



# PROJECT RISK ASSESSMENT

DESIGN AND CONSTRUCTION OF ZADCO CENTRAL RECORD MANAGEMENT IN ESNAAD

**RISK ASSESSMENT REFERENCE NUMBER: SBC-SJ095-HSE-RA**



SPARK BUILDING CONTRACTING LLC

**ASSESSOR: Risk Assessment Committee**

**Assessed Date: 04 July 2015**

**Rev No: 00**

Sl. No	JOB STEP	HAZARDS	HAZARD EFFECT	RISK RATING SCORE			CONTROL MEASURES	Residual Risk	Action By Whom	Remarks
				Likelihood	Severity	Risk Rating				
		<ul style="list-style-type: none"> <li>Insecure Hold &amp; Inadequate space</li> </ul>					the staff for good posture. Use slip resistance shoe with toe protection. <ul style="list-style-type: none"> <li>Area to be illuminated with adequate lighting.</li> <li>Provide appropriate warning sign.</li> <li>Repetitive bending twisting and cutting with nips shall be avoided.</li> </ul>			
02	<b>Mobilization of Personnel and material</b>	<ul style="list-style-type: none"> <li>Unfamiliarity of the area</li> <li>Untrained operators/drivers</li> <li>Emergency access blocked</li> <li>Heavy vehicle movement</li> <li>Unmaintained equipment.</li> </ul>	Personal injury, property damage, vehicle/equipment collision, Damage of existing service, Environmental damage	4	3	12	<ul style="list-style-type: none"> <li>Required Permits to Work shall be obtained before starting the work.</li> <li>Mobilization action plan shall be communicated to all employees.</li> <li>All drivers must have UAE valid Driving license to operate that vehicle.</li> <li>Pre-start work HSE induction shall be conducted.</li> <li>All equipments must be approved from ESNAAD prior to use.</li> <li>Ensure certified operators / banks man assigned for the task.</li> <li>Emergency access shall not be blocked by material/equipment.</li> <li>Material shall not be stored near the existing services.</li> <li>Material storage at designed area only.</li> <li>Ensure that only dedicated road provided for vehicle shall be used during mobilization.</li> <li>Route must be surveyed prior to mobilization</li> </ul>	3	Project manager /site engineer	

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							on site to ensure hazards are identified and controlled. <ul style="list-style-type: none"> <li>• Parking of vehicle should be at designated areas</li> <li>• Preventive maintenance checks for all equipment and vehicle by a competent person</li> <li>• Toolbox talk to be conducted prior to start work.</li> </ul>			
03	<b>Working in Adverse weather</b>  Exposure to hot weather /humidity  Heavy winds & Sand storm	<ul style="list-style-type: none"> <li>• Working under the sun</li> <li>• Long exposure</li> <li>• Lack of periodic rest in shade</li> <li>• In competent/ Untrained work force</li> <li>• Exposure to heavy wind and sand storm</li> </ul>	Dehydration, Heat stress, Heat exhaust, Heat cramps, Fatality, Personal Injury(minor/major), Fire  Personal injury, property damage	4	3	12	<ul style="list-style-type: none"> <li>• Programs for heat stress prevention on site to be communicated to all personnel.</li> <li>• Comply Local HSE Regulation for related heat stress prevention.</li> <li>• Make sure to provide frequent rest periods to reduce the heat exposure</li> <li>• Ensure the employees are drinking adequate water.</li> <li>• Rest shelter shall be provided.</li> <li>• Wear appropriate clothing loose fitting light weight</li> <li>• Toolbox talk to be conducted.</li> <li>• First aid facility shall be provided.</li> <li>• Dehydration solution (electrolyte or ORS) shall be made available at site.</li> <li>• All operators and banks man must be certified by third party</li> <li>• Conduct daily Toolbox talk and brief activity</li> </ul>	3	Project manager/ site engineer/HSE	

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							related hazards & controls <ul style="list-style-type: none"> <li>• Emergency response plan to be communicated with all personnel involved.</li> <li>• Use Proper PPE and Respiratory protective equipment</li> <li>• Suspend work if heavy windy condition affect visibility and safety of the work environment.</li> <li>• Avoid work at heights</li> <li>• Secure loose and light materials suspected to be carried away</li> <li>• Stop all lifting activities if the wind speed more than 35 km/hr.</li> </ul>			
04	<b>Bore holing drilling for soil test</b>	<ul style="list-style-type: none"> <li>• Interaction with underground utilities</li> <li>• Incompetent /Untrained work force</li> <li>• Equipment failure.</li> <li>• Hit by moving vehicle</li> </ul>	Personal Injury	4	3	12	<ul style="list-style-type: none"> <li>• Refer as built drawings.</li> <li>• Instruction from local authorities.</li> <li>• Cable / metal detectors shall be provided.</li> <li>• Ensure all equipments and operators are approved from ESNAAD prior to mobilize.</li> <li>• Ensure all equipments are serviced, calibrated as per manufactures instruction and functioning correctly.</li> <li>• Mark line of excavation and identity exact drill locations (using paints/color coding as required)</li> <li>• Ensure all underground utilities are exposed prior to work.</li> <li>• Equipments and operators must have valid 3<sup>rd</sup> party certificate.</li> </ul>	4	Project manager/ site engineer/HSE	

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							<ul style="list-style-type: none"> <li>• Provide proper maintenance of equipment with the use of check list.</li> <li>• Competent and effective supervision.</li> <li>• Barricades and sign boards shall be provided.</li> </ul>			
05	<b>Excavation Activity</b>  Manual excavation	<ul style="list-style-type: none"> <li>• Employees working in the trenches</li> </ul>	Personal injury	4	3	12	<ul style="list-style-type: none"> <li>• Obtain require PTW from ESNAAD.</li> <li>• Supervisor shall ensure the physical fitness of the employees on every job start day.</li> <li>• Ensure proper access and egress should be clear.</li> <li>• Ensure the ground stability in good condition</li> <li>• Excavated material should be placed 1 m away from edge of the trench.</li> <li>• Provide proper slop to all excavation to avoid trench collapsing.</li> <li>• Work rest cycle shall be followed to prevent heat stress illness.</li> </ul>	3	Project manager/ site engineer	

