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Monthly QA Report No. 2	Project: WO-LT-0082 AMD 3 - American University 200-Bed Women's Dormitory
Date: August 14, 2016	Report Duration: July 02 through July 28, 2016

PRESENTED TO

**United States Agency for International Development (USAID)
Office of Economic Growth and Infrastructure (OEGI)**

Great Massoud Road
Kabul, Afghanistan

PRESENTED BY

**Tetra Tech, Inc.
Afghanistan Engineering Support Program
Contract No. EDH-I-00-08-00027-00
Task Order No. 1**

Shash Darak
Kabul, Afghanistan

It Prepared and Reviewed by:

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Title: **Project Manager**

Date:
08/13/2016

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Title: **Deputy Director Quality Assurance Services**

Date:
08/14/2016

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

INTRODUCTION

The following is a summation of observations, work accomplished, and problems encountered during the reporting period from July 02, 2016 through July 28, 2016.

MAIN CONSTRUCTION ACTIVITIES

During this reporting period, the main construction activities included:

- Excavation, backfilling, compaction, testing, steel reinforcement and formwork for sewer piping and manholes.
- Excavation, backfilling, compaction, testing, steel reinforcement, and formwork of electrical utility (handholes/manholes) trench.
- Placement and curing of concrete manhole bases.
- Replacement of unapproved backfill material in utility trenches with approved fill.
- Placement of Cable trench conduit.
- Placing of the gravel capillary water barrier for the bases of the manholes.
- Compressor test of the water well.
- Water well pump/water quality tests.

CONSTRUCTION ISSUES

During this reporting period, the major issues impacting construction progress included the following:

Use of unapproved backfill for sewer utility

On June 13, 2016, it was noted that the contractor was using unapproved (based on received laboratory test results) fill material to backfill the sewer trench utility. A Non-Conformance Report (NCR) was issued (NCR-0002) to the contractor regarding this issue. Tetra Tech recommended that the unapproved backfill material be removed and replaced with material that met specifications. On June 27, 2016, the contractor began replacement of the backfill with approved material. All material had been replaced by on July 11, 2016 with the exception of the material under bases MH-1 and MH-2. Another Non-Conformance Report (NCR) was issued for the performing backfill between manholes MH1 and MH2 without insulating sewer pipes (with 800 mm less depth cover). Tetra Tech recommended the contractor to remove backfilled material between MH1 and MH2 and insulate sewer pipes with the approved insulation material in order to meet specification.

On July 16, 2016, Perez lifted the bases of manholes MH-1 and MH-2 by crane, removed the unapproved backfill material, compacted the soil base of the manholes and on July 18, 2016 performed FDT testing for the bases of the manholes.

Performing work with Un-approved plans

The contractor has performed construction work on this project prior to approval of required pre-construction plans. These plans include the following:

- Health and Safety Plan
- Quality Control Plan
- Environmental Protection Plan
- Security plan

The contractor thinks that above four plans are approved by USAID and Tetra tech does not need to review and approve the plans and COR for this also accepted that these plans are approved.

Work Performed

Performed work percentage (%):

- CIV120 Well casing installation (100%)
- CIV130 well seal (100%)
- CIV140 Well test (compressor) (100%)
- CIV150 Well test (pump test) (50%)
- CIV180 Vault excavation (80%)
- CIV310 Sewer system trench/manhole excavation (97%)
- CIV320 Sewer system manhole base preparation (100%)
- CIV330 Sewer system piping placement (92%)
- CIV350 Sewer system pipe leakage Test (90%)
- CIV360 Sewer system trench/manhole back filling/Sieved soil placement over pipes (83%)
- CIV340 Sewer system precast manhole placement (75%)
- CIV370 Excavation of transformer pad (100%)
- CIV380 Layout Preparation of transformer pad (100%)
- CIV390 Formwork and steel Reinforcement of transformer pad (20%)
- CIV420 Excavation of electrical handhole/manhole and trench's (82%)
- CIV430 Base preparation of electrical handhole/manhole and Trench (70%)
- CIV440 Form work and steel reinforcement of electrical handhole/manhole (30%)
- CIV450 Pouring Concrete in Manholes (15%)
- CIV460 Removal of Formwork and Curing (8%)
- CIV470 Cable trench conduit placement (65 %)
- CIV480 Cable trench backfilling (35%)
- CON100 Site Preparation, Grubbing and Leveling (20%)

MEETINGS

The following meetings were held during this reporting period:

- Three weekly construction progress meetings were held with the contractor during this reporting period (July 10, 14 and 28, 2016). The following topics were discussed:
 - Sewer System (Pipe placement, manhole construction and backfilling, pipe insulation where the minimum depth of pipe is less than 800mm below the grade).
 - Security issues.
 - Health & Safety Issues.
- Two preparatory meetings were held on July 2 and 10, 2016. The following topics were discussed:
 - Underground electrical/communication conduits installation.
 - Electrical/Communication manhole and hand hole construction.
 - Transformer pad construction.
 - Water well PVC casing and screen installation.
 - Water well PVC casing and screen installation.

- Water well tests.

Minutes and attendance sheets of the above meetings can be found in Appendix B.

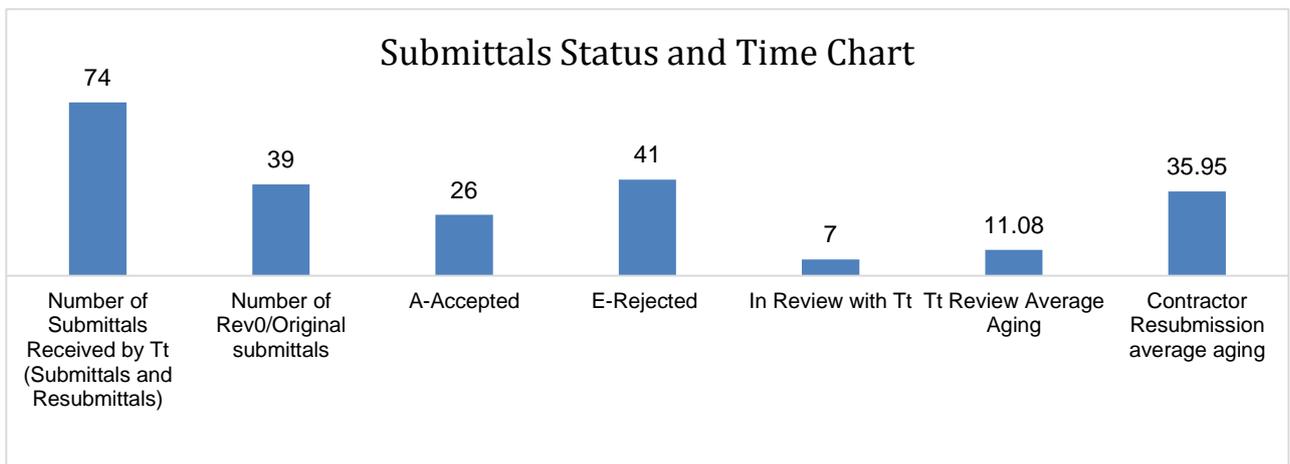
DESIGN AND DRAWING REVIEW

Submittals

As of the end of this reporting period, a total of 74 submittals had been received from the contractor. Of the 74 submittals, 26 were approved as submitted and 41 were rejected and required re-submittal. There were seven submittals under review with Tetra Tech.

Of the 74 submittals received, 39 were original submittals and 35 were rejected submittals that were re-submitted.

The average length of time for Tetra Tech to process a submittal (measured from the date received to the date returned) was 11.08 days. The average length of time for the contractor to return a rejected submittal to Tetra Tech (measured from the date rejected submittal received by the contractor, to the date returned to Tetra Tech for review) was 35.95 days.



Note - each submittal, whether an original or a resubmittal, is counted as a separate event.

FIELD OBSERVATIONS / SITE VISIT DETAILS

Tetra tech did not receive the updated schedule to verify the progress achieved and compare with the approved baseline plan/schedule. The following table provides the status of significant construction activities for the project:

Status of In-Progress Site Activities

Sr. No	Milestone	Activity ID	Activity Name	Activity Start Date	Activity Finish Date	By Tt		Work Done				By Tt	Status/ Remarks
						Actual Field Verification Start Date	Actual Field Verification Finish Date	Prev. Work Completion (%)	Daily Progress (as of 07-28-2016)	Cumulative (%)	Balance (%)	Deviation As of 07-28-2016	
1	6.5.8	CIV120	Well casing and Pump Installation	10-05-16	11-05-16	10-07-16	14-07-16	100	0	100	0	-----	
2	6.5.8	CIV130	Well seal	11-05-16	12-05-16	10-07-16	14-07-16	100	0	100	0	-----	
3	6.5.8	CIV140	Well test (compressor)	12-05-16	13-05-16	12-07-16	14-07-16	100	0	100	0	-----	
4	6.5.8	CIV150	Well test (pump test)	13-05-16	14-05-16	16-07-16	-----	50	0	50	50	-----	Pump test for water well is completed at the site as per requirement. Test results are being generated by the laboratory (that is why Tetra Tech considers line item CIV150 well test (pump test) 50% complete.), Once

Sr. No	Milestone	Activity ID	Activity Name	Activity Start Date	Activity Finish Date	By Tt		Work Done				By Tt	Status/ Remarks
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													we receive the test results, we will consider it 100 %.
5	6.5.8	CIV160	Water test report	14-05-16	15-05-16								
6	6.5.8	CIV170	Well final seal	15-05-16	16-05-16								
7	6.5.8	CIV180	Vault excavation	16-05-16	18-05-16	27-07-16	----	70	10	80	20	-----	
8	6.5.8	CIV190	Vault base compaction & preparation	18-05-16	20-05-16								
9	6.5.8	CIV200	Vault Formwork	20-05-16	22-05-16								
10	6.5.8	CIV210	vault steel Reinforcement	22-05-16	23-05-16								
11	6.5.8	CIV220	Vault concrete pouring	23-05-16	25-05-16								

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						Actual Field Verification Start Date	Actual Field Verification Finish Date	Prev. Work Completion (%)	Daily Progress (as of 07-28-2016)	Cumulative (%)	Balance (%)	Deviation As of 07-28-2016	
12	6.5.8	CIV230	Deforming and curing	25-05-16	27-05-16								
13	6.5.8	CIV240	Vault access cover & steel ladder installation	27-05-16	29-05-16								
14	6.5.8	CIV250	Vault back filling	29-05-16	31-05-16								
15	6.5.8	CIV260	Well pump & pipe installation (submersible)	31-05-16	01-06-16								
16	6.5.8	CIV270	Installation of colorization system	01-06-16	02-06-16								
17	6.5.8	CIV280	Water pipe trench excavation & preparation	05-04-16	08-04-16								
18	6.5.8	CIV290	Water pipe placement	08-04-16	09-04-16								
19	6.5.8	CIV300	Water pipe trench backfilling	09-04-16	10-04-16								
20	6.5.8	CIV310	Sewer system trench/manhole excavation	10-04-16	11-04-16	29-05-16	----	97	0	97	3	----	
21	6.5.8	CIV320	Sewer system manhole base preparation	11-04-16	12-04-16	05-06-16	30-07-16	95	5	100	0	----	

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22	6.5.8	CIV330	Sewer system piping placement	29-04-16	02-05-16	05-06-16	----	92	0	92	8	----	
23	6.5.8	CIV340	Sewer system precast manhole placement	02-05-16	03-05-16	14-06-16	--	45	30	75	25	---	
24	6.5.8	CIV350	Sewer system pipe leakage Test	03-05-16	05-05-16	08-06-16	----	90	0	90	10	----	
25	6.5.8	CIV360	Sewer system trench/manhole back filling	05-05-16	06-05-16	12-06-16	----	83	0	83	17	----	
26	6.5.8	CIV370	Excavation of transformer pad	05-04-16	06-04-16	03-07-16	16-07-16	100	0	100	0	----	
27	6.5.8	CIV380	Layout Preparation of transformer pad	06-04-16	07-04-16	28-06-16	02-07-16	100	0	100	0		
28	6.5.8	CIV390	Formwork and steel Reinforcement of transformer pad	07-04-16	08-04-16	27-07-16	----	10	10	20	80	----	
29	6.5.8	CIV400	Concrete pouring of transformer pad	08-04-16	11-04-16								
30	6.5.8	CIV410	Removing Formwork and Curing of Transformer Pad	11-04-16	12-04-16								

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31	6.5.8	CIV420	Excavation of electrical hand hole/manhole and trenches	05-04-16	06-04-16	22-06-16	----	80	2	82	18	----	
32	6.5.8	CIV430	Base preparation of electrical hand hole/manhole and trenches	06-04-16	09-04-16	13-07-16	----	70	0	70	30	----	
33	6.5.8	CIV440	Formwork and steel reinforcement of electrical handhole/manhole	09-04-16	11-04-16	13-07-16	----	30	0	30	70	----	
34	6.5.8	CIV450	Pouring Concrete in Manholes	14-05-16	17-05-16	17-07-16	----	8	7	15	8	----	
35	6.5.8	CIV460	Removal of Formwork and Curing	17-05-16	19-05-16	27-07-16	----	8	0	8	92	----	
36	6.5.8	CIV470	Cable trench conduit placement	19-05-16	23-05-16	16-07-16	----	55	10	65	35	----	
37	6.5.8	CIV480	Cable trench back filling	23-05-16	25-05-16	21-07-16	----	25	10	35	65	----	
38	6.5.8	CIV490	MV cable pulling	25-05-16	30-05-16								
39	6.5.8	CIV500	LV cable pulling	30-05-16	02-06-16								
40	6.5.8	CIV510	Placing of MDB	02-06-16	06-06-16								

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41	6.5.8	CIV520	Placing of pad mounted transformer	06-06-16	09-06-16								
42	6.5.8	CIV530	MV cable connection to the city grid	09-06-16	11-06-16								
43	6.5.8	CIV540	MDB and transformer cable connection	11-06-16	12-06-16								
44	6.5.8	CIV550	Excavation of communication trench and pits	05-04-16	07-04-16								
45	6.5.8	CIV560	Preparation of trench/pits	07-04-16	08-04-16								
46	6.5.8	CIV570	Formwork and steel reinforcement of communication pits.	08-04-16	11-04-16								
47	6.5.8	CIV580	Curing and deforming of Communication Pit	11-04-16	13-04-16								
48	6.5.8	CIV590	Placement of conduit for Communication	13-04-16	16-04-16								
49	6.5.8	CIV600	back filling of trench and around pits	16-04-16	18-04-16								

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50	6.5.8	CIV610	Communication cable puling in the trench and pit	18-04-16	19-04-16								
51	6.5.8	CIV620	Ladder/installation inside the manhole's/handholes	19-04-16	20-04-16								
52	6.5.8	CIV630	Foundation work for external light pole	20-04-16	22-04-16								
53	6.5.8	CIV640	Exterior light cable trench excavation	22-04-16	24-04-16								
54	6.5.8	CIV650	Exterior light cable trench conduit placement	24-04-16	27-04-16								
55	6.5.8	CIV660	Pulling cable in the trench backfilling	27-04-16	29-04-16								
56	6.5.8	CIV670	Erection of light poles	29-04-16	01-05-16								
57	6.5.8	CIV680	Wiring/light/bulb installation	01-05-16	03-05-16								
58	6.5.8	CIV690	Excavation for grounding system	05-04-16	07-04-16								
59	6.5.8	CIV700	Installation of grounding rod	12-04-16	14-04-16								

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60	6.5.8	CIV710	Placing of grounding cable	14-04-16	16-04-16								
61	6.5.8	CIV720	Cat weld and back filling of grounding system	16-04-16	18-04-16								
62	6.5.1	CON100	Site Preparation, Grabbing and Leveling	24-May-16	27-May-16	26-05-16	----	20	0	20	80	----	
63	6.5.1	CON110	Layout and Excavate Foundation	27-May-16	9-Jun-16								
64	6.5.1	CON120	Compact Building Foundation Base	9-Jun-16	13-Jun-16								
65	6.5.1	CON130	Field Density Test in Foundation	13-Jun-16	14-Jun-16								
66	6.5.1	CON140	Foundation Capillary Water Barrier	14-Jun-16	19-Jun-16								
67	6.5.1	CON110	Layout and Excavate Foundation	27-05-16	09-06-16								

*Dates based on approved baseline, and updated two-week look ahead schedule where available.

Staffing Levels

The below table summarizes the contractor's staffing levels during this reporting period by week (Note -detailed reporting of daily staffing levels can be found in the individual daily reports submitted under separate cover).

General Site Staffing Levels

Week	Project Manager	Health & Safety	Quality Control	Site Engineer	Foreman	Surveyor/Helper	Logistic	Skilled labor	Unskilled labor
July 02 – 08, 2016	1.0	2.0	2.0	1.0	1.0	2.0	1.0	5.0	20.0
July 09 – 14, 2016	1.0	1.8	1.3	1.0	1.0	2.0	1.0	9.3	25.8
July 16 – 21, 2016	1.0	2.0	2.0	0.83	1.3	2.0	1.0	12	32.2
July 23 – 28, 2016	1.0	1.75	1.0	1.0	3.0	1.5	1.0	11.5	28.3
Total Average	1.0	1.9	1.6	0.96	1.8	1.9	1.0	9.5	26.6

Comments

In general, the staffing levels remained fairly constant throughout this reporting period. There were two days when no work was performed (July 23 and 24, 2016) during this reporting period due to AUAF security (lock down).

QUALITY CONTROL PROCEDURE REVIEW

Non-Conformance Reports (NCRs)

No Non-Conformance reports were issued during this reporting period. However, Perez provided responses to the two submitted CW NCRs (NCR 0001-CW and NCR 0002-CW) during this reporting period, therefore, Tt closed these two NCRs.

The closed CW NCRs can be found in Appendix C.

Observation Reports (OBSRs)

No Observation Reports were issued during this reporting period.

HEALTH AND SAFETY OVERSIGHT

During this reporting period:

- Three weekly toolbox safety talk meetings were held on July 7, 20 and 30, 2016.
- Daily safety talk meetings were held during this reporting period.

