

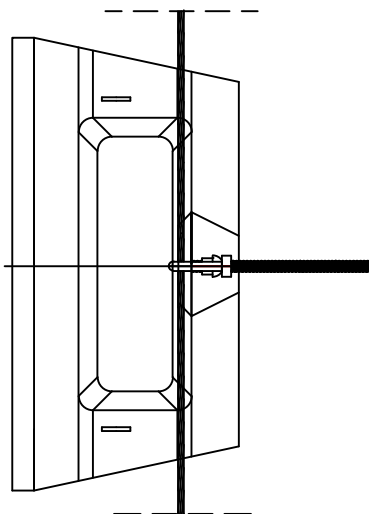
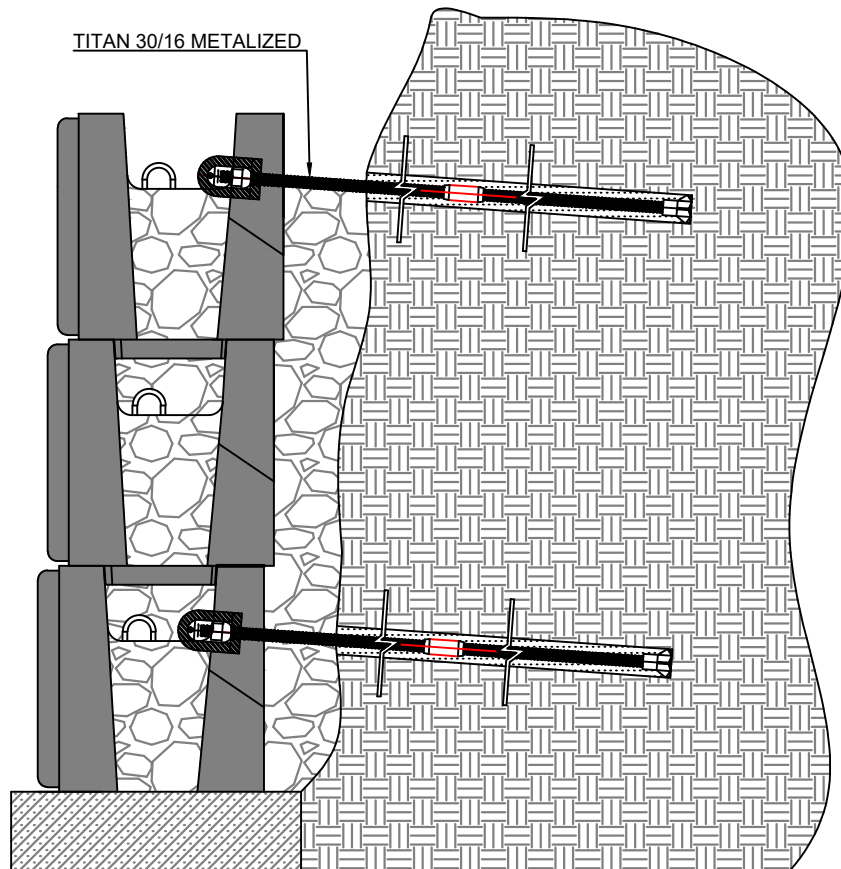
DESIGN LOAD (KIPS)	fc(28 days) (psi)	BEARING PLATE SIZE (in)	BEARING PLATE THICKNESS (in)
29.7	4,000	10 X 5.5	1.5
25.0	4,000	9.5 X 5.25	1.5
20.0	4,000	9.25 X 4.75	1.5
15.0	4,000	9.0 X 4.25	1.25
10.0	4,000	8.75 X 3.5	1.25
5.0	4,000	8.0 X 3.0	1.0

NOTE:

- TITAN 30/16 ROD HAVE TO BE METALIZED
- BEARING PLATE GRADE 50 KSI, GALVANIZED AFTER FABRICATION.
- VERTICAL/HORIZONTAL NAILS SPACING BASED ON REQUIRED CAPACITY.

THE USE OF THESE PLANS AND SPECIFICATIONS SHALL BE RESTRICTED TO THE ORIGINAL PURPOSE FOR WHICH THEY WERE PREPARED. ANY RE-PRODUCTION OR DISTRIBUTION IS EXPRESSLY LIMITED TO SUCH USE. ANY OTHER RE-PRODUCTION, REUSE, OR DISCLOSURE BY ANY METHOD, IN WHOLE OR PART, IS PROHIBITED. THESE DRAWINGS AND SPECIFICATIONS CONTAIN PROPRIETARY INFORMATION AND TITLE REMAINS IN CON-TECH SYSTEMS LTD.

