STATEMENT OF WORK FOR THE

ACQUISITION AND CONTRUCTION OF

ONE CONCRET PAD TO INSTALL ONE 3K

GALLON BULK LIQUID NITROGEN TANK

AND ONE NEW

VAPORIZER

JOE SANTOS

CODE 553

FEBRUARY 2013.

TABLE OF CONTENTS

1. SCOPE

2. GENERAL OBJECTIVES

3. GENERAL REQUIREMENTS

6. STANDARDS COMPLIANCE

7. CERTIFICATIONS

9. TESTING

12. SELECTION CRITERIA

ACRONYMS

ACRONYM	DEFINITION
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CGA	Compressed Gas Association
CO	Contracting Officer
COTR	Contracting Office Technical Representative
GFE	Government Furnished Equipment
MAWP	Maximum Allowed Working Pressure
NASA/GSFC	National Aeronautic and Space Agency/Goddard Space Flight Center
psig	pounds per square inch gauge
Ra.	The average measurement of the relative surface roughness on the interior of a pipe.
SS	Stainless Steel
UHP	Ultra High Purity
SFCH	Standard Cubic Foot per Hour
SOW	Statement of Work

STATEMENT OF WORK

1. SCOPE OF WORK

The Contractor shall provide all the labor, materials, equipment, services and facilities necessary to design and construct the concrete pad as well as install one (1)Bulk Liquid Nitrogen Tank on the east side of Building 11. The Contractor shall procure and install a new vaporizer, connect it to the tank and to the existing building gaseous nitrogen system.

2. GENERAL OBJECTIVES

This acquisition is for the Code 553, Detector System Branch at GSFC with the objective to provide sufficient supply of gaseous nitrogen to Building 11. The building at this time uses one 500 gallon tank which has to be filled several times per week, and if one delivery is missed the tank will go empty. This will negatively affect several labs that handle flight hardware. The installation of the existing GFE 3K gallon tank in B11 will provide a larger volume and the building will use the smaller existing tank as a backup.

3. GENERAL REQUIREMENTS

i. The contractor shall provide a Civil P.E. stamped design and build one (1) concrete pad to accommodate one (1) 3K gallon liquid nitrogen tank and one (1) 5K gallon vaporizer. The Contractor shall design and build the pad in accordance with all Federal, State and local codes; in addition the Contractor shall follow NASA-GSFC construction guidelines.

ii. The Contractor shall place the Government owned tank on the pad, secure and make the necessary connections to the vaporizer and to the building gaseous nitrogen system.

iii. The Contractor shall provide all the necessary documentation, such as design and shop drawings, lifting plans, safety plans prior to commencing the work for the Government approval.

iv. The Contractor shall provide bollards (4'-6" above ground height and 4' below ground, 8" diameter concrete filled schedule 40 steel pipe and spaced no more than 5' apart around the pad) for protection of the concrete pad, tank and vaporizer as a part of the design and shop drawings and will build them as part of the construction. Please follow

Figure 1 drawing specification below for construction details but follow bollard size dimensions as provided in this scope of work.

v. The Contractor shall replace no parking lines around the concrete pad in accordance with the GSFC standard. No parking lines shall be solid yellow, 4" width, diagonally spaced 35" apart.
vi. The contractor shall connect the fill line to the existing tank, and provide mounting brackets to secure the same, anchoring it to the concrete pad.
vii. The contractor shall provide one (1) isolation valve after the vaporizer.
viii. The contractor shall provide and install one (1) check valve to prevent pressure from the building system from backing into the vaporizer.
ix. The contractor shall use stainless steel, electropolished tubing for all new installations.
x. All plumbing components used shall be cleaned for oxygen use.
xi. The UHP vaporizer shall be constructed and cleaned for oxygen use,
xii. The vaporizer shall provide 5,000 SCFH.
xiii. The vaporizer piping shall be configured for easy connection with the tank in this procurement,
xiv. The contractor shall supply the quality of products described above and elsewhere in this contract, but may recommend alternatives to improve the product for the consideration of and acceptance by the Government.
xv. The contractor shall cover and repaint the existing lettering on the existing 6K gallon tank.

4. STANDARDS COMPLIANCE

i. The system shall meet all the applicable federal, state and local codes that specify criteria for the Cryogenic Nitrogen System indentified in this Statement of Work.

5. CERTIFICATIONS

Before the commencement of the fabrication of the systems specified in this SOW, the contractor shall submit to the Government for approval drawings of the systems offered, a parts list of the materials and equipment to be used and warranties of the parts; with Certifications of Compliance attesting that all materials used meet the requirements of this statement of work.

