



NASHPA Gas Processing and LPG Recovery Plant

PROC-FC-CB/NASHPA/PROJ-1247/2015

PROJECT NO.: NASHPA 1247



DOCUMENT NO.:
NGP-000-SCW-15.03-2001-00

SPECIFICATION

PAGE 1 OF 12

Specification for Earth Work and Site Preparation

REVISION DETAILS

| | | | <i>Yang Guohui</i> | <i>Xu Jian</i> | <i>Zhang Fu Xing</i> | <i>Qiu Rui di</i> |
|-----|------------|---------------------------|--------------------|----------------|----------------------|-------------------|
| 00 | 13/05/2016 | Approved for Construction | YANG. | XU. | ZHANG. | QIU. |
| B | 09/03/2016 | Issued for Review | YANG. | XU. | ZHANG. | QIU. |
| A | 04/03/2016 | Internal Discipline Check | YANG. | XU. | ZHANG. | QIU. |
| REV | DATE | DESCRIPTION | PRPD | CHKD | REVD | APPD |



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 2 OF 12

REVISION HISTORY

| REV. | DATE | REVISION DESCRIPTION |
|------|------------|---------------------------|
| A | 04/03/2016 | Internal Discipline Check |
| B | 09/03/2016 | Issued for Review |
| 00 | 13/05/2016 | Approved for Construction |
| | | |
| | | |
| | | |
| | | |



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO.

NGP-000-SCW-15.03-2001-00

DESCRIPTION

Specification for Earth Work and Site Preparation

REVISION

00

PAGE

3 OF 12

TABLE OF CONTENTS

| | | |
|------|---|----|
| 1.0 | GENERAL..... | 4 |
| 2.0 | DEFINITIONS AND ABBREVIATIONS | 4 |
| 3.0 | REFERENCES | 5 |
| 4.0 | CLEARING AND GRUBBING | 6 |
| 5.0 | STRIPPING..... | 6 |
| 6.0 | STAKE-OUT SURVEY..... | 6 |
| 7.0 | EXCAVATION..... | 7 |
| 8.0 | SHORING/UPHOLDING VERTICAL FACES | 8 |
| 9.0 | FILL AND BACKFILL | 9 |
| 10.0 | EXISTING GROUND LEVELS / BENCH MARK | 11 |
| 11.0 | STOCKPILING OF STRIPPED OR EXCAVATED MATERIAL | 11 |
| 12.0 | DISPOSAL OF SURPLUS MATERIAL..... | 11 |
| 13.0 | PUMPING, BAILING, DEWATERING AND DRAINING | 11 |
| 14.0 | RESPONSIBILITY | 12 |



NASHPA Gas Processing and LPG Recovery Plant PROC-FC-CB/NASHPA/PROJ-1247/2015

| | |
|-------------|---|
| DOC. NO. | NGP-000-SCW-15.03-2001-00 |
| DESCRIPTION | Specification for Earth Work and Site Preparation |
| REVISION | 00 |
| PAGE | 4 OF 12 |

1.0 GENERAL

OIL & GAS Development Company Ltd. (OGDCL) is operating NASHPA Oil & Gas fields in Khyber Pakhtunkhwa of Islamic Republic of Pakistan. OGDCL intends to install LPG Recovery Plant, Compressors & Allied Facilities at Nashpa Oil Field, which including Wellhead facilities, Gas Gathering System and Gas Processing Plant. "NASHPA Gas Processing and LPG Recovery Plant" (the PROJECT) is Gas Processing Plant part. The objective of PROJECT is to construct a gas processing facility at NASHPA to process raw gas of NASHPA and separator gas from MELA Field. The MELA and NASHPA combined gas is the feed for NASHPA Gas Processing Plant (NGP). The NGP will produce LPG, Sales Gas and Stabilized Condensate.

