#### SPECIFICATIONS:

MDOT SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JULY 2021.

## DESIGN:

AASHTO LOAD AND RESISTANCE FACTOR DESIGN (LRFD) BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020, INCLUDING ALL INTERIMS.

## LOADING:

HL-93

#### LOAD RESTRICTIONS:

THERE ARE RESTRICTIONS FOR PLACING EQUIPMENT AND MATERIALS ON EXISTING AND NEW STRUCTURE(S). REFER TO SECTION TC 6.14

#### **RETAINING WALL TYPES:**

MSE WALL

#### STRUCTURAL STEEL:

NEW STRUCTURAL STEEL SHALL CONFORM TO A 709, GRADE 50. INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF M 270, FOR PRIMARY LOAD CARRYING MEMBERS. REFER TO SECTION 909.01.

#### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60, WITH A YIELD STRENGTH OF fy = 60,000 PSI AND SHALL BE EPOXY COATED.

FOR TIES AND STIRRUPS, STANDARD ACIBENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACIBENDING TOLERANCES

ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS.

MINIMUM CONCRETE COVER 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

#### REINFORCED CONCRETE:

ALL CONCRETE FOR ABUTMENT BACKWALLS, PARAPET AT ABUTMENT WING WALLS AND ENTIRE SUPERSTRUCTURE(S) SHALL BE MIX NO. 6 (4500 PSI) CONTAINING SYNTHETIC FIBERS (SEE SECTION 902.15.01).

ALL CONCRETE FOR PARAPETS AND MOMENT SLABS ON WALLS, AND RETAINING WALLS WITHIN IO FT. OF THE PAVED ROADWAY SHALL BE MIX NO. 6 (4500 PSI) CONTAINING SYNTHETIC FIBERS (SEE SECTION 902.15.01).

ALL OTHER STRUCTURE SHALL BE MIX NO. 3 (3500 PSI).

EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4"X3/4", EXCEPT AS NOTED OTHERWISE.

## PROTECTIVE COATING:

APPLY CLEAR ANTI-GRAFFITI COATING TO ALL EXPOSED WALL SURFACE PER SPECIFICATIONS SECTION 917.04.

VERIFICATION OF EXISTING GEOMETRICS/STRUCTURES:

ALL DIMENSIONS AFFECTED BY THE FIELD GEOMETRICS AND/OR ELEVATION SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION BEGINS, AND BEFORE ANY MATERIAL IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS.

# TEMPORARY SUPPORT DURING CONSTRUCTION:

THE DESIGN OF THE TEMPORARY SHEETING, SHORING AND TEMPORARY SUPPORT SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DONE BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF MARYLAND AND FAMILIAR WITH THE PARTICULAR METHODS AND/OR PROCEDURES BEING PROPOSED. ALL SYSTEMS ARE SUBJECT TO THE EXAMINATION OF THE ENGINEER. THE WORK WILL NOT BE MEASURED BUT THE COST WILL BE INCIDENTAL TO OTHER ITEMS SPECIFIED.

## UNDERGROUND WARNING TAPE:

INSTALL "NO DIG" DETECTABLE UNDERGROUND WARNING TAPE AT LEAST 24" BELOW THE PROPOSED GROUND OVER MSE WALL GEOSYNTHETIC REINFORCEMENT

#### UTILITIES:

PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR MUST NOTIFY "MISS UTILITY" AT 800-257-7777, 72 HOURS (EXCLUDING WEEKENDS AND HOLIDAYS) IN ADVANCE FOR THE EXACT LOCATION OF UTILITIES LOCATED ON THE SITE.

ALL EXISTING UTILITIES ON THE SITE, IF AFFECTED BY THE CONSTRUCTION, MUST BE PROTECTED AND TEMPORARILY SUPPORTED DURING CONSTRUCTION. ANY DAMAGE INCURRED TO UTILITIES MUST BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. UTILITY RELOCATION, IF NECESSARY, SHALL BE COORDINATED WITH THE AGENCIES INVOLVED.

FOR FULL INFORMATION REGARDING UTILITY PROTECTION, SEE SECTION 107.03.06 "UTILITIES", SECTION 204.03.06 "PROTECTION OF STRUCTURES AND UTILITIES DURING CONSTRUCTION", SECTION 205 "TEST PIT EXCAVATION", AND SECTION 210 "TAMPED FILL" IN THE SPECIFICATIONS.

#### SOIL BEARING PRESSURE:

THE SUBGRADE SOIL OF RETAINING WALL SHALL BE PROOF-ROLLED IN ACCORDANCE WITH SPECIFICATION SECTION 204.03.04. PROOF-ROLLING SHALL BE INSPECTED BY THE ENGINEER. ANY SOFT OR LOOSE ZONES THAT CANNOT BE DENSIFIED IN-PLACE SHOULD BE UNDERCUT TO A DEPTH, LENGTH AND WIDTH AS DIRECTED BY THE ENGINEER. THE UNSUITABLE SOIL, WHERE EXISTS, CAN BE REMOVED UP TO A MAXIMUM DEPTH OF 24 INCHES BELOW THE FOOTING AND REPLACED WITH SUITABLE STRUCTURAL FILL IN ACCORDANCE WITH SPECIFICATION SECTIONS 204 AND 208. DEEPER UNDERCUTS SHOULD BE AVOIDED UNLESS APPROVED BY THE ENGINEER.

A FACTORED SOIL NOMIMAL BEARING RESISTANCE OF 2,400 PSF (SERVICE LIMIT) AND 3,600 PSF (STRENGTH LIMIT) RESPECTIVELY IS RECOMMENDED FOR THE FOUNDATION SOILS OF RETAINING WALLS.

THE GEOTECHNICAL ENGINEER SHALL INSPECT, VERIFY, AND CERTIFY THAT THE SUBGRADE HAS THE REQUIRED BEARING CAPACITY.

THE DESIGNER OF THE PRIOPRIETARY RETAINING WALL SHALL VERIFY THE FACTORED DESIGN FOUNDATION PRESSURE IS NOT MORE THAN THE FACTORED SOIL NOMINAL BEARING RESISTANCE. OTHERWISE, THE ENGINEER SHALL BE NOTIFIED.

#### CONCRETE SEGMENTAL BLOCKS:

THE WALLS SHALL BE CONSTRUCTED WITH APPROVED SEGMENTAL BLOCKS/UNITS AND MECHANICALLY STABILIZED EARTH SYSTEMS. THE EXTERNAL FACE SHALL BE OF STONE STRAIGHT FINISH WITH A LIGHT-TO-DARK BROWN COLOR AS MANUFACTURED BY LISTED ANCHOR WALL SYSTEMS OR APPROVED EQUAL. CONCRETE UNITS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI. THE CONCRETE SHALL HAVE A MINIMUM ABSORPTION OF 7.5 LB PER CUBIC FEET. UNITS SHALL BE INTERLOCKED AND PROVIDE EITHER A NEAR VERTICAL FACE OR SETBACK OF 1:16.

## CAST-IN-PLACE CONCRETE LEVELING PAD:

THE LOCATION FOR THE BOTTOM OF THE PAD SHOWN ON THE PLANS IS APPROXIMATE. THE FINAL LOCATION SHALL BE PROVIDED BY THE CONTRACTOR/SUPPLIER OF THE WALL SYSTEM.

## BACKFILL:

SIZE NO.57 STONE SHALL BE USED FOR BACKFILL FOR ALL PREAPPROVED ALTERNATE RETAINING WALLS REGARDLESS OF THE TYPE BACKFILL RECOMMENDED OR SPECIFIED BY THE RETAINING WALL MANUFACTURER.

## GEOGRID:

GEOGRID SHALL BE PLACED AS REQUIRED AND SHALL HAVE THE PROPERTY REQUIREMENTS DESCRIBED WITHIN THE MANUFACTURER'S SPECIFICATIONS. GEOGRID SHALL BE HIGH DENSITY POLYETHYLENE SHEET OR POLYESTER WOVEN FIBER MATERIAL. PROVIDING AN ULTIMATE TENSILE STRENGTH OF 5,000 POUNDS OR MORE, SPECIFICALLY FOR USE AS SOIL REINFORCEMENT. A MANUFACTURER'S PRODUCT SHALL BE APPROVED BY THE ENGINEER.

# LIST OF APPROVED MSE WALL MANUFACTURERS:

FOR A LIST OF MDOT SHA APPROVED MSE WALLS, REFER TO THE WEBSITE AT (https://www.roads.maryland.gov/obd/MSEWallList.pdf)

#### SUBMITTALS:

MANUFACTURER AND/OR BUILDER SHALL SUBMIT TO THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION AND THE MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION, THE FOLLOWING ITEMS FOR ENGINEER'S APPROVAL PRIOR TO FABRICATION OF WALL MEMBERS AND BEGINNING OF CONSTRUCTION:

- A. PRODUCT DATA MANUFACTURER'S MATERIAL SPECIFICATIONS, INSTALLATION INSTRUCTIONS, AND GENERAL RECOMMENDATIONS FOR EACH MANUFACTURED PRODUCT SPECIFIED.
- B. CERTIFICATIONS RETAINING WALL SYSTEM SUPPLIER SHALL PROVIDE CERTIFICATION THAT THE ULTIMATE STRENGTH OF THE STRUCTURAL GEOGRID IS EQUAL TO OR GREATER THAN THE ULTIMATE STRENGTH SPECIFIED IN THE PLANS.
- C. SHOP DRAWINGS RETAINING WALL SYSTEM DESIGN, INCLUDING WALL ELEVATION VIEWS, DRAINAGE PROVISIONS, TYPICAL SECTIONS, DETAILS, AND CONNECTIONS.
- D. DESIGN CALCULATIONS ENGINEERING DESIGN CALCULATIONS PREPARED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. ANALYSIS OF GLOBAL STABILITY MUST BE ADDRESSED AND INCORPORATED INTO THE SHOP DRAWINGS.

## E. SAMPLES:

- I. GEOGRID FURNISH 12 INCH SQUARE OR LARGER PIECE.
- 2. SEGMENTAL CONCRETE FACING UNIT FURNISH ONE UNIT IN THE SELECTED COLOR AND FACE PATTERN.
- 3. SHEAR PIN OR CONNECTION DEVICE.
- F. QUALITY CONTROL SUBMITTALS:
  - I. DESIGN DATA DESIGN CALCULATIONS AND PLANS FOR THE RETAINING WALL SYSTEM SHALL BE SIGNED / SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF MARYLAND WHO IS EMPLOYED WITH A FIRM THAT HAS DESIGNED AT LEAST 500,000 SF OF SEGMENTAL RETAINING WALLS.
  - 2. CERTIFICATES MANUFACTURER'S CERTIFICATION THAT ULTIMATE TENSILE STRENGTH AND THE JUNCTION STRENGTH OF THE GEOGRID ARE EQUAL TO OR GREATER THAN THOSE SPECIFIED.
  - 3. TEST REPORTS INDEPENDENT LABORATORY REPORTS STATING MOISTURE ABSORPTION AND COMPRESSIVE STRENGTH PROPERTIES OF THE CONCRETE RETAINING WALL UNITS MEET THE PROJECT SPECIFICATIONS WHEN TESTED IN ACCORDANCE WITH ASTM CI40, SECTIONS 6. 8 AND 9.

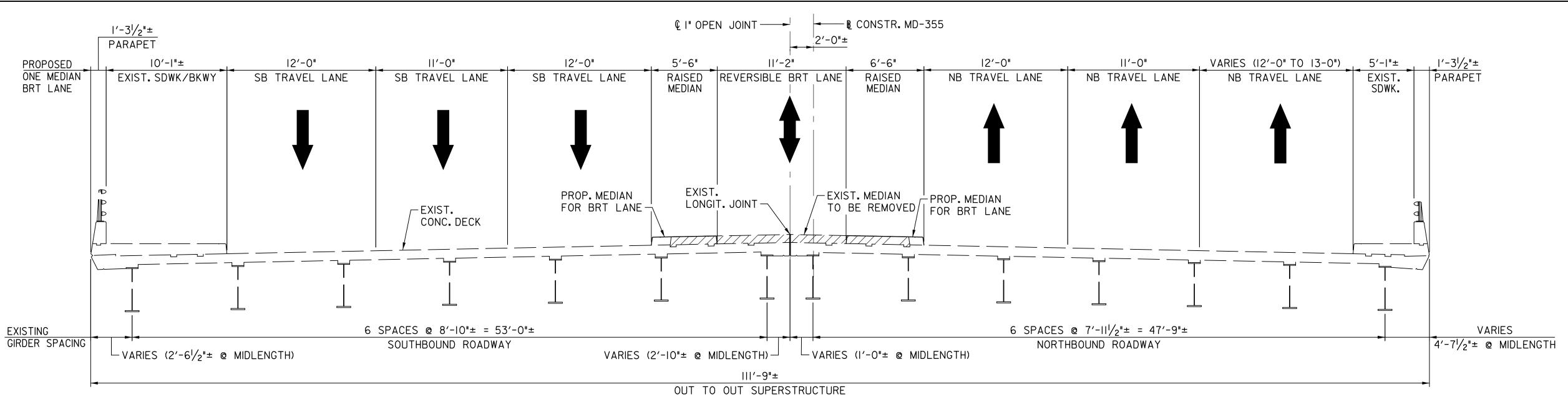
Stantec
6110 FROST PLACE,
LAUREL, MARYLAND 20707
(301) 982–2800
www.stantec.com

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: EXPIRATION DATE:

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL STRUCTURAL GENERAL NOTES REVISION DATE Date Chief, Design Section APPROVED SCALE: AS SHOWN DATE: DECEMBER 2022 Chief, Division of Transportation Engineering Project No. :502005 SHEET 741 of 887 Designed by :\_\_\_\_\_ Checked by : Drawn by :\_\_\_\_

S-1

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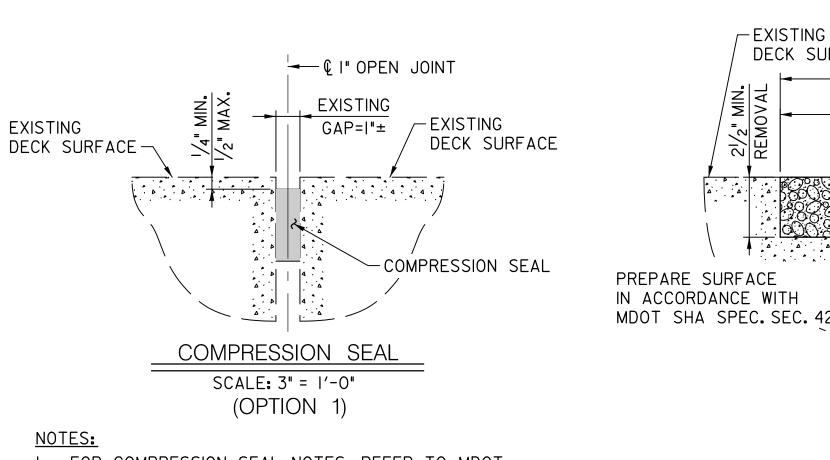


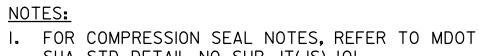
BRIDGE NO. 150055001

# FREDERICK ROAD (MD 355) OVER GREAT SENECA CREEK

SCALE: I" = 5'-0"

(STA. 6063 + 95.50 TO STA. 6066 + 80.92)





SHA STD. DETAIL NO. SUP-JT(JS)-101. 2. FOR COMPRESSION SEAL REQUIREMENTS, REFER TO MDOT SHA SPEC. SEC. 911.04.

OF TRAFFIC DEVICES AND EROSION AND SEDIMENT CONTROLS.

MADE I" BELOW THE TOP OF THE ADJACENT CONCRETE DECK.

4. DEMOLITION THE MEDIAN AS INDICATED IN THESE CONTRACT DOCUMENTS.

TO THE MEDIAN SCHEDULED FOR DEMOLITION.

MEDIAN SEQUENCE OF CONSTRUCTION

# ← QI" OPEN JOINT DECK SURFACE -ELASTOMERIC CONCRETE PLUG JOINT -EXISTING DECK SURFACE -1/8" STAINLESS STEEL\_PLATE MDOT SHA SPEC. SEC. 426-**EXISTING** GAP=I"± CONCRETE PLUG JOINT SCALE: 3" = 1'-0" (OPTION 2)

OPTION 2: CONCRETE PLUG JOINT

- REDUCED DECK IMPACT. - REDUCED FUTURE MAINTENANCE COMPARED TO COMPRESSION SEAL.

CONS

- LIMITED USAGE HISTORY. VDOT RETROFITTING TRANSVERSE JOINTS WITH THIS SYSTEM.

OPTION I: COMPRESSION SEAL

- LIMITED DECK IMPACT.

- LEAST DURABLE OPTION.

THE DEMOLISTION OF THE EXISTING DECK SHALL BE MADE 1/2" MAXIMUM BELOW TO TOP OF DECK. THE CONTRACTOR SHALL ENSURE THAT THE DECK DEMOLITION LIMITS ARE NOT EXCEEDED AS SHOWN IN THE CONTRACTOR DOCUMENTS, DEMOLITION BEYOND THE LIMITS

6. PLACE LMC OVERLAY IN ACCORDANCE WITH THE MDOT SHA SPECIFICATION SECTION 462 AND THE CONTRACT DOCUMENTS TO MATCH THE EXISTING ELEVATIONS AND CROSS SLOPES OF THE EXISTING DECK.

SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

ENSURE ALL MEDIAN CLOSURE SIGNS AND MARKINGS ARE IN PLACE. INSTALL MAINTENANCE

DURING LANE CLOSURE HOURS AS ALLOWED BY PERMITS, CLOSE LEFT LANES ADJACENT

3. CONDUCT A FULL DEPTH SAW CUT OF THE EXISTING MEDIAN. THE SAW CUT SHALL BE

7. CAST THE PROPOSED REVERSIBLE BRT LANE MEDIANS WITH REINFORCED CONCRETE AS INDICATED IN THESE CONTRACT DOCUMENTS.

OPTION 3: FULL JOINT ELIMINATION - FUTURE MAINTENANCE MINIMIZED.

EXIST. DECK

REINF. STEEL (TYP.)

- SIGNIFICANT DECK IMPACT/RECONSTRUCTION.

**LEGEND** 

└─VARIES (I'-O"± @ MIDLENGTH)

21'-0"± LIMITS OF REHABILITATION

LIMITS OF FULL DEPTH REPLACEMENT

FULL JOINT ELIMINATION

SCALE:  $\frac{1}{2}$ " = 1'-0" (OPTION 3)

Checked by :

4'-10"±

#5 SPA. TO MATCH

EXIST. REINF. (E) —

SI/3

VARIES (2'-10"± @ MIDLENGTH) ─

© EXISTING I" OPEN JOINT → 2'-0"± - ® CONSTR. MD-355

4'-7"±

S2/3

AREA OF DEMOLITION

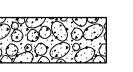
5′-II"±

LIMITS OF LMC OVERLAY

LIMITS OF

 $7'-11^{1}/_{2}"\pm (S2)$ 

DEMOLITION (TYP.)



AREA OF ELASTOMERIC CONCRETE

S-2

RECOMMENDED FOR APPROVAL REVISION DATE Chief, Design Section PROFESSIONAL CERTIFICATION: APPROVED I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982-2800 LICENSE NO: \_\_\_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_

Stantec

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND

Drawn by :\_\_\_\_

5′-8"±

LIMITS OF LMC OVERLAY

PREPARE SURFACE

(E) = EPOXY COATED

IN ACCORDANCE WITH

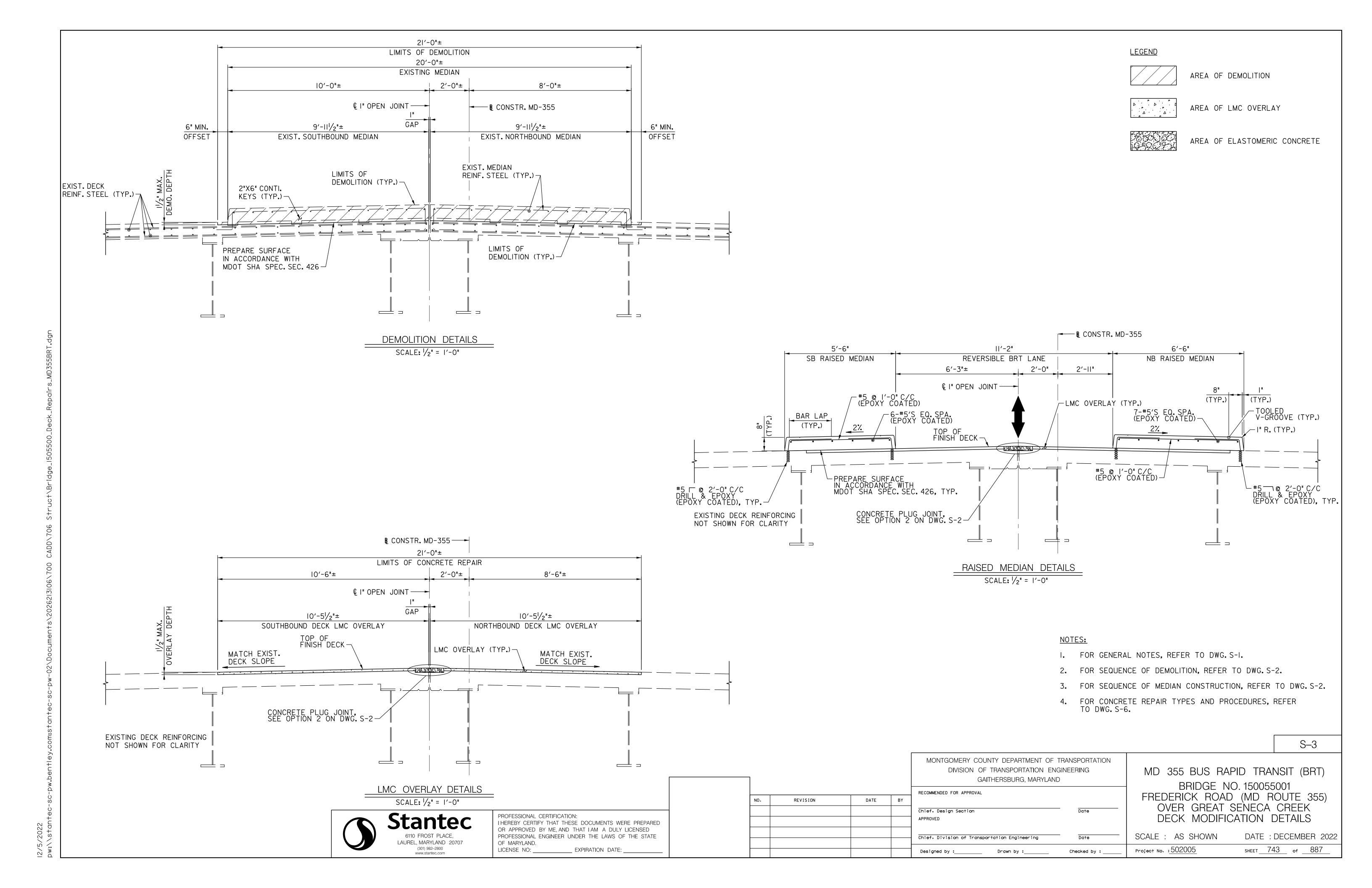
MDOT SHA SPEC. SEC. 426

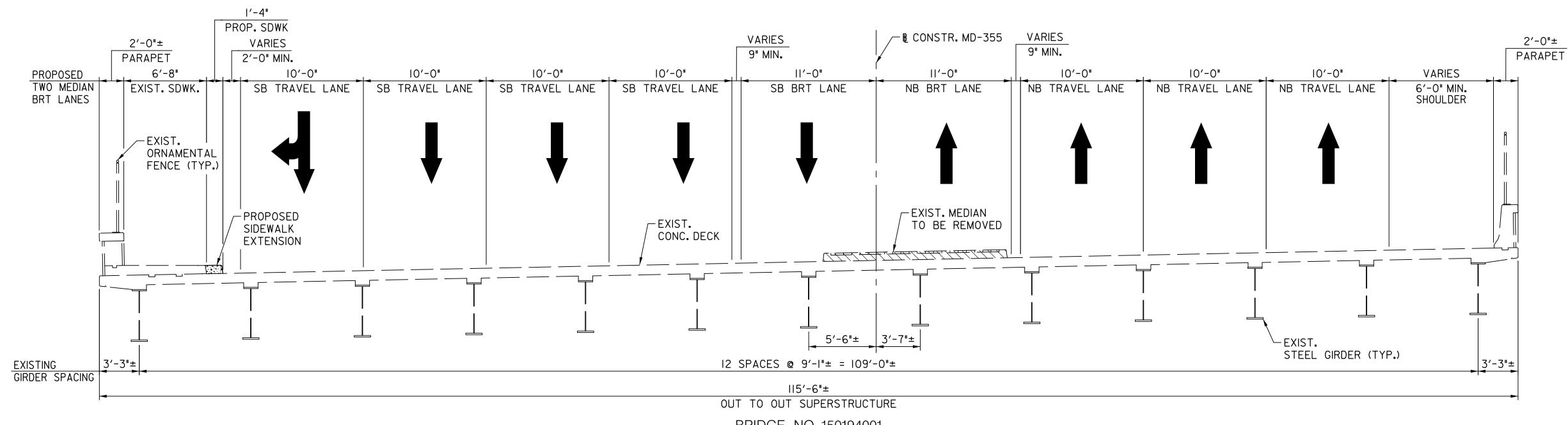
8'-10"± (SI)

MD 355 BUS RAPID TRANSIT (BRT) BRIDGE NO. 150055001 FREDERICK ROAD (MD ROUTE 355)

OVER GREAT SENECA CREEK TYPICAL SECTION

SCALE : 1" = 5"DATE: DECEMBER 2022 SHEET 742 of 887 Project No. :502005





BRIDGE NO. 150194001

ROCKVILLE PIKE (MD 355) BRIDGE OVER MONTROSE PARKWAY

SCALE: I" = 5'-0"

(STA. 2104 + 49.45 TO STA. 2106 + 28.47)

# MEDIAN SEQUENCE OF CONSTRUCTION

- I. ENSURE ALL MEDIAN CLOSURE SIGNS AND MARKINGS ARE IN PLACE, INSTALL MAINTENANCE OF TRAFFIC DEVICES AND EROSION AND SEDIMENT CONTROLS.
- 2. DURING LANE CLOSURE HOURS AS ALLOWED BY PERMITS, CLOSE LEFT LANES ADJACENT TO THE MEDIAN SCHEDULED FOR DEMOLITION.
- 3. CONDUCT A FULL DEPTH SAW CUT OF THE EXISTING MEDIAN. THE SAW CUT SHALL BE MADE I" BELOW THE TOP OF THE ADJACENT CONCRETE DECK.
- 4. DEMOLITION THE MEDIAN AS INDICATED IN THESE CONTRACT DOCUMENTS.
- THE DEMOLISTION OF THE EXISTING DECK SHALL BE MADE  $1\frac{1}{2}$ " MAXIMUM BELOW TO TOP OF DECK. THE CONTRACTOR SHALL ENSURE THAT THE DECK DEMOLITION LIMITS ARE NOT EXCEEDED AS SHOWN IN THE CONTRACTOR DOCUMENTS. DEMOLITION BEYOND THE LIMITS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- 6. PLACE LMC OVERLAY IN ACCORDANCE WITH THE MDOT SHA SPECIFICATION SECTION 462 AND THE CONTRACT DOCUMENTS TO MATCH THE EXISTING ELEVATIONS AND CROSS SLOPES OF THE EXISTING DECK.

