Environmental and Social Due Diligence Report

Project Number: 47083-004
November 2020

INDIA: Accelerating Infrastructure Investment Facility in India – Tranche 3

DBL Mangalwedha Solapur Highways Private Ltd. (Part 3 of 4)

Prepared by India Infrastructure Finance Company Limited for the India Infrastructure Finance Company Limited and the Asian Development Bank.

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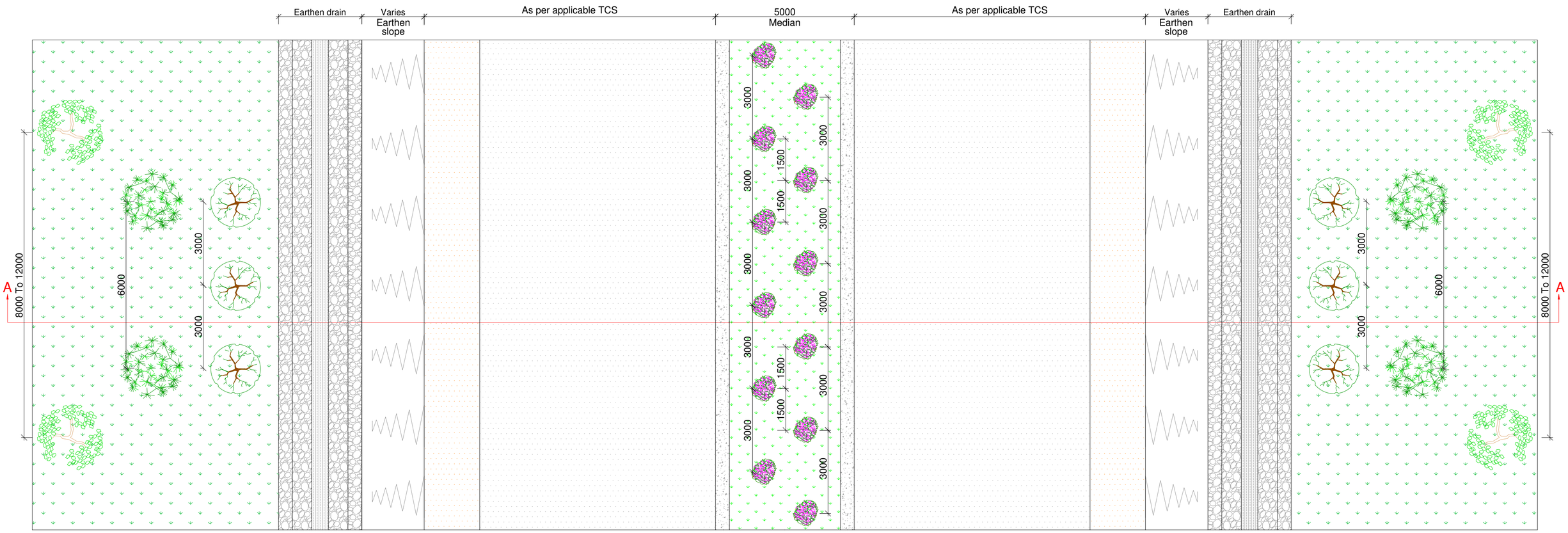
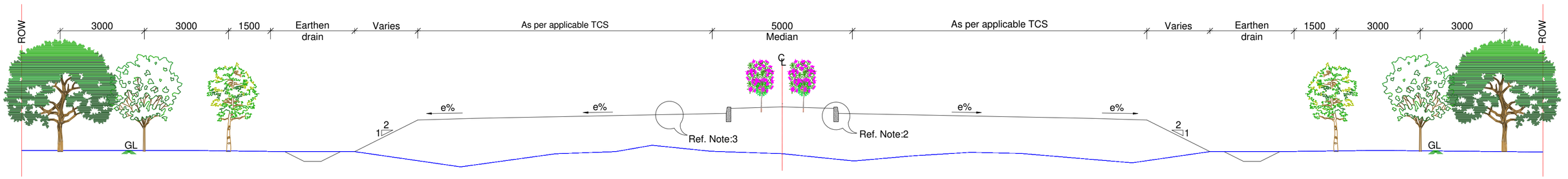


PLAN OF MEDIAN & AVENUE PLANTATION



MEDIAN & AVENUE PLANTATION SECTION A-A

A -Specifications for median Plantations :-
(IRC: SP:21-2009 , Cl.11.19)

1. The species to be planted in median should be of low or medium height with ornamental value to enhance the visual experience of the road corridor.It will also act as a screen to prevent glare from the incoming vehicles.
2. One row of shrubs is recommended on medians of upto 3m width.Two rows of shrubs should be planted on 4.5 to 5m wide median, at a spacing of 1.5m from the inner edge of the median.
3. The size of the pits for planting should be 60x60x60 cm . Total no. of plant per km will be 333 in case where single row is proposed, and 666 in case of two rows.
4. The species recommended for median are mainly Bougainvillea. Bougainvillea is considered as the most suitable species as it has a great aesthetic value and it is found in various colors and shades.
5. The surface should have sufficient layer of good quality soil so as to have a better growth and survival of grasses and shrubs.
6. The height of the plants will not be less than 0.6m and need to be in polythene bags until the planting.
7. All plants supplied must be planted within three days of removal from the nursery.
8. The plantation should be watered in case of insufficient rains after planting.

B -No Plantations Zone :-
(IRC:SP:21-2009 Cl. 11.26.1)

1. Within 1.5m from the toe of the carriageway.
2. At median cut and grade separator,at least 5m blank space shall be left for clear view of the traffic.
3. At curve,dense and tall height tree reduce visibility in plain terrain, a stopping sight distance of corresponding to the design speed should be ensured on all curved sections,on the innermost lane of the curve.
4. Screen plantation as a visual barrier in schools,hospitals,residential colonies,etc.

C -Specifications for Avenue Plantations :-
(IRC:SP:21-2009 Cl. 11.14.1)

1. Distance from embankment shall be 1.5m away from the embankment toe
2. Size of the pits 60x60x60 cm
3. Height of the saplings at the time of planting shall be 1.5m to 2m
4. Survival percentage of plantation 90% at any time
5. Minimum number of 11083 plants shall be planted.

Notes:
1. All the dimension are in millimeters unless otherwise specified.
2. Ref. drawing no. 18129/RD/PS/MI/09 for kerb details.
3. For pavement details refer applicable pavement design report.

REV NO.	DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED & APPROVED
R0	10.05.19	FOR REVIEW	GS	RKA	PS

CLIENT:
NATIONAL HIGHWAYS AUTHORITY OF INDIA
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)

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in JV with
INFINITE CIVIL SOLUTIONS PVT LTD.
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PROJECT :
FOUR LANING OF MANGALWEDHA-SOLAPUR SECTION OF NH-166 FROM 321.600 TO KM 378.100 UNDER NH (O) ON HYBRID ANNUITY MODE IN THE STATE OF MAHARASTRA (PACKAGE-IV OF SANGLI-SOLAPUR SECTION)

TITLE:
GENERAL ARRANGEMENT DRAWINGS FOR MEDIAN & AVENUE PLANTATION

DRG. NO. 18129/RD/PS/ MI/11
DATE : MAY 2019
REVISION: R0
SCALE : NTS
SHEET: 01 OF 01

DESIGNED	DRAWN	CHECKED & APPROVED
GS	MCP	PS

ENVIRONMENT HEALTH & SAFETY MANUAL

DILIP BUILDCON LIMITED
INFRASTRUCTURE & BEYOND

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Website: Welcome to Dilip Buildcon Ltd.

PREPARED BY : Yogesh Kumar Pal
DESIGNATION : EHS HEAD

SIGNATURE : _____

DATE : _____

APPROVED BY:
Managing Director & CEO

SIGNATURE: _____

DATE: _____

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FOREWORD

Dilip Buildcon *is a leading infrastructure development group in India which specializes in roads, highways, flyovers, mines, marine, off-shore, hotels and residential complexes.*

The ***Dilip Buildcon*** *proudly confirms the desire, intention and commitment towards Sustainable Development. It considers the Environment, Health and Safety as an integral part of our strategic development model. We are committed towards the welfare of the environment, ensuring highest level of safety to our workers at site, and emphasizing on a continual improvement of the same. We are sensitive towards the environmental impact associated with our infrastructure business. All our projects have always given utmost importance to environmental impacts associated with our operations, and have taken mitigating measures for the same. It has also ensured complete health care facilities to our workers at site, and adopted the highest level of safety management practices.*

Keeping all this in mind, this ***"EHS Manual"*** *has been framed which clearly spells our Vision, Objectives, Plan of Action, taking necessary mitigatory measures against major non-conformance in EHS, and last but not the least, aiming at continual improvement*

Date:

Managing Director & CEO

1.0 Purpose

To define the responsibility of the company for Environment Health and Safety.

2.0 Scope

This Policy applies to all Employees, Visitors, Venders, Customers and Contractors etc. in the **Dilip Buildcon** Environment.

3.0 DBL Vision & Mission

Vision

''To deliver our clients the best solutions and broaden the activity base by diversifying into other infrastructure disciplines to sustain a healthy growth rate''

Mission

"To achieve the objective of a fair and courteous environment for our clients, employees, vendors as well as society''

4.0 EHS Policy

Dilip Buildcon Limited is aware of the importance of Environment, Health, and Safety and shall strive for its continual improvement in their regular business activities. This would be integrated with Planning, Design, Purchase, Construction, Installation & Commissioning of facilities, Services and also during Selection and Placement of Personnel.

The Management is fully committed to:

- Comply with all applicable legal and other requirements connected with Occupational Health, Safety and Environment matters, including customer specific requirements.
- Ensure compliances with Environment, Health and Safety (EHS) in all case and its applicability regulations to protect the environment by using the energy and other resources as available for minimizing the impact on the environment.

- Create awareness of Occupational Health, Safety and Environment by team work, training and meaningful communication of the EHS policy to employees, persons working on behalf of the organization and relevant interested parties.

