

İzmir Bayraklı Integrated Health Campus - Risk Register

ITEM	ACTIVITY	HAZARD	RISK LEVEL	CONTROL MEASURES – RISK MANAGEMENT	CONTROLLED RISK RATING	RESPONSIBILITY
	(Identify applicable hazards associated with the project)	(Identify associated risks to organisation)	(H, M & L)	(Identify key control measures)		
1.0 General						
1.1	-					
2.0 Public Relations						
2.1	Identified in SEP (Stakeholders Engagement Plan)					
3.0 General Health						
3.1	Inclement weather	No suitable clothing available.	MEDIUM	Contractor / sub-contractor to supply, team leader to ensure it is worn.	LOW	To be defined (TBD) in HSE Plan during construction
3.2	Emergency Incident	Serious injury	HIGH	Familiarity with Emergency Response Plan (EMRP). Follow EMRP	LOW	Ditto
4.0 Vehicle & Related Hazards						
4.1	Vehicles / Drivers	Road traffic accident	HIGH	Defensive driving skills / pedestrian awareness. Use approved drivers.	MEDIUM	Ditto
4.2	Vehicle Road Worthiness	Poor vehicle condition	HIGH	Vehicles to be maintained to Turkish standards. Conduct and record pre-survey vehicle inspection and morning roadworthiness inspection. Use approved drivers	LOW	Ditto
4.3	Road traffic accident	Injury to personnel, Insurance liability, reputation	HIGH	Defensive driving skills, approved drivers.	LOW	Ditto
4.4	Driver fatigue	Driver error leading to accident.	MEDIUM	As per road to better driving, ensure adequate driver rest periods. Driver hours in accord. With Turkish legislation	LOW	Ditto
4.5	Night driving	Other drivers / road traffic accident, serious injury	HIGH	Defensive driving skills / pedestrian awareness. Use approved drivers and reduce driver hours	LOW	Ditto
5.0 Medical & Environmental – Physical Hazards - Climatic						
5.1	Work in extreme of temperatures: heat and humidity	Sunburns; Heat Rash, Fatigue, Cramps, Exhaustion (shock), and heat Stroke (coma) Dehydration Urinary calculi, renal colic	MEDIUM	Bottled / Wholesome water Make available fluid, salts replacements (electrolytes) and first aid Insulated tents/shelter work schedules, plan heavy work	LOW	Ditto
5.2	Work in extreme of temperatures: Cold	Frostbites, frostnips, chilblains, hypothermia: (lack of muscular co-ordination and mental confusion). Project Medical Manager / Doctor to clarify drug / alcohol regime	HIGH in winter Altitude, and / or if accidental immersion in cold waters, and / or exposed to wind chill	Appropriate pre-employment physical check Alcohol and drug abuse policy and control will prevent and reduce the risk Wet / Dry Camp issues	LOW	Ditto

