

# PERMIT DRAWINGS

## KEYSTONE COMPAC III NEAR VERTICAL RETAINING WALL SYSTEM

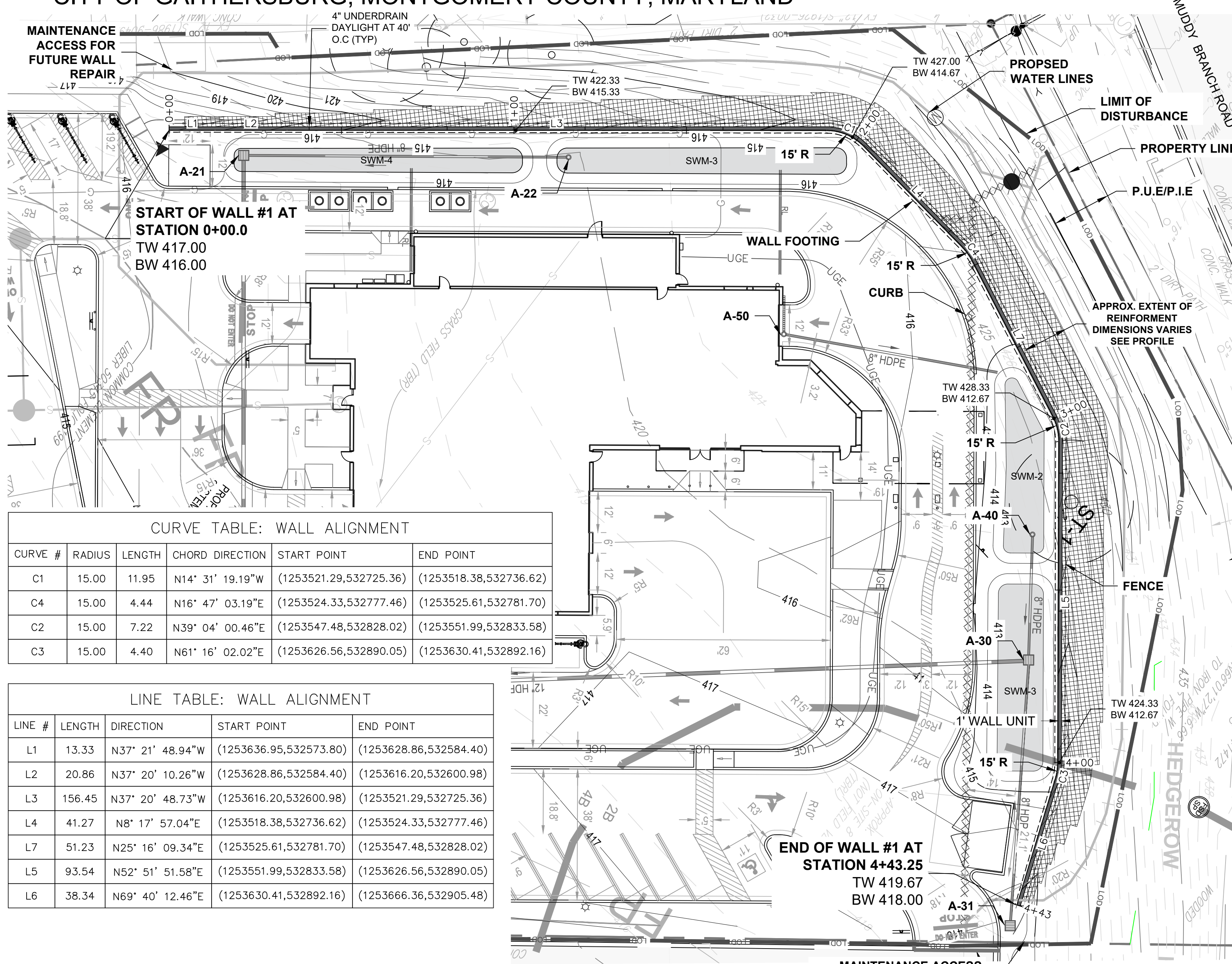
PREPARED FOR

### WHIP CLEAN – THE CAR WASH

CITY OF GAITHERSBURG, MONTGOMERY COUNTY, MARYLAND

GENERAL NOTES:

- THE OWNER'S REPRESENTATIVE MUST RETAIN A QUALIFIED GEOTECHNICAL ENGINEER, FAMILIAR WITH SEGMENTAL RETAINING WALL CONSTRUCTION TO EVALUATE AND APPROVE ALL PHASES OF WALL CONSTRUCTION/INSPECTION. OWNER'S GEOTECHNICAL ENGINEER IS RESPONSIBLE TO OBSERVE AND DOCUMENT THAT ALL ASPECTS OF THE WALL CONSTRUCTION INCLUDING BUT NOT LIMITED TO; BEARING CAPACITY, BACKFILL PLACEMENT AND COMPACTION TESTING, GEOGRID CONDITION, GEOGRID PLACEMENT, GEOGRID LENGTHS, GEOGRID ORIENTATION, GEOGRID TYPE, BLOCK AND GEOGRID ELEVATIONS AND THE DRAINAGE SYSTEM HAVE BEEN INSTALLED IN GENERAL ACCORDANCE WITH THESE PLANS. FAILURE TO ENGAGE A QUALIFIED GEOTECHNICAL ENGINEER RELIEVES KLEINFELDER OF ALL FUTURE LIABILITY WITH REGARD TO THIS DESIGN.
- THE PLAN VIEW OF THE PROPOSED RETAINING WALL SHOWN ON THESE DRAWINGS AND THE DESIGN OF THE RETAINING WALL WERE BASED ON THE CAD DRAWINGS TITLED: EXIST 1039, M-GP 1039, M-SP 1039, M-SWM 1039 DWG PREPARED BY DEWBERRY, SENT AUGUST 1, 2024. THESE DRAWINGS PRESENT THE STRUCTURAL ELEMENTS AND INTEGRAL COMPONENTS OF THE WALL SYSTEM. THE PLAN VIEW OF THE WALLS ARE PRESENTED FOR CONVENIENCE ONLY AND SHOULD NOT BE RELIED UPON FOR STAKEOUT OF THE WALL OR GRADING OF THE SITE. IF SUBSEQUENT GRADING PLANS ARE ISSUED FOR CONSTRUCTION THAT CONTAIN DIFFERENT INFORMATION THAN THAT REFERENCED HEREIN, THESE PLANS MAY NEED TO BE REVISED AND/OR THE WALL MAY NEED TO BE REDESIGNED.
- THE LOCATION OF THE PROPOSED RETAINING WALL IN RELATION TO PROPERTY LINES, UTILITY EASEMENTS, WATERSHED EASEMENTS, LIMITS OF DISTURBANCE OR ANY OTHER TYPE OF EASEMENT IS THE RESPONSIBILITY OF THE OWNER OR THE SITE CIVIL ENGINEER. KLEINFELDER ASSUMES NO LIABILITY FOR THE LOCATION OF THE RETAINING WALLS, OR IF CONSTRUCTION OF THE PROPOSED RETAINING WALL ENCLOSED UPON ANY PROPERTY LINES OR EASEMENTS.
- THE PLAN VIEWS INDICATE THE FACE OF THE WALLS LOCATION AT THE TOP OF THE WALL. THE LOCATIONS OF THE BOTTOM OF THE WALL AT THE PROPOSED FINISHED ELEVATIONS ARE ALSO SHOWN ON THE PLANS. THE PROPOSED EMBEDDED BOTTOM OF WALL ELEVATIONS ARE NOT SHOWN ON THE PLAN VIEW. THE RETAINING WALL IS DESIGNED TO HAVE NEAR VERTICAL BATTER ( $\frac{1}{2}''/1'$  COURSE). CONSTRUCTION OF THE WALLS AND SURROUNDING SITE FEATURES MUST TAKE INTO ACCOUNT THE WALL BATTER. THE CONSTRUCTION STAKE OUT OF THE SEGMENTAL RETAINING WALLS MUST BE COMPLETED BY A REGISTERED LAND SURVEYOR AND MUST BE BASED ON THE SITE/GRADING PLANS AS PREPARED BY THE CIVIL ENGINEER, NOT THE PROFILE PLANS COMPLETED BY KLEINFELDER. FAILURE TO TAKE INTO ACCOUNT WALL BATTER WILL PRODUCE INCORRECT LOCATIONS OF THE TOP AND/OR BOTTOM OF WALL(S) AND SHALL BE CORRECTED AT NO COST TO KLEINFELDER.
- KLEINFELDER HAS TAKEN REASONABLE MEASURES TO SHOW THE CONSTRUCTION ELEMENTS PERTINENT TO THE WALLS DESIGN. HOWEVER, THE FINAL LOCATION OF THE RETAINING WALLS AND ALL EXISTING AND PROPOSED UTILITIES MUST BE TAKEN FROM THE SITE GRADING AND UTILITY PLAN(S).
- THESE DESIGN DRAWINGS WERE PREPARED USING THE KEYSTONE COMPAC III RETAINING WALL SYSTEM AND MIRAGRID 5XT GEOGRID REINFORCEMENT. ABSOLUTELY NO SUBSTITUTIONS ALLOWED.
- IN PREPARATION OF THIS PLAN SET, SOIL STRENGTH PARAMETERS WERE ASSIGNED BASED ON A REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING SERVICES, PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES (HCEA), DATED APRIL 5, 2024. THE OWNER'S GEOTECHNICAL ENGINEER MUST VERIFY THE ASSIGNED SOIL STRENGTH PARAMETERS PRIOR TO USE AS REINFORCED ZONE FILL AND MONITOR DURING CONSTRUCTION. (WE ESTIMATE THREE (3) STRENGTH TESTS WILL BE COMPLETED FOR THIS PURPOSE. IF THE SOIL STRENGTH PARAMETERS ARE INCONSISTENT WITH THOSE ASSIGNED, REVISIONS OR REDESIGN MAY BE NECESSARY.)
- BASED ON THE SOILS REPORTED IN THE GEOTECHNICAL REPORT PREPARED BY HCEA, IT IS ANTICIPATED THAT THE REINFORCED ZONE SOILS OF THE RETAINING WALL WILL BE IMPORTED.
- THE WALLS HAVE BEEN DESIGNED TO ACCOMMODATE 120 PSF. SURCHARGE LOADS SUCH AS: CONSTRUCTION EQUIPMENT, STOCKPILING OF MATERIALS, SNOW, ICE, ECT. SHALL NOT BE PLACED AT THE TOP OF THE WALL. SUCH SURCHARGE LOADS MUST BE KEPT A MINIMUM DISTANCE AWAY FROM THE FACE OF THE WALL A DISTANCE EQUAL TO THE HEIGHT OF THE WALL.
- EXCAVATION OR CONSTRUCTION ACTIVITIES CONDUCTED AFTER COMPLETION OF THE SEGMENTAL RETAINING WALL MUST STAY OUT OF THE REINFORCED ZONE.
- IN THE EVENT OF FUTURE SITE DEVELOPMENT BELOW THE PROPOSED RETAINING WALLS, THE EMBEDMENT INDICATED ON THESE DRAWINGS MUST BE MAINTAINED. KLEINFELDER SHOULD BE NOTIFIED IF DEVELOPMENT IS TO TAKE PLACE IN THIS AREA.
- INSTALLATION OF ALL UTILITIES IN CLOSE PROXIMITY OF THE REINFORCED ZONES OR THE TOE OF THE WALLS SHOULD BE CLOSELY COORDINATED WITH THE WALL INSTALLER AND SHALL OCCUR SIMULTANEOUSLY WITH THE WALL CONSTRUCTION.
- ONLY PLANTINGS HAVING A ROOT MASS WITH A MAXIMUM DIAMETER OF 12 INCHES MAY BE PLANTED ABOVE THE RETAINING WALL. ALL PLANTINGS MUST BE A MINIMUM OF 12 INCHES FROM THE BACK OF THE WALL. ANY LARGE PLANTINGS WITH A ROOT MASS LARGER THAN 12 INCHES MUST BE KEPT OUTSIDE THE REINFORCED ZONE OF THE SEGMENTAL RETAINING WALL SUCH THAT THE ROOT MASS DOES NOT INFRINGE ON THE GEOGRID REINFORCEMENT.
- RETAINING WALLS ARE A SUBSTANTIAL FINANCIAL INVESTMENT. THEREFORE, IT IS IN THE OWNER'S BEST INTEREST THAT A WALL MAINTENANCE BUDGET BE ESTABLISHED WITHIN THE OVERALL PROPERTY MANAGEMENT BUDGET TO MONITOR AND PROVIDE PREVENTATIVE MAINTENANCE. RETAINING WALL MAINTENANCE, AT A MINIMUM, SHOULD CONSIST OF CHECKING DRAINAGE, INSPECTING FOR SETTLEMENT AND REVIEW TO VERIFY ALIGNMENT AND BATTER THIS INSPECTION SHOULD ALSO INCLUDE A VISUAL EVALUATION OF IMPROVEMENTS SITUATED IN CLOSE PROXIMITY TO THE WALLS (SIDEWALKS, CURB AND GUTTERS, PAVEMENTS). THIS SERVICE SHOULD BE COMPLETED AT A MINIMUM ANNUALLY BY QUALIFIED PERSONNEL UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER. ALL DATA RECOVERED DURING ANNUAL MAINTENANCE INSPECTIONS SHOULD BE PROVIDED TO KLEINFELDER FOR REVIEW.
- CONSTRUCTION OF RETAINING WALL WILL REQUIRE EXCAVATION INTO EXISTING EMBANKMENTS. CONTRACTOR MUST SLOPE, BENCH OR OTHERWISE SUPPORT EXCAVATIONS TO PREVENT COLLAPSE AND PROTECT PERSONNEL. ALL EXCAVATION SHOULD BE COMPLETED IN ACCORDANCE WITH OSHA REGULATIONS.
- GLOBAL STABILITY:
  - GLOBAL STABILITY HAS BEEN TAKEN INTO ACCOUNT IN THE DESIGN CALCULATIONS.
- GUARD NOTES:
  - WHERE REQUIRED BY LOCAL, STATE OR FEDERAL CODES, FENCING SHOULD BE INSTALLED BEHIND THE PROPOSED WALL. FENCING TO BE INSTALLED USING THE SLEEVE-IT SYSTEM, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. SEE DETAIL ON SHEET RW-6. FENCE POSTS MUST BE 4' TALL (MIN.) SPACED AT 10' O.C. (MAX.). FENCING MATERIAL TO BE IBC 2018 COMPLIANT, BLACK, VINYL-COATED, OR APPROVED ALTERNATE

