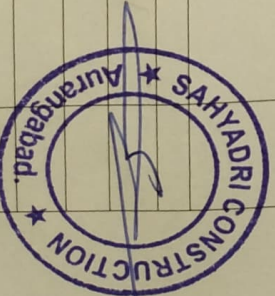


Activity - Excavation	Sr. No.	Activity	Hazard	Issue (Internal/External)	Risk (Probable Outcome)	Existing Control	Legal Yes/No	Risk Assessment existing Control Measures			Significant (S) / Non-Significant (NS)	Additional Control Measure	Risk Assessment additional Control Measures			Ref. Of WI SOP	Opportunities & Action	Remark							
								Probability(P)	Severity(S)	Risk Level (H/W/L)			Probability(P)	Severity(S)	Risk Level (H/W/L)										
1	Site Clearing Bush Clearing	Sharp edges /flying particles	Scalable in grassy area	Internal	Insecticide bite/frjury	Use Gunhood/face glove/Goggles	No	2	3	Med	NS	Use machinery for clearing for clearing bigger bushes wear full clothing. Employed workers have gone through with job specific safety training and medical aid as per BDCW ACT/Rules, GSI health and safety requirements	1	1	Low										
								Equipment	Internal	Injury			Check the fitness of equipment with respect to safety aspects. Periodic maintenance of equipment	No	3			3	High	NS	Only equipments which are fit are allowed for deployment. Maintenance schedule need to prepare	2	2	med	
								Unauthorized operator	Internal	Mishandling of vehicle & Hit injury			Check Operator's certificate & license before engage work. Check for operator fitness	No	2			3	Med	NS	Operator identity system shall be followed	2	2	med	
								People resting under vehicle	Internal	Run Over			Maintain mechanism well and good. Inspect before starting the vehicle. Providing rest shed for the workmen.	No	3			4	Med	NS	Delay Start mechanism should placed. Wheel Stoppers need to provide	2	2	med	
								Underground Utilities	Internal	Injury			Get the clearance from concern dept. (Sool of Client) & Work Permit system to be followed.	No	2			4	Med	NS	Expose the utilities manually with power off / insulated materials before bring clearance	2	2	med	
								Damage to underground electrical, telecom cables and gas/ water services.	External	Electricity, fire & explosion/ fatal			1. Follow excavation clearance permit system look for route markers. 2. Make trails pits in case of doubt. 3. Look for warning tapes/ cable covering mats/ concrete saddles/ sand padding 4. Adhere strictly to manual excavation in case of presence of underground cables. 5. Provide barricade and Unloading Dumpers to be maintain safe distance from 11KV overhead electrical line while dumping the excavated loose soil	Yes	2			4	Med	Competent supervision	2	2	med	if applicable the Project area must have clearance from the Government statutory authority regarding any Under ground utilities	
								Vehicle movement near the edge of excavation	Internal	Fall of machinery into the pit			1. Provide hard barricade with min clearance of 2m from the excavated pit. 2. Ensure adequate illumination, & danger lighting. 3. Post reflective warning signs & blinking lights to highlight deep excavation. 4. Deploy trained safety man.	No	2			4	High	NS	Strict supervision required Prepare traffic management plan	1	2		Low
								Walking / Working near the edge of excavation	Internal	Fall of person			1. Keep away from the edge of the excavation. 2. Provide barrier away from the edge of excavation 3. Provide sign boards & blinking lights	No	2			3	Med	NS	Strict supervision required Prepare traffic management plan	1	2		Low
								Fall of objects (stone boulder, soil etc.) into excavated pit	Internal	Fatal/ Injury			1. Competent Operators 2. No entry into the pit during excavation 3. No Materials shall be stacked at edge of the pit. Min. 1.5m clearance shall be maintained	No	2			3	Med	NS	Strict supervision required	1	2		Low
								Earth moving equipment operation	Internal	Injury due to hit or collision			Keep distance of minimum 5 M between two equipment's while in use. Use only authorized equipment's and employ experience operator. Check for overhead lines, Ensure safe overhead distance can be maintained otherwise suspend the activity. Provide trained banks men, Ensure strict supervision.	No	3			4	High	NS	Strict supervision required	2	2		med
Sharp Stop cutting	Internal	Chance of coil collision	Maintain sharp cutting and extra earth should be away from 1.5m.	No	3	4	High	NS	Strict supervision required	2	2	med													
Un-noticed hatched area	Internal	fall of person/near by public/animals	Barricade the area with glow & reflective board;	No	2	3	Med	NS	Strict supervision required and provide night watchman to ensure no unauthorized person entry	2	2	med													
4	Incomplete excavation after duty hrs.			Internal	fall of public vehicles/other equipment into the pit	Barricading with Tape & Hard Barricade with reflective signage	No	2	3	Med	NS	Strict supervision required Provide watchman to ensure no unauthorized vehicle entry	2	2	med										
								Over loading of vehicles	Internal	Falling of materials			Restriction on load limits with the capacity of the vehicle. Loading above the body height is avoided	No	2	3	Med	NS	Strict supervision required Daily PPT PAK Specific job training	1	2	Low			
5	Transportation of excavated materials	Dust		External	Air pollution health effect:		No	2	3	Med	NS	Water sprinkling to avoid dust /dust controlling measures	1	2	Low										



