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Addendum No. 9

OWNER: Delaware Army National Guard (DEARNG)

PROJECT: **DESIGN-BUILD PROJECT – BETHANY BEACH TRAINING SITE (BBTS)
TRANSIENT TRAINING OFFICER QUARTERS**

LOCATION: Bethany Beach, Delaware

DEARNG Contract No.: 2020-16
National Guard PN No: 100103

Tt Project No. 213-76984-22001

Addendum No. 09
to
RFP Bridging Documents
January 9, 2024

To: ALL BIDDERS

This ADDENDUM forms a part of the BIDDING AND CONTRACT DOCUMENTS and modifies the following documents:

Original RFP DRAWINGS dated June 20, 2023
RFP MANUAL dated June 20, 2023

Acknowledge receipt of the ADDENDUM in the space provided on the FORM OF PROPOSAL.

This ADDENDUM consists of two (2) pages and the following:

9.1 GENERAL

- A. All questions and to purchase the RFP package, please email Tabi Heath at Tetra Tech tabi.heath@tetrattech.com. Please also copy the following addresses: michael.berninger@tetrattech.com, chuck.dobbs@tetrattech.com, tt-projectadmin@tetrattech.com.
- B. Critical Dates:
1. **Bid Due Date: CHANGED: Wednesday, February 28, 2024 @1:00pm.**
 2. Cut off for questions and clarifications: Thursday, February 8, 2024, by COB (EST).

9.2 REQUEST FOR PROPOSAL (RFP) & SCOPE OF WORK (SOW) MODIFICATIONS

- A. Entire Document: Sheet pages 231, 249, 282, 309, 499,584, 612 and 995.
1. Delete all references for the requirement to provide Fire Extinguishers. Fire Extinguishers will be provided and installed by the Government.

B. Div 01 – General Requirements

1. 01 02 00.00 48 Statement of Work

- a. Part 06- Architecture, page 6 (sheet no 278), Paragraph 6.4.3.1: **REPLACE** the first sentence with the following sentence: “The roof system shall have a 25-year non-prorated, no leak warrantee covering the material, the exposed finish and weather-tightness.”

2. 01 03 00.00 Statement of Work – Attachments

- a. **ADD** Attachment M - Preliminary Life Cycle Cost Analysis: Mechanical system and Power System, attached to this Addendum. .

9.3 DRAWING MODIFICATIONS - N/A

9.4 QUESTIONS/CLARIFICATIONS

Question No.1:

Question: If the Design-Build (DB) team chooses to submit a design that does not deviate from the concept drawings provided in the bridging documents, do the submission drawings need to be on the Design Partner’s title block?

Response: Yes - Since the DB team’s design partner, will be the designers of record all drawings produced by the DB team must be on the Design Partner’s title block.

Question No. 2:

Question: What is the acronym UMCS that is included in the RFP under section 2.3.1.2 (h)4

Response: This acronym stands for “Utility Monitoring and Control Systems,” which is further clarified as in the following paragraph: (Sheet 802) - Division 01- General Requirements, 01 0300.00- Statement of Work, Attachment I – The DE Army Guard Design & Submittal Requirements Manual, Chapter 7 - HVAC, Plumbing & Fire Protection, Paragraph 7.3.1.h HVAC Design analysis.

ATTACHMENTS

01 03 00.00 Statement of Work – Attachment M: Preliminary LCCA- Mech & Power

END OF ADDENDUM No. 9

CC: all plan holders

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Per ASHRAE 189.1, 7.4.1.1, at least 32 kWh/m² of on-site renewable energy per year is required.

$$32 \text{ kWh/m}^2 = 2.973 \text{ kWh/ft}^2$$

$$\text{Total Square Footage} = 17,280 \text{ ft}^2$$

Yearly minimum kWh required

$$2.973 \text{ kWh/ft}^2 * 17,280 \text{ ft}^2 = 51,373 \text{ kWh}$$

Per attached PV Watts Calculation from NREL:

DC system Size: 38 kW

Commercial Electricity Rate: 0.1164 \$/kWh (Assumed per averages)

System Output: 52,062 kWh/yr

Per SAM 2018.11.11

Selected Module: SunPower SPR – E19 – 310 – COM

Selected Inverter: SolarEdge Technologies Ltd: SE30KUS [480V]

