DOCUMENT SUBMITTAL

To	**GCI CONSULTING**	**Ref No:**	**DXB9-BKG-CV-MS-0010**		
FAO	**Mr. Jack Stevenson / Fahmi Dabliz**				
From	**BK Gulf LLC**	**Date**	**18/04/2024**	**Rev**	**A**
Project	**KHAZNA DATACENTER DXB9 JEBEL ALI DUBAI**				
Subject	**Method Statement – Earthworks (External MEP Utilities & Cable Ducts Installation)**				

Submittal Required For	Discipline	Document Submittal Type
☑ For Approval	☐ Architectural ☐ Fire Protection	☐ Doc Submittal ☐ Certificates ☐ Test Report
☐ For Information	☑ Civil Structural ☐ Site Wide	☐ Technical data ☑ Method Statement ☐ Sample
☐ Others	☐ Mechanical ☐ Plumbing	☐ Drawing ☐ Material Submittal ☐ QAQC/ITPs
PREVIOUS APPROVAL STATUS: ☐ AWS ☐ REVISE & RESUBMIT ☐ REJECT	Electrical ☐ Others	☐ Manufacturer Data ☐ Warranties ☐ Plan
	☐ Design	☐ Prequalification ☐ Request for Information ☐ Others

Description	**Earthworks (External MEP Utilities & Cable Ducts Installation)**
rea of Use	**KHAZNA DATACENTER DXB9 JEBEL ALI DUBAI**
Reference Drawings	-
Response required by Date	-
Attachments	-
Contractor's Signature	

For DESIGN SUPERVISION CONSULTANTS COMMENTS (AS APPLICAPLE)				STATUS
			☐	A - Accepted
			☐	B - Accepted with comments
			☐	C - Revise /Resubmit
			☐	D – Rejected
Name:	Signature:	Date:		E - Information

For EMPLOYER'S APPROVAL (SYSKA HENNESSY / AECOM/ KDC) COMMENTS		STATUS
	☐	A - Accepted
	☐	B - Accepted with comments
	☐	C - Revise /Resubmit
	☐	D – Rejected

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Project Name:	Khazna Data Centre Dubai DXB9		Project Number:	DXB1055	
Document Title:	METHOD STATEMENT FOR EARTHWORKS OF EXTERNAL MEP UTILITIES & CABLE DUCTS INSTALLATION	Document Number:	DXB9-BKG-CV-MS-0010	Rev. No.:	00

METHOD STATEMENT FOR EARTHWORKS OF EXTERNAL MEP UTILITIES & CABLE DUCTS INSTALLATION

Khazna Data Center Dubai DXB9

Project No: DXB1055

DOCUMENT NO: **DXB9-BKG-CV-MS-0010**

Revision History

Rev	Date	Details	Author	Reviewer	Approver
0	18.04.2024	**DXB9-BKG-CV-MS-0010** Earthworks of External Mep Utilities & Cable Ducts Installation Method Statement	SYED MUJEEB	RAMESAN MADHAV	MOHAMMED FOUAD

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1 Introduction

BK Gulf LLC has been contracted by Etisalat Data Centre Company Limited to design and construct a new Data Centre in the Ibn Battuta area of Dubai.

The Works includes engineering, procurement, construction, integration, interface, coordination, testing, and commissioning of a 30MW data centre complex which includes a data canter building comprising of six (6) fully fitted data hall PODs, landlord office, CAT A tenant offices and auxiliary buildings and services required to facilitate operational utility requirements.

The Project site is in Ibn Battuta, behind the Festival Plaza development and adjacent to the Jebel Ali village.

2 Purpose

This Method Statement has been prepared to provide a summary of Contractors planned execution strategy for bulk earthworks comprising excavation cut, Compaction and backfilling for External MEP utilities and installation of cable ducts of the Data Centre and ancillary buildings.
Works are to be undertaken in compliance with all local authority requirements, Employer's Requirements and Contractor's systems and procedures.

3 Definitions

TITLE	DEFINITION
Project	**Khazna Data Centre Dubai DXB9**
Employer	Etisalat Data Center Company Limited
Contractor	BK Gulf LLC
Design Consultants	GCI RED
Architect of Record	GCI
Project Management Consultant	AECOM
Technical Assistant	SYSKA HENNESSY

4 Abbreviations

TITLE	DEFINITION
ITP	Inspection & Test Plan
MSRA	Method Statement & Risk Assessment
NOC	No Objection Certificate
PMC	Project Management Consultant
TA	Technical Advisor

5 Reference Documents

REFERENCE	TITLE
ASTM D 2487	Standard Practice for Classification of Soils for Engineering Purposes
ASTM D 2940	Standard Specification for Graded Aggregate Material
31 20 00	Earth Moving
31 50 00	Excavation Support and Protection
ER 01 50 00	Temporary Facilities and Controls
ER 01 31 00	Environmental, Health & Safety
ER 01 40 00	Quality Requirements
DXB9-BKG-SW-PL-0008	Emergency Management Plan
DT-BKG-5024-0005	Contractor's Environmental Management Plan

6 Scope of Activities Covered

This Method Statement describes bulk earthworks and sub grade preparation activities required for installing the external MEP utilities at Khazna Data Center Ibn Battuta Project.

All activities will be carried out in compliance with specified standards and relevant drawings, codes and project requirements. Activities covered include site clearance and all excavation and backfill operations required for the Data Center, Office Building and ancillary structures.

Final earthworks levels & backfilling materials will be as per final design, considering building and road levels and geotechnical recommendations respectively.

7 Sequence & Methodology of Works

7.1 Sequence of Works

The following sequence of works shall apply to the bulk earthworks, cut to fill operation.

Conduct a safety briefing with all personnel involved in the excavation process to highlight potential hazards and safety protocols.

Provide personal protective equipment (PPE) to workers, including hard hats, reflective vests, and steel-toed boots, Gloves & safety glasses.

Ensure the work location is adequately barricaded and has clear warning signs to prevent unauthorized access.

- Gather all relevant information about the utility installation project, including utility maps, blueprints, and specifications.
- Identify the types of utilities that need to be installed, their locations, and depths.
- Obtain any necessary permits and approvals from local authorities.
- Perform a thorough site survey to identify any existing underground utilities, structures, or obstacles that could affect the trenching process.
- Mark the locations of existing utilities to avoid damaging them during excavation. Service utilities, if any, shall be identified using calibrated scanner and referenced prior to the commencement of the works.
- On approval of the design levels, the works shall be set out in accordance with accepted survey standards and practices.
- Material shall be sourced in accordance with Dubai Municipality procedure and permitting requirements. Contractor shall coordinate with DM nominated transporters for the management of fill material.
- Conduct pre-excavation conference at project site office to review methods and procedures and review periodically based on site conditions and constraints.
- Clearing and stripping of topsoil shall be undertaken using plant and labour.

- The subgrade will be compacted to achieve a suitable platform for the receipt of fill material, as required to achieve the required design lines and levels.
- Excavation (cutting) will commence using suitable plant and equipment so as not to generate excessive vibration in adjacent facilities.
- The fine excavated material will be used to fill material to achieve specified fill requirements.
- The fill material will be placed in layers of no more than 250mm and compacted to specified requirements until the required lines and levels are achieved.

7.2 Methodology

7.2.1 SITE PREPARATION

Necessary authority approvals have been obtained based on trial holes completed to confirm no underground services are present in the area of excavation (if required). If any service has been found be ensure the services is not being live. This will be relocated, the methodology of which will be detailed in a separate method statement.

To minimize the risk of settlement to surrounding structures i.e., the Etisalat Data Centre vibration monitoring equipment has been set up, and readings taken weekly. Where vibration levels exceed those acceptable, works shall cease, and methodology reviewed.

All access routes must be identified and marked with signs prior to start of work. Haul routes for transport of spoil or fill materials will be determined before the activity execution, and drivers will be made aware of the site working areas and traffic plan. The traffic plan and routes shall separate heavy machinery from pedestrians.

The area where earthworks is in operations shall be excluded to persons as far as reasonably practical by use of flag men positioned behind barriers, they shall monitor the area and prevent persons entering while machinery is moving.

7.2.2 SITE SURVEY

Prior to commencement of the works, a topographic survey will be carried out to confirm existing information and provide an accurate ‘in-survey’ of existing ground levels.

Relevant setting out of underground services for clear identification of depth and dimensions to be carried out to ensure earthworks are carried out to within specified tolerances.

Further details of survey methodology have been detailed in Survey & Site Establishment MRSA (Doc No. 5024-BKG-PM-WMS-0002)

7.2.3 SITE CLEARANCE

Clearing and grubbing shall consist of the removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish, and other unsuitable materials.

Stumps, roots, and other similar refuse shall be removed to a depth of not less than 150mm below the existing ground surface and to a distance of at least 600mm beyond the excavation limits.

Holes remaining after removal of stumps, roots, and other similar refuse shall be backfilled with suitable material and compacted to at least the density of the adjacent undisturbed material.

Unsuitable material shall be removed from site and disposed at an approved disposal area.

7.2.4 EXCAVATION

7.2.4.1 GENERAL EXCAVATION

Open cut excavations shall be generally carried out. Excavation shall be carried out according to the lines, grades and levels as shown on the approved drawing and as specified.

Select appropriate excavation equipment, such as excavators, backhoes, or trenchers, based on the size and depth of the trench.

Use hand tools and safe excavation methods in areas with the potential to damage existing utilities or structures.

After planning the proposed works, and establishing the work area, excavation shall be carried out using the appropriately sized equipment to suit the size and depth of the excavation.

- Excavation will commence using excavators which will temporarily stockpile excavated material adjacent to the operation. Material will be loaded onto dump trucks by excavator or loader. Material will be transported to an approved facility or stockpiled on site.
- Excavate the trench gradually, in manageable sections, to maintain stability and reduce the risk of cave-ins.
- Where deep trenches are to be excavated, the sides of excavation shall be sloped & stepped as required or supported by trench sheeting or other approved means if applicable depending on the soil conditions to stabilize the sides for safe working conditions.
- Materials excavated for the permanent work shall be tested for potential reuse in the works.
- Classified material designated for use in the permanent work shall be properly segregated and stockpiled.
- Excavation stability will be controlled with the use of benching or battering. Cut slopes shall have a maximum horizontal to vertical gradient of 1:1 unless otherwise indicated on the drawing or as controlled by stability considerations for specific soil conditions for each excavation location.
- For personnel safety and work protection, hard barriers will be used to prevent access to the excavated area. Dedicated access points will be prepared as required. Ensure the excavation is well-lit, especially during the night time, to prevent accidental entry into the excavation.

Pipe Trench Excavation

- Excavate the trench in a safe and workmanlike manner, to a depth to permit installation of the pipe along the lines and grades shown on the Drawings.
- Make the width of the trench sufficient to allow thorough compacting of the backfill under and around the pipe, and in no case less than 18 inches greater than the outside diameter of the barrel of the pipe.
- Where excavation is in rock, remove the rock to a depth below grade of the pipe at least 4 inches; and before laying the pipe, refill the trench to grade with earth, sand, gravel, or other suitable material, firmly compacted to provide proper bedding for the pipe.
- Rock excavation is classified and paid for as material that cannot be removed by a backhoe with a 1 cubic yard digging bucket (with rock teeth) within the limits of work.
- Excavate bell holes accurately to size.
- The amount of the trench excavated ahead of the pipe laying is subject to the approval of the Owner.
- Brace and bridge to maintain traffic during construction.
- Comply with OSHA, Sub-Part P, Excavation, Trenching and Shoring, as defined in 1926.650, General Protection Requirements; 1926.651, Specific Excavation Requirements; 1926.652, General Trenching Requirements; and 1926.653, Definitions applicable to this subpart

Bracing and Sheeting of Excavations:

- Wherever necessary to prevent caving, excavations, sheet and brace and widen the trench accordingly.
- Keep trench sheeting in place until the pipe has been tested and backfilled to a depth of 2 feet over the top of the pipe.
- Leave sheeting and shoring in place where directed by EMPLOYER.

