

Cap # C-0366

RECEIVED

PERMIT NUMBER: B 22004178

DATE ACCEPTED:

NOV 08 2022

COMMERCIAL BUILDING PERMIT APPLICATION				LICENSES & PERMITS DIVISION	
HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS					
3430 COURT HOUSE DRIVE, ELLICOTT CITY, MD 21043 - PHONE: (410) 313-2455 OPTION #4					
www.howardcountymd.gov					
BUILDING SITE ADDRESS REQUIRED					
Street Address: 2200 Scott Wheeler Dr					Unit:
City: Marriottsville			State: MD	Zip Code: 21104	
Subdivision/Village/Complex Name: James N. Robey Public Safety Training Center				SDP/WP/BA #: SDP-06-110	
Lot: N/A	Tax Map: 0016	Parcel: 0253	Grading Permit #: GP-21-142		
DESCRIPTION OF WORK REQUIRED					
Existing Use: Public Safety Facility		Proposed Use: Public Safety Facility		Estimated Cost: \$1150000	
Trade Work to Be Completed (Separate Permits Required): <input type="checkbox"/> Mechanical (HVACR) <input type="checkbox"/> Electrical <input type="checkbox"/> Plumbing <input checked="" type="checkbox"/> None					
Increasing height of berm by about 30' with a blast wall for additional 11.08' in height. Wall is 127' wide in length with steel post 8' apart and timbers (15H piles)					
PROPERTY OWNER INFORMATION REQUIRED					
Owner(s) Name(s) (As it appears on tax records): Howard County DPW					
Owner's Street Address: 3430 Courthouse Dr					
City: Ellicott City			State: MD	Zip Code: 21043	
Phone: (410) 313-2700			Email: build@howardcountymd.gov		
TENANT INFORMATION REQUIRED					
Business Name: Howard County DPW			Contact Name:		
Street Address: 3430 Courthouse Dr					
City: Ellicott City			State: MD	Zip Code: 21043	
Phone: (410) 313-2700			Email: build@howardcountymd.gov		
APPLICANT NAME REQUIRED - INDIVIDUAL WHO SIGNS THIS APPLICATION					
Business Name: Howard County DPW			Contact Name: Ehsan Falsafi		
Street Address: 9201 Berger Rd					
City: Columbia			State: MD	Zip Code: 21045	
Phone: (410) 313-5782			Email: efalsafi@howardcountymd.gov		
CONTRACTOR INFORMATION REQUIRED					
Business Name: Triangle Contractig LLC					
Licensee's Name:			License #: 10934390		
Street Address: 313 E. 4th Street					
City: Frederick			State: MD	Zip Code: 21701	
Phone: (301) 676-5090			Email:		
ARCHITECT/ENGINEER INFORMATION REQUIRED - INDIVIDUAL WHO SIGNED PLANS					
Business Name: RK&K			Name: Charles Mitchell		
Street Address: 700 East Pratt Street, suite 200					
City: Baltimore			State: MD	Zip Code: 21202	
Phone: (410) 728-2900			Email: cmitchell@rkk.com		
BUILDING CHARACTERISTICS (PLEASE SELECT/COMPLETE ALL THAT APPLY)					
Utilities: <input type="checkbox"/> Electric <input type="checkbox"/> Gas		Water Supply: <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private (Well)		Sewage Disposal: <input type="checkbox"/> Public <input checked="" type="checkbox"/> Private (Septic)	
Heating System: <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas <input type="checkbox"/> Propane <input type="checkbox"/> Other:			Roadside Tree Project: <input type="checkbox"/> No <input type="checkbox"/> Yes: #		
Sprinkler System: <input type="checkbox"/> NFPA 13 <input type="checkbox"/> NFPA 13R <input type="checkbox"/> None		Fire Alarm System: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Voice Evac			
ADDITIONAL COMMERCIAL INFORMATION (PLEASE SELECT/COMPLETE ALL THAT APPLY)					
Area of Construction: 70,000 sq ft		Gross Area: sq ft		Height: ft # of Stories:	
Construction Classification(s): Grading and ballistic wall			Use Group:		
Was the tenant space previously occupied? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Shell Building Permit # (for interior completions):		
ADDITIONAL MULTI-FAMILY INFORMATION IF APPLICABLE					
# of efficiency units (MF):		# of 1 BR (MF):		# of 2 BR (MF):	
# of 3 BR (MF):		Gross Area: sq ft		Occupiable Area: sq ft	
Energy Method: <input type="checkbox"/> Performance <input type="checkbox"/> UA Alternative <input type="checkbox"/> ERI <input type="checkbox"/> A 90.1					
AGREEMENT/DISCLAIMER REQUIRED					
THE UNDERSIGNED HEREBY CERTIFIES AND AGREES AS FOLLOWS: (1) THAT HE/SHE IS AUTHORIZED TO MAKE THIS APPLICATION; (2) THAT THE INFORMATION IS CORRECT; (3) THAT HE/SHE WILL COMPLY WITH ALL REGULATIONS OF HOWARD COUNTY WHICH ARE APPLICABLE THERETO; (4) THAT HE/SHE WILL PERFORM NO WORK ON THE ABOVE REFERENCED PROPERTY NOT SPECIFICALLY DESCRIBED IN THIS APPLICATION; (5) THAT HE/SHE GRANTS COUNTY OFFICIALS THE RIGHT TO ENTER ONTO THIS PROPERTY FOR THE PURPOSE OF INSPECTING THE WORK PERMITTED AND POSTING NOTICES					
APPLICANT'S ORIGINAL SIGNATURE			DATE SIGNED: 11/8/22		
FOR OFFICE USE ONLY					
CHECKS PAYABLE TO: DIRECTOR OF FINANCE OF HOWARD COUNTY					
AGENCIES REQUIRED/APPROVALS:					
<input type="checkbox"/> PR	<input type="checkbox"/> DPZ	<input type="checkbox"/> DED	<input type="checkbox"/> Health	<input type="checkbox"/> SHA	<input type="checkbox"/> CID
SUBMITTAL FEES:		PAYMENT:		ACCEPTED BY:	

JAMES N. ROBEY PUBLIC SAFETY TRAINING CENTER

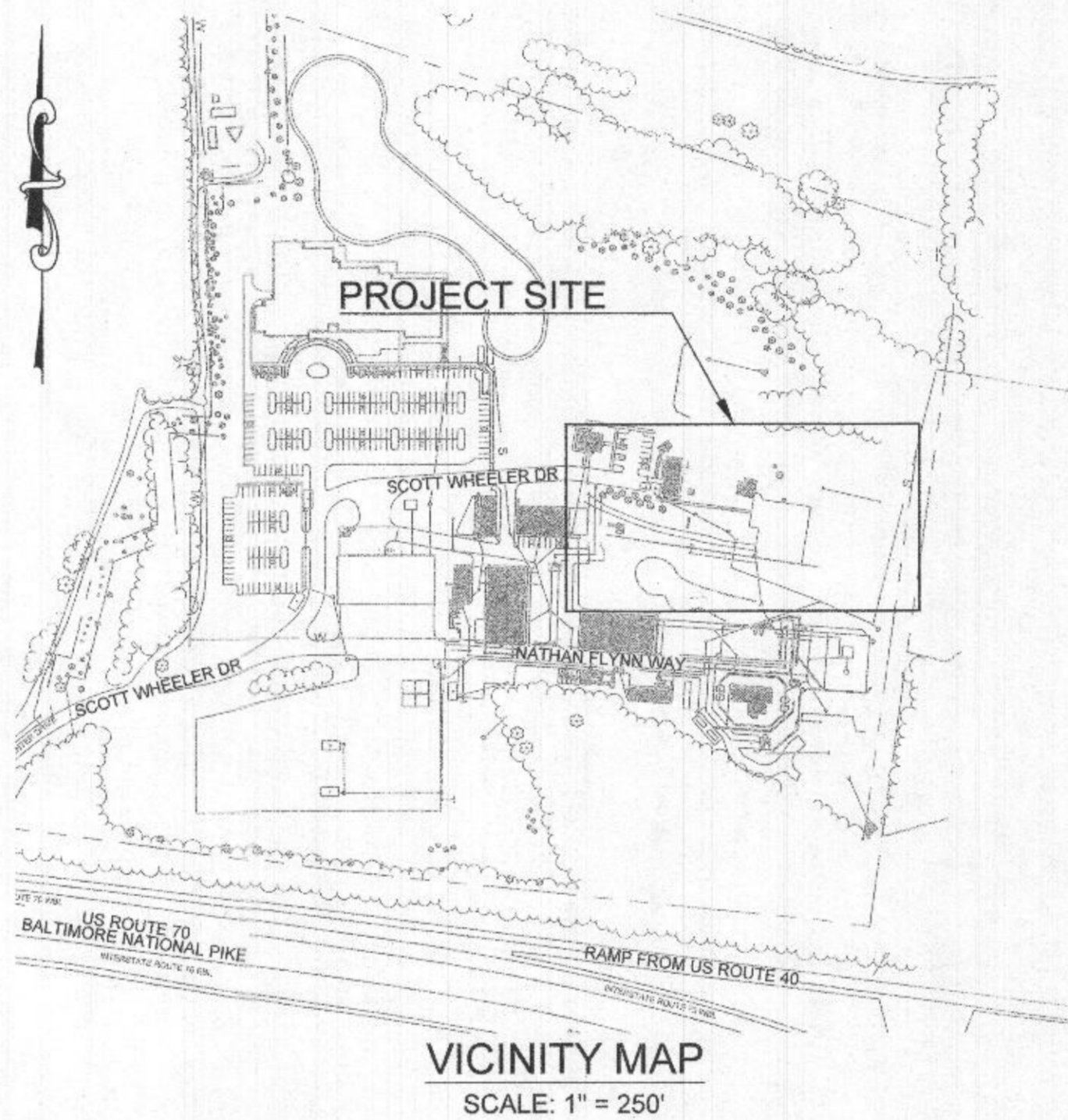
FIRING RANGE SAFETY IMPROVEMENTS

MARRIOTTVILLE, MARYLAND
 HOWARD COUNTY
 DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT NO. C-0182 / C-0366
 CONTRACT NO. _____

