The Afghanistan Engineering Support Program assembled this deliverable. It is an approved, official USAID document. Budget information contained herein is for illustrative purposes. All policy, personal, financial, and procurement sensitive information has been removed. Additional information on the report can be obtained from Firouz Rooyani, Tetra Tech Sr. VP International Operations, (703) 387-2151.

MEMO

To:	[redacted] Program Manager, Power Transmission Expansion and Connectivity Project [redacted] Deputy Division Chief – Energy and Water
Cc:	
From:	[redacted] Chief of Party [redacted] Energy Lead
Date:	November 30, 2014
Subject:	Salang Tunnel Substation Review of Gas Insulated Switchgear (GIS)

On September 25, 2014, a meeting was held to discuss ongoing consideration of using Gas Insulated Switchgear (GIS) for the Salang Tunnel Substation switchyard, in lieu of Air Insulated Switchgear (AIS) as is currently designed. The primary objective of the review-as stated by [redacted] is to expedite construction of the substation in order to have an operable substation by the end of the 2015 construction season.

MEETING DETAILS

Attendees:

USAID: [redacted]

Tetra Tech (Tt): [redacted]

SUMMARY

Summary of points discussed on September 25, 2014:

- GIS is being considered due to its much smaller footprint and reduction of civil works construction as shown on drawings developed by Tt (see Attachment 1 - four concept layout pages).
- Tt provided information to Phoenix on August 21, 2014 to use to obtain budgetary pricing and delivery lead time (see Attachment 2 - email dated August 21, 2014).
- Construction of substation using AIS as designed is ready to advertise for bidding (see Attachment 3 - construction schedule).
- Power transformers would be the same for either GIS or AIS design, and prepurchase could be awarded.
- Prepurchase Equipment RFP # 1 Lot 2 which includes circuit breakers, switchgear, control panel, and other components, quantities would change based on decision of GIS or AIS
- Information regarding budgetary cost and delivery was to be provided by Phoenix by 9/20, and as of 9/24 only incomplete information was provided, due to inadequate vendor responses (see Attachment 4 and 5 - emails dated September 7, 2014, and September 20, 2014).

- Some vendors expressed concern and reluctance to working in Afghanistan. Final Start-up and commissioning would likely require vendor involvement on site (see Attachment 5 -email dated 9/20/14).
- Delivery times from vendors, after approval of shop drawings, ranged from 3 months from Chint, to 6 to 8 months for other vendors, to 10 months from Siemens (see Attachment 6 and 7 - email dated September 11, and September 21, 2014).
- Development of Scope of Work or redesign, Performance Specifications, Sole Source Proposal, Award of Contract and Shop Drawing development is required prior to start of manufacturing. This is estimated to take 48 weeks (see Attachment 8 - GIS schedule).
- Acceptance Testing, Shipping, Customs Clearance, Installation, Start-up and Commissioning is estimated to take 34 weeks (see Attachment 8—GIS schedule).
- DABS previously expressed reservation of use of this technology due to cost and sophistication (see Attachment 7—email dated 1/13/14).
- Notes of conference from meeting held September 25, 2014 (see Attachment 9).

SUMMARY CONCLUSION

The objective of looking at GIS was to reduce schedule so as to have an operable substation by late 2015. Revising design to incorporate GIS would not accomplish this, therefore the conclusion reached is to proceed with current design that is ready for final review and advertise for bidding.

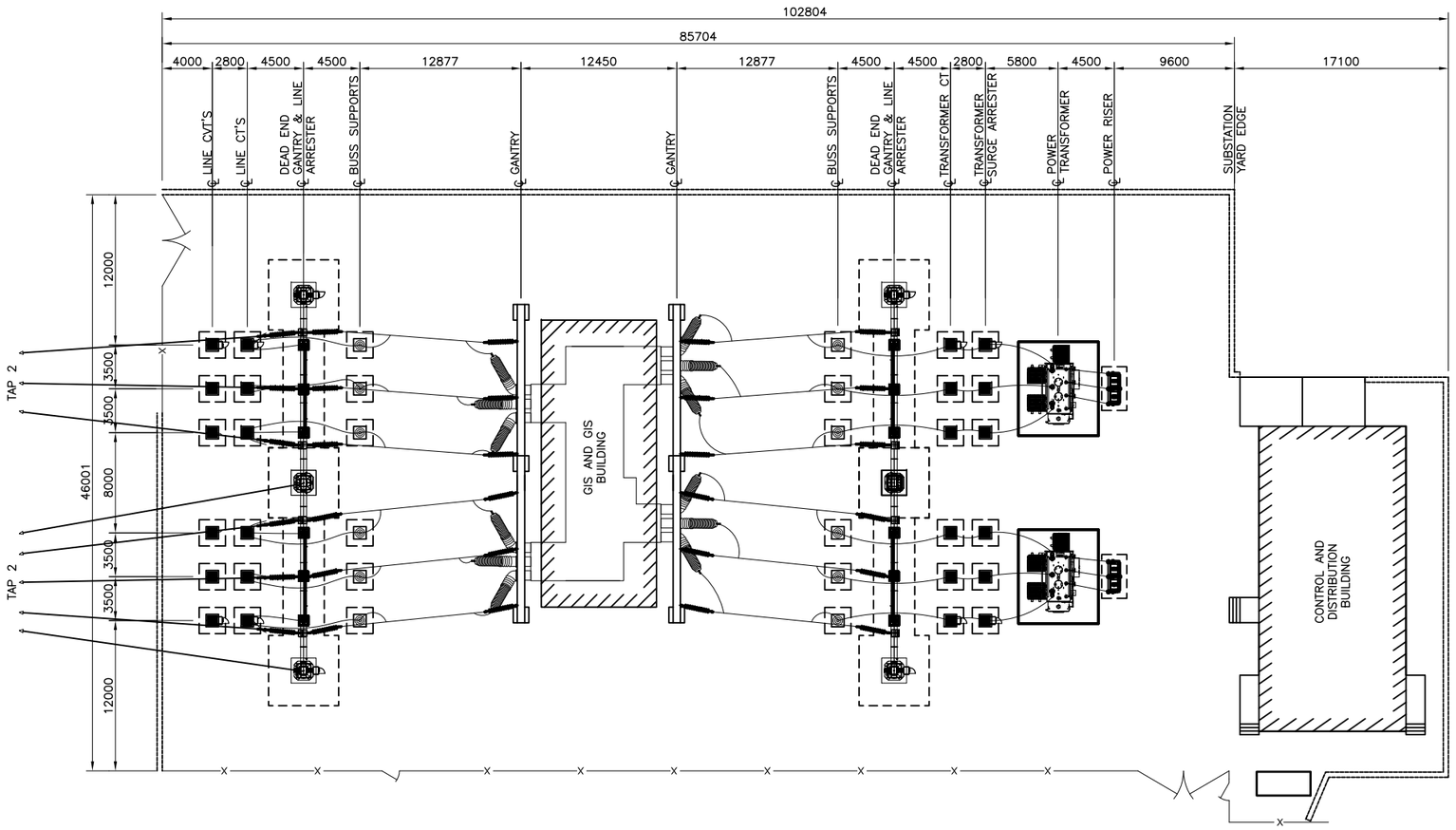
ATTACHMENTS

1. GIS concept layout and general arrangement drawings
2. Email dated August 21, 2014
3. Construction Schedule using AIS
4. Email dated September 7, 2014
5. Email dated September 20, 2014
6. Email dated September 11, 2014
7. Email dated September 21, 2014
8. GIS Schedule
9. Notes of Conference dated September 25,2014

END MEMO

ATTACHMENT 1

GIS Concept Layout and General Arrangement Drawings



PLAN
SCALE 1:250

This project was made possible by the United States Agency for International Development and the generous support of the American People through USAID Global Architecture and Engineering IQC Contracts.

LEGEND

SUBSTATION FENCE

SUBSTATION GUARDRAIL

REFERENCES:

XE-152 220/20KV SUBSTATION SECTION A
XE-153 220/20KV SUBSTATION SECTION B AND C
XE-154 220/20KV SUBSTATION SECTION D

0 5 10 15 25m
1:250

N

UNLESS OTHERWISE NOTED, ALL LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS.

CONCEPT DESIGN

NO	SYMB	SUBMITTAL/REVISION DESCRIPTION	DATE	APR
0		CONCEPT DESIGN	21/09/14	DJ

DESIGNED BY: MAY
DRAWN BY: MAY
CHECKED BY: DJ
DATE: 21-09-2014
SUBMITTED BY: TETRA TECH
CAD FILE NAME: E-101

USAID FROM THE AMERICAN PEOPLE

AESP

SALANG TUNNEL SUBSTATION
AFTANOR, AFGHANISTAN
SUBSTATION DESIGN
220/20KV SUBSTATION
GENERAL ARRANGEMENT

DRAWING REFERENCE NUMBER:
LT0063
#
E-101

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DRAWING REFERENCE NUMBER:	
LT0063 – E–102	

SALANG TUNNEL SUBSTATION
GOWARAH, AFGHANISTAN
SITE DESIGN

ELECTRICAL SITE PLAN

DESIGNED BY:	DATE:
MAY	22–09–2014
DRAWN BY:	SUBMITTED BY:
MAY	TETRA TECH
CHECKED BY:	CAD FILE NAME:
DJ	E–102

USAID FROM THE AMERICAN PEOPLE

AESP

SYM#	SUBMITTAL/REVISION DESCRIPTION	DATE	APR
0	CONCEPT DESIGN	22/09/14	DJ

ISSUED FOR CONSTRUCTION

UNLESS OTHERWISE NOTED, ALL LINEAR DIMENSIONS SHOWN ARE IN METERS.

N

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1:500

LEGEND:

LIMITS OF PROJECT CONSTRUCTION

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ISSUED FOR CONSTRUCTION

SYMB	SUBMITTAL/REVISION DESCRIPTION	DATE	APR
0	CONCEPT DESIGN	22/09/14	DJ

DESIGNED BY:	DATE:
DJ	E-103
CHECKED BY:	CAD FILE NAME:
MAY	TETRA TECH
DRAWN BY:	SUBMITTED BY:
MAY	22-09-2014

AESP

USAID FROM THE AMERICAN PEOPLE

SALANG TUNNEL SUBSTATION
GOWARAH, AFGHANISTAN
SITE DESIGN

AIS & GIA SITE PLANS

DRAWING REFERENCE NUMBER: LT0063 – E-103

This project was made possible by the United States Agency for International Development and the generous support of the American People through USAID Global Architecture and Englineering IQC Contracts.

LEGEND:

LIMITS OF PROJECT CONSTRUCTION

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1:500

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UNLESS OTHERWISE NOTED, ALL LINEAR DIMENSIONS SHOWN ARE IN METERS.

DRAWING REFERENCE NUMBER:	
LT0063 – E–104	

SALANG TUNNEL SUBSTATION
GOWARAH, AFGHANISTAN
SITE DESIGN

AIS & GIA SITE PLANS

DESIGNED BY:	MAY
DRAWN BY:	MAY
CHECKED BY:	DJ
CAD FILE NAME:	E–104
DATE:	22–09–2014
SUBMITTED BY:	TETRA TECH

AESP

USAID FROM THE AMERICAN PEOPLE

SYM#	SUBMITTAL/REVISION DESCRIPTION	DATE	APR
0	CONCEPT DESIGN	22/09/14	DJ

ISSUED FOR CONSTRUCTION

This project was made possible by the United States Agency for International Development and the generous support of the American People through USAID Global Architecture and Engineering IQC Contracts.

LEGEND:

LIMITS OF PROJECT CONSTRUCTION

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1:500

N

UNLESS OTHERWISE NOTED, ALL LINEAR DIMENSIONS SHOWN ARE IN METERS.

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ATTACHMENT 2

Email Dated August 21, 2014

Attachment 2

[redacted]

From: [redacted]
Sent: Thursday, August 21, 2014 6:16 PM
To: [redacted]
Subject: WO-LT-0063 Salang Tunnel Substation GIS Alternate
Attachments: 130821_LT0063_ Info for GIS System.pdf

Hi [redacted]

Per our Salang Tunnel Substation discussion with [redacted] and your team yesterday we want to further explore the use of Gas Insulated Switchgear (GIS) rather than Air Insulated Switchgear (AIS) at the Salang Tunnel Substation. This change would necessitate a redesign of the Salang Tunnel Substation, so we want to move rapidly with the GIS evaluation.

In our meeting yesterday you thought GIS procurement would be a lengthy process; perhaps requiring as much as 18 to 24 month to procure, build, deliver and install a GIS system. The Phoenix team also expressed concern for the cost of a GIS system relative to an AIS system, considering the relatively small load and capacity of this Substation.

We believe the best course of action is to pursue a GIS system design in parallel with advancing the remaining procurements for the AIS system already designed. At some point within the next few months, one system or the other will be dropped and either GIS or AIS will move into construction as soon as possible in early 2015.

The first step we agreed on yesterday was for Phoenix to make an initial inquiry with established GIS manufacturers to quote budgetary pricing and delivery for the Salang Tunnel Substation GIS equipment. And AESP Tetra Tech agreed to provide Phoenix with the attached basic performance specification to secure multiple quotations for budgetary price and delivery.

