



DEPARTMENT OF ENVIRONMENTAL SERVICES

Division of Transportation
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2722 Merrilee Dr. Suite 350, Fairfax, VA 22031
571.633.2220 www.stvinc.com

Vertical Transportation

Van Deusen & Associates
1025 Connecticut Ave, NW, Suite 1000, Washington, DC 20036
202.828.1236 www.vdassoc.com

Cost Estimating & Scheduling

VJ Associates
1825 K Street NW, Suite 1100, Washington, DC 20006
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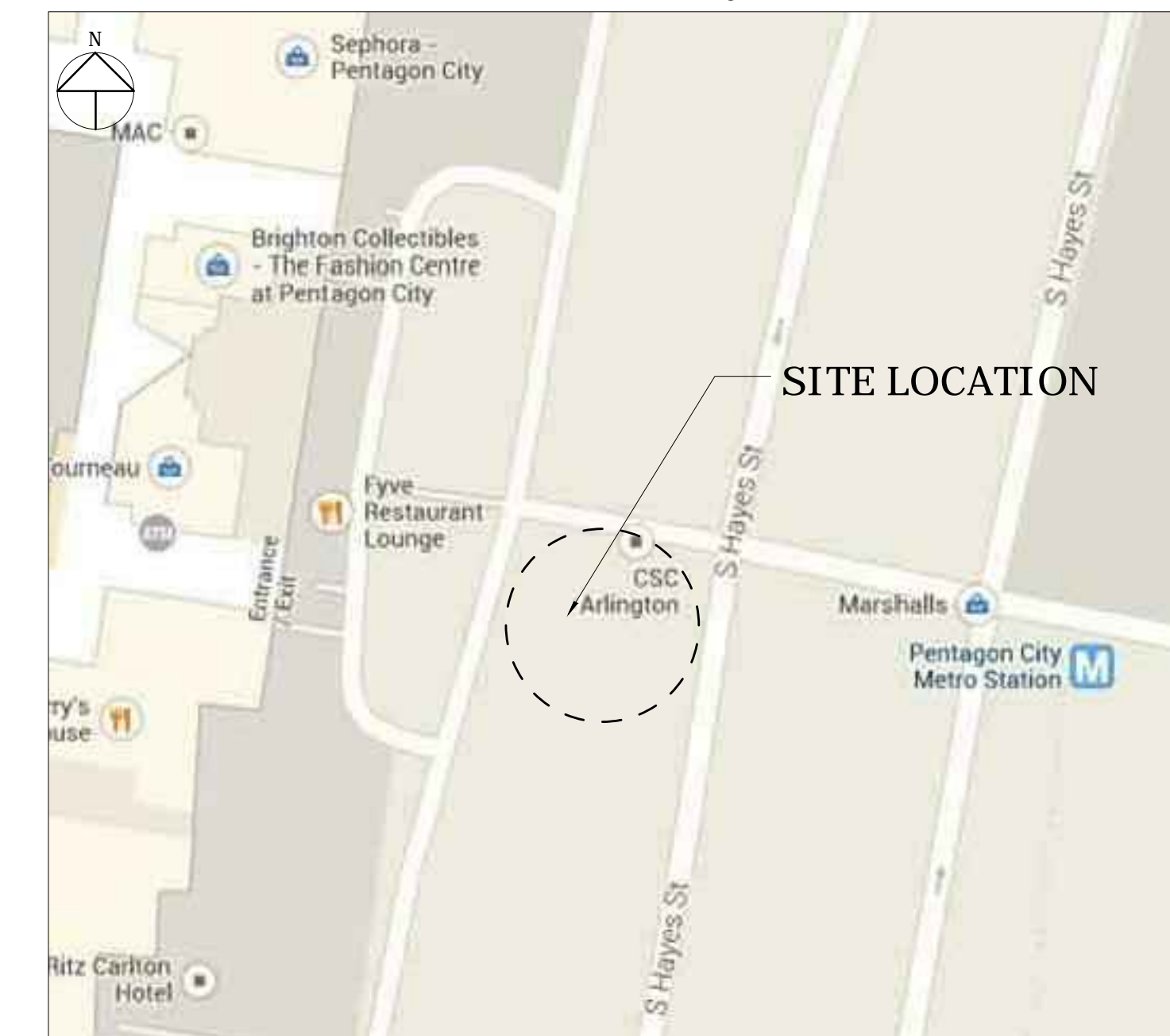
Survey and Utility Designation

Cervantes & Associates, P.C.
4229 Lafayette Center Dr, Suite 1125, Chantilly, VA 20151
703.691.4114 www.cervantes-associates.com

Location Map

SCALE: N.T.S.

Vicinity



100% Design Drawings For: Pentagon City Station Second Elevator Project

South Hayes Street

STV Project Number: 4018669

WMATA Project Number: 251666

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I CERTIFY THAT THIS PROJECT WAS BUILT IN SUBSTANTIAL CONFORMANCE WITH THIS PLAN, UNLESS DULY NOTED IN THE ABOVE REVISION BLOCK.

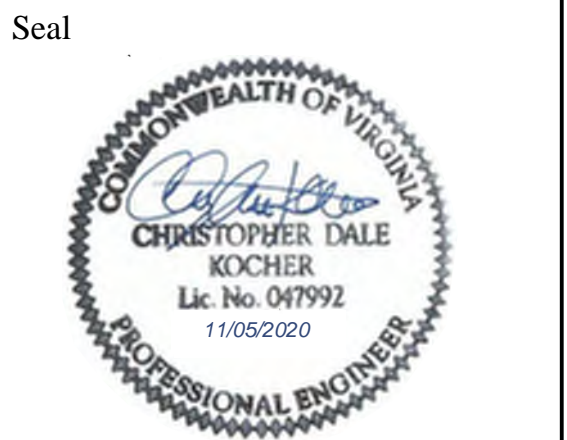
PROJECT MANAGER _____ DATE _____
CONSTRUCTION MANAGER _____ DATE _____

General Notes:

- ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (N.A.V.D. 88)
- ALL CONSTRUCTION WORK FOR THIS PROJECT SHALL CONFORM TO THE "ARLINGTON COUNTY, DEPARTMENT OF ENVIRONMENTAL SERVICES, CONSTRUCTION STANDARDS AND SPECIFICATIONS" MANUAL OF 2008 AND ANY SPECIAL PROVISIONS AND SPECIAL DESIGN FOR STREETS, STORM SEWER, AND UTILITY CONSTRUCTION AS PROVIDED ON THESE PLANS OR IN THE BID PROPOSAL. COPIES OF THE "CONSTRUCTION STANDARDS AND SPECIFICATIONS" MANUAL MAY BE PURCHASED AT A COST OF \$30.00 PER HARD COPY OR CAN BE DOWNLOADED AT NO COST AT: [HTTP://WWW.ARLINGTONVA.US/DEPARTMENTS/ENVIRONMENTALSERVICES/CPE/ENVIRONMENTALSERVICESPECS.ASPX](http://www.arlingtonva.us/departments/environmentalservices/cpe/environmentalservicespecs.aspx).
- THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 FOR MARKING THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES (i.e. WATER, SEWER, GAS, TELEPHONE, ELECTRIC, AND CABLE TV) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION OR CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO IDENTIFY AND PROTECT ALL OTHER UTILITY LINES FOUND IN THE WORK SITE AREA BELONGING TO OTHER OWNERS THAT ARE NOT MEMBERS OF "MISS UTILITY".
- WITH 48 HOURS NOTICE, THE COUNTY WILL PROVIDE CONSTRUCTION STAKES FOR LINE AND GRADE AND THE PREPARATION OF CUT SHEETS RELATED TO THIS PROJECT AT NO CHARGE TO THE CONTRACTOR.
- THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM BEST AVAILABLE RECORDS AND MUST BE CONSIDERED TO BE APPROXIMATE. WHEN CONSTRUCTION ACTIVITY REACHES IN PROXIMITY TO EXISTING UTILITIES, THE TRENCHES SHALL BE OPENED A SUFFICIENT DISTANCE AHEAD OF THE WORK OR TEST FITS SHALL BE MADE TO VERIFY THE EXACT LOCATION AND INVERTS OF THE UTILITY TO ALLOW FOR POSSIBLE CHANGES IN THE LINE OR GRADE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES AND THE RELATED STRUCTURES. ALL EXISTING UTILITY SYSTEMS SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONTRACTOR'S OPERATIONS. ANY SYSTEM DAMAGED SHALL BE PROMPTLY REPAIRED AT NO COST TO THE OWNER.
- FOR CONTROL AND MAINTENANCE OF TRAFFIC REFER TO CONTRACT SPECIAL PROVISION, MAINTENANCE OF TRAFFIC, LOCATED IN THE BID PROPOSAL.
- CONCRETE CRADLES SHALL BE PROVIDED AT ALL SANITARY LATERAL CROSSINGS. IF SO DESIRED BY THE ENGINEER, ADDITIONAL CONCRETE CRADLES SHALL BE PROVIDED TO PROTECT OTHER UTILITIES WITHIN THE CONSTRUCTION LIMITS. THE CONCRETE CRADLES AND ENCASEMENTS SHALL BE PAID FOR AT THE STIPULATED UNIT PRICE.
- ALL UNSUITABLE BACKFILL MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE. SUITABLE BACKFILL MATERIAL MAY BE REUSED ANYWHERE ON THE JOB AND MAY BE STOCKPILED FOR REUSE. STORING, TRANSPORTATION, LOADING, AND OTHER ASSOCIATED COST ARE TO BE INCLUDED IN THE UNIT BID PRICE FOR PIPE IN PLACE. STORAGE AREAS WILL NOT BE PROVIDED BY ARLINGTON COUNTY.
- ALL CONCRETE ON THIS PROJECT SHALL BE CLASS "A-3", AIR ENTRAINED CONCRETE UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL USE A CURING COMPOUND TO TREAT ALL EXPOSED CONCRETE.
- THE REMOVAL COST OF ANY EXISTING PAVEMENT, CURB AND GUTTER, SIDEWALKS, APRONS, ETC. IS TO BE INCLUDED IN THE UNIT PRICE BID FOR EXCAVATION. THE CONTRACTORS ARE HEREBY ADVISED THAT THEY MAY DUMP EXCAVATED CONCRETE CURB AND GUTTER AND SIDEWALK (NO REINFORCING STEEL OR WIRE) AT ARLINGTON COUNTY TRADES CENTER LOCATED AT 4300 29TH STREET SOUTH.
- THE CONTRACTOR SHALL PROVIDE ACCESS THROUGH THE SITE AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION AND SHALL ENSURE THE SAFETY OF PEDESTRIANS FROM TRAFFIC AND CONSTRUCTION HAZARDS.
- EXISTING DRAINAGE FACILITIES AFFECTED BY THIS PROPOSED PROJECT SHALL BE CLEANED OUT TO THE SATISFACTION OF THE COUNTY. THE COST IS INCIDENTAL AND SHALL BE INCLUDED IN THE CONTRACT PRICE OF OTHER ITEMS.
- CONTRACTOR SHALL NOT DISTURB OR REMOVE ANY TRAFFIC CONTROL SIGNS, PARKING METERS OR ANY OTHER TRAFFIC CONTROL DEVICE WITHOUT PRIOR PERMISSION FROM THE TRANSPORTATION DIVISION AT (703) 228-3575 OR 228-6512.
- PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS THAT PERTAIN TO THIS PROJECT SHALL BE PROVIDED AND INSTALLED BY ARLINGTON COUNTY TRAFFIC ENGINEERING BUREAU. THE CONTRACTOR SHALL COORDINATE WITH ARLINGTON COUNTY, TRAFFIC BUREAU.
- ABANDONING EXISTING STRUCTURES AND PIPELINES, EXCAVATE AND REMOVE EXISTING STRUCTURE AND STORM SEWER LINES OR ABANDON IN PLACE BY FILLING PIPE WITH FLOWABLE FILL AND PLUGGING AT ALL OPEN ENDS. EXCAVATE AND REMOVE STRUCTURE TO A MINIMUM OF 2 FEET BELOW FINISHED GRADE. FILL THE STRUCTURE WITH SAND OR #57 AGGREGATE MATERIAL. THE PRICE FOR ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PIPE IN PLACE.
- EXISTING UTILITY SYSTEMS SHALL BE PROTECTED TO PREVENT DAMAGE DURING THE CONTRACTOR'S OPERATIONS. ANY SYSTEMS DAMAGED SHALL BE PROMPTLY REPAIRED AT NO COST TO THE OWNER.
- HELICAL PILE FOUNDATIONS AS DEPICTED WITHIN THE CONSTRUCTION DOCUMENTS ARE CONCEPTUAL BASED ON A PROPRIETARY PRODUCT SYSTEM. THE DESIGN THEREOF SHALL BE FINALIZED AS PART OF THE DELEGATED DESIGN UNDER THE GENERAL CONSTRUCTION CONTRACT.
- THE INSTALLATION OF THE ELEVATOR WILL BE COMPLETED BY OTHERS. SUBMIT THE ELEVATOR PERMIT TO STEVE FRANCISCO IN CODE ENFORCEMENT. HIS CONTACT NUMBER IS 703-228-3874



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Division of Transportation
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Approvals	Date
Tracy D. Twyman, P.C. WMATA PROJECT MANAGER	11/20/2020
[Signature] FD&C BUREAU CHIEF	11/23/20
Azan S. Jaymand FD&C PROJECT MANAGER	11/23/20
Lynn Rivers TRANSIT BUREAU CHIEF	11/23/20
Robin MacChanny TRANSIT PROJECT MANAGER	11/23/20
[Signature] WATER, SEWER STREETS BUREAU CHIEF	11-23-20
Dennis M. Leach TRANSPORTATION DIRECTOR	11/23/20

Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020

Project Name and Location
**Pentagon City Station
Elevator Project**
Cover Sheet
South Hayes Street
G-000

Designed: CK
Drawn: CK
Checked: AK
Miss Utility Transmittal #:

Filename:
Path:
Plotted:
Plotted by:

Scale: NONE

100% PLANS - FOR CONSTRUCTION

Sheet 1 OF 68

GENERAL STRUCTURAL NOTES

A. DESIGN INFORMATION

1. CODES
 - a. 2012 VIRGINIA UNIFORM STATE BUILDING CODE
 - b. AMERICAN CONCRETE INSTITUTE (ACI)
 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318-99.
 - c. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
 - "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AISC 360-10
 - d. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
 - "MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES", ASCE 7-10.
 - e. AMERICAN WELDING SOCIETY (AWS)
 - STRUCTURAL WELDING CODE - STEEL, AWS D1.1-10.
 - f. PRECAST CONCRETE INSTITUTE (PCI)
 - "MANUAL FOR QUALITY CONTROL FOR PLANKS AND PRODUCTION OF PRECAST AND PRESTRESSED CONCRETE PRODUCTS", PCI MNL-116.
 - g. STEEL DECK INSTITUTE (SDI)
 - "ANSI/SDI DESIGN STANDARDS FOR STEEL ROOF DECK AND NONCOMPOSITE AND COMPOSITE STEEL DECKS
 - h. WMATA ADJACENT CONSTRUCTION PROJECT MANUAL (REV 5)
 - i. WMATA DESIGN CRITERIA (RELEASE 9, REV. 3)
2. LOADS
 - a. SUPERIMPOSED DEAD LOADS:

1) MATERIALS	-----	ACTUAL UNIT WEIGHTS
2) SOIL	-----	130 PCF (BOYANCY WEIGHT = 68 PCF)
3) CONCRETE	-----	150 PCF
 - b. LIVE LOADS:

1) FLOOR (VESTIBULE ROOM)	-----	150 PSF
2) FLOOR (MACHINERY ROOM)	-----	250 PSF
3) ROOF (NON-REDUCIBLE)	-----	30 PSF
4) ELEVATOR PIT MAT/SLAB	-----	AS PER MEP & ELEVATOR MANUFACTURER DWGS, PLUS IMPACT
5) ELEVATOR HEADHOUSE CANOPY	-----	100 PLF (AT FREE EDGES)
 - c. SNOW LOADS:

1) ROOF SNOW LOAD	-----	30 PSF
-------------------	-------	--------
 - d. WIND LOADS:

1) WIND PRESSURE	-----	40 PSF
2) COMPONENTS & CLADDING	-----	TO BE DESIGNED IN ACCORDANCE WITH ASCE/SEI 7-10
 - e. SEISMIC LOADS:

1) SOIL SITE CLASS	-----	D
2) RISK CATEGORY	-----	III
3) SEISMIC IMPORTANCE FACTOR, I_s	-----	1.25
4) 0.2 SEC SPECTRAL RESPONSE, S_s	-----	0.119g
5) 1.0 SEC SPECTRAL RESPONSE, S_1	-----	0.051g
6) S_{ds}	-----	0.126g
7) S_{d1}	-----	0.082g
8) SEISMIC DESIGN CATEGORY	-----	B
 - f. EARTH LOADS:

1) DESIGN REQUIREMENTS	-----	AS PER GEOTECHNICAL REPORT BY DMY, INC. DATED AUGUST 30, 2013
2) ACTIVE PRESSURE COEFFICIENT	-----	0.5
3. DESIGN LOADS AS PROVIDED ARE AT SERVICE LEVEL. SEE CALCULATIONS FOR LOAD COMBINATIONS AND FACTORS AS APPLIED IN THIS DESIGN

C. CAST-IN-PLACE CONCRETE

1. MATERIALS
 - a. CONCRETE, 28 DAY COMPRESSIVE STRENGTH (MIN)

1) CLASS I	$f'_c = 4000$ PSI	USE FOR FOUNDATIONS, SIDEWALKS, CURBS, RETAINING WALLS, STEPS AND APPURTENANCES. (AIR ENTRAINED)
2) CLASS II	$f'_c = 4000$ PSI	COLUMNS, PIERS, BEAMS, ELEVATED SLABS AND EQUIPMENT PADS.
3) CLASS IV	$f'_c = 2000$ PSI	LEAN CONCRETE; USE FOR OVER EXCAVATION OF FOOTINGS AND WHERE INDICATED.
 - b. REINFORCING STEEL

1) BAR REINFORCING	-----	ASTM A615 GRADE 60
2) BAR REINFORCING (WELDED)	-----	ASTM A705 GRADE 60
3) WELDED WIRE REINFORCING (WWR)	-----	ASTM A1064 (FLAT SHEET)
2. REINFORCING STEEL SHALL HAVE A MINIMUM CLEAR COVER AS FOLLOWS UNLESS NOTED OTHERWISE IN THE DRAWINGS:

1) MAT FOUNDATION:	
TOP BARS:	2 INCHES
BOTTOM BARS:	3 INCHES
2) ROOF SLAB:	
TOP BARS:	3 INCHES
BOTTOM BARS:	2 INCHES
3) EXTERIOR WALLS:	
OUTER FACE BARS:	3 INCHES
INNER FACE BARS:	2 INCHES
4) BEAMS AND COLUMNS:	1-1/2" INCHES
5) CLEAR COVER SHALL BE CLEARLY SHOWN ON ALL REBAR DETAIL DRAWINGS.	
3. SEE THE CONCRETE REINFORCING DEVELOPMENT LENGTH TABLE, IN THE CONCRETE TYPICAL DETAILS, FOR DIMENSIONS "LD" AS NOTED ON DRAWINGS.
4. LAP ALL WWF SHEETS A MINIMUM OF 6 INCHES.

D. FOUNDATIONS

1. FOUNDATION ELEMENTS ARE HELICAL PILES PER GEOTECHNICAL REPORT ADDENDUM BY DMY, INC.
2. THE FOUNDATION DESIGN AS SHOWN IS CONCEPTUAL WITH HELICAL PILES BY A.B. CHANCE AS THE BASIS OF DESIGN. THE NUMBER, TYPE, AND LOCATIONS OF PILES TO BE INSTALLED SHALL BE DETERMINED BY THE ACTUAL PILE SUPPLIER AS A DELEGATED DESIGN.
3. FOUNDATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATION AND REQUIREMENTS OF THE GEOTECHNICAL REPORT ADDENDUM, HELICAL PILE SUPPLIER, AND SPECIFICATION SECTION 02465.
4. ALL BACKFILL AGAINST WALLS SHALL BE PLACED ONLY AFTER THE CONCRETE PILE CAP/MEZZANINE SLAB IS IN PLACE AND ACHIEVED THE DESIGN STRENGTH OF 4000 PSI.

E. STRUCTURAL STEEL

1. MATERIALS
 - a. STRUCTURAL STEEL ----- ASTM A992, GRADE 50 UNLESS NOTED OTHERWISE
 - b. PLATES, ANGLES, CHANNELS, AND MISCELLANEOUS STEEL ----- ASTM A36
 - c. ANCHOR RODS ----- ASTM F593
 - d. HIGH STRENGTH BOLTS ----- ASTM A325 (3/4"O) UNLESS OTHERWISE NOTED (OF NORTH AMERICAN MANUFACTURE)
 - e. WELDING ELECTRODES ----- AWS A5.1 (E70XX)
 - f. PIPE ----- ASTM A53, GRADE B
 - g. SQUARE AND RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) ----- ASTM A500, GRADE B
2. THE STEEL FABRICATOR IS RESPONSIBLE FOR THE SELECTION AND DESIGN OF CONNECTIONS NOT FULLY DETAILED ON THE DRAWINGS. CONNECTIONS SHALL BE DETAILED IN ACCORDANCE WITH THE AISC "MANUAL OF STEEL CONSTRUCTION, 14TH ED." TABLE 10-1 TO 10-10 OF PART 10 MAY BE USED. THE END REACTION OF THE CONNECTED BEAM MAY BE DETERMINED FROM PART 3 "ALLOWABLE LOADS ON BEAMS" FOR THE MEMBER SIZE AND SPAN INDICATED, UNLESS A DESIGN REACTION IS INDICATED ON THE PLANS. THE FABRICATOR SHALL HAVE A LICENSED PROFESSIONAL ENGINEER PREPARE THE CONNECTION DESIGNS AND SHALL BE SUBMITTED WITH THE SHOP DRAWINGS BEARING THE SEAL OF THE RESPONSIBLE PROFESSIONAL ENGINEER. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF 2 BOLTS. MINIMUM BOLT SIZE SHALL BE 3/4"O AND WELD SIZE SHALL BE 3/16". ALL WELDING SHALL CONFORM TO LATEST EDITION OF AWS D1.1.
3. ALL CLIP ANGLES; CONNECTION MATERIALS AND GUSSETS SHALL BE 5/16" THICK MINIMUM. PROVIDE 3/8" STIFFENER PLATES LOCALLY AT ALL HANGERS AND POSTS.
4. ALL SHEAR CONNECTIONS SHALL BE DOUBLE-SIDED ANGLE OR SINGLE PLATE CONNECTIONS AND INCLUDE THE FOLLOWING NUMBER OF ROWS OF 3/4"O ASTM A325X FASTENERS UNLESS DRAWING DETAILS CALL FOR GREATER SIZES.

BEAM DEPTH INCHES	ROWS OF BOLTS
10 AND 8	2
5. ALL SHEAR CONNECTIONS SHALL BE DESIGNED TO RESIST ONE HALF THE MAXIMUM TOTAL UNIFORMLY DISTRIBUTED LOAD FOR A LATERALLY SUPPORTED BEAM OF THE GIVEN SHAPE, SPAN AND GRADE OF STEEL UNLESS NOTED OTHERWISE.
6. ALL MOMENT CONNECTIONS SHALL BE DESIGNED FOR THE FULL MOMENT CAPACITY OF THE MEMBER.
7. UNLESS NOTED OTHERWISE ON DRAWINGS, FIELD WELDS CAN BE SHOP APPLIED.

F. METAL DECK

1. MATERIALS
 - a. STEEL DECK ----- 1.5 DEEP x 18 GAGE (GALVANIZED METAL FORM DECK); ASTM A653, $F_y = 50$ KSI.
2. ALL COMPOSITE METAL FLOOR DECK SUPPORTING NORMAL WEIGHT CONCRETE SLABS SHALL BE CONTINUOUS OVER A MINIMUM OF TWO OR MORE SPANS. WHERE LESS THAN TWO SPANS ARE UNAVOIDABLE PROVIDE SHORING OF THE METAL DECK AT MIDSPAN DURING THE CONCRETE PLACEMENT UNTIL THE CONCRETE HAS REACHED ITS 28 DAY COMPRESSIVE DESIGN STRENGTH.
3. DECK DETAILS, INCLUDING ATTACHMENT TO THE SUPERSTRUCTURE, SHALL BE DESIGNED BY THE DECK SUPPLIER.
4. FOR ADDITIONAL INFORMATION SEE THE SPECIFICATIONS.

G. CONSTRUCTION

1. SEE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL SHEETS FOR ADDITIONAL OPENINGS, SLEEVES, EMBEDDED ITEMS, UNDERGROUND PIPING, AND ELECTRICAL GROUNDING NOT SHOWN ON STRUCTURAL SHEETS.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH WORK. VARIATIONS BETWEEN SHEETS AND ACTUAL EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
4. ALL SURFACES SHOWN VERTICAL ARE TO BE CONSTRUCTED TRULY VERTICAL, EXCEPT AS NOTED OTHERWISE.
5. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4"x3/4" UNLESS NOTED OTHERWISE.

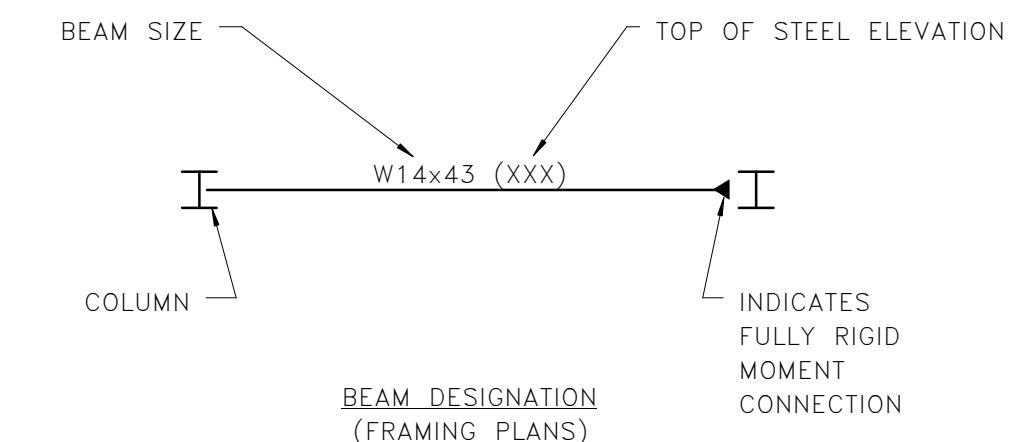
H. MISCELLANEOUS

1. INSTALL ROOFTOP ANCHORS (GUARDIAN FALL PROTECTION: CB-12 ANCHOR POINT OR APPROVED EQUAL) ON CONCRETE DECK WHERE INDICATED ON ARCHITECTURAL DRAWINGS. ROOFTOP ANCHOR SHALL MEET OSHA REQUIREMENTS FOR FALL PROTECTION AND SHALL BE DESIGNED TO WITHSTAND A 5000 LBS. ULTIMATE LOAD IN ANY DIRECTION.
2. A WT6X36 IS SHOWN IN SECTIONS AND DETAILS FOR SUPPORT OF THE STOREFRONT, WHICH IS A DELEGATED DESIGN. AS SUCH, THE USE OF A WT6, THE LOCATIONS AND ORIENTATION AS SHOWN, AND THE ATTACHMENT TO THE COLUMNS ARE CONCEPTUAL ONLY. THE STOREFRONT DESIGNER, AS PART OF THE DELEGATED DESIGN, WILL DETERMINE THE MEMBER TYPE, SIZE, LOCATIONS, ORIENTATION, AND MEANS OF ATTACHMENT TO THE PRIMARY FRAMING.