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		<ul style="list-style-type: none"> <li>Interaction with Underground facilities /services</li> <li>Open trench</li> </ul>	<p>Property damages</p> <p>Personnel injury &amp; Property damages</p>				<ul style="list-style-type: none"> <li>Refer as built drawings.</li> <li>Instruction from local authorities.</li> <li>Cable / metal detectors shall be provided.</li> <li>Make trail pit to avoid the interaction of the underground utilities.</li> <li>Any Damaged existing utilities shall be immediately reported to concern authority.</li> <li>Competent and effective supervision.</li> <li>Appropriate barricading and warning sign boards shall be provided.</li> <li>Toolbox talk /in house training to be conducted prior to start work</li> <li>All identified UG facilities/services shall be protected from project operations.</li> </ul>			
		<ul style="list-style-type: none"> <li>Water flooding</li> </ul>	Personal injury				<ul style="list-style-type: none"> <li>De watering systems to be used</li> </ul>			
	Mechanical Excavation	<ul style="list-style-type: none"> <li>Damage of Underground utilities</li> <li>Unprotected /open trench</li> <li>Poor access or egress</li> <li>Dust pollution</li> <li>Noise</li> <li>Vibration</li> </ul>	Personal Injury Property damage, White finger	5	3	15	<ul style="list-style-type: none"> <li>Obtain require PTW from ESNAAD.</li> <li>Cable / metal detectors shall be provided.</li> <li>Make trail pit prior to mechanical excavation to avoid the interaction of the underground utilities.</li> <li>Appropriate shoring /sloping methods shall be adopted</li> <li>Barricade the area around proposed excavation and post adequate warning signs, flickering light for night traffic.</li> </ul>	4	Project manager/ site engineer	

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							<ul style="list-style-type: none"> <li>Excavated soil should be placed 1.5 m away from edge of the excavation</li> <li>Use Proper PPEs as required by the activity.</li> <li>Unauthorized entry shall be restricted and vehicle/equipment movement shall be controlled by flagmen at strategic points.</li> <li>Ensure proper access or egress.</li> <li>Spray water to reduce dust generation due to vehicle movement &amp; or excavated soil handling (shifting).</li> <li>Work shall be monitored by competent supervision.</li> <li>Daily inspection of tools &amp; equipments to ensure they are in good condition.</li> <li>Excavation materials shall be stock piled at a designated area with proper barricades.</li> <li>Take regular breaks and job rotation.</li> </ul>			
06	<b>Form work</b>  Shuttering work  De shuttering	<ul style="list-style-type: none"> <li>Failure of shuttering material from height.</li> <li>Unsecured shutters.</li> <li>Protruding edges</li> <li>Improper use of hand and power</li> </ul>	Fatality, Personal Injury, Property damage	4	3	12	<ul style="list-style-type: none"> <li>Proper access and egress shall be constructed by site team prior to start work.</li> <li>Toolbox talk shall be conducted prior to start work.</li> <li>Maintain the access way free of obstruction and material storage.</li> <li>Ensure all workers are competent for this job.</li> <li>Adequate supervision shall be in place.</li> <li>Follow design of the shuttering works.</li> <li>Civil engineer shall design and inspect the</li> </ul>	4	Project manager/ site engineer	

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		<ul style="list-style-type: none"> <li>• tools</li> <li>• Use of Homemade tools.</li> <li>• Damaged electrical cables</li> <li>• Electrocution</li> <li>• Poor access or egress</li> <li>• Protruded nails on the shuttering</li> <li>• Failure to follow safe method of de-shuttering</li> <li>• Manual handling</li> <li>• Repetitive movements</li> </ul>					<ul style="list-style-type: none"> <li>shuttering system.</li> <li>• Maintain good housekeeping.</li> <li>• All dangerous sharp edges shall be covered sharply.</li> <li>• All personnel should wear mandatory PPE ad job specific PPE.</li> <li>• All unused nails and clamps shall be removed from site.</li> <li>• All hand tools and powered tools shall be inspected before receiving from store</li> <li>• Colour coding of power tools shall be done by store keeper under close supervision of safety officer.</li> <li>• Personnel are not allowed to fabricate tools at site.</li> <li>• All homemade tools shall be discarded from site</li> <li>• All electrical leads will be damage free, use industrial socket and elevate the cable as to avoid the tripping.</li> <li>• Inspection of shuttering structure supports and clearance shall be done prior to start concreting work.</li> <li>• Follow safe sequence of removal of shuttering.</li> <li>• Ensure open edges and openings are barricaded</li> <li>• All surplus materials shall be removed from site.</li> </ul>			

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							<ul style="list-style-type: none"> <li>Avoid stacking of materials on high elevations which may cause collapse of material</li> <li>Used lumbers &amp; ply wood should de-nailed and properly stored</li> <li>Toolbox talk on manual handling shall be conducted.</li> <li>Use trolleys or other manual handling aids.</li> <li>Ensure all Personnel are trained on kinetic lifting technique.</li> <li>Always set first priority for mechanical handling whenever possible.</li> <li>The weight of the load should be recognized prior to manual lifting.</li> <li>Repetitive bending, twisting and cutting with nips shall be avoided.</li> </ul>			
07	<b>Reinforcement work</b>  Rebar fixing	<ul style="list-style-type: none"> <li>Protruding edges</li> <li>Inadequate access to workplace</li> <li>Use of Power tools</li> <li>Improper PPE</li> <li>Untrained / uncertified operators</li> <li>Damaged</li> </ul>	Personal Injury	3	3	9	<ul style="list-style-type: none"> <li>Provide re-bar caps on all steel rods end.</li> <li>Restrict all unauthorized entry in the area</li> <li>Excessive tension shall not be applied to tie-wire causing breakage.</li> <li>Wire shall be tied properly in/down.</li> <li>Maintain the access way free of obstruction.</li> <li>Provide appropriate plat form above reinforcement for the movement of workers.</li> <li>Color coding of power tools shall be done by store keeper under the close supervision of safety officer</li> <li>Use appropriate tools/equipment for the job.</li> </ul>	2	Project manager/ site engineer	