Pumping: Provide pumping necessary for dewatering trenches and to provide proper work conditions for installation of pipe and appurtenances.

7.2.4.2 Temporary Stockpile Locations

Excavated material will be loaded into trucks by either excavator or loader, avoiding overloading and spillage. The trucks will haul the material to the Contractors designated spoil area as per the relevant approvals.

- Stockpile locations must be identified prior to start of work. These materials must be classified into re-useable materials and for disposal.
- Material shall be stockpiled so as to avoid rainwater to cause deep erosion.

- The stockpile area shall be graded to drain surface water away from temporary stockpiles. Water shall not be allowed to pond near the base of stockpiles.
- Fill or stockpile areas shall be designated by the Contractor.

7.2.5 FORMATION PREPARATION

- Once the excavation reaches to required formation level, dressing shall be done manually to maintain the trench formation level.
- The bottom of the trenches shall be dry, graded and prepared to provide a firm and uniform bearing throughout the formation area.
- The bed should be levelled and compacted to be tested as directed by the Consultant.
- Nominal trench width for single pipelines shall be pipe diameter plus 150mm on either side of the pipe or as specified in the approved shop drawing.
- After completion of formation work, request shall be raised to the consultant for inspection and approval of the formation levels and testing.

7.2.6 LAYING OF CABLE DUCTS:

- Inspect the ELV Ducts before lowering to ensure they are free from damage or defects that could compromise their structural integrity.
- After the approval of formation level by consultant. Cable Ducts shall be lowered carefully into the trench. Based on the size, weight, and fragility of the utilities, choose the appropriate method for lowering, such as manual lowering, mechanical hoists, or cranes.
- Use suitable lifting equipment and rigging, such as slings, straps, or hooks, to safely lower the utilities into the excavation. Qualified riggers shall be utilized to attach the utilities to the lifting equipment.
- Make sure the lifting equipment has the necessary capacity to handle the weight of the utilities.
- Lower the utilities slowly and smoothly to prevent sudden movements or impacts.
- Control the lowering speed and monitor the utilities' alignment during the process. Provide protection, such as covers or shielding, to prevent falling debris from damaging the utilities or causing safety hazards during the lowering process. Care shall be taken to make sure that no sand or other materials falls inside the ducts during laying.

Pipe Laying:

- Handle pipe carefully and place to prevent breakage or other damage.
- Lay pipe to a true straight line and uniform grade between angles, and in cases rest on a firm bed, with bells laid up hill.
- Grades shown as pipe elevations are, unless otherwise noted, to the bottom of inside of pipe (invert).
- For plastic pipe provide 4 inches minimum clean sand bedding for full width of trench and full length of pipe.

- Approved Nylon draw cord shall be installed through each duct and the ends shall be properly plugged with approved uPVC end caps.
- The Cable ducts will be properly secured by wooden stakes/steel pins driven into the ground on the side at 3m interval.
- After lowering, inspect the utilities again to ensure they are in good condition and properly positioned.
- The lowered cable ducts will then be jointed, aligned, and levelled properly.
- Detectable warning tape as approved by the consultant and authority shall be laid, as per the approved drawing.

7.2.7 BACKFILLING

- Before proceeding the back fill, the ends of each service shall be closed with approved end caps, to avoid sand or water entering into the pipe.
- Excavated Backfilling material of the services shall commence after the inspection, measurement and approval of the consultant for pipe laying.
- First 300mm above pipe layer shall be compacted by hand manually with wooden rammers. Each layer of 150mm.
- After the 300mm above the pipe backfill layer 200 mm thick shall be commenced.
- Each layer of 200mm compacted with plate Compacter shall be tested for 95% MDD till one layer below the formation layer.
- Detectable warning tape as approved by the consultant and authority shall be laid, as per the approved drawing.
- The services will not be disturbed, and backfilling will be done on both sides of the services simultaneously to avoid lateral movement.
- The formation layer shall be prepared according to the road formation level and tested.

Trench Backfilling:

- Immediately after the pipes have been laid, the trench backfill around the barrel of the pipe with fine material, free from large stones, deposited in level layers not more than 6 inches in depth, each layer to be thoroughly
- tamped and compacted before the next layer is deposited.
- Make this filling along the barrel of the pipe only, to at least the mid- diameter of the pipe but not more than the top of the pipe, and keep the away from the joints until the joints have been inspected and repairs to joints made.
- After joints are inspected and tested, if required, backfill trenches, using fine material up to 18 inches above top of pipe, placed in 6-inch layers and thoroughly tamped. Balance of backfill may be placed with the aid of dump trucks, or other approved methods and thoroughly compacted.
- Succeeding layers of backfill above the herein before specified 18 inches may contain coarser materials; free from brush or other perishable or objectionable matter that would prevent proper consolidation or that might cause subsequent settlement; compact thoroughly by tamping or other method approved by EMPLOYER.
- Provide a compaction 95 percent maximum dry density or 90 percent relative dry density Modified Proctor ASTM D1557.
- Do not use rock or boulders in the backfill for at least 1 foot above the top of the pipe. Do not

use stone larger than 6 inches in its greatest dimension in the backfilling.

- For plastic pipes provide 6 inches minimum compacted clean sand backfill over top of pipe.
- Where it is important that the surface of the backfill be made safe for vehicular traffic as soon as possible, or where a permanent pavement is to be placed within a short time, make the upper 12 inches of backfill of approved moist material, thoroughly compacted in thin (about 4-inch) layers by tamping, brought to the required surface grade.
- Allow for settlement of fill in the trench. Fill and dress depressions caused by settlement

7.2.7.1 Fill Material

Fill material shall be obtained from excavation areas or Dubai Municipality imported sources. These materials shall be free of topsoil, organics, roots, debris and other deleterious substances.

Material will be received by Dubai Municipality appointed transporters in accordance with local authority sand shifting requirements. Material will be tested for suitability at a frequency to be agreed with the TA.

Ensure that only trained and competent operators are allowed to operate the tipper truck. They should have the necessary experience and knowledge of safe operating procedures.

Conduct a daily pre-operation inspection of the tipper truck to check for any mechanical issues, leaks, or faulty components.

Ensure that brakes, lights, tires, and hydraulic systems are all in proper working condition.

Trucks will be directed to the stockpile location and controlled at all times by competent flagmen/Banksmen where material will be offloaded. Avoid operating the tipper truck on excessively steep or uneven slopes that could compromise stability.

- Unloading area must be clear of other traffic and/or pedestrians.
- Ensure truck is stable and safe on a level surface.
- Once area is cleared, truck driver offloads fill material. Ensure that the backfill material is tipped safely and evenly, avoiding dumping from too great a height to prevent tipping or material spillage.
- Dump the material gradually and evenly to prevent uneven weight distribution.
- Fill operations shall be performed after areas are cleaned and made ready for backfill.

7.2.7.2 Subgrade Preparation

The area to be backfilled must be inspected to ensure suitable firm ground has been reached.

Before placing engineered fill material, the soil surface shall be graded, wetted or dried to produce the required moisture content, and compacted again to the specified maximum density.

Before placing engineered fill in area where excavations have been made, any formwork, sheeting, shoring and other temporary facilities shall be removed.

Compaction of material will utilize 10T roller compactors or smooth drum rollers, A wheel loader will be used for material spreading. Manual spreading of material will be required around services or structures to prevent damage.

Trucks will be used to transport backfill material from stockpile to the required backfill location via the approved haul routes.

Water trucks will be used to provide construction water as required to ensure compaction of backfill material.

7.2.7.3 Fill Placement

- Areas to receive fill shall be essentially free of soft or loose soils, roots, trash, and other foreign matter.
- Fill material will be distributed to the required locations using tipper trucks. Material will be loaded into tipper trucks from the stockpile using excavator or loader.
- Filled tipper trucks will be directed to the required fill location and material will be offloaded.
- Where applicable, backfill shall be placed around foundations as soon as progress of the work permits and after all forms have been removed.
- Backfill shall not be placed against foundation structures until the concrete has developed a strength of not less than 85 % of the design strength.
- After areas to receive fill have been properly prepared, material shall be placed in layer thicknesses not exceeding 250mm but depending on compacting requirements to achieve specified compacted density. Large continuous areas shall be uniformly filled starting from the lowest point.

- Horizontal layers may be constructed in placement of a width to suit the compaction equipment. Fill adjacent to structures where hand operated equipment is used shall be placed in 150 mm loose layers or lesser thickness if necessary to develop required density.
- Fill slopes shall be protected as necessary to prevent washouts, gullying and other degradation during the construction period.

7.2.8 COMPACTION

- Compaction shall begin only after the fill has been properly placed and the material to be compacted is at the proper moisture content.
- Each layer of fill shall be compacted to the required density before proceeding with the next layer.
- Compaction shall be performed with equipment compatible with the soil type.
- Fill will be compacted in horizontal layers with uniform density and moisture conditions.
- The compacted thickness of each layer should be appropriate for the type and size of roller and specifications, but layer thickness will not exceed 250mm.
- Vibratory equipment such as vibratory plates, vibrating smooth drum rollers, and vibrating sheep foot rollers shall be used to compact granular backfill, except in very confined places.
- If the material to be compacted contains excessive moisture, the material shall be processed to reduce the moisture content to the specified limits. If the soil has less than the specified moisture content, or is likely to lose enough moisture during compaction, water shall be added and the soil lift thoroughly mixed before compaction, to bring the moisture content of the soil before the completion of the compaction to the specified below limit as minimum.
- After compaction of the fill, field density tests shall be made. If the material fails to meet the specified density, the entire placement area shall be reworked as necessary to obtain the specified density. The compaction method or equipment may be altered as required to obtain the specified density.

8 Resources

8.1 Key Personnel

Details of the key staff involved in the activities described herein are as follows:

Function / Role	Name	Contact Details
Project Manager -	Mohammed Fouad	055 8760196
Construction Manager	Ramesh Madhav	050 2243273
HSE Manager	Sandeep verghese	055 8762836
Technical Manager	Asiya Khurram	055 8771738
Project Engineer	Raja	0558770109

8.1.1 RESPONSIBILITIES

The following the responsibilities for titles listed, in addition to those all persons have the authority to stop the works if they feel them to be unsafe.

8.1.1.1 Project Manager

The Contractor's Project Manager will manage and coordinate the relevant activities covered in this Method Statement. Major responsibilities relating to the scope covered will include:

- Maintaining effective communication with stakeholders for access to existing facility and facilitating data collection and porting.
- Ensuring Quality and EHS policies and procedures are fully implemented and enforced during the execution of these works and on the Project as a whole.
- Supervising the subcontracted work, managing performance, reporting progress and initiating action to assure objectives and schedules are met.
- Resolving problems, identifying issues and recommending remedial action.
- Defining and communicating roles and responsibilities to team members.
- Identifying quality requirements and ensuring the proper processes are identified and implemented to achieve quality requirements.
- Providing leadership to the project team.

8.1.1.2 Construction Manager

The Construction Manager will plan, organise and direct all associated activities, check that all activities are in compliance with specifications and requirements, and manage the execution of the activities.

Major responsibilities will include:

- Implementing and maintaining all construction procedures.
- Managing site safety site health, safety and environmental policy.
- Ensuring that sufficient and appropriate supervision and execution resources are used.
- Coordinating all jobsite activities, including actions of subcontractors, suppliers, service providers, and representatives.
- Coordinating all jobsite subcontractors to assure that project EHS and quality objectives are met.
- Coordinating with purchasing the delivery of materials and equipment, with work priorities and issues.

8.1.1.3 Project Engineer / Site Engineer

- Shall be in charge of daily delegation of work and issuing targets as per the requirements of the project and the construction programme.
- Shall coordinate with the other site engineer for any site related issues and concerns.