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982-2800

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: \_\_\_\_\_ EXPIRATION DATE: \_

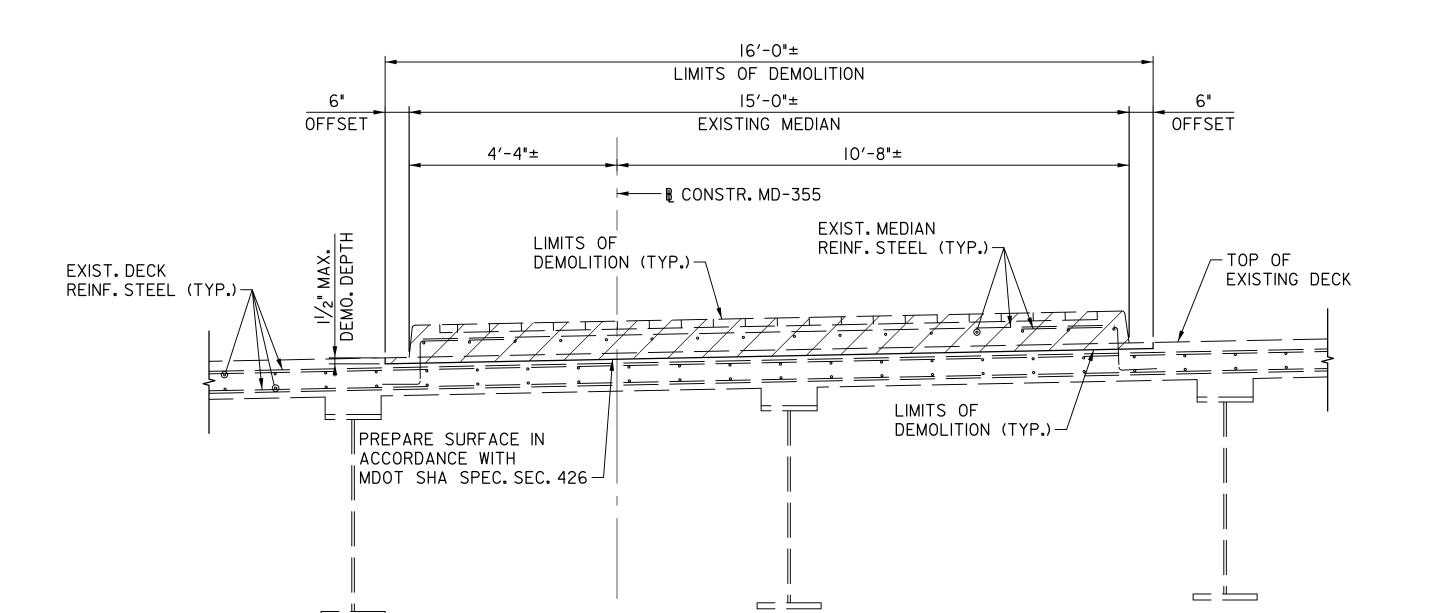
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL REVISION DATE Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

MD 355 BUS RAPID TRANSIT (BRT) BRIDGE NO. 150194001 ROCKVILLE PIKE (MD ROUTE 355) OVER MONTRÒSE PARKWAY TYPICAL SECTION

DATE: DECEMBER 2022 SHEET <u>744</u> of <u>887</u> Project No. :502005

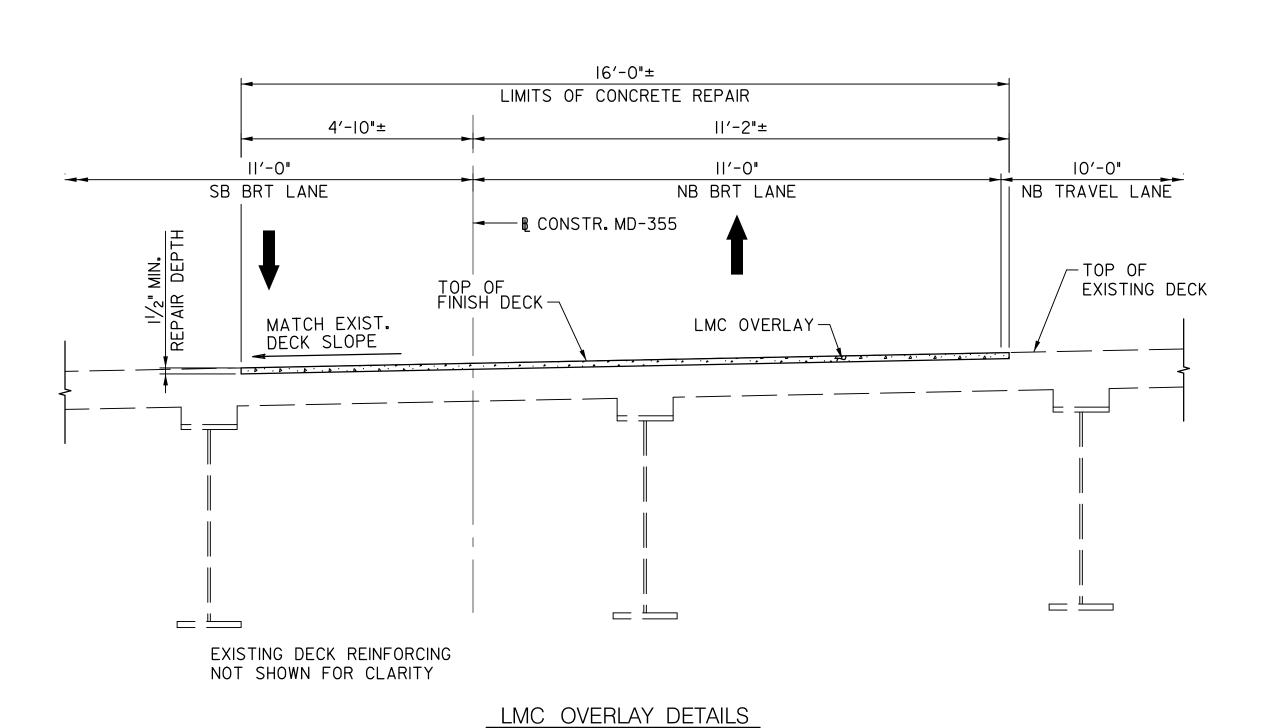
SCALE : 1" = 5"

S-4



DEMOLITION DETAILS

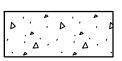
SCALE:  $\frac{1}{2}$ " = 1'-0"



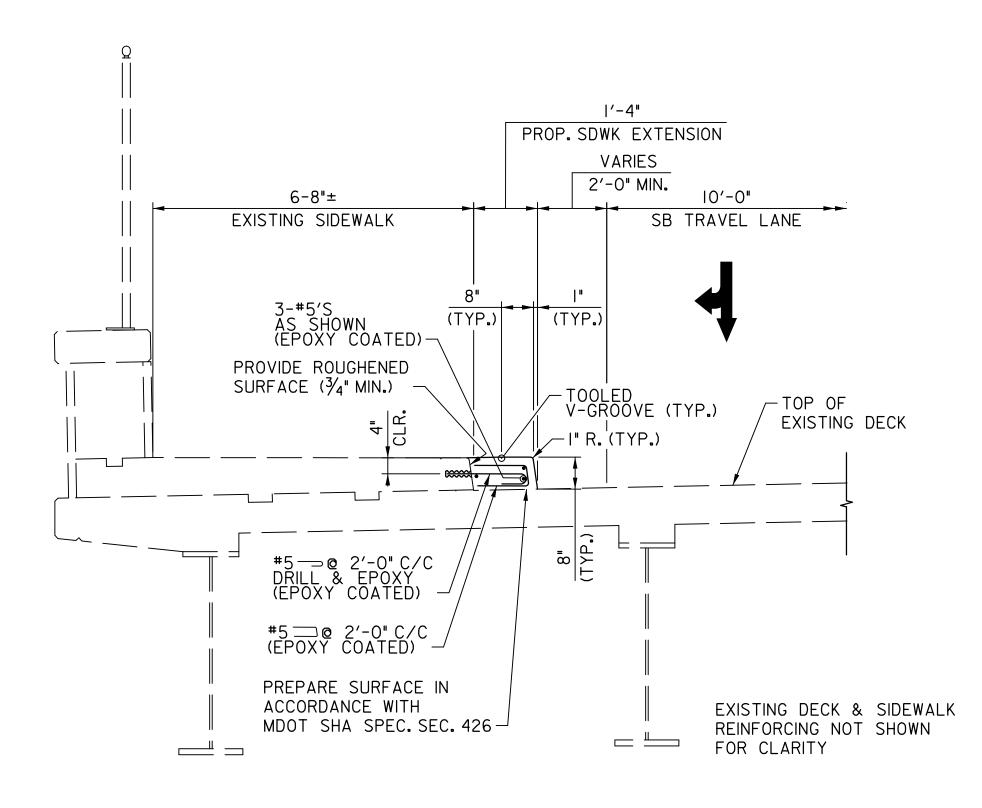
SCALE:  $\frac{1}{2}$ " = 1'-0"



AREA OF DEMOLITION



AREA OF LMC OVERLAY



# SIDEWALK EXTENSION DETAILS SCALE: $\frac{1}{2}$ " = 1'-0"

# NOTES:

- I. FOR GENERAL NOTES, REFER TO DWG. S-I.
- 2. FOR SEQUENCE OF DEMOLITION, REFER TO DWG. S-4.
- 3. FOR SEQUENCE OF SIDEWALK CONSTRUCTION, REFER TO DWG. S-4.

S-5

4. FOR CONCRETE REPAIR TYPES AND PROCEDURES, REFER TO DWG.S-6.

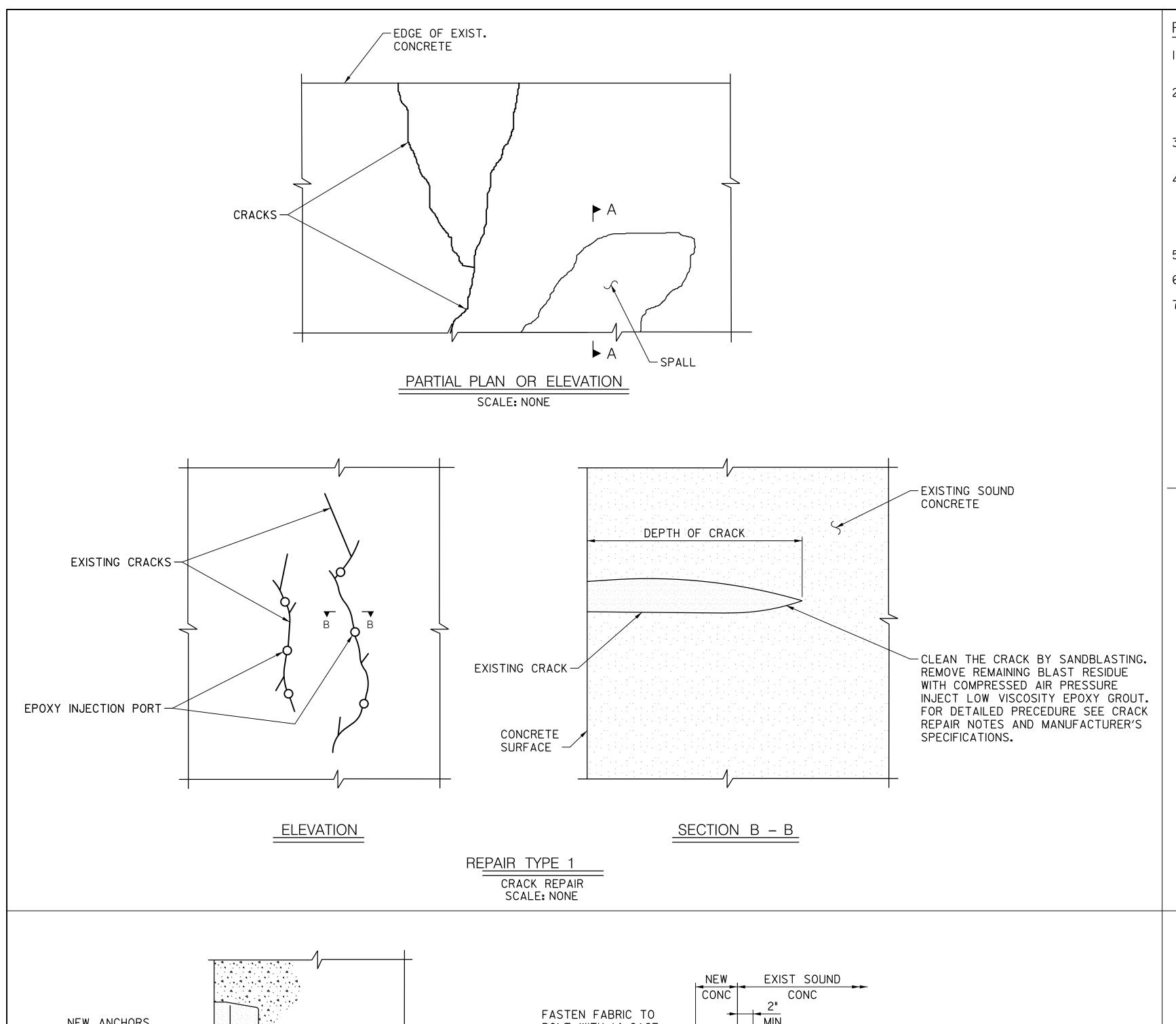
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND BRIDGE NO. 150194001 RECOMMENDED FOR APPROVAL ROCKVILLE PIKE (MD ROUTE 355) OVER MONTRÒSE PARKWAY Chief, Design Section DECK MODIFICATION DETAILS APPROVED SCALE : AS SHOWN DATE: DECEMBER 2022 Chief, Division of Transportation Engineering SHEET 745 of 887 Project No. :502005 Checked by : \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_

DATE BY

REVISION

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800

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: \_\_\_ \_\_\_ EXPIRATION DATE: \_



## REPAIR TYPE 1 - CRACK REPAIR:

- I. CLEAN ALL CRACKS OF LOOSE MATTER SUCH AS DIRT, LAITANCE, OIL. GREASE, SALT AND ANY OTHER CONTAMINANTS.
- 2. APPLY SURFACE SEAL MATERIAL (USE SIKADUR 31 HI-MOD GEL BY SIKA CORPORATION OR APPROVED EQUAL) ACROSS THE FACE OF THE CONCRETE TO ENCLOSE THE CRACK.
- 3. ESTABLISH OPENINGS (ENTRY PORTS) IN THE SURFACE SEAL AT 4" TO 18" APART.
- 4. AFTER THE SURFACE SEAL SETS. INJECT LOW VISCOSITY EPOXY GROUT AT THE LOWEST PORT. USE SIKADUR 35 HI-MOD LV BY SIKA CORPORATION OR APPOVED EQUAL. CONTINUE INJECTION UNTIL RESIN BEGINS TO FLOW OUT OF THE PORT AT THE NEXT HIGHER LEVEL.
- 5. REPEAT THE PROCEDURE UNTIL ALL PORTS HAVE BEEN FILLED.
- 6. CURE AS PER THE MANUFACTURER'S SPECIFICATIONS.
- 7. REMOVE SURFACE SEAL MATERIAL AND INJECTION PORTS AND APPLY EPOXY GROUT AS REQUIRED TO FINISH THE CRACK.

# 1/2" SAW CUT (TYP.) CHIP AREA TO SOUND CONCETE, APPLY BONDING AGENT. FILL WITH NON-SHRINK GROUT -EXISTING SOUND CONCRETE REPAIR TYPE 3 NON-SHRINK GROUT REPAIR SCALE: NONE

## NOTES:

- I. REPAIR TYPE 2 APPLIES TO ALL CASES WHERE MAXIMUM DEPTH OF DETERIORATED CONCRETE EXCEEDS AT LEAST IN PART THE EXPOSED DEPTH OF REINFORCING OF THE MEMBER OR 2".
- 2. REPAIR TYPE 3 APPLIES TO ALL CASES WHERE MAXIMUM DEPTH OF DETERIORATED CONCRETE DOES NOT EXCEED THE DEPTH OF REINFORCING OR 2".
- 3. IN GENERAL, SPALLS LESS THAN 0.25SF SURFACE OR LESS THAN 1/2 "DEEP NEED NOT BE REPAIRED UNLESS REINFORCING STEEL IS EXPOSED.
- 4. REPAIRS SHALL BE MADE TO LEAST NEAT RECTANGULAR AREAS. THEREFORE, A PORTION OF EACH REPAIR WILL REQUIRE THE REMOVAL OF SOUND CONCRETE.
- 5. LOCATIONS OF REPAIR TYPE TO BE DETERMINED BY THE ENGINEER.

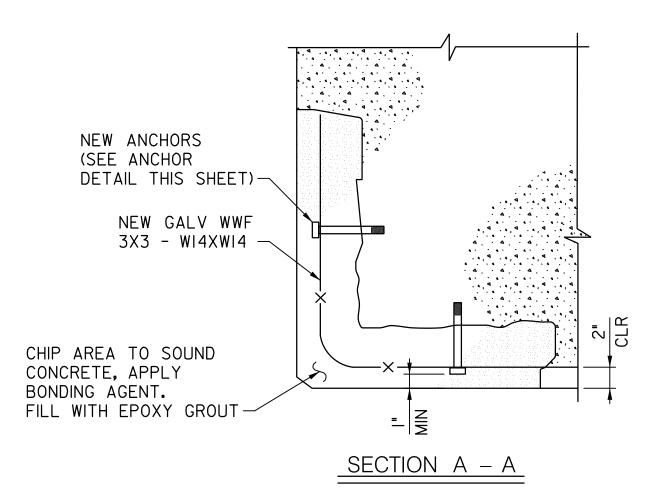
#### REPAIR TYPE 2 - CONCRETE REPAIR:

- SAW CUT AT LEAST 1/2" DEEP AROUND EDGE OF DESIGNATED REPAIR AREA.
- 2. REMOVE DETERIORATED CONCRETE. IF REINFORCING STEEL IS ENCOUNTERED, REMOVE SOUND CONCRETE TO A DEPTH OF AT LEAST 1/2" CLEAR OF DEEPEST REINFORCEMENT.
- 3. SQUARE CUT (UNDERCUT OR BEVEL CUT) EXISTING CONCRETE TO KEY IN NEW CONSTRUCTION.
- 4. IF ENCOUNTERED SANDBLAST AND/OR WIRE BRUSH EXISTING REINFORCEMENT BARS.
- CLEAN CONCRETE REPAIR SURFACE, PREPARE SURFACE PER INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI) "TECHNICAL GUIDELINES" GUIDELINE NOS. 310.1R-2008 AND 310.2R-2013.
- 6. PLACE  $\frac{3}{8}$ " DIA. CONCRETE ANCHORS AS NOTED OR AS DIRECTED BY THE ENGINEER AND SECURRE WELDED WIRE FABRIC TO EXISTING REINFORCEMENT AND/OR ANCHORS. WELDED WIRE FABRIC SHALL BE TIED AT A MAXIMUM SPACING OF 16" IN EACH DIRECTION.
- 7. SET FORMS MAINTAINING ALL CHAMFERS AND APPLY BOND BREAKER TO FORMS, PROVIDE ADEQUATE PORTS IN FORMS FOR APPLYING EPOXY GROUT. THE FORMS SHALL BE REMOVABLE.
- 8. PRIME EXPOSED EXISTING REINFORCEMENT, WIRE FABRIC AND ANCHORS WITH ZINK RICH PRIMER (USE SIKA ARMATEC 10 ZR BY SIKA CORPORATION OR APPROVED EQUAL). APPLY EPOXY RESIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 9. PRIME EXPOSED CONCRETE SURFACES WITH EPOXY RESIN (SIKADUR-32 HI-MOD BY SIKA CORPORATION OR APPROVED EQUAL). APPLY EPOXY RESIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BONDING COMPOUND SHALL BE IN "TACKY" CONDITION IMMEDIATELY PRIOR TO PLACING REPAIR CONCRETE.
- 10. FILL CAVITY WITH EPOXY GROUT (SIKADUR-42 GROUT PAK LE BY SIKA CORPORATION OR APPROVED EQUAL), FINISH AND CURE CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- II. FINISH SURFACE TO MATCH COLOR AND TEXTURE OF EXISTING SURFACE.

## REPAIR TYPE 3 - NON-SHRINK GROUT REPAIR:

- I. SAW CUT AT LEAST  $\frac{1}{2}$ " DEEP AROUND EDGE OF DESIGNATED REPAIR AREA.
- 2. REMOVE DETERIORATED CONCRETE TO A ROUGH PLANE SURFACE.
- 3. CLEAN EXPOSED SOUND CONCRETE. IF ENCOUNTERED SANDBLAST AND/OR WIRE BRUSH EXISTING REINFORCEMENT BARS, PREPARE SURFACE PER INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI) "TECHNICAL GUIDELINES" GUIDELINE NOS. 310.IR-2008 AND 310.2R-2013.
- 4. SET FORMS MAINTAINING ALL CHAMFERS AND APPLY BOND BREAKER TO FORMS, PROVIDE ADEQUATE PORTS IN FORMS FOR APPLYING EPOXY GROUT. THE FORMS SHALL BE REMOVABLE.
- 5. PRIME EXPOSED EXISTING REINFORCEMENT, WIRE FABRIC AND ANCHORS WITH ZINK RICH PRIMER (USE SIKA ARMATEC 10 ZR BY SIKA CORPORATION OR APPROVED EQUAL). APPLY EPOXY RESIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 6. PRIME EXPOSED CONCRETE SURFACES WITH EPOXY RESIN (USE SIKADUR-32 HI-MOD BY SIKA CORPORATION OR APPROVED EQUAL) APPLY EPOXY RESIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BONDING COMPOUND SHALL BE IN "TACKY" CONDITION IMMEDIATELY PRIOR TO PLACING REPAIR CONCRETE.
- . FILL CAVITY WITH NON-SHRINK GROUT (SIKADUR-42 GROUT PAK LE BY SIKA CORPORATION OR APPROVED EQUAL), FINISH AND CURE GROUT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- 8. FINISH SURFACE TO MATCH COLOR AND TEXTURE OF EXISTING SURFACE.

S-6 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL REVISION DATE CONCRETE REPAIR DETAILS Chief, Design Section APPROVED SCALE: AS SHOWN DATE: DECEMBER 2022 Chief, Division of Transportation Engineering Project No. :502005 SHEET 746 of 887 Checked by : Designed by :\_\_\_\_ Drawn by :\_\_\_



MIN BOLT WITH 14 GAGE BLACK ANNEALED WIRE -APPROVED 3/8" SNAP-OFF CONC ANCHOR (MIN. PULLOUT TENSION 300 LBS) STD GALV 3/8" DIA MACHINE BOLT (LENGTH VARIES). AT 8" MAX SPACING -EPOXY ADHESIVE HORIZONTALLY AND VERTICALLY BOND AGENT -NEW WELDED WIRE FABRIC ANCHOR DETAIL

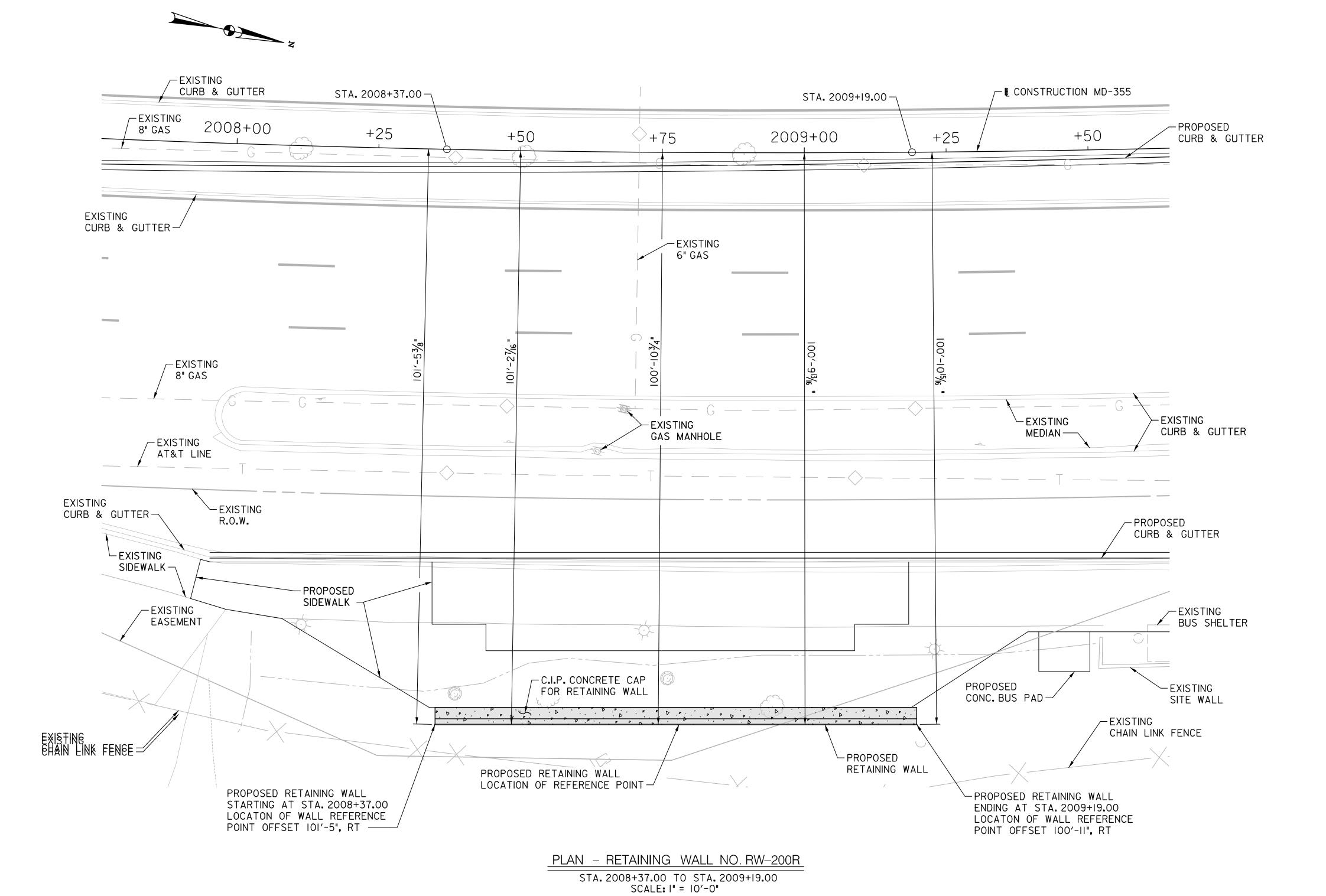
Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982-2800

PROFESSIONAL CERTIFICATION: THEREBY 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: \_\_ EXPIRATION DATE:

REPAIR TYPE 2

CONCRETE REPAIR

SCALE: NONE



OF MARYLAND.

LICENSE NO: \_\_\_\_

\_\_\_\_\_ EXPIRATION DATE: \_

(301) 982–2800 www.stantec.com

S-7 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-200R DATE BY REVISION PLAN Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED
OR APPROVED BY ME, AND THAT I AM A DULY LICENSED Stantec APPROVED DATE: DECEMBER 2022 6110 FROST PLACE, SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707

Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_

SHEET 747 of 887

Project No. : 502005

Checked by : \_

LICENSE NO: \_\_\_

\_\_\_ EXPIRATION DATE: \_

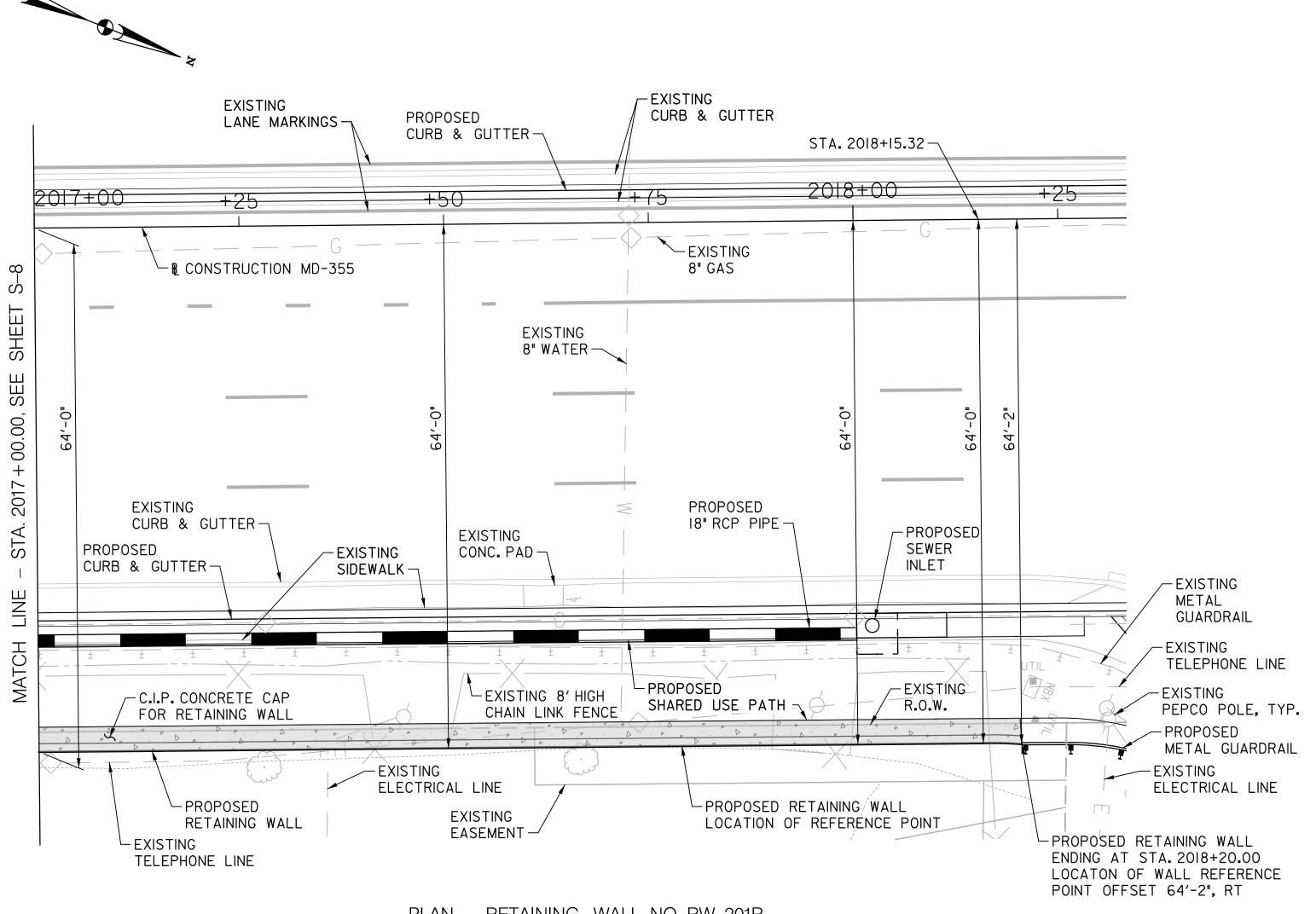
SHEET <u>748</u> of <u>887</u>

Project No. :502005

Designed by :\_\_\_\_\_

Drawn by :\_\_\_\_

Checked by : \_



PLAN - RETAINING WALL NO. RW-201R

STA. 2014+10.00 TO STA. 2018+20.00

SCALE: I" = 10'-0"

RECOMMENDED FOR APPROVAL DATE BY REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com LICENSE NO: \_\_\_ \_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION

DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

S-9

DATE: DECEMBER 2022

SHEET 749 of 887

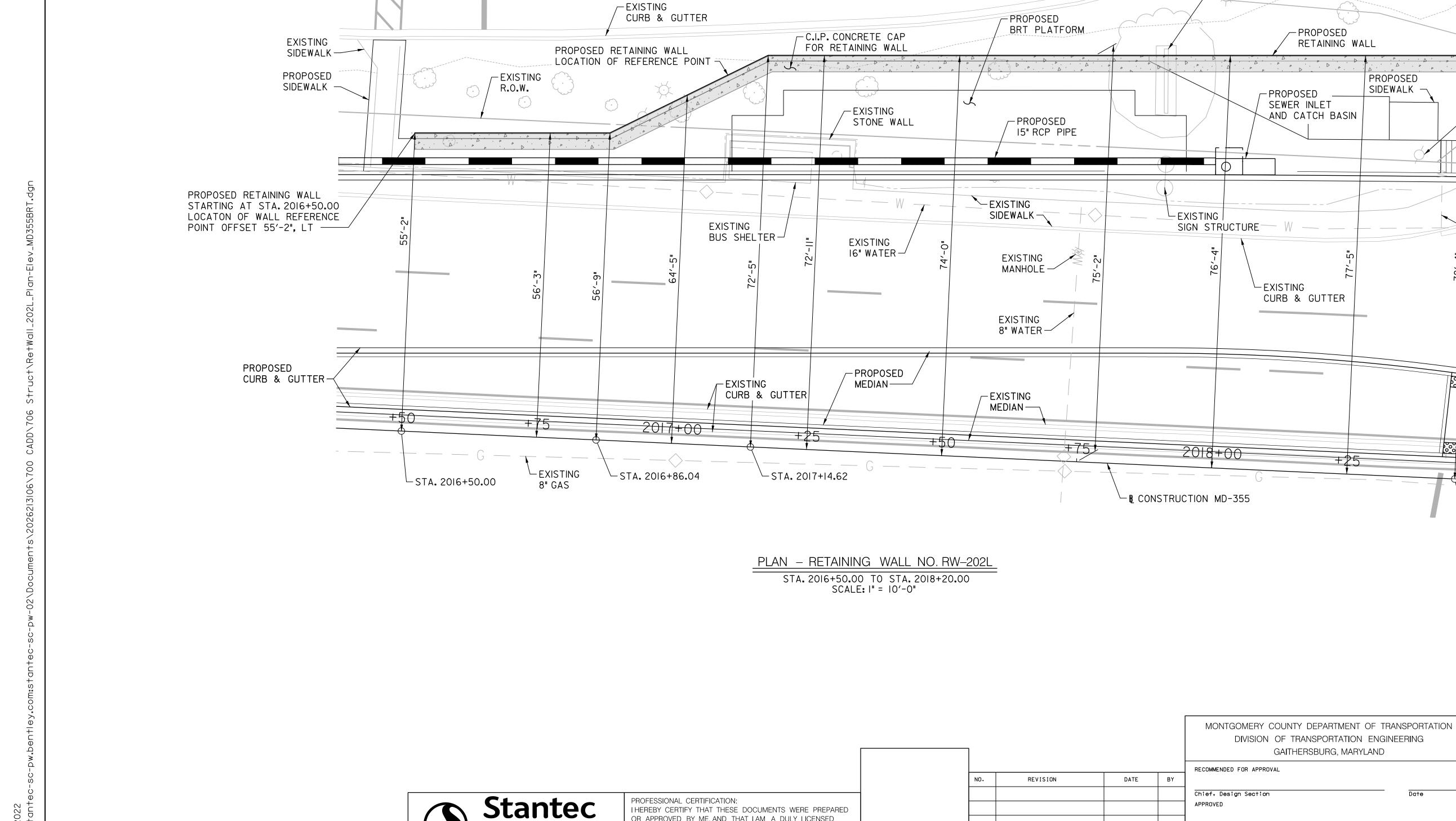
MD 355 BUS RAPID TRANSIT (BRT)

