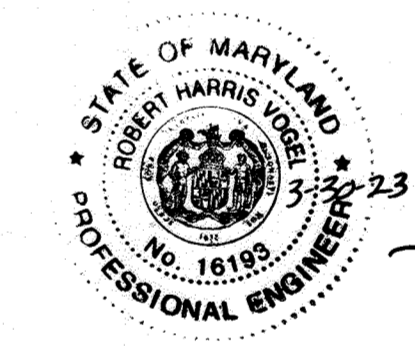


EXISTING UTILITIES NOTE:
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AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

P.E. NAME: **16193** DATE: **3-30-23**

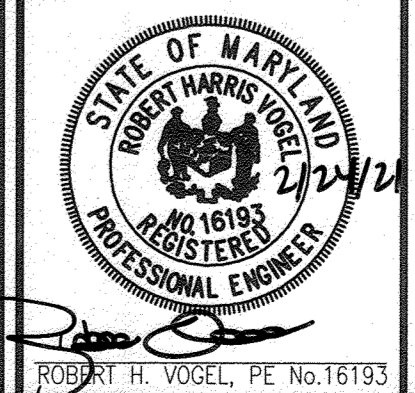
DEMOLITION PLAN
 SCALE: 1"=40'
 SCALE: 1"=40'

OWNER / DEVELOPER
 9190 LLC
 508 OLNEY-SANDY SPRING ROAD
 SUITE 200
 SANDY SPRING, MARYLAND 20860
 (301) 924-5258
 C/O NICHOLS CONTRACTING, INC.
 FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE
1	REVISE THE PLAN TO MODIFY THE PUBLIC STORM DRAIN AND PRIVATE ESP	9-1-21
	PRACTICE DUE TO UNDERGROUND OPTIC CONDUIT LOCATION	

REVISED SITE DEVELOPMENT PLAN
DEMOLITION PLAN
 OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
 WAREHOUSE AND OFFICE.
 PARCEL 239
 9188 & 9190 RED BRANCH ROAD
 2ND ELECTION DISTRICT
 ZONED: NT
 LOT 2 / PARCEL 239
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, MELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8991 www.timmons.com



PROFESSIONAL CERTIFICATE

DESIGN BY: DZE
 DRAWN BY: DZE/MP
 CHECKED BY: RHV
 DATE: FEBRUARY 2021
 SCALE: AS SHOWN
 W.O. NO.: 13-07/44117

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. 16193 EXPIRATION DATE: 08-27-2022

2 SHEET OF 21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

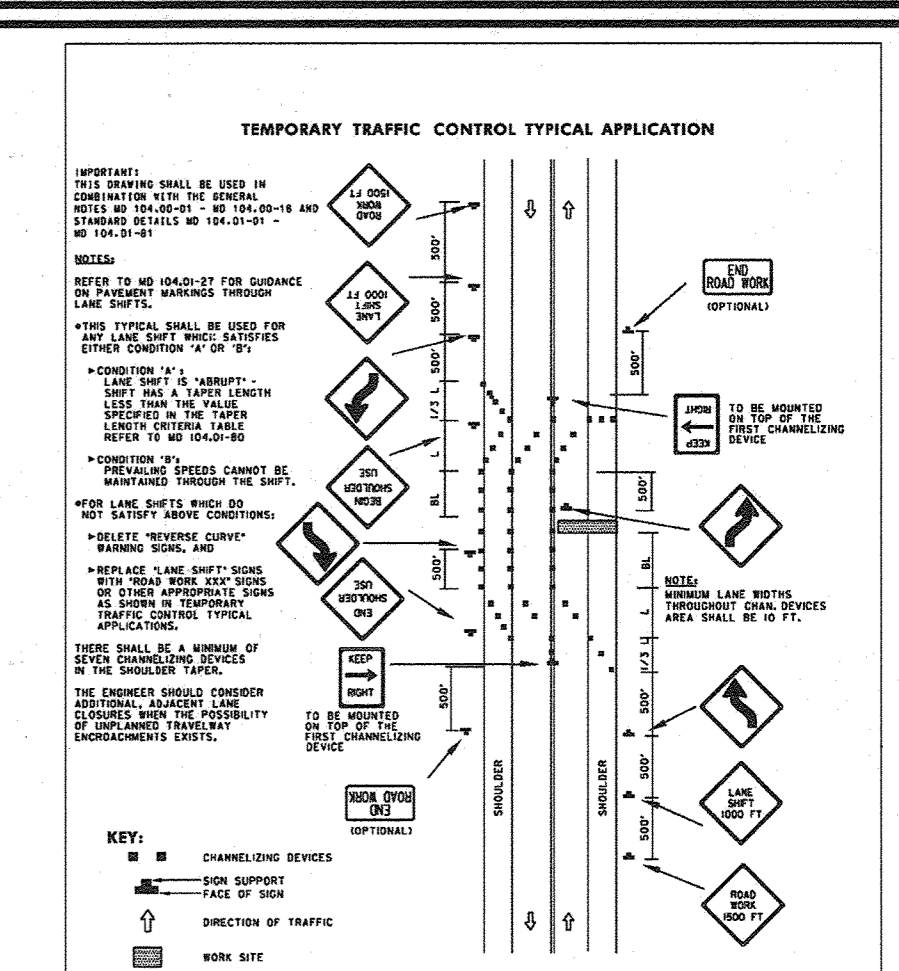
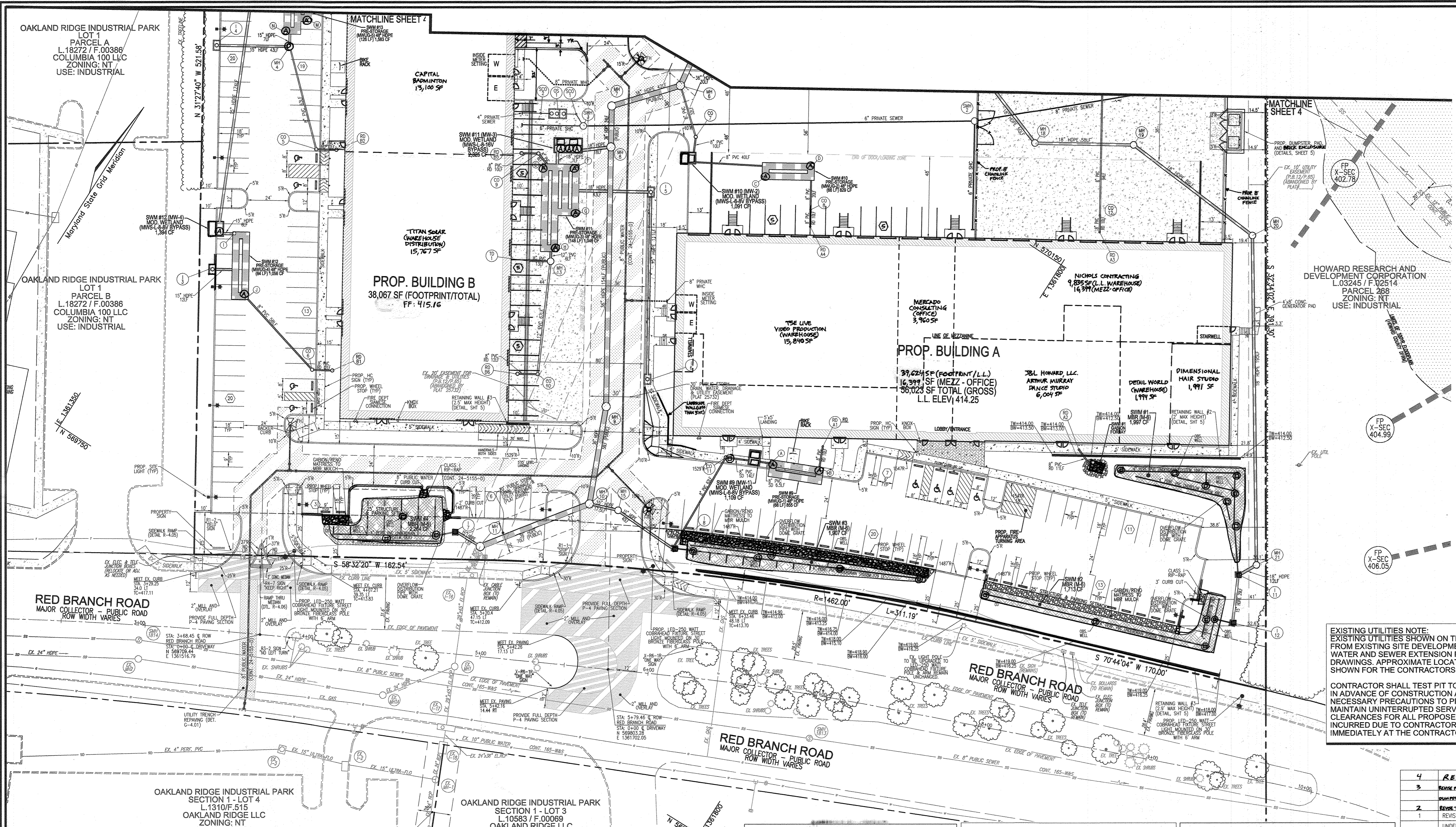
Chad Coleman 4-22-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Chris Gorman 5-3-21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris Gorman 5-3-21
 DIRECTOR DATE

NO AS-BUILT INFORMATION ON THIS SHEET

AS-BUILT, JULY 2022



TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

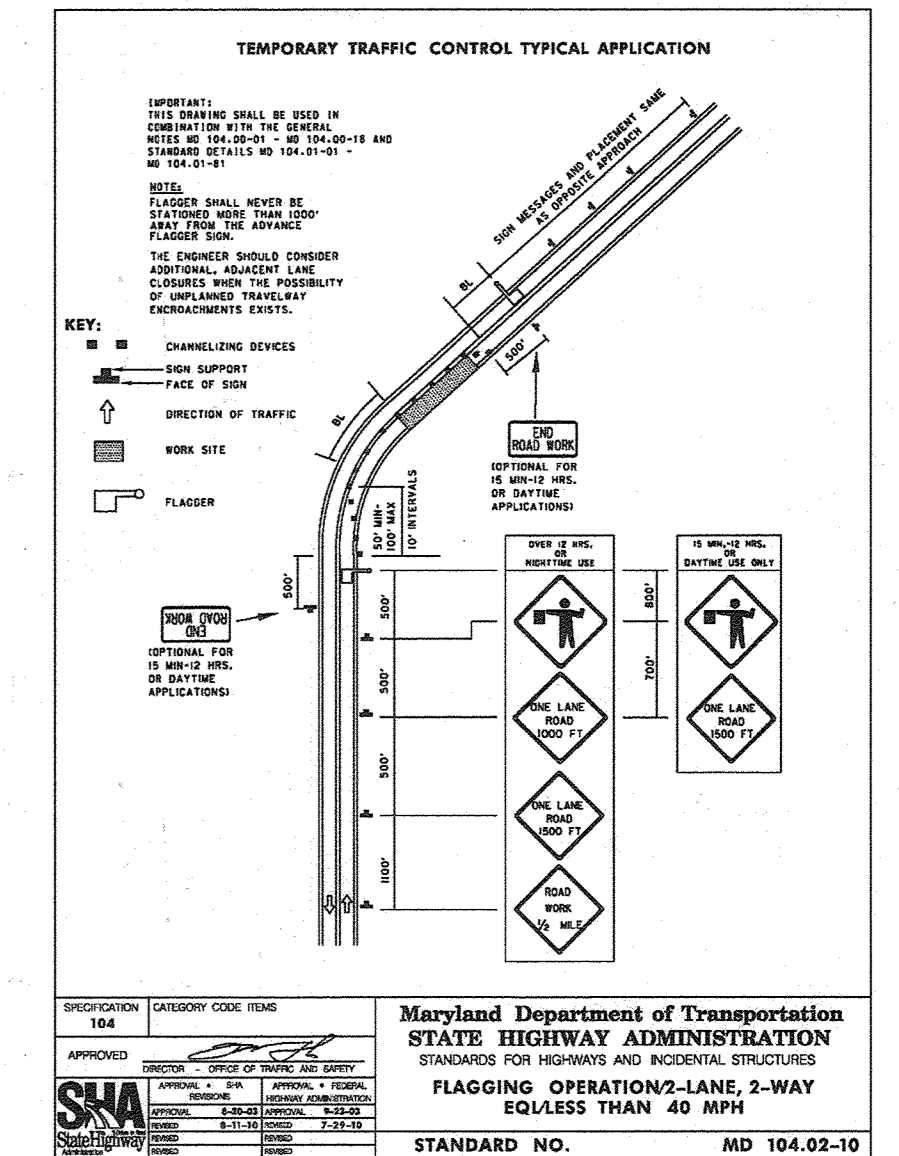
IMPORTANT: THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, MARYLAND STATE HIGHWAY ADMINISTRATION, 2018 EDITION, AND THE MARYLAND STATE HIGHWAY ADMINISTRATION'S STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, 2018 EDITION.

KEY:

- CHANNELLING DEVICES
- FACE OF SOIL
- DIRECTION OF TRAFFIC
- WORK SITE

APPROVED: [Signature]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT RIGHT OR LEFT SIDE/2-LANE, 2-WAY EQUALS OR DAYTIME ONLY
STANDARD NO. MD 104.02-04



TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT: THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, MARYLAND STATE HIGHWAY ADMINISTRATION, 2018 EDITION, AND THE MARYLAND STATE HIGHWAY ADMINISTRATION'S STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, 2018 EDITION.

KEY:

- CHANNELLING DEVICES
- FACE OF SOIL
- DIRECTION OF TRAFFIC
- WORK SITE
- PLASTER

APPROVED: [Signature]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATIONS-LANE, 2-WAY EQUALS THAN 40 MPH
STANDARD NO. MD 104.02-10

EXISTING UTILITIES NOTE:
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OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

LEGEND:

EXISTING CONTOUR	EXISTING STREAM BANK	FLOORPLAN CROSS-SECTION
PROPOSED CONTOUR	PRE-2014, 0L STREAM CHANNEL (SIP-19-034)	EXISTING TREES/LANDSCAPING
EXISTING CURB AND GUTTER	PROPERTY LINE	PROPOSED BOLLARD
PRE-2014 PIPE AND HEADWALL	RIGHT-OF-WAY LINE	PROPOSED CURB AND GUTTER
EXISTING UTILITY POLE	PROPOSED SIDEWALK	PROPOSED CABION FORBAY
EXISTING MAILBOX	PROPOSED STREET LIGHT	100 YEAR FLOORPLAN (HOWARD COUNTY DFRM)
EXISTING SIGN	EXISTING TREE SIGN	MICRO-BORRENTION
EXISTING SANITARY MANHOLE	PROPOSED TREELINE	20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 25732)
EXISTING SANITARY LINE	PROPOSED STORM DRAIN	30' PUBLIC GRADE AND UTILITY EASEMENT (PLAT 25732)
EXISTING CLEANOUT	PROPOSED STORM DRAIN	20' PUBLIC GRADE AND UTILITY EASEMENT
EXISTING FIRE HYDRANT	PROPOSED FIRE HYDRANT	MILL AND OVERLAY
EXISTING WATER LINE & VALVE	PROPOSED WATER TEE & VALVE	FULL DEPTH P-4
EXISTING GASLINE	PROPOSED WATER MAIN	UTILITY TRENCH REPAIRING
EXISTING FENCE	PROPOSED SEWER MAIN	

AS-BUILT CERTIFICATION FOR PSWM
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT-ENGINEERING DIVISION
DATE: 5/16/22

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/1/22

PLAN VIEW
SCALE: 1" = 30'

STATE OF MARYLAND
ROBERT HARRIS VOGEL, PE
PROFESSIONAL ENGINEER
NO. 16193

APPROVED: [Signature]
DATE: 3-20-23

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT: THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, MARYLAND STATE HIGHWAY ADMINISTRATION, 2018 EDITION, AND THE MARYLAND STATE HIGHWAY ADMINISTRATION'S STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, 2018 EDITION.

KEY:

- CHANNELLING DEVICES
- FACE OF SOIL
- DIRECTION OF TRAFFIC
- WORK SITE

APPROVED: [Signature]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK-DIVIDED UNCON. EQUALS LESS THAN 40 MPH
STANDARD NO. MD 104.04-02

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

IMPORTANT: THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, MARYLAND STATE HIGHWAY ADMINISTRATION, 2018 EDITION, AND THE MARYLAND STATE HIGHWAY ADMINISTRATION'S STANDARD SPECIFICATIONS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, 2018 EDITION.

KEY:

- CHANNELLING DEVICES
- FACE OF SOIL
- DIRECTION OF TRAFFIC
- WORK SITE

APPROVED: [Signature]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK-2-LANE, 2-WAY EQUALS LESS THAN 40 MPH
STANDARD NO. MD 104.02-06

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

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KEY:

- CHANNELLING DEVICES
- FACE OF SOIL
- DIRECTION OF TRAFFIC
- WORK SITE

APPROVED: [Signature]

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK-2-LANE, 2-WAY EQUALS LESS THAN 40 MPH
STANDARD NO. MD 104.02-02

REVISED SITE DEVELOPMENT PLAN

SITE LAYOUT PLAN

OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE

TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT

9188 & 9190 RED BRANCH ROAD
LOT 2 / PARCEL 239
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

TIMMONS GROUP

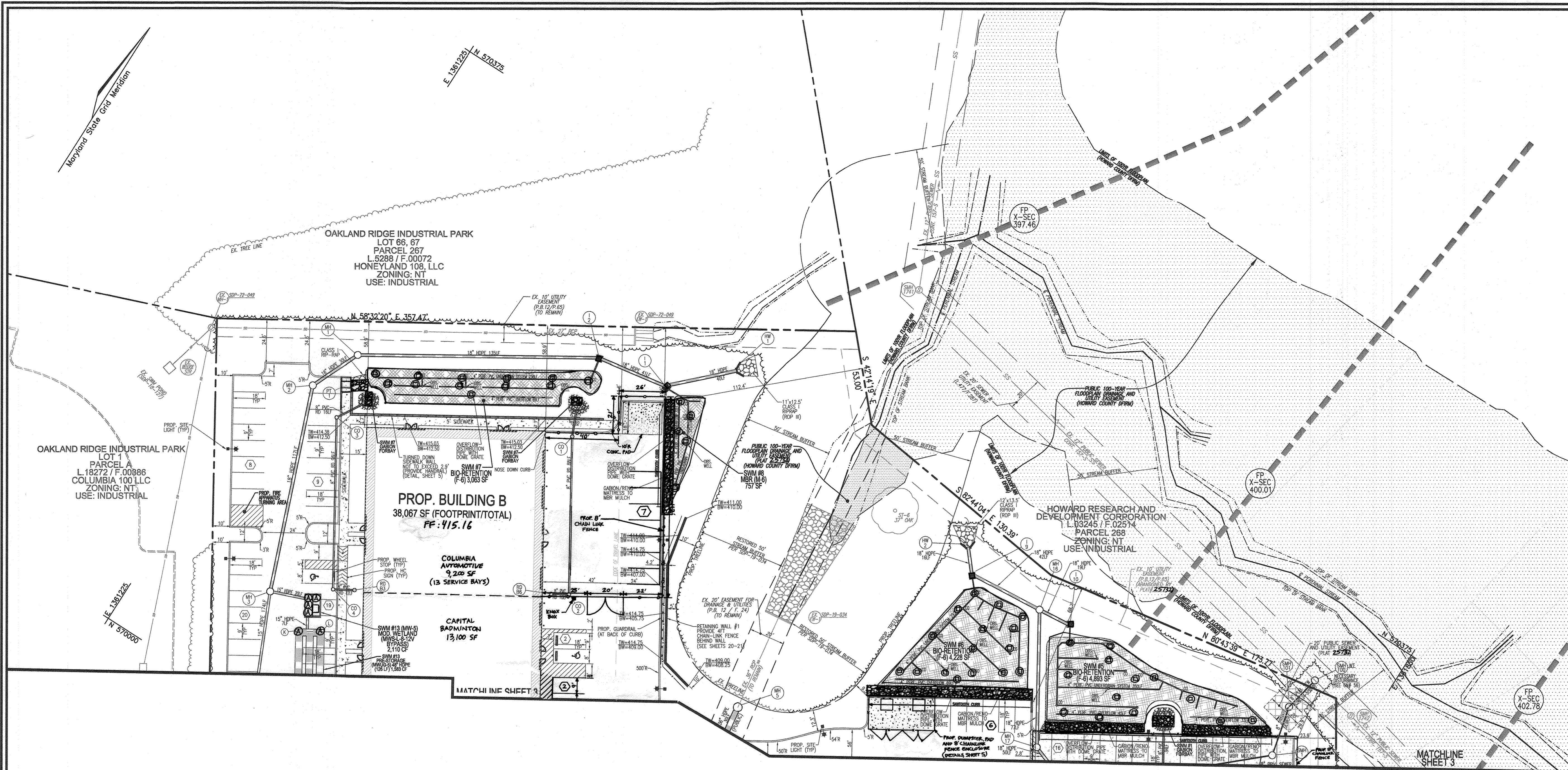
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHY
DATE: NOVEMBER 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

PROFESSIONAL CERTIFICATE
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. 16193, EXPIRATION DATE: 09-27-2022

3 SHEET OF 21

AS-BUILT, JULY 2022



LEGEND:

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	EXISTING 36" RCP (TO REMAIN)
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING GASLINE
	EXISTING STREAM BANK
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	PROPOSED SIDEWALK
	PROPOSED SIDEWALK RAMP
	EXISTING TREE LINE
	PROPOSED TREE LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	PROPOSED FIRE HYDRANT
	PROPOSED WATER TEE & VALVE
	PROPOSED WATER MAIN
	PROPOSED SEWER MAIN
	PRE-2014 CL STREAM CHANNEL (SDP-19-034)
	FLOODPLAIN CROSS-SECTION
	EXISTING TREES/LANDSCAPING
	PROPOSED BOLLARD
	PROPOSED CURB AND GUTTER
	PROPOSED CARBON FORBAY
	100 YEAR FLOODPLAIN (HOWARD COUNTY DFRM) (PLAT 2-5752)
	MICRO-BORETENTION
	20" PUBLIC WATER AND UTILITY EASEMENT (PLAT 2-5752)
	30" PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 2-5752)
	20" PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 2-5752)
	20" PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 2-5752)
	PROPOSED CHAIN LINK FENCE
	AS-BUILT SWM ACCESS MANHOLE
	AS-BUILT CLEANOUT

PLAN VIEW
SCALE: 1"=30'
GRAPHIC SCALE 1"=30'

OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE
4	REVISE BUILDING USE AND TENANTS	8-2-23
3	REVISE PLAN TO RELOCATE BUILDING 'B' POND, MODIFY GRASS, REPLACE SMALL POND WITH DOUBLE POND, AND TO ADD CONCRETE PAD, SMALL LANDSCAPE WALL AND STRIPED PARKING	2-1-23
2	REVISE PLAN TO ADD NEW TENANTS, ADD PROPOSED CHAIN LINK FENCE AND REVISE PARKING	10-26-22

SITE DEVELOPMENT PLAN
SITE LAYOUT PLAN
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE
PARCEL 239
9188 & 9190 RED BRANCH ROAD LOT 2 / PARCEL 239
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE	PROFESSIONAL CERTIFICATE
DRAWN BY: DZE/MP	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. 16193, EXPIRATION DATE: 08-27-2022
CHECKED BY: RHV	
DATE: FEBRUARY 2021	
SCALE: AS SHOWN	
W.O. NO.: 13-07/44117	

EXISTING UTILITIES NOTE:
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 4-22-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

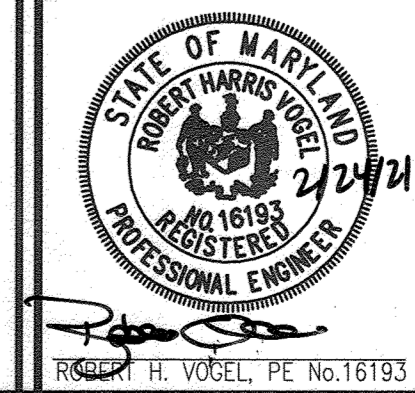
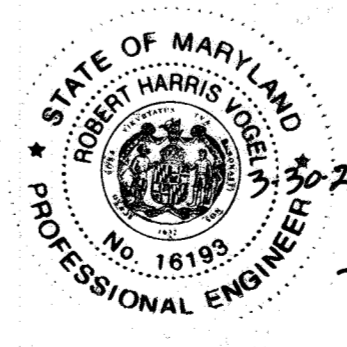
[Signature] 5/1/21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

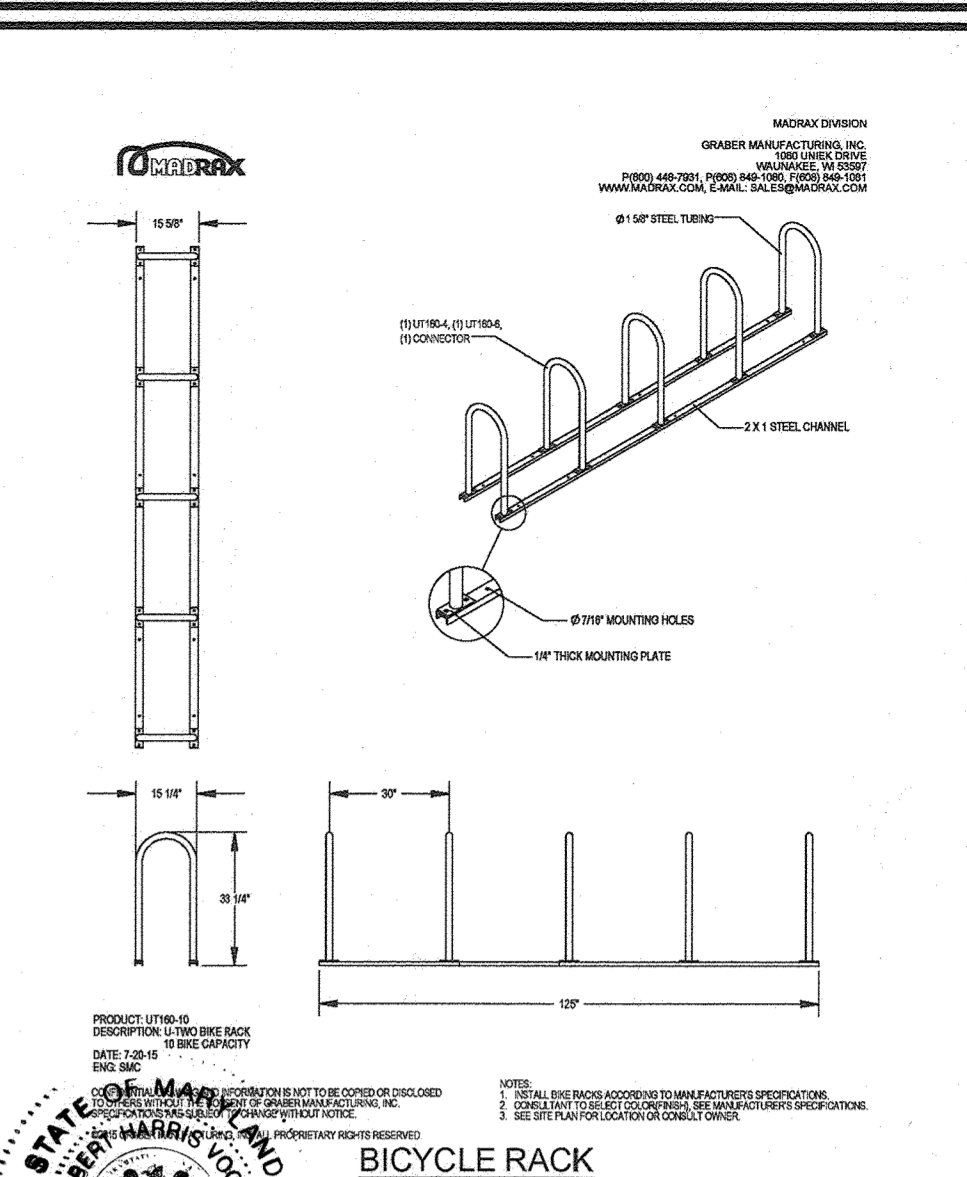
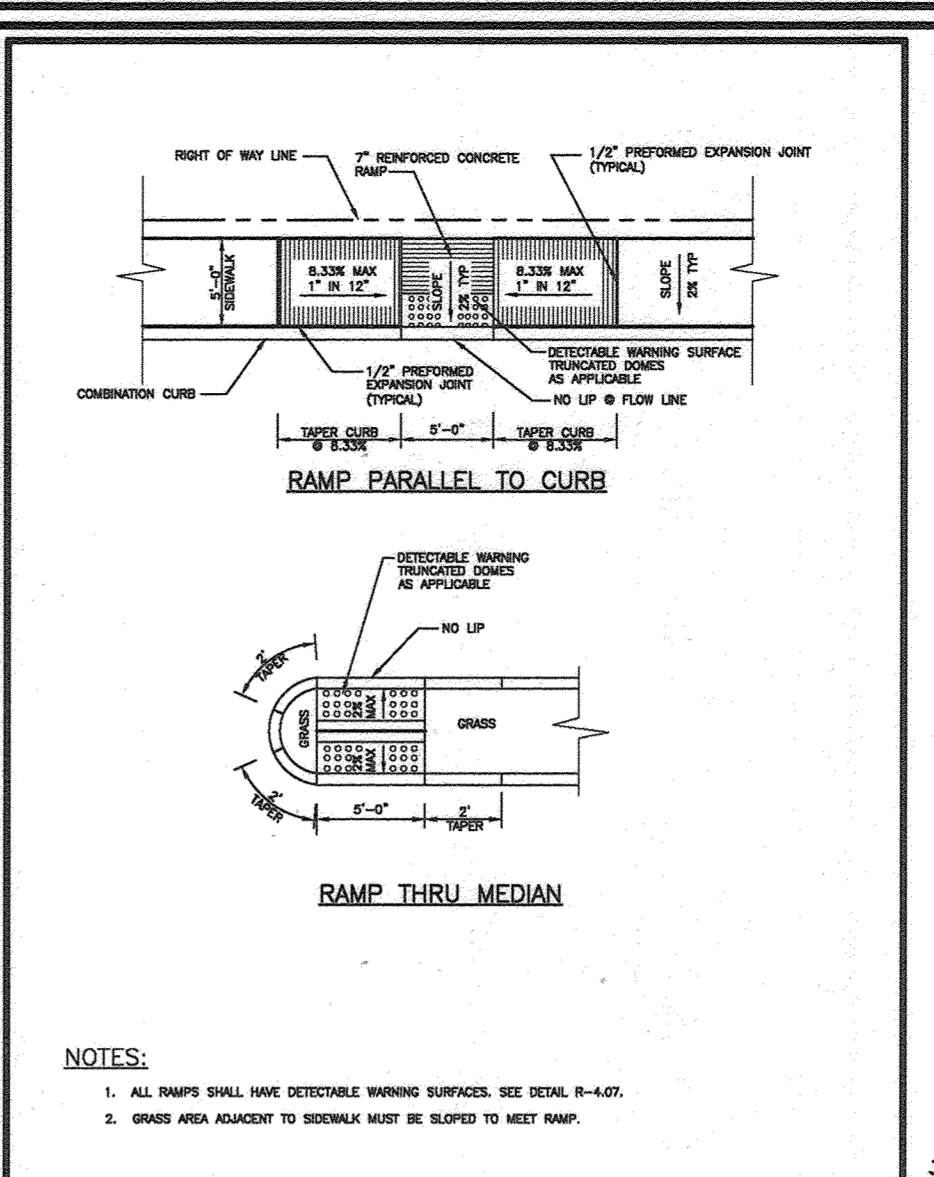
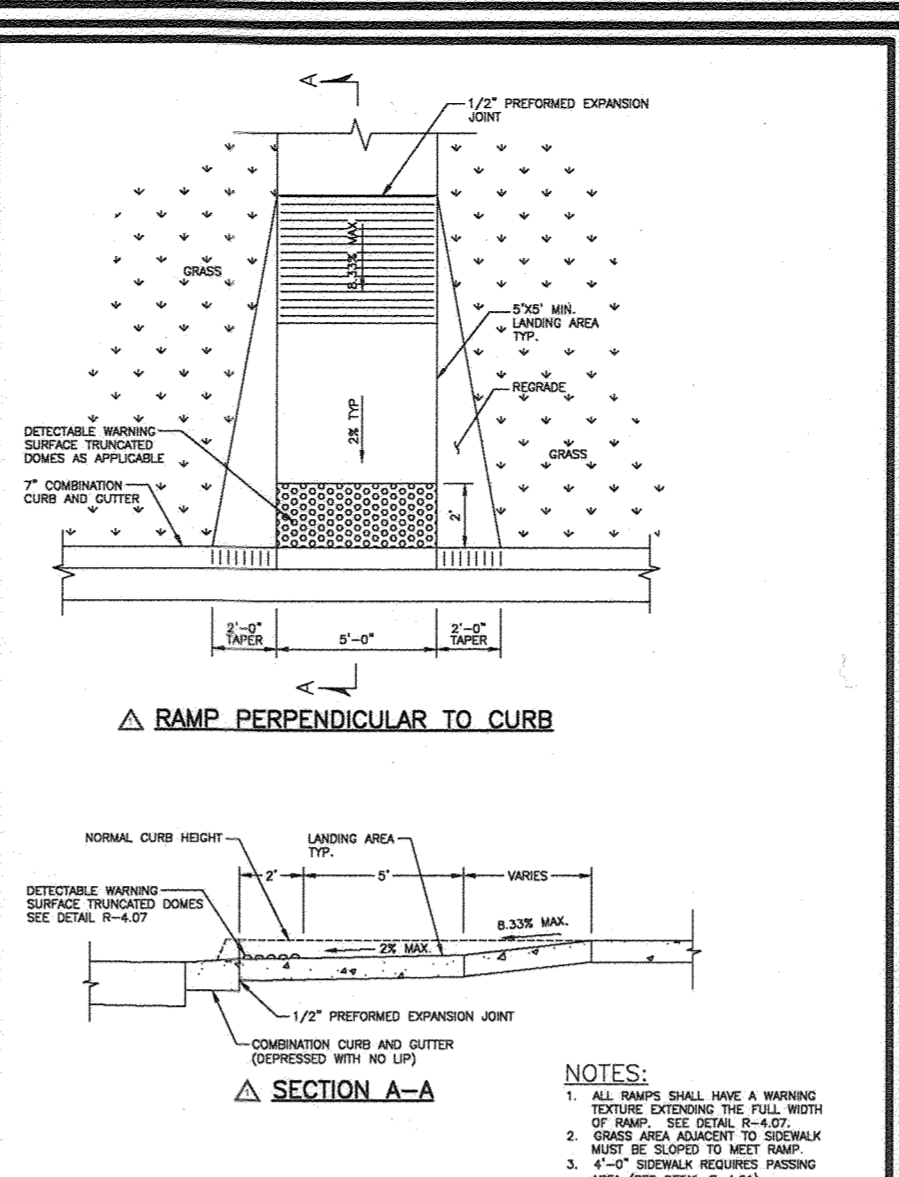
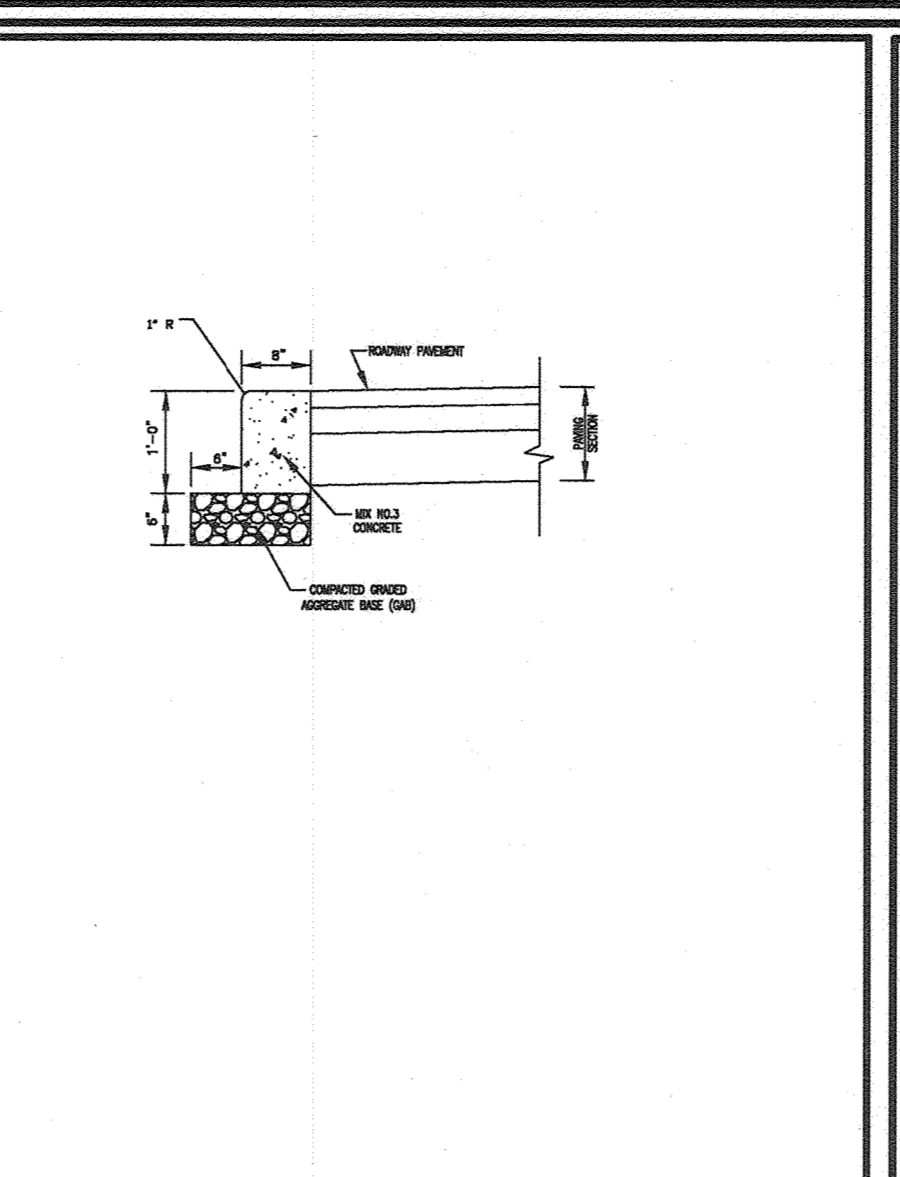
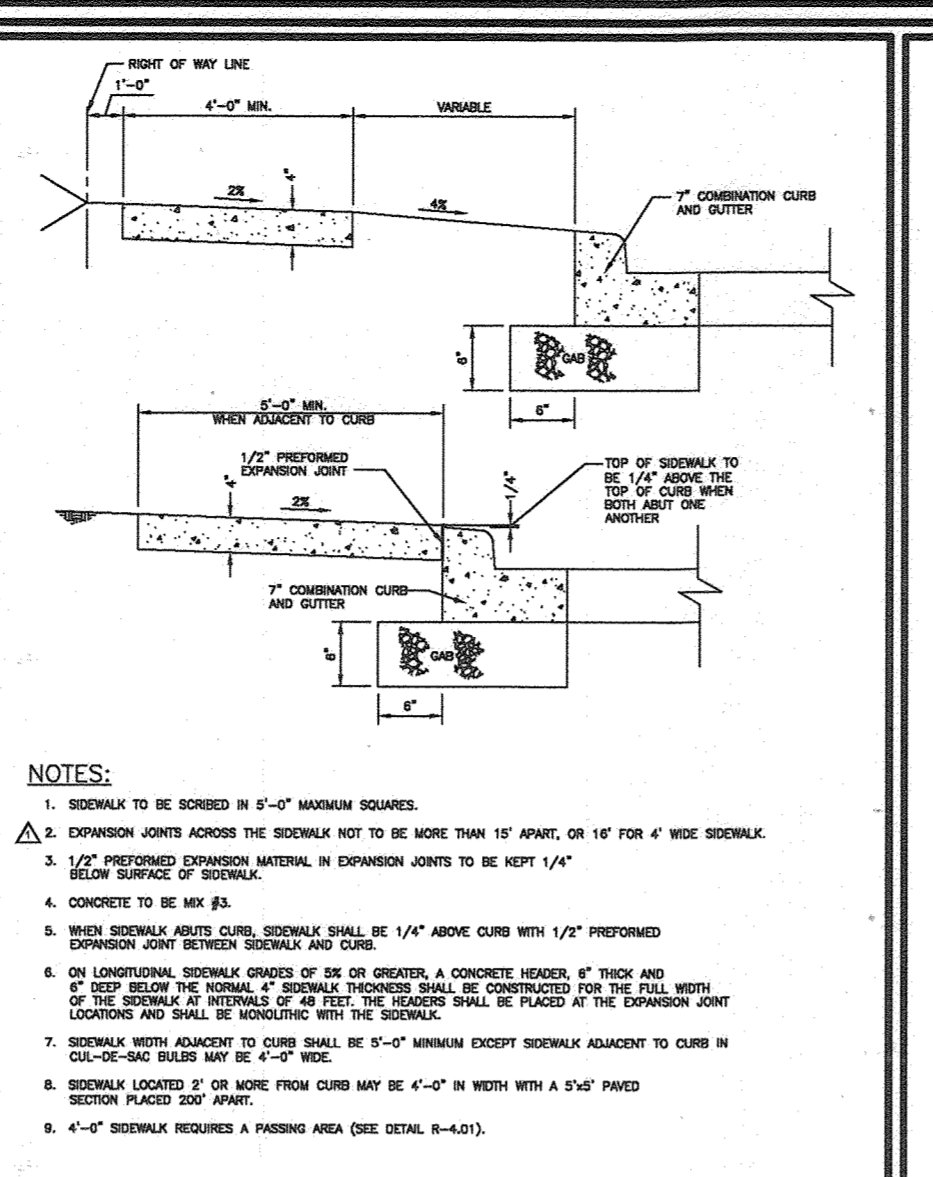
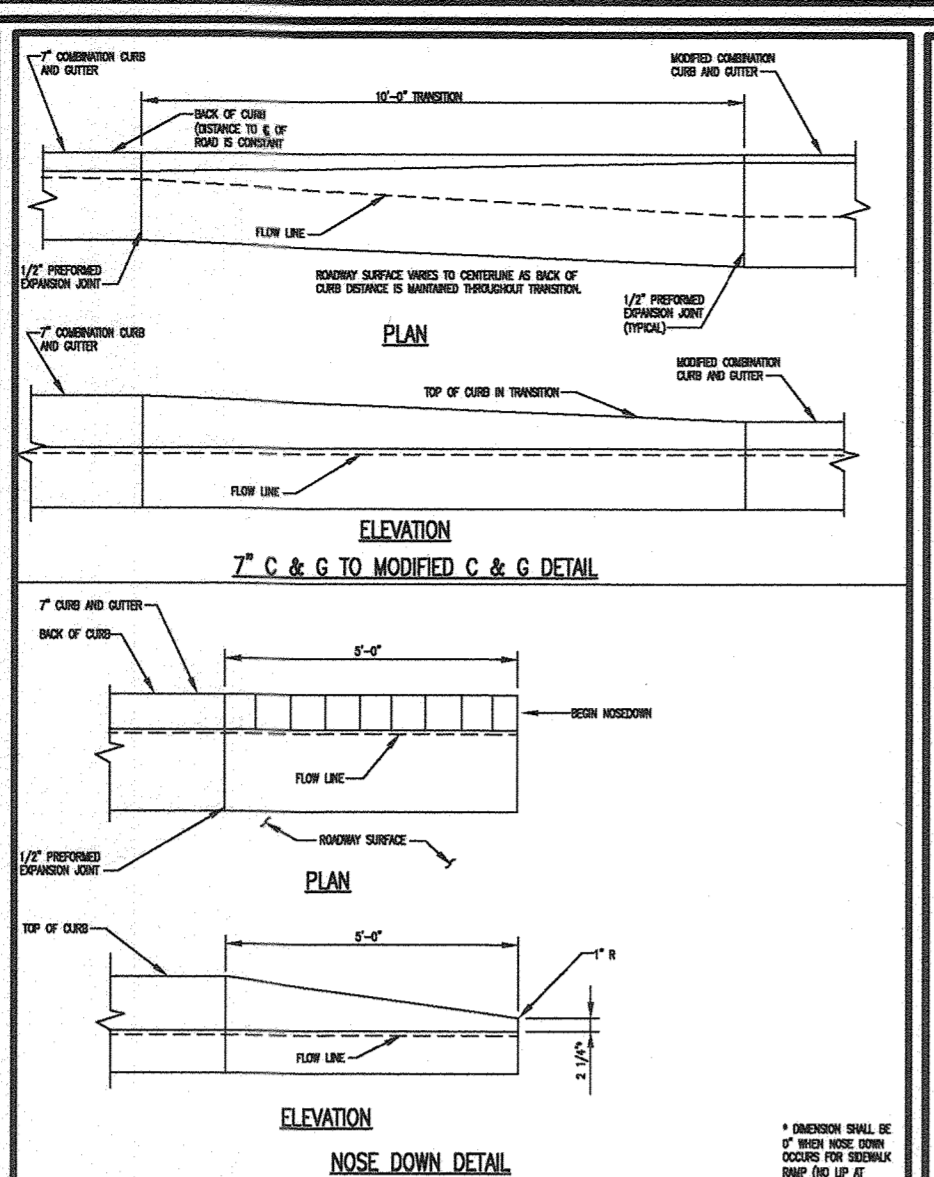
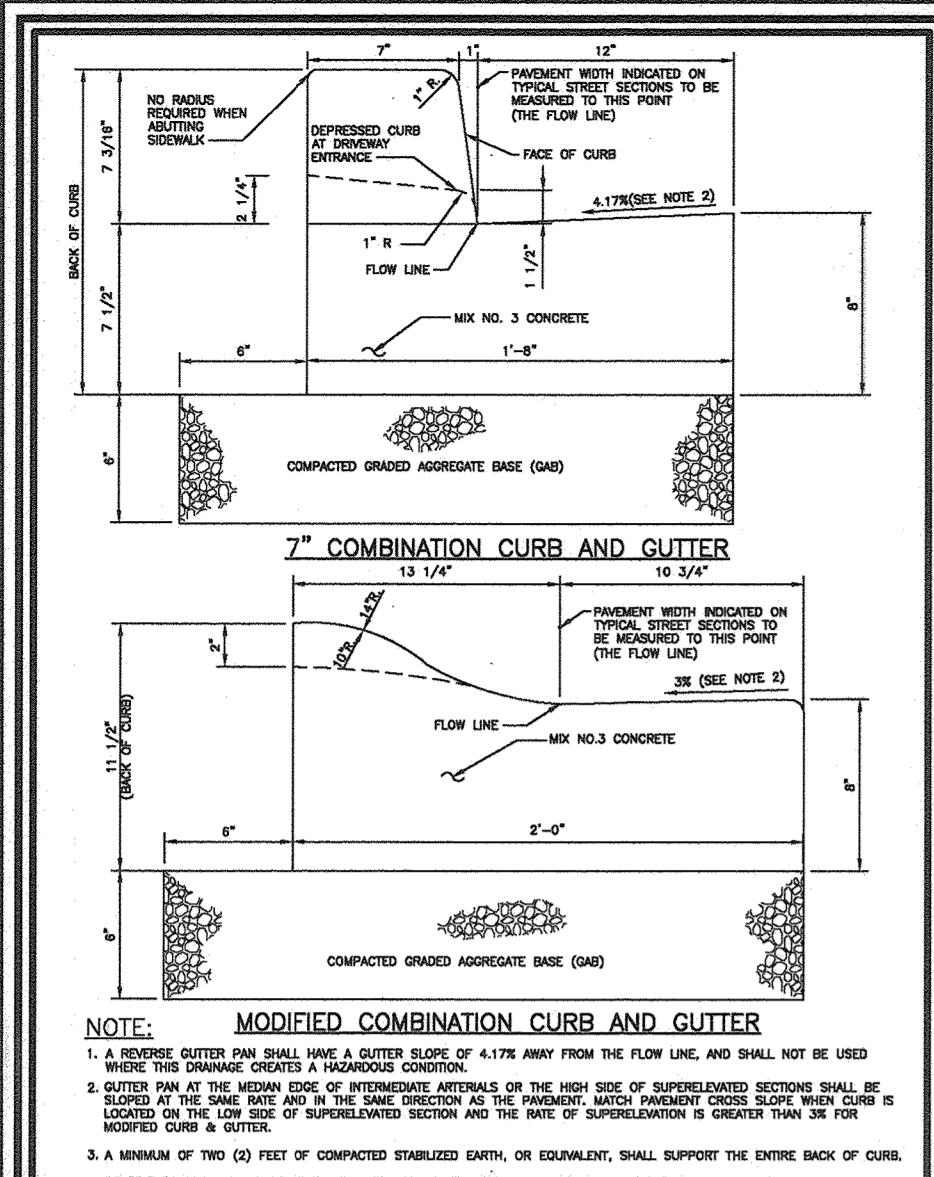
[Signature] 5-3-21
DIRECTOR DATE

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

[Signature] 16193 3-30-23
P.E. NAME P.E.# DATE





Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail CURB AND GUTTER 7\"/>
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Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail CURB AND GUTTER 7\"/>
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Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail CONCRETE SIDEWALK
---	-----------------------------

Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail Curb Flush
---	----------------------

Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail SIDEWALK RAMP Layout & Grading Perpendicular to Curb
---	--

Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail SIDEWALK RAMP Layout & Grading Parallel to Curb & Thru Median
---	---

STATE OF MARYLAND PROFESSIONAL ENGINEER No. 16193 Name: <i>Robert H. Vogel</i> Title: Professional Engineer	AS-BUILT CERTIFICATION FOR PSWM I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
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GEOTECHNICAL DESIGN RECOMMENDATIONS

General:
The following evaluations and recommendations are based on our observations at the site, interpretation of the field data obtained during this exploration, and our experience with similar subsurface conditions and projects. Soil penetration data has been used to estimate an allowable bearing pressure and associated settlement using established correlations. Subsurface conditions in unexpected locations may vary from those encountered. If the structure locations, loadings, or elevations are changed, we should be notified and requested to confirm and, if necessary, re-evaluate our recommendations.

