INSTALLATION MANUAL

TITAN® TOWER
SELF-SUPPORT

TRYLON TSF®
ISO 9001:2000 Registered

LITERATURE PART #4.95.0000.000*

Revision date: October 15, 2004

* include with all Titan Towers

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TITAN TOWERS
INSTRUCTION SHEET

1) CHECK ALL TOWER SECTIONS FOR DAMAGE BEFORE SIGNING SHIPPING PAPERS.
2) IF MATERIAL IS DAMAGED OR MISSING, NOTE ON ALL COPIES OF SHIPPING PAPERS FOR FUTURE REFERENCE.
   NOTE: DO NOT ATTEMPT TO REPAIR DAMAGED MEMBERS, AS THIS WILL WEAKEN THE STRUCTURE.
3) ASSEMBLY INSTRUCTIONS ARE LOCATED IN A PLASTIC BAG WITH THE HARDWARE.
4) CHECK FOR PROPER QUANTITIES OF HARDWARE. BOLT SIZES ARE NOTED ON ASSEMBLY DRAWINGS.
5) BEFORE ASSEMBLY, CHECK FOR LOOSE OR MISSING BOLTS AND TIGHTEN OR REPLACE AS REQUIRED.
6) EXCAVATE FOR CONCRETE BASE AS PER FOUNDATION INSTRUCTIONS AND INSTALL REINFORCING BAR.
7) ASSEMBLE 4–FOOT STUB LEGS TO BASE SECTION AND PLACE IN EXCAVATION. SPLICE JOINT MUST BE ABOVE FINISHED CONCRETE. PLUMB TOWER SECTION WITH A TRANSIT OR LEVEL.
8) POUR CONCRETE AND ALLOW TO HARDEN FOR ONE (1) WEEK.
9) TOWER MAY BE ERECTED ONE (1) SECTION AT A TIME BY USING THE GIN POLE METHOD OR BY ASSEMBLING SECTIONS AND LIFTING WITH A CRANE.
   NOTE: DO NOT ATTACH ANTENNA BEFORE TOWER IS ERECTED AND ALL BOLTS ARE TIGHTENED.
10) COMPLETE TOWER INSPECTION IS RECOMMENDED EVERY TWO (2) TO THREE (3) YEARS.
11) ALL TOWER BOLTS MUST BE TIGHTENED PROPERLY. RECOMMENDED TORQUE VALUES ARE AS FOLLOWS:
    - $\frac{1}{4}$" 6 ft.lbs.
    - $\frac{5}{16}$" 11 ft.lbs.
    - $\frac{3}{8}$" 17 ft.lbs.

    BOLT HARDWARE SUPPLIED WITH SPLIT WASHERS SHOULD BE INSTALLED USING "TURN–OF–NUT TIGHTENING"; SNUG–TIGHT PLUS $\frac{1}{4}$" TO $\frac{1}{2}$" TURN. IT IS EXTREMELY IMPORTANT NOT TO OVER TIGHTEN BOLTS. EXCESSIVE TIGHTENING WILL REDUCE THE LOCKING CAPABILITY OF THE BOLT ASSEMBLY.
12) DO NOT EXCEED MANUFACTURER'S LOADING SPECIFICATION.
13) AN EXPERIENCED INSTALLER SHOULD CARRY OUT INSTALLATION ONLY.

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

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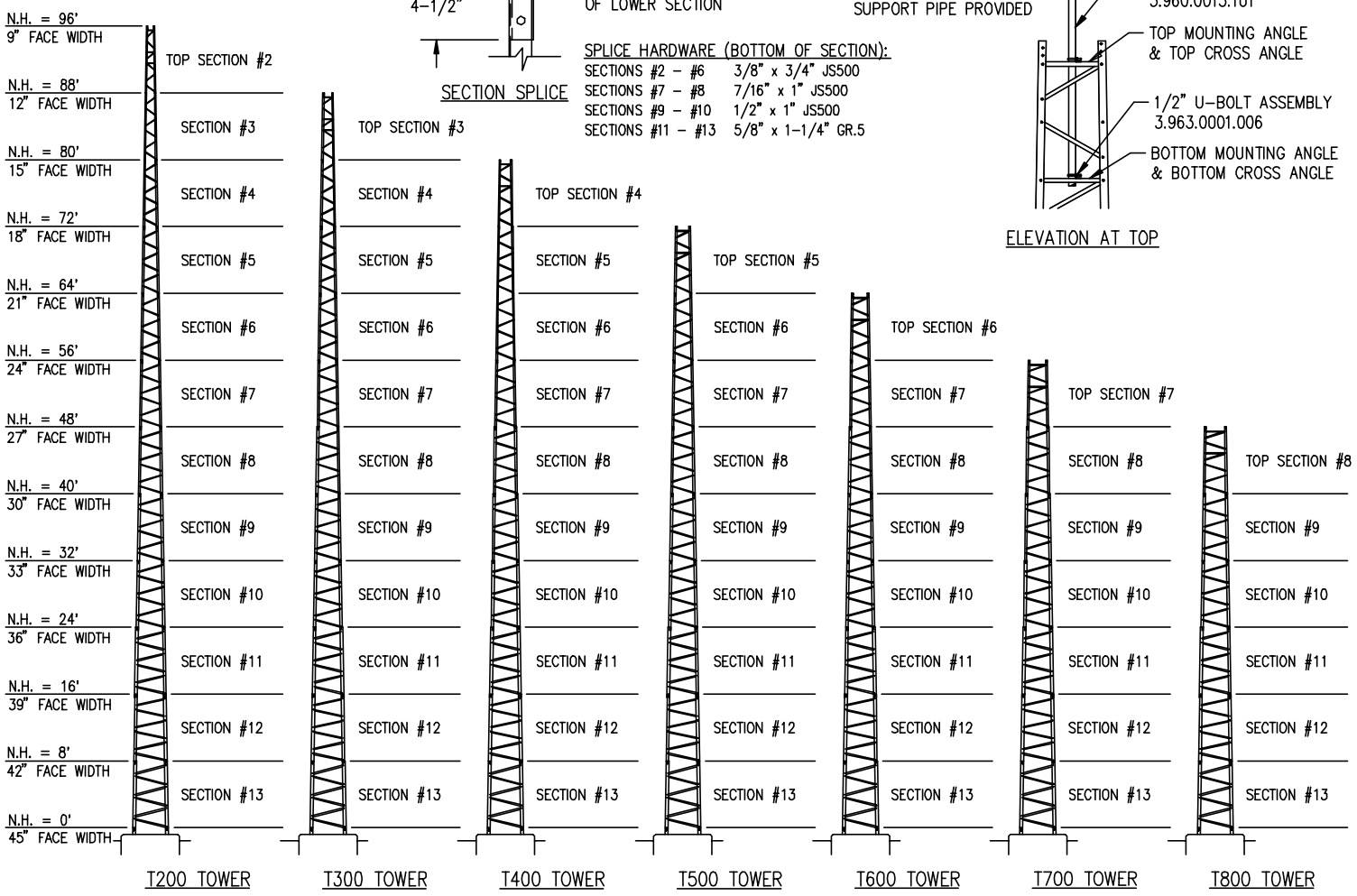
CUSTOMER:	SITE:	SCALE: 1.000	
DATE: 05 OCT 00	BY: JAG	CHK:	APP:
TITLE: TITAN TOWERS – INSTRUCTIONS		DRAWING NO. 000001.610.0034	

