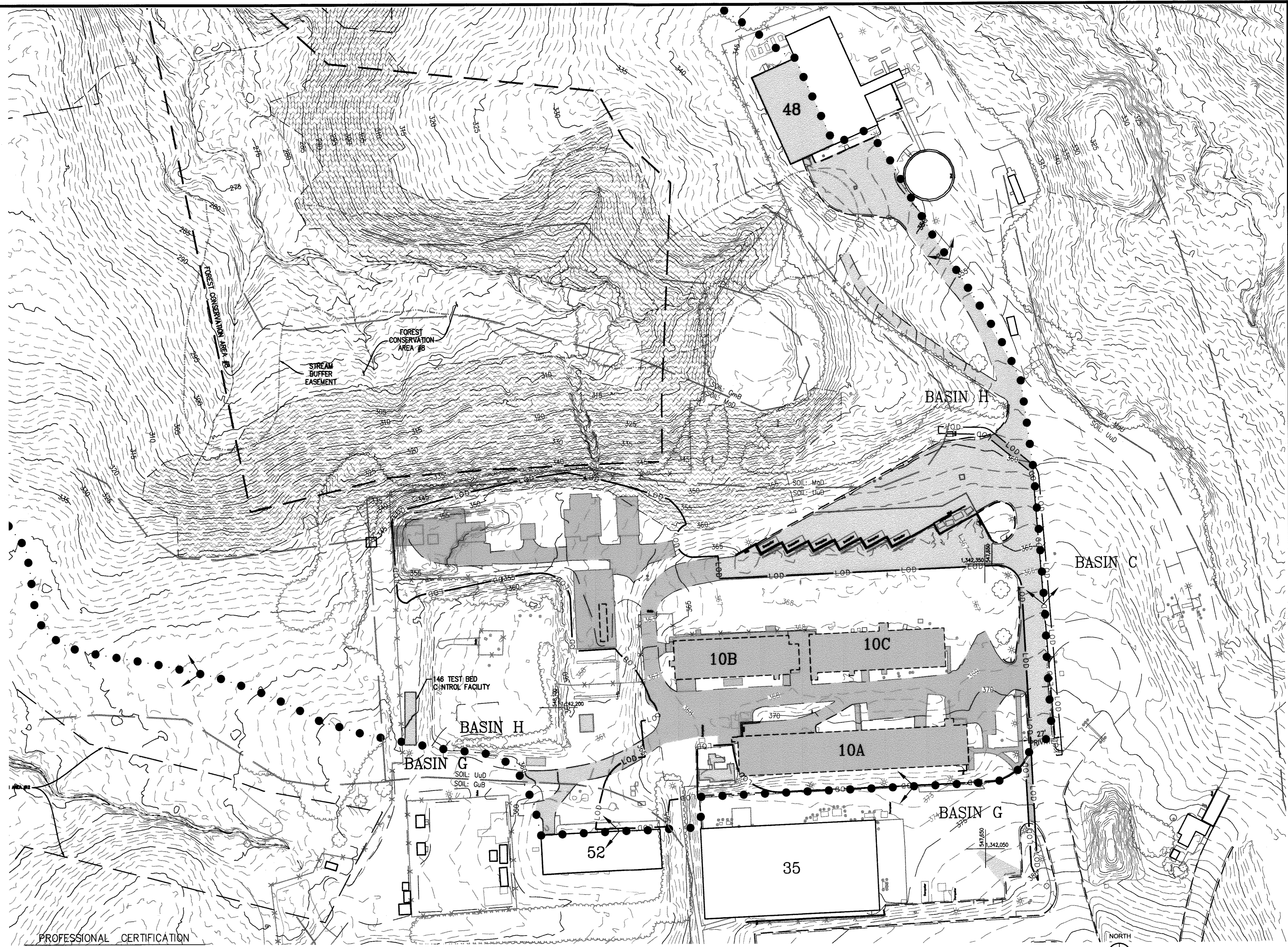


GENERAL LEGEND

	PROPERTY LINE
	EX. BUILDING FACE
	EX. EDGE OF PAVEMENT
	EX. CURB
	EX. CONTOURS
	EX. POWER LINE
	EX. ELECTRIC DUCT
	EX. COMMUNICATIONS LINE
	EX. COMMUNICATIONS DUCT
	EX. GAS LINE
	EX. WATER LINE
	EX. SANITARY SEWER LINE
	EX. STORM SEWER LINE
	EX. TREE
	EX. FENCE
	EX. LIGHT
	EX. STEEP SLOPES (>15%)
	EX. IMPERVIOUS AREA WITHIN THE LOD
	EX. IMPERVIOUS AREA WITHIN BASIN H
	PROP. IMPERVIOUS AREA WITHIN LOD
	FUTURE IMPERVIOUS AREA WITHIN LOD
	PROP. BUILDING FACE
	LIMITS OF DISTURBANCE
	PROP. CURB AND GUTTER
	PROP. CONTOURS
	MINOR EXISTING DRAINAGE DIVIDE
	MAJOR EXISTING DRAINAGE DIVIDE
	MINOR PROPOSED DRAINAGE DIVIDE
	MINOR ULTIMATE DRAINAGE DIVIDE

	SPOT LOCATION	SPOT ELEVATIONS	DECIMAL FEET OF ELEVATION
	WHOLE FEET OF ELEVATION	00 FG	SPOT TYPE INDICATOR
	*EX: 00.00	FINISHED GRADE ELEVATION	00.00
	*EX: 00.00	TOP OF CURB ELEVATION	00.00
	*EX: 00.00	EDGE OF PAVEMENT ELEVATION	00.00
	*EX: 00.00	MATCH EXISTING GRADE ELEVATION	00.00



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 LICENSE NUMBER: 20906 EXPIRATION DATE: 7/21/2017

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division 8/31/15 Date
 Chief, Division of Land Development 8/29/16 Date