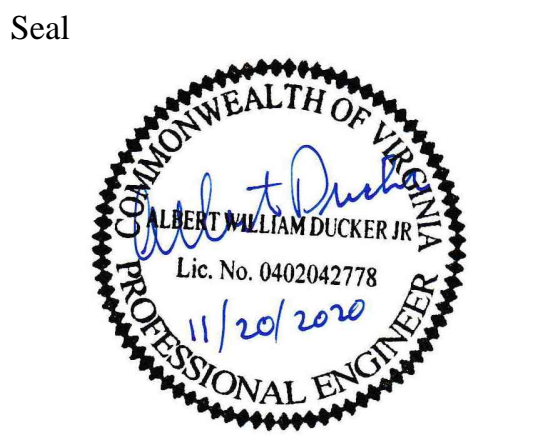
TECHNICAL TERMS

ABBREVIATION	TERM
ADD'L	ADDITIONAL
ARCH	ARCHITECTURAL
B TO B	BACK TO BACK
CJ	CONTRACTION JOINT
CL	CENTERLINE
CONN	CONNECTION
CORP	CORPORATION
DWG	DRAWING
DWL	DOWEL
E	EXISTING
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
EL	ELEVATION
EMBD	EMBEDMENT
ES	EACH SIDE
GA	GAGE, GUAGE
GR	GUARD RAIL
HPT	HIGH POINT
HSS	HOLLOW STRUCTURAL SECTION
IJ	ISOLATION JOINT
JT	JOINT
MECH	MECHANICAL
MFR	MANUFACTURER
N	NEW
NIC	NOT IN CONTRACT
PCP	PRECAST HOLLOW CORE PLANK
PL	PLATE
PMF	PREMOLDED FILLER
PROJ	PROJECTION
REINF	REINFORCING
SPA	SPACES
STL	STEEL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VB	VERTICAL BRACE
VIF	VERIFY IN FIELD
WWR	WELDED WIRE REINFORCING

LEGEND



DEPARTMENT OF ENVIRONMENTAL SERVICES
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Approvals	Date
WMATA PROJECT MANAGER	
FD&C BUREAU CHIEF	
FD&C PROJECT MANAGER	
TRANSIT BUREAU CHIEF	
TRANSIT PROJECT MANAGER	
WATER, SEWER STREETS BUREAU CHIEF	
TRANSPORTATION DIRECTOR	
Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020

Project Name and Location
Pentagon City Station Elevator Project
 General Structural Notes and Legends
 South Hayes Street
S-001

Designed: JCD
 Drawn: ZKS
 Checked: AWD
 Miss Utility Transmittal #:

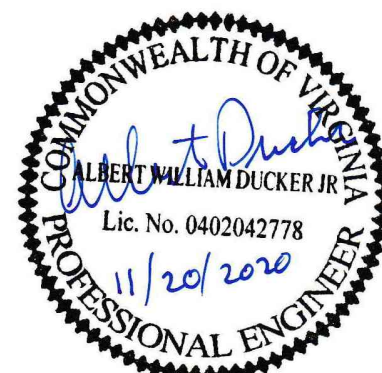
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 Plotted by:

Scale: NONE

100% PLANS - FOR CONSTRUCTION

Sheet **35 OF 68**

Seal



Approvals Date

WMATA PROJECT MANAGER

FD&C BUREAU CHIEF

FD&C PROJECT MANAGER

TRANSIT BUREAU CHIEF

TRANSIT PROJECT MANAGER

WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR

Revisions Date

ISSUED FOR CONSTRUCTION 11-20-2020

Project Name and Location

**Pentagon City Station
Elevator Project**

Foundation Plans

South Hayes Street
S-101

Designed: JCD
Drawn: ZKS
Checked: AWD
Miss Utility Transmittal #:

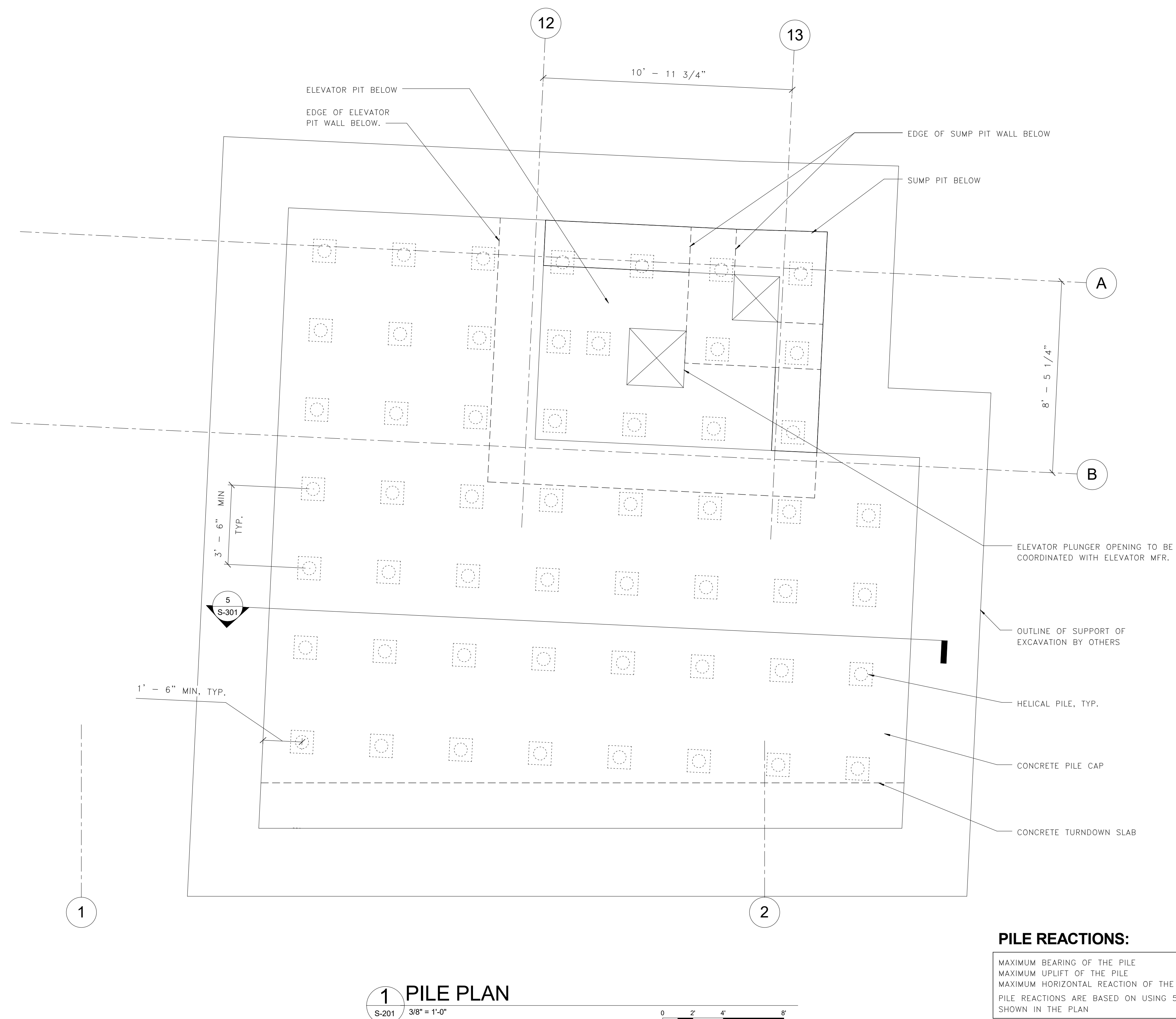
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Plotted by:

Scale: 3/8" = 1'-0"

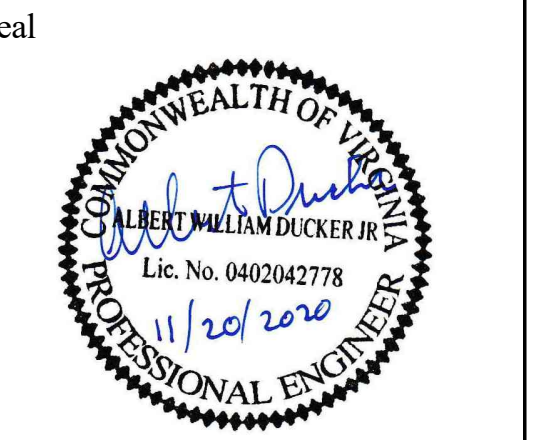
100% PLANS - FOR
CONSTRUCTION

Sheet

36 OF 68



1 PILE PLAN
S-201 3/8" = 1'-0"



Approvals	Date
WMATA PROJECT MANAGER	
FD&C BUREAU CHIEF	
FD&C PROJECT MANAGER	
TRANSIT BUREAU CHIEF	
TRANSIT PROJECT MANAGER	
WATER, SEWER STREETS BUREAU CHIEF	
TRANSPORTATION DIRECTOR	

Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020

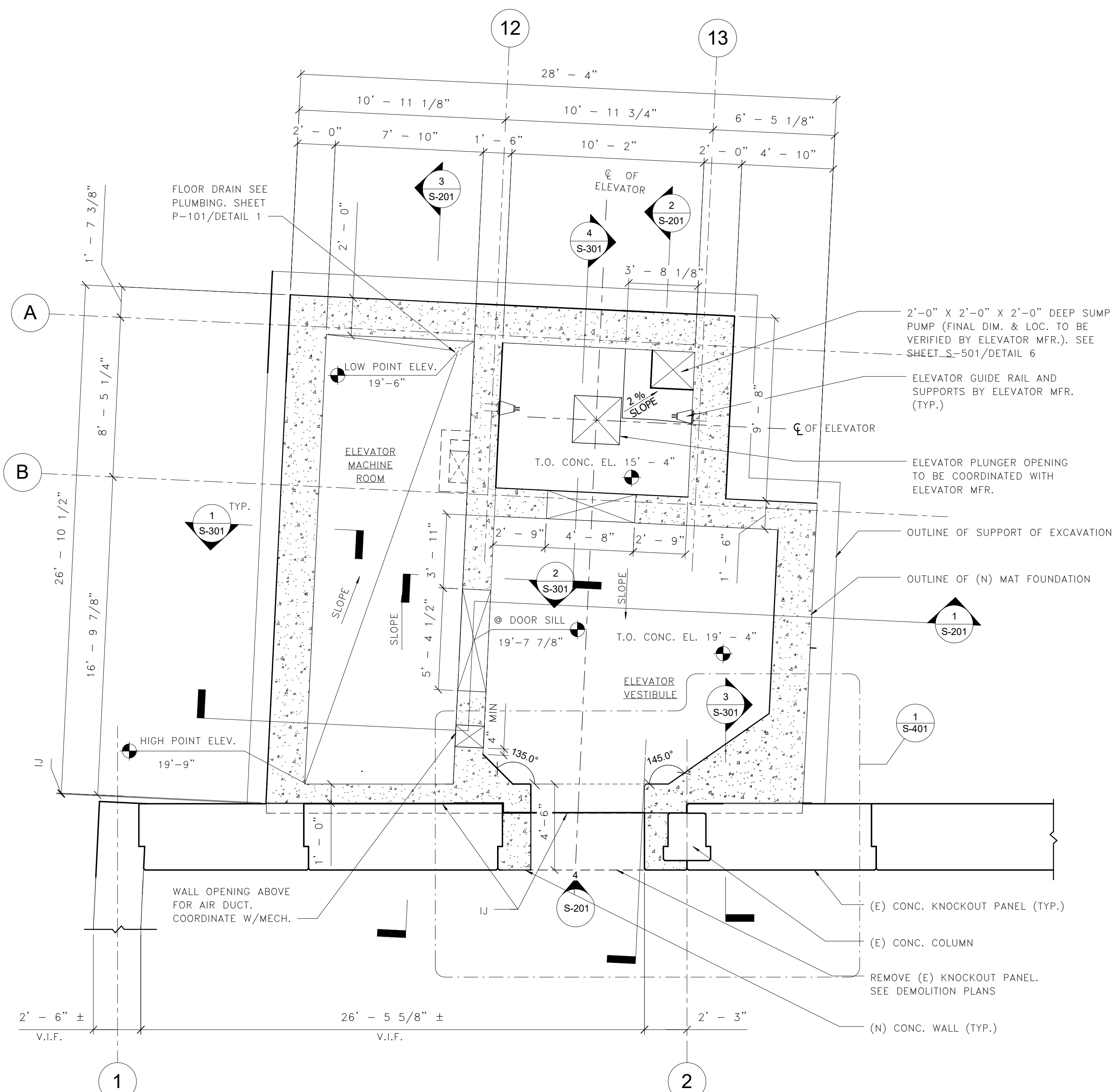
Project Name and Location
**Pentagon City Station
Elevator Project**
Elevator Mezzanine and Plaza Plans
South Hayes Street
S-102

Designed: JCD
Drawn: ZKS
Checked: AWD
Miss Utility Transmittal #:

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Plotted by:

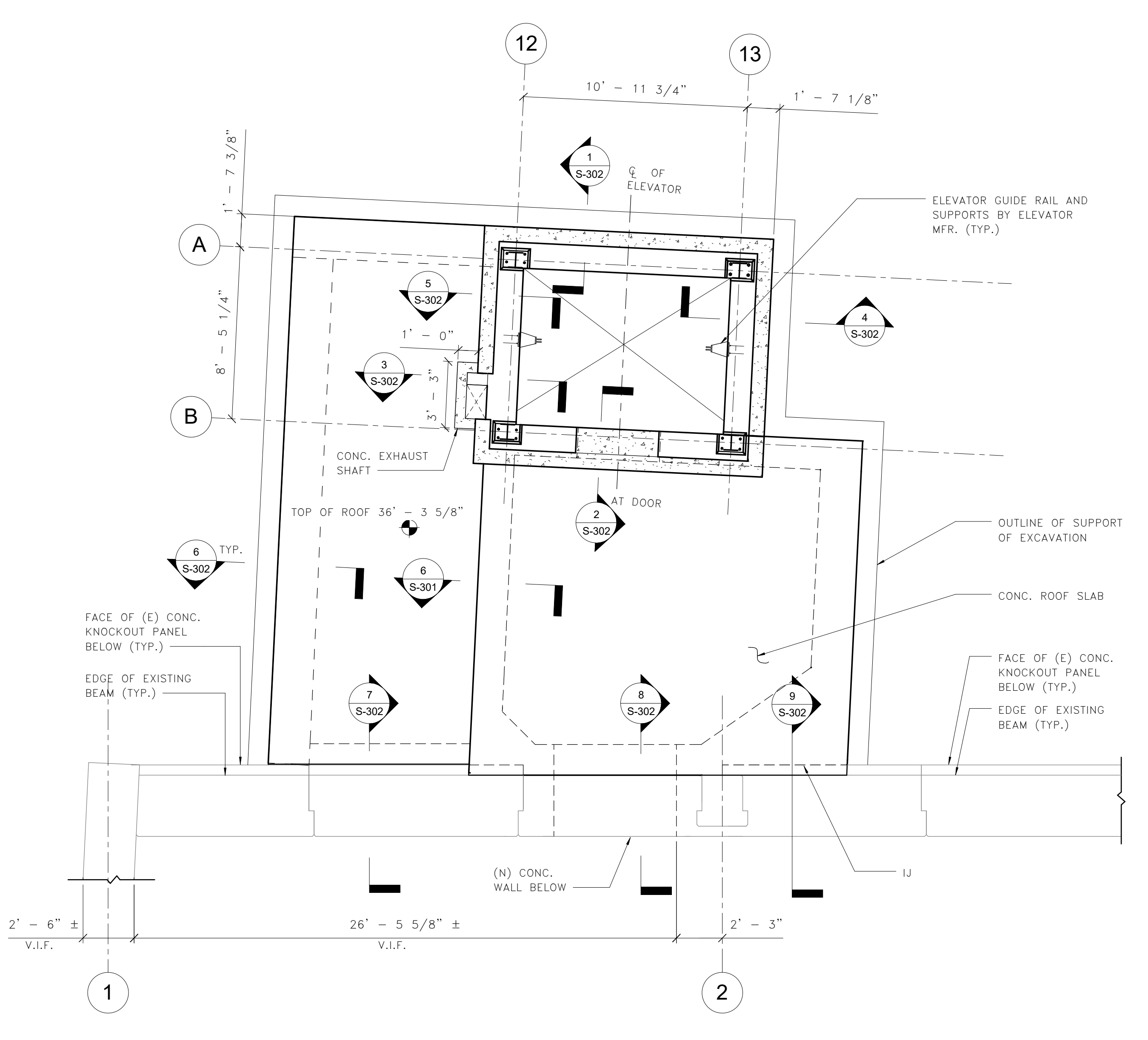
Scale: 1/4" = 1'-0"

100% PLANS - FOR CONSTRUCTION



1 ELEVATOR MEZZANINE PLAN

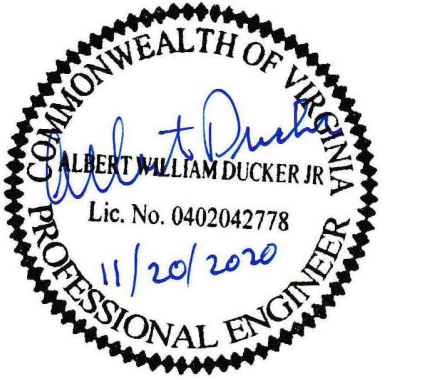
1 S-102 1/4" = 1'-0"
0 2' 4' 8'



2 ELEVATOR PLAZA ROOF SLAB PLAN

2 S-102 1/4" = 1'-0"
0 2' 4' 8'

Seal



Approvals _____ Date _____

WMATA PROJECT MANAGER _____

FD&C BUREAU CHIEF _____

FD&C PROJECT MANAGER _____

TRANSIT BUREAU CHIEF _____

TRANSIT PROJECT MANAGER _____

WATER, SEWER STREETS BUREAU CHIEF _____

TRANSPORTATION DIRECTOR _____

Revisions _____ Date _____

ISSUED FOR CONSTRUCTION 11-20-2020

Project Name and Location

Pentagon City Station
Elevator Project
Elevator Headhouse Plans
South Hayes Street
S-103

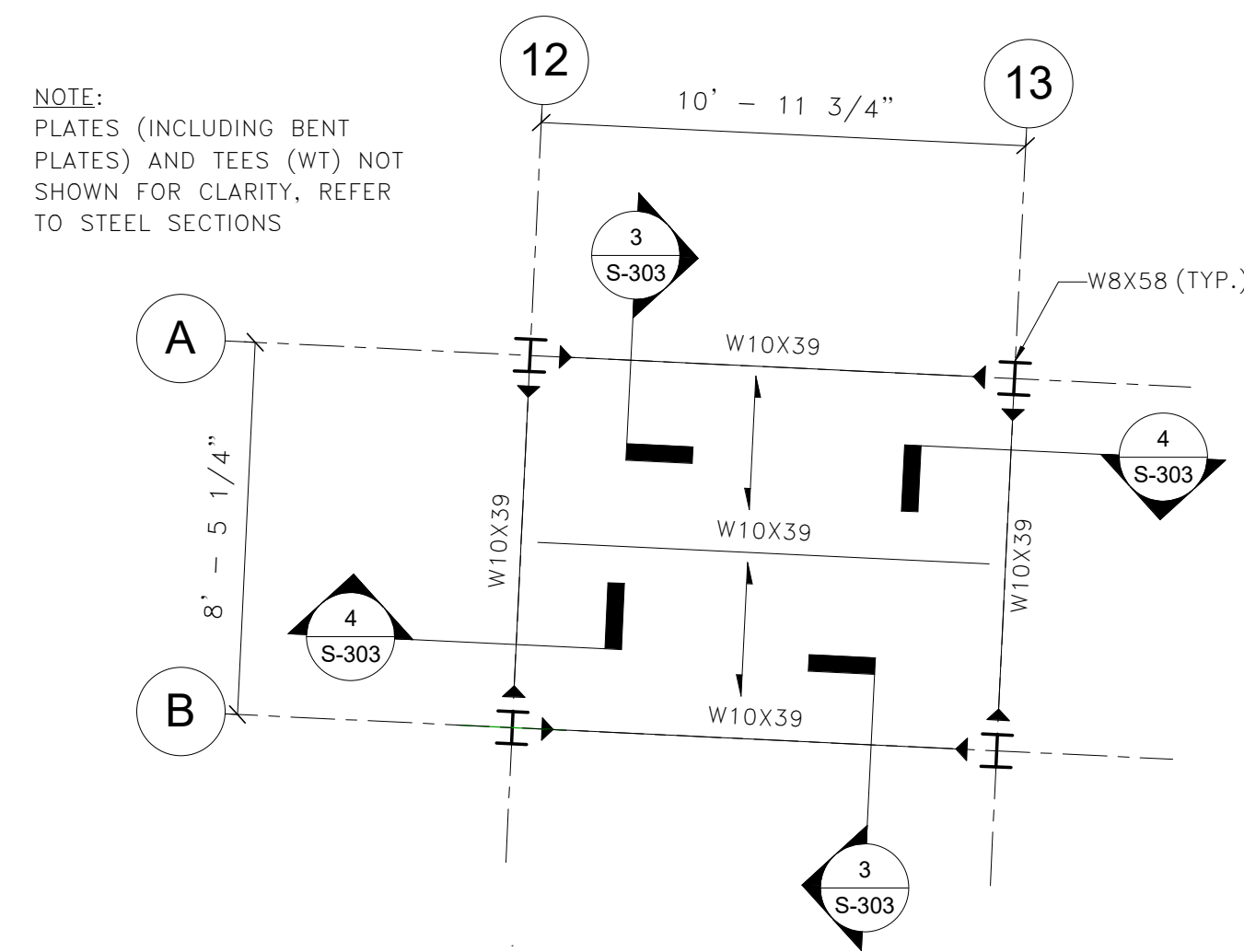
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Checked: AWD
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Plotted by:

Scale: 1/4" = 1'-0"

100% PLANS - FOR CONSTRUCTION

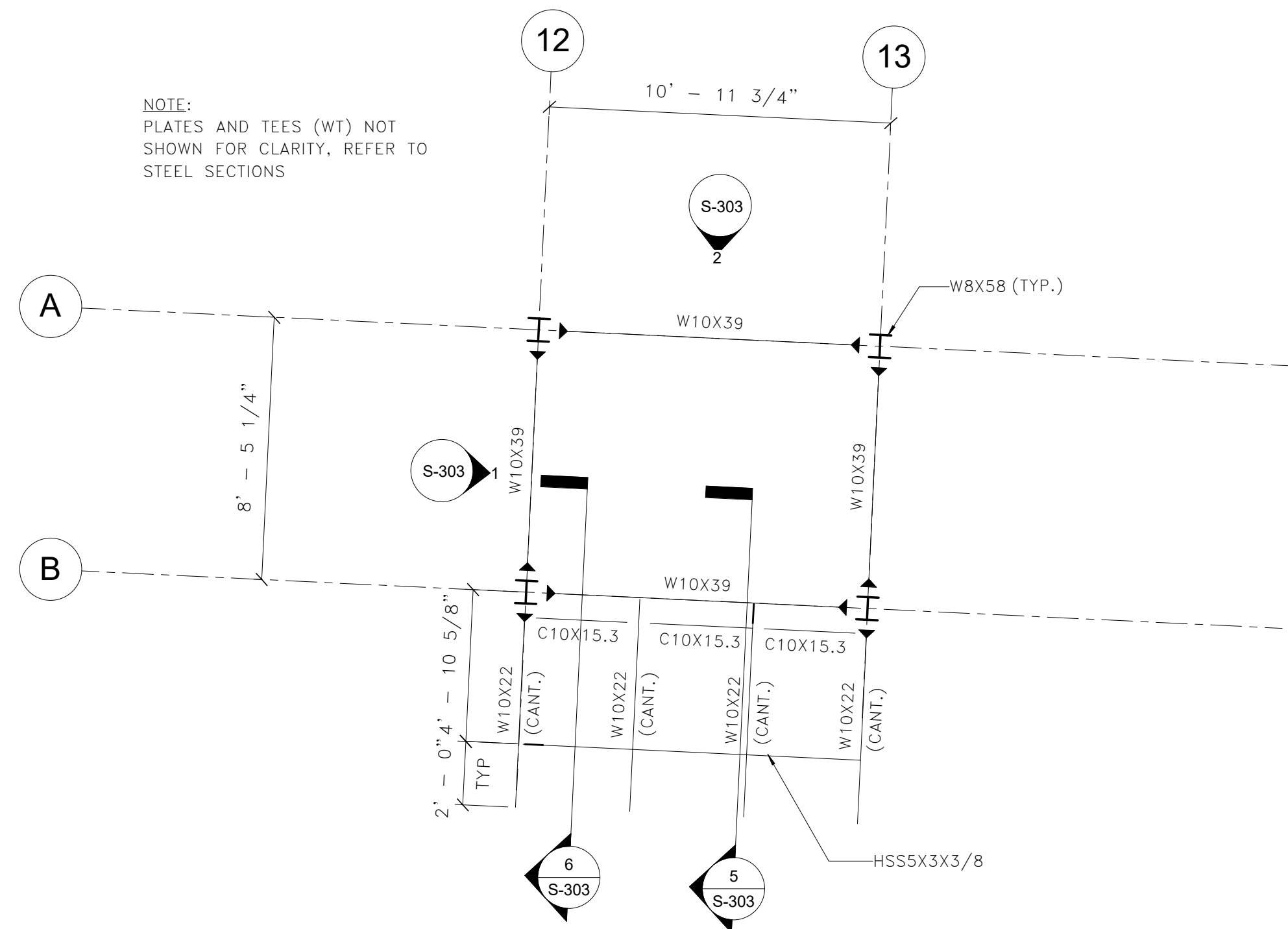
Sheet **38 OF 68**



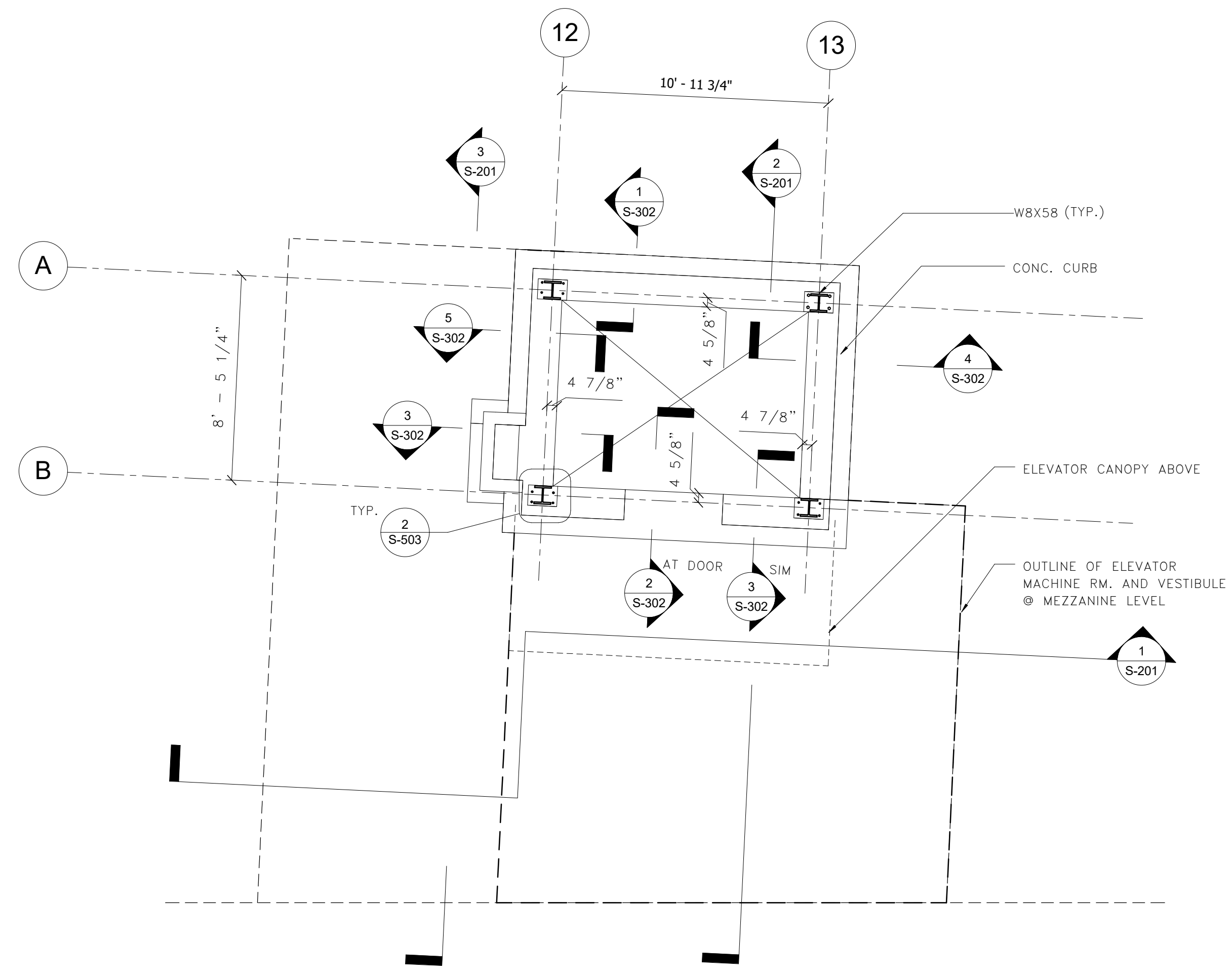
ELEVATOR HEADHOUSE ROOF FRAMING PLAN
(EL. 60' - 4'')