- Achieve customer satisfaction through planned objectives & targets and continual improvement in EHS performance.

5.0 EHS Objective

i. Establish and maintain an EHS management system that facilitates a structured approach to the management of EHS risk.

ii. Provide adequate human, financial and time resources to ensure the effectiveness and sustainability of the system.

iii. Keep up-to-date with relevant health and safety legislative obligations. Achieve and maintain compliance with these obligations.

iv. Promote a safety culture that encourages people to proactively manage Environment health and safety risk through education, instruction, information and supervision.

v. Clearly define and communicate Employees, Visitors, Vendors, Customers and Contractors responsibilities in relation to Environment health and safety.

vi. Proactively identify and manage health and safety risk via a documented hazard identification, risk assessment, risk control and monitoring process.

vii. Improve processes that ensure that incidents and hazards are promptly reported, investigated where appropriate, and control measures are put in place to eliminate or minimize the chance of a repeat event.

viii. Routinely monitor and review EHS performance to achieve continual improvement.

6.0 EHS Organization

The Project Manager is entrusted with the responsibility of implementing the EHS Standards at their Project Site. He would be assisted by the entire project team to

ensure that the EHS practices are properly implemented at site. The Project Manager will review the EHS status with contractors at least on monthly basis and record the proceedings.

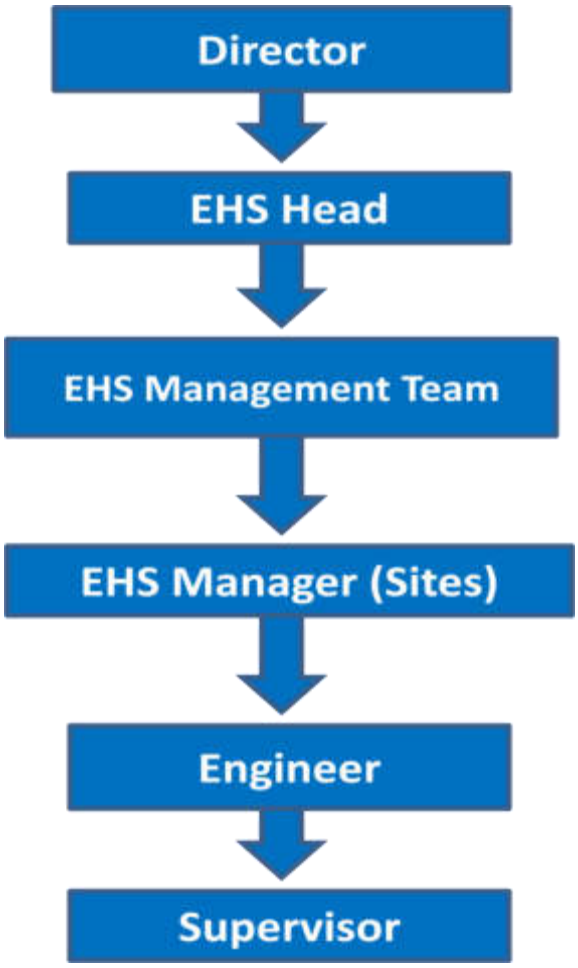
The responsibility of the Safety Manager/ Engineer/ Officer implementing the EHS Standard at site would be:

- Developing a "Safe Work Culture"
- Induction Training to New Joiners
- Organize meetings / trainings / awareness spreading
- Ensure effective EHS Inspection, rules, procedure, and discipline and implement
  Permit System.
- Create continuous awareness through motivational talk, Safety meetings, safety slogans, and signs.
- Ensure effective housekeeping
- Maintain EHS records for all statutory compliance.

This would be reviewed and revised by Project Manager on monthly basis or earlier as per requirement.

Organization Structure for EHS

Organization Structure for EHS



7.0 General Safety Rules

- Each employee is to follow safety rules.
- Every employee should consider it as a part of his duty to work safely jobs
- Should insist on the observance of safe practice by fellow workers.
- Any situation likely to affect the safety of an employee must be promptly reported to the concerned HOD or safety department.
- All employees must obey safety rules at all times
- Using improper tools/device is unsafe
- Please do not use defective equipment or tools, it may be hazardous. Please do not sit on railings/ edge.
- Smoking inside the plant area is strictly prohibited.
- Match box & cigarette should to be deposited at the security Avoid running inside the plant except in case of an emergency. Do not throw anything from any height
- Mark/barricade the area if working at height.
- If any fire extinguisher is used, mention it in the log book & inform safety department
- Do not dislocate any fire extinguisher
- Keep all exits free of obstruction for emergency escape. Do not use any chemical or solvent for body cleaning
- Do not carry out any repairs; adjustments, cleaning or lubrication while the machinery is in motion.
- Compressed air or instrument air must not be used for cleaning or blowing dust out of clothing.
- Be aware of your duties in case of any emergency.
- Report any defect or abnormality in any equipment.
- Report any deviation in the normal process operation.
- Do not bypass in-built safety interlocks without proper authorization.
- Do not work without PPE's at site.

8.0 Rule, Procedure & Discipline

The EHS shall try to address the EHS rules, procedure, and discipline to be set at Site apart from General Safety rules.

- Permit to Work System
- Barricading / warning signs / Working at heights / Fall protection

- Mandatory use of Personal Protective Gears like Helmet, Safety shoes, welding goggles, hand gloves as required.
- Access Control/entry to authorized personnel only.
- Prohibition of use of Electronic equipments.
- Ensuring strict "no smoking" at site
- Environment management / Hygienic condition requirements at work place / House Keeping / Waste Management & Disposal
- Machinery & Hand tools safety
- Plant Equipment / vehicles operations and safety requirements
- Energy distribution, installation & Electrical safety
- Fire prevention and fire protection.

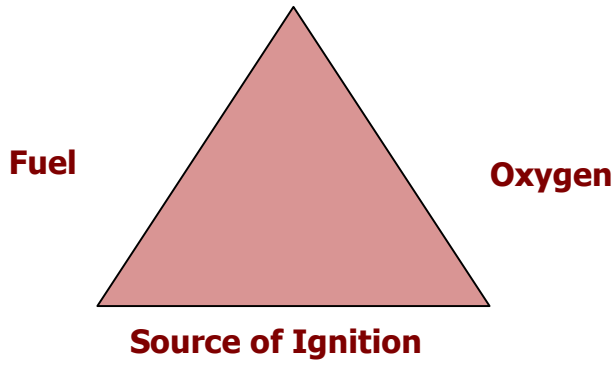
9.0 Fire Manual

9.1 Fire:

Fire is a chemical reaction in which a combustible material combines with oxygen in the atmosphere to give out heat and flame.

There are three components which are necessary to cause a fire.
Fuel (Combustible material)
Oxygen (Combustion support)
Ignition source or heat (Combustion initiator)

If any one of these is absent, fire cannot take place. It can be represented by a triangle known as triangle of combustion.



Although the fire triangle simply illustrates the basic elements necessary for the fire, It leaves one important phenomenon is chain reaction which causes evolution of flames. Consequently the fire chemistry is a square instead of triangle.
For the extinguishing the fire it is necessary to attack on the cause of fire these are –

Starvation: Efforts directed at Removal of fuel. It can be achieved by removing burning material away from a fire as by draining the burning oil tank, transfer of product, by isolation fire from combustible material, by sub-dividing in the smaller fire the problem become easy to tackle.

Smothering: Depriving the fire of oxygen by dilution or by introducing other inert media. It can be done by reducing the oxygen content of atmosphere it can be done by stopping ventilation. Blanketing: Cutting of fuel vapors mixing with oxygen by applying external media. It can be done by applying a layer of foam.

Cooling: Reducing the temperature. Effecting cooling can be done with water.
Termination: Breaking the chain reaction.

Classification of Fire: Not all fires are the same, and they are classified according to the type of fuel that is burning. If you use the wrong type of fire extinguisher on the wrong class of fire, you can, in fact, make matters worse. It is therefore very important to understand the different fire classifications.

Class A - Fire in combustible material as wood, textiles, paper, and rubber
Class B - Fire in flammable liquids like oils, petroleum products, solvent, grease, paints etc.
Class C - Fire arising from gaseous substances.
Class D - Fire involve in active metals as Na, K, Li etc
Class E - Electric Fire-Fire involves in electrical equipment and delicate machinery

9.2 Type of Fire Extinguisher:

9.2.1 Water Type

This extinguisher has an outer container filled with water A gas cartridge is filled with Carbon di oxide under pressure. When the gas cartridge is pierced open, CO2 under pressure released in to the body of extinguisher driving water out through a discharge tube or nozzle. Water is an extinguishing agent which released in the form of a jet by means of a gas pressure from the upper part of the extinguisher. This extinguisher is mainly suitable for A type of fire. Water when applied on burning material is converted to steam which reduce the percentage of available oxygen. Never use this extinguisher on electrical equipment without de-emerging them.

Operating Procedure:

- Carry the extinguisher near the fire.
- Keep the extinguisher upright.
- Remove the safety clip.
- Pierce the gas cartridge by applying pressure on the plunger.
- The water comes through the nozzle in the form of jet.
- Apply the jet of water on the base of fire.

9.2.2 CO2 Type

This type of extinguisher is usually consists of a cylinder in which a liquid carbon di oxide is filled mechanically. For discharge the same suitable arrangement is made with discharge horn. When valve is operated, gas is released and projected on the fire. As the CO2 gas is heavier then the air it stabilizes on the burning material and form a sort of blanket and smothers the fire. Carbon di oxide

is a non conductor of electricity. It can be used for all class of fire except metal fire.

Operating Procedure:

- Carry the extinguisher near the place of fire.
- Keep the extinguisher upward.
- Remove the safety pin.
- Open the valve through operating wheal.
- Carbon di oxide is delivered through the horn.
- Direct the jet on the base of fire with sweeping action across the surface of burning material.

