

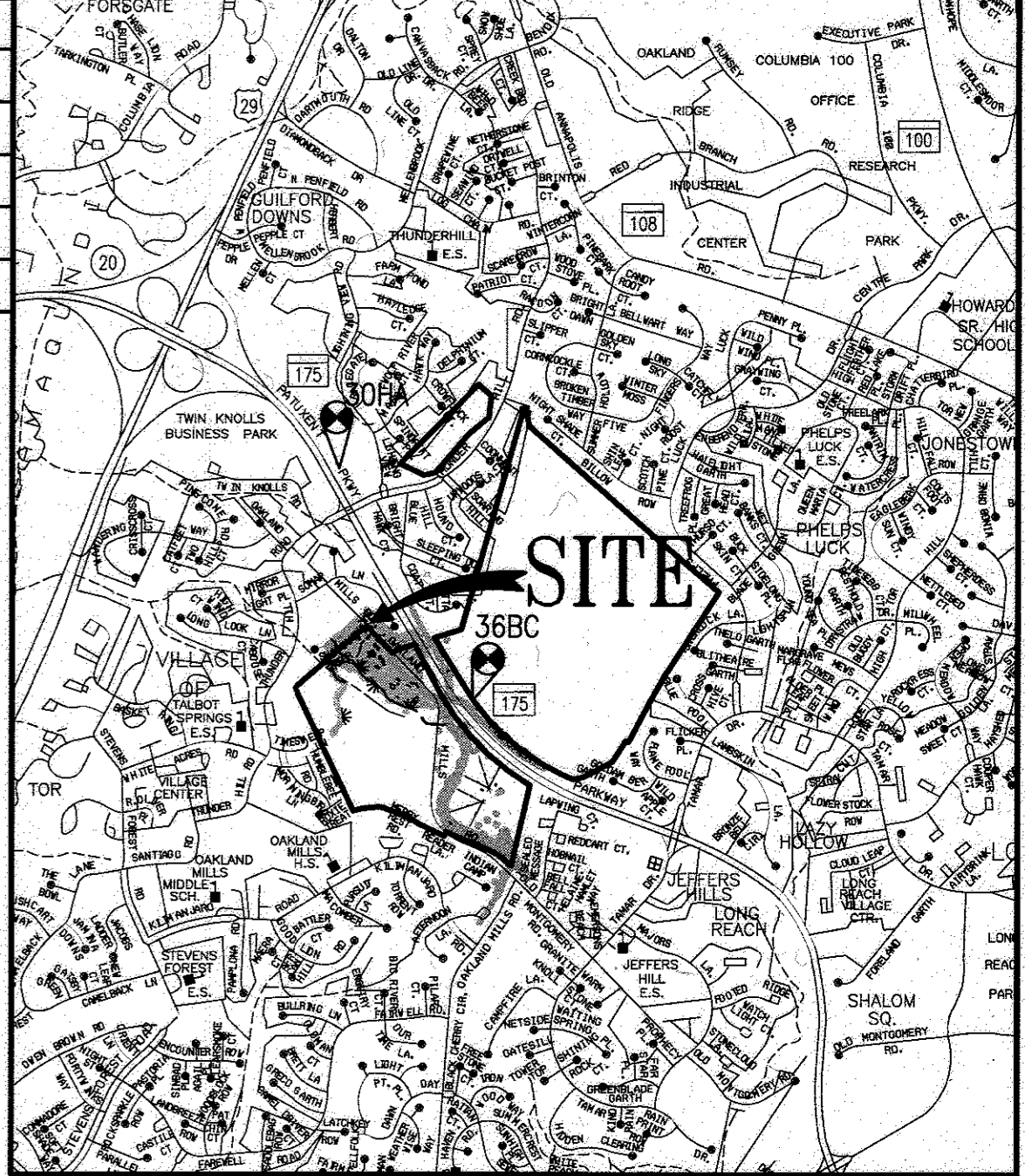
BLANDAIR REGIONAL PARK - PHASE 3

HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT #N-3102
 SITE DEVELOPMENT PLAN #SDP-15-050

BENCHMARK DATA

30HA: N 566030.6258, E 1357989.5444, ELEV. 386.983
 36BC: N 563264.1261, E 1359585.7197, ELEV. 409.981

REVISIONS	



SITE ANALYSIS DATA CHART

TOTAL PROPERTY AREA: 298.08 ACRES
 AREA OF PLAN SUBMISSION: 14.03 ACRES
 LIMIT OF DISTURBED AREA: 14.03 ACRES
 PROPOSED IMPERVIOUS COVER: 5.31 ACRES*

PRESENT ZONING DESIGNATION: RC-DEO, PER THE COMPREHENSIVE ZONING PLAN, EFFECTIVE OCTOBER 8, 2013

PROPOSED USES: DESTINATION PLAYGROUND, PICNIC SHELTER, COMFORT STATION, MAINTENANCE BUILDING, QUIET GAMES

FLOOR SPACE:
 PICNIC SHELTER - 1ST FLOOR: 1,687 SF;
 COMFORT STATION - 1ST FLOOR: 1,331 SF;
 MAINTENANCE BUILDING - 1ST FLOOR: 8,421 SF

COMFORT STATION PARKING SPACES PROVIDED: 112 SPACES, 9 HANDICAP SPACES, 121 TOTAL SPACES

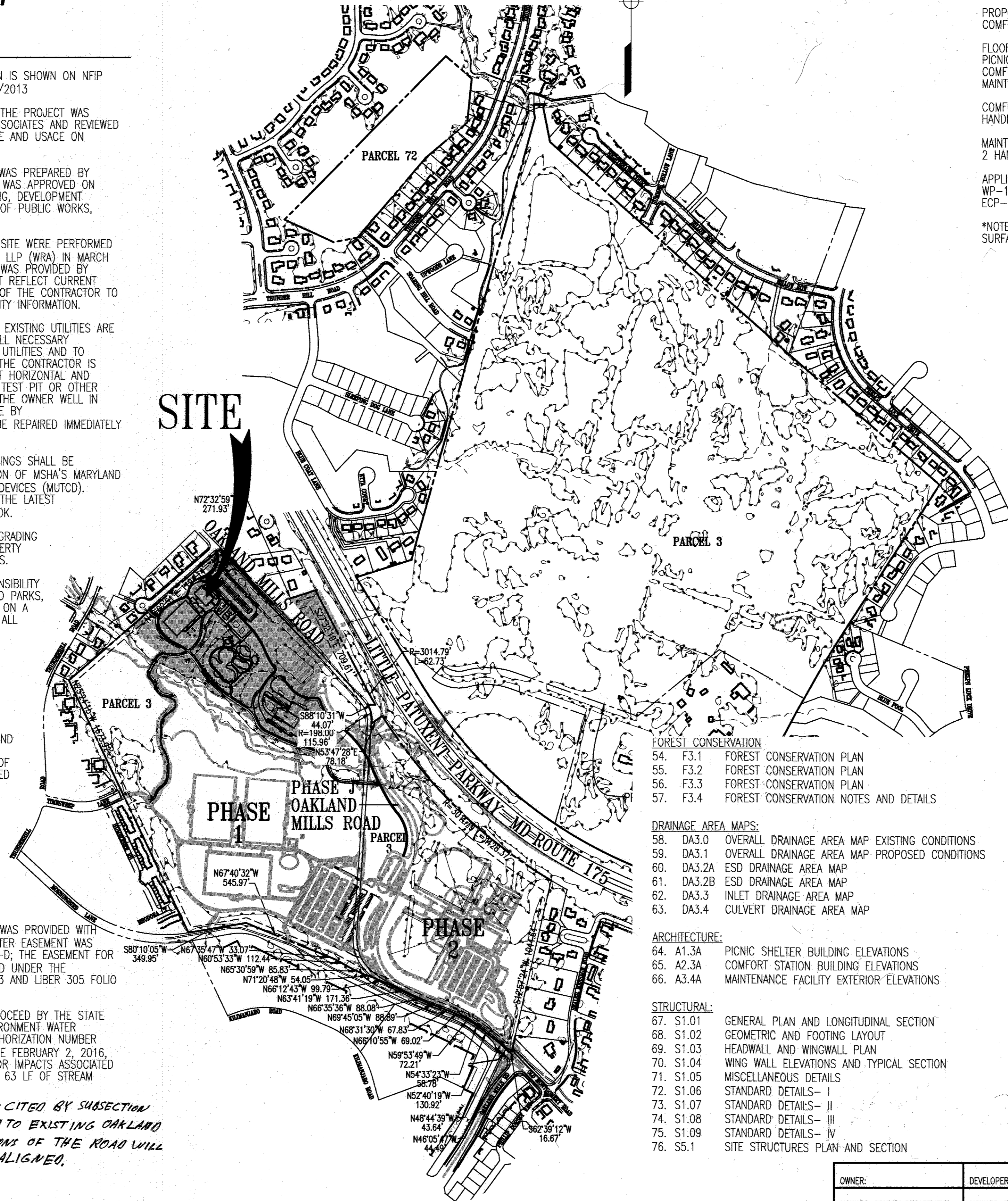
MAINTENANCE FACILITY PARKING SPACES PROVIDED: 19 SPACES, 2 HANDICAP SPACES, 21 TOTAL SPACES

APPLICABLE DPZ FILE NUMBERS: ECP-11-023, SDP-10-007; WP-10-013; WP-15-117; WP-16-002; SDP-12-063; ECP-14-091

*NOTE: NUMBER CALCULATED CONSIDERING ALL ALTERNATIVE SURFACES ARE IMPERVIOUS

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY SPECIFICATIONS AND DETAILS FOR CONSTRUCTION PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 10/06/2013 COMPREHENSIVE ZONING PLAN.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN WETLANDS, STREAMS, WETLAND OR STREAM BUFFERS, 100-YEAR FLOODPLAIN, OR FOREST CONSERVATION EASEMENTS UNLESS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THIS PROJECT WILL PHASE THE REQUIREMENTS OF SUBSECTION 16.1202(g)(1) OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION AS ALLOWED BY WAIVER PETITION WP-10-013, APPROVED OCTOBER 15, 2009. THE TOTAL PROJECT FOREST CONSERVATION OBLIGATION WILL BE UPDATED UPON SUBMITTAL OF EACH NEW PHASE. IN ADDITION, RECONSIDERATION OF WP-10-013, APPROVED JANUARY 27, 2010, WILL WAIVE SUBSECTION 16.1204(d) TO ALLOW TEMPORARY DEFERRAL OF RECOGNITION OF FOREST CONSERVATION EASEMENTS. PRIOR TO APPROVAL OF THE SDP FOR THE FINAL PHASE OF THE PARK, A FINAL PLAN APPLICATION SHALL BE SUBMITTED CONCURRENTLY TO DEPICT THE FOREST CONSERVATION EASEMENTS OF THE FINAL PHASE AND ALL FOREST CONSERVATION EASEMENTS PREVIOUSLY APPROVED ON PRIOR SDP'S FOR THE PARK.
- TOTAL EXISTING FOREST (EXCLUDING FLOODPLAIN): 108.48 AC
 ESTIMATED TOTAL CLEARING PER MASTERPLAN: 45.33 AC
 ESTIMATED TOTAL FOREST RETAINED: 63.15 AC
- PHASE 1 PROPOSED CLEARING: 2.87 AC
 PHASE 1 PROPOSED RETENTION: 1.94 AC
 PHASE 2 PROPOSED CLEARING: 3.00 AC
 PHASE 2 PROPOSED RETENTION: 0.72 AC
 PHASE 3 PROPOSED CLEARING: 3.60 AC
 PHASE 3 PROPOSED RETENTION: 11.06 AC
 PHASE J SOUTH CLEARING: 4.26 AC
 PHASE J SOUTH RETENTION: 0.94 AC
 TOTAL PROPOSED CLEARING: 13.73 AC
 TOTAL PROPOSED RETENTION: 14.66 AC
- THIS PROJECT WILL WAIVE THE REQUIREMENTS OF SUBSECTION 16.116(c)(2)(iii) OF THE HOWARD COUNTY CODE - PROHIBITING GRADING, REMOVAL OF VEGETATIVE COVER, PAVING, AND NEW STRUCTURES WITHIN 100 FT STREAM BUFFER - AS ALLOWED BY WAIVER PETITION WP-15-117, APPROVED MAY 11, 2015. WAIVER PETITION WP-15-117 WAS RECONSIDERED TO INCREASE THE AMOUNT OF STREAM BUFFER DISTURBANCE FOR STORMWATER MANAGEMENT PURPOSES, APPROVED JUNE 17, 2015.
- THIS PROJECT RECEIVED A WAIVER FOR THE REQUIREMENTS OF SUBSECTION 16.155(c)(1) AND 16.155(c)(2) OF THE HOWARD COUNTY CODE TO ABSOLVE THE REQUIREMENT TO OBTAIN AN APPROVED SDP PRIOR TO THE MASS GRADING OF THE SITE, AS ALLOWED BY WP-16-002, APPROVED AUGUST 6, 2015.
- WATER IS PUBLIC: CONTRACT NUMBER 24-4905-D.
- SEWER IS PUBLIC: CONTRACT NUMBER 24-4637-D.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UP ON THE MARYLAND STATE PLANE COORDINATE SYSTEM: HORIZONTAL NAD'83/91 VERTICAL NAVD'88.
- HOWARD COUNTY MONUMENTS USED FOR THIS PROJECT:
 30HA: N 566030.6258, E 1357989.5444
 36BC: N 563264.1261, E 1359585.7197
- THE 100-YEAR APPROXIMATE FLOODPLAIN IS SHOWN ON NFIP FIRM PANEL 24027C0155D, DATED 11/6/2013
- THE WETLANDS DELINEATION STUDY FOR THE PROJECT WAS PREPARED BY WHITMAN, REQUARDT & ASSOCIATES AND REVIEWED AND CONCURRED IN THE FIELD WITH MDE AND USACE ON AUGUST 17, 2009.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY WHITMAN, REQUARDT & ASSOCIATES AND WAS APPROVED ON JULY 26, 2012 BY PLANNING AND ZONING, DEVELOPMENT ENGINEERING DIVISION AND DEPARTMENT OF PUBLIC WORKS, TRAFFIC ENGINEERING DIVISION.
- TOPOGRAPHICAL FIELD SURVEYS OF THE SITE WERE PERFORMED BY WHITMAN, REQUARDT AND ASSOCIATES LLP (WRA) IN MARCH 2008. ADDITIONAL UTILITY INFORMATION WAS PROVIDED BY HOWARD COUNTY RECORDS AND MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION.
- APPROXIMATE LOCATION AND INVERTS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN AN UNINTERRUPTED SERVICE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER WELL IN ADVANCE OF CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF MSHA'S MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL TRAFFIC SIGNS SHALL CONFORM TO THE LATEST VERSION OF MSHA'S STANDARD SIGN BOOK.
- LETTERS SHALL BE OBTAINED PRIOR TO GRADING PERMIT APPROVAL FROM ADJACENT PROPERTY OWNERS AUTHORIZING OFF-SITE ACTIVITIES.
- ALL TRASH AND REFUSE WILL BE RESPONSIBILITY OF THE DEPARTMENT OF RECREATION AND PARKS, AND WILL BE REMOVED FROM THE PARK ON A WEEKLY BASIS. DURING CONSTRUCTION, ALL TRASH AND REFUSE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ENVIRONMENTAL SITE DESIGN (ESD) IS INCORPORATED INTO THE PHASE 3 DEVELOPMENT AT THE MAXIMUM EXTENT POSSIBLE. ESD FACILITIES INCLUDE BIO-SWALES, PERVIOUS PAVEMENT, AND MICRO-BIORETENTIONS. AN EXTENDED DETENTION SHALLOW WETLAND POND WAS CONSTRUCTED UNDER PHASE 1 AND WILL PROVIDE MITIGATION OF THE 100-YEAR EVENT. ANOTHER EXTENDED DETENTION POND WAS INSTALLED UNDER PHASE J AND WILL PROVIDE ADDITIONAL MITIGATION OF THE 100-YEAR EVENT. HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES.
- THESE PLANS ARE IN ACCORDANCE WITH MASS GRADING PLAN GP-15-079.
- 20' SANITARY SEWER WATER EASEMENTS WAS PROVIDED WITH CONTRACT NO. 24-4637-D; THE 20' WATER EASEMENT WAS PROVIDED WITH CONTRACT NO. 24-4905-D; THE EASEMENT FOR 26" HIGH PRESSURE GAS MAIN RECORDED UNDER THE FOLLOWING DEEDS: LIBER 305, FOLIO 173 AND LIBER 305 FOLIO 329.
- THE PROJECT HAS AUTHORIZATION TO PROCEED BY THE STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION UNDER AUTHORIZATION NUMBER 201561083/15-NI-3196, EFFECTIVE DATE FEBRUARY 2, 2016, EXPIRATION DATE FEBRUARY 2, 2019 FOR IMPACTS ASSOCIATED WITH TWO STREAM CROSSINGS IMPACTING 63 LF OF STREAM CHANNEL.
- THE MINIMUM USE SETBACK CITED BY SUBSECTION 104.0.E.5 WAS NOT APPLIED TO EXISTING OAKLAND MILLS ROAD SINCE PORTIONS OF THE ROAD WILL BE ABANDONED OR REALIGNED.



LIST OF DRAWINGS

- | CIVIL | LANDSCAPE |
|--|--|
| 1. C0.1 COVER SHEET | 40. L1.1 LANDSCAPE PLAN |
| 2. C0.2 ABBREVIATIONS, NOTES, AND LEGEND | 41. L1.2 LANDSCAPE PLAN |
| 3. C1.0 EXISTING CONDITIONS PLAN | 42. L1.3 BACKYARD GAMES ENLARGEMENTS & DETAILS |
| 4. C1.1 OVERALL SITE DEVELOPMENT PLAN | 43. L1.4 PLAYGROUND MATERIALS PLAN |
| 5. C1.2A SITE GEOMETRY/UTILITY PLAN A | 44. L1.5 PLAYGROUND PLANTING PLAN |
| 6. C1.2B SITE GEOMETRY/UTILITY PLAN B | 45. L1.6 PLANTING ENLARGEMENTS |
| 7. C1.2C SITE GEOMETRY/UTILITY PLAN C | 46. L1.7 SEEDING PLAN |
| 8. C1.2D SITE GEOMETRY/UTILITY PLAN D | 47. L2.1 HARDSCAPE DETAILS |
| 9. C1.2E SITE GEOMETRY/UTILITY PLAN E | 48. L2.2 HARDSCAPE DETAILS |
| 10. C1.3A GRADING/STORMWATER MANAGEMENT PLAN A | 49. L2.3 HARDSCAPE DETAILS |
| 11. C1.3B GRADING/STORMWATER MANAGEMENT PLAN B | 50. L2.4 PLAYGROUND EQUIPMENT SCHEDULE |
| 12. C1.3C GRADING/STORMWATER MANAGEMENT PLAN C | 51. L2.5 PLAYGROUND EQUIPMENT SCHEDULE |
| 13. C1.3D GRADING/STORMWATER MANAGEMENT PLAN D | 52. L3.1 LANDSCAPE DETAILS |
| 14. C1.3E GRADING/STORMWATER MANAGEMENT PLAN E | 53. L3.2 PLANT SCHEDULES |
| 15. C1.4A EROSION AND SEDIMENT CONTROL PLAN-STAGE I | |
| 16. C1.4B EROSION AND SEDIMENT CONTROL PLAN-STAGE I | |
| 17. C1.5A EROSION AND SEDIMENT CONTROL PLAN-STAGE II | |
| 18. C1.5B EROSION AND SEDIMENT CONTROL PLAN-STAGE II | |
| 19. C1.5C EROSION AND SEDIMENT CONTROL PLAN-STAGE II | |
| 20. C1.6 PHOTOMETRIC TEST DIAGRAM | |
| 21. C2.1 STORM DRAIN PROFILES | |
| 22. C2.2 STORM DRAIN PROFILES | |
| 23. C2.3 STORM DRAIN PROFILES | |
| 24. C2.4 WATER AND SEWER PROFILES | |
| 25. C3.1 ENLARGED SITE PLANS | |
| 26. C3.2 ENLARGED SITE PLANS | |
| 27. C3.3 ENLARGED MICRO-BIORETENTION PLANS | |
| 28. C3.4 ENLARGED BIO-SWALE PLAN | |
| 29. C4.1 SITE DETAILS | |
| 30. C4.2 SITE DETAILS | |
| 31. C4.3 CULVERT PROFILE | |
| 32. C4.3A BRIDGE PROFILE AND DETAILS | |
| 33. C4.4 STORMWATER MANAGEMENT NOTES AND DETAILS | |
| 34. C5.1 EROSION AND SEDIMENT CONTROL NOTES | |
| 35. C5.2 EROSION AND SEDIMENT CONTROL DETAILS | |
| 36. C5.3 EROSION AND SEDIMENT CONTROL DETAILS | |
| 37. C6.1 SOIL BORING PLAN | |
| 38. C6.2 SOIL BORING LOGS | |
| 39. C6.3 SOIL BORING LOGS | |

FOREST CONSERVATION

- F3.1 FOREST CONSERVATION PLAN
- F3.2 FOREST CONSERVATION PLAN
- F3.3 FOREST CONSERVATION PLAN
- F3.4 FOREST CONSERVATION NOTES AND DETAILS

DRAINAGE AREA MAPS:

- DA3.0 OVERALL DRAINAGE AREA MAP EXISTING CONDITIONS
- DA3.1 OVERALL DRAINAGE AREA MAP PROPOSED CONDITIONS
- DA3.2A ESD DRAINAGE AREA MAP
- DA3.2B ESD DRAINAGE AREA MAP
- DA3.3 INLET DRAINAGE AREA MAP
- DA3.4 CULVERT DRAINAGE AREA MAP

ARCHITECTURE:

- A1.3A PICNIC SHELTER BUILDING ELEVATIONS
- A2.3A COMFORT STATION BUILDING ELEVATIONS
- A3.4A MAINTENANCE FACILITY EXTERIOR ELEVATIONS

STRUCTURAL:

- S1.01 GENERAL PLAN AND LONGITUDINAL SECTION
- S1.02 GEOMETRIC AND FOOTING LAYOUT
- S1.03 HEADWALL AND WINGWALL PLAN
- S1.04 WING WALL ELEVATIONS AND TYPICAL SECTION
- S1.05 MISCELLANEOUS DETAILS
- S1.06 STANDARD DETAILS- I
- S1.07 STANDARD DETAILS- II
- S1.08 STANDARD DETAILS- III
- S1.09 STANDARD DETAILS- IV
- S5.1 SITE STRUCTURES PLAN AND SECTION

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 3-14-17
 DIRECTOR

APPROVED: DEPARTMENT OF RECREATION AND PARKS
 [Signature] 1-20-17
 DIRECTOR

LOCATION MAP

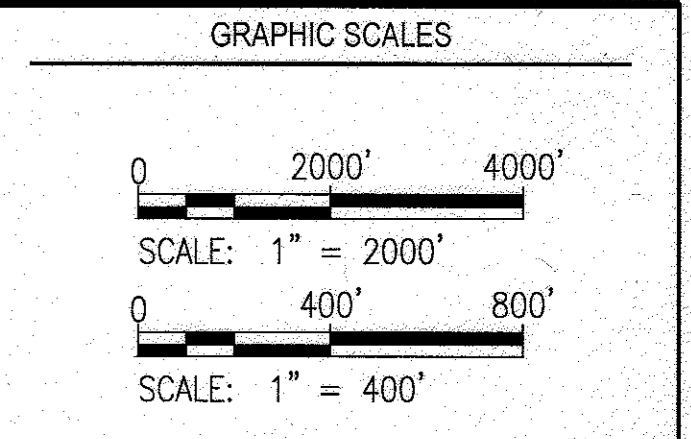
1" = 400'

OWNER:	DEVELOPER:	PERMIT INFORMATION CHART			
HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21045 ATTN: MR. RAUL DELERME	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. MARK KOVACH	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING: N/A	STREET ADDRESS: N/A
PROJECT NAME: BLANDAIR REGIONAL PARK - PHASE 3		SECTION/AREA: N/A	PARCEL: 3/72		
VOICE 410-313-4680 FAX 410-313-4646	VOICE 410-313-6153 FAX 410-313-6144	437/55 5203/439	GRID #5	ZONING RC-DEO	TAX MAP BLOCK 36
				ELEC. DIST. 3/7	CENSUS TRACT 60803

VICINITY MAP

1" = 2000'

WRA
 Whitman, Requardt & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231



SIGNATURE
 [Signature]
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 LICENSE NO. 18376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

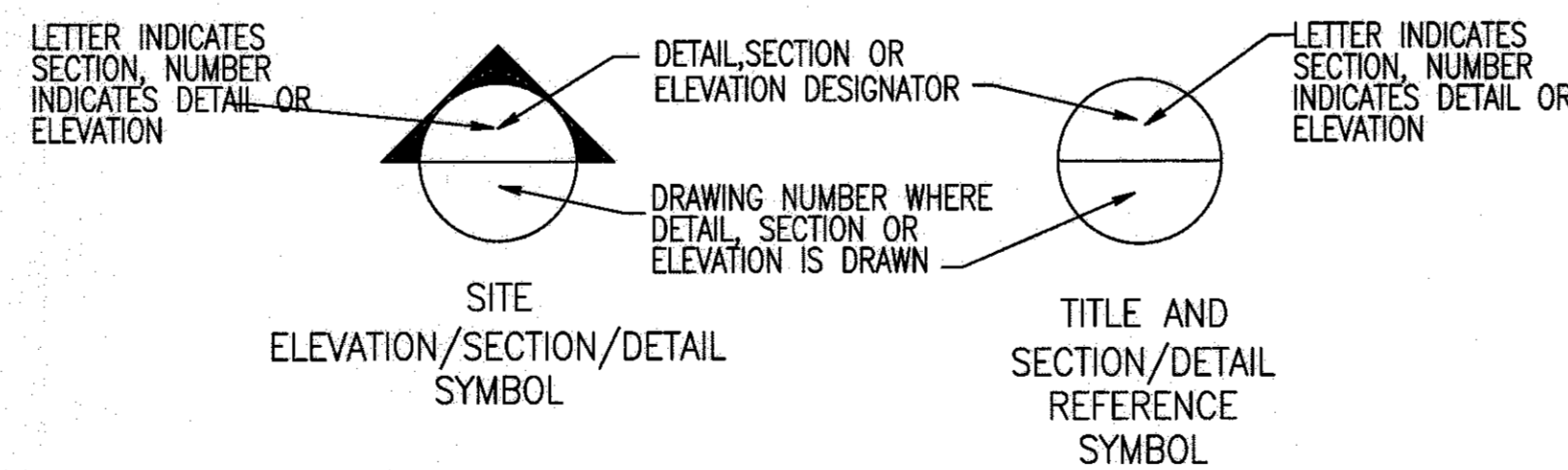
COVER SHEET
 Drawing No. **C0.1**
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 1 of 76
 Des: BWJ Drawn: AKC Check: AUO
 SDP-15-050

ABBREVIATIONS

AASHTO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	OD OUTSIDE DIAMETER
ABAN, ABAND ABANDON	OHE OVERHEAD ELECTRIC
APPROX APPROXIMATELY	OHT OVERHEAD TELEPHONE
ASTM ASSOCIATION FOR STANDARD TESTING METHODS	PC POINT OF CURVATURE
BLDG BUILDING	PCC POINT OF COMPOUND CURVATURE
BIT BITUMINOUS	PERF PERFORATED
B.M. BENCH MARK	PI POINT OF INTERSECTION, POST INDICATOR
CFS CUBIC FEET PER SECOND	POB POINT OF BEGINNING
C.I. CAST IRON	POC POINT ON CURVE
C.I.P. CAST IRON PIPE	POE POINT OF END
C/L CENTERLINE	POT POINT ON TRAVERSE
CO CLEAN OUT	PT POINT OF TANGENCY
COMM COMMUNICATION	PVC POLYVINYL CHLORIDE, POINT OF VERTICAL CURVE
CONTR. JT CONTRACTION JOINT	PVI POINT OF VERTICAL INTERSECTION
CONC CONCRETE	PVMT PAVEMENT
CMP CORRUGATED METAL PIPE	PVT POINT OF VERTICAL TANGENCY
DEMO DEMOLITION	PP POWER POLE
DIP DUCTILE IRON PIPE	PIV POST INDICATOR VALVE
DIA, DIAM DIAMETER	PROP PROPOSED
DWG, DRWG DRAWING	R RADIUS, RIGHT
E EAST	RD ROAD
EL, ELEV ELEVATION	RCCP REINFORCED CONCRETE CULVERT PIPE
ELECT, ELEC ELECTRICAL	RCP REINFORCED CONCRETE PIPE
EMBED EMBEDDED	REIN, REINF REINFORCED
EX EXISTING	RR RAILROAD
EXP JT EXPANSION JOINT	S SOUTH, SLOPE, SANITARY
EW EACH WAY	SAN SANITARY
F&C FRAME AND COVER	SCE STABILIZED CONSTRUCTION ENTRANCE
FH FIRE HYDRANT	SCH SCHEDULE
FIN, FL, F.F. FINISHED FLOOR	SD STORM DRAIN
FT FEET	SDR STANDARD DIMENSION RATIO
FPS FEET PER SECOND	SE SOUTHEAST
HB HORIZONTAL BEND	SF SILT FENCE
HO. CO. HOWARD COUNTY	SHT SHEET
HC HANDICAPPED	SP STUDY POINT
HP HIGH POINT	SS STAINLESS STEEL
IN INCH	STA STATION
INV INVERT	STD STANDARD
IP INLET PROTECTION	STRUCT, STR STRUCTURAL
JT JOINT	SW SOUTHWEST
LT LEFT	TEL TELEPHONE
LOD LIMIT OF DISTURBANCE	TS&V TAPPING SLEEVE & VALVE
LP LOW POINT	T/C TOP OF CURB
MAX MAXIMUM	TC TOP OF COVER
MECH MECHANICAL	TG TOP OF GRATE
MH MANHOLE	TW TOP OF WALL
MIN MINIMUM	TYP TYPICAL
MW MONITORING WELL	UG UNDERGROUND
N NORTH	UE UNDERGROUND ELECTRIC DUCT
NE NORTHEAST	UMH UNKNOWN MANHOLE
NIC NOT IN CONTRACT	UT UNDERGROUND TELEPHONE DUCT
NTS NOT TO SCALE	UFA UNDERGROUND FIRE ALARM
NW NORTHWEST	VB VERTICAL BEND
OC, O/C ON CENTER	VC VERTICAL CURVE
	W WEST, WATT, WATER, WIDE
	W/ WITH
	WWF WELDED WIRE FABRIC

LEGEND

EXISTING	PROPOSED	DESCRIPTION
145	145	CONTOUR
x 145.50	145.50	SPOT ELEVATION
12"SD	12"SD	STORM DRAIN
8"WATER	8"W	WATER
6"SAN	6"SAN	SANITARY SEWER
E	E	UNDERGROUND ELECTRIC
T	T	UNDERGROUND TELEPHONE
G	G	GAS
		CONCRETE CURB AND GUTTER
		FLUSH CURB
X		FENCE
CONC		BUILDING
MAC		CONCRETE
		HEAVY DUTY CONCRETE PAVEMENT
		ASPHALT PAVEMENT
		SYNTHETIC TURF
		WATER VALVE
		FIRE HYDRANT
		STORM DRAIN INLET
		STORM DRAIN MANHOLE
		SANITARY SEWER MANHOLE
		ELECTRIC MANHOLE/HANDHOLE
		TELEPHONE MANHOLE
		LIGHT POLE
		UTILITY POLE
		TRANSFORMER
		GENERATOR
		UTILITY MARKER
		ELECTRIC JUNCTION BOX
		GUY WIRE
		SIGN
		EVERGREEN TREE
		DECIDUOUS TREE
		WOODS LINE
		RIPRAP
		15-24.9% SLOPES
		>25% SLOPES
		STREAM
		75' STREAM BUFFER
		FLY MONUMENT
		GPS MONUMENT
		SURVEY TRAVERSE MONUMENT
		LIMIT OF DISTURBANCE
		PROPERTY LINE
		SETBACK
		BORING LOCATION
		100 YEAR FLOODPLAIN



APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	3-18-17
DIRECTOR	DATE

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

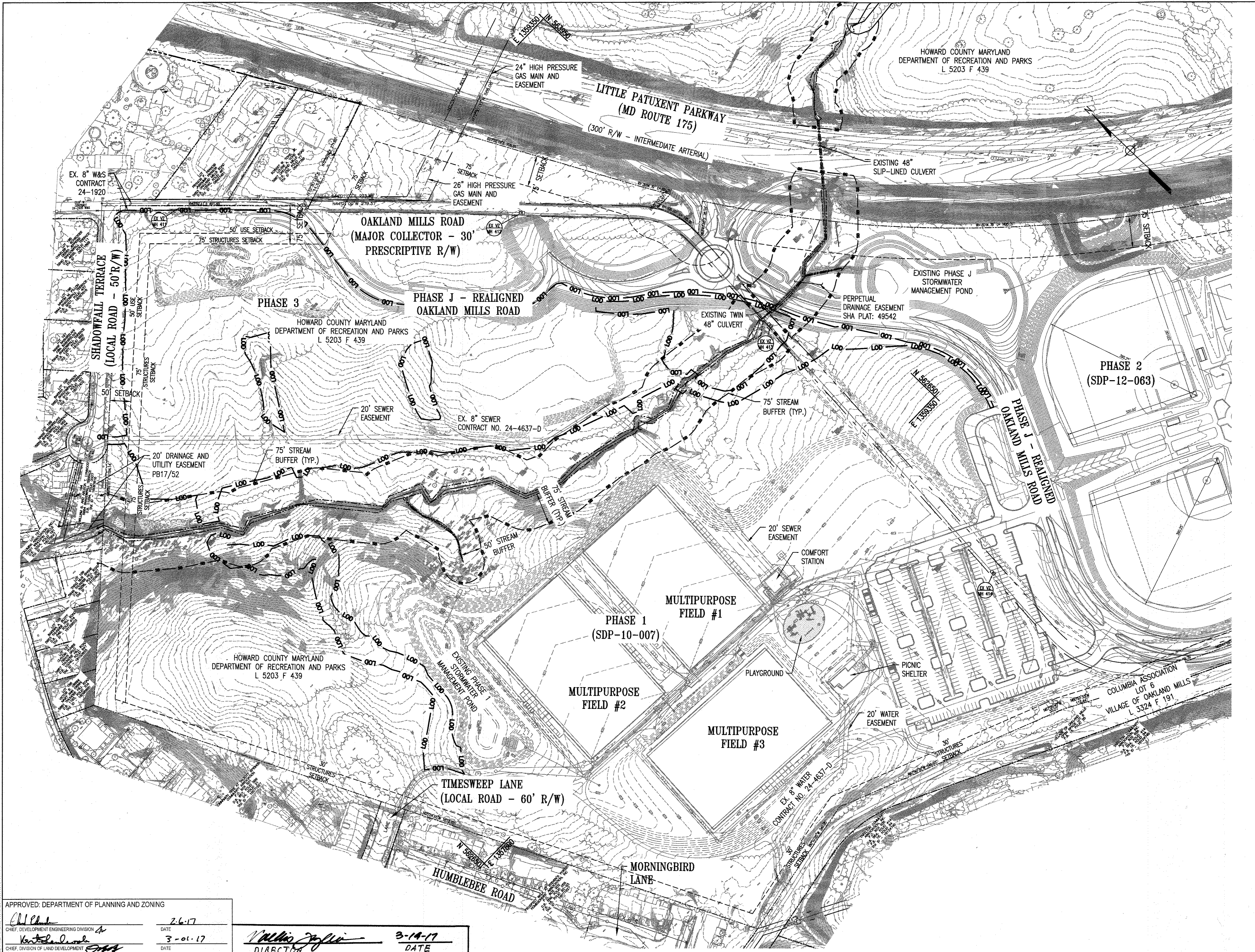
GRAPHIC SCALES

SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

ABBREVIATIONS, NOTES, AND LEGEND		
Drawing No.		
C0.2		
Scale: NONE		
Date: 1/17/2017	Sheet 2 of 76	
Des: BWJ	Drawn: AKC	Check: AUO



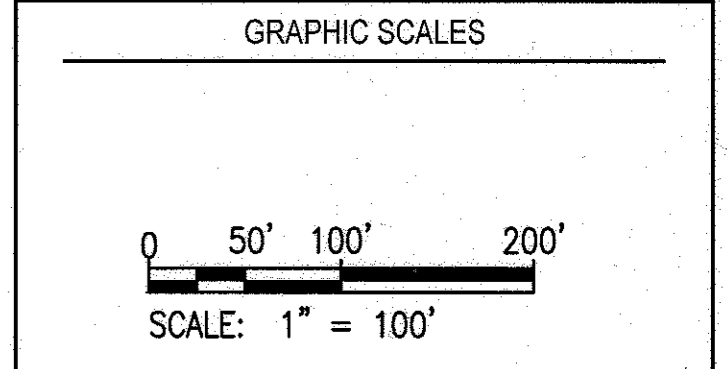
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-236-3450 Fax: 410-243-5718

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
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 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EXISTING CONDITIONS PLAN

Drawing No.
C1.0

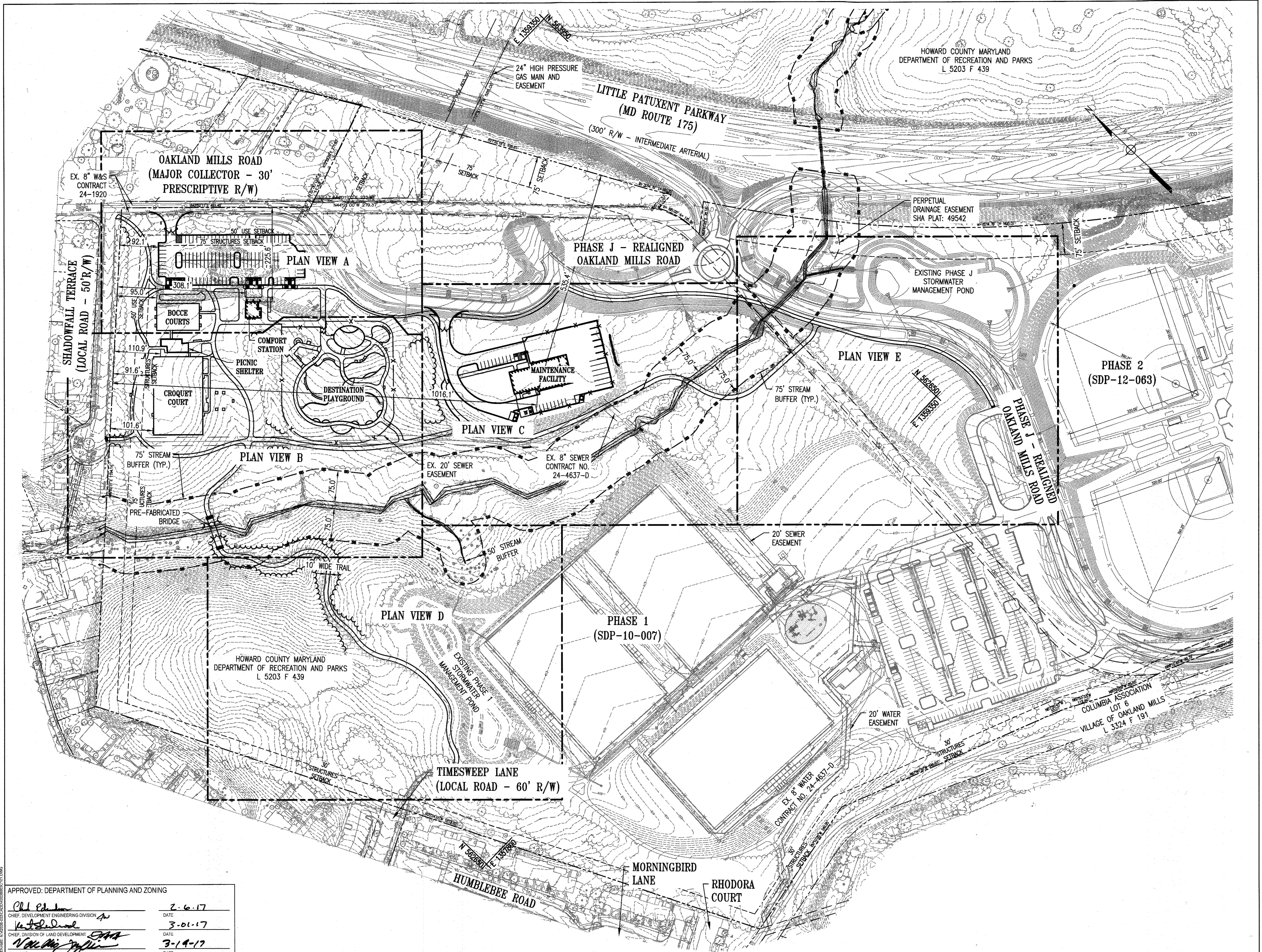
Scale: 1" = 100'
 Date: 1/17/2017 Sheet 3 of 76
 Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 2-6-17

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3-01-17

[Signature]
 DIRECTOR
 DATE: 3-14-17



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

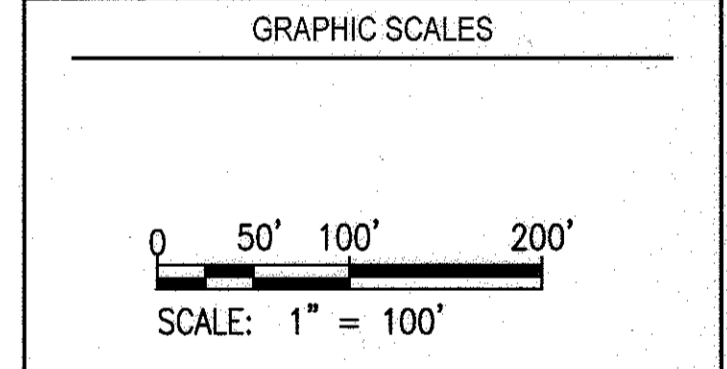


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE



PROFESSIONAL CERTIFICATION
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 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

OVERALL SITE DEVELOPMENT PLAN

Drawing No.
C1.1

Scale: 1" = 100'

Date: 1/17/2017 Sheet 4 of 76

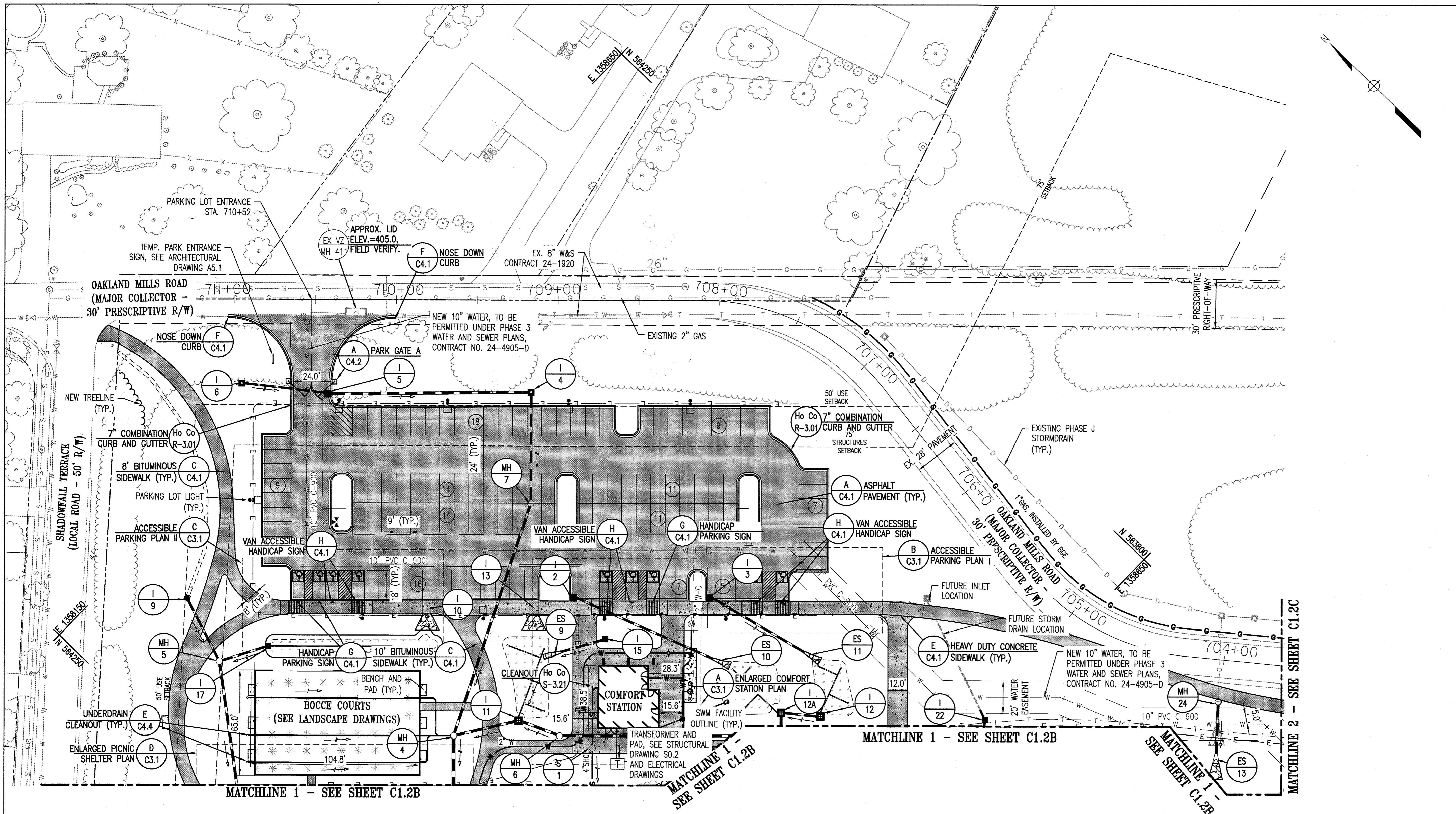
Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chris Hill 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kevin D. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

W. ... 3-14-17
 DIRECTOR DATE



REVISIONS		
1	SHADE STRUCTURE	9/4/2019

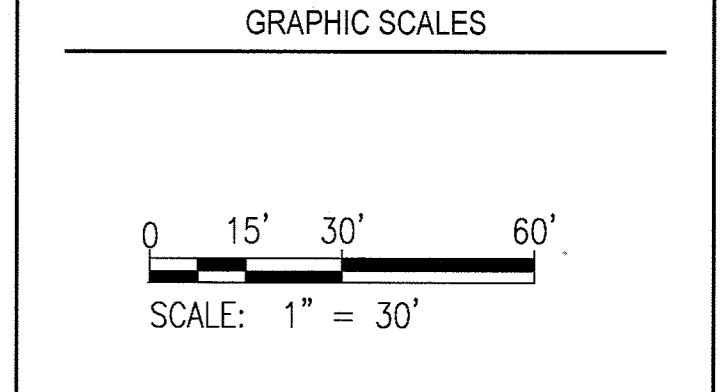
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE No. 19376 EXPIRATION DATE 09/22/2021

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN A

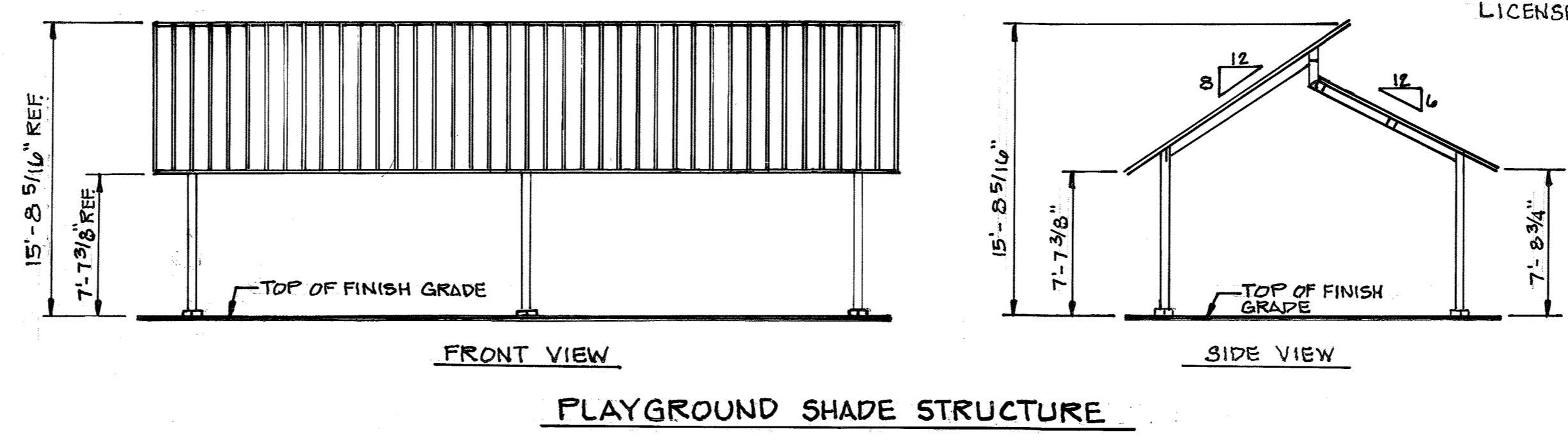
Drawing No.
C1.2A

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 5 of 76
 Des: BWJ Drawn: AKC Check: AUO

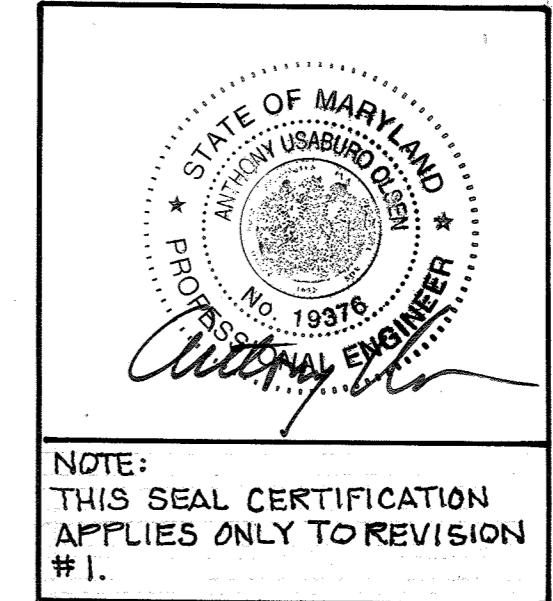
- DRAWING NOTES:**
1. ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
 2. ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
 3. SEE LANDSCAPE DRAWING L1.3 FOR BOCCO COURTS ENLARGEMENT AND DETAILS
 4. SEE STORM DRAIN PROFILES DRAWINGS FOR STORM DRAIN SIZES
 5. ALL UNDERDRAINS ARE 6".
 6. SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATED PADS.

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA



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. 19376 EXPIRATION DATE 09/22/2021

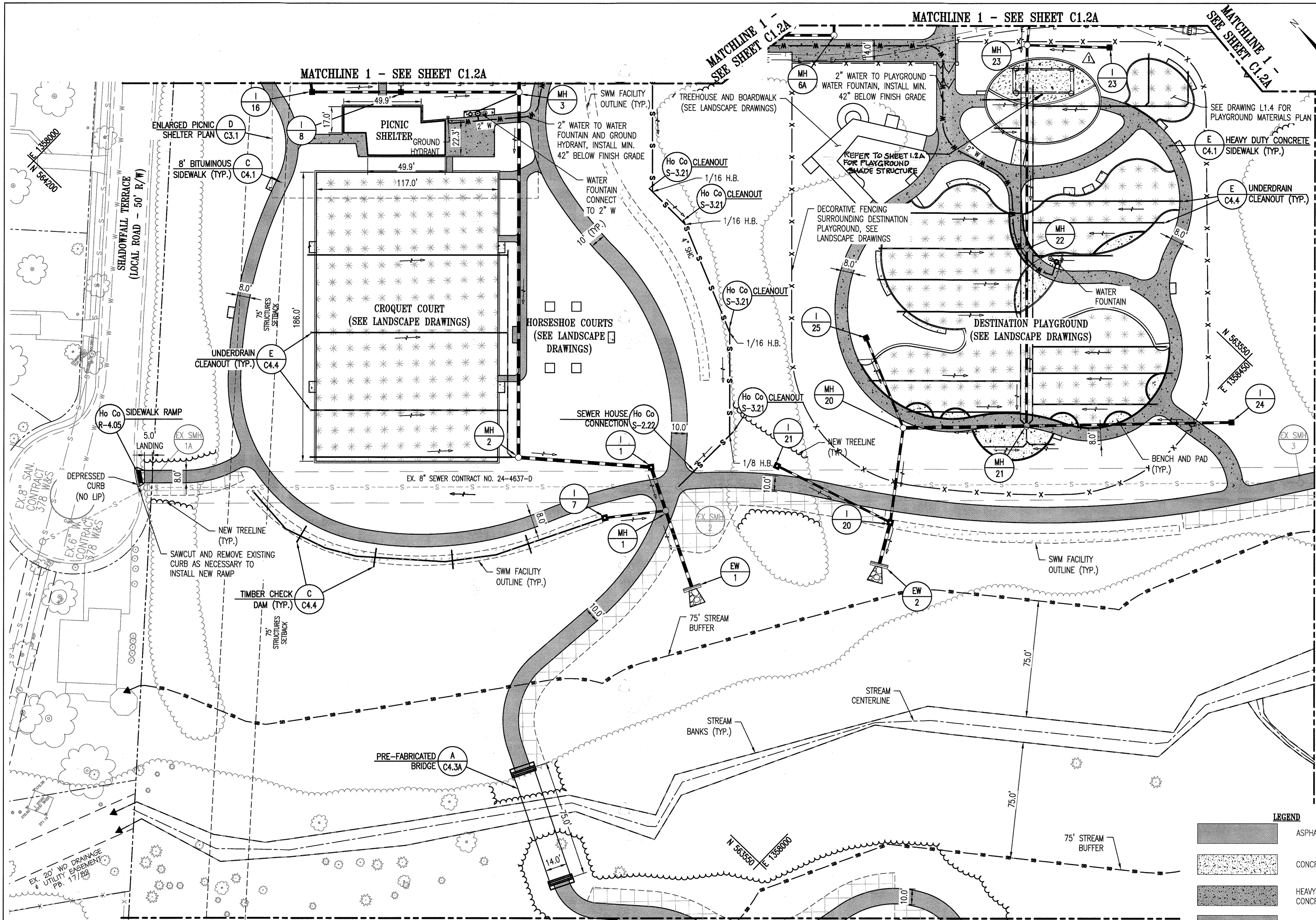


APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-14-17
 DIRECTOR DATE



REVISIONS	
△ SHADE STRUCTURE	7/11/2017

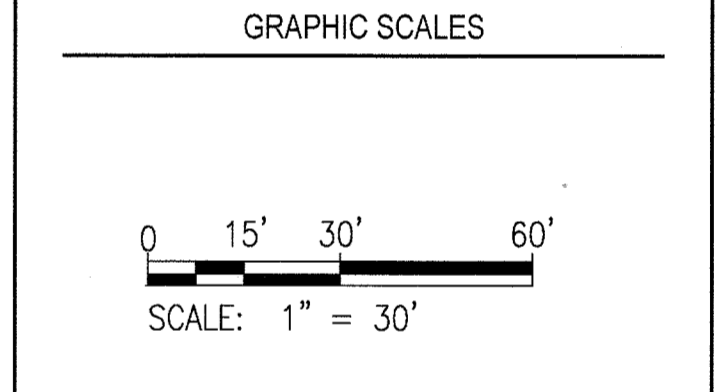
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3.72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 19876 EXPIRATION DATE: 09/22/2021

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN B

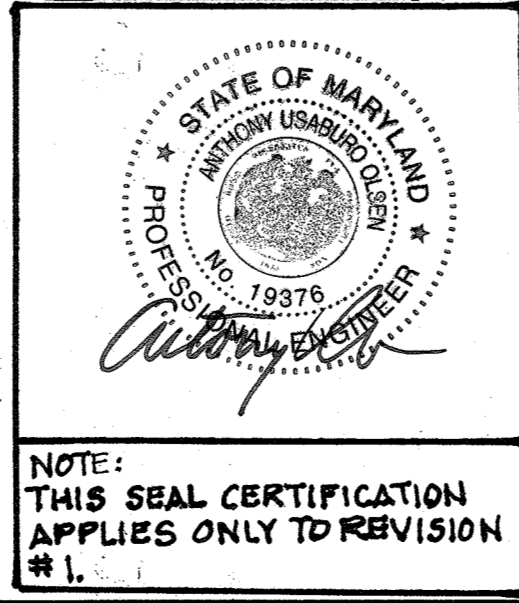
Drawing No.
C1.2B

Scale: 1" = 30'

Date: 1/17/2017 Sheet 6 of 76

Des: BWJ Drawn: AKC Check: AUO

- DRAWING NOTES:**
- ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
 - ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
 - SEE LANDSCAPE DRAWING L1.3 FOR CROQUET COURT ENLARGEMENT AND DETAILS
 - ALL UNDERDRAINS ARE 6". COORDINATE UNDERDRAIN INSTALLATION WITH PLAYGROUND LAYOUT PRIOR TO CONSTRUCTION. COORDINATE ANY MODIFICATIONS WITH OWNER AND ENGINEER.
 - SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATED PADS.
 - SEE LANDSCAPE DRAWINGS FOR ALL FENCES AND GATES IN PLAYGROUND AREA.



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. 19876 EXPIRATION DATE 09/22/2021

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Anthony M. Blum 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

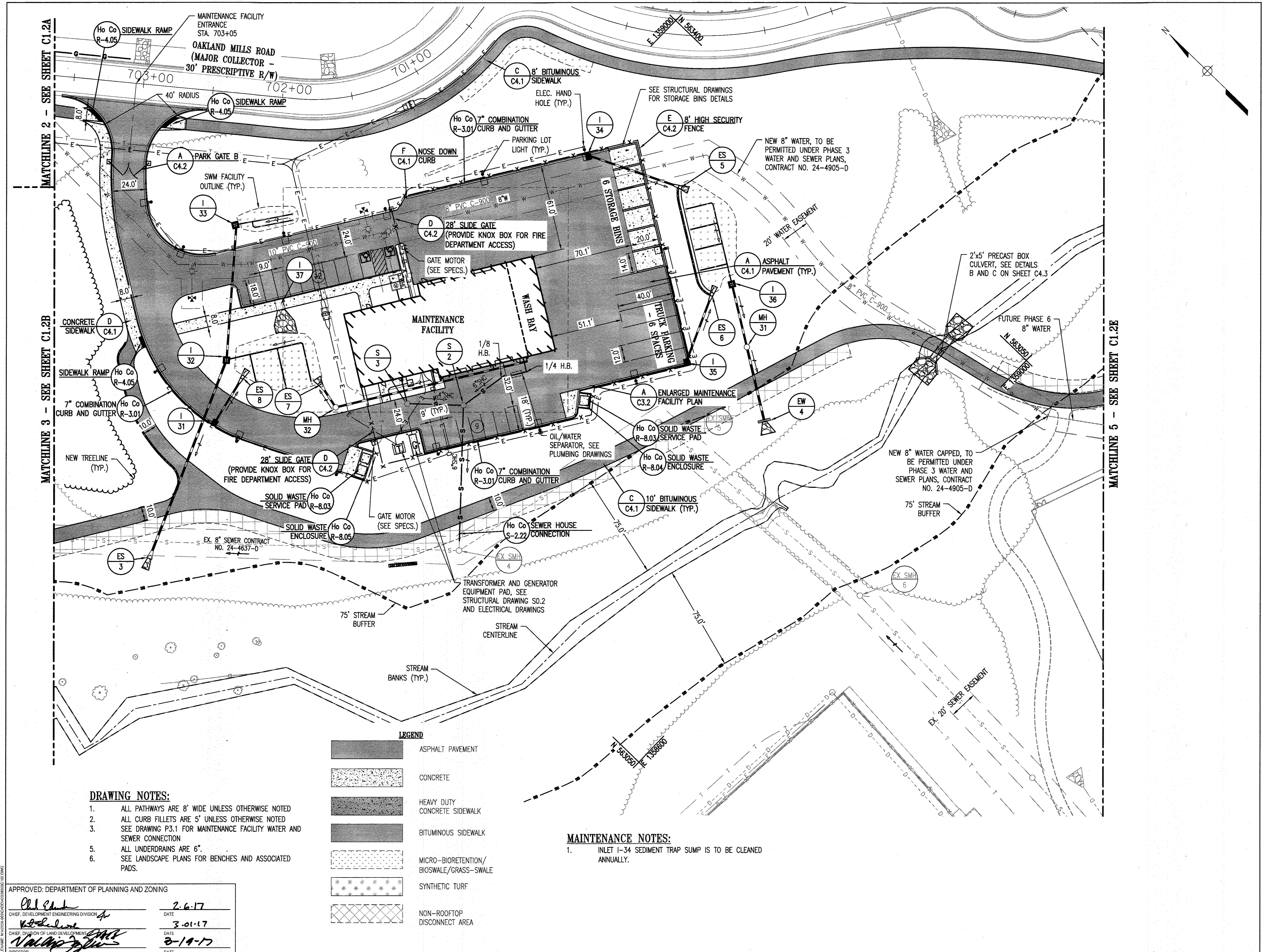
Kathleen Lane 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

W. A. McJannet 3-19-17
 DIRECTOR DATE

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

FILE NAME: N:\2016\Blandair Regional Park\Blandair Regional Park - Phase 3\DWG\SDP-15-050.DWG



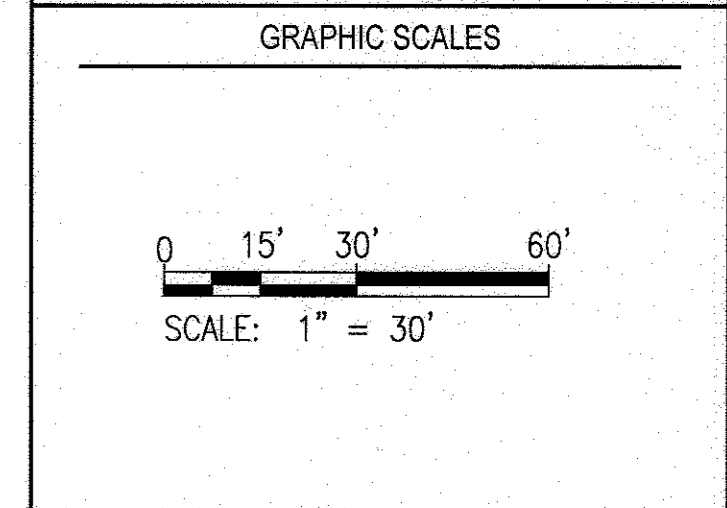
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN C

Drawing No.
C1.2C

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 7 of 76
 Des: BWJ Drawn: AKC Check: AUO

- DRAWING NOTES:**
- ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
 - ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
 - SEE DRAWING P3.1 FOR MAINTENANCE FACILITY WATER AND SEWER CONNECTION
 - ALL UNDERDRAINS ARE 6".
 - SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATED PADS.

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

- MAINTENANCE NOTES:**
- INLET I-34 SEDIMENT TRAP SUMP IS TO BE CLEANED ANNUALLY.

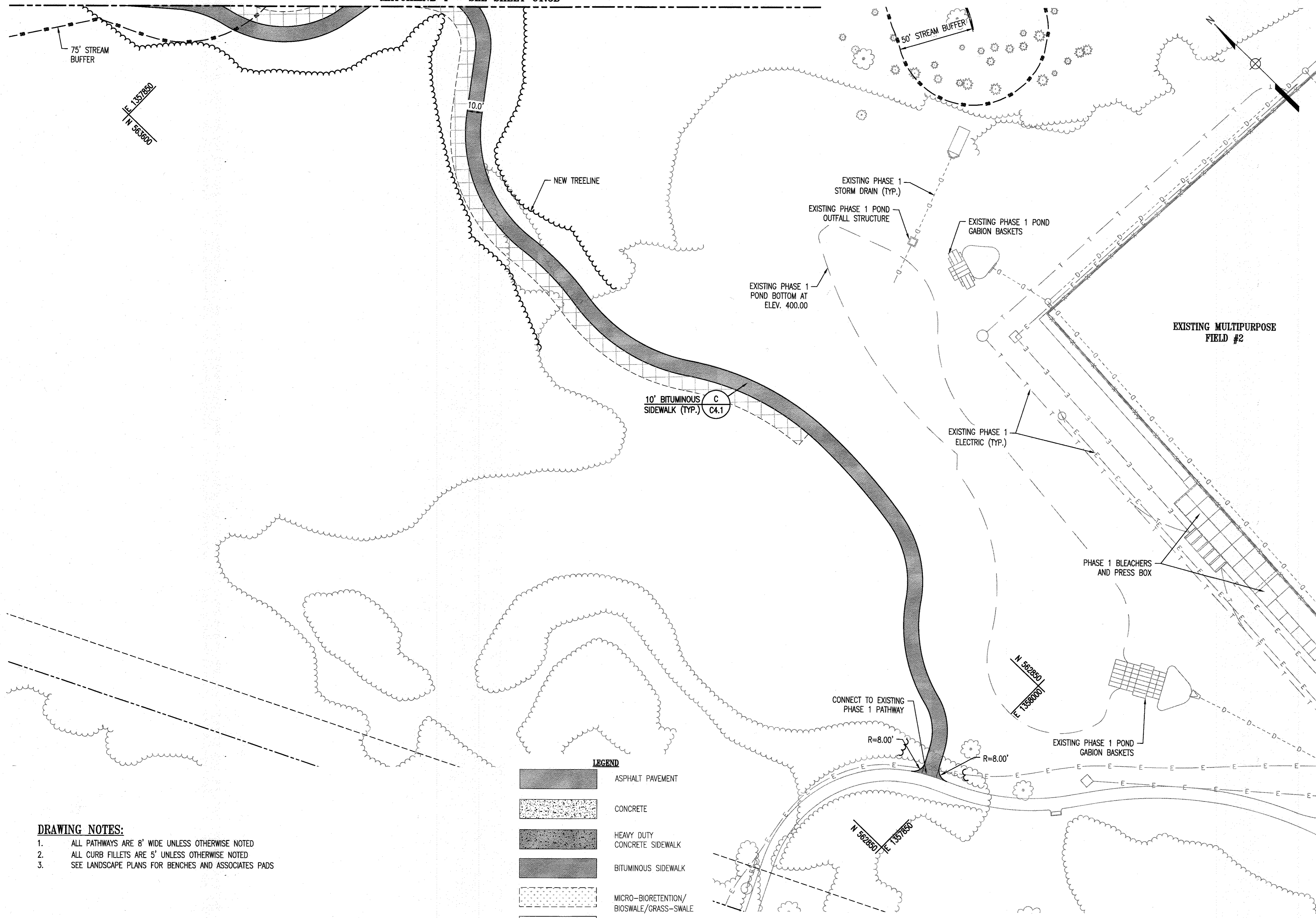
APPROVED: DEPARTMENT OF PLANNING AND ZONING

John E. ... 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

W. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

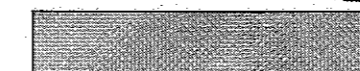
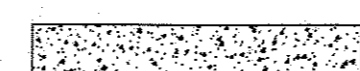
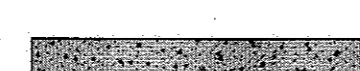

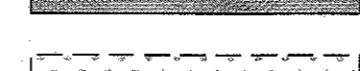
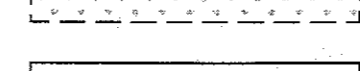

N. ... 3-19-17
 DIRECTOR DATE

MATCHLINE 4 - SEE SHEET C1.3B






10' BITUMINOUS SIDEWALK (TYP.) C4.1

LEGEND

-  ASPHALT PAVEMENT
-  CONCRETE
-  HEAVY DUTY CONCRETE SIDEWALK
-  BITUMINOUS SIDEWALK
-  MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
-  SYNTHETIC TURF
-  NON-ROOFTOP DISCONNECT AREA

DRAWING NOTES:

1. ALL PATHWAYS ARE 8' WIDE UNLESS OTHERWISE NOTED
2. ALL CURB FILLETS ARE 5' UNLESS OTHERWISE NOTED
3. SEE LANDSCAPE PLANS FOR BENCHES AND ASSOCIATES PADS

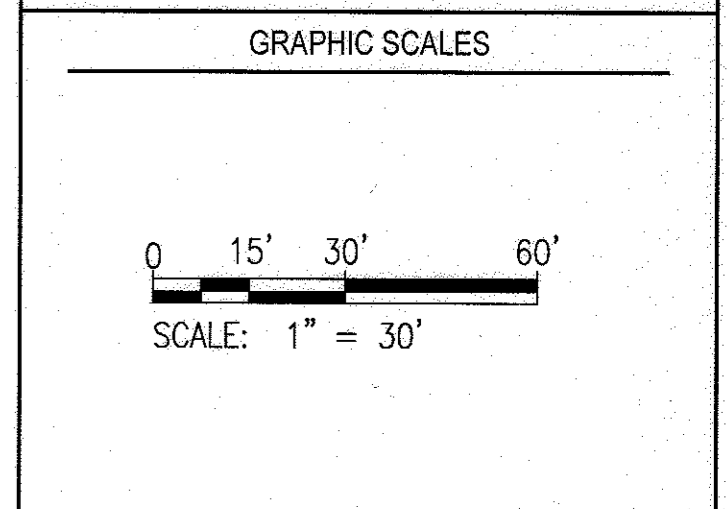
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
	2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
	3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
	3-19-17
DIRECTOR	DATE

REVISIONS	

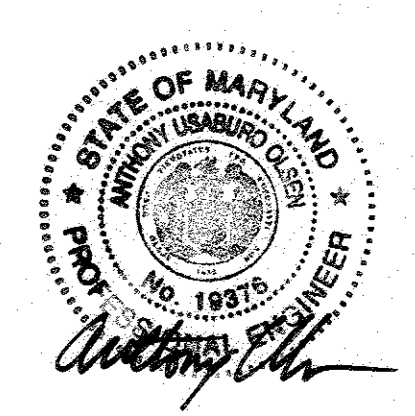
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE



PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19371.
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SITE GEOMETRY/UTILITY PLAN D
 Drawing No.
C1.2D
 Scale: 1" = 30'
 Date: 1/17/2017 Sheet 8 of 76
 Des: BWJ Drawn: AKC Check: AUO

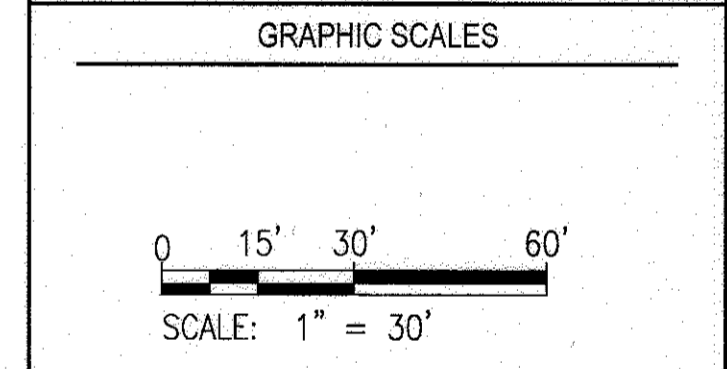
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

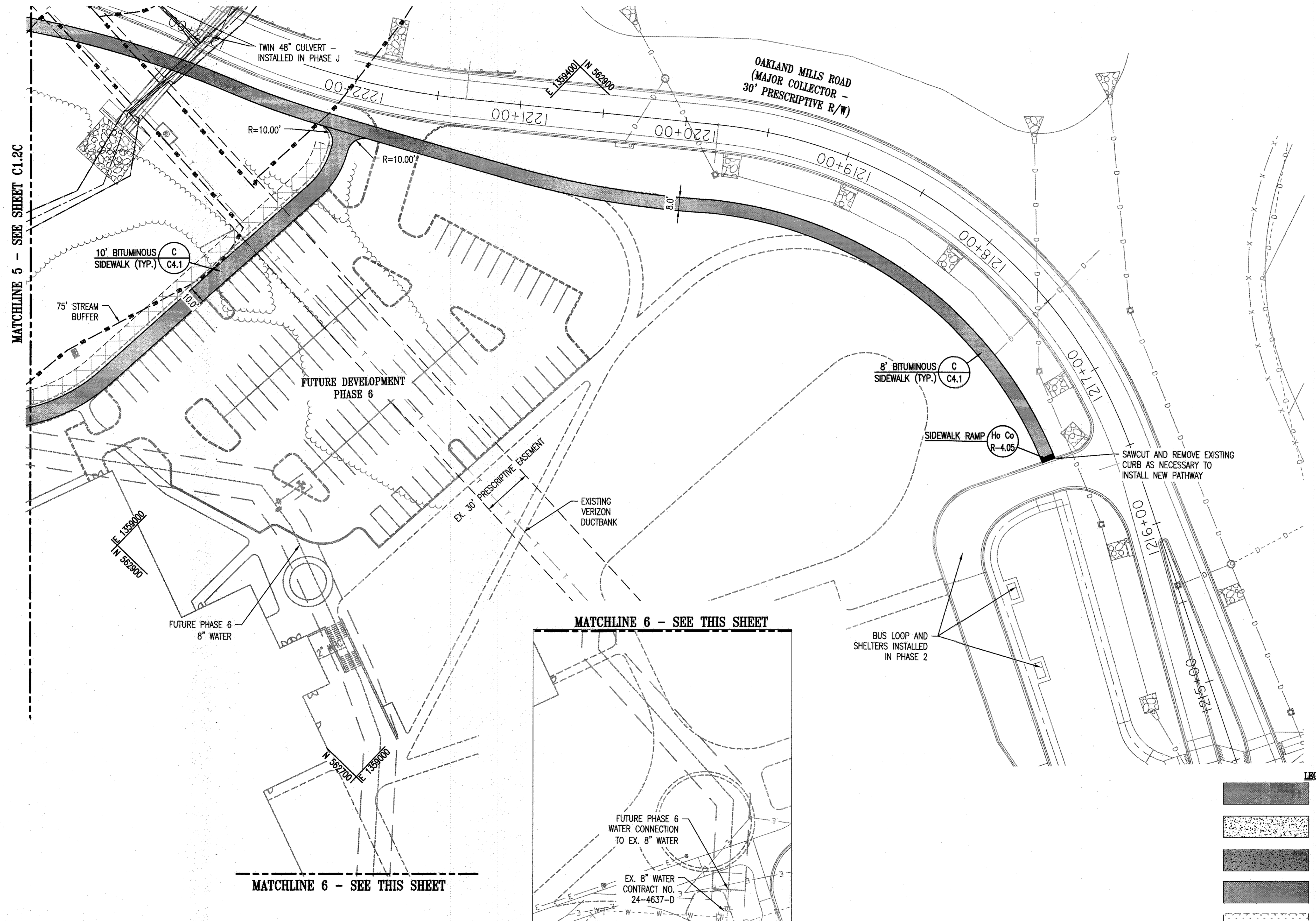
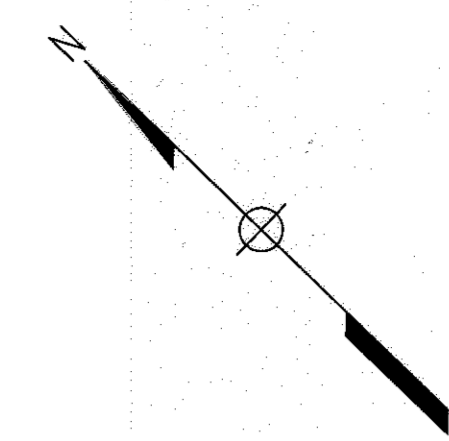
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

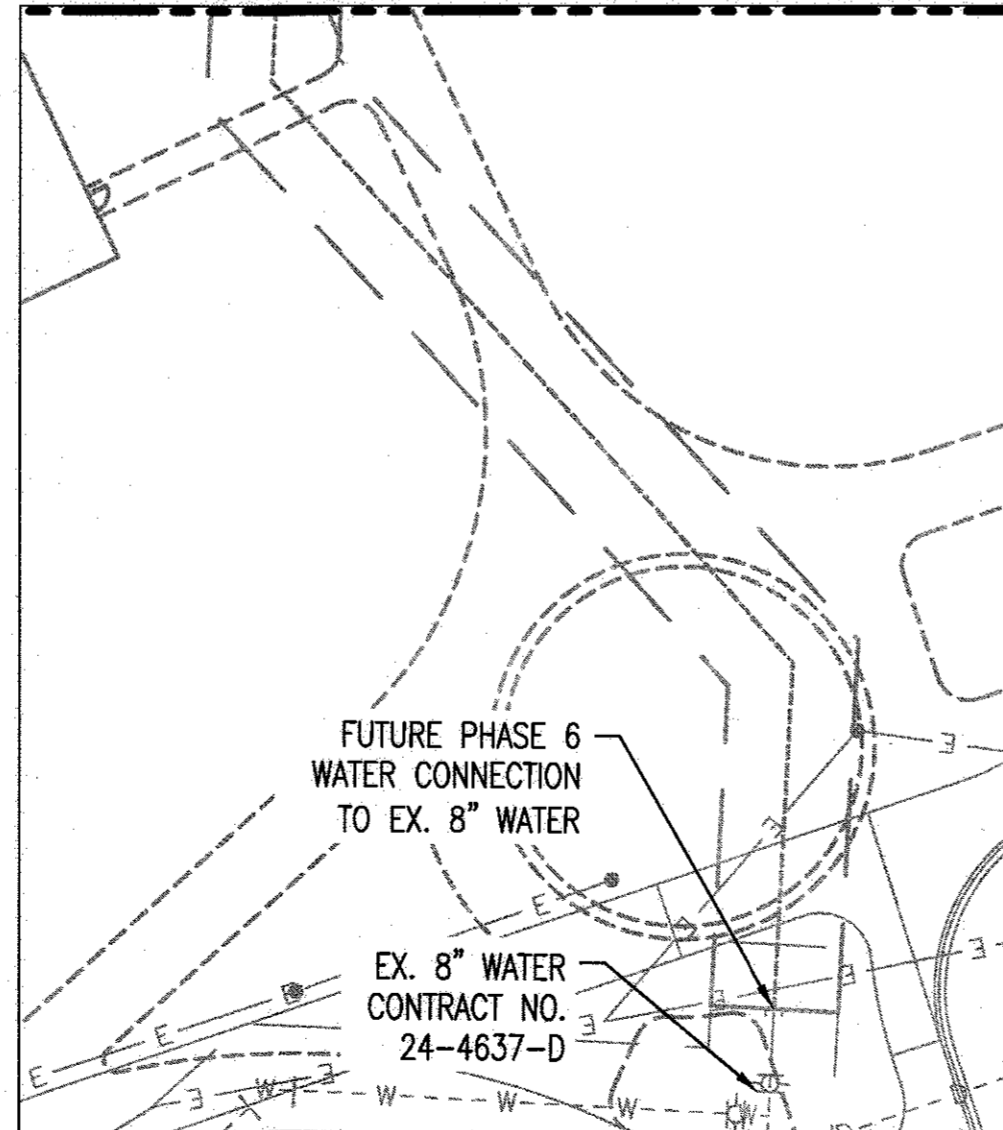
SITE GEOMETRY/UTILITY PLAN E

Drawing No.
C1.2E

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 9 of 76
 Des: BWJ Drawn: AKC Check: AUO



MATCHLINE 6 - SEE THIS SHEET



LEGEND

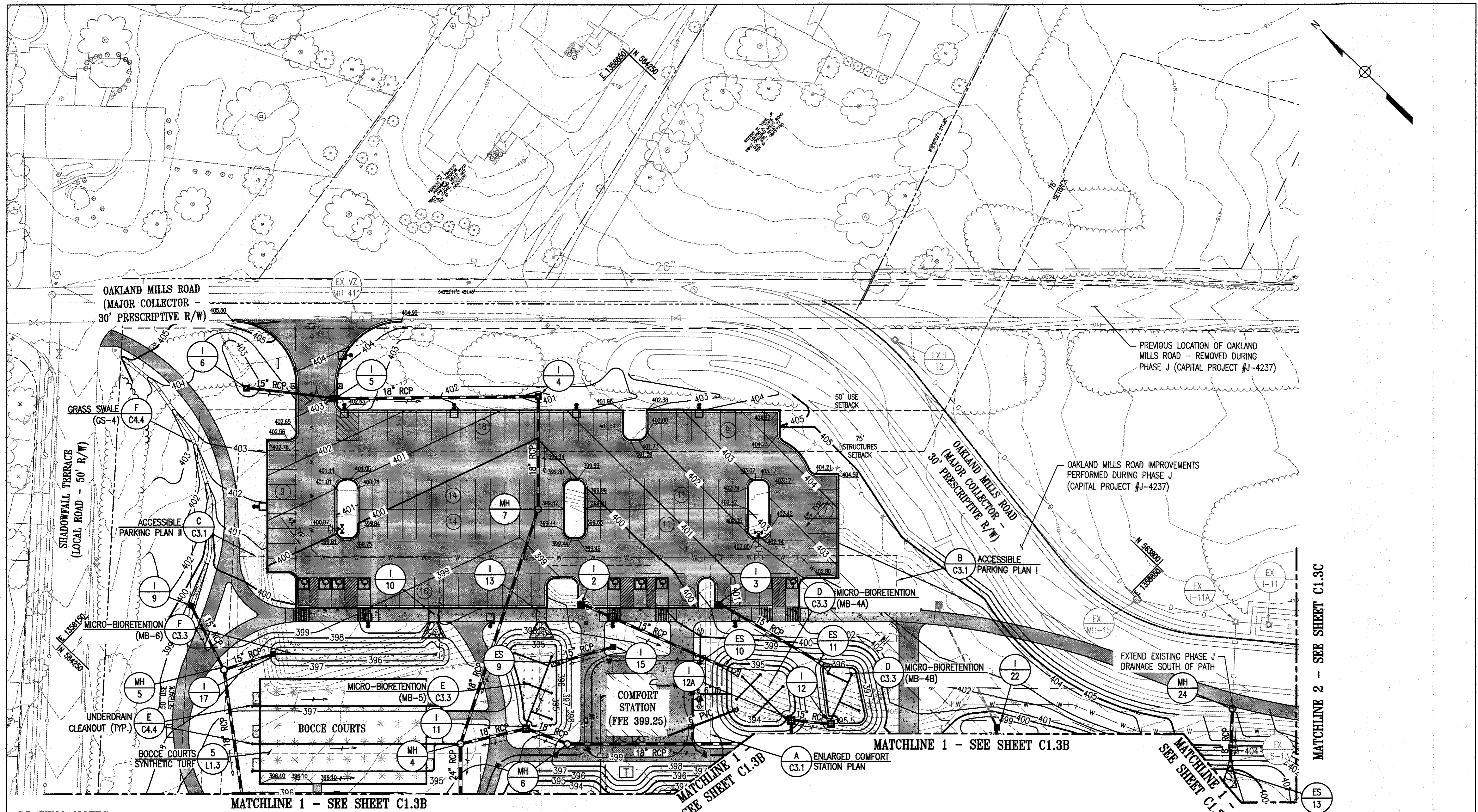
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	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/BIOSWALE/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE



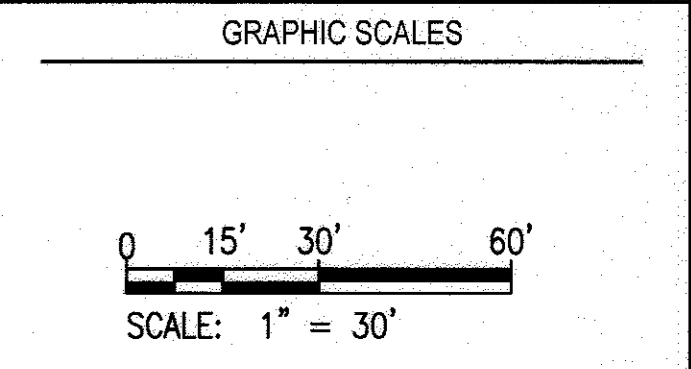
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

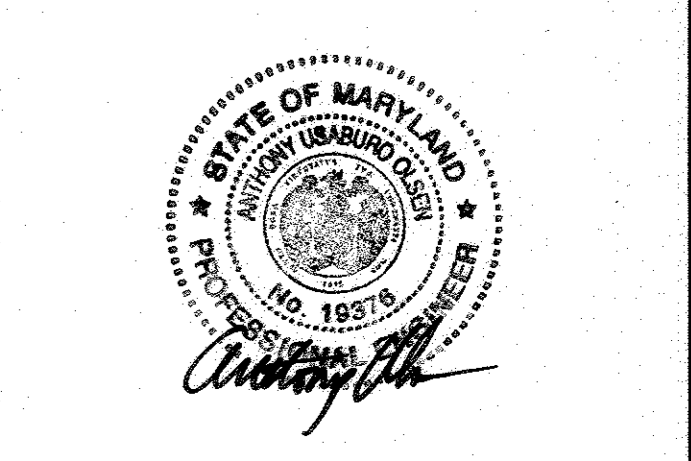
DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN A

Drawing No.
C1.3A

Scale: 1" = 30'	Date: 1/17/2017	Sheet 10 of 76
Des: BWJ	Drawn: AKC	Check: AUO

- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
 3. SEE LANDSCAPE DRAWING L1.3 FOR BOCCE COURTS ENLARGEMENT AND DETAILS
 4. ALL ROADWAY SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 5. ALL UNDERDRAINS ARE 6".

LEGEND

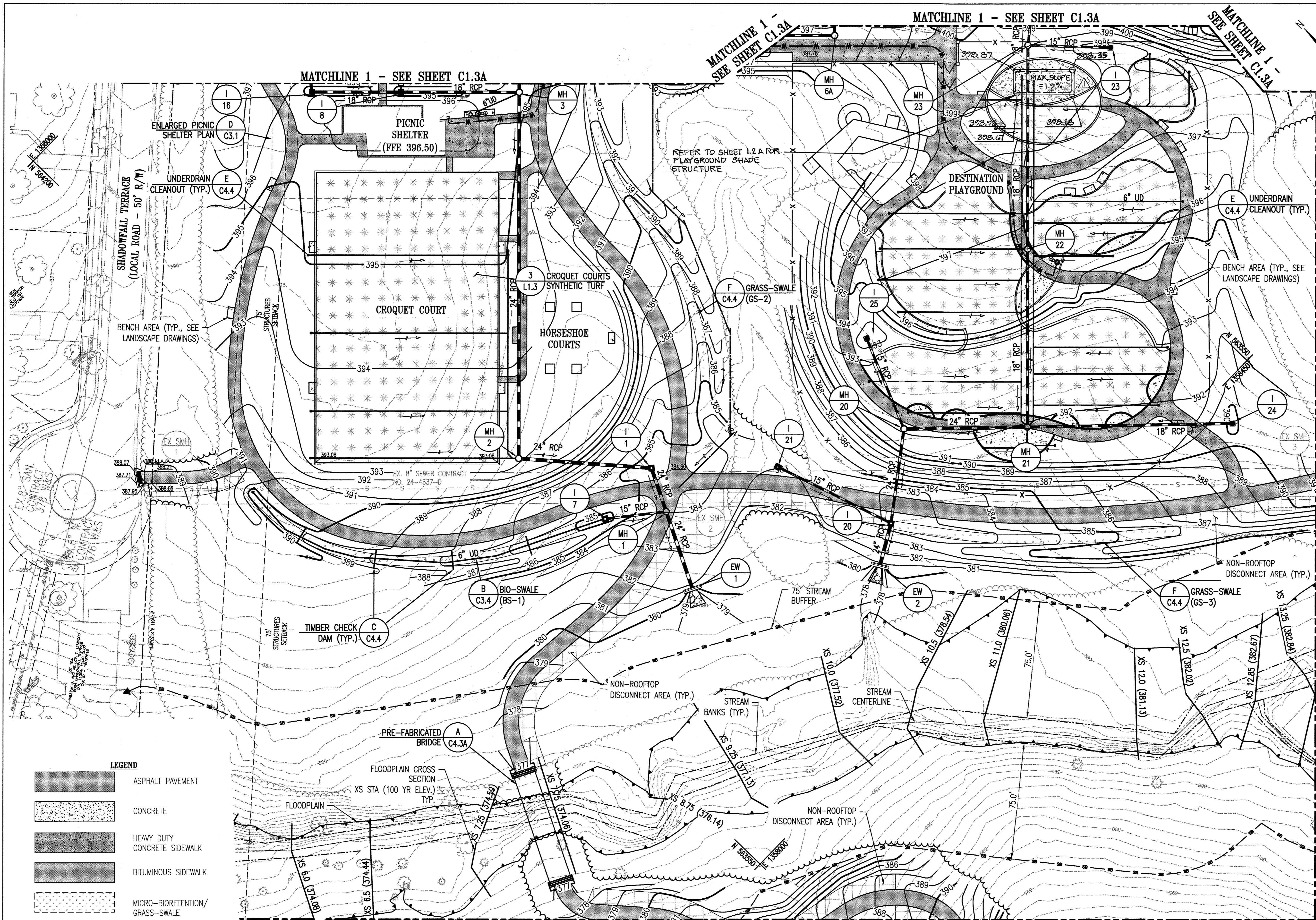
	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/ GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Paul Clark 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Victor S. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 3-19-17
 DIRECTOR DATE



REVISIONS	
△ SHADE STRUCTURE	7/4/2019

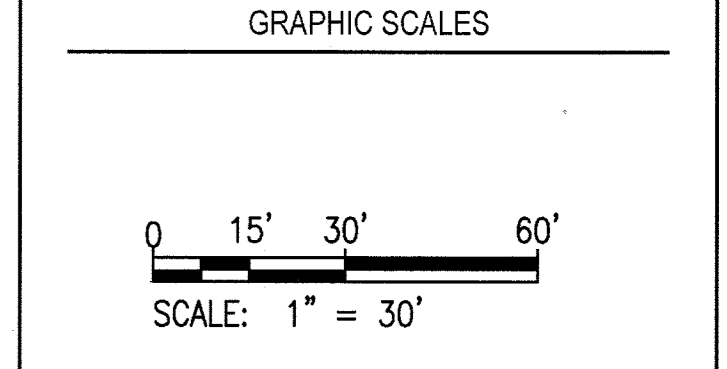
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 19376
 EXPIRATION DATE: 09/22/2021

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN B

Drawing No.
C1.3B

Scale: 1" = 30'

Date: 1/17/2017 Sheet 11 of 76

Des: BWJ Drawn: AKC Check: AUO

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/GRASS-SWALE
	SYNTHETIC TURF
	NON-ROOFTOP DISCONNECT AREA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF DIVISION OF LAND DEVELOPMENT DATE

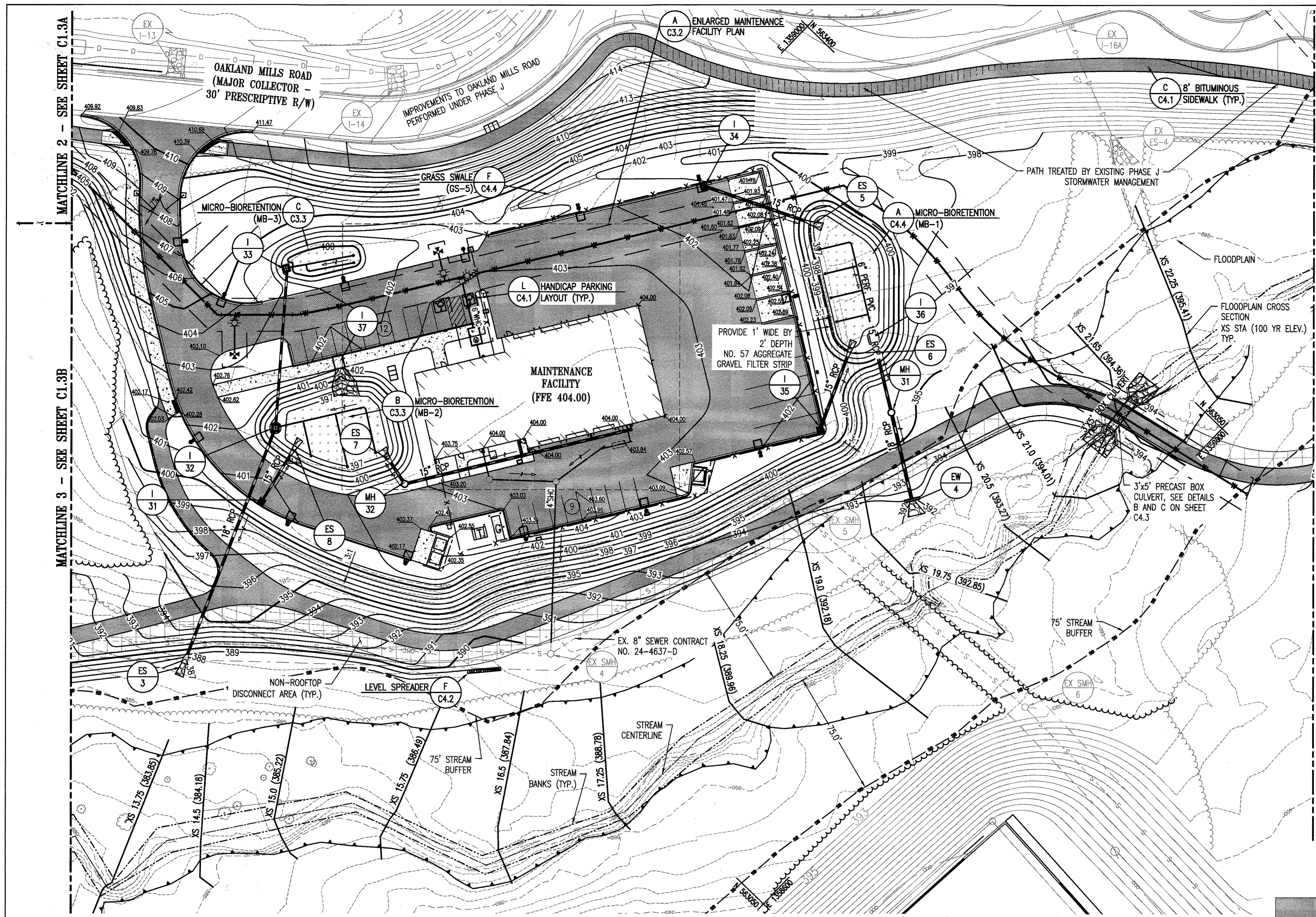
[Signature] 3-19-17
 DIRECTOR DATE

STATE OF MARYLAND
 PROFESSIONAL ENGINEERING DIVISION
 No. 19376
 Curtis J. ...
 REGISTERED PROFESSIONAL ENGINEER

NOTE: THIS SEAL CERTIFICATION APPLIES ONLY TO REVISION #1.

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. 19376 EXPIRATION DATE 09/22/2021

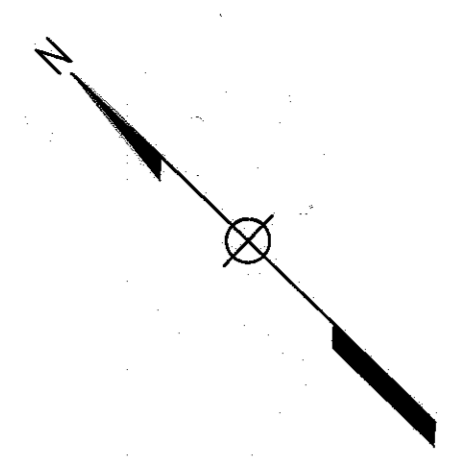
- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. SEE LANDSCAPE DRAWING L1.3 FOR CROQUET COURTS ENLARGEMENT AND DETAILS
 3. ALL ROADWAY SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 4. SEE STRUCTURAL DRAWING S5.1 FOR BRIDGE DETAILS.
 5. ALL UNDERDRAINS ARE 6".



MATCHLINE 5 - SEE SHEET C1.3E

MATCHLINE 3 - SEE SHEET C1.3B

MATCHLINE 2 - SEE SHEET C1.3A



DRAWING NOTES:

1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
3. ALL ROADWAY SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
4. ALL UNDERDRAINS ARE 6".

LEGEND

- ASPHALT PAVEMENT
- CONCRETE
- HEAVY DUTY CONCRETE SIDEWALK
- BITUMINOUS SIDEWALK
- MICRO-BIORETENTION/GRASS-SWALE
- SYNTHETIC TURF
- IMPERVIOUS AREA TREATED BY PHASE J/PHASE 1 STORMWATER MANAGEMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
	DATE: 7-6-17
	DATE: 3-01-17
	DATE: 3-19-17

REVISIONS	

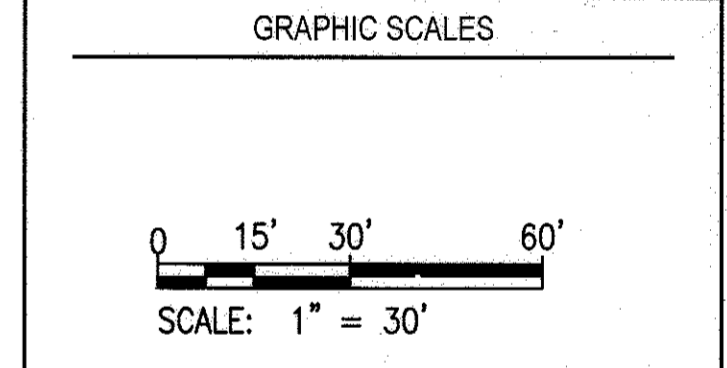
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 193276
 EXPIRATION DATE: 09/22/2017

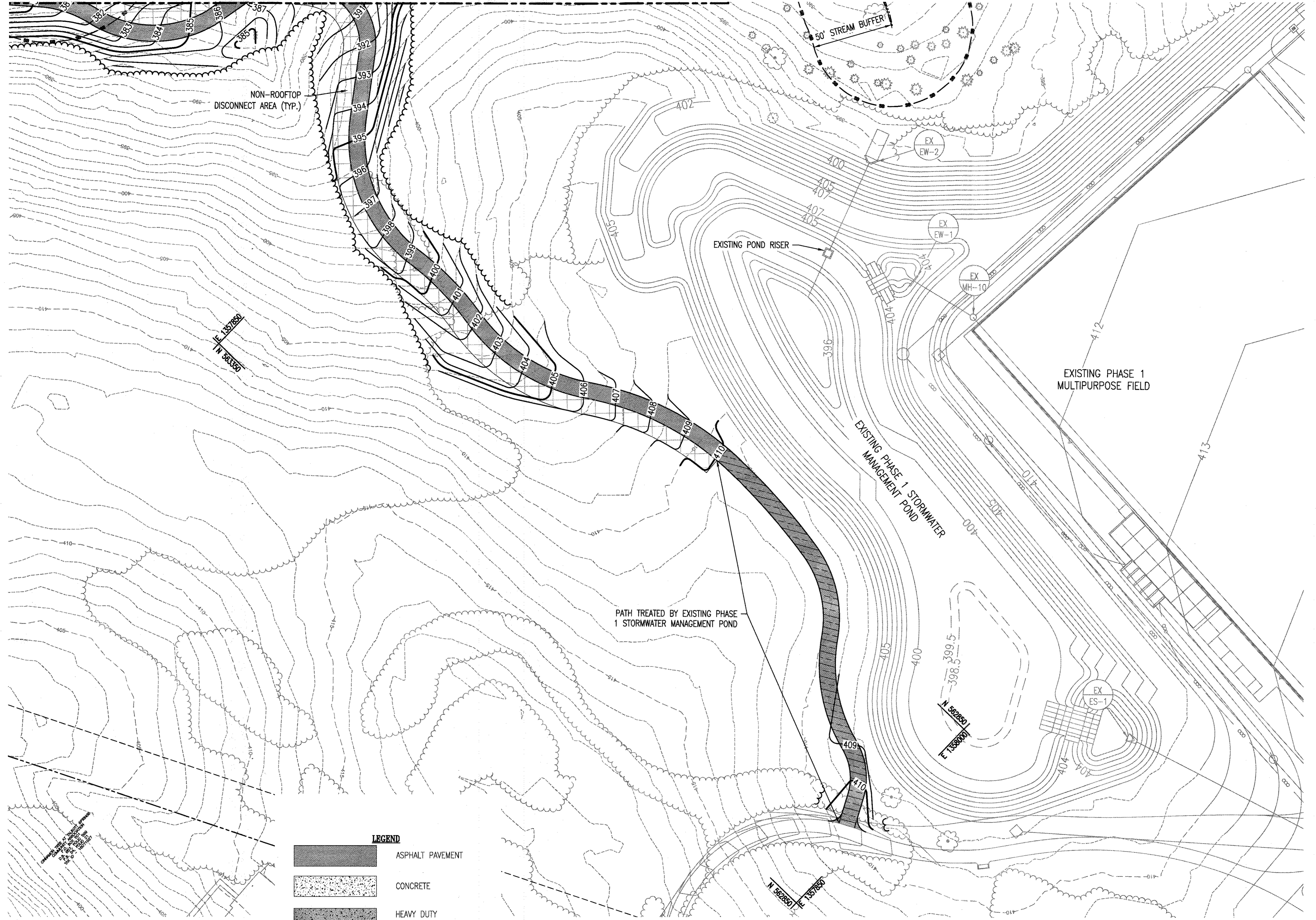
BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN C

Drawing No.
C1.3C

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 12 of 76
 Des: BWJ Drawn: AKC Check: AUO

MATCHLINE 4 - SEE SHEET C1.3B



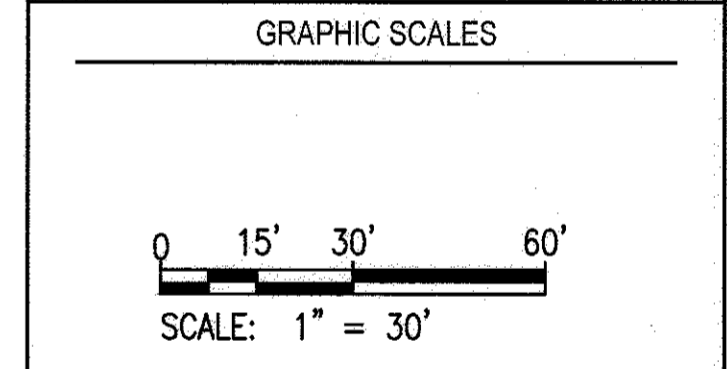
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

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 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-335-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN D

Drawing No.
C1.3D

Scale: 1" = 30'
 Date: 1/17/2017 Sheet 13 of 76
 Des: BWJ Drawn: AKC Check: AUO

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/GRASS-SWALE
	SYNTHETIC TURF
	IMPERVIOUS AREA TREATED BY PHASE J/PHASE 1 STORMWATER MANAGEMENT

DRAWING NOTES:
 1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2.6.17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3.01.17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

FILE NAME: N:\2025\002\002\CAD\20250305\002.DWG

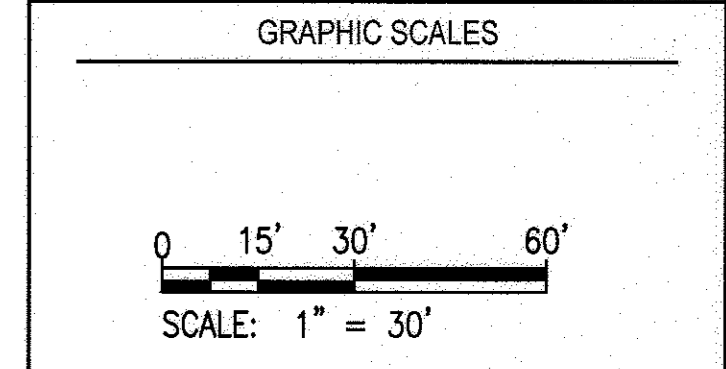
REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE

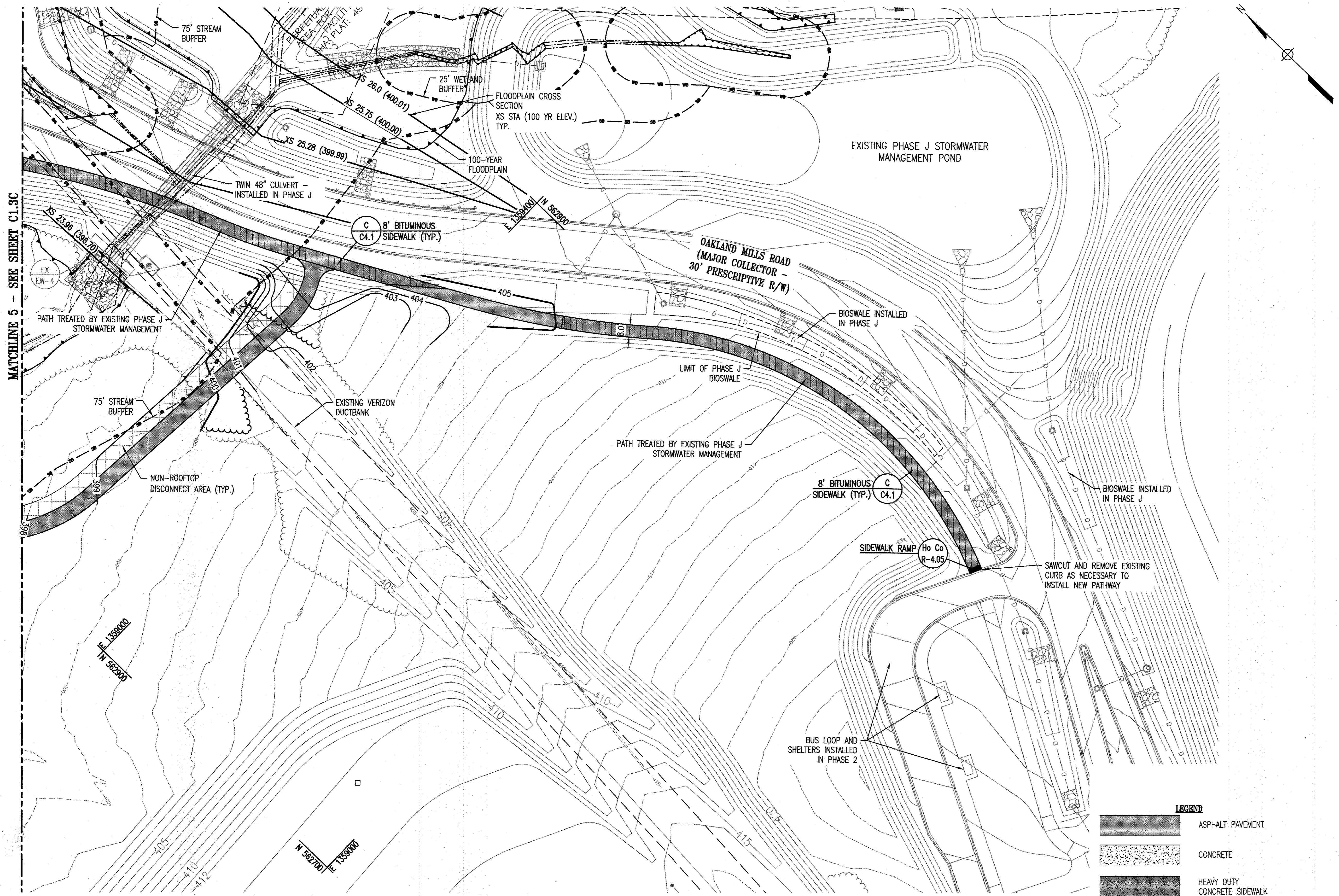
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EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

GRADING/STORMWATER MANAGEMENT PLAN E

Drawing No.
C1.3E

Scale: 1" = 30'
Date: 1/17/2017 Sheet 14 of 76
Des: BWJ Drawn: AKC Check: AUO



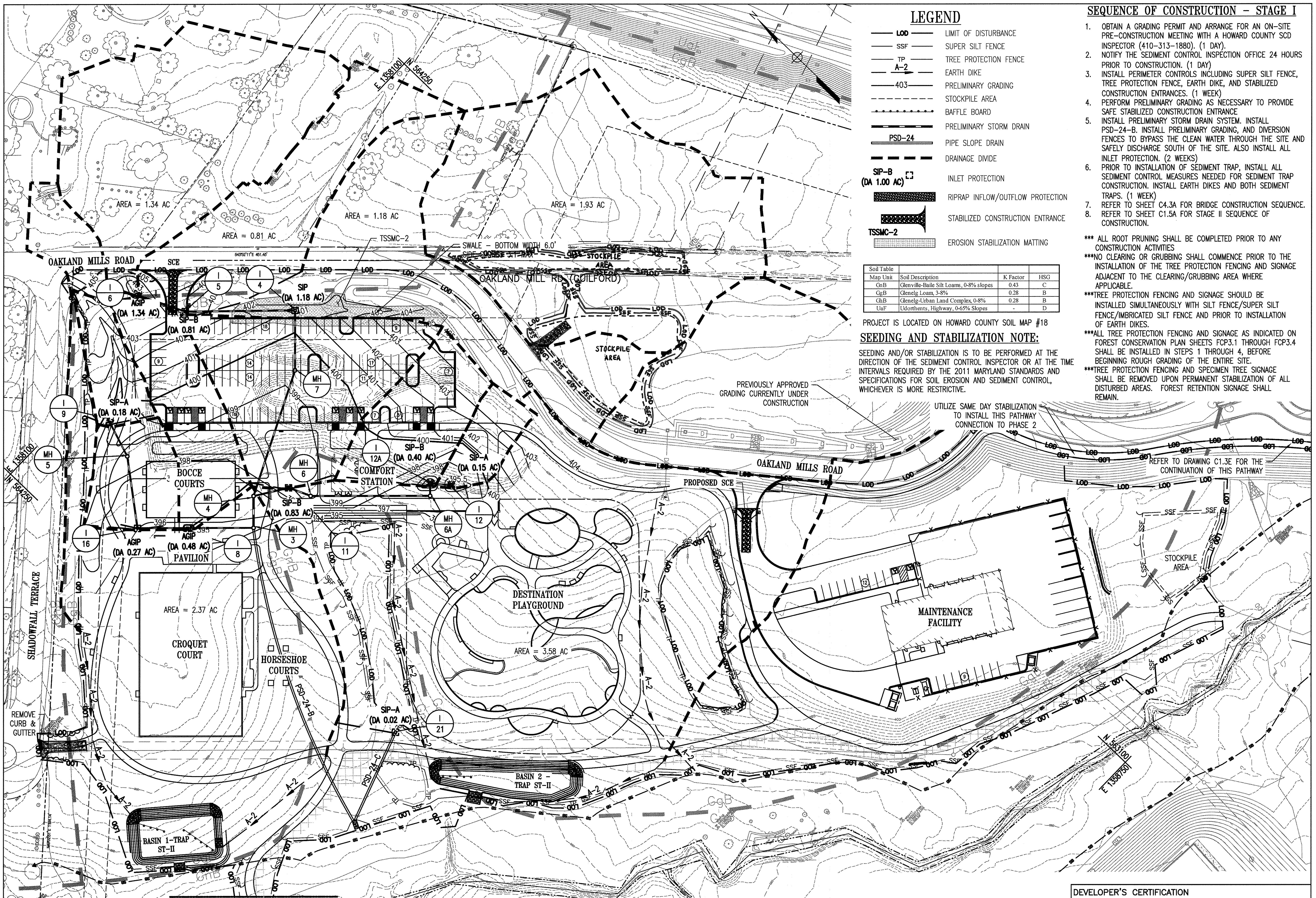
DRAWING NOTES:
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.

LEGEND

	ASPHALT PAVEMENT
	CONCRETE
	HEAVY DUTY CONCRETE SIDEWALK
	BITUMINOUS SIDEWALK
	MICRO-BIORETENTION/GRASS-SWALE
	SYNTHETIC TURF
	IMPERVIOUS AREA TREATED BY PHASE J/PHASE 1 STORMWATER MANAGEMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

	DATE
	3-01-17
	3-19-17



LEGEND

- LOD — LIMIT OF DISTURBANCE
- SSF — SUPER SILT FENCE
- TP — TREE PROTECTION FENCE
- A-2 — EARTH DIKE
- 403 — PRELIMINARY GRADING
- — STOCKPILE AREA
- — Baffle Board
- — PRELIMINARY STORM DRAIN
- PSD-24 — PIPE SLOPE DRAIN
- — DRAINAGE DIVIDE
- SIP-B (DA 1.00 AC) — INLET PROTECTION
- — RIPRAP INFLOW/OUTFLOW PROTECTION
- TSSMC-2 — STABILIZED CONSTRUCTION ENTRANCE
- — EROSION STABILIZATION MATTING

Soil Table	Map Unit	Soil Description	K Factor	HSG
GnB	Glenville-Baile Silt Loams, 0-8% slopes	0.43	C	
GgB	Glenelig Loam, 3-8%	0.28	B	
ChB	Glenelig-Urban Land Complex, 0-8%	0.28	B	
UaF	Udorthents, Highway, 0-65% Slopes	-	D	

PROJECT IS LOCATED ON HOWARD COUNTY SOIL MAP #18

SEEDING AND STABILIZATION NOTE:

SEEDING AND/OR STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME INTERVALS REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.

SEQUENCE OF CONSTRUCTION - STAGE I

1. OBTAIN A GRADING PERMIT AND ARRANGE FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH A HOWARD COUNTY SCD INSPECTOR (410-313-1880). (1 DAY).
2. NOTIFY THE SEDIMENT CONTROL INSPECTION OFFICE 24 HOURS PRIOR TO CONSTRUCTION. (1 DAY)
3. INSTALL PERIMETER CONTROLS INCLUDING SUPER SILT FENCE, TREE PROTECTION FENCE, EARTH DIKE, AND STABILIZED CONSTRUCTION ENTRANCES. (1 WEEK)
4. PERFORM PRELIMINARY GRADING AS NECESSARY TO PROVIDE SAFE STABILIZED CONSTRUCTION ENTRANCE.
5. INSTALL PRELIMINARY STORM DRAIN SYSTEM. INSTALL PSD-24-B. INSTALL PRELIMINARY GRADING, AND DIVERSION FENCES TO BYPASS THE CLEAN WATER THROUGH THE SITE AND SAFELY DISCHARGE SOUTH OF THE SITE. ALSO INSTALL ALL INLET PROTECTION. (2 WEEKS)
6. PRIOR TO INSTALLATION OF SEDIMENT TRAP, INSTALL ALL SEDIMENT CONTROL MEASURES NEEDED FOR SEDIMENT TRAP CONSTRUCTION. INSTALL EARTH DIKES AND BOTH SEDIMENT TRAPS. (1 WEEK)
7. REFER TO SHEET C4.3A FOR BRIDGE CONSTRUCTION SEQUENCE.
8. REFER TO SHEET C1.5A FOR STAGE II SEQUENCE OF CONSTRUCTION.

- *** ALL ROOT PRUNING SHALL BE COMPLETED PRIOR TO ANY CONSTRUCTION ACTIVITIES
- *** NO CLEARING OR GRUBBING SHALL COMMENCE PRIOR TO THE INSTALLATION OF THE TREE PROTECTION FENCING AND SIGNAGE ADJACENT TO THE CLEARING/GRUBBING AREA WHERE APPLICABLE.
- *** TREE PROTECTION FENCING AND SIGNAGE SHOULD BE INSTALLED SIMULTANEOUSLY WITH SILT FENCE/SUPER SILT FENCE/MBRICATED SILT FENCE AND PRIOR TO INSTALLATION OF EARTH DIKES.
- *** ALL TREE PROTECTION FENCING AND SIGNAGE AS INDICATED ON FOREST CONSERVATION PLAN SHEETS FCP3.1 THROUGH FCP3.4 SHALL BE INSTALLED IN STEPS 1 THROUGH 4, BEFORE BEGINNING ROUGH GRADING OF THE ENTIRE SITE.
- *** TREE PROTECTION FENCING AND SPECIMEN TREE SIGNAGE SHALL BE REMOVED UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS. FOREST RETENTION SIGNAGE SHALL REMAIN.

REVISIONS	
▲	REDLINE 1- STOCKPILE AREA 8/22/2018
▲	REDLINE 3- ADDITIONAL S.C.E. 12/1/2018

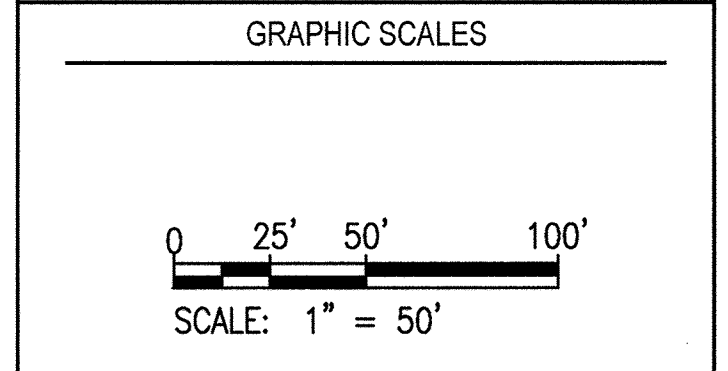
HOWARD COUNTY
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ZONING: RC-DEO
ELECTION DISTRICT 3/7



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EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE I

Drawing No.
C1.4A

Scale: 1" = 50'
Date: 1/17/2017 Sheet 15 of 76
Des: SAD Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
DIRECTOR DATE

EROSION AND SEDIMENT CONTROL PLAN - STAGE I
1" = 50'

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

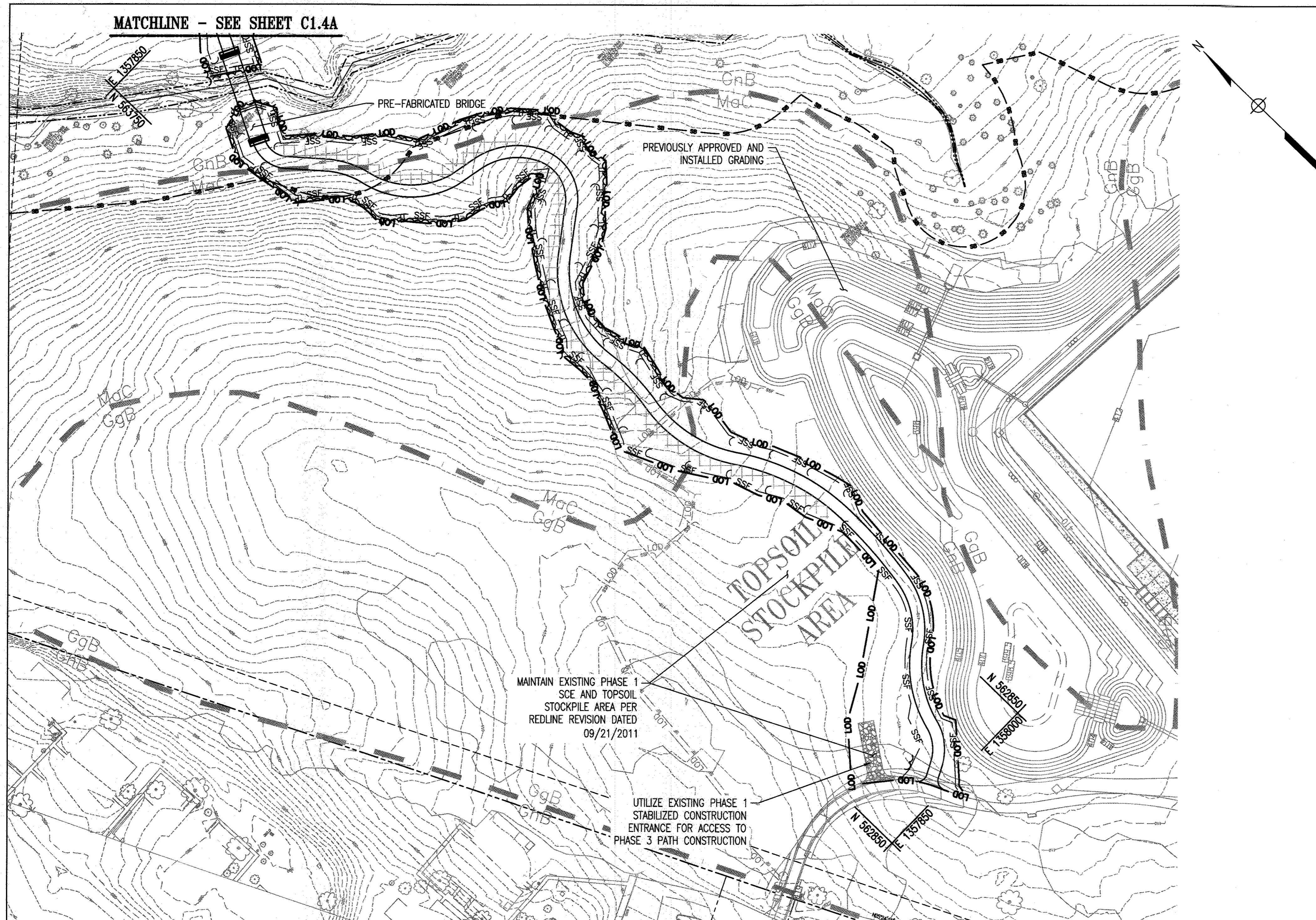
[Signature] 1/31/17
HOWARD SOIL CONSERVATION DISTRICT DATE

ENGINEER'S CERTIFICATION
I HEREBY 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] 1/23/17
SIGNATURE OF ENGINEER DATE
(PRINT NAME BELOW SIGNATURE)

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

[Signature] 1-23-17
SIGNATURE OF DEVELOPER DATE
(PRINT NAME BELOW SIGNATURE)



LEGEND

- LOD — LIMIT OF DISTURBANCE
- SSF — SUPER SILT FENCE
- TP — TREE PROTECTION FENCE
- A-2 — EARTH DIKE
- 403 — PRELIMINARY GRADING
- — STOCKPILE AREA
- — BAFFLE BOARD
- — PRELIMINARY STORM DRAIN
- PSD-24 — PIPE SLOPE DRAIN
- — DRAINAGE DIVIDE
- SIP-B (DA 1.00 AC) — INLET PROTECTION
- — RIPRAP INFLOW/OUTFLOW PROTECTION

SEEDING AND STABILIZATION NOTE:

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REVISIONS	

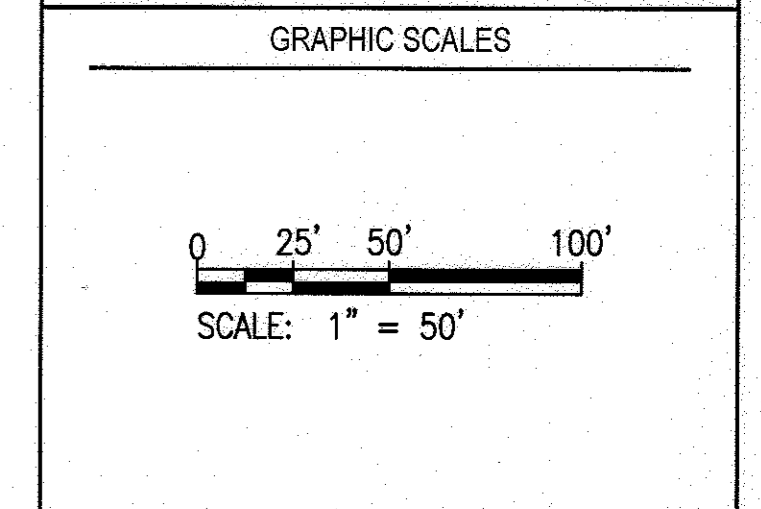
HOWARD COUNTY
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BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE I

Drawing No.
C1.4B

Scale: 1" = 50'
 Date: 1/17/2017 Sheet 16 of 76
 Des: AKC Drawn: AKC Check: AUO

EROSION AND SEDIMENT CONTROL PLAN - STAGE I
 1" = 50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

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

[Signature] 1/31/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

ENGINEER'S CERTIFICATION

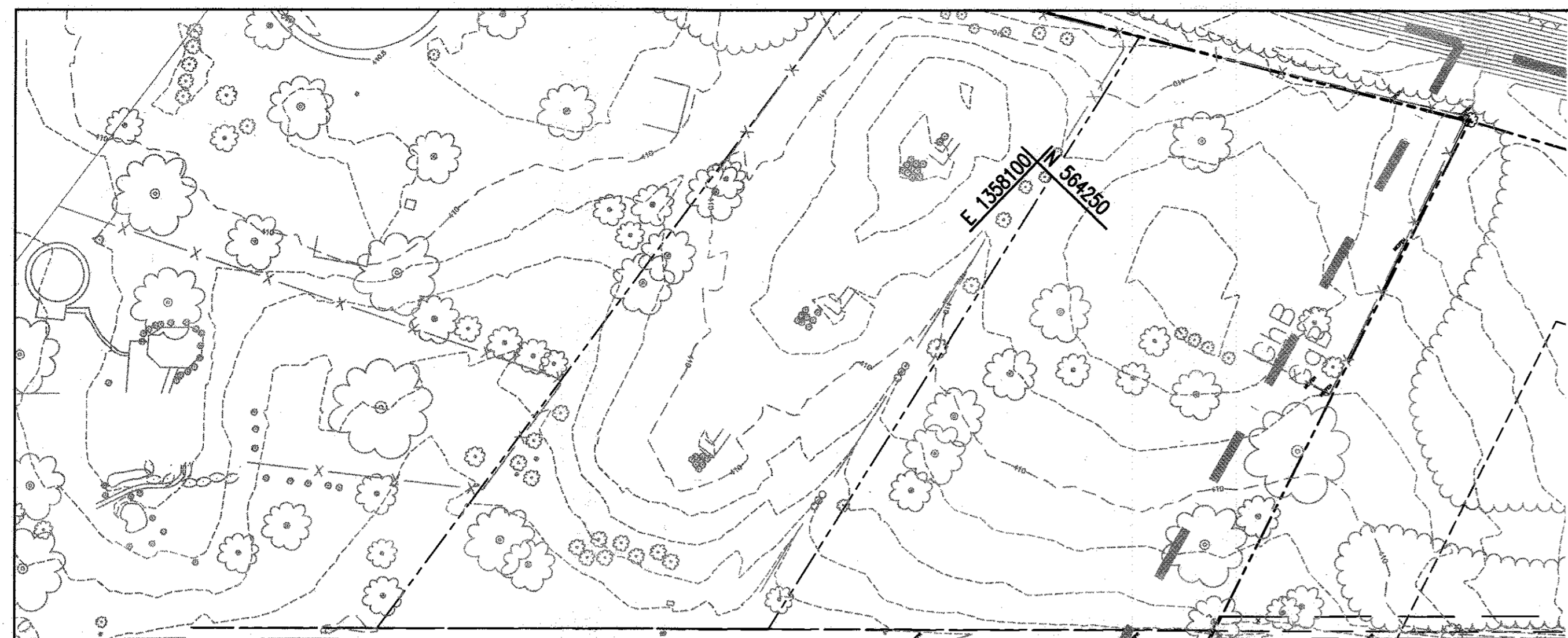
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[Signature] 1/23/17
 SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE

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[Signature] 1-23-17
 SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE



LEGEND

- LOD LIMIT OF DISTURBANCE
- SSF SUPER SILT FENCE (DOWNHILL FENCE, CURL SECTION EVERY 35 FT)
- TP TREE PROTECTION FENCE
- A-2 EARTH DIKE
- 403 PRELIMINARY GRADING
- STOCKPILE AREA
- 24" RCP STORM DRAIN
- PSD-24 PIPE SLOPE DRAIN
- DRAINAGE DIVIDE
- SIP-B (DA 1.00 AC) INLET PROTECTION
- RIPRAP INFLOW/OUTFLOW PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- TSSMC-2 EROSION STABILIZATION MATTING

Soil Table	Map Unit	Soil Description	K Factor	HSG
OnB	OnB	Glennville-Bale Silt Loams, 0-8% slopes	0.43	C
CeB	CeB	Glennville Loam, 3-8%	0.28	B
ChB	ChB	Glennville-Urban Land Complex, 0-8%	0.28	B
UaF	UaF	Udonthens, Highway, 0-6% Slopes	-	D

PROJECT IS LOCATED ON HOWARD COUNTY SOIL MAP #18

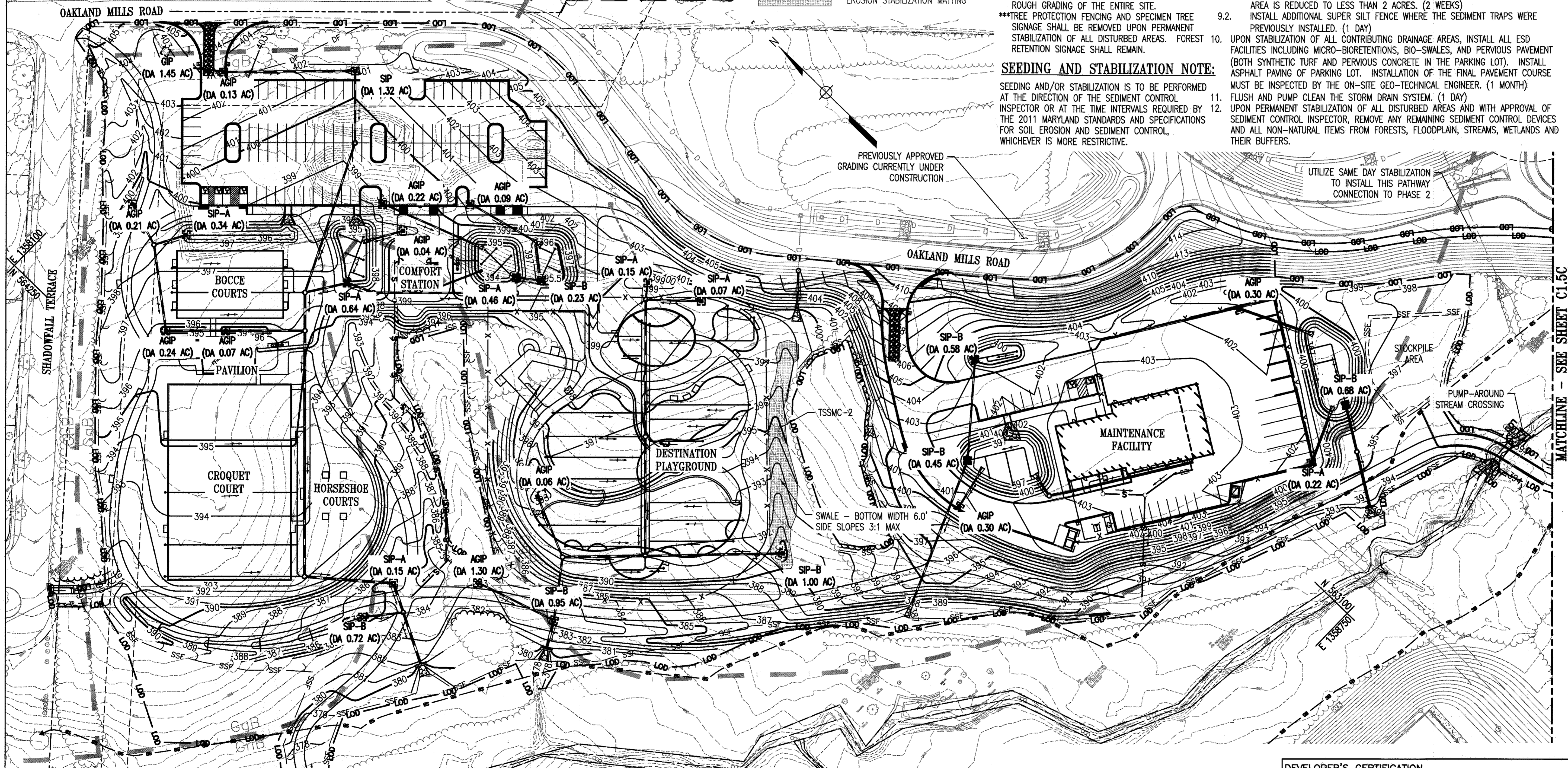
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 ***ALL TREE PROTECTION FENCING AND SIGNAGE AS INDICATED ON FOREST CONSERVATION PLAN SHEETS F3.1 THROUGH F3.4 SHALL BE INSTALLED IN STEPS 1 THROUGH 4, BEFORE BEGINNING ROUGH GRADING OF THE ENTIRE SITE.
 ***TREE PROTECTION FENCING AND SPECIMEN TREE SIGNAGE SHALL BE REMOVED UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS. FOREST RETENTION SIGNAGE SHALL REMAIN.

