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DATE: JANUARY 25, 2022

PURCHASER: CITYSWITCH

PROJECT: 305FT RT SELF SUPPORT TOWER
OTTER BAY, FLORIDA

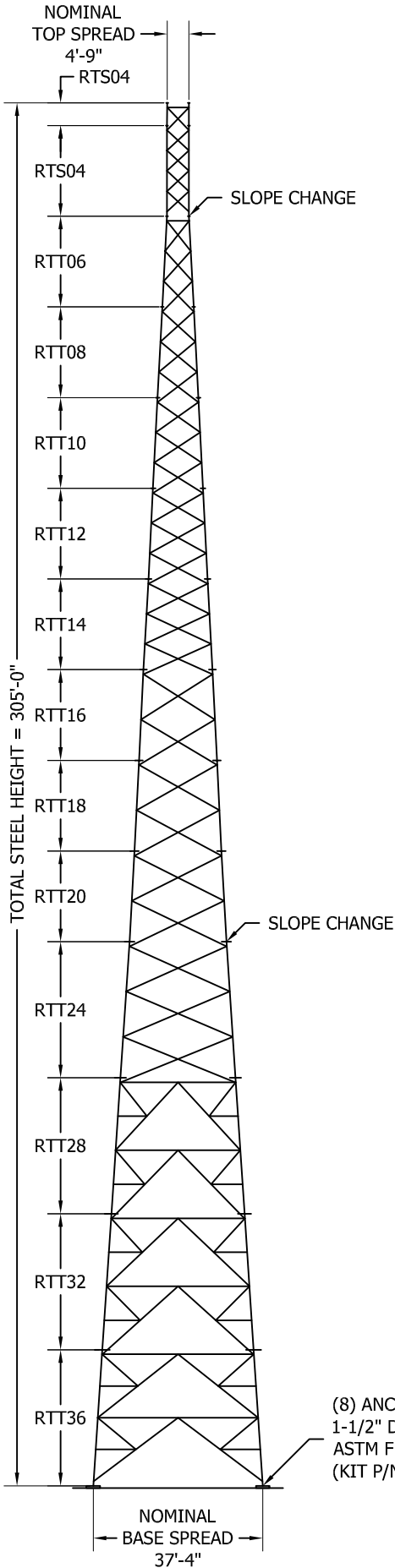
FILE NUMBER: Q22-10012

I CERTIFY THAT THE REFERENCED DRAWINGS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH THE DESIGN AND LOADING CRITERIA SPECIFIED BY THE PURCHASER AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF FLORIDA.

A handwritten signature in blue ink that reads "Stephen Yeo".

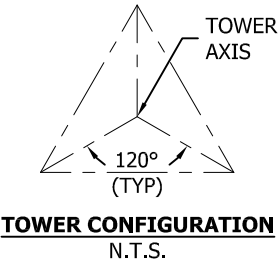
1/25/2022





(8) ANCHOR BOLTS (24 TOTAL)
1-1/2" DIA. X 74" LONG
ASTM F1554 Gr. 105
(KIT P/N: 24K3732RTFST)

MAXIMUM FACTORED REACTIONS			
COMPRESSION PER LEG	=	610.7	KIPS
TENSION PER LEG	=	512.0	KIPS
SHEAR PER LEG	=	66.5	KIPS
TOTAL SHEAR	=	106.8	KIPS
TOTAL O.T.M	=	18,394.9	FT-KIPS