1	INITIAL SUBMISSION	12/30/2015
No	PLAN STATUS	DATE

No	REVISION	DATE

THE JOHNS HOPKINS UNIVERSITY
 APPLIED SCIENCE LABORATORY
 11100 JOHN HOPKINS RD
 LAUREL, MD 20723
 TAX MAP 41 PARCEL 123
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

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SCALE: 1"=50'
SCALE: N/A
DESIGNED: JVL
DRAWN: JVL
CHECKED: REB
DATE: 12/30/15
ECP FILE NUMBER: ECP-16-038
DRAWING NO: ECP-02

THE JOHNS HOPKINS UNIVERSITY
 APPLIED PHYSICS LABORATORY
 BUILDING 32
 ENVIRONMENTAL CONCEPT PLAN
 SITE AREA MAP

Subarea	Area (ac)	Impervious (ac)	Pervious (ac)	C Value	Q-2YR (cfs)	Q-10YR (cfs)
EXISTING						
X1	0.404	0.080	0.324	0.42	1.00	1.44
X2	0.763	0.273	0.490	0.51	2.32	3.34
X3	0.516	0.361	0.155	0.72	2.19	3.16
XR1	0.122	0.122	0.000	0.90	0.65	0.93
XR2	0.135	0.135	0.000	0.90	0.72	1.03
XR3	0.234	0.234	0.000	0.90	1.24	1.79
OS2	0.592	0.592	0.000	0.90	3.14	4.53
UC	26.261	0.363	25.898	0.31	47.77	68.82
Total	29.027	2.160	26.867	0.345	59.02	85.03
OFFSITE						
OS1	0.039	0.016	0.023	0.55	0.13	0.18
EX4	0.074	0.074	0.000	0.90	0.39	0.57
EX5	0.121	0.121	0.000	0.90	0.64	0.93
EX6	0.158	0.158	0.000	0.90	0.84	1.21
Total	0.392	0.369	0.023	0.865	2.00	2.88

E&S CONTROL LEGEND

- CONCRETE WASHOUT AREA
- SILT FENCE
- PERIMETER DIKE/SWALE
- AT-GRADE INLET PROTECTION
- CURB INLET PROTECTION
- TEMPORARY ASPHALT BERM
- STABILIZED CONSTRUCTION ENTRANCE
- SLOPE STABILIZATION MATTING/EXISTING SLOPES >15%
- CHECK DAM
- SEDIMENT TRAP

(C-1)
C-020

LEGEND

- MAJOR EXISTING DRAINAGE DIVIDE
- MINOR EXISTING DRAINAGE DIVIDE
- RUNOFF DIRECTION
- LIMITS OF DISTURBANCE
- SOIL DIVIDE
- EX. IMPERVIOUS AREA WITHIN LOD
- EX. IMPERVIOUS AREA WITHIN BASIN H

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 8/3/11 Date

Chief, Division of Land Development 8/20/11 Date

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No	PLAN STATUS	DATE
1	INITIAL SUBMISSION	12/30/2015

No	REVISION	DATE

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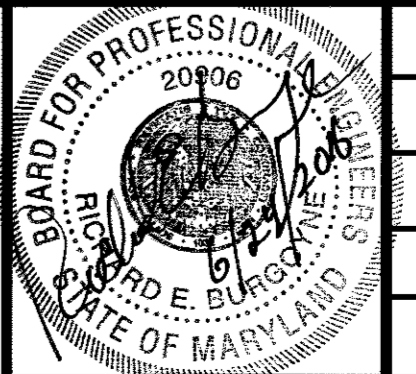
TAX MAP 41 PARCEL 123
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND

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THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
BUILDING 32