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			HIGH	Random Alcohol / Drug testing Appropriate clothing / cold Wind insulation		
6.0 Psychological Factors						
6.1	Unskilled Employees	Lack of training, literacy, Co-ordination of personnel. Screening of personnel. Union engagement. Company Reputation Medical Illness	HIGH	HR Screening processes, pre-employment, competence screening, certifications for plant, equipment. Skill Training/Training, Induction Training, Toolbox talks	LOW	Ditto
6.2	Social Issues – Reaction to Change. Negative personal issue	Cultural problems within camp. Religious issues, ethnics etc	HIGH	Selection of employees. Camp management Plan. Cultural awareness, planning of facilities, segregation of personnel	LOW	Ditto
7.0 Food, Water supply and Sanitation situation						
7.1	Diet/Catering in the areas Food sanitation practices Butchered and uncontrolled meat management	Food borne infectious diseases, essentially gastrointestinal diseases (see biologic hazards) due to bacteria, protozoa, viruses and parasites Food poisoning Decrease in active workforce Work stoppage Medevacs	HIGH	Health education and training of food handlers Food handlers stringent and specific pre-employment physical Food quality, food conservation, catering facilities based on international standards Control of meat quality Accurate diagnosis (lab capabilities)	MEDIUM	Ditto
7.2	Water supply Potential cross contamination of water from damaged water and sewerage pipes. Minimal water treatment.	Waterborne infectious diseases, essentially gastrointestinal diseases (see biologic hazards) due to bacteria, protozoa, viruses and parasites Waterborne diseases may lead to a decrease in active workforce, work stoppage, medivacs	HIGH	In-house water treatment if necessary, Periodic water quality monitoring Only Portable water, water tankers or water treated in-house and recognised as safe for drinking Label all Drinking Water sources and those that are not fit for drinking	LOW	Ditto
7.3	Hygiene and sanitation, sewerage Low hygiene level Poor sanitary conditions.	Infectious diseases Food and water borne diseases	HIGH	Hygiene and sanitation surveillance and periodic inspections Proper disposal. Camp Management Line Crew Portable Toilets and sanitation teams	LOW	Ditto
8.0 Biological hazards						
8.1	Biologic contaminants: bacteria, viruses, protozoan,	Communicable diseases (food and	HIGH	Education (information, instruction & training)	LOW	Ditto

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	parasites (transmitted through food, water, vectors, body fluids, air and direct or indirect contact). Legionella.	water borne diseases, vector borne diseases, body fluid transmitted diseases, airborne diseases)		Sanitation, immunisation, hygiene, food handling Testing capabilities (whether internally or externally – i.e., laboratory Qualified paramedics / First Aiders. Appropriate medical response, medical assessment.		
8.2	Air-born diseases	Legionellosis: Pontiac fever and flu-like fever (Airborne contamination from hot or cold water sources) Respiratory infections, flu, haemophilus influenza	MEDIUM	Water should be periodically tested for Legionella Maintenance of water systems and appropriate biocides	LOW	Ditto
8.3	Food and Water born diseases Transmission: primarily ingestion of causative agent(s) in contaminated food or water. (feco-oral) Bacterial agents: Escherichia coli, Campylobacter, Aeromonas, non-cholera vibrio, Shigella species, Salmonella species, Pleisomonas, Staphylococcus, Pseudomonas. Protozoan: Entamoeba histolytica, Giardia lamblia, Balantidium coli, and Cryptosporidium,. Viruses: rotaviruses, norwalk virus. All are focally endemic.	Diarrhoeal diseases and dysentery Infectious diseases: Typhoid and Paratyphoid, HAV, HEV, Cholera, Anthrax, Poliomyelitis, Botulism, Leptospirosis, Listeriosis, Brucellosis, Echinococcosis Intestinal Parasites	HIGH	Personal hygiene, proper hand washing, bottle water, only use running drinkable water to wash fruits and vegetables, pasteurise milk and dairy products, proper sanitation Epidemiology investigation Isolation ward Hygiene and sanitation inspections, supervision of food handlers' sanitary practices, food safety program, and food handlers screening; Eviction and treatment of carriers Vectors control, Training. Testing regime-pre employment	LOW	Ditto
8.4	Vector borne diseases Mosquitoes (aedes aegypti), phlebotomus, house flies, ticks, mite, fleas (Xenopsylla cheopis) and bed bugs. which act as a reservoir or as a vector in their transmission. The disease agent could be parasitic, bacterial or viral.	Mosquito borne diseases: Malaria, west-Nile fever, west-Nile encephalitis Phlebotomus: leishmaniasis Tick borne diseases: encephalitis (CEE) Louse borne diseases: Relapsing fever, louse borne Typhus fever, and trench fever Not endemic in winter Hot Areas of risk (ROW)	HIGH	Education, correct clothing, insect repellents Vector control (fogging). Mosquito nets Accommodations impervious to vectors. Housekeeping regime. Water Course Management Strategy.	LOW	Ditto
8.5	Other infectious diseases	Tuberculosis	MEDIUM	Inoculation.	LOW	Ditto