2.0 DEFINITIONS AND ABBREVIATIONS

2.1 Definitions

Throughout this Document the following definitions will apply:

| | |
|-------------------------------------|--|
| Project | NASHPA Gas Processing and LPG Recovery Plant PROC-FC-CB/NASHPA/PROJ-1247/2015 |
| Company/Owner | Oil & Gas Development Company Ltd.(OGDCL) |
| Consultant | Zishan Engineers (Pvt.) Ltd. |
| Contractor | Hong Kong Huihua Global Technology Limited Wholly Owned Subsidiary of China OIL HBP Science and Technology Corporation Ltd. |
| Manufacturer/Supplier/Vendor | Party(ies), which manufactures and/or supplies material, equipment and service to perform the duties as specified by CONTRACTOR in the scope of supply |
| Shall | Indicates a mandatory requirement |
| Should | Indicates a strong recommendation to comply with the requirement of this document |

2.2 Abbreviations

The following abbreviations are used in this document:

Table 2-1 Abbreviations

| | |
|------|--|
| EPCC | Engineering, Procurement, Construction and Commissioning |
| FEED | Front End Engineering Design |
| SOW | Scope of Work |
| ASTM | American Society for Testing and Materials |



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 5 OF 12

| | |
|-----|---------------------------|
| IDC | Internal Discipline Check |
| IFR | Issued for Review |
| IFA | Issued for Approval |
| AFC | Approved for Construction |

3.0 REFERENCES

3.1 Codes and Standards

The applicable & latest version standards and codes listed below but not limited following will be used for the design of this project.

| Doc. No. | Description |
|--------------|--|
| AASHTO M 145 | Classification System for Soils |
| ASTM D422 | Standard Test Method for Particle-Size Analysis of Soils |
| ASTM D1556 | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method |
| ASTM D1557 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort |
| ASTM D2216 | Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass |
| ASTM D2487 | Classification of Soils for Engineering Purposes |
| ASTM D2488 | Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) |
| ASTM D2922 | Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) |
| ASTM D2937 | Test Method for Density of Soil in Place by the Drive Cylinder Method |
| ASTM D3080 | Standard Test Method for Direct Shear Test of Soils under Consolidated Drained Conditions |
| ASTM D4318 | Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils |
| ASTM D4253 | Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table |
| ASTM D4254 | Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative |



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 6 OF 12

| | |
|------------|--|
| | Density |
| ASTM D4318 | Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils |
| ASTM D4767 | Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils |

3.2 Project Specifications, Procedures and drawings

Particular reference is made to the following project specifications:

| | |
|-----|---|
| [1] | Tender Documents: Specification For Earth Work And Excavation/Dewatering (165-3-SPC-001) |
| [2] | Specification for Road and Paving Works (NGP-000-SCW-15.03-2002-00) |

4.0 CLEARING AND GRUBBING

Remove and dispose of all trees, stumps, brush, roots, and any other vegetation, and debris from within all areas of the site where excavation, filling or grading will occur. Remove all grass and roots of shrubs to a depth of at least six inches (15.24cm). Grub out tree roots larger than two inches (5.1cm) in diameter to a depth of at least 18 inches (45.7cm). All trees removed will remain the property of the Engineer and won't be disposed of without written approval of the Engineer.

All trash and debris, such as stones, bricks, broken concrete, lumber, scrap metal, paper, and other refuse will be removed as directed.

5.0 STRIPPING

After completion of clearing and grubbing and before any construction work has begun, the existing top soil will be removed from the areas designated.

Contractor will strip off the vegetation, topsoil and organic material, the top soil material to be stripped and salvaged for stockpile will be designated by the Engineer. Stripping of topsoil material will be accomplished with a grader or other shallow cutting excavator to avoid mixing of top soil with undesirable sub-soils, and will refill the area so as to obtain the required FGL as indicated on drawings.

All ditches, distributions, or drains passing through the site will be diverted around the site and connected back into the ditch where it exits from the opposite side of the site. All depressions, including ditches, drains and distributions will be filled with soil of the same type as surrounding the depression.