- Shall prepare weekly progress report and submit it to project manager for review and action.
- Shall coordinate with the material coordinator for ensuring the materials are available at the time of use.
- Shall update project manager on present or upcoming developments and any issues.
- To ensure that all the problems are tackled effectively along with the cooperation of supervisors and foremen.
- To ensure that all the latest approved drawings are available for use prior to commencement of the work at any particular area.
- To ensure that all the works carried out is done in accordance with the latest approved drawings and program of works.
- Shall be responsible for arrangements & availability of materials, their usage & handover as required.

8.1.1.4 QA/QC Engineer

- Shall carry out inspections and recording of incoming product/ material quality.
- Monitoring the implementation and compliance of ISO 9001 & QMS requirements at Site.
- To monitor and inspect carried out installation works at site & to submit for approvals from main contractor/consultants.
- Plan and conduct qualification tests and take corrective actions, if any, with the help of superiors.
- Take corrective and preventive actions for product discrepancies to reduce scrap / rework and improve quality.
- Identification, issue and withdraw of monitoring and measuring devices.
- Ensuring that the external or internal origin documents used in process or inspection are of latest revision.
- Accepting or rejecting the product in any stage of the inspection.

8.1.1.5 Site Safety Officer

- Responsible for advising the project team the company's health and safety program and legal requirements at site.
- Identify health and safety concerns at site. Investigate and administer appropriate procedures to rectify the same.
- Communicate with site management and workers on the requisite health and safety procedures and regulations.
- Investigate accident/incident and near miss.
- Conduct site induction, safety training & toolbox talks.

- Coordinate and conduct work area assessments and evaluate, to determine the presence of any hazardous conditions, such as unsafe conditions, hazards and any other risks.
- Evaluate hazardous conditions and recommend controls as per the hierarchy of control.
- Maintain records as required.
- Collect, analyse and maintain data essential for effective safety and environmental programs.
- Monitor and authenticate the use of work permits and checklists. Scope of Work.

8.1.1.6 Supervisors at all Levels (Supervisor / Foreman / Charge Hand)

- Ensuring knowledge of and compliance with company policies, procedures.
- Health safety and Environmental standards and site HSE rules.
- Supervisors must ensure that all tasks undertaken have been risk assessed and a safe system of work in place prior to any work commencing.
- Supervisors must be knowledgeable regarding all aspects of Health Safety and environmental practices on their projects.
- They must be aware of the nature of work that has unusually high incidents or accidents. Supervisors should know what aspects of the work require special HSE precautions.

8.2 Key Plant & Equipment

Machinery and equipment used at site shall be inspected and relevant 3rd party certificates should be available at site, and personnel involved should be trained and competent.

Each item of plant will be inspected on a daily basis and a checklist maintained accordingly.

Description of anticipated equipment detailed below.

Description	Qty	Activity
20t Excavator - Komatsu PC 200	3	General excavation
Backhoe – JCB 3CX or similar	1	General excavation and loading
Wheel Loader – CAT950 or similar	3	Levelling and loading
Roller – SDR (10ton – 12ton)	2	Compaction
Pedestrian Roller (1ton)	1	Compaction
Plate Compactor	1	Compaction
Tipper Truck – 18m3	5	Site Hauling (not including delivery)
7T Hiab or Boom Loader	1	Materials Shifting
Power Tools & Hand tools		As Required

8.3 Key Materials

Description	Qty	Activity
Imported fill (if required)	TBA	Filling and compaction

9 Hazard Identification, Risk Assessment and Control

All ESH regulatory, contractual and project requirements will be adhered to at all times during the performance of the activity.

9.1 Risk Assessment

An Environmental, Health & Safety Plan has been prepared for compliance by Contractor during the execution of the Works.

A Risk Assessment (RA) detailing activities and associated risks and control has been prepared and is enclosed as Appendix 1.

The team performing the activities described herein will be briefed in the contents of the Method Statement and Risk Assessment (MRSA) and a record kept confirming that all team members understand the activities, risks and controls.

Each day, prior to the start of the work a pre-start meeting shall be conducted to discuss the safety aspects of the work for that day. Any changes to work procedures and methods shall be documented and recorded in the MRSA as applicable.

9.2 Inductions

All persons entering the Project site shall attend Contractor's Safety Induction prior to commencing any activities on site.

9.3 Pre-start Meetings

Prestart meetings shall be held daily by the site supervisor for the team. Pre-start meetings are interactive meetings where the day's activities shall be discussed, and risks and hazards associated with the works are highlighted and reviewed.

These shall be interactive where the team are questioned on their knowledge of the activities and the risk associated to confirm their knowledge

9.4 Task Specific PPE

The following PPE should be used as a minimum in the performance of the tasks and activities detailed herein.

REFERENCE	LOCTION / SPECIFICATION
Safety Helmet	Mandatory
Safety Footwear	Mandatory
Hearing Protection • **Ear plugs** • **Earmuffs**	Task Specific Ear Plugs must be available for immediate use where works specifies, or vicinity noise level exceeds 85dBA. Earmuffs must be available for immediate use where works specifies or vicinity noise level exceeds 95dBA.
High visibility clothing	Mandatory
Gloves	Mandator
Face Mask	Task Specific: Dust Generating activity
Safety Glasses	Mandatory

9.5 Permits and Approvals

Approval is required from the stakeholders prior to the implementation of the activities described herein. All safety protocols and conditions are to be strictly adhered to.

9.5.1 WORK PERMITS

Permits shall be in accordance with the BKG permit to work procedure.

9.5.2 LOCAL AUTHORITY APPROVALS

The following Local Authority Approvals are related to the works described herein. Copies of relevant NOC's to be held at site.

REFERENCE	DESCIPTION
386306 -2-1	Site Mobilization Permit
100448575	Informational NOC's (if required)
TBC	Sand Transfer Permits (if required)

9.6 Access and Egress

- Traffic flagman shall be stationed at excavation, fill and stockpile locations and as required for specific equipment activity, they shall be provided a safe location to stand.
- Safe excavation access is essential to prevent accidents and ensure the well-being of workers during construction projects that involve excavation work Access to excavations will be provided by the following on a case-by-case basis:
- Designate specific entry and exit points for personnel to access the excavation site. Clearly mark these points with signs and barriers to prevent unauthorized access and guide workers safely. Limit access to the excavation site to authorized personnel only.
- Maintain clear and safe pathways for workers to access the excavation site without obstructions or trip hazards.
- Regularly inspect access paths to ensure they are free from debris and other potential hazards.
- Provide stable and properly constructed entry points, such as ramps or stairways, to allow workers to access the excavation safely.
- Avoid makeshift or unstable access points that could lead to slips, trips, or falls.
- The type of access shall consider both plant and personnel as well as subsequent works required within or adjacent to the excavation. Personnel access to an excavation shall be provided at both sides of the excavation where work is being performed.
- Ensure adequate lighting is available during low-light conditions or nighttime work to improve visibility and prevent accidents.
- Install guardrails and barriers around the excavation site to prevent accidental falls and restrict access to unauthorized individuals.
- Use clear and visible signs to indicate potential hazards, entry points, and emergency procedures.
- Display warning signs and information about the excavation work in prominent locations.

- **Work at height means work in any place where, if there were no precautions in place, a person could fall a distance liable to cause personal injury.**
  - Before working at height these steps shall be followed:
  - Avoid work at height where it is reasonably practicable to do so. do as much work as possible at ground level.
  - Where work at height cannot be avoided, prevent falls using either an existing place of work that is already safe or the right type of equipment. Always consider measures that protect everyone who is at risk (collective protection) before measures that protect only the individual (personal protection). Collective protection is equipment that does not require the person working at height to act to be effective, for example a permanent or temporary guard rail. Scaffolding and MEWPS.
  - Ensure all work at height is properly planned, supervised and carried out by competent operatives.

- Minimize the distance and consequences of a fall, by using the right type of equipment where the risk cannot be eliminated.
- Ensure workers can get safely to and from where they work at height.
- Ensure equipment is suitable, stable and strong enough for the job, maintained and checked regularly.
- Make sure you don't overload or overreach when working at height.
- Provide protection from falling objects such as toe boards, tethered tools and tool bags. stop materials or objects from falling or, if it is not reasonably practicable to prevent objects falling, take suitable and sufficient measures to make sure no one can be injured, eg use exclusion zones to keep people away or mesh on scaffold to stop materials such as containment components falling off.
- Consider the emergency evacuation and rescue procedures are in place. Plan for emergencies and rescue. Think about foreseeable situations and make sure employees know the emergency procedures.

10 Environmental Requirements

10.1 General

Contractor will continually improve site environmental performance in compliance with its Construction Environmental Management Plan (CEMP) and in achieving the following objectives;

- Ensure legislative compliance to applicable standards and provide guidance on environmental protection.
- Provide effective, site-specific, and implementable procedures and mitigation measures to monitor and control environmental impacts throughout the construction phase of the Project.
- Assist in maintaining environmental awareness amongst the Project team.
- Ensure that construction activities do not adversely impact the environment in the surrounding area.
- Report regularly on our environmental performance and take remedial action where Performance does not meet expectation.
- Zero Environmental incidents

Where required

- Necessary spill containment kits shall be made available.
- Any chemical spill shall be reported to the line management or supervisor immediately.
- All equipment shall be properly maintained to avoid contamination of the environment.
- Drip trays/pans shall be provided for vehicle / mobile equipment while being serviced / repaired where there is possibility of oil and/or chemical spill.

10.2 Waste Management

Waste will be managed in accordance with the Project specific Waste Management Plan.

There are no specific waste management procedures associated with the activities described within this document.

11 Quality Control

11.1 General Requirements

The team performing the activities described herein will be briefed in the contents of the Method Statement and Inspection & Test Plan and a record kept confirming that all team members understand the requirements and controls.

A copy of the briefing sheet shall be kept at the specific work area where the activities are being performed.

Each day, prior to the start of the work a pre-start meeting shall be conducted to discuss the quality aspects of the work for that day. Any changes to work procedures and methods shall be documented and recorded as applicable.

11.2 Inspection & Testing

An ITP has been prepared to summarize inspection and testing protocols. At predetermined stages of works, the appropriate inspections or tests will be undertaken and will be submitted as specified.

- All Inspection for earthworks shall be conducted and coordinated with PMC/TA as per ITP.
- Contractor personnel shall perform inspection of earth placement and compaction procedures including ensuring field testing is done to confirm that the requirements of the specification are met, and that testing is conducted by an approved third-party laboratory.
- Confirmation of TA acceptance of subgrade to be obtained prior to placement of fill for 1st layer and succeeding layers.
- Delivered fill materials are to be received, inspected and tested in accordance with the ITP and MAR approved by TA.

11.2.1 CLASSIFICATION TESTING

The approved, independent laboratory shall visually classify all soil to be tested and shall verify that the density test results are representative of the entire placement area being tested for acceptance.

Classification testing including gradation and plasticity characteristics shall be performed when changes in material type are noted and at the frequencies detailed in the specification.

11.2.2 MOISTURE DENSITY / MAXIMUM – MINIMUM DENSITY TESTING

Laboratory testing is required for compaction control, including moisture – density relationships or maximum – minimum density determinations, as applicable. This must be performed initially for each fill and subgrade type to be compacted.

Additional tests shall be run if changes in material type become evident, as determined either by visual observation or as indicated in test results.

11.2.3 FIELD TESTING

Either sand-cone method or nuclear methods may be used. Tests shall be performed in accordance with the Project Specifications

The frequency of field density tests of compacted fill and backfill shall be as defined in the applicable specifications. Codes and Standards.

11.3 Checklists

Checklists for the activities detailed in this document have been included in Appendix 3.