JKR monitoring must be obtained as per GSI norms

6	Dumping	Reversing of the vehicles	Internal	Hit by vehicle	Inverse bars shall be provided. Trained banks men shall be employed at dumping sites.	No	2	3	Med	NS	Daily PEP Talk Special job training	1	2	Low	
		Movement of the material	Internal	Injury	Un authorized persons and visitor should not be allowed with in the circled area	No	2	3	Med	NS	Visitor Safety awareness followed	1	2	Low	
		Entering into the public road	Internal	Hit by vehicle	Post adequate signage to caution incoming vehicles & Trained flag boys and warning systems should be provided	No	2	3	Med	NS	Daily PEP Talk Specific job training	1	2	Low	
7	Foundation	Failure of the hydraulic system and brakes	Internal	Hit by vehicle	Regular periodic maintenance and inspection of hydraulic system & Vehicle inspection carried out regularly	No	2	3	Med	NS	Periodic maintenance schedule need to prepared and followed	1	2	Low	
		Improper communication between the driver and helper / Sign man	Internal	Hit by vehicle	Practice standard hand signals & Periodic training to drivers, helpers, bank men and flag boys	No	2	3	Med	NS	Daily PEP Talk Specific job training	1	2	Low	
		Lack of access stack of material / earth	Internal	Fall of person & Material	Material / earth shall be stacked 1.5 m from the edge of the excavation. Access ladder shall be in place that workmen is able to access it at 15m reach.	No	2	3	Med	NS	Daily PEP Talk Specific job training	1	2	Low	
8	Mobilization of manpower	Defective ladder	Internal	Fall from ladder	Monthly inspection of ladders. Discarding / removing the defective ladders from use	No	2	2	Low	NS	Area lighting also provide	1	2	Low	
		Illumination	Internal	Slips, Trips & Fall of Person	Provide sufficient lighting. atleast 150 Lux	No	2	2	Low	NS	Area lighting also provide	1	2	Low	
		Employment of untrained/unpermitted persons 2) Lack of awareness about construction hazards	Internal	Personal Injury Personal Injury	1) Trained workers to be deployed after induction training, screening & medical checkup etc. ID Card will be provided to workers 2) Informing hazard to workers and safe work methodology to crew members	No	2	2	Med	NS	1) Individual ID cards will be checked at entrance gate by security and daily tool box meeting will be conducted. 2) Conduct induction training for new workers	1	1	Low	
9	Survey work (Line layout marking)	Undulating area	Internal	Fall of Person	Provide safe access	No	2	2	Low	NS		1	1	Low	
		Obstructed	Internal	Personal Injury	Access to be kept free from obstructions all the times	No	2	2	Low	NS		1	1	Low	
		Door housekeeping	Internal	Slip, Trip, Fall	Maintain good housekeeping	No	2	2	Low	NS		1	1	Low	
10	Mobilization of earth moving equipments	Incompetent drivers/operators	Internal	Major injury / Property damage	1) Only authorized persons are allowed for driving and working in excavation. 2) Spacing area of excavator will be barricaded & must be free from obstructions. 3) Pre inspection to be done for all driving equipment. 1. Check reverse turn & ensure helper	No	2	2	Med	NS		1	1	Low	
		Use of earth moving equipment without inspection	Internal	Personal Injury/Fatality	1) Promote & maintain hand barriers with top rails at 1150mm, mid rail at 550mm, vertical posts at 1 meter. Top rail paint will be provided on all barricading pipe. 2) Provide safe access. 3) Vehicle should be kept away at 1m as possible from 1.5 meters from the edge of excavation using warning lights. Barricade barriers to be maintained in good condition. 4) Driver of mobile phone should be prohibited while driving/operating earth moving equipment 5) Display 15 mph speed limit signages along the road side	No	3	3	High	NS	1) Safety Sign boards will be displayed & maintained every 30 days at conspicuous places. 2) Ensure banking/ work supervisor available during work. 3) Ensure security personnel will instruct 4) Training will be provided to workers 5) Ensure mandatory PPE, viz. Safety helmet, safety shoes & reflective jacket	2	2	Med	
		Overloading of vehicle	Internal	Personal Injury/Fatality	1) Ensure that vehicle should not be overloaded beyond its limit. 2) Provide safe access 3) Display competent & experienced driver 4) Provide proper illumination. Min. signpost size height to avoid obstructions for vehicle 5) Ensure reverse horn & helper for vehicle 6) Display speed limit signages	No	3	3	High	NS	1) Ensure valid documents of earth moving equipment & valid driving license of driver/operator 2) Valid and checked awareness training will be provided. 3) Ensure earth moving equipments is inspected and identified	2	2	Med	
11	Many Machine movements	Overloading of vehicle	Internal	Fall of material from vehicle, topple of vehicle	1) Ensure that vehicle should not be overloaded beyond its limit. 2) Provide safe access 3) Display competent & experienced driver 4) Provide proper illumination. Min. signpost size height to avoid obstructions for vehicle 5) Ensure reverse horn & helper for vehicle 6) Display speed limit signages	No	3	3	High	NS	1) Ensure valid documents of earth moving equipment & valid driving license of driver/operator 2) Conduct training for drivers on safe driving	2	2	Med	
		Unauthorized operator	Internal	Hit by vehicle, topple of vehicle	1) Take utility clearance before starting excavation 2) Only earth moving equipments should be permitted in construction area. All other vehicles/bikes at designated parking area 3) Ensure machine is in good condition and use of ear plugs in noisy area 4) Only competent people should handle all kind of electrical connections & failures. 5) Ensure parking area should be oversized beyond its limit. 6) Electrical cables shall be installed at sufficient height. Ensure appropriate warning signages displayed 7) Electrical cables shall be installed at sufficient height. Ensure appropriate warning signages displayed 8) Loose material will be removed	No	3	3	High	NS	1) Ensure work permit 2) Area will be marked for movement of vehicles. 3) Ensure noise monitoring at regular interval 4) Ensure license of electrician 5) Display parking area signages 6) Man and material movement will be	2	2	Med	
		Overloading of vehicle	Internal	Personal Injury/Fatality	1) Ensure that vehicle should not be overloaded beyond its limit. 2) Provide safe access 3) Display competent & experienced driver 4) Provide proper illumination. Min. signpost size height to avoid obstructions for vehicle 5) Ensure reverse horn & helper for vehicle 6) Display speed limit signages	No	3	3	High	NS	1) Ensure valid documents of earth moving equipment & valid driving license of driver/operator 2) Conduct training for drivers on safe driving	2	2	Med	
12	Transportation of excavated material	Overloading of vehicle	Internal	Personal Injury/Fatality	1) Ensure that vehicle should not be overloaded beyond its limit. 2) Provide safe access 3) Display competent & experienced driver 4) Provide proper illumination. Min. signpost size height to avoid obstructions for vehicle 5) Ensure reverse horn & helper for vehicle 6) Display speed limit signages	No	3	3	High	NS	1) Ensure valid documents of earth moving equipment & valid driving license of driver/operator 2) Conduct training for drivers on safe driving	2	2	Med	
		Unauthorized operator	Internal	Hit by vehicle, topple of vehicle	1) Take utility clearance before starting excavation 2) Only earth moving equipments should be permitted in construction area. All other vehicles/bikes at designated parking area 3) Ensure machine is in good condition and use of ear plugs in noisy area 4) Only competent people should handle all kind of electrical connections & failures. 5) Ensure parking area should be oversized beyond its limit. 6) Electrical cables shall be installed at sufficient height. Ensure appropriate warning signages displayed 7) Electrical cables shall be installed at sufficient height. Ensure appropriate warning signages displayed 8) Loose material will be removed	No	3	3	High	NS	1) Ensure work permit 2) Area will be marked for movement of vehicles. 3) Ensure noise monitoring at regular interval 4) Ensure license of electrician 5) Display parking area signages 6) Man and material movement will be	2	2	Med	
		Overloading of vehicle	Internal	Personal Injury/Fatality	1) Ensure that vehicle should not be overloaded beyond its limit. 2) Provide safe access 3) Display competent & experienced driver 4) Provide proper illumination. Min. signpost size height to avoid obstructions for vehicle 5) Ensure reverse horn & helper for vehicle 6) Display speed limit signages	No	3	3	High	NS	1) Ensure valid documents of earth moving equipment & valid driving license of driver/operator 2) Conduct training for drivers on safe driving	2	2	Med	
13	Excavation by machine/excavator	Undulating terrain	Internal	Fall of Person	Provide safe access	No	2	2	Low	NS		1	1	Low	
		Obstructed	Internal	Personal Injury	Access to be kept free from obstructions all the times	No	2	2	Low	NS		1	1	Low	
		Door housekeeping	Internal	Slip, Trip, Fall	Maintain good housekeeping	No	2	2	Low	NS		1	1	Low	