Determination of an appropriate foundation system for a given structure is dependent on the proposed structural loads, soil conditions, and construction constraints such as proximity to other structures, etc. The subsurface exploration aids the geotechnical engineer in determining the soil stratum appropriate for structural support. This determination includes consideration of soil strength and bearing capacity, soil compressibility and the soil strata. In addition, since the method of construction greatly affects the soils intended for structural support, consideration must be given to the implementation of suitable methods of site preparation, fill compaction, and other aspects of construction, where applicable.

Foundation Recommendations:
Based on the boring data, possible fill materials were encountered below the surficial materials in Borings B-2, B-3 and B-6. The possible fill extended to depths of up to approximately 5.5 ft below existing grades and generally consisted of fine to stiff cohesive soils. The possible fill generally appears to be suitable to directly support foundations and new fill; however, we recommend that the possible fill in the vicinity of Borings B-2, B-3 and B-6 be further evaluated with test pits prior to foundation construction. Additionally, the possible fill should be thoroughly inspected and prior to placement of any additional fill to verify the suitability of the existing fill. The preloading and footing subgrades should be observed by a qualified representative of the Geotechnical Engineer in order to make final evaluations of the suitability of the existing fill to remain in place. If any existing fill soils are found to be soft or contain excessive amounts of organics, this unsuitable fill should be removed and replaced with controlled, compacted fill or lean concrete (refer to undercut detail, Drawing No. 3, Appendix I of Geotechnical Report).

Soil related soils were encountered below the surficial materials in Borings B-5 and B-10 and may require over-excavation. Through profiling of these soils should be performed to verify their suitability to remain in place to directly support foundations and new fill.

We envision that the proposed buildings can be supported on shallow foundation systems bearing on approved possible fill, natural soils or, if necessary, controlled compacted fill materials. We recommend that building foundations be designed for a net allowable bearing pressure not to exceed 2,000 pounds per square foot (psf).

To reduce the possibility of localized shear failures, column and wall footings should be a minimum of 3 feet and 2 feet wide, respectively. We recommend that all exterior footings be placed a minimum of 2.5 feet below finished exterior grades, which should be below the depth of the estimated seasonal fluctuations in the soil moisture content and adequate to protect against the effects of frost.

Settlement:
Based on the boring data, proposed grading, and assumed structural information, we estimate that foundation settlements will be less than 1 inch with differential settlement of up to one-half the estimated total settlement. The magnitude of differential settlements will be influenced by the variation in overlying requirements across the foundation footprint, the distribution of loads, and the variability of underlying soils.

Our settlement analysis was performed on the basis of the assumed structural loading and provided grading information discussed above. Actual settlements experienced by the structure and the time required for these soils to settle will be influenced by undrained void ratios in subsurface conditions, final grading plans, and the quality of fill placement and foundation construction.

Ground Floor Slabs
Ground floor slabs may be designed as a slab-on-grade supported by newly placed controlled fill, and/or existing fill materials which are evaluated and approved by the Geotechnical Engineer. Any loose soil or otherwise unsuitable materials should be remediated as judged necessary by the Geotechnical Engineer. We recommend that the slab-on-grade be underlain by 4 inches of well-compact granular materials, which should conform to an open graded aggregate base (MDOT No. 67 Stone). This granular material provides a capillary break between the subgrade and slab-on-grade, while also providing a uniform bearing surface. A vapor retarder should be used beneath ground floor slabs that will be covered by tile, wood, carpet, impermeable floor coatings, and/or other moisture sensitive equipment or materials will be in contact with the floor. However, the use of vapor retarders may result in excessive curling of floor slabs during curing. We refer the slab designer to ACI 302.1R-15, Sections 5.2.3 and 13.1.1, for further discussion on vapor retarders, curing, and the means to minimize concrete shrinkage and curling.

Proper jointing of the ground floor slab is also essential to minimize cracking. ACI suggests that a minimum of plain concrete slabs may be jointed at spacings of 24 to 36 times the slab thickness, up to a maximum spacing of 18 feet. Floor slab construction should incorporate isolation joints along bearing walls and around column locations to allow movement to occur without damage. Isolation or other construction excursions in the prepared floor subgrade should be backfilled to a controlled fill criteria to provide uniform floor support.

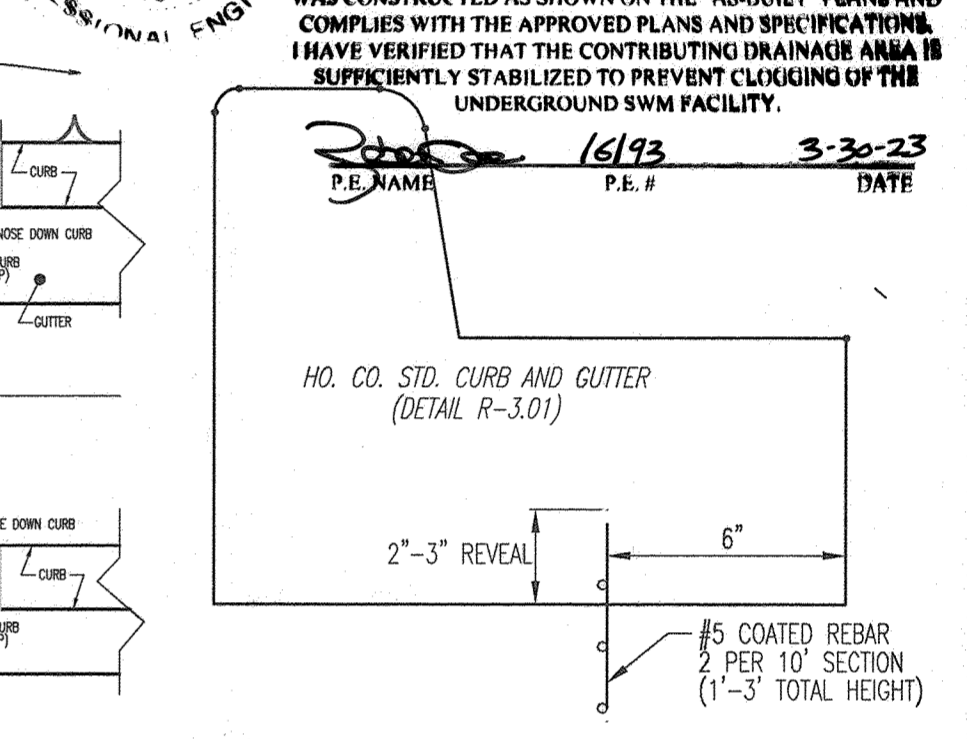
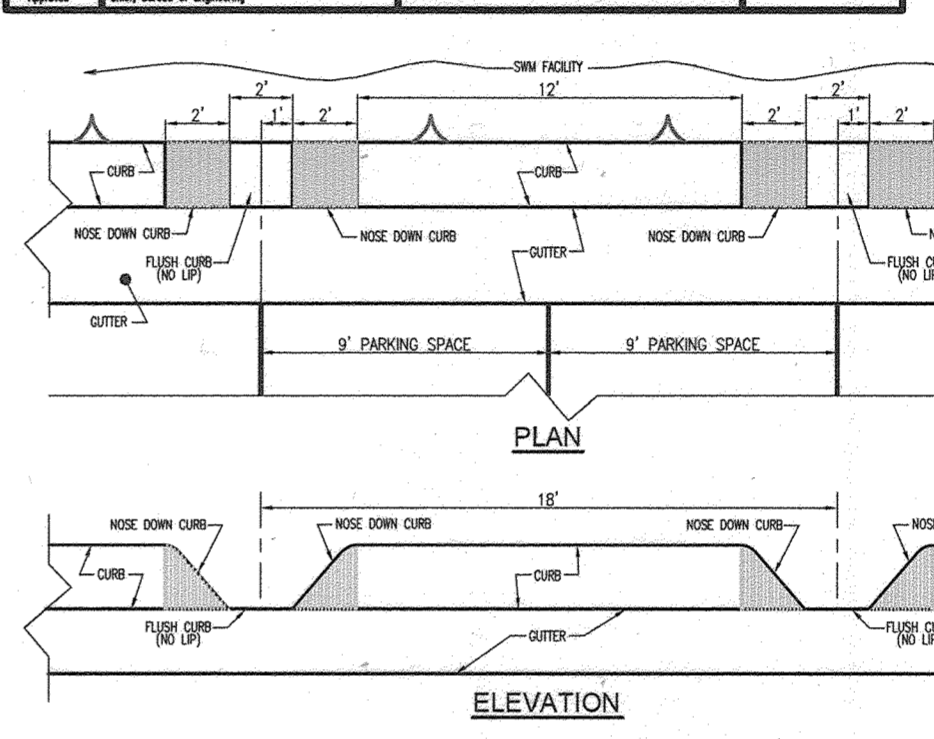
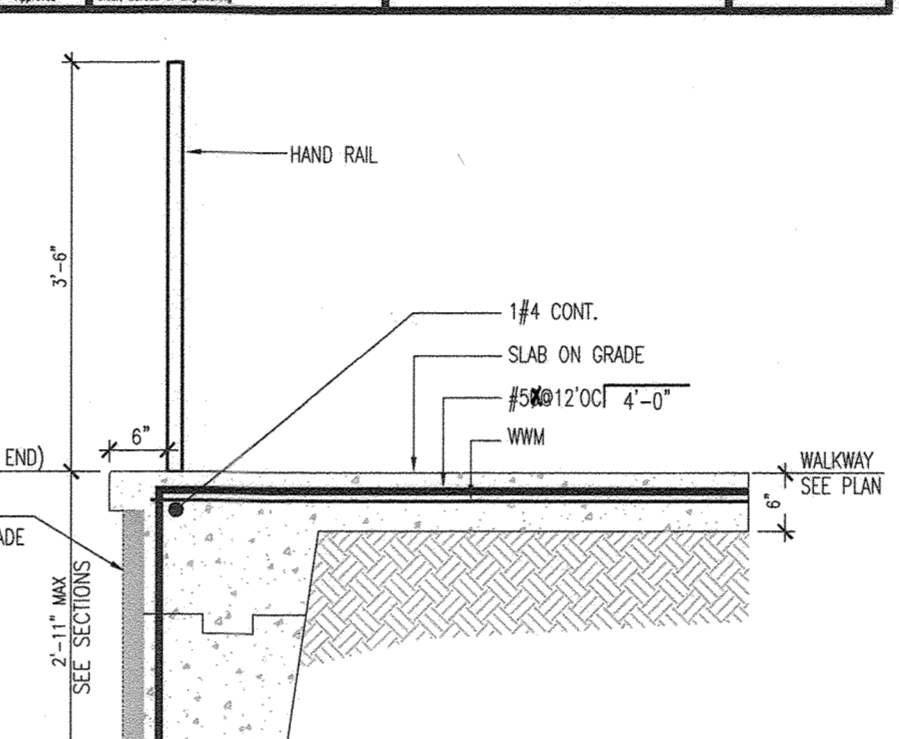
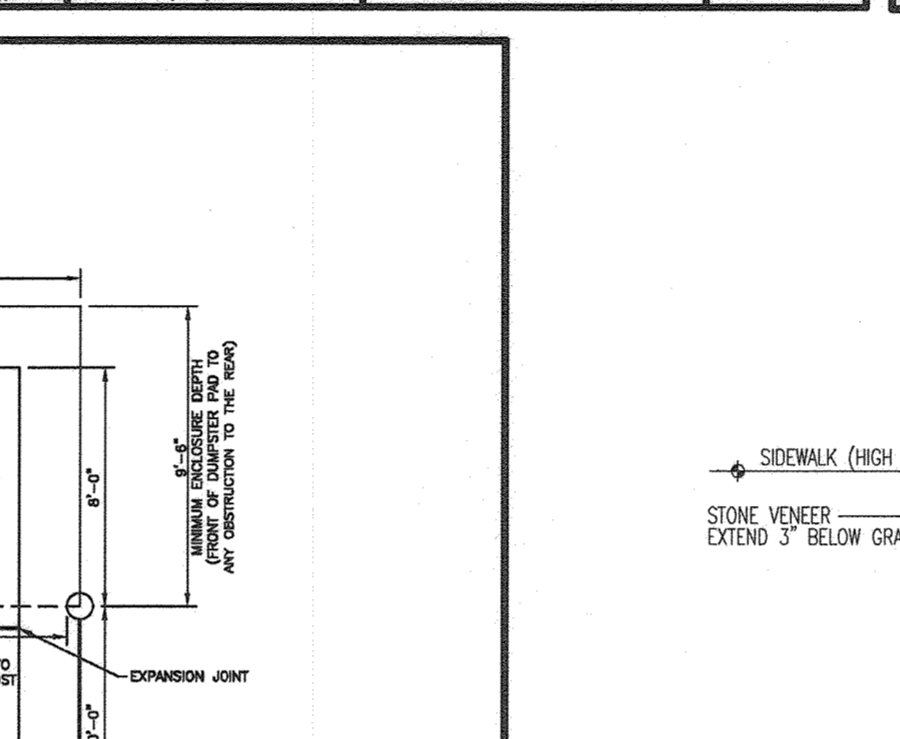
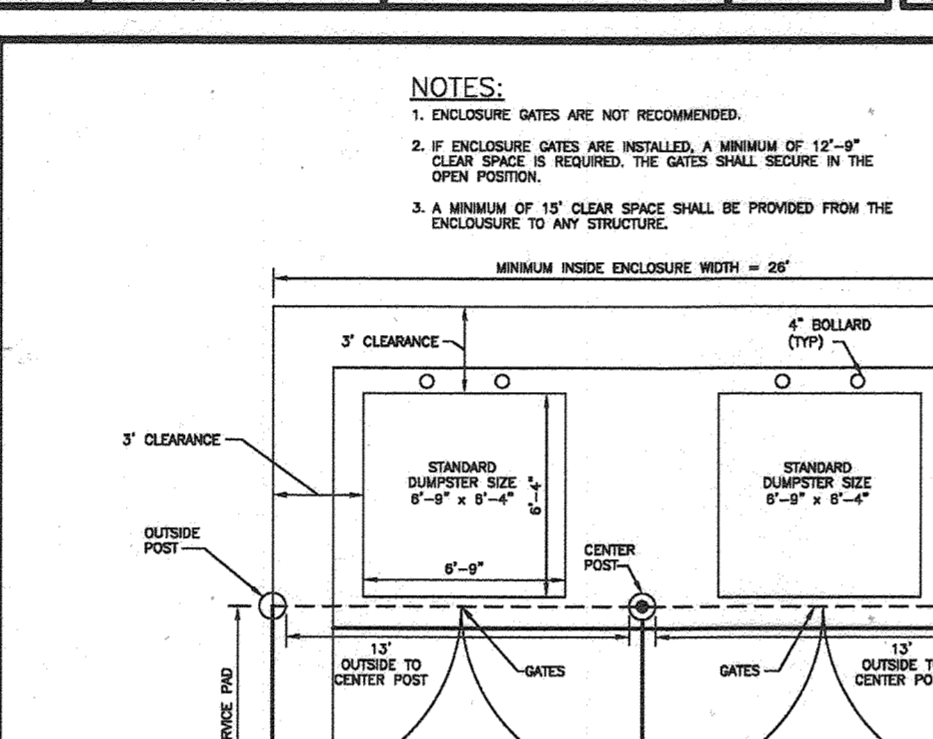
Structural analysis and design of floor slab foundation may require the use of a vertical modulus of subgrade reaction (k). Based on the soil boring results, we estimate that a design modulus of subgrade reaction (k) = 150 psi is appropriate for floor slab design calculations, provided that the recommended 4-inch subbase is utilized.

Standard Duty Traffic Loading 25,000 equivalent single axle loads (ESALs)
Heavy Duty Traffic Loading 150,000 ESALs
 Design life 25 years
 Reliability 0.45
 Initial serviceability 2.0
 Terminal serviceability 1.0
 CBR Value 3

Our design analysis was based on methodology from the American Association of State Highway and Transportation Officials (AASHTO) Guide of Design of Pavement Structures, 1993. Based on the assumptions and methodologies presented above, we recommend the following pavement sections:

PAVEMENT SECTION	MATERIAL TYPE	HEAVY-DUTY THICKNESS (INCHES)	STANDARD-DUTY THICKNESS (INCHES)
Surface Course	Hot Mix Superpave (Surface 9.3MM)	3.5	3.5
Base Course	Hot Mix Superpave (Base 12.5MM)	3.5	2.5
Subbase	Type 1 Crushed Aggregate (No. 21A or No. 21B)	6.0	6.0

Our pavement recommendations are based on pavements being supported on cement treated soils, as described above. Fill materials underlying pavements should be placed in accordance with the controlled fill and pavement subgrade recommendations contained in this report. In addition, all pavement subgrades should be evaluated by a geotechnical engineer prior to basestone placement. If excessive subgrade movement is observed, appropriate improvements such as underdrains and/or slope stabilization will be required at that time. It is recommended that the approaches, loading and unloading areas, main turn-around areas and other areas subjected to excessive starting and stopping motion (such as the dumpster area), be supported with concrete pavement. For pavements restricted to standard-duty traffic and where excessive starting and stopping motions are anticipated, we recommend the pavement be constructed of 4-inch thick, air-entrained Portland cement concrete having a minimum compressive strength of 4,000 psi with 4 inches of aggregate base. For pavements subject to heavy-duty traffic with excessive starting and stopping motions, we recommend that the pavement section consist of 6 inches of concrete over 6 inches of aggregate base.



Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail CURB AND GUTTER 7\"/>
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Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail CURB AND GUTTER 7\"/>
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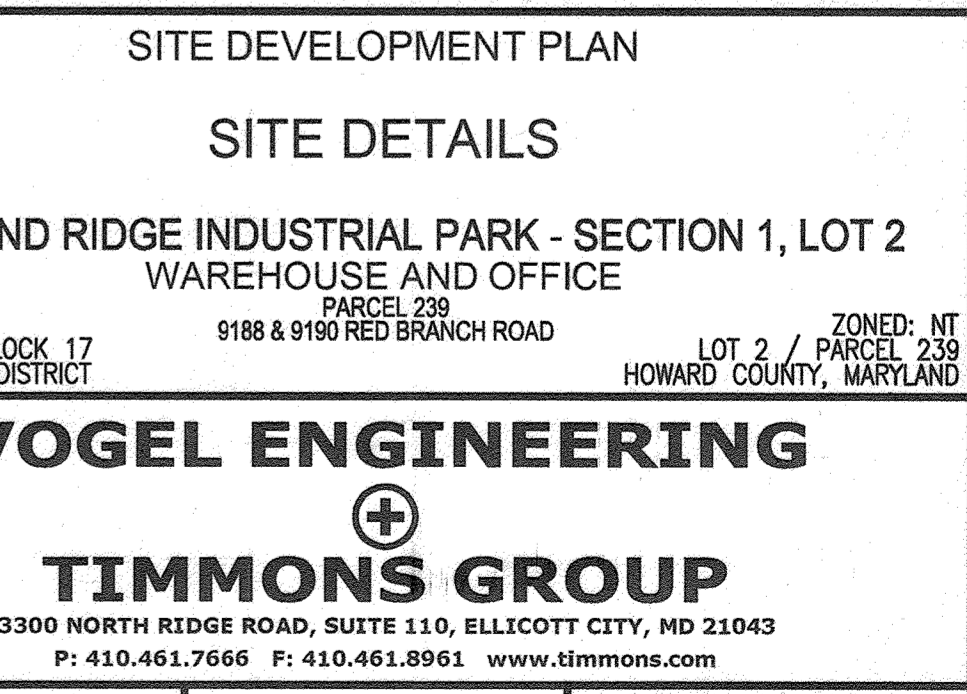
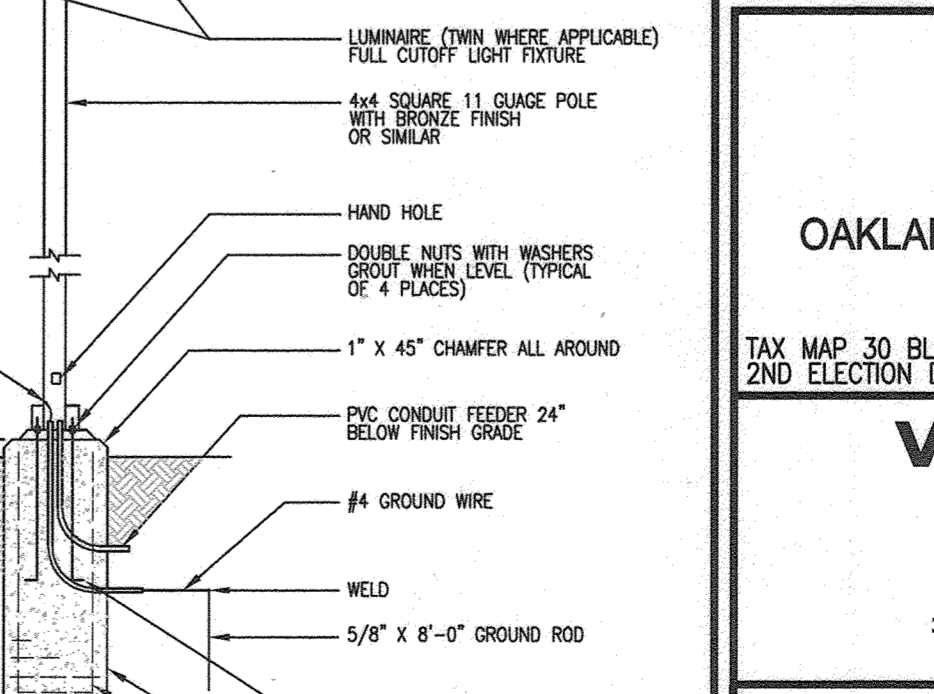
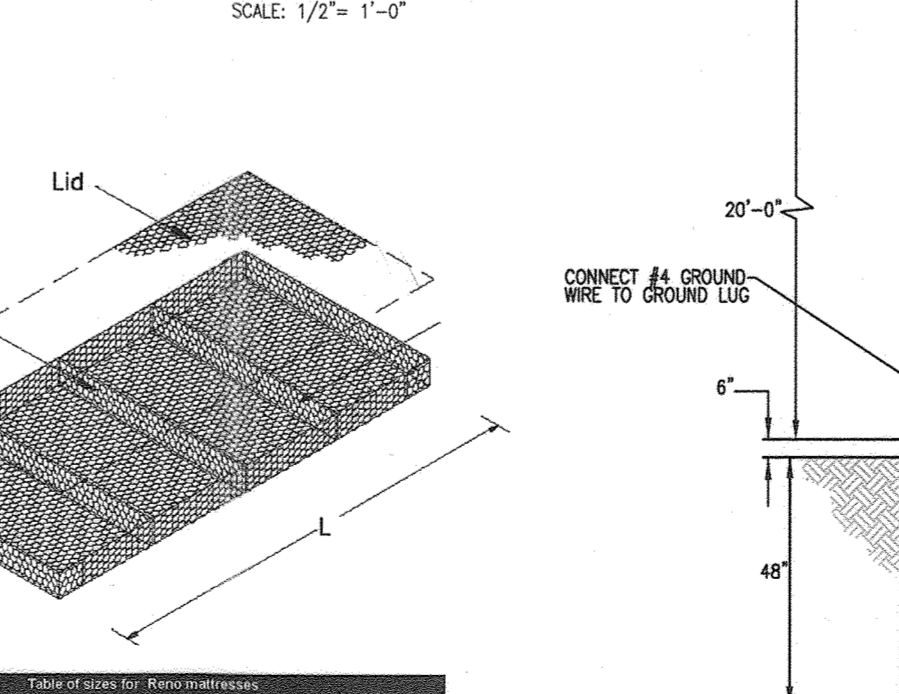
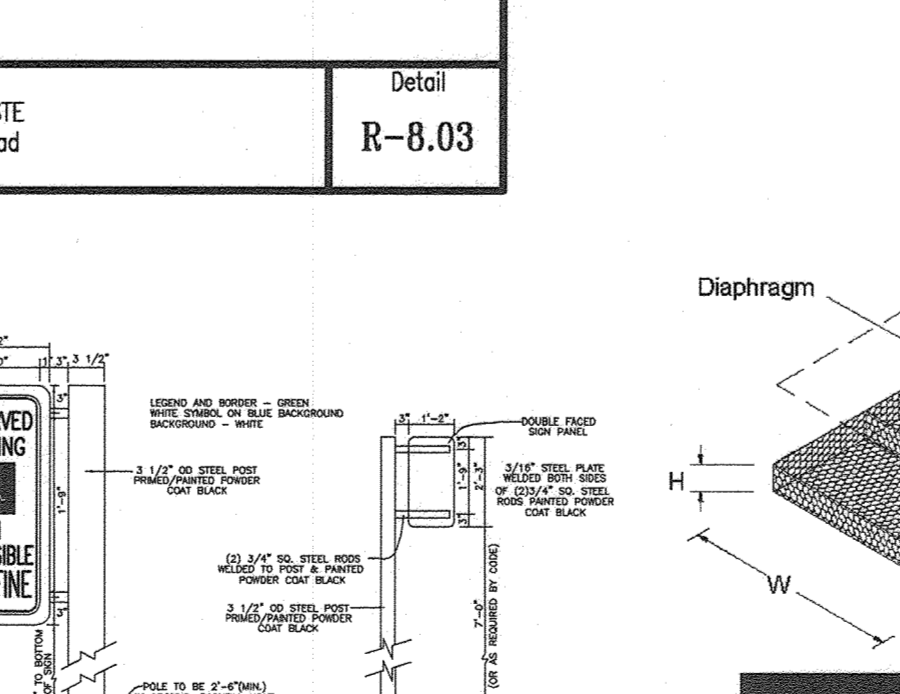
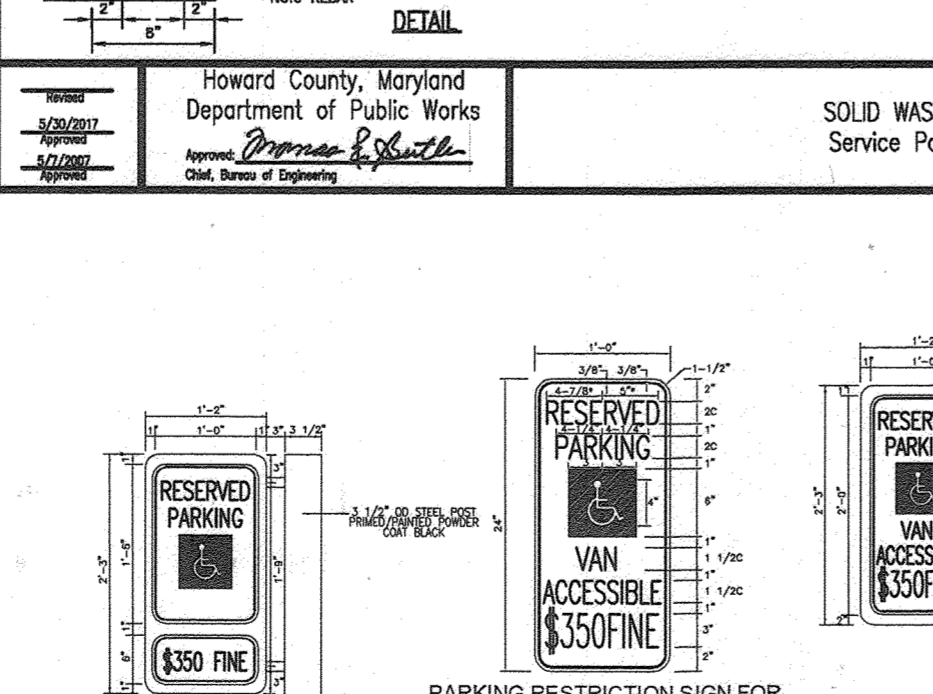
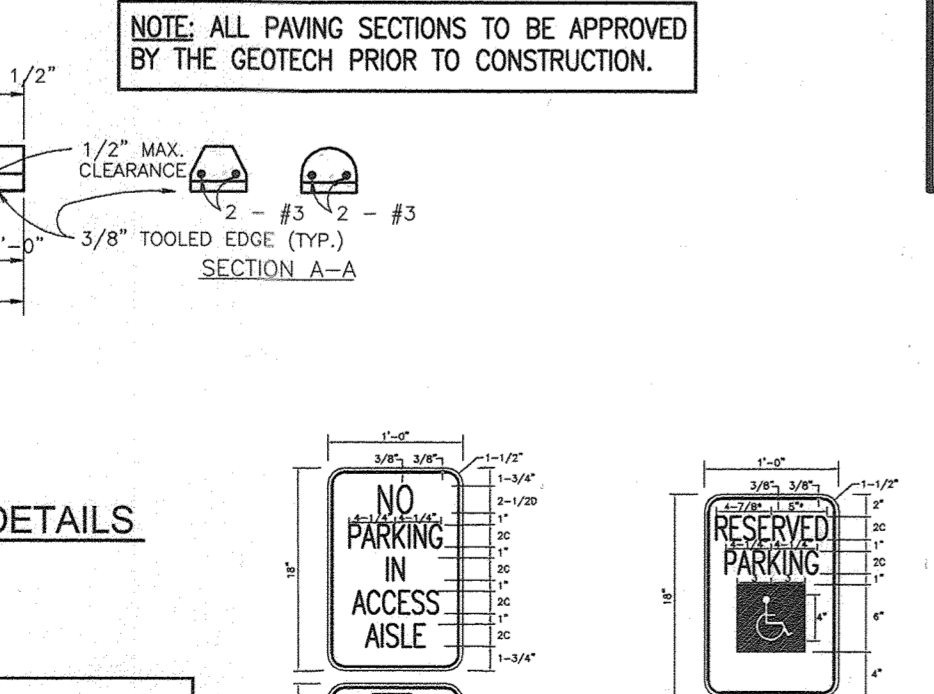
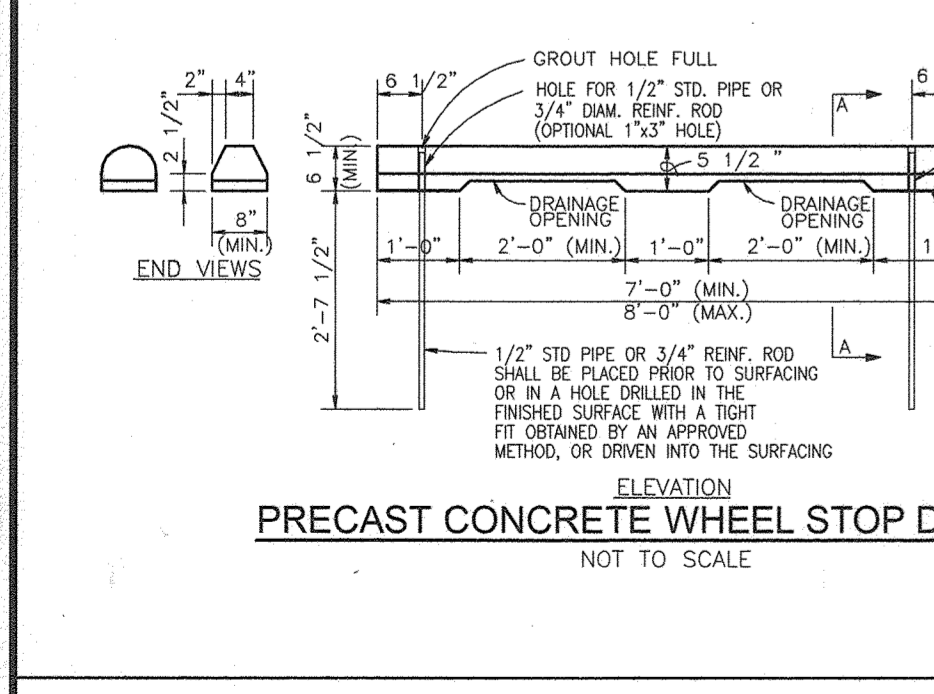
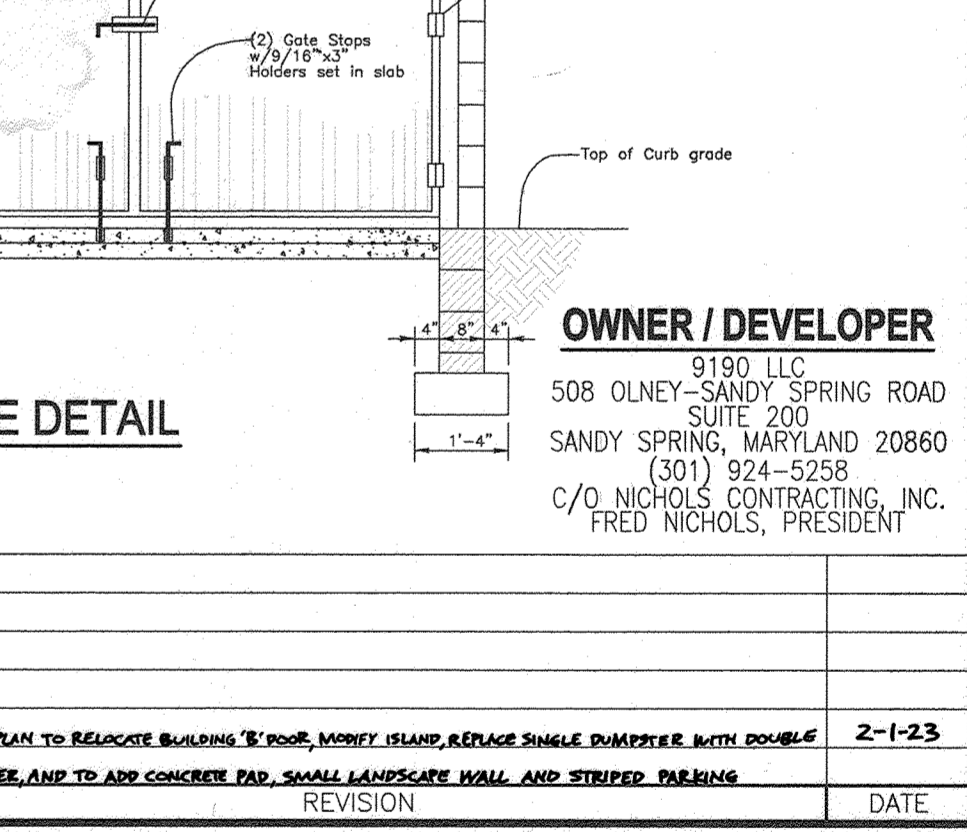
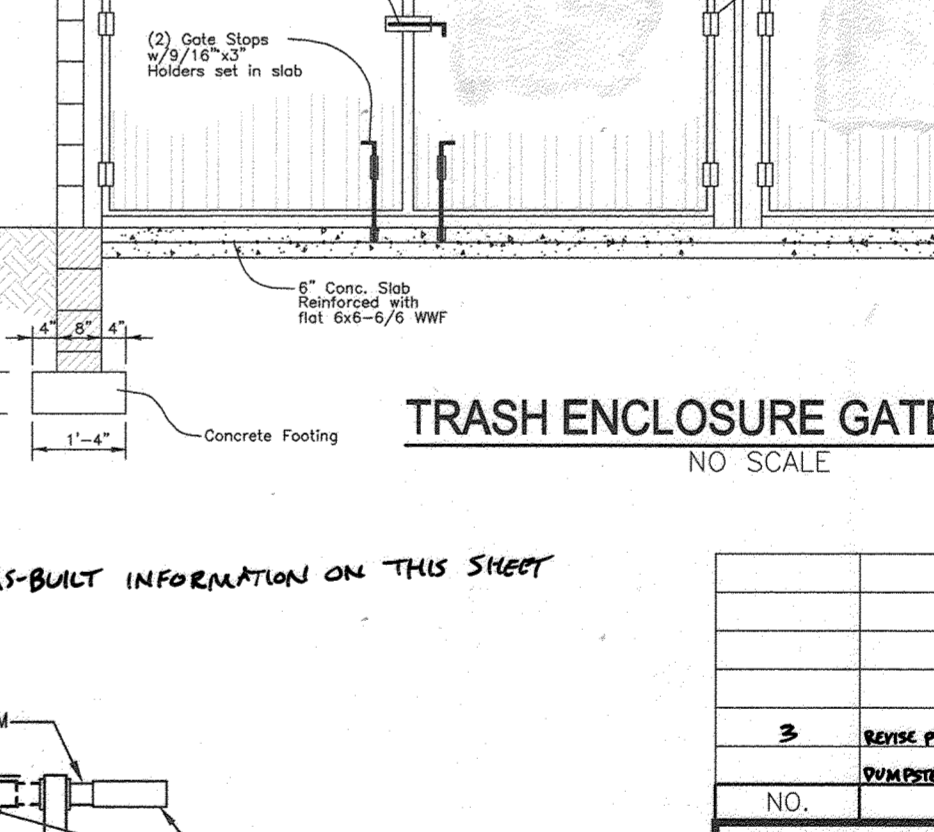
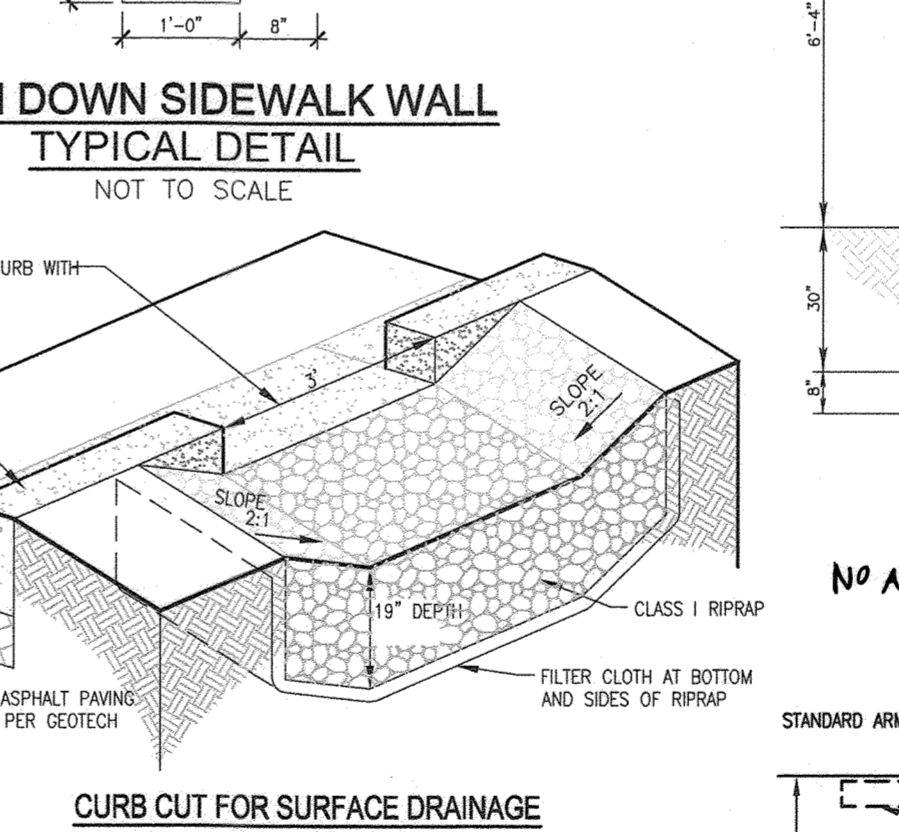
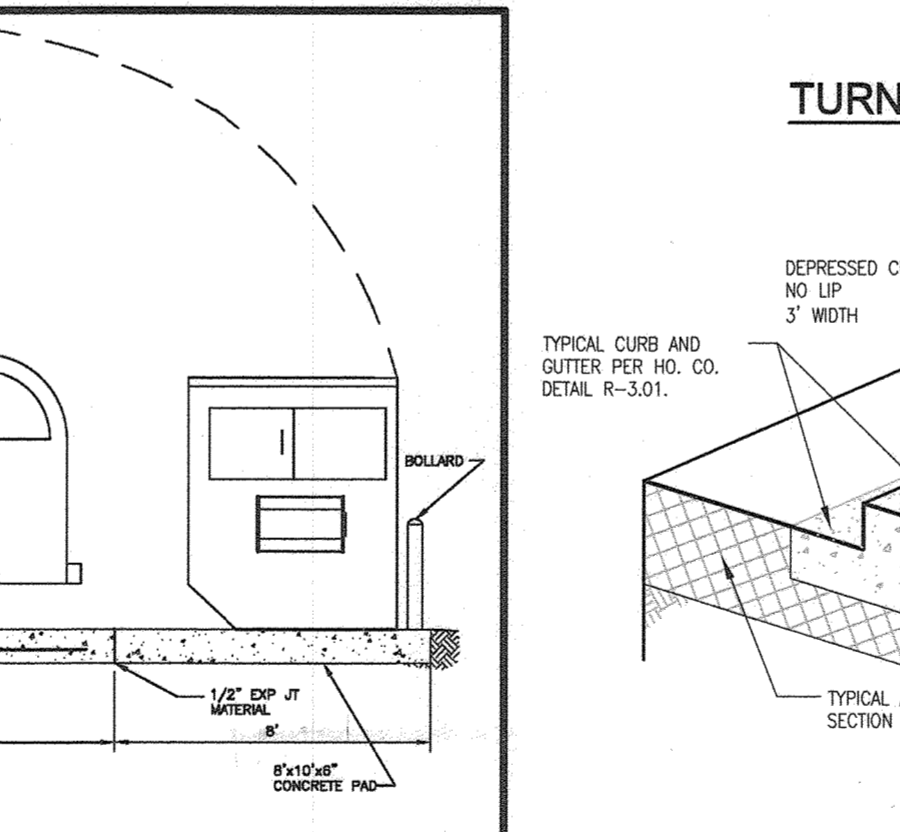
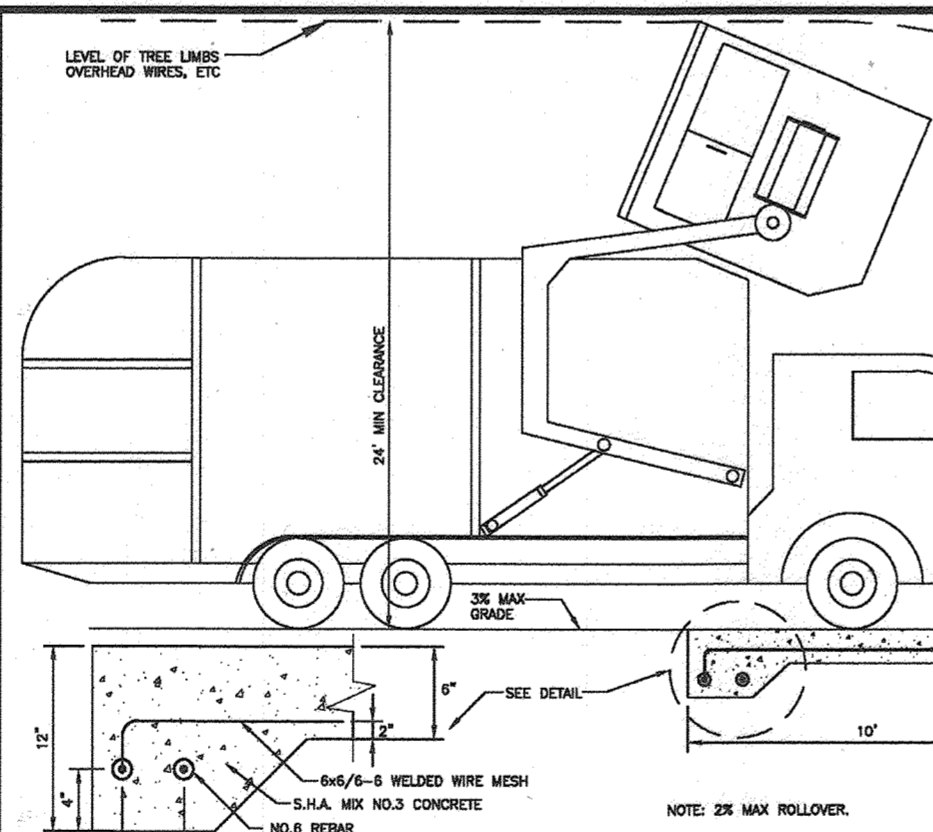
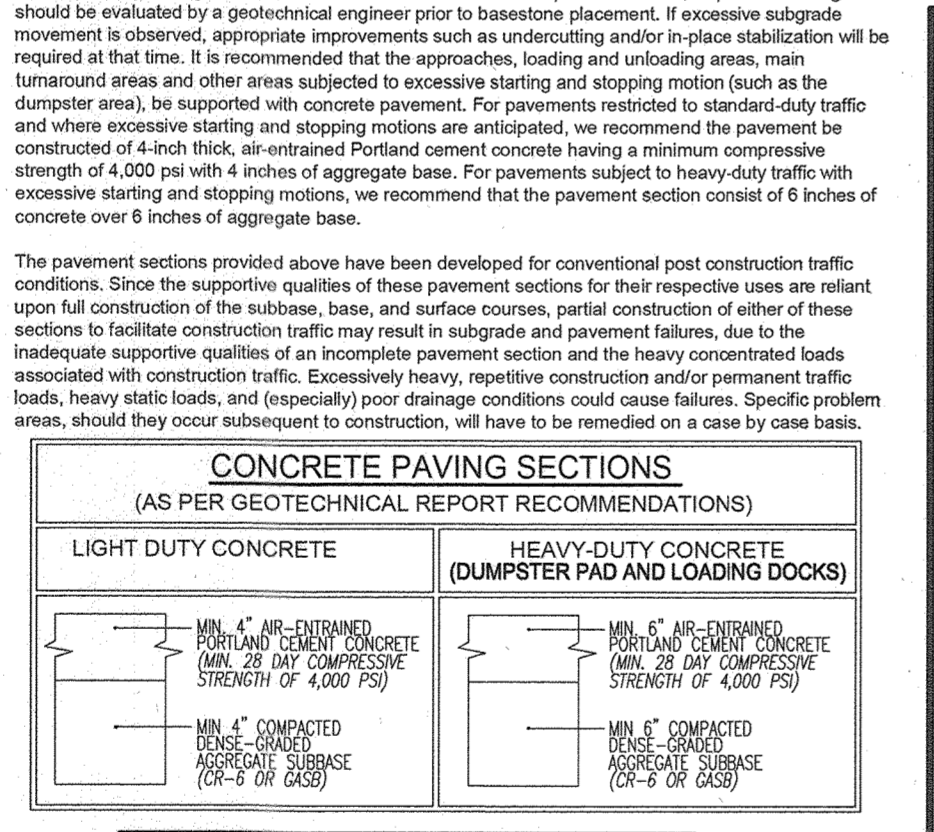
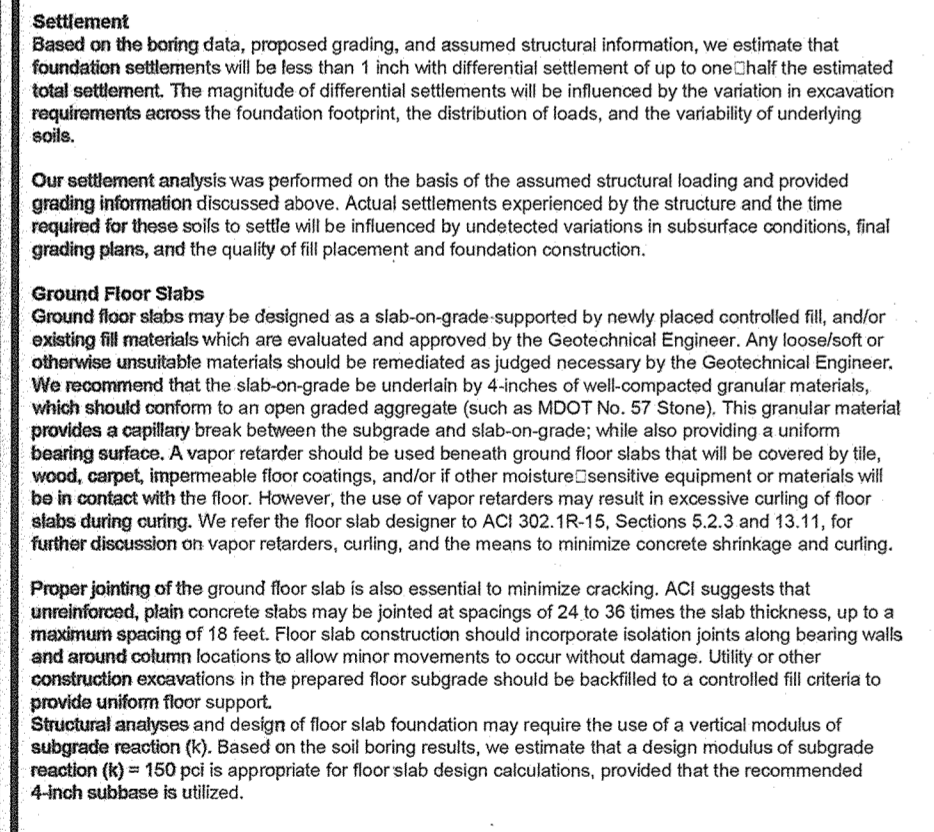
Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail CONCRETE SIDEWALK
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Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail Curb Flush
---	----------------------

Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail SIDEWALK RAMP Layout & Grading Perpendicular to Curb
---	--

Howards County, Maryland Department of Public Works Name: <i>Przemyslaw J. Szwed</i> Title: Chief, Division of Engineering	Detail SIDEWALK RAMP Layout & Grading Parallel to Curb & Thru Median
---	---

STATE OF MARYLAND PROFESSIONAL ENGINEER No. 16193 Name: <i>Robert H. Vogel</i> Title: Professional Engineer	AS-BUILT CERTIFICATION FOR PSWM I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
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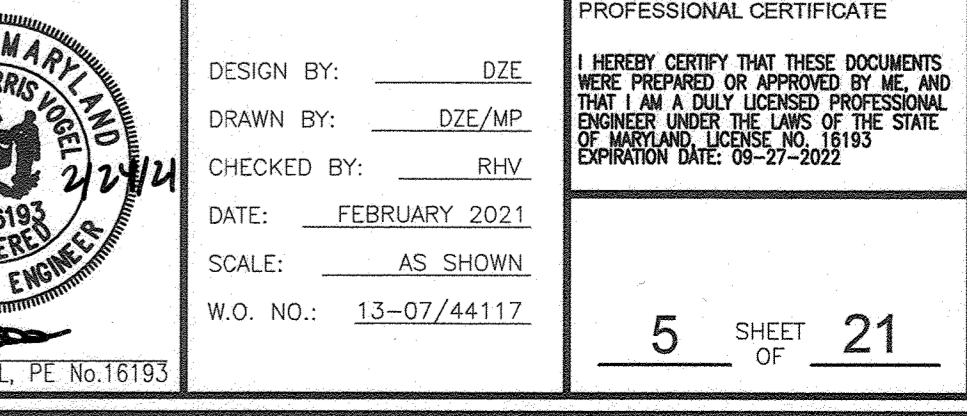
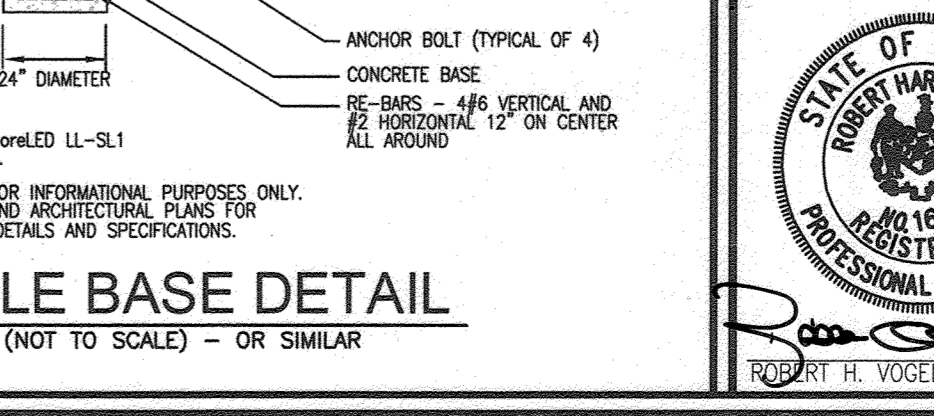
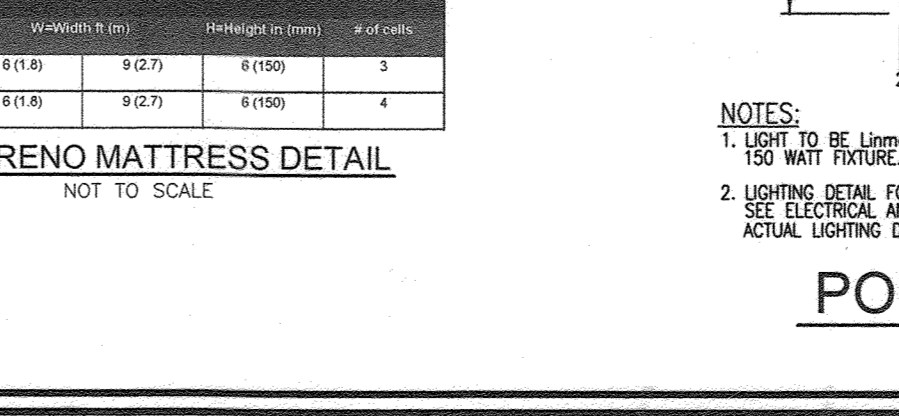
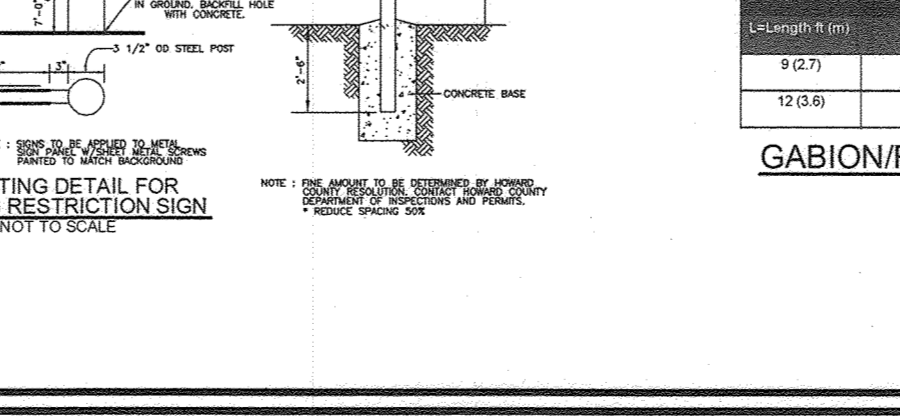
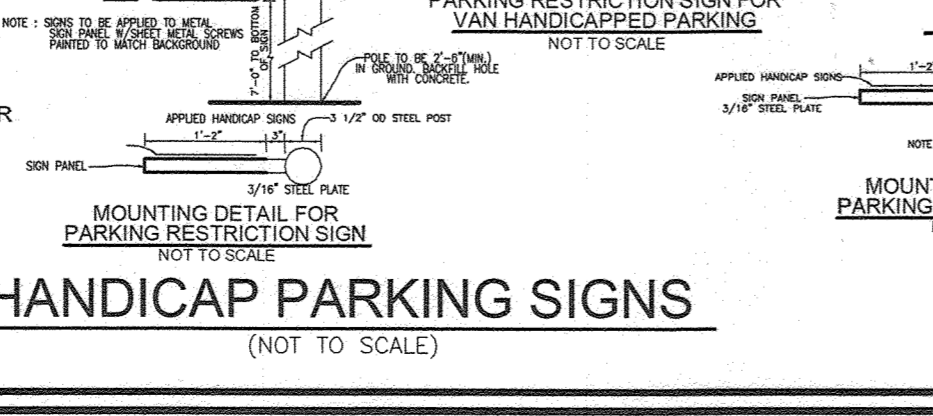
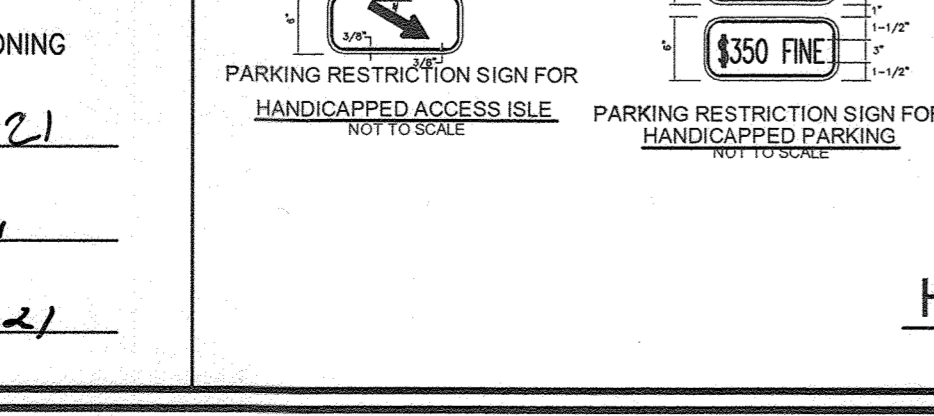


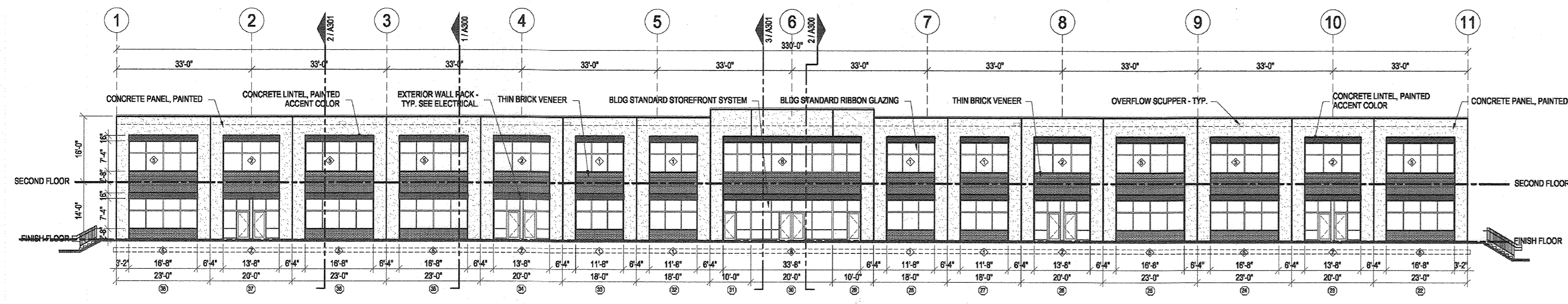
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 4-22-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

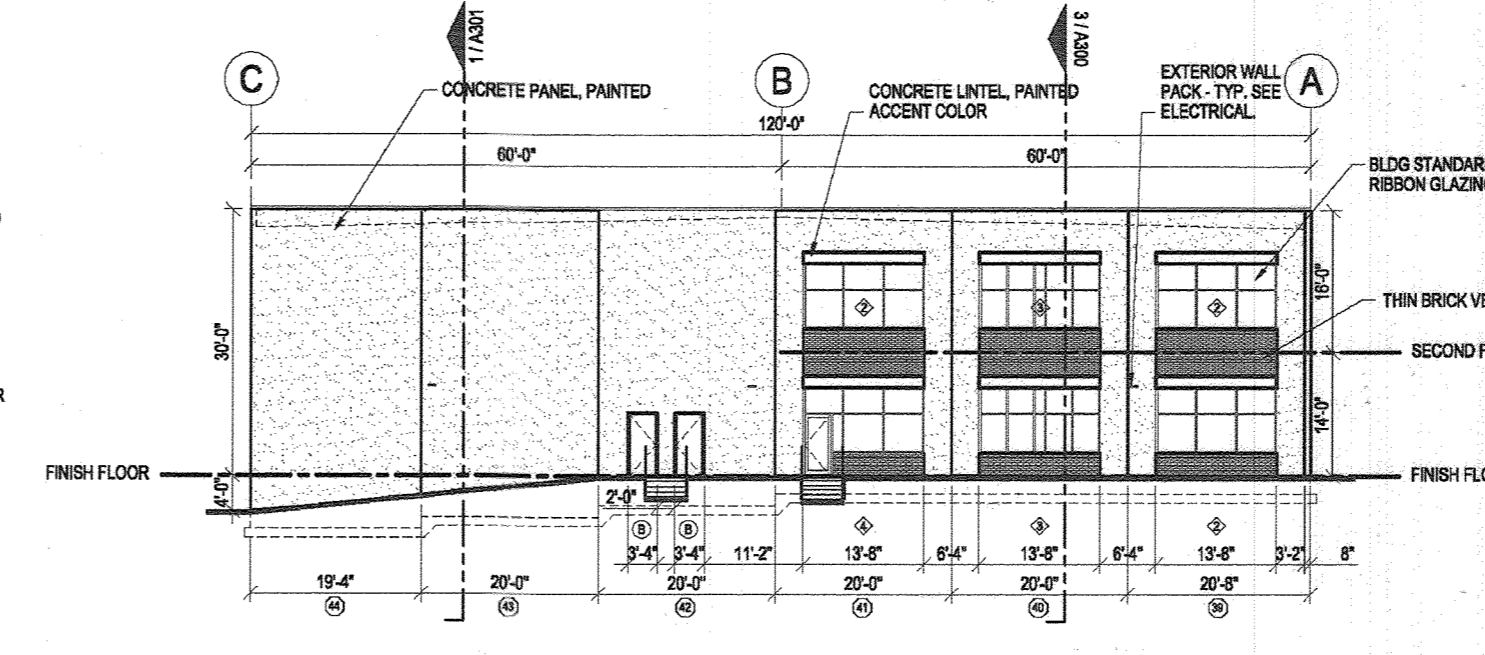
[Signature] 5/3/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5-3-21
 DIRECTOR DATE

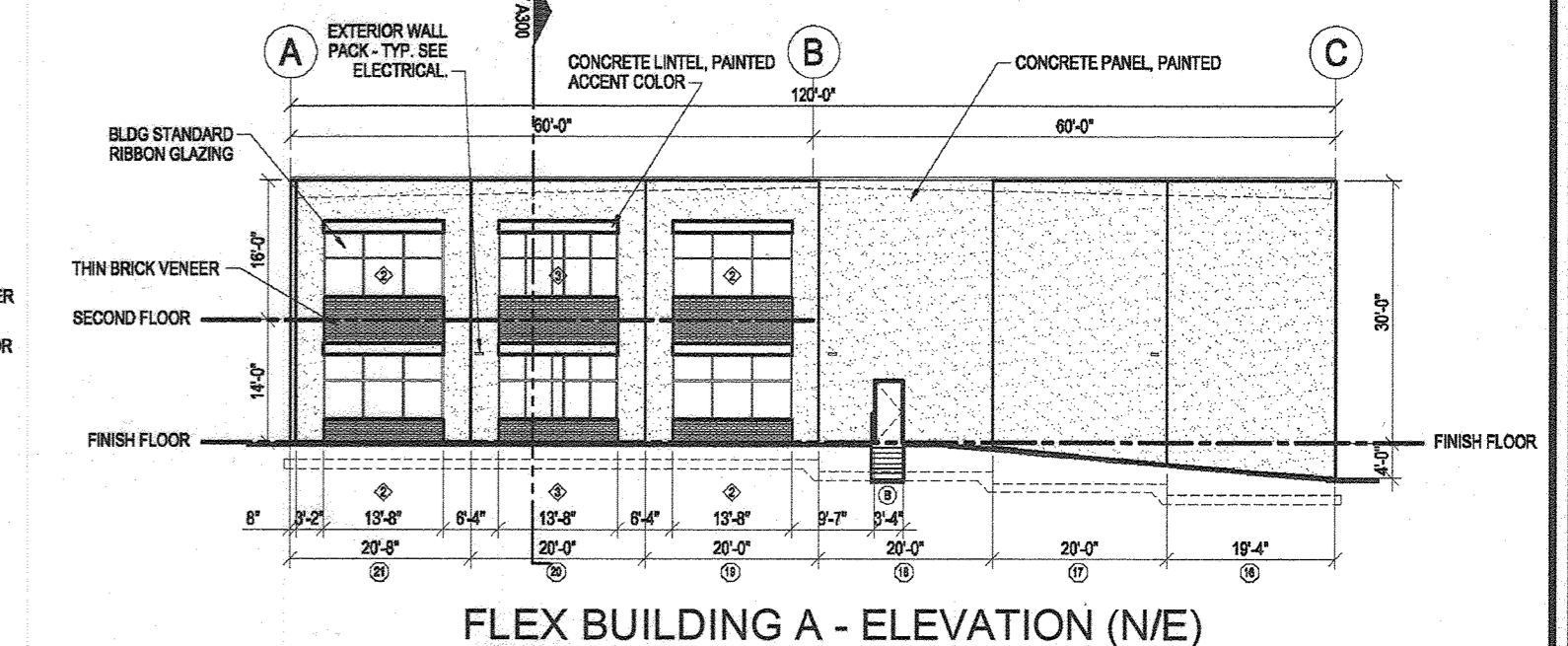




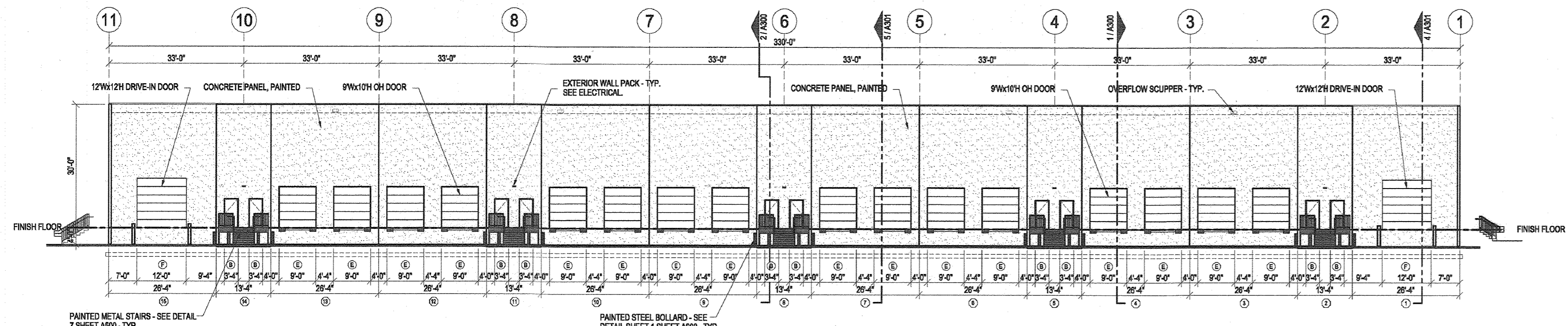
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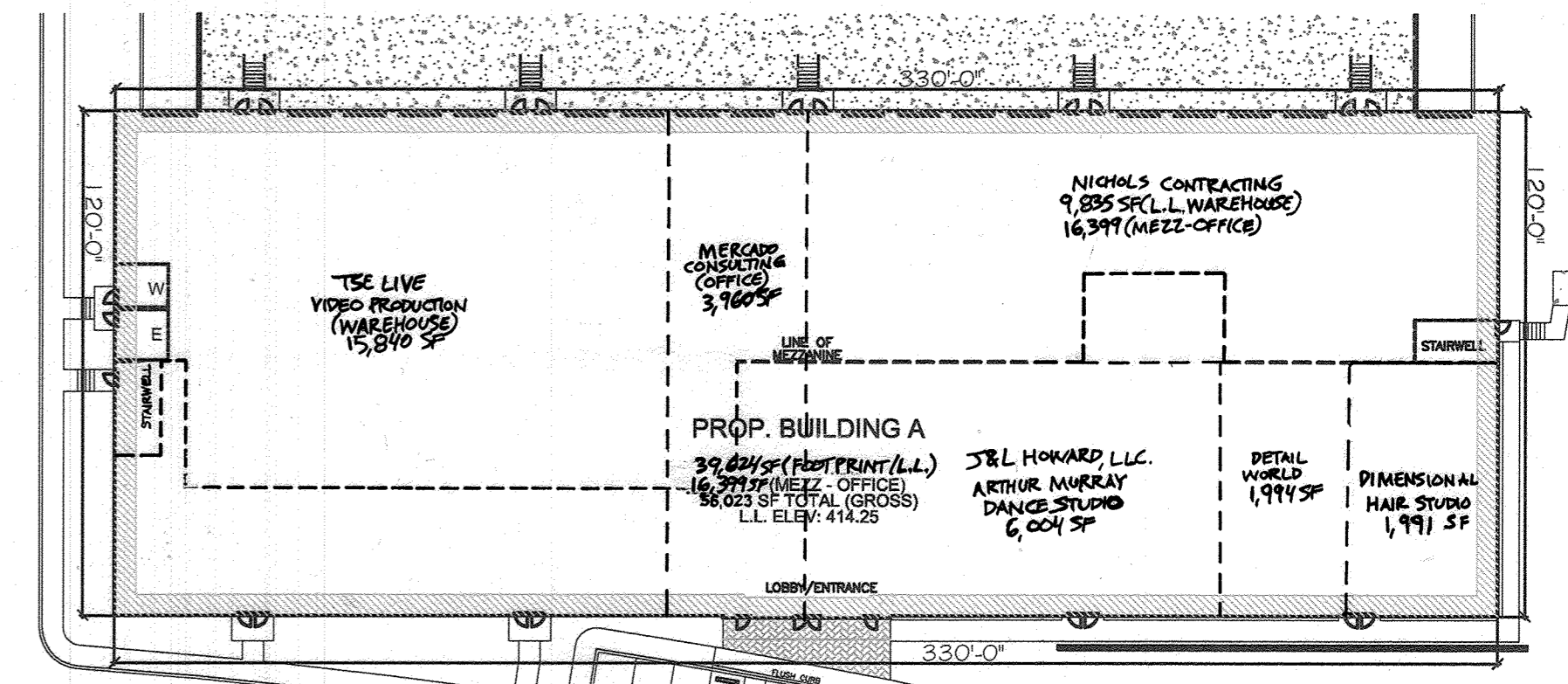
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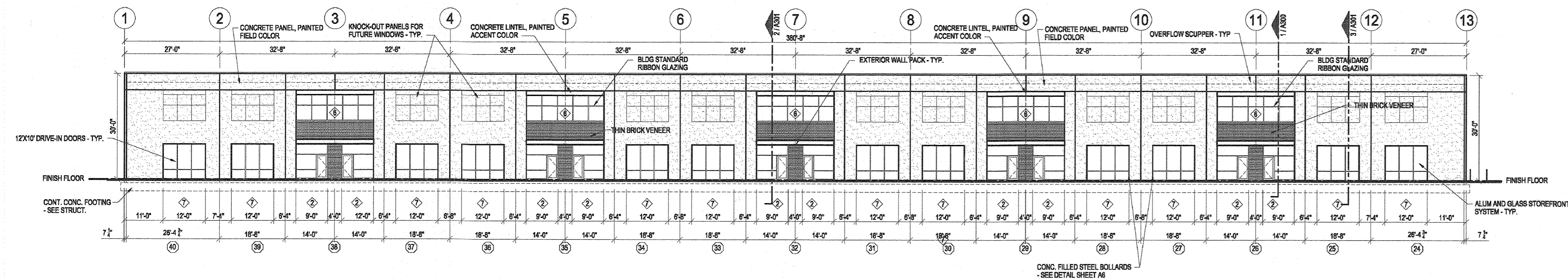
FLEX BUILDING A - ELEVATION (N/E) NOT TO SCALE



FLEX BUILDING A - ELEVATION (N/W) NOT TO SCALE

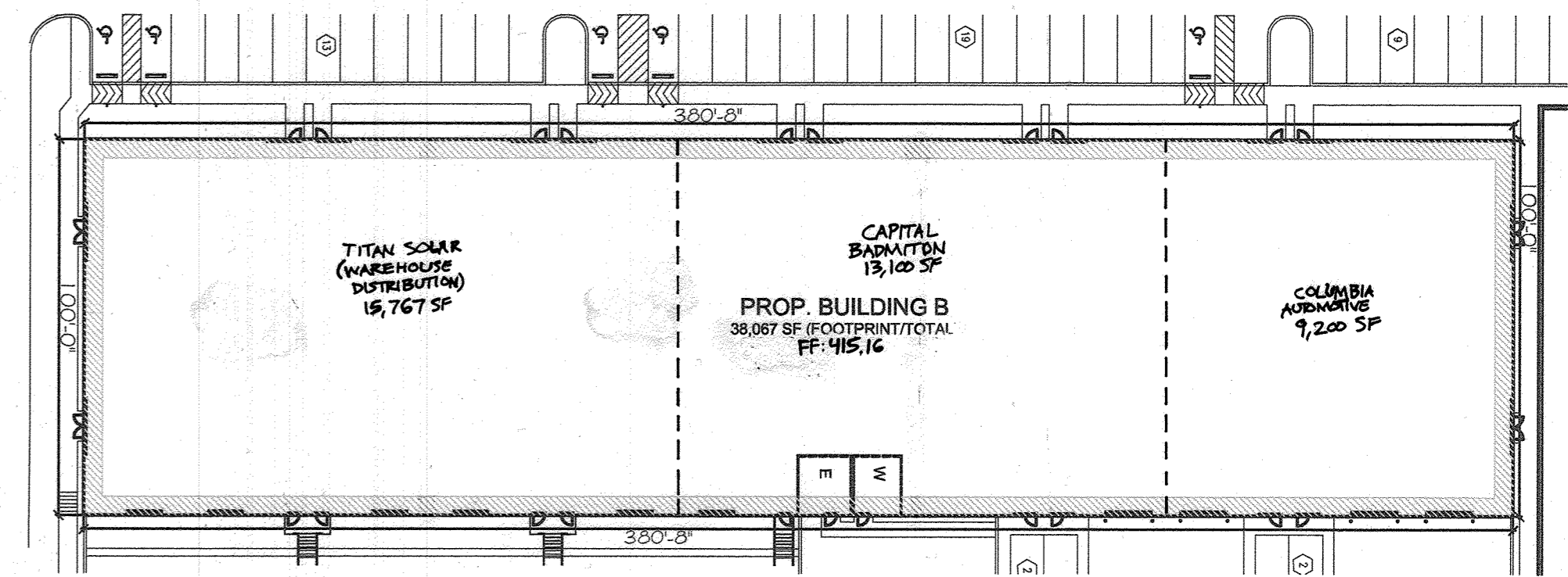


BUILDING A FOOTPRINT 1"=40'

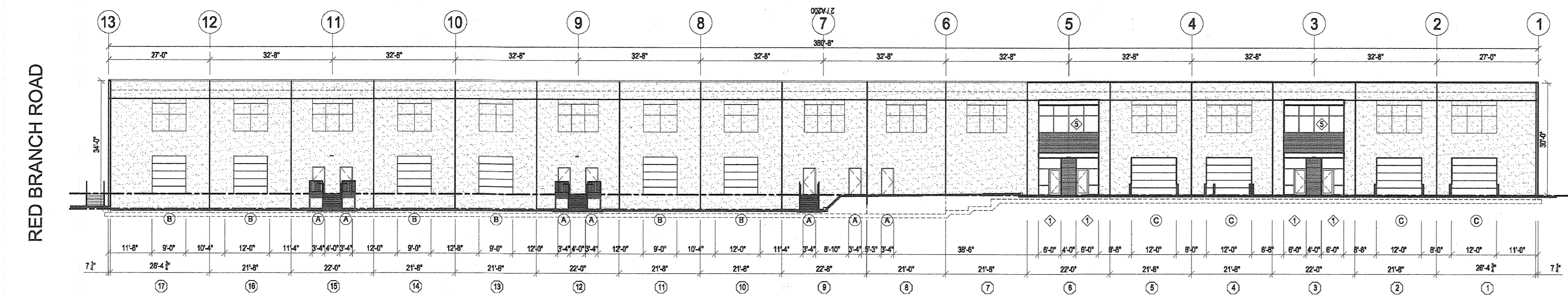


FLEX BUILDING B - ELEVATION (S/W) NOT TO SCALE

RED BRANCH ROAD



BUILDING B FOOTPRINT 1"=40'

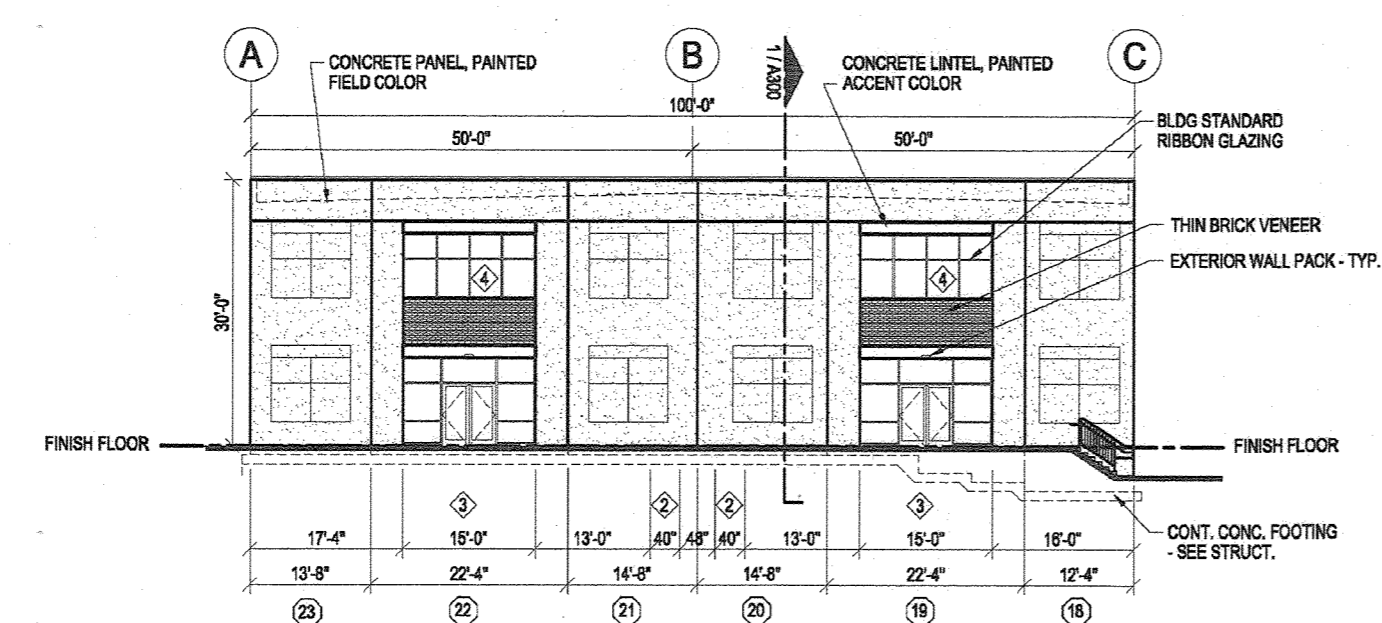


FLEX BUILDING B - ELEVATION (N/E) NOT TO SCALE

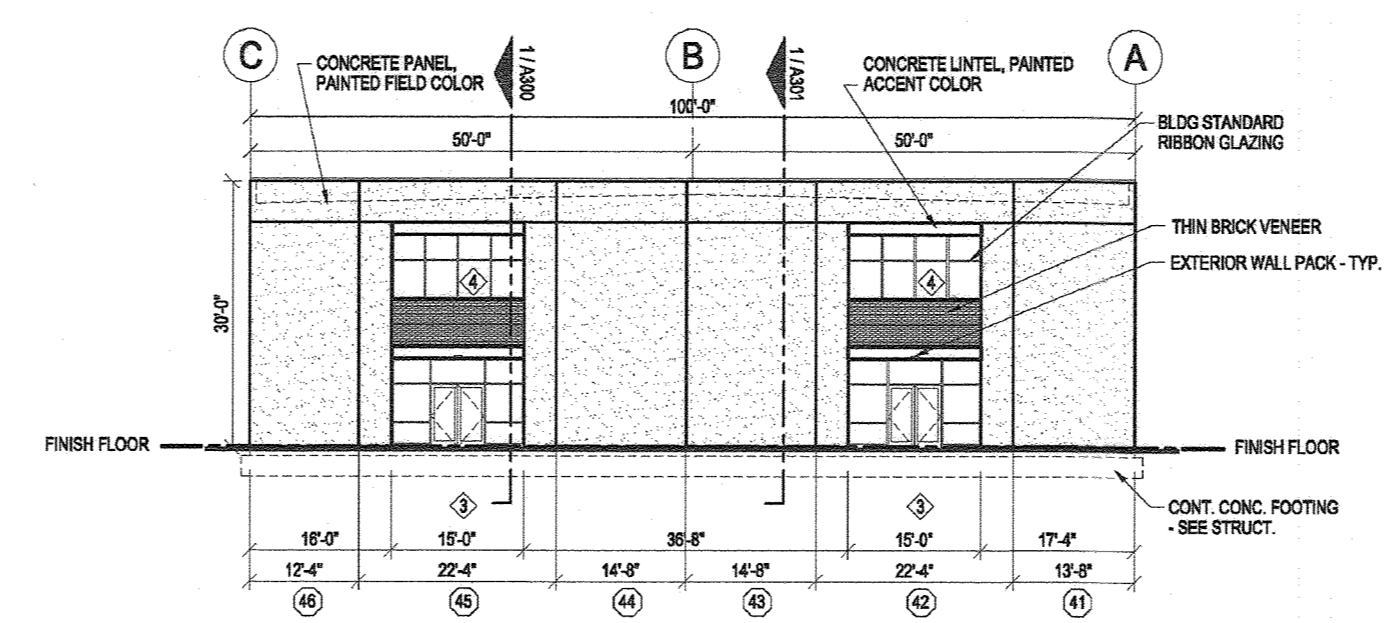
RED BRANCH ROAD

GENERAL NOTE
BUILDING A HAS A FOOTPRINT GREATER THAN 50,000 SF. HOWEVER, PER THE LETTER DATED NOVEMBER 19, 2020, THE BUILDING IS DESIGNED AS A MIXED USE 2-1/2 STORY BUILDING. FIRST FLOOR=59,924 SF WITH A SECOND FLOOR AREA OF 19,874 SF TOTAL. IT IS UNKNOWN AT THIS TIME HOW MUCH OF THAT SQUARE FOOTAGE WILL BE OFFICE AREA. TYPICALLY IT IS ABOUT 40-50% MAXIMUM OF THE TOTAL SQUARE FOOTAGE. GIVEN THE ABOVE INFORMATION, GREEN BUILDING SHOULD NOT BE REQUIRED.

NO AS-BUILT INFORMATION ON THIS SHEET



FLEX BUILDING B - ELEVATION (S/E) NOT TO SCALE



FLEX BUILDING B - ELEVATION (N/W) NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *4-22-21*
 Chief, Division of Land Development: *5/1/21*
 Director: *5-3-21*

AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
 P.E. NAME: *16193* DATE: *3-30-23*

OWNER / DEVELOPER
 9190 LLC
 508 OLNEY-SANDY SPRING ROAD
 SUITE 200
 SANDY SPRING, MARYLAND 20886
 (301) 924-5258
 C/O NICHOLS CONTRACTING, INC.
 FRED NICHOLS, PRESIDENT

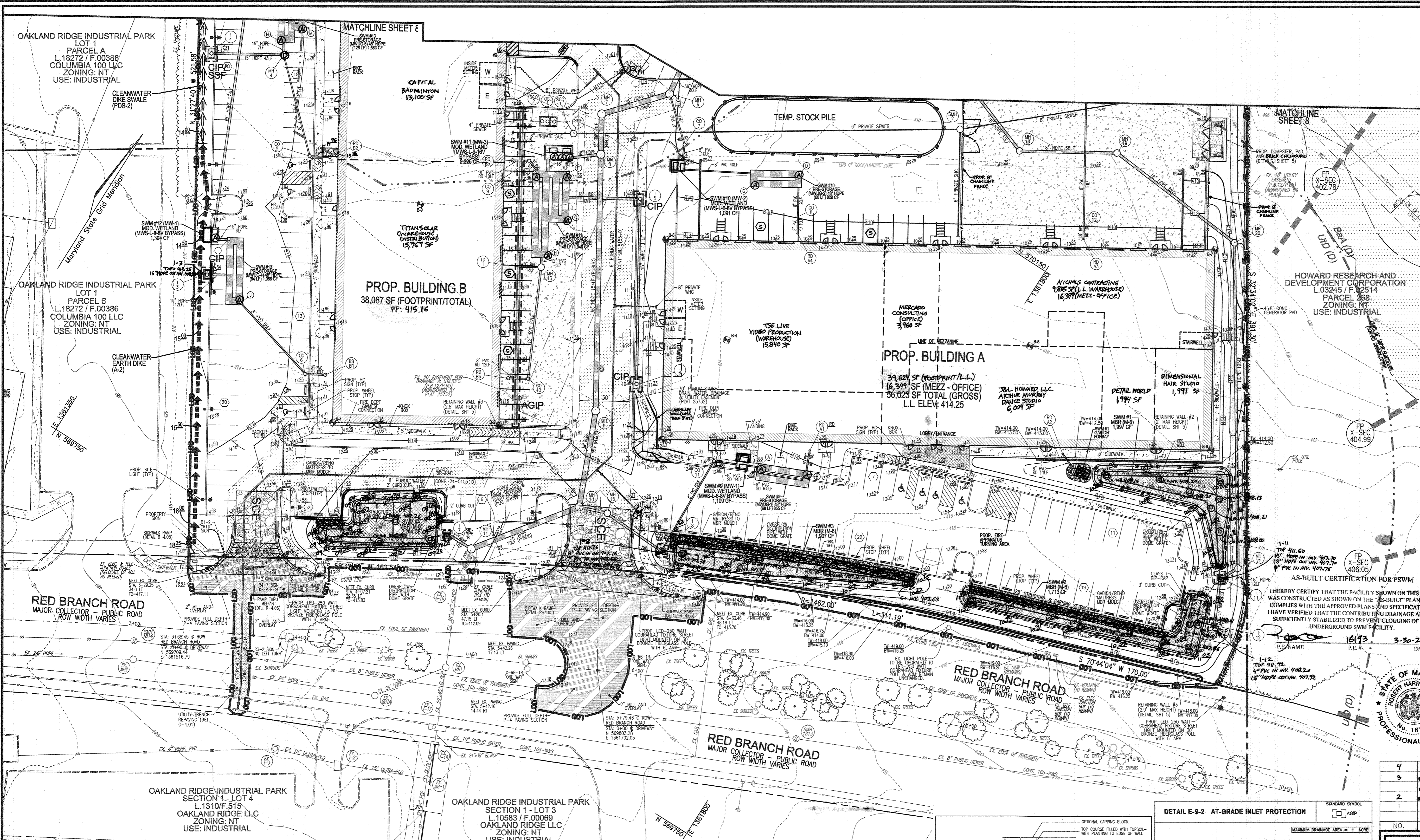
NO.	REVISION	DATE
4	REVISE BUILDING USE AND TENANT	8-2-23
2	REVISE THE PLAN TO ADD NEW TENANT AND PROPOSED CHAIN LINK FENCE AND REVISE PARKING	10-26-22

SITE DEVELOPMENT PLAN
BUILDING ELEVATIONS
 OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
 WAREHOUSE AND OFFICE
 PARCEL 239
 9188 & 9190 RED BRANCH ROAD
 TAX MAP 30 BLOCK 17
 2ND ELECTION DISTRICT
 ZONED: NT
 LOT 2 / PARCEL 239
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8951 www.timmons.com

PROFESSIONAL CERTIFICATE
 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. 16193, EXPIRATION DATE: 09-27-2022.
 DESIGN BY: *DZE*
 DRAWN BY: *DZE/MP*
 CHECKED BY: *RHV*
 DATE: *FEBRUARY 2021*
 SCALE: *AS SHOWN*
 W.O. NO.: *13-07/44117*
 6 SHEET OF 21
 SDP-21-003

AS-BUILT, JULY 2022



LEGEND:

[Symbol]	EXISTING CONTOUR
[Symbol]	PROPOSED CONTOUR
[Symbol]	EXISTING CURB AND GUTTER
[Symbol]	PRE-2014 PIPE AND HEADWALL
[Symbol]	EXISTING UTILITY POLE
[Symbol]	EXISTING LIGHT POLE
[Symbol]	EXISTING SIGN
[Symbol]	EXISTING SANITARY MANHOLE
[Symbol]	EXISTING SANITARY LINE
[Symbol]	EXISTING CLEANOUT
[Symbol]	EXISTING FIRE HYDRANT
[Symbol]	EXISTING WATER LINE
[Symbol]	EXISTING GASLINE
[Symbol]	EXISTING FENCE
[Symbol]	EXISTING STREAM BANK
[Symbol]	PROPERTY LINE
[Symbol]	RIGHT-OF-WAY LINE
[Symbol]	SOILS BOUNDARY
[Symbol]	PROPOSED SIDEWALK
[Symbol]	EXISTING TREELINE
[Symbol]	PROPOSED TREELINE
[Symbol]	PROPOSED STORM DRAIN
[Symbol]	PROPOSED STORM DRAIN INLETS
[Symbol]	PROPOSED FIRE HYDRANT
[Symbol]	PROPOSED WATER TEE & VALVE
[Symbol]	PROPOSED WATER MAIN
[Symbol]	PROPOSED SEWER MAIN
[Symbol]	PRE-2014 CL. STREAM CHANNEL (SDP-19-034)
[Symbol]	FLOODPLAIN CROSS-SECTION
[Symbol]	PROPOSED CURB AND GUTTER
[Symbol]	100 YEAR FLOODPLAIN (HOWARD COUNTY DEPT)
[Symbol]	(PLAT 25732)
[Symbol]	MICRO-BIORETENTION
[Symbol]	20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 25732)
[Symbol]	30' PUBLIC WATER AND UTILITY EASEMENT (PLAT 25732)
[Symbol]	20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
[Symbol]	TEST PIT
[Symbol]	SOIL BORING
[Symbol]	PROPOSED STREET LIGHT
[Symbol]	PROPOSED STREET SIGN

ESC LEGEND:

[Symbol]	LIMIT OF DISTURBANCE
[Symbol]	SILT FENCE
[Symbol]	SUPER SILT FENCE
[Symbol]	DIVERSION FENCE
[Symbol]	EARTH CURB
[Symbol]	PERMETER DIKE SWALE
[Symbol]	STANDARD INLET PROTECTION
[Symbol]	CURB INLET PROTECTION
[Symbol]	AT GRADE INLET PROTECTION
[Symbol]	STABILIZED CONSTRUCTION ENTRANCE

AS-BUILT CERTIFICATION FOR PWSM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 7/13/22
P.E. NAME: [Signature]
P.E. NO.: 16193

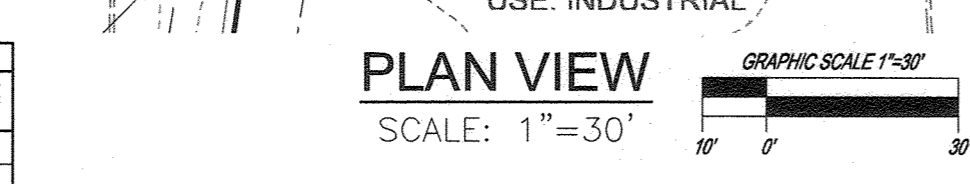
OWNER / DEVELOPER

9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE
4	REVISE BUILDING USES AND TENANTS	8-2-23
3	REVISE PLAN TO INCLUDE BUILDING 'D' AND 'E', REMOVE SHADE DRAINAGE WITHIN PERMITS	2-1-23
2	REVISE THE PLAN TO ADD TENANTS, ADD FLOODPLAIN CROSS SECTION, AND REVISE PARKING	10-26-22
1	REVISE PLAN TO MODIFY THE PUBLIC STORM DRAIN AND PRIVATE ESD PRACTICE DUE TO UNDERGROUND OPTIC CONDUIT LOCATION	09/01/21

SOILS LEGEND (HO. CO. SOILS MAP #18)

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
BgA	BALD SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	NO	NO	NO	NO	NO	NO
UHD	URBAN LAND-URDERTHINGS COMPLEX, 0 TO 15 PERCENT SLOPE	D	NO	NO	NO	NO	NO	NO	NO



EXISTING UTILITIES NOTE:
EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM EXISTING SITE DEVELOPMENT PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION ONLY.

