

Job Hazard Analysis (JHA)

Task: Mule Tape Installation in the Telecom Industry

Risk Assessment Code (RAC) Legend

- **☒ Red (High Risk):** Unacceptable—stop work and implement controls before proceeding.
- **☑ Yellow (Moderate Risk):** Proceed with caution—implement and verify controls.
- **☑ Green (Low Risk):** Acceptable—maintain controls and continuous monitoring.

Overall Initial RAC for Mule Tape Installation Task: ☑ Moderate Risk

Job Steps, Hazards, and Controls

Step No.	Task Description	Potential Hazards	Controls / Safe Work Practices	Initial RAC
1	Pre-job planning & scope review	Missing permits; incomplete prints; overlooked utilities	Conduct tailboard/JSA meeting; review work order and as-builts; verify 811/One-Call ticket; confirm conduit route and duct condition; assign stop-work authority.	☑
2	Material staging (mule tape spools, blowers, vacuums, pull rods)	Struck-by rolling spools; trip hazards; manual handling strain	Chock spools on reel stands; store on level ground; stage equipment away from vehicle/pedestrian traffic; mechanical assist for heavy reels.	☑
3	Traffic control setup (if vaults/handholes are in roadway or sidewalk)	Vehicle strikes; inadequate work zone signage	Deploy MUTCD-compliant traffic control; advance warning signs, cones, and barricades; certified flaggers; ANSI/ISEA 107 Class 2/3 high-vis garments; lighting for night work.	☑
4	Vault/handhole access	Struck-by falling covers; confined space hazards; slips/trips	Use proper cover lifting tools; treat vaults/handholes as confined space if applicable; test atmosphere; ventilate if needed; guard openings with barricades.	☑
5	Inspecting and prepping conduit path	Contact with debris, rodents, water, or contaminated soils; sharp edges	Inspect conduit with flashlight/camera; wear cut-resistant gloves; vacuum debris or flush with water; use PPE for contaminated environments.	☑
6	Feeding mule tape by hand or pull rod	Cuts, hand strain, entanglement	Wear cut-resistant gloves; keep tape clear of body; do not wrap mule tape around hands; maintain good posture to avoid strain.	☑

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7	Using vacuum or blower to install mule tape	Noise; airborne debris; struck-by hose whip	Inspect hoses and connections; use filter bags to capture debris; hearing protection for >85 dBA; secure hoses; exclusion zone near blower discharge.	?
8	Pulling mule tape through conduit	Snap-back injury if tape breaks; excessive pull tension; pinch points	Monitor pull tension; use appropriate grips and swivels; maintain exclusion zone along pull path; stop and investigate if excessive resistance occurs.	?
9	Splicing or knotting mule tape for longer pulls	Weak splice failure; hand injury	Use manufacturer-approved knots/splices; avoid sharp bends; keep hands clear during tension; inspect for fraying before use.	?
10	Measuring, marking, and securing mule tape	Lacerations from cutting tools; incorrect length markings	Use sharp scissors/approved cutters; cut away from body; mark lengths with non-conductive marker; secure ends to prevent unraveling.	?
11	Installing mule tape in multiple ducts or with existing cables	Cable abrasion; entanglement; space limitations	Use conduit bushings to protect existing cables; pull slowly; monitor for jacket contact; ensure separation per NESC requirements.	?
12	Storage of excess mule tape	Trip hazard; improper coiling leading to knots	Coil mule tape neatly; secure with ties; store away from walk paths; keep dry to prevent mildew.	?
13	Final inspection and continuity check	Missed defects; improper routing	Verify tape runs smoothly end-to-end; check markings; photograph and document completed installation.	?
14	Backfilling/opening restoration (if conduit exposed)	Struck-by equipment; trench collapse; improper compaction	Follow OSHA excavation standards; compact in lifts; place warning tape; restore surface per permit.	?
15	Documentation & turnover	Missing records; regulatory non-compliance	Record mule tape installation path and footage; update as-builts; submit QC photos; archive continuity test results.	?
16	Traffic control removal & demobilization	Vehicle strikes during removal	Remove devices in reverse order; maintain flaggers until last cone collected; post-job site inspection.	?

PPE Requirements

- **Head/Face/Eye:** Hard hat (ANSI Z89.1); safety glasses with side shields (ANSI Z87.1).
- **Hearing:** Hearing protection when using blowers, vacuums, or other >85 dBA equipment.
- **Hands:** Cut-resistant gloves for handling mule tape and conduit; insulated gloves if working near energized facilities (qualified persons only).

- **Feet:** Safety-toe boots with slip-resistant soles.
 - **High-Visibility Apparel:** ANSI/ISEA 107 Type R, Class 2 (day) or Class 3 (night/high-speed).
 - **Fall Protection:** Harness/retrieval system required if entering vaults/handholes >6 ft or confined space.
 - **Respiratory:** Dust mask or respirator when using blowers/vacuums in dusty environments.
 - **Weather-Specific:** Rain gear, thermal clothing, UV/sun protection as needed.
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Regulatory & Industry Practice Alignment (summary)

- **OSHA:** 29 CFR 1926 Subpart P (Excavations), Subpart E (PPE), Subpart M (Fall Protection), Subpart O (Motor Vehicles/Mechanized Equipment), Subpart V (Power Transmission/Distribution if near energized lines).
- **NIOSH:** Best practices for confined space entry, ergonomic handling of reels, and noise exposure.
- **ANSI/ISEA:** ANSI/ISEA 107 (high-visibility apparel), ANSI Z87.1 (eye protection), ANSI Z359 (fall protection).
- **NESC:** Conduit routing, separation from energized facilities, and grounding/bonding considerations.
- **MUTCD:** Traffic control for work zones around handholes, vaults, or open trenches.