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	<p>Communicable diseases</p> <p>Endemic diseases</p> <p>Cosmopolitan diseases (may cause epidemic)</p>	<p>West-Nile fever and encephalitis, typhus fever, diphtheria, anthrax, poliomyelitis, tetanus, botulism</p> <p>Acute respiratory infections, streptococcal, staphylococcal, pneumococcal diseases.</p> <p>Anthrax</p>		<p>Training</p> <p>Education</p> <p>Health Care</p> <p>ERP / Quarantine</p> <p>Medical Assessment</p>		
9.0 Hazards associated with animals						
9.1	-					
10.0 Hygiene and habitability						
10.1	If poor hygiene (living quarters, campgrounds, shared facilities, public places, offices) and overcrowded accommodations or public utilities	<p>Communicable diseases e.g. contagious ectoparasitic infestations, Vector borne diseases.</p> <p>Dermatophytosis: trichophytosis, tinea, microsporosis</p>	HIGH	<p>Proper waste disposal (domestic, solid, and liquid)</p> <p>Periodic thorough cleaning following priority order with the use of antiseptic agents</p> <p>Floor coverings must be non-porous material, and impervious to water</p> <p>Approved Turkish standards for all materials and equipment</p> <p>Accommodations, materials and equipment should meet acceptable national or international standards (habitability norms)</p>	LOW	Ditto
10.2	Overcrowding	Facilitate spread of infections; create psychological pressure, frustration leading to time loss and even resignation.	HIGH	<p>Hygiene education, health promotion</p> <p>Cleaning staff training</p>	LOW	
10.3	Lack of proper lighting	Causes eye disorders headaches and may contribute to depression mainly in winter.	LOW		LOW	
10.4	Inappropriate accommodation with insufficient insulation, ventilation and climate control	Leads to vector diseases, poisonous animals bites or stings, heat and cold stress	HIGH		LOW	
11.0 Drugs and alcohol						
11.1	Drugs and alcohol abuse	<p>Accidents, immunity depression, organic and mental disorders, impair performance, time loss and resignation. Violence.</p> <p>ROW adjacent to known drug route</p>	HIGH (out of camps)	<p>Substance abuse policy</p> <p>Pre-employment drug screening mandatory for drivers and machine operators</p> <p>Review random tests - monthly</p>	MEDIUM	Ditto

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12.0 Medical facilities						
12.1	Inefficient MERP (Medical Emergency Response Plan) poorly managed facilities	Aggravation of illness Could lead to a fatality case Negative psychological effect on staff	MEDIUM	Qualified and experienced emergency response team Availability of advance first aid Availability of appropriate and adequate means of transport	LOW	Ditto
13.0 Pre-employment physicals						
13.1	Undiagnosed initial health condition	Medical emergencies e.g. Heart attack, intestinal obstruction, respiratory failure, stroke, trauma and surgical conditions	LOW in healthy individuals in the capital	Stringent pre-employment screening Fitness criteria	LOW	Ditto Ditto
14.0 Camps						
14.1	Uneven grounds Stones and pebbles on campsites areas may cause tripping and falling. Night Working Tasks	Abrasion, cuts, infections, strains, sprains ankles or knees, fractures	LOW	Proper grading of camps Protective shoes Ankle protecting shoes should be worn. Awareness of the surroundings. Camp lighting. Task specific (Risk Assessment)	LOW	
14.2	Inadequate accommodations Insufficient protection against climatic factors, against pests, vectors of transmissible disease, and venomous animals, if lighting, living space (overcrowding), potable water and sewage / toilet facilities not meeting recognised standards.	Communicable diseases Poisoning Psychological risks, depression, impairment and increased risk of injuries, illness, reduced effectiveness Alcohol and drug abuse, violence, insomnia Vector borne diseases	HIGH	Ensure temperature and humidity control, protection against pests, vectors, and venomous animals, sufficient hygiene and sanitation, sufficient lighting, sufficient living space. Avoid overcrowding (check acceptable standards). Risk Assessment Education and training.	MEDIUM	
15.0 Recreational facilities						
15.1	Inadequate Recreational	Psychological leading	MEDIUM	Adequate recreational	LOW	Ditto