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		Equipment					<ul style="list-style-type: none"> <li>All hand tools and power tools shall be inspected before receiving from store.</li> </ul>			
08	<p><b>Concrete Work</b></p> <p>(Selection and setting of concrete truck and pump</p> <p>Concrete pouring for blinding and raft foundation</p> <p>Slab concrete)</p>	<ul style="list-style-type: none"> <li>Poor access control.</li> <li>Overturn</li> <li>Topping</li> <li>Vehicle/equipment collision</li> <li>Handling of concrete, cement</li> <li>Air pollution by cement</li> <li>Concrete splashing</li> <li>Continuous pouring by same gang</li> <li>Revolving concrete mixture/vibrator</li> <li>Physical contact</li> <li>Manual handling</li> <li>Failure of form work</li> </ul>	Personal Injury, Irritation, Dermatitis, Environmental damage, Property damages	4	3	12	<ul style="list-style-type: none"> <li>Ensure adequate access and egress to and from the workplace.</li> <li>Maintain the access way free from obstruction and material storage.</li> <li>Equipments and operators must have valid 3<sup>rd</sup> party certificate.</li> <li>Ensure concrete pump placed in a solid even ground.</li> <li>Outrigger of the pump shall be fully extended and in a solid surface.</li> <li>Toolbox talk shall be conducted prior to start work.</li> <li>Close supervision shall be in place.</li> <li>Banksman/Flagman for the equipment and controlling the traffic shall be deployed.</li> <li>Appropriate PPE shall be used.</li> <li>Periodic inspection &amp; maintenance of gangway shall be done by site supervisor.</li> <li>Concrete pump while pouring concrete will be kept lower to the ground level and all the workers involved will be with necessary PPEs</li> <li>Temporary access shall be provided for other vehicle movement.</li> <li>Provide covering for the necessary area on the ground to avoid land contamination.</li> </ul>	3	Project manager /site engineer	

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		while pouring					<ul style="list-style-type: none"> <li>Excess concrete material shall be removed / disposed after the job.</li> <li>Good supervision is must along the work.</li> <li>Concrete washout shall be permitted only in designated area.</li> <li>Workers to be trained on proper manual handling technique.</li> <li>Avoid manual handling if possible.</li> <li>Standard shuttering practices by trained &amp; experienced personnel, must be inspected &amp; cleared by competent civil engineer.</li> <li>Toolbox Talk to be conducted prior to start work.</li> </ul>			
09	<b>Chemical Storage, usage &amp; handling</b>  Painting work	<ul style="list-style-type: none"> <li>Improper storage</li> <li>Exposure to temperature.</li> <li>Exposure to toxic fumes, reaction with skin, ingestion</li> <li>Inhalation of chemical.</li> <li>Chemical spill(soil contamination)</li> </ul>	Personal injury(minor/major), Fire, Burns,	4	3	12	<ul style="list-style-type: none"> <li>MSDS for all chemical shall be made available and strictly adhere with</li> <li>Only competent person shall be assigned for the task.</li> <li>Ensure all chemical storage and handling are done as per the instruction mentioned in the MSDS.</li> <li>Storage area must be bounded properly.</li> <li>Restricted entry for unauthorized personnel.</li> <li>The storage are must be clean and tidy at all times.</li> <li>Spill kit shall be made available near the storage.</li> <li>Toolbox talk shall be conducted and recorded</li> </ul>	3	Project manager /site engineer	

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		<ul style="list-style-type: none"> <li>Irritation when contact with skin and eyes</li> </ul>					by the concern supervisor or foreman. <ul style="list-style-type: none"> <li>Fire extinguisher shall be made available near the chemical storage area.</li> <li>Appropriate PPE (chemical resistant gloves, respirators, and eye protection as per standard) shall be used.</li> <li>Follow safe handling procedure</li> <li>Drip tray must be provided for paint storage area.</li> <li>Area to be isolated (restricted access) and provide proper signage.</li> <li>Smoking is not allowed near the paint storage area.</li> <li>MSDS and COSHH assessment will be available for all substances /material taken to site.</li> </ul>			

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10	<p><b>Working at height</b></p> <p>Scaffolding</p>	<ul style="list-style-type: none"> <li>• Uneven levels and improper scaffolding positioning</li> <li>• Collapse of scaffold</li> <li>• Unsafe working platform</li> <li>• Working beneath the scaffolding activity</li> <li>• Improper manual handling</li> <li>• Adverse weather.</li> <li>• Falling of personal.</li> <li>• Falling of material</li> </ul>	Fatality, Personal injury, property damages	4	3	12	<ul style="list-style-type: none"> <li>• Certified and competent Scaffolders shall be deployed.</li> <li>• There must be suitable access &amp; egress of the scaffold.</li> <li>• Selection of the material shall be done by experienced personal</li> <li>• Ensure all scaffolding materials are in good condition.</li> <li>• All damaged scaffolding materials shall be removed from site.</li> <li>• All scaffolding shall be positioned in proper ground level only.</li> <li>• Sole plate and base jack shall be provided where ever necessary.</li> <li>• Scaffolding Platform must be clean and tidy.</li> <li>• Certified Scaffolding inspector shall be inspected and re-inspect the material before and after the erection and dismantling of the scaffolding.</li> <li>• All tools and material shall be properly secured in scaffolding while performing the activity.</li> <li>• In complete should be red tagged.</li> <li>• The scaffolding inspector shall place the green tag to use after the completion of the scaffold.</li> <li>• Personnel shall not be permitted to work if scaffolding is in complete.</li> <li>• Periodical inspection shall be carried out by competent scaffolding inspector.</li> </ul>	4		