Attendance sheets for the above meetings can be found in Appendix D. In addition, daily H&S audits were performed during this reporting period.

Security

On July 23 and 24, 2016, due to the security reasons there were lock downs and no work was performed at this project site.

Delays

There were two days of delay during this reporting period (July 23 and 24, 2016).

Environmental

No environmental issues were observed during this reporting period.

TEST RESULTS

The below tests were performed during this reporting period:

1. Well compressor testing
2. Concrete compressive strength testing
3. Field density testing for sewer trenches
4. Field density testings for electrical trenches

The test results can be found in Appendix E.

APPENDICES

APPENDIX A – ACRONYMS

APPENDIX B – MEETING MINUTES

APPENDIX C – NON-CONFORMANCE REPORTS (NCR)

APPENDIX D – SAFETY TOOLBOX SIGN – IN SHEETS AND RELATED PICTURES

APPENDIX E – TEST RESULTS

APPENDICES

APPENDIX A – ACRONYMS

ACRONYMS

AC	Alternating Current
ACI	American Concrete Institute
ACOR	Assistant Contracting Officer's Representative
AESP	Afghanistan Engineering Support Program
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BS	British Standards
CA	Corrective Action
CAR	Corrective Action Report
CBR	California Bearing Ratio
cc	Carbon Copy
CM	Construction Manager
CMC	Construction Management Contractor
COP	Chief of Party
COR	Contracting Officer's Representative
DC	Direct Current
Dept.	Department
DIN	Deutsches Institute für Normung eV (German Institute for Standardization; similar to US ANSI)
EDMS	Electronic Data Management System
EMMP	Environmental Mitigation and Monitoring Plan
HS	Health and Safety
HSE	Health, Safety and Environment
HVAC	Heating, Ventilation and Air Conditioning
IAW	In accordance with
ICB	International Competitive Bidding
ID	Identification
IEC	International Electro technical Commission
IEEE	Institute of Electrical and Electronics Engineers
IT	Information Technology
ITU	International Telecommunications Union
kV	Kilo Volts

LA	Lead Auditor
LT	Long Term
LV	Low Voltage
MIS	Management Information System
MOE	Measures of Effectiveness
NCR	Non-Conformance Report
NLT	No later than
NSF	No Significant Findings
NSFR	No Significant Findings Report
NSTR	Nothing Significant to Report
OBR	Observation Report
OBS	Observation
OEGI	Office of Economic Growth and Infrastructure
OIG	Office of the Inspector General
PE	Project Engineer
PLA	Project Lead Auditor
PMP	Project Management Plan
PQA	Project Quality Auditor
PQM	Project Quality Manager
ProjectWise®	A product by Bentley, of Ireland
PWA	ProjectWise® Administrator
PWAESPA	ProjectWise® AESP Administrator
PWTA	ProjectWise® Technical Administrator
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
PE	Project Engineer
Reachback	Staffing in the USA that supports this project
RFP	Request for Proposal
SH	Stakeholder
SM	Security Manager
SME	Subject Matter Expert
SOP	Standard Operating Procedure
SPM	Support Manager
STM	Senior Technical Manager
STR	Strength Report

TL	Technical Lead
Tt	Tetra Tech, Inc.
TtRB	Tetra Tech Reachback
TT	Type Test
FoHE	Facilities of Higher Educations
USAID	United States Agency for International Development
WO	Work Order

APPENDIX B – MEETING MINUTES

Contract No. AID-306-TO-15-00069
 Construction of 200 Bed Women's Dormitory for American University of Afghanistan (AUAF)
 Meeting Minutes of Site Coordination Meeting

Meeting Date: July 14, 2016 from 10:00 AM to 11:30 PM

Meeting Venue: AUAF Dormitory Site

Participants:

USAID: [REDACTED]

Tt: [REDACTED]

AUAF: [REDACTED]

PEREZ: [REDACTED]

S/N	Subject of Discussion	Issue raised by:	Next action required by:	Action Description	Status
1	Construction Progress update (Sewer Line, Water Well, Electrical)	Tt	Perez	<p>The meeting was started with introduction of the meeting attendees followed by review of previous meeting minutes. Perez was asked to share the progress regarding site utility. The following are the completed percentages. Tt needs to know the break down of the each activity as per schedule specific ID:</p> <ul style="list-style-type: none"> • CIV120 Well casing installation • CIV120 Well casing installation • CIV310 Sewer system trench/manhole excavation • CIV320 Sewer system manhole base preparation/Trench Sand bed • CIV330 Sewer system piping placement • CIV350 Sewer system pipe leakage Test • CIV360 Sewer system trench/manhole back filling/Sieved soil placement over pipes • CIV340 Sewer system precast manhole placement • CIV420 Excavation of electrical handhole/manhole and trench's • CIV430 Base preparation of electrical handhole/manhole and Trench • CIV440 Form work and steel reinforcement of electrical handhole/manhole • CIV370 Excavation of transformer pad • CON100 Site Preparation, Grubbing and Leveling <p>AUAF Facility Manager asked that as per AUAF Top Management request would like to know when will the utility work be finished. He was response that he may get his answer as the baseline schedule approved and construction schedule will be updated then it can be estimated when the site utilities will be finished, however, the baseline schedule is under CO review.</p>	Ongoing
2	Status of Application for 15 kv service to DBS	Perez	Perez/ Tt	<p>The AUAF Project Manager, [REDACTED] updated the stakeholders about DABs permission on installment of Pad Mounted Transformer. He updated all parties that they have permission of DABs for installment, DABS representatives came to the site and inspect and survey the installation of transformer as well as the designs and other requirements to ensure that they meet the standards.</p>	Ongoing

3	Sewer Pipe Insulation	Tt	Perez	<p>For some places in the Sewer Pipe insulations required. The thickness required for insulation is 5mm however as per desings and specification, As per the approved design drawings for underground direct-buried piping, where depth of cover is less than 800 mm, 50 mm thick Tt wanted insulation material with jacket over insulation shall be application. To meet the requirements Perez submitted the insulation material submittal and sample as well. However, the one available at market is 4mm. It is decided that the r value should be known and be as per specification, according to which Perez should find something with the r value mentioned in specification.</p>	Ongoing
4	QC Issues	Tt	Perez/Tt	<p>Tt QA Monitor said that Tt is observing positive change in the construction site by recruitment of new QC manager ██████████ as the QC Manager. He stated that defeciencies have been corrected, and Qc procedures and documentations have improved.</p>	Ongoing
5	Safety/Security Issues	Tt	Perez/Tt	<p>Tt Health and Safety QA stated that many deficiencies are addressed but there are few left, however, actions have been taken and the work is in progress. As Perez was told that the container for guards does not have air conditioner and other facilities, Perez justified that the container they are talking about is not for guards actually, they have a conned inside the mobilization area equipped with all the required facilities. Perez mentioned that they container Tt is talking about is not used so far, and it will be used later in the project as more labor will be coming to the site. As that container is located there near LSA gate. It was decided that the container inside the LSA area shall be moved to next to gate so that security gaurds are provided facilitis like air conditioning, desk, and other required facilities. Tt raised the issue of gaurds not having weapon at the site. Perez responseed that AUAF does not allow Perez security to carry weapon as it is a weapon free zone. COR asked Perez to include this issue in the Security Plan. Perez was also suggestd to have CPR in site as the number of labor increases more than 100 at the site. COR questioned if First Aid Kit is available at site. Tt safety manaer responseed that Perez have First Aid Kit is available at site.</p>	Ongoing
6	Changes in the alignment of electrical line	USAID	Perez	<p>The changes in alienment of electrical line was recoded in red line by QC and QA in set of drawing, and changes in the alignment of electrical line will be reflected in the as-built drawing, as wel as 100% design package as requested by ██████████, Tt PM for AUAF Dormitory Project .</p>	Ongoing

7	List of Deficiencies	Tt	Perez/Tt	<p>As usage of unapproved backfilling material for sewer trench backfilling issue was raised by Tt through a Non Conformance Report. Perez QC Manager informed the meeting that Perez have taken corrective actions and rectified deficiency Per Tt instruction. He additionally said that after approval of the revised backfilling submittal, Perez has removed the unsatisfactory material and will replace with approved backfill materials. This issue is closed except for two manholes as stated by Tt QA Monitors. Perez QC Manager said they have compacted the natural soil. COR suggested that Perez should document it and take the risk.</p> <p>Perez QC Alternative said mentioned NCR was issued in an im professional way. Perez Tt QA usified that they told Perez that material was unapproved and Perez was asked to step to do not continue the work, yet they continued to coninue at their own risk, and Tt issued NCR afrer rejection of backfilling material. COR said QA shall wait for five days for the defecency to be closed, then issue NCR.</p>	Ongoing
8	Water Well Depth	AUAF	Perez/ Tt/ USAID	<p>In the previous coordination meeting AUAF Facility Manager ██████████ said that they the depth for water well according to their signed contract is 100 meters. Water well log was submitted for Tt review and it has been approved. Everyone in the meeting were updated that water well depth is supposed to be 70 meters.</p>	Closed

9	Site Storage	Tt	Perez/Tt	As decided in the previous site meeting regarding storage for materials at the site. Perez informed the meeting that AUAF provided the space for storage as requested.	Ongoing
10	Preparatory Meeting Check List	Perez	Perez/Tt	As previously raised by Tt, the checklist for the preparatory meeting sheets were not properly prepared accordingly as expected by Tt. Perez informed the meeting that preparatory meeting documents were sent to Tt. COR asked if the parties recorded, the responded that they do record preparatory meeting documents.	Ongoing
11	Schedule	Tt	USAID	Tetra tech PM ██████ asked COR ██████ to update the stakeholders regarding the baseline schedule because since June 27,2016 it is under review with USAID. Tt asked an exact date from COR .COR answer was he can not estimate an exact date.	Ongoing

3	Layout of Electrical Line From Existing EH-2 to H-1	Perez	Perez
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In addition with construction progress updates Perez AQCM also mentioned the layout of electrical line from EH-2 to H-1, he said that they discussed with AUAF team, because there is a storage need to remove, since the electrical line is passed through this storage. The AUAF team started the removal of storage and the excavation of handhole will be start in the next Monday July 25.

Ongoing

4	Safety Issues	Tt	Perez/Tt	H&S issues in this meeting was with storage room, the storage room evacuated and prepared for dining area of labors which facilitates with chairs, desks and AC units. TT H&S manager request to provide eyewash station for emergency conditions, Perez AQCM said in this stage of construction don't need for eyewash station so the issue is pending accordingly.	Ongoing
5	List of Deficiencies	Tt	Perez/Tt	In the last meeting many deficiencies were addressed by TT, which were: 1.Using unapproved material for backfilling. 2.Placing gravel without FDT. 3. Backfilling of (200mm thickness) granular materials or sieved soil layer over the sewer pipe from MH-1 to MH-2 without glass insulation of pipe, because total backfill depth is less than 800mm as per drawings and specification. 4.The boot type manhole connector which is used in sewer manholes is not approved.The first and second deficiency was solved and Perez gained approval. The third one is approved by providing specific calculation and R value of insulation material, so material insulation for sewer line was also approved by TT. TT wants the manufacture instruction for installation and specification for approval of boot connector, the boot connector submittal is under investigation & preparation, will submit by Perez.	Ongoing
6	Security Issued	Tt	Perez	Security issues have been resolved accordingly.	Closed
7	QC Issues	Tt	Perez/Tt	There was no any issue with QC in this meeting.	Closed
8	Total Quantity of Poured Concrete	Tt	Perez	Perez AQCM reported that the amount of concrete poured for electrical system till now is 9.5 cubic meter.	Ongoing

9	Schedule	Tt	Perez	Perez Scheduler shared the schedule updates with stakeholders, he said that the schedule is approved by CO, COR, TT and AUAF. TT PM wants the update construction schedule, Perez scheduler said, will provide for TT in next week to reflect more details.	Ongoing
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SECTION 33 20 00

WATER WELLS
04/06

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

ASTM D 1785 (2006) Standard Specification for Poly(Vinyl Chloride) (PVC), Plastic Pipe, Schedules 40, 80, and 120

ASTM F 480 (2002) Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80

1.3 GENERAL REQUIREMENTS

The well shall be located where directed, and be constructed in accordance with these specifications. Each well shall be installed to prevent aquifer contamination by the drilling operation and equipment, intra- and inter-aquifer contamination, and vertical seepage of surface water adjacent to the well into the subsurface, especially the well intake zone.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are For Information only and for Contractor Quality Control approval. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURE, and the submitted items shall meet the referenced codes or equivalent available.

SD-02 Shop Drawings

Installation Diagrams; G,

As-built installation diagram and supporting calculations for each well installed, prepared by the geologist present during well installation operations, within 30 working days of the completion of the well installation procedure.

SD-03 Product Data

Well Installation Plan; G

A plan as specified in paragraph WELL INSTALLATION PLAN describing

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the drilling methods, sampling, and well construction and well development.

Well Material

Catalog data, and name of supplier, for well screens (to include the screen slot size), casing, riser pipe. Catalog data shall include any information, written or otherwise, supplied by the manufacturers or suppliers of the above listed items.

SD-06 Test Reports

Well Development Records

A well development record, for each well.

Filter Pack

Filter pack material; sieve and chemical analyses,

1.5 QUALITY ASSURANCE

1.5.1 Well Installation Plan

Incorporate the following requirements into the Contractor's Well Installation Plan and follow them in the field. The plan shall include, but shall not be limited to, a discussion of the following:

- a. Description of well drilling methods, and installation procedures, placement of filter pack and seal materials.
- b. Description of well construction materials, including well screen, riser pipe, filter pack and filter pack gradation, bentonite or drilling mud.
- c. Description of quality control procedures to be used for placement of filter pack and seals in the boring, including depth measurements.
- d. Forms to be used for written boring logs, installation diagrams of wells, geophysical logs.
- e. Description of contamination prevention and well materials and equipment decontamination procedures.
- g. Description of well development methods to be used.
- h. List of applicable publications, including state and local regulations and standards.
- k. Description of well capacity testing techniques.

PART 2 PRODUCTS

2.1 CASING

All casing, screen, and other well material shall be of compatible materials to prevent galvanic reaction between components of the completed well.

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2.1.2 Plastic Casing and Couplings

Plastic casing pipe and couplings shall be schedule 80, threaded flush joint (or other joint type as approved by the Contracting Officer) and conform to ASTM F 480 and ASTM D 1785.

2.2 WELL SCREENS

Well Screens shall be a minimum of 150 mm nominal diameter, and shall be directly connected to the bottom of the inner casing by an approved method. The length of the screen shall be sufficient to provide an intake area capable of passing not less than the minimum required yield of the well, at an entrance velocity not exceeding 30.5 mm/s. The opening, or slot size of the screen, shall be determined by the Contractor based on analysis of the distribution of the grain size of the aquifer materials encountered during drilling or artificial filter pack if applicable, be compatible with the material surrounding the screen, and shall be submitted for approval as part of the well installation plan. The well screen shall be of sufficient size and design to hold back and support the gravel used in the filter pack envelope and in-situ material surrounding the screen. The screen and all accessories required for satisfactory operation shall be essentially

standard products of manufacturers regularly engaged in the production of such equipment. Field constructed screen is not acceptable. "Blanks" in the well screen may be utilized in nonproductive zones, or where centering devices are needed in the screened area, and shall be considered "casing." The bottom section, below the screen, shall be sealed watertight by means of a flush threaded or welded end cap of the same material as the well screen.

2.2.2 Plastic Screen

2.2.2.1 PVC Pipe

PVC pipe shall be approved prior to installation. The PVC pipe must be at least Schedule 80 or plastic pipe shall conform to ASTM D 1785.

2.2.2.2 Bonding Materials

Bonding materials, proportions and preparation of adhesives, the method of application, and the procedure used for making and curing the connections shall conform to the recommendations of the PVC pipe manufacturer. The system for making joints at the well site shall provide a curing period adequate to develop the ultimate strength of the completed joint. Self-tapping screws or other devices for holding adhesive-coated pipe in the couplings during the setting period shall not be utilized. Newly-made joints in the casing shall not be stressed, lowered into the well or submerged in water prior to complete curing of the adhesive.

2.2.2.3 PVC Well Screen

PVC well screen shall be provided with perforations which shall consist of machine-sawed slots which shall have smooth, sharp-edged openings free of burns, chipped edges, or broken pieces on the interior and exterior surfaces of the pipe. The pattern of the openings shall be uniformly spaced around the periphery of the well screen. Compatible slot sizes of screens and

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filter-pack gradations or surrounding material shall be designed by the Contractor and furnished to the Contracting Officer. The PVC pipe screen strength properties shall be equivalent to those for the PVC casing with which the screen is used.

2.3 FILTER PACK

Filter pack material shall be properly sized and graded for the surrounding soil encountered, and shall be composed of clean, hard, waterworn siliceous material, free of flat or elongated pieces, organic matter, or other foreign matter. The filter material shall be of a size which will allow the maximum flow of water into the well and prevent the infiltration of sand and silt.

2.5 CEMENT GROUT

2.5.1 Cement Grout

Cement grout shall consist of Portland cement conforming to ASTM C 150, Type I or II, sand and water. Cement grout shall be proportioned not to exceed 2 parts, by weight, of sand to 1 part of cement with not more than 23 liters of water per 42.6 kg of Portland cement, with a mixture of such consistency

that the well can be properly grouted. No more than 5 percent by weight of bentonite powder may be added to reduce shrinkage.

2.6 PERMANENT PUMP

Permanent pump shall be an approved submersible type with a capacity sufficient to deliver the pumping rates.

PART 3 EXECUTION

3.4 WELL DEVELOPMENT

Within 7 days of completion of each well, but no sooner than 48 hours after cement grouting is completed, the well shall be developed.