3

N.H. = NOMINAL HEIGHT



SECTION SPLICE

LEGS OF UPPER SECTION FIT INSIDE LEGS OF LOWER SECTION

SPLICE HARDWARE (BOTTOM OF SECTION):

SECTIONS #2 – #6	3/8" x 3/4" JS500
SECTIONS #7 – #8	7/16" x 1" JS500
SECTIONS #9 – #10	1/2" x 1" JS500
SECTIONS #11 – #13	5/8" x 1-1/4" GR.5

ACTUAL TOWER HEIGHT:
ACHIEVED UTILIZING SUPPORT PIPE PROVIDED

ELEVATION AT TOP

1) ALL TOWER HEIGHTS SHOWN ARE NOMINAL. ACTUAL TOWER HEIGHT ACHIEVED UTILIZING SUPPORT PIPE.
2) ALL TOWERS ARE TRIANGULAR IN CROSS SECTION.
3) CONSTRUCTED FROM PASSIVATED G-90 COAT PRE-GALVANIZED STEEL SHEET.
4) SHEET GAUGES 8 THROUGH 16.
5) MINIMUM 32 KSI YIELD FOR ALL COMPONENTS.
6) 60-DEGREE ANGULAR LEGS WITH 90-DEGREE ANGULAR CROSS BRACING FOR MAXIMUM STRENGTH.
7) DIAGONAL MEMBERS ARE INSTALLED AT A SHALLOW ANGLE FOR CLIMBING.
8) THE MIDDLE OF DIAGONAL MEMBERS ARE DESIGNED TO SUPPORT A CLIMBER OF MAXIMUM 200 POUNDS.
9) HIGH QUALITY GRADE 5 BOLTS WITH JS500 PROTECTIVE FINISH.
10) HIGH TOLERANCE SLIP-FIT SPLICES ENSURE PROPER ALIGNMENT.
11) TOWERS ARE AVAILABLE IN PRE-ASSEMBLED 8-FOOT SECTION OR AS KNOCK-DOWN SECTIONS.
12) KNOCK DOWN TOWERS MUST BE PROFESSIONALLY ASSEMBLED WITH THE USE OF THE PROPER ASSEMBLY JIGS.
13) KNOCK-DOWN TOWERS ARE IDEAL FOR LARGE QUANTITY REQUIREMENTS WHERE FREIGHT COST IS A MAJOR FACTOR.
14) TOWERS MAY BE CONSTRUCTED USING ANY PORTION OF THE TWELVE, 8-FOOT SECTIONS WHICH COMPRISE THIS STRUCTURE. FOR EXAMPLE, THE TOP 64 FEET MAY BE CHOSEN TO SUPPORT A SMALL ANTENNA LOAD OR THE BOTTOM 64 FEET COULD BE SELECTED TO SUPPORT A LARGER ANTENNA LOAD.
15) PLEASE REFER TO OUR "TOWERCAL" PROGRAM TO DETERMINE THE RIGHT TOWER FOR YOUR REQUIREMENTS.