6.0 STAKE-OUT SURVEY

6.1 Material and Equipment

All instruments, equipment, stakes and other material necessary to perform all work will be provided by the Contractor. These instruments and equipment will be available to Engineer at all times for the purpose of checking the work of the Contractor.



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 7 OF 12

6.2 Execution

The work will proceed immediately upon the award of the Contract and will be expeditiously progressed to completion in a manner and at a rate satisfactory to the Engineer. Contractor will keep the Engineer fully informed as to the progress of the stakeout survey.

Contractor will trim trees, bushes and other interfering objects, not consistent with the plan, from survey lines in advance of all survey work to permit accurate and unimpeded work by his stakeout survey crew and the Engineer's survey crew members. The exact position of all work will be established from control points, which are shown on the plans or modified by the Engineer. Any error or apparent discrepancy in or absence of data shown or required for accurately accomplishing the stakeout survey will be referred to the Engineer for interpretation or furnishing when such is observed or required.

Contractor will be responsible for the accuracy of his work and will maintain all reference points, stakes, etc. throughout the life of the contract. Damaged, destroyed or inaccessible reference points, bench marks or stakes will be replaced by the Contractor. Any existing or new control points or markers defining property lines and survey monuments which may be disturbed during construction will be properly tied into fixed reference point before being disturbed and accurately reset in their proper position upon completion of the work. All stakeout survey work will be referenced to the centered lines shown on the plans. All computations necessary to establish the exact position of the work from control points will be made and preserved by the Contractor.

All computations, survey notes and other records necessary to accomplish the work will be kept neatly and made available to the Engineer upon request and furnished to the Engineer upon Contract completion.

The Engineer may check all or any portion of the stakeout survey work or notes made by the Contractor and any necessary correction to the work will be immediately made. Such checking by the Engineer won't relieve the Contractor of any of his responsibilities for the accuracy or completeness of his work.

All required right-of-way and easement limits will be established, staked and referenced by the Contractor concurrent with the construction stakeout survey.

Contractor will place at least two offset stakes or references at each centre lines station and at such intermediate stations as the Engineer may direct. From computations and measurements made by the Contractor, these stakes will be clearly marked with the correct centre line, station number, offset and cut or fill so as to permit the establishment of the true centre line location during construction. He will locate and place all cut, fill, slope, line grade or other stakes and points as the Engineer may direct to be necessary for the proper progress of the work.

7.0 EXCAVATION

7.1 Excavation is defined as the removal of earth, loose rock, gravel, shale, and any other materials encountered in securing the proper sub grades or proper elevation to receive CC Foundations, cut or fill as indicated on the drawings, as required by the specifications, or as directed. Excavation is also defined as the excavation for sewerage and drainage systems, drainage ditches, side slopes of cuts, and for structural of roads.

7.2 Contractor will remove all mushy, spongy or unstable material, which cannot be consolidated from beneath all foundations, road sub grades, paved areas, and fill areas. The removal of this material will be made to the



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 8 OF 12

depths determined by Engineer and the space refilled with acceptable material. Earth fill/Backfill materials will be placed in accordance with the requirements of compacted fill.

7.3 Contractor will excavate and cut as required to obtain the cross-sections shown on drawing, if the soil encountered in common excavation at the sub-grade elevation is found by visual inspection/test as unsuitable then unsuitable soil will be removed to the depth directed by the Engineer and will be replaced with suitable stable materials like coarse sand or as directed by the Engineer.

7.4 The subgrade level obtains from excavation for all foundations and structural of roads, will be perfectly horizontal and firmly compacted with vibratory roller to achieve 95% max. dry density at optimum moisture content and tested as per ASTM D-1557.

7.5 Excavation will extend to sufficient distance from walls and footings to allow for placing and removal of form work, installation of services and for inspection for which no payment will be made.

7.6 Contractor will control the grading in the vicinity of site of work in order to prevent any water or oil from running into the excavated areas. He will at his own cost keep dry all work during construction activity.

7.7 Where deep excavation and major dewatering operation is involved, Contractor will submit in writing for the prior approval of the Engineer, the proposed method of procedure for supporting/planking/sheet piling and strutting the excavation sides (with necessary drawings) and maintenance of adjacent structures.

