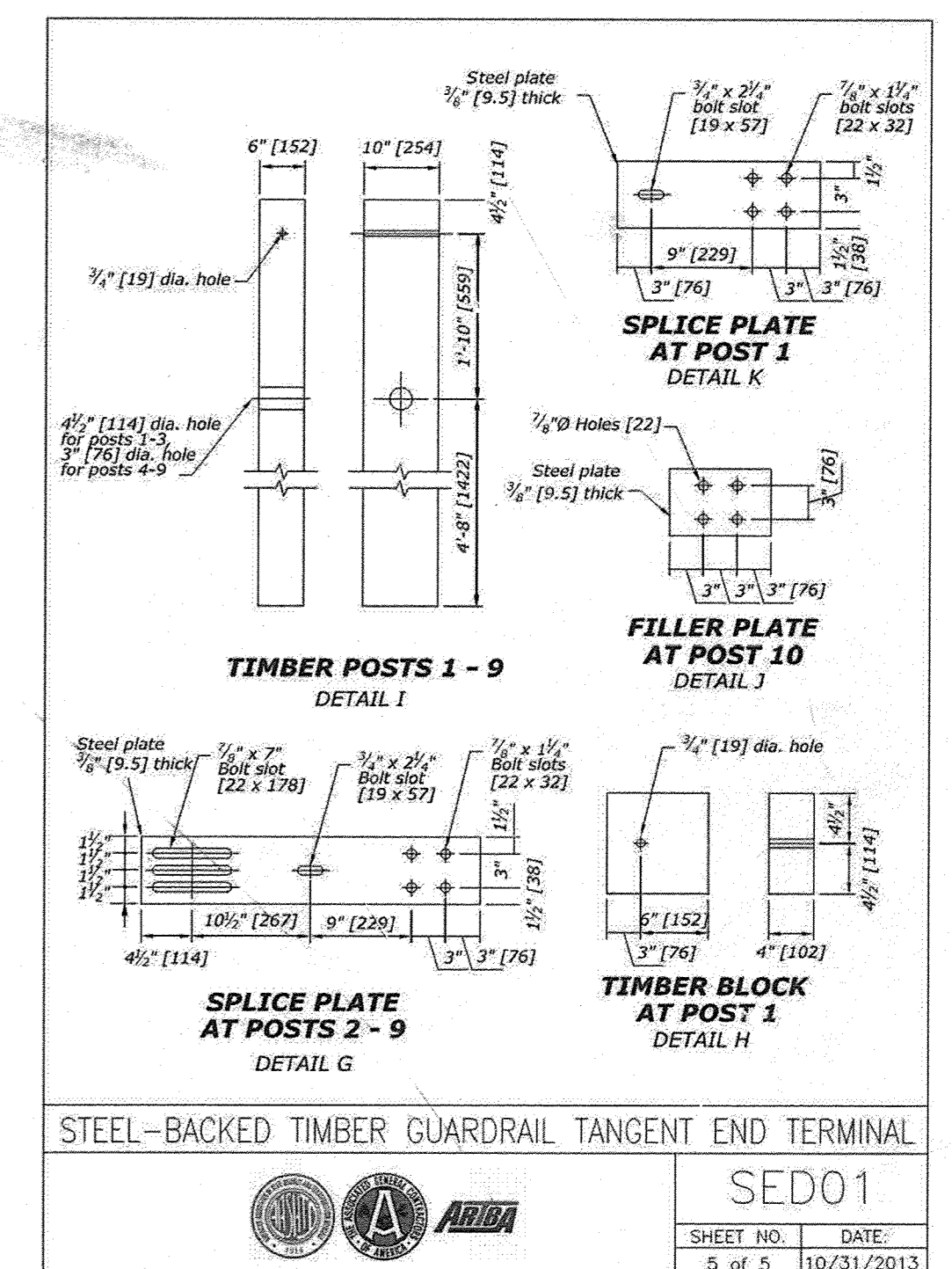
