

Activity Hazard Analysis (AHA)

Activity/Work Task:	Administration /Mobilization	Overall Risk Assessment Code (RAC) (Use highest code)				M	
Project Location:	Guldara (Jelwani, Shamir Bala, and Mahipar Villages)	Risk Assessment Code (RAC) Matrix					
Contract Number:		Severity	Probability				
Date Prepared:	19 Feb 2024		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	NCA Guldara Engineering Team	Catastrophic	E	E	H	H	M
Reviewed by (Title): NCA, Climate Change and Resilience Specialist (Guldara Project Lead) UNDP, Technical team		Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
General Notes:		Step 1: Review each “ Hazard ” with identified safety “ Controls ” and determine RAC (See above)					
<ul style="list-style-type: none"> - Operatives must have completed ACI HSE Orientation and other applicable training prior to deployment - Only qualified personnel to perform the task - Pre-task instructions will be conducted prior to start of new task - Effective measures shall be implemented when working under extreme weather conditions; measure to prevent heat stress for personnel working under direct sunlight 		“Probability” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
		“Severity” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High Risk	
						H = High Risk	
PPE Requirements:		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “ Hazard ” on AHA. Annotate the overall highest RAC at the top of AHA.					
<ul style="list-style-type: none"> - Hard hat, Sturdy footwear, High-visibility vests as minimum - Hearing protection, dust mask, safety glasses with side shield where required. 						M = Moderate Risk	
						L = Low Risk	

Activity	Hazard	Recommended Controls	RAC
01. Preparatory Work	01.1 Lack of communication	<ul style="list-style-type: none"> - Orientation training shall be given by the competent person. - This AHA shall be conducted during the Preparatory Meeting and shall be translated to all workers during Safety Tool Box Talks and safety meetings. - Safety Training and Tool Box talks meetings shall be conducted for all personnel. - Each employee shall be required to sign a job safety form which documents their agreement to comply with the APP, AHA, and Site Safety Regulations. (See Appendix B; HSE Forms of the APP). - Regularly scheduled safety meetings shall be held at least once a week for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures for anticipated hazards. - An outline report of each meeting shall be submitted to the designated authority. - Announcement of these meetings will be facilitated by posting date, time and place of the meeting on the safety bulletin board in advance of at least one week. - Attendance will be taken during the meetings. - All persons shall be physically and emotionally qualified for performing the duties to which they are assigned. Some factors to be considered in making work assignments are strength, endurance, agility, coordination, and visual and hearing acuity. - The following PPE will be used and strictly enforced on the job site hard hats, High-Visible clothes, Safety Shoes, safety glasses, and others PPE related to work as per Safety Requirements. 	L
02. Clean-Up	02.1 Contamination of Water (Cleaning Solutions, Pesticides, Insecticides)	<ul style="list-style-type: none"> - Contamination or pollution of any river, stream, quay, or public water is strictly prohibited. 	L
	02.2 Fire Hazards	<ul style="list-style-type: none"> - Smoking is prohibited in areas where gasoline or incendiary substances are stored and it is to stay away from the fire area. - Sand, buckets, shovels, and fire extinguishers should be available in the storage area of flammable materials. 	L
	02.3. Inadequate or Unsafe Clothing	<ul style="list-style-type: none"> - Employees shall wear clothing suitable for the weather and work conditions. - The minimum shall be short sleeve shirt, long trousers, and leather or other protective work shoes or boots. Canvas, tennis, or deck shoes are not acceptable. 	L
	02.4. Insects, Vermin, Snakes	<ul style="list-style-type: none"> - Protection against hazards involving insects, vermin or snakes shall include: Approved first aid remedies. Instruction in recognition and identification. 	L
	02.5. Poisonous Plants	<ul style="list-style-type: none"> - In areas where employees are exposed to poison ivy, oak, sumac, or other poisonous plants, the following protective measures as pertinent, shall be provided: Appropriate protective clothing, gloves, etc. Approved first aid remedies for treatment. Instruction in recognition and identification. 	L

	02.6. . Working in Proximity to Vehicular Traffic	<ul style="list-style-type: none"> Persons exposed to vehicular traffic shall wear belts or apparel marked with a reflectorized or high visibility material. 	L
03. Construction With the use of Hand Tools	03.1. Injuries From the Use of Sledge Hammers (Flying Debris, Broken Sledge Hammer, and Sledge Hammer Slipping out Of Hands)	<ul style="list-style-type: none"> When using a sledgehammer, wear heavy-duty work gloves. Never use a hammer with a chipped head. Sledge hammers with chipped head should be replaced or repaired in accordance with manufacturer's recommendations. Sledge hammers with broken or cracked handles should not be used. Replace broken or cracked handles. Keep all bystanders and unauthorized personnel out of work area. 	L
	03.2. Electrical Shock From Existing Equipment (Improper) Lockout/Tagout [LOTO])	<ul style="list-style-type: none"> Workers must be trained in proper LOTO procedures. Each worker that area assigned work on equipment to be removed will be involved in the LOTO process and will have an individual lock and key. Ensure stored energy has been released. The system will be tried to verify LOTO procedures were successful before work on that equipment begins. Coordinate with the COR to assist identifying the appropriate lockout points. 	M
04. Environmental Hazards and Ground Work	04.1. Discovering UXO After De-Mining	<ul style="list-style-type: none"> When discovering a UXO on the site the UXO must NOT be disturbed. Do not attempt to remove UXO. Call the PM and Site Supervisor immediately who will contact a qualified person to remove the UXO. Barrier tape will be placed around area and all personnel are to stay clear of the area until UXO team can remove the UXO and state that the area is all clear. 	L
05. Place timbers (pads) and set outriggers	05.1. Poisonous Plants	<ul style="list-style-type: none"> In areas where employees are exposed to poison ivy, oak, sumac, or other poisonous plants, the following protective measures as pertinent, shall be provided: Appropriate protective clothing, gloves, etc. Protective ointments. Approved first-aid remedies for treatment of affected skin areas. Instruction in recognition and identification. 	L
06. Inspect chains and/or slings, shackles, hooks and attachment points in preparation for use	06.1. Snakes, Scorpions, Vermin, and Insects	<ul style="list-style-type: none"> Protection against hazards involving insects, vermin, or snakes shall include the following controls: Boots, hoods, netting gloves, masks, or other personal protection. Repellants. Inoculation. Approved first-aid remedies for employees' instruction in recognition and identification. All personnel will wear protective footwear, long pants and work gloves. 	L