TOWER DESIGN LOADING		
DESIGN WIND LOAD PER ANSI/TIA-222-H USING THE FOLLOWING DESIGN CRITERIA: RISK CATEGORY: II BASIC WIND SPEED (NO ICE): 118 MPH PER ASCE 7-16 BASIC WIND SPEED (W/ICE): 30 MPH PER ASCE 7-16 DESIGN ICE THICKNESS: 0.25 INCHES PER ASCE 7-16 GROUND ELEVATION, Z _s : 148 FT EXPOSURE CATEGORY: C TOPOGRAPHIC METHOD: 1 , CATEGORY: 1 SEISMIC DESIGN PARAMETERS , S _s : 0.088, S ₁ : 0.051, T _L : 8, SITE CLASS: D		
THIS STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE FOLLOWING LOADS:		
ELEVATION (FT)	ANTENNA LOADING	LINE SIZE (NOM)
TOP	BEACON & LIGHTNING ROD	(1) 0-3/4" CONDUIT
300	40,000 SQ-IN [278 SQFT] MAX EPA [K _A = 0.8]	(12) 1-5/8"
288	33,000 SQ-IN [230 SQFT] MAX EPA [K _A = 0.8]	(12) 1-5/8"
278	33,000 SQ-IN [230 SQFT] MAX EPA [K _A = 0.8]	(12) 1-5/8"

TOWER DESIGN INCLUDES CONSIDERATION OF A CONTAINED FALL RADIUS EQUAL TO 100 FT BY PROVIDING STRONGER SECTIONS THAN REQUIRED BY ANALYSIS IN THE LOWER PORTION OF THE TOWER

SECTION MAIN MEMBER SCHEDULE			
SECTION	LEGS	DIAGONALS	HORIZONTALS
RTS04	PIPE 2.875x0.203	L1 3/4x1 3/4x1/8 (1)	L1 3/4x1 3/4x3/16 (1)
RTS04	PIPE 3.500x0.216	L1 3/4x1 3/4x3/16 (4)	N/A
RTT06	PIPE 4.500x0.337	L2x2x3/16 (3)	L1 3/4x1 3/4x3/16 (1)
RTT08	PIPE 5.563x0.375	L2x2x3/16 (3)	N/A
RTT10	PIPE 6.625x0.432	L2x2x1/4 (3)	N/A
RTT12	PIPE 6.625x0.432	L2 1/2x2 1/2x3/16 (3)	N/A
RTT14	PIPE 6.625x0.432	L2 1/2x2 1/2x1/4 (3)	N/A
RTT16	PIPE 8.625x0.500	L3x3x1/4 (2)	N/A
RTT18	PIPE 8.625x0.500	L3 1/2x3 1/2x1/4 (2)	N/A
RTT20	PIPE 8.625x0.500	L3 1/2x3 1/2x1/4 (2)	N/A
RTT24	PIPE 10.750x0.500	L3 1/2x3 1/2x1/4 (3)	N/A
RTT28	PIPE 10.750x0.500	L4x4x1/4 (2)	L3 1/2x3 1/2x1/4 (2)
RTT32	PIPE 10.750x0.500	L4x4x5/16 (2)	L4x4x1/4 (2)
RTT36	PIPE 10.750x0.500	2L3 1/2x3 1/2x1/4 (2)	2L3 1/2x3 1/2x1/4 (2)

NOTE:
SECTION NUMBERS ARE FOR REFERENCE ONLY.
FOR NOMINAL FACE WIDTH DIMENSIONS, REFER TO THE STRESS ANALYSIS.
THE NUMBERS SHOWN IN PARENTHESES INDICATE THE NUMBER OF BAYS FROM TOP TO BOTTOM.

FILE NO.
Q22-10012-2

REVISIONS

REV.	DESCRIPTION	DWN	CHK	APP

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CITYSWITCH
DESIGN PROFILE
305 FT RT TOWER
OTTER BAY, FL

DWN: AS	CHK'D:	DATE: 01/25/2022
ENG'R: SY	SHEET #: 1 OF 1	
PRJ. ENG'R: AS	PRJ. MANG'R:	
DRAWING NO: Q22-10012-2 PROFILE		REV: 0



PLAN VIEW
N.T.S.



