CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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	**Planning**	• Disorganized with risk of reduced safety on the site, Unidentified and/or unmitigated hazards, or unsafe conditions.	• Works Delay and poor safety controls	• PM/ Planning Team/ Execution Team	• Carry out a pre-start check of the site, well ahead of work commencing on site. • Check all equipment is fit-for-purpose, before sending to site. • Ensure all equipment is suitable for work. • Ensure all Client/ADOSH V4.0 HSE requirements are fulfilled. • Provide all team members with incident emergency phone numbers and the process to follow for rapid notification in the event of an emergency. • Ensure the planned activity was notified and mentioned in the look ahead program. • Emergency Response Procedures, • First Aid, Clinic, Nurse and • Accident investigation & notification procedures. • Preventive maintenance.	**P 2 × S 3** **6**	• All engaged employees shall be aware of their roles and responsibilities • Administrative controls pertaining deliberate violations, • Weather forecasts and adverse weather management.	**P 2 × S 1** **2**
2	**Mobilization/ Transportation, Loading and unloading of machineries/equip ment to site**	• The collision of vehicles/ equipment Unsecured loads	• Personnel Injuries, Property/ Equipment Damage	• Site • Engineers/ Logistics In charge/ Site • Supervisor	• All operatives have received the site safety Induction • All operatives receive TBT on a weekly basis, covering site-wide safety issues • TBT shall be conducted prior to starting activity. • Safe access to be maintained. • Only trained operators/drivers are allowed for the operations of the project. • Barriers and signage in place for the working area. • Drivers/operators must be competent, with UAE driving license third-party accreditation is required. • Daily and monthly inspections of equipment shall be done. • 20 KPH Speed limits set and enforced. • Flashing Beacon lights to be on while vehicle/equipment operational at the project. • Audible reversing alarm to be fitted to vehicles on site. • Crane and lifting accessories are fully tested and certified • Lifting permit to be optioned • Critical lifting shall be carried under direct supervision of LAP. • The operator has a valid UAE driving license and 3rd party accreditation. • Crane activity under the control of a trained/ certified slinger /banks man • Danger zone defined and enforced • PPE shall be worn by anyone out of a vehicle and walking on the site • Emergency Response Procedures, • First Aid, Clinic, Nurse and Administrative controls pertaining deliberate violations, • Weather forecasts and adverse weather management. • Accident investigation & notification procedures. • Preventive maintenance.	**P 2 × S 3** **6**	• All plant and equipment shall be with 3rd party certificate. • No unauthorized persons in the lifting zone during the activity • Refer to ADOSH V4.0-SF Cop 36.0 -Plant and Equipment. And ADOSH V4.0 SF Cop 34.0 • Competent Spotter/ banks man shall control any reversing vehicles in the area. • Availability of valid Third-Party certificate of all type of equipment	**P 2 × S 1** **2**
3	**Working Adjacent to Live Road**	• Moving Vehicle/Equipment running workplace/ moving traffic Collision • Blind spot Human error Congested Area	• Personnel Injuries, Property/ Equipment Damage	• Visitors/ Public/ Site Engineer/ Site Supervisor	• The working area shall be fully secured with a fence and hard barriers with appropriate signage. • Minimize destructions of drivers, clear early warning devise signs to be available, • Follow the ITC approval if a detour is necessary. • Certified flagman will be provided to any equipment working on site. • Working areas will be barricaded and provide signboard will be in place. • All vehicle/equipment will have a Warning Rotating light and available Reverse Alarm. • Walkways and designated routes will be established and proper signboard be in place. • Nobody is allowed to drive while in the influence of liquor or under prohibited drugs. • All vehicles will be either parked within the diversion or in designated parking area. • Crossing on road is prohibited except allowed area such as pedestrian crossing area. • Close monitoring of the vehicle /traffic movement • High visibility jacket shall be wearing by all persons. • Avoid human as flagman, Pre-work controlled (Dummy flagman) to be prioritized on main road. • Road to be kept clean & tidy on daily basis during the activity especially at acceptation exit point. • Emergency Response Procedures shall be implemented, First Aid, Clinic, Nurse and Administrative controls pertaining deliberate violations, • Close monitoring by competent person.	**P 2 × S 3** **6**	• All drivers/operators must hold a valid U.A.E. driving license. • Movement outside the controlled working zone must be prohibited. • Refer to ADOSH V4.0 CoP 33.0 • Working on of Adjacent to a Road	**P 2 × S 1** **2**
4	**Pre-drive level Locating of underground utilities and its protection**	• Improper protection of live services / presence of live electricity, use of Steel pins & Rebar's	• Personnel Injuries, Property/ Equipment Damage	• Project manager, Construction manager, Site Engineers, • Supervisors and flagman	• Obtain NOC/ PTW from the relevant authority. • Prepare drawing & plan the activity and communicate to all concerned. Only hand dig trial holes with appropriate tools, • Only trained operatives shall use the detector, all services shall be considered live and in service, adequate supports and protection shall be provided UG services, • All identified and exposed services to be properly protected and supported with appropriate means. • Excavation around the driving & receiving pit to be properly barricaded with hard barriers (concrete barriers) 2 meter away from the excavation edge and a secondary barrier to be provided. • Flashing lights to be placed on the hard barriers and signage like ''Deep excavation & Danger Keep away'', ''No unauthorized entry '' etc. to be posted. • Emergency Response Procedures shall be implemented, • First Aid, Clinic, Nurse and Administrative controls pertaining deliberate violations, • Close monitoring by competent person.	**P 2 × S 3** **6**	• Underground services avoidance tools shall be calibrated and well maintained. • Proper trainings and site HSE inspections shall be conducted • Ensure all scanning device have valid third party certified	**P 2 × S 1** **2**

