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| <b>ACTIVITY– Installation &amp; Testing of Drainage Piping System And Accessories</b> |  | Ref No: R<br>Rev.No:0<br>Page 1 of 6 |

| Serial No. | Sub-Activities                       | Hazards Identified (Generic & Task)  | Risks Involved (People & Property)   | Risk Rating |             |              | Control Measures   | Residual Risk |
|------------|--------------------------------------|--|--|-------------|-------------|--------------|--|---------------|
|            |                                      |  |  | Severity    | Probability | Initial Risk |  |               |
| 1.         | Prepare work area                    | <ul style="list-style-type: none"> <li>Unauthorized, untrained workers</li> </ul>  | <ul style="list-style-type: none"> <li>Cuts</li> <li>Abrasions</li> </ul>  | 2           | A           | L            | <ul style="list-style-type: none"> <li>TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>Task specific safety training to be provided</li> <li>Authorized personnel to undertake the job</li> <li>Daily safety inspection should be carried and eliminate the hazard</li> <li>PTW to be applied and obtained prior to start work</li> </ul>  | Low (ALARP)   |
| 2.         | Manual Handling                      | <ul style="list-style-type: none"> <li>Incorrect lifting of loads</li> <li>Sharp edges.</li> <li>Placing the object while fingers underneath.</li> <li>Slip/ trip/ fall ( Same level )</li> <li>Unsafe Posture</li> </ul>                      | <ul style="list-style-type: none"> <li>Back Injuries</li> <li>Finger cut due to sharp edges</li> <li>strain to wrist or fingers</li> </ul> | 3           | C           | M            | <ul style="list-style-type: none"> <li>TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>Task specific safety training to be provided</li> <li>Any lifting tasks shall be carried out by persons physically capable to do so.</li> <li>One persons shall be appointed to the task depending upon the type of load to be lifted.</li> <li>Use easy mode of transport like trolley and crane truck etc.</li> <li>Proper personal protective equipments to be used while manual handling of materials and loads.</li> <li>Keep your fingers away from pinch point while placing the load</li> </ul> | Low (ALARP)   |
| 3.         | Working with hand tools/ Power tools | <ul style="list-style-type: none"> <li>Defective equipment</li> <li>Improper use of equipment</li> <li>Poor maintenance</li> <li>Untrained workers</li> <li>Electricity</li> <li>Fire</li> <li>Flying objects</li> <li>Dust , Noise</li> </ul> | <ul style="list-style-type: none"> <li>Electrical shock</li> <li>Eye injury</li> <li>Burn</li> <li>Ringing in the ear/ Deafness</li> </ul> | 3           | C           | M            | <ul style="list-style-type: none"> <li>Electric connection shall be routed through ELCB only</li> <li>Defective tools should not be issued or used to perform a task.</li> <li>All portable power tools should be fitted with adequate fuse protection either in the tool body or in its electrical plug.</li> </ul>   | Low (ALARP)   |

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| Serial No. | Sub-Activities            | Hazards Identified (Generic & Task)  | Risks Involved (People & Property)   | Risk Rating |             |              | Control Measures   | Residual Risk  |
|------------|---------------------------|--|--|-------------|-------------|--------------|--|----------------|
|            |                           |  |  | Severity    | Probability | Initial Risk |  |                |
|            |                           |  |  |             |             |              | <ul style="list-style-type: none"> <li>•The weight, size and type of tool should be selected to suit the job being carried out.</li> <li>• Only those persons who have been adequately trained and experienced in the use of the tool should be allowed to use the same.</li> <li>•Tools should be maintained in good working condition and tested at regular intervals.</li> <li>•All tools &amp; machines should be neatly and correctly stored when not in use.</li> <li>• Power tools shall have inspection sticker</li> <li>• Appropriate PPE Should use</li> </ul>   |                |
| 4.         | Working at confined space | <ul style="list-style-type: none"> <li>• Low level of oxygen</li> <li>•Unauthorized and untrained workers</li> </ul> | <ul style="list-style-type: none"> <li>• Breathing Problem</li> <li>• Fatality</li> <li>• Suffocation</li> </ul> | 4           | C           | H            | <ul style="list-style-type: none"> <li>• TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>• Oxygen level should be checked prior to enter the work area.</li> <li>• Continuous monitoring/proper supervision should be available at the workplace.</li> <li>• The area should be barricaded properly.</li> <li>• Don't allow any unauthorized persons.</li> <li>• Get permits to work (PWT) from HSE dept.</li> <li>• Only trained and competent person should do the work.</li> <li>• Suitable type of breathing apparatus should be provided if there is a deficiency of oxygen.</li> <li>•No person must be allowed to enter until a competent person is satisfied that entry is safe.</li> <li>• Emergency arrangements should be available.</li> <li>• Continue to monitor this area.</li> </ul> | Medium (ALARP) |