Please circulate the attached specification to the GIS manufacturers you suggest as soon as possible. Hopefully we will have at least three written quotations to discuss at our next team meeting.

Thank you,

[redacted]

Design Analysis

Discipline:	220kV Lines Transmission	**Date:**	March 7, 2014

Design Submittal: Issued for Construction – Salang Tunnel Substation
Site Location: Gowarah Sang, Afghanistan
Prepared By: Power Engineers

I. General Summary:

The Salang Tunnel Substation project involves the detailed design of the 220-20kV, 4MVA x 2 Salang Tunnel Substation located in Gowarah Sang, Afghanistan. The project also encompasses the local 20kV distribution to the Salang snow gallery and the Salang Tunnel portal control building.

The Salang Tunnel Substation is an entirely new facility, and the design includes the 220kV transmission taps, electrical substation and associated facilities, Substation Control Building and separate Living Quarters Building. Additional proposed features to be constructed at the substation site include internal roadways and footpaths, and vehicular access to the adjacent roadway. Potable water and backup power generator will be contained within the two buildings to accommodate the severe winter weather conditions. A black water containment system will be located on site. A perimeter fence and guard rail will be provided around the substation yard.

II. Detailed Analysis:

a. PROJECT DESCRIPTION

This transmission line portion of this project involves the construction of 220 kV lines in Afghanistan. Both circuits of the existing 220 kV transmission line will be tapped via new tubular steel monopoles to the future substation. Once the new substation is constructed two new 20 kV lines will provide electricity to the client.

Conductors to be used are:

- 220 kV Lines: ACSR Zebra

The two ground wires on the 220 kV line will be OPGW and ACSR Petrel.

The input values used in establishing the type of conductors are the line voltages and powers provided above, and the following meteorological and line data:

- Ambient Temperature: 15° C
- Maximum Conductor Temperature: 90° C (220 kV lines)
- Wind Speed: 0.66 m/s
- Wind Angle to Line: 90^0
- Coefficient of Emissivity: 0.7
- Coefficient of Absorption: 0.8

- Atmosphere: Clear
- Local Time: 12:00 Hrs
- Date for Local Time - Jul 1
- North Latitude: 35º
- Azimuth of Line 90º (E-W)
- Altitude (Above Sea Level) 3650 m

b. IEC/EN RELIABILITY REQUIREMENTS

Reliability levels (weather related loads)

Reliability Level:	1
Return Period:	50 years

c. IEC/EN SECURITY REQUIREMENTS

Security related loads

Torsional loads are the residual static loads resulting from the release of tension of one or more conductors in the adjacent span based on IEC 60826, section 6.3 and 6.6. The torsional loads have been increased to two broken conductors to provide additional security per IEC 60826, section 6.6.3.3, Table 9.

The longitudinal loads are applied simultaneously at all attachment points. They are the unbalanced loads produced by broken conductors on one side of a structure and intact conductors on the other side.

Torsional Load:	Two broken conductors
Longitudinal Load:	Unit weight overload factor

d. IEC/EN SAFETY REQUIREMENTS

Erection of Supports

Safety Factor:	2.0 on all components

Stringing and Sagging Safety Factors

Conductor Tensions:	2.0 conductors being moved
	1.5 conductors in place
Vertical Loads:	2.0 conductors being moved
	1.5 conductors in place
Transverse Loads:	2.0 conductors being moved
	1.5 conductors in place

Maintenance load Safety factor

Vertical Loads:	2.0 + 1,500 N (337 lb) load

e. CODE(S) AND LOADING CONDITIONS

Loading Conditions

Case	Description	Weather Case	Cable Condition	Vert. Load Factor	Wind Load Factor	Tension Load Factor	Strength Reduction Factor
1	Extreme Wind	10°C, 41m/s wind (1000 Pa wind pressure)*[1]	Initial	1.0	1.0	1.0	
2	Heavy Ice	High Altitudes: -5°C, 40 mm ice, no wind Soft Rime Ice*[2]	Initial	1.0	1.0	1.0	
3	Ice And Wind	High Altitudes: -5°C, 35 mm ice, 20 m/s wind (200 Pa wind pressure)*[1] Soft Rime Ice*[2]	Initial	1.0	1.0	1.0	
4	Insulator Swing and Conductor Blowout	10°C, 10m/s wind *[1]	Initial	1.0	1.0	1.0	
5	Cold Uplift	-30°C, no wind or ice loads	Initial	1.0	1.0	1.0	
6	Everyday Tension (EDT) Phase conductor C = 425 m (ACSR Zebra, 220 kV line)	15°C, no wind or ice loads	Final	1.0	1.0	1.0	0.9/0.85 *[3]
7	Everyday Tension Shield Wire (OHGW) C=560 m (Petrel) C=512 m (OPGW)	15°C, no wind or ice loads	Final	1.0	1.0	1.0	
8	Failure Containment	15°C, no wind or ice loads	Final	1.0	1.0	0.7(1.0) *[4]	
9	Construction and Maintenance – Suspension Structures	5°C, no wind or ice loads	Initial	2.0 *[5]	Wire Tension Factor: Moving Wire = 1.0 Wire in Place = 1.0		
10	Construction and Maintenance – Strain/Angle Structures	5°C, no wind or ice loads	Initial	2.0 *[5]	Wire Tension Factor: Moving Wire = 2.0 Wire in Place = 1.5		
11	Unbalanced Ice Loading, g_R *[6]	-5°C, 20 mm reference ice load	Initial	1.0	1.0	0.7(1.0) *[4]	

Notes:

*[1] Wind pressure computed as specified in IEC 60826: Design Criteria of Overhead Transmission Lines. Indicated wind velocity values are 10-minute at 10m above ground.

*[2] Ice density, based on different expected ice types, and related considerations shall be as per IEC 60826, Table 8:
- Glaze Ice: density=900 kg/m^3 (lower altitudes)
- Hard Rime Ice: density=800 kg/m^3 (medium altitudes)
- Soft Rime Ice: density=600 kg/m^3 (high altitudes)

*[3] Structure strength reduction factor (compression, tension, shear and bearing stress, etc.) is 0.9 for suspension towers, and 0.85 for strain/angle towers.

*[4] 70% of tension on suspension towers, full tension on strain/angle towers.

*[5] Apply to vertical loads only, not to structure weight.

*[6] g_R is the 50-year radial ice weight per unit length of wire (N/m.)

Commentary:

1. The Extreme Wind it is a 50-year return period wind load, 148kmph (41m/s) 10-minute wind at 10m above ground, all wires are intact. Apply wind perpendicular to the line axis, and at an angle of 45° to the line axis. Wind on wires adjusted by $\sin^2\Psi$, where Ψ is the wind incidence angle.

2. Heavy ice loads, 40 mm radial ice with a density of 600 kg/m^3 (soft rime ice, high altitude), with no wind, all wires are intact.

3. Wind over iced conductors, are10-minute wind, at 10 m above ground, all wires are intact.

4. Conductor blowout and insulator swing wind load, 36 km/h (10 m/s) 10-minute wind at 10m above ground. For I-string insulator swing consider a wind span/minimum weight span ratio of 1.33.

5. Cold air temperature extreme for uplift conditions.

6. Everyday Tension (EDT) and vibration control, final wire condition with no loads. For phase conductor design limit it is a catenary constant, final, after creep or after load, at 15°C of:
   - C=425 m (for ACSR Zebra, on 220 kV lines)

These EDT Catenary Constants result from conductor tension limit of:
- ACSR Zebra, 220 kV line: 5 % RBS, at 15°C, final.

These catenary constants values at 15°C, final, were calculated to keep maximum tension in the loading cases presented in the “Loading Conditions” table under the limits presented in the “Sag and Tension Limits” table.

7. Everyday Tension (EDT), final wire condition with no loads. For the OHGW tension limit is defined for sag after creep at 15°C equal to 76% for ACSR Petrel and 83% for OPGW of the final conductor sag at the same condition.

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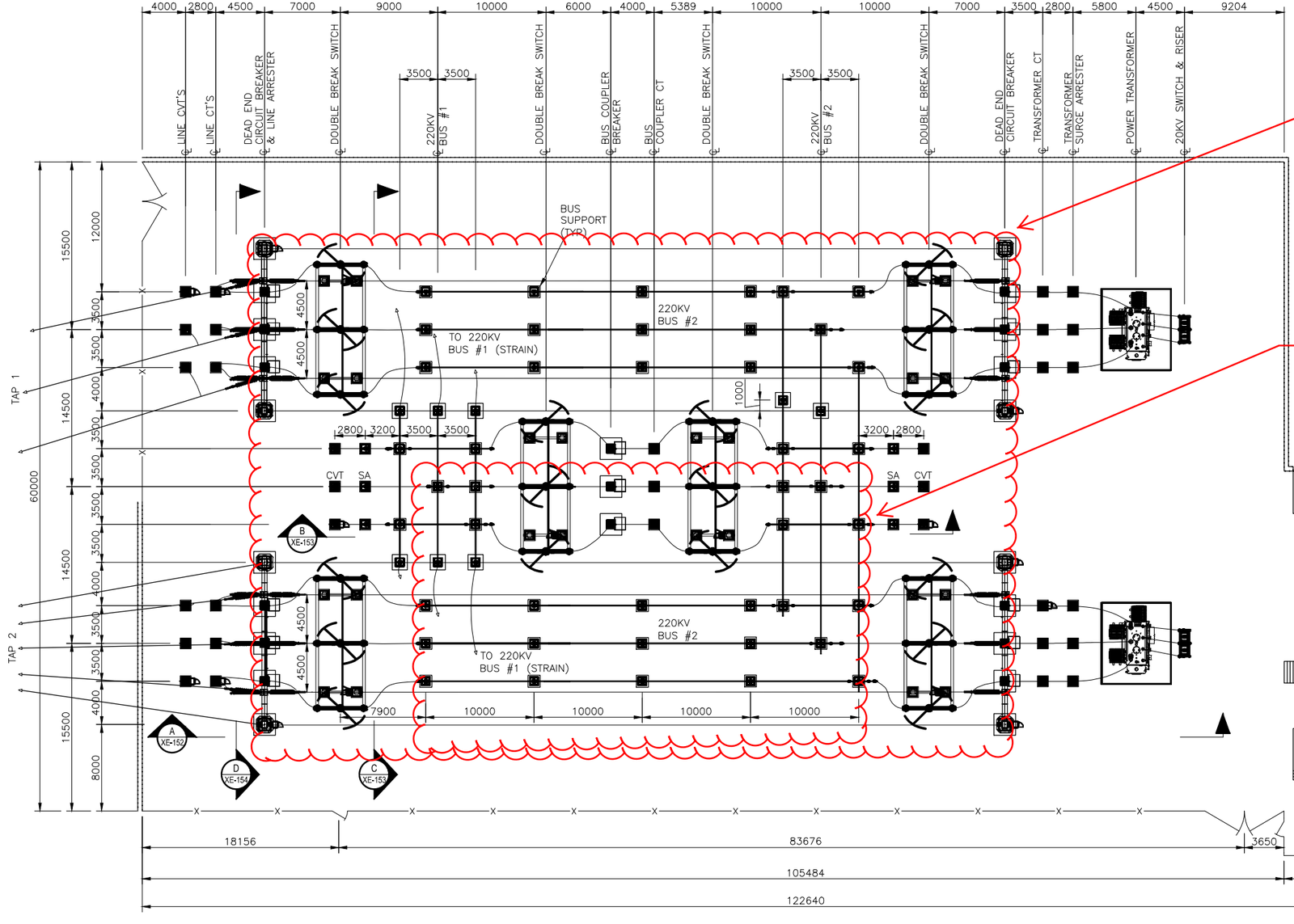

THE HIGHLIGHTED AREA SHOULD BE PART OF GIS SYSTEM

THE ESTIMATED FOOT PRINT FOR GIS SYSTEM

LEGEND

SUBSTATION FENCE

SUBSTATION GUARDRAIL

REFERENCES:

XE-152 220/20KV SUBSTATION SECTION A
XE-153 220/20KV SUBSTATION SECTION B AND C
XE-154 220/20KV SUBSTATION SECTION D

0 5 10 15 25m
1:250

PLAN
SCALE 1:250

UNLESS OTHERWISE NOTED, ALL LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS.