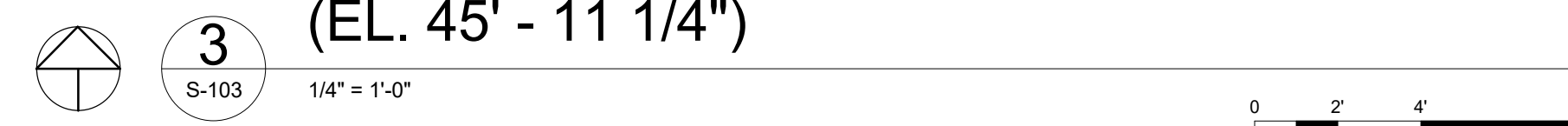
NOTE:
PLATES AND TEES (WT) NOT SHOWN FOR CLARITY, REFER TO STEEL SECTIONS



ELEVATOR HEADHOUSE CANOPY FRAMING PLAN
(EL. 56' - 1 3/8'')



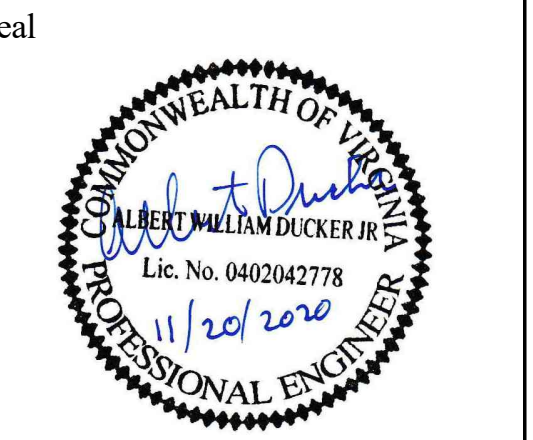
ELEVATOR HEADHOUSE FOUNDATION PLAN
(EL. 45' - 11 1/4'')



NOTES:
1. PILES NOT SHOWN FOR CLARITY

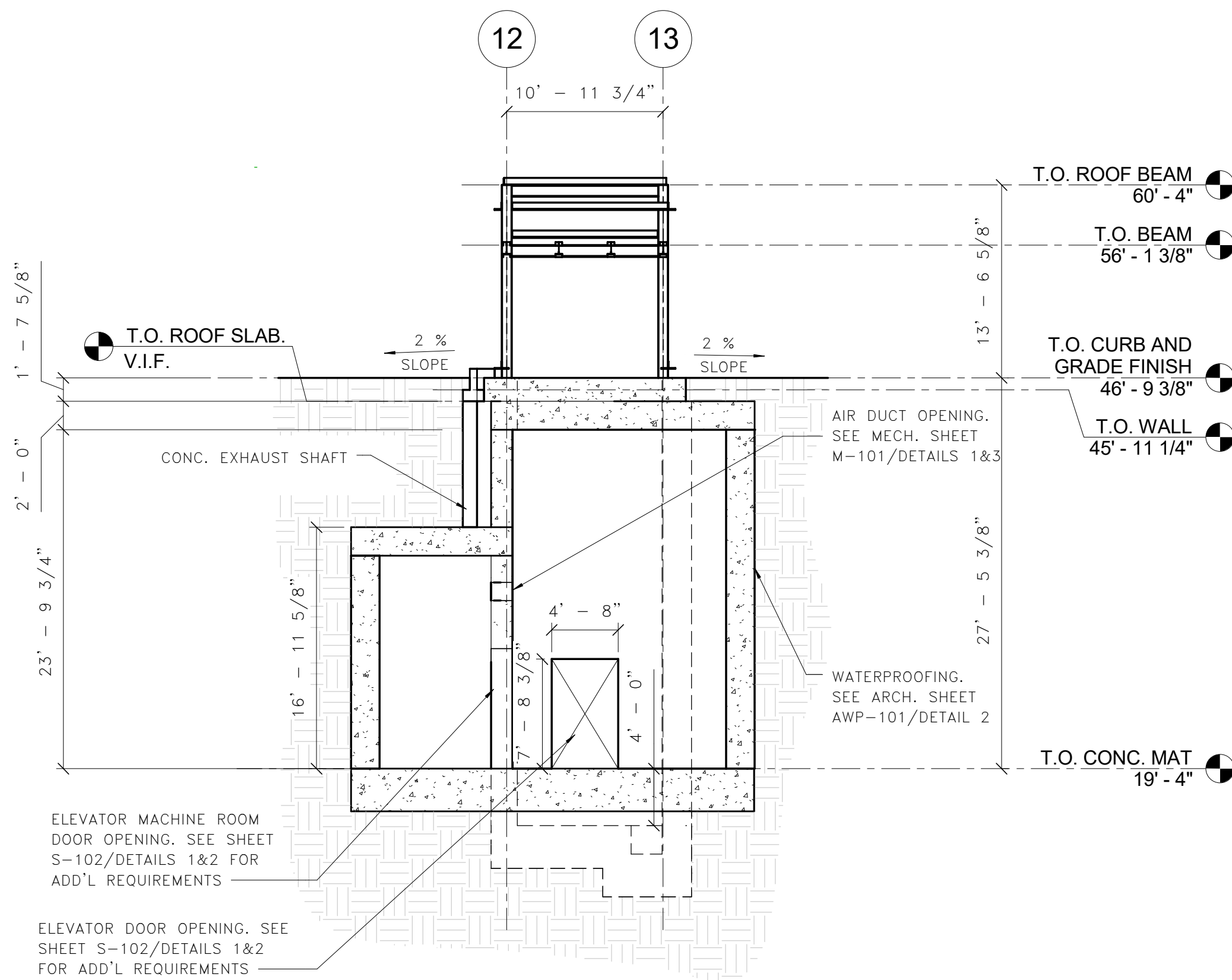


DEPARTMENT OF ENVIRONMENTAL SERVICES
Division of Transportation
Transit Bureau
2100 Clarendon Boulevard, Suite 900
Arlington, VA 22201
Phone: 703.228.3681
Fax: 703.228.7548



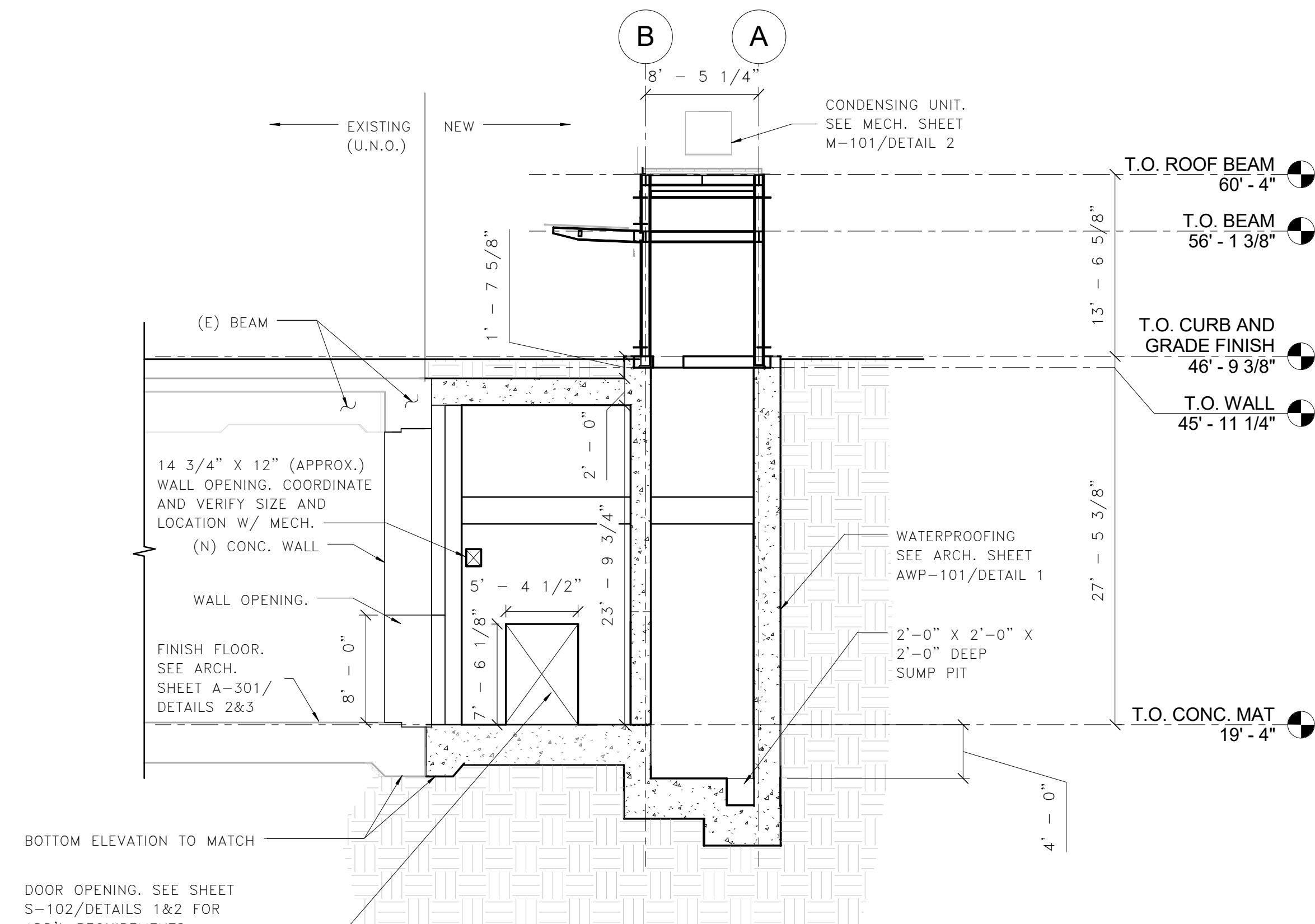
Approvals	Date
WMATA PROJECT MANAGER	
FD&C BUREAU CHIEF	
FD&C PROJECT MANAGER	
TRANSIT BUREAU CHIEF	
TRANSIT PROJECT MANAGER	
WATER, SEWER STREETS BUREAU CHIEF	
TRANSPORTATION DIRECTOR	

Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020



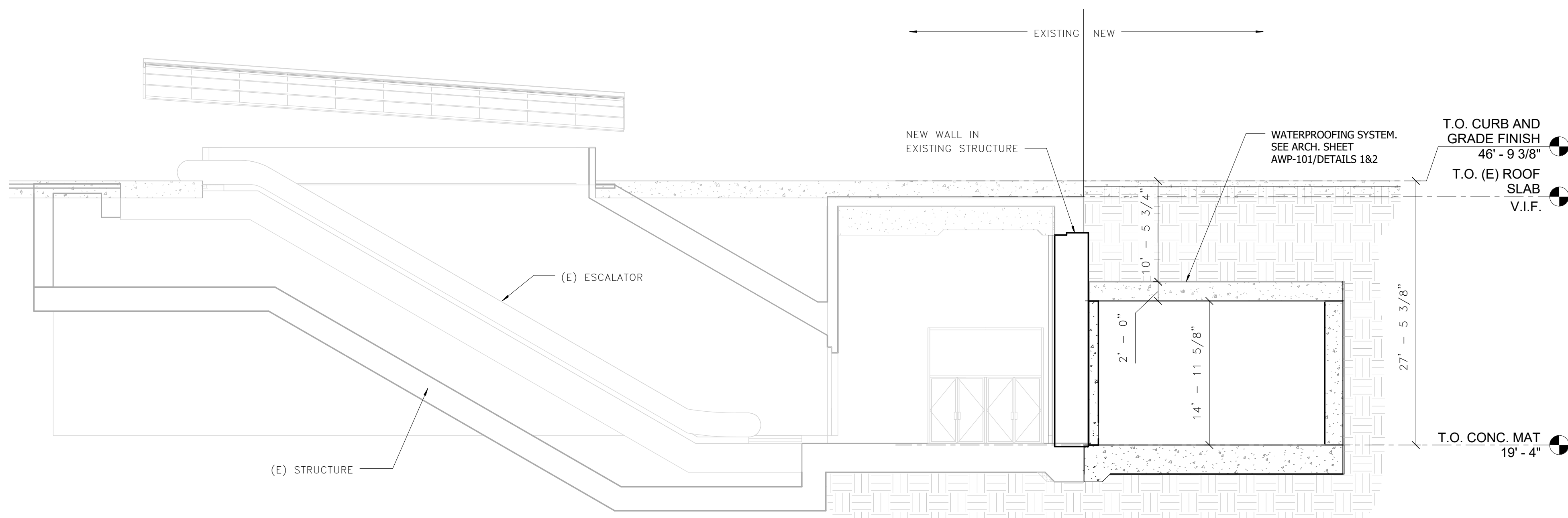
1 ELEVATOR SECTION @ ELEVATOR VESTIBULE

S-201 1/8" = 1'-0" 0 4' 8' 16'



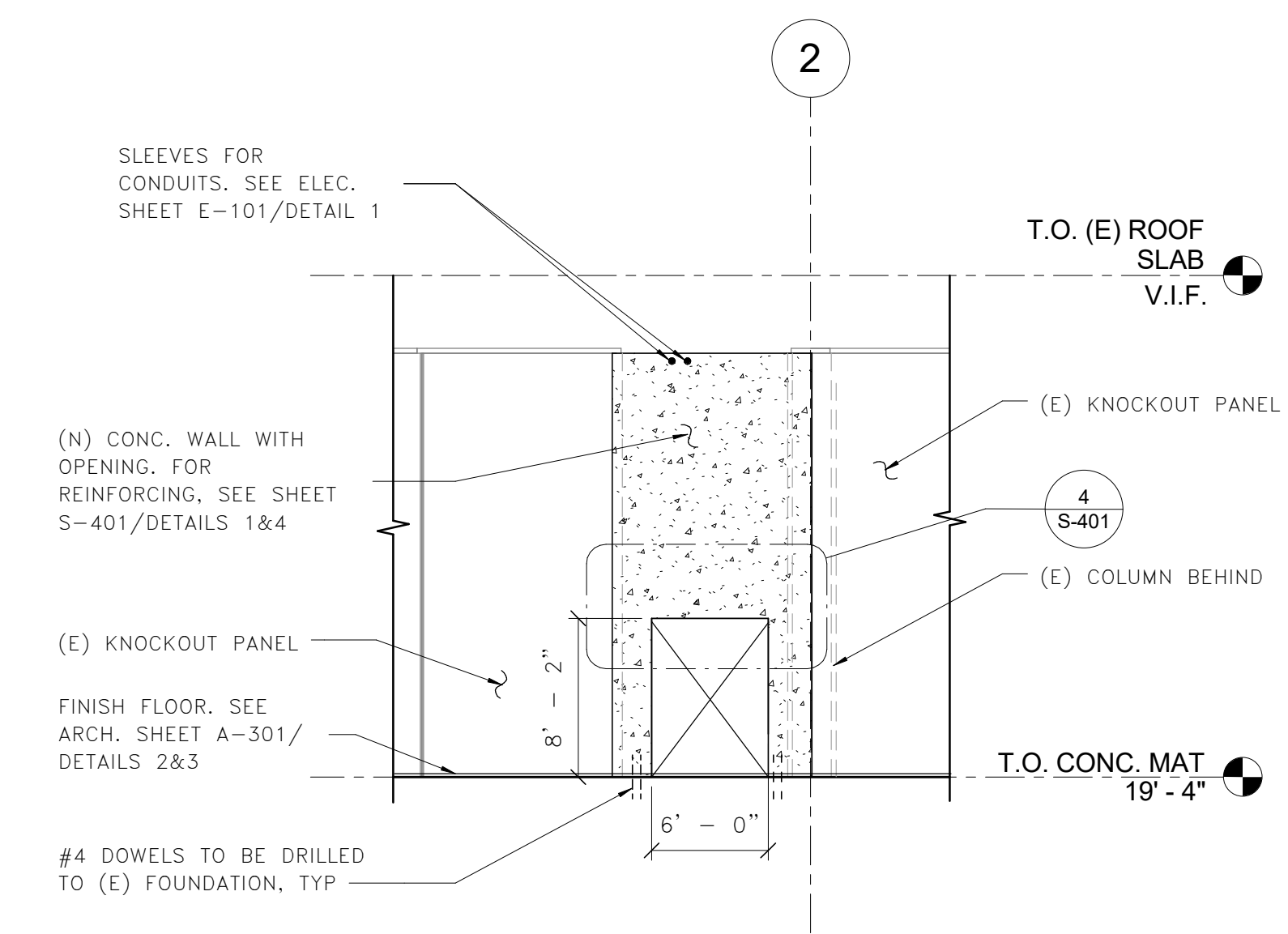
2 ELEVATOR SECTION @ KNOCKOUT PANEL

S-201 1/8" = 1'-0" 0 4' 8' 16'



3 ELEVATOR SECTION @ MACHINE ROOM

S-201 1/8" = 1'-0" 0 4' 8' 16'



4 ELEVATOR KNOCKOUT PANEL ELEVATION

S-201 1/8" = 1'-0" 0 4' 8' 16'

Project Name and Location
**Pentagon City Station
Elevator Project**
Elevations
South Hayes Street
S-201

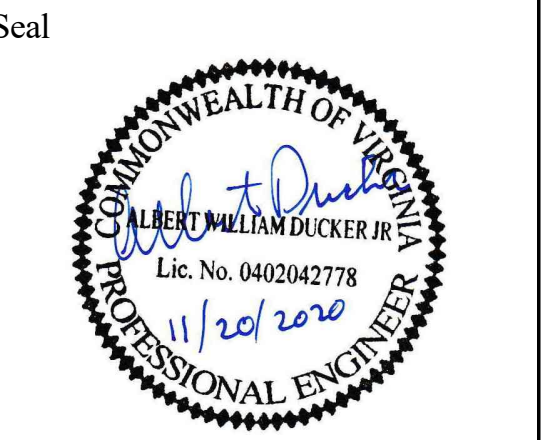
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Drawn: ZKS
Checked: AWD
Miss Utility Transmittal #:

Filename: 2515872_A-3D0000.rvt
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Plotted: 11/30/2020 11:53:17 AM
Plotted by:

Scale: 1/8" = 1'-0"

100% PLANS - FOR CONSTRUCTION

Sheet
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Approvals	Date
WMATA PROJECT MANAGER	
FD&C BUREAU CHIEF	
FD&C PROJECT MANAGER	
TRANSIT BUREAU CHIEF	
TRANSIT PROJECT MANAGER	
WATER, SEWER STREETS BUREAU CHIEF	
TRANSPORTATION DIRECTOR	

Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020

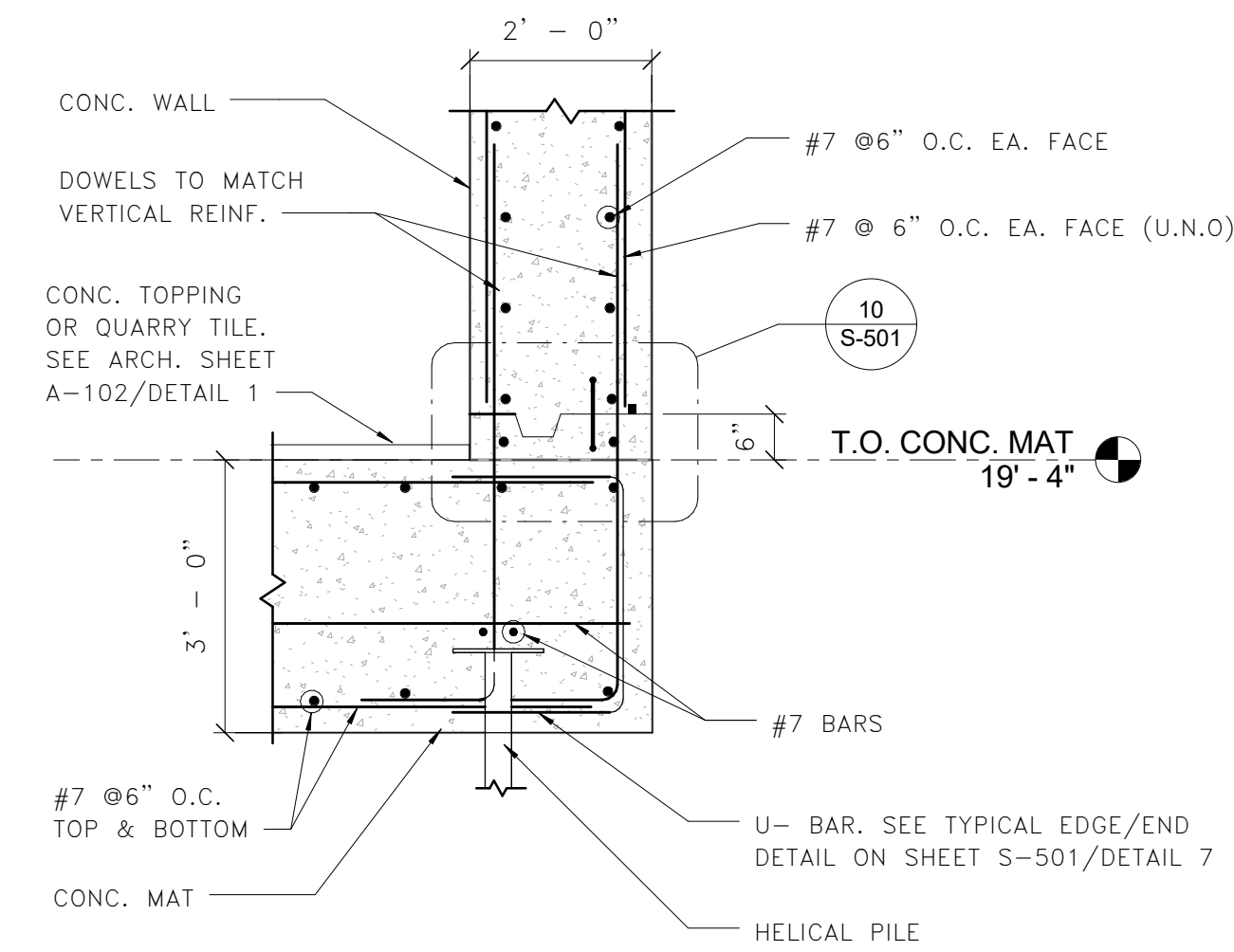
Project Name and Location
**Pentagon City Station
Elevator Project**
Concrete Sections
South Hayes Street
S-301

Designed: JCD
Drawn: ZKS
Checked: AWD
Miss Utility Transmittal #:

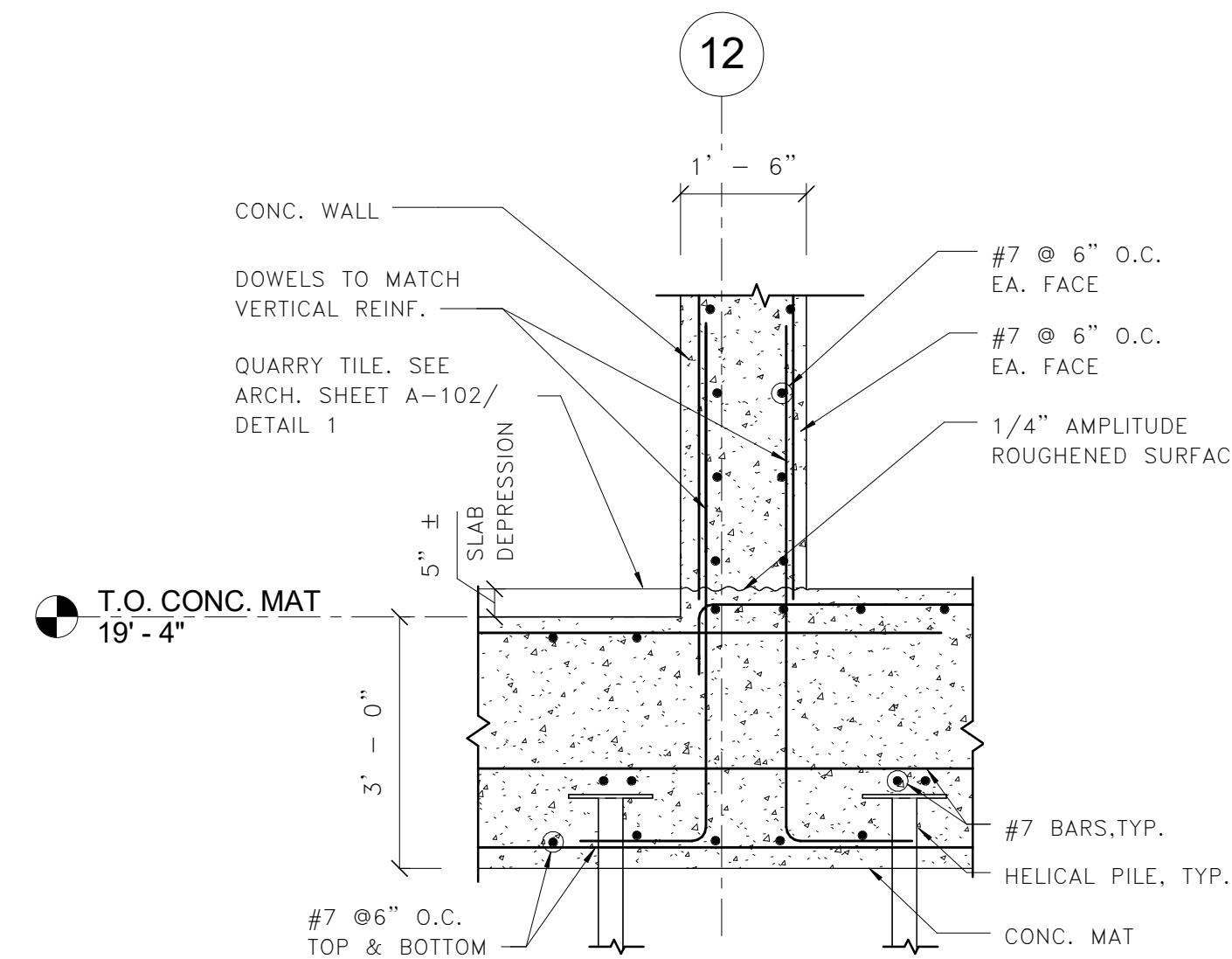
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Plotted: 11/30/2020 11:53:18 AM
Plotted by:

