STRUCTURAL NOTES & SPECIFICATIONS

BACKFILL MATERIAL

1. BACKFILL MATERIAL SHALL BE FREE FROM ORGANIC MATTER, CONSTRUCTION DEBRIS AND LARGE ROCKS (GREATER THAN 3"(THREE INCHES)). THE BACKFILL SHALL BE PLACED IN LAYERS, NOT GREATER THAN 8" (EIGHT INCHES), WATERED AND COMPACTED.

2. DO NOT BACKFILL AGAINST WALLS RETAINING EARTH UNTIL ELEMENTS PROVIDING LATERAL SUPPORT ARE COMPLETED. PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES OF OTHER WALLS BELOW GRADE.

FOUNDATIONS

3. ALL FOOTING AND FOUNDATIONS TO BEAR ON UNDISTURBED SOUND ROCK OR WELL COMPACTED GRANULAR ENGINEERED FILL COMPACTED TO 98% SPDD. BEARING MATERIAL IS TO REMAIN UNDISTURBED.

4. PROVIDE 2" CONCRETE BLINDING TO FOUNDATIONS PLACED ON COMPACTED FILL.

CONCRETE

5. EXPERIENCED PERSONNEL TO THE SATISFACTION OF THE ENGINEER SHALL MECHANICALLY VIBRATE ALL STRUCTURAL CONCRETE IN THE APPROVED MANNER. ALL CONCRETE TO BE ADEQUATELY VIBRO COMPACTED, ON PLACING, TO ENSURE THAT ALL VOIDS ARE REMOVED.

6. SLABS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE UNLESS SHOWN OTHERWISE.

7. ALL REINFORCED CONCRETE TO BE DESIGNED AND DETAILED IN ACCORDANCE WITH NBC 2005, CSA-A23.1 AND CSA-A23.3 UNLESS NOTED OTHERWISE.

8. CEMENT: ASTM C150; TYPE I – CAN3-A23.1, TYPE 10

9. AGGREGATES: ASTM C33 NORMAL WEIGHT.

10. REINFORCED CONCRETE TO HAVE 28 DAY CUBE COMPRESSIVE STRENGTH OF GRADE 4,000 PSI CONCRETE USING FOREIGN GRANITE AGGREGATE 20mm MAXIMUM SIZE.

11. MISCELLANEOUS FILL TO BE 2,000 PSI

12. SURFACE FINISH TO SUIT THE ARCHITECTURAL REQUIREMENTS AND CONFIRMED IN THE STRUCTURAL SPECIFICATION.

13. THE QUANTITY OF TEST CYLINDERS CAST BY THE GENERAL CONTRACTOR AND THE AGE AT WHICH THEY ARE TESTED SHALL BE AS DIRECTED BY THE ENGINEER AND CONFIRMED IN THE STRUCTURAL SPECIFICATION.

14. CONCRETE COVER TO REINFORCEMENT TO BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

- WHERE CONCRETE IS CAST DIRECTLY AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
- PAD & STRIP FOUNDATIONS:
  TOP = 2½"
  BOTTOM AND SIDES = 3"
- CONCRETE ELEMENTS EXPOSED TO WEATHER (PERIMETER COLUMNS AND BEAMS/SLAB EDGES/CANTILEVER SLABS/PERIMETER WALLS/ETC.) = 2½ "
- CONCRETE ELEMENTS FORMING THE 'WATER TANKS':
  EXTERNAL = 3"
  INTERNAL = 2½"
- CONCRETE ELEMENTS ENTIRELY WITHIN THE VAPOUR BARRIER OF THE BUILDING ENVELOPE:
  SLABS = 1½"
  COLUMNS = 2"
  BEAMS = 1½"
  WALLS = 2"

REINFORCING STEEL.

16. ALL REINFORCEMENT TO ASTM A615 OR CAN/CSA G30.18M – GRADE 400R HIGH YIELD Fy – 60ksi (400MPa). ALL REINFORCEMENT TO BE HOT DIPPED GALVANISED AND SHOULD BE TREATED WITH A CHROMATE WASH.

17. MINIMUM REINFORCEMENT LAPS TO BE AS FOLLOWS:

T6	= 12" (TWELVE INCHES)
T8	= 15" (FIFTEEN INCHES)
T10	= 18" (EIGHTEEN INCHES)
T12	= 24" (TWENTY FOUR INCHES)
T16	= 32" (THIRTY TWO INCHES)
T20	= 40" (FORTY INCHES)
T25	= 60" (SIXTY INCHES)
WIRE MESH	= 12" (TWELVE INCHES)

18. MESH REINFORCEMENT TO HAVE A MINIMUM LAP OF 18" UNLESS NOTED OTHERWISE. ALL LAPS IN MESH TO BE NESTED.

19. LOCATION OF ALL LAPS SHALL BE SHOWN ON REINFORCEMENT STEEL SHOP DRAWINGS AND SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.

20. ALL LAPS AND INTERSECTIONS OF BARS SHALL BE SECURELY CONNECTED WITH GALVANISED WIRE OF A SUITABLE SIZE OR OTHER APPROVED METHOD OF FIXING.

21. REINFORCEMENT ON SPECIFIC CONTRACTOR'S RC DETAIL DRAWINGS WILL TAKE PRECEDENCE OVER REINFORCEMENT SHOWN ON BRUNEL DRAWINGS. ALL NOTES ON SPECIFIC CONTRACTOR'S RC DETAIL DRAWINGS TO BE CROSS REFERENCED WITH THE FOLLOWING NOTES. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF BRUNEL FOR CONFIRMATION.

22. ALL REINFORCEMENT SHALL BE ACCURATELY PLACED, SECURED AND MAINTAINED IN POSITION. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY STOOLS, CHAIRS, AND SPACERS REQUIRED TO SUPPORT AND RESTRAIN THE REINFORCEMENT.

23. HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE WALLS ARE NOT PERMITTED. LEAVE CHASES AND POCKETS IN WALLS FOR SEATING OF SLABS AND BEAMS.

24. UNLESS OTHERWISE SPECIFIED ON PLANS PROVIDE TEMPERATURE REINFORCEMENT FOR FRAMED ONE-WAY OR TWO-WAY SLABS IN ACCORDANCE WITH TYPICAL DETAILS.

25. BARS MARKED CONTINUOUS SHALL BE TERMINATED IN HOOKS AND DEVELOPED BY CLASS B LAPS WHERE SPLICED.

26. PROVIDE CONTINUOUS GALVANISED VERTICAL DOVETAIL ANCHOR SLOTS IN ALL CONCRETE SURFACES ABUTTING MASONRY WALLS AND AT 2'-0" CENTRES IN ALL CONCRETE SURFACES WITH MASONRY VENEER.

27. CHAMFER ALL EXPOSED CONCRETE CORNERS 3/4" x 3/4" MINIMUM UNLESS NOTED OTHERWISE.

28. INSIDE FACE OF ALL POUR STOP ENDS TO BE COATED WITH CONCRETE RETARDER. CONCRETE FACE IS TO BE POWER WASHED TO PROVIDE A CLEAN AND ROUGHED SURFACE TO FULL AMPLITUDE OF AT LEAST 1/5".