11.4 Non-Conformances

Contractor will ensure that all Non-conformances and observations are dealt with in accordance with its internal systems and procedure and in compliance with its Project Quality Plan. This includes identification, investigation and analysis, implementation of corrective action and preventative action and subsequent follow up.

12. Emergency Arrangements

Where applicable, the Contractor shall comply with the approved Emergency Management Plan

(**DXB9-BKG-SW-PL-0008**). Sufficient supplies of first aid and other necessary medical supplies are to be provided at the site.

Emergency numbers are also to be displayed at site.

Relevant persons should be contacted as soon as practically possible in the event of an emergency.

Function / Role	Name	Contact Details
Project Manager - BKG	Mohammed Fouad	055 8760196
Construction Manager	Ramesh Madhav	050 2243273
HSE Manager	Sandeep Verghese	055 8762836
Project Engineer	Raja	0558770109
Police		999
Civil Defence		997
Ambulance		998

13 Interfaces

Interfacing with the existing Etisalat Data Center will be required for the installation of the vibration monitoring equipment and the subsequent data collection.

Contractor and its Subcontractor will manage required interfacing through the PMC.

Appendices

Appendix 1 – Risk Assessment

Appendix 1 - RISK ASSESSMENT CONTROL SHEET – HEALTH AND SAFETY

HSE Manager	Responsible Area Supervisor / Work Supervisor	Consultation (Work group Rep)
Sandeep Verghese	Ajimon antony	Civil Works

Act. No.	Activity	Potential HSE Hazards / Aspect	Consequence/Impact	Who @ Risk (People/Property, Environment etc.)	Category (Routine/ Non-Routine)	Pure Risk			Control Measures	Residual Risk			Action By Whom / When
						P	S	RR		P	S	RR	
1	**Deliveries/ Transportation of Materials**	• Moving vehicles • Unsecured Loads • Plant personnel interface • Overloading • Existing utilities	• Fatality • Personal injury. • Property damage • Traffic incidents	• Group Personnel • Subcontractors • Property Damage • Third-Party Property	• Routine	3	5	15	• All vehicles entering site shall be coordinated through the logistics manager. • Develop a comprehensive traffic & pedestrian management plan that considers the layout of the construction site, potential hazards, and traffic flow patterns. The plan will include designated routes, signage, and speed limits. • Clearly mark the construction site boundaries with appropriate signs and barriers to inform drivers and pedestrians about potential hazards. • Establish designated access points for construction vehicles separate from pedestrian and regular traffic routes. • All drivers in possession of valid UAE license and any required 3rd party certification • Al vehicles are compliant with UAE regulations related to registration, Insurance, and periodic inspection and Third-party certification. • Loads to be checked prior to entry to site to ensure that they are safe and stable All vehicles kept within their SWL. • All loads to be placed within confines of trailers unless designated and labelled as oversized loads and escorted from point of dispatched to receiving area. • All loads to be restrained/secured using approved ratchet straps or other restraints.	1	5	5	• Logistic Manager • Construction Manager • Site Manager • Site Engineer • Plant Operator • HSE • Before commencement and during activity

									• Access to flatbed trailers shall be restricted to essential personnel only to avoid wherever possible the risk of falls from height. Fall from height protection to be provided if required to access flatbed trucks. • All trucks shall have their wheels chocked to prevent movement during unloading operations. • All delivery trucks shall use define and approved access routes only. These routes shall be well compacted and maintained. Any height deviation encountered near to access routes shall be protected by hard barricading, warning signs and flashing beacons. • Loading and unloading areas shall be clearly defined and protected from other plant movement during unloading and loading operations. • Traffic movement shall be controlled by competent third-party banksman. • Implement reduced speed limits within the construction zone and enforce them through speed bumps, speed limit signs in high-risk areas. The site speed limit to be followed and enforced at all times. • Establishment of pedestrian walkways where possible. Install physical barriers such as fences, guardrails, or bollards to separate pedestrian areas from vehicle or machinery zones. These barriers should be sturdy and clearly visible to prevent accidental entry into restricted areas. • All vehicles fitted with audible reverse alarms, flashing lights. • All vehicles reversing controlled by trained banksman. • All vehicles & plant shall behave the engine turned off during unloading operations. • Provision of site driving rules, access and egress and works adequate signage. • Place clear and visible safety signs throughout the plant to indicate pedestrian-only areas, restricted zones, or areas with potential hazards. Use standardized safety symbols and				

									multi-language messages that are easily understood by all. • Ensure adequate lighting in the construction area, especially during night shifts, to enhance visibility for drivers and workers. • All subcontractors' supplier drivers given site induction prior to access project. All drivers shall wear the site mandatory 5 points of PPE when not in their vehicles. • All drivers in possession of valid UAE Driving license and any required 3rd party certification.				
2	**Transportation and tipping of excavated material using tipper trucks**	• Overloading • Unstable ground/ Work Area • Unsecured Load • Falling Materials • Mechanical failure • Poorly maintained/ Unstable haul roads • Close proximity to excavated areas • Plant Pedestrian Interface • Existing Utilities • Noise and Vibration • Limited visibility • Operator error • Work at height • Adverse weather conditions	• Fatality • Impact Crush Injuries • Tip-Over • Slips, Trips & Falls • collisions with other vehicles • Collisions with Pedestrians • unsafe tipper truck operations. • Hearing damage • Vibration related ill health • Property damage • Environmental/Dust	• Group Personnel • Subcontractors • Property Damage • Environment • Third-Party Property	• Routine				• All traffic movement controlled and coordinated through the logistic manager • Provide comprehensive training for all tipper truck operators, covering safe operating practices, hazard awareness, and emergency procedures. • Implement clear traffic management plans, Implement site speed limits 10 Kmph provide designated pedestrian walkways, and use spotters or warning systems to prevent worker-vehicle collisions. Implement traffic management plans, use warning signs, and provide adequate training for drivers. • Establish designated travel routes and traffic flow to keep tippers at a safe distance from pedestrian routes, unstable ground, existing utilities or excavations. Travel routes shall be well compacted and maintained. Any height deviation encountered near to access routes shall be protected by hard barricading, warning signs and flashing beacons. • Conduct routine inspections of the haul roads to identify potential hazards, such as potholes, cracks, loose gravel, or erosion. • Implement traffic control measures, such as one-way systems or spotters, to ensure safe manoeuvring of tippers near to pedestrian routes, unstable				• Logistic Manager • Construction Manager • Site Manager • Site Engineer • Plant Operator • HSE • Before commencement and during activity

									ground, existing utilities or excavations. • Regularly inspect and maintain all mechanical components of the tipper bed, including hydraulics and locks. • Place appropriate warning signs, speed limit signs, and clear instructions for tipper truck operations. • Strictly adhere to the manufacturer's load capacity specifications • Ensure that the truck is parked on stable ground and that any safety devices such as breaks, wheel chocks, outriggers or stabilizers are fully extended and secure before raising or lowering the truck bed. • Erect physical barriers, such as fences or guardrails, around the edge of the excavation to prevent tipper trucks from accidentally driving or tipping over the edge. • Where any vehicle is used for tipping material into any excavation or over the edge of any embankment or earth work, well anchored stop blocks shall be used to prevent the vehicles overrunning the edge parking area capable of withstanding imposed loads shall be provided for loading/unloading equipment and vehicles. • Regularly assess the ground stability around the excavation and take necessary precautions to prevent ground collapse or cave-ins. • Install shoring or other stabilization methods as required to maintain safe working conditions. • Properly secure the load and conduct regular checks during transportation. Use containment methods, such as				

									tarpaulins or netting, to prevent materials from falling during transport. • Regularly inspect and maintain all mechanical components of the tipper bed, including hydraulics and locks. Follow the manufacturers maintenance schedule. • Install mirrors on the truck to improve visibility, and train drivers to use them effectively. Ensure that trained flagmen are deployed to guide and control traffic movement • Provide stable access steps and handholds, and ensure workers wear appropriate footwear for safe access and egress to the cab of the truck. Drivers leaving the truck shall wear the mandatory PPE at all times. • Reduce speeds and exercise extra caution during adverse weather conditions. Regularly inspect and maintain haul roads to ensure they are safe and suitable for tipper truck operations. • Use noise-cancelling or protective ear equipment, and implement vibration reduction measures in the truck cabin. • Use water trucks, dust suppressants, or road watering systems as appropriate. • All drivers in possession of valid UAE Driving license and any required 3rd party certification.					
3	**Unloading and placing of utility materials by Crane / Hiab**	• Failure of lifting gear • Mechanical failure • Collision with other plant and equipment • Overloading of crane	• Fatality • Impact crush/ Injury to personnel • Manual Handling • Injuries/Pinch points • Crane Overturning • Property Damage to plant & Machinery • Utility Damage	• Group Personnel • Subcontractors • Existing Utility • Third Party Property	• Routine	**4**	**5**	**20**	• All lifting comprehensively planned, and the lift plan authorized and signed by the Appointed Person. Planning should involve inspection of the site, consultation with, crane hirer and any utility stake holder that may be affected. • BKG permit to lift permit required before commencement of lifting. • Appointed person, lifting supervisor, Rigger/Banksman, and crane operator	**1**	**5**	**5**	• Logistic Manager • Construction Manager • Appointed Person • Site Manager • Site Engineer • Crane Operator • Rigger/Banksman

		• Wrong selection of crane and lifting accessories • Uncontrolled load • Falling Material • Adverse/Severe Weather • Existing Utilities above and below ground • Ground instability • Poorly maintained plant	• Fire • Environmental impact/ oil and fluid leaks •						to be competent and third party certified. • Before starting work, check the work area for the presence of existing utilities, overhead powerlines, nearby structures, other cranes, aerial hazards, and other obstructions. • Establish and use a set of standardized hand signals that are well understood by the crane operator and signal person. These signals should be clear, distinct, and properly communicated before initiating any lifting operations. Alternatively Utilize two-way radios or other reliable communication devices to maintain constant and clear communication between the crane operator, signal person, and other relevant personnel. Ensure that everyone involved is familiar with the radio protocols and uses them consistently. • Crane access routes shall be clearly defined and well compacted. Existing utilities if any shall be clearly identified. The ground bearing capacity required by the crane shall be verified as stipulated within the relevant lift plan. When working near excavation works (trenches) a safe distance of one and half the depth of the trench shall be maintained between the crane and the edge of the trench • The work area shall be excluded by using temporary barriers or fencing and warning signs positioned in advance of the lifting zone. People, vehicles, and other plant shall be prohibited from entering the isolated area. • Maintenance including preventive maintenance and repairs shall be conducted in accordance with the manufacturer's recommendations. • Brief everyone involved in the task on the hazards and control measures within this MSRA. Prior to lifting operations, conduct a pre-lift meeting involving the crane operator, signal person, and other relevant personnel. Clarify the lift plan, establish				• HSE • Before commencement and during activity

									communication procedures, and address any specific concerns or hazards related to the operation. • Before allowing the crane on site The Lifting Supervisor shall ensure that the crane has been thoroughly inspected and certified in accordance with the relevant authority and in line with project (Each crane on site shall be thoroughly examined every 12 months by a competent person of a third-party company) requirements. • The crane operator shall maintain a daily inspection of the crane. The crane shall be of sufficient capacity and configuration to perform the task as stipulated within the relevant lift plan. The cranes outriggers shall be fully extended when lifting. • The cranes shall be placed on stable ground of sufficient ground loading capacity as determined by the relevant lifting plan, all the precautionary measures shall be taken to ensure the stability of the crane, and that, may be achieved by using adequate timber mats. Previous soil disturbance must be considered when locating the crane. • No chain, rope or lifting gear shall be used in raising or lowering or as a means of suspension unless: It is of good construction, sound material, adequate strength, suitable quality and free from patent defects. It has been tested by a competent person of a third-party company every six months and obtain a certificate from this company (signed by the competent person) specifying the safe working load. The SWL shall be clearly identified on all lifting equipment. • All cranes shall be provided with an automatic safe load indicator with a visual warning to the crane operator and an audible warning to those in the vicinity. • Rigging equipment for unloading shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging				