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		<ul style="list-style-type: none"> <li>• Damage ladder</li> <li>• Falling from height</li> <li>• Collapse of ladder</li> <li>• Poor maintenance of ladder</li> <li>• Obstructed access</li> </ul>	Fatality, Personal injury, property damages	3	3	9	<ul style="list-style-type: none"> <li>• Ensure all ladders are in good condition and free from damage before using on the job.</li> <li>• Ladders shall be set on a firm level base, at an angle of 75 degrees at the top where practicable.</li> <li>• Ladder shall be prevented from sagging and swaying by lashing top and bottom of ladders in both stiles.</li> <li>• Ladders will extent 1.07 m above a landing and must not rest against surfaces that can move or are fragile.</li> <li>• No Ladders shall exceed 9 meters without the provision of an intermediate landing.</li> <li>• Rungs of ladder shall be free from greasy, oil or other slippery substances.</li> <li>• Ladders shall not be misused.</li> <li>• Homemade ladders shall not be used.</li> <li>• Only one person shall be on a ladder at a time.</li> <li>• Three point contact shall be maintained while ascending and descending the ladder.</li> <li>• Heavy loads shall not be carried out while ascending and descending the ladder.</li> <li>• Operatives, working from a ladder, must not over-reach or jump the ladder to reposition.</li> </ul>	4	Project manager /site engineer	

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	Ladder	<ul style="list-style-type: none"> <li>Falling of person or material from height.</li> <li>Falling of material from roof edge.</li> <li>Untrained work force.</li> </ul>	Personal injury, Property damage.	4	3	12	<ul style="list-style-type: none"> <li>ESNAAD PTW system shall be obtained.</li> <li>Safe access to the roof will always be provided and maintained.</li> <li>Edge protection shall be in the form of guardrails and toe boards will be erected.</li> <li>All openings, when not worked on, shall be covered and / or guarded and clearly delineated.</li> <li>Suitable secure barrier may be set back from the roof if persons are not likely to approach within 2meter of roof edge.</li> <li>All persons engaged in roof work will be adequate trained and supervised.</li> <li>Mandatory PPEs shall be worn by all personnel.</li> <li>Material will not be thrown from the roof.</li> <li>Competent supervisor shall be in place.</li> <li>Where work is in progress at the roof edge guard rail and toe board may be removed subject to a safe system of work being used, to prevent falls i.e. Use of safety harness and protection is replaced as soon as work is complete</li> </ul>	3		
	Roof work								Project manager /site engineer	

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11	<b>Lifting Mobile crane</b>	<ul style="list-style-type: none"> <li>• Poor selection of lifting equipment</li> <li>• Uneven ground level.</li> <li>• Crane failure</li> <li>• Fall of load or topping of the crane.</li> <li>• Suspended load.</li> <li>• Failure of lifting equipment and gears</li> <li>• Poor maintenance</li> <li>• Adverse weather</li> </ul>	Personal Injury, Property damage	5	3	15	<ul style="list-style-type: none"> <li>• ESNAAD PTW System shall be followed</li> <li>• All lifting tackles shall be in good condition, certified by 3rd party &amp; to be inspected daily prior to work.</li> <li>• Crane must have 3<sup>rd</sup> party certificate.</li> <li>• Task shall be carried out in line with the sequences of approved method statement.</li> <li>• Competent Operator, rigger, Banksman must have 3<sup>rd</sup> party certificate.</li> <li>• Selection of the crane shall be fit for the purpose in line with the load and SWL of the crane.</li> <li>• Lifting area should be barricaded and provide and sign board and unauthorized personnel shall not be entering to the area of lifting operation.</li> <li>• The Load shall not be exceeded than the safe working load.</li> <li>• The positioning of the crane shall be on rigid ground, level surface and all out riggers fully extended to the ground.</li> <li>• No one shall be allowed to work or move under the suspended load.</li> <li>• All lifting appliances shall be in good condition, certified by 3rd party &amp; to be inspected daily prior to work.</li> <li>• Work shall be suspended due to bad weather.</li> <li>• Toolbox Talk to be conducted prior to start work.</li> </ul>	6	Project manager /site engineer/HSE	

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SPARK BUILDING CONTRACTING LLC

**ASSESSOR: Risk Assessment Committee**

**Assessed Date: 04 July 2015**

**Rev No: 00**

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				Likelihood	Severity	Risk Rating				
12	<b>Hot work</b>  Welding and grinding activity	<ul style="list-style-type: none"> <li>• Fire/Explosion</li> <li>• Flying particles</li> <li>• Hot metal slugs</li> <li>• Exposure to fumes and gases.</li> <li>• Unauthorized access.</li> <li>• Toxic fumes.</li> </ul>	Personal Injury, Property damage	4	3	12	<ul style="list-style-type: none"> <li>• Welding and grinding safe practices shall be followed at site.</li> <li>• Competent person should be do the task.</li> <li>• Obtain Hot work PTW from ESNAAD.</li> <li>• The work areas, surrounds, and adjacent wall area shall be cleared of all loose combustible materials.</li> <li>• The place of work shall be checked thoroughly after completion of the task.</li> <li>• Maintain good housekeeping.</li> <li>• Cover all equipment and nearby facilities with the fire retardant cloths to prevent accidental fire.</li> <li>• During welding small particles of very hot metal are expelled, no combustible material can be ignited by these.</li> <li>• Appropriate clothing must be worn</li> <li>• Access/egress shall not be obstructed at all times.</li> <li>• Operators and personal working in close proximity must wear suitable PPEs.</li> <li>• Fire extinguisher and fire watcher shall be nearby and only authorize person shall be permitted in the work area when hot work is in progress.</li> </ul>	4	Project manager /site engineer	