RETAINING WALL NO. RW-201R PLAN (2 OF 2)

SCALE : AS SHOWN

Project No. : 502005

Sta 6110 LAUREL,



∼PROPOSED RETAINING WALL PROPOSED | SIDEWALK --PROPOSED ∠EXISTING SEWER INLET PEPCO POLE, TYP. AND CATCH BASIN 0,0000 -PROPOSED CURB & GUTTER -EXISTING 8" WATER <u></u>EXISTING CURB & GUTTER -PROPOSED CROSSWALK └STA. 2018+45.00

— EXISTING

SIGN STRUCTURE

-EXISTING EASEMENT

S-10

DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND

Chief, Division of Transportation Engineering

Drawn by :\_\_\_\_

Checked by : \_

Designed by :\_\_\_\_\_

RETAINING WALL NO. RW-202L PLAN

MD 355 BUS RAPID TRANSIT (BRT)

-PROPOSED RETAINING WALL

ENDING AT STA. 2018+45.00 LOCATON OF WALL REFERENCE

POINT OFFSET 78'-4", LT

SCALE : AS SHOWN Project No. :502005

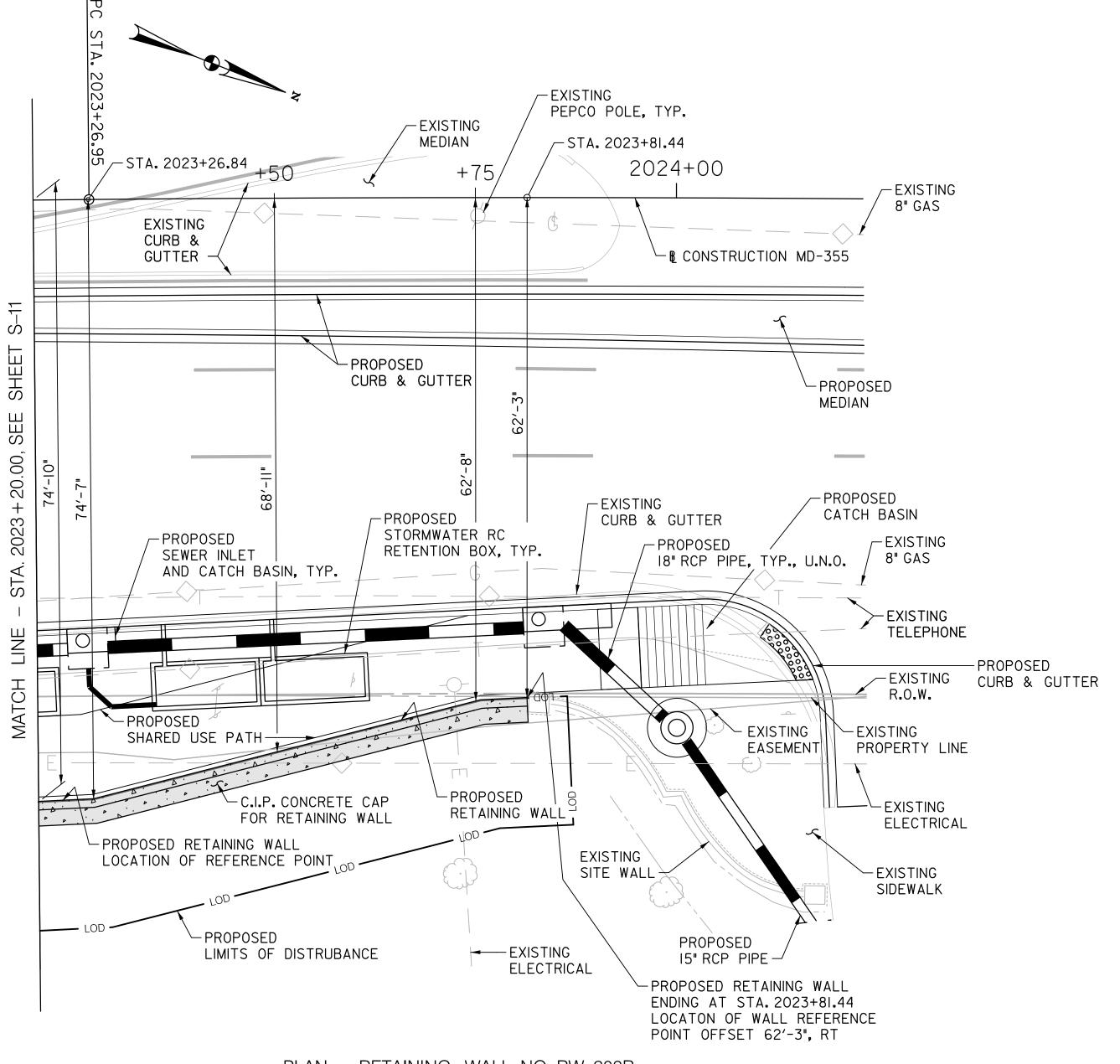
DATE: DECEMBER 2022 sheet 750 of 887

LAUREL, MARYLAND 20707

6110 FROST PLACE,

(301) 982–2800 www.stantec.com

OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO: \_\_\_ \_\_ EXPIRATION DATE: \_



PLAN - RETAINING WALL NO. RW-203R STA. 2020+60.00 TO STA. 2024+10.00 SCALE: |" = 10'-0"

> S-12 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-203R PLAN (2 OF 2) DATE BY REVISION Chief, Design Section APPROVED DATE: DECEMBER 2022 SCALE : AS SHOWN Chief, Division of Transportation Engineering SHEET 752 of 887 Project No. : 502005 Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.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: \_\_\_ \_\_\_ EXPIRATION DATE: \_

Drawn by :\_\_\_\_

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED

PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE

\_\_ EXPIRATION DATE: \_

OR APPROVED BY ME, AND THAT I AM A DULY LICENSED

OF MARYLAND.

LICENSE NO: \_\_\_

Stantec

6110 FROST PLACE,

LAUREL, MARYLAND 20707

(301) 982–2800 www.stantec.com

RECOMMENDED FOR APPROVAL

Chief, Design Section

Designed by :\_\_\_\_\_

Chief, Division of Transportation Engineering

Drawn by :\_\_\_\_

Checked by :

APPROVED

REVISION

DATE

S-14

DATE: DECEMBER 2022

SHEET 754 of 887

RETAINING WALL NO. RW-204L PLAN (2 OF 5)

SCALE : AS SHOWN

Project No. :502005

pw:\\stantec-sc-pw.bentley.com;stantec-sc-pw-02

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www.stantec.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: \_\_\_\_\_\_ EXPIRATION DATE: \_\_\_\_\_\_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section
APPROVED

Chief, Division of Transportation Engineering
Date

Sesigned by :\_\_\_\_\_ Drawn by :\_\_\_\_\_ Checked by :\_\_\_\_\_ Proceedings of the section of the

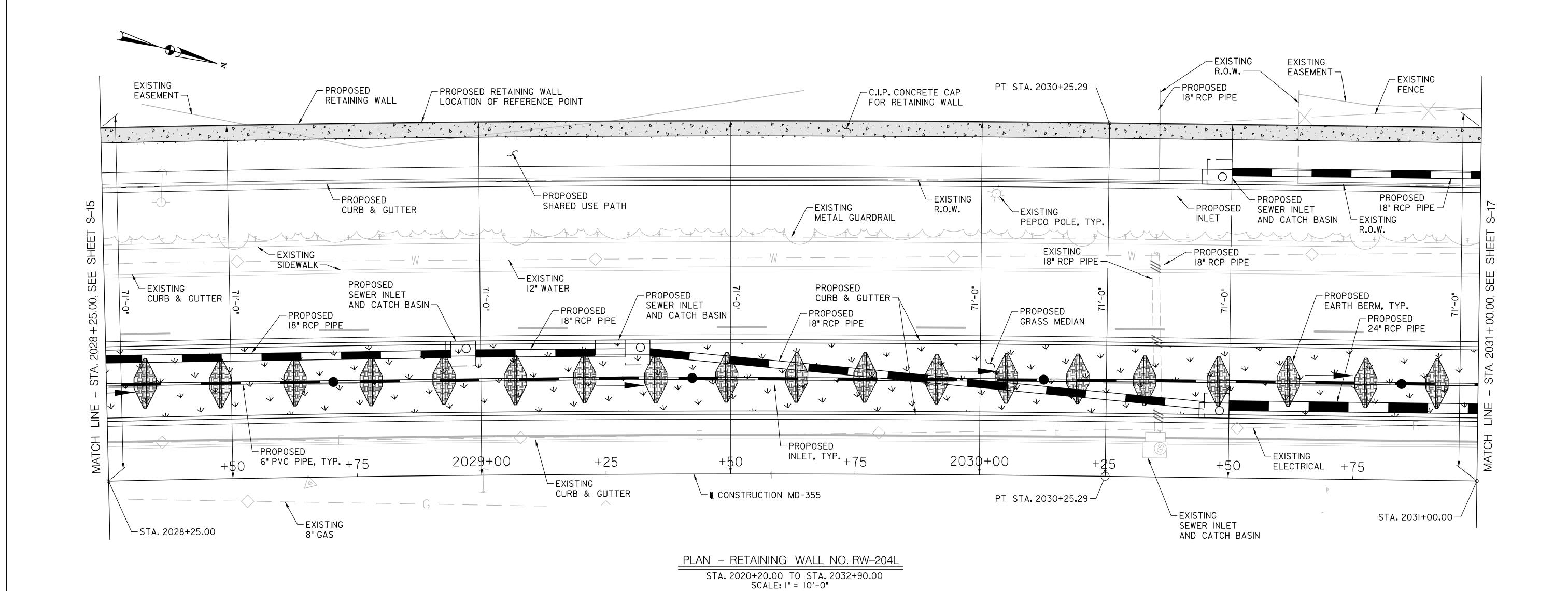
MD 355 BUS RAPID TRANSIT (BRT)

RETAINING WALL NO. RW-204L
PLAN (3 OF 5)

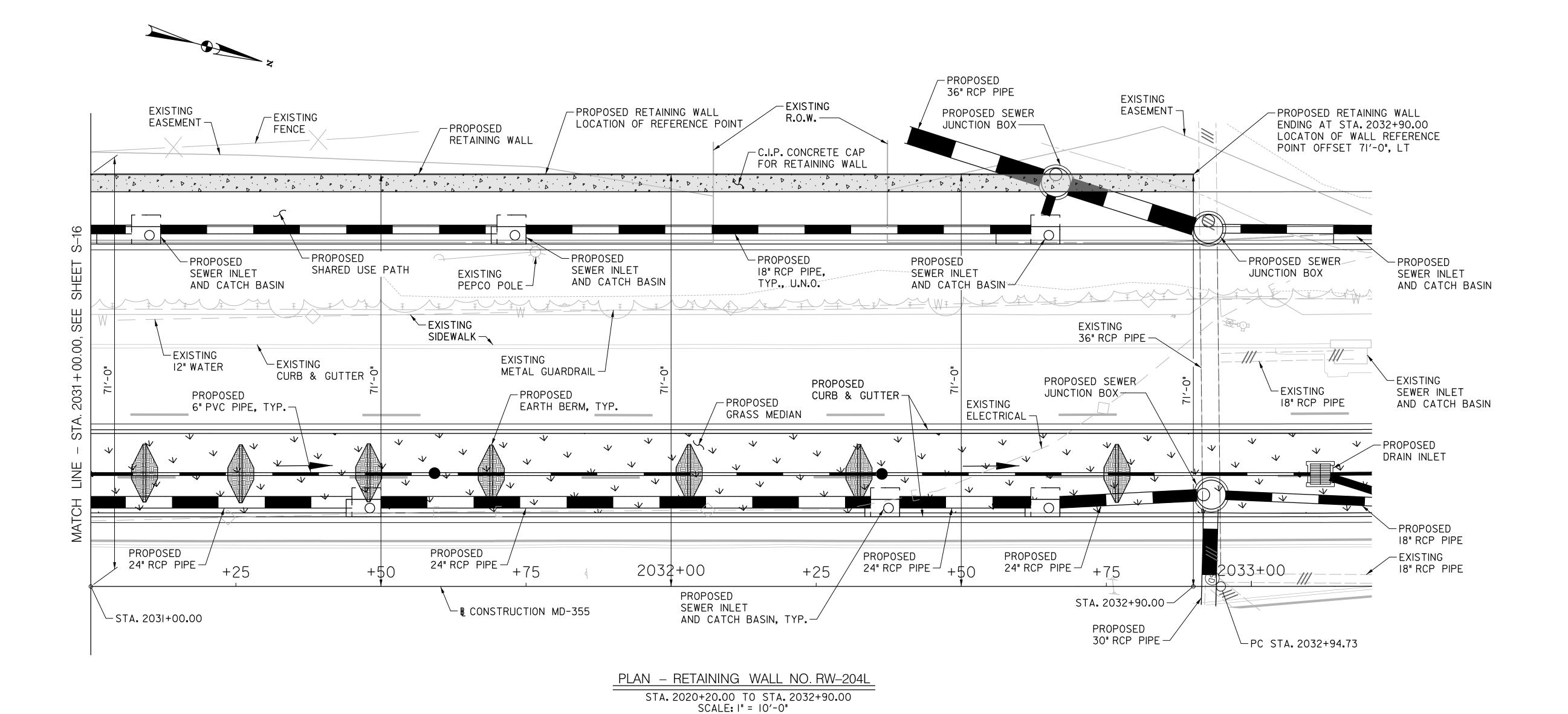
S-15

SCALE: AS SHOWN DATE: DECEMBER 2022

Project No. : 502005 SHEET 755 of 887

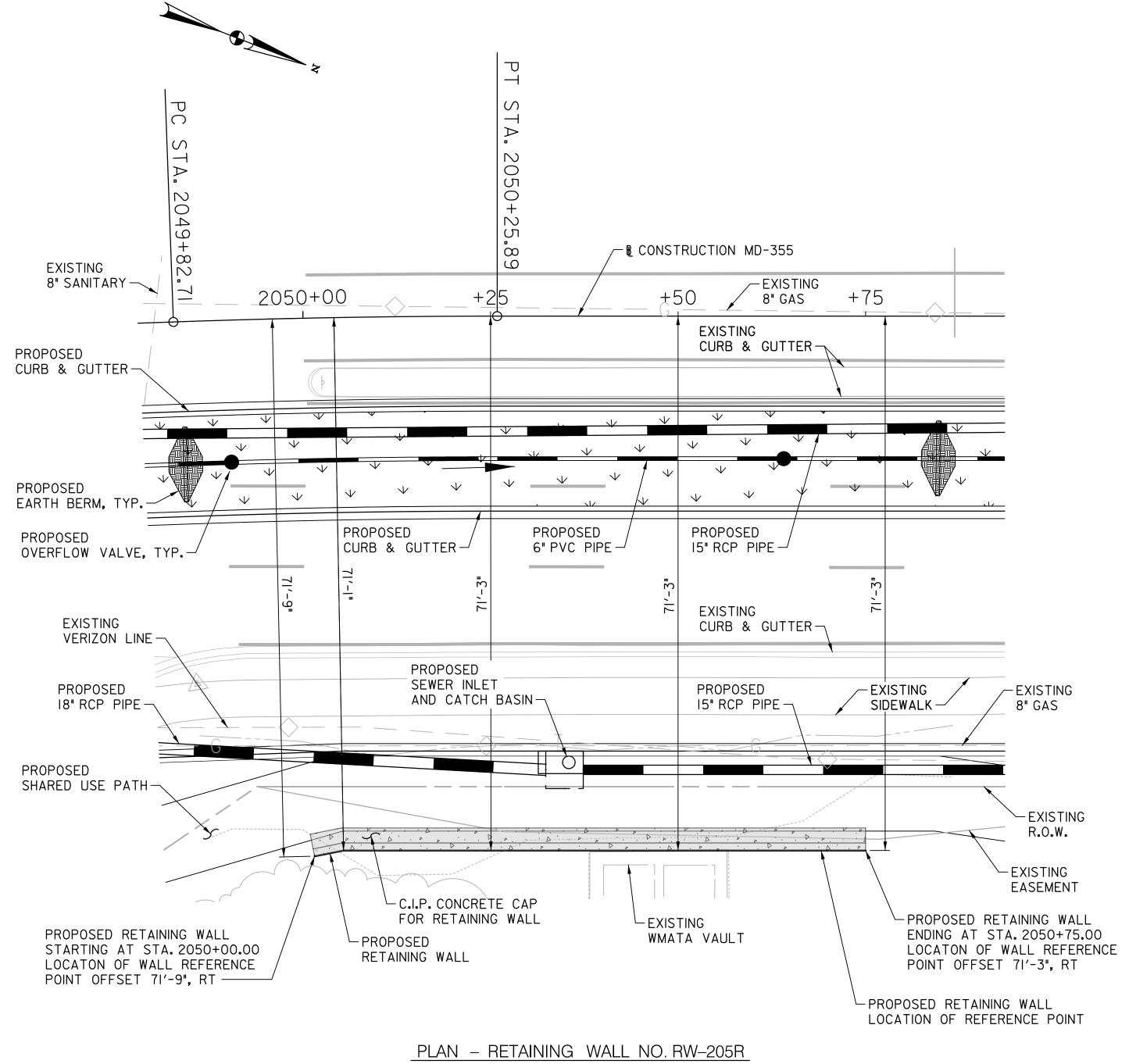


S-16 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-204L PLAN (4 OF 5) REVISION DATE Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE : AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com Project No. :502005 sheet <u>756</u> of <u>887</u> LICENSE NO: \_\_\_ \_ EXPIRATION DATE: Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



S-17 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-204L PLAN (5 OF 5) REVISION DATE Chief, Design Section PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE: AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 757 of 887 Project No. :502005 LICENSE NO: \_\_\_ \_ EXPIRATION DATE: Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

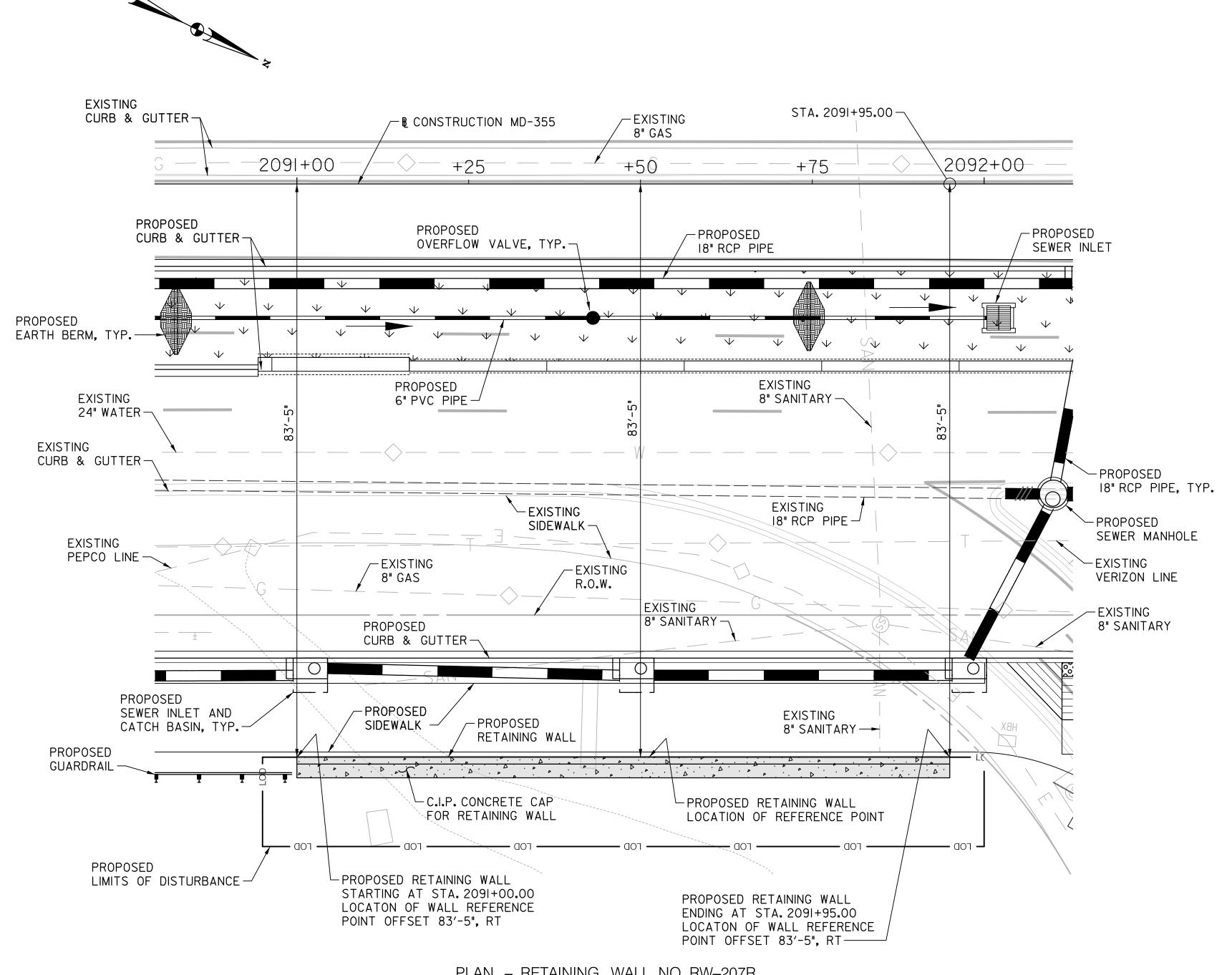
10/30/2022



PLAN - RETAINING WALL NO. RW-205F STA. 2050+00.00 TO STA. 2050+75.00 SCALE: I" = 10'-0"

> S-18 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-205R DATE BY REVISION PLAN Chief, Design Section APPROVED DATE: DECEMBER 2022 SCALE: AS SHOWN Chief, Division of Transportation Engineering SHEET 758 of 887 Project No. :502005 Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

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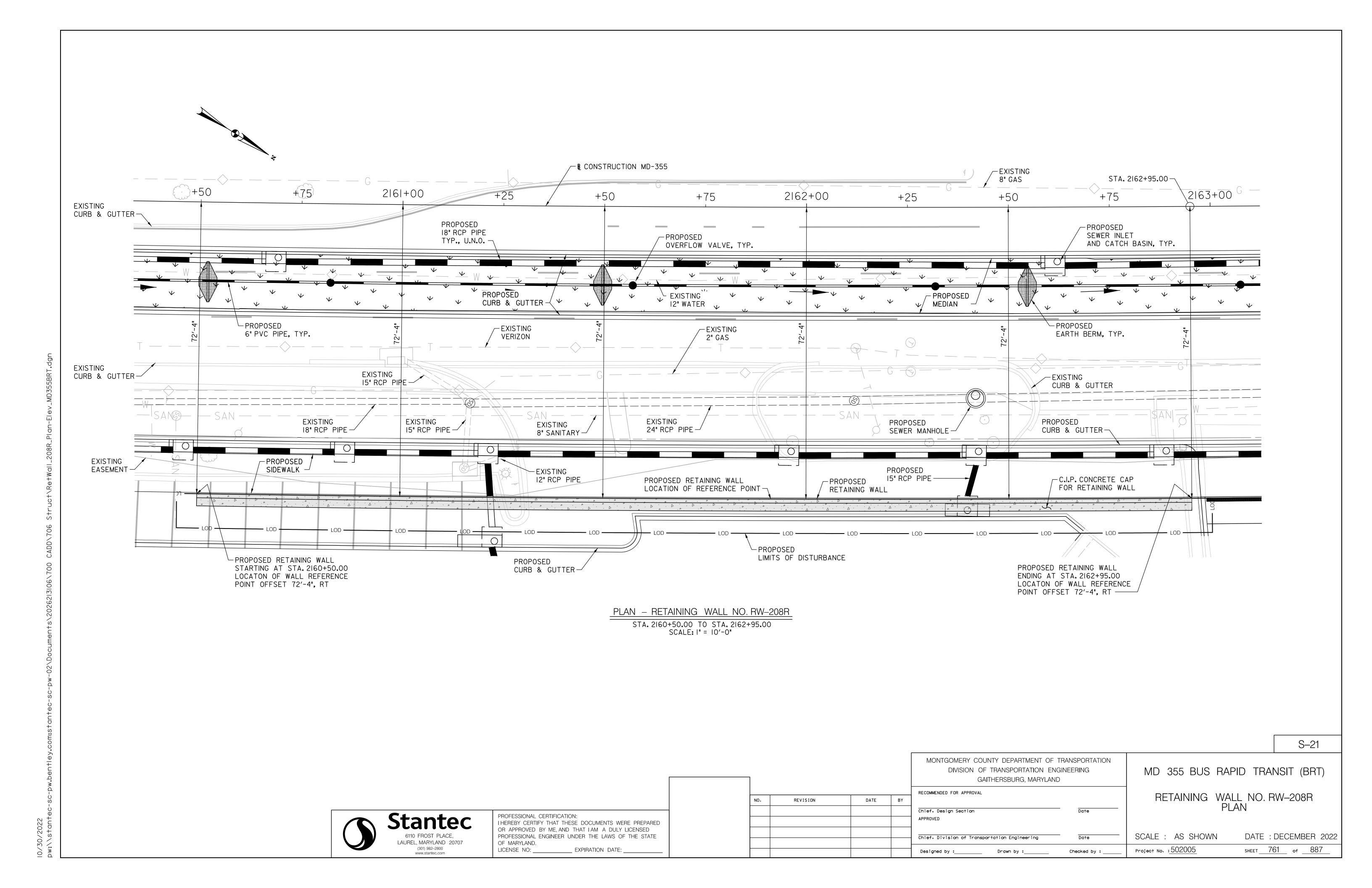


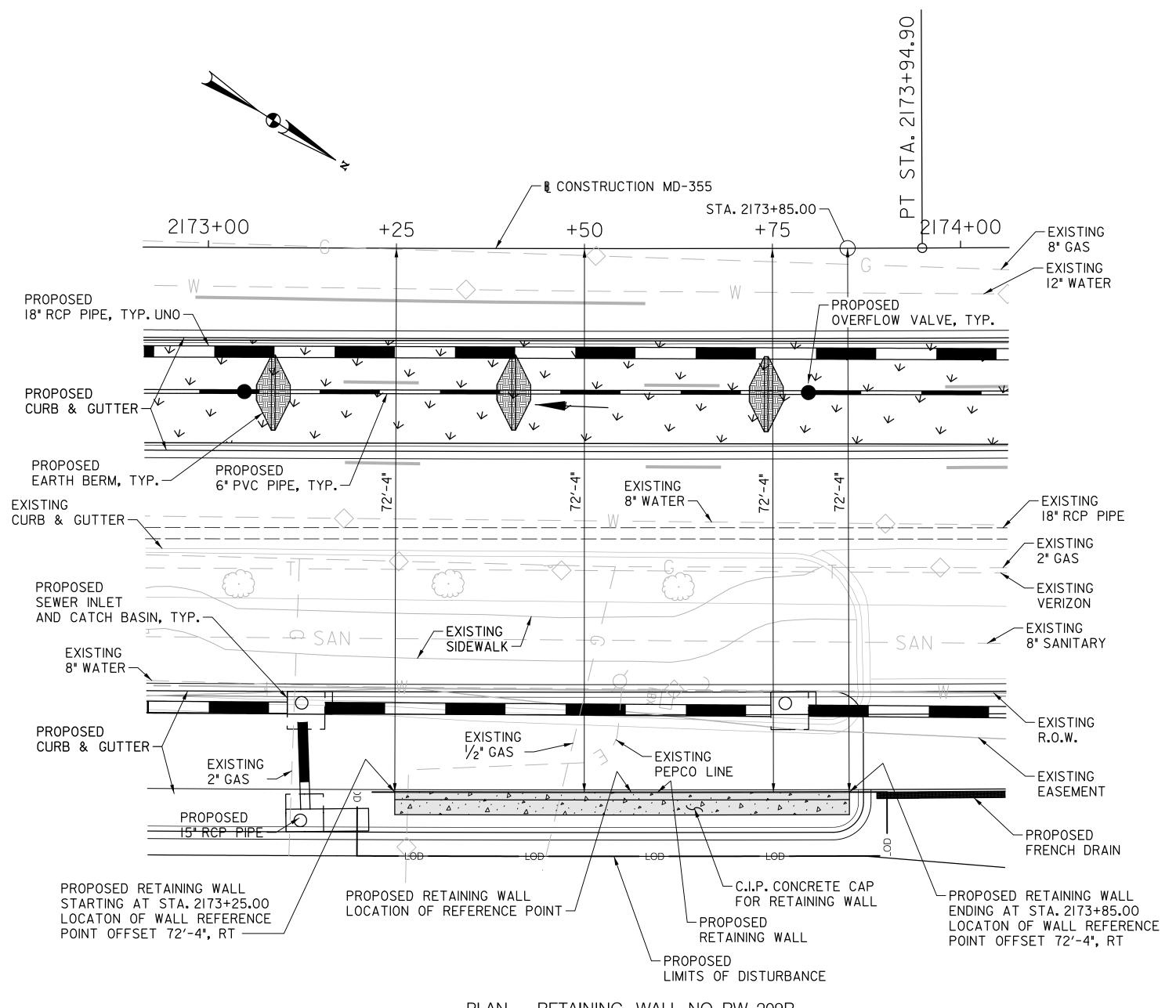
PLAN - RETAINING WALL NO. RW-207R

STA. 209I+00.00 TO STA. 209I+95.00

SCALE: I" = 10'-0"

S-20 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-207R REVISION DATE PLAN Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE: AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com sheet <u>760</u> of <u>887</u> LICENSE NO: \_\_\_ \_\_ EXPIRATION DATE: \_ Project No. :502005 Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_





PLAN - RETAINING WALL NO. RW-209R STA. 2173+25.00 TO STA. 2173+85.00 SCALE: I" = 10'-0"

