DESIGN NOTES

1. Design is based on the assumption that the methods of construction and quality of materials conform to the requirements of Hilfiker Retaining Walls.

2. Soil Characteristics:

   SN - Retained Soils
   Unit Weight: 125 pcf
   Internal Friction Angle: 34°
   Cohesion = 0 psf
   Bond Stress = 19 psi (per Pullout testing average)

   If actual characteristics, grades or dimensions of soil materials differ from those listed above or shown on the plans, the Spriralnail Engineer shall be notified to evaluate the need to redesign.

3. Design Procedure:
   Geotechnical Engineering Circular No. 7 - Soil Nail Walls
   FHWA Report No. FHWA0-IF-03-017.

4. Conflicts between the trusswall panels, pillasters or spiralnails and obstructions are resolved in the field by any combination of the following:
   a) Trimming the vertical truss wall panel wires and or bending vertical & horizontal wires to accommodate the penetration through the facing
   b) Trimming the bottom part of the pilaster
   c) Slight Re-oriention of the spiralnail angle or direction. If re-orientation of the pilaster or nails is more than one foot from the planned location, confirmation of the change shall be approved by CES.

5. This design is intended to be responsible for the internal stability of the retaining wall only, and not for global stability or foundation bearing capacity. CES is not responsible for job site drainage, safety and fall protection provisions including compliance with OSHA regulations, nor the Competent Person designated for daily inspection.

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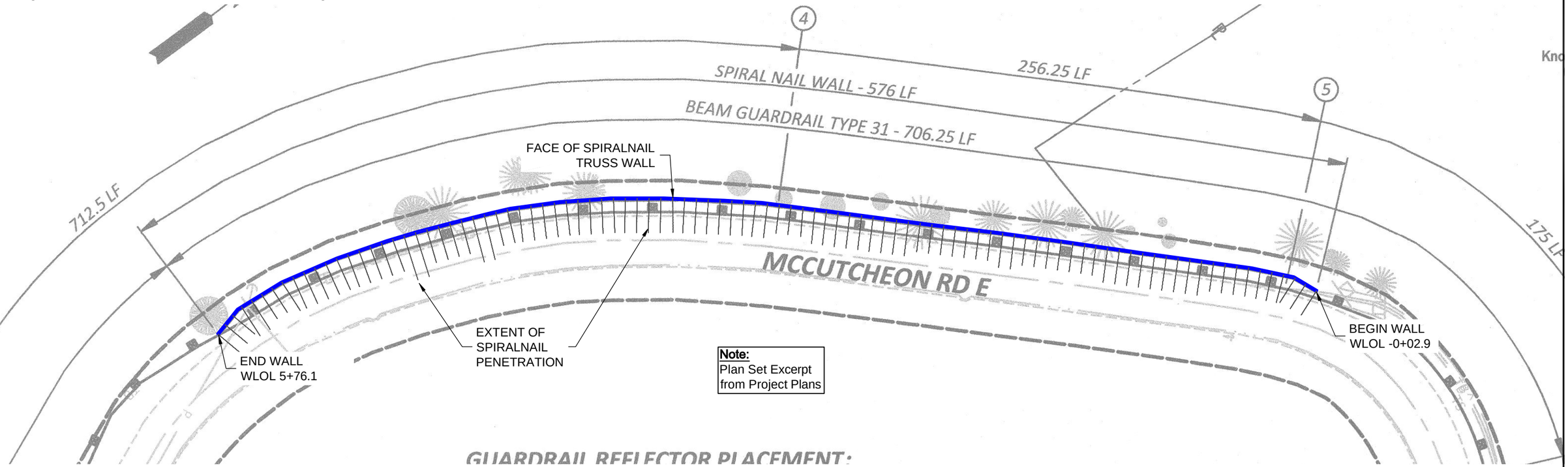

Note:
Plan Set Excerpt from Project Plans

SUPPLIED QUANTITY								
TRUSS FACING (SF)	PILASTERS					SPIRALNAILS		
4090	(3) 2.5'	(2) 4.5'	(28) 6.5'	(61) 8.5'	(4) 10.5'	(63) 10'	(183) 12'	(12) 16'

NOTE:
SOME PILASTERS ARE SHORTENED AT THE TOP TO FIT THE TOP CONDTION

SN TRUSS WALL - PLAN VIEW

SCALE: 1" = 50'

SPIRALNAIL LOCATION
SPIRALNAILS ARE ARRANGED ON A 2' OR 4' VERTICAL PATTERN & 6' HORIZONTAL PATTERN.