<p><b>14 Construction Management (Site Visit, Inspection, monitoring at site by Engineers, supervisors)</b></p>	<ol style="list-style-type: none"> <li>1. Insert ure access</li> <li>2. Projecting material</li> <li>3. Absence of edge burr/lading</li> <li>4. Poor illumination</li> </ol>	<ol style="list-style-type: none"> <li>10. Health Damage</li> <li>11. Unauthorised person with operator in excavator cabin</li> <li>12. Serious Injury/Fatality</li> <li>13. Personal injury</li> <li>14. Topple of vehicle leads to fatal injury</li> <li>15. Soil Contamination, Injury</li> <li>16. Health Deterioration, Injury</li> </ol>	<p>1. Safe access will be provided</p> <p>2. Remove guard protecting bars</p> <p>3. Hand Scaffolding will be provided for excavated areas</p> <p>4. Provide adequate illumination, access &amp; at work sites (Min. 50 Lux)</p>	<p>1. Regular water sprinkling should be done at site for dust suppression</p> <p>10. Unauthorised entry will be restricted in construction area, signboards will be displayed</p> <p>11. Nobody to be allowed in excavator cab except operator</p> <p>12. Parallel activities will be strictly restricted</p> <p>13. Work Supervision by experienced person will be ensured</p> <p>14. Hand pump will be provided use of drop tray</p> <p>15. Stagnant water should be removed from site regularly</p>	<p>Reported and training will be considered</p> <p>7. Ensure Activity Sheet be carried in Day Light Only</p> <p>8. Work Permit Should be taken before Starting The Work/Activity</p>	<p>1. Ensure all employees and workers will be aware about the risk</p> <p>2. 1</p> <p>1</p> <p>Low</p>
<p><b>15 Backfilling</b></p>	<ol style="list-style-type: none"> <li>1. Mechanical failure</li> <li>2. Absence of wheel chock</li> <li>3. Vehicle without reverse horn</li> <li>4. Defective earth compactor - Unguarded rotating part - reverse horn</li> <li>5. Dust generation</li> <li>6. Poor power cable management</li> <li>7. Over speed of engine</li> <li>8. Struck by / Against Heavy Equipment</li> <li>9. Striking/Stranding on excavator while operation</li> <li>10. Unauthorised person with operator in excavator cabin</li> <li>11. Poor illumination</li> </ol>	<ol style="list-style-type: none"> <li>1. Personal Injury, caught in between</li> <li>2. Rolled over of vehicle</li> <li>3. Personal Injury by vehicle when reversing, major injury</li> <li>4. Injury due to un-guarded rotating part, hearing loss</li> <li>5. Respiratory diseases</li> <li>6. Electrocution</li> <li>7. Hit by vehicle, fatal</li> <li>8. Hit by vehicle, fatal</li> <li>9. Caught in between, fatal</li> <li>10. Deterioration, major injury</li> <li>11. Hit by vehicle, topple of vehicle</li> </ol>	<ol style="list-style-type: none"> <li>1. Vehicle to be used for Backfilling/Dumper/Tactor Trolley (CE/Excavator) to be checked for proper condition of brake at least once a day before start of activity</li> <li>2. Wheel chocks to be provided for standing vehicles</li> <li>3. Earth compactor to be inspected before use. Ensure reverse horn &amp; horn bell</li> <li>4. Earth compactor to be inspected before use. Ensure guard for rotating part. Use ear plug when exposed to reverse horn level. Reduce contact on tasks to minimize worker exposure to equipment vibration.</li> <li>5. Wear noise mask</li> <li>6. All power cables to be cover routed properly</li> <li>7. Ensure only experienced &amp; trained operator for operating earth moving equipment. Display 15 kmph speed limit sign/plate</li> <li>8. Wear reflective jacket</li> <li>9. Work site to be secured to avoid stand on excavator while in operation</li> <li>10. Nobody to be allowed in excavator cab except operator</li> <li>11. Provide sufficient illumination (Min. 50 Lux)</li> </ol>	<p>1. Use ear plug</p> <p>2. Ensure reverse horn after regular interval, display trained operator</p> <p>3. Proper Guard for rotating part</p> <p>4. Eye &amp; regular inspection to be done for compactor</p>	<p>1. Work permits will be followed daily</p> <p>2. Work under continuous supervision</p>	<p>1</p> <p>2</p> <p>2</p> <p>Med</p>
<p><b>16 Compaction</b></p>	<ol style="list-style-type: none"> <li>1. Excessive noise</li> <li>2. Excessive vibration</li> <li>3. Poor illumination</li> <li>4. Unguarded rotating part</li> <li>5. Defective machine</li> </ol>	<ol style="list-style-type: none"> <li>1. Hearing loss</li> <li>2. Back pain</li> <li>3. Eye strain</li> <li>4. Caught in between</li> <li>5. Injury</li> </ol>	<ol style="list-style-type: none"> <li>1. Use ear plug</li> <li>2. Ensure reverse horn after regular interval, display trained operator</li> <li>3. Proper Guard for rotating part</li> <li>4. Eye &amp; regular inspection to be done for compactor</li> </ol>	<p>2</p> <p>2</p> <p>Med</p>		