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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
5	**Plant and equipment movement**	• Men-Machine Interface, Collision, Vehicle Incident, Pedestrians	• Vehicle colliding with site works and other vehicles. • Machines could drive over equipment, could hit laborers and surveyors next to roads. Site operatives hit by road traffic. Injury to people. • Fractures, minor, severe accidents to site personnel. • Workers, Consultant, Clients, HSE Rep., • Managers exposed to hazard.	• Affected Group: Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team	• All plants, equipment, operators, and riggers/banksman assigned for the job should be experienced. • SBD must ensure the separate access and egress of the equipment and workers. • All equipment, operators and riggers/banksman must be certified by an ADM approved 3rd party company. • Only valid UAE License holding driver to drive the vehicle. Conduct Safe driving techniques training for banksmen/Operators. • SBD Shall ensure to carried out Weekly & Monthly maintenance for equipment by the Plant DEPT & recorded. • Conduct the toolbox briefing PTSB with operators and concerned workers prior to start the work. • Area to be marked should be properly barricaded. • All material loaded on trailer and lorry should be properly stacked foe shifting from place to place. • No overloading of material to be ensured to avoid risk of falling of material and collusion during shifting and transportation. • All vehicles and plants should be fixed with audible reverse alarm for safe reversing operations. • All Vehicles should be fixed with revolving lights and flashing bacons. • SBD shall ensure all incoming should have beacon lights while they are entering site. • One way traffic system will be adopted for vehicle movement. • Separate access and egress will be compacted and graded to ensure safe movement of vehicles. • All plant and equipment must undergo inspection as per applicable requirements.	**P 2 × S 3** **6**	• Vehicles should travel within traffic routes designated after obtaining necessary permission from the security gate & follow speed limit in line with approved logistic Plan. • Roads/Access will be posted with warning and information signages such as access to offices and site, speed limits, reduce speed, man at work etc. • All traffic movements to be controlled by trained and certified flagmen. • Compliance with ADOSH CoP 36.0 Plant and Equipment v4.0 to be ensured prior to the commencement of work involving use of plant and equipment. • All plant and equipment must have valid 3rd party certificates	**P 2 × S 1** **2**