6. TESTING

The following test reports/certifications shall be submitted to the Government when the system is accepted:

i. Compaction testing for soil and base materials for the concrete pad.
ii. Concrete testing shall be accomplished in accordance with the GSFC Construction standards. Test cylinders will be cured on site and tests accomplished at 7 and 28 days and submitted for approval.
iii. Pressure tests – shall state date-time-temperature conditions and the various standards pressures tested.
iv. The test pressure shall be one and half times the MAWP of the system.
v. The UHP vaporizer shall be leak tested to the same standards of the liquid nitrogen tank.
vi. The system shall hold the pressure without variations for twenty four hours.

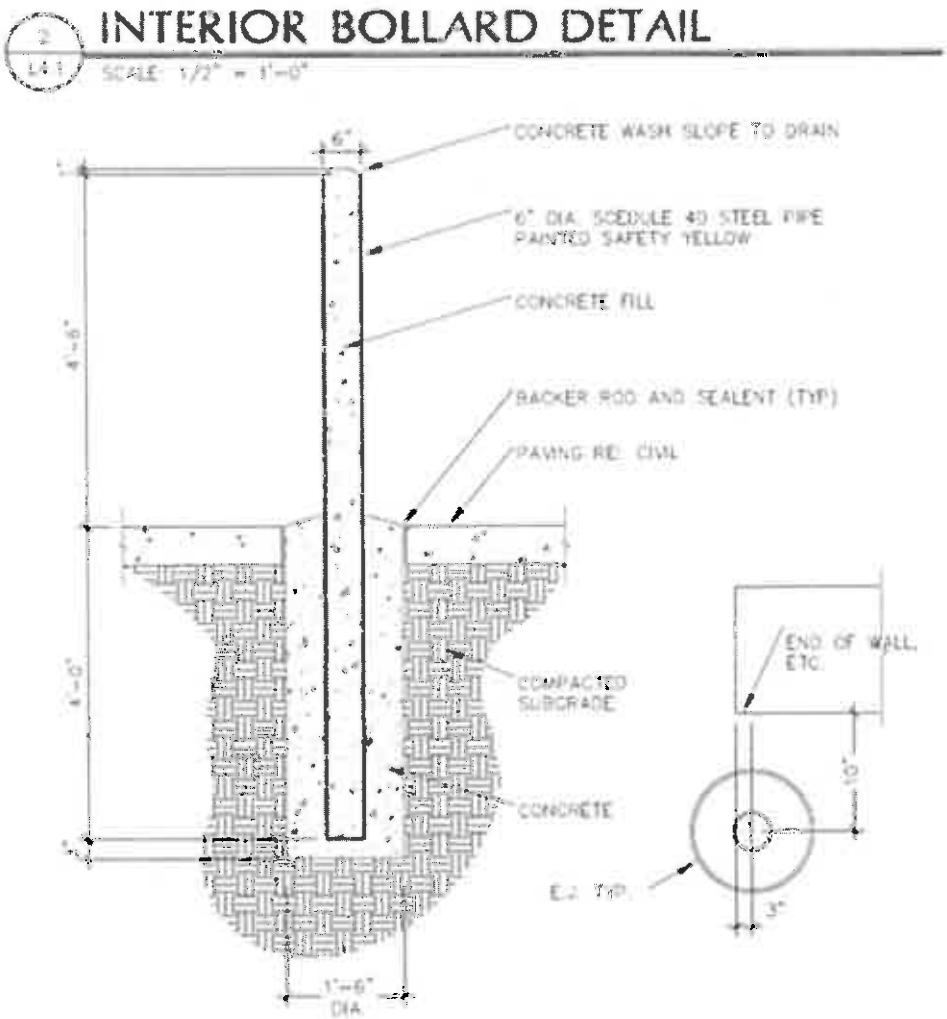
7. SELCTION CRITERIA

NASA/ GSFC is procuring this contract on a competitive basis.

i. The contractor shall provide references of previous installed systems in a similar facility.
ii. The contractor must have at least five (5) years of verified experience installing such systems.

iii. The cost analysis will take into consideration the best value for the Government when awarding this contract.

Figure 1.


INTERIOR BOLLARD DETAIL
SCALE: 1/2" = 1'-0"
6"
CONCRETE WASH SLOPE TO DRAIN
6" DIA. SCEDULE 40 STEEL PIPE
PAINTED SAFETY YELLOW
CONCRETE FILL
4'-6"
BACKER ROD AND SEALENT (TYP)
PAVING RE: CIVIL
4'-0"
COMPACTED
SUBGRADE
CONCRETE
END OF WALL,
ETC.
10"
E.J. TYP.
3"
1'-6"
DIA.