SEEDING AND STABILIZATION NOTE:

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SEQUENCE OF CONSTRUCTION - STAGE II

- REFER TO SHEET C1.4A FOR STAGE I SEQUENCE OF CONSTRUCTION.
- PERFORM ROUGH GRADING. (3 MONTHS)
- INSTALL ALL UTILITIES AND COORDINATE ROUGH GRADING OPERATION. DURING INSTALLATION OF SANITARY AND WATER, ONLY EXCAVATE AMOUNT OF TRENCH TO ALLOW INSTALLATION OF PIPE AND BACKFILL WITHIN 1 WORK DAY. PLACE EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH AND IMMEDIATELY STABILIZE ALL DISTURBED AREAS AROUND TRENCH AT THE END OF EACH WORK DAY. (1 MONTH)
- INSTALL SUBBASE FOR PARKING LOT AND ALL PAVING AREAS. REMOVE PORTIONS OF DIVERSION FENCE AS GRADING PROGRESSES AND PROPER STABILIZED FLOW TO INLETS IS ESTABLISHED. (1 MONTH)
- INSTALL PUMP-AROUND STREAM CROSSING MEASURES PRIOR TO ANY WORK WITHIN THE STREAM. PERFORM UTILITY AND GRADING IMPROVEMENTS AT STREAM CROSSINGS AND ENSURE PERMANENT STABILIZATION OF ALL DISTURBED AREA AROUND THE STREAM CROSSINGS. NOTE: THE WORK IN STREAM CROSSINGS MAY BE CONCURRENT WITH GRADING AND SITE WORK WITHIN THE SITE. (1 MONTH). REFER TO SHEET C4.3 FOR BOX CULVERT CONSTRUCTION SEQUENCE. NO INSTREAM WORK MAY BE PERFORMED BETWEEN MARCH 1 AND MAY 31 DUE TO STREAM CLOSURE.
- INSTALL STORM DRAIN SYSTEM THROUGHOUT DESTINATION PLAYGROUND (UNDERDRAINS, MH-22 & I-21 TO ES-2) REMOVE PSD-24-A AND PSD-24-A.
- INSTALL STORM DRAIN SYSTEM FROM MH-2 TO ES-1 AND REMOVE PSD-24-B.
- INSTALL ALL ARTIFICIAL TURF ELEMENTS. (2 MONTHS)
- INSTALL PARKING CURB AND GUTTER, SIDEWALKS AND PAVE ALL AREAS TO BE PAVED. (1 MONTH)
 - REMOVE BOTH SEDIMENT TRAPS ONCE THEIR CONTRIBUTING DISTURBED DRAINAGE AREA IS REDUCED TO LESS THAN 2 ACRES. (2 WEEKS)
 - INSTALL ADDITIONAL SUPER SILT FENCE WHERE THE SEDIMENT TRAPS WERE PREVIOUSLY INSTALLED. (1 DAY)
- UPON STABILIZATION OF ALL CONTRIBUTING DRAINAGE AREAS, INSTALL ALL ESD FACILITIES INCLUDING MICRO-BIOTENTIONS, BIO-SWALES, AND PERVIOUS PAVEMENT (BOTH SYNTHETIC TURF AND PERVIOUS CONCRETE IN THE PARKING LOT). INSTALL ASPHALT PAVING OF PARKING LOT. INSTALLATION OF THE FINAL PAVEMENT COURSE MUST BE INSPECTED BY THE ON-SITE GEO-TECHNICAL ENGINEER. (1 MONTH)
- FLUSH AND PUMP CLEAN THE STORM DRAIN SYSTEM. (1 DAY)
- UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS AND WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING SEDIMENT CONTROL DEVICES AND ALL NON-NATURAL ITEMS FROM FORESTS, FLOODPLAIN, STREAMS, WETLANDS AND THEIR BUFFERS.

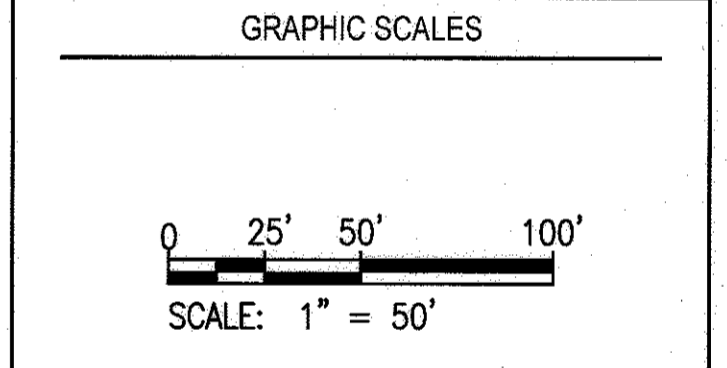


REVISIONS

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 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE II

Drawing No.
C1.5A
 Scale: 1" = 50'
 Date: 1/17/2017 Sheet 17 of 76
 Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Chubb 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kurt Schubert 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nick DeZaffi 3-14-17
 DIRECTOR DATE

EROSION AND SEDIMENT CONTROL PLAN - STAGE II
 1" = 50'

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

John K. Roberts 1/31/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

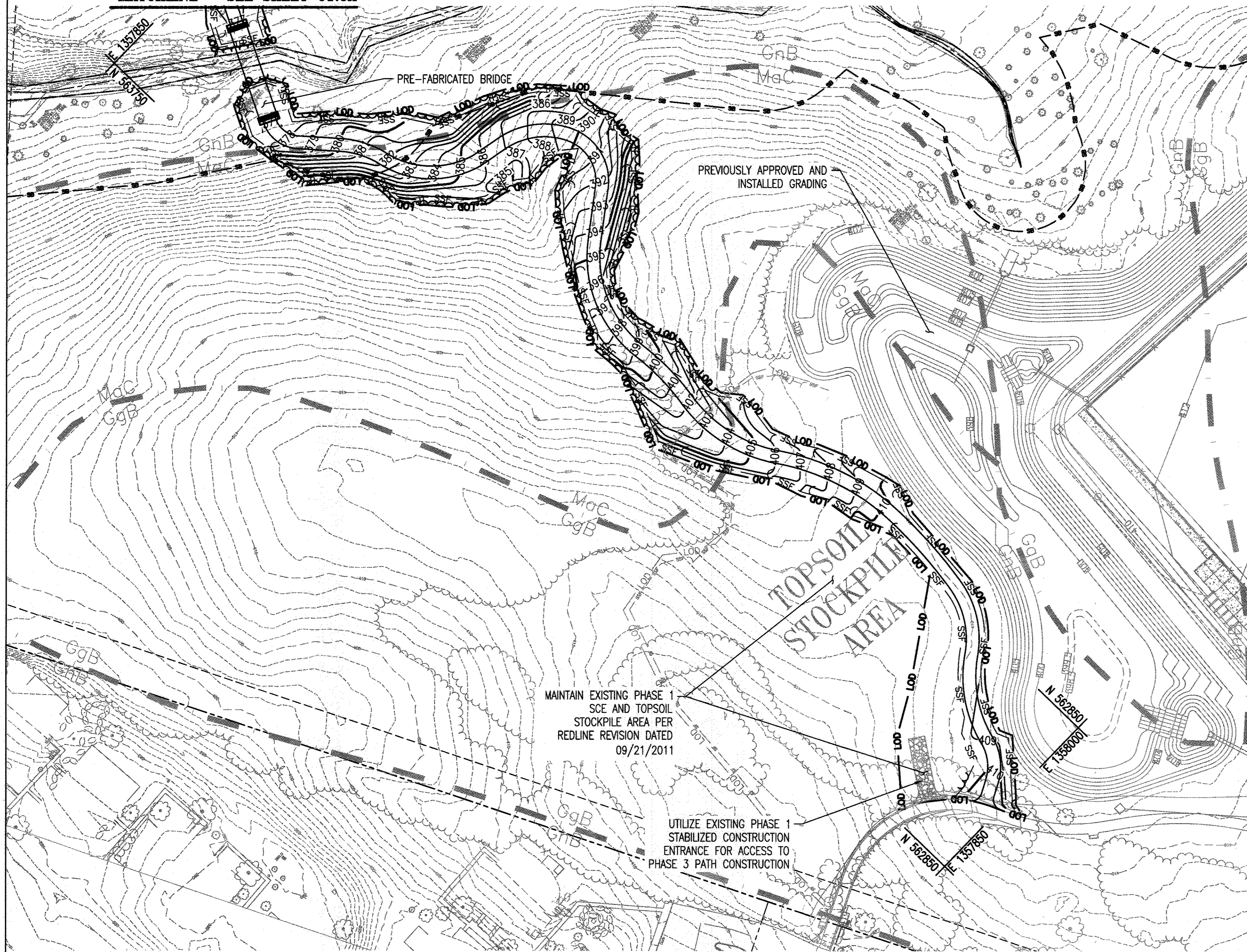
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Anthony W. Olson 1/23/17
 SIGNATURE OF ENGINEER DATE
 (PRINT NAME BELOW SIGNATURE)

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A. Olson 1-23-17
 SIGNATURE OF DEVELOPER DATE
 (PRINT NAME BELOW SIGNATURE)

MATCHLINE - SEE SHEET C1.5A



EROSION AND SEDIMENT CONTROL PLAN - STAGE II
1" = 50'

LEGEND

- L00 LIMIT OF DISTURBANCE
- SSF SUPER SILT FENCE (DOWNHILL FENCE, CURL SECTION EVERY 35 FT)
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- 24" RCP PRELIMINARY GRADING
- PSD-24 STORM DRAIN
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REVISIONS

NO.	DESCRIPTION	DATE

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

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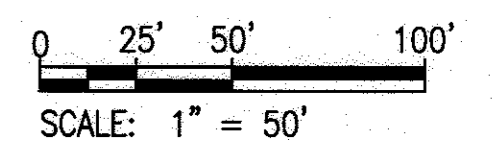
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TAX MAP 36, GRID 5, PARCEL 3,72

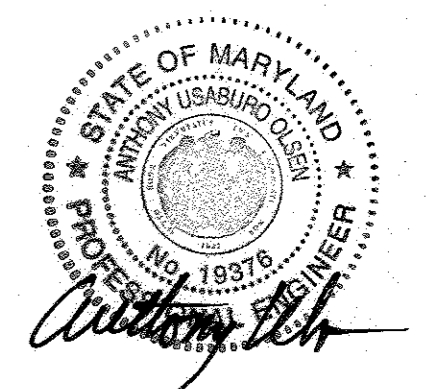
ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES



SIGNATURE



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EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE II

Drawing No.

C1.5B

Scale: 1" = 50'
Date: 1/17/2017 Sheet 18 of 76
Des: SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE 2-6-17
 [Signature] DATE 3-01-17
 [Signature] DATE 3-19-17
 DIRECTOR

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

[Signature] DATE 1/31/17
HOWARD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATION

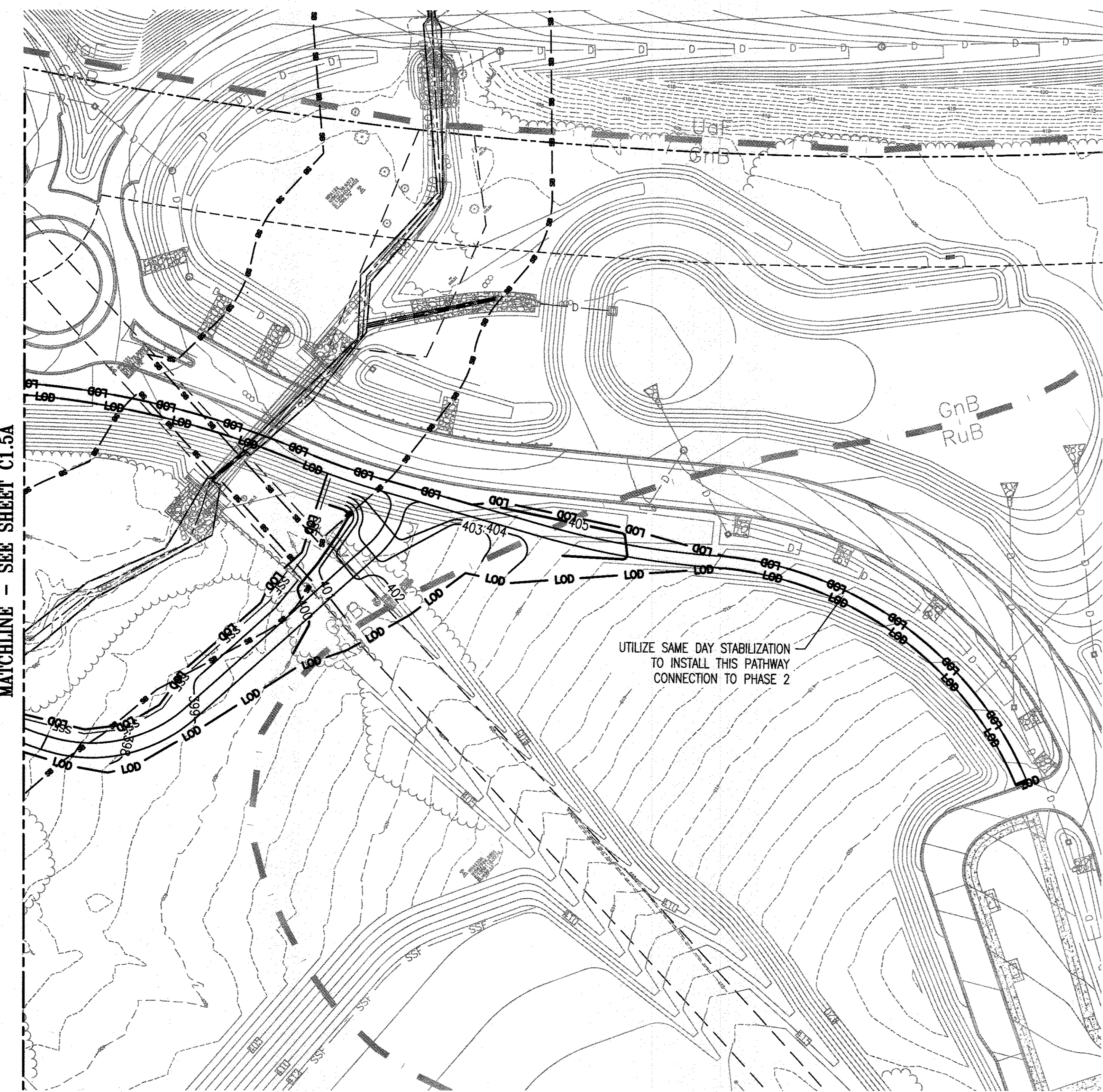
"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[Signature] DATE 1/23/17
SIGNATURE OF ENGINEER Anthony U. Olson
(PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATION

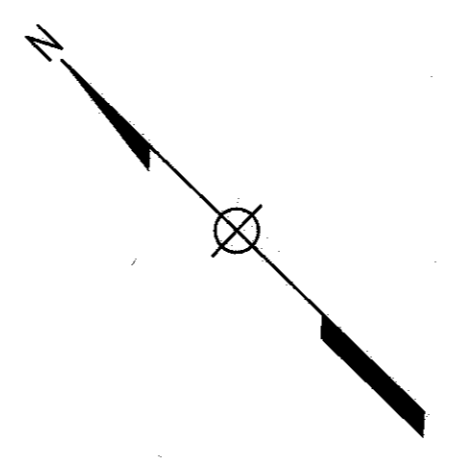
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM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

[Signature] DATE 1-23-17
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)



MATCHLINE - SEE SHEET C1.5A

UTILIZE SAME DAY STABILIZATION TO INSTALL THIS PATHWAY CONNECTION TO PHASE 2



LEGEND

- LOD — LIMIT OF DISTURBANCE
- SSF — SUPER SILT FENCE (DOWNHILL FENCE, CURL SECTION EVERY 35 FT)
- TP — TREE PROTECTION FENCE
- A-2 — EARTH DIKE
- 403 — PRELIMINARY GRADING
- STOCKPILE AREA
- 24" RCP — STORM DRAIN
- PSD-24 — PIPE SLOPE DRAIN
- DRAINAGE DIVIDE
- SIP-B (DA 1.00 AC) — INLET PROTECTION
- RIPRAP INFLOW/OUTFLOW PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- TSSMC-2 — EROSION STABILIZATION MATTING

SEEDING AND STABILIZATION NOTE:

SEEDING AND/OR STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME INTERVALS REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.

EROSION AND SEDIMENT CONTROL PLAN - STAGE II
1" = 50'

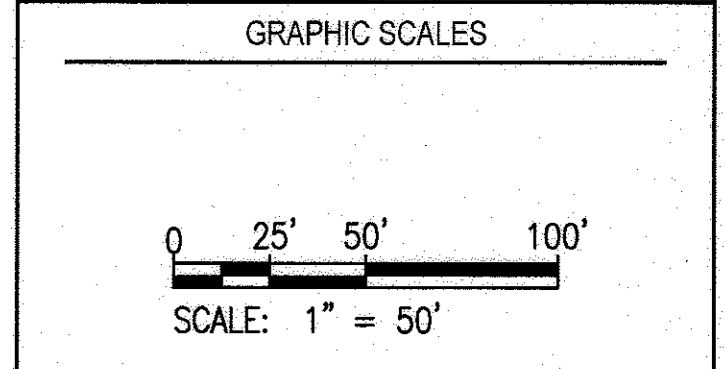
REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL PLAN - STAGE II

Drawing No.
C1.5C

Scale: 1" = 50'

Date: 1/17/2017 Sheet 19 of 76

Des: SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17

DATE: 3-01-17

DATE: 3-19-17

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

DATE: 1/31/17

HOWARD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATION

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

DATE: 1/23/17

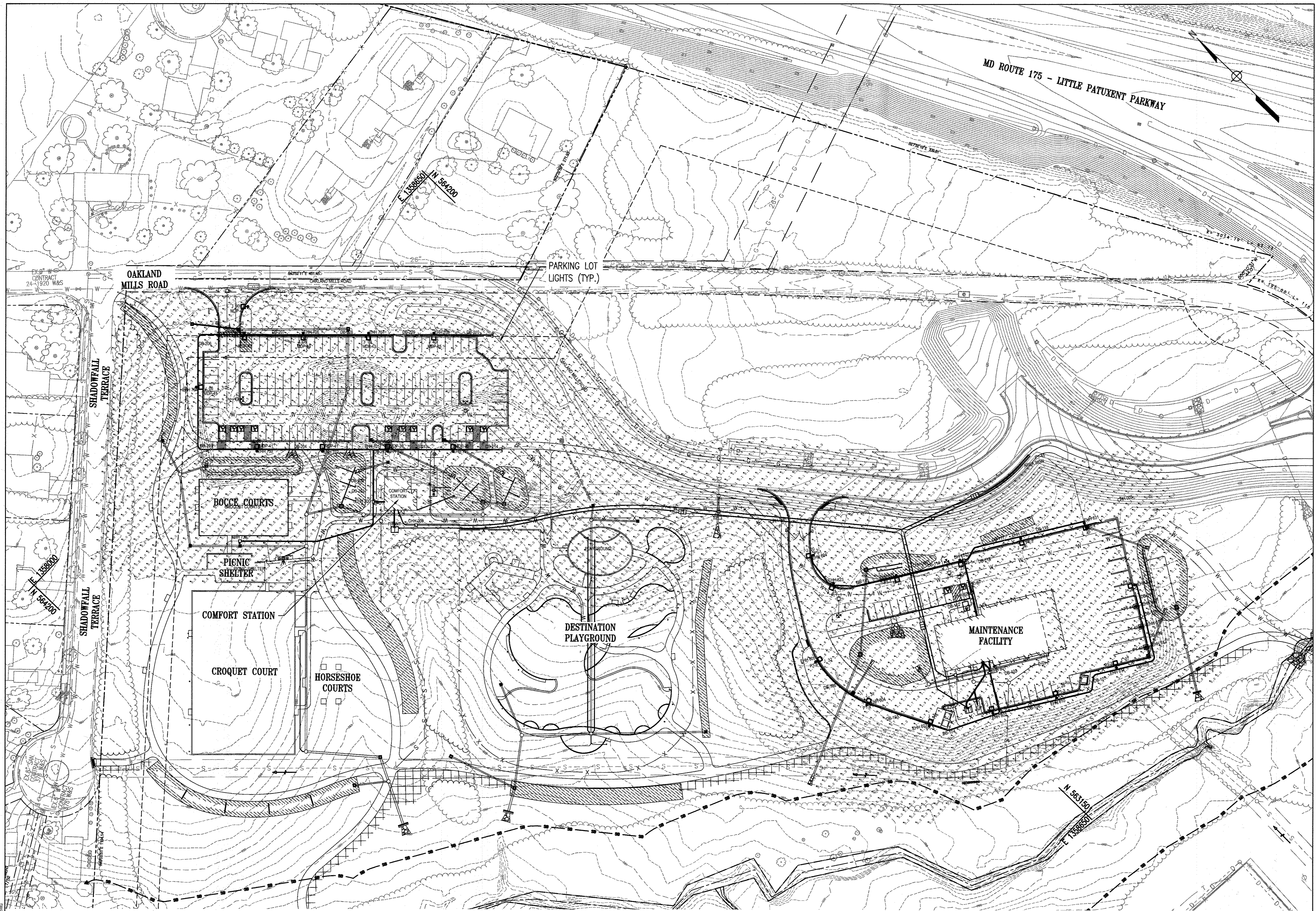
ANTHONY H. OLSEN
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATION

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

DATE: 1-23-17

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-238-3450 Fax: 410-243-5116

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

0 25' 50' 100'

SCALE: 1" = 50'

SIGNATURE

PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

PHOTOMETRIC TEST DIAGRAM

Drawing No.
C1.6

Scale: 1" = 50'
 Date: 1/17/2017 Sheet 20 of 76
 Des: BWJ Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

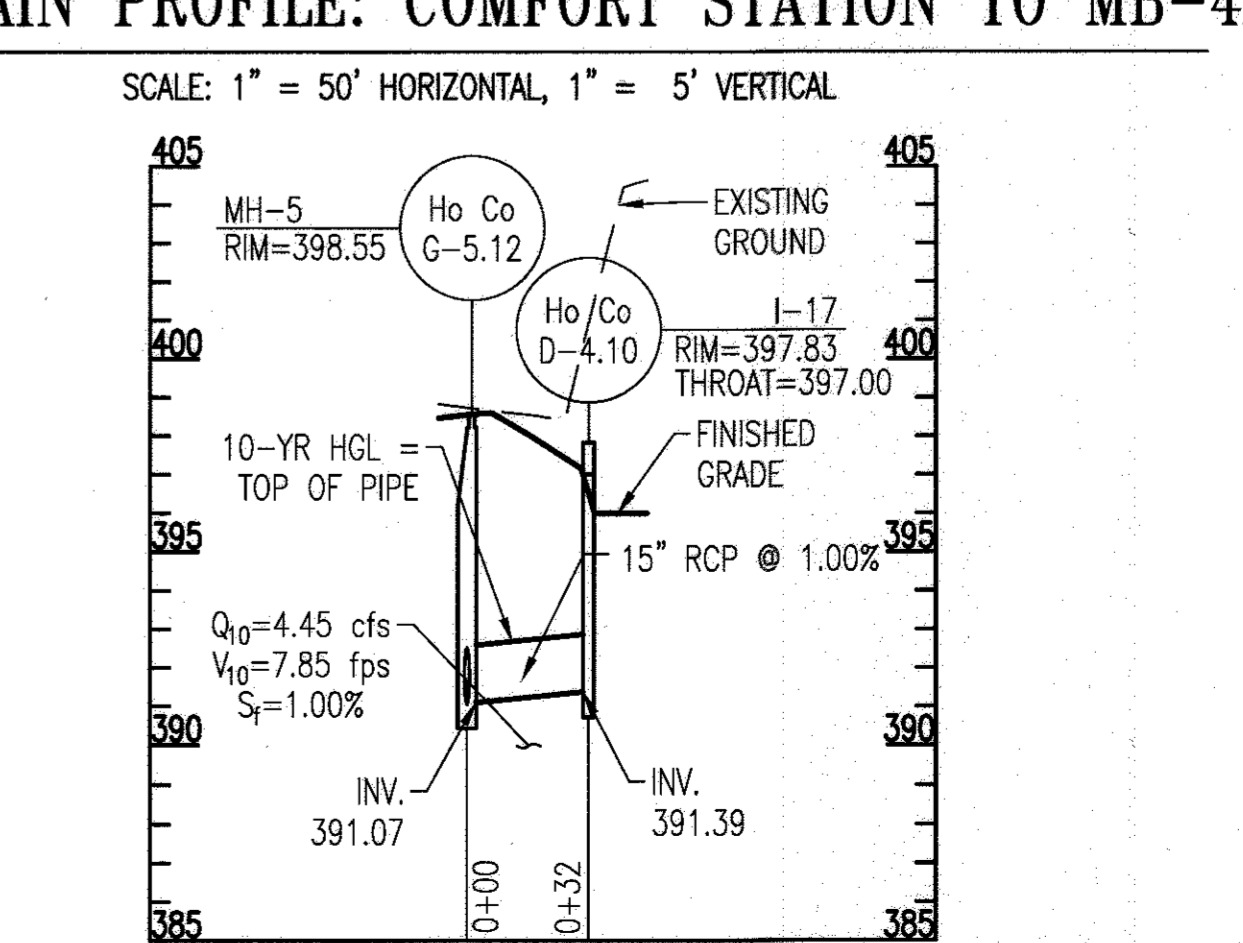
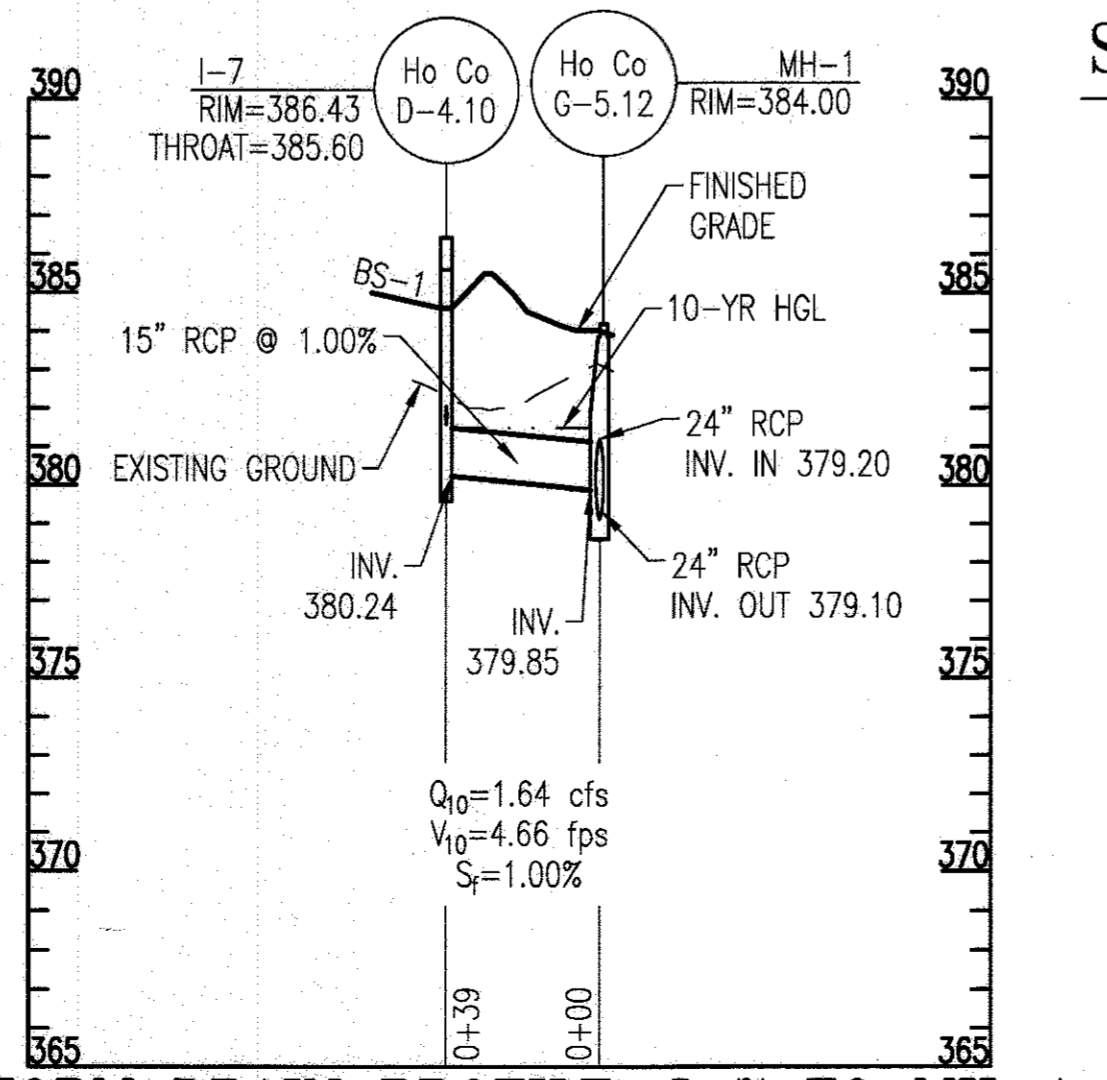
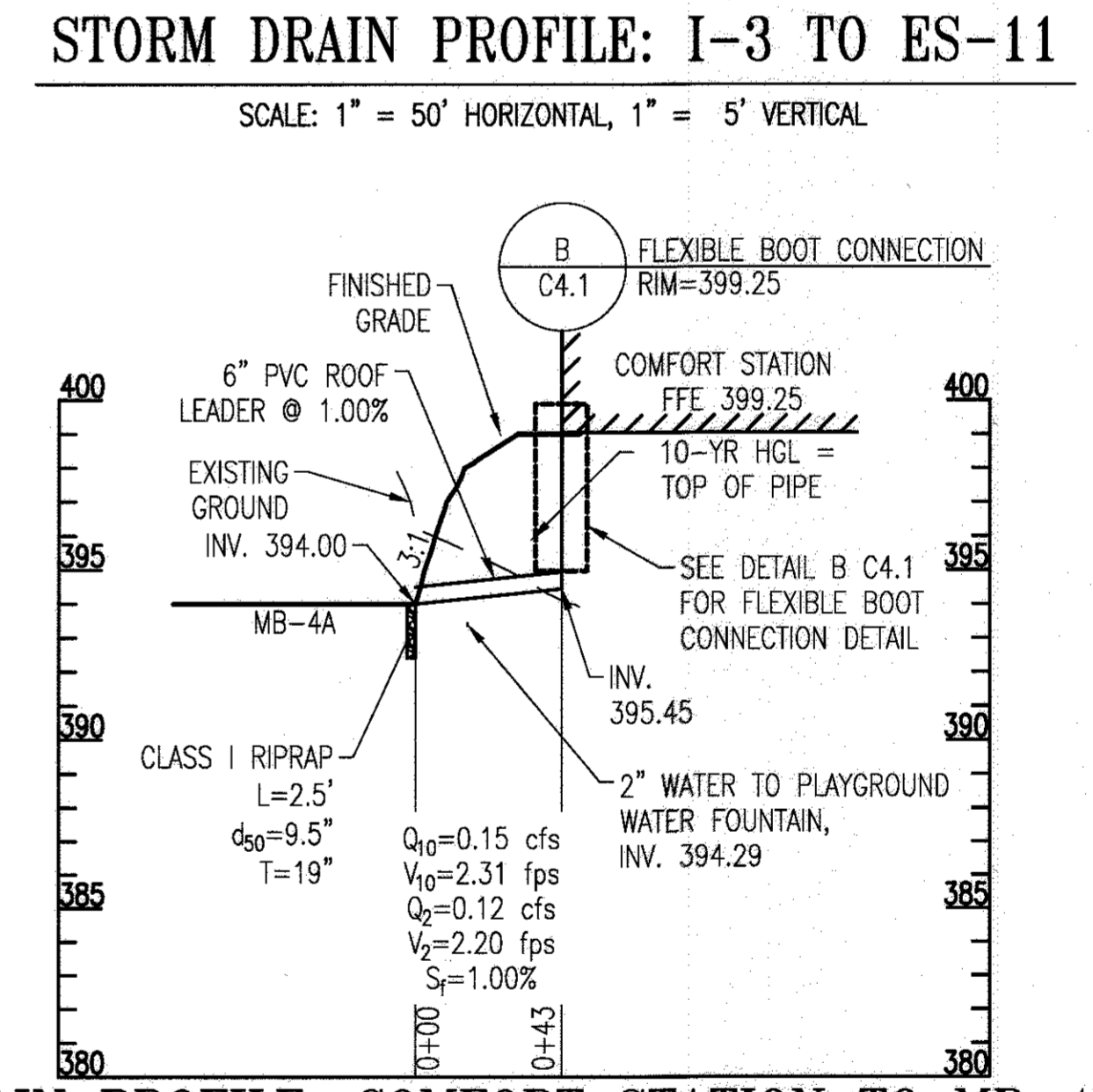
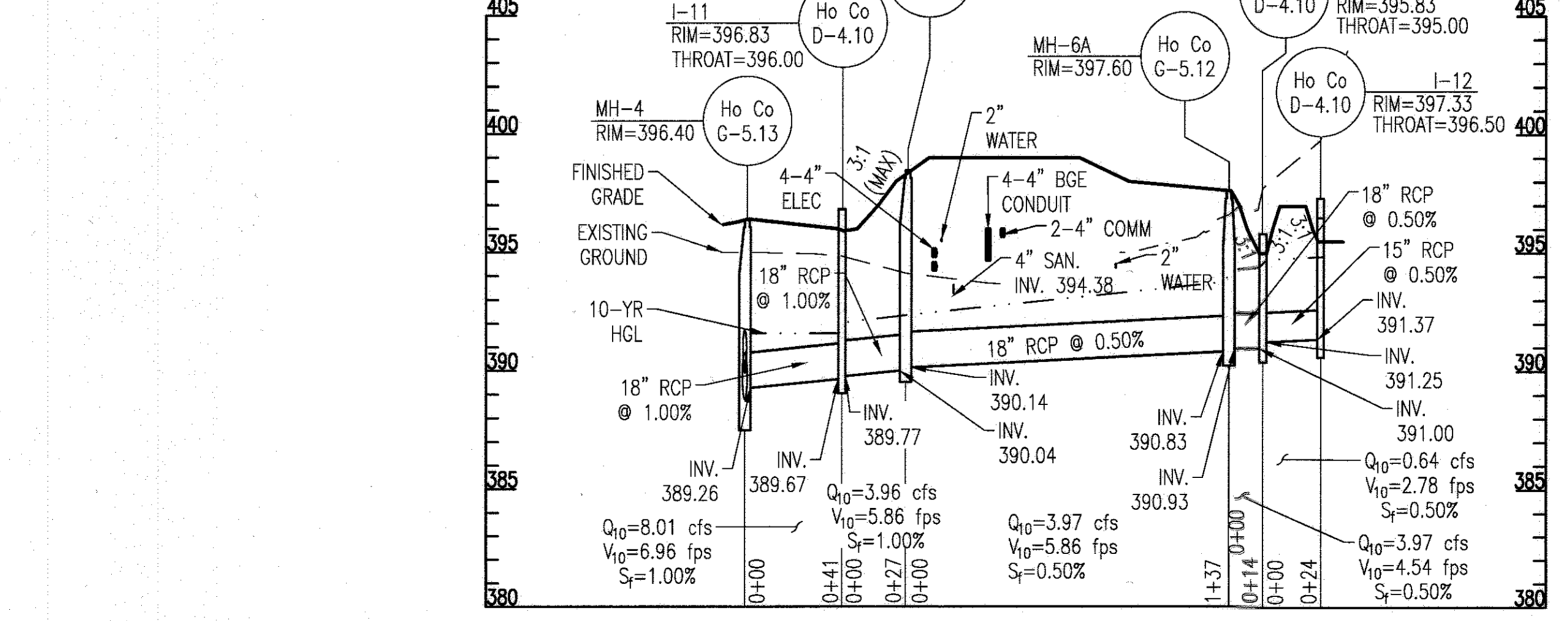
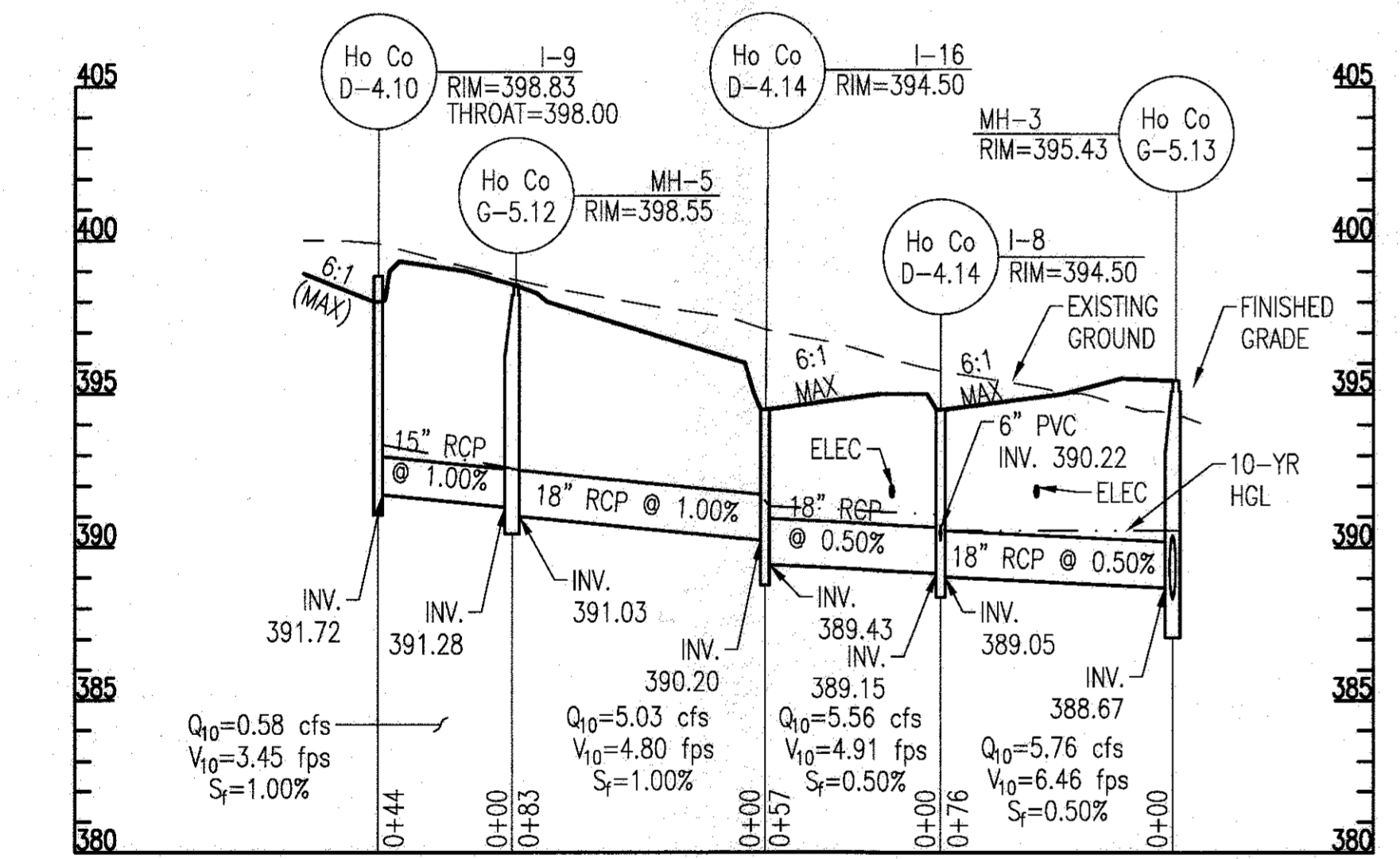
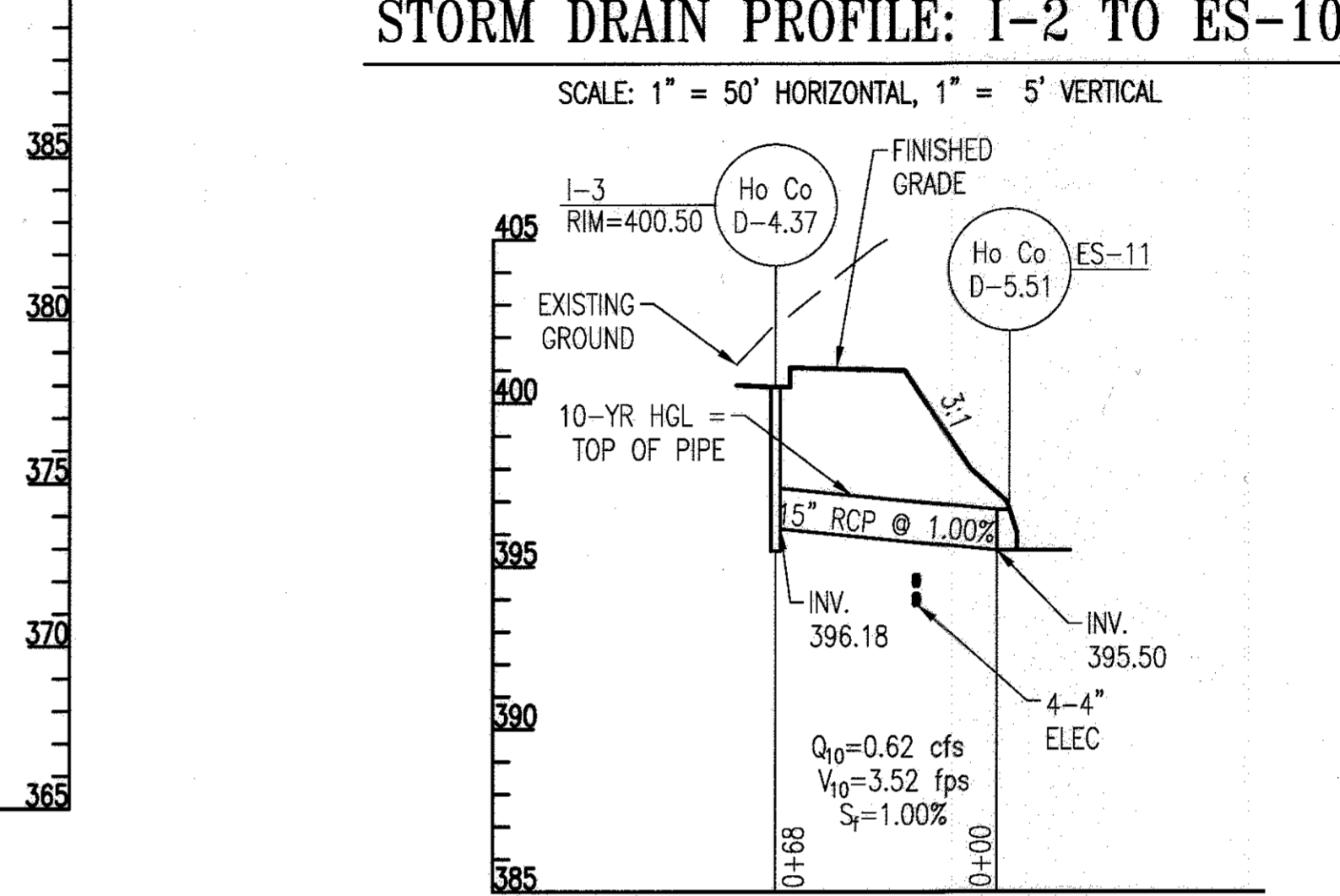
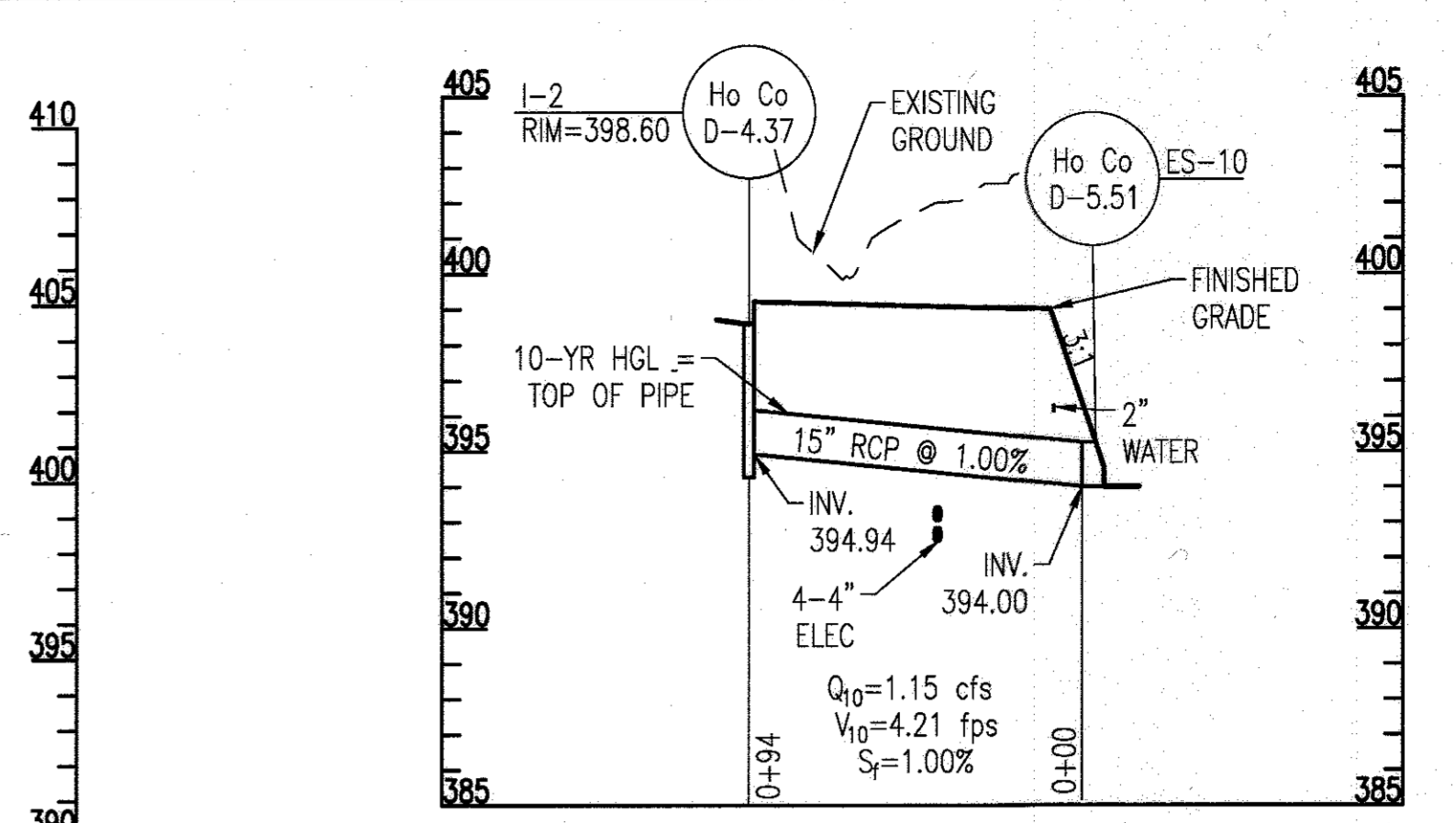
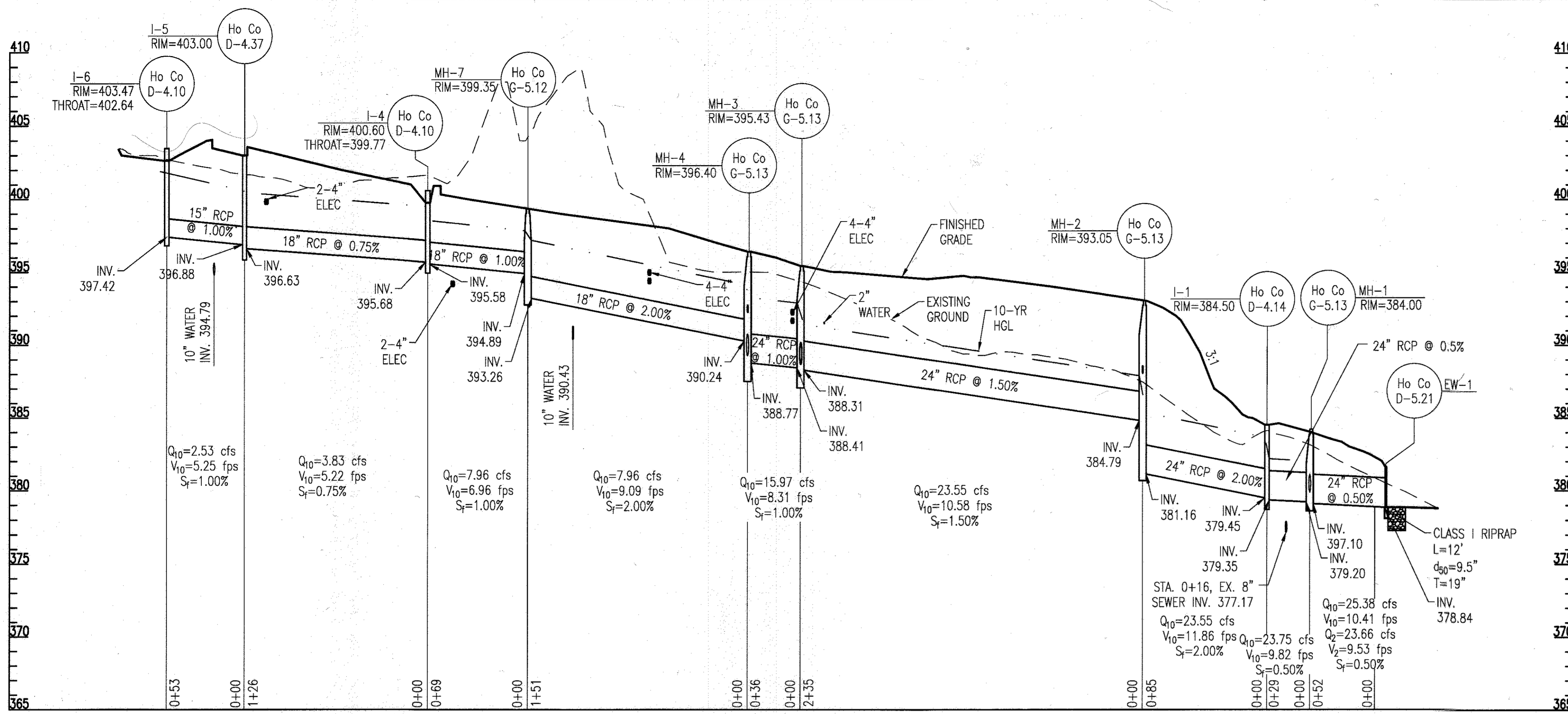
[Signature] DATE: 2-6-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-06-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-15-17
 DIRECTOR

NOTES:
 1. THIS PLAN COMPLIES WITH SUBSECTION 134.0.D.1. OF THE ZONING REGULATIONS FOR LIGHT TRESPASS.

FILENAME: N:\2016\02\20160220\20160220.DWG
 PLOT DATE: 1/17/2017 11:00:00 AM
 PLOT BY: J. W. B.



- NOTES:**
- PIPES WITH AN HGL 2 FEET OR MORE ABOVE THE CROWN SHALL BE CONNECTED TO STRUCTURES WITH RUBBER GASKETS. SEE SHEET C2.3 FOR PIPE SCHEDULE.
 - THE BOTTOM OF ALL DROP MANHOLE STRUCTURES SHALL BE LINED WITH GRANITE BLOCKS AT LEAST 4- INCHES THICK. SEE SHEET C2.3 FOR STRUCTURE SCHEDULE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2.6.17

DATE: 3.00.17

DATE: 3-19-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

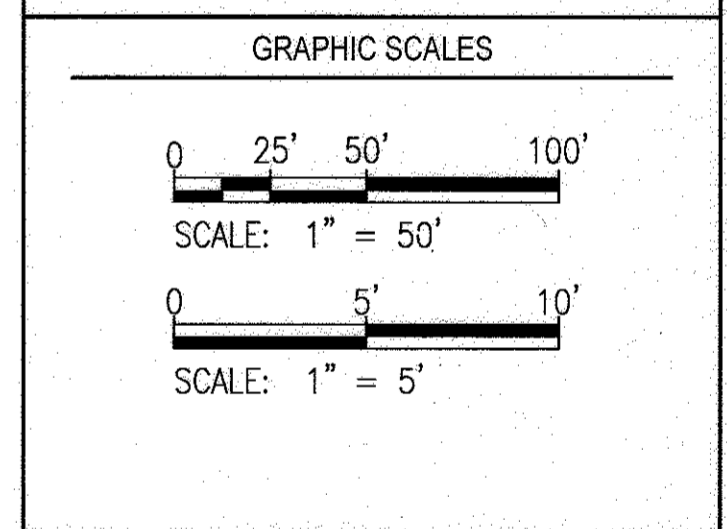


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3.72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 18376
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

STORM DRAIN PROFILES

Drawing No. **C2.1**

Scale: AS SHOWN
Date: 1/17/2017 Sheet 21 of 76
Des: AKC Drawn: AKC Check: AUO

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

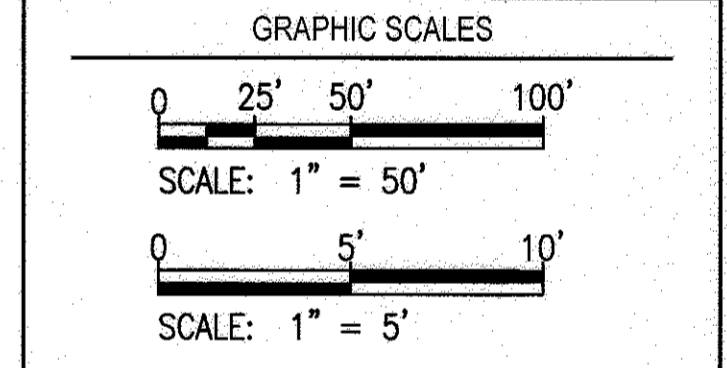


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 183276, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

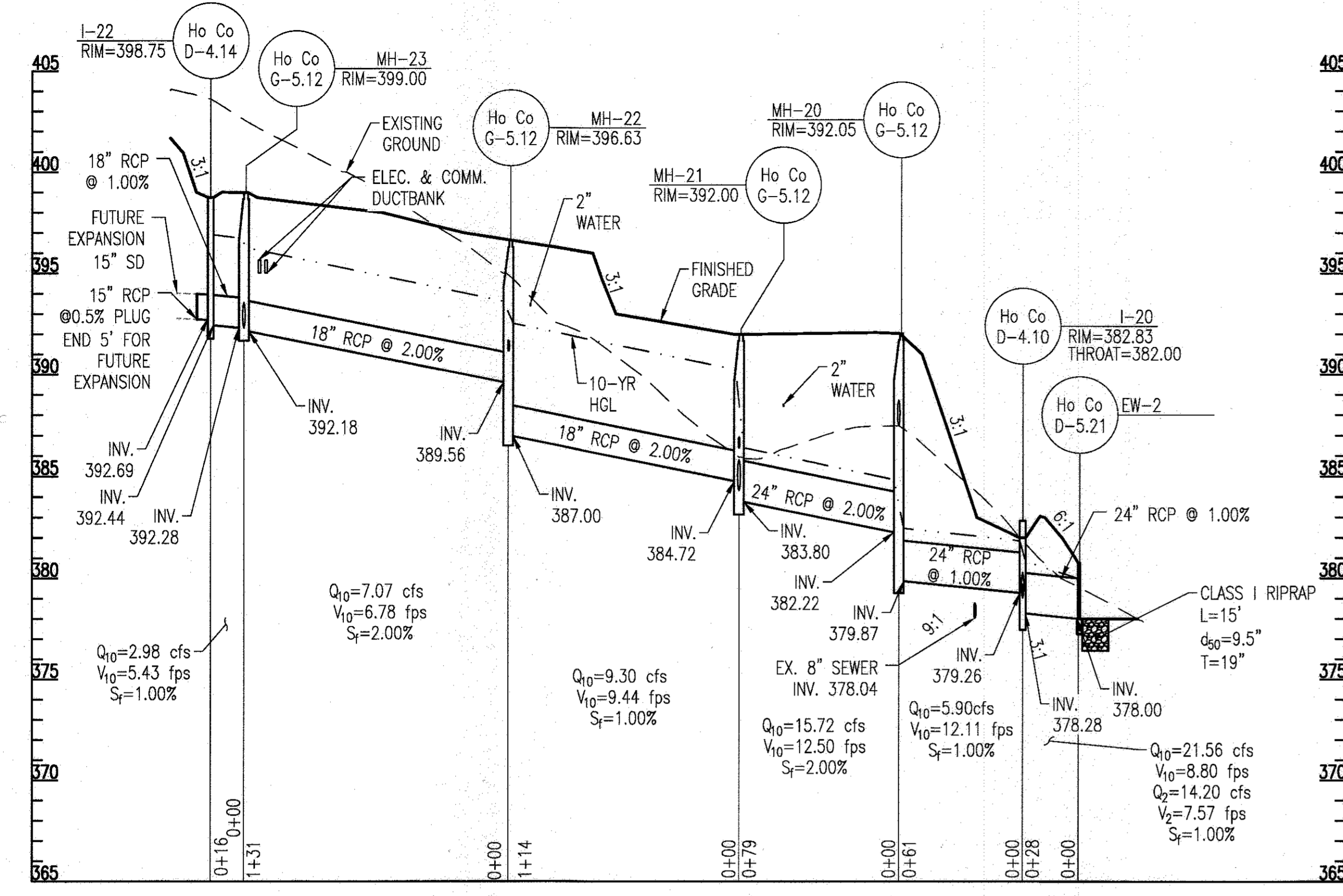
STORM DRAIN PROFILES

Drawing No. **C2.2**

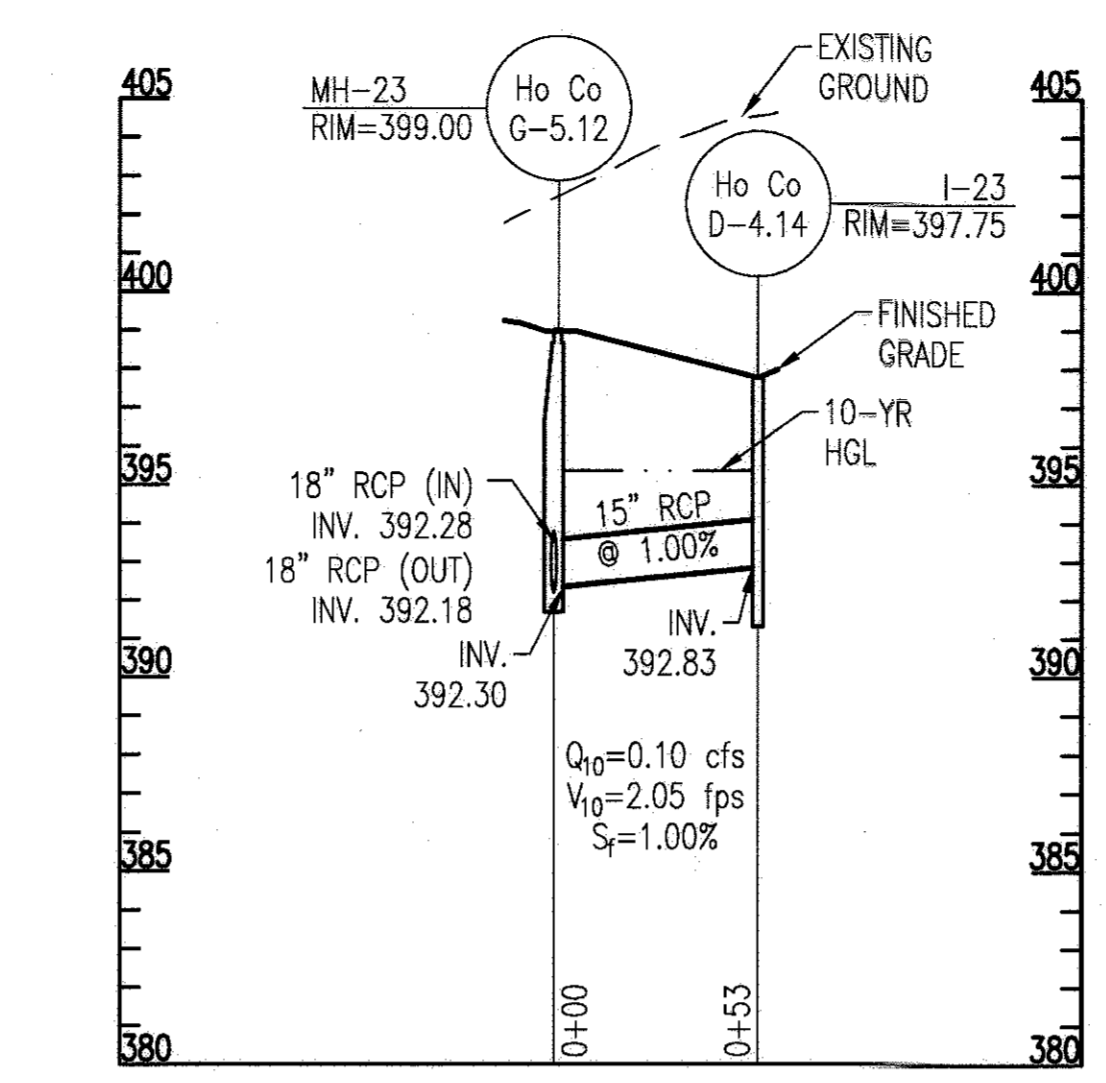
Scale: AS SHOWN

Date: 1/17/2017 Sheet 22 of 76

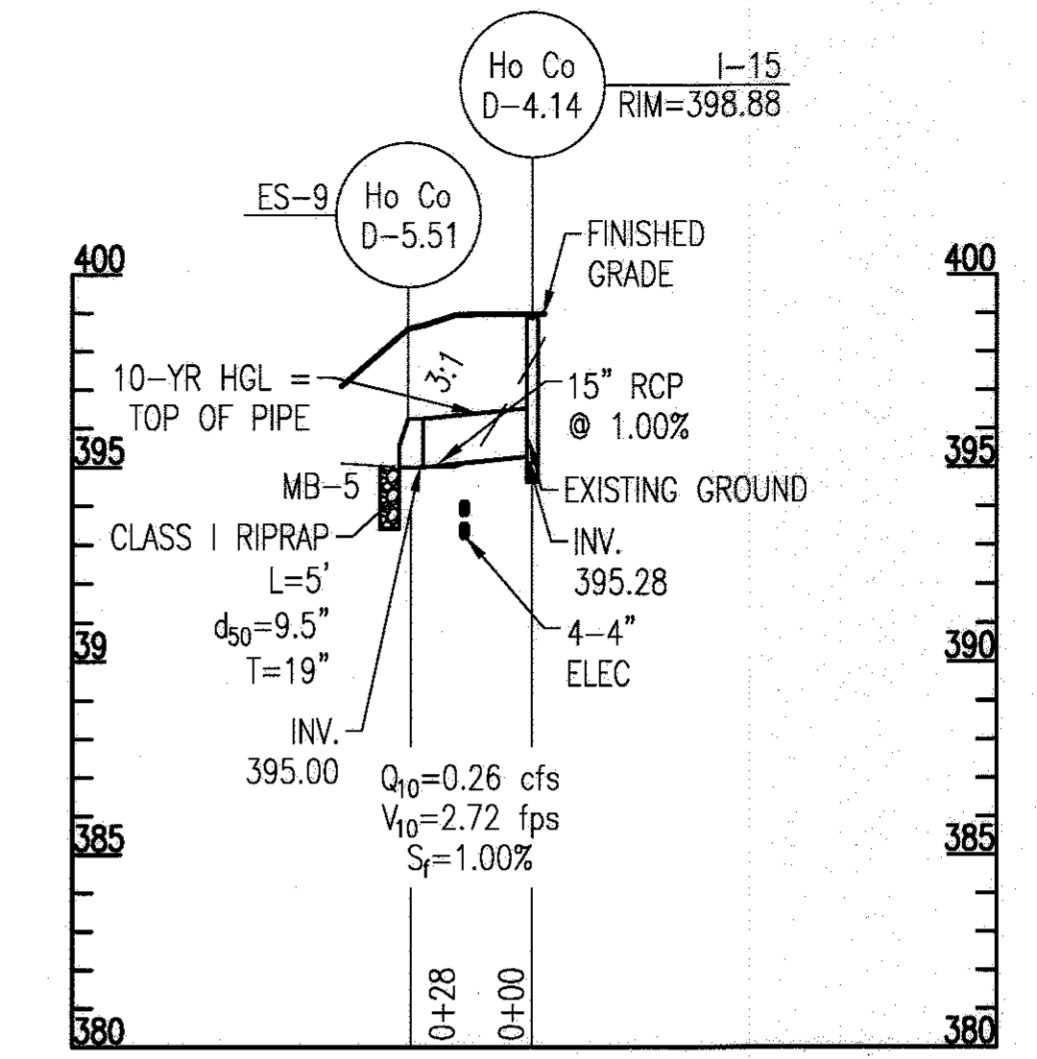
Des: AKC Drawn: AKC Check: AUO



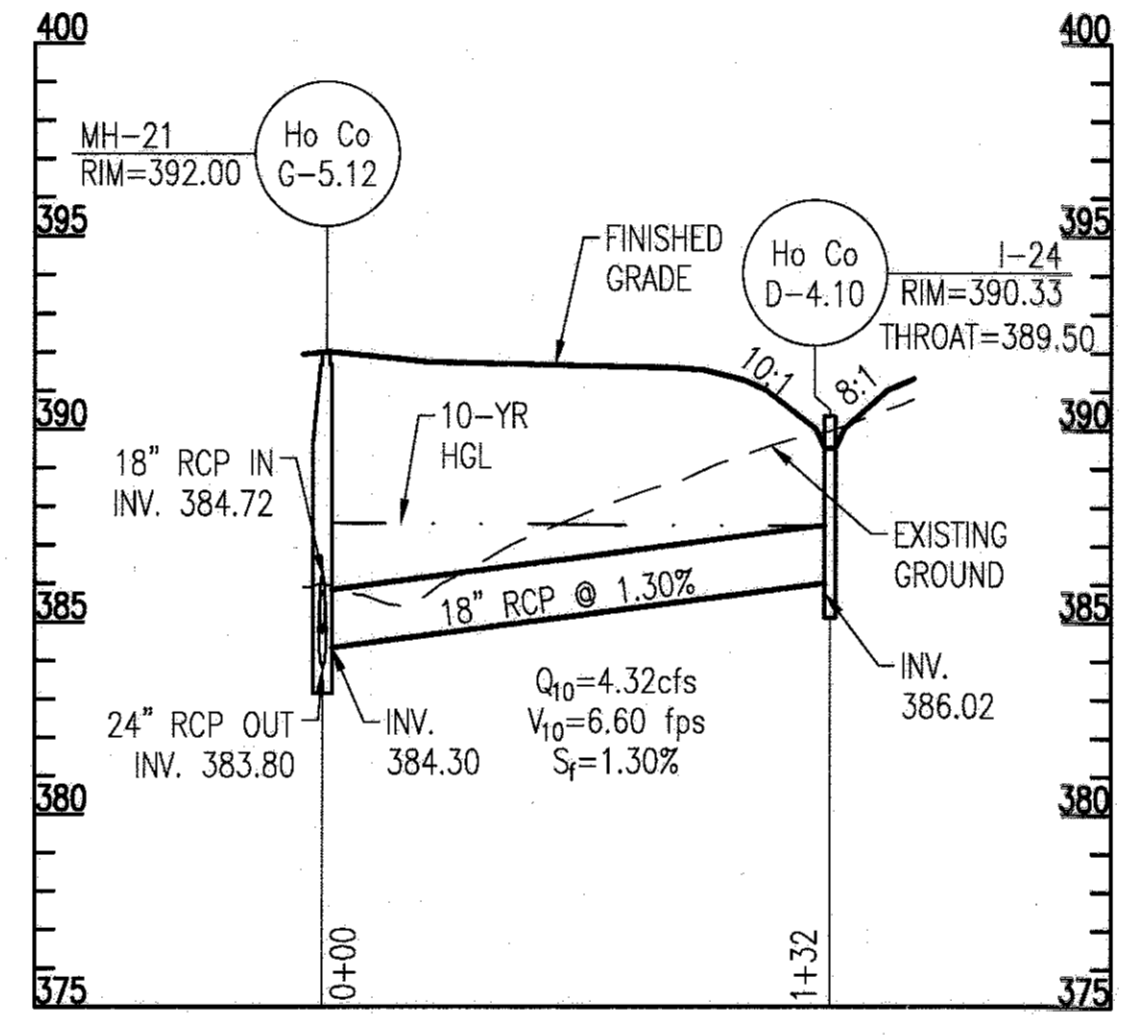
STORM DRAIN PROFILE: I-22 TO EW-2
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



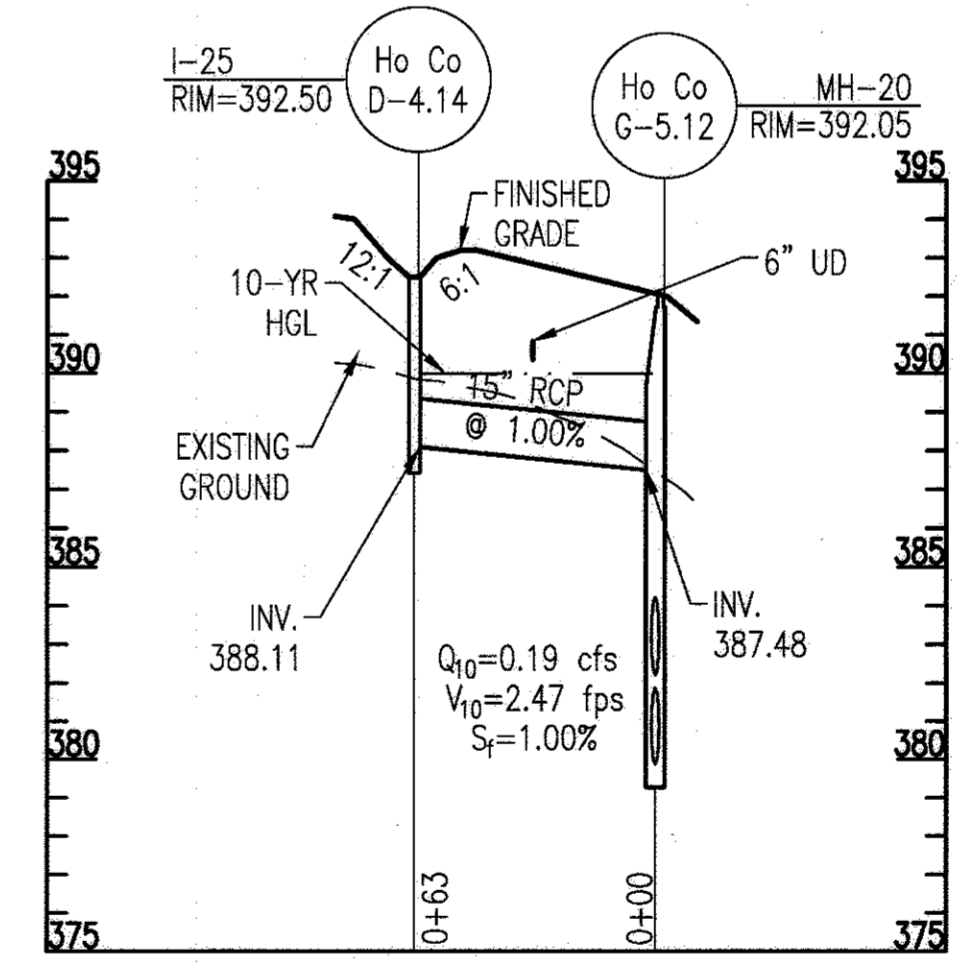
STORM DRAIN PROFILE: I-23 TO MH-23
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



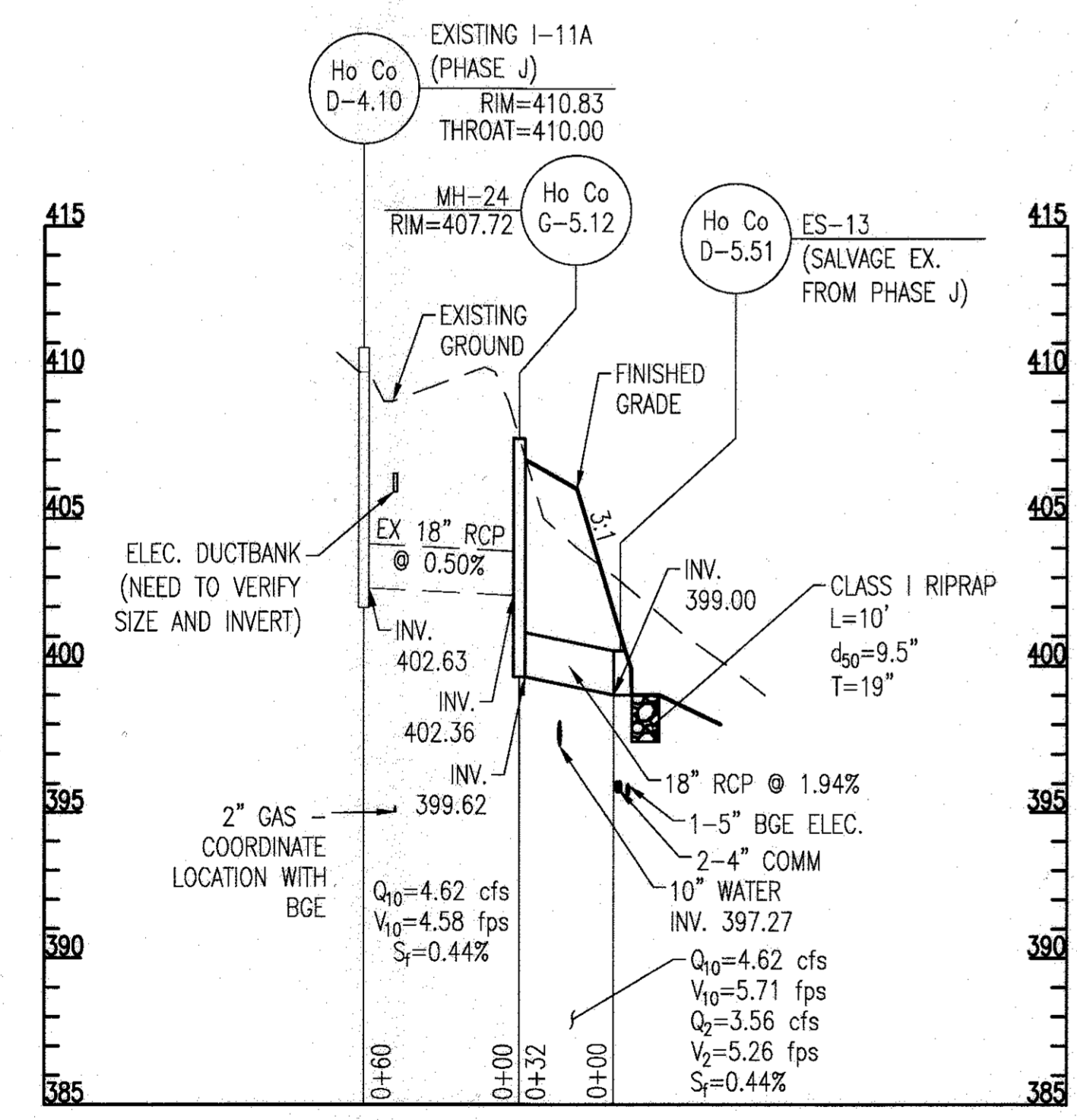
STORM DRAIN PROFILE: I-15 TO ES-9
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



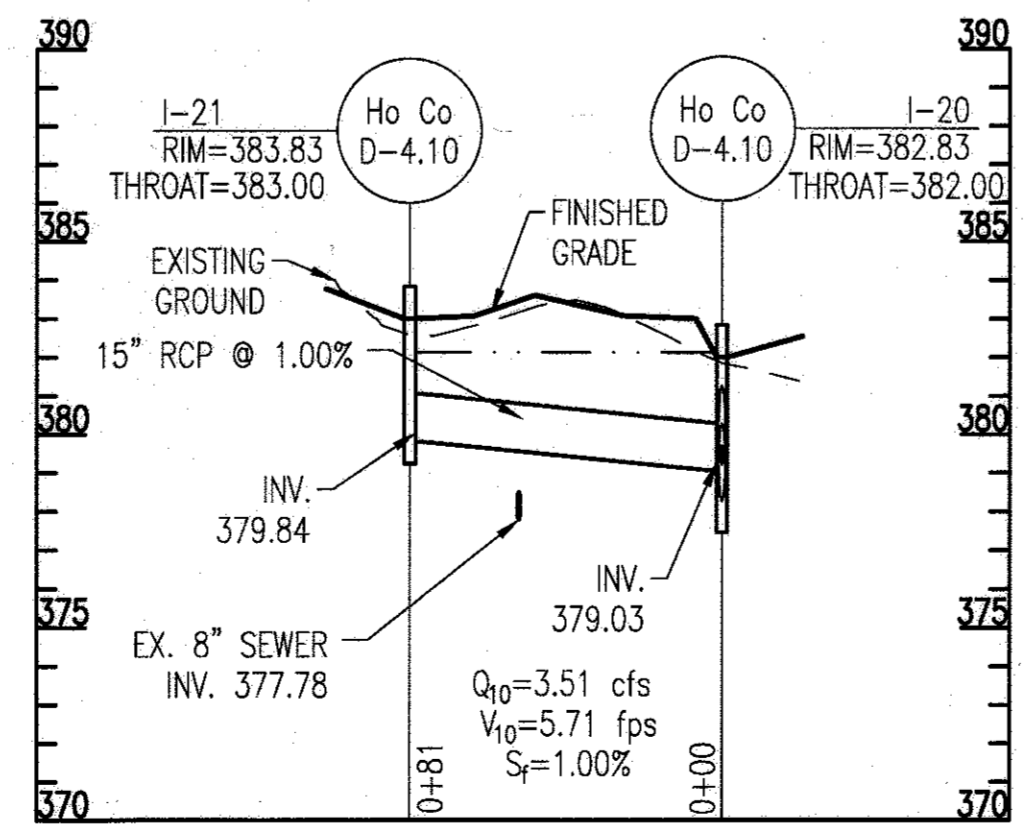
STORM DRAIN PROFILE: I-24 TO MH-21
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: I-25 TO MH-20
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: PHASE J EXTENSION
I-11A (PHASE J) TO ES-13 (PHASE J)
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: I-21 TO I-20
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

NOTES:

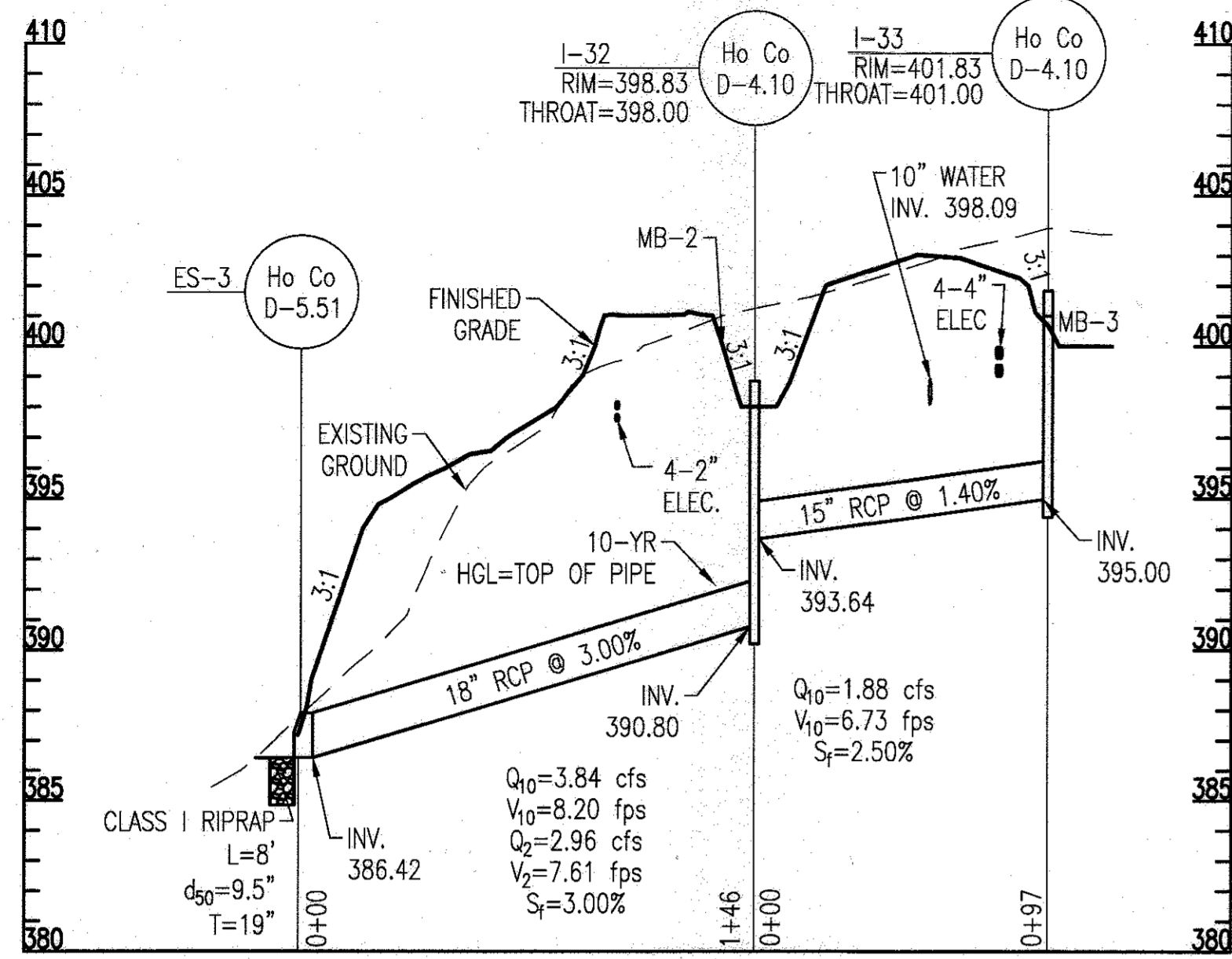
- PIPES WITH AN HGL 2 FEET OR MORE ABOVE THE CROWN SHALL BE CONNECTED TO STRUCTURES WITH RUBBER GASKETS. SEE SHEET C2.3 FOR PIPE SCHEDULE.
- THE BOTTOM OF ALL DROP MANHOLE STRUCTURES SHALL BE LINED WITH GRANITE BLOCKS AT LEAST 4- INCHES THICK. SEE SHEET C2.3 FOR STRUCTURE SCHEDULE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17

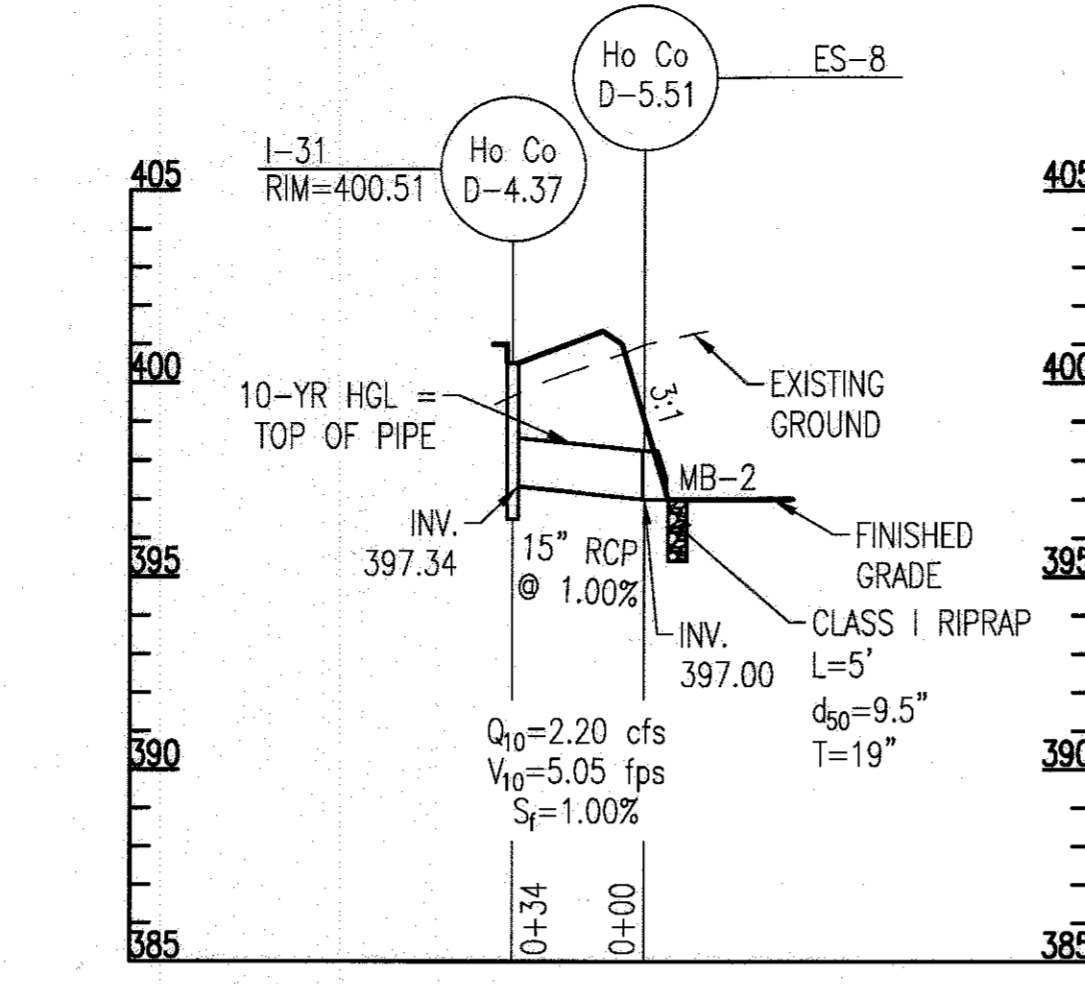
DATE: 3-01-17

DATE: 3-19-17



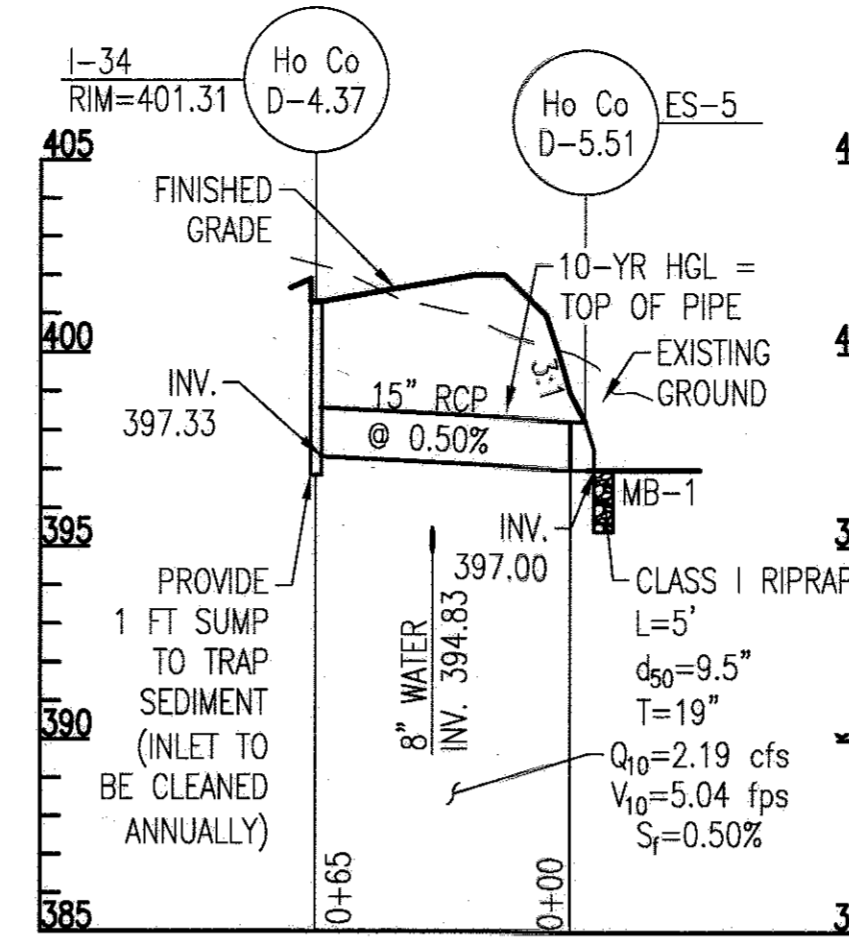
STORM DRAIN PROFILE: I-33 TO ES-3

SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



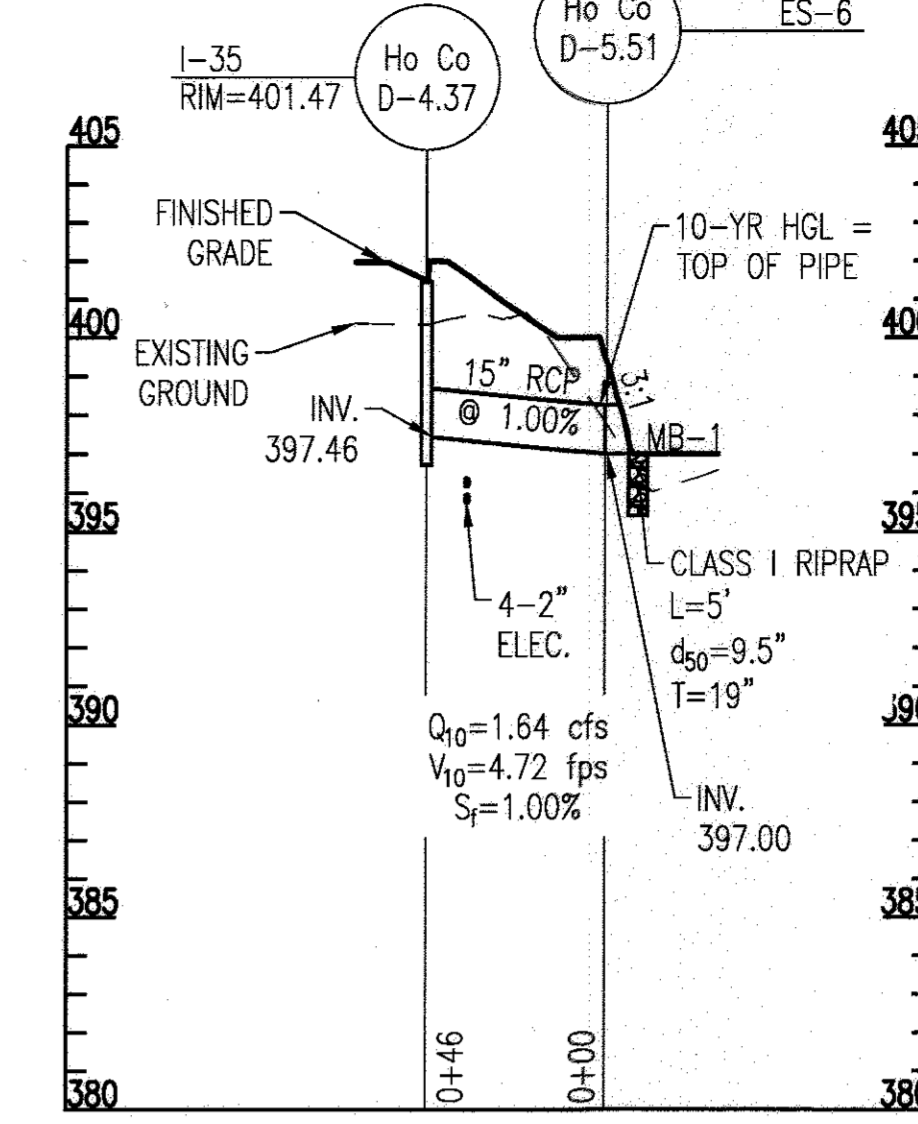
STORM DRAIN PROFILE: I-31 TO ES-8

SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



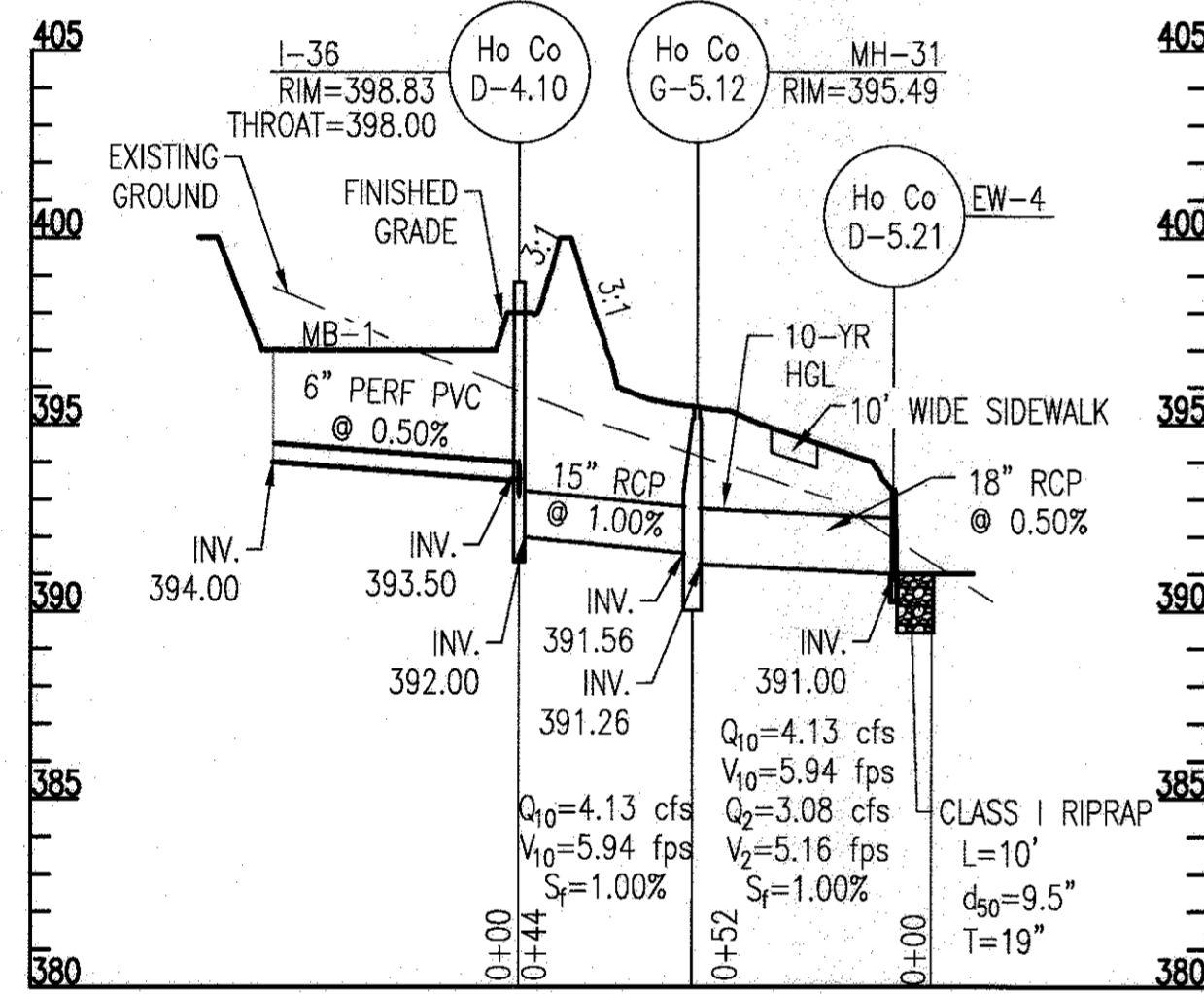
STORM DRAIN PROFILE: I-34 TO ES-5

SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



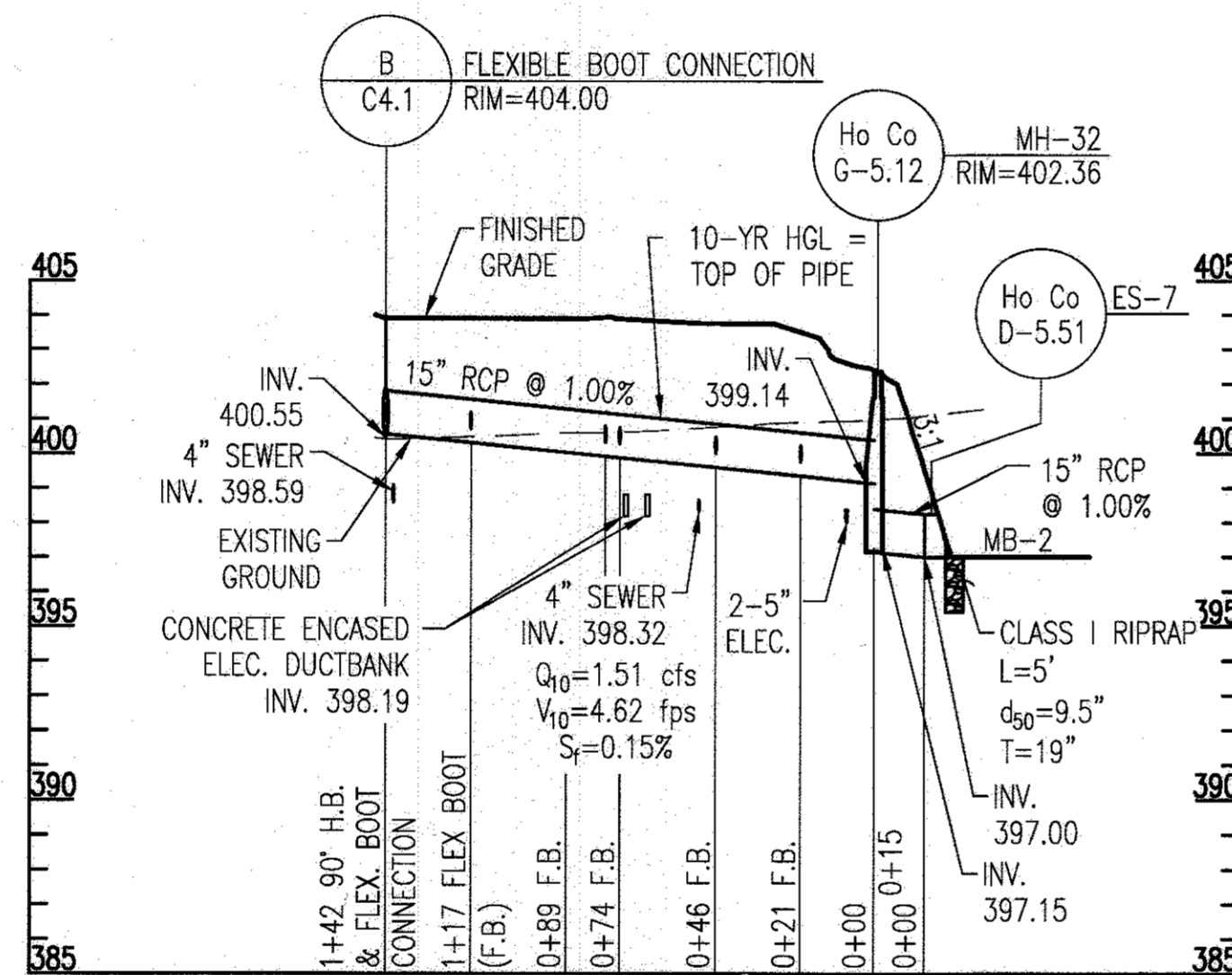
STORM DRAIN PROFILE: I-35 TO ES-6

SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: I-36 TO EW-4

SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



STORM DRAIN PROFILE: MAINTENANCE BUILDING TO ES-7

SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

STORM DRAIN PIPE SCHEDULE				
FROM	TO	SIZE	TYPE	LENGTH
MH-1	EW-1	24	RCP CL III	52
I-1	MH-1	24	RCP CL III	29
*MH-2	*I-1	24	RCP CL III	85
MH-3	MH-2	24	RCP CL III	235
*MH-4	*MH-3	24	RCP CL III	36
*MH-7	*MH-4	18	RCP CL IV	151
I-4	MH-7	18	RCP CL IV	69
*I-5	*I-4	18	RCP CL III	126
*I-6	*I-5	15	RCP CL IV	53
I-7	MH-1	15	RCP CL III	39
I-9	MH-5	15	RCP CL III	44
MH-5	I-16	18	RCP CL III	83
I-16	I-8	18	RCP CL III	57
I-8	MH-3	18	RCP CL III	76
I-12	I-12A	15	RCP CL III	24
I-12A	MH-6A	18	RCP CL III	14
MH-6A	MH-6	18	RCP CL IV	137
MH-6	I-11	18	RCP CL III	27
I-11	MH-4	18	RCP CL IV	41
I-2	ES-10	15	RCP CL III	94
I-3	ES-11	15	RCP CL III	68
I-15	ES-9	15	RCP CL III	28
I-20	EW-2	24	RCP CL III	28
MH-20	I-20	24	RCP CL III	61
MH-21	MH-20	24	RCP CL III	79
*MH-22	*MH-21	18	RCP CL III	114
*MH-23	*MH-22	18	RCP CL III	131
I-23	MH-23	15	RCP CL III	53
*I-22	*MH-23	18	RCP CL III	16
I-21	I-20	15	RCP CL III	81
I-24	MH-21	18	RCP CL III	132
I-25	MH-20	15	RCP CL III	63
I-31	ES-8	15	RCP CL IV	34
I-32	ES-3	18	RCP CL IV	146
I-33	I-32	15	RCP CL IV	97
I-34	ES-5	15	RCP CL IV	65
I-35	ES-6	15	RCP CL III	46
I-36	MH-31	15	RCP CL III	44
MH-31	EW-4	18	RCP CL III	52
MAINT. FAC.	MH-32	15	RCP CL IV	142
MH-32	ES-7	15	RCP CL III	15

SCHEDULE NOTES:

- * PIPES WITH AN HGL 2 FEET OR MORE ABOVE THE CROWN SHALL BE CONNECTED TO STRUCTURES WITH RUBBER GASKETS.
- ** THE BOTTOM OF ALL DROP MANHOLE STRUCTURES SHALL BE LINED WITH GRANITE BLOCKS AT LEAST 4" INCHES THICK.
- ALL RIPRAP AREAS SHALL BE OVER FILTER FABRIC.

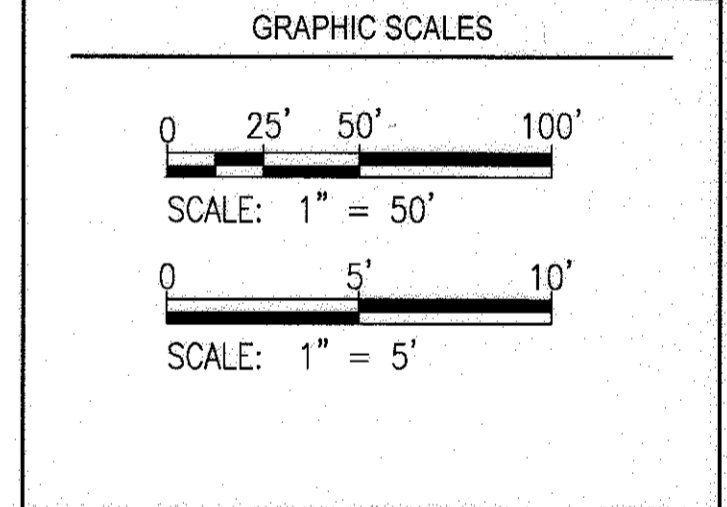
STORM DRAIN STRUCTURE SCHEDULE				
NO.	TYPE	STANDARD DETAIL	GRATE/RIM ELEV	THROAT ELEV
I-1	YARD INLET	HO.CO. D-4.14	384.50	-
I-2	SINGLE WR INLET	HO.CO. D-4.37	398.80	-
I-3	SINGLE WR INLET	HO.CO. D-4.37	400.50	-
I-4	TYPE 'D' INLET	HO.CO. D-4.10	400.60	399.77
I-5	SINGLE WR INLET	HO.CO. D-4.37	403.00	-
I-6	TYPE 'D' INLET	HO.CO. D-4.10	403.47	402.64
I-7	TYPE 'D' INLET	HO.CO. D-4.10	396.43	385.60
I-8	YARD INLET	HO.CO. D-4.14	394.50	-
I-9	TYPE 'D' INLET	HO.CO. D-4.10	398.83	398.00
I-10	COGICOS OPENING	MD 374.68	-	398.71
I-11	TYPE 'D' INLET	HO.CO. D-4.10	396.83	396.00
I-12	TYPE 'D' INLET	HO.CO. D-4.10	397.33	396.50
I-12a	TYPE 'D' INLET	HO.CO. D-4.10	395.83	395.00
I-13	COGICOS OPENING	MD 374.68	-	398.14
I-15	YARD INLET	HO.CO. D-4.14	398.88	-
I-16	YARD INLET	HO.CO. D-4.14	394.50	-
I-17	TYPE 'D' INLET	HO.CO. D-4.10	397.83	397.00
I-20	TYPE 'D' INLET	HO.CO. D-4.10	382.83	382.00
I-21	TYPE 'D' INLET	HO.CO. D-4.10	383.83	383.00
I-22	YARD INLET	HO.CO. D-4.14	398.75	-
I-23	YARD INLET	HO.CO. D-4.14	397.75	-
I-24	TYPE 'D' INLET	HO.CO. D-4.10	390.33	389.50
I-25	YARD INLET	HO.CO. D-4.14	392.50	-
I-31	SINGLE WR INLET	HO.CO. D-4.37	400.51	-
*I-32	TYPE 'D' INLET	HO.CO. D-4.10	398.83	398.00
I-33	TYPE 'D' INLET	HO.CO. D-4.10	401.83	401.00
I-34	SINGLE WR INLET	HO.CO. D-4.37	401.31	-
I-35	SINGLE WR INLET	HO.CO. D-4.37	401.47	-
I-36	TYPE 'D' INLET	HO.CO. D-4.10	398.83	398.00
I-37	COGICOS OPENING	MD 374.68	-	401.67
MH-1	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	384.00	-
**MH-2	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	393.05	-
MH-3	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	395.43	-
**MH-4	5'-0" PRECAST MANHOLE	HO.CO. G-5.13	396.40	-
MH-5	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	398.55	-
MH-6	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	396.48	-
MH-6A	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	397.60	-
**MH-7	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	399.35	-
**MH-20	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	392.05	-
MH-21	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	392.00	-
**MH-22	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	396.63	-
MH-23	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	399.00	-
**MH-24	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	407.72	-
MH-31	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	395.49	-
MH-32	4'-0" PRECAST MANHOLE	HO.CO. G-5.12	402.36	-
EW-1	CONCRETE END WALL	HO.CO. D-5.21	-	-
EW-2	CONCRETE END WALL	HO.CO. D-5.21	-	-
ES-3	CONCRETE END SECTION	HO.CO. D-5.51	-	-
EW-4	CONCRETE END WALL	HO.CO. D-5.21	-	-
ES-5	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-6	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-7	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-8	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-9	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-10	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-11	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-13	SALVAGE EX. ES-13 FROM PHASE J	-	-	-

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 139276, EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

STORM DRAIN PROFILES
 Drawing No. C2.3
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 23 of 76
 Des: AKC Drawn: AKC Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2-6-17

 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-01-17

 DIRECTOR DATE: 3-14-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

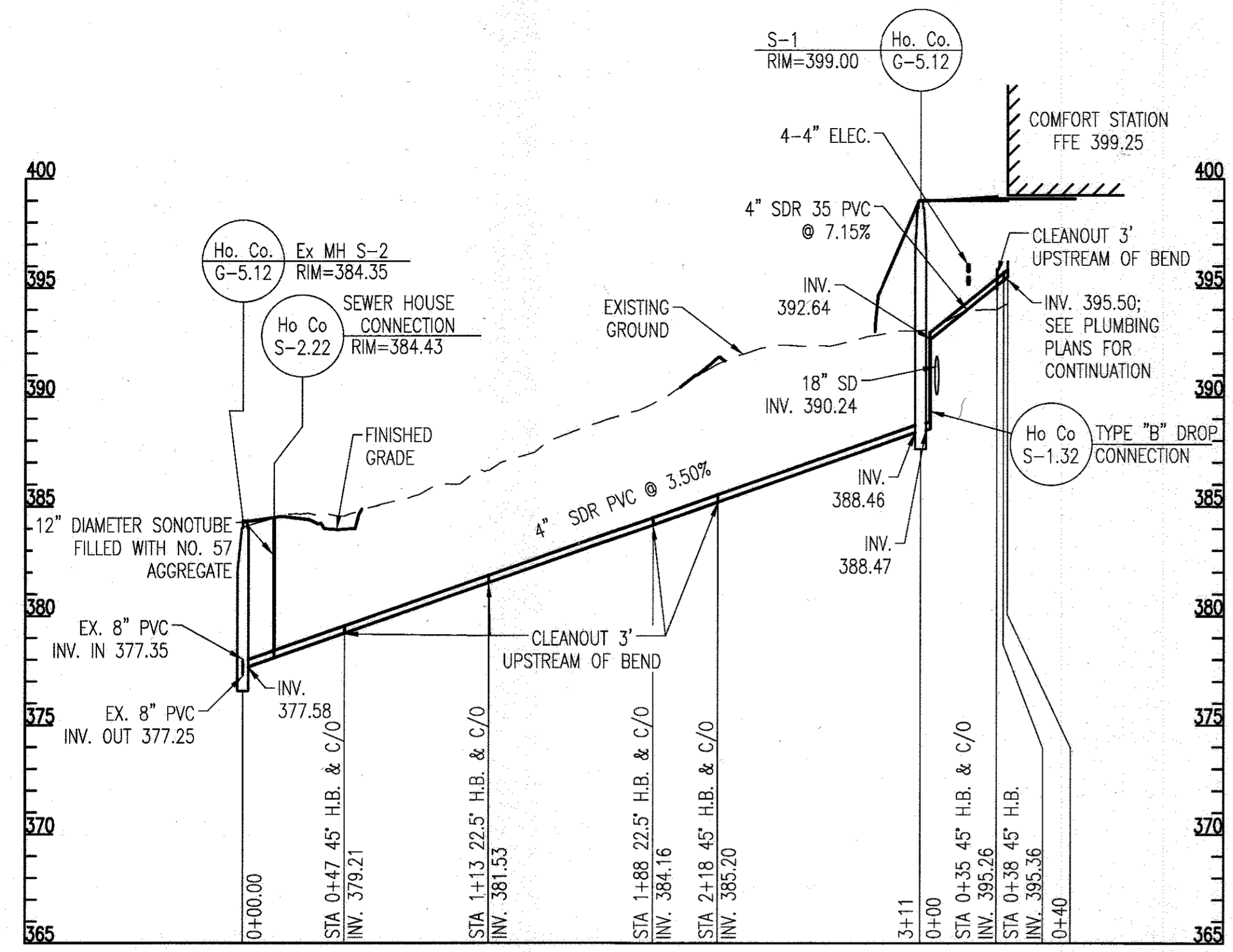
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

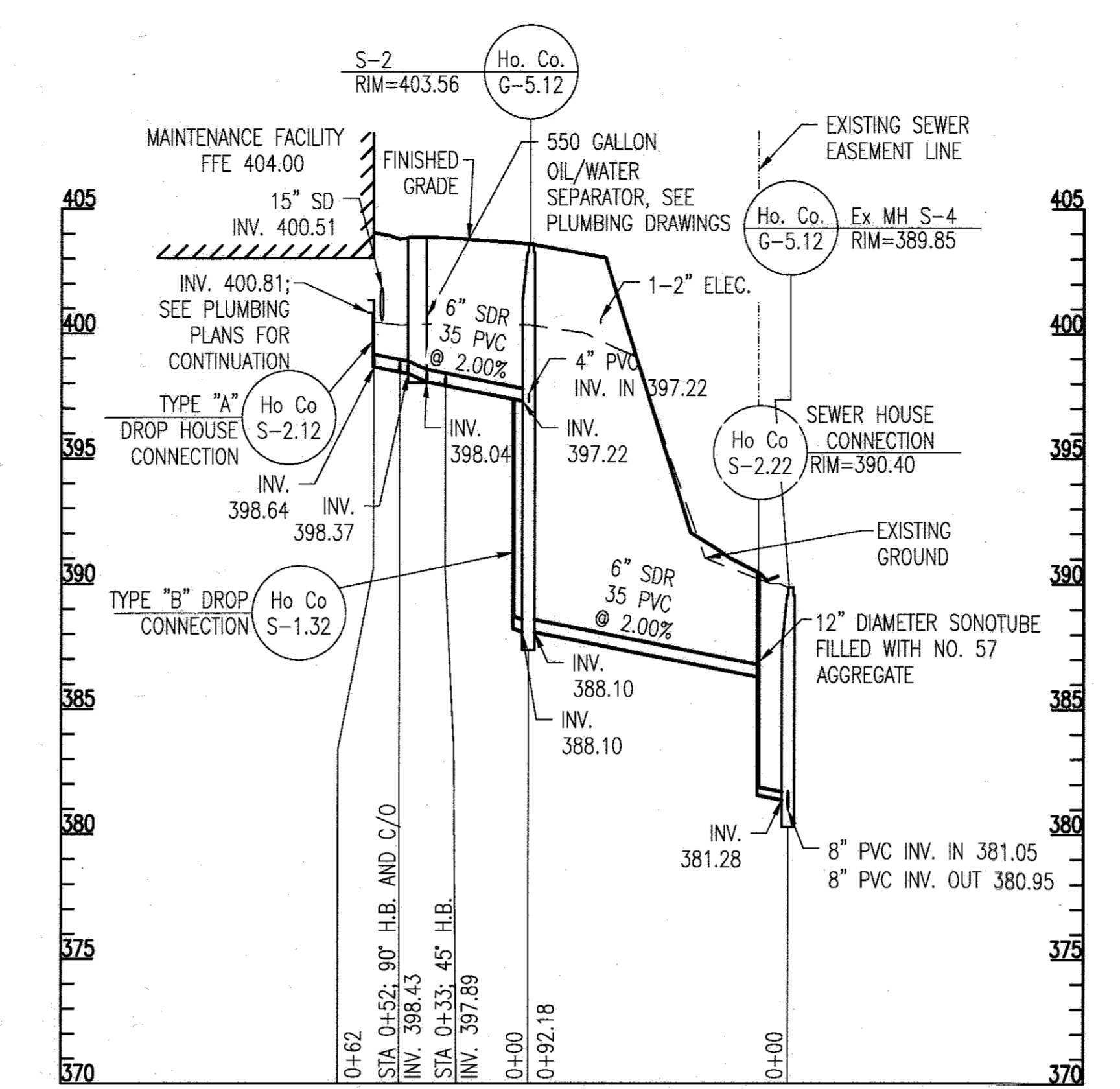
WATER AND SEWER PROFILES

Drawing No.
C2.4

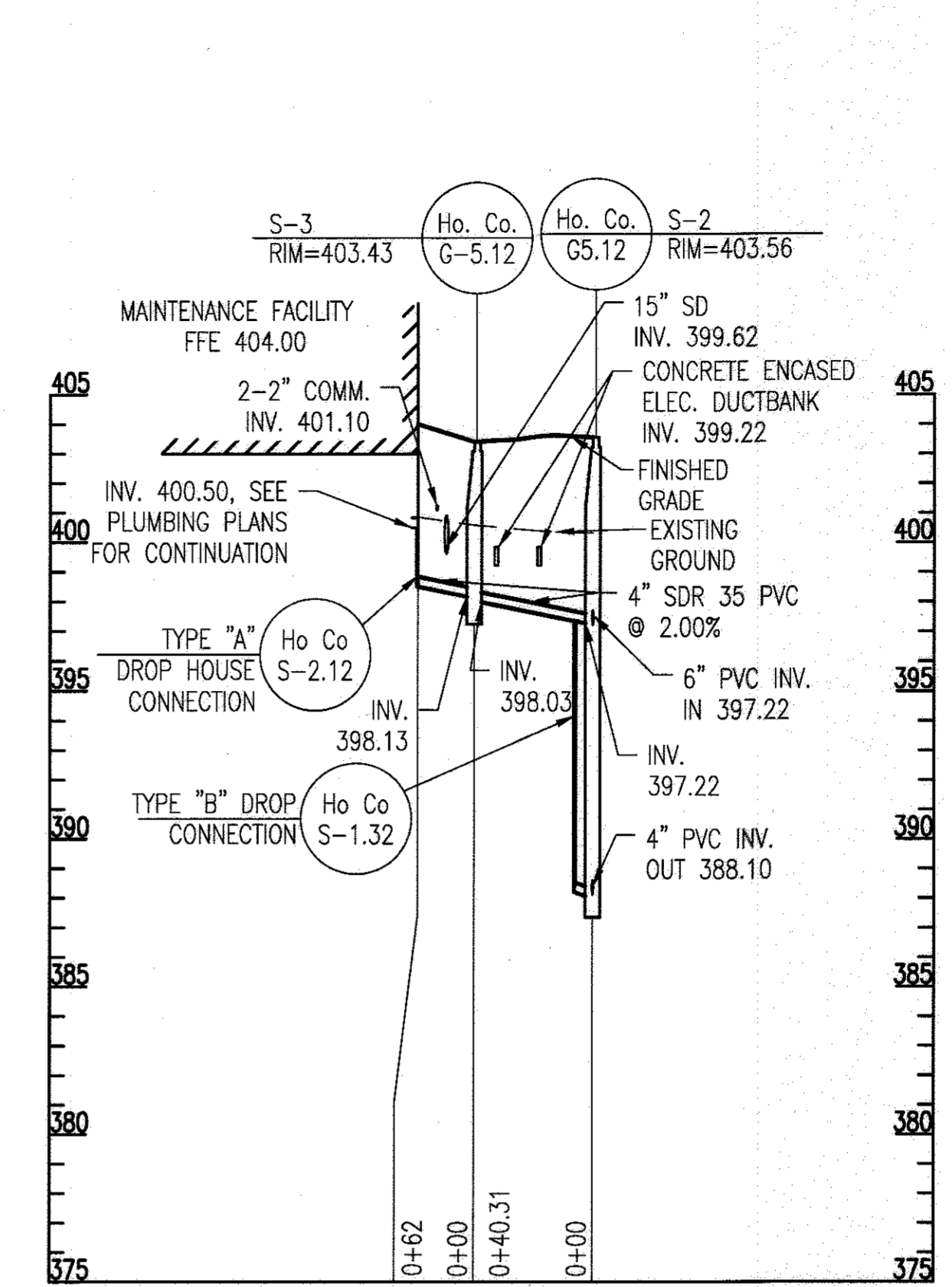
Scale: AS SHOWN
Date: 1/17/2017 Sheet 24 of 76
Des: AKC Drawn: AKC Check: AUO



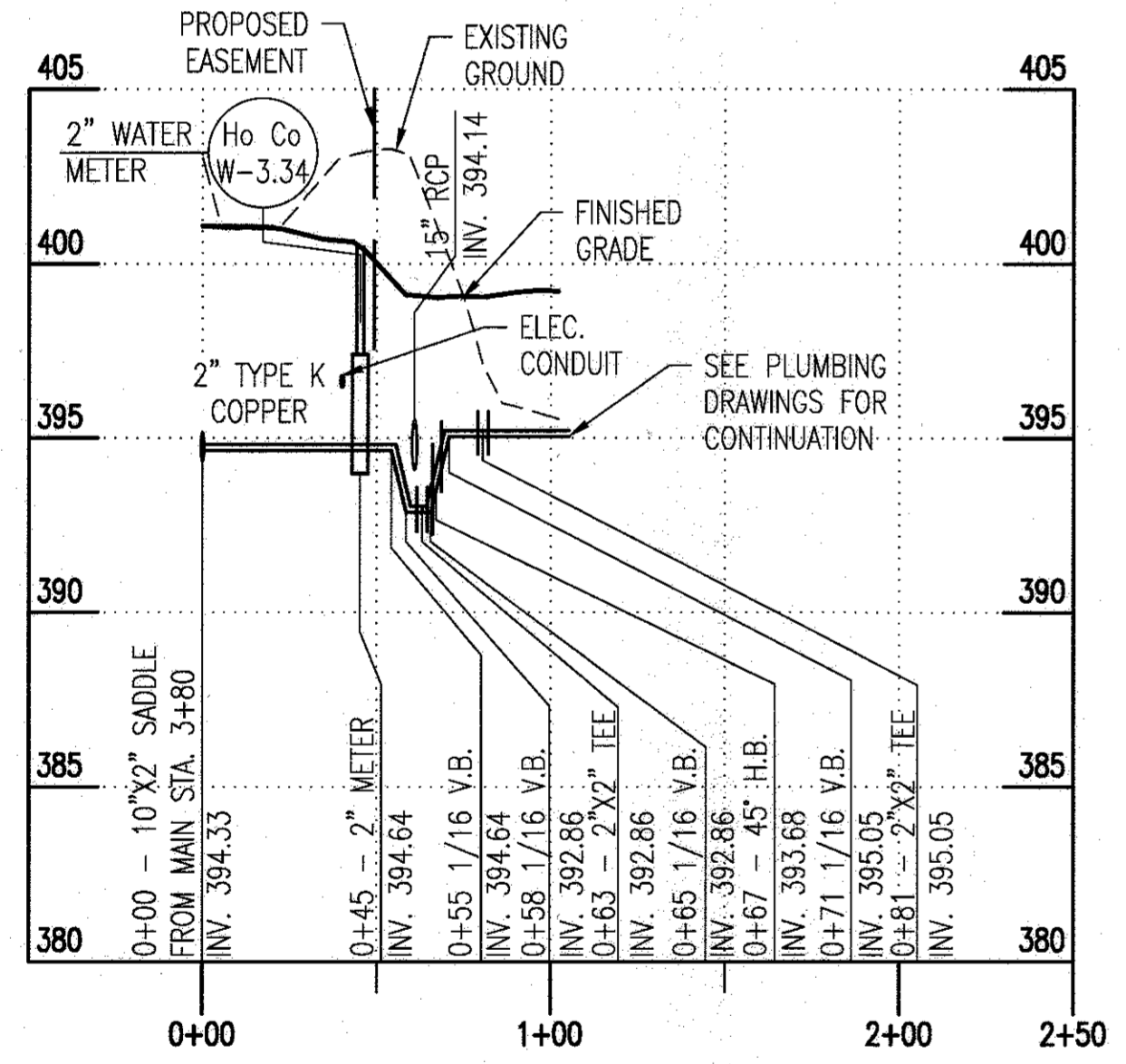
SEWER PROFILE: COMFORT STATION TO EX MH S-2
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



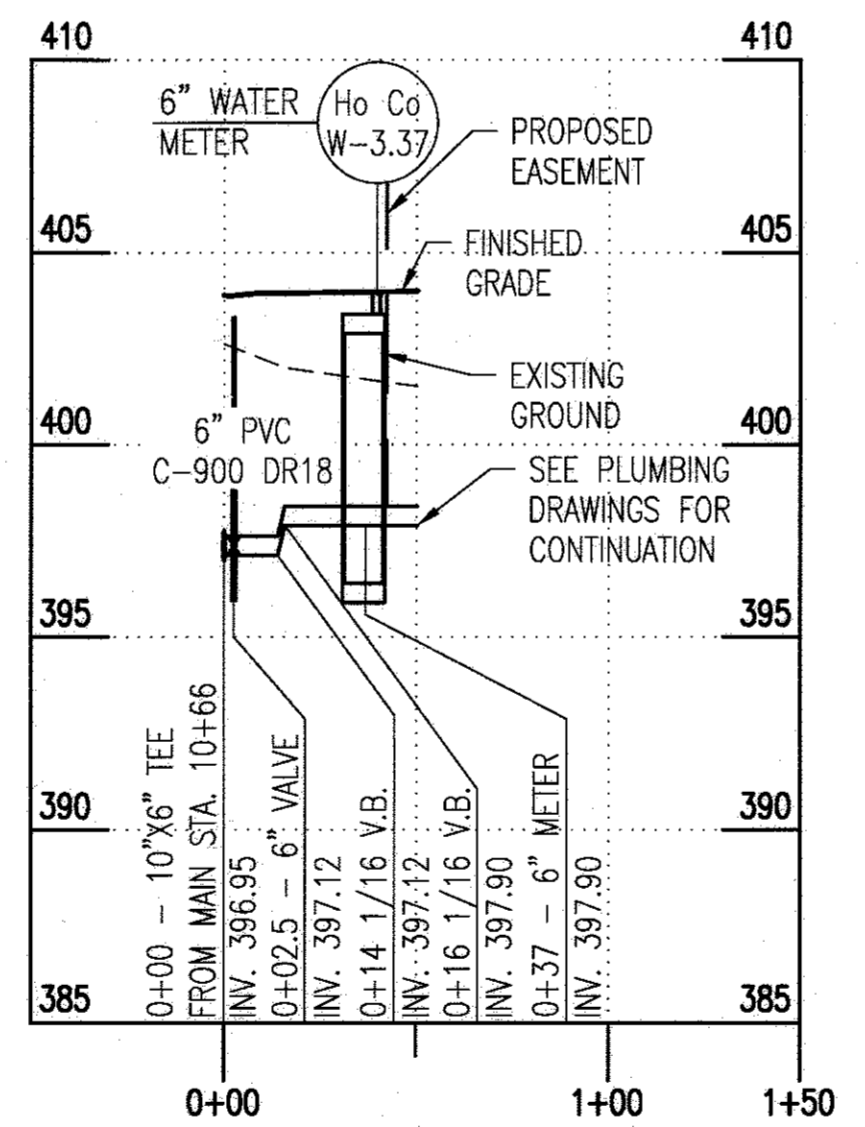
SEWER PROFILE: MAINTENANCE FACILITY TO EX MH S-4
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



SEWER PROFILE: S-3 TO MH S-2
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



WATER PROFILE: COMFORT STATION 2.5" CONNECTION
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



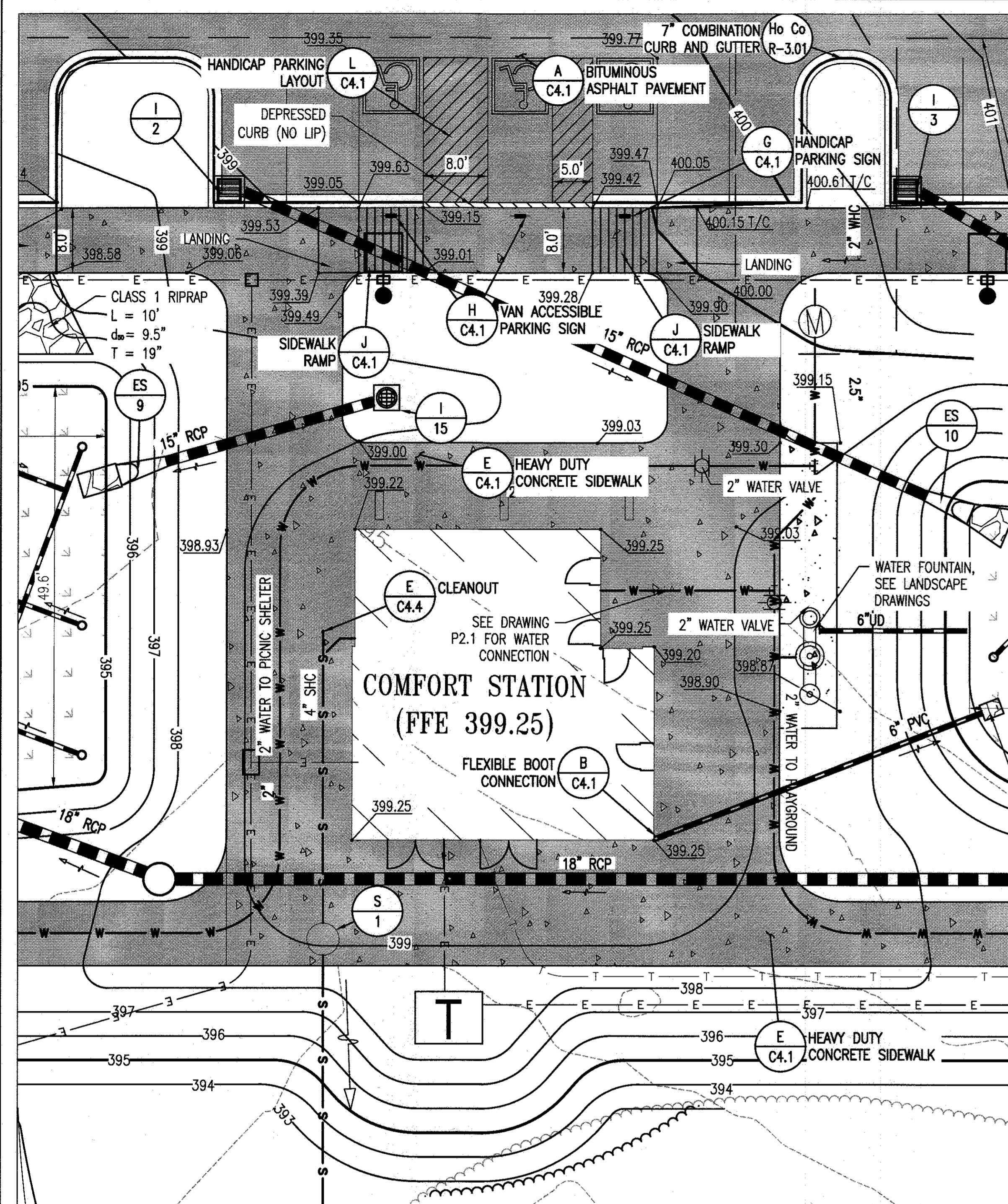
WATER PROFILE: MAINTENANCE BUILDING 6" CONNECTION
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-19-17
DIRECTOR



A ENLARGED COMFORT STATION PLAN
C3.1 SCALE: 1"=10'

DRAWING NOTES:

1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
3. ALL SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
4. ALL CURB FILETS ARE 5" UNLESS OTHERWISE NOTED.

