CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-OmHbccij	08.08.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **Water proofing**

ASSESSORS	— PROJECT MANAGER *signature*	— HSE ENGINEER *signature*	— PROJECT MANAGER *signature*	— CIVIL ENGINEER *signature*	— HSE ENGINEER *signature*

SN	Activity	Hazard / Aspect	Consequence	Groups Exposed	Existing Controls	Initial Risk P × S = R	Additional Controls	Residual Risk P × S = R
1	**Complete HDPE Duct Infill**	1. Vehicle movement and traffic hazards 2. Manual handling during loading/unloading 3. Uneven ground conditions	Personal injury, property damage	Site Personnel, Subcontractors, Public	1. Implement traffic management plan 2. Designated walkways 3. Mandatory PPE 4. Speed limit enforcement	**P 3 × S 3** **9**	1. Comply with ADOSH SF CoP 27.0 2. Daily vehicle inspection 3. Toolbox talk	**P 2 × S 2** **4**
2	**Site mobilization and setup of temporary**	Passing high-speed public traffic and moving site vehicles	Personal injury, property damage	Site Personnel, Subcontractors, Public	Approved TTM plan, high-visibility clothing (Class 3), physical water-filled/concrete barriers, advanced warning signs, and trained flagmen.	**P 3 × S 3** **9**	Deployment of Truck Mounted Attenuators (TMA) and enforcement of reduced speed limit zone in coordination with local traffic authorities.	**P 2 × S 2** **4**
3	**Trench excavation and sub-surface ground preparation**	Accidental strike on existing buried live electrical cables or gas utilities	Personal injury, property damage	Site Personnel, Subcontractors, Public	Utility mapping review, CAT & Genny cable avoidance scanning, and manual trial pits (pot-holing) prior to mechanical excavation.	**P 3 × S 3** **9**	Mandatory Permit to Dig system, use of insulated hand tools near identified utilities, and continuous competent supervision.	**P 2 × S 2** **4**
4	**Uncoiling, handling, and positioning HDPE pipe**	Sudden release of stored mechanical spring energy in coiled HDPE pipe	Personal injury, property damage	Site Personnel, Subcontractors, Public	Use of specialized pipe reeler/uncoiler frame, controlled strap cutting procedures, and establishing exclusion zones.	**P 3 × S 3** **9**	Mandatory deployment of safety restraints/bands before unstrapping and wearing high-impact resistant safety glasses and gloves.	**P 2 × S 2** **4**
5	**HDPE pipe jointing via electrofusion and**	High-temperature heating elements, hot molten plastic, and portable electrical generators	Personal injury, property damage	Site Personnel, Subcontractors, Public	Certified welding equipment, RCD-protected generators, heat-resistant safety gloves, and portable fire extinguishers nearby.	**P 3 × S 3** **9**	Hot Work Permit implementation, provision of localized exhaust ventilation or respiratory protection (FFP3) in confined areas.	**P 2 × S 2** **4**
6	**Entry into underground chambers and manholes**	Hazardous atmosphere (oxygen deficiency, toxic gases like H2S/methane), engulfment, or fall from height	Personal injury, property damage	Site Personnel, Subcontractors, Public	Confined Space Entry Permit, pre-entry 4-gas atmospheric testing, forced air ventilation, and tripod rescue system with harness.	**P 3 × S 3** **9**	Continuous multi-gas monitoring during entry, dedicated trained top-person/standby monitor, and verified emergency rescue plan.	**P 2 × S 2** **4**