									equipment shall be removed from site or placed into a quarantine area of the store. • In case using a sling of multi sling legs, the safe working loads at different angles of the leg shall not be exceeded. The upper ends of sling legs shall be connected by means of a shackle ring or link of adequate strength. Chains or slings shall not be shortened using knots or bolts. • The load shall be attached/detached to the crane by competent Third-party riggers only. Avoidance of pinch points and hand safety shall be followed. The centre of gravity of the load to prevent uncontrolled swinging shall be determined Riggers shall wear tough rigger gloves. • Before lifting any load, the lifting supervisor shall ensure everyone is removed from the swing radius. No-one shall be permitted to stand under a suspended load. Tag lines of sufficient length shall be used to secure the load. The SWL of the crane as per its configuration and as stipulated within the lift plan shall never be exceeded. • Before and during work, nobody other than the operator shall sit in the operator's seat or climb onto the crane to avoid inadvertent operation • Early weather warnings shall be monitored and lifting operations suspended in advance if the weather condition is likely impact the stability or safety of the crane or the visibility of those involved in the task. • In all cases lifting shall be suspended if the wind speed exceeds 38 KMPH					
4	**Unloading and placement of material using telescopic handler/Forklift**	• Overloading • Unstable Load • Poor Visibility • Mechanical Failure • Uneven/Un-level Ground	• Fatality • Overturning • Falling Material • Impact-Crush Injuries • Trapping • Hand Finger Injuries	• Group Personnel • Subcontractors • Property damage	• Routine	**4**	**5**	**20**	• All Telehandler operators to be competent, trained and third party certified. Drivers shall be trained, competent and authorized to operate the specific telehandler used. • Conduct thorough pre-use inspections of the telehandler before each shift. Check for any signs of damage or malfunction in the controls, tires,	**1**	**5**	**5**	• Logistic Manager • Construction Manager • Site Manager • Site Engineer • Plant Operator • Banksman • HSE

		• Operator Error • Over speeding • Pedestrian Movement • Pinch Points • Existing Utilities • Existing structures/ Scaffolds • Re-fuelling/Hot Surfaces. • Diesel Fumes. • Noise	• Property Damage • Fire/Explosion • Ill health due to fume exposure • Noise Induced Hearing Loss						hydraulics, brakes, lights, and attachments. Address any issues promptly before operating the equipment. • A safe workplace for all vehicle operations must be established by separating pedestrians and vehicles and providing hazard-free traffic routes. Check above ground for overhead power, branches, beams and structures. Underground utilities to be identified and protected in any traffic routes. • Assess the ground conditions where the telehandler will be operated. Avoid operating on unstable or uneven terrain, such as soft soil, steep slopes, or areas prone to collapse. Always Use appropriate measures, such as stabilizers or outriggers, if required. • Working on sloping, uneven or unstable ground to be avoided. Prepared, flat, graded surfaces to be prepared. Check ground condition and slopes and remove all foreign objects. Keep level at all times. Never operate on slopes exceeding 15^0. Do not travel across slopes or roll over may occur. Always keep attachments and loads as close to ground as possible and travel with heaviest end uphill and avoid turning on slopes. • Overloading to be prevented by selection of the correct vehicle and good management. Moving with a raised load should be avoided at all times. • Use safe lifting techniques. Keep the load as close as possible to the attachment carriage, assess the weight and tip point of the load before raising forks. Limit the load to the rated load capacity as shown on the load chart. • Ensure loads are centered & secure.Do not lift loads over persons. • The safe operating parameters of the telehandler shall not be exceeded. Front outriggers shall be deployed				• Before commencement and during activity

									when required to facilitate loading and off loading of material. • The site speed limit of 10Kmph to be followed. The travelling speed of the telehandler to be reduced to a minimum when driving round corners to prevent overturning. • Avoid sharp turns and heavy braking, and ensure tyres pressures are at the recommended level • Telehandlers to have unobstructed view around them directly from the driver position. Drivers not to install ad-hoc shades and other material that may obstruct their view • The vehicle shall be equipped with adequate aids so drivers can see areas where people may be at risk. A Banksman shall direct all telehandler operations where the telehandler operators view may be impaired such as reversing. • All safety devices such as reverse alarms and warning lights shall be in working condition and checked by the operator on a daily basis. • Stop Engine at all times if operatives are required to be in close proximity of the telehandler/Forklift. • Stop engine before refueling. Do not refuel while the engine is hot. • Carry out visual checks for fuel leaks and repair before operation. Prevent any fuel spillage during re-fueling. • Observe the warning label on engine. • Keep flammables away from the engine. • Do not smoke while operating, servicing, or refueling this machine. • Refuel in well-ventilated area. • Do not operate the telehandler in confinedspace. Use in well-ventilated area, preferably with fume extraction ventilation. Avoid breathing or coming into contact with fuel. • Establish a regular maintenance and servicing schedule for the telehandler. Follow manufacturer guidelines for				

									inspections, lubrication, and component replacements • Noise levels to be monitored and hearing protection to be worn id noise levels exceed or are likely to exceed the safe limit.				
5	**Temporary Storage of materials at site**	• Unsafe racking of materials • Smoking near flammable storage area. • Material fall / collapse • Standing on boxes instead of ladders	• Personnel injury, • Damage of materials • Environmental pollution	• Operatives • Group Personnel • Subcontractors	• Routine	**3**	**4**	**12**	• Daily briefing and TBT awareness training shall be conducted before starting the task to all operatives about the potential hazards and risks on daily basis. • Storage should be carried out in designated places on the site. • All materials stacked safely and area to be barricaded. • Signage's to be provided, materials and equipment will be maintained in an orderly manner that reduces or prevents the possibility of fire spread. • Materials must not be stored in a manner that obstructs fire extinguishers, alarms, emergency exits, electrical panels and walkways etc. • Safe access to be provided to the storage area. • No excess storage of materials to be done in the workplace only required quantity to be taken from main store. • Do not over stack materials. Store heavier items on lower shelves or closer to the ground to maintain stability and prevent toppling or collapsing. Avoid exceeding weight limits for storage racks or shelves, and regularly inspect them for any signs of overloading or structural issues. • Implement fire prevention measures in the storage area. Install appropriate fire detection systems, fire extinguishers, Maintain clear access paths for firefighting personnel and ensure that flammable materials are stored away from potential ignition sources. • Hazardous materials such as thread cutting oil, paint, and thinner shall be stored within the designated BK GULF	**1**	**4**	**4**	• Logistic Manager • Construction Manager • Site Manager • Site Engineer • Plant Operator • HSE • Before commencement and during activity

									hazardous material storage area as per MSDS Recommendations. • Always keep chemical containers tightly closed.					
6	**Storage of excavated materials**	• structural instability • Uneven or improperly stored material • Material stored at heights • Falling Material • Contact with Hazardous Material • Soil Erosion and Runoff • Adverse Weather • Equipment Overturning	• Impact Injuries • Slips Trips & Falls • Collapse or Cave-in • Overturning Plant Or Equipment • Dust • Respiratory hazards	• Operatives • Group Personnel • Subcontractor • Property Damage • Nearby communities • Environment	Routine	**4**	**4**	**16**	• Designated storage area to be provided for excavated material • Stack and arrange excavated material in organized piles or designated storage areas to minimize the risk of tripping or slipping. • Ensure the storage area has stable ground and use proper grading and support methods to prevent shifting or sliding of the stored material. • Excavated materials/spoils shall be placed at least 60 cm (2 feet) away from the edge of an excavation and shall not be accumulated higher than 1.5 times of this distance. • Excavated materials/spoils shall not be kept next to existing structure or walls, and the height level of the excavated materials/spoils shall not be higher than the height of these walls. • Stack material in stable, layered formations and avoid creating steep slopes or tall piles that could become unstable. • Spay water on excavated materials to keep dust particles from becoming airborne. This is especially important in dry and windy conditions. • Properly shape and cover stockpiles of excavated materials to minimize exposed surfaces and reduce dust generation. • Use retaining walls or barricades to prevent material from falling and establish exclusion zones to keep workers clear of potential falling hazards. • Limit heavy equipment operations near the storage area and ensure proper ground compaction and stabilization. • Identify and handle any hazardous materials located within the excavated material and ensure they are disposed	**1**	**4**	**4**	• Logistic Manager • Construction Manager • Site Manager • Site Engineer • Plant Operator • Banksman • HSE

									of according to local regulations and safety protocols. • Ensure workers wear appropriate PPE, such as dust masks or respirators, when working with excavated materials in dusty environments. • In periods of adverse weather Implement erosion control measures, such as silt fences or erosion blankets, to prevent soil erosion and runoff.				
7	**Temporary Power Supply for lights and power tools**	• Live Electricity • Electrocution • Trailing Cables • Slips trips and falls. • Falling Objects • Fire	• Fatality • Electrocution • Slip & Trip Injuries • Burns • Fire • Property Damage	• Group Personnel • Subcontractors • Property Damage	• Routine	**3**	**5**	**15**	• All electrical installations to be carried out by competent electricians under close supervision of the electrical supervisor. BKG permit to work to be obtained if working on or near to live services. LOTO procedure to be followed. • Take weather conditions into account when installing temporary electrical power systems. Protect equipment and connections from rain, and extreme temperatures. Use weatherproof enclosures and covers where necessary. • All the electrical installations for the temporary facilities comply with the requirements of local regulatory authorities. • Adhere to DEWA guidelines for wiring and grounding of temporary electrical systems. Use proper insulation, conduit, and grounding methods to prevent electrical shocks, faults, and fire hazards. • Install temporary power panels that comply with DEWA requirements. These panels should have appropriate circuit breakers, safety switches, and overload protection devices to ensure the safety of workers and prevent electrical faults. • Conduct regular inspections of temporary electric power systems to identify any potential hazards,	**1**	**5**	**5**	• Logistics Manager/Appointed Person • Electrical Engineer • Construction Manager • Site Manager • Site Engineer • Site Electrician • HSE

									damaged equipment, or faulty connections. Promptly address any issues to prevent accidents or electrical failures. All temporary installations including DBs to be inspected by a competent person and tagged in line with the project colour code. • Clearly mark all temporary electrical equipment, panels, outlets, and circuits with appropriate signage and labels. Use standardized symbols and warnings to indicate voltage levels, hazard areas, and emergency shut-off points. • All generators shall be earthed and protected from accidental damage. • All generators shall be located in a bund, preferably engineered within the generator. All transformers and main electrical distribution boards shall be located in a secure area to prevent any unauthorized entry. All transformers and main electrical distribution boards shall be earthed. • All electrical equipment used shall be manufactured and installed in accordance with internationally recognized standard. All cables, sockets, connectors, and splitters shall be of an industrial type. Domestic type cabling, connectors and sockets are prohibited in construction areas. Jointing of all electrical cables and wires shall be by means of proprietary terminations or connectors. • Trailing cables shall not be left lying in water or in the path of people or plant. Keep the length of cables as short as possible and do not leave lengths of cables coiled on the spool as this causes a risk of fire			