INDEX OF DRAWINGS

Sheet Number	Sheet Title	Sheet Description
71	G-000	Cover Sheet
72	C-101	Existing Conditions & Demolition Plan
73	C-201	Site, Grading, Stormwater & Utility Plan
74	C-230	Site Grading Sections & Wall Details I
75	C-231	Site Grading Sections & Wall Details II
76	C-300	Erosion & Sediment Control Notes
77	C-301	Erosion & Sediment Control (Phase I)
78	C-302	Erosion & Sediment Control (Phase II)
79	C-350	Erosion & Sediment Control Details I
80	C-351	Erosion & Sediment Control Details II
81	C-352	Erosion & Sediment Control Details III



GENERAL NOTES:

- THE TOPOGRAPHIC INFORMATION SHOWN HEREON WAS PROVIDED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS IN SEPTEMBER 2020 & OCTOBER 2020. THIS INFORMATION MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS/HER OWN SATISFACTION.
- COORDINATES, BEARINGS AND DISTANCES SHOWN HEREON ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD'83/2011). ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NAVD'88 DATUM.
- FOR DETAILS NOT SHOWN ON THE DRAWING OR DESCRIBED IN THE CONTRACT DOCUMENTS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON SITE.
- IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY OR GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF THE EXISTING CONDITION INFORMATION. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER PRIOR TO THE START OF ANY WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY AT 1-800-257-7777 FIVE DAYS PRIOR TO THE START OF ANY EXCAVATION WORK. CONTRACTOR SHALL RECEIVE CLEARANCE FROM MISS UTILITY PRIOR TO THE START OF WORK.

- IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL SITE SUB-CONTRACTORS/BIDDERS WITH FULL AND COMPLETE SETS OF ALL DRAWINGS FOR THEIR USE IN PREPARING BIDS. THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR ANY AND ALL DELAYS AND COSTS ARISING DURING CONSTRUCTION FROM BIDS BASED UPON INCOMPLETE SETS OF SITE DOCUMENTS.
- ALL EXISTING FEATURES OUTSIDE OF THE LIMIT OF DISTURBANCE (LOD) ARE TO REMAIN, UNLESS OTHERWISE NOTED. ITEMS OUTSIDE THESE LIMITS THAT ARE DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE RETURNED TO PRE-DEMOLITION CONDITIONS OR REPLACED IN-KIND AT NO ADDITIONAL COST TO THE OWNER.
- EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR AND ARE NOT WARRANTED OR GUARANTEED BY THE OWNER OR THE ENGINEER TO BE COMPLETE OR CORRECT. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS OWN SATISFACTION.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY INVERTS AND CLEARANCES FROM NEW WORK PRIOR TO START OF ANY WORK.
- THE CONTRACTOR SHALL MAINTAIN, REPAIR, AND/OR REPLACE ANY EXISTING SEDIMENT CONTROL DEVICES ENCOUNTERED AND DISTURBED DURING THE COURSE OF CONSTRUCTION AT THE END OF EACH DAY. ALL MEASURES AND DEVICES SHALL BE REPAIRED OR REPLACED BEFORE LEAVING THE WORK SITE.
- ALL UTILITIES SHOWN ARE EXISTING TO REMAIN, UNLESS OTHERWISE NOTED. THE TOPS OF ALL FRAMES, GRATES, AND COVERS OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONTRACT AND/OR

- DISTURBANCE SHALL BE ADJUSTED TO THE NEW GRADES.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE HOWARD COUNTY, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS AND HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS.
- THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS.
- UNLESS OTHERWISE NOTED, DIMENSIONS FROM CURB ARE MEASURED AT FACE OF CURB.
- FINISHED GRADES SHALL FALL AWAY FROM EXISTING AND PROPOSED BUILDINGS AT A MINIMUM OF 4% FOR VEGETATED AREAS, A MINIMUM OF 1% FOR CONCRETE SURFACES, AND A MINIMUM OF 3% FOR BITUMINOUS SURFACES UNLESS OTHERWISE INDICATED.
- ALL DISTURBED AREAS NOT STABILIZED WITH STRUCTURES, PAVING, AND/OR PLANTINGS SHALL BE STABILIZED WITH FOUR INCHES OF TOPSOIL, SEED, MULCH AND WATERED TO ESTABLISH AN ADEQUATE GROWTH OF GRASS AS SPECIFIED ON THE EROSION AND SEDIMENT CONTROL NOTES. SLOPES STEEPER THAN 2:1 SHALL RECEIVE TWO INCHES OF TOPSOIL, SEED AND STABILIZATION MATTING.
- NUMERICAL DIMENSIONS AND ELEVATIONS SHOWN SHALL SUPERSEDE ANY DISCREPANCY IN SCALING ON THE DRAWINGS.
- LIMIT OF DISTURBANCE AS SHOWN ON ALL DRAWINGS IS APPROXIMATE AND SHALL NOT PREVENT THE CONTRACTOR FROM EXTENDING BEYOND THESE LIMITS FOR COMPLETE INSTALLATION OF PROJECT ELEMENTS.

- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL EXISTING AND PROPOSED BUILDING ENTRANCES DURING ALL PHASES OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER / OWNER IF EXISTING OR PROPOSED CONDITIONS RESTRICT ABILITY TO ACHIEVE POSITIVE DRAINAGE FROM BUILDINGS PRIOR TO THE START OF CONSTRUCTION.
- ALL CUTS OF EXISTING PAVEMENT SHALL BE NEAT AND IN A STRAIGHT LINE TO FACILITATE NEW PAVING. CONCRETE SAW CUTS SHALL BE AT THE NEAREST JOINT. PROPOSED CONCRETE SIDEWALK TO MEET EXISTING CONCRETE SIDEWALK AT NEAREST EXISTING CONSTRUCTION JOINT, BRICK OR ASPHALT.
- THE CONTRACTOR MUST MAINTAIN EMERGENCY ACCESS TO ALL BUILDINGS WITHIN AND ADJACENT TO THE CONSTRUCTION SITE.
- FOR EROSION SEDIMENT CONTROL & GEOTECHNICAL NOTES SEE SHEET C-300.
- SPOT ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL ADJUST AS NEEDED TO MEET THE DESIGN INTENT.
- CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313 - 1880 AT LEAST FIVE WORKING DAYS PRIOR TO START OF WORK.

CONTRACTOR NOTE:

CONTRACTORS BASE BID SHALL ASSUME HOWARD COUNTY WILL FURNISH 19,700 BCY OF MATERIAL WHICH THE CONTRACTOR WILL NEED TO LOAD, HAUL AND PLACE, ENSURING IT MEETS THE REQUIRED SOIL PROPERTIES. THE MATERIAL IS LOCATED AT THE ALPHA RIDGE LANDFILL 2350 MARRIOTTVILLE ROAD, MARRIOTTVILLE, MD 21104

ADD-ALTERNATE NO. 1:

CONTRACTOR SHALL FURNISH AND PLACE 19,700 BCY OF SOIL WHICH MEETS THE GEOTECHNICAL REQUIREMENTS OF THE PROJECT. SEE SHEET C-300 FOR GEOTECHNICAL NOTES

ADD-ALTERNATE NO. 2:

THE INTENT OF THE PROJECT IS TO LEAVE THE EXISTING SLAB ON-SITE UNDAMAGED AT THE END OF CONSTRUCTION. HOWEVER, SHOULD HOWARD COUNTY DETERMINE REPLACEMENT IS REQUIRED, CONTRACTOR SHALL REMOVE AND REPLACE THE CONCRETE SLAB ON-SITE (APPROXIMATELY 8,700 SF OF CONCRETE REPLACEMENT AND REMOVAL).

ADD-ALTERNATE NO. 3:

CONTAMINATED SOIL TREATMENT (ALTERNATIVE 3) - SOURCE REMOVAL - SOIL EXCAVATION AND DISPOSAL OF UNTREATED SOIL. SEE SOIL TREATMENT DOCUMENTS PREPARED, APRIL 2021 BY EA ENGINEERING FOR DETAILS.

ADD-ALTERNATE NO. 4:

CONTAMINATED SOIL TREATMENT (ALTERNATIVE 4) - SOURCE REMOVAL - SOIL EXCAVATION, STABILIZATION AND DISPOSAL OF TREATED SOIL. SEE SOIL TREATMENT DOCUMENTS PREPARED, APRIL 2021 BY EA ENGINEERING FOR DETAILS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
 Date: 1/25/22
 Chief, Division of Land Development
 Date: 2/3/22
 Director



PROFESSIONAL CERTIFICATION
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, MATTHEW THOMASSON LICENSE NO. 41799, EXPIRATION DATE: APRIL 12, 2022.