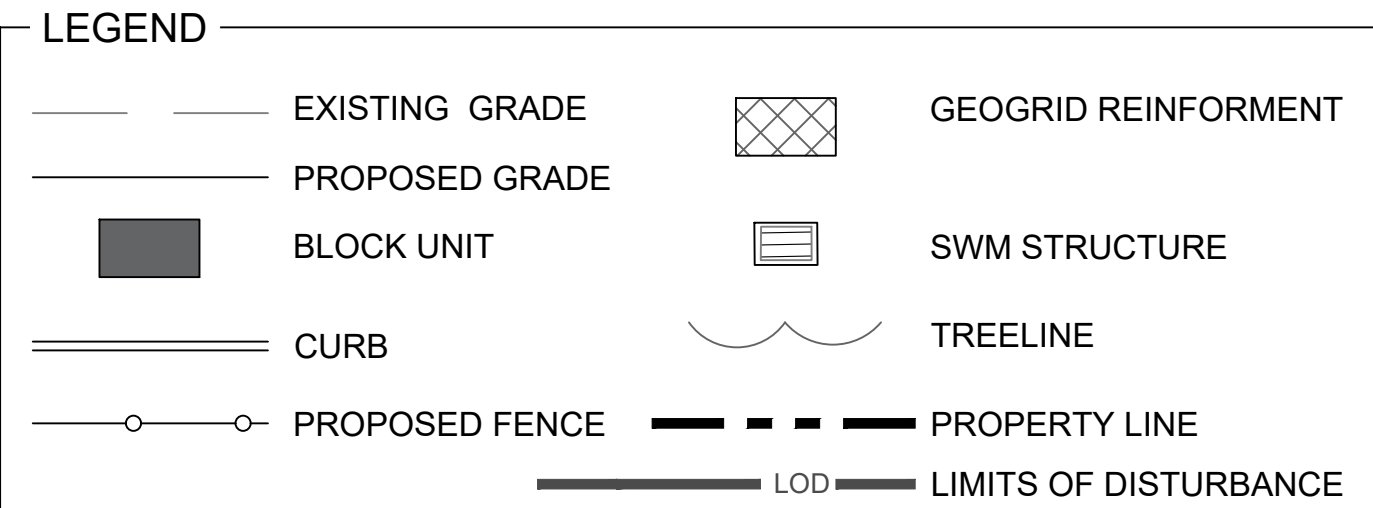


CURVE TABLE: WALL ALIGNMENT

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C1	15.00	11.95	N14° 31' 19.19"W	(1253521.29,532725.36)	(1253518.38,532736.62)
C4	15.00	4.44	N16° 47' 03.19"E	(1253524.33,532777.46)	(1253525.61,532781.70)
C2	15.00	7.22	N39° 04' 00.46"E	(1253547.48,532828.02)	(1253551.99,532833.58)
C3	15.00	4.40	N61° 16' 02.02"E	(1253626.56,532890.05)	(1253630.41,532892.16)

LINE TABLE: WALL ALIGNMENT

LINE #	LENGTH	DIRECTION	START POINT	END POINT
L1	13.33	N37° 21' 48.94"W	(1253636.95,532573.80)	(1253628.86,532584.40)
L2	20.86	N37° 20' 10.26"W	(1253628.86,532584.40)	(1253616.20,532600.98)
L3	156.45	N37° 20' 48.73"W	(1253616.20,532600.98)	(1253521.29,532725.36)
L4	41.27	N8° 17' 57.04"E	(1253518.38,532736.62)	(1253524.33,532777.46)
L7	51.23	N25° 16' 09.34"E	(1253525.61,532781.70)	(1253547.48,532828.02)
L5	93.54	N52° 51' 51.58"E	(1253551.99,532833.58)	(1253626.56,532890.05)
L6	38.34	N69° 40' 12.46"E	(1253630.41,532892.16)	(1253666.36,532905.48)



SHEET INDEX

DRAWING SHEET(S)	DRAWING TITLE	PAGE NUMBERS
RW-1	TITLE SHEET / SITE PLAN	1 OF 10
RW-2	SPECIFICATION	2 OF 10
RW-3	PROFILE - 1	3 OF 10
RW-4	PROFILE - 2	4 OF 10
RW-5	DETAILS - 1	5 OF 10
RW-6	DETAILS - 2	6 OF 10
RW-7	TYPICAL CROSS SECTION	7 OF 10
RW-8	CROSS SECTIONS - 1	8 OF 10
RW-9	CROSS SECTIONS - 2	9 OF 10
RW-10	CROSS SECTIONS - 3	10 OF 10

PLOTTED: 10/17/2024 9:58 PM BY: stephan.coburn

LAYOUT: Title Sheet - RW-1

CAD FILE: L:\Whip Clean\Drawings\Working\2.0\Technical\Information\CADD\Whip Clean\Book\RetainingWall.dwg

435 Independence Ave., Suite C  
Mechanicsburg, PA 17055  
www.kleinfelder.com

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 13981, EXPIRATION DATE: 06-12-2026

REVISIONS

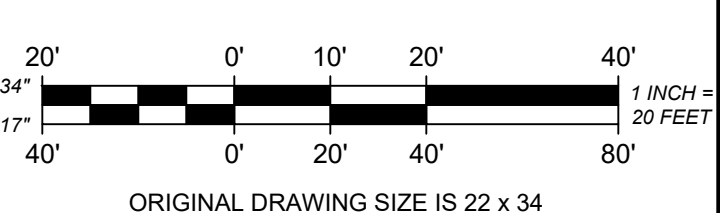
REV	DESCRIPTION	DSN	CHK	DATE
1	REVISED PER CITY REVIEW	SPD	JEK	10/17/2024

**ISSUED FOR PERMITTING**

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY



TITLE SHEET / SITE PLAN

WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY,  
MARYLAND



WHIP CLEAN – THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO. 24001629.001A

ISSUE DATE 8/14/2024

CURRENT REVISION -

DESIGNED BY J.E.K. RW-1

DRAWN BY S.P.D.

CHECKED BY J.E.K.

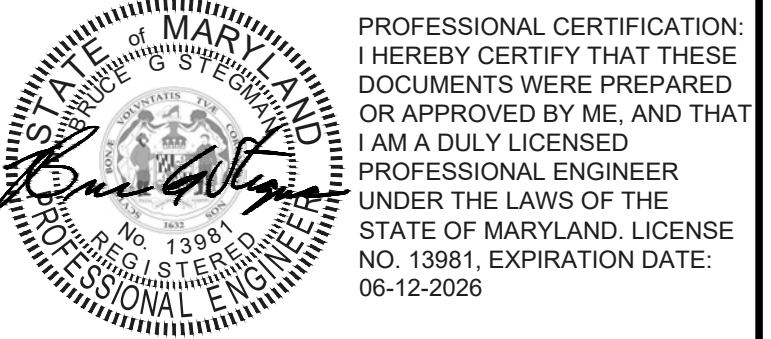
APPROVED BY B.G.S. SHEET 1 of 10

**MISS UTILITY**  
Before you dig.  
Every dig. Its the law.

PROTECT YOURSELF, GIVE THREE WORKING DAYS NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERE TO APPURTENANT.