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-209R REVISION DATE PLAN Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED DATE: DECEMBER 2022 6110 FROST PLACE, SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 762 of 887 Project No. : 502005 LICENSE NO: \_\_\_ \_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

S-22

LICENSE NO: \_\_\_

\_\_ EXPIRATION DATE: \_

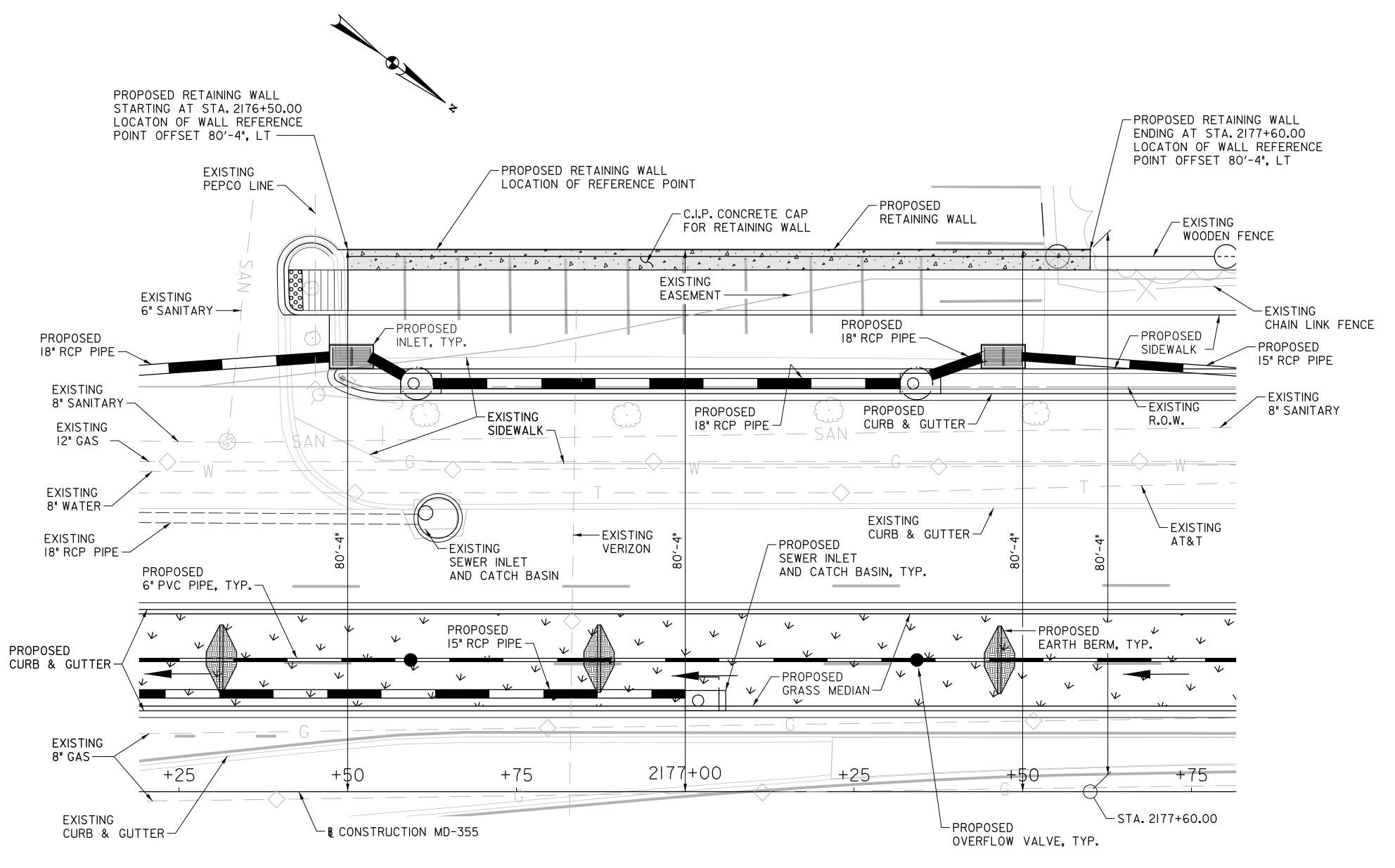
SHEET 764 of 887

Project No. :502005

Designed by :\_\_\_\_\_

Drawn by :\_\_\_\_

Checked by : \_



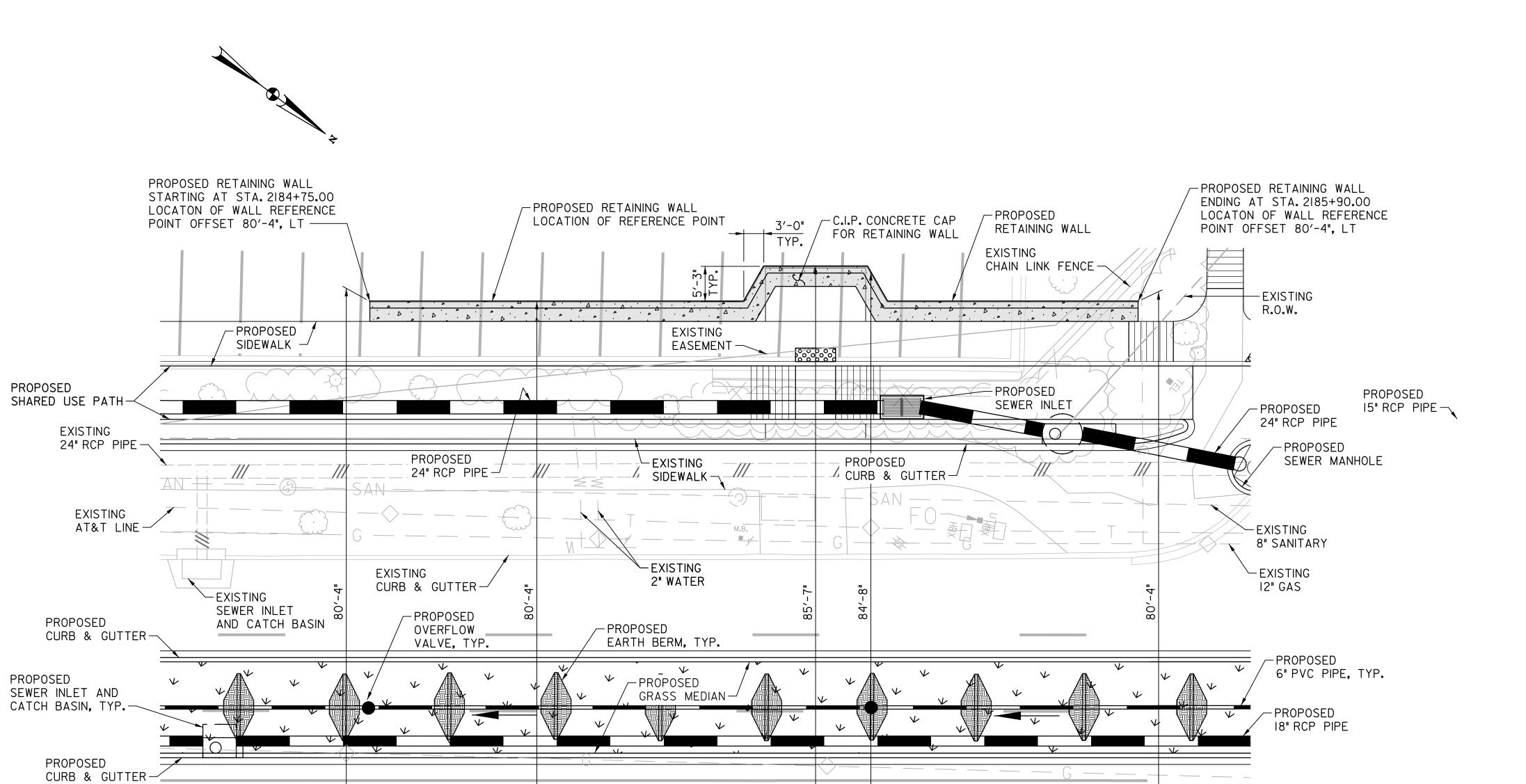
PLAN - RETAINING WALL NO. RW-211L STA. 2176+50.00 TO STA. 2177+60.00 SCALE: I" = 10'-0"

S-25 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-211L REVISION DATE PLAN Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE : AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com Project No. :502005 sheet 765 of 887 LICENSE NO: \_\_\_ \_ EXPIRATION DATE: Designed by :\_\_\_\_ Drawn by :\_\_\_ Checked by : \_

**EXISTING** 

CURB & GUTTER

EXISTING 12" WATER —



PLAN - RETAINING WALL NO. RW-212L STA. 2184+75.00 TO STA. 2185+90.00 SCALE: I" = 10'-0"

STA. 2185+41.72 —

EXISTING
VERIZON LINE —

`—EXISTING

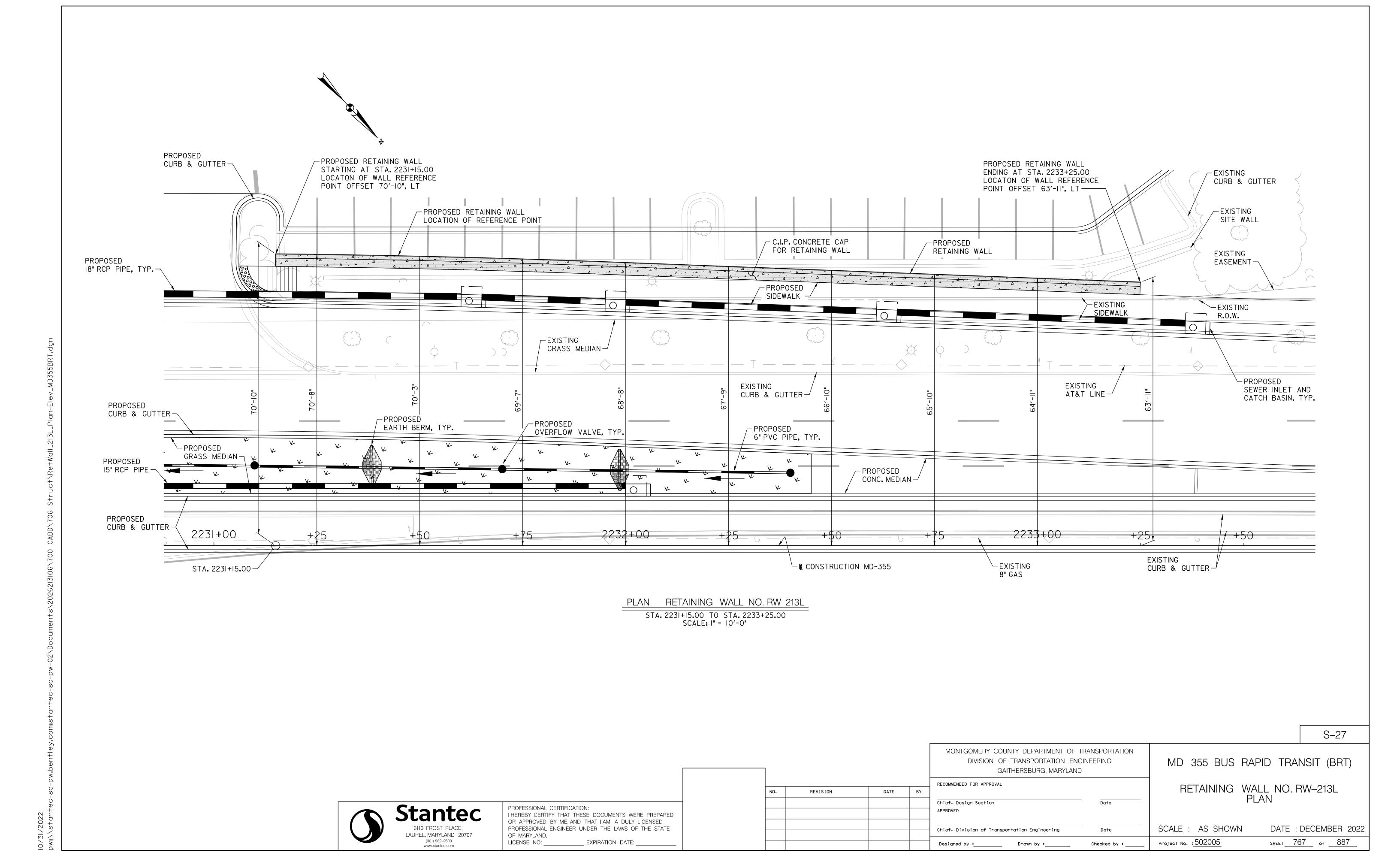
8" GAS

S-26 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-212L REVISION DATE PLAN Chief, Design Section PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE : AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com Project No. :502005 sheet <u>766</u> of <u>887</u> LICENSE NO: \_\_\_ \_\_ EXPIRATION DATE: Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

2186+00

-STA. 2185+90.00

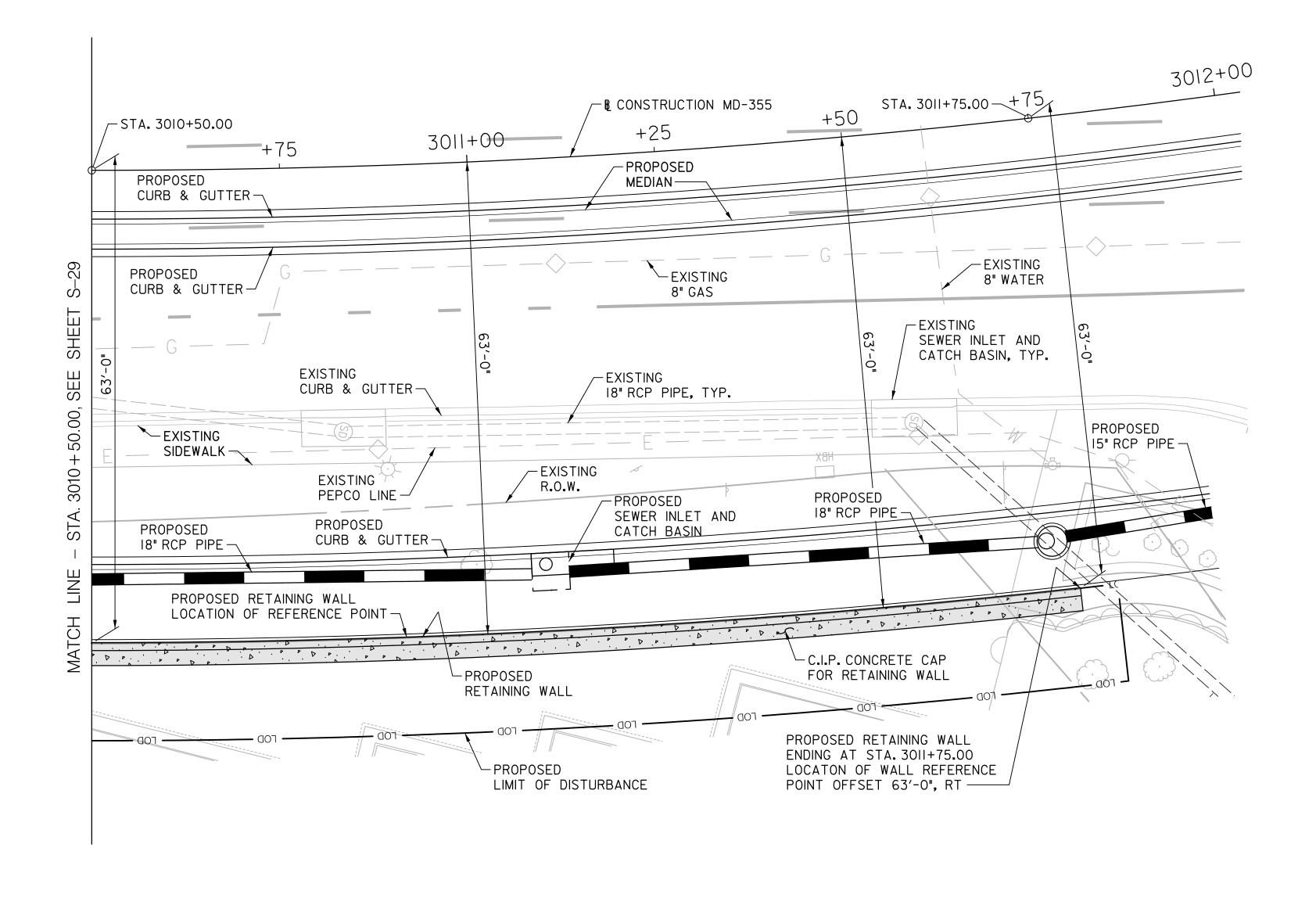
- LE CONSTRUCTION MD-355



Designed by :\_\_\_\_

Drawn by :\_\_\_





PLAN - RETAINING WALL NO. RW-302R STA. 3007+85.00 TO STA. 30II+75.00 SCALE: I" = 10'-0"

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707

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. (301) 982–2800 www.stantec.com LICENSE NO: \_\_\_ \_ EXPIRATION DATE:

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL DATE BY REVISION Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

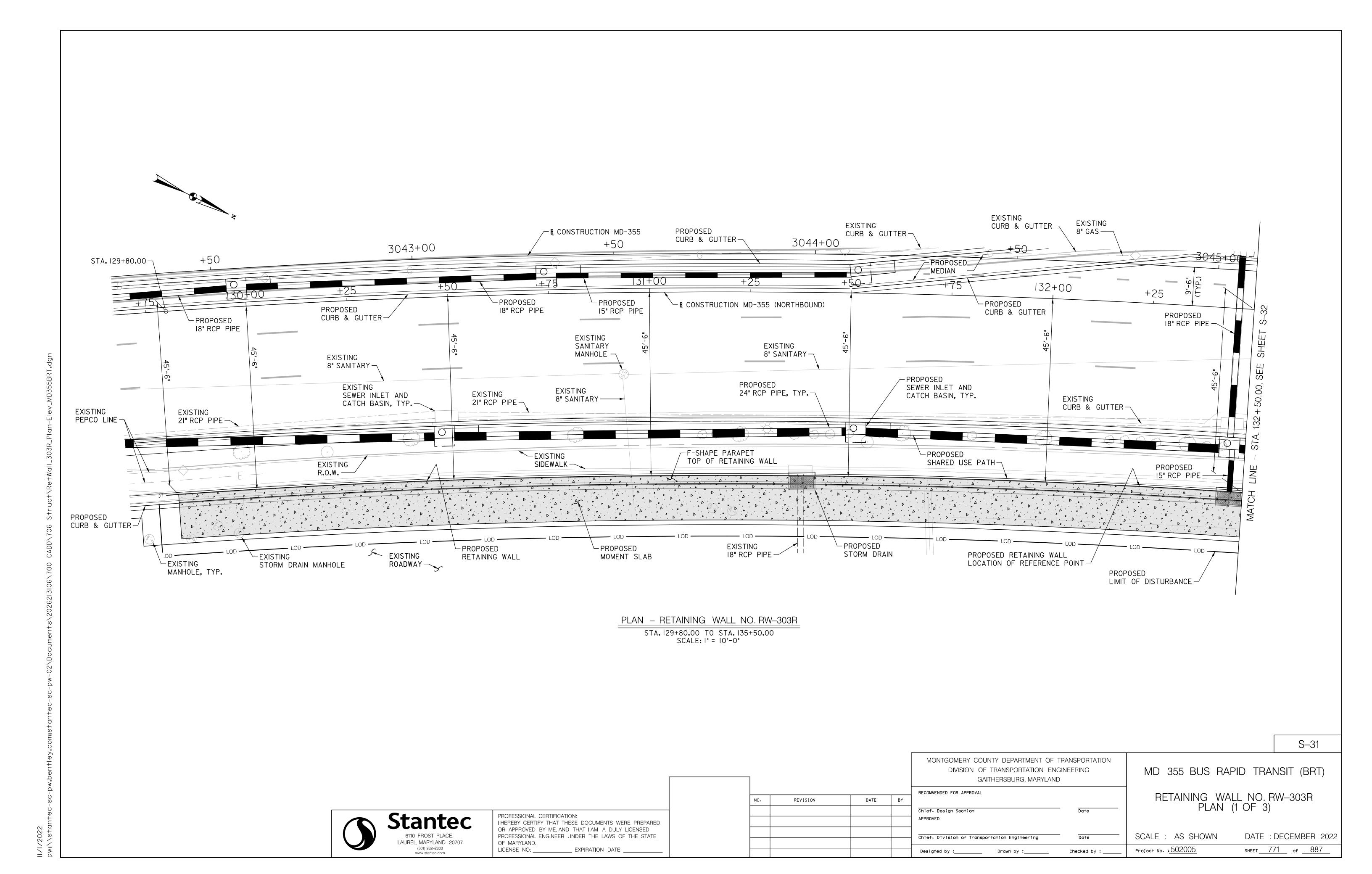
MD 355 BUS RAPID TRANSIT (BRT)

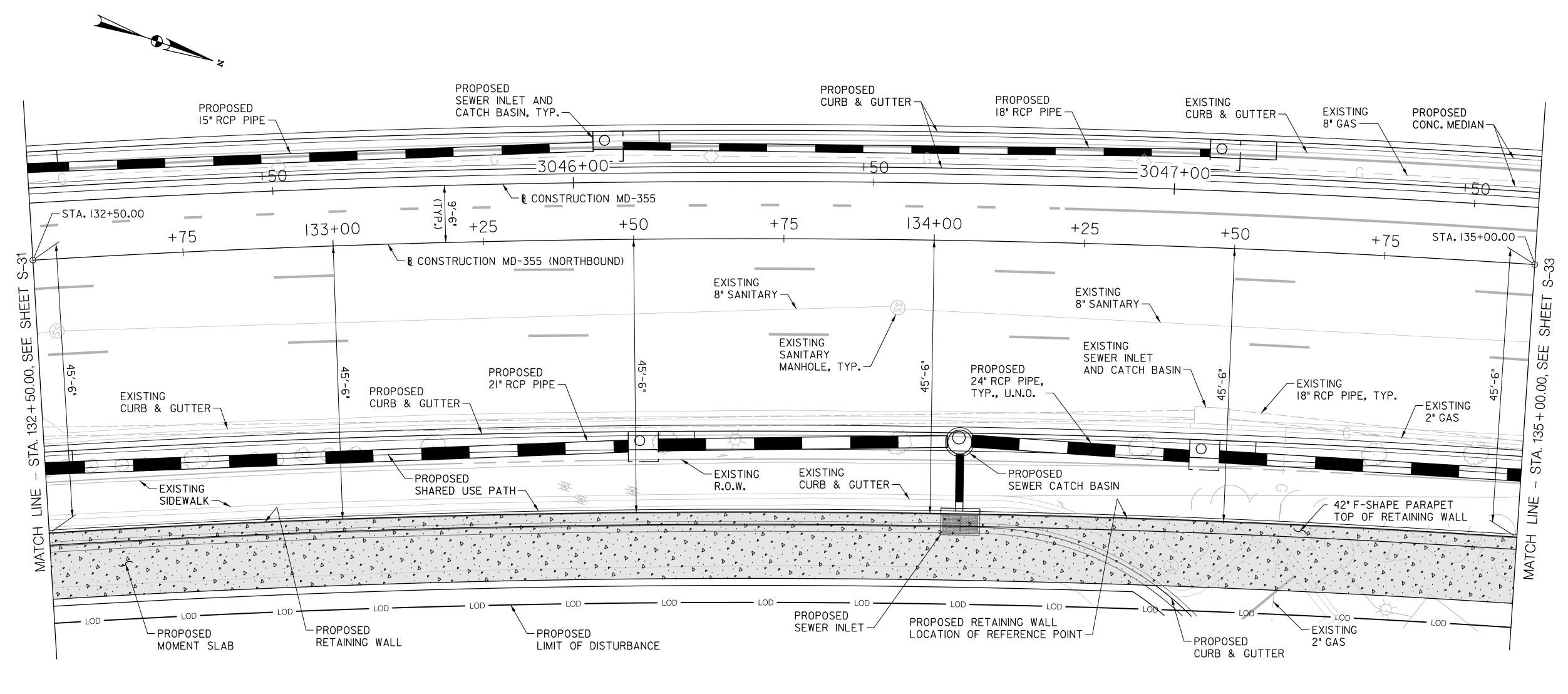
RETAINING WALL NO. RW-302R PLAN (2 OF 2)

DATE: DECEMBER 2022 SCALE : AS SHOWN Project No. : 502005

SHEET 770 of 887

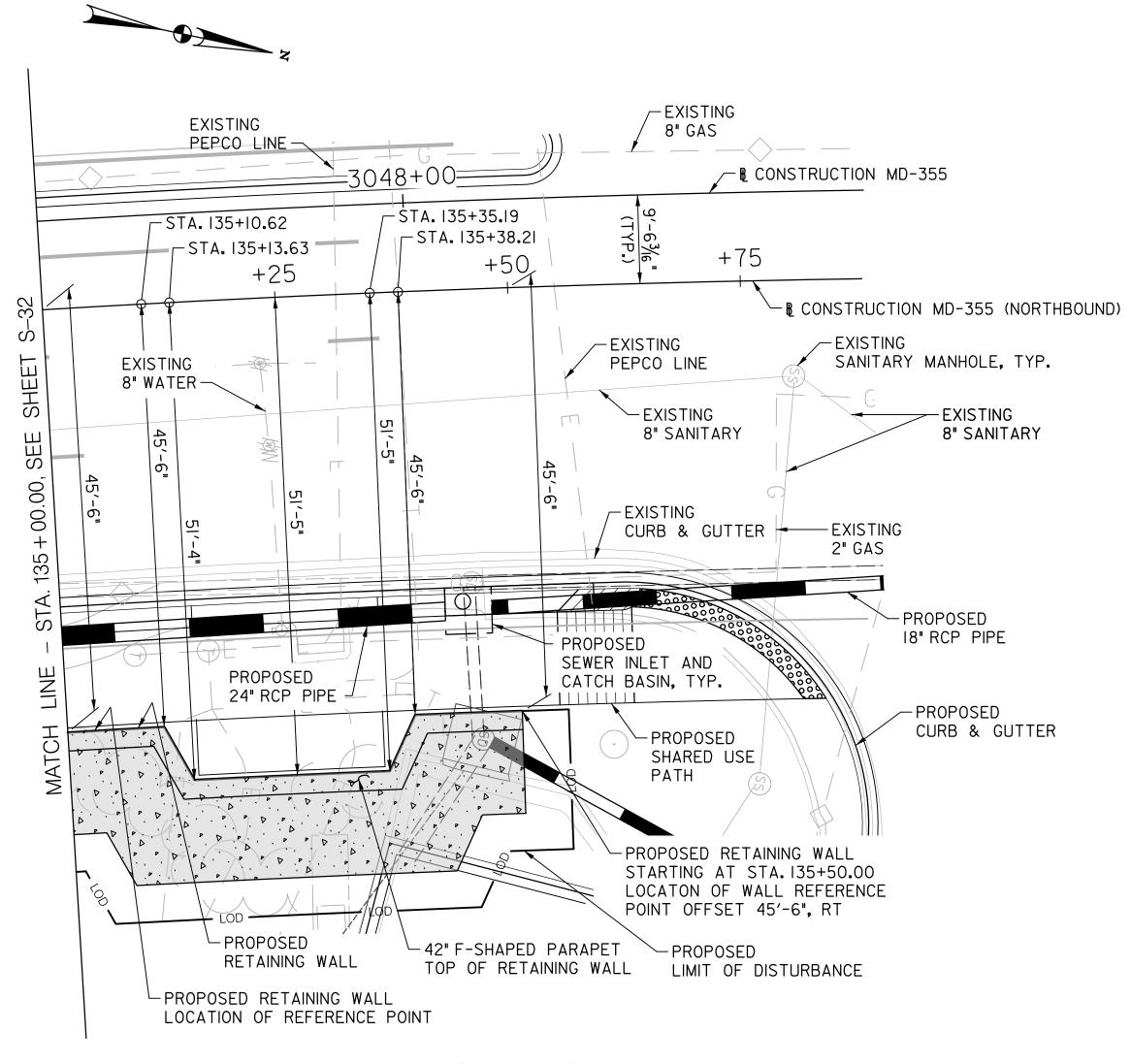
S-30





PLAN - RETAINING WALL NO. RW-303R STA. 129+80.00 TO STA. 135+50.00 SCALE: I" = 10'-0"

S-32 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-303R PLAN (2 OF 3) REVISION DATE Chief, Design Section Stantec PROFESSIONAL CERTIFICATION: APPROVED I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, DATE: DECEMBER 2022 SCALE: AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 SHEET 772 of 887 LICENSE NO: \_\_\_ \_ EXPIRATION DATE: Project No. :502005 Designed by :\_\_\_\_ Checked by : Drawn by :\_\_\_\_



PLAN - RETAINING WALL NO. RW-303R +STA. 129+80.00 TO STA. 135+50.00 SCALE: I" = 10'-0"

Stantec
6110 FROST PLACE,
LAUREL, MARYLAND 20707
(301) 982–2800
www.stantec.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.
UNIVERSITIES COMP.