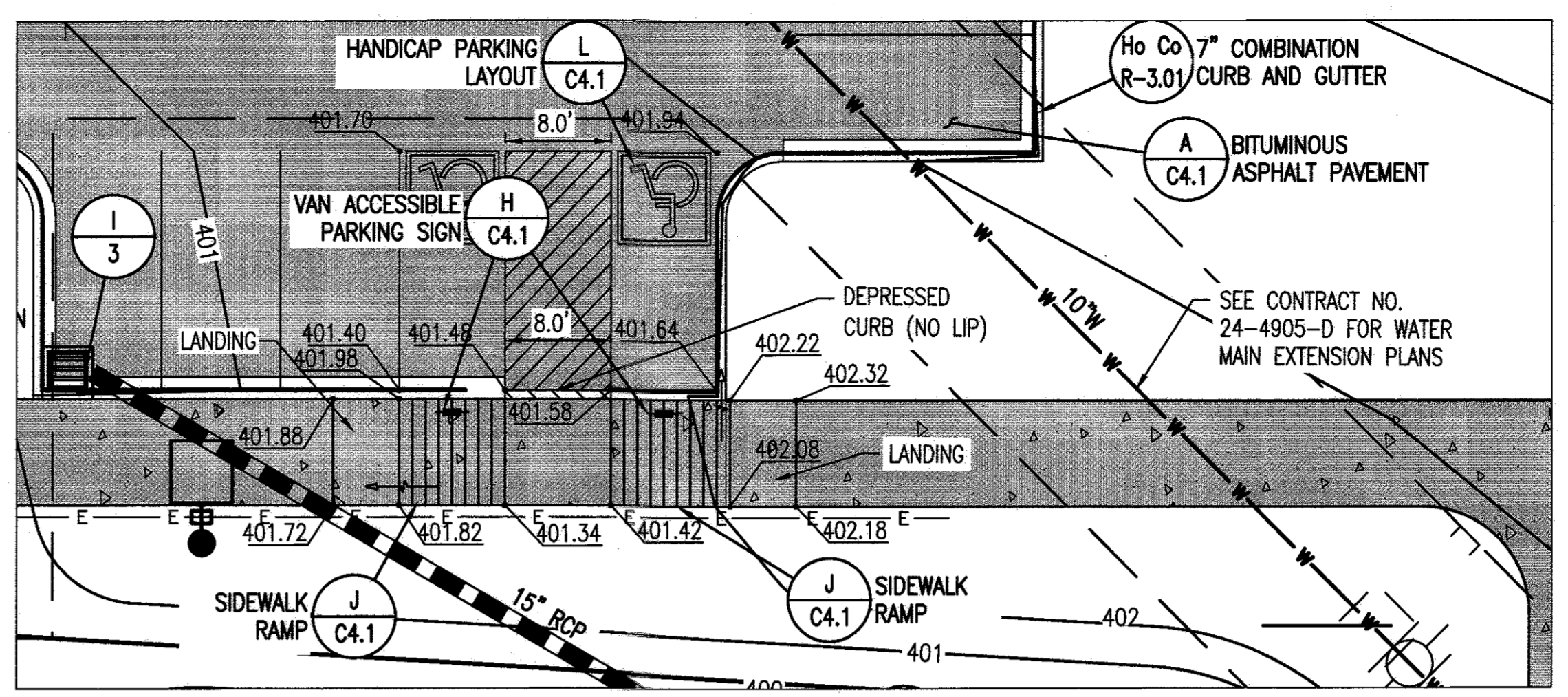
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

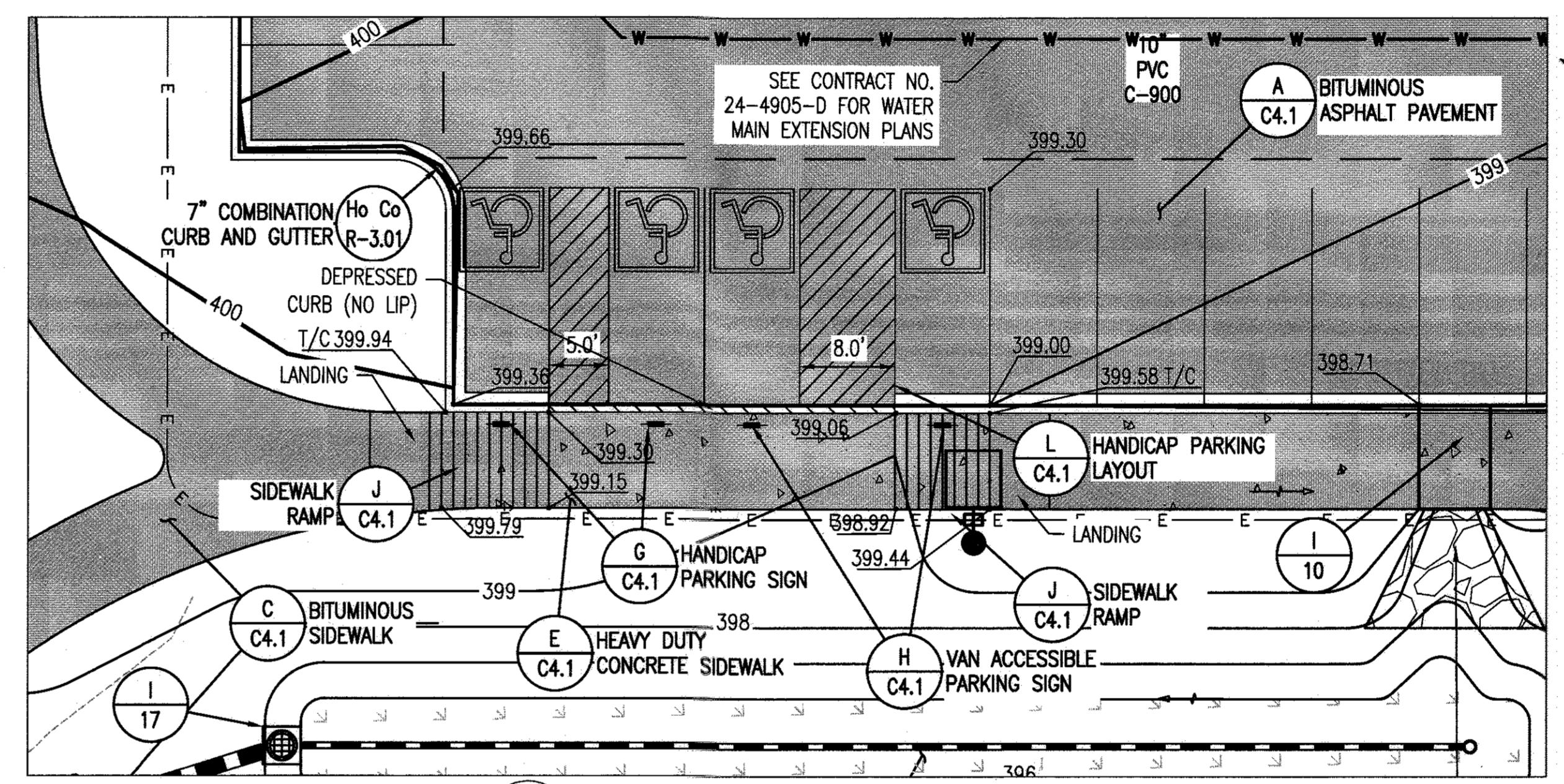
[Signature] 3.20.17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3.19.17
DIRECTOR DATE

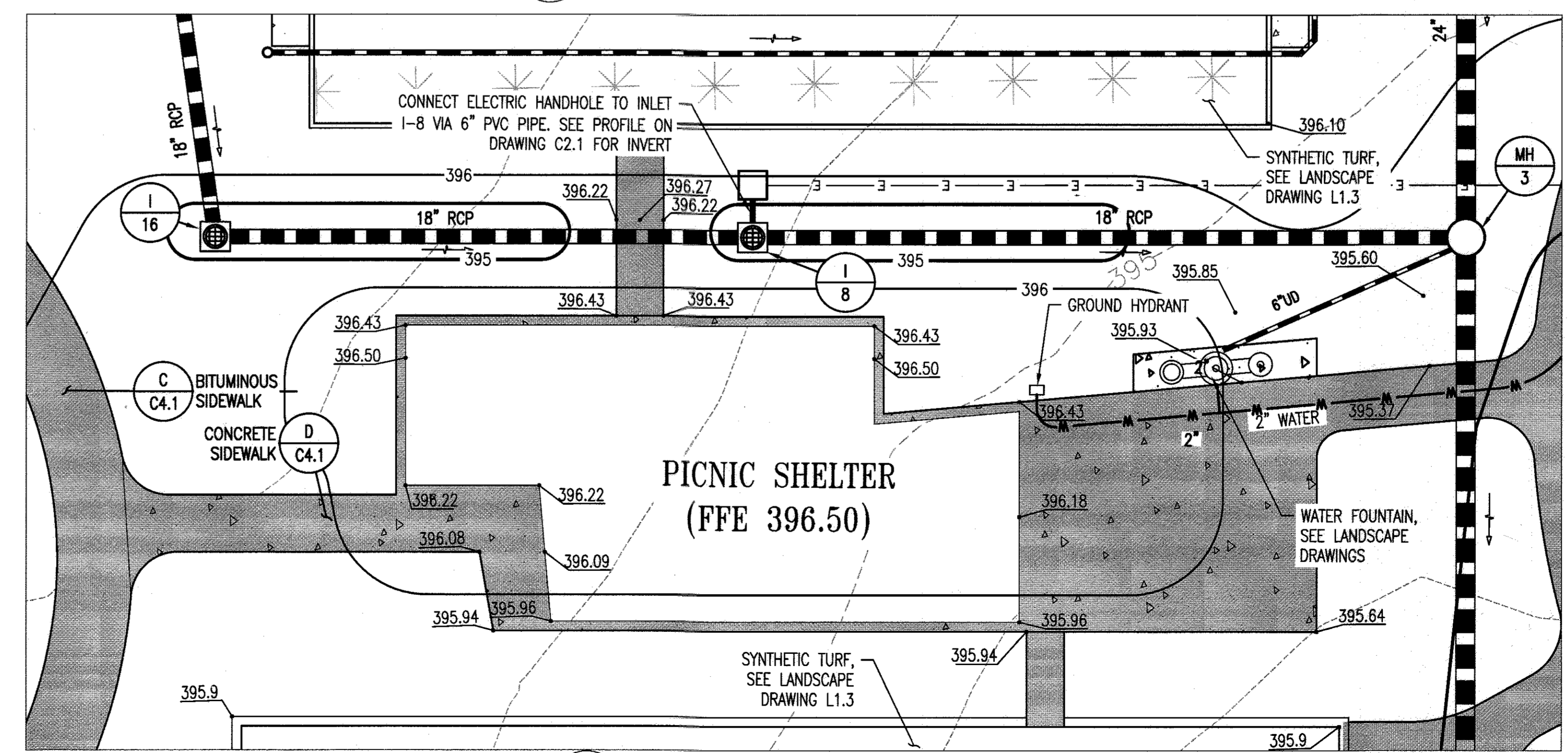
SEE CONTRACT NO. 24-4905-D FOR WATER MAIN EXTENSION PLANS



B ACCESSIBLE PARKING PLAN I
C3.1 SCALE: 1"=10'



C ACCESSIBLE PARKING PLAN II
C3.1 SCALE: 1"=10'



D ENLARGED PICNIC SHELTER PLAN
C3.1 SCALE: 1"=10'

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

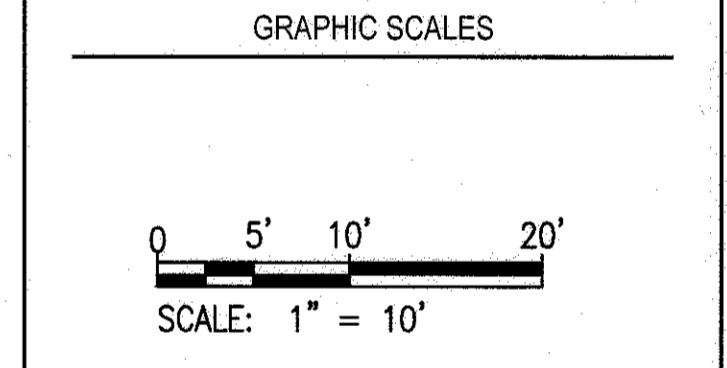


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19375, EXPIRATION DATE: 12/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

ENLARGED SITE PLANS

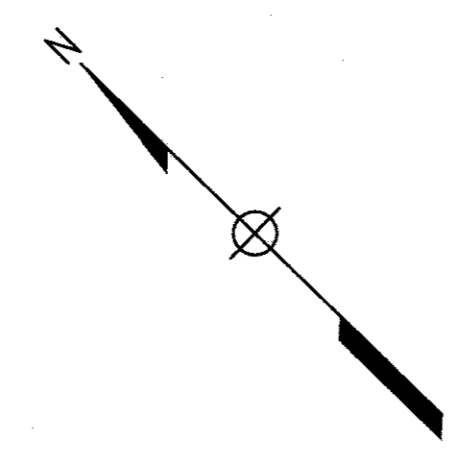
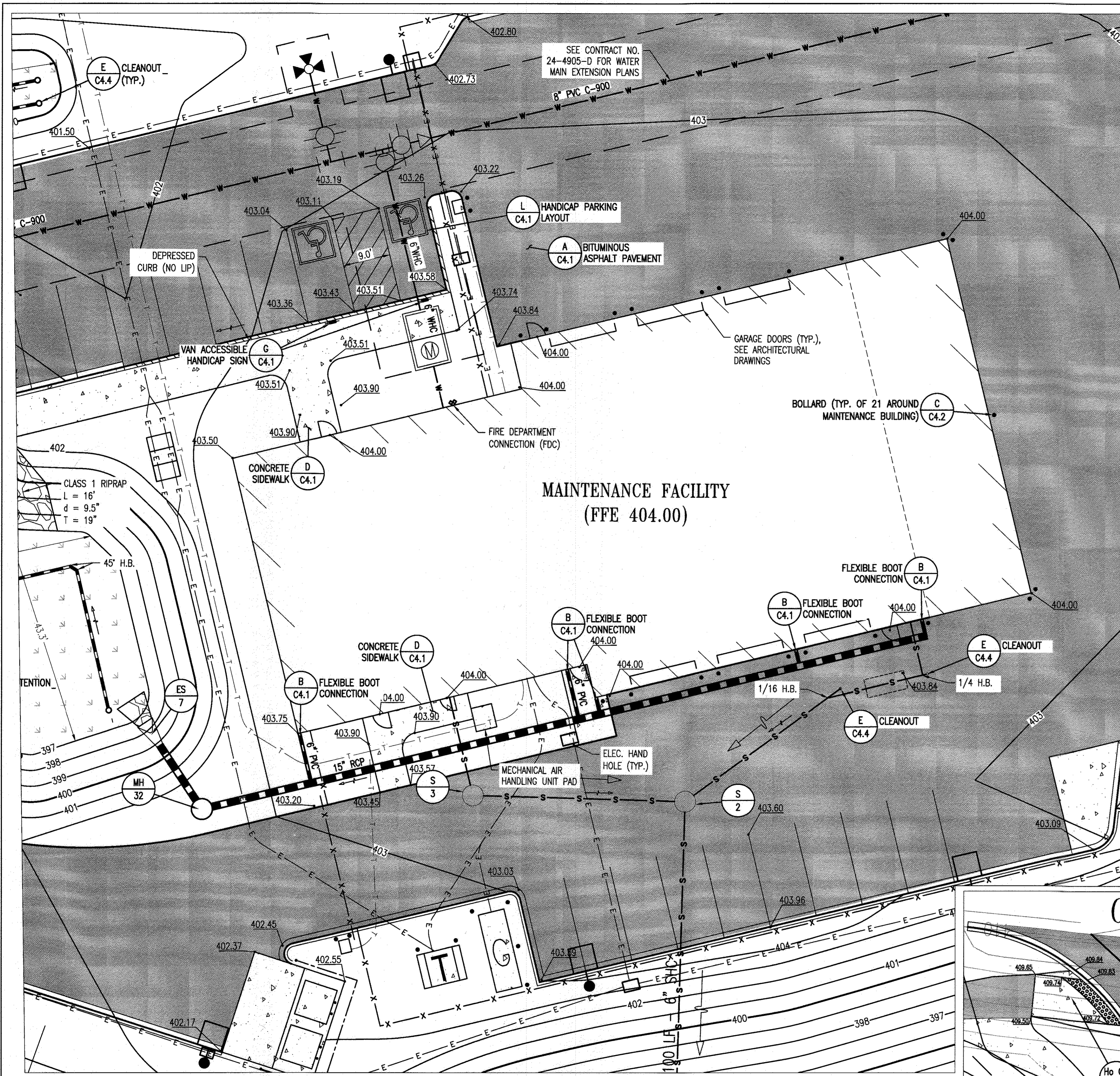
Drawing No.

C3.1

Scale: 1"=10'

Date: 1/17/2017 Sheet 25 of 76

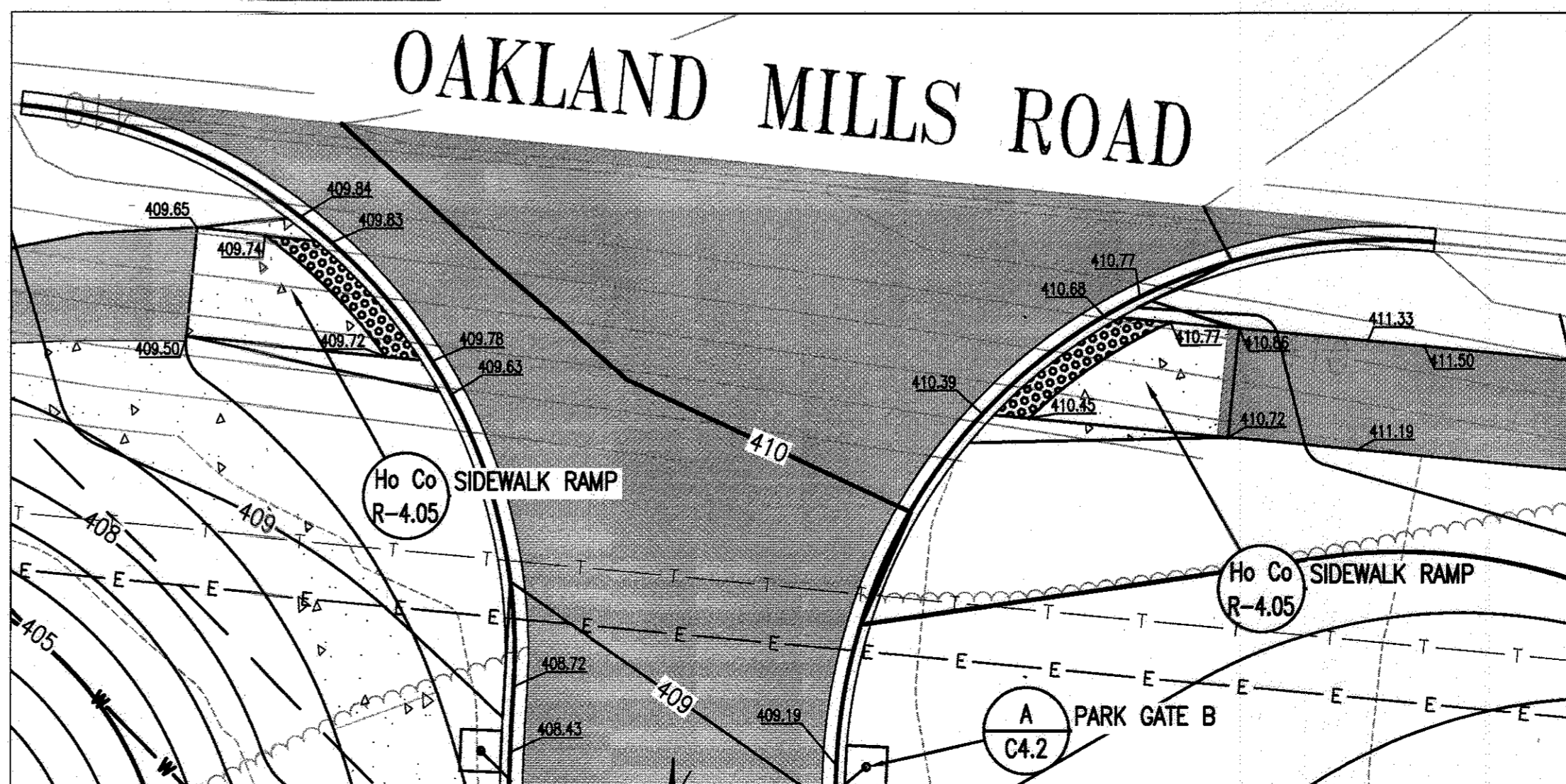
Des: BWJ Drawn: AKC Check: AUO



**MAINTENANCE FACILITY
(FFE 404.00)**

A ENLARGED MAINTENANCE FACILITY PLAN
C3.2 SCALE: 1" = 10'

B ENLARGED MAINTENANCE FACILITY ENTRANCE
C3.2 SCALE: 1" = 10'

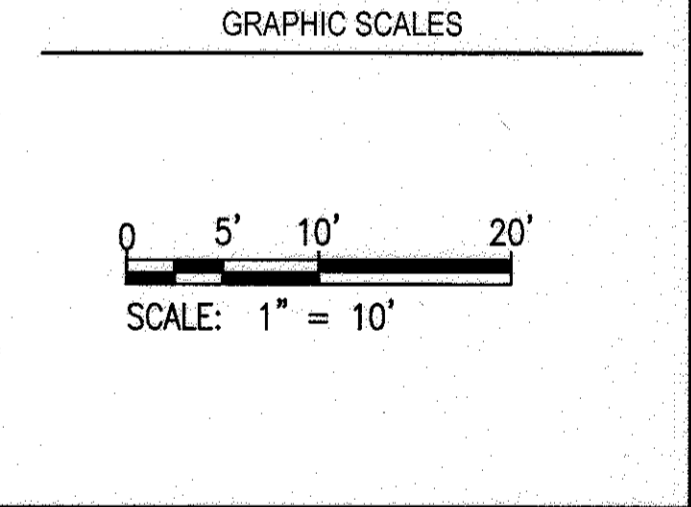


REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18376
EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

ENLARGED SITE PLANS
Drawing No.
C3.2

Scale: 1" = 10'
Date: 1/17/2017 Sheet 26 of 76
Des: BWJ Drawn: AKC Check: AUO

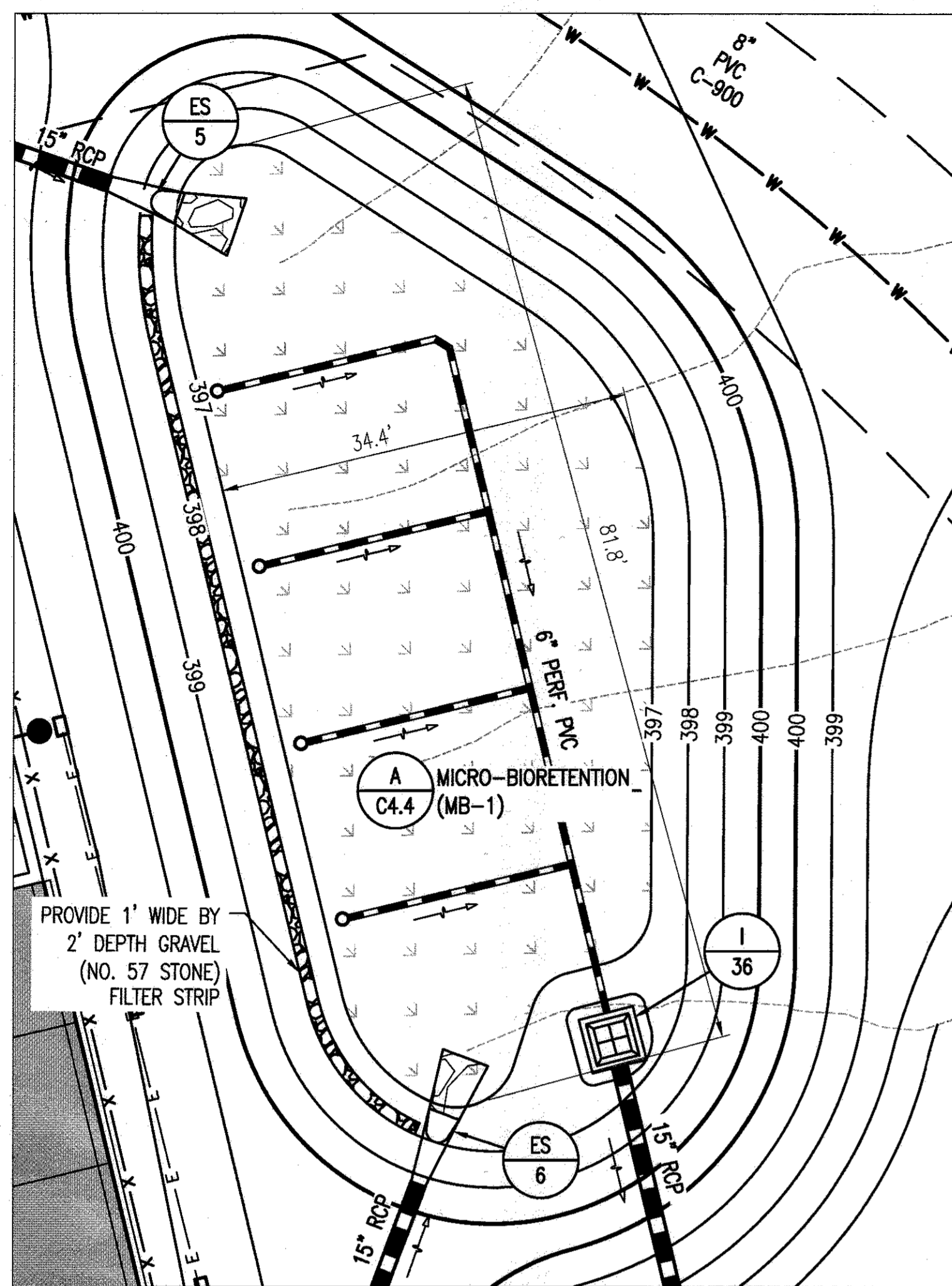
APPROVED: DEPARTMENT OF PLANNING AND ZONING

 DATE: 2-6-17

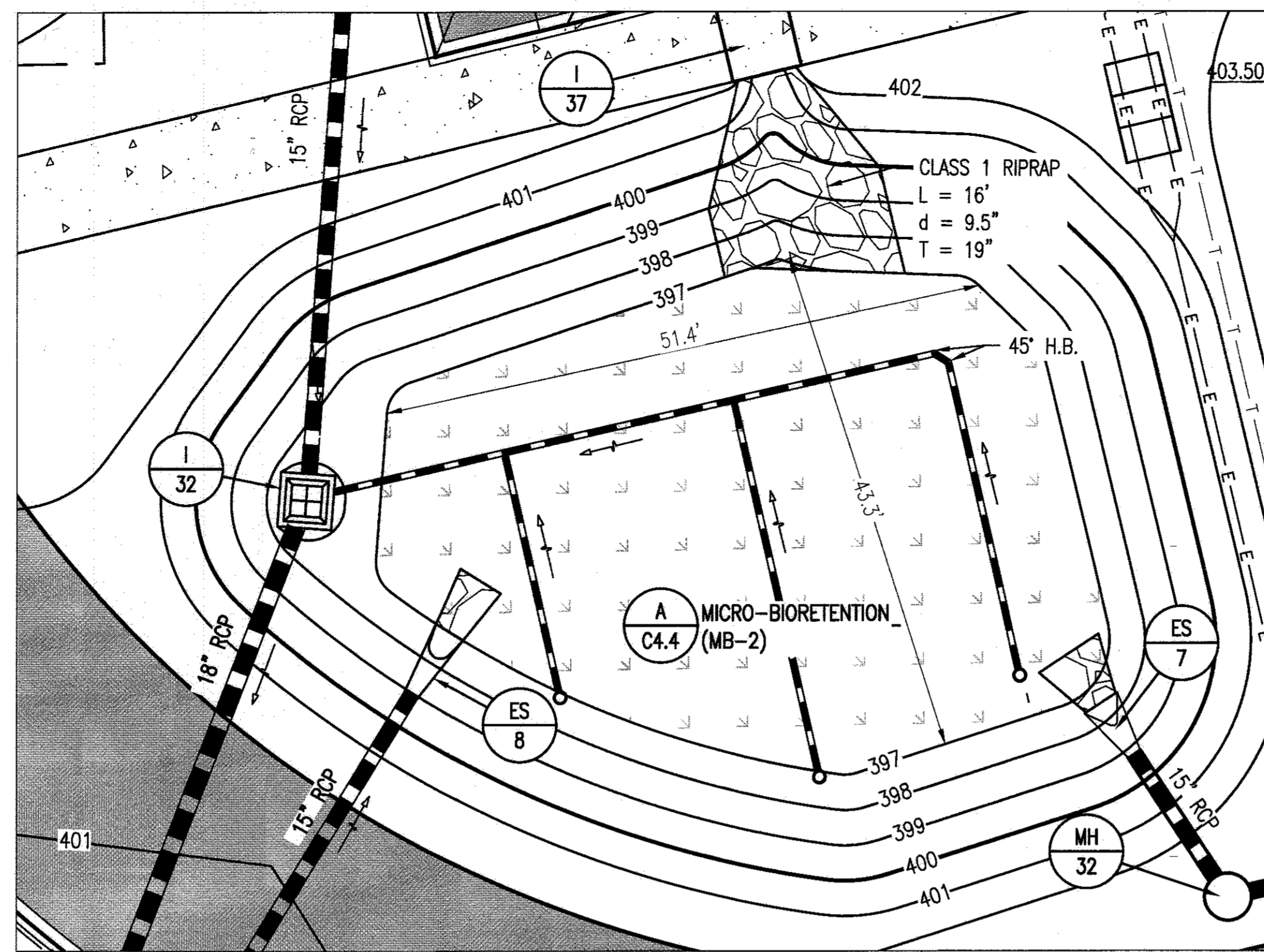
 DATE: 3-01-17

 DATE: 3-19-17

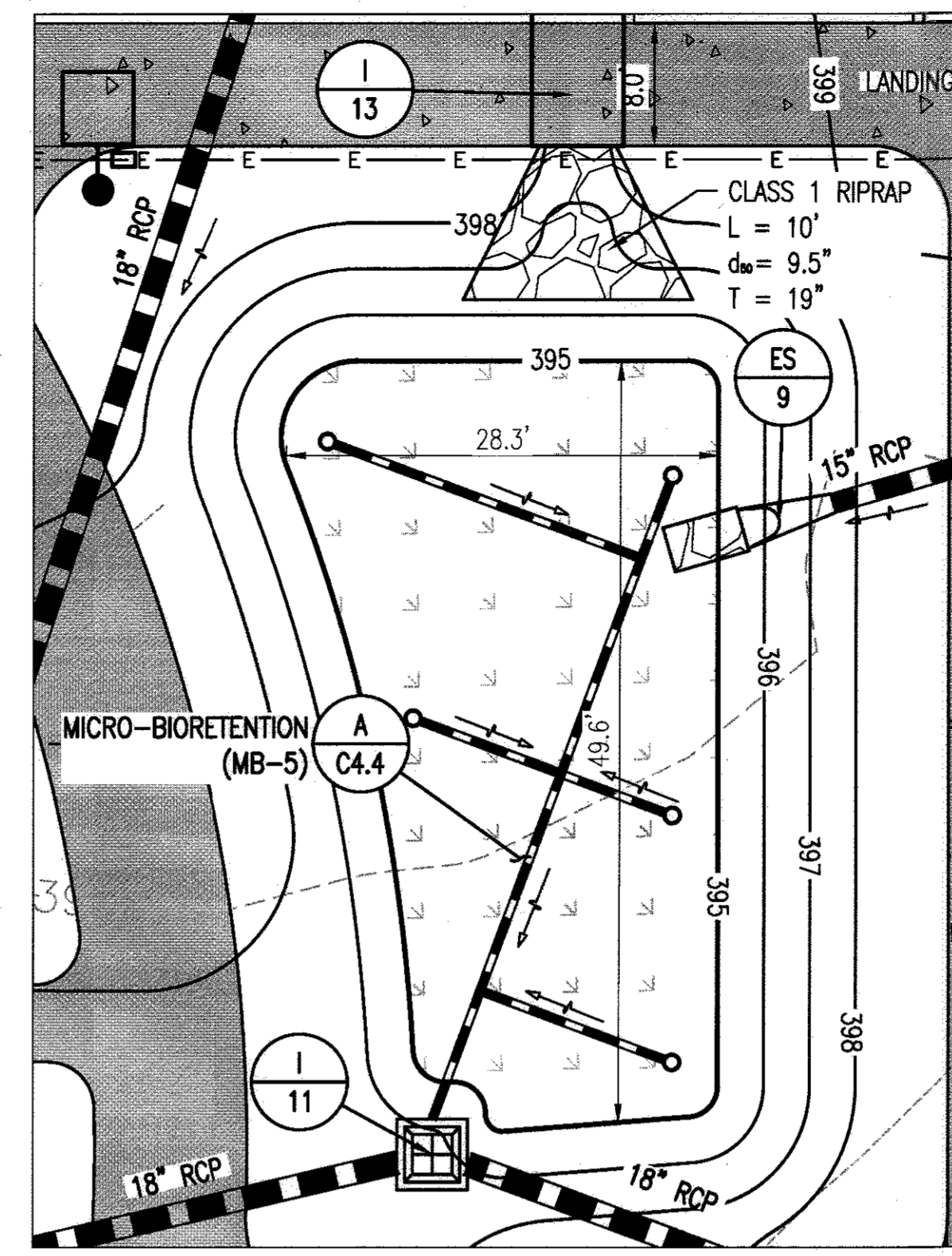
- DRAWING NOTES:**
1. THE MAXIMUM LONGITUDINAL SLOPE FOR ALL PATHWAYS IS 5.0% AND MAXIMUM CROSS SLOPE IS 2.0%.
 2. THE MAXIMUM ALLOWABLE SLOPE FOR ALL ADA ACCESSIBLE PARKING SPACES AND ACCESS AISLES IS 2.0% IN ALL DIRECTIONS.
 3. ALL SPOT SHOT ELEVATIONS ARE ALONG THE FLOWLINE OF THE CURB UNLESS OTHERWISE NOTED.
 4. ALL CURB FILETS ARE 5' UNLESS OTHERWISE NOTED.



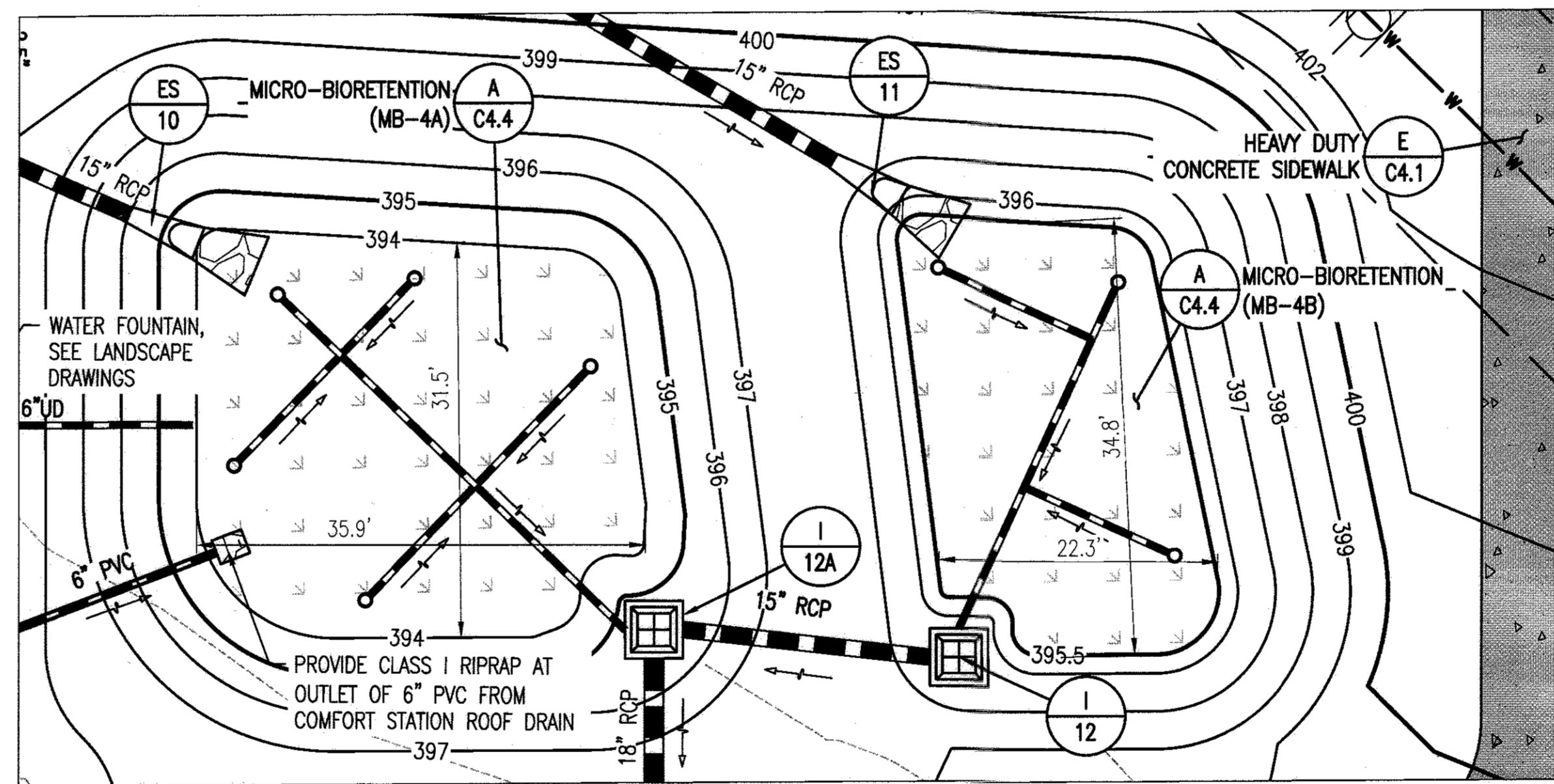
A MICRO-BIORETENTION 1 (MB-1) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



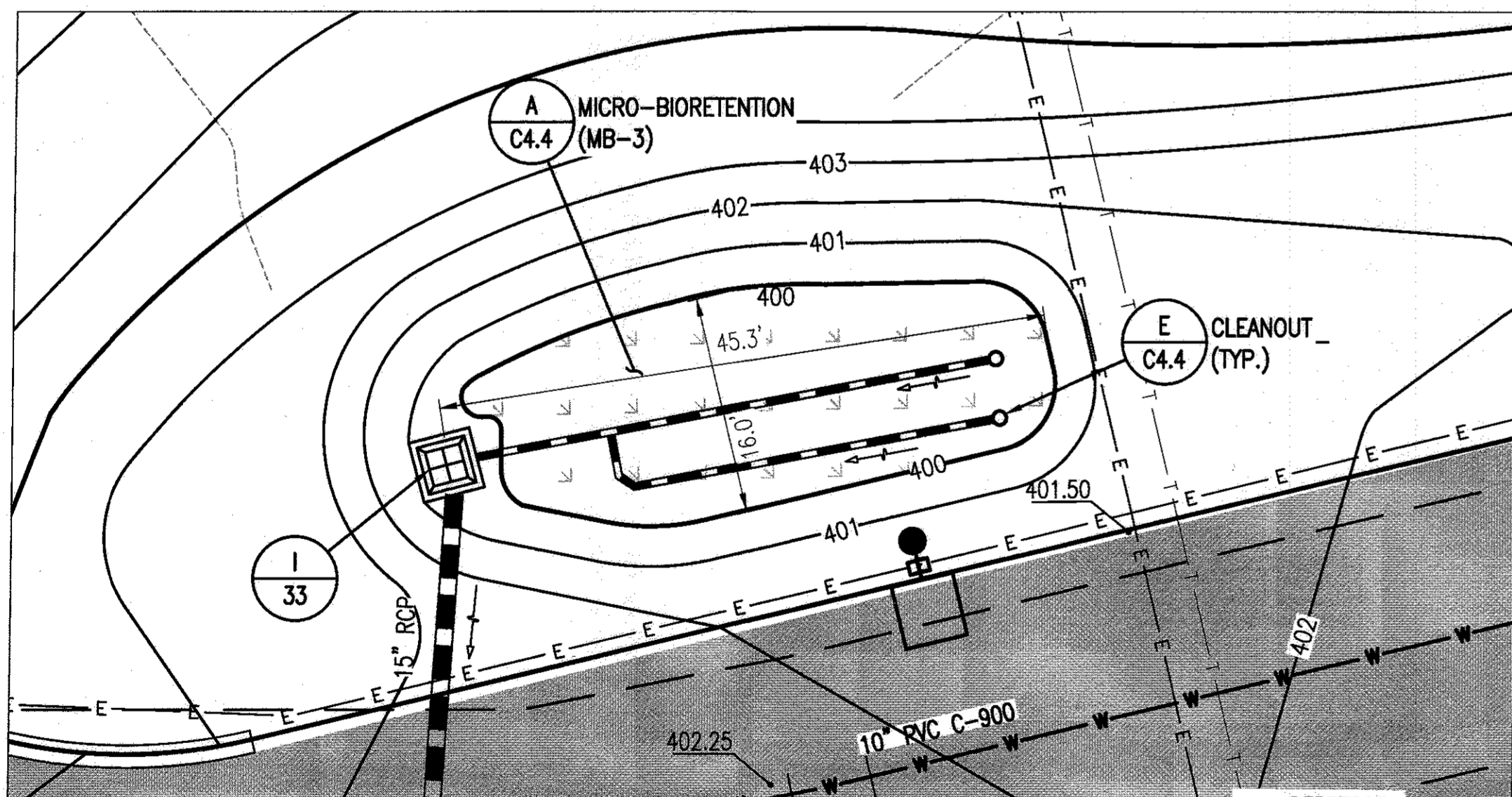
B MICRO-BIORETENTION 2 (MB-2) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



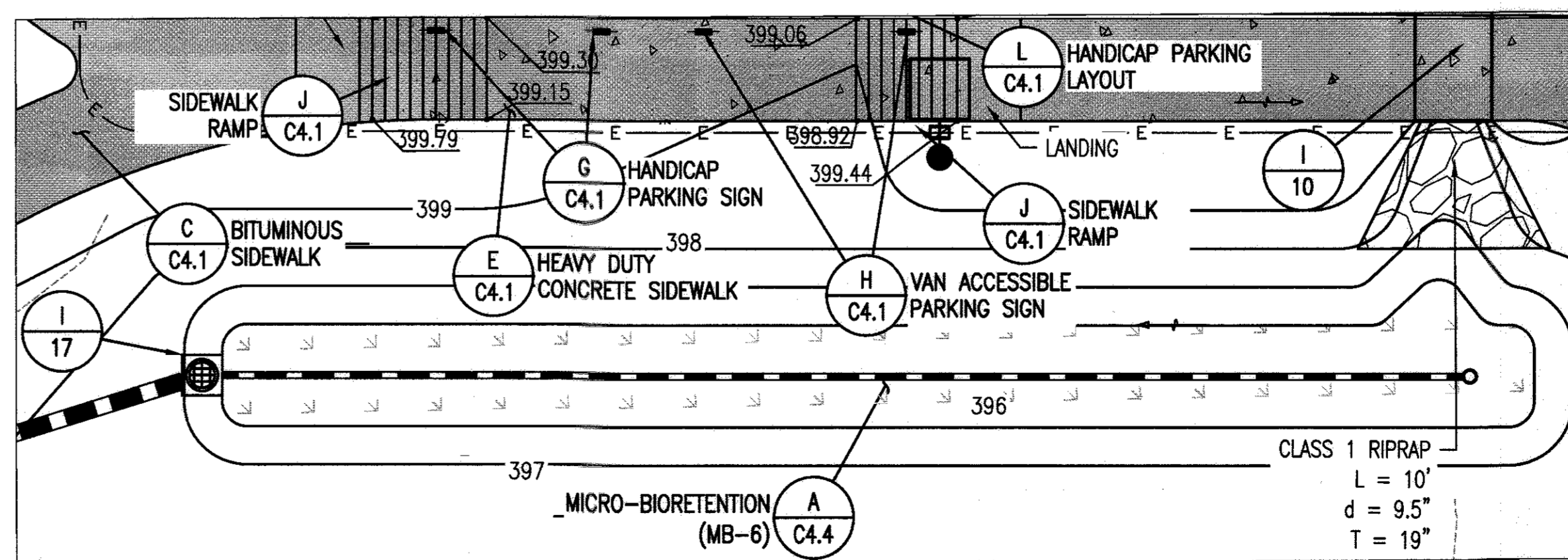
E MICRO-BIORETENTION 5 (MB-5) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



D MICRO-BIORETENTION 4A AND 4B (MB-4A AND 4B) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



C MICRO-BIORETENTION 3 (MB-3) ENLARGED PLAN
C3.3 SCALE: 1" = 10'



D MICRO-BIORETENTION 6 (MB-6) ENLARGED PLAN
C3.3 SCALE: 1" = 10'

DRAWING NOTES:

1. THE MICROBIORETENTION SECTION IS LOCATED ON SHEET C4.4
2. THE MICRO-BIORETENTION MAINTENANCE SCHEDULE, AND OPERATIONS AND MAINTENANCE SCHEDULE IS LOCATED ON SHEET C4.4.
3. THE MICRO-BIORETENTION PLANTING SCHEDULE IS ON SHEET L1.6.
4. ALL UNDERDRAINS ARE 6".

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief Development Engineering Division: *[Signature]* DATE: 2-6-17
 Chief Division of Land Development: *[Signature]* DATE: 3-01-17
 Director: *[Signature]* DATE: 3-14-17

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3.72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

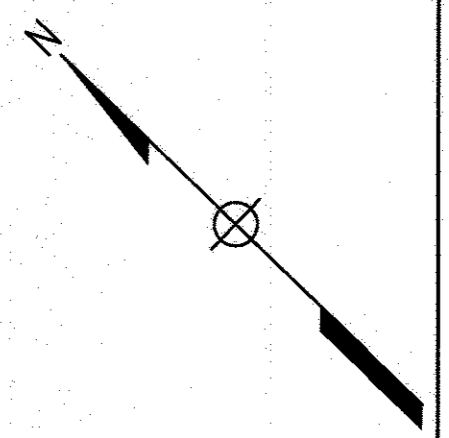
 SCALE: 1" = 10'

SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18275, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

ENLARGED
 MICRO-BIORETENTION PLANS
 Drawing No.
C3.3
 Scale: 1" = 20'
 Date: 1/17/2017 Sheet 27 of 76
 Des: BWJ Drawn: AKC Check: AUO



REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5116

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3.72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

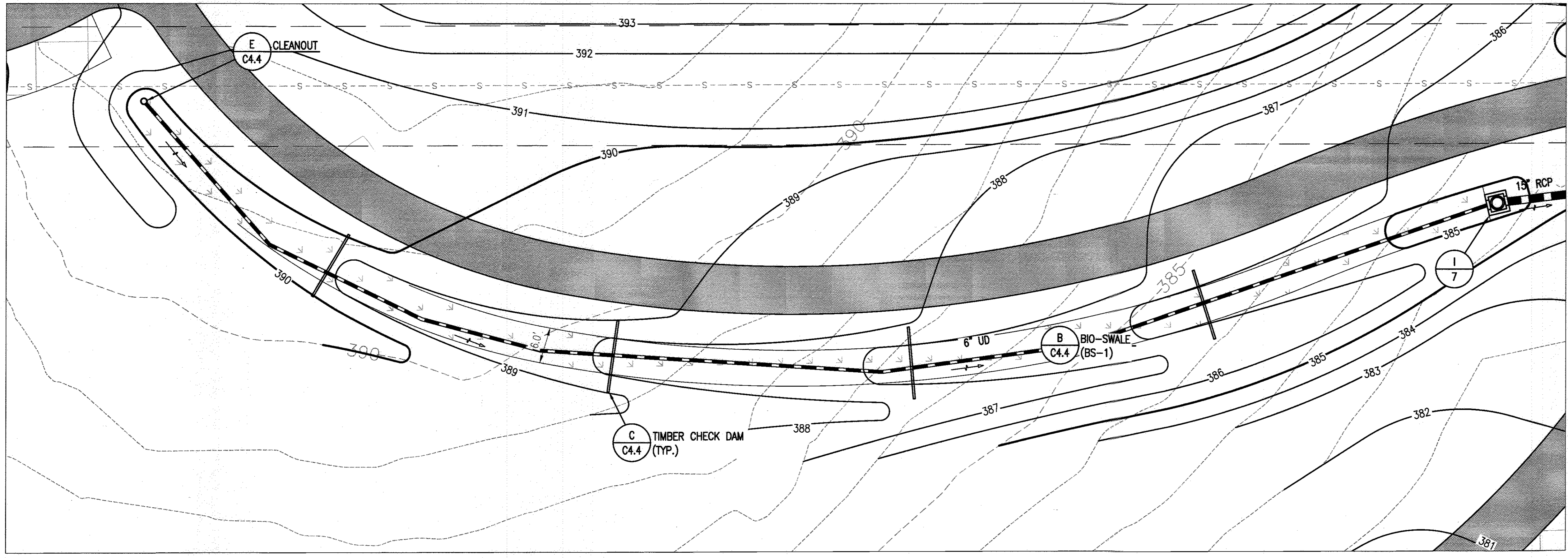
 SCALE: 1" = 10'

SIGNATURE

 PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376, EXPIRATION DATE 09/22/2017.

BLANDAIR REGIONAL
 PARK - PHASE 3

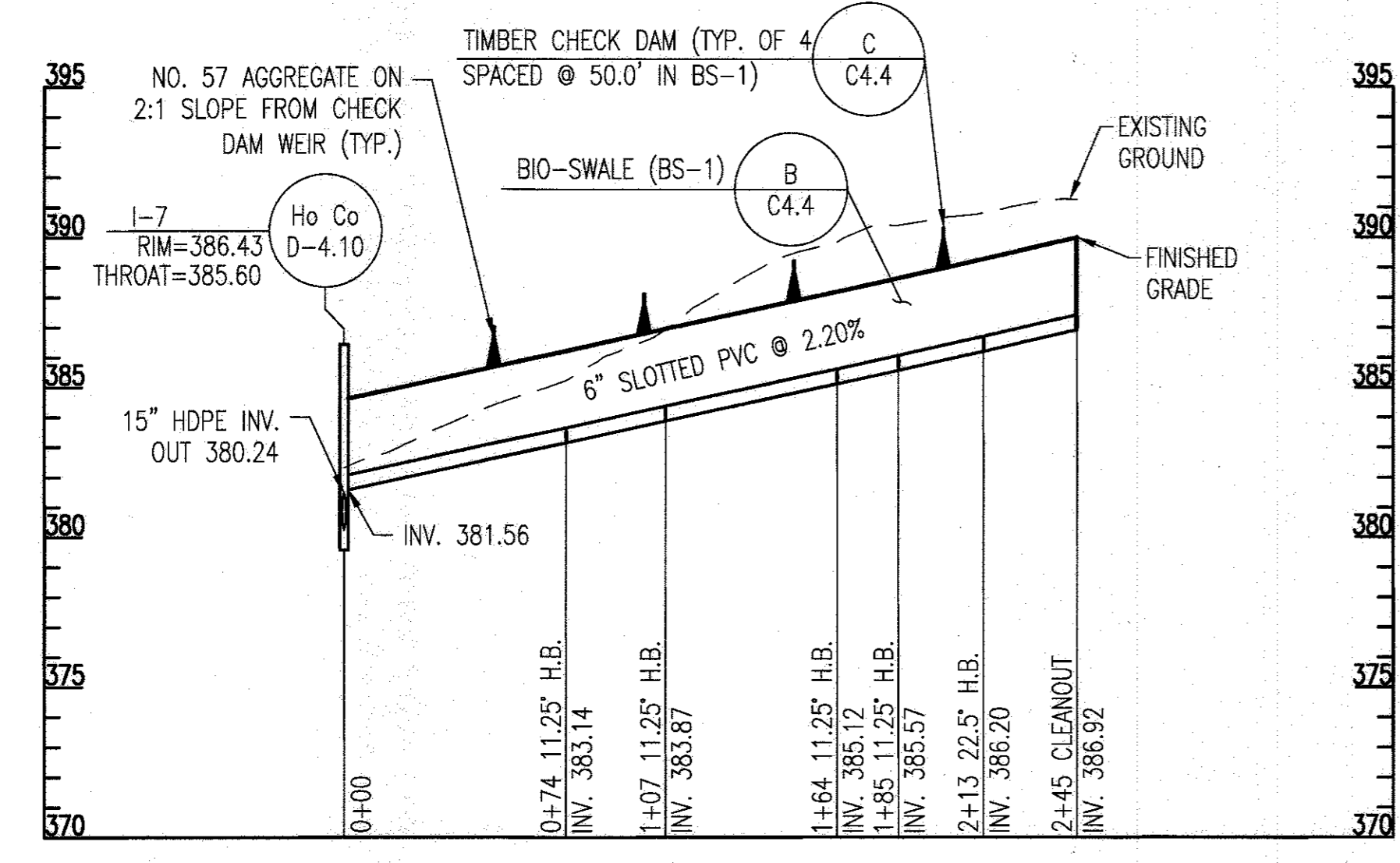
ENLARGED BIO-SWALE PLAN
 Drawing No.
C3.4
 Scale: 1" = 20'
 Date: 1/17/2017 Sheet 28 of 76
 Des: BWJ Drawn: AKC Check: AUO



A
 C3.4 BIO SWALE 1 ENLARGED PLAN
 SCALE: 1" = 10'

ESD FACILITY ELEVATION CHART							
ESD FACILITY	FILTER BED ELEVATION	INLET	INLET TOP ELEV.	INLET THROAT	INLET INV. OUT	UNDERDRAIN INV. ELEV.	FACILITY BOTTOM
MB-1	397.00	I-36	398.83	398.00	392.00	393.50	393.33
MB-2	397.00	I-32	398.83	398.00	390.80	393.50	393.33
MB-3	400.00	I-33	401.83	401.00	395.00	396.50	396.33
MB-4A	394.00	I-12A	395.83	395.00	391.00	391.00	390.83
MB-4B	395.50	I-12	397.33	396.50	391.37	392.00	391.83
MB-5	395.00	I-11	396.83	396.00	389.67	391.50	391.33
MB-6	396.00	I-17	397.83	397.00	391.39	392.50	392.33
BS-1	**	I-7	386.43	386.00	380.24	381.50	381.33

** AT INLET I-7, FILTER BED TO FOLLOW SWALE SLOPE.



BIO SWALE 1 PROFILE
 SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

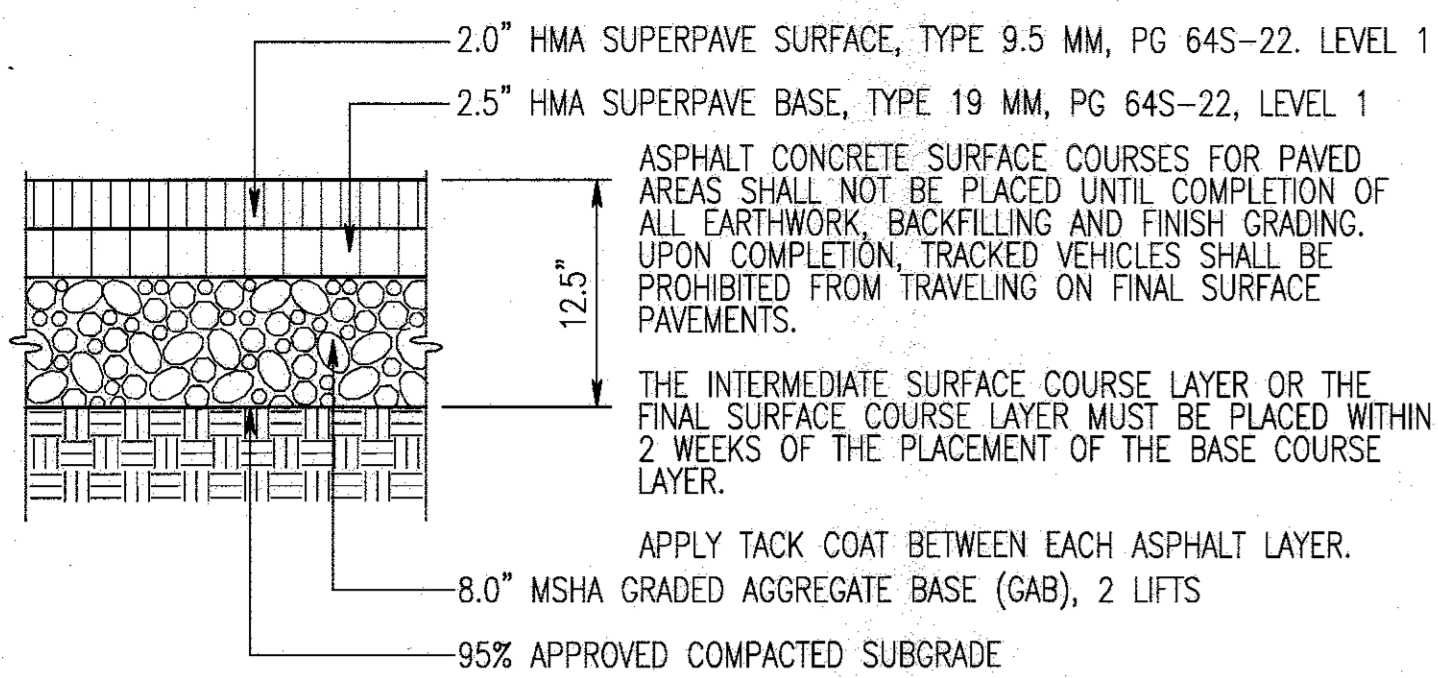
- DRAWING NOTES:**
1. THE MICRO-BIORETENTION SECTION IS LOCATED ON SHEET C4.4
 2. THE MICRO-BIORETENTION MAINTENANCE SCHEDULE, PLANTING SCHEDULE, AND OPERATIONS AND MAINTENANCE SCHEDULE IS LOCATED ON SHEET C4.4.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

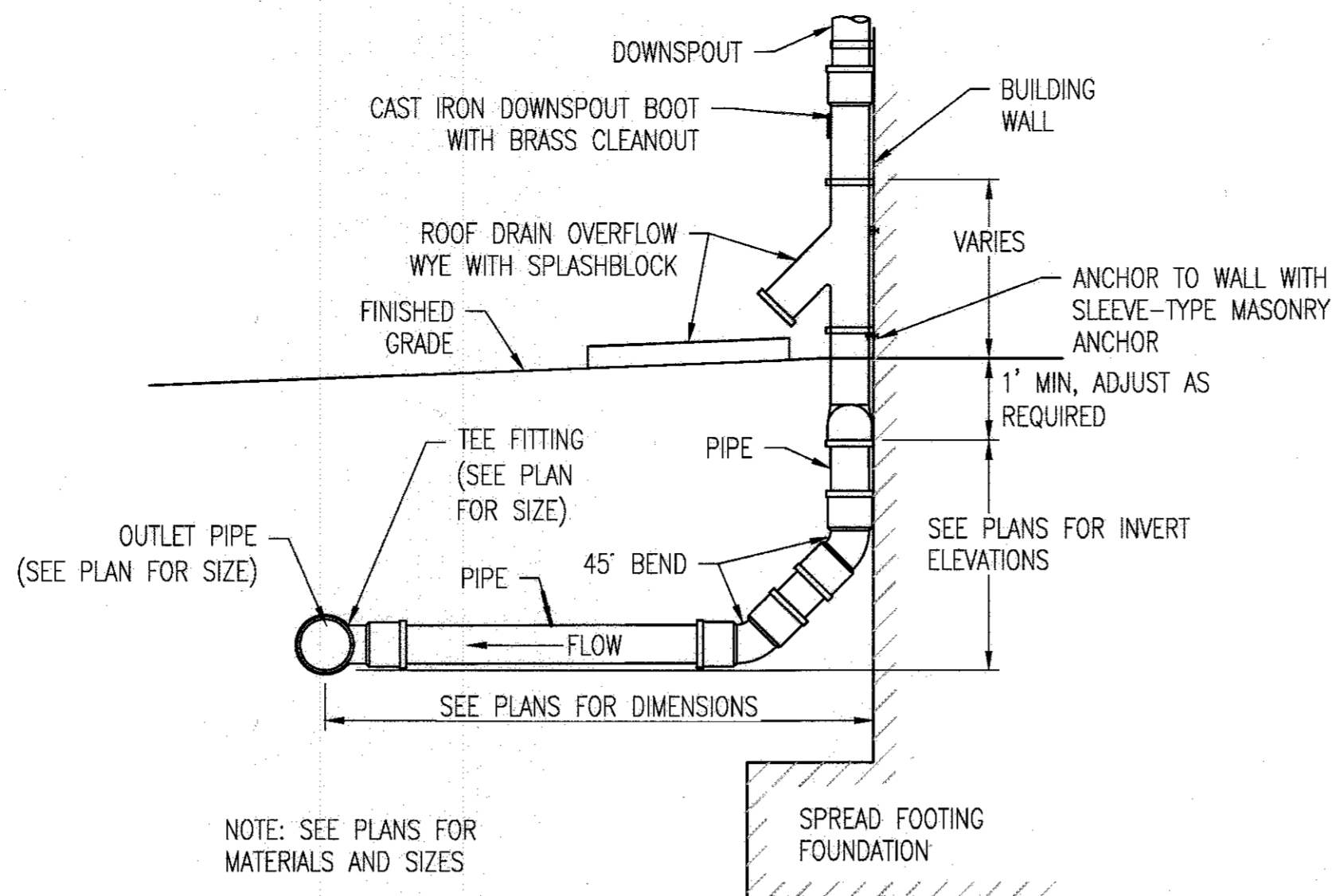
[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
 CHIEF, DEPARTMENT OF LAND DEVELOPMENT

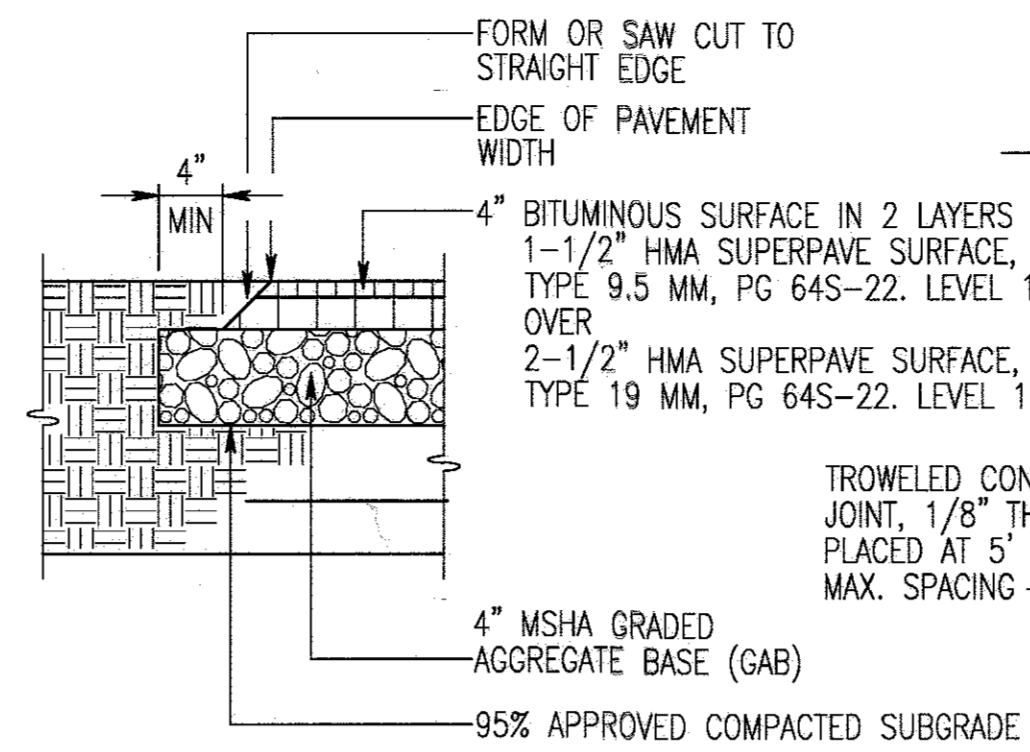
[Signature] DATE: 3-19-17
 DIRECTOR



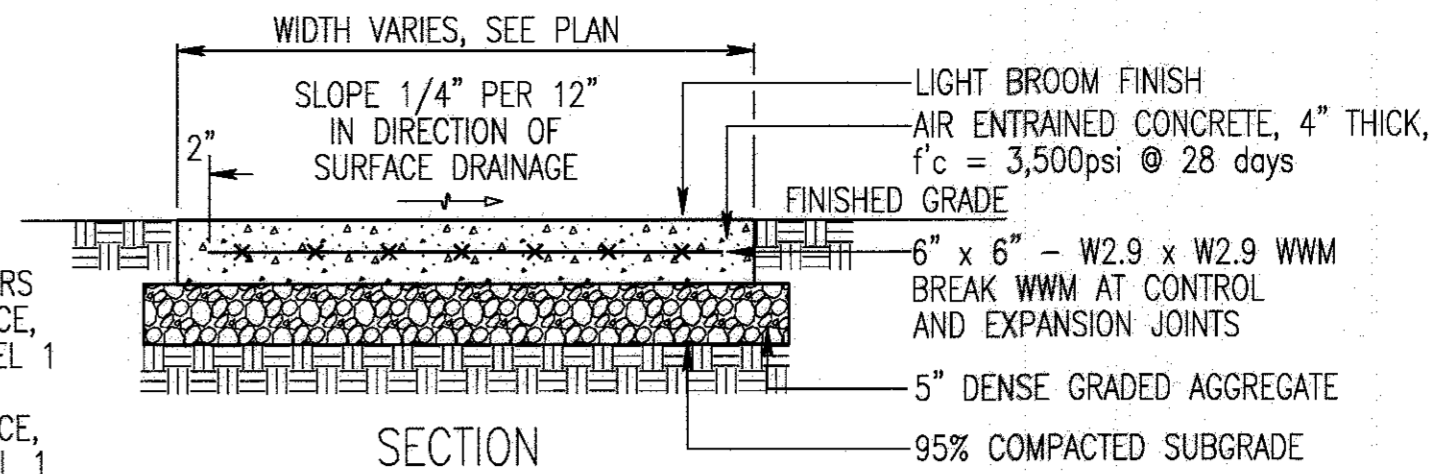
A BITUMINOUS ASPHALT PAVEMENT
C4.1 NOT TO SCALE



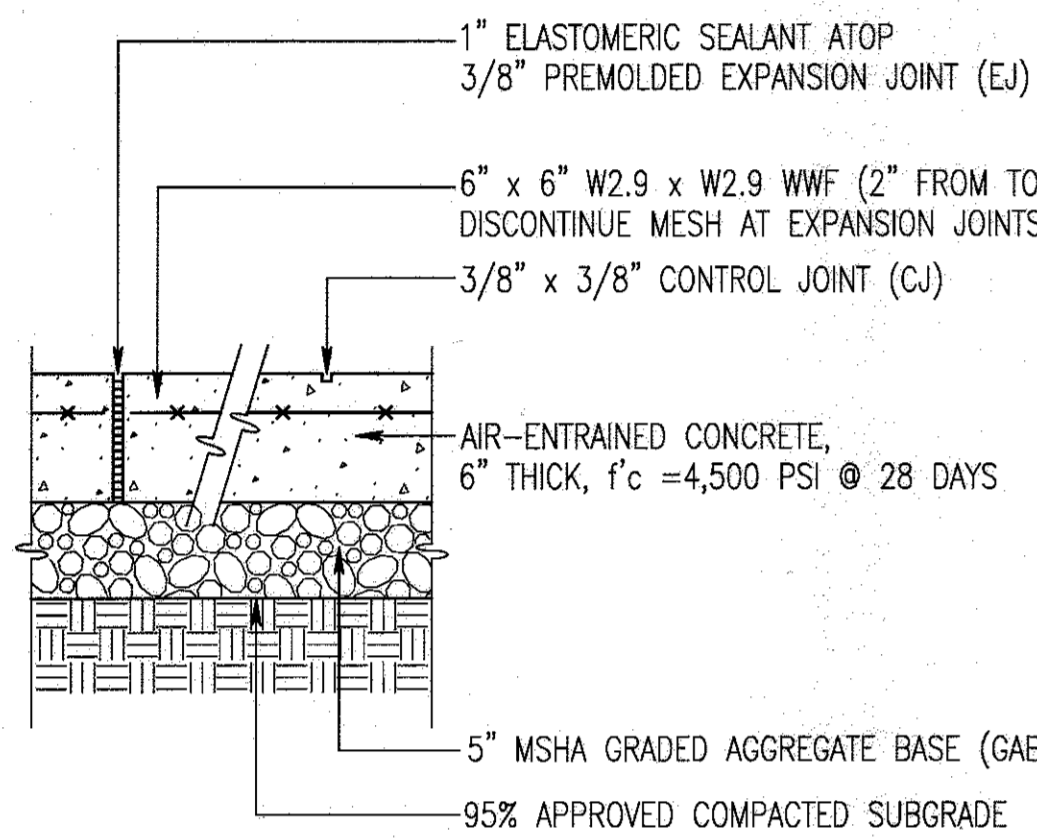
B FLEXIBLE BOOT CONNECTION
C4.1 NOT TO SCALE



C BITUMINOUS SIDEWALK
C4.1 NOT TO SCALE

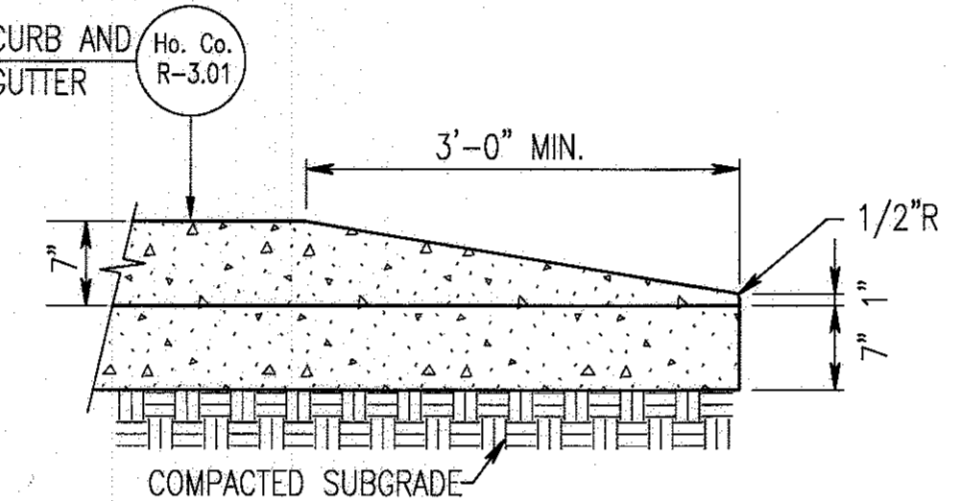


D CONCRETE SIDEWALK
C4.1 NOT TO SCALE

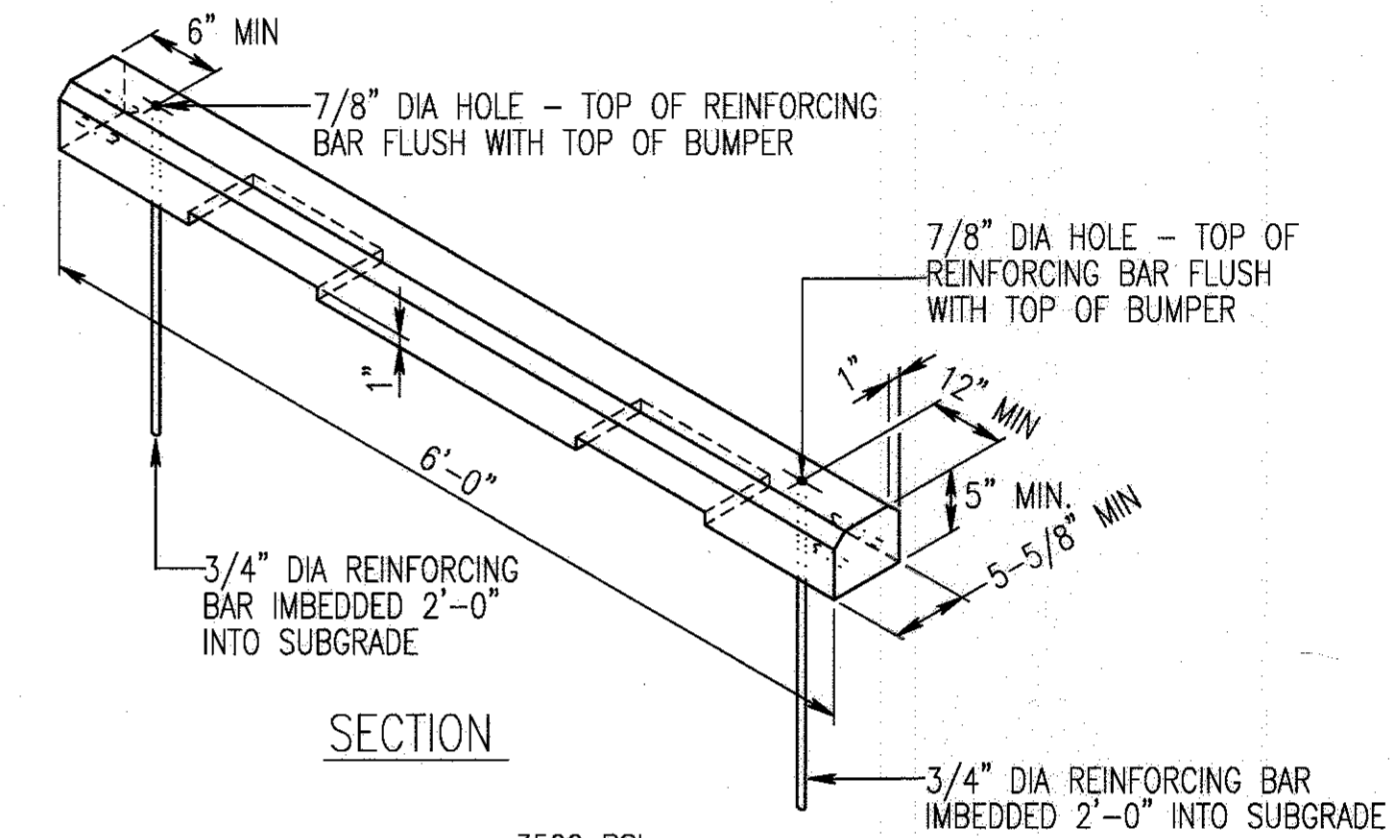


E HEAVY DUTY CONCRETE SIDEWALK
C4.1 NOT TO SCALE

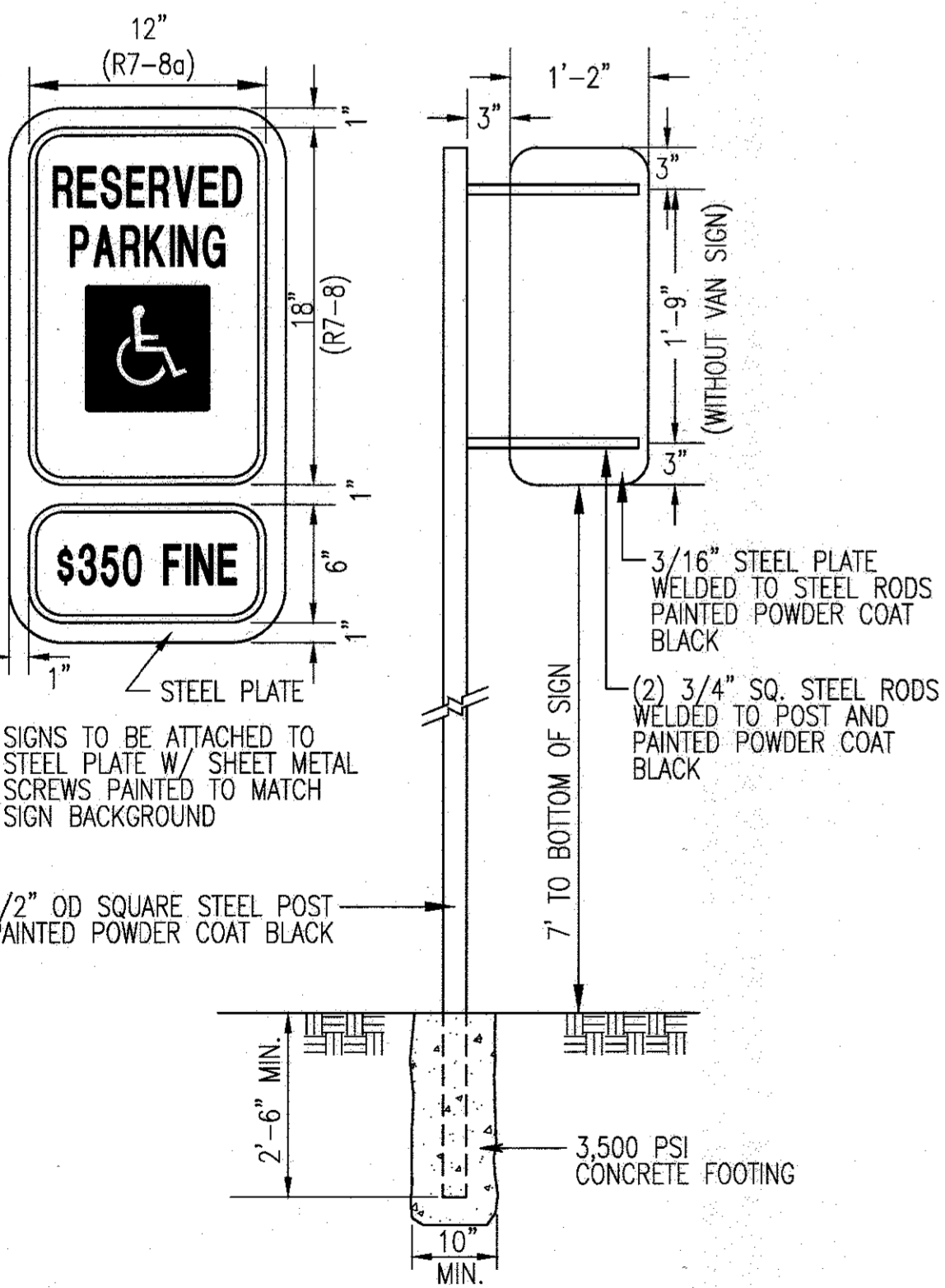
SEE SHEET C3.1 AND LANDSCAPE PLANS FOR SCORING PATTERNS. PROVIDE 1" POURED ELASTOMERIC SEALANT ATOP PREMOULDED EXPANSION JOINT MATERIAL, 1/2" THICK, FULL DEPTH OF JOINT AND TRIMMED TO BE SLIGHTLY BELOW SURFACE AS SHOWN. PLACE AT 15' O.C. MAX. SPACING. FORM JOINT AROUND ALL APPURTENANCES EXTENDING INTO OR THRU CONCRETE AND BETWEEN CONCRETE AND ANY FIXED STRUCTURE (BUILDING, CURB, ETC.)



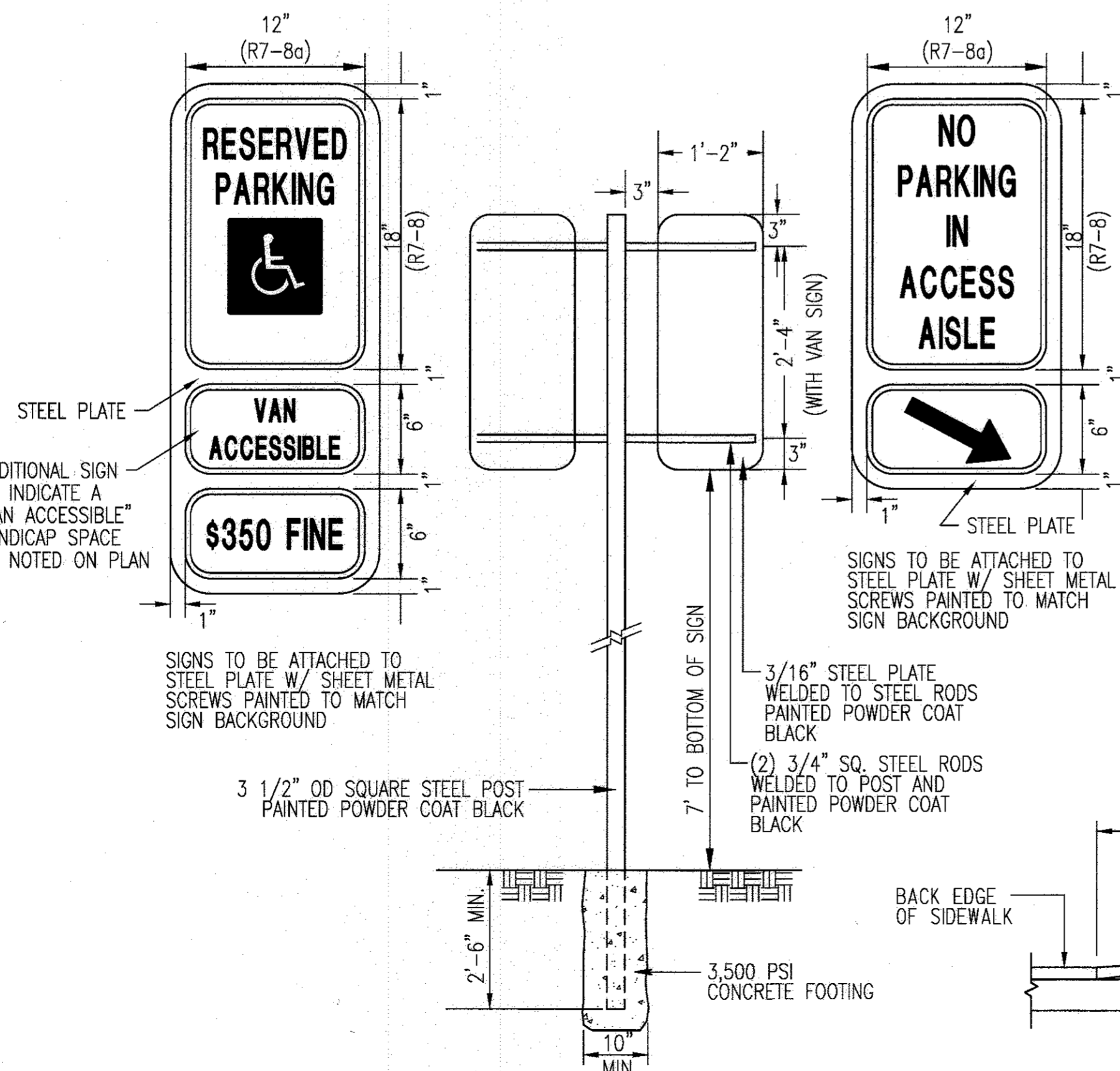
F NOSE DOWN CURB
C4.1 NOT TO SCALE



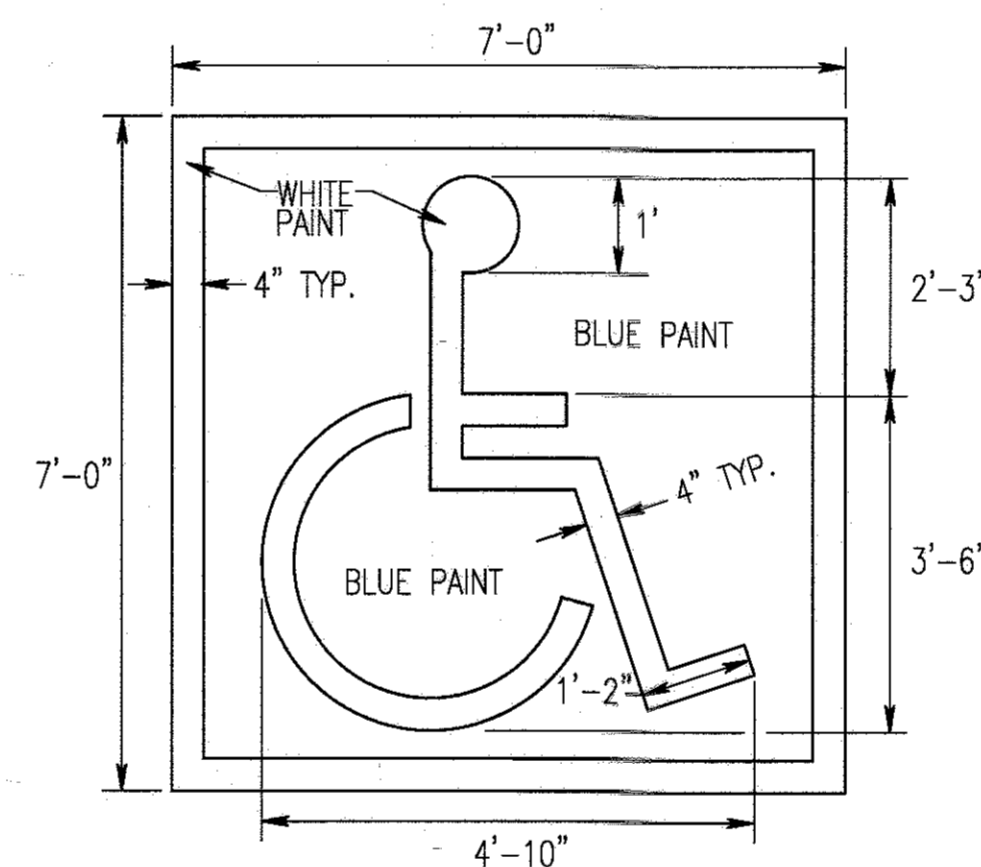
K PARKING BUMPER
C4.1 NOT TO SCALE



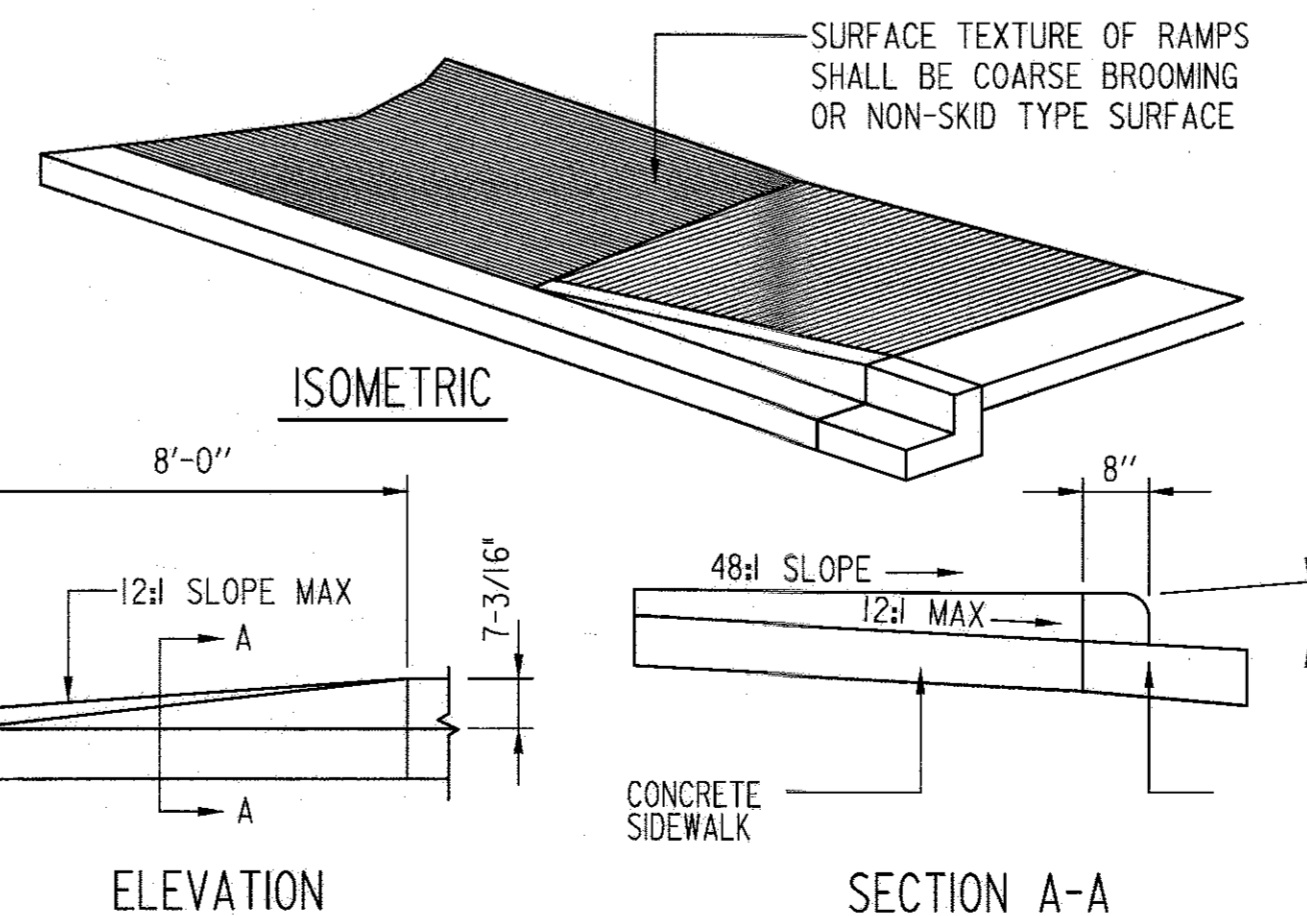
G HANDICAP PARKING SIGN
C4.1 NOT TO SCALE



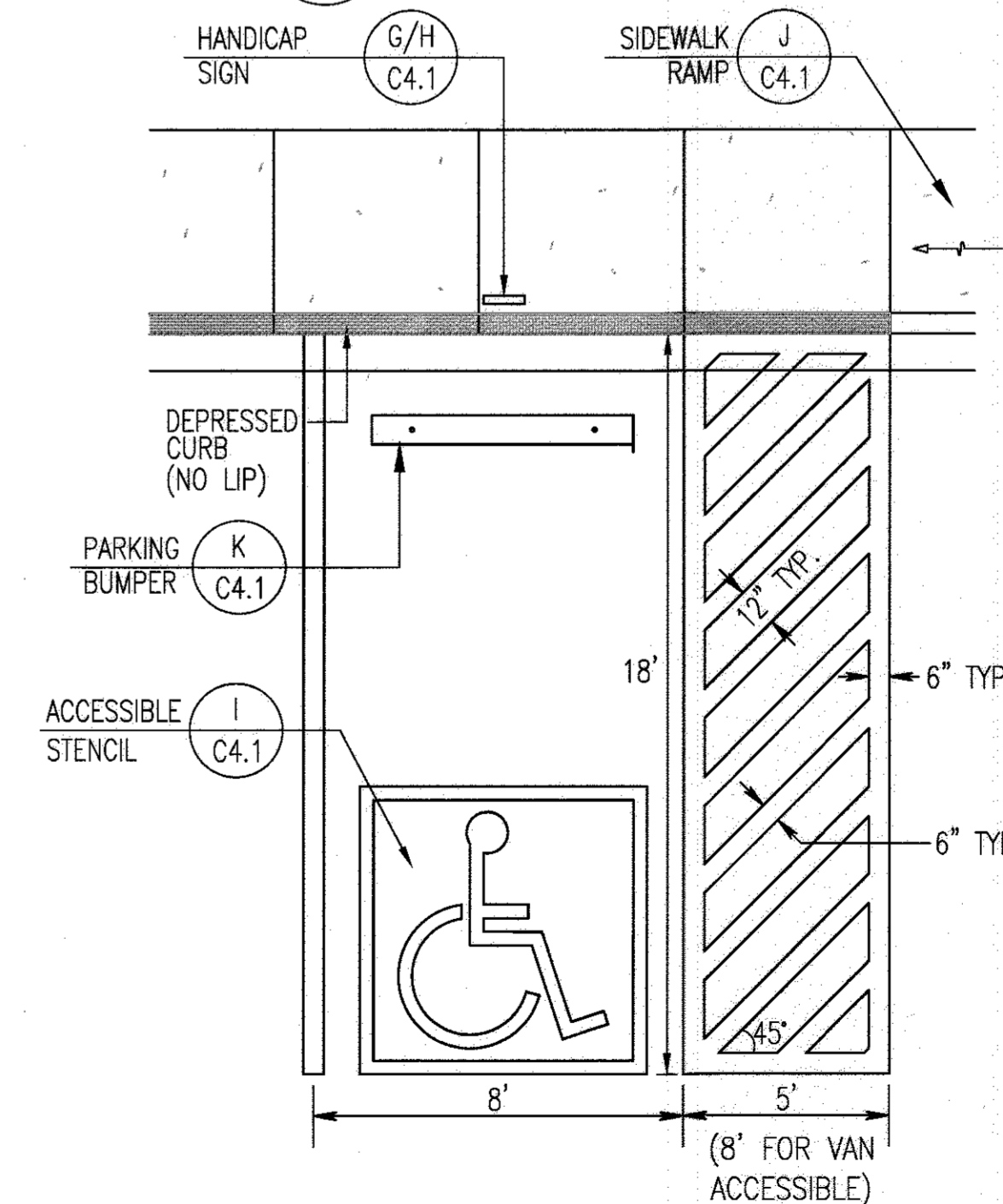
H VAN ACCESSIBLE HANDICAP SIGN
C4.1 NOT TO SCALE



I ACCESSIBLE STENCIL
C4.1 NOT TO SCALE



J SIDEWALK RAMP DETAIL
C4.1 NOT TO SCALE



L HANDICAP PARKING LAYOUT
C4.1 NOT TO SCALE

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-5450 Fax: 410-243-6716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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BLANDAIR REGIONAL PARK - PHASE 3

SITE DETAILS

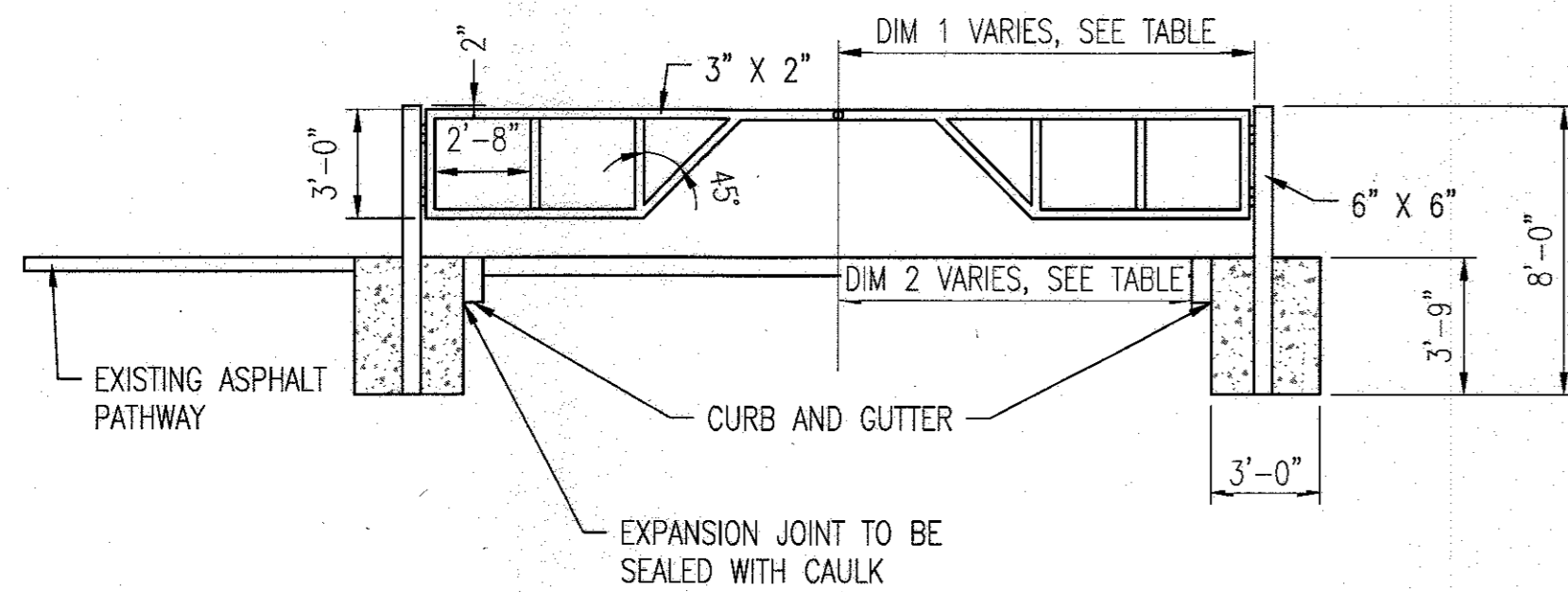
Drawing No. **C4.1**

Scale: NOT TO SCALE
Date: 1/17/2017 Sheet 29 of 76
Des: SAD Drawn: SAD Check: AJO

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

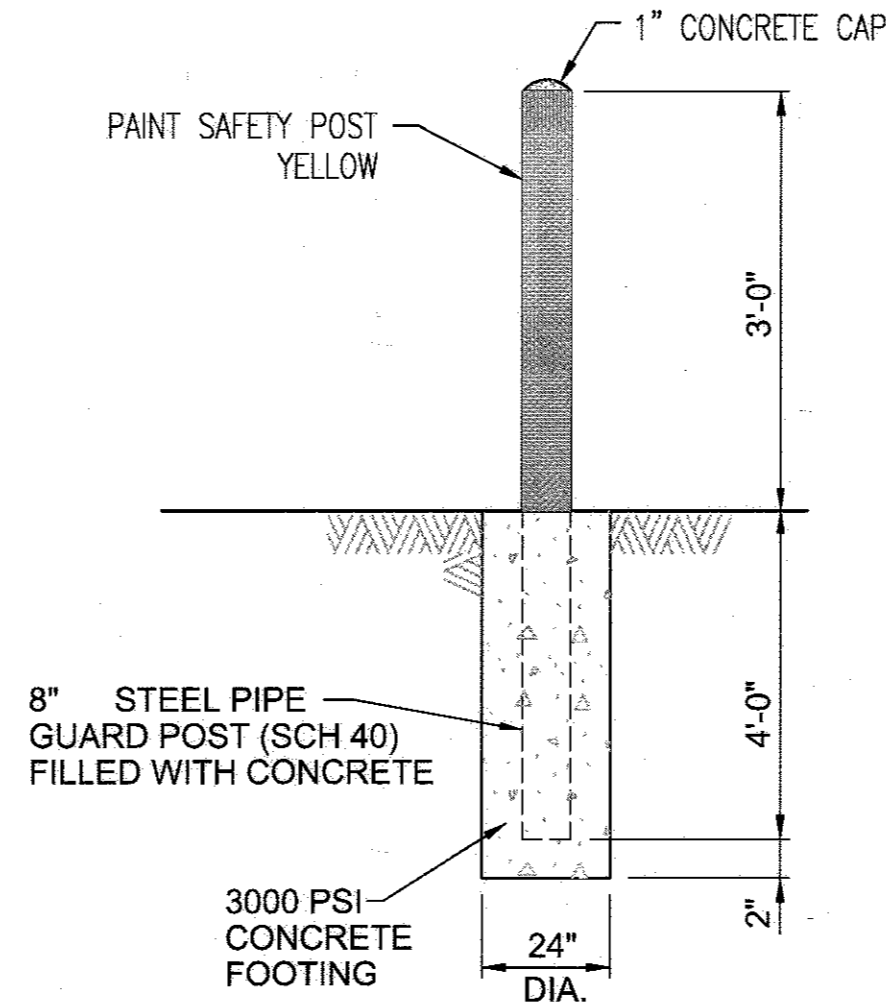
NOTES:

- GATE SHALL SWING IN TOWARDS PARK.
- ALL WELDING TO BE CLEANED AND GROUND SMOOTH.
- WELD FLANGES AT ENDS OF TOP RAILS, ONE SIDE TO HAVE SLOT OPENING TO FIT OVER WELDED U-BOLT ON OTHER SIDE FOR PADLOCK ATTACHMENT.
- INSTALL 4"x4" HOLD-OPEN POSTS ON EACH SIDE OF GATE, 2 FT. 7 IN FROM EDGE OF ROADWAY, AND APPROPRIATE DISTANCE FROM GATEPOSTS.
- GREASE ALL FITTINGS.
- ATTACH U-BOLT WITH STAINLESS STEEL CLIP TO HOLD OPEN POST AND WELD U-BOLT TO GATE FOR EASY ATTACHMENT AND RELEASE OF GATE.
- USE 7" BARREL HINGES WITH STAINLESS PIN, AND WELD PADS 3"x1-1/2"x3/8" THICK. GATE HINGES TO BE PLUMB AND SQUARE WITH GATE POST.
- PRIME ALL METAL SURFACES AND APPLY TWO COATS OF GLOSS BLACK POLYURETHANE PAINT. USE ROLLER ON LARGE AREAS AND USE BRUSH OR SPONGE FOR TIGHT AREAS.
- GREASE ALL FITTINGS.
- TOP OF FOOTINGS TO BE LEVEL WITH EXISTING GRADE.
- BACK-FILL AROUND FOOTINGS, AND FINISH WITH APPROPRIATE MATERIAL: TOPSOIL AND SEED, MULCH, OR PAVED SURFACE TO MATCH ADJACENT.
- INSTALL RED & WHITE STRIPED REFLECTIVE TAPE ALONG FRONT AND BACK OF TOP RAIL AND ON VERTICALS. ALSO INSTALL REFLECTIVE TAPE AROUND TOP OF GATEPOSTS AND HOLD-BACK POSTS.

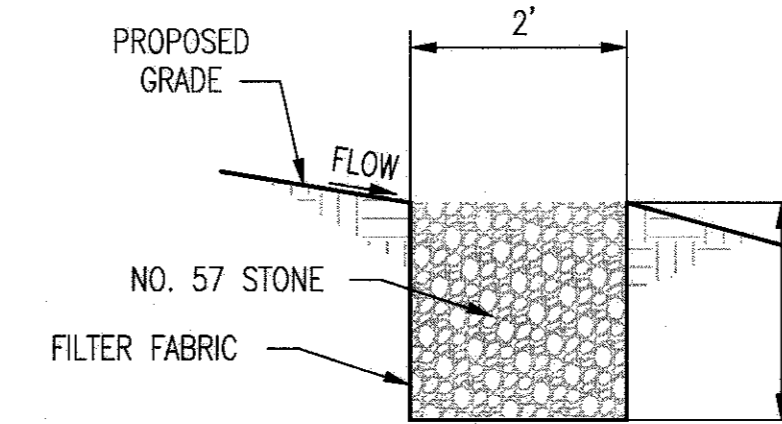


A PARK GATE DETAIL
C4.2 NOT TO SCALE

GATE	DIM 1	DIM 2
A	15.45'	12.89'
B	14.07'	11.97'



C BOLLARD DETAIL
C4.2 NOT TO SCALE



- SPECIFICATIONS:**
- THE TOP OF THE STONE ELEVATION FOR EACH DEVICE SHALL BE LEVEL FOR ITS ENTIRE LENGTH.
 - THE LOW SIDE OF THE DEVICE SHALL TYPICALLY BE INSTALLED AT THE LIMITS OF THE LOD.
 - IF THE DRAINAGE AREA ABOVE THE SPREADER IS NOT STABILIZED AND WITH THE PERMISSION OF THE INSPECTOR, FILTER FABRIC MAY BE EXTENDED FROM THE IN FLOW SIDE AND LAID OVER THE TOP OF THE DEVICE UNTIL THE DRAINAGE AREA IS STABILIZED.

F LEVEL SPREADER DETAIL
C4.2 NOT TO SCALE

Secure Trac Cantilever Slide Gate
PLAN 1/8"=1'-0"

Secure Trac Cantilever Slide Gate
ELEVATION - OUTSIDE LOOKING IN 1/8"=1'-0"

OPENING	OVERALL LENGTH	COUNTERBALANCE	NOMINAL HEIGHT (H)
11'-0"	18'-10"	7'-6"	8'-0"
12'-0"	19'-10"	7'-6"	8'-0"
13'-0"	20'-10"	7'-6"	8'-0"
14'-0"	21'-10"	7'-6"	8'-0"
15'-0"	22'-4"	7'-6"	8'-0"
16'-0"	22'-4"	7'-6"	8'-0"
17'-0"	22'-4"	7'-6"	8'-0"
18'-0"	22'-4"	7'-6"	8'-0"
19'-0"	22'-4"	7'-6"	8'-0"
20'-0"	22'-4"	7'-6"	8'-0"
21'-0"	22'-4"	7'-6"	8'-0"
22'-0"	22'-4"	7'-6"	8'-0"
23'-0"	22'-4"	7'-6"	8'-0"
24'-0"	22'-4"	7'-6"	8'-0"
25'-0"	22'-4"	7'-6"	8'-0"
26'-0"	22'-4"	7'-6"	8'-0"
27'-0"	22'-4"	7'-6"	8'-0"
28'-0"	22'-4"	7'-6"	8'-0"
29'-0"	22'-4"	7'-6"	8'-0"
30'-0"	22'-4"	7'-6"	8'-0"

NOTES:

- SPECIFICATIONS SHOWN CAN BE CHANGED BY THE MANUFACTURER ONLY.
- ALL COMPONENTS OF THE PANEL TO BE MILL FINISH (UNCOATED)
- OUTSIDE LOOKING IN, GATE LATCHES ON RIGHT
- GATE WILL BE HUNG ON THE INSIDE OF THE FENCE LINE
- HEIGHT IS FROM GRADE TO TOP OF GATE. ACTUAL HEIGHT IS 3" LESS.
- BARB WIRE ARMS ARE 1'-0" HIGHER THAN THE GATE HEIGHT
- FOR GATES 8' OR HIGHER, THE BARB WIRE ARMS WILL BE BOLTED TO THE GATE. ALL HARDWARE WILL BE SUPPLIED.
- FOOTING & POSTS AS REQUIRED BY SITE CONDITIONS & CODES

Merchants Metals
the first name in fence solutions

Secure Trac Cantilever Slide Gate
CHAINLINK w/ BARB WIRE

BY: JR
DATE: 4.4.14
SCALE: AS NOTED

DWG. NO.: CLST10-30wBW

D SLIDE GATE
C4.2 NOT TO SCALE
*NOTE: OR APPROVED EQUAL

Typical Fence Elevation / Section

Chain Link Typical Fence Elevation / Section

BY: ART 2.11.10 SCALE: NTS DWG #: CL01
WWW.MerchantsMetals.com COPYRIGHT ©

Merchants Metals
the first name in fence solutions

E SECURITY FENCE
C4.2 NOT TO SCALE
*NOTE: OR APPROVED EQUAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
DATE: 2-6-17

[Signature]
DATE: 3-01-17

[Signature]
DATE: 3-19-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Carolina Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-235-0116

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

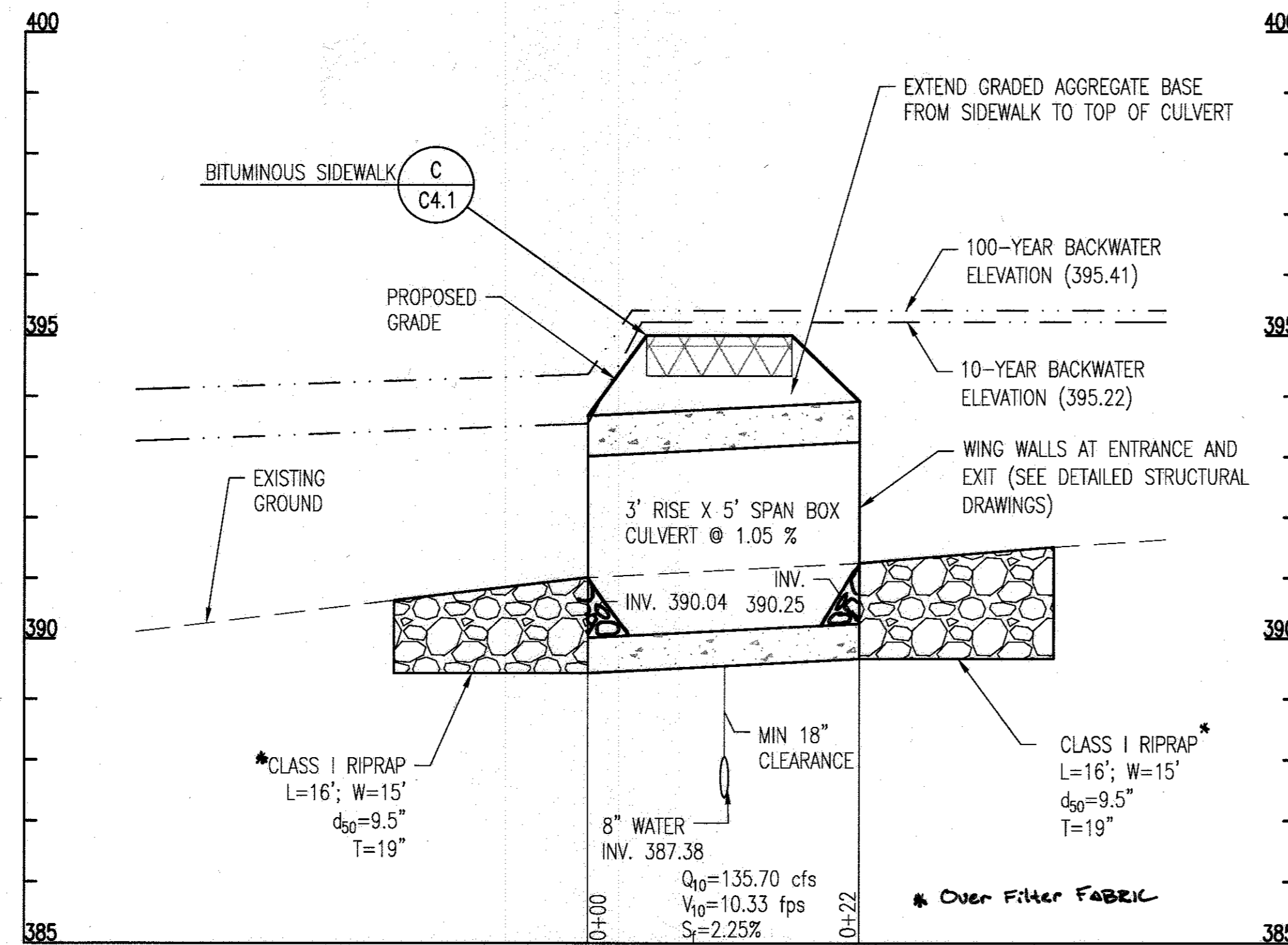
SIGNATURE

[Signature]

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18378
EXPIRATION DATE: 09/22/2017

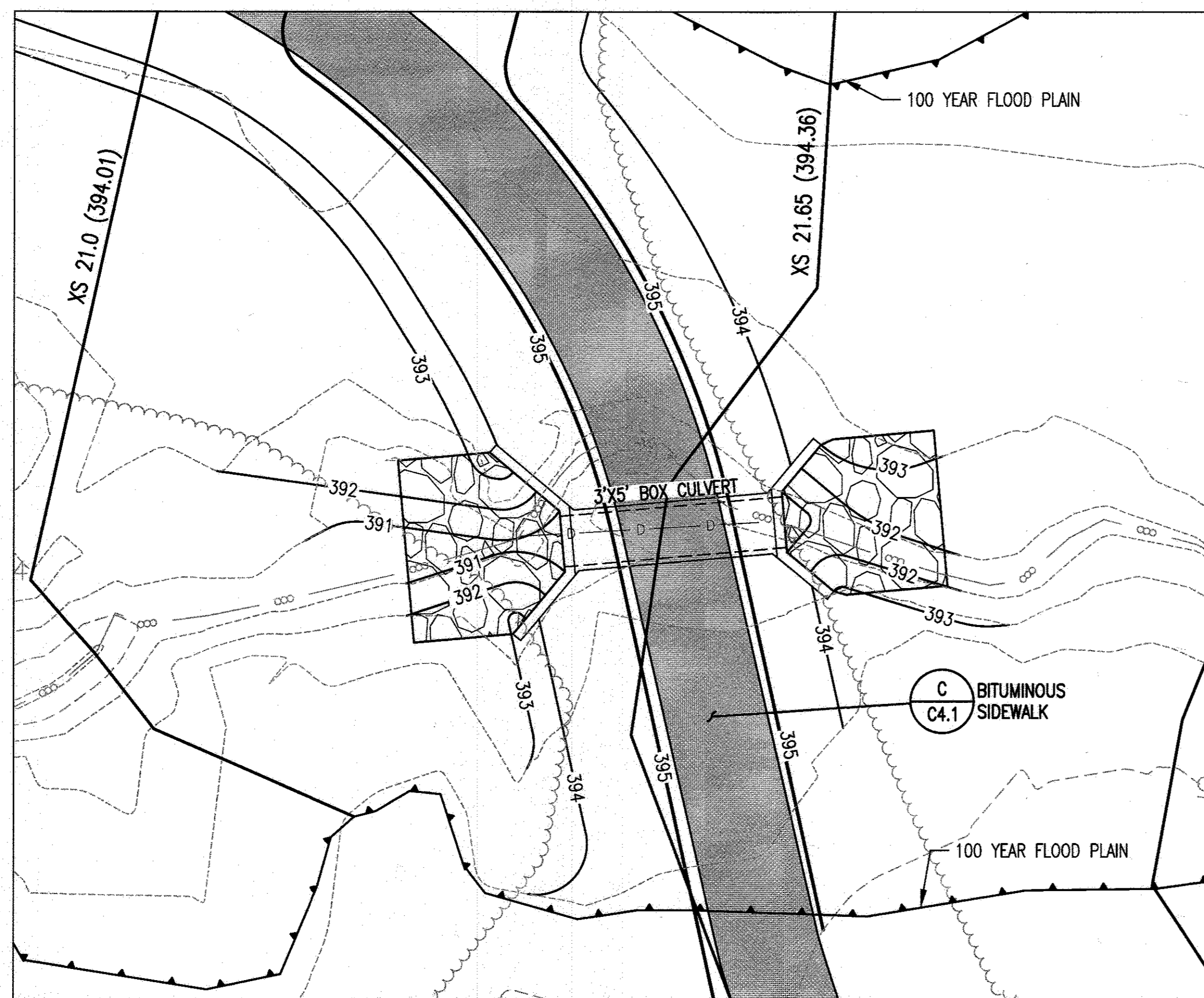
BLANDAIR REGIONAL
PARK - PHASE 3

SITE DETAILS
Drawing No.
C4.2
Scale: NOT TO SCALE
Date: 1/17/2017 Sheet 30 of 76
Des: SAD Drawn: SAD Check: AUO



STORM DRAIN PROFILE: BOX CULVERT

SCALE: 1" = 10' HORIZONTAL, 1" = 2' VERTICAL



BOX CULVERT PLAN VIEW

SCALE: 1" = 10'

SEQUENCE OF CONSTRUCTION

CULVERT CONSTRUCTION SHALL PROCEED DOWNSTREAM TO UPSTREAM. ALL IN STREAM WORK SHALL BE COMPLETED PRIOR TO ANY DISTURBANCE OF AREAS UPSTREAM. MAINTENANCE OF STREAM FLOW CONTROLS SHALL COORDINATE WITH STAGE 1 SEDIMENT CONTROLS PER SHEETS C1.4A-C1.4B AND STAGE 2 SEDIMENT CONTROLS PER SHEETS C1.5A-C1.5C. ANY AREAS DISTURBED BY PLACEMENT OF MAINTENANCE OF STREAM FLOW CONTROLS SHALL BE STABILIZED IMMEDIATELY. NO INSTREAM WORK MAY BE PERFORMED BETWEEN MARCH 1 AND MAY 31 DUE TO STREAM CLOSURE

DURING DRY WEATHER FORECAST, INSTALL THE TEMPORARY PUMP-AROUND PRACTICE (PER MGWC 1.2 AS SHOWN ON SHEET C5.2).

ONCE PUMP-AROUND PRACTICE IS COMPLETE, REMOVE EXISTING CULVERT AND STONE. THEN COMPLETE PROPOSED RIPRAP OUTFALL PROTECTION DOWNSTREAM OF THE DIVERSION AND BEGIN CULVERT CONSTRUCTION BEGINNING WITH WEST HEADWALL AND PROCEEDING UPSTREAM TO THE EAST HEADWALL. DEWATER EXCAVATION AREAS AS REQUIRED USING A FILTER BAG USING RIPRAP OUTFALL PROTECTION AS A STABLE OUTFALL. UPON INSTALLATION OF THE EAST HEADWALL, INSTALL UPSTREAM RIPRAP INFLOW PROTECTION.

UPON CULVERT INSTALLATION, AND UPON THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE TEMPORARY PUMP AROUND PRACTICE AND DIVERT FLOW INTO THE NEWLY CONSTRUCTED CULVERT. IMMEDIATELY STABILIZE ANY DISTURBANCE RESULTING FROM THE REMOVAL PROCESS.

NOTES:

1. SEE SHEETS S1.01-S1.09 FOR DETAILED CULVERT AND WING WALL PLANS AND DETAILS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	DATE 2-9-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3-01-17
<i>[Signature]</i>	DATE 3-19-17
CHIEF, DIVISION OF LAND DEVELOPMENT	
<i>[Signature]</i>	
DIRECTOR	

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18376, EXPIRATION DATE 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

CULVERT PROFILE
 Drawing No.
C4.3

Scale: AS SHOWN		
Date: 1/17/2017	Sheet 31 of 76	
Des: BWJ	Drawn: AKC	Check: AUO

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION AND BIO-SWALES

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

—SOIL COMPONENT — LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)

—ORGANIC CONTENT — MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%–65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).

—CLAY CONTENT — MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.

—PH RANGE — SHOULD BE BETWEEN 5.5 – 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL IF PRACTICES ARE

EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TIRE TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

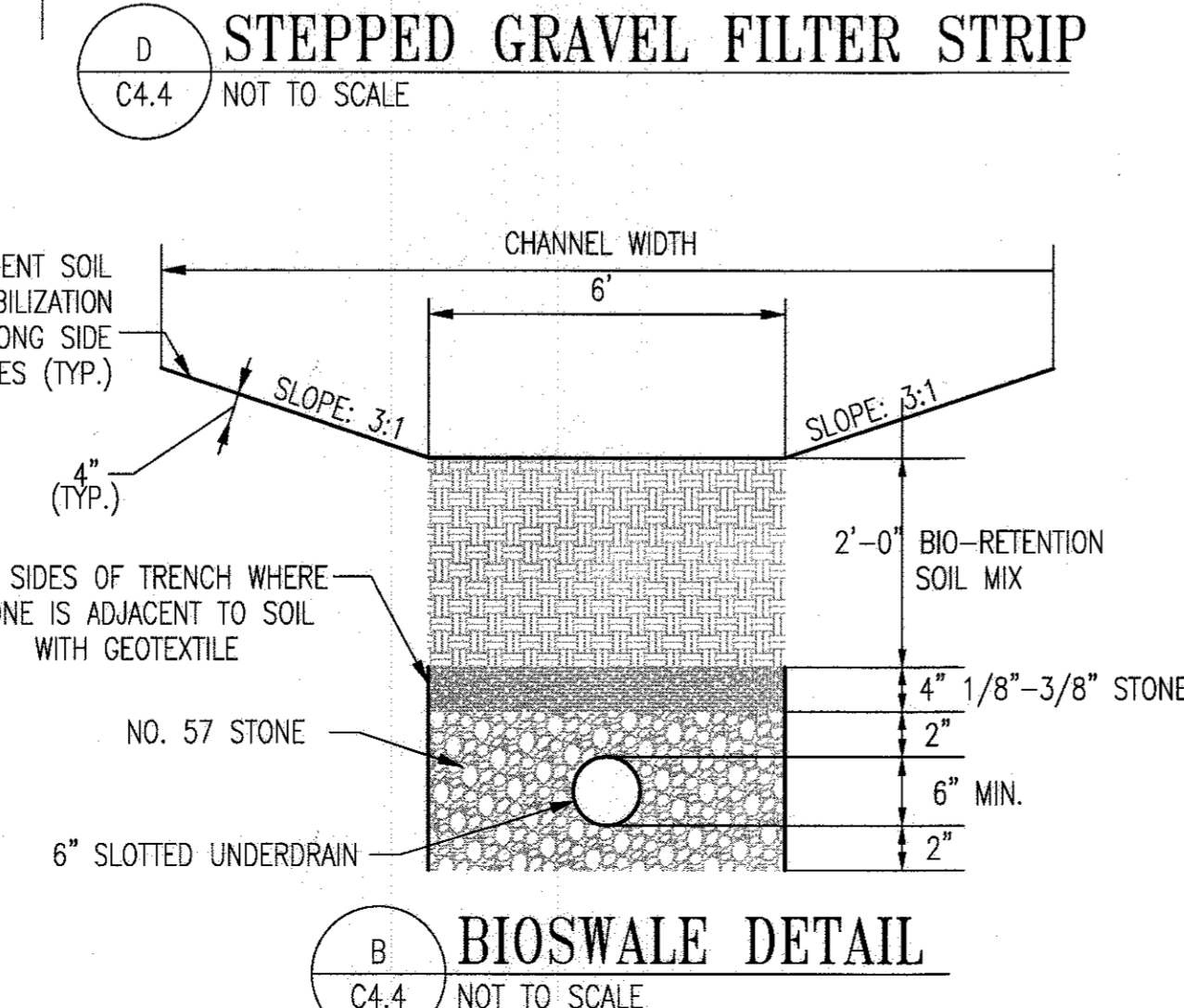
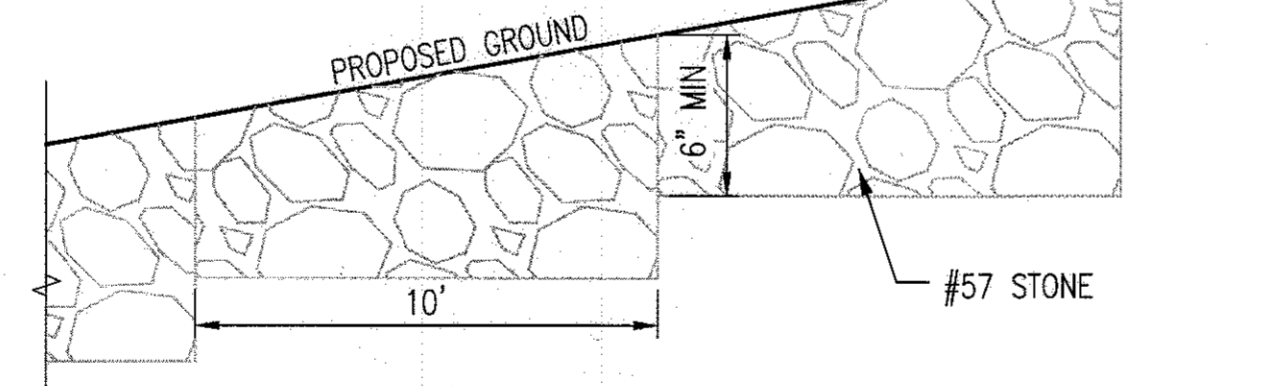
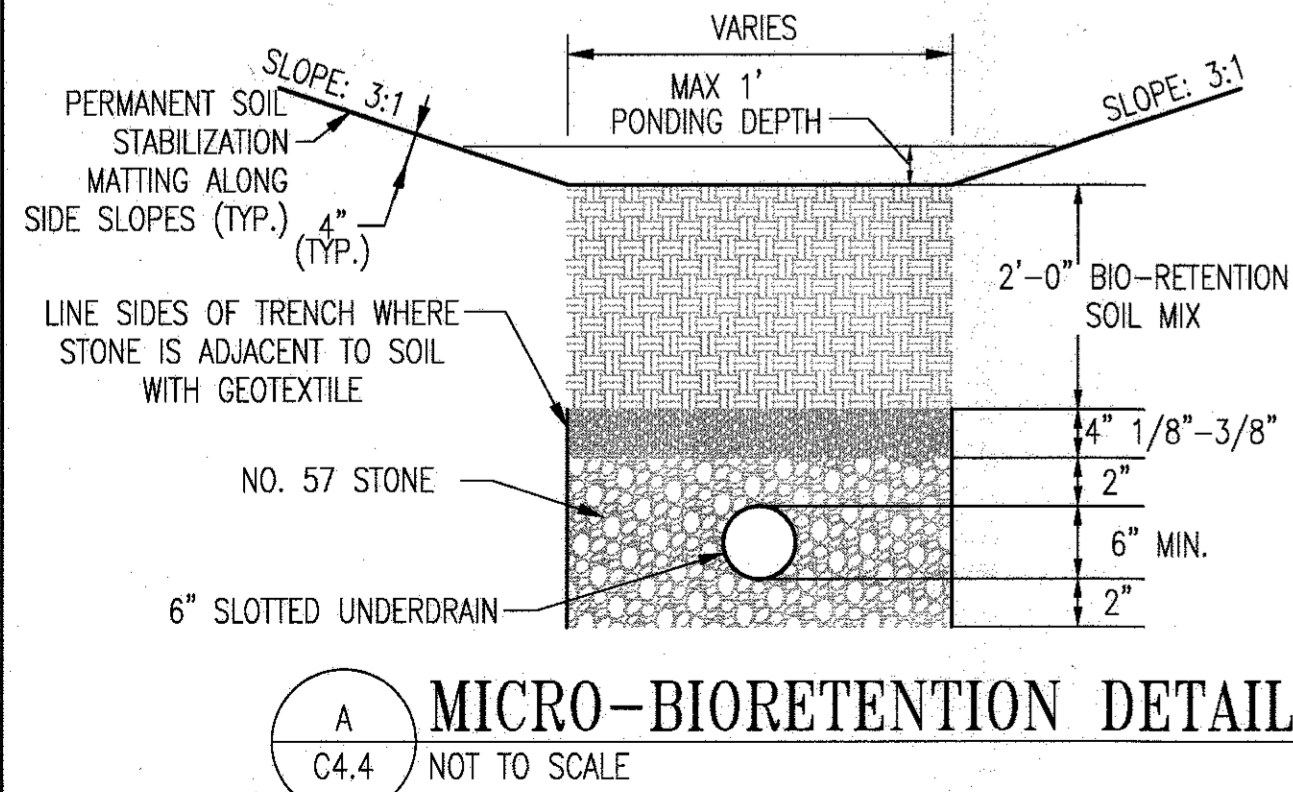
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LITS 12" TO 18" DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-SWALE

- a. THE OWNER SHALL IRRIGATE DURING PROLONGED DRY PERIODS.
- b. THE OWNER SHALL REMOVE ANY DEAD AND DYING VEGETATION. IF SPECIFIC PLANTS ARE NOT SURVIVING, REPLACE WITH MORE APPROPRIATE SPECIES AND PRUNE VEGETATION OCCASIONALLY.
- c. THE OWNER SHALL REMOVE ACCUMULATED SEDIMENT FROM SURFACE OF FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH.
- d. IF WATER PONDS FOR MORE THAN 48 HOURS, THE OWNER SHALL REMOVE AND REPLACE THE MULCH AND TOP FEW INCHES OF FILTER MEDIA.
- e. THE OWNER SHALL PLACE MULCH ANNUALLY WHERE PRACTICE TREATS AREAS WITH HIGH CONCENTRATIONS OF HEAVY METALS. OTHERWISE REPLACE AS NECESSARY.



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division, [Signature] DATE 2-6-17
 Chief, Division of Land Development, [Signature] DATE 3-01-17
 Director, [Signature] DATE 3-19-17

SHA BIO-RETENTION SOIL MIX SPECIFICATION

920.01.05 Bioretention Soil Mix (BSM). A homogeneous mixture composed by loose volume of 5 parts Coarse Sand, 3 parts Base Soil, and 2 parts Fine Bark. BSM shall conform to the following:

(a) Components. Components of BSM shall be sampled, tested and approved before mixing as follows:

(1) Coarse Sand. MSMT 356. Coarse Sand shall be washed silica sand or crushed glass that conforms to ASTM Fine Aggregate C-33. Coarse Sand shall include less than 1% by weight of clay or silt size particles, and less than 5% by weight of any combination of diabase, greystone, calcareous or dolomitic sand.