MASONRY WALLS

29. THE AVERAGE COMPRESSIVE STRENGTH OF MASONRY UNITS SHALL BE 2900 PSI BASED ON THE NET AREA OF THE BLOCK CELL. MASONRY UNITS SHALL CONFORM TO ASTM C90. ALL BLOCKWORK SHALL BE LAID IN RUNNING BOND U.N.O.

30. MORTAR SHALL BE 'TYPE S' IN ACCORDANCE WITH ASTM C270.

31. GROUT FOR MASONRY UNITS SHALL BE 3000 PSI CONCRETE WITH AN 8" SLUMP.

32. UNLESS NOTED OTHERWISE PROVIDE BOND BEAM AT TOP OF WALL REINFORCED WITH 2-#4 BARS CONTINUOUS.

33. FILLED BLOCK WALLS SHALL BE CONSTRUCTED IN A MAXIMUM OF 4'-0" HIGH LIFTS. CONCRETE TO BE STOPPED 2" FROM THE TOP OF THE BLOCK TO ALLOW THE NEXT LIFT TO KEY TOGETHER. ENSURE ADEQUATE LAP LENGTH OF VERTICAL REINFORCING IS OBTAINED PRIOR TO FILLING BLOCKS.

34. ALL OPENINGS IN MASONRY WALLS ARE TO BE SPANNED BY REINFORCED CONCRETE LINTELS.

35. MINIMUM BEARING OF REINFORCED CONCRETE LINTELS AND BEAMS ONTO BLOCK WALLS SHALL BE 8" U.N.O.

36. ALL LAP SPLICES IN BLOCK WORK REINFORCING SHALL BE AS NOTED IN REINFORCING STEEL NOTES.

37. BLOCK WALLS BUTTING UP TO CONCRETE PIERS OR COLUMN ENCASEMENTS SHALL BE TOOTHED EVERY 2ND COURSE WITH 8" KEY INTO BLOCK WORK WALL.

38. BLOCK WALLS BUTTING UP TO STEEL FRAMEWORK SHALL BE BONDED EVERY SECOND COURSE WITH APPROVED MECHANICAL FASTNERS.

39. UNLESS NOTED OTHERWISE ALL MASONRY WALLS REQUIRING REINFORCEMENT TO CONSIST OF EITHER:

A.) 2-T6 BARS AT 16" C/C OR EVERY SECOND COURSE WITH 1½" MIN. COVER FROM THE OUTSIDE OF THE BLOCKS.

B.) 'DUR-O-WALL' TRUSS TYPE REINFORCING NUMBER 9 GAUGE, GALVANIZED WIRE (OR EQUIVALENT BRICK FORCE MESH). HORIZONTAL REINFORCING IS TO BE PLACED AT 16" C/C (EVERY SECOND COURSE) U.N.O.

DATE	NO:	REVISION
APR. 2026	3	ISSUED FOR TENDER
JULY 2022	2	ISSUED FOR BUILDING PERMIT
APR. 2022	1	ISSUED PROGRESS DRAWINGS

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PROJECT:

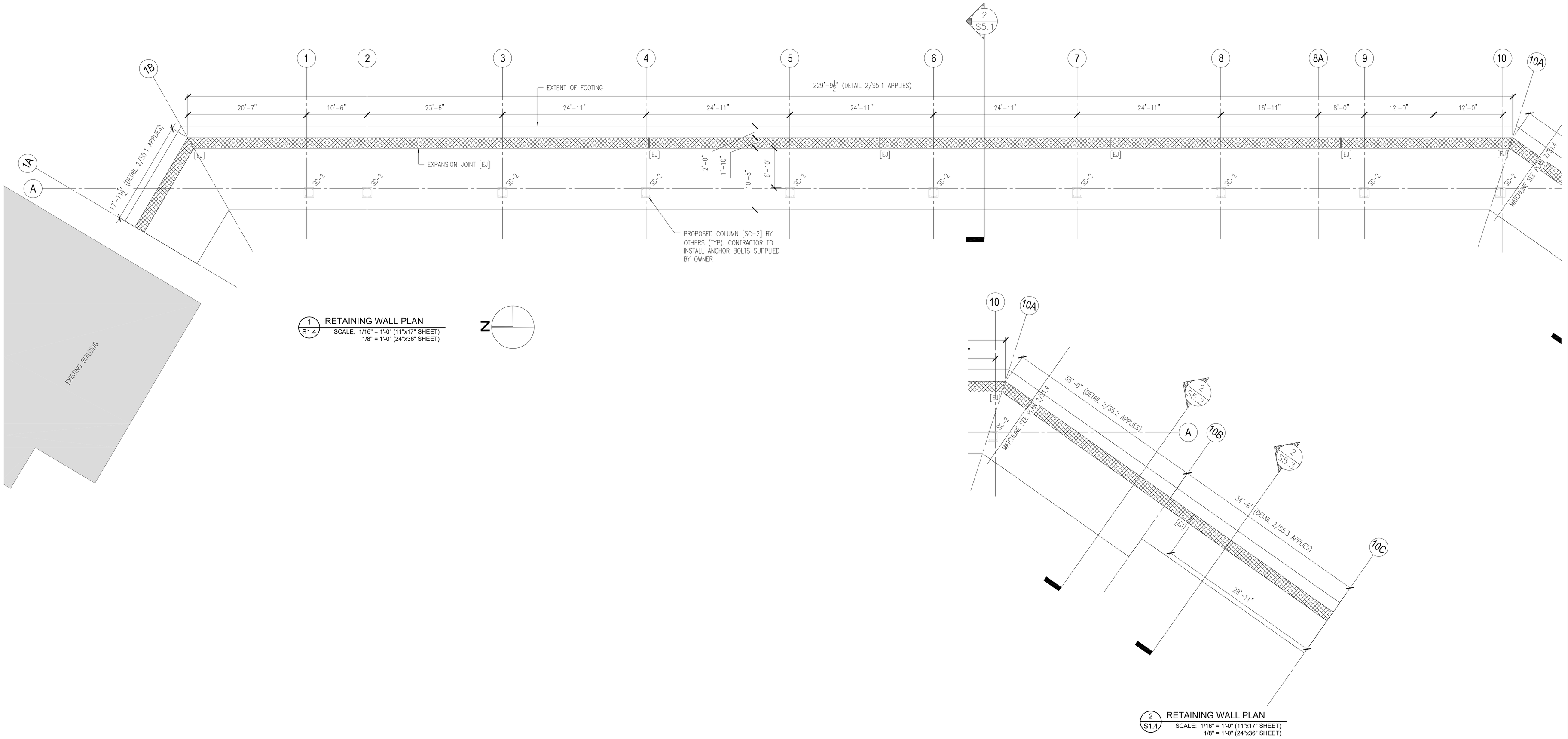
AGRICULTURAL SERVICES CENTER
38 SCHOOLS DRIVE
DEVONSHIRE, BERMUDA

TITLE:

GENERAL STRUCTURAL NOTES & SCHEDULES

SCALE:	AS SHOWN	JOB NO:	21-057
DRAWN BY:	MK/JC	DRAWING #:	**S.0**
DATE:	NOVEMBER 2021		

DRAWING SCALE SHOWN IS FOR FULL-SIZE DRAWINGS. DRAWINGS PLOTTED ON 11"x17" SHEETS ARE HALF SCALE SHOWN (1/4"=1'-0" ON 24"x36" SHEET = 1/8"=1'-0" ON 11"x17" SHEET)



1 S1.4 RETAINING WALL PLAN
SCALE: 1/16" = 1'-0" (11"x17" SHEET)
1/8" = 1'-0" (24"x36" SHEET)

2 S1.4 RETAINING WALL PLAN
SCALE: 1/16" = 1'-0" (11"x17" SHEET)
1/8" = 1'-0" (24"x36" SHEET)

DATE	NO:	REVISION
APR. 2026	1	ISSUED FOR TENDER

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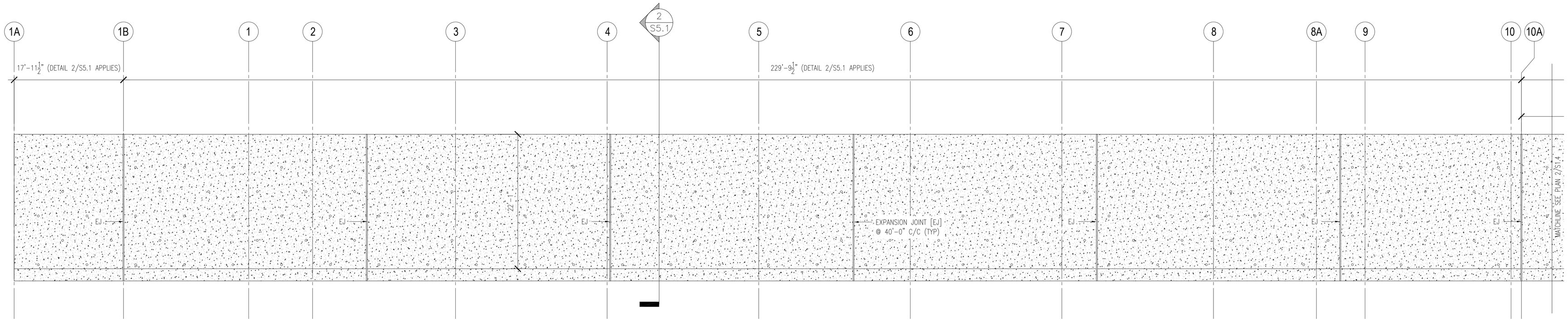
PROJECT:
AGRICULTURAL SERVICES CENTER 38 SCHOOLS DRIVE DEVONSHIRE, BERMUDA

TITLE:
RETAINING WALL PLAN

SCALE:	AS SHOWN	JOB NO:	21-057
DRAWN BY:	JC	DRAWING #:	**S1.4**
DATE:	MAR. 2026		



1 / S3.3 ELEVATION
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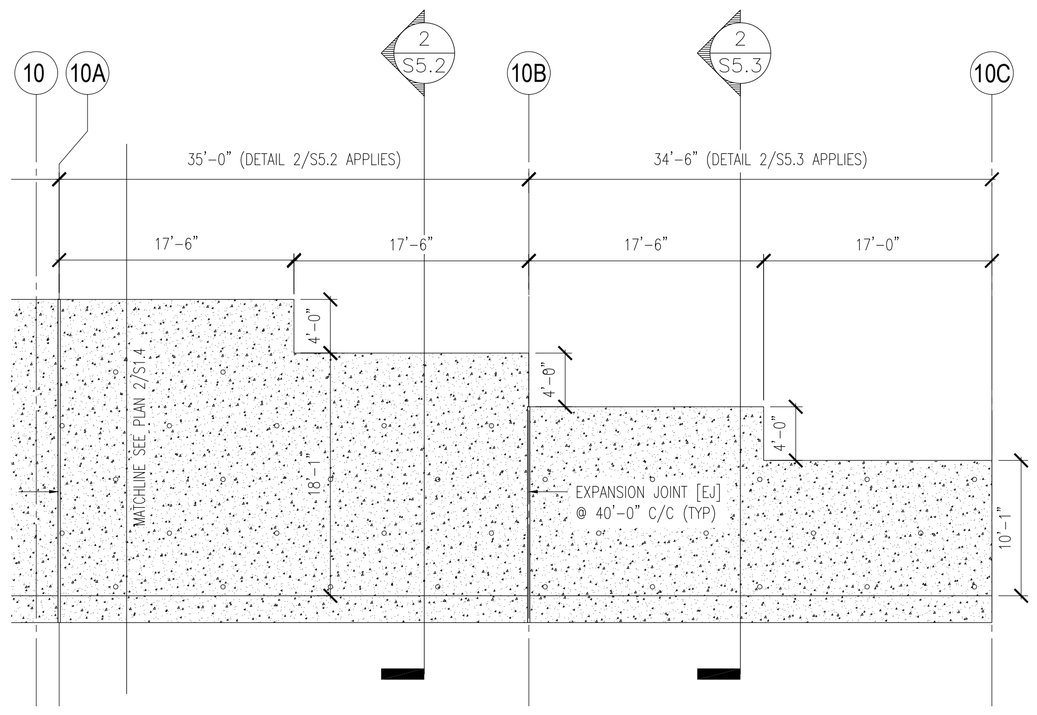
1/8" = 1'-0" (24"x36" SHEET)



2 / S3.3 ELEVATION
SCALE: 1/16" = 1'-0" (11"x17" SHEET)
1/8" = 1'-0" (24"x36" SHEET)

APR.2026	1	ISSUED FOR TENDER
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TITLE:
ELEVATION