EXISTING INFRASTRUCTURE
PIPING, UTILITIES, OR ANY OTHER UNDERGROUND ITEMS OR INFRASTRUCTURES MAY OR MAY NOT BE SHOWN. SPIRALNAILS WERE LOCATED ON THESE PLANS AS COULD BE BEST DETERMINED WTIH THE INFORMATION PROVIDED. PRECISE LOCATIONS SHALL BE ASCERTAINED IN THE FIELD PRIOR TO DRAWING APPROVAL AND CONFIRMED BY OTHERS. DESIGN APPROVAL WARRANTS NEITHER HILFIKER NOR CES WILL BE LIABLE FOR ANY DAMAGE CAUSED BY SPIRALNAIL INSTALLATIONS PERFORMED IN ACCORDANCE WITH THESE PLANS. CALL USA PRIOR TO ANY EXCAVATION OR NAIL INSTALLATION.

HW 171025CN

REV.NO.	DATE	BY	DESCRIPTION
	3/13/18	KLC	Intial Electronic (.pdf) Release
	3/21/18	KLC	Modified the 10' High Section per Client Request
	4/16/18	KLC	**Modified per new EOP Elevations and Pullout testing**

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MCCUTCHEON ROAD
SPIRALNAIL TRUSS WALL

GENERAL NOTES
SN TRUSS WALL PLAN VIEW

PROJECT 18-006
DATE 03-13-18
DESIGN KLC
DRAWN KLC

SHT 1 OF 6

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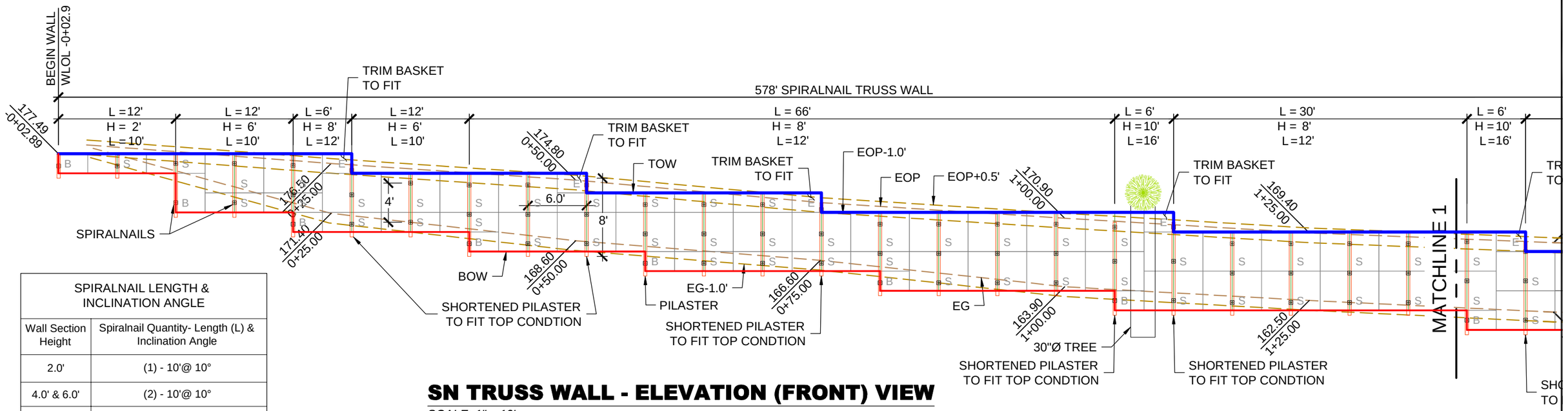
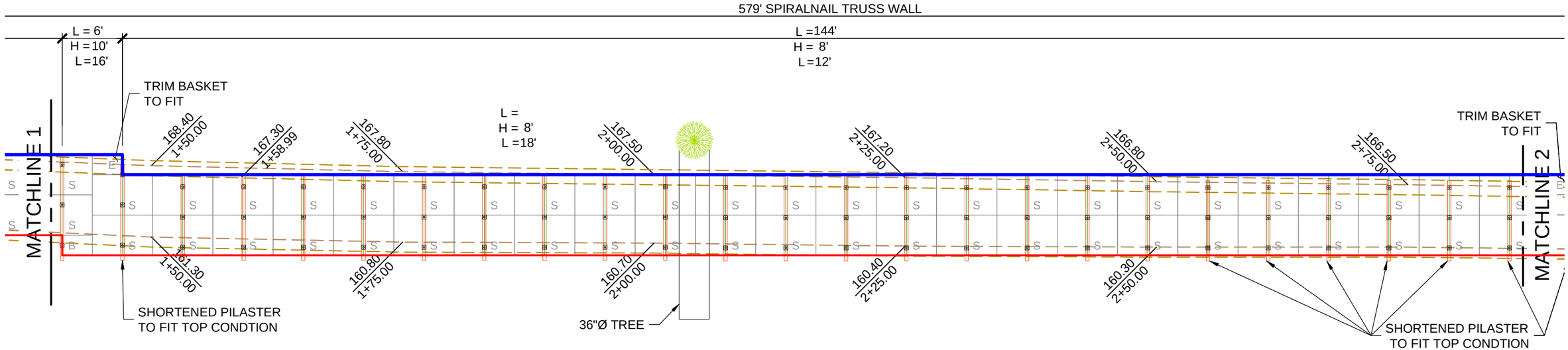