(2) Base Soil. Base Soil shall be tested and certified by the producer to conform to the following requirements:

COMPOSITION - BASE SOIL			
TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT	
Prohibited Weeds	—	Free of seed and viable plant parts of species in 920.06.02(a)(b)(c) when inspected.	
Debris	—	No observable content of cement, concrete, asphalt, crushed gravel or construction debris when inspected.	
Grading Analysis	T 87	Sieve Size	Passing by Weight Minimum %
		2 in.	100
		No. 4	90
		No. 10	80
		Particle	% Passing by Weight
Textural Analysis	T 88	Size mm	Minimum Maximum
		Sand 2.0 - 0.050	50 85
		Silt 0.050 - 0.002	5 45
		Clay less than 0.002	5 10
Soil pH	D 4972	pH of 5.7 to 6.9.	
Organic Matter	T 194	1.0 to 10.0 % by weight.	
Soluble Salts	EC:2 (V:V)	500 ppm (1.25 mmhos/cm) or less.	
Harmful Materials	—	920.01.01(a)	

(3) Fine Bark. Fine Bark shall be the bark of hardwood trees that is milled and screened to a uniform particle size of 2 in. or less. Fine Bark shall be composted and aged for 6 months or longer, and be free from sawdust and foreign materials.

A 1 to 2 lb sample of Fine Bark shall be submitted to the Landscape Operations Division for examination.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTIONS

- a. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. 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.
- b. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- c. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- d. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

Table B.4.1 Materials Specifications for Micro-Bio-retention

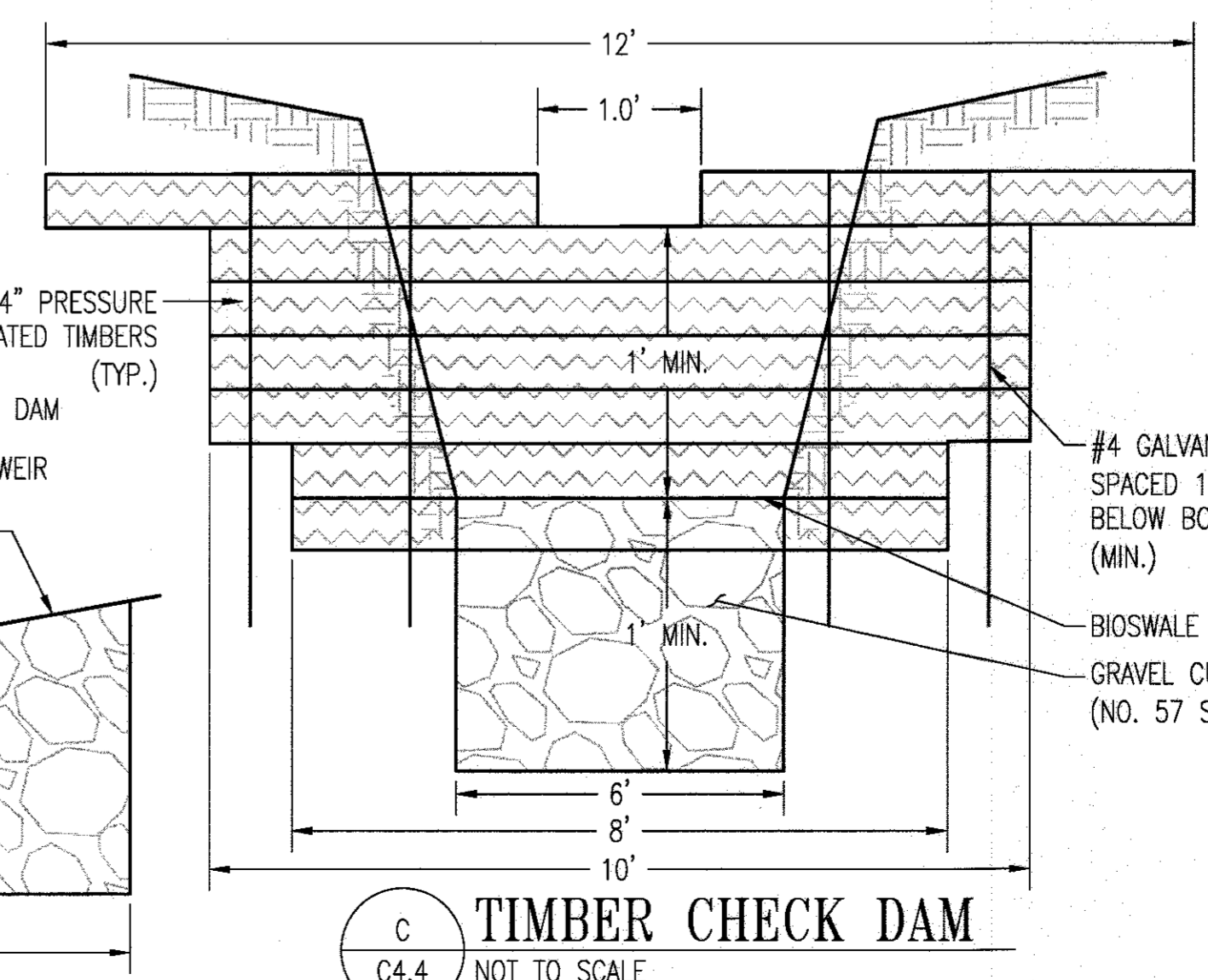
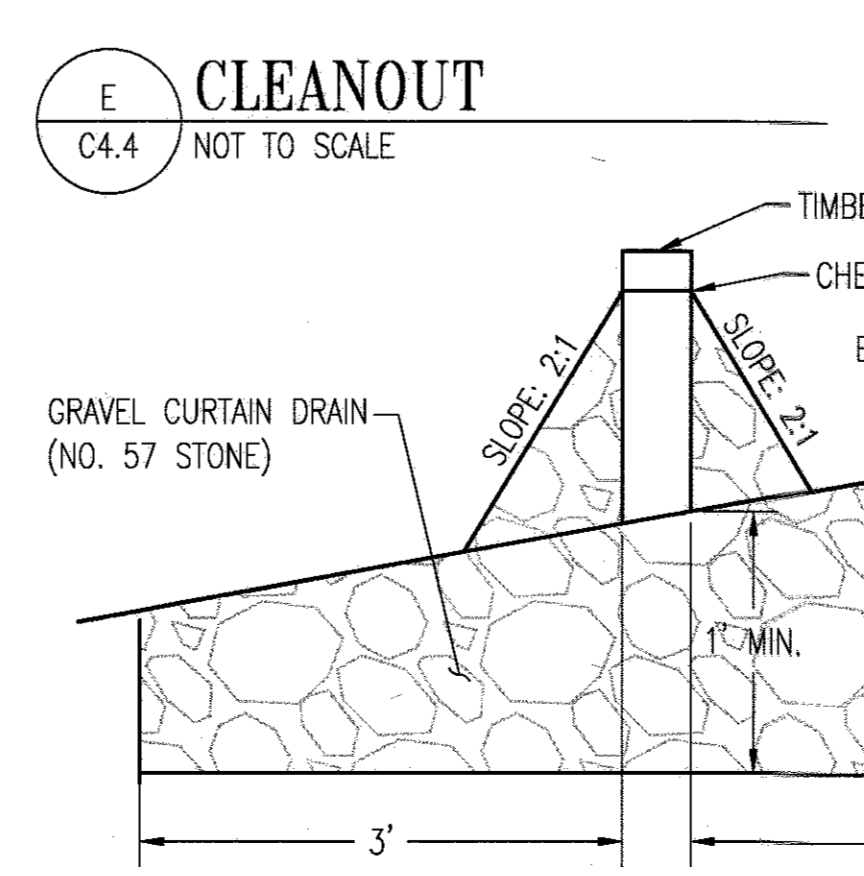
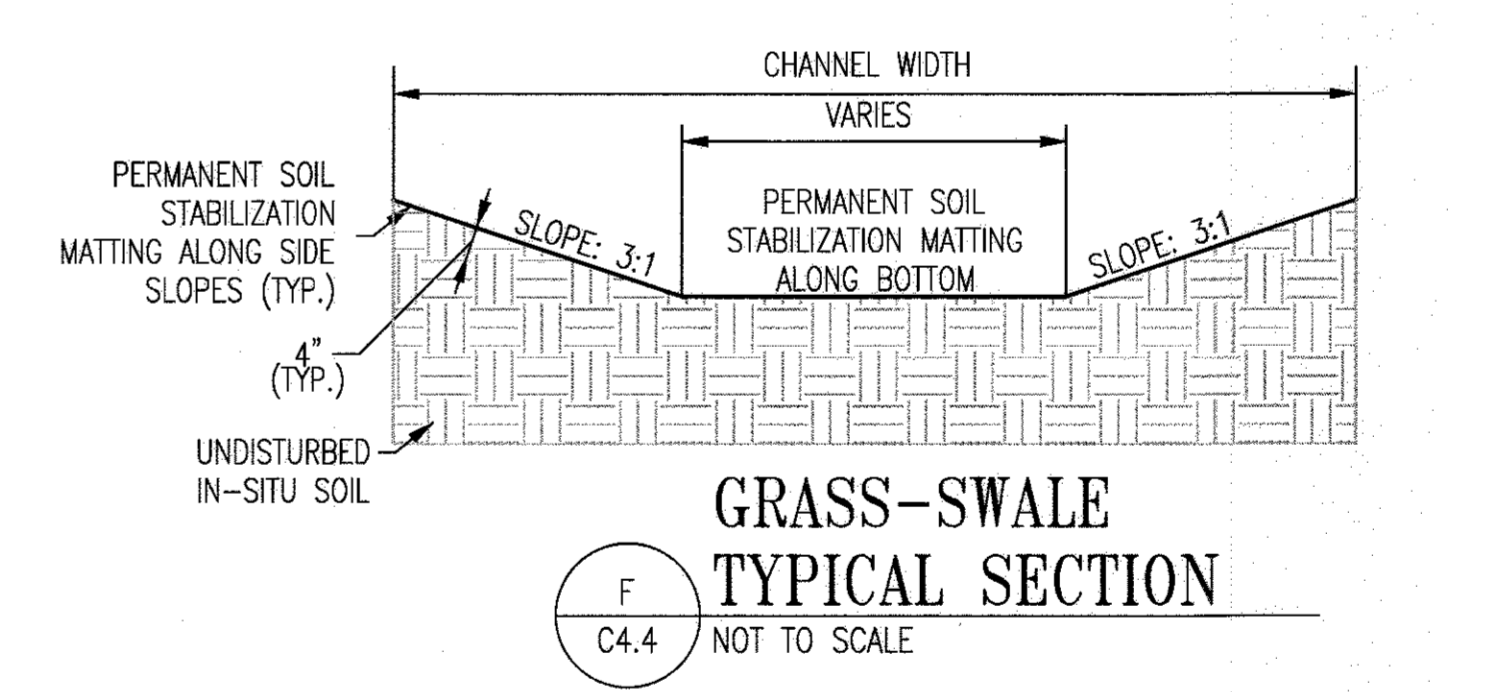
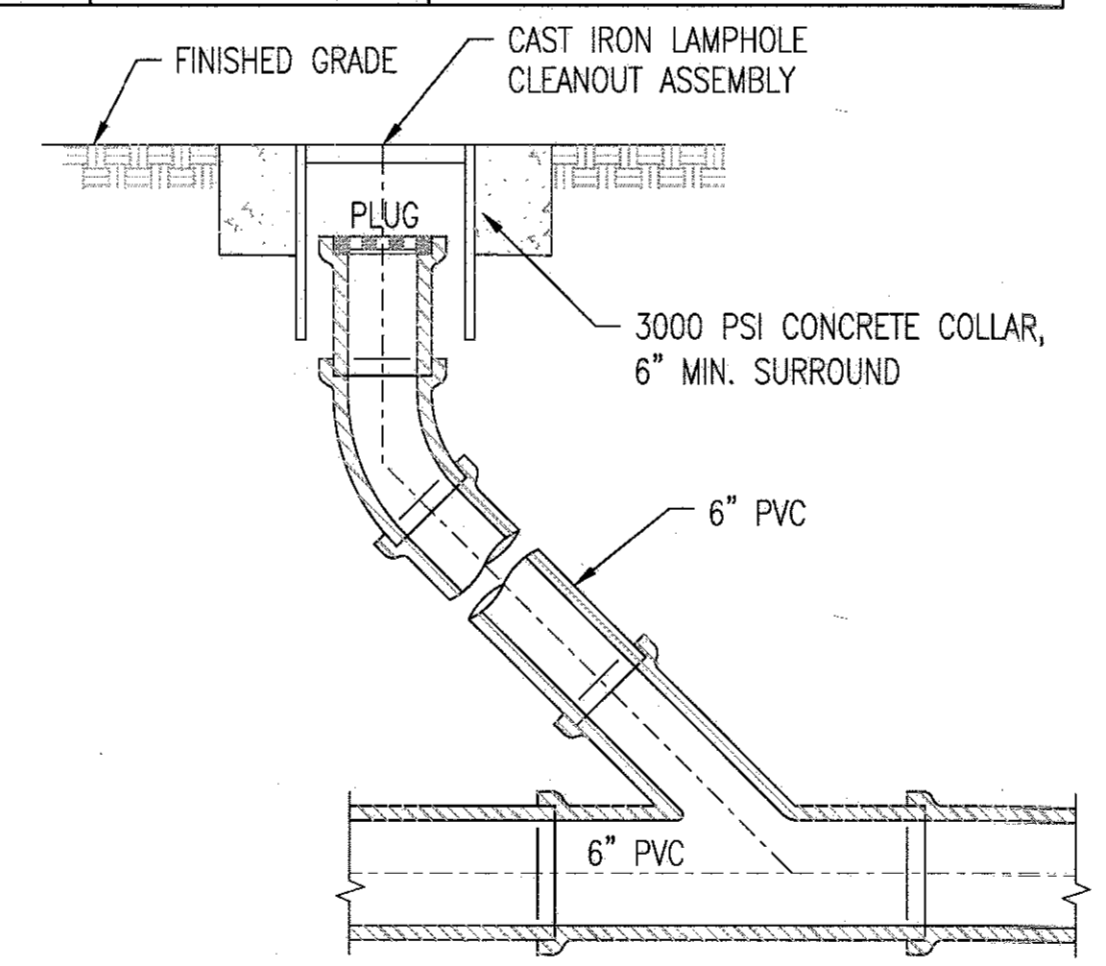
Material	Specification	Size	Notes
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	SPECIFICATION 920.01.05 (SEE BELOW)
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea Gravel	ASTM-D-448	No. 8 or No. 9 (1/8" or 3/8")	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	6" rigid schedule 40 PVC or as shown on plan	Slotted pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3' of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/2-inch galvanized hardware cloth

OPERATION AND MAINTENANCE SCHEDULE FOR GRASS-SWALE

- a. MOW AT LEAST 2 TIMES A YEAR.
- b. REMOVE SEDIMENT, DEBRIS AND TRASH.
- c. RE-SEED SPARSELY VEGETATED AREAS TO MAINTAIN DENSE COVERAGE.
- d. REPAIR EROSION ON BOTTOM, SIDE SLOPES, AND INLETS.
- e. STABILIZE.
- f. IF WATER PONDS FOR MORE THAN 48 HOURS, TILL BOTTOM SOIL AND REVEGETATE.

GRASS SWALE TABLE							
GRASS SWALE NO.	STORAGE DEPTH (FT)	BOTTOM WIDTH (FT)	Q1 (CFS)	V1 (FPS)	Q10 (CFS)	V10 (FPS)	COVER TYPE
GS-2	0.33	6	0.40	1.09	1.56	1.83	GRASS
GS-3	0.33	6	0.26	0.93	1.23	1.68	GRASS
GS-4	0.33	2	0.32	1.72	0.82	2.39	GRASS
GS-5	0.33	2	0.06	0.94	0.26	1.61	GRASS

NOTE: GS-1 NOT USED.



REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

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BLANDAIR REGIONAL PARK - PHASE 3

STORMWATER MANAGEMENT NOTES AND DETAILS
 Drawing No. **C4.4**
 Scale: NOT TO SCALE
 Date: 1/17/2017 Sheet 33 of 76
 Des: AKC Drawn: AKC Check: AUO

HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

- A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
 - Prior to the start of earth disturbance,
 - Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
 - Prior to the start of another phase of construction or opening of another grading unit,
 - Prior to the removal or modification of sediment control practices.

- Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
 - Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
 - All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-3), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-5). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
 - All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.

Site Areas:
 Total Area of Site: Acres
 Area Disturbed: Acres
 Area to be roofed or paved: Acres
 Area to be vegetatively stabilized: Acres
 Total Cut: Cu. Yds.
 Total Fill: Cu. Yds.
 Offsite waste/borrow area location:

Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

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).

- 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.
- 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 be allowed by the CID per the list of HSCD-approved field changes.
- Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the CID, no more than 30 acres cumulatively may be disturbed at a given time.
- Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
- Topsail shall be stockpiled and preserved on-site for redistribution onto final grade.
- All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be emblicated at 2' minimum intervals, with lower ends curled uphill by 2' in elevation.
- Stream channels must not be disturbed during the following restricted time periods (inclusive):
 - Use I and IP March 1 - June 15
 - Use III and IIP October 1 - April 30
 - Use IV March 1 - May 31

HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seedbed preparation: --- loosen upper three inches of soil by raking, disking or other acceptable means before seeding; if not previously loosened.

Soil amendments: --- apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

- Seeding: --- for periods March 1 -- April 30 and from August 15 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.), for the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.), for the period November 16 -- February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.
- mulching: --- apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding, anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. on slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

refer to the 2011 markand standards and specifications for soil erosion and sediment control for additional rates and methods not covered.

HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed preparation: loosen upper three inches of soil by raking, disking or other acceptable means before seeding; if not previously loosened.

- Soil amendments: in lieu of soil test recommendations, use one of the following schedules:
- Preferred --- apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding, harrow or disk into upper three inches of soil, at time of seeding, apply 400 lbs/acre 30-0-0 ureiform fertilizer (9 lbs/1000 sq. ft.)
 - Acceptable --- apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding, harrow or disk into upper three inches of soil.

- Seeding --- for the periods march 1 -- april 30, and august 1 -- october 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of kentucky 31 tall fescue, for the period may 1 -- july 31, seed with 60 lbs/acre kentucky 31 tall fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of october 16 -- february 28, protect site by:
- option 1 -- two tons per acre of well anchored straw mulch and seed as soon as possible in the spring.
 - option 2 -- use sod.
 - option 3 -- seed, with 60 lbs/acre kentucky 30 tall fescue and mulch with 2 tons/acre well anchored straw.
- Mulching --- apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding, anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. on slope 8 ft or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.
- Maintenance --- inspect all seeding areas and make needed repairs, replacements and reseedings.

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition
Using vegetation as cover to protect exposed soil from erosion.

Purpose
To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies
On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization, soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity
Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

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

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

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment
Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

- Adequate vegetative stabilization requires 95 percent groundcover.
- If an area has less than 40 percent groundcover, restabilize following the original recommendations for time, fertilizer, seedbed preparation, and seeding.
- If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
- Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

Definition
Establishment of vegetative cover on cut and fill slopes.

Purpose
To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies
Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

- Incremental Stabilization - Cut Slopes
 - Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
 - Construction sequence example (Refer to Figure B.1)
 - Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
 - Perform Phase 1 excavation, prepare seedbed, and stabilize.
 - Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
 - Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.
- Once excavation has begun, the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

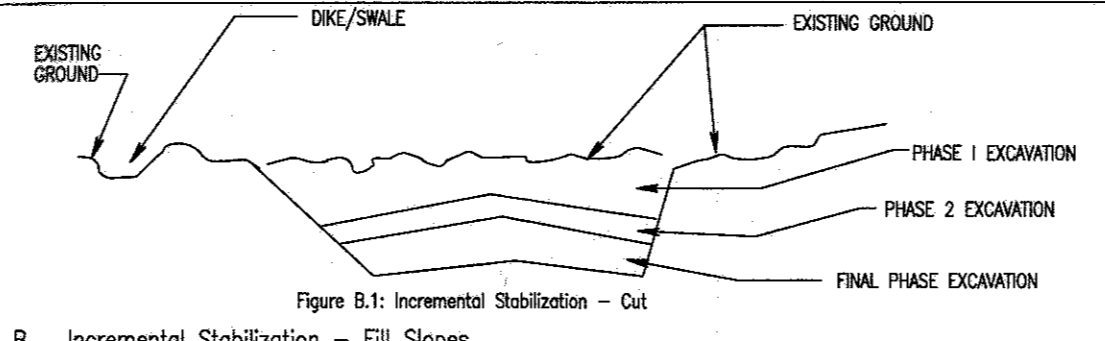


Figure B.1: Incremental Stabilization - Cut

- Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
- Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
- At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
- Construction sequence example (Refer to Figure B.2):
 - Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
 - At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
 - Place Phase 1 fill, prepare seedbed, and stabilize.
 - Place Phase 2 fill, prepare seedbed, and stabilize.
 - Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

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

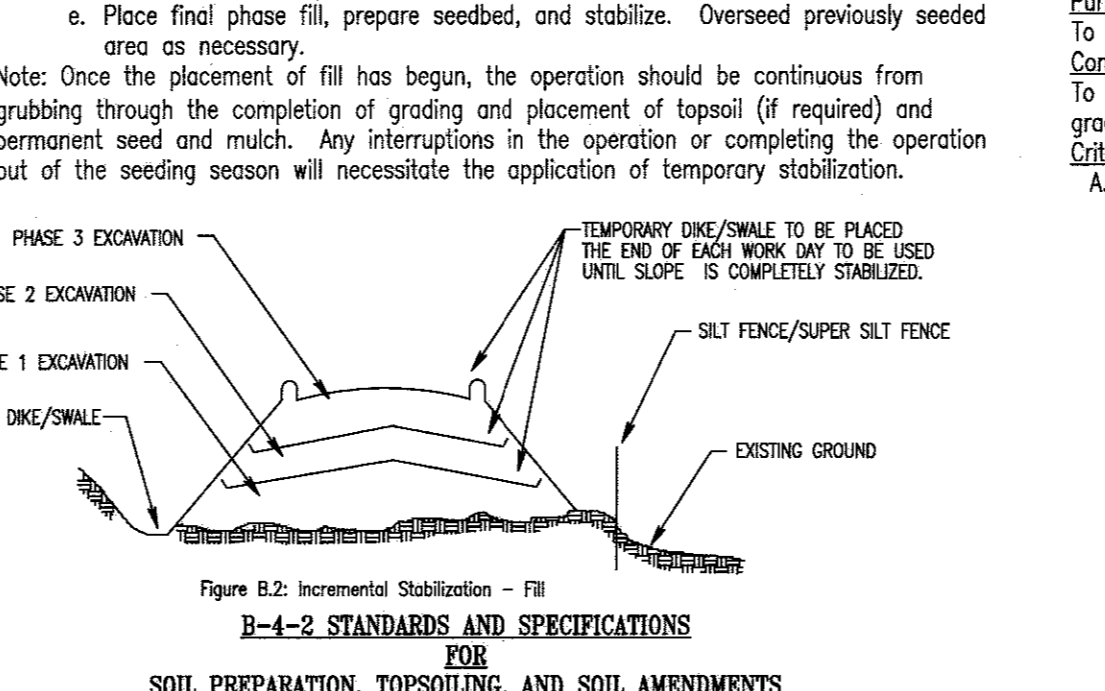


Figure B.2: Incremental Stabilization - Fill

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

- 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 dogged 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.
 - 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 loess/loam 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.
- Topsoiling
 - 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. Take 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.

- Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must 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 calcium (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

- Seeding
 - 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 dissipation of phytotoxic materials.
 - 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 seeded area with a weighted roller to provide good seed to soil contact.
 - Drill or Outfitter Seeding: Mechanized seeders that apply and cover seed with soil. Outfitter 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 (phosphorus), 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.
 - 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 an species of grass is desired.
 - Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous spinnable slurry.
 - WFSM 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.
 - WFSM, including dye, must contain no germination or growth inhibiting factors. WFSM 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 blatter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WFSM material must not contain elements or compounds at concentration levels that will be phytotoxic to plants.
 - WFSM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

Hardiness Zone (from Figure B.3): 5b	Seed Mixture (from Table B.1):	Fertilizer Rate (10-20-20)	Lime Rate	
Annual Ryegrass	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	
	40	3/1-7/15	1/2"	
	30	8/1-10/15	1/2"	
30	5/16-7/31	1/2"	436 lb/acre (10lb/1000sf)	2 tons/acre (90 lb/1000sf)

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

- 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 Planning.
 - 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) for 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, playground, and commercial sites which will receive a medium to high level of maintenance. b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - 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/Time 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 Time 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 Current 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)
 - Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
 - Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
- Fill 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 seedlings 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 seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 2a	Seed Mixture (from Table B.1): 11	Fertilizer Rate (10-20-20)	Lime Rate
Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths
Creeping Red Fescue	30	3/1-10/15	1/2"-3/4"
Chewings Fescue	30	3/1-10/15	1/2"-3/4"
Kentucky Bluegrass	15	3/1-10/15	1/2"-3/4"
		90 lb/acre (2lb/1000sf)	90 lb/acre (2lb/1000sf)
		2 tons/acre (90 lb/1000sf)	

ENGINEER'S CERTIFICATION

"I HEREBY 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."

Anthony U. Olsen 1/23/17
 SIGNATURE OF ENGINEER DATE
 (PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATION

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

John R. Roberts 1-20-17
 SIGNATURE OF DEVELOPER DATE
 (PRINT NAME BELOW SIGNATURE)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

John R. Roberts 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

John R. Roberts 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John R. Roberts 3-19-17
 DIRECTOR DATE

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

John R. Roberts 1/23/17
 HOWARD SOIL CONSERVATION DISTRICT DATE

HOWARD COUNTY
 DEPARTMENT OF
 RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF
 PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

Anthony U. Olsen

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. 19376
 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

EROSION AND SEDIMENT CONTROL NOTES

Drawing No.

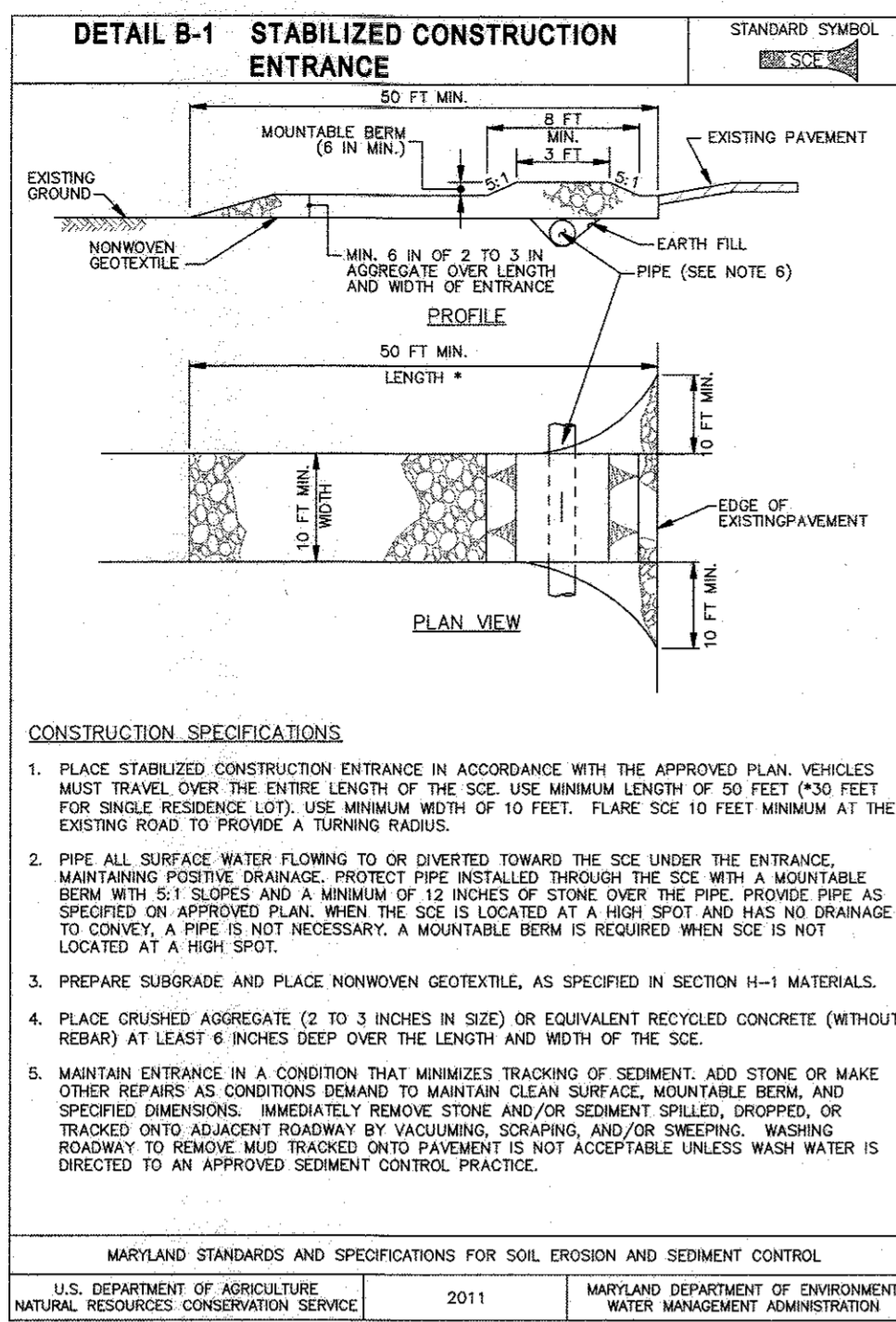
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Date: 1/17/2017 Sheet 34 of 76

Des: BWJ Drawn: AKC Check: AUO

SDP-15-050



B-4-8 STANDARDS AND SPECIFICATIONS

FOR STOCKPILE AREA

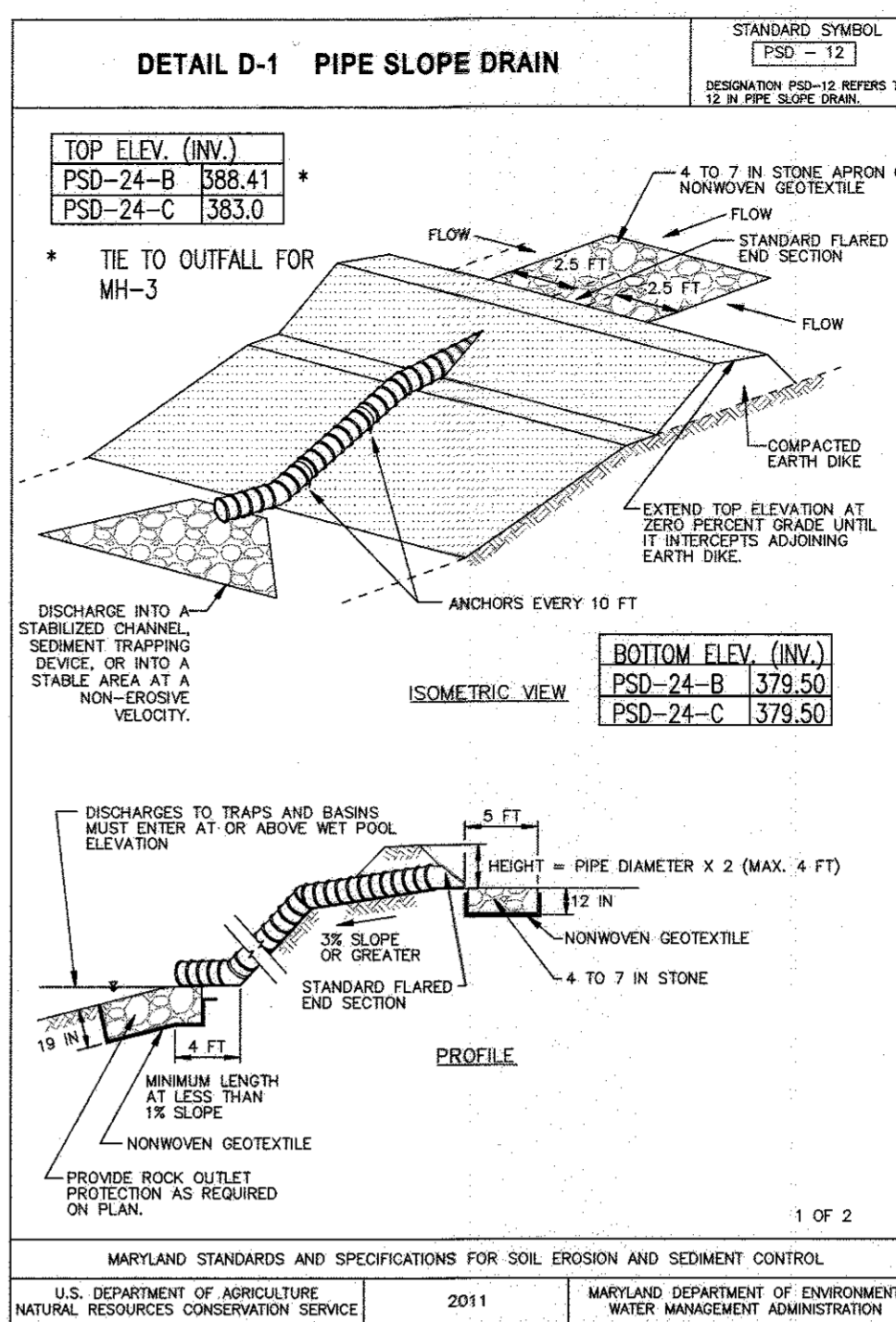
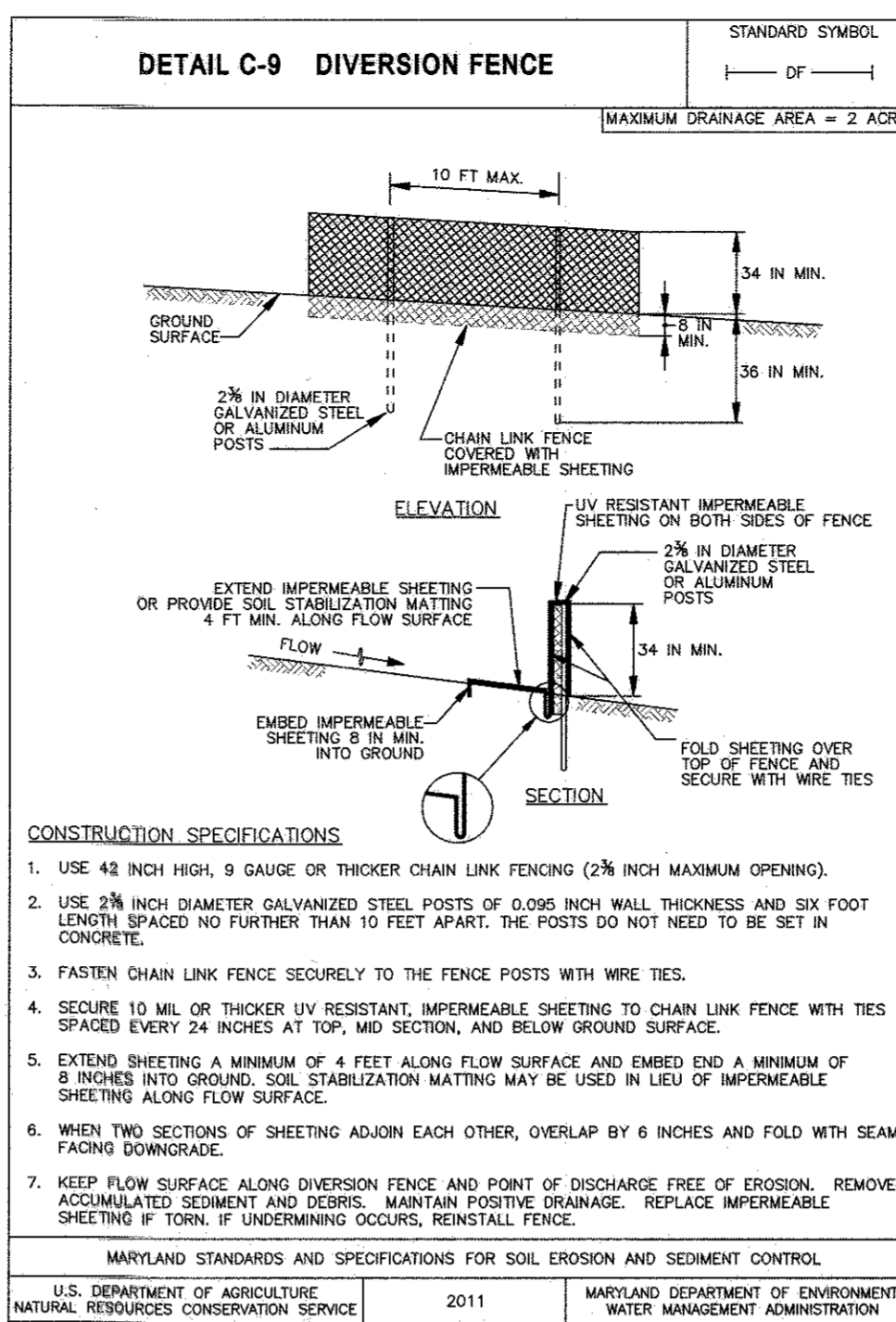
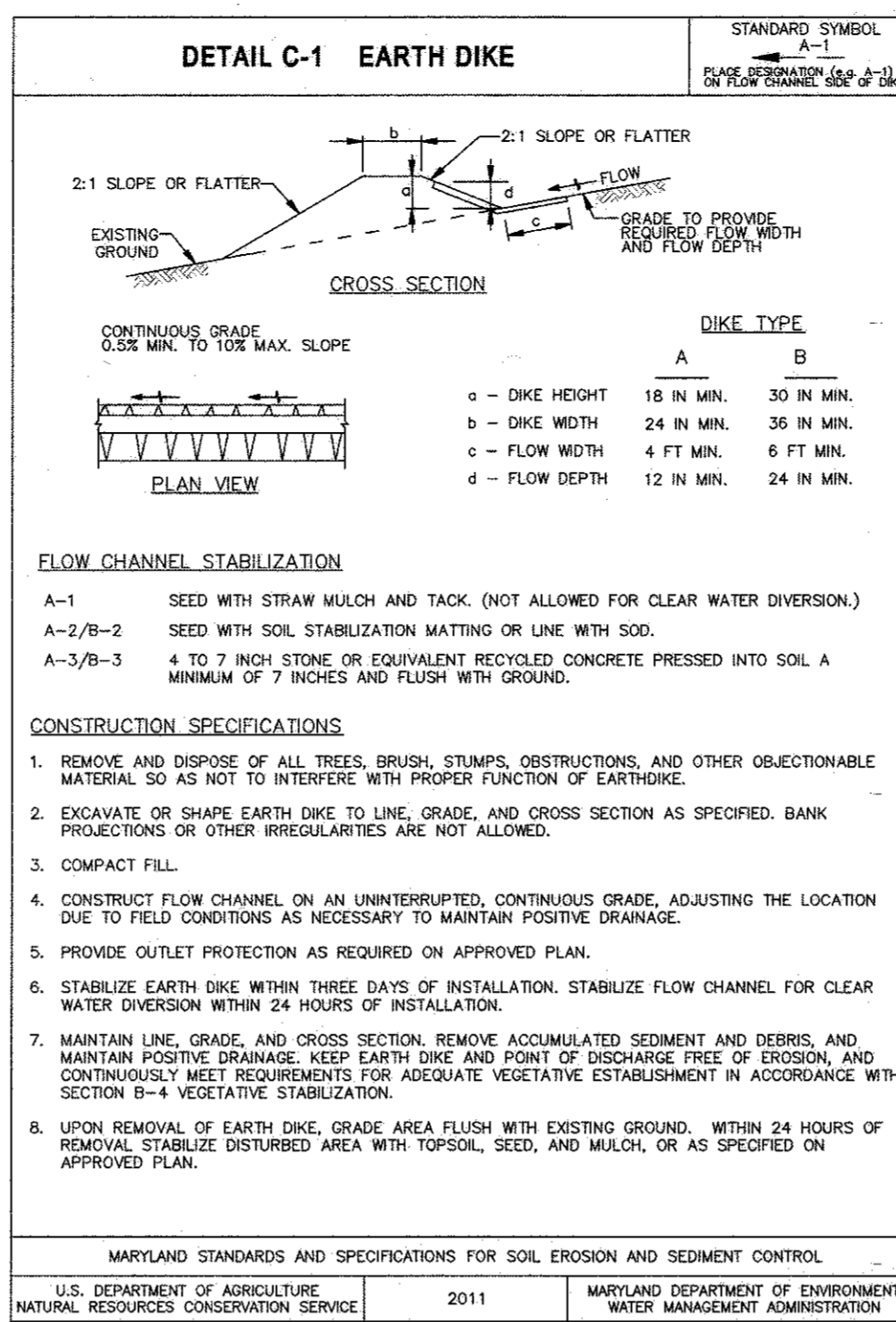
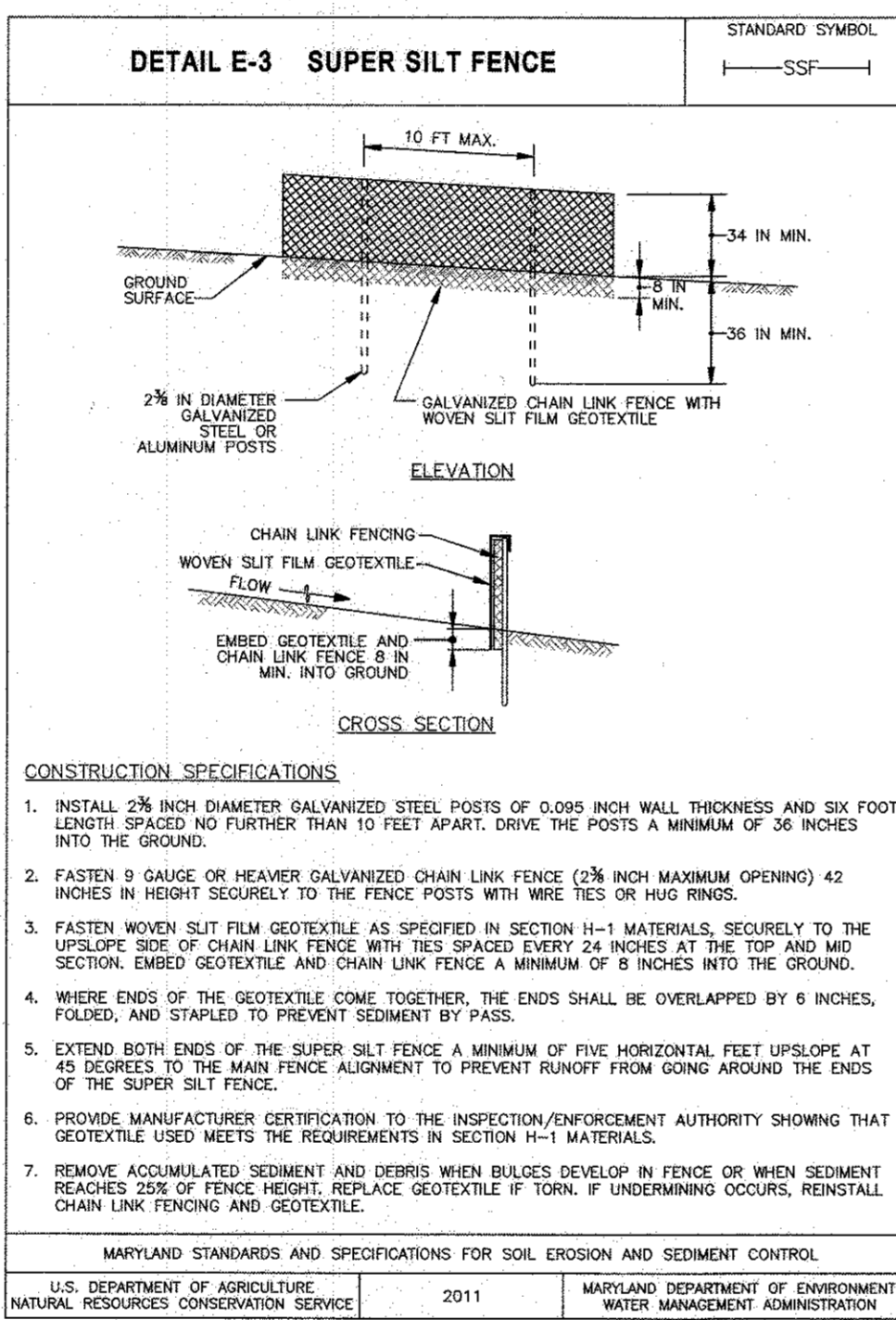
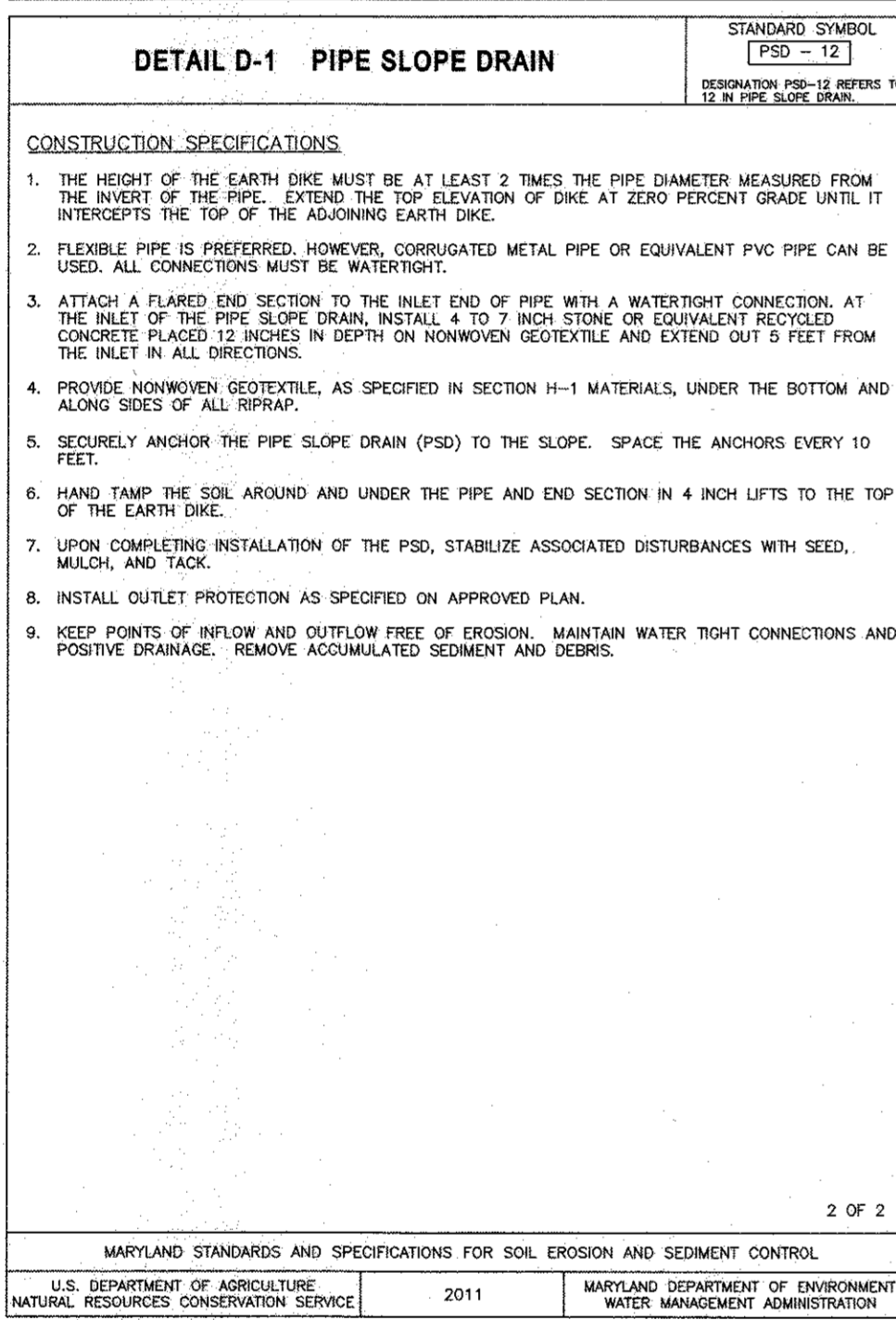
Purpose:
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Conditions Where Practice Applies:
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access to the stockpile area from the upgrade side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 37 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance:
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.



ENGINEER'S CERTIFICATION
I HEREBY 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.

Anthony H. Olson
SIGNATURE OF ENGINEER
(PRINT NAME BELOW SIGNATURE)

1/23/17
DATE

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

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

1-20-17
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

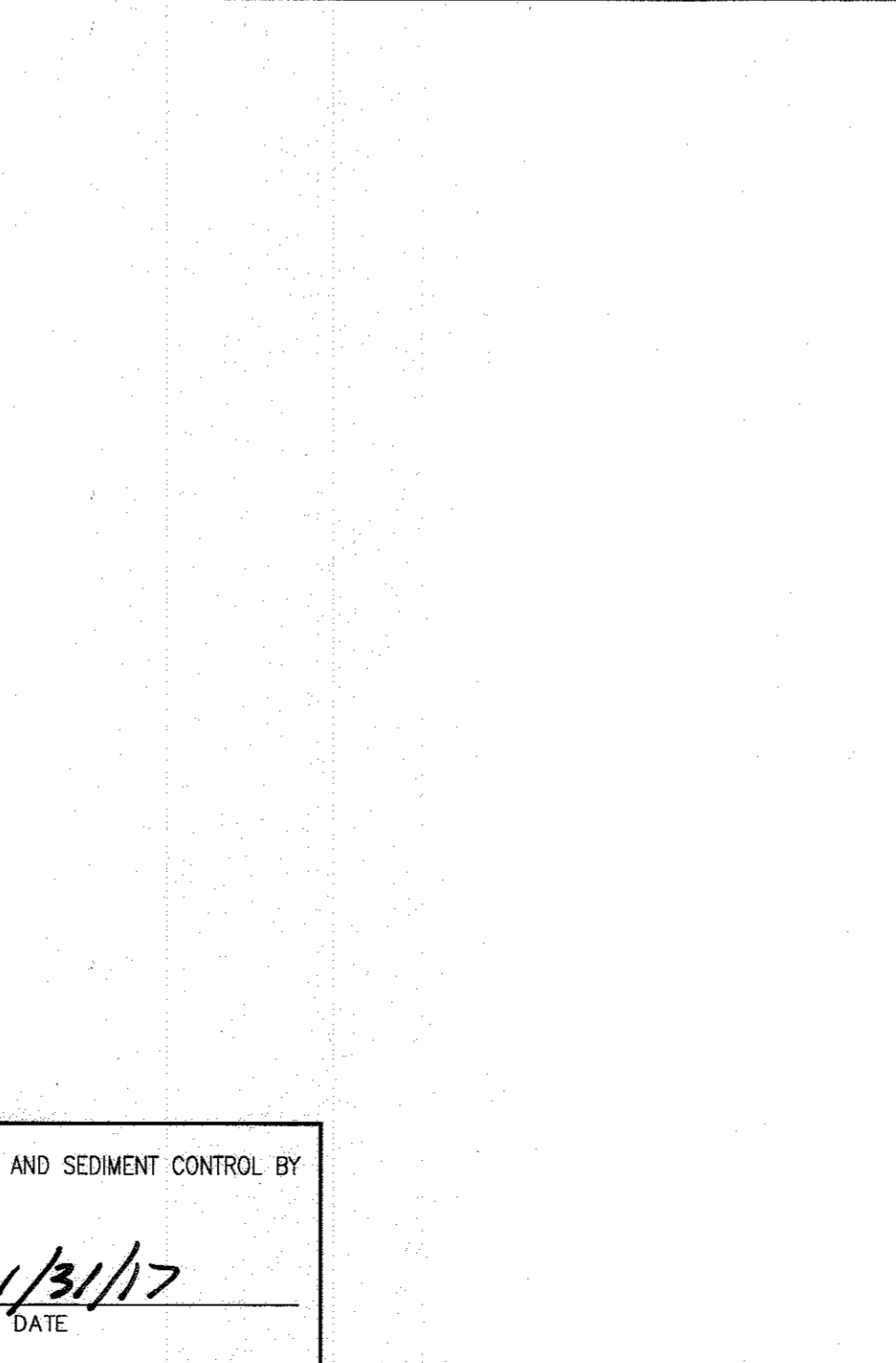
2-6-17
DATE

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

3-01-17
DATE

John C. Roberts
SIGNATURE OF DEVELOPER
(PRINT NAME BELOW SIGNATURE)

3-19-17
DATE



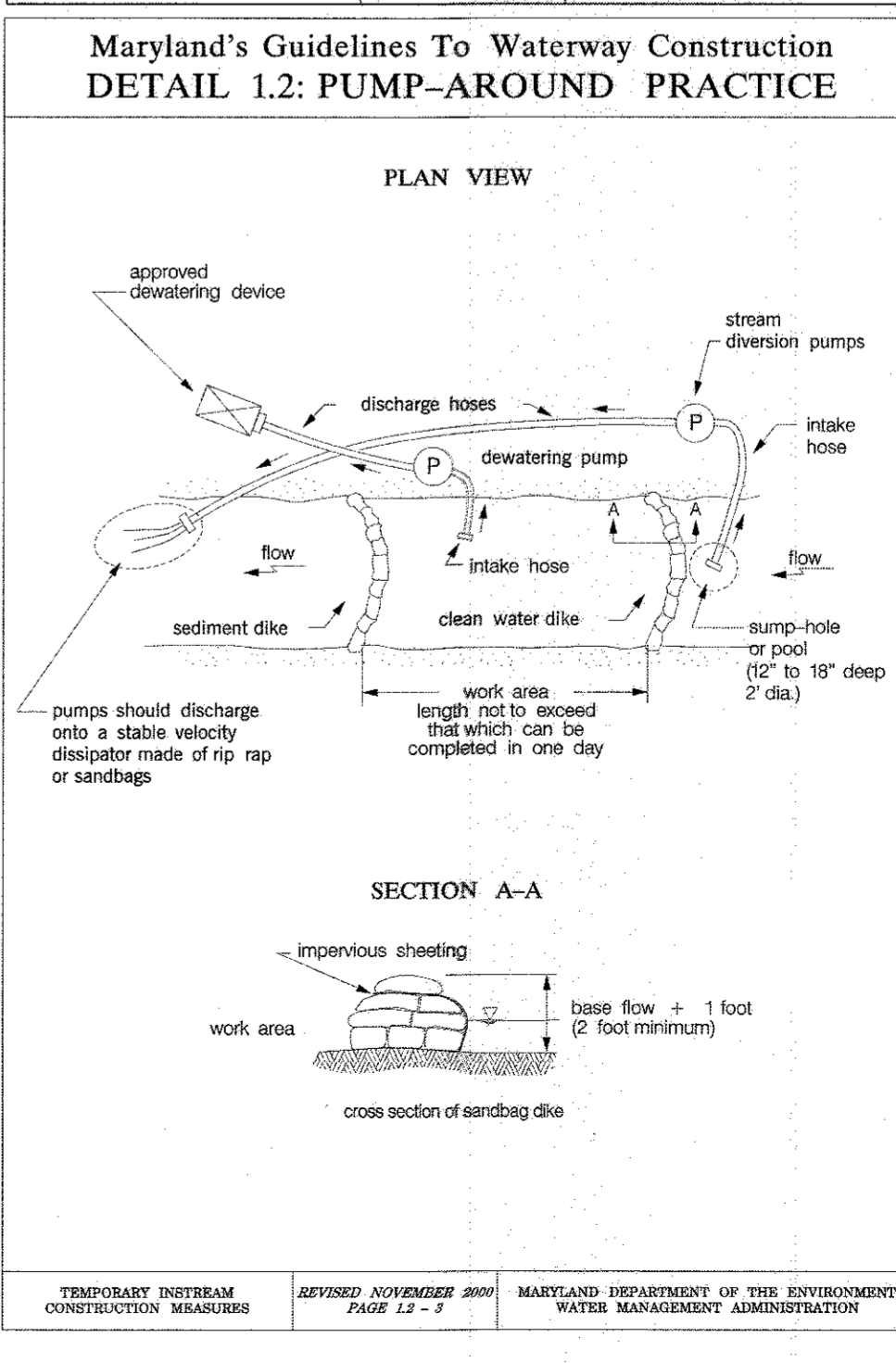
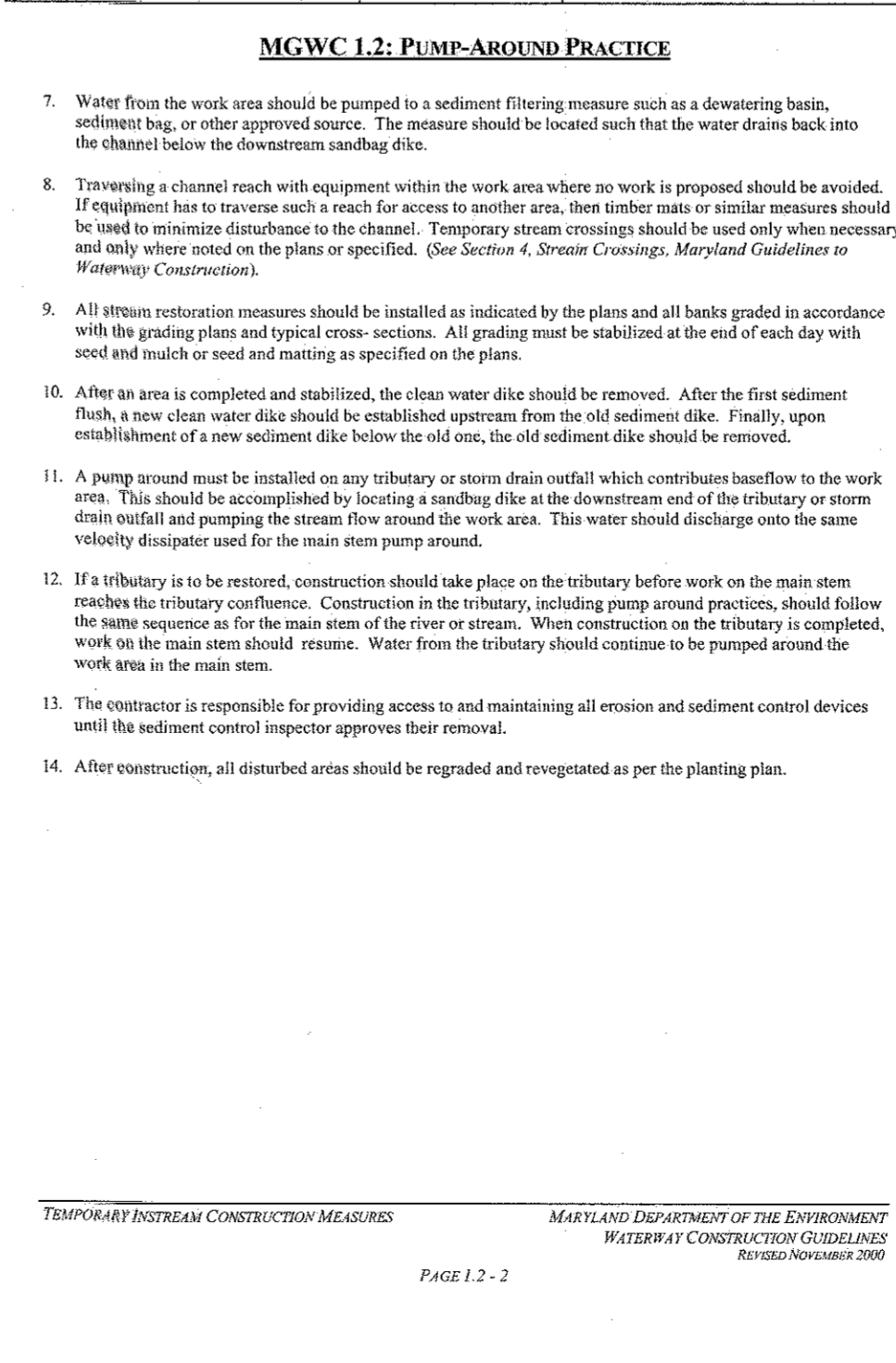
MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION:
The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE:
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging area and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plan and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction easements. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipator made of riprap or sandbags.



REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18376
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL DETAILS

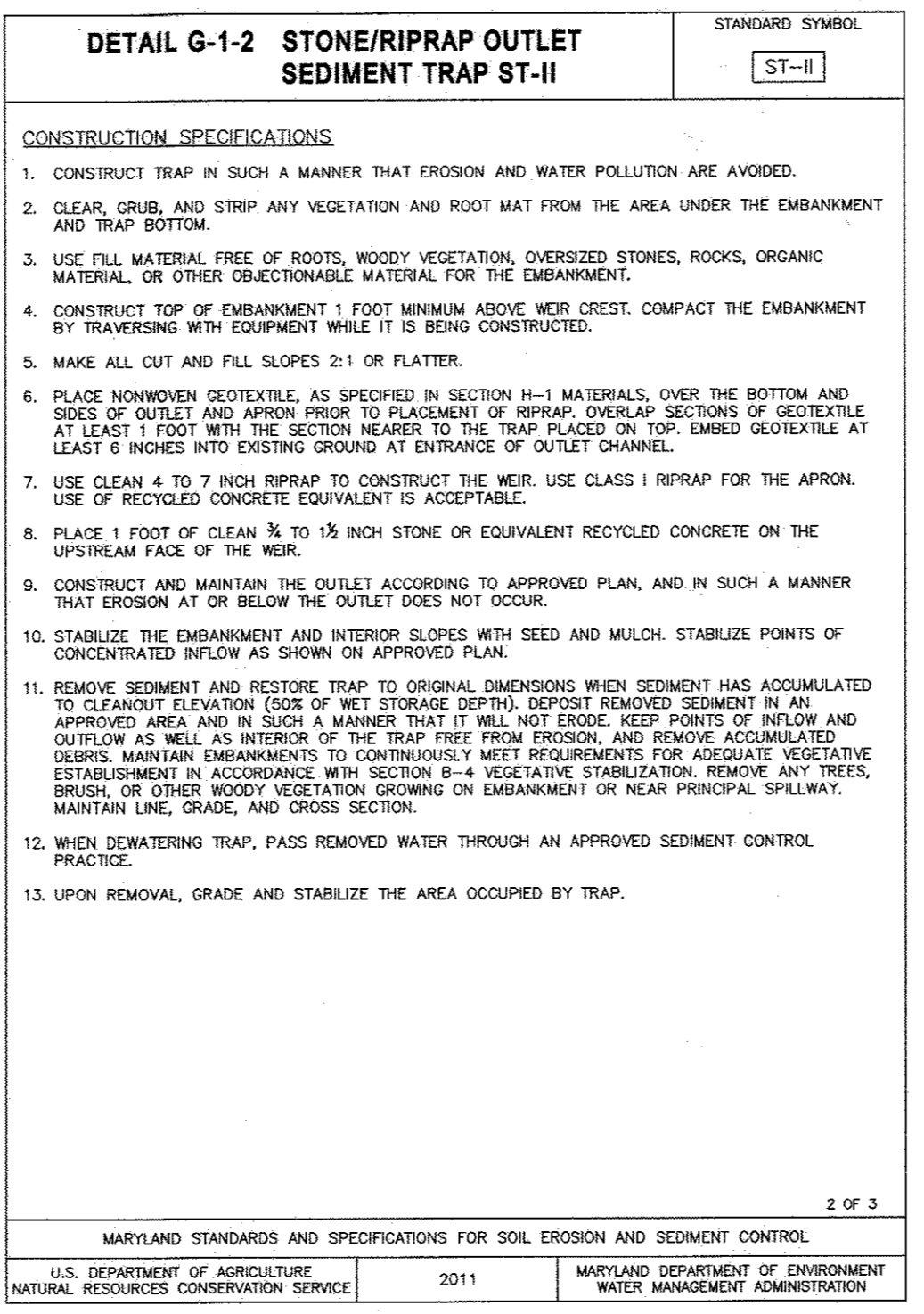
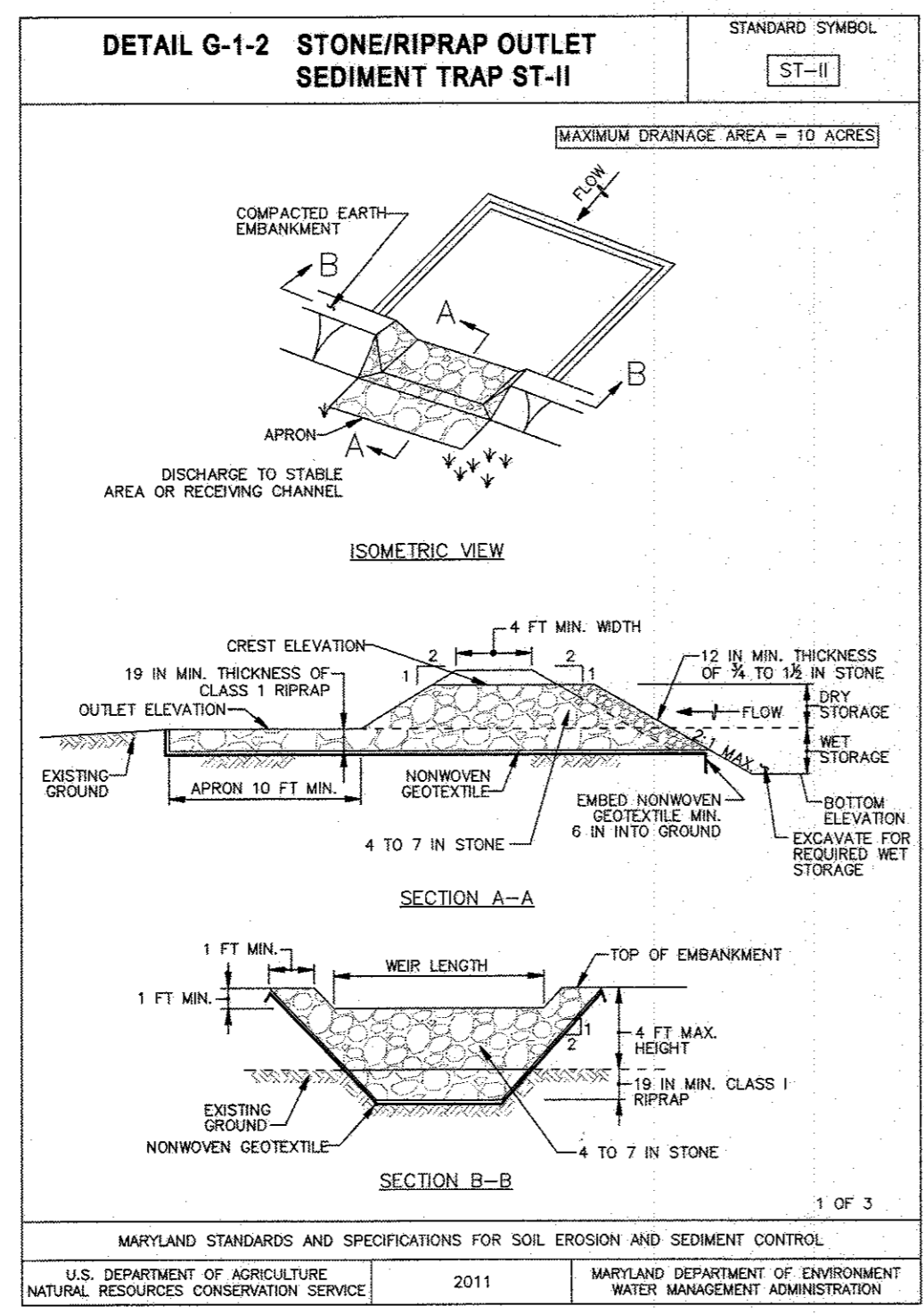
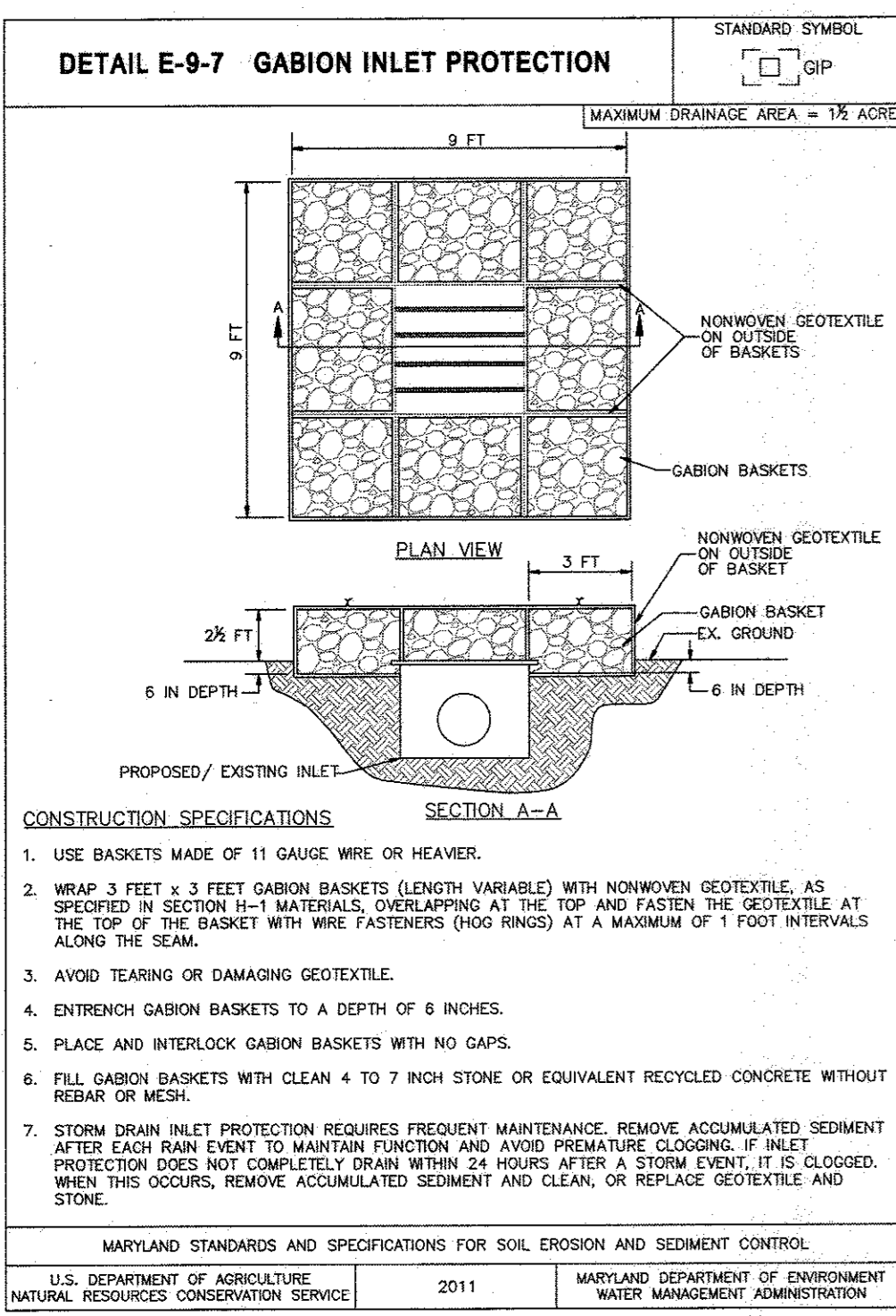
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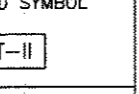
Date: 1/17/2017 Sheet 35 of 76

Des: BWJ Drawn: AKC Check: AUO

FILED IN 2017-02-07 10:00 AM APPROVED BY P&Z



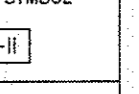
DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: 

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 1		
DRAINAGE AREA - INITIAL	2.36	ACRES
DRAINAGE AREA - INTERIM	2.36	ACRES
DRAINAGE AREA - FINAL	2.36	ACRES
TOTAL STORAGE REQUIRED	8,516	CF
NET STORAGE REQUIRED	4,258	CF
WET STORAGE PROVIDED	6,055	CF
DRY STORAGE PROVIDED	4,258	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	381.5	FT
TRAP BOTTOM ELEVATION	379.0	FT
TRAP BOTTOM DIMENSIONS	42' X 86'	FT X FT
WEIR LENGTH	12'	FT
WEIR CREST (DRY STORAGE) ELEVATION	382.5	FT
CLEANOUT ELEVATION	379.6	FT
TOP OF EMBANKMENT ELEVATION	383.5	FT
SIDE SLOPE	3:1	H:V RATIO
EMBANKMENT TOP WIDTH	5	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	4	IN

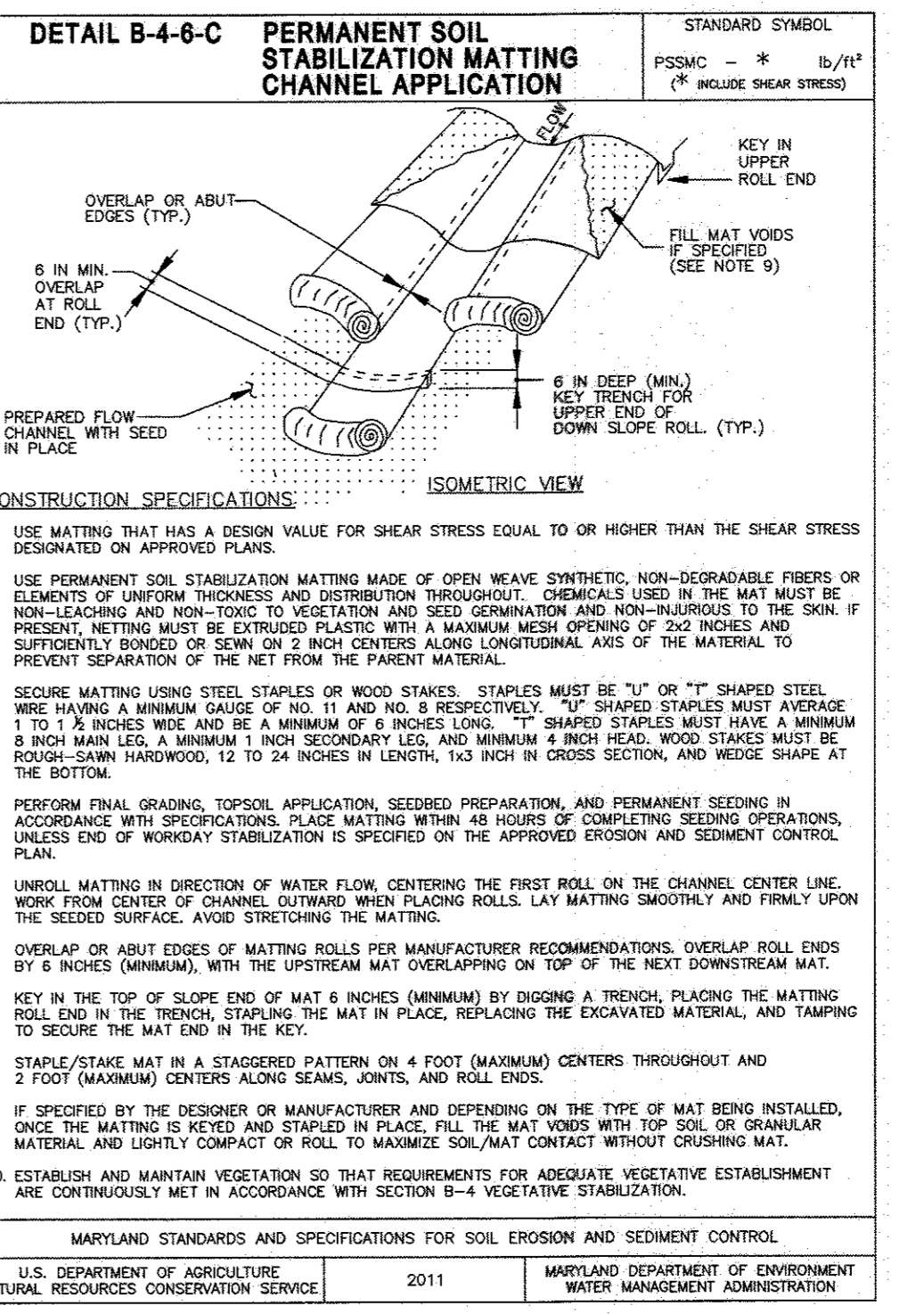
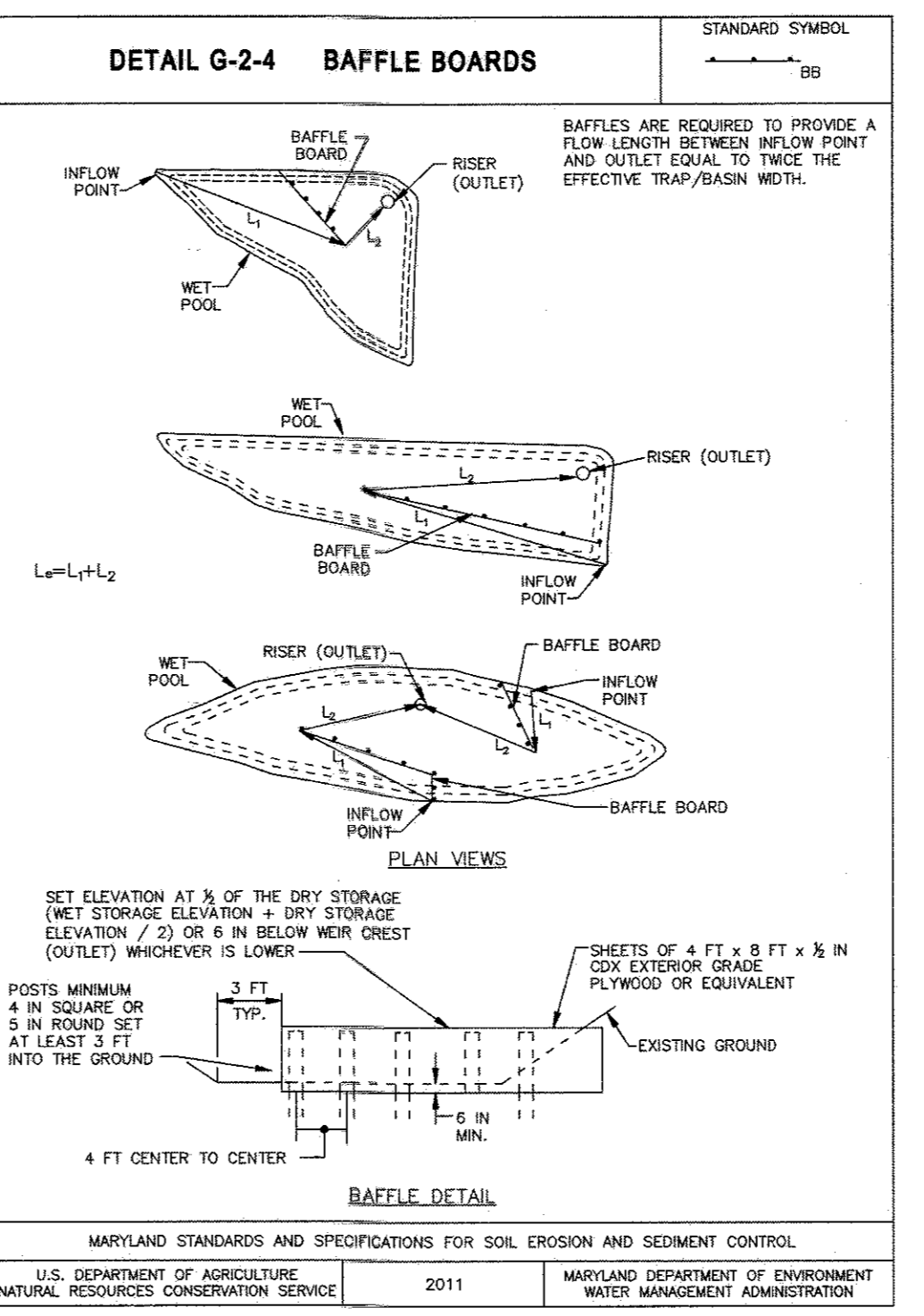
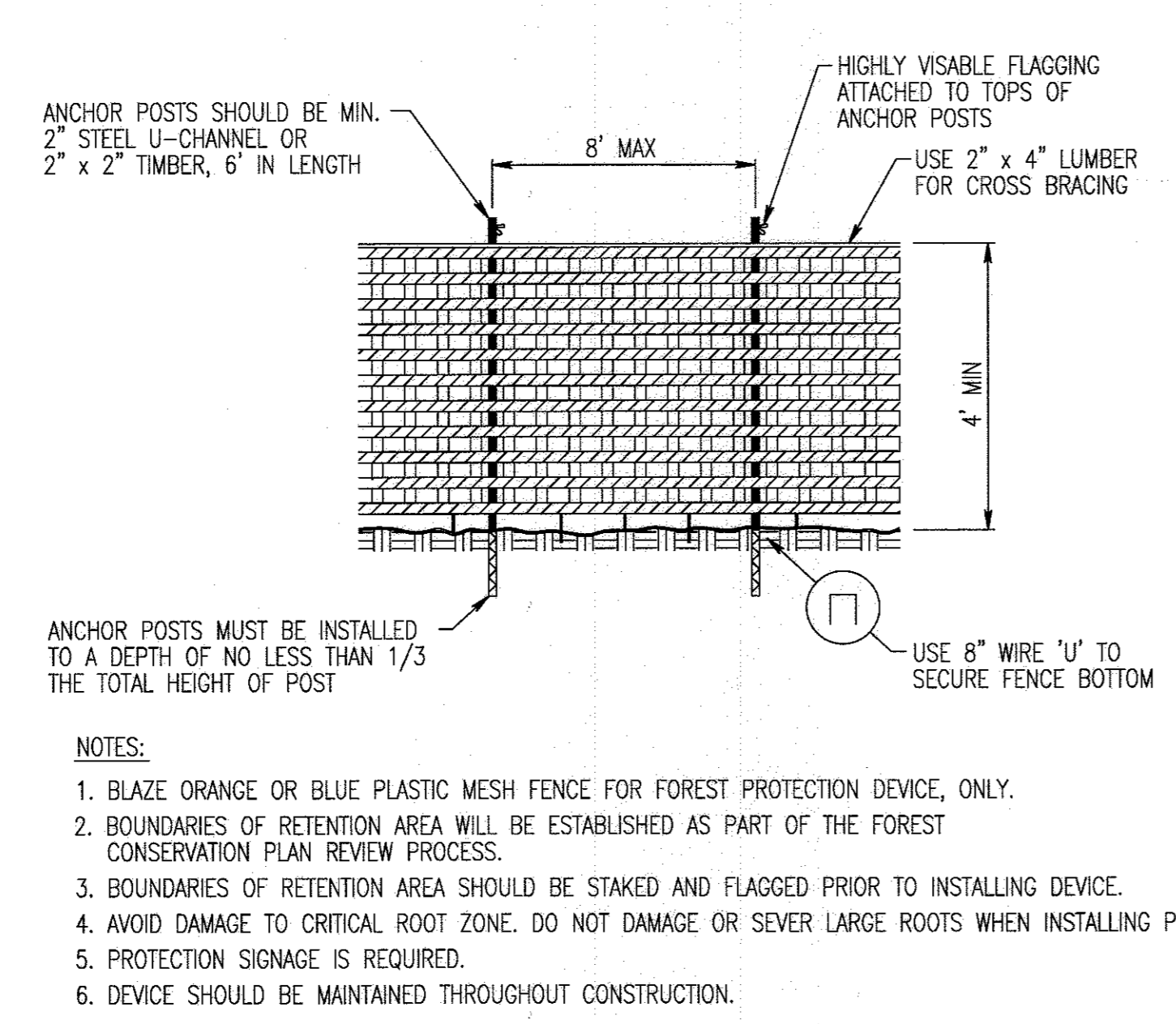
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: 

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 2		
DRAINAGE AREA - INITIAL	3.58	ACRES
DRAINAGE AREA - INTERIM	3.58	ACRES
DRAINAGE AREA - FINAL	3.58	ACRES
TOTAL STORAGE REQUIRED	12,900	CF
NET STORAGE REQUIRED	13,574	CF
WET STORAGE PROVIDED	6,450	CF
DRY STORAGE PROVIDED	6,715	CF
DRY STORAGE REQUIRED	6,450	CF
DRY STORAGE PROVIDED	6,859	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	378.0	FT
TRAP BOTTOM ELEVATION	376.0	FT
TRAP BOTTOM DIMENSIONS	21' X 48'	FT X FT
WEIR LENGTH	15'	FT
WEIR CREST (DRY STORAGE) ELEVATION	379.5	FT
CLEANOUT ELEVATION	377.5	FT
TOP OF EMBANKMENT ELEVATION	380.5	FT
SIDE SLOPE	3:1	H:V RATIO
EMBANKMENT TOP WIDTH	5	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	4	IN

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011



ENGINEER'S CERTIFICATION

I HEREBY 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.

Anthony H. Olson 1/23/17
SIGNATURE OF ENGINEER DATE
(PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATION

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

A.H. Olson 1-20-17
SIGNATURE OF DEVELOPER DATE
(PRINT NAME BELOW SIGNATURE)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Phil Blah 2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Neil M. Taylor 3.01.17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Neil M. Taylor 3.19.17
DIRECTOR DATE

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

John R. Roberts 1/31/17
HOWARD SOIL CONSERVATION DISTRICT DATE

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

STATE OF MARYLAND
PROFESSIONAL ENGINEERING BOARD
1937

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. 19378
EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

EROSION AND SEDIMENT CONTROL DETAILS

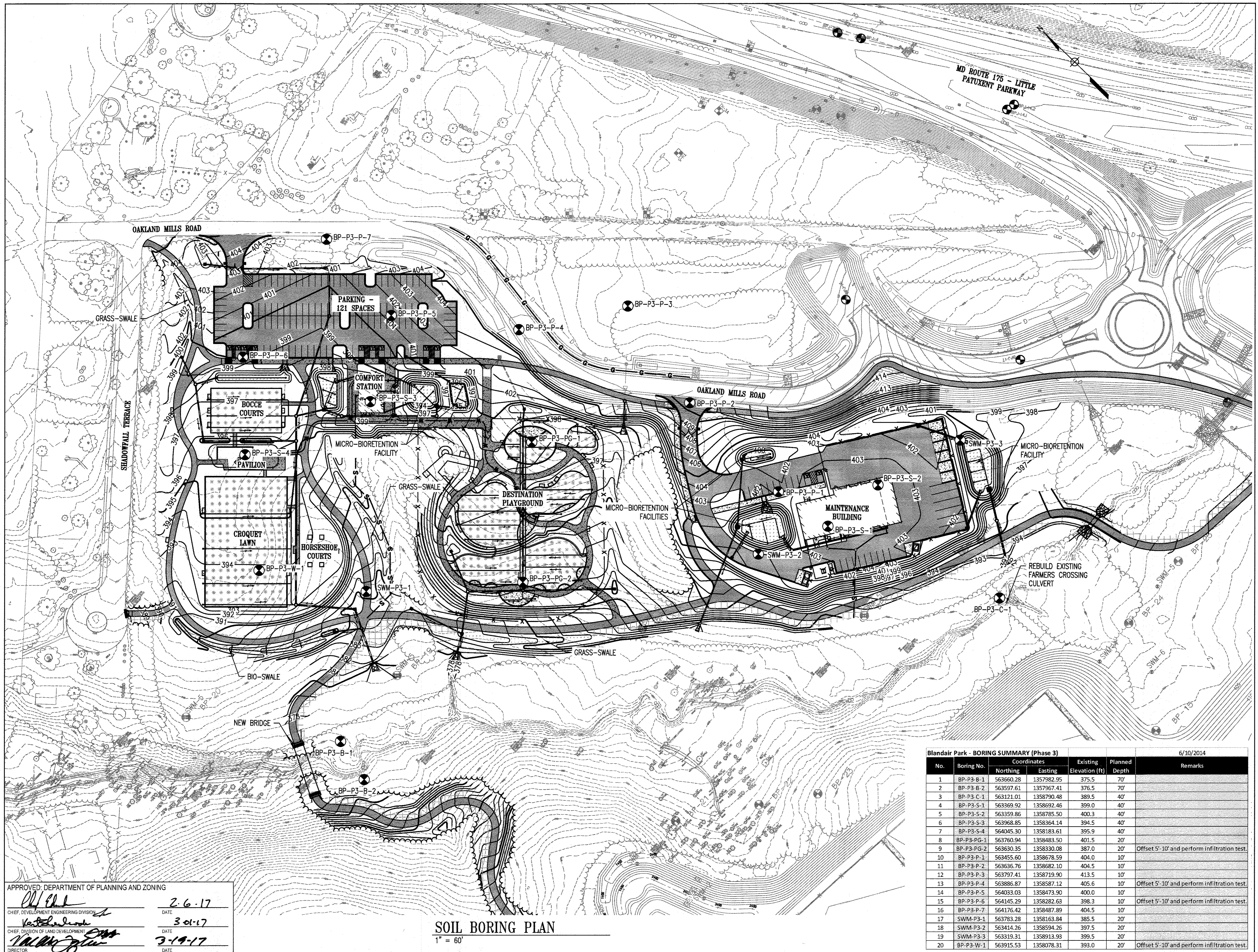
Drawing No. C5.3

Scale: NOT TO SCALE

Date: 1/17/2017 Sheet 36 of 76

Des: BWJ/SAD Drawn: AKC Check: AUO

SDP-15-050

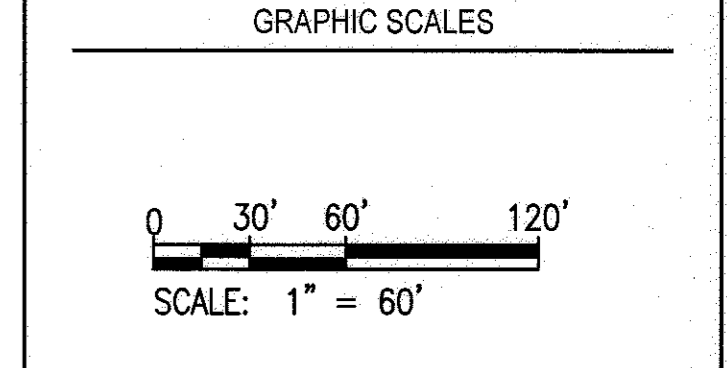


REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Carolina Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

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 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. 18378, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SOIL BORING PLAN
 Drawing No. **C6.1**
 Scale: 1" = 60'
 Date: 1/17/2017 Sheet 37 of 76
 Des: SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING

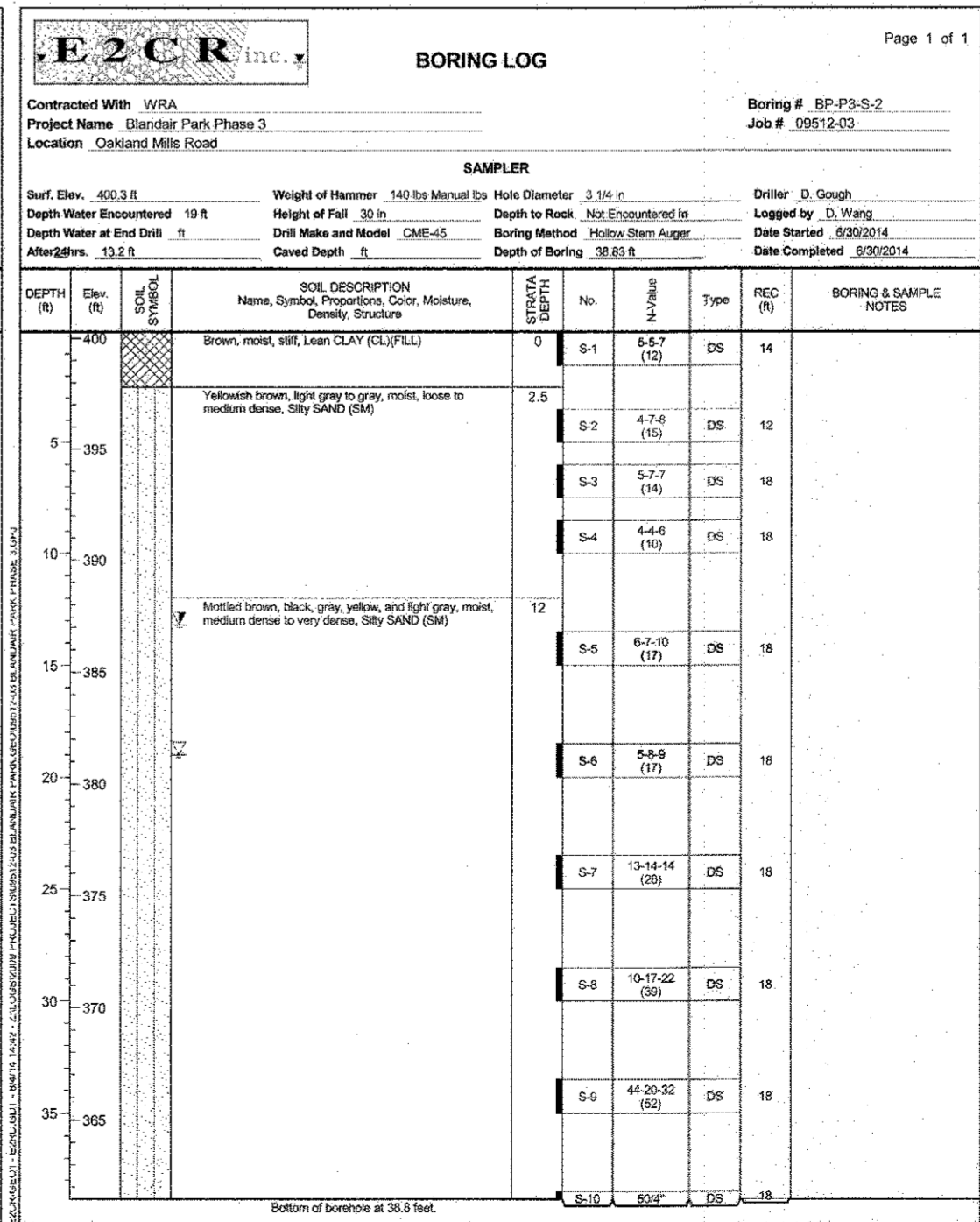
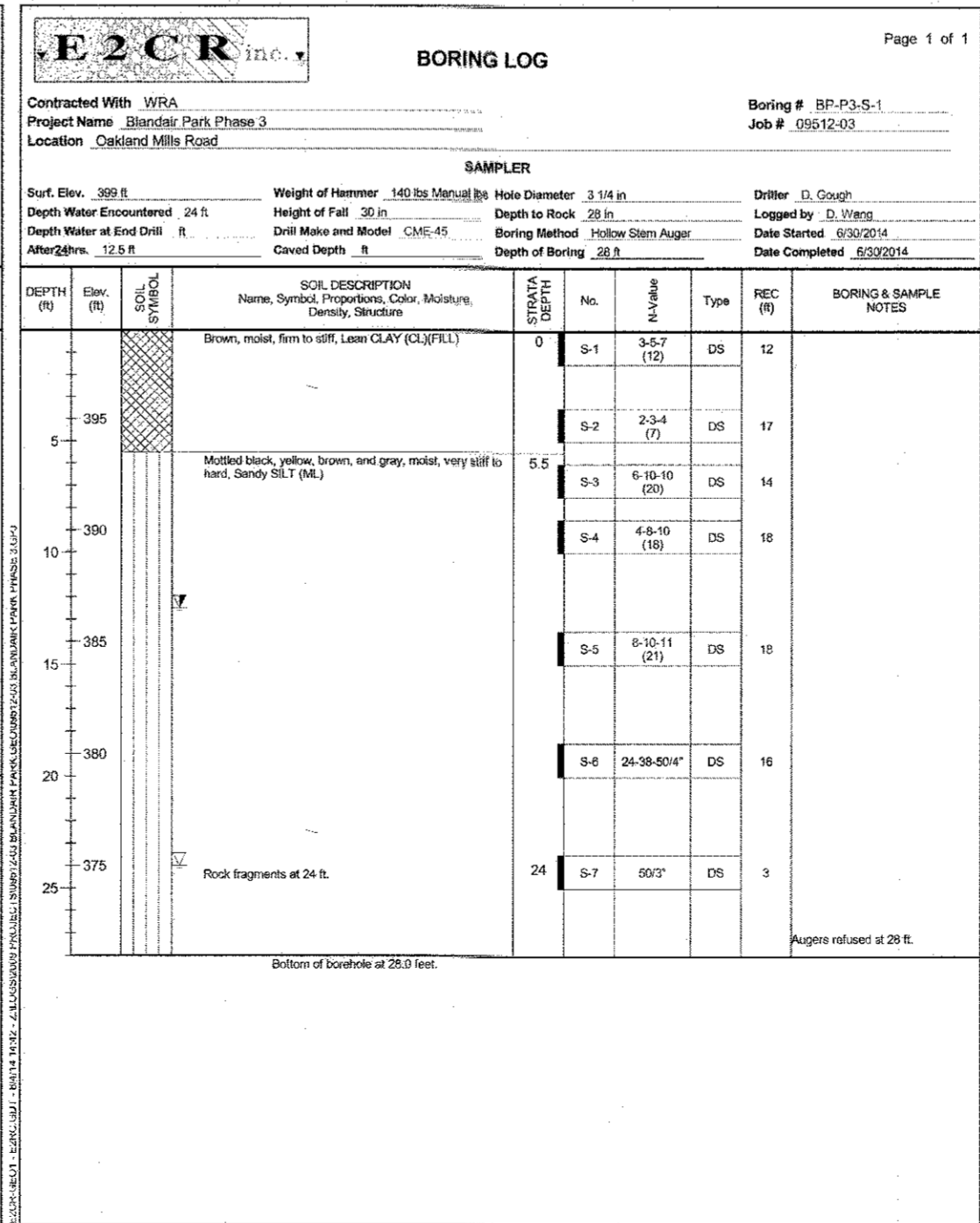
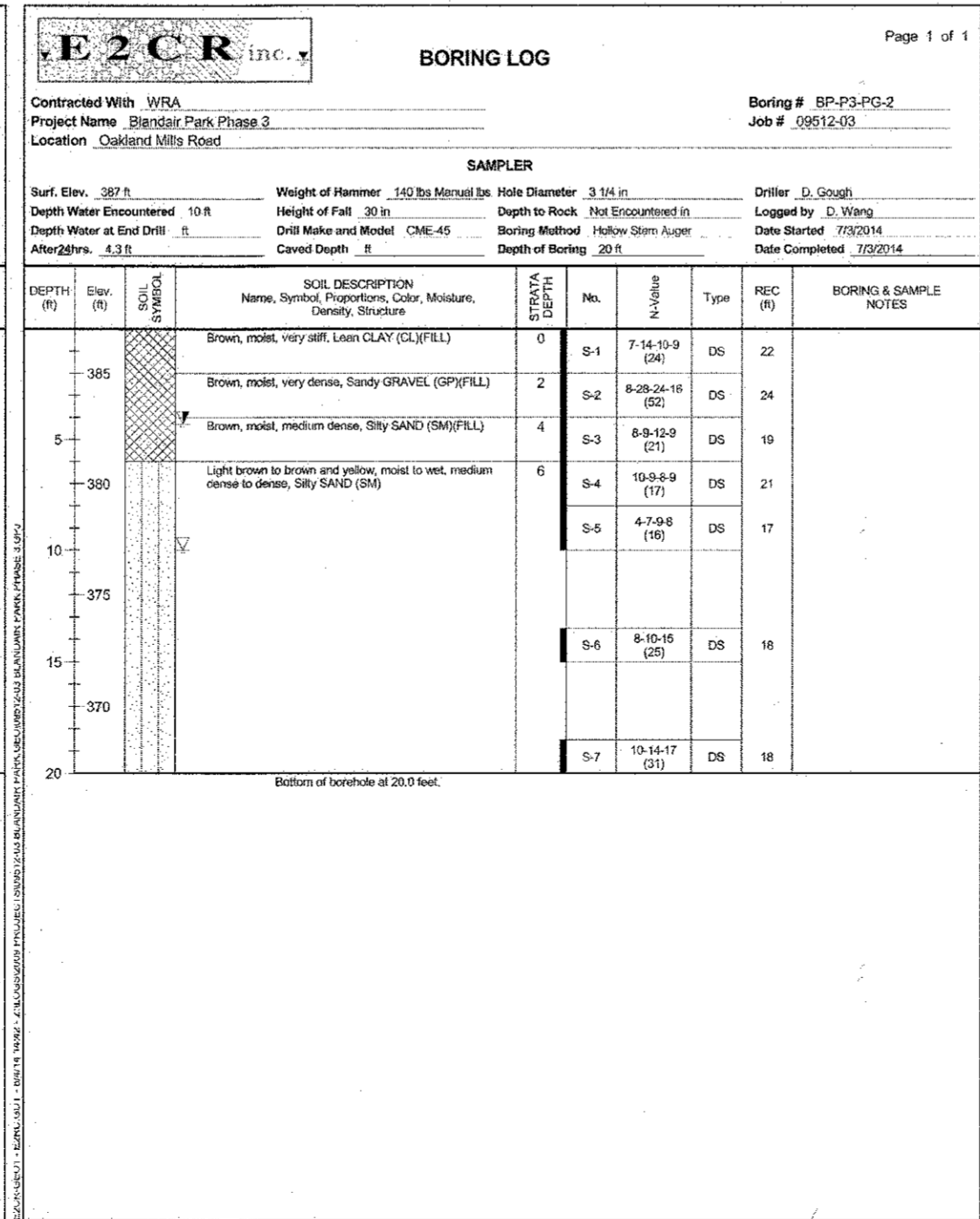
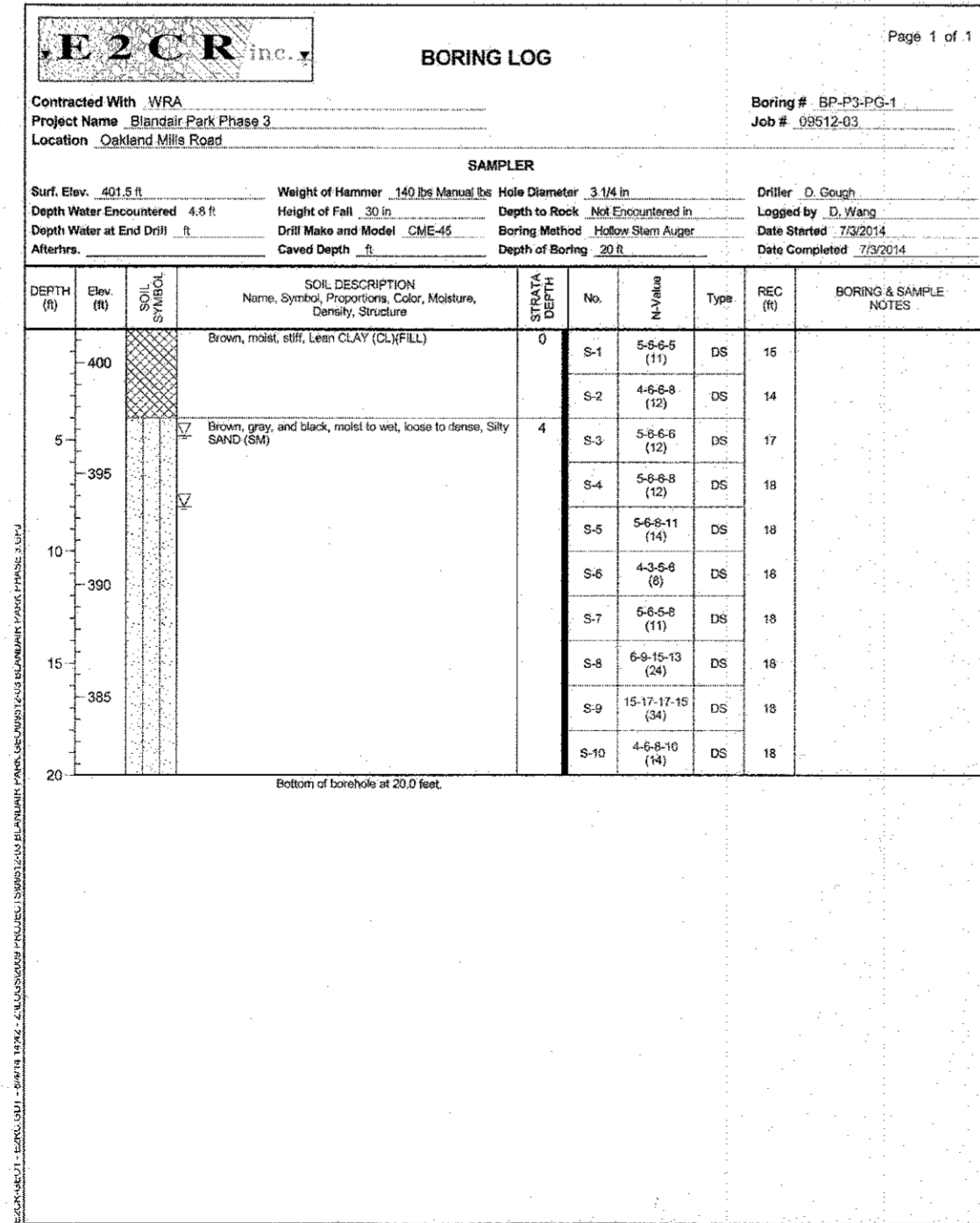
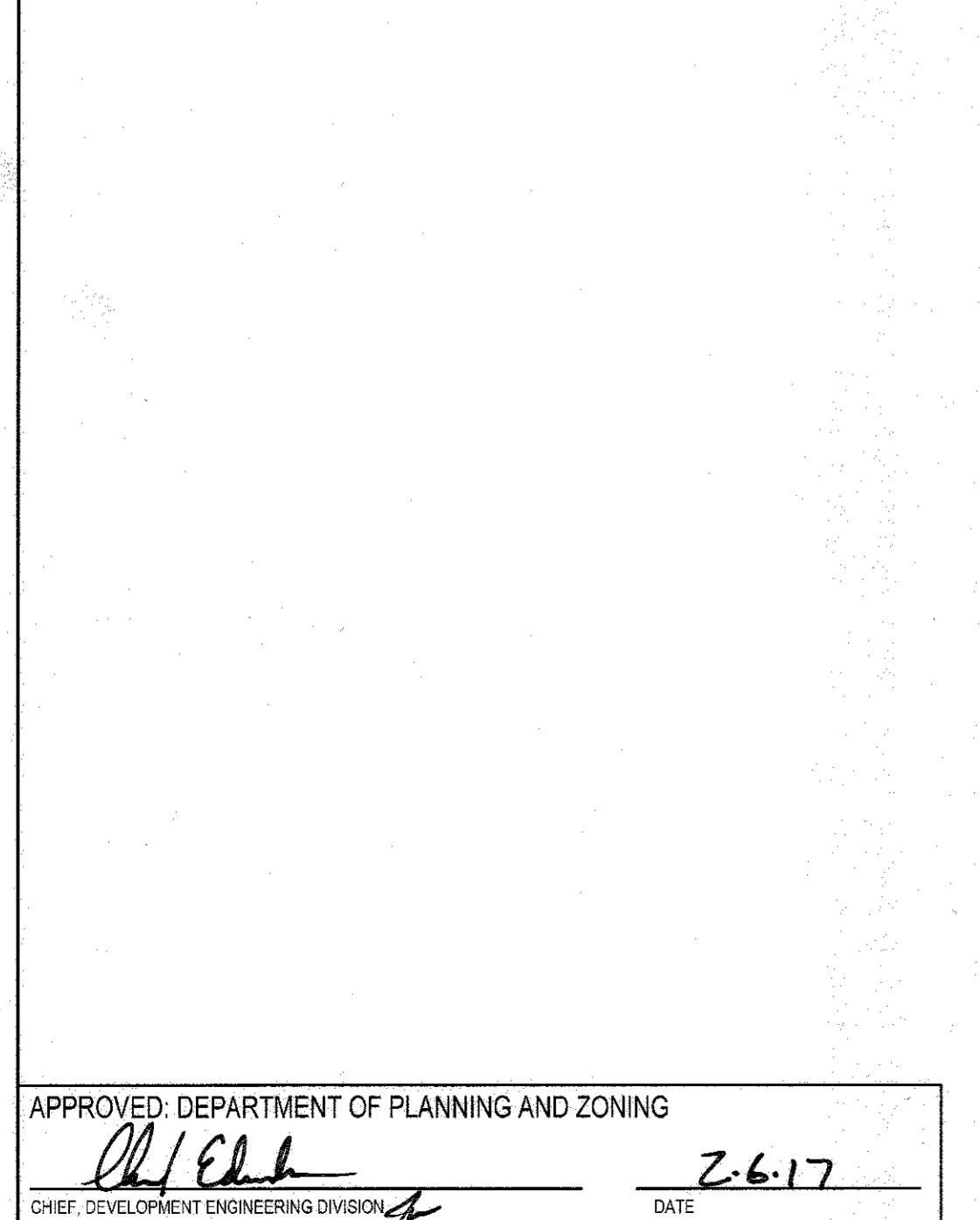
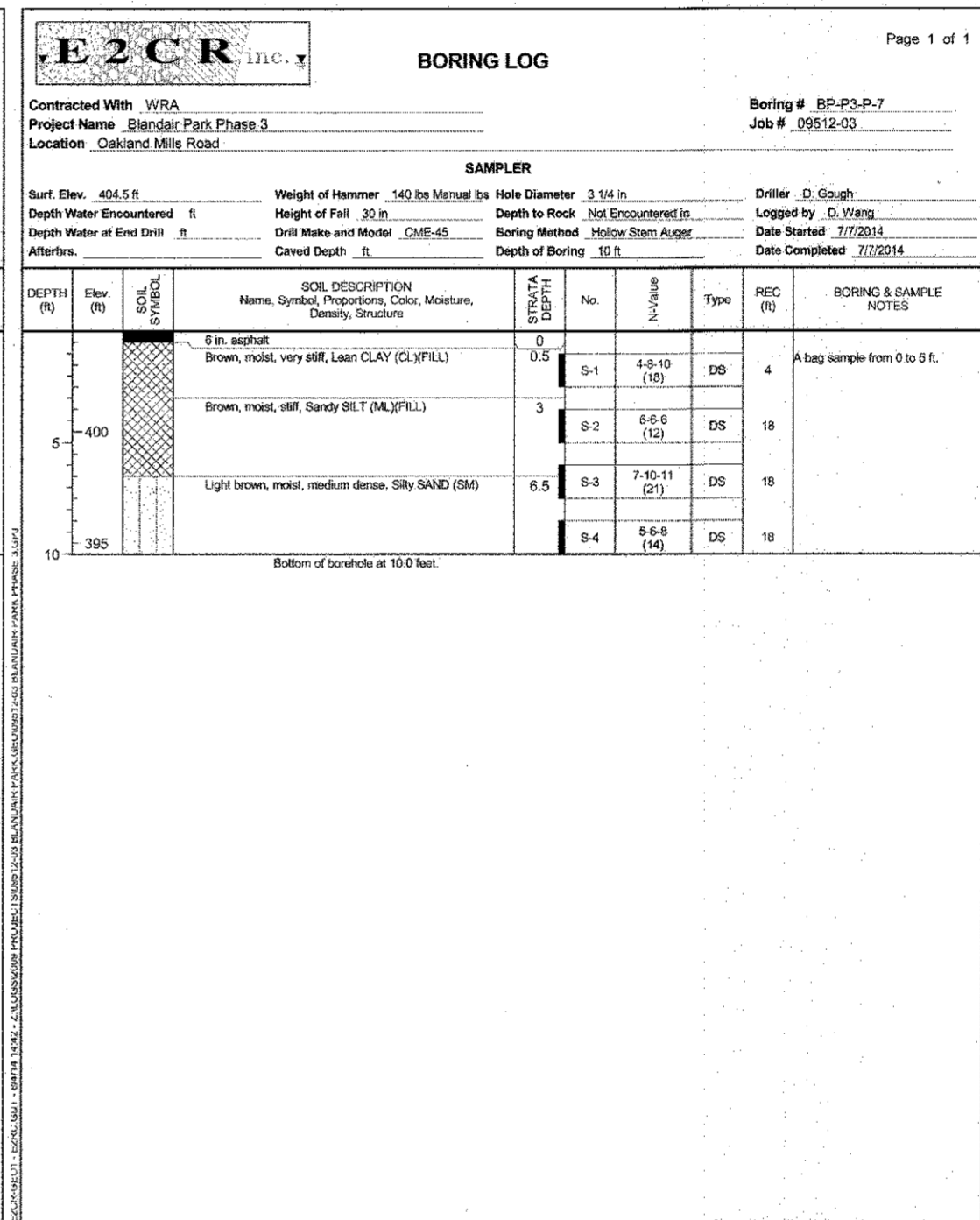
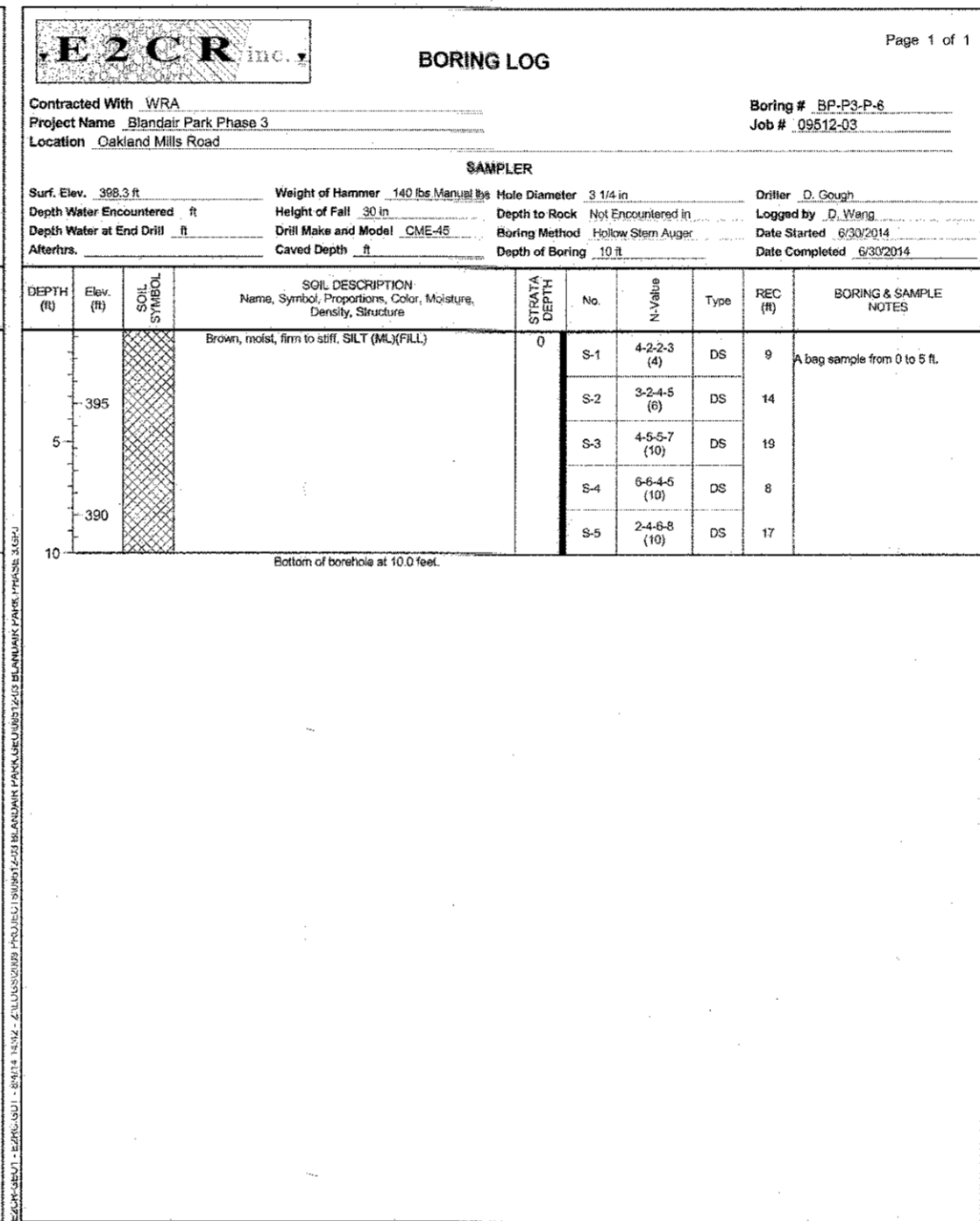
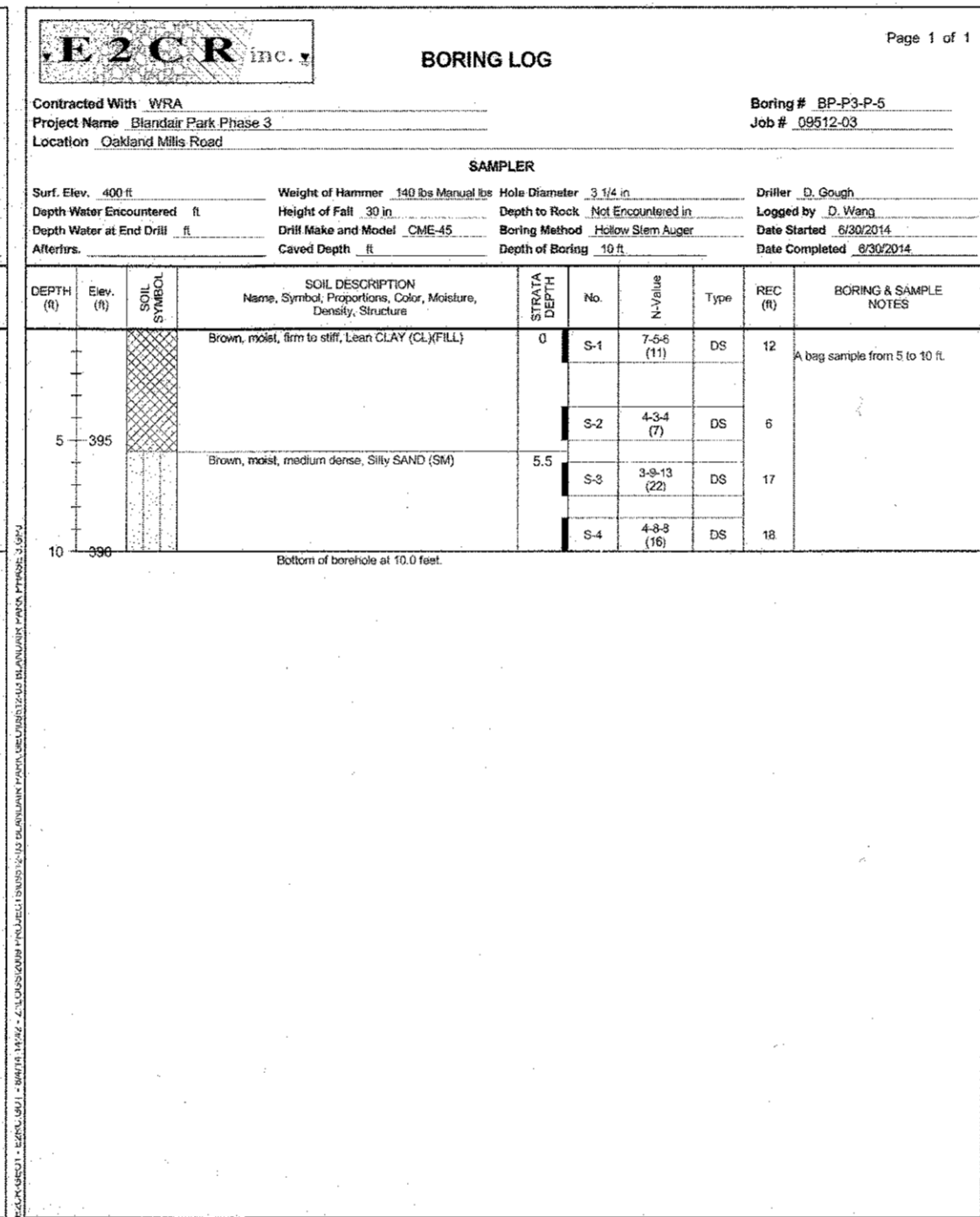
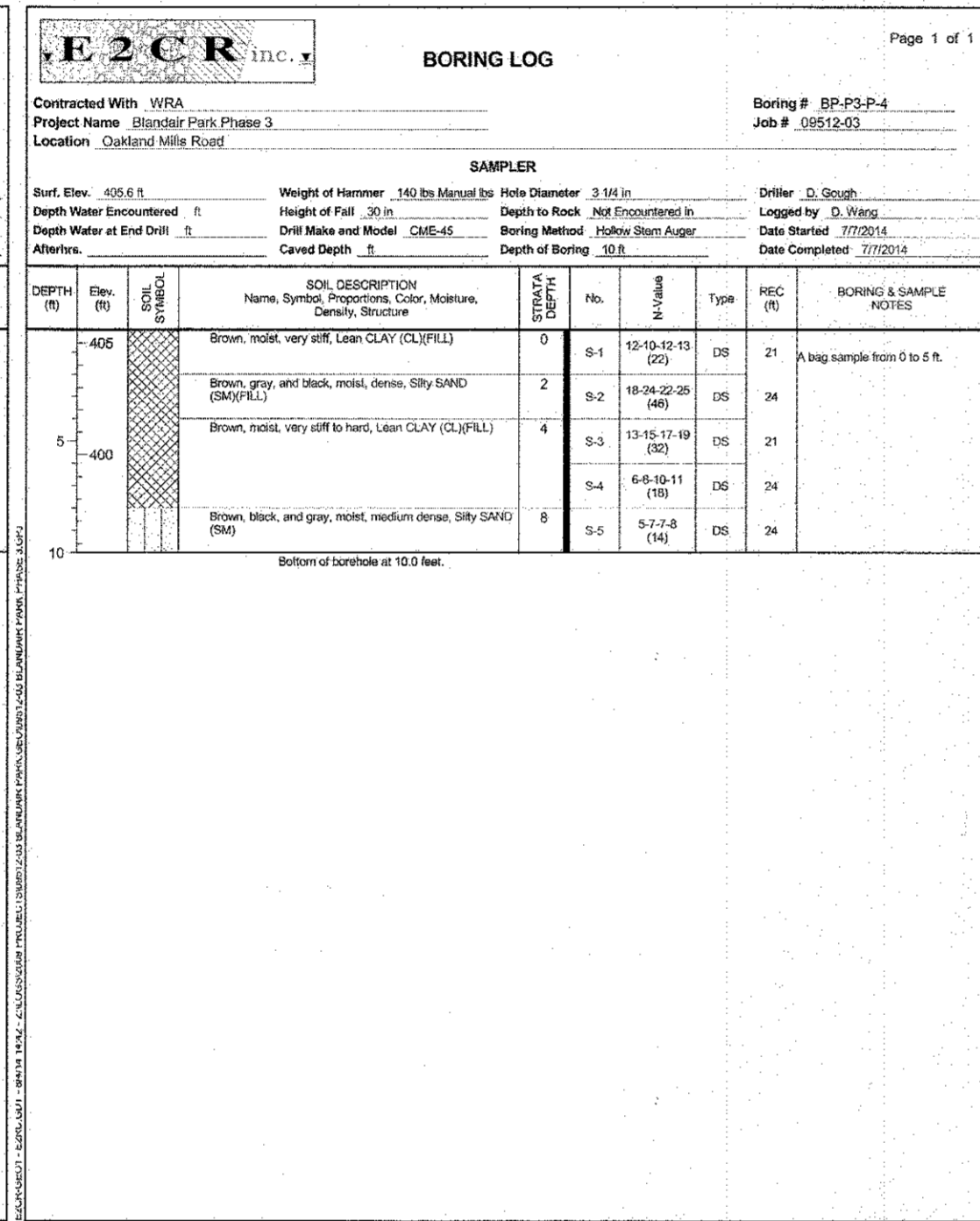
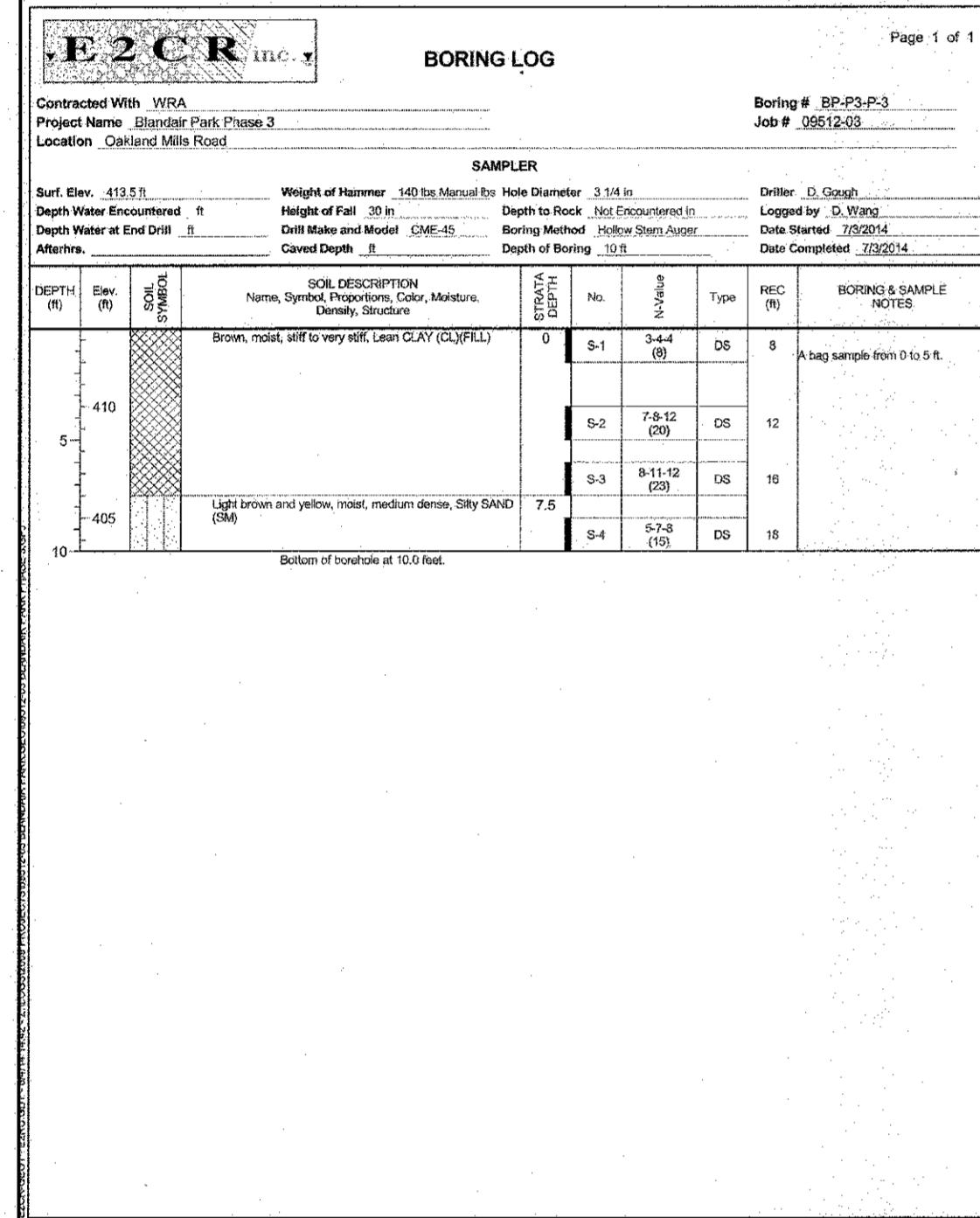
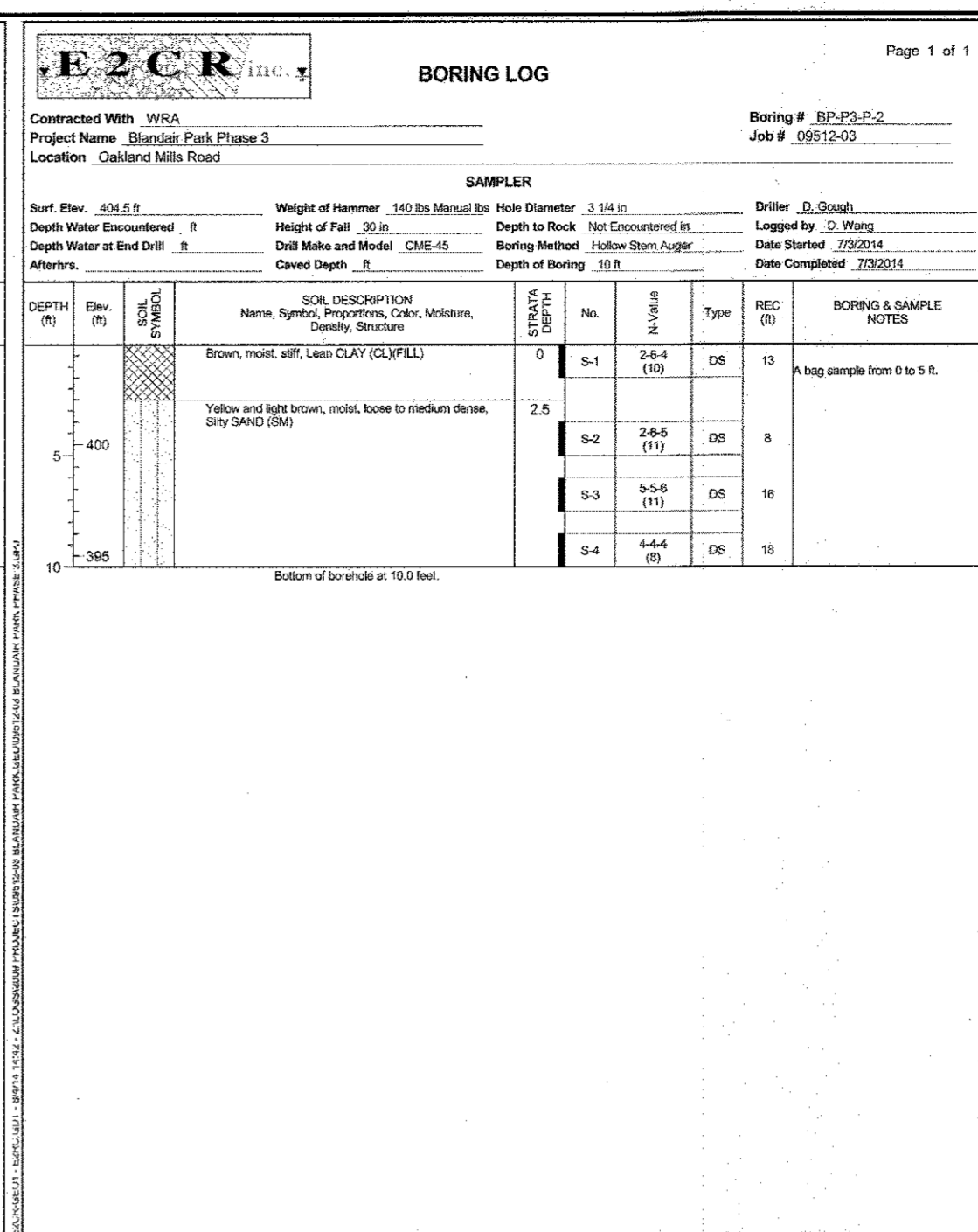
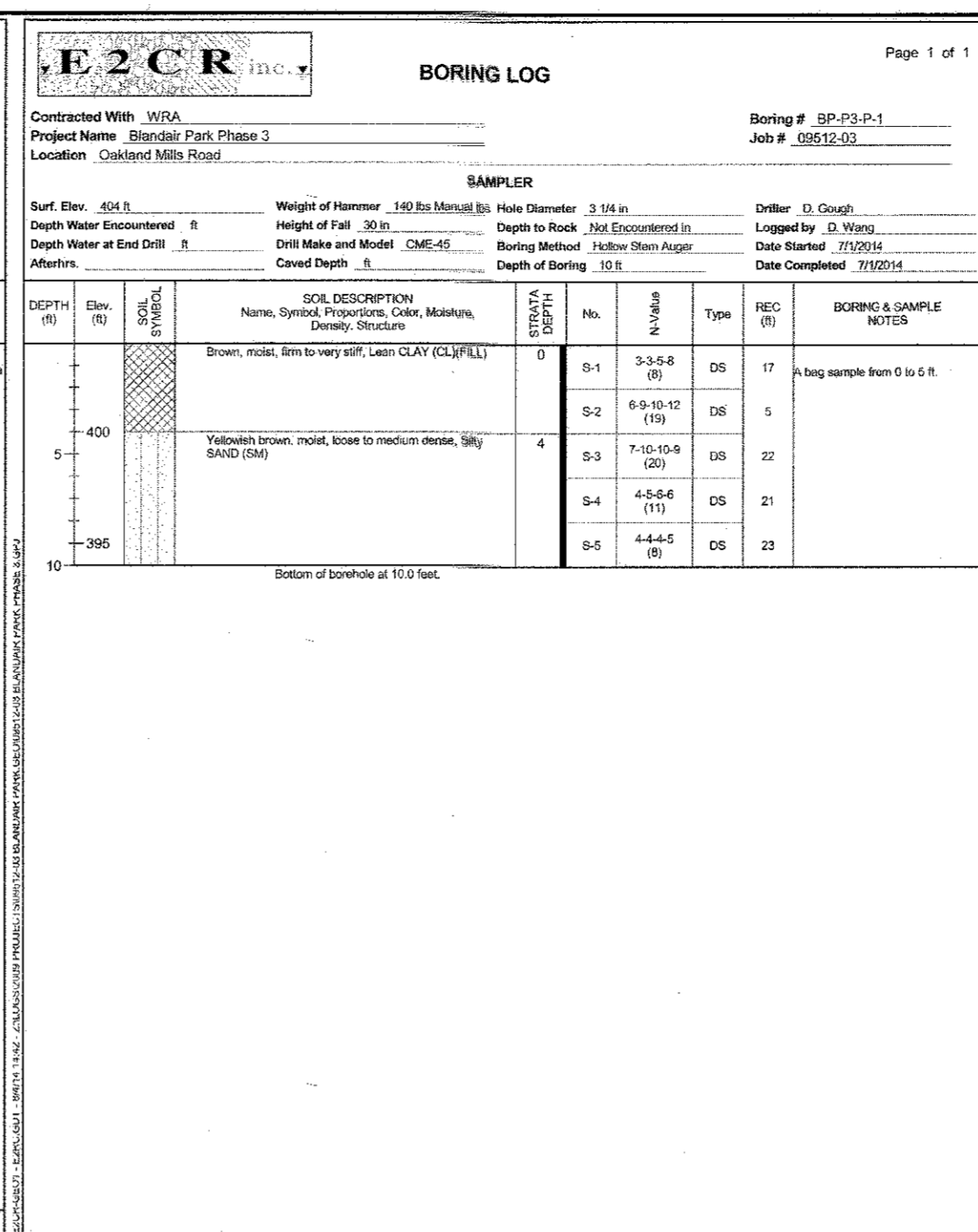
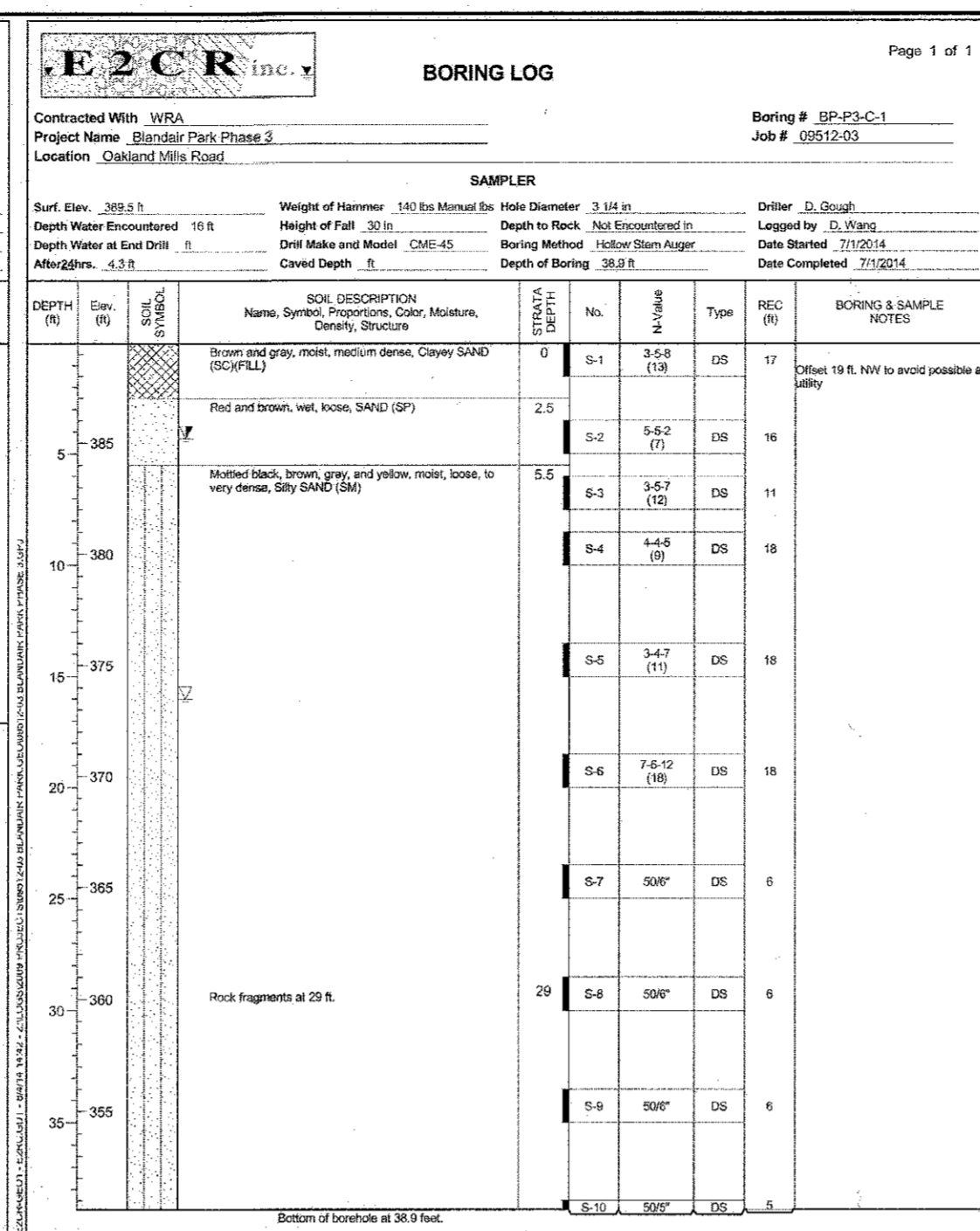
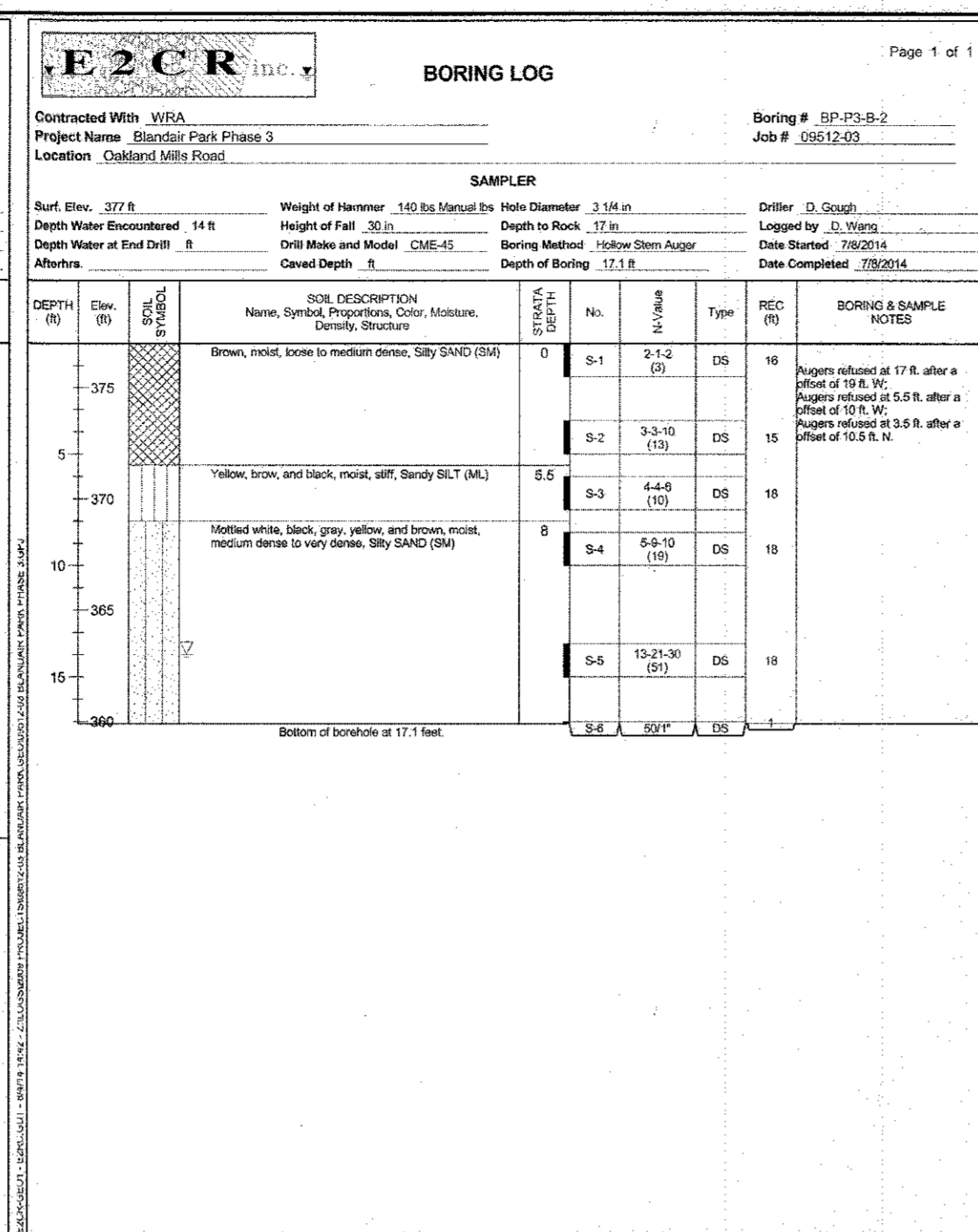
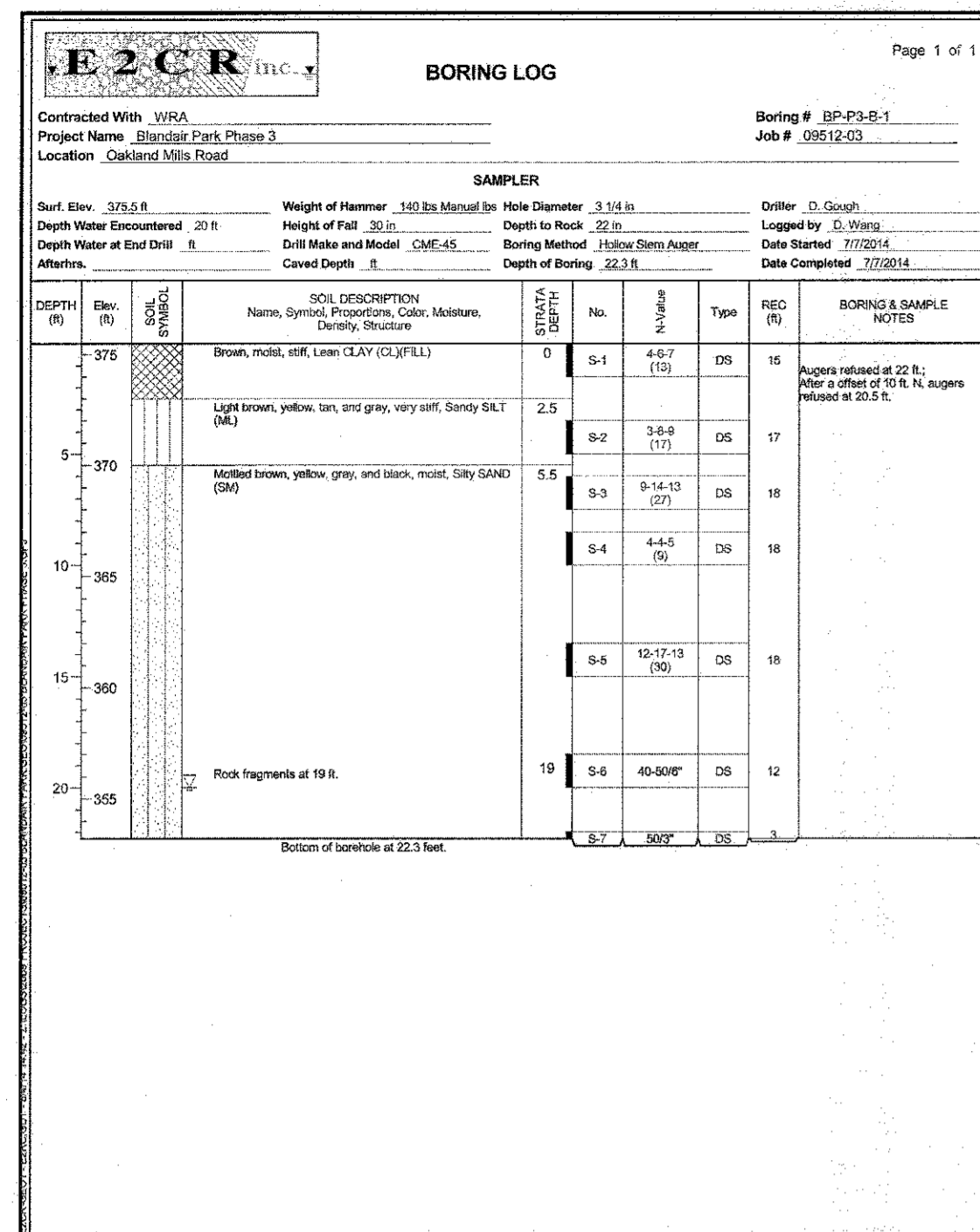
 DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

 DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

 DATE: 3-19-17
 DIRECTOR

SOIL BORING PLAN
 1" = 60'

Blandair Park - BORING SUMMARY (Phase 3)							6/10/2014
No.	Boring No.	Coordinates		Existing Elevation (ft)	Planned Depth	Remarks	
		Northing	Easting				
1	BP-P3-B-1	563660.28	1357982.95	375.5	70'		
2	BP-P3-B-2	563597.61	1357967.41	376.5	70'		
3	BP-P3-C-1	563121.01	1358790.48	389.5	40'		
4	BP-P3-S-1	563369.92	1358692.46	399.0	40'		
5	BP-P3-S-2	563359.86	1358785.50	400.3	40'		
6	BP-P3-S-3	563968.85	1358364.14	394.5	40'		
7	BP-P3-S-4	564045.30	1358183.61	395.9	40'		
8	BP-P3-PG-1	563760.94	1358483.50	401.5	20'		
9	BP-P3-PG-2	563630.35	1358330.08	387.0	20'	Offset 5'-10' and perform infiltration test.	
10	BP-P3-P-1	563455.60	1358678.59	404.0	10'		
11	BP-P3-P-2	563636.76	1358682.10	404.5	10'		
12	BP-P3-P-3	563797.41	1358719.90	413.5	10'		
13	BP-P3-P-4	563886.87	1358587.12	405.6	10'	Offset 5'-10' and perform infiltration test.	
14	BP-P3-P-5	564033.03	1358473.90	400.0	10'		
15	BP-P3-P-6	564145.29	1358282.63	398.3	10'	Offset 5'-10' and perform infiltration test.	
16	BP-P3-P-7	564176.42	1358487.89	404.5	10'		
17	SWM-P3-1	563783.28	1358163.84	385.5	20'		
18	SWM-P3-2	563414.26	1358594.26	397.5	20'		
19	SWM-P3-3	563319.31	1358913.93	399.5	20'		
20	BP-P3-W-1	563915.53	1358078.31	393.0	20'	Offset 5'-10' and perform infiltration test.	