Prepared By: HHA Team

Reviewed By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Contractor Project Manager: \_\_\_\_\_

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

PMC Project Manager: \_\_\_\_\_

Project Safety Incharge: \_\_\_\_\_





Hazard Identification & Risk Assessment Format

Sr No.	Activity	Hazard	Issues (Internal/External)	Risk (Probable Outcome)	Existing Control	Legal Yes/No	Risk Assessment existing Control Measures		Significant (S) / Not Significant (NS)	Additional Control Measure	Risk Assessment additional Control Measures		Ref. Of W/ SOP & Action	Opportunities & Remark	
							Probability(P)	Severity(S)			Risk Level (H/M/L)	Probability(P)			Severity(S)
1	PCC	1. Improper Access 2. Contact with skin 3. Exposed to Eye 4. Inadequate illumination 5. Noise	Internal	1. Fall of Person 2. Skin irritation 3. Eye Irritation 4. Fall of person & Material	1. Provide secure access for movement. 2. Wear rubber hand gloves, gumboot etc. 3. Wear safety goggles 4. Ensure adequate illumination. 5. Provide ear plug or ear muff.	No	3	3	High	NS	1. Identify access clearly. 2. Strict adherence of PPE's 3. Check Lux level for ensuring adequate illumination. Engaged workers have gone through with job-specific safety training and medical and all as per BOCW Act/Rules, GPL health and safety requirements	1	2	low	
2	RCC (at Ground & at Height)	1. Improper Access 2. Improper working platform 3. Bare cable 4. Cable entangle with reinforcement bar 5. Contact with sharp edge 6. Contact with skin 7. Exposed to Eye 8. Inadequate illumination	Internal	1. Fall of person 2. Fall of material 3. Electrocutation 4. Trip 5. Cut injury 6. Irritation of Skin 7. Eye Irritation 8. Fall of person	1. Ensure secure access for movement 2. Provide adequate working platform. 3. Provide industrial top. 4. Keep all cable overhead and should be in contact with nonconductor material only. 5. Wear cut resistant hand gloves to avoid cut injury. 6. Wear rubber hand gloves, gumboot to avoid contact with concrete. 7. Wear safety goggles. 8. Provide adequate source of illumination.	No	3	3	High	NS	1. Provide Green tag to the safe scaffold & Red tag to the nonstandard scaffolding. 2. Carry electrical inspection per condition. 3. Monitor electrical routing. Change as available all time. 4. Authorized electrician should be available all time. 5. Follow concreting checklist. 6. Check Lux level for ensuring adequate illumination	1	2	MED	
3	Concreting by concrete Pump	1. Hydraulic oil leakage 2. Damaged Pressure gauge 3. Obstruction in access 4. Contact of pipeline with scaffolding structure 5. Loose locking pin 6. missing of cage on hopper 7. Open panel door 8. Unauthorized operation 9. Missing of pipe stand 10. Inadequate support 11. Rotating part	Internal	1. Failure of hydraulic function 2. Failure of pressure indication 3. Hit to concrete pump 4. Fall of Person & scabholding 5. Bursting at joint 6. Personal Injury 7. Damages to panel component 8. Personal injury 9. Hit to body part due to jerking 10. Fall of pipeline 11. personal injury	1. TPI certificate for concrete pump and Check all hydraulic hoses for leakage. 2. Replace damaged component. 3. Keep concrete pump away from access, ensure remote operating system for concrete pump and control panel should be outside 4. Ensure concrete pipeline should not tied with scaffold structure. Line cleaning shall only be carried out by experienced and trained workmen. External care shall be taken while using compressed air to clean the pipeline. XII. Workmen shall be kept away from the discharge end while the concrete is under pressure 5. Check all component including locking pin for tightness. 6. Inspect Hopper for cage. 7. Panel door should always be closed to avoid any damages or perform unauthorized operation. 8. Deploy authorized operator, display contact details of operator with photo. 9. Ensure concrete pipeline should be laying on stand. 10. Check all supports provided to the pipeline. 11. Fencing of rotating parts should be in place.	No	3	4	High	NS	1. Provide red tag to the pump in case of leakage finding. 2. Carry regular inspection of pump for any damages. 3. Follow concrete pump checklist 4. Follow work permit. 5. Check for administrative control delivery line to the pouring point shall be laid with as minimum possible, horizontally laid pipeline shall be supported at minimum 3-meter distance. Vertical line shall be supported at the bottom of the first vertical pipe and each additional pipe shall be secured with the structure.	2	2	Med	