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	Water proofing Works	<ul style="list-style-type: none"> <li>Injury with water proofing materials</li> <li>Fire</li> <li>Exposure to hot weather / humidity</li> </ul>	Physical Injury, Property damages	3	3	9	<ul style="list-style-type: none"> <li>Adequate ventilation shall be used to avoid the fumes.</li> <li>Torch equipment shall be properly connected and hoses in good working condition.</li> <li>All fittings shall be free from leakage and leakage shall check by use of soak water to intent the gas leaks.</li> <li>Propane gas cylinder must be kept away from flame and his hose to be fitted with two flash back arrestor.</li> <li>Avoid splashes to the eyes.</li> <li>Emergency evacuation procedure shall be discussed in Toolbox talk prior to start work.</li> <li>Fire extinguisher shall be kept nearby area of work.</li> <li>First aider shall be provided and dehydration solution shall be made available at site.</li> <li>Heat stress prevention on site to be communicated to all personnel</li> <li>Drinking water shall be available at site.</li> </ul>	4	Project manager /site engineer	
13	<b>Use of Electrical equipment</b>  (power tools cartridge operate tools)	<ul style="list-style-type: none"> <li>Damaged tools</li> <li>Homemade tools</li> <li>Improper usage</li> <li>Damaged</li> </ul>	Personal Injury, Personal burns, Asset damage, Fire	4	3	12	<ul style="list-style-type: none"> <li>All tools and equipment shall be in good condition</li> <li>All power tools must be inspected and color coded prior to start work</li> <li>Toolbox talk to be conducted prior to start work</li> </ul>	4	Project manager /site engineer	

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		<ul style="list-style-type: none"> <li>cables</li> <li>Exposed electrical wires/points</li> <li>Loose connection</li> <li>Improper earthing</li> <li>Contact with exposed electricity</li> </ul>					<ul style="list-style-type: none"> <li>Homemade tools and fabricated tools are not allowed.</li> <li>Electrical cables must be managed properly and properly protected to avoid being damaged by heavy equipment and vehicle.</li> <li>Welding holder and cable must have proper insulation.</li> <li>Double insulated industrial type</li> <li>All cables must be inspected regularly to ensure that no danger exists from worn or damaged insulation or loose unsound electrical connections.</li> <li>Machine shall be turned off when it is not in use or unattended</li> <li>All electrical equipment must have earthing.</li> <li>Fire extinguisher shall be available at site</li> <li>All portable electrical appliances shall be subject to a maximum voltage of 110 volts.</li> </ul>			
14	<b>Distribution of electricity</b> (Use of electricity)	<ul style="list-style-type: none"> <li>Electrocution</li> <li>Design change or modification</li> <li>Inadequate or in active electrical protection</li> <li>Improper</li> </ul>	Electric shock, Personal injury, Property damages	4	4	16	<ul style="list-style-type: none"> <li>Inspection shall be carried out on the insulation on power cords, patch cords, and cables for deterioration.</li> <li>Ensure all Electrical appliances are checked regularly.</li> <li>Earth leakage circuit breaker shall be provided.</li> <li>All faulty items should be taken out of service immediately.</li> </ul>	6	Project manager /site engineer	

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				Likelihood	Severity	Risk Rating				
		use of machinery or • Improper use of electrical outlets					<ul style="list-style-type: none"> <li>Do not splice equipment or cords.</li> <li>Do not use any equipment or cords that have splices.</li> </ul>			
15	<b>Interference with public and visitors</b>	<ul style="list-style-type: none"> <li>Un authorized personal entry</li> <li>In adequate fencing</li> <li>Touching construction properties</li> <li>Collision / Entrapment</li> </ul>	Fatality, Personal injury, Property damage.	3	3	9	<ul style="list-style-type: none"> <li>Visitors must be reported to ESNAAD Security Department.</li> <li>Public access to be strictly controlled.</li> <li>Perimeter Fencing shall be installed around the construction site.</li> <li>All visitors must be followed company safety rules as well as ESNAAD safety rules.</li> <li>All visitors to be wear mandatory PPEs.</li> </ul>	4	Project manager /site engineer	
16	<b>Loading and unloading</b>  Use of mobile crane.	<ul style="list-style-type: none"> <li>Collision/ Entrapment</li> <li>Crane positioning / Uneven ground level</li> <li>Failure of lifting equipment and lifting gear.</li> </ul>	Fatality, Personal injury, Property damage.	4	4	16	<ul style="list-style-type: none"> <li>ESNAAD PTW System shall be followed.</li> <li>All lifting tackles shall be in good condition, certified by 3rd party &amp; to be inspected daily prior to work.</li> <li>Crane must have 3<sup>rd</sup> party certificate.</li> <li>Task shall be carried out in line with the sequences of approved method statement.</li> <li>Competent Operator, rigger, Banksman must have 3<sup>rd</sup> party certificate.</li> <li>Lifting gears should be color coded.</li> <li>Lifting activity shall not be carried out due to</li> </ul>	6	Project manager /site engineer	

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				Likelihood	Severity	Risk Rating				
	Vehicle movements	<ul style="list-style-type: none"> <li>Poor maintenance</li> <li>Poor visibility</li> <li>Falling of material.</li> <li>Access/egress</li> <li>Exposure to Dust</li> <li>In competent driver</li> </ul>	Personal injury, Property damage.				<ul style="list-style-type: none"> <li>heavy wind.</li> <li>Area to be isolated and provide warning signs.</li> <li>Banks man shall be in attendance at all times whilst machine is operating.</li> <li>All operatives should wear reflective jackets at all times</li> <li>All drivers must have valid UAE license.</li> <li>Vehicle should be properly maintained.</li> <li>No movements for fog/sand storm/ heavy rain. Look for overhead obstructions while driving.</li> <li>Periodic site watering shall be carried out to prevent dust.</li> <li>All drivers should follow the ESNAAD Speed limits.</li> </ul>			
17	<b>Material Storage at site</b>	<ul style="list-style-type: none"> <li>In adequate space.</li> <li>Improper stacking of material</li> <li>In adequate signage</li> </ul>	Personal Injury	3	3	9	<ul style="list-style-type: none"> <li>Adequate space shall be provided for storing of material.</li> <li>Material shall be secured while shifting of material.</li> <li>Material shall be properly stacked.</li> <li>Area to be illuminated with adequate lighting and provide proper signage</li> <li>Maintain good housekeeping.</li> </ul>	4	Project manager /site engineer	

