



Rigging Plan — Class III (ANSI/ASSP A10.48)

Plan Status Summary

LIFT STATUS	CAUTION — SEE WARNINGS	GOVERNING FL	920.83 lbs
CONFIGURATION	Type A — top block only, 1-part load line, straight tag	GOVERNING BLOCK	1,822.25 lbs
GROSS LOAD	688 lbs (incl. rope at height 18 lbs)	ANCHORAGE DEMAND	3,998 lbs
PLAN CLASS	Class III (ANSI/ASSP A10.48)	LOAD TEST TARGET	1,381 lbs (1.5x line pull)
ROPE-RIGGING LIMIT	3,000 lbs (company policy)		
NOT CHECKED	Structure / mount / gin-pole capacity, sheave D/d, sharp edges		

Plan class: selected III, required III — OK. Gross load 688 lbs exceeds the 500 lbs Class II limit.
Developed by a qualified person.

Project Information

SITE NAME	FL-4521 Ridgeline	DATE	2026-10-11
SITE ID NO.	FL-04521	COMPLETED BY	J. Alvarez
LAT	27.9506	CUSTOMER	Verizon Wireless
LONG	-82.4572	STRUCTURE OWNER	Crown Castle
SITE ADDRESS	4521 Ridgeline Rd, Tampa, FL 33610	STRUCTURE TYPE	Monopole

General Scope of Work

Install / Remove Antennas, Lines, and/or Mounts

Project Contacts

ROLE	NAME	COMPANY	PHONE
COMPETENT RIGGER	J. Alvarez	Summit Tower Services	(813) 555-0142
PRIME GC PM	M. Donovan	Black & Veatch	(813) 555-0198
SUB GC PM	R. Chen	Summit Tower Services	(813) 555-0142
CUSTOMER POC	T. Whitfield	Verizon Wireless	(727) 555-0117
STRUCTURE OWNER POC	D. Osei	Crown Castle	(727) 555-0183

Final Sign-Offs

The construction means and methods identified in this plan were developed by the competent and/or qualified person named below following ANSI/ASSP A10.48 methodology. The listed competent person shall be present on site during all construction activities and shall communicate the details of this plan to the crew.

Competent Rigger Name	Signature	Date
Qualified Person Name	Signature	Date
Optional — when the project assigns these roles:		
Engineer of Record (EOR)	Signature	Date
Supervising Engineer	Signature	Date

This tool assists a qualified/competent person. It does not replace engineering judgment or review by a licensed professional engineer. The user is responsible for verifying all inputs and results. Calculations follow engineering methods consistent with ANSI/TIA-322 and ANSI/ASSP A10.48 methodology.

Structure Data

STRUCTURE TYPE	Monopole
HEIGHT	180 ft

Construction Duration

PLANNED MOBILIZATION	2026-10-20
PLANNED DE-MOBILIZATION	2026-10-21
MAX OPERATIONAL WIND	30 mph
MAX NON-OP WIND	50 mph

Scope of Work

Remove (3) existing panel antennas and (3) existing RRUs at the 170-182 ft level. Install (3) new panel antennas and (6) new RRUs on the existing sector mounts. No structural modification to the monopole; mount pipes and platforms are existing and rated.

Construction Sequencing

1. Mobilize to the tower site
2. Review project SOW and Job Hazard Analysis with crew
3. Inventory and stage equipment and materials; assemble the new equipment
4. Rig tower at planned elevation
5. Conduct a load test of the rigging anchorage to verify the capstan, hitch and anchorage capability
6. Perform removal/installation work per construction drawings, sector by sector
7. Do not remove the rigging sling before the equipment is secured
8. Do not operate at night
9. Monitor wind and weather
10. De-rig tower
11. Clean up site
12. Demobilize

Lift System Details — Sector A/B/C Swap — 180 ft Monopole

Type A — top block only, 1-part load line, straight tag

PLANNED LIFT INPUT

RIGGING LOAD LOCATION	Outside Tower
TOP BLOCK ATTACHMENT	Primary structure (leg panel point / pole shaft)
TOWER TYPE	Monopole
GROSS LOAD (W)	688 lbs = 670 + rope at height 18 (0.1 lb/ft)
LOAD HEIGHT (HL)	179 ft
LOAD DISTANCE (DL)	0.3 ft
TOP BLOCK HEIGHT (HTB)	182 ft
HOIST DISTANCE (DH)	45 ft
TAG DISTANCE (DT)	179 ft
DYNAMIC FACTOR	1 (company policy / QP)
ACCOUNTS FOR FRICTION?	Yes (x1.02/sheave)
WIND ON LOAD	30 mph on 18 sq ft, Cd 1.5

