

Serial No.	Dept	Equipment	Location	Job description:			
	Ash Pond	Ash Pond	Ash Pond	Raising of embankment height for Tilia ash pond			
JSA performed by:	Signature	Reviewed & Approved by	Signature	Date of Issue	Date of revision		Revision No
		Akhila Satapathy		18.09.2021			

HAZARD TEXT / TYPE (For reference to identify the Hazard type)

PHYSICAL HAZARDS	PHYSICAL HAZARDS	PHYSICAL HAZARDS	ELECTRICAL HAZARDS	CHEMICAL/ GAS HAZARDS	EXCAVATION	OTHERS	
Noise	Fall from height	Force (Push/Pull)	Shock/ Electrocutation	Flammable/ Explosive substances	Collapse/Sliding	Fire	
Radiation	Fall (Slip/Trip)	Caught in/on or between	Static electricity	Inhalation of toxic fumes	Underground live cable damage	Heavy Wind/Rain	
Confined space	Fall down/below	Struck by/against	Arc flash/ blast	Ingestion/Absorption	ERGONOMICS	Dust exposure	
Exposure to pressurized Steam/Air	Fall of Objects from height	Extreme weather (Hot/Cold)	BIOLOGICAL HAZARDS	Body/Eye Contact	Poor Posture	Oil spill	
Contact with Hot surface	Contact with moving parts	Poor illumination	Snake/Insect bite/Virus infection	Spillage	Repetitive motion	Human factor	

PPEs to be used Safety Helmet, Safety Shoes, Safety goggle, Dust mask, Hand gloves, Ear Plug, Full body harness etc.

Tools required Phowrah, belcha, trowel, bucket, gainti, Excavator, HYVA, JCB, Dozer, Roller, Water Tanker, Concrete Mixer, etc

Important Note- While deciding hazard control measures, consider hierarchy of hazard control steps in order of preference.