DESIGN BY:	CWMM / ZWB	RK&K	1	FIRING RANGE BERM RE-GRADING	
DRAWN BY:	ZWB				
CHECKED BY:	MBT				
DATE:	12/17/2021	BY	NO.	REVISION	DATE

OWNER/DEVELOPER
 HOWARD COUNTY
 DEPARTMENT OF PUBLIC WORKS
 3430 COURT HOUSE DRIVE
 ELLICOTT CITY, MD 21043-4300

COVER SHEET
 HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
 PUBLIC SAFETY TRAINING CENTER
 RANGE IMPROVEMENTS
 2300 SCOTT WHEELER DRIVE, MARRIOTTVILLE, MD 21104
 TAX MAP: 0016 PARCEL: 0253 GRID: 0008 ZONED: EXEMPT
 ELECTION DISTRICT 2 - HOWARD COUNTY, MARYLAND
 SHEET 71 OF 81

G-000
 RK&K PROJECT NUMBER
 17240.015
 SCALE:
 As Shown

GENERAL NOTES

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- THIS SURVEY WAS PROVIDED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
- SEE SHEET G-000 FOR GENERAL NOTES.
- SEE SHEET C-300 FOR GEOTECHNICAL NOTES.

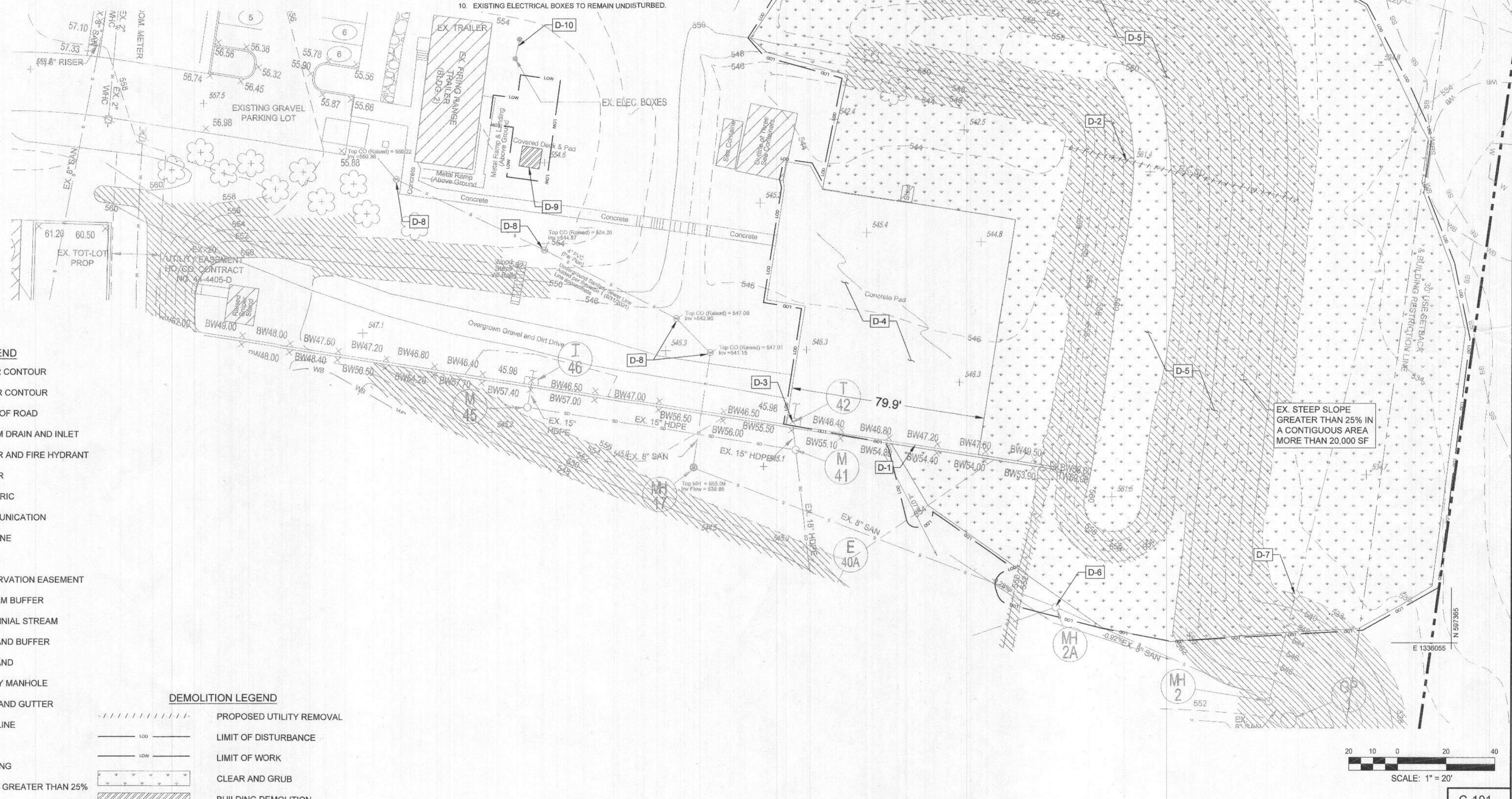
DEMOLITION NOTES

- CONTRACTOR TO REMOVE ALL EXISTING RIP-RAP, GRAVEL, DEBRIS, TREES, BRUSH, FENCES, POSTS, AND GABION BASKETS/STONE WITHIN THE LOD TO FACILITATE THE WORK TO BE COMPLETED. CONTRACTOR SHALL SALVAGE MATERIALS WHICH MAY BE RE-USED AND USE THEM ON SITE SUCH AS GABION STONE AND RIP-RAP.
- UTILITIES MARKED FOR DEMOLITION WILL BE REMOVED. SEE PROJECT SPECIFICATIONS FOR UTILITY ABANDONMENT DISPOSITION.
- SEE SHEET C-201 FOR ADDITIONAL INFORMATION.

DEMOLITION KEY NOTES

KEY D-1

- EXISTING RETAINING WALL TO REMAIN UNDISTURBED.
- EXISTING STORM DRAIN TO BE ABANDONED IN PLACE OR REMOVED. IF ABANDONED, CLOSE BULKHEAD WITH MIX NO. 2 CONCRETE OR BRICK MASONRY. FILL PIPE WITH FLOWABLE BACKFILL PER SECTION 314.
- EXISTING STORM DRAIN INLET TO REMAIN UNDISTURBED.
- EXISTING CONCRETE SLAB. ADD ALTERNATE NO. 2 - REMOVE EXISTING SLAB AND PREPARE SUB-GRADE FOR NEW SLAB
- CLEAR AND GRUB
- EXISTING SANITARY MANHOLE TO REMAIN UNDISTURBED.
- EXISTING SANITARY MANHOLE TO REMAIN, ADJUST TO FINISHED GRADE.
- PROTECT CLEANOUTS DURING CONSTRUCTION.
- DEMOLISH COVERED DECK & FULL DEPTH CONCRETE PAD.
- EXISTING ELECTRICAL BOXES TO REMAIN UNDISTURBED.

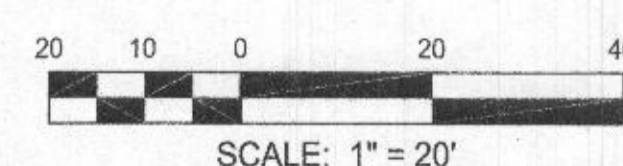


EXISTING CONDITIONS LEGEND

- 456 --- EXISTING MINOR CONTOUR
- 455 --- EXISTING MAJOR CONTOUR
- EXISTING EDGE OF ROAD
- EXISTING STORM DRAIN AND INLET
- EXISTING WATER AND FIRE HYDRANT
- EXISTING SEWER
- EXISTING ELECTRIC
- EXISTING COMMUNICATION
- EXISTING GAS LINE
- PROPERTY LINE
- L23 --- FOREST CONSERVATION EASEMENT
- SB --- EXISTING STREAM BUFFER
- EXISTING PERENNIAL STREAM
- WB --- EXISTING WETLAND BUFFER
- W --- EXISTING WETLAND
- (U) (C) (E) --- EXISTING UTILITY MANHOLE
- EXISTING CURB AND GUTTER
- EXISTING TREE LINE
- EXISTING DRIVE
- EXISTING BUILDING
- EXISTING SLOPE GREATER THAN 25%

DEMOLITION LEGEND

- PROPOSED UTILITY REMOVAL
- LIMIT OF DISTURBANCE
- LIMIT OF WORK
- CLEAR AND GRUB
- BUILDING DEMOLITION



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Date: 12/22
 Chief, Division of Land Development
 Date: 2/3/22
 Director



PROFESSIONAL CERTIFICATION
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, MATTHEW THOMASSON, LICENSE NO. 41799, EXPIRATION DATE: APRIL 12, 2022.