SCALE:	AS SHOWN	JOB NO:	21-057
DRAWN BY:	JC	DRAWING #:	**S3.3**
DATE:	APR 2026		

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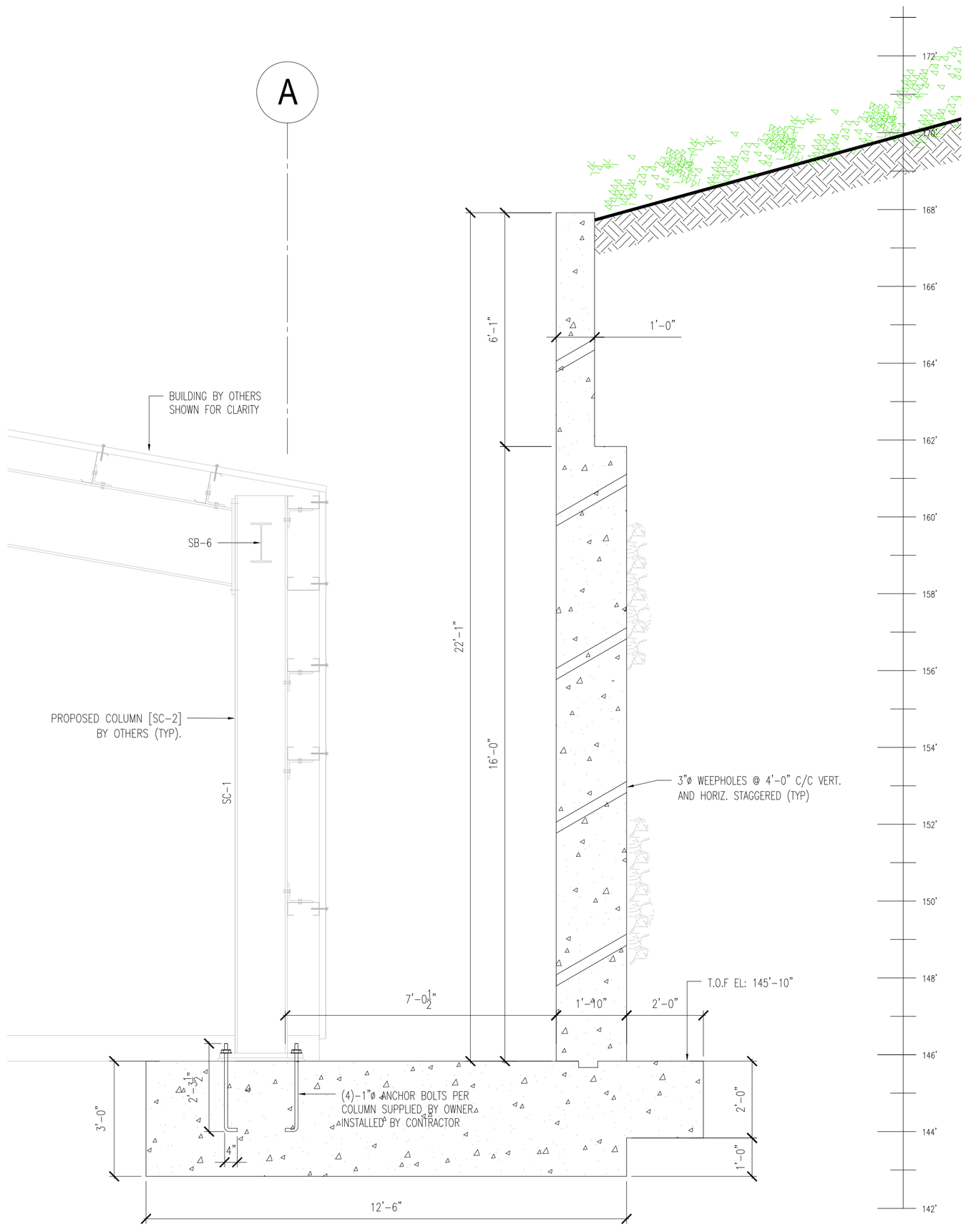

1 S5.1 SECTION
SCALE: 1/4" = 1'-0" (11"x17" SHEET)
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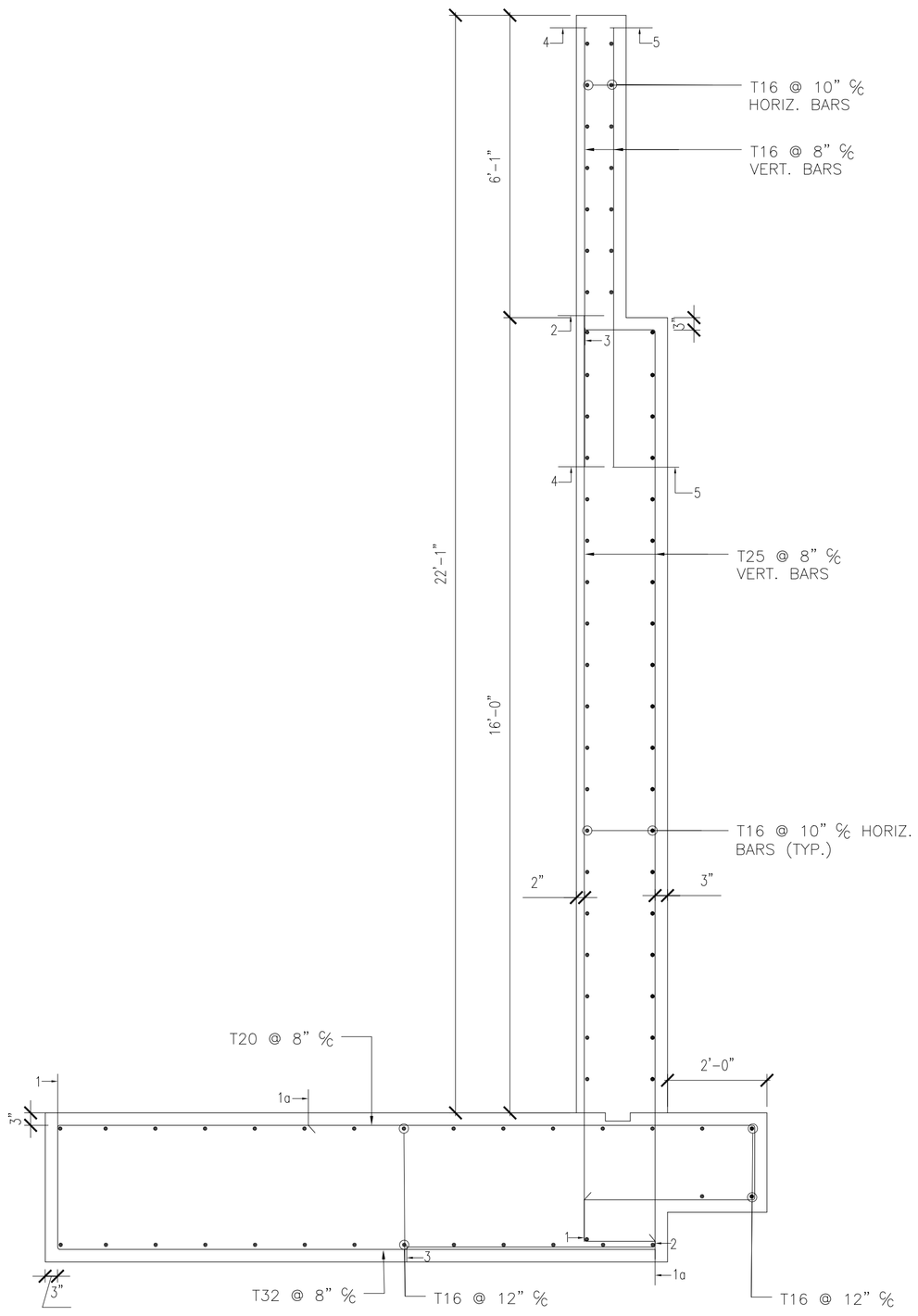