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature]

DATE: 2-6-17
 DATE: 3-01-17
 DATE: 3-19-17

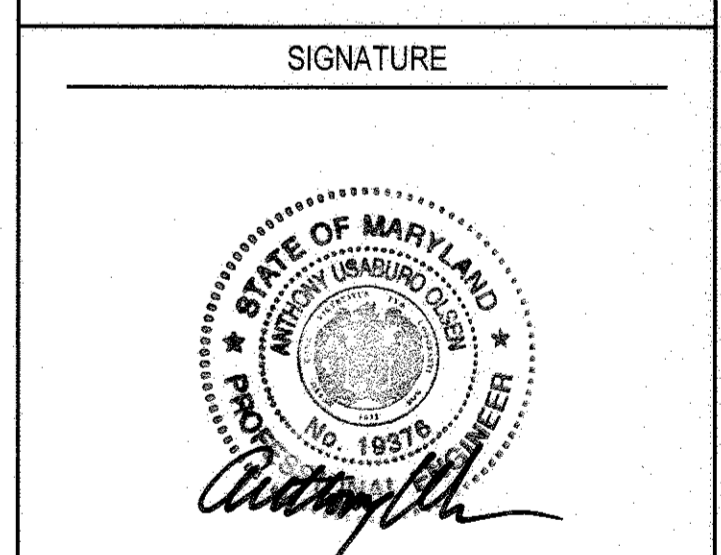
NO.	REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

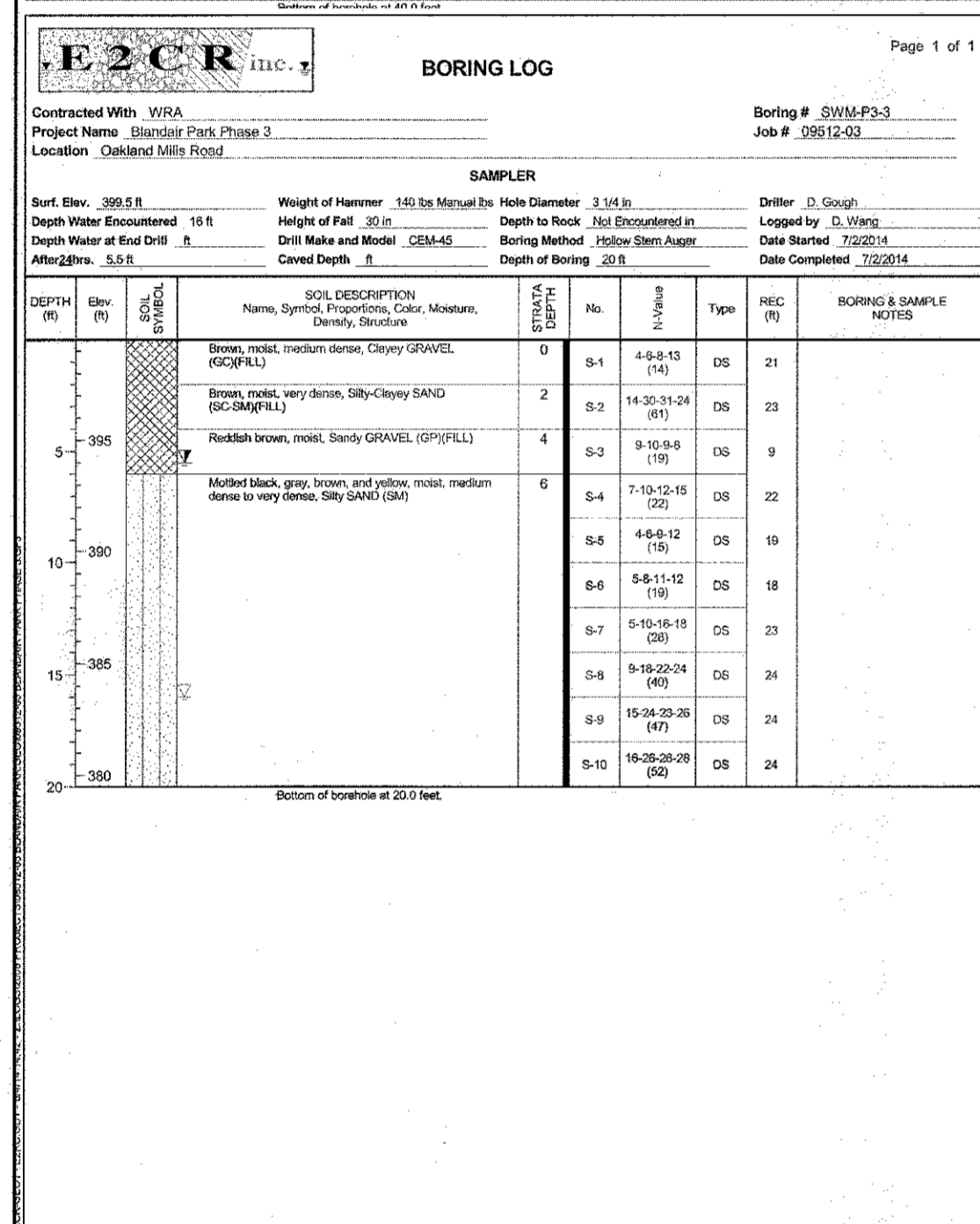
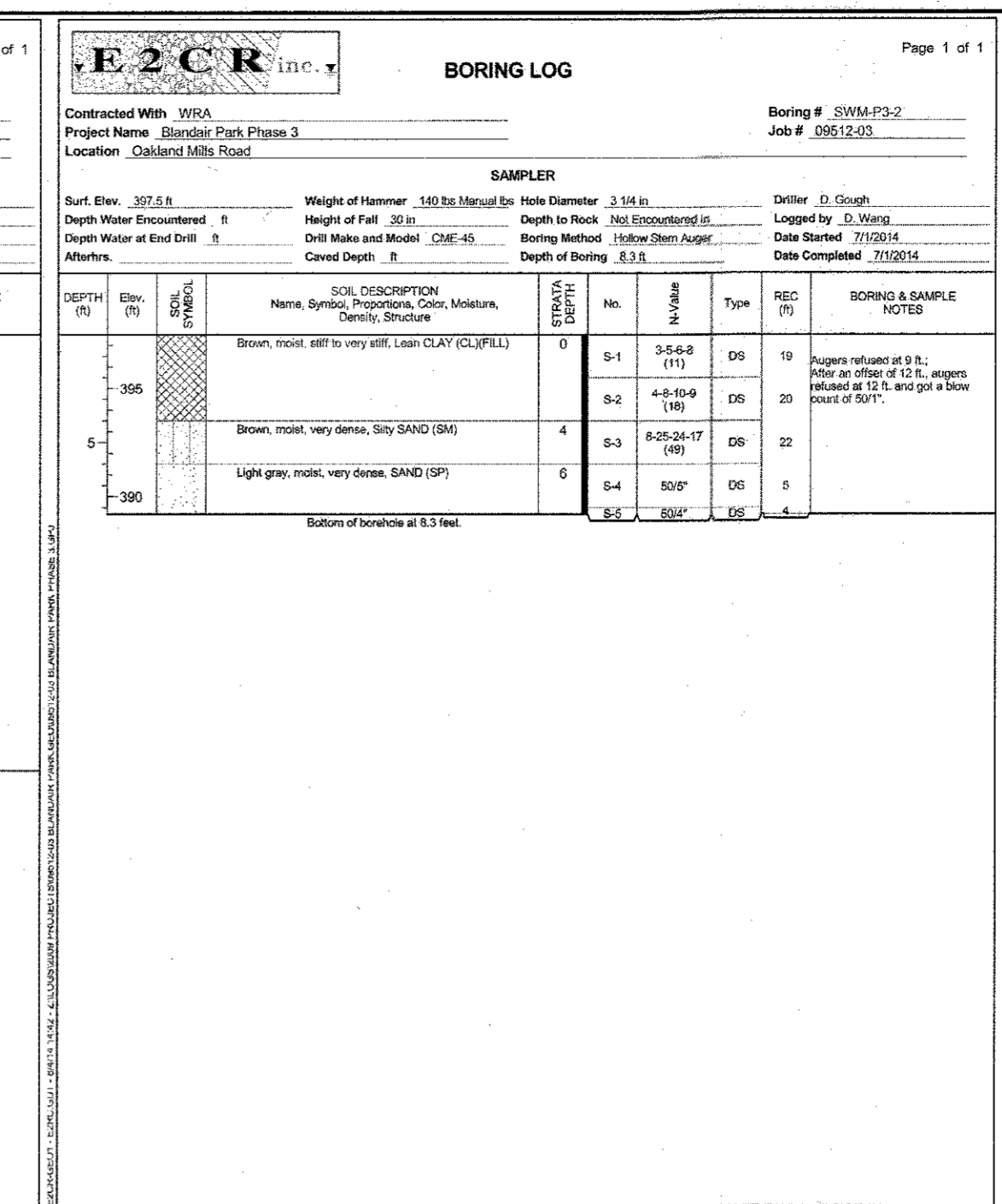
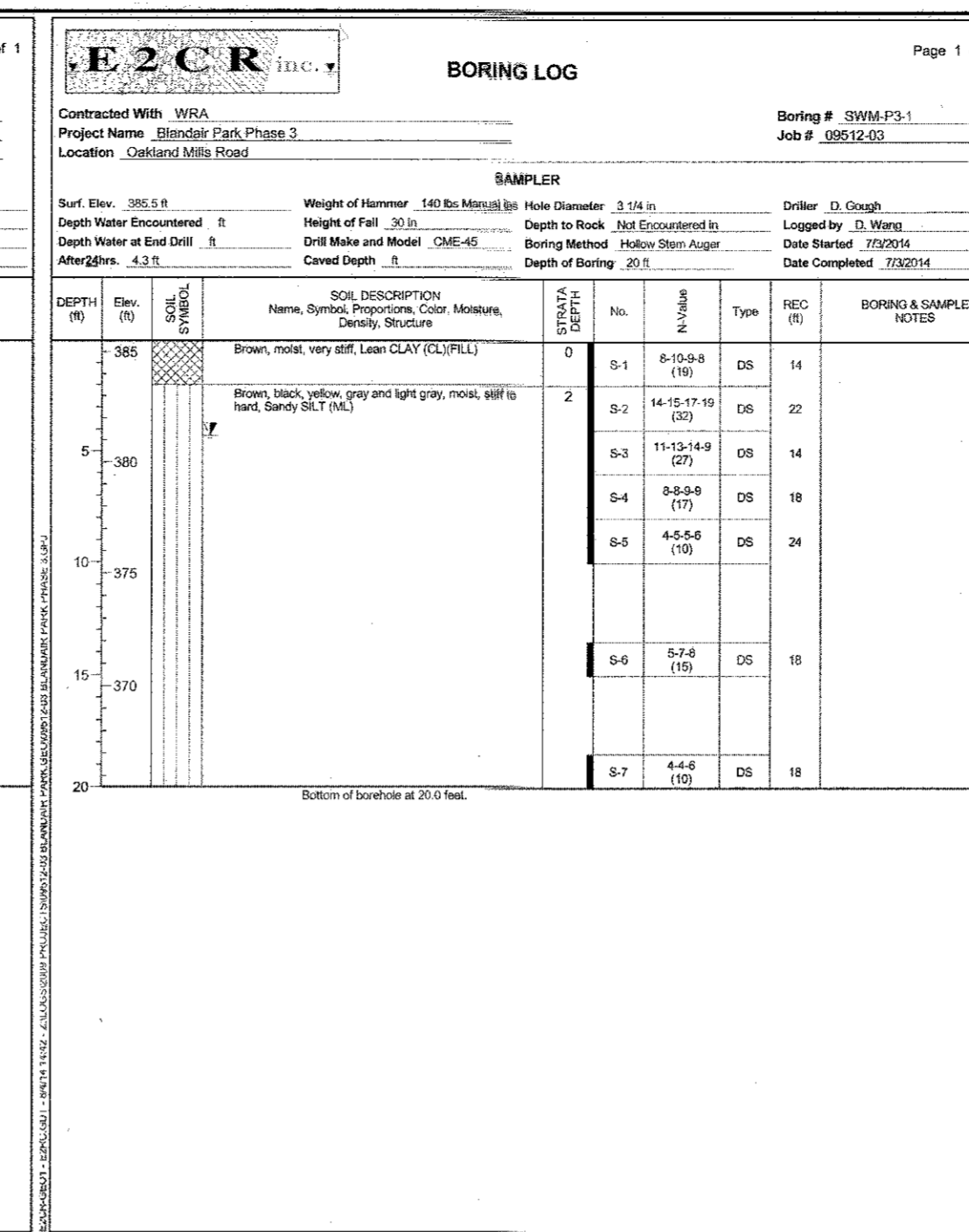
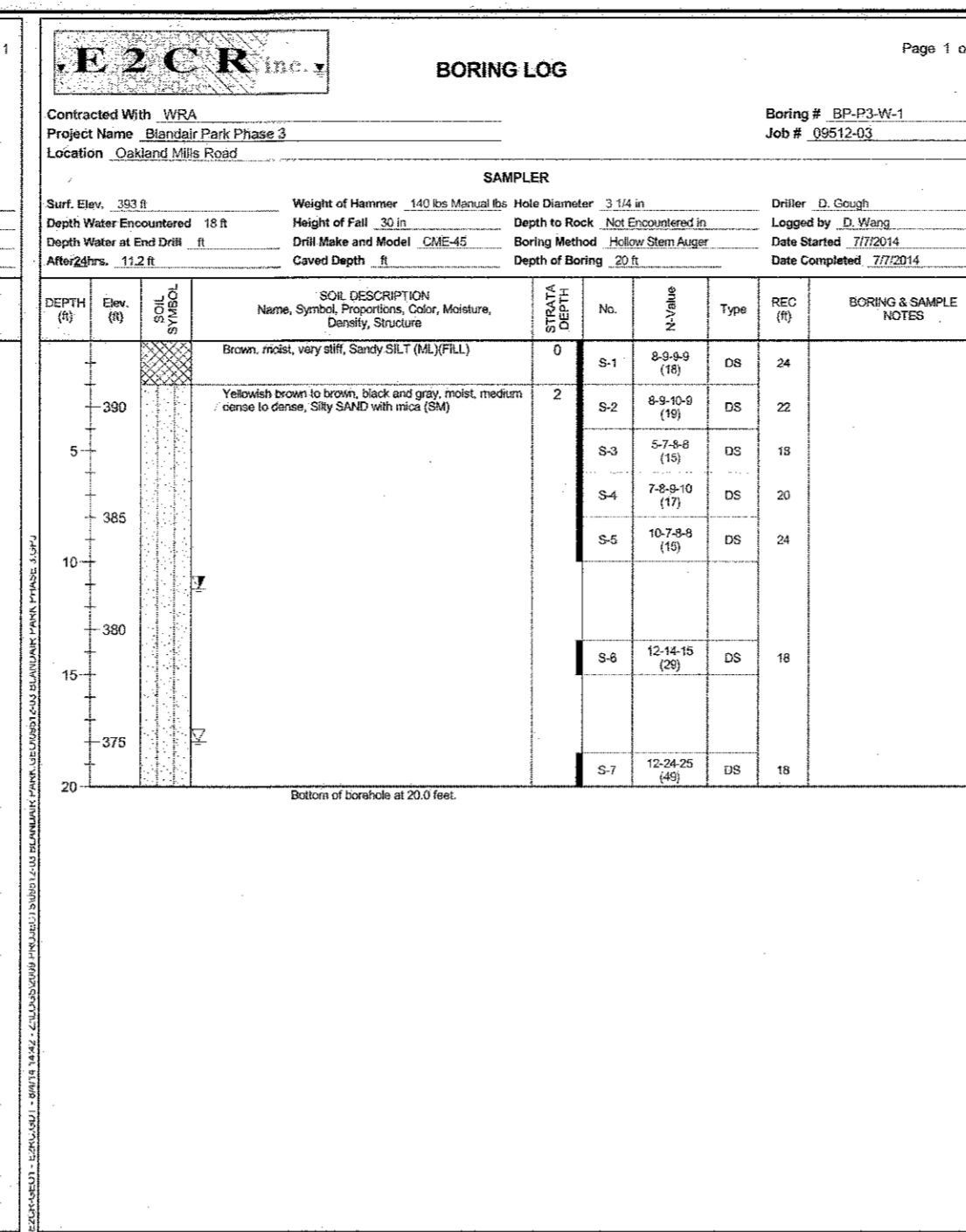
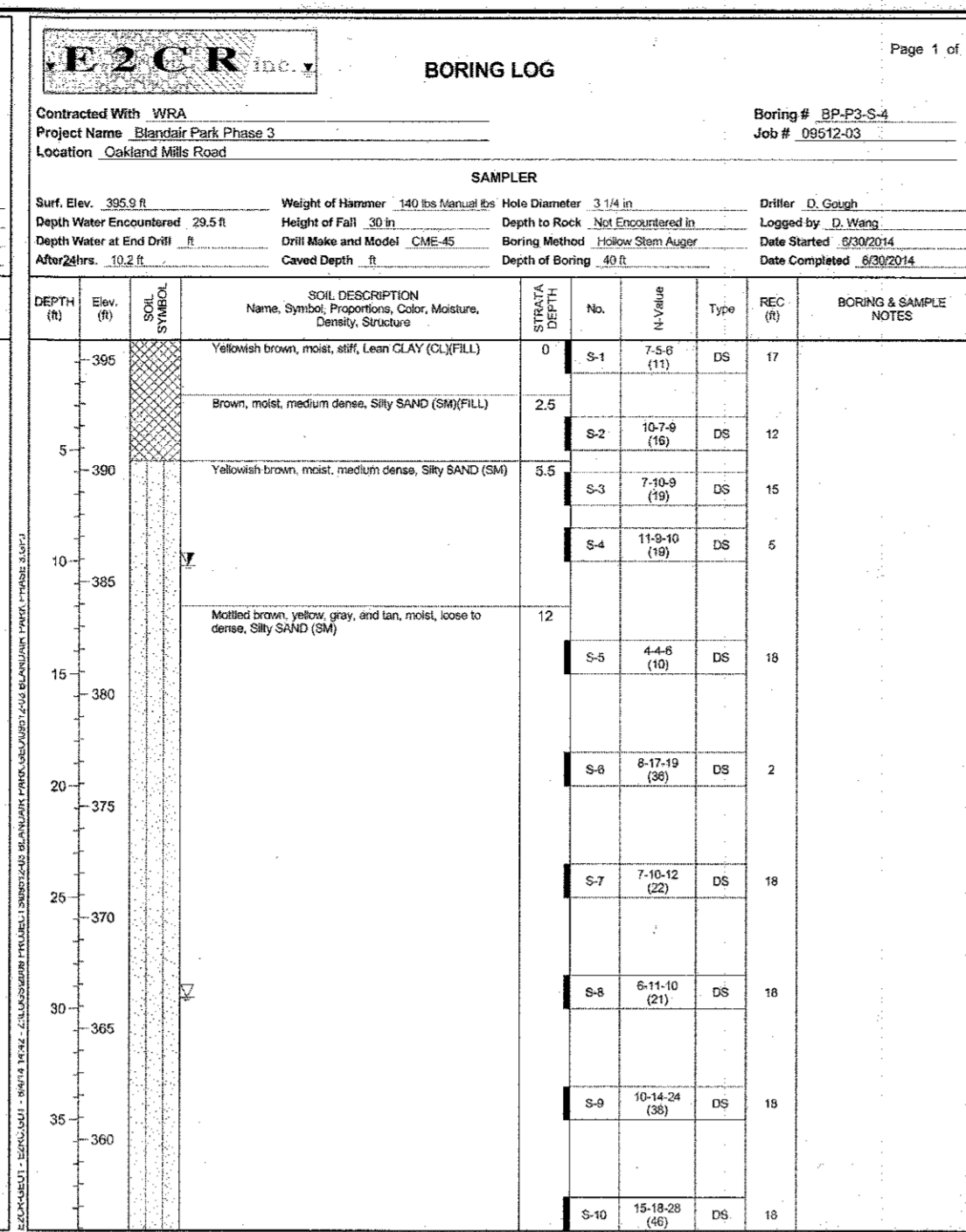
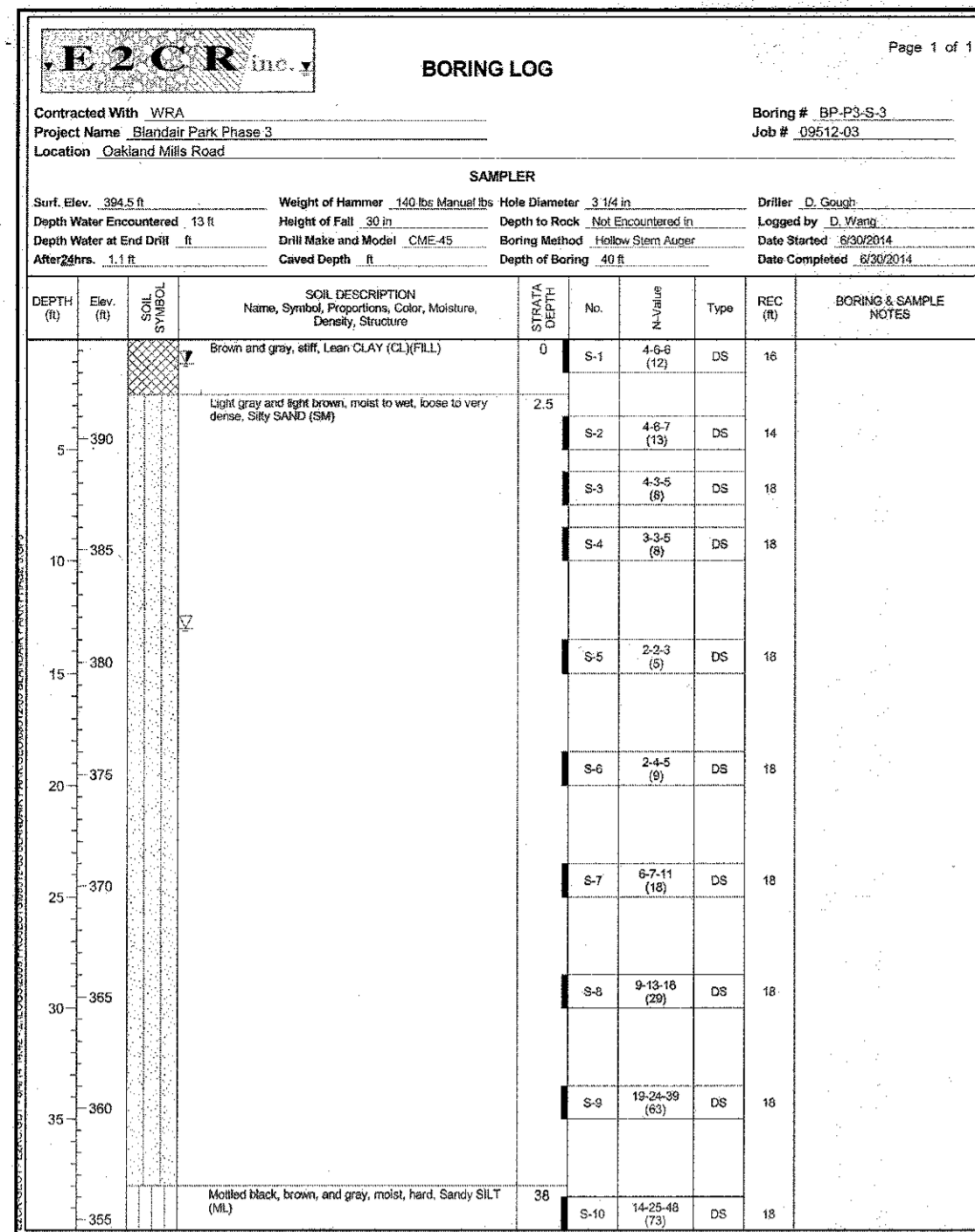


PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18376, EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

SOIL BORING LOGS
 Drawing No. C6.2

Scale: N.T.S.
 Date: 1/17/2017 Sheet 38 of 76
 Des: RFJ Drawn: EG Check: AUO



APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17

DATE: 3-01-17

DATE: 3-19-17

NO.	REVISIONS

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

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EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL
PARK - PHASE 3

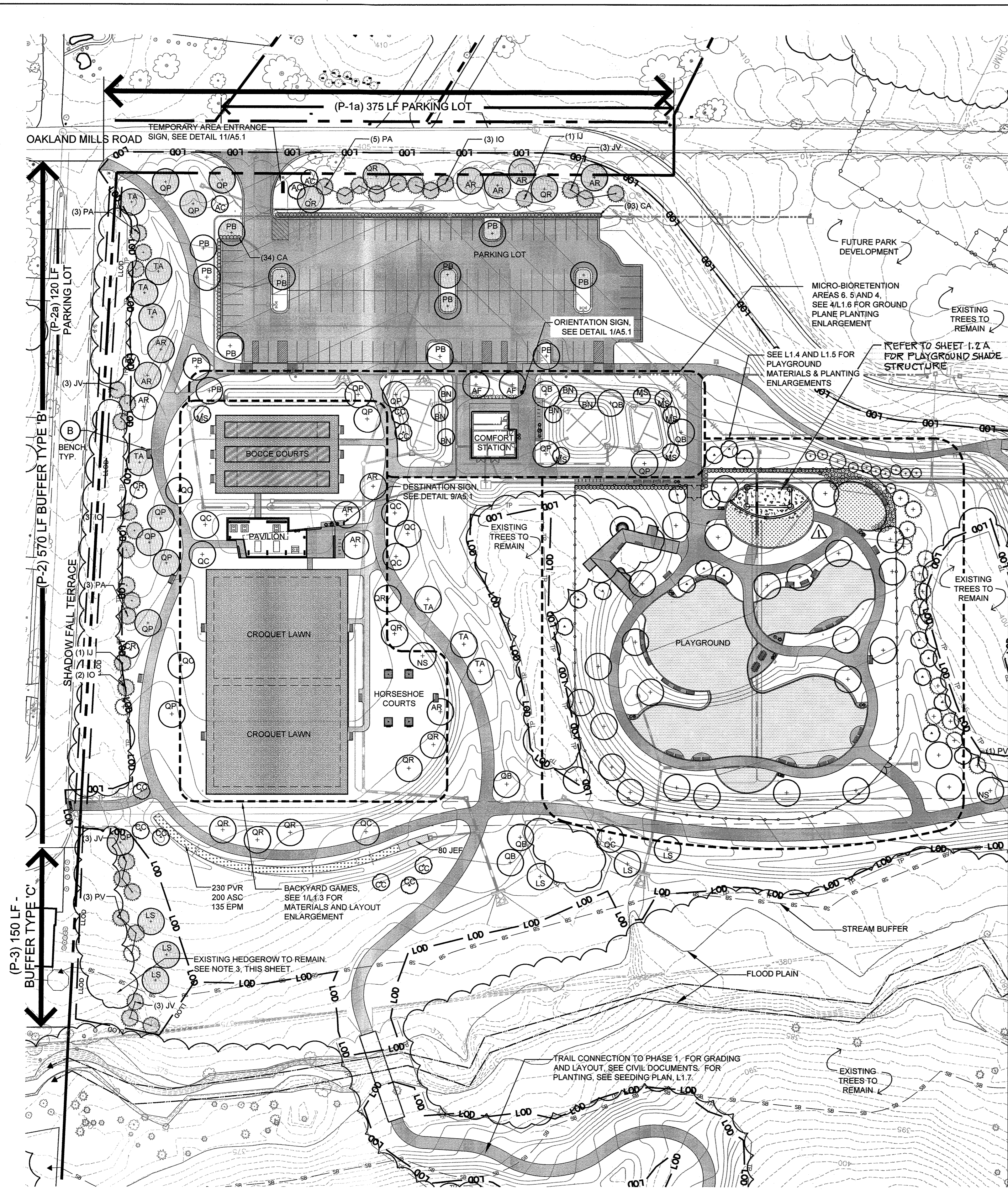
SOIL BORING LOGS

Drawing No. C6.3

Scale: N.T.S.

Date: 1/17/2017 Sheet 39 of 76

Des: RFJ Drawn: EG Check: AUO



1 LANDSCAPE PLAN
1" = 50'

PLANT SCHEDULE: THIS SHEET ONLY

2	AF	Acer freemanii 'Jeffers' / Autumn Blaze Maple	2-1/2" Cal.	B&B	Full, Central leader
11	AR	Acer rubrum 'Franksred' / Red Sunset Maple	2-1/2" Cal.	B&B	Full, Central leader
6	BN	Betula nigra 'Dura Heat' / River Birch	8' Ht.	B&B	Multi-Stem
6	LS	Liquidambar styraciflua 'Ward' / Cherokee Sweetgum	2-1/2" Cal.	B&B	Full, Central leader
18	PB	Platanus x acerifolia 'Bloodgood' / Bloodgood London Plane Tree	2-1/2" Cal.	B&B	Full, Central leader
2	NS	Nyssa sylvatica / Black Tupelo	6' Ht.	Cont.	Full, Central Leader
6	OB	Quercus bicolor / Swamp White Oak	2-1/2" Cal.	B&B	Full, Central leader
8	QC	Quercus coccinea / Scarlet Oak	2-1/2" Cal.	B&B	Full, Central leader
15	QP	Quercus phellos 'Hightower' / Hightower Willow Oak	2-1/2" Cal.	B&B	Full, Central leader, Matched
10	QR	Quercus rubra / Red Oak	2-1/2" Cal.	B&B	Full, Central leader, Matched
8	TA	Tilia americana 'Redmond' / Redmond American Linden	2-1/2" Cal.	B&B	Full, Central leader, Matched
3	AC	Amelanchier canadensis / Shadblow Serviceberry	8' Ht.	B&B	Multi-Stem
8	CC	Cercis canadensis 'Appalachian Red' / Appalachian Red Eastern Redbud	8' Ht.	B&B	Multi-Stem
2	CR	Cornus x 'Rutbar' / Aurora Dogwood	8' Ht.	B&B	Multi-Stem
1	HV	Hamamelis virginiana / Common Witchhazel	6' Ht.	B&B	Multi-Stem
6	MS	Magnolia x soulangiana / Saucer Magnolia	6' Ht.	B&B	Multi-Stem
8	IO	Ilex opaca 'Miss Helen' / Miss Helen American Holly	6' Ht.	B&B	Full to base, Single leader
2	IJ	Ilex opaca 'Jersey Knight' / Jersey Knight American Holly	6' Ht.	B&B	Full to base, Single leader
12	JV	Juniperus virginiana / Eastern Red Cedar	6' Ht.	B&B	Full to base, Single leader
6	PA	Picea abies / Norway Spruce	6' Ht.	B&B	Full to base, Single leader
4	PV	Pinus virginiana / Virginia Pine	6' Ht.	B&B	Full to base, Single leader
SHRUBS					
121	CA	Clethra alnifolia 'Hummingbird' / Hummingbird Summersweet Clethra	#3	Cont.	24" Spd.
GROUNDCOVERS/PERENNIALS/GRASSES					
200	ASC	Asclepias tuberosa / Butterfly Weed	SP#4	Cont.	15" O.C.
135	EPM	Echinacea purpurea 'Magnus' / Purple Coneflower	#1	Cont.	18" O.C.
80	JEF	Juncus effusus / Common Rush	#1	Cont.	18" O.C.
230	PVR	Panicum virgatum 'Rotstrahlbusch' / Rotstrahlbusch Switchgrass	#3	Cont.	24" O.C.

LANDSCAPE LEGEND

- LOD — LIMIT OF DISTURBANCE
- LLOD — LANDSCAPE LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE

HARDSCAPE KEY

- (B) BENCH

NOTES:

1. SEE L3.2 FOR HOWARD COUNTY MINIMUM LANDSCAPE REQUIREMENT CHART FOR PERIMETER AND PARKING LOT PLANTING.
2. ALL PLANT LOCATIONS TO BE MARKED IN THE FIELD AND APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS REPRESENTATIVE PRIOR TO PLANTING.
3. TREATMENT AT EXISTING HEDGEROWS ALONG OAKLAND MILLS ROAD AND SHADOWFALL TERRACE:
 - 3.1. TREAT GROUND PLANE VEGETATION WITH GLYPHOSATE. ALLOW A MINIMUM OF TWO WEEKS FOR HERBICIDE TO WORK. REPEAT AS NECESSARY UNTIL VEGETATION IS DORMANT.
 - 3.2. REMOVE GROUND PLANE VEGETATION, PLANTS, AND ROOTS, ENSURING NO DAMAGE TO TRUNKS OF EXISTING TREES.
 - 3.3. REMOVE DEBRIS LARGER THAN 2" IN DIAMETER FROM SOIL AND LEGALLY DISPOSE OF MATERIAL OFF SITE.
 - 3.4. INSPECT EXISTING TREES WITH COUNTY ARBORIST TO DETERMINE TREES TO REMAIN AND TREES TO BE REMOVED. IDENTIFY AND MARK THESE TREES ACCORDINGLY.
 - 3.5. REMOVE TREES IDENTIFIED FOR REMOVAL. GRIND STUMPS BELOW GRADE SUCH THAT SEED CAN BE INSTALLED ABOVE.
 - 3.6. ENSURE THAT VINES ARE REMOVED FROM THE BASE OF ALL TREES TO REMAIN.
 - 3.7. INSTALL MEADOW SEED MIX AND TACK AS OUTLINED IN SPECIFICATIONS.
 - 3.8. MONITOR GROWTH EVERY TWO WEEKS FOR SIX WEEKS AND REAPPLY HERBICIDE TO ANY OF THE ORIGINAL PLANT SPECIES THAT REGENERATE.
 - 3.9. PLANT TREES SHOWN ON PLAN AROUND AND BETWEEN EXISTING TREES TO REMAIN. PLANT MATERIAL ALONG OAKLAND MILLS ROAD AND SHADOWFALL TERRACE TO BE STAKED IN THE FIELD AND APPROVED PRIOR TO INSTALLATION.
3. AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.
4. INSTALL PLANT MASSES IN STAGGERED ROWS UNLESS OTHERWISE INDICATED.
5. SHADED TREES ALONG PROPERTY LINES AND IN PARKING LOT REPRESENT PLANTS REQUIRED BY HOWARD COUNTY LANDSCAPE MANUAL.

REVISIONS		
△	SHADE STRUCTURE	7/16/2019

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 651
EXPIRATION DATE: 09/22/2021

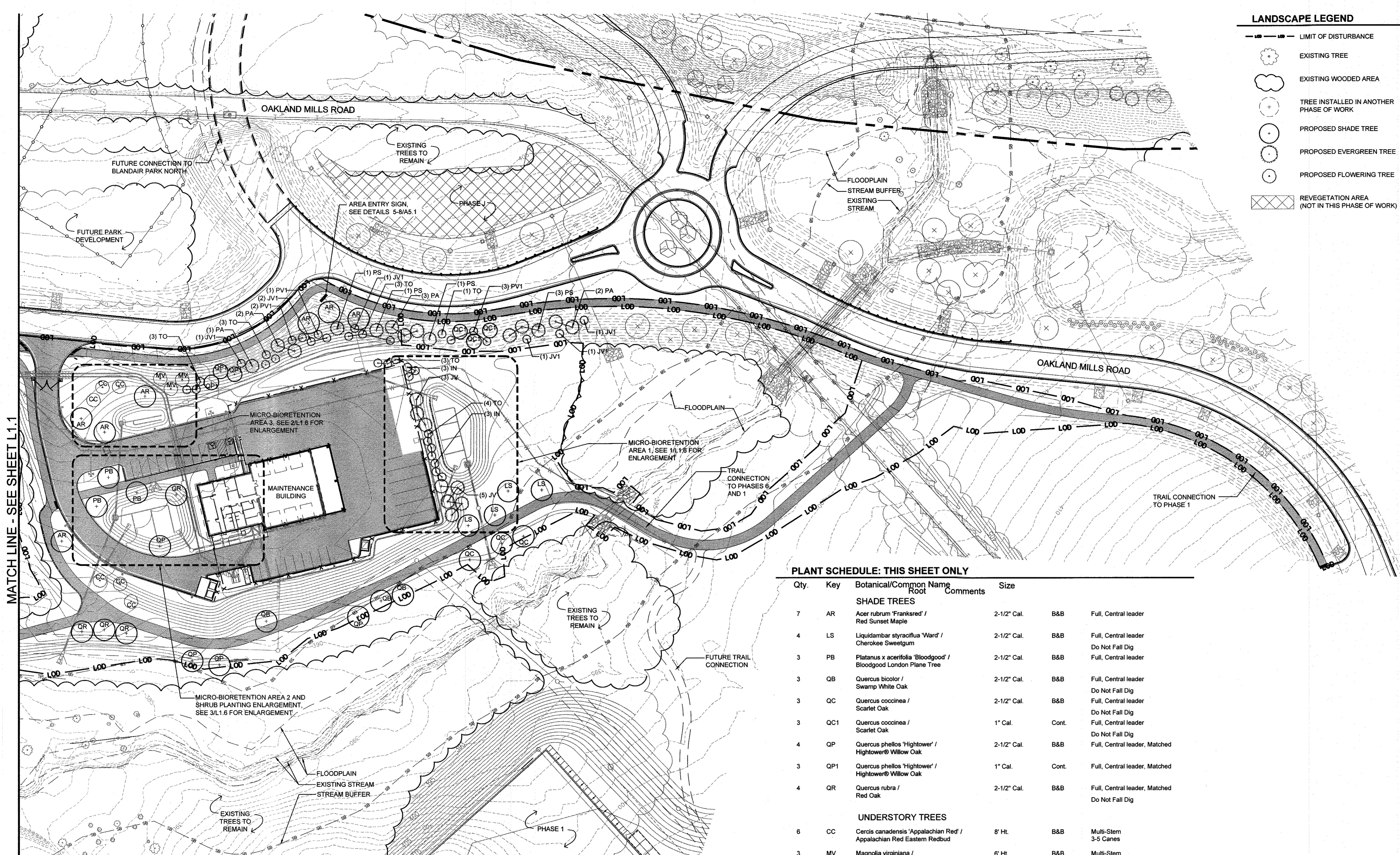
BLANDAIR REGIONAL PARK - PHASE 3

Landscape Plan
Drawing No. L1.1
Scale: 1"=50'
Date: 1/17/2017 Sheet 40 of 76
Des: CB/CO Drawn: CO Check: CB/SK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

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. 19376 EXPIRATION DATE 09/22/2021

MAHAN RYKIEL
ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive,
Suite 100, Baltimore, MD 21211 410.235.6001



LANDSCAPE LEGEND

- LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- TREE INSTALLED IN ANOTHER PHASE OF WORK
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE
- REVEGETATION AREA (NOT IN THIS PHASE OF WORK)

REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
 EXPIRATION DATE: 09/30/2017

BLANDAIR REGIONAL PARK - PHASE 3

Landscape Plan

Drawing No.
L1.2

PLANT SCHEDULE: THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Root	Comments	Size
SHADE TREES					
7	AR	Acer rubrum 'Franksred' / Red Sunset Maple			2-1/2" Cal. B&B Full, Central leader
4	LS	Liquidambar styraciflua 'Ward' / Cherokee Sweetgum			2-1/2" Cal. B&B Full, Central leader Do Not Fall Dig
3	PB	Platanus x acerifolia 'Bloodgood' / Bloodgood London Plane Tree			2-1/2" Cal. B&B Full, Central leader
3	QB	Quercus bicolor / Swamp White Oak			2-1/2" Cal. B&B Full, Central leader Do Not Fall Dig
3	QC	Quercus coccinea / Scarlet Oak			2-1/2" Cal. B&B Full, Central leader Do Not Fall Dig
3	QC1	Quercus coccinea / Scarlet Oak			1" Cal. Cont. Full, Central leader
4	QP	Quercus phellos 'Hightower' / Hightower Willow Oak			2-1/2" Cal. B&B Full, Central leader, Matched
3	QP1	Quercus phellos 'Hightower' / Hightower Willow Oak			1" Cal. Cont. Full, Central leader, Matched
4	QR	Quercus rubra / Red Oak			2-1/2" Cal. B&B Full, Central leader, Matched Do Not Fall Dig
UNDERSTORY TREES					
6	CC	Cercis canadensis 'Appalachian Red' / Appalachian Red Eastern Redbud			8' Ht. B&B Multi-Stem 3-5 Canes
3	MV	Magnolia virginiana / Sweetbay Magnolia			6' Ht. B&B Multi-Stem 3-5 Canes
EVERGREEN TREES					
6	IN	Ilex 'Nellie R. Stevens' / Nellie R. Stevens Holly			6' Ht. B&B Full to base, Single leader
8	JV	Juniperus virginiana / Eastern Red Cedar			6' Ht. B&B Full to base, Single leader
7	JV1	Juniperus virginiana / Eastern Red Cedar			1" Cal. Cont. Full to base, Single leader
8	PA	Picea abies / Norway Spruce			6' Ht. B&B Full to base, Single leader
6	PS	Pinus strobus / Eastern White Pine			6' Ht. B&B Full to base, Single leader
6	PV1	Pinus virginiana / Virginia Pine			1" Cal. Cont. Full to base, Single leader
17	TO	Thuja occidentalis 'Nigra' / Dark American Arborvitae			6' Ht. B&B Full to base, Central leader

1 LANDSCAPE PLAN
 1" = 50' - 0"

- NOTES:
- SEE L3.2 FOR HOWARD COUNTY MINIMUM LANDSCAPE REQUIREMENT CHART FOR PERIMETER AND PARKING LOT PLANTING.
 - ALL PLANT LOCATIONS TO BE MARKED IN THE FIELD AND APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS REPRESENTATIVE PRIOR TO PLANTING.
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

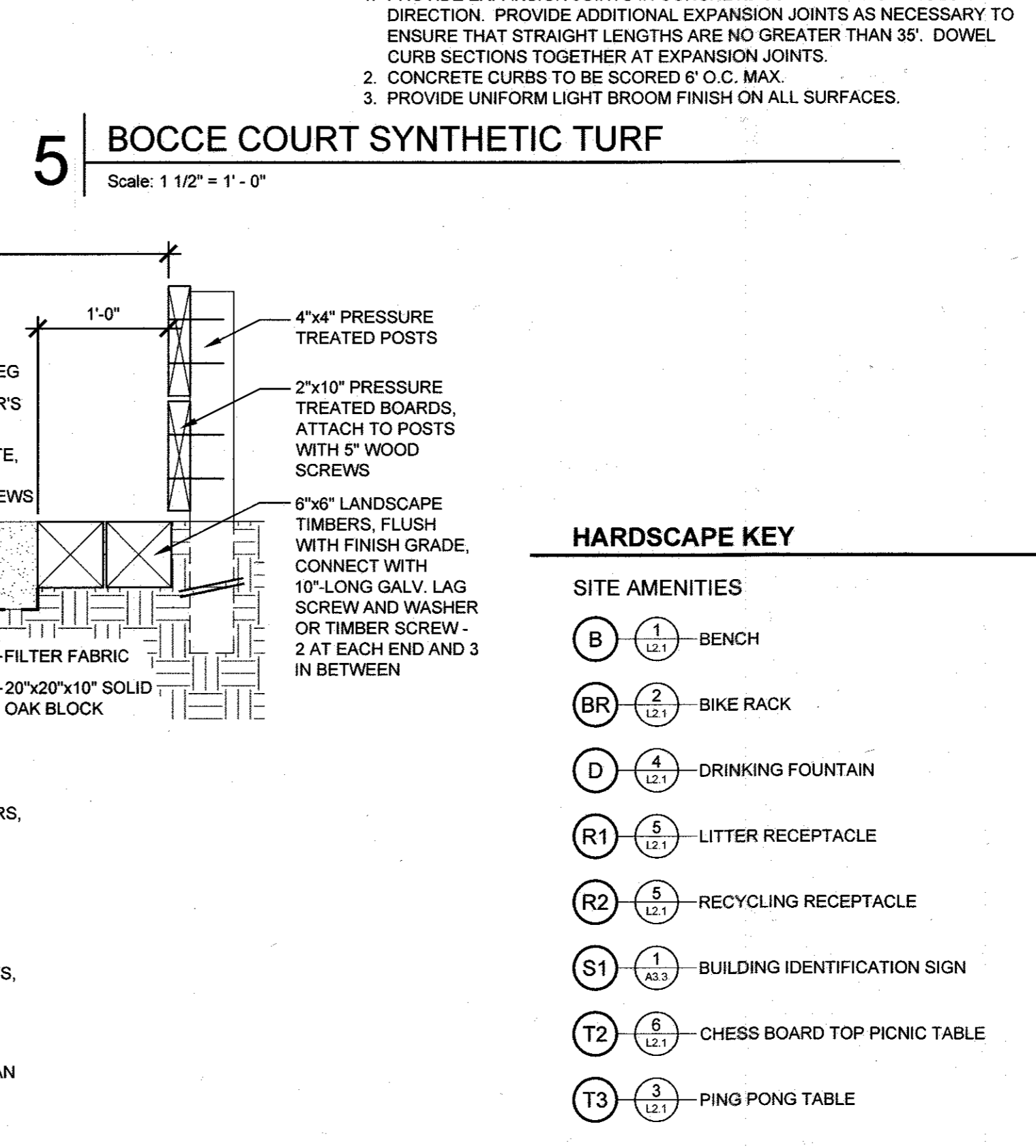
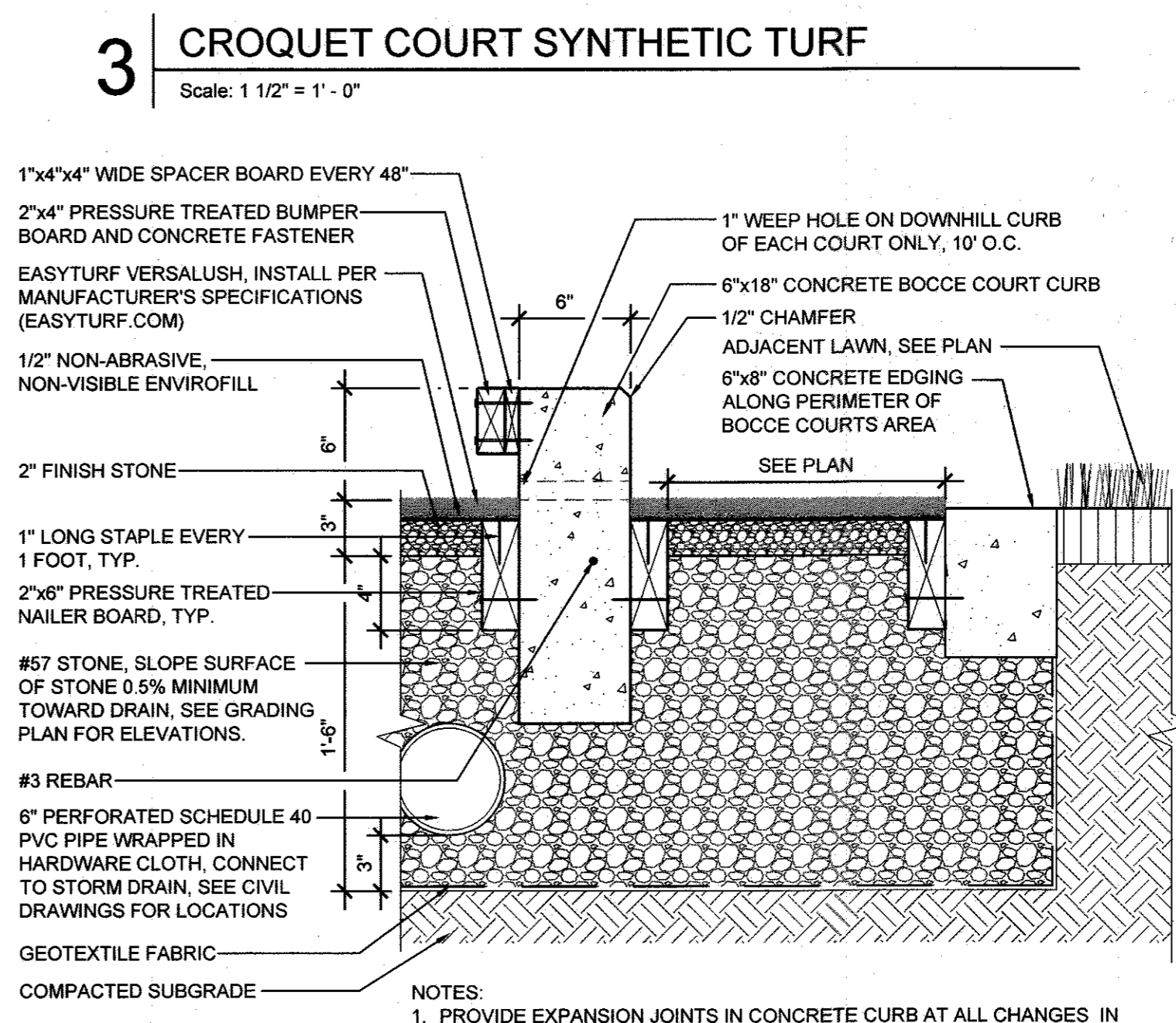
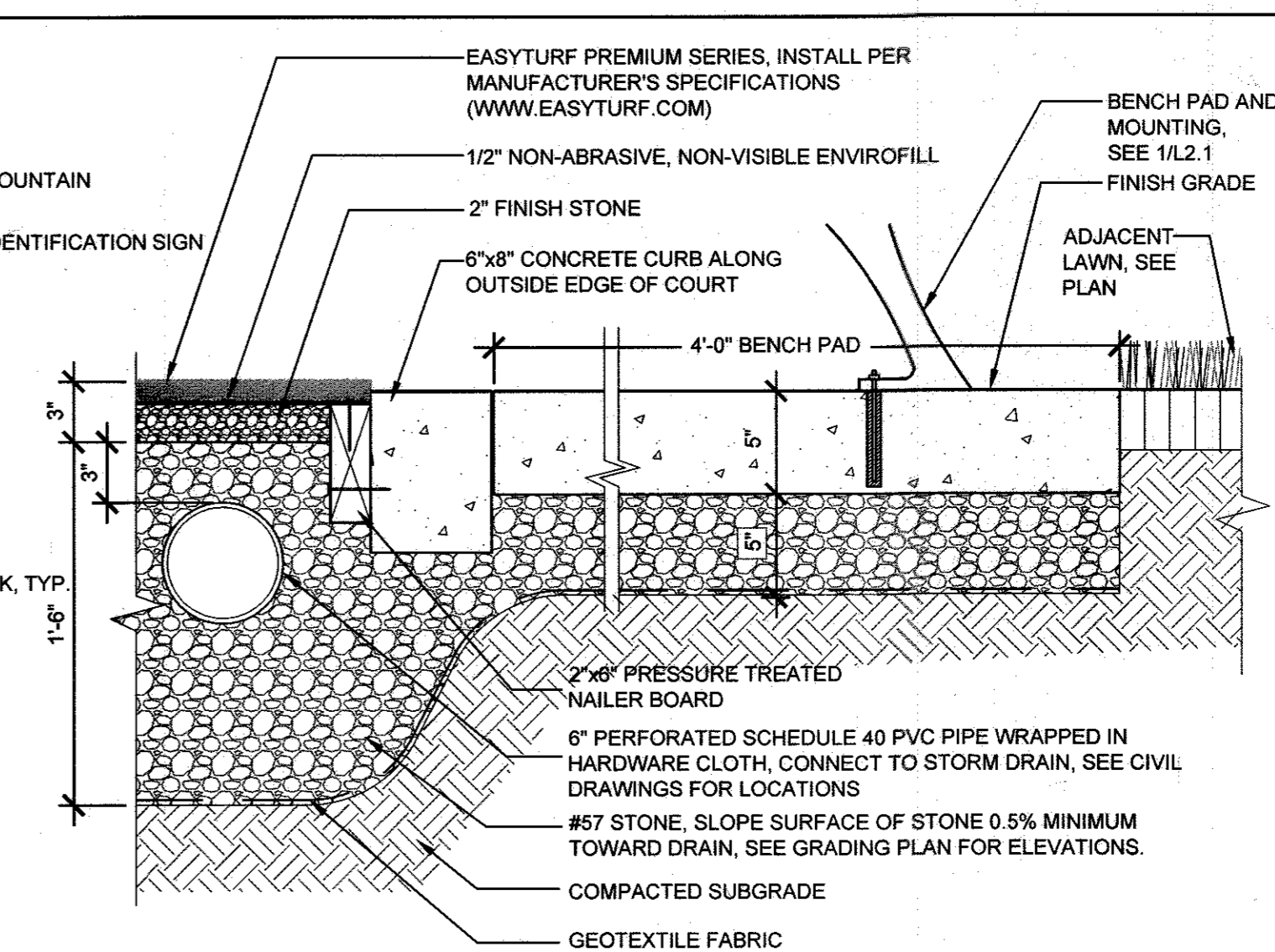
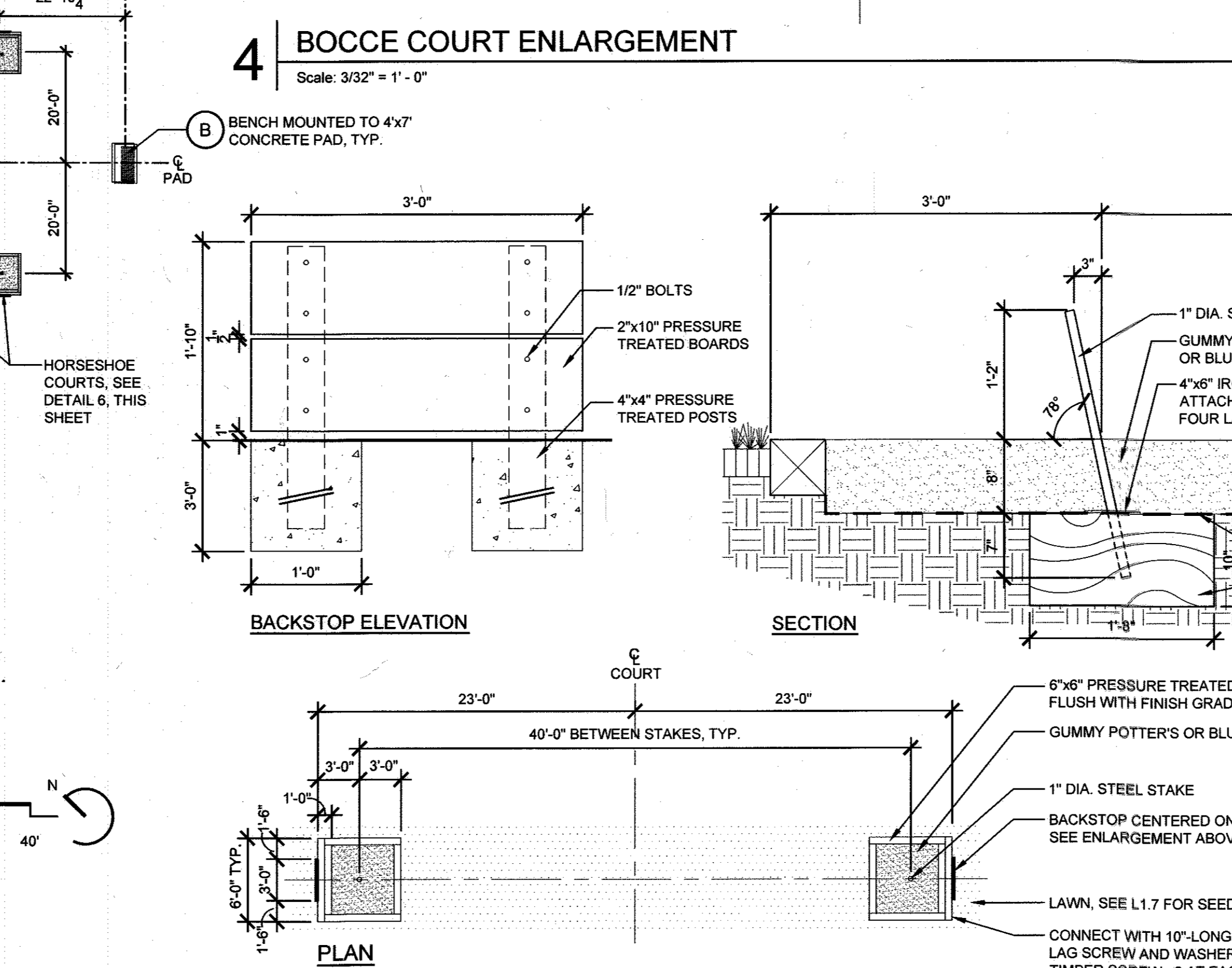
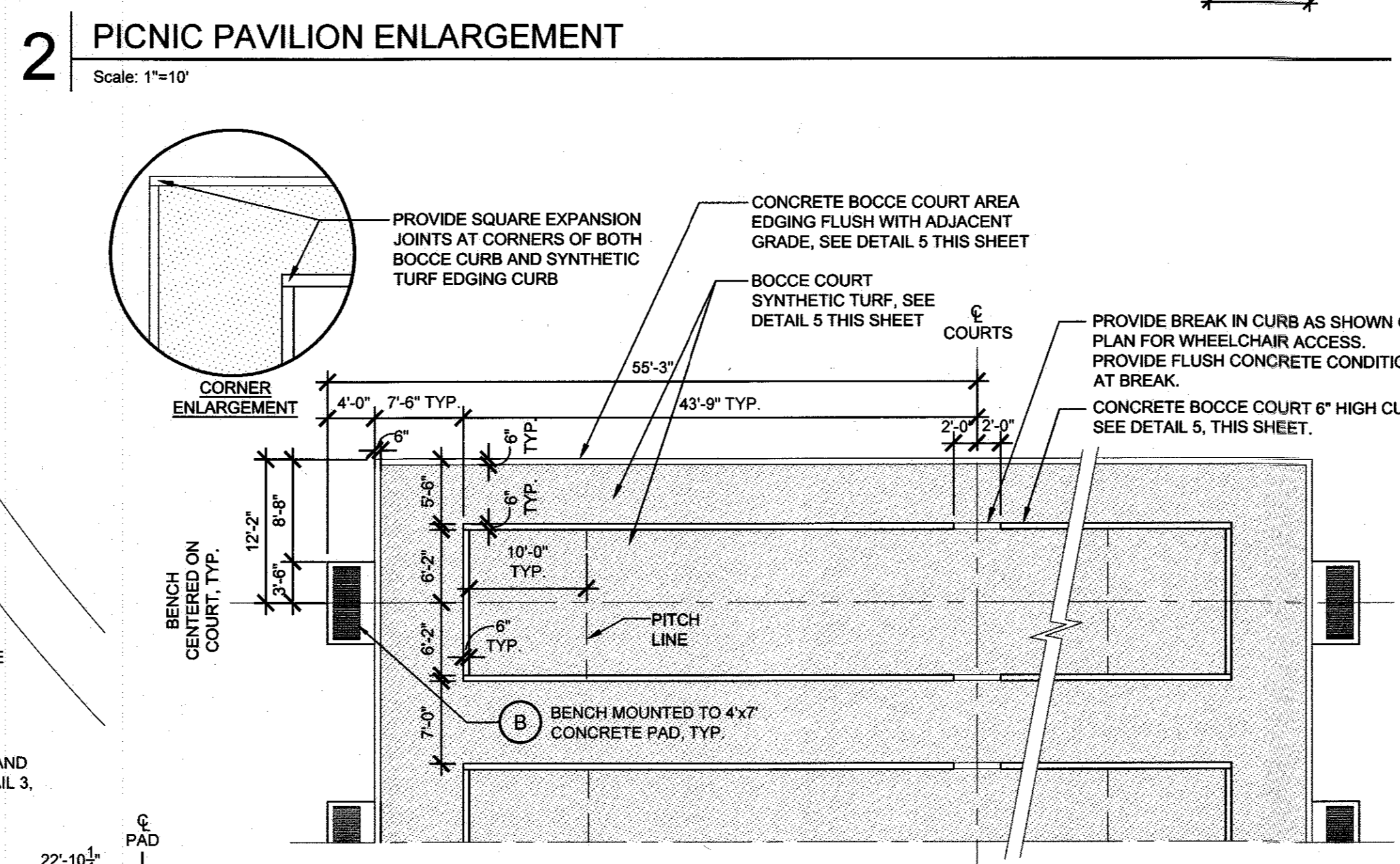
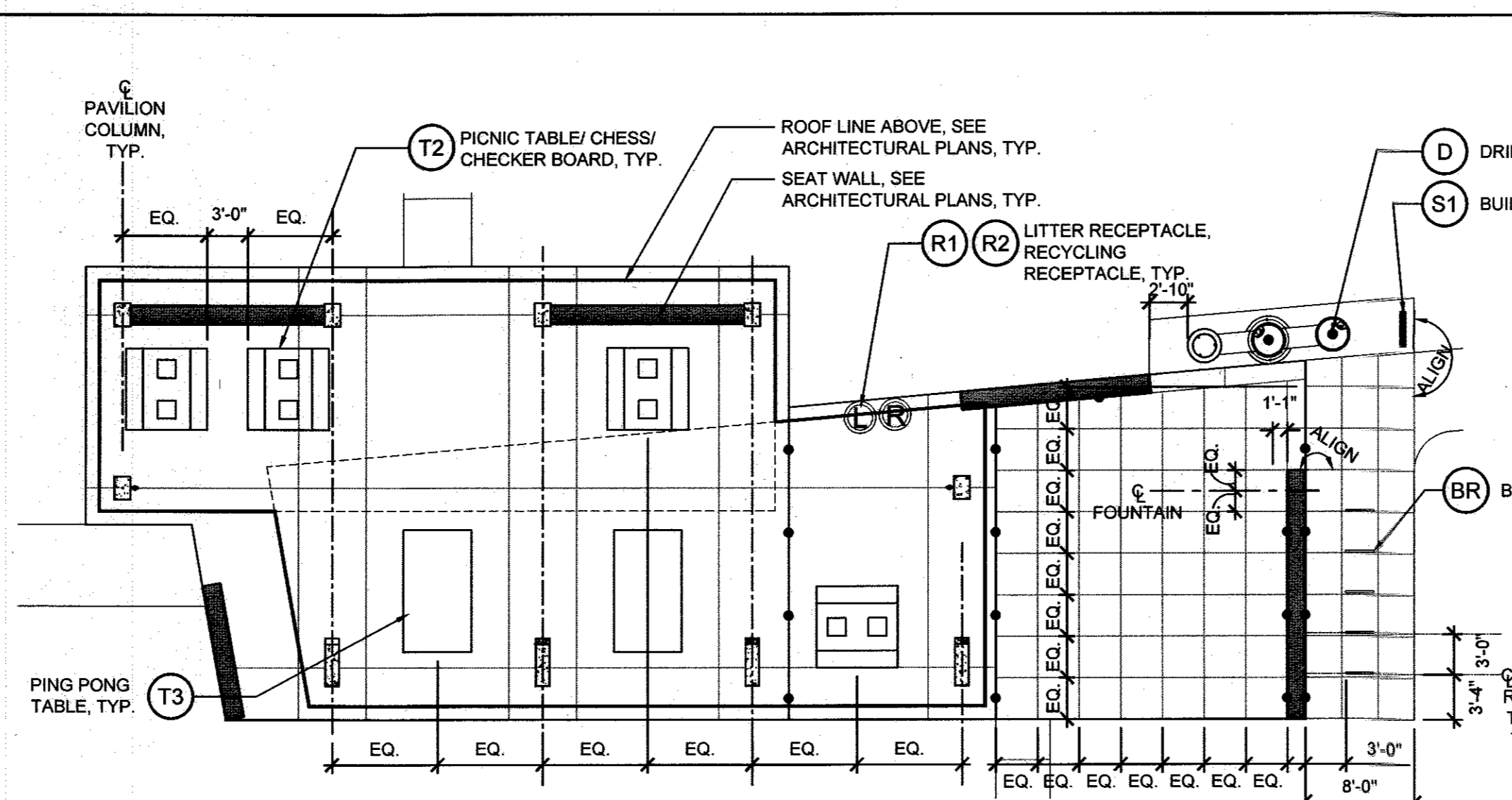
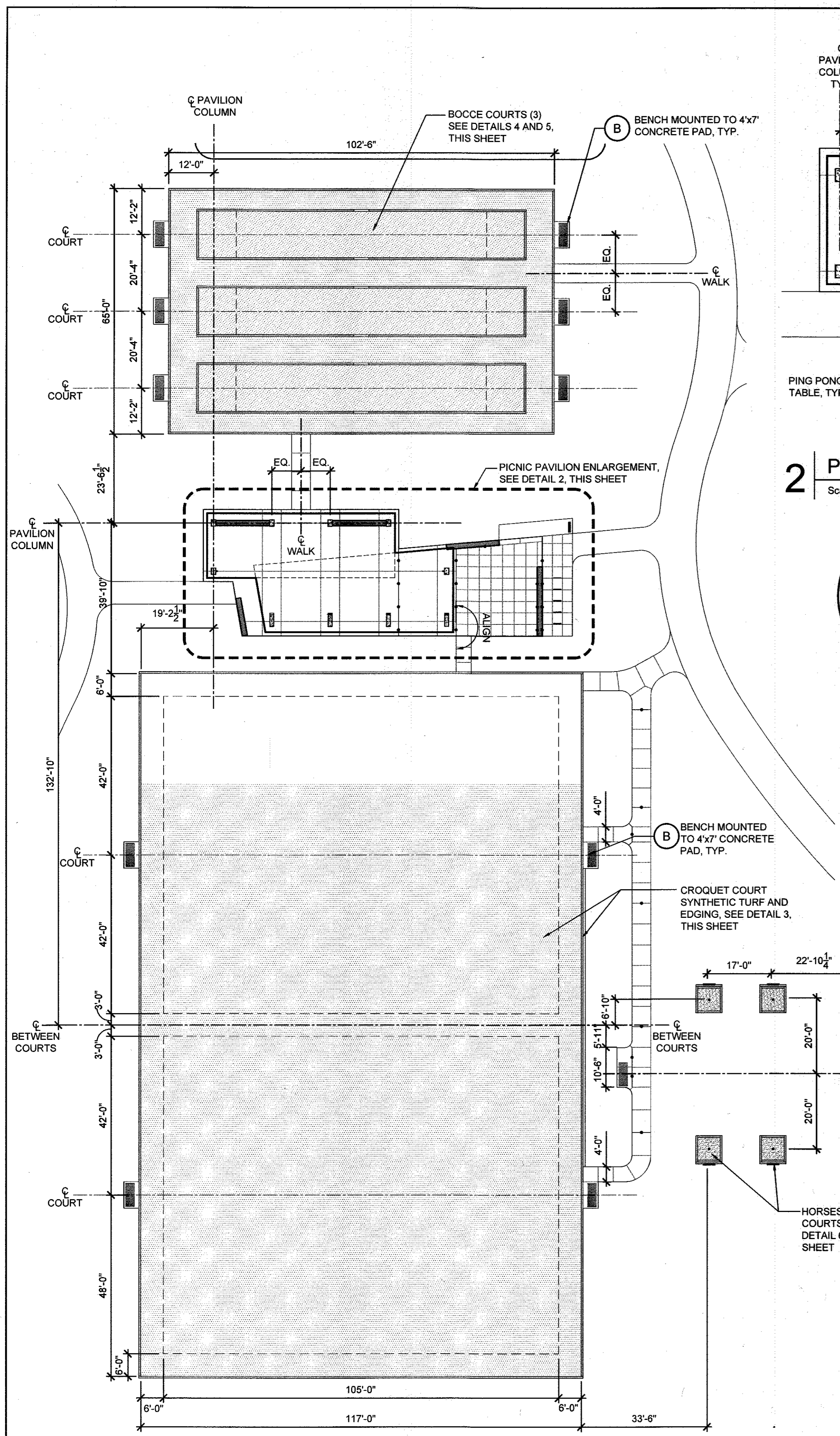
[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

MAHAN RYKIEL ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

Scale: 1"=50'
 Date: 1/17/2017 Sheet 41 of 76
 Des: CB/CO Drawn: CO Check: CB/SK



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* DATE: 2-6-17

Chief, Division of Land Development: *[Signature]* DATE: 3-01-17

Director: *[Signature]* DATE: 3-19-17

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT
19212017

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
EXPIRATION DATE: 12/31/2017

BLANDAIR REGIONAL PARK - PHASE 3

Backyard Games Enlargements & Details

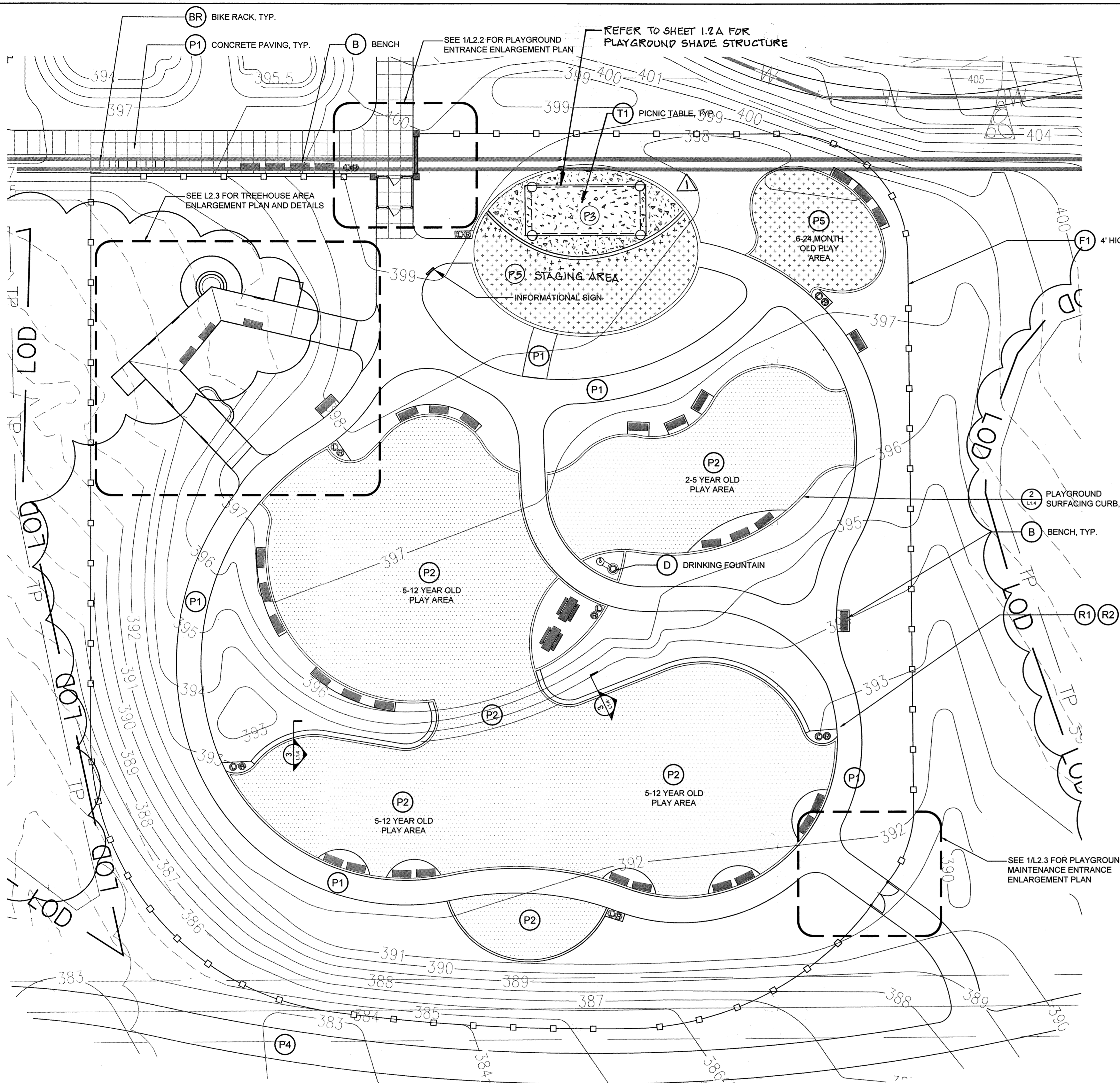
Drawing No. L1.3

Scale: As Shown

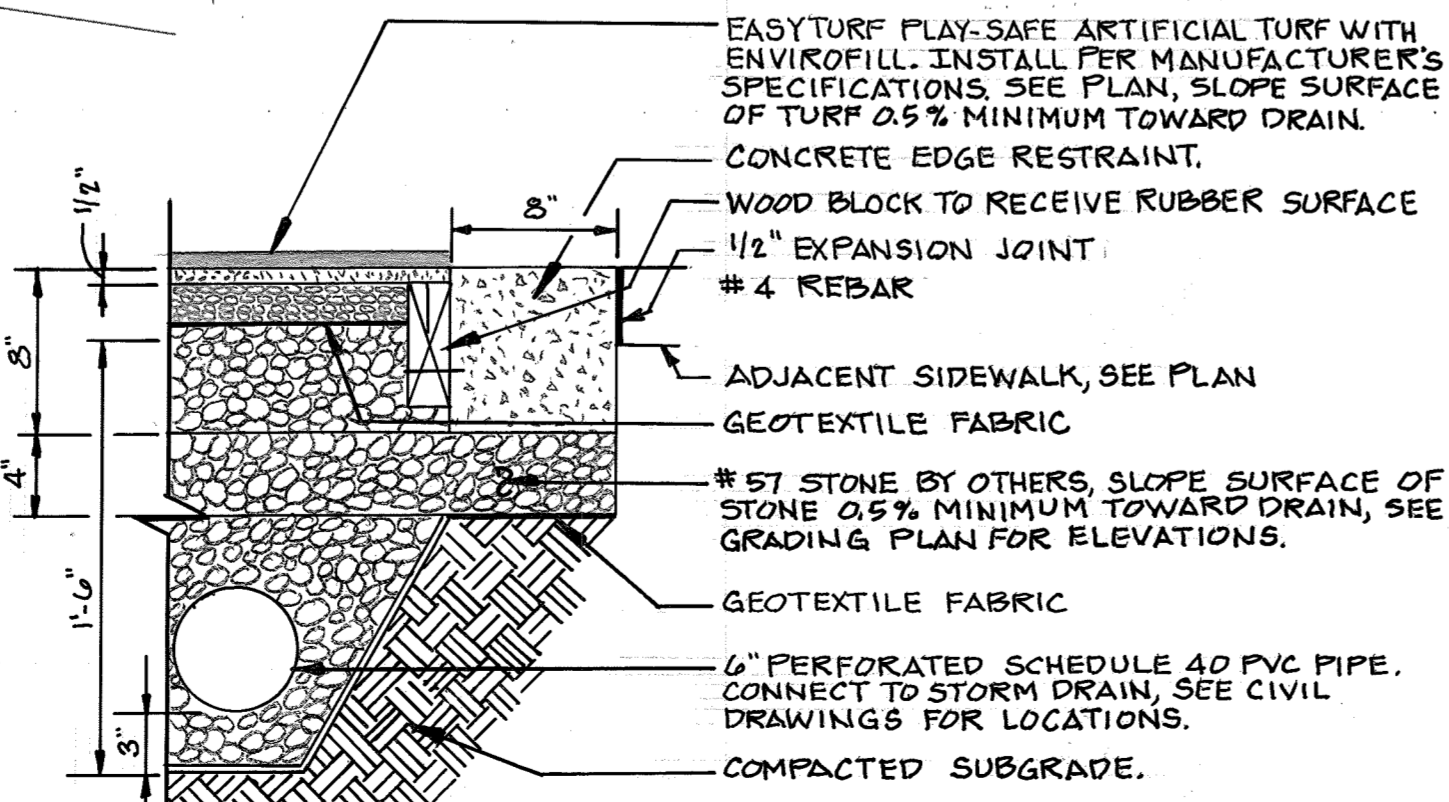
Date: 1/17/2017 Sheet 42 of 76

Des: CB/CO Drawn: CO Check: CB/SK

MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

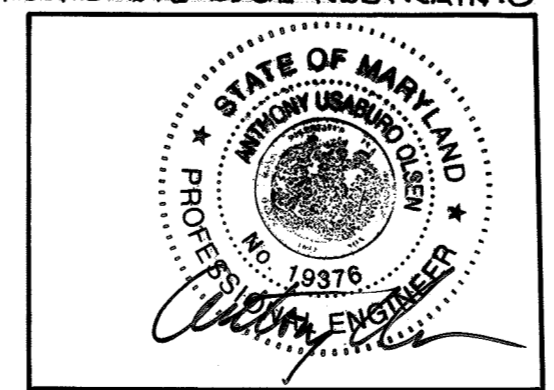


1 PLAYGROUND MATERIALS PLAN
Scale: 1" = 20'

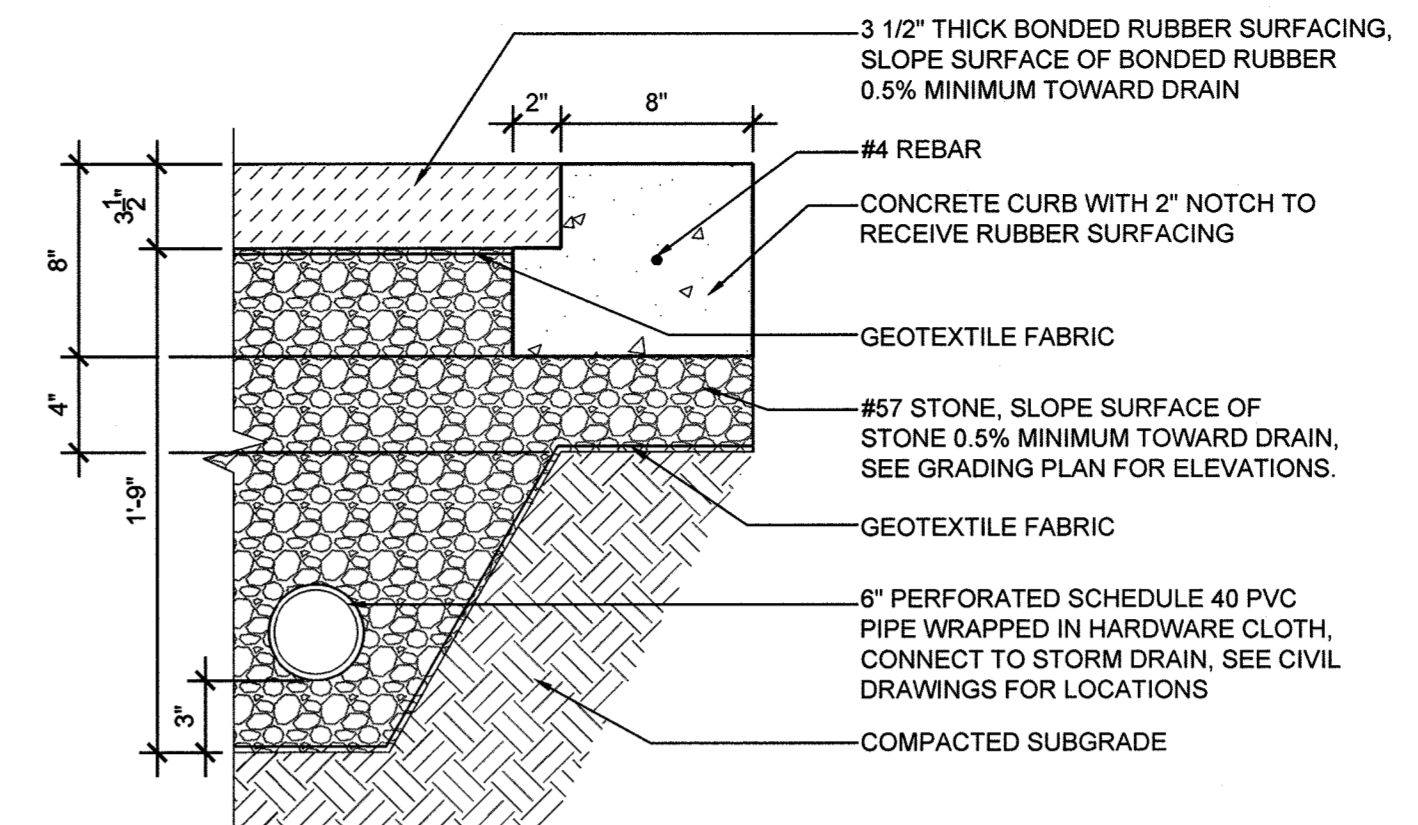


CONCRETE EDGE RESTRAINT AT ARTIFICIAL TURF: C1, P2
SCALE: 1/2" = 1'-0"

NOTES:
1. PROVIDE EXPANSION JOINTS IN CONCRETE EDGE RESTRAINTS AT ALL CHANGES IN DIRECTION. PROVIDE ADDITIONAL EXPANSION JOINTS AS NECESSARY TO ENSURE THAT STRAIGHT LENGTHS ARE NO GREATER THAN 35'.
2. CONCRETE EDGE RESTRAINTS TO BE SCORED 6' O.C. MAX.

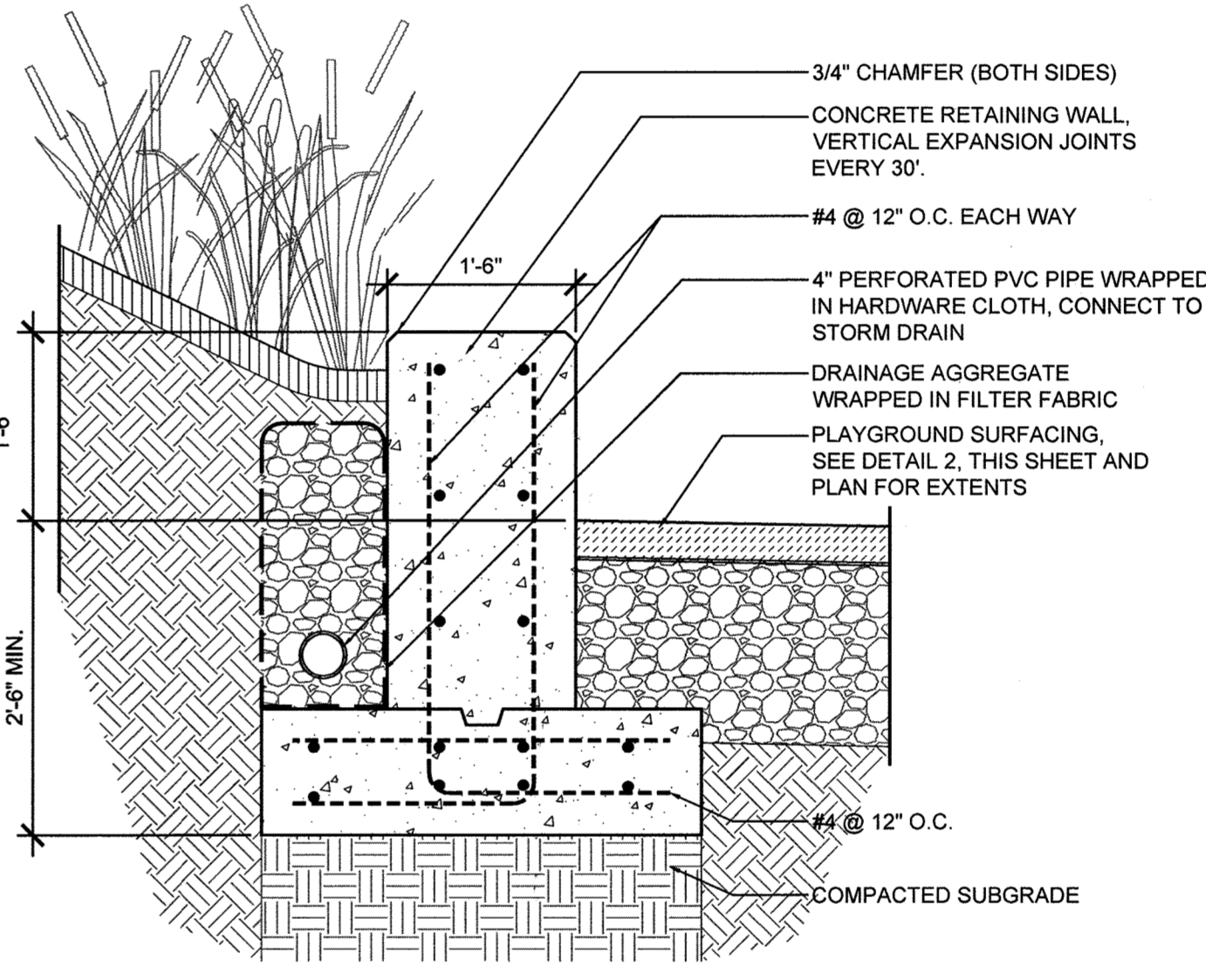


NOTE:
THIS SEAL CERTIFICATION APPLIES ONLY TO REVISION #1



NOTES:
1. PROVIDE EXPANSION JOINTS IN CONCRETE CURBS AT ALL CHANGES IN DIRECTION. PROVIDE ADDITIONAL EXPANSION JOINTS AS NECESSARY TO ENSURE THAT STRAIGHT LENGTHS ARE NO GREATER THAN 35'.
2. CONCRETE CURBS TO BE SCORED 6' O.C. MAX.

2 PLAYGROUND SURFACING
Scale: 1 1/2" = 1'-0"



3 SEAT WALL
Scale: 3/4" = 1'-0"

NOTE:
1. FINAL PLAY EQUIPMENT, LAYOUT, AND SHADE STRUCTURES TO BE PROVIDED BY PLAYGROUND VENDOR.

HARDSCAPE KEY

- | | |
|---------------------------------------|---------------------------------------|
| SURFACING | SITE AMENITIES |
| P1 (E) - HEAVY DUTY CONCRETE PAVEMENT | B (1) - BENCH |
| P2 (2) - PLAYGROUND SURFACING | BR (2) - BIKE RACK |
| P3 (D) - CONCRETE SIDEWALK | D (4) - DRINKING FOUNTAIN |
| P4 (A) - ASPHALT TRAIL | R1 (5) - LITTER RECEPTACLE |
| P5 (X) - ARTIFICIAL TURF | R2 (5) - RECYCLING RECEPTACLE |
| FENCING AND WALLS | T1 (6) - PICNIC TABLE |
| F1 (2) - 4' HIGH WOODEN FENCE | T2 (6) - CHESS BOARD TOP PICNIC TABLE |
| | W1 (3) - SEAT WALL |

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. 19376 EXPIRATION DATE 09/22/2021

MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

REVISIONS		
SHADE STRUCTURE	7/6/2019	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WR&A
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

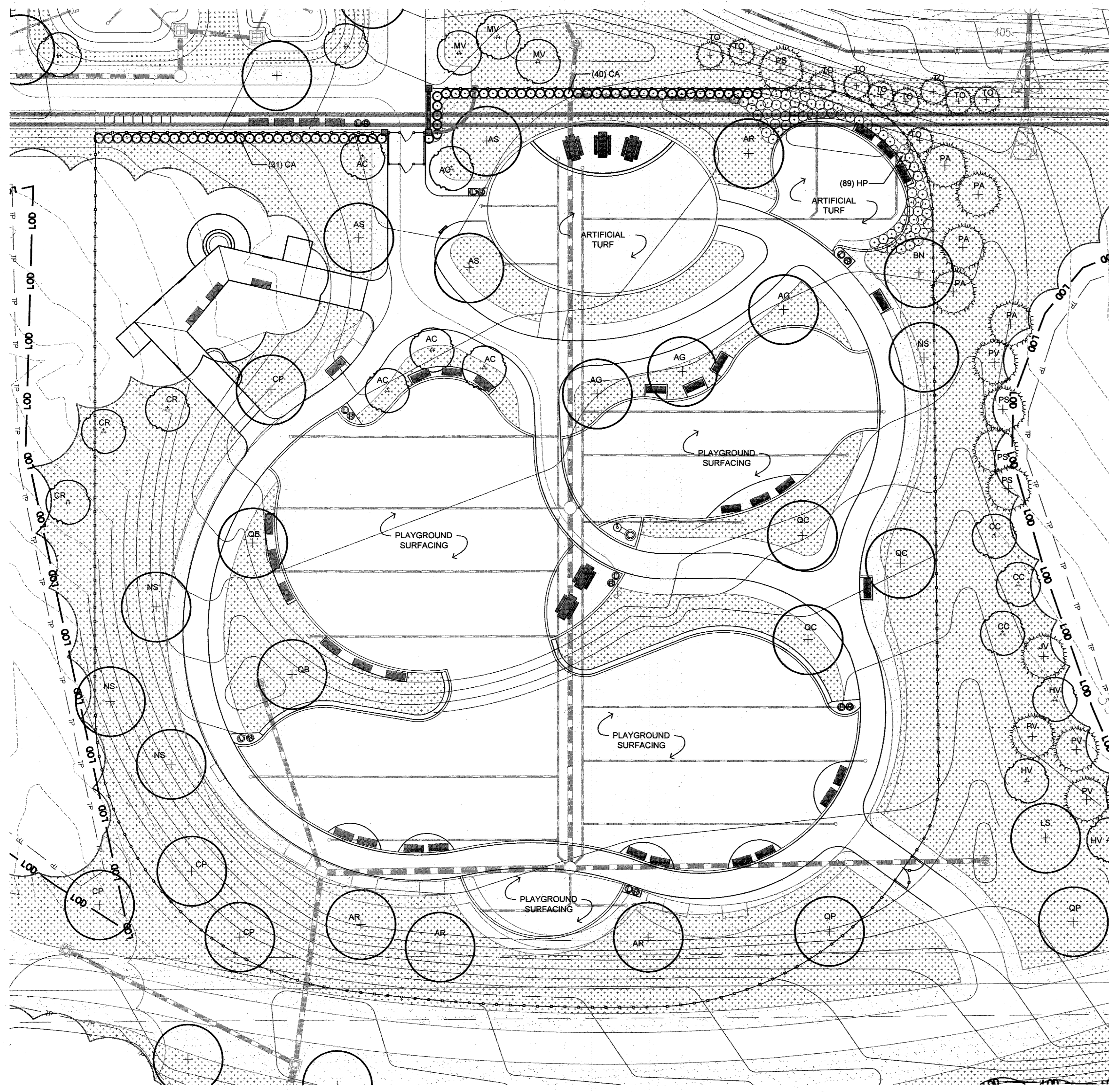
SIGNATURE



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 681
EXPIRATION DATE: 08/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

Playground Materials Plan
Drawing No. **L1.4**
Scale: 1"=20'
Date: 1/17/2017 Sheet 43 of 76
Des: CB/CO Drawn: CO Check: CB/SC



1 PLAYGROUND PLANTING PLAN
1" = 20'

PLANT SCHEDULE: THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHADE TREES					
3	AG	Acer griseum / Paperbark Maple	10' Ht.	B&B	Multi-Stem 3-5 Canes, Matched
4	AR	Acer rubrum 'Franksred' / Red Sunset Maple	2-1/2" Cal.	B&B	Full, Central leader
3	AS	Acer saccharum 'Commemoration' / Sugar Maple	2-1/2" Cal.	B&B	Full, Central leader
1	BN	Betula nigra 'Dura Heat' / River Birch	8' Ht.	B&B	Multi-Stem 3-5 Canes, Matched
4	CP	Carpinus caroliniana / American Hornbeam	2-1/2" Cal.	B&B	Full, Central leader
1	LS	Liquidambar styraciflua 'Ward' / Cherokee Sweetgum	2-1/2" Cal.	B&B	Full, Central leader
4	NS	Nyssa sylvatica / Black Tupelo	6' Ht.	Cont.	Full, Central Leader
3	QB	Quercus bicolor / Swamp White Oak	2-1/2" Cal.	B&B	Full, Central leader Do Not Fall Dig
3	QC	Quercus coccinea / Scarlet Oak	2-1/2" Cal.	B&B	Full, Central leader Do Not Fall Dig
2	QP	Quercus phellos 'Hightower' / Hightower® Willow Oak	2-1/2" Cal.	B&B	Full, Central leader, Matched
UNDERSTORY TREES					
5	AC	Amelanchier canadensis / Shadblow Serviceberry	8' Ht.	B&B	Multi-Stem 3-5 Canes
3	CC	Cercis canadensis 'Appalachian Red' / Appalachian Red Eastern Redbud	8' Ht.	B&B	Multi-Stem 3-5 Canes
3	CR	Cornus x 'Rutban' / Aurora® Dogwood	8' Ht.	B&B	Multi-Stem 3-5 Canes
3	HV	Hamamelis virginiana / Common Witchhazel	6' Ht.	B&B	Multi-Stem 3-5 Canes
3	MV	Magnolia virginiana / Sweetbay Magnolia	6' Ht.	B&B	Multi-Stem 3-5 Canes
EVERGREEN TREES					
1	JV	Juniperus virginiana / Eastern Red Cedar	6' Ht.	B&B	Full to base, Central leader
5	PA	Picea abies / Norway Spruce	6' Ht.	B&B	Full to base, Central leader
3	PS	Pinus strobus / Eastern White Pine	6' Ht.	B&B	Full to base, Central leader
4	PV	Pinus virginiana / Virginia Pine	6' Ht.	B&B	Full to base, Central leader
10	TO	Thuja occidentalis 'Nigra' / Dark American Arborvitae	6' Ht.	B&B	Full to base, Central leader
SHRUBS					
71	CA	Clethra alnifolia 'Hummingbird' / Hummingbird Summersweet	#3	Cont.	24" Spd.
89	HP	Hydrangea paniculata / Oakleaf Hydrangea	#3	Cont.	24" Spd.

LANDSCAPE LEGEND

- LOD - LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE
- PROPOSED SHRUBS
- PROPOSED GROUNDCOVER / PERENNIALS / GRASSES
- PROPOSED UPLAND MEADOW MIX, SEE L1.7 FOR MIX

- NOTES:**
- ALL DISTURBED AREAS NOT RECEIVING PLANTINGS, MEADOW SEED MIX, OR HARDSCAPE TO BE SEEDING WITH PERMANENT TURF SEED MIX UNLESS OTHERWISE NOTED.
 - ALL PLANT LOCATIONS TO BE MARKED IN THE FIELD AND APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS REPRESENTATIVE PRIOR TO PLANTING.
 - ALL DECIDUOUS TREES TO RECEIVE TREE SHELTERS, SEE SPEC.
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.
 - INSTALL PLANT MASSES IN STAGGERED ROWS UNLESS OTHERWISE INDICATED.
 - FINAL PLANTING IN PLAYGROUND AREA TO BE DETERMINED BASED ON FINAL PLAYGROUND LAYOUT.

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043



PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



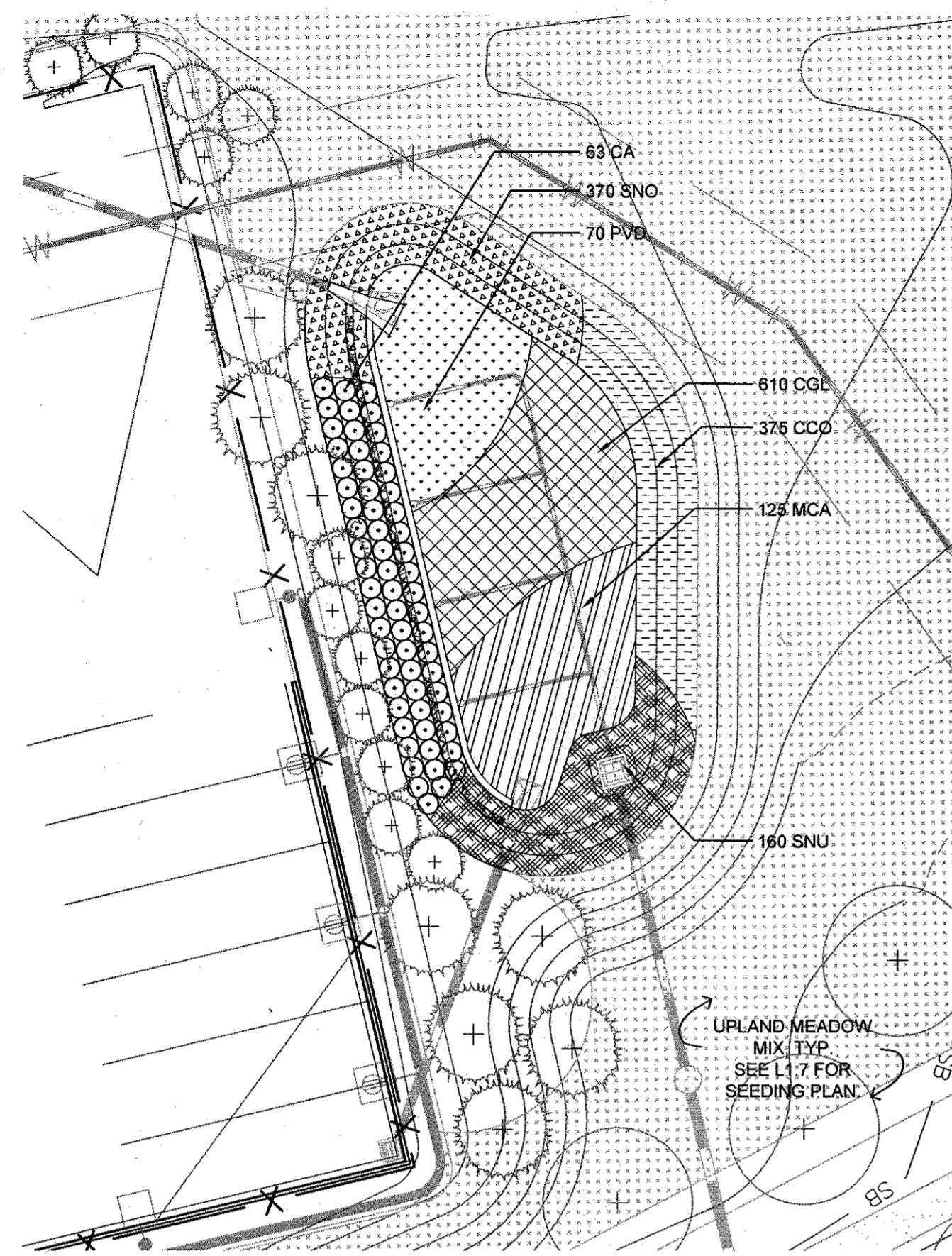
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 651
EXPIRATION DATE: 06/2/2017

BLANDAIR REGIONAL PARK - PHASE 3

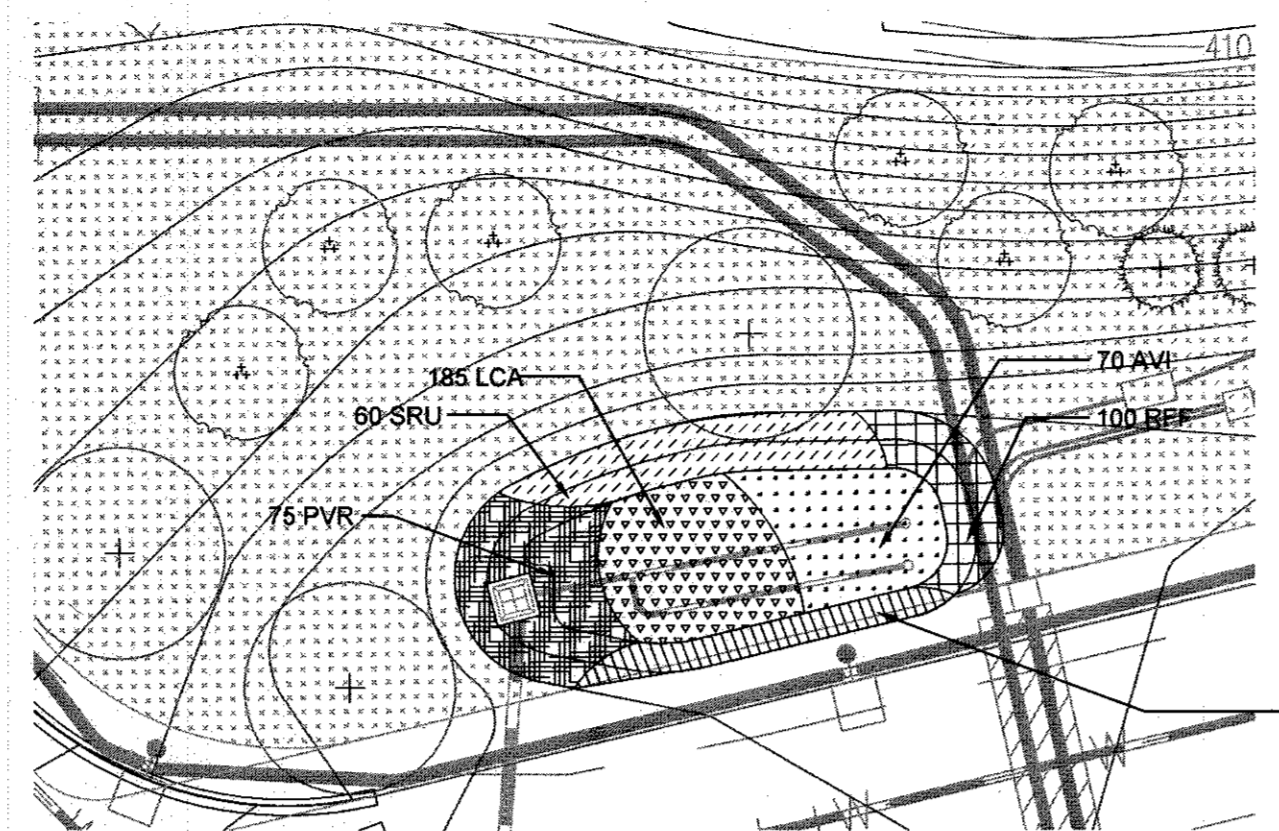
Playground Planting Plan
Drawing No. **L1.5**
Scale: 1"=20'
Date: 1/17/2017 Sheet 44 of 76
Des: CB/CO Drawn: CO Check: CB/SK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 2-6-17
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 3-01-17
DIRECTOR: *[Signature]* DATE: 3-19-17

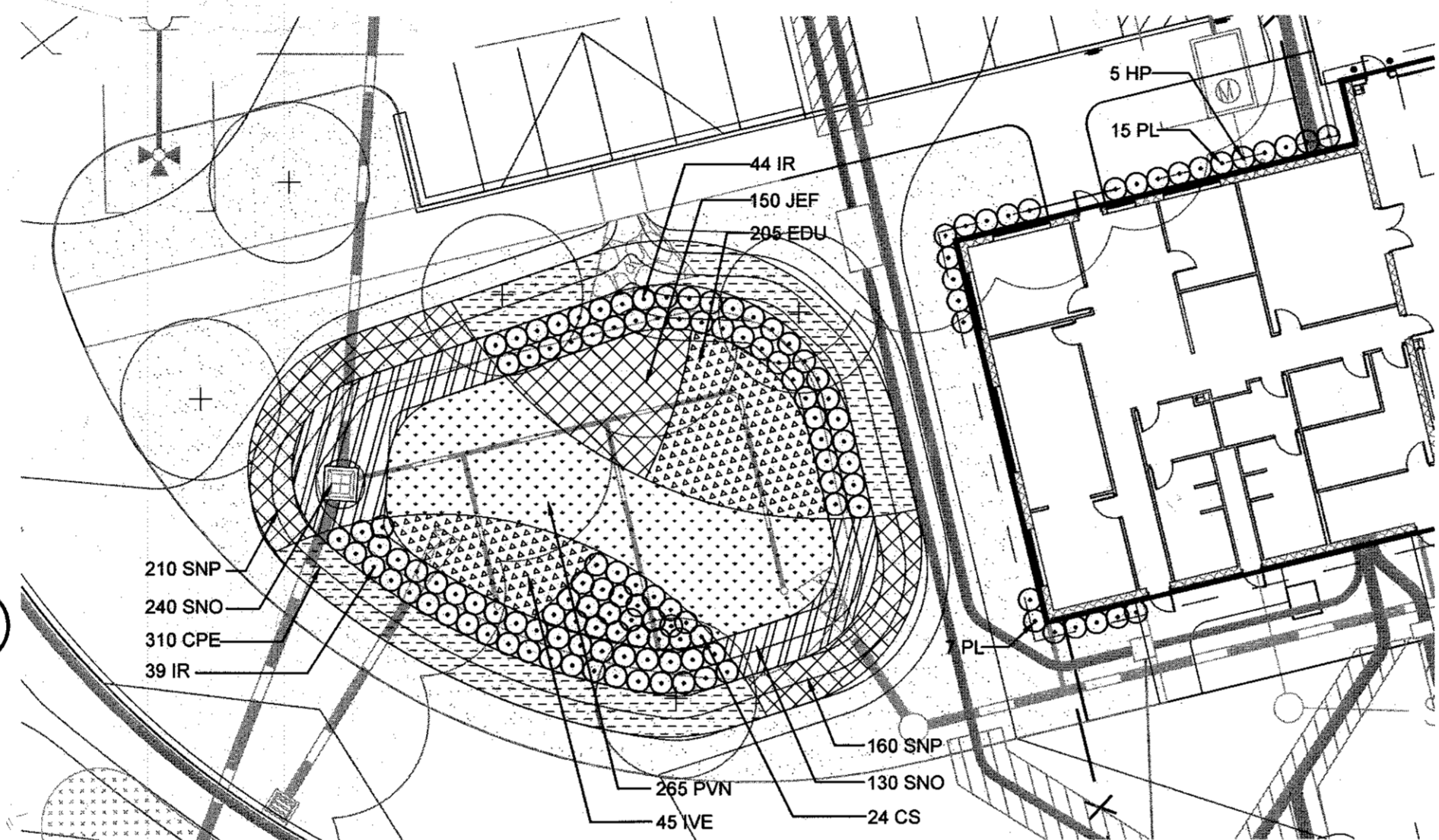
MAHAN RYKIEL ASSOCIATES INC
The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001



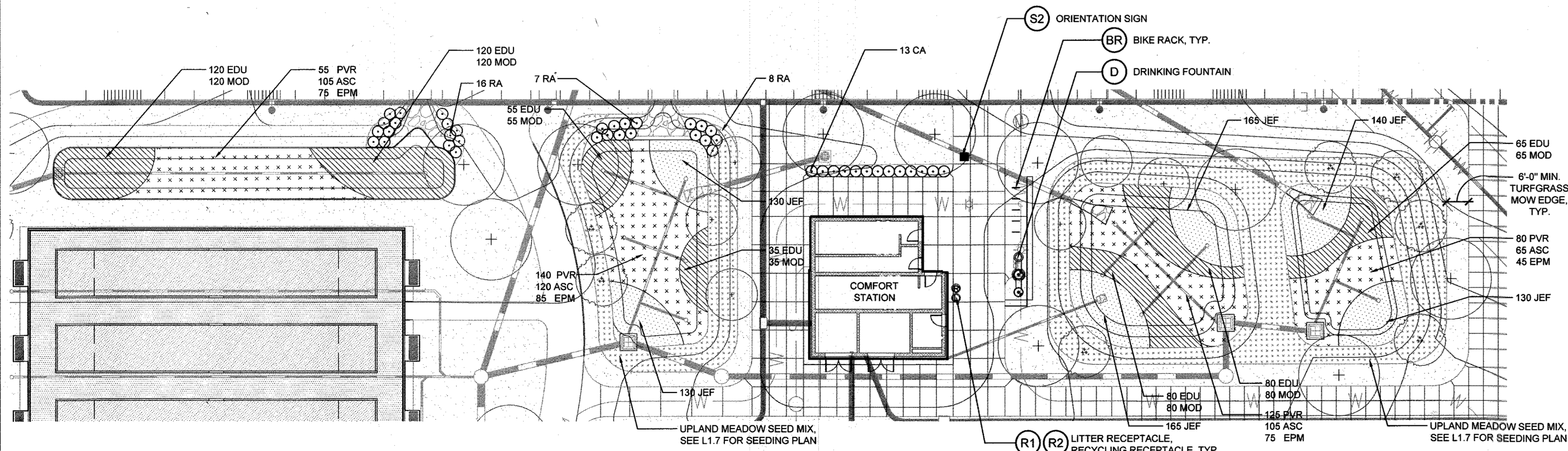
1 BIORETENTION AREA 1 ENLARGEMENT
1" = 20' - 0"



2 BIORETENTION AREA 3 ENLARGEMENT
1" = 20' - 0"



3 BIORETENTION AREA 2 ENLARGEMENT
1" = 20' - 0"



4 BIORETENTION AREA 5 & 4 ENLARGEMENT
1" = 20' - 0"

PLANT SCHEDULE - THIS SHEET ONLY

Qty.	Key	Botanical/Common Name	Size	Root	Comments
SHRUBS					
76	CA	Clethra alnifolia 'Hummingbird'/ Hummingbird Summersweet	#3	Cont.	24" Ht.
24	CS	Cornus sericea 'Farrow' Artic Fire / Red Twig Dogwood	#3	Cont.	24" Ht.
5	HP	Hydrangea paniculata 'Wim's Red' P.P.A.F. / Fire and Ice Panic Hydrangea	#3	Cont.	24" Ht.
83	IR	Ilex verticillata 'Red Sprite' / Red Sprite Winterberry	#3	Cont.	24" Spd. Provide 10% Male
22	PL	Prunus laurocerasus 'Otto Luyken' / Otto Luyken Cherry Laurel	#3	Cont.	24" Spd.
28	RA	Rhus aromatica 'Gro Low' / Gro Low Fragrant Sumac	#3	Cont.	24" Spd.
GROUNDCOVERS/PERENNIALS/GRASSES					
395	ASC	Asclepias tuberosa / Butterfly Weed	SP#4	Cont.	15" O.C.
70	AVI	Andropogon virginicus / Broomsedge	#1	Cont.	24" O.C.
310	CPE	Carex pensylvanica / Oak Sedge	#1	Cont.	15" O.C.
610	CGL	Chelone glabra / Turtlehead	#1	Cont.	15" O.C.
42	CRO	Coreopsis 'Route 66' / Tickseed	#1	Cont.	15" O.C.
42	CSS	Coreopsis 'Sienna Sunset' / Tickseed	#1	Cont.	15" O.C.
375	CCO	Conoclinium coelestinum Mistflower	#1	Cont.	15" O.C.
760	EDU	Eupatorium dubium 'Little Joe' / Joe Pye Weed	#1	Cont.	18" O.C.
280	EPM	Echinacea purpurea 'Magnus' / Purple Coneflower	#1	Cont.	18" O.C.
45	IVE	Iris versicolor / Blue Flag Iris	#1	Cont.	15" O.C.
880	JEF	Juncus effusus / Common Rush	#1	Cont.	18" O.C.
185	LCA	Lobelia cardinalis / Cardinal Flower	#1	Cont.	15" O.C.
125	MCA	Muhlenbergia capillaris Pink Muhly Grass	#3	Cont.	30" O.C.
555	MOD	Monarda didyma / Bee Balm	#1	Cont.	18" O.C.
70	PVD	Panicum virgatum 'Dallas Blues' / Dallas Blues Switchgrass	#3	Cont.	36" O.C.
265	PVN	Panicum virgatum 'Northwind' / Northwind Switchgrass	#3	Cont.	24" O.C.
480	PVR	Panicum virgatum 'Rotstrahlbusch' / Rotstrahlbusch Switchgrass	#3	Cont.	24" O.C.
100	RFF	Rudbeckia fulgida var fulgida / Black-Eyed Susan	#1	Cont.	15" O.C.
740	SNO	Symphotrichum novae-angliae / New York Aster	#1	Cont.	15" O.C.
160	SNU	Sorghastrum nutans / Indian Grass	#3	Cont.	24" O.C.
370	SNP	Symphotrichum novae-angliae 'Purple Dome' / Purple Dome New York Aster	#1	Cont.	15" O.C.

- NOTES:**
- SEE LANDSCAPE PLANS L1.1 AND L1.2 FOR TREE PLANTINGS
 - SEE L1.7 FOR SEEDING PLAN
 - AREAS INDICATING TWO PLANT SPECIES ARE TO BE PLANTED IN GROUPS OF 10 TO 15 PLANTS FROM EACH SPECIES.
 - INSTALL PLANT MASSES IN STAGGERED ROWS UNLESS OTHERWISE INDICATED.