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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
6	**HDD operation**	• Unauthorized Operator • Slip. Trip hazards • Contact with Existing underground services • Discrepancy between as build drawing • and actual ground condition, Damage to existing utility. • Ground Settlement • Inadequate access/egress • Lone working • Inadequate communication systems • Inadequate emergency arrangement • Machine Breakdown	• Personnel Injuries, Property/ Equipment Damage	• Construction Managers, HSEO, • Site Engineers, Supervisor & • workers	• Authorized and trained operator for HDD machine operation. • Close supervision and monitoring. • Operator should be inducted in safety controls. • Continuous liaison with HDD operator during drive • Provide clear and defined walkways. • Remove trip hazards around site; store materials / plant in designated areas as per site plan. • Maintain a tidy site. • Access to the pit bottom will be through a steel shaft ladder bolted on the concrete segments or a scaffolding access tower inspected and tagged • Tools and materials shall be kept away from walkways. • Obtain relevant NOC-Permit form concerned authorities prior to start the excavation/ • Always verify underground lines, using surface markings, before drilling vertically or horizontally to avoid hitting them. • Trail pits shall be done to identify the services and to verify the services through as build drawing with actual services. • Visually inspect the entire planned digging path for structures that indicate potential underground utilities (e.g., gas meters and manhole covers). • Compare findings with surface markings (discussed below) to identify any missed utility. • Employ potholing and other safety precautions described below to further identify and avoid lines in the drill path. • Follow approved MSRA, use cable detectors for identifying underground services. Only • Trained and competent person shall be deployed for the task. • Use site-specific safety assessments to determine appropriate drilling techniques and safety practices (e.g., when potholing, drilling the bore, or using a back reamer). • Contact the local utility location service to mark lines and assist with determining utility locations. Compare drawings with surface markings, as some utility lines may miss detection or may be missing from utilities maps. • Review drawings and contact utility companies directly, whenever possible, to verify underground utility locations. • Ensure that the HDD machine operator and tracker walk through the planned drill path during planning and site preparation. • Check for structures (e.g., gas meters and manhole cover) that may indicate an underground utility line, obstructions along the drill path, and potential sources of interference that could affect tracking device readings. • Train HDD machine operators and trackers before starting the operation to communicate effectively with hand signals and radios. • Ensure trackers check the tracking device readings frequently during HDD operations and compare them with the pre-operational walkthrough readings. If any changes in readings occur (e.g., depth), the tracker should immediately signal the HDD machine operator to stop drilling, investigate, and take appropriate safety precautions before continuing to drill. • Instruct trackers to look into the potholes to observe the: 1. drill stem as it passes near underground utility lines during drilling, and guide the HDD machine operator along the bore path to avoid striking a line; 2. back reamer to verify that it follows the bore path and avoids utility lines. • Drill at a pace that is slow enough to permit the tracking device to sense any drill line deflections caused by large obstructions. • Close supervision/ monitoring of HDD area. • Ground survey to be conducted (Geotechnical investigation) prior to start the work. • Installation of instruments to study ground conditions on regular basis. • Training for the workforce for reporting. • Adequate access and egress to be provided and maintained free from obstruction. • Assess number of personnel before sending them in confined space and determine the number of persons required to carry out the work safely. • Procedures must be put in place to monitor lone workers as effective means of communication are essential. • Reduce time spent working alone so far as is reasonably practicable. • Always ensure buddy system for HDD entry. Supervisor should maintain continuous communication with workers working in the isolated environment of a confined space via walkie-talkie or any other communication devices/means. • Pre-agreed intervals of regular contact between the lone worker and supervisor, using phones, radios or email, bearing in mind the worker understands of English or their native language. • External and internal lighting should be adequate. • An effective and reliable means of communication among entrants inside the confined space, and between entrants and attendants, is required. • The communication system used can be based on speech, hand signals, telephone, radio, and so on. • Whatever system is used, it is important that all messages can be communicated easily, rapidly and unambiguously between relevant people. • It is required to have an appropriate means of communication between the person working inside a confined space and the attendant stationed outside, whether by voice, rope tugging, tapping or by a battery-operated communication system specially designed for confined space use. • It is important that confined space entrant(s) are informed quickly if a situation arises on the outside which could endanger the entrants, such as problems with a supplied air system or ventilation system. • Horizontal entry emergency rescue shall be addressed. • Approved emergency response team will be alerted in case of any emergency. • Wind and Rain potential damage is mitigated by assessing the weather conditions and ceasing activities prior to a weather event as per the weather plan. • Spill kit arrangement must be provided • Only workers involve will be allowed near machinery	**P 3 × S 4** **12**	• Ensure access/ egress is free from obstacles. • Review drawings and contact utility companies directly, whenever possible, to verify underground utility locations. • Drilling Refer to the as built drawings. • Use safe and appropriate potholing techniques to the planned drill path's depth to expose any hidden underground utilities. • Emergency escape to be provided for emergency situation such as winch /Tripod or crane man- basket or both. • Information regarding emergency procedures should be given to lone workers. OHSRA(Occupational health and safety risk assessment) risk assessment may indicate that mobile workers should carry first-aid kits and/or that lone workers need first-aid training. They should also have access to adequate first-aid facilities. • Confined space compliance will be applicable as per site requirements. • Emergency arrangement will be provided along the site requirements. • Whenever a near-miss is recorded, it is important to identify, as far as possible, the hazards that contributed to the incident. Actions can then be taken to eliminate or reduce the risk of a similar incident occurring in the future.	**P 2 × S 2** **4**
7	**Working At Height (Around the Pit)**	• Fall from height due to inadequate fall prevention controls, intoxication and inattention.	• Personnel Injuries, Fractures	• Construction Managers • Site Engineers Supervisor	• Provision of Guardrails around the pit. • Shall be firmly fixed on the ground. • Area around the pit to be cleared from any rocks. • Restricted entry for unauthorized personnel. • Persons working at the pit edge should wear Full body harness hooked at adequate anchor point • Restricted zone around the pit edges. • Emergency Response Procedures shall be implemented, • Close monitoring by competent person. • Proper trainings and site HSE inspections shall be done • Pits are to be secured properly with barricade and safety signage with flashing light to be installed	**P 2 × S 3** **6**	• First Aid, Clinic, Nurse and Administrative controls pertaining deliberate violations. • Awareness on Emergency procedure for working in a confined space.	**P 2 × S 1** **2**