9.2.3 Foam Type

This extinguisher is suitable for the B class of fire. The expelled by actuating the extinguisher from a blanket over the surface of the combustible liquid on the fire and prevent the contact of burning liquid with air. As per construction the foam type of extinguisher are of two types:

A) Mechanical Foam Type
B) Chemical Foam Type

A) Mechanical Foam Type

The main body is made of mild steel fitted with cap and discharge hose terminating with foam making branch pipe. The gas cartridge containing stored pressure CO2 gas is fitted to the cap. In the outer container water is stored and concentrated foam AFFF (Aqueous Film Forming Foam) is poured to the water.

Operating Procedure:

- Carry the extinguisher near the fire.
- Remove the safety clip.
- Extinguisher is operated upright.
- Strike the knob to puncher cartridge.
- The cylinder will be pressurized with the carbon-di-oxide gas.
- The foam concentration solution is thrown out through the discharge hose, where it will mix with air and foam is generated.

- Keep the foam on the upper surface of the fire blanketing it.

B) Chemical Foam Type

There are two containers. The outer containers contain the solution of sodium bicarbonate and the inner container filled with solution of aluminium sulphate. Inner container is covered with a disk operating with the removing the lock of the cap. When disc is removed both the solution mixed with each other and as a result of chemical reaction carbon- di- oxide gas and foam is generated which is ejected from the nozzle through pressure. Jet can through the foam aprox.6 meters.

Operating Procedure:

- Carry the extinguisher near the fire.
- Shake the extinguisher by moving it upright and down ward to make both solution homogenous.
- Remove the lock of the cap assembly by pressing the cap.
- Turn the extinguisher down ward.
- Extinguisher is operated down word.
- Foam is released in the form of a jet from the nozzle of the extinguisher.
- Keep the foam on the upper surface of fire to blanket it.

9.2.4 Dry Chemical Powder (DCP) Type:

This is usually a plunger operated type extinguisher. The extinguisher is filled with dry chemical powder. This powder is a trade secret, still it can be said that 97 % of it is sodium bicarbonate. A gas cartridge filled with liquefied carbon di oxide is fitted on the cap of extinguisher. When piercing the extinguisher the gas of cartridge carrying the dry powder release from the hose pipe through nozzle. When dry powder applied to fire it undergo chemical reaction the free radicals which are responsible for sustaining any fire are put out of action by the dry chemical powder and because of this fire dies very fast. This extinguisher can be used in all type of fire especially of metal fire.

Operating Procedure:

- Carry the extinguisher to the place of fire, Keep it upright.
- Remove the safety clip.
- Strike the knob located on the cap to activate the piercing mechanism.

- Hold the delivery hose with one hand.
- Direct the stream of escaping powder at the base of flame by sweeping action.
- For effective results stand 5 to 8 feet away from the fire.

9.3 Schedule for hydraulic pressure testing of fire extinguisher:

Every extinguisher shell be hydraulic pressure tested as per the schedule (IS 2190). There shell is no any leakage or visible distortion. The extinguisher which fails in these requirements shall be replaced.

9.4 Reporting System of Using the fire extinguisher:

Different types of fire Extinguishers are kept on the different location of plant are as per possibilities of different type of fire. As all of us are aware that fire is very harmful for us. For fire fighting using correct fire extinguisher is the one part of fire fighting. Then proper information of using the fire extinguisher is also important. For communicating the use of fire extinguisher following system is to be use for the control of fire extinguisher availability.

- In case of fire use only correct type of extinguisher.
- Wrong extinguisher will never give you good results.
- After using any extinguisher note down in your departmental log book with giving full details as
  - Why the extinguisher is used?
  - How many extinguishers are used?
  - Which Extinguisher is used?
  - Name of person used the extinguisher?
  - What was the result of extinguisher?
- Inform to safety department & security gate immediately about the use of fire extinguisher.
- During night shift information can be given to security gate only.
- Security supervisor will document all the information about the extinguisher in his log
- Deputy officer (Safety) collect all the information from security department and log book of user department & check all the used extinguisher.
- If used extinguisher is empty Deputy officer (Safety) will arrange for filling the extinguisher.

- When extinguisher is sent for filling place a tag "SENT FOR FILLING" in the place of extinguisher.
- After filling the extinguisher replace the tag with the filled extinguisher.

9.5 General Instruction For Fire Prevention and Protection:

We can understand that fire is how much hazardous for us. For the prevention of fire in our work place following precaution can be taken:

- Smoking in working area is strictly prohibited.
- Carrying of match-box, lighters etc in work place are also forbidden.
- Never pour any of the flammable liquid in drainage.
- Dispose off all flammable objects quickly and efficiently. These includes disposal of used oil, TEG, flammable scraps, waste paper etc.
- Change your cloths without delay if they become soaked with oil or other flammable materials.
- Familiarize yourself with the location and use of fire extinguisher in your workplace. Prompt action is essential for effective fire fighting.
- The fire extinguisher should be located in accessible area. The pilling of material in front of fire extinguisher is not permitted.
- Know the nearest EXIT and Escape route from your working area.
- Fire fighting equipment should be used for any other purpose then the fire prevention and fire control purposes. After using any of this equipment the user should report immediately.
- The used fire extinguishers should immediately be sent for refilling or replaced by filled one.
- Good housekeeping play an important role in fire prevention. Keep your area clean and free of waste papers, used oily cloths, oils, flammable chemicals etc.
- In case of any fire, person who is not engaged in fire fighting operation, should leave that area immediately. Crowding this area is prohibited.

9.6 Checking of fire extinguisher:

For effective results regular checking of all the fire extinguisher is also required. It is not easy to check the entire extinguisher at a time. So it is the checklist and schedule for different extinguisher-

Monthly Checklist For Fire Extinguisher (IS 2190)	
	Checks
CO2 Type IS – 2878	
	Examine the extinguisher body externally for corrosion and damaged. Corroded extinguisher should also be replaced.
	Weigh the extinguisher, it should be sent for refilling if the loss is more than 10 %. of the mass.
	Clean and polish the extinguisher externally.
	Examine the hose, Horn and assembly and clean the extinguisher
Water Type IS – 940	
	Open the extinguisher, see the water Laval, Throw away the charged water
	Examine the extinguisher body internally and externally for corrosion and damaged. Corroded gas cartridge should also be replaced.
	Examine the gas cartridge for mass if there is loss of more than 10 % of original mass, the cartridge should be sent for recharging after being replaced by charged one.
	Examine nozzle, Strainer, vent hole, internal discharge tube, sealing washer replace or clean them if not in good condition.
	Check the operating mechanism for free movement and piercing mechanism is working properly.
	Refill the extinguisher with clean water
Mechanical Foam Type IS 10204 :-	
	Open the extinguisher, Check the liquid Level. Observe there is no any sedimentation at the bottom of containers.
	Examine the extinguisher internally & Externally for any corrosion or damaged. Damaged extinguisher should be replaced, Corroded gas cartridge should also be replaced
	Examine the gas cartridge for mass if there is loss of more than 10 % of original mass replace it by charged one.
	Examine the foam generating nozzle, strainer, vent holes, internal discharge tube ceiling washer etc. replace or clean them thoroughly
	Check the operating mechanism for free movement and piercing mechanism is working properly.
	Clean the hose assembly and check it for any dust.
DCP Type IS - 2171	

	Open the extinguisher and remove the gas cartridge and see the sealing disc is intact. Check the weight of it if there is loss more than 10 % mass it should be replaced with new one.
	Check the Laval of powder in the extinguisher.
	Examine the nozzle, Hose, vent holes, piercing mechanism of cap.
	Check the body of extinguisher internally and externally there is no any corrosion or damage.
	Check the powder of the extinguisher that there is no any sedimentation of it. Powder should be dry.

10.0 Traffic Management

EHS will comply with the following Traffic Managements requirements.

- Drivers to have proper license
- Restriction on speed Limit, compulsory wearing of seat belts.
- Load testing / certification by competent person for material handling equipments.
- Providing warning signs and signals at appropriate places.
- Providing regular training to drivers / operators
- Ensuring proper tyre pressure, head light condition and vehicle in good condition.

10.1 Main Hazards:

- The movement of plant and traffic.
- Falls of materials
- Falls of persons
- Underground cables
- Overhead cables
- Excavations
- Carnage
- Manual handling
- Dust/fume
- Site clearance

The guidelines for traffic management during road construction/repairs are as below.
There are broadly two types of diversions:

- New Diversion road
- Portion of existing road

A safety zone has to be provided between live traffic lanes and the working area (this includes equipment, plant, tools, excavated materials, etc.)

- Adequate barriers are provided to protect the workforce, portable vertical barriers should be considered for this.
- Access / egress locations for site transport are kept to a minimum.
- The site Management shall ensure that Construction Zone comprises of four Sub Zones as described as per IRC: SP: 55 -2014 hereunder:
  - Advance Warning Sub-Zone
  - Transition Sub-Zone
  - Work Sub-Zone
  - Termination Sub-Zone

10.2 Traffic Safety And Control

- The barricades erected on either side of the carriageway/portion of the carriageway closed to traffic, shall be of strong design to resist violation, and painted with alternate black and white stripes. Red lanterns or warning lights of similar type shall be mounted on the barricades at night and kept lit throughout from sunset to sunrise.
- At the points where traffic is to deviate from its normal path (whether on temporary diversion or part width of the carriageway) the channel for traffic shall be clearly marked with the aid of pavement markings, painted drums or a similar device to the directions of the Engineer. At night, the passage shall be delineated with lanterns or other suitable light source.
- One-way traffic operation shall be established whenever the traffic is to be passed over part of the carriageway inadequate for two-lane traffic. This shall be done with the help of temporary traffic signals or flagmen kept positioned on opposite sides during all hours. For regulation of traffic, the flagmen shall be equipped with red and green flags and lanterns/ lights.
- On both sides, suitable regulatory/warning signs as approved by the Engineer shall be installed for the guidance of road users. On each approach, at least two signs shall be put up, one close to the point where

transition of carriageway begins and the other 120 m away. The signs shall be of approved design and of reflective type, as directed by the Engineer.