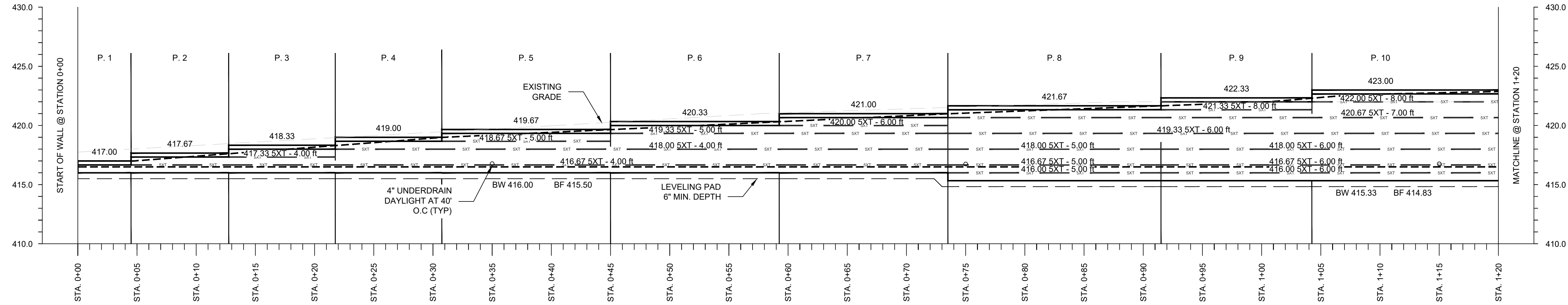




PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 13981. EXPIRATION DATE: 06-12-2026

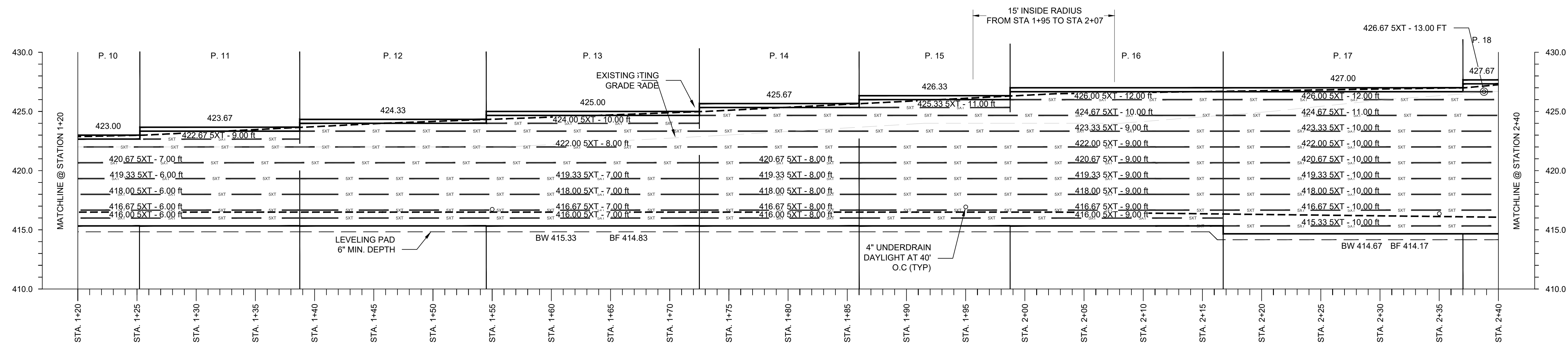
**WALL PROFILE**

SCALE: 1" = 5'  
(SCALE BASED ON FULL SIZE 22"x34" SHEETS ONLY)



**WALL PROFILE(cont)**

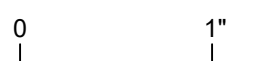
SCALE: 1" = 5'  
(SCALE BASED ON FULL SIZE 22"x34" SHEETS ONLY)



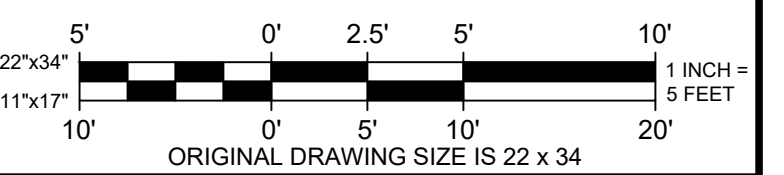
**ISSUED FOR PERMITTING**

**SCALE VERIFICATION**

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING



IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY



**PROFILE-1**

WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY,  
MARYLAND



WHIP CLEAN - THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO.	24001629.001A
ISSUE DATE	8/14/2024
CURRENT REVISION	-
DESIGNED BY	J.E.K
DRAWN BY	S.P.D
CHECKED BY	J.E.K
APPROVED BY	B.G.S

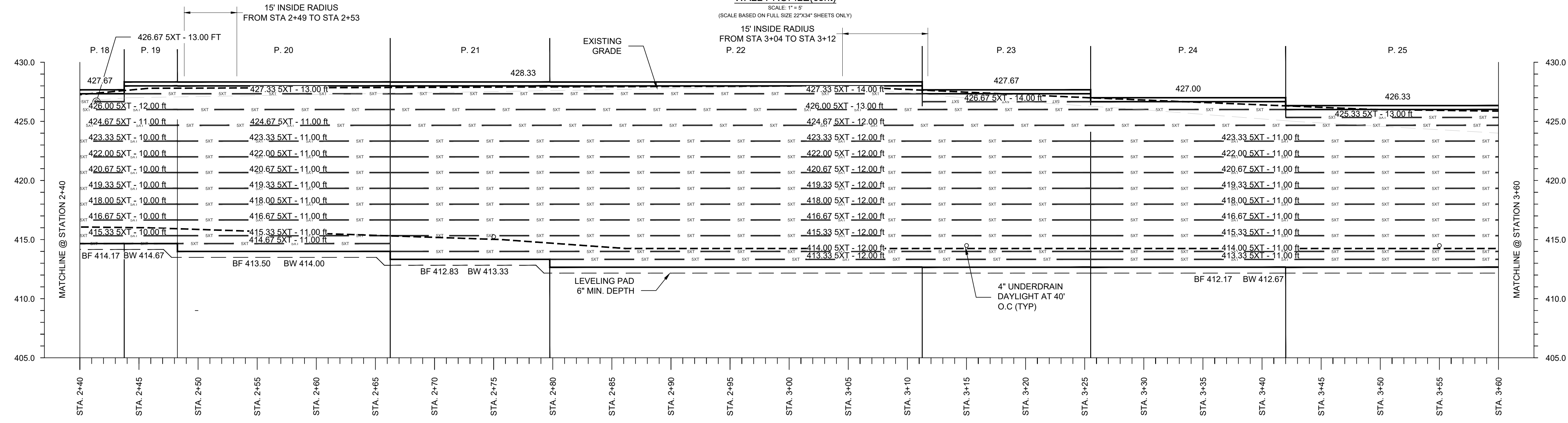
**RW-3**

CAD FILE: L:\Whip Clean\24001629.001A\Whip Clean Retaining Wall\Profile.dwg LAYOUT: RW-3  
 PLOTTED: 10/17/2024 9:58 PM BY: stephen.doherty

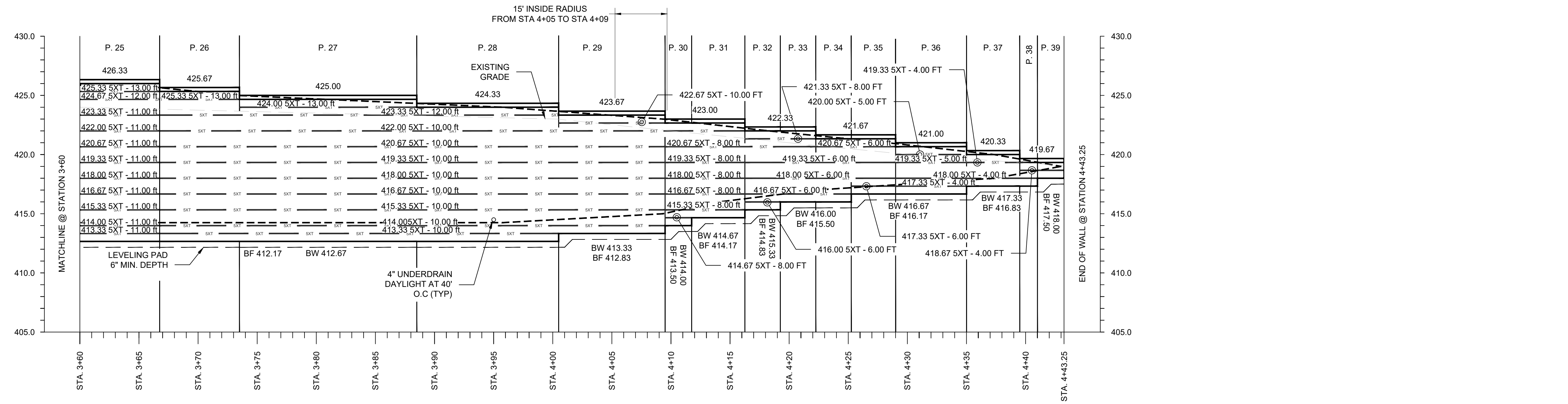


PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE  
DOCUMENTS WERE PREPARED  
OR APPROVED BY ME, AND THAT  
I AM A DULY LICENSED  
PROFESSIONAL ENGINEER  
UNDER THE LAWS OF THE  
STATE OF MARYLAND. LICENSE  
NO. 13981. EXPIRATION DATE:  
06-12-2026

**WALL PROFILE(cont)**  
SCALE: 1" = 5'  
(SCALE BASED ON FULL SIZE 22"x34" SHEETS ONLY)



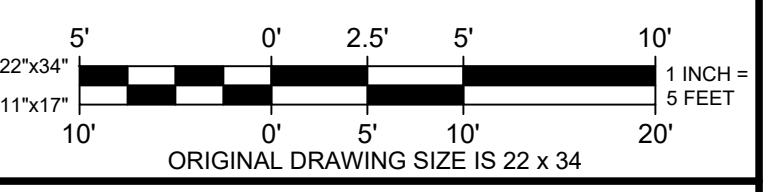
**WALL PROFILE(cont)**  
SCALE: 1" = 5'  
(SCALE BASED ON FULL SIZE 22"x34" SHEETS ONLY)



REVISIONS				
REV	DESCRIPTION	DSN DWN	CHK APP	DATE
1	REVISED PER CITY REVIEW	SPD	JEK BGS	10/17/2024

**ISSUED FOR PERMITTING**

**SCALE VERIFICATION**  
THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING  
0 1"  
IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY



**PROFILE-2**  
WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY,  
MARYLAND



PROJECT NO. 24001629.001A	<b>RW - 4</b>
ISSUE DATE 8/14/2024	
CURRENT REVISION -	
DESIGNED BY J.E.K	
DRAWN BY S.P.D	
CHECKED BY J.E.K	SHEET 4 of 10
APPROVED BY B.G.S	

CAD FILE: L:\Whip Clean\Development\Working\2.0\Technical Information\CADD\Wall1-Profile.dwg LAYOUT: RW-4 PLOTTED: 10/17/2024 9:58 PM BY: stephen.doherty