NO	DESCRIPTION	DATE	APP'D
0	ISSUED FOR CONSTRUCTION	03/07/14	GCH

DESIGNED BY: PEI
DRAWN BY: PEI
CHECKED BY: CEG
DATE: 03-07-2014
SUBMITTED BY: POWER ENGINEERS, INC.
CAD FILE NAME: LT0063#-XE151PN

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AESP

SALANG TUNNEL SUBSTATION
GOWARAH, AFGHANISTAN
SUBSTATION DESIGN
220/20KV SUBSTATION
GENERAL ARRANGEMENT

DRAWING REFERENCE NUMBER:
LT0063
#
XE-151

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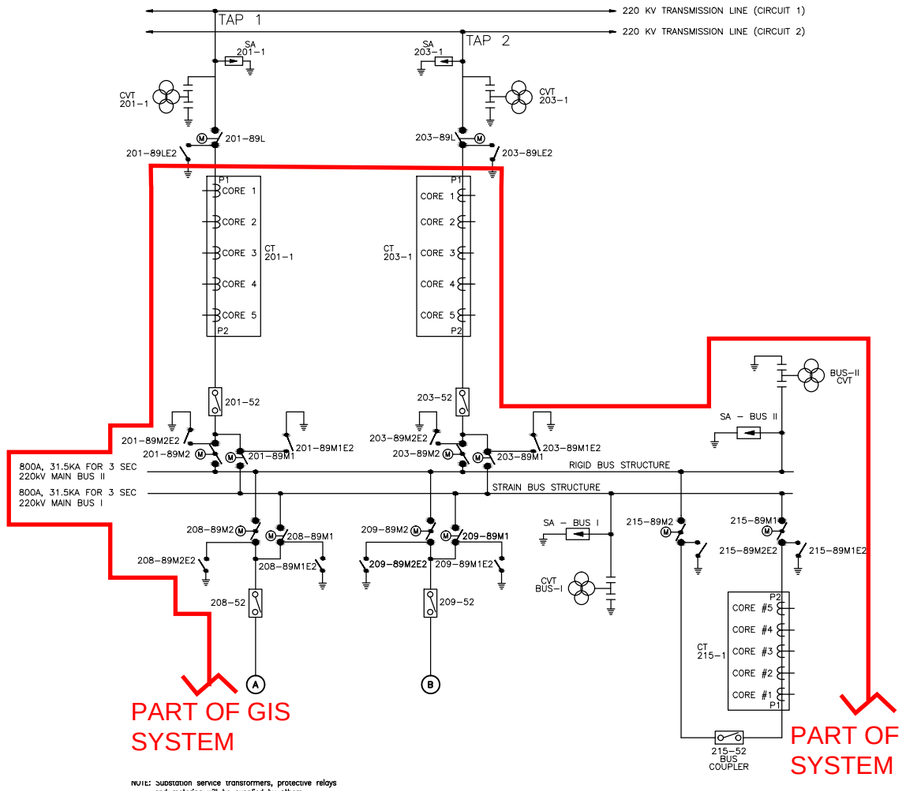
THE CONTRACTOR SHALL COORDINATE AND VERIFY THE FINAL CABLE TERMINATION POINTS PER THE ACTUAL GFE EQUIPMENT PROVIDED.

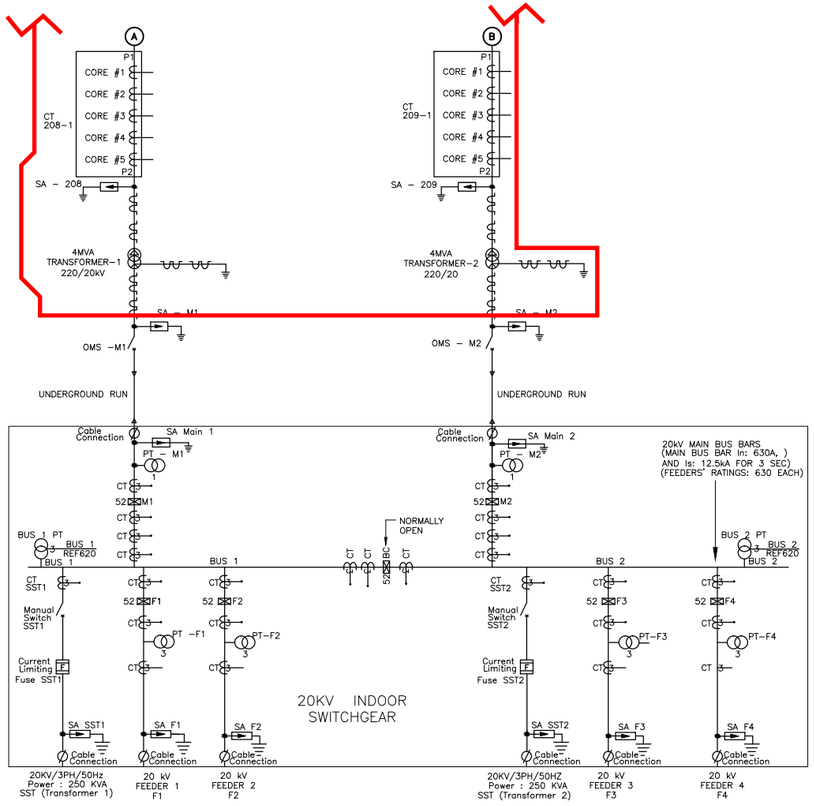


PART OF GIS SYSTEM

PART OF GIS SYSTEM

PART OF GIS SYSTEM

NOTE: Substation service transformers, protective relays and metering will be supplied by others.



ONE-LINE LEGEND

- CAPACITIVE VOLTAGE TRANSFORMER (CVT)
- CURRENT TRANSFORMER
- HV DISCONNECT (ISOLATOR) MOTOR OPERATED SWITCH 3 POLE/ VERTICAL BREAK GANG SWITCH WITH MANUAL EARTHING SWITCH
- 220KV AC CIRCUIT BREAKER
- OVERHEAD MANUAL SWITCH
- SURGE ARRESTOR (SA)
- POWER TRANSFORMER
- 20KV SWITCHGEAR CIRCUIT BREAKER
- BUSHING MOUNTED CURRENT TRANSFORMER
- HV DISCONNECT (ISOLATOR) MOTOR OPERATED SWITCH 3 POLE/ DOUBLE END BREAK GANG SWITCH WITH MANUAL EARTHING SWITCH
- POTENTIAL TRANSFORMER

NOT TO SCALE

UNLESS OTHERWISE NOTED, ALL LINEAR DIMENSIONS SHOWN ARE IN MILLIMETERS.

ISSUED FOR CONSTRUCTION

NO	DESCRIPTION	DATE	CHK
0	ISSUED FOR CONSTRUCTION	03/07/14	GCH

DESIGNED BY: MAY
DRAWN BY: MAY
CHECKED BY: GS
DATE: 03-07-2014
SUBMITTED BY: POWER ENGINEERS, INC.
CAD FILE NAME: LT0063#-XE160DI

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SALANG TUNNEL SUBSTATION
GOWARAH, AFGHANISTAN
SUBSTATION DESIGN
220/20kV SUBSTATION
DETAILED HV
SINGLE LINE DIAGRAM

DRAWING REFERENCE NUMBER:
LT0063
#
XE-160

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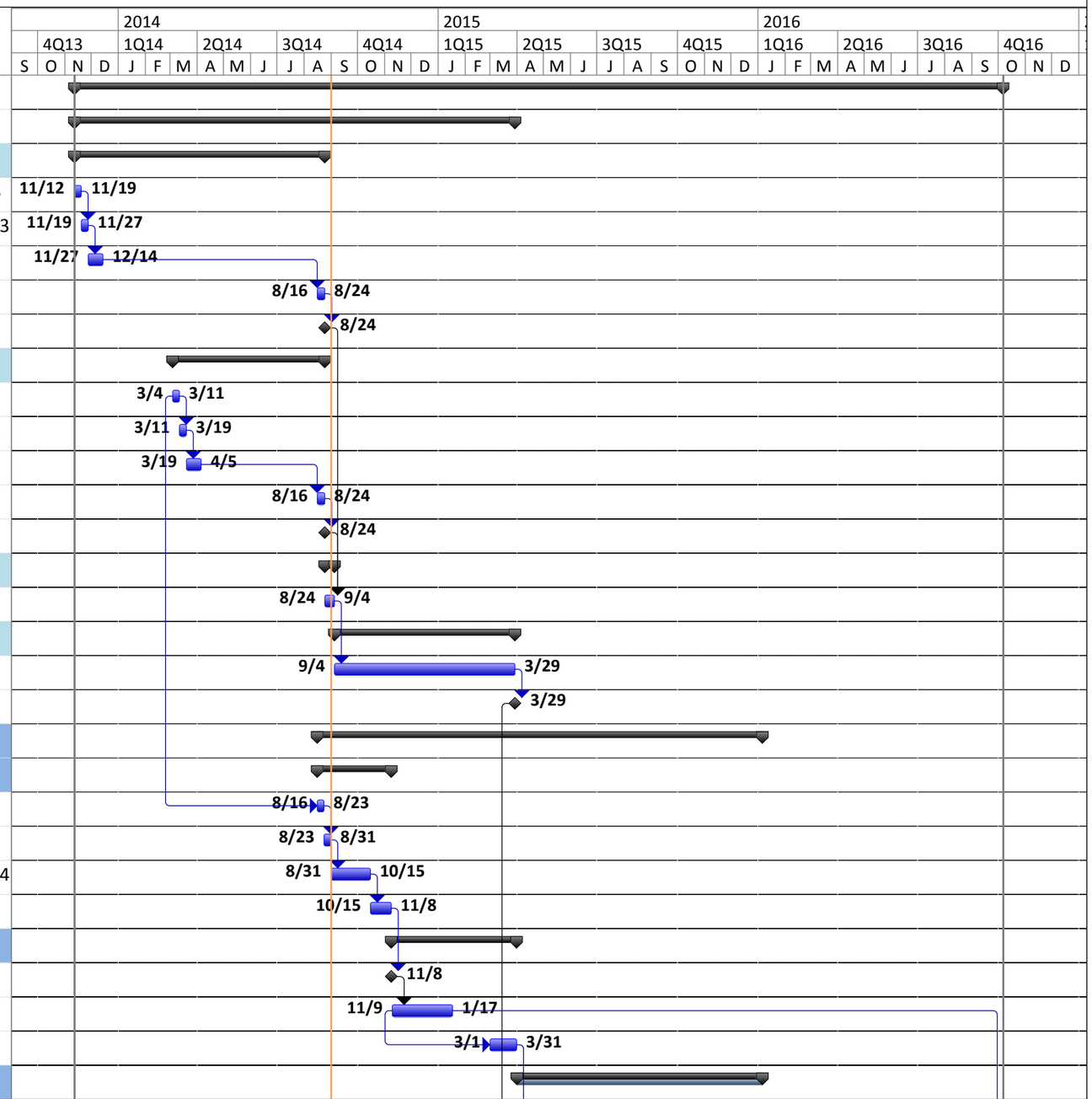
Please consider the environment before printing. Read More.