CONTRACTOR SHALL TEST PIT TO VERIFY EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES TO MAINTAIN UNINTERRUPTED SERVICE AND TO PROVIDE REQUIRED CLEARANCES FOR ALL PROPOSED UTILITIES. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

SEDIMENT CONTROL NOTES:

- SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
- A DOUBLE ROW OF "SUPER" SILT FENCE IS TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED. SILT FENCE SHALL BE CURLED UPHILL AT 35 FT. INTERVALS WHEREVER IT RUNS DOWNHILL.
- EITHER TEMPORARY OR PERMANENT SEEDING AND STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS PROVIDED IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE STRINGENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 6/1/22

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/1/22

DIRECTOR
DATE: 6/1/22

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

DATE: 05/05/2022
DATE: 05/05/2022

OWNER/DEVELOPER SIGNATURE: [Signature]
PRINTED NAME & TITLE: FRED A. NICHOLS, MANAGING MEMBER

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

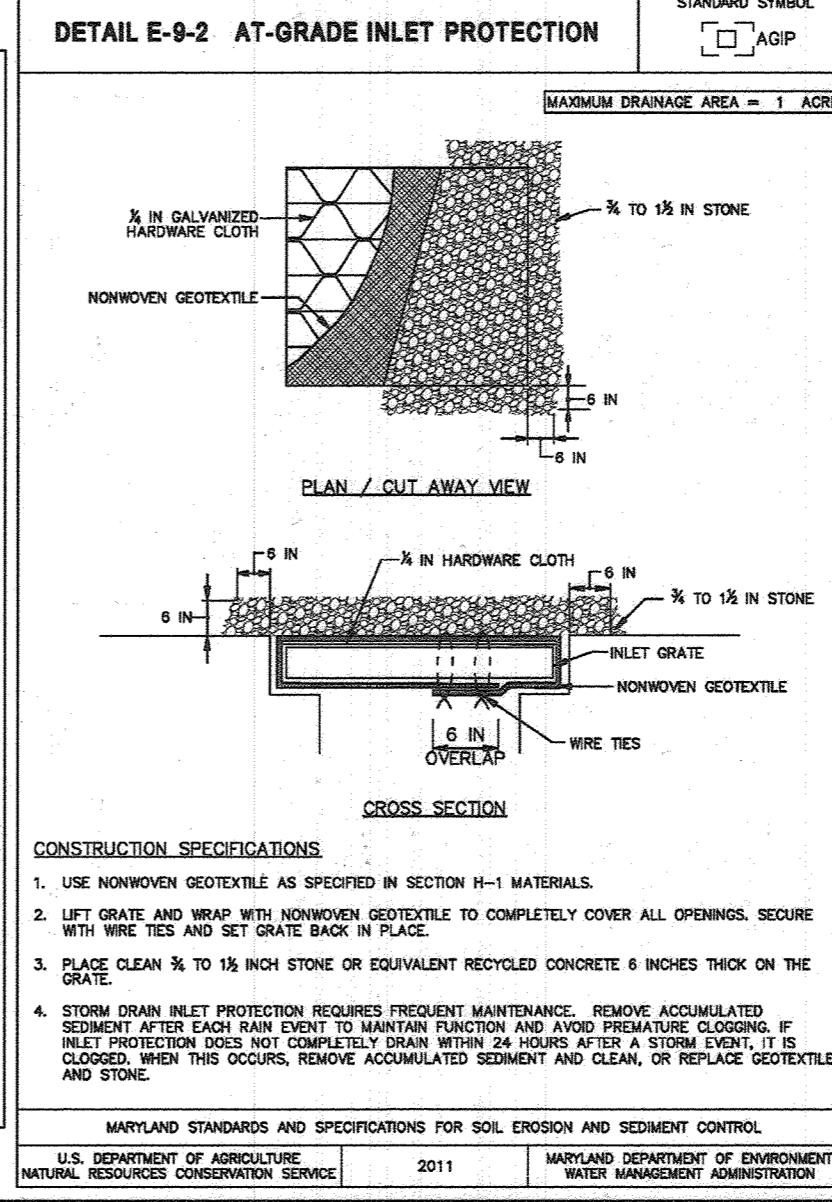
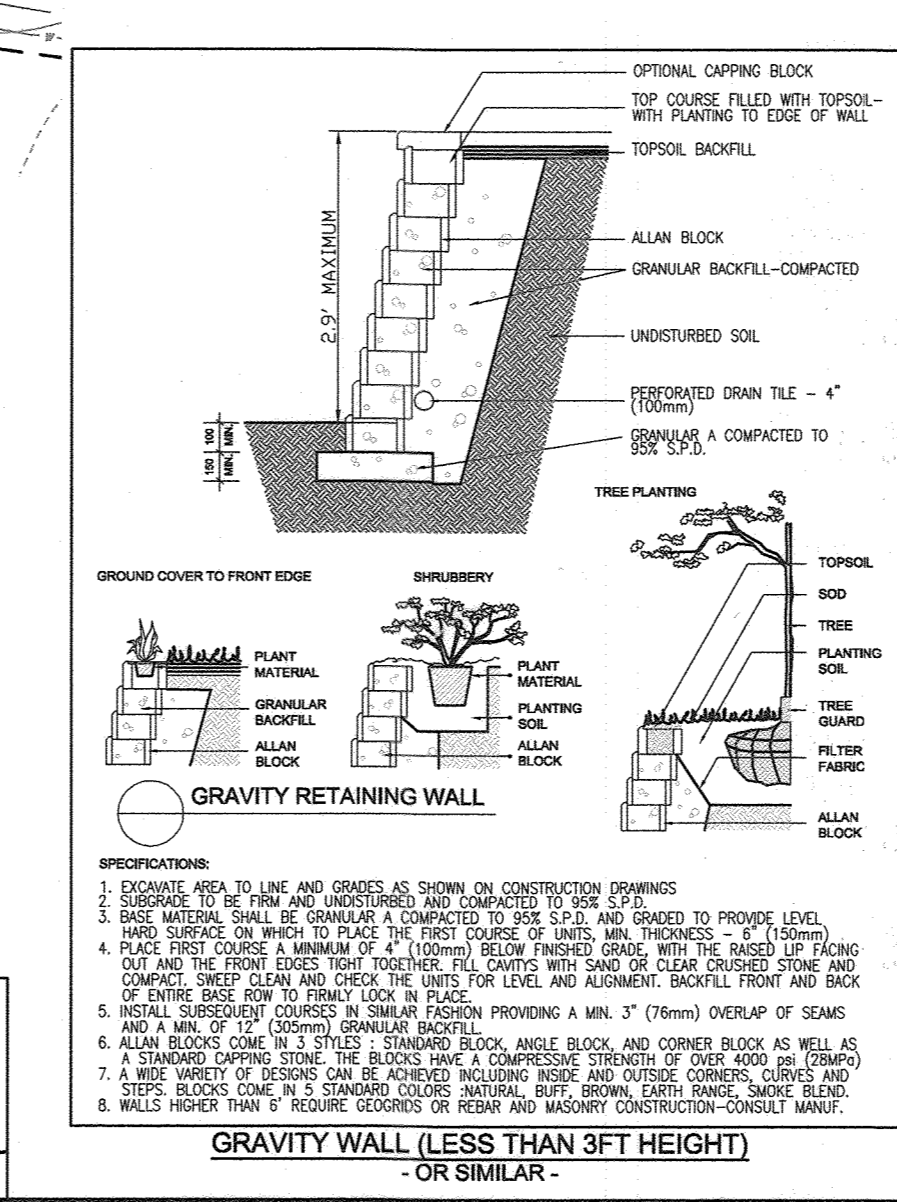
DESIGNER'S SIGNATURE: [Signature]
PRINTED NAME: ROBERT H. VOGEL
DATE: 11-17-21

NO. REGISTRATION NO. 16193
R.L.S., OR R.L.A. (circle one)

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

DATE: 05/16/22
DATE: 05/16/22

HOWARD S.C.D.



REVISED SITE DEVELOPMENT PLAN

GRADING, SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP

OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2 WAREHOUSE AND OFFICE

TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT

9188 & 9190 RED BRANCH ROAD
PARCEL 239

LOT 2 / PARCEL 239
ZONED: NT
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

TIMMONS GROUP

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

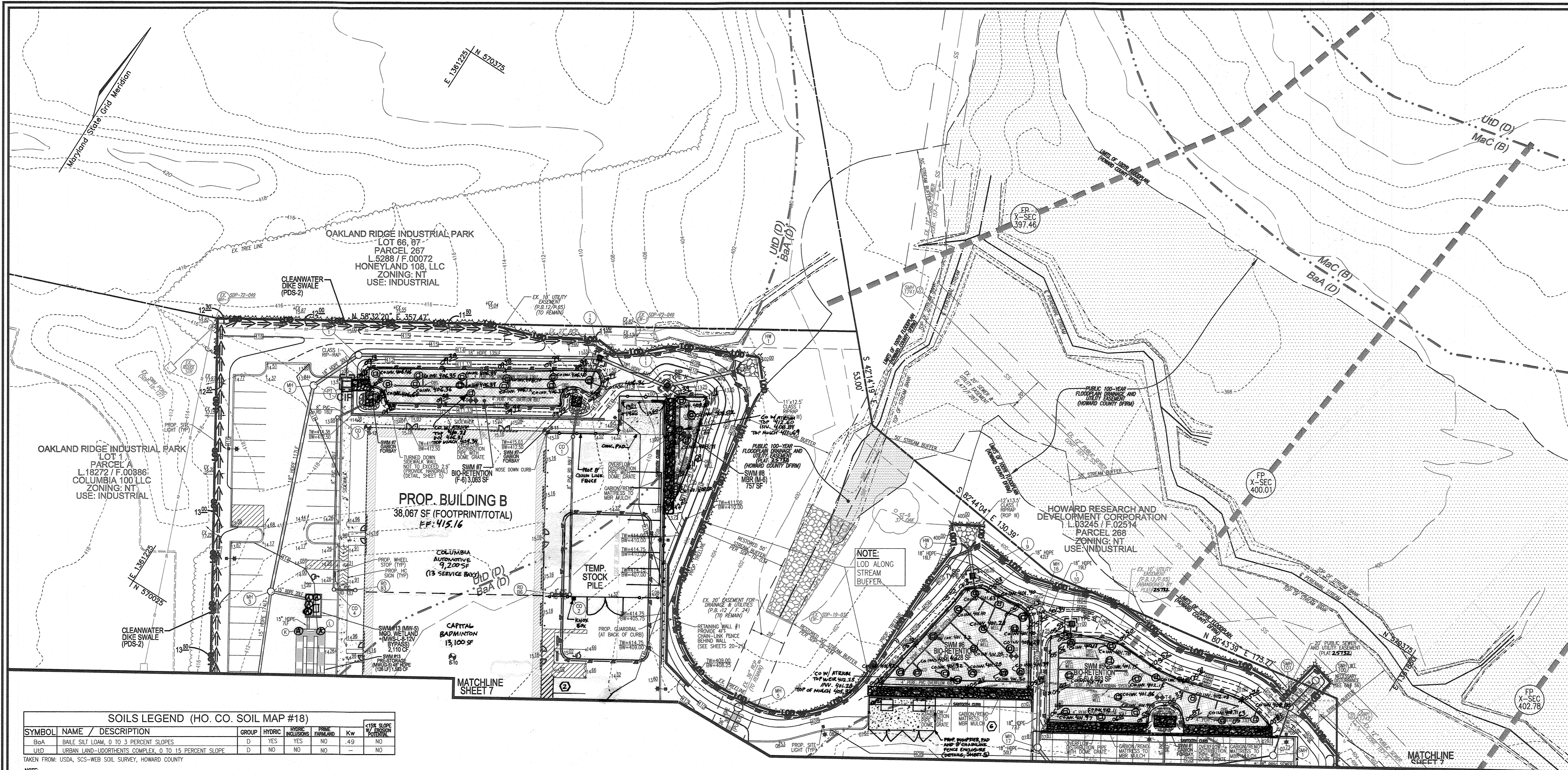
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022

DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHV
DATE: NOVEMBER 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

7 SHEET OF 21

AS-BUILT, JULY 2022

SDP-21-003



LEGEND:

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PRE-2014 PIPE AND HEADWALL
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING GASLINE
	EXISTING FENCE
	EXISTING STREAM BANK
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	PROPOSED SIDEWALK
	EXISTING TREELINE
	PROPOSED TREELINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLETS
	PROPOSED FIRE HYDRANT
	PROPOSED WATER TEE & VALVE
	PROPOSED WATER MAIN
	PROPOSED SEWER MAIN
	PRE-2014 CL STREAM CHANNEL (SDP-19-034)
	FLOODPLAIN CROSS-SECTION
	PROPOSED CURB AND GUTTER
	100 YEAR FLOODPLAIN (HOWARD COUNTY DFRM) (PLAT 25732)
	MICRO-BIORETENTION
	20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 25732)
	30' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
	20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
	20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
	TEST PIT
	SOIL BORING
	PROPOSED STREET LIGHT

ESC LEGEND:

	LIMIT OF DISTURBANCE
	SILT FENCE
	SUPER SILT FENCE
	DIVERSION FENCE
	EARTH DIKE
	PERIMETER DIKE SWALE
	STANDARD INLET PROTECTION
	CURB INLET PROTECTION
	AT GRADE INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE

SOILS LEGEND (HO. CO. SOIL MAP #18)

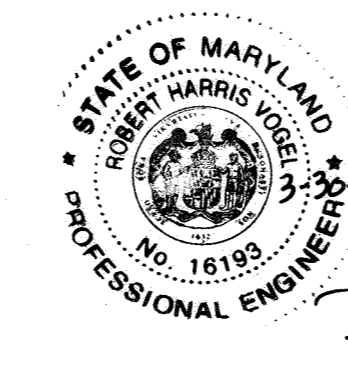
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	PERK FARLAND	Kw	C/SR SLOPE W/ 10% SLOPE
B6a	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	NO	4.9	NO
U10	URBAN LAND-URBORNTS COMPLEX, 0 TO 15 PERCENT SLOPE	D	NO	NO	NO	—	NO

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

PLAN VIEW
SCALE: 1"=30'

NOTES:

- APPROVAL OF THIS PLAN DOES NOT ALLOW FOR UNAUTHORIZED OFFSITE GRADING OR IMPACTS OF ANY MANNER THAT WILL AFFECT ADJOINING PROPERTY OWNERS/TENANTS. IT IS THE DEVELOPER'S OBLIGATION TO ENSURE ADJACENT PROPERTIES ARE APPROPRIATELY NOTIFIED PRIOR TO ANY OFFSITE DISTURBANCES THAT MAY AFFECT THE USE OF, AND/OR ACCESS TO, THEIR PROPERTY.



AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

ROBERT H. VOGEL
P.E. NAME
16193
P.E. #
3-30-23
DATE

SEDIMENT CONTROL NOTES:

- SEDIMENT CONTROL INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
- A DOUBLE ROW OF "SUPER" SILT FENCE IS TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.
- SILT FENCE SHALL BE CURLED UP/HILL AT 35 FT. INTERVALS WHEREVER IT RUNS DOWNHILL.
- EITHER TEMPORARY OR PERMANENT SEEDING AND STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS PROVIDED IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE STRINGENT.

EXISTING UTILITIES NOTE:

EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM EXISTING SITE DEVELOPMENT PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION ONLY.

CONTRACTOR SHALL TEST PIT TO VERIFY EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES, TO MAINTAIN UNINTERRUPTED SERVICE AND TO PROVIDE REQUIRED CLEARANCES FOR ALL PROPOSED UTILITIES. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4-22-21
DATE

4/21/21
DATE

5-3-21
DATE

OWNER/DEVELOPER CERTIFICATION:

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

OWNER/DEVELOPER SIGNATURE: *Charles Davis*
PRINTED NAME & TITLE: Charles Davis - Project Manager

DESIGN CERTIFICATION:

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

DESIGNER'S SIGNATURE: *Robert H. Vogel*
PRINTED NAME: ROBERT H. VOGEL
MD REGISTRATION NO. 16193
R.L.S., OR R.L.A. (Circle one)

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

4/21/21
DATE

3/1/21
DATE

NO.	REVISION	DATE
4	REVISE BUILDING USE AND TENANTS	8-2-23
3	REVISE PLAN TO RELOCATE SWIM IN POOL, MOUNT ISLAND REPLACE SINGLE DRAINAGE WITH DOUBLE DRAINAGE, AND TO ADD CONCRETE PAD, SMALL LANDSCAPE WALL AND STRIPED PARKING	2-1-23
2	REVISE THE PLAN TO ADD NEW TENANTS, ADD PROPOSED CHAIN LINK FENCE AND REVISE PARKING	10-26-22

SITE DEVELOPMENT PLAN
GRADING, SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE

PARCEL 239
9188 & 9190 RED BRANCH ROAD
LOT 2 / PARCEL 239
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP

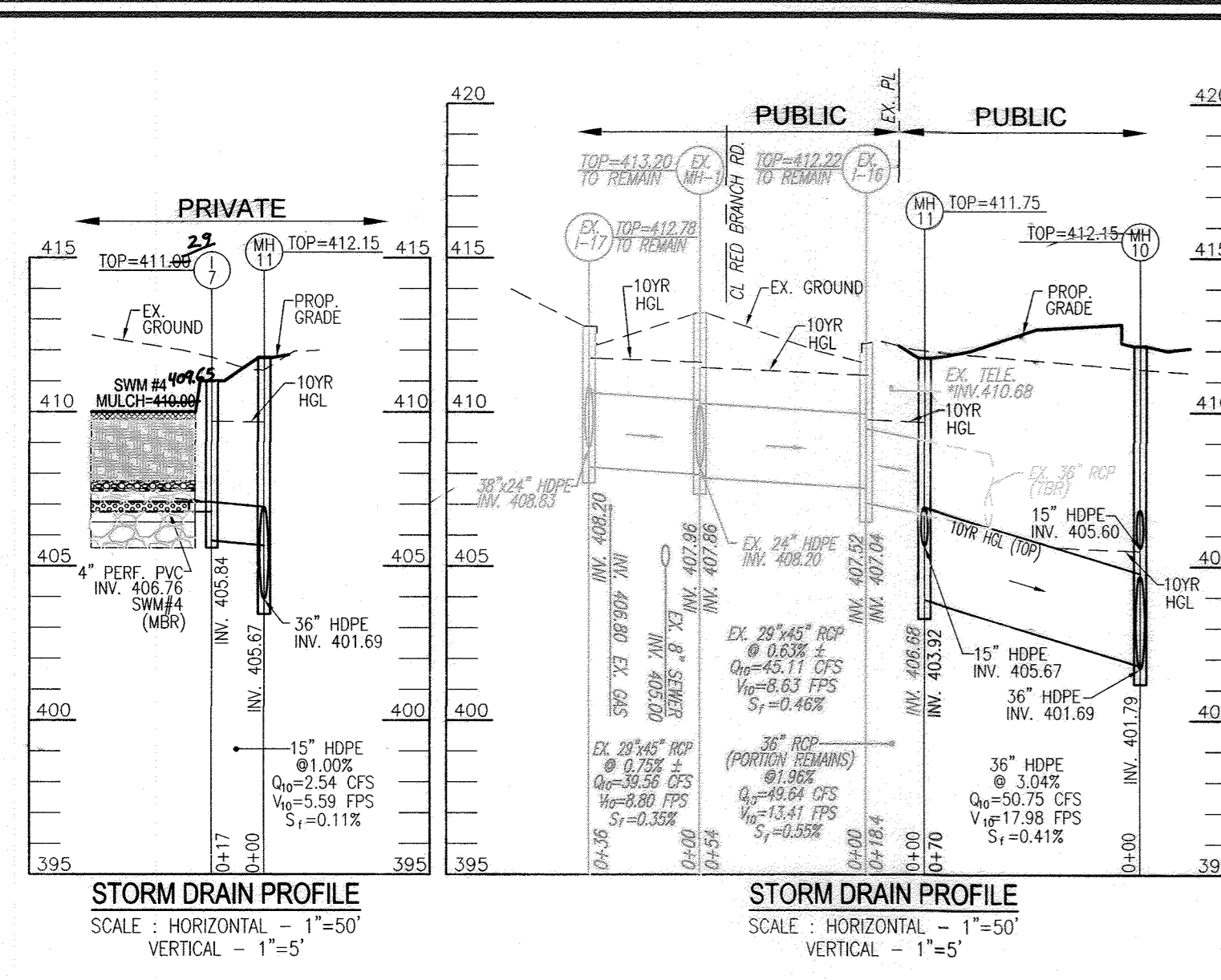
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHY
DATE: FEBRUARY 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

PROFESSIONAL CERTIFICATE
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.
EXPIRATION DATE: 09-27-2023

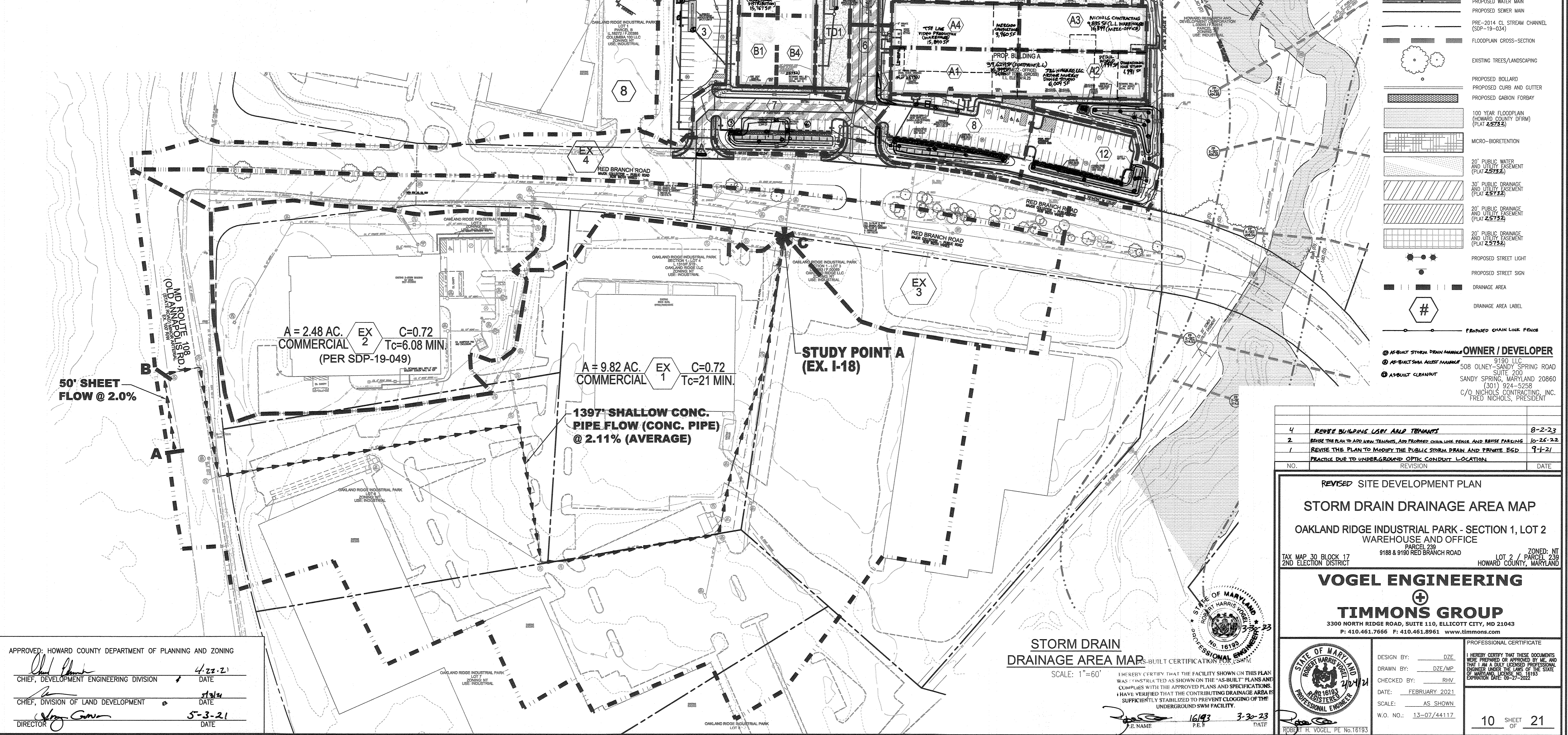
8 SHEET OF 21

AS-BUILT, JULY 2022



DRAINAGE AREA	AREA AC	C	IMP %
EX-1	9.82	0.72	COMM
EX-2	2.48	0.72	COMM
EX-3	2.15	0.72	COMM
EX-4	1.37	0.72	COMM
A-1	0.23	0.86	100%
A-2	0.23	0.86	100%
A-3	0.23	0.86	100%
A-4	0.23	0.86	100%
B-1	0.11	0.86	100%
B-2	0.15	0.86	100%
B-3	0.18	0.86	100%
B-4	0.11	0.86	100%
B-5	0.15	0.86	100%
B-6	0.18	0.86	100%
DA-1	0.25	0.78	87%
DA-2	0.35	0.49	41%
DA-3	0.51	0.50	42%
DA-4	0.47	0.61	60%
DA-5	0.13	0.70	74%
DA-6	0.13	0.73	79%
DA-7	0.41	0.63	63%
DA-8	0.42	0.61	59%
DA-9	0.62	0.74	80%
DA-10	0.49	0.69	72%
DA-11	0.15	0.31	12%
DA-12	0.36	0.56	52%
TD-1	0.23	0.78	87%

STORM DRAIN PROFILE
 SCALE: HORIZONTAL - 1"=50'
 VERTICAL - 1"=5'



- LEGEND:**
- EXISTING CONTOUR
 - PROPOSED CONTOUR
 - EXISTING CURB AND GUTTER
 - PRE-2014 PIPE AND HEADWALL
 - EXISTING UTILITY POLE
 - EXISTING LIGHT POLE
 - EXISTING MAILBOX
 - EXISTING SIGN
 - EXISTING SANITARY MANHOLE
 - EXISTING SANITARY LINE
 - EXISTING CLEANOUT
 - EXISTING FIRE HYDRANT
 - EXISTING WATER LINE
 - EXISTING GASLINE
 - EXISTING FENCE
 - EXISTING STREAM BANK
 - PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - SOILS BOUNDARY
 - M1B2
 - M1D3
 - PROPOSED SIDEWALK
 - PROPOSED SIDEWALK RAMP
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - PROPOSED STORM DRAIN
 - PROPOSED STORM DRAIN INLETS
 - PROPOSED FIRE HYDRANT
 - PROPOSED WATER TEE & VALVE
 - PROPOSED WATER MAIN
 - PROPOSED SEWER MAIN
 - PRE-2014 CL STREAM CHANNEL (SDP-19-034)
 - FLOODPLAIN CROSS-SECTION
 - EXISTING TREES/LANDSCAPING
 - PROPOSED BOLLARD
 - PROPOSED CURB AND GUTTER
 - PROPOSED GABION FORBAY
 - 100 YEAR FLOODPLAIN (HOWARD COUNTY DFRM) (PLAT 25732)
 - MICRO-BIORETENTION
 - 20" PUBLIC WATER AND UTILITY EASEMENT (PLAT 25732)
 - 30" PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
 - 20" PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
 - 20" PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
 - PROPOSED STREET LIGHT
 - PROPOSED STREET SIGN
 - DRAINAGE AREA
 - DRAINAGE AREA LABEL
 - PROPOSED CHAIN LINK FENCE

OWNER / DEVELOPER
 9190 LLC
 508 OLNEY-SANDY SPRING ROAD
 SUITE 200
 SANDY SPRING, MARYLAND 20860
 (301) 924-5258
 C/O NICHOLS CONTRACTING, INC.
 FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE
4	REVISE BUILDING USES AND TENANTS	8-2-23
2	REVISE THE PLAN TO ADD NEW TENANTS, ADD PROPOSED CHAIN LINK FENCE AND REVISE PARKING	10-25-22
1	REVISE THE PLAN TO MODIFY THE PUBLIC STORM DRAIN AND PRIVATE BSD	9-1-21
	PRACTICE DUE TO UNDERGROUND OPTIC CONDUIT LOCATION	

REVISED SITE DEVELOPMENT PLAN

STORM DRAIN DRAINAGE AREA MAP

OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
 WAREHOUSE AND OFFICE

PARCEL 238
 9188 & 9190 RED BRANCH ROAD
 TAX MAP 30 BLOCK 17
 2ND ELECTION DISTRICT

ZONED: NT
 LOT 2 / PARCEL 238
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7656 F: 410.461.8961 www.timmons.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 4-22-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5/3/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5-3-21
 DIRECTOR DATE

STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=60'

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

[Signature] 16193 3-30-23
 P.E. NAME RE. DATE

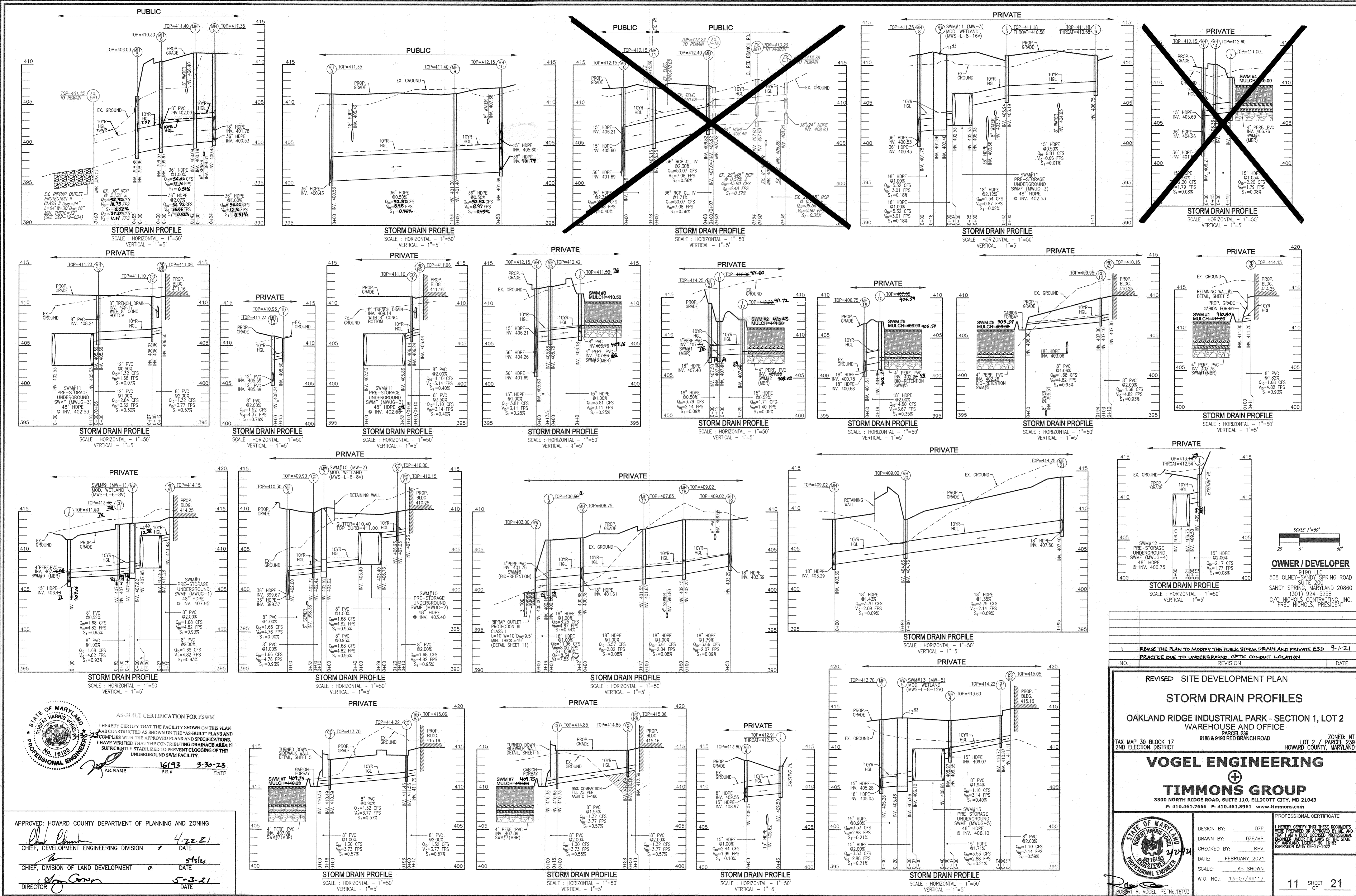
PROFESSIONAL CERTIFICATE

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. MY LICENSE NUMBER IS 16193 AND MY EXPIRATION DATE IS 09-27-2023.

[Signature] 2/20/21
 STATE OF MARYLAND
 ROBERT H. VOGEL, PE, No. 16193
 PROFESSIONAL ENGINEER

DESIGN BY: DZE
 DRAWN BY: DZE/MP
 CHECKED BY: RHW
 DATE: FEBRUARY 2021
 SCALE: AS SHOWN
 W.O. NO.: 13-07/44117

10 SHEET OF 21



STATE OF MARYLAND
ROBERT HARRIS VOGEL
PROFESSIONAL ENGINEER
 No. 16193
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
 P.E. NAME: **16193** P.E. #
 DATE: **3-30-23**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
4-22-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
5/14
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
5-3-21
 DIRECTOR DATE

REVISION THE PLAN TO MODIFY THE PUBLIC STORM DRAIN AND PRIVATE ESD 9-1-21
 PRACTICE DUE TO UNDERGROUND OPTIC CONDUIT LOCATION

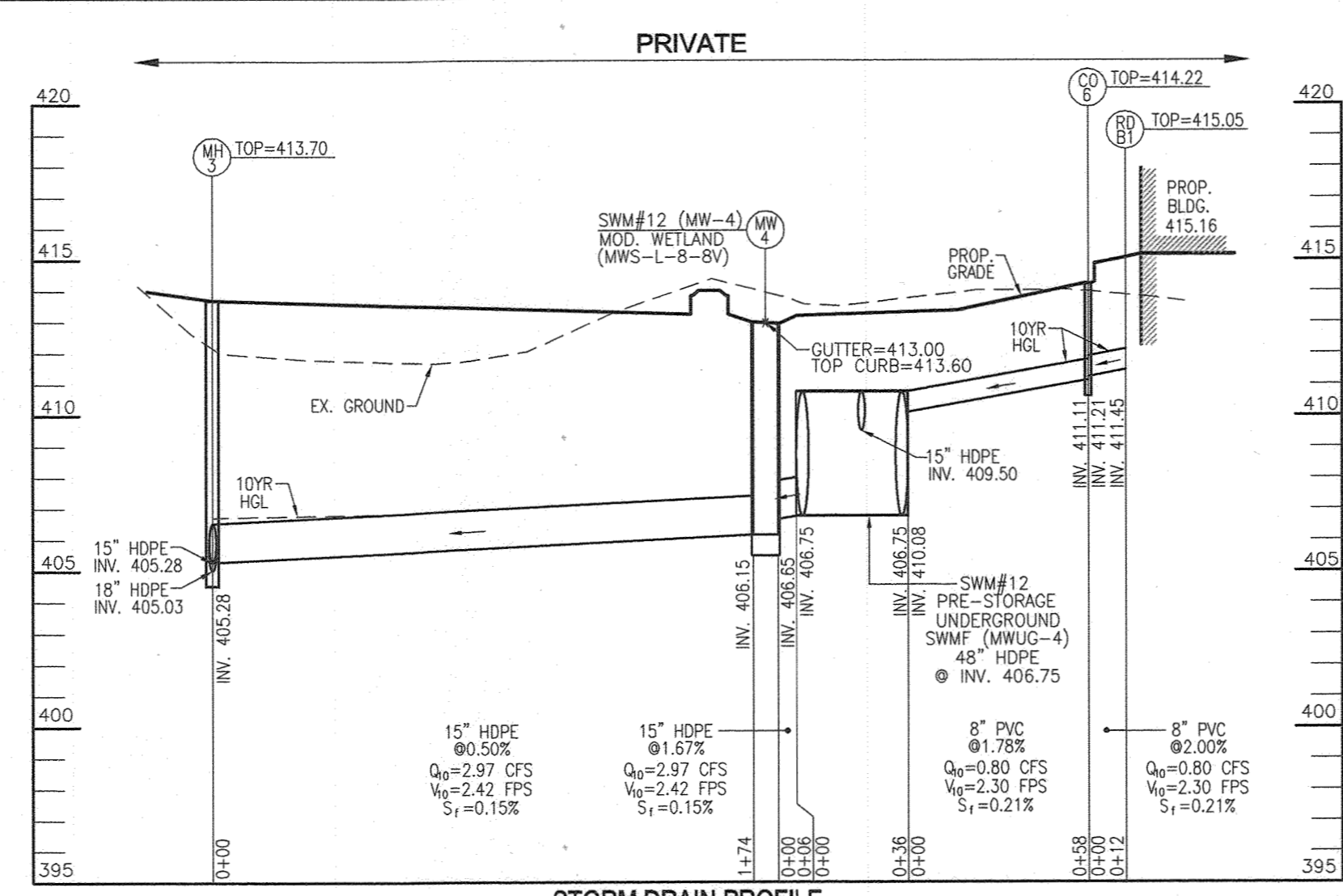
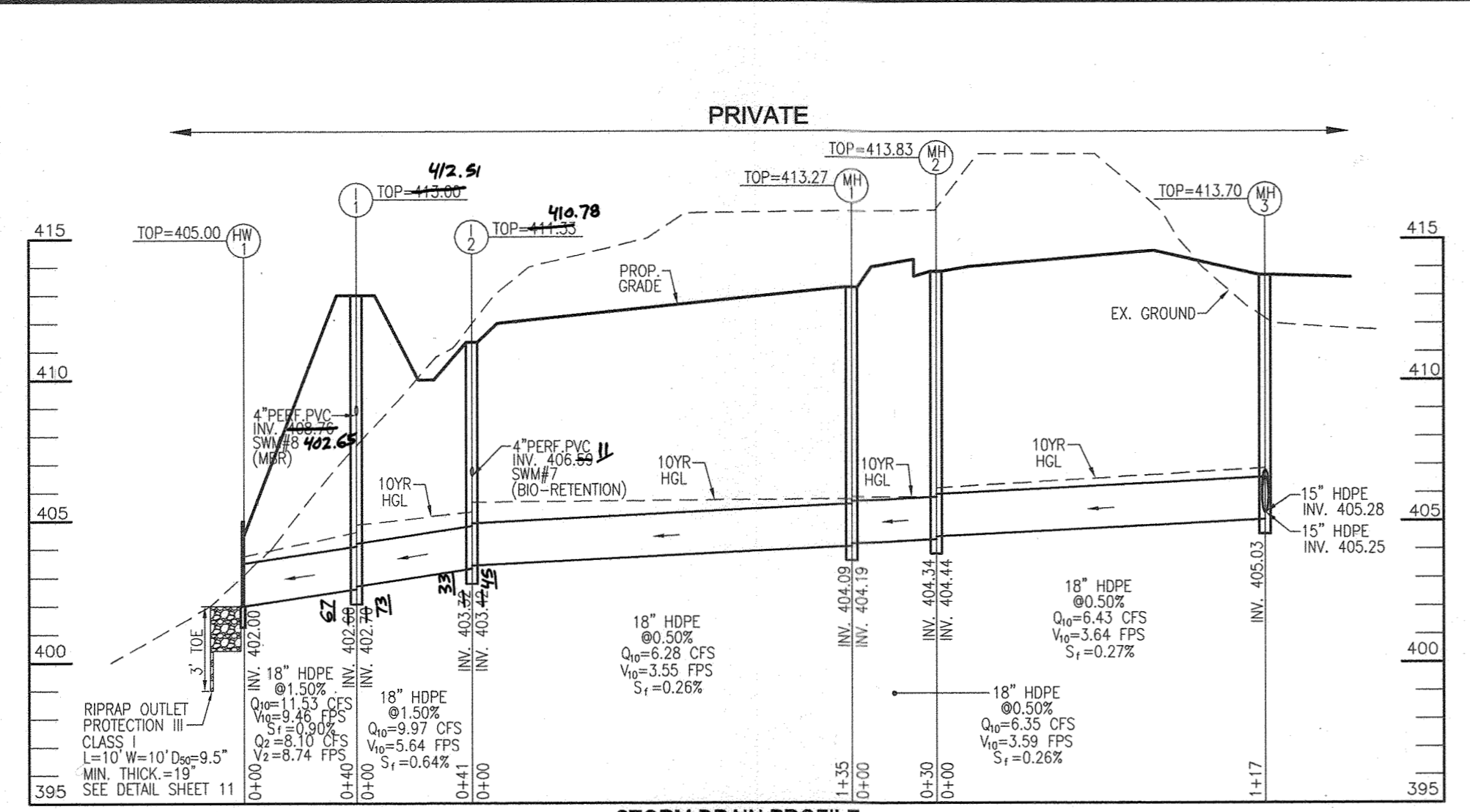
REVISED SITE DEVELOPMENT PLAN
STORM DRAIN PROFILES
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE
 TAX MAP 30 BLOCK 17 2ND ELECTION DISTRICT
 9188 & 9190 RED BRANCH ROAD
 PARCEL 238 LOT 2 ZONED: NT
 PARCEL 239 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
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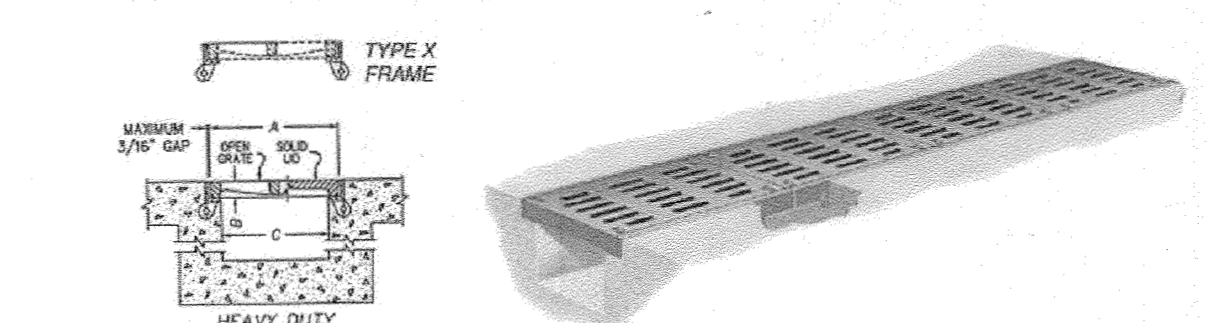
DESIGN BY: **DZE**
 DRAWN BY: **DZE/MP**
 CHECKED BY: **RHY**
 DATE: **FEBRUARY 2021**
 SCALE: **AS SHOWN**
 W.O. NO.: **13-07/44117**