<p>Identifying by Boom placer</p>	<ol style="list-style-type: none"> <li>1. Uneven surface</li> <li>2. Loose soil/plant</li> <li>3. Inbalanced outrigger extension</li> <li>4. Use of wooden slippers</li> <li>5. Hydraulic leakage</li> <li>6. Overhead Utilities</li> <li>7. Damaged pressure gauge</li> <li>8. Unauthorized operation</li> </ol>	<ol style="list-style-type: none"> <li>1. Topping</li> <li>2. Cave in and fall</li> <li>3. Tiling &amp; topping of boom placer</li> <li>4. Component damages</li> <li>5. Failure of functioning</li> <li>6. Electrocuttion &amp; Damages to utilities</li> <li>7. Increased pressure indication</li> <li>8. Personal injury</li> <li>9. Property damage</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify leveled surface</li> <li>2. Surface area should be well compacted.</li> <li>3. Outrigger of boom placer should be fully extended.</li> <li>4. Keep metal slipper for outrigger support. Remove wooden slipper.</li> <li>5. Check all hoses for oil leakage.</li> <li>6. Ensure there should not be any overhead utilities before placing boom placer.</li> <li>7. Pressure gauge should be operating condition.</li> <li>8. Authorized operator should be deployed.</li> </ol>	<p>No</p> <p>4</p> <p>4</p> <p>High</p>	<ol style="list-style-type: none"> <li>1. Follow Work permit.</li> <li>2. Ensure administrative control in place.</li> <li>3. Issue red tag in case of any fault finding.</li> <li>4. Strict adherence of inspection checklist.</li> <li>5. Carry work under dedicated supervision.</li> </ol>	<p>2</p> <p>2</p> <p>2</p> <p>Med</p>	<p>NA</p>
<p>5</p> <p>Concreting by Tower Crane</p>	<ol style="list-style-type: none"> <li>1. Uninspected bucket</li> <li>2. Damaged Lifting tools</li> <li>3. Overloading</li> <li>4. Concrete Leakage</li> <li>5. Improper signaling</li> <li>6. Suspended load</li> </ol>	<ol style="list-style-type: none"> <li>1. Fall of concrete</li> <li>2. Fall of Bucket</li> <li>3. Fall of material</li> <li>4. Breaking of lifting accessories</li> <li>5. Personal Injury</li> <li>6. Property Damage</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect bucket before get in use.</li> <li>2. Use inspected lifting tools.</li> <li>3. Ensure there should not be any overhauling.</li> <li>4. Carry work under supervision.</li> <li>5. Check for any leakages, remove damaged bucket from site.</li> <li>6. Instruct all about suspended load that nobody should stand below suspended load.</li> </ol>	<p>No</p> <p>4</p> <p>4</p> <p>High</p>	<ol style="list-style-type: none"> <li>1. Carry third party inspection of all concrete bucket.</li> <li>2. Display safe load capacity on bucket same as mentioned in Form 11.</li> <li>3. Mention test &amp; due date on bucket.</li> <li>4. Issue red tag to damaged bucket.</li> </ol>	<p>2</p> <p>2</p> <p>2</p> <p>Med</p>	
<p>6</p> <p>Manual Concreting at ground &amp; Height</p>	<ol style="list-style-type: none"> <li>1. Contact with skin</li> <li>2. Exposed to Eye</li> <li>3. Improper Access</li> <li>4. Insufficient working platform</li> <li>5. Inadequate illumination</li> <li>6. Sharp edge</li> <li>7. Missing of anchorage point</li> </ol>	<ol style="list-style-type: none"> <li>1. Skin irritation</li> <li>2. Eye irritation</li> <li>3. Fall of person</li> <li>4. Personal Injury</li> <li>5. Trip</li> <li>6. Cut Injury</li> <li>7. Fall of person</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide rubber hand gloves, gumboot.</li> <li>2. Provide safety goggles.</li> <li>3. Provide secure access for movement.</li> <li>4. Provide adequate working platform. Ensure that there should not be any gap in platform.</li> <li>5. Provide mid &amp; top railing to the scaffolding.</li> <li>6. Provide adequate illumination.</li> <li>7. Anchorage point should be provided for anchoring safety harness at height.</li> </ol>	<p>No</p> <p>3</p> <p>3</p> <p>High</p>	<ol style="list-style-type: none"> <li>1. Strict adherence of PPE's.</li> <li>2. Issue green tag to the safe scaffold &amp; red tag to the unsafe scaffold.</li> <li>3. Ensure administrative control in place.</li> <li>4. Carry work under supervision.</li> <li>5. Follow work permit.</li> </ol>	<p>1</p> <p>2</p> <p>2</p> <p>Low</p>	
<p>7</p> <p>Electrical related activity (Conduit fixing, fish wire passing, Back box fixing)</p>	<ol style="list-style-type: none"> <li>1. Insufficient working platform</li> <li>2. Improper access</li> <li>3. Open edge</li> <li>4. Open shaft</li> <li>5. Inadequate illumination</li> <li>6. Missing of anchorage point</li> </ol>	<ol style="list-style-type: none"> <li>1. Fall of person</li> <li>2. Personal Injury</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide adequate working platform. Ensure that there should not be any gap in platform.</li> <li>2. Provide secure access without obstruction. While using ladder, one person compulsorily deployed for holding ladder.</li> <li>3. Ensure barricading of edge.</li> <li>4. Close all shafts - vertically and horizontally.</li> <li>5. Provide adequate illumination at working location and in access</li> <li>6. Ensure secure anchorage point all the time while working at edge and in shaft.</li> </ol>	<p>No</p> <p>3</p> <p>3</p> <p>High</p>	<ol style="list-style-type: none"> <li>1. Deploy experienced manpower</li> <li>2. Include activity in work permit.</li> </ol>	<p>2</p> <p>2</p> <p>2</p> <p>Med</p>	
<p>8</p> <p>VDF Activity</p>	<ol style="list-style-type: none"> <li>1. No edge protection at height.</li> <li>2. Exposed rotating blades.</li> <li>3. Electricity</li> <li>4. Idle running of machine.</li> <li>5. Excessive noise</li> <li>6. Inadequate illumination</li> </ol>	<ol style="list-style-type: none"> <li>1. Fall from height.</li> <li>2. Cut Injury/ Body part crush injury.</li> <li>3. Electrocuttion</li> <li>4. Energy Consumption</li> <li>5. HI toperson</li> <li>6. Nose pollution</li> <li>7. Personal Injury</li> </ol>	<ol style="list-style-type: none"> <li>1. Hard barricading provided.</li> <li>2. Blade Guards are kept in position.</li> <li>3. Experienced persons engaged for floor finishing activity</li> <li>3. Use double insulated cables only.</li> <li>4. All electrical connection are routed through RCCBs only.</li> <li>4. Switch off power or engine to avoid idle running.</li> <li>5. Ear plugs provided.</li> <li>6. Provide adequate illumination.</li> </ol>	<p>No</p> <p>3</p> <p>3</p> <p>High</p>	<ol style="list-style-type: none"> <li>1. Strict adherence of PPE's.</li> <li>2. Issue tag to the machine.</li> <li>3. Ensure administrative control in place.</li> <li>4. Carry work under supervision.</li> <li>5. Follow work permit.</li> </ol>	<p>2</p> <p>2</p> <p>2</p> <p>Med</p>	