ATTACHMENT 3

Construction Schedule Using AIS

WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

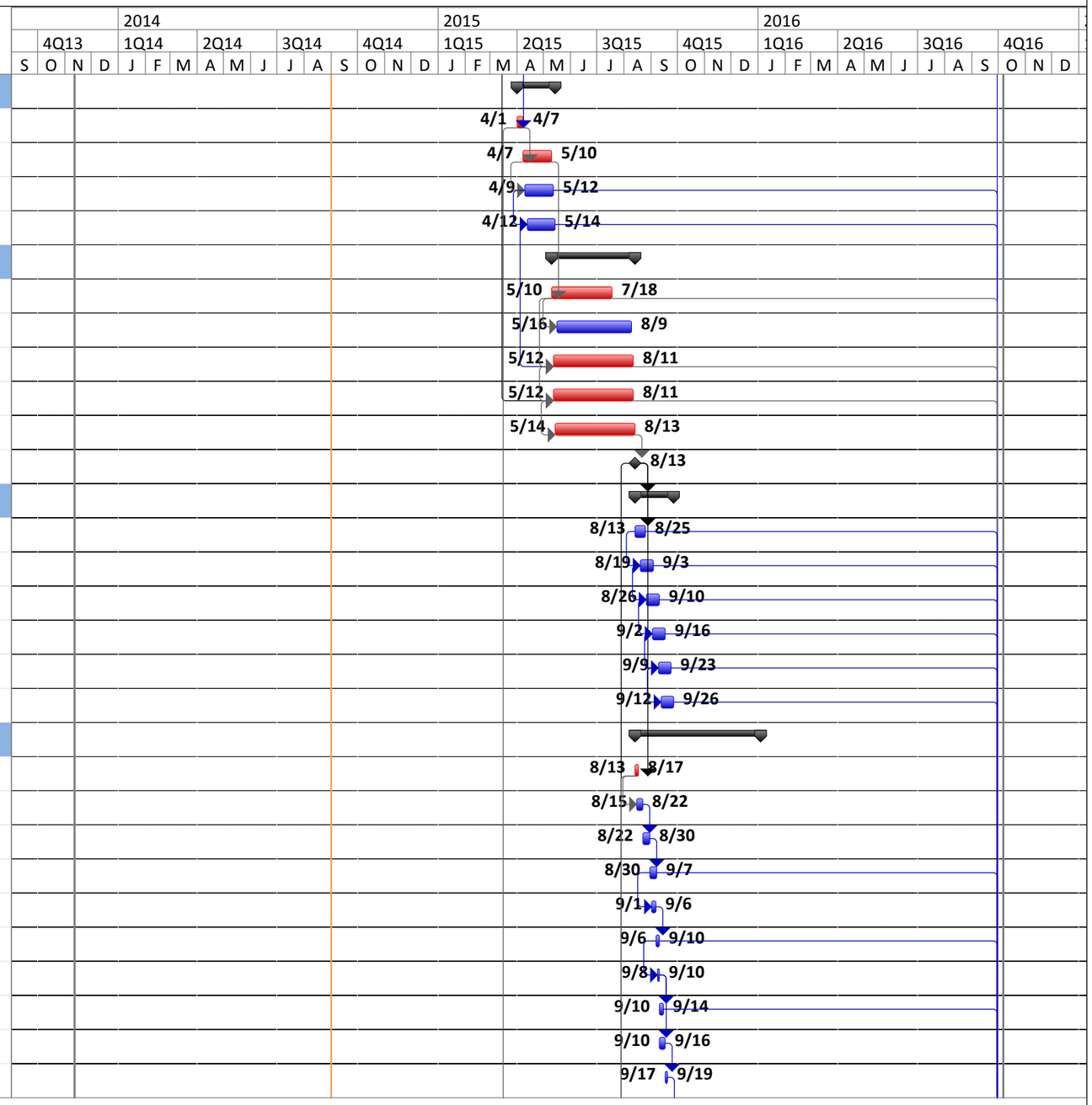
ID	Task Name	Duration	Start	Finish
1	**Salang Substation Project Implementation Schedule**	**927.5 days**	**Tue 11/12/13**	**Thu 10/6/16**
2	**Salang Substation Material Procurement**	**439.88 days**	**Tue 11/12/13**	**Sun 3/29/15**
3	1st Pre-Procurement	249.88 days	Tue 11/12/13	Sun 8/24/14
4	DABS Review of the RFP Package	7 days	Tue 11/12/13	Tue 11/19/13
5	DABS to Submit RFP to USAID & USAID Review	7 days	Tue 11/19/13	Wed 11/27/13
6	Advertise RFP	14 days	Wed 11/27/13	Sat 12/14/13
7	Bid Evaluation and Award Subcontract	8 days	Sat 8/16/14	Sun 8/24/14
8	Issue NTP	0 days	Sun 8/24/14	Sun 8/24/14
9	2nd Pre-Procurement	151.88 days	Tue 3/4/14	Sun 8/24/14
10	DABS Review of the RFP Package	7 days	Tue 3/4/14	Tue 3/11/14
11	DABS to Submit RFP to USAID & USAID Review	7 days	Tue 3/11/14	Wed 3/19/14
12	Advertise RFP	14 days	Wed 3/19/14	Sat 4/5/14
13	Bid Evaluation and Award Subcontract	8 days	Sat 8/16/14	Sun 8/24/14
14	Issue NTP	0 days	Sun 8/24/14	Sun 8/24/14
15	Procure Material	10 days	Sun 8/24/14	Thu 9/4/14
16	Procure Material Per the Specification and RFP	10 days	Sun 8/24/14	Thu 9/4/14
17	Shipping Material	180 days	Thu 9/4/14	Sun 3/29/15
18	Ship Material to the Project Site	180 days	Thu 9/4/14	Sun 3/29/15
19	Material Delivery to the Site	0 days	Sun 3/29/15	Sun 3/29/15
20	**Construction Work**	**445.13 days**	**Sat 8/16/14**	**Tue 1/5/16**
21	Preconstruction	74 days	Sat 8/16/14	Sat 11/8/14
22	DABS Review of the RFP Package	7 days	Sat 8/16/14	Sat 8/23/14
23	DABS to Submit RFP to USAID & USAID Review	7 days	Sat 8/23/14	Sun 8/31/14
24	Advertise RFP	40 days	Sun 8/31/14	Wed 10/15/14
25	Bid Evaluation and Award Subcontract	20 days	Wed 10/15/14	Sat 11/8/14
26	Preliminary and General	125.56 days	Sat 11/8/14	Tue 3/31/15
27	NTP	0 days	Sat 11/8/14	Sat 11/8/14
28	Submittals	60 days	Sun 11/9/14	Sat 1/17/15
29	Mobilization	27 days	Sun 3/1/15	Tue 3/31/15
30	Site Civil Construction	245 days	Wed 4/1/15	Tue 1/5/16



Tetra Tech AESP	Task		Group By Summary		External Tasks		Manual Task		Finish-only	
	Split		Rolled Up Task		External Milestone		Duration-only		Deadline	
	Milestone		Rolled Up Critical Task		Inactive Task		Manual Summary Rollup		Critical Task	
	Summary		Rolled Up Milestone		Inactive Milestone		Manual Summary		Progress	
	Project Summary		Rolled Up Progress		Inactive Summary		Start-only			

WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

ID	Task Name	Duration	Start	Finish
31	Adjusted Backfill From Site Cut Material	38 days	Wed 4/1/15	Thu 5/14/15
32	Site Preparation	6 days	Wed 4/1/15	Tue 4/7/15
33	Excavation	28 days	Tue 4/7/15	Sun 5/10/15
34	Grading & Watering	28 days	Thu 4/9/15	Tue 5/12/15
35	Compaction	28 days	Sun 4/12/15	Thu 5/14/15
36	Borrow Fill and Construct Retaining Wall 1	84 days	Sun 5/10/15	Thu 8/13/15
37	Excavation and Compaction	60 days	Sun 5/10/15	Sat 7/18/15
38	Reinforcement Mesh Installation	75 days	Sat 5/16/15	Sun 8/9/15
39	Material Delivery to the Site	80 days	Tue 5/12/15	Tue 8/11/15
40	Grading & Watering	80 days	Tue 5/12/15	Tue 8/11/15
41	Compaction	80 days	Thu 5/14/15	Thu 8/13/15
42	Complete Backfilling and Compaction Work	0 days	Thu 8/13/15	Thu 8/13/15
43	Construction Of Roads	38 days	Thu 8/13/15	Sat 9/26/15
44	Subgrade Preparation work	10 days	Thu 8/13/15	Tue 8/25/15
45	Place Sub Base	13 days	Wed 8/19/15	Thu 9/3/15
46	Place Base Course	13 days	Wed 8/26/15	Thu 9/10/15
47	Place Binder Course	13 days	Wed 9/2/15	Wed 9/16/15
48	Spray Prime Coat	13 days	Wed 9/9/15	Wed 9/23/15
49	Place Asphalt Wearing Course	13 days	Sat 9/12/15	Sat 9/26/15
50	Construction of Living Quarter	125 days	Thu 8/13/15	Sun 1/3/16
51	Foundation and Stem Wall Excavation	3 days	Thu 8/13/15	Mon 8/17/15
52	Install Foundation & Stem Walls' Reinforcement	6 days	Sat 8/15/15	Sat 8/22/15
53	Place Foundation & Stem Walls' Concrete	7 days	Sat 8/22/15	Sun 8/30/15
54	Backfill and Compact SOG Foundations	7 days	Sun 8/30/15	Mon 9/7/15
55	All Under Slab Piping Works	4 days	Tue 9/1/15	Sun 9/6/15
56	Place Slab on Grad Reinfrocement	4 days	Sun 9/6/15	Thu 9/10/15
57	Place Slab on Grad Concrete	2 days	Tue 9/8/15	Thu 9/10/15
58	Cure Slab on Grad Concrete	4 days	Thu 9/10/15	Mon 9/14/15
59	Errect Scaffolds	6 days	Thu 9/10/15	Wed 9/16/15
60	Errect Columns' Steel	2 days	Thu 9/17/15	Sat 9/19/15

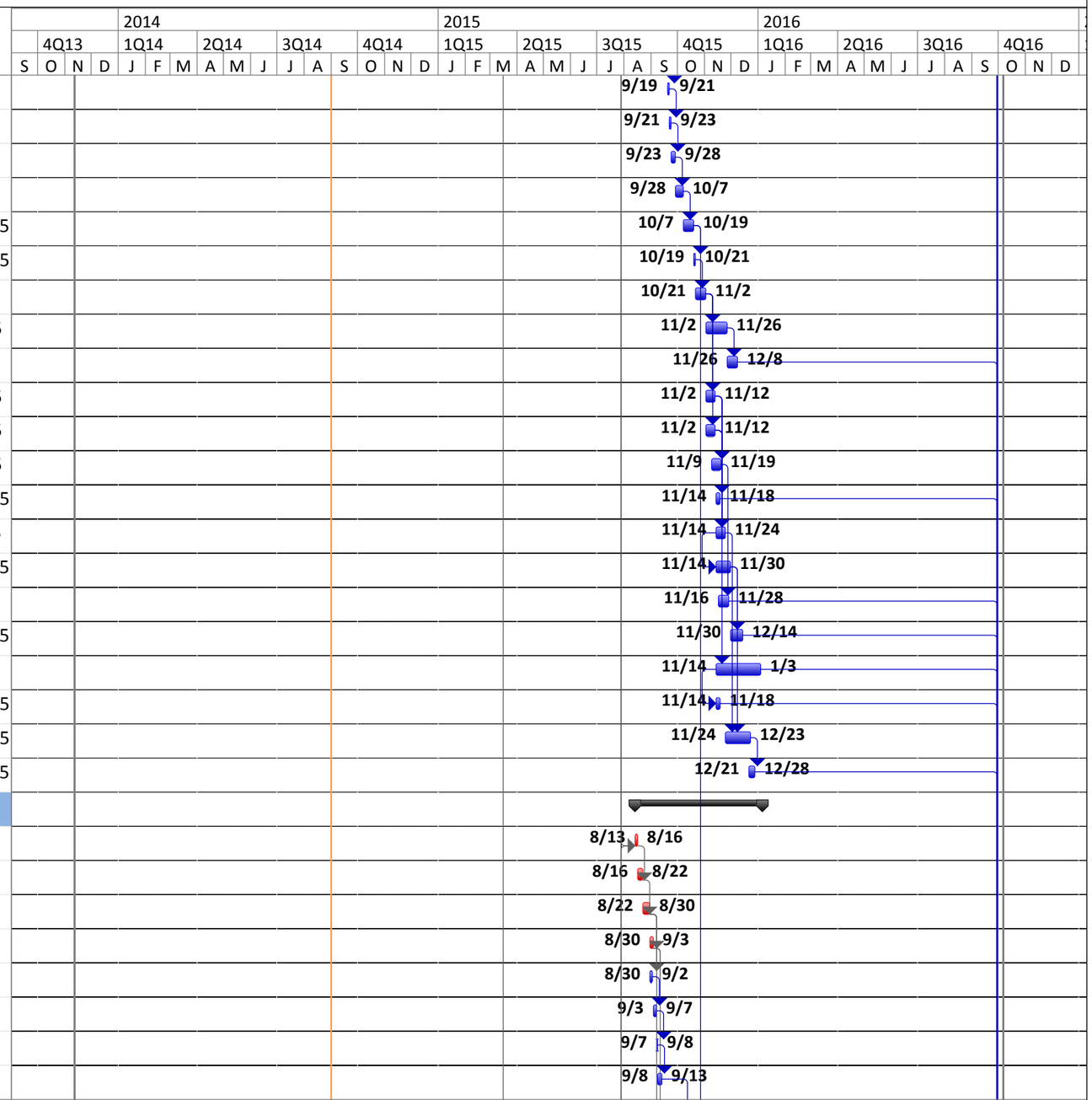


Tetra Tech AESP

Task	Group By Summary	External Tasks	Manual Task	Finish-only
Split	Rolled Up Task	External Milestone	Duration-only	Deadline
Milestone	Rolled Up Critical Task	Inactive Task	Manual Summary Rollup	Critical Task
Summary	Rolled Up Milestone	Inactive Milestone	Manual Summary	Progress
Project Summary	Rolled Up Progress	Inactive Summary	Start-only	

WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

ID	Task Name	Duration	Start	Finish
61	Form Columns	2 days	Sat 9/19/15	Mon 9/21/15
62	Pour Column Concrete	2 days	Mon 9/21/15	Wed 9/23/15
63	Cure Column Concrete & Strip Columns Forms	4 days	Wed 9/23/15	Mon 9/28/15
64	Form Ring Beams and Roof Slab	8 days	Mon 9/28/15	Wed 10/7/15
65	Roof Slab and Beams Reinforcement Work	10 days	Wed 10/7/15	Mon 10/19/15
66	Place Concrete For Roof Slab and Beams	2 days	Mon 10/19/15	Wed 10/21/15
67	Cure Roof Slab and Beam Concrete	10 days	Wed 10/21/15	Mon 11/2/15
68	Install Metal Roofing with All Accessories	22 days	Mon 11/2/15	Thu 11/26/15
69	Lightning Protection System for Living Quarter	10 days	Thu 11/26/15	Tue 12/8/15
70	Exterior Reinforced CMU Walls and Bond Beams	10 days	Mon 11/2/15	Thu 11/12/15
71	Construct Interior CMU Partitions for Bathrooms	10 days	Mon 11/2/15	Thu 11/12/15
72	Install Doors and Windows	10 days	Mon 11/9/15	Thu 11/19/15
73	Bathroom Terrazo Floor and Ceramic Walls	5 days	Sat 11/14/15	Wed 11/18/15
74	Interior Plastering Work	10 days	Sat 11/14/15	Tue 11/24/15
75	Cure Interior Plastering Work	15 days	Sat 11/14/15	Mon 11/30/15
76	Exterior Stucco and painting Work	10 days	Mon 11/16/15	Sat 11/28/15
77	Interior Painting Work	12 days	Mon 11/30/15	Mon 12/14/15
78	Interior Electircal Work	45 days	Sat 11/14/15	Sun 1/3/16
79	Telephone and Internet Systems for Living Quarter	5 days	Sat 11/14/15	Wed 11/18/15
80	Install all Mechanical Equipment and Accessories	25 days	Tue 11/24/15	Wed 12/23/15
81	Miscillaneaous work	6 days	Mon 12/21/15	Mon 12/28/15
82	Construction of Control Building	127 days	Thu 8/13/15	Tue 1/5/16
83	Foundation and Grad Beams Excavation	2 days	Thu 8/13/15	Sun 8/16/15
84	Install Foundation & Stem Walls' Reinforcement	5 days	Sun 8/16/15	Sat 8/22/15
85	Foundation & Stem Walls' Concrete and Curing	7 days	Sat 8/22/15	Sun 8/30/15
86	Backfill and Compact SOG Foundations	4 days	Sun 8/30/15	Thu 9/3/15
87	All Under Slab Piping Works	3 days	Sun 8/30/15	Wed 9/2/15
88	Place Slab on Grad Reinfrocement	3 days	Thu 9/3/15	Mon 9/7/15
89	Place Slab on Grad Concrete	1 day	Mon 9/7/15	Tue 9/8/15
90	Cure Slab on Grad Concrete	4 days	Tue 9/8/15	Sun 9/13/15