									• Electricians to use insulated tools and wear insulated gloves and footwear when installing or maintaining electrical installations. • Temporary cables to be routed safely through nonconductive material and protected from damage. All buried cables shall be externally marked. • All temporary lights shall be fixed securely on stands and those stands shall be secured to prevent falling. The lights shall be of sufficient height to prevent galre. • Suitable fire extinguishers Co2 to be available near to electrical installation and maintained ready for use.				
8	**Use of Hand Tools/Power Tools**	• Manual handling • Pinch points • Projectiles • Sharps • Electricity • Trailing Cables • Dust • Noise • Vibration • Rotating/Moving Parts • Falling Objects	• Electric shock • Electrocution • Drawn in Injuries • Impact Injuries • Cuts/lacerations • Soft Tissue Injuries • Fire • Noise Induced hearing Loss. • Hand arm vibration syndrome • Cut injury. • Contusion • Pinch injury • Puncture injury	• Group Personnel • Subcontractors • Property Damage	• Routine	**3**	**4**	**12**	• All power tool operators to be trained. • Operators to Familiarize themselves with the tool: Read the user manual or instructions provided by the manufacturer to understand how to properly operate the tool. Be aware of any specific safety precautions or limitations associated with its use. • All tools to be well maintained and inspected by a competent person. Inspection sticker shall be affixed. • Before using any tool, inspect it for any signs of damage, wear, or defects. Check for loose or broken parts, frayed cords, or dull blades. Do not use a tool that appears damaged or malfunctioning. Ensure that handles are clean, dry, and in good condition for a secure grip. • All tool safety features such as guards, shall be used in accordance with the manufacturer's recommendations. Ensure that power-operated tools are equipped with proper machine guards, such as blade guards,	**1**	**4**	**4**	• Construction Manager • Site Manager • Site Engineer • Operative • HSE

									belt guards, or chuck guards. These guards help prevent contact with moving parts and reduce the risk of entanglement. • Use the tool for its intended purpose and follow the manufacturer's instructions and guidelines. Do not modify or alter the tool, and do not use it in ways it is not designed for. • Hold tools securely with a firm grip, keeping your fingers away from moving parts. Avoid carrying sharp or pointed tools in your pocket or with the blade exposed. Use caution when passing tools to others, ensuring they are handed over safely. • When using power tools, take additional precautions. Ensure that power tools are unplugged or turned off when not in use. Do not disable safety features or guards on power tools. Use appropriate extension cords, and keep them away from heat, water, and sharp edges. When working with cordless tools, use charged batteries and follow manufacturer guidelines for battery safety. • Be aware of people around you when using tools. Keep bystanders at a safe distance, especially when operating power tools that can generate flying debris or produce loud noises. • All power tools shall be 110v unless not available. Tools above 110v are subject to inspection by the electrical team and used under permit. • A BKG hot work permit is required for all tools that produce sources of ignition through sparks or excessive heat such as grinders. • All areas shall be well maintained and free of trip hazards and buildup of combustible materials. Maintain a clean, organized work				

									area with sufficient lighting and space to maneuver the tool safely. • Suitable and sufficient firefighting arrangements shall be provided. Including fire watcher • Cables and hoses shall be routed safely to prevent damage or impose a tripping hazard and where possible off the floor, they shall also be protected from sharp edges. Defective or corroded electrical wires shall not be used and shall be immediately replaced. • Work areas shall be segregated to prevent unauthorized entry. Mandatory and warning signs shall be placed in advance of the work zone. • Tools required to be used at height shall be prevented from falling, tethered tools to be used. Tool bags to be used and no loose tools to be left neat to open edges. • Use tools with the necessary force to achieve a secure and reliable cut/ crimp. Be cautious not to apply excessive force • Ensure that workpieces are properly secured or clamped down before using power tools. This reduces the risk of materials shifting or getting caught in the tool during operation. • Industrial type sockets and plugs color coded shall be used only. • After use, store tools in designated locations to prevent damage and minimize the risk of accidents. Maintain tools regularly, including cleaning, sharpening, and lubricating them as necessary. • Wear the appropriate PPE, such as gloves, safety glasses, or ear protection, as recommended for			

									the specific tool and task. In addition to the mandatory PPE ear defenders shall be worn in identified areas of noise sensitivity. • Wear close-fitting clothing, cover ot tie back long hair to minimize the risk of entanglement. Avoid loose clothing, jewelry, or accessories that can get caught in moving parts. • Suitable dust masks FFP2 or equivalent shall be worn during dust generating activity. Eye protection shall be impact resistant. • Trigger time shall be reduced to acceptable levels for vibration emitting tools. Rotational work patterns shall be adopted.				
9	**Excavation**	• Cave-ins/Collapse • Slips, Trips and Falls • Underground utilities • Hazardous atmospheres • Vibration and ground instability • Engulfment or burial • Heavy machinery and equipment • Falling Objects • Manual Handling • Extreme Temperature • Poor Visibility	• Fatality • Major Injury • Electrocution, or the release of hazardous substances. • Crush Injuries/Fractures • Asphyxiation • Impact Injuries • Heat Stress • Utility Service Disruption	• Group Personnel • Sub-contractor • Third Party • Property Damage	• Routine	**4**	**5**	**20**	• PTW (Excavation/Breaking ground) system shall be strictly followed. • Temporary Works procedure to be implemented in terms of excavation stability. Implement a protective system such as sloping, benching, or shoring to prevent soil collapse. Conduct regular inspections of the excavation to identify signs of instability and take necessary corrective measures. • All excavation works to be carried out under close supervision. CAT scan should be performed using a calibrated instrument and by a competent person prior starting the task. And at intervals determined by the excavation procedure • All existing utilities to be clearly identified by external markers and an approved marked up combined utility drawing available on site • Maintain a safe distance from marked utilities to avoid accidental strikes. Follow local regulations and guidelines that specify the required	**1**	**5**	**5**	• Construction Manager • Logistics Manager • Engineer • Supervisor • Plant Operators • HSE

									minimum clearance distances from utilities. • Excavations greater than 1.25 meters deep shall not be permitted unless a shoring system is provided in accordance with a specific design by a professional organization or by using an open cut excavation In open excavations, the angle of repose shall not be more than 40º measured from the horizontal unless the stability of an excavation sides at a higher slopes is determined by a professional organization and approved by the Engineer. • Excavation below the level of the base of footing of any foundation of any other building shall not be permitted unless a support system such as underpinning and other precautions measures are provided by a professional engineer to ensure the stability of the adjacent walls and to protect employees involved in the excavation activities or in the vicinity thereof. If the stability of adjoining buildings or walls is endangered by excavations, shoring, bracing or underpinning designed by a qualified person and approved by the Specialized Department in Dubai Municipality shall be pro-vided to ensure the stability of the structure and to protect employees. • Excavated materials/spoils shall be placed at least 60 cm (2 feet) away from the edge of an excavation and shall not be accumulated higher than 1.5 times of this distance. • Ensure suitable lighting is available around the excavation, especially during nighttime or low-light conditions. • Provide correct tools, such as shovels, spades, or excavation buckets, designed for efficient and safe soil removal.				

									• Train workers on correct techniques for digging, lifting, and moving soil to minimize strain and reduce the risk of falls. • Provide safe and clearly marked entry and exit points in excavations. Erect sturdy barriers and guardrails around the excavation perimeter to prevent accidental falls. These physical barriers should be designed and installed according to the project edge protection plan. • Keep access and egress paths free from obstructions and ensure they are easily accessible in case of emergencies. Excavations shall be provided with stairs, ladders, or ramps. Ladders used as access ways shall extend from the bottom of the excavation to not less than 90 cm (3 feet) above the surface. At least two stairs, ladders, or ramps, shall be provided with maximum of 15 meters travel distance to facilitate access and egress of employees from excavation. • Secure all materials and tools properly to prevent them from falling into the excavation. Establish barricades or restricted zones around the excavation to keep workers and equipment at a safe distance. • Housekeeping on a daily basis will be maintained on site to ensure that all pathways and edge of excavation are clear of any potential falling objects or obstructions. • Implement traffic control measures to separate workers and equipment from excavation areas. Clearly mark and identify the boundaries of the excavation to prevent accidental entry by vehicles or equipment. Vehicle, Plants and machineries will not be allowed to park close to the edge of the excavation. Restrict vehicle access to essential personnel and authorized areas only. Prohibit non-essential vehicles				

									from entering the excavation to reduce congestion and potential hazards. • If there are potential emission sources near the excavation, such as vehicles or equipment, ensure they are properly maintained and in good working condition to minimize fume release. Use exhaust systems or emission controls on machinery as necessary. Ensure proper ventilation and airflow in excavations to maintain adequate oxygen levels. • Rotate workers between different tasks to avoid prolonged exposure to repetitive movements. • Provide regular breaks to allow workers to rest and recover from repetitive tasks. • Introduce job rotation or task variety to reduce the frequency of repetitive movements. • Follow the project heat stress prevention plan and adhere to the Mid-Day break requirements. • Allow frequent rest breaks in shaded or air-conditioned areas. Encourage workers to take short breaks to cool down and hydrate. • Encourage workers to drink plenty of water throughout the day. Make sure clean, cool drinking water is readily available on-site. • Train workers on the symptoms of heat-related illnesses, such as heat exhaustion and heatstroke. Educate them on the importance of proper hydration and self-monitoring for heat stress. • When working in excavations, it is important to wear appropriate personal protective equipment (PPE) to ensure your safety Hard Hat: Protects your head from falling objects, potential collapses, and overhead hazards, Safety Glasses or Face Shield: Shields your eyes and face from flying debris, dust, or				

									splashes from hazardous materials., High-Visibility Vest or Clothing: Enhances your visibility to others on the site, especially when working around heavy machinery or in low-light conditions, Safety footware provides protection for your feet against falling objects and potential hazards on the ground, Gloves: Depending on the task, use appropriate gloves for general protection or cut-resistant gloves for handling sharp objects. • Hearing Protection: If working in a noisy environment, use earplugs or earmuffs to protect your hearing from excessive noise levels. • Respiratory Protection: Use respiratory protective equipment, such as dust masks or respirators, when working in dusty environments or when there is a risk of exposure to hazardous gases, fumes, or airborne particles.				
10	**Use of plate compactor and Roller**	• Plant Pedestrian Interface • Tipping Over • Inadequately trained operators • Poorly maintained equipment • Pinch Points • Moving Rotating Parts • Manual Handling • Noise Vibration • Overexertion and Fatigue • Fuel hazards • Fumes	• Struck by moving plate compactors or rollers. • Major Injury Fractures • Cuts/ Lacerations • Musculoskeletal injuries • Hand-arm vibration syndrome (HAVS). • Noise Induced Hearing Loss • Fuel Spillages & Leaks • Fire • respiratory and other health issues • Exhaustion Heat Stress	• Group Personnel • Sub-contractor • Third Party • Property Damage	• Routine	**4**	**4**	**16**	• Provide comprehensive training to equipment operators, including safe operation, hazard awareness, and emergency procedures. • Train operators on safe operation techniques, avoid abrupt manoeuvres, and observe recommended speed limits. • Before operating the machine, thoroughly read and understand the manufacturer's operator's manual. Familiarize yourself with the equipment's features, controls, and safety precautions. • Operate the machine in a well ventilated area • Train workers on proper lifting techniques, use mechanical aids for lifting heavy equipment, and provide ergonomic handles and grips. • Regularly inspect and maintain plate compactors and rollers as per the manufacturer's guidelines.	**1**	**4**	**4**	• Construction Manager • Logistics Manager • Engineer • Supervisor • Plant Operators • HSE