The design, provision, construction, maintenance and removal of such temporary works will be the responsibility of Contractor and all cost in this respect will be included in the billed rates for the permanent work.

7.8 Contractor will protect all existing utility lines, and foundations, whether to be retained or to be removed, encountered within the area of operations. Contractor will notify the Engineer and won't proceed until necessary measures are taken for protection or removal of the lines.

7.9 Excavation will be cut to the size and taken-down to the formation level shown on the drawing. If, without written instruction, Contractor goes down below the foundation level he will fill-up the part so excavated with the approved coarse-sand or mass concrete subjected to prevailing site condition at his own cost.

After completion of clearing and grubbing and before any construction work has begun, the existing top soil will be removed from the areas designated.

8.0 SHORING/UPHOLDING VERTICAL FACES

8.1 Shoring, where required during excavation and dewatering operation, will be installed to protect workmen and the banks, adjacent structures and utilities. The term shoring will also be deemed to cover whatever methods the Contractor will elect to adopt, with prior approval of consulting engineer for upholding the sides of excavation to prevent caving-in and also for planking, sheet piling and strutting to excavation against the sides of adjoining heavy structures.

8.2 Further, Contractor will be responsible for the design, supply, fixing, safety and removal of all planking, sheet piling & strutting and shoring required for upholding all vertical sides of excavation.

8.3 No claim for additional excavation, concrete or other supporting materials will be considered in this respect.

8.4 The rates for shoring the sides of excavation will be deemed to be included in the unit rate of excavation.



8.5 Planking, sheet piling and strutting will especially be required for heavy structures having deep foundations.

9.0 FILL AND BACKFILL

9.1 The backfilling/filling will include loading, unloading, transporting, placing, stacking, spreading of earth, watering, rolling, ramming and compacting, etc., complete as specified herein.

9.2 Filling will be approved selected material obtained from outside sources. It will be predominantly granular material and free from slurry mud, organic or other unsuitable matter and capable of compaction by ordinary means.

9.3 The excavated material if found suitable will be stockpiled within the free haulage limit of the Project Boundary. This material will be used for backfilling/filling if approved by the Engineer and will be transported by the Contractor anywhere required for the purpose of backfilling/filling work.

9.4 Contractor will provide the approved quality of backfill and fill material required to complete the backfilling and filling work from the places as designated by the Engineer.

9.5 Filling in trenches and foundations will be placed in 200mm layers and compacted at optimum moisture content by mechanical means or other means as approved by the Engineer.

9.6 Filling around pipes and cables will be carefully placed with fine material to cover the pipe or cable completely before the normal fill is placed.

9.7 Material for backfilling/filling will be as approved by the Engineer and will be placed in layers not exceeding 150mm measured as compacted material and saturated with sufficient water and compacted to produce in-situ density not less than 95% of the maximum dry density at optimum moisture content, in accordance with ASTM D-1557.

9.8 All filled areas will be left neat, smooth and well compacted, the top surface consisting of the normal site surface soil, unless otherwise directed.

9.9 Depending on the depth of fill, the Engineer may instruct increased thickness of successive layers to be placed.

9.10 Fill won't be placed against foundation walls prior to approval by the Engineer. Fill will be brought up evenly on each side of the walls as far as practicable. Heavy equipment for spreading and compacting the fill won't be operated closer to the wall than a distance equal to the height of the fill above the top of footing.

9.11 In case Contractor is instructed to arrange for the fill material, the quality of the fill material will be subject to the approval of the Engineer. The Engineer could require the Contractor to carry out various tests of the fill material. All such tests will be made at an approved laboratory at the cost of the Contractor. Once a material from a specific source has been approved, the material of the same quality and from the same source only will be used.