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| Serial No. | Sub-Activities            | Hazards Identified (Generic & Task)   | Risks Involved (People & Property)  | Risk Rating |             |              | Control Measures  | Residual Risk |
|------------|---------------------------|---|---|-------------|-------------|--------------|---|---------------|
|            |                           |   |   | Severity    | Probability | Initial Risk |   |               |
| 5.         | Stacking and Storing      | <ul style="list-style-type: none"> <li>•Material fall due to stacking 2 meter above</li> </ul>  | <ul style="list-style-type: none"> <li>• Injury to Personnel</li> <li>• Damage to property</li> </ul>             | 3           | B           | M            | <ul style="list-style-type: none"> <li>• Task specific safety training to be provided</li> <li>• All materials shall be stored below 1.5 meter height.</li> <li>•Only known person should be there in store to identify the materials easily.</li> <li>•If the material is too heavy, use hydraulic trolley to shift the material.</li> </ul>   | Low (ALARP)   |
| 6.         | Noise atmosphere          | <ul style="list-style-type: none"> <li>• Improper maintenance of Tools</li> <li>• PPE awareness</li> </ul>  | <ul style="list-style-type: none"> <li>• Deafness</li> </ul>  | 2           | B           | M            | <ul style="list-style-type: none"> <li>•Noise measurements should be carried out where noise is produced and at other work places where operatives may be subject to higher level than their work generates.</li> <li>•Use of alternative, less noisy tools and equipments or methods.</li> <li>•Appropriate ear protectors must be worn.</li> </ul>  | Low (ALARP)   |
| 7.         | Working in excavated area | <ul style="list-style-type: none"> <li>•Material/equipment fall from height</li> <li>• Slip/trip/fall</li> <li>•Workers/ Pedestrians/ fall into excavation</li> </ul> | <ul style="list-style-type: none"> <li>• Serious injury</li> <li>• Fatality</li> <li>• Property Damage</li> </ul> | 3           | D           | M            | <ul style="list-style-type: none"> <li>•TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>•Task specific safety training to be provided</li> <li>• Safe access and egress shall be provided</li> <li>• Barricade sensitive areas,</li> <li>• Ensure falling protection.</li> <li>• Use warning signboards in those areas.</li> <li>• Use Head protection strictly.</li> <li>• PTW to be applied and obtained prior to start work</li> </ul> | Low (ALARP)   |