ADJUSTED FACTORED REACTIONS/LEG

DOWNLOAD = 645 KIPS
 UPLIFT = 540.7 KIPS
 SHEAR = 70.2 KIPS

VOLUME OF CONCRETE

(1) FOUNDATION	82.6	CU. YDS
(3) FOUNDATIONS	247.8	CU. YDS

GENERAL NOTES:

1. FOUNDATION DESIGN SHALL BE DEVELOPED IN ACCORDANCE WITH GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRINCIPLES AND PRACTICES WITHIN THE LIMITS OF THE SUBSURFACE DATA PROVIDED. FOUNDATION DESIGN MODIFICATIONS MAY BE REQUIRED IN THE EVENT THE FOLLOWING DESIGN PARAMETERS ARE NOT APPLICABLE FOR THE SUBSURFACE CONDITIONS ENCOUNTERED.
2. A) DEPTH NEGLECTED FOR SKIN FRICTION = TOP 3.0 FT AND BOTTOM 11.3 FT FOR DOWNLOAD.
3. B) AVERAGE ULTIMATE SKIN SHEAR FOR UPLIFT: 3.0 FT TO 6.5 FT DEPTH = 150 PSF, AND 6.5 FT TO 12.0 FT DEPTH = 1000 PSF, AND 12.0 FT TO 27.0 FT DEPTH = 400 PSF, AND 27.0 FT TO 42.0 FT DEPTH = 933 PSF, AND 42.0 FT TO 50.0 FT DEPTH = 250 PSF.
4. C) AVERAGE ULTIMATE SKIN SHEAR FOR DOWNLOAD: 3.0 FT TO 6.5 FT DEPTH = 150 PSF, AND 6.5 FT TO 12.0 FT DEPTH = 1000 PSF, AND 12.0 FT TO 27.0 FT DEPTH = 400 PSF, AND 27.0 FT TO 38.8 FT DEPTH = 933 PSF.
5. D) ULTIMATE NET END BEARING AT 50.0 FT = 13.50 KSF.
6. E) GROUNDWATER TABLE AT 2.5 FT BELOW GROUND.
7. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES, SAFETY REGULATIONS AND UNLESS OTHERWISE NOTED, THE LATEST REVISION OF ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION AND UTILITIES SHALL BE ESTABLISHED PRIOR TO FOUNDATION INSTALLATION.
8. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE STATE REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
9. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR RESISTANCE TO LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. AS A MINIMUM, CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI (31.0 MPA) IN 28 DAYS.
10. MAXIMUM SIZE OF AGGREGATE SHALL NOT EXCEED SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR 1/3 CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING. MAXIMUM SIZE MAY BE INCREASED TO 2/3 CLEAR DISTANCE PROVIDED WORKABILITY AND METHODS OF CONSOLIDATION SUCH AS VIBRATING WILL PREVENT HONEYCOMBS OR VOIDS.
11. REINFORCEMENT SHALL BE DEFORMED AND CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED. SPLICES IN REINFORCEMENT SHALL NOT BE ALLOWED UNLESS OTHERWISE INDICATED.
12. REINFORCING CAGES SHALL BE BRACED TO RETAIN PROPER DIMENSIONS DURING HANDLING AND THROUGHOUT PLACEMENT OF CONCRETE. WHEN TEMPORARY CASING IS UTILIZED, BRACING SHALL BE ADEQUATE TO RESIST FORCES OCCURRING FROM FLOWING CONCRETE DURING CASING EXTRACTION.
13. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
14. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 3 INCHES (76 MM) UNLESS OTHERWISE NOTED. APPROVED SPACERS SHALL BE USED TO INSURE A 3 INCH (76 MM) MINIMUM COVER ON REINFORCEMENT.