Tetra Tech AESP

Task	Group By Summary	External Tasks	Manual Task	Finish-only
Split	Rolled Up Task	External Milestone	Duration-only	Deadline
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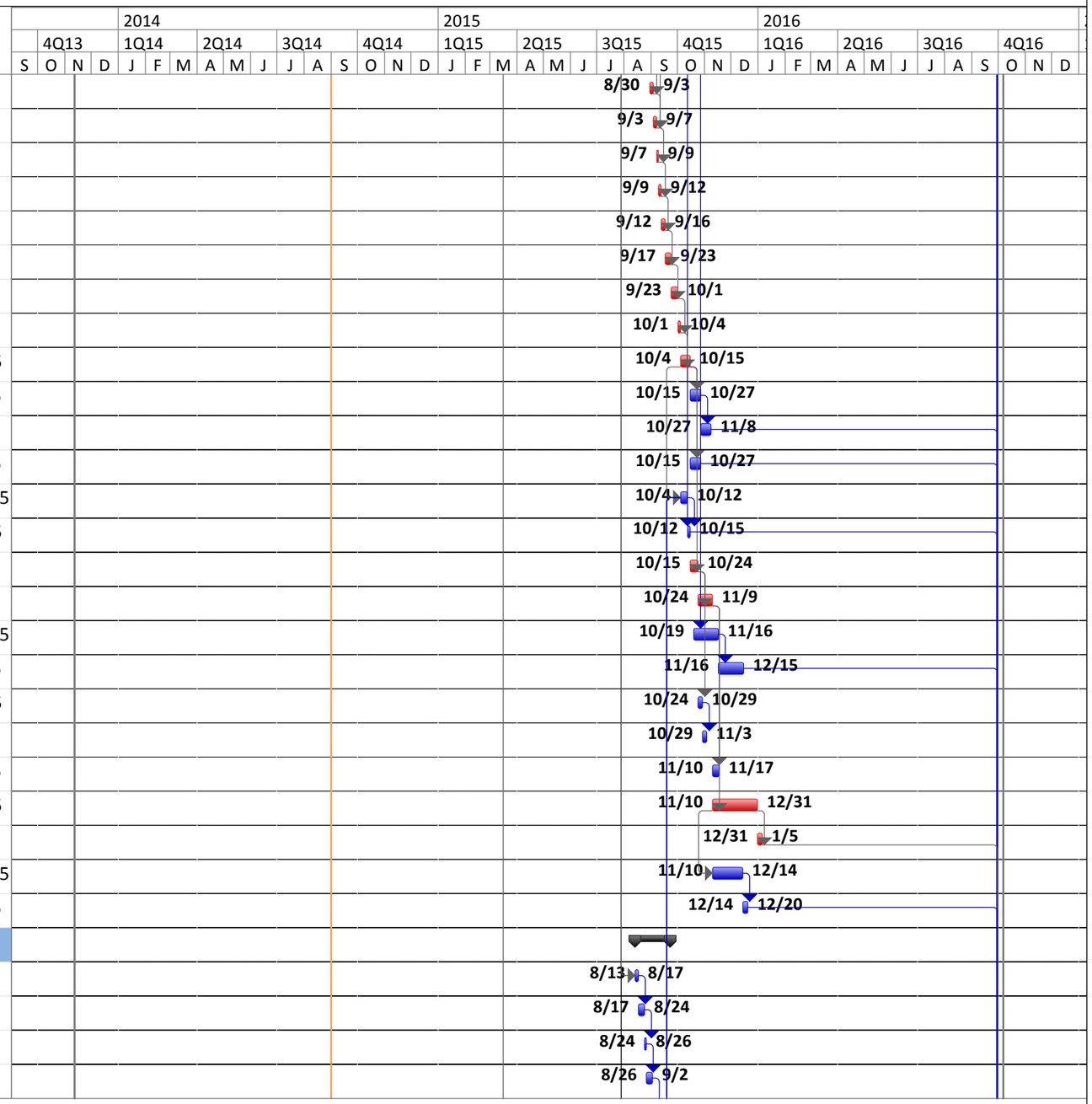
Summary	Rolled Up Milestone	Inactive Milestone	Manual Summary	Progress
Project Summary	Rolled Up Progress	Inactive Summary	Start-only	

WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

ID	Task Name	Duration	Start	Finish
91	Errect Scaffolds	4 days	Sun 8/30/15	Thu 9/3/15
92	Errect Columns' Steel	3 days	Thu 9/3/15	Mon 9/7/15
93	Form Columns	2 days	Mon 9/7/15	Wed 9/9/15
94	Pour Column Concrete	2 days	Wed 9/9/15	Sat 9/12/15
95	Cure Column Concrete & Strip Columns Forms	5 days	Sat 9/12/15	Wed 9/16/15
96	Form Ring Beams and Roof Slab	6 days	Thu 9/17/15	Wed 9/23/15
97	Roof Slab and Beams Reinforcement Work	7 days	Wed 9/23/15	Thu 10/1/15
98	Place Concrete For Roof Slab and Beams	2 days	Thu 10/1/15	Sun 10/4/15
99	Cure Roof Slab and Beam Concrete	10 days	Sun 10/4/15	Thu 10/15/15
100	Install Metal Roofing with All Accessories	10 days	Thu 10/15/15	Tue 10/27/15
101	Lightning Protection System Controll Building	10 days	Tue 10/27/15	Sun 11/8/15
102	Reinforced CMU Walls and Bond Beams	10 days	Thu 10/15/15	Tue 10/27/15
103	Bathroom's CMU Partitions and Bond Beams	7 days	Sun 10/4/15	Mon 10/12/15
104	Bathroom Terrazo Floor and Ceramic Walls	3 days	Mon 10/12/15	Thu 10/15/15
105	Interior Plastering Work	7 days	Thu 10/15/15	Sat 10/24/15
106	Cure Interior Plastering Work	15 days	Sat 10/24/15	Mon 11/9/15
107	220V - DC - Systems (2-Rectifiers) With Wiring	25 days	Mon 10/19/15	Mon 11/16/15
108	220V - DC - Systems (2-Rectifiers)	25 days	Mon 11/16/15	Tue 12/15/15
109	48V - DC - Systems (2-Rectifiers - 2-Batteries)	5 days	Sat 10/24/15	Thu 10/29/15
110	Exterior Stucco and painting Work	4 days	Thu 10/29/15	Tue 11/3/15
111	Interior Painting Work	7 days	Tue 11/10/15	Tue 11/17/15
112	Interior Electircal Work	45 days	Tue 11/10/15	Thu 12/31/15
113	Telephone and Internet Systems Controll Building	5 days	Thu 12/31/15	Tue 1/5/16
114	Install all Mechanical Equipment and Accessories	30 days	Tue 11/10/15	Mon 12/14/15
115	Miscillaneaous work	5 days	Mon 12/14/15	Sun 12/20/15
116	Retaining Walls 2 & 3	35 days	Thu 8/13/15	Tue 9/22/15
117	Foundation Excavation	3 days	Thu 8/13/15	Mon 8/17/15
118	Foundation Reinforcement	6 days	Mon 8/17/15	Mon 8/24/15
119	Foundation Concrete Work	2 days	Mon 8/24/15	Wed 8/26/15
120	Errect Wall Reinforcement	6 days	Wed 8/26/15	Wed 9/2/15



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WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

ID	Task Name	Duration	Start	Finish
121	Form Wall	4 days	Wed 9/2/15	Mon 9/7/15
122	Wall Concreting	4 days	Mon 9/7/15	Sat 9/12/15
123	Cure Wall Concrete & Strip Forms off	10 days	Sat 9/12/15	Tue 9/22/15
124	Substation Construction Work	41 days	Thu 8/13/15	Tue 9/29/15
125	Foundation Formwork	25 days	Thu 8/13/15	Sat 9/12/15
126	Foundation Reinforcement	22 days	Mon 8/17/15	Sat 9/12/15
127	Foundations Concrete Work	21 days	Thu 8/20/15	Sun 9/13/15
128	Form Concrete Pedestals and Install accessories	18 days	Thu 8/27/15	Wed 9/16/15
129	Place Concrete for Pedestals	17 days	Sun 8/30/15	Thu 9/17/15
130	Cure Pedestal Concrete	10 days	Sat 9/19/15	Tue 9/29/15
131	Site Utility Works	30 days	Sat 9/12/15	Thu 10/15/15
132	Construction of Leachfield	12 days	Sat 9/12/15	Thu 9/24/15
133	Construction of Septic tank	18 days	Sat 9/12/15	Thu 10/1/15
134	Construction of Sewer piping and Mnaholes	12 days	Thu 10/1/15	Thu 10/15/15
135	Site Electrical Trenches, Manholes and Cabling	20 days	Tue 9/22/15	Thu 10/15/15
136	**Electrical Work**	**470.5 days**	**Wed 4/1/15**	**Mon 9/19/16**
137	Substation Electrical Work	231.5 days	Sat 9/19/15	Wed 6/8/16
138	Tower Type Tap (Includes Steel and Steel Erection)	10 days	Tue 9/29/15	Sun 10/11/15
139	Danger Plate	2 days	Sun 10/11/15	Tue 10/13/15
140	Number Plate	2 days	Sun 10/11/15	Tue 10/13/15
141	Anti Climbing Device	2 days	Sun 10/11/15	Tue 10/13/15
142	Phase Plate (Set of 3)	2 days	Sun 10/11/15	Tue 10/13/15
143	Circuit Plate (Set of 1)	2 days	Sun 10/11/15	Tue 10/13/15
144	Stringing and Final Tensioning of ACSR Conductor	8 days	Sun 10/11/15	Tue 10/20/15
145	ACSR Cable Terminations	8 days	Sun 10/11/15	Tue 10/20/15
146	Stringing/Tensioning of Fiber Optic Cable (24-Strand)	8 days	Sun 10/11/15	Tue 10/20/15
147	Fiber Optic Cable Terminations	8 days	Sun 10/11/15	Tue 10/20/15
148	220kV - Dead End Insulator Assemblies w/ Hardware	8 days	Sun 10/11/15	Tue 10/20/15
149	Mono Pole Type Taps	10 days	Tue 9/29/15	Sun 10/11/15
150	M 15 PCC Works, including Form Work, etc.	10 days	Sun 10/11/15	Thu 10/22/15