11.0 Temporary Barricading

A barricade is a physical obstruction such as colored plastic tape, pedestal-type stands, traffic cones, etc. intended to warn personnel or limit access to hazardous areas, or both .A warning barricade calls attention to the hazard, but offers no physical protection. A rigid barricade serves the purpose of a warning barricade and also provides physical protection.

11.1 Responsibilities

Barricades warranted by operations, maintenance or construction work shall be set up and removed by the work group. When contractor is performing work, the employee supervising the work shall ensure that the contractor follows the procedure. Where barricades are required for other reasons, the area owner shall install, maintain and remove the barricades.
Personnel working inside a barricade shall ensure that it is properly maintained as a continuous perimeter or work enclosure.

Types of barricades.

Warning barricades.
Protective barricades.
Vehicle traffic control barricades.

11.2 Some Examples of proper uses of warning barricades are:

Preventing entry or access to a location having a hidden hazard eg. a slippery floor, an overhead leak, or overhead work.
Restricting traffic through an area where construction or maintenance work is in progress
Heavy equipment - preventing access to areas within the swing radius of the rear of the rotating super-structure of cranes, backhoes, aerial work platform etc.

11.3 Some Examples of proper uses of protective barricades are:

Physically preventing personnel from falling into a pit or through a hole in the

floor. Protection from falling off a building or through an opening in the wall.

11.4 Procedure

Barricades are to be installed whenever conditions within the physical area involved are abnormal and a hazard exists, so that for safety reasons it is necessary to forewarn people and restrict or prohibit access.

- A barricade shall be installed as soon as a hazard is discovered, or before maintenance/construction work begins. It shall be removed as soon as the hazard no longer exists.
- Caution tags and warning signs should be used in conjunction with barricades in cases where the hazard is not obviously noticeable.
- A barricade must completely enclose all sides of the hazardous area so that personnel will be warned when approaching it from any access route.
- Entry and exit of a barricaded area must be made via the designated entry/exit point, which will be provided. Personnel must not step over or duck under barricades.

All barricades must be readily visible during both day and night. At night, where building or other lights are not sufficient, electric flashing amber lanterns should be placed appropriately to call attention to the barricade.

12.0 Work Permit System

Serious accidents, often resulting in fatalities have occurred and continue to occur repeatedly while performing certain type of jobs under certain conditions. Therefore to prevent the repetitive accident occurrence, some positive means of safe-guard and controlling measures are necessary.
The work permit system proved to be one of the most satisfactory methods of ensuring positive controls over hazardous operations.

"Work permit is an essential document that categorically spells out the task, equipment involved, its location, personnel involved, time limitations, precautionary measures to be taken together with likely hazards to be encountered if any"

Objectives of the permit system at the construction site are:

- To consider all possible hazards and remove those before allowing work to proceed.
- Inform the personnel carrying out the work of particular procedures and Precautions they must use in order to carry out the work safely.
- To eliminate the risk of unauthorized persons of entry in the restricted areas,

Suitable permits will be taken before proceeding with any work at site. The concerned Safety Person must ensure this at construction site.

12.1 Usefulness of Permit

Work permit proved written information on the prevalent hazards connected with the job performance.

- It spells out the suitable remedial measures to be adopted to encounter the hazardous conditions that are prevailing or that can be encountered while performing the job.
- It also stipulates various conditions and limitations on the part of persons actually required to perform the job. It indicates various type of Personal Protective Equipment to be used at different stages of work.
- It serves as a Checklist for various safety precautions to be taken. It also serves as media of information to all concerned in advance.
- It provides a written record of the operation including the personnel who were involved in authorizing and carrying out the operations.
- It teaches a sense of security from accidents in the mind of the crew performing the job.
- In a nut-shell the work permit system offers one of the best method to meet all the conditions required for making a hazardous operation safe and easy to perform.

12.2 Types of Permits

- Cold work permit
- Hot work Permit
- Permit for working on Height (Above 1.8 Mtr.)

- **Cold Work:**
  Any work, which does not generate or cause other associated or related parts to generate heat or sparks and which does not covered by the other more permits.

- **Hot Work:**
  Any work which involves the use of a local source of ignition or fire or generate of causes other associated parts to generate heat or sparks which may capable of ignition flammable vapors or any other combustible material.

12.3 Safety Tag

The Purpose for the tagging system to make a link between the personnel who operates the equipment and who repair it. By tagging procedure it will ensure that the equipment to be repaired is isolated, de-energized. If tag is not placed on the location nobody will be aware about the maintenance job and he might operate the unit causing serious injury to the person involves in the maintenance.

The direction of the use of tagging procedure and the enforcement of the procedure are the responsibilities of maintenance personnel and production personnel. When item equipment or a system is to be removed from service and to be prepared

For maintenance, inspection or cleaning the following procedure should be follow:
For working on any machine or instrument LTCTR i.e., Lock, Tag, Clear, Try and Release system should be follow.

Before starting any job the shift in charge will ensure the system is isolated. His responsibility is to ensure that the physical disconnection of electrical system like taking out fuses etc has been carried out.

After isolation of equipment shift in charge will put a safety tag on valve, operating switch. Safety tag will be indicating all the information as name of the person involved, nature of job in which person involved etc.

After completion of job shift in charge will check the equipment and remove the tag and can give instruction to operate the system.

In case the job does not get completed in one shift then shift in charge will hand over the job to his reliever and write the number of tags and their location in his shift logbook.

The safety tag must be use before starting any jobs involved in confined space, hot oil line, working on moving rolls as inside MDO, cleaning the TDO, working on blades of cutter or inside any vessel etc. Safety Tag should be as:

SAFETY TAG

CAUTION! EQUIPMENT……. UNDER SHUT DOWN PLEASE DO NOT OPERATE…….

Date:……Time:……..Sign……..

13.0 Incident Reporting & Investigation System

"Accident is an unwanted or unexpected occurrence which may or may not involve injury, arising out of and in the course of employment of a person while on duty"

The primary objective of investigation is to find facts and not faults. We can prevent accidents by learning from the causes so that similar accident can be prevented by technical improvement, better supervision and work instructions. The accident investigation and analysis is for designing accident prevention strategies and report is the base on which the entire accident investigation rests. Therefore it is essential to prepare a correct and timely incident report.

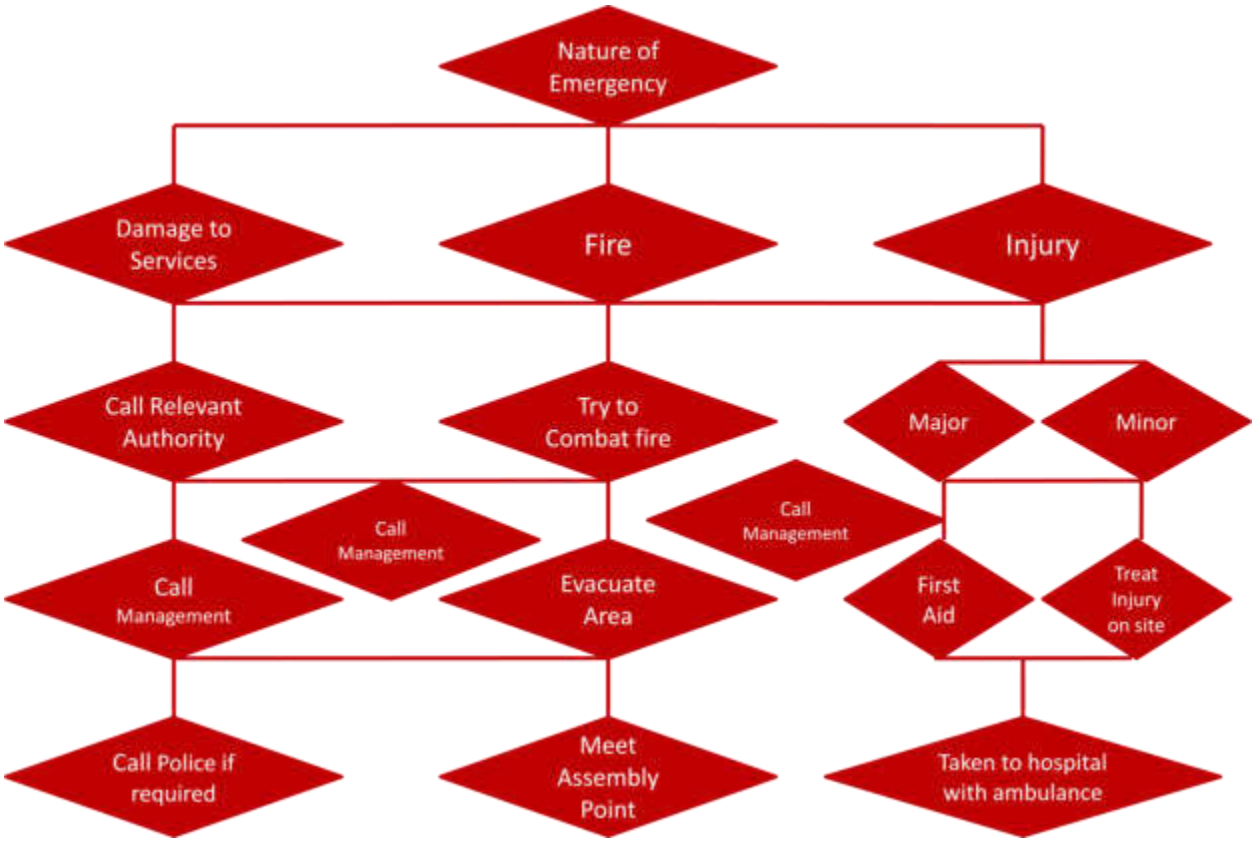
For reporting the incident following procedure is to be followed –

After any accident incident report is to be generated immediately.
Injured person is to be sent for first aid immediately. If required first aid is not enough, the victim is to be sent to hospital by company vehicle. Department head of the area where the incident has happened, the head of department will generate the incident report in consult action with concern department in the format number "DBL/EHS/003".
Corrective action of the incident is necessary to avoid reoccurrence the similar incidents. Safety Personal will visit to incident place and collect all the points for

analyzing the possibilities of incident. He will ensure that corrective action taken is adequate & report to Project Manager.