FINAL POSITION CALCULATIONS

TAG LINE ANGLE (AT)	45.05 deg
LOAD LINE ANGLE (AL)	5.71 deg
HOIST ANGLE (AH)	76.11 deg
TOP BLOCK ANGLE (ATB)	8.18 deg
TOP RESTRAINT ANGLE (ATR)	9.84 deg
LOAD LINE FORCE (FL)	854.98 lbs
TAG LINE FORCE (FT)	206.10 lbs

WARNINGS

- Verify in the field that the tag line itself clears every obstruction over the whole lift path — line contact is not modeled.
- Rope at height included: 18 lbs (0.1 lb/ft × 182 ft) added to the gross load — 688 lbs used in the calculation.
- Tag-line force up to 292 lbs = 146 lbs per handler (> 50 lbs) — use a tag-line winch / anchored block, or more hands.
- Capstan rope entry angle (AH = 76.1 deg) NOT checked — enter the capstan manufacturer's maximum rope entry angle to horizontal.
- Capstan checklist (verify in the field — not calculated by this tool): the incoming rope enters the drum within the manufacturer's rated angle (add a heel/snatch block if needed); the drum is wrapped per the manufacturer's minimum-wraps instructions for the expected load; the capstan has an operative brake/ratchet or a back-up (a tailer holding a second wrap) before load is applied. Capstan friction plus the tag/handler is what holds the load.
- Top Block: D/d computed as 5.2:1 (sheave 2.6 in / rope 0.5 in) — NOT verified against the rope manufacturer's minimum D/d; do not assume it is adequate. Enter the manufacturer's minimum D/d (and, if published, the efficiency at this D/d) from the rope's data sheet.
- Top Block Sling: edge protection at the structure contact point NOT confirmed — a sling wrapped around a structural angle or pole shaft can be cut by the edge. Install edge protection (padding / edge protector) rated for this sling, or confirm the manufacturer rates this exact hitch/edge combination.

Load Build-Up

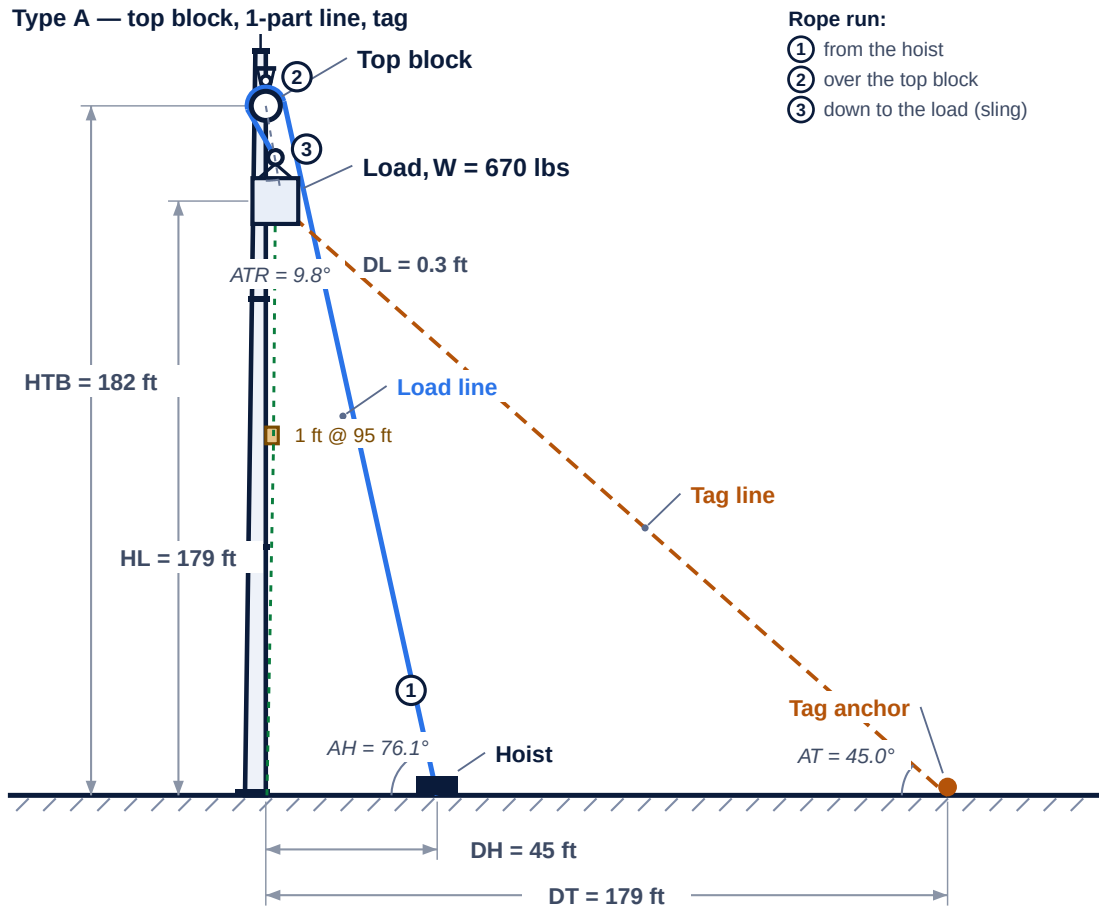
ITEM	UNIT (LBS)	QTY	TOTAL (LBS)
Panel antenna, 8ft (x3)	60	3	180
RRU 4480 (x6)	55	6	330
Mounting hardware, jumpers, hybrid cable	40	1	40
Rigging weight allowance			120
GROSS LOAD (W)			670