SPIRALNAIL LENGTH & INCLINATION ANGLE	
Wall Section Height	Spiralnail Quantity- Length (L) & Inclination Angle
2.0'	(1) - 10'@ 10°
4.0' & 6.0'	(2) - 10'@ 10°
8.0'	(3) - 12'@ 10°
10.0'	(3) - 16'@ 10°

SN TRUSS WALL - ELEVATION (FRONT) VIEW

SCALE: 1" = 10'



SN TRUSS WALL - ELEVATION VIEW (CONT'D)

SCALE: 1" = 10'

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MCCUTCHEON ROAD
SPIRALNAIL TRUSS WALL

SN TRUSS WALL ELEVATION VIEW

PROJECT	18-006
DATE	03-13-18
DESIGN	KLC
DRAWN	KLC
SHT	2 OF 6

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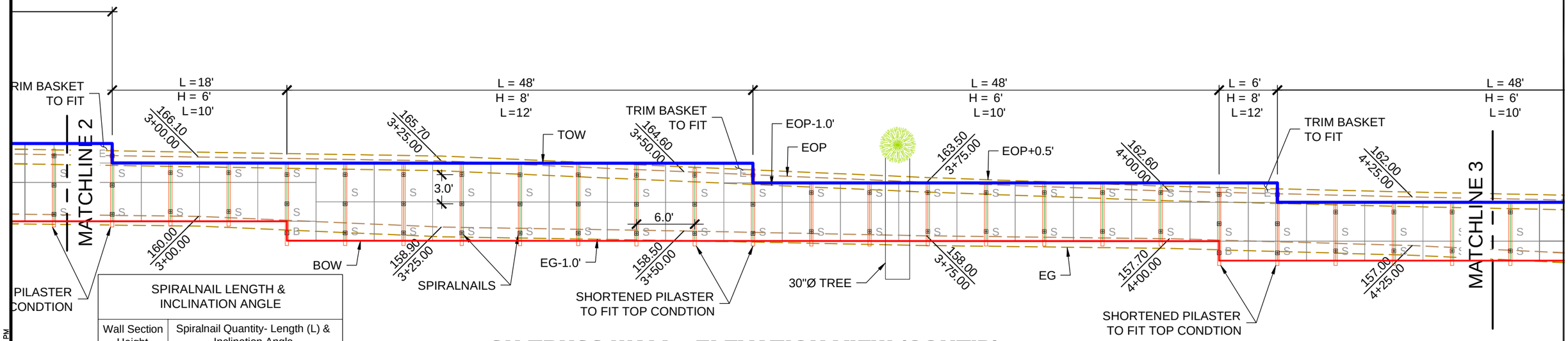
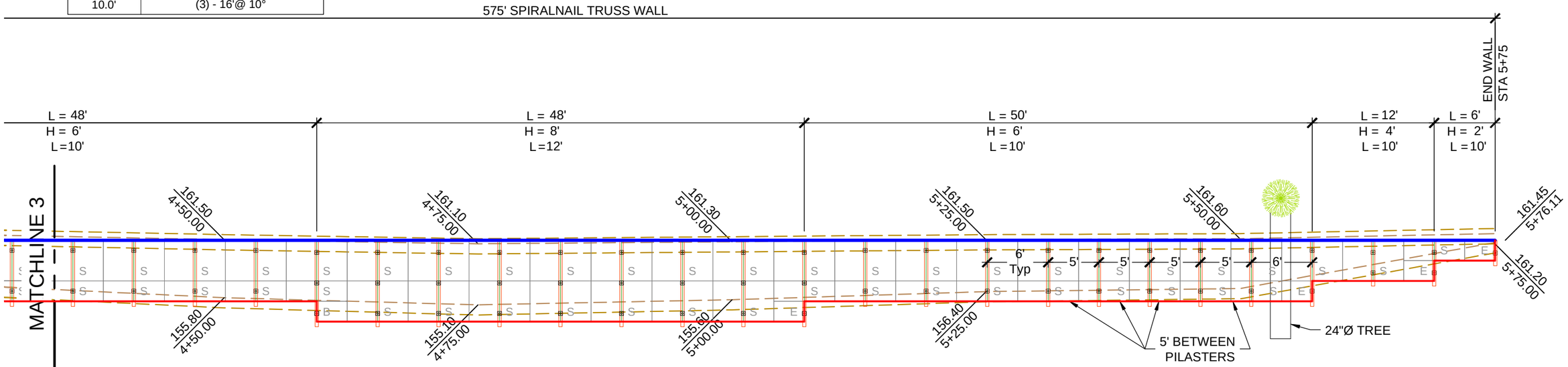