2 S5.1 SECTION
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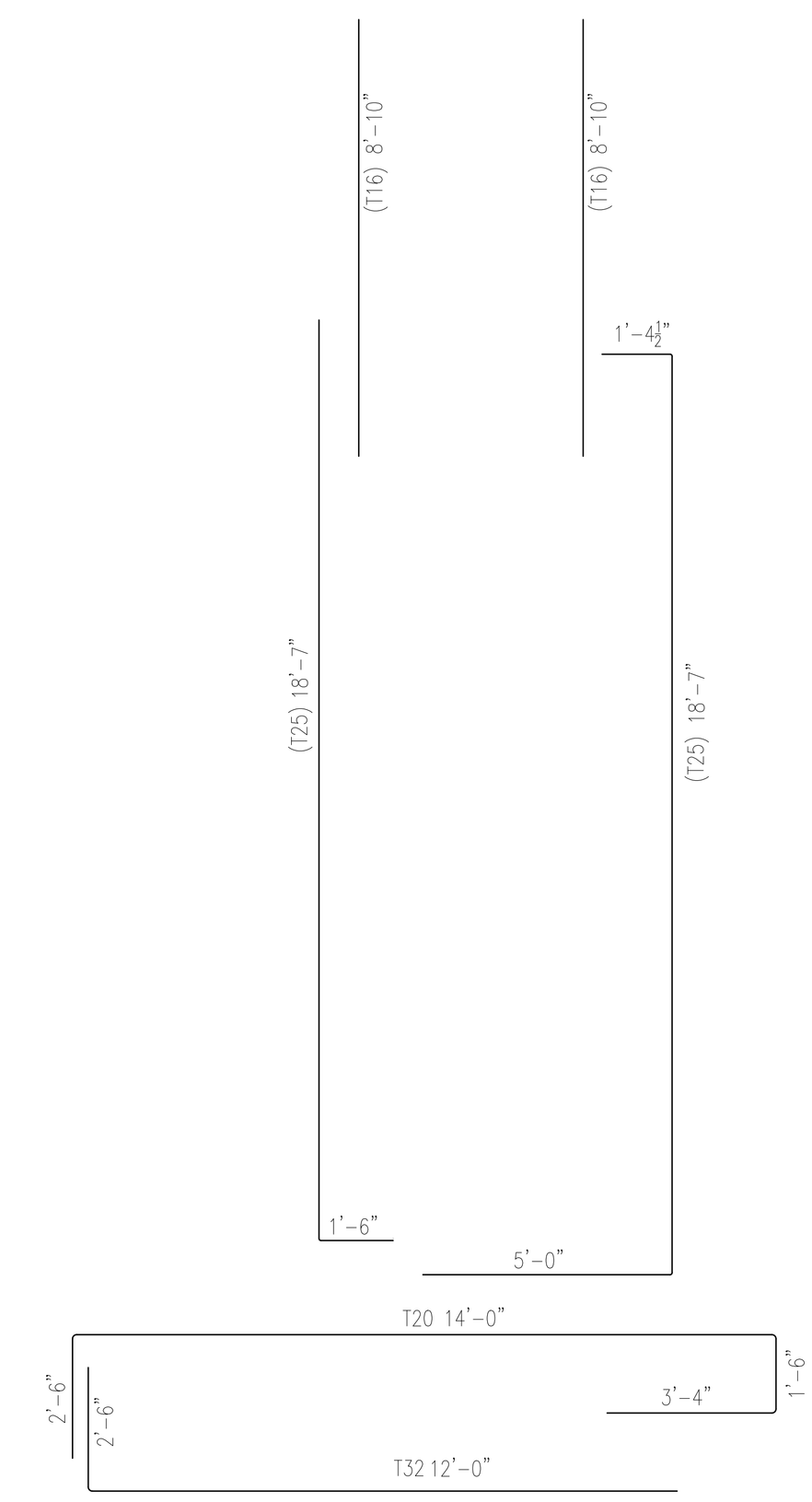
1/2" = 1'-0" (24"x36" SHEET)