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	facilities	to fatigue, depression isolation, alcohol / drugs or substance abuse, violence, reduced effectiveness and high risk of injury and illness.		facilities taking into account remoteness, nature of work, working schedules and length of tours		
16.0 Mobilisation						
16.1	Loading / unloading of equipment		HIGH	Site Specific Method Statement / Risk Assessment.	LOW	Ditto
16.2	Lifting equipment / Rigging		HIGH	Check certification.	LOW	Ditto
16.3	Condition of vehicles / machinery		HIGH	Pre / Post Inspection / Maintenance of vehicles, vehicle certification	LOW	Ditto
16.4	Tie-down equipment / Rigging		HIGH	Test certification and inspection of chains, binders, strops etc.	LOW	Ditto
16.5	Alcohol / drug abuse		HIGH	Alcohol / drug abuse policy. Random checks	LOW	Ditto
16.6	Driver certification		HIGH	Driver certification, license, driver training.	LOW	Ditto
16.7	Routing		HIGH	Planning schedule (journey management)	LOW	Ditto
16.8	Speed		HIGH	Speed restrictions.	LOW	Ditto
16.9	Storage of materials / equipment		HIGH	Lay down areas, parking areas	LOW	Ditto
16.10	Spillage (vehicles, machinery)		MEDIUM	Spill kits to be available, Training of personnel in the use of kits	LOW	Ditto
16.11	Lighting		HIGH	Adequate lighting in storage / lay down areas.	LOW	Ditto
17.0 Clearing						
17.1	Fire		HIGH	Fire fighting equipment on stand- by, fire watch Supervision of controlled fires	LOW	Ditto
17.2	Machinery		HIGH	Correct certification, pre / post inspection	LOW	Ditto
17.3	Portable tools (chain saws)		HIGH	Procedures, inspection	LOW	Ditto
17.4	Lack of fencing / gates		HIGH	All fence lines / gates in place	LOW	Ditto
17.5	Man riding of machinery		HIGH	Prohibition of man riding on all machinery	LOW	Ditto
17.6	Drainage		HIGH	Provision of temp flume pipes	LOW	Ditto
17.7	Stacking and removal of timber		HIGH	Procedures	LOW	Ditto
17.8	Lack of PPE		HIGH	Wearing of PPE Mandatory	LOW	Ditto
18.0 Grading						
18.1	Equipment		HIGH	Pre / Post inspection of	LOW	Ditto

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				equipment. Equipment certification		
18.2	Unstable slopes / gradient		MEDIUM	As per core requirements.	LOW	Ditto
18.3	Movement of traffic		HIGH	Signage. Planning, man riding policy	LOW	Ditto
18.4	Excavations		HIGH	As per core requirements.	LOW	Ditto
19.0 Clean up						
19.1	Equipment		HIGH	Certification Inspection program	LOW	Ditto
19.2	Hand tools		HIGH	Inspection program	LOW	Ditto
19.3	Removal of Construction material		HIGH	All mats and other construction materials to be removed to approved storage areas	LOW	Ditto
19.4	Communications		HIGH	Experienced operators	LOW	Ditto
19.5	Disposal of debris		HIGH	All debris to be removed to approved disposal area	LOW	Ditto
20.0 Identified occupational hazards by trade						
20.1	Welders Noise	Hearing loss and hypertension	MEDIUM	Engineering controls, education and training, PPE.	LOW	Ditto
20.2	Heat in confined spaces	Dehydration and electrolytes imbalance	MEDIUM		LOW	Ditto
20.3	<u>Electrical</u> hazards	Burns, fatality	MEDIUM		LOW	Ditto
20.4	Working in heights	Falling risk	HIGH	Using PPE, controls of HSE personnel	LOW	Ditto
21.0 Office workers						
22.1	Office Work - General	Video display terminals	MEDIUM	Ergonomics principles (height of seats, video monitors at eye level, good distance, good lighting) Anti-glare screens may be of some help	LOW	Ditto
22.2		Repetitive tasks	MEDIUM	Avoid long sessions without break. Awareness and early detection of "sick building syndrome", ventilation	LOW	Ditto
22.3		Indoor air pollution	MEDIUM	Re-circulation of same air kept in motion by a/c's may more easily spread upper tract viral infections Occupational surveillance (measure of exposure, early detectors of occupational disease).	LOW	Ditto
22.4		Stress may cause	MEDIUM		LOW	Ditto
22.5		Eye strain, musculo-	MEDIUM		LOW	Ditto

