

Activity-Based Risk Assessment Form

Company:	Lucky Joint Construction Pte Ltd	Conducted by: (Names, designations) (Date)	Team Leader, Sathish Kumar Team Member, Chan Siew Wah , Izwan 23 May 2017		RA NO 1	
Process/ Location:	Pipeline Installation Jalan Bahar / Jurong West Avenue 2	Last Review Date:	23 May 2017	Next Review Date:		22 May 2020
Approved by: (Name, designation) (Date)	Yu Jie Hui Manager 23 May 2017					

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
1	Mobilisation of equipment's	Collision with other vehicles or road side establishments	Serious injuries / Fatalities	-Avoid peak hour traffic. -Appoint traffic controller to guide movement of traffic and lorry -Brief Driver safe on road -Driver should not be using hand held devices at all time. -Driver to have valid Singapore driving license.	5	2	10	-Driver should be briefed and aware of LTA rules and abide by it. -Driver should follow the designated speed limit in the area. -Supervisor to be with the driver during movement of lorry.	5	1	5	Driver / Supervisor	-	-
		Improper loading / unloading of equipment /	Toppling of machinery / equipment resulting in	-Appoint competent person in loading/ unloading	4	2	8	-If lifting is required, a certified Lifting supervisor will	4	1	4	Lifting Supervisor / Supervisor	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
		machinery / materials	injuries to the workers	-Supervisor to ensure loading zone is clear during loading/unloading -Traffic controller / banksman should be present throughout the loading/unloading process to help guide traffic and warn other people.				- lead the process together with a certified lifting team. -All materials that are more than 25 KG are to be carried in a buddy system. -Loading or unloading area will be barricaded and set up with signage.						
2	Work on the side table / roads	Improper implementation of traffic control plan may lead to confusion to the motorists / pedestrians	Traffic accidents resulting in bodily injury to the motorists	-Workers to be briefed on LTA regulations on traffic control. -Supervisor to double check all traffic control and signage before allowing work to start. -Foreman / Supervisor to ensure all traffic control signboard are clear and are visible before displaying it.	4	2	8	-All road closure or diversions are to be informed to customer for approval. -Blinkers to be used to warn motorists and public of upcoming works. -Banksman to be present to guide traffic.	4	1	4	Foreman / Supervisor	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
		Inclement weather conditions, e.g. heavy rain, struck by lightning, water flooding on the roads.	Inclement rain condition that range from Light drizzling rain to heavy downpour, accompanied by high wind condition that may hinder / reduce visual perception. Possible severe Water flooding condition may hinder work activities and causes slip and trip hazard due to slippery road surface. Possible electrocution hazard of being struck by lightning while work in outdoor.	-Foreman and all workers are to stop all outdoor work activities, assemble and seek temporary shelter away from the affected area, until weather changes for the better; then resume work. -If unsure, Safety personnel to deploy on site to advise / determine if work activities should continue. If light rain conditions permits working in outdoor conditions, raincoat and safety goggles to be provided to all workers on site. Rubber boots is a must, to prevent slipping on slippery road surface. -Seek shelter area and avoid being out on the open area / metal / water area as these are conductor of electricity and	5	2	10	-Tuned in to local broadcast for monitoring of weather condition to aid decision making. -Supervisor should seek customer advice and adhere to customer side protocol regarding weather issues.	5	1	5	Foreman / Supervisor	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
				susceptible to being struck by lightning.										
3	Excavation of trench	Existing underground services	Damage to existing services resulting in supply disruption/ explosion / electrocution	-Reference to Agencies utility drawings; Cable detection plan. -Carry out trial holes to confirm existing services Engaged competent person to carry out cable detection works and apply necessary NCEs. -Perform work area mark-out to deter out of boundary digging. -Observed SWP on Excavation work.	5	2	10	- Dig 300mm per time to avoid striking existing service not identified in drawing or trial holes.	5	1	5	Supervisor / Foreman LCDW	-	-
		Excavator arm over sailing into the traffic zone / working areas	Damage to government properties Bodily injury	-Excavation area to be barricade/ cordon off using GI Pipe or cone and poles. -Nobody allowed to be near or inside the excavation zone -Carry out TBM	4	2	8	-Appoint watchman to monitor movement of operation of excavator and alert the operator any over sailing of excavator arm.	4	1	4	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
				-Supervisor to supervising the operation										
		Soil movement during normal and adverse weather	Soil collapse onto the workers resulting in serious injuries.	-Provide shoring if depth is more than 1.5m -Soil Inspection by competent person. - Carry out TBM -Shoring to be designed by P.E if depth more than 4m	4	1	4	-	-	-	-	Supervisor / Foreman	-	-
		Open sides of the excavation	Workers falling into the trench resulting in serious injuries.	-Provide barricades using GI pipe or poles and cones along excavating trench -Brief the worker on falling hazard into trench	4	2	8	-Supervisor to check the proper placing of barricade. -Place warning sign when required	4	1	4	Supervisor / Foreman	-	-
		Improper access point	Slip and Fall	-Ladders to be provided for access/egress -Carry out TBM on proper use of ladder -Ladders to be secured , ensure stable or to have a buddy to assist if cannot be secured.	4	2	8	-Supervisor to check workers use of ladder at all time.	4	1	4	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
4	Excavation of trench	Falling of objects into trench / Struck Worker	Bodily injuries/ bruises	-Materials stored away from the edge of the sides. -Supervisor to check/ensure no material to store near opened trench -Proper storage area and signage to be displayed	4	1	4	-	-	-	-	Supervisor / Foreman	-	-