07. General Housekeeping	07.1. Tripping Hazards, Littering, Pollution, Rodents, Insects, Fire	<ul style="list-style-type: none"> - All debris to be put in dumpster on a continuous basis to avoid debris blowing around project. All stairways, passageways, gangways, and access ways shall be kept free of materials, supplies, and obstructions at all times. - Tools, materials, extension cords, hoses, or debris shall not cause tripping or other hazards. Empty bags having contained lime, cement and other dust producing material shall be removed periodically as specified by the designated authority. Form and scrap lumber shall be cleared from work areas. 	L
08. General Planning	08.1. Lack of Communication	<ul style="list-style-type: none"> - Pre- job safety meeting shall be held. - Each employee shall be required to sign a job safety form which documents their agreement to comply with the APP, AHA and Site Safety Regulations. - Regularly scheduled safety meetings shall be held at least once a week for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures for anticipated hazards. An outline report of each meeting shall be submitted to the designated authority. Announcement of these meetings will be facilitated by posting date, time and place of the meeting on the safety bulletin board in advance of at least one week. Attendance will be taken during the meetings. - Those who do not attend shall be issued a warning citation by the PM. 	L
09. General Safety Requirements Personnel Protection	09.1. Exposure to Cold or Hot Weather & Dehydration	<ul style="list-style-type: none"> - Wear appropriate clothing for hot or cold weather Sun block Lip balm. - Drink at least ½ liter of water an hour. - Refer to Assist Consultants Inc. APP and HSP for specific details on heat stress signs and symptoms. 	L
10. Handling Heavy Objects	10.1. Muscle/Back Strain	<ul style="list-style-type: none"> - Workers will ensure that they observe proper lifting techniques and will minimize movements such as overreaching, bending and twisting. Obey sensible lifting limits (60 lb. maximum per person manual lifting). Seek help from coworkers or mechanical assistance. Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads. Avoid carrying heavy objects above shoulder level. Avoid actions/activities that contribute to overexertion. - Warm up muscles before engaging in manual lifting activities. Review lifting. 	M
	10.2. Sprain/ Strains	<ul style="list-style-type: none"> - Stand reasonably close to the load, feet hip-width apart. One foot slightly forward pointing in the direction you are going. Bend your knees and keep your back straight and lift using your legs, get a secure grip on the load. 	M
	10.3.High/Low Ambient Temperature Dust/Sand Storms	<ul style="list-style-type: none"> - Monitor for Heat/Cold stress. Provide fluids to prevent worker dehydration. - Establish work/test schedule. - In event of a Dust/Sandstorm all field operations shall be shut down well in advance. All personnel will evacuate the site as per emergency evacuation plan. All personnel will stand down if required until further notice. 	L

11. Lifting with Crane	11.1.Contact with Elevated Overhead Electrical Wires	- There are no existing overhead electrical power lines on site.	M
	11.2.Exceeding Safe Working Load	- Know the weight of the load that the crane is to lift. Ensure that the load does not exceed the crane's rated capacity.	M
	11.3.Falling Loads/Objects	- Do not move a load over workers. Check all crane controls to insure proper operation before use. Inspect wire rope, chains and hook for any damage. Raise the load a few inches to verify balance and the effectiveness of the brake system.	M
	11.4.Tip Over/Over Turned Crane	- Fully extend outriggers. Ensure that the load does not exceed the crane's rated capacity.	M
12. Machinery and Mechanized Equipment	12.1.Contact with Elevated	- There are no existing overhead electrical power lines on site.	L
	12.2. Exceeding Safe Working load	- Know the weight of the load that the excavator is to lift. Ensure that the load does not exceed the excavators rated capacity.	L
	12.3. Falling Loads/Objects	- Do not move a load over workers. Check all excavator controls to insure proper operation before use. - Inspect bucket for any damage. Raise the load a few inches to verify balance and the effectiveness of the brake system.	L
	12.4. Improper Use of Equipment.	- Motor Vehicle shall mean any vehicle propelled by a self-contained power unit. - Every person shall possess a permit valid for the equipment being operated. No vehicle shall be driven at a speed greater than reasonable and proper, with due regard for weather, traffic, intersection's width, character of the roadway, type motor vehicle, and any other existing condition.	L
	12.5.Improper and Unsafe Use of Machinery and Mechanized Equipment	- Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition. - Qualified persons shall maintain and operate equipment in a safe manner that is consistent with the manufacturer's recommendations.	L
	12.6.Improper and Unsafe Use of Machinery and Mechanized Equipment	- Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition. Qualified persons shall maintain and operate equipment in a safe manner that is consistent with the manufacturer's recommendations.	L
	12.7.Struck by/ Against Heavy Equipment, Flying Debris, Protruding Objects	- Wear reflective hi-vis vests when exposed to vehicular traffic. Isolate equipment swings areas. Make eye - contact with operators before approaching equipment. Barricade or enclose the work area. Restrict work - area entry to authorized personnel only during construction activities. - Wear hard hats, safety glasses with side shields, and steel-toe safety boots. - Understand and review hand signals.	L

	12.8.Struck or Crushed by the	- Accessible areas within the swing radius of the rear of the rotating superstructure shall be properly barricaded.	L
	12.9.Tip Over/Over Turned Excavator	- Fully extend outriggers. Inspections or determinations of structures/shoulders shall be made in advance by designated competent person to assure that clearances and load capabilities are safe for passage or placement of any machinery or equipment. Never exceed the load capacity of the equipment rating. (Extension reduces load rating.) Park dump trucks on firm, level ground before loading.	L
	12.10. Trapped/Caught In- Between the Lifted Material and any Materials or Fixed Structures	- All excavation personnel will avoid being in between the lifted material and any materials or fixed structures.	L
	12.11. Vehicle Accident	- No vehicle shall be driven at a speed greater than the posted speed limit, with due regard to weather, traffic, intersections, width and character of the roadway, type of motor vehicle, and any other existing conditions. Vehicle shall not be stopped or left standing on any road or adjacent thereto, or in any manner as to endanger the vehicle, other vehicles, equipment, or personnel using or passing that road or area. Inspect area around vehicle prior to backing. Wear seatbelts. The operator must at all times have the vehicle under such control as to be able to bring it to a complete stop within the assured clear distance ahead.	L
13. Manual Leveling Work	13.1.Caught Between or Under (Crushed or Amputated)	- Daily inspections (prior to start of work and throughout shift) of the excavation, adjacent areas, and protective systems will be performed by a competent person. Inspections of area to be leveled, adjacent areas and protective systems will be performed after every rain event or other hazard increasing occurrence. During any additional work needing to be done with heavy equipment (i.e. additional soil added in trench for elevation) workers in trench will exit the area until finished.	L
14. Material Handling, Storage and Disposal	14.1.Handling, Storage, and Disposal	- Stacked, blocked, interlocked, and limited in height so that it is stable and secured against sliding or collapse. Access ways shall be kept clear. - Flammable liquids in a storage building should be in a No Smoking area. Handling of materials should be in accordance with safety recommendations for that particular material. Disposal of all materials shall be in accordance with Federal, State, and local laws and more specific with guidance from the Environmental Protection Agency.	L
	14.2.Injury to Back While Carrying Material	- Workers will ensure that they observe proper lifting techniques and will minimize movements such as overreaching, bending and twisting. Workers should not lift more than 51 lbs (23 Kg). without help from a co-worker(s) or mechanical assistance. Use a dolly or other mechanical method when practical.	L
	14.3.Sprain/ Strains	- Stand reasonably close to the load, feet hip-width apart. One foot slightly forward pointing in the direction you are going. Bend your knees and keep your back straight and lift using your legs, get a secure grip on the load.	L