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		skeletal discomfort				
22.6		Carpal tunnel syndrome, tendonitis	MEDIUM		LOW	Ditto
22.7		"sick building syndrome" (headache, nausea, eye irritation)	MEDIUM		LOW	Ditto
22.8		Anxiety, depression, drug and alcohol abuse, cardiovascular disease, peptic ulcer disease	MEDIUM		LOW	Ditto
23.0 Construction workers						
23.1	Cement: may cause	Upper respiratory tract irritation and infection skin irritation and dermatitis	MEDIUM	PPE (safety) Communications – toolbox talks and regulations (in particular Control time spent using vibrating tools	LOW	Ditto
23.2	Handling of used engine oils and repeated skin contact	Serious tissue damage	MEDIUM	Clear grounds of nails and sharp items, etc)	LOW	Ditto
23.3	Heavy lifting	Back strain or other injuries	MEDIUM	Training	LOW	Ditto
23.4	Working in confined spaces	Accidents	MEDIUM	Occupational surveillance (measure of exposure, early detectors of occupational disease) Education and training.	LOW	Ditto
23.5	Heavy equipment / machinery	Crushes, Trapped body parts, Maintenance hazards Visibility	MEDIUM		LOW	Ditto
23.6	Grinding	Angioneurotic diseases	MEDIUM		LOW	Ditto
23.7	Prolonged use of vibrating tools	Tissue damage and vibration-related disorders to hands and extremities	MEDIUM		LOW	Ditto
23.8	Soil contaminated wounds, rusty nail wounds	Tetanus	MEDIUM		LOW	Ditto
24.0 Mechanics, heavy machinery						
24.1	Noise (see below)		LOW	PPE (safety) Communications – toolbox talks	LOW	Ditto
24.2	Safety hazards	Finger loss, lacerations, musculo-skeletal strain, crushing injuries	MEDIUM	Avoid confined spaces whenever possible Guarding / Enclosures to protect from dangerous machines,	LOW	Ditto
24.3	Oils	Skin cancer, oil acne, "Pontiac fever" (Legionella pneumophila) in contaminated oil	LOW	Occupational surveillance (measure of exposure, early detectors of occupational disease)	LOW	Ditto
24.4	Lubricants	May cause dermatitis	LOW		LOW	Ditto
24.5	Polycyclicaromatic hydrocarbons formed by the burning of fossil fuels	Associated with lung and skin cancers	LOW		LOW	Ditto