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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
8	**Butt fusion welding**	• fires • Explosion of gas Burn • Fly Sparks Gas leakage • Property damage, • Thermal Burns, • Stored • energy release, • Pinch point, • Equipment • Failure, • Electrical, • Manual Handling	• Personnel Injuries, Property/ Equipment Damage	• Welding technician, Supervisors Workers	• HOT WORK PERMIT Should be issued prior to hot work. • Don't let anybody to stand in front or face any • direct pressure when turn on the cylinder valve. • The hose used in gas cutting/ welding operation should be different color. • Provide flash back arrester. • Keep an adequate space between hot work area & cylinders. • Empty cylinder should store separately. • Appropriate PPE should be worn by person involved or present at the work area • Fire Extinguisher & Fire Blankets shall be provided at appropriate places and train workers how to use it. • First Aid Kit should be available at work area • Safe guard to be attached to grinder • Use of hand gloves, goggles and follow the instruction. • keep hand away from cutting blades & pinch point area. • Ensure operatives are well trained and competent to perform the task • TBT to be conducted, • Trained personnel to be deployed, • Use mandatory PEE's. • Ensure no combustible materials around the activity, • Inspections carried out for butt welding machine, • Use mechanical aid for lifting equipment	**P 2 × S 4** **8**	• Gas cylinder should place in vertical. • Monitoring the use of PPE by the work force. • Fire watcher shall be stationed in the area near the hot work. • Comply with ADOSH V4.0-SF-CoP 28.0 Hot work operations. • Fire points must place near to the machine	**P 2 × S 1** **2**
9	**Pre-drive level Locating of underground d utilities and its protection**	• Improper protection of live services / • presence of live electricity, use of Steel pins & Rebar's • Discrepancy between as build drawing • and actual ground condition, Damage to existing utility.	• Personnel Injuries, Property/ Equipment Damage	• Project manager, Construction manager, Site Engineers, • Supervisors and • flagman	• Obtain NOC/ PTW from the relevant authority. • Prepare drawing & plan the activity and communicate to all concerned. Only hand dig trial holes with appropriate tools, • Trail pits shall be done to identify the services and to verify the services through as build drawing with actual services. • Scanning with underground scanning on activity areas • Only trained operatives shall use the detector, all services shall be considered live and in service, adequate supports and protection shall be provided UG services, • All identified and exposed services to be properly protected and supported with appropriate means. • Excavation around the driving & receiving pit to be properly barricaded with hard barriers (concrete barriers) 2 meter away from the excavation edge and a secondary barrier to be provided. • Flashing lights to be placed on the hard barriers and signage like ''Deep excavation & Danger Keep away'', ''No unauthorized entry '' etc. to be posted.	**P 2 × S 3** **6**	• Underground services avoidance tools shall be calibrated and well maintained.	**P 2 × S 1** **2**
10	**Maintenance Handling of oil drums/ Chemicals i.e. Bentonite**	• Splash/ Spillage of oil. • Contact with contaminated hazardous waste • Fire • Combustible and non- hazardous material storage. • Absorption Through Skin • Ingestion Splash into Eyes	• Personnel Injuries, Property/ Equipment Damage	• Supervisors Workers	• COSHH assessment to be completed and communicated • TBT to the work force. • Experienced and trained work force to be deployed. • Substances shall be stored (in a container) away from any sources of ignition. • Number of Substances shall be taken from store in small quantities and only sufficient for a