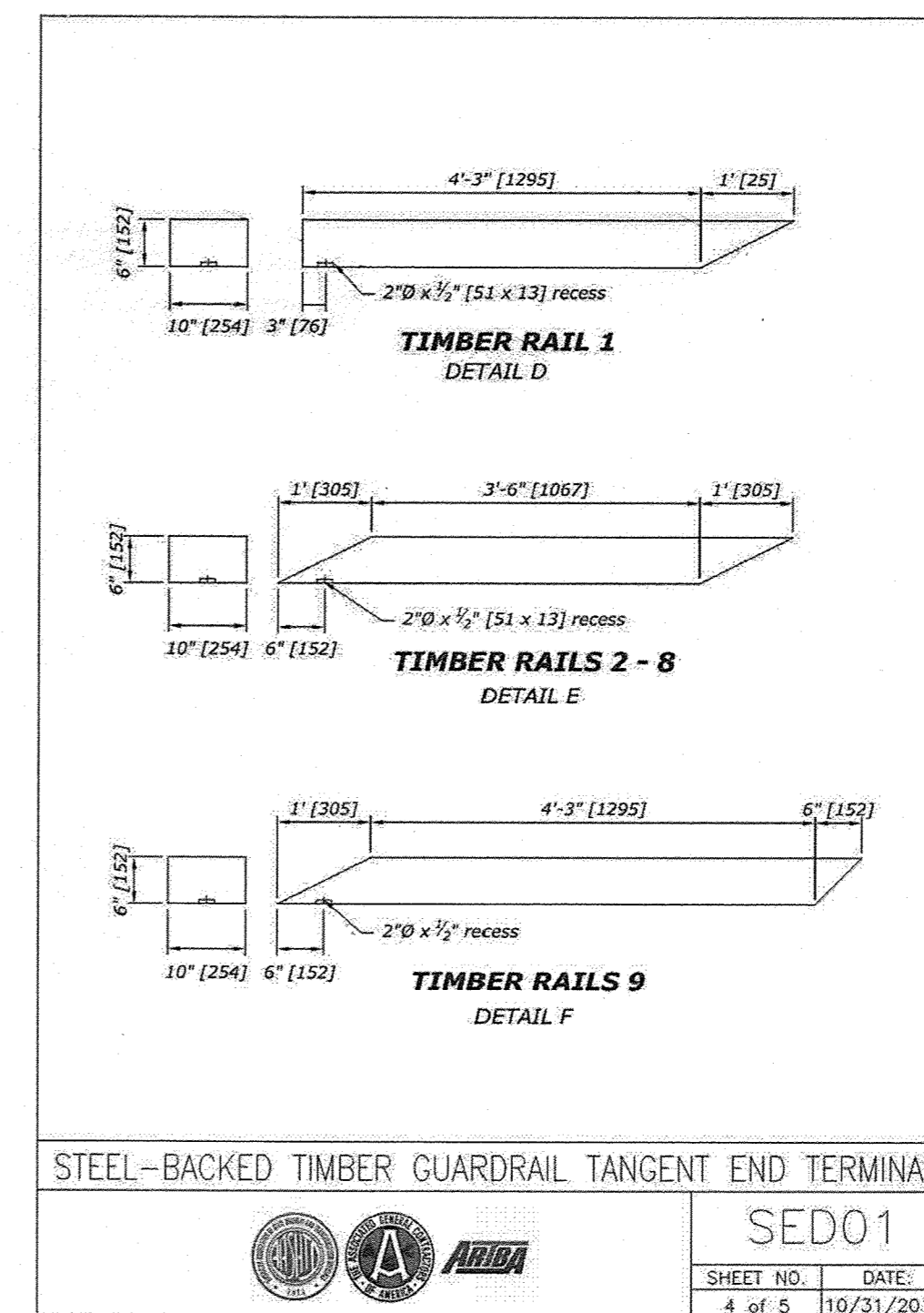