Department head will discuss with Project Manager for approval of corrective action. Approved incident report is given to safety department for record and follows up.

Safety personal shall audit the corrective action taken for its effectiveness.



14.0 Material Handling Safety

Almost in all the industry material handling play a vital role. The material handling in our site is many place as carrying the steel material, lifting the chemical & oils, store goods and heavy machinery parts. Besides these material handling involves carrying, lifting, pulling, pushing, etc. The material handling is a method by which a material be safely, quickly, and easily transported from one end to other.

Material can be handled and transported manually or mechanically.

14.1 Manually Handling

This procedure covers common manual lifting and handling of material performed in the manufacturing & maintenance like moving of boxes, Rolls, pallets, packing materials, drums, machine component etc.

In manual material handling common unsafe working habits are:

- Lifting improperly
- Carrying too heavy load
- Unsafe gripping
- Failure to wear personal protective equipment

Ensure the following checks:

- Is it secured?
- Is it dry & free of oil/ grease
- Has it got sharp edges?
- Is the approach & route cleared? Is there any slipping hazards?
- Is the area cleared where load is to place?

14.2 Proper Method of Lifting

- Wear safety PPE's and any additional safety equipment as required.

- Before lifting a load check for possible hazards and ensure that the load is safe to lift
- Keep head up.
- Keep arms close to body.
- The feet should be placed close to the load and properly spaced for body balance.
- Back straight and as nearly vertical possible, elbows as straight as possible, knees bent until the hands reach the proper place for gripping the load.
- Maintain most of weight on ball of foot at rear and forward foot flat on ground.
- Grasp the load firmly, then lift should be completed by straightening the knees, keeping the load close to the body
- Look in the direction of travel.
- While placing down the load, above procedure should be followed in reverse

order.

14.3 General Safety Instructions

- To avoid accident during manual handling do not lift the material improperly.
- Do not carry heavy load, Grip properly and use PPE.
- For proper lifting the material the feet should be placed closed to the load and properly spaced for body balance. Back straight and as nearly vertical as possible.
- Elbows as straight as possible Knees bent until the hand reach the proper place for gripping the load.
- If two or more is required for handling one of them act as leader and give order to lift carry and put down for similar reaction.
- Long pipes can be carried on the shoulders.
- For the handling the metal strips wear Hand gloves. Handle the metal sheet with gloves because its sharp edges and corners can make injury.
- For handling the glass sheet use gloves. Cover the wrist and for arms with long sleeves.

Mechanical handling is performed by means of hoist, cranes, lift, chain blocks etc.

Every hoist or lift have safe working load plainly marked on it and no load greater then such load should be Carried on it. Do not allow the load to swing. Never move the load on crane unless the way is clear. Do not walk or stand under the load. Do not carry the load over the man on the floor.

15.0 Electrical Safety

As on one hand electricity is very useful for us on other hand it give rise to other type s of industrial accidents. The danger associated with the use of electricity may be classified as:

A. Injury from direct contact:

- Injury by shock
- Injury from internal burn

B. Injury Without current flow through body:

- Physical injury from false starting of machine, failure of crane

controls, explosion of switch gear etc.

- Injury from fire and explosion from electric ignition of flammable vapors, gases, liquids and solids etc.
- Eye injury from electric arcs

C. Injury from current flow induced in or near the human body by instance of Electromagnetic fields:

- Injury from elevation of whole body temperature
- Local injury such as cataract formation in the eye.
- Burn due to metallic object in close contact with local parts of the body.

D. Protection of Conductors:

- All apparatus and conductors should be sufficient size and power for the work they are intended to do.
- All conductors of electricity should be covered with insulating material.
- Electrical joints and connections should be of proper construction as regards conductivity, insulation, mechanical strength and protection.
- Efficient and suitably located means should be provided for cutting off from every part of the system these are- Switches, Switch fuses, Isolating link or circuit breakers.

15.1 Points to be checked at the electric system

A. Panel Board:

- One-meter space available in front of the panel.
- Rubber mats provided
- Danger boards fixed
- Body of the panels properly earthen.
- Hinged doors earthen with flexible braided copper strips.
- Panel doors provided with rubber gasket to make them vermin proof.

B. D G Area :

– Anti vibration pads provided

- Radiator of the engine facing the opening for effective radiation of heat.
- Minimum clearance of 0.75 mtr. around.

- Clearance of 1.83 mtr between generators.
- Interlock provided to prevent parallel operation with E. B. supply.
- Earthing of generator body/ neutral properly done with individual pit.
- Link provided in the neutral circuit of the generator.
- Cable termination OK
- Adequate control and protection provided.
- Is isolator provided before the fuse.
- Panel body earthed with two independent earth connections of adequate size.
- Incoming cable terminals shrouded?
- Door interlock provided to switch off supply when panel door opened.

16.0 Laboratory Safety

General Precautions:

- Good housekeeping and orderliness contribute greatly to safety.
- Keep all the reagents bottles labelled and particularly poisonous chemicals, reagents bottle specially marked.
- Always use a hand bulb of proper size to fill the pipettes.

- Sample bottles containing acids or alkali should be carried from plant to laboratory only in bottle carriers.
- Any reaction, which gives us toxic fumes, is to be done in proper ventilated fuming cabinet.
- Dispose dilute acids or alkali can be dispose in sink after neutralizing a flush with a sufficient amount of water.
- Use PVC hand gloves, safety goggles while handling the chemical.
- Do not use neutralizing agent in case of acid or alkali burn. Washing with water is recommended in all case of acid or alkali burns.
- Proper ventilation and a good exhaust required in laboratory to remove any toxic fumes.
- Avoid inhalation of chemical.
- Highly flammable chemicals should be keep away fire or hot area.
- Adequate fire fighting equipment is to be kept in laboratory.

16.1 Storage of Chemicals

- Chemicals, which might react together, to give off dangerous fumes or cause fire or explosion, should be stored remote from one another.
- Volatile chemicals should not be stored near heat sources or place of direct sunlight.
- It is recommended that big bottles may be stored on the bottom of the shelves.
- All the chemicals have to store on the place to easy reach.
- Waste chemicals have to store on proper place giving a label defining the name and property of chemicals.
- MSDS of using hazardous is to be keep near the storage place and it is recommended that a person using the hazardous chemicals is aware about the MSDS of chemicals.

16.2 Handling and storage of glass wares

- Carry the glassware with the finger around the body; do not hold from the edges of the vessel.
- Hold the volumetric or other long neck flask at both and bottom when their content is agitated.

- While washing the glassware no more than gentle pressure should be applied.
- Cracked glassware or glassware of broken sharp edges is to be safely destroyed.
- When glassware is to be heated by direct flame is to be rested on an iron wire mesh with an asbestos center to prevent the flame from coming in contact with the glass. This will avoid cracking of the vessel.
- Store heavy pieces on lower shelves. Tall pieces at the back of smaller ones towards the front of shelf.
- Store glass tubing and rod carefully in a stand.
- Delicate glassware have to be store in separate cartons clearly marked for ready identification.
- Do not store glassware on such height that a person cannot reach easily.

17.0 Personnel Protective Equipment (PPE's)

Personnel Protective Equipment is the last line of defense. If the hazard cannot be removed or guarded then the person working should be protected with PPE. The use of PPE is also required while doing the job where any hidden danger is anticipated.

For different work different PPE is required. Wrong PPE cannot protect you and good knowledge of using the PPE is also necessary. The requirement of PPE for different jobs can be explained as:

Before using the protective equipment ensure that there is no any damage in the equipment. Keep the equipment carefully in the proper place. Check regularly your protective equipment if there is any damage in it replace it. Do not keep faulty PPE with you.

After using the PPE clean it. After handling the corrosive chemicals wash the equipment with sufficient amount of water and ensure that there is no any chemical is there.

18.0 Environment Plan

Company is committed to comply environment regulation applicable for construction sites. India is the first country, which has provided for the protection & improvement of the environment in its constitution Article 51(g) to the constitution of states.

It shall be the duty of every citizen of India to protect and improve the national environment including forest lakes, rivers, and wildlife and to have compassion for living creatures.

The following are the environmental Legislation of India

18.1 Environmental Laws and Regulations

Exceeding or complying with all applicable environmental laws and regulations. DBL, in the interests of responsible environmental management, is working to meet or exceed additional, self-imposed standards, including the adoption of applicable provincial and regional regulations. This means that if provincial, regional or municipal regulations or bylaws provide pertinent standards, DBL will Endeavour to

meet those standards. DBL also requires tenants on Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and other Act, to meet the same standards. Such regulations or bylaws that DBL chooses to adopt will be mentioned explicitly in the relevant management program documents.

S. No	List of Applicable Legal Requirements
1	Building & Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996
2	Petroleum Act 1934 &Petroleum Rules 2002
3	Motor Vehicle Act, 1988
4	Explosives Act 1884,
5	Gas Cylinder Rules 2004
6	Indian Electricity Act 2003 & Rules 1956
7	Air (Prevention and Control of Pollution) Act, 1981
8	Water (Prevention and Control of Pollution) Act, 1974, Rules 1975
9	Noise Pollution (Regulation and Control) Rules, 2000
10	Batteries (Management and Handling) Rules,2001
11	Environment Protection Act, 1986 &Rules 1986
12	Bio-Medical Waste (Management and Handling) Rules, 1998

18.2 Monitoring

Monitoring of the Noise Levels during Day and Night shall be got done by CPCB approved laboratory. It will include the source monitoring and the ambient monitoring at a distance of 50 Feet from the Noise generation sources.

EHS Engineer shall coordinate with the third party labs and shall assure the use of right sampling points, calibrated Instruments and approved methods are followed by the Third party. The EHS Engineer shall review the records of self and third party monitoring.

18.3 Source sampling

50% of the installed DG Sets and Equipment shall be covered for Noise monitoring at source and ambient values at 50 Ft. distance so that all equipment is covered at after every three months.