3.4.1 Jetting

Jetting should be performed using either a single or double ring jet. If a double ring jet is used the rings should be 600 mm apart. The jetting tool shall be constructed of high-strength material and conservatively designed and proportioned so that it will withstand high pressures. The jetting tool shall have two 7, 8, or 10 mm diameter hydraulically balanced nozzles spaced 180 degrees or four 7, 8, or 10 mm diameter holes spaced 90 degrees apart and which shall exert the jetting force horizontally through the screen slots. The rings shall be constructed such that the tips of the jets shall be within 13 mm from the inner surface of the well screen. The pump used in conjunction with the jetting tool shall be capable of providing a minimum jetting fluid exit velocity of 45 m/s. Prior to commencing jetting, and following each jetting cycle, all sand and/or other materials shall be removed from inside the screen. The jetting process shall start at the bottom of the screen and consist of rotating the jetting tool slowly while rotating the pipe 180 degrees for two minutes at each location then raising

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the pipe 150 mm. All wells, more than 100 mm in diameter, shall be pumped during the jetting cycle to remove incoming sand and other material. Such pumping shall be at a rate not less than 115 percent of the rate at which fluid is introduced through the jetting tool. This will allow a flow of material into the well as it is being developed. Water used for development shall be free of sand.

3.4.4 Well Development Criteria

A well development record shall be maintained in accordance with paragraph Well Development Records. Development is complete when all of the following criteria are met:

- a. Well water is clear to the unaided eye ,and turbidity less than or equal to 5 Nephelometric Turbidity Units (NTUs),
- b. A minimum of three times the standing water volume in the well is removed plus three times the volume of all added water and drilling fluid lost during drilling and installation of the well is removed, and

3.5 TESTS

After the wells have been developed, the Contractor shall notify the client and shall make the necessary arrangements for conducting the capacity tests. If the capacity test indicates that the required capacity can be obtained, the tests for quality of water shall be made. If the

capacity and quality tests indicate that the required capacity and quality can be obtained, the permanent well, as specified, shall be completed at that depth. Prior to making quality tests, drilling equipment, tools and pumps contacting well water shall be cleaned with live steam.

3.5.1 Capacity Test

The Contractor shall furnish and install an approved temporary test pump, with discharge piping of sufficient size and length to conduct the water being pumped to point of discharge, and equipment necessary for measuring the rate of flow and water level in the well. An 4 hour step-drawdown capacity test shall be run with the pumping rate and drawdown at the pump well and observation wells recorded every 1/2 minute during the first 5 minutes after starting the pump; then every 5 minutes for an hour; then every 20 minutes for 2 hours until the water level stabilizes, shall be sufficient. Observation wells (piezometers) shall be read on the same schedule as the pump well. During the step-drawdown test, the pumping rate shall be increased in steps at regular intervals. Specific capacity shall be measured for each step. The test shall begin at the rate of the expected capacity of well and at least that rate maintained throughout the duration of the test. The well shall be "step" tested at rates of approximately 1/2, 3/4, 1 and 1 1/2 times the estimated design capacity of the well.

3.5.3 Test for Quality of Water

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When the capacity test in the test hole has been completed, and again after the yield in the permanent well and drawdown test or capacity test have been completed, the Contractor shall secure samples of the water in suitable containers, and of sufficient quantity, to have bacterial, physical, and chemical analyses made by a recognized testing laboratory. Water Quality Analysis shall address each item specified in the Water Quality Analysis Table at the end of this section. Expenses incident to these analyses shall be borne by the Contractor and the results of the analyses shall be furnished to the Contracting Officer. All sampling and analyses shall be performed using EPA approved methods, procedures, and holding times.

3.6 INSTALLATION OF PERMANENT PUMP

The permanent well pump shall be installed in the well at a minimum depth of 8 m below the maximum drawdown groundwater level after the drawdown test has been completed. The pump shall be secured at the required elevation as recommended by the pump manufacturer. After installation of the pumping units and appurtenances is complete, operating tests shall be carried out to assure that the pumping installation operates properly. Tests shall assure that the pumping units and appurtenances have been installed correctly, that there is no objectionable heating, vibration, or noise from any parts, and that all manual and automatic controls function properly.

3.7 DISINFECTING

After completion of tests of well, or installation of permanent pump, or at time of tests for yield and drawdown test, whichever is later, the wells shall be disinfected by adding chlorine, in sufficient quantity so that a concentration of at least 50 ppm of chlorine shall be obtained in all parts of the well. Chlorine solution shall be prepared and introduced into the well in an approved manner and shall remain in the well for period of at least 12 hours but not more than 24 hours. Information on methods for preparing chlorine solution and introducing it into the well may be found in AWWA C654. After the contact period, the well shall be pumped until the residual chlorine content is not greater than 1.0 ppm. The well shall be pumped to waste for an additional 15 minutes with less than 1 ppm chlorine residual after which two samples shall be taken not less than 30 minutes apart and tested for the presence of coliform bacteria. The well shall be disinfected and re-disinfected as may be required until two consecutive samples of water are found upon test to be free from Coli Acrogenes group of organisms.

3.9 SITE CLEAN-UP

After completion of the work, tools, appliances, surplus materials, temporary drainage, rubbish, and debris incidental to work shall be removed. Excavation and vehicular ruts shall be backfilled and dressed to conform with the existing landscape. Utilities, structures, roads, fences, or any other pre-existing item which must be repaired or replaced due to the Contractor's negligence shall be the Contractor's responsibility; repair or replacement shall be accomplished prior to completion of this contract.

3.10 SURVEYS

Coordinates and elevations shall be established for each well/test hole. Horizontal coordinates shall be determined to the closest 300 mm and referenced to the Universal Transverse Mercator (UTM). If the UTM is not readily available, an existing local grid system shall be used. A ground

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elevation to the closest 30 m shall be obtained at each well. The highest point on the top of the riser pipe will serve as a measurement point. The elevation of the well shall reference this point, and shall be surveyed to the nearest 3 mm. If a recognized datum is not readily available, the existing local vertical datum shall be used. The location, identification, coordinates, and elevations of the well and monuments shall be plotted on

maps with a scale large enough to show their location with reference to other structures. If no local survey reference is available, an arbitrary survey datum created for the site may be used.

WATER QUALITY ANALYSIS TABLE

Physical Characteristics

Color	Resistivity in ohms per cubic
Taste	centimeter and 25 degrees C.
Threshold odor number	pH value
Turbidity	Temperature

Chemical Characteristics (Expressed as mg/L)

Arsenic	Total Hardness as CaCO(3)
Barium	Endrin
Cadmium	Lindane
Chromium	Methoxychlor
Copper	Toxaphene
Lead	2-4-D
Mercury	2, 4, 5 TP Silvex
Selenium	Total Organic Halogens
Silver	TOC
Zinc	Sulphates as SO(4)
Fluoride as F	Chlorides as Cl
Manganese as Mn (dissolved and total)	Bicarbonates as HCO(3)
Iron as Fe (dissolved and total)	Carbonates as CO(3)
Suspended Solids	Nitrates as NO(3)
Total Dissolved Solids	Alkalinity (methyl-orange)

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Calcium as Ca
Magnesium as Mg
Sodium and Potassium as Na

(Phenolphthalein) as CaCO_3
Silica as SiO_2

-- End of Section --

ACTIVITY HAZARD ANALYSIS

ACTIVITY HAZARD ANALYSIS		
1. Contractor No: AID-306-TO-15-000069	2. Project: Design/Build of WOMENS DORMITORY (AUAF).	3. Location: AMERICAN ,UNIVERSITY DARLAMAN ROOAD KABUL, AFGHANISTAND
4. Date: / /2016	5. Activity: WATER WELL CONSTRUCTION	6. Estimated Start Date: / /2016
7. Principle Steps:	8. Potential safety/Health Hazards:	9. Recommended Controls:
<p>WATER WELL CONSTRUCTION</p> <p>(Well Installation)</p>	<p>Struck by/ Against Heavy Equipment, Flying Debris, Protruding Objects</p> <p>Sharp Objects</p>	<ul style="list-style-type: none"> • Wear reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Barricade or enclose the drilling area • Restrict entry to the work area to authorized personnel during drilling Activities (EM 385-1-1 Section 18) • Wear hard hats, safety glasses with side shields, or splash/face shields and goggles, and steel-toe safety boots at all times Understand and review hand signals (EM 385-1-1 Section 5) • Wear cut resistant work gloves when the possibility of lacerations or other

Well Installation (continued)

Handling Heavy Objects

- Observe proper lifting techniques
- Obey sensible lifting limits (60 lb. Maximum per person manual lifting)
- Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
- Warm up muscles before engaging in manual lifting activities Review lifting posture/techniques regularly at safety meetings
(EM 385-1-1 Section 18)

Caught In/ Between Moving Parts

- Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries
- Assure guards are in place to protect from these parts of equipment during operation
- Provide and wear proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects
- Maintain all equipment in a safe condition
- Keep all guards in place during use
De-energize and lock-out machinery before maintenance or service
(EM 385-1-1 Section 13 & 05)

Well Installation (continued)

Fire/ Explosion

- Test well-head atmosphere with combustible gas meter
- Eliminate sources of ignition from the work area
- Prohibit smoking
- Provide ABC (or equivalent) fire extinguishers in all work areas, flammable storage areas, generator and compressor locations
- Store flammable liquids in well ventilated areas
- Prohibit storage, transfer of flammable liquids in plastic containers
- Post "NO SMOKING" signs
- Store combustible materials away from flammables
- Store all compressed gas cylinders upright, caps in place when not in use
Separate Flammables and Oxidizers by 20 feet minimum
(EM 385-1-1 Section 09)

<p>Equipment to be used:</p> <ul style="list-style-type: none"> • Wheel barrows • Trowels and hand tools • PPE • Drill Rig • Cutter Power tools as needed 	<p>Inspection Requirements:</p> <ul style="list-style-type: none"> • Daily QC inspections • Daily safety inspections • Equipment inspections • Calibration of testing equipment. • Controlling of PPE and machinery 	<p>Training Requirements:</p> <ul style="list-style-type: none"> • Pre-Job Briefing • Tool box meetings • On site instruction • Safety introduction. • Drivers and operators must be trained individually
<p>Prepared by: Contractor Competent/Qualified Person :Mir Mohammad Qasim SSHM /</p>		

<p>This AHA has been reviewed by the designated Tetra Tech QA and is acceptable for use on this project. This acceptance is predicated on satisfactory implementation in the field by the contractor and will be rescinded if the contractor fails to enforce the controls identified in this document and/or the requirements identified in EM385-1-1. This AHA will be reviewed and modified as necessary to address changing site conditions, operations, and change of competent/qualified person.</p>	<p>Signature & Date :</p>
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PREPARATORY PHASE CHECKLIST		SPEC SECTION	DATE
(CONTINUED ON SECOND PAGE)		33 20 00	02/10/2016
CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.2	
AID-306-TO-15-00069	1. Water well PVC casing & screen installation. 2. Gravel pack, bentonite seal & cement grout installation. 3. Water well tests.	CU-501	
PERSONNEL PRESENT	GOVERNMENT REP NOTIFIED HOURS IN ADVANCE: 48 hours YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
	NAME	POSITION	COMPANY/GOVERNMENT
SUBMITTALS	REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? 32 20 00-4 Water well log, approved (Coded-A). 32 20 00-1.1 Water well screen, Approved (Coded-A). 32 20 00-3.1 Filter, Gravel pack, Approved (Coded-A). 32 20 00-3 Bentonite clay (Coded-A). 22 00 00-10 Glue 717 & Cleaner for PVC Pipes		
	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? _____		
	ARE ALL MATERIALS ON HAND? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS ARE MISSING? _____		
MATERIAL STORAGE	CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.) COMM TS: _____		
	ARE MATERIALS STORED PROPERLY? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ACTION IS TAKEN? _____		

SPECIFICATIONS	REVIEW EACH PARAGRAPH OF SPECIFICATIONS.	33 71 02.00 20, Paragraphs: 1.4, 2.2, 2.2.2.2, 2.3, 2.5.1, 3.5, 3.5.1, 3.5.3, 3.6, 3.7, 3.9
	33 20 00 Water Well.	
	DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK.	<ol style="list-style-type: none"> 1- Water well drilling. 2- Cleaning of bore-hole prior screen & casing installation. 3- Installation of water well screen & casing according to approved well log. 4- Filter, gravel pack materials placement. 5- Compressor cleaning. 6- Bentonite seal & cement grout pouring. 7- Water well testing.

2.2 WELL SCREENS

- Well Screens shall be a minimum of 150 mm nominal diameter, and shall be directly connected to the bottom of the inner casing by an approved method.
- The length of the screen shall be sufficient to provide an intake area capable of passing not less than the minimum required yield of the well, at an entrance velocity not exceeding 30.5 mm/s. The opening, or slot size of the screen, shall be determined by the Contractor based on analysis of the distribution of the grain size of the aquifer materials encountered during drilling or artificial filter pack if applicable, be compatible with the material surrounding the screen, and shall be submitted for approval as part of the well installation plan.
- The well screen shall be of sufficient size and design to hold back and support the gravel used in the filter pack envelope and in-situ material surrounding the screen.
- "Casing." The bottom section, below the screen, shall be sealed watertight by means of a flush threaded or welded end cap of the same material as the well screen.

2.2.2.1 PVC Pipe

PVC pipe shall be approved prior to installation. The PVC pipe must be at least Schedule 80 or plastic pipe shall conform to ASTM D 1785.

2.2.2.2 Bonding Materials

Bonding materials, proportions and preparation of adhesives, the method of application, and the procedure used for making and curing the connections shall conform to the recommendations of the PVC pipe manufacturer.

2.2.2.3 PVC Well Screen

PVC well screen shall be provided with perforations which shall consist of machine-sawed slots which shall have smooth, sharp-edged openings free of burns, chipped edges, or broken pieces on the interior and exterior surfaces of the pipe. The pattern of the openings shall be uniformly spaced around the periphery of the well screen. Compatible slot sizes of screens and filter-pack gradations or surrounding material shall be designed by the Contractor and furnished to the Contracting Officer.

2.3 FILTER PACK

Filter pack material shall be properly sized and graded for the surrounding soil encountered, and shall be composed of clean, hard, waterworn siliceous material, free of flat or elongated pieces, organic matter, or other foreign matter. The filter material shall be of a size which will allow the maximum flow of water into the well and prevent the infiltration of sand and silt.

2.5.1 Cement Grout

Cement grout shall consist of Portland cement conforming to ASTM C 150, Type I or II, sand and water. Cement grout shall be proportioned not to exceed 2 parts, by weight, of sand to 1 part of cement with not more than 23 liters of water per 42.6 kg of Portland cement, with a mixture of such consistency that the well can be properly grouted. No more than 5 percent by weight of bentonite powder may be added to reduce shrinkage.

3.5 Tests:

1. Compressor test.
2. Capacity Test.
3. Water Quality Test.

3.5.1 Capacity Test

Perez will furnish and install a temporary test pump, with discharge piping of sufficient size and length to conduct the water being pumped to point of discharge, and equipment necessary for measuring the rate of flow and water level in the well. An 4 hour step-drawdown capacity test shall be run with the pumping rate and drawdown at the pump well and observation wells recorded every 1/2 minute during the first 5 minutes after starting the pump; then every 5 minutes for an hour; then every 20 minutes for 2 hours until the water level stabilizes, shall be sufficient. Observation wells (piezometers) shall be read on the same schedule as the pump well. During the step-drawdown test, the pumping rate shall be increased in steps at regular intervals. Specific capacity shall be measured for each step. The test shall begin at the rate of the expected capacity of well and at least that rate maintained throughout the duration of the test.

The well shall be "step" tested at rates of approximately 1/2, 3/4, 1 and 1 1/2 times the estimated design capacity of the well.

3.5.3 Test for Quality of Water

When the capacity test in the test hole has been completed, and again after the yield in the permanent well and drawdown test or capacity test have been completed, the Contractor shall secure samples of the water in suitable containers, and of sufficient quantity, to have bacterial, physical, and chemical analyses made by a recognized testing laboratory. Water Quality Analysis shall address each item specified in the Water Quality Analysis Table at the end of this section. Expenses incident to these analyses shall be borne by the Contractor and the results of the analyses shall be furnished to the Contracting Officer.

assure that the pumping installation operates properly. Tests shall assure that the pumping units and appurtenances

3.6 INSTALLATION OF PERMANENT PUMP

The permanent well pump shall be installed in the well at a minimum depth of 8 m below the maximum drawdown groundwater level after the drawdown test has been completed. The pump shall be secured at the required elevation as recommended by the pump manufacturer. After installation of the pumping units and appurtenances is complete, operating tests shall be carried out to assure that the pumping installation operates properly. Tests shall assure that the pumping units and appurtenances have been installed correctly, that there is no objectionable heating, vibration, or noise from any parts, and that all manual and automatic controls function properly.

3.7 DISINFECTING

After completion of tests of well, or installation of permanent pump, or at time of tests for yield and drawdown test, whichever is later, the well shall be disinfected by adding chlorine, in sufficient quantity so that a concentration of at least 50 ppm (part per million or mg per liter) of chlorine shall be obtained in all parts of the well. Chlorine solution shall be prepared and introduced into the well in an approved manner and shall remain in the well for period of at least 12 hours but not more than 24 hours. Information on methods for preparing chlorine solution and introducing it into the well may be found in AWWA C654. After the contact period, the well shall be pumped until the residual chlorine content is not greater than 1.0 ppm. The well shall be pumped to waste for an additional 15 minutes with less than 1 ppm chlorine residual after which two samples shall be taken not less than 30 minutes apart and tested for the presence of coliform bacteria. The well shall be disinfected and re-disinfected as may be required until two consecutive samples of water are found upon test to be free from Coli Acrogenes group of organisms.

3.9 SITE CLEAN-UP

After completion of the work, tools, appliances, surplus materials, temporary drainage, rubbish, and debris incidental to work shall be removed. Excavation and vehicular ruts shall be backfilled and dressed to conform with the existing landscape. Utilities, structures, roads, fences, or any other pre-existing item which must be repaired or replaced due to the Contractor's negligence shall be the Contractor's responsibility; repair or replacement shall be accomplished prior to completion of this contract.