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24.6	Carbon monoxide: by-product of incomplete combustion of carbonaceous substances	Compromise the oxygen-carrying capacity of blood with a risk of affecting myocardium or central nervous system	LOW		LOW	Ditto
24.7	Dusts		LOW		LOW	Ditto
25.0 By stressors to be encountered						
26,1	<p>Noise</p> <p>High noise levels have been shown to be associated with an increased risk of injuries at work.</p> <p>Noise sources will include diesel driven excavation and pipe handling machinery, hand held power tools, compressors, pumps, generators, flare systems, and blasting.</p> <p>Toxicity to the auditory system is usually manifested after chronic exposure to at least 90db.)</p>	<p>Acoustic trauma: bone or tissue damage can result from exposure to high-pressure wave (explosion).</p> <p>Noise-induced hearing loss: a sensori-neuronal deficit involving the hair cells of the cochlea can be produced by loud, sustained noise. Temporary threshold shift is a loss of hearing that recovers within the first 24 hours after exposure but may also show further improvement over a 7-day period. Permanent threshold shift is a loss of hearing that occurs first in the 4000 Hz range, extending gradually with continued exposure through the higher frequencies and finally in the lower frequencies as well. These changes are irreversible.</p>	MEDIUM	<p>RISK MANAGEMENT: ear protection (mufflers or / and plugs), periodic inspection of hearing protection devices, baseline and periodic hearing tests: (Audiometric tests include hearing testing at intervals between 500 and 8000 Hz. Dose-response curve for hearing loss and noise exposure).</p> <p>Monitoring noise level and sign posting high noise areas (safety).</p> <p>Select equipment according to standards for noise output.</p> <p>Inspect and maintain construction equipment in good working condition</p> <p>Install noise mitigation devices on and / or enclosures around construction equipment</p> <p>Hearing conservation program if indicated</p> <p>Include noise awareness in any education and training program.</p>	LOW	Ditto
26.0 Chemicals						
26.1	(Metal, Dust & Fuel, Gases, Paint solvents & Pigments, Coating & Bonding Agents, Oils, Lubricants, Polycyclic Aromatic Hydrocarbon, Carbon Monoxide)	Inhalation, digestion, ingestion and absorption.	MEDIUM	HAZCOM procedure, MSDS (Material Safety Data Sheets). Risk Assessment.	LOW	Ditto
26.2	Paint solvents may cause	Neurobehavioral	MEDIUM	PPE as appropriate	LOW	Ditto

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		abnormalities, chronic skin conditions, mucous membranes irritation		<p>Have available on each site manufacturer's specifications of toxic substances, safety precautions, countermeasures / antidote in case of over-exposure</p> <p>Medical staff as well as workforce to be familiarised with those substances.</p> <p>Substitution with less toxic substances where appropriate to minimise exposure.</p>		
26.3	<p>Polyethylene coatings and bonding agents applied to pipe lengths especially in enclosed booths</p> <p>Epoxy and urethane coatings, possibly coal tar materials and resins, applied on the field joints</p>	Various health conditions including respiratory and cutaneous irritation / sensitisation	MEDIUM	Portable washing and eyewash facilities must be provided. Occupational surveillance (measure of exposure, early detectors of occupational disease).	LOW	Ditto
26.4	Paint pigments: chromates	Have been associated with increased lung cancer risk	MEDIUM		LOW	Ditto
26.5	Lead oxide	Haematological, kidney, central and peripheral neurological disorders	MEDIUM		LOW	Ditto
26.6	Polyurethane and acrylic paints	Asthma	MEDIUM		LOW	Ditto
26.7	Chemicals	Poisoning	MEDIUM		LOW	Ditto
26.8	Mechanics Oils	Skin cancer, oil acne, "Pontiac fever" (Legionella, pneumophila) in contaminated oil	MEDIUM		LOW	Ditto
26.9	Lubricants	Dermatitis	MEDIUM		LOW	Ditto
26.10	Polycyclic aromatic hydrocarbons formed by the burning of fossil fuels	Associated with lung and skin cancers	MEDIUM		LOW	Ditto
26.11	Carbon monoxide: by-product of incomplete combustion of carbonaceous substances may	compromise the oxygen-carrying capacity of blood with a risk of affecting myocardium or central nervous system	MEDIUM		LOW	Ditto
26.12	HEAT, Work in confined spaces and near heat sources and/or lack of air movement or cooling	Exhaustion, collapse, possible injury. Harm through subsequent fall etc.	MEDIUM	<p>Permit to work procedures</p> <p>Confined Space procedures</p> <p>Primary Rules of Safety</p>	LOW	Ditto
26.13	<p>Transport and Travel:</p> <p>Ground Transport</p> <p>Heat related conditions</p> <p>Noise</p>	<p>Road traffic accidents</p> <p>Trauma, multiple trauma, fatalities</p> <p>Impact of Equipment</p>		<p>RISK MANAGEMENT safety regulations. Education / training</p> <p>Good maintenance of vehicles</p> <p>Defensive driving</p> <p>Speed and distances limits</p> <p>Air-conditioned cabins</p> <p>Checkpoints with compulsory rest and evaluation</p>		Ditto