LANDSCAPE LEGEND

- LOD LIMIT OF DISTURBANCE
- EXISTING TREE
- EXISTING WOODED AREA
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED FLOWERING TREE

HARDSCAPE KEY

- SITE AMENITIES**
- BR BIKE RACK
 - D DRINKING FOUNTAIN
 - R1 LITTER RECEPTACLE
 - R2 RECYCLING RECEPTACLE
 - S1 DESTINATION/ BUILDING IDENTIFICATION SIGN
 - S2 ORIENTATION SIGN

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 3-19-17
 DIRECTOR

MAHAN RYKIEL ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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 EXPIRATION DATE: 09/30/2017

BLANDAIR REGIONAL PARK - PHASE 3

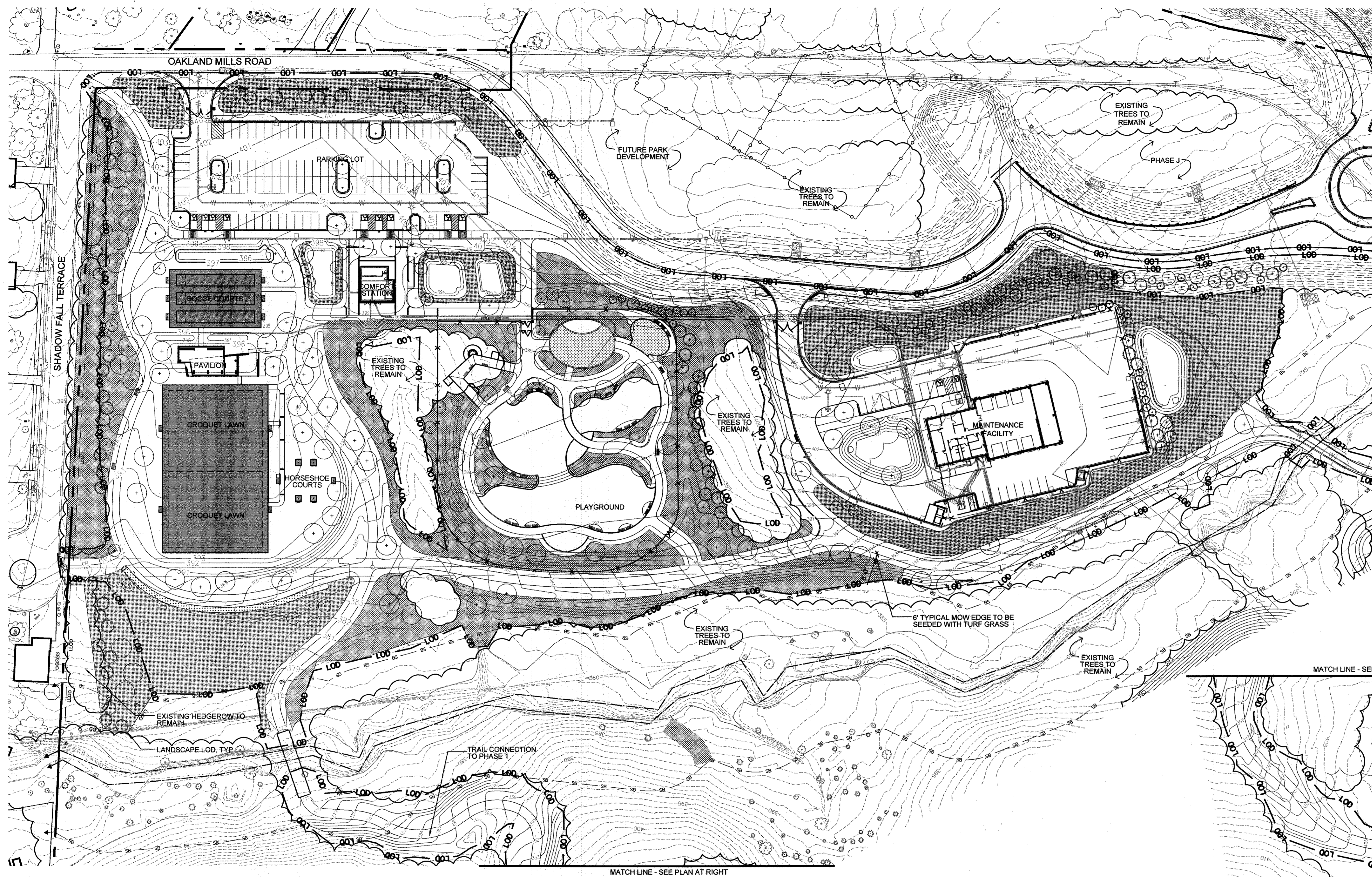
Planting Enlargements

Drawing No. **L1.6**

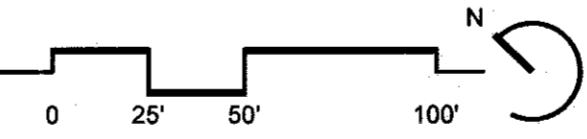
Scale: 1"=20'

Date: 1/17/2017 Sheet 45 of 76

Des: CB/CO Drawn: CO Check: CB/SK



1 SEEDING PLAN
1" = 60' - 0"



LEGEND

- LDD — LIMIT OF DISTURBANCE
- LLOD — LANDSCAPE LIMIT OF DISTURBANCE
- ▨ UPLAND MEADOW SEED MIX

NOTE: ALL DISTURBED AREAS NOT SEEDED WITH MEADOW MIX TO BE SEEDED WITH STANDARD TURF MIX

UPLAND MEADOW SEED MIX

MARYLAND UPLAND MIX: ERNM-172
BY ERNST SEED MIX
ADDRESS: 9006 MERCER PIKE
MEADVILLE, PA 16335
TEL: 814-336-2404

% of Total	Botanical Name	Common Name
54.3%	<i>Schizachyrium scoparium</i> 'Camper'	Little Bluestem 'Camper'
15%	<i>Elymus virginicus</i> , PA Ecotype	Virginia Wild Rye
9%	<i>Sorghastrum nutans</i> , PA Ecotype	Indiangrass
4%	<i>Chamaecrista fasciculata</i> , PA Ecotype	Partridge Pea
3%	<i>Tridens flavus</i> , Southeastern VA Ecotype	Purpletop
2%	<i>Rudbeckia hirta</i> - Coastal Plain NC Ecotype	Black-Eyed Susan
2%	<i>Andropogon gerardi</i> 'Niagara'	Big Bluestem 'Niagara'
2%	<i>Agrostis perennans</i> , PA Ecotype	Autumn Bentgrass
2%	<i>Lespedeza virginica</i> , VA Ecotype	Slender Bushclover
1%	<i>Asclepias tuberosa</i>	Butterfly Milkweed
1%	<i>Symphoricarpos laevis</i> , PA Ecotype	New England Aster
1%	<i>Symphoricarpos laevis</i> , NY Ecotype	Smooth Blue Aster
0.5%	<i>Senna hebecarpa</i> , VA & WV Ecotype	Wild Senna
0.5%	<i>Mondarda fistulosa</i> , Fort Indiantown Gap, PA Ecotype	Wild Bergamot
0.5%	<i>Senna marilandica</i>	Maryland Senna
0.5%	<i>Solidago nemoralis</i>	Gray Goldenrod
0.5%	<i>Vernonia noveboracensis</i> 'Suther', Piedmont NC Ecotype	New York Ironweed 'Suther'
0.5%	<i>Tradescantia virginiana</i> , Southeastern PA/Northern VA Blend	Virginia Spiderwort
0.5%	<i>Solidago juncea</i> , VA Ecotype	Early Goldenrod
0.2%	<i>Pycnanthemum incanum</i> , MD Ecotype	Hoary Mountainmint
100%	Total	

Seeding Rate: 15 lb per acre or 1/3-1/2 lb per 1,000 sq ft.
Total Acreage: 4.26 ac.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: [Signature] DATE: 2-6-17
 Chief, Division of Land Development: [Signature] DATE: 3-01-17
 Director: [Signature] DATE: 3-19-17

REVISIONS	

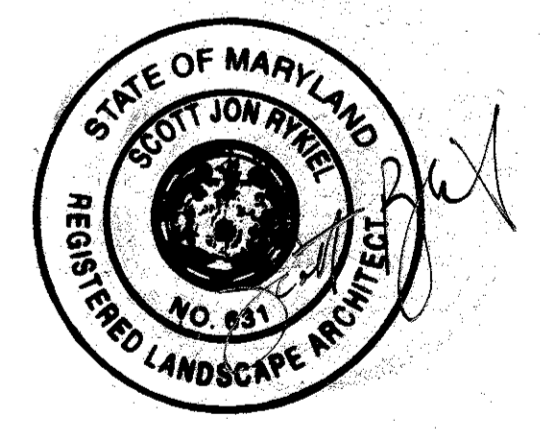
HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

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 EXPIRATION DATE: 08/21/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

Seeding Plan
 Drawing No. L1.7
 Scale: 1"=60'
 Date: 1/17/2017 Sheet 46 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

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 ASSOCIATES INC
 The Stieff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

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 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

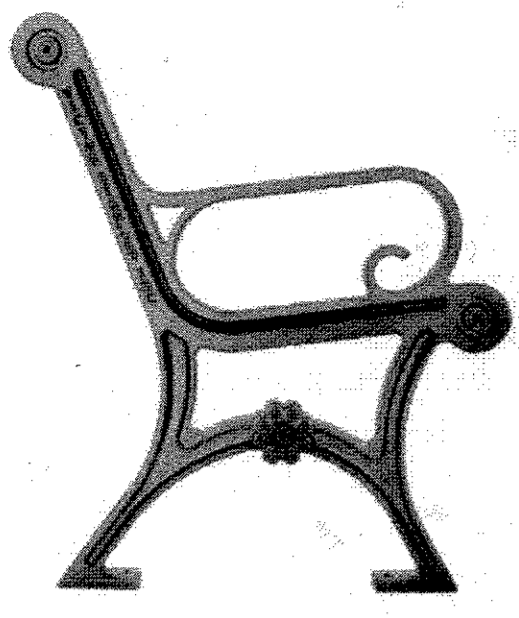
SIGNATURE



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 EXPIRATION DATE: 08/20/17

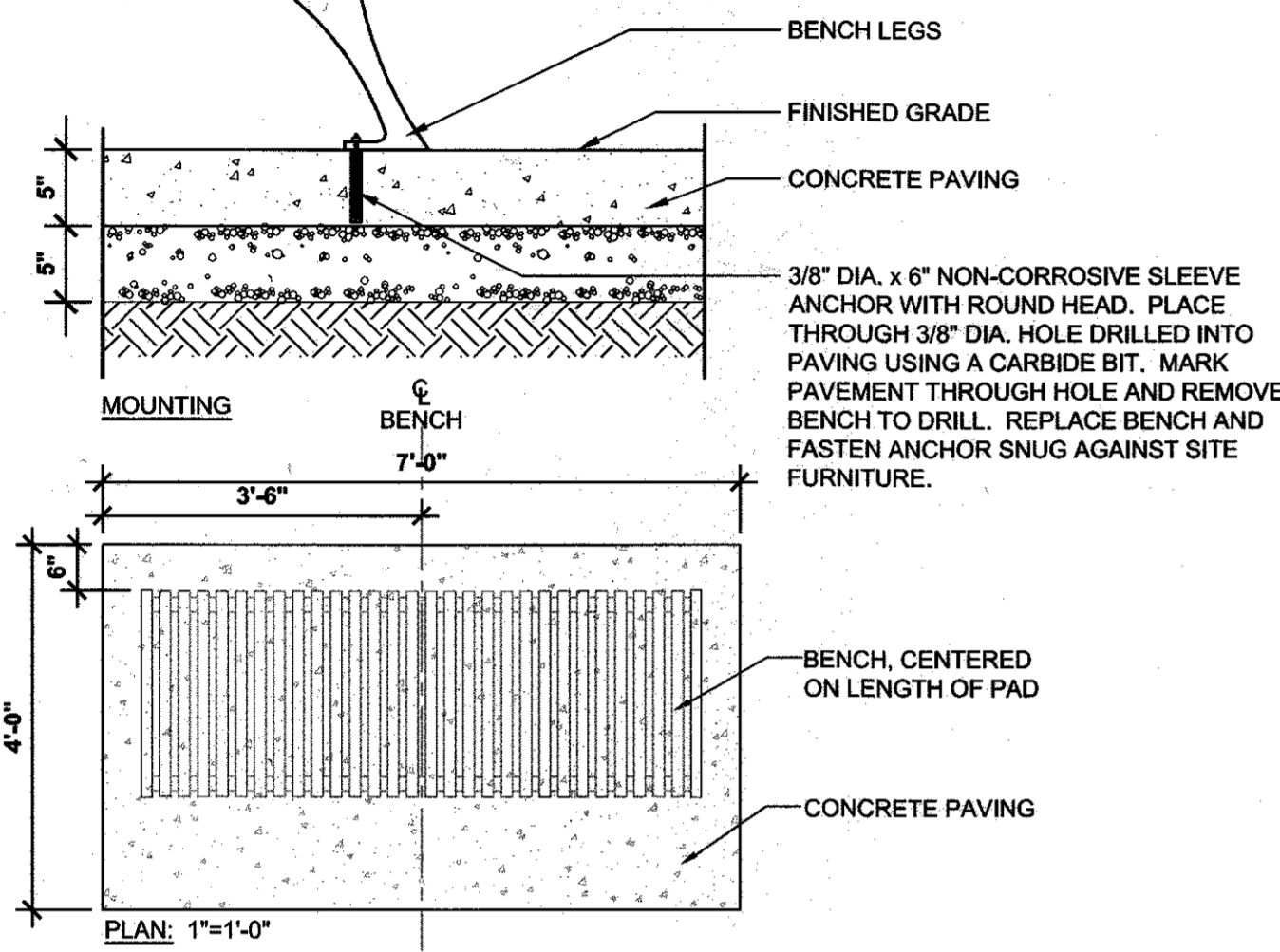
BLANDAIR REGIONAL PARK - PHASE 3

Hardscape Details
 Drawing No. L2.1
 Scale: As Shown
 Date: 1/17/2017 Sheet 47 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

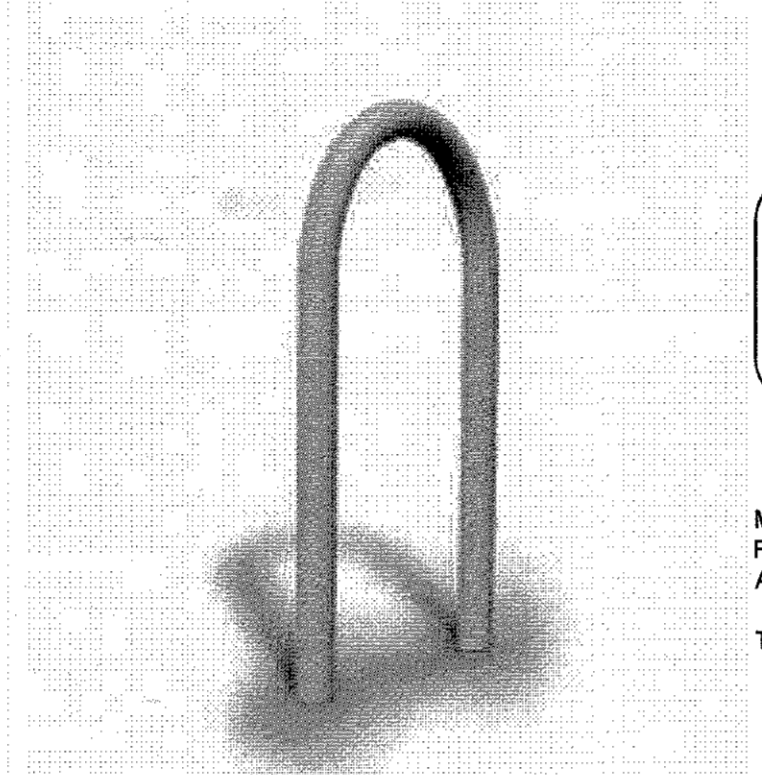


MANUFACTURER INFORMATION:
 Victor Stanley, Inc.
 P.O. Drawer 330
 Dunkirk, MD 20754
 1-800-368-2573
 www.victorstanley.com

Classic Series by Victor Stanley
 8' Bench
 Casings #196 with 2nd Site System
 Frame Color: Bronze
 Recycled Plastic Slats, Color: Maple
 Total Benches: Twenty-nine (29)



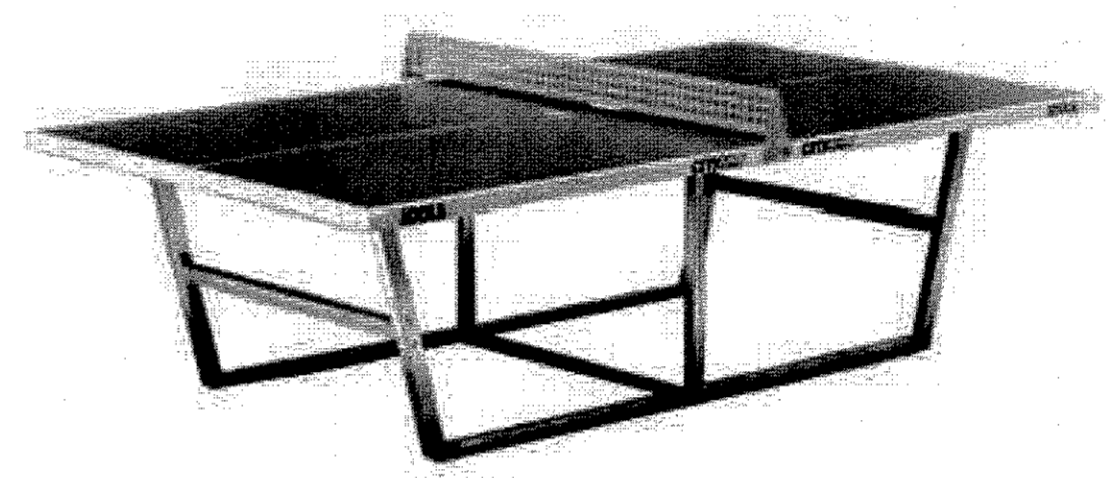
1 BENCH
 N.T.S.



MANUFACTURER INFORMATION:
 Victor Stanley, Inc.
 P.O. Drawer 330
 Dunkirk, MD 20754
 1-800-368-2573
 www.victorstanley.com

Model BRWS-101 (Holds 2 Bikes)
 Finish / Color: Grey Powdercoat
 Anchor per manufacturer recommendations.
 Total Bike Racks: Eighteen (18)

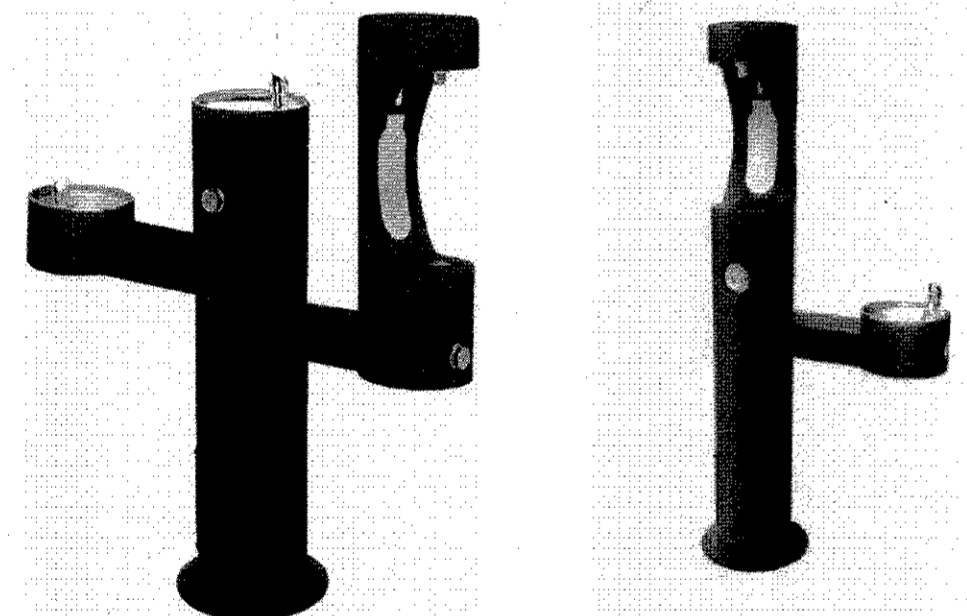
2 BIKE RACK
 N.T.S.



VENDOR INFORMATION:
 JOOLA USA
 15800 Crabbs Branch Way,
 Suite 250
 Rockville, MD 20855
 1-877-US-JOOLA
 www.joolausa.com

JOOLA City Table Tennis Table
 Item # 11700.
 Industrial outdoor table with
 acrylic resin/silica sand mixture.
 Total Quantity: Two (2)

3 PING PONG TABLE
 N.T.S.



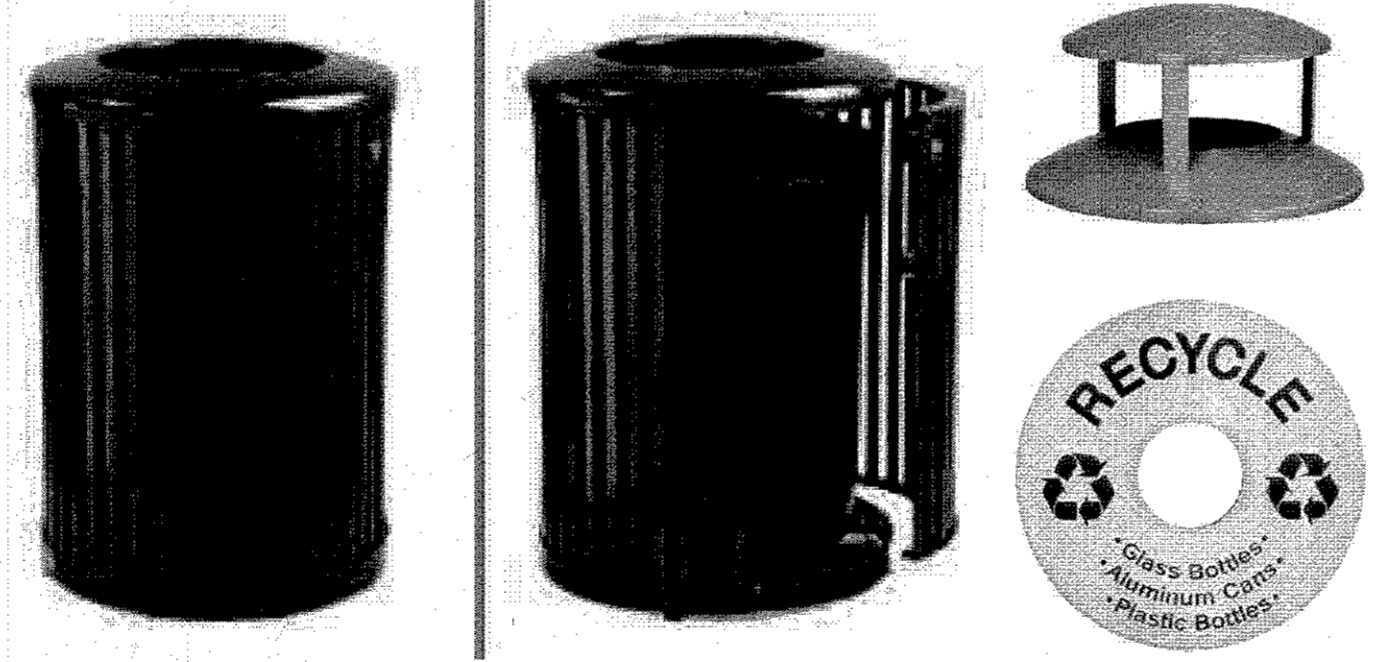
MANUFACTURER INFORMATION:
 Elkay Manufacturing Company
 2222 Camden Court
 Oak Brook, IL 60523
 630-574-8484
 www.elkay.com

Both fountains: Freestanding/surface mount
 Color: Brown, Powder coat
 Submit shop drawing for approval.

Outdoor EZH2O® TH-level Bottle Filling Station
 Model LK4430BF1M by Elkay Manufacturing Company
 Total drinking fountains: Two (2)

Outdoor EZH2O® Dual Level Bottle Filling Station
 Model LK4420BF1U by Elkay Manufacturing Company
 Total drinking fountains: One (1)

4 DRINKING FOUNTAIN
 N.T.S.



MANUFACTURER INFORMATION:
 Victor Stanley, Inc.
 P.O. Drawer 330
 Dunkirk, MD 20754
 1-800-368-2573
 www.victorstanley.com

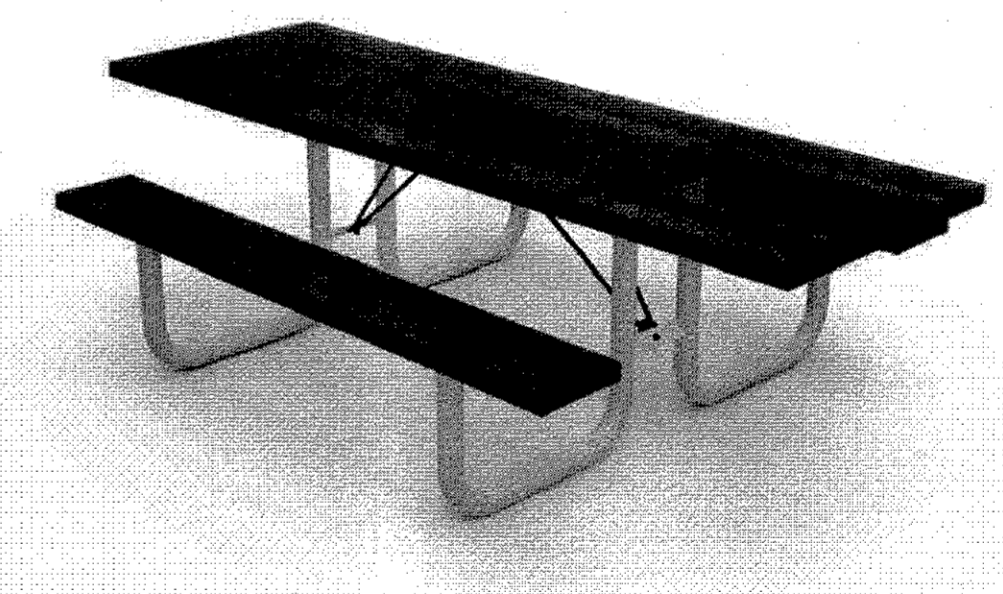
Steelsites Series Model NSDC-45 by Victor Stanley
 45-gallon capacity side-door litter/recycling receptacle
 Black plastic liner, four leveling feet, bottom recessed
 pedestal (Anchor per manufacturer's recommendations)

Litter receptacle color: bronze
 Recycling receptacle color: blue

Litter and recycling receptacles to receive rain bonnet lid.
 Rain bonnet lid to be riveted or welded in place. Adjust
 "RECYCLE" decals as necessary. Submit product data for
 review.

Total litter receptacles: Eight (8)
 Total recycling receptacles: Eight (8)

5 LITTER / RECYCLING RECEPTACLE
 N.T.S.



VENDOR INFORMATION:
 Playground Specialists, Inc.
 11700 Whates Lane
 Thurmont, MD 21788
 1-800-385-0075
 www.playspecva.com/

Model ZZXX1405 by Playworld Systems
 8' accessible park table
 Eco-Armor tops and frames
 Top color: green, Frame color: brown
 Provide custom chess/checkerboard
 inserts for two of the tables.

Total Quantity: Six (6)

6 PICNIC TABLE / CHESS BOARD
 N.T.S.

NOTES:
 1. SUBMIT ALL SITE FURNISHING PRODUCT DATA FOR APPROVAL.

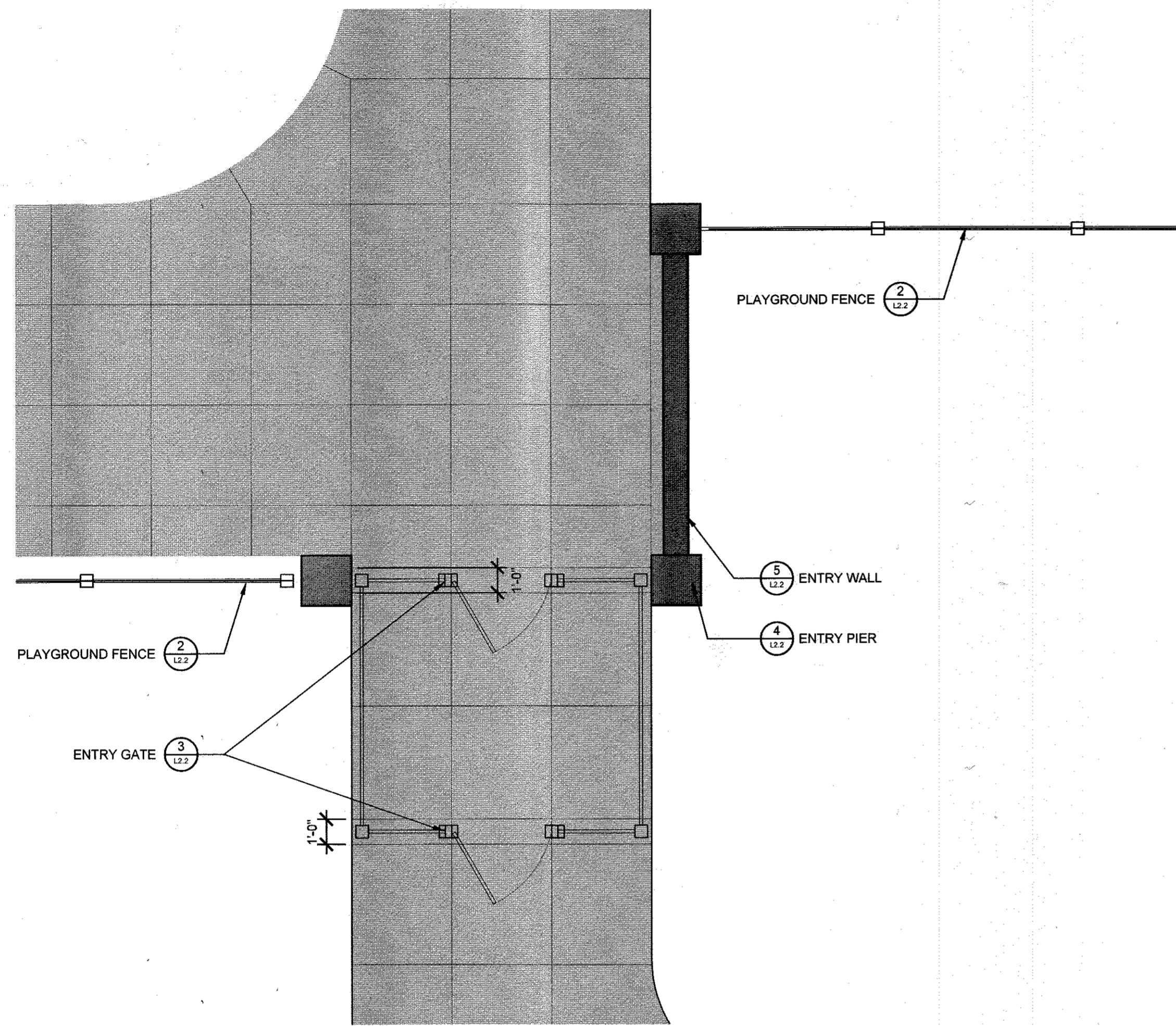
MAHAN RYKIEL
 ASSOCIATES IN C
 The Steff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

APPROVED: DEPARTMENT OF PLANNING AND ZONING

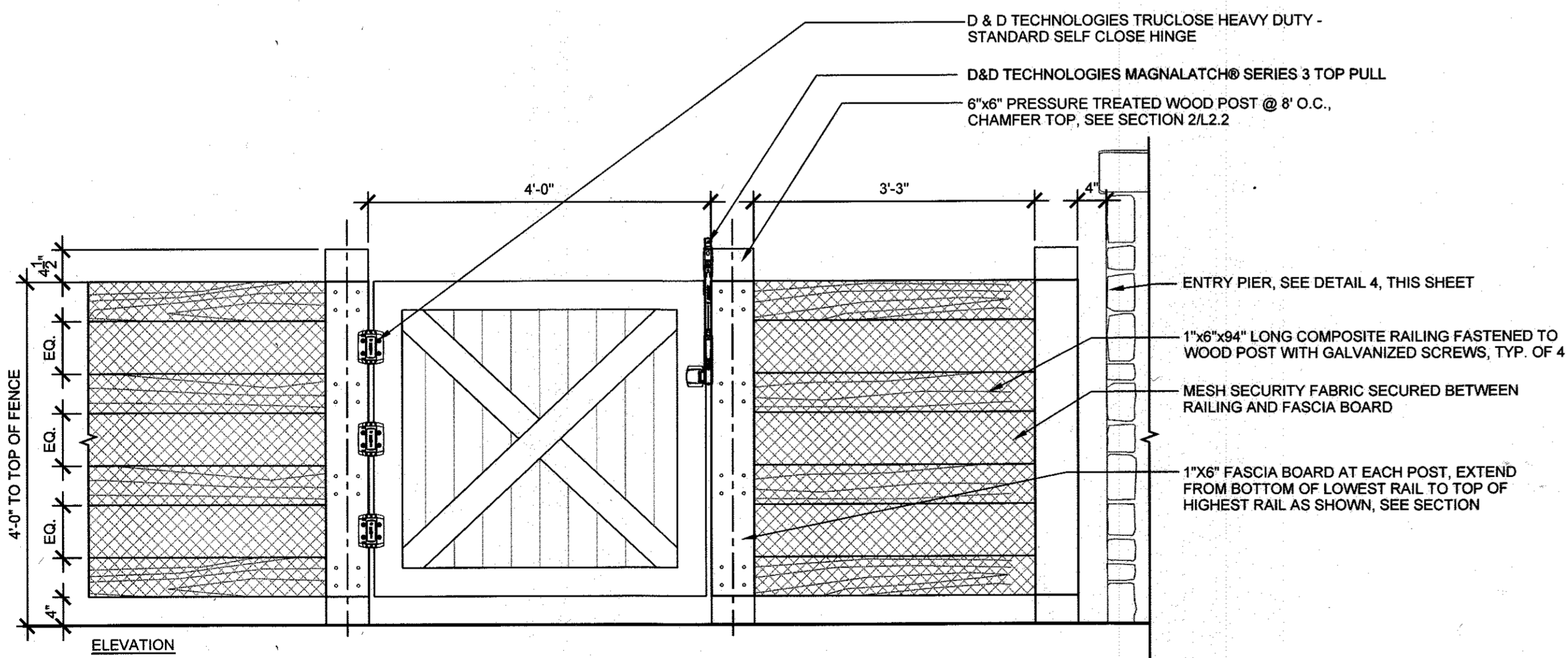
[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

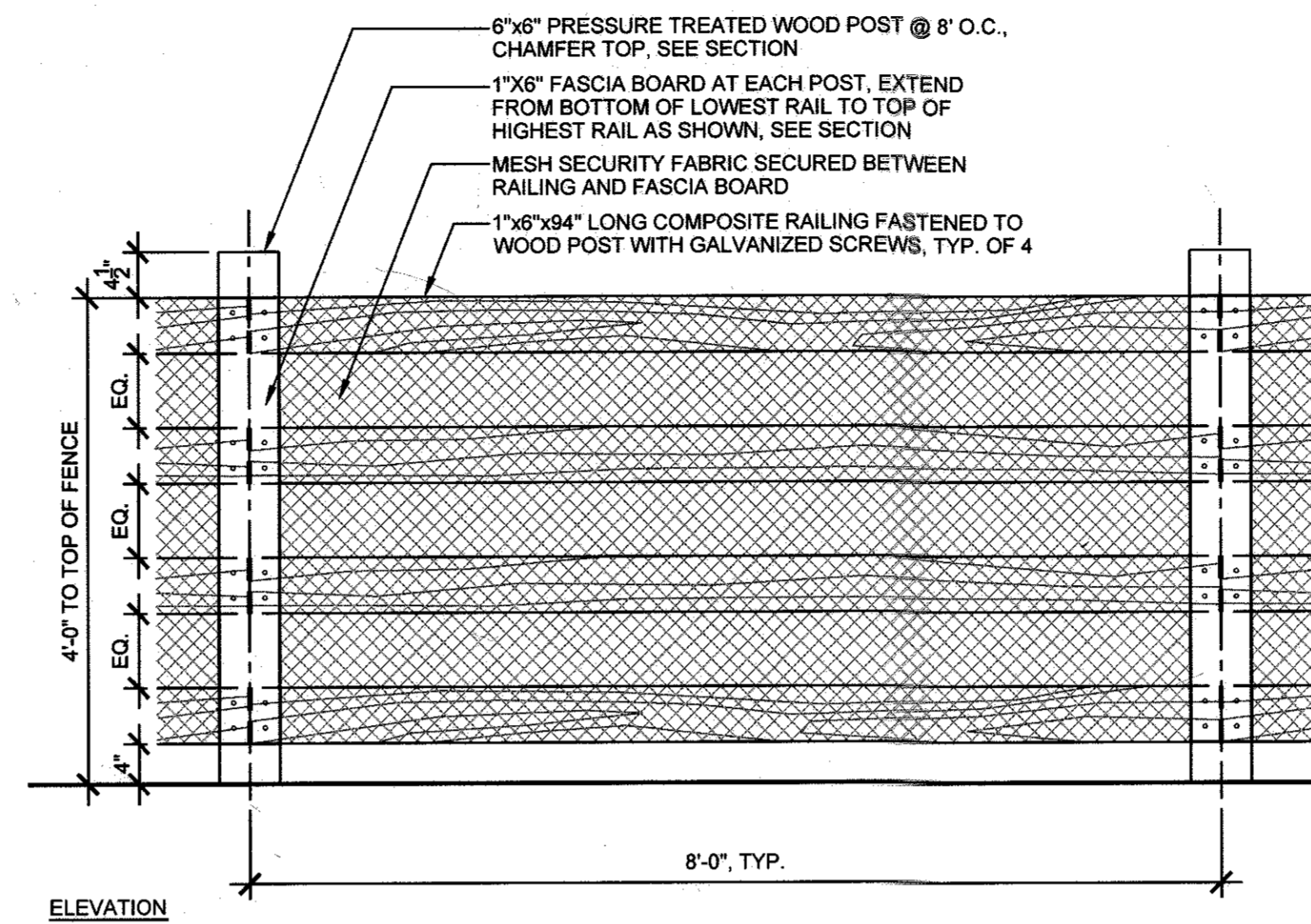
[Signature] 3-19-17
 DIRECTOR DATE



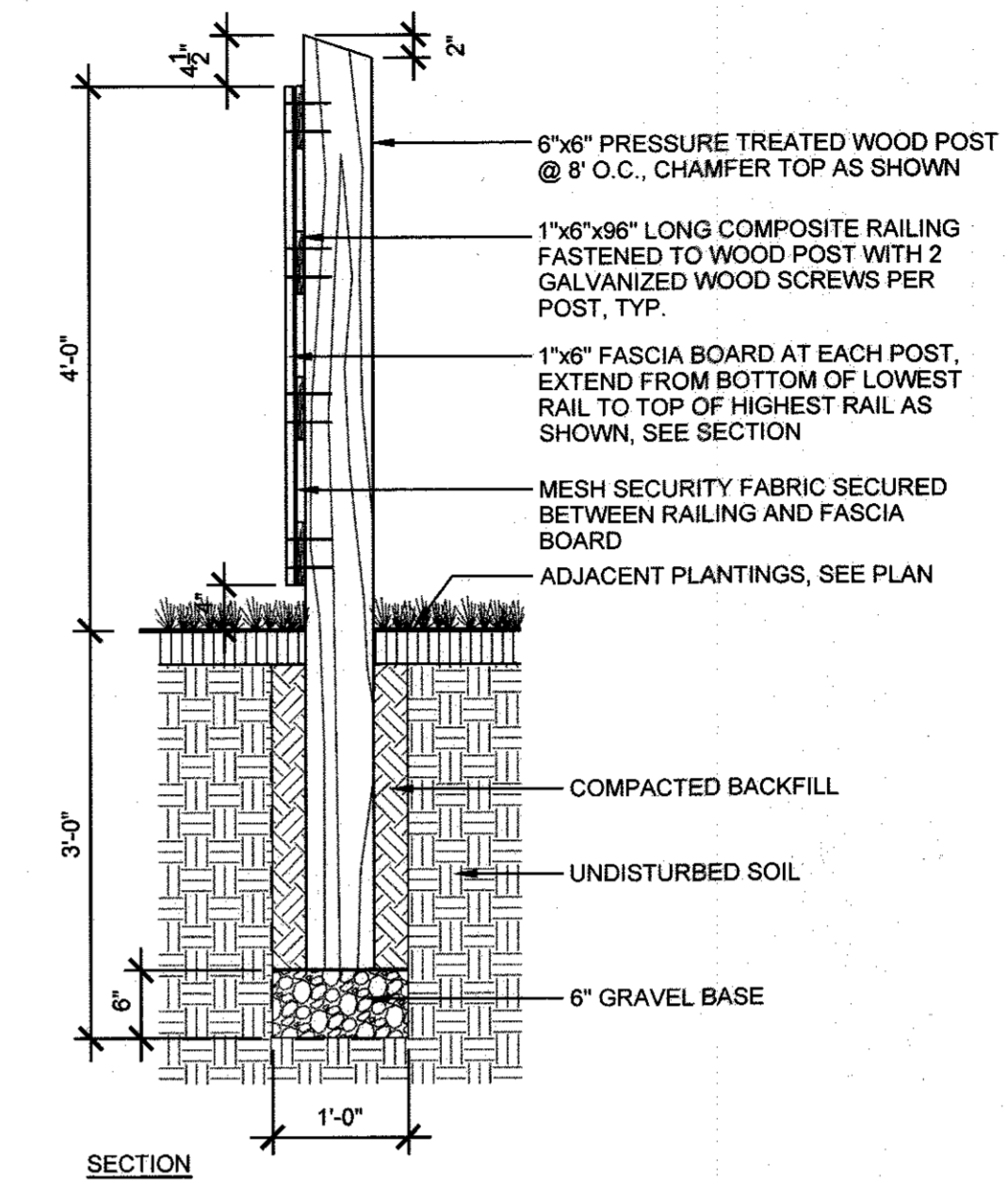
1 PLAYGROUND ENTRANCE ENLARGEMENT PLAN
1/4" = 1'-0"



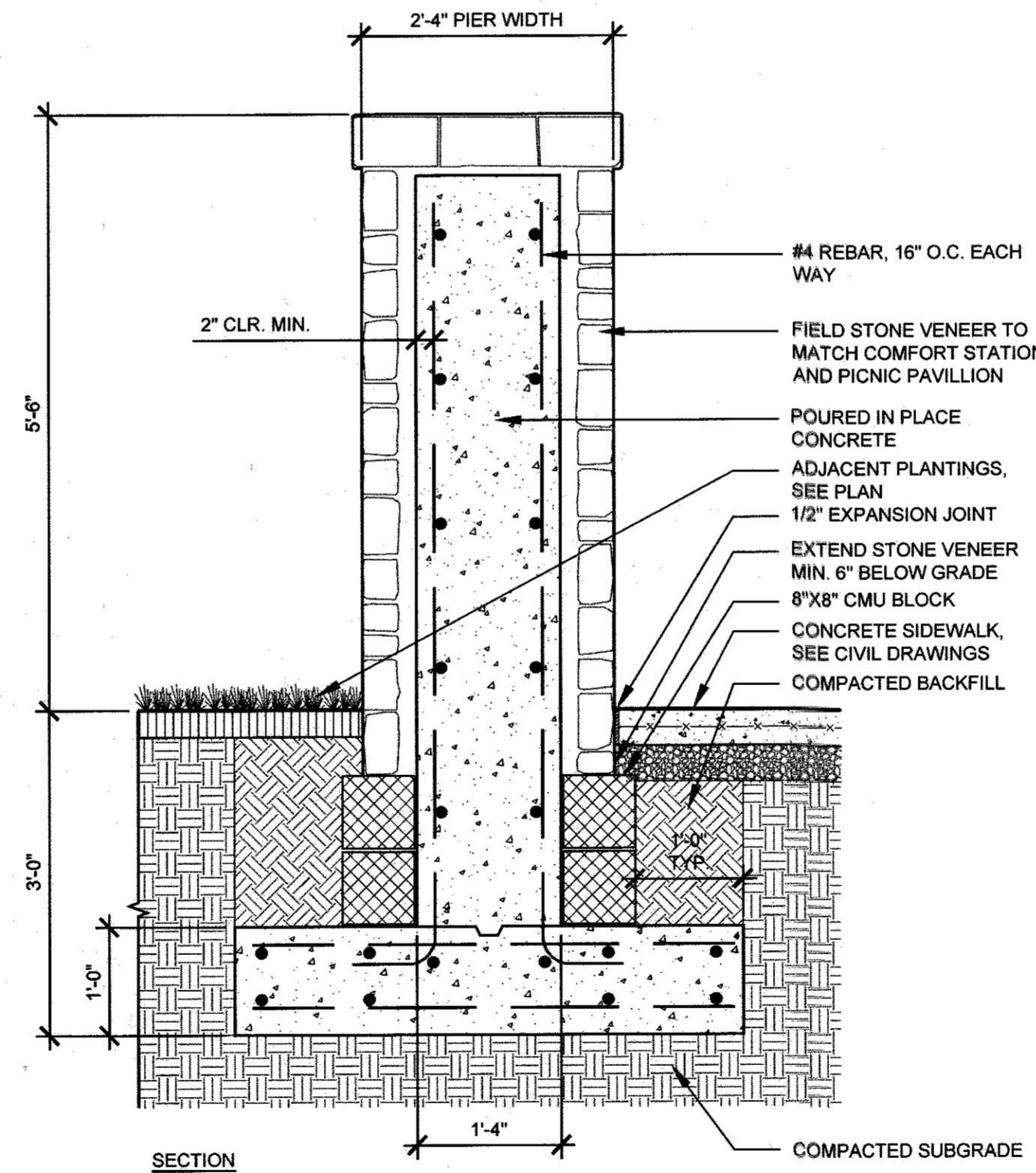
3 PLAYGROUND ENTRY GATE
3/4" = 1'-0"



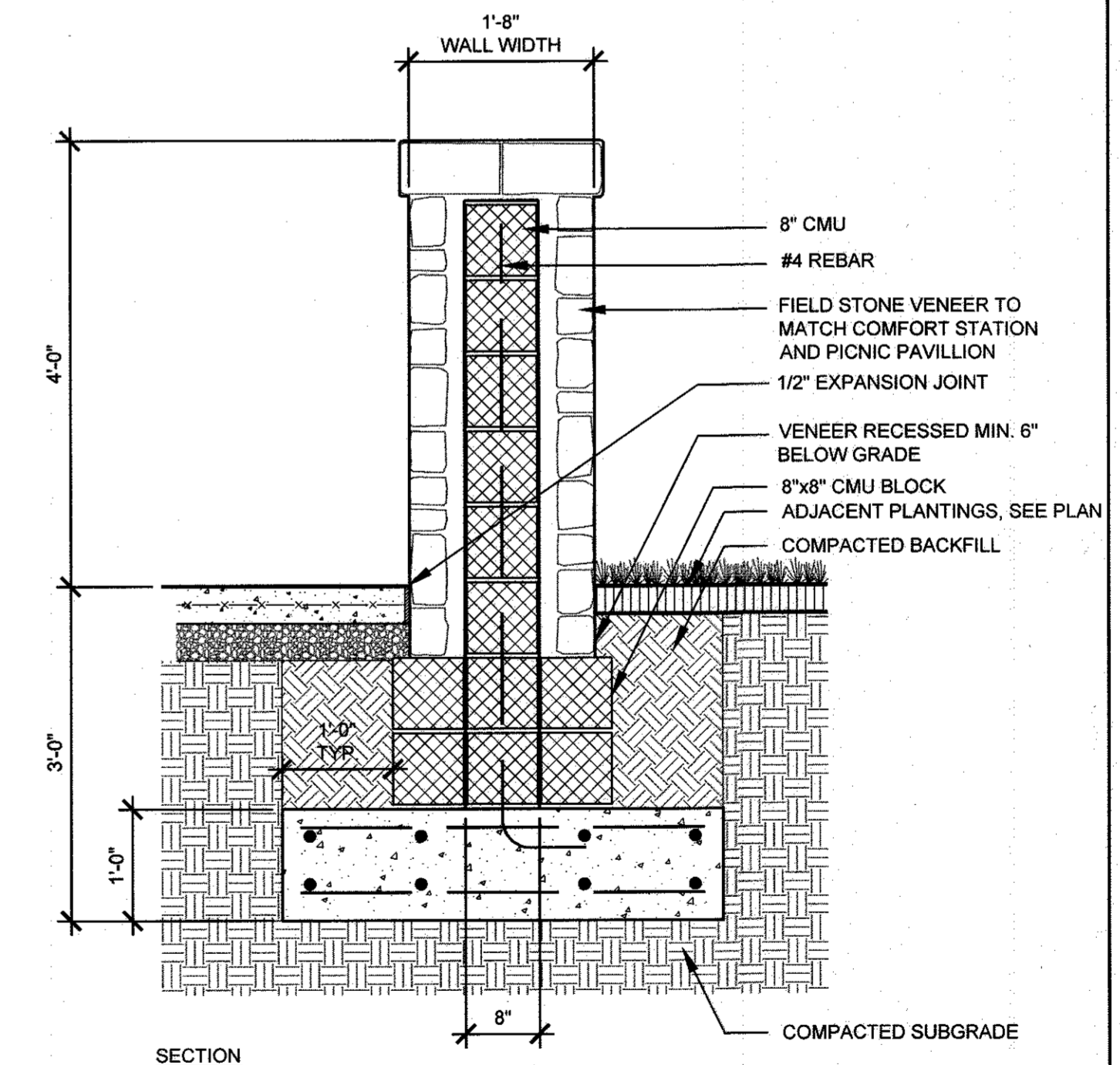
2 PLAYGROUND FENCE
3/4" = 1'-0"



5 ENTRY WALL
3/4" = 1'-0"



4 ENTRY PIER
3/4" = 1'-0"



REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

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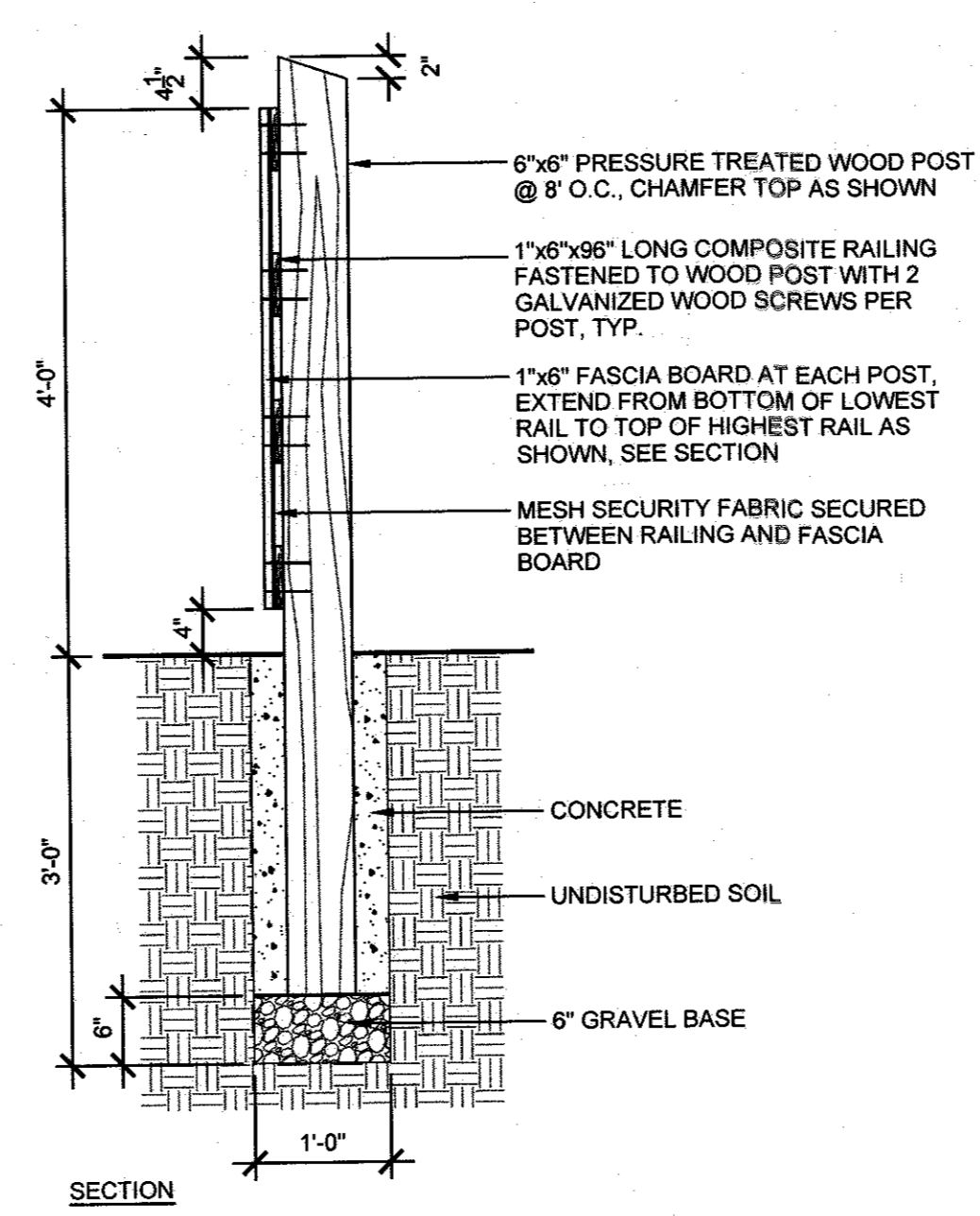
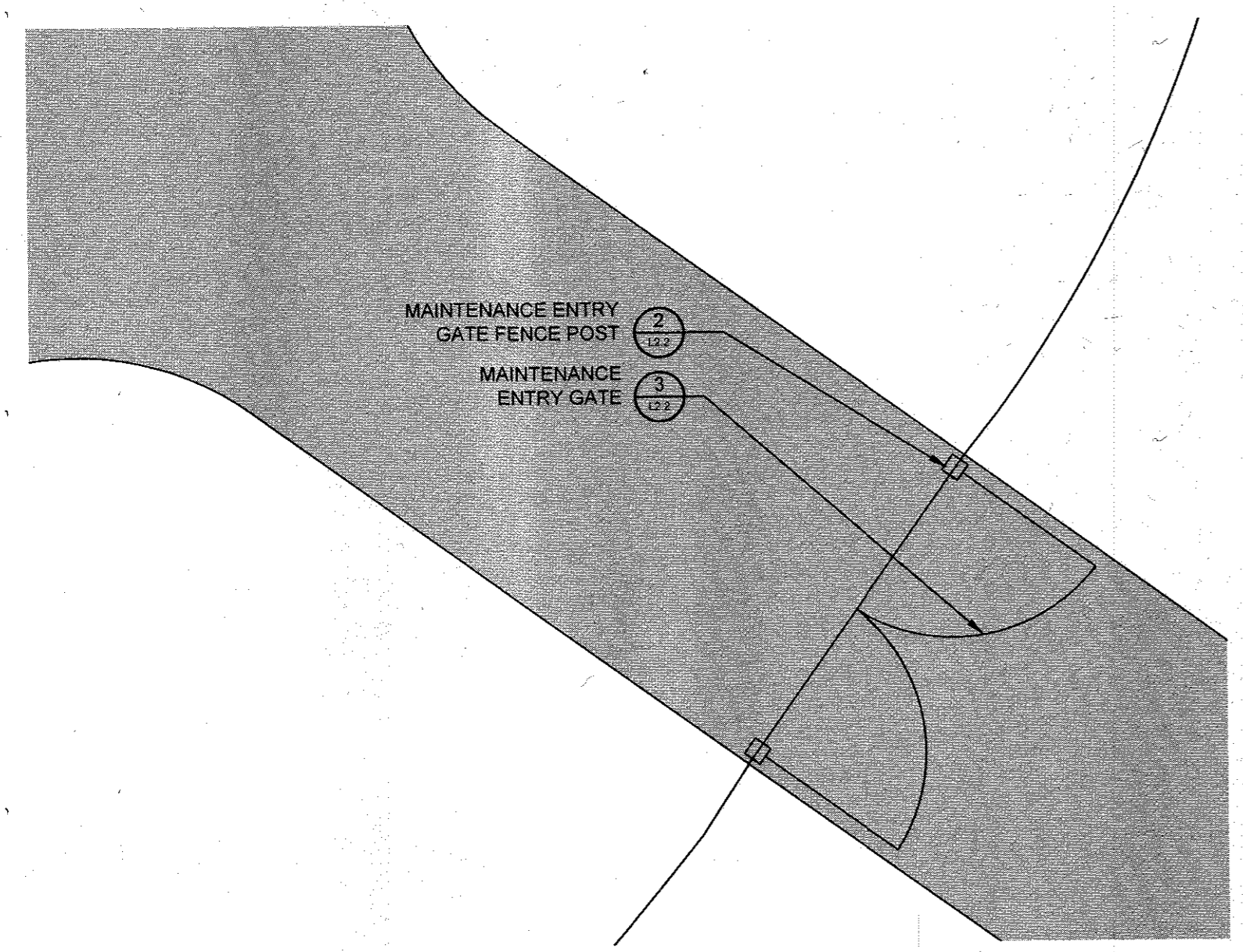
BLANDAIR REGIONAL PARK - PHASE 3

Hardscape Details
Drawing No. **L2.2**
Scale: As Shown
Date: 1/17/2017 Sheet 48 of 76
Des: CB/CO Drawn: CO Check: CB/SK

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 2-6-17
DATE: 3-01-17
DATE: 3-19-17

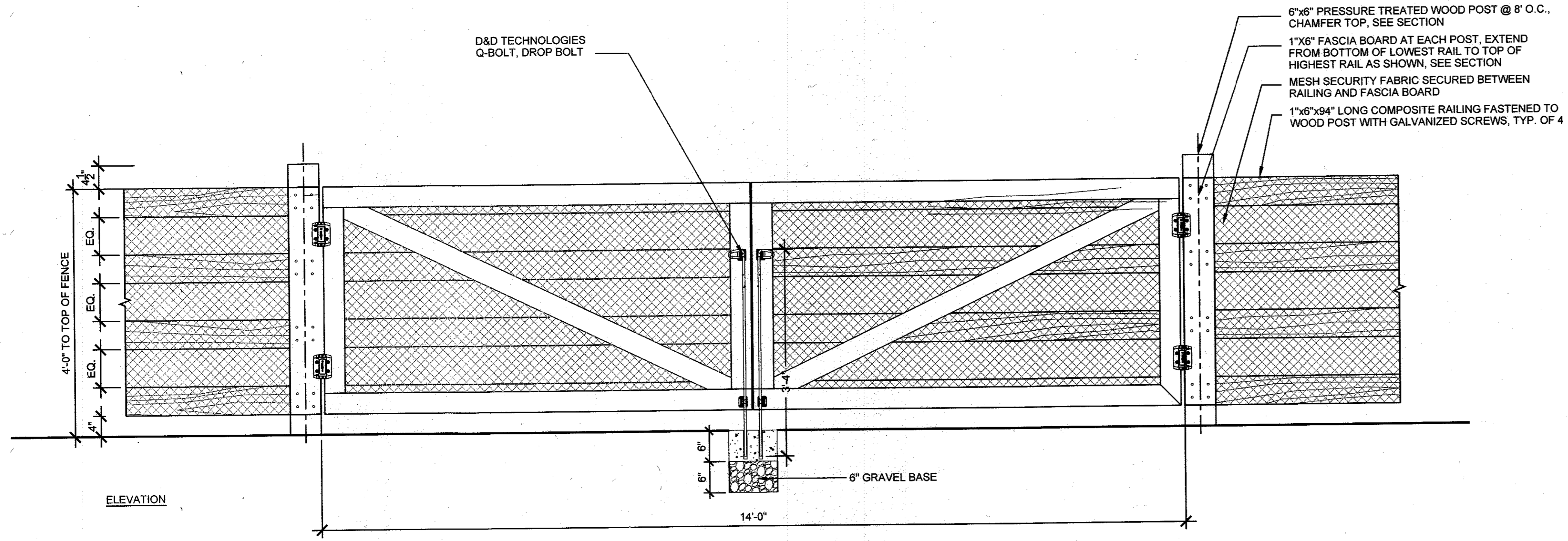
NOTES:
1. SUBMIT SHOP DRAWINGS FOR APPROVAL.

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The Stieff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001



1 PLAYGROUND MAINTENANCE ENTRANCE ENLARGEMENT PLAN
1/4" = 1'-0"

2 PLAYGROUND MAINTENANCE ENTRANCE FENCE POST
3/4" = 1'-0"



3 PLAYGROUND MAINTENANCE ENTRANCE
3/4" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate DeLuca 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter Rykiel 3-19-17
DIRECTOR DATE

NOTES:
1. SUBMIT SHOP DRAWINGS FOR APPROVAL.

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ASSOCIATES INC
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WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

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BLANDAIR REGIONAL PARK - PHASE 3

Hardscape Details

Drawing No. **L2.3**

Scale: As Shown

Date: 1/17/2017 Sheet 49 of 76

Des: CB/CO Drawn: CO Check: CB/SK

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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EXPIRATION DATE: 08/20/17

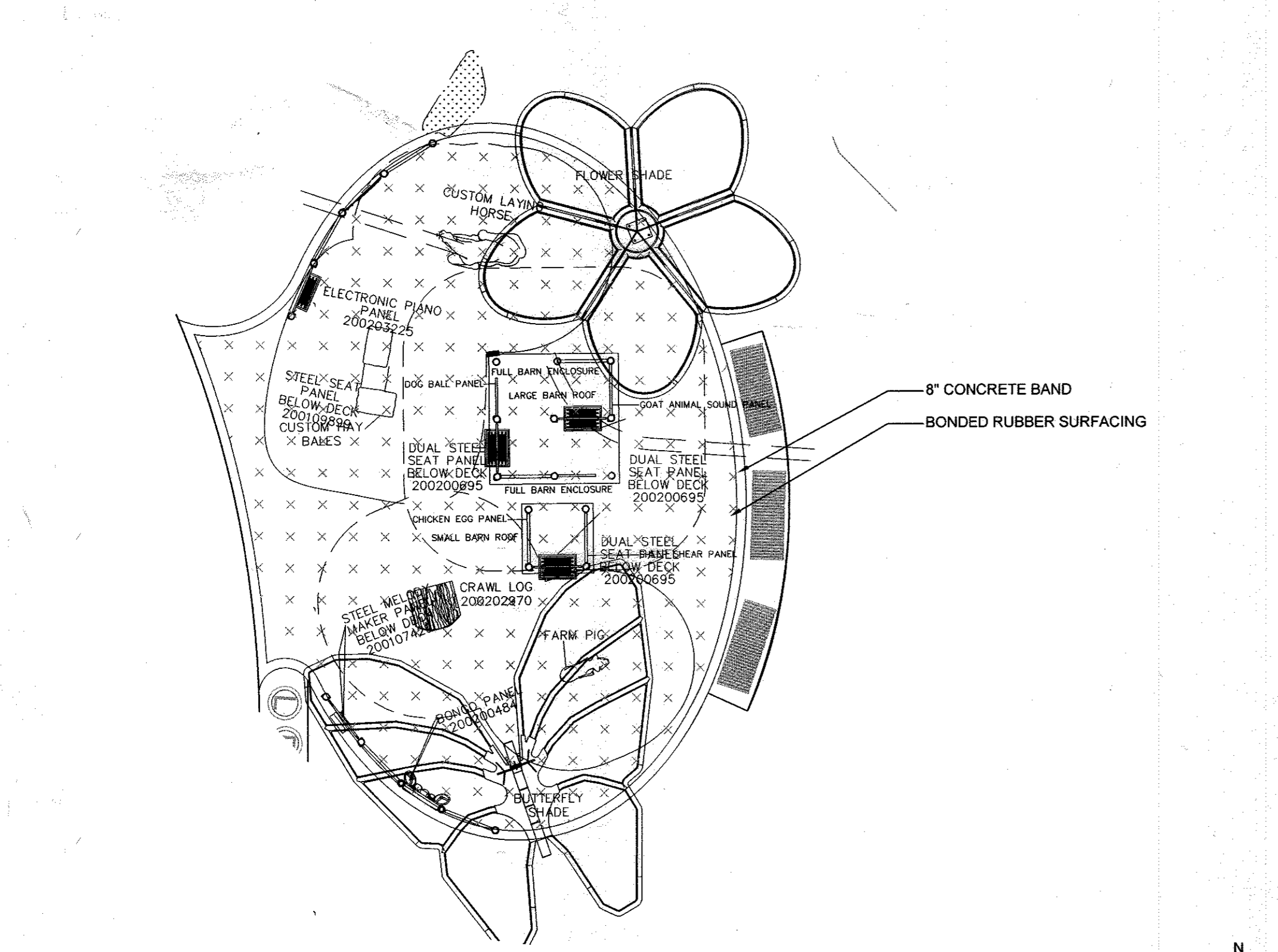
BLANDAIR REGIONAL PARK - PHASE 3

Playground Equipment Schedule

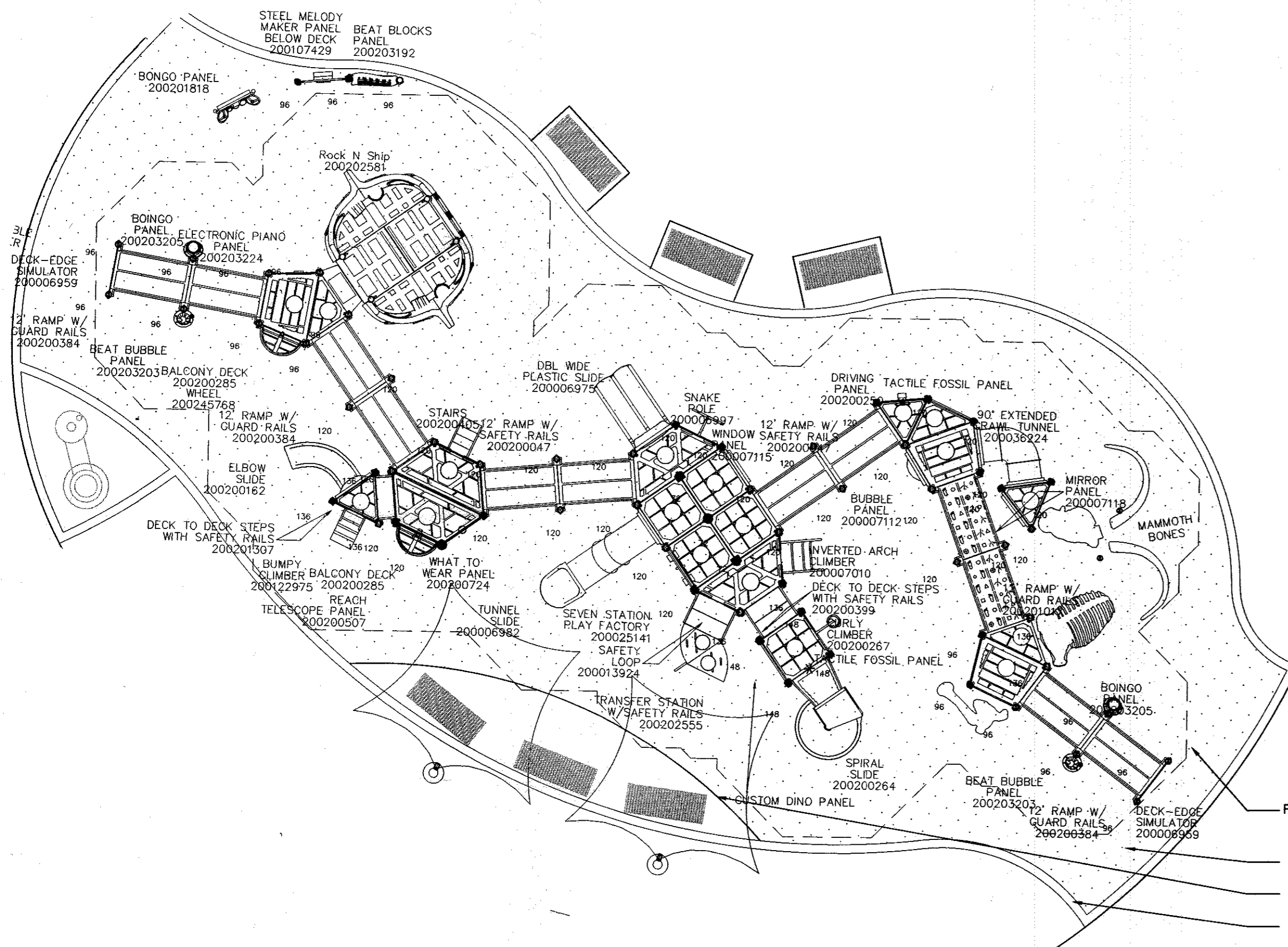
Drawing No.
L2.4

Scale: AS SHOWN
Date: 1/17/2017 Sheet 50 of 76
Des: CB/CO Drawn: CO Check: CB/SK

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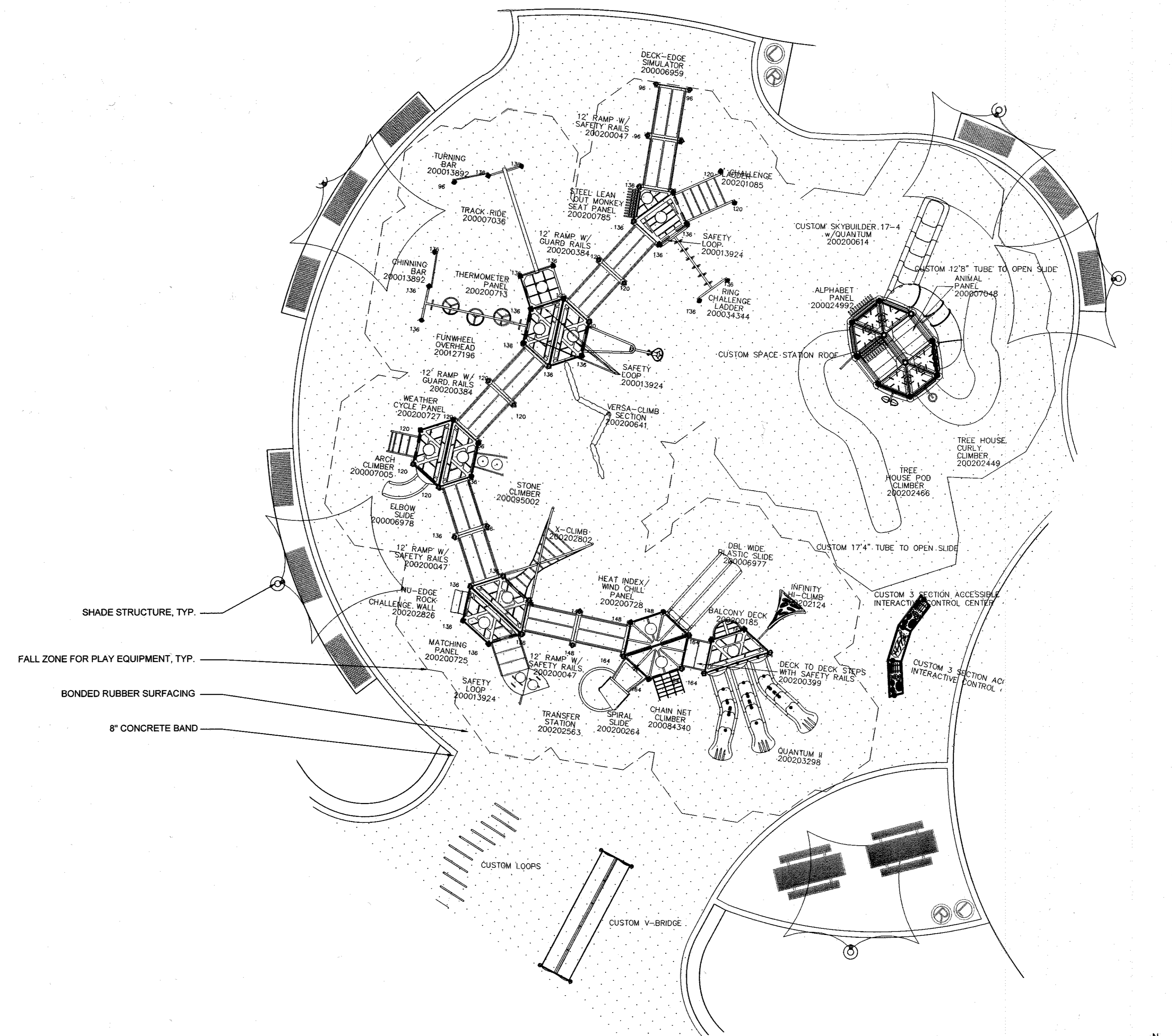


1 PLAYGROUND EQUIPMENT SCHEDULE - 6-24 MONTH OLD
1/8" = 1'-0"



2 PLAYGROUND EQUIPMENT SCHEDULE - 2-5 YEAR OLD
1/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 2.6.17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 3-19-17
 DIRECTOR



3 PLAYGROUND EQUIPMENT SCHEDULE - 5-12 YEAR OLD (UPPER)
1/8" = 1'-0"

NOTES:
1. PLAYGROUND EQUIPMENT TO BE STAKED OUT IN FIELD AND APPROVED BY COUNTY REPRESENTATIVE PRIOR TO INSTALLATION.
2. SEE LANDSCAPE PLANS FOR LAYOUT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
3. COLORS TO BE DETERMINED.

PLAYGROUND EQUIPMENT PROVIDED BY:
COMMERCIAL RECREATION PRODUCT LLC
P.O. BOX 998
HARVE DE GRACE, MD 21078
PHONE: 410-963-8417

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 2.6.17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 3-19-17
 DIRECTOR

REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046


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9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

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801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



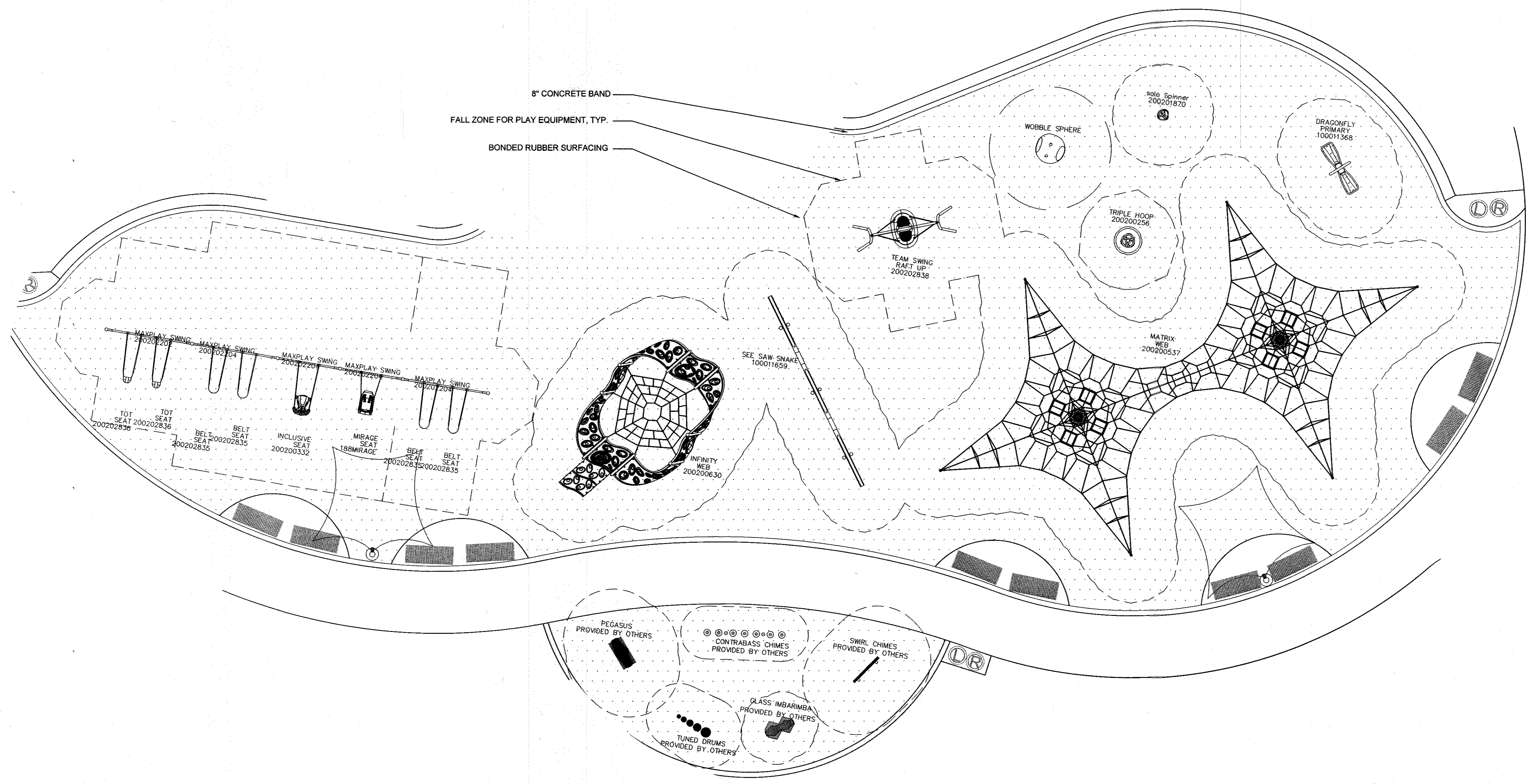
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

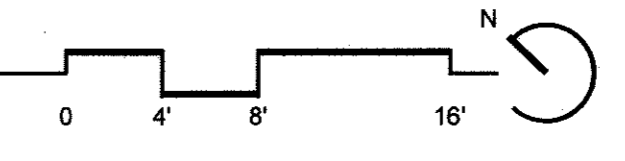
Playground Equipment Schedule

Drawing No.
L2.5

Scale: AS SHOWN
Date: 1/17/2017 Sheet 51 of 76
Des: CB/CO Drawn: CO Check: CB/SK



1 PLAYGROUND EQUIPMENT SCHEDULE - 5-12 YEAR OLD (LOWER)
1/8" = 1'-0"



- NOTES:
1. PLAYGROUND EQUIPMENT TO BE STAKED OUT IN FIELD AND APPROVED BY COUNTY REPRESENTATIVE PRIOR TO INSTALLATION.
 2. SEE LANDSCAPE PLANS FOR LAYOUT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 3. COLORS TO BE DETERMINED.

PLAYGROUND EQUIPMENT PROVIDED BY:
COMMERCIAL RECREATION PRODUCT LLC
P.O. BOX 998
HARVE DE GRACE, MD 21078
PHONE: 410-963-8417

THE PLAY COMPONENTS IDENTIFIED IN THIS PLAY AREA ARE IPEDAA CERTIFIED. THE USE AND LAYOUT OF THESE COMPONENTS CONFORM TO THE REQUIREMENTS OF ASTM F1487-01.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

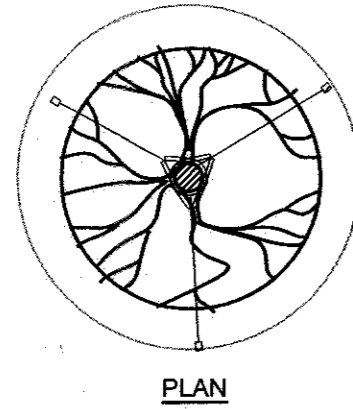
[Signature] 2-6-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

[Signature] 3-01-17
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

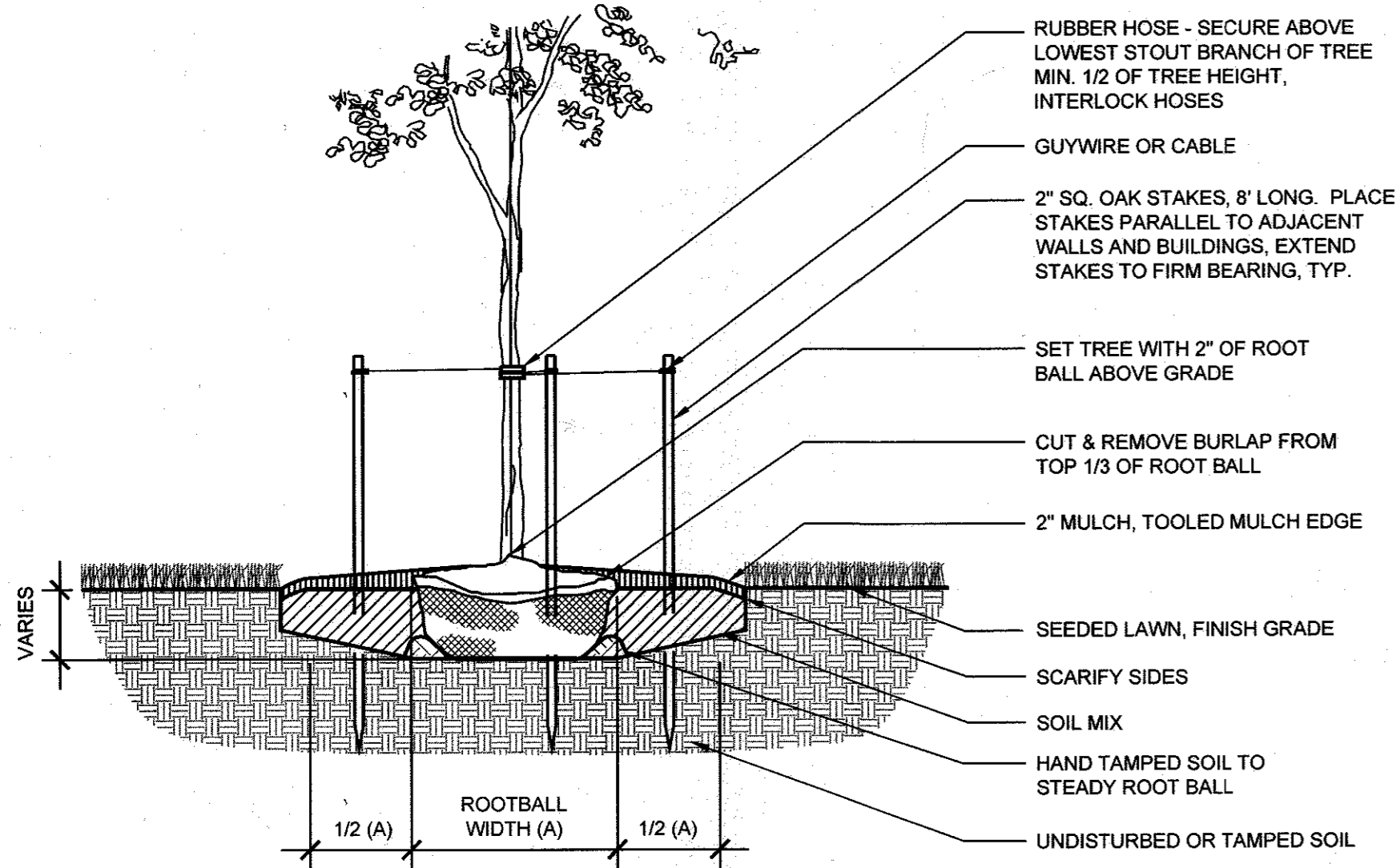
[Signature] 3-19-17
DIRECTOR
DATE

MAHAN RYKIEL ASSOCIATES INC
The Steiff Silver Building, 800 Wyman Park Drive, Suite 100, Baltimore, MD 21211 410.235.6001

- NOTES:
 1. DO NOT CUT CENTRAL LEADER.
 2. FOR PLANTS IN WIRE BASKETS, REFER TO SPECIFICATIONS.
 3. DO NOT PLACE MULCH AGAINST TRUNK.
 4. TREES TO HAVE SINGLE LEADER.
 5. CUT AND REMOVE TOP HALF OF WIRE BASKETS.



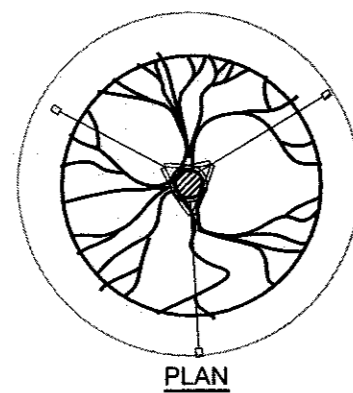
PLAN



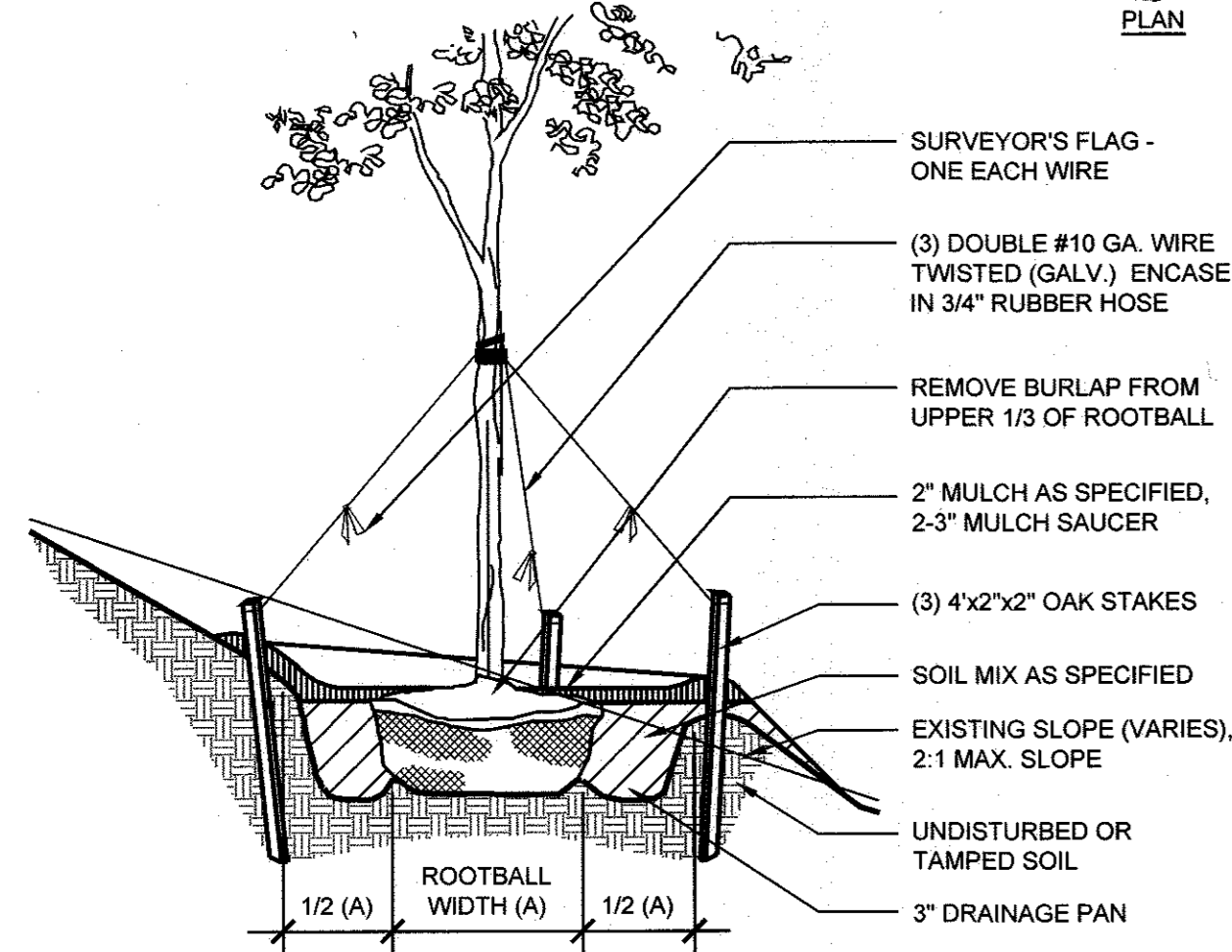
1 TYPICAL DECIDUOUS TREE PLANTING

Scale: 1/2" = 1' - 0"

- NOTES:
 1. DECIDUOUS AND EVERGREEN TREES TO HAVE CENTRAL LEADER. NEVER CUT CENTRAL LEADER.
 2. DO NOT PLACE MULCH AGAINST TRUNK.
 3. SET TREE WITH 1/8 OF ROOT BALL ABOVE GRADE.
 4. STAKES, WIRES, AND HOSES SHALL BE REMOVED AFTER ONE YEAR.
 5. SCARIFY SUBSOIL AND SIDES OF TREE PIT TO A MIN. OF 4" DEPTH.
 6. TREES UNDER 2-1/2" CAL. - 10' x 2' x 2' STAKES SET VERTICAL, MIN. TWO FEET INTO COMPACTED SUBGRADE.
 7. TREES TO HAVE SINGLE LEADER.
 8. CUT AND REMOVE TOP HALF OF WIRE BASKETS.



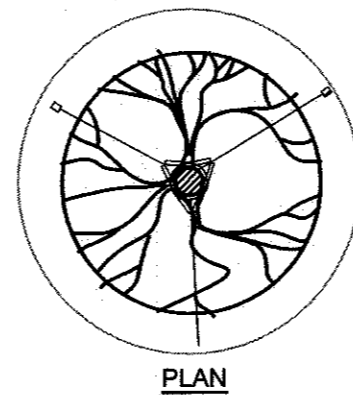
PLAN



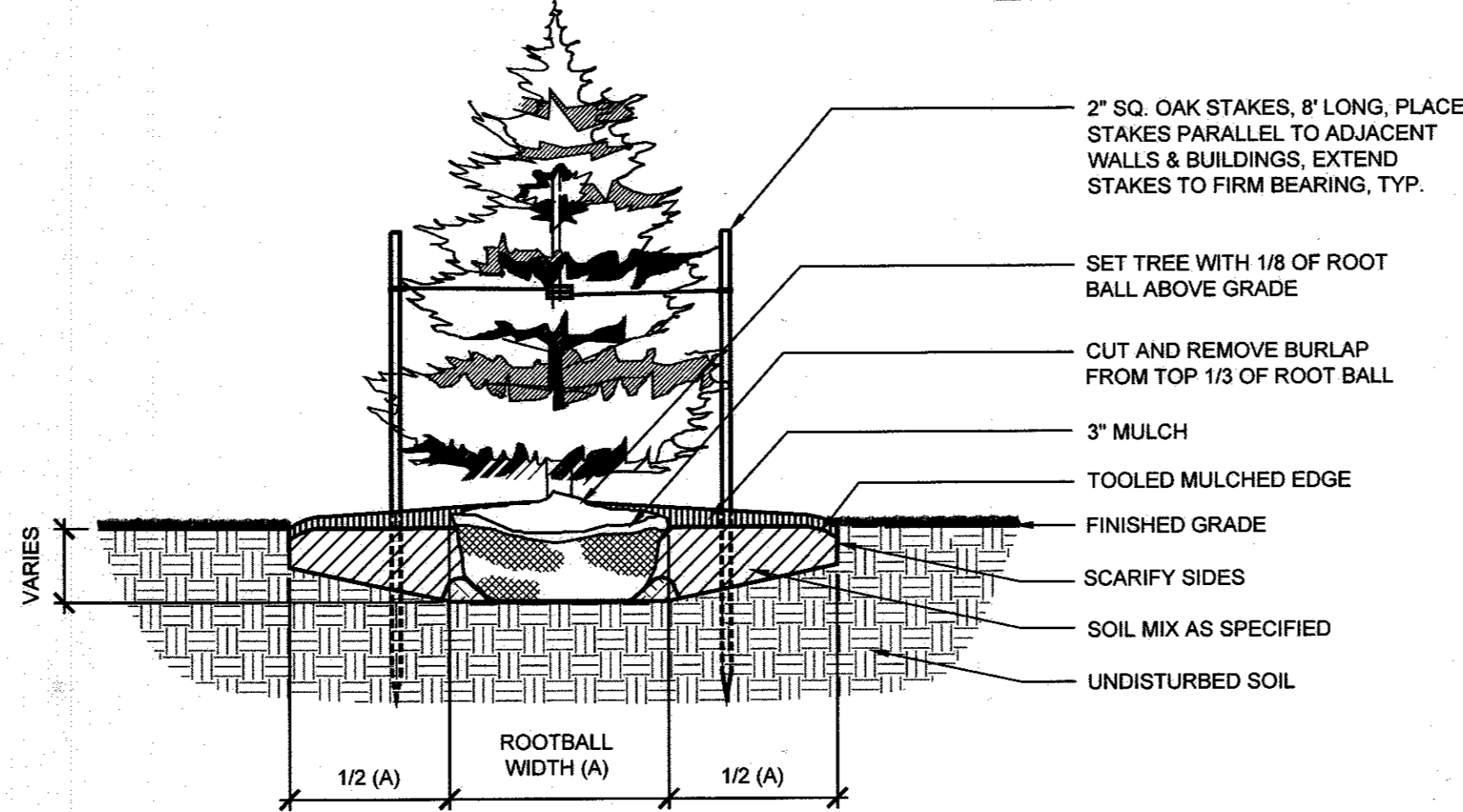
4 TYPICAL TREE PLANTING ON SLOPE

Scale: 1/2" = 1' - 0"

- NOTES:
 1. NEVER CUT CENTRAL LEADER.
 2. FOR PLANTS IN WIRE BASKETS, REFER TO SPECIFICATIONS.
 3. TREES TO HAVE SINGLE LEADER.
 4. CUT AND REMOVE TOP HALF OF WIRE BASKETS.
 5. DO NOT PLACE MULCH AGAINST TRUNK.



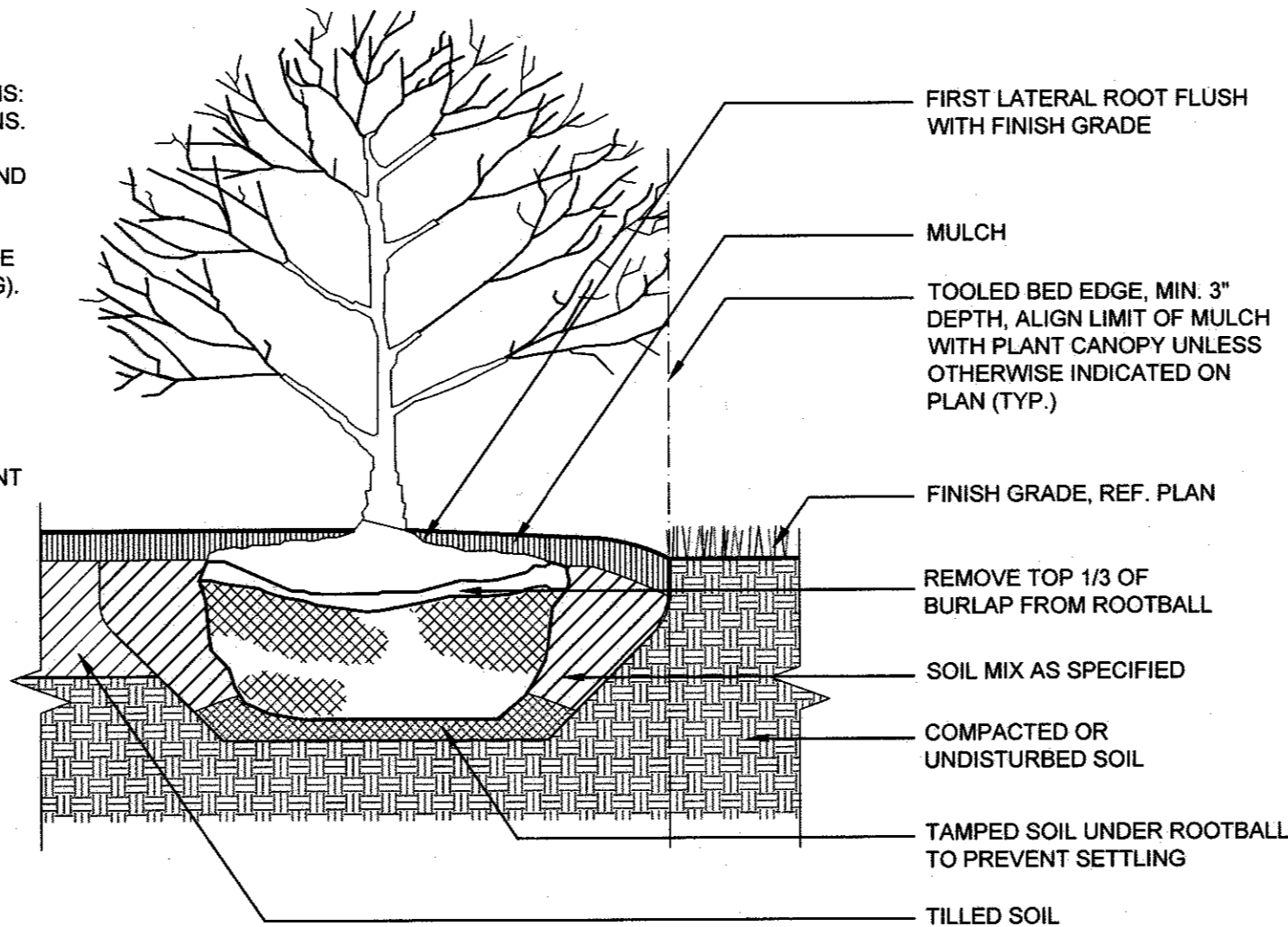
PLAN



2 TYPICAL EVERGREEN TREE PLANTING

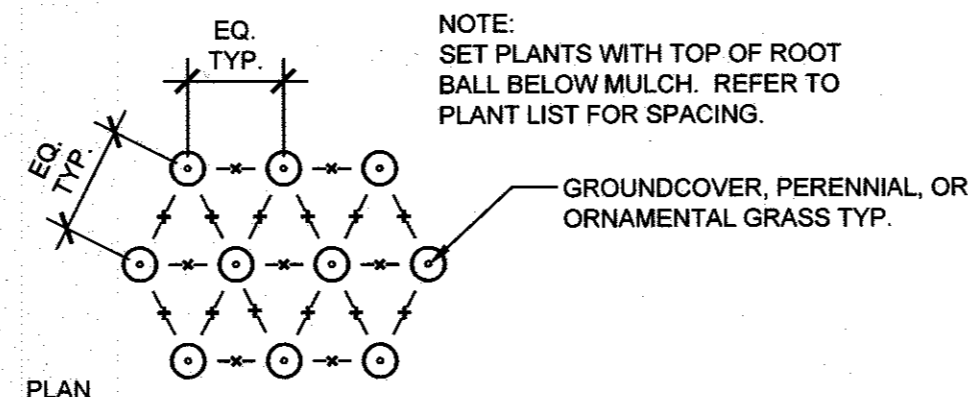
Scale: 1/2" = 1' - 0"

- SEQUENCE OF CONSTRUCTION (GENERAL), REFER TO SPECIFICATIONS:
 1. STAKE OUT PLANTBED LOCATIONS.
 2. CUT EDGE OF PLANT BED.
 3. TILL SOIL TO DEPTH SPECIFIED AND APPLY AMENDMENTS TO ENTIRE PLANTING AREA.
 4. APPLY PRE-EMERGENT HERBICIDE (TWO WEEKS PRIOR TO PLANTING).
 5. INSTALL PLANTS.
 6. INSTALL FERTILIZER TABLETS IN EACH PLANT PIT.
 7. PLACE BACKFILL.
 8. WATER EACH INDIVIDUAL PLANT THOROUGHLY.
 9. PLACE MULCH OVER ENTIRE PLANT BED.
 10. WATER ENTIRE PLANT BED THOROUGHLY.

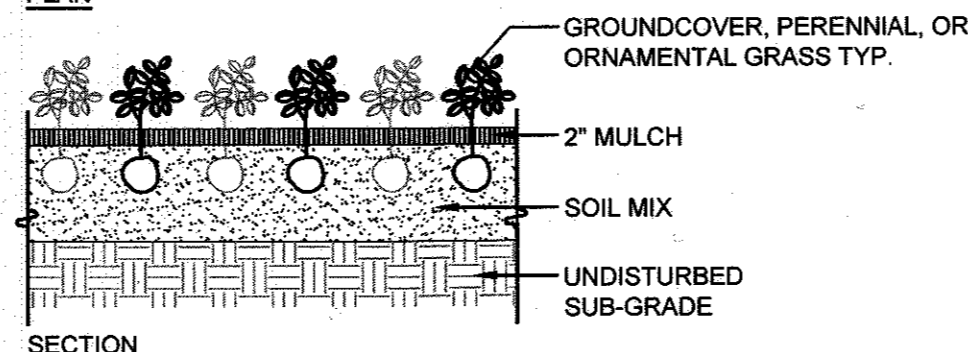


5 TYPICAL SHRUB PLANTING

Scale: 1" = 1' - 0"



PLAN

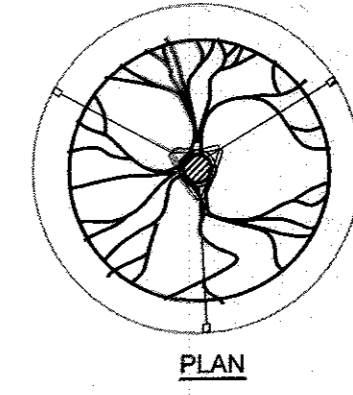


SECTION

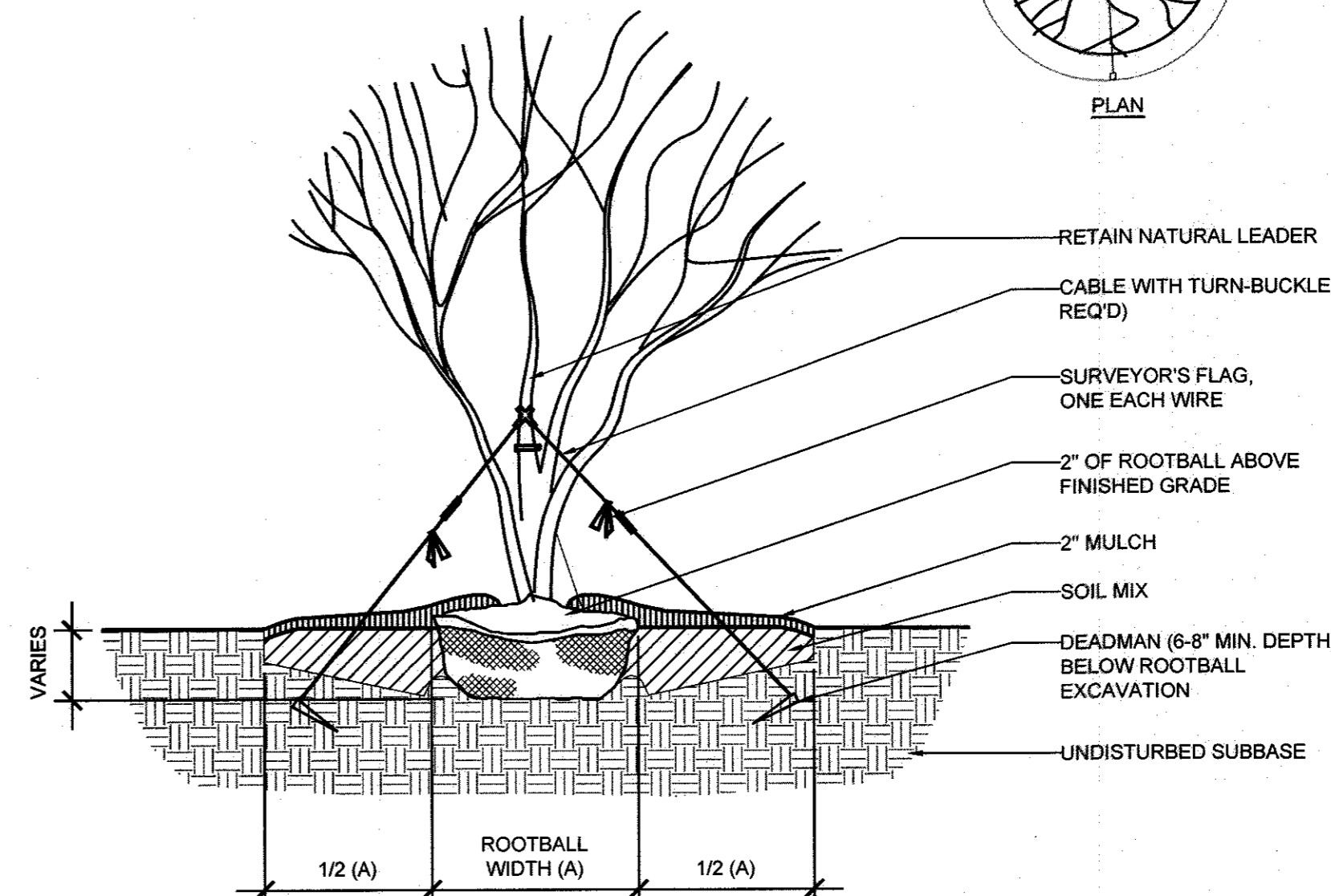
7 TYPICAL TRIANGULAR SPACING

Scale: 1/2" = 1' - 0"

- NOTES:
 1. FOR B&B TREES, REMOVE TOP 1/3 OF BALL WRAP.
 2. CUT WIRE BASKET IN AT LEAST FOUR LOCATIONS CIRCLING ROOTBALL.
 3. DO NOT PLACE MULCH AGAINST TRUNK.



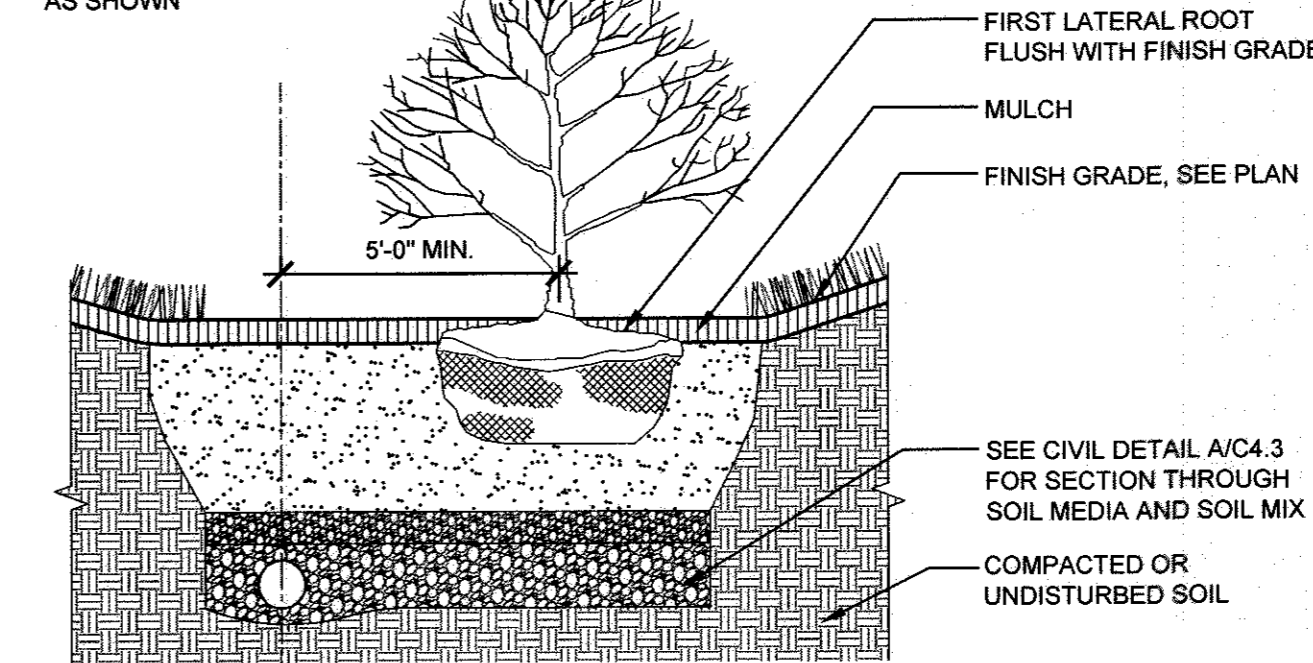
PLAN



3 TYPICAL MULTI-STEM TREE PLANTING

Scale: 1/2" = 1' - 0"

- NOTE:
 CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOT BALL AS SHOWN



6 BIORETENTION SHRUB PLANTING

Scale: 1/2" = 1' - 0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>[Signature]</i>	2.6.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>[Signature]</i>	3.21.17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>[Signature]</i>	3-19-17
DIRECTOR	DATE

MAHAN RYKIEL
 ASSOCIATES INC
 The Stieff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
 EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL PARK - PHASE 3

Landscape Details	
Drawing No. L3.1	
Scale: As Shown	
Date: 1/17/2017	Sheet 52 of 76
Des: CB/CO	Drawn: CO
Check: CB/SG	

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046


DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631
 EXPIRATION DATE: 09/21/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

Plant Schedules
 Drawing No.
L3.2

Scale: As Shown
 Date: 1/17/2017 Sheet 53 of 76
 Des: CB/CO Drawn: CO Check: CB/SK

SCHEDULE A PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS				
	P-1 (Entire Perimeter)		P-2 (Entire Perimeter)		P-3
PERIMETER		P-1a (Parking Lot)		P-2a (Parking Lot)	
Perimeter/Frontage Designation Landscape Type	B	E	B	E	C
Linear Feet of Roadway Frontage/Perimeter	475 LF	375 LF	570 LF	120 LF	150 LF
Credit for Existing Vegetation (Yes, No, Linear Feet - Describe below if needed)	NO	NO	NO	NO	NO
Credit for Wall, Fence or Berm (Yes, No, Linear Feet - Describe below if needed)	NO	NO	NO	NO	NO
Subtotal (linear feet of perimeter - credits)	0	0	0	0	0
Number of Plants Required					
Shade Trees	1:50=10	1:40=9	1:50=11	1:40=3	1:40=4
Evergreen Trees	1:40=12	0	1:40=14	0	1:20=8
Shrubs	0	1:4=94	0	1:4=30	0
Number of Plants Provided					
Shade Trees	10	0 (included in P-1B)	11	0 (included in P-2B)	4
Evergreen Trees	12	0	14	0	8
Other Trees (2:1 Substitution)	0	0	0	0	0
Shrubs (10:1 Substitution)	0	94	0	30	0
Describe Plant Substitution Credits Below if needed					

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of parking spaces	128
Number of trees required (1 TREE: 20 SPACES)	7
Number of trees provided	7
Shade Trees	-
Other Trees (2:1 Substitution)	-

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

The owner, tenants, and/or their agents shall be responsible for maintenance of the required landscaping including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.

This plan has been prepared in accordance with Section 16.124 of the Howard County Code and Landscape Manual with a minimum of 32 shade trees, 34 evergreen trees and 124 shrubs.

Developer's/Owner's 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 Landscape Manual. I/we further certify that upon completion a Letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

A. Paul Delorme
 Developer's/Owner's Name

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmond 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

V. K. ... 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N. ... 3-19-17
 DIRECTOR DATE

MAHAN RYKIEL
 ASSOCIATES INC
 The Steiff Silver Building, 800 Wyman Park Drive,
 Suite 100, Baltimore, MD 21211 410.235.6001

PHASE 3 FCP TABLES

Combined Phase 3 Values

Phase 3 Forest to be Cleared	
Area 1	39,087.3 SF
Area 2	25,722.7 SF
Area 3	1,447.2 SF
Area 4	493.3 SF
Area 5	564.8 SF
Area 6	648.8 SF
Area 7	83,607.3 SF
Area 8	5,422.7 SF
Total	156,994.0 SF / 3.61 Acres

Phase 3 Forest to be Retained	
Area 1	22,381.3 SF
Area 2	226,630.0 SF
Area 3	220,815.0 SF
Area 4	11,763.6 SF
Total	481,589.9 SF / 11.08 Acres

Phase 3 Other Clearing	
Total	25,639.3 SF / 0.59 Acres

Phase 3 Other Retention	
Total	27,278.1 SF / 0.62 Acres

FOREST CONSERVATION LEGEND

	Phase 3 Forest Clearing		Future/Previous Forest Clearing		Specimen Tree with Critical Root Zone
	Phase 3 Retained but Counted as Cleared (see Legend Note 1)		Future/Previous Retained but Counted as Cleared		Tree Protection Fence (no signage)
	Phase 3 Forest Retention		Future/Previous Forest Retention		Tree Protection Fence with Retention Signage (50 ft spacing)
	Phase 3 Other Retention (see Legend Note 2)		Future/Previous Other Retention		Previously Completed Phases
	Phase 3 Other Clearing (see Legend Note 3)		Future/Previous Other Clearing		Phase 3 Project Boundary

- LEGEND NOTES**
- The "Phase 3 Retained but Counted as Cleared" pattern represents existing forest areas to that will be reduced by proposed clearing to less than 35 feet in width or 10,000 square feet in area. The remained trees are no longer considered forest due to the reduction in square footage; therefore, these areas are counted as cleared.
 - The "Phase 3 Other Retention" pattern represents existing tree areas (non-forest) less than 35 feet in width or 10,000 square feet in area that will be retained. These areas are not counted as cleared, nor are they counted as retained.
 - The "Phase 3 Other Clearing" pattern represents existing tree areas (non-forest) less than 35 feet in width or 10,000 square feet in area that will be cleared.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2-6-17

 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3-01-17

 DIRECTOR DATE: 3-19-17

SOILS TABLE

SOIL MAP UNIT	SOIL NAME	ERODIBLE*	HYDRIC
GgB	Glenelg loam, 3-8% slopes	No	No
GgC	Glenelg loam, 8-15% slopes	No	No
GhB	Glenelg-Urban land complex, 0-8% slopes	No	No
GnB	Glenville-Belle silt loams, 0-8% slopes	Yes	Partial ¹
GoB	Glenville-Codorus silt loams, 0-8% slopes	Yes	No
GhC	Glenville-Urban land-Udorthents complex, 0-8% slopes	Partial ¹	No
McC	Manor loam, 8-15% slopes	No	No
RuB	Russell and Beltsville soils, 2-5% slopes	Partial ¹	No

* Erodible soils have a K value greater than 0.35.
¹ Only the Belle component of the Glenville-Belle soil type is hydric.
² Only the Glenville and Beltsville components of soil types GgB and RuB are erodible.

VEGETATIVE COMMUNITIES

- F - Forest Stand
- T - Tree Group
- AF - Abandoned Field
- OM - Open Meadow
- C - Crop Field
- W - Wetland
- H - Hedgerow

LEGEND

	Tree line		Wetland		15% < Slopes < 25%
	Shrubline		Wetland Buffer		Slopes > 25%
	Individual Trees/Shrubs		Stream Buffer		Property Line
	Existing Reforestation Plantings		Floodplain Line		Soil Boundary
	Gravel Path/Driveway		Grass Trail		Existing Structure
			Limit of Disturbance		

SPECIMEN TREES*

* This sheet only. See Sheet F3.4 complete list.

Label	Common Name	Scientific Name	DBH	Condition	Stand
T28	Tulip Poplar	Liriodendron tulipifera	45.2"	Good	6
T29	Tulip Poplar	Liriodendron tulipifera	36.4"	Good	6
T30	Tulip Poplar	Liriodendron tulipifera	38.8"	Fair	6
T31	Black Cherry	Prunus serotina	35.8"	Fair	6
T38	Tulip Poplar	Liriodendron tulipifera	33.0"	Good	6
T39	Tulip Poplar	Liriodendron tulipifera	33.5"	Good	6
T86	Pitch Pine	Pinus rigida	25.5"	Good	6
T87	Pitch Pine	Pinus rigida	24.8"	Good	6
T88	Pitch Pine	Pinus rigida	25.3"	Good	6
T89	Pitch Pine	Pinus rigida	25.7"	Good	6
T90	Pitch Pine	Pinus rigida	24.4"	Good	6
T91	Pitch Pine	Pinus rigida	23.5"	Good	6
T92	Pitch Pine	Pinus rigida	23.0"	Good	6
T93	Pitch Pine	Pinus rigida	24.0"	Good	6
T94	Pitch Pine	Pinus rigida	25.5"	Good	6
T95	Pitch Pine	Pinus rigida	23.0"	Good	6
T96	Pitch Pine	Pinus rigida	24.0"	Good	6
T97	Pitch Pine	Pinus rigida	22.0"	Good	6
T98	Pitch Pine	Pinus rigida	22.2"	Good	6
T85	Red Maple	Acer rubrum	31.0"	Fair	H4

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

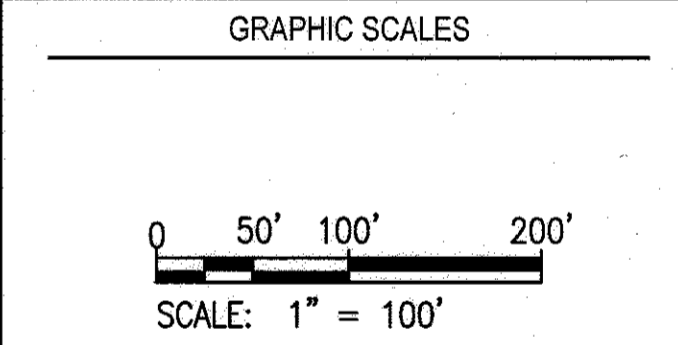


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

TIMOTHY R. HESS DATE

MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

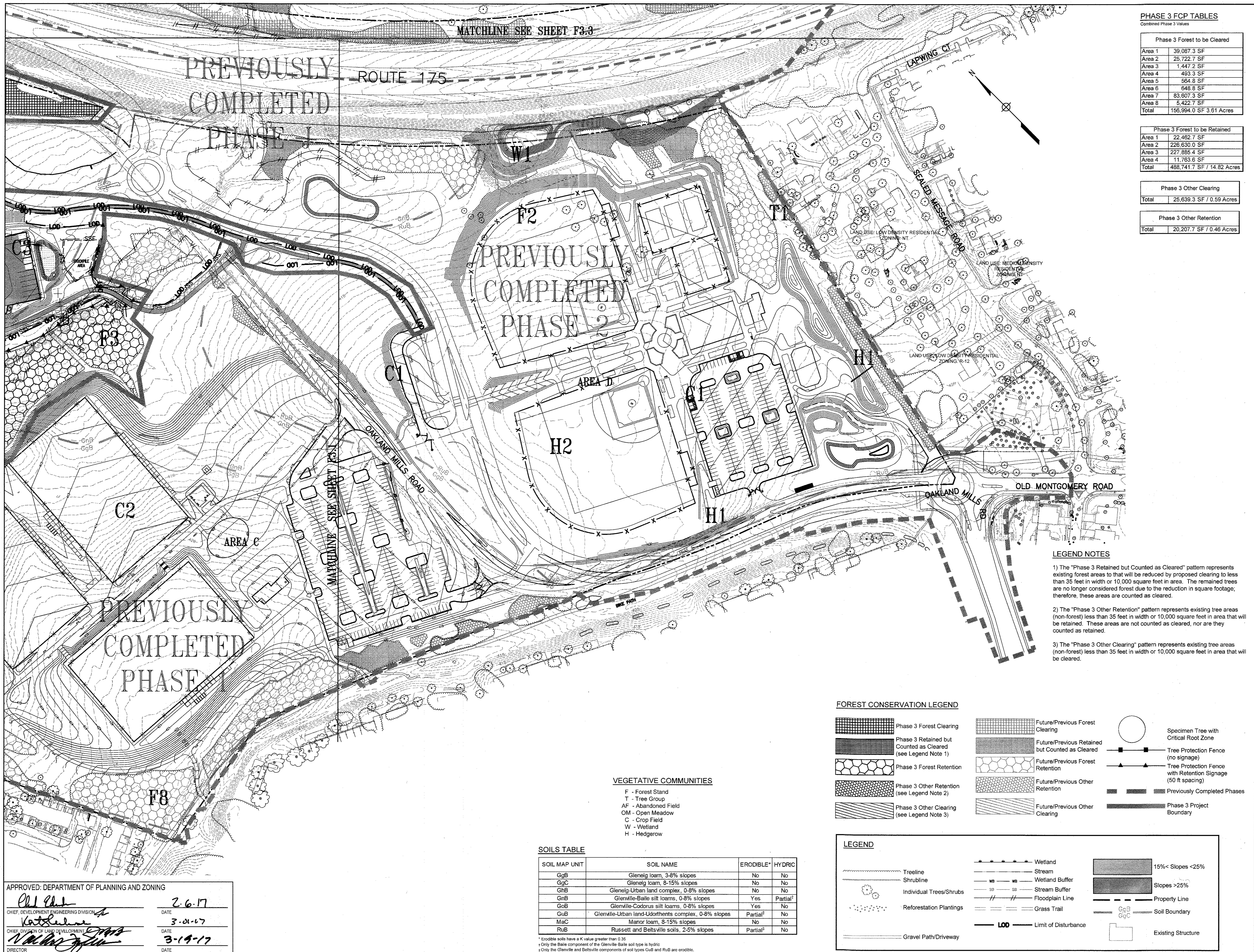
FOREST CONSERVATION PLAN

Drawing No. **F3.1**

Scale: 1" = 100'

Date: 1/17/2017 Sheet 54 of 76

Des: TRH Drawn: TRH Check: BWJ



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kathleen ... 3-20-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 3-19-17
 DIRECTOR DATE

MATCHLINE SEE SHEET F3-3

ROUTE 175

PREVIOUSLY COMPLETED PHASE 1

PREVIOUSLY COMPLETED PHASE 2

PREVIOUSLY COMPLETED PHASE 3

VEGETATIVE COMMUNITIES

- F - Forest Stand
- T - Tree Group
- AF - Abandoned Field
- OM - Open Meadow
- C - Crop Field
- W - Wetland
- H - Hedgerow

SOILS TABLE

SOIL MAP UNIT	SOIL NAME	ERODIBLE*	HYDRIC
GgB	Glenelg loam, 3-8% slopes	No	No
GgC	Glenelg loam, 8-15% slopes	No	No
GhB	Glenelg-Urban land complex, 0-8% slopes	No	No
GnB	Glenville-Baile silt loams, 0-8% slopes	Yes	Partial ¹
GoB	Glenville-Codorus silt loams, 0-8% slopes	Yes	No
GuB	Glenville-Urban land-Udorthents complex, 0-8% slopes	Partial ²	No
MaC	Maror loam, 8-15% slopes	No	No
RuB	Russett and Beltsville soils, 2-5% slopes	Partial ³	No

* Erodible soils have a K value greater than 0.35
¹ Only the Baile component of the Glenville-Baile soil type is hydric
² Only the Glenville and Beltsville components of soil types GuB and RuB are erodible.

PHASE 3 FCP TABLES
 Combined Phase 3 Values

Phase 3 Forest to be Cleared	
Area 1	39,087.3 SF
Area 2	26,722.7 SF
Area 3	1,447.2 SF
Area 4	493.3 SF
Area 5	564.8 SF
Area 6	648.8 SF
Area 7	83,607.3 SF
Area 8	5,422.7 SF
Total	156,994.0 SF / 3.61 Acres

Phase 3 Forest to be Retained	
Area 1	22,462.7 SF
Area 2	226,630.0 SF
Area 3	227,885.4 SF
Area 4	11,763.6 SF
Total	488,741.7 SF / 14.82 Acres

Phase 3 Other Clearing	
Total	25,639.3 SF / 0.59 Acres

Phase 3 Other Retention	
Total	20,207.7 SF / 0.46 Acres

LEGEND NOTES

- 1) The "Phase 3 Retained but Counted as Cleared" pattern represents existing forest areas that will be reduced by proposed clearing to less than 35 feet in width or 10,000 square feet in area. The retained trees are no longer considered forest due to the reduction in square footage; therefore, these areas are counted as cleared.
- 2) The "Phase 3 Other Retention" pattern represents existing tree areas (non-forest) less than 35 feet in width or 10,000 square feet in area that will be retained. These areas are not counted as cleared, nor are they counted as retained.
- 3) The "Phase 3 Other Clearing" pattern represents existing tree areas (non-forest) less than 35 feet in width or 10,000 square feet in area that will be cleared.

FOREST CONSERVATION LEGEND

Phase 3 Forest Clearing	Future/Previous Forest Clearing	Specimen Tree with Critical Root Zone
Phase 3 Retained but Counted as Cleared (see Legend Note 1)	Future/Previous Retained but Counted as Cleared	Tree Protection Fence (no signage)
Phase 3 Forest Retention	Future/Previous Forest Retention	Tree Protection Fence with Retention Signage (50 ft spacing)
Phase 3 Other Retention (see Legend Note 2)	Future/Previous Other Retention	Previously Completed Phases
Phase 3 Other Clearing (see Legend Note 3)	Future/Previous Other Clearing	Phase 3 Project Boundary

LEGEND

Treeline	Wetland	15% < Slopes < 25%
Shrubline	Stream	Slopes > 25%
Individual Trees/Shrubs	Wetland Buffer	Property Line
Reforestation Plantings	Stream Buffer	Soil Boundary
Gravel Path/Driveway	Floodplain Line	Existing Structure
	Grass Trail	
	Limit of Disturbance	

REVISIONS

No.	Description

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-238-3450 Fax: 410-243-5716

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SCALE: 1" = 100'

SIGNATURE

Timothy R. Healy
 TIMOTHY R. HEALY DATE
 MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

FOREST CONSERVATION PLAN

Drawing No. **F3.2**

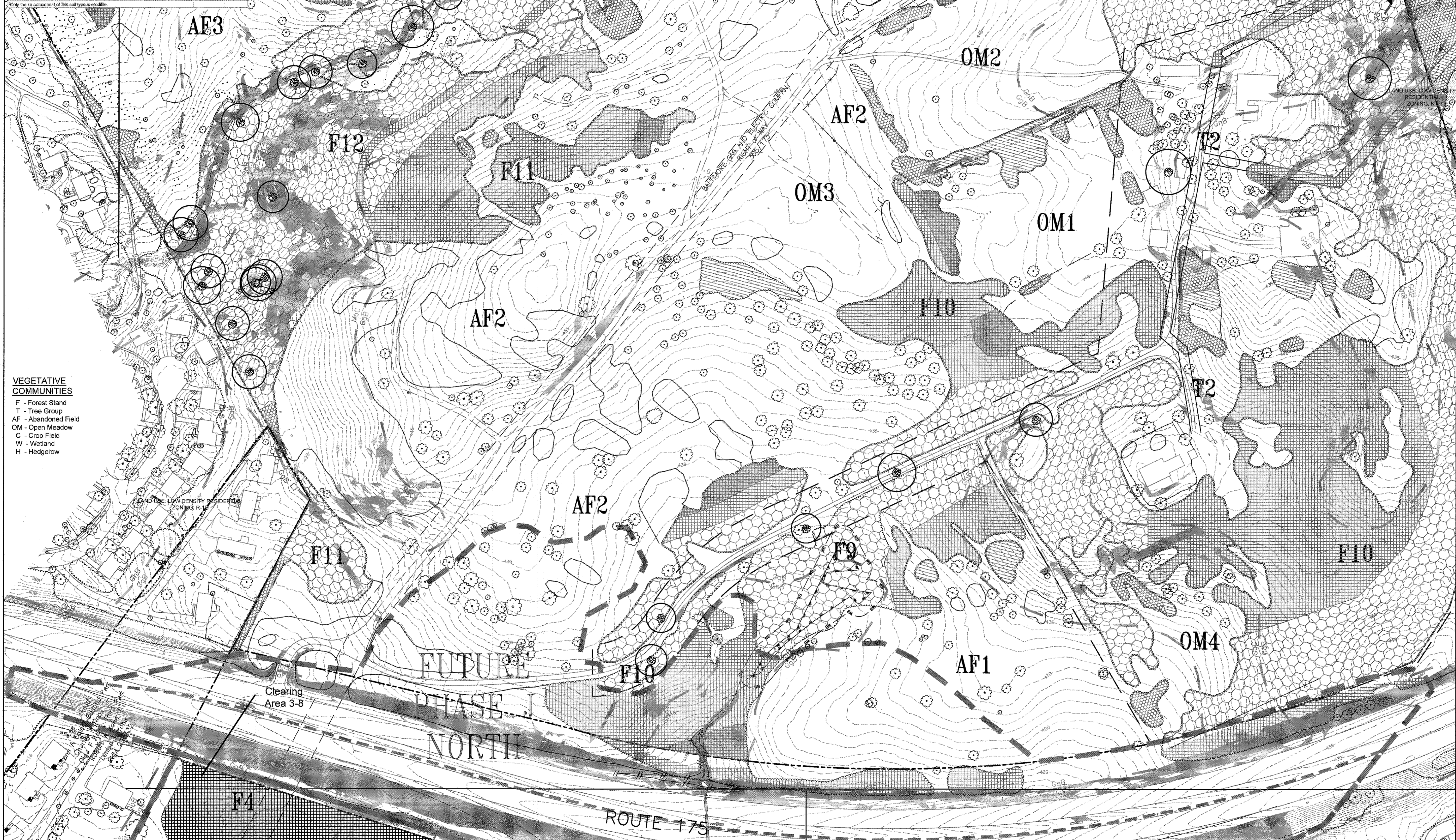
Scale: 1" = 100'

Date: 1/17/2017 Sheet 55 of 76

Des: TRH Drawn: TRH Check: BWJ

SOIL MAP UNIT	SOIL NAME	ERODIBLE	HYDRIC
GgB	Glenely loam, 3-8% slopes	No	No
GyC	Glenely loam, 3-15% slopes	No	No
GhB	Glenely-Urban land complex, 0-8% slopes	No	No
GhS	Glenely-Baile silt loams, 0-8% slopes	Yes	Partial
GeB	Glenely-Codonus silt loams, 0-8% slopes	Yes	Partial
GuB	Glenely-Urban land-Udorthens complex, 0-8% slopes	Partial	No
Mac	Major loam, 8-15% slopes	No	No
RuB	Russell and Belleville soils, 2-5% slopes	Partial	No

*Erodible soils have a K factor value greater than 0.35.
 *Only the B-horizon component of soil types Glenely-Baile silt loams is hydric.
 *Only the A-horizon component of this soil type is erodible.