	14.4. Tripping Hazards From Materials Being Removed	<ul style="list-style-type: none"> - Removal materials will be disposed throughout the removal process. Material not immediately removed will be placed in temporary piles in a location that is not in the main walkway or any doorways. Housekeeping shall be maintained throughout the day. Any temporary piles will be removed at the end of each work day. 	L
15. Material and Supply Delivery	15.1. Caught Between Or Under (Crushed Or Amputated)	<ul style="list-style-type: none"> - Ensure all guards on equipment are in place. Block or crib equipment (and/or parts of) prior to working underneath or between them for maintenance. Do not get caught between equipment, loads and other objects. Excavating or hoisting equipment shall not be allowed to raise, lower or swing loads over personnel. Operator shall maintain zero energy practice. While equipment's are not in use or when anyone approaches equipment to speak with operator Mirrors on equipment shall be secured and use as specify by manufacturer. Operator shall maintain clean windshield glass and mirrors. 	L
	15.2. Mobile Equipment, Loads, Falling Objects And Debris	<ul style="list-style-type: none"> - All mobile equipment will only be operated by competent operator. - Daily Inspections of all equipment will be documented. Ground crew will wear reflective vest al all time. Spotters must stay in operators vision range at all time. Protection from the elements, falling or flying objects, swinging loads, and similar hazards will be provided for operators in all equipment and machinery. Keys shall not be left in equipment when not in use. A backup warning system with backup lights and warning alarm will be in good working condition on all equipment. Operator will stay alert and aware of surroundings. - When wheeled equipment is parked on uneven ground a wheel chock will be used. - Route traffic around work area before any work commences. Clearly demarcate and barricade work area before work commence. Workers will never be allowed to ride any equipment, operator only, use seat belt accordingly. 	L
	15.3. Slips/Falls	<ul style="list-style-type: none"> - Ensure 3 points of contact while entering and exiting equipment. Keep steps on equipment free of debris and mud. Getting on or off equipment while in operation is prohibited. 	L
	15.4. Tip-Over	<ul style="list-style-type: none"> - Inspections or determinations of structures/shoulders shall be made in advance by designated competent person to assure that clearances and load capabilities are safe for passage or placement of any machinery or equipment. Never exceed the load capacity of the equipment rating. (Extension reduces load rating.) Park dumps trucks on firm, level ground before loading. 	L
	15.5. Particles and Debris in the Eyes	<ul style="list-style-type: none"> - All workers on-site wear ANSI Z87.1 approved Safety Glasses with side shields. Goggles and/or face shield may be used for additional protection. Eye wash solution will be available to aid in removing particles from eyes. 	L
16. Personal Protective Apparel and Safety Equipment	16.1. Cuts and Lacerations to Hands	<p>Persons involved in activities which subject the hands to injury (e.g., cuts, abrasions, punctures, burns, vibrations, and forces that can restrict blood flow) will use hand protection appropriate for the hazard. For handling of wood or sharp-edged materials, chipping concrete, sledging or hammering on metal or stone workers on-site shall be required to</p> <ul style="list-style-type: none"> - Wear cut-resistant gloves. 	L

	16.2. Dust/Contaminants in the Air	<ul style="list-style-type: none"> - The voluntary use of NIOSH approved dust masks by the workers (filtering face piece respirators) is permissible in atmospheres that are not hazardous. Prior to use of respirators (including filtering face pieces), workers must be evaluated and approved by the respiratory program administrator to ensure that the respirator use will in itself not create a hazard. 	L
	16.3. Injury From Being Struck by Heavy Equipment	<ul style="list-style-type: none"> - Reflective Vests shall be worn by all workers on-site during heavy equipment operations and all traffic control operations. Use flag person or other means to control traffic. Erect barricades, stop logs, and/or warning signals where mobile equipment operators have obstructed view. 	L
	16.4. Lack Of PPE. Improper Protection for Employee.	<ul style="list-style-type: none"> - PPE devices shall be used as required. The minimum shall be hard hat, eye protection, work gloves, dust mask/respirator, high visibility vest, short sleeve shirt, long trousers, and leather or other protective work shoes or boots. Canvas, tennis, or deck shoes are not acceptable. 	L
	16.5. Object Dropped of Foot	<ul style="list-style-type: none"> - All workers on-site shall wear footwear providing protection against impact and compressive forces and comply with ASTM F 2412 - 05 AND F 2413 – 05 approved Boots/ Work Shoe. 	L
17. Physical Qualifications of Employee	17.1. Physically Unfit Employees Creating Hazard for The employee	<ul style="list-style-type: none"> - All persons shall be physically and emotionally qualified to perform the duties to which they are assigned. Some factors to be considered in making work assignments are strength, endurance, agility, coordination, and visual and hearing acuity. 	L
18. Pre-Operation Servicing	18.1. Equipment In Unsafe Operating Condition.	<ul style="list-style-type: none"> - Thoroughly inspect equipment before use. Make sure all safety devices and guards intact and operable. 	L
	18.2. Unsafe Vehicles	<ul style="list-style-type: none"> - No vehicle shall be placed in service until it has been inspected by a mechanic and found to be in safe operating condition. 	L
19. Servicing Equipment and Vehicles	19.1. Operating While Equipment Is Running	<ul style="list-style-type: none"> - All machinery or equipment shall be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done. - Keys shall not be left in equipment when not in use. Exception: Equipment designed to be serviced while running. 	L
	19.2. Slips, Trips, Falls Laceration to Hand	<ul style="list-style-type: none"> - Projection and tripping hazards shall be removed, identified with warning signs, or distinctly marked with safety yellow. Mark, Identify, or barricade other obstructions. Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris. - Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects. 	L
	19.3. Tools/Materials Presenting Pedestrian Hazard	<ul style="list-style-type: none"> - Tools, materials, extension cords, hoses, or debris shall not cause tripping or another hazard. Walkways, runways, and sidewalks shall be kept clear of obstructions. 	L
20. Traffic Control Through Work	20.1. Hazards From Vehicles to Flagger	<ul style="list-style-type: none"> - Persons exposed to vehicular traffic, such as signal persons, spotters, inspectors, and others shall wear belts or apparel marked with a reflectorized or high visibility material. Flag man should be in full view (visible) for operator. 	L

	20.2. Traffic Hazard	<p>- A flag man or other controls shall be provided when operations or equipment on or adjacent to a highway creates a traffic hazard. Flag man should be in full view (visible) for operator.</p>	L
21.Untreated Injuries	21.1. 1 Snakes, Scorpions, Vermin, and Insects	<ul style="list-style-type: none"> - Use insect repellent when necessary to avoid insect bites. - Report insect bites/stings in accordance GPI's procedures. - Observe victims of insect bites/stings for allergic reactions. - Wash affected area. Seek first aid when necessary. - First Aid competent person shall train the workers. - All the workers should be notified about the First Aid Station. - Protection against hazards involving insects, vermin, or snakes shall include the following controls: Boots, hoods, netting gloves, masks, or other personal protection. Repellants. Inoculation. - Approved first-aid remedies for employee's instruction in recognition and identification. - All personnel will wear protective footwear, long pants and work gloves. 	L

<p>22. Working under harsh weather</p>	<p>22.1.Cold weather (hypothermia, frost bite)</p>	<ul style="list-style-type: none"> - Cold-induced occupational illnesses, injuries, and reduced productivity may occur with excessive exposure to a cold work Environment. When in a cold environment, most of the body's energy is used to keep the body cavity warm. Over time, the body will begin to shift blood flow from the extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen), allowing exposed skin and extremities to cool rapidly and increasing the risk of frostbite and hypothermia. - Trench foot- caused by long continuous exposure to wet, cold environment, or actual immersion in water. Symptoms include tingling and/or itching sensation, burning, pain, and swelling; sometimes blister form in more extreme cases. - Frostbite occurs when skin tissue actually freezes, causing ice crystals to form between cells and draw water from them, which leads to cellular dehydration. Although frostbite typically occurs at temperatures below 30°F, wind chill effect may cause frostbite at above -freezing temperatures. - General Hypothermia- occurs when your body temperature falls to a level where normal muscle brain function may be impaired. - Safe work practices- <ul style="list-style-type: none"> a) Allowing employees a period of adjustment to the cold before scheduling a full work shift in a cold work area. b) Permitting employees to interrupt their work if they demonstrate signs of cold-related disorders or extreme discomfort. c) Establishing work periods and rest periods in warm area. d) Insulated to double layer clothing must be worn. e) Encouraging employee to remain hydrated. f) If there is suspicion of frost bite or hypothermia seek medical assistance. - 	
	<p>22.2. Hot weather temperature Heat Stress</p>	<ul style="list-style-type: none"> - Over exposure to heat can cause death or illness. Heat stress can result heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat also can increase work place injuries cause by sweaty palms, fogging safety glass, and dizziness. Burn may also occur as a result of accidental contact with hot surface or steam. - Workers shall avoid exposure to extreme heat, sun exposure and high humidity when possible. - Workers shall be aware of indication for heat stress such as; Difficulty of breathing, over sweating, dryness of skin, hallucination, throbbing, head ache, confusion, and dizziness. - Drink plenty of water. - During the hot weather workers shall be inform in tool box meeting to drink plenty of cold water and take a Rest while working hard. - Workers shall be notified about the resting procedure. 	