3 S5.1 REINFORCEMENT DETAIL OF (2/S5.1)
SCALE: 1/4" = 1'-0" (11"x17" SHEET)
1/2" = 1'-0" (24"x36" SHEET)

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TITLE:
SECTION

SCALE:	AS SHOWN	JOB NO:	21-057
DRAWN BY:	JC	DRAWING #:	**S5.1**
DATE:	APRIL 2026		

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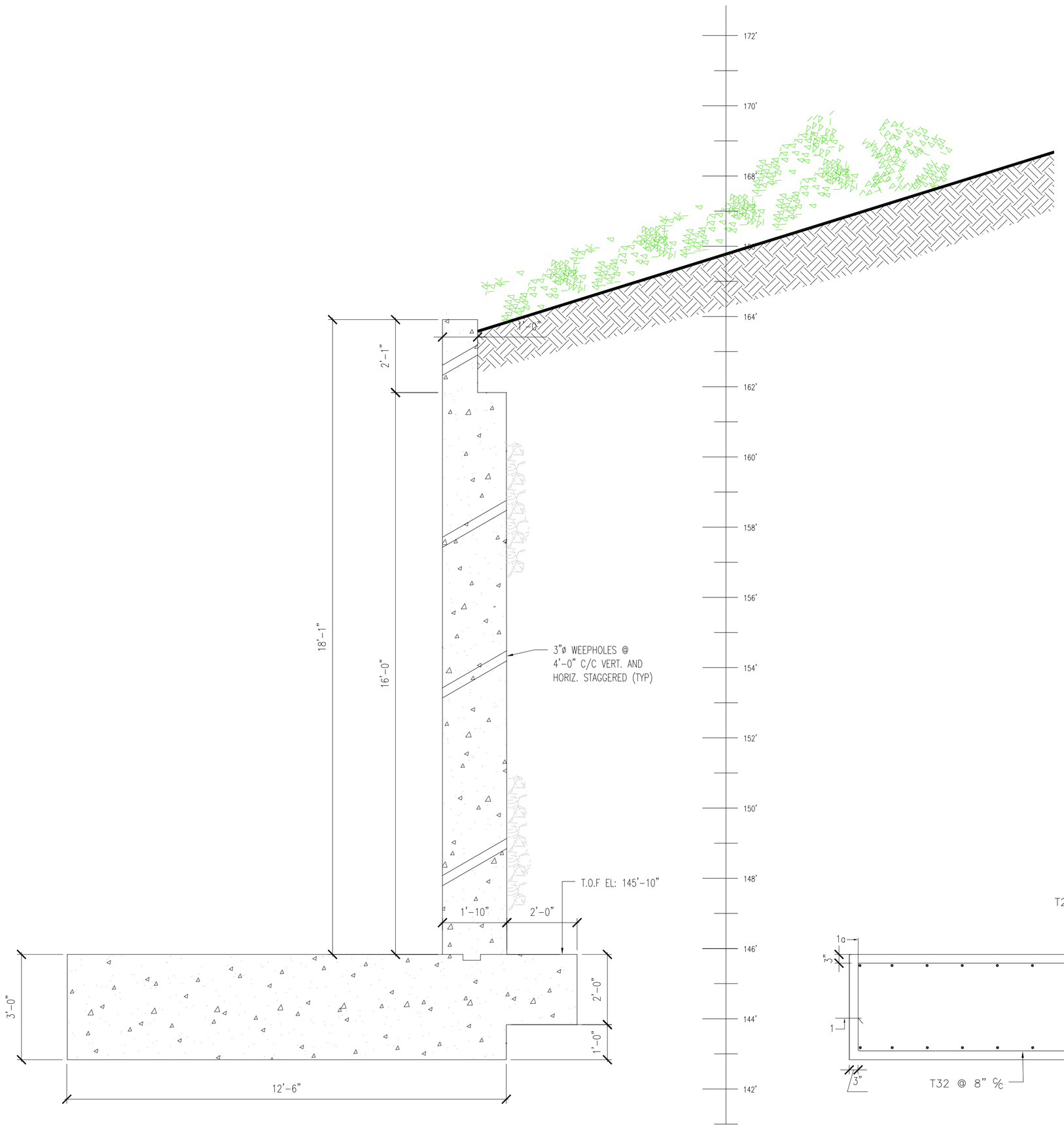
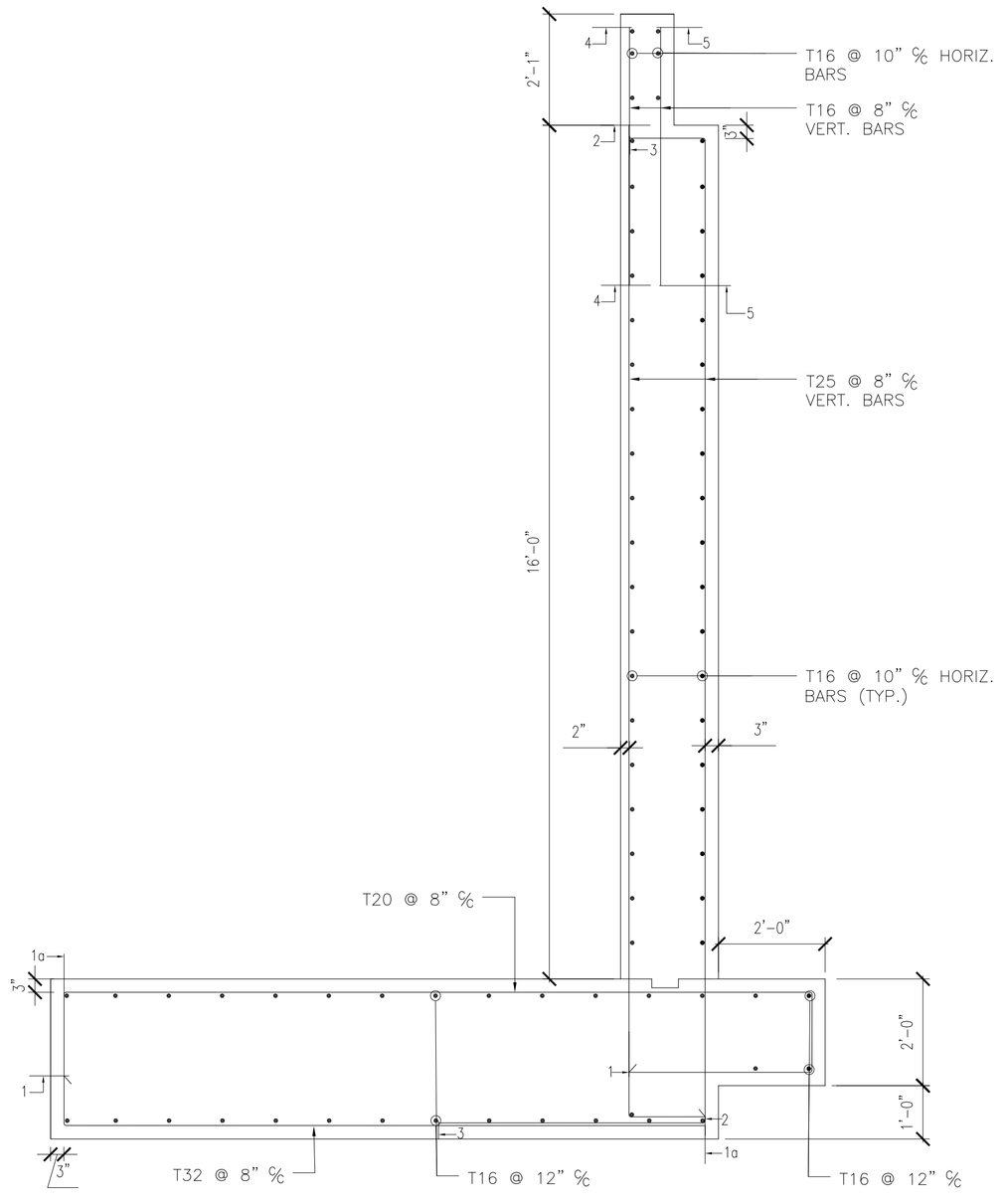