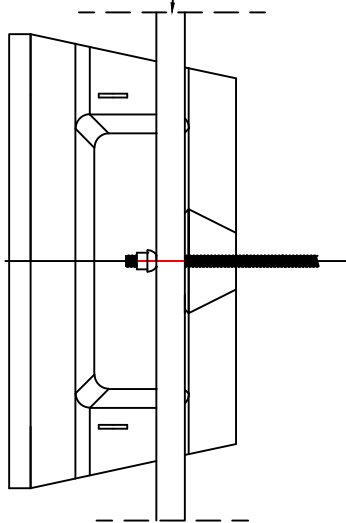
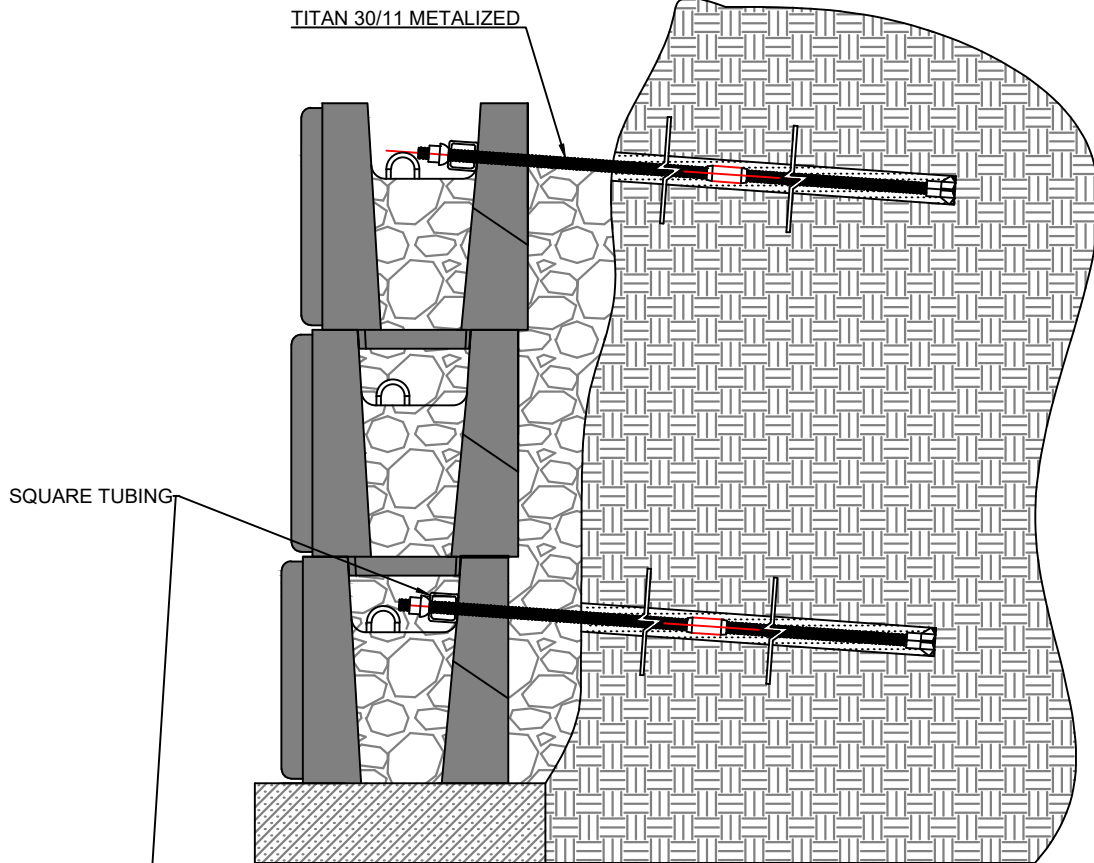
CON-TECH SYSTEMS LTD		CORNERSTONE
SCALE:		DRAWN BY: TOM
DATE: 2021.08.18		REVISED: TH
TITAN 30/16 & MAGNUMSTONE WALL, OPTION #1		
SOIL NAIL C/W BEARING PLATE		DRAWING NUMBER SAMPLE #1



NOTE:
 - TITAN 30/16 ROD HAVE TO BE METALIZED
 - 0.6" STRAND 270 KSI, HAVE TO BE GALVANIZED.
 - EYE HAVE TO BE METALIZED
 - VERTICAL/HORIZONTAL NAILS SPACING BASED ON REQUIRED CAPACITY.