									• Establish designated work zones, restrict access to the area being compacted, and use spotters or signalers to guide equipment operators. • Ensure that the equipment is operated on stable ground, avoid steep slopes, and follow the manufacturer's guidelines for safe operation. • Never allow anyone to ride on the plate compactor or roller while it is in operation. • Ensure that all guards are in place and in good condition to prevent accidental contact with moving parts. • Start the plate compactor or roller on level ground and in an open area. Ensure that no one is standing near the machine during start-up. • Follow the proper shut-down procedure to turn off the engine and allow it to cool down before performing any maintenance or refueling. • Provide workers with vibration-dampening gloves, and hearing protection rotate job tasks to limit vibration exposure, and conduct regular health checks for workers. • Refuel the plate compactor and roller in a well-ventilated area, away from open flames, sparks, or other ignition sources. Allow the engine to cool down before refueling. • Store fuel in approved containers and keep them in designated, well-ventilated areas. • Store fuel in approved containers and designated areas away from ignition sources, open flames, or hot surfaces. Implement proper ventilation to disperse any vapors that may accumulate. • Have spill containment kits readily available to respond to spills				

									promptly. Train employees on proper handling and transfer of fuel to minimize spills. • Schedule regular breaks for operators and encourage proper hydration and rest. • PPE. Safety Helmet, Safety Shoes or Boots, High Visibility Vest or Clothing, Safety Glasses or Goggles, Hearing Protection & Gloves:				
11	**Manual Handling of Materials.**	• Poor posture • Potential pinch points • Heavy loads • Falling Objects • Sharps • Uneven loads • Unsecured loads • Overreaching • Poor lifting techniques • People handling, handling heavy, large, awkward, and bulky items	• Back Injuries • Strains and sprains • Cuts /Lacerations • Hand Injuries • Musculoskeletal injuries • Slips Trips & Falls • Fatigue • Property Damage	• Operatives • Group Personnel • Subcontractors	• Routine	**4**	**4**	**16**	• Avoid manual handling whoever possible. • Where practicable, use mechanical equipment to lift and move bulky objects. • Do not exceed Individual physical capabilities when lifting items or pulling cables manually. If you encounter significant resistance, re-evaluate the lifting or pulling technique, use mechanical aids, or seek assistance from additional team members. • Reduce the load to manageable sizes and weights. If possible, break down large or heavy loads into smaller, more manageable parts. This can make lifting and carrying easier and reduce the risk of strain or injury. No employee shall be asked to carry loads above their individual capacity and in any case no load shall exceed 25 kgs. • Reorganize the activity maintain stack and store materials at safe heights good housekeeping and unobstructed walkways. • Assess the load before handling avoid sharp edges, hot surfaces, or broken material. • Secure loads while handling prevent the load from shifting during manual handling. Ensure you have a secure grip on the object you are handling. Use handles, grips, or gloves with appropriate grip support to improve your hold and reduce the risk of objects slipping or falling.	**1**	**4**	**4**	• Logistics Manager • Construction Manager • Site Manager • Site Engineer • Operatives • HSE

									• Wear well maintained, correct fitting and tied safety footwear. • Minimize travel distances by delivering material as close as possible to the required work area. Assess the trave route before manually moving material. Ensure that all routes are free of obstructions, trip hazards or any item that may destabilize the load. During movement. Ensure that the route is suitably and sufficiently illuminated. • Avoid Pinch Points. Do not place your hands between moving objects Maintain hand safety at all times. • Manual handling tasks can be physically demanding. Take regular breaks to rest and recover. Avoid prolonged or repetitive lifting and pulling Rotational work and regular rest breaks. • Brief workers on manual handling techniques, including lifting, carrying, and pushing/pulling. Understand the principles of ergonomics and body mechanics. correct lifting techniques. • Wear appropriate PPE, such as gloves or hand protection, to safeguard against cuts, abrasions, or injuries from sharp edges or rough cables. Depending on the specific work environment, additional PPE such as safety glasses, hard hats, steel-toe boots and high visibility shall be worn.				
12	**Mobilization Of Plant and equipment**	• Plant & Traffic movement • Plant pedestrian interface • Ground instability • Existing Utilities • Misuse of Plant. • Mechanical failure	• Fatality • Injury to personnel • Hand & Finger Injuries • Property Damage to • Utility Damage • Overturning of plant & equipment	• Group Personnel • Sub-contractor • Third Party Property Damage	• Routine	4	5	20	• Traffic and plant movement shall be subject to logistic planning • All plant and equipment arriving on site shall be coordinated through the logistics manager. • Clearly mark and separate pedestrian walkways from areas where plant and machinery operate. • Use barriers, bollards, or fencing to create physical boundaries between pedestrians and plant areas.	**1**	**5**	**5**	• Construction Manager • Logistics Manager • Engineer • Supervisor • Plant Operators • HSE

		• Unauthorized operation • Operator Failure • Manual Handling	• Collision of Plant. • Collision with operatives • Musculoskeletal injuries						• Only concrete pumps approved by Dutco Plant and transport maybe mobilized to site unless prior inspection by site logistics has been carried out to confirm the integrity of the pump has been undertaken • All access and egress routes shall be clearly identified, well compacted and maintained. Plant and pedestrians shall be always segregated. • All existing utilities shall be clearly identified above ground with warning signs and overhead restrictive barriers if required. • Protective barricades, warning signs and flashing lights shall be placed around all excavations. Where any vehicle is used for tipping material into any excavation or over the edge of any embankment or earth work, well anchored stop blocks shall be used to prevent the vehicles overrunning. • Only competent and authorized personnel with valid license & 3rd party certificate shall operate plant and machinery. • Competent Banks man to control plant / vehicles movements and offloading on • All plant and machinery shall be parked in designated areas when not in use. The operator shall turn of the engine and prevent unauthorized access when not in use. • All plant subjected to thorough inspection and maintenance prior to site deployment and reinspected and maintained as per the manufacturers recommendations and as stipulated by the relevant authority. Maintenance shall be by competent technicians only			

									• No defective plant shall be used on site. All systems and safety features such as seat belts, warning indicators, reverse alarms shall be fully operational and checked daily by the operator prior to use. • Unauthorized persons be strictly restricted from enter the offloading area. • Mandatory PPE shall be worn by all plant operators while working outside of the vehicle. • Avoid manual handling wherever possible • Where practicable, use mechanical equipment to lift and move bulky objects. • Reduce the load to manageable sizes and weights. No employee shall be asked to carry loads above their individual capacity and in any case no load shall exceed 25 kgs • Do not access plant unless by proprietary steps • Do Not jump on or off plant • Reorganize the activity maintain good housekeeping and unobstructed walkways. • Wear well maintained, correct fitting and tied footwear. • Minimize travel distances by delivering material as close as possible to the required work area. • Rotational work and regular rest breaks. • Brief workers on correct lifting techniques. • wear appropriate hand protection (cut and abrasion resistant) • Concrete wash out shall not be permitted on site. • Close supervision of high-risk activity.			

13	**Working at Height Using Fixed Scaffolds**	• Overloading of scaffold. • Manual handling. • Fall or partial collapse / structural failure. • Moving vehicles • Weather condition • Person fall from height. • Material may fall from height. • Overhead obstructions.	• Fatality. • Personal injury. • Impact Injuries • Hand & Finger Injuries • Property damage.	• Operatives • Group Personnel • Subcontractors • Existing Utility • Visitors	• Routine	**4**	**5**	**20**	• Do as much work from floor level as practicably possible. • All scaffolds to be designed to withstand the implied loads and in compliance with the BKG temporary works procedure. • All scaffolds shall be erected, altered and dismantled by competent scaffolders only and inspected and tagged by competent scaffold inspectors. • To maintain tower stability the tower shall rest on firm, level ground with the locked castors or base plates properly supported. Never use bricks or building blocks to take the weight of any part of the tower. • The safe working load of the scaffold shall not be exceeded. • Scaffold shall be inspected and green tagged. Before first use, after any event that may effect the integrity of the scaffold such as adverse weather or accidental impact and at periods not exceeding 7 days. • No unauthorized modification of scaffold allowed. Scaffold hand rails and components shall not be removed by operatives to facilitate access. • The scaffold shall be protected from accidental damage from passing plant and equipment. • Safe access and egress shall be maintained at all times. Access only through ladder. Do not jump from one platform to other. • Platform should be clear of unwanted material/tools. • Do not stand on the handrail to over reach the work area Only required personnel should be allowed on the platform.	**1**	**5**	**5**	• Project Manager • Constriction manager • Site Engineer • Works Supervisor • Scaffold Erection / Dismantling Team • Scaffold Inspector • HSE

14	**confined space**	• Cave-ins/Collapse • Slips, Trips and Falls • Underground utilities • Hazardous atmospheres • Vibration and ground instability • Engulfment or burial • Heavy machinery and equipment • Falling Objects • Manual Handling • Extreme Temperature • Poor Visibility	• Fatality • Major Injury • Electrocution, or the release of hazardous substances. • Crush Injuries/Fractures • Asphyxiation • Impact Injuries • Heat Stress • Utility Service Disruption	• Group Personnel • Sub-contractor • Third Party • Property Damage	• Routine	**4**	**5**	**20**	• Confined Space permit to be obtained. • Workforce should be trained to work in confined space. • Confined space entry supervisor should be trained. • Gas/ Air monitors shall be continuously monitored in the confined space. • Exhaust fan ventilation should be sufficient for the size of the confined space. • Access arrangements to the confined space should be secured with signages. • Third party certified Tripod stand shall be provided for emergency rescue. • Confined space watcher shall always be available whilst the activity is being performed. • Hot work shall not be performed. • Adequate illumination shall be provided. • Safe access and egress . • Maintain a safe distance from marked utilities to avoid accidental strikes. Follow local regulations and guidelines that specify the required minimum clearance distances from utilities. • Hearing Protection: If working in a noisy environment, use earplugs or earmuffs to protect your hearing from excessive noise levels. • Respiratory Protection: Use respiratory protective equipment, such as dust masks or respirators, when working in dusty environments or when there is a risk of exposure to hazardous gases, fumes, or airborne particles.	**1**	**5**	**5**	• Construction Manager • Logistics Manager • Engineer • Supervisor • Plant Operators • HSE

15	**Night Working**	• Insufficient lighting Limited visibility: Reduced natural light and poor artificial lighting • Fatigue • Noise disturbances • Shift works sleep disorder	• Traffic collisions • Property damage • Personal injury • Occ. Health issues such as fatigue/stress/Metabolic issues • Disturbance of nocturnal animals	• Group Personnel • Subcontractors • Environment	• Non-Routine	**3**	**3**	**9**	• Provide comprehensive training on the specific hazards associated with night work and how to mitigate them. Follow the project approved night work plan Raise awareness among workers about the importance of staying vigilant and alert during nighttime operations. • Suitable and sufficient illumination to be provided during the hours of darkness. Ensure that the work area is well-lit with appropriate lighting, including portable lighting for specific tasks. Use reflective clothing or high-visibility vests to improve visibility for workers. • Electrician/mechanic to be available for maintenance work and nominated person responsible per shift to ensure that all lighting adequate as per the requirements of the dubai municipality • Light towers erected on firm/level ground. And directed towards the site but angled to prevent glare and distractions to plant and equipment operators . • Conduct frequent site inspections to identify and address any hazards specific to nighttime work. Inspect lighting equipment, working surfaces, and safety measures to ensure they are in good condition. • Develop comprehensive emergency response plans specific to nighttime work, including procedures for medical emergencies, evacuation, and contacting emergency services. Ensure all workers are familiar with these plans. • Personnel involved in night working-eat well, adequate exercise and get enough sleep/rest hours to avoid night works health problem • Adequate supervision who will ensure that no employees to work alone, by providing required workforces for each area of works • Lights shall be positioned to prevent light exposure to wild animals existing habitat	**1**	**3**	**3**	• Logistics Manager • Construction Manager • Site Manager • Site Engineer • Night shift workers • HSE