1 S5.2 SECTION
SCALE: 1/4" = 1'-0" (11"x17" SHEET)
1/2" = 1'-0" (24"x36" SHEET)



2 S5.2 SECTION
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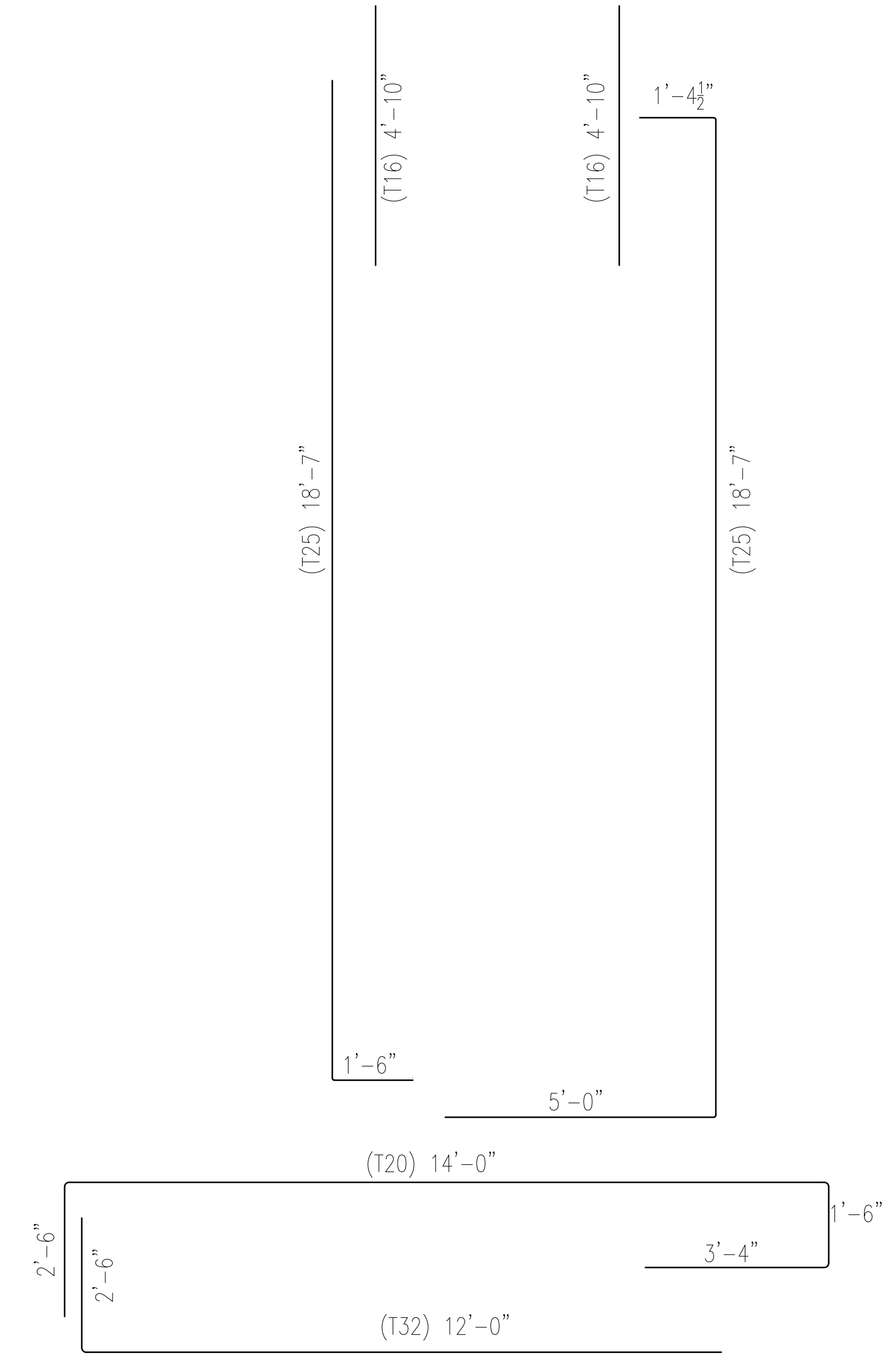

3 S5.2 REINFORCEMENT DETAIL OF (2/S5.2)
SCALE: 1/4" = 1'-0" (11"x17" SHEET)
1/2" = 1'-0" (24"x36" SHEET)

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TITLE:
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SCALE:	AS SHOWN	JOB NO:	21-057
DRAWN BY:	SIze	DRAWING #:	**S5.2**
DATE:	APRIL 2026		

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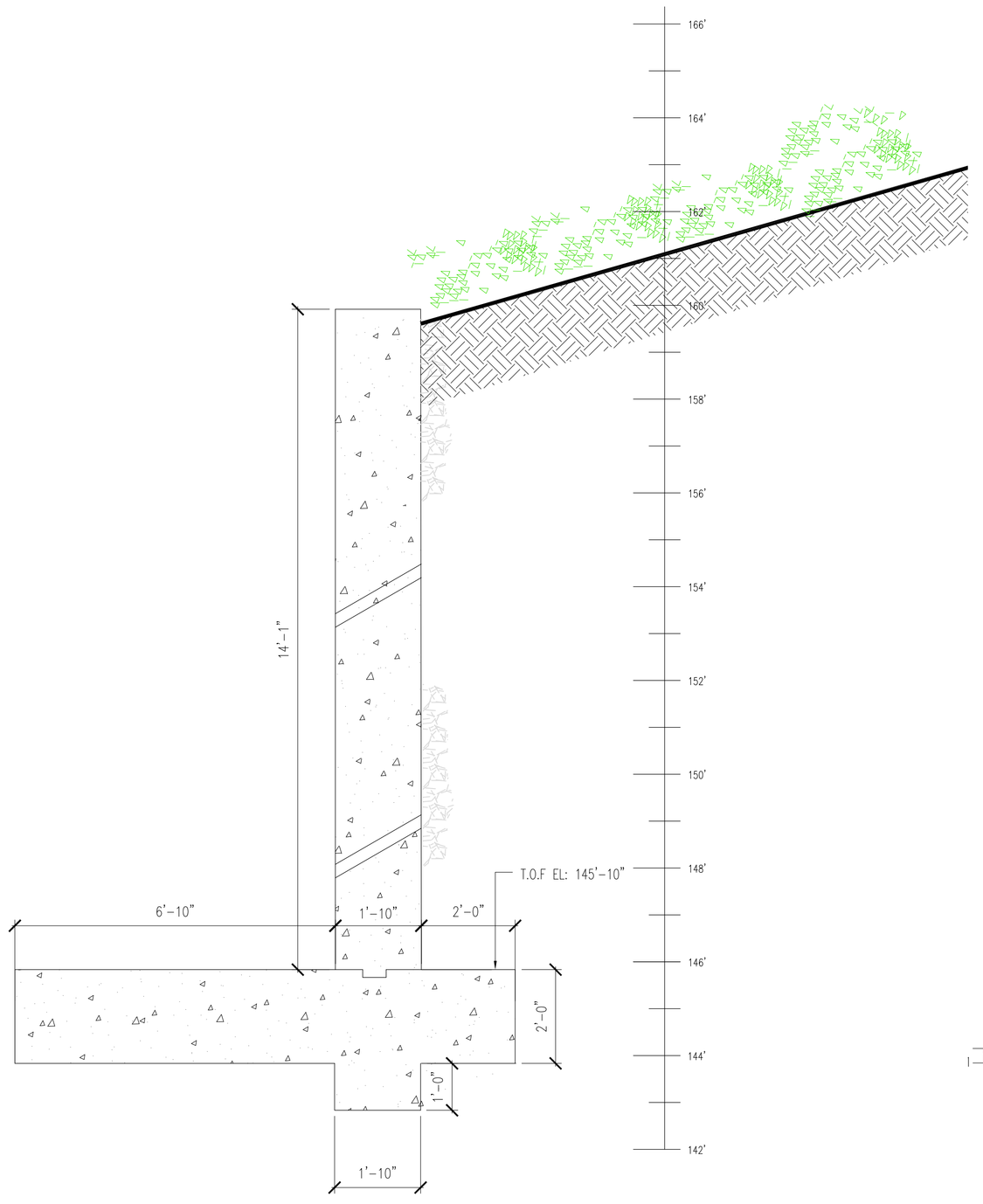
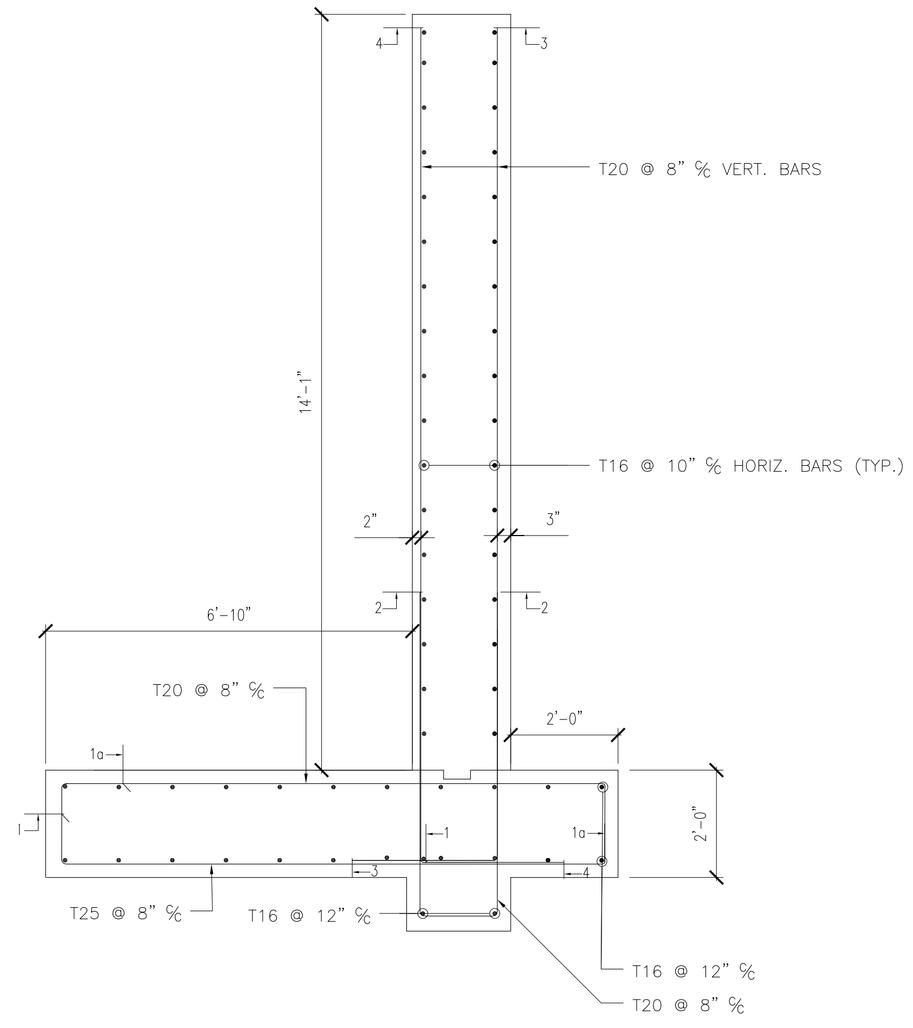