ENVIRONMENTAL CONCEPT PLAN
DRAINAGE AREA MAP - EXISTING CONDITION

SCALE: H 1"=30'
SCALE: V N/A

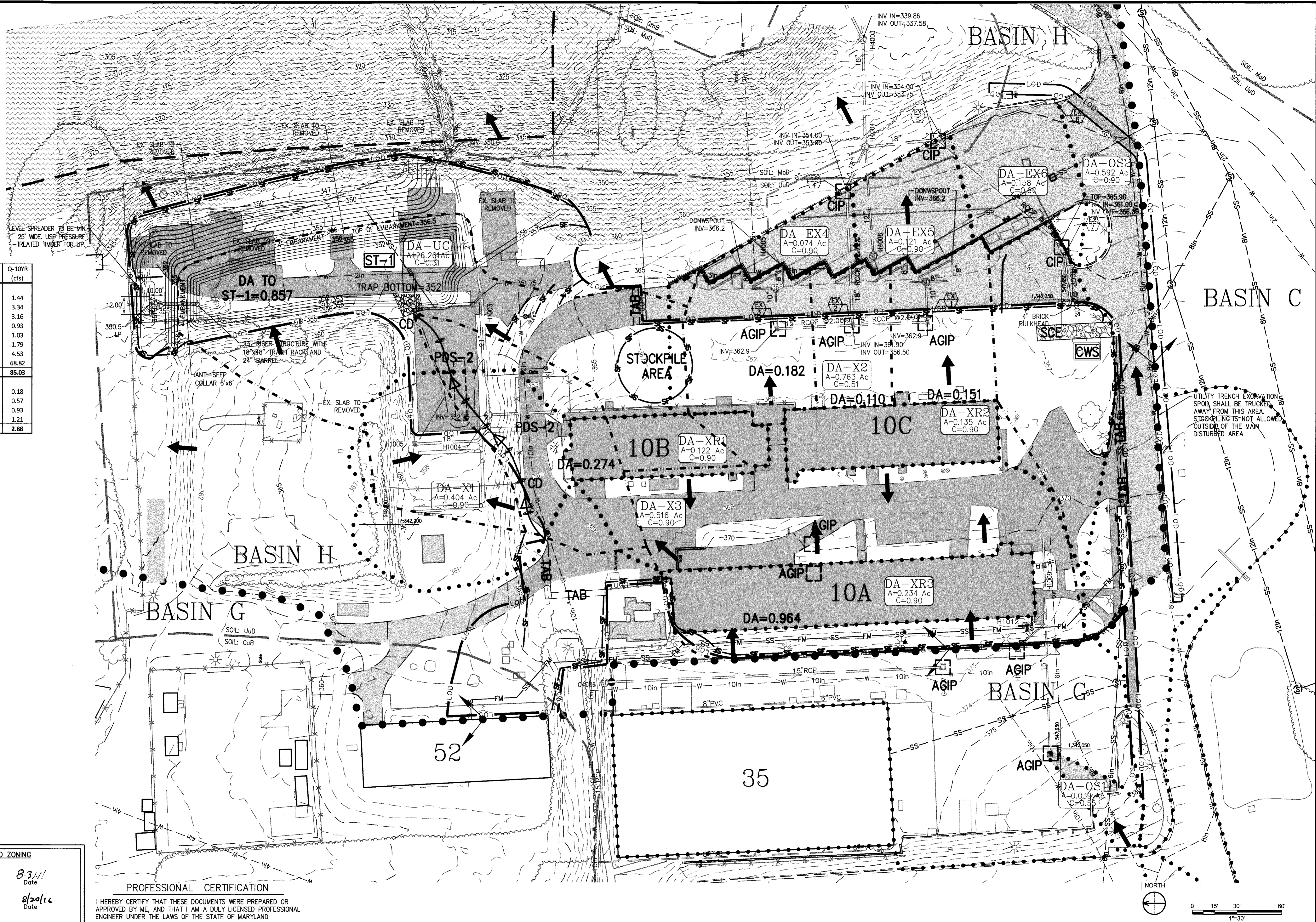
DESIGNED: JVL
DRAWN: JVL

CHECKED: REB

DATE: 12/30/15

ECP FILE NUMBER: ECP-16-038

DRAWING NO: ECP-03



Subarea	Area (ac)	Impervious (ac)	Pervious (ac)	C Value	Q-2YR (cfs)	Q-10YR (cfs)
ULTIMATE						
R1	0.518	0.462	0.056	0.84	2.55	3.68
R1A	0.170	0.170	0.000	0.90	0.90	1.30
R2	0.183	0.183	0.000	0.90	0.97	1.40
R3	0.220	0.220	0.000	0.90	1.17	1.68
1	0.123	0.123	0.000	0.90	0.65	0.94
2	0.189	0.097	0.092	0.61	0.68	0.98
3	0.256	0.060	0.196	0.44	0.67	0.96
BIO-1	0.084	0.000	0.084	0.30	0.15	0.21
BIO-2	0.057	0.000	0.057	0.30	0.10	0.15
BIO-3	0.029	0.000	0.029	0.30	0.05	0.07
BIO-4	0.038	0.000	0.038	0.30	0.07	0.10
OS2	0.545	0.545	0.000	0.90	2.89	4.17
OS3	0.218	0.218	0.000	0.90	1.16	1.67
UC	26.397	0.453	25.944	0.31	48.33	69.62
Total	29.027	2.531	26.496	0.352	60.34	86.93
EXISTING						
X1	0.404	0.080	0.324	0.42	1.00	1.44
X2	0.763	0.273	0.490	0.51	2.32	3.34
X3	0.516	0.361	0.155	0.72	2.19	3.16
XR1	0.122	0.122	0.000	0.90	0.65	0.93
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EX5	0.121	0.121	0.000	0.90	0.64	0.93
EX6	0.158	0.158	0.000	0.90	0.84	1.21
Total	0.392	0.369	0.023	0.865	2.00	2.88

LEGEND

- MINOR EXISTING DRAINAGE DIVIDE
- MAJOR EXISTING DRAINAGE DIVIDE
- MINOR PROPOSED DRAINAGE DIVIDE
- MAJOR PROPOSED DRAINAGE DIVIDE
- MINOR ULTIMATE DRAINAGE DIVIDE
- RUNOFF DIRECTION
- LOD LIMITS OF DISTURBANCE
- SOIL DIVIDE
- EX IMPERVIOUS AREA WITHIN BASIN H
- PROP. IMPERVIOUS AREA WITHIN THE LOD
- FUTURE IMPERVIOUS AREA WITHIN THE LOD
- TRIBUTARY TO MANHOLE-03 AND BIO-BASINS
- SD MANHOLE
- CI CURB INLET OR AT-GRADE INLET