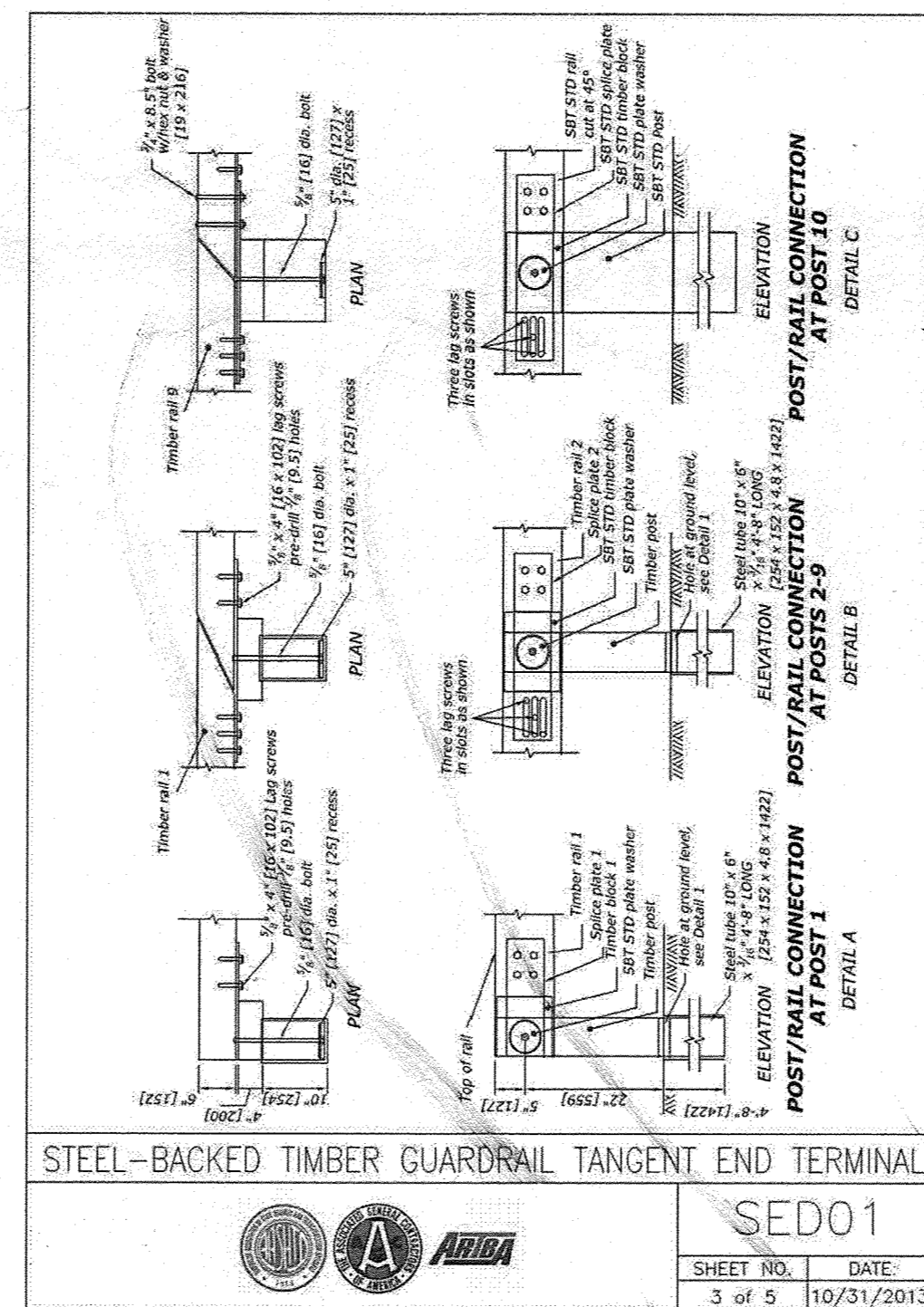
**CONTACT INFORMATION**