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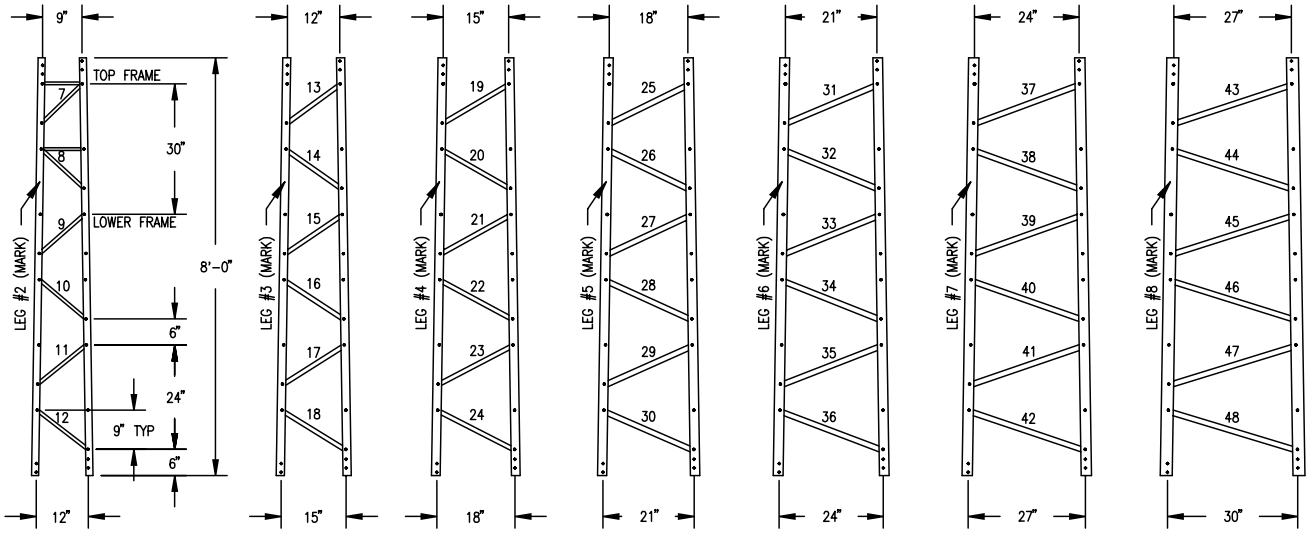
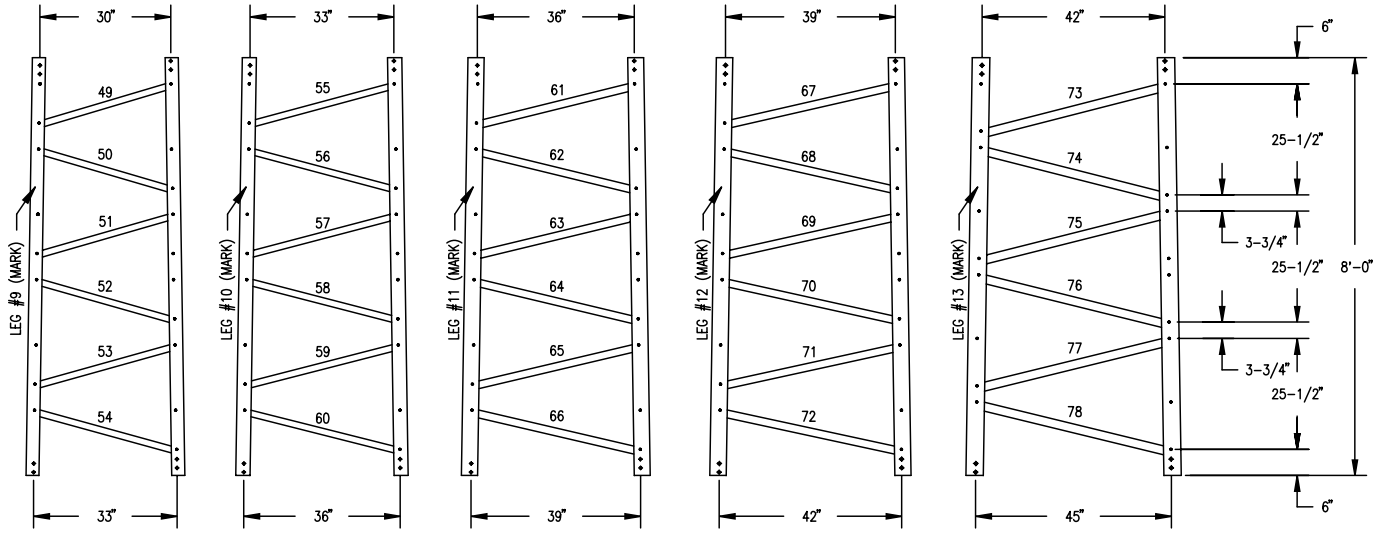
CUSTOMER:	SITE:	SCALE: 30.000	
DATE: 26 JAN 00	BY: BCP	CHK:	APP:
TITLE: TITAN SELF-SUPPORT OVERVIEW		DRAWING NO. 000001.610.0001	



SECTION #2 SECTION #3 SECTION #4 SECTION #5 SECTION #6 SECTION #7 SECTION #8



SECTION #9 SECTION #10 SECTION #11 SECTION #12 SECTION #13

Assembly Notes:

1) Section #2 - #8 are assembled with 1/4" x 1/2" GR.5 bolts with nuts inside. Lockwasher integral with nut.
2) Section #9 - #12 are assembled with 5/16" x 3/4" GR.5 bolts with nuts inside. Lockwasher integral with nut.
3) Section #13 is assembled with 3/8" x 1" GR.5 bolts with nuts and lockwashers inside.
4) Assemble angles to top section as a standard. Top angles are available for each sections #2 - #8.
5) Assemble sections without any visible twist. Keep stands level to each other.
6) All bracing members inside legs with flange facing top end.
7) Stack odd numbers together and even numbers together for shipping.
8) Decals to go on bottom section legs mid span.
9) Panel heights are the same for all sections except section #13.
10) Top end of leg is colour coded.