Prepared By : HIRA Team

Reviewed By :

Contractor Project Manager :

PMC Project Manager :

Project Safety Incharge

Approved By :

GPL Project Manager



Sr. No.	Activity	Hazard	Issues (Internal/External)	Risk / Probable Outcome	Existing Control	Legal Yes/No	Risk Assessment existing Control Measures			Additional Control Measure	Risk Assessment additional Control Measures			Ref. Of Ws SOP	Operator's & A.Non	Remark
							Probability(P)	Severity(S)	Risk Level (H/M/L)		Probability(P)	Severity(S)	Risk Level (H/M/L)			
1	Mobilization of man power	1 Deployment of unexperienced manpower	Internal	1 Personal Injury	1 Deploy experienced workman on job 2 Conduct screening, Vertigo test, Medical checkup, Safety induction 3 Issue ID cards & PPE's 4 Conduct Job specific training before start of job. To protect skin from cement and cement mixtures, workmen shall wear: Alkali resistant gloves, coveralls with long sleeves, and full-length trousers, gloves and tuck parts inside boots and duct-tape the top to keep mortar out.	No	2	2	med	NS	1 Engaged workers have gone through with job specific safety training and medical and all as per BOCW Act/Rules, GPl health and safety requirements. Ensure regular training of worker.	1	1	Low		
2	Transportation of bricks, blocks and cement	1 Overloading of material	Internal	1 Fall of material 2 Personal injury	1 Ensure bricks or blocks must be in weighted capacity 2 Bricks or blocks should not stacked above the height of trolley	No	2	2	med	NS	1 Provide training to concerned staff regarding transportation related hazards. Before commencing brick work considering plan against the following: Material storage Provision of Mechanical lifting and handling equipment's Site housekeeping Chemicals Working at height/ Scaffold Working platform Access & egress to area, working platform & scaffold Stability of brick structures during constructions Guarding on tools and equipment's Hygiene & first-aid illuminations/ lighting.	2	2	Med		
3	Unloading of bricks and blocks and cement	1 Poor communication while unloading of bricks & Block	Internal	1 Fall of material 2 Personal injury	1 Give training to unloading team regarding safe unloading of material 2 Ensure proper communication between unloading workers	No	2	2	med	NS	1 Display the poster at prominent location regarding stacking limit of cement bag & block Conduct training of all the concerned person	1	1	Low		
4	Storage of material	1 Over stacking of material 2 Unidentified material 3 Obstructed access 4 Scattered material	Internal	1 Fall of material 1 Missuse / horse play with Material 1 Fall of person	1 Stack the material below 1.5 mtr 2 Cement bag shall be stacked upto the height of 10 bag 1 Display label of Material 1 Provide ear access	No	2	2	med	NS	1 Mark the access ensure regular housekeeping	1	1	Low		
5	Cement dust exposure at cement store	1 Occupational diseases like silicosis, asthma	Internal	1 Occupational diseases like silicosis, asthma	1 Maintain good housekeeping 2 Stack material properly stack height shall not be more than 6ft (1.8m) 1 Maintain the proper ventilation in cement store 2 Ensure use of all required ppe's while entering into cement store	No	2	2	med	NS	1 adopt HFO system to minimize cement dust generation	1	1	Low		







# Sahyadri Construction

Ref. No.: GPL FHS 02

Rev.No.: 00

Date:

Page no.