Array Size: 38 kWdc

DC to AC Ratio: 1.3

Number of Modules: 126

Number of Strings: 9

Total Module Area: 2,212 ft²

Total Direct Cost: \$165,834.69

Total Indirect Cost: \$6,643.39

Sales Tax Cost: \$8,291.73

Total Installed Cost: \$180,769.81

Annual O&M Fixed Cost by Capacity: \$500



Cautio: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at //sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts® Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

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The energy output range is based on analysis of 30 years of historical weather data, and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

52,062 kWh/Year*

System output may range from 49,750 to 53,488 kWh per year near this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)
January	2.87	2,822
February	3.97	3,492
March	4.81	4,580
April	5.87	5,267
May	6.25	5,629
June	6.33	5,434
July	6.42	5,565
August	5.92	5,186
September	5.11	4,416
October	4.30	3,983
November	3.27	3,039
December	2.74	2,649

Annual	4.82	52,062
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Location and Station Identification

Requested Location	bethany beach, deleware	
Weather Data Source	Lat, Lng: 38.53, -75.06	0.6 mi
Latitude	38.53° N	
Longitude	75.06° W	

PV System Specifications

DC System Size	38 kW
Module Type	Standard
Array Type	Fixed (open rack)
System Losses	15.81%
Array Tilt	20°

Performance Metrics

DC Capacity Factor	15.6%
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NIST BLCC 5.3-22: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Non- PV

Alternative: PV

General Information

File Name:	C:\Users\jesse.harlan\OneDrive - Tetra Tech, Inc\Documents_My Documents\Projects\BBTS Transient Training Officer's Barracks\Calcs\PV\LCCA.xml
Date of Study:	Tue Dec 19 14:06:11 CST 2023
Project Name:	Bethany Beach Barracks
Project Location:	Delaware
Analysis Type:	MILCON Analysis, Energy Project
Analyst:	JGH
Base Date:	April 1, 2024
Beneficial Occupancy Date:	April 1, 2024
Study Period:	40 years 0 months (April 1, 2024 through March 31, 2064)
Discount Rate:	3%
Discounting Convention:	Mid-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	\$0	\$180,770	-\$180,770
Future Costs:			
Energy Consumption Costs	\$134,068	\$0	\$134,068
Energy Demand Charges	\$0	\$0	\$0
Energy Utility Rebates	\$0	\$0	\$0
Water Costs	\$0	\$0	\$0
Routine Recurring and Non-Recurring OM&R Costs	\$0	\$20,000	-\$20,000
Major Repair and Replacements	\$0	\$180,770	-\$180,770
Residual Value at End of Study Period	\$0	\$0	\$0
	-----	-----	-----
Subtotal (for Future Cost Items)	\$134,068	\$200,770	-\$66,702
	-----	-----	-----
Total PV Life-Cycle Cost	\$134,068	\$381,540	-\$247,471

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	\$114,068
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- Increased Total Investment \$361,540

Net Savings −\$247,471

Savings-to-Investment Ratio (SIR)

SIR = 0.32

SIR is lower than 1.0; project alternative is not cost effective.

Adjusted Internal Rate of Return

AIRR = 0.07%

AIRR is lower than your discount rate; project alternative is not cost effective.

Payback Period

Estimated Years to Payback (from beginning of Beneficial Occupancy Period)

Simple Payback never reached during study period.

Discounted Payback never reached during study period.

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy	-----Average	Annual	Consumption-----	Life-Cycle
Type	Base Case	Alternative	Savings	Savings
Electricity	52,062.0 kWh	0.0 kWh	52,062.0 kWh	2,082,337.5 kWh

Energy Savings Summary (in MBtu)

Energy	-----Average	Annual	Consumption-----	Life-Cycle
Type	Base Case	Alternative	Savings	Savings
Electricity	177.6 MBtu	0.0 MBtu	177.6 MBtu	7,105.2 MBtu

Emissions Reduction Summary

Energy	-----Average	Annual	Emissions-----	Life-Cycle
Type	Base Case	Alternative	Reduction	Reduction
Electricity				
CO2	20,404.10 kg	0.00 kg	20,404.10 kg	816,108.09 kg
SO2	5.44 kg	0.00 kg	5.44 kg	217.41 kg
NOx	8.81 kg	0.00 kg	8.81 kg	352.36 kg

Total:				
CO2	20,404.10 kg	0.00 kg	20,404.10 kg	816,108.09 kg
SO2	5.44 kg	0.00 kg	5.44 kg	217.41 kg
NOx	8.81 kg	0.00 kg	8.81 kg	352.36 kg