Scale: 1/2" = 1'-0"

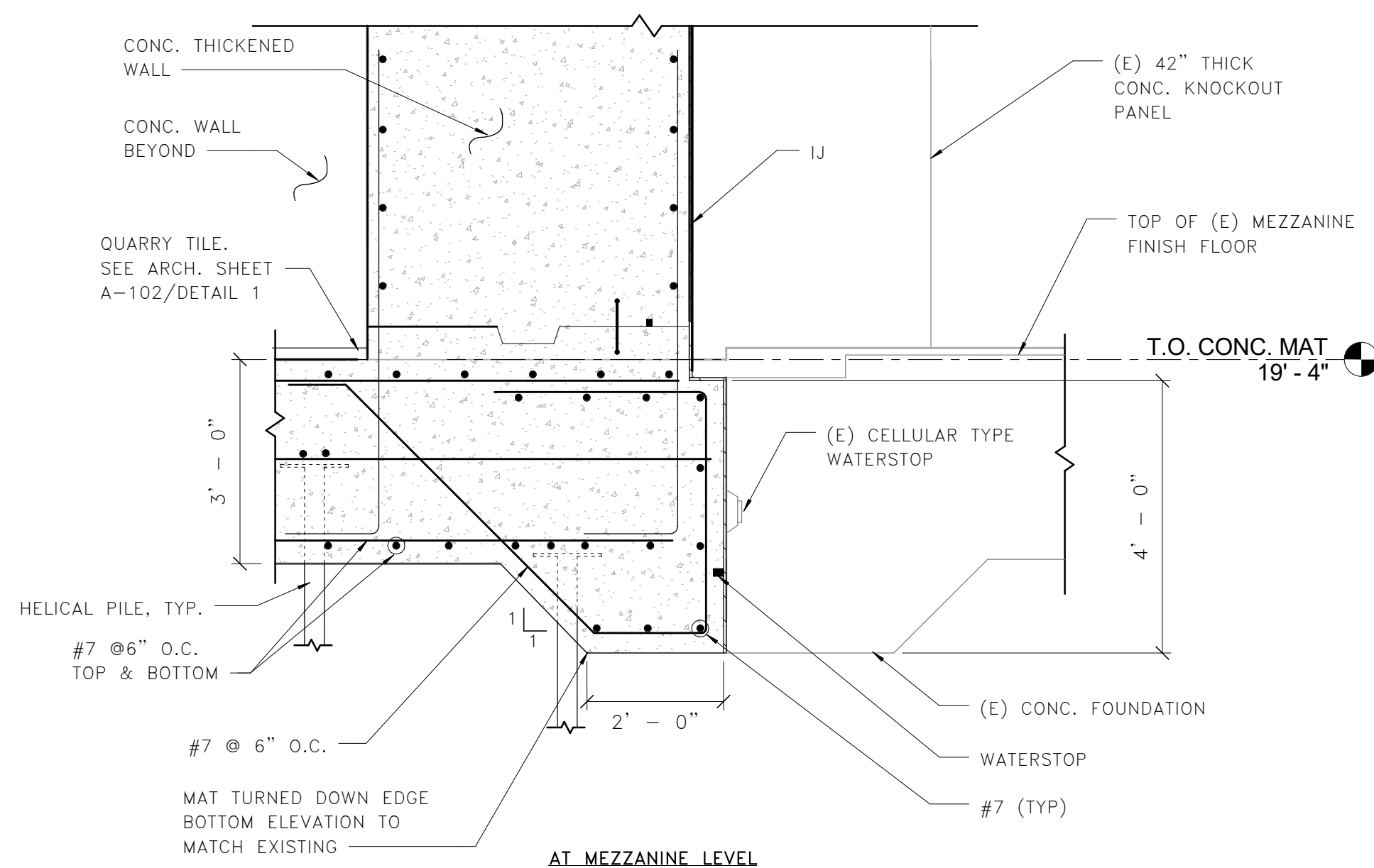
100% PLANS - FOR CONSTRUCTION



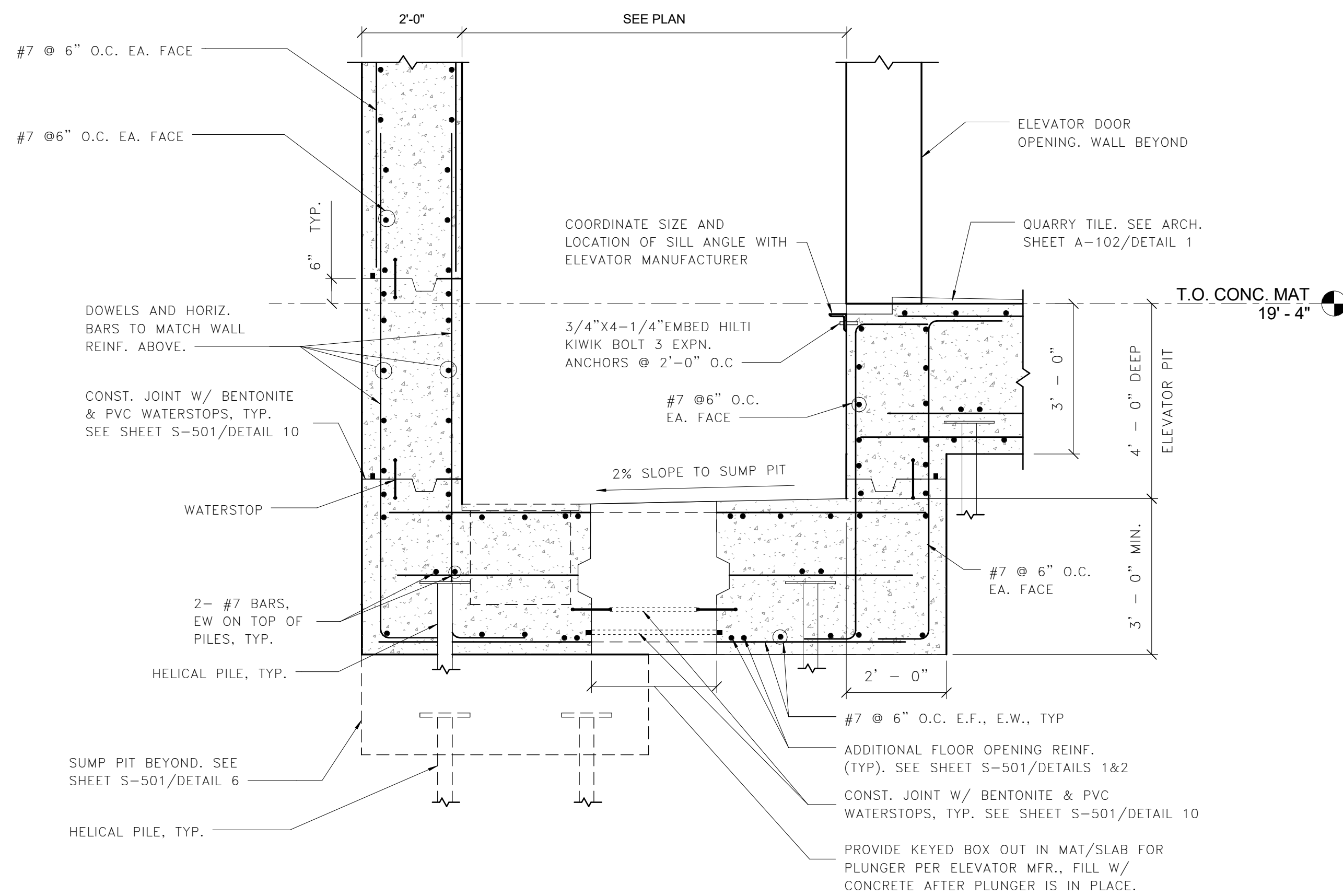
1 MAT-WALL CONCRETE SECTION
S-301 1/2" = 1'-0"



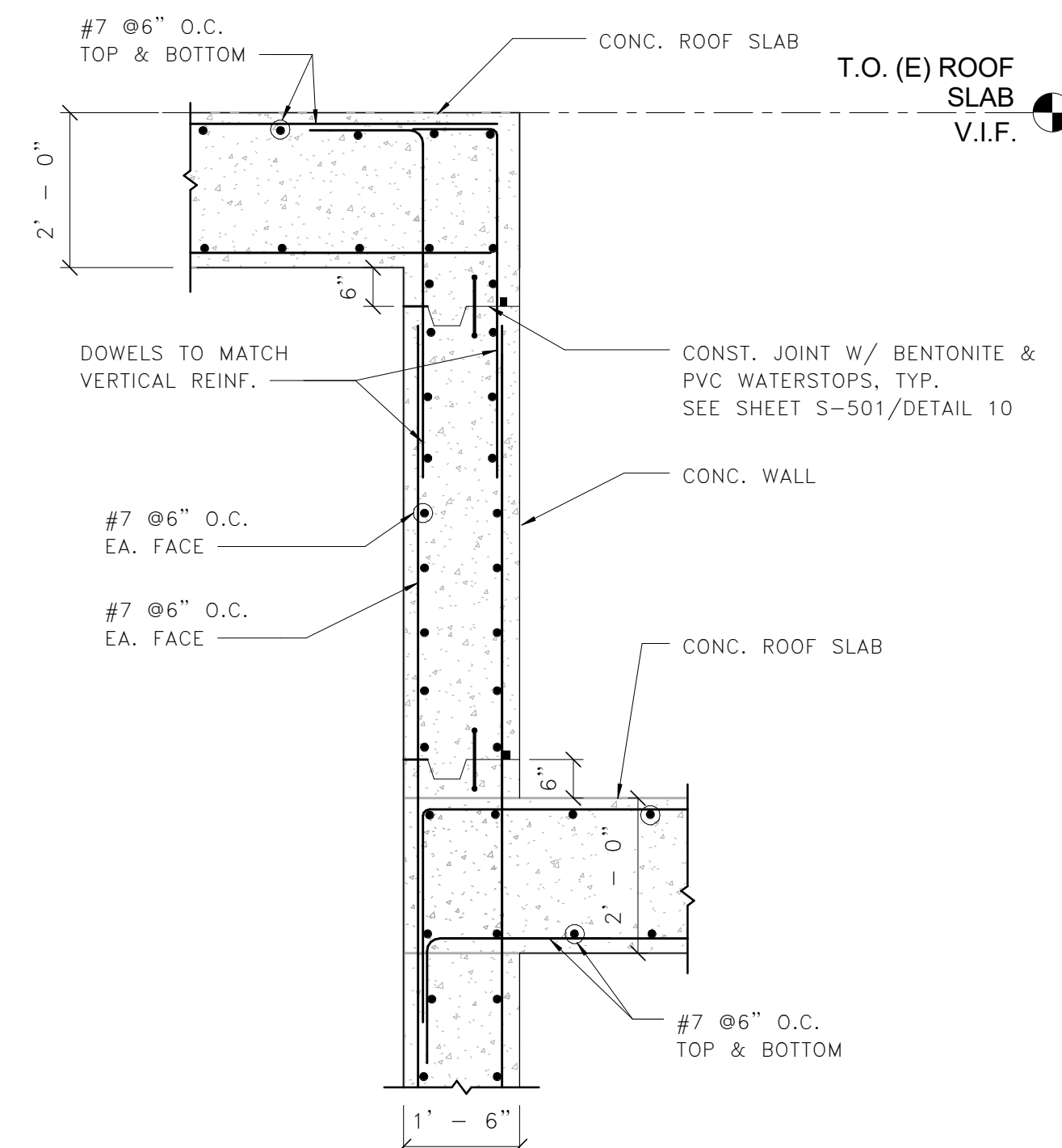
2 MAT-INTERIOR WALL CONCRETE SECTION
S-301 1/2" = 1'-0"



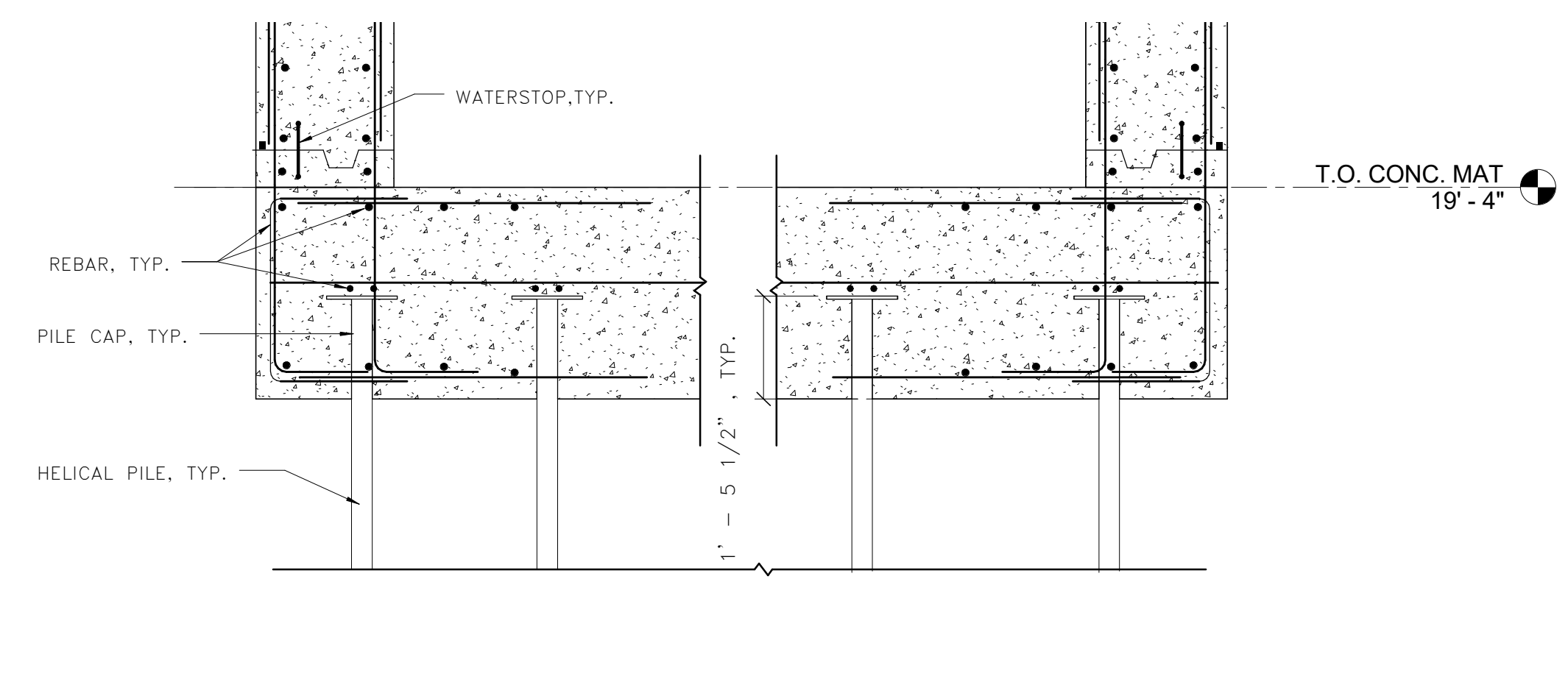
3 MAT-EDGE CONCRETE SECTION
S-301 1/2" = 1'-0"



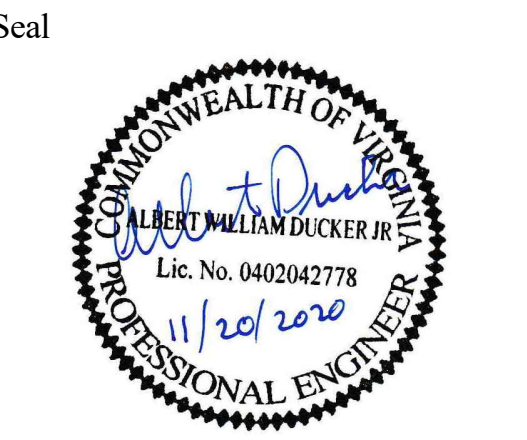
4 ELEVATOR PIT CONCRETE SECTION
S-301 1/2" = 1'-0"



6 ROOF SLAB SECTION
S-102 1/2" = 1'-0"



5 PILE CAP SECT
S-101 1/2" = 1'-0"



Approvals	Date
WMATA PROJECT MANAGER	
FD&C BUREAU CHIEF	
FD&C PROJECT MANAGER	
TRANSIT BUREAU CHIEF	
TRANSIT PROJECT MANAGER	
WATER, SEWER STREETS BUREAU CHIEF	
TRANSPORTATION DIRECTOR	

Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020

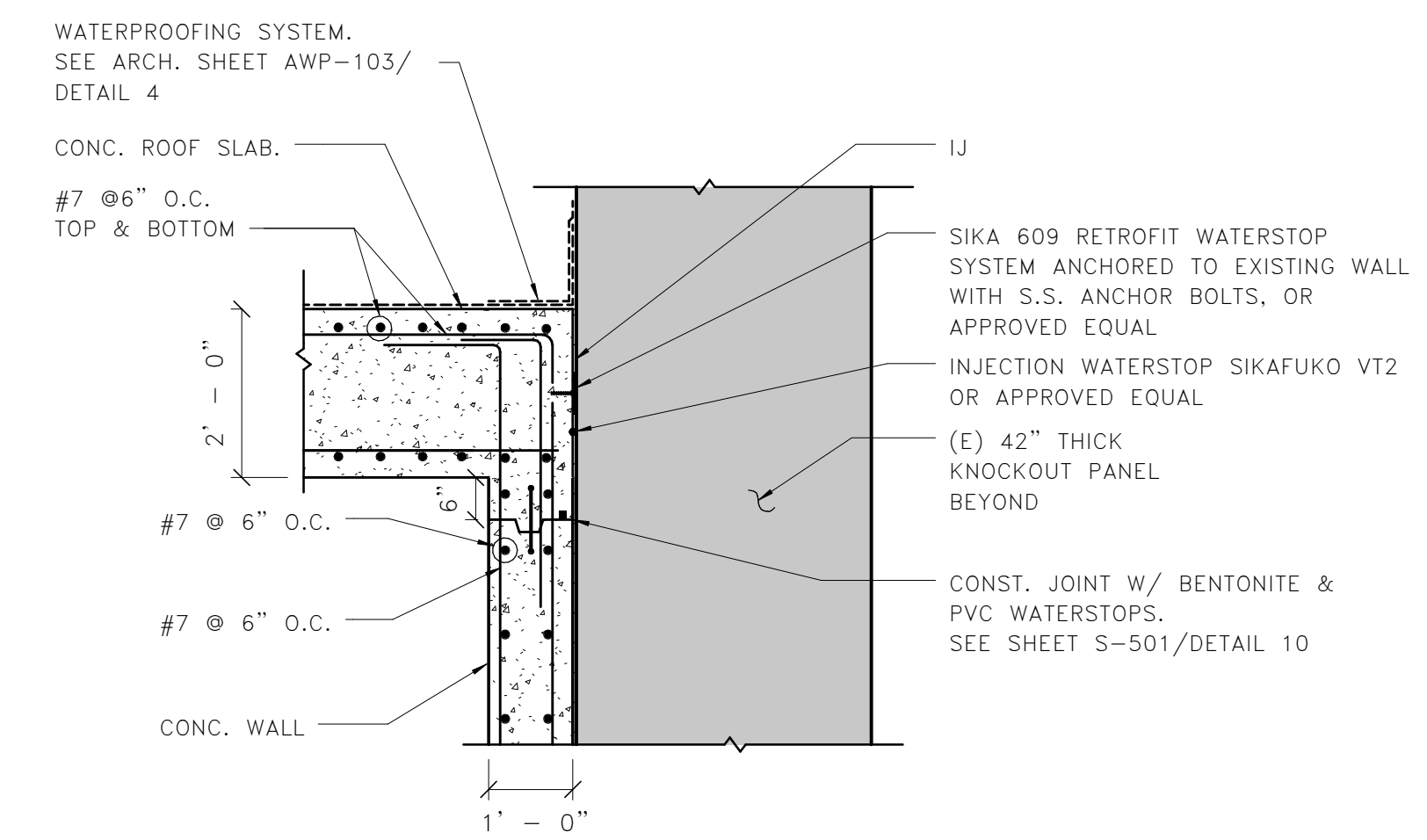
Project Name and Location
**Pentagon City Station
Elevator Project**
Concrete Sections
South Hayes Street
S-302

Designed: JCD
Drawn: ZKS
Checked: AWD
Miss Utility Transmittal #:

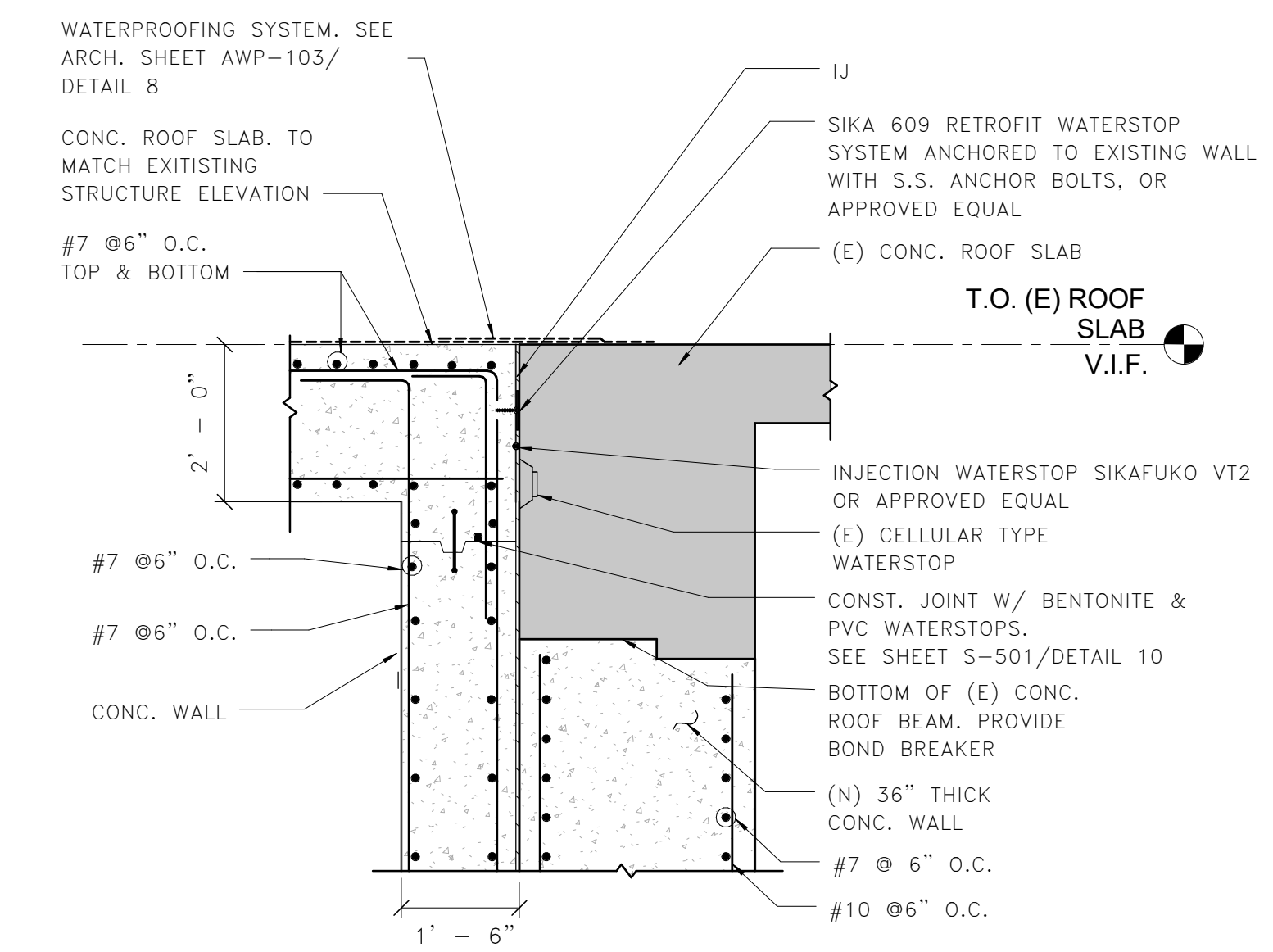
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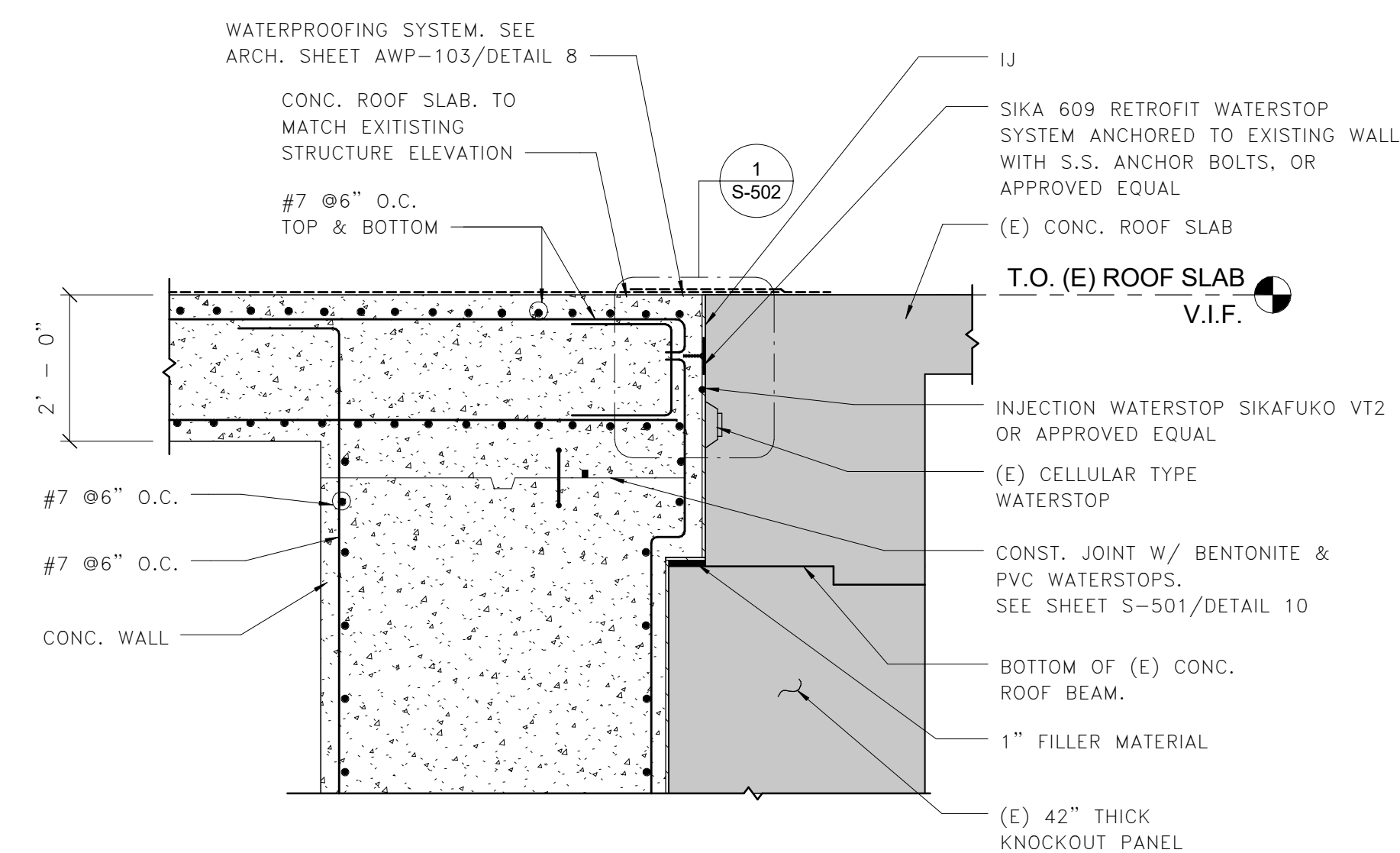
100% PLANS - FOR CONSTRUCTION