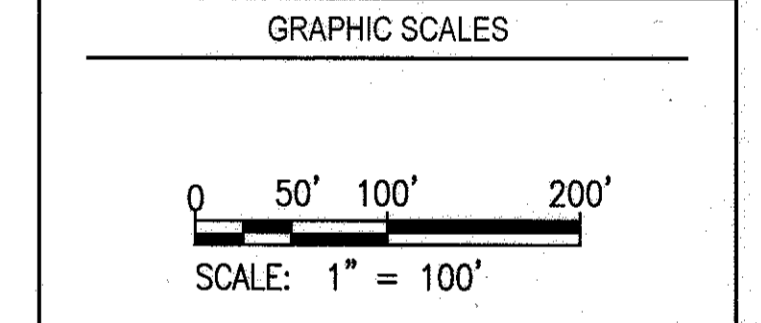
VEGETATIVE COMMUNITIES
 F - Forest Stand
 T - Tree Group
 AF - Abandoned Field
 OM - Open Meadow
 C - Crop Field
 W - Wetland
 H - Hedgerow

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



SIGNATURE

TIMOTHY R. HESS
 MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

FOREST CONSERVATION PLAN
 Drawing No. **F3.3**
 Scale: 1" = 100'
 Date: 1/17/2017 Sheet 56 of 76
 Des: TRH Drawn: TRH Check: BWJ

PHASE 3 FCP TABLES
 Combined Phase 3 Values

Phase 3 Other Clearing	Phase 3 Forest to be Retained	Phase 3 Forest to be Cleared
Total 25,639.3 SF / 0.59 Acres	Area 1 22,462.7 SF Area 2 226,630.0 SF Area 3 227,885.4 SF Area 4 1,447.2 SF Area 5 493.3 SF Area 6 648.8 SF Area 7 83,607.3 SF Area 8 5,422.7 SF Total 488,741.7 SF / 14.82 Acres	Area 1 39,087.3 SF Area 2 25,722.7 SF Area 3 1,447.2 SF Area 4 493.3 SF Area 5 664.8 SF Area 6 648.8 SF Area 7 83,607.3 SF Area 8 5,422.7 SF Total 156,994.0 SF 3.61 Acres

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17
 DATE: 3-01-17
 DATE: 3-14-17

SPECIMEN TREES*
 *This sheet only. See Sheet F3.4 for complete list.

Label	Common Name	Scientific Name	DBH	Condition	Stand	Save or Remove
T106	Red Maple	Acer rubrum	44.7"	Poor	10	S
T107	White Oak	Quercus alba	34.0"	Fair	10	S
T108	Red Maple	Acer rubrum	30.0"	Poor	10	S
T109	White Oak	Quercus alba	32.5"	Fair	10	S
T110	White Oak	Quercus alba	30.5"	Fair	10	S
T111	Black Cherry	Prunus serotina	32.3"	Poor	10	S

Label	Common Name	Scientific Name	DBH	Condition	Stand	Save or Remove
T141	Red Maple	Acer rubrum	50.7"	Fair	12	S
T142	Red Maple	Acer rubrum	34.5"	Poor	12	S
T143	Pin Oak	Quercus palustris	34.5"	Fair	12	S
T144	Red Maple	Acer rubrum	30.0"	Fair	12	S
T145	Red Maple	Acer rubrum	36.0"	Fair	12	S
T146	Tulip Poplar	Liriodendron tulipifera	36.3"	Good	12	S
T147	Tulip Poplar	Liriodendron tulipifera	38.3"	Good	12	S
T148	Tulip Poplar	Liriodendron tulipifera	38.8"	Good	12	S
T149	Tulip Poplar	Liriodendron tulipifera	37.2"	Good	12	S
T172	Tulip Poplar	Liriodendron tulipifera	32.5"	Good	12	S
T1101	Tulip Poplar	Liriodendron tulipifera	35.5"	Good	12	S
T1102	Tulip Poplar	Liriodendron tulipifera	31.3"	Good	12	S
T1103	Tulip Poplar	Liriodendron tulipifera	34.8"	Good	12	S
T1104	Tulip Poplar	Liriodendron tulipifera	38.2"	Good	12	S

FOREST CONSERVATION LEGEND

[Pattern]	Phase 3 Forest Clearing	[Pattern]	Future/Previous Forest Clearing
[Pattern]	Phase 3 Retained but Counted as Cleared (see Legend Note 1)	[Pattern]	Future/Previous Retained but Counted as Cleared
[Pattern]	Phase 3 Forest Retention	[Pattern]	Future/Previous Forest Retention
[Pattern]	Phase 3 Other Retention (see Legend Note 2)	[Pattern]	Future/Previous Other Retention
[Pattern]	Phase 3 Other Clearing (see Legend Note 3)	[Pattern]	Future/Previous Other Clearing
[Symbol]	Tree Protection Fence (no signage)	[Symbol]	Tree Protection Fence With Retention Signage (50 ft spacing)

LEGEND

[Symbol]	Treeline	[Symbol]	Wetland
[Symbol]	Shrubline	[Symbol]	Stream
[Symbol]	Individual Trees/Shrubs	[Symbol]	Wetland Buffer
[Symbol]	Reforestation Plantings	[Symbol]	Stream Buffer
[Symbol]	Specimen Tree	[Symbol]	Floodplain Line
[Symbol]	Gravel Path/Driveway	[Symbol]	Grass Trail
[Symbol]	Previously Completed Phases	[Symbol]	15% < Slopes < 25%
[Symbol]	Limit of Disturbance	[Symbol]	Slopes > 25%
[Symbol]		[Symbol]	Property Line
[Symbol]		[Symbol]	Soil Boundary

FILED IN 1008-003-CAD/DEVELOPMENTAL/FOREST/1008003-F3.3.DWG

CONSTRUCTION PERIOD PROTECTION PROGRAM

- PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD
- PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, BLAZE ORANGE FENCING SHALL BE INSTALLED AS PER DETAIL THIS SHEET ALONG ALL LIMITS OF DISTURBANCE ADJACENT TO WOODLANDS AND AS INDICATED ON FOREST CONSERVATION PLAN SHEETS FCP02 THROUGH FCP06.
- PROTECTIVE SIGNAGE SHALL BE INSTALLED AS PER DETAIL THIS SHEET AND AS INDICATION ON FOREST CONSERVATION PLAN SHEETS FCP02 THROUGH FCP06.
- TREES TO BE REMOVED SHALL BE TAKEN OUT WITHOUT DAMAGING PROTECTED TREES.
- ALL EQUIPMENT AND MACHINERY SHALL BE KEPT INSIDE THE BLAZE ORANGE FENCING AND WITHIN THE LOD.
- ANY TYPE OF DISTURBANCE BEYOND THE LOD IS STRICTLY PROHIBITED.
- PLACEMENT OF EXCAVATED/BACKFILL MATERIAL AND STORAGE OF EQUIPMENT/MACHINERY SHALL BE AVOIDED WITHIN THE CRITICAL ROOT ZONE AREAS OF SPECIMEN TREES IN ORDER TO MINIMIZE SOIL COMPACTION IN THESE SENSITIVE AREAS.
- ROOT PRUNING AS PER DETAIL THIS SHEET SHALL BE UTILIZED FOR PROTECTION OF SPECIMEN TREES IN AREAS WHERE SPECIMEN TREE CRITICAL ROOT ZONES ARE LOCATED INSIDE THE LOD.
- QUALIFIED PROFESSIONAL(S) RESPONSIBLE FOR MONITORING FOREST CONSERVATION REQUIREMENTS AND PERFORMING ANY NECESSARY CONSTRUCTION PERIOD MANAGEMENT SHALL VISIT THE PROJECT SITE ON TWO OCCASIONS:
 - THE FIRST VISIT SHALL VERIFY PROPER INSTALLATION OF PROTECTIVE DEVICES AND COMPLETION OF OTHER PROTECTIVE MEASURES AND SHALL OCCUR BEFORE ANY CONSTRUCTION BEGINS.
 - THE SECOND VISIT SHALL VERIFY CONTINUED COMPLIANCE WITH THE FOREST CONSERVATION PLAN AND ACCESS THE NEED FOR ADDITIONAL PROTECTIVE MEASURES TO MAINTAIN THE HEALTH OF THE RETENTION AREAS. THIS VISIT WILL OCCUR DURING THE CONSTRUCTION PERIOD.

POST-CONSTRUCTION PERIOD PROTECTION PROGRAM

A POST CONSTRUCTION PROTECTION PROGRAM IS REQUIRED TO GIVE THE FOREST RESOURCES SAVED OR PLANTED AS PART OF THE DEVELOPMENT PROPOSAL A HIGH PROBABILITY OF ACHIEVING THE SURVIVAL RATES REQUIRED FOR RELEASE OF SURETY, AS WELL AS LONG-TERM SURVIVAL. THE POST-CONSTRUCTION PROTECTION PROGRAM SHALL BE FOR A MINIMUM OF TWO GROWING SEASONS, AS SPECIFIED IN THE HOWARD COUNTY FOREST CONSERVATION MANUAL.

PRESERVATION REQUIREMENTS

THE AREAS FOR FOREST RETENTION, REFORESTATION OR AFFORESTATION BY AN APPROVED FOREST CONSERVATION PLAN MUST BE PERMANENTLY PROTECTED AND RECORDED AS EITHER NON-DEVELOPABLE OPEN SPACE OR AS CONSERVATION EASEMENTS.

SPECIMEN TREE TABLE

Label	Common Name	Scientific Name	DBH	Condition	Stand	Save or Remove
T1	Tulip Poplar	Liriodendron tulipifera	44.0"	Fair	offsite	S
T2	White Oak	Quercus alba	34.5"	Fair	1	S
T3	White Oak	Quercus alba	36.2"	Fair	1	S
T4	White Oak	Quercus alba	32.5"	Fair	1	S
T5	Black Oak	Quercus velutina	32.4"	Good	1	S
T6	Tulip Poplar	Liriodendron tulipifera	35.0"	Good	1	S
T7	Tulip Poplar	Liriodendron tulipifera	31.9"	Excellent	1	S
T8	Tulip Poplar	Liriodendron tulipifera	32.0"	Good	1	S
T9	Tulip Poplar	Liriodendron tulipifera	42.1"	Fair	1	S
T10	Tulip Poplar	Liriodendron tulipifera	32.0"	Excellent	1	S
T11	White Oak	Quercus alba	37.6"	Good	1	S
T12	Tulip Poplar	Liriodendron tulipifera	34.9"	Good	1	S
T13	White Oak	Quercus alba	32.5"	Good	1	S
T14	White Oak	Quercus alba	30.7"	Excellent	1	S
T15	Black Oak	Quercus velutina	44.0"	Poor	offsite	S
T16	Tulip Poplar	Liriodendron tulipifera	36.4"	Good	1	S
T17	White Oak	Quercus alba	35.3"	Fair	offsite	S
T18	Tulip Poplar	Liriodendron tulipifera	33.5"	Good	1	S
T19	Black Oak	Quercus velutina	38.3"	Poor/Dead	1	S
T20	Tulip Poplar	Liriodendron tulipifera	43.1"	Good	1	S
T21	Tulip Poplar	Liriodendron tulipifera	31.0"	Good	1	S
T22	Northern Red Oak	Quercus rubra	38.5"	Good	offsite	S
T23	Black Oak	Quercus velutina	36.3"	Fair	1	S
T24	White Oak	Quercus alba	33.0"	Good	1	S
T25	Tulip Poplar	Liriodendron tulipifera	30.5"	Fair	1	S
T26	Tulip Poplar	Liriodendron tulipifera	31.3"	Good	1	S
T27	Tulip Poplar	Liriodendron tulipifera	30.3"	Good	1	S
T28	Tulip Poplar	Liriodendron tulipifera	45.2"	Good	6	S
T29	Tulip Poplar	Liriodendron tulipifera	36.4"	Good	6	S
T30	Tulip Poplar	Liriodendron tulipifera	38.8"	Fair	6	S
T31	Black Cherry	Prunus serotina	35.8"	Fair	6	S
T32	Tulip Poplar	Liriodendron tulipifera	38.0"	Excellent	1	S
T33	Tulip Poplar	Liriodendron tulipifera	33.8"	Good	1	S
T34	Tulip Poplar	Liriodendron tulipifera	34.0"	Fair	1	S
T35	White Oak	Quercus alba	31.8"	Poor	1	S
T36	Red Maple	Acer rubrum	44.7"	Poor	10	S
T37	White Oak	Quercus alba	34.0"	Good	10	S
T38	Tulip Poplar	Liriodendron tulipifera	33.0"	Good	6	S
T39	Tulip Poplar	Liriodendron tulipifera	33.5"	Good	6	S
T40	Red Maple	Acer rubrum	43.5"	Fair	13	S
T41	Red Maple	Acer rubrum	30.7"	Fair	12	S
T42	Red Maple	Acer rubrum	34.5"	Poor	12	S
T43	Pin Oak	Quercus palustris	34.5"	Fair	12	S
T44	Red Maple	Acer rubrum	38.0"	Fair	12	S
T45	Red Maple	Acer rubrum	38.0"	Fair	12	S
T46	Tulip Poplar	Liriodendron tulipifera	35.3"	Good	12	S
T47	Tulip Poplar	Liriodendron tulipifera	35.3"	Good	12	S
T48	Tulip Poplar	Liriodendron tulipifera	38.9"	Good	12	S
T49	Tulip Poplar	Liriodendron tulipifera	37.2"	Good	12	S
T50	Tulip Poplar	Liriodendron tulipifera	34.5"	Excellent	offsite	S
T51	Tulip Poplar	Liriodendron tulipifera	32.4"	Good	1	S
T52	Tulip Poplar	Liriodendron tulipifera	31.4"	Fair	offsite	S

SPECIMEN TREE TABLE CONT'D

Label	Common Name	Scientific Name	DBH	Condition	Stand	Save or Remove
T53	Tulip Poplar	Liriodendron tulipifera	30.9"	Good	1	S
T54	Black Oak	Quercus velutina	32.3"	Fair	1	S
T55	White Oak	Quercus alba	32.4"	Fair	offsite	S
T56	Tulip Poplar	Liriodendron tulipifera	30.5"	Good	1	S
T57	Tulip Poplar	Liriodendron tulipifera	30.0"	Excellent	offsite	S
T58	Tulip Poplar	Liriodendron tulipifera	31.2"	Good	offsite	S
T59	Tulip Poplar	Liriodendron tulipifera	31.5"	Good	1	S
T60	Tulip Poplar	Liriodendron tulipifera	31.8"	Good	offsite	S
T61	Black Oak	Quercus velutina	33.5"	Good	1	S
T62	White Oak	Quercus alba	35.5"	Fair	offsite	S
T63	White Oak	Quercus alba	30.5"	Fair	offsite	S
T64	Tulip Poplar	Liriodendron tulipifera	35.8"	Fair	offsite	S
T65	Black Cherry	Prunus serotina	47.0"	Fair	11	S
T66	Red Maple	Acer rubrum	30.0"	Poor	10	S
T67	White Oak	Quercus alba	32.3"	Fair	10	S
T68	White Oak	Quercus alba	30.5"	Good	10	S
T69	Black Cherry	Prunus serotina	39.3"	Poor	10	S
T70	Silver Maple	Acer saccharinum	46.5"	Fair	12	S
T71	Red Maple	Acer rubrum	30.4"	Fair	13	S
T72	Tulip Poplar	Liriodendron tulipifera	32.5"	Good	12	S
T73	Tulip Poplar	Liriodendron tulipifera	43.3"	Poor	1	S
T74	Tulip Poplar	Liriodendron tulipifera	40.5"	Good	offsite	S
T75	Tulip Poplar	Liriodendron tulipifera	33.0"	Good	offsite	S
T76	Black Cherry	Prunus serotina	34.4"	Fair	10	S
T77	Tulip Poplar	Liriodendron tulipifera	30.2"	Fair	1	S
T78	Tulip Poplar	Liriodendron tulipifera	34.0"	Good	1	S
T79	Tulip Poplar	Liriodendron tulipifera	32.5"	Good	1	S
T80	Tulip Poplar	Liriodendron tulipifera	34.6"	Good	1	S
T81	Tulip Poplar	Liriodendron tulipifera	38.0"	Fair	1	S
T82	Tulip Poplar	Liriodendron tulipifera	33.5"	Good	1	S
T83	White Oak	Quercus alba	30.5"	Good	1	S
T84	White Oak	Quercus alba	30.4"	Fair	1	S
T85	Red Maple	Acer rubrum	31.0"	Fair	H4	R
T86	Pitch Pine	Pinus rigida	25.5"	Good	6	S
T87	Pitch Pine	Pinus rigida	24.8"	Good	6	S
T88	Pitch Pine	Pinus rigida	25.3"	Good	6	S
T89	Pitch Pine	Pinus rigida	26.7"	Good	6	S
T90	Pitch Pine	Pinus rigida	24.4"	Good	6	S
T91	Pitch Pine	Pinus rigida	23.5"	Good	6	S
T92	Pitch Pine	Pinus rigida	23.0"	Good	6	S
T93	Pitch Pine	Pinus rigida	24.0"	Good	6	S
T94	Pitch Pine	Pinus rigida	25.5"	Good	6	S
T95	Pitch Pine	Pinus rigida	23.0"	Good	6	S
T96	Pitch Pine	Pinus rigida	24.0"	Good	6	S
T97	Pitch Pine	Pinus rigida	22.0"	Good	6	S
T98	Pitch Pine	Pinus rigida	22.2"	Good	6	S
T101	Tulip Poplar	Liriodendron tulipifera	35.9"	Good	12	S
T102	Tulip Poplar	Liriodendron tulipifera	30.3"	Good	12	S
T103	Tulip Poplar	Liriodendron tulipifera	34.8"	Good	12	S
T104	Tulip Poplar	Liriodendron tulipifera	35.2"	Good	12	S
T105	Red Maple	Acer rubrum	34.4"	Fair	10	S
T106	Red Maple	Acer rubrum	30.1"	Good	10	S

*stand "offsite" means tree is located within the first 100 ft beyond the property line

FOREST CONSERVATION WORKSHEET
VERSION 1.0
(Enter in Yellow Cells)

NET TRACT AREA:

A. Total tract area.....	309.21
B. Area within 100 year floodplain.....	3.40
C. Area to remain in agricultural production.....	0.00
D. Net tract area.....	305.81

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	1	0	0	0

E. Afforestation Threshold.....	15% x D =	45.87
F. Conservation Threshold.....	20% x D =	61.16

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).....	108.48
H. Area of forest above afforestation threshold.....	62.61
I. Area of forest above conservation threshold.....	47.32

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation.....	70.63
K. Clearing permitted without mitigation.....	37.85

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared.....	45.33	Phase 1-3 clearing = 13.73 acres. The remaining acreage is future estimated clearing.
M. Total area of forest to be retained.....	63.15	Phase 1-3 retention = 14.66 acres. The remaining acreage is future estimated retention.

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold.....	11.33
P. Reforestation for clearing below conservation threshold.....	0.00
Q. Credit for retention above conservation threshold.....	1.99
R. Total reforestation required.....	9.34
S. Total afforestation required.....	0.00
T. Total reforestation and afforestation required.....	9.34

PHASE 3 FOREST CONSERVATION TABLE

Total Forest Cleared	156,993.9 SF / 3.60 Acres
Total Forest Retained	481,589.9 SF / 11.06 Acres
Total Other Clearing	25,639.3 SF / 0.59 Acres
Total Other Retention	27,278.1 SF / 0.62 Acres
Total Forest to be Protected by Conservation Easement	481,589.9 SF / 11.06 Acres

PHASE 4 FOREST CONSERVATION TABLE

Total Forest Cleared	SF / Acres
Total Forest Retained	SF / Acres
Total Other Clearing	SF / Acres
Total Other Retention	SF / Acres
Total Forest to be Protected by Conservation Easement	SF / Acres

PHASE 5 FOREST CONSERVATION TABLE

Total Forest Cleared	SF / Acres
Total Forest Retained	SF / Acres
Total Other Clearing	SF / Acres
Total Other Retention	SF / Acres
Total Forest to be Protected by Conservation Easement	SF / Acres

PHASE 6 FOREST CONSERVATION TABLE

Total Forest Cleared	SF / Acres
Total Forest Retained	SF / Acres
Total Other Clearing	SF / Acres
Total Other Retention	SF / Acres
Total Forest to be Protected by Conservation Easement	SF / Acres

PHASE 7 FOREST CONSERVATION TABLE

Total Forest Cleared	SF / Acres
Total Forest Retained	SF / Acres
Total Other Clearing	SF / Acres
Total Other Retention	SF / Acres
Total Forest to be Protected by Conservation Easement	SF / Acres

PREVIOUS PHASES

PHASE 1 FOREST CONSERVATION TABLE

Total Forest Cleared	125,176.3 SF / 2.87 Acres
Total Forest Retained	84,750.4 SF / 1.94 Acres
Total Other Clearing	50,244.6 SF / 1.15 Acres
Total Other Retention	4,561.8 SF / 0.10 Acres
Total Forest to be Protected by Conservation Easement	84,750.4 SF / 1.94 Acres

PHASE 2 FOREST CONSERVATION TABLE

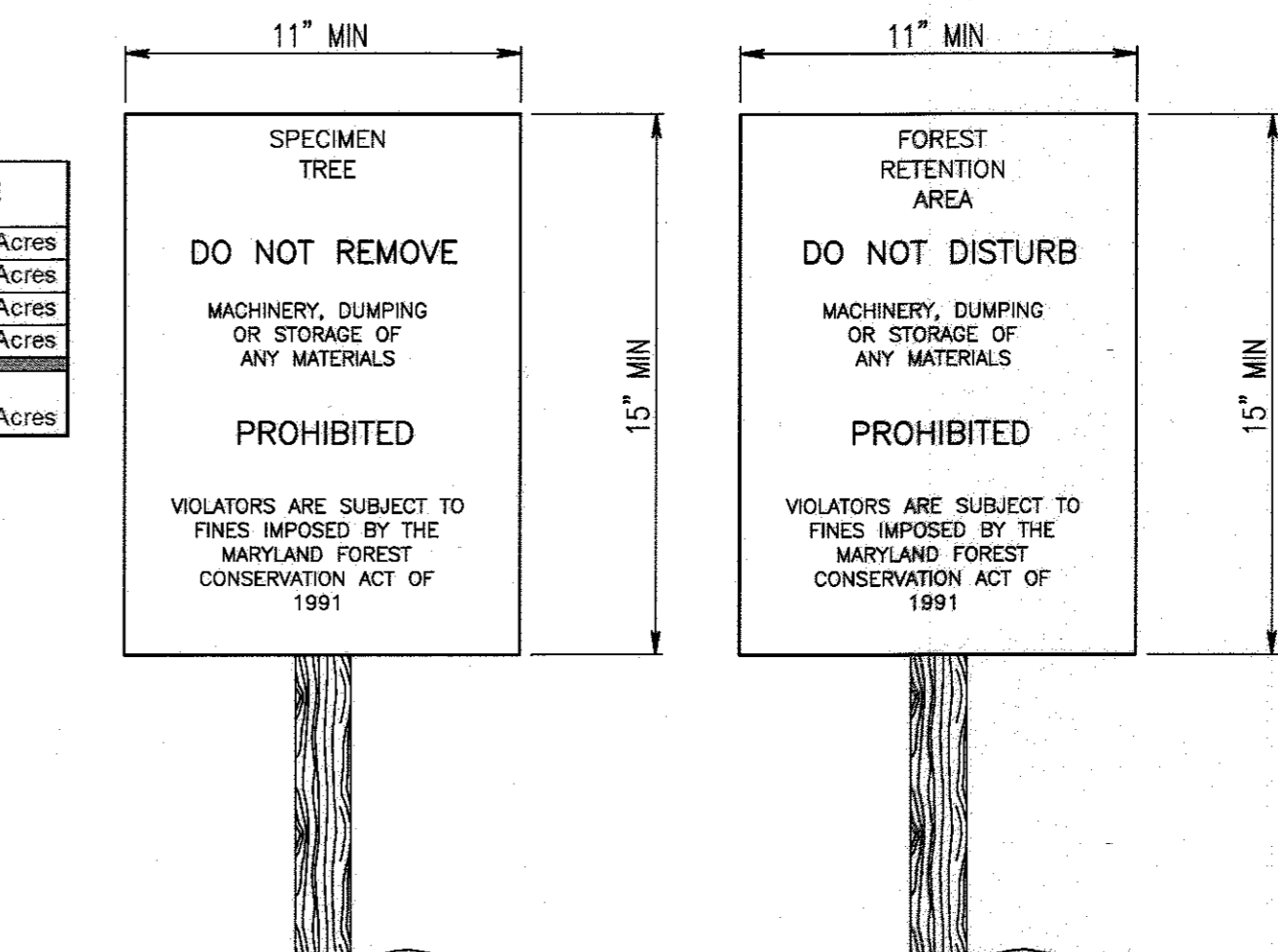
Total Forest Cleared	130,407.3 SF / 3.00 Acres
Total Forest Retained	31,357.5 SF / 0.72 Acres
Total Other Clearing	19,804.5 SF / 0.45 Acres
Total Other Retention	12,760.7 SF / 0.29 Acres
Total Forest to be Protected by Conservation Easement	31,357.5 SF / 0.72 Acres

PHASE J FOREST CONSERVATION TABLE

Total Forest Cleared	185,289.6 SF / 4.26 Acres
Total Forest Retained*	40,747.7 SF / 0.94 Acres
Total Other Clearing	73,223.1 SF / 1.68 Acres
Total Other Retention*	2,120.1 SF / 0.23 Acres
Total Forest to be Protected by Conservation Easement	41,075.4 SF / 0.94 Acres
*small reduction from Phase J in Phase 3 (0.01)	

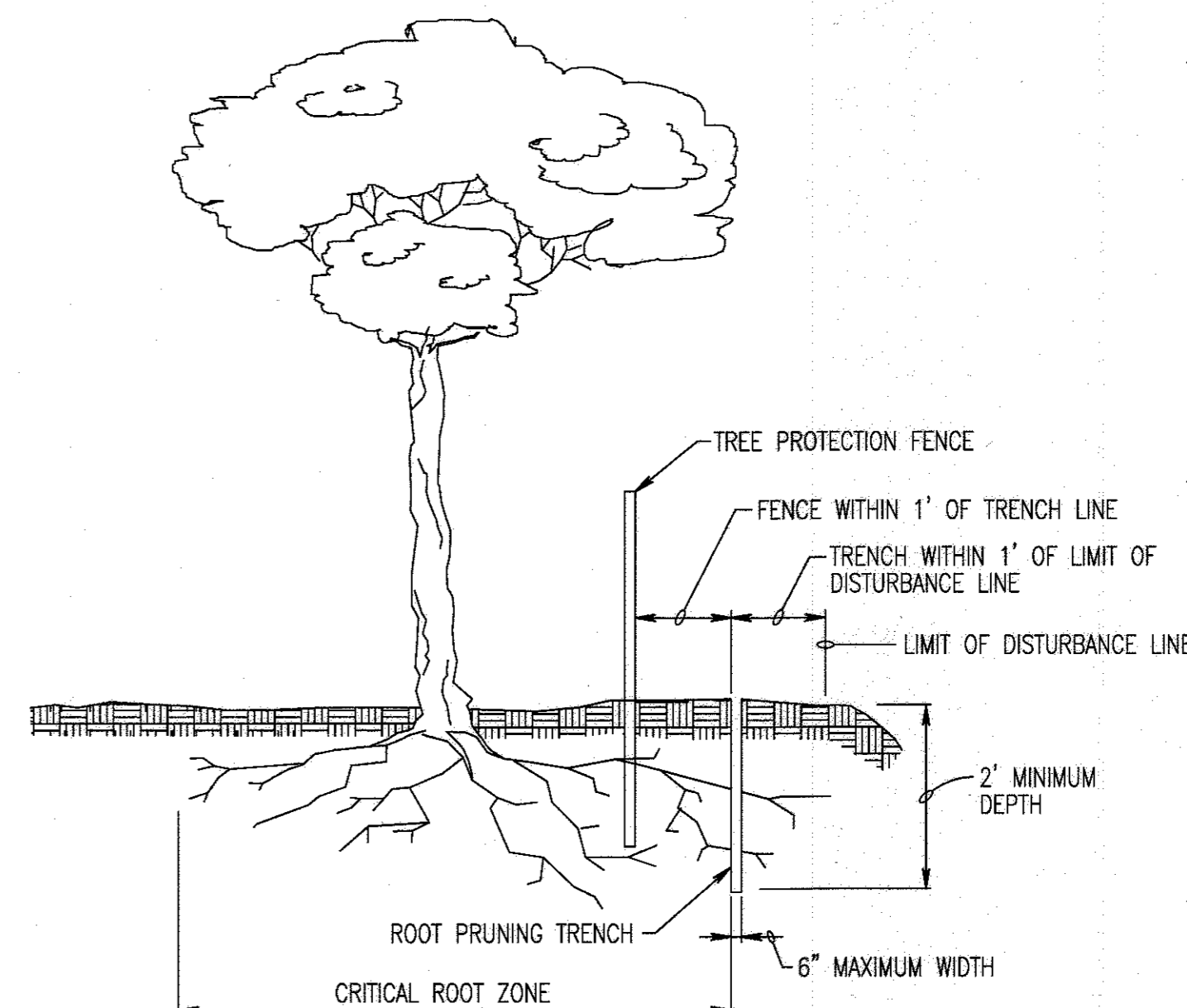
OVERALL FOREST CONSERVATION TABLE

Total Forest Cleared	597,867.0 SF / 13.73 Acres
Total Forest Retained	638,445.5 SF / 14.66 Acres
Total Other Clearing	164,888.8 SF / 3.78 Acres
Total Other Retention	46,720.7 SF / 1.07 Acres
Total Forest to be Protected by Conservation Easement	638,445.5 SF / 14.66 Acres



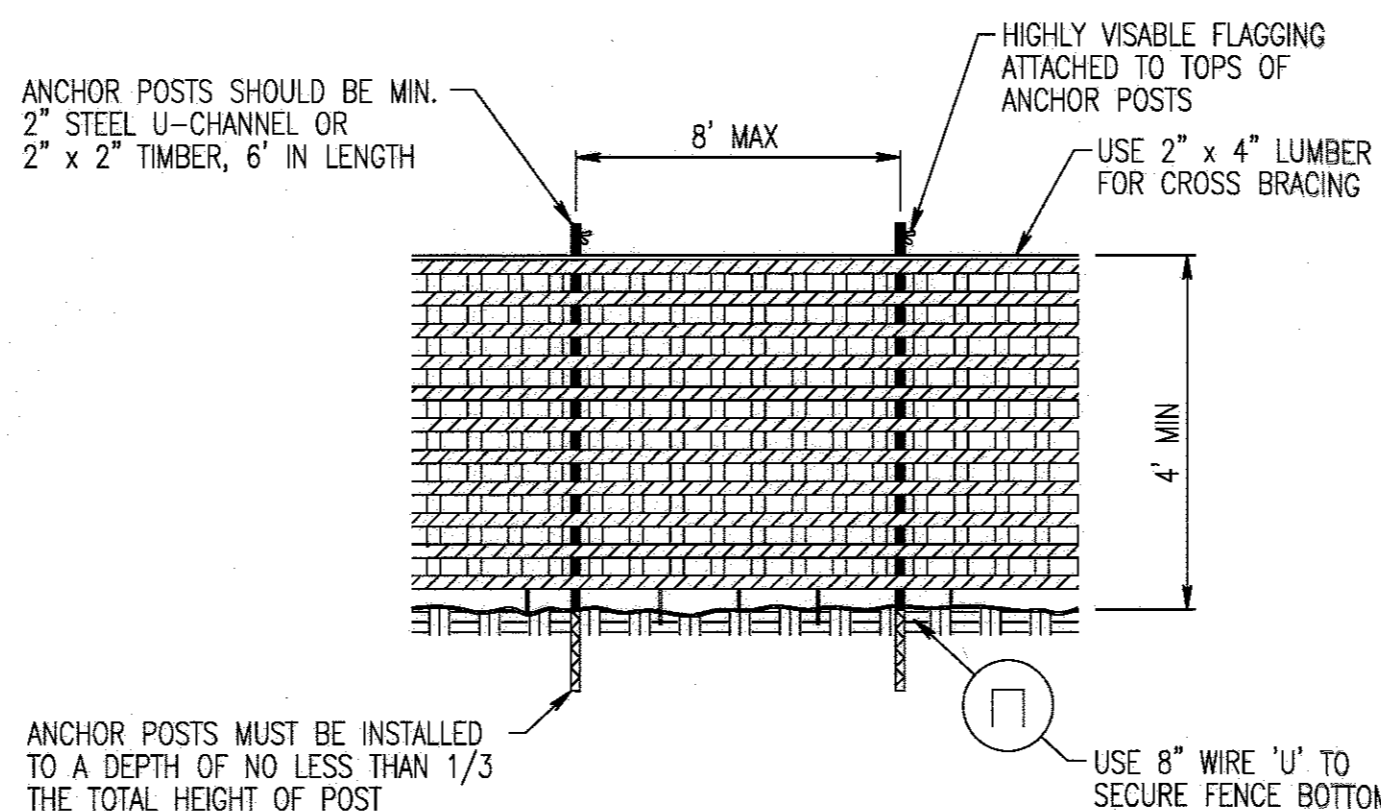
- NOTES:
- BOTTOM OF SIGN TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 - SIGNS TO BE PLACED APPROXIMATELY 50' APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
 - ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

CONSTRUCTION SIGNS
NO SCALE



- NOTES:
- RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREAS TO BE STAKED AND FLAGGED PRIOR TO TRENCHING.
 - EXACT LOCATION OF TRENCH SHALL BE IDENTIFIED.
 - TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
 - ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING
NO SCALE



- NOTES:
- BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE, ONLY.
 - BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
 - PROTECTION SIGNAGE IS REQUIRED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

PLASTIC MESH TREE PROTECTION FENCE
NO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE

REVISIONS

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLCOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-9116

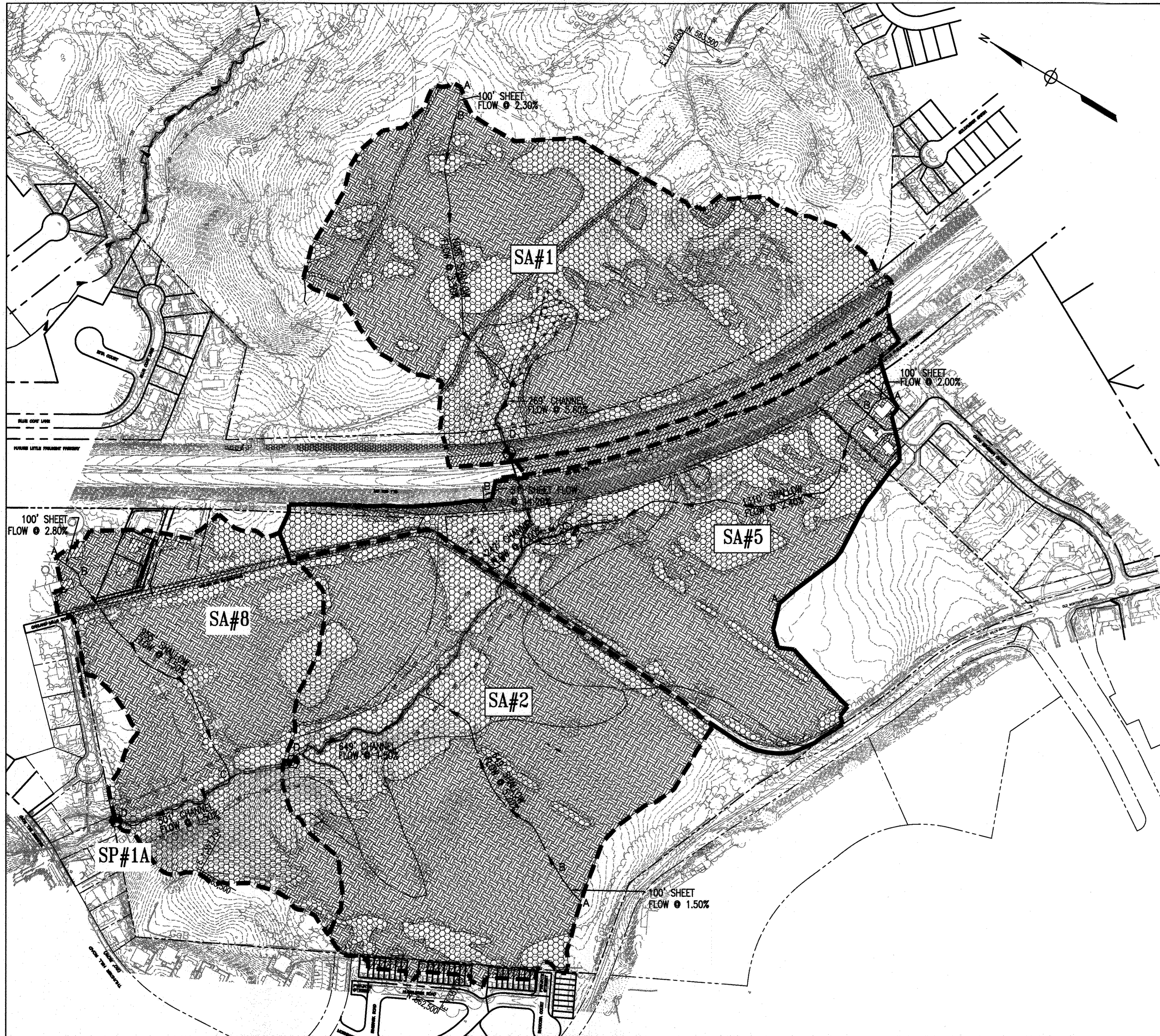
PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7

GRAPHIC SCALES
0 50' 100' 200'
SCALE: 1" = 100'

SIGNATURE
TIMOTHY R. HESS
MD DNR QUALIFIED PROFESSIONAL

BLANDAIR REGIONAL PARK - PHASE 3

FOREST CONSERVATION NOTES AND DETAILS



EXISTING CONDITIONS DRAINAGE AREA MAP

1" = 200'

Soil Symbol	HSG	Soil Description
GnB	C	Glenville-Baile silt loams, 0-8% slopes
GgB	B	Glenelg loam, 3-8% slopes
GhB	B	Glenelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthents, Highway, 0-65% slopes

DRAINAGE LEGEND

- EXISTING DRAINAGE DIVIDE
- SOIL DIVIDE
- TIME OF CONCENTRATION PATH
- WOODS
- MEADOW
- IMPERVIOUS

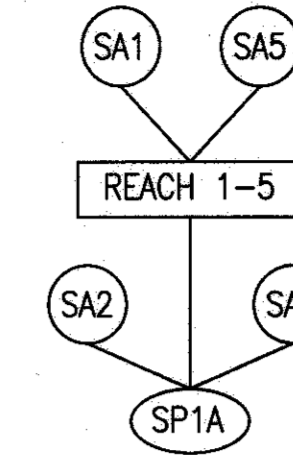
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Phil Clark 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kyle Schmitt 3-01-17
 CHIEF DIVISION OF LAND DEVELOPMENT DATE

N. Miller 3-19-17
 DIRECTOR DATE

DRAINAGE SCHEMATIC



REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

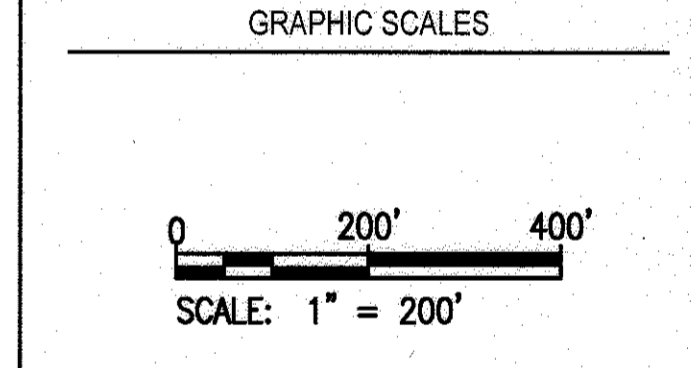


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19378, EXPIRATION DATE 09/22/2017.

BLANDAIR REGIONAL PARK - PHASE 3

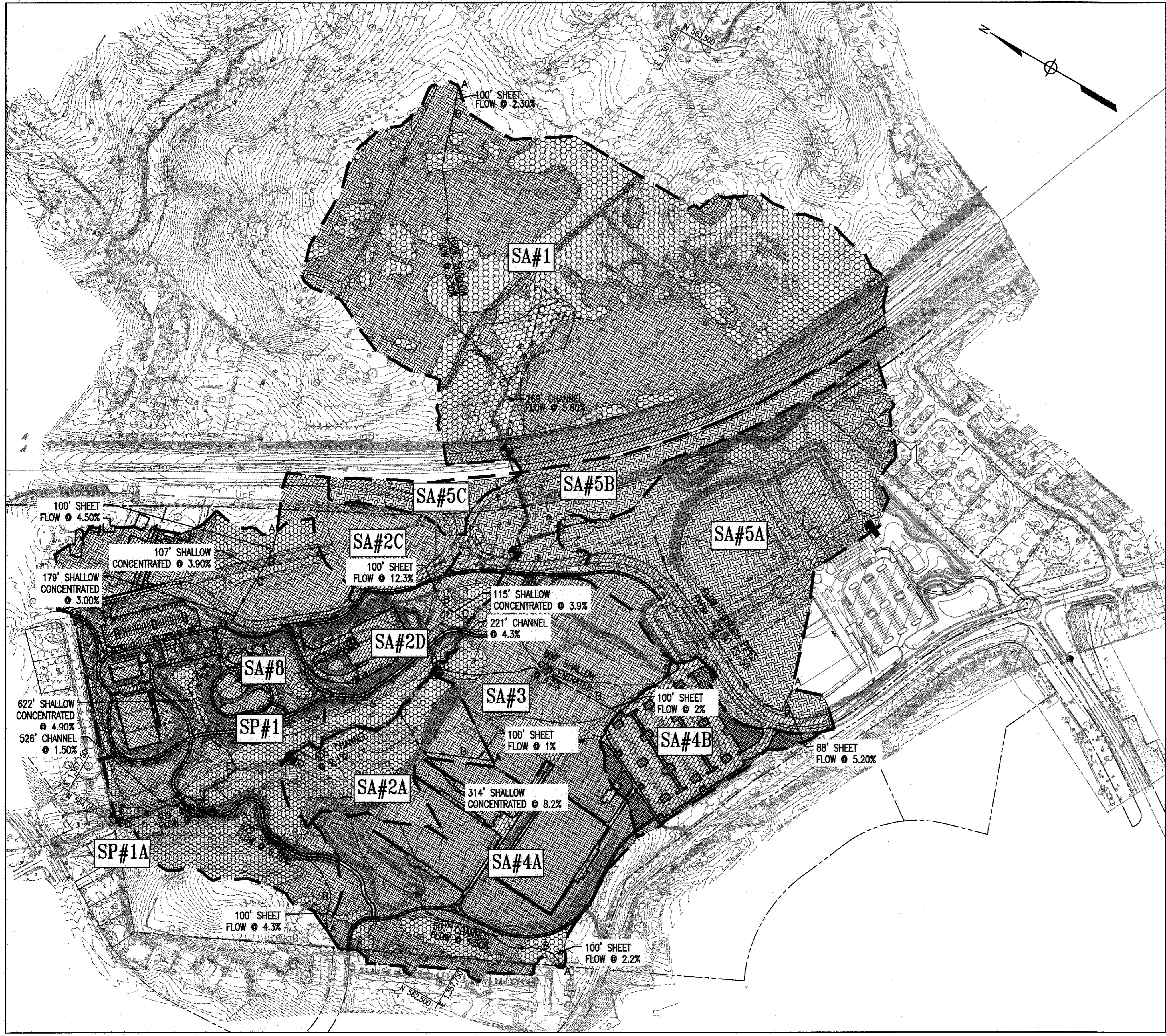
OVERALL DRAINAGE AREA MAP
 EXISTING CONDITIONS

Drawing No.
DA3.0

Scale: 1" = 200'

Date: 1/17/2017 Sheet 58 of 76

Des: SAD Drawn: SAD Check: AUO

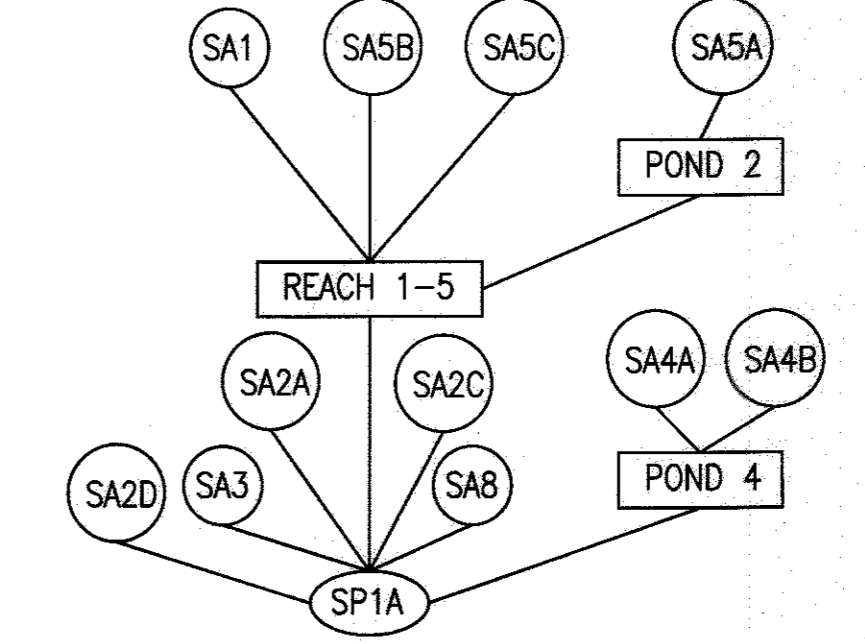


*NOTE:
 1. REDUCED RCN VALUES ARE CALCULATED FOR EACH ESD (MICRO-BIO, BIO-SWALE, PERVIOUS PAVEMENT) DRAINAGE AREA IN SUBAREAS 2D AND 8. THEREFORE, NO LAND USE HATCHING IS SHOWN FOR THOSE DRAINAGE AREAS.

DRAINAGE LEGEND

- — — — — PROPOSED DRAINAGE DIVIDE
- — — — — SOIL DIVIDE
- - - - - ESD DRAINAGE DIVIDE
- [Hatched Box] IMPERVIOUS
- [Cross-hatched Box] OPEN SPACE
- [Dotted Box] WOODS
- ⊕ TIME OF CONCENTRATION PATH STUDY POINT

DRAINAGE SCHEMATIC

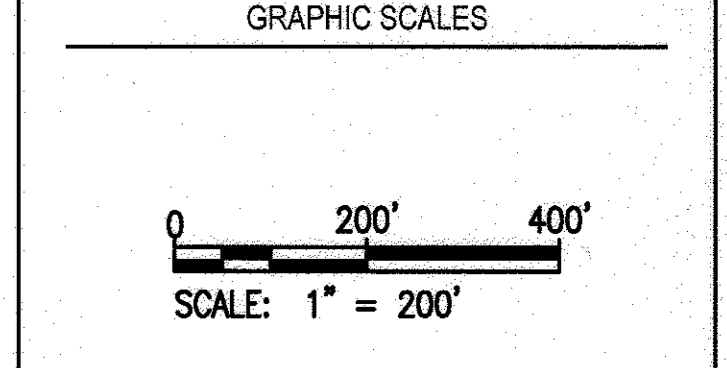


REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



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 EXPIRATION DATE: 09/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

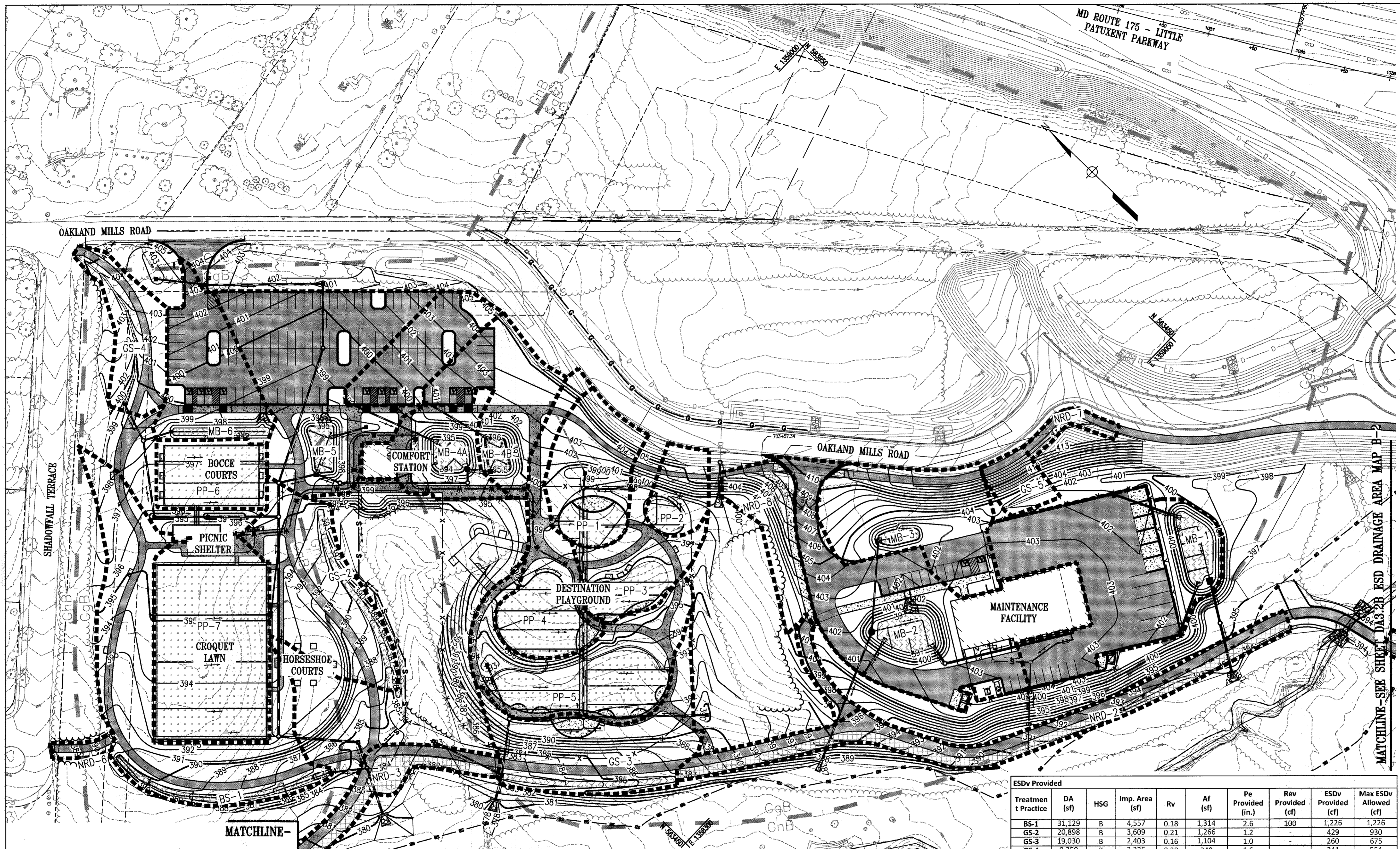
OVERALL DRAINAGE AREA MAP
 PROPOSED CONDITIONS
 Drawing No.
DA3.1
 Scale: 1" = 200'
 Date: 1/17/2017 Sheet 59 of 76
 Des: SAD Drawn: SAD Check: AUO

Soil Symbol	HSG	Soil Description
GnB	C	Glennville-Baile silt loams, 0-8% slopes
GqB	B	Glennelg loam, 3-8% slopes
GhB	B	Glennelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthents, Highway, 0-65% slopes

PROPOSED DRAINAGE AREA MAP
 1" = 200'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3-19-17
 DIRECTOR



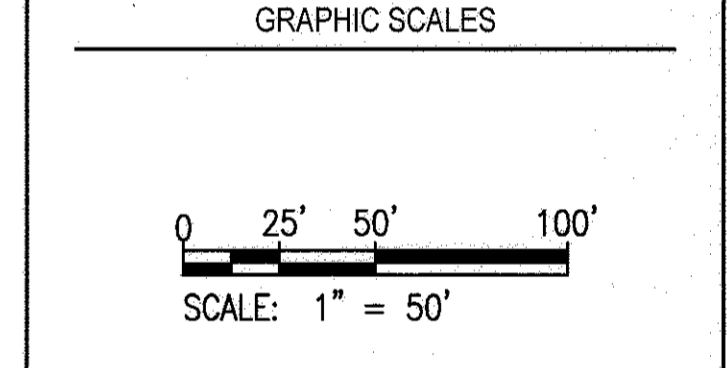
REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3.72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7



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BLANDAIR REGIONAL PARK - PHASE 3

ESD DRAINAGE AREA MAP

Drawing No. **DA3.2A**

Scale: 1" = 50'

Date: 1/17/2017 Sheet 60 of 76

Des: BWJ Drawn: AKC Check: AUO

MATCHLINE - SEE SHEET DA3.2B ESD DRAINAGE AREA MAP B-1

LEGEND

Symbol	HSG	Soil Description
	C	Glennville-Baile silt loams, 0-8% slopes
	B	Glennel loam, 3-8% slopes
	B	Glennel-Urban land complex, 0-8% slopes
	B	Manor loam, 8-15% slopes
	C	Russett and Beltsville soils, 2-5% slopes
	D	Udorthents, Highway, 0-65% slopes

ESD DRAINAGE AREA MAP
 1" = 50'

- DRAWING NOTES:**
- THE BOCCO COURTS AND CROQUET LAWN WILL BE ARTIFICIAL TURF.
 - EACH "POD" OF THE DESTINATION PLAYGROUND WILL BE ARTIFICIAL TURF.

ESDv Requirement

LOD	Imp. Area	Target Pe	Rv	ESDv Requirement (cf)
SF	AC	SF	AC	
611,200	14.03	231,479	5.31	1.8
			0.392	35,939

ESDv Provided

Treatment Practice	DA (sf)	HSG	Imp. Area (sf)	Rv	Af (sf)	Pe Provided (in.)	Rev Provided (cf)	ESDv Provided (cf)	Max ESDv Allowed (cf)
MB-1	29,591	B	23,436	0.76	2,116	2.1	141	3,294	4,891
MB-2	34,611	C	24,511	0.69	2,037	1.9	136	3,125	5,155
MB-3	20,563	B	4,337	0.24	610	2.6	41	1,035	1,068
MB-4A	20,285	B	12,827	0.62	1,080	1.9	72	1,701	1,068
MB-4B	13,970	B	5,150	0.38	723	2.6	48	1,156	1,068
MB-5	27,366	B	21,622	0.76	1,160	1.3	77	1,846	4,513
MB-6	14,793	B	9,778	0.64	821	2.6	55	1,528	2,067
PP-1	4,604	B	3,403	0.72	2,227	2.6	167	713	713
PP-2	4,896	B	1,359	0.30	1,197	2.6	90	318	318
PP-3	11,837	B	5,282	0.45	3,555	2.6	267	1,158	1,158
PP-4	13,026	B	9,210	0.69	6,622	2.6	497	1,937	1,937
PP-5	20,717	B	12,570	0.60	9,552	2.6	716	2,676	2,676
PP-6	8,688	B	6,720	0.75	6,720	2.6	672	1,405	1,405
PP-7	26,489	B	23,348	0.84	21,762	2.6	2176	4,840	4,840
Total =	385,028		199,768		64,318				

ESDv Provided

Treatment Practice	DA (sf)	HSG	Imp. Area (sf)	Rv	Af (sf)	Pe Provided (in.)	Rev Provided (cf)	ESDv Provided (cf)	Max ESDv Allowed (cf)
BS-1	31,129	B	4,557	0.18	1,314	2.6	100	1,226	1,226
GS-2	20,898	B	3,609	0.21	1,266	1.2	-	429	930
GS-3	19,030	B	2,403	0.16	1,104	1.0	-	260	675
GS-4	9,259	B	2,325	0.28	340	1.6	-	341	554
GS-5	3,538	B	423	0.16	112	1.0	-	46	121
NRD-1	6,288	B	3,144	0.50	-	1.0	-	26	681
NRD-2	13,906	B	6,953	0.50	-	1.0	-	579	1,506
NRD-3	6,300	B	3,150	0.50	-	1.0	-	263	683
NRD-4	4,162	B	2,081	0.50	-	1.0	-	173	451
NRD-5	8,732	B	4,366	0.50	-	1.0	-	364	946
NRD-6	1,087	B	544	0.50	-	1.0	-	45	118
NRD-7	1,900	B	941	0.50	-	1.0	-	78	204
NRD-8	7,364	B	1,720	0.26	-	1.0	-	160	415
Total =	385,028		199,768		64,318				

ESDv Required = 35,939 Provided = 5,254 30,958 41,386

ESDv Required = (Pe Required) x Rv x DA Total ESDv Provided (Rev + ESDv) = 36,212

ESDv Provided = (Af x d x n + ponding depth) / 0.75

Max ESDv Allowed for SWM Practices = (2.6) x Rv x DA

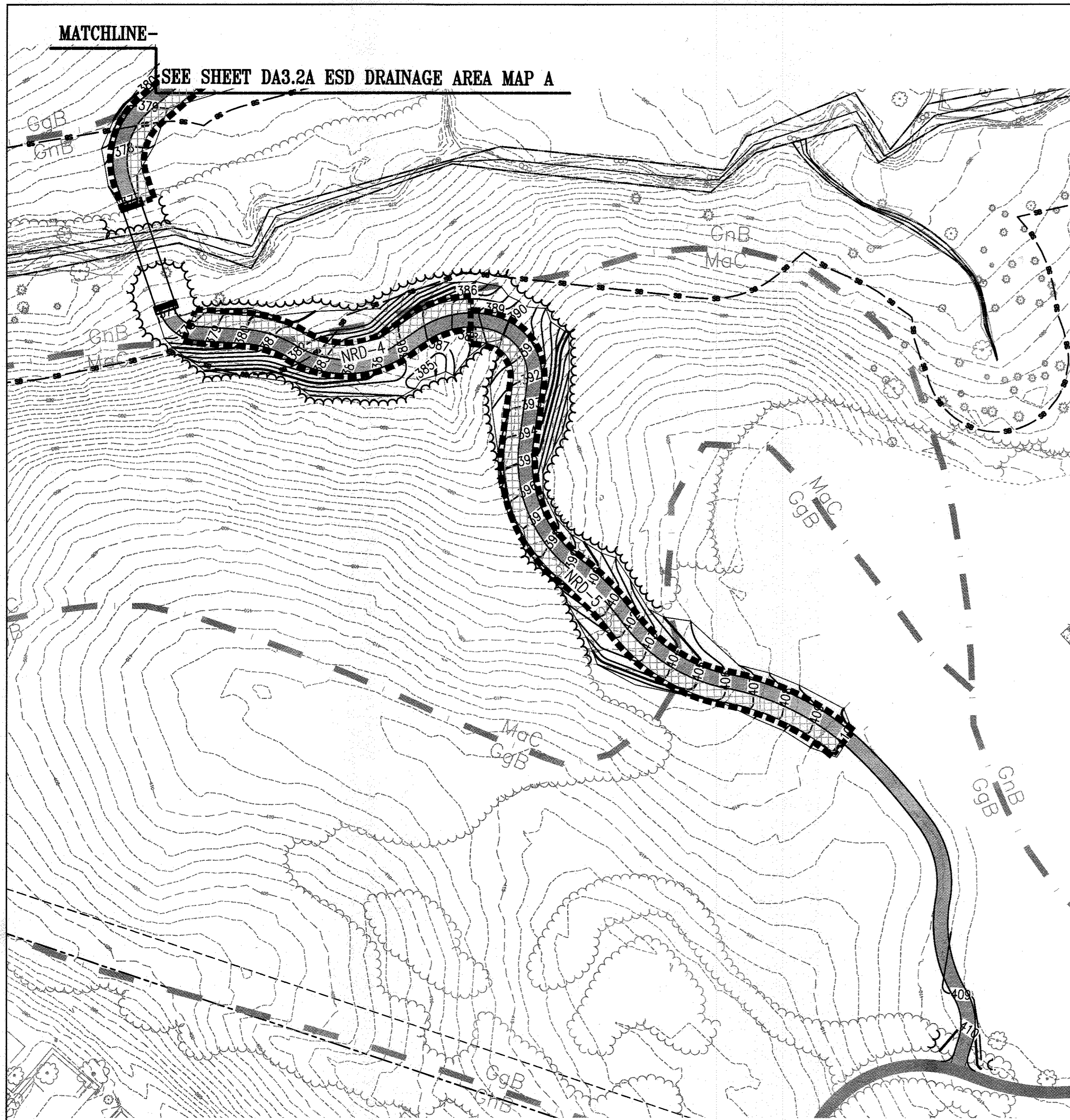
Imp. Area for Pervious Pavement facilities include the facility area

APPROVED: DEPARTMENT OF PLANNING AND ZONING

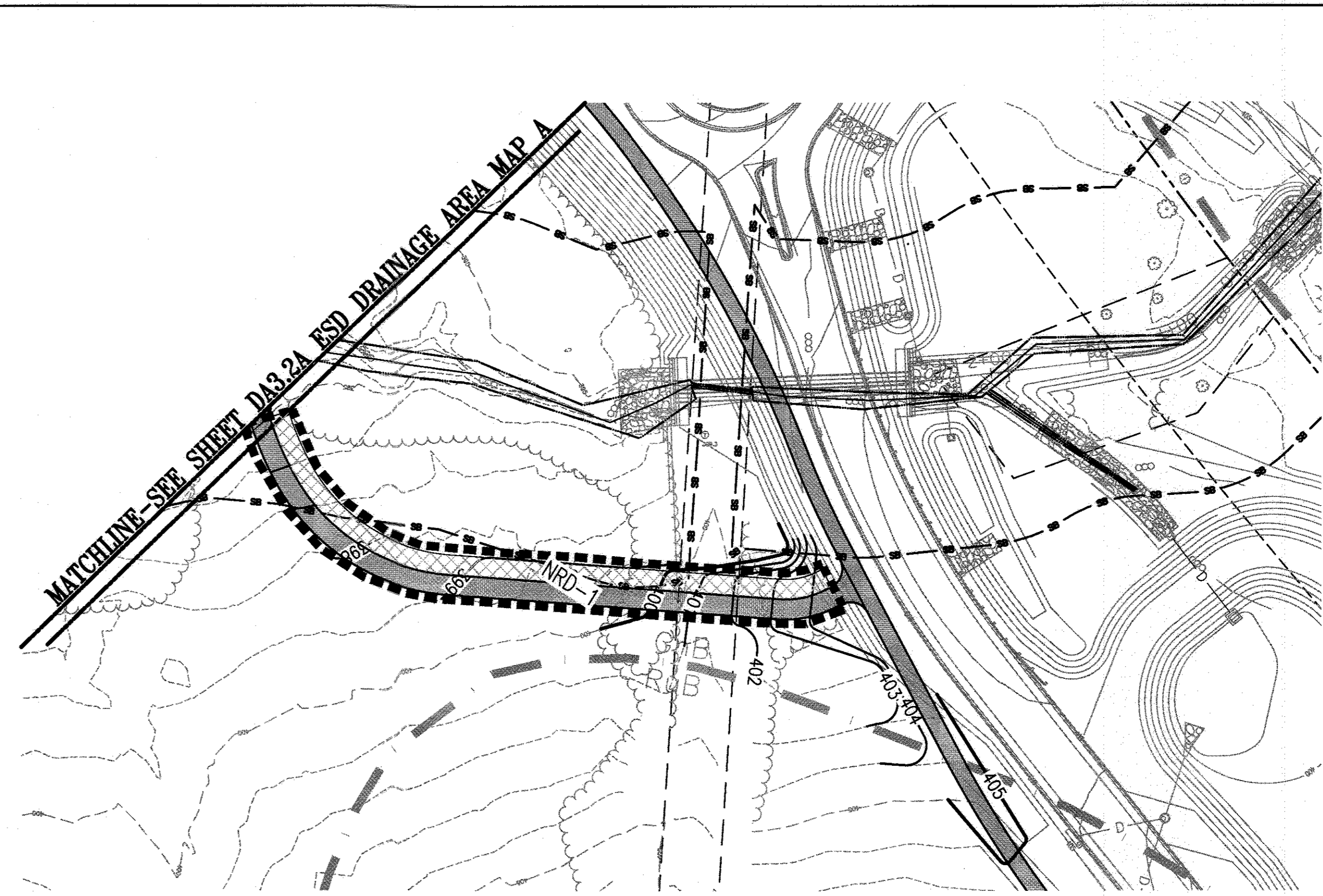
[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-15-17
 DIRECTOR



ESD DRAINAGE AREA MAP B-1
1" = 50'



ESD DRAINAGE AREA MAP B-2
1" = 50'

LEGEND

- ESD DRAINAGE AREA
- PERVIOUS PAVEMENT
- MICRO-BIORETENTION/BIOSWALE
- ARTIFICIAL TURF
- SOIL DIVIDE

Soil Symbol	HSG	Soil Description
GnB	C	Glennville-Baile silt loams, 0-8% slopes
GgB	B	Glennelg loam, 3-8% slopes
GhB	B	Glennelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthernts, Highway, 0-65% slopes

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-19-17
 DIRECTOR DATE

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

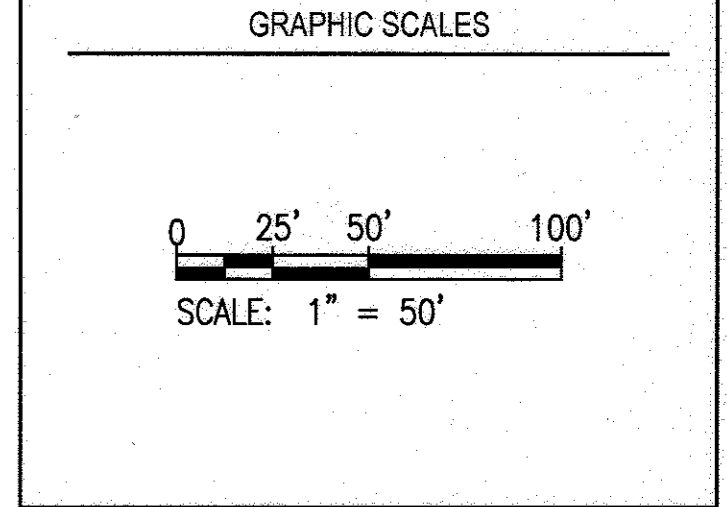


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



SIGNATURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 19378
 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

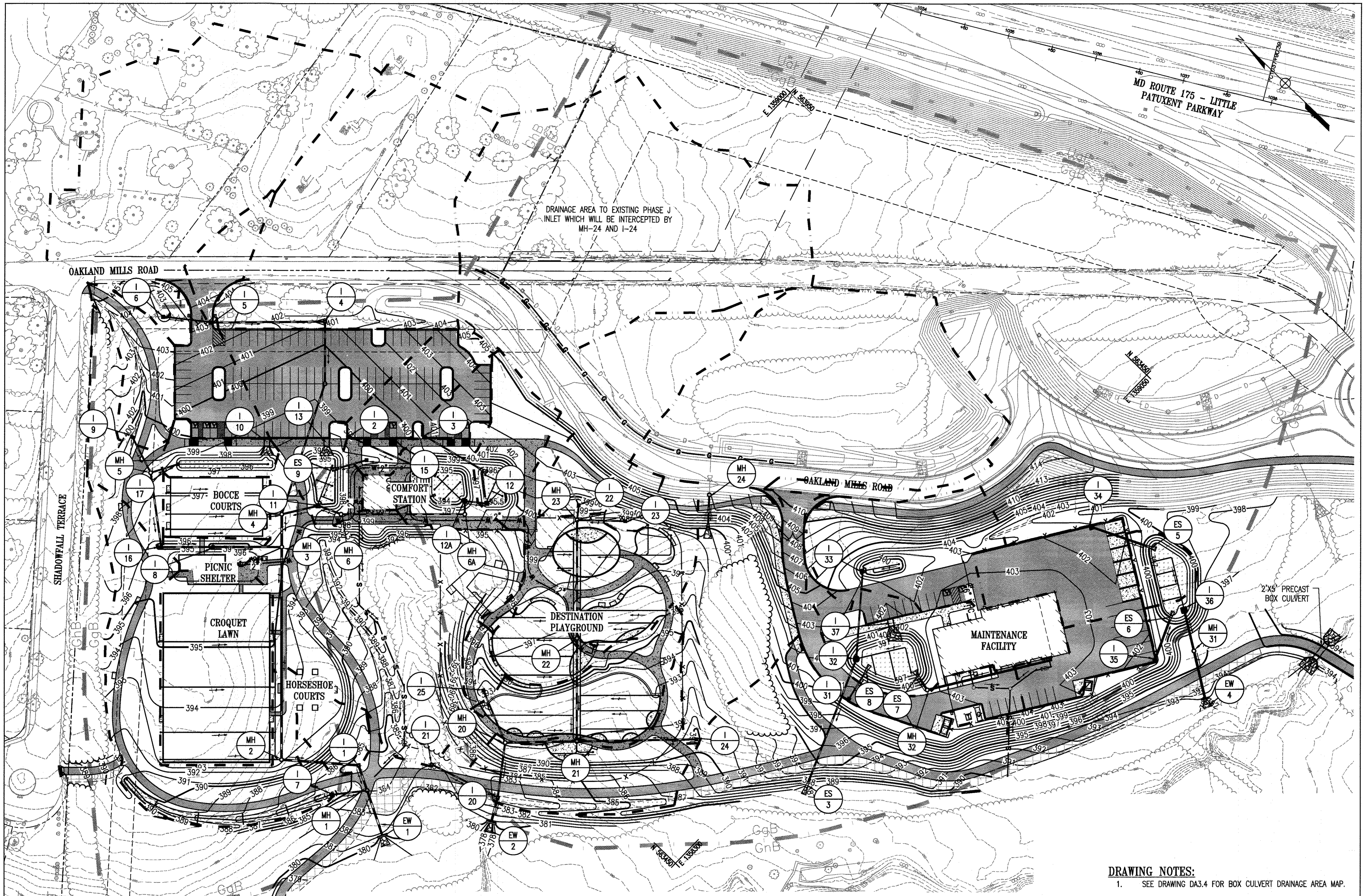
ESD DRAINAGE AREA MAP

Drawing No.
DA3.2B

Scale: 1" = 50'

Date: 1/17/2017 Sheet 61 of 76

Des: BWJ Drawn: AKC Check: AUO



INLET DRAINAGE AREA MAP
1" = 50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE: 3-2-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE: 3-15-17
 DIRECTOR

Soil Symbol	HSG	Soil Description
GnB	C	Glenville-Baile silt loams, 0-8% slopes
GgB	B	Glenelg loam, 3-8% slopes
GhB	B	Glenelg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UoF	D	Udorthents, Highway, 0-65% slopes

LEGEND

[Dashed line symbol]	INLET DRAINAGE AREA
[Circular pattern symbol]	PERVIOUS PAVEMENT
[Square pattern symbol]	MICRO-BIORETENTION/BIOSWALE
[Downward arrow symbol]	ARTIFICIAL TURF
[Thick line symbol]	SOIL DIVIDE

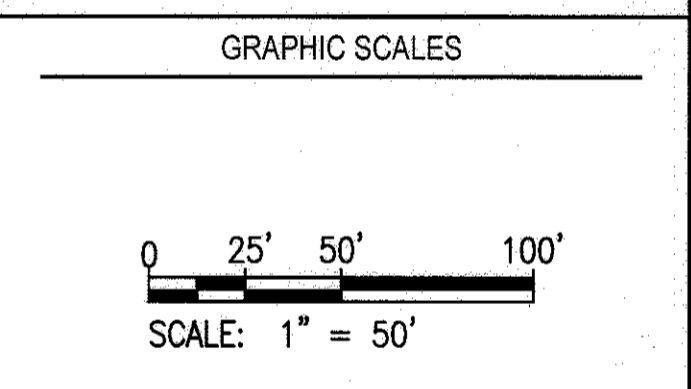
DRAWING NOTES:
 1. SEE DRAWING DA3.4 FOR BOX CULVERT DRAINAGE AREA MAP.

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043



PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

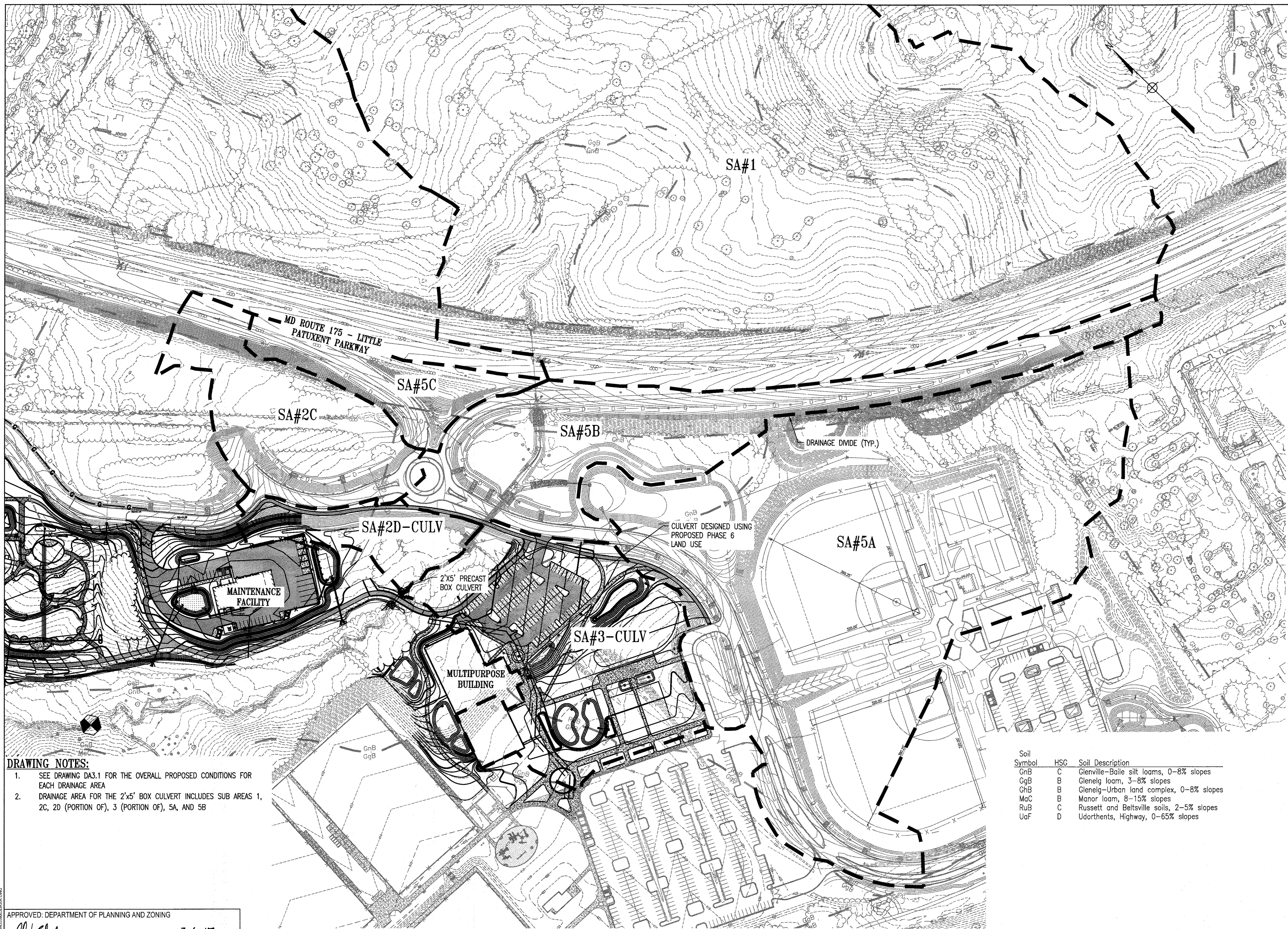


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BLANDAIR REGIONAL PARK - PHASE 3

INLET DRAINAGE AREA MAP
 Drawing No.
DA3.3
 Scale: 1" = 50'
 Date: 1/17/2017 Sheet 62 of 76
 Des: BWJ Drawn: AKC Check: AUO



- DRAWING NOTES:**
- SEE DRAWING DA3.1 FOR THE OVERALL PROPOSED CONDITIONS FOR EACH DRAINAGE AREA
 - DRAINAGE AREA FOR THE 2'x5' BOX CULVERT INCLUDES SUB AREAS 1, 2C, 2D (PORTION OF), 3 (PORTION OF), 5A, AND 5B

Soil Symbol	HSG	Soil Description
GnB	C	Glennville-Baile silt loams, 0-8% slopes
GgB	B	Glennlg loam, 3-8% slopes
GnB	B	Glennlg-Urban land complex, 0-8% slopes
MaC	B	Manor loam, 8-15% slopes
RuB	C	Russett and Beltsville soils, 2-5% slopes
UaF	D	Udorthents, Highway, 0-65% slopes

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] DATE: 2-6-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] DATE: 3-9-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] DATE: 3-15-17
 DIRECTOR

CULVERT DRAINAGE AREA MAP
 1" = 100'

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

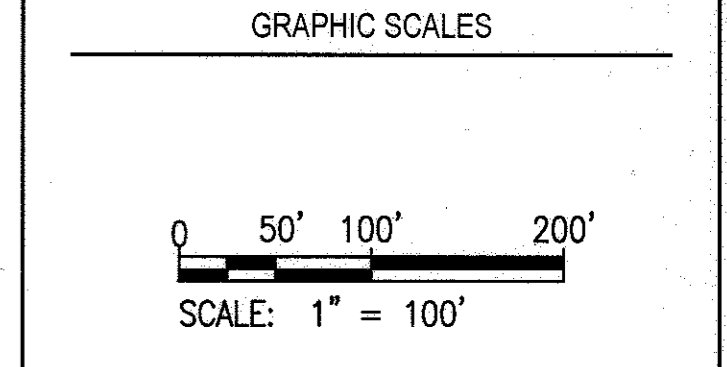


PROPERTY

TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7



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 EXPIRATION DATE: 08/22/2017

BLANDAIR REGIONAL PARK - PHASE 3

CULVERT DRAINAGE AREA MAP

Drawing No.
DA3.4

Scale: 1" = 100'

Date: 1/17/2017 Sheet 63 of 76

Des: SAD Drawn: SAD Check: AUO

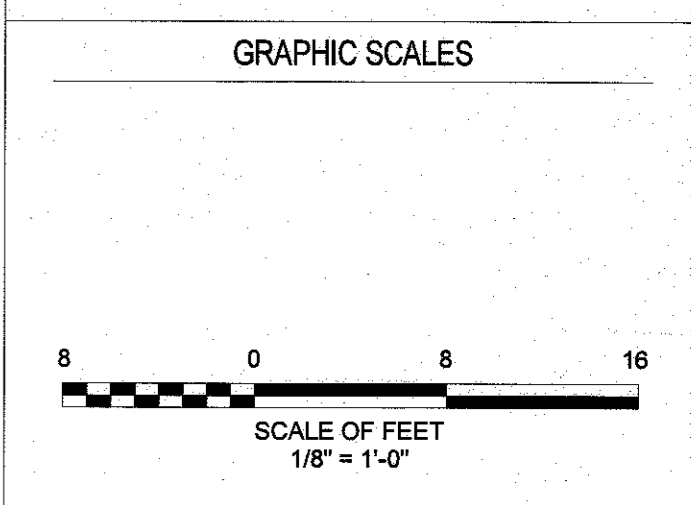
REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043

WRA
Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



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LICENSE NO. 10892
EXPIRATION DATE: 10/18/2018

BLANDAIR REGIONAL PARK - PHASE 3

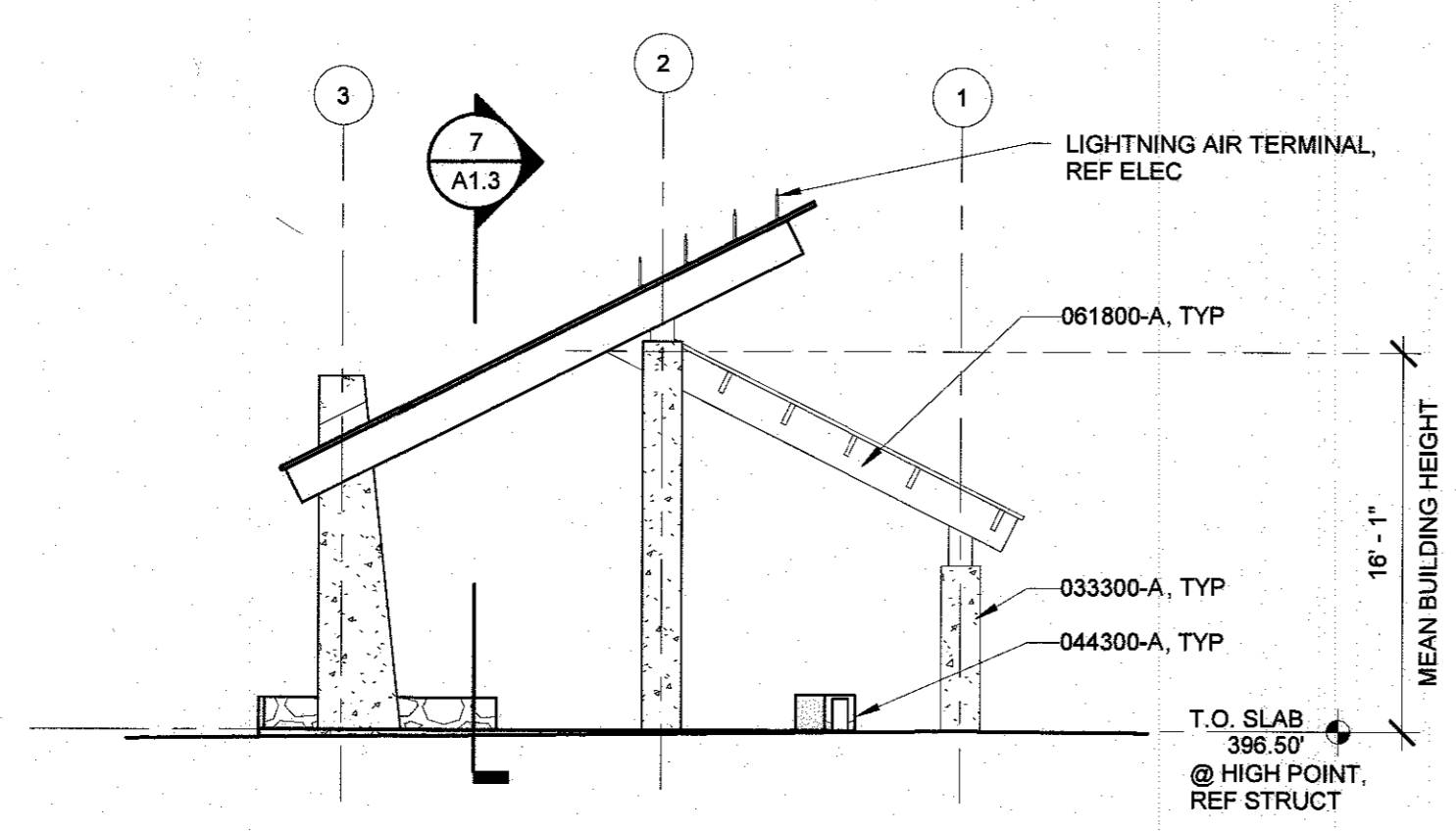
PICNIC SHELTER BUILDING ELEVATIONS

Drawing No.
A1.3A

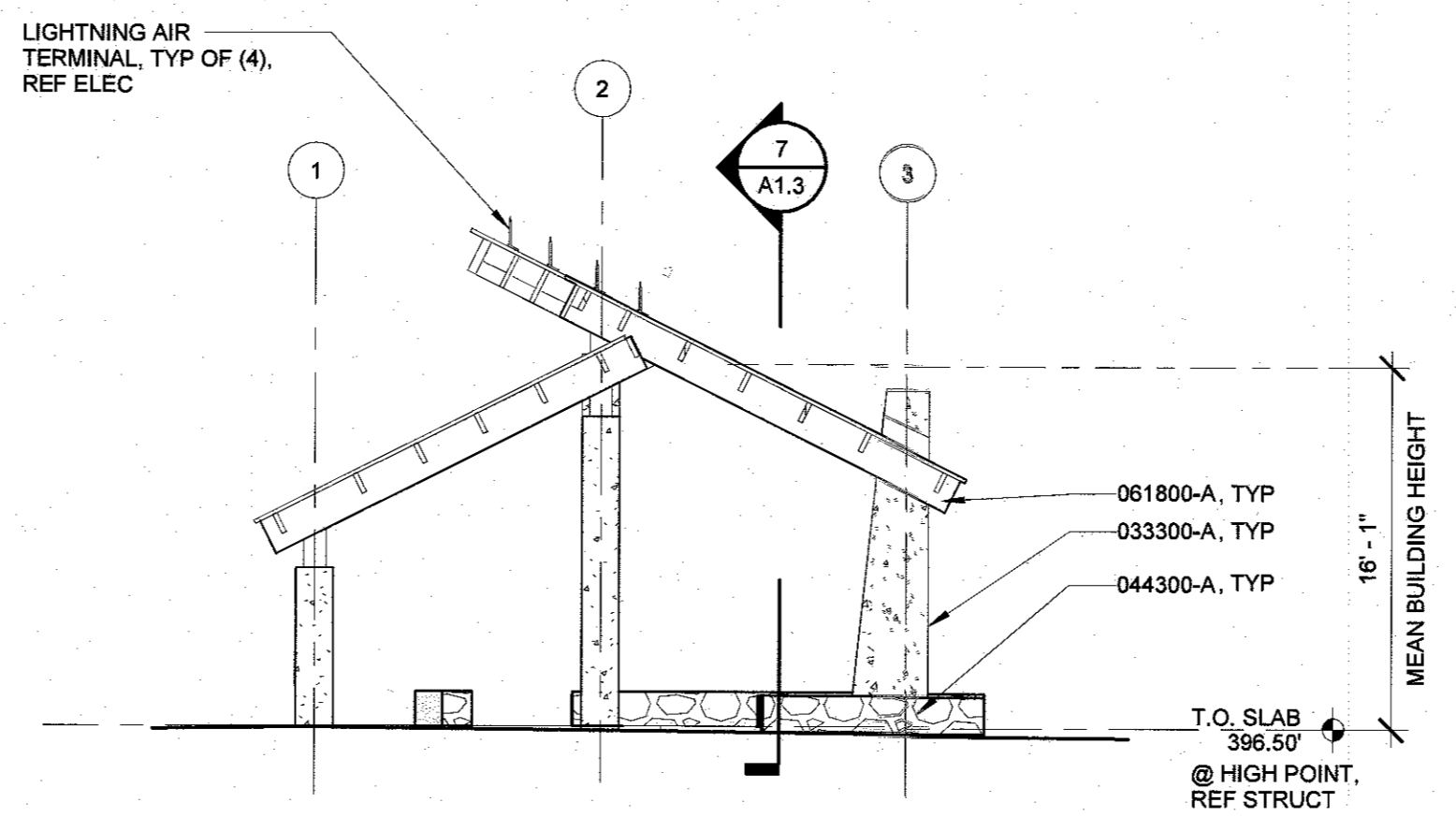
Scale: 1/8" = 1'-0"
Date: 1/17/2017 Sheet 64 of 76
Des: AER Drawn: KMW Check: LAA

KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET A0.1 FOR COMPLETE LIST.

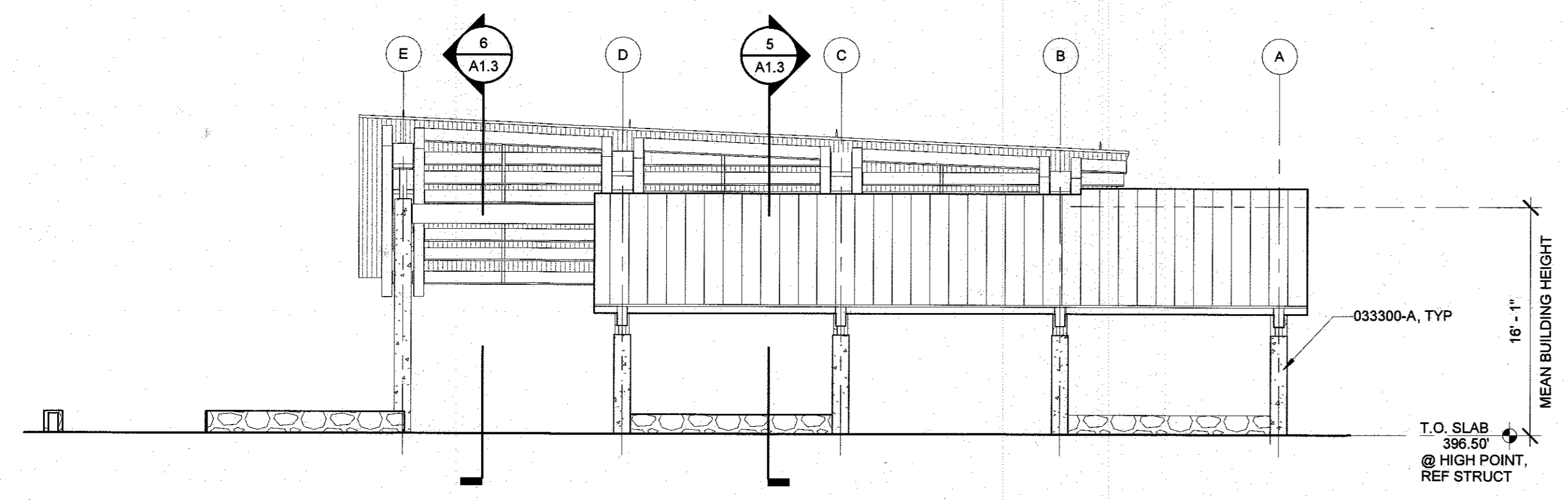
033300-A CONCRETE COLUMN; ARCHITECTURAL CONCRETE, REFER TO STRUCTURAL
044300-A STONE VENEER
061600-D EXTERIOR PLYWOOD ROOF SHEATHING, THICKNESS AS INDICATED
061800-A GLUE LAMINATED BEAM (REFER TO STRUCTURAL DOCUMENTS FOR FULL DESCRIPTION)



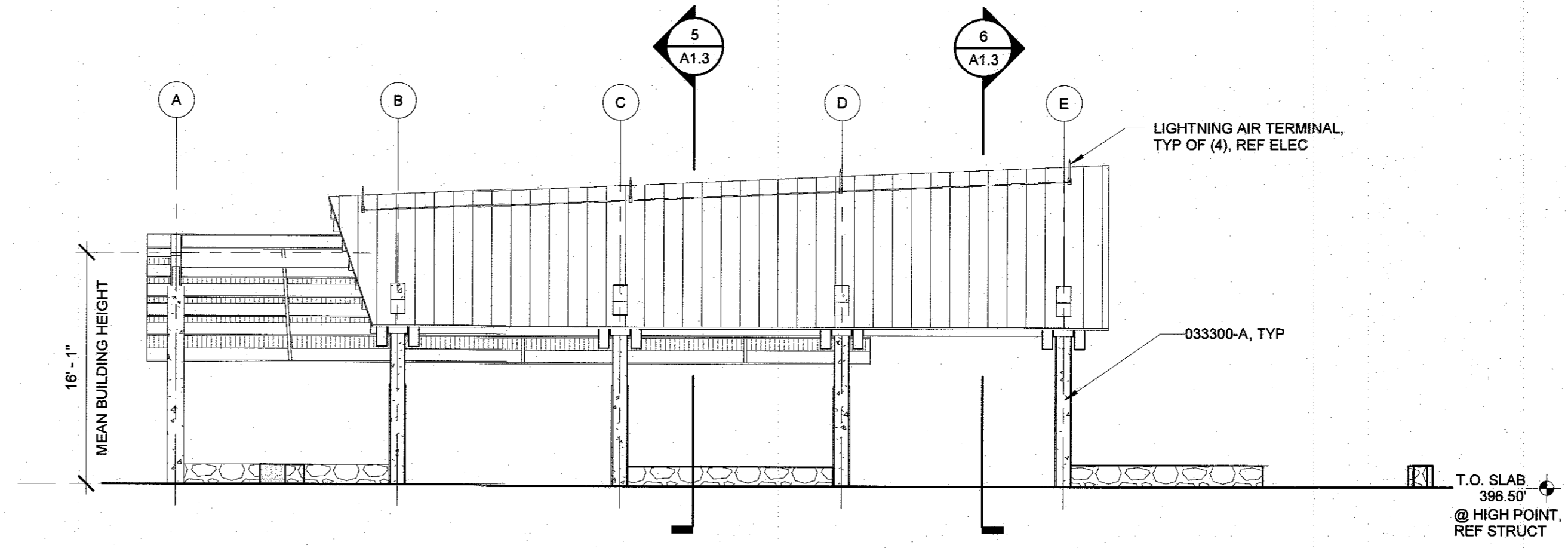
1 SDP - PICNIC SHELTER - EAST ELEVATION
A1.3A 1/8" = 1'-0"



2 SDP - PICNIC SHELTER - WEST ELEVATION
A1.3A 1/8" = 1'-0"



3 SDP - PICNIC SHELTER - NORTH ELEVATION
A1.3A 1/8" = 1'-0"



4 SDP - PICNIC SHELTER - SOUTH ELEVATION
A1.3A 1/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

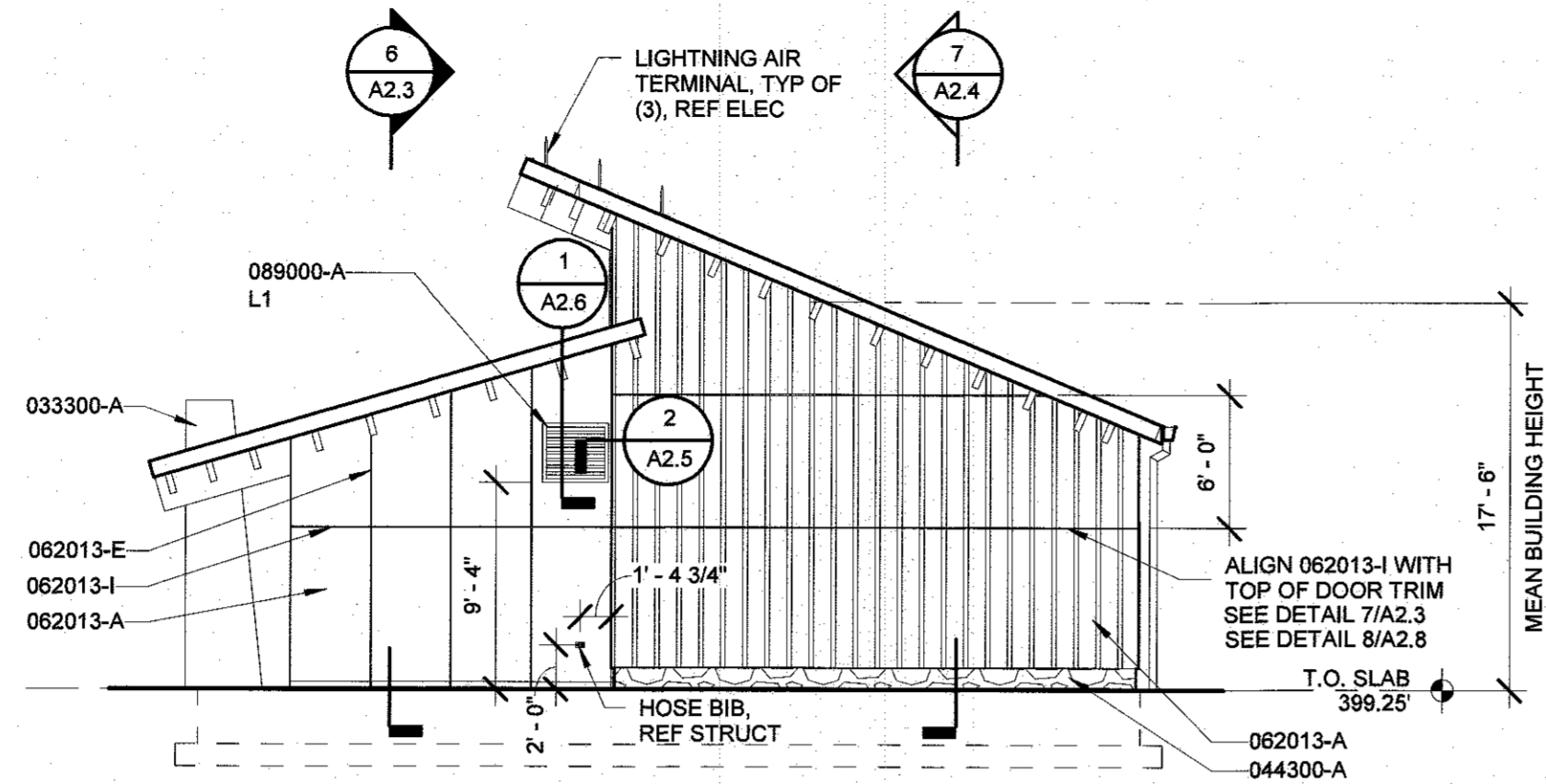
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 2.6.17

CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 3.01.17

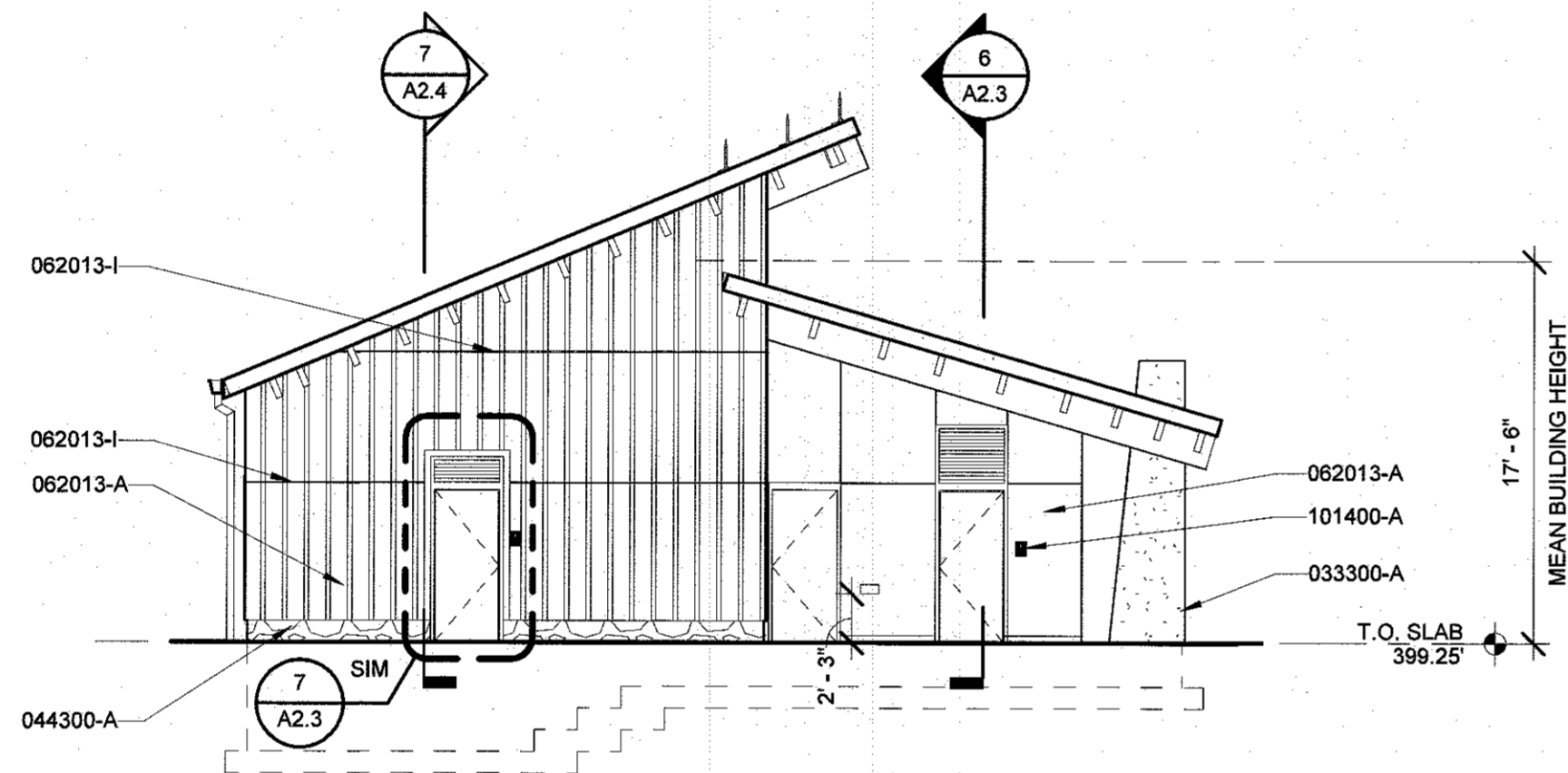
DIRECTOR DATE: 3-19-17



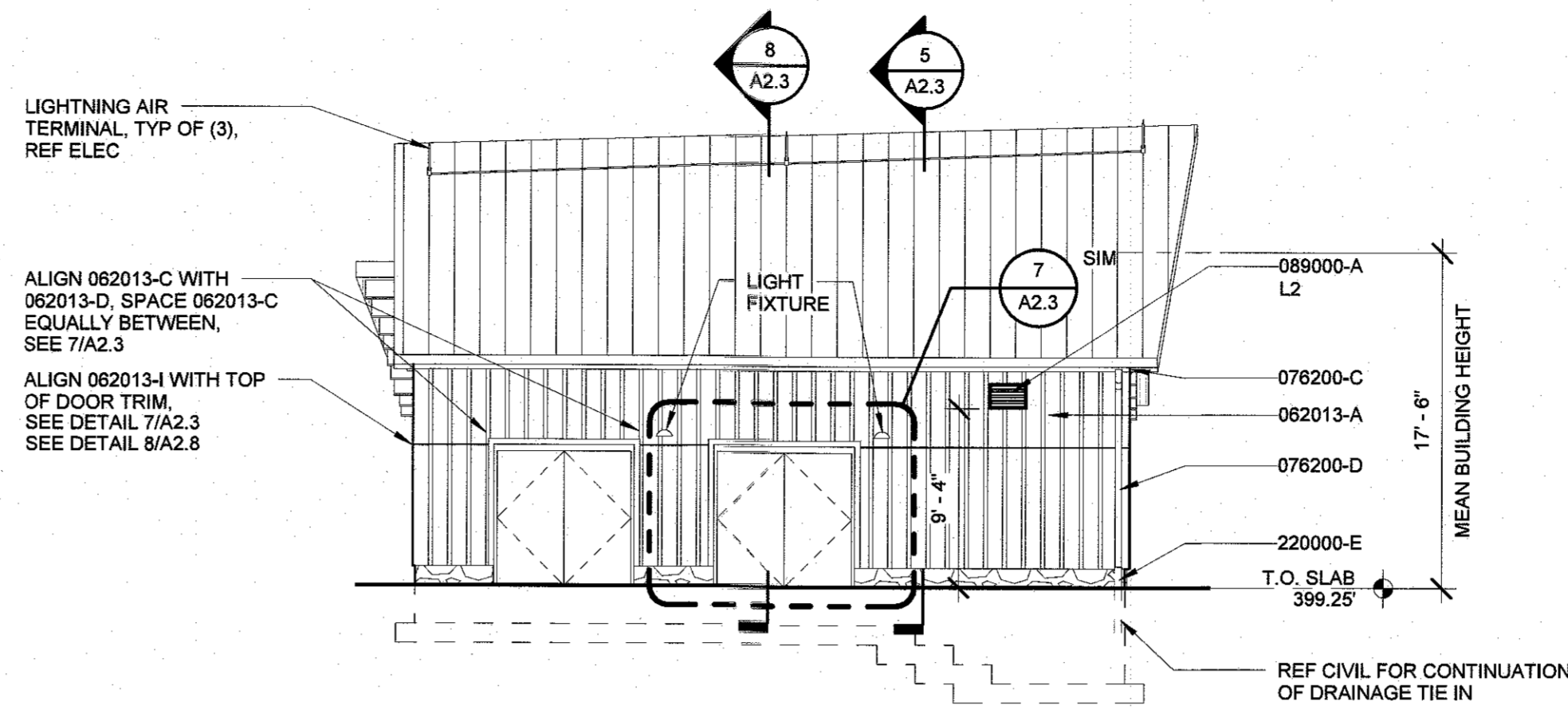
C:\Users\kmm\Documents\Revit_Files\1335-PS-Parish_2014-01_1mm.rvt 4/25/2016 1:09:38 PM



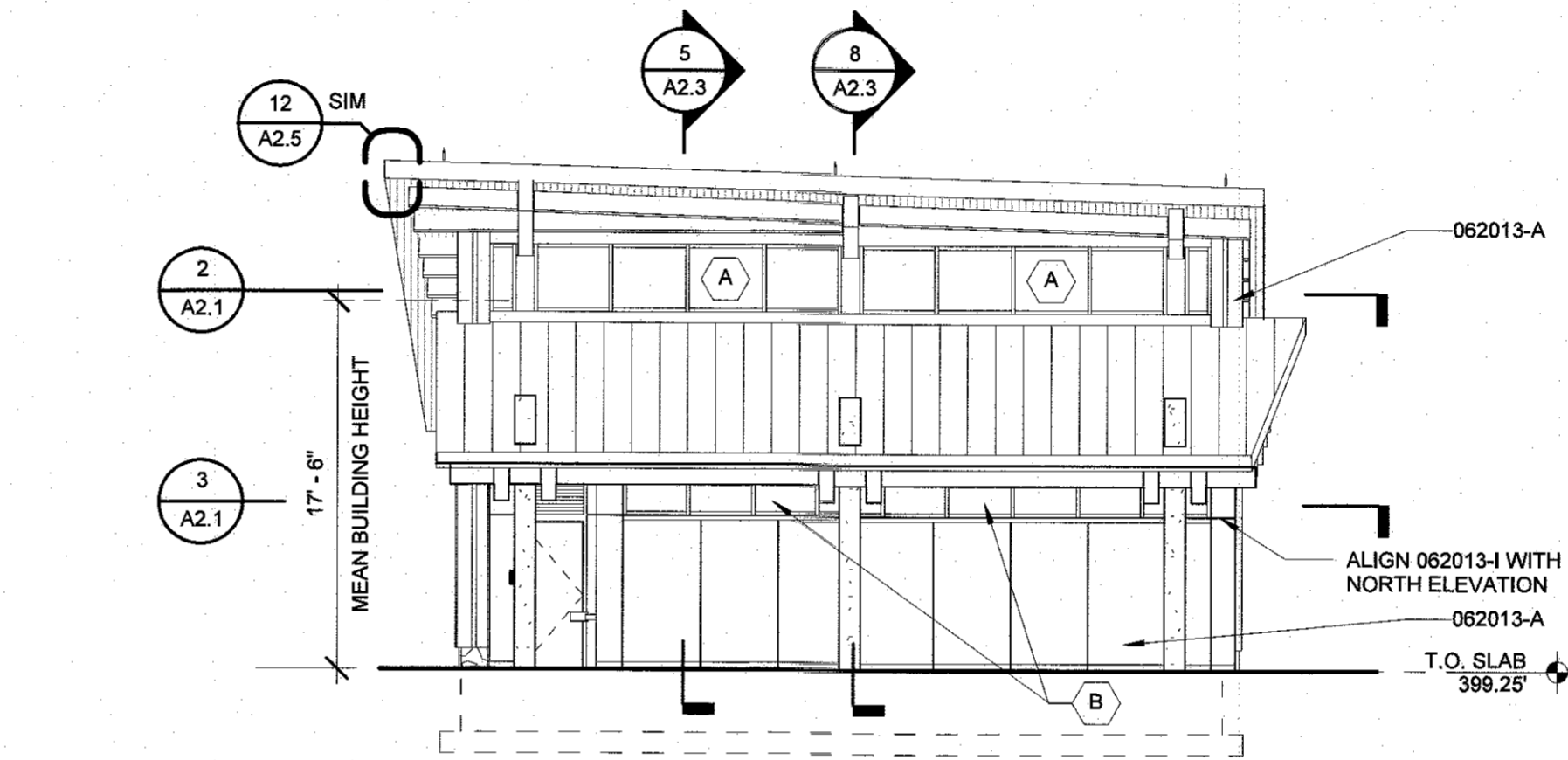
1 SDP - COMFORT STATION - WEST ELEVATION
A2.3A 1/8" = 1'-0"



3 SDP - COMFORT STATION - EAST ELEVATION
A2.3A 1/8" = 1'-0"



2 SDP - COMFORT STATION - SOUTH ELEVATION
A2.3A 1/8" = 1'-0"



4 SDP - COMFORT STATION - NORTH ELEVATION
A2.3A 1/8" = 1'-0"

KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET A0.1 FOR COMPLETE LIST.

- 033300-A CONCRETE COLUMN; ARCHITECTURAL CONCRETE. REFER TO STRUCTURAL
- 044300-A STONE VENEER
- 062013-A CEMENT BOARD SIDING (5/16")
- 062013-E EXTRUDED ALUMINUM VERTICAL REVEAL
- 062013-I EXTRUDED ALUMINUM 'Z' FLASHING
- 076200-C GUTTER
- 076200-D PTD MTL DOWNSPOUT (5" DIA)
- 089000-A FIXED METAL WALL LOUVER
- 101400-A ALUMINUM PANEL SIGN
- 220000-E CAST IRON DOWNSPOUT BOOT. REFER TO PLUMBING DOCUMENTS

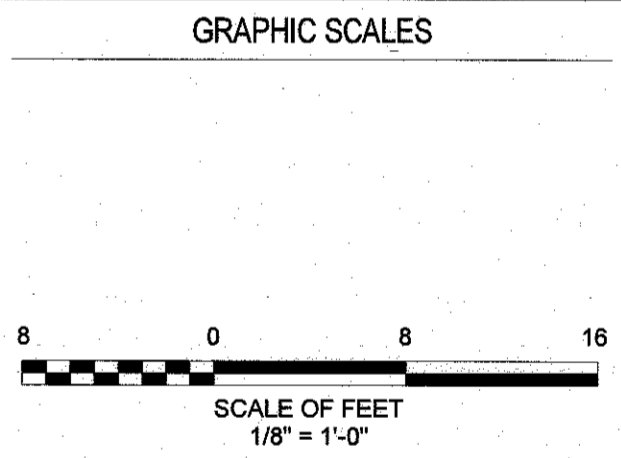
REVISIONS	

HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Whitman, Reardon & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

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TAX MAP 36, GRID 5, PARCEL 3,72
ZONING: RC-DEO
ELECTION DISTRICT 3/7



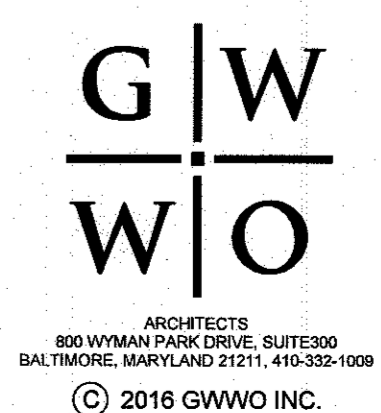
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LICENSE NO. 10892
EXPIRATION DATE: 10/18/2018

BLANDAIR REGIONAL PARK - PHASE 3

COMFORT STATION BUILDING ELEVATIONS
Drawing No.
A2.3A
Scale: 1/8" = 1'-0"
Date: 1/17/2017 Sheet 65 of 76
Des: AER Drawn: KMW Check: LAA



ARCHITECTS
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1000
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APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *Chad Edmund* 2.6.17
 Chief, Division of Land Development: *Walter Leach* 3.01.17
 Director: *Naldia Jofre* 3.19.17

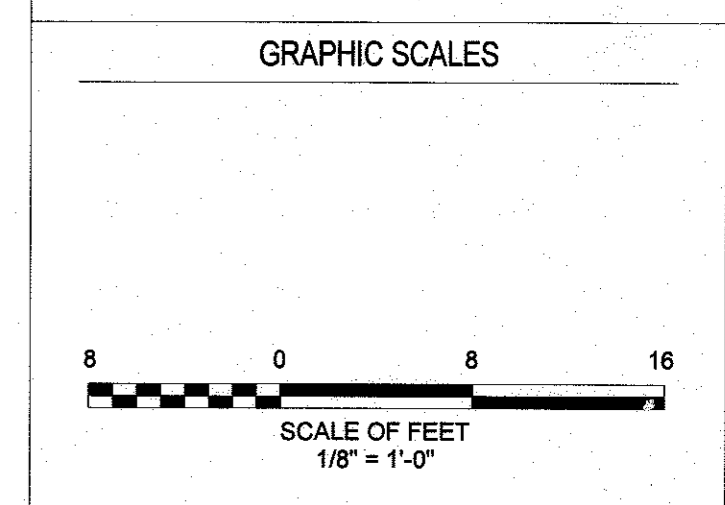
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 COLUMBIA, MD 21046

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 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5716

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 LICENSE NO. 10892
 EXPIRATION DATE: 10/18/2018

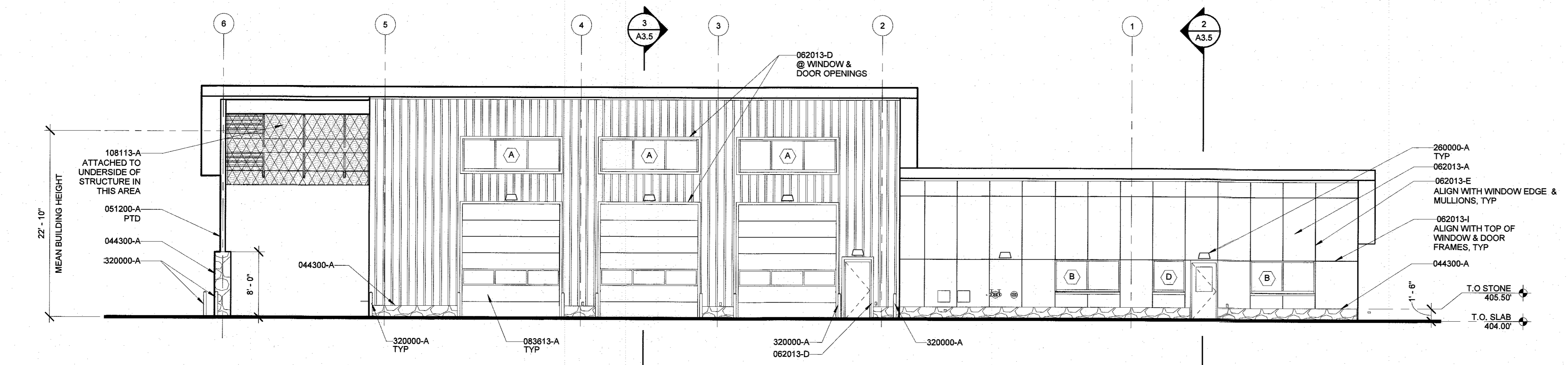
BLANDAIR REGIONAL PARK - PHASE 3

MAINTENANCE FACILITY EXTERIOR ELEVATIONS

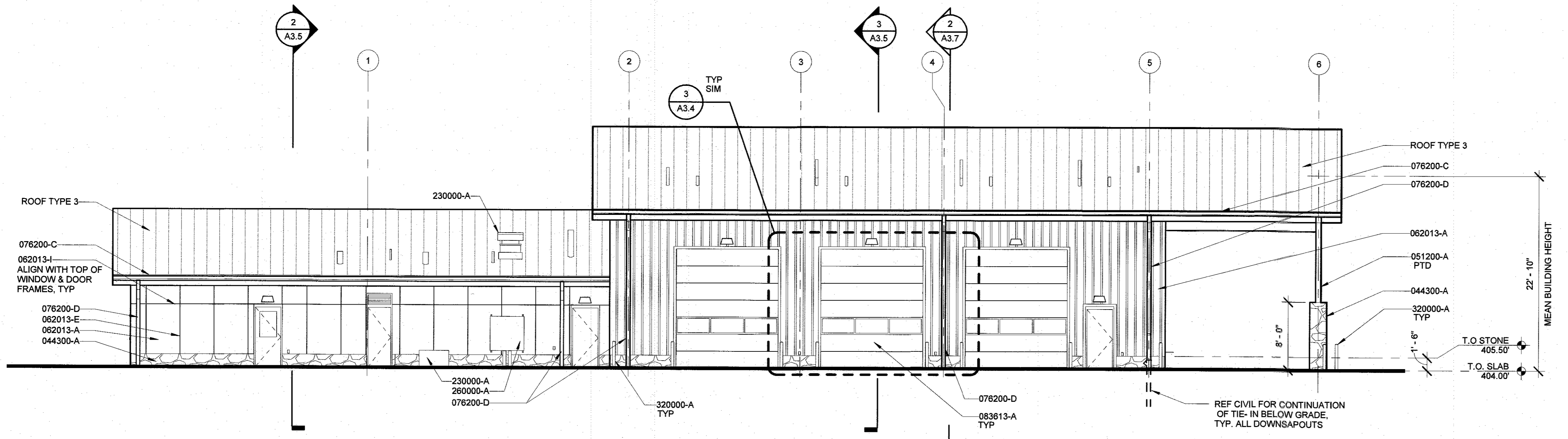
Drawing No.
A3.4A

Scale: 1/8" = 1'-0"
 Date: 1/17/2017 Sheet 66 of 76
 Des: AER Drawn: KMW Check: LAA

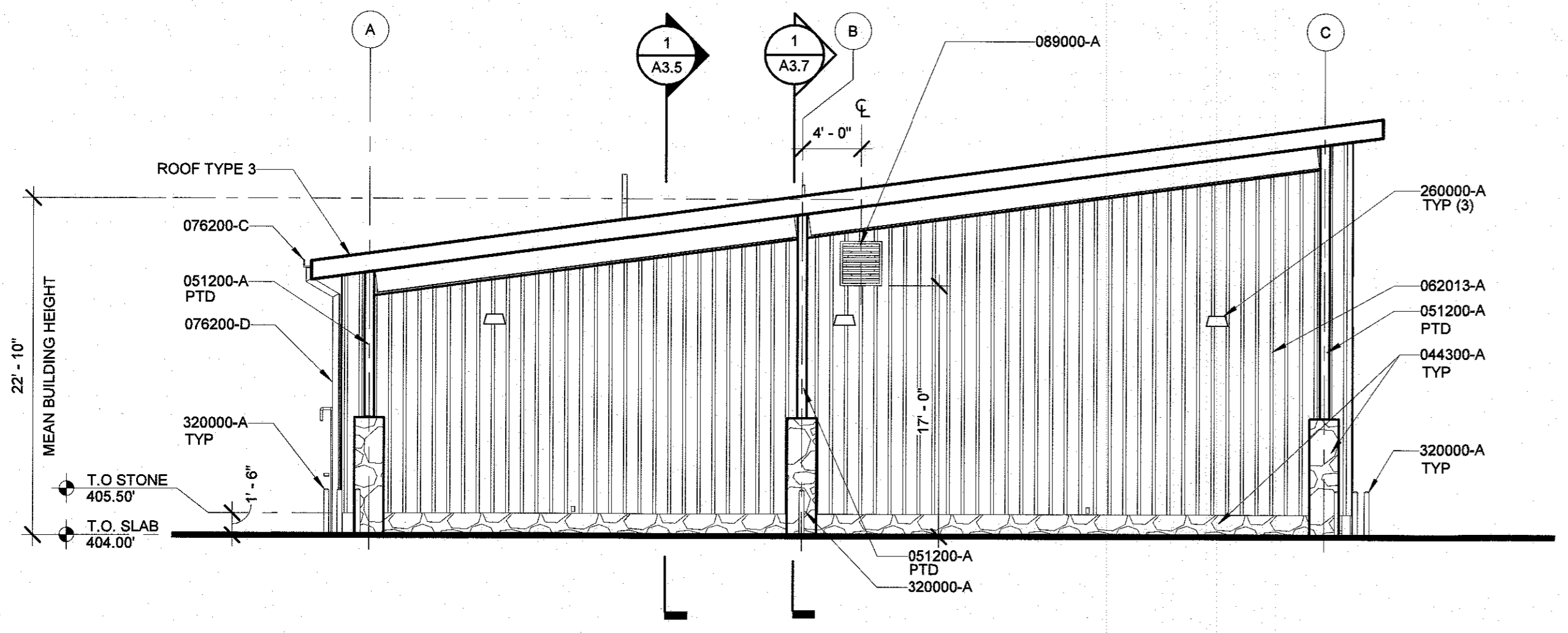
- KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET A0.1 FOR COMPLETE LIST.
- 044300-A STONE VENEER
 - 051200-A STRUCTURAL STEEL (REFER TO STRUCTURAL FOR MORE INFORMATION)
 - 062013-A CEMENT BOARD SIDING (5/16")
 - 062013-D 3/4" THICK CEMENT BOARD TRIM, SIZE AS INDICATED
 - 062013-E EXTRUDED ALUMINUM VERTICAL REVEAL
 - 062013-I EXTRUDED ALUMINUM 'Z' FLASHING GUTTER
 - 076200-C PTD MTL DOWNSPOUT (5" DIA)
 - 076200-D OVERHEAD SECTIONAL DOOR
 - 089000-A FIXED METAL WALL LOUVER
 - 108113-A BIRD NETTING
 - 230000-A MECHANICAL (REFER TO MECHANICAL FOR MORE INFORMATION)
 - 260000-A ELECTRICAL (REFER TO ELECTRICAL FOR MORE INFORMATION)
 - 320000-A 4 INCH DIA PIPE BOLLARD (REFER TO CIVIL FOR MORE INFORMATION)



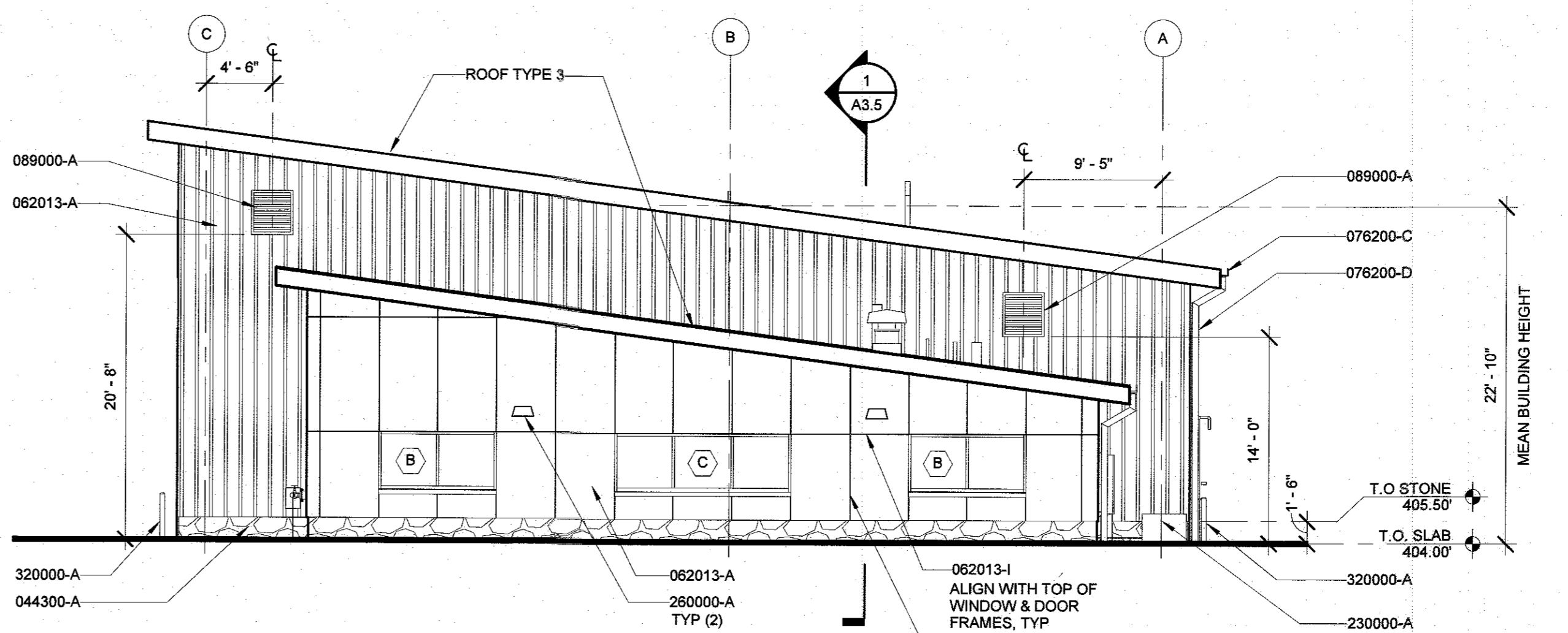
1 MAINTENANCE FACILITY - NORTH ELEVATION
 A3.4A 1/8" = 1'-0"



2 MAINTENANCE FACILITY - SOUTH ELEVATION
 A3.4A 1/8" = 1'-0"



3 MAINTENANCE FACILITY - EAST ELEVATION
 A3.4A 1/8" = 1'-0"



4 MAINTENANCE FACILITY - WEST ELEVATION
 A3.4A 1/8" = 1'-0"

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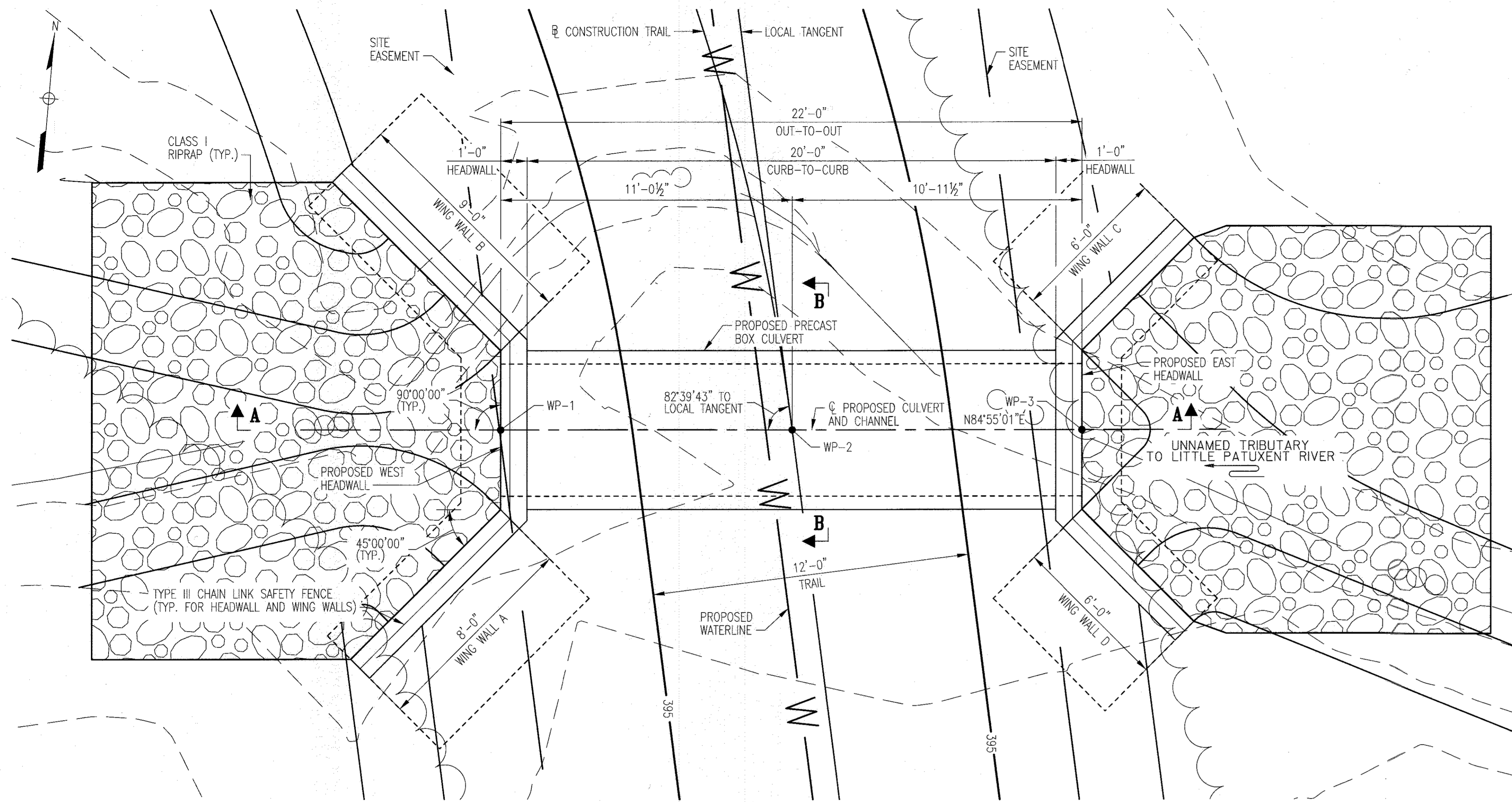
Chad Chubb 2.6.17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kurt Schenck 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter J. J. J. 3-19-17
 DIRECTOR DATE



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PLAN
SCALE: 3/8" = 1'-0"

GENERAL NOTES

SPECIFICATIONS: SHA SPECIFICATIONS DATED JULY, 2008.
 REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION, 2010.

CONCRETE: ALL CONCRETE FOR HEADWALLS SHALL BE MIX NO. 6 (4,500 PSI). ALL OTHER STRUCTURE CONCRETE SHALL BE MIX NO. 3 (3,500 PSI).

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

KEYS: ONLY GRADE 60 CAN BE USED ON THIS PROJECT.
 ALL KEYS ARE NOMINAL SIZE.

PRECAST CULVERT: CULVERT SHALL BE DESIGNED IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD.
 CULVERT SHALL BE DESIGN FOR A H10 LOAD.

WORK REQUIRED: CONSTRUCT CULVERT, HEADWALL AND WINGWALLS.