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	Office activities	<ul style="list-style-type: none"> <li>Slip, trip and falls</li> <li>Improper Manual handling of office equipments</li> <li>Screen equipment</li> </ul>	Personal injury Muscular skeletal disorders, Eye Fatigue, stress	3	3	9	<ul style="list-style-type: none"> <li>Health and safety policy and guidance for safety in the work place.</li> <li>Good housekeeping shall be carried out.</li> <li>No trailing leads or cables</li> <li>Boxes shall not be left in the walk ways.</li> <li>Arrange for loose carpet tile on the floor to be repaired / replaced.</li> <li>Remind staff that they should not lift objects that look all or appear too heavy to handle.</li> <li>High shelves for light object only.</li> <li>Trolley shall be used for collecting boxes and other heavy items during delivery time.</li> <li>Equipment set to ensure good posture and to avoid glare and reflection on the screen.</li> <li>Lighting and temperature suitably controlled.</li> <li>Adjustable blinds at windows to control natural light on the screen.</li> </ul>			
18	<b>Waste Management</b>	<ul style="list-style-type: none"> <li>Improper Waste segregation.</li> <li>Accumulation of waste on site.</li> <li>Improper disposal of hazardous waste.</li> </ul>	Personal Injury(major/minor), Fire, Environmental Pollution.	4	3	12	<ul style="list-style-type: none"> <li>COSHH (Control of substance hazardous to health) assessment must be undertaken for all chemical with correct storage and disposal procedures being adhered to.</li> <li>Regular housekeeping shall be carried out to ensure waste does not become a slip, trip, fall hazard.</li> <li>Waste shall be stored in suitable containers to prevent access by pests.</li> <li>Combustible materials on site to a minimum.</li> <li>Combustible stored in secure compounds or</li> </ul>	4	Project manager /site engineer	

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							bins and emptied regularly. <ul style="list-style-type: none"> <li>No combustible waste to be stored near storage tanks.</li> <li>Hazardous waste must not be disposed of via normal waste.</li> <li>Special containers for hazardous waste must be available.</li> <li>Waste a special collection for hazardous waste can be arranged with the waste disposal service provider for sites in the waste collection and recycling contract.</li> <li>Regular monitoring shall be carried out.</li> <li>Appropriate PPE shall be used.</li> </ul>			
19	<b>Welfare of workers</b>	<ul style="list-style-type: none"> <li>In adequate working place</li> <li>Non availability of drinking water and rest room</li> <li>Poor illumination.</li> <li>Inadequate washing facility, drinking and dining</li> </ul>	Personal injury,	3	3	9	<ul style="list-style-type: none"> <li>Work place must be adequately ventilated.</li> <li>Suitable lighting must be provided to allow people to work and move around safely.</li> <li>Suitable and sufficient sanitary convenience and washing facility must be provided at readily accessible places.</li> <li>Sanitary facilities must be kept clean, ventilated and light.</li> <li>Provide proper housekeeping must be maintained at all times.</li> <li>Regular monitoring shall be carried out.</li> </ul>	4	Project manager /site engineer	

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		facility.								
20	<b>Sustainability requirement</b>  Fuel Consumption          Power consumption	<ul style="list-style-type: none"> <li>Fuel spillage</li> <li>Soil contamination</li> </ul> <ul style="list-style-type: none"> <li>Continuous usage</li> <li>Overload use of multi socket adapters</li> <li>High voltage machinery instead of low voltage machinery.</li> <li>All</li> </ul>	Fire, Environmental pollution,          Power failure, Fire	4	3	12	<ul style="list-style-type: none"> <li>Fire extinguisher shall be located near the fuel storage areas.</li> <li>Emergency procedure shall be followed during emergency situation.</li> <li>No hot work shall take place within 3 meter of storage zone.</li> <li>Smoking shall not be permitted in the area of the fuel storage.</li> <li>Provide adequate sign boards.</li> <li>“No smoking” signs are to be maintained in good condition.</li> <li>Provide drip trays for all equipment.</li> <li>Spill kit shall be provided.</li> </ul>	4	Project manager /site engineer	
				3	3	9	<ul style="list-style-type: none"> <li>Adequate circuit for the current.</li> <li>ELCB shall be provided all the equipments.</li> <li>Low voltage systems shall be used.</li> <li>Educate all the workers the importance of power saving.</li> </ul>	4		

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	Water consumption	machines working same time. • Water leak and cave in • Water pollution. • Contact In electrical connection • Slip • Electrical shock	Personal injury, Environmental pollution	3	3	9	<ul style="list-style-type: none"> <li>• Only use standard cables and fuses.</li> <li>• Close supervision and monitoring.</li> <li>• Provide adequate signboards and posters.</li> <li>• Filter shall be changed periodically.</li> </ul>	3		
21	<b>Behavioral Safety</b>	<ul style="list-style-type: none"> <li>• New workers &amp; aged workers</li> <li>• Working without PTW.</li> <li>• Inadequate training of personal</li> <li>• Leaving without information.</li> <li>• Over</li> </ul>	Personal Injury(minor/major)	3	3	9	<ul style="list-style-type: none"> <li>• Safety induction shall be provided for new employees prior to mobilize to the site.</li> <li>• ESNAAD PTW system shall be followed.</li> <li>• Adequate regular training shall be provided for the work force.</li> <li>• Close supervision must be provided.</li> <li>• Disciplinary action to be taken against violation.</li> <li>• Continuous monitoring.</li> </ul>	4	Project manager /site engineer	