CLARIFY ANY DIFFERENCES. _____

PRELIMINARY WORK & PERMITS

ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE. IF NOT, WHAT ACTION IS TAKEN? _____

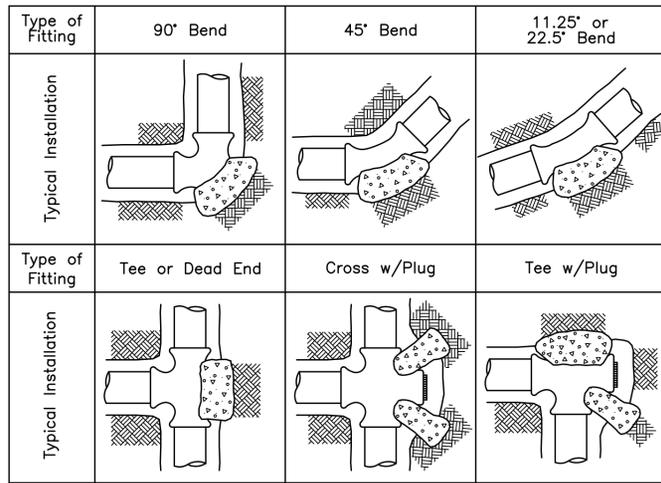
TEST

IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. _____

- Compressor test: shall be performed by will drilling team, for a period to get the water clean of clay, mud, silt. And to make sure the water well is well cleaned.
- Capacity Test: shall be performed by an approved lab for a period of 4 hours as described in section 33 20 00 para 3.5.1.
- Water Quality Test: shall be performed by an approved lab.

WHEN REQUIRE D?

- 1- Compressor test is required after the installation of well casing & screen and filter/gravel pack and prior to bentonite seal & cement grout.
- 2- Capacity test is required to be performed after the installation is casing/screen, filter/gravel pack, bentonite seal & cement grout.
- 3- The samples for water quality testing will be taken after the completion of capacity test.

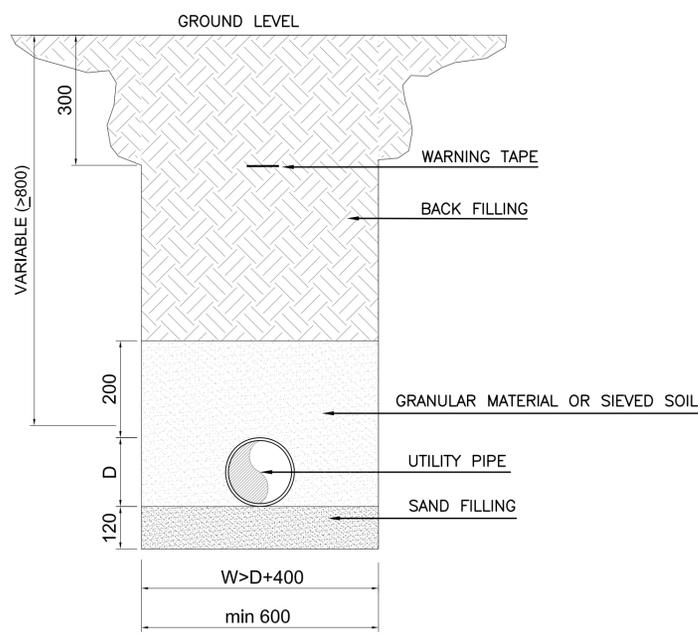


Thrust Block Bearing Area – Square Meters

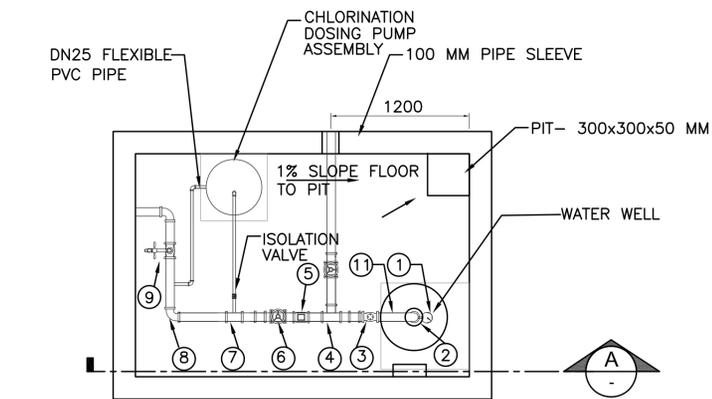
Type of Fitting	90° Bend	45° Bend	11.25° or 22.5° Bend	Tee or Dead End	Cross w/Plug	Tee w/Plug
Size of Pipe	100	.2	.1	.1	.2	.2
	150	.5	.3	.2	.4	.5
	200	.7	.5	.3	.6	.7
	250	1.2	.7	.4	.8	1.2

NOTE:
 1. THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL.
 2. JOINTS AND FACE OF PLUGS SHALL BE KEPT CLEAR OF CONCRETE.

1 THRUST BLOCK DETAILS
SCALE: NTS



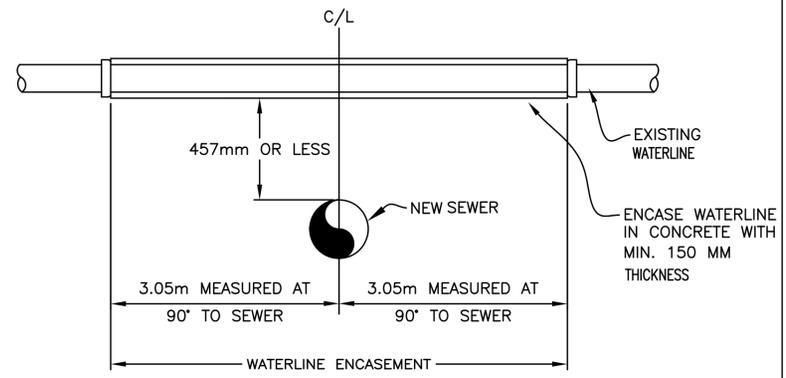
3 TRENCH DETAIL
SCALE: NTS



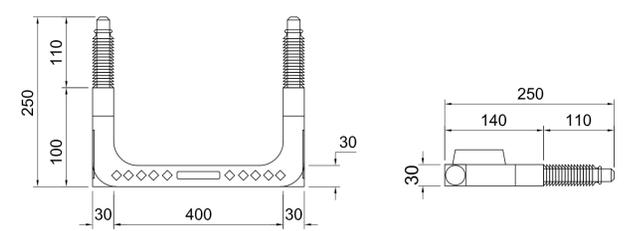
SCHEDULE FOR CHLORINATION DOSING PUMP ASSEMBLY

ITEM	DOSING PUMP MODEL	MAX FLOW RATE L/HR	MAX PRESSURE BAR	DOSING TANK
1	HC 897 SERIES	2	8	50 LITERS

2 WATER WELL VAULT PLAN
SCALE: NTS



5 SEWER LINE CROSSING UNDER WATER LINE
SCALE: NTS

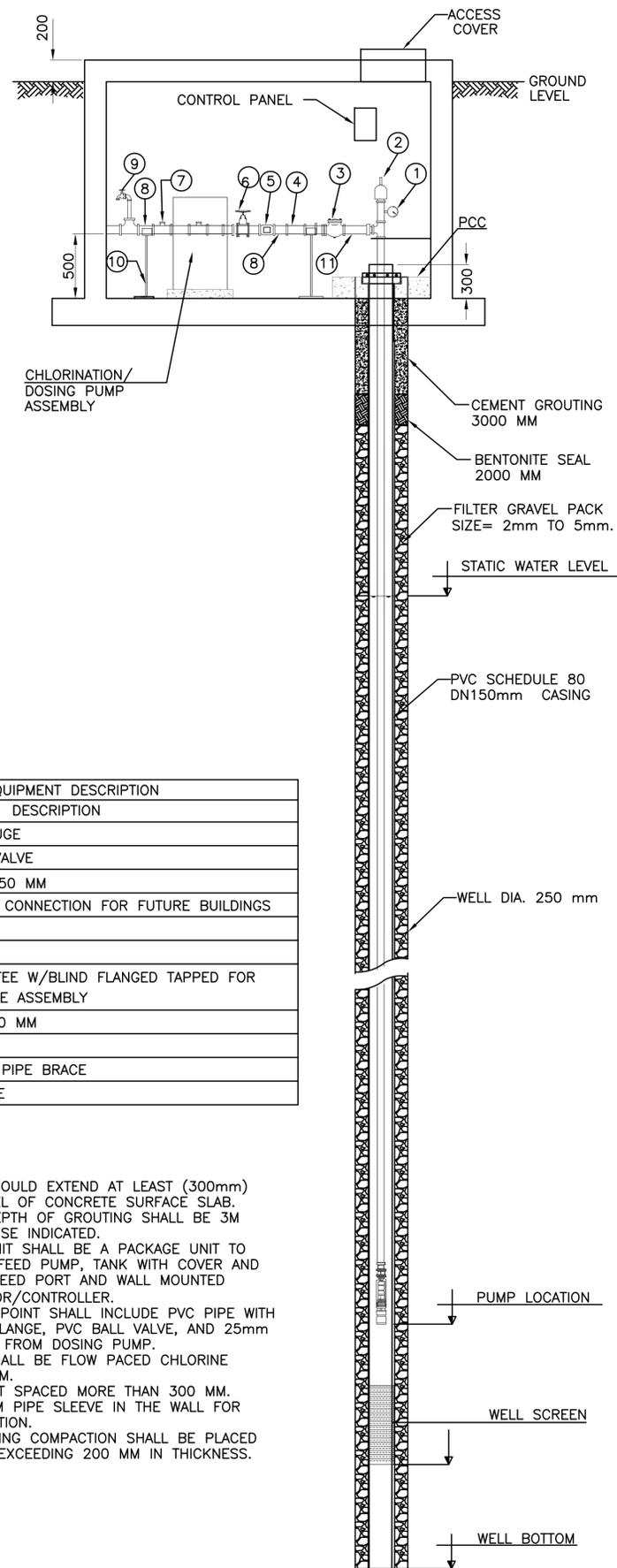


4 CAST IRON RUNG WITH POLYETHYLENE COATING
SCALE: NTS

ITEM	EQUIPMENT DESCRIPTION
1	PRESSURE GAUGE
2	AIR RELEASE VALVE
3	CHECK VALVE 50 MM
4	50 MM WATER CONNECTION FOR FUTURE BUILDINGS
5	WATER METER
6	GATE VALVE
7	Ø50mm PVC TEE W/BLIND FLANGED TAPPED FOR CHLORINE DOSE ASSEMBLY
8	G.I PIPE DN 50 MM
9	SAMPLE TAP
10	50 MM STEEL PIPE BRACE
11	65 MM GI PIPE

NOTES:
 1. WELL CASING SHOULD EXTEND AT LEAST (300mm) ABOVE THE LEVEL OF CONCRETE SURFACE SLAB.
 2. THE MINIMUM DEPTH OF GROUTING SHALL BE 3M UNLESS OTHERWISE INDICATED.
 3. CHLORINATOR UNIT SHALL BE A PACKAGE UNIT TO INCLUDE MIXER FEED PUMP, TANK WITH COVER AND DRY CHEMICAL FEED PORT AND WALL MOUNTED CHLORINE SENSOR/CONTROLLER.
 4. CHLORINE FEED POINT SHALL INCLUDE PVC PIPE WITH TAPPED BLIND FLANGE, PVC BALL VALVE, AND 25mm FLEXIBLE PIPING FROM DOSING PUMP.
 5. CHLORINATOR SHALL BE FLOW PAGED CHLORINE INJECTION SYSTEM.
 6. RUNG SHALL NOT SPACED MORE THAN 300 MM.
 7. PROVIDE 100 MM PIPE SLEEVE IN THE WALL FOR FUTURE CONNECTION.
 8. BEDDING REQUIRING COMPACTION SHALL BE PLACED IN LAYERS NOT EXCEEDING 200 MM IN THICKNESS.

A WATER WELL VAULT SECTION A-A
SCALE: NTS



Symbol	Description	Date	Appr.
5	100% PARTIAL RE-SUB II	08.05.2016	
4	100% PARTIAL RE-SUB	18.04.2016	
3	100% PARTIAL SUBMITTAL	30.03.2016	
2	99% PARTIAL SUBMITTAL	15.03.2016	
1	PARTIAL SUBMITTAL	11.02.2016	

Designed by:	SEPTEMBER 01, 2015
Drawn by:	FILE NAME:
Reviewed by:	CU-501-Site Utility Details.dwg
Submitted by:	Plot Date: May 08, 2016 - 3:59pm
CHL, E & C	Plot Scale: AS SHOWN
Solicitation No: SOL-306-15-00072	Contract No: AID-306-TO-15-00089



AMERICAN UNIVERSITY OF AFGHANISTAN (AUAF)
 KABUL PROVINCE, AFGHANISTAN
 PDC: AUAF
 WOMEN DORMITORY
 SITE UTILITY DETAILS
 FY: 2016

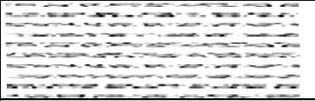
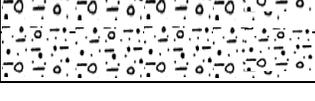
Sheet Reference Number:
CU-501
 SHEET 3 OF 5

Water Well Log

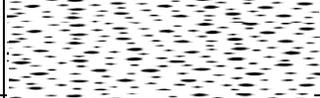
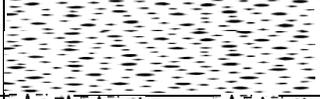
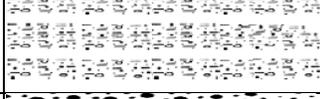
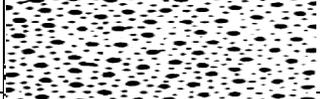
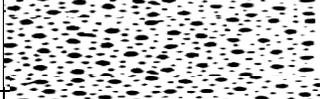
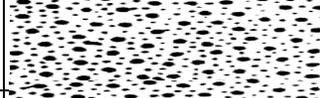
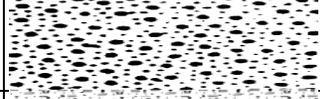
GE. IND (m)	Depth (m)	Thickness (m)	Lithological Description	Group Symbol	Well Section Scale	150 mm CASING/SCREEN		
22	1.0	1	Sandy silty Clay	CL- ML		CASING	CASING	
	2.0	2	Silty sand	SM				
	4.0	2	Silty clayey sand	SC - SM				
	6.0	2	Silt Sand with Gravel	SM				
	8.0	2	Silt Sand with Gravel	SM				
	10.0	2	Poorly graded sand with silty with and gravel	SP - SM				
	12.0	2	Well graded sand with Gravel	SW				
	14.0	2	poorly graded gravel with silty and sand	GP- GM				
	16.0	2	Poorly graded Gravel with sand	GP				
	18.0	2	Poorly graded Gravel with sand	GP				
	20.0	2	Silty Sand	SM				
	22.0	2	Silt with sand	SM				

Continue....

Water Well Log

GE. IND (m)	Depth (m)	Thickness (m)	Lithological Description	Group Symbol	Well Section Scale	150 mm CASING/SCREEN
50	24.0	2	Silty gravel with sand	GM		SCREEN
	26.0	2	Silty gravel with sand	GM		SCREEN
	28.0	2	Silty gravel with sand	GM		SCREEN
	30.0	2	Silty gravel with sand	GM		SCREEN
	32.0	2	Poorly graded sand with silty and gravel	SP - SM		CASING
	34.0	2	Silty gravel with sand	GM		CASING
	36.0	2	Silty grave with Sand	GM		SCREEN
	38.0	2	Silty garve with Sand	GM		SCREEN
	40.0	2	poorly graded garave with silt and sand	GP GM		SCREEN
	42.0	2	Silty grave with Sand	GM		SCREEN
	44.0	2	Silty Sand	SM		CASING
	46.0	2	Silty Sand	SM		CASING
	48.0	2	Silty Sand with Gravel	SM		CASING
	49.0	1	Silty Sand with Gravel	SM		CASING
Continue....						

Water Well Log

GE. IND (m)	Depth (m)	Thickness (m)	Lithological Description	Group Symbol	Well Section Scale	150 mm CASING/SCREEN	
75	50.0	1	poorly graded sand with silt and gravel	SP -SM		CASING	
	52.0	2	poorly graded sand with silt	SP -SM			
	54.0	2	Poorly graded Sand with silt	SP -SM			
	56.0	2	poorly graded sand with silt and gravel	SP -SM		CASING	
	58.0	2	Silty Sand	SM		CASING	
	60.0	2	Silty Sand	SM		CASING	
	62.0	2	Poorly graded Sand	SP		SCREEN	
	64.0	2	Poorly graded Sand	SP		SCREEN	
	66.0	2	Poorly graded Sand	SP		SCREEN	
	68.0	2	Poorly graded Sand	SP		SCREEN	
	70.0	2	Silty Sand	SM		CASING	
	72.0	2	Silty Sand	SM		CASING	
	75.0	3	Silty Sand	SM		CASING	

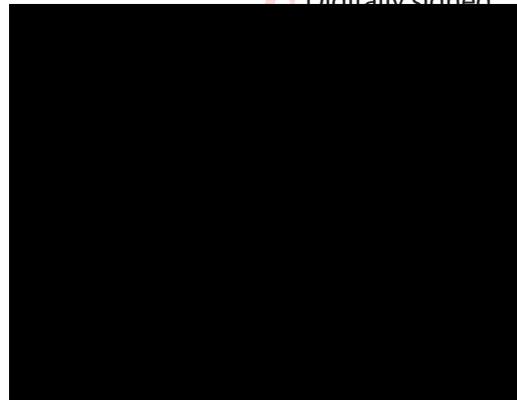
APPENDIX C – NON-CONFORMANCE REPORTS (NCR)

NON-CONFORMANCE REPORT

NCR No.	0001-CW	Status:	Ongoing <input type="checkbox"/> Resolved <input checked="" type="checkbox"/>
Project:	WO-LT-0082 AMD3 - American University of Afghanistan Women's Dormitory Quality Assurance		
Organization:	PEREZ	Location:	Dar-ul-Arman, Kabul, Afghanistan
Tt POC:	██████████	Report Date:	July 31, 2016
NCR Subject:	Sewer System Pipe Insulation		
Description:			
The contractor has been conducting backfilling from MH1 to MH2 without insulating the sewer pipes where depth of cover is less than 800 mm.			
Findings (including references):			
Below are the findings of Tetra Tech Inspectors:			
<ul style="list-style-type: none"> • As per the approved design drawings for underground direct-buried piping, where depth of cover is less than 800 mm, 50 mm thick insulation material with jacket over insulation shall be applied. (100% Partial Site Construction, Reference sheet number CU-102, Sheet 2 of 5). 			
Expected Corrective Actions:			
The contractor is required for rectification of the above mentioned deficiency and take corrective action per 100% Partial Site Construction, Reference sheet number CU-102, Sheet 2 of 5.			
Response:			
Perez will take the correction action and will rectify of the above mentioned deficiency from Tt Side, Per 100% Partial site construction, Reference sheet number CU- 102, sheet 2 of 5. Based on the report from Perez QC Manager I would like to mention this the backfilling over sewer PVC pipe from manhole manhole#1 to manhole#2 was temporary backfilling to protect PVC pipe from hot Weather and effect of direct sun shine, because the insulation material will use after Tt and USAID approval. Perez will remove the temporary material and will use insulation material according to drawing and Specification.			