DESIGN BY: CWWM / ZWB
 DRAWN BY: ZWB
 CHECKED BY: MBT
 DATE: 12/17/2021

BY	NO.	REVISION	DATE
RK&K	1	FIRING RANGE BERM RE-GRADING	

OWNER/DEVELOPER
 HOWARD COUNTY
 DEPARTMENT OF PUBLIC WORKS
 3430 COURT HOUSE DRIVE
 ELLICOTT CITY, MD 21043-4300

EXISTING CONDITIONS & DEMOLITION PLAN
 HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
 PUBLIC SAFETY TRAINING CENTER
 RANGE IMPROVEMENTS
 2200 SCOTT WHEELER DRIVE, MARIOTTVILLE, MD 21104
 TAX MAP: 0016, PARCEL: 0253, GRID: 0008, ZONED: EXEMPT
 ELECTION DISTRICT 3 - HOWARD COUNTY, MARYLAND
 SHEET 72 OF 81

C-101
 RK&K PROJECT NUMBER 17240.015
 SCALE: 1" = 20'
 RECEIVED NOV 08 2022
 LICENSES & PERMITS DIVISION

GENERAL NOTES

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- THIS SURVEY WAS PROVIDED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
- SEE SHEET G-000 FOR GENERAL NOTES.
- SEE SHEET C-300 FOR GEOTECHNICAL NOTES.

SITE & UTILITY PLAN LEGEND

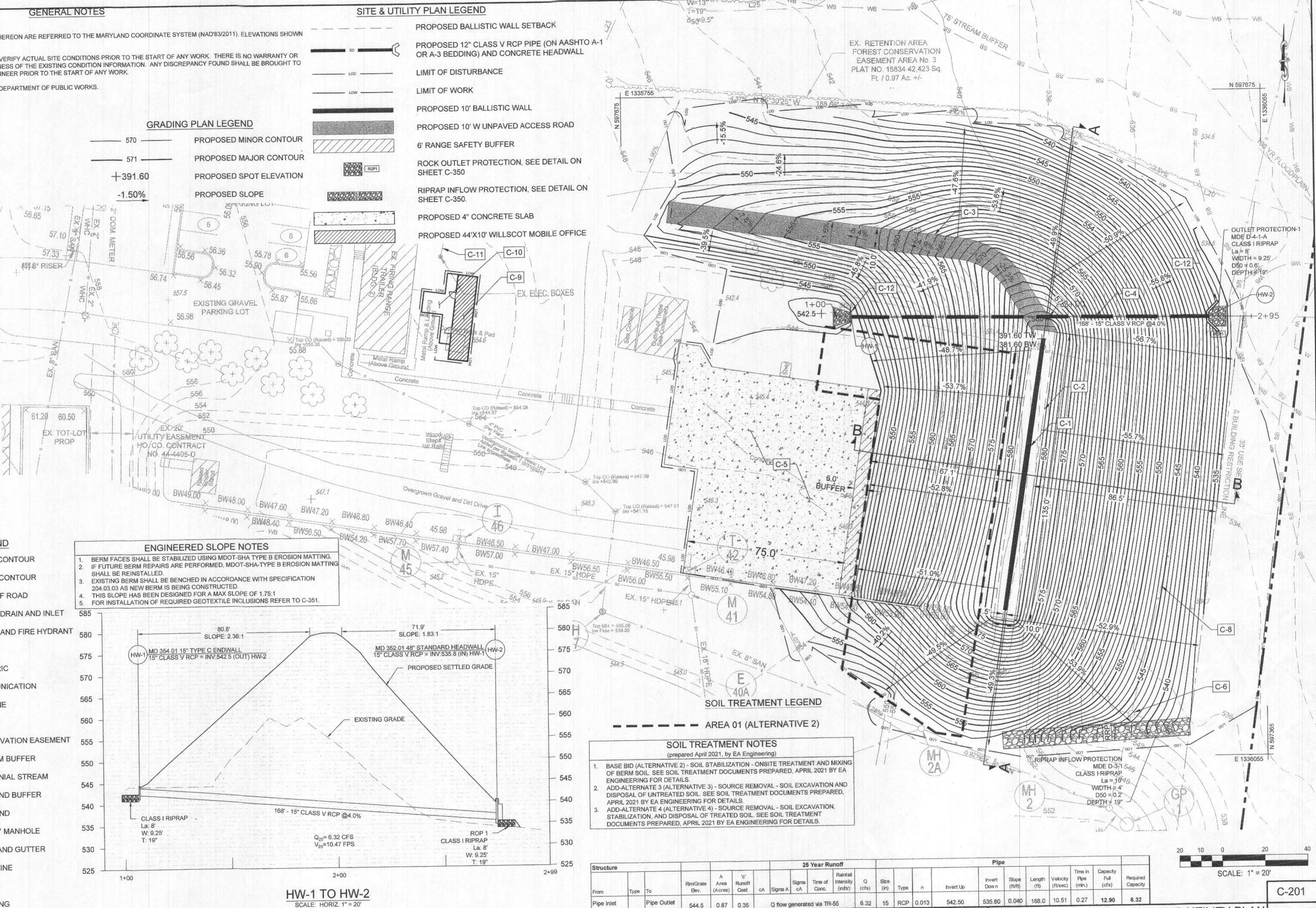
- PROPOSED BALLISTIC WALL SETBACK
- PROPOSED 12" CLASS V RCP PIPE (ON AASHTO A-1 OR A-3 BEDDING) AND CONCRETE HEADWALL
- LIMIT OF DISTURBANCE
- LIMIT OF WORK
- PROPOSED 10' BALLISTIC WALL
- PROPOSED 10' W UNPAVED ACCESS ROAD
- 6' RANGE SAFETY BUFFER
- ROCK OUTLET PROTECTION, SEE DETAIL ON SHEET C-350
- RIPRAP INFLOW PROTECTION, SEE DETAIL ON SHEET C-350
- PROPOSED 4" CONCRETE SLAB
- PROPOSED 44'X10' WILLSCOT MOBILE OFFICE

GRADING PLAN LEGEND

- 570 PROPOSED MINOR CONTOUR
- 571 PROPOSED MAJOR CONTOUR
- +391.60 PROPOSED SPOT ELEVATION
- 1.50% PROPOSED SLOPE

SITE & UTILITY KEY NOTES

- PROPOSED 10' BALLISTIC FREESTANDING WALL.
- PROPOSED MIN. 4' SETBACK & GRADING LANDING FOR WALL @ 2.0% MAX SLOPE.
- UNPAVED ACCESS ROAD. SEE SHEET C-301 FOR GRADING DETAILS.
- PROPOSED STORM DRAIN PIPE & CONCRETE HEADWALLS. SEE THIS SHEET FOR PROFILE DETAILS.
- PROPOSED 4" CONCRETE. REFER TO HOWARD COUNTY DETAIL R-3.05 AND SEE NOTE ON SHEET G-000 FOR ADD ALTERNATE NO.2.
- EXISTING SANITARY MANHOLE TO BE ADJUSTED TO FINISHED GRADE.
- NOT USED.
- EX. CLASS 52 DUCTILE IRON SANITARY SEWER PIPE, WITH TYPE 5 BEDDING (NO. 57 STONE) PER AS-BUILT DRAWINGS DATED 9/15/10 WILL HAVE 13% OF COVER AT THE COMPLETION OF CONSTRUCTION. THIS IS LESS THAN THE MAXIMUM COVER OF 32 FEET FOR THIS CLASS D.I.P. AND BEDDING TYPE.
- PROPOSED 44'X10' WILLSCOT MOBILE OFFICE.
- PROPOSED WOOD DECK.
- EXISTING ELECTRICAL BOXES TO REMAIN UNDISTURBED.
- PROPOSED HEADWALLS SEE SHEET C-350 & C-351 FOR DETAILS.