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
1. Cleaning of wild grass from work site.	1.Sliping from the slope. 2.Injury due to slip of sickle.			1. A supervisor must be engaged to monitor the work properly. 2.The workers should move carefully while going down/up the slope of bank. 3.The workers must use dust mark, safety grass during dry weather to protect them shelves from ash blowing.	Wear safety helmet, shoes, safety goggle, dust mask	Yes
2. Mobilisation of construction materials like Earth, ash, chips, sand, by truck / tractor to ash pond	1.Road accident 2.Tilting of vehicle as the road is narrow at places. 3.Sliping in to ash pond and drowning .	1. Narrow dyke top road will be restricted for entry of vehicles.	1. Guard posts are provided along the road edges for safe movement of vehicles	1.The drivers should have valid dring license. 2.All the vehicles should have valid documents like Fitness certificate, Insurance, R.C.Book. 3.The vehicles should not be driven more than 5 KM/hr. 4.The driver should not drive the vehicle in alchoholic condition. 5.The driver must be accompanied with an assistant. 6.No people should be allowed to sit on trolley. 7.The breaking system should be perfect. 8.Tyre in good condition. 9.The trolley rod should be in good condition. 10.While parking the vehicle for loading & Unloading, stopper should be provided on both front and rear wheel. 11.Only work during day time.		Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
3. Excavation of ash from ash pond	Slip of excavator / vehicle inside the excavated pit due to collapse of ash	N.A	<ol style="list-style-type: none"> Haul road to be made inside ash pond for proper approach of excavator and vehicle Rigidity of the area near the excavator to be ensured 	<ol style="list-style-type: none"> Vehicles must be kept away from the excavated pit and collapsible ash. Excavator must be kept away from loosely filled ash / collapsible ash / water logged area inside ash pond 		Yes
4. Loading of ash in ash pond	Hitting with the Vehicles/ persons during loading.	N.A	<ol style="list-style-type: none"> Rigidity of area soil near excavator to be ensured. Vehicles will be fixed with back gear alarms. 	<ol style="list-style-type: none"> No person will be allowed to stay within the swing area of boom of excavator. Supervisor at loading to be kept himself away from the swing area of the excavator; and must keep himself away from the approaching vehicle 	Wear safety helmet, shoes, safety goggle, dust mask	Yes
5. Excavation of earth from borrow area	Slip of excavator / vehicle inside the excavated pit due to collapse of slope of excavated pit	N.A	<ol style="list-style-type: none"> Rigidity of area soil near excavator to be ensured 	<ol style="list-style-type: none"> Vehicles must be kept away from the excavated pit and collapsible slope. Excavator must be kept away from collapsible earth/slope. 		Yes
6. Loading of earth	Hitting with the Vehicles/ persons during loading.	N.A	<ol style="list-style-type: none"> Rigidity of area soil near excavator to be ensured. Vehicles will be fixed with back gear alarms. 	<ol style="list-style-type: none"> No person will be allowed to stay within the swing area of boom of excavator. Supervisor at loading to be kept himself away from the swing area of the excavator; and must keep himself away from the approaching vehicle 	Wear safety helmet, shoes, safety goggle, dust mask	Yes
7. Transportation of ash from ash pond to filling area and earth from borrow area to ash pond site.	Blowing of dust, Inhalation of dust Air Pollution due to fugitive emission	N.A	<ol style="list-style-type: none"> Sprinkling of water 	Before vehicle movement water sprinkling to be ensured	Dust mask to be used by the work men	Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
8. Transportation of ash from ash pond to filling area and earth from borrow area to ash pond site.	Tilting of vehicle as the road is narrow at places.	1. Extreme narrow dykes of ash pond are restricted for movement of heavy vehicles	1. Guard posts are provided along both the edges of ash pond A	1. Speed of the vehicle to be limited to 10 KMPH at the embankment top 2. Vehicle to be ply on the middle of the embankment, and in circumstances it should move to the edge of the dyke.	Vehicle seat belt to be ensured	Yes
9. Transportation of ash from ash pond to filling area and earth from borrow area to ash pond site.	Road accident, Vehicle run over	N.A	1. The vehicle should be in good condition with proper Braking condition, Tyre condition, gear, horn, back horn, back light 2. Periodic maintenance of vehicles to be ensured	1. All vehicles will have valid documents like RC Book, insurance, fitness certificate 2. Driver must have valid driving license. 3. The driver must not drive in alcoholic condition. 4. The driver must have good vision 5. While parking the vehicle for loading and un loading stoppers should be provided on both front and rear wheel. 6. Flag men will be deployed at the junction point of road for traffic control		Yes
10. Transportation of ash from ash pond to filling area and earth from borrow area to ash pond site.	Blockage of road	N.A		1. The vehicle should not be parked on the road		Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
11. Unloading of ash/earth in embankment construction	1. Slip of vehicle 2. Drowning of person in ash pond	N.A	Bund will be provided near the edge of the dumping location of the embankment. 2. No vehicle will be allowed to cross the bund 3. Back horn, back light and proper brake to be ensured.	1. Supervisor will be provided in the site for adequate supervision 2. The supervisor must keep himself away from the approaching vehicle. 3. No person will be allowed inside the equipment movement area 4. Long rope with lifebuoy will be kept ready at site for emergency.		Yes
12. Spreading of ash/earth	Hitting of dozer	N.A	1. Back horn and back light of dozer must be ensured	1. No person will be allowed in the direction of movement of dozer.		Yes
13. Rolling of earth / ash for compaction	Hitting of roller	N.A	1. Back horn and back light of roller must be ensured	1. No person will be allowed in the direction of movement of roller.		Yes
14. Reversing the truck / tractor / vehicles on the narrow dyke, and Unloading of material at site	1.Road accident 2.Tilting of vehicle as the road is narrow at places.			1. Supervisor to be deployed at site alongwith flgman for controlling the vehicle movement 2. Nobody should be allowed in the direction of movement of vehicles		Yes
15. Stacking and spreading of materials on the bund of Ash pond embankment & road.	Injury due to slip of spades,crowbar.			1.The person should be careful while stacking materials on the bund. 2.Person should stacked the materials properly so as not to cause any inconvinience to other people working in the area. 3.Person should spread the earth properly & carefully.		Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
16. Concreting,brick/ rubble masonry.	1.Falling from height while working. 2.Dust ingress in Nose & Eye during cleaning of surface. 3.Falling of materials on ground while working and create environmental hazard.		1.Scaffolding to be made properly as per requirement. 2.The ground will be cleaned immediately.			Yes
17) Excavation of earth using Excavator / JCB and manually, excavaton for sand chimney / sand blanket / pipe removal	1) Contact with live cable/equipment may cause shock/electrocution	na	The existing live cables and water pipe lines to be rerouted as needed.	Excavation clearance may please be taken before starting of excavation.	Use electric shock proof hand gloves,safety shoe safety glass,safety helmet.	Yes
18) Excavation of earth using Excavator / JCB and manually, excavaton for sand chimney / sand blanket / pipe removal	2) Fall (Slip/Trip)	na	Working site shall be cleaned properly. Hard Barricading of the excavted pit to prevnet any fall.	na	na	Yes
19) Excavation of earth using Excavator / JCB and manually, excavaton for sand chimney / sand blanket / pipe removal	3) Struck by/against	na	Experienced operator shall be deployed for dressing/excavtion.	Workers shall be instructed to work carefully.License holder & Experienced operator to be deployed for excavation. Signal (Flag) man to be deployed with provision of flags for signalling. Barricad the swing area.	Use safety helmet, shoe, hand gloves and goggles.	Yes
20) Excavation of earth using Excavator / JCB and manually, excavaton for sand chimney / sand blanket / pipe removal	4) Fall (Down/Below) after excavation	na	5) Barricade the excavted area after excavation	Barricade the excavted area with hard barication.	na	Yes
	1) Body/Hand injury	na	Work carefully.	Take rest in between. Avoid bad posture.	na	Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
21) Sand filling, back filling, hammering,PCC and other cement conncrete works.	2) Contact with cement dust/Irritation on hand/leg	na	na	na	Safety goggles, dust mask and hand gloves to be used. RUBBER-WET CEMENT & COTTON-DRY CEMENT	Yes
	3) Struck by against.	na	Work carefully.	Deploy trained workmen	na	Yes
22) Working with mixture machine.	1) Contact with moving equipments.	na	Gaurding of the rotating shaft of mixture machine. Loose clothes should not be wear near by.	Keep distance from the movable/swing area of the machine. Used only experience worker . Barrcade the working area of mixture machine.	na	Yes
23) Cutting bending and placing of TMT reinforcement & Shuttering works	1) Body/Hand injury	na	Gaurding of the cutting machine.	Deploy trained workmen	Use safety helmet, shoe, hand gloves.	Yes
	2) Cutting of hand					Yes
	3) Contact with fire sparks	na	na	na	Face shield attachd with safety helmet shall be used and apron shall also be used required.	Yes
	4) Power supply with authorized sources	na	Used RCCB distrution board with privision of earthing and weather protecion.	na		
	5) Exposure to dust	na	na	na	Use safety googles and nose mask.	Yes