PILASTER
CONDTION

SPIRALNAIL LENGTH & INCLINATION ANGLE	
Wall Section Height	Spiralnail Quantity- Length (L) & Inclination Angle
2.0'	(1) - 10'@ 10°
4.0' & 6.0'	(2) - 10'@ 10°
8.0'	(3) - 12'@ 10°
10.0'	(3) - 16'@ 10°

SN TRUSS WALL - ELEVATION VIEW (CONT'D)

SCALE: 1" = 10'



SN TRUSS WALL - ELEVATION VIEW (CONT'D)

SCALE: 1" = 10'

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MCCUTCHEON ROAD
SPIRALNAIL TRUSS WALL

SN TRUSS WALL ELEVATION VIEW (CONT'D)

PROJECT	18-006
DATE	03-13-18
DESIGN	KLC
DRAWN	KLC

SHT 3 OF 6

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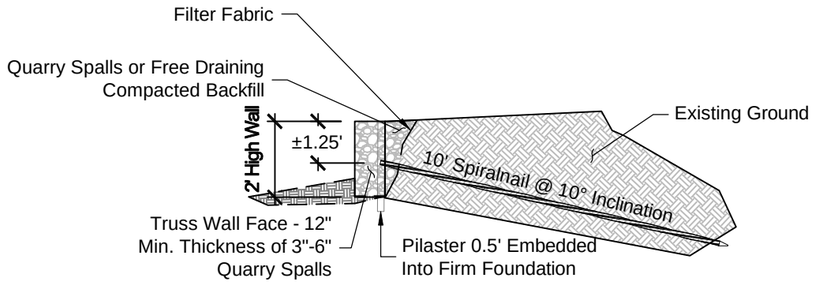
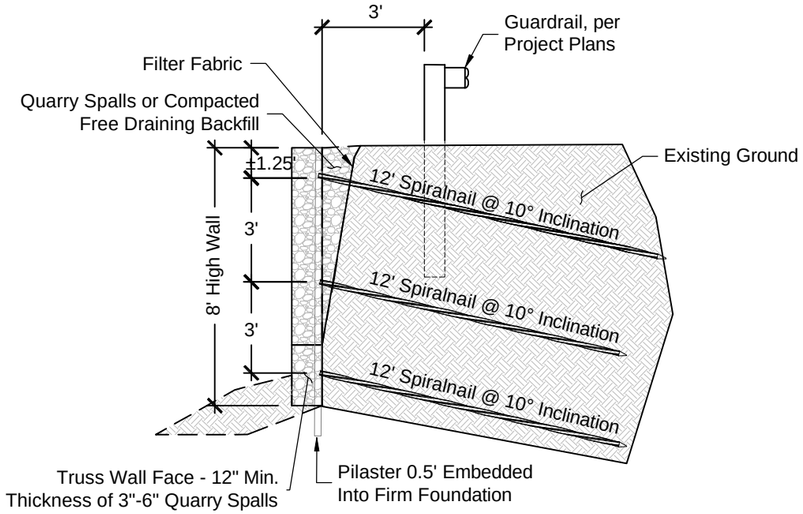