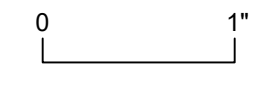
REVISIONS

REV	DESCRIPTION	DSN	CHK	DATE
1	REVISED PER CITY REVIEW	SPD	JEK	10/17/2024
		SPD	BGS	

**ISSUED FOR PERMITTING**

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING



IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

**DETAIL - 2**

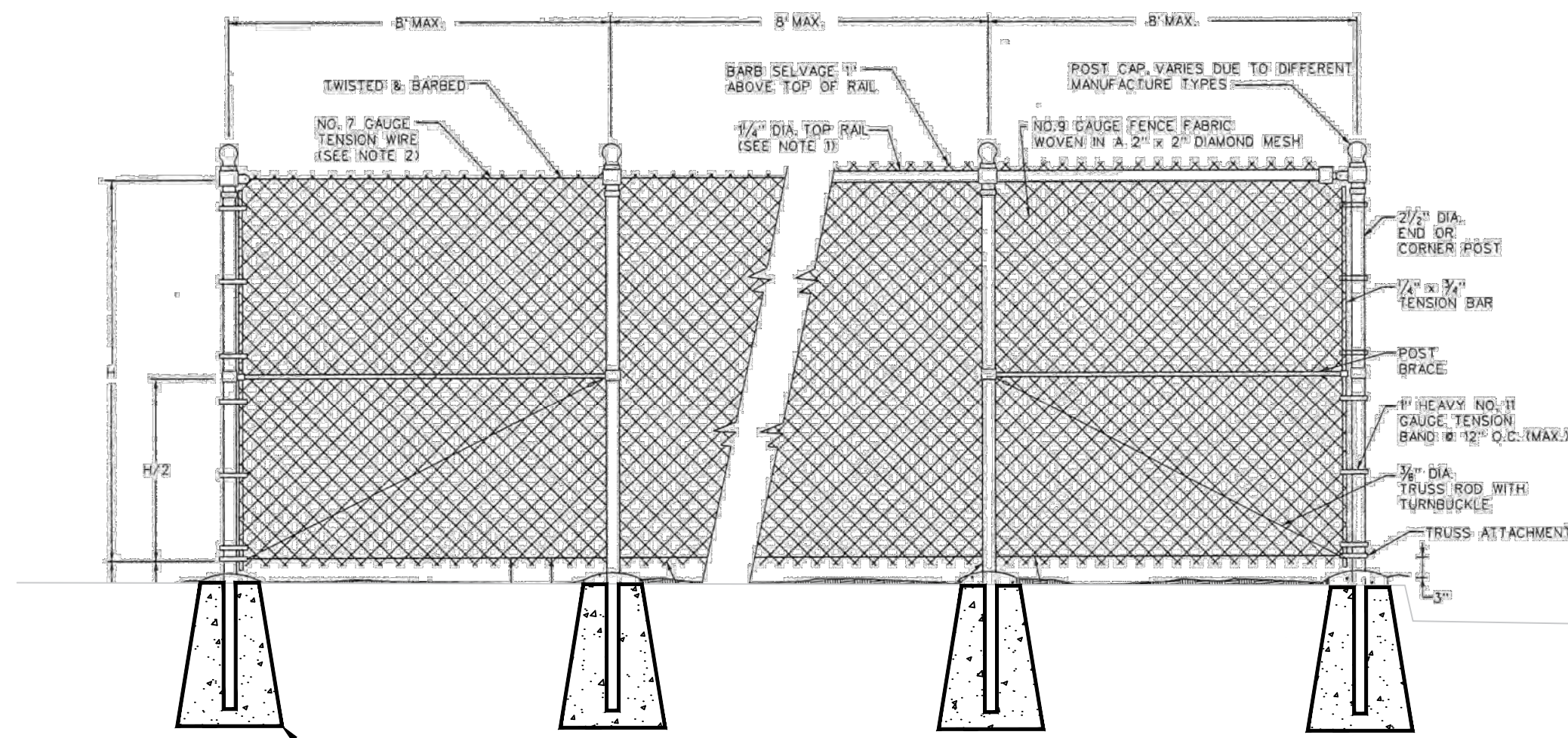
WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY, MARYLAND



WHIP CLEAN - THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO.	24001629.001A
ISSUE DATE	8/14/2024
CURRENT REVISION	-
DESIGNED BY	J.E.K
DRAWN BY	S.P.D
CHECKED BY	J.E.K
APPROVED BY	B.G.S

RW-6

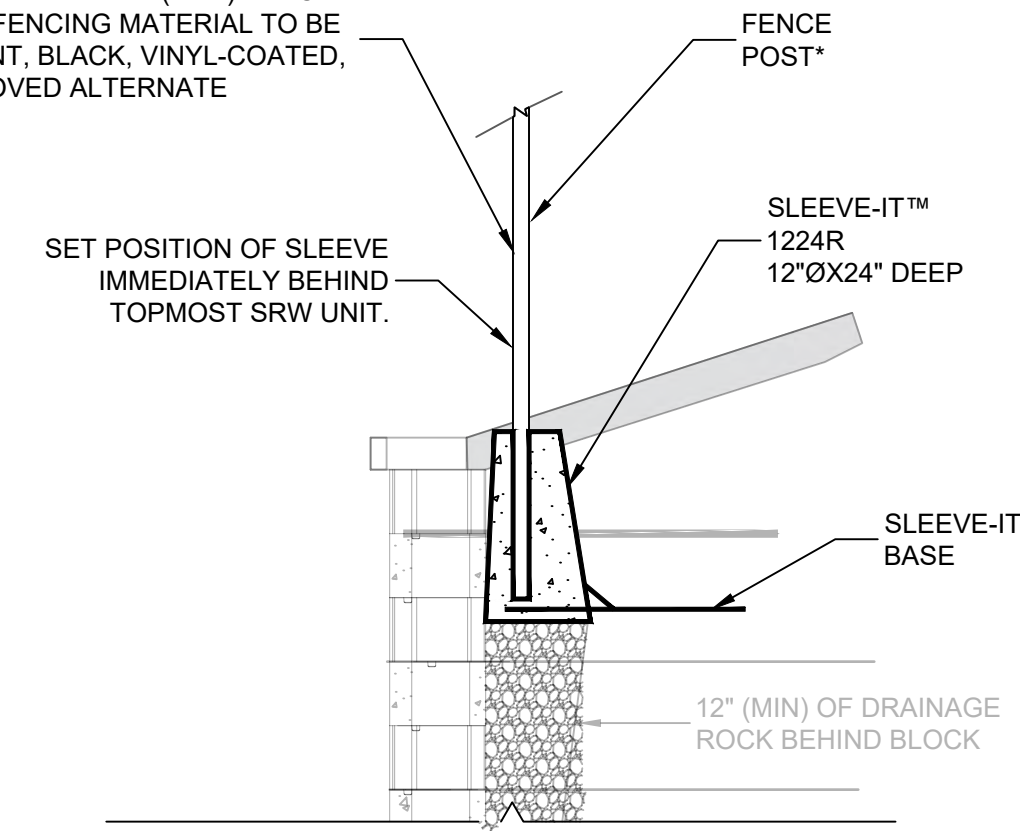


**1 CHAIN LINK FENCE**  
RW-6 SCALE: 1/2" = 1'

NOTES:

- USE A TOP RAIL FOR PROPERTY FENCE.
- USE TENSION WIRE WHEN FENCE IS ADJACENT TO ROADWAY.
- POST AT THE INTERSECTION OF TWO LINES FORMING AN ANGLE OF 15° OR MORE SHALL BE CONSIDERED AS A CORNER POST.
- FENCING MATERIAL TO BE IBC 2018 COMPLIANT, BLACK, VINYL-COATED, OR APPROVED ALTERNATE FINAL DESIGN PER FENCE INSTALLER.
- REFERENCE DRAWING, DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION, DWG. NO. 604.01, ISSUED 8/2015

FENCE POSTS MUST BE 4' TALL (MIN.) SPACED AT 8' O.C. (MAX.). FENCING MATERIAL TO BE IBC 2018 COMPLIANT, BLACK, VINYL-COATED, OR APPROVED ALTERNATE



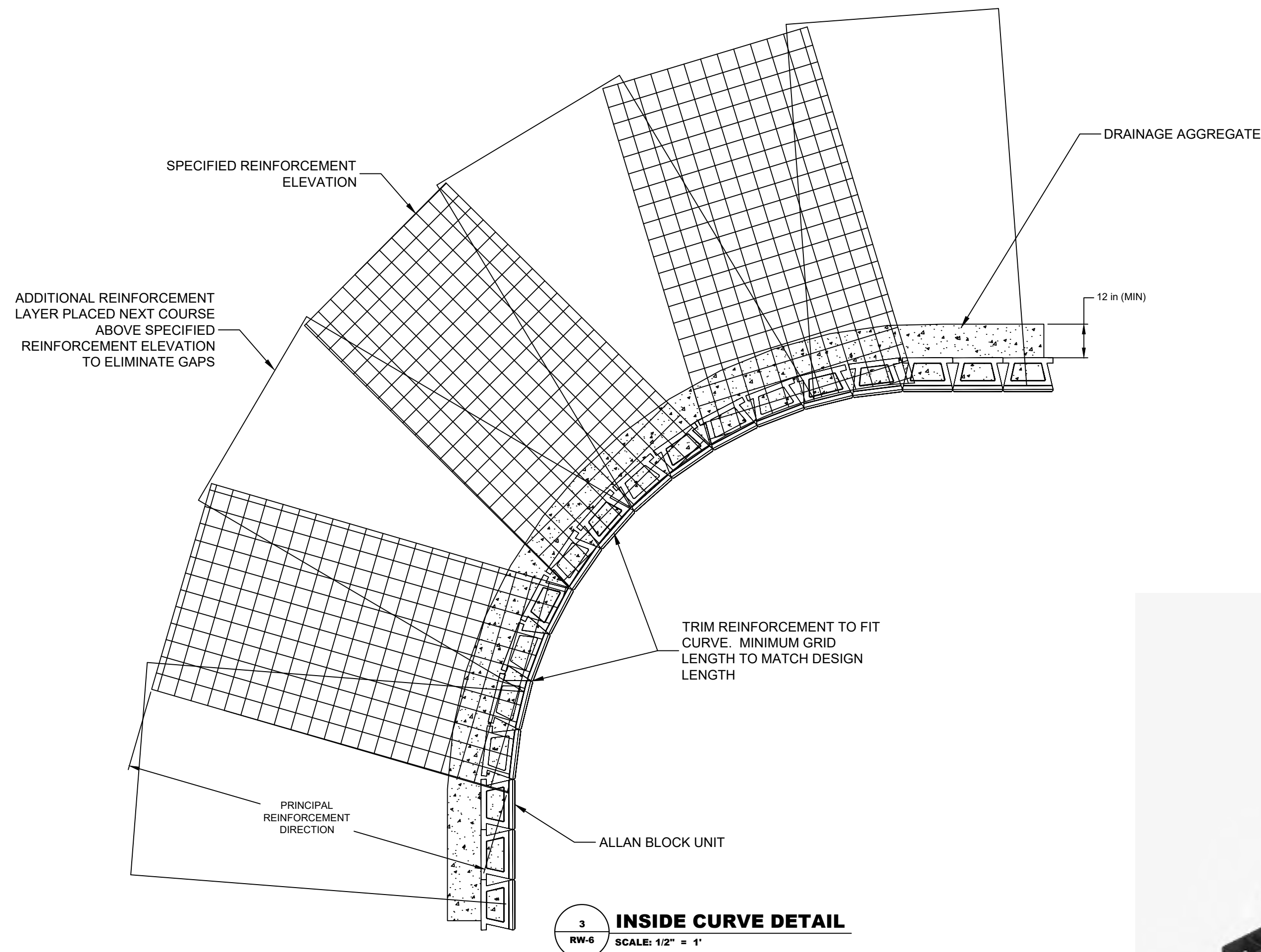
- GENERAL - THE SLEEVE-IT™ POST FOUNDATION SYSTEM SHALL BE PURCHASED AND INSTALLED BY THE RETAINING WALL CONTRACTOR TO FACILITATE FUTURE FENCE POST INSTALLATION CONTRACTOR SHALL VERIFY PROPER SPACING REQUIREMENTS PRIOR TO INSTALLATION.
- ASSEMBLY & INSTALLATION - REFER TO INSTRUCTIONS PROVIDED WITH UNITS FOR SPECIFIC INFORMATION RELATED TO THE ASSEMBLY OF THE SLEEVE-IT™ SYSTEM AND THE CORRECT INSTALLATION PROCEDURE. WHEN THE SEGMENTAL RETAINING WALL HAS BEEN CONSTRUCTED TO TWO FEET FROM TOP NOT INCLUDING THE CAPSTONE:
  - STEP 1: PREPARE A LEVEL AREA APPROXIMATELY 24" WIDE X 36" DEEP BEHIND THE WALL FACE. THE PREPARED AREA SHOULD BE 24" BELOW THE PROPOSED TOP OF WALL (NOT INCLUDING THE CAPSTONE).
  - STEP 2: PLACE THE SLEEVE-IT UNIT ON THE LEVEL SURFACE IN AN UPRIGHT POSITION WITH THE FRONT EDGE OF THE UNIT FLUSH AGAINST THE BACK OF THE WALL. MULTIPLE UNITS SHOULD BE SPACED IN ACCORDANCE WITH FENCE SPECIFICATIONS.
  - STEP 3: ENCAPSULATE AND STABILIZE THE SLEEVE-IT UNIT BY PLACING AND COMPACTING SUFFICIENT BACKFILL MATERIAL LAYERS AS REQUIRED. IF GEOGRID IS REQUIRED, SLIT THE GEOGRID PERPENDICULAR TO THE WALL FACE JUST ENOUGH TO FIT AROUND THE BASE OF THE UNIT WHILE ENSURING THAT THE GEOGRID REMAINS PROPERLY ATTACHED TO THE WALL. CONTINUE THE BACKFILLING PROCESS UNTIL THE MATERIAL REACHES THE TOP OF THE TOWER. DO NOT REMOVE PERFORATED LID UNTIL READY TO PLACE POST. DO NOT STEP ON PERFORATED LID, AS THIS COULD CAUSE SERIOUS BODILY INJURY.
  - STEP 4: PUNCH THE PERFORATED LID USING A MALLET OR HAMMER TO EXPOSE THE INSIDE OF THE SLEEVE-IT UNIT. DETACHED LIDS CAN BE LEFT INSIDE THE UNIT OR DISCARDED PRIOR TO POURING THE INFILL MATERIAL.
  - STEP 5: PLACE POST THROUGH THE EXPOSED AREA AND REST ON THE FLAT GROUND SURFACE AREA INSIDE THE SLEEVE-IT CAVITY. ENSURE THAT THE POST IS UPRIGHT AND LEVEL AND HOLD IN PLACE WHILE CAREFULLY POURING INFILL MATERIAL SUCH AS CONCRETE THROUGH THE EXPOSED CAVITY. FOLLOW GUIDELINES AS SPECIFIED BY INFILL SUPPLIER. CONCRETE IS HIGHLY RECOMMENDED AS INFILL MATERIAL.