Item weights are typical manufacturer-data values — verified against datasheet/shipping label by the competent person.

Obstructions on the Lift Path

HEIGHT (FT)	STANDOFF (FT)	CLEARANCE (FT)
95	1	1

Rig Geometry — Monopole (Side View)



Side-view schematic of the final lift position — dimensions in feet, not to scale.

Lift Path Profile (Governing Case Highlighted)

POINT	LOAD HT (FT)	OFFSET (FT)	AL (DEG)	AT (DEG)	FL (LBS)	FT (LBS)	BLOCK (LBS)
Passing obstruction @ 95 ft	95	2	1.32	28.22	745.41	89.66	1467.33
Held at 2 ft offset past obstruction @ 95 ft (y=98 ft)	98	2	1.36	28.97	747.15	91.04	1470.83
Held at 2 ft offset past obstruction @ 95 ft (y=107 ft)	107	2	1.53	31.15	752.72	95.68	1482.02
Held at 2 ft offset past obstruction @ 95 ft (y=116 ft)	116	2	1.74	33.24	758.96	101.32	1494.60
Held at 2 ft offset past obstruction @ 95 ft (y=125 ft)	125	2	2.01	35.23	766.22	108.41	1509.27
Held at 2 ft offset past obstruction @ 95 ft (y=134 ft)	134	2	2.39	37.13	775.10	117.70	1527.28
Held at 2 ft offset past obstruction @ 95 ft (y=143 ft)	143	2	2.94	38.94	786.82	130.76	1551.09
Held at 2 ft offset past obstruction @ 95 ft (y=152 ft)	152	2	3.81	40.65	804.17	151.13	1586.43
Held at 2 ft offset past obstruction @ 95 ft (y=161 ft)	161	2	5.44	42.29	835.50	189.07	1650.12
Held at 2 ft offset past obstruction @ 95 ft (y=170 ft) (governing)	170	2	9.46	43.84	920.83	292.04	1822.25
Final position	179	0.3	5.71	45.05	854.98	206.10	1688.89

Equipment demands below use the per-quantity maxima over all points of the lift path.