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
	6) Irritation on hand/legs	na	na	na	Use rubber hand gloves and gum boot.	Yes
Lifting and Shifting of material / pipe by Hydra	Fall of object (Material)		Before engaging the hydra physical inspection to be done. Use certified lifting tools(Sling,Chain Block, D Shackels,). Don't lift load above of rated capacity. . Barricade the lifting/working area to prohibited the movement of people.	Do not work or move under any hanging load. Maintain proper distance from moving hydra. Use of hydra should be under experienced supervision. Deploy experienced rigger. Proper signalling to be use whenever any material will lift		
	Struck by/against the hydra/ material		Deploy traffic controller (Signal man) to control the movement of people.	Barricade the lifting/working area to prohibit the movement of people. Ensure the working personel should maintain proper distance from moving hydra.		
	Contact with live cable/wiring/elect. Board.		Electric supply if any shall be made off.			
Erection of structural materials / MS Pipe	Body/hand/leg/other body part injury		Deploy trained workmen		Use handgloves along with helmet, shoe, glass, earplug & dustmask.	
	Fall (Slip/Trip)		Clean the site properly;		use full body harness and anchor properly.	
	Fall from height.		Deploy trained scaffolders for erection & dismantling of the scaffolding.			

SEQUENCE OF BASIC STEPS	SAFETY, HEALTH & ENVIROMENT HAZARDS	SAFE JOB STEPS / HAZARD CONTROL MEASURES				Are control Measures adequate to mitigate the risk (Yes/No)
		Elimination/ Substitution	Engineering	Administrative	PPE	
	Fall of objects from height.		The scaffolding area shall be barricaded.			
	Exposure to Dust	Use dust mask & safety glass				
Review the job while execution	1. Identify while working	1. Take appropriate action.				
Emergency Safety Measures (Rescue/Fire Brigade etc.): Contact MCR or inform to emergency contact no.		Emergency Contacts-Main Control Room- 222, 233,244, Fire- 777, 222257, Ambulance- 248/337, Hospital-666				
Overall Job Risk Category- (High/Medium/Low) :	High					
JSA Review during PJB:						
Pre Job Briefing (PJB) is applicable to all persons involved with the task.						
Pre Job Briefing (PJB) Acknowledgement: I undertake that the JSA is communicated to me effectively						
Name	Agency's name	Signature				