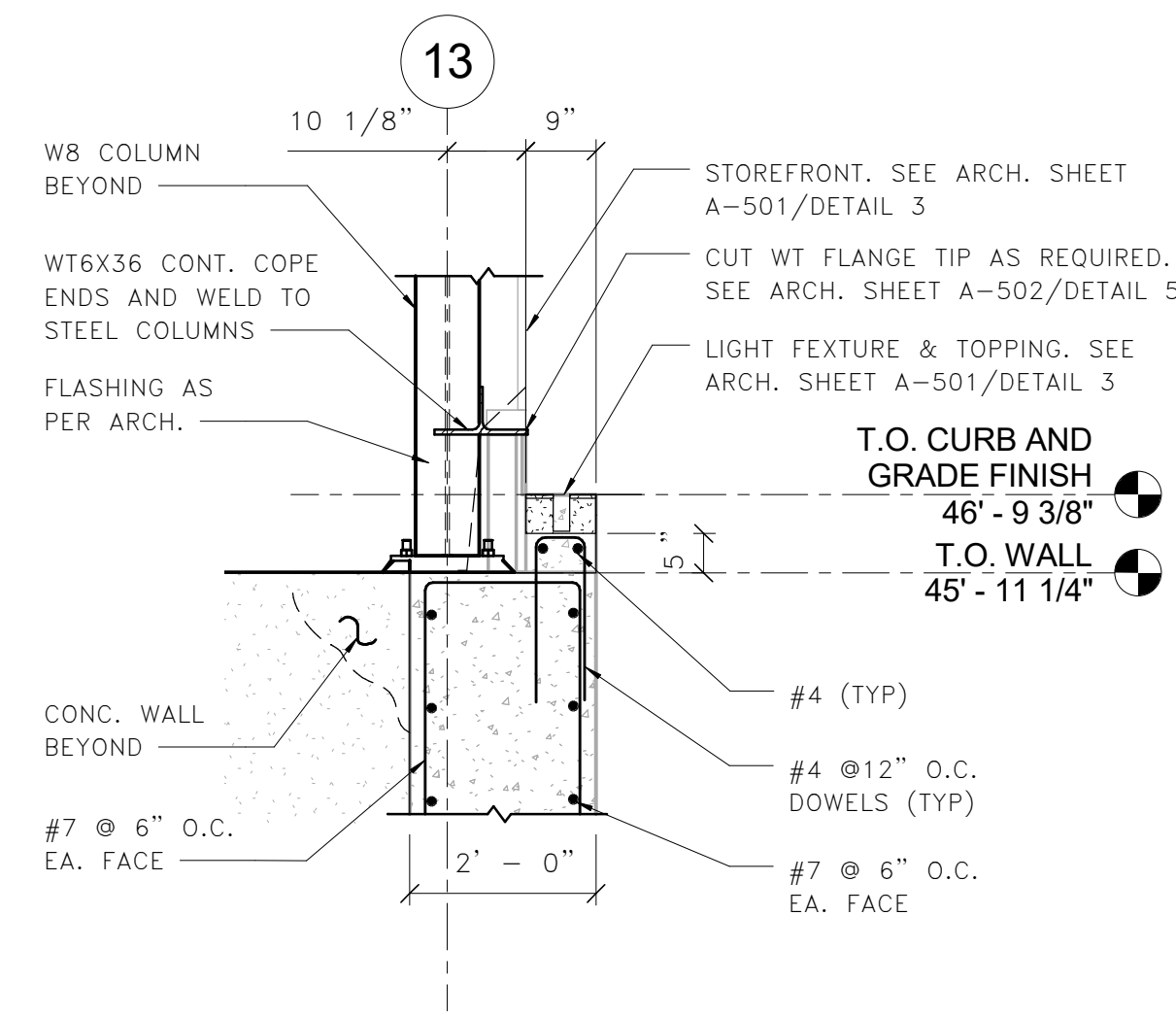
7 ROOF SLAB SECTION AT ELEVATOR MACHINE ROOM
S-102 1/2" = 1'-0"



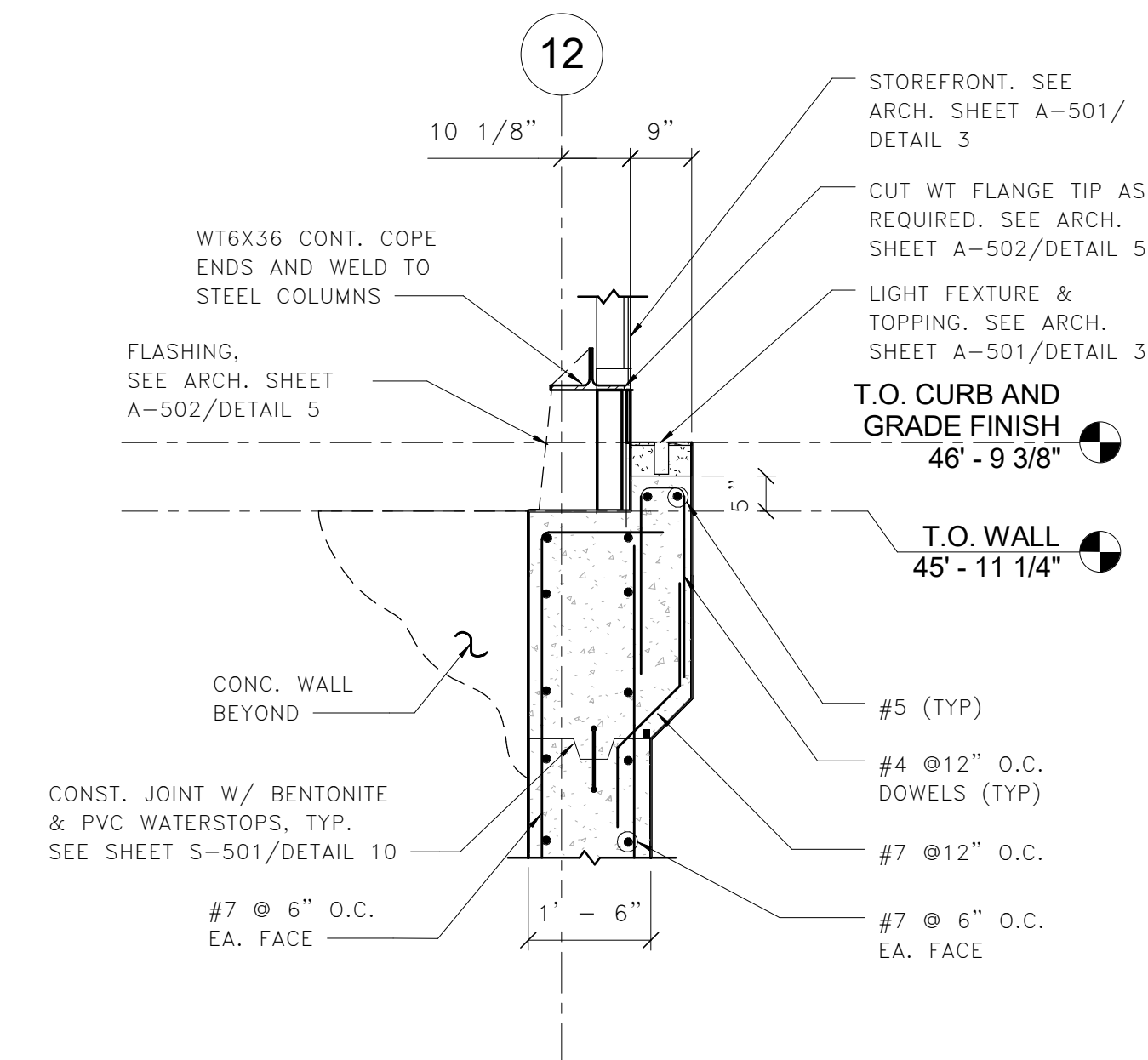
8 ROOF SLAB SECTION AT OPENING OF NEW WALL
S-102 1/2" = 1'-0"



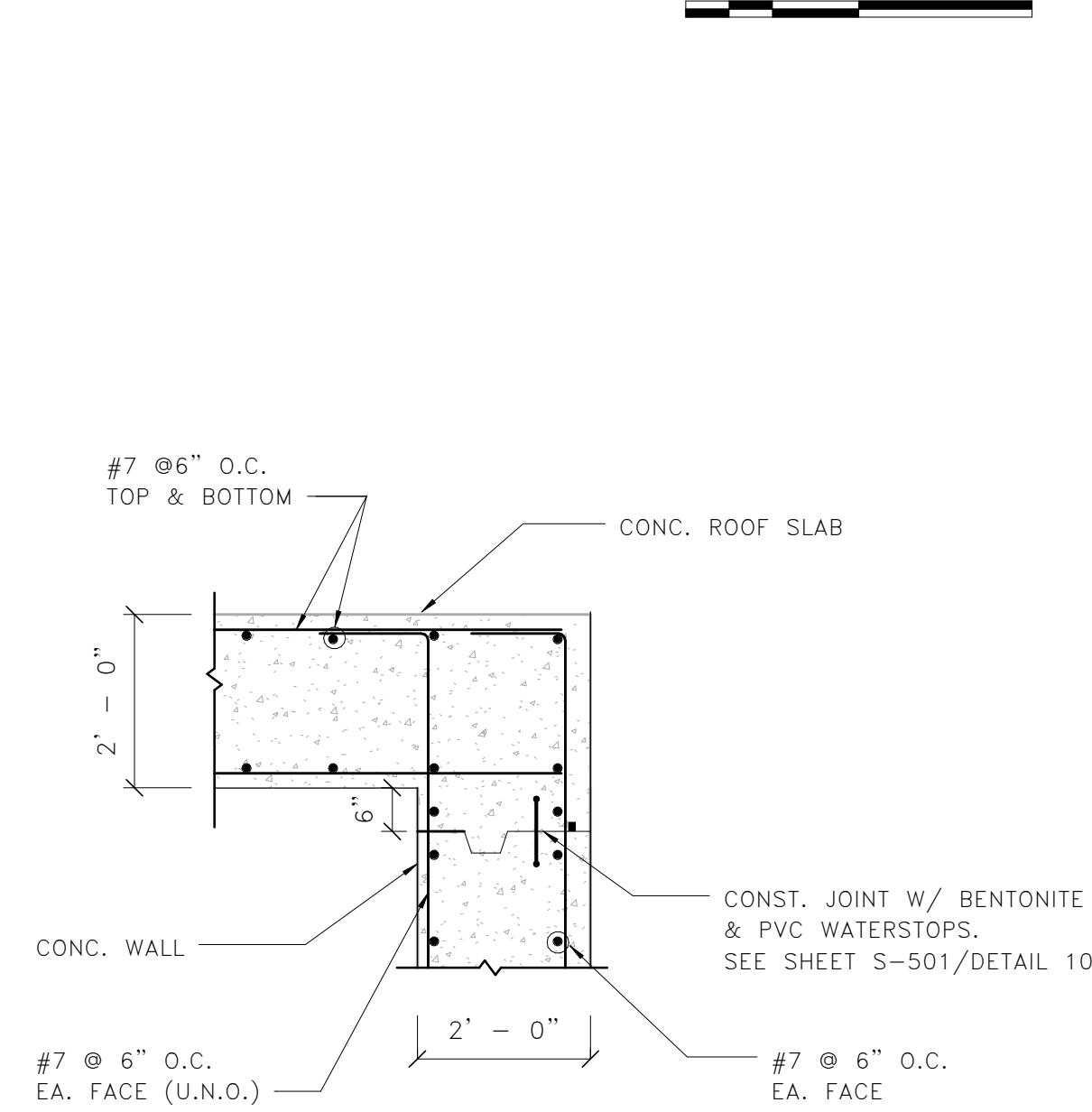
9 ROOF SLAB SECTION AT EXISTING KNOCKOUT PANEL
S-102 1/2" = 1'-0"



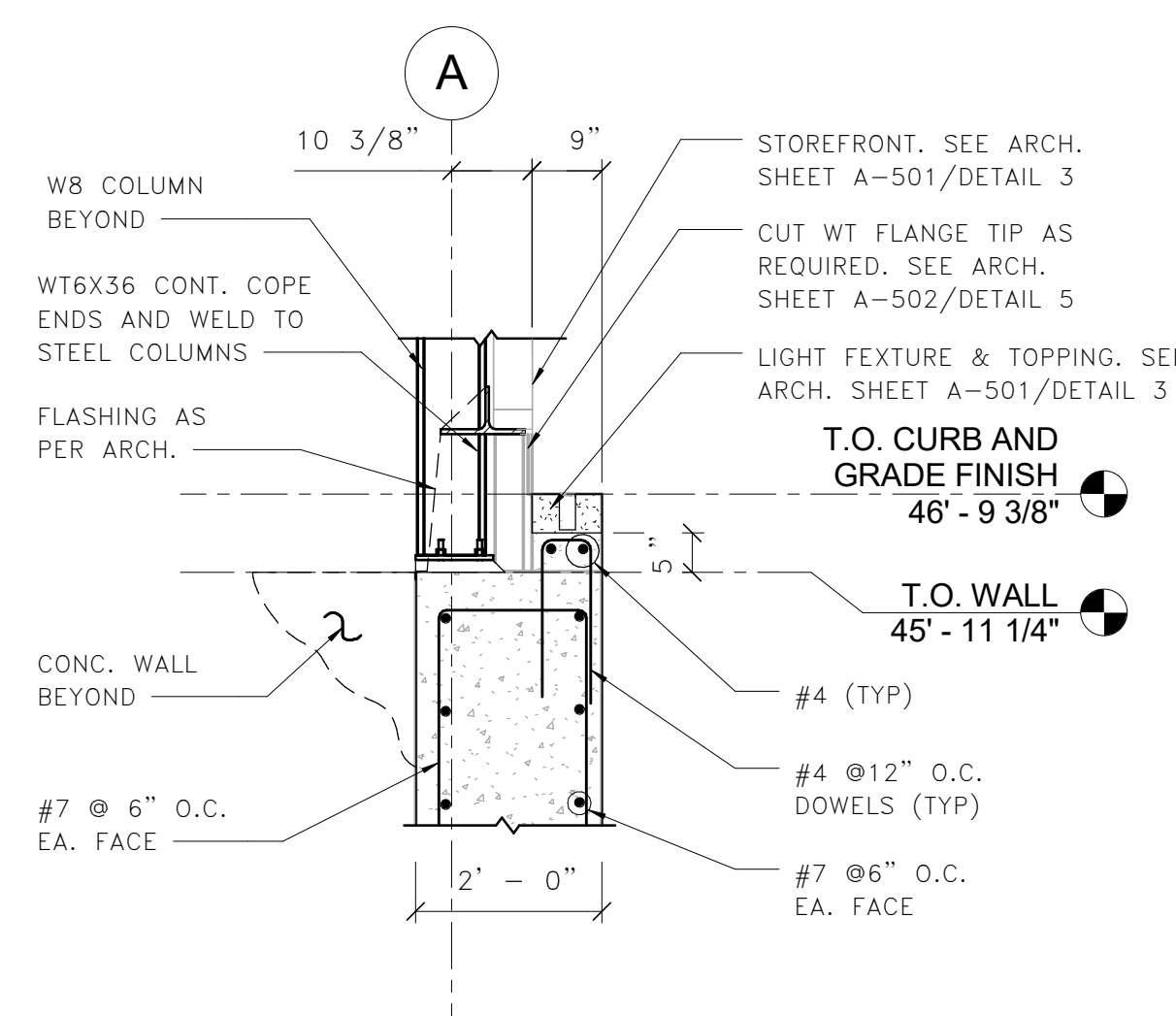
4 HEADHOUSE CONCRETE SECTION
S-302 1/2" = 1'-0"



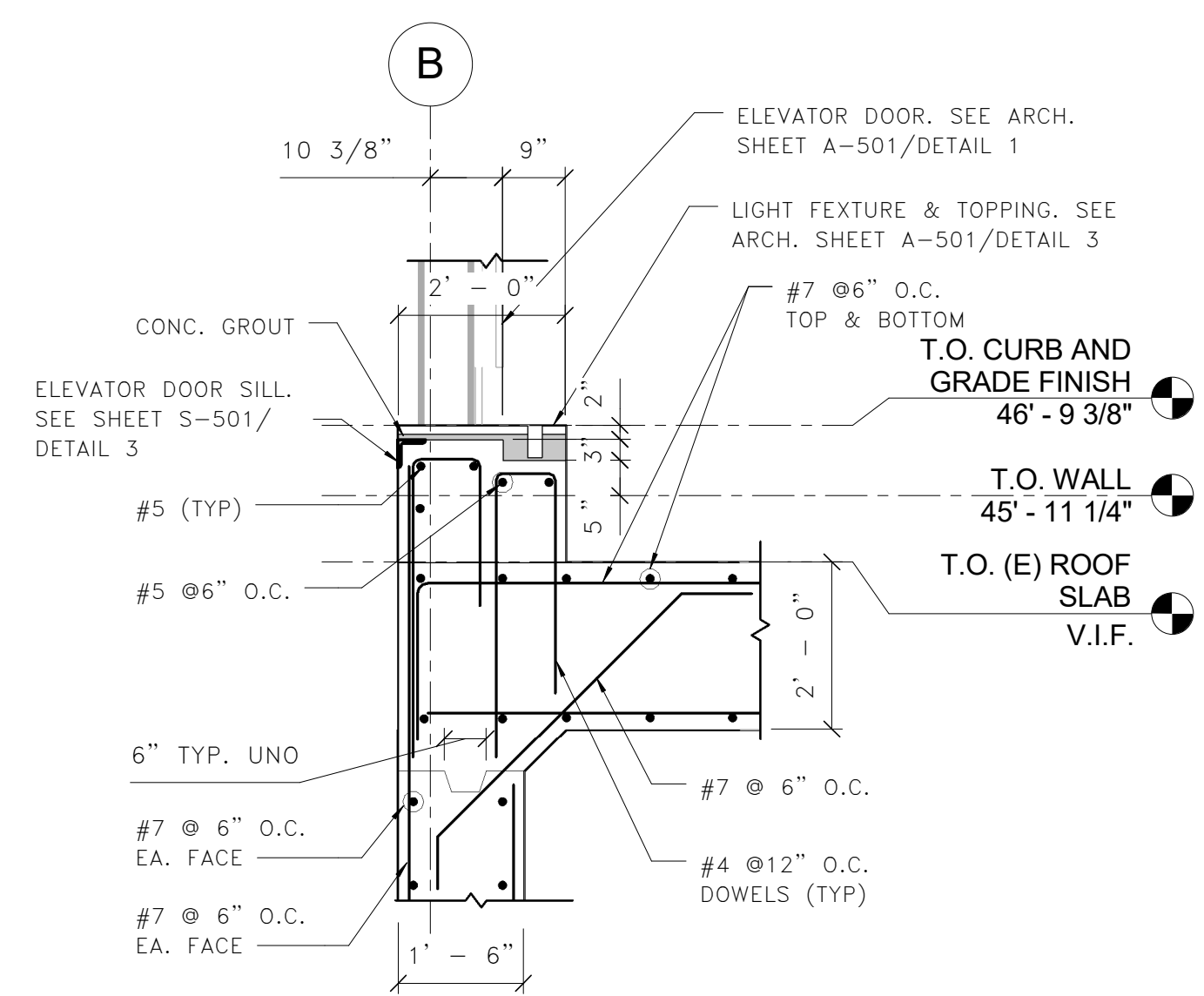
5 HEADHOUSE CONCRETE SECTION
S-102 1/2" = 1'-0"



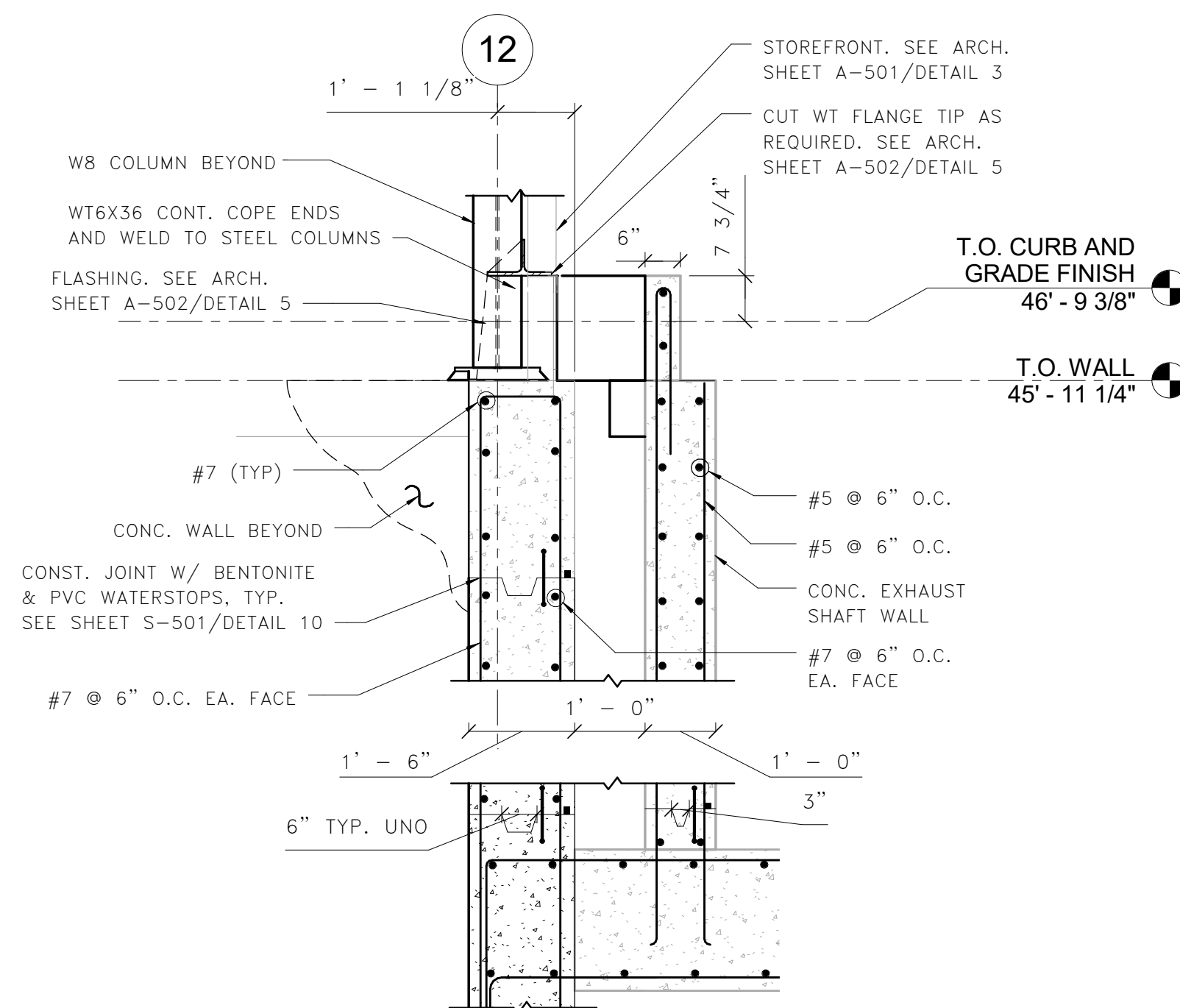
6 ROOF SLAB SECTION
S-302 1/2" = 1'-0"



1 HEADHOUSE CONCRETE SECTION
S-302 1/2" = 1'-0"



2 HEADHOUSE CONCRETE SECTION
S-302 1/2" = 1'-0"

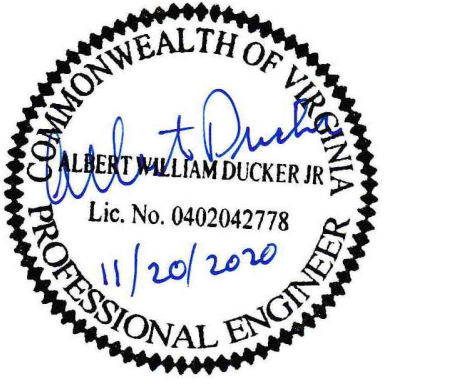


3 HEADHOUSE CONCRETE SECTION
S-302 1/2" = 1'-0"

6 ROOF SLAB SECTION
S-302 1/2" = 1'-0"

9 ROOF SLAB SECTION AT EXISTING KNOCKOUT PANEL
S-102 1/2" = 1'-0"

Seal



Approvals Date

WMATA PROJECT MANAGER

FD&C BUREAU CHIEF

FD&C PROJECT MANAGER

TRANSIT BUREAU CHIEF

TRANSIT PROJECT MANAGER

WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR

Revisions Date

ISSUED FOR CONSTRUCTION 11-20-2020

Project Name and Location
**Pentagon City Station
Elevator Project**
Steel Sections
South Hayes Street
S-303