01 of 01

## Hazard Identification & Risk Assessment Format

Activity: ...Retaining Wall

Sr. No.	Activity	Hazard	Issues (Internal/External)	Risk ( Probable Outcome)	Existing Control	Legal Yes/No		Risk Assessment existing Control Measures			Significant (S) / Non-Significant (NS)	Additional Control Measure	Risk Assessment additional Control Measures			Ref. Of WI/ SOP :-	Opportunities & Action	Remark
						Probability(P)	Severity(S)	Risk Level (M/M/L):-	Probability(P)	Severity(S)			Risk Level (H/M/L) :					
1	Raft concrete	Improper Access / poor Housekeeping		May lead to Slip and trip same level and different level	1. Ladder to be provided for access purpose. 2. Ladder to be secure 3. House keeping to be done before and after the work	No	2	2	M	NS	General work permit to be taken	2	1	LOW		NA		
2	Manual lifting of Raft of concrete	1. Inappropriate posture of working		Hand & leg injury, Back pain, strain & sprain	1. Sufficient number of skilled workmen will be deployed 2. Training & awareness for lifting technique ergonomics & for lifting of long & heavy materials. 3. Hand Gloves & other PPE will be used for lifting.	No	2	2	M	NS		2	1	LOW		NA		
3	Scaffold erection	1. Inadequate Support 2. No Inspection 3. Incompetent gang 4. Missing of Scaffolding member 5. Un even surface 6. Bare live electrical connection taken or routed on scaffolding		Fall of Scaffold, Collaps of scaffold, Fall of person and material.	1. Scaffolding inspected by Form work department / trained scaffolds. 2. Scaffolding training provided to the skilled persons of different area. 3. Scaffolding supported with alternative floor 4. Kicker lift must be placed 5. Connecting pin to be used nut and bolt 6. Scaffold tag system to be maintain 7. Scaffold to be pre checkup authorized person 8. Temp. structure scheme should be submitted prior to start work	No	2	2	M	NS		2	1	LOW		NA		
4	Wall reinforcement work	1. Improper work postures		May lead to Ergonomic	1. Job specific TBI shall be given to the work force 2. Adequate rest intervals are provided to the gangs to rejuvenate themselves	No	2	2	M	NS		2	1	LOW		NA		
		2 Tying of steel by binding wire at scaffold		2 Person fall from height may lead to personnel injury	2A. Use safety harness 2C. Ensure trained workers to be carry the activit 2E. Anchored the safety harness on provide horizontal railing.	No	2	2	M	NS		2	1	LOW		NA		





5	Fixing of shutter by props	1) Hit by protruding part of prop / without edge protection	may lead to person fall from height hit and personnel injury	1. Job specific training to be conducted 2. Platform to be secure 3. Chute to be secure with binding wire 4) Training (Toolbox talk) provided to workmen 5. Adequate PPE's provided to workmen. 5. Below shuttering area to be barricade	No	2	2	M	NS		2	1	LOW	NA	
6	concrete chute placing	Chute placed without safety lanyard	may lead to person fall from height Major minor injury	1. Job specific training to be conducted 2. Platform to be secure 3. Chute to be secure with binding wire 4) Training (Toolbox talk) provided to workmen 5. Adequate PPE's provided to workmen. 5. Below shuttering area to be barricade	No	2	2	M	NS		2	1	LOW	NA	
		1. Improper handling of working chute	Chute may slip and fall to below or different level which may lead to personnel injury or property damage.	1. Ensure the chute has been placed on scaffold platform properly and tie immediately after placing. 2. Select only the suitable jalis which should not exceed the cantilever portion more than 150mm.	No	2	2	M	NS		2	1	LOW	NA	
	concrete pouring	Absence of PPE while concrete manual shifting	May lead to cut injury	1. Job specific training to be conducted 2. To be wear that safety hand gloves 3. concrete chute to be placed on the concrete flowing area to avoid spillage of concrete	No	2	2	M	NS		2	1	LOW	NA	

Prepared By : HIRA Team

Reviewed By : \_\_\_\_\_ Contractor Project Manager :

Approved By : \_\_\_\_\_ GPL Project Manager

PMC Project Manager :

Project Safety Incharge



**Sahyadri Construction**  
**Hazard Identification & Risk Assessment Format**

Sr. No	Activity	Hazard	Issues (Internal/External)	Risk (Probable Outcome)	Existing Control	Legal Yes/No	Risk Assessment existing Control Measures			Significant (S) / Non-Significant (NS)	Additional Control Measure	Risk Assessment additional Control Measures			Ref. Of WI/ SOP	Opportunities & Action	Remark
							Probability(P)	Severity(S)	Risk Level (H/M/L)			Probability(P)	Severity(S)	Risk Level (H/M/L)			
1	Mobilization of man power	1. Deployment of untrained & inexperienced manpower	Internal	1. Personal injury 2. Material damage	1. Deploy experienced workmen on job. 2. Conduct screening, Vertigo test, Medical Checkup, Safety induction. 3. Issue ID cards & PPE's. 4. Dedicated team will only carry the job.		2	2	Med	S	Conduct job specific training before start of job.	1	1	Low			
2	Manual material handling and shifting to above level	Slip, trip & Fall down	Internal	Hit & Pinch injury.	1. Assess and identify location to stack block on site. 2. Ground must be leveled. 3. Block should not stacked more than 1.5 meter height. 4. Do not lift more than one block at time. 5. Access to be maintain clear and unobstructed. 6. TBT & Job specific training to be conducted for engaged workers. 7. Ensure use of mandatory & job specific PPE's. 8. Prop should be posted /Use of fall arrestor for fixing of full body harness to worker near leading edge.		3	2	Med	S	1. PTW System and close supervision to be followed. 2. man chain is not allowed. 3. all ppe are inspected before use	1	1	Low	WI- Brick work		
	Block/cement/sand shifting hv wheel	Over loading.	Internal	Topple, fall and hit injury.	1. Don't over load wheel barrow for block shifting. 2. Manufacturer guideline to be follow for Material loading in wheel barrow. 3. Only competent and skill people should be deploy for using of wheel barrow. 4. Dedicated supervision should be followed for material shifting.		3	2	Med	NS	Training with engaged team and Close supervision to be followed.	1	1	Low			