Tetra Tech AESP	Task	Group By Summary	External Tasks	Manual Task	Finish-only
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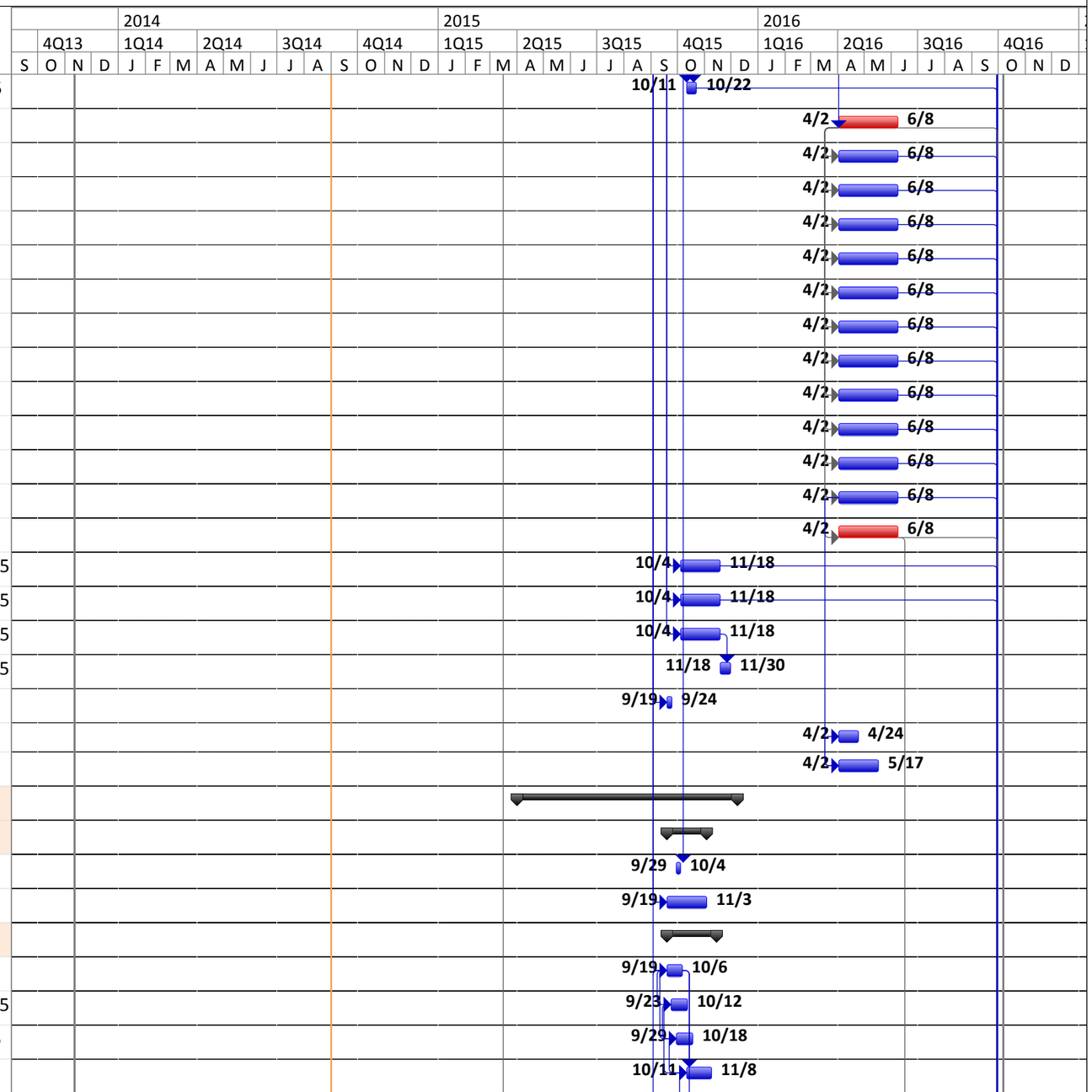
WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

ID	Task Name	Duration	Start	Finish
151	M 20 RCC Works, including Form Work, etc.	10 days	Sun 10/11/15	Thu 10/22/15
152	220kV - Surge Arrestor	60 days	Sat 4/2/16	Wed 6/8/16
153	220kV - Capacitor Voltage Transformer w/ Support	60 days	Sat 4/2/16	Wed 6/8/16
154	220kV - Aluminum Tubular Bus	60 days	Sat 4/2/16	Wed 6/8/16
155	Substation Gantries with Lightening Protection	60 days	Sat 4/2/16	Wed 6/8/16
156	220kV - Air Circuit Breaker w/ Support	60 days	Sat 4/2/16	Wed 6/8/16
157	220kV - Current Transformer w/ Support	60 days	Sat 4/2/16	Wed 6/8/16
158	220kV - Motorized Disconnect Switch	60 days	Sat 4/2/16	Wed 6/8/16
159	220kV - Surge Arrestor	60 days	Sat 4/2/16	Wed 6/8/16
160	220kV - 4 MVA Power Transformers	60 days	Sat 4/2/16	Wed 6/8/16
161	15% Extra Oil	60 days	Sat 4/2/16	Wed 6/8/16
162	Protection Panel, Duplex Type and Accessories	60 days	Sat 4/2/16	Wed 6/8/16
163	Control Panel and Accessories	60 days	Sat 4/2/16	Wed 6/8/16
164	220kV - Capacitor Voltage Transformer w/ Support	60 days	Sat 4/2/16	Wed 6/8/16
165	20kV - Metal Clad Switch Gear	40 days	Sun 10/4/15	Wed 11/18/15
166	20kV - Single Core Cable (XFMR to SWGR)	40 days	Sun 10/4/15	Wed 11/18/15
167	20kV - Single Core Cable (SWGR AUX to XFMR)	40 days	Sun 10/4/15	Wed 11/18/15
168	20kV - Termination	10 days	Wed 11/18/15	Mon 11/30/15
169	Earth Ground System	6 days	Sat 9/19/15	Thu 9/24/15
170	SCADA System	20 days	Sat 4/2/16	Sun 4/24/16
171	Control Cables and Accessories	40 days	Sat 4/2/16	Tue 5/17/16
172	Medum Voltage	220 days	Wed 4/1/15	Tue 12/8/15
173	Auxiliary Transformer	40 days	Sat 9/19/15	Tue 11/3/15
174	20kV - Aux Transformer w/ Off Load Tap	4 days	Tue 9/29/15	Sun 10/4/15
175	LV-Cables and Accessories	40 days	Sat 9/19/15	Tue 11/3/15
176	20 Kv Feeder UG - Substation To Weather Station	50 days	Sat 9/19/15	Sat 11/14/15
177	Excavation/Trenching	16 days	Sat 9/19/15	Tue 10/6/15
178	Concrete Pull-Boxes	16 days	Wed 9/23/15	Mon 10/12/15
179	Schedule 80 PVC Conduits (up to 120mm Dia)	16 days	Tue 9/29/15	Sun 10/18/15
180	Cable Installation	25 days	Sun 10/11/15	Sun 11/8/15



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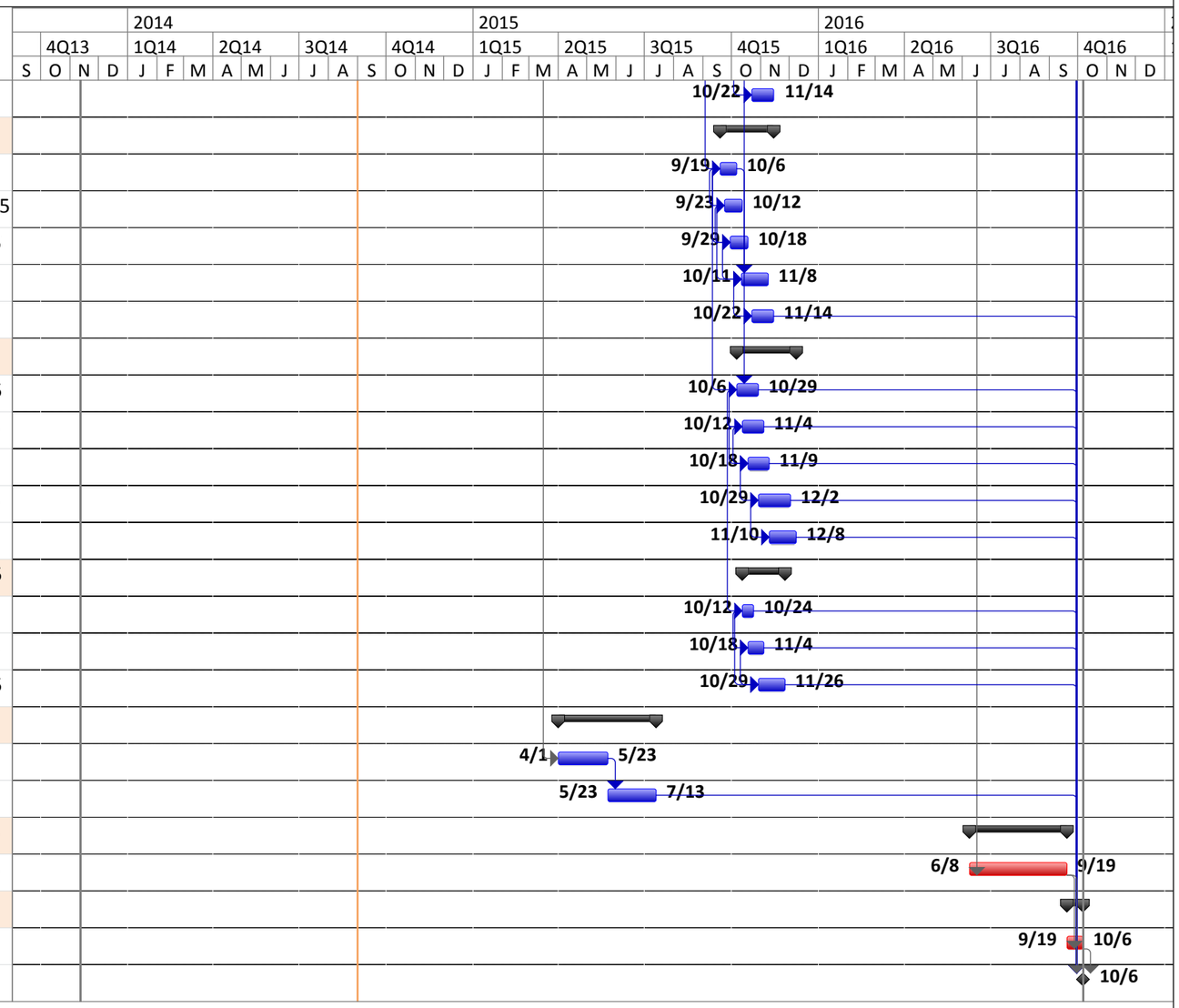
WOLT-0063 Salang Substation
Estimated Construction and Procurement Schedule

ID	Task Name	Duration	Start	Finish
181	Lean Concrete Backfill around Conduits	20 days	Thu 10/22/15	Sat 11/14/15
182	20 Kv Feeder UG - Substation to Maintenance Area	50 days	Sat 9/19/15	Sat 11/14/15
183	Excavation/Trenching	16 days	Sat 9/19/15	Tue 10/6/15
184	Pull-Boxes	16 days	Wed 9/23/15	Mon 10/12/15
185	Schedule 80 PVC Conduits (up to 120mm Dia)	16 days	Tue 9/29/15	Sun 10/18/15
186	Cable Installation	25 days	Sun 10/11/15	Sun 11/8/15
187	Lean Concrete Backfill around Conduits	20 days	Thu 10/22/15	Sat 11/14/15
188	20 Kv Feeder UG - Substation to Snow Gallery	55 days	Tue 10/6/15	Tue 12/8/15
189	Excavation/Trenching	20 days	Tue 10/6/15	Thu 10/29/15
190	Concrete Pull-Boxes	20 days	Mon 10/12/15	Wed 11/4/15
191	Schedule 80 PVC Conduits (up to 120mm Dia)	20 days	Sun 10/18/15	Mon 11/9/15
192	Cable Installation	30 days	Thu 10/29/15	Wed 12/2/15
193	Lean Concrete Backfill around Conduits	25 days	Tue 11/10/15	Tue 12/8/15
194	20 Kv Feeder OG- Snow Gallary to South Portal	40 days	Mon 10/12/15	Thu 11/26/15
195	Pull-Boxes	10 days	Mon 10/12/15	Sat 10/24/15
196	IMC Conduits with Supports (up to 150mm Dia)	15 days	Sun 10/18/15	Wed 11/4/15
197	Cable Installation	25 days	Thu 10/29/15	Thu 11/26/15
198	20 Kv Feeder System- Other Components	90 days	Wed 4/1/15	Mon 7/13/15
199	Shelter for Generators and Switchgear	45 days	Wed 4/1/15	Sat 5/23/15
200	Install Generators, ATS and MV Switchgear	45 days	Sat 5/23/15	Mon 7/13/15
201	Testing & Commissioning	90 days	Wed 6/8/16	Mon 9/19/16
202	Testing & Commissioning	90 days	Wed 6/8/16	Mon 9/19/16
203	**Project Closeout**	**15 days**	**Mon 9/19/16**	**Thu 10/6/16**
204	Pre Final Inspection and Punchlist	15 days	Mon 9/19/16	Thu 10/6/16
205	Finish Project Work	0 days	Thu 10/6/16	Thu 10/6/16



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	Split		Rolled Up Task		External Milestone		Duration-only		Deadline										
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	Summary		Rolled Up Milestone		Inactive Milestone		Manual Summary		Progress										
	Project Summary		Rolled Up Progress		Inactive Summary		Start-only												

ATTACHMENT 4

Email Dated September 7, 2014

Attachment 4

[redacted]

From: [redacted]
Sent: Sunday, September 07, 2014 10:44 AM
To: [redacted]
[redacted]
Subject: FW: GIS Substation for Salang - Update
Attachments: Vendors List -GIS.docx

All,

Please below and attached … FYI.

Thank you,

[redacted]

From: [redacted]
Sent: Sunday, September 07, 2014 9:52 AM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang - Update

Dear [redacted]

I have followed up with [redacted] who is our Procurement Expert. He has spoken to some of the shortlisted vendors (list attached). The feedback from the vendors is as follows:

1. The requirement is of relatively small nature and the information sought from them would require significant design effort for them.
2. Manufactures can supply the items , but Installation and commissioning would need to be carried out by engaging a local contracting agency.
3. Approximate manufacture and supply time is 6 to 8 Months from the date of design/drawing approval. Logistics from manufacturers' works to the project site to be arranged by local agency. Additional lead time to be considered for the logistics.
4. Chinese companies can supply in shorter period. However, reliability of equipment could be of some concern.
5. They have sought comprehensive project details.
6. They would need to spend effort in the form of man hours, but there is no guarantee that the project would eventually be considered by DABS for award of contract.