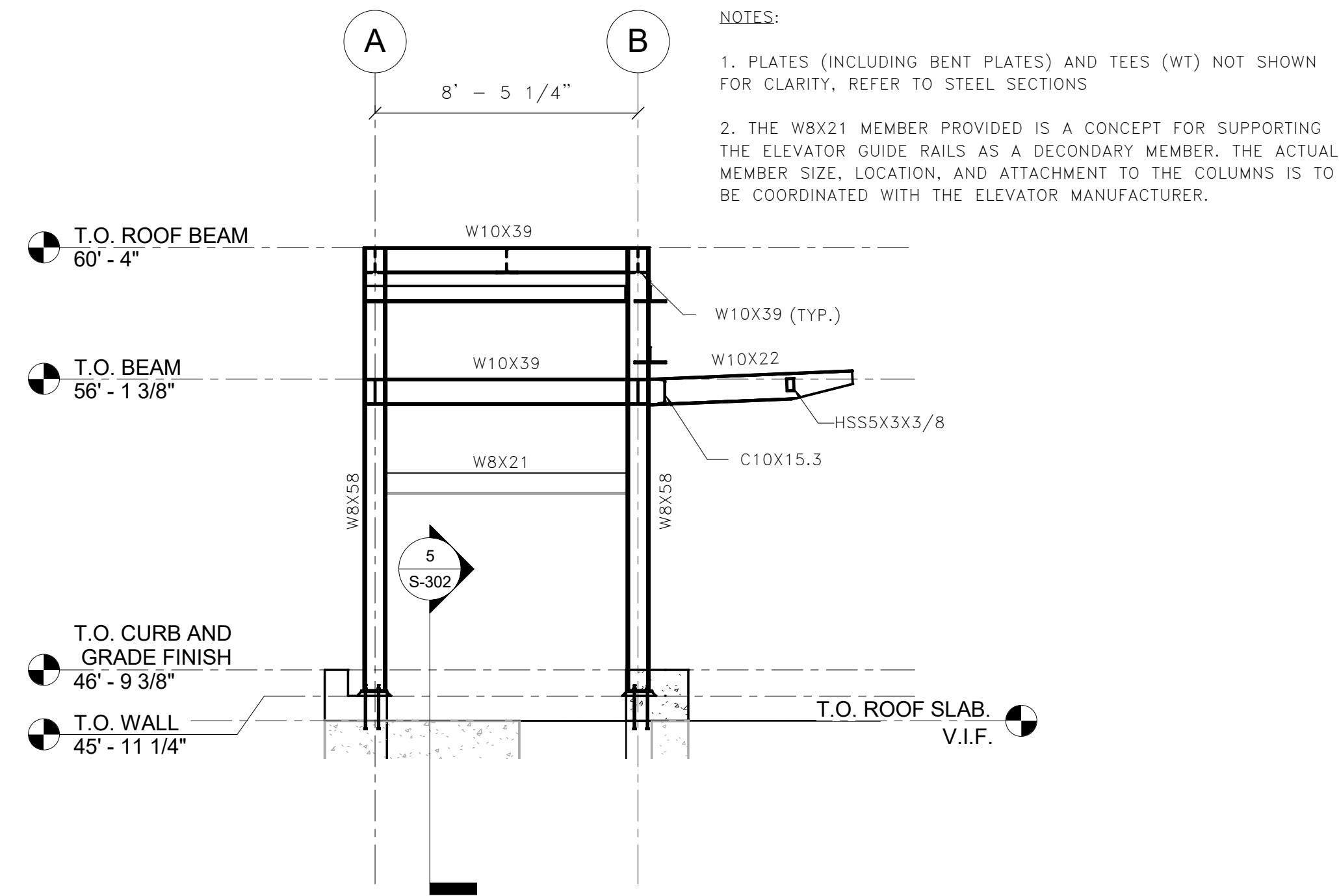
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Drawn: ZKS
Checked: AWD
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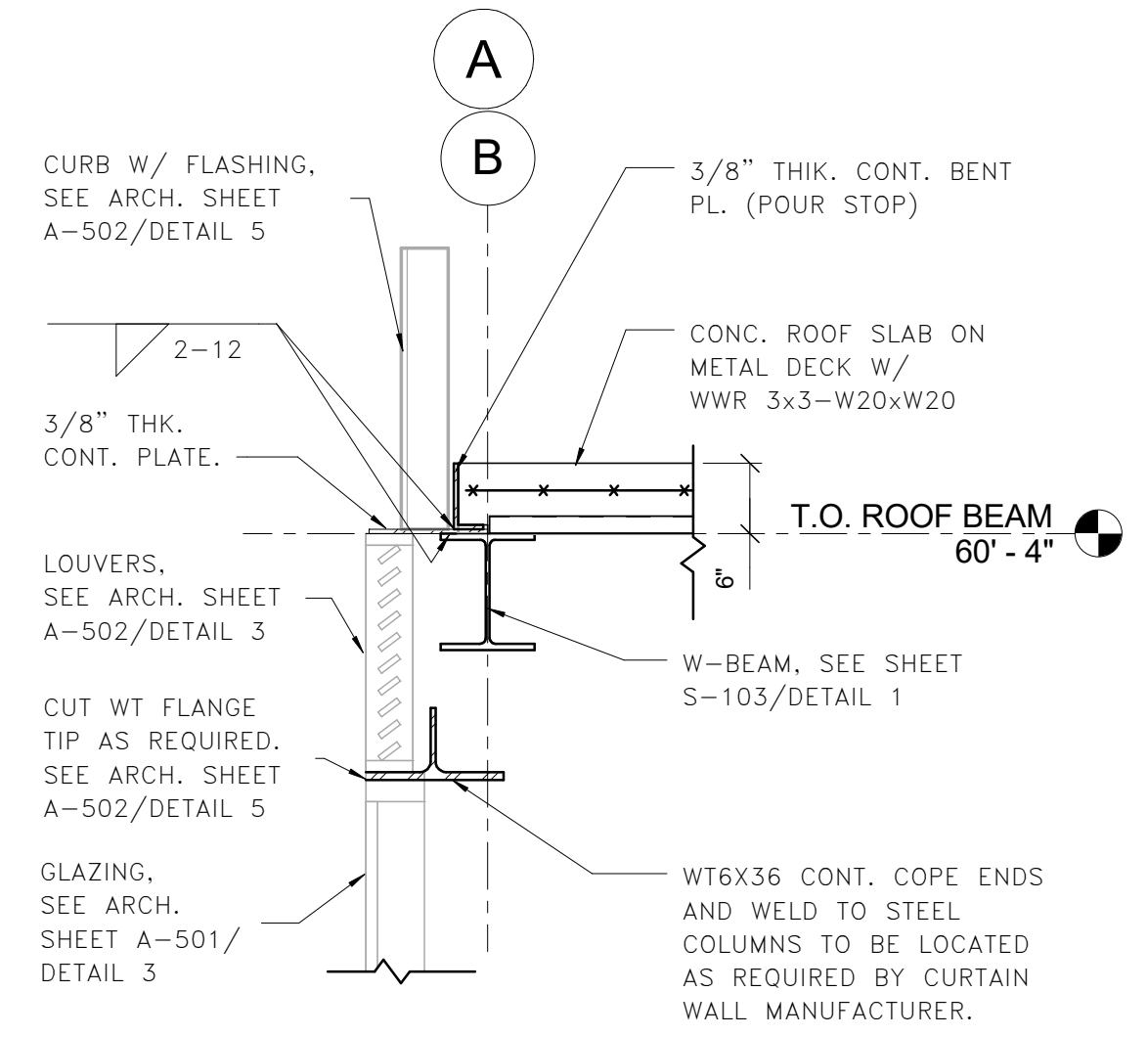
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CONSTRUCTION

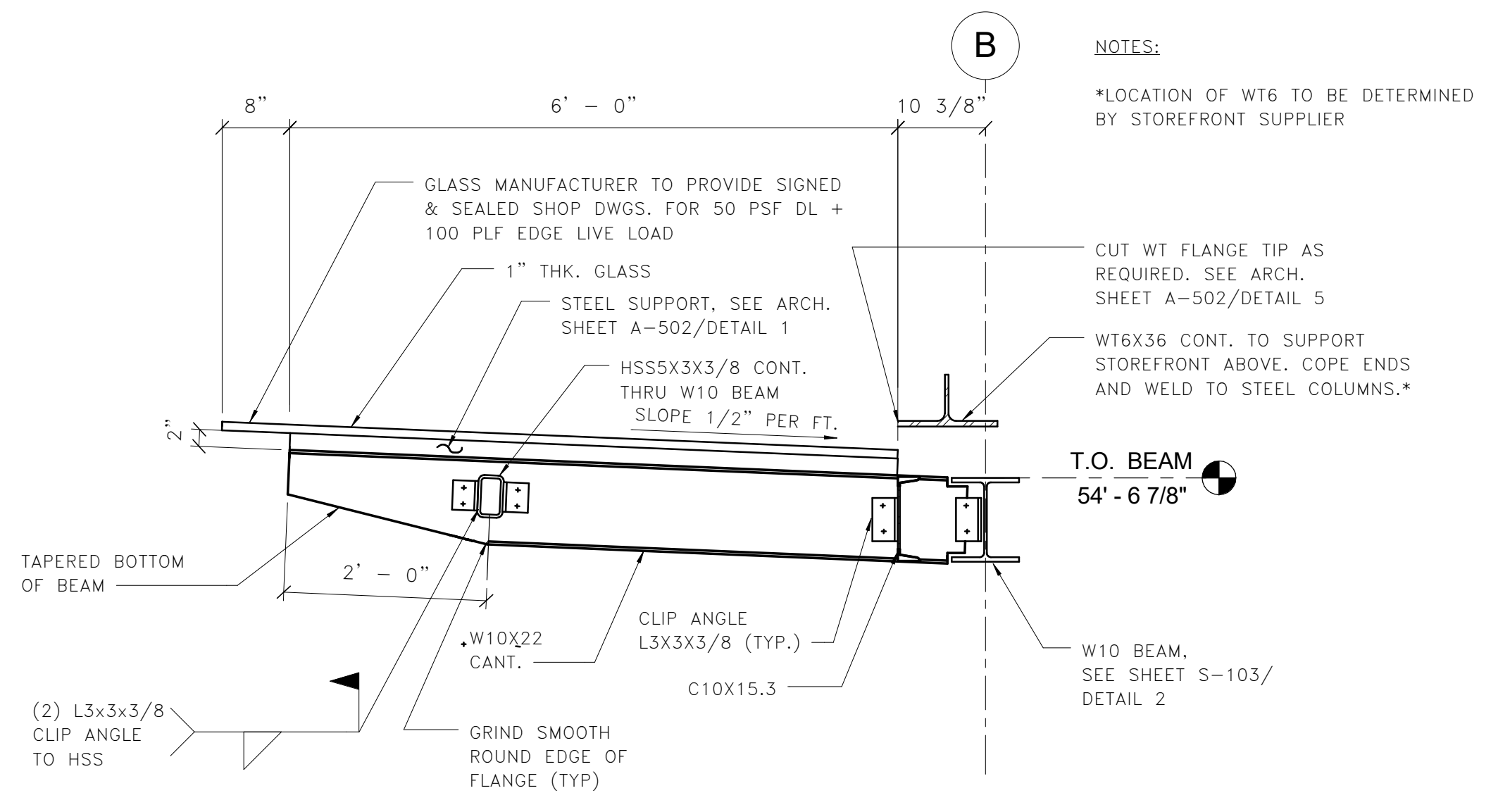
Sheet
42 OF 68



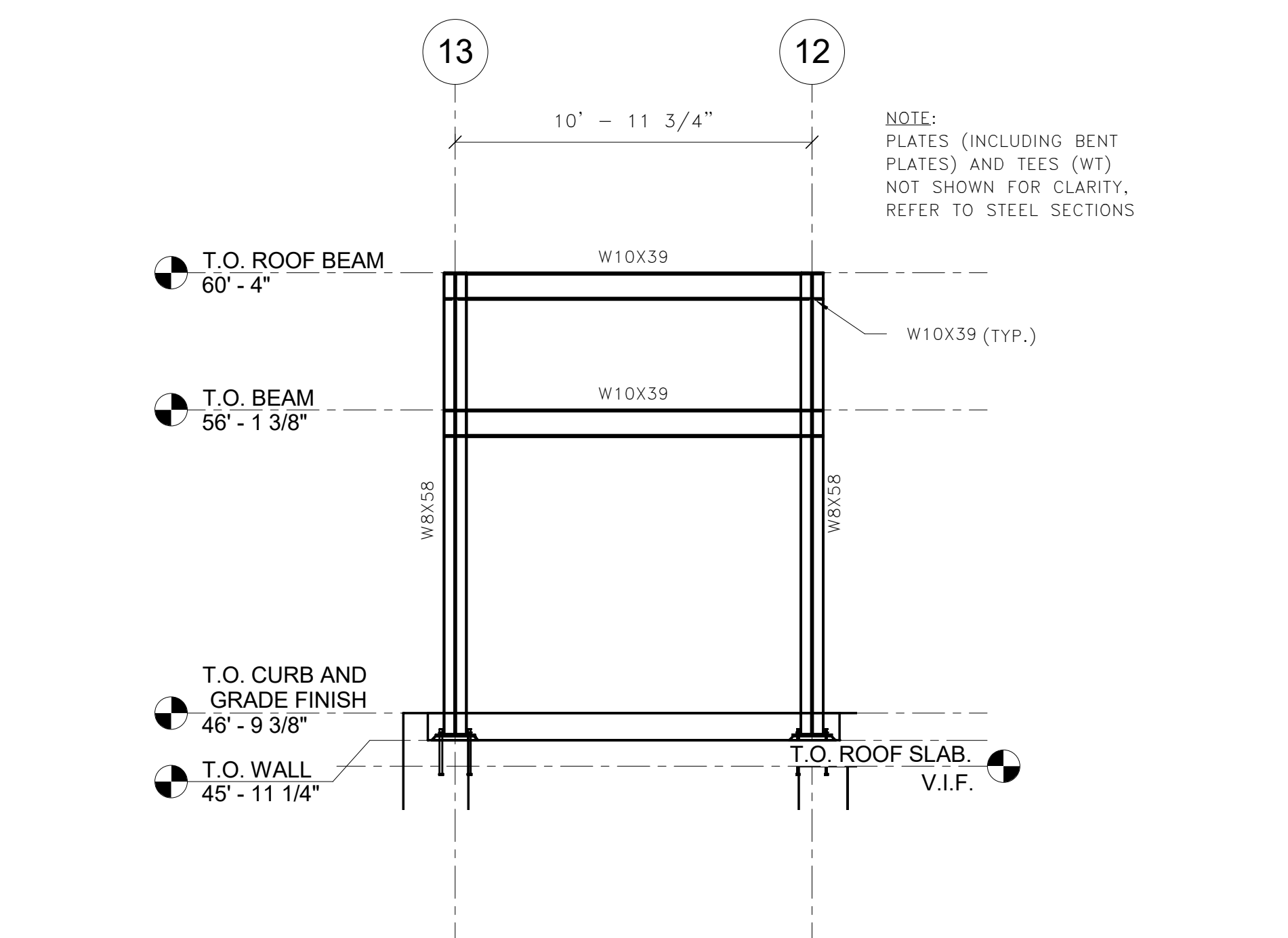
1 ELEVATOR HEADHOUSE ELEVATION AT GRID LINE 1
S-303 1/4" = 1'-0" 0 2' 4' 8"



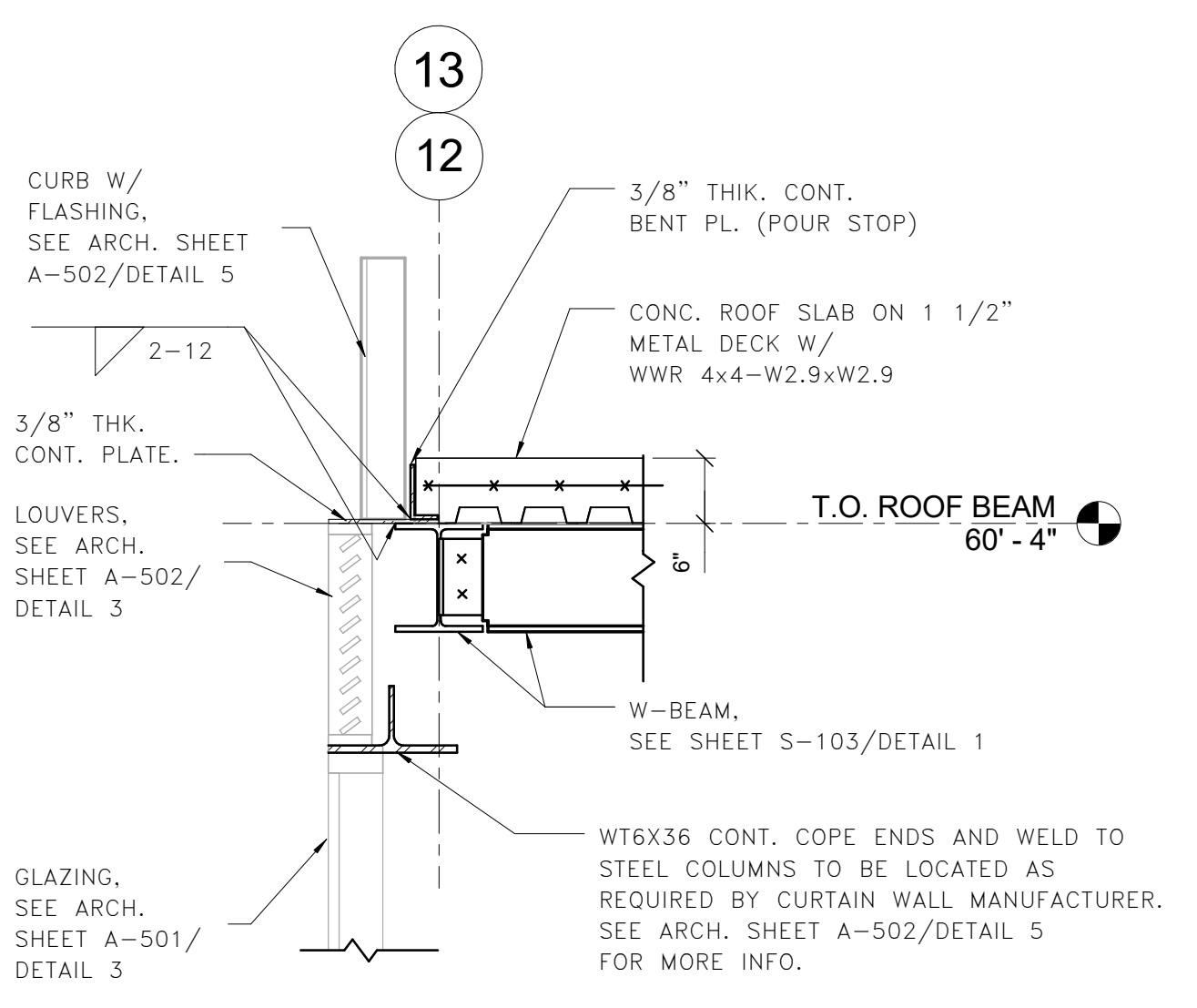
3 ROOF FRAMING SECTION
S-303 3/4" = 1'-0" 0 1' 2' 3"



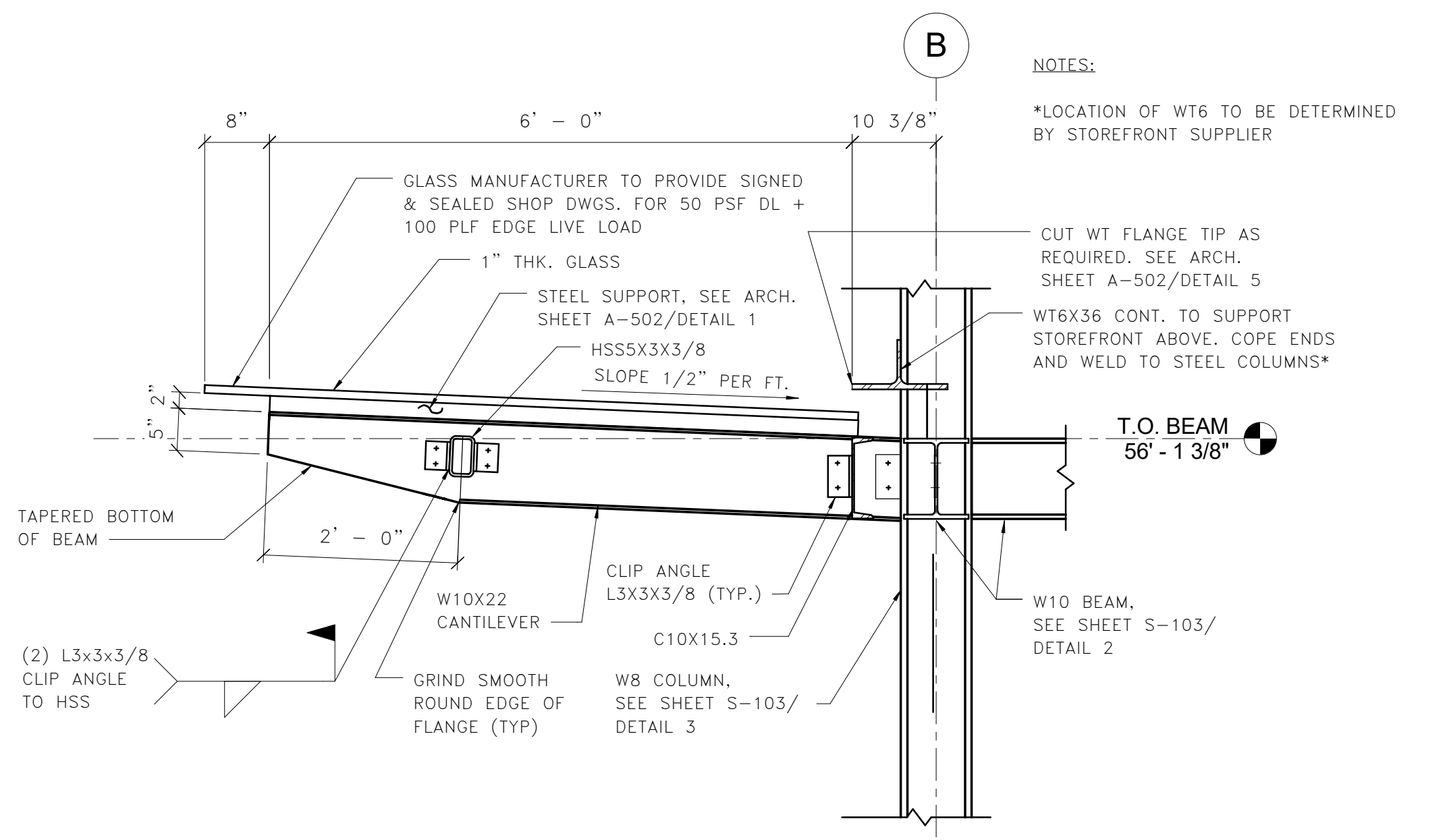
5 CANOPY FRAMING SECTION
S-303 3/4" = 1'-0" 0 1' 2' 3"



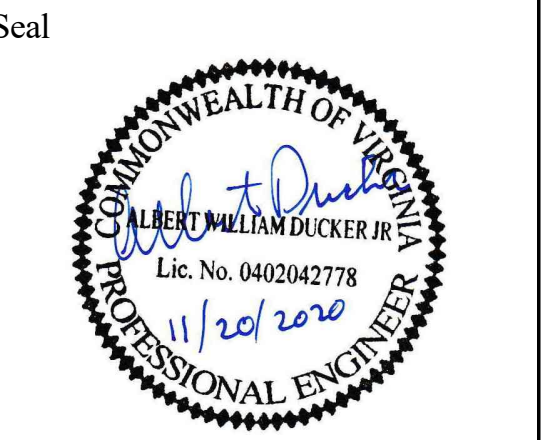
2 ELEVATOR HEADHOUSE ELEVATION AT GRID LINE A
S-303 1/4" = 1'-0" 0 2' 4' 8"