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7	**Mechanical winch pulling of HDPE sub-ducts**	High-tension winch wire snap, rotating capstans, and pinch/nip points	Personal injury, property damage	Site Personnel, Subcontractors, Public	Properly rated winching wire with calibrated weak-link swivel, emergency stop switches, and safety guards over rotating parts.	P 3 × S 3 **9**	Integrated load monitoring with automatic shut-off at peak tension limits and strict exclusion zones along the tension line.	P 2 × S 2 **4**
8	**Duct proving (mandrel testing) and air**	Uncontrolled high-pressure compressed air release and projectile ejection of foam pig or mandrel	Personal injury, property damage	Site Personnel, Subcontractors, Public	Calibrated pressure relief valves, secure containment/catcher cage at receiving duct end, clear exclusion zone enforcement.	P 3 × S 3 **9**	Mandatory Pressure Testing Permit, full-face protection shields for operators, and calibrated double-gauge manifolds.	P 2 × S 2 **4**
9	**Surface preparation and grit/water blasting on substation roof prior to waterproofing**	Working at height, high-pressure water jetting, airborne dust and debris near energized equipment	Falls from height leading to severe injury/fatality, eye injuries, flashover from water spray hitting exposed live conductors	Waterproofing operatives, civil workers, nearby electrical maintenance staff	Install full perimeter scaffolding with guardrails, full-body harness tied off to certified anchor points, eye protection (safety goggles/face shield), maintain minimum safe clearance distances from live overhead lines	P 4 × S 5 **20**	Schedule work during planned electrical outage/shutdown where feasible; implement strict Permit to Work (PTW) and mandatory pre-task tool box talk.	P 2 × S 3 **6**
10	**Application of torch-on bituminous membrane on electrical switchgear room roof**	Open flame (LPG torch), LPG cylinder storage, high surface temperatures near cable risers	Major fire hazard, severe thermal burns, damage to power cables causing electrical short circuits	Waterproofing applicators, site personnel, switchgear operators	Issue Hot Work Permit, maintain 2 x 9kg Dry Powder fire extinguishers on-site, clear all combustible materials and cover cable entries with fire-blankets, LPG cylinders secured upright outside switchroom	P 4 × S 5 **20**	Mandatory 60-minute continuous fire watch post torching activity; use non-flammable cold-applied self-adhesive membranes near high-density cable penetrations.	P 2 × S 3 **6**
11	**Applying chemical solvent-based liquid waterproofing membrane around live electrical panels**	Volatile Organic Compounds (VOCs), toxic fume accumulation, flammable vapor ignition from electrical sparks	Inhalation toxicity, asphyxiation, explosion/fire within switchroom	Waterproofing technicians, electrical engineers inside the switchroom	Forced air mechanical ventilation unit installed, continuous VOC/gas monitoring, elimination of all spark sources, use intrinsic safety/EX-rated lighting and tools	P 4 × S 4 **16**	Mandatory half-mask respirators with ABEK1 filters; switch to water-based/low-VOC polyurethane liquid membranes.	P 1 × S 3 **3**
12	**Waterproofing cable trenches and basement cable cellars (underground tanking)**	Confined space entry, hazardous atmosphere, restricted access/egress, proximity to high-voltage cables	Asphyxiation, loss of consciousness, electrocution, delayed emergency evacuation	Confined space entry workers, safety standby person	Confined Space Entry Permit, continuous 4-gas atmosphere testing, dedicated trained Hole Watcher, 110V/battery-operated SELV lighting	P 4 × S 5 **20**	Lockout/Tagout (LOTO) isolation of live cables within trench where possible; tripods and winch retrieval system deployed at access hatch.	P 1 × S 3 **3**

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LIKELIHOOD / FREQUENCY

Descriptor	Likely Frequency	Probability
Frequent	Occurs frequently	5
Often	Occurs several times per year	4
Likely	Has occurred more than once	3
Possible	Has occurred	2
Rare	Never occurred	1

RISK MATRIX — PROBABILITY × CONSEQUENCE

Probability	Consequence				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Rare (1)	1	2	3	4	5
Possible (2)	2	4	6	8	10
Likely (3)	3	6	9	12	15
Often (4)	4	8	12	16	20
Frequent / Almost Certain (5)	5	10	15	20	25

15 – 25	Extreme Risk	Activity or industry should not proceed in current form.
8 – 12	High Risk	Activity or industry should be modified to include remedial planning and action and be subject to detailed EHS assessment.
4 – 6	Moderate Risk	Activity or industry can operate subject to management and/or modification.
1 – 3	Low Risk	No action required, unless escalation of risk is possible.