TYP 2' HIGH CROSS SECTION

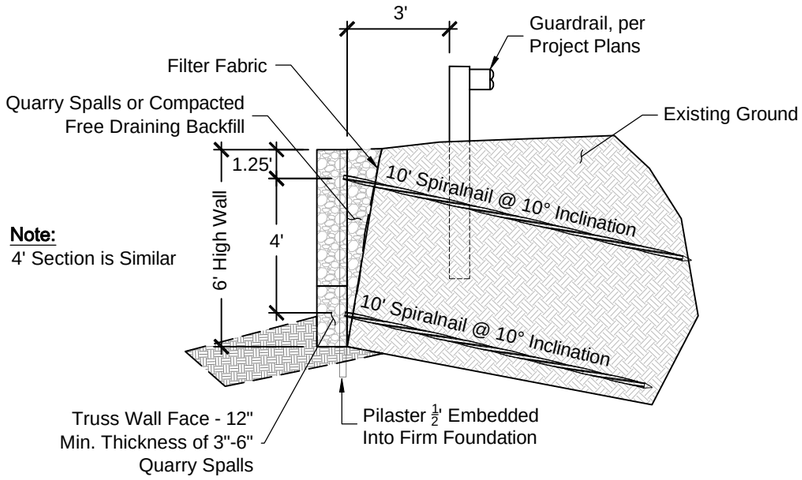
1"=5'



TYP 8' HIGH CROSS SECTION

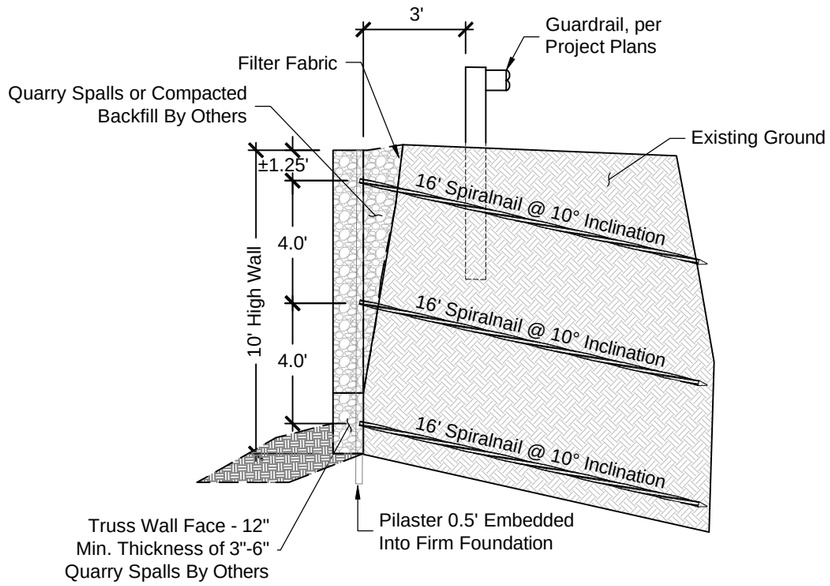
1"=5'

Note:
The Cross Sections shown on this sheet are intended to show the Spiralnail Trusswall System configuration in each of the Section Heights (4'H is similar to the 6'H Section) proposed in this project.



TYP 6' HIGH CROSS SECTION

1"=5'



TYP 10' HIGH CROSS SECTION

1"=5'

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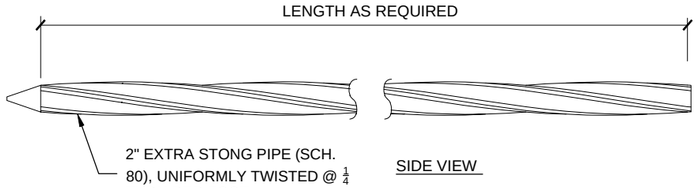
MCCUTCHEON ROAD
SPIRALNAIL TRUSS WALL