16	**Working in Adverse whether condition**	• High wind conditions • Rain • Low/poor visibility due to sandstorm/ fog/rain	• Structural Damage • Heat stress • Fatigue • Localized flooding • Collision with other equipment and structures.	• Group Personnel • Subcontractors • Environment	Routine	**3**	**4**	**12**	• Check in advance the local weather report prior to commencing lifting operations. • Site weather monitoring to be implemented. • Loose materials to be secured and prevented from blowing off elevated areas. • Lifting activity shall stop during poor visibility due to sandstorm, fog or rain, as it may affect the control of the load. • Excavations/Pits shall be free of standing water prior to entry. Excavations shall be inspected after periods of heavy rain. • Ensure the weather has returned to a safe operating level before recommending work. • All lifting activities shall be stopped at 38km/hr. Temp works shall be reinspected after adverse weather prior to commencing activity.	**1**	**4**	**4**	• Logistics Manager/Appointed Person • TWC • Construction Manager • Site Manager • Site Engineer • HSE
17	**Working in summer**	• Working in Extreme heat • Prolonged exposure to direct sunlight.	• Heat stress • Fatigue • Collision with other equipment and structures.	• Group Personnel • Subcontractors • Environment	Routine	**3**	**4**	**12**	• Adhere to Midday break rule (June 15th to Sep 15th) 2.30 Noon to 3.00pm; • Supervisor to ensure that all personnel get rest breaks. • Follow the site Summer Preparedness Plan. • Arrange water supply program to maintain good hydration • Provide Hydration supplement. Supervisors to ensure operatives will drink prior to proceed to high level activities. • Provide suitable shaded & cool rest area. • Ensure work rotation / Job rotation and adequate rest periods • Training on summer preparedness, working in extreme environment and exposure to sunlight. • Daily brief the team on the mitigation measures to beat the heat. • Monitor personnel for drowsiness, nausea and disorientation.	**1**	**4**	**4**	• Logistics Manager/Appointed Person • TWC • Construction Manager • Site Manager • Site Engineer • HSE

									• TWL monitoring shall be done and flag system to be implemented to inform employees the current TWL Reading. • Project summer plan to be followed.				
18	**Emergency Situations**	• Poor emergency response • Unnecessary Delay • unforeseen situations. • Untrained personnel	• Disruption project • Personal injuries • Property damage • Worsening of an incident if dealt with • incorrectly	• Group Personnel • Subcontractors • Environment	Non- Routine	**3**	**4**	**12**	• Project-specific emergency plan to be briefed to all workers and followed in an emergency. • Emergency plan reviewed periodically throughout the life of project and updated as necessary. • All work locations to have clear signage for emergency exits/assembly. • Emergency contact details posted on site noticeboards and office bulletin boards. Emergency response team to be available onsite during critical activities. • Emergency facilities shall be available, such as any vehicle first aid kit, first aiders, rescue equipment. • Rescue equipment shall be regularly inspected and maintained in good working order. • Trained fire watchers/Wardens available • Fire points / first aid boxes available throughout the site		**4**	**4**	• Construction Manager • Site Manager • Site Engineer • Operatives • HSE

Khazna / AECOM / Syska Hennessy Group MENA / GCI Unlimited			BK Gulf LLC	
Project Name:	Khazna Data Centre Dubai DXB9	**Project Number:**	**DXB1055**	
Document Title:	**Method Statement for Earthworks (External MEP Utilities)**	**Document Number:** DXB9-BKG-CV-MS-0010	**Rev. No.:**	0

RISK RATING MATRIX

Probability	Severity	Severity				
		Insignificant (1)	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Catastrophic (5)**
Rare (1)	Insignificant / First Aid Case (1)	**1**	**2**	**3**	**4**	**5**
Possible (2)	Minor / Less 3 Days / Illness (2)	**2**	**4**	**6**	**8**	**10**
Likely (3)	Moderate / Plus 3 Days / Illness (3)	**3**	**6**	**9**	**12**	**15**
Often (4)	Major / Permanent Disability / Illness (4)	**4**	**8**	**12**	**16**	**20**
Frequent (5)	Catastrophic / Fatality (5)	**5**	**10**	**15**	**20**	**25**

15-25	Extreme Risk	• Absolutely Unacceptably High • Activity should not proceed in its current form
8-12	High Risk	• Unacceptably High • Activity should be modified to include remedial planning and action and be subject to detailed HSE assessment
4-6	Moderate Risk	Activity can operate subject to management and/or modification.
1-3	Low Risk	No action is required. Unless escalation of risk is possible

Prepared by: **SYED MUJEEB** **Date:** 18/04/2024
Supervisor / Project Engineer (Name/Signature)

Reviewed by: **Sandeep Verghese** **Date:** 18/04/2024
HSE Manager (Name & Signature)

Approved by: **Fouad Mohammed** **Date:** 18/04/2024
Project Manager (Name & Signature)

Appendix 2 – Inspection & Test Plan

Project Name:	**Khazna Data Centre Dubai DXB9**		**Project Number:**	DXB1055	
Document Title:	Inspection & Test Plan – Earthworks	**Document Number:**	**DXB9-BKG-CV-MS-0010**	**Rev. No.:**	00

Activity No.	Activity Description	Inspection/Verification Records	Acceptance Criteria	Inspection Frequency	Reference Documents	Action Responsibility				
						SC	C	TPI	CQC	TA
1	Approval of Materials	Compliance with requirements of associated Project Specification # 31 20 20 Earth Moving	Material Submittal Approval	Prior to start of Backfilling at site	Approved Material Submittal	N/A	H	N/A	H	H
2	Approval of Shop Drawings	Compliance with the Specification #01 33 00 Submittal procedures	Shop Drawing Approval	Prior to start of works on site	Approved Shop Drawings	N/A	H	N/A	H	H
3	Approval of method Statement for the Earthworks (External MEP utilities)	Compliance with the Specification #01 40 00 Quality Requirements	Approved Method Statement	Prior to start of works on site	Approved Method Statements	N/A	H	N/A	H	H
4	Approval of Testing laboratory & Personnel	Compliance with the Specification #01 40 00 Quality Requirements	Approved Pre-qualification of Laboratory & personnel	Prior to start of works on site	Approved pre-qualification	N/A	H	H	H	H
5	Material Receiving Inspection	Compliance with the Specification # 01 40 00 Quality Requirements	Correct type and Grade of material. Visual Inspection to ensure no contamination	For each lot of each type and then Surveillance	Approved MIR	H	H	N/A	H	S

6	Survey & setting out	Compliance with the Specification # 31 20 00 Earth Moving & 31 50 00 Excavation Support & Protection	Elevations and Dimensions within the tolerance	Prior to excavation of a particular area / section	Approved Survey Reports	H	H	N/A	H	S
7	Excavation	Compliance with the Specification # 31 20 00 Earth Moving & 31 50 00 Excavation Support & Protection	Excavate to indicated elevations and dimensions within a tolerance of plus or minus 50 mm	Prior to excavation of a particular area / section	Approved WIRs	H	H	N/A	H	S
8	Installation of MEP services	Compliance with the Specification	Approved shop drawings	Prior to excavation of a particular area / section	Approved WIRs	H	H	N/A	H	S
9	Backfilling & Compaction	Compliance with the Specification # 31 20 00 Earth Moving & 31 50 00 Excavation Support & Protection	Place and compact final backfill of satisfactory soil to final subgrade elevation in layers not more than 250 mm.	Prior to Backfilling & Compaction of a particular area / section	Approved WIRs	H	H	N/A	H	H
10	Field Density Tests (if required)	Compliance with the Specification # 31 20 00 Earth Moving & 31 50 00 Excavation Support & Protection	At least one test for every 186 sq.m or less of paved area or foundation area or building slab	After compaction of a particular area / section / Trench etc.	Approved FDT reports from 3rd Part Lab	H	H	H	H	R

			but in no case fewer than three tests							

Legend

I	Inspection – Formal inspection to be undertaken and recorded
W	Witness Point – Inspection that may be witnessed by relevant party
H	Hold Point – Work shall not proceed until released by relevant party
R	Review – Reports / Records or other evidence of compliance is verified
S	Surveillance – an activity which is subject to ongoing monitoring

Appendix 3 – Checklist

Project Name:	Khazna Data Centre Dubai DXB9		Project Number:	DXB1055	
Document Title:	Checklist – Earthworks	Document Number:	DXB9-BKG-CV-MS-0010	Rev. No.:	00

SI No.	Activities/Items to be Inspected	Checked			Remarks
		Yes	No	N/A	
1	Ensure the pre-start briefing is held with operatives involved in the excavation works				
2	Make sure all tools and equipment are in place and inspected prior to excavation and ensure that the operators are trained in line with the HSE Plan.				
3	Ensure trial pits are done and the works are Coordinated with utility locator service				
4	Identify the extent of trenching by hand or with air spade.				
5	Engage a qualified land surveyor to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.				
6	Ensure availability of all approved materials including the Soil Materials, Accessories like warning Tapes etc.				
7	Make sure that the structures, utilities, sidewalks, pavements, and other facilities are protected from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth- moving operations.				
8	Protect and maintain erosion and sedimentation controls during earth-moving operations.				
9	Protect subgrades and foundation soils from freezing temperatures. Remove temporary protection before placing subsequent materials.				
10	Prevent surface water and ground water from entering excavations.				

11	Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.				
12	Reroute surface water runoff away from excavated areas and do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.				
13	Ensure excavation for structures are to indicated elevations and dimensions within a tolerance of plus or minus 50 mm				
14	Ensure, excavations for Footings and Foundations done by hand the final 250 mm of grade just below the footing formation level.				
15	Ensure excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures are done to elevations and dimensions indicated within a tolerance of plus or minus 50 mm.				
16	Excavate trenches to uniform widths to provide the following clearance on each side of MEP Services. Excavate trench walls vertically from trench bottom to 300 mm higher than top of MEP services unless otherwise indicated. (Clearance: 300 mm each side of MEP services or as indicated in the drawings).				
17	For trench bottoms, excavate trenches 100 mm deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe. (Excavate trenches 150 mm deeper than elevation required in rock or other unyielding bearing material to allow for bedding course)				
18	Make sure the stockpile soil materials are away from edge of excavations				
19	Ensure backfill is placed in excavations only after the prerequisite works stated in specification are completed				
20	Ensure the backfill is placed on subgrades free of mud.				

21	Place and compact bedding course on trench bottoms as per specification				
22	Place initial backfill of controlled low-strength material to a height of 300 mm over the MEP services Ensure the backfilling is coordinated with utilities testing.				
23	Place and compact final backfill of satisfactory soil to final subgrade elevation.				
24	Ensure the warning tape are installed directly above utilities, 300 mm below finished grade, except 150 mm below subgrade under pavements and slabs or according to local authority standards.				
25	Place soil fill on subgrades free of mud				
26	Ensure the compaction of backfill is done in compliance with recommendations in the Geotechnical report.				
27	Place backfill and fill soil materials in layers not more than 250 mm in loose depth for material compacted by heavy compaction equipment and not more than 100 mm in loose depth for material compacted by hand-operated tampers.				
28	Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.				
29	Ensure compaction is done under structures, building slabs, steps, and pavements, scarify and recompact top 300 mm of existing subgrade and each layer of backfill or fill soil material at minimum 98 percent proctor maximum dry density.				
30	Ensure compaction is done under walkways, scarify and recompact top 300 mm below subgrade and compact each layer of backfill or fill soil material at minimum 95 percent proctor maximum dry density.				

31	Ensure compaction is done under turf or unpaved areas, scarify and recompact top 150 mm below subgrade and compact each layer of backfill or fill soil material at minimum 85 percent proctor maximum dry density.				
32	For utility trenches, compact each layer of initial and final backfill soil material at minimum 85 percent proctor maximum dry density.				
33	Provide a smooth transition between adjacent existing grades and new grades.				
34	Ensure the Compaction Test (FDT) is done as follows: 1. Paved, Foundation and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 186 sq.m or less of paved area or foundation area or building slab but in no case fewer than three tests. 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 30 m or less of wall length but no fewer than two tests. 3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 46 m or less of trench length but no fewer than two tests.				
35	When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.				
36	Ensure plate Load tests are done as recommended by the Design Consultant in line with the final soil investigation report to comply with the Dubai Municipality Requirements				

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Subcontractor		**Contractor**		**CQC**	**Technical Advisor (TA)**		
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Signature:		Signature:		Signature:		Signature:	
Date:		Date:		Date:		Date:	