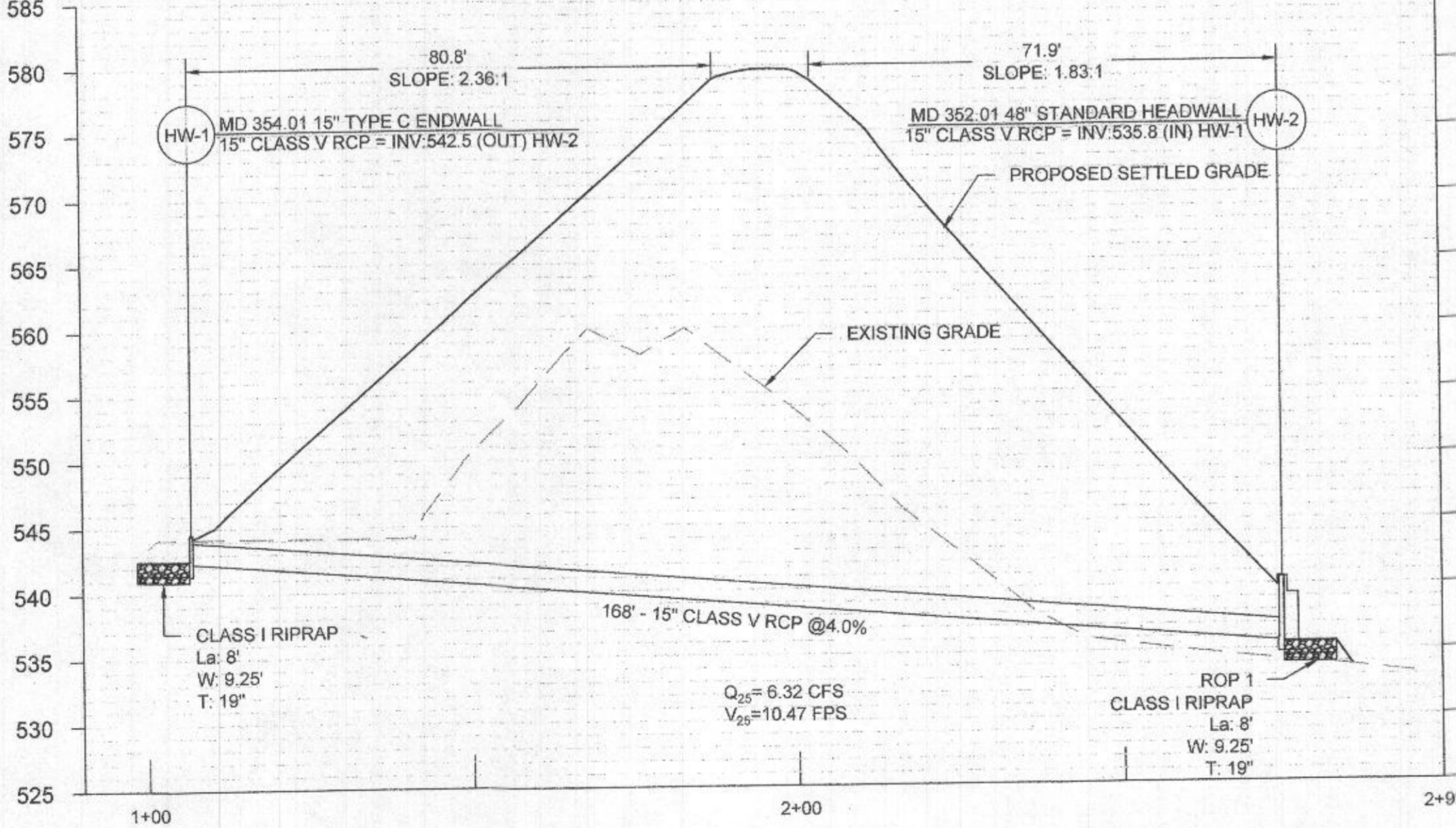


EXISTING CONDITIONS LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING EDGE OF ROAD
- EXISTING STORM DRAIN AND INLET
- EXISTING WATER AND FIRE HYDRANT
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- PROPERTY LINE
- FOREST CONSERVATION EASEMENT
- EXISTING STREAM BUFFER
- EXISTING PERENNIAL STREAM
- EXISTING WETLAND BUFFER
- EXISTING WETLAND
- EXISTING UTILITY MANHOLE
- EXISTING CURB AND GUTTER
- EXISTING TREE LINE
- EXISTING DRIVE
- EXISTING BUILDING

ENGINEERED SLOPE NOTES

- BERM FACES SHALL BE STABILIZED USING MDOT-SHA-TYPE B EROSION MATTING.
- IF FUTURE BERM REPAIRS ARE PERFORMED, MDOT-SHA-TYPE B EROSION MATTING SHALL BE REINSTALLED.
- EXISTING BERM SHALL BE BENCHED IN ACCORDANCE WITH SPECIFICATION 204.03.03 AS NEW BERM IS BEING CONSTRUCTED.
- THIS SLOPE HAS BEEN DESIGNED FOR A MAX SLOPE OF 1.75:1
- FOR INSTALLATION OF REQUIRED GEOTEXTILE INCLUSIONS REFER TO C-351.



HW-1 TO HW-2
SCALE: HORIZ 1" = 20'
VERT. 1" = 10'

SOIL TREATMENT LEGEND

- AREA 01 (ALTERNATIVE 2)
- SOIL TREATMENT NOTES
(prepared April 2021, by EA Engineering)

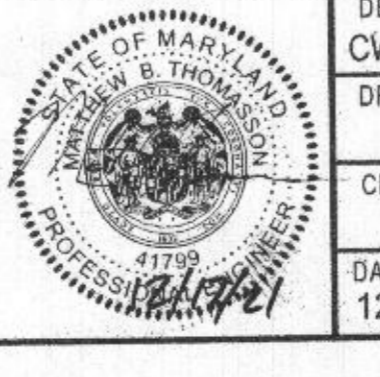
 - BASE BID (ALTERNATIVE 2) - SOIL STABILIZATION - ONSITE TREATMENT AND MIXING OF BERM SOIL. SEE SOIL TREATMENT DOCUMENTS PREPARED, APRIL 2021 BY EA ENGINEERING FOR DETAILS.
 - ADD-ALTERNATE 3 (ALTERNATIVE 3) - SOURCE REMOVAL - SOIL EXCAVATION AND DISPOSAL OF UNTREATED SOIL. SEE SOIL TREATMENT DOCUMENTS PREPARED, APRIL 2021 BY EA ENGINEERING FOR DETAILS.
 - ADD-ALTERNATE 4 (ALTERNATIVE 4) - SOURCE REMOVAL - SOIL EXCAVATION, STABILIZATION, AND DISPOSAL OF TREATED SOIL. SEE SOIL TREATMENT DOCUMENTS PREPARED, APRIL 2021 BY EA ENGINEERING FOR DETAILS.

Structure		25 Year Runoff										Pipe											
From	Type	To	Rm/Grate Elev.	A Area (Acres)	W' Runoff Coef.	cA	Sigma A	Sigma cA	Time of Conc.	Rainfall Intensity (in/hr)	Q (cfs)	Size (in)	Type	n	Invert Up	Invert Down	Slope (ft/ft)	Length (ft)	Velocity (ft/sec)	Time in Pipe (min)	Capacity Full (cfs)	Required Capacity	
Pipe Inlet		Pipe Outlet	544.5	0.87	0.35					Q flow generated via TR-55	6.32	15	RCP	0.013	542.50	535.80	0.040	188.0	10.51	0.27	12.90	6.32	

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 ENGINEERS/CONSTRUCTION MANAGERS/PLANNERS/SCIENTISTS
 RESPONSIBLE FOR CIVIL/CREATIVE SOLUTIONS
 700 East Pratt Street, Suite 500
 Baltimore, MD 21202
 Ph: 410.728.2900 Contact: John D'Esposito
 www.rk&k.com

PROFESSIONAL CERTIFICATION
 PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. MATTHEW THOMASSON
 LICENSE NO. 41759
 EXPIRATION DATE: APRIL 12, 2022.



DESIGN BY: CWMM / ZWB
 DRAWN BY: ZWB
 CHECKED BY: MBT
 DATE: 12/17/2021

BY	NO.	REVISION	DATE
		FIRING RANGE BERM RE-GRADING	

OWNER/DEVELOPER
 HOWARD COUNTY
 DEPARTMENT OF PUBLIC WORKS
 3430 COURT HOUSE DRIVE
 ELLICOTT CITY, MD 21043-4300

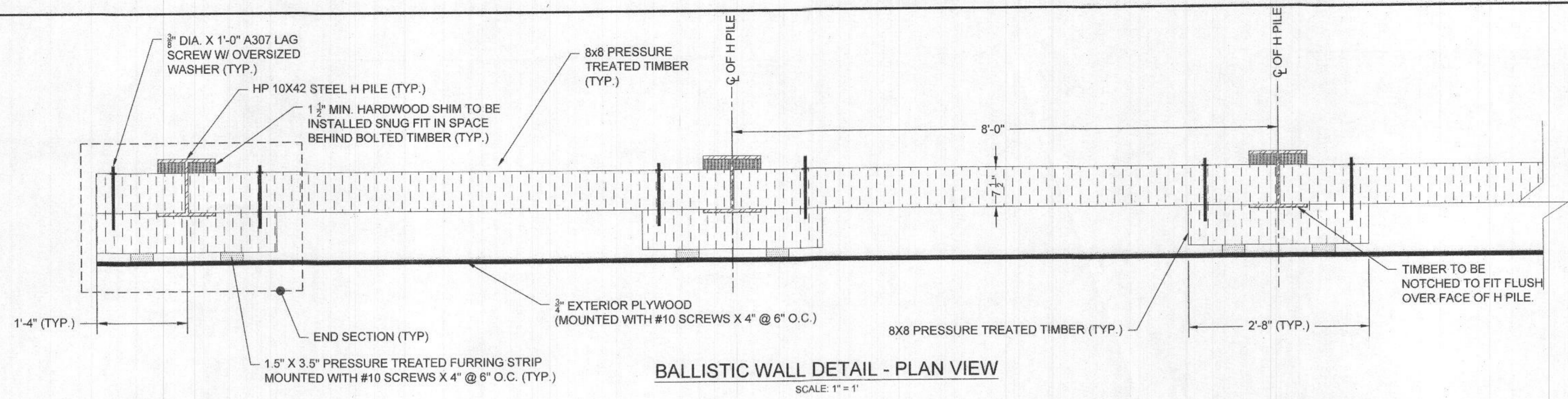
SITE, GRADING, STORMWATER & UTILITY PLAN
 HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
 PUBLIC SAFETY TRAINING CENTER
 RANGE IMPROVEMENTS
 2200 SCOTT WHEELER DRIVE, MARRIOTTVILLE, MD 21104
 TAX MAP: 0016 PARCEL: 0253 GRID: 0008 ZONED: EXEMPT
 ELECTION DISTRICT 3 - HOWARD COUNTY, MARYLAND
 SHEET 73 OF 81