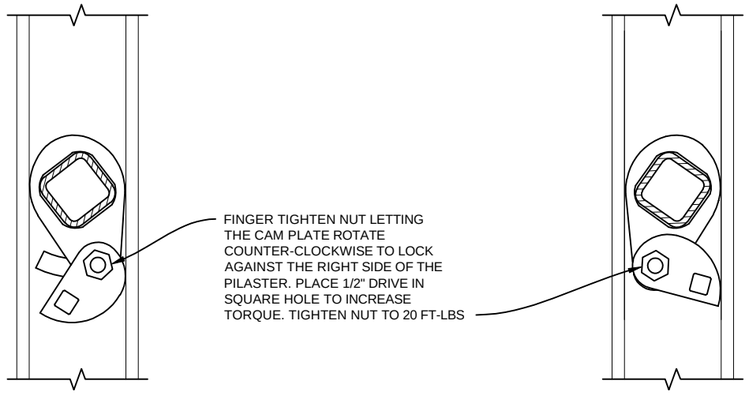
SN TRUSS WALL CROSS SECTIONS

PROJECT	18-006
DATE	03-13-18
DESIGN	KLC
DRAWN	KLC

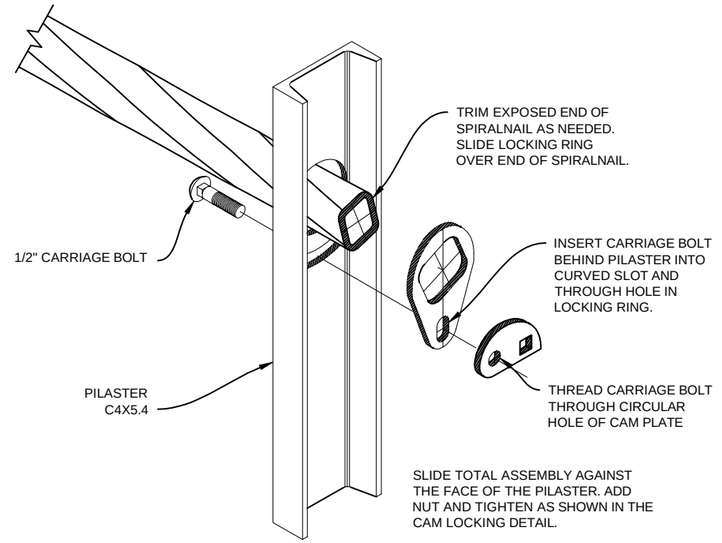
SHT 4 OF 6



SPIRALNAIL
NOT TO SCALE



CAM LOCK LOCKING DETAIL
NOT TO SCALE



CAM LOCK ASSEMBLY
NOT TO SCALE

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MCCUTCHEON ROAD
SPIRALNAIL TRUSS WALL

SN TRUSS WALL DETAILS

PROJECT	18-006
DATE	03-13-18
DESIGN	KLC
DRAWN	KLC

SHT 5 OF 6

STEP 1

IF PREPARED SOIL WILL SUPPORT PILASTERS, POSITION PILASTERS EVERY SIX FEET ALONG WALL LAYOUT LINE AND SET BOTTOM OF PILASTER INTO GROUND PER PROJECT PLANS.

IF PILASTERS CANNOT BE PRE-POSITIONED, PLACE START/END TRUSS ON PREPARED SLOPE FIRST THEN POSITION THE PILASTER CHANNEL AGAINST THE EDGE OF THE TRUSS AND SET BOTTOM OF PILASTER INTO GROUND PER PROJECT PLANS. DRIVE SPIRALNAILS THROUGH THE PILASTER INTO THE SOIL. PLACE CAM LOCK ON EACH SPIRALNAIL AND TIGHTEN TO TORQUE SPECIFICATIONS.

STEP 2

IF PILASTERS HAVE NOT BEEN PRE-POSITIONED, POSITION NEXT PILASTER AND SET INTO GROUND. PLACE THE STANDARD TRUSS BEHIND PILASTER AND OVERLAP PANEL AGAINST THE START/END TRUSS USING ZIP TIES OR TIE WIRE TO SECURE TRUSS IN PLACE. DRIVE IN SPIRALNAILS AND LOCK WITH CAM LOCKS.

CONTINUE ADDING STANDARD TRUSSES ALONG WALL ENDING AT FINAL PILASTER WITH A START/END TRUSS

STEP 3

POSITION START/END TRUSS, ADD PILASTER IF NEEDED, DRIVE IN SPIRALNAILS AND LOCK IN PLACE WITH CAM LOCKS.