REFERENCES

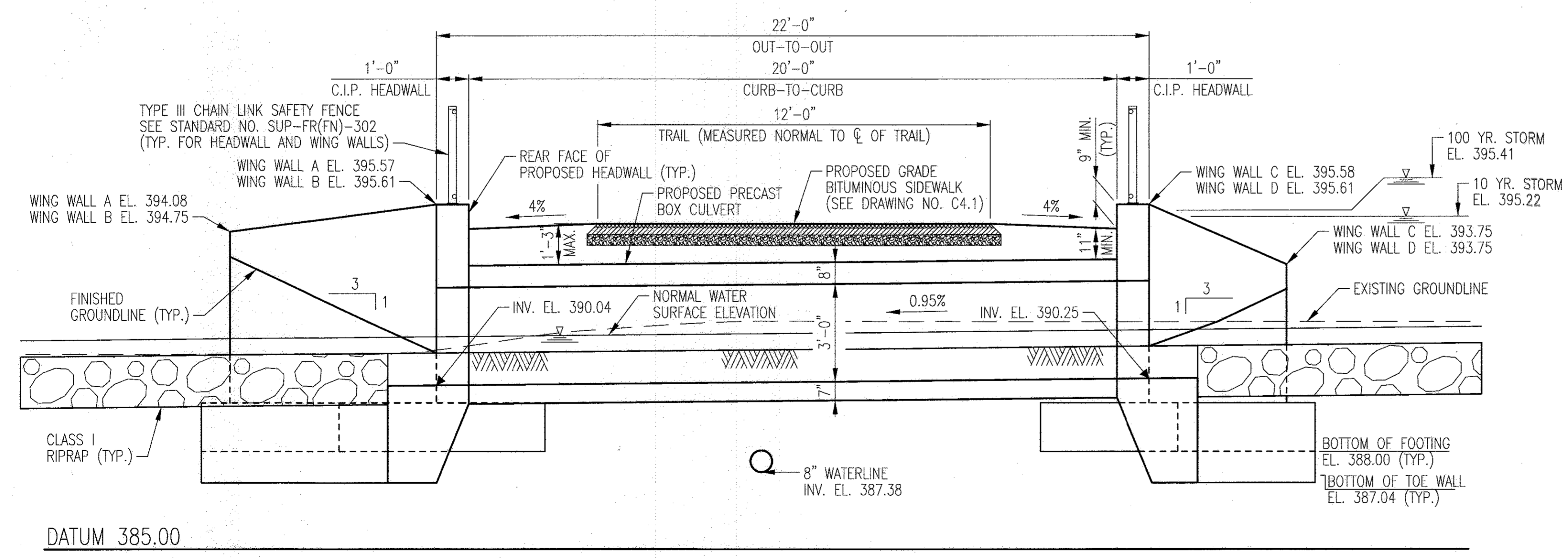
GEOMETRIC AND FOOTING LAYOUT
 HEADWALL AND WING WALL PLAN
 WING WALL ELEVATIONS AND TYPICAL SECTION
 MISCELLANEOUS DETAILS
 STANDARD DETAILS

DRAWING NO.

S1.02 OF 9
 S1.03 OF 9
 S1.04 OF 9
 S1.05 OF 9
 S1.06 TO S1.09 OF 9

NOTES:

1. FOR BOX CULVERT TYPICAL SECTION B-B, SEE DRAWING NO. S1.04.



SECTION A-A
SCALE: 3/8" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE 2-6-17
 [Signature] DATE 3-01-17

[Signature] DATE 3-19-17
 DIRECTOR

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GRAPHIC SCALES

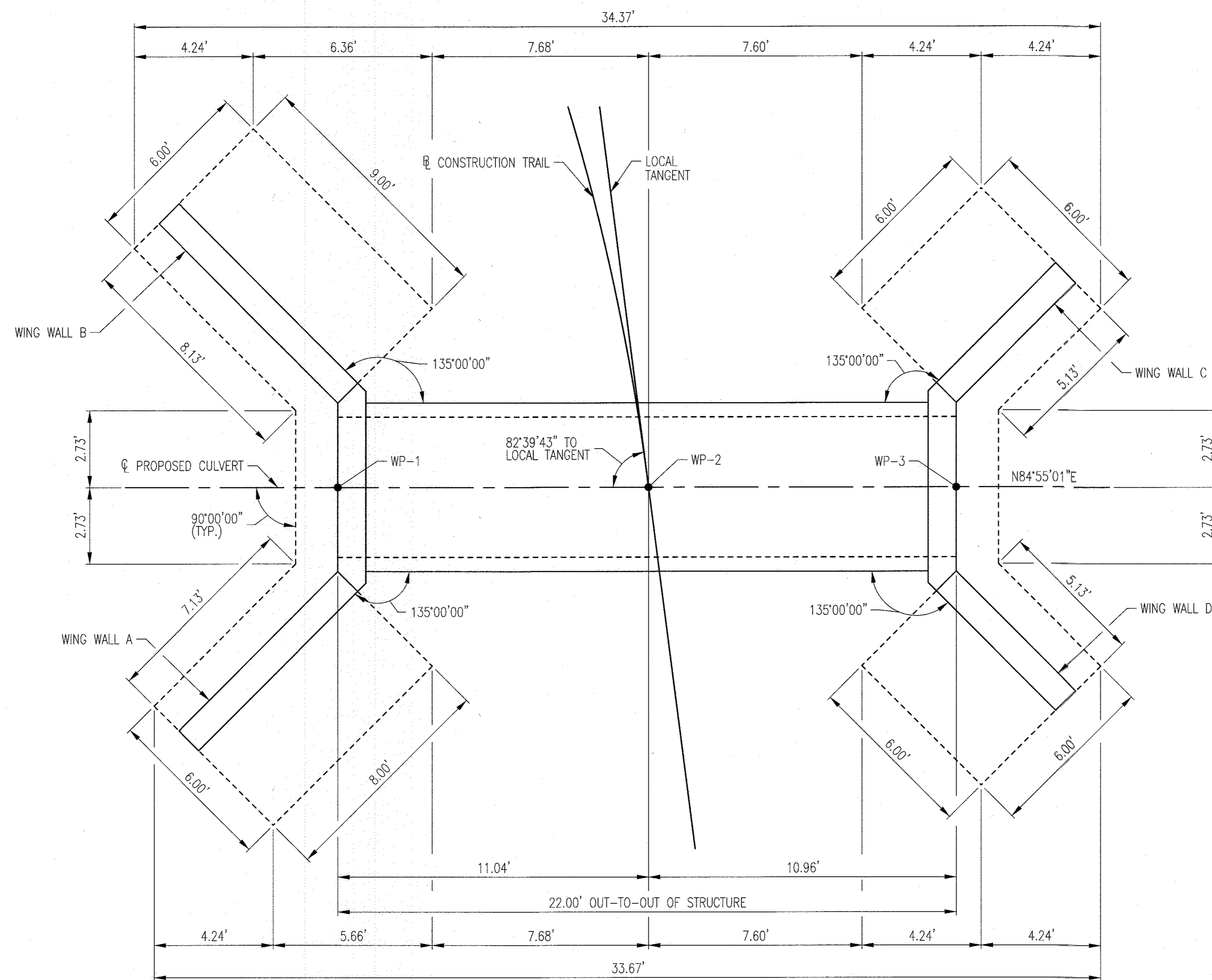
SIGNATURE
 [Signature]
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 NO. 25893
 01/23/2017

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 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. 25893
 EXPIRATION DATE: 09/02/2017

BLANDAIR REGIONAL PARK - PHASE 3

GENERAL PLAN AND LONGITUDINAL SECTION
 Drawing No.
S1.01

Scale: 3/8"=1'-0"
 Date: 1/17/2017 Sheet 67 of 76
 Des: KMS Drawn: KMS Check: CES



GEOMETRIC AND FOOTING LAYOUT PLAN

SCALE: 3/8"=1'-0"

WORKING POINT	COORDINATES	
	NORTH	EAST
WP-1	563096.1737	1358956.1559
WP-2	563099.6283	1358963.9730
WP-3	563100.5986	1358974.8871

REFERENCES

GENERAL PLAN AND LONGITUDINAL SECTION
 HEADWALL AND WING WALL PLAN
 WING WALL ELEVATIONS AND TYPICAL SECTION
 MISCELLANEOUS DETAILS
 STANDARD DETAILS

DRAWING NO.

S1.01 OF 9
 S1.03 OF 9
 S1.04 OF 9
 S1.05 OF 9
 S1.06 TO S1.09 OF 9

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Clark
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 2-6-17

Kurt Schell
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 3-01-17

Valerie J. J...
 DIRECTOR
 DATE: 3-19-17

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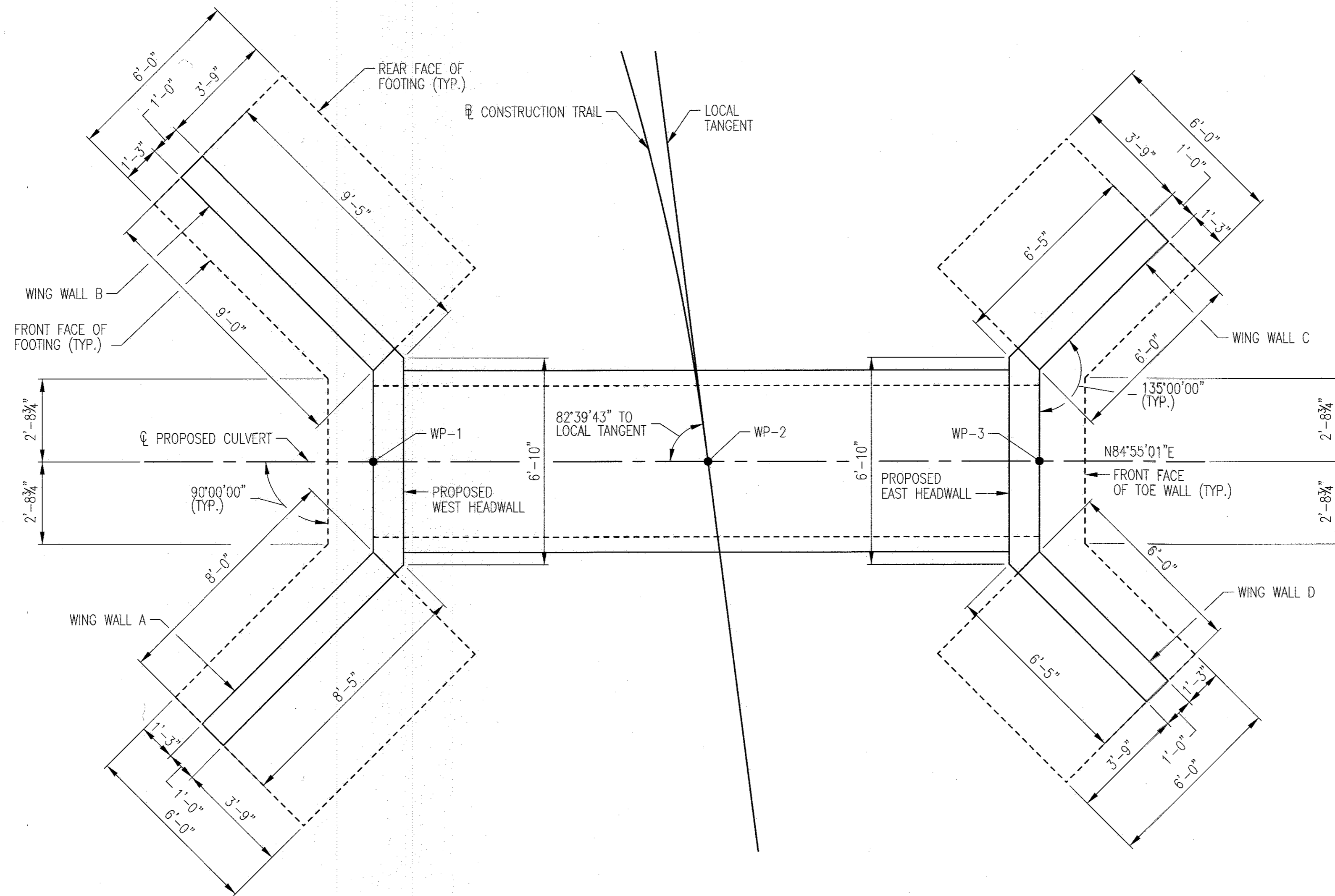
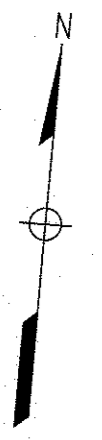
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BLANDAIR REGIONAL PARK - PHASE 3

GEOMETRIC AND FOOTING LAYOUT
 Drawing No. **S1.02**
 Scale: 3/8"=1'-0"
 Date: 1/17/2017 Sheet 68 of 76
 Des: KMS Drawn: KMS Check: CES



HEADWALL AND WING WALL PLAN
SCALE: 3/8"=1'-0"

REFERENCES	DRAWING NO.
GENERAL PLAN AND LONGITUDINAL SECTION	S1.01 OF 9
GEOMETRIC AND FOOTING LAYOUT	S1.02 OF 9
WING WALL ELEVATIONS AND TYPICAL SECTION	S1.04 OF 9
MISCELLANEOUS DETAILS	S1.05 OF 9
STANDARD DETAILS	S1.06 TO S1.09 OF 9

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CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 3-01-17

[Signature]
DIRECTOR
DATE: 2-19-17

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ZONING: RC-DEO
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GRAPHIC SCALES

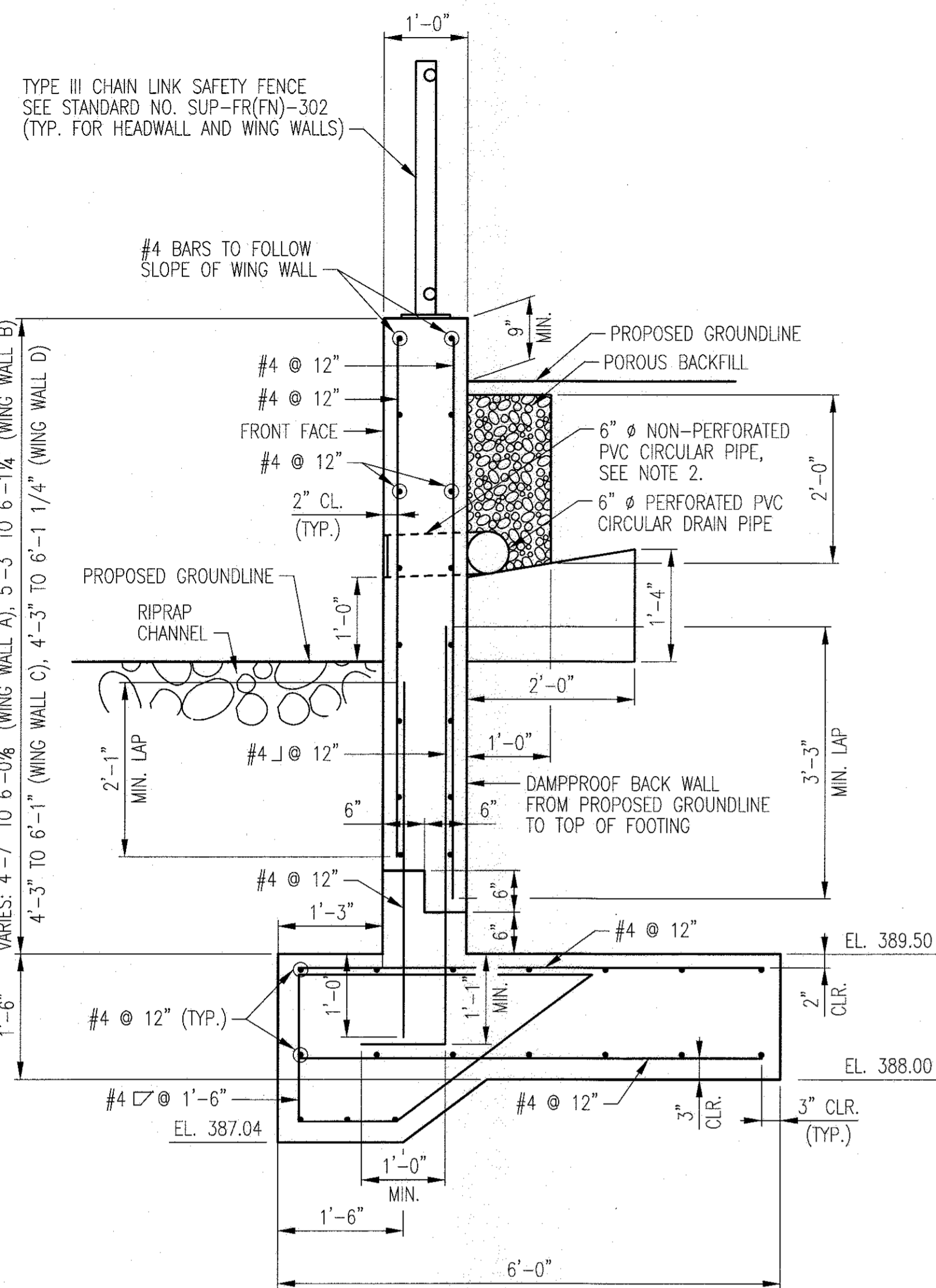
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BLANDAIR REGIONAL PARK - PHASE 3

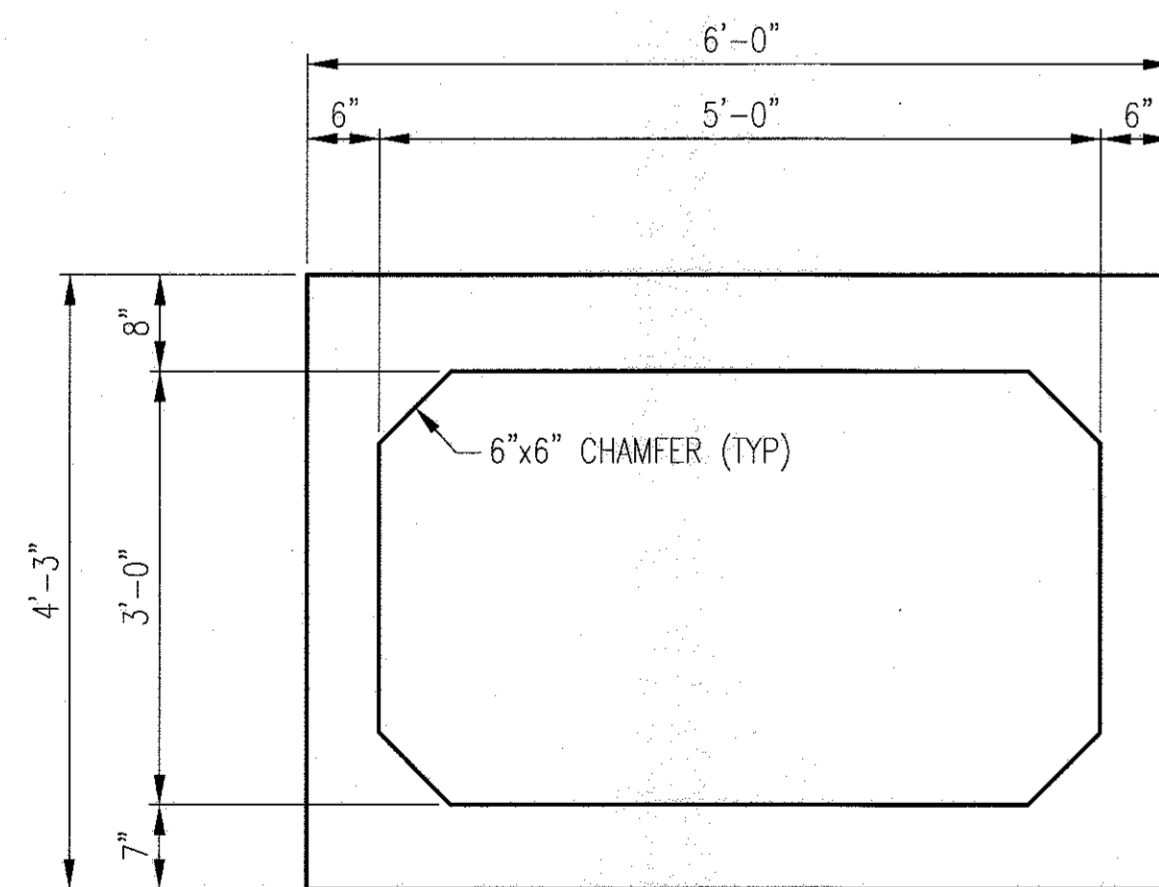
HEADWALL AND WING WALL PLAN
Drawing No.
S1.03

Scale: 3/8"=1'-0"
Date: 1/17/2017 Sheet 69 of 76
Des: KMS Drawn: KMS Check: CES



WING WALL TYPICAL SECTION

SCALE: 3/4" = 1'-0"

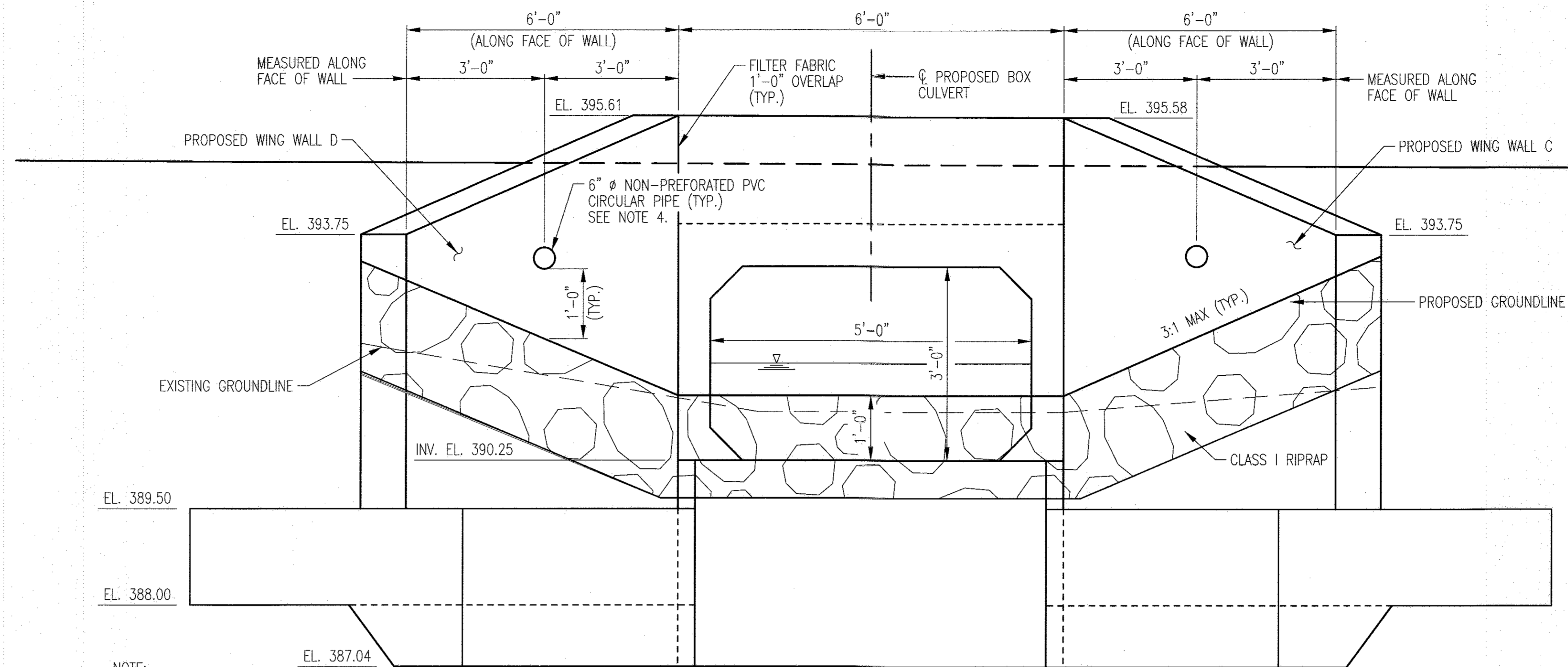


SECTION B-B

SCALE: 3/4" = 1'-0"

NOTE:

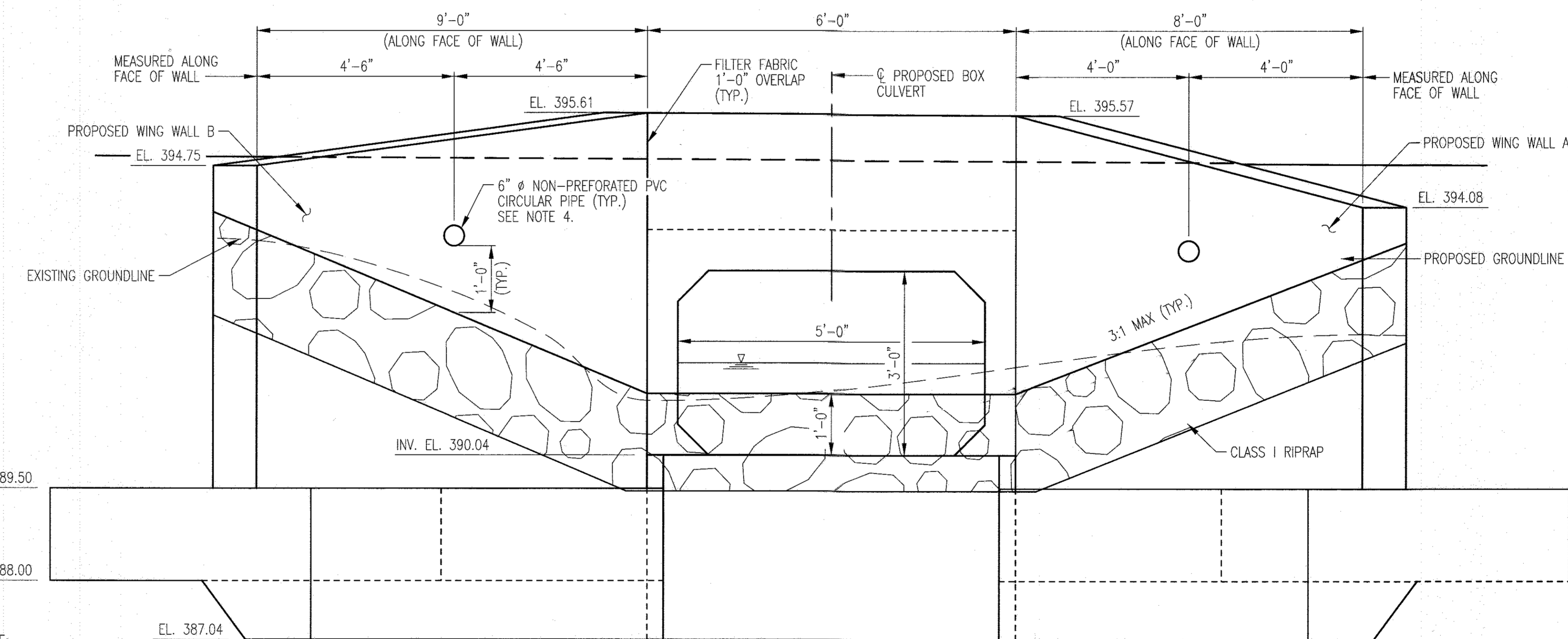
REFER TO ASTM C1577



EAST ELEVATION

SCALE: 3/4" = 1'-0"

NOTE:
CHAIN LINK SAFETY FENCE
NOT SHOWN FOR CLARITY



WEST ELEVATION

SCALE: 3/4" = 1'-0"

NOTE:

CHAIN LINK SAFETY FENCE
NOT SHOWN FOR CLARITY

NOTES:

1. THE CONTRACTOR HAS THE OPTION OF LAPPING STEM REINFORCEMENT AND DOWELS AS SHOWN OR EXTENDING DOWEL REINFORCEMENT WITH NO SPLICING. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR WHICHEVER ALTERNATIVE IS SELECTED.
2. EXACT ELEVATION OF DRAIN TO BE DETERMINED BY ENGINEER IN FIELD. PIPE SHALL HAVE 1" FALL.
3. MAXIMUM BEARING PRESSURE FOR WINGWALLS = 0.90 KSF (STR-I)
4. FOR DRAINAGE SYSTEM DETAILS, SEE STANDARD NO. RW-301, SYSTEM I.
5. FOR LOCATION OF SECTION B-B CUT, SEE DRAWING NO. S1.01.

REFERENCES

GENERAL PLAN AND LONGITUDINAL SECTION
GEOMETRIC AND FOOTING LAYOUT
HEADWALL AND WING WALL PLAN
MISCELLANEOUS DETAILS
STANDARD DETAILS

DRAWING NO.

S1.01 OF 9
S1.02 OF 9
S1.03 OF 9
S1.05 OF 9
S1.06 TO S1.09 OF 9

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EXPIRATION DATE: 12/31/2017

BLANDAIR REGIONAL
PARK - PHASE 3

WING WALL ELEVATIONS
AND TYPICAL SECTION

Drawing No.

S1.04

Scale: 3/4"=1'-0"
Date: 1/17/2017 Sheet 70 of 76
Des: KMS Drawn: KMS Check: CES

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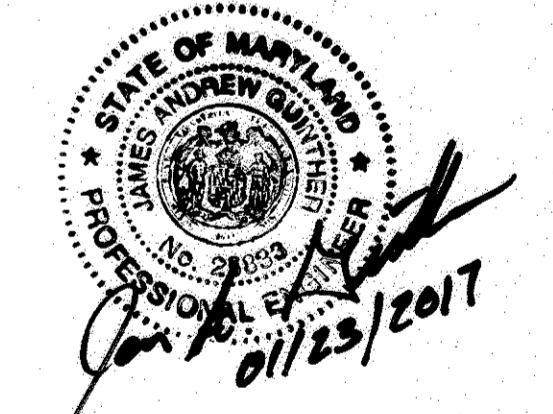
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ELECTION DISTRICT 3/7

GRAPHIC SCALES

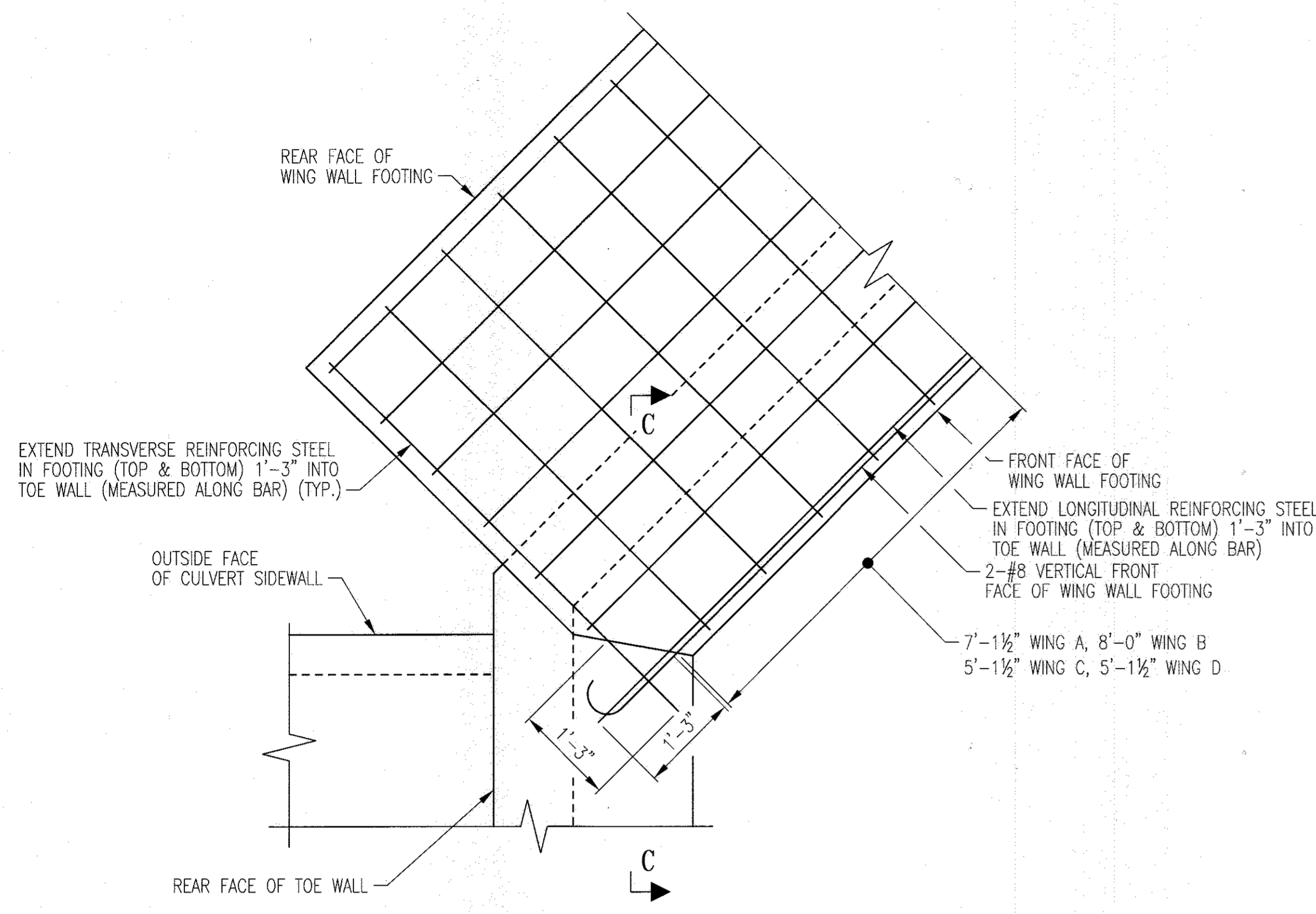
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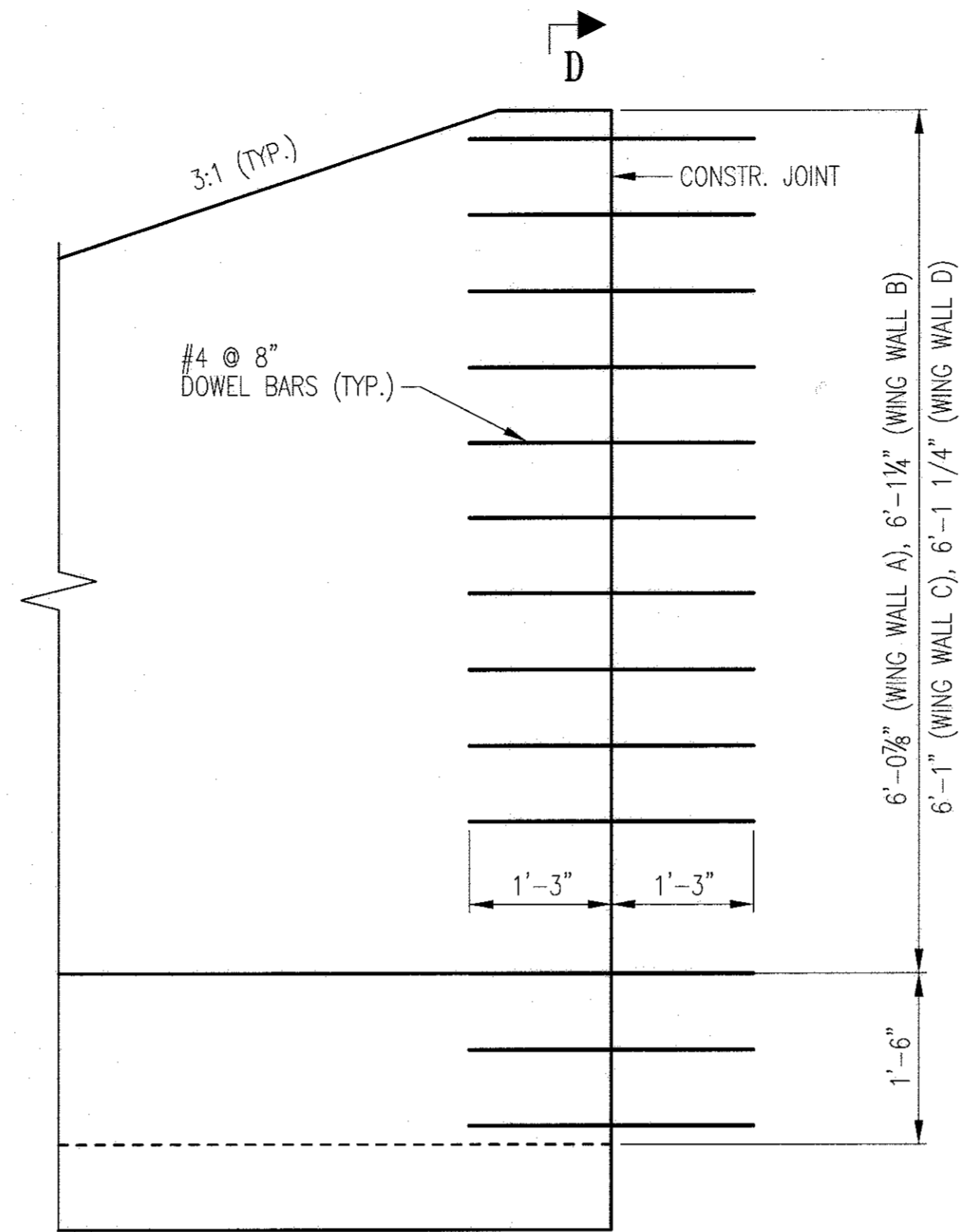
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BLANDAIR REGIONAL PARK - PHASE 3

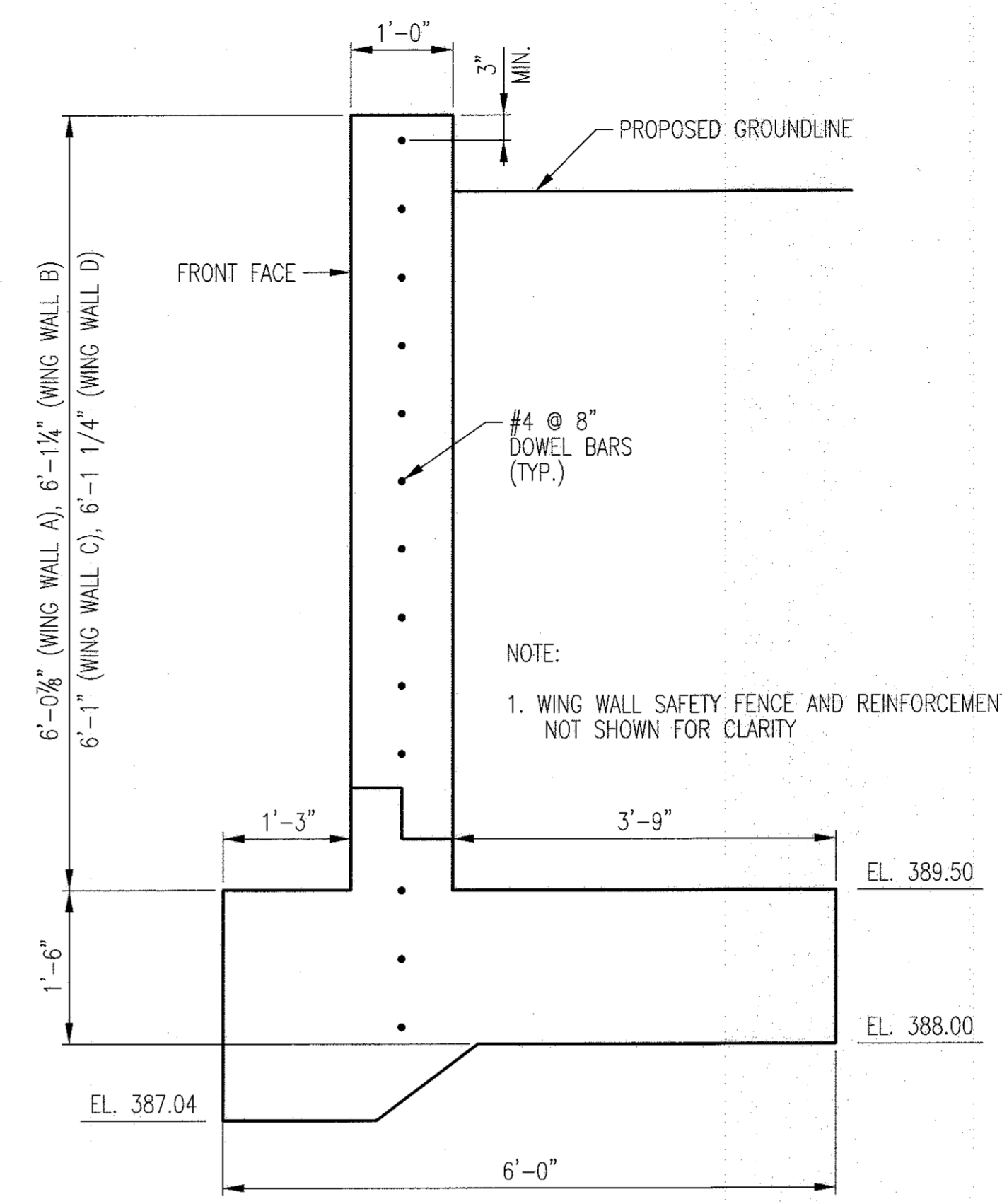
MISCELLANEOUS DETAILS
Drawing No. **S1.05**
Scale: AS SHOWN
Date: 1/17/2017 Sheet 71 of 76
Des: KMS Drawn: KMS Check: CES



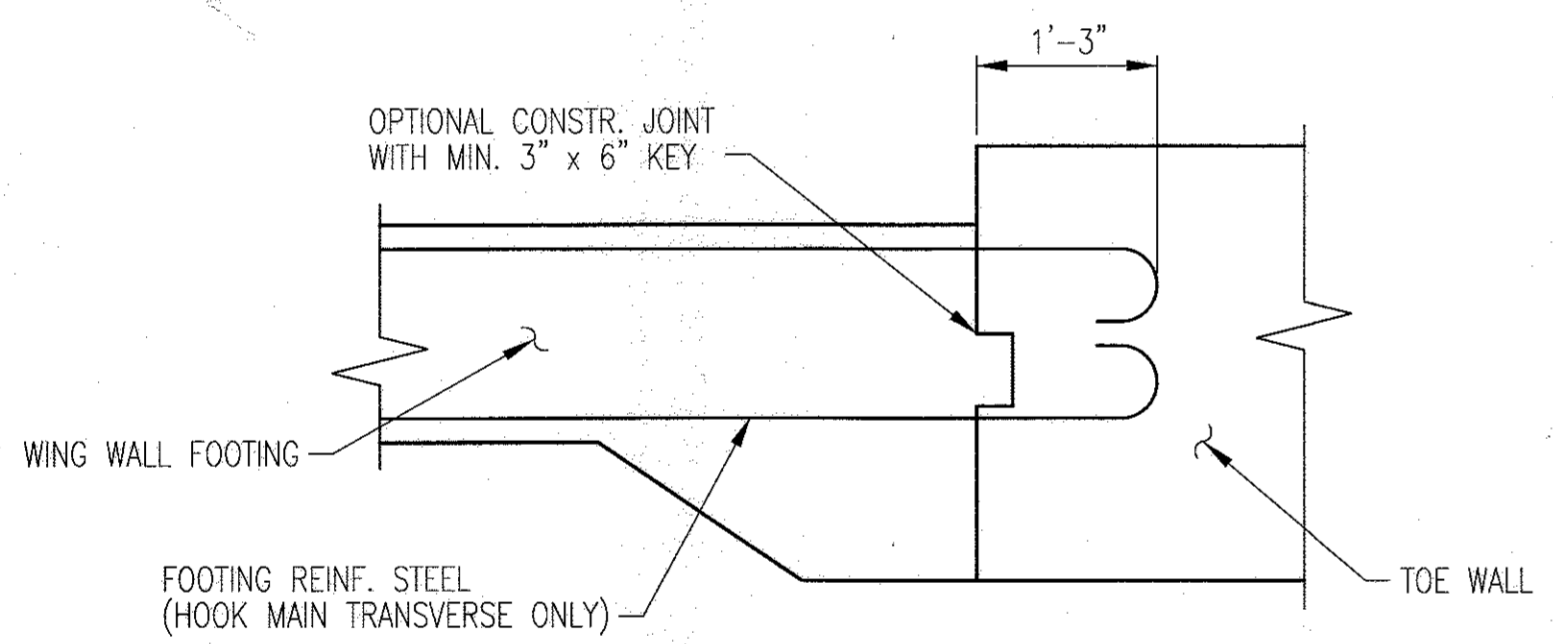
WING WALL FOOTING DETAIL
SCALE: 3/4" = 1'-0"



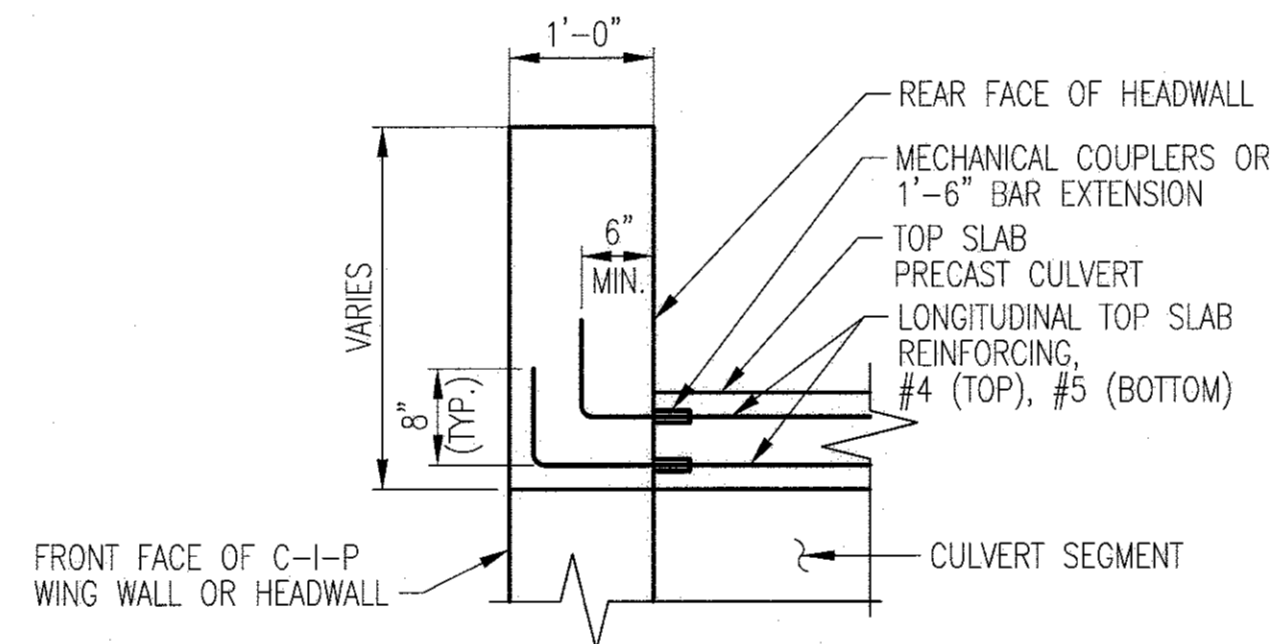
WING WALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



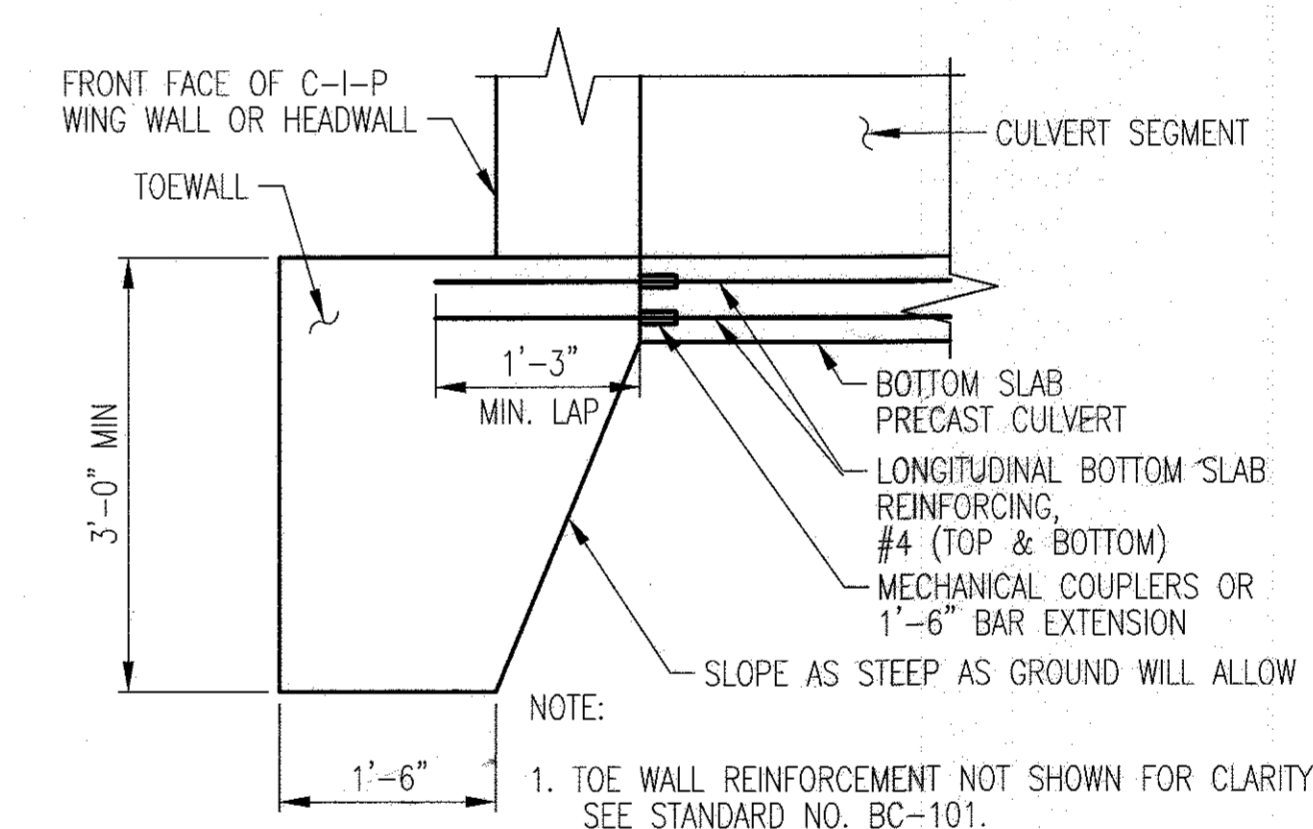
SECTION D-D
SCALE: 3/4" = 1'-0"



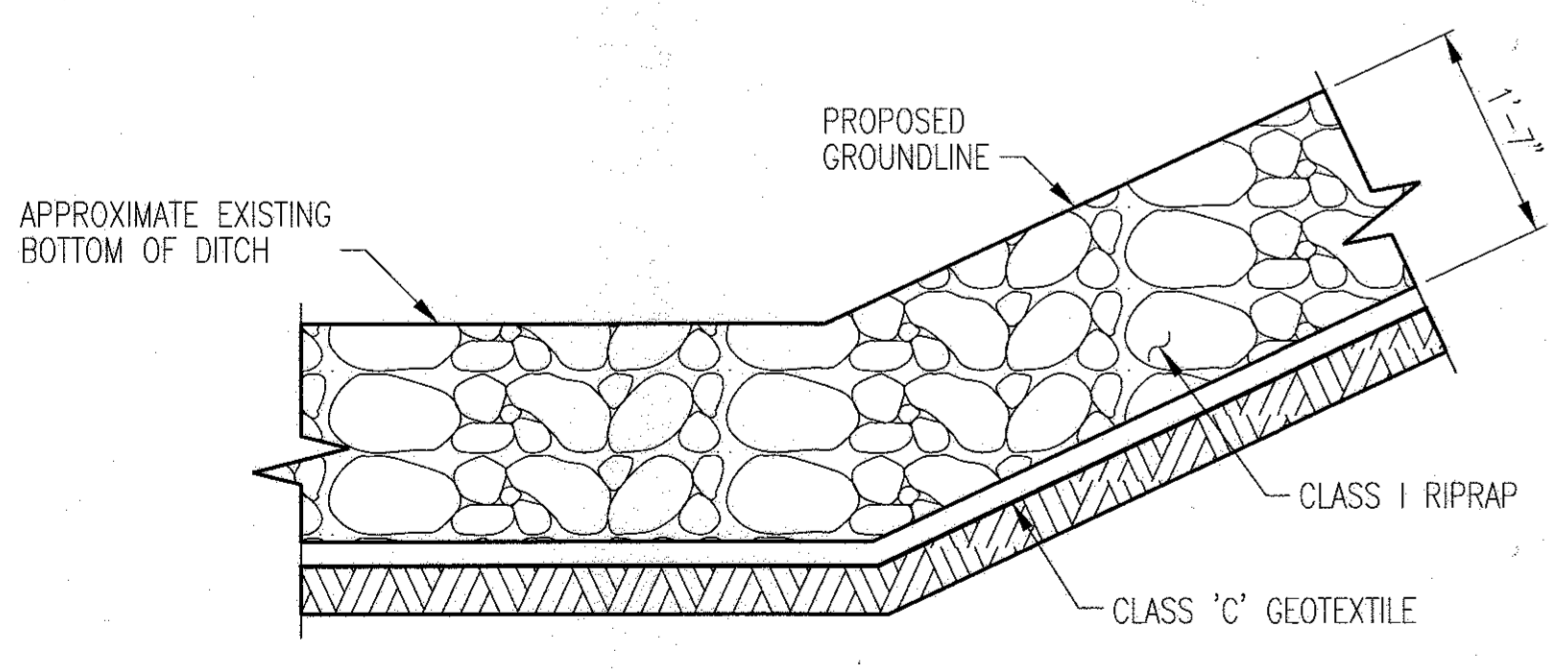
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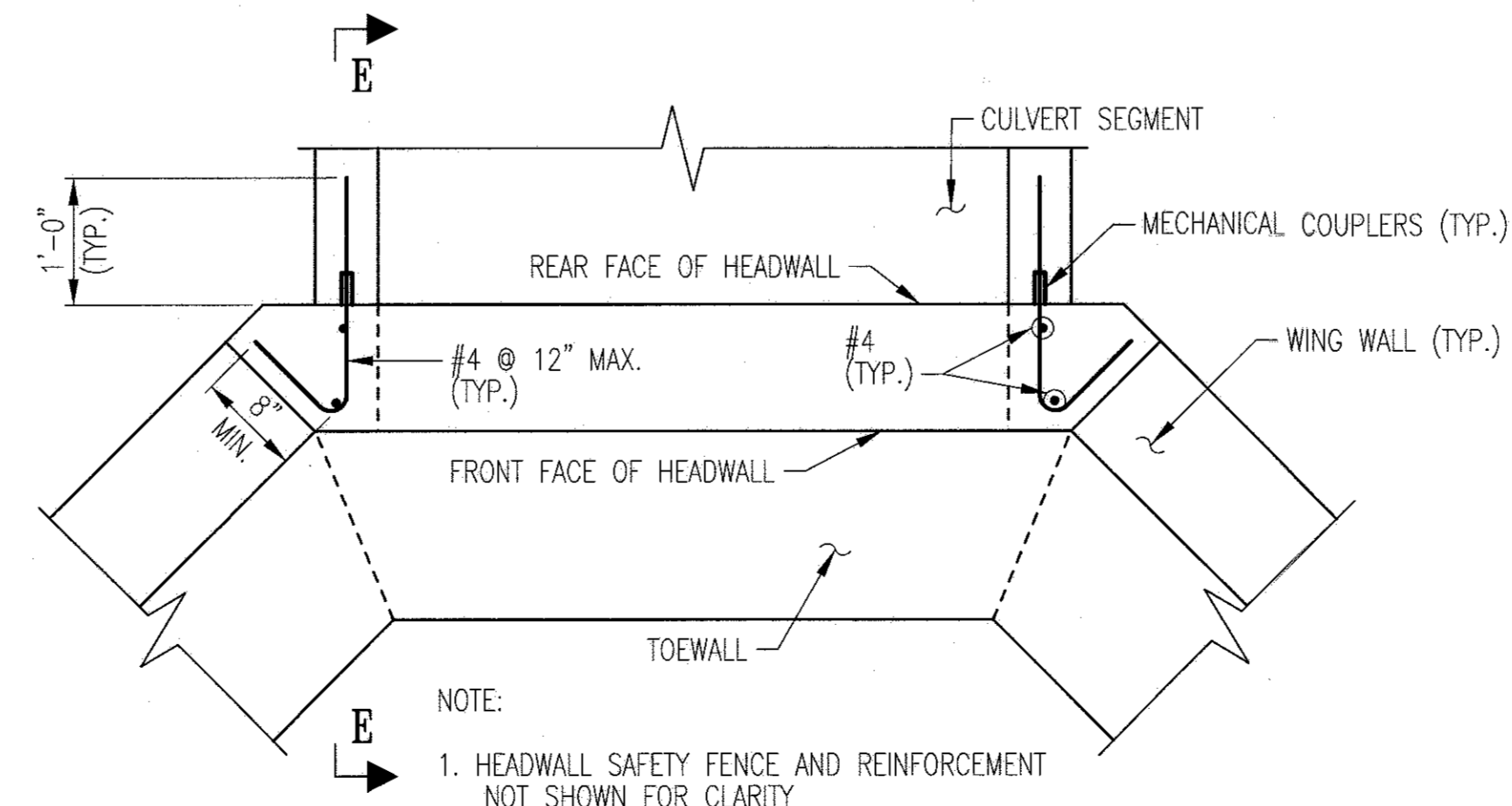
HEADWALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



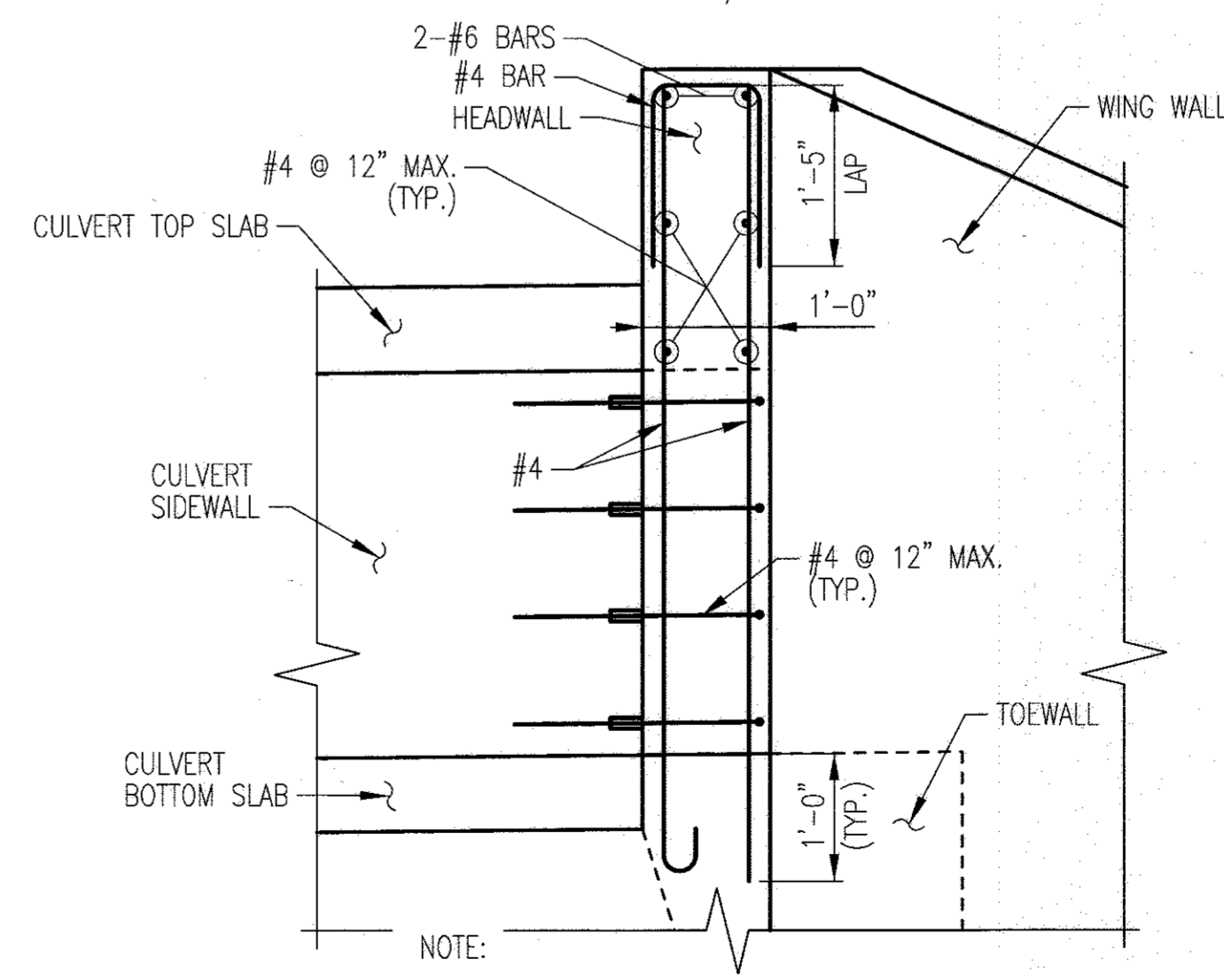
TOEWALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



RIPRAP PLACEMENT DETAIL
SCALE: NOT TO SCALE



CULVERT WALL CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



SECTION E-E
SCALE: 3/4" = 1'-0"

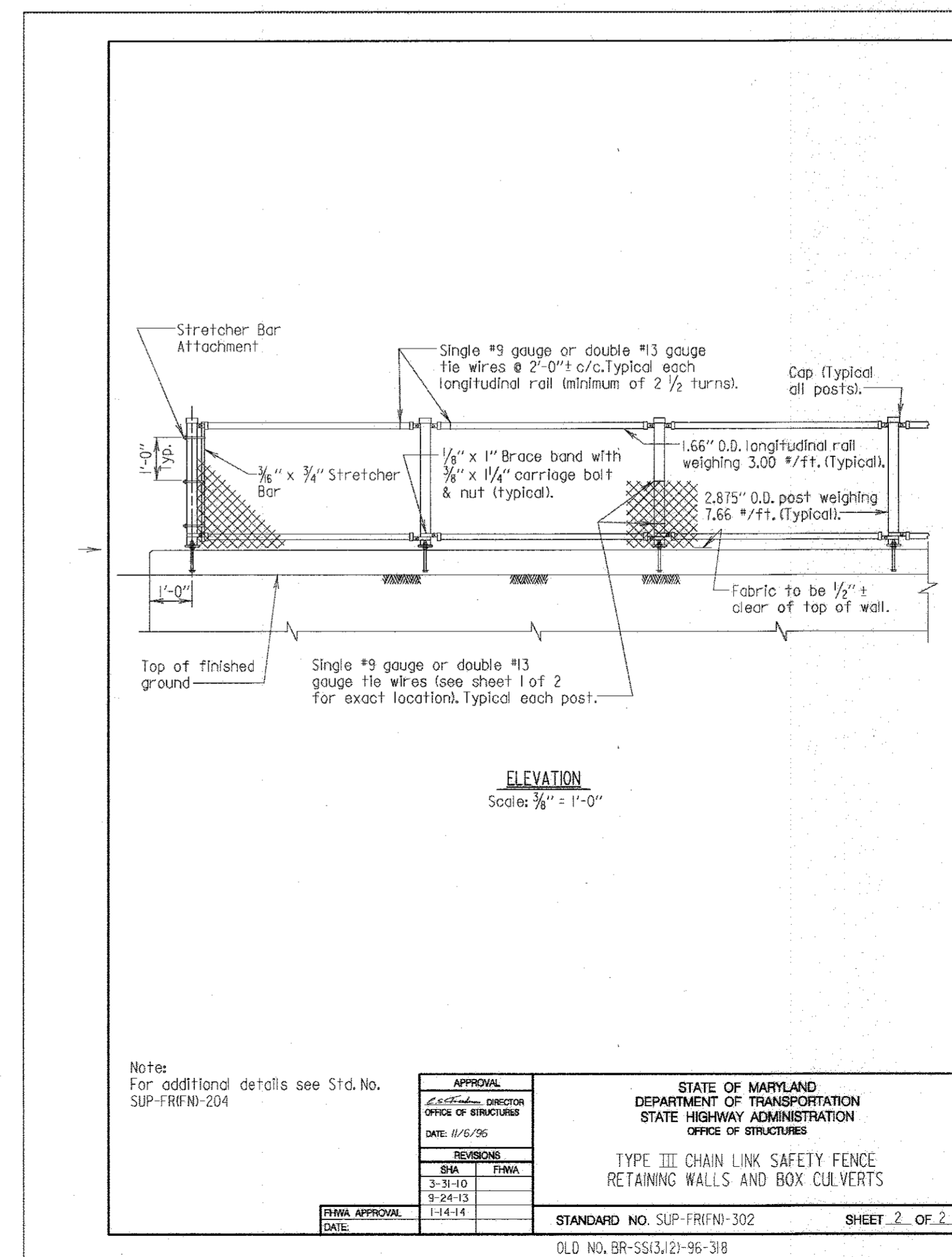
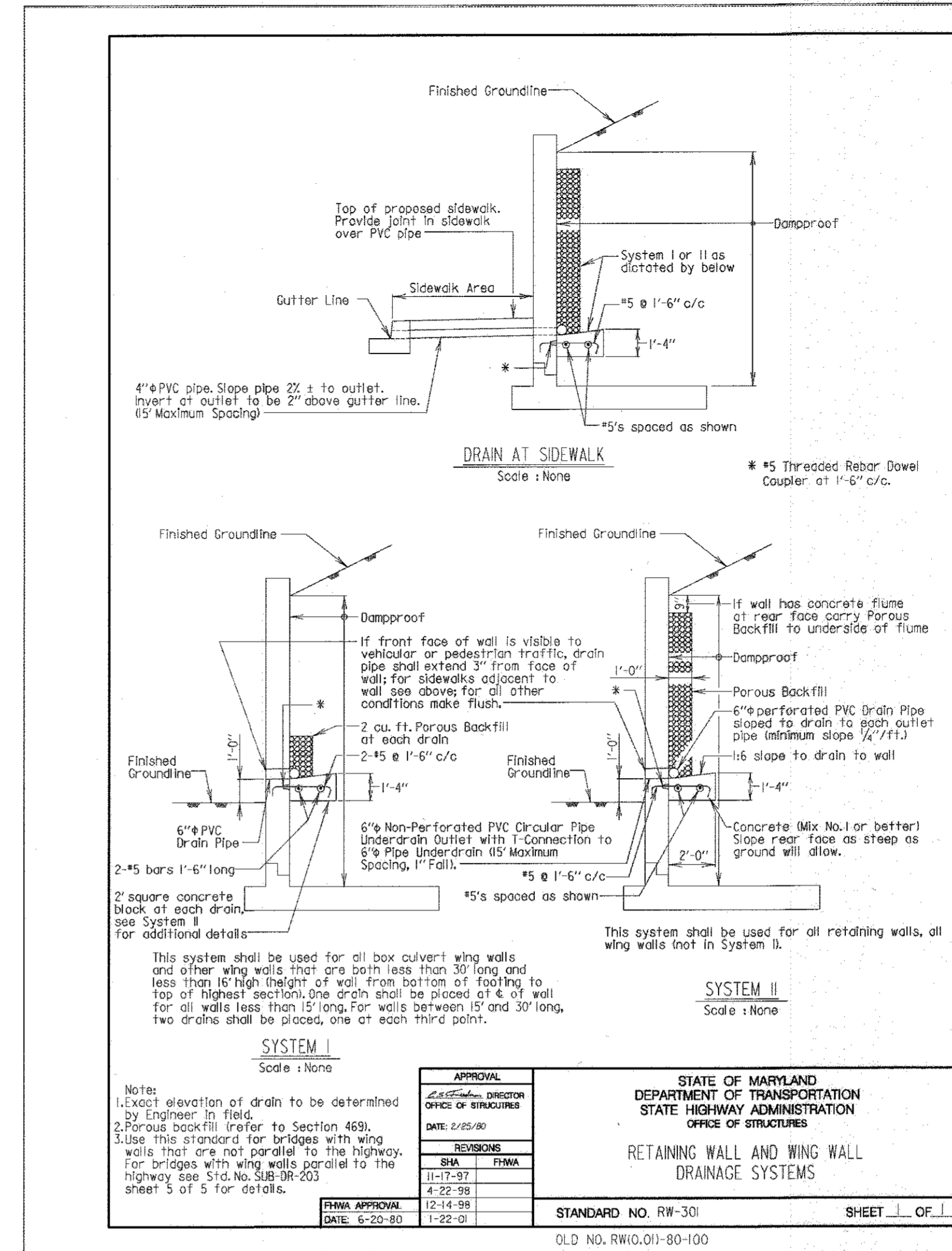
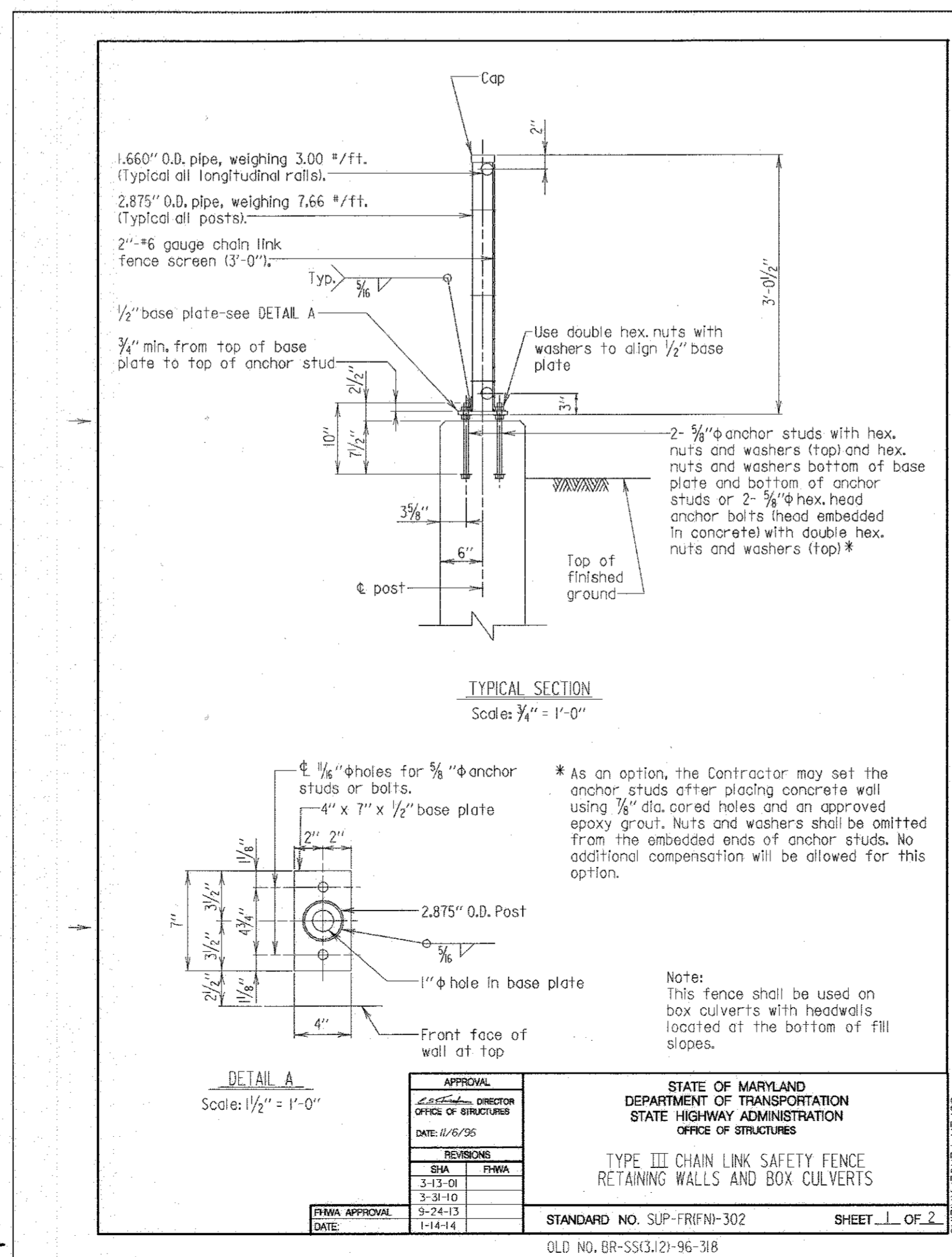
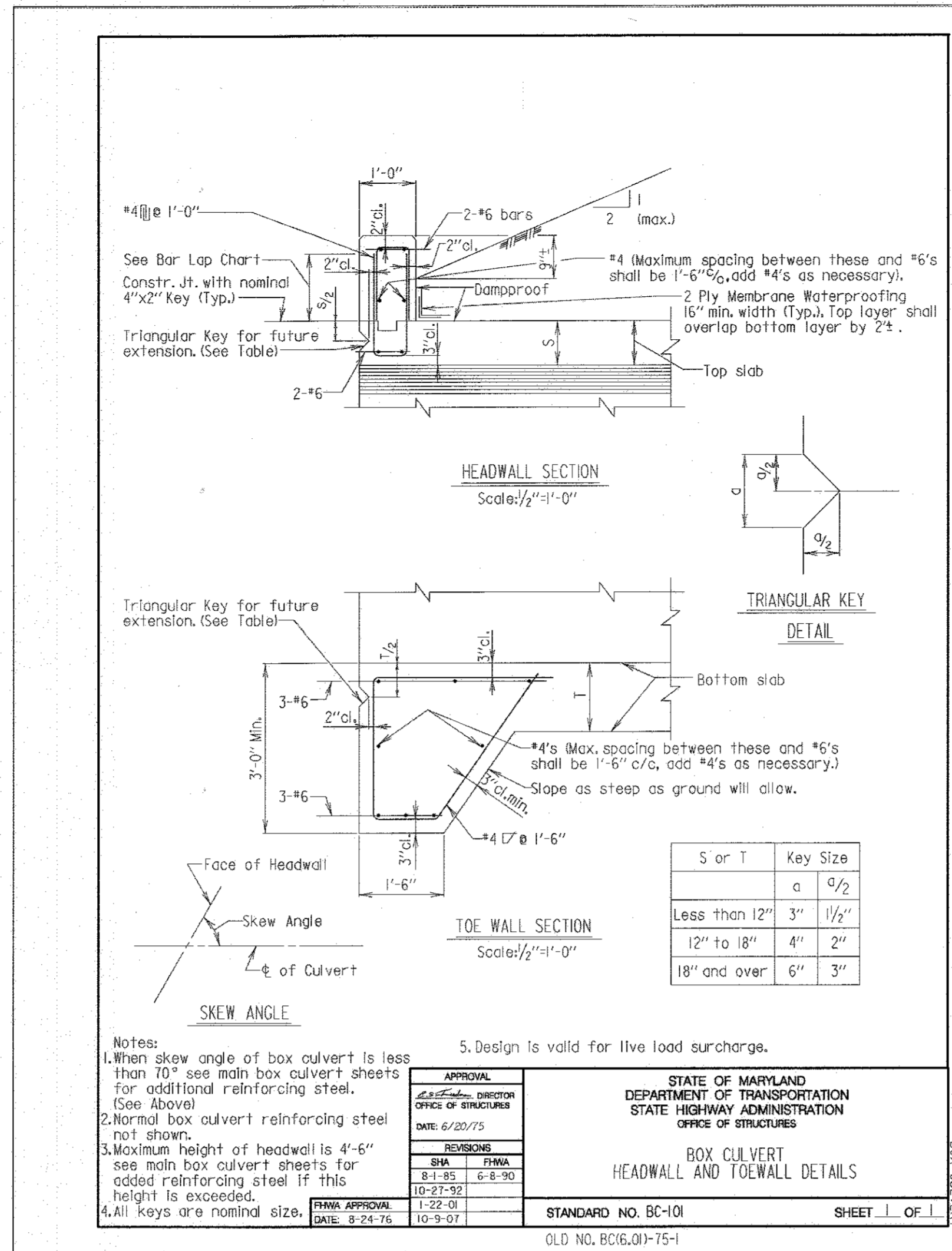
REFERENCES	DRAWING NO.
GENERAL PLAN AND LONGITUDINAL SECTION	S1.01 OF 9
GEOMETRIC AND FOOTING LAYOUT	S1.02 OF 9
HEADWALL AND WING WALL PLAN	S1.03 OF 9
WING WALL ELEVATION AND TYPICAL SECTION	S1.04 OF 9
STANDARD DETAILS	S1.06 TO S1.09 OF 9

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

[Signature]
DIRECTOR
DATE: 3-19-17

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 2-6-17
 DATE: 3-01-17
 CHIEF, DIVISION OF LAND DEVELOPMENT

Narciso J. J. J.
 DIRECTOR
 DATE: 3-19-17



REVISIONS	

HOWARD COUNTY
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 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046
 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRP
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3450 Fax: 410-243-5710

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 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

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 EXPIRATION DATE: 01/23/2017

BLANDAIR REGIONAL
 PARK - PHASE 3

STANDARD DETAILS-I
 Drawing No. S1.06
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 72 of 76
 Des: KMS Drawn: KMS Check: CES
 SDP-15-050

BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-10"	2'-9"	2'-2"
#7	5'-2"	3'-9"	3'-0"
#8	6'-10"	4'-11"	3'-11"
#9	8'-8"	6'-2"	4'-11"
#10	10'-11"	7'-10"	6'-3"
#11	13'-5"	9'-7"	7'-8"

*** LOCATION CATEGORY**

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6" or more apart.

- Note:
- When bar lap is not specified on the Plans, the above dimensions shall be used.
 - These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
 - These bar laps only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi and Concrete Design, $f'_c = 3000$ psi.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 5/10/17	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BL-101 SHEET 1 OF 3 OLD NO. M6.071-81-127(L)

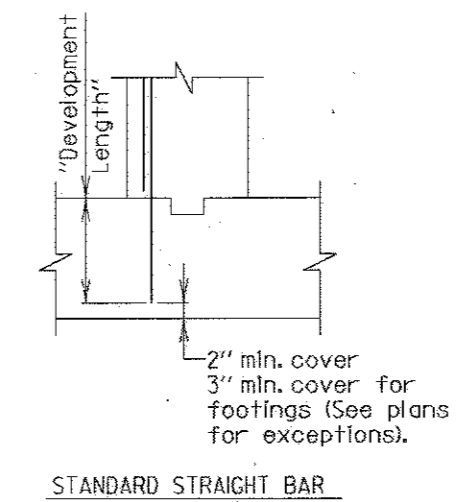
BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-6"	3'-3"	2'-7"
#8	5'-11"	4'-3"	3'-5"
#9	7'-6"	5'-4"	4'-3"
#10	9'-6"	6'-9"	5'-5"
#11	11'-8"	8'-4"	6'-8"

*** LOCATION CATEGORY**

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6" or more apart.

- Note:
- When bar lap is not specified on the Plans, the above dimensions shall be used.
 - These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
 - These bar laps only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi and Concrete Design, $f'_c = 4000$ psi.

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BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	1'-5"	1'-0"	1'-0"
#5	1'-9"	1'-3"	1'-0"
#6	2'-3"	1'-6"	1'-4"
#7	3'-1"	2'-2"	1'-9"
#8	4'-0"	2'-11"	2'-4"
#9	5'-11"	3'-8"	2'-11"
#10	6'-5"	4'-7"	3'-9"
#11	7'-11"	5'-8"	4'-7"

*** LOCATION CATEGORY:**

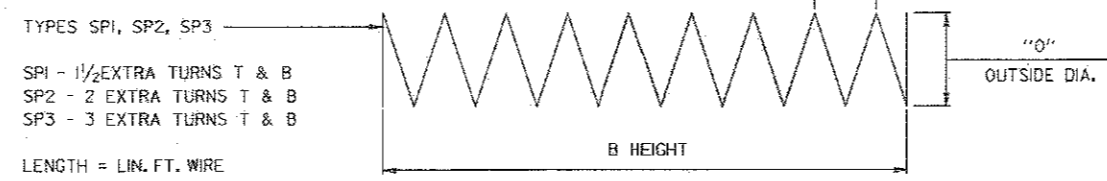
- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6" apart.
- C - All bars not in Category A spaced 6" or more apart.

- Note:
- When development length is not specified on the Plans, the above dimensions shall be used.
 - These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
 - These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi and Concrete Design, $f'_c = 3000$ psi.
 - If depth of member does not allow bar development length indicated in Categories A, B, and C then hook shall be added to all bars not conforming, as per D, L, and F per Std. No. REBAR-DL-201.

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**TYPICAL BAR BENDS
DETAILS AND NOTES**

SPIRAL



Unless otherwise noted diameter B is the same for all bends and hooks on a bar.

Where slope differs from 45° dimensions 'd' and 'k' must be shown.

ENLARGED VIEW SHOWING BAR BENDING DETAILS

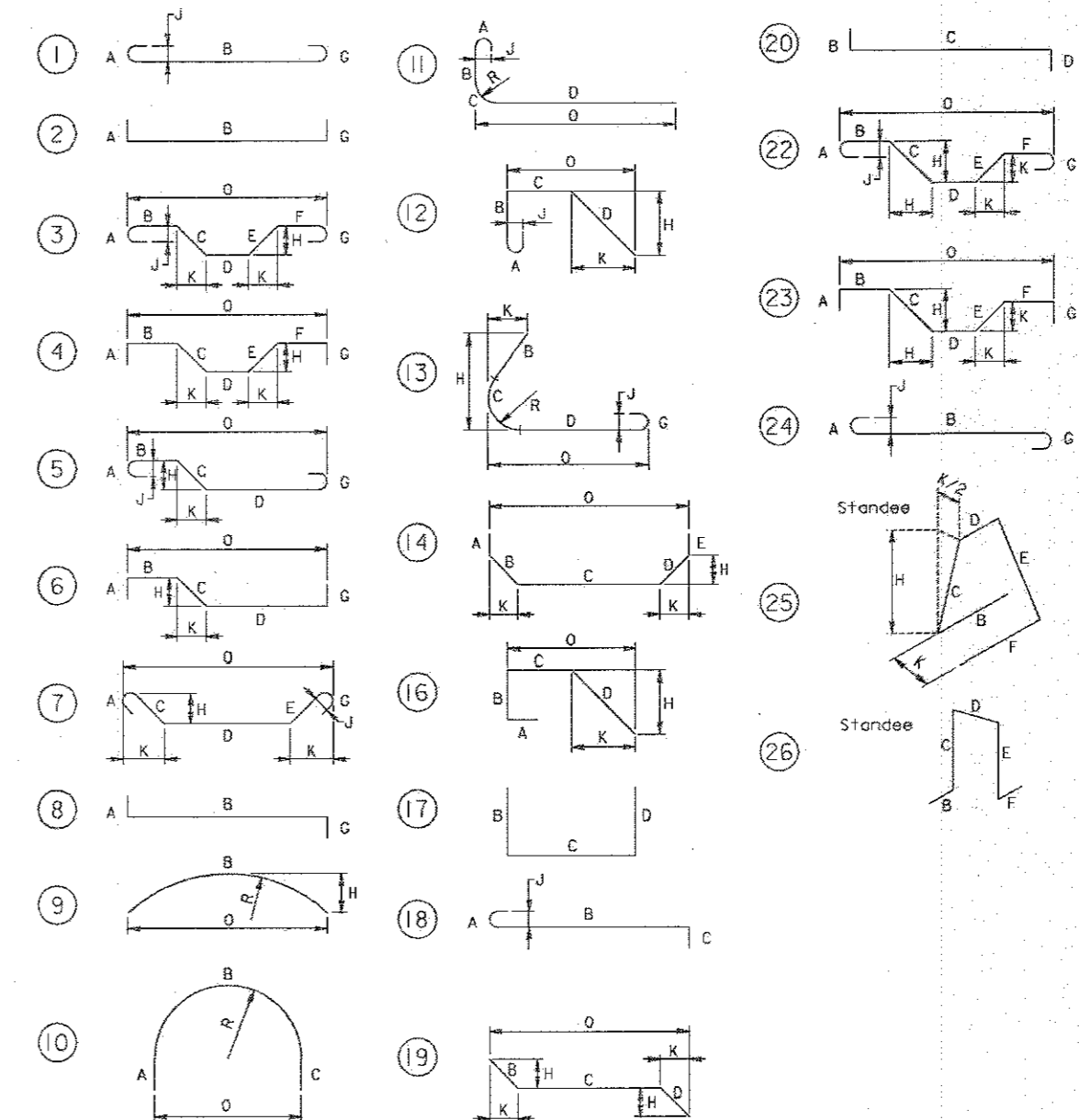
- Notes:
- All dimensions are out-to-out of bar or to tangent points for 135° and 180° hooks.
 - Dimensions on 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
 - Where 'd' is not shown, 'd' will be kept equal to or less than 'h' on truss bars. Where 'd' can exceed 'h' it should be shown.
 - 'd' dimension on stirrups to be shown where necessary to fit within concrete.
 - Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0) MINUS (-) NORMAL AND BENDING TOLERANCES

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REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BB-101 SHEET 1 OF 8 OLD NO. REBAR-BB100J1-94-296

**ACI TYPICAL BAR BENDS
STANDARD PIN BENDING**



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0) MINUS (-) NORMAL AND BENDING TOLERANCES

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DATE: 2/10/14	
REVISIONS	
SHA	FWA
FINAL APPROVAL DATE	STANDARD NO. REBAR-BB-101 SHEET 2 OF 8 OLD NO. REBAR-BB100J1-94-296

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2-6-17
DATE: 3-01-17

DATE: 3-19-17
DATE:

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HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS
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801 South Caroline Street, Baltimore, Maryland 21231
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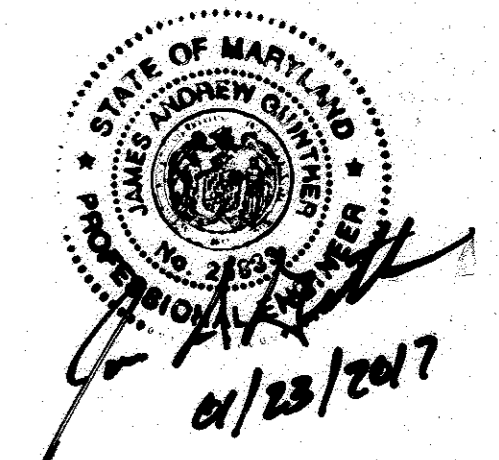
TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION
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EXPIRATION DATE: 09/30/2017

**BLANDAIR REGIONAL
PARK - PHASE 3**

STANDARD DETAILS- II

Drawing No.:

S1.07

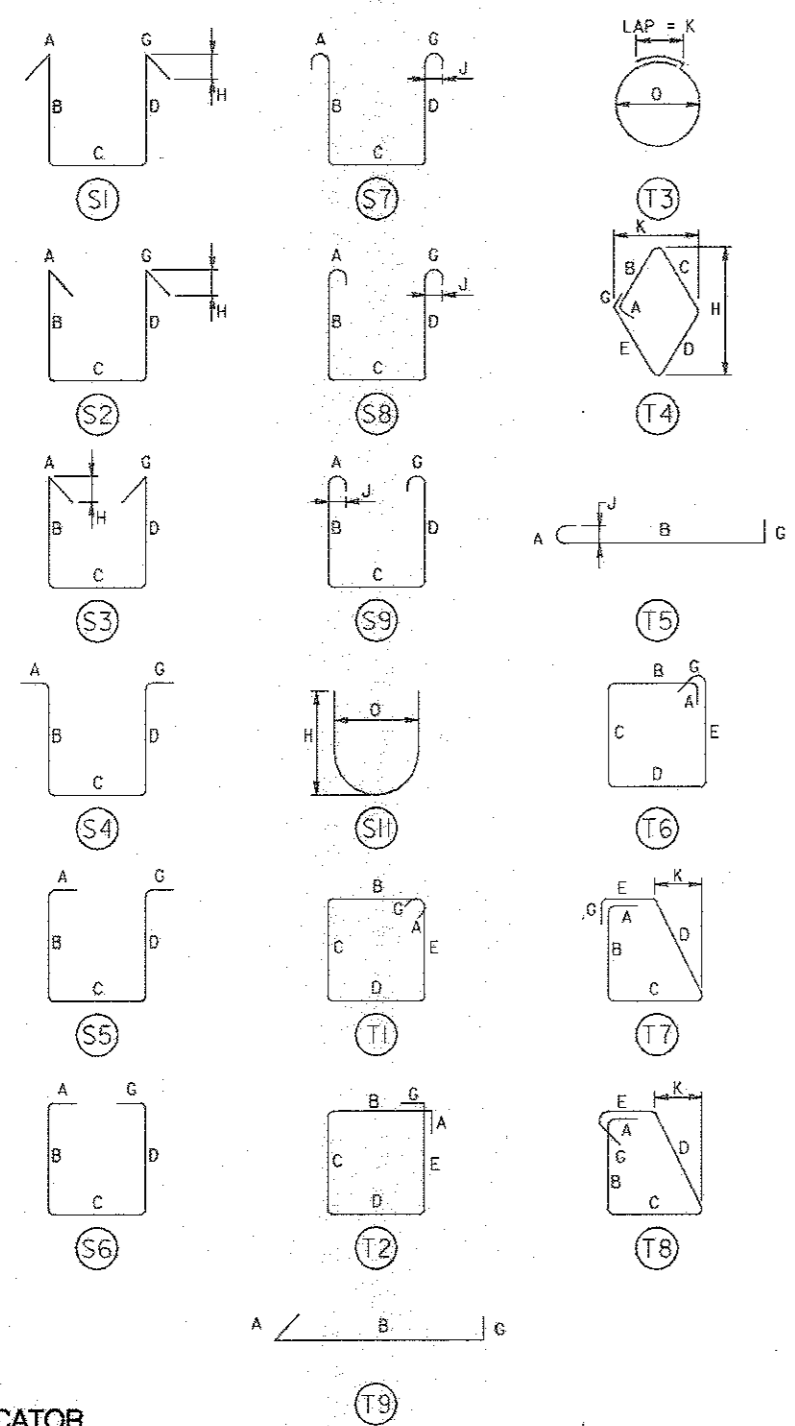
Scale: AS SHOWN

Date: 1/17/2017 Sheet 73 of 76

Des: KMS Drawn: KMS Check: CES

ACI TYPICAL BAR BENDS

TIES AND STIRRUPS

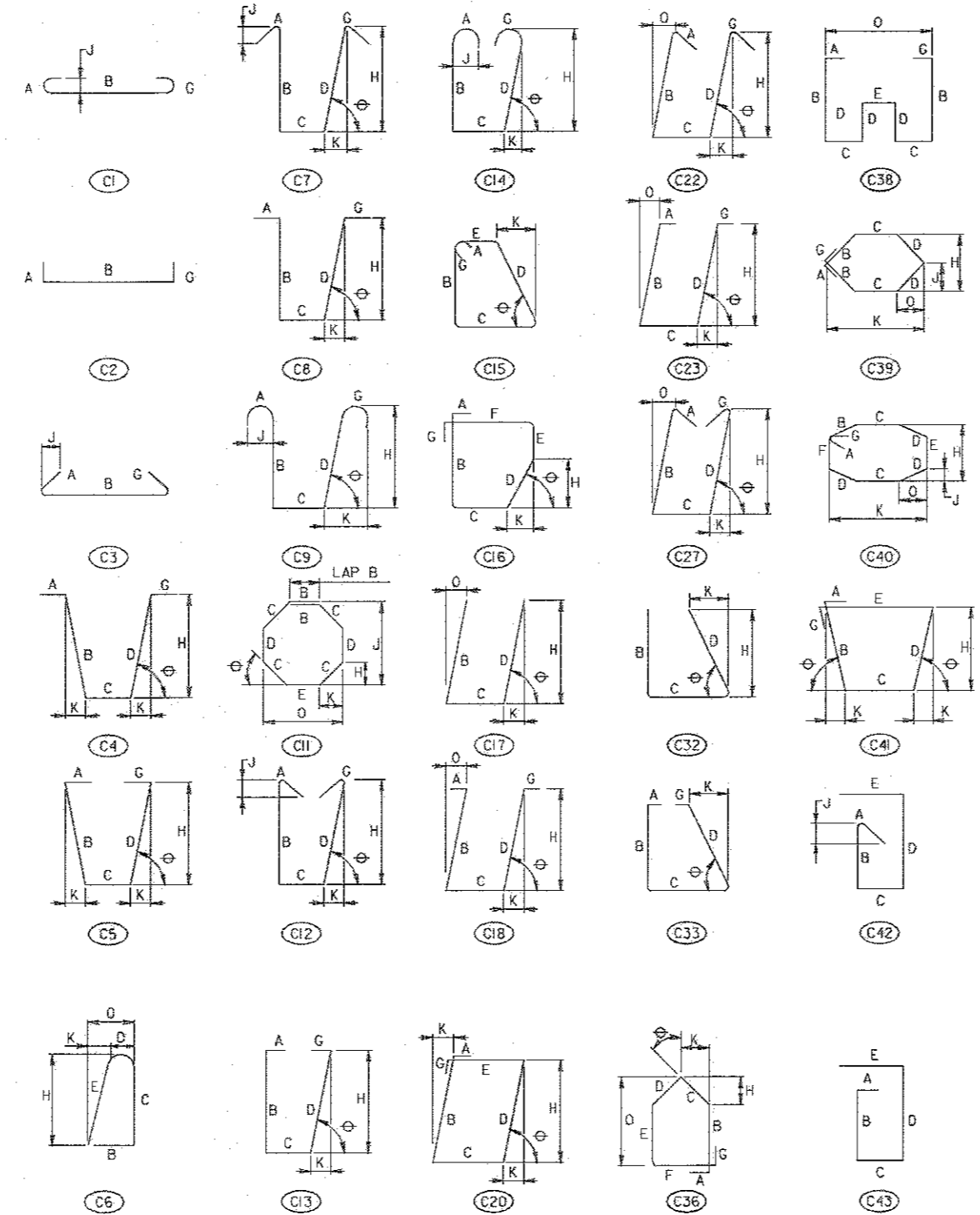


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	BAR BEND TYPES ACI - TIES A
SHA	FWMA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-101 SHEET 3 OF 8 OLD NO. REBAR-BB(00)J-94-296

SHA TYPICAL BAR BENDS

TIES AND STIRRUPS

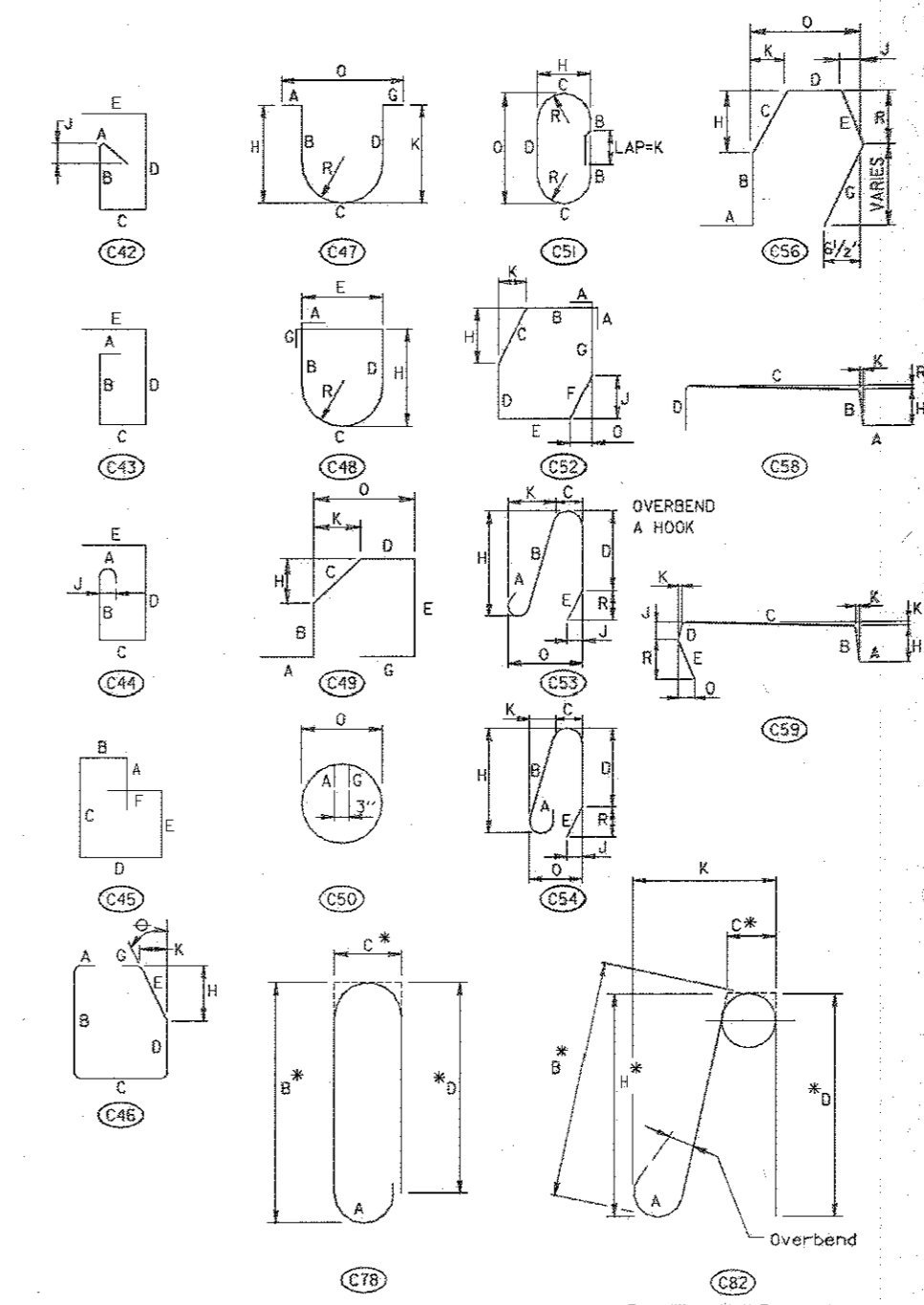


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	BAR BEND TYPES SHA - TIES AND STIRRUPS
SHA	FWMA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-101 SHEET 4 OF 8 OLD NO. REBAR-BB(00)J-94-296

SHA TYPICAL BAR BENDS

TIES AND STIRRUPS

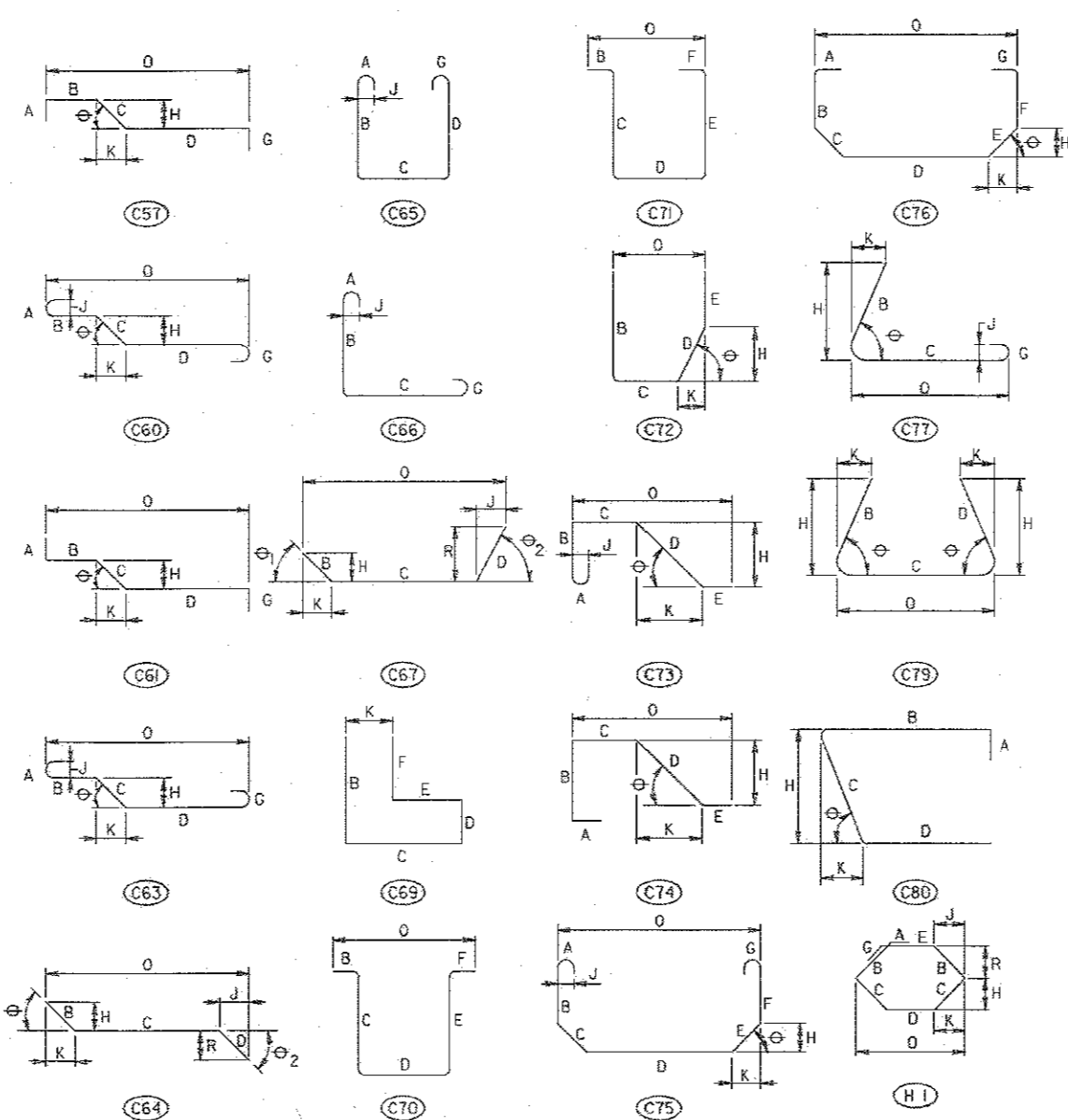


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	BAR BEND TYPES SHA - TIES AND STIRRUPS
SHA	FWMA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-101 SHEET 5 OF 8 OLD NO. REBAR-BB(00)J-94-296

SHA TYPICAL BAR BENDS

STANDARD PIN BENDING

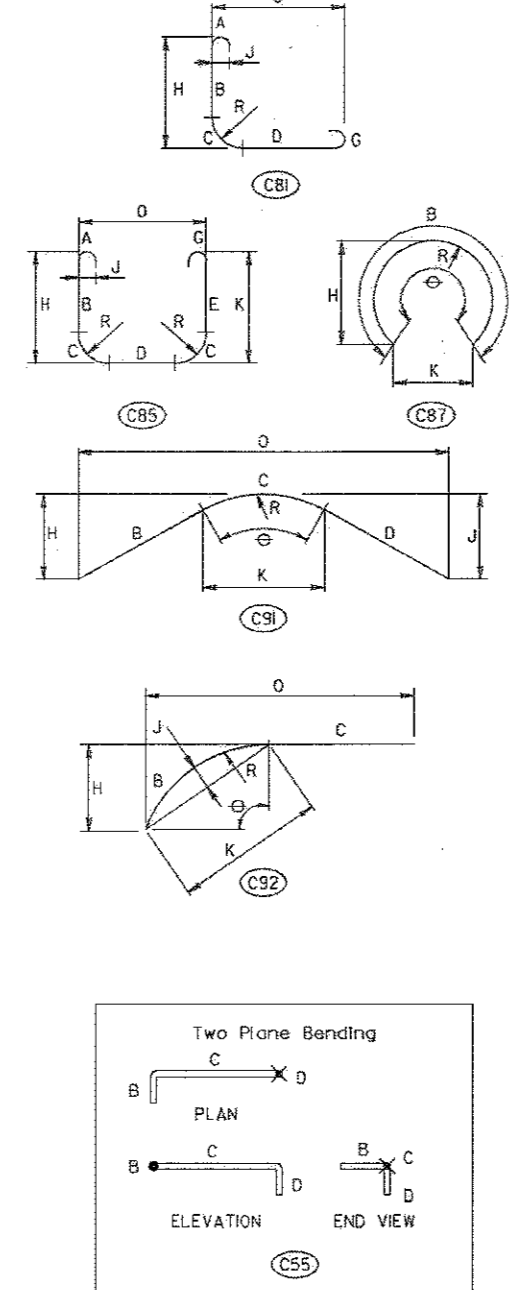


NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	BAR BEND TYPES SHA - STANDARD PIN BENDING
SHA	FWMA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-101 SHEET 6 OF 8 OLD NO. REBAR-BB(00)J-94-296

SHA TYPICAL BAR BENDS

RADIUS BENDING



NOTE TO FABRICATOR
 BENDING TOLERANCE NOTE
 TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES
DATE: 2/10/14	
REVISIONS	BAR BEND TYPES SHA - RADIUS BENDING
SHA	FWMA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-101 SHEET 7 OF 8 OLD NO. REBAR-BB(00)J-94-296

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 2.6.17
 DATE: 3.01.17

DATE: 3-19-17
 DATE

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 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
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 DEPARTMENT OF PUBLIC WORKS
 9250 BENDIX ROAD
 ELLICOTT CITY, MD 21043

WRA
 Whitman, Reardon & Associates, LLP
 801 South Caroline Street, Baltimore, Maryland 21231
 Phone: 410-235-3455 Fax: 410-243-5715

PROPERTY
 TAX MAP 36, GRID 5, PARCEL 3,72
 ZONING: RC-DEO
 ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE

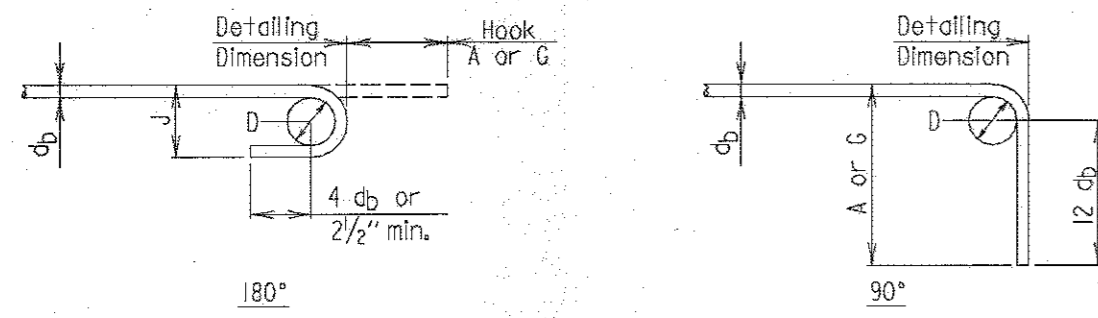
 PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 25833, EXPIRATION DATE: 02/28/2017

BLANDAIR REGIONAL PARK - PHASE 3

STANDARD DETAILS- III
 Drawing No. **S1.08**
 Scale: AS SHOWN
 Date: 1/17/2017 Sheet 74 of 76
 Des: KMS Drawn: KMS Check: CES
 SDP-15-050

**HOOKS
TABLE I
REFERENCES**

1. ACI Types I thru 26
2. SHA Standard Pin Bending
3. SHA Radius Bending



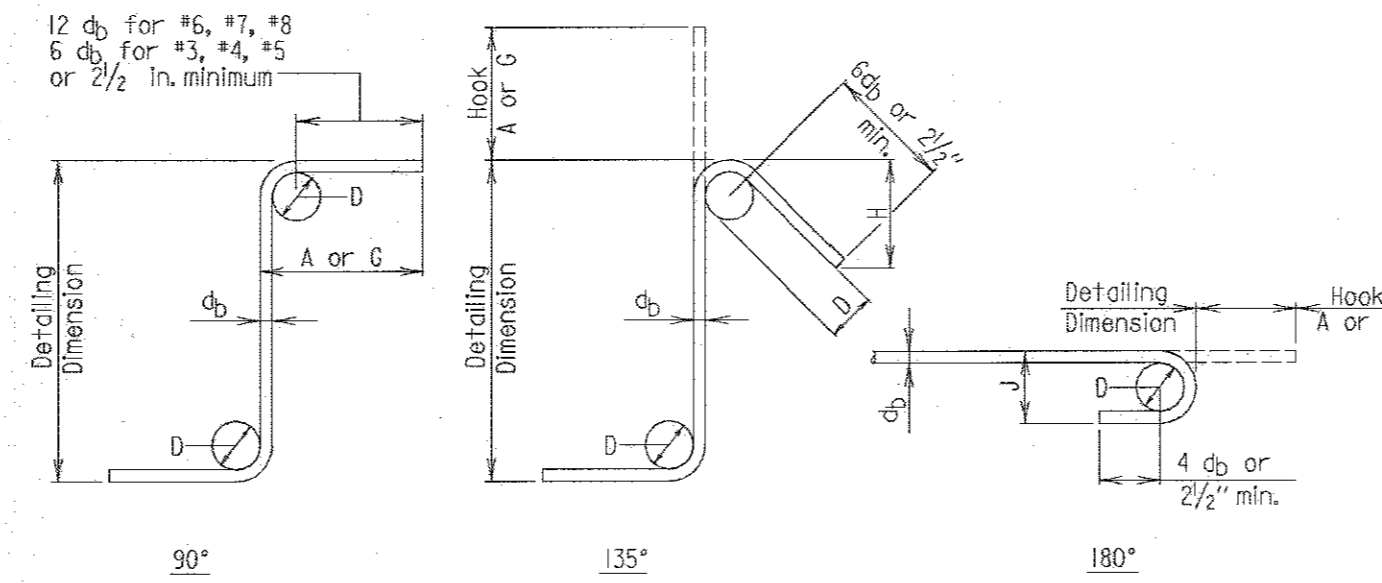
BAR SIZE	Finished bend diameter D, in.	180 - deg hook		90 - deg hook
		A or G in	J, in.	A or G in
#3	2/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	1-0
#7	5 1/4	10	7	1-2
#8	6	11	8	1-4
#9	9/2	1-3	1 1/4	1-7
#10	10 1/4	1-5	1 1/2	1-10
#11	12	1-7	1-2 1/4	2-0
#14	18 1/4	2-3	1-9 1/4	2-7
#18	24	3-0	2-4 1/2	3-5

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 11/17/97	
REVISIONS	REINFORCING STEEL HOOK TABLES AND DIAGRAMS
SHA	FWHA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-102 SHEET 1 OF 2 OLD NO. REBAR-BD19,051-97-320

**HOOKS
TABLE II
REFERENCES**

1. ACI Types SI thru SII
 2. ACI Types TI thru T8
 3. SHA Ties and Stirrups
- (Note: Tie and stirrup types supplied in sizes #3-#8)

STIRRUP AND TIE HOOKS



BAR SIZE	D, in.	90 - deg hook		135 - deg hook	
		A or G	J, in.	A or G	J, in.
#3	1/2	4	4	4	2 1/2
#4	2	4 1/2	4 1/2	3	
#5	2 1/2	6	5 1/2	3 1/2	
#6	4 1/2	1-0	1 1/4	4 1/2	
#7	5 1/4	1-2	9	5 1/4	
#8	6	1-4	10 1/4	6	

BAR SIZE	Finished bend diameter D, in.	180 - deg hook	
		A or G in	J, in.
#3	2/4	5	3
#4	3	6	4
#5	3 3/4	7	5
#6	4 1/2	8	6
#7	5 1/4	10	7
#8	6	11	8

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 11/17/97	
REVISIONS	REINFORCING STEEL HOOK TABLES AND DIAGRAMS
SHA	FWHA
FINAL APPROVAL DATE:	STANDARD NO. REBAR-BB-102 SHEET 2 OF 2 OLD NO. REBAR-BD19,051-97-320

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PROPERTY

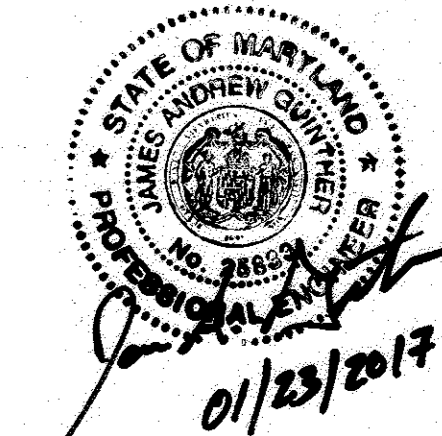
TAX MAP 36, GRID 5, PARCEL 3,72

ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES

SIGNATURE



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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. 2553
EXPIRATION DATE: 02/28/2017

BLANDAIR REGIONAL PARK - PHASE 3

STANDARD DETAILS- IV

Drawing No.

S1.09

Scale: AS SHOWN

Date: 1/17/2017 Sheet 75 of 76

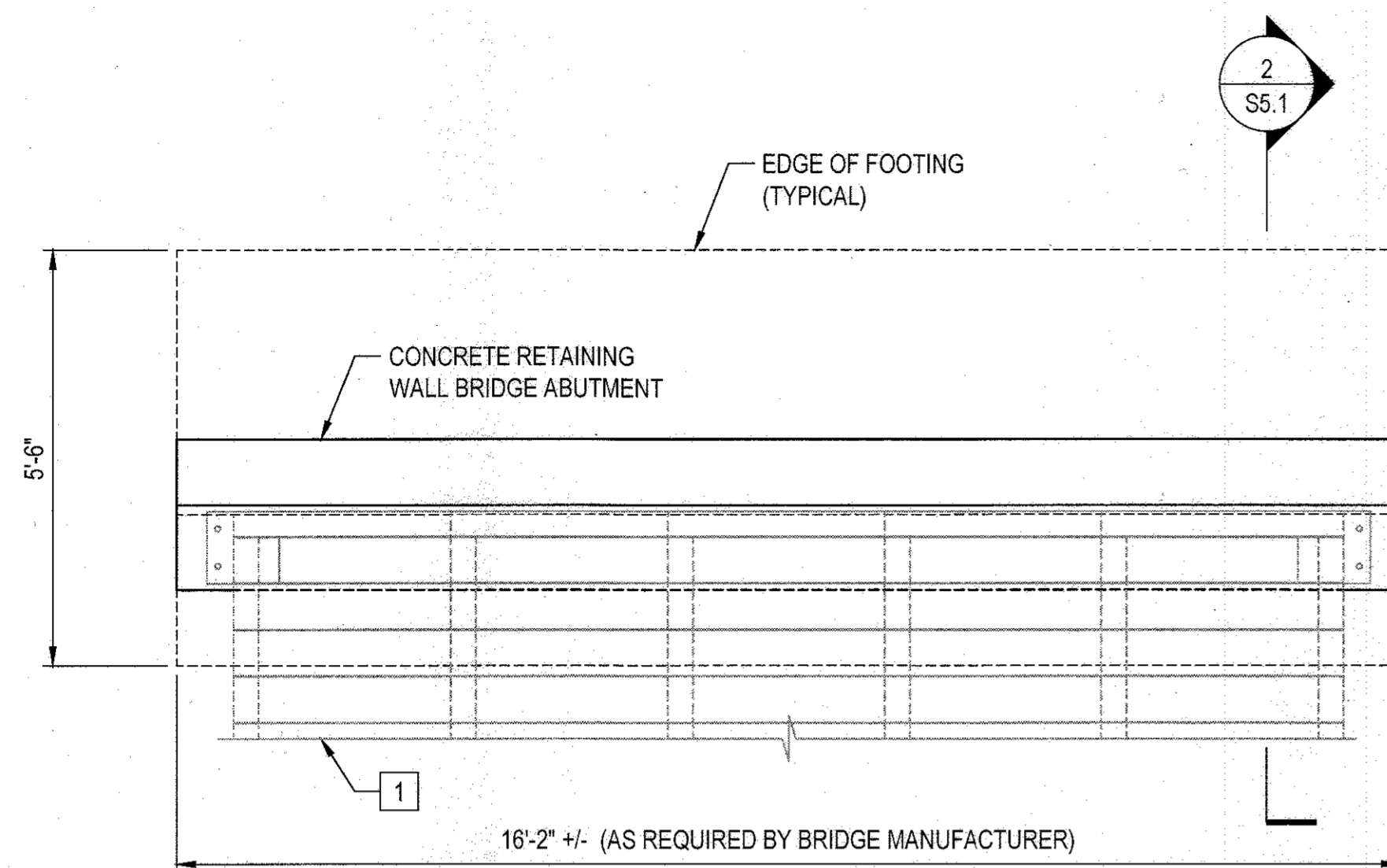
Des: KMS Drawn: KMS Check: CES

APPROVED: DEPARTMENT OF PLANNING AND ZONING

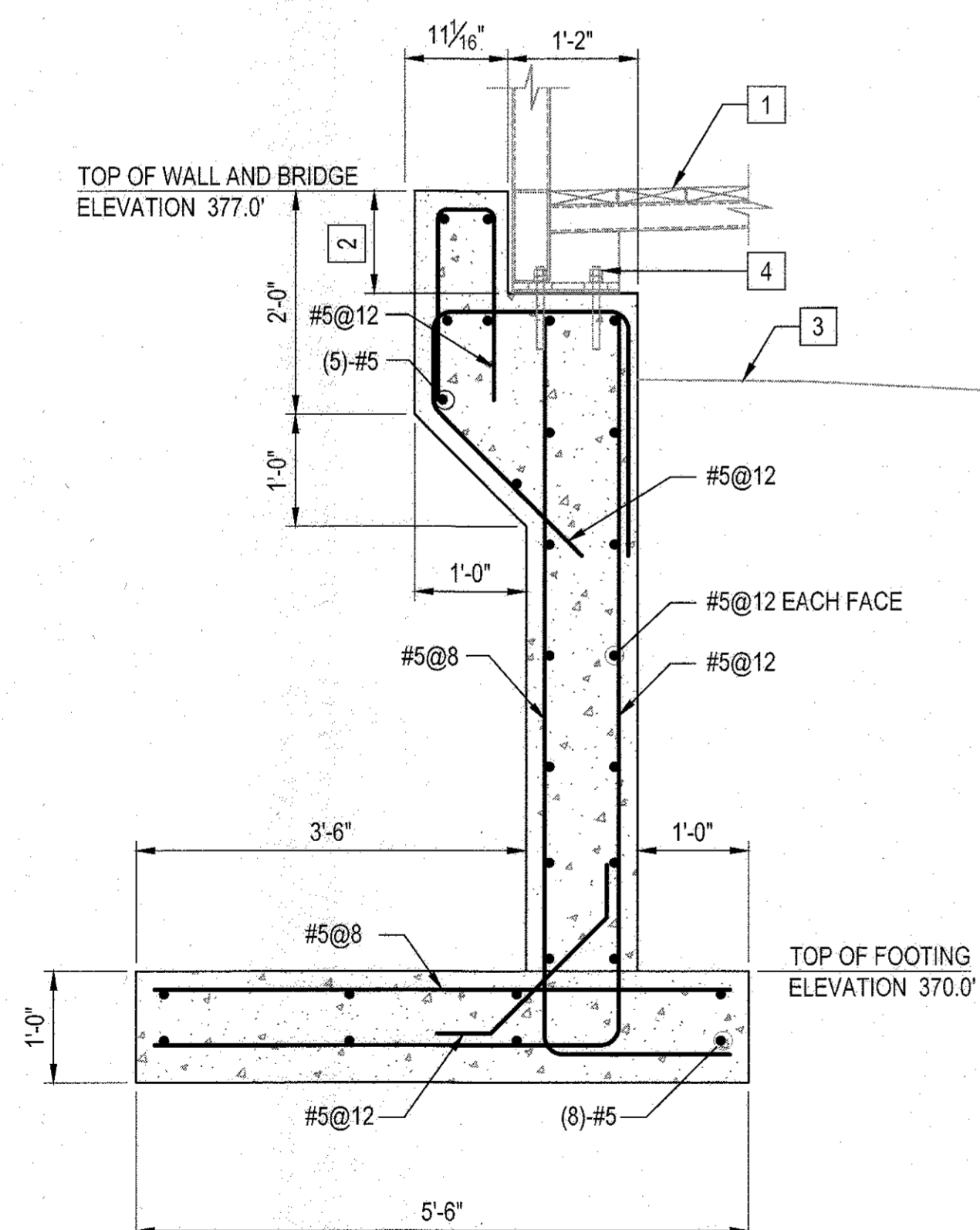
Chad Clark
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 2-6-17

Kent Suber
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 3-01-17

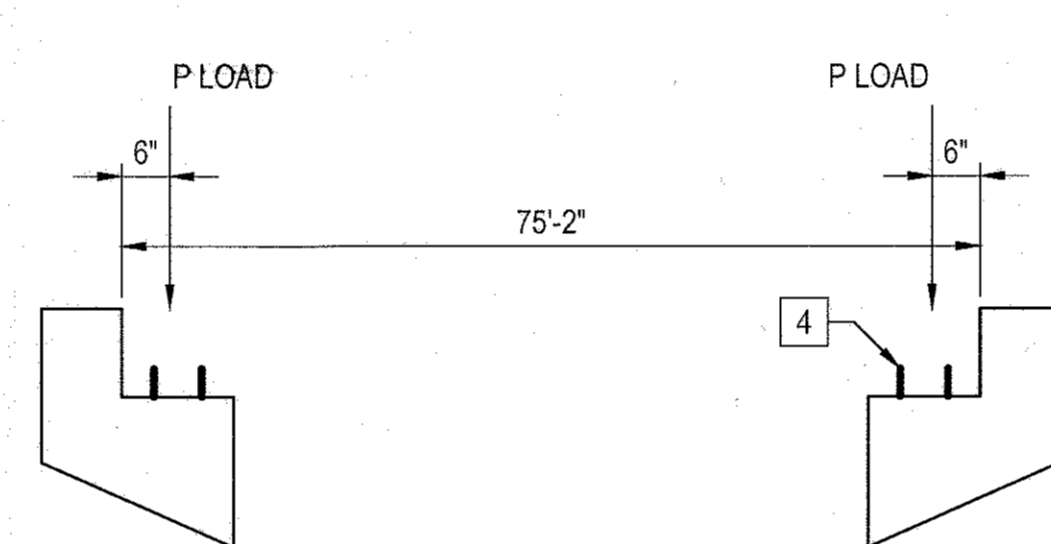
Nathan J. J. J.
DIRECTOR
DATE: 3-14-17



1 BRIDGE ABUTMENT PLAN (2 LOCATIONS)
S5.1 SCALE: 1/2"=1'-0"



2 SECTION
S5.1 SCALE: 3/4"=1'-0"
REF: S5.1



ELEVATION

BASIS OF DESIGN BRIDGE INFORMATION:

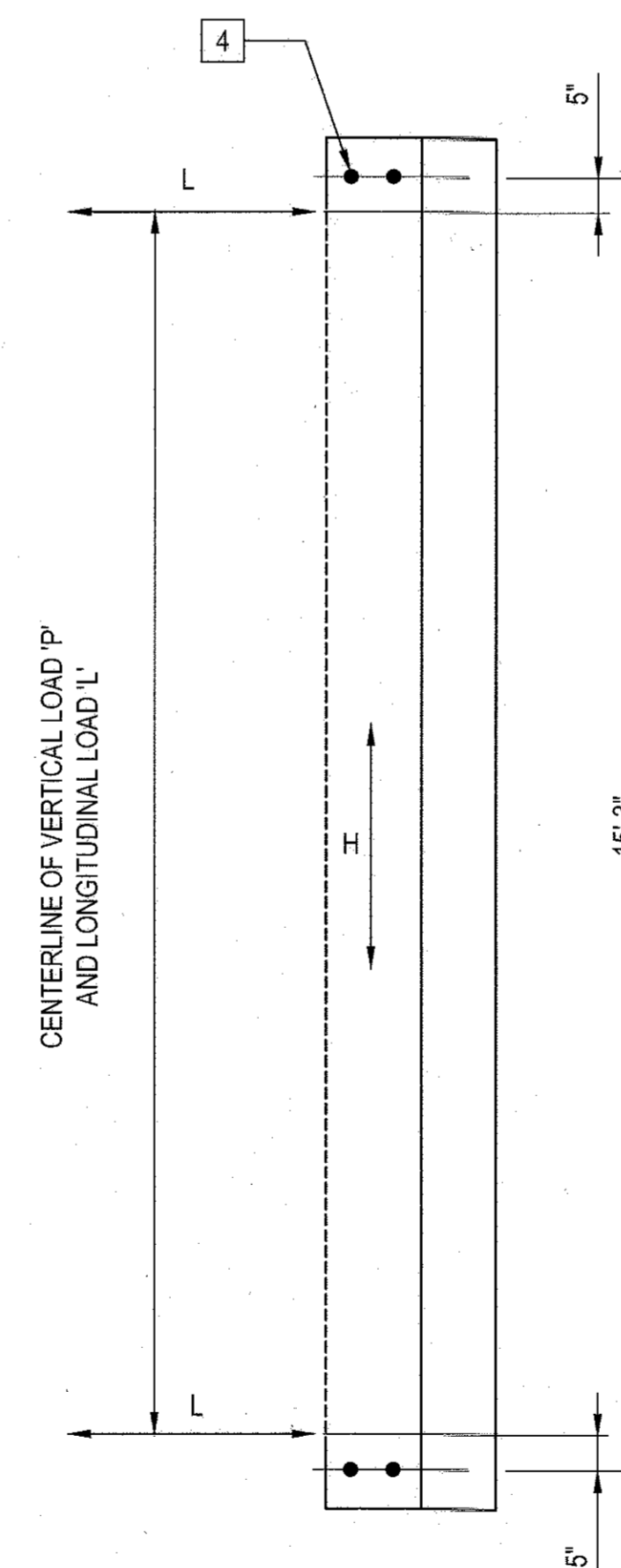
1. BRIDGE LENGTH: 75'-0"
2. BRIDGE WIDTH: 14'-0"
3. LIVE LOAD: 65 psf
4. VEHICLE LOAD: 10,000 lb
5. WIND LOAD: 25 psf LATERAL AND 20 psf UPLIFT

BRIDGE REACTIONS:

NOTIFY THE ENGINEER IF ANY OF THE FINAL DESIGN BRIDGE REACTION EXCEEDS THE BASIS OF DESIGN BRIDGE REACTIONS INDICATED IN TABLE BELOW SUCH THAT THE DESIGN OF CONCRETE BRIDGE ABUTMENT CAN BE ADJUSTED FOR THE FINAL BRIDGE REACTIONS.

BASIS OF DESIGN BRIDGE REACTIONS: (-) UPWARD LOAD			
	P (lbs)	H (lbs)	L (lbs)
DEAD LOAD	7,900		
UNIFORM LIVE LOAD	17,065		
VEHICLE LOAD	5,000		
WIND UPLIFT (20 psf)	- 8,345		
WIND	+/- 1,030	4,770	
THERMAL			2,765

'P' - VERTICAL LOAD AT EACH BASE PLATE (4 PER BRIDGE)
'H' - HORIZONTAL LOAD AT EACH FOOTING (2 PER BRIDGE)
'L' - LONGITUDINAL LOAD AT EACH BEARING (4 PER BRIDGE)



PLAN

3 BRIDGE DESIGN LOADS
S5.1 SCALE: NONE

SHEET NOTE:

1. REFER TO CIVIL DRAWINGS C1.2B FOR PRE-FABRICATED BRIDGE LOCATION AND C4.3A FOR PRE-FABRICATED BRIDGE PROFILES, ELEVATION, AND DETAILS.
2. REFER TO DRAWING S0.1 - S0.5 FOR STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS
3. THE PRE-FABRICATED PEDESTRIAN BRIDGE SHALL BE DESIGNED UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRACTICES AND APPLICABLE BUILDING CODES. THE SUBMITTAL DRAWINGS AND STRUCTURAL CALCULATIONS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER WHO IS LICENSED IN THE STATE OF MARYLAND.

SHEET KEYNOTES:

- 1 PROVIDE PRE-ENGINEER / PRE-FABRICATED PEDESTRIAN BRIDGE.
- 2 COORDINATE DIMENSION WITH BRIDGE MANUFACTURER.
- 3 APPROXIMATE FINISHED GRADE. SLOPES DOWN TO STREAM.
- 4 PROVIDE ANCHOR BOLTS. COORDINATE THE DESIGN OF BRIDGE ANCHOR BOLTS WITH BRIDGE MANUFACTURER.

REVISIONS	

HOWARD COUNTY

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7120 OAKLAND MILLS ROAD
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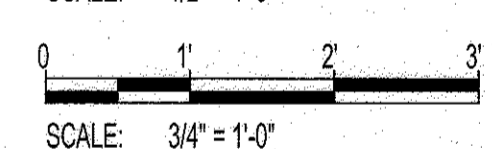
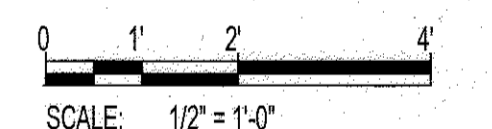
Whitman, Requardt & Associates, LLP
801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY
TAX MAP 36, GRID 5, PARCEL 3,72

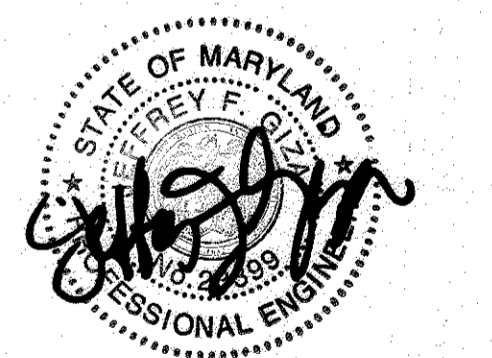
ZONING: RC-DEO

ELECTION DISTRICT 3/7

GRAPHIC SCALES



SIGNATURE



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EXPIRATION DATE: 8/29/2018

BLANDAIR REGIONAL PARK - PHASE 3

SITE STRUCTURES PLAN AND SECTION

Drawing No.

S5.1

Scale: AS INDICATED
Date: 1/17/2017 Sheet 76 of 76
Des: TDR Drawn: TDR Check: WC

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division DATE: 2-6-17
Chief, Division of Land Development DATE: 3-01-17
Director DATE: 3-19-17

FILENAME: \\A:\S05-1703\CDM\A508030201.DWG