A- GENERAL NOTES

- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION AND THE CONSULTANT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
- ALL DIMENSIONS TO TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS , SECTIONS AND DETAILS.
- NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- UNLESS OTHERWISE SHOWN , ALL DIMENSIONS ARE IN CENTIMETERS AND ALL LEVELS ARE IN METERS .
- THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE UNLESS OTHERWISE INDICATED.

 THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.

 THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION.

 SUCH MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPMENT ETC. SUPERVISION TO THE SITE BY THE ENGINEER SHALL INCLUDE INSPECTION OF THE ABOVE ITEMS.
- OPENINGS. POCKETS ETC. SHALL NOT BE PLACED IN SLABS. DECKS, BEANS. JOISTS, COLUMNS, WALLS, ETC. UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
- THE CONTRACTOR SHALL INVESTIGATE THE SITE DURING CLEARING AND EARTH WORK OFFATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS CESSPOOLS, CSITERRYS, FOUNDATIONS, FOR EACH OF AIM SUCH STRUCTURES ARE FOUND STRUCTURAL ENGINEER SHALL BE NOTIFIED IF AIM SUCH STRUCTURES ARE FOUND STRUCTURAL ENGINEER SHALL BE NOTIFIED
- THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS FOR ALL CONCRETE FORMWORK AND REINFORCEMENT BEFORE POURING ANY CONCRETE SHOWING RESERVATION FOR ALL ELECTRICAL AND MECHANICAL INSTALLATIONS.
- IN CASE OF DISCREPANCIES IN DETAILS OR MISSING DETAILS THE ENGINEER MUST BE APPROACHED FOR DECISION PRIOR TO TAKING UP RELATED WORKS. ENGINEER'S DECISION IN SUCH MATTERS SHALL BE FINAL WITHOUT ANY EXTRA CLAIM.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING THE SITE OF THE PROPOSED WORK IN ORDER TO SATISFY HIMSELF AS TO THE EXISTING CONDITIONS RELATIVE TO THE CONTRACT.
- THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. SHOULD ANY UNDERGROUND UTILITIES BE FOUND DIFFERENT THAN LOCATED THEY SHOULD BE PROTECTED IN PLACE AND THE RIGINEER SHALL BE IMPREDIATELY NOTIFIED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND THAT THE
- 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SETTING OUT OF WORKS, FOR CORRECTNESS OF POSITION, LEVELS AND ALICAMENTS OF ALL PARTS OF THE WORKS. FOR OUALITY AND FINAL FINISHES, IF A TAWY TIME DURING THE PROGRESS OF WORKS ANY ERROR IS DETECTED AT ANY PART. THE CONTRACTOR SHALL RECTIFY THE SAME AT HIS OWN EXPENSE. THE CHECKING/APPROVAL BY THE ENGINEER SHALL NOT IN ARW WAY RELIVE THE CONTRACTOR FROM HIS RESPONSIBILITY FOR THE CORRECTNESS OF THE ABOVE.
- ANY TEST REQUIRED BY THE ENGINEER ON MATERIALS, SOIL, STRATA, WORKMANSHIP OR ON COMPLETE WORKS SHALL BE CARRIED OUT BY THE CONTRACTOR AND INSTRUCTED BY THE ENGINEER AT THE CONTRACTORS COST. ALL EQUIPMENT REQUIRED FOR SUCH TEST SHALL BE SUPPLIED BY THE CONTRACTOR ON DEMAND BY THE ENGINEER, FREE OF COST.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL CONTRACT DRAWINGS AND SPECIFICATIONS.
- 15. DETAILED METHOD STATEMENT OF CONSTRUCTION SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL PRIOR TO COMMENCEMENT OF WORK.