day. • MSDS shall be on hand whilst substance is being used the user must ensure that he is aware of correct handling procedures surrounding the substance. This shall be included in the daily TBT. • Lids shall be replaced after use and containers returned to storage areas. • All eye injuries must be treated by a first alder immediately to ensure that the injury does not get worse. • Trained and experienced labours to be deployed • Ensure proper forms of personal protective equipment (PPE) are worn at all times. i.e. Face shield • Personal shall ensure that sufficient personal protective equipment (PPE) is worn at all times, i.e. Rubber gloves, goggles / face shield and protective coveralls, etc.	**P 2 × S 3** **6**	• All sources of ignition shall be eliminated, • The use of eye/face protection, hand protection (nitrile rubber glove) and skin protection barrier cream while working with the bentonite to be implemented. • Proper disposal of chemical waste	**P 2 × S 1** **2**
11	**Use of Hand tools.**	• Impact, contact, entanglement, drawn in, slip trip / fall.	• Personnel Injury / Body cuts.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team	• Ensure the conditions of the hand tools are good, when obtaining from the stores. • Tie-off lanyards properly. • Hand tools shall not be kept on walkways. • Hand tools shall be kept in toolboxes whenever not in use. • All tools shall be inspected for any damage on daily basis and at regular intervals. • The storekeeper will inspect all the new tools before sending them to site. • Ensure that no homemade/makeshift tools are used at site. • Use of power tools shall be restricted to trained and competent operatives only. • Ensure the operatives are wearing PPE hard hat, hand gloves, Safety shoes, safety goggles and dust • mask etc., throughout the activity.	**P 2 × S 3** **6**	• Hand tools shall be tethered properly by using lanyards with tools to prevent it from falling. • Compliance with ADOSH CoP 35.0 Portable Power Tools to be ensured. • Ensure there is no unauthorised entry	**P 2 × S 1** **2**
12	**Working near machineries**	• Noise	• Permanent hearing damage/ Hearing deficiency.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members • of Client	• Noise assessments to be carried out. • Adequate instructions and information must be provided to the workers. • Toolbox Talk must be given before starting the work. Maintain sufficient distance from the machinery.	**P 2 × S 3** **6**	• Use adequate PPE such as earmuff, ear plug must be worn while working near machinery. • Only workers involve will be allowed near machinery	**P 2 × S 1** **2**
13	**Surveying Works Use of Wooden pegs or Steel Erection for Point Identification.**	• Slip, trip, fall. • Use of hand tools Sharp Edges.	• Risk of Hand Foot Serious injury, Slip trip and fall, Impalement hazard, • Slip, trips, falls due to uneven surface.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team.	• HSE Induction to all new personals. • The surveyor shall start his activity with PTSB. • Use existing passageways. • All installed steel on ground must have steel Caps on them. • After marking the area make sure all the marked points are secured and easily identifiable & covered with small boxes. • Survey team shall work inside the boundary limit. In case to take any outside level, all safety precautions to be practiced. • Restrict the area to the ground. • Engage only competent and experienced person for work. • All operatives should comply with mandatory and task appropriate PPE in line with generic site rules. • Supervisor should monitor the work activities. • Ensure exposed protruding markers are covered with rebar caps and along live road	**P 2 × S 3** **6**	• Don't lift more than 25 kg and use proper handling techniques. • Don't use tools for other purposes that is not • designed for. • No lone working	**P 2 × S 1** **2**