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		<ul style="list-style-type: none"> <li>confidences</li> <li>Horse play</li> <li>Site violation.</li> </ul>								
22	<b>Ergonomics</b>  Material handling	<ul style="list-style-type: none"> <li>Improper material handling</li> <li>Repetitive movement</li> <li>Awkward posture and lifting</li> <li>Segmental vibration</li> </ul>	Personal injury(major/minor), Property damage	4	3	12	<ul style="list-style-type: none"> <li>Use trollies or other manual handling aid.</li> <li>Ensure all personnel are trained for kinetic lifting technique.</li> <li>Job rotation and job breaks shall be provided.</li> <li>Use job enlargement, increase the number of takes performed by the worker.</li> <li>Varying the type of movement.</li> <li>Design reach distance for the shortest worker</li> <li>Arm supports shall be provided.</li> <li>Reduce the speed of the motion if possible.</li> <li>Use mechanical assists and malfunction tools.</li> <li>Select power tools with lower vibration.</li> <li>Regular maintenance shall be provided on tools.</li> <li>Use battery operated tools rather than air powered tools where possible.</li> <li>Reduce vibration exposure duration.</li> <li>Appropriate PPE shall be provided.</li> <li>Close supervision and monitoring must be carried out.</li> <li>Educate all the workers through instruction,</li> </ul>	4	Project manager /site engineer	03/11/2015

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							information & training.			
23	MEP works  Mechanical Works	<ul style="list-style-type: none"> <li>• Entanglement</li> <li>• Ejection</li> <li>• Traps</li> <li>• Impact</li> <li>• Contact</li> <li>• Vibration</li> </ul>	Personal injury(major/minor), Property damage	3	3	9	<ul style="list-style-type: none"> <li>• Trained and experienced personnel to be employed for work.</li> <li>• Regular maintenance shall be provided on tools.</li> <li>• All Machine parts are properly guarding.</li> <li>• Never leave a running tools as unattended.</li> <li>• Area should be barricaded and restricted to authorized entry.</li> <li>• Sign boards shall be provided.</li> <li>• Adequate illumination shall be provided.</li> <li>• Proper access and egress.</li> <li>• Use fixed guards to prevent the access to moving parts.</li> <li>• Appropriate PPE shall be used.</li> <li>•</li> </ul>	4	Project manager /site engineer	

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	Electrical Works	<ul style="list-style-type: none"> <li>Electrocution.</li> <li>Inadequate in active or electrical protection.</li> <li>Improper use of electrical outlets</li> <li>Improper maintenance of, outlets and electrical equipments</li> </ul>	Personal injury(major/minor), Property damage	4	3	12	<ul style="list-style-type: none"> <li>Follow ESNAAD PTW system</li> <li>All electrical appliances are checked regularly.</li> <li>Do not overload circuits.</li> <li>All cables are proper insulated.</li> <li>Industrial sockets shall be used.</li> <li>Only competent person allowed to do the specific task.</li> <li>Information, instruction&amp; supervision.</li> <li>Regular inspection shall be carried out all tools and equipment.</li> </ul>	4	Project manager /site engineer	
	Plumbing works	<ul style="list-style-type: none"> <li>Slip trip</li> <li>Improper manual handling</li> <li>Use of hand/power tools.</li> <li>Cut from sharp edges on pipes</li> </ul>	Personal injury(major/minor), Property damage	3	3	9	<ul style="list-style-type: none"> <li>Follow ESNAAD PTW system</li> <li>Prior to commencing the work plumbers should be inspected the area free from obvious trip hazard to allow them to commence of works.</li> <li>Make sure the project area is well lighted and uncluttered.</li> <li>Area should be free from excessive debris and proper access and egress shall be provided.</li> <li>Mechanical lifting aids shall be utilized to transport sanitary wear as close as possible to</li> </ul>	4	Project manager /site engineer	

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24	<b>Fabrication work</b>  Cladding work	<ul style="list-style-type: none"> <li>• Trip</li> <li>• Fall from height</li> <li>• Electrocution</li> <li>• Adverse weather</li> <li>• Unauthorized use</li> </ul>	Personal injury(major/minor), Property damage	3	3	9	<ul style="list-style-type: none"> <li>• Area should be free from obstruction.</li> <li>• Housekeeping should be maintained on daily basis.</li> <li>• Use battery operated tools rather than electrical powered tools where possible.</li> <li>• Weather condition shall be monitored to ensure that works can be carried out safely prior to height work.</li> <li>• Use of appropriate PPE</li> <li>• Close supervision must be carried out.</li> </ul>	4	Project manager /site engineer	
25	<b>Plant and Equipment</b>  Air Compressor         Pneumatic Tools	<ul style="list-style-type: none"> <li>• Noise and vibration</li> <li>• Burst of hoses</li> <li>• Improper fitting of couplings</li> <li>• Dust</li> <li>• High pressure</li> <li>• Dismantling hose coupling by pneumatic machine</li> <li>• Noise</li> <li>• Vibration</li> </ul>	Personal injury(major/minor), Property damage, Hearing impairment	3	3	9	<ul style="list-style-type: none"> <li>• Ensure inspection and periodic maintenance of equipment to reduce noise, vibration and air pollution</li> <li>• Ensure all necessary PPEs available for the site personnel.</li> <li>• Use Whip back arrestor and spilt pin to fit the coupling</li> <li>• 3<sup>rd</sup> party certificate should be available.</li> <li>• Hoses shall be in good condition.</li> <li>• Use Whip back arrestor</li> <li>• Only competent person to do the task</li> <li>• Ensure inspection and periodic maintenance of equipment to reduce noise, vibration and air pollution</li> <li>• Educate all the workers through instruction, information &amp; training.</li> </ul>	3	Project manager /site engineer	