	22.3. Exposure to Cold or Hot Weather	<ul style="list-style-type: none"> - Minimum Personal Protective Equipment Dress: " Long Pants. - Shirts with Sleeves. - Hardhat. - Reflective Vest. - Covered Shoes (Steel Toe Preferred). - Safety Glasses (Potential Eye Hazard Areas). "Weather: - Wear appropriate clothing for hot or cold weather. " - Sunblock. - Lip balm 	
--	---------------------------------------	---	--

List equipment to be used in the work activity	List inspection requirements for the work activity	List training requirements, include hazard communication
1. Personal Protective Equipment. 2. Heavy Equipment to Include Backhoe, Excavator, Trencher, Compactor, Crane/Boom Truck. Seatbelt, Back-Up Alarm. 3. Misc. Hand Tools Including Hand and Power Tools. 4. First-Aid Kit, Insect Repellant. 5. Fire Extinguisher. 6. Heat or Cold Hazards. 7. Safe Lifting and Material Handling. 8. Traffic Control 9. Pedestrian Traffic Control	Certification required by crane operators. Daily by operator and site SSO Daily inspection of equipment Inspection of slings and hoists Personal protective and safety equipment shall be tested, inspected, and maintained in a serviceable and sanitary condition as recommended by the manufacturer. Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions. Fire extinguishers daily inspection	Crane shall be by qualified persons under the direct supervision of a responsible individual. Training shall be conducted for all the workers and they will be given instruction on the usage of equipment. Portable fire extinguishers are provided for employee use in the workplace. The employer shall provide training. Employees shall be appropriately trained in the use and care of all required PPE and safety equipment. Training shall be conducted for all the employees on the use and inspection of hand and power tools.

Additional Comments: Additional Comments: Personal protective equipment requirements; Hardhat, safety glasses, proper good fitting gloves that are compatible with work activities, safety boots and hearing protection. Keep fire extinguisher in the work areas where the threat of fires present and hot work is being performed and shut engine off during refueling. Due to the nature of this climate dust storms are common, they can be sudden and unexpected ensure that dust respirators are on hand and shelter is available for protection. In the event of rain and thunderstorms all roofing, crane, scaffolding and welding activities will be halted immediately until condition improve enough for activities to continue. Avoid heat stress injuries by keeping a sufficient supply of potable water available for the workers and if necessary implement a work rest schedule. In the

event of any hostile acts take appropriate actions as necessary; Drop to the ground and remain there in case of any continuance of hostilities, when it is determined that immediate threat is passed move to the nearest covered and concealed location and wait for all clear. **THINK "SAFETY ALWAYS"**

Prepared by NCA competent/qualified person(s) (Signature & Date) NCA Technical Team Feb/22/2024

This AHA has been reviewed by the designated NCA and is acceptable for use on this project. This acceptance predicated on satisfactory implementation in the field by the contractor and will be rescinded if the contractor fails to enforce the controls identified in this document and/or the requirements identified in EM385.1.1. This AHA will be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).	Name, NCA (Signature & Date)
--	------------------------------

Activity Hazard Analysis (AHA)

Activity/Work Task:	Steel Reinforcement	Overall Risk Assessment Code (RAC) (Use highest code)					L
Project Location:	Guldara (Jelwani, Shamir Bala, and Mahipar Villages)	Risk Assessment Code (RAC) Matrix					
Contract Number:		Severity	Probability				
Date Prepared:	Feb/22/2024		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	NCA Guldara Engineering Team	Catastrophic	E	E	H	H	M
Reviewed by (Name/Title):	NCA, Climate Change and Resilience Specialist (Guldara Project Lead) UNDP, Technical team	Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
General Notes:		Step 1: Review each “Hazard” with identified safety “Controls” and determine RAC (See above)					
<ul style="list-style-type: none"> - Operatives must have completed ACI HSE Orientation and other applicable training prior to deployment - Only qualified personnel to perform the task - Pre-task instructions will be conducted prior to start of new task - Effective measures shall be implemented when working under extreme weather conditions; measure to prevent heat stress for personnel working under direct sunlight 		“Probability” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
		“Severity” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High Risk	
						H = High Risk	
						M = Moderate Risk	
PPE Requirements:		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.					
<ul style="list-style-type: none"> - Hard hat, Sturdy footwear, High-visibility vests as minimum - Hearing protection, dust mask, safety glasses with side shield <p>where required.</p>						L = Low Risk	

Activity	Hazard	Recommended Controls	RAC
1. Preparatory Work	01.1 Lack of communication	<ul style="list-style-type: none"> - Orientation training shall be given by competent person. - This AHA shall be conducted during Preparatory Meeting and shall be translated to all workers during Safety Tool Box Talks and safety meetings. - Safety Trainings and Tool Box talks meeting shall be conducted for all personnel. - Each employee shall be required to sign a job safety form which documents their agreement to comply with the APP, AHA and Site Safety Regulations. (See Appendix B; HSE Forms of the APP). - Regularly scheduled safety meetings shall be held at least once a week for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures for anticipated hazards. - An outline report of each meeting shall be submitted to the designated authority. - Announcement of these meetings will be facilitated by posting date, time and place of the meeting on the safety bulletin board in advance of at least one week. - Attendance will be taken during the meetings. - All persons shall be physically and emotionally qualified for performing the duties to which they are assigned. Some factors to be considered in making work assignments are strength, endurance, agility, coordination, and visual and hearing acuity. - Maintain work areas and means of access safe and orderly. - Tools, materials, extension cords, hoses, or debris shall not cause tripping hazard. - Conduct cleaning, stockpiling of materials periodically. 	L
02. Steel Reinforcement.	02.1 Scrapes, cuts, and minor injuries from sharp tips.	<ul style="list-style-type: none"> - Cover sharp rebar ends to prevent impalement injuries. - Stander Rebar caps will be used to cover exposed ends. - Workers should stay aware of surroundings. - Only authorized personnel working directly with this process should be permitted in area. - Workers should make attempts to walk around rebar when possible. - Gloves Eye Protection and all required PPE should be used while installing and tying in rebar. 	L

Activity	Hazard	Recommended Controls	RAC
	02.2. Particles and Debris in the Eyes	<ul style="list-style-type: none"> - Wear ANSI approved safety glasses with side shields. - Emergency Eye Wash Station with Sterile Eye Wash Solution shall be available in the job site in case of emergency First Aider shall be applied. - Workers shall be notified about the First Aid Station during tool box talked and orientation training. - First Aider shall keep record of all injures/illness in the job site. 	L
	02.3. Trips and falls caused by rebar sticking up or out to the side.	<ul style="list-style-type: none"> - Workers should stay aware of surroundings. - Only authorized personnel working directly with this process should be permitted in area. - Workers should make attempts to walk around rebar when possible. - Installed Planks on rebar while fixing the rebar to control the falling Slip/Trip hazard. 	L
03.Using of Hand Tools Power Tools	03.1. Electrical hazard (power tools and extension cords)	<ul style="list-style-type: none"> - Operate according to the manufacturer's instruction. - Tools must be insulated and manufactured to meet ASTM F18. The insulating tool portion shall be made of fiberglass-reinforced plastic (FRP). - Workers will be familiar with the proper use of the tools being used. - Damaged or defective tools will be placed out of operation until repaired. - Use GFCI for all electrical tools. - Never carry a tool by the cord or hoses or to disconnect it from receptacle. - Keep cord and hoses away from heat, oil and sharp edges. - Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits cutters. 	L