Eastern Federal Lands Highway Division  
21400 Ridgeway Circle  
Sterling, VA 20166  
(703) 404-6332  
EFL.FHWA@fhwa.dot.gov

STEEL-BACKED TIMBER GUARDRAIL TANGENT END TERMINAL

SED01

SHEET NO. DATE  
2 of 5 10/31/2013

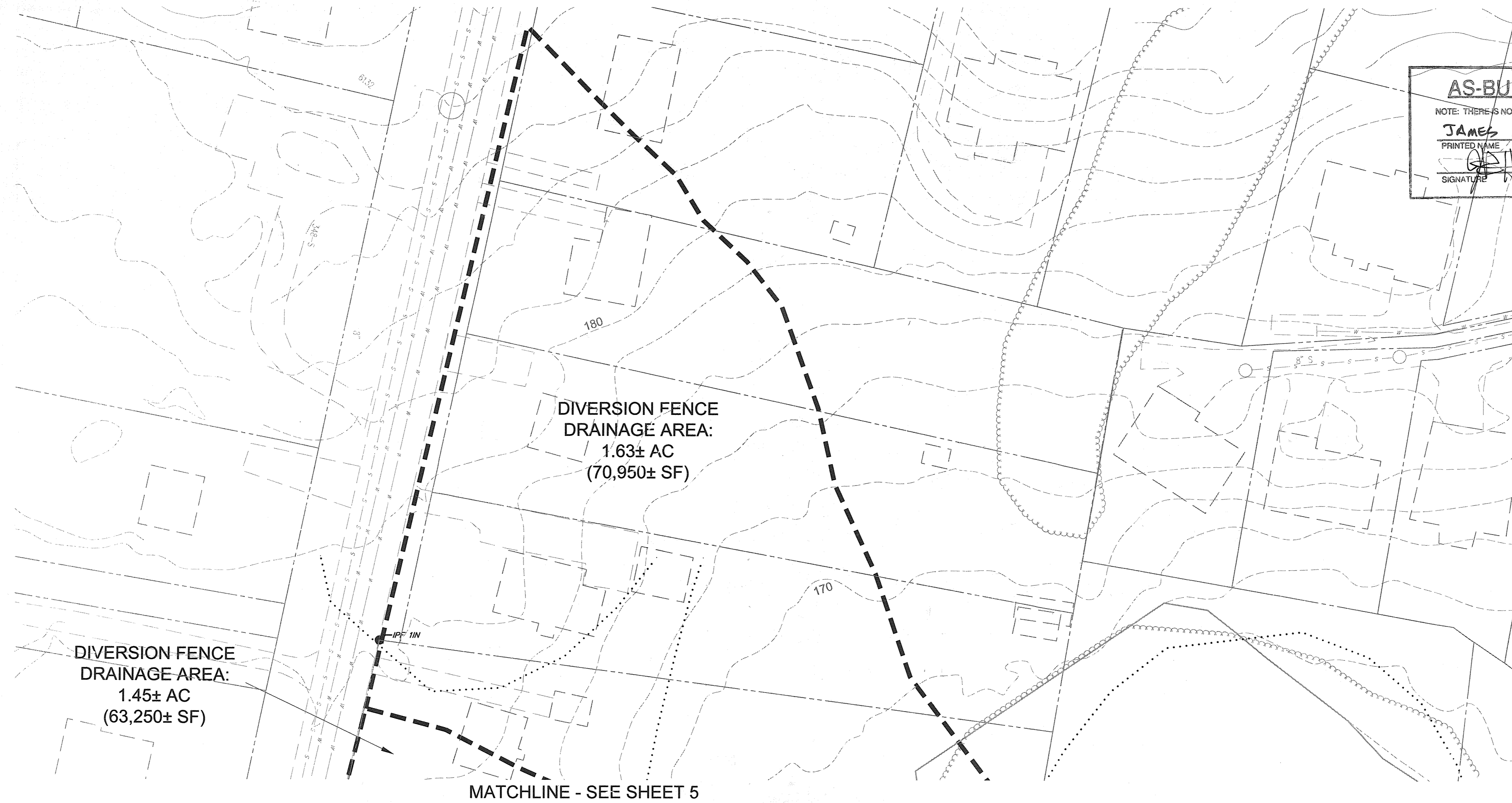


1  
48 STEEL BACKED TIMBER GUARD RAIL  
NOT TO SCALE

**NOTES:**

1. ALL TIMBER SHALL BE PRESSURE TREATED.

2. ALL BOLTS AND FASTENERS SHALL BE GALVANIZED.

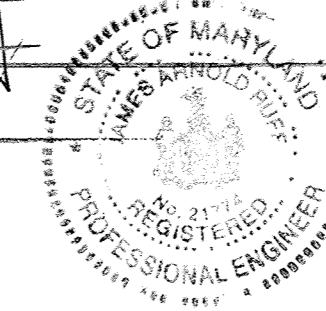


**AS-BUILT CERTIFICATION**

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

JAMES A ROFF 21774  
PRINTED NAME MD. P.E. NO.

DATE 6/18/20



APPROVED: DEPARTMENT OF PLANNING AND ZONING			
CHIEF, DEVELOPMENT ENGINEERING DIVISION	JR	7-19-16	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	JS	8-16-16	DATE
DIRECTOR	JJ	8-16-16	DATE
DATE	NO.	REVISION	BY
DEVELOPER		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	
OWNER		HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF FACILITIES 9250 BENDIX ROAD COLUMBIA, MARYLAND 21045 ATTN: MARK STROMDAHL PHONE: 410-313-5757	
PROJECT		GREEN BUILDING HCLS ELKRIDGE BRANCH AND 50+ CENTER	
AREA		TAX MAP 38, PARCEL 'A' PLAT 2252A ZONED B-1 & R-12 GRID NO. 7 1st ELECTION DISTRICT 6540 WASHINGTON BOULEVARD ELKRIDGE, MARYLAND 21075-0000 HOWARD COUNTY, MARYLAND	
TITLE		SITE DETAILS AND SEDIMENT CONTROL DRAINAGE AREA MAP	
Pennoni Associates Inc. Engineers • Surveyors • Planners Landscape Architects			
8818 Centre Park Drive, Suite 200 Columbia, MD 21045 T 410.997.8900 F 410.997.9282			
SEAL	DESIGNED BY: PJS/JSN		
BY: [Signature]	DRAWN BY: PJS/JSN		
	PROJECT NO: GRIM1402		
	DATE: JUNE 20, 2016		
	SCALE: 1"=30'		
DRAWING NO. 50 OF 50			