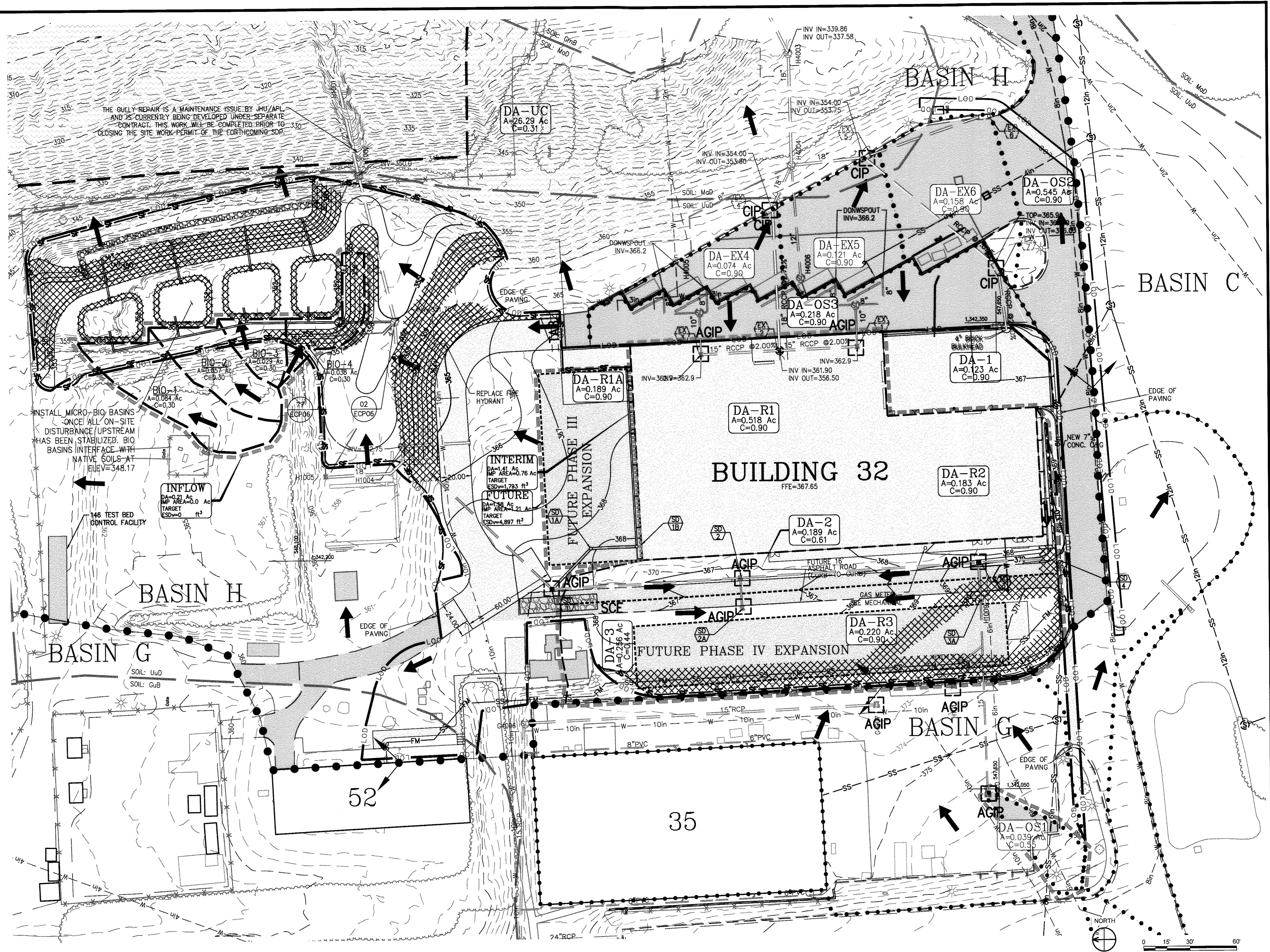
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LICENSE NUMBER: 20906 EXPIRATION DATE: 7/21/2017

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 8/31/16
 Chief, Development Engineering Division
[Signature] 8/31/16
 Chief, Division of Land Development



No	PLAN STATUS	DATE
1	INITIAL SUBMISSION	12/30/2015

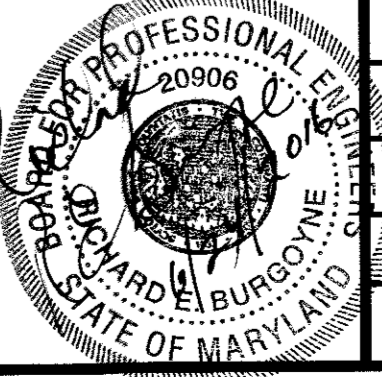
No	REVISION	DATE

NO	REVISION	DATE

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 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND

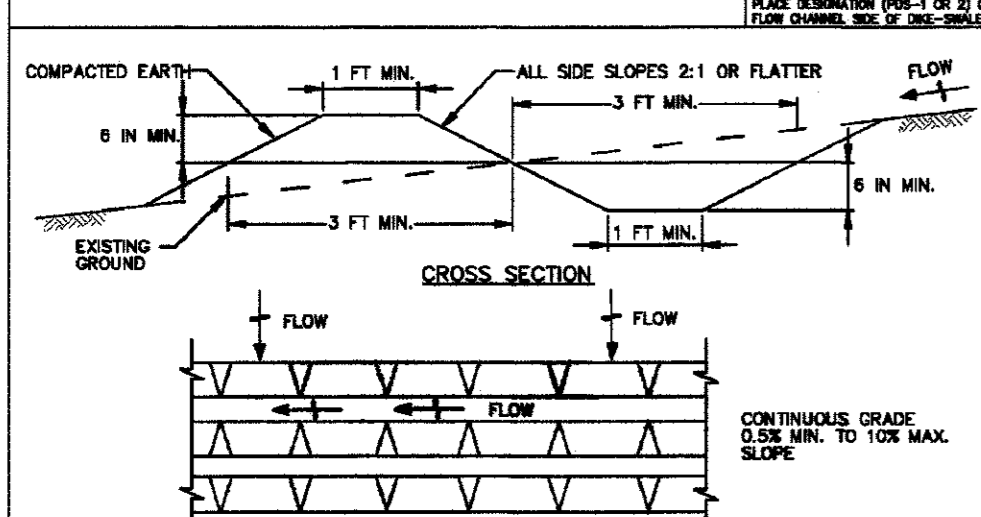
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THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
BUILDING 32
 ENVIRONMENTAL CONCEPT PLAN
DRAINAGE AREA MAP - ULTIMATE CONDITION
 DATE: 12/30/15
 ECP FILE NUMBER: ECP-16-038
 DRAWING NO: ECP-04

DETAIL C-3 PERIMETER DIKE/SWALE



STANDARD SYMBOL... FLOW CHANNEL STABILIZATION... POS-1 SEED AND MULCH AND TACK (DRAWING < 1 ACRE)... POS-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD... CONSTRUCTION SPECIFICATIONS... MAINTENANCE SPECIFICATIONS... Maryland Standards and Specifications for Soil Erosion and Sediment Control...