IMPORTANT NOTE: BACKFILL SOIL SHALL CONSIST OF REINFORCED SOIL AS OUT LINED ON SHEET RW-2. BACKFILL MATERIAL ABOVE AND SURROUNDING THE SLEEVE-IT™ SYSTEM MUST BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR). BACKFILL AND COMPACTION WITHIN THREE FEET OF THE WALL FACE SHOULD BE PERFORMED WITH HAND OPERATED EQUIPMENT AS RECOMMENDED BY THE NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA) SRW GUIDELINES. REPEAT ABOVE STEPS FOR NEXT SLEEVE-IT™ UNIT. FENCE POSTS SHALL EXTEND A MINIMUM DISTANCE OF 18" INTO THE SLEEVE TO ENSURE PROPER ENGAGEMENT WITH THE SLEEVE-IT™ SYSTEM. ALL POSTS MUST BE ON THE "INBOARD" SIDE OF THE VERTICAL PORTION OF THE CANTILEVER BASE. FILL CAVITY COMPLETELY WITH CONCRETE. WHEN CONCRETE CURES, TOPSOIL OR OTHER SURFICIAL COVER MAY BE PLACED OVER THE SLEEVE-IT™ SYSTEM TO CREATE FINAL FINISHED APPEARANCE. THE SLEEVE-IT™ PRODUCT SHALL BE EVENLY SPACED NO FARTHER APART THAN 8 FEET ON CENTERS IN ANY CASE. USE OF THE SLEEVE-IT™ SYSTEM IS LIMITED TO THE FOLLOWING FENCING APPLICATIONS WITHOUT CONSIDERATION OF WIND LOAD:

- 8-FOOT HIGH AND UNDER CHAIN LINK FENCES
- 6-FOOT HIGH AND UNDER WOOD FENCE WITH GAPS BETWEEN BOARDS
- 6-FOOT HIGH AND UNDER BALLUSTRATED PVC, STEEL, ALUMINUM OR WROUGHT IRON FENCES.

FOR OTHER FENCING SYSTEMS SPECIFICALLY NOT MEETING THESE CRITERIA, CONTACT STRATA SYSTEMS INC., TO DETERMINE SUITABILITY. 1 (800) 680-7750 OR EMAIL STRATA@GEOGRID.COM ALL MATERIAL MAY BE SUBJECT TO SITE TESTING FOR COMPLIANCE TO THE ABOVE SPECIFICATIONS.

**2 FENCE POST INSTALLATION USING SLEEVE-IT**  
RW-6 SCALE: 1/2" = 1'



**3 INSIDE CURVE DETAIL**  
RW-6 SCALE: 1/2" = 1'

CAD FILE: L:\Whip Clean LLC\24001629.001A\Whip Clean Carwash\Drawings\Working\2.0 Technical Information\CADD\Whip Clean\Block\_Retaining\Wall.dwg LAYOUT: Details - 2 RW-6 PLOTTED: 10/18/2024 6:15 PM BY: jash/tebs



PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE  
DOCUMENTS WERE PREPARED  
OR APPROVED BY ME, AND THAT  
I AM A DULY LICENSED  
PROFESSIONAL ENGINEER  
UNDER THE LAWS OF THE  
STATE OF MARYLAND. LICENSE  
NO. 13981, EXPIRATION DATE:  
06-12-2026

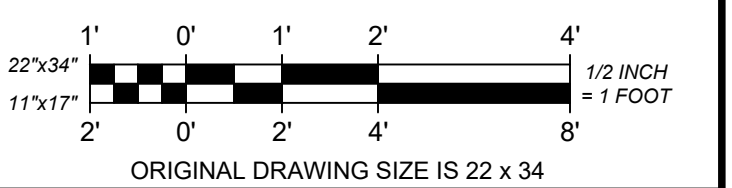
REVISIONS

REV	DESCRIPTION	DSN	CHK	DATE
1	REVISED PER CITY REVIEW	SPD	JEK	10/17/2024
		SPD	BGS	

**ISSUED FOR PERMITTING**

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH  
ON ORIGINAL DRAWING  
0 1"  
IF IT'S NOT 1 INCH ON THIS  
SHEET ADJUST YOUR  
SCALES ACCORDINGLY



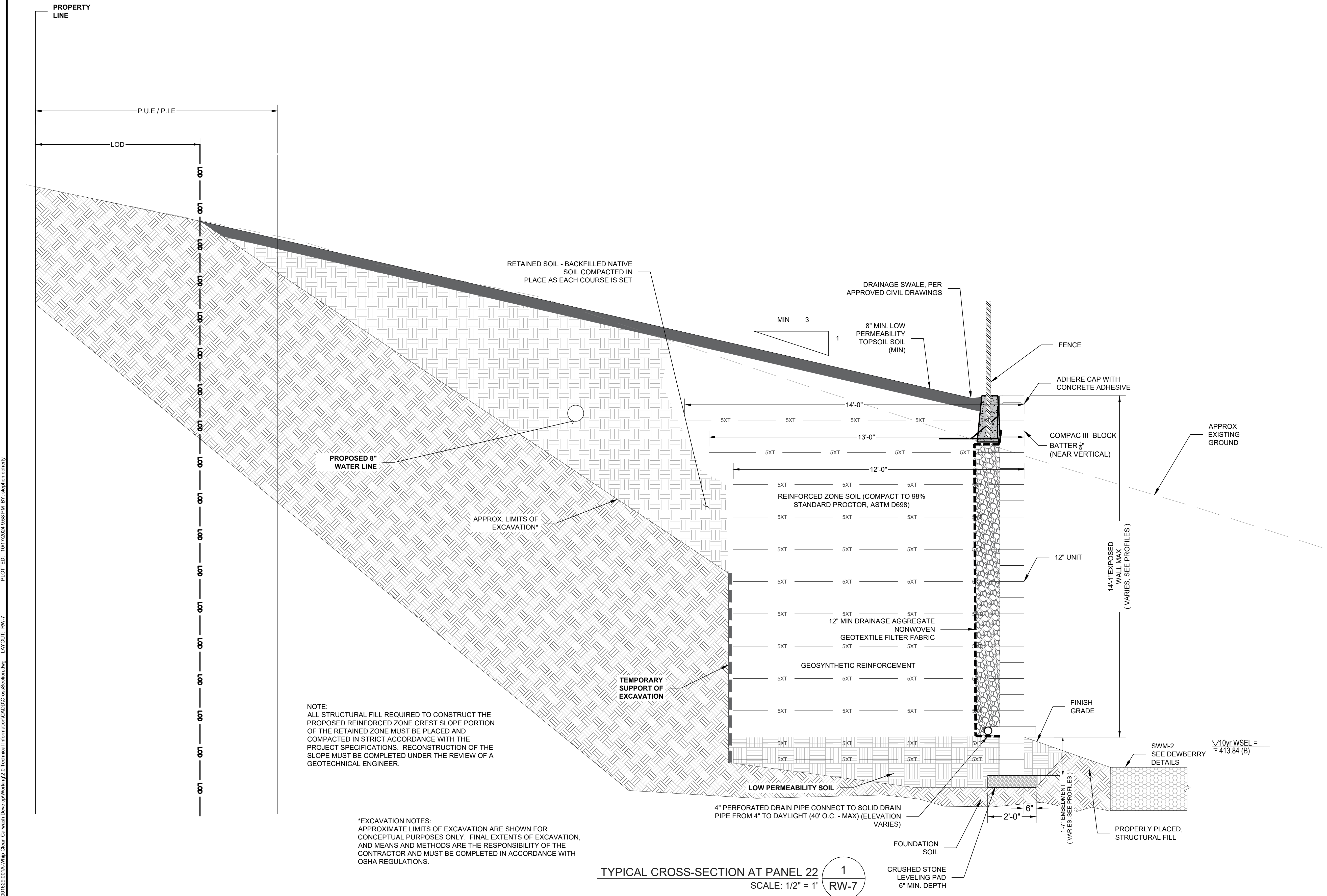
TYPICAL CROSS SECTION

WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY,  
MARYLAND



WHIP CLEAN - THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO.	24001629.001A	<b>RW-7</b>
ISSUE DATE	8/14/2024	
CURRENT REVISION	-	
DESIGNED BY	J.E.K	
DRAWN BY	S.P.D	
CHECKED BY	J.E.K	
APPROVED BY	B.G.S	SHEET

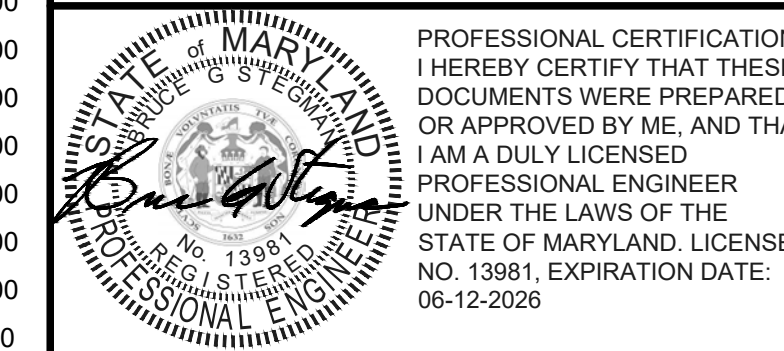


NOTE:  
ALL STRUCTURAL FILL REQUIRED TO CONSTRUCT THE  
PROPOSED REINFORCED ZONE CREST SLOPE PORTION  
OF THE RETAINED ZONE MUST BE PLACED AND  
COMPACTED IN STRICT ACCORDANCE WITH THE  
PROJECT SPECIFICATIONS. RECONSTRUCTION OF THE  
SLOPE MUST BE COMPLETED UNDER THE REVIEW OF A  
GEOTECHNICAL ENGINEER.