# PROJECT RISK ASSESSMENT

DESIGN AND CONSTRUCTION OF ZADCO CENTRAL RECORD MANAGEMENT IN ESNAAD

RISK ASSESSMENT REFERENCE NUMBER: **SBC-SJ095-HSE-RA**



**ASSESSOR: Risk Assessment Committee**

**Assessed Date: 04 July 2015**

**Rev No: 00**

Sl. No	JOB STEP	HAZARDS	HAZARD EFFECT	RISK RATING SCORE			CONTROL MEASURES	Residual Risk	Action By Whom	Remarks
				Likelihood	Severity	Risk Rating				
							<ul style="list-style-type: none"> <li>Always wear the appropriate PPEs.</li> </ul>			
26	<b>Work Completion</b>  Demobilization	<ul style="list-style-type: none"> <li>Untrained operator/driver</li> <li>Poor access /egress</li> <li>Improper manual handling</li> </ul>	Personal injury, Property damage, Vehicle & equipment collision	4	3	12	<ul style="list-style-type: none"> <li>Follow ESNAAD PTW system</li> <li>Pre start work safety induction shall be conducted</li> <li>Trained and competent person shall be deployed for the task</li> <li>Emergency access shall not be blocked.</li> <li>Parking of vehicles should be at designated place.</li> <li>Emergency numbers displayed at site.</li> <li>Dedicated road shall be used during mobilization.</li> <li>Use trollies or other manual handling aid.</li> <li>Ensure all personnel are trained on kinetic lifting technique.</li> </ul>	9	Project manager /site engineer	

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Signature: \_\_\_\_\_  
Safety Engineer / Officer

Signature: \_\_\_\_\_  
Project Manager

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## RISK Matrix

Severity of Consequences			Likelihood ( Probability )					
			Never occurred	Same incident has occurred in similar industry (once every five years)	Same incident occurred more than once in similar industry (1-5 times per year)	Same incident occur several times in similar industry. Often Happens at least (5-12 times per year)	Same incident Occurs Frequently in the similar industry. Continuous or will happen frequently.	
			1 (Rare)	2 (Possible)	3 (Likely)	4 (Often)	5 ( Frequent)	
<ul style="list-style-type: none"> <li>• Minor injuries which may require self administered first Aid.</li> <li>• Insignificant impact to surrounding communities.</li> </ul>	<ul style="list-style-type: none"> <li>• Insignificant Environmental Impacts.</li> <li>• Temporary nuisance from noise, odours, dust other air emission, vibration and visual impacts.</li> <li>• Result in the generation of non-hazardous waste.</li> </ul>	<ul style="list-style-type: none"> <li>• Incident/event without causing production loss.</li> <li>• Financial Loss ( compensation, fines, cost to repair, plant damages ) of less than AED 5000.</li> </ul>	1 - Insignificant	1	2	3	4	5
<ul style="list-style-type: none"> <li>• Injuries requiring treatment by medical practitioners.</li> <li>• Personnel unable to perform assigned duties. ( Restricted Work Cases)</li> </ul>	<ul style="list-style-type: none"> <li>• Minor environmental impact due to contained release of pollutant.</li> <li>• Significant use of water, fuels, energy and other natural resources.</li> <li>• Minor spillage of Chemical (less than 100 liters) to onshore areas.</li> <li>• Minor spillage of chemical (less than 10 liter) for Offshore.</li> </ul>	<ul style="list-style-type: none"> <li>• Incident/event without causing production loss.</li> <li>• Financial Loss ( compensation, fines, cost to repair, plant damages ) of less than AED 10000. to AED50000</li> </ul>	2 - Minor	2	4	6	8	10
<ul style="list-style-type: none"> <li>• Serious injuries requiring Treatment by medical practitioner or immediate evacuation to hospital. Potential for long term or permanent disabling effect. (e.g. Fracture, chronic back injuries, sprain, burns, etc).</li> </ul>	<ul style="list-style-type: none"> <li>• Significant short term impact to flora/fauna and water resources.</li> <li>• Spillage of Chemical more than 100 liters resulting to localised impacts.</li> <li>• Spillage of chemical more than 10 liters to Offshore areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Incident/event without causing production loss or delay up to one week.</li> <li>• Financial loss ( compensation, fines, cost to repair plant damage) of AED 50000 to AED500000</li> </ul>	3 - Moderate	3	6	9	12	15
<ul style="list-style-type: none"> <li>• Single fatality or permanent total disability, from an accident or occupational illness ( Poisoning cancer)</li> </ul>	<ul style="list-style-type: none"> <li>• Continuous and serious damage to flora/fauna and water resources.</li> <li>• Spillage of chemical resulting to widespread contamination.</li> <li>• Major destruction of significant habitat.</li> <li>• Major environmental impact due to uncontained release, which require outside assistance.</li> </ul>	<ul style="list-style-type: none"> <li>• Production loss or delay fro over one month.</li> <li>• Financial loss ( compensation, fines, cost to repair plant damage) AED 500000 to AED 10M.</li> </ul>	4 - Major	4	8	12	16	20
<ul style="list-style-type: none"> <li>• Multiple fatality or permanent total disabilities from an accident or occupational illness ( Poisoning Cancer)</li> </ul>	<ul style="list-style-type: none"> <li>• Long term impact to environment (Flora/fauna and ground water resources).</li> <li>• Spillage of chemical resulting to long term environmental effect.</li> <li>• Widespread destruction to a significant area of land, rare flora and fauna and or ground water resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of the ability to produce.</li> <li>• Severe financial penalties or legal liabilities.</li> <li>• Financial Loss greater that 10M.</li> </ul>	5 - Catastrophic	5	10	15	20	25
<b>Risk</b>	Low	1-4		No action required (ALARP Level), unless escalation of risk is possible.				
	Medium	5-10		Activity can proceed subject to proper management and/or modification				
	High	12-25		Activity must proceed unless risk is reduced to acceptable level				

Reference: ADEHSMS RF - TG - Process Risk Management ; ADNOC COPV1 -08