RECEIVED
 NOV 08 2022
 LICENSES & PERMITS
 SCALE: 1" = 20'
 SDP-96-110 / GP-21-142

I:\2021\12-21-1-96-96-DDS\271-12-21-1-96-96-DDS.dwg
 271-12-21-1-96-96-DDS.dwg
 2/1/22
 2/3/22
 1/2/22

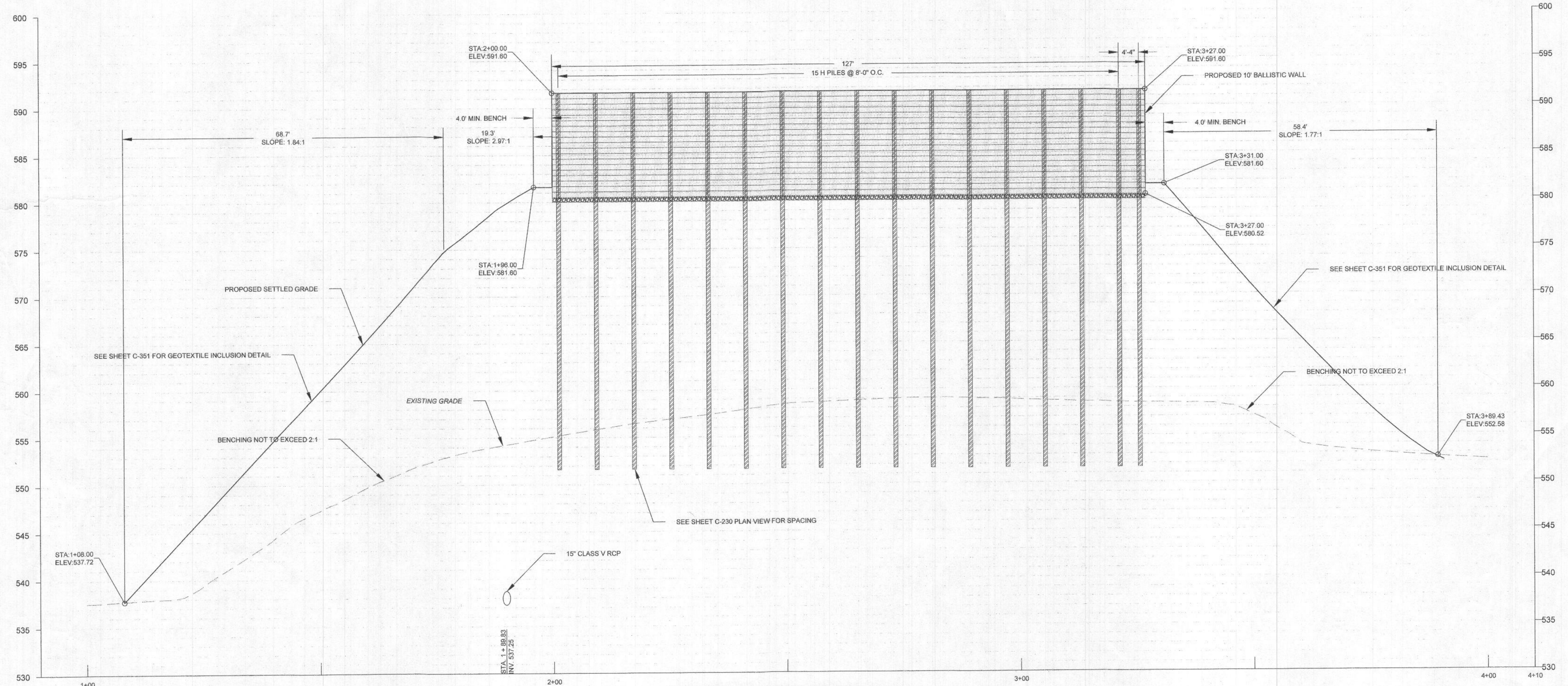
SITE SECTION N-S LEGEND

- STEEL H PILE
- PRESSURE TREATED TIMBER
- 6" COMPACTED GRADED AGGREGATE BASE



GENERAL NOTES

- SEE SHEET G-000 FOR GENERAL NOTES.
- SEE SHEET C-300 FOR GEOTECHNICAL NOTES.



SITE SECTION NORTH TO SOUTH A-A

SCALE: HORIZ 1" = 10'
VERT. 1" = 5'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
Date: 1/6/22

Chief, Division of Land Development
Date: 2/3/22

Director
Date: 2/3/22

RK&K
RUMMEL, KLEPPER & KAHL, LLP
ENGINEERING, ARCHITECTURE, INTERIOR DESIGN, ENVIRONMENTAL SCIENTISTS
700 East Pratt Street, Suite 500
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DESIGN BY:	CWWM / ZWB	RK&K	1	FIRING RANGE BERM RE-GRADING
DRAWN BY:	ZWB			
CHECKED BY:	MBT			
DATE:	12/17/2021			
BY	NO.	REVISION	DATE	

OWNER/DEVELOPER

HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS

3430 COURT HOUSE DRIVE
ELLCOTT CITY, MD 21043-4300

SITE GRADING SECTIONS & WALL DETAILS I

HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
PUBLIC SAFETY TRAINING CENTER

RANGE IMPROVEMENTS

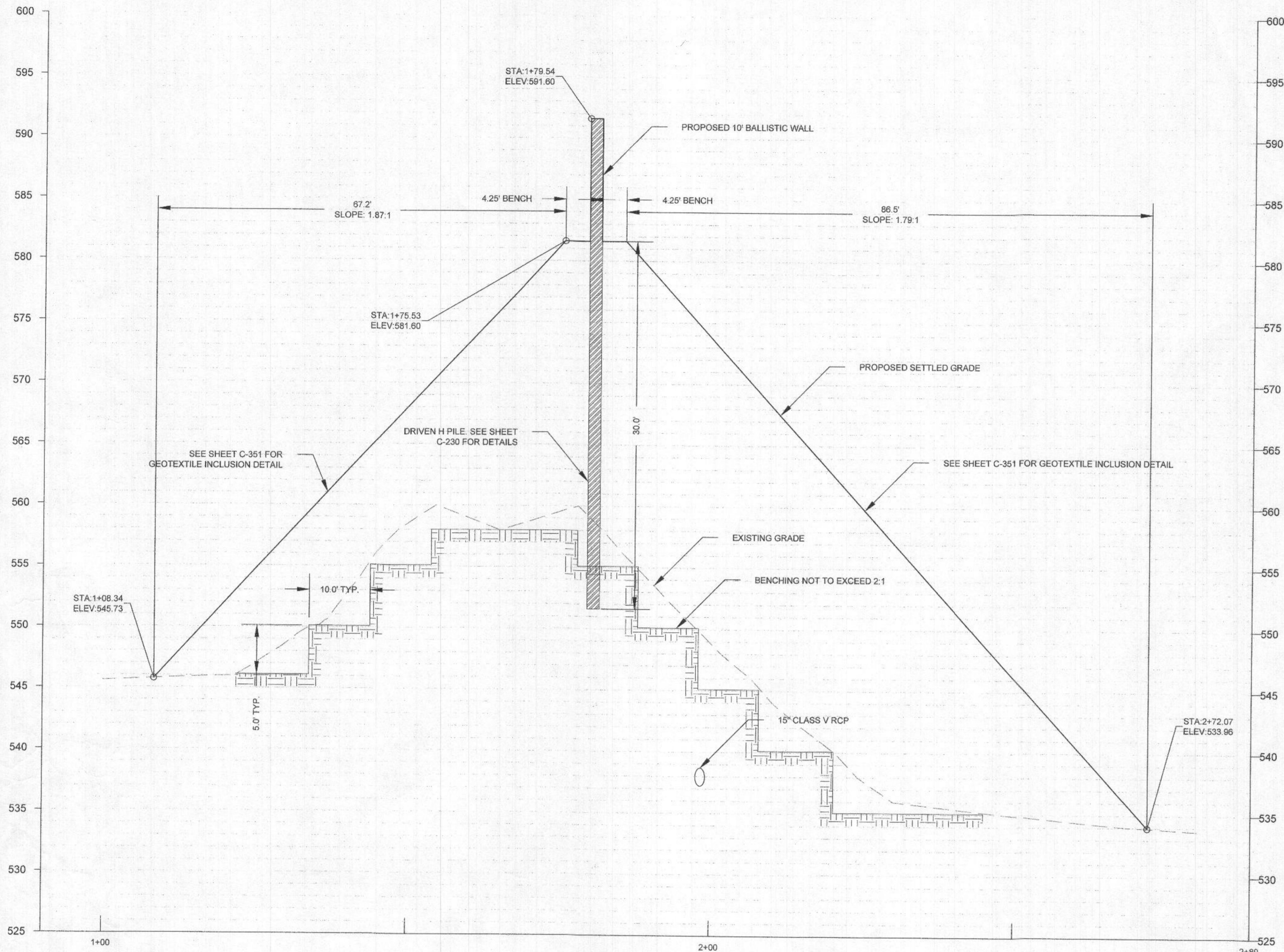
2200 SCOTT WHEELER DRIVE, MARRIOTTSTVILLE, MD 21104
TAX MAP: 0016 PARCEL: 0253 GRID: 0008 ZONED: EXEMPT
ELECTION DISTRICT 3 - HOWARD COUNTY, MARYLAND
SHEET 74 OF 81

C-230

RK&K PROJECT NUMBER
17240.015

SCALE:

NOV 08 2022
LICENSES & PERMITS
DIVISION



- GENERAL NOTES**
1. SEE SHEET G-000 FOR GENERAL NOTES.
 2. SEE SHEET C-300 FOR GEOTECHNICAL NOTES.