4 ROOF FRAMING SECTION
S-303 3/4" = 1'-0" 0 1' 2' 3"

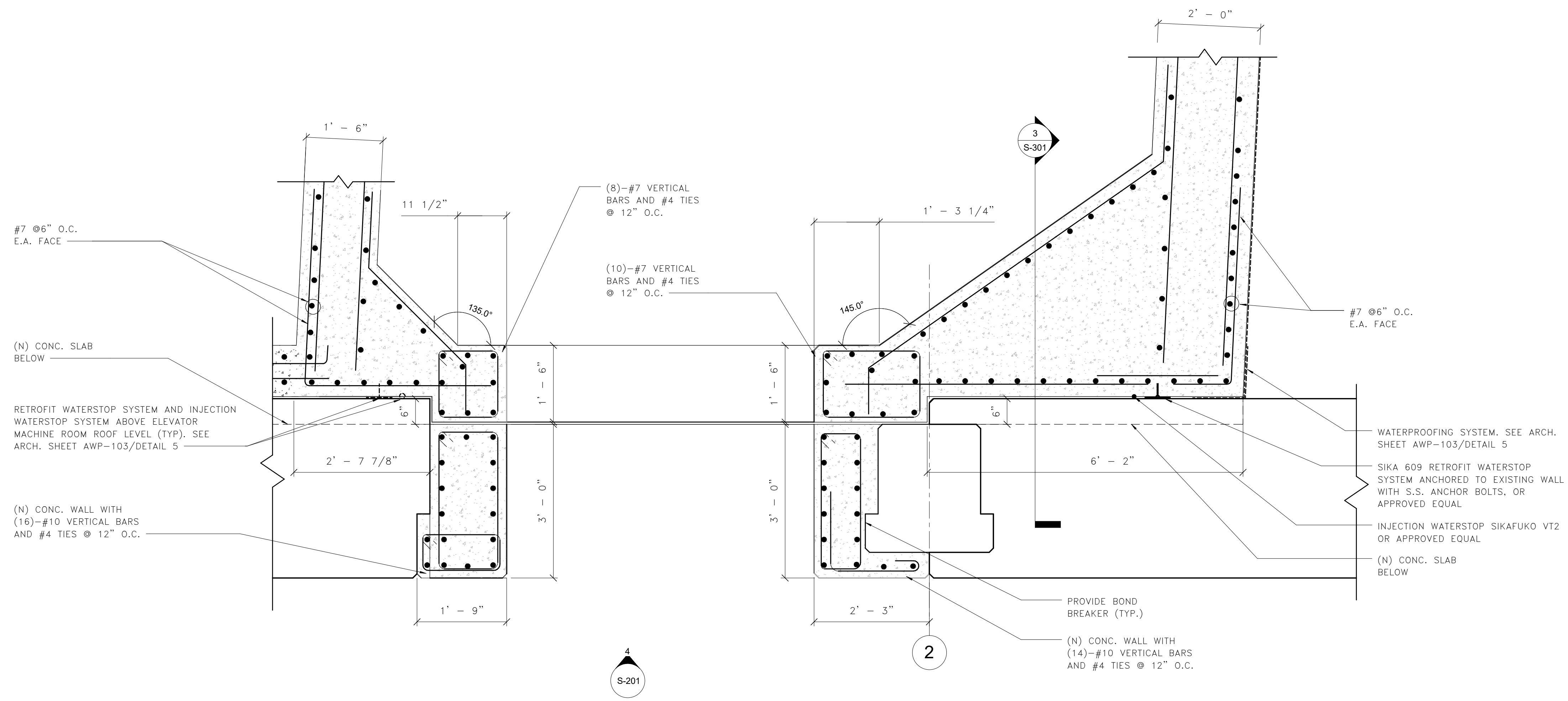


6 CANOPY FRAMING SECTION
S-303 3/4" = 1'-0" 0 1' 2' 3"

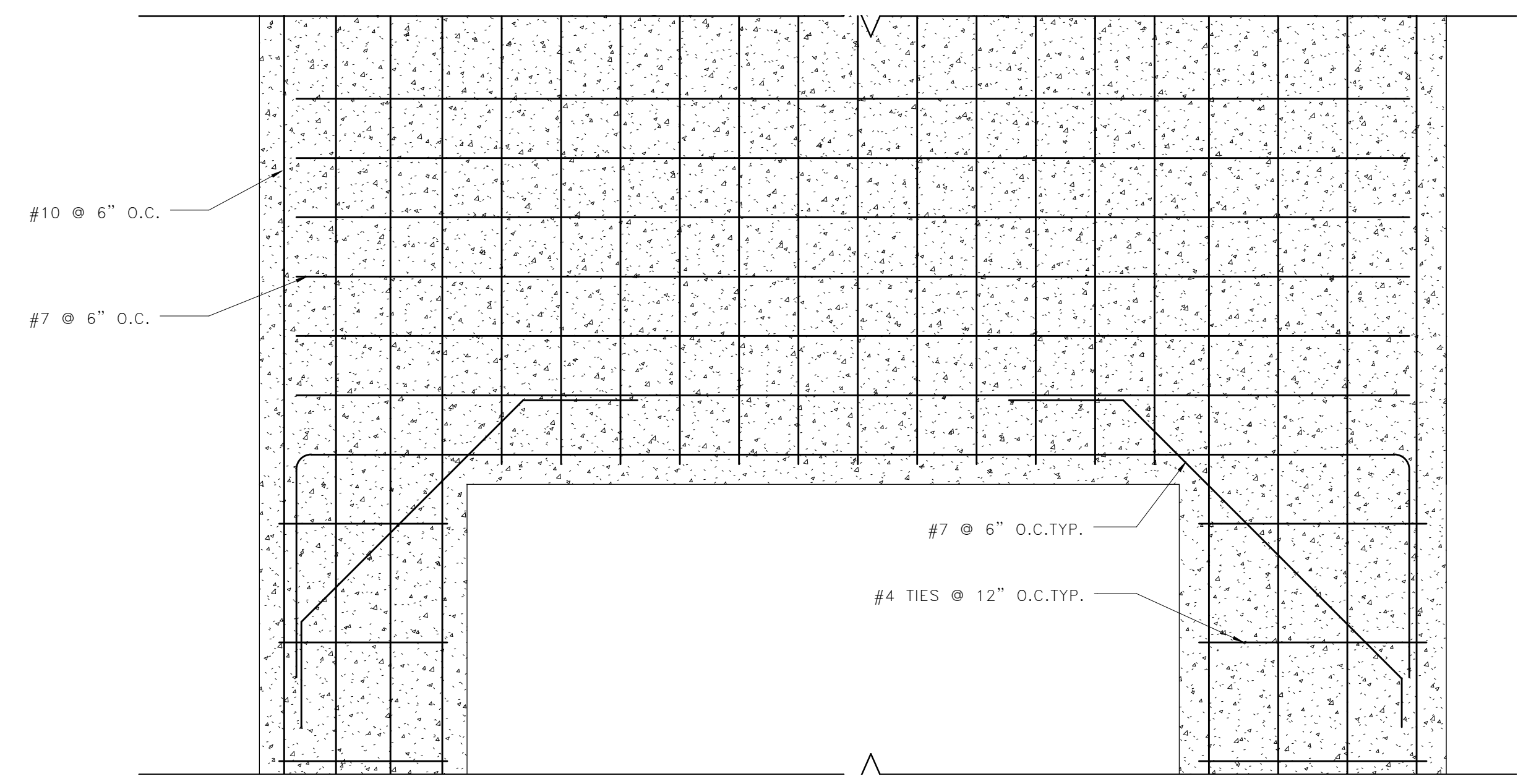


Approvals	Date
WMATA PROJECT MANAGER	
FD&C BUREAU CHIEF	
FD&C PROJECT MANAGER	
TRANSIT BUREAU CHIEF	
TRANSIT PROJECT MANAGER	
WATER, SEWER STREETS BUREAU CHIEF	
TRANSPORTATION DIRECTOR	

Revisions	Date
ISSUED FOR CONSTRUCTION	11-20-2020



1 ELEVATOR VESTIBULE ENLARGED PLAN
S-401 3/4" = 1'-0" 0 1' 2' 4'



4 EXISTING STRUCTURE NEW WALL DETAILS
S-201 1" = 1'-0" 0 6" 1' 2'

Project Name and Location
**Pentagon City Station
Elevator Project**
Enlarged Plans and Sections
South Hayes Street
S-401

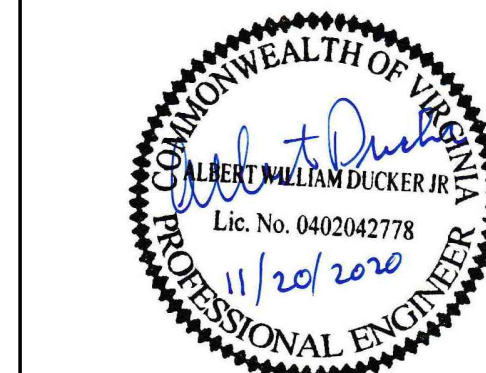
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Drawn: ZKS
Checked: AWD
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Plotted by:

Scale: As indicated

100% PLANS - FOR CONSTRUCTION

Seal



Approvals Date

WMATA PROJECT MANAGER

FD&C BUREAU CHIEF

FD&C PROJECT MANAGER

TRANSIT BUREAU CHIEF

TRANSIT PROJECT MANAGER

WATER, SEWER STREETS BUREAU CHIEF

TRANSPORTATION DIRECTOR

Revisions Date

ISSUED FOR CONSTRUCTION 11-20-2020

Project Name and Location

**Pentagon City Station
Elevator Project**

Typical Concrete Details

South Hayes Street
S-501

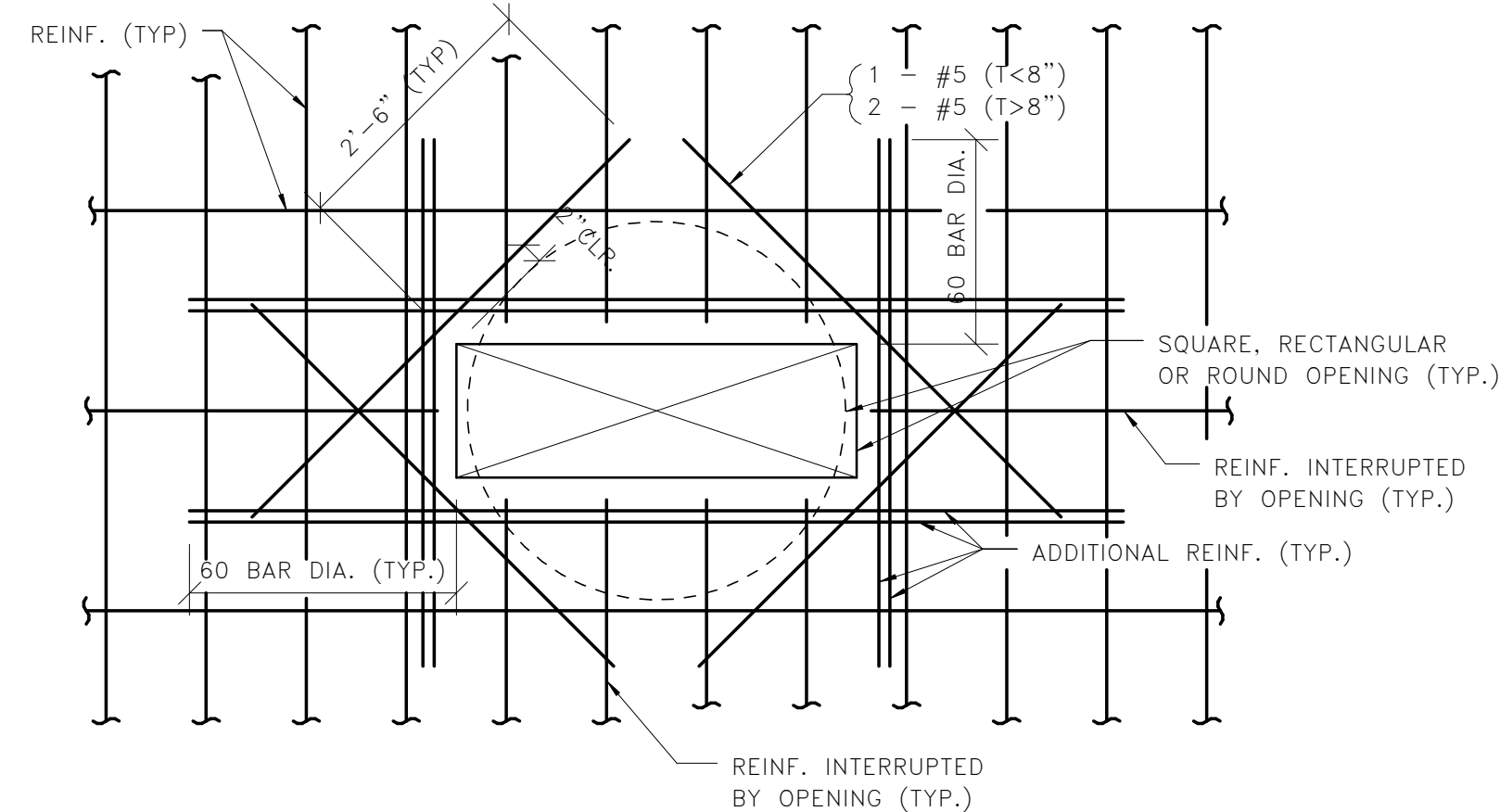
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Checked: AWD
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100% PLANS - FOR
CONSTRUCTION

Sheet
44 OF 68

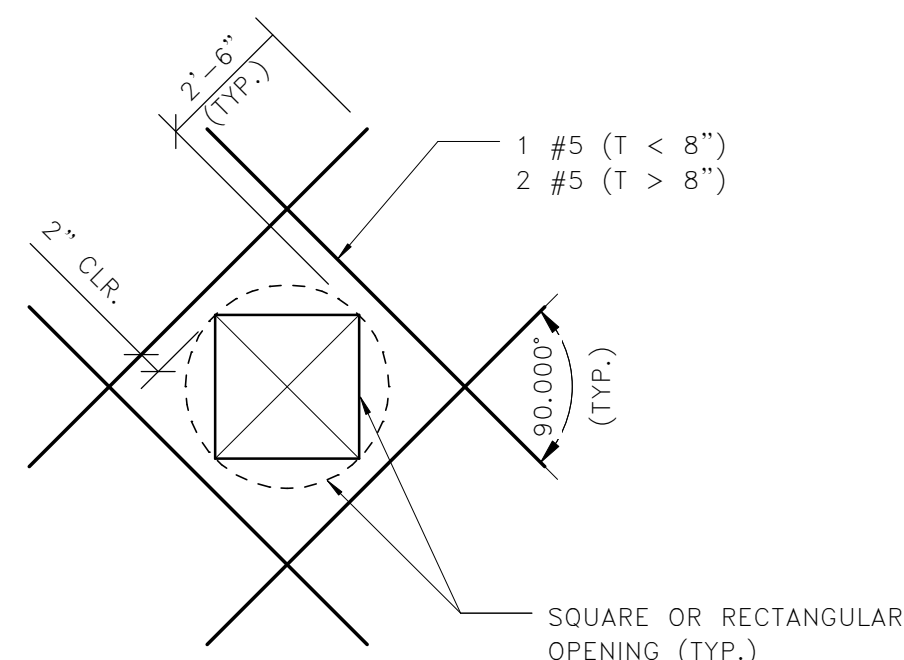


NOTES:

- T = FLOOR OR WALL THICKNESS
- EXTEND ADDITIONAL REINFORCEMENT BEYOND FACE OF OPENING A DISTANCE EQUAL TO 60 BAR DIAMETER HOOK ADDED REINFORCING AT SLAB EDGES OR ENDS OF WALL IF NECESSARY.
- ADDITIONAL REINFORCING EACH SIDE OF OPENING SHALL BE SAME SIZE AND EQUAL TO 1/2 OF INTERRUPTED REINFORCING. EQUALLY ON EACH SIDE OF OPENING.
- IF FLOOR OPENING IS FRAMED WITH STEEL OR CONCRETE BEAMS, ADDITIONAL REINFORCEMENT IS NOT REQUIRED EXCEPT FOR #5 DIAGONAL CORNER BARS

1 ADDITIONAL REINF. REQUIRED AT FLOOR AND WALL OPENING (WHERE REINFORCING IS INTERRUPTED)

S-501 NOT TO SCALE

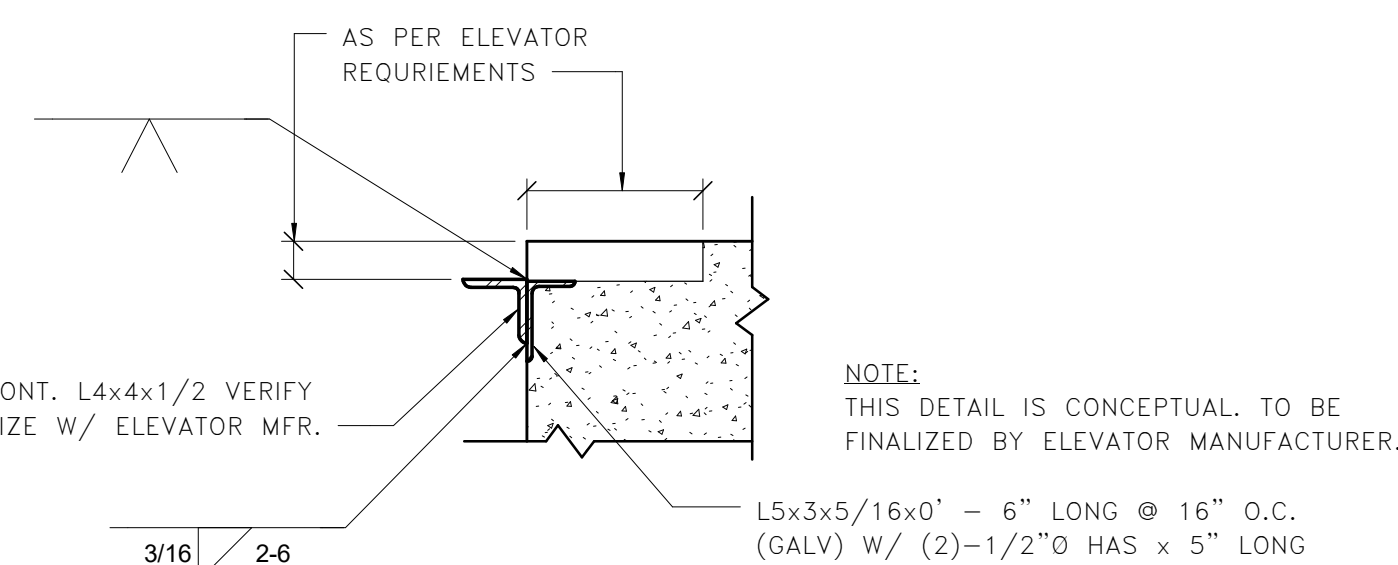


NOTES:

- T = FLOOR OR WALL THICKNESS
- ADDED REINFORCING NOT REQUIRED FOR OPENINGS LESS THAN 4" IN SIZE

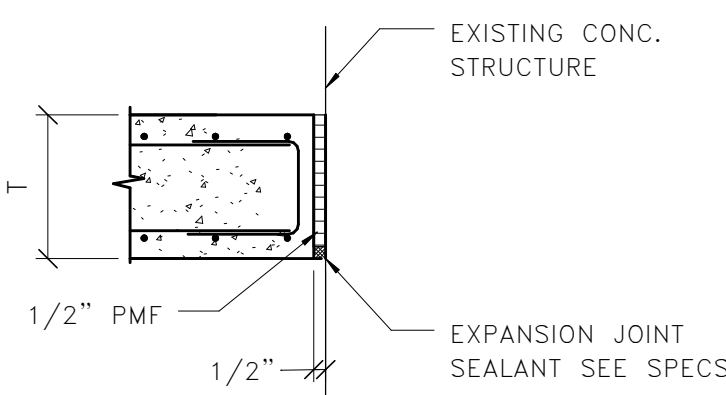
2 ADDITIONAL REINF. REQUIRED AT FLOOR AND WALL OPENING (WHERE REINFORCING IS NOT INTERRUPTED)

S-501 NOT TO SCALE



3 SILL AT ELEVATOR DETAIL

NOT TO SCALE

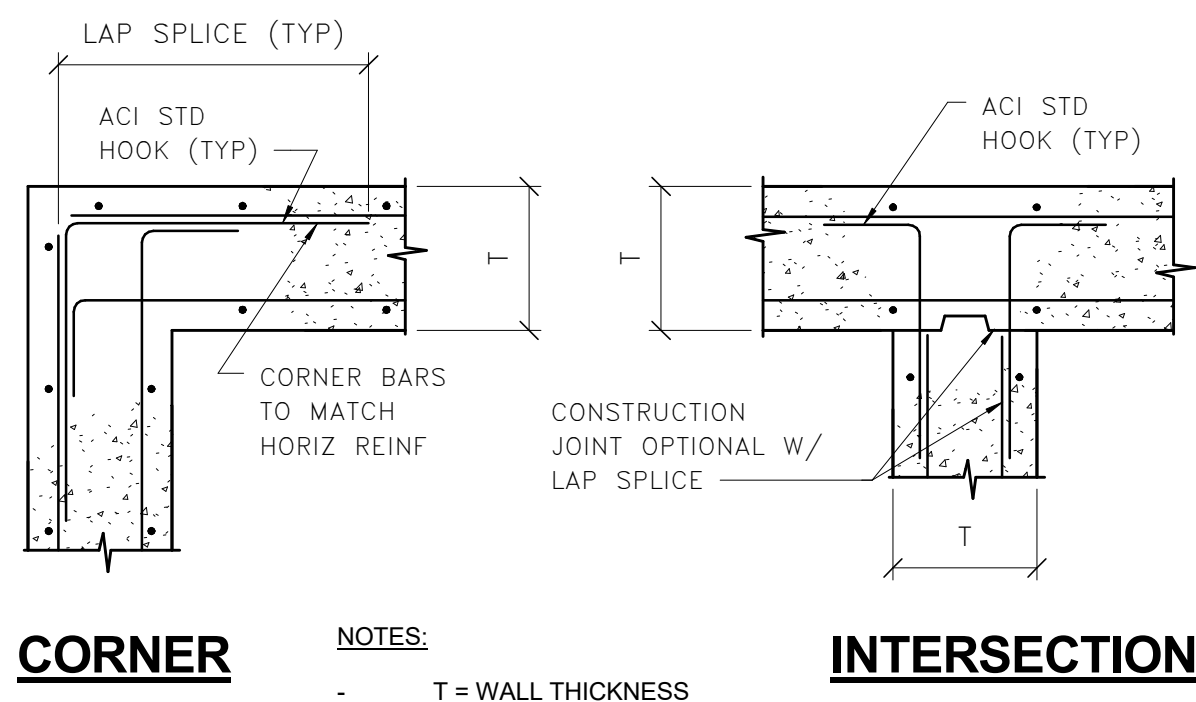


NOTES:

- DETAIL APPLIES TO INTERIOR CONCRETE WALLS
- T = WALL OR MAT THICKNESS

4 TYPICAL WALL ISOLATION JOINT (IJ) DETAIL

S-501 NOT TO SCALE



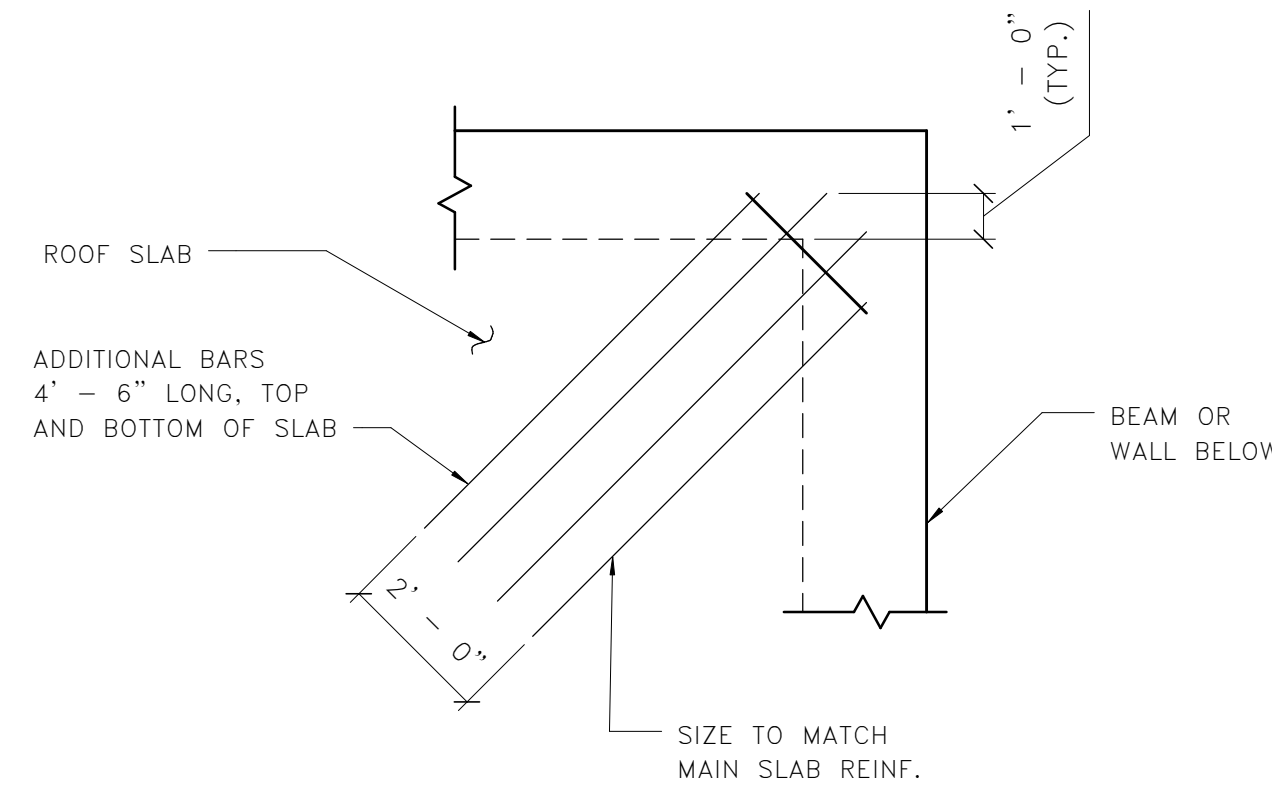
5 CORNER

NOTES:
T = WALL THICKNESS

INTERSECTION

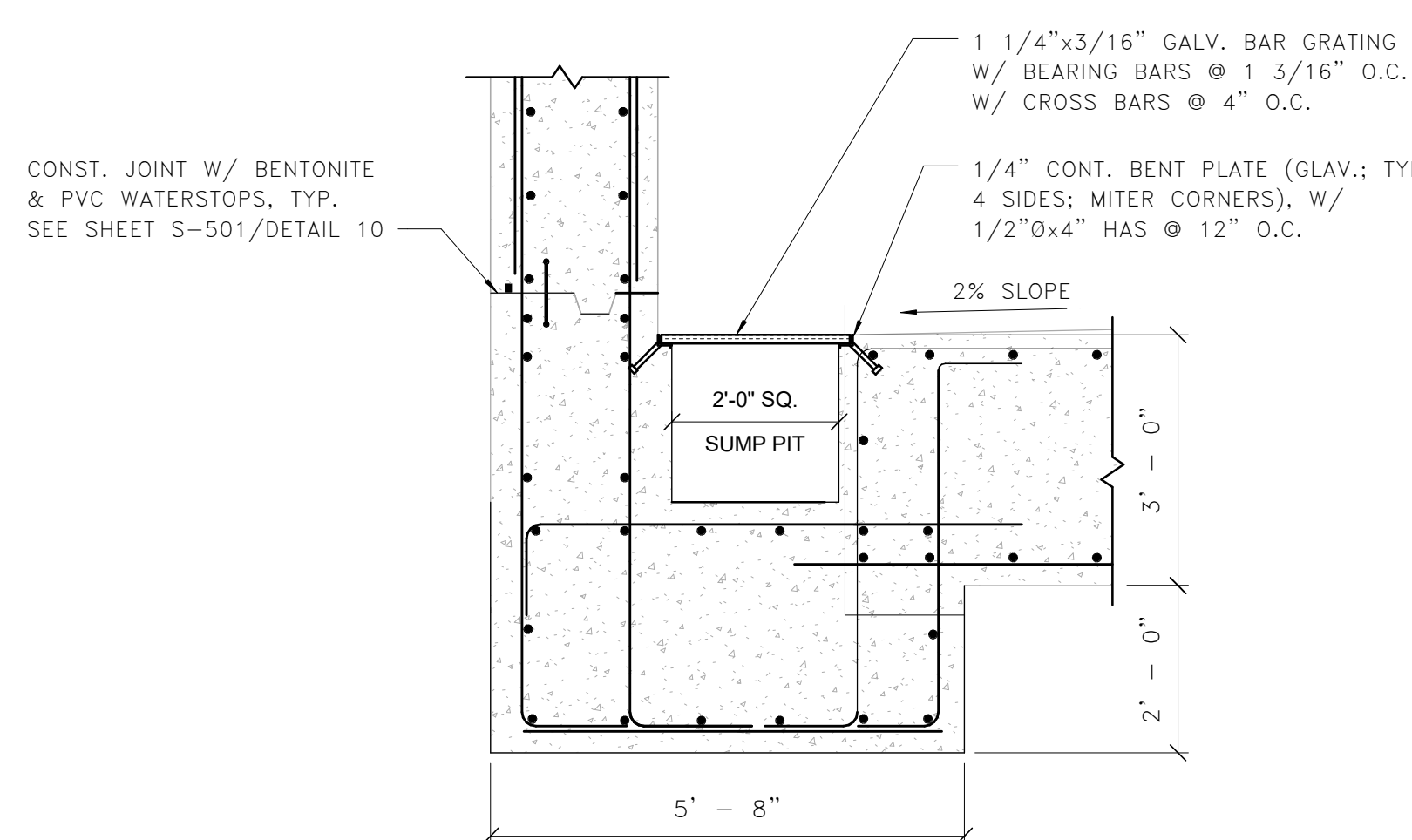
5 TYPICAL WALL CORNER & INTERSECTION DETAILS