3	barrow at work location.	Block/cement/sand stacked near floor/shaft/duct edge.	<b>Internal</b>	Fall and hit injury.	<ol style="list-style-type: none"> <li>Block should be stacked minimum 1.5 mtr. away from floor/shaft and duct edge. Parallel cover respective floor opening.</li> <li>Standard stacking height (1.5 mtr. must be maintained)</li> <li>strict supervision should be followed for material shifting and stacking.</li> </ol>	3	3	high	NS	Training & TBT with engaged team and Close supervision to be followed. Adequate housekeeping to be maintained	1	1	Med	
4	Block /cement/sand shifting by Material Hoist at work location.	Unsafe lifting appliances and Unauthorized operator	<b>Internal</b>	Physical injury/ property damage	<ol style="list-style-type: none"> <li>Material hoist must be inspected by competent person and certificates to be recorded (Form-11)</li> <li>SWL and details load chart must be displayed near equipment.</li> <li>Only authorize and license holder operator should be deploy for material hoist operation.</li> <li>Competency certificates &amp; medical examination must be done of operator and certificates to be display in cage/ near machine.</li> <li>Medical Fitness Must of material hoist operator.</li> </ol>	3	3	high	S	<ol style="list-style-type: none"> <li>Prior to use Physical verification to be done.</li> <li>Follow daily checklist for operator.</li> <li>Follow preventive maintenance schedule.</li> <li>Follow daily checklist for operator.</li> </ol>	1	1	Med	
		Non functioning of safety Device/ limit switches	<b>Internal</b>	Uncontrolled operation.	<ol style="list-style-type: none"> <li>Ensure all safety devices/ limit switch should be in working condition.</li> <li>Prior to start of activity operator to inspect &amp; check.</li> <li>Follow periodic inspection with help of checklist.</li> </ol>	3	2	Med	S		1	1	Low	
5	Use of power tools/ Hand tools	Unsafe electric installation	<b>Internal</b>	Electrical shock and over load.	<ol style="list-style-type: none"> <li>Electric installation must be IP-55 and having 30mA RCCB with proper earthing.</li> <li>Use of industrial fittings and standard electric cable.</li> <li>Route electric cable over head and use male female connector for joints.</li> </ol>	3	3	high	S	Permit to work system and strict supervision must be followed.	1	1	Med	
		Unsafe equipment	<b>Internal</b>	Physical injury	<ol style="list-style-type: none"> <li>Use double insulated power tools. Ensure all guards are in operation/functional.</li> <li>Use of standard /specific cutting blade and accessories.</li> <li>Follow periodic inspection and tag system.</li> <li>Ensure trained and authorized operator to use respective tools.</li> </ol>	3	3	high	S	Inspect tools during entry at gate.	1	1	Med	
6	Handling of cement/ Chemical	Contact with body parts like hand, skin and Eyes	<b>Internal</b>	Health effect	<ol style="list-style-type: none"> <li>Ensure close supervision.</li> <li>Follow MSDS and train /aware workers /handling team for the safe practices.</li> <li>Provision of mandatory PPEs like (Nose Mask, Goggles and rubber hand gloves).</li> </ol>	2	1	Med	S		1	1	Low	





7	Preparing the mortar	1. Contact with skin 2. Exposed to Eye 3. Inadequate illumination 4. Spillage	Internal	1. Irritation of Skin 2. Eye irritation 3. Fall of person 4. Soil contamination	1. Ensure secure access for movement 2. Wear rubber hand gloves, gumboot to avoid contact with Cement. 3. Wear safety goggles. 4. Provide adequate source of illumination. 5. Use of nose mask, Use of mortar tray to avoid spillage	3	3 high	1. Follow Plastering checklist 2. Check Lux level for ensuring adequate illumination. 3. Use job specific PPE, Adopt safe working procedure.	2	Low	
8	Remove the ms jali in front of the lift	Slip, trip & Fall down	Internal	Hit & Pinch injury	1. Before start and close of work housekeeping to be followed. 2. Access to be maintain clean & unobstructed 3. Use Double hook harness with proper anchoring. 4. TBT & job specific training to be conducted for engaged workers. 5. Show the signboard in workplace.	3	2 Med	PTW System, facility removal permit and close supervision to be followed.	1	Low	
9	Block work	1. Unguarded floor opening (lift shaft opening etc)	Internal	1. Falling from height	1. Hard Barrication with railing and mid railing should be provided 2. Safety harness to be worn while working at edge 3. Safety net should be provided while working at edge and near lift shaft area before start of work. 4. Before starting activity, work permit should be taken for removal of lift shaft gate or any other protection like barricading.	2	2 Med	Daily inspection by Safety Team Member and supervisor.	1	Low	
		2. Working at edge	Internal	2. Falling from height	1. CT props or rigid hook to be provided to anchor safety harness.	2	2 Med	1. Conduct regular job specific training	1	Low	
		1. Flying particles	Internal	1. Eye injury	1. Rotating parts should be guarded 2. Goggles and hand gloves should be provided	3	3 high	Daily and weekly inspection by safety team TBT before starting the activity	2	Low	
10	Cutting of block	2. Defective equipment	Internal	1. Electrical shock, injury to hand or eye	1. Experienced and trained worker is allowed for the job. Tested equipment for cutting 2. Electrical connection through ELCB 3. Eye and hand protection like goggles and hand gloves	2	3 high	Machine inspection Done By Safety Team Member and electrician Before Starting Work Activity.	2	Low	