SPIRAL TIE THE STIFFENERS ONTO THE STANDARD TRUSSES AT WIRE ON RIGHT SIDE OF PILASTER.

STEP 4

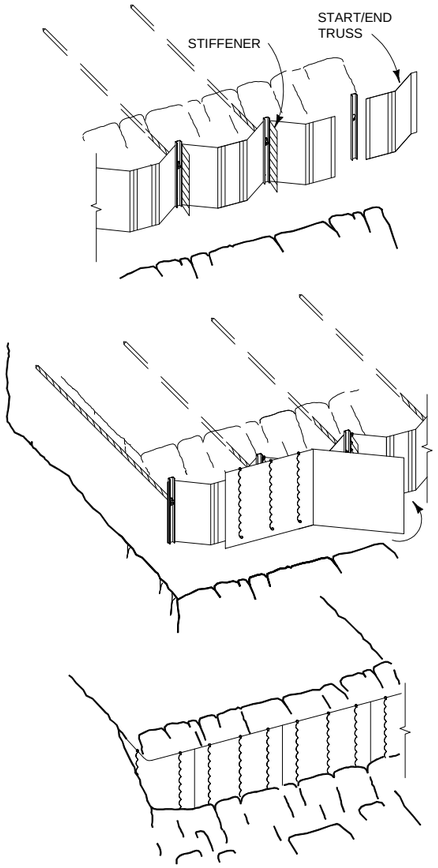
TO BEGIN FACING THE WALL, CENTER EDGES OF A FACING PANEL ON TRUSS OVERLAP. SPIRAL THE ENDS OF OVERLAP AND THE STIFFENER TO FACE PANEL.

INSERT PRONGS OF SUBSEQUENT FACE PANELS BEHIND FINAL TRANSVERSE WIRE ON PREVIOUS FACING AND ROTATE INTO PLACE TO FORM INTERLOCKING CONNECTION.
SEE ENLARGED DETAIL.

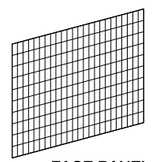
STEP 5

FOR CLOSURE FACING AT EACH END OF WALL, BEND FACING PANEL PER PROJECT PLANS AND INSERT END OF PANEL AGAINST PREVIOUS FACING. FIELD FIT OPPOSITE END AND TRIM AS NEEDED AGAINST SLOPE. SPIRAL FACING TO START/END TRUSS PANEL AND TO STIFFENER. SEE END OF WALL TREATMENT DETAIL, THIS SHEET.

FILL AREA BEHIND WALL WITH BACKFILL PER PROJECT PLANS. COMPACT SOIL AGAINST FACE OF WALL FOR TOE BURY.



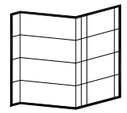
CONSTRUCTION SEQUENCE

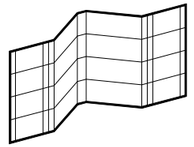

FACE PANEL

PILASTER

STIFFENER

SPIRAL

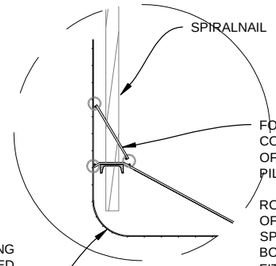

1st/END/CAP TRUSS


STANDARD (S/2nd) TRUSS


SPIRALNAIL

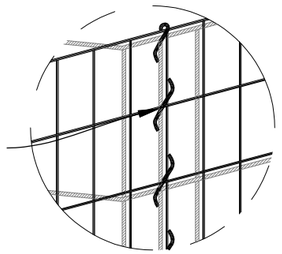
WALL COMPONENTS
NOT TO SCALE

GENERIC COMPONENTS SHOWN
FOR ILLUSTRATION PURPOSES ONLY



END OF WALL TREATMENT
NOT TO SCALE

SPIRAL BINDER IS TO BE PLACED SO THAT IT ENCIRCLES BOTH THE HORIZONTAL AND VERTICAL WIRES AND PASSES IN FRONT OF THE HORIZONTAL WIRE IN THE FACE OF WALL AT EACH INTERSECTION.



SPIRAL BINDER ATTACHMENT
NOT TO SCALE

HW 171025CN

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MCCUTCHEON ROAD
SPIRALNAIL TRUSS WALL

SN TRUSS WALL CONSTRUCTION SEQUENCE & DETAILS

PROJECT 18-006
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SHT 6 OF 6