		Hit by tipper truck during earth removal	Serious injury/death	-TBM to brief workers. -Brief tipper truck drivers on safe earth removal method -Supervisor to ensure all workers are away from area before earth removal starts. -Barricade area using GI pipe or poles and cones. -Warning signs to be placed.	5	2	10	-Traffic controller to be present throughout the whole process.	5	1	5	Supervisor / Foreman	-	-
5	Backfilling & Compaction	Unsafe backfilling method	Serious injuries.	-Remove shoring progressively while backfilling.	4	2	8	-Supervisor to ensure no workers in the trench while	4	1	4	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
				-Appointed traffic controller to be in place. -Brief worker to stay away while backfilling				backfilling in progress. -Banks man to be on site to assist and remind						
		Dust exposure from backfilling materials	Respiratory / eye irritation	-Use dust mask & safety glasses. -Brief worker on proper use of dust mask on TBM and other health hazard	3	2	3	-Water to be sprayed to prevent dust exposure.	3	1	3	Supervisor / Foreman	-	-
		Unsafe use of compactor	Feet injuries	-Steel toe capped safety shoe to be worn at all times. -Competent worker on proper use of compactors -Carry out TBM on proper technique to be adopted.	3	1	3	-	-	-	-	Supervisor / Foreman	-	-
6	General Operation of electrical tools	Unsafe operation	Workers may injure their hands / body parts	-Follow manufacturer's operating instructions -Safety guards are not to be removed. -Brief workers on safe operation during TBM	4	3	12	-Supervisor to ensure only trained workers or experienced workers are operating powered tools. -Supervisor to monitor the way workers use the	4	2	8	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
								tools and stop in event of unsafe use.						
		Flying debris	May hit the worker's eyes resulting in minor injury / May cause ill-health due to inhalation	-Wear safety glass and dust mask -SWP on safe use of power tools to be brief during TBM	4	2	8	-Workers not involved in the process should not be allowed near the zone. -Barricade with nets to be provided to prevent flying debris.	4	1	4	Supervisor / Foreman	-	-
		Exposure to noise	Noise Induced Deafness	-Wear ear plugs -SWP on safe use of power tools to be brief during TBM	4	2	8	-Rotate workers in noisy environment. -If noise level is too loud, ear muffs are to be worn.	4	1	4	Supervisor / Foreman	-	-
		Improper housekeeping.	Slip , trip ,and fall	-Elevate cables where possible -SWP on safe use of power tools to be brief during TBM.	3	2	6	-Cables should at least be 2metres off the ground. -Unused cables to be disposed or placed in storage area. -Proper housekeeping.	3	1	3	Supervisor / Foreman	-	-
		Usage of wrong tools	May result in serious injuries due to mis-operation	-Training on tools to be used by competent person	4	2	8	-Daily tool box meeting to carry out to brief how to use tools properly.	4	1	4	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
				-Only authorized person can operate the power tools				-Supervisor to specify which tools is to be use and all unwanted tools should be kept away from site.						
		Defective tools/cables	Electrocution / Fire	-Double insulated tools -SWP on safe use of power tools to be brief during TBM -Visual check by the user before operation	4	2	8	-RCCB provided in the distribution board. -Proper PPE to be worn.	4	1	4	Supervisor / Foreman	-	-
		Unsafe use of electrical tools.	Electrocution.	-Only trained technicians are allowed to perform maintenance. In case not available, the tools should be sent outside for repairs. -Faulty tools to be removed.	4	2	8	-RCCB to be provided. -Supervisor to check the condition of the tools before every usage.	4	1	4	Supervisor / Foreman	-	-
		Overloading of distribution board	Short circuit / Fire	-RCCB provided. -Adequate socket outlets provided.	4	2	8	-Extension cords with RCCB provided. -Supervisor to regularly check all	4	1	4	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
								distribution boards.						
7.	Concreting	Exposure to concrete	Skin irritation	-Wear rubber gloves, safety boots, safety goggles and mask. -Brief workers on TBM	3	2	6	-Supervisor to check on PPE compliance.	3	1	3	Supervisor / Foreman	-	
8.	Working Under Inclement weather	Heat Stress	High loss of energy and water	-Drink more water -Frequent resting by rotation of workers should wear loose-fitting, light colored clothing while working in the hot Environment -All workers must be educated on the dangers of heat-related disorders during TBM.	3	2	6	-Check the workers physical fitness prior to start work -Water Parade to be conducted hourly to ensure hydration	3	1	3	Supervisor / Foreman	-	-
		Lightning Thunderstorm	Lightning Strike Death Burn	-Seek overhead shelter indoors or at designated resting area when thunderstorm or rain is present -Seek shelter in van / vehicles if overhead shelter not nearby	3	2	6	Use Lightning@ SG app to monitor weather	3	1	3	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
		Haze	Irritation to ENT, lungs and eyes Aggravate chronic lung and heart disease Trigger asthma attacks Heart failure	-Use of N95 MASKS. -Job Rotation -Schedule sufficient rest breaks -Adequate hydration	3	2	6	-TBM on signs and symptoms -Workers who feel ill during TBM to sound out and see medical attention -Susceptible workers who have medical history of heart and respiratory illness, to be refrained from working	3	1	3	Supervisor / Foreman	-	-
9.	Housekeeping (Done throughout work process / periodically)	Tools/ unused equipments lying around	Slip Trip Fall Bodily Injury	-Supervisor to designate a proper temporary storage area if needed but must get approval from customer. -If no storage area is allocated, only used items are to be in working zone. Other items to be removed immediately.	4	2	8	-All sharp equipment or edges must be protected. -Supervisor must regularly check and ensure area is clean and tidy especially before going for lunch or breaks. -During housekeeping,	4	1	4	Supervisor / Foreman	-	-