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS

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
14	**Material Handling/Shifting (Manual)**	• Improper lifting techniques, materials fall.	• Work-related musculoskeletal disorders (MSDs) such as pain and injuries to arms, legs, and joints due to lack of knowledge of Manual Handling technique. • Affected Group: Supervisors, Foremen, Workers • / helpers.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team.	• PTSB to be conducted prior to starting the activity. • Minimize movement while handling equipment/tools. • Car cranes will be used for unloading any heavy materials to alleviate the requirement for manual handling. • Supervision will assess weight, centre of gravity etc. and determine the number of people required to carry out the work safely. • Personnel will be trained in manual handling techniques. • Avoid manual load lifting, if possible, if not then, check and ensure that the load is below the recognized permissible limit. • Stand as close as possible to the object to be lifted. • Bend your knees as much as possible. • Bend hip keeping head & back as straight as possible. • Use body weight to tilt the object or load the object. • Lift gradually using leg and stomach muscles. • Use a back safety belt to avoid back injury. • Avoid twisting and sudden movement to body while lifting the load. • Area to be illuminated with adequate lighting. • Use hand gloves with sufficient grip to avoid insecure hold. • Train the staff in good posture. • Use slip resistance shoes with toe protection. • Use hand gloves with sufficient grip to avoid insecure hold. • Train the workers for good posture. • Use slip resistance shoes with toe protection. • Carry out loading and unloading at designated areas. • Take necessary precautions to prevent the vehicle moving during loading and unloading. • The driver has to stay inside the vehicle cabin while loading is in progress. • Ensure to adhere with complete and appropriate P.P.E. • Use mechanical aid devices for lifting where ever possible.	**P 2 × S 3** **6**	• Wear fit to body clothes. • Don't lift more than 25 kg and use proper handling techniques. • Must comply to ADOSH CoP:14.0 • Manual Handling and Ergonomics v4.0	**P 2 × S 1** **2**
15	**Using of power tools (Drill, grinder, jack hammer etc.)**	• Electrical Hazard Electrocution/Electric Shock • Fire and Explosion Unsafe power tools Flying objects / particles • Un-guarded machinery Noise • Dust	• Major / Minor injury to the persons in close vicinity. • Property damage.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client	• Visually inspection to be conducted by operatives prior to using hand tools. • All hack saws must be complete including frame and handle. • Ensure all power tools have adequate safety guards. • All tools must be checked and found to be fit for use before operation. • Temporary DB to be provided and inspected regularly by competent person. • Keep power leads off ground and away from water source. • Ensure the pores lead free from damage and provide industrial sockets. • Never carry the power tools by its cord. • Do not leave the power tools unattended in an energized position. • Maintain proper storage for all power operated equipment. • Workers must wear ear protection if the noise level exceeds 80 db. • Ensure temporary firefighting equipment is available in the work area if any activity may produce heat or spark. • Housekeeping of the area must be ensured prior to the start of personal involvement, remove all slip, trip, or fall hazard. • Close supervision is required by competent supervisor all the time. • Supervisor /Foreman to provide and ensure appropriate PPE comprising of Hard hats, Safety Shoes, High Visibility Vests, Safety Eye Wear, Respiratory Protection and Gloves to be worn by the operatives. Must comply with main contractor requirements. • Follow safety standards • Portable Electrical Tools	**P 2 × S 3** **6**	• Ensure all power tools are inspected and PAT tested periodically by competent person and colour coded. • Only trained and competent personnel to use power tools. • Never make any alteration to tools – right tools for the right job. • Proper cable management	**P 2 × S 1** **2**
16	**Dust Particles during work Activities.**	• Dust, Visibility, Contact and Impact Breathing issues Lung's cancer	• Breathing issues Lung cancer.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team.	• Regular water spray on the ground to avoid the dust. • Adequate PPE such as dust mask & respiratory protective equipment. • Proper information, Training and supervision required. • Dust control equipment shall be used to cut the tiles and asphalt etc. • Provide assigned area only for cutting to save the workers from the dust. • Adequate shades shall be provided to control the dust spreading towards workers or the public. • Stoppage of work due to excessive dust	**P 2 × S 3** **6**	• Must comply to ADOSH SF COP: 2.0 • Personal Protective Equipment v4.0 & 8.0 • General Workplace Amenities v4.0	**P 2 × S 1** **2**
17	**Inclement Weather Condition (Foggy, Rainy & Sandstorm)**	• Difficult driving conditions Sandstorm Poor Visibility	• Serious Personal Injuries may result from accidents.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant • team	• Project Management / HSE Team will NOT allow any site activities during adverse weather conditions (foggy, sandstorm, heavy rain etc.) • Segregate the work zone and live traffic. • Providing crash cushion TMA or installation or channelizing devices to ensure safety. • Ensuring the required TCD's digital trolley and flashing lights are in good working condition to warn the public users for the existing detours on the road. • Immediately stop the activity.	**P 2 × S 3** **6**	• Must comply with ADOSH SF Technical Guidelines 11 Dealing with adverse weather condition.	**P 2 × S 1** **2**
18	**Site welfare facilities and Maintenance.**	• Lack of portable toilets. • lack of rest shelters in the workplace. • lack of supplying drinking water in the workplace.	• Bad odors, flies, and mosquitoes, due to food waste accumulation. • Health effect and Legionnaires disease due to contaminated water.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team.	• Provision of adequate number of portable toilets. • Provision of adequate numbers of resting areas with tables and benches. • Provision of enough drinking water coolers. • Provision of food waste bins. • Provision of enough resources to supply water, carry out the required maintenance and collect the waste and sewage from site. • Conduct legionella test for the drinking water as per the regulation to ensure that the drinking water is free from any microbiological parameters. • Regular monitoring and inspection. • Conducting training at regular intervals to increase • workers' awareness. • Disciplinary action system to be in place against violators with salary deduction for repeated violations as per company policy.	**P 2 × S 3** **6**	• Provision of first aid kit and first aider 1:50. • Must comply with ADOSH SF– Cop 08.0 & ADOSH SF–Cop 09.0	**P 2 × S 1** **2**