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MH	MH	MH	GENERAL REVISIONS	12 JUL 04

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CUSTOMER:	SITE:	SCALE: 30.000	
DATE: 12 JUL 04	BY: MH	CHK:	APP:
TITLE: TITAN SELF-SUPPORT SECTION DRAWINGS		DRAWING NO.	

NORMAL SOIL:

STANDARD FOUNDATION DRAWINGS ARE PROVIDED FOR "NORMAL" SOIL CONDITIONS. NORMAL SOIL CONDITIONS IS DEFINED AS A COHESIVE SOIL WITH AN ALLOWABLE BEARING CAPACITY OF 4000 PSF AND AN ALLOWABLE NET HORIZONTAL PRESSURE OF 400 PSF PER LINEAL FOOT OF DEPTH TO A MAXIMUM OF 4000 PSF. IF YOUR APPLICATION REQUIRES THAT THE THE TOWER BE INSTALLED ON OTHER THAN NORMAL SOIL CONDITIONS, CONTACT YOUR LOCAL GEOTECHNICAL CONSULTANT.

FOUR, STANDARD ANCHOR TYPES ARE SHOWN ON DRAWINGS 000001.610.0016 AND 000001.610.0017. SELECT THE PROPER ONE BASED ON THE SECTION NUMBER ASSIGNED TO THE BOTTOM 8-FOOT SECTION ON YOUR TOWER MODEL.

THE HOLE SHOULD BE EXCAVATED TO THE MINIMUM DIMENSIONS SUGGESTED AND FORMING IS NOT REQUIRED PROVIDED THE EXCAVATION WILL HOLD ITS WALLS. IF FORMING IS REQUIRED, A STRONG WELL-CONSTRUCTED PLYWOOD FORM WILL BE REQUIRED.

THE REINFORCING BARS ARE REQUIRED AS INDICATED ON DRAWINGS 000001.610.0016 AND 000001.610.0017 AND ONCE IN PLACE THE 4-FOOT LONG STUB LEGS CAN BE ATTACHED TO THE BOTTOM SECTION AND THIS ASSEMBLY CAN BE POSITIONED OVER THE EXCAVATION.

CARE SHOULD BE TAKEN AT THIS POINT TO ENSURE THAT THE SPLICE BOLTS TO THE STUB LEGS WILL BE ABOVE THE FINISHED LEVEL OF THE CONCRETE SURFACE AND THAT THE FIRST SECTION IS TRULY VERTICAL.

USING A HIGH QUALITY SPIRIT LEVEL OR TRANSIT, CHECK THE VERTICALITY OF THE SECTION. IF A SPIRIT LEVEL IS USED, PLACE IT ON THE TOP OF THE STUB LEGS ON ALL 3-TOWER FACES. BE SURE TO SECURE THE TOWER AND STUB LEGS AGAINST MOVING WHILE THE CONCRETE IS POURED.

CONCRETE SHOULD COVER ALL REBAR TO A DEPTH OF 3 INCHES AND REACH STRENGTH OF 3,000 PSI AT 28 DAYS. ALLOW PROPER CURING OF THE FOUNDATION PRIOR TO INSTALLING THE BALANCE OF THE TOWER.

IF THE CONCRETE HAS NOT BEEN POURED AGAINST AN UNDISTURBED SURFACE IT WILL BE NECESSARY TO BACKFILL WITH GRANULAR MATERIAL COMPACTED IN LAYERS OF NOT MORE THAN 6 INCHES.

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) SEE DRAWING 000001.610.0016

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CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: SOIL FOUNDATIONS GENERAL INSTRUCTIONS		DRAWING NO. 000001.610.0014	

FOUNDATION NOTES:

CONCRETE:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARD A–23 OR SIMILAR ASTM STANDARD.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF NOT LESS THAN 3000 PSI.
3. REINFORCING STEEL SHALL BE GRADE 50 DEFORMED BARS AND SHALL HAVE MINIMUM CONRETE COVER OF 3 INCHES.

FOUNDATIONS:

1. ALL FOUNDATIONS SHALL BE KEPT DRY, BY PUMPING IF NECESSARY, BEFORE POURING CONCRETE AND SHALL BE KEPT DRY UNTIL BACKFILL IS IN PLACE.
2. BACKFILL WITH GRANULAR MATERIAL COMPACTED IN LAYERS OF NOT MORE THAN 6 INCHES.
3. BACKFILL SHALL BE PLACED SO AS TO PREVENT ACCUMULATION OF WATER AROUND FOUNDATIONS OR ANCHORS.