Activity	Hazard	Recommended Controls	RAC
	03.2. Injuries for using improper Power tools.	<ul style="list-style-type: none"> - Competent person shall train all the workers about using of Hand tools power tools before starting of activity. - When using a sledge hammer, wear heavy-duty work gloves and safety glasses. - All the Power tools shall be used as per the manufacture instruction. - Never use a hammer with a chipped head. Sledge hammers with chipped head should be replaced or repaired in accordance with manufacturer's recommendations. Wear eye protection. - Sledge hammers with broken or cracked handles should not be used. Replace broken or cracked handles. - Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand. - Keep all bystanders and unauthorized personnel out of work area. 	L
	03.3. Noise hazard	<ul style="list-style-type: none"> - Hearing protection shall be worn for all work involving hammer-drills and concrete saws as per the APP plan and section 05-C-03 EM385-1-1 	L
04. Materials Handling/ Delivery	04.1. Unsafe Material Handling, Storage, and Disposal	<ul style="list-style-type: none"> - Competent person should train the workers about the materials storage and handling method, the training record shall be keep in the office. - Material in bags, containers, bundles, pallets, or stored in tiers shall be stacked, blocked, interlocked, and limited in height so that it is stable and secured against sliding or collapse. - Access ways shall be kept clear. Flammable liquids in a storage building should be in a "No Smoking" area. Handling of materials should be in accordance with safety recommendations for that particular material. Disposal of all materials shall be in accordance with Federal, State, and local laws and more specific with guidance from the Environmental Protection Agency. - All Materials shall be placed 1feet above from the ground level. 	L
	04.2. Injury to Back While Carrying Material	<ul style="list-style-type: none"> - Workers will ensure that they observe proper lifting techniques and will minimize movements such as overreaching, bending and twisting. Workers should not lift more than 60 lbs. without help from a co-worker(s) or - mechanical assistance. Use a dolly or other mechanical method when practical. 	L

Activity	Hazard	Recommended Controls	RAC
	04.3. Tripping Hazards from Materials Being Removed	<ul style="list-style-type: none"> - Removal materials will be disposed throughout the removal process. Material not immediately removed will be placed in temporary piles in a location that is not in the main walkway or any doorways. - Housekeeping shall be maintained throughout the day. - Any temporary piles will be removed at the end of each work day. - Materials shall be kept 2feet far than excavated area. 	L
	4.4. Body injure/Struck by while delivery materials	<ul style="list-style-type: none"> - Competent person shall train the operator's prior start of activity. - Operator shall check the vehicle prior start of Activity daily. - Operator shall be trained properly about the Rigging of steel in vehicle body. - Flag man shall be assign where unloading the Materials for controlling traffic access. - Workers are not allowed to ride with Materials in vehicle body, if any worker found he should be removed immediately from the job site. 	L
05. Installation of rebar.	05.1. Cold weather (hypothermia, frost bite)	<ul style="list-style-type: none"> - Cold-induced occupational illnesses, injuries, and reduced productivity may occur with excessive exposure to a cold work environment. When in a cold environment, most of the body's energy is used to keep the body cavity warm. Over time, the body will begin to shift blood flow from the extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen), allowing exposed skin and extremities to cool rapidly and increasing the risk of frostbite and hypothermia. - Trench foot- caused by long continuous exposure to wet, cold environment, or actual immersion in water. Symptoms include tingling and/or itching sensation, burning, pain, and swelling; sometimes blister form in more extreme cases. - Frostbite occurs when skin tissue actually freezes, causing ice crystals to form between cells and draw water from them, which leads to cellular dehydration. Although frostbite typically occurs at temperatures below 30°f, wind chill effect may cause frostbite at above -freezing temperatures. - General Hypothermia- occurs when your body temperature falls to a level where normal muscle brain function may be impaired. 	L

Activity	Hazard	Recommended Controls	RAC
	05.2. Cold weather (hypothermia, frost bite)	<ul style="list-style-type: none"> - Safe work practices. - Allowing employees, a period of adjustment to the cold before scheduling a full work shift in a cold work area. - Permitting employees to interrupt their work if they demonstrate signs of cold-related disorders or extreme discomfort. - Establishing work periods and rest periods in warm area. - Insulated to double layer clothing must be worn. - Encouraging employee to remain hydrated. - If there is suspicion of frost bite or hypothermia seek medical assistance. 	L
	05.3. Hot weather temperature Heat Stress	<ul style="list-style-type: none"> - Over exposure to heat can cause death or illness. Heat stress can result heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat also can increase work place injuries cause by sweaty palms, fogging safety glass, and dizziness. Burn may also occur as a result of accidental contact with hot surface or steam. - Workers shall avoid exposure to extreme heat, sun exposure and high humidity when possible. - Workers shall be aware of indication for heat stress such as; Difficulty of breathing, over sweating, dryness of skin, hallucination, throbbing, head ache, confusion, and dizziness. - Drink plenty of water. - Cold drinking water shall be available in all area with disposable cups and poster that water is clean for drinking. - Competent person shall notify the workers about the cold drinking water label during tool box talk. 	L

List equipment to be used in the work activity	List inspection requirements for the work activity	List training requirements, include hazard communication
Rebar cutting Tools Personal Protective Equipment. Cutting tools. Generators. Hand tools Power tools. Electrical equipment (panel and junction boxes). Heavy equipment's	Daily inspection all tools. Daily inspection of equipment. Safe work procedure. Work area safety inspections. Tools and equipment. Personal Protective equipment. Material storage, handling and disposal. Daily inspection required.	Toolbox training. Lifting techniques. Review of AHA, Competent person shall train all the workers and operators.
<p>Additional Comments: Additional Comments: Personal protective equipment requirements; Hardhat, safety glasses, proper good fitting gloves that are compatible with work activities, safety boots and hearing protection. Keep fire extinguisher in the work areas where the threat of fires present and hot work is being performed and shut engine of during refueling. Due to the nature of this climate dust storms are common, they can be sudden and unexpected ensure that dust respirators are on hand and shelter is available for protection. In the event of rain and thunderstorms all roofing, crane, scaffolding and welding activities will be halted immediately until condition improve enough for activities to continue. Avoid heat stress injuries by keeping a sufficient supply of potable water available for the workers and if necessary, implement a work rest schedule. In the event of any hostile acts take appropriate actions as necessary; Drop to the ground and remain there in case of any continuance of hostilities, when it is determined that immediate threat is passed move to the nearest covered and concealed location and wait for all clear. THINK "SAFETY ALWAYS"</p>		

Prepared by NCA's competent/qualified person(s) (Signature & Date) NCA Technical Team	
This AHA has been reviewed by the designated AED COR and is acceptable for use on this project. This acceptance predicated on satisfactory implementation in the field by the contractor and will be rescinded if the contractor fails to enforce the controls identified in this document and/or the requirements identified in EM385.1.1. This AHA will be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).	Name, NCA (Signature & Date)

Activity Hazard Analysis (AHA)