\*EXCAVATION NOTES:  
APPROXIMATE LIMITS OF EXCAVATION ARE SHOWN FOR  
CONCEPTUAL PURPOSES ONLY. FINAL EXTENTS OF EXCAVATION,  
AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE  
CONTRACTOR AND MUST BE COMPLETED IN ACCORDANCE WITH  
OSHA REGULATIONS.

TYPICAL CROSS-SECTION AT PANEL 22  
SCALE: 1/2" = 1'  
RW-7

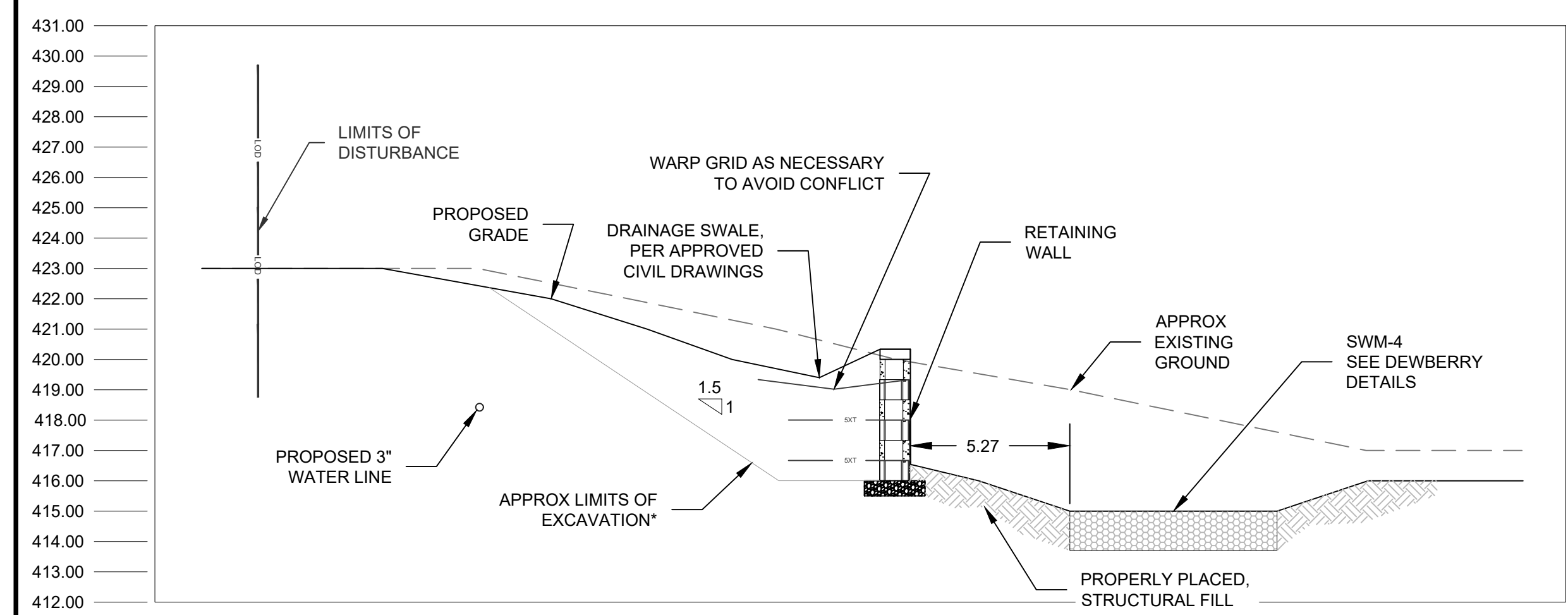
CAD FILE: L:\Whip Clean Carwash Development\Working\2.0 Technical Information\CADD\CrossSection.dwg LAYOUT: RW-7 PLOTTED: 10/17/2024 9:58 PM BY: aspbm.dabery



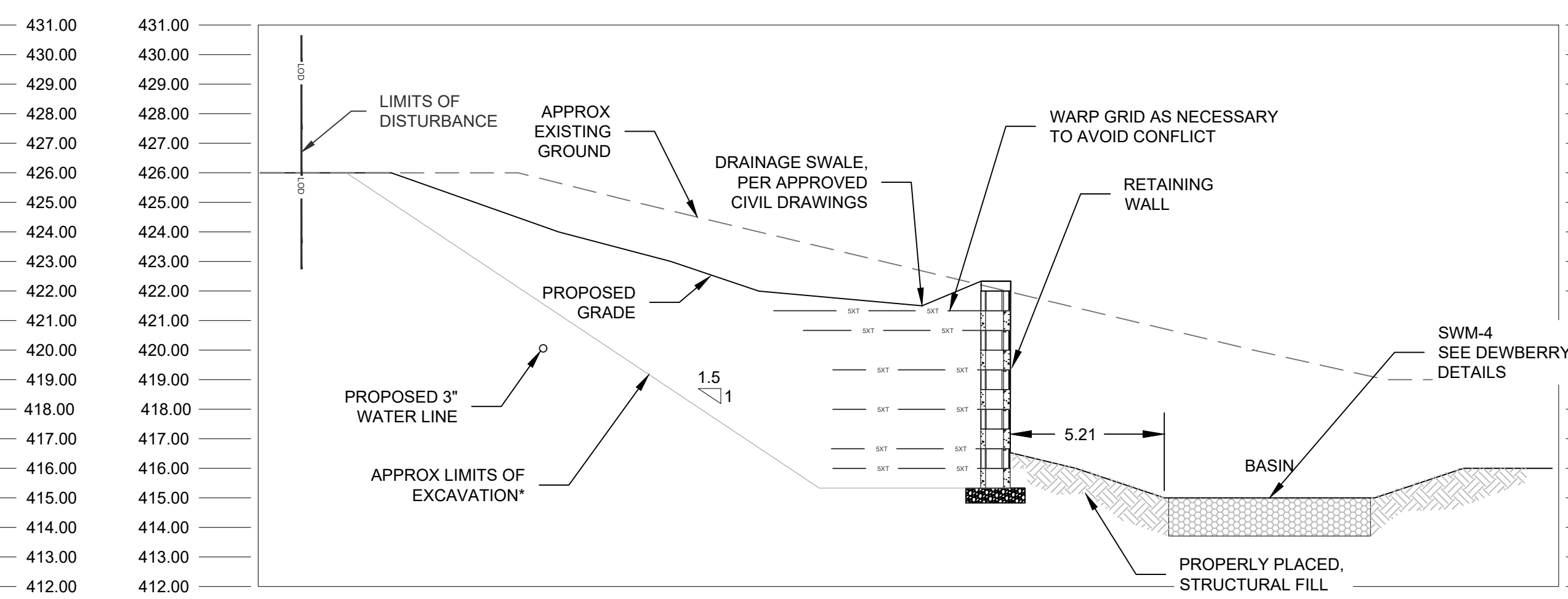
PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 13981. EXPIRATION DATE: 06-12-2026

REVISIONS

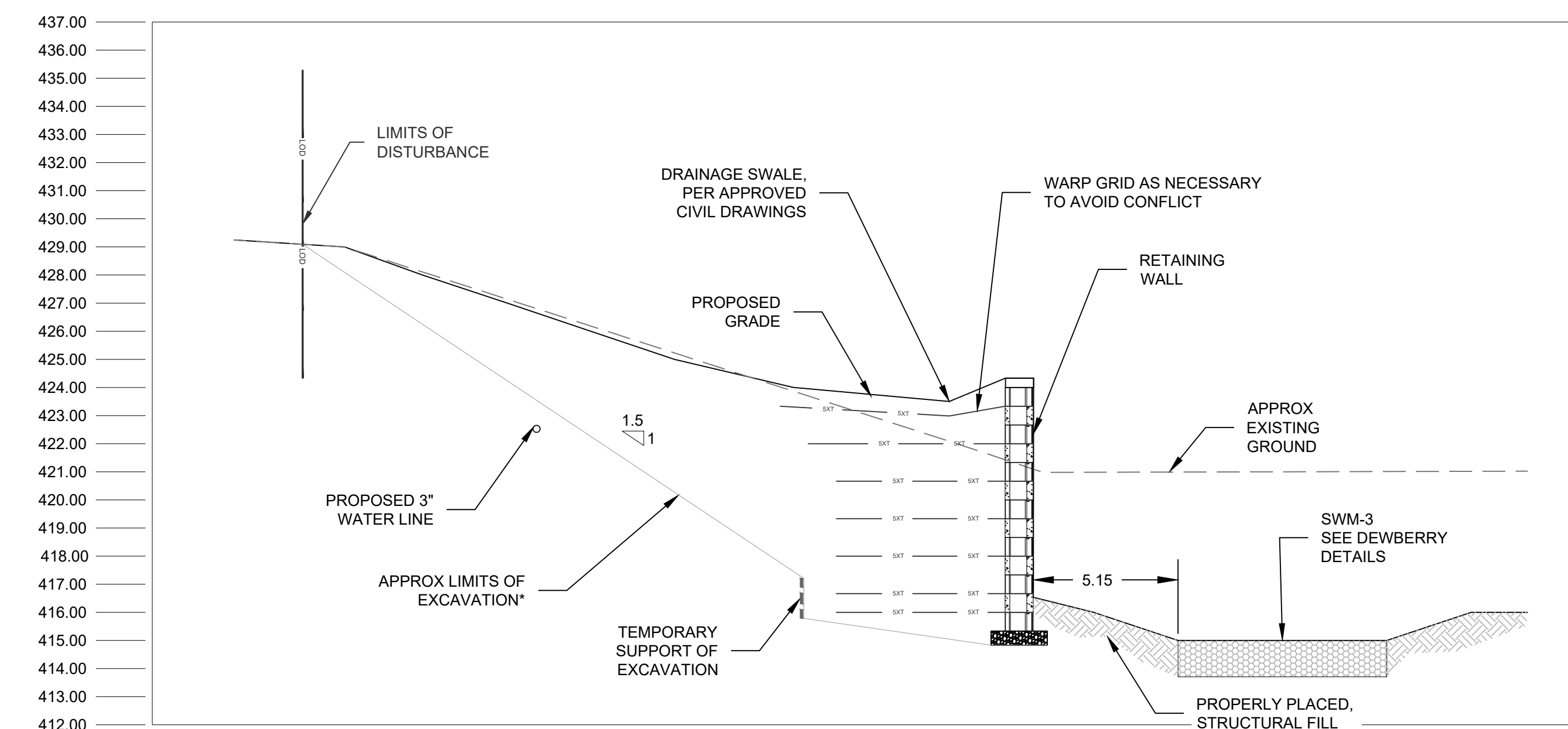
REV	DESCRIPTION	DSN	CHK	DATE
1	REVISED PER CITY REVIEW	SPD	JEK	10/17/2024