A revised enquiry is being sent to the shortlisted bidders today with comprehensive project details. The budgetary quote and the expected time frame is expected to be received from them by Sep 20, 2014. Chint Group has been included in the shortlist.

We will keep you posted on the progress.

Best regards,
[redacted]

From: [redacted]
Sent: Sunday, September 07, 2014 8:40 AM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang - Update

[redacted]

Any update relevant to the captioned?

Regards,

[redacted]

USAID | AFGHANISTAN

From: [redacted]
Sent: Thursday, September 04, 2014 10:44 AM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang - Update

Dear [redacted]

I have followed up the matter with our procurement team and we will update you on the progress soon.

Best regards,
[redacted]

From: [redacted]
Sent: 04 September 2014 07:51
To: [redacted]
[redacted]
Subject: GIS Substation for Salang - Update

[redacted]

Our meeting yesterday September 3, 2014 relevant to the captioned matter refers.

Please, find attached the CHINT Group GIS brochure and introduction for your information. Note that CHINT group works hand-in-hand with Asha Rangin company that had bidded in one of the equipment procurement contracts for the AIS system and have now offered to provide GIS system if DABS wishes so.

On the above note, we would wish you to include CHINT group in the list of potential GIS suppliers and obtain more information relevant to costs and others that you may deem necessary. CHINT group indicated that they can manufacture a 256kV GIS unit in three(3) months from the date of contract signature.

Also note that in my previous tele conversation with [redacted] dated September 1, 2014 on the same subject matter, he had indicated that he would get back to USAID and Tetratech regarding other potential GIS suppliers (ABB, SIEMENS, etc) by COB September 2, 2014. Unfortunately, he did not get back to

us with the relevant information to date. On the same note, you indicated that the potential GIS suppliers may still be in the process of preparing the necessary documentation and you shall follow it up with them.

We urge that you expedite the process of obtaining the necessary GIS information such that Tt finalizes the Technical section of the RfP (under sole sourcing procedures).

Kindly indicate a date on which Phoenix shall be able to obtain all the necessary information that is required and submit to USAID and Tt.

Regards,

[redacted]

From: [redacted]
Sent: Tuesday, September 02, 2014 4:25 PM
To: [redacted]
Cc: [redacted]
Subject: RE: GIS Substation for Salang

Dear [redacted]

Kindly find attached CHINT general catalogue for GIS electrical equipment, converting current AIS to GIS requires 7 bays 220Kv that I have indicated each bay by red frame in the drawing, the manufacturing time for these GIS electrical equipment will be three (3) months after signing the contract.

Regarding turnkey system, as it is mentioned in the catalogue as well the assembly and installation is easy and requires less maintenance, I will send you detail explanation by tomorrow.

Please let me know if you have any question.

Regards,

[redacted]

[redacted]

Subject: GIS Substation for Salang
Date: Mon, 1 Sep 2014 12:40:30 +0000

Dear [redacted]

In an email to DABS you had indicated that you could supply a GIS substation system from CHINT. Would you be so kind as to send me a copy of the CHINT catalogue for a 252 kVa GIS system. Has CHINT suggested what the manufacturing time would be for a GIS system and to what extend it is a turnkey system that can be transported to Salang in parts and assembled on site?

Thank you very much for your kind assistance,

[redacted]

SBU
This email is UNCLASSIFIED.

Vendors List for 220KV Salaang Substation-GIS

1. **M/S. KEC International Ltd.**
   RPG House, 1st Floor, 463,
   Dr. Annie Besant Road,
   Worli, Mumbai – 400030,
   India
   [redacted]

2. RGM International Group
   Street 15, Lane 3, House No-260,261,263 & 264
   Wazir Akbar Khan,
   Kabul, Afghanistan
   [redacted]

3. FEKA Construction Industry & Trade Inc
   Kemalpasa Yolu 3, Km 35170

   Zamir, Turkey

   Tel- +90-232-8771055
   Mail: feka@feka.comtr

[redacted]

4. MITAS Energy Afghanistan
   Karte Char Kabul, Afghanistan
   Phone: +93-0799181868
   [redacted]
   [redacted]

5. Maamaar International
   [redacted]
   [redacted]
   [redacted]

6. Alsthom,
   Chennai
   Mobile No Mobile No.-09958095089
7. TBEA
   TBEA Green Energy Park"
   National Highway No.8, Village Miyagam,
   [redacted]
   [redacted]

8. Areva
   Gas Insulated Substations
   421, Udyog Vihar, Phase-IV, Gurgaon - 122015, India.
   Phone: +91-124-2645000 / 2455324 / 2455325

9. Siemens

130, Pandurang Budhkar Marg,Worli,
Mumbai – 400018
Phone : +91-124-3836472
Mobile : 99100032851

10. Ashah Rangin Company Limited
ashah.rangin@outlook.com
[redacted]
Representing M/S CHINT ELECTRIC COMPANY
No.1255 Wenhe Road
Songjiang District
Shanghai-201614
P. R. China
Tel: 0086-21-67777777
Fax: 0086-21-67777999
Http://en.chintelectric.com

ATTACHMENT 5

Email Dated September 20, 2014

Attachment 5

[redacted]

From: [redacted]
Sent: Saturday, September 20, 2014 7:31 PM
To: [redacted]
[redacted]
Subject: FW: GIS Substation for Salang - Update Required

Hi [redacted],

You were not cc'd on [redacted] email below, so I am sending it to you … FYI.

Thank you,

[redacted]

From: [redacted]
Sent: Saturday, September 20, 2014 5:58 PM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang - Update Required

Dear [redacted]

You would appreciate that Phoenix is extending this support for identification of GIS vendors on specific request of USAID, even though as per our experts, it does not appear to be the most optimum solution.

We have contacted several vendors, some of whom have declined to provide the information sought from them in such a short time. Further, most of them (including Siemens and Alstom) need time to discuss internally, if they would be willing to work in Afghanistan. After numerous interactions with the potential vendors, we feel that they may not be keen to participate in the project due to: (i) relatively small value of the project, (ii) difficult terrain, and (iii) lack of willingness to work in a conflict zone.

We will send you a detailed status on the responses received from the vendors contacted so far. In the meanwhile, please understand that you cannot hold Phoenix responsible for the delays, since the reasons are beyond our control. We cannot help unless the vendors respond to our request.

We will keep you posted, even without your reminders, as soon as we have some positive response from the vendors.

Best regards,
[redacted]

From: [redacted]
Sen[redacted]
[redacted]
[redacted]
Subject: GIS Substation for Salang - Update Required
Importance: High

Mr. [redacted]

As per your email below (Sept 4, 2014) and according to information received from the Tetratech team, Phoenix team is scheduled to provide an update on the GIS manufacturers proposals in detail by COB today September 20, 2014.

Please, provide the same as scheduled such that Tt can start preparations of the relevant RfP for GIS equipment design & manufacturing.
As previously informed, USAID is very much interested in quick and qualitative solution in order to provide electric power to Salaang tunnel before the end of the 2015 construction season(Summer/Fall 2015).

Regards,

[redacted]

[redacted]

From [redacted]
Sent: Thursday, September 04, 2014 10:44 AM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang - Update

Dear [redacted]

I have followed up the matter with our procurement team and we will update you on the progress soon.

Best regards,
[redacted]

From: [redacted]
Sent: 04 September 2014 07:51
To: [redacted]
[redacted]
Subject: GIS Substation for Salang - Update

Mr. [redacted]

Our meeting yesterday September 3, 2014 relevant to the captioned matter refers.

Please, find attached the CHINT Group GIS brochure and introduction for your information. Note that CHINT group works hand-in-hand with Asha Rangin company that had bidded in one of the equipment procurement contracts for the AIS system and have now offered to provide GIS system if DABS wishes so.

On the above note, we would wish you to include CHINT group in the list of potential GIS suppliers and obtain more information relevant to costs and others that you may deem necessary. CHINT group indicated that they can manufacture a 256kV GIS unit in three(3) months from the date of contract signature.

Also note that in my previous tele conversation with [redacted] dated September 1, 2014 on the same subject matter, he had indicated that he would get back to USAID and Tetratech regarding other potential GIS suppliers (ABB, SIEMENS, etc) by COB September 2, 2014. Unfortunately, he did not get back to us with the relevant information to date. On the same note, you indicated that the potential GIS suppliers may still be in the process of preparing the necessary documentation and you shall follow it up with them.

We urge that you expedite the process of obtaining the necessary GIS information such that Tt finalizes the Technical section of the RfP (under sole sourcing procedures).

Kindly indicate a date on which Phoenix shall be able to obtain all the necessary information that is required and submit to USAID and Tt.

Regards,

[redacted]

From: [redacted]
Sent: Tuesday, September 02, 2014 4:25 PM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang

Dear [redacted],

Kindly find attached CHINT general catalogue for GIS electrical equipment, converting current AIS to GIS requires 7 bays 220Kv that I have indicated each bay by red frame in the drawing, the manufacturing time for these GIS electrical equipment will be three (3) months after signing the contract.

Regarding turnkey system, as it is mentioned in the catalogue as well the assembly and installation is easy and requires less maintenance, I will send you detail explanation by tomorrow.

Please let me know if you have any question.

Regards,

[redacted]

From: [redacted]
[redacted]
[redacted]
Subject: GIS Substation for Salang
Date: Mon, 1 Sep 2014 12:40:30 +0000

Dear [redacted]

In an email to DABS you had indicated that you could supply a GIS substation system from CHINT. Would you be so kind as to send me a copy of the CHINT catalogue for a 252 kVa GIS system. Has CHINT suggested what the manufacturing time would be for a GIS system and to what extend it is a turnkey system that can be transported to Salang in parts and assembled on site?

Thank you very much for your kind assistance,

[redacted]

SBU
This email is UNCLASSIFIED.

ATTACHMENT 6

Email Dated September 11, 2014

Attachement 6

[redacted]

[redacted]
Sent: Thursday, September 11, 2014 3:34 PM
To: [redacted]
Subject: FW: Mobile Substation Technology

Is this what you are looking for…????

From: [redacted]
Sent: Wednesday, January 29, 2014 2:03 PM
To: [redacted]
[redacted]
Subject: Re: Mobile Substation Technology

Lead time is the killer. GIS (SF6 gas insulated 220kV switchgear) is the technology used. I spoke to the main Siemens GIS rep last week and he quoted a 10 month lead time after receipt of confirmed order which means after final drawing release. That puts you out to probably a year and 3 months after dabs procurement. Seems dabs is still not too excited about it.

Thanks,

[redacted]

On Jan 29, 2014, at 4:23 AM, [redacted] wrote:

FYI

From: [redacted]
Sen[redacted]
[redacted]
[redacted]
Subject: RE: Mobile substation technology

[redacted]

[redacted],

This is good, fast , reliable and compact but not for Afghanistan.
The reasons are:

1- Too expansive
2- Sophisticate
3- Not matching with other installed SS equipments
4- And etc.

[redacted]

From: [redacted]
Sent: Tuesday, January 28, 2014 6:01 PM
To: [redacted]
Subject: FW: Mobile substation technology

All,

I found this from last year. Please let me know if this might save time.

BR,

[redacted]

[redacted]

SBU
This email is UNCLASSIFIED.

From: [redacted]
Sent: Thursday, February 21, 2013 4:13 PM
To: [redacted]
[redacted]
Subject: Mobile substation technology

[redacted]

I do not have a specification for a mobile substation, but I have personally specified a mobile substation when I was working for a utility in Florida.

There are two manufactures of mobile substations in the US are ABB and Siemens (that I have worked with in the past). Although they may not be manufactured in the US they are available in the US. If I recall correctly, the Florida utility had two system voltages for transmission, 115 and 69kV. I specified the mobile substation with dual voltage high side so it could be used on either transmission voltage class. Although the highest voltage in AFG is currently 220kV, I would imagine the best course of action would be to investigate if a 220kV mobile substation is possible and if a dual rated high voltage transformer (220/110kV) could work too.

Sorry I didn't have more information.

[redacted]

ATTACHMENT 7

Email Dated September 21, 2014

Attachment 7

[redacted]

From: [redacted]
Sent: Sunday, September 21, 2014 10:25 AM
To: [redacted]
[redacted]
Subject: RE: GIS Substation for Salang - Meeting Request

Hi [redacted]

We will be ready to discuss the GIS value engineering approach with you tomorrow at our regular weekly meeting with the COR.

Thank you,

[redacted]

From: [redacted]
Sent: Sunday, September 21, 2014 8:11 AM
To: [redacted]
[redacted]
Subject: GIS Substation for Salang - Meeting Request

Good Morning Eng. Shekeeb,

It would seem like only five (5) companies responded with a reply to Phoenix's request(highlighted). In preliminary analysis of the companies that responded, we know that some are not actual GIS manufacturers.

It would then be appropriate if DABS sent actual RfPs to the companies that responded after Tt has done its work of producing the necessary technical requirements.