EXPIRATION DATE:

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section
APPROVED

Chief, Division of Transportation Engineering
Date

Designed by :\_\_\_\_\_\_ Drawn by :\_\_\_\_\_ Checked by :\_\_\_\_\_

MD 355 BUS RAPID TRANSIT (BRT)

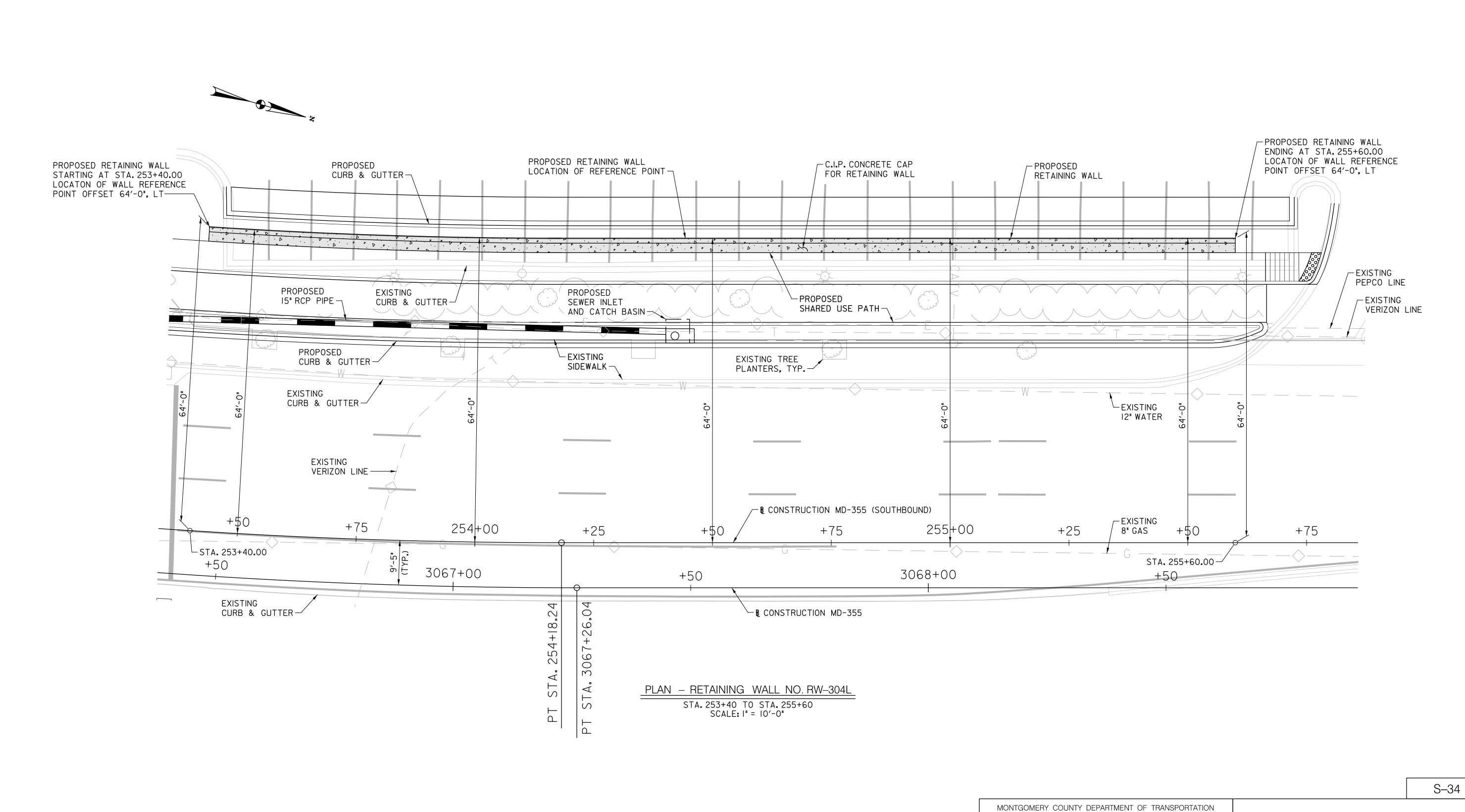
RETAINING WALL NO. RW-303R PLAN (3 OF 3)

 SCALE : AS SHOWN
 DATE : DECEMBER 2022

 Project No. : 502005
 SHEET 773 of 887

S-33

2022



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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: \_\_\_ \_\_ EXPIRATION DATE: \_

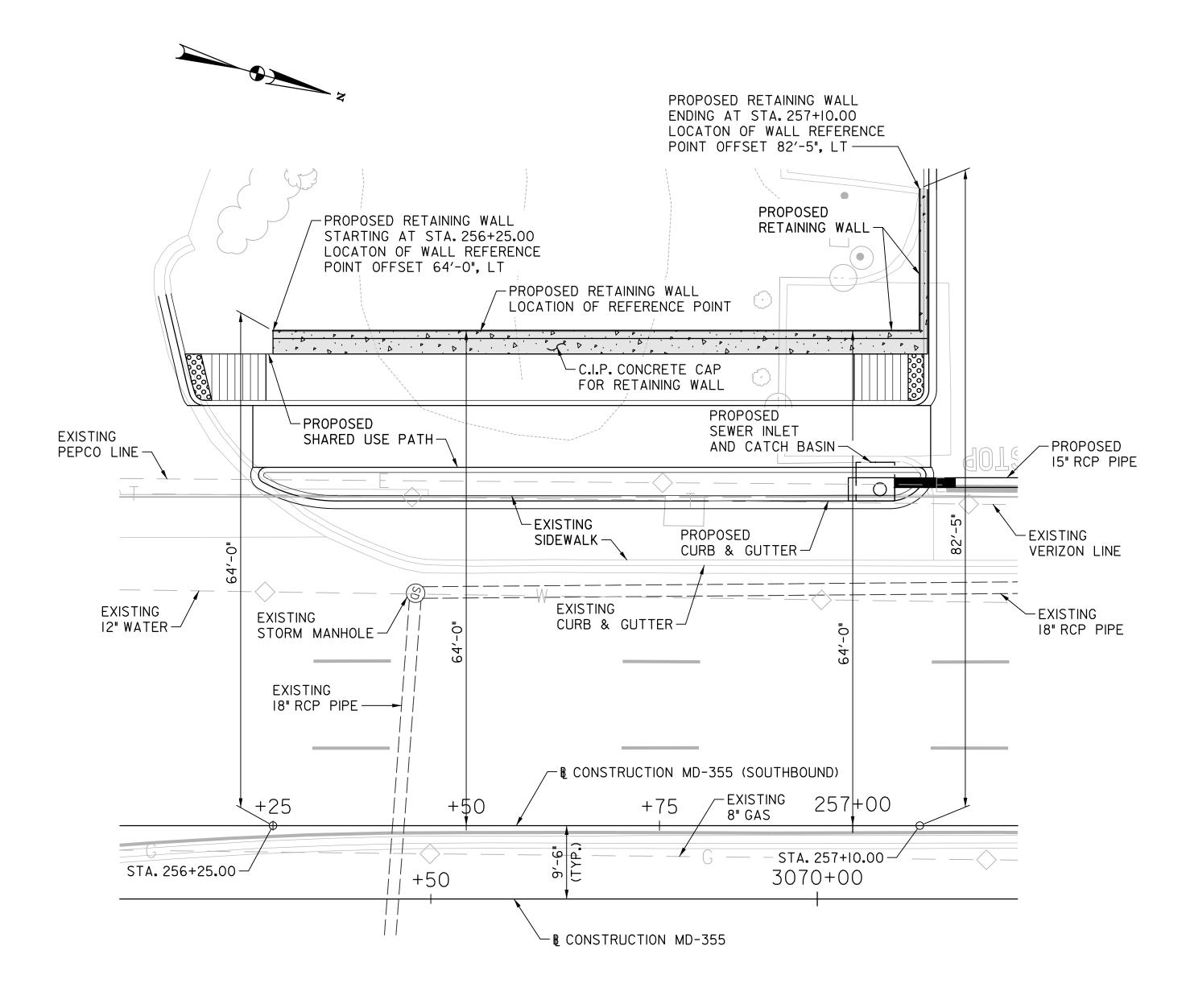
DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL REVISION DATE BY Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_ Checked by : \_

Drawn by :\_\_\_\_

MD 355 BUS RAPID TRANSIT (BRT) RETAINING WALL NO. RW-304L PLAN

SCALE : AS SHOWN Project No. : 502005

DATE: DECEMBER 2022 SHEET 774 of 887



PLAN - RETAINING WALL NO. RW-305L STA. 256+25.00 TO STA. 257+10.00 SCALE: I" = 10'-0"

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.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: \_\_\_\_ \_\_\_ EXPIRATION DATE: \_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL DATE BY REVISION Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

MD 355 BUS RAPID TRANSIT (BRT) RETAINING WALL NO. RW-305L PLAN

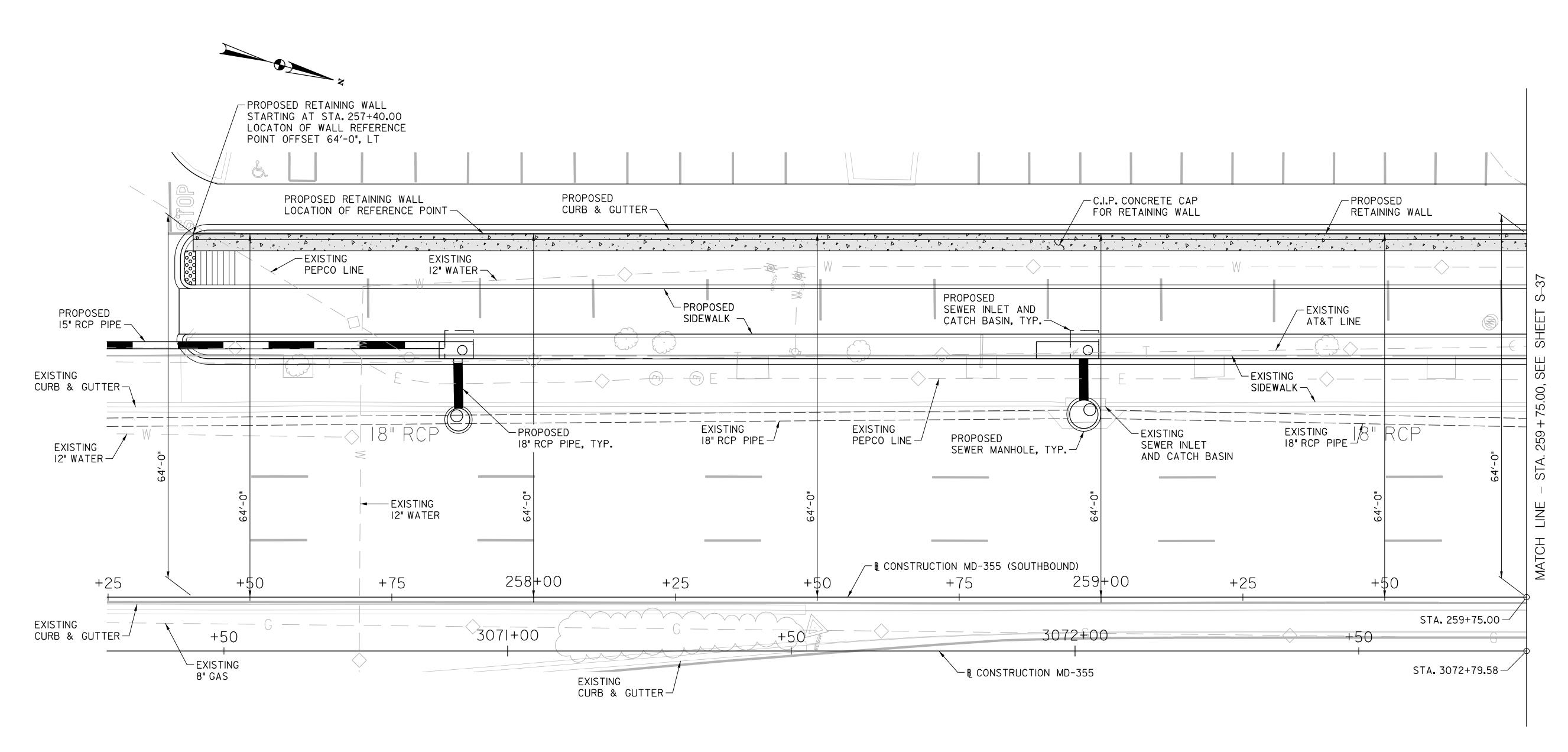
DATE: DECEMBER 2022 SCALE : AS SHOWN

Project No. : 502005

SHEET 775 of 887

S-35



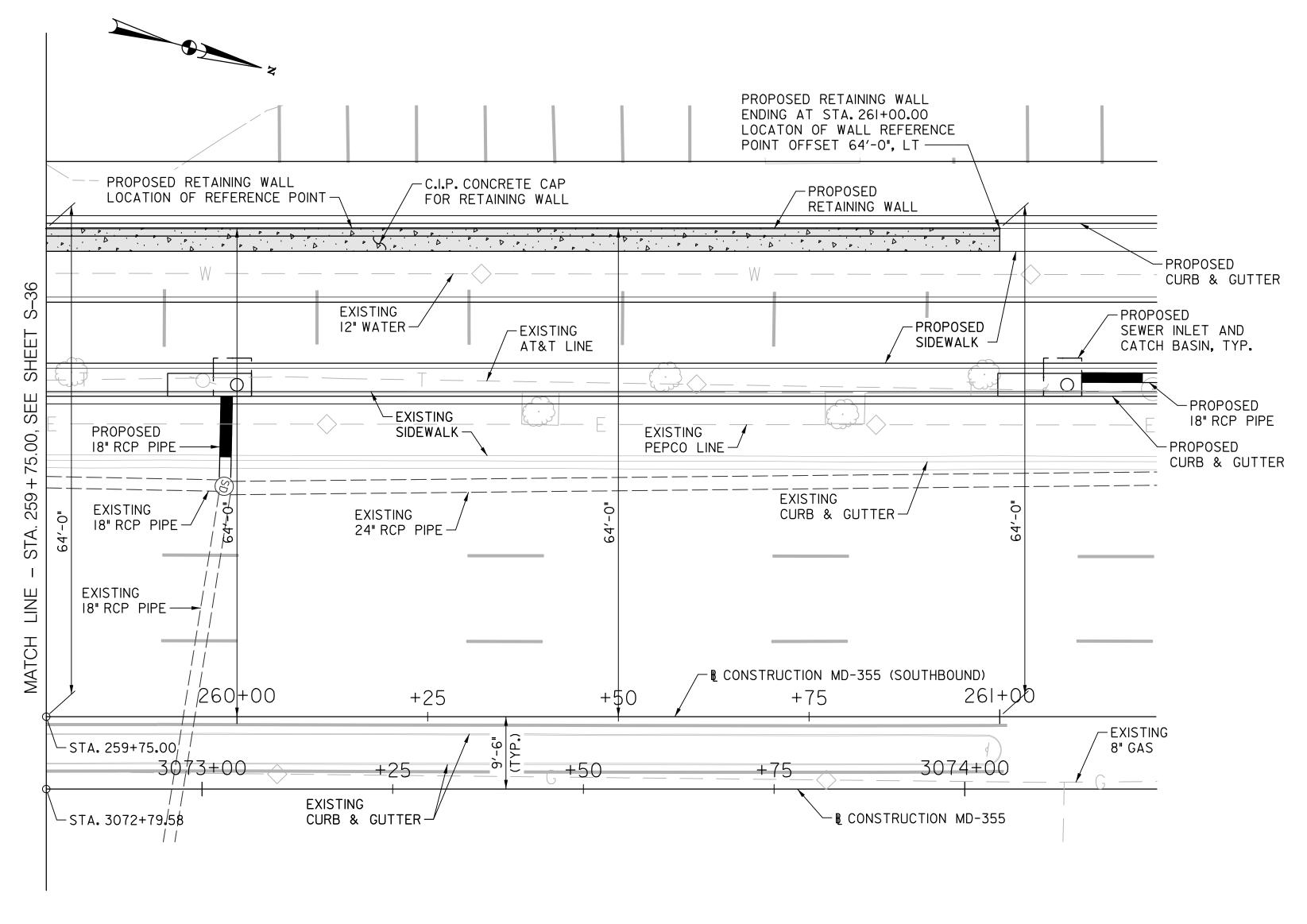


PLAN - RETAINING WALL NO. RW-306L

STA. 257+40.00 TO STA. 26I+00.00

SCALE: I" = 10'-0"

S-36 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-306L PLAN (1 OF 2) DATE BY REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, LAUREL, MARYLAND 20707 DATE: DECEMBER 2022 SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 776 of 887 Project No. : 502005 LICENSE NO: EXPIRATION DATE: Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



PLAN - RETAINING WALL NO. RW-306L

STA. 257+40.00 TO STA. 26I+00.00

SCALE: I" = 10'-0"

Stantec
6110 FROST PLACE,
LAUREL, MARYLAND 20707
(301) 982–2800
www.stantec.com

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section
APPROVED

Chief, Division of Transportation Engineering
Date

Designed by :\_\_\_\_\_\_ Drawn by :\_\_\_\_\_ Checked by :\_\_\_\_\_ F

MD 355 BUS RAPID TRANSIT (BRT)

RETAINING WALL NO. RW-306L

RETAINING WALL NO. RW-306L PLAN (2 OF 2)

S-37

 SCALE : AS SHOWN
 DATE : DECEMBER 2022

 Project No. : 502005
 SHEET 777 of 887

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.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: \_\_\_ \_\_ EXPIRATION DATE:

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL DATE BY REVISION Chief, Design Section APPROVED Chief, Division of Transportation Engineering

MD 355 BUS RAPID TRANSIT (BRT)

SEE

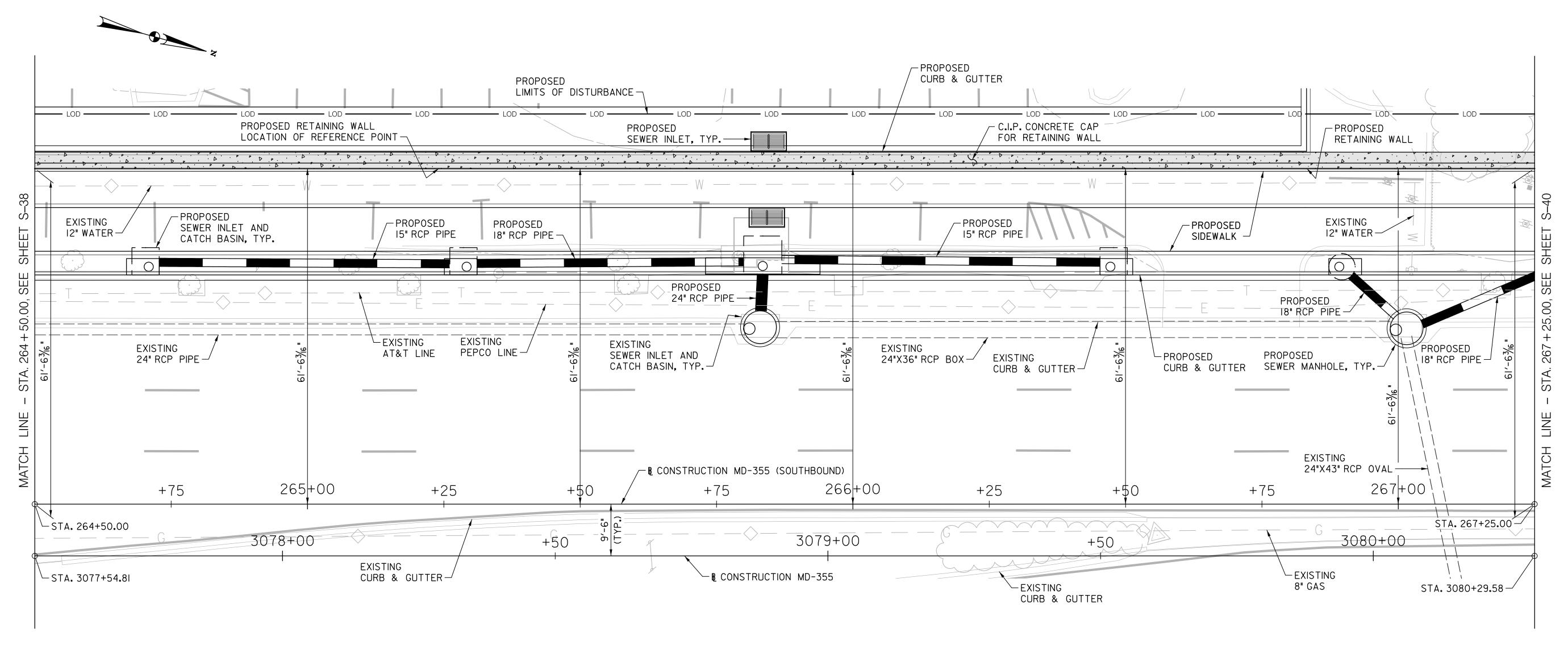
ST

RETAINING WALL NO. RW-307L PLAN (1 OF 3)

DATE: DECEMBER 2022 SCALE : AS SHOWN Project No. : 502005

Designed by :\_\_\_\_\_ Drawn by :\_\_\_ Checked by : \_

SHEET 778 of 887

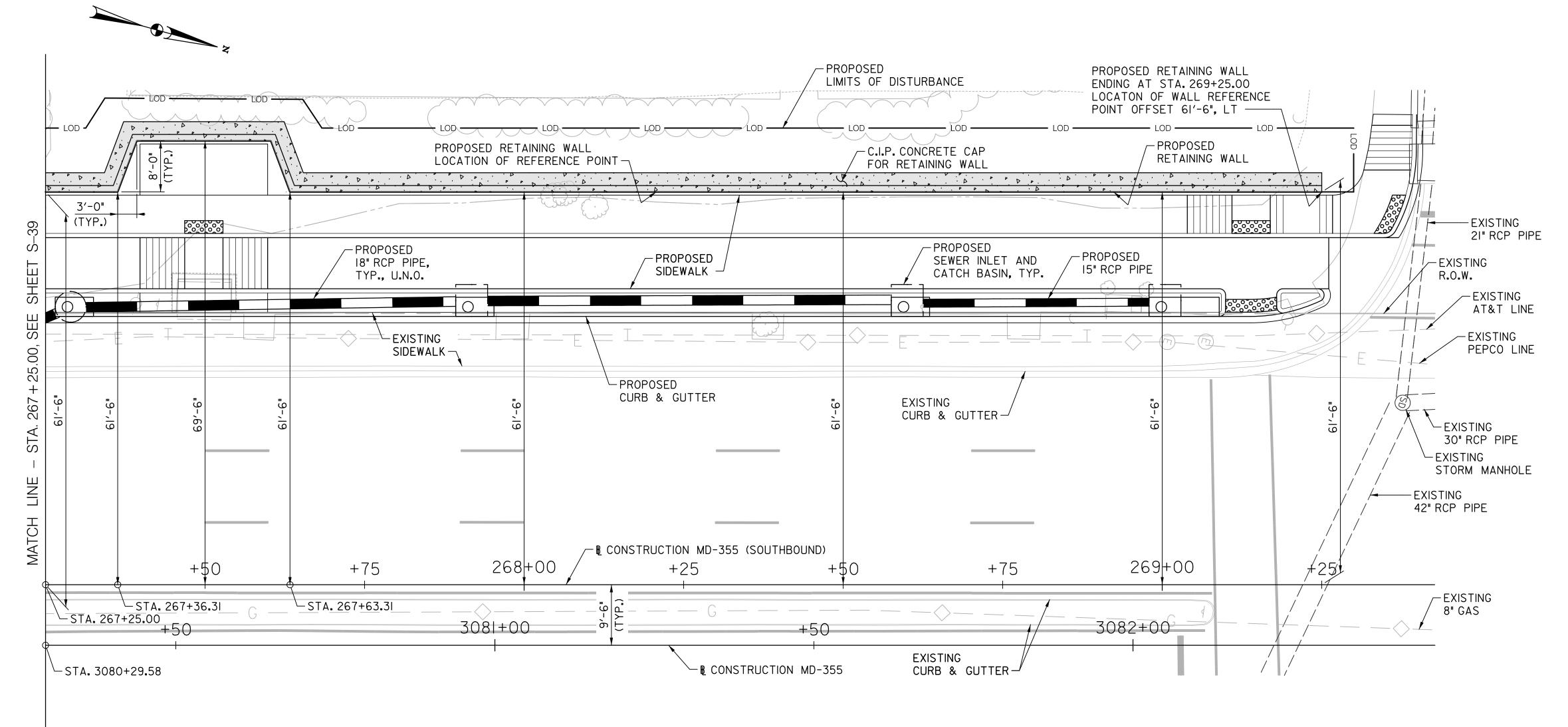


PLAN - RETAINING WALL NO. RW-307L

STA. 262+00.00 TO STA. 269+25.00

SCALE: I" = 10'-0"

S-39 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-307L PLAN (2 OF 3) DATE BY REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, LAUREL, MARYLAND 20707 DATE: DECEMBER 2022 SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 779 of 887 Project No. : 502005 LICENSE NO: \_\_\_\_ EXPIRATION DATE: Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



PLAN - RETAINING WALL NO. RW-307L STA. 262+00.00 TO STA. 269+25.00 SCALE: I" = 10'-0"

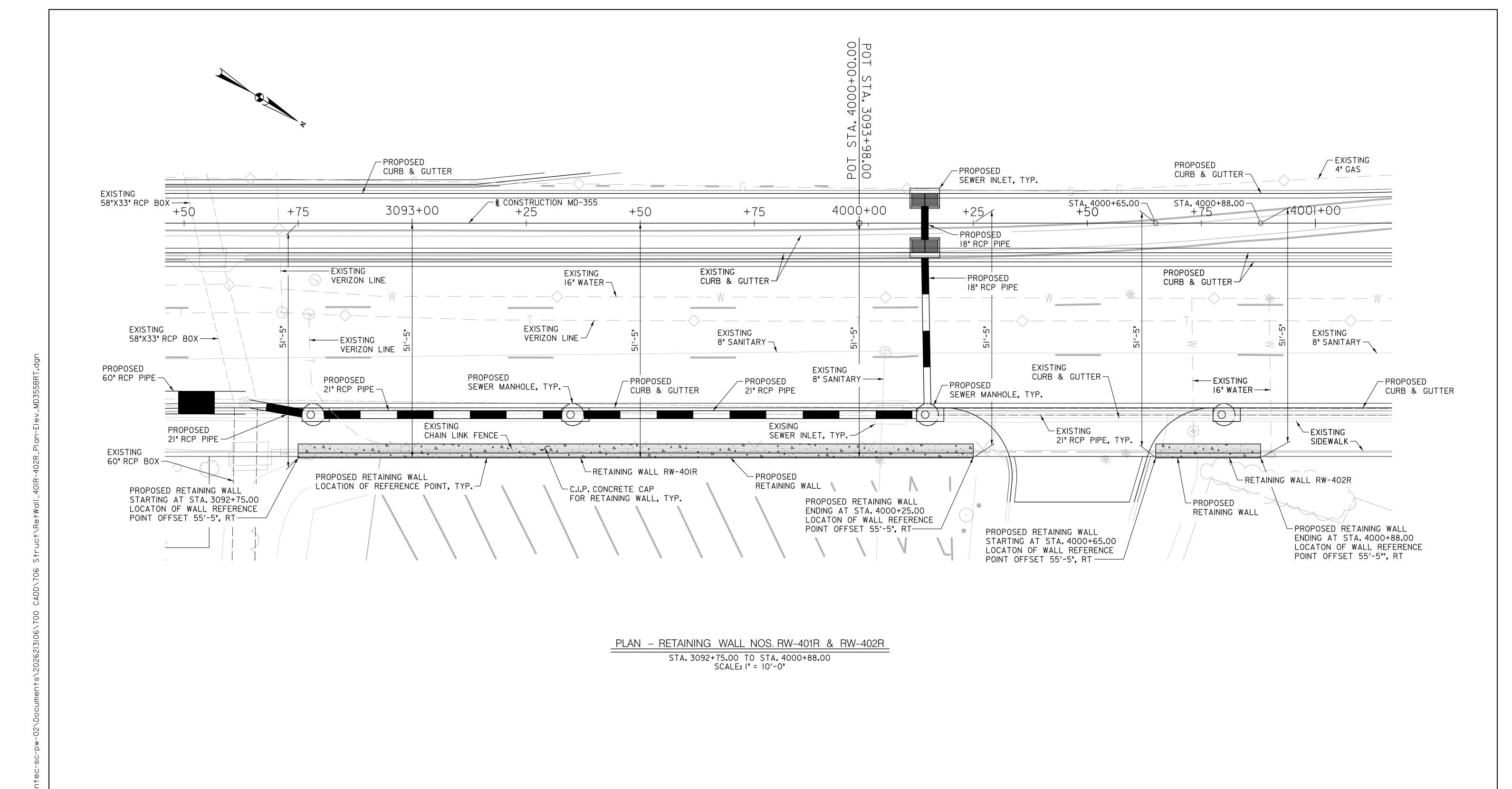
Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.com

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: \_\_\_\_\_ EXPIRATION DATE:

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL DATE BY REVISION Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

MD 355 BUS RAPID TRANSIT (BRT) RETAINING WALL NO. RW-307L PLAN (3 OF 3)

DATE: DECEMBER 2022 SCALE : AS SHOWN SHEET 780 of 887 Project No. : 502005



S-41 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RETAINING WALL NO. RW-401R RECOMMENDED FOR APPROVAL REVISION DATE RETAINING WALL NO. RW-402R Chief, Design Section PLAN Stantec PROFESSIONAL CERTIFICATION: APPROVED I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE: AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982-2800 SHEET 781 of 887 LICENSE NO: \_\_\_ EXPIRATION DATE: Project No. :502005 Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

10/31/2022 pw:\\stantec-sc-pw.bentley.com:st

## THIS SHEET INTENTIONALLY

REVISION

DATE

APPROVED

Chief, Division of Transportation Engineering

Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_

MD 355 BUS RAPID TRANSIT (BRT)

GAITHERSBURG, MARYLAND THIS SHEET INTENTIONALLY LEFT BLANK RECOMMENDED FOR APPROVAL Chief, Design Section

Checked by : \_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION

DIVISION OF TRANSPORTATION ENGINEERING

SCALE: AS SHOWN

Project No. :502005

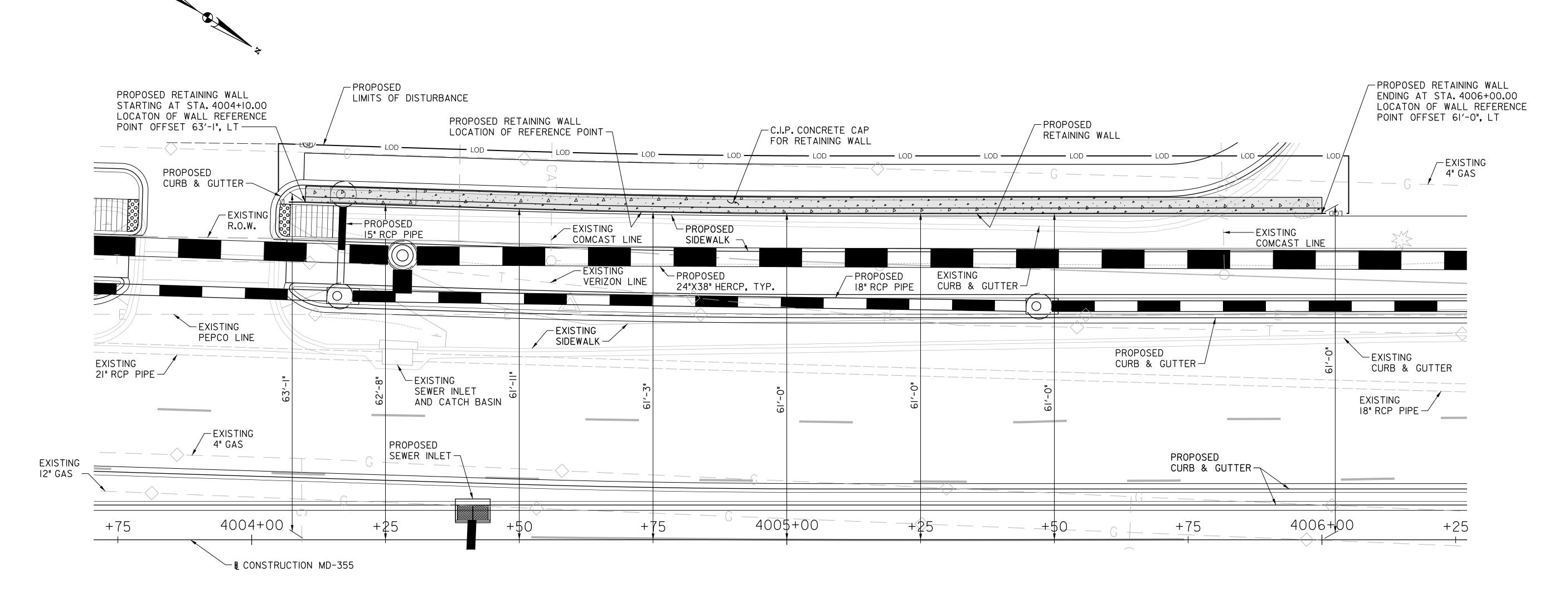
DATE: DECEMBER 2022 SHEET <u>782</u> of <u>887</u>