PROFESSIONAL CERTIFICATE
 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.
 EXPIRATION DATE: 09-27-2022
11 SHEET OF **21**

AS-BUILT, JULY 2022



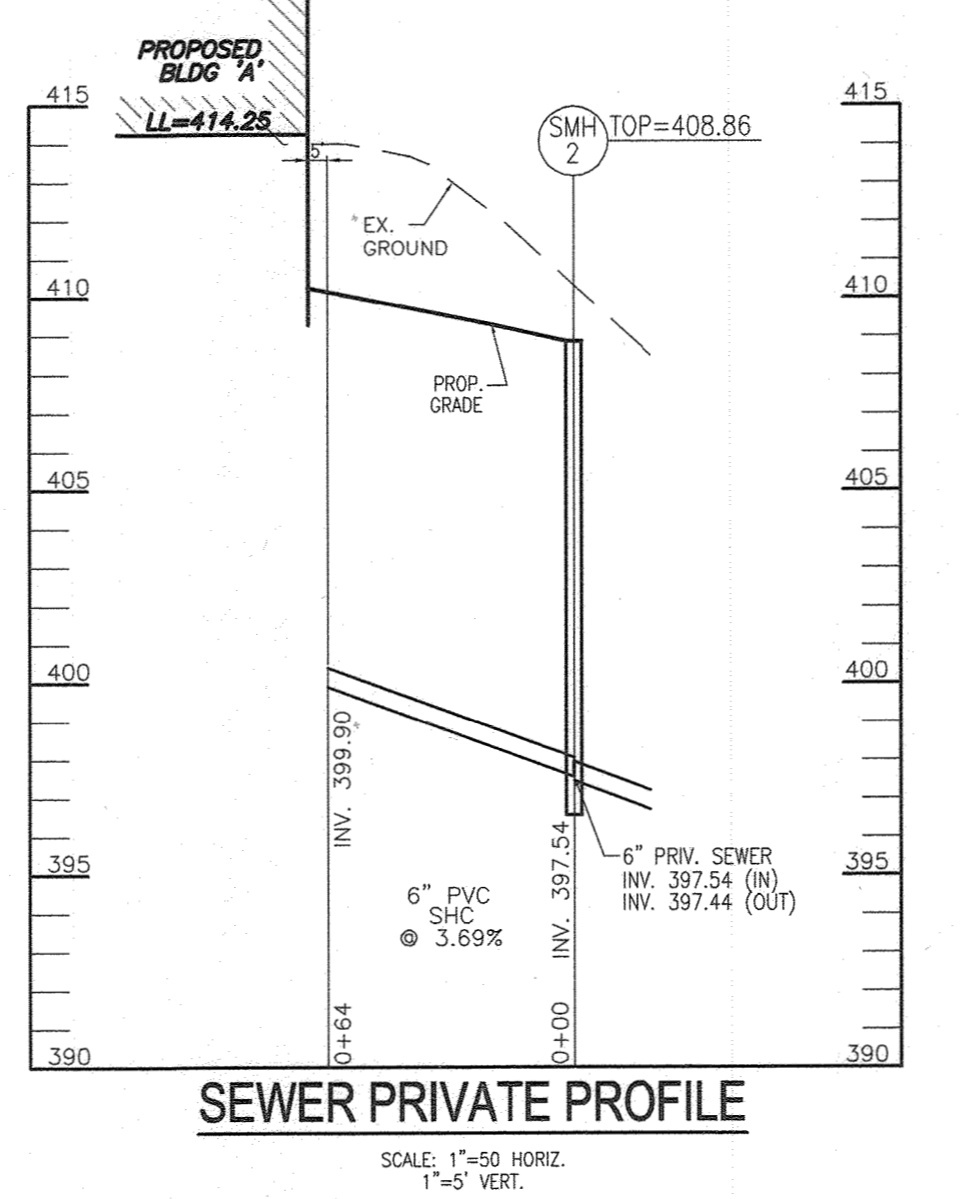
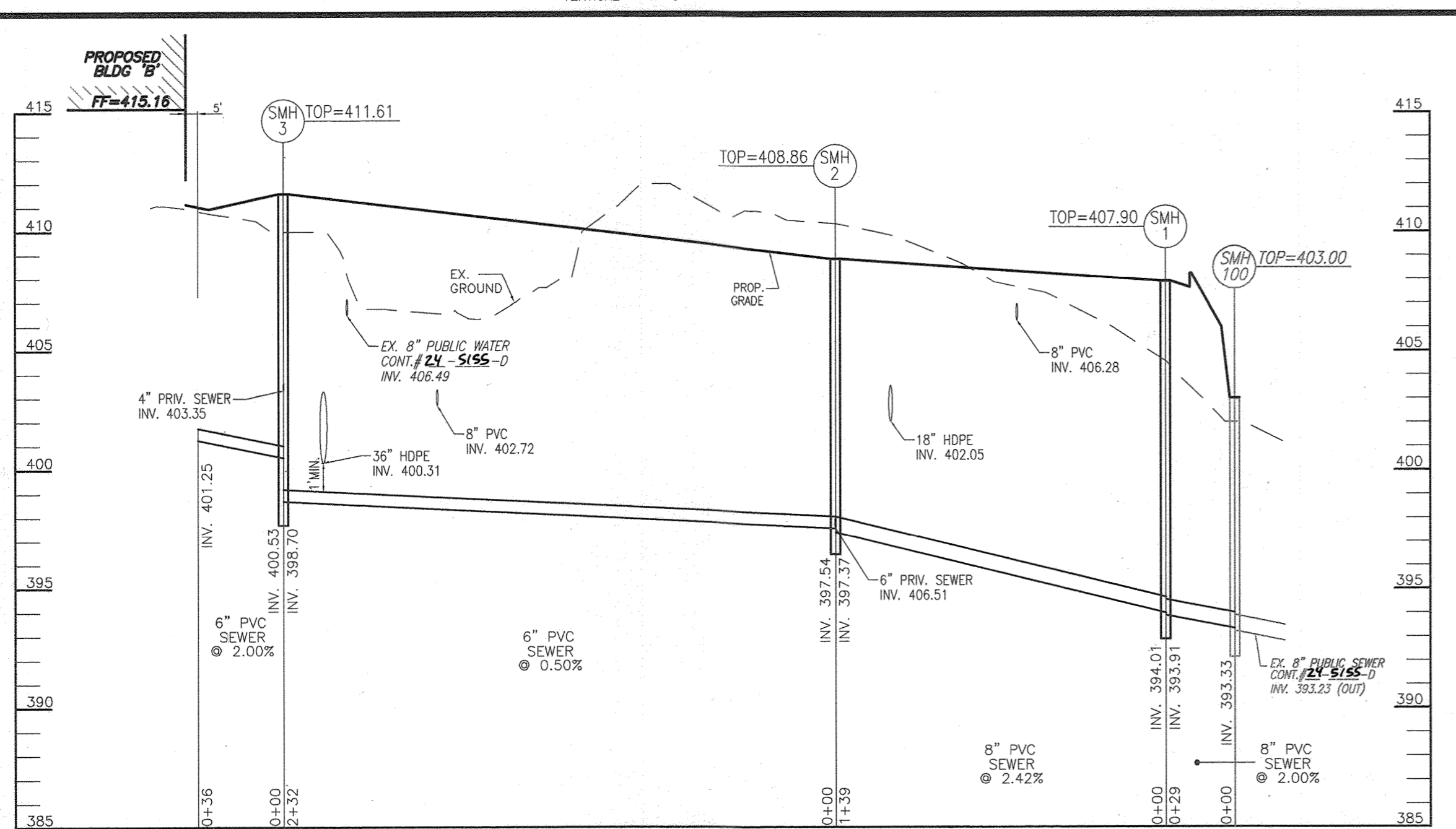
R-4990-CX



General schematic shows may not apply to all designs. Bar and rib depths, plate thickness, and seating widths vary on different sizes and styles. If your project has design restrictions, contact your sales representative or product engineering.

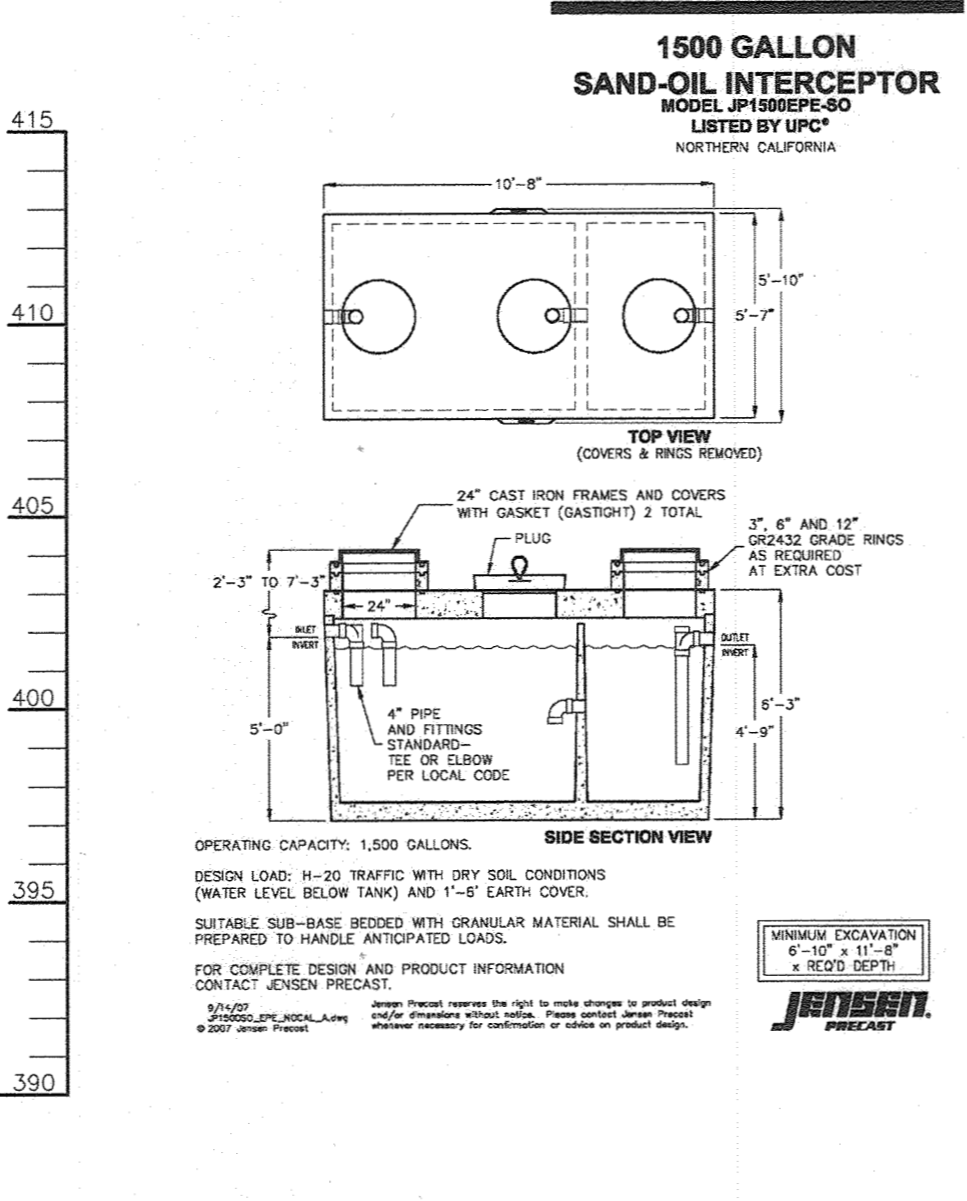
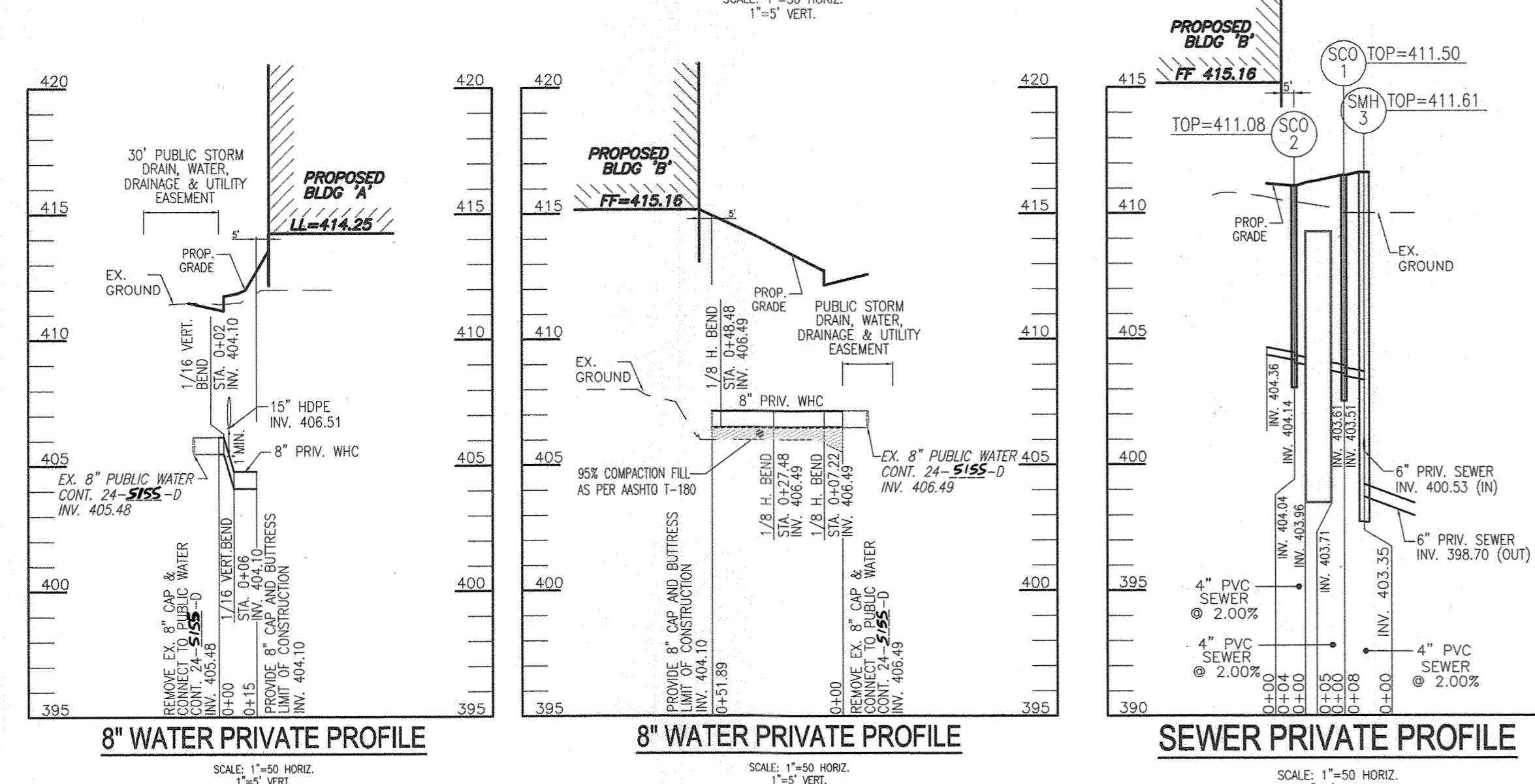
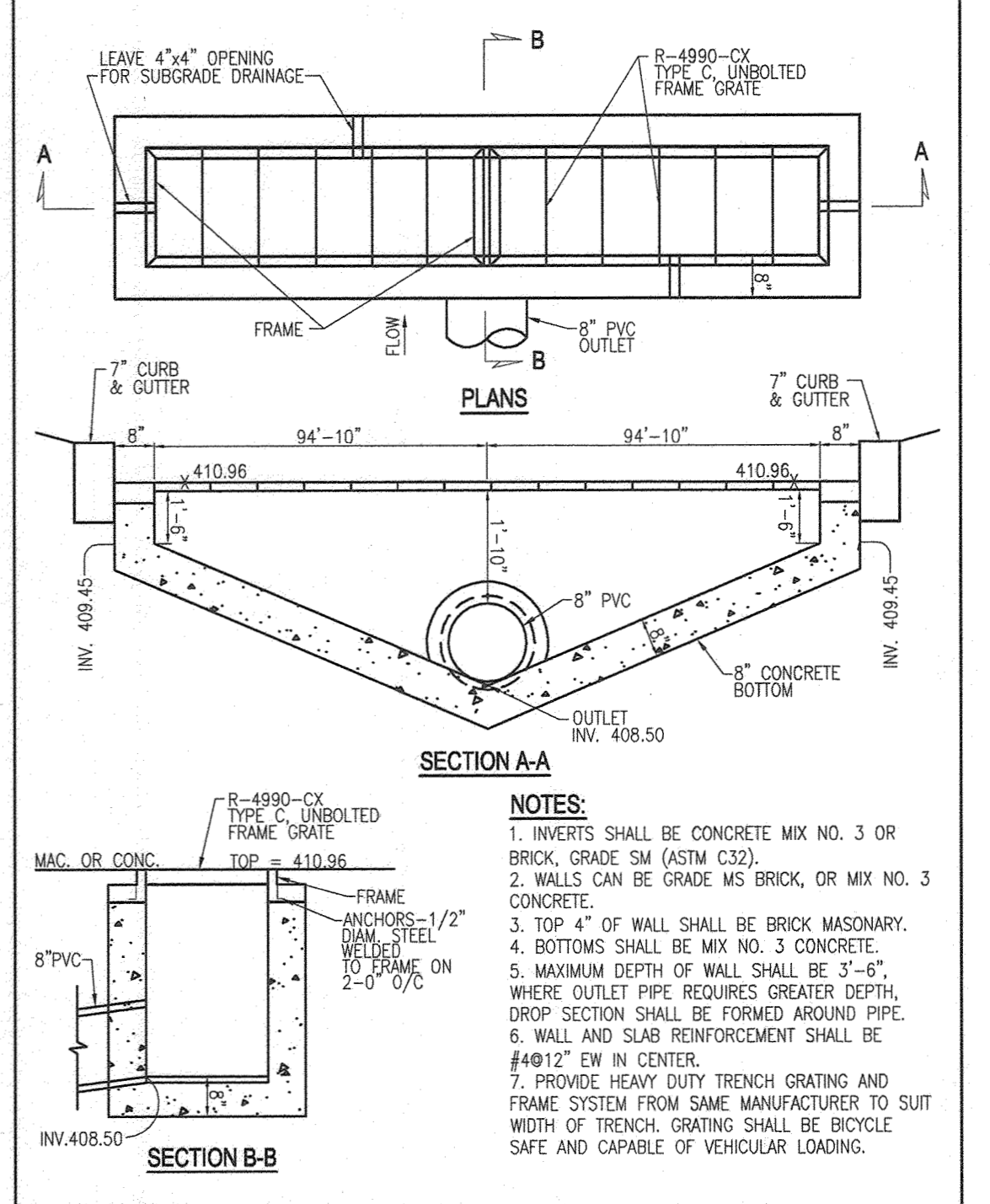
Illustrating Type C bolted trench. Bolted trench sections are furnished in 24" standard lengths. When bolted trench is furnished, they are shipped assembled - AT NO TIME should the units be disassembled during installation. When removing covers, do not mix or rotate 180 degrees as bolt holes may lose alignment and improper bearing may occur.

You may need to scroll horizontally to view all table columns.



STORM DRAIN STRUCTURE SCHEDULE

STR #	TYPE	INV. IN	INV. OUT	TOP ELEV.	DETAIL	LOCATION	PUBLIC/PRIVATE	REMARKS	
EX MH-1	EX 8" MANHOLE	408.22/407.96	407.86	413.20	E= 1361624.38	N= 569755.80	PUBLIC		
EX I-17	EX A-10 INLET	408.20	412.78	412.78	E= 1361639.70	N= 569722.41	PUBLIC		
EX I-16	EX A-10 INLET	407.52	407.04	412.22	E= 1361601.77	N= 569805.35	PUBLIC		
EX EW-1	ENDWALL	397.13	401.13	412.22	E= 1361540.42	N= 570202.70	PUBLIC		
MH-1	4" MANHOLE	404.19	404.09	413.27	G5.12	E= 1361263.17	N= 570198.85	PRIVATE	
MH-2	4" MANHOLE	404.44	413.83	413.83	G5.12	E= 1361251.26	N= 570170.89	PRIVATE	
MH-3	4" MANHOLE	405.25/405.28	405.03	413.70	G5.12	E= 1361293.14	N= 570061.27	PRIVATE	
MH-4	4" MANHOLE	409.55/409.07	408.97	413.60	G5.12	E= 1361344.47	N= 570012.47	PRIVATE	
MH-5	5" MANHOLE	398.95	398.85	406.00	G5.13	E= 1361548.15	N= 570147.86	PUBLIC	
MH-6	5" MANHOLE	402.00/399.67	399.57	410.30	G5.13	E= 1361552.38	N= 570117.84	PUBLIC	
MH-7	5" MANHOLE	400.19	400.09	411.40	G5.13	E= 1361524.51	N= 570085.77	PUBLIC	
MH-8	5" MANHOLE	401.78/400.53	400.43	411.35	G5.13	E= 1361537.16	N= 570055.10	PUBLIC	
MH-9	5" MANHOLE	401.40	401.30	411.40	G5.13	E= 1361617.44	N= 569933.88	PUBLIC	
MH-10	5" MANHOLE	405.62/401.17	401.69	412.15	G5.13	E= 1361840.02	N= 569879.99	PUBLIC	
MH-11	5" MANHOLE	406.68/405.67	403.72	411.75	G5.13	E= 1361519.78	N= 569823.85	PUBLIC	
MH-13	4" MANHOLE	408.24/405.69	405.59	411.23	G5.12	E= 1361543.35	N= 569988.73	PRIVATE	
MH-15	4" MANHOLE	405.78	405.68	412.42	G5.12	E= 1361656.44	N= 569885.93	PRIVATE	
MH-16	4" MANHOLE	401.81/400.78	400.68	408.75	G5.12	E= 1361661.15	N= 570294.48	PRIVATE	
MH-17	4" MANHOLE	401.85	407.85	412.22	G5.12	E= 1361701.13	N= 570219.13	PRIVATE	
MH-18	4" MANHOLE	402.35	402.25	409.02	G5.12	E= 1361748.19	N= 570202.15	PRIVATE	
MH-19	4" MANHOLE	403.39	403.29	409.02	G5.12	E= 1361798.07	N= 570233.68	PRIVATE	
MH-20	4" MANHOLE	404.76	404.66	409.00	G5.12	E= 1361886.51	N= 570225.34	PRIVATE	
MH-21	4" MANHOLE	407.50	407.40	414.25	G5.12	E= 1361993.42	N= 570062.06	PRIVATE	
I-1	S'	407.65	402.30/408.32/402.75	402.60/2	D-4.24	E= 1361418.42	N= 570278.66	PRIVATE	
I-2	S'	406.11	402.42/406.60/403.76	403.28/3	D-4.24	E= 1361378.04	N= 570269.96	PRIVATE	
I-3	A-5 (3FT INSIDE WIDTH)	409.28	413.44/2	412.02	D-4.02	E= 1361376.70	N= 569876.75	PRIVATE	
I-4	A-5 (3FT INSIDE WIDTH)	409.50	412.91	412.02	D-4.02	E= 1361307.50	N= 569899.85	PRIVATE	
I-5	A-5 (3FT INSIDE WIDTH)	406.19	409.94	411.18	D-4.02	E= 1361571.47	N= 570055.33	PRIVATE	
I-6	A-5 (3FT INSIDE WIDTH)	406.75	411.18	412.02	D-4.02	E= 1361629.34	N= 569990.75	PRIVATE	
I-7	S'	406.76	406.66	411.00	D-4.24	E= 1361638.48	N= 569853.55	PRIVATE	
I-8	S'	407.64	400.99/407.28	411.99/2	D-4.24	E= 1361693.67	N= 569883.44	PRIVATE	
I-9	S'	401.67	401.74/400.28	400.36/3	D-4.24	E= 1361619.12	N= 570280.21	PRIVATE	
I-10	S'	402.28/2	407.09	412.24	D-4.24	E= 1361679.86	N= 570286.86	PRIVATE	
I-11	S'	407.75	407.00/407.28	407.28/2	D-4.24	E= 1361987.21	N= 570051.48	PRIVATE	
I-12	S'	407.98/2	412.22	412.22	D-4.24	E= 1361999.85	N= 570025.37	PRIVATE	
HW-1	TYPE 'A' HEADWALL	402.00	405.00	D-5.11	E= 1361448.67	N= 570035.86	PRIVATE		
HW-2	TYPE 'A' HEADWALL	400.00	403.00	D-5.11	E= 1361608.74	N= 570292.43	PRIVATE		
PT-1	PASS THRU INLET	413.45	412.95	414.05	D-4.35	E= 1361265.70	N= 570182.51	PRIVATE	SWM #7
CO-1	CLEANOUT	410.73	414.85	-	E= 1361388.82	N= 570225.17	PRIVATE		
CO-2	CLEANOUT	412.19	412.09	414.85	-	E= 1361434.74	N= 570150.10	PRIVATE	CONNECT TO RD
CO-3	CLEANOUT	410.59	413.70	-	E= 1361272.05	N= 570163.10	PRIVATE		
CO-4	CLEANOUT	411.55	411.45	414.22	-	E= 1361322.14	N= 570081.21	PRIVATE	CONNECT TO RD
CO-5	CLEANOUT	410.87	410.77	414.22	-	E= 1361390.34	N= 569969.75	PRIVATE	CONNECT TO RD
CO-6	CLEANOUT	411.21	411.11	414.22	-	E= 1361458.54	N= 569958.29	PRIVATE	CONNECT TO RD
CO-7	CLEANOUT	402.42	402.32	409.80	-	E= 1361576.41	N= 570097.05	PRIVATE	
CO-8	CLEANOUT	406.93	410.00	-	E= 1361657.20	N= 570097.24	PRIVATE	CONNECT TO RD	
CO-9	CLEANOUT	406.24	406.14	411.10	-	E= 1361502.93	N= 570038.65	PRIVATE	CONNECT TO RD
CO-10	CLEANOUT	406.36	406.03	411.10	-	E= 1361572.84	N= 569928.22	PRIVATE	CONNECT TO RD
CO-11	CLEANOUT	407.18/2	407.00/18	413.40/2	-	E= 1361693.53	N= 569946.55	PRIVATE	
CO-12	CLEANOUT	407.00	409.95	-	E= 1361803.63	N= 570186.83	PRIVATE	CONNECT TO RD	



PRIVATE SD PIPE SCHEDULE

Size	Class	Total Length *
4"	PERF. PVC (SWM)	2164
8"	SOLID PVC	772.5
12"	SOLID PVC	73
15"	HDPE	480.50
18"	HDPE	989
48"	HDPE (SWM)	529

* The total length of pipe is linear feet only.

PUBLIC SD PIPE SCHEDULE

Size	Class	Total Length *
36"	HDPE	370

* The total length of pipe is linear feet only.

HDPE is to be smooth interior. Contractor shall install pipe in accordance with manufacturer's specifications.

PRIVATE SEWER - MANHOLE LOCATION CHART

MH NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
1	STD. PRECAST MANHOLE (G-5.12)	N 570286.42 E 1361814.43	407.90	394.01	393.91	
2	STD. PRECAST MANHOLE (G-5.12)	N 570193.85 E 1361711.10	408.86	397.54 (2)	397.37	
3	STD. PRECAST MANHOLE (G-5.12)	N 570066.71 E 1361516.63	411.61	400.53, 403.35	398.70	
SC0-1	STD. PRECAST MANHOLE (G-5.12)	N 570070.39 E 1361509.32	411.50	403.61	403.51	
SC0-2	STD. PRECAST MANHOLE (G-5.12)	N 570059.44 E 1361491.31	411.08	404.04	403.96	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 4-22-21 DATE

Chief, Division of Land Development DATE

Director 5-3-21 DATE

STATE OF MARYLAND
ROBERT HARRIS VOGEL
PROFESSIONAL ENGINEER
NO. 15193

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 16/93 3-30-23
P.E. NAME: P.E. #16193

OWNER / DEVELOPER
9190 LLC
508 OLNEY SPRING ROAD SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

REVISED SITE DEVELOPMENT PLAN
STORM DRAIN & UTILITY PROFILES & DETAILS
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE
PARCEL 238
9188 & 9190 RED BRANCH ROAD LOT 2 / PARCEL 238
ZONED: NT
HOWARD COUNTY, MARYLAND

TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT

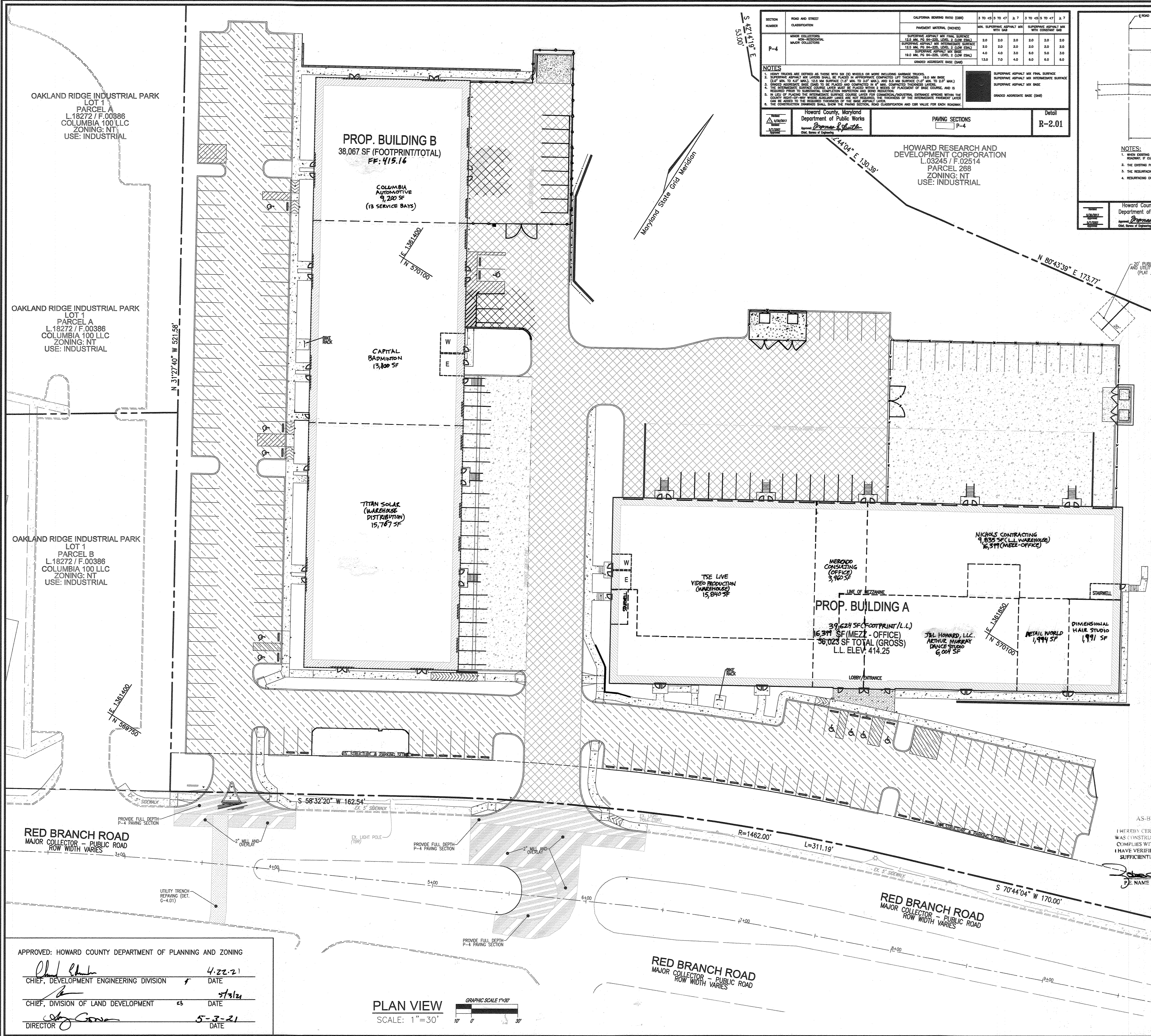
VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

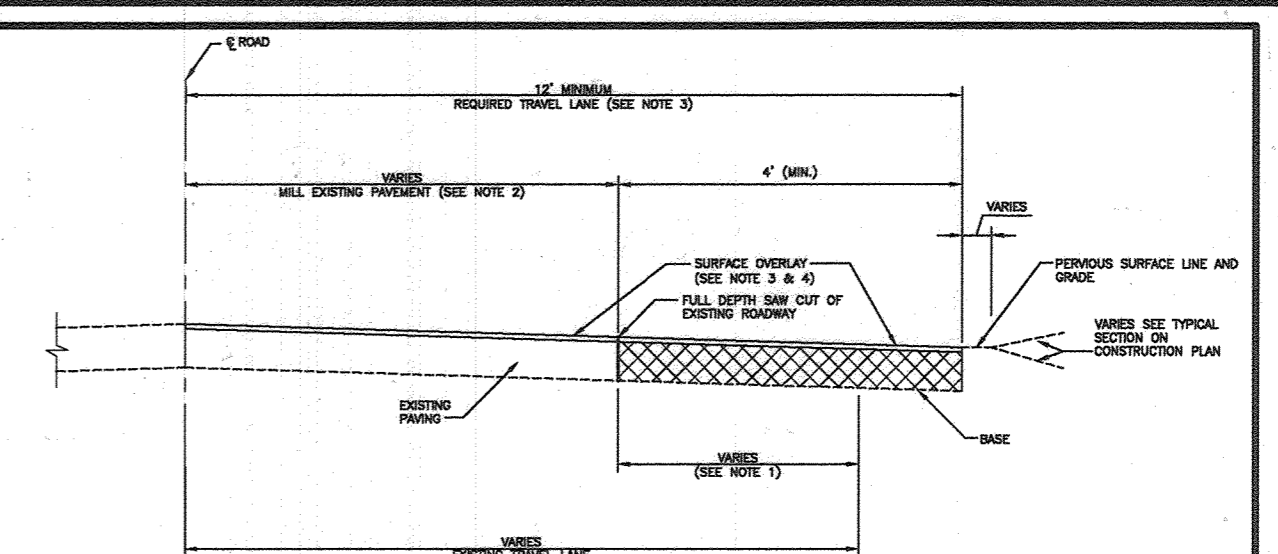
DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHV
DATE: FEBRUARY 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

12 SHEET OF 21

AS-BUILT, JULY 2022



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)						
		2 TO 4	5 TO 7	8 TO 10	11 TO 15	16 TO 20	21 TO 25	
P-4	MAJOR COLLECTOR - INDUSTRIAL	SUPPLEMENTARY ASPHALT MIX WITH FINISH SURFACE	2.0	2.0	2.0	2.0	2.0	2.0
		SUPPLEMENTARY ASPHALT MIX WITH FINISH SURFACE	2.0	2.0	2.0	2.0	2.0	2.0
		SUPPLEMENTARY ASPHALT MIX WITH FINISH SURFACE	2.0	2.0	2.0	2.0	2.0	2.0
		SUPPLEMENTARY ASPHALT MIX WITH FINISH SURFACE	2.0	2.0	2.0	2.0	2.0	2.0
		MIN. SUPERPAVE ASPHALT MIX WITH FINISH SURFACE	4.0	4.0	4.0	4.0	4.0	
		MIN. SUPERPAVE ASPHALT MIX WITH FINISH SURFACE	4.0	4.0	4.0	4.0	4.0	
		MIN. SUPERPAVE ASPHALT MIX WITH FINISH SURFACE	4.0	4.0	4.0	4.0	4.0	
		MIN. SUPERPAVE ASPHALT MIX WITH FINISH SURFACE	4.0	4.0	4.0	4.0	4.0	



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	PAVING SECTIONS	Detail
		P-4	R-2.01

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
PAVING SECTION
P-4
DETAIL
R-2.01

LEGEND:

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PRE-2014 PIPE AND HEADWALL
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING GASLINE
	EXISTING FENCE
	EXISTING STREAM BANK
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	PROPOSED SIDEWALK
	PROPOSED CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	HEAVY-DUTY PAVING
	STANDARD-DUTY PAVING
	CONCRETE PAVING
	MILL AND OVERLAY
	FULL DEPTH P-4
	UTILITY TRENCH REPAVING
	PROPOSED CHAIN LINK FENCE

ROADS WITH CONCRETE BASE AND HOT MIX ASPHALT SURFACE

NOTES:

- RESURFACING SHALL BE DONE TO THE CENTERLINE OF THE ROADWAY.
- THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT A DEPTH OF 1 1/2" MINIMUM.
- THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
- RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	PAVING SECTIONS	Detail
		P-4	R-1.08

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
EXISTING ROADWAY WIDENING STRIP
DETAIL
R-1.08

CONCRETE PAVING SECTIONS
(AS PER GEOTECHNICAL REPORT RECOMMENDATIONS)

SECTION	THICKNESS (INCHES)	STANDARD-DUTY
LIGHT DUTY CONCRETE (IF NEEDED)	MIN. 4" COMPACTED CONCRETE (MIN. 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI)	MIN. 4" COMPACTED CONCRETE (MIN. 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI)
HEAVY-DUTY CONCRETE (DUMPSTER PAD AND LOADING DOCKS)	MIN. 6" COMPACTED CONCRETE (MIN. 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI)	MIN. 6" COMPACTED CONCRETE (MIN. 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI)

PAVEMENT SECTION	HEAVY-DUTY	STANDARD-DUTY
Surface Course	Hot Mix Superpave (Surface-9.5MM)	1.5
Base Course	Hot Mix Superpave (Base-12.5MM)	3.5
Subbase Course	Type I Crushed Aggregate (No. 24A or No. 21B)	6.0

NO AS-BUILT INFORMATION ON THIS SHEET

NOTE: ALL PAVING SECTIONS TO BE APPROVED BY THE GEOTECH PRIOR TO CONSTRUCTION.

OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE
4	REVISE BUILDING USES AND TENANTS	8-2-23
3	REVISE PLAN TO ELABORATE SHOWER ROOMS, MAINTY ROOMS, REPLACE SINGLE PUMPS WITH DOUBLE PUMPS, AND TO ADD CONCRETE PAD, SMALL LANDSCAPE WALL AND STRIPPED PARKING	2-1-23
2	REVISE THE PLAN TO ADD NEW TENANTS AND PROPOSED CHAIN LINK FENCE AND REVISE PARKING	10-26-22

SITE DEVELOPMENT PLAN
PAVING PLAN AND SITE DETAIL

OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE

PARCEL 238
9188 & 9190 RED BRANCH ROAD
LOT 2 / PARCEL 239
HOWARD COUNTY, MARYLAND

TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT

VOGEL ENGINEERING
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3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHY
DATE: FEBRUARY 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

PROFESSIONAL CERTIFICATE
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.
EXPIRATION DATE: 09-27-2022

13 SHEET OF 21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

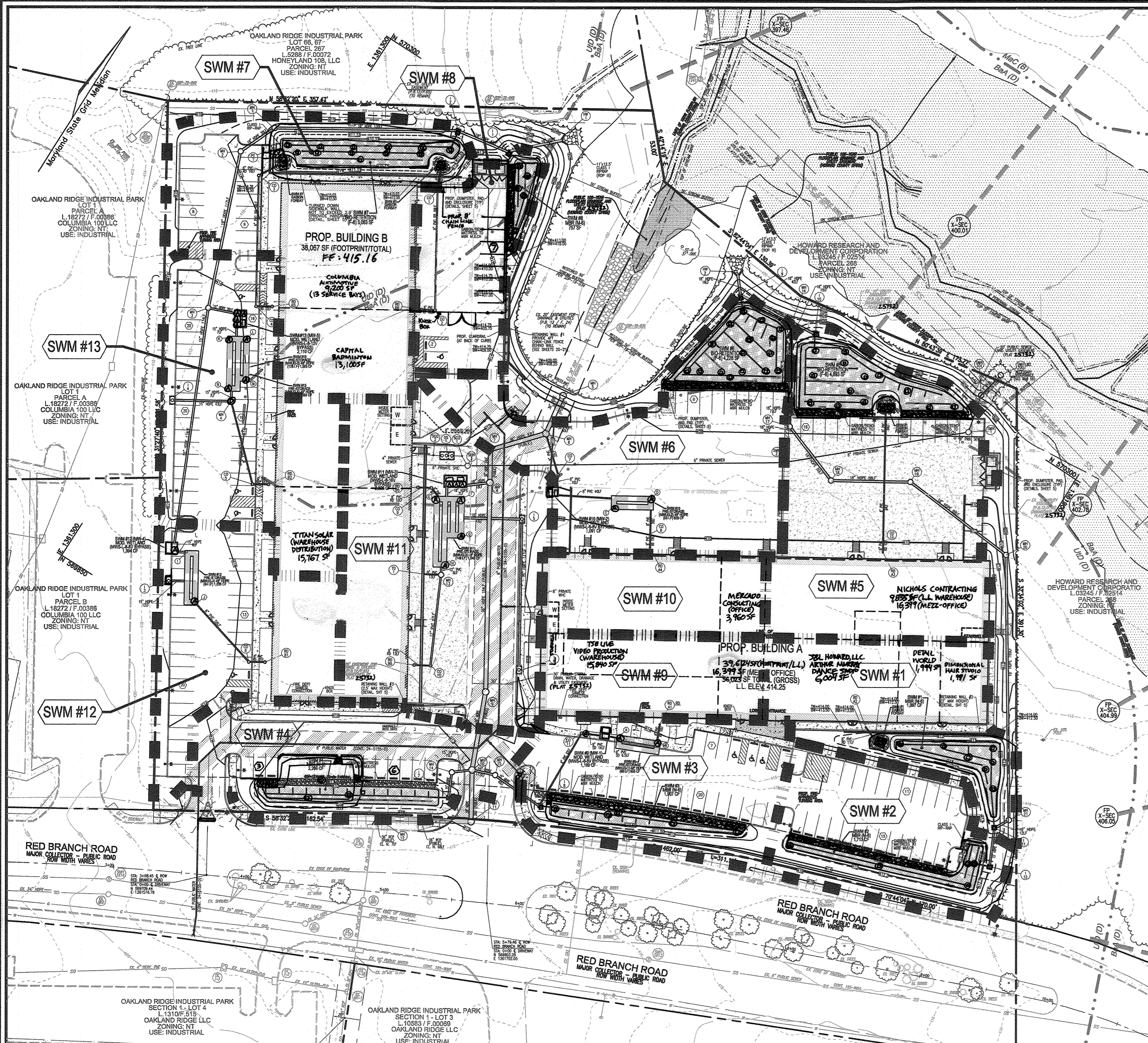
4.22.21
DATE

5/3/21
DATE

5-3-21
DATE

PLAN VIEW
SCALE: 1"=30'

AS-BUILT, JULY 2022



STORM WATER MANAGEMENT DRAINAGE AREA MAP

SCALE: 1" = 50'
SCALE 1" = 30'

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PRE-2014 PIPE AND HEADWALL
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING GASLINE
- EXISTING STREAM BANK
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- PROPOSED SIDEWALK RAMP
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLETS
- PROPOSED FIRE HYDRANT
- PROPOSED WATER TEE & VALVE
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED CHAIN LINK FENCE
- PRE-2014 CL STREAM CHANNEL (SDP-19-034)
- FLOODPLAIN CROSS-SECTION
- EXISTING TREES/LANDSCAPING
- PROPOSED BOLLARD
- PROPOSED CURB AND GUTTER
- PROPOSED GABION FORSBAY
- 100 YEAR FLOODPLAIN (HOWARD COUNTY DFIRM) (PLAT 2-5782)
- MICRO-BIORETENTION
- 20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 2-5782)
- 30' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 2-5782)
- 20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 2-5782)
- 20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 2-5782)
- DRAINAGE AREA
- DRAINAGE AREA LABEL
- PROPOSED STREET LIGHT
- PROPOSED STREET SIGN

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4.22.21
DATE

5/12/21
DATE

5-3-21
DATE

Project:		Oakland Ridge Industrial Park										Rev		Rev		REMARKS						
SWM PRACTICE	PRACTICE DA (SF)	PRACTICE DA (AC)	IMPERV (SF)	IMPERV (AC)	PERV (SF)	PERV AREA	PRACTICE % IMPERV	PRACTICE Rv	MIN PRACTICE VOLUME (L ³)	TARGET ESDv P _i VOLUME (L ³)	MAX PRACTICE VOLUME (2.67)	TOTAL PRACTICE VOLUME PROVIDED	Rev REQUIRED	Rev PROVIDED	CF	SF	depth	porosity				
SWM#1 MBR (M-6)	18,563	0.38	10,727	0.25	5,836	0.13	65	0.63	874	1,572	2,271	1,997	499	499	1,997	1,498	0.83	0.4				
													MICROSCALE MICRO-BIO RETENTION (M-6)									
													P _i Provided:									
													2.29									
													0		1,498							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#2 MBR (M-6)	15,743	0.36	8,175	0.19	7,569	0.17	52	0.52	679	1,222	1,765	1,713	428	428	1,713	1,285	0.83	0.4				
													MICROSCALE MICRO-BIO RETENTION (M-6)									
													P _i Provided:									
													2.52									
													0		1,285							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#3 MBR (M-6)	18,463	0.42	10,852	0.25	7,611	0.17	59	0.58	891	1,603	2,316	1,907	477	477	1,907	1,430	0.83	0.4				
													MICROSCALE MICRO-BIO RETENTION (M-6)									
													P _i Provided:									
													2.24									
													0		1,430							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#4 MBR (M-6)	18,059	0.41	11,362	0.26	6,097	0.15	63	0.62	927	1,669	2,411	2,264	566	566	2,264	1,648	0.83	0.4				
													MICROSCALE MICRO-BIO RETENTION (M-6)									
													P _i Provided:									
													2.44									
													0		1,648							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#5 BIO-RETENTION (F-6)	31,252	0.72	25,335	0.58	5,917	0.14	81	0.78	2,030	3,655	5,279	4,893	1,223	1,223	4,893	3,670	0.83	0.4				
													BIO-RETENTION (F-6)									
													P _i Provided:									
													2.41									
													0		3,670							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#6 BIO-RETENTION (F-6)	27,175	0.62	21,652	0.50	5,524	0.13	80	0.77	1,737	3,127	4,516	4,228	1,057	1,057	4,228	3,171	0.83	0.4				
													BIO-RETENTION (F-6)									
													P _i Provided:									
													2.43									
													0		3,171							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#7 BIO-RETENTION (F-6)	30,942	0.71	21,974	0.50	8,968	0.21	71	0.69	1,777	3,139	4,620	3,063	766	766	3,063	2,297	0.83	0.4				
													MICROSCALE MICRO-BIO RETENTION (M-6)									
													P _i Provided:									
													1.72									
													0		2,297							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#8 MBR (M-6)	10,841	0.25	9,463	0.22	1,378	0.03	87	0.84	755	1,359	1,963	757	189	189	757	568	0.83	0.4				
													MICROSCALE MICRO-BIO RETENTION (M-6)									
													P _i Provided:									
													2.00									
													0		568							
													ADDITIONAL STONE		0.00 x 0.3							
SWM#9 MOD. WETLAND MW-1	10,002	0.23	10,002	0.23	0	0.00	100	0.95	792	1,425	2,099	1,116			1,116	64	1.41	IN PE				
													MODULAR WETLAND (MWS-L-6-BV BYPASS)									
													P _i Provided:									
													1.41									
													64		1.41 IN PE							
													837		48 IN pipe							
													855		68 LF pipe							
SWM#10 MOD. WETLAND MW-2	9,842	0.23	9,842	0.23	0	0.00	100	0.95	779	1,403	2,026	1,122			1,122	64	1.44	IN PE				
													MODULAR WETLAND (MWS-L-8-BV BYPASS)									
													P _i Provided:									
													1.44									
													64		1.44 IN PE							
													842		48 IN pipe							
													829		66 LF pipe							
SWM#11 MOD. WETLAND MW-3	32,411	0.74	28,478	0.65	3,933	0.09	88	0.84	2,271	4,088	5,904	3,088			3,088	201	1.36	IN PE				
													MODULAR WETLAND (MWS-L-8-16V BYPASS)									
													P _i Provided:									
													1.36									
													2,316		48 IN pipe							
													2,325		185 LF pipe							
SWM#12 MOD. WETLAND MW-4	17,637	0.40	13,886	0.32	3,751	0.09	79	0.76	1,115	2,007	2,899	1,394			1,394	100	1.25	IN PE				
													MODULAR WETLAND (MWS-L-8-BV BYPASS)									
													P _i Provided:									
													1.25									
													1,045		48 IN pipe							
													1,055		84 LF pipe							
SWM#13 MOD. WETLAND MW-5	23,364	0.54	18,798	0.43	4,566	0.10	80	0.77	1,507	2,713	3,919	2,140			2,140	151	1.42	IN PE				
													MODULAR WETLAND (MWS-L-8-12V BYPASS)									
													P _i Provided:									
													1.42									
													1,605		48 IN pipe							
													1,583		126 LF pipe							
TOTALS													TOTALS ESDv PROVIDED:		27,684		5,206		5,206			

Note: Each individual practice ESDv provided must be between the minimum of 1" rainfall and up to the maximum of 2.6" rainfall (1-year rainfall) (68) Still needed for ESDv

OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT



AS-BUILT CERTIFICATION FOR PSMW
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
R.H. VOGEL
P.E. NAME
16193
P.E. #
3-30-23
DATE

NO.	REVISION	DATE
4	REVISE BUILDING USER AND TENANT	8-2-23
2	REVISE PLAN TO ADD NEW TREES, APP. PROPOSED CHAIN LINK FENCE AND REVISE PARKING	10-26-22
1	REVISE THE PLAN TO MODIFY THE PUBLIC STORM DRAIN AND PRIVATE ESD PRACTICE DUE TO UNDERGROUND OPTIC CONDUIT LOCATION	9-1-21

REVISED SITE DEVELOPMENT PLAN
STORM WATER MANAGEMENT DRAINAGE AREA MAP
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2 WAREHOUSE AND OFFICE

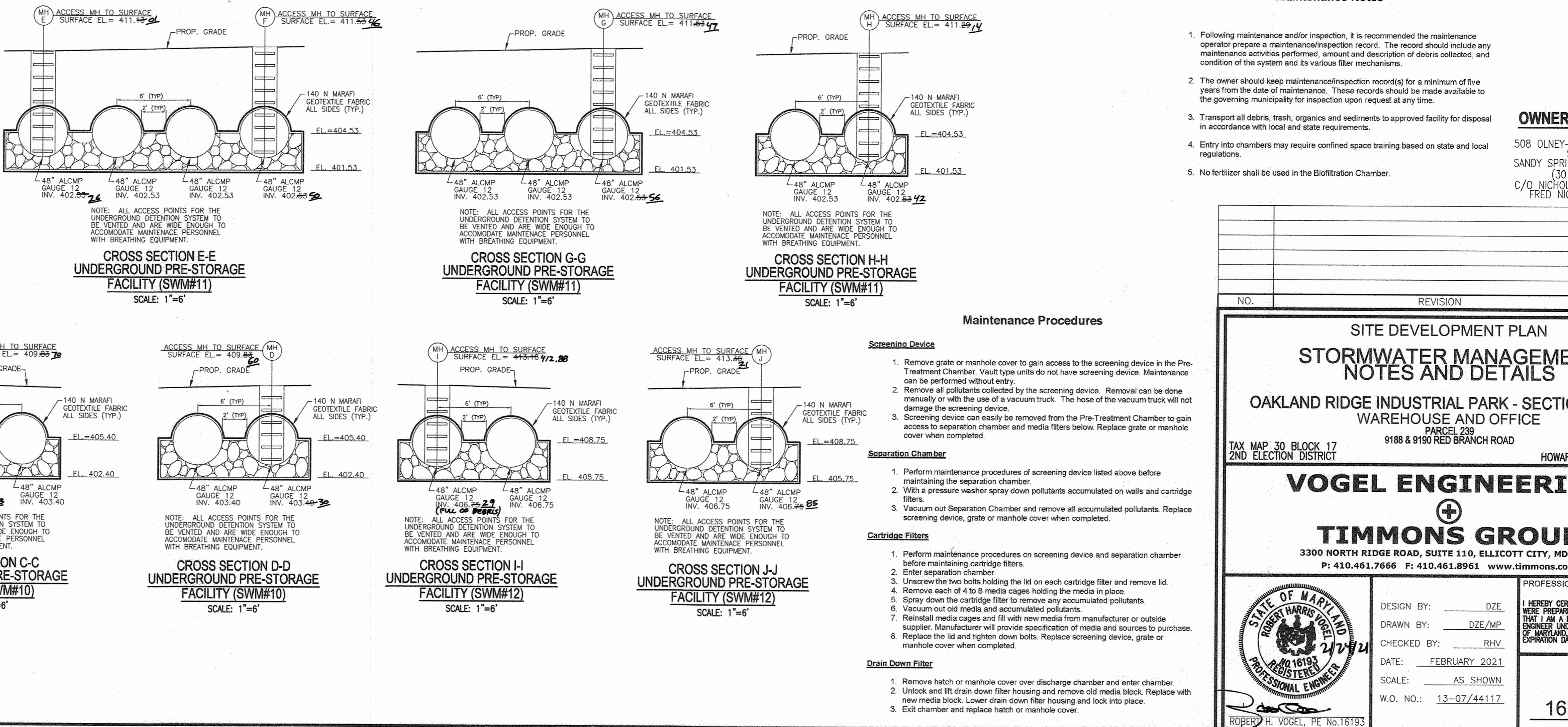
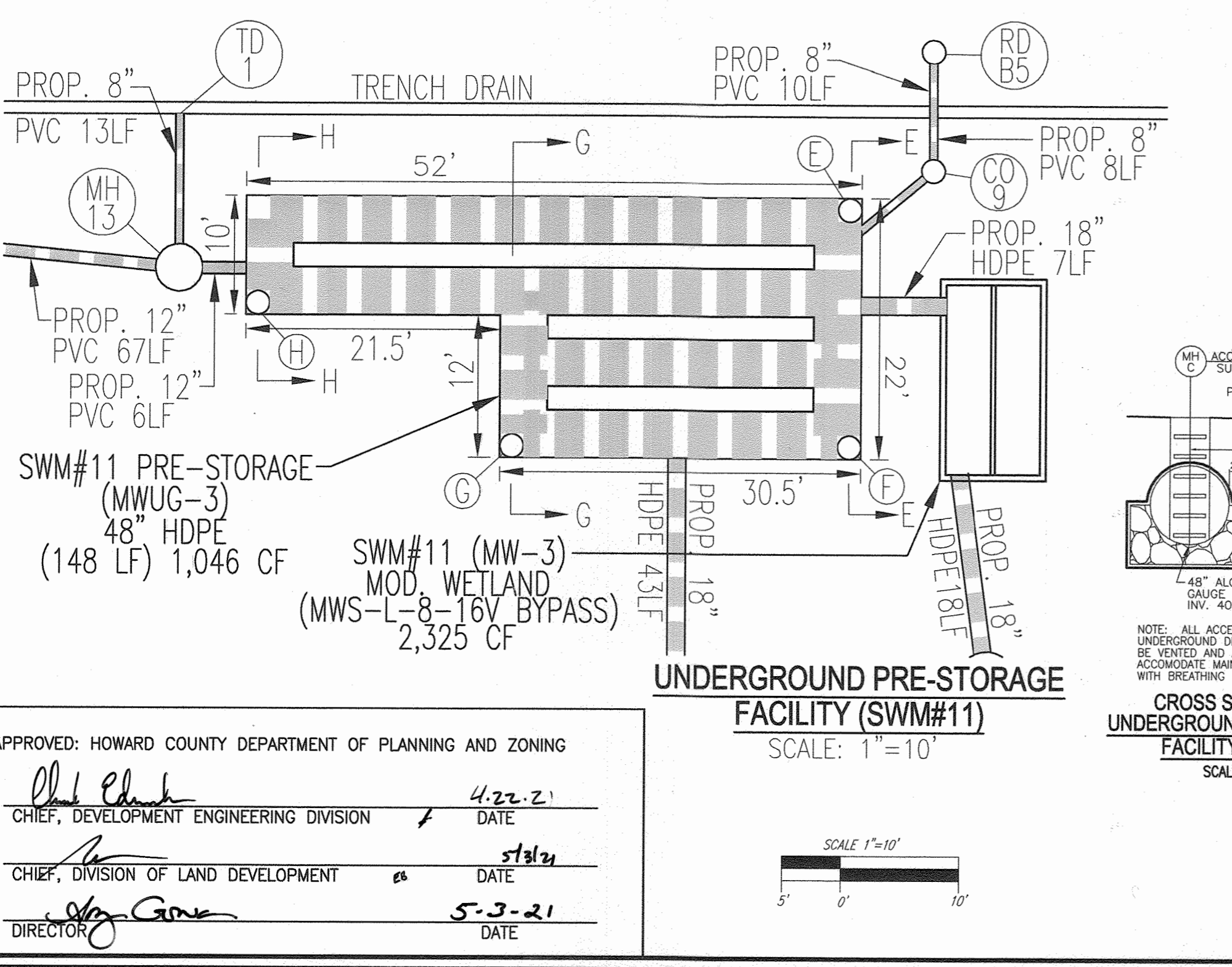
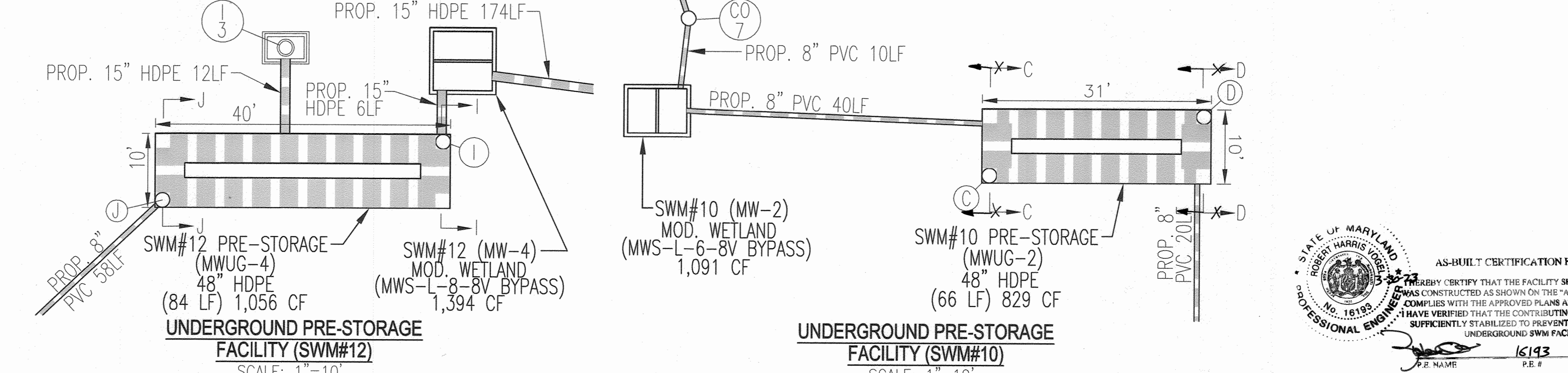
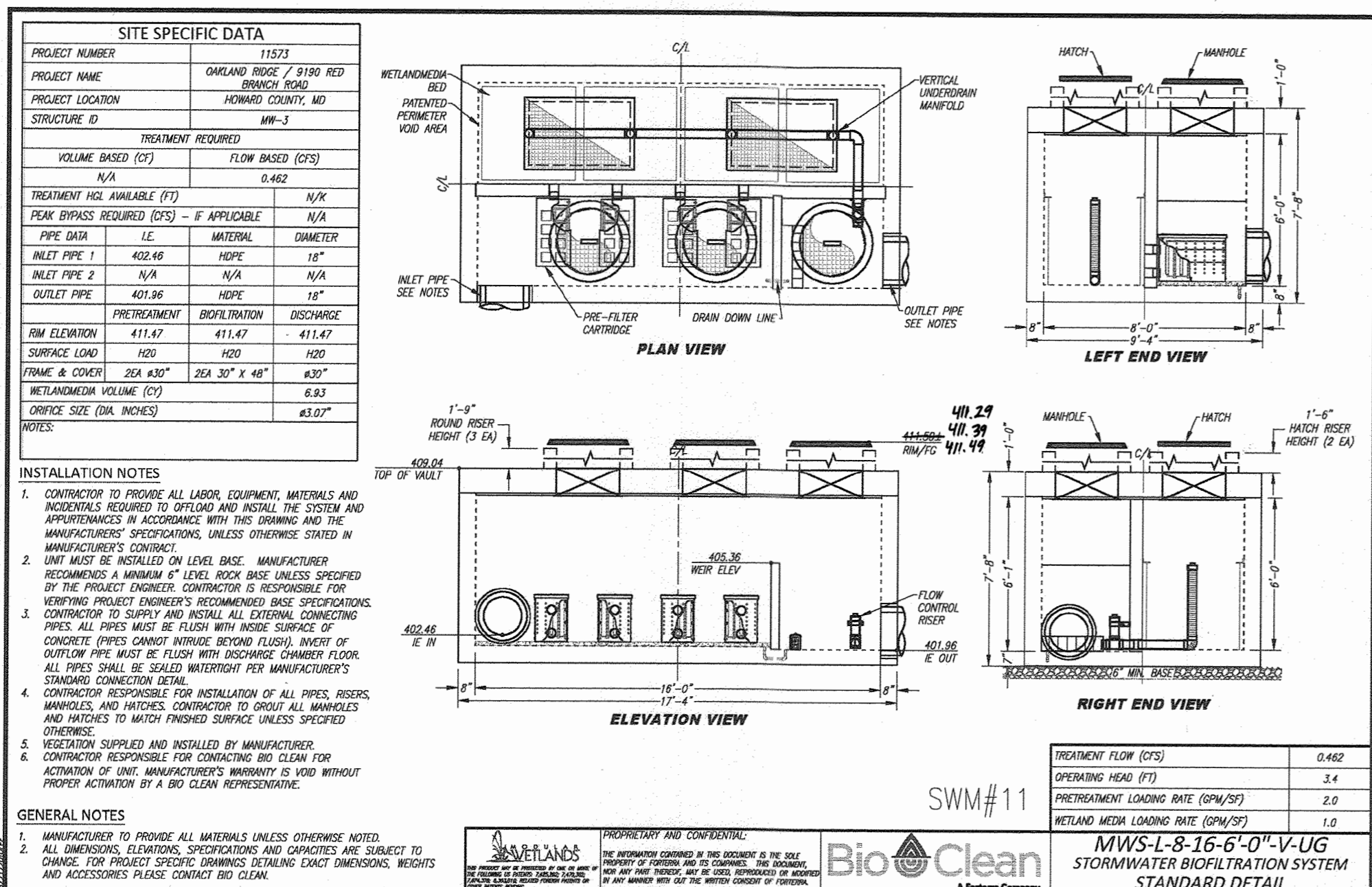
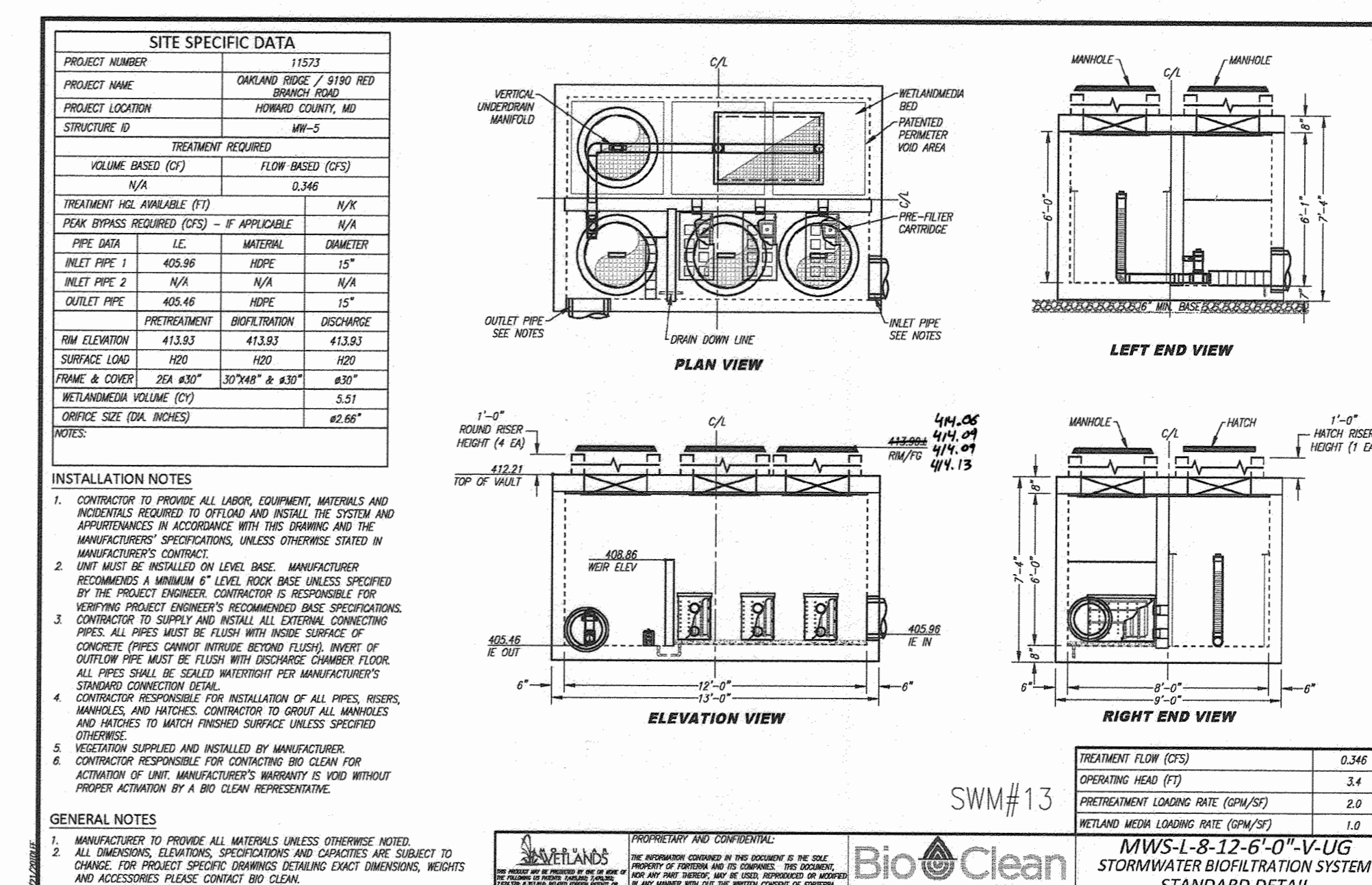
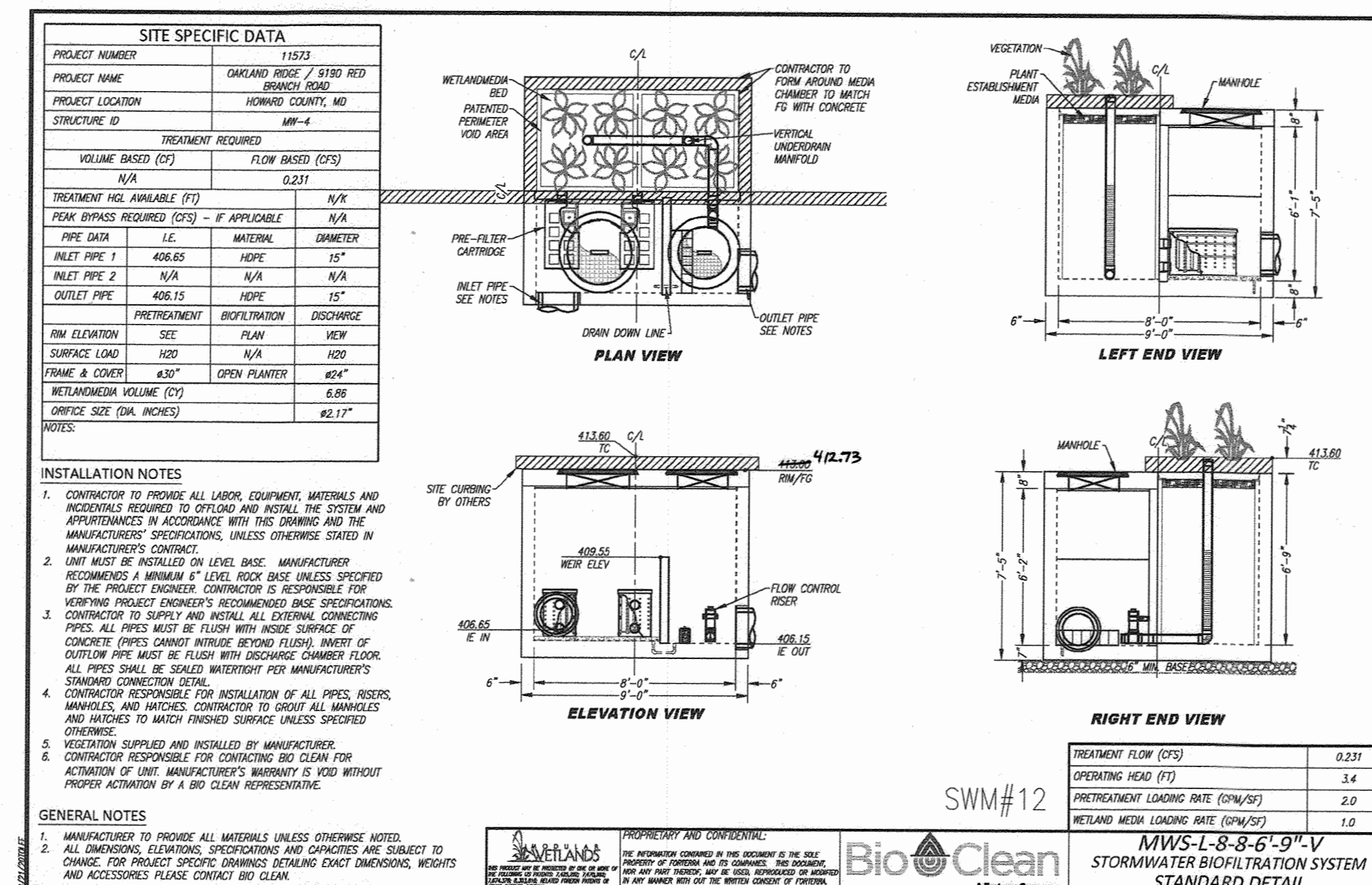
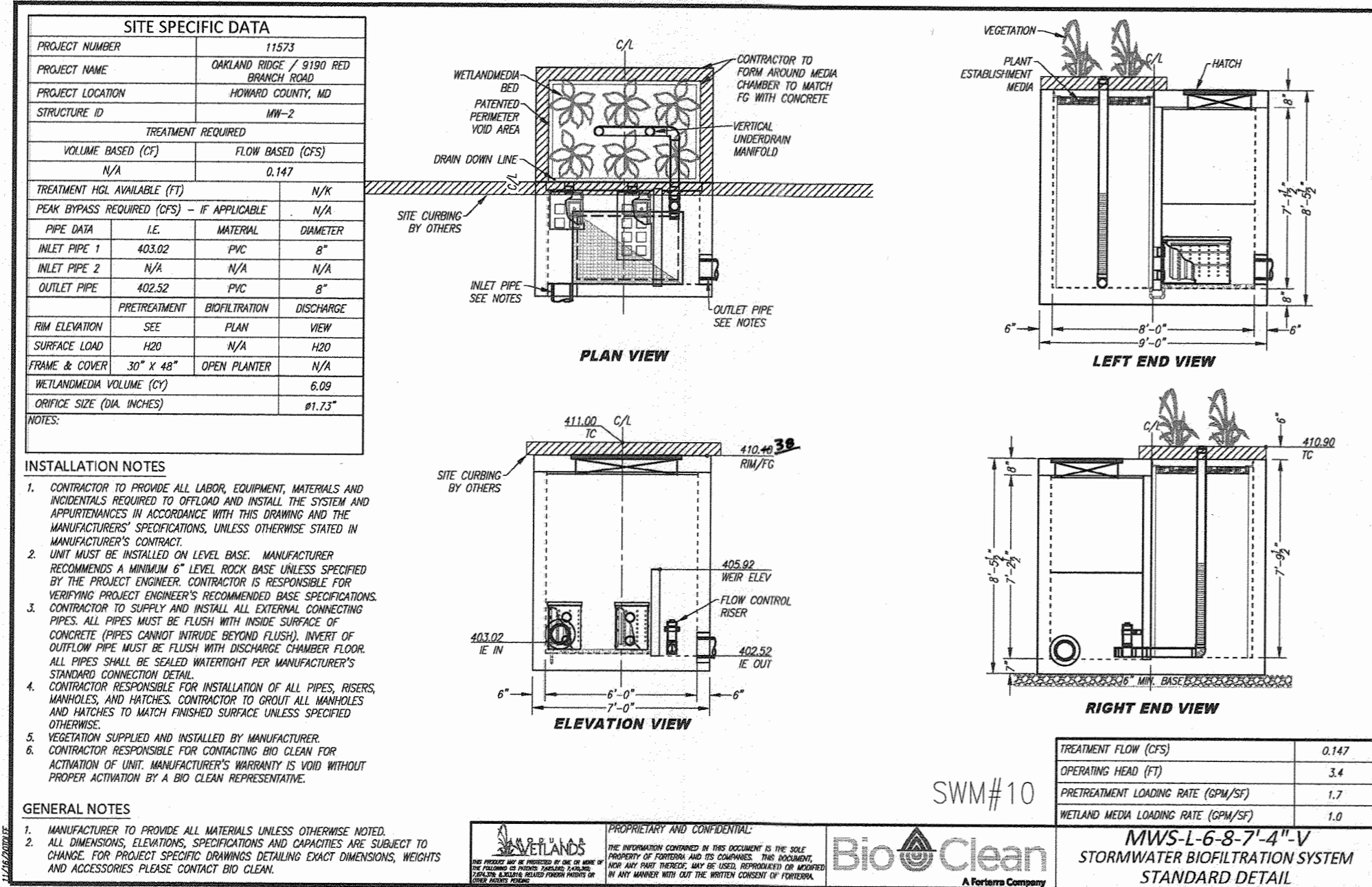
TAX MAP 30 BLOCK 17 2ND ELECTION DISTRICT
9188 & 9190 RED BRANCH ROAD
PARCEL 238
LOT 2 / PARCEL 238
ZONED: NT
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7656 F: 410.461.8991 www.timmons.com

PROFESSIONAL CERTIFICATE
DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHY
DATE: FEBRUARY 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

14 SHEET OF 21

AS-BUILT, JULY 2022



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division

Chief, Division of Land Development

Director

DATE: 4-22-21

DATE: 5/13/21

DATE: 5-3-21

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

PROFESSIONAL ENGINEER

DATE: 3-30-23

Maintenance Notes

- Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
- The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
- Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.
- Entry into chambers may require confined space training based on state and local regulations.
- No fertilizer shall be used in the Biofiltration Chamber.

OWNER / DEVELOPER

508 OLNEY-SANDY SPRING ROAD
 SUITE 200
 SANDY SPRING, MARYLAND 20860
 C/O NICHOLS CONTRACTING, INC.
 FRED NICHOLS, PRESIDENT

SITE DEVELOPMENT PLAN

STORMWATER MANAGEMENT NOTES AND DETAILS

OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2 WAREHOUSE AND OFFICE

TAX MAP 30 BLOCK 17 2ND ELECTION DISTRICT

9188 & 9190 RED BRANCH ROAD

LOT 2 / PARCEL 239

HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

TIMMONS GROUP

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043

P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE
 DRAWN BY: DZE/MP
 CHECKED BY: RHV
 DATE: FEBRUARY 2021
 SCALE: AS SHOWN
 W.O. NO.: 13-07/44117

16 SHEET OF 21

AS-BUILT, JULY 2022

SDP-21-003

BORING LOG
Boring: T-1 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 412 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
411.7	0.3	Topsoil (4")				
		Micaceous Clayey SILT, brown, moist, firm (ML)	1-3.4 REC=78%	1.0	6	
			3-5.7 REC=100%	2.5	12	
			5-8.8 REC=100%	6.5	11	Cave-in depth @ 5.9
409.0	3.0	Micaceous Sandy SILT, grayish-brown, moist, stiff (ML)				
404.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-2 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 414 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
413.5	0.5	Topsoil (6")				
		Silty CLAY/Clayey SILT, trace mica, brown, moist, firm (CL/ML)	2-2.3 REC=47%	1.0	5	
			3-5.8 REC=100%	2.5	13	
			5-8.8 REC=100%	6.5	17	Cave-in depth @ 5.6 ft
411.0	3.0	Micaceous Sandy SILT, brown, moist, stiff to very stiff (ML)				
406.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-3 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 418 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
417.5	0.5	Topsoil (6")				
		Micaceous Clayey SILT, brown, moist, firm (ML)	2-3.3 REC=78%	1.0	6	
			3-5.8 REC=100%	2.5	12	
			5-8.8 REC=100%	6.5	16	Cave-in depth @ 5.6 ft
415.0	3.0	Micaceous Sandy SILT, grayish-brown, moist, stiff to very stiff (ML)				
410.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-4 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 417 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
416.5	0.5	Topsoil (6")				
		Micaceous Sandy SILT, grayish-brown, moist, stiff (ML)	1-2.4 REC=67%	1.0	6	
			3-4.6 REC=100%	2.5	10	
			3-5.6 REC=100%	6.5	11	Cave-in depth @ 5.5 ft
409.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-5 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 416 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
415.5	0.5	Topsoil (6")				
		Micaceous Sandy SILT, light brown, moist, stiff (ML)	3-2.5 REC=100%	1.0	9	
			4-5.8 REC=100%	2.5	14	
			3-5.6 REC=100%	6.5	11	Cave-in depth @ 5.8 ft
408.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-6 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 404 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
403.5	0.5	Topsoil (6")				
		Micaceous Sandy SILT, light grayish-brown, moist, stiff (ML)	3-3.4 REC=69%	1.0	7	
			3-4.5 REC=100%	3.5	9	
			4-5.8 REC=100%	6.5	13	Groundwater after auger removal @ 5.1 ft Cave-in depth @ 4.2 ft Groundwater during drilling @ 7 ft
396.0	8.0	End of boring				

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-7 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 404 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
403.5	0.5	Topsoil (6")				
		Micaceous Sandy SILT, grayish-brown, moist, stiff (ML)	1-2.2 REC=100%	1.0	4	
			3-4.6 REC=100%	2.5	10	
			3-4.6 REC=100%	5.0	10	
396.0	8.0	End of boring				

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-8 (1 of 1)

Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 408 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
407.5	0.5	Topsoil (6")				
		Clayey SILT, grayish-brown, moist, very soft (ML)	1-1.2 REC=78%	1.0	3	
			3-5.6 REC=100%	3.5	11	
			3-4.6 REC=100%	6.5	10	Cave-in depth @ 5.7 ft
400.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.

BORING LOG
Boring: T-9 (1 of 1)

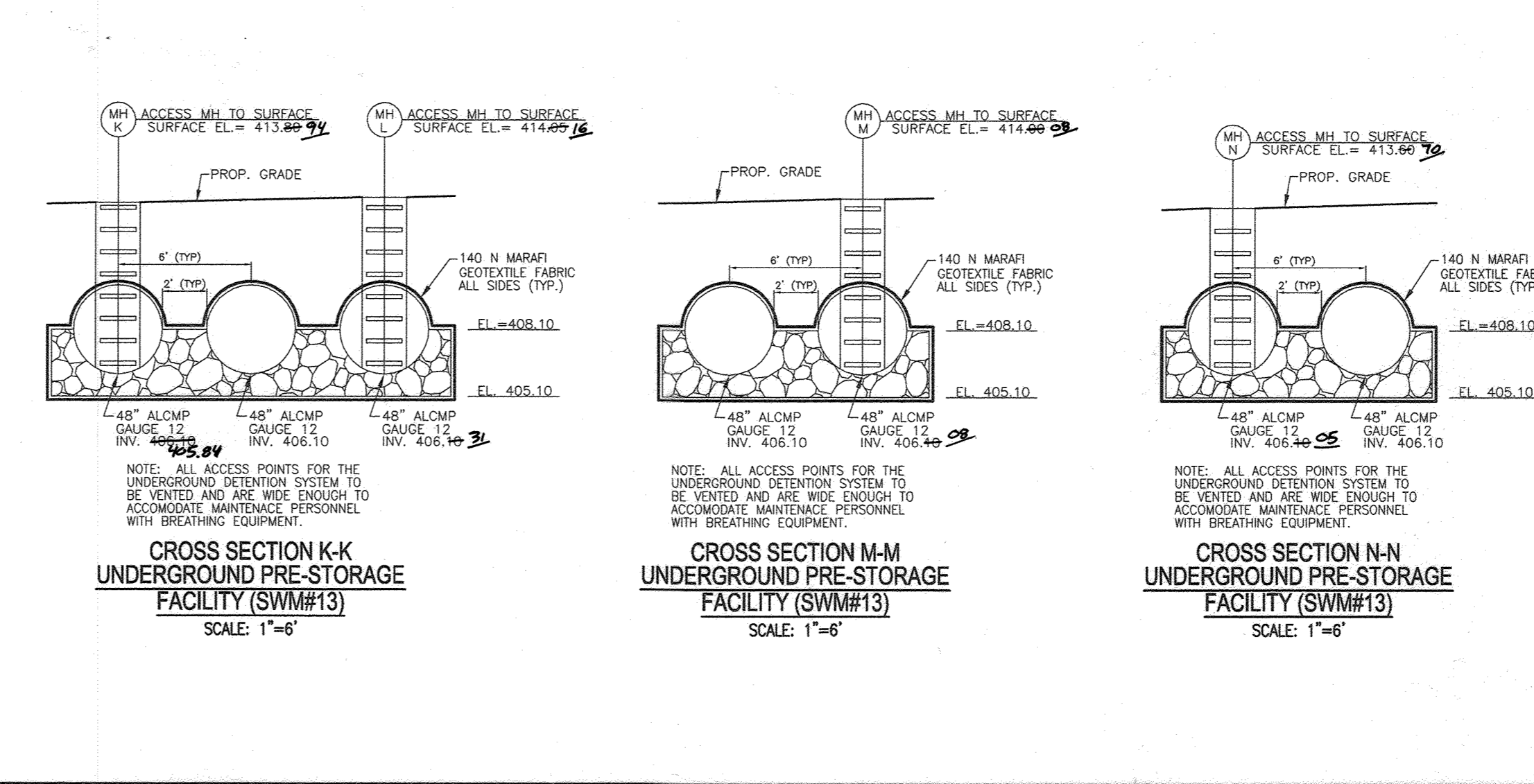
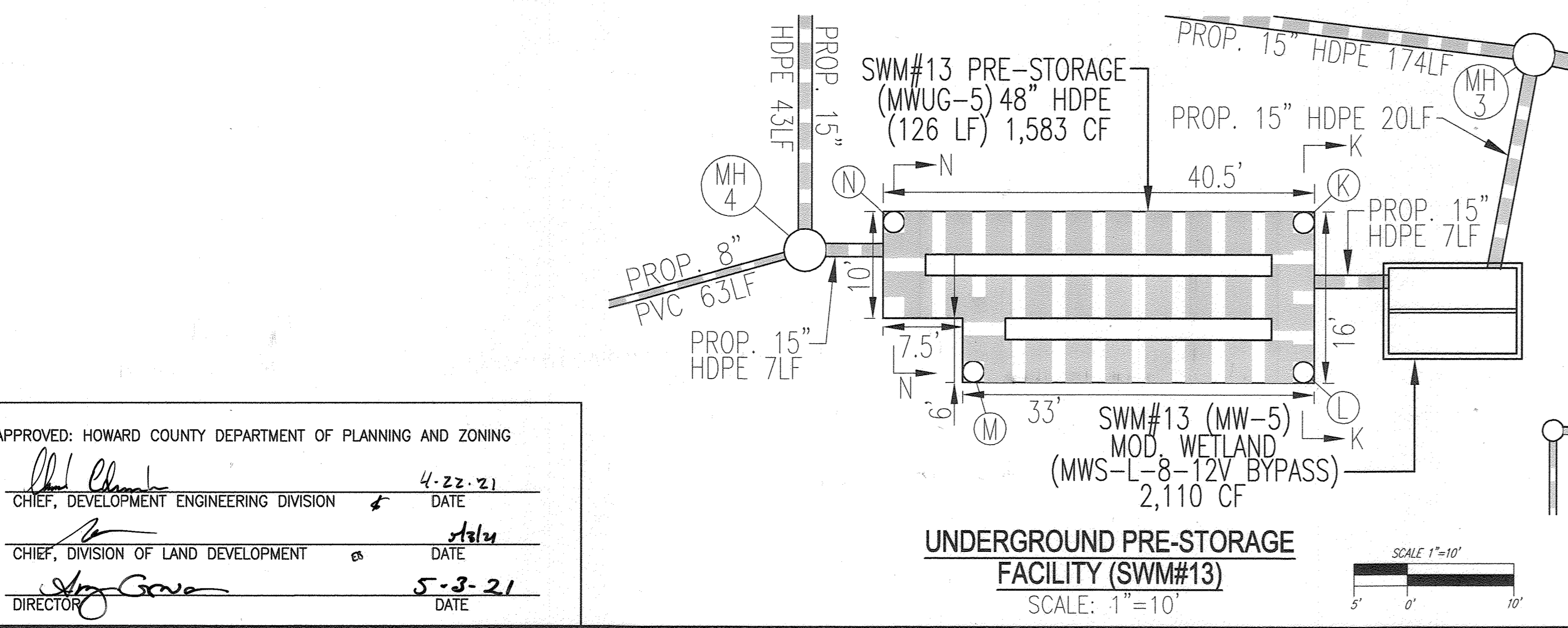
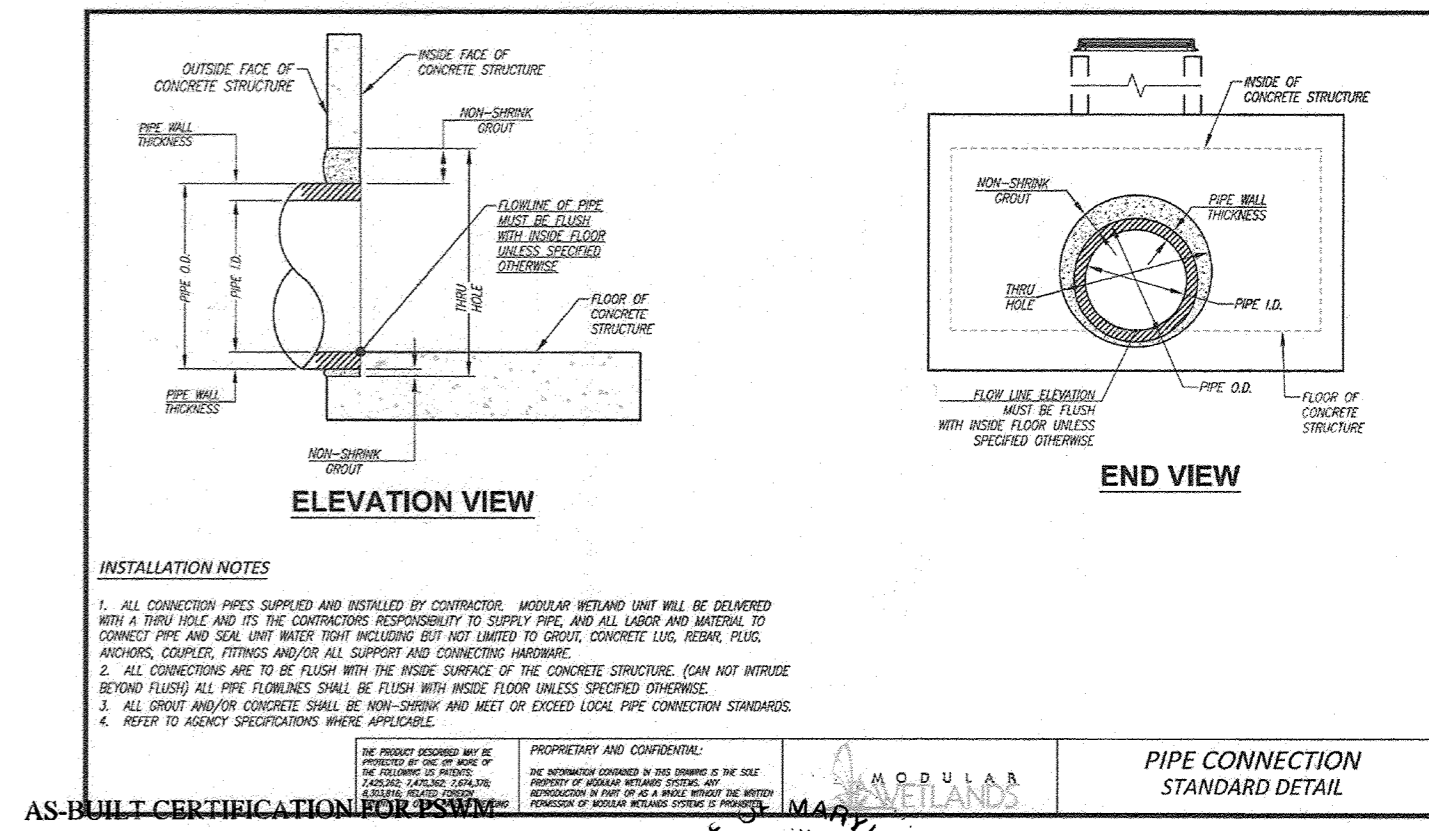
Project No: 75Y008
Client: 9190 LLC
Project: Oakland Ridge Industrial Park
City/State: Columbia, Maryland

Elevation: 416 ±
Total Depth: 8.0'
Boring Location:

Drilling Method: HSA
Hammer Type: Automatic
Date Drilled: 1/28/20
Driller: D&S Drilling