Construction plant, equipment, vehicles, and activities are the major sources of noise. The following mitigation measures are to be addressed in the Procedures:

- Effective and appropriate noise abatement equipment shall be fitted to the exhausts of all construction plant, equipment and vehicles.
- Properly qualified and experienced personnel shall be employed to carry out preventive and regular maintenance and repair of construction plant, equipment and vehicles.
- Locate stationary equipment such as generators and welding sets with exhaust pointing to a neutral location.
- Acoustic enclosures shall be erected where safe, practical, and effective.
- Barriers are to be erected to prevent unauthorized personnel entering areas

  where there are high levels of noise.
- Erect signs clearly defining areas where the wearing of ear protection is compulsory.
- DG operator will be provided with appropriate ear protection (ear plugs, ear protectors, etc.
- The Vibratos to have minimum noise and the operator shall use the required PPEs.
- The breaking activities through vibrators shall be as far as possible be isolated through suitable barriers.
- Equipment and Plant are not to be kept idling when not in use.

19.0 Administration Facilities

EHS plan will comply with the following site administration facilities and the Safety Officer would ensure its effectiveness in implementation:

- Trained first aid persons shall be posted at site to administrate first aid

injuries. If it is not possible, it has to be organized with nearest First aid Centre.

- Standard first aid box with eyewash facility will be available at first aid center.
- First aid medicines will be periodically inspected and maintained
- Random inspection would be done on the first aid facility and evaluate the requirement and recommend improvements to the top management.
- First aid register will be maintained to analyze the root causes of the injury and illness signals.
- Designated space/ room for induction training.

20.0 Performance Monitoring and Report

The person in charge of implementing the effectiveness of the EHS at site would be required to periodically monitor the EHS implementation. This would be ensured through the following manner:

- Prepare EHS performance report for the followings -
  - Near miss case
  - Frequency rate
  - Severity rate
  - Incidence rate
  - Accident rate
  - Accident Reports.
- All these would be reviewed by project manager and forwarded to the Head Office for Review Meetings.

21.0 Emergency Preparedness Plan

The EPP (Emergency Preparedness Plan) is an integral tool of the EHS Manual, and the EHS / Safety Officer would ensure its effective planning and implementation. The Key Features of the EPP would be:

- Listing out for all important TELEPHONE NUMBERS (OFFSITE EMERGENCY) as under, and displaying them in a Notice Board at each of the Company's Project Site:

  - Local Fire Station
  - Local Police Station

- Local Hospital/ Nursing Home

➢ All these would be reviewed by project manager and forwarded to the Head Office for Review Meetings.

21.1 Onsite Emergency Telephone Numbers should include (at site only):

- Project Manager
- Construction Manager
- Head of Human Resources
- Safety Manager/ Officer/ Engineer

➢ Arranging for Fire Extinguishers and making aware of the people at site on how to use them during emergency.
➢ Arranging for Mock Drills at least once a six month.
➢ Arranging for Emergency Procedures involving personal injury / chemical burn /bleeding.
➢ Formation of an Emergency Action Committee to ensure effective action. Such a Committee at site should include -
➢ Demarcation of the areas to be evacuated with priorities;
➢ Safe area and shelters;

➢ Security of property left behind in the evacuated areas;
➢ Functions and responsibilities of various members; and,
➢ Setting up of joint control action.

The Emergency Action Committee would comprise of the followings:

➢ Project Manager
➢ Construction Manager
➢ EHS / Safety Officers
➢ Representative from HR Department

22.0 Index for Measurement of EHS

The EHS should have an index for its measurement, and the EHS In charge should ensure its effectiveness in implementation, some of the major index of measurement of EHS is outlined below:

➢ Near Miss Case

An incident that had the potential to cause personal injury, & property damage

- Hazard

Hazard is any existing or potential physical condition in the workplace that by itself or by interacting with other variables can result in death, injuries, property damage and any other losses,

- Risk

Risk is the likelihood that the hazard will result in an accident Risk also considers how serious the resultant injury would be.

- **Frequency Rate**

Number of Reportable lost time injuries per million man hours worked.

Frequency Rate = Number of Reportable Lost Time Injuries x 10^6 Man-hours worked

- **Severity Rate**

Number of man-days lost due to reportable injuries per million man-hours worked.

Severity Rate = Man- days Lost due to Reportable LTI x 106 Man- hours worked

- **Incidence Rate**

Ratio of number of injuries to the number of persons during the period under review. It is expressed as number of injuries per 1000 persons employed.

Incidence Rate = Number of injuries or indents recorded x 1000 Average Number of Persons Employed

- **Accident Rate**

Accident Rate = Frequency Rate X Severity Rate Risk Index

23.0 Colour Coding

Department	Colour Code	Helmet	Jacket
Manager, Executive, Engineers & Above / visitor (For Visitor with "VISITOR" sticker)	**White**		
Safety Department	**Green**		
Lab Technician/ Surveyor/ Foreman	**Orange**		
Electrical Department	**Red**		
Supervisors	**Blue**		
Technician/ Operator and Driver			
Work Man	**Yellow**		

ANNEXURES-1

LIST OF FORMATS

Sl. No	TITLE	Doc. Ref. No.	LOCATION
1	EMPLOYEES INDUCTION FORMAT	DBL/EHS/001	Project Site
2	EHS TRAINING	DBL/EHS/002	Project Site
3	ACCIDENT/ NEAR MISS INVESTIGATION	DBL/EHS/003	Project Site
4	FIRE EXTINGUISHER INSPECTION	DBL/EHS/004	Project Site
5	HYDRANT SYSTEM INSPECTION	DBL/EHS/005	Project Site
6	FIRST AID BOX INSPECTION	DBL/EHS/006	Project Site
7	CAMP INSPECTION	DBL/EHS/007	Project Site
8	SAFETY COMMETTEE MEETING	DBL/EHS/008	Project Site
9	BLASTING WORK PERMIT	DBL/EHS/009	Project Site
10	HEIGHT WORK PERMIT	DBL/EHS/010	Project Site
11	EXCAVATION WORK PERMIT	DBL/EHS/011	Project Site
12	HOT WORK PERMIT	DBL/EHS/012	Project Site
13	ELECTRICAL WORK PERMIT	DBL/EHS/013	Project Site
14	CONFINED WORK PERMIT	DBL/EHS/014	Project Site
15	VEHICLE INSPECTION	DBL/EHS/015	Project Site
16	HYDRA INSPECTION	DBL/EHS/016	Project Site
17	CRANE INSPECTION	DBL/EHS/017	Project Site
18	UNSAFE CONDITION/ UNSAFE ACTION	DBL/EHS/018	Project Site
19	SAFETY BELT INSPECTION	DBL/EHS/019	Project Site

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***EMPLOYEES INDUCTION FORMAT***	Doc. ID DBL/EHS/001

Date:

Name of Employee: **Employee Code:**

Project Site:

The Induction covered the following topics and understood by EHS Dept.:

Topics	√ / X	Remarks
1. Emergency Preparedness Plan		
2. Personal Protective Equipment		
3. Fall Protection		
4. Electrical Safety		
5. Fire Prevention		
6. Environment Safety Plan		
7. Lockout/ Tagout		
8. Traffic Safety		
9. Vehicle Driving Safety		
10. Emergency Evacuation Plan		
11. Emergency Contact Details		

Note: If (X) put remark.

Employee Signature EHS Dept. Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***EHS TRAINING FORMAT***	Doc. ID DBL/EHS/002

Project Site: **Date:**

Name of Topic/ Subject:

Sr. No.	Name of Employee	Designation	Department	Signature
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Faculty Name:

Signature:

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***ACCIDENT/ INCIDENT/ NEAR MISS CASE FORMAT***	Doc. ID DBL/EHS/003

Project Site: **Date:**

Name & ID of Injured Person: Dept.:

Location: Designation:

Witness	Name	Department	Designation	Singature

Nature of Accident:

Description of Accident:

Concern Dept.

Investigate by EHS Dept.

Brief Description of Accident:

Cause of Accident:

Corrective Action/ Preventive Action:

Investigate by:

EHS Dept. Concern Dept. Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***FIRE EXTINGUISHER INSPECTION FORMAT***	Doc. ID DBL/EHS/004

Project Site: **Month:**

Sr. No.	Extinguisher ID	Location	Type	Capacity	Date of Inspection	Next Due Date	Status/ Remarks
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Check Point:

Fire Extinguishers Body condition

Handle condition

Pressure Guage Condition

Pressure Guage in Green Zone

Discharge Hose/ Horne Condition

Extinguisher's Hanging/ Stand Condition

Checked by
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	HYDRANT SYSTEM INSPECTION FORMAT	Doc. ID DBL/EHS/005

Hydrant Point Inspection Sheet

Project Site: Month:

Sr. No.	Location	Hydrant Point	Hose Reel	Hose 15 Mtr/ 30Mtr	Nozzle	Date of Inspection	Next Due Date	Remarks
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

Pump Inspection Sheet

Sr. No.	Pump Name & No.	Oil Level	Diesel Level	Water Level Of Tank	Pressure Guage Condition	Date of Inspection	Next Due Date	Remarks
1								
2								
3								
4								

Checked By
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***FIRST AID BOX INSPECTION FORMAT***	Doc. ID DBL/EHS/006

Project Site: **Month:**

Sr. No.	Location	Date of Inspection	Status

Remarks:

Check List:

Antiseptic Liquid
antiseptic Lotion
Bandage/ Paper Tape
Banded
Absorbent Cotton
Expiry Date of Material

√	OK
X	NOT OK

Checked by
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***CAMP INSPECTION FORMAT***	Doc. ID DBL/EHS/007

Project Site: **Date:**

Camp Name/ No.:

Particular	Status	Remarks
Nos. Of employees leaving in camp		
Good Housekeeping inLeaving area		
Separate waste bin for material		
Separate kitchen area from leaving area		
Drinking water facilities		
Usable water facilities		
Sanitation arrangements		
Waste water arrangement		
Area free from Mosquito/ Snak		
Electricity cable arrangement		
Adequate lighting arrangement		

Recommended:

Inspected by
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***SAFETY COMMITTEE MEETING FORMAT***	Doc. ID DBL/EHS/008

Project Site: **Month:**

Safety Committee Meeting Partcipants

Sr. No.	Name	Designation	Dept.	Signature

Topics are discussed in meeting

Sr. No.	Topics	Responsiblity	Remarks

EHS Dept.
Name & Sign

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***BLASTING WORK PERMIT FORMAT***	Doc. ID DBL/EHS/009

Project Site: **Date:**

Blasting Contractor:

License No.:

Name of the Site Engineer/ Manager seeking work permit:

Name of the Site Safety Engineer/ Manager:

Name of site supervisor:

Work Permit valid from

_____ (time)on _____ (date)to _____(time) on _____(date)

Location:

Description of Work:

I confirm that I have been given charge of the above mentioned work and I will take all necessary precautions to avoid danger to the workers engaged at the above site as well as property. I will abide by the recommendations of the Safety Engineer/ Manager and implement them and I will assign jobs to only trained personnel.