1. Hazard Identification				2. Risk Evaluation				3. Risk Control						
No.	Work Activity	Hazard	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (if any)	S	L	RPN	Additional Risk Control	S	L	RPN	Implementation Person	Due Date	Remarks
				-Tools or equipments used are to be placed inside barricade and not blocking any public or workers passage way. -No equipments are to be protruding out of barricade or walkway				lighting must still be present and place to be clearly visible.						

LUCKY JOINT CONSTRUCTION PTE LTD
Risk Assessment Matrix & Emergency Hotline

Level	Likelihood	Description
1	Rare	Not expected to occur but still possible.
2	Remote	Not likely to occur under normal circumstances.
3	Occasional	Possible or known to occur.
4	Frequent	Common occurrence.
5	Almost Certain	Continual or repeating experience.

Risk Index	Description	Definition
20--15	Almost Certain	Risk shall be reduced by whatever means possible
15--20	Frequent	Risk shall only be accepted if further risk reduction is not practicable
10--15	Occasional	Risk shall be accepted subject to demonstration that the level of risk is as low as reasonably practicable.
5--10	Remote	Risk is acceptable. No additional risk control measures may be needed
0--5	Rare	May not happen

Level	Severity	Description
5	Catastrophic	Fatality, fatal diseases or multiple major injuries.
4	Major	Serious injuries or life-threatening occupational disease (includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning).
3	Moderate	Injury requiring medical treatment or ill-health leading to disability (includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, work-related upper limb disorders).
2	Minor	Injury or ill-health requiring first-aid only (includes minor cuts

Severity \ Likelihood	Likelihood				
	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10

LJ/OSHA/RA/rev.00

RA no 1 – Pipeline Installation

Page 12 of 13