B-4.4 STANDARDS AND SPECIFICATIONS

FOR STOCKPILE AREA

Definition: A mound or pile of soil protected by appropriately designed erosion and sediment control measures. Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns. Conditions Where Practice Applies: Criteria: 1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. 3. Runoff from the stockpile area must drain to a suitable sediment control practice. 4. Access the stockpile area from the up-slope side. 5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. 6. Where runoff concentrates along the top of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge. 7. Stockpiles must be stabilized in accordance with the 37 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Table C.3: Earth Dike Selection

Table C.3: Earth Dike Selection. Table with columns for Slope % and rows for dike types 1 through 10. Includes notes on velocity of discharge and earth dike selection criteria.

Notes: Velocity of discharge in feet per second. For earth dike slopes steeper than 10 percent refer to Section D - Erosion Control. Notes: If the slope of the earth dike or drainage area to the dike falls between values on Table C.3, round to the next higher slope or drainage area. A-1 earth dikes are not allowed for diverting clear water.

Permanent Seeding Summary

Permanent Seeding Summary table with columns: No., Species, Application Rate (lb/ac), Seeding Dates, Seeding Depths, Fertilizer Rate (10-20-20) (N, P2O5, K2O), Lime Rate.

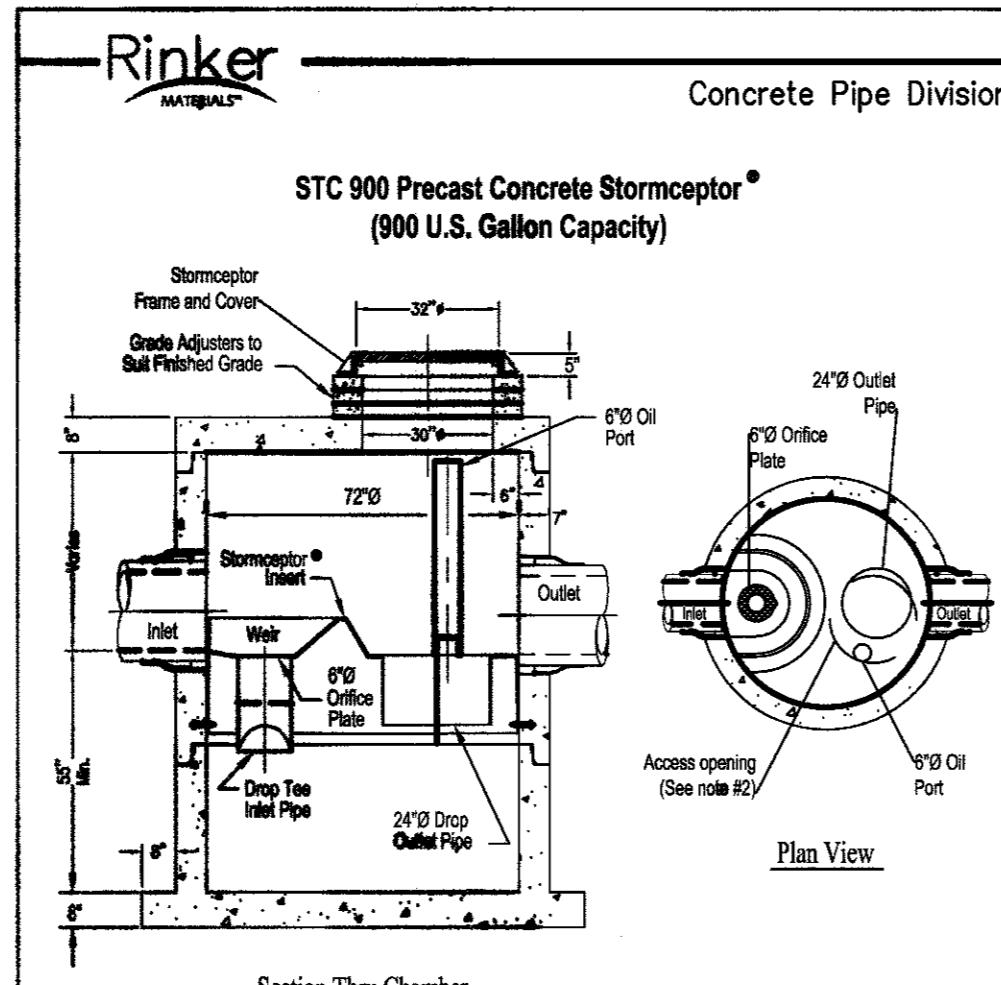
Temporary Seeding Summary

Temporary Seeding Summary table with columns: No., Species, Application Rate (lb/ac), Seeding Dates, Seeding Depths, Fertilizer Rate (10-20-20) (N, P2O5, K2O), Lime Rate.