Activity/Work Task:	Formwork, Structural Concrete	Overall Risk Assessment Code (RAC) (Use highest code)				L	
Project Location:	Guldara (Jelwani, Shamir Bala, and Mahipar Villages)	Risk Assessment Code (RAC) Matrix					
Contract Number:		Severity	Probability				
Date Prepared:	Feb/22/2024		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	NCA Guldara Engineering Team	Catastrophic	E	E	H	H	M
Reviewed by (Title):	NCA, Climate Change and Resilience Specialist (Guldara Project Lead) UNDP, Technical team	Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
General Notes:		Step 1: Review each “Hazard” with identified safety “Controls” and determine RAC (See above)					
<ul style="list-style-type: none"> - Operatives must have completed Assist HSE Orientation and other applicable training prior to deployment - Only qualified personnel to perform the task - Pre-task instructions will be conducted prior to start of new task - Effective measures shall be implemented when working under extreme weather conditions; measure to prevent heat stress for personnel working under direct sunlight. 		“Probability” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
		“Severity” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High Risk	
						H = High Risk	
PPE Requirements:		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.					
<ul style="list-style-type: none"> - Hard hat, Sturdy footwear, High-visibility vests as minimum - Hearing protection, dust mask, safety glasses with side shield where required. 						M = Moderate Risk	
						L = Low Risk	

Principal Steps	Hazard	Recommended Controls	RAC
01. Preparatory Work	1. Lack of communication	<ul style="list-style-type: none"> - Orientation training shall be given by competent person. - This AHA shall be conducted during Preparatory Meeting and shall be translated to all workers during Safety Tool Box Talks and safety meetings. - Safety Trainings and Tool Box talks meeting shall be conducted for all personnel. - Each employee shall be required to sign a job safety form which documents their agreement to comply with the APP, AHA and Site Safety Regulations. (See Appendix B; HSE Forms of the APP). - Regularly scheduled safety meetings shall be held at least once a week for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures for anticipated hazards. - An outline report of each meeting shall be submitted to the designated authority. - Announcement of these meetings will be facilitated by posting date, time and place of the meeting on the safety bulletin board in advance of at least one week. - Attendance will be taken during the meetings. - All persons shall be physically and emotionally qualified for performing the duties to which they are assigned. Some factors to be considered in making work assignments are strength, endurance, agility, coordination, and visual and hearing acuity. - The following PPE will be used and strictly enforced at the job side hard hats, High-Visible cloths, Safety Shoes, safety glasses and others PPE related to work as per Safety Requirements. 	L
02. Formwork Structural Concrete	02.1. Hand injury while using hand tools.	<ul style="list-style-type: none"> - Tools will be used according to the manufacturer's instructions. - Associates will be familiar with the proper use of the tool being used. - Tools will be maintained according to manufacturer's recommendations. - Tools will be inspected before each use. - Damaged or defective tools will be placed out of operation until repaired or replaced. - Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand. - Use power tools that are double insulated or grounded with a three-prong plug and connected to ground fault circuit interrupters (GFCI) to prevent electric shock in case the tool comes into contact with moisture. 	L
	02.2. Particles in the Eyes	<ul style="list-style-type: none"> - Wear ANSI approved safety glasses with side shields. - Emergency Eye Wash Station provided in the job site in case of emergency First Aider shall be applied. - Workers shall be notified about the First Aid Station during tool box talked and orientation training. - First Aider shall keep record of all injures/illness in the job site. 	L

02.3. Injuries to hands while cutting material to fit

- Saws should be properly guarded to protect your hands and fingers.
 - Safeguards should be inspected before equipment is used.
 - Use a proper blade and cutting tool for the material you use
 - Operator should use equipment for intended use.
-

Principal Steps	Hazard	Recommended Controls	RAC
	02.4. Tripping hazards from removed formwork	<ul style="list-style-type: none"> - Material not immediately removed from work zone will be placed in temporary piles in a location that is not in the main walkway. - Housekeeping shall be maintained throughout the day. - Any temporary piles will be removed at the end of each work day. - There will be staging areas for material that has been removed and will remain onsite. 	L
	02.5. Injury from nails sticking out of removed formwork.	<ul style="list-style-type: none"> - Nails will be removed or bent into material so they are not sticking out. - Associates will be advised to pay attention to forms as they are transported to temporary piles. - No worker should walk over or step over temporary piles. - PPE Requirements: - Work clothing (as dictated by the weather) (No tank tops or muscle shirts) - Safety toe boots - Safety glasses with side shields - Hard hat - Work gloves 	L
	02.6. Particles and debris in the eyes while removing form work.	<ul style="list-style-type: none"> - Where ANSI approved safety glasses with side shields. - Goggles and/or face shield may be used for additional protection. - Eye wash solution will be available to aid in removing particles from eyes. 	L
03. Materials Handling	03.1. Manual Material Handling	<ul style="list-style-type: none"> - Use tools with handles to smooth the surfaces. Use the larger muscles of your shoulders to move the trowel and avoid twisting your back. - If you are smoothing a walking surface, bend your legs, not your back, and apply the trowel. - Consider wide mats and knee pads to help you access areas that need smoothing - Tools will be used according to the manufacturer's instructions. - Associates will be familiar with the proper use of the tool being used. - Tools will be maintained according to manufacturer's recommendations. - Tools will be inspected before each use. - Damaged or defective tools will be placed out of operation until repaired or replaced. - Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand. - Removal materials will be disposed throughout the removal process. - Material not immediately removed will be placed in temporary piles in a location that is not in the main walkway or any doorways. - Housekeeping shall be maintained throughout the day. - Any temporary piles will be removed at the end of each work day. - There will be staging areas for materials. 	L
	03.2. Injuries caused by defective or improperly installed self-support ladders	<ul style="list-style-type: none"> - Competent person will ensure the correct ladder for the job been used. - Ladders will be inspected daily. - All damaged ladders will be immediately tagged and repaired or destroyed. - Proper climbing/working procedures will be followed. 3 points of contact will be kept will climbing and descending the ladder. 	L

Principal Steps	Hazard	Recommended Controls	RAC	
04. Using of Hand Tools power Tools	04.1. Injuries for using improper Power tools.	<ul style="list-style-type: none"> - Competent person shall train all the workers about using of Hand tools power tools before starting of activity. - When using a sledge hammer, wear heavy-duty work gloves and safety glasses. - All the Power tools shall be used as per the manufacture instruction. - Competent person will train the workers before use of each power tools. - Never use a hammer with a chipped head. Sledge hammers with chipped head should be replaced or repaired in accordance with manufacturer's recommendations. Wear eye protection. - Sledge hammers with broken or cracked handles should not be used. Replace broken or cracked handles - Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand. Keep all bystanders and unauthorized personnel out of work area. 	L	
	04.2. Improper use of Hand and Power Tools	<ul style="list-style-type: none"> - Tools will be used according to the manufacturer's instructions. Workers will be familiar with the proper use of the tool being used. - Tools will be maintained according to manufacturer's recommendations. Tools will be inspected before each use. - Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand. 		L
	04.3. Noise hazard	<ul style="list-style-type: none"> - Hearing protection shall be worn for all work involving hammer-drills and concrete saws as per the APP plan and section 05-C-03 EM385-1-1 		L
	04.4. Falls from Self-support ladder	<ul style="list-style-type: none"> - Insure that step ladder has slip resistant feet and is placed securely on the ground; remove debris from under the feet before placement. Body should stay within the plane of the ladder legs, move ladder rather than excessive - Leaning to the sides. The top of a regular stepladder shall not be used as a step as per ANSI Z359/ASSE Z359, Fall protection Code. 		L
	04.5. Particles and Debris in the Eyes	<ul style="list-style-type: none"> - Wear ANSI approved safety glasses with side shields. - Emergency Eye Wash Station provided in the job site in case of emergency First Aider shall be applied. - Workers shall be notified about the First Aid Station during tool box talked and orientation training. - First Aider shall keep record of all injures/illness in the job site. 		L
	04.6. Fires during cutting of formwork	<ul style="list-style-type: none"> - Recommendations of NFPA and regulations of the United States Coast Guard shall be complied with in addition to the local building codes. Refer to Assist Consultants Inc. APP and HSP for specific details on Fire Prevention. - Worker shall be train by competent person about the using of fire Extinguisher. - All the fire extinguisher shall be inspect daily and documented monthly basis for record keeping. - All the fire extinguishers should have inspection Tag, if any extinguisher found without inspection Tag should be removed immediately from the job site. 	L	