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CON-TECH SYSTEMS LTD		CORNERSTONE
SCALE:		DRAWN BY: TOM
DATE: DEC.04.09.		REVISED
TITAN 30/16 & MAGNUMSTONE WALL, OPTION #2		
SOIL NAIL C/W 0.6" STRAND		DRAWING NUMBER SAMPLE #2



DESIGN LOAD (KIPS)	f _c (28 days) (psi)	min.SECTION MODULUS(in ³)*	STEEL SQUARE TUBING SIZE (in)	STEEL PIPE (in)
29.7	4,000	1.258	3 X 3 X 0.25	3.5" SCH 40
25.0	4,000	1.058	2.75 X 2.75 X 0.25	3.5" SCH 40
20.0	4,000	0.847	2.63 X 2.63 X 0.25	3" SCH 40
15.0	4,000	0.635	2.38 X 2.38 X 0.20	3" SCH 40
10.0	4,000	0.423	2.25 X 2.25 X 0.188	2.5" SCH 40
5.0	4,000	0.212	2.0 X 2.0 X 0.188	2.0" SCH 40

NOTE:
 - TITAN 30/16 ROD HAVE TO BE METALIZED
 - STRUCTURAL STEEL SHAPE, GALVANIZED.
 - VERTICAL/HORIZONTAL NAILS SPACING BASED ON REQUIRED CAPACITY.

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CON-TECH SYSTEMS LTD		CORNERSTONE
SCALE:		DRAWN BY: TOM
DATE: DEC.04.09.		REVISED
TITAN 30/16 & MAGNUMSTONE WALL, OPTION #3		
SOIL NAIL C/W STRUCTURAL SHAPE		DRAWING NUMBER SAMPLE #3

BAR SIZE	AREA (in²)	GUTS(kips)	YIELD(kips)	Max. TEST (kips)	Max. DESIGN LOAD (kips)	BAR LENGTH (ft)
TITAN 30/16	0.59	49.5	40.5	39.6	29.7	10

AVERAGE ULTIMATE BOND STRESS-ROCK/GROUT	psi	CARBIDE DRILL BIT SIZE (in)	FACTOR OF SAFETY	min. BOND LENGTH (ft)
GRANITE & BASALT	250 - 450	2	1.5	2.4
DOLOMITIC LIMESTONE	200 - 300	2	1.5	2.9
SOFT LIMESTONE	150 - 200	2	1.5	4.0
SLATES & HARD SHALES	120 - 200	2	1.5	4.9
SOFT SHALES	30 - 120	2	1.5	19.7
SAND STONES	120 - 250	2	1.5	4.9
WEATHERED SANDSTONES	100 - 120	2	1.5	5.9
CHALK	30 - 155	2	1.5	19.7
WEATHERED MARL	25 - 35	2	1.5	29.5
CONCRETE	200 - 400	2	1.5	2.9

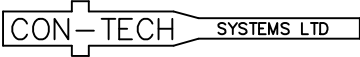
AVERAGE ULTIMATE BOND STRESS-COHESIVE SOILS/GROUT	psi	CLAY DRILL BIT SIZE (in)	FACTOR OF SAFETY	min. BOND LENGTH (ft)
SOFT SILTY CLAY	5 - 10	3.75	1.5	45.2
SILTY CLAY	5 - 10	3.75	1.5	45.2
STIFF CLAY, MED. TO HIGH PLASTICITY	5 - 15	3.75	1.5	45.2
VERY STIFF CLAY, MED. TO HIGH PLASTICITY	10 - 25	3.75	1.5	22.6
STIFF CLAY, MED. PLASTICITY	15 - 35	3.75	1.5	15.1
VERY STIFF CLAY, MED. PLASTICITY	20 - 50	3.75	1.5	11.3
VERY STIFF SANDY SILT, MED. PLASTICITY	40 - 55	3.75	1.5	5.6

AVERAGE ULTIMATE BOND STRESS-COHESIONLESS SOILS /GROUT	psi	DRILL BIT SIZE (in)	FACTOR OF SAFETY	min. BOND LENGTH (ft)
FINE-MED. SAND, MED. DENSE - DENSE	12 - 55	3.5	1.5	18.5
MED.-COARSE SAND (W/GRAVEL), MED.-DENSE	16 - 95	3.5	1.5	13.9
MED.-COARSE SAND (W/GRAVEL), DENSE-VERY DENSE	35 - 140	3.5	1.5	6.4
SILTY SAND	25 - 60	3.5	1.5	8.9
DENSE GLACIAL TILL	43 - 75	3.5	1.5	5.2
SANDY GRAVEL, MED. DENSE - DENSE	31 - 200	3.5	1.5	7.2
SANDY GRAVEL, DENSE - VERY DENSE	40 - 200	3.5	1.5	5.6