DESIGN:

1. SOIL ANCHORAGE SHOWN HAS BEEN BASED ON NORMAL DRY SOIL ASSUMPTIONS. THESE ARE AS FOLLOWS:
   A) UNIT WEIGHT OF COMPACTED SOIL IS GREATER THAN 100 POUNDS PER CUBIC FOOT.
   B) WATER TABLE IS AT A DEPTH GREATER THAN 8 FEET BELOW GRADE.
   C) COEFFICIENT OF PASSIVE EARTH PRESSURE IS GREATER THAN 3.2.
   D) COEFFICIENT OF ACTIVE EARTH PRESSURE IS APPROXIMATELY 0.3.
   E) ORGANIC MATERIALS ARE NOT PRESENT IN THE SOIL.
   F) SOIL IS NOT ACIDIC.
   G) THE ALLOWABLE BEARING PRESSURE OF THE SOIL AT THE 5 FOOT DEPTH SHALL BE GREATER THAN 3500 POUNDS PER SQUARE FOOT.
2. THE INSTALLED FOUNDATION WILL HAVE A SAFETY FACTOR OF GREATER THAN 1.2 WHEN INSTALLED AS DESCRIBED (THE TOWER WILL FAIL PRIOR TO FOUNDATION FAILURE).
3. DESIGN ULTIMATE LOADS ARE AS PER TABLE BELOW.
4. FIGURES AND NOTES REPRESENT TRYLON TITAN SOIL FOUNDATIONS.
5. MAXIMUM FROST PENETRATION OF 3 FEET PRESUMED.
6. ANCHOR NUMBER ONE SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A SECTION NUMBER OF 2, 3, 4, 5 OR 6.
7. ANCHOR NUMBER TWO SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A NUMBER OF 7 OR 8.
8. ANCHOR NUMBER THREE SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A SECTION NUMBER OF 9, 10, 11 OR 12.
9. ANCHOR NUMBER FOUR SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A SECTION NUMBER OF 13.

GENERAL:

1. THE TOWER SHALL BE CENTERED ON THE CONCRETE CROSS SECTION SUCH THAT DIMENSION 'A' EQUALS DIMENSION 'A'.

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) SEE DRAWING 000001.610.0016

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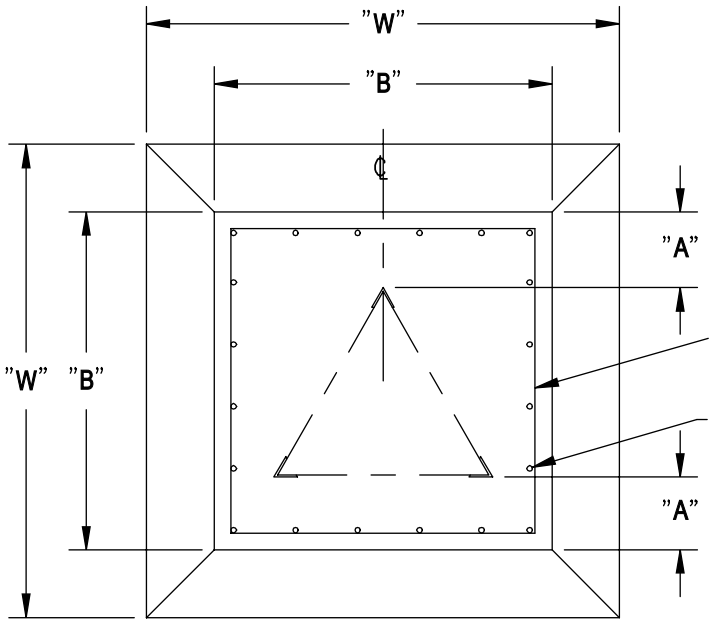
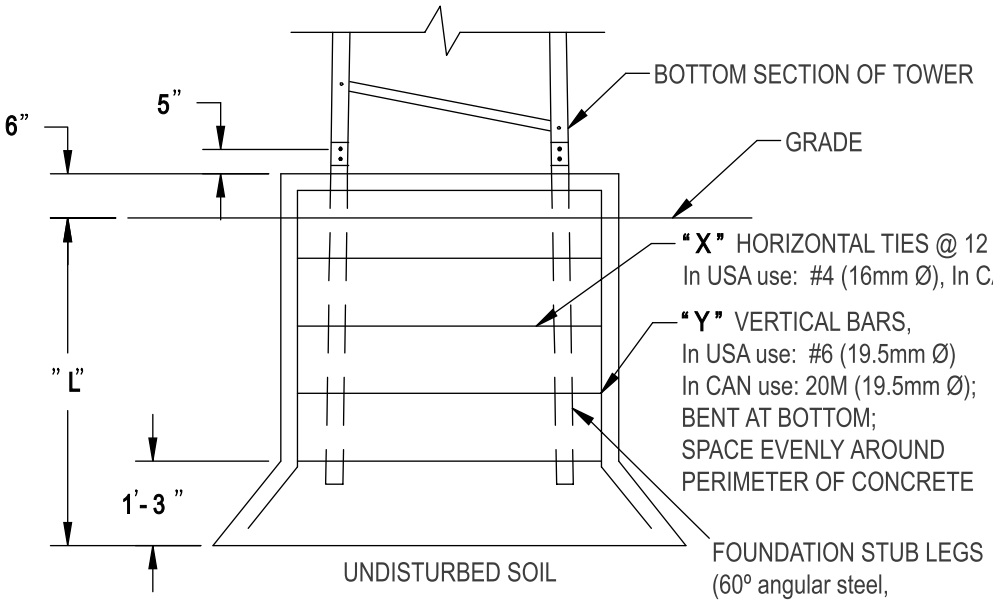
CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: SOIL FOUNDATIONS NOTES		DRAWING NO. 000001.610.0015	



"X" HORIZONTAL TIES @ 12 O.C.
In USA use: #4 (16mm Ø)
In CAN use: 15M (16mm Ø)