Principal Steps	Hazard	Recommended Controls	RAC
	04.7. GFCI failure and inspection	<ul style="list-style-type: none"> - Competent person will check GFCI Breaker. - GFCI devices shall be tested before initial use and before use after modification. - GFCI must be inspected every month by means of tripping the GFCI to ensure that it is working properly. - If any Electrical panel board failed (GFCI) breaker should be removed immediately from the job site until it will be change. - For Power tools 10ma GFCI breaker shall be use. - For welding machine more than 40am FGCI breaker shall be use. 	L

List equipment to be used in the work activity	List inspection requirements for the work activity	List training requirements, include hazard communication
Cutting Saw. Portable Generators. Self-support Ladders Fire Extinguishers. PPE Hand and power tools.	Daily inspection of equipment. Daily inspection of extinguishers. Daily inspection of ladders. Personal protective and safety equipment shall be tested, inspected, and maintained in a serviceable and sanitary condition as recommended by the manufacturer. Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer's instructions.	Competent and qualified entity/person will train the workers and instruct the workers as it have enough experience in USACE Projects. Employee use in the workplace; the employer shall provide training, and check the extinguishers daily, or monthly as per the inspection check list. Ladder training shall be conducted for the workers. Employees shall be appropriately trained in the use and care of all required PPE and safety equipment. Training shall be conducted for all the employees on the use and inspection of hand and power tools.

Additional Comments: Additional Comments: Personal protective equipment requirements; Hardhat, safety glasses, proper good fitting gloves that are compatible with work activities, safety boots and hearing protection. Keep fire extinguisher in the work areas where the threat of fires present and hot work is being performed and shut engine of during refueling. Due to the nature of this climate dust storms are common, they can be sudden and unexpected ensure that dust respirators are on hand and shelter is available for protection. In the event of rain and thunderstorms all roofing, crane, scaffolding and welding activities will be halted immediately until condition improve enough for activities to continue. Avoid heat stress injuries by keeping a sufficient supply of potable water available for the workers and if necessary, implement a work rest schedule. In the event of any hostile acts take appropriate actions as necessary; Drop to the ground and remain there in case of any continuance of hostilities, when it is determined that immediate threat is passed move to the nearest covered and concealed location and wait for all clear. **THINK "SAFETY ALWAYS"**

Prepared by NCA's competent/qualified person(s) NCA Technical Teams

necessary to address changing site conditions, operations, or change of competent/qualified person(s).

This AHA has been reviewed by the designated NCA and is acceptable for use on this project. This acceptance predicated on satisfactory implementation in the field by the contractor and will be rescinded if the contractor fails to enforce the controls identified in this document and/or the requirements identified in EM385.1.1. This AHA will be reviewed and modified as

Name, NCA (Signature & Date)

Activity Hazard Analysis (AHA)

Activity/Work Task:	Concrete and Stone work	Overall Risk Assessment Code (RAC) (Use highest code)	L				
Project Location:	Guldara (Jelwani, Shamir Bala, and Mahipar Villages)	Risk Assessment Code (RAC) Matrix					
Contract Number:		Severity	Probability				
Date Prepared:	Feb/22/2024		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	NCA Guldara Engineering Team	Catastrophic	E	E	H	H	M
Reviewed by (Name/Title):	NCA, Climate Change and Resilience Specialist (Guldara Project Lead) UNDP, Technical team	Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
General Notes:		Step 1: Review each “Hazard” with identified safety “Controls” and determine RAC (See above)					
<ul style="list-style-type: none"> - Operatives must have completed ACI HSE Orientation and other applicable training prior to deployment - Only qualified personnel to perform the task - Pre-task instructions will be conducted prior to start of new task - Effective measures shall be implemented when working under extreme weather conditions; measure to prevent heat stress for personnel working under direct sunlight 		“Probability” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
		“Severity” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High Risk	
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.				M = Moderate Risk	
PPE Requirements:						L = Low Risk	
<ul style="list-style-type: none"> - Hard hat, Sturdy footwear, High-visibility vests as minimum - Hearing protection, dust mask, safety glasses with side shield where required. 							

Activity	Hazard	Recommended Controls	RAC
01. Preparatory Work	01.1 Lack of communication	<ul style="list-style-type: none"> - Orientation training shall be given by competent person. - This AHA shall be conducted during Preparatory Meeting and shall be translated to all workers during Safety Tool Box Talks and safety meetings. - Safety Trainings and Tool Box talks meeting shall be conducted for all personnel. - Each employee shall be required to sign a job safety form which documents their agreement to comply with the APP, AHA and Site Safety Regulations. - Regularly scheduled safety meetings shall be held at least once a week for all supervisors on the project to review past activities, to plan ahead for new or changed operations and to establish safe working procedures for anticipated hazards. - An outline report of each meeting shall be submitted to the designated authority. - Announcement of these meetings will be facilitated by posting date, time and place of the meeting on the safety bulletin board in advance of at least one week. - Attendance will be taken during the meetings. - All persons shall be physically and emotionally qualified for performing the duties to which they are assigned. Some factors to be considered in making work assignments are strength, endurance, agility, coordination, and visual and hearing acuity. - The following PPE will be used and strictly enforced at the job side hard hats, High-Visible cloths, Safety Shoes, safety glasses and others PPE related to work as per Safety Requirements. 	L

Activity	Hazard	Recommended Controls	RAC
02. Concrete pouring and Stone work	02.1 Injury from being struck by heavy equipment	<ul style="list-style-type: none"> - Competent person shall train the worker prior start of activity. - A short brief training shall be given by competent person daily prior start of concrete work. - Use flag person or other means to control traffic access. - Provide high visibility outer garments for workers exposed to vehicle and heavy equipment traffic. - All workers shall be protected properly by PPE. - Erect barricades, stop logs, and/or warning signals where mobile equipment operators have obstructed view. - Workers that may need to work in this area to help removed broken up concrete shall not be in area while backhoe/skid steer is in operations. - Only trained and qualified operators will run equipment. - Daily documented equipment inspections shall be available for review on site. - Ready mixer and small mixer shall be inspected daily by SSHO as per daily check list. 	L
	02.2. Particles and Debris in the Eyes	<ul style="list-style-type: none"> - Wear ANSI approved safety glasses with side shields. - Emergency Eye Wash Station with Sterile Eye Wash Solution shall be available in the job site in case of emergency First Aider shall be applied. - Workers shall be notified about the First Aid Station during tool box talked and orientation training. - First Aider shall keep record of all injures/illness in the job site. 	L
	02.3. particles and debris in the eye when the holding or transporting the piece of stone from one place to the another place	<ul style="list-style-type: none"> - Wear ANSI approved safety glasses with side shields. - Emergency Eye Wash Station with Sterile Eye Wash Solution shall be available in the job site in case of emergency First Aider shall be applied. - Worker should make the small stone piece (not heavy) for transforming from one site to the other site. - First Aider shall keep record of all injures/illness in the job site. - Workers should not lift more than 51 lbs (23 Kg). without help from co-workers or mechanical assistance. Use a dolly or other mechanical method when practical. 	L