Tetra Tech acknowledges the completion of corrective action on 07/27/2016, NCR0002-CW is resolved.

Digitally signed



PHOTOGRAPHS

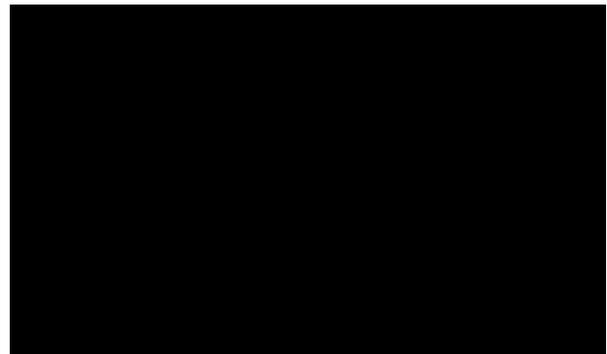


Figure 1. Sewer pipe insulation. MA, 07/27/2016

NON-CONFORMANCE REPORT

NCR No.	0002-CW	Status:	Ongoing <input type="checkbox"/> Resolved <input checked="" type="checkbox"/>
Project:	WO-LT-0082 AMD3- American University of Afghanistan Women's Dormitory Quality Assurance		
Organization:	PEREZ	Location:	Dar-ul-Arman, Kabul, Afghanistan
Tt POC:	██████████	Report Date:	July 19, 2016
NCR Subject:	Unapproved Material Usage For Sewer Trench Backfilling		
Description:			
<p>The contractor started backfilling the sewer system trench with unapproved material. The contractor backfilling material test report indicates the use of CL-ML classified as Unsatisfactory Material which is not recommended as backfill material based on ASTM D2487 and Spec Section 31 23 00.00 20 / 2.1.2.</p>			
Findings (including references):			
<p>In accordance with transmittal No. 31 23 00. 00 20; the Backfilling Material Submittal was rejected on June 20, 2016 and coded E.</p> <p>This deficiency was reported on June 13, 2016 in the Tetra Tech QA daily report as well as was sent to the contractor through an email on June 14, 2016 to take an action for the mentioned deficiency.</p>			
Expected Corrective Actions:			
<p>The contractor is required for rectification of the above mentioned deficiency and take corrective action as below:</p> <ol style="list-style-type: none"> 1. The contractor needs to provide a revised submittal for backfill material for review and acceptance. 2. To remove the unsatisfactory material and replace with approved backfill material. 			
Response:			
<p>Regarding backfilling material which was rejected by Tt and receiving the USAID instruction, Perez stopped the backfilling for sewer trench.</p> <p>Perez will take the correction action and will rectify of the above mentioned deficiency per Tt instruction. On 26th June 2016, Perez resubmit the backfilling materials for Tt review and acceptance. After approving of the revised submittal we will remove the unsatisfactory material and will replace with approved backfill Materials.</p>			

Tetra Tech acknowledges the completion of corrective action on 07/19/2016, NCR0002-CW is resolved.



PHPTOGRAPHS



Figure 1. Contractor lifted the MH1 & MH2 and did backfill with approved material, 07/16/2016



Figure 2. Contractor did FDT test for the base of the manholes, 07/18/2016

APPENDIX D – SAFETY TOOLBOX SIGN – IN SHEETS AND RELATED PICTURES

Safety Toolbox Talks Meeting

Safety Toolbox Talks Meeting Sign- In Sheet

Presenter: [REDACTED]

Date: 07-July-2016

Project: WO-LT-0082 AMD3, American University of Afghanistan (AUAF) Women's Dormitory / QA

Location: Kabul -Darul Aman

Employee Name:

Title:

[REDACTED]

[REDACTED]

.....Tt. H&S Ins
.....QA Monitor
.....Perez SSHO.....
..... Perez Site Eng
..... Safety Officer

In the case of Electrical, propane, or gas fires, the first step is to shut off the supply. Therefore, before commencing work, find out where all the disconnects and main gas valves are located.

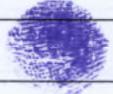
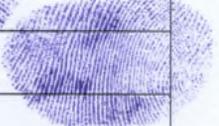
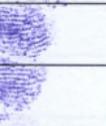
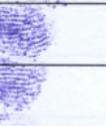
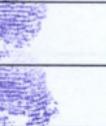
Basic fire precautions

- Know the location of fire exits and fire alarms.
- Make sure you know
 - The location of the fire extinguisher nearest to your work area
 - The limitations and proper use of the A, B, C, and D type fire extinguishers
 - Which type of fire extinguisher you should use on each type of fire—using the wrong extinguisher (e.g., water on burning oil) can cause a fire to spread
- Keep fire exits, alarms, and firefighting equipment free of obstructions at all times.
- In case of fire
 - Warn others—yell for help if required.
 - Use fire extinguishers if the fire is small.
 - If the fire is (or could become) too large to control, call 911 or your local emergency number, and turn on the fire alarm immediately. Post lookouts to direct firefighters to the fire.
- In the case of electrical, propane, or gas fires, the first step is to shut off the supply. Therefore, before commencing work, find out where all the disconnects and main gas valves are located.



Safety Toolbox Talks Meeting

Related Toolbox Talks Meeting Sign In Sheet

No شماره	Name اسم	Position وظیفه	Signature امضا
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Safety Toolbox Talks Meeting

Related Tool Box Meeting Pictures



Safety Toolbox Talks Meeting

Safety Toolbox Talks Meeting Sign- In Sheet

Presenter: [REDACTED]

Date: 20-July-2016

Project: WO-LT-0082 AMD3, American University of Afghanistan (AUAF) Women's Dormitory / QA

Location: Kabul –Darul Aman

Employee Name:

Title:

Employee Signature:

Employee Name:	Title:	Employee Signature:
[REDACTED]	[REDACTED]	[REDACTED]

Safety Toolbox Talks Meeting

HEAT EXHAUSTION AND SUNSTROKE

When working during hot weather, we may suffer heat exhaustion or sunstroke. Heat exhaustion is caused by the loss of body salt, and sunstroke occurs when the body mechanism is not able to keep the system cool. Following are the symptoms of these ailments and the steps we should take to aid the victim.

Symptoms: The first signs of heat exhaustion are dizziness, weakness, headache, blurred vision, nausea and staggering. The face becomes pale, there is profuse sweating, the pulse is weak, and breathing is shallow. The person may become unconscious.

Treatment: When someone shows symptoms of heat exhaustion, immediately remove that person to a place where the air is circulating freely. Make the person lie down and keep him or her warm. If the victim is conscious, add a teaspoon of salt to a pint of cool water and give this to the victim in small sips at frequent intervals. If the heat exhaustion symptoms persist, call the doctor.

How to Avoid:

Keep in good physical condition and stop to rest when you begin to feel faint. Increase dietary salt and fluids when working in extremely hot weather.

SUNSTROKE (HEATSTROKE) Symptoms: The victim develops a severe headache, the face is red the skin is hot and dry, there is no sweating, and the pulse is strong and very rapid. The person has a high fever (105°—106°F.) and may become unconscious. This is followed by convulsions, coma, and sometimes death.

Treatment: Get the victim to where there's professional medical treatment as soon as possible. In the meantime place the individual in the shade. Loosen the clothing and cool the victim with the best means available. If the individual's temperature starts to drop, cover with a light blanket, so that the sudden change in body temperature won't cause shivering or convulsions. **How to Avoid:** Stay away from alcoholic beverages. Instead, drink water, lemonade, or citrus fruit juices. Wear clothing that is lightweight, well ventilated, and loose. Replace the body salts lost through perspiration by making sure your salt and fluid intake is adequate.

Prepared By: XXXXXXXXXX

Signature...

Safety Toolbox Talks Meeting

Related Toolbox Talks Meeting Sign In Sheet

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Safety Toolbox Talks Meeting

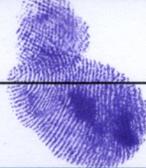
Related Tool Box Meeting Pictures



Contract No: AID

Date: 27/July/2016

INDOCTRANATION TRAINING SIGN SHEET

S/N	Name	Employee job	Company	Badge No	Signature
1			Pere Z	N, A	
2			Pere Z	N, A	
3			Pere Z	N, A	
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13					
14					

PROJECT: ,AUAF, women Dorm project

Date: 27/07/2016

C/ No: [redacted] carpenter

INDOCTRINATION TRAINING FORM

(PPE) Personal protective equipment requirements, How to used.

UXO Reporting Procedure.

Weekly (employees) and monthly (supervisors) safety meetings.

Location of portable fire extinguishers and how to use.

Location of first-aid kits.

Location of emergency phone numbers.

Location of the nearest on-site/off-site medical facility.

Accident notification and reporting procedures.

I understand the above items and agree to comply with safe work practices in my work area.

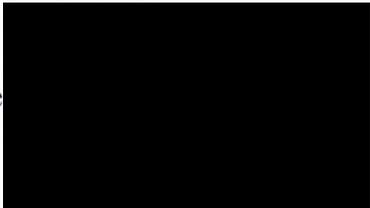
Employee Signature 

Date: 27 / 07 / 2016

I have trained the above employee in the categories on the form.

Trainer Signature

Safety Officer



Date: 27 / 07 / 2016

HSE Manager

Name: [redacted]

Verified By: Tt's H&S Inspector

Name: [redacted]

Signature [redacted]

PROJECT: (AUAF)

Date: 27/07/2016

C/No: [REDACTED]

INDOCTRINATION TRAINING FORM

(PPE) Personal protective equipment requirements, How to used.

UXO Reporting Procedure.

Weekly (employees) and monthly (supervisors) safety meetings.

Location of portable fire extinguishers and how to use.

Location of first-aid kits.

Location of emergency phone numbers.

Location of the nearest on-site/off-site medical facility.

Accident notification and reporting procedures.

I understand the above items and agree to comply with safe work practices in my work area.

Employee Signature _____



Date: 27 / 07 / 2016

I have trained the above employee in the categories on the form.

Trainer Signature: [REDACTED]

Safety Officer

Date: 27 / 07 / 16

HSE Manager

Name: [REDACTED]

Name: [REDACTED]

Verified By: Tt's H&S Inspector

Name: [REDACTED]

Signature: [REDACTED]

PROJECT: **AUAF, Women Dorm**

Date: **27/07/2016**

C/No: 

INDOCTRINATION TRAINING FORM

(PPE) Personal protective equipment requirements, How to used.

UXO Reporting Procedure.

Weekly (employees) and monthly (supervisors) safety meetings.

Location of portable fire extinguishers and how to use.

Location of first-aid kits.

Location of emergency phone numbers.

Location of the nearest on-site/off-site medical facility.

Accident notification and reporting procedures.

I understand the above items and agree to comply with safe work practices in my work area.

Employee Signature  _____

Date: **27 / 07 / 2016**

I have trained the above employee in the categories on the form.

Trainer Signature: _____

Date: **27 / 07 / 2016**

Safety Officer

HSE Manager

Name: _____

Name: _____

Verified By: Tt's H&S Inspector

Name: _____

Signature _____

Safety Toolbox Meeting Sign- In Sheet

Presenter:



Date:

30-July-2016

Project:

WO-LT-0082 AMD3, American University of Afghanistan (AUAF) Women's Dormitory / QA

Location:

Darul Aman, Kabul - Afghanistan.

Employee Name:

Title:

Employee Signature:



..Tt. H&S Inspector

.Tt.QA Monitor

.....Perez Safety Manag

..... Perez Site Engineer



Heavy Equipment Hazards

The use of heavy equipment on a jobsite is vital and necessary to the overall success of the construction project. However, unauthorized or unwise use of heavy equipment can result in personal injury, loss of life, or severe loss to materials needed to complete the project. Today we will discuss some key points to keep in mind when working around heavy equipment.

Guide for Discussion

Workers

Always be alert to the position of the equipment around you.

Only authorized personnel are to operate the equipment.

Never ride the equipment unless it is designed to be ridden.

Always keep away from suspended loads.

When performing as a signal person, be aware of all overhead power lines. Keep crane booms at least ten (10) feet from all power lines.

Never take naps, breaks or lunch around heavy equipment. You never know what might happen.

Equipment Operators

Be sure that all bi-directional equipment is either accompanied on site with a signal person, or has an operational back-up alarm.

Be aware of all overhead power lines and the possible effect on equipment operating within the close vicinity. Keep crane booms at least ten (10) feet from all power lines.

Always lock out the equipment before it is to be lubricated, adjusted or repaired.

Always replace gear, belts and any other guard after repair or adjustment.

Always secure and lock out equipment upon its completion of use.

Be sure to protect the glass areas of cabs with either metal grates or wood covers.

Additional Discussion Notes:

Who are the only authorized equipment operators?

Remember: The best policy around heavy equipment is to take no chances. Be aware of what is going on around you—both workers and equipment operators.

Prepared By:

Signature...



Safety Toolbox Meeting

Related Tool box Meeting Sign in Sheet

No	Name	Position	Signature
27			
28		JCB operator	
29		labor	
30		کارگر	
31		Bobcat operator	
32		کارگر	
33		کارگر	
34		=	
35		=	
36		=	
37		=	
38		stor Keeper	
39		کارگر	
40		کارگر	
41		نجار	
42		نجار	
43		سیم تاج	
44		مشاور آتش‌نشانی	
45		کارگر	
46		کارگر	
47		سیم تاج	
48		سیم تاج	
49		کارگر	
50		کارگر	
51			
52			

Safety Toolbox Meeting

Related Tool Box Meeting Pictures



APPENDIX E – TEST RESULTS

Perez.



USAID
FROM THE AMERICAN PEOPLE

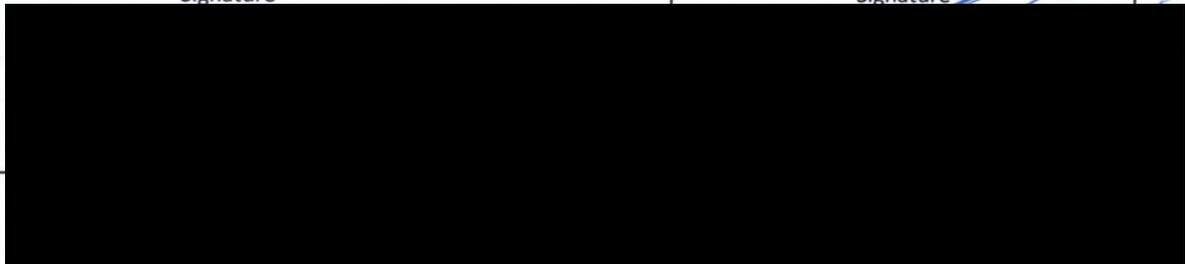
Type of test: Water well compressor test (cleaning)

American University of Afghanistan, 200-Bed Women's Dormitory Activity #: CIV140
Contract #: AID-306-TO-15-00069

No.	Description	Date	Result	Remarks
1	Compressor test (cleaning) of Water Well, the test started on 02:30 PM and ended on 04:30 PM	12 July 2016	not satisfactory	
2	The test is continued from 08:00 AM to 10:30 AM.	13 July 2016	Satisfactory Drainage water are clean enough now.	

Perez Representative
Signature

Tetrattech Representative
Signature





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Compressive Strength of Cylindrical Concrete Specimens

Client : USAID Report No. : 1
 Contractor : Perez, APC./Technologists, Inc.
 Project : AUAF New Women's Dormitory
 Contract No. : AID-306-TO-15-00069

TEST CONDITIONS AND RESULTS (ASTM C 31/C 31M)

Date Casting : 26-Jun-2016
 Location of Sample : Manhole's Base #1 and #2
 Design Strength : 28 Mp 28 Days
 Slump : 65 mm (ASTM C 143/C 143M)
 Air Content : %
 Concrete Temp. : °C

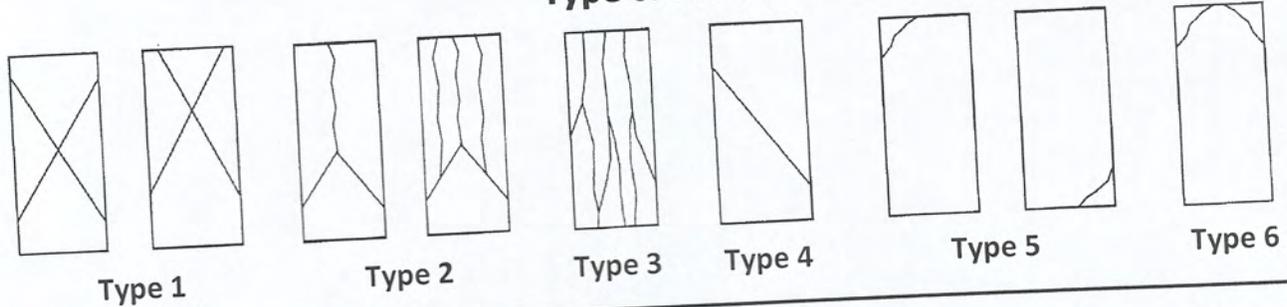
Air Content and Concrete temperature tests not done.