PERMITTER DIKE/SWALE Hydraulic Analysis Report

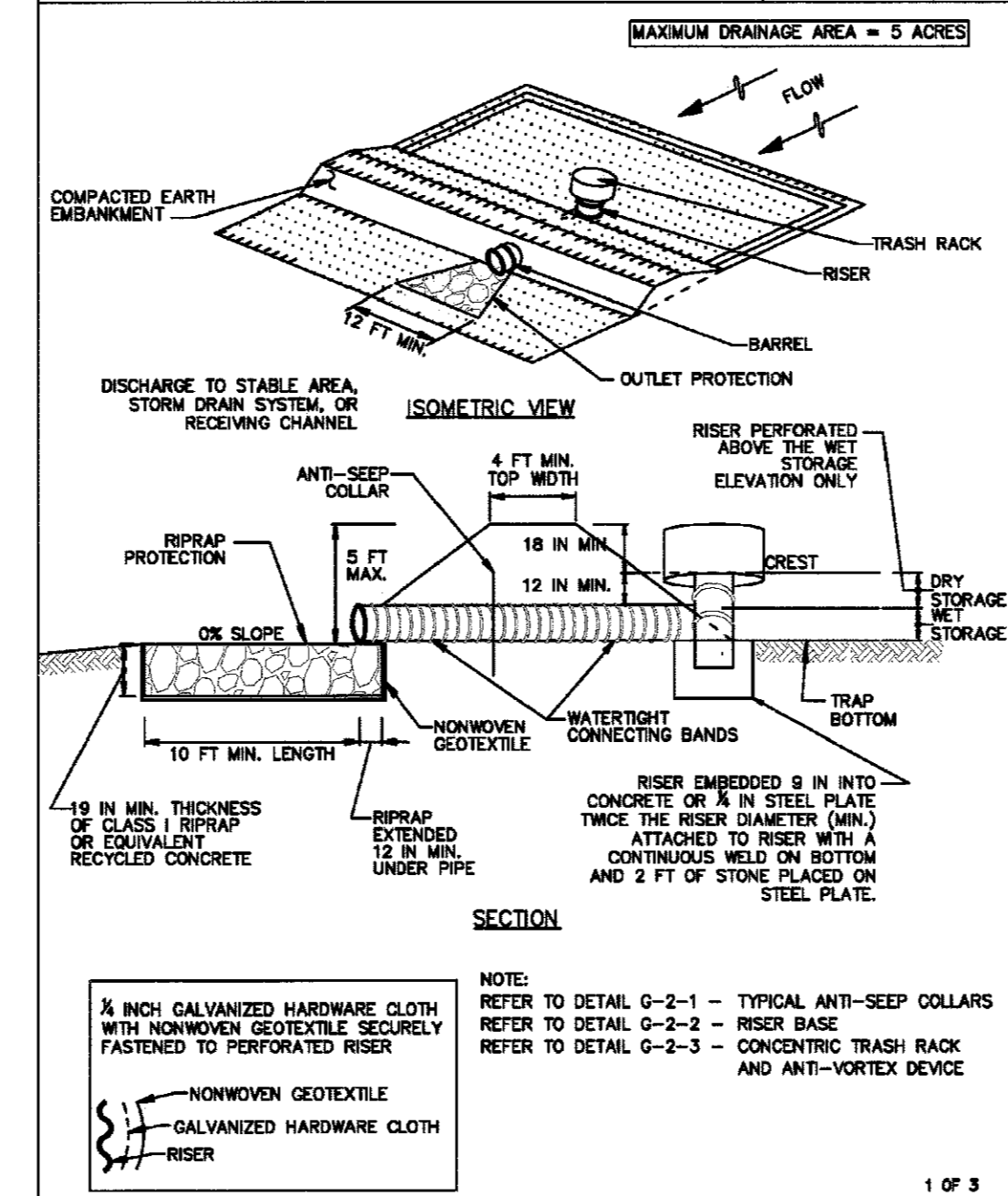
Project Data: Project Title, Designer, Project Date, Project Units. Channel Analysis: Channel Analysis. Input Parameters: Channel Type, Side Slope 1, Side Slope 2, Longitudinal Slope, Manning's n, Flow. Result Parameters: Depth, Area of Flow, Wetted Perimeter, Hydraulic Radius, Average Velocity, Top Width, Froude Number, Critical Depth, Critical Velocity, Critical Slope, Critical Top Width, Calculated Max Shear Stress, Calculated Avg Shear Stress.

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Notes: 1. The Use Of Flexible Connection is Recommended at the Inlet and Outlet Where Applicable. 2. The Cover Should be Positioned Over the Outlet Drop Pipe and the Oil Port. 3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #606521, #732760, #737115, #550191, #666765, #627150. 4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