[redacted] Is it possible to meet during the week to discuss the subject matter in more detail?

[redacted]: Let's discuss the issue briefly during the weekly meeting today at 11:00am.

Sl. No.	Name of the Vendor/Agency/Embassy	Date of Request sent	Reply received YES/NO	Remarks
1	M/s KEC International Ltd., India	07.09.14	YES	Discussed in person at DABS - Expressed concern over the project being small in nature and also of difficult terrain
2	M/s RGM Internation/ABB, Kabul	07.09.14	NO	
3	M/s FEKA Construction Industry & Trade Inc. Turkey	07.09.14	NO	
4	M/s MITAS Energy Afghanistan, Kabul	07.09.14	NO	
5	M/s Mamaar International, Kabul	07.09.14	YES	Replied on 14.09.14 - Stated that the proposal is sent to Technical team and will revert. But no info received so far.

6	M/s Alstom, India	07.09.14	YES	On 09.09.14 received mail stating "*Need your confirmation that GIS product from India is acceptable. Other alternate is from France, but then the offer will be coordinated by team in Dubai*" for which replied that "*acceptable from anywhere as long as they conform to standards*" On 19.09.14 - received mail stating "*With respect to internal rules and sensitivity of project location, we have to investigate internally whether we can support for this project or not.I will inform you about our position asap*."
7	M/s TBEA, India	07.09.14	NO	
8	M/s Siemens, Kabul	07.09.14	YES	Forwarded internally for attending our query - But no info received so far.
9	M/s Ashah Rangin Company Ltd. Representing Chint Electric Co. China	07.09.14	YES	On 15.09.14 the firm expressed concern over the earlier Bid submitted for AIS in March. Expressed displeasure over the uncertainity of the project. Did not clearly specify whether they are interested or not.
10	The Embassy of Iran	14.09.2014	NO	
11	The Embassy of United Kingdom	14.09.2014	NO	
12	The Emabssy of USA	14.09.2014	NO	
13	The Embassy of Pakistan	14.09.2014	NO	
14	The Embassy of Spain	14.09.2014	NO	
15	The Emabssy of Netherlands	14.09.2014	NO	
16	The Embassy of India	14.09.2014	NO	
17	The Embassy of Canada	14.09.2014	NO	

18	The Embassy of Italy	14.09.2014	NO	
19	The Embassy of China	14.09.2014	NO	
20	The Embassy of Tajikistan	14.09.2014	NO	

Regards,

[redacted]

From: [redacted]
Sent: Saturday, September 20, 2014 9:56 PM
To: [redacted]
Subject: FW: GIS Substation for Salang - Update Required

Dear [redacted]

I am enclosing the status of the responses received from various vendors. The enquiry was also sent to the Embassies of some countries to circulate it amongst the vendors. Their names are mentioned in the status table.

Best regards,
Siddhartha

From: [redacted]
Sent: 20 September 2014 17:58
To: [redacted]
Subject: RE: GIS Substation for Salang - Update Required

Dear [redacted]

You would appreciate that Phoenix is extending this support for identification of GIS vendors on specific request of USAID, even though as per our experts, it does not appear to be the most optimum solution.

We have contacted several vendors, some of whom have declined to provide the information sought from them in such a short time. Further, most of them (including Siemens and Alstom) need time to discuss internally, if they would be willing to work in Afghanistan. After numerous interactions with the potential vendors, we feel that they may not be keen to participate in the project due to: (i) relatively small value of the project, (ii) difficult terrain, and (iii) lack of willingness to work in a conflict zone.

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Best regards,
[redacted]

From: [redacted]
Sent: 20 September 2014 11:27
To: [redacted]
[redacted]
Subject: GIS Substation for Salang - Update Required
Importance: High

Mr. [redacted]

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Please let me know if you have any question.

Regards,

[redacted]

From: [redacted]
[redacted]
[redacted]
Subject: GIS Substation for Salang
Date: Mon, 1 Sep 2014 12:40:30 +0000

Dear [redacted]

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Thank you very much for your kind assistance,

[redacted]

SBU
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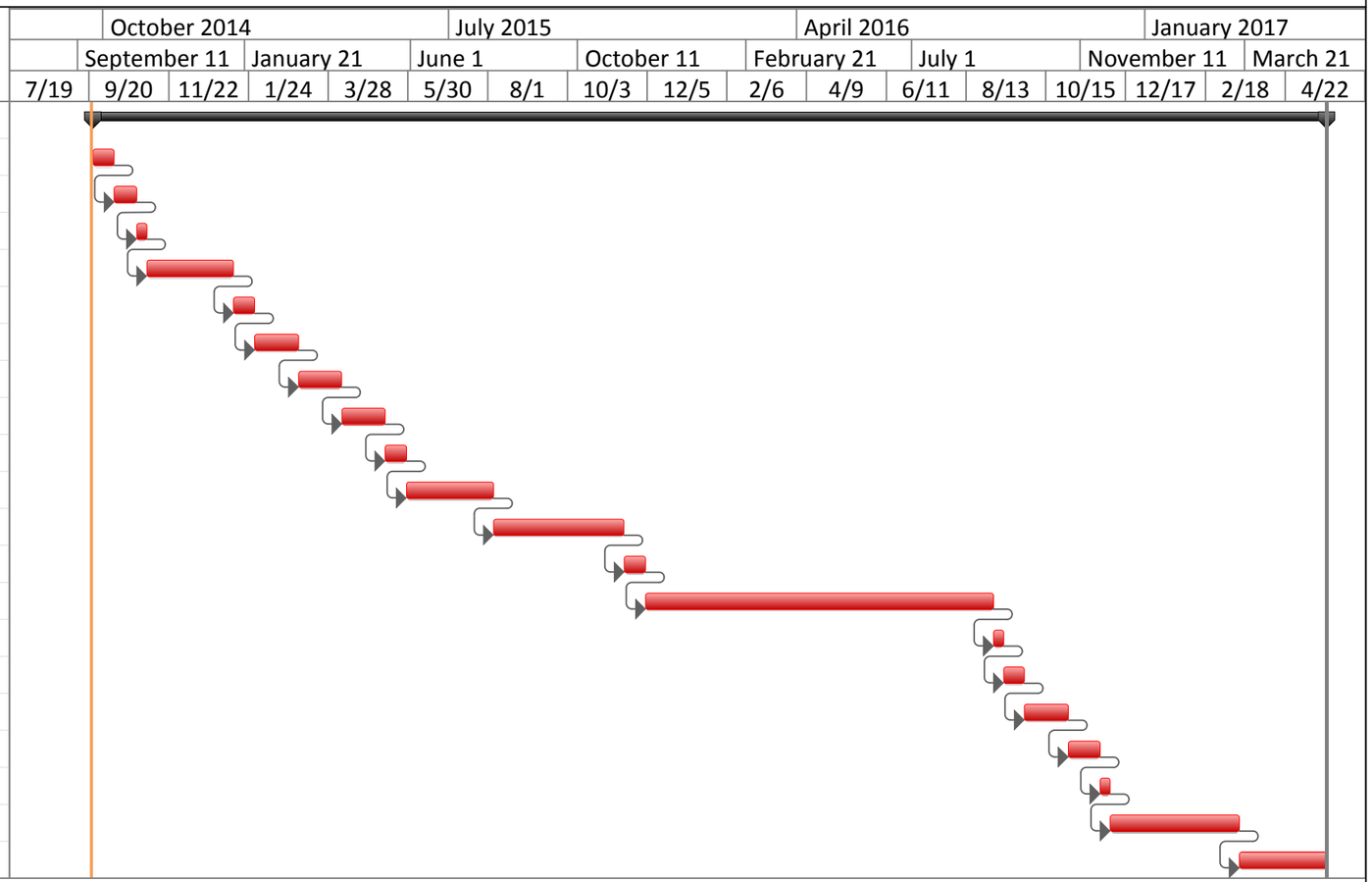
ATTACHMENT 8

GIS Schedule

WOLT-0063 Salang Substation
Estimated GIS Construction and Procurement Schedule

ID	Task Name	Duration
1	**Salang Substation GIS Project Implementation Schedule**	**853 days**
2	Develop Scope of Revised Design for GIS Equipment & Location	15 days
3	Prepare SOW/ROM for AMD 7	15 days
4	NTP for SOW/ROM	7 days
5	Develop Revised Design and GIS Equipment Specifications	60 days
6	Prepare RFP	15 days
7	Issue RFP for Pricing	30 days
8	Vendor Proposal Development	30 days
9	DABS/USAID Evaluation of Vendor Proposal	30 days
10	Technical Review of Vendor Proposal	15 days
11	Award Sole Source Contract	60 days
12	Vendor Shop Drawings Development	90 days
13	Technical Review/Approval of Shop Drawings	15 days
14	Manufacture of GIS Equipment	240 days
15	DABS Acceptance Inspection/Testing	7 days
16	Package to Ship	15 days
17	Shipping to Karachi	30 days
18	Customs Clearance & Ship to Kabul	22 days
19	Ship to Site	7 days
20	Installation	90 days
21	Start-Up and Commissioning	60 days



Tetra Tech AESP

Task	Rolled Up Task	Inactive Task	Manual Summary		
Split	Rolled Up Critical Task	Inactive Milestone	Start-only		
Milestone	Rolled Up Milestone	Inactive Summary	Finish-only		
Summary	Rolled Up Progress	Manual Task	Deadline		
Project Summary	External Tasks	Duration-only	Critical Task		
Group By Summary	External Milestone	Manual Summary Rollup	Progress		

ATTACHMENT 9

Notes of Conference Dated September 25, 2014

Prepared for: USAID FROM THE AMERICAN PEOPLE

Prepared By:
Tetra Tech, Inc.
Afghanistan Engineering Support Program

Notes of Conference

140925 WOLT0048 AMD4, AMD5, AMD6, WOLT0059 AMD3 and WOLT0063 Notes of Conference - AY

Date: September 25, 2014 Location: USAID

Subject: WOLT0048 AMD4, AMD5, AMD6, WOLT0059 AMD3 and WOLT0063

Attendees

[redacted]	USAID Program Manager
	USAID
	USAID
	USAID
	USAID
	USAID
	USAID
	AESP Energy Sector Lead
	AESP Project Engineer

1. The meeting started at 10:00 am local time.
2. The attendees discussed different topics as follows:
   - WOLT0048 AMD4
     i. Tt briefed USAID on the schedule. Attached is updated schedule for NEPS/SEPS Connector including Substations, Transmission Lines, and Reactive Power Compensation systems for Kabul and Kandahar.

     ii. Tt stated that each substation in AMD4 has RPC and only Kandahar East (KE) has RPC and SVC. The SVC in KE could be issued as an AMD of LT0048 or a separate RFP. If KE SVC becomes part of LT0048 as AMD, then it might delay the bid documents preparation by up to 60 to 90 days, according to Tt reachback (RB) information. RFP documents and schedule will reflect this information.

     iii. USAID will talk with DABS regarding the distribution kits for the five substations. USAID stated that the procurement of distribution kits could likely be executed under the commercialization contract.

     iv. USAID is eager to deal with only one contractor. Therefore the bidders for AMD4 should be modified to incorporate the RPC system at Kandahar East as part of substation design and construction.

- WOLT0048 AMD5
  i. Tt briefed USAID on the schedule.
  ii. Tt presented USAID with a draft pricing sheet. The pricing sheet will be finalized after Power Reachback (RB) reviewed it.
  iii. USAID requested developing a SOW/ROM for 110kV T/L, 80km, single circuit, on single pole transmission line from Kandahar East to Maiwand, where JPIO is likely to build 110kV substation. This work could either become AMD7 of LT0048 and incorporated into the T/L RFP, or a separate RFP package.

- WOLT0048 AMD6
  i. Tt briefed USAID on the schedule.
  ii. Location of the Kabul RPS system was reviewed, and DABS recommendation is to locate at Chimtala SS, which would displace existing 30 residences. USAID suggested including price for 20kV distribution system, water well, and septic system for the relocated buildings.
  iii. Some of USAID colleagues think that relocating and building residence apartment buildings might be in conflict with USAID policies. However, in this work order construction of residence buildings is part of major tasks as deemed appropriate for WOLT0048 AMD 6.
  iv. USAID suggested that they will negotiate with CO and will inform Tt and DABS on the final decision on building new residence. The possibility of DABS in kind contribution was also discussed and could be an option.

- WOLT0059 AMD 3
  i. Tt briefed USAID on the schedule and work progress of assessment of Kabul North, Kabul Northwest, and MW Radio Substations. Recommendations and cost estimates are anticipated by mid-November.

- WOLT0063
  i. The status of Pre-purchase I and II was discussed.
  ii. Tt presented USAID with GIS procurement and construction schedule, which is attached
  iii. The GIS schedule was prepared based on the recent information from Phoenix and estimated duration of sequential activities.
  iv. The schedule shows 800+ days of construction period, which is more than AIS construction period. As a result, the GIS construction is expected to take more time and more money than the current AIS design.
  v. USAID requested justification on the schedule and indicated that after receiving the justification, they will finalize the Pre-purchase I and II and will release Construction Contract for AIS.

3. The meeting was concluded at 12:00 PM local time.