"Y" VERTICAL BARS,
In USA use: #6 (19.5mm Ø)
In CAN use: 20M (19.5mm Ø);
BENT AT BOTTOM;
SPACE EVENLY AROUND
PERIMETER OF CONCRETE

FOUNDATION PLAN



"X" HORIZONTAL TIES @ 12 O.C.
In USA use: #4 (16mm Ø), In CAN use: 15M (16mm Ø)

"Y" VERTICAL BARS,
In USA use: #6 (19.5mm Ø)
In CAN use: 20M (19.5mm Ø);
BENT AT BOTTOM;
SPACE EVENLY AROUND
PERIMETER OF CONCRETE

FOUNDATION STUB LEGS
(60° angular steel,
4 ft long - 1 per leg)

FOUNDATION ELEVATION

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) SEE DRAWING 000001.610.0017 IN CONJUNCTION WITH THIS DRAWING

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CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: SOIL FOUNDATION DESIGN		DRAWING NO. 000001.610.0016	

CHART A

If Bottom Tower Section is:	Use Anchor Type from Chart B
#3	1
#4	1
#5	1
#6	1
#7	2
#8	2
#9	3
#10	3
#11	3
#12	3
#13	4

CHART B

ANCHOR TYPE	'B' (FEET)	'W' (FEET)	'L' (FEET)	'X' HORIZONTAL REINFORCING	'Y' VERTICAL REINFORCING	OVERTURNING MOMENT (FT. KIPS)	SHEAR (KIPS)	CONCRETE VOLUME CUBIC YARDS
1	3	4	4	4	16	17	0.7	2.0
2	4	5	5	5	20	28	1.0	4.0
3	5	7	5	5	20	67	1.7	6.0
4	5.5	7.5	5.5	6	24	105	3.0	7.0

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) SEE DRAWING 000001.610.0016 IN CONJUNCTION WITH THIS DRAWING

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TITAN® TOWER SELF-SUPPORT

CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: SOIL FOUNDATION		DRAWING NO. 000001.610.0017	

ROCK CONDITIONS:

SPECIAL ROCK BOLTS ARE AVAILABLE TO SUIT SOUND AND SOLID ROCK. REFER TO PRODUCT NUMBERS 4800101100A THROUGH 4800104100A. FOOT WELDMENTS ARE AVAILABLE TO INTERFACE THE ROCK BOLTS TO THE BOTTOM SECTION OF THE TOWER. REFER TO PRODUCT NUMBERS 4820104000A THROUGH 4820114000A. INSTALLATION INFORMATION IS AVAILABLE ON DRAWINGS 000001.610.0019 THROUGH 000001.610.0021. INSTALLATIONS UTILIZING ROCK BOLTS AND FOOT WELDMENTS SHOULD ONLY BE CARRIED OUT BY EXPERIENCED INSTALLERS. PLEASE CONSULT YOUR LOCAL GEOTECHNICAL CONSULTANT IF YOU ARE UNSURE ABOUT THE INTEGRITY OF THE ROCK COMPOSITION AT YOUR SITE.

FOUNDATION NOTES:

1. DRILL HOLE TO PROPER DIAMETER (D) AND DEPTH. NOTE THAT THE TOTAL DEPTH OF HOLE REQUIRED SHOULD BE 10 INCHES DEEPER THAN THE ROCK BOLT IMBEDMENT LENGTH. HOLE SHOULD THEN BE CLEANED OUT.
2. PLACE BOLT IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
3. THE ROCK BOLTS SHALL ALSO BE GROUTED IN PLACE USING A NON-FERROUS, NON-SHRINKING GROUT HAVING A MINIMUM COMPRESSIVE STRENGTH OF 27.5 MPa.

DESIGN:

1. ROCK ANCHORAGE SHOWN HAS BEEN BASED ON SOUND UNFRACTURED ROCK ASSUMPTIONS.
2. THE INSTALLED FOUNDATION WILL HAVE A SAFETY FACTOR OF GREATER THAN 1.2 WHEN INSTALLED AS DESCRIBED (THE TOWER WILL FAIL PRIOR TO FOUNDATION FAILURE).
3. DESIGN ULTIMATE LOADS ARE AS PER TABLE BELOW.
4. FIGURES AND NOTES REPRESENT TRYLON TITAN ROCK FOUNDATIONS.
5. ANCHOR NUMBER ONE SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A SECTION NUMBER OF 2, 3, 4, 5 OR 6.
6. ANCHOR NUMBER TWO SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A NUMBER OF 7 OR 8.
7. ANCHOR NUMBER THREE SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A SECTION NUMBER OF 9, 10, 11 OR 12.
8. ANCHOR NUMBER FOUR SHOULD BE USED FOR TOWERS WITH THE LOWEST SECTION HAVING A SECTION NUMBER OF 13.