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	SPT (blows/ft)	N-Value (blows/ft)	Remarks
415.6	0.4	Topsoil (5")				
		Micaceous Sandy SILT, trace gravel, grayish-brown, moist, firm to stiff (ML)	2-2.3 REC=67%	1.0	5	
			3-5.6 REC=78%	3.5	11	
			4-6.9 REC=100%	6.5	15	Cave-in depth @ 5.6 ft
408.0	8.0	End of boring				No groundwater encountered during drilling

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



SITE DEVELOPMENT PLAN
STORMWATER MANAGEMENT NOTES AND DETAILS
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE

TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT

9188 & 9190 RIDE BRANCH ROAD
PARCEL 239
LOT 2 / PARCEL 239
ZONED: NT
HOWARD COUNTY, MARYLAND

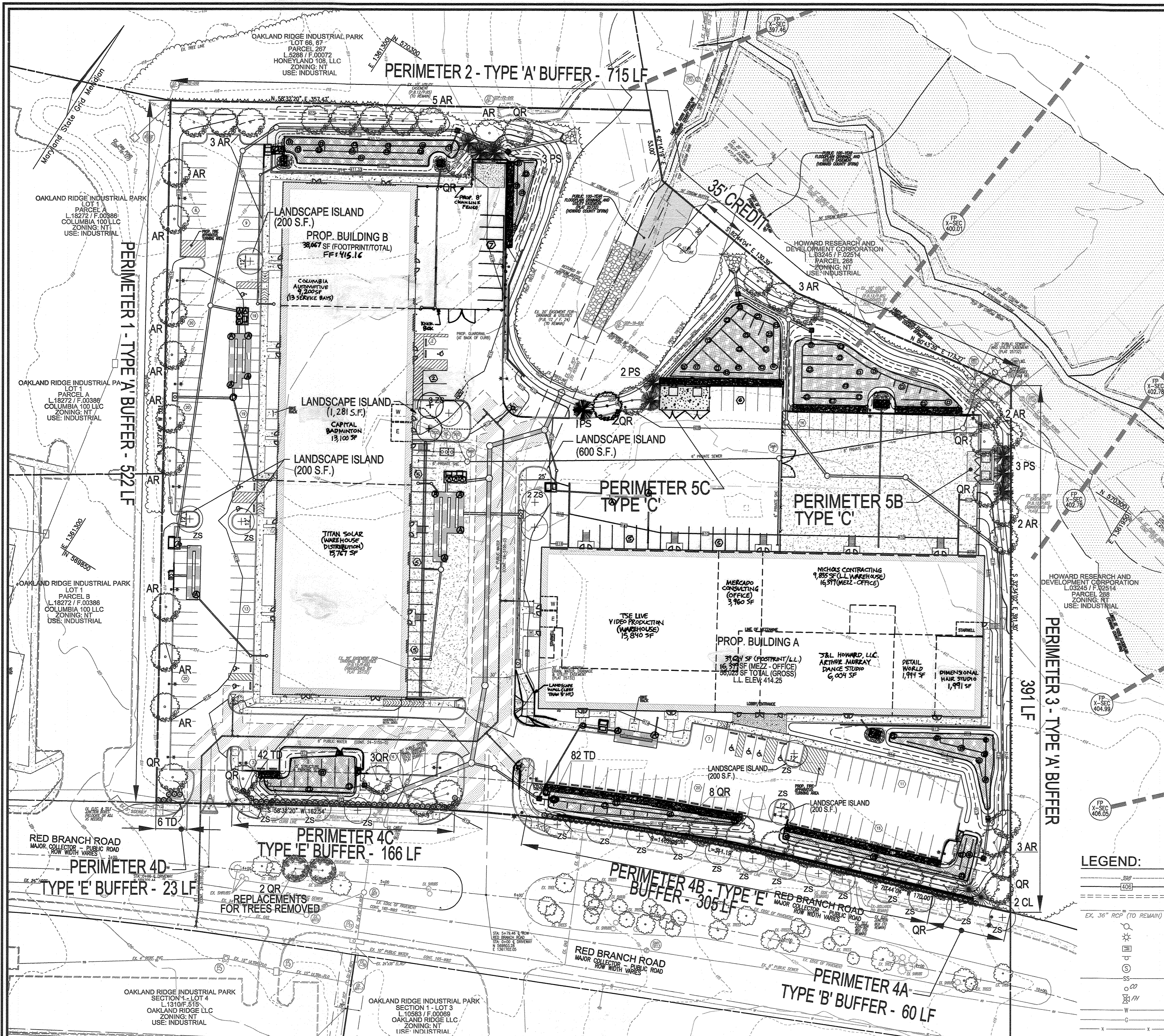
VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHW
DATE: FEBRUARY 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

PROFESSIONAL CERTIFICATE
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.
EXPIRATION DATE: 09-27-2022

17 SHEET OF 21

AS-BUILT, JULY 2022



STREET TREE CALCULATIONS - SCHEDULE C

STREET NAME	STATION	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
EX. RED BRANCH ROAD	3+26 TO 9+62	636/40	16	16

STREET TREE PLANT LIST

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
16		ZELKOVA SERRATA 'VILLAGE GREEN'	2.5"-3" CAL	B & B
16		VILLAGE GREEN JAPANESE ZELKOVA		
TOTAL	16			

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	185
NUMBER OF TREES REQUIRED (1:20)	10
NUMBER OF TREES PROVIDED	10
SHADE TREES	10
OTHER TREES (2:1 SUBSTITUTION)	-

PLANT LIST - SCHEDULE B (PARKING LOT)

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
10		ZELKOVA SERRATA 'VILLAGE GREEN'	2.5"-3" CAL	B & B
10		VILLAGE GREEN JAPANESE ZELKOVA		
TOTAL	10			

SCHEDULE A PERIMETER LANDSCAPE EDGE

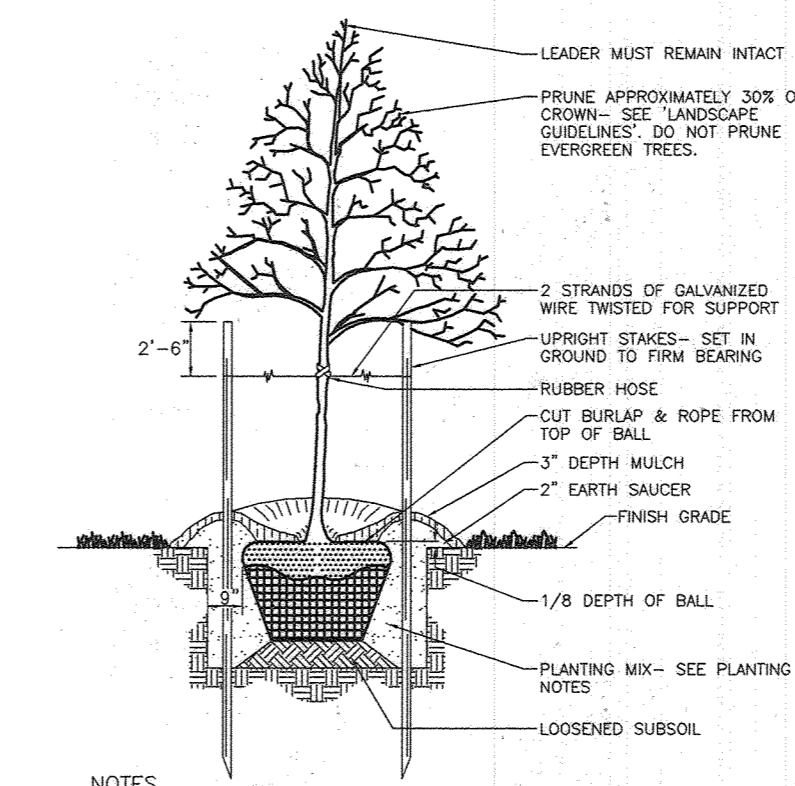
CATEGORY	1	2	3	4A	4B	4C	4D	5B	5C	TOTAL
PERIMETER/FRONTAGE DESIGNATION	1	2	3	4A	4B	4C	4D	5B	5C	
LINEAR FEET OF ROADWAY	522'	715'	391'	60'	305'	166'	23'	46'	54'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	No	YES 35'	No	Mo	No	No	No	No	No	
CREDIT FOR WALKWAY OR BERM (YES, NO, LINEAR FEET)	No	No	No	Mo	No	No	No	No	No	
NUMBER OF PLANTS REQUIRED	1:60	1:60	1:60	1:50	1:40	1:40	1:40	1:40	1:40	48
NUMBER OF PLANTS PROVIDED	9	3	7	2	8	5	1	2	3	50
SHRUBS (1:10 SUBSTITUTION)	-	-	-	-	82	42	6	-	-	130
EVERGREEN TREES (2:1 SUBSTITUTION)	-	-	-	-	-	-	-	-	-	-
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-	-	-	-	-	-	-
SHRUBS (1:10 SUBSTITUTION)	-	-	-	-	-	-	-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED										

PLANT LIST - SCHEDULE A (PERIMETER)

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
28		ACER RUBRUM 'OCTOBER GLORY'	2.5"-3" CAL	B & B
22		QUERCUS RUBRA NORTHERN RED OAK	2.5"-3" CAL	B & B
9		PIUS STROBUS EASTERN WHITE PINE	6"-8" HT.	B & B
1		CUPRESSOCYPARIS LEYLANDI LEYLAND CYPRESS	5"-6" HT.	B & B
130		TAXUS MEDIA 'BENFORMIS' BENIFORMIS TW	2.5"-3" HT.	B & B

TREE REPLACEMENT (FROM RED BRANCH ROAD MEDIAN)

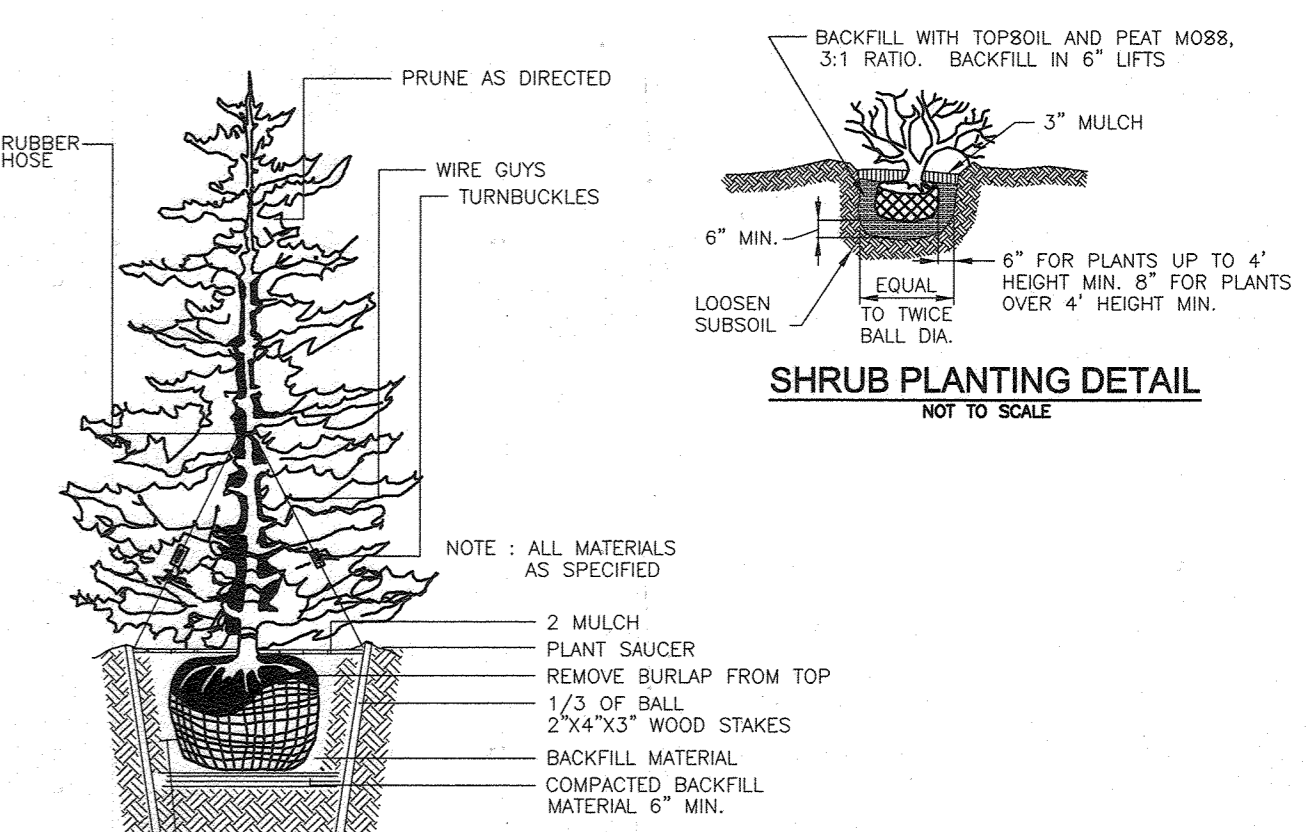
NUMBER OF TREES TO BE REMOVED	2
NUMBER OF TREES REQUIRED (1 x TREES REMOVED)	2
NUMBER OF TREES PROVIDED	2
SHRUBS (1:10 SUBSTITUTION)	-
EVERGREEN TREES (2:1 SUBSTITUTION)	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED	



- NOTES**
- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE - WASHINGTON METROPOLITAN AREA" FOR ALL MATERIAL, PRODUCT AND PROCEDURE SPECIFICATIONS.
 - SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
 - PLACE UPRIGHT STAKES PARALLEL TO WALKS & SIDINGS.
 - KEEP MULCH 1" FROM TRUNK.
 - SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
 - TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWERAGE EASEMENT.

TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

- LANDSCAPE SCHEDULE NOTES:**
- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENTS, BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL 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 WITHDRAWAL OF LANDSCAPE SURETY UNLESS SUCH THAT ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
 - THE OWNER, DESIGN AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BIRDS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 - SHOULD ANY TREE BE DAMAGED OR DESTROYED FOR WHICH LANDSCAPING SURETY IS OBTAINED, PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIPMENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
 - CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
 - FINAL LOCATION OF PLANT MATERIAL MAY NEED TO BE ADJUSTED TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF URNAGE SWALES.
 - CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO DIGGING. IF PLANT OFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
 - CONTRACTOR TO OBTAIN THE NECESSARY TREE PERMITS FOR THE TREE REMOVAL AND PLANTINGS WITHIN THE MEDIAN OF RED BRANCH ROAD.



SHRUB PLANTING DETAIL
NOT TO SCALE

- GENERAL NOTES:**
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE PROVIDED FOR THIS SUBMISSION.
 - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$22,900.00 FOR THE REQUIRED 90 SHADE TREES, 9 EVERGREEN TREES, AND 125 SHRUBS.
 - FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTING AND TREE REPLACEMENT HAS BEEN POSTED AS PART OF THE DWP COST ESTIMATE IN THE AMOUNT OF \$5,400.00 FOR THE REQUIRED 16 STREET TREES AND FOR THE 2 REPLACEMENT SHADE TREES IN THE MEDIAN OF RED BRANCH ROAD.

OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE
4	REVISE BLINDING USES AND TOLERANCES	8-2-23
3	REMOVE PLANT TO RELOCATE BURNING'S BUSH, AMOUNTY ISLAND, REPLACE SINGLE DRAINAGE WITH DOUBLE DRAINAGE, AND TO ADD CONCRETE TAP, SMALL LANDSCAPE WALL AND STRIPED PARKING	2-1-23
2	REVISE THE PLAN TO ADD NEW TREES, ADD PROPOSED CHANNEL LINE FENCE AND REVEAL PARKING	10-26-22
1	REVISE PLAN TO MODIFY THE PUBLIC STORM DRAIN AND PRIVATE ESD PRACTICE DUE TO UNDERGROUND OPTIC CONDUIT LOCATION.	09/01/21

REVISED SITE DEVELOPMENT PLAN
LANDSCAPE PLAN, NOTES AND DETAILS
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE
PARCEL 239
9188 & 9190 RED BRANCH ROAD
LOT 2 / PARCEL 239
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7866 F: 410.461.8961 www.timmons.com

LEGEND:

EXISTING CONTOUR	EXISTING TREES/LANDSCAPING
PROPOSED CONTOUR	PROPOSED CURB AND GUTTER
EXISTING CURB AND GUTTER	100 YEAR FLOODPLAIN (HOWARD COUNTY DIRM) (PLAT 25732)
PRE-2014 PIPE/HEADWALL	MICRO-BIORETENTION
EXISTING UTILITY POLE	20' PUBLIC WATER AND UTILITY EASEMENT (PLAT 25732)
EXISTING LIGHT POLE	30' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
EXISTING MAILBOX	20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
EXISTING SIGN	20' PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT 25732)
EXISTING SANITARY MANHOLE	PROPOSED STREET LIGHT
EXISTING SANITARY LINE	PROPOSED STREET SIGN
EXISTING CLEANOUT	PROPOSED SHADE TREES
EXISTING FIRE HYDRANT	PROPOSED STREET TREES AND PARKING LOT TREES
EXISTING WATER LINE	PROPOSED EVERGREEN TREES
EXISTING GASLINE	PROPOSED SHRUBS
EXISTING FENCE	PERIMETER DESIGNATION / TYPE
EXISTING STREAM BANK	
PROPERTY LINE	
RIGHT-OF-WAY LINE	
PROPOSED SIDEWALK	
EXISTING TREE LINE	
PROPOSED TREE LINE	
PROPOSED STORM DRAIN	
PROPOSED STORM DRAIN DRAIN INLETS	
PRE-2014 CL STREAM CHANNEL	
FLOODPLAIN CROSS-SECTION	
PROPOSED CHANNEL FENCE	
AS-BUILT STORM DRAIN MANHOLE	
AS-BUILT SUM ACCESS MANHOLE	
AS-BUILT CLEANOUT	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 5/16/22

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/1/22

DIRECTOR
DATE: 6/1/22

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

SIGNATURE OF DEVELOPER
DATE: 05/06/2022

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 6/1/23
P.E. # 16193
DATE: 3-30-23

STATE OF MARYLAND
PROFESSIONAL ENGINEER
FRED NICHOLS
NO. 18193

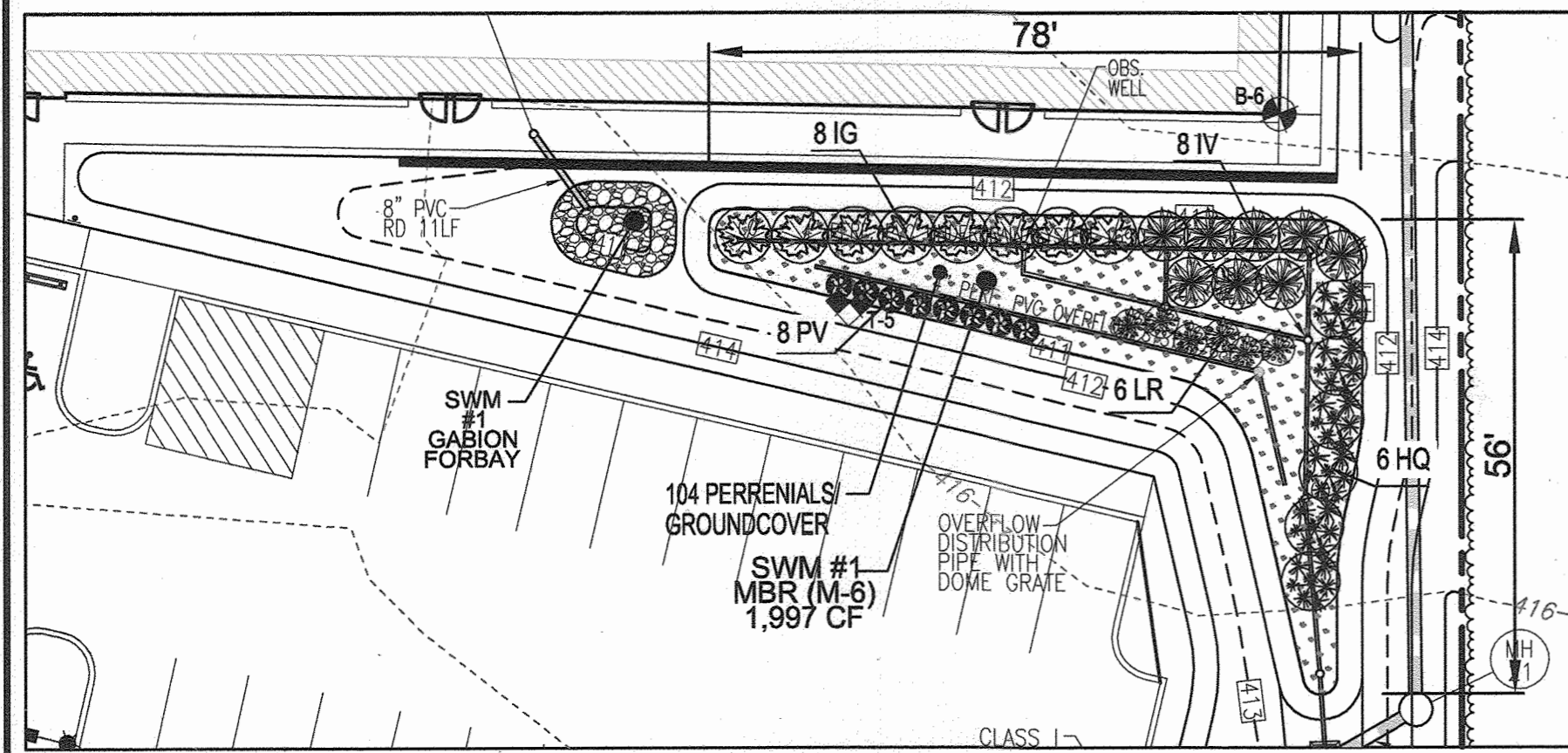
PROFESSIONAL CERTIFICATE

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. MY LICENSE NUMBER IS 18193. EXPIRATION DATE: 09-27-2023

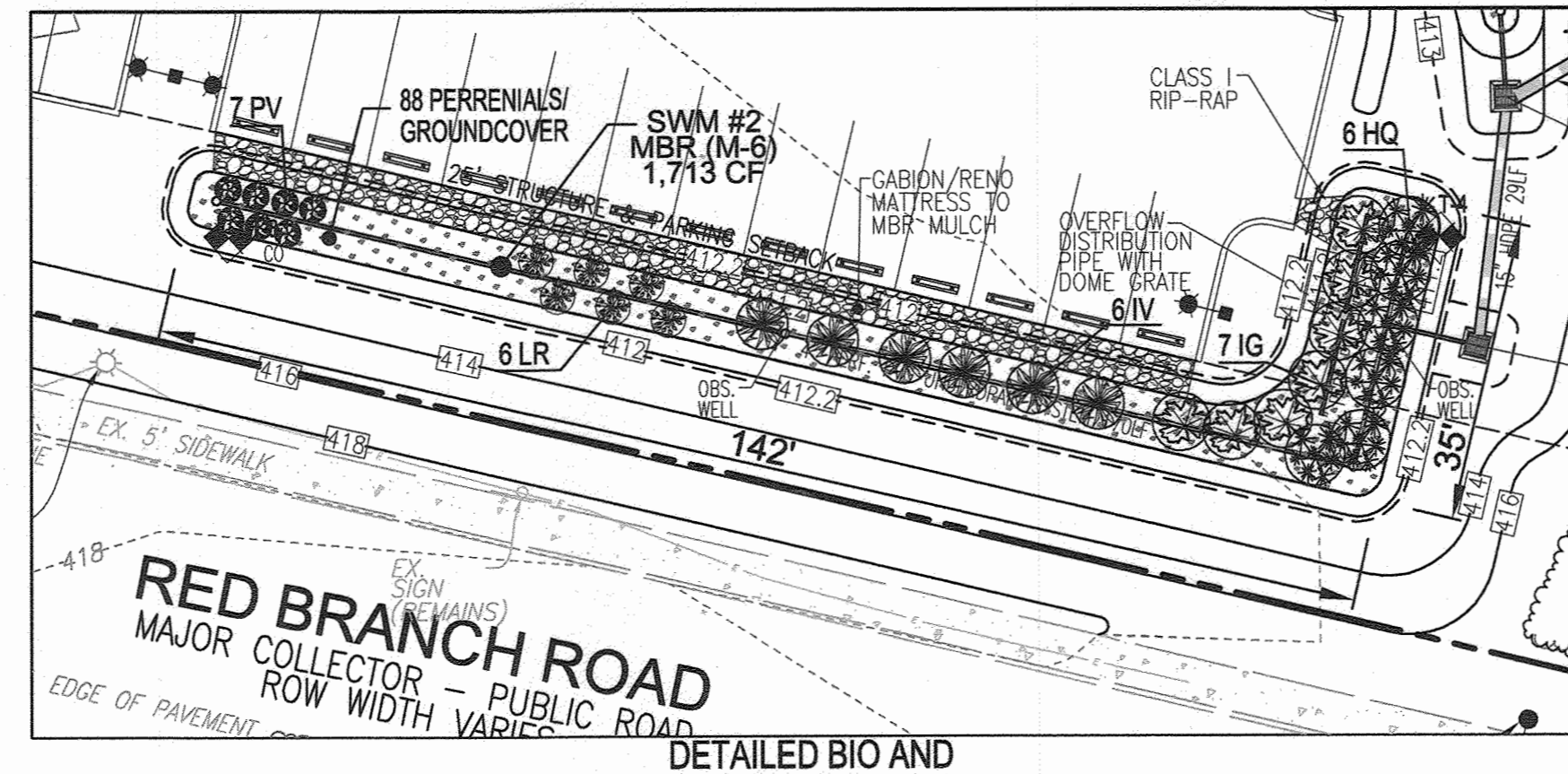
DESIGN BY: DZE
DRAWN BY: DZE/MP
CHECKED BY: RHY
DATE: NOVEMBER 2021
SCALE: AS SHOWN
W.O. NO.: 13-07/44117

18 SHEET OF 21

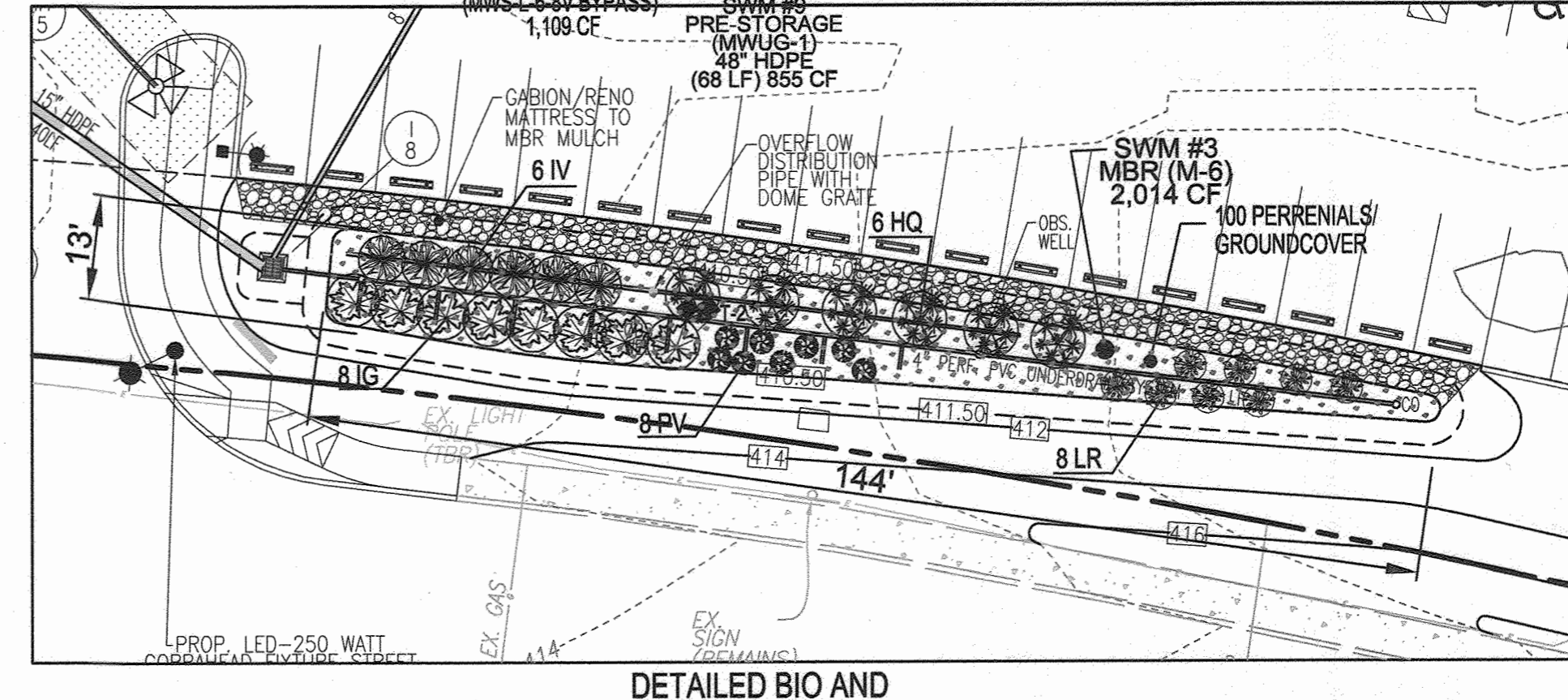
ASBUILT, JULY 2022



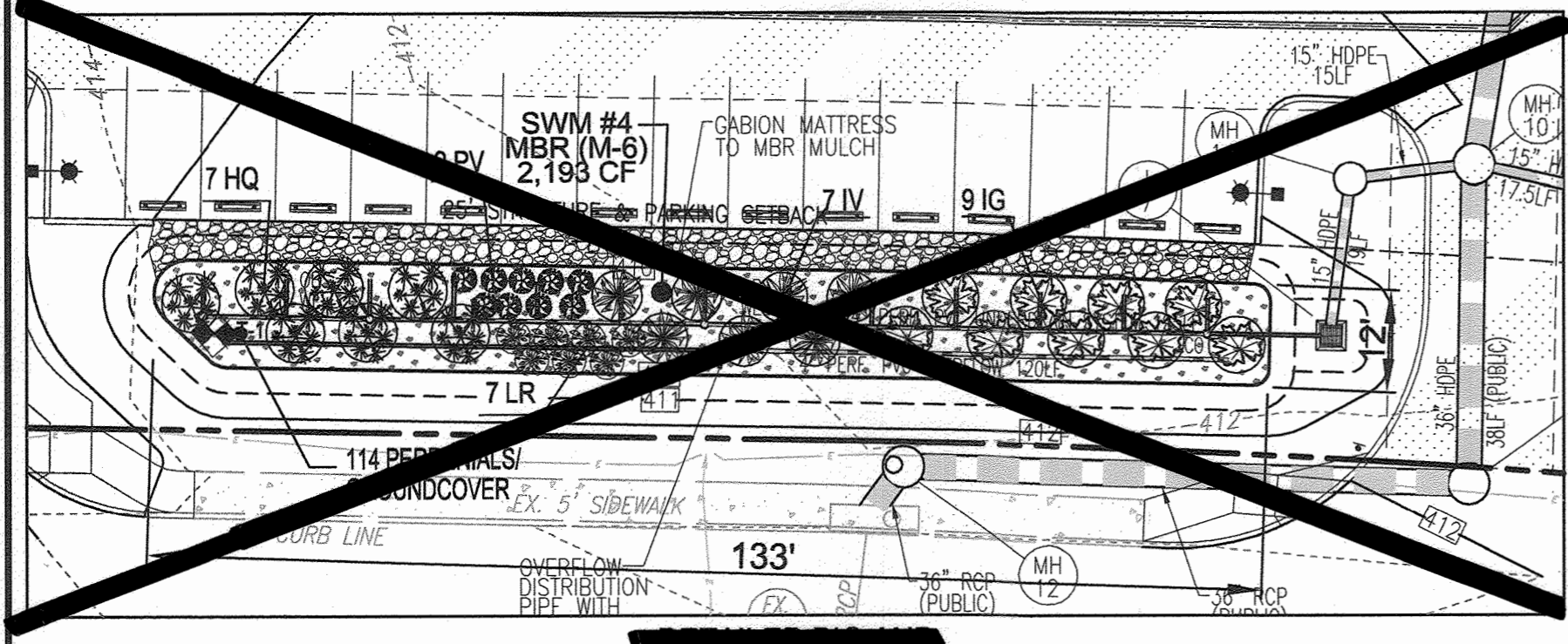
DETAILED BIO AND PLANTING PLAN (SWM #1)
SCALE: 1" = 20'



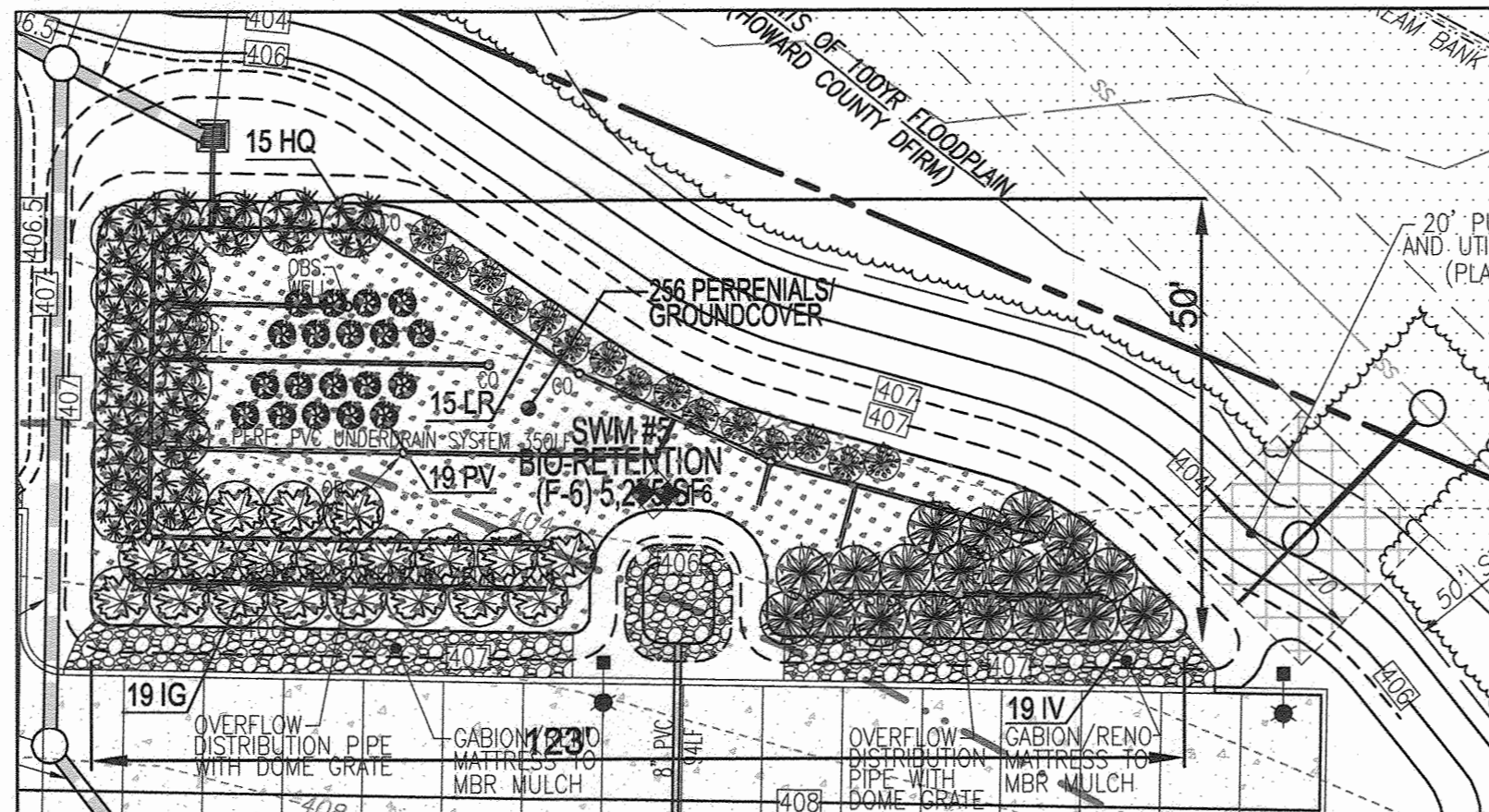
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SCALE: 1" = 20'



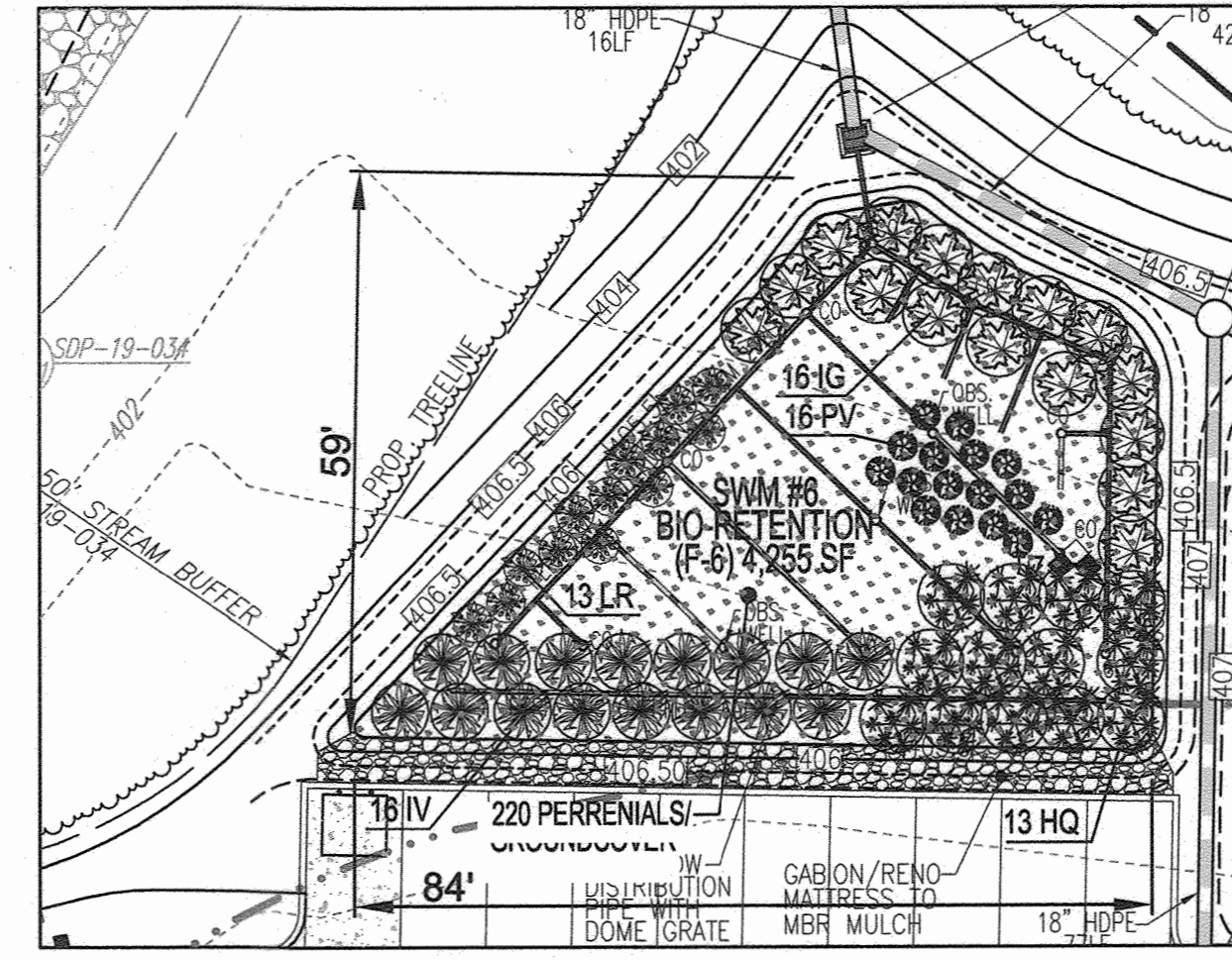
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SCALE: 1" = 20'



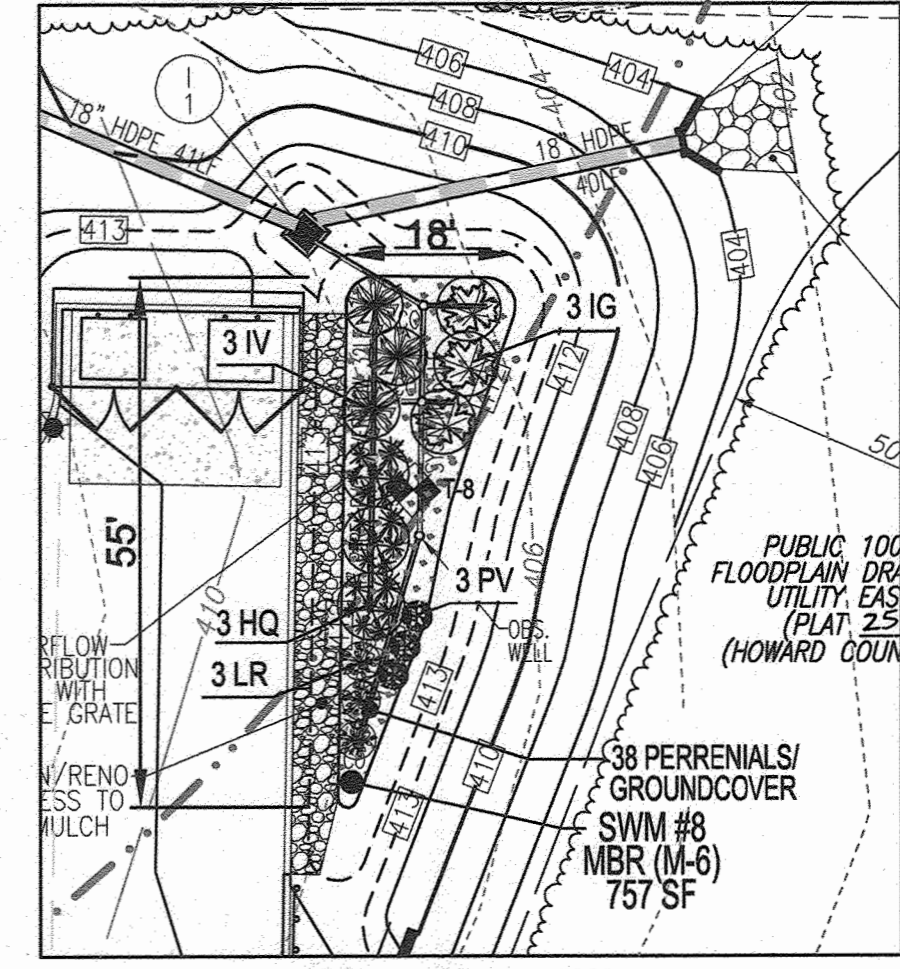
DETAILED BIO AND PLANTING PLAN (SWM #4)
SCALE: 1" = 20'



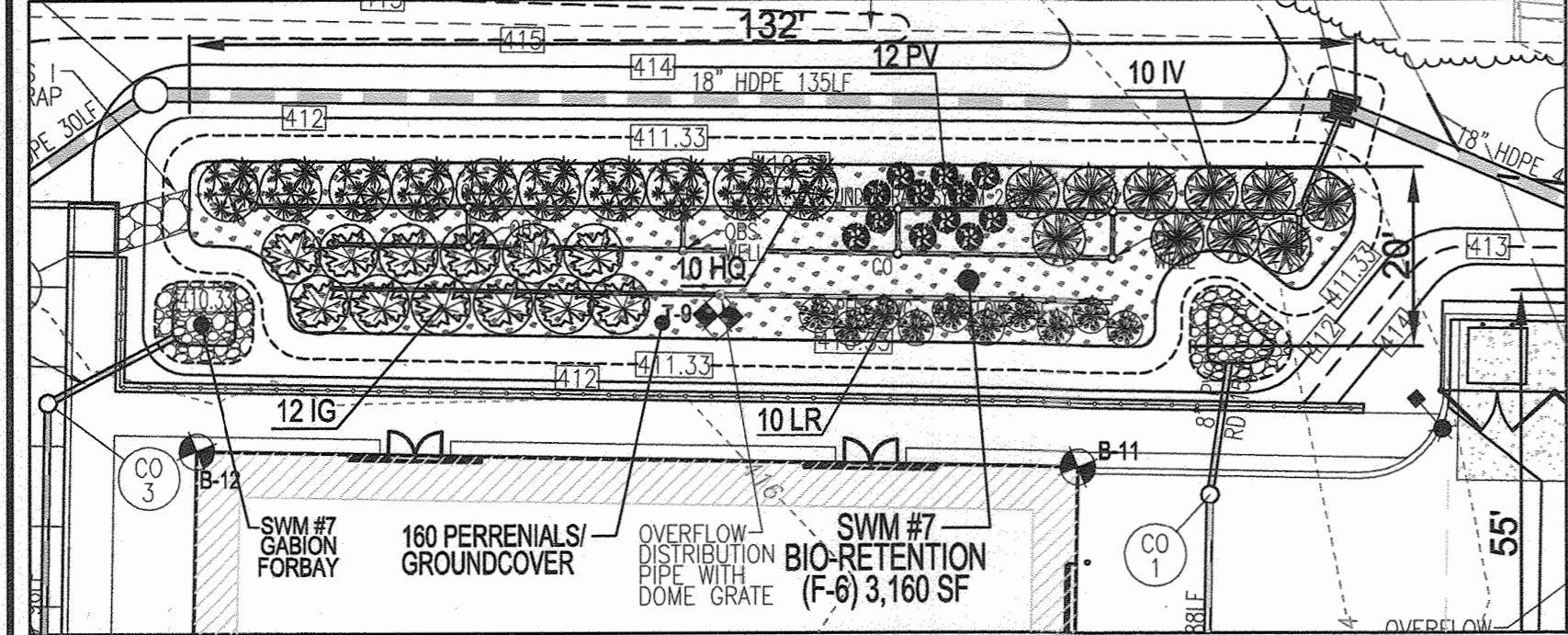
DETAILED BIO AND PLANTING PLAN (SWM #5)
SCALE: 1" = 20'



DETAILED BIO AND PLANTING PLAN (SWM #6)
SCALE: 1" = 20'



DETAILED BIO AND PLANTING PLAN (SWM #8)
SCALE: 1" = 20'



DETAILED BIO AND PLANTING PLAN (SWM #7)
SCALE: 1" = 20'

MODULAR WETLAND PLANTING			
NO.	MODEL	QTY	REMARKS
1	MWS-L-6-8-V	2	
2	MWS-L-6-8-V	2	
3	MWS-L-8-16-V		UNDER GROUND
4	MWS-L-8-8-V	3	
5	MWS-L-8-12-V		UNDER GROUND

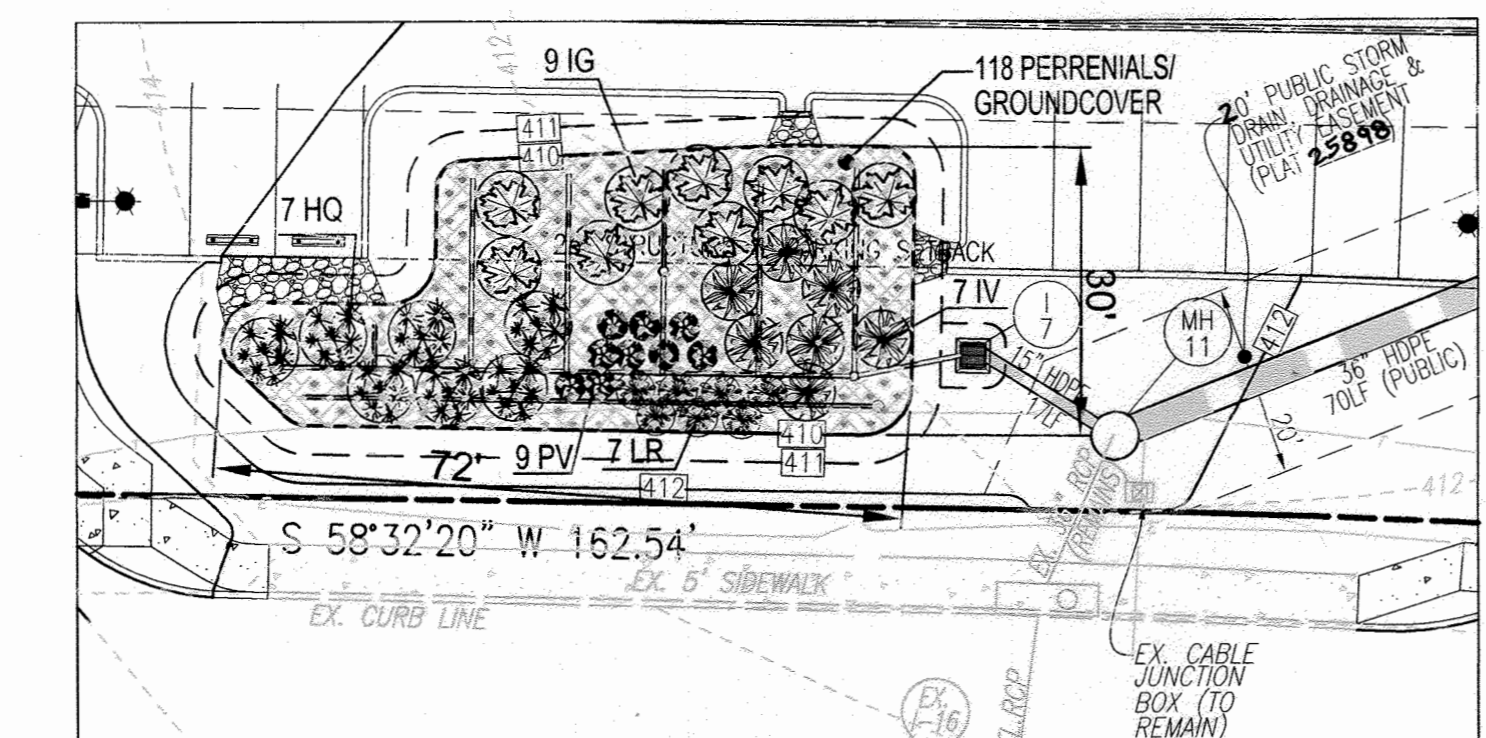
MODULAR WETLAND PLANTING SCHEDULE				
LEGEND KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	SPACING
	5	VIBURNUM DENTATUM / ARROWWOOD VIBURNUM	1 GALLON	30" O.C.
	2	PANICUM VIRGATUM / SWITCHGRASS	1 GALLON	36" O.C.