NOTE:
BOND LENGTH CALCULATED WITH MAX. DESIGN LOAD OF 29.7 kips PER ROD.
IF CORNERSTONE REQUIRE LOWER DESIGN LOAD, DIFFERENT IN LOAD (%) WILL APPLY ON THE BOND LENGTH TOO.

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CON-TECH SYSTEMS LTD.

		CORNERSTONE
SCALE:		DRAWN BY: TOM
DATE: DEC.04.09.		REVISED
BOND LENGTH FOR TITAN 30/16 APPLICATION		
SOIL NAIL C/W BEARING PLATE		DRAWING NUMBER BOND - #1

BAR SIZE	AREA (in²)	GUTS(kips)	YIELD(kips)	Max.TEST (kips)	Max.DESIGN LOAD (kips)	BAR LENGTH (ft)
TITAN 40/20	1.13	121.2	96.7	95.6	72.7	10


AVERAGE ULTIMATE BOND STRESS-ROCK/GROUT	psi	CARBIDE DRILL BIT SIZE (in)	FACTOR OF SAFETY	min. BOND LENGTH (ft)
GRANITE & BASALT	250 - 450	3.5	1.5	3.3
DOLOMITIC LIMESTONE	200 - 300	3.5	1.5	4.1
SOFT LIMESTONE	150 - 200	3.5	1.5	5.5
SLATES & HARD SHALES	120 - 200	3.5	1.5	6.9
SOFT SHALES	30 - 120	3.5	1.5	27.5
SAND STONES	120 - 250	3.5	1.5	6.9
WEATHERED SANDSTONES	100 - 120	3.5	1.5	8.3
CHALK	30 - 155	3.5	1.5	27.5
WEATHERED MARL	25 - 35	3.5	1.5	33.0
CONCRETE	200 - 400	3.5	1.5	4.1

AVERAGE ULTIMATE BOND STRESS-COHESIVE SOILS/GROUT	psi	CLAY DRILL BIT SIZE (in)	FACTOR OF SAFETY	min. BOND LENGTH (ft)
SOFT SILTY CLAY	5 - 10	5.90	1.5	70.0
SILTY CLAY	5 - 10	5.90	1.5	70.0
STIFF CLAY, MED. TO HIGH PLASTICITY	5 - 15	5.90	1.5	70.0
VERY STIFF CLAY, MED. TO HIGH PLASTICITY	10 - 25	5.90	1.5	35.0
STIFF CLAY, MED. PLASTICITY	15 - 35	5.90	1.5	23.3
VERY STIFF CLAY, MED. PLASTICITY	20 - 50	5.90	1.5	17.5
VERY STIFF SANDY SILT, MED. PLASTICITY	40 - 55	5.90	1.5	8.8

AVERAGE ULTIMATE BOND STRESS-COHESIONLESS SOILS /GROUT	psi	DRILL BIT SIZE (in)	FACTOR OF SAFETY	min. BOND LENGTH (ft)
FINE-MED. SAND, MED. DENSE - DENSE	12 - 55	4.5	1.5	35.5
MED.-COARSE SAND (W/GRAVEL), MED.-DENSE	16 - 95	4.5	1.5	26.6
MED.-COARSE SAND (W/GRAVEL), DENSE-VERY DENSE	35 - 140	4.5	1.5	12.2
SILTY SAND	25 - 60	4.5	1.5	17.0
DENSE GLACIAL TILL	43 - 75	4.5	1.5	9.9
SANDY GRAVEL, MED. DENSE - DENSE	31 - 200	4.5	1.5	13.7
SANDY GRAVEL, DENSE - VERY DENSE	40 - 200	4.5	1.5	10.7

NOTE:
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CON-TECH SYSTEMS LTD.

		CORNERSTONE
SCALE:		DRAWN BY: TOM
DATE: DEC.04.09.		REVISED
BOND LENGTH FOR TITAN 40/20 APPLICATION		
SOIL NAIL C/W BEARING PLATE		DRAWING NUMBER BOND - #2