SITE SECTION WEST TO EAST B-B
 SCALE: HORIZ 1" = 10'
 VERT. 1" = 5'

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Date: 1/25/22
 Chief, Division of Land Development
 Date: 2/3/22
 Director
 Date: 2/3/22

RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 ENGINEERS, ARCHITECTS, PLANNERS, DESIGNERS
 RESPONSIVE PEOPLE • CREATIVE SOLUTIONS
 700 East Pratt Street, Suite 500
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 P: 410.728.2800 Contact: John DePiglier
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PROFESSIONAL CERTIFICATION
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DRAWN BY:	ZWB			
CHECKED BY:	MBT			
DATE:	12/17/2021			
BY	NO.	REVISION		DATE

OWNER/DEVELOPER
 HOWARD COUNTY
 DEPARTMENT OF PUBLIC WORKS
 3430 COURT HOUSE DRIVE
 ELLICOTT CITY, MD 21043-4300

SITE GRADING SECTIONS & WALL DETAILS II
 HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
 PUBLIC SAFETY TRAINING CENTER
 RANGE IMPROVEMENTS
 2200 SCOTT WHEELER DRIVE, MARRIOTTVILLE, MD 21104
 TAX MAP: 0016 PARCEL: 0253 GRID: 0008 ZONED: EXEMPT
 ELECTION DISTRICT 3 - HOWARD COUNTY, MARYLAND
 SHEET 75 OF 81

C-231
 RK&K PROJECT NUMBER 17240.015
 SCALE:
 RECEIVED NOV 08 2022
 LICENSES & PERMITS DIVISION

HOWARD COUNTY STANDARD SEDIMENT CONTROL NOTES

- 1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS...
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN...
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS...
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE...
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION...
6. SITE ANALYSIS:
*TOTAL AREA OF SITE: 1.63 ACRES
*AREA OF LIMIT OF WORK: 0.02 ACRES
*AREA OF DISTURBANCE: 1.61 ACRES
*AREA TO BE ROOFED OR PAVED: 0.22 ACRES
*AREA TO BE VEGETATIVELY STABILIZED: 1.41 ACRES
*TOTAL CUT: .81 CU. YDS.
*TOTAL FILL: 20.137 CU. YDS.
OFF-SITE WASTE/BORROW AREA LOCATION: ALPHA RIDGE LANDFILL 2350 MARRIOTTSVILLE ROAD, MARRIOTTSVILLE, MARYLAND 21104. REFER TO SDP 97-128 FOR STOCKPILE SITE E&S PLAN
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID, THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT...
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY...
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION...
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME...
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE...
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE...
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 2' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION...
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
* USE I AND II: MARCH 1 - JUNE 15
* USE III AND III: OCTOBER 1 - APRIL 30
* USE IV: MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL ROSSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

MAINTENANCE OF SEDIMENT CONTROL DEVICES

- 1. SCE: SCE MUST BE MAINTAINED IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. THIS MAY REQUIRE ADDING STONE OR A CLEAN SURFACE, THE MOUNTABLE BERM, AND THE SPECIFIED DIMENSIONS. ALL STONE OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY TO REMOVE MUJ TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS THE WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE...
2. SILT FENCE ON PAVEMENT: ACCUMULATED SEDIMENT AND DEBRIS MUST BE REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE OR WHEN SEDIMENT REACHES 25 PERCENT OF THE FENCE HEIGHT...
3. SILT FENCE: ACCUMULATED SEDIMENT AND DEBRIS MUST BE REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE OR WHEN SEDIMENT REACHES 25 PERCENT OF THE FENCE HEIGHT...
4. EARTH DIKE: THE LINE, GRADE, AND CROSS SECTION MUST BE MAINTAINED. ACCUMULATED SEDIMENT AND DEBRIS MUST BE REMOVED AND POSITIVE DRAINAGE MAINTAINED...
5. TEMPORARY STONE STRUCTURE OUTLET: REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN SIX INCHES OF THE WEIR CREST...
6. STORM DRAIN INLET PROTECTION: TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING ACCUMULATED SEDIMENT NEEDS TO BE REMOVED AFTER EACH RAIN EVENT...

SLOPE MAINTENANCE REQUIREMENTS

SEEDING PHASE ACCEPTANCE: SUBMIT A REQUEST FOR SEEDING PHASE ACCEPTANCE WHEN OPERATIONS ARE COMPLETED. INSPECTION WILL BE CONDUCTED TO VERIFY COMPLETION, AND SEEDING PHASE ACCEPTANCE WILL BE GRANTED AT THAT TIME.
ESTABLISHMENT PHASE: THE ESTABLISHMENT PHASE WILL BEGIN UPON SEEDING PHASE ACCEPTANCE.
(A) PERIOD OF MAINTENANCE: MAINTAIN SEEDED AREAS UNTIL FINAL ACCEPTANCE.
(B) REQUIRED MAINTENANCE: PERFORM THE FOLLOWING DURING THE ESTABLISHMENT PHASE.
WATERING: APPLY WATER AS NEEDED TO ENSURE SURVIVAL OF THE TURFGRASS. APPLY WATER TO SEEDED AND MULCHED AREAS WITH APPROVED MACHINERY. DO NOT ALLOW WATER TO CAUSE EROSION.
OVERSEEDING: OVERSEEDING CONSISTS OF SEEDING AND MULCHING IN AREAS WHERE LIVING TURFGRASS COVERAGE IS 40 PERCENT TO 95 PERCENT...
APPLY SEED MIXTURES, SEED ADDITIVES AND FERTILIZER AND SECURE MULCH AS SPECIFIED IN MDOT-SHA 705.03.01 THROUGH 705.03.07...
SOIL RESTORATION, TILLING AND RESEEDING: PERFORM SOIL RESTORATION AND RESEEDING WHEN DIRECTED IN AREAS WHERE TURFGRASS GROUND COVER IS LESS THAN 40 PERCENT...
SLOPE REPAIR: REPAIR AREAS OF SOIL EROSION FOLLOWING THE SLOPE REPAIR DETAIL SHOWN ON SHEET C-351.
FINAL ACCEPTANCE: THE ENGINEER AND DPW WILL COMPLETE AN INSPECTION REPORT OF TURFGRASS HEIGHT, COLOR, AND PERCENT GROUND COVER...
SLOPE REPAIR: REPAIR AREAS OF SOIL EROSION FOLLOWING THE SLOPE REPAIR DETAIL SHOWN ON SHEET C-351.

STEEP SLOPE OPERATION AND MAINTENANCE SCHEDULE

UPON FINAL ACCEPTABLE, MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER, HOWARD COUNTY DPW.
INSPECTIONS SHALL BE PERFORMED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) DURING THE FIRST YEAR OF OPERATION AND AT LEAST ONCE EVERY YEAR THEREAFTER.
INSPECTION SCHEDULE
ANNUAL INSPECTION - GENERATE ANNUAL INSPECTION REPORT
AT END OF SECOND GROWING SEASON - CHECK FOR VEGETATION ESTABLISHMENT
SIXTY HOURS AFTER THE END OF EACH SIGNIFICANT RAINFALL EVENT (>2.6 INCHES OF RAINFALL) CHECK FOR PONDING WATER, SEDIMENT DEPOSITION, EROSION DAMAGE, TRASH AND CLOGGING OF THE 15" PIPE.
ROUTINE MAINTENANCE
A. REMOVAL OF SEDIMENT AT THE 15" STORM DRAIN PIPE WHEN ACCUMULATION EXCEEDS 30% OF THE PIPE DIAMETER.
B. REMOVAL OF ACCUMULATED DEBRIS AS NECESSARY.
C. ANNUAL INSPECTION AND REPAIR OF THE BERM.
D. CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME THE HEADWALL AT THE 15" PIPE DOES NOT DRAIN WITHIN 24 HOURS (I.E. NO STANDING WATER IS ALLOWED).
E. REPAIR AREAS OF SOIL EROSION FOLLOWING THE SLOPE REPAIR DETAIL SHOWN ON SHEET C-351.