Any fill material from borrow pits which has not been approved or the quality of which differs from the approved material will be rejected without recourse. The Engineer reserves the right to order removal of any such materials brought to the site of the works at his discretion at Contractor's expense. In order to ensure satisfactory compaction, it will be necessary to carry out, depending upon the type of material, particle size



distribution tests, liquid limit, plastic limit and determination of organic contents tests, maximum and minimum density tests and determination of optimum moisture content for the fill material.

9.12 The method of compaction, namely type of compactor, type of roller, weight of roller and number of passes proposed by the Contractor for any particular fill material will be subject to the approval of the Engineer after the completion of satisfactory field tests, subsequent to the laboratory analysis using the materials and equipment proposed to be used for the earthwork in conditions similar to those likely to be encountered during construction. The final selection of the soil moisture content, the thickness of layers, the type of compaction equipment and the number of passes will be decided after these tests, which will be conducted at Contractor's expense.

9.13 Having established the method of compaction to be used, no departure from this approved method will be permitted without the prior approval of the Engineer.

The adequate control of the fill and compacting operations will be ensured by in-situ density tests and in order to obtain significant results, not less than two tests will be carried out per one hundred square meters of area compacted. The frequency of tests will be determined on site and may be varied at the discretion of the Engineer's Representative as the work proceeds. Tests will be carried out in accordance with ASTM D-1556 or to such other standards as approved by the Engineer. The standard of acceptance of the compacting will not be less than 95% in-situ density with respect to the maximum dry density at optimum moisture content achieved in accordance with ASTM D-1557.

9.14 The exact thickness of layers and the method of placing and compacting the fill will be determined by the field tests, as stated above, but notwithstanding the results of these trials, fill won't be placed in loose layers exceeding 200mm in thickness. In order to maintain control of the thickness of layers, timber profiles will be used wherever feasible. The profiles of each layer of fill will be checked by the supervisory staff of the Engineer. Contractor will provide adequate supply of water and sufficient capacity of mechanical water carriers to ensure uniform and uninterrupted operation of compaction. The Engineer may forbid the Contractor to proceed with placing and/or compaction of fill and/or order removal and re-compaction of such fill when he finds that Contractor has insufficient or defective equipment or that the fill has been properly laid and/or compacted.

9.15 Before the start of fill and backfill, Contractor will satisfy himself as to the levels and slopes of the fills and backfills shown on the drawings, the requirements of compaction, the possibility of settlement and all other particulars whatsoever in connection with the filling works.

9.16 If it is found necessary to alter the moisture content of the fill material in any way, then, very strict control will be exercised over the wetting and/or the drying process and frequent moisture content tests will be carried out.

9.17 Before the start of fill & backfill, Contractor will compact the sub-grade levels.

9.18 Contractor will carry out field density test as per ASTM D-1557 at a frequency not less than one test per 100 ft² or as directed by the Engineer.

9.19 The material for infilling within the RCC ring wall will be coarse sand from Malir River or approved source with maximum size not exceeding 10 mm and generally falling within the following grading limits:



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 11 OF 12

| BS Standard Sieve | % Passing (by weight) |
|-------------------|-----------------------|
| 10.00 mm | 100 |
| 5.00 mm | 90 -- 100 |
| 2.36 mm | 60 -- 95 |
| 1.18 mm | 30 -- 70 |
| No. 25 | 15 -- 34 |
| No. 52 | 5 -- 20 |
| No. 100 | 0 -- 10 |

10.0 EXISTING GROUND LEVELS / BENCH MARK

10.1 Before starting work, Contractor will be responsible for arranging with the Engineer a combined level survey of the existing ground.

10.2 Contractor will be responsible for shifting the existing benchmark to the designated site of work.

10.3 Bench marks will be constructed of Class A concrete, having minimum dimensions of 0.5m × 0.5m and the upper surface will be approximately 10 cm above ground level. A 2 cm DIA. mild steel rod, 30 cm in length, will be cast into the concrete so that it projects about 1 cm above the centre of the surface of the concrete. The concrete surface will be clearly engraved with the reference number of the benchmark.