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) SEE DRAWING 000001.610.0020

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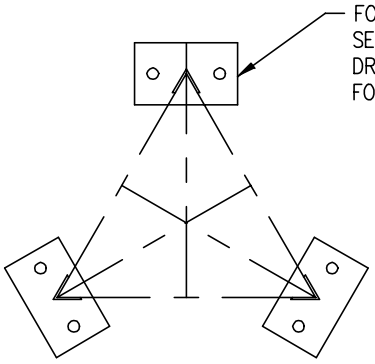
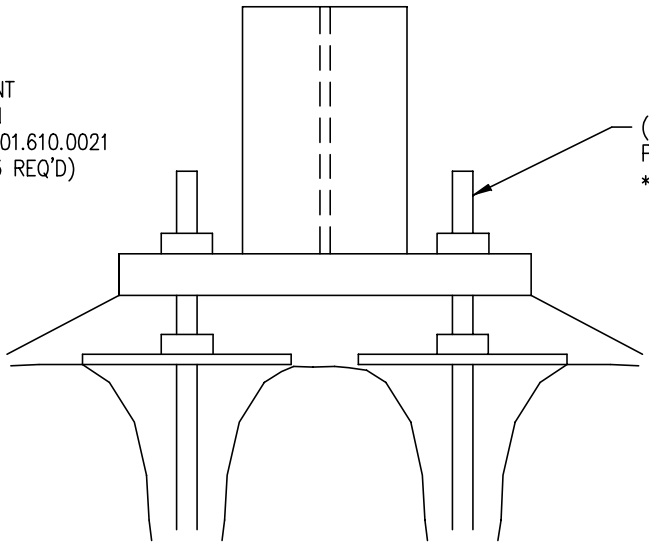
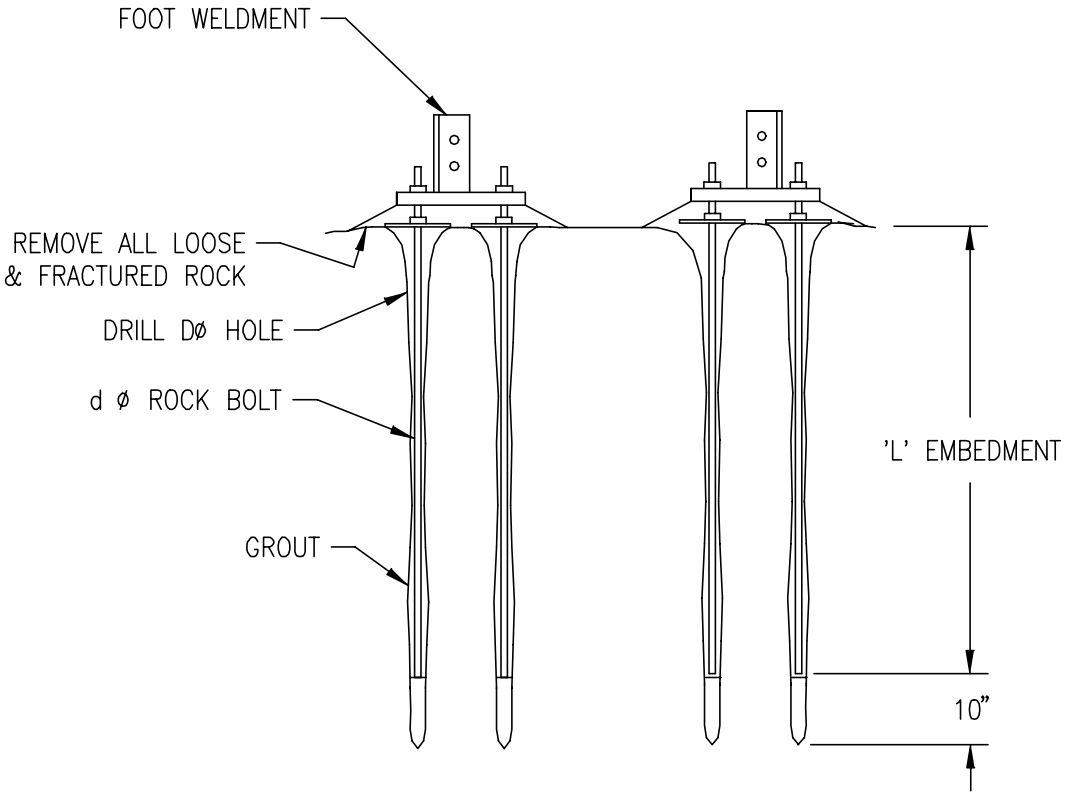
CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: ROCK FOUNDATION INSTRUCTIONS & NOTES		DRAWING NO. 000001.610.0019	



PLAN VIEW



ENLARGEMENT OF FOOT WELDMENT



ROCK FOUNDATION

* NOTE:
ALL TOWER FOOT WELDMENTS USE ONE ROCK BOLT PER TOWER LEG, EXCEPT FOR FOOT WELDMENT 3.85.0035.014 WHICH USES TWO ROCK BOLTS PER TOWER LEG.

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) USE DRAWING 000001.610.0021 IN CONJUNCTION WITH THIS DRAWING

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CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: ROCK FOUNDATIONS DESIGN		DRAWING NO. 000001.610.0020	

CHART A

If Bottom Tower Section is:	Use Anchor Type from Chart B	FOOT WELDMENT KIT P/N (SET OF 3)
#3	1	4.82.0104.000
#4	1	4.82.0105.000
#5	1	4.82.0106.000
#6	1	4.82.0107.000
#7	2	4.82.0108.000
#8	2	4.82.0109.000
#9	3	4.82.0110.000
#10	3	4.82.0111.000
#11	3	4.82.0112.000
#12	3	4.82.0113.000
#13	4	4.82.0114.000