Equipment Summary — Sector A/B/C Swap — 180 ft Monopole

EQUIPMENT	DETAILS	LISTED WLL (LBS)	REDUCED WLL (LBS)	REQUIRED WLL (LBS)	UTILIZATION
Top Block Sling	Name: LIFT-ALL 4' Manuf.: LIFT-ALL Model: Endless - Type 5 Type: Synthetic Sling Size: 4" Config: Basket — verify tag Hitch: basket; edge protection: NOT CONFIRMED	16,800	16,800	1,822	PASS 10.8%
Redundant Sling	—	16,800	16,800	1,822	PASS 10.8%
Safety Sling	—	16,800	16,800	1,822	PASS 10.8%
Top Block Shackle	Name: Crosby Manuf.: Crosby Model: Anchor Shackle - Screw Pin Type: Screw Pin Size: 5/8" Config: G-209 5/8 in = 3.25 t — verify tag	6,500	6,500	1,822	PASS 28.0%
Top Block	Name: Rock Exotica Manuf.: Rock Exotica Model: Omni-Block 2.6 Type: Steel Roller Sheave Size: 2.6" Config: Bearing const. 1.02 — verify WLL on tag D/d: sheave 2.6 in / rope 0.5 in = 5.2:1 (mfr. min NOT entered)	4,500	4,500	1,822	PASS 40.5%
Load Line	Name: Pelican 11000 Manuf.: Pelican Model: PL-1AP-160-06 Type: Synthetic Rope, Double Braid Size: 5/8" Config: End term: Knot — verify WLL on tag	2,600	2,600	921	PASS 35.4%
Tag Line	Name: Pelican 5000 Manuf.: Pelican Model: PL-1AP-120-12 Type: Synthetic Rope, Double Braid Size: 3/8" Config: End term: Knot — verify WLL on tag	500	500	292	PASS 58.4%
Hoist	Name: AB Chance Manuf.: AB Chance Model: HB-T3080999 Type: Capstan Config: verify rating on the capstan plate	2,000	2,000	921	PASS 46.0%
Hoist Attachment	Name: AB Chance Manuf.: AB Chance Model: HB-T3080999 Type: Hitch Config: verify rating	2,000	2,000	921	PASS 46.0%
Hoist Anchorage Weight	Name: Truck Manuf.: Ford/Dodge/Chevy Model: 250/2500/2500 Type: Truck Config: verify curb weight	10,000	10,000	3,998	PASS 40.0%
Gin Pole / Mount / Attachment — Top	Type: Enter the gin pole / mount manufacturer's rated capacity (or an engineered rating) Config: Resultant of the load-line + hoist-line legs at the top attachment point — see Tower Attachment Details for FY/FZ	5,000	5,000	1,822	PASS 36.4%
Gin Pole / Mount / Attachment — Base / Foot	Type: Enter the gin pole/mount rated capacity at its base, or the structural rating from the EOR-Config: Conservative: the full top resultant force is assumed to transfer to the base — no separate gin-pole geometry (length, back angle, backstay) is modeled	5,000	5,000	1,822	PASS 36.4%

Required WLL per item: top block sling/shackle/block — governing block force; heel block set — governing heel block force; load block — governing support force; load line, hoist and hoist attachment — governing load line tension; tag line — governing tag force; anchorage — factored anchorage weight demand.

Tower Attachment Details & Forces — Sector A/B/C Swap — 180 ft Monopole

BLOCK ATTACHMENT	GOVERNING RESULTS	FORCE ON TOWER (FINAL POS.)
Basket — edge protection NOT CONFIRMED	SLING FORCE	1,822.25 lbs
	FY (DOWN)	1,664.05 lbs
	FZ (HORIZONTAL)	288.62 lbs
SLING CONFIGURATION	ANCHORAGE DEMAND	3,998.05 lbs

Block attachments shall be secured around the structural member and nestled at a panel point (latticed towers) or around the primary pole shaft (monopoles) at the designated elevation, unless otherwise specified and approved by the qualified engineer.

Load Test Note

When a capstan hoist is used, a load test of the rigging and anchorage shall be performed and recorded before production lifting, consistent with ANSI/ASSP A10.48 requirements for capstan hoists. Operational load-test target for this lift: 1,381 lbs (1.5x the maximum anticipated line pull of 920.83 lbs). Alternatively verify the anchorage by an engineering review with a minimum safety factor of 2.0.

Method, Source & Assumptions

CONFIGURATION	Type A — top block only, 1-part load line, straight tag
METHOD	2D static equilibrium of the suspended load at every governing point of the lift path; leg-tension vector sums for block forces; factored line-pull components for anchorage weight.
SOURCE	Classical statics (force resolution); engineering methods consistent with ANSI/ASSP A10.48 rigging-plan practice.
ASSUMPTIONS	
• Static 2D analysis in the vertical plane through the rig. • Gross load includes all rigging weight below the hook. • Wind on the load: 30 mph on 18 sq ft ($C_d 1.5$) = 62.2 lbs horizontal, applied in the most unfavorable direction. Wind on the rigging itself is not modeled. • No dynamic/impact factor applied (static lift, controlled hoisting speed). • Sheave friction accounted: line tension multiplied by 1.02 at each sheave the line passes. • Obstruction at 95 ft: load held at 2 ft offset while passing (standoff 1 + clearance 1 ft). Conservatively modeled as held at that offset up to the final height — in the field, ease the tag line back toward the nominal offset only once clear of the obstruction, and monitor the load-line and tag-line angles continuously while doing so. • Equipment demands are the maxima across all evaluated points of the lift path (governing case). • Capstan anchorage verification: operational load test to 1.5x the maximum anticipated line pull, or an engineering review with a minimum safety factor of 2.0.	

Version

CALC CORE VERSION	0.1.0
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