11.0 STOCKPILING OF STRIPPED OR EXCAVATED MATERIAL

11.1 The material stockpiled will be selected to meet the requirements of the particular use or area for which it will be used. It will be free of trash, wood, brush, stumps, rocks, concrete rubble, and other objectionable materials that may be associated with it in-situ.

11.2 When the stripped or excavated material is not moved directly to areas of usage, it will be transported by the Contractor to stockpile areas as designated by the Engineer and deposited in appropriate stockpiles. Contractor will mound and shape the stockpiled material in such a manner that it will shed rain water without deep erosion. The maximum slope of the stockpile sides won't be more than one vertical to three horizontal. The stockpile area will be graded by the Contractor, as required, to drain surface water away from the mounded stockpile material.

12.0 DISPOSAL OF SURPLUS MATERIAL

12.1 All surplus excavated material not used in backfilling or levelling and grading work will be disposed of within 10 kilometres lead measured along with the most direct route from boundary of the project or as directed by the Engineer.

12.2 All rubbish arising from the works and on completion of the works will be cleared away and removed from the site.

The disposal of surplus excavated material or rubbish and grubs will include loading, unloading, transporting, stacking, spreading and levelling as directed by the Engineer.

13.0 PUMPING, BAILING, DEWATERING AND DRAINING

13.1 Scope of Work



NASHPA Gas Processing and LPG Recovery Plant
PROC-FC-CB/NASHPA/PROJ-1247/2015

DOC. NO. NGP-000-SCW-15.03-2001-00

DESCRIPTION Specification for Earth Work and Site Preparation

REVISION 00

PAGE 12 OF 12

The work covered by this section of specification consist of furnishing all plants, labors, materials, equipment and appliances for performing of all operation for pumping, bailing, dewatering and draining water from excavated area of deep foundations. Complete in accordance with this section of specifications, drawings and as per direction of Engineer.

13.2 Dewatering

Contractor will make proper arrangements for controlling the inflow of sub-soil water into the parts of the excavation being worked and during placing of concrete and other works therein and during entire construction work activities and for the collection and disposal of water from any source including dewatering of sub-soil water.

Contractor will also provide and make arrangements to prevent water entering into the excavated area from the existing storm water drain, sewer line, water or oil pipes in the vicinity of the job site due to dismantling (breach) and leakage.

All such arrangements may include the diversion channels, pipes, open jointed and gravel shrouded drains, open pumping, well point system, sheet piling and all such other recognized means and the same will be submitted by the Contractor in writing including necessary drawings for the approval by the Engineer.

Dewatering operation for accumulated sub-soil water will be carried out by continuous pumping and bailing operation keeping all site of work clear of water down to the lowest level of the excavation and will construct temporary drainage channel, sumps and traps etc.

Proper coir will be wrapped around the pump strainer while dewatering to prevent flow of fine particles of soil.

Water pumped from draining sumps will be discharged into the existing drains, ditches or inter-courses or as directed by the Engineer. Further, Contractor will remove all sediments, which may accumulate on any land or in any drain, or ditches as a result of this operation.

Contractor will provide without any extra payment temporary pipelines or drain for the satisfactory disposal of this pumped water up to Nallah/Drain or manhole or disposal points as directed by Engineer.

Contractor will at all times have sufficient pumping machinery including all materials, labors, fuel lubricants, spare parts and other contingent stored to keep the excavated trench for foundation dry with arrangements of stand-by capacity for break-down till the completion of work.

Contractor will take adequate precautions before the work proceed to ensure that under no circumstances dewatering operation will stop; otherwise Contractor will be held fully and wholly responsible for side collapse due to slippage, endangering the existing structure in the vicinity of the job site.

No claim will be entertain/acceptable in case of extra dewatering required to be done due to stoppage of pumps or pumping operation withheld due to any reason whatsoever.

14.0 RESPONSIBILITY

Not withstanding the approval by the Engineer of Contractor's method and temporary works and arrangements, Contractor will remain responsible for and shall accept all the risks and liabilities regarding Dewatering Procedure.