CONTACT INFORMATION:

PROJECT: PUBLIC SAFETY TRAINING CENTER
2200 SCOTT WHEELER DRIVE, MARRIOTTSVILLE, MD 21104
OWNER / APPLICANT: HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
3430 COURT HOUSE DRIVE, ELLICOTT CITY, MD 21043-4300
DESIGNER: MATT B. THOMASSON, P.E.
700 E PRATT ST, SUITE 500, BALTIMORE, MD 21202
410-462-9259
mthomasson@rkk.com
Howard SCD Signature Block:
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Date: 1/12/22

RipRap Inflow Protection (RRP)
Where: Tc= time of concentration, Q10=quantity of runoff for 10 year storm, d= actual flow depth
V10= velocity for 10 year storm, D=tailwater depth, T= Tickness
Outfall Protection (Pipe flow full w/ discharge to unconfined section)
Tc = 5 min
Q25 = 0.68 cfs
V25 = 4.03 ft/s
D = 0.09 ft
Use: ROPIII, T=46 in
From 'Design of Outlet Protection Chart: Min. Tailwater Condition', read Min. Values:
La = 6 ft
W = 4 ft
D50 = 0.2' ft
Use: La = 10 ft
Use: W = 4 ft
Use: D50 = 9.5' - Class I Riprap
Use: 19" Stone depth

Rock Outlet Protection Structure (ROP-1)
Where: Tc= time of concentration, Q10=quantity of runoff for 10 year storm, d= actual flow depth
V10= velocity for 10 year storm, D=tailwater depth, T= Tickness
Outfall Protection (Pipe flow full w/ discharge to unconfined section)
Tc = 5 min
Q25 = 6.32 cfs
V25 = 10.47 ft/s
D = 0.6 ft
Use: ROPI, T=19 in
From 'Design of Outlet Protection Chart: Min. Tailwater Condition', read Min. Values:
La = 8 ft
W = 1.25 ft + 8 ft = 9.25' minimum
D50 = 0.6 ft
Use: La = 8 ft
Use: W = 9.25 ft
Use: D50 = 9.5' - Class I Riprap
Use: 19" Stone depth

GEOTECHNICAL NOTES

- 1. STRIPPING, CLEARING, AND GRUBBING SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 2017, VOLUME IV, SECTION 101.
2. BORROW SOIL SHALL BE IN ACCORDANCE THE SLOPE FILL PROVISIONS CONTAINED HEREIN AND SHALL NOT CONTAIN ENVIRONMENTAL CONTAMINATION, BUILDING DEBRIS, FROZEN, OR ORGANIC OR WET MATERIALS.
3. THE MOISTURE CONTENT OF THE FILL AND COMPACTION ACTIVITIES SHALL BE PROPERLY CONTROLLED DURING PLACEMENT, IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 2017, VOLUME IV, SECTION 204.
4. IN PLACE DENSITY TESTS PER ASTM D-1556 OR D-6938 SHALL BE PERFORMED BY AN ENGINEERING TECHNICIAN ON A FULL-TIME BASIS UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF MARYLAND...
5. THE EXISTING BERM SHALL BE BENCHMARKED IN ACCORDANCE WITH SECTION 204.04.03 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 2017, VOLUME IV.
6. IF THE CONTRACTOR ELECTS TO USE A CRUSHED AGGREGATE THAT MEETS THE SLOPE FILL PROVISIONS, THE OUTER 5-FT DEPTH OF THE FILL SLOPE SHALL BE CONSTRUCTED USING SOIL THAT MEETS THE SLOPE FILL PROVISIONS...
7. PLACE AND COMPACT AS MUCH OF THE NEW EMBANKMENT AS PRACTICABLE PRIOR TO DRIVING THE PILES, AND AT LEAST TO A MINIMUM OF EL 579. CONTRACTOR SHALL TAKE PRECAUTION NOT TO AFFECT PLUMBNESS OF PILES IF DRIVING EQUIPMENT OR PERFORMING COMPACTION ADJACENT TO PILES AFTER THEY ARE DRIVEN.
8. THE PILES SHALL BE DRIVEN IN ACCORDANCE WITH SECTION 41.01 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 2017, VOLUME IV EXCEPT THAT THE TOLERANCE FOR THE POSITION OF EACH H-PILE SHALL BE +/- 1/2-INCH FROM PLAN LOCATION...
9. MDOT-SHA TYPE B EROSION MATTING SHALL BE USED ON THE EMBANKMENT FACES TO HELP STABILIZE THE SLOPE FACES PRIOR TO VEGETATION BEING ESTABLISHED.

SLOPE FILL PROVISIONS

SELECT BACKFILL MATERIAL USED IN THE SLOPE VOLUME SHALL BE REASONABLY FREE FROM ORGANIC MATERIAL, SHALE OR OTHER POOR DURABILITY PARTICLES AND OTHERWISE DELETERIOUS MATERIALS. THE BACKFILL SHALL CONFORM TO THE FOLLOWING GRADATION AS DETERMINED BY AASHTO T-27:

Table with 2 columns: SIEVE SIZE, PERCENT PASSING. Rows include 2", 1-1/2", 3/4", NO. 4, NO. 40, NO. 200.

THE PLASTICITY INDEX (P.I.) OF THE BACKFILL MATERIAL AS DETERMINED BY AASHTO T-90 SHALL NOT EXCEED 9. THE LIQUID LIMIT (LL) SHALL NOT EXCEED 40.

BACKFILL MATERIAL SHALL EXHIBIT AN ANGLE OF INTERNAL FRICTION OF NOT LESS THAN 34 DEGREES, AS DETERMINED BY THE STANDARD DIRECT SHEAR TEST, AASHTO T236. ON THE PORTION FINER THAN THE #10 SIEVE, USING A SAMPLE OF THE MATERIAL COMPACTED TO 95 PERCENT OF AASHTO T99, METHODS C OR D, WITH OVERSIZED CORRECTION AS OUTLINED IN NOTE 7 TO AASHTO T99, AT OPTIMUM MOISTURE CONTENT.

BACKFILL MATERIAL SHALL HAVE A MAGNESIUM SULFATE SOUNDNESS LOSS OF LESS THAN 30 PERCENT AFTER FOUR CYCLES.

CONTRACTOR SHALL PERFORM ANALYSIS TESTS FOR EACH SOURCE OF MATERIAL AND SHALL PERFORM SUCH ADDITIONAL TESTS TO ASSURE CONFORMANCE WHENEVER THE CHARACTER OF THE SELECT BACKFILL MATERIAL CHANGES. ALL TESTS SHALL BE PERFORMED BY LABORATORIES THAT ARE AASHTO RE-SOURCE (FORMERLY AASHTO MATERIALS REFERENCE LABORATORY "AMRL") ACCREDITED.

AT LEAST ONE SAMPLE SHALL BE COLLECTED AND TESTED PER 2,000 CUBIC YARDS OF MATERIAL USED AS SELECT BACKFILL.

COMPOSITION - TYPE B SSM table with columns: CRITERIA, METHOD, MEASUREMENT. Rows include THICKNESS, WEIGHT, TENSILE STRENGTH - MD, TENSILE STRENGTH - TD, TENSILE STRENGTH > 500 HR. EXP, LIGHT PENETRATION, SLOPE EROSION - C FACTOR*, SHEAR FOR 0.5 IN SOIL LOSS*, NETTING OPENING, THREAD, STITCHING AND SPACING.

MDOT-SHA SLOPE STABILIZATION MATTING, TYPE B

PERMANENT: NON-WOVEN, NONDEGRADABLE, UV STABILIZED, SYNTHETIC FIBERS, WITH NON-DEGRADABLE, UV STABILIZED, SYNTHETIC NETTING ON TOP AND BOTTOM. TYPE B SOIL STABILIZATION MATTING PRODUCTS SHALL BE LISTED IN THE CURRENT AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) REPORT FOR EROSION CONTROL PRODUCTS. LARGE SCALE RESULTS SHALL BE OBTAINED BY A GEOSYNTHETIC INSTITUTE ACCREDITED OR OTHER APPROVED LABORATORY FOR CRITERIA MARKED *.

SEDIMENT CONTROL

Owners/Developer Certification:

"We hereby certify that any clearing, grading, construction, or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls, and that the responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE."

Signature of Developer: [Signature]
Date: 12/22/20
Printed Name & Title: Matthew B. Thomasson, PE, CHIEF, BUREAU OF FACILITIES

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 workable plan based on my personal knowledge of the site, and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Designer: [Signature]
Date: 10/22/2021
Designer's Signature: Matthew B. Thomasson, PE
Printed Name: Matthew B. Thomasson, PE
MD Registration No. 41799
(P.E.) R.L.S., or R.L.A. (circle one)

Project: HoCo Range
County/Gr: Howard County
Project Number: 17240.015
Design Phase: Final
Structure No. TGOS-1
Location: [Blank] Site: [Blank]

Temporary Gabion Outlet Structure (TGOS 1)

Table with 2 columns: Max. Drainage Area, Drainage Area, Weir Elev. Values: 1.50 Ac., 1.50 Ac., 536.25

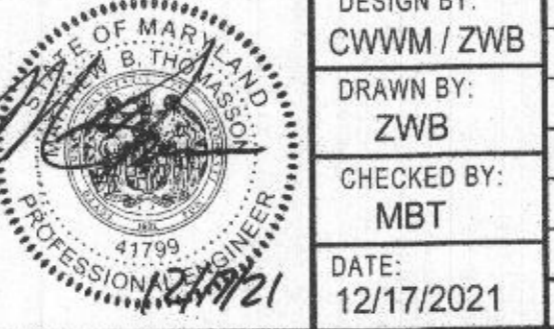
Storage Required (C.F.): 2700
Storage Provided (C.F.): 2706
CHECK

Stage Storage Table with columns: Elevation, Area, Area in Elevation, Area, Volume, Cumulative Volume. Rows show elevation changes and corresponding area and volume.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Date: 1/12/22
Date: 2/3/22
Date: 2/3/22



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HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043-4300

EROSION & SEDIMENT CONTROL NOTES
HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS
PUBLIC SAFETY TRAINING CENTER
RANGE IMPROVEMENTS
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