



INTEGRATED SERVICES LLC

FIELD DEPLOYMENT STANDARDS // CLASS: CRITICAL SITE OPS

UNDERGROUND VAULT & CONDUIT TRENCHING CODE MANUAL

WSDOT & ODOT compliant specifications covering backfill materials, vault placement depth, and structural concrete requirements.

DOCUMENT ID:	MERRA-SOP-UNDERGROUN-2026
REVISION CODE:	REV. 4.02 // PRODUCTION
ISSUING DEPT:	ENGINEERING, INFRASTRUCTURE & SAFETY UNIT
SYSTEM STATUS:	APPROVED FOR GENERAL DEPLOYMENT [SYS_OK]

A compilation of standard details for underground civil utility placements. Includes trench profile dimensions, concrete vault structural load calculations, PVC conduit layout parameters, sand bedding depth, metallic warning tape alignment, and structural asphalt patch specifications.

STEP 1: EXCAVATION AND SHORING.

Excavate utility trenches to the depths specified by regional WSDOT/ODOT guidelines. Implement proper sloping, benching, or trench shoring boxes to protect personnel, adhering strictly to OSHA excavation safety standards for trenches deeper than 5 feet.

STEP 2: CONDUIT LAYING.

Install PVC schedule-40 or schedule-80 conduits, maintaining the required separation distances between telecommunication and power lines to prevent electromagnetic interference. Utilize plastic spacers to secure the conduit array and ensure proper fill space.

STEP 3: BEDDING AND BACKFILLING.

Place a 4-to-6-inch layer of clean sand bedding beneath and around the conduits. Backfill the trench using crushed aggregate, placing it in 6-to-8-inch lifts and compacting each lift to 95% relative density (Modified Proctor density) under pavement structures, verified by nuclear density testing.

STEP 4: VAULT PLACEMENT & RESTORATION.

Position pre-cast concrete vaults on compacted gravel beds, aligning conduit entry ports. Install traffic-rated H-20 or HS-20 concrete covers. Lay metallic warning tape 12 inches above the conduit, and complete the structural asphalt or concrete patch to restore the surface.