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|------------|---|---|---|-------------|-------------|--------------|--|---------------|
|            |   |   |   | Severity    | Probability | Initial Risk |  |               |
| 8.         | Handling hazardous chemicals ( solvent cement ) | <ul style="list-style-type: none"> <li>•Unauthorized, untrained workers</li> <li>•Health hazard ( External/ internal contact )</li> </ul> | <ul style="list-style-type: none"> <li>• Skin effect</li> <li>• Ingestion</li> <li>• Occupational diseases</li> </ul> | 2           | C           | M            | <ul style="list-style-type: none"> <li>• TBT/DSTI to be conducted by the foreman/ safety officer prior to work commencement</li> <li>• Task specific safety training to be provided</li> <li>•Ensure the materials are stored separately with identification and MSDS posted.</li> <li>•Proper training must be given to the worker before using chemicals.</li> <li>• Appropriate PPE to be worn while during the activity.</li> <li>• Personnel hygiene to be maintained while after use of chemicals</li> </ul> | Low (ALARP)   |
| 9.         | While working at night shift                    | <ul style="list-style-type: none"> <li>• Poor illumination</li> <li>• Fall from height</li> </ul>   | <ul style="list-style-type: none"> <li>• Fatality</li> <li>• Slip/trip/fall</li> </ul>                                | 3           | B           | M            | <ul style="list-style-type: none"> <li>• Proper illumination to be provided</li> <li>• light post to be secured from fall</li> <li>• Proper cable management system to be Followed</li> <li>• All materials to be staged in proper manner without obstacles</li> </ul>   | Low (ALARP)   |
| 10.        | Working in hot weather                          | <ul style="list-style-type: none"> <li>• Heat</li> </ul>  | <ul style="list-style-type: none"> <li>• Dehydration</li> <li>• Sunburn</li> <li>• Skin Cancer</li> </ul>             | 2           | B           | M            | <ul style="list-style-type: none"> <li>• Drink plenty of water</li> <li>• Proper awareness to be on the symptoms of heat stress</li> <li>• Avoid highly physical tasks during the hottest part of the day</li> <li>• Isotonic drinks to be provided</li> </ul>   | Low (ALARP)   |

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|------------|-----------------|---|--|-------------|-------------|--------------|---|---------------|
|            |                 |   |  | Severity    | Probability | Initial Risk |   |               |
| 11.        | Work Completion | <ul style="list-style-type: none"> <li>Poor housekeeping</li> </ul> | <ul style="list-style-type: none"> <li>Fire</li> <li>Slip/trip/fall</li> </ul> | 2           | A           | L            | <ul style="list-style-type: none"> <li>General housekeeping, Remove all surface, unwanted waste materials from the building</li> <li>All necessary precautions will be adopted to prevent fire</li> </ul> | Low (ALARP)   |

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**RISK MATRIX**

|               |   |                  |                  |                      | Probability                         |                                |                                  |                            |                           |
|---------------|---|------------------|------------------|----------------------|-------------------------------------|--------------------------------|----------------------------------|----------------------------|---------------------------|
|               |   |                  |                  |                      | A                                   | B                              | C                                | D                          | E                         |
| Severity      | People  | Assets           | Environment      | Reputation           | Improbable<br>1 in 100,000<br>Years | Remote<br>1 in 10,000<br>Years | Occasional<br>1 in 1000<br>years | Probable<br>1 in 100 years | Frequent<br>1 in 10 years |
| 5-Catstrophic | Multiple fatalities or permanent total disabilities | Extensive damage | Massive effect   | International impact | <b>Medium Risk<br/>(ALARP)</b>      | <b>High Risk</b>               |                                  |                            |                           |
| 4-Severe      | Single fatalities or permanent total disabilities   | Major damage     | Major effect     | National impact      |                                     |                                |                                  |                            |                           |
| 3-critical    | Major injury or health effects                      | Local damage     | Localised effect | Considerable impact  |                                     |                                |                                  |                            |                           |
| 2-Marginal    | Minor injury or health effects                      | Minor damage     | Minor effect     | Minor impact         |                                     |                                |                                  |                            |                           |
| 1-Negligible  | Slight injury or health effects                     | Slight Damage    | Slight effect    | Slight impact        |                                     |                                |                                  |                            |                           |
|               |   |                  |                  |                      | <b>Low Risk</b>                     |                                |                                  |                            |                           |

|               |  |
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| <b>HIGH</b>   | <b>3-E</b><br><b>4-C,D,E</b><br><b>5-B,C,D,E</b>                                   |
| <b>MEDIUM</b> | <b>1-D,E</b><br><b>2-B,C,D,E</b><br><b>3-A,B,C,D</b><br><b>4-A,B</b><br><b>5-A</b> |
| <b>LOW</b>    | <b>1-A,B,C</b><br><b>2A</b>  |