LABORATORY TEST RESULTS (ASTM C 39/C 39M)

No.	Crushing Date	Age Days	Height	Dimensions cm			Area cm ²	Type of Fracture	Load KN	Compressive Strength		
				Dia-1	Dia-2	Average				kg/cm ²	Mpa	Psi
1	3-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 3	460.61	257.5	25.3	3665
2	3-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 2	460.98	257.7	25.3	3668

Average Compressive Strength : 257.6 25.3 3667

Type of Fracture





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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 10-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 16
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 4 & No. 5		
	Station	20 m	35 m	47 m
	Material	Backfilling	Backfilling	Backfilling
	Test No.	1	2	3
	Offset from Centre Line (m)	C/L	C/L	C/L
	Layer No. or Level	1	1	1
	Depth of Hole (Cm)	15	15	15
Material Weights & Wet Density	Wt. of Wet Soil (g)	6068	5840	5589
	Initial Wt. of Sand+Cont. (g)	8644	8505	8496
	Residual Wt. of Sand+Cont. (g)	3431	3260	3378
	Wt. of Sand Used (g)	5213	5245	5118
	Wt. of Sand to Fill Cone (g)	1696	1696	1696
	Wt. of Sand to Fill Hole (g)	3517	3549	3422
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356
	Volume of Hole (cc)	2594	2617	2524
	Wet Density of Soil (g/cc)	2.340	2.231	2.215
Moisture Content	Speedy Moisture Reading (%)	6.0	6.0	5.0
	Corrected Speedy Moisture (%)	6.0	6.0	5.0
	Weight of Cont. + Wet Soil (a) (g)			
	Weight of Cont. + Dry Soil (b) (g)			
	Weight of Water (g)			
	Weight of Container (c) (g)			
	Weight of Dry Soil (g)			
	Oven Dry MC (a-b/b-c) x 100 (%)			
Results	Dry Density of Soil (g/cc)	2.207	2.105	2.109
	Specific Gravity			
	Maximum Dry Density (g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve (%)			
	Corrected Maximum Dry Density (g/cc)			
	Optimum Moisture Content (%)	8.8	8.8	8.8
	Compaction Obtained (%)	99.6	95.0	95.2
	Compaction Reported (%)	99.6	95.0	95.2
Compaction Required (%)	95.0	95.0	95.0	
Test Results !		Pass	Pass	Pass
Remarks:				



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 2-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 5
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 2 & No. 3			
	Station	8 m	20 m	38 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	4	5	6	
	Offset from Centre Line (m)	C/L	C/L	C/L	
	Layer No. or Level	2	2	2	
	Depth of Hole (Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil (g)	5659	6022	5799	
	Initial Wt. of Sand+Cont. (g)	8276	8031	7682	
	Residual Wt. of Sand+Cont. (g)	3219	2804	2563	
	Wt. of Sand Used (g)	5057	5227	5119	
	Wt. of Sand to Fill Cone (g)	1696	1696	1696	
	Wt. of Sand to Fill Hole (g)	3361	3531	3423	
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356	
	Wet Density of Soil (g/cc)	2.283	2.313	2.297	
Moisture Content	Speedy Moisture Reading (%)	5.5	6.0	5.0	
	Corrected Speedy Moisture (%)	5.5	6.0	5.0	
	Weight of Cont. + Wet Soil (a) (g)				
	Weight of Cont. + Dry Soil (b) (g)				
	Weight of Water (g)				
	Weight of Container (c) (g)				
	Weight of Dry Soil (g)				
Oven Dry MC (a-b/b-c) x 100 (%)					
Results	Dry Density of Soil (g/cc)	2.164	2.182	2.188	
	Specific Gravity				
	Maximum Dry Density (g/cc)	2.215	2.215	2.215	
	Retained on 3/4" Sieve (%)				
	Corrected Maximum Dry Density (g/cc)				
	Optimum Moisture Content (%)	8.8	8.8	8.8	
	Compaction Obtained (%)	97.7	98.5	98.8	
	Compaction Reported (%)	97.7	98.5	98.8	
Compaction Required (%)	95.0	95.0	95.0		
Test Results !		Pass	Pass	Pass	
Remarks:					



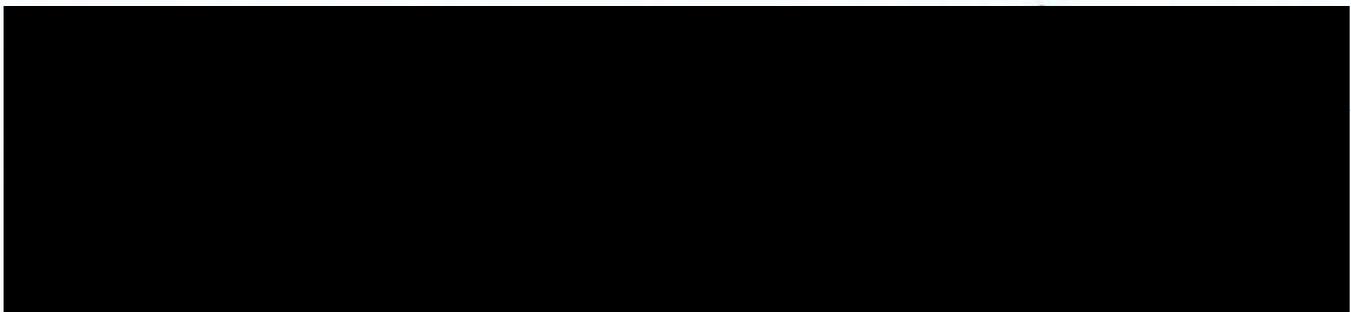
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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 29-Jun-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 3
 Project Location : Dar-ul-Aman

General Description	Location	Manhol No. 3			
	Station	***	***		
	Material	Backfilling	Backfilling		
	Test No.	1	2		
	Offset from Centre Line	(m)	C/L	C/L	
	Layer No. or Level		1	1	
	Depth of Hole	(Cm)	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g)	5536	5799	
	Initial Wt. of Sand+Cont.	(g)	8463	8394	
	Residual Wt. of Sand+Cont.	(g)	3671	3677	
	Wt. of Sand Used	(g)	4792	4717	
	Wt. of Sand to Fill Cone	(g)	1362	1562	
	Wt. of Sand to Fill Hole	(g)	3430	3155	
	Unit Wt. of Sand	(g/cc)	1.251	1.215	
	Volume of Hole	(cc)	2742	2597	
	Wet Density of Soil	(g/cc)	2.019	2.233	
Moisture Content	Speedy Moisture Reading	(%)	6.2	6.1	
	Corrected Speedy Moisture	(%)	6.2	6.1	
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	1.901	2.105	
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215	2.215	
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8	8.8	
	Compaction Obtained	(%)	85.8	95.0	
	Compaction Reported	(%)	85.8	95.0	
Compaction Required	(%)	95.0	95.0		
Test Results !			Fail	Pass	
Remarks:					





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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 29-Jun-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 1
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 2 & No. 3			
	Station	8 m	20 m	38 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line	(m) C/L	C/L	C/L	
	Layer No. or Level	1	1	1	
	Depth of Hole	(Cm) 15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g) 6098	5850	6105	
	Initial Wt. of Sand+Cont.	(g) 8460	8231	8203	
	Residual Wt. of Sand+Cont.	(g) 3699	3620	3532	
	Wt. of Sand Used	(g) 4761	4611	4671	
	Wt. of Sand to Fill Cone	(g) 1362	1362	1362	
	Wt. of Sand to Fill Hole	(g) 3399	3249	3309	
	Unit Wt. of Sand	(g/cc) 1.251	1.215	1.215	
	Volume of Hole	(cc) 2717	2674	2723	
Wet Density of Soil	(g/cc) 2.244	2.188	2.242		
Moisture Content	Speedy Moisture Reading	(%) 6.1	4.0	5.0	
	Corrected Speedy Moisture	(%) 6.1	4.0	5.0	
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)	Retest	Retest	Retest
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc) 2.115	2.104	2.135	
	Specific Gravity				
	Maximum Dry Density	(g/cc) 2.215	2.215	2.215	
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%) 8.8	8.8	8.8	
	Compaction Obtained	(%) 95.5	95.0	96.4	
	Compaction Reported	(%) 95.5	95.0	96.4	
Compaction Required	(%) 95.0	95.0	95.0		
Test Results !		Pass	Pass	Pass	
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 29-Jun-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 1
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 2 & No. 3			
	Station	7 m	22 m	36 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line (m)	C/L	C/L	C/L	
	Layer No. or Level	1.0	1	1	
	Depth of Hole (Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil (g)	5642	4850	4920	
	Initial Wt. of Sand+Cont. (g)	8450	8316	8214	
	Residual Wt. of Sand+Cont. (g)	3554	3550	3411	
	Wt. of Sand Used (g)	4896	4766	4803	
	Wt. of Sand to Fill Cone (g)	1362	1362	1362	
	Wt. of Sand to Fill Hole (g)	3534	3404	3441	
	Unit Wt. of Sand (g/cc)	1.251	1.215	1.215	
	Wet Density of Soil (g/cc)	1.997	1.731	1.737	
Moisture Content	Speedy Moisture Reading (%)	6.0	5.0	6.8	
	Corrected Speedy Moisture (%)	6.0	5.0	6.8	
	Weight of Cont. + Wet Soil (a) (g)				
	Weight of Cont. + Dry Soil (b) (g)				
	Weight of Water (g)				
	Weight of Container (c) (g)				
	Weight of Dry Soil (g)				
	Oven Dry MC (a-b/b-c) x 100 (%)				
Results	Dry Density of Soil (g/cc)	1.884	1.649	1.627	
	Specific Gravity				
	Maximum Dry Density (g/cc)	2.215	2.215	1.921	
	Retained on 3/4" Sieve (%)				
	Corrected Maximum Dry Density (g/cc)				
	Optimum Moisture Content (%)	8.8	8.8	8.0	
	Compaction Obtained (%)	85.1	74.4	84.7	
	Compaction Reported (%)	85.1	74.4	84.7	
Compaction Required (%)	95.0	95.0	95.0		
Test Results !		Fail	Fail	Fail	
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 2-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 6
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 2 & No. 3			
	Station	60 m	78 m	90 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line	(m) C/L	C/L	C/L	
	Layer No. or Level	1	1	1	
	Depth of Hole	(Cm) 15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g) 5255	5155	5679	
	Initial Wt. of Sand+Cont.	(g) 7346	7242	7850	
	Residual Wt. of Sand+Cont.	(g) 2462	2438	2782	
	Wt. of Sand Used	(g) 4884	4804	5068	
	Wt. of Sand to Fill Cone	(g) 1696	1696	1696	
	Wt. of Sand to Fill Hole	(g) 3188	3108	3372	
	Unit Wt. of Sand	(g/cc) 1.356	1.356	1.356	
	Volume of Hole	(cc) 2351	2292	2487	
Wet Density of Soil	(g/cc) 2.235	2.249	2.284		
Moisture Content	Speedy Moisture Reading	(%) 6.0	6.8	5.5	
	Corrected Speedy Moisture	(%) 6.0	6.8	5.5	
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc) 2.109	2.106	2.165	
	Specific Gravity				
	Maximum Dry Density	(g/cc) 2.215	2.215	2.215	
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%) 8.8	8.8	8.8	
	Compaction Obtained	(%) 95.2	95.1	97.7	
	Compaction Reported	(%) 95.2	95.1	97.7	
Compaction Required	(%) 95.0	95.0	95.0		
Test Results !		Pass	Pass	Pass	
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 2-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 7
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 3 & No. 4			
	Station	20 m	38 m	60 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line	(m) C/L	C/L	C/L	
	Layer No. or Level	1	1	1	
	Depth of Hole	(Cm) 15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g) 5913	6031	5085	
	Initial Wt. of Sand+Cont.	(g) 7639	7619	7242	
	Residual Wt. of Sand+Cont.	(g) 2434	2391	2455	
	Wt. of Sand Used	(g) 5205	5228	4787	
	Wt. of Sand to Fill Cone	(g) 1696	1696	1696	
	Wt. of Sand to Fill Hole	(g) 3509	3532	3091	
	Unit Wt. of Sand	(g/cc) 1.356	1.356	1.356	
	Volume of Hole	(cc) 2588	2605	2279	
Wet Density of Soil	(g/cc) 2.285	2.315	2.231		
Moisture Content	Speedy Moisture Reading	(%) 6.9	7.0	5.3	
	Corrected Speedy Moisture	(%) 6.9	7.0	5.3	
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc) 2.138	2.164	2.118	
	Specific Gravity				
	Maximum Dry Density	(g/cc) 2.215	2.215	2.215	
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%) 8.8	8.8	8.8	
	Compaction Obtained	(%) 96.5	97.7	95.6	
	Compaction Reported	(%) 96.5	97.7	95.6	
Compaction Required	(%) 95.0	95.0	95.0		
Test Results !		Pass	Pass	Pass	
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 3-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 8
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 4 & No. 5			
	Station	15 m	35 m	48 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line	(m) C/L	C/L	C/L	
	Layer No. or Level	1	1	1	
	Depth of Hole	(Cm) 15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g) 6134	6316	5711	
	Initial Wt. of Sand+Cont.	(g) 7680	7711	7577	
	Residual Wt. of Sand+Cont.	(g) 2305	2208	2476	
	Wt. of Sand Used	(g) 5375	5503	5101	
	Wt. of Sand to Fill Cone	(g) 1696	1696	1696	
	Wt. of Sand to Fill Hole	(g) 3679	3807	3405	
	Unit Wt. of Sand	(g/cc) 1.356	1.356	1.356	
	Volume of Hole	(cc) 2713	2808	2511	
Wet Density of Soil	(g/cc) 2.261	2.250	2.274		
Moisture Content	Speedy Moisture Reading	(%) 6.0	6.0	5.8	
	Corrected Speedy Moisture	(%) 6.0	6.0	5.8	
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc) 2.133	2.122	2.150	
	Specific Gravity				
	Maximum Dry Density	(g/cc) 2.215	2.215	2.215	
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%) 8.8	8.8	8.8	
	Compaction Obtained	(%) 96.3	95.8	97.0	
	Compaction Reported	(%) 96.3	95.8	97.0	
Compaction Required	(%) 95.0	95.0	95.0		
Test Results !		Pass	Pass	Pass	
Remarks:					



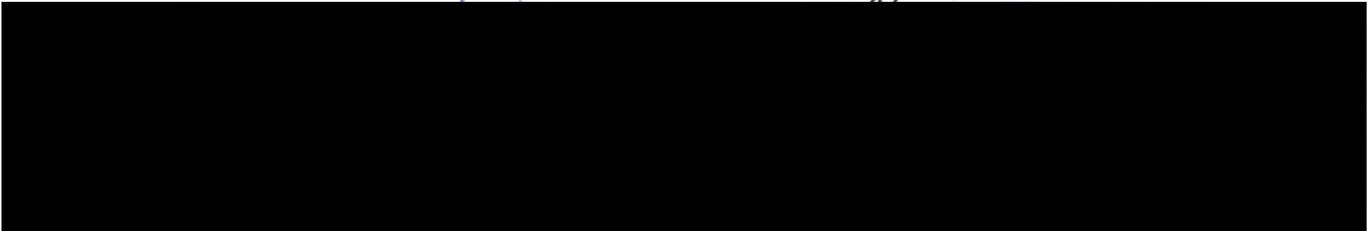
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Darul Aman Road, Beside Habibya High School, Kabul - Phone : +93 700 00 72 42 , +93 798 90 51 56

Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 2-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 4
 Project Location : Dar-ul-Aman

General Description	Location		Manhol No. 4		
	Station		***		
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	5686		
	Initial Wt. of Sand+Cont.	(g)	7025		
	Residual Wt. of Sand+Cont.	(g)	1899		
	Wt. of Sand Used	(g)	5126		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3430		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2529		
Wet Density of Soil	(g/cc)	2.248			
Moisture Content	Speedy Moisture Reading	(%)	6.0		
	Corrected Speedy Moisture	(%)	6.0		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	2.121		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	95.7		
	Compaction Reported	(%)	95.7		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					





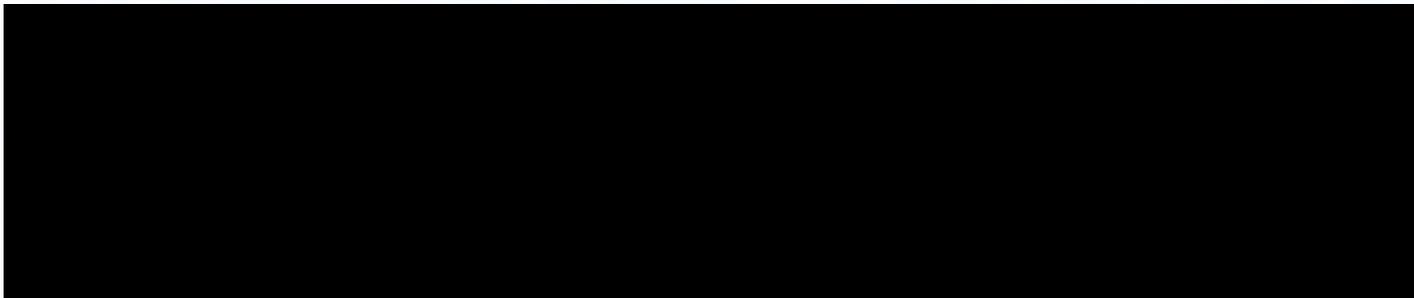
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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 3-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 9
 Project Location : Dar-ul-Aman