(Name and Signature of Site Engineer/ Manager)

Sl. No.	Safety Precautions	Yes	No	NA
1	All concerned personnel are instructed about the nature of work			
2	Access ladder/crawling ladder to work/roof provided & properly secured			
3	Safety clearance/check list for scaffold erection obtained/submitted			
4	All workers have valid height passes/ blasting passes			
5	Safety net/ Barrication provided the work place			
6	Closed all the way through Red Man Flag.			
7	Use of Siren/ Whistle for indication of blasting work			
8	Work area is properly cordoned/barricaded			
9	Work area is properly illuminated			
10	Proper access to site is ensured			
11	Openings are properly covered with safety net/steel jalli & barricaded			
12	Electrical equipments are checked for earthing			
13	Portable electrical equipments are tested by site maintenance section			
14	All rotating parts of machine are well guarded			
15	Whether any inflammable is present in vicinity of the area of hot job			
16	Fire extinguisher is available at the work site			
17	Half-an-hour fire watch is complied after hot jobs			
18	s			
19	Personal Protective Equipment: Helmet/Shoe/Hand Gloves/Goggles/Ear Muff/Ear Plugs/Safety Belt/Face Shield/Nose Mask			
20	Workers are in good health on the day of work			

(Name & Signature of Safety Department)

Return Permit: _____ (time)on _____ (date) work done.

Name & Signature
Concern Dept.

Name & Signature Safety Dept.

Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***HEIGHT WORK PERMIT FORMAT***	Doc. ID DBL/EHS/010

Project Site: **Date:**

(To be filled by the employee requesting job)
Name of the Site Engineer/ Manager seeking work permit:
Name of the Site Safety Engineer/ Manager:
Name of site supervisor:

Work Permit valid from
_____ (time)on _____ (date)to _____(time) on _____(date)

Location:
Description of Work:

I confirm that I have been given charge of the above mentioned work and I will take all necessary precautions to avoid danger to the workers engaged at the above site as well as property. I will abide by the recommendations of the Safety Engineer/ Manager and implement them and I will assign jobs to only trained personnel.

(Name and Signature of Site Engineer/ Manager)

Sl. No.	Safety Precautions	Yes	No	NA
1	All concerned personnel are instructed about the nature of work			
2	Access ladder/crawling ladder to work/roof provided & properly secured			
3	Safety clearance/check list for scaffold erection obtained/submitted			
4	All workers have valid height passes/ blasting passes			
5	Provided Full body harness safety belt			
6	Safety net/ Barrication provided the work place			
7	Provided life line at height			
8	Work area is properly cordoned/barricaded			
9	Work area is properly illuminated			
10	Proper access to site is ensured			
11	Air pressure checked at height (if required)			
12	Electrical equipments are checked for earthing			
13	Portable electrical equipments are tested by site maintenance section			
14	All rotating parts of machine are well guarded			
15	Whether any inflammable is present in vicinity of the area of hot job			
16	Fire extinguisher is available at the work site (if required)			
17	Half-an-hour fire watch is complied after hot jobs (if required)			
18	Work area is well ventilated			
19	Personal Protective Equipment: Helmet/Shoe/Hand Gloves/Goggles/Ear Muff/Ear Plugs/Safety Belt/Face Shield/Nose Mask			
20	Workers are in good health on the day of work			

(Name & Signature of Safety Department)

Return Permit: _____ (time)on _____ (date) work done.

Name & Signature
Concern Dept.

Name & Signature Safety Dept.

Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***EXCAVATION WORK PERMIT FORMAT***	Doc. ID DBL/EHS/011

Project Site: **Date:**

(To be filled by the employee requesting job)
Name of the Site Engineer/ Manager seeking work permit:
Name of the Site Safety Engineer/ Manager:
Name of site supervisor:

Work Permit valid from
_____ (time)on _____ (date)to _____(time) on _____(date)

Location:
Description of Work:

I confirm that I have been given charge of the above mentioned work and I will take all necessary precautions to avoid danger to the workers engaged at the above site as well as property. I will abide by the recommendations of the Safety Engineer/ Manager and implement them and I will assign jobs to only trained personnel.

(Name and Signature of Site Engineer/ Manager)

Sl. No.	Safety Precautions	Yes	No	NA
1	All concerned personnel are instructed about the nature of work			
2	Access ladder/crawling ladder to work/roof provided & properly secured			
3	Safety clearance/check list for scaffold erection obtained/submitted			
4	All workers have valid height passes/ blasting passes			
5	Instructed to all personnel about heavy machinery at site			
6	Safety net/ Barrication provided the work place			
7	Take proper safety precaution at excavation site			
8	Work area is properly cordoned/barricaded			
9	Work area is properly illuminated			
10	Proper access to site is ensured			
11	Air pressure checked at height (if required)			
12	Electrical equipments are checked for earthing			
13	Portable electrical equipments are tested by site maintenance section			
14	All rotating parts of machine are well guarded			
15	Whether any inflammable is present in vicinity of the area of hot job			
16	Fire extinguisher is available at the work site (if required)			
17	Half-an-hour fire watch is complied after hot jobs (if required)			
18	Work area is well ventilated			
19	Personal Protective Equipment: Helmet/Shoe/Hand Gloves/Goggles/Ear Muff/Ear Plugs/Safety Belt/Face Shield/Nose Mask			
20	Workers are in good health on the day of work			

(Name & Signature of Safety Department)

Return Permit: _____ (time)on _____ (date) work done.

Name & Signature
Concern Dept.

Name & Signature Safety Dept.

Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***HOT WORK PERMIT FORMAT***	Doc. ID DBL/EHS/012

Project Site: **Date:**

(To be filled by the employee requesting job)
Name of the Site Engineer/ Manager seeking work permit:
Name of the Site Safety Engineer/ Manager:
Name of site supervisor:

Work Permit valid from
_____ (time)on _____ (date)to _____(time) on _____(date)

Location:
Description of Work:

I confirm that I have been given charge of the above mentioned work and I will take all necessary precautions to avoid danger to the workers engaged at the above site as well as property. I will abide by the recommendations of the Safety Engineer/ Manager and implement them and I will assign jobs to only trained personnel.

(Name and Signature of Site Engineer/ Manager)

Sl. No.	Safety Precautions	Yes	No	NA
1	All concerned personnel are instructed about the nature of work			
2	Hot Work near hazardous zone.			
3	Safety clearance/checking of welding machine & earthing			
4	Holder/ Torch proper checked.			
5	Cable/ Tubes are ok.			
6	Safety gunny bags provided the work place (if required)			
7	Take proper safety precaution at work site			
8	Work area is properly cordoned/barricaded			
9	Work area is properly illuminated			
10	Cutting set always in trolley.			
11	Checked proper house keeping at work place			
12	Electrical equipments are checked for earthing			
13	Portable electrical equipments are tested by site maintenance section			
14	Soap solution available.			
15	Whether any inflammable is present in vicinity of the area of hot job			
16	Fire extinguisher is available at the work site (if required)			
17	Half-an-hour fire watch is complied after hot jobs (if required)			
18	Work area is well ventilated			
19	Personal Protective Equipment: Helmet/Shoe/Hand Gloves/Goggles/Ear Muff/Ear Plugs/Safety Belt/Face Shield/Nose Mask			
20	Workers are in good health on the day of work			

(Name & Signature of Safety Department)

Return Permit: _____ (time)on _____ (date) work done.

Name & Signature
Concern Dept.

Name & Signature Safety Dept.

Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	ELECTRICAL WORK PERMIT FORMAT	Doc. ID DBL/EHS/013

Project Site: **Date:**

(To be filled by the employee requesting job)
Name of the Site Engineer/ Manager seeking work permit:
Name of the Site Safety Engineer/ Manager:
Name of site supervisor:

Work Permit valid from
_____ (time)on _____ (date)to _____(time) on _____(date)

Location:
Description of Work:

I confirm that I have been given charge of the above mentioned work and I will take all necessary precautions to avoid danger to the workers engaged at the above site as well as property. I will abide by the recommendations of the Safety Engineer/ Manager and implement them and I will assign jobs to only trained personnel.

(Name and Signature of Site Engineer/ Manager)

Sl. No.	Safety Precautions	Yes	No	NA
1	All concerned personnel are instructed about the nature of work			
2	Electrical Work near hazardous zone.			
3	Apply LOTO system			
4	All equipments are insulated & tested.			
5	Cable's in ok condition.			
6	RCCB tested (if required)			
7	Use of 33 Kva hand gloves (if required)			
8	Work area is properly cordoned/barricaded			
9	Work area is properly illuminated			
10	Rubber mats availabe near pannel section			
11	Checked proper house keeping at work place			
12	Electrical equipments are checked for earthing			
13	Portable electrical equipments are tested by site maintenance section			
14	Check alternate supply connection.			
15	Whether any inflammable is present in vicinity of the area of hot job			
16	Fire extinguisher is available at the work site (if required)			
17	Half-an-hour fire watch is complied after hot jobs (if required)			
18	Work area is well ventilated			
19	Personal Protective Equipment: Helmet/Shoe/Hand Gloves/Goggles/Ear			
20	Workers are in good health on the day of work			

(Name & Signature of Safety Department)

Return Permit: _____ (time)on _____ (date) work done.