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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
19	**Tools & Equipment's Generating Noise & vibration.**	• Noise & Vibration	• Hearing lose / Deafness Muscles tingling, • Hand Arm Vibrations Syndrome • Numbness in fingers, Vibration white finger.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers,	• All continuous, intermitted, and impulsive sound levels from 80 dB (A) to 130 dB (A). • The action level of noise is an average of 85 dB (A) for 8 hours average. • Within 6 months of an employee's first exposure at or above 85 dB (A) of noise, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared. • Hearing protectors shall attenuate employee's exposure at least to an 8-hr time weight average of 85 dB (A) • Residential area in downtown 45 • 55 Day & 35 • 45 night • Commercial area in downtown 55 • 65 Day & 45 • 55 Night • Residential area with light traffic 40 • 50 Day & 30 • 40 Night • Residential area near highway or near some workshops & commercial business 50 • 60 Day & 40 • 50 Night • Industrial areas (Heavy industry) 60 • 70 Day & 50 • 60 Night • The daily exposure limit value for hand-arm vibration is 5 meter/S2 A (8) • The daily exposure ACTION value for hand-arm vibration is 2.5 meter/S2 A (8) • Scheduling jobs shall in such a way that prevents the exposure more than allowable limit. • Soundproof equipment like generators shall be used. • Close supervision and monitoring shall be carried out. • Rotation of workers in using vibration tools	P 2 × S 3 6	• Providing frequent breaks for those who are exposed to vibrations. • Use of anti-vibration mounting on equipment's depending upon their applications. • Must comply to ADOSH SF COP: 3.0 • Occupational Noise & 3.1 • Vibration	P 2 × S 1 2
20	**Waste & Trash General and construction.**	• Tripping hazards, Soil pollution, • Ground & water pollution, fire hazard.	• Soil Contamination • / • Personal Injury.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client	• Efficient cleaning crew to clean waste / debris accumulating from daily site activities after each day's work. • Personnel must be given verbal instructions to maintain and / or clean / tidy up individual workplaces during and after work. • Appropriate PPE to be worn during such work. SBD Shall ensure to follow Approved Waste Management Plan. • Proper waste disposal and waste segregation	P 2 × S 3 6	• Regular disposal of waste. Deploying full-time housekeeping teams.	P 2 × S 1 2
21	**Working near commercial areas / Activities.**	• Man-machinery interface, Kids may get close to the machinery, workers may violate the site rules and get involved in logistics matters such as violating the site boundary limits and urinating at or near workplace.	• Struck by construction vehicles entering or leaving roads. • Struck by public vehicles due to obstructing the pavement during deliveries and storing and stacking materials which may force pedestrians into the road. • Fall into unsecured excavations, manholes or other open edges. • Children interact with the site equipment and building materials used at work zones where some children are drawn to construction sites as exciting places to play. • Slips, trips due to poor housekeeping/cabl e management within pedestrian areas.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team, nearby public present in commercial localities / in vicinity	• Securing the Work zone in populated areas: suitable rigid barriers and mesh fence or hoarding around the site (at acceptable height) to prevent unauthorized entry. In addition to installation of warning signage, hazard lamps, emergency contact number. All tools to be utilized within the work zone limit. • Managing site access: access/exit points shall be established and controlled by lead-in/lead out signage and certified flagman to guide the vehicles. In addition to assign competent watchmen to guard the site at night. • Control of supplier/materials deliveries: • Adequate competent supervision and sufficient resources shall be deployed to set up and monitor/control the delivery of materials. In addition to avoidance of delivering materials after working hours if there is no competent supervision in place • Storing and stacking materials: Contractor can reduce the risks associated with the storage of materials by storing materials within the site perimeter, preferably in secure compounds or away from the perimeter fencing. • Securing the excavated areas and openings: all excavated areas and openings shall be barricaded utilizing suitable barriers, hazard lamp and warning signage. Access to excavated areas shall be removed or closed at the end of the work shift. • Frequently applying water for controlling dust • Use new and soundless equipment. • Alternative walkways shall be provided to the public when required. • Workers shouldn't stand in places where they will be causing an obstruction. • Consider workers dress carefully - is it suitable for the location. • Be aware of any delicate issues involved with discussions or interviews e.g., before asking a landlord question regarding his land management, explain why you need to know. • Ensure landowners and their employees know who you are and what you are doing. • Avoid an aggressive stance. Crossed arms, hands on hips or raised hands will challenge and confront. • Never try to touch someone who is angry - this will not calm the situation. • Try to get away as quickly as possible. Move towards a place where you know there will be other people. • Trained and Competent person to assigned to deal or attend the public complaints. • A competent person should be available 7/24. • Workers should be trained properly, and they should understand the public preferences. • Adequate information and warning signs to be used for public awareness. • Close supervision to be caried out. • Ensure all workers are working only on the area where work is being carried out	P 2 × S 3 6	• Employees always carry EID cards and be prepared to identify yourself. • All tools and equipment used on site shall be within the work zone boundary. • Make sure you have sought permission from relevant authorities to work in the chosen location. • Contact numbers to be displayed on the work locations for the public who will use those for their concerns. • Strict implementation of full supervision	P 2 × S 1 2