General Description	Location		Manhol No. 5		
	Station		***		
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	5291		
	Initial Wt. of Sand+Cont.	(g)	7550		
	Residual Wt. of Sand+Cont.	(g)	2440		
	Wt. of Sand Used	(g)	5110		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3414		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2518		
	Wet Density of Soil	(g/cc)	2.102		
Moisture Content	Speedy Moisture Reading	(%)	7.6		
	Corrected Speedy Moisture	(%)	7.6		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	1.953		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	88.2		
	Compaction Reported	(%)	88.2		
Compaction Required	(%)	95.0			
Test Results !			Fail		
Remarks:					





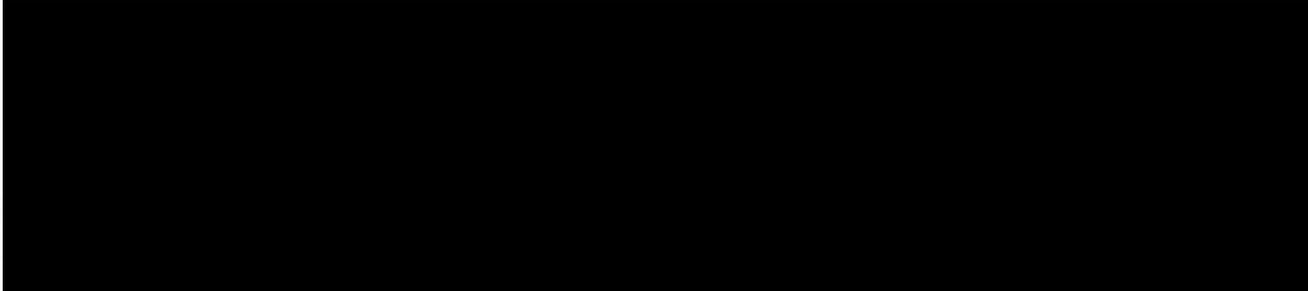
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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 9-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 10
 Project Location : Dar-ul-Aman

General Description	Location	Manhol No. 5			
	Station		***		
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	5890		
	Initial Wt. of Sand+Cont.	(g)	7284		
	Residual Wt. of Sand+Cont.	(g)	2181		
	Wt. of Sand Used	(g)	5103		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3407		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2513		
	Wet Density of Soil	(g/cc)	2.344		
Moisture Content	Speedy Moisture Reading	(%)	6.0		
	Corrected Speedy Moisture	(%)	6.0		
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	2.212		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	99.8		
	Compaction Reported	(%)	99.8		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					





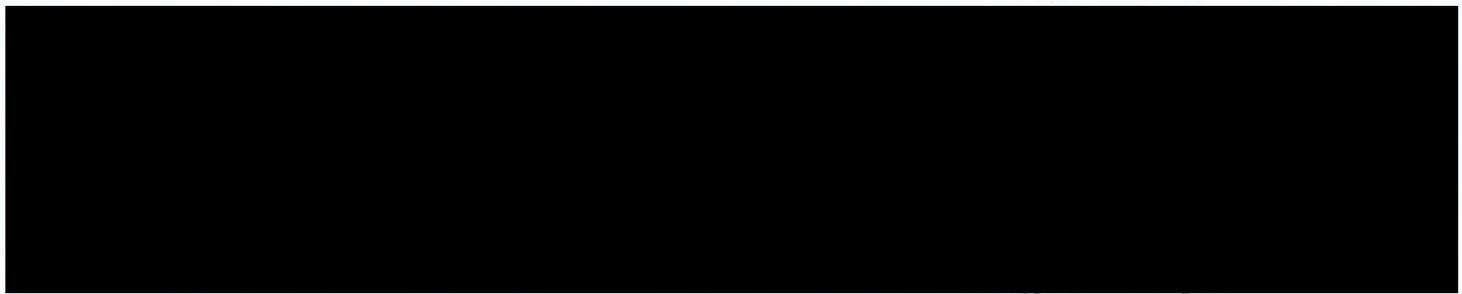
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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 11-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 17
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 4 & No. 5			
	Station	15 m	38 m	50m	
Material		Backfilling	Backfilling	Backfilling	
Test No.		1	2	3	
Offset from Centre Line	(m)	C/L	C/L	C/L	
Layer No. or Level		3	3	3	
Depth of Hole	(Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6560	6680	5647
	Initial Wt. of Sand+Cont.	(g)	8160	8140	8132
	Residual Wt. of Sand+Cont.	(g)	2442	2481	3011
	Wt. of Sand Used	(g)	5718	5659	5121
	Wt. of Sand to Fill Cone	(g)	1696	1696	1696
	Wt. of Sand to Fill Hole	(g)	4022	3963	3425
	Unit Wt. of Sand	(g/cc)	1.356	1.356	1.356
	Volume of Hole	(cc)	2966	2923	2526
	Wet Density of Soil	(g/cc)	2.212	2.286	2.236
Moisture Content	Speedy Moisture Reading	(%)	5.0	6.5	5.0
	Corrected Speedy Moisture	(%)	5.0	6.5	5.0
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
Oven Dry MC (a-b/b-c) x 100	(%)				
Results	Dry Density of Soil	(g/cc)	2.106	2.146	2.129
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8	8.8	8.8
	Compaction Obtained	(%)	95.1	96.9	96.1
	Compaction Reported	(%)	95.1	96.9	96.1
Compaction Required	(%)	95.0	95.0	95.0	
Test Results !			Pass	Pass	Pass
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 11-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 18
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 2 & No. 3		
	Station	40 m	55 m	80 m
	Material	Backfilling	Backfilling	Backfilling
	Test No.	1	2	3
	Offset from Centre Line (m)	C/L	C/L	C/L
	Layer No. or Level	4	4	4
	Depth of Hole (Cm)	15	15	15
Material Weights & Wet Density	Wt. of Wet Soil (g)	5988	6069	6031
	Initial Wt. of Sand+Cont. (g)	8182	8233	8216
	Residual Wt. of Sand+Cont. (g)	2858	2830	2913
	Wt. of Sand Used (g)	5324	5403	5303
	Wt. of Sand to Fill Cone (g)	1696	1696	1696
	Wt. of Sand to Fill Hole (g)	3628	3707	3607
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356
	Volume of Hole (cc)	2676	2734	2660
Moisture Content	Wet Density of Soil (g/cc)	2.238	2.220	2.267
	Speedy Moisture Reading (%)	5.5	4.0	6.0
	Corrected Speedy Moisture (%)	5.5	4.0	6.0
	Weight of Cont.+ Wet Soil (a) (g)			
	Weight of Cont.+ Dry Soil (b) (g)			
	Weight of Water (g)			
	Weight of Container (c) (g)			
	Weight of Dry Soil (g)			
Results	Oven Dry MC (a-b/b-c) x 100 (%)			
	Dry Density of Soil (g/cc)	2.121	2.135	2.139
	Specific Gravity			
	Maximum Dry Density (g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve (%)			
	Corrected Maximum Dry Density (g/cc)			
	Optimum Moisture Content (%)	8.8	8.8	8.8
	Compaction Obtained (%)	95.8	96.4	96.6
Compaction Reported (%)	95.8	96.4	96.6	
Compaction Required (%)	95.0	95.0	95.0	
Test Results !		Pass	Pass	Pass
Remarks:				



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 11-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 19
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 3 & No. 4			
	Station	13	33 m	55 m	
Material		Backfilling	Backfilling	Backfilling	
Test No.		1	2	3	
Offset from Centre Line	(m)	C/L	C/L	C/L	
Layer No. or Level		3	3	3	
Depth of Hole	(Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6002	6489	5981
	Initial Wt. of Sand+Cont.	(g)	8238	8130	8125
	Residual Wt. of Sand+Cont.	(g)	2948	2418	2795
	Wt. of Sand Used	(g)	5290	5712	5330
	Wt. of Sand to Fill Cone	(g)	1696	1696	1696
	Wt. of Sand to Fill Hole	(g)	3594	4016	3634
	Unit Wt. of Sand	(g/cc)	1.356	1.356	1.356
	Volume of Hole	(cc)	2650	2962	2680
	Wet Density of Soil	(g/cc)	2.265	2.191	2.232
Moisture Content	Speedy Moisture Reading	(%)	5.6	4.0	5.3
	Corrected Speedy Moisture	(%)	5.6	4.0	5.3
	Weight of Cont.+ Wet Soil (a)	(g)			
	Weight of Cont.+ Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	2.144	2.107	2.119
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8	8.8	8.8
	Compaction Obtained	(%)	96.8	95.1	95.7
	Compaction Reported	(%)	96.8	95.1	95.7
Compaction Required	(%)	95.0	95.0	95.0	
Test Results !			Pass	Pass	Pass
Remarks:					

M. Yusuf



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 17-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 20
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 4 & No. 5			
	Station	12 m	33 m	49m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line (m)	C/L	C/L	C/L	
	Layer No. or Level	4	4	4	
	Depth of Hole (Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil (g)	6127	6350	6247	
	Initial Wt. of Sand+Cont. (g)	7771	7940	7932	
	Residual Wt. of Sand+Cont. (g)	2392	2481	2511	
	Wt. of Sand Used (g)	5379	5459	5421	
	Wt. of Sand to Fill Cone (g)	1696	1696	1696	
	Wt. of Sand to Fill Hole (g)	3683	3763	3725	
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356	
	Volume of Hole (cc)	2716	2775	2747	
	Wet Density of Soil (g/cc)	2.256	2.288	2.274	
Moisture Content	Speedy Moisture Reading (%)	5.1	6.6	5.0	
	Corrected Speedy Moisture (%)	5.1	6.6	5.0	
	Weight of Cont. + Wet Soil (a) (g)	/	/	/	
	Weight of Cont. + Dry Soil (b) (g)	/	/	/	
	Weight of Water (g)	/	/	/	
	Weight of Container (c) (g)	/	/	/	
	Weight of Dry Soil (g)	/	/	/	
	Oven Dry MC (a-b/b-c) x 100 (%)	/	/	/	
Results	Dry Density of Soil (g/cc)	2.146	2.147	2.166	
	Specific Gravity	/	/	/	
	Maximum Dry Density (g/cc)	2.215	2.215	2.215	
	Retained on 3/4" Sieve (%)	/	/	/	
	Corrected Maximum Dry Density (g/cc)	/	/	/	
	Optimum Moisture Content (%)	8.8	8.8	8.8	
	Compaction Obtained (%)	96.9	96.9	97.8	
	Compaction Reported (%)	96.9	96.9	97.8	
	Compaction Required (%)	95.0	95.0	95.0	
Test Results !		Pass	Pass	Pass	
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID **Testing Date :** 17-Jul-2016
Contractor : Perez, APC./Technologists, Inc. **Contract No. :** AID-306-TO-15-00069
Project : AUAF New Women's Dormitory **Report No. :** 22
Project Location : Dar-ul-Aman

General Description	Location		Electrical Pit No. 14		
	Station		18		
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6272		
	Initial Wt. of Sand+Cont.	(g)	7868		
	Residual Wt. of Sand+Cont.	(g)	2365		
	Wt. of Sand Used	(g)	5503		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3807		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2808		
	Wet Density of Soil	(g/cc)	2.234		
Moisture Content	Speedy Moisture Reading	(%)	6.0		
	Corrected Speedy Moisture	(%)	6.0		
	Weight of Cont. + Wet Soil (a)	(g)	/		
	Weight of Cont. + Dry Soil (b)	(g)	/		
	Weight of Water	(g)	/		
	Weight of Container (c)	(g)	/		
	Weight of Dry Soil	(g)	/		
	Oven Dry MC (a-b/b-c) x 100	(%)	/		
Results	Dry Density of Soil	(g/cc)	2.108		
	Specific Gravity		/		
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)	/		
	Corrected Maximum Dry Density	(g/cc)	/		
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	95.1		
	Compaction Reported	(%)	95.1		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 17-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 23
 Project Location : Dar-ul-Aman

General Description	Location		Electrical New hand hole # 12		
	Station				
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6639		
	Initial Wt. of Sand+Cont.	(g)	7927		
	Residual Wt. of Sand+Cont.	(g)	2359		
	Wt. of Sand Used	(g)	5568		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3872		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2855		
	Wet Density of Soil	(g/cc)	2.325		
Moisture Content	Speedy Moisture Reading	(%)	6.8		
	Corrected Speedy Moisture	(%)	6.8		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	2.177		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	98.3		
	Compaction Reported	(%)	98.3		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					



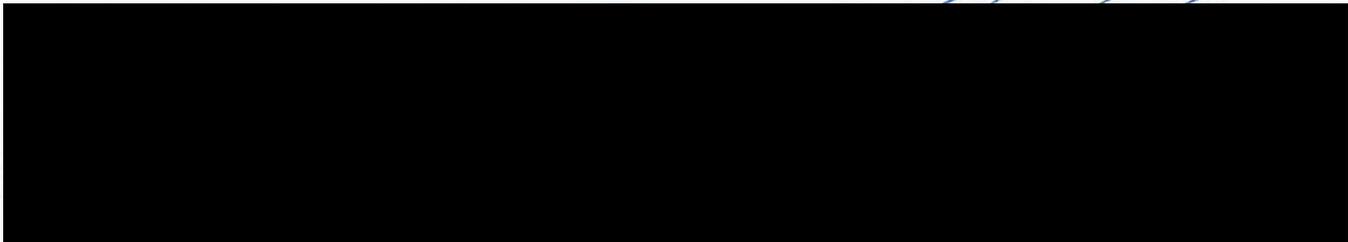
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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID **Testing Date :** 17-Jul-2016
Contractor : Perez, APC./Technologists, Inc. **Contract No. :** AID-306-TO-15-00069
Project : AUAF New Women's Dormitory **Report No. :** 25
Project Location : Dar-ul-Aman

General Description	Location		Electrical Man hole # 10		
	Station				
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line (m)		C/L		
	Layer No. or Level		1		
	Depth of Hole (Cm)		15		
Material Weights & Wet Density	Wt. of Wet Soil (g)		6012		
	Initial Wt. of Sand+Cont. (g)		7834		
	Residual Wt. of Sand+Cont. (g)		2466		
	Wt. of Sand Used (g)		5368		
	Wt. of Sand to Fill Cone (g)		1696		
	Wt. of Sand to Fill Hole (g)		3672		
	Unit Wt. of Sand (g/cc)		1.356		
	Volume of Hole (cc)		2708		
	Wet Density of Soil (g/cc)		2.220		
Moisture Content	Speedy Moisture Reading (%)		5.2		
	Corrected Speedy Moisture (%)		5.2		
	Weight of Cont. + Wet Soil (a) (g)		/		
	Weight of Cont. + Dry Soil (b) (g)		/		
	Weight of Water (g)		/		
	Weight of Container (c) (g)		/		
	Weight of Dry Soil (g)		/		
	Oven Dry MC (a-b/b-c) x 100 (%)		/		
Results	Dry Density of Soil (g/cc)		2.110		
	Specific Gravity		/		
	Maximum Dry Density (g/cc)		2.215		
	Retained on 3/4" Sieve (%)		/		
	Corrected Maximum Dry Density (g/cc)		/		
	Optimum Moisture Content (%)		8.8		
	Compaction Obtained (%)		95.3		
	Compaction Reported (%)		95.3		
Compaction Required (%)		95.0			
Test Results !			Pass		
Remarks:					





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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 17-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 26
 Project Location : Dar-ul-Aman

General Description	Location		Electrical Low Voltage Line between EM-10 & H9 <i>(transformer pad)</i>		
	Station				
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	5999		
	Initial Wt. of Sand+Cont.	(g)	7820		
	Residual Wt. of Sand+Cont.	(g)	2549		
	Wt. of Sand Used	(g)	5271		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3575		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2636		
	Wet Density of Soil	(g/cc)	2.275		
Moisture Content	Speedy Moisture Reading	(%)	5.6		
	Corrected Speedy Moisture	(%)	5.6		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	2.155		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	97.3		
	Compaction Reported	(%)	97.3		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 17-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 27
 Project Location : Dar-ul-Aman

General Description	Location		Manhol #1		
	Station				
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
	Material Weights & Wet Density				
	Wt. of Wet Soil	(g)	6269		
	Initial Wt. of Sand+Cont.	(g)	7727		
	Residual Wt. of Sand+Cont.	(g)	2308		
	Wt. of Sand Used	(g)	5419		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3723		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2746		
	Wet Density of Soil	(g/cc)	2.283		
Moisture Content					
	Speedy Moisture Reading	(%)	6.0		
	Corrected Speedy Moisture	(%)	6.0		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results					
	Dry Density of Soil	(g/cc)	2.154		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	97.2		
	Compaction Reported	(%)	97.2		
	Compaction Required	(%)	95.0		
Test Results !			Pass		
Remarks:					



Compressive Strength of Cylindrical Concrete Specimens

Client : USAID **Report No. :** 2
Contractor : Perez, APC./Technologists, Inc.
Project : AUAF New Women's Dormitory
Contract No. : AID-306-TO-15-00069