S-501 NOT TO SCALE



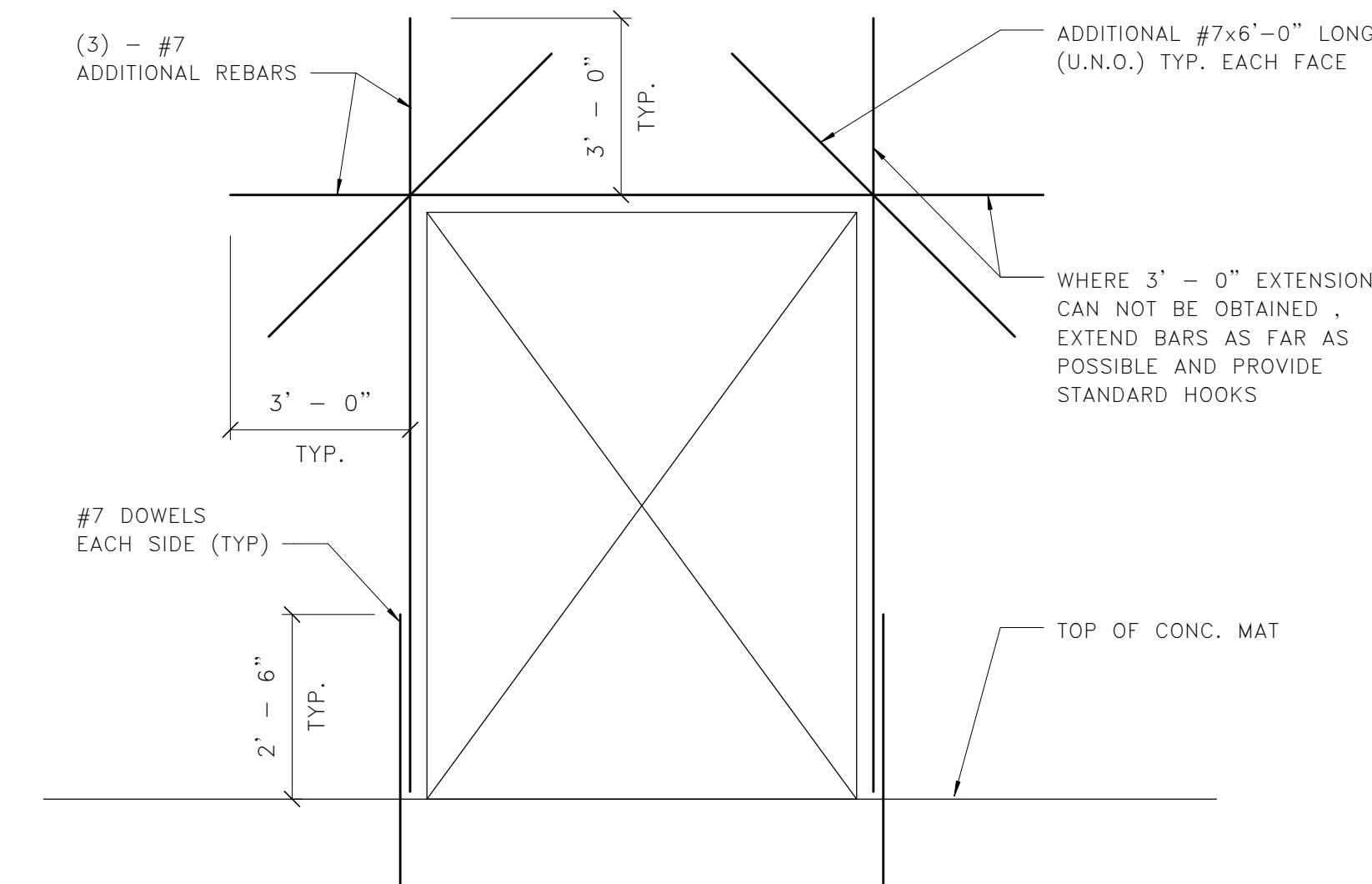
8 TYP. ADDT'L REINF. AT ROOF SLAB CORNER

S-501 NOT TO SCALE



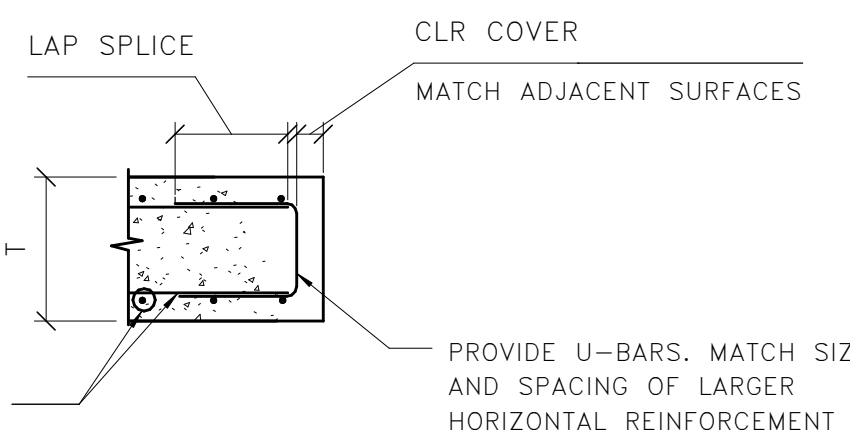
6 TYPICAL SUMP PIT DETAIL

S-501 NOT TO SCALE



9 TYPICAL ADDT'L WALL REINF. AT DOOR OPENING

S-501 NOT TO SCALE

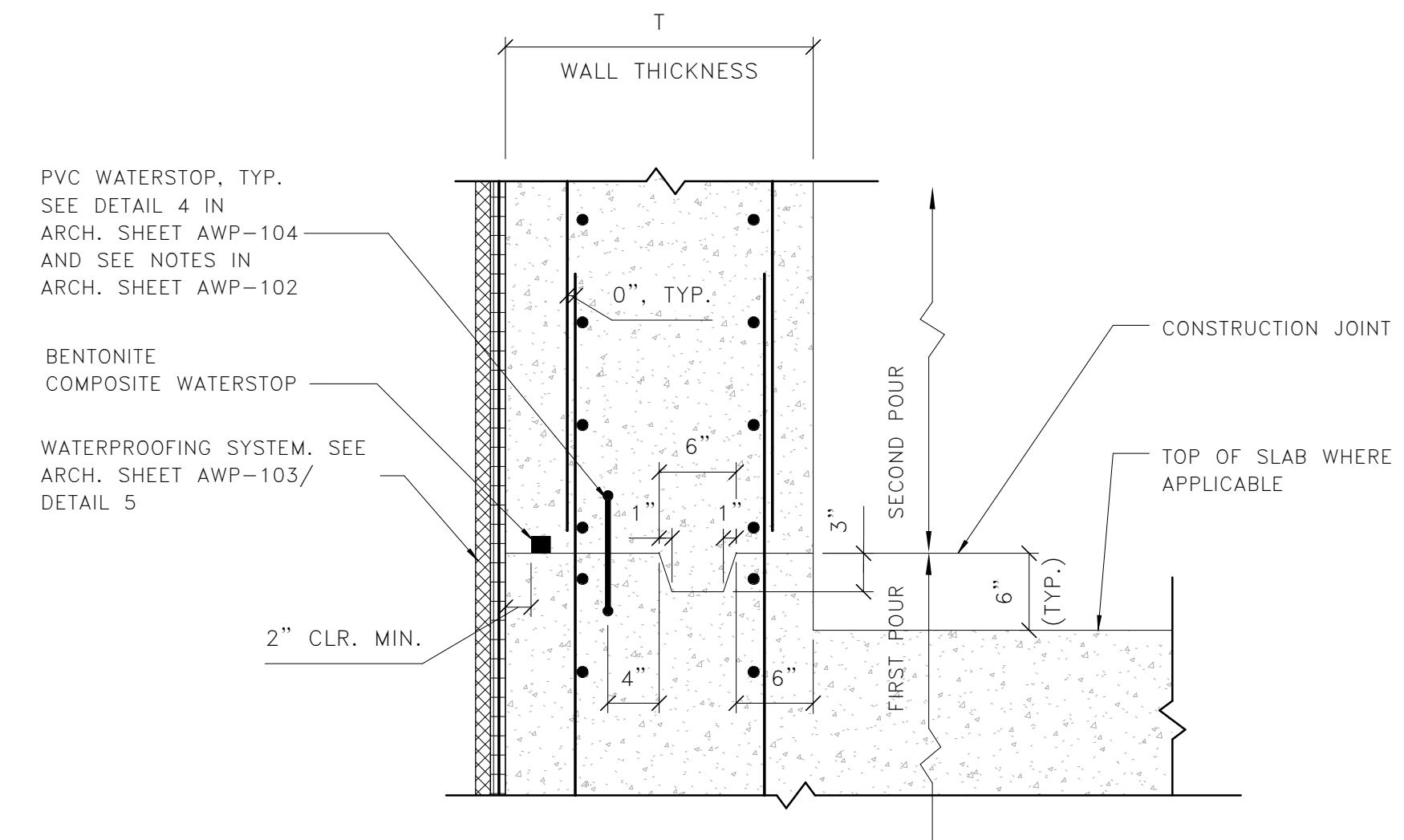


NOTES:

- DETAIL APPLIES TO CONCRETE MAT EDGES & WALL ENDS AND DISCONTINUED CONCRETE WALLS AT DOOR OPENINGS
- T = WALL OR MAT THICKNESS

7 TYPICAL EDGE/END REINF. DETAIL

S-501 NOT TO SCALE



10 TYPICAL CONSTRUCTION JOINT DETAIL

S-501 NOT TO SCALE

Seal



Approvals _____ Date _____

WMATA PROJECT MANAGER _____

FD&C BUREAU CHIEF _____

FD&C PROJECT MANAGER _____

TRANSIT BUREAU CHIEF _____

TRANSIT PROJECT MANAGER _____

WATER, SEWER STREETS BUREAU CHIEF _____

TRANSPORTATION DIRECTOR _____

Revisions _____ Date _____

ISSUED FOR CONSTRUCTION 11-20-2020

Designed: JCD

Drawn: ZKS

Checked: AWD

Miss Utility Transmittal #:

Filename: 2515872_S-3D0000.rvt

Path: I:\Projects\2515872\

Plotted: 5/6/2020 2:53:17 PM

Plotted by:

Scale: NONE

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CONCRETE REINFORCING DEVELOPMENT LENGTH (Ld) AND LAP SPLICE

COLUMNS			
BAR SIZE	LD		
f'c	3ksi	4ksi	5ksi
#3	17	15	13
#4	22	19	17
#5	28	25	22
#6	34	29	26
#7	49	43	38
#8	55	48	43
#9	62	54	48
#10	70	61	54
#11	78	67	60

BEAMS						
BAR SIZE	BOTTOM BARS			OTHER BARS		
	f'c	3ksi	4ksi	5ksi	3ksi	4ksi
#3	17	15	13	22	19	17
#4	22	19	17	30	27	23
#5	28	25	22	36	31	28
#6	34	29	26	44	38	34
#7	49	43	38	63	55	49
#8	55	48	43	72	63	56
#9	62	54	48	81	71	63
#10	70	61	54	92	80	71
#11	78	67	60	101	87	78

SLABS/MATS									
BAR SIZE	THICKNESS GREATER THAN 12"								
	ALL BARS			BOTT. BARS			ALL BARS		
f'c	3ksi	4ksi	5ksi	3ksi	4ksi	5ksi	3ksi	4ksi	5ksi
#3	17	15	13	17	15	13	22	19	17
#4	22	19	17	22	19	17	30	26	23
#5	28	25	22	28	25	22	36	31	28
#6	34	29	26	34	29	26	44	38	34
#7	49	43	38	49	43	38	63	55	49
#8	55	48	43	55	48	43	72	63	56
#9	62	54	48	62	54	48	81	71	63
#10	70	61	54	70	61	54	92	80	71
#11	78	67	60	78	67	60	101	87	78

WALLS												
BAR SIZE	VERTICAL BARS					HORIZONTAL BARS						
	CASE 1		CASE 2			CASE 1		CASE 2				
f'c	3ksi	4ksi	5ksi	3ksi	4ksi	5ksi	3ksi	4ksi	5ksi	5ksi		
#3	17	15	13	26	22	20	22	19	17	33	28	25
#4	22	19	17	34	29	26	30	27	23	44	38	34
#5	28	25	22	42	36	32	36	31	28	54	47	42
#6	34	29	26	50	44	39	44	38	34	65	56	50
#7	49	43	38	72	63	56	63	55	49	94	82	73
#8	55	48	43	83	72	64	72	63	56	107	93	83
#9	62	54	48	93	81	72	81	71	63	121	105	94
#10	70	61	54	105	92	81	92	80	71	137	119	106
#11	78	67	60	116	101	90	101	87	78	151	131	117

TABLE ASSUMPTIONS:

- A MINIMUM CLEAR COVER AS LISTED IN THE GENERAL NOTES.
- A MINIMUM CLEAR SPACING OF 3" BETWEEN BARS.
- fy=60 ksi
- NORMAL WEIGHT CONCRETE.
- FOR WALLS:
CASE 1 = CLEAR SPACING 2 db AND CLEAR COVER db
CASE 2 = OTHER THAN CASE 1

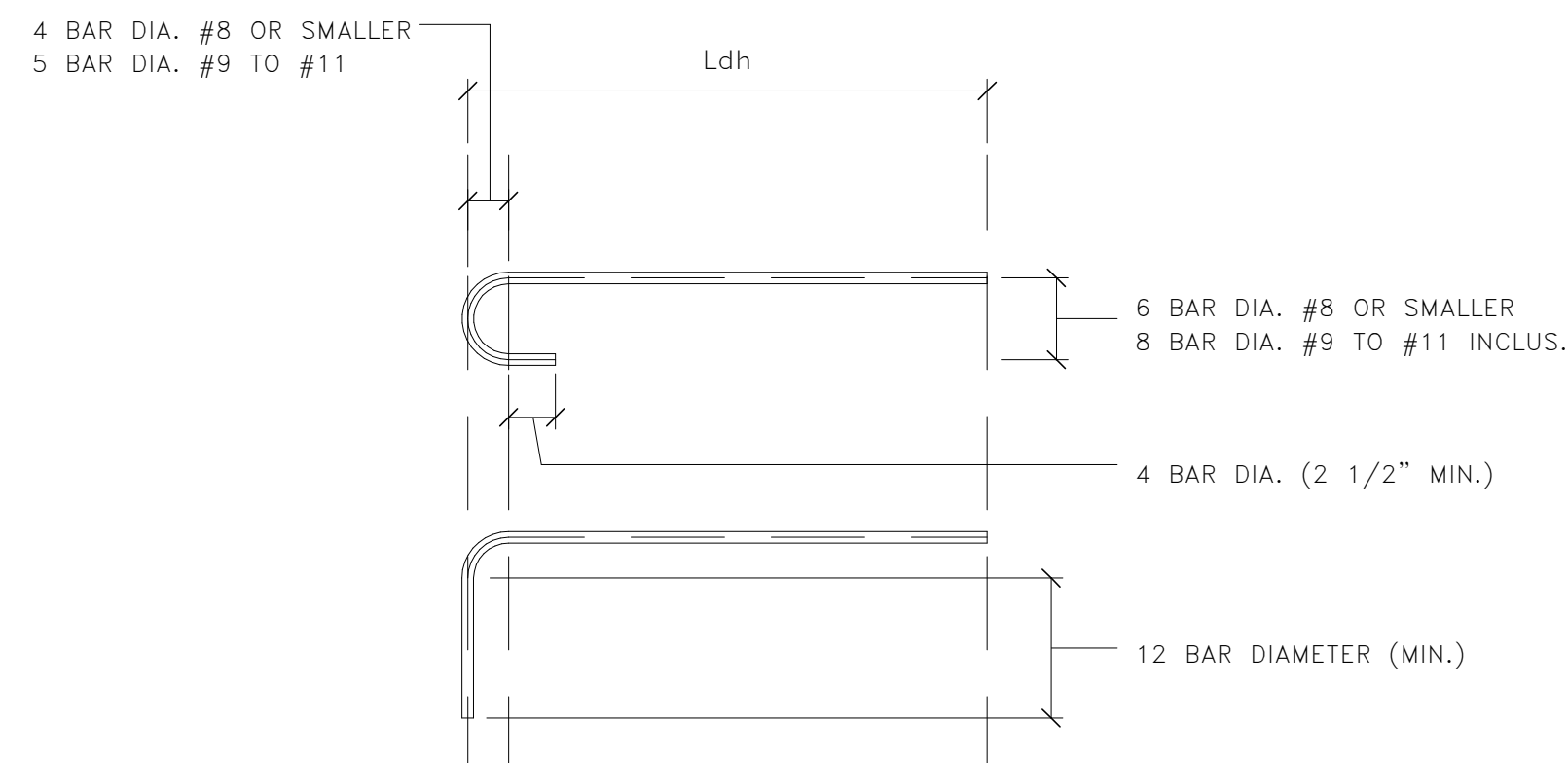
NOTES:

- TABLE ABOVE LIST VALUES OF "Ld" IN INCHES.
- MULTIPLICATION FACTORS FOR HIGHER STRENGTH CONCRETE:
f'c = 6 KSI LD = 0.91 x 5 KSI TABLE VALUE
f'c = 8 KSI LD = 0.79 x 5 KSI TABLE VALUE
f'c = 10 KSI LD = 0.71 x 5 KSI TABLE VALUE
f'c = 12 KSI LD = 0.64 x 5 KSI TABLE VALUE
- ALL LAP SPLICES SHALL BE 1.3 Ld UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3
- FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED VALUE BY 1.5.
- COMBINATIONS OF EFFECTS DUE TO THE CONCRETE STRENGTH, WEIGHT, AND EPOXY BARS ARE CUMULATIVE. Ld SHALL BE MULTIPLIED BY EACH FACTOR TO OBTAIN THE CORRECT VALUE.

CONCRETE REINFORCING DEVELOPMENT LENGTH (Ld) AND LAP SPLICE

6

S-502 NOT TO SCALE



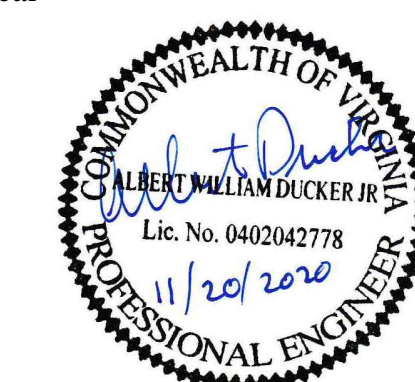
NOTE: FOR DEVELOPMENT LENGTH Ldh SEE SCHEDULE.

2

S-502 NOT TO SCALE

TYPICAL STANDARD HOOK

Seal



Approvals _____ Date _____

WMATA PROJECT MANAGER _____

FD&C BUREAU CHIEF _____

FD&C PROJECT MANAGER _____

TRANSIT BUREAU CHIEF _____

TRANSIT PROJECT MANAGER _____

WATER, SEWER STREETS BUREAU CHIEF _____

TRANSPORTATION DIRECTOR _____

Revisions _____ Date _____

ISSUED FOR CONSTRUCTION 11-20-2020

Project Name and Location

**Pentagon City Station
Elevator Project**
Typical Steel Details
South Hayes Street
S-503

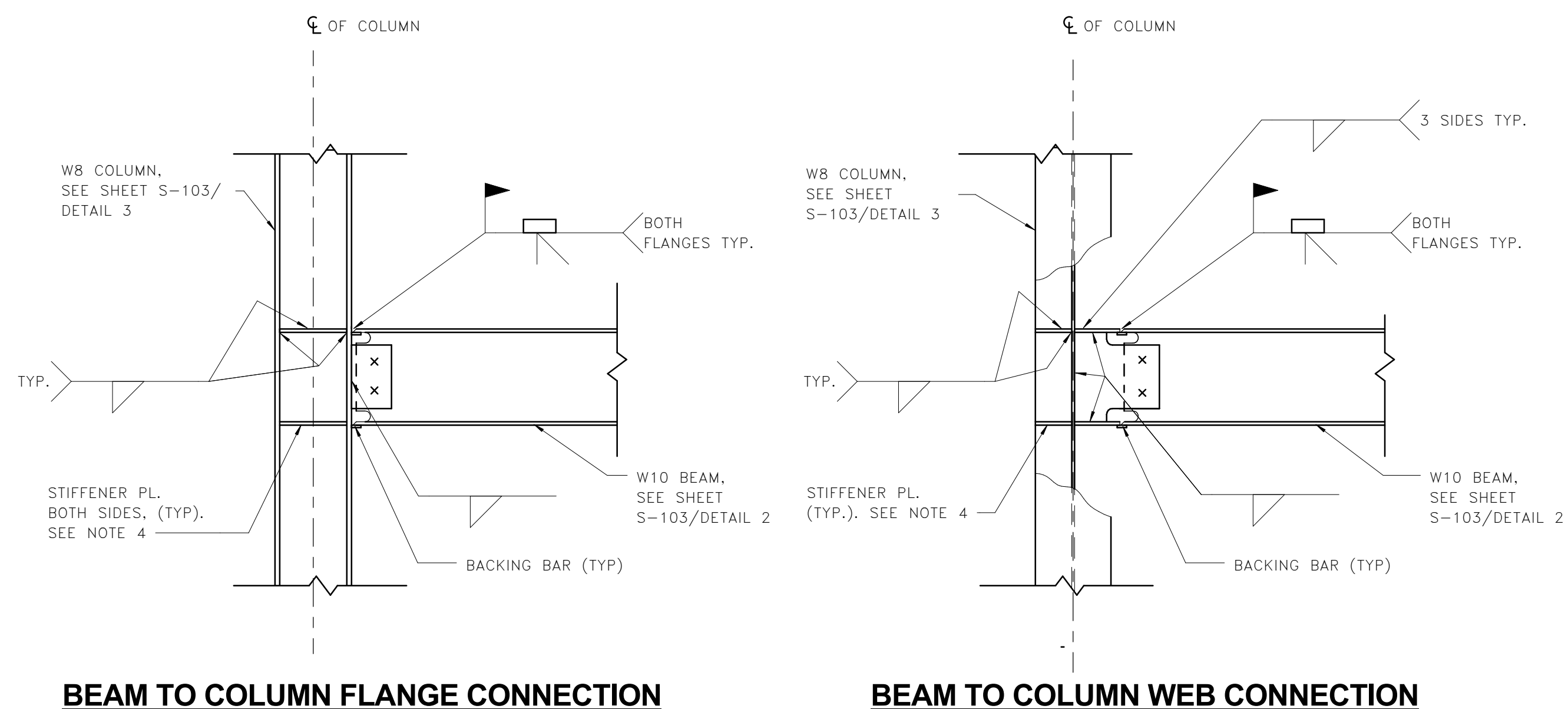
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Plotted by:

Scale: NONE

100% PLANS - FOR CONSTRUCTION

Sheet 46 OF 68



NOTES:

A. THE DETAILS OF THE MOMENT CONNECTION SHOWN ARE CONCEPTUAL ONLY. THE STEEL FABRICATOR'S ENGINEER SHALL DESIGN MOMENT CONNECTIONS FOR THE FULL MOMENT CAPACITY OF THE BEAM.

1. NUMBER AND SIZE OF BOLTS IN THE WEB.
2. THICKNESS OF BAKING BARS.
3. SIZE OF FILLET WELDS.
4. STIFFENER PLATE TO MATCH BEAM FLANGE THICKNESS MINIMUM, TOP & BOTTOM.
5. ADEQUACY OF COLUMN WEB FOR SHEAR.

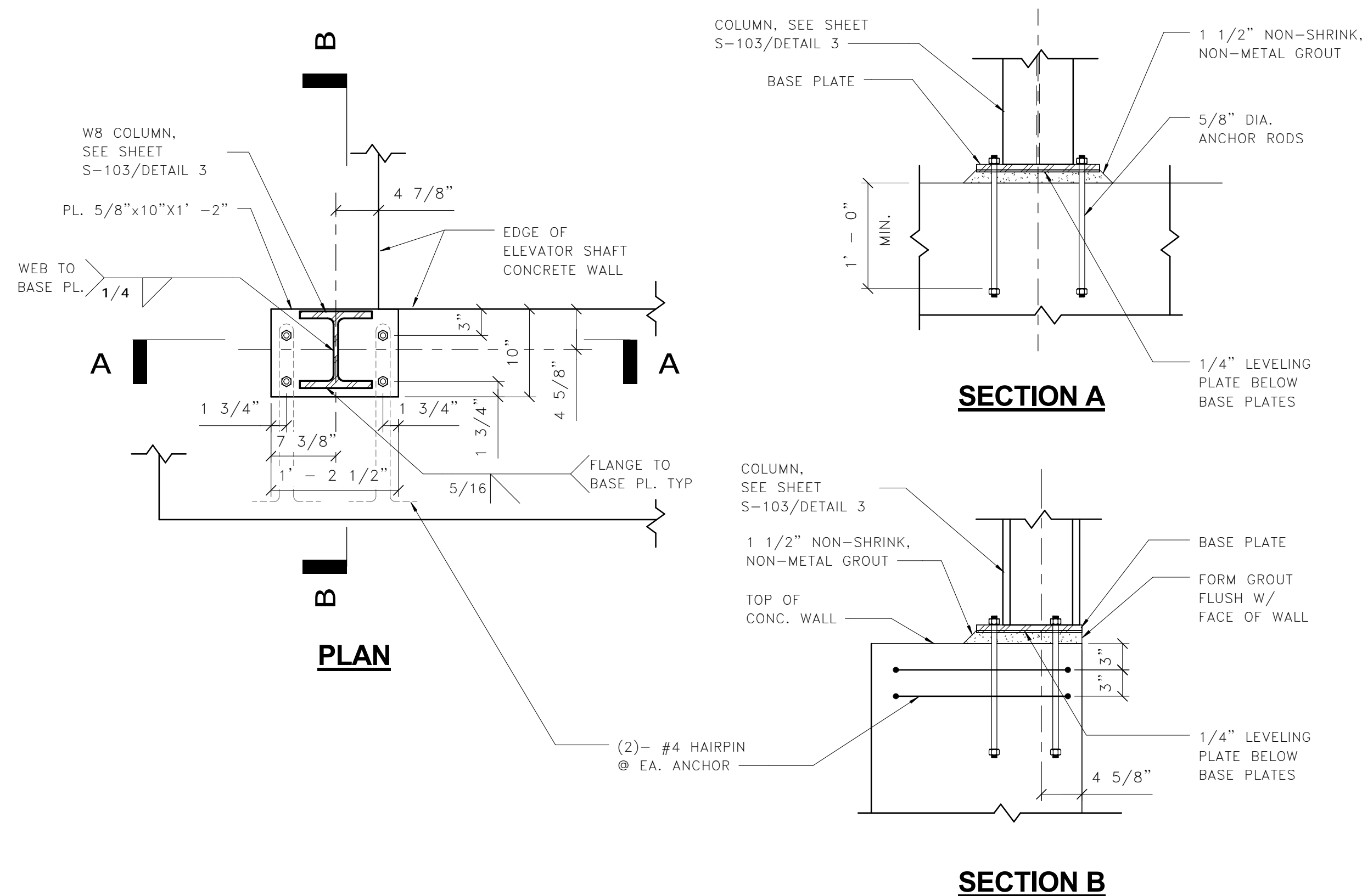
B. AT TOP LEVEL PROVIDE COLUMN CAP PLATE IN LIEU OF TOP STIFFENER.

BEAM TO COLUMN FLANGE CONNECTION

BEAM TO COLUMN WEB CONNECTION

**TYP. BEAM TO COLUMN MOMENT CONNECTION
DETAIL - FULLY RIGID**

1
S-503 NOT TO SCALE



TYPICAL COLUMN BASE PLATE DETAIL

2
S-503 NOT TO SCALE