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	**RA-2026-QYwMiBvl**	**17.09.2026**	**A**

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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
22	**Working near to water bodies/sea channel**	• Weather Conditions • Equipment Failure • Slips, Trips, and Fall • Debris and dust. • Fatigue	• Fatality • Legal actions and penalties • Serious Injuries • Property Damage	• Contractor workforce. • Consultant /Client staff	• Have real-time weather and tidal monitoring systems to schedule work during safe conditions. • Regular checks and maintenance of drilling equipment to ensure safe operation. • Ensure operators are trained in the use of the equipment and aware of potential environmental impacts. • Use accurate mapping and geotechnical data to avoid accidental damage to underground utilities. • life vests and fall protection when working near water. • Guardrails and safety fences around working areas, particularly near the water. • Provide proper hydration, shade, or heating in extreme conditions. • Proper housekeeping all the time. • Regular breaks to be taken in hot and humid weather condition. • All the required permits and NOC to be obtain prior to start the work. • Only Trained workers to be deployed near water bodies	**P 2 × S 2** **4**	• Ensure first aid kit and medical person are available. • PTW work system to be established and followed by the site team. • Proper PPE to be wear all the time. • Hard work to be carried out at starting of the day • Emergency drill to be conducted regarding rescue on water	**P 1 × S 2** **2**
23	**Working in Summer/ Heat Conditions**	• Sun radiations and heat	• High temperatures may lead to Heat Stress, Heat Syncope, Heat Exhaustion and Heat stroke, Sun Burn • Dehydration.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client	• Minimum clothing requirements: Helmets, t-shirts (Long sleeves are preferable), high visibility vest, long pants, safety boots. • It is recommended that sunscreen of at least factor 15 and above is used on exposed body parts i.e., face, arms, hands, ears, and neck. • Take particular care if you have: • 1) • Fair or freckled skin that doesn't tan or burns • before it tans • 2) • Red or fair hair and light-colored eyes • 3) • Many moles (50 or more) • If working with shiny surfaces or over water the risk of burning will be higher. • The risk of burning is still present on cloudy days. • Tinted glasses should be worn by operators of plant to avoid being dazzled during operation of machines. • Tinted glasses should also be worn by persons working in situations where the sun is liable to cause strain due to glare. • To get the full effect from your sunscreen the following must be observed: • Use sunscreen with UVA and UVB sun protection factor (SPF) 15+ • Apply sunscreen 10-15 minutes before going outdoors. • Ensuring good coverage of skin area • Applying every 2 hours, or as directed on the product. • Applying on a cloudy day. • To avoid heat stroke light clothing should be worn, • drink a lot of water (even if you don't feel thirsty) • Adhere to local government rules, restricted summer working hours.	**P 2 × S 3** **6**	• Drink plenty of fluids while working in hot conditions. • Follow ADOSH COP • 11.0 Safety in the Heat	**P 2 × S 1** **2**
24	**Emergency Preparedness**	• Flood, Electrical Arcing, Earthquake, Fire, Sandstorms, High winds etc.	• Personnel Injuries, Property damage.	• Engineers, Supervisors • , Foremen, Workers, Logistics department • , Drivers, Operators, members of Client and Consultant team.	• Emergency response plan shall be prepared & implemented or follow EPE Emergency management plan. • ERT (Emergency Response Team) shall be allocated, trained, and designated to perform their duties at the emergency event. • As a minimum Fire Marshal, Fire Wardens, First Aiders & Male Nurse shall be available all the time during work. • In case of emergency, injured personnel will be removed from site to first aid room and contact HSE Officer for proper assistance, • An injury that may present possible spinal or head injury will be stabilized on site and not moved until ambulance arrives. • Hotline: 999 • If possible, Emergency vehicle should be provided. • SBD team to use below contact and will display signages. • "In case of Gas Emergency call 800-74427"	**P 2 × S 3** **6**	• Emergency response contacts shall be displayed on noticeboards and posted at multiple locations of the site. • Project Emergency Number 0549984915	**P 2 × S 1** **2**
25	**Operating Dewatering Pumps, Generators**	• Electricity Equipment Rotating parts • Smoke emission, Oil leakage	• Personnel Injuries, Property/ Equipment Damage	• Supervisors • , Workers	• Ensure back feeding of supply is prevented. • Maintain height of exhaust pipe as per manufacturer instructions. • Avoid overload • Transfer fuel by hand pump to avoid spillages. • Drip tray to be used to contain spills • Provide earthen for all electric equipment, • Moving parts of the machinery to be covered with safety guard. • Authorized & Competent personnel to only operate the machinery. • Pumps/machinery to be regularly maintained by mechanics to ensure operating safely. • PPE to be worn like ear plugs, gloves, goggles, overalls etc. • Generators, welding machines shall be placed at designated area with barricading and far from the LEV system to prevent pumping of CO in to the tunnels/shafts/its. • When refueling ensure no combustible items in the area. • All electrical connections are to be inspected, tagged and color coded. • Barricading of dewatering machine particularly near live road	**P 2 × S 3** **6**	• No smoking policy. • Loose clothing should be avoided. • Good housekeeping to avoid combustible goods. • Suitable Fire extinguishers are to be placed on site. • Safety signages to be installed	**P 2 × S 1** **2**
26	**Human Errors during the entire activity**	• slips • lapses, Errors, Mistakes, rule base mistake and knowledge-based mistake, • safety violations & unsafe acts	• Personnel Injuries, Property/ Equipment Damage	• Entire site execution team include visitors	• Proper safe access and egress shall be provided without any obstacles. • Proper trainings shall be conducted to the entire team. • Task specific tool box talk shall be conducted. • Pre task meeting shall be conducted before start the execution. • Daily site HSE Inspections and immediate rectifications shall be done at site. • Site HSE Walks with management, turs and audits shall be conducted regularly. • Site HSE Procedures shall be communicated through HSE Induction. • HSE Recognition awards shall be implemented. • Proper effective supervision shall be provided.	**P 2 × S 3** **6**	• HSE Plan, Emergency procedures, MSRA shall be communicated. • Disciplinary actions shall be implemented. • Proper Task Specific PPE shall be provided.	**P 2 × S 1** **2**

CLIENT	CONSULTANT	CONTRACTOR	SUB-CONTRACTOR

TASK RISK ASSESSMENT WORKSHEET

CONTRACT NO	REF	DATE	REV
—	RA-2026-QYwMiBvl	17.09.2026	A

PROJECT —

CLIENT	CONSULTANT	MAIN CONTRACTOR	SUBCONTRACTOR
—	—	—	—

ACTIVITY **HORIZONTAL DIRECTIONAL DRILLING (HDD) WORKS**

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

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.