S-42

LAUREL, MARYLAND 20707 (301) 982-2800

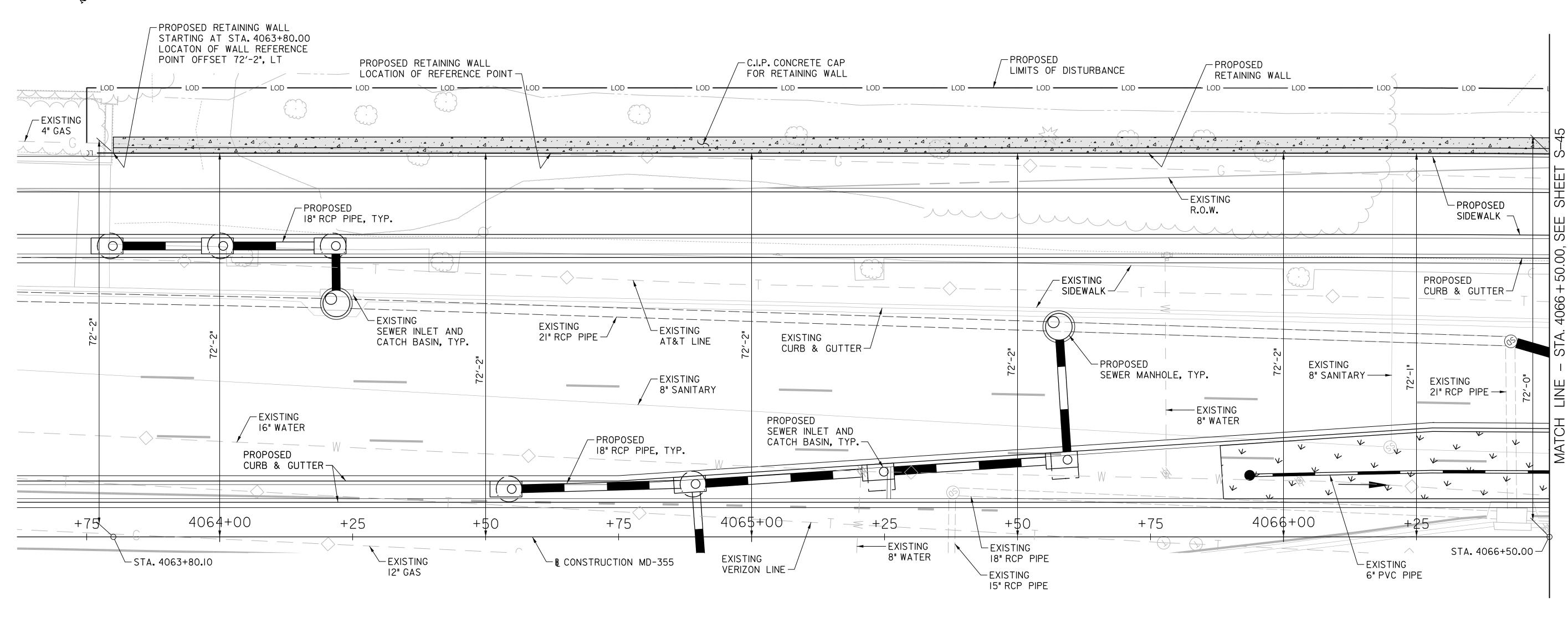
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO: \_\_ EXPIRATION DATE:

Stantec



PLAN - RETAINING WALL NO. RW-403L STA. 4004+10.00 TO STA. 4006+00.00 SCALE: I" = 10'-0"

S-43 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-403L DATE BY REVISION PLAN Chief, Design Section PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE : AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 783 of 887 Project No. :502005 LICENSE NO: \_\_\_ \_ EXPIRATION DATE: Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

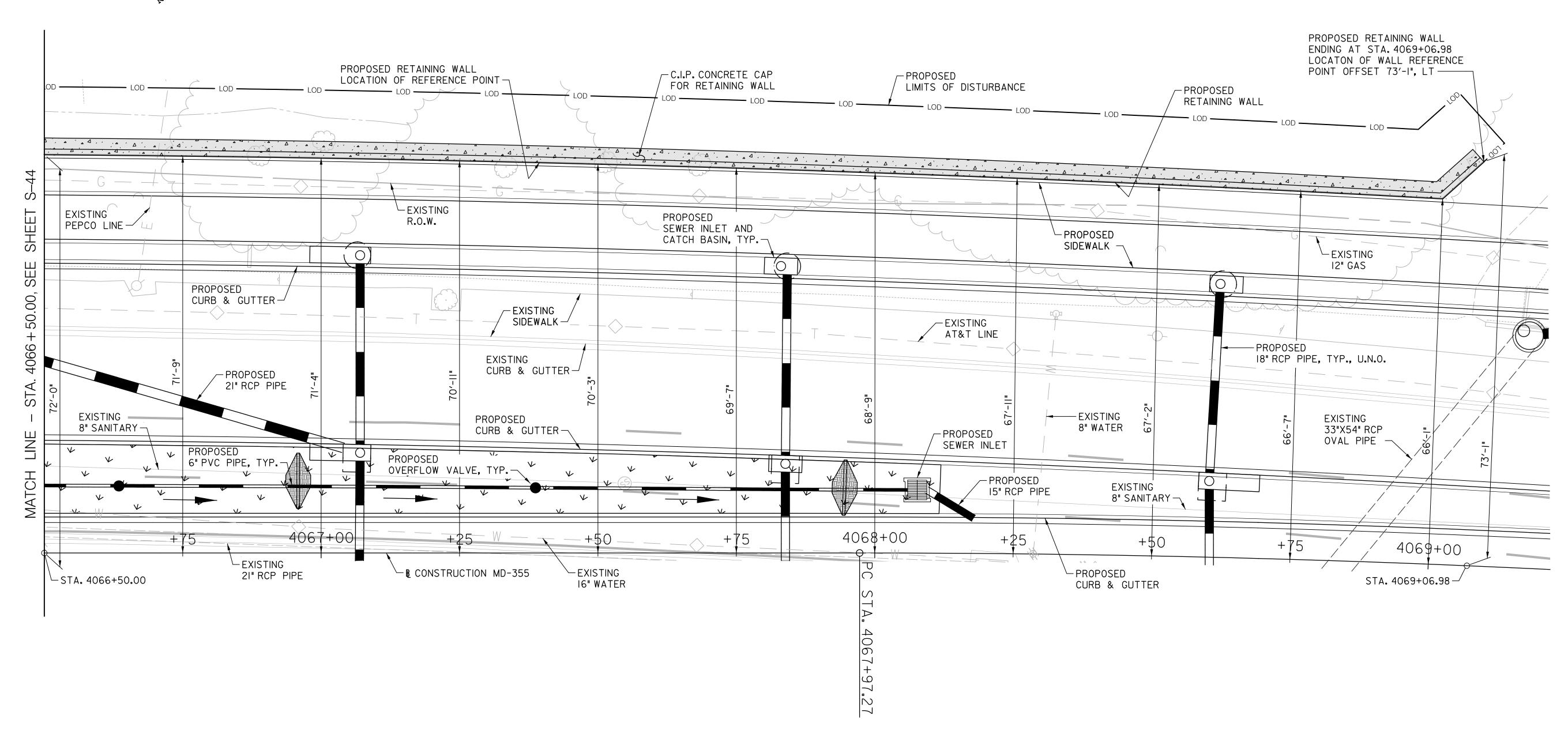


PLAN - RETAINING WALL NO. RW-404L

STA. 4063+80.10 TO STA. 4069+00.00

SCALE: I" = 10'-0"

S-44 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-404L PLAN (1 OF 2) DATE REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED DATE: DECEMBER 2022 6110 FROST PLACE, SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 784 of 887 Project No. :502005 LICENSE NO: \_\_\_ \_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



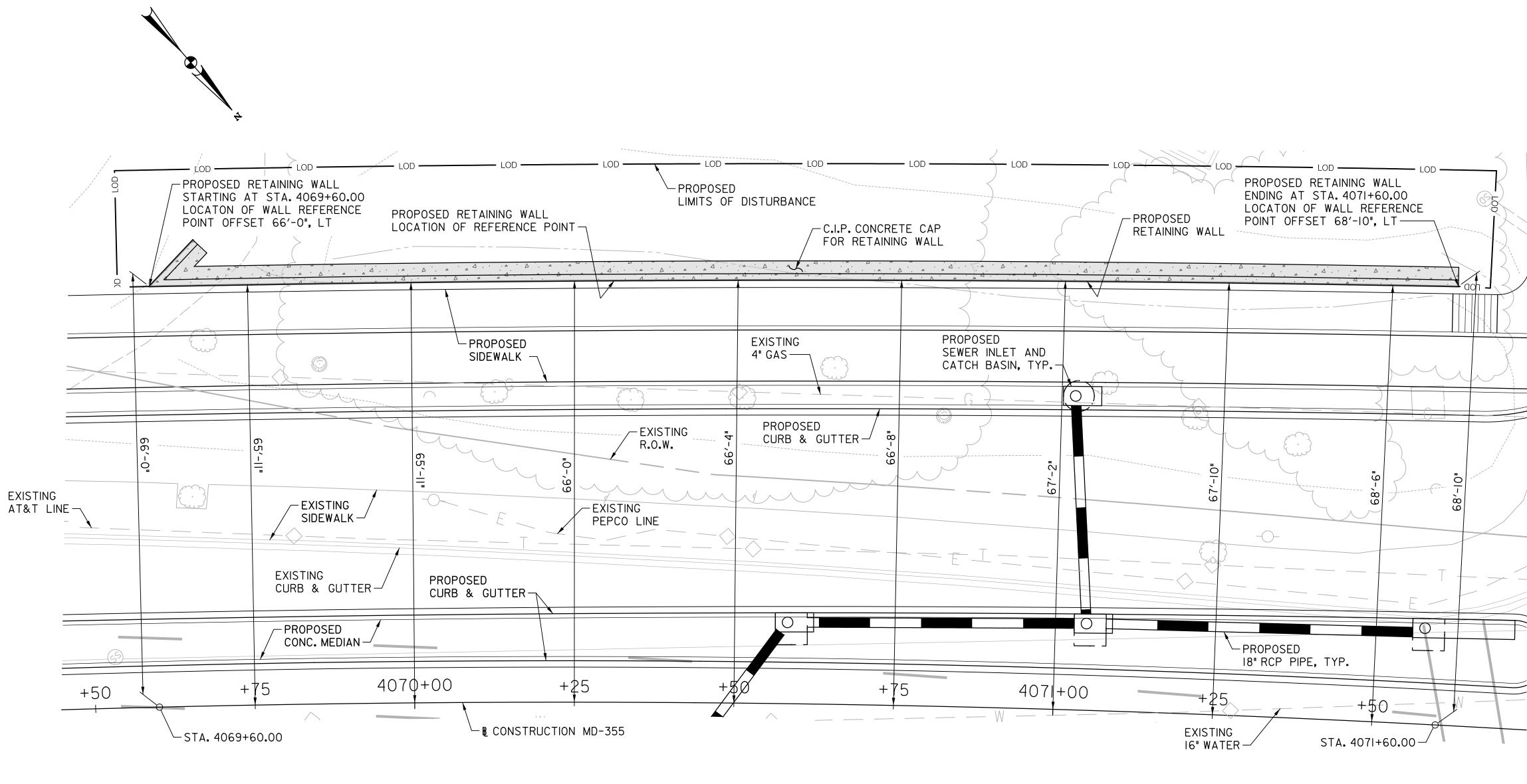
PLAN - RETAINING WALL NO. RW-404L

STA. 4063+80.10 TO STA. 4069+06.98

SCALE: I" = 10'-0"

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-404L PLAN (2 OF 2) DATE BY REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED
OR APPROVED BY ME, AND THAT I AM A DULY LICENSED Stantec APPROVED DATE: DECEMBER 2022 6110 FROST PLACE, SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 785 of 887 Project No. : 502005 LICENSE NO: \_\_\_ \_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

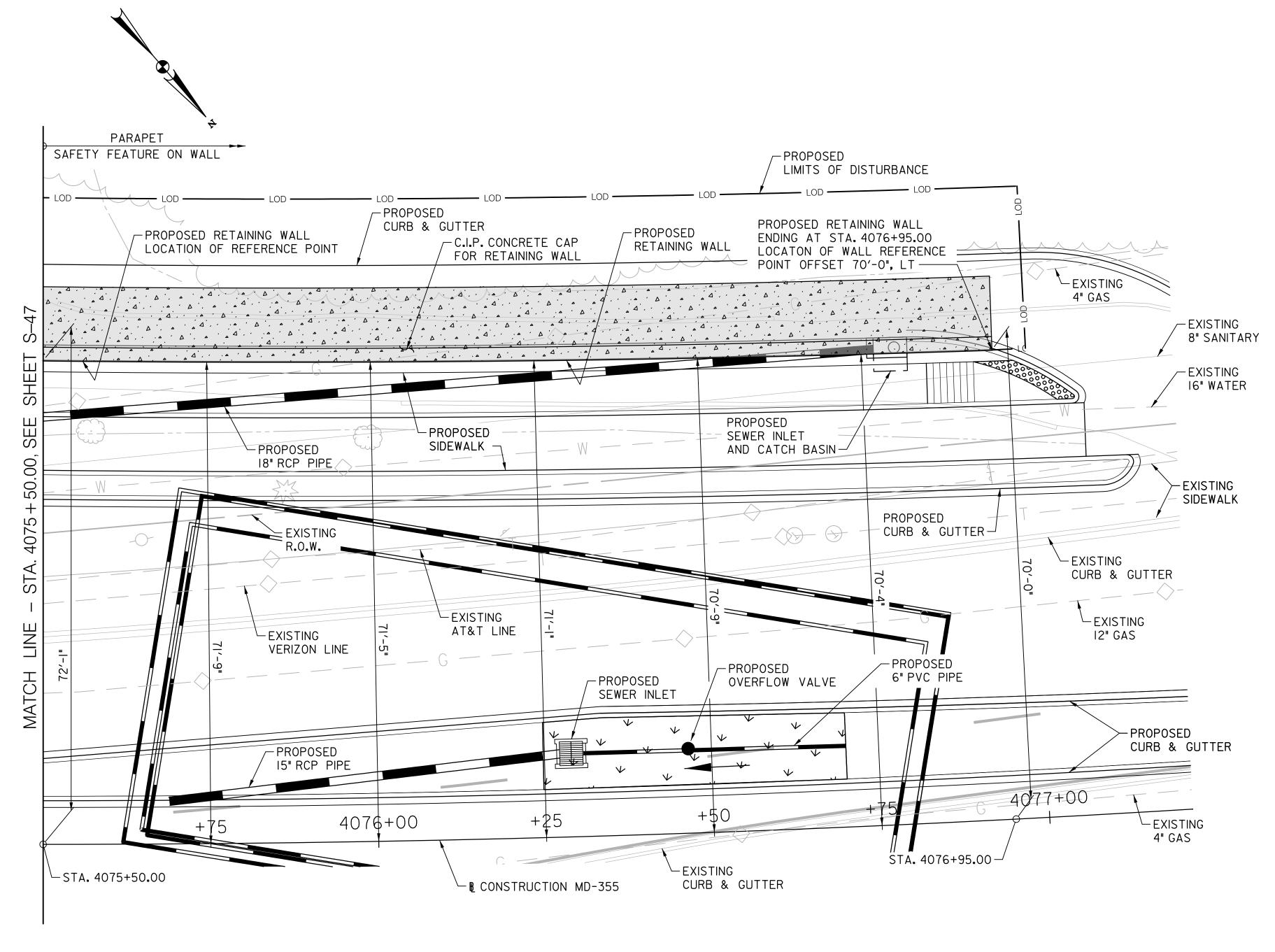




PLAN - RETAINING WALL NO. RW-405L

STA. 4069+60.00 TO STA. 407I+60.00
SCALE: I" = 10'-0"

S-46 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-405L PLAN DATE BY REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, LAUREL, MARYLAND 20707 DATE: DECEMBER 2022 SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering OF MARYLAND. (301) 982–2800 www.stantec.com SHEET <u>786</u> of <u>887</u> Project No. : 502005 LICENSE NO: \_\_\_\_ \_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



PLAN - RETAINING WALL NO. RW-406L

STA. 4072+75.00 TO STA. 4076+95.00

SCALE: I" = 10'-0"

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-406L PLAN (2 OF 2) DATE BY REVISION Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, LAUREL, MARYLAND 20707 DATE: DECEMBER 2022 SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 788 of 887 Project No. :502005 LICENSE NO: \_\_\_ \_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

Stantec LAUREL, MARYLAND 20707 (301) 982-2800

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: \_\_ EXPIRATION DATE:

RECOMMENDED FOR APPROVAL REVISION DATE Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION

DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND

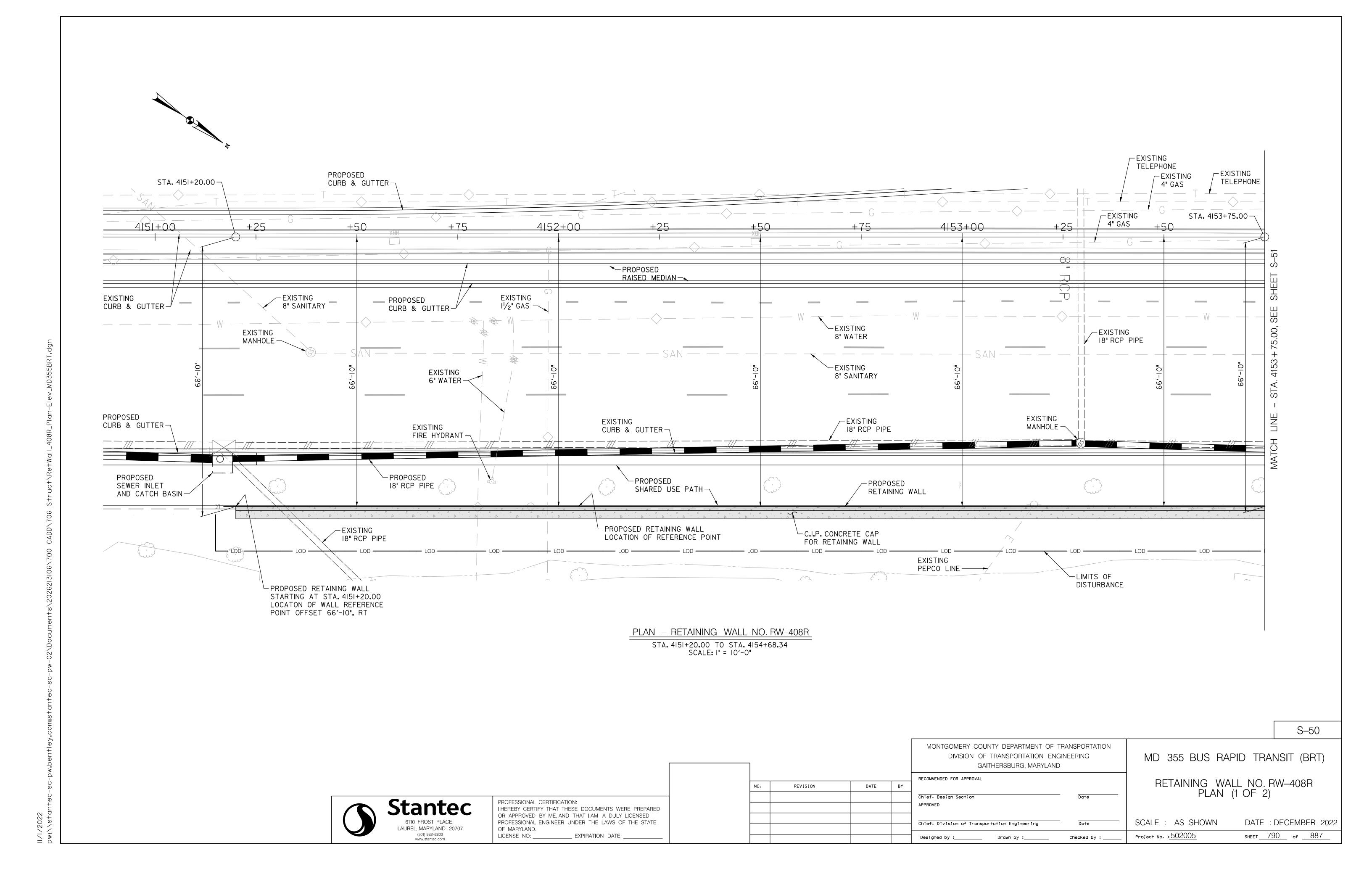
Checked by : \_

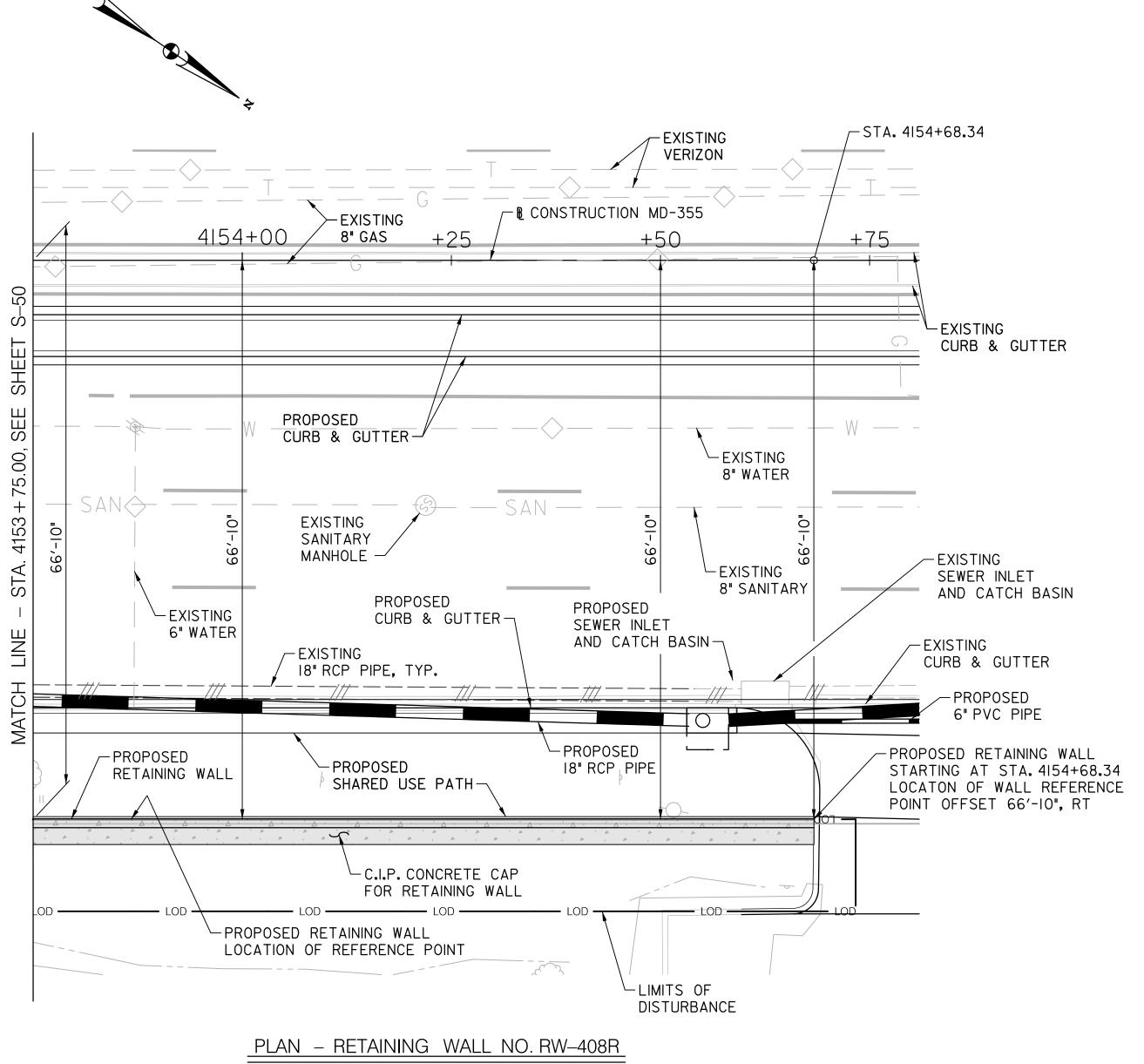
MD 355 BUS RAPID TRANSIT (BRT)

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DATE: DECEMBER 2022 SCALE: AS SHOWN

SHEET <u>789</u> of <u>887</u> Project No. :502005





STA. 4|5|+20.00 TO STA. 4|54+68.34 SCALE: |" = |0'-0"

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.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: \_\_\_\_ \_\_\_\_\_ EXPIRATION DATE: \_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL REVISION DATE BY Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

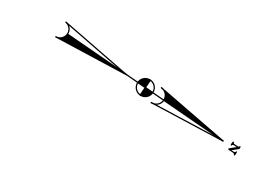
MD 355 BUS RAPID TRANSIT (BRT)

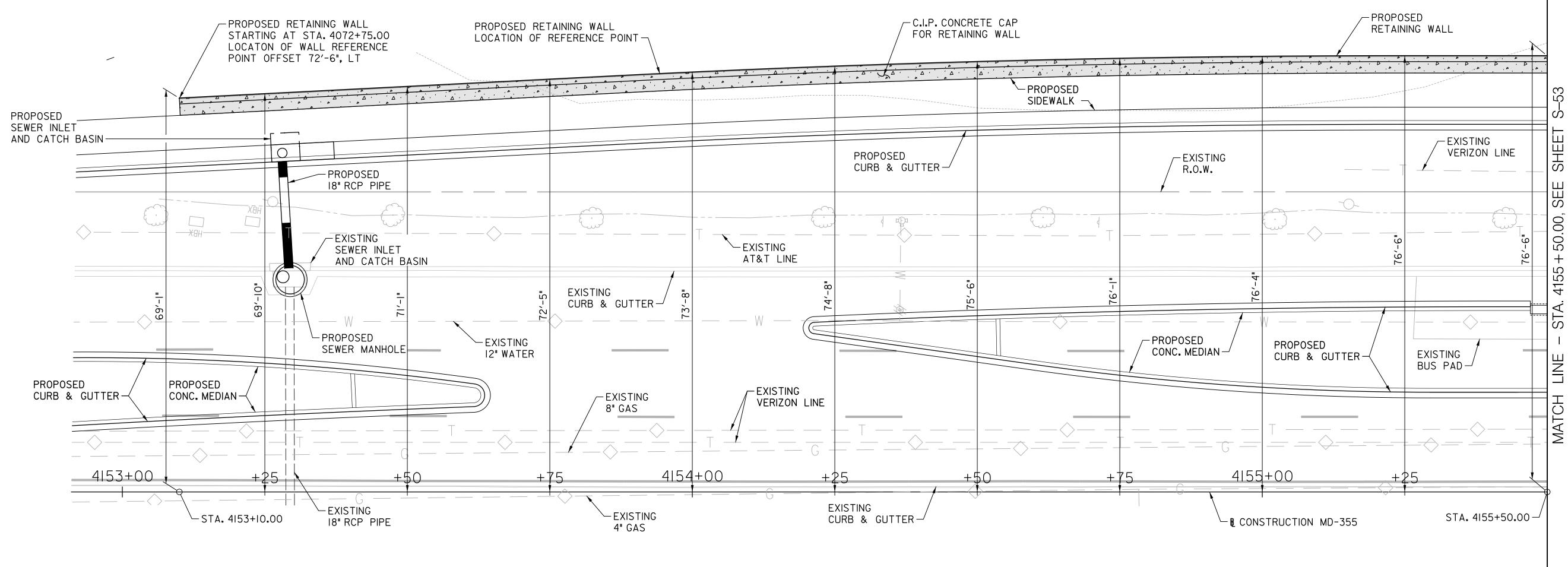
S-51

RETAINING WALL NO. RW-408R PLAN (2 OF 2)

SCALE: AS SHOWN DATE: DECEMBER 2022 SHEET 791 of 887 Project No. : 502005







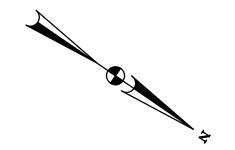
PLAN - RETAINING WALL NO. RW-409L STA. 4153+10.00 TO STA. 4156+30.00 SCALE: |" = 10'-0"

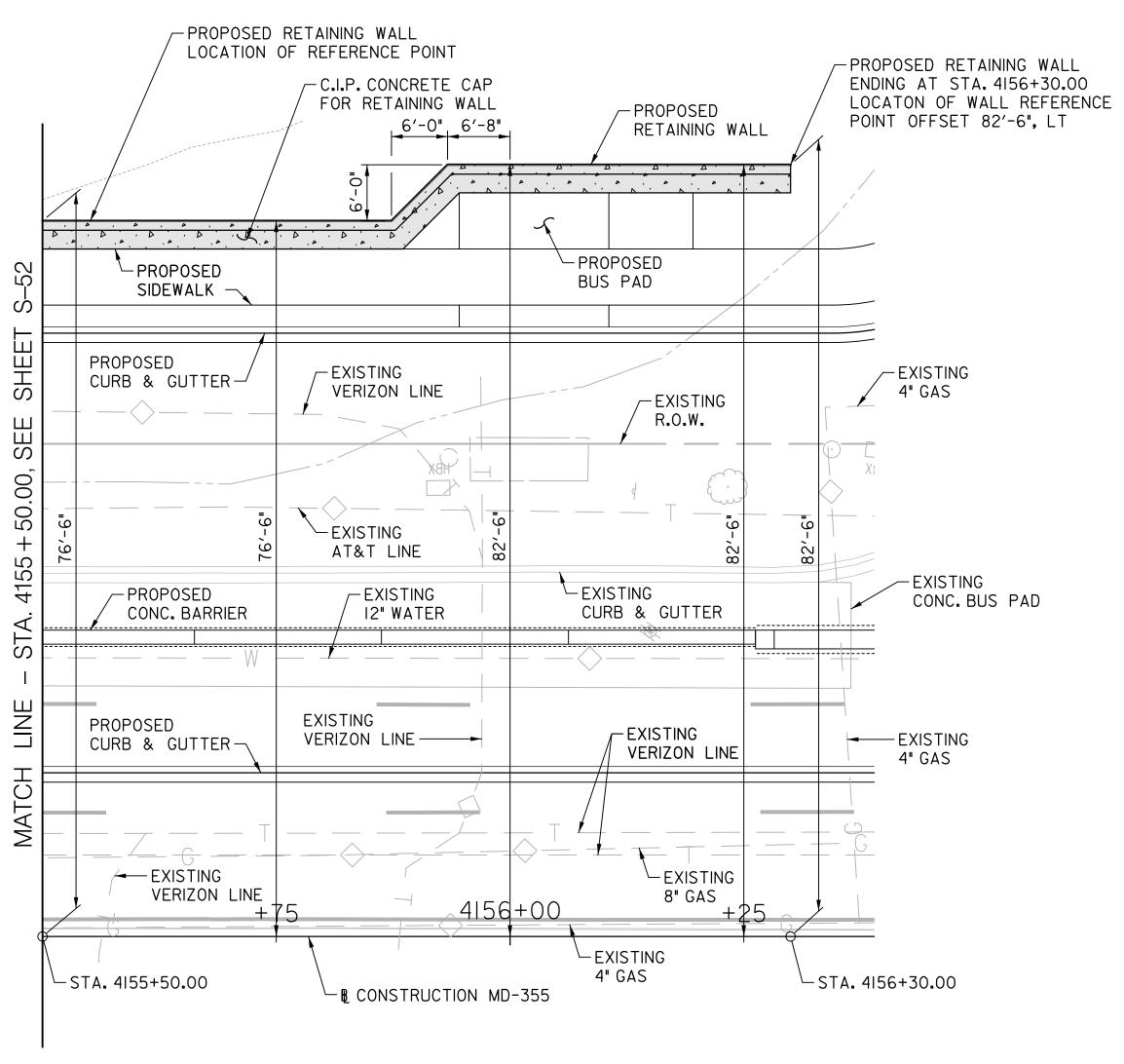
> S-52 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-409L PLAN (1 OF 2) DATE BY REVISION Chief, Design Section APPROVED DATE: DECEMBER 2022 SCALE : AS SHOWN Chief, Division of Transportation Engineering SHEET 792 of 887 Project No. : 502005 Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.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: \_\_\_