Name & Signature
Concern Dept.

Name & Signature Safety Dept.

Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***CONFINED WORK PERMIT FORMAT***	Doc. ID DBL/EHS/014

Project Site: **Date:**

(To be filled by the employee requesting job)
Name of the Site Engineer/ Manager seeking work permit:
Name of the Site Safety Engineer/ Manager:
Name of site supervisor:

Work Permit valid from
_____ (time)on _____ (date)to _____(time) on _____(date)

Location:
Description of Work:

I confirm that I have been given charge of the above mentioned work and I will take all necessary precautions to avoid danger to the workers engaged at the above site as well as property. I will abide by the recommendations of the Safety Engineer/ Manager and implement them and I will assign jobs to only trained personnel.

(Name and Signature of Site Engineer/ Manager)

Sl. No.	Safety Precautions	Yes	No	NA
1	All concerned personnel are instructed about the nature of work			
2	Availibility of Chemical/ Oil (any flemmable) near at work area.			
3	Oxygen level checked. (if required)			
4	All rotating parts of machine are well guarded			
5	Proper access to site is ensured			
6	Safety gunny bags provided the work place			
7	Take proper safety precaution at work site			
8	Work area is properly cordoned/barricaded			
9	Work area is properly illuminated			
10	Proper light arrangement at condined zone			
11	Tool's/ Equipments are in ok condition.			
12	Electrical equipments are checked for earthing			
13	Portable electrical equipments are tested by site maintenance section			
14	Life line provided. (if required)			
15	Whether any inflammable is present in vicinity of the area of hot job			
16	Fire extinguisher is available at the work site (if required)			
17	Half-an-hour fire watch is complied after hot jobs (if required)			
18	Work area is well ventilated			
19	Personal Protective Equipment: Helmet/Shoe/Hand Gloves/Goggles/Ear			
20	Workers are in good health on the day of work			

(Name & Signature of Safety Department)

Return Permit: _____ (time)on _____ (date) work done.

Name & Signature
Concern Dept.

Name & Signature Safety Dept.

Project Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***VEHICLE INSPECTION FORMAT***	Doc. ID DBL/EHS/015

VEHICLE SAFETY INSPECTION CHECK LIST

Vehicle ID.No.: **Project Site:**

Type OF Vehicle: **Date:**

Date of last inspection:

Sr. No.	Check Points	Condition	Remarks
1	Tires condition (front, rear, spare)		
2	Hand Brake		
3	Foot brake		
4	Lights (head, tail, parking, brake)		
5	Turn indicators		
6	Horn		
7	Windows Doors condition		
8	First Aid Kit		
9	Flashlight		
10	Fire Extinguisher		
11	Breakdown Kit		
12	Engine Exhaust		
13	Fuel leakage		
14	Noise		
15	Driver License		
16	Registration certificate / Permit		
17	Insurance		
18	Pollution Under Control certificate		
19	Reverse horn / light		
20	Tires air pressure		

S= Satisfactory
U= Unsatisfactory

Inspected by
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***HYDRA/ FORKLIFT INSPECTION FORMAT***	Doc. ID DBL/EHS/016

HYDRA/ FORKLIFT SAFETY INSPECTION CHECK LIST

Vehicle ID.No.: **Project Site:**

Type Vehicle: **Date:**

Date of last inspection:

Sr. No.	Check Points	Condition	Remarks
1	Manufacturer's data plate is clean and readable?		
2	Weight capacity certificate is available / legible?		
3	General purpose fire extinguisher is mounted on forklift / hydra?		
4	Seat belt operates properly?		
5	Reverse alarm or warning light, Turn light is operational?		
6	Forks are not distorted or cracked?		
7	Lift chains have equal tension and no broken pins or extra wear?		
8	No loose bolts or cracks on overhead guard and backrest?		
9	No loose lock nuts on tilt cylinders?		
10	No signs of fluid leaks under forklift / hydra?		
11	Adequate fluid (brake, engine oil, hydraulic oil, and coolant) levels?		
12	Rubber tires are not cracked or worn excessively?		
13	Air pressure in inflatable tires meets manufacturer's specs?		
14	Dashboard gauges give proper reading when forklift is in service?		
15	Horns sounds properly?		
16	Parking brake functions correctly?		
17	Adequate tension and free play in steering wheel?		
18	Mast, boom and forks raise, lower, and tilt smoothly?		
19	Clutch engages properly?		
20	Depress brake for 10 seconds, truck / hydra does not drift with pressure?		
21	Engine Exhaust		
22	Fuel Leakage		
23	Noise		
24	Valid Insurance of the vehicle		
25	Operator's valid license		
26	Operator having adequate PPEs		
27	First aid box with the vehicle		
28	Vehicle fitness certificate		
29	Lifting chains, slings etc are certified		

Comments/Corrective Action:

Inspected by
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***CRANE INSPECTION FORMAT***	Doc. ID DBL/EHS/017

CRANE SAFETY INSPECTION CHECK LIST

Project Site: **Date:**

ID No.:

Date of last inspection:

Sr. No.	Check Points	Condition	Remarks
1	Manufacturer's data plate is clean and readable?		
2	Weight capacity certificate is available / legible?		
3	General purpose fire extinguisher is mounted on forklift / hydra?		
4	Seat belt operates properly?		
5	Warning light auto sensor is operational?		
6	No loose bolts or cracks on overhead guard and backrest?		
7	Horns sounds properly?		
8	Adequate tension and free play in steering wheel?		
9	Clutch engages properly?		
10	Depress brake for 10 seconds, truck / hydra does not drift with pressure?		
11	Engine Exhaust		
12	Fuel Leakage (If any)		
13	Noise		
14	Valid Insurance of the vehicle (If any)		
15	Operator's valid license		
16	Operators eye test certificate (If required)		
17	Operator having adequate PPEs		
18	First aid box with the vehicle		
19	Vehicle fitness certificate		
20	Wire rope, Lifting chains, slings are certified		

S= Satisfactory
U= Unsatisfactory

Inspected by
Name & Signature

Reveived by
Name & Signature

Project
Manager

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***UNSAFE ACTION & UNSAFE CONDITION FORMAT***	Doc. ID DBL/EHS/018

Project Site:

Sr. No.	Location	Unsafe Action/ Unsafe Condition	CAPA (Corrective Action/ Preventive Action)	Responsible department	Before UA/UC		After UA/UC	
					Date	Pic.	Date	Pic.

DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND	***SAFETY BELT INSPECTION FORMAT***	Doc. ID DBL/EHS/019

SAFETY BELT INSPECTION CHECK LIST

Belt ID.No.: **Project Site:**

Type of Belt: **Date:**

Date of last inspection:

Sr. No.	Check Points	Condition	Remarks
1	As per specification		
2	Belt Strips		
3	Safety belt physical condition		
4	Tag condition		
5	Hanging-Rope condition		
6	Huck condition		
7	Buckacle condition		
8	Lock condition		
9	Knot condition		
10	Wearing proper condition		

S= Satisfactory
U= Unsatisfactory

Inspected by
Name & Signature

Reveived by
Name & Signature

Project
Manager

Each Senior Executive and Officers of the company should ensure:

- Health and safety of employees working under him / her
- Identification of Environmental Health and Safety hazards and provide training to the subordinates working under him / her
- Initiating corrective measures or eliminating or, minimizing risk from hazards identified by him/her or, by his/ her subordinates.
- Knowing and ensuring compliance with legal requirements in his/ her area of work.

It is expected from each employee:

- To Know and adhere to Environmental Health, and Safety requirements applicable to "his/ her
- Work safely to ensure his/ her safety, safety of others & the environment.
- Use Personal Protective Equipments (PPE) and promote its usage among all.
- Actively participate & bring unsafe acts, unsafe conditions & environmental issues to the notice of his/ her superior.

NATIONAL HIGHWAY AUTHORITY OF INDIA

"Four Laning of Sangli-Solapur (Package-IV: Mangalwedha to Solapur) Section of NH-166 from existing Ch. Km. 314.969 to Ch. 370.452 (Design Ch. Km. 321.600 to km 378.100) of length 56.500 Km in the State of Maharashtra on Hybrid Annuity Mode"

TRAFFIC MANAGEMENT AND SAFETY PLAN

M/S DBL Mangalwedha Solapur Highways Pvt Ltd.

DILIP BUILDCON LIMITED
INFRASTRUCTURE & BEYOND

FOREWORD

This Health & Safety Management Plan outlines the proposed Occupational Health and Safety Management System for Execution of Various projects This plan has been prepared as per the established, implemented & certified Occupational Health and Safety Management System in line with the requirements of **OSHAS: 18001: 2007, IRC: SP - 55 - 2014, IRC-35 & IRC-67 2012** and according to MORTH 5th Revision to be followed by **M/S DBL Mangalwedha Solapur Highways Private Ltd**.

EXECUTIVE SUMMARY

Any construction activity is anticipated to have potential hazard to health and safety of Employees, Environment and all Interested Parties. Concessionaire and its subcontractors shall carry out all its activities / services / products in a manner that would not affect the health and safety of the employees. Thus to achieve the same; occupational safety and health management system shall be established in a systematic way through this Project Safety Management Plan

This Project Safety Management Plan shall act as an apex-guiding manual at the project site level, which describes in detail how the potential hazards associated with each activity leading to effect on the safety and health of the employees and all interested parties and shall be identified and controlled. All the potential hazards of the project shall be identified, so that the adverse effect can be prevented, controlled or minimized by having suitable engineering, administrative and operational control measures.

The objectives and targets identified shall be implemented by drawing a suitable OH&S management plan. As part of potential hazard identification, the emergency situations shall also be identified to develop the emergency preparedness and response plan. All the employees including the sub-contractors are periodically trained about the control measures to be adopted to prevent, control or reduce the concerned potential hazards.

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