BIORETENTION PERENNIALS/GROUNDCOVER PLANTING SCHEDULE			
LEGEND	QTY	BOTANICAL NAME/COMMON NAME	REMARKS
	542	BAPTISIA AUSTRALIS / FALSE INDIGO	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED, RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP.
	572	ACORUS GRAMINEUS 'OGON' / GOLDEN VARIEGATED SWEET FLAG	1 QT.

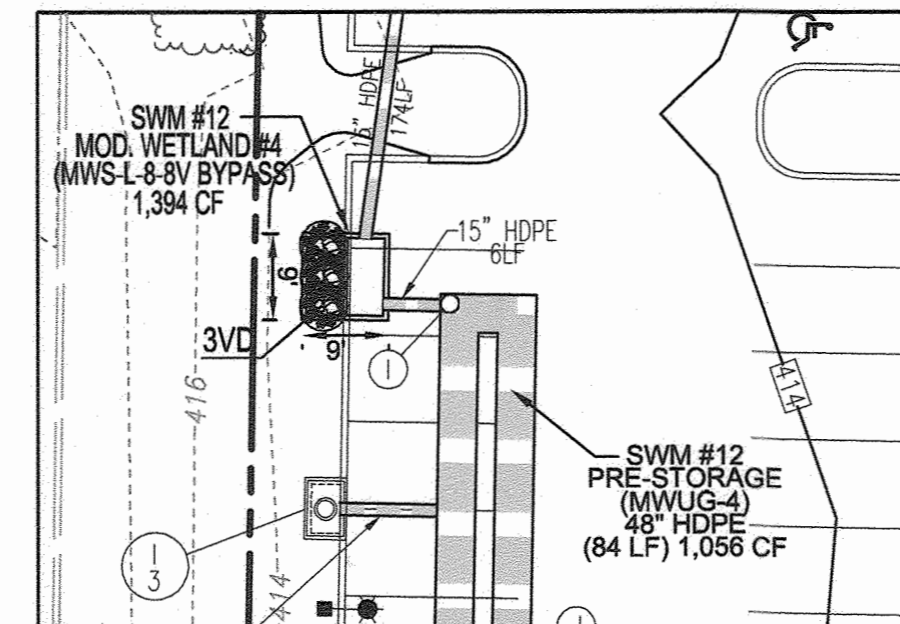
BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)				
LEGEND KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	SPACING
	82	ILEX GLABRA 'SHAMROCK' / INKBERY HOLLEY	1 GALLON	18" O.C.
	75	ITEA VIRGINICA 'HENRY'S GARNETT' / VIRGINIA SWEETSPICE	1 GALLON	18" O.C.
	66	HYDRANGEA QUERCIFOLIA / OAKLEAF HYDRANGEA	1 GALLON	30" O.C.
	68	LEUCOTHEA RACEMOSA / FETTERBUSH	1 GALLON	30" O.C.
	82	PANICUM VIRGATUM / SWITCHGRASS	1 GALLON	36" O.C.

MICRO-BIORETENTION PLANTING REQUIREMENTS										
MBR #	LF	AREA	STEMS REQUIRED (0.0229)	STEMS PROVIDED	IG	IV	HQ	LR	PV	TOTAL
1	240	1498	35	36	8	8	6	6	8	52
2	345	1285	30	32	7	6	6	7	44	
3	300	1430	33	36	6	6	8	8	50	
4	106	1690	34	39	9	7	7	9	51	
5	325	3670	85	87	19	19	13	15	128	
6	238	3371	73	74	16	16	13	16	110	
7	294	2297	53	54	12	10	10	12	80	
8	129	568	14	15	3	3	3	3	19	
TOTALS:	2155	15575	361	373	82	75	66	68	82	542

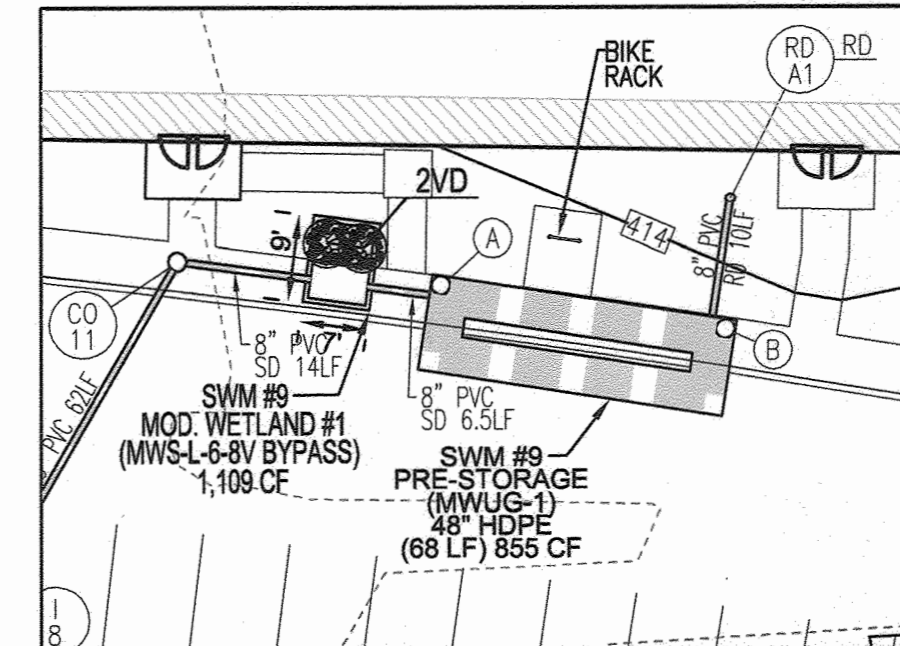
BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS PER SQUARE FOOT).



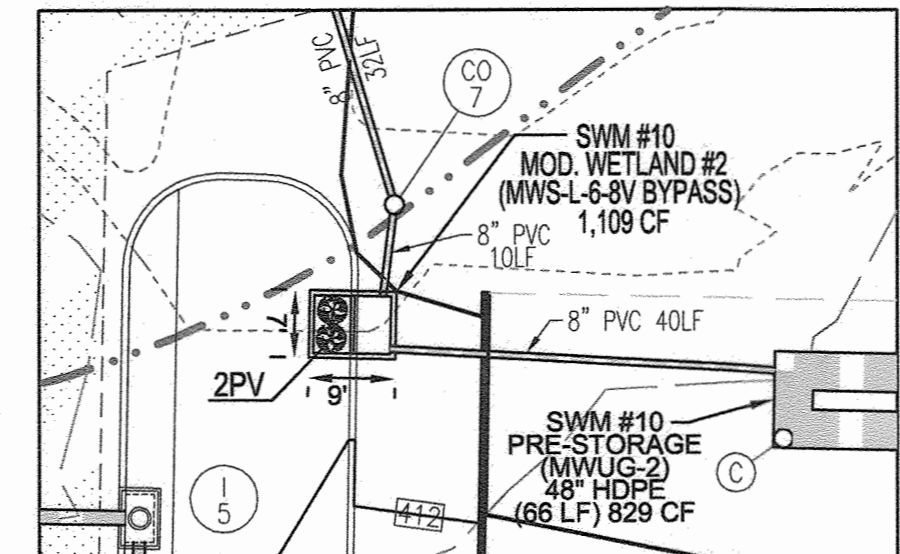
DETAILED BIO AND PLANTING PLAN (SWM #4)
SCALE: 1" = 20'



DETAILED MODULAR WETLAND PLANTING PLAN (SWM #12)
SCALE: 1" = 20'

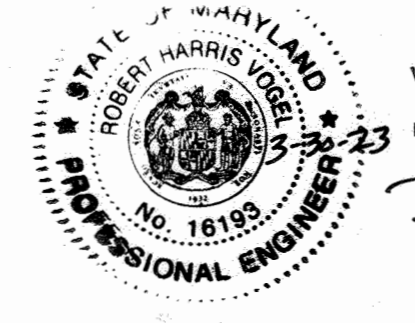


DETAILED MODULAR WETLAND PLANTING PLAN (SWM #9)
SCALE: 1" = 20'



DETAILED MODULAR WETLAND PLANTING PLAN (SWM #10)
SCALE: 1" = 20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: *[Signature]* 4-22-21
 Chief, Division of Land Development: *[Signature]* 5/13/21
 Director: *[Signature]* 5-3-21



AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
 P.E. NAME: *[Signature]* 16193 3-3-23
 P.E. NO.: 16193 DATE: 3-3-23

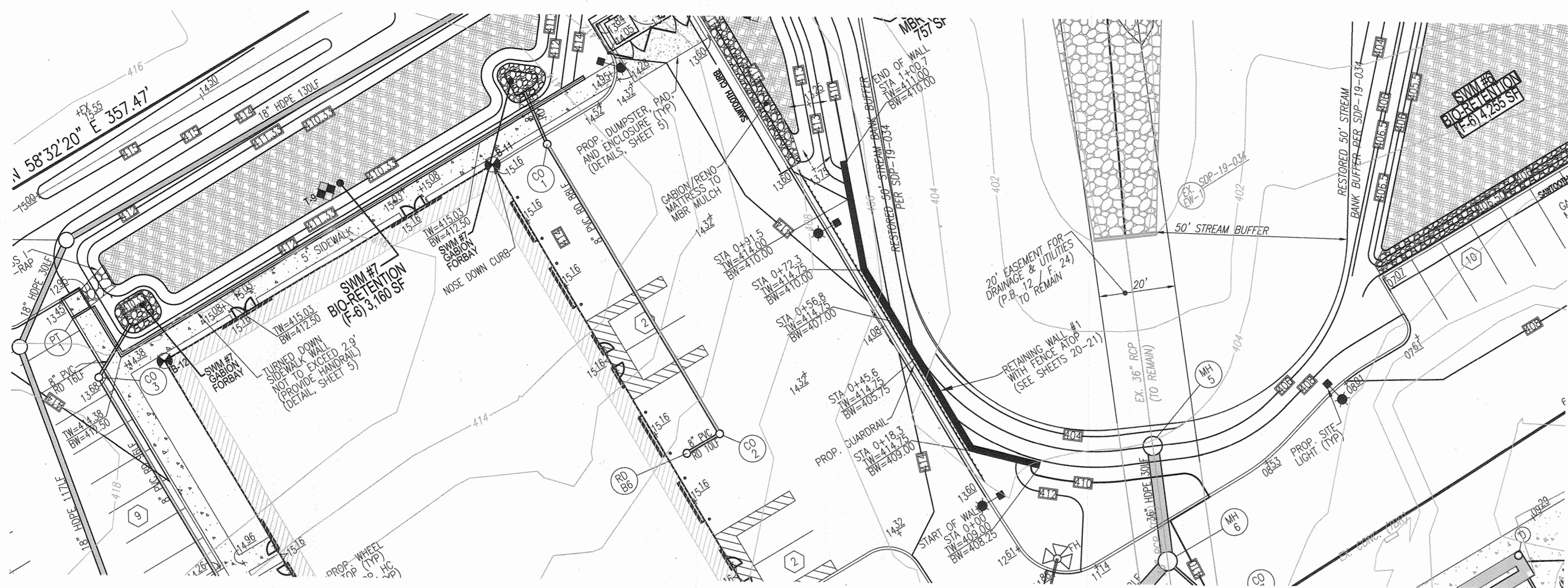
OWNER / DEVELOPER
 9190 LLC
 508 OLNEY-SANDY SPRING ROAD SUITE 200
 SANDY SPRING, MARYLAND 20860
 (301) 924-5258
 C/O NICHOLS CONTRACTING, INC.
 FRED NICHOLS, PRESIDENT

REVISED SITE DEVELOPMENT PLAN
STORMWATER MANAGEMENT FACILITIES PLANTING PLAN
 OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
 WAREHOUSE AND OFFICE
 PARCEL 239
 9188 & 9190 RED BRANCH ROAD LOT 2 / ZONED: NT
 TAX MAP 30 BLOCK 17 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

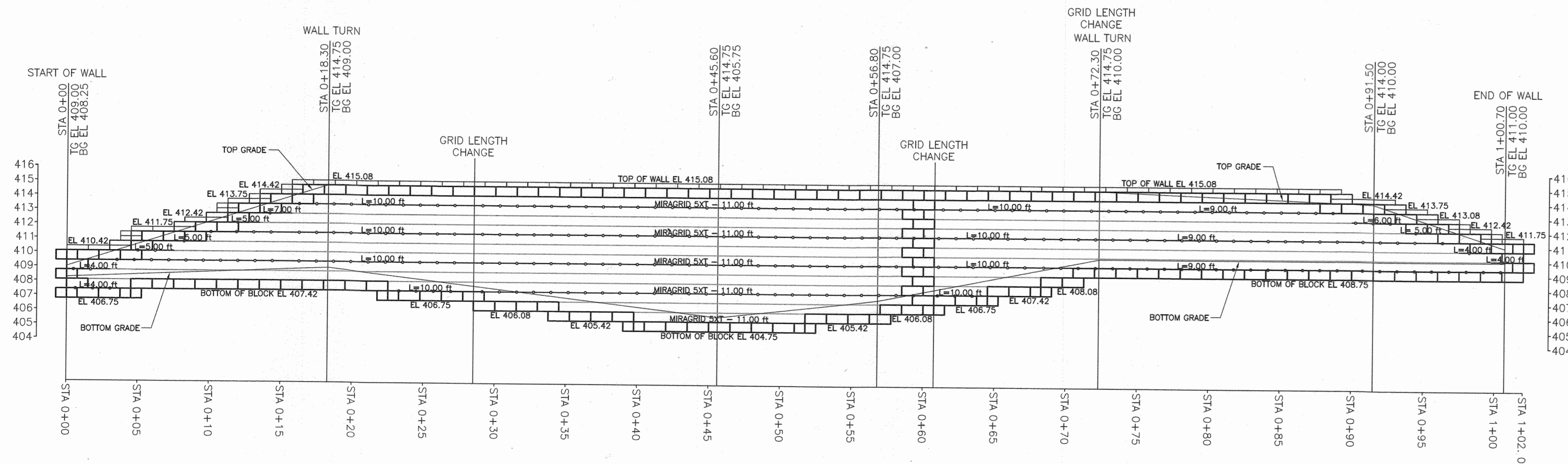
VOGEL ENGINEERING
 TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: DZE
 DRAWN BY: DZE/MP
 CHECKED BY: RHV
 DATE: FEBRUARY 2021
 SCALE: AS SHOWN
 W.O. NO.: 13-07/44117

19 SHEET OF 21



RETAINING WALL PLAN
SCALE: 1"=20'



RETAINING WALL PROFILE
HORIZONTAL SCALE: 1"=5'
VERTICAL SCALE: 1"=5'

OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
RETAINING WALL
PLAN AND PROFILE
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE
PARCEL 239
9188 & 9190 RED BRANCH ROAD
LOT 2 / ZONED: NT
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

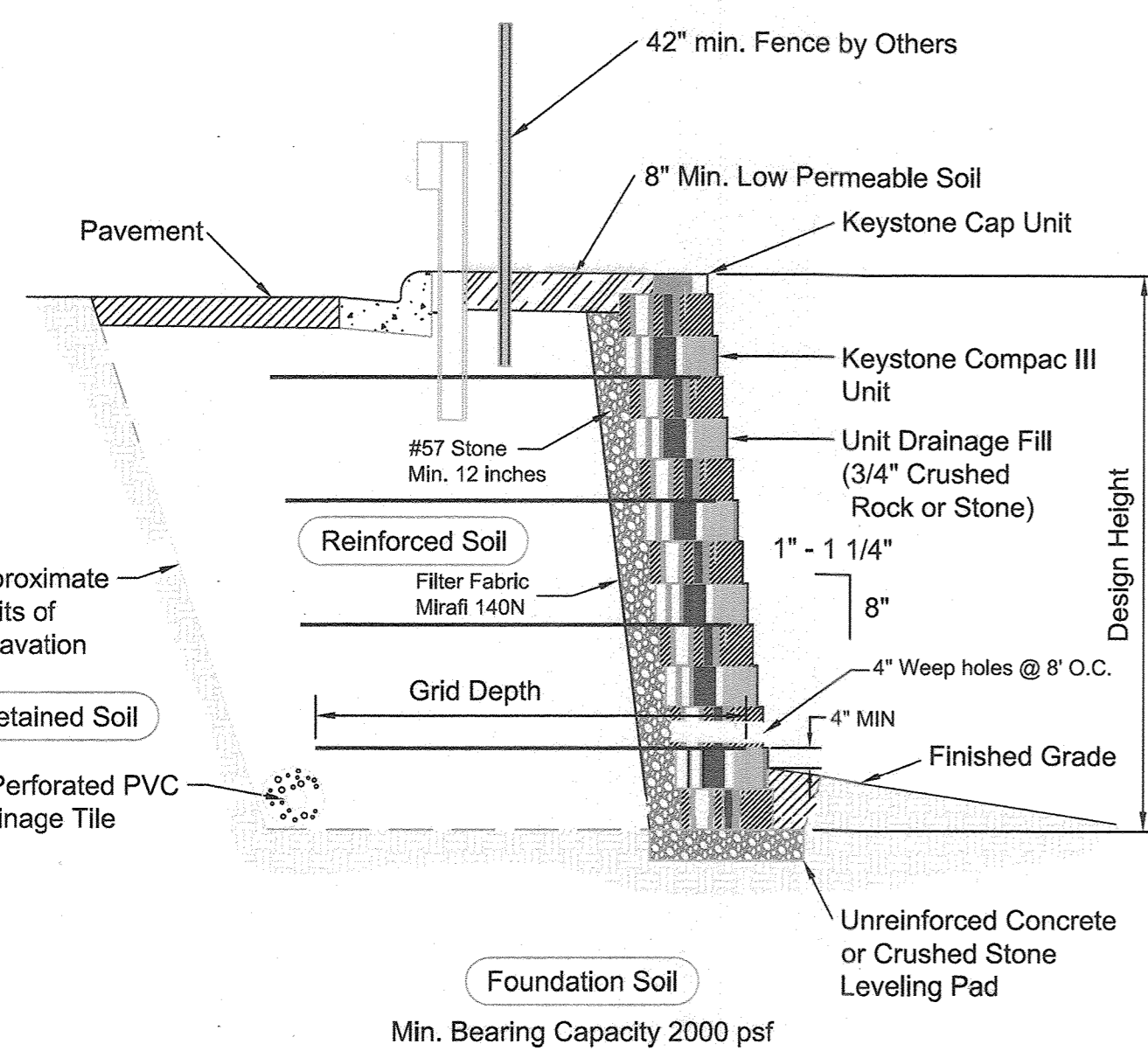
FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881
9596 Deereco Road
Lutherville-Timonium, Maryland 21093
T 410.825.4131 | F 410.321.7384

PROFESSIONAL CERTIFICATE
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. 29553, EXPIRATION DATE 12-31-2021.
DESIGN BY: DMA
DRAWN BY: DMA
CHECKED BY: HMA
DATE: FEB 2021
SCALE: AS SHOWN
W.O. NO.: 75Y0111
20 SHEET **21**
HASAN M. ABULMAYAR, PE No. 29553

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 4-22-21
DATE: 5-3-21
DATE: 5-3-21

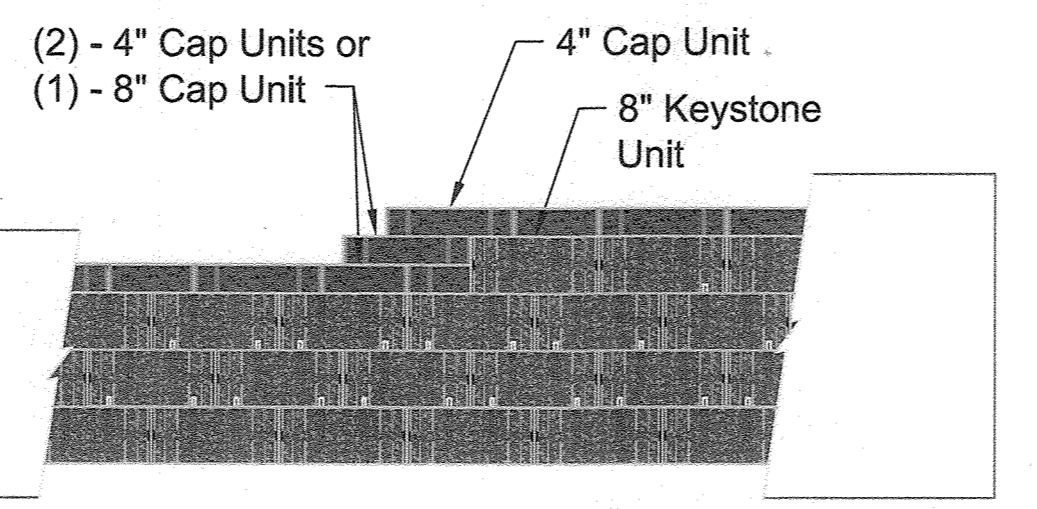
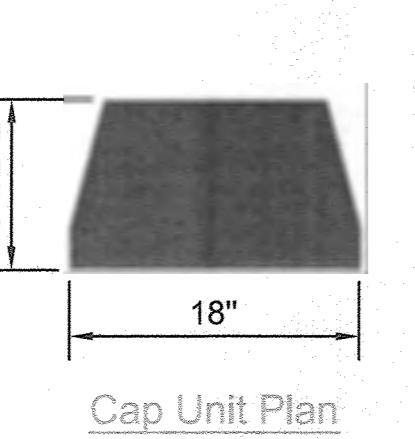
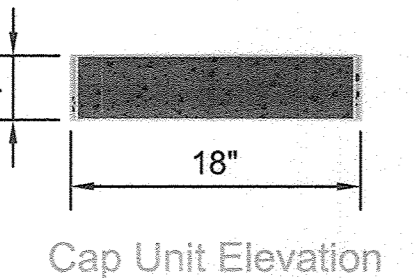
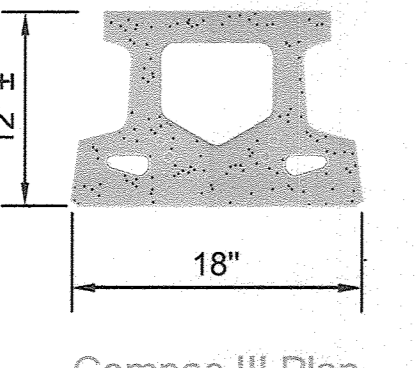
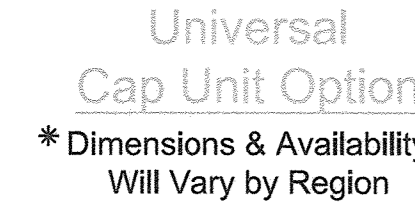
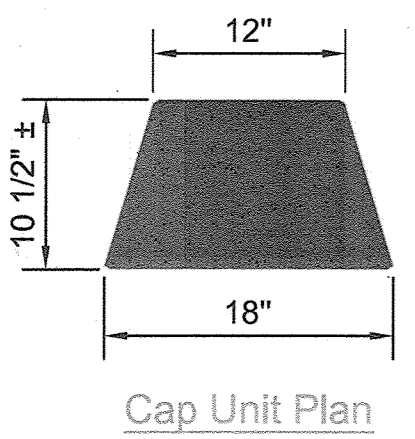
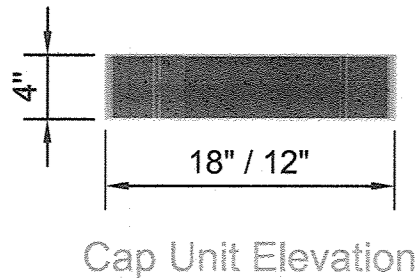
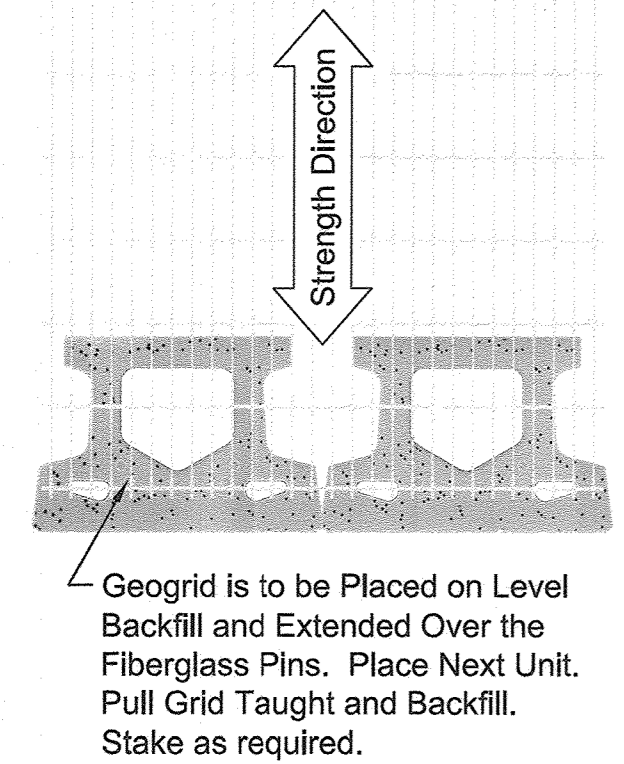
NOTES: ALL GEOGRIDS MIRAFI 5XT
TG: TOP GRADE
BG: BOTTOM GRADE

NO AS-BUILT INFORMATION ON THIS SHEET
AS-BUILT CERTIFICATION FOR PSWM
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
P.E. NAME: H.A. 16193
P.E.#: 3-30-23
DATE: 3-30-23

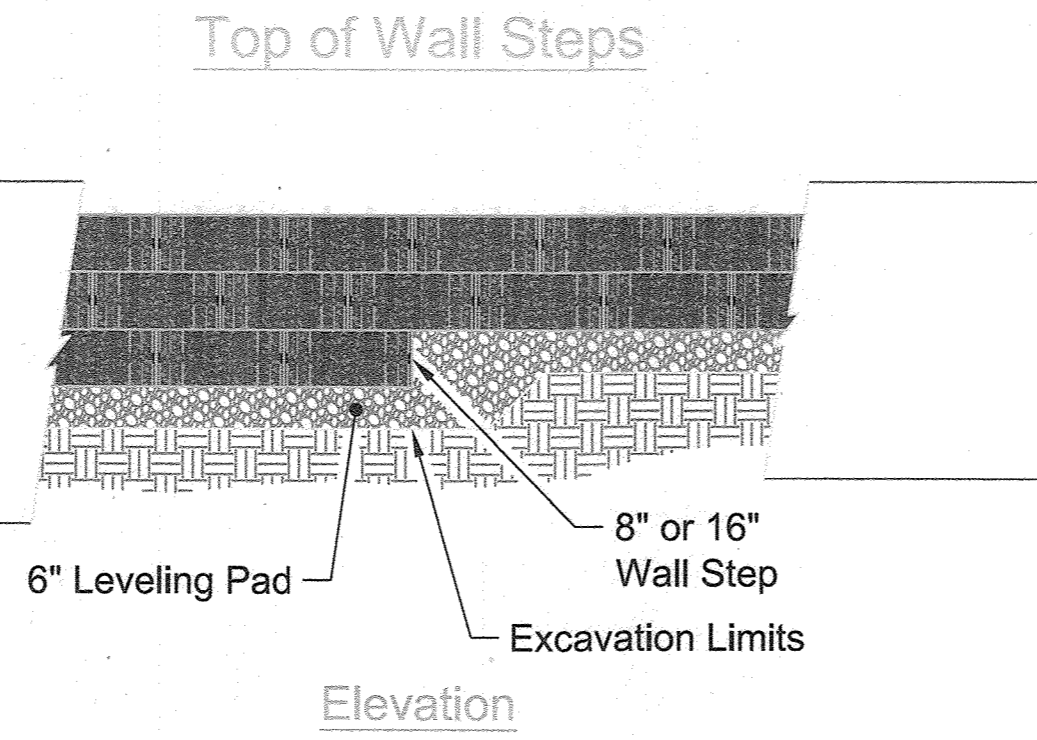


TYPICAL WALL SECTION

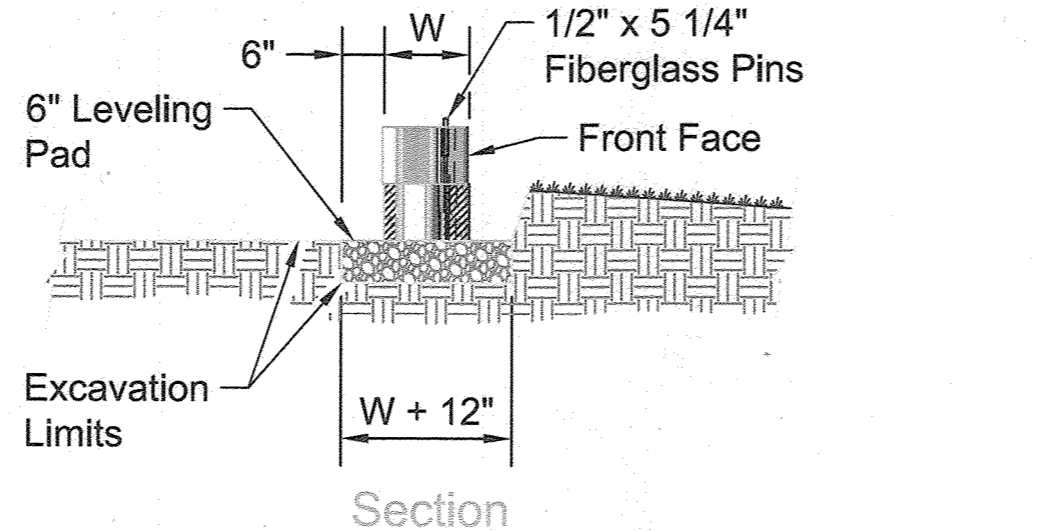
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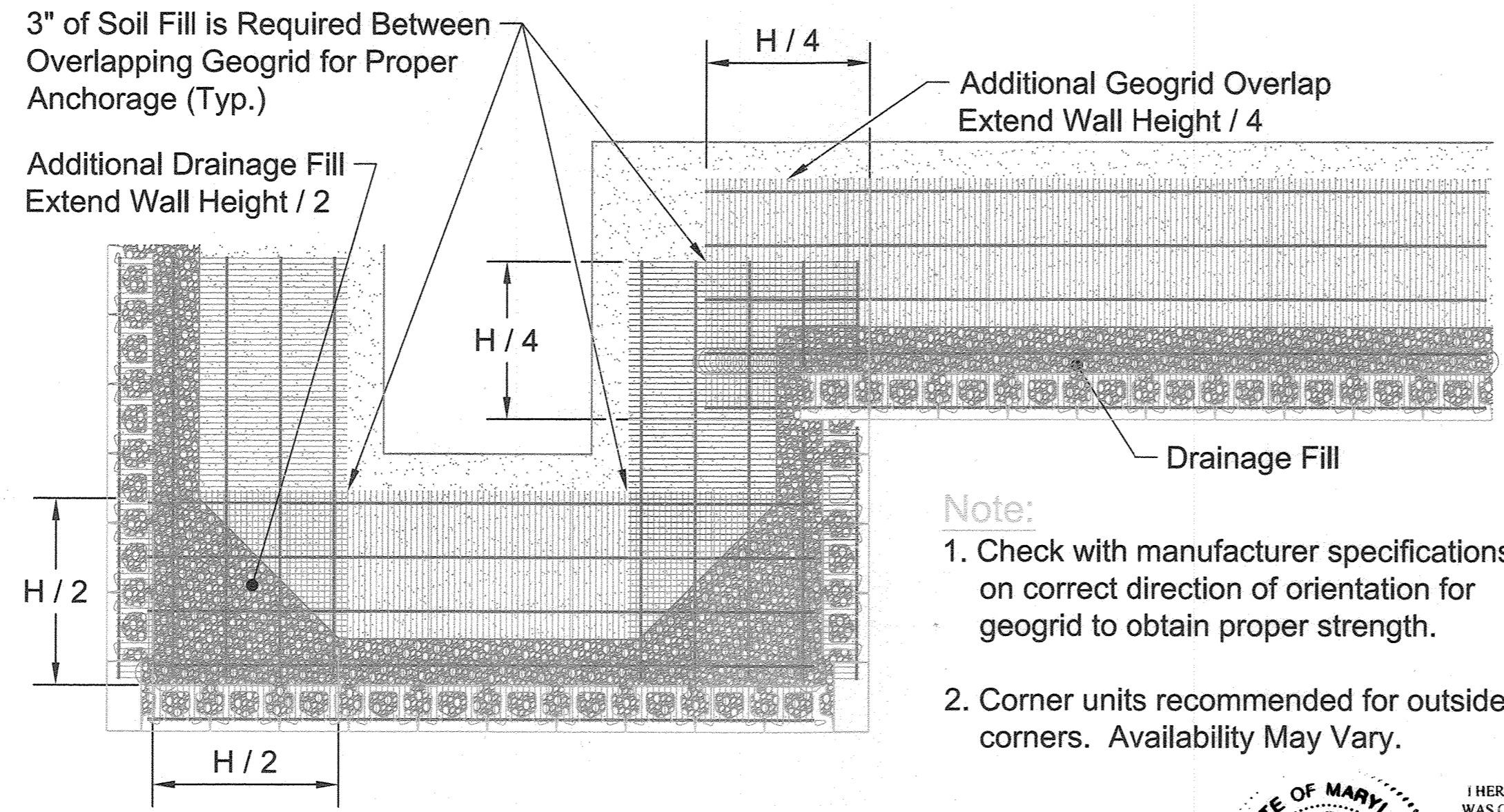
Note:
1. Secure all cap units with Keystone Kapseal or equal.



Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



Leveling Pad Detail



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

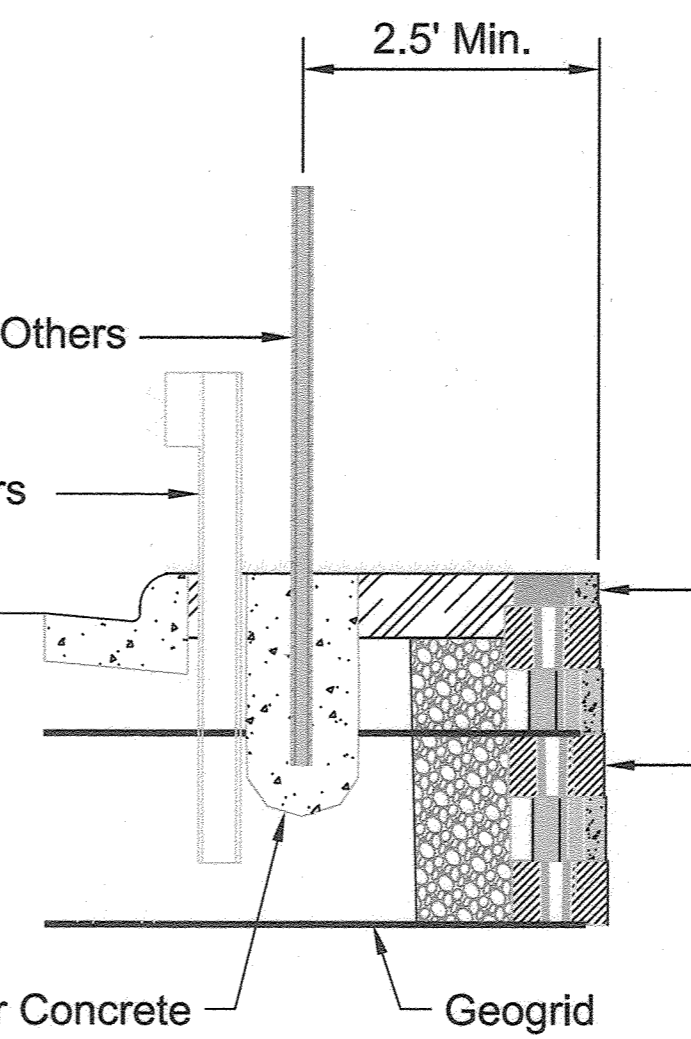
RETAINING WALL SPECIFICATIONS

- PART 1: GENERAL**
- 1.01 Description
- Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
 - Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.
 - Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.
 - Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.
- 1.02 Reference Standards
- ASTM C 90 Load Bearing Concrete Masonry Units.
 - ASTM C 140 Sampling and Testing Concrete Masonry Units.
 - ASTM D 448 Sizes of Aggregate for Road and Bridge Construction.
 - ASTM D 698 Laboratory Compaction Characteristics using Standard Effort.
- 1.03 Delivery, Storage and Handling
- Contractor shall check the materials upon delivery to assure that proper materials have been received.
 - Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may affix themselves) from coming in contact with the materials.
 - Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.
- 1.04 Quality Assurance
- Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.
- PART 2: MATERIALS**
- 2.01 Definitions
- Modular Wall Units - KEYSTONE modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.
 - Structural Geogrid - a structural geogrid formed by a regular network of integrity connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.
 - Unit Fill/Drainage Aggregate - drainage aggregate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.
 - Reinforced Backfill - Compacted soil which is within the reinforced soil volume as shown on the plans.
 - Excavation Face - The interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.
 - Retained Backfill - Onsite material located behind the reinforced zone of soil.
- 2.02 Concrete Units
- Concrete segmental units shall conform to the requirements of NEMA TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1602.
 - Wall Face Units for general wall construction shall be KEYSTONE Compac III Units. Sculptured face or straight (flat) face may be used.
 - Top of wall Cap Units shall be KEYSTONE Cap Units with fiberglass connecting pins.
- 2.03 Fiberglass Connecting Pins
- Connecting pins shall be 1/2" diameter thermoset isophthalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.
- 2.04 Construction Adhesive
- Construction adhesive for top of wall cap blocks shall be KEYSTONE KapSealTM. Material shall conform to ASTM 2339 and shall be supplied by the block unit supplier.
- 2.05 Soil Fill Materials
- Base Leveling and Pad Material
 - Material shall consist of crushed stone (GA S/B) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.
 - Unit Fill/Drainage Aggregate
 - Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.
 - Reinforced Backfill
 - Material shall consist of soil classified as SM or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. The backfill material shall contain no more than 30 percent by weight passing the US Standard No. 200 sieve. Other backfill materials may be approved by the Geotechnical Engineer.
 - Impervious Soil
 - Material may be imported or site excavated soils exhibiting a USCS designation of a lean clay (CL) or clayey sand (SC). The material shall contain no less than 40 percent by weight passing the US Standard No. 200 sieve and exhibit a plasticity index no less than 4 and no greater than 20. Other materials may be approved by the Geotechnical Engineer.
 - Sample Submittal
 - The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.
 - Soil must meet or exceed the friction angle specified in design parameters.
- 2.06 Structural Geogrid
- The geogrid identified for the retaining wall consists of Mirafi 5XT.
 - The material shall be protected from sunlight and weather while stored onsite in accordance with the manufacturer's recommendation.
- 2.07 Geotextile
- A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill.
 - The geotextile shall consist of a Mirafi 140N.
 - Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material.
 - Ripped or otherwise damaged material shall not be used. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

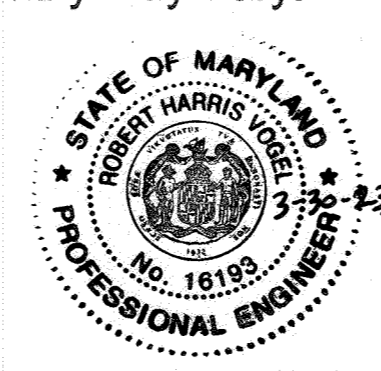
DESIGN PARAMETERS

Characteristics:	Configuration:	Soil Parameters:
Configuration:	Battered face wall (4 DEG.)	Soil Type
Maximum Exposed Wall Height / Minimum Allowable Bearing Pressure (psf):	9'-0" / 2,000	Minimum Friction Angle
Backslope Angle:	Varies (10H:1V maximum)	Unit Weight (pcf)
Toe Slope Angle:	Varies (10H:1V maximum)	Reinforced fill (94, 96, or more grades)
Wall Embedment:	Varies (12 inches minimum) (See Profile)	Retained soils
		Foundation soils
		28
		120
		28
		120

OWNER / DEVELOPER
9190 LLC
508 OLNEY-SANDY SPRING ROAD
SUITE 200
SANDY SPRING, MARYLAND 20860
(301) 924-5258
C/O NICHOLS CONTRACTING, INC.
FRED NICHOLS, PRESIDENT



Fence/Guardrail Section Detail
Compac Unit - Near Vertical Setback



AS-BUILT CERTIFICATION FOR PSWM
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREAS IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
P.E. NAME: 16193 DATE: 3-30-23

NO AS-BUILT INFORMATION ON THIS SHEET

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
4-22-21
DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION
5-3-21
DATE
CHIEF, DIVISION OF LAND DEVELOPMENT
5-3-21
DATE
DIRECTOR

SITE DEVELOPMENT PLAN
RETAINING WALL
DETAILS AND SECTIONS
OAKLAND RIDGE INDUSTRIAL PARK - SECTION 1, LOT 2
WAREHOUSE AND OFFICE
TAX MAP 30 BLOCK 17
2ND ELECTION DISTRICT
9188 & 9190 RED BRANCH ROAD
LOT 2 / PARCEL 239
ZONED: NT
HOWARD COUNTY, MARYLAND
FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881
9596 Deereco Road
Lutherville-Timonium, Maryland 21093
T 410.825.4131 | F 410.321.7384
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DESIGN BY: DMA
DRAWN BY: DMA
CHECKED BY: HMA
DATE: FEB 2021
SCALE: AS SHOWN
W.O. NO.: 75Y0111
21 SHEET OF 21