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

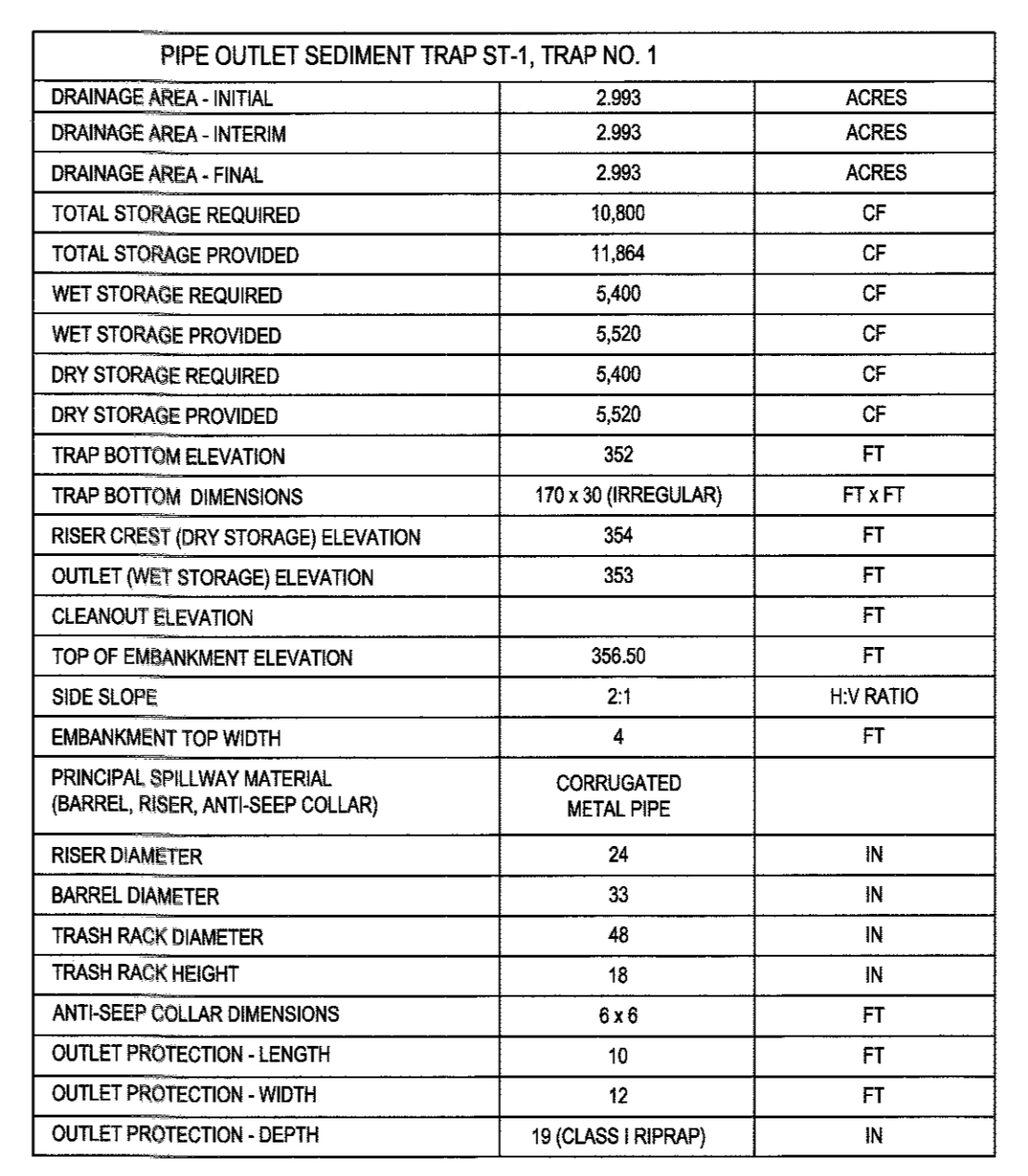
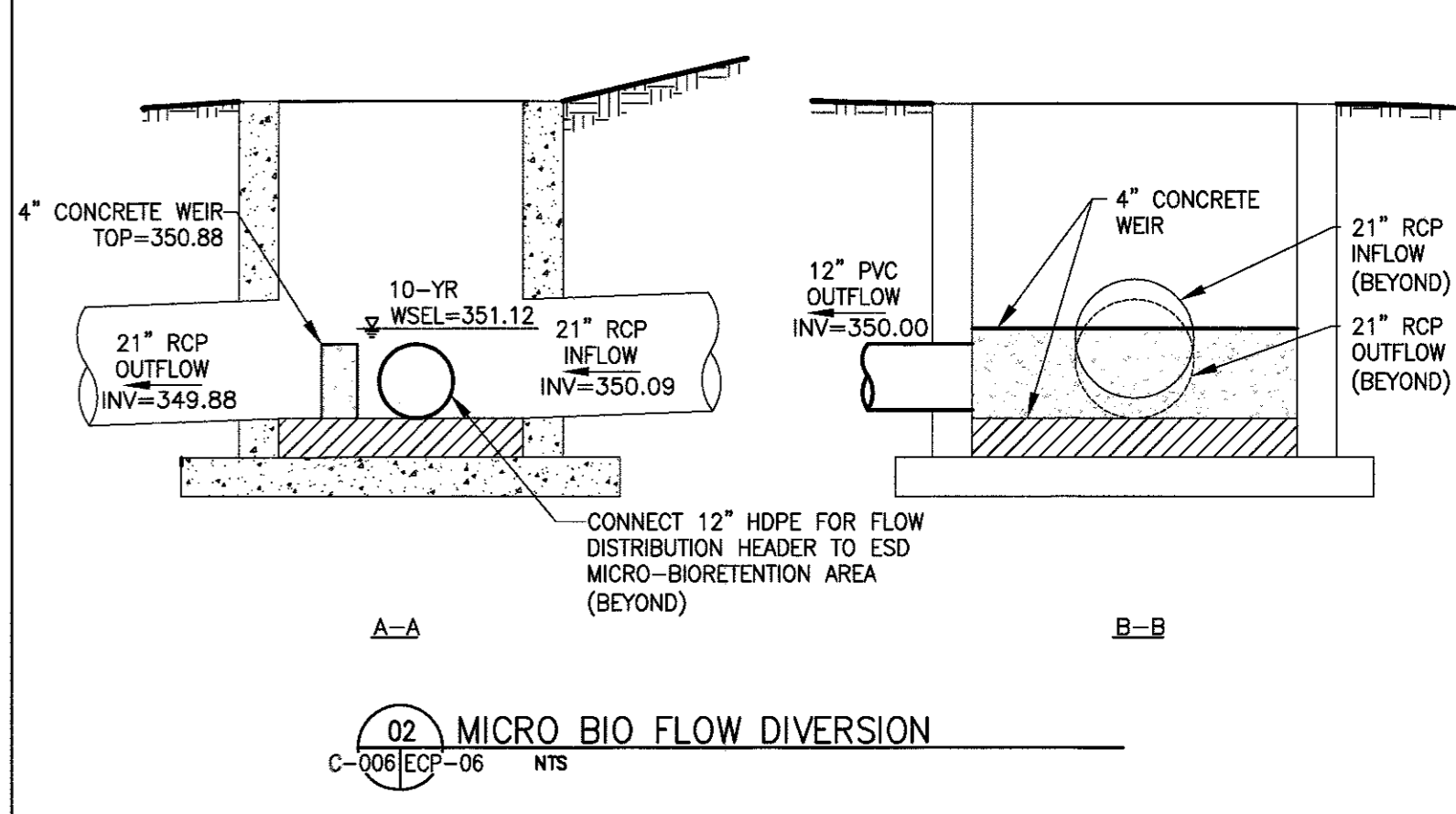
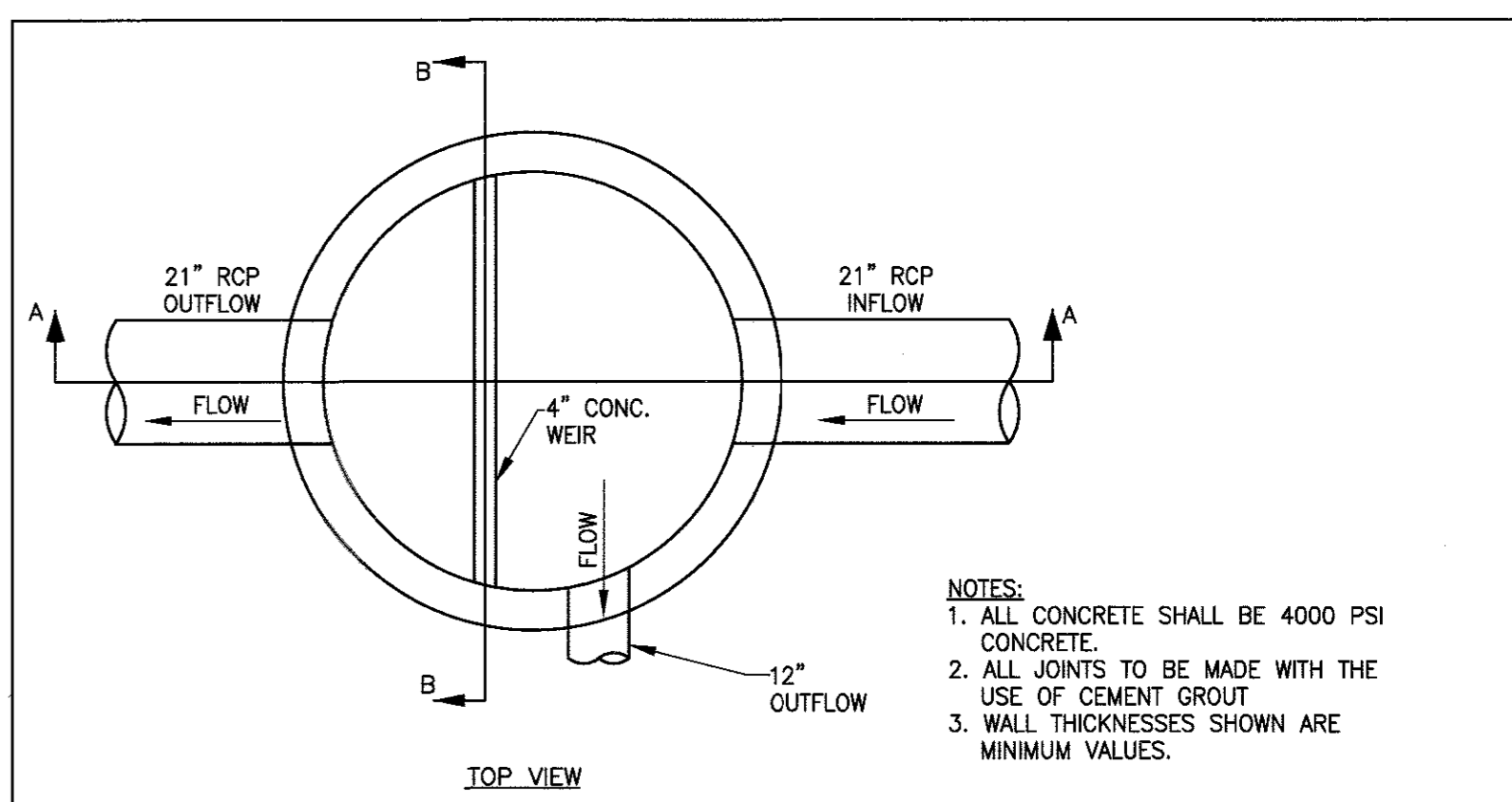