CHART B

ANCHOR TYPE	ROCK BOLT P/N (1 ONLY)	ROCK BOLT KIT P/N	'L' (FEET)	d ø BOLT (INCH)	D ø HOLE (INCH)	OVERTURNING MOMENT (FT. KIPS)	SHEAR (KIPS)	DESIGN UPLIFT (KIPS)
1	4.80.0100.000	4.80.0100.100 (SET OF 3)	5	$\frac{5}{8}$	$1\frac{3}{4}$	17	0.7	10.0
2	4.80.0101.000	4.80.0101.100 (SET OF 3)	5	$\frac{3}{4}$	$1\frac{3}{4}$	28	1.0	14.0
3	4.80.0102.000	4.80.0102.100 (SET OF 3)	5	1	$1\frac{3}{4}$	67	1.7	23.0
4	4.80.0102.000	4.80.0102.200 (SET OF 6)	5	1	$1\frac{3}{4}$	105	3.0	32.0

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

NOTES:

1) USE DRAWING 000001.610.0020 IN CONJUNCTION WITH THIS DRAWING

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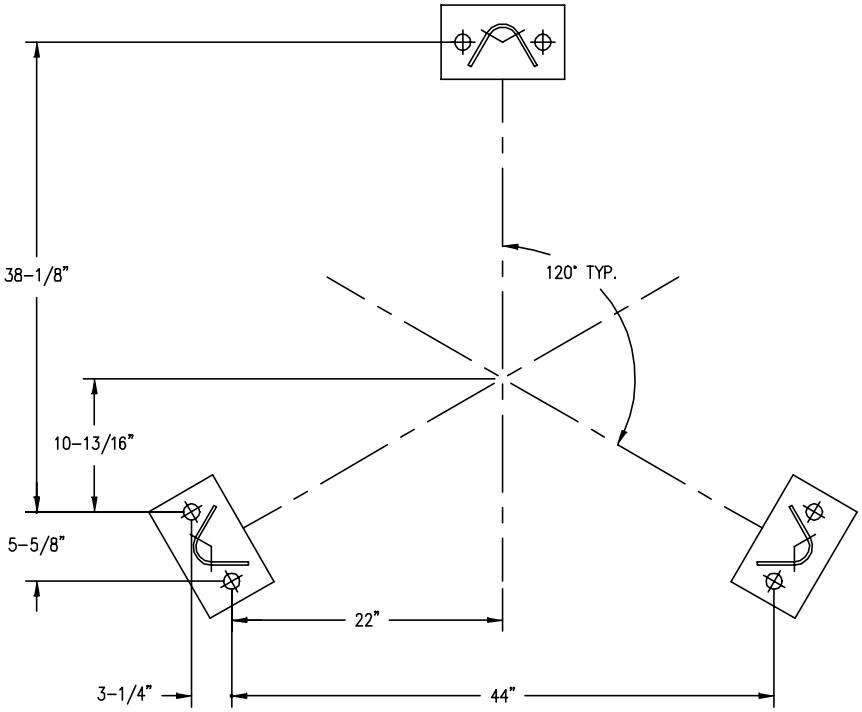
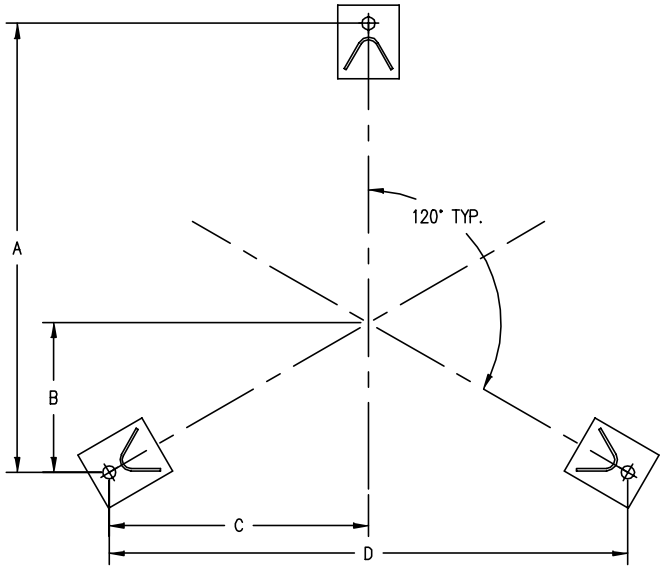
CUSTOMER:	SITE:	SCALE: 15.000	
DATE: 27 JAN 00	BY: BCP	CHK:	APP:
TITLE: ROCK FOUNDATIONS DESIGN		DRAWING NO. 000001.610.0021	



SECTION #13 FOOT WELDENT #3.85.0035.014



ROCK BOLT LAYOUT

SECTION	FOOT WELDMENT	A	B	C	D
6	3.85.0035.007	24-7/8"	8-5/16"	14-3/8"	28-3/4"
7	3.85.0035.008	27-15/16"	9-5/16"	16-1/8"	32-1/4"
8	3.85.0035.009	31-3/8'	10-7/16"	18-1/8"	36-1/4"
9	3.85.0035.010	34"	11-5/16'	19-5/8"	39-1/4"
10	3.85.0035.011	37"	12-5/16"	21-3/8'	42-3/4'
11	3.85.0035.012	39-5/8"	13-3/16'	22-7/8'	45-3/4"
12	3.85.0035.013	42-7/16"	14-1/8"	24-1/2"	49"

NOTES:

TITAN TOWER SELF-SUPPORT

REV.	REV. BY:	CHK. BY:	DESCRIPTION	DATE

TRYLON TSF
ISO 9001:2000 Registered

CUSTOMER:	SITE:	SCALE: 10.000
DATE: 29 AUG 00	BY: BCP	CHK: APP:
TITLE: ROCK BOLT LAYOUT		DRAWING NO. 000001.610.0033

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