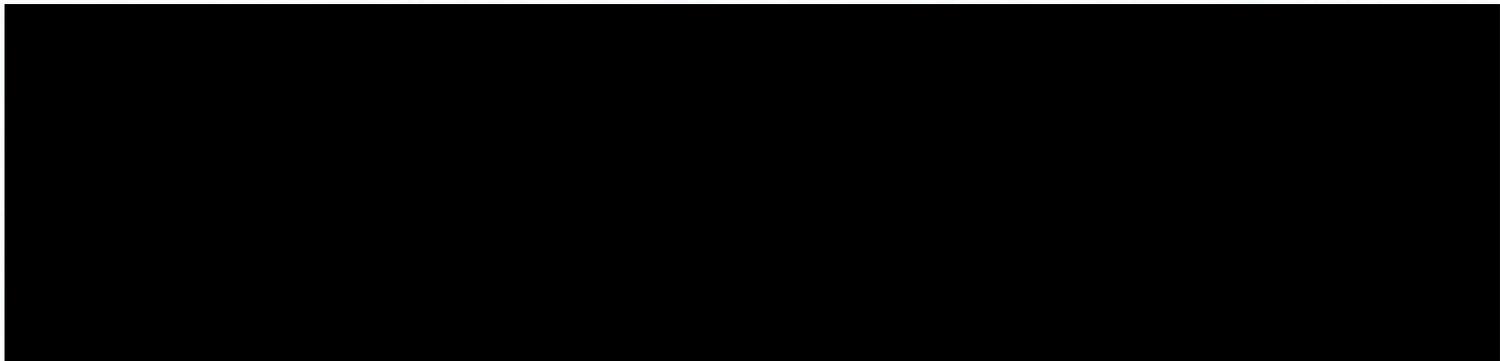
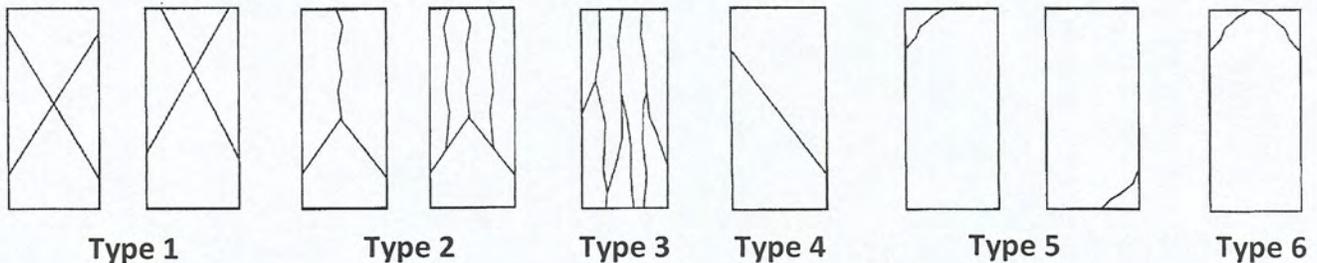
TEST CONDITIONS AND RESULTS (ASTM C 31/C 31M)

Date Casting : 10-Jul-2016
Location of Sample : Manhole's Base #3-4 -5
Design Strength : 28 Mp 28 Days
Slump : 65 mm (ASTM C 143/C 143M)
Air Content : 6.0 %
Concrete Temp. : 32.8 °C

LABORATORY TEST RESULTS (ASTM C 39/C 39M)

No.	Crushing Date	Age Days	Dimensions cm			Area cm ²	Type of Fracture	Load KN	Compressive Strength			
			Height	Dia-1	Dia-2				Average	kg/cm ²	Mpa	Psi
1	17-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 3	326.6	182.6	17.9	2599
2	17-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 2	295.2	165.0	16.2	2349
3	17-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 3	252.2	141.0	13.8	2007
Average Compressive Strength :									162.9	16.0	2318	

Type of Fracture





Compressive Strength of Cylindrical Concrete Specimens

Client : USAID Report No. : 2
 Contractor : Perez, APC./Technologists, Inc.
 Project : AUAF New Women's Dormitory
 Contract No. : AID-306-TO-15-00069

TEST CONDITIONS AND RESULTS (ASTM C 31/C 31M)

Date Casting : 10-Jul-2016
 Location of Sample : Manhole's Base #3-4 -5
 Design Strength : 28 Mp 28 Days
 Slump : 65 mm (ASTM C 143/C 143M)
 Air Content : 6.0 %
 Concrete Temp. : 32.8 °C

LABORATORY TEST RESULTS (ASTM C 39/C 39M)

No.	Crushing Date	Age Days	Dimensions cm			Area cm ²	Type of Fracture	Load KN	Compressive Strength			
			Height	Dia-1	Dia-2				Average	kg/cm ²	Mpa	Psi
1	17-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 3	326.6	182.6	17.9	2599
2	17-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 2	295.2	165.0	16.2	2349
3	17-Jul-2016	7	30.48	15.24	15.24	15.24	182.4	Type 3	252.2	141.0	13.8	2007
Average Compressive Strength :									162.9	16.0	2318	

Type of Fracture



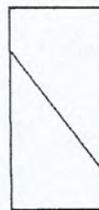
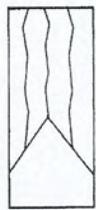
Type 1



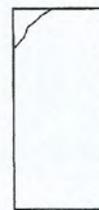
Type 2



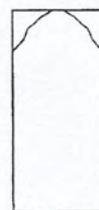
Type 3



Type 4



Type 5



Type 6



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID **Testing Date :** 20-Jul-2016
Contractor : Perez, APC./Technologists, Inc. **Contract No. :** AID-306-TO-15-00069
Project : AUAF New Women's Dormitory **Report No. :** 35
Project Location : Dar-ul-Aman

General Description	Location		Electrical New hand hole # 9		
	Station				
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6681		
	Initial Wt. of Sand+Cont.	(g)	7357		
	Residual Wt. of Sand+Cont.	(g)	1715		
	Wt. of Sand Used	(g)	5642		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3946		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2910		
	Wet Density of Soil	(g/cc)	2.296		
Moisture Content	Speedy Moisture Reading	(%)	5.0		
	Corrected Speedy Moisture	(%)	5.0		
	Weight of Cont. + Wet Soil (a)	(g)	/		
	Weight of Cont. + Dry Soil (b)	(g)	/		
	Weight of Water	(g)	/		
	Weight of Container (c)	(g)	/		
	Weight of Dry Soil	(g)	/		
	Oven Dry MC (a-b/b-c) x 100	(%)	/		
Results	Dry Density of Soil	(g/cc)	2.187		
	Specific Gravity		/		
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)	/		
	Corrected Maximum Dry Density	(g/cc)	/		
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	98.7		
	Compaction Reported	(%)	98.7		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 21-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 36
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 1 & No. 2			
	Station		52 m		
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		1		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6489		
	Initial Wt. of Sand+Cont.	(g)	8415		
	Residual Wt. of Sand+Cont.	(g)	2813		
	Wt. of Sand Used	(g)	5602		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	3906		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2881		
	Wet Density of Soil	(g/cc)	2.253		
Moisture Content	Speedy Moisture Reading	(%)	4.6		
	Corrected Speedy Moisture	(%)	4.6		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
Oven Dry MC (a-b/b-c) x 100	(%)				
Results	Dry Density of Soil	(g/cc)	2.154		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	97.2		
	Compaction Reported	(%)	97.2		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 21-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 38
 Project Location : Dar-ul-Aman

General Description	Location	Trench Between Manhol No. 4 & No. 5			
	Station	15m	34 m	53m	
Material		Backfilling	Backfilling	Backfilling	
Test No.		1	2	3	
Offset from Centre Line	(m)	C/L	C/L	C/L	
Layer No. or Level		7	7	7	
Depth of Hole	(Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6375	6423	6305
	Initial Wt. of Sand+Cont.	(g)	8447	8477	8460
	Residual Wt. of Sand+Cont.	(g)	2827	2816	2893
	Wt. of Sand Used	(g)	5620	5661	5567
	Wt. of Sand to Fill Cone	(g)	1696	1696	1696
	Wt. of Sand to Fill Hole	(g)	3924	3965	3871
	Unit Wt. of Sand	(g/cc)	1.356	1.356	1.356
	Volume of Hole	(cc)	2894	2924	2855
	Wet Density of Soil	(g/cc)	2.203	2.197	2.209
	Moisture Content	Speedy Moisture Reading	(%)	4.0	4.0
Corrected Speedy Moisture		(%)	4.0	4.0	4.6
Weight of Cont. + Wet Soil (a)		(g)			
Weight of Cont. + Dry Soil (b)		(g)			
Weight of Water		(g)			
Weight of Container (c)		(g)			
Weight of Dry Soil		(g)			
Oven Dry MC (a-b/b-c) x 100		(%)			
Results	Dry Density of Soil	(g/cc)	2.118	2.112	2.111
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8	8.8	8.8
	Compaction Obtained	(%)	95.6	95.4	95.3
	Compaction Reported	(%)	95.6	95.4	95.3
Compaction Required	(%)	95.0	95.0	95.0	
Test Results !			Pass	Pass	Pass
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 26-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 39
 Project Location : Dar-ul-Aman

General Description	Location	Electrical Low Voltage Line between H-12 & H-11		
	Station	13 m	31 m	46 m
	Material	Backfilling	Backfilling	Backfilling
	Test No.	1	2	3
	Offset from Centre Line (m)	C/L	C/L	C/L
	Layer No. or Level	2	2	2
	Depth of Hole (Cm)	15	15	15
Material Weights & Wet Density	Wt. of Wet Soil (g)	6966	6779	6696
	Initial Wt. of Sand+Cont. (g)	8357	8314	8304
	Residual Wt. of Sand+Cont. (g)	2419	2611	2585
	Wt. of Sand Used (g)	5948	5703	5719
	Wt. of Sand to Fill Cone (g)	1696	1696	1696
	Wt. of Sand to Fill Hole (g)	4252	4007	4023
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356
	Volume of Hole (cc)	3136	2955	2967
	Wet Density of Soil (g/cc)	2.222	2.294	2.257
Moisture Content	Speedy Moisture Reading (%)	4.0	6.0	6.0
	Corrected Speedy Moisture (%)	4.0	6.0	6.0
	Weight of Cont. + Wet Soil (a) (g)			
	Weight of Cont. + Dry Soil (b) (g)			
	Weight of Water (g)			
	Weight of Container (c) (g)			
	Weight of Dry Soil (g)			
	Oven Dry MC (a-b/b-c) x 100 (%)			
Results	Dry Density of Soil (g/cc)	2.136	2.164	2.129
	Specific Gravity			
	Maximum Dry Density (g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve (%)			
	Corrected Maximum Dry Density (g/cc)			
	Optimum Moisture Content (%)	8.8	8.8	8.8
	Compaction Obtained (%)	96.4	97.7	96.1
	Compaction Reported (%)	96.4	97.7	96.1
Compaction Required (%)	95.0	95.0	95.0	
Test Results !		Pass	Pass	Pass
Remarks:				



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 26-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 42
 Project Location : Dar-ul-Aman

General Description	Location	Electrical Low Voltage Line between P-14 & H-12		
	Station	12m	31 m	46 m
	Material	Backfilling	Backfilling	Backfilling
	Test No.	1	2	3
	Offset from Centre Line (m)	C/L	C/L	C/L
	Layer No. or Level	2	2	2
	Depth of Hole (Cm)	15	15	15
Material Weights & Wet Density	Wt. of Wet Soil (g)	7161	7023	6488
	Initial Wt. of Sand+Cont. (g)	8372	8376	8340
	Residual Wt. of Sand+Cont. (g)	2391	2396	2693
	Wt. of Sand Used (g)	5981	5980	5647
	Wt. of Sand to Fill Cone (g)	1696	1696	1696
	Wt. of Sand to Fill Hole (g)	4285	4284	3951
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356
	Volume of Hole (cc)	3160	3159	2914
	Wet Density of Soil (g/cc)	2.266	2.223	2.227
Moisture Content	Speedy Moisture Reading (%)	4.9	5.0	5.0
	Corrected Speedy Moisture (%)	4.9	5.0	5.0
	Weight of Cont. + Wet Soil (a) (g)			
	Weight of Cont. + Dry Soil (b) (g)			
	Weight of Water (g)			
	Weight of Container (c) (g)			
	Weight of Dry Soil (g)			
Oven Dry MC (a-b/b-c) x 100 (%)				
Results	Dry Density of Soil (g/cc)	2.160	2.117	2.121
	Specific Gravity			
	Maximum Dry Density (g/cc)	2.215	2.215	2.215
	Retained on 3/4" Sieve (%)			
	Corrected Maximum Dry Density (g/cc)			
	Optimum Moisture Content (%)	8.8	8.8	8.8
	Compaction Obtained (%)	97.5	95.6	95.7
	Compaction Reported (%)	97.5	95.6	95.7
Compaction Required (%)	95.0	95.0	95.0	
Test Results !		Pass	Pass	Pass
Remarks:				



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 27-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 43
 Project Location : Dar-ul-Aman

General Description	Location	Electrical Low Voltage Line between P-14 & H-12			
	Station	17m	34 m	52 m	
	Material	Backfilling	Backfilling	Backfilling	
	Test No.	1	2	3	
	Offset from Centre Line (m)	C/L	C/L	C/L	
	Layer No. or Level	3	3	3	
	Depth of Hole (Cm)	15	15	15	
Material Weights & Wet Density	Wt. of Wet Soil (g)	6491	6519	6719	
	Initial Wt. of Sand+Cont. (g)	8353	8330	8310	
	Residual Wt. of Sand+Cont. (g)	2666	2681	2598	
	Wt. of Sand Used (g)	5687	5649	5712	
	Wt. of Sand to Fill Cone (g)	1696	1696	1696	
	Wt. of Sand to Fill Hole (g)	3991	3953	4016	
	Unit Wt. of Sand (g/cc)	1.356	1.356	1.356	
	Volume of Hole (cc)	2943	2915	2962	
	Wet Density of Soil (g/cc)	2.205	2.236	2.269	
Moisture Content	Speedy Moisture Reading (%)	4.0	5.0	6.0	
	Corrected Speedy Moisture (%)	4.0	5.0	6.0	
	Weight of Cont. + Wet Soil (a) (g)				
	Weight of Cont. + Dry Soil (b) (g)				
	Weight of Water (g)				
	Weight of Container (c) (g)				
	Weight of Dry Soil (g)				
	Oven Dry MC (a-b/b-c) x 100 (%)				
Results	Dry Density of Soil (g/cc)	2.121	2.130	2.140	
	Specific Gravity				
	Maximum Dry Density (g/cc)	2.215	2.215	2.215	
	Retained on 3/4" Sieve (%)				
	Corrected Maximum Dry Density (g/cc)				
	Optimum Moisture Content (%)	8.8	8.8	8.8	
	Compaction Obtained (%)	95.7	96.2	96.6	
	Compaction Reported (%)	95.7	96.2	96.6	
Compaction Required (%)	95.0	95.0	95.0		
Test Results !		Pass	Pass	Pass	
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 27-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 44
 Project Location : Dar-ul-Aman

General Description	Location		Electrical Low Voltage Line between H-12 & H-11		
	Station		13 m		
	Material		Backfilling		
	Test No.		1		
	Offset from Centre Line	(m)	C/L		
	Layer No. or Level		3		
	Depth of Hole	(Cm)	15		
Material Weights & Wet Density	Wt. of Wet Soil	(g)	6498		
	Initial Wt. of Sand+Cont.	(g)	8310		
	Residual Wt. of Sand+Cont.	(g)	2591		
	Wt. of Sand Used	(g)	5719		
	Wt. of Sand to Fill Cone	(g)	1696		
	Wt. of Sand to Fill Hole	(g)	4023		
	Unit Wt. of Sand	(g/cc)	1.356		
	Volume of Hole	(cc)	2967		
	Wet Density of Soil	(g/cc)	2.190		
Moisture Content	Speedy Moisture Reading	(%)	4.0		
	Corrected Speedy Moisture	(%)	4.0		
	Weight of Cont. + Wet Soil (a)	(g)			
	Weight of Cont. + Dry Soil (b)	(g)			
	Weight of Water	(g)			
	Weight of Container (c)	(g)			
	Weight of Dry Soil	(g)			
	Oven Dry MC (a-b/b-c) x 100	(%)			
Results	Dry Density of Soil	(g/cc)	2.106		
	Specific Gravity				
	Maximum Dry Density	(g/cc)	2.215		
	Retained on 3/4" Sieve	(%)			
	Corrected Maximum Dry Density	(g/cc)			
	Optimum Moisture Content	(%)	8.8		
	Compaction Obtained	(%)	95.1		
	Compaction Reported	(%)	95.1		
Compaction Required	(%)	95.0			
Test Results !			Pass		
Remarks:					



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Density and Unit Weight of Soil in Place by Sand Cone Method ASTM D 1556

Client : USAID Testing Date : 27-Jul-2016
 Contractor : Perez, APC./Technologists, Inc. Contract No. : AID-306-TO-15-00069
 Project : AUAF New Women's Dormitory Report No. : 46
 Project Location : Dar-ul-Aman

General Description	Location	Electrical Low Voltage Line between H-9 & H-8	
	Station	70 m	88 m
	Material	Backfilling	Backfilling
	Test No.	1	2
	Offset from Centre Line (m)	C/L	C/L
	Layer No. or Level	1	1
	Depth of Hole (Cm)	15	15
Material Weights & Wet Density	Wt. of Wet Soil (g)	6336	6296
	Initial Wt. of Sand+Cont. (g)	8301	8362
	Residual Wt. of Sand+Cont. (g)	2841	2841
	Wt. of Sand Used (g)	5460	5521
	Wt. of Sand to Fill Cone (g)	1696	1696
	Wt. of Sand to Fill Hole (g)	3764	3825
	Unit Wt. of Sand (g/cc)	1.356	1.356
	Volume of Hole (cc)	2776	2821
	Wet Density of Soil (g/cc)	2.283	2.232
Moisture Content	Speedy Moisture Reading (%)	6.0	6.0
	Corrected Speedy Moisture (%)	6.0	6.0
	Weight of Cont. + Wet Soil (a) (g)		
	Weight of Cont. + Dry Soil (b) (g)		
	Weight of Water (g)		
	Weight of Container (c) (g)		
	Weight of Dry Soil (g)		
	Oven Dry MC (a-b/b-c) x 100 (%)		
Results	Dry Density of Soil (g/cc)	2.153	2.106
	Specific Gravity		
	Maximum Dry Density (g/cc)	2.215	2.215
	Retained on 3/4" Sieve (%)		
	Corrected Maximum Dry Density (g/cc)		
	Optimum Moisture Content (%)	8.8	8.8
	Compaction Obtained (%)	97.2	95.1
	Compaction Reported (%)	97.2	95.1
	Compaction Required (%)	95.0	95.0
Test Results !		Pass	Pass
Remarks:			

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