Activity	Hazard	Recommended Controls	RAC
	02.4. Injuries to personnel while pouring concrete (contact with skin)	<ul style="list-style-type: none"> - Prior start of each pouring competent person shall train the workers and inspect the workers PPE, the training documents shall be kept in the file. - Competent person shall review Cement MSDS for concrete workers in local language. - MSDS shall be posted in the bullion board. - Concrete may be applied to an area by hand, chute, pneumatic hoses, or buckets. For pneumatics, check the hoses and couplings to prevent a breach. - Anchor the hose in place to prevent excess movement. - Do not ride concrete buckets or hoist/swing the buckets over workers. - Do not walk under concrete buckets or hoist/swing the buckets while in operation. - Only authorized personnel working directly with this process should be permitted in area. - Always wear dust mask and goggles while working with dry concrete. - The chemicals in wet concrete may cause burns or skin irritation. So, always wear gloves, boots and goggles to avoid skin contact with wet concrete. - Wear protective clothing, such as waterproof gloves, long-sleeved shirts, and long pants to keep the concrete from making contact with your skin. - Ensure the protective clothing stays dry so it does not transfer the alkaline or hygroscopic effects to the skin. - Wear rubber boots if you must stand in the fresh concrete while it is being placed, screened, or floated to prevent concrete from flowing into them and making contact with your lower legs, ankles and feet. 	L
03.Using of vibrator	03.1. Fire hazard	<ul style="list-style-type: none"> - Competent person shall inspect all the vibrators prior start of activity. - Workers should be notified about the fire extinguisher area. - Smoking is not allowed during working hours in the job site. - Fire extinguishers shall be provided in working area. - Workers should be notified about the using of Fire Extinguisher's (PASS) method. - Fire extinguishers shall be available in all concrete pouring location. - Fire extinguisher shall be inspected monthly and all the extinguisher should have inspection Tag. - Vibrator machine shall be shut down when pouring oil in the machine. 	L

Activity	Hazard	Recommended Controls	RAC	
04.Using of Hand Tools Power Tools	04.1. Electrical hazard (power tools and extension cords)	<ul style="list-style-type: none"> - Operate according to the manufacturer’s instruction. - Workers will be familiar with the proper use of the tools being used. - Damaged or defective tools will be placed out of operation until repaired. - Tools must be insulated and manufactured to meet ASTM F18. The insulating tool portion shall be made of fiberglass-reinforced plastic (FRP). - GFCI shall be used for all electrical Power tools. - Never carry a tool by the cord or hoses or to disconnect it from receptacle. - Keep cord and hoses away from heat, oil and sharp edges. - Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits cutters. - All the extension cords shall be protected from the ground. - Cut extension cords shall be replaced immediately. - Wood stand shall be provided for extension cords to protect the cords from wet ground and window door edges. 	L	
	04.2. Noise hazard	<ul style="list-style-type: none"> - Hearing protection shall be worn for all work involving hammer-drills and concrete saws as per the APP plan and section 05-C-03 EM385-1-1 		L
	04.3. Hot weather temperature Heat Stress	<ul style="list-style-type: none"> - Over exposure to heat can cause death or illness. Heat stress can result heat stroke, heat exhaustion, heat crams, or heat rashes. Heat also can increase work place injuries cause by sweaty palms, fogging safety glass, and dizziness. Burn may also occur as a result of accidental contact with hot surface or steam. - Workers shall avoid exposure to extreme heat, sun exposure and high humidity when possible. - Workers shall be aware of indication for heat stress such as; Difficulty of breathing, over sweating, dryness of skin, hallucination, throbbing, head ache, confusion, and dizziness. - Drink plenty of water. - Cold drinking water shall be available in all area with disposable cups and poster that water is clean for drinking. - Competent person shall notified the workers about the cold drinking water label during tool box talk. 		L

List equipment to be used in the work activity	List inspection requirements for the work activity	List training requirements, include hazard communication
Ready mixer Mixer machine Personal Protective Equipment Shovel Wheel borrow Vibrator Hand tools Power tools Electrical equipment (panel and junction boxes) Heavy equipment's Fire Extinguisher	Daily inspection all tools. Daily inspection of equipment. Safe work procedure. Work area safety inspections. Tools and equipment. Personal Protective equipment. Material storage, handling and disposal. Daily inspection required. Fire extinguisher.	Competent person shall train the workers about the use of fire extinguisher. Toolbox training. Lifting techniques. Review of AHA, Competent person shall train all the workers and operators.

Additional Comments: Additional Comments: Personal protective equipment requirements; Hardhat, safety glasses, proper good fitting gloves that are compatible with work activities, safety boots and hearing protection. Keep fire extinguisher in the work areas where the threat of fires present and hot work is being performed and shut engine of during refueling. Due to the nature of this climate dust storms are common, they can be sudden and unexpected ensure that dust respirators are on hand and shelter is available for protection. In the event of rain and thunderstorms all roofing, crane, scaffolding and welding activities will be halted immediately until condition improve enough for activities to continue. Avoid heat stress injuries by keeping a sufficient supply of potable water available for the workers and if necessary, implement a work rest schedule. In the event of any hostile acts take appropriate actions as necessary; Drop to the ground and remain there in case of any continuance of hostilities, when it is determined that immediate threat is passed move to the nearest covered and concealed location and wait for all clear. **THINK "SAFETY ALWAYS"**

Prepared by Contractor's competent/qualified person(s) (Signature & Date) NCA Technical Teams	
This AHA has been reviewed by the designated AED COR and is acceptable for use on this project. This acceptance predicated on satisfactory implementation in the field by the contractor and will be rescinded if the contractor fails to enforce the controls identified in this document and/or the requirements identified in EM385.1.1. This AHA will be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).	Name, NCA (Signature & Date)

Activity	Hazard	Recommended Controls	RAC
	04.2.Improper use of Hand and Power Tools	<ul style="list-style-type: none"> - Tools will be used according to the manufacturer's instructions. Workers will be familiar with the proper use of the tool being used. - Tools will be maintained according to manufacturer's recommendations. Tools will be inspected before each use. - Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand. 	L
	04.3.Noise hazard	<ul style="list-style-type: none"> - Hearing protection shall be worn for all work involving hammer-drills and concrete saws as per the APP plan and section 05-C-03 EM385-1-1 	L
	04.4.Particles and Debris in the Eyes	<ul style="list-style-type: none"> - All workers on-site shall wear approved Safety Glasses with side shields according to EM 385-1-1. Goggles and/or face shield may be used for additional protection. - Eye wash solution will be available to aid in removing particles from eyes at emergency conditions. 	L
	04.5.Over current Protection	<ul style="list-style-type: none"> - All receptacle outlets that provide temporary electrical power during construction remodeling, maintenance, repair, demolition, shall have ground-fault circuit- interrupter (GFCI) protection for personnel. - All receptacle outlet that provide temporary electrical power during construction. - GFCI shall be provided in all circuits serving electrical power tools. - The GFCI shall be calibrated to trip within the threshold value of 5ma/ as specified in UL standard 943. - GFCI shall be installed in accordance with the NEC. The permanent wiring shall consist of electrical circuits grounded in accordance with the NEC. 	L