FOUNDATION:

- BOTTOM OF FOUNDATIONS SHALL BE AT THE LEVELS SHOWN ON THE DRAWINGS BENEATH THE FOUNDATIONS SHALL HAVE A MODULUS OF SUBGRADE REACTION A SOIL BEARING CAPACITY UP TO 3Kg/cm2. THE FOUNDATIONS SHOULD BE CONSTRUCTED ON NATURAL GROUND LAYERS AND NOT ON EXCAVATED MATERIALS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACTUAL MINIMUM SOIL BEARING CAPACITY, AND TO REPORT THE FINDINGS TO THE STRUCTURAL ENGINEER.
- CONTRACTOR SHALL PROTECT ALL UTILITY LINES ETC. ENCOUNTERED DURING EXCAVATIONS AND BACKFILLING. SEE INFRASTRUCTURE DRAWINGS.
- PROVIDE DOWELS FROM FOUNDATION TO WALLS AND COLUMNS. USE SAME DIAMETER AND SPACING AS THEIR MAIN REINFORCING U.N.O.
- IN RAFTS AND STRAP FOOTINGS TOP REINFORCEMENT SHOULD BE SPLICED AT COLUMNS/WALLS AND BOTTOM REINFORCEMENT BETWEEN COLUMNS/WALLS.

C- FORMWORK

- FORMS SHALL RESULT IN A FINAL STRUCTURE THAT CONFORMS TO FINAL GRADES, LINES AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE DESIGN DRAWINGS AND SPECIFICATIONS.
- FORMS SHALL BE SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF MORTAR.
- FORMS SHALL BE PROPERLY BRACED OR THED TOGETHER TO MAINTAIN POSITION AND SHAPE.
- FORMS AND THEIR SUPPORTS SHALL BE DESIGNED IN A WAY THAT DOES NOT DAMAGE PREVIOUSLY PLACED STRUCTURE.
- STRIPPING FORMS AND SHORES SHALL BE MINIMUM AS FOLLOWS:

 FOUNDATIONS

 COLUMNS AND WALLS

 BEAMS & GIRDERS

 TRUCTURAL SLABS

1 day 1 day 21 days 14 days

REINFORCING STEEL

- ALL REINFORCEMENT EXCEPT TIES AND STIRRUPS TO BE OF HIGH TENSILE STEEL HAVING A MINIMUM YIELD STRESS $\mathrm{Fy}=500~\mathrm{MPa}$
- IN GENERAL ALL TIES & STIRRUPS TO BE OF MILD STEEL HAVING A MINIMUM YIELD STRESS $\rm\,FY=240~MPa$, UNLESS OTHERWISE NOTED.
- LAP SPLICE OF MAIN REINFORCEMENT SHOULD BE 50 BAR DIA.
- ALL BARS SHALL BE BENT COLD UNLESS PERMITTED BY THE STRUCTURAL ENGINEER

- CONCRETE MIXES AND PLACING

- TWO TYPES OF CONCRETE ARE SPECIFIED:
 CONCRETE FOR BLINDING AND CYCLOPEAN CONCRETE: 250 KG CEMENT PER CUBIC METER OF CONCRETE (FOR CYCLOPEAN 40% STONES (100-200mm CAN BE INCORPORATED).
- CONCRETE. MAX W/C=0.40. CONCRETE FOR STRUCTURAL ELEMENTS : FOUNDATIONS, COLUMNS WALLS, SLABS; MINIMUM 400 KG OF CEMENT PER CUBIC METER OF
- MATERIAL QUALITY:

 a. CEMENT TYPE II (CPA45+SIKACRETE) SHALL BE USED FOR ALL CONCRETE IN CONTACT WITH WATER IF EXISTS. ALL OTHERS SHALL BE TYPE I (CPA45) CEMENT
- CONCRETE MINIMUM ULTIMATE CYLINDER COMPRESSIVE STRENGTHS AT 28
 DAYS SHALL BE:
 fc = 35 MPa
 F0UNDATIONS
- f'c =25 MPa f'c =17 MPa f'c = 35 MPaa- FOUNDATIONS
 b- COLUMNS AND R.C. WALLS
 a- FLOOR AND ROOF SLABS
 b- BEAMS AND GIRDERS a- SLAB ON GRADE a- BLINDING CONCRETE
- NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
- CONCRETE SHALL BE DEPOSITED IN ITS FINAL POSITION WITHOUT SEGREGATION, RE-HANDLING OR FLOWING. NO DEPOSITING OF CONCRETE SHALL BE ALLOWED WITHOUT THE USE OF VIBRATORS, UNLESS AUTHORIZED IN WRITING BY THE DESIGNERS.