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	<p>Boredom, loss of vigilance, sleepiness, highway hypnosis</p> <p>Speed excess</p> <p>Load improperly secured</p> <p>Driving too long without break</p> <p>Lower compliance with driving regulations, and monotonous landscape.</p> <p>Mechanical failure</p>	<p>Loss of Material</p> <p>Road usage, blockage</p>	HIGH	<p>Loads secured properly</p> <p>Radio-communications</p> <p>Service truck</p> <p>Trauma life support, Extrication kits in ambulances.</p> <p>Occupational surveillance (measure of exposure, early detectors of occupational disease)</p> <p>Minimise road transport as much as possible and stringent procedures for: driver's pre-employment screening and training, controlling speed and vehicles maintenance.</p> <p>Logistic strategy.</p> <p>Maintenance Plans</p>	MEDIUM	
27.0 Construction Safety						
27.1	Construction/Operations – Local maintenance skills	<p>Malfunctioning of equipment</p> <p>Injury</p> <p>Damage to equipment</p>	HIGH	<p>Training</p> <p>Education</p> <p>General awareness</p> <p>Supervision</p> <p>Information & instructions</p>	LOW	Ditto
27.2	Construction – Equipment Layout (Plant & Equipment) facilities	<p>Housekeeping</p> <p>Access / Egress issues</p>	MEDIUM	<p>Site Management to consider layout of plant and equipment at define phase to promote safe access, egress at all times</p> <p>Regs / Licensing, certification process</p>	LOW	Ditto
27.3	Construction – General material movement, Storage	<p>Security at storage facilities – 24 hour safeguards (Generators, Material etc.)</p>	HIGH	<p>Provide security guards at all facilities</p>	LOW	Ditto
27.4	Construction – Storage of Flammables	<p>Safeguard storage areas within camp and / or material storage yards</p> <p>Long term storage and handling due to the lack of disposal sites</p>	MEDIUM	<p>Provide fence and locked controlled storage facilities</p> <p>Locate and establish hazard waste disposal sites, may be required to obtain permits.</p>	LOW	Ditto
27.5	Construction – Fire Fighting – Water requirements	<p>Fire</p> <p>Damage to equipment</p> <p>Potential injury</p> <p>Harm to environment.</p>	MEDIUM	<p>Provide some type of water storage tankage, or well pumps for fire protection</p>	LOW	Ditto
27.6	Fire Response – Means of escape	<p>Loss of life, trauma, burns, severe injury</p> <p>Potential crush or struck by injuries</p> <p>Damage to facilities and environment.</p>	MEDIUM	<p>Identification to camp emergency fire procedures</p> <p>Trained personnel for emergency.</p> <p>Job-site emergency response plan</p> <p>Provide and implement good fire emergency procedures and plans</p>	LOW	Ditto