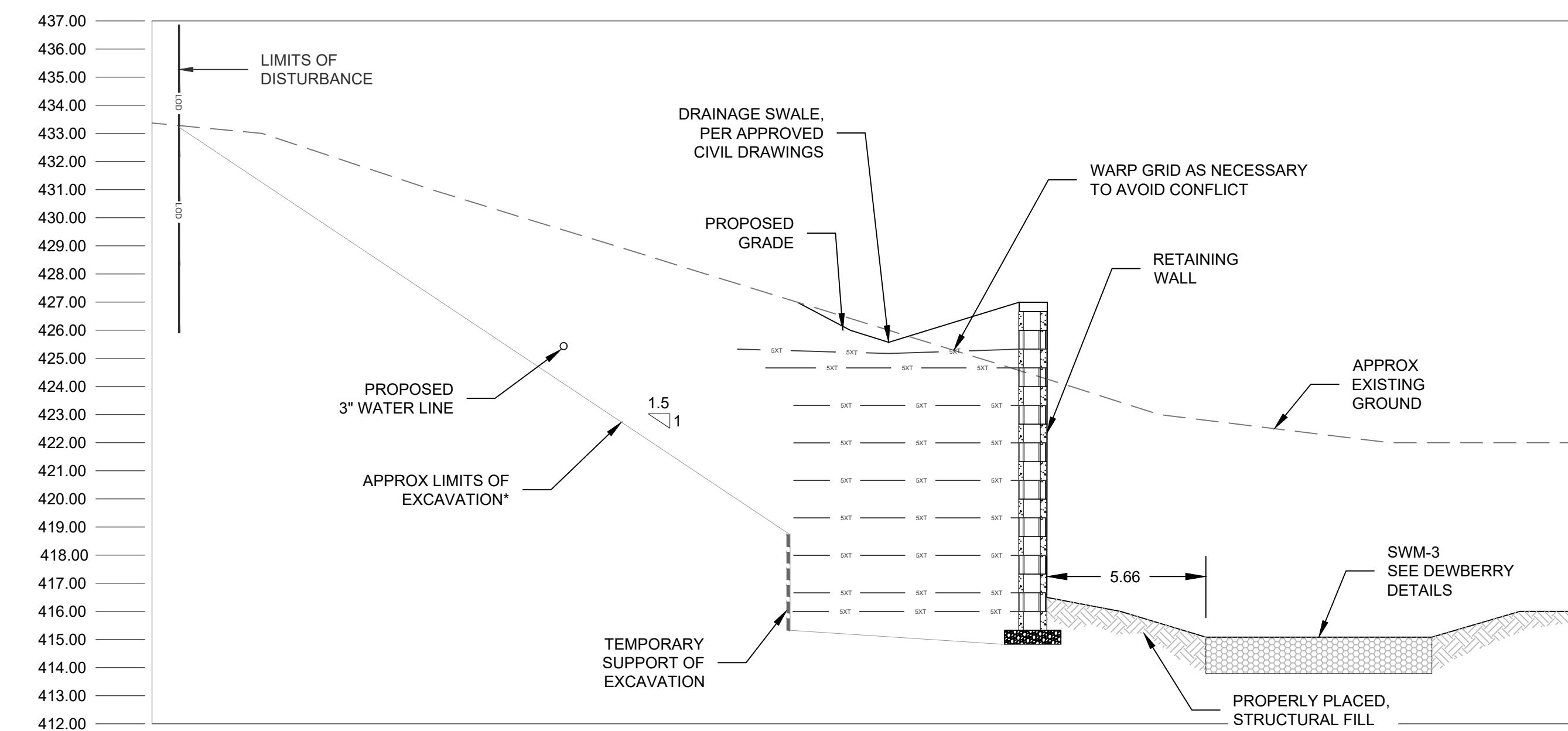
**CROSS-SECTION STATION 0+50**  
SCALE: 1/4" = 1'



**CROSS-SECTION STATION 1+00**  
SCALE: 1/4" = 1'



**CROSS-SECTION STATION 1+50**  
SCALE: 1/4" = 1'



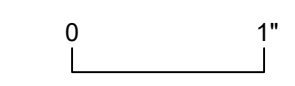
**CROSS-SECTION STATION 2+00**  
SCALE: 1/4" = 1'

**\*EXCAVATION NOTES:**  
APPROXIMATE LIMITS OF EXCAVATION ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL EXTENTS OF EXCAVATION, AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE COMPLETED IN ACCORDANCE WITH OSHA REGULATIONS.

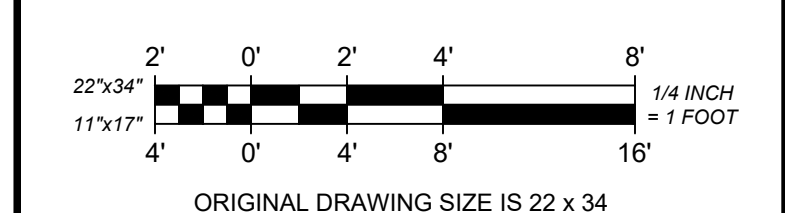
**ISSUED FOR PERMITTING**

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING



IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY



CROSS SECTIONS - 1

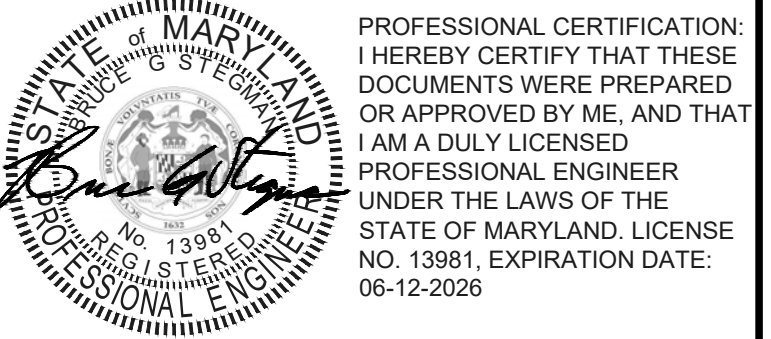
WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY, MARYLAND



WHIP CLEAN - THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO.	24001629.001A	<b>RW-8</b>
ISSUE DATE	8/14/2024	
CURRENT REVISION	-	
DESIGNED BY	J.E.K	
DRAWN BY	S.P.D	
CHECKED BY	J.E.K	<b>8 of 10</b>
APPROVED BY	B.G.S	

PLOTTED: 10/17/2024 9:58 PM BY: stephen.doherty  
CADD FILE: L:\Whip Clean\1123401629.001A\Whip Clean\_Crosshatch\_Develop\Working\2.0\_Technical Information\CADD\CrossSection.dwg LAYOUT: RW-8



REVISIONS

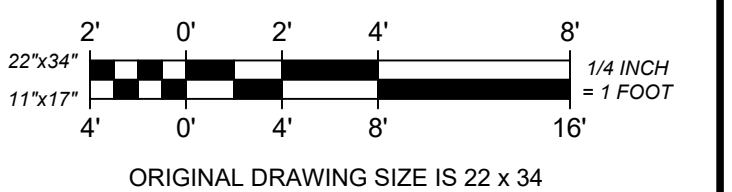
REV	DESCRIPTION	DSN	CHK	DATE
1	REVISED PER CITY REVIEW	SPD	JEK	10/17/2024
		SPD	BGS	

**ISSUED FOR PERMITTING**

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY



CROSS SECTIONS - 2

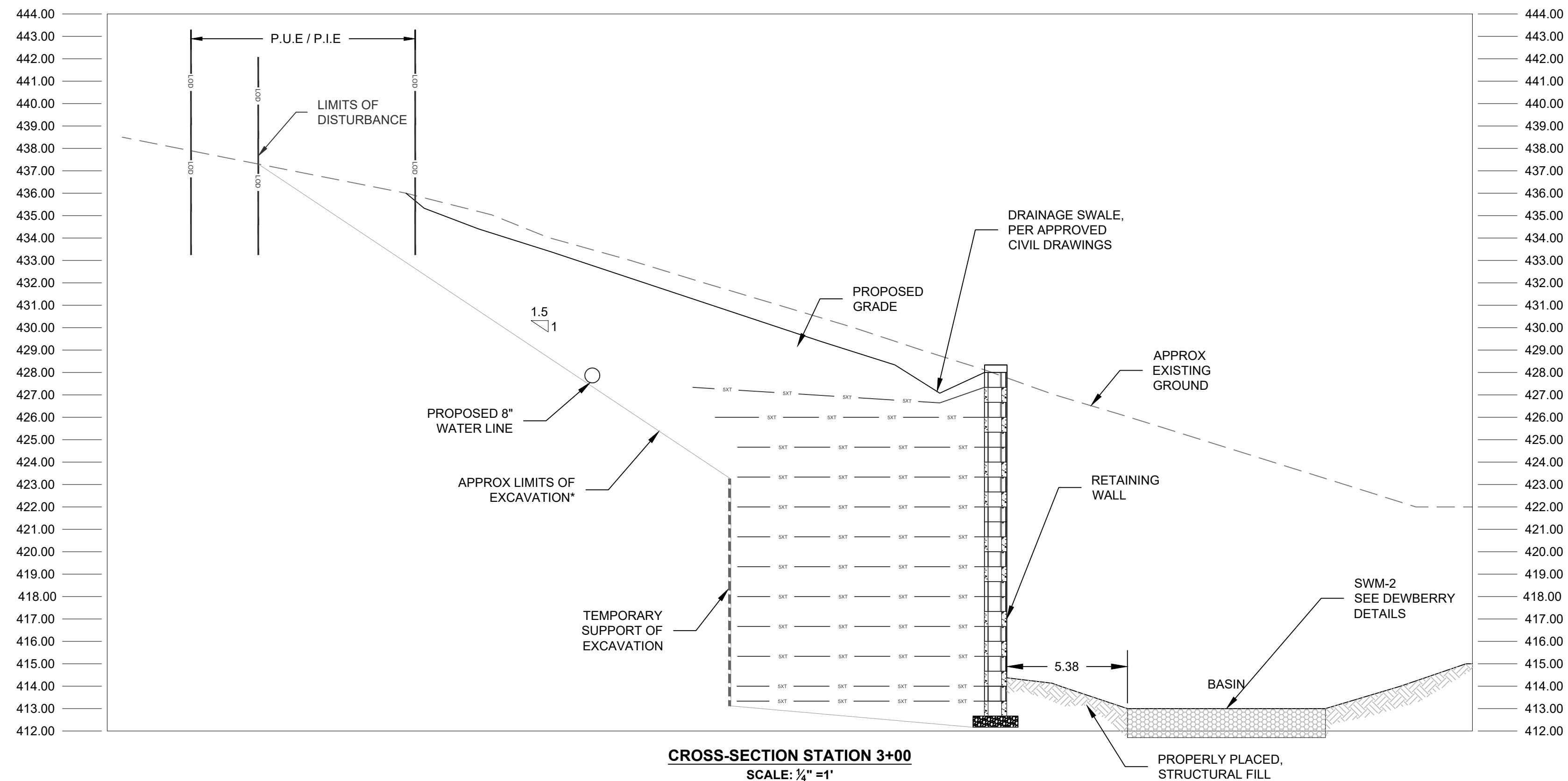
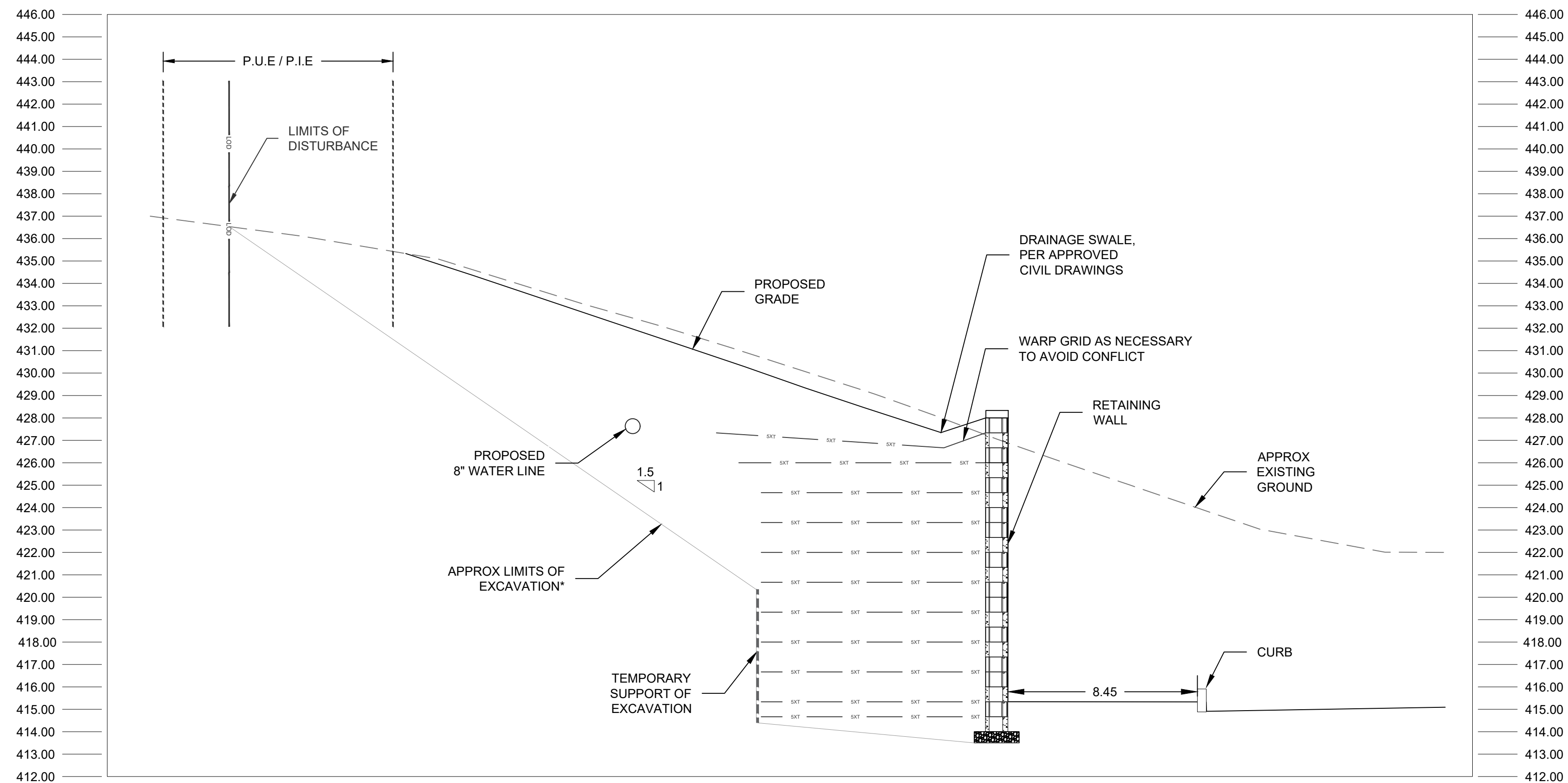
WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY,  
MARYLAND