\_\_ EXPIRATION DATE: \_





PLAN - RETAINING WALL NO. RW-409L STA. 4153+10.00 TO STA. 4156+30.00 SCALE: I" = 10'-0"

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.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: \_\_\_ \_\_ EXPIRATION DATE:

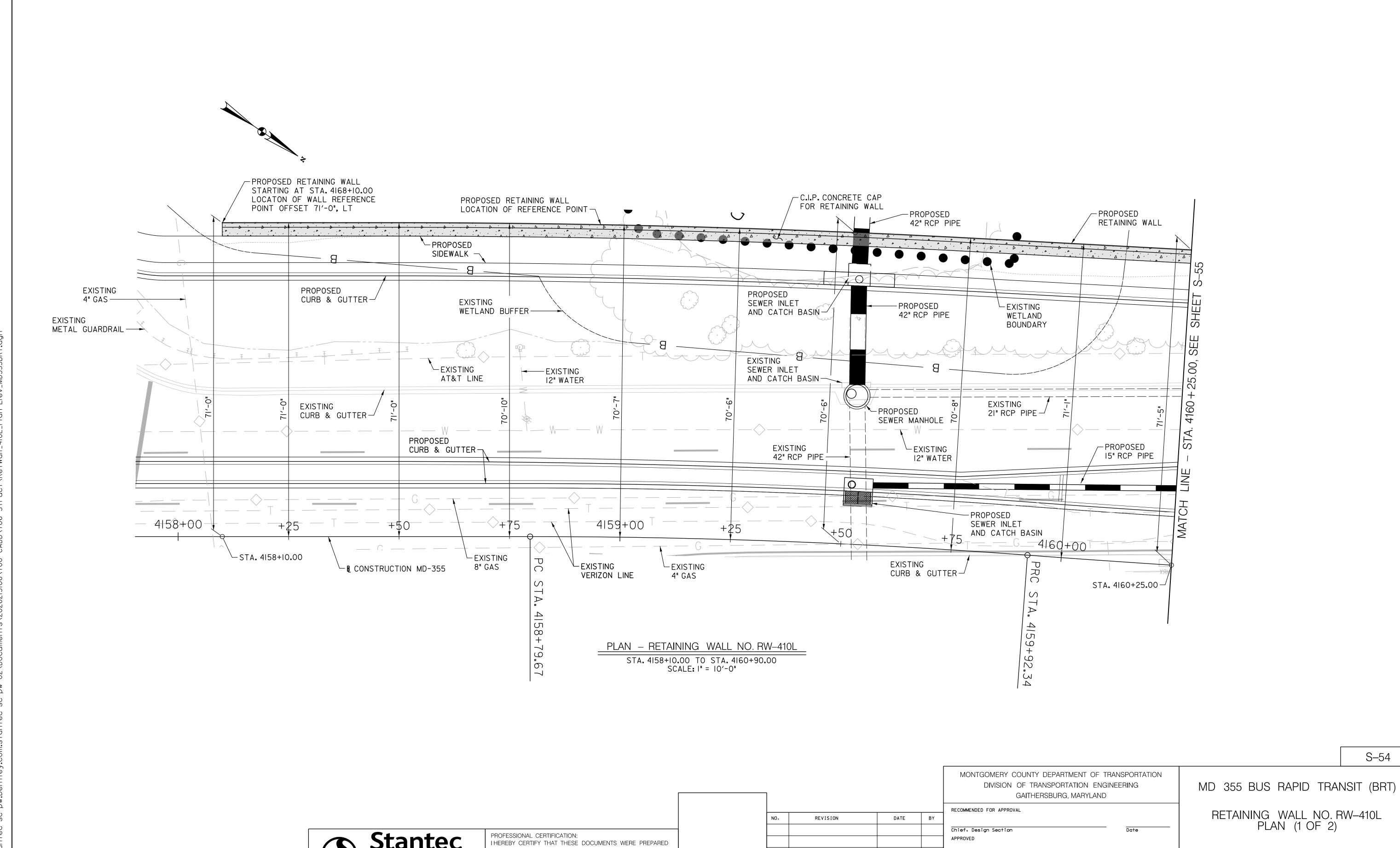
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL REVISION DATE BY Chief, Design Section APPROVED Chief, Division of Transportation Engineering

MD 355 BUS RAPID TRANSIT (BRT) RETAINING WALL NO. RW-409L PLAN (2 OF 2)

S-53

DATE: DECEMBER 2022 SCALE : AS SHOWN SHEET 793 of 887 Project No. : 502005

Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



APPROVED

Designed by :\_\_\_\_\_

Chief, Division of Transportation Engineering

Drawn by :\_\_\_\_

Checked by : \_

Stantec

6110 FROST PLACE,

LAUREL, MARYLAND 20707

(301) 982–2800 www.stantec.com

OR APPROVED BY ME, AND THAT I AM A DULY LICENSED

OF MARYLAND.

LICENSE NO: \_\_\_

PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE

\_\_ EXPIRATION DATE: \_

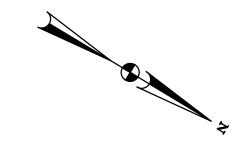
S-54

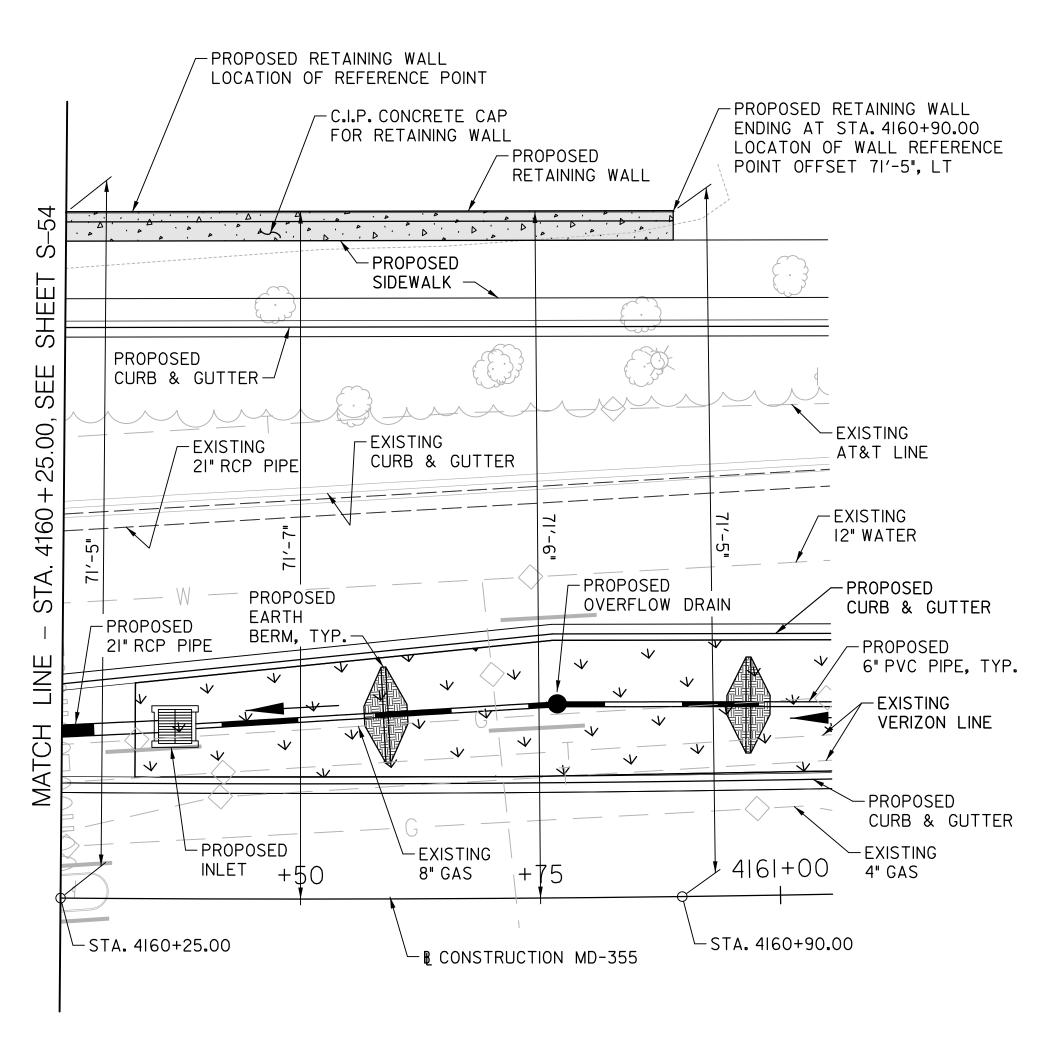
DATE: DECEMBER 2022

sheet 794 of 887

SCALE : AS SHOWN

Project No. :502005





PLAN - RETAINING WALL NO. RW-410L

STA. 4158+10.00 TO STA. 4160+90.00

SCALE: I" = 10'-0"

Stantec
6110 FROST PLACE,
LAUREL, MARYLAND 20707
(301) 982–2800
www.stantec.com

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

Chief, Design Section
APPROVED

Chief, Division of Transportation Engineering

Date

Designed by :\_\_\_\_\_\_ Drawn by :\_\_\_\_\_ Checked by :\_\_\_\_\_

MD 355 BUS RAPID TRANSIT (BRT)

RETAINING WALL NO. RW-410L
PLAN (2 OF 2)

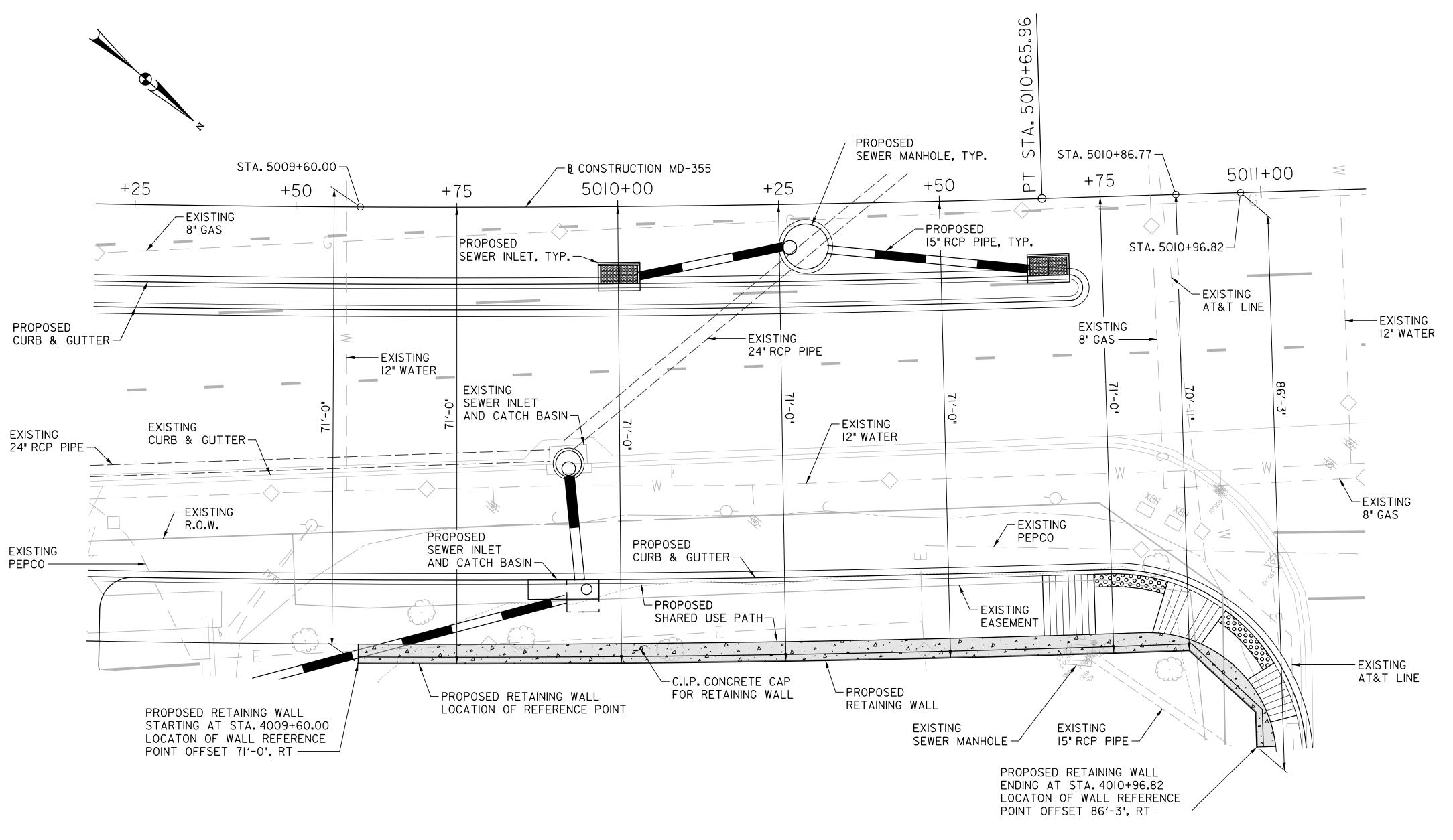
S-55

SCALE : AS SHOWN DATE : DECEMBER 2022

 SCALE : AS SHOWN
 DATE : DECEMBER 20

 Project No. : 502005
 SHEET 795 of 887

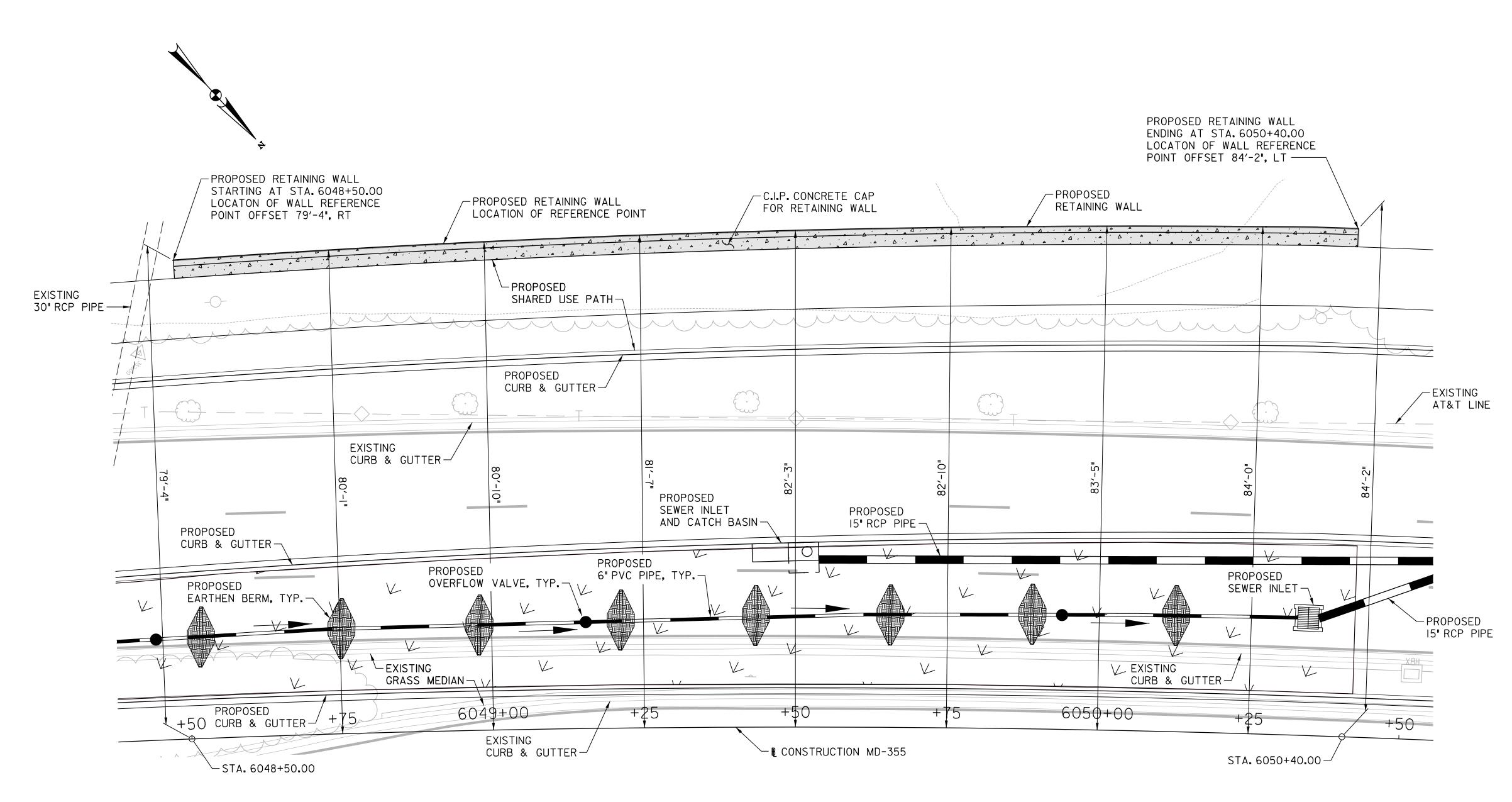
/2022



PLAN - RETAINING WALL NO. RW-501R STA. 5009+60.00 TO STA. 5010+96.82 SCALE: |" = 10'-0"

S-56 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-501L DATE BY REVISION PLAN Chief, Design Section Stantec PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, SCALE: AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 796 of 887 Project No. :502005 LICENSE NO: \_\_\_ \_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



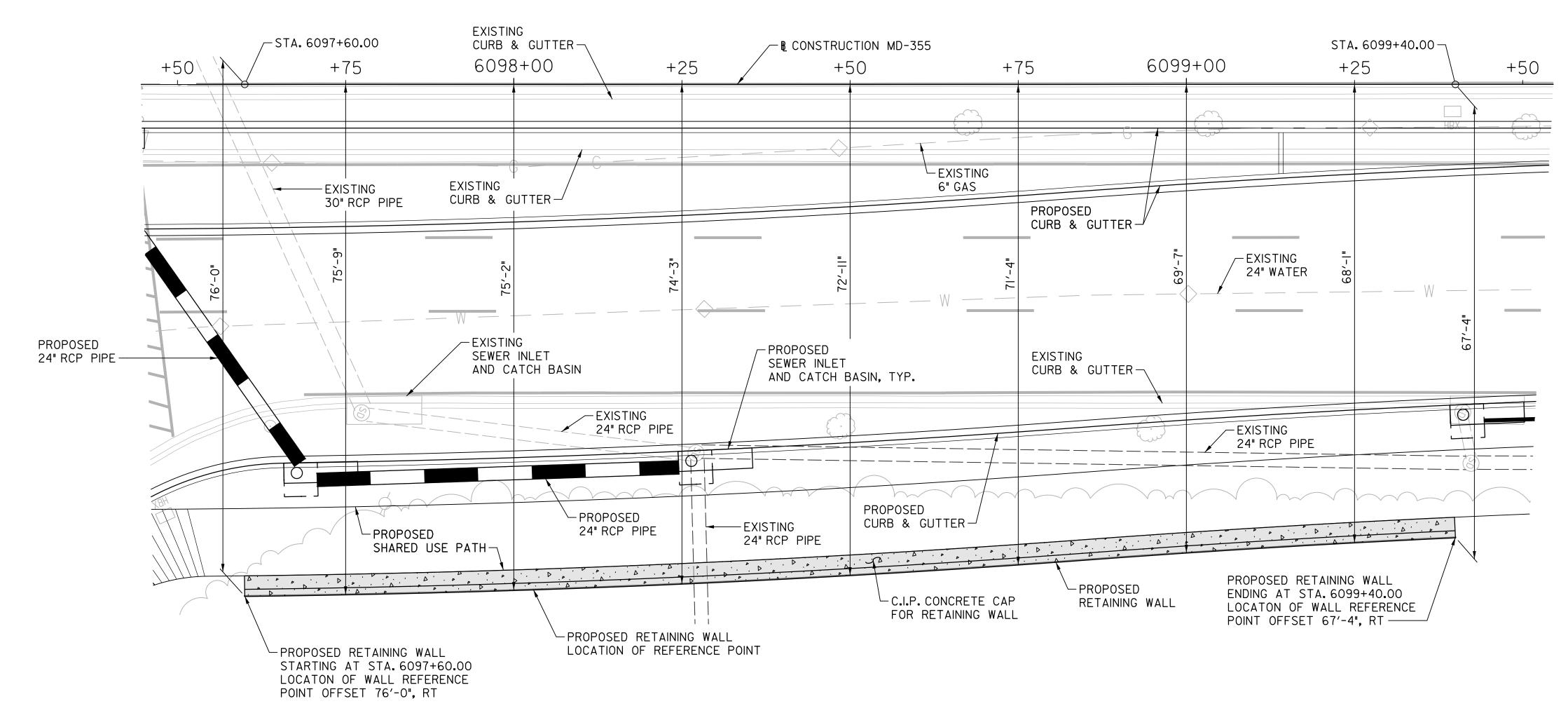


PLAN - RETAINING WALL NO. RW-601L

STA. 6048+50.00 TO STA. 6050+40.00

SCALE: I" = 10'-0"

S-57 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-601L REVISION DATE BY PLAN Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED
OR APPROVED BY ME, AND THAT I AM A DULY LICENSED Stantec APPROVED 6110 FROST PLACE, LAUREL, MARYLAND 20707 DATE: DECEMBER 2022 SCALE : AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 797 of 887 Project No. : 502005 LICENSE NO: \_\_\_ \_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



PLAN - RETAINING WALL NO. RW-603R STA. 6097+60.00 TO STA. 6099+40.00 SCALE: I" = 10'-0"

Stantec 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982–2800 www.stantec.com

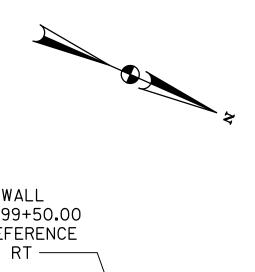
PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO: \_\_\_\_ \_\_\_\_\_ EXPIRATION DATE: \_

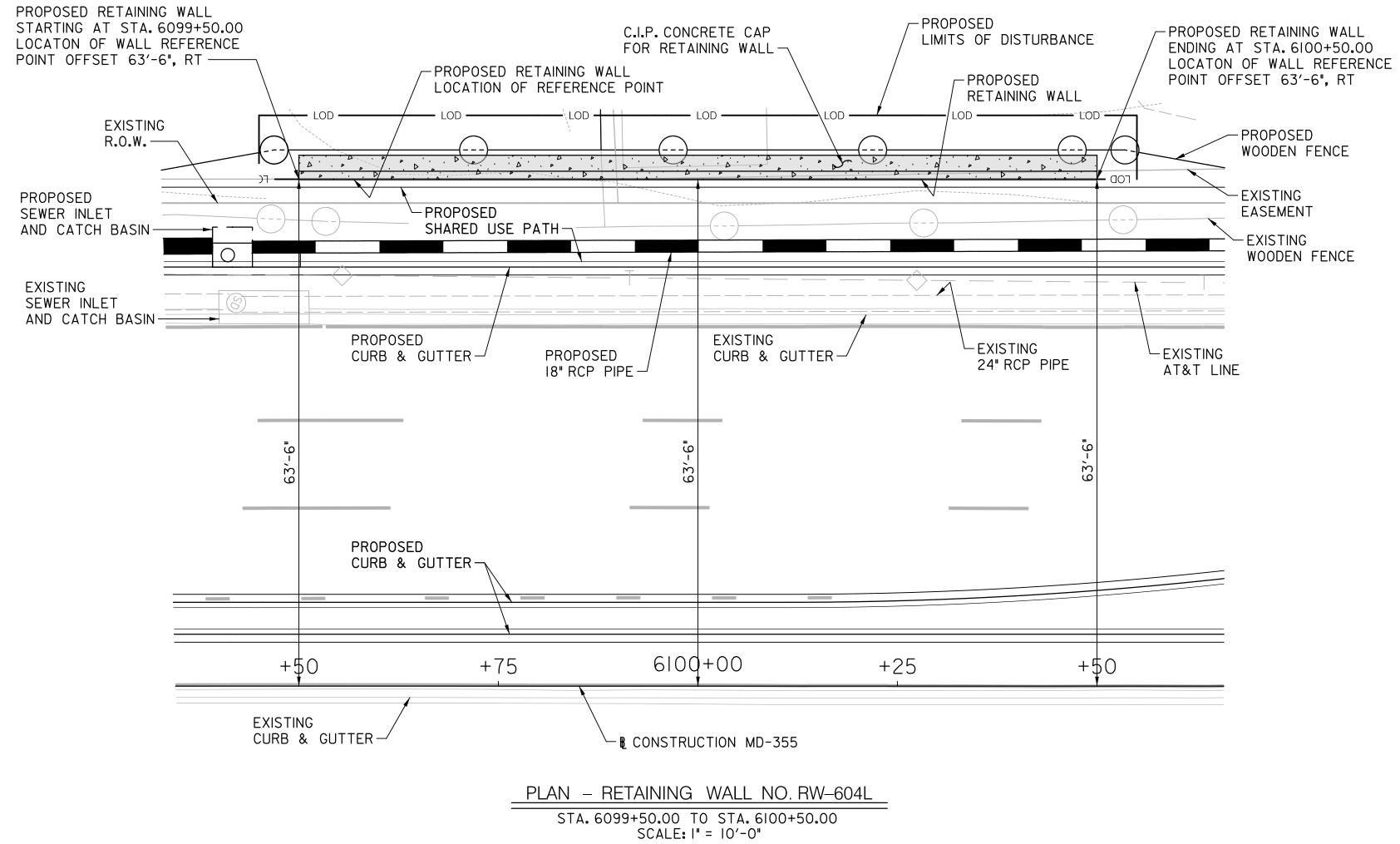
MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL DATE BY REVISION Chief, Design Section APPROVED Chief, Division of Transportation Engineering Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_

MD 355 BUS RAPID TRANSIT (BRT) RETAINING WALL NO. RW-603R PLAN

DATE: DECEMBER 2022 SCALE: AS SHOWN

SHEET 799 of 887 Project No. : 502005





MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

RECOMMENDED FOR APPROVAL

RECOMMENDED FOR APPROVAL

RECOMMENDED FOR APPROVAL

OTHER FOR APPROVAL

RETAINING WALL NO. RW—604L
PLAN

PLAN

RETAINING WALL NO. RW—604L
PLAN

Chief, Division of Transportation Engineering

Drawn by :\_\_\_\_

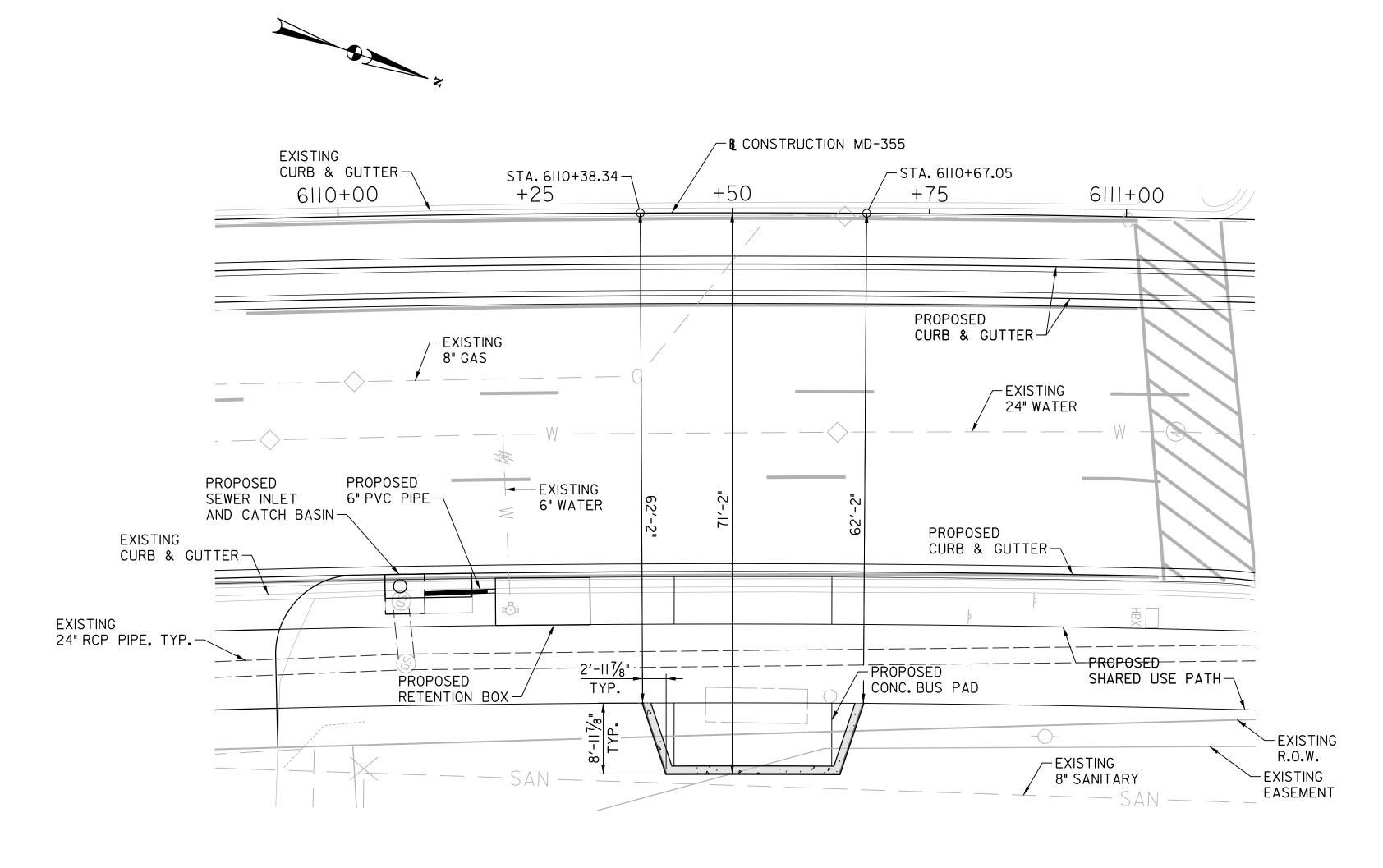
Designed by :\_\_\_\_



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: \_\_\_\_\_\_ EXPIRATION DATE: \_\_\_\_\_\_