1 S5.3 SECTION
SCALE: 1/4" = 1'-0" (11"x17" SHEET)
1/2" = 1'-0" (24"x36" SHEET)



2 S5.3 SECTION
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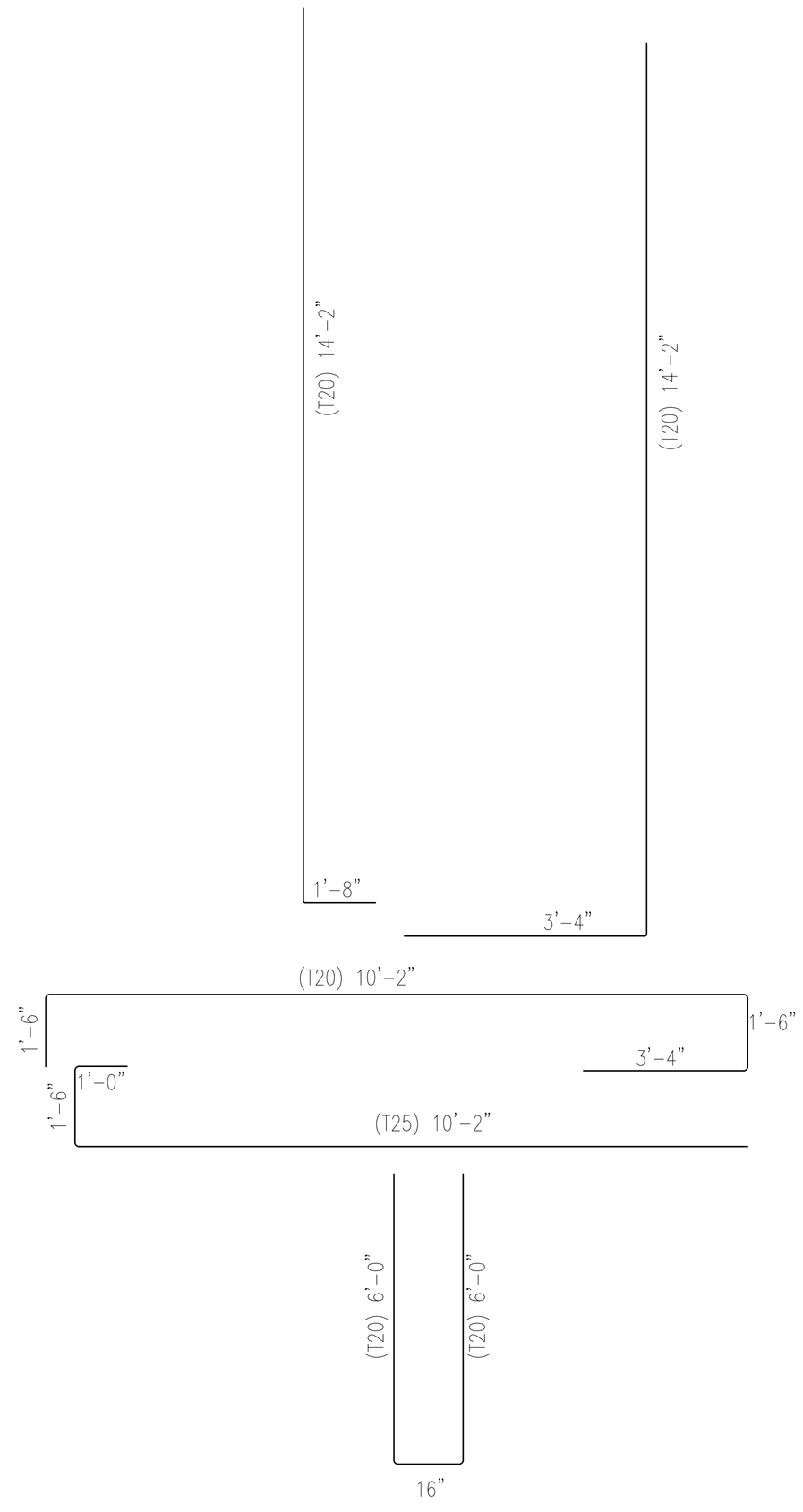

3 S5.3 REINFORCEMENT DETAIL OF (2/S5.3)
SCALE: 1/4" = 1'-0" (11"x17" SHEET)
1/2" = 1'-0" (24"x36" SHEET)

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SCALE:	AS SHOWN	JOB NO:	21-057
DRAWN BY:	JC	DRAWING #:	**S5.3**
DATE:	APRIL 2026		

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