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				Train personnel in fire fighting, have proper equipment on full stand by for emergency Drills Training (HSE Management)		
27.7	Construction Facilities – Camp	Improper location – No support from local infrastructure Contamination or local resources Security	HIGH	Provide survey of area resources, plans to avoid contamination Plan access into and out of camp locations avoiding public Provide Security plans and implement program	LOW	Ditto
27.8	Construction – Potable Water (distribution, wastage etc) Contamination.	Water source contaminated. Depletion of natural resources. Chlorination.	HIGH	Test for contamination regularly Verify water flow and sources prior to installation of water well facilities Suitability of pumping system Policies and procedures	LOW	Ditto
27.8	Construction – Solid waste storage and treatment	Improper storage and disposal sites. No permitted land site --- government, local and /or property owner.	HIGH	Permit disposal sites Maintain proper sanitation practices.	LOW	Ditto
27.9	Construction – Sewage Treatment	Improper treatment -- - creation of unhealthy conditions where personnel are housed. No permitted disposal site.	HIGH	Install and maintain proper sewage disposal facilities Permit conditions for camp use Waste Management Plan	LOW	Ditto
27.10	Construction – Stress & Mental Health	Long working hours Lack of R&R cycles	HIGH	Provide working schedules with rotation cycles included	LOW	Ditto
27.11	Construction-Training – Staff	Lack of sufficient training schedule (time) prior to work starting Lack of certified training personnel	HIGH	Provide training programs allowing adequate training to all personnel Source certified training personnel and programs	LOW	Ditto
27.12	Construction – Training – employees	Employing Personnel to perform activities and /or operate equipment, which could create an unhealthy environment, be dangerous to employee or persons Loss of equipment.	HIGH	Provide training programs in operation of equipment and construction techniques	LOW	Ditto
27.13	Construction/Environmental - Ground conditions Site conditions	Erosion problems, soft soils due to underground waters. Contaminated soils – harmful chemical to humans and or animals.	MEDIUM	Provide construction techniques for wet soil conditions Establish and maintain good erosion control methods both temporary and permanent	.LOW	Ditto

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				Provide proper-trained personnel in identifying contaminated soils and the handling and disposal of soils.		
27.14	Construction – Management of Change	Miss Management Work delays Accident / Incidents Moral	MEDIUM	Risk Management	LOW	Ditto
28.0 Security						
28.1	Security – Demonstrations	Loss of production Loss of life Personal injury Damage to reputation Compensation payments Property damage.	MEDIUM	Clear Security arrangements Good public relations (local authority, Police, Fire and Medical, inhabitants).	LOW	Ditto
28.2	Security – Theft	Tools, equipment and materials, especially those that can support remote living lifestyles i.e., generators, small portable appliances, fuel and or valuable items.	HIGH	Security procedures General awareness and training	LOW	Ditto
28.3	Security – Kidnapping	Personal safety Potential loss of life Loss of valuables	MEDIUM	General Security and safety awareness, training to identify arrangements Procedures to follow in an emergency situation	LOW	Ditto
28.5	<u>Vehicle Security</u>	Stolen / vandalised vehicle Safety of Drivers	LOW	Determine safe areas for vehicles	LOW	Ditto
29.0 Communication						
29.1	Communication	Poor communication Incidents Arguments, poor relationships between personnel, management, etc.	MEDIUM	Training on hazard communication Plans & procedures	LOW	Ditto
29.1	Telecommunication malfunction	Poor communication – incident response, management of personnel	MEDIUM	On site communication via radios shall be controlled accordingly	LOW	Ditto
30.0 Topsoil Segregation						
30.1	Poor Soil strip management	Commingling of topsoil and subsoil. Loss of topsoil	HIGH	Locate stockpiles to minimise handling	LOW	Ditto
30.2	Inadequate storage of topsoil	Compacting of soils. Loss of topsoil usefulness	MEDIUM	Locate stockpiles so that they are protected from equipment traffic	LOW	Ditto
30.3	Inadequate storage of topsoil	Stockpiling topsoil in	MEDIUM	Locate stockpiles so that they	LOW	Ditto

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		an inappropriate location. Loss of topsoil.		are protected from erosion.		
30.4	Inadequate storage of topsoil	When windrowing topsoil, allow for cross drainage. Loss of topsoil	HIGH	Locate stockpiles so that they are protected from erosion; create gaps in windrows.	LOW	Ditto

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