WHIP CLEAN - THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO.	24001629.001A
ISSUE DATE	8/14/2024
CURRENT REVISION	-
DESIGNED BY	J.E.K
DRAWN BY	S.P.D
CHECKED BY	J.E.K
APPROVED BY	B.G.S

RW-9



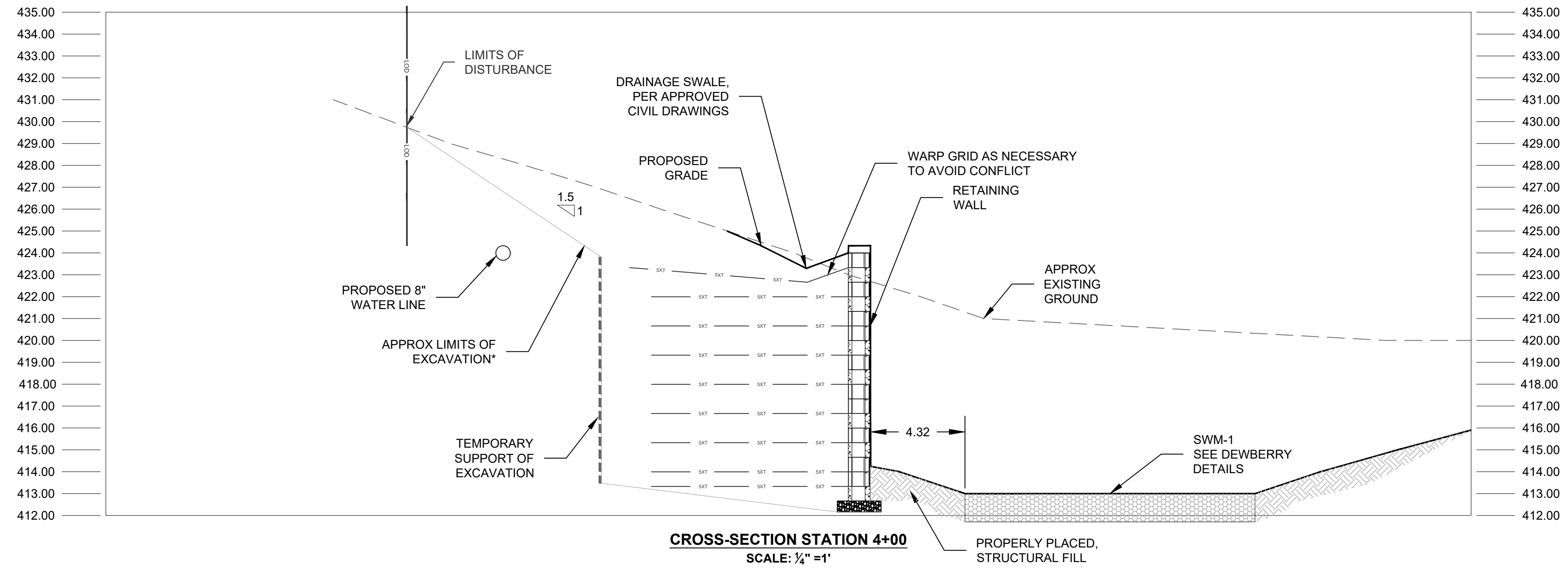
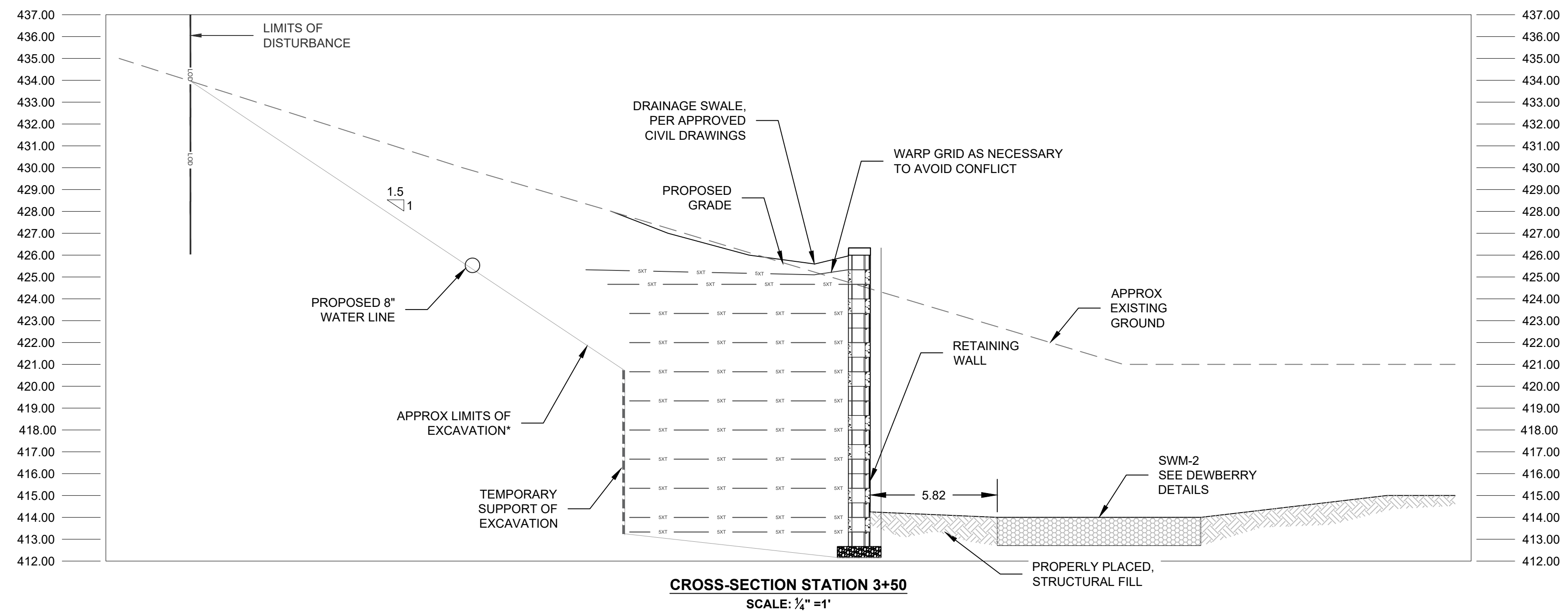
\*EXCAVATION NOTES:  
APPROXIMATE LIMITS OF EXCAVATION ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL EXTENTS OF EXCAVATION, AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE COMPLETED IN ACCORDANCE WITH OSHA REGULATIONS.



PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 13981. EXPIRATION DATE: 06-12-2026

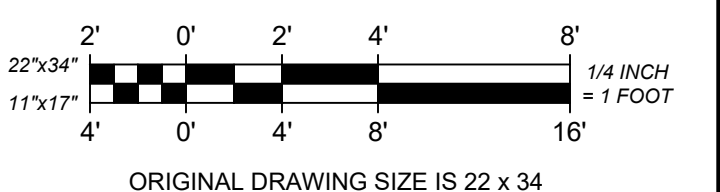
REVISIONS

REV	DESCRIPTION	DSN DWN	CHK APP	DATE
1	REVISED PER CITY REVIEW	SPD	JEK BGS	10/17/2024



**ISSUED FOR PERMITTING**

SCALE VERIFICATION  
THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING  
0 1"  
IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY



CROSS SECTIONS - 3

WHIP CLEAN RETAINING WALL  
CITY OF GAITHERSBURG, MONTGOMERY COUNTY, MARYLAND



WHIP CLEAN - THE CAR WASH  
1956 CRAIN HIGHWAY  
BOWIE, MD 20716

PROJECT NO.	24001629.001A	RW-10
ISSUE DATE	8/14/2024	
CURRENT REVISION	-	
DESIGNED BY	J.E.K	
DRAWN BY	S.P.D	
CHECKED BY	J.E.K	10 of 10
APPROVED BY	B.G.S	

\*EXCAVATION NOTES:  
APPROXIMATE LIMITS OF EXCAVATION ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. FINAL EXTENTS OF EXCAVATION, AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE COMPLETED IN ACCORDANCE WITH OSHA REGULATIONS.

CAD FILE: L:\Whip Clean\24001629.001A\Whip Clean Carwash Development\Working\2.0 Technical Information\CADD\CrossSection.dwg LAYOUT: RW-10 PLOTTED: 10/17/2024 9:58 PM BY: stephen.deberry