Notes: 1/2 inch GALVANIZED HARDWARE CLOTH WITH NONWOVEN GEOTEXTILE SECURELY FASTENED TO PERFORATED RISER. NONWOVEN GEOTEXTILE. RISER.

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

Table with columns: PIPE OUTLET SEDIMENT TRAP ST-1, TRAP NO. 1. Rows: DRAINAGE AREA - INITIAL, DRAINAGE AREA - INTERM, DRAINAGE AREA - FINAL, TOTAL STORAGE REQUIRED, TOTAL STORAGE PROVIDED, WET STORAGE REQUIRED, WET STORAGE PROVIDED, DRY STORAGE REQUIRED, DRY STORAGE PROVIDED, TRAP BOTTOM ELEVATION, TRAP BOTTOM DIMENSIONS, RISER CREST (DRY STORAGE) ELEVATION, OUTLET (WET STORAGE) ELEVATION, CLEANOUT ELEVATION, TOP OF EMBANKMENT ELEVATION, SIDE SLOPE, EMBANKMENT TOP WIDTH, PRINCIPAL SPILLWAY MATERIAL.

Notes: REFER TO DETAIL G-2-1 - TYPICAL ANTI-SEEP COLLARS. REFER TO DETAIL G-2-2 - RISER BASE. REFER TO DETAIL G-2-3 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE.



Notes: 1. IF SIDE SLOPES > 3:1, PROVIDE LOW MAINTENANCE GROUND COVER TO REDUCE EROSION OF SIDE SLOPES. 2. ALL BASINS TO PROVIDE 6 INCH OF FREEBOARD. 3. UNDERDRAINS SHOWN FOR REFERENCE ELEVATION ONLY. SEE LAYOUT PLAN FOR LOCATIONS. 4. ALL MATERIALS AND CONSTRUCTION SPECIFICATIONS SHALL ADHERE TO THE MARYLAND STORMWATER DESIGN MANUAL MICRO-BIORETENTION DESIGN STANDARDS.

Table with 2 columns: PLAN STATUS, DATE. Row 1: INITIAL SUBMISSION, 12/30/2015. Row 2: Blank.

Table with 2 columns: REVISION, DATE. Row 1: Blank. Row 2: Blank.

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Professional Engineer Seal for J. Van Leeuwen, State of Maryland. Cowen Design Group logo. Project information: THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY BUILDING 32 ENVIRONMENTAL CONCEPT PLAN ESD DETAILS. Scale: H N/A, V N/A. Designer: JVL. Date: 12/30/15. ECP File Number: ECP-16-038. Drawing No: ECP-06.