- REINFORCED CONCRETE:

- IN SLABS SPLICES OF REINFORCEMENT SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER SPLICES WHERE PERMITTED SHALL BE SUFFICIENT TO TRANSFER THE STRESS BETWEEN BARS BY BOND AND SHEAR.
- ALL REINFORCING BARS ANCHOR BOLTS AND OTHER INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
- PLACE SLEEVE PLUMBING OPENINGS IN CONCRETE WALLS AND SLABS BEFORE CONCRETING AND BEND REINFORCING AROUND SLEEVES, CORING NOT PERMITTED IN FLOOR OR ROOF SLABS COLUMNS AND WALLS UNLESS PERMITTED BY THE STRUCTURAL ENGINEER.
- CONDUIT OR PIPE SIZE (O.D.) SHALL NOT EXCEED 30% OF SLAB THICKNESS UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATIONS OF CONDUITS OR PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED IN GENERAL SLABS CONSTRUCTED ON GRADE SHOULD HAVE POLYTHENE SHEETS UNDERNEATH .
- PROPER CURING SHOULD BE CARRIED OUT FOR ALL CONCRETE ELEMENTS AND REPRESENTATIVE SAMPLES SHOULD BE KEPT ON SITE FOR CONCRETE STRENGTH TESTING.

- REINFORCED CONCRETE (CONT'D)

- CONCRETE COVER TO REINFORCEMENT SHALL BE AS FOLLOWS JUNESS OTHERWISE SHOWN ON THE DRAWINGS.

 a. FOR SLABS, FLAT BEAMS NOT EXPOSED TO EARTH OR WEATHER::30mm
- b. FOR DROP BEAMS, WALLS & COLUMNS :40mm
 c. FOR FOOTINGS :50mm.
 d. FOR ALL SURFACES IN CONTACT WITH WATER OR VAPOR :50mm.
- WHERE REQUIRED, DOWELS SHALL MATCH SIZE AND SPACING OF MAIN REINFORCING, UNLESS OTHERWISE SHOWN ON DRAWINGS.
- ALL CONSTRUCTION JOINTS SHALL BE WIRE BRUSHED AND CLEANED IMMEDIATELY PRIOR TO POURING NEW CONCRETE.
- ALL UNDERGROUND STRUCTURES IN CONTACT WITH SOIL TO RECEIVE TWO COATS OF BITUMINOUS PAINT U.N.O.
- THE SEQUENCE OF POURING CONCRETE SHALL BE SUCH AS TO MINIMIZE SHRINKAGE.
- ALL REINFORCEMENT SHALL BE CONTINUED ACROSS CONSTRUCTION JOINTS UNLESS OTHERWISE NOTED.
- THE SURFACE OF THE CONCRETE AT ALL JOINTS SHALL BE ROUGHENED MINIMUM 6mm, THOROUGHLY CLEANED AND ALL LAITANCE REMOVED PRIOR TO PLACING
- ALL AGGREGATE IN ACCORDANCE SHALL BE FREE OF SHALE, CHERT, COAL AND IRON OXIDE. MAXIMUM AGGREGATE SIZE TO BE 2.5cm.

14 15.

REV BY i. P.O.Box: 11-3216 Beirut, Lebanon Tel: 961 1 962491 United Nation Development Programme UNDP Lebanon Social and Local Development Programme APP DESCRIPTION Revisions DAT

PROGRAMME:

CONSULTANT: **ENGINEER ADNAN GHANNAM**

2nd Floor, Almostafa center, Jabal Amel Street, Tyr, Lebanon Tel: 961 3 330667 e. mail : adhan,ghannam@hotmail.com PROJECT MANAGEMENT & CIVIL ENGINEERING

CONTRACTOR:

PROJECT: KHARAYEB WATER TANK CAPACITY 500m3

PLOT NO. Sheet Information BLOCK:

PROJECT NBR. 008/UNDP/2015

PROJECT PHASE DISCIPLINE SECTOR TENDER WATER

BUILDING DESIGNED DRAWN CHECKED APPROVED 7/09/2015

Sheet Title

GENERAL NOTES

Sheet nbr.

Floor Area Drawing Number 1/8 Revision 8

Phase

Discipline