15. SPACERS SHALL BE ATTACHED INTERMITTENTLY THROUGHOUT THE ENTIRE LENGTH OF VERTICAL REINFORCING CAGES TO INSURE CONCENTRIC PLACEMENT OF CAGES IN EXCAVATIONS.
16. FOUNDATION DESIGN HAS BEEN BASED ON GEOTECHNICAL REPORT NO. **212367** DATED **12/15/2021** BY **G2 CONSULTING GROUP, LLC**.
17. FOUNDATION DEPTH INDICATED IS BASED ON THE GRADE LINE DESCRIBED IN THE REFERENCED GEOTECHNICAL REPORT. FOUNDATION MODIFICATION MAY BE REQUIRED IN THE EVENT CUT OR FILL OPERATIONS HAVE TAKEN PLACE SUBSEQUENT TO THE GEOTECHNICAL INVESTIGATION.
18. FOUNDATION DESIGN ASSUMES THE RECOMMENDATIONS IN THE REFERENCED GEOTECHNICAL REPORT CONCERNING VERIFICATION OF SUBSURFACE CONDITIONS ARE IMPLEMENTED PRIOR TO PLACEMENT OF CONCRETE.
19. FOUNDATION INSTALLATION SHALL BE SUPERVISED BY PERSONNEL KNOWLEDGEABLE AND EXPERIENCED WITH THE PROPOSED FOUNDATION TYPE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED INSTALLATION PRACTICES.
20. FOUNDATION DESIGN ASSUMES INSTALLATION PROCEDURES WILL INCORPORATE THE PROCEDURES RECOMMENDED IN THE REFERENCED GEOTECHNICAL REPORT.
21. FOUNDATION DESIGN ASSUMES FIELD INSPECTIONS WILL BE PERFORMED TO VERIFY THAT CONSTRUCTION MATERIALS, INSTALLATION METHODS AND ASSUMED DESIGN PARAMETERS ARE ACCEPTABLE BASED ON CONDITIONS EXISTING AT THE SITE.
22. FOR FOUNDATION INSTALLATION TOLERANCES SEE STRUCTURE ASSEMBLY DRAWING.
23. LOOSE MATERIAL SHALL BE REMOVED FROM BOTTOM OF EXCAVATION PRIOR TO CONCRETE PLACEMENT. SIDES OF EXCAVATION SHALL BE ROUGH AND FREE OF LOOSE CUTTINGS.
24. CONCRETE SHALL BE PLACED IN A MANNER THAT WILL PREVENT SEGREGATION OF CONCRETE MATERIALS, INFILTRATION OF WATER OR SOIL AND OTHER OCCURRENCES WHICH MAY DECREASE THE STRENGTH OR DURABILITY OF THE FOUNDATION.
25. FREE FALL CONCRETE MAY BE USED PROVIDED FALL IS VERTICAL DOWN WITHOUT HITTING SIDES OF EXCAVATION, FORMWORK, REINFORCING BARS, FORM TIES, CAGE BRACING OR OTHER OBSTRUCTIONS. UNDER NO CIRCUMSTANCES SHALL CONCRETE FALL THROUGH WATER.
26. CONSTRUCTION JOINTS, IF REQUIRED AT THE BASE OF THE PIERS, MUST BE INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF 1/4 INCH (6 MM). FOUNDATION DESIGN ASSUMES NO OTHER CONSTRUCTION JOINTS.
27. TOP OF FOUNDATION OUTSIDE LIMITS OF ANCHOR BOLTS SHALL BE SLOPED TO DRAIN WITH A FLOATED FINISH. AREA INSIDE LIMITS OF ANCHOR BOLTS SHALL BE LEVEL WITH A SCRATCHED FINISH.
28. EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" X 3/4" (19MM X 19MM) MINIMUM.
29. FOUNDATION DESIGN ASSUMES CASING, IF USED, WILL NOT BE LEFT IN PLACE. EQUIPMENT, PROCEDURES, AND PROPORTIONS OF CONCRETE MATERIALS SHALL INSURE CONCRETE WILL NOT BE ADVERSELY DISTURBED UPON CASING REMOVAL.

NOTE: SEE STRUCTURE ASSEMBLY DRAWING FOR FOUNDATION LAYOUT AND ANCHORAGE EMBEDMENT DRAWING NUMBER.

[illegible]