Date SCALE : AS SHOWN

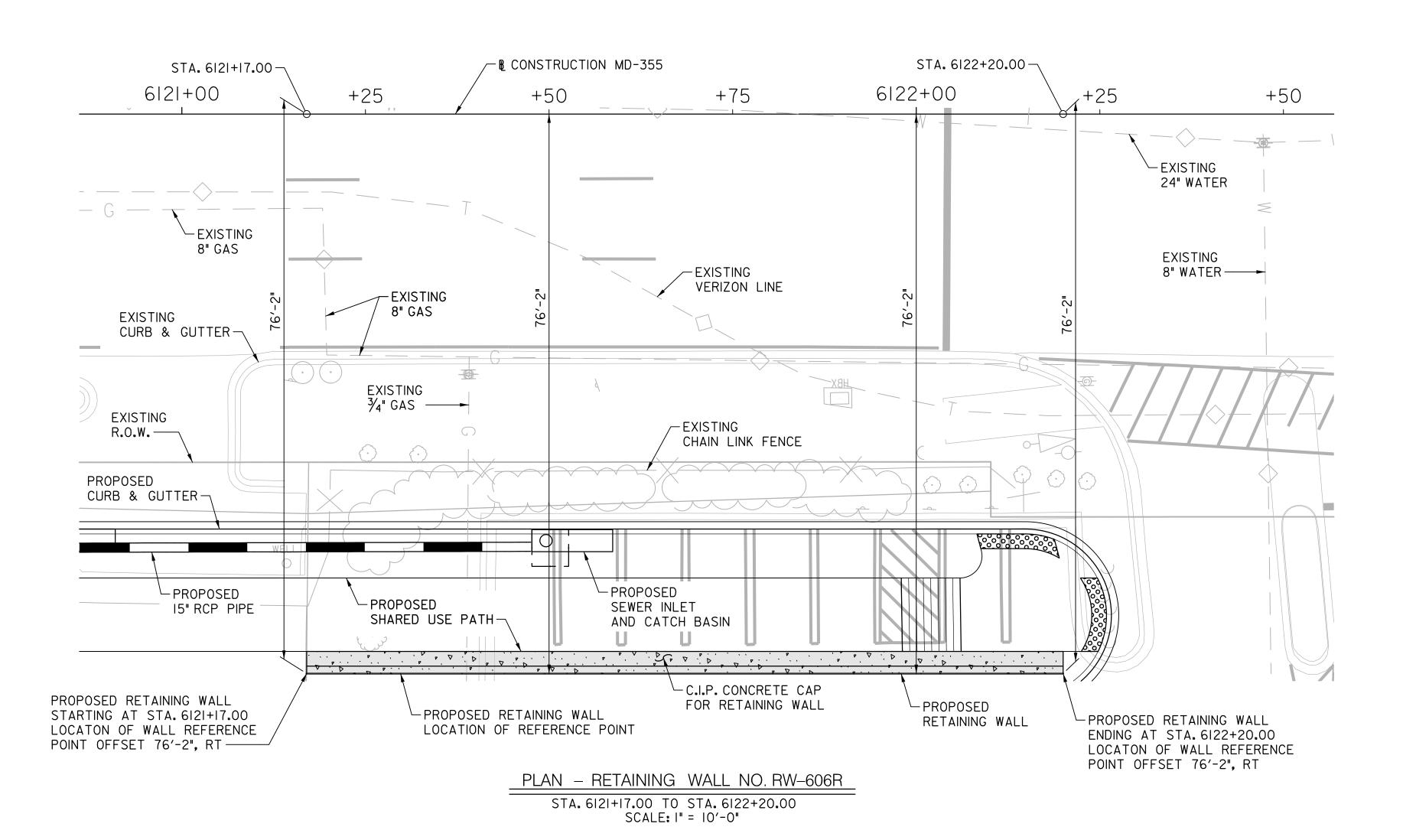
Checked by : \_\_\_\_\_ Project No. :502005



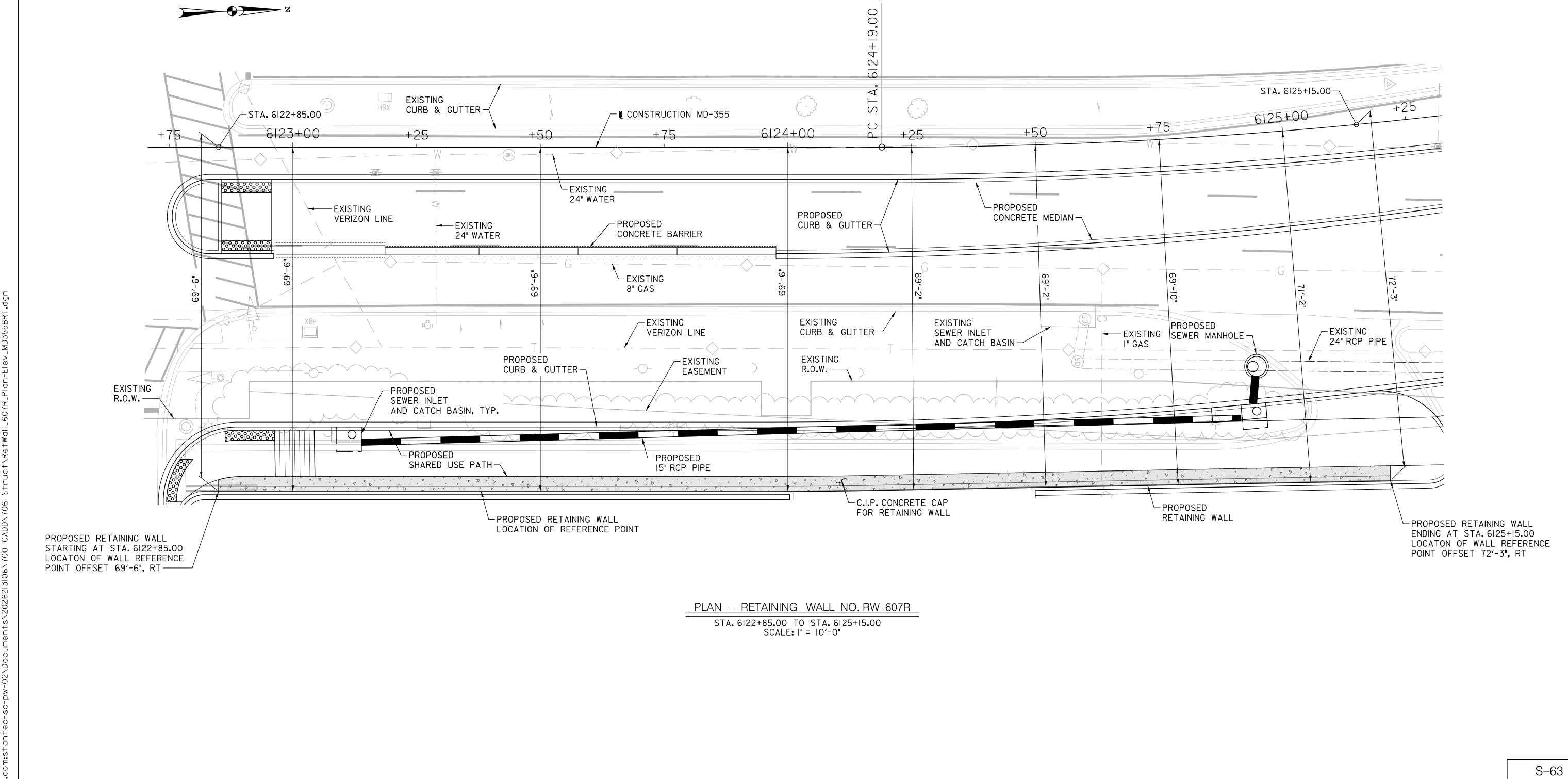
PLAN - RETAINING WALL NO. RW-605R STA. 6110+38.34 TO STA. 6110+67.05 SCALE: I" = 10'-0"

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-605R PLAN REVISION DATE BY Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED
OR APPROVED BY ME, AND THAT I AM A DULY LICENSED Stantec APPROVED 6110 FROST PLACE, LAUREL, MARYLAND 20707 (301) 982-2800 www.stantec.com SCALE: AS SHOWN DATE: DECEMBER 2022 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering OF MARYLAND. SHEET 801 of 887 Project No. : 502005LICENSE NO: \_\_\_\_ \_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_





S-62 MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL NO. RW-606R REVISION DATE PLAN Chief, Design Section PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED Stantec APPROVED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED DATE: DECEMBER 2022 6110 FROST PLACE, SCALE: AS SHOWN PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE Chief, Division of Transportation Engineering LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982–2800 www.stantec.com SHEET 802 of 887 Project No. :502005 LICENSE NO: \_\_\_\_ \_\_\_ EXPIRATION DATE: \_ Designed by :\_\_\_\_\_ Drawn by :\_\_\_\_ Checked by : \_



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED

PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE

\_\_\_\_\_ EXPIRATION DATE: \_

OR APPROVED BY ME, AND THAT I AM A DULY LICENSED

OF MARYLAND.

LICENSE NO: \_\_\_\_

Stantec

6110 FROST PLACE,

(301) 982–2800 www.stantec.com

LAUREL, MARYLAND 20707

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION

DIVISION OF TRANSPORTATION ENGINEERING
GAITHERSBURG, MARYLAND

Drawn by :\_\_\_\_

Checked by : \_

RECOMMENDED FOR APPROVAL

Chief, Design Section

Designed by :\_\_\_\_\_

Chief, Division of Transportation Engineering

APPROVED

DATE BY

REVISION

MD 355 BUS RAPID TRANSIT (BRT)

RETAINING WALL NO. RW-607R

PLAN

DATE: DECEMBER 2022

sheet <u>803</u> of <u>887</u>

SCALE: AS SHOWN

Project No. :502005

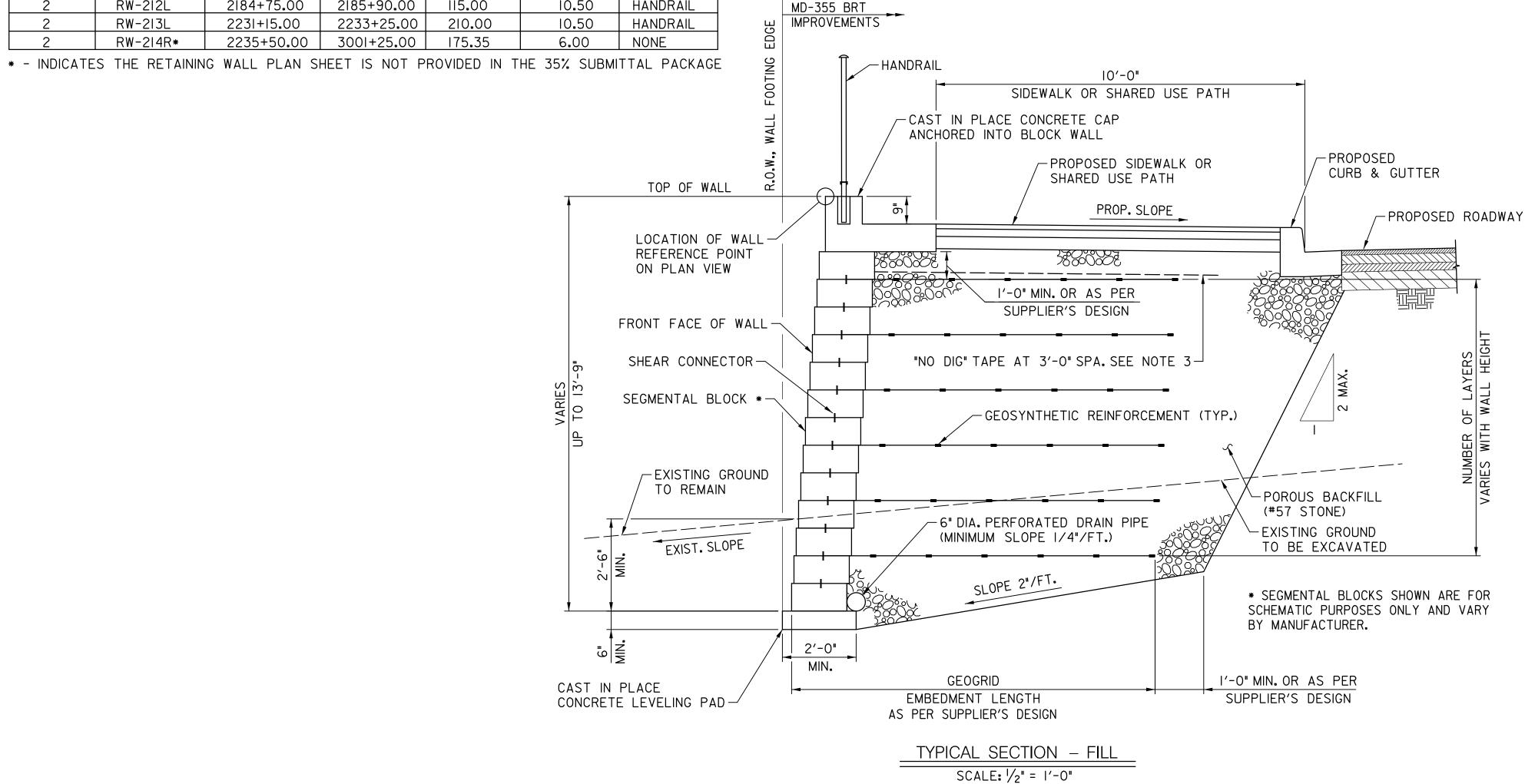
|0/28/2022 | pw:\\stantec-sc-pw.bentlev.com:stantec-sc-pw-02\Nocuments\20262|3|06\700 C/

RETAINING WALL TABLE								
SEGMENT NO.	T RETAINING START WALL STATI		ENDING STATION	RETAINING WALL LENGTH (FT)	RETAINING WALL MAX. HEIGHT (FT)	SAFETY FEATURE ON WALL		
2	RW-200R	2008+37.00	2009+19.00	82.00	8.50	HANDRAIL		
2	RW-20IR	2014+10.00	2018+20.00	410.00	7.25	HANDRAIL		
2	RW-202L	2016+50.00	2018+45.00	195.00	8.00	HANDRAIL		
2	RW-203R	2020+60.00	2024+10.00	350.00	9.75	HANDRAIL		
2	RW-204L	2020+20.00	2032+90.00	1,270.00	10.75	HANDRAIL		
2	RW-205R	2050+00.00	2050+75.00	75.00	6.50	HANDRAIL		
2	RW-206R	2052+10.00	2054+60.00	250.00	8.50	HANDRAIL		
2	RW-207R	2091+00.00	2091+95.00	95.00	8.00	HANDRAIL		
2	RW-208R	2160+50.00	2162+95.00	245.00	5.00	HANDRAIL		
2	RW-209R	2173+25.00	2173+85.00	60.00	5.00	HANDRAIL		
2	RW-2IOR	2174+20.00	2179+15.00	495.00	6.50	HANDRAIL		
2	RW-2IIL	2176+50.00	2177+60.00	110.00	6.25	HANDRAIL		
2	RW-212L	2184+75.00	2185+90.00	115.00	10.50	HANDRAIL		
2	RW-213L	2231+15.00	2233+25.00	210.00	10.50	HANDRAIL		
2	RW-214R*	2235+50.00	3001+25.00	175.35	6.00	NONE		

RETAINING WALL TABLE								
SEGMENT NO.	RETAINING WALL NAME	STARTING STATION	ENDING STATION	RETAINING WALL LENGTH (FT)	RETAINING WALL MAX. HEIGHT (FT)	SAFETY FEATURE ON WALL		
3	RW-30IL	3000+10.00	3002+50.00	240.00	II <b>.</b> 50	HANDRAIL		
3	RW-302R	3007+85.00	3011+75.00	390.00	8.00	HANDRAIL		
3	RW-303R	129+80.00	135+50.00	570.00	<b>6.</b> 50	PARAPET		
3	RW-304L	253+40.00	255+60.00	220.00	5.55	HANDRAIL		
3	RW-305L	256+25.00	257+10.00	85.00	5.25	HANDRAIL		
3	RW-306L	257+40.00	261+00.00	2360.00	5.00	HANDRAIL		
3	RW-307L	262+00.00	269+25.00	725.00	6.00	HANDRAIL		

REVISION

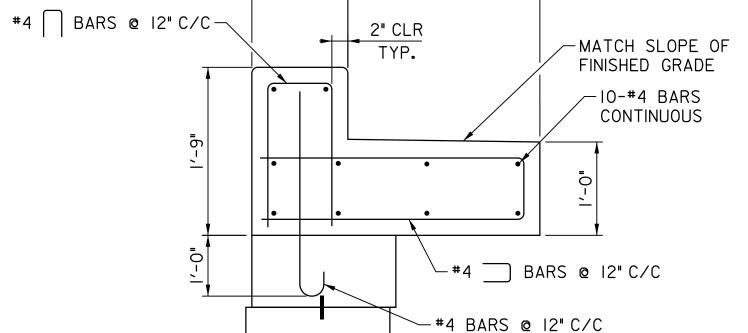
DATE



RETAINING WALL TABLE SAFETY RETAINING RETAINING RETAINING SEGMENT ENDING STARTING FEATURE WALL MAX. WALL WALL STATION STATION NAME LENGTH (FT) | HEIGHT (FT) | ON WALL RW-40IR 3092+75.00 4000+25.00 148.00 HANDRAIL 4000+88.00 4000+65.00 7.50 RW-402R 23.00 HANDRAIL 4006+00.00 190.00 6.50 RW-403L 4004+10.00 HANDRAIL 4069+00.00 7.50 RW-404L 4063+80.00 520.00 HANDRAIL RW-405L 4069+60.00 4071+60.00 200.00 11.50 HANDRAIL RW-406L 4072+75.00 4076+95.00 420.00 15.50 HDRL/PARA RW-407L\* 4135+31.00 4135+50.00 19.00 7.50 HANDRAIL 4137+22.00 7.50 RW-407R\* 4138+62.00 140.00 HANDRAIL RW-408R 4151+20.00 4154+68.34 348.34 6.25 HANDRAIL RW-409L 4153+10.00 4156+30.00 320.00 12.50 HANDRAIL 4160+90.00 280.00 9.25 RW-4IOL 4158+10.00 HANDRAIL

\* - INDICATES THE RETAINING WALL PLAN SHEET IS NOT PROVIDED IN THE 35% SUBMITTAL PACKAGE

	RETAINING WALL TABLE									
SEGMENT NO.	RETAINING WALL NAME	STARTING STATION	ENDING STATION	RETAINING WALL LENGTH (FT)	RETAINING WALL MAX. HEIGHT (FT)	SAFETY FEATURE ON WALL				
5	RW-50IR	5009+60.00	5010+96.82	136.82	7.50	HANDRAIL				
			$\searrow$		$\searrow$					
6	RW-60IL	6048+50.00	6050+40.00	190.00	9.25	HANDRAIL				
6	RW-602L	6055+60.00	6057+40.00	340.00	8.50	HANDRAIL				
6	RW-603R	6097+60.00	6099+40.00	180.00	7.50	HANDRAIL				
6	RW-604L	6099+50.00	6100+50.00	100.00	4.50	HANDRAIL				
6	RW-605R	6110+38.34	6110+67.05	28.71	7.75	HANDRAIL				
6	RW-606R	6121+17.00	6122+20.00	103.00	5.50	HANDRAIL				
6	RW-607R	6122+85.00	6125+15.00	230.00	7.75	HANDRAIL				



CONCRETE CAP DETAILS

HANDRAIL NOT SHOWN FOR CLARITY

SCALE: |" = |'-0"

2'-0"

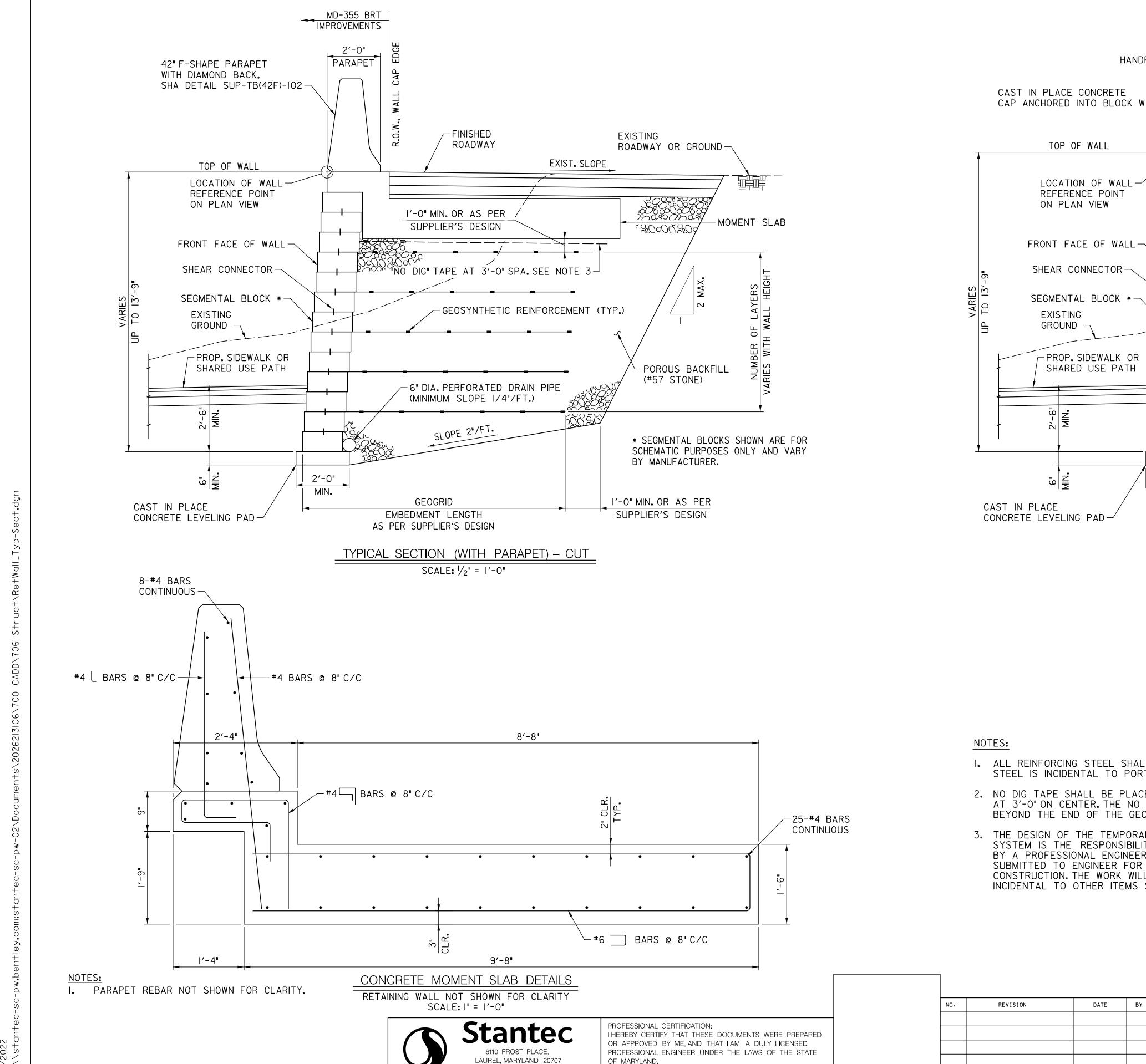
CAST WITH TOP BLOCK

NOTES:

- I. ALL REINFORCING STEEL SHALL BE EPOXY COATED. THE COST OF REINFORCING STEEL IS INCIDENTAL TO PORTLAND CEMENT CONCRETE.
- 2. NO DIG TAPE SHALL BE PLACED ABOVE THE GEOSYNTHETIC REINFORCEMENT AT 3'-0" ON CENTER. THE NO DIG TAPE SHALL EXTEND A MINIMUM OF 2'-0" BEYOND THE END OF THE GEOSYNTHETIC REINFORCEMENT.
- 3. THE DESIGN OF THE TEMPORARY SHEETING, SHORING AND TEMPORARY SUPPORT SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DONE BY A PROFESSIONAL ENGINEER REGISTERED IN STATE OF MARYLAND, AND SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE CONSTRUCTION. THE WORK WILL NOT BE MEASURED BUT THE COST WILL BE INCIDENTAL TO OTHER ITEMS SPECIFIED.

PROFESSIONAL CERTIFICATION: Stantec THEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED 6110 FROST PLACE, PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE LAUREL, MARYLAND 20707 OF MARYLAND. (301) 982-2800 LICENSE NO: \_\_\_ \_\_\_\_\_ EXPIRATION DATE: \_

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION MD 355 BUS RAPID TRANSIT (BRT) DIVISION OF TRANSPORTATION ENGINEERING GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL RETAINING WALL TYPICAL SECTION (1 OF 2) Chief, Design Section APPROVED SCALE: AS SHOWN DATE: DECEMBER 2022 Chief, Division of Transportation Engineering Project No. :502005 SHEET <u>804</u> of <u>887</u> Designed by :\_\_\_\_\_ Checked by : Drawn by :\_\_\_\_

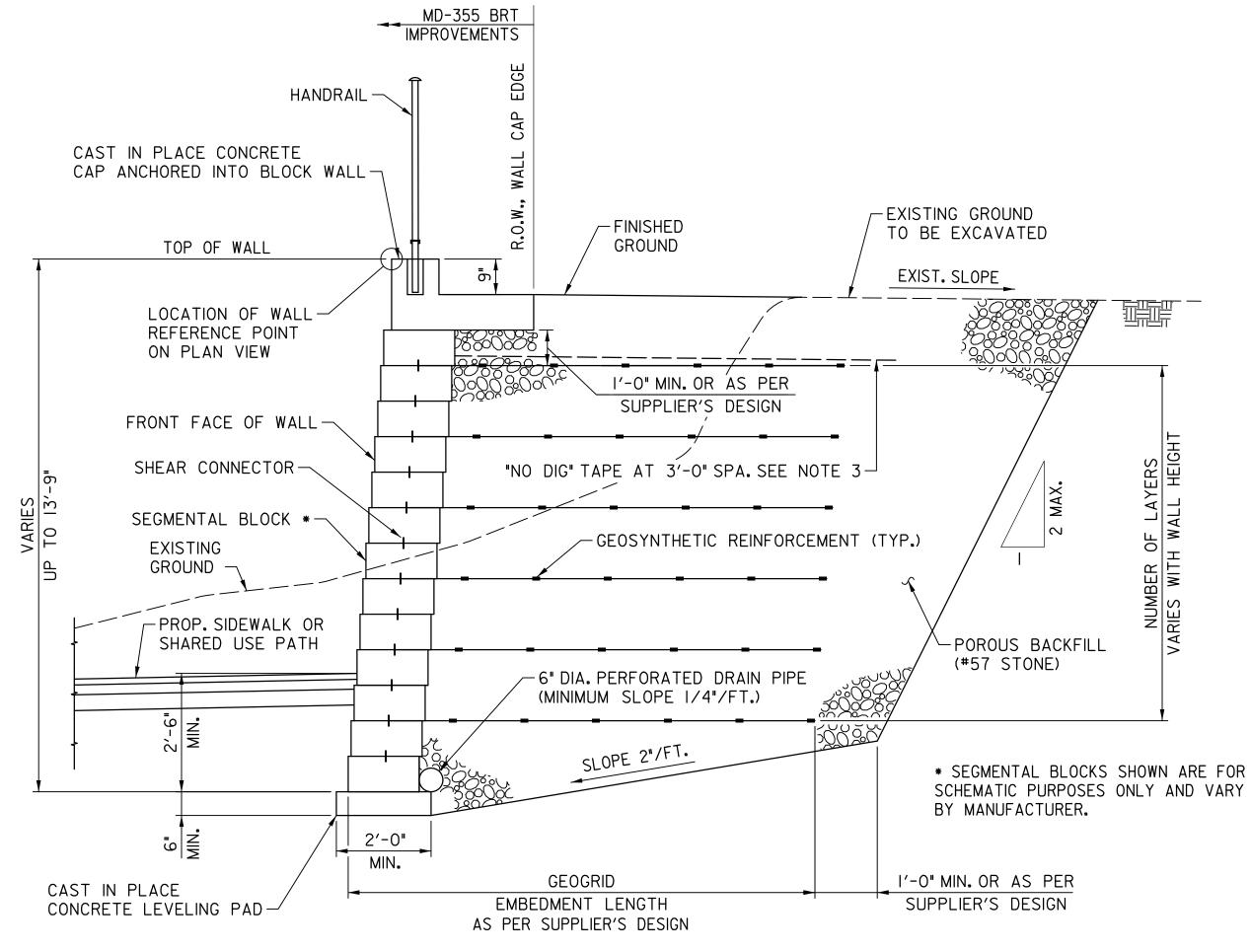


OF MARYLAND.

LICENSE NO: \_\_\_

\_\_\_\_\_ EXPIRATION DATE: \_

(301) 982-2800



TYPICAL SECTION (WITH HANDRAIL) - CUT

SCALE:  $\frac{1}{2}$ " = 1'-0"

- I. ALL REINFORCING STEEL SHALL BE EPOXY COATED. THE COST OF REINFORCING STEEL IS INCIDENTAL TO PORTLAND CEMENT CONCRETE.
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							S-65	
7				MONTGOMERY COUNTY DEPARTMENT OF DIVISION OF TRANSPORTATION EN GAITHERSBURG, MARYLAN	GINEERING	MD 355 BUS RAPID TRANSIT (BRT)		
NO.	NO. REVISION DATE BY		ВҮ	ECOMMENDED FOR APPROVAL		RETAINING WALL		
	NEVISION			Chief, Design Section APPROVED	Date	TYPICAL SECTION (2 OF 2)		
				Chief, Division of Transportation Engineering	Date	SCALE: AS SHOWN DATE:	DECEMBER 2022	
				Designed by : Drawn by :	Checked by :	Project No. : 502005 SHEET 8	05 of <u>887</u>	