



Proton Improvement Plan PIP-II

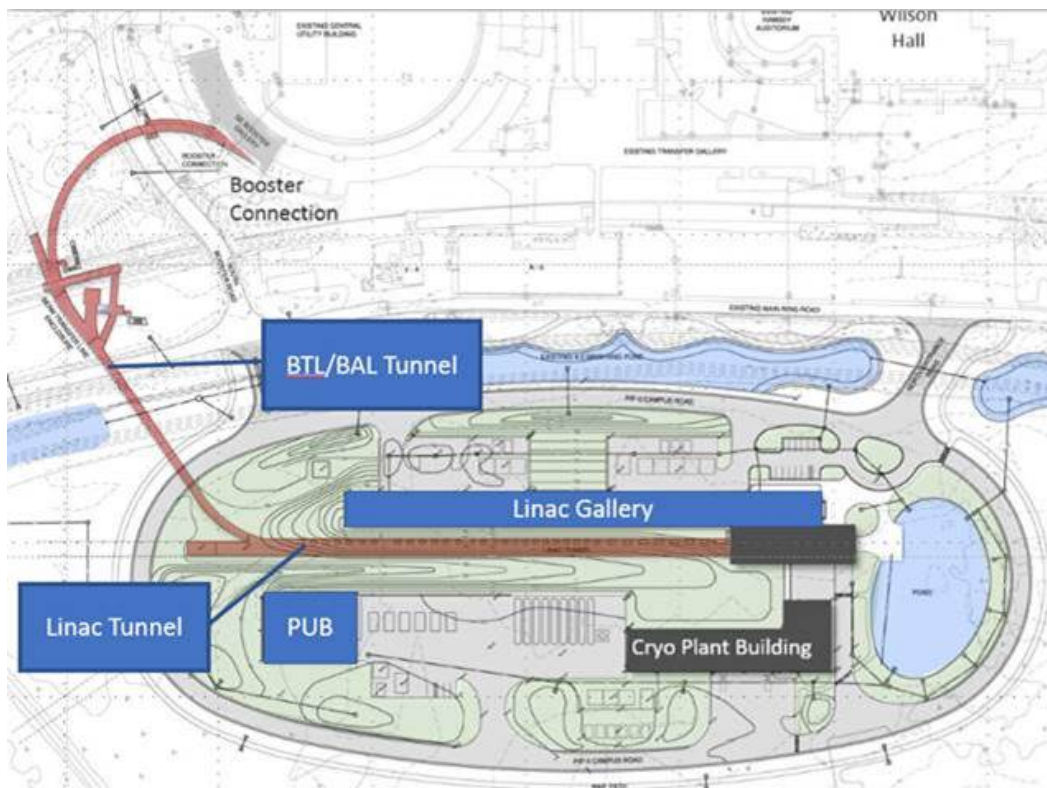
ACQUISITION PLAN

for

Construction of a Cryogenics Plant Building

Revision 1

May 20, 2019



Version Control

Revision History			
Revision	Responsible Person	Date	Description of Changes
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Approvals for this document will be required from:

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Date Approved: Submitted for Approval

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Acronyms

CD	Critical Decision
CFM	Cubic Feet per Minute
CFR	Code of Federal Regulations
CQC	Construction Quality Control
CQM	Construction Quality Management
DEAR	Department of Energy Acquisition Regulations
DOE	U.S. Department of Energy
EA	Environmental Assessment
ES&H	Environment, Safety, Health
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulations
FBO	Federal Business Opportunities
FERMILAB	Fermi National Accelerator Laboratory (a location)
FESS	Facilities Engineering Services Section
FONSI	Finding of No Significant Impact
FRA	Fermi Research Alliance, LLC (a company)
FSO	Fermilab DOE Site Office
FFP	Firm Fixed Price
FY	Fiscal Year
GPM	Gallons per Minute
HVAC	Heating, Ventilation, Air Conditioning
IEPA	Illinois Environmental Protection Agency
IDIQ	Indefinite Delivery Indefinite Quantity
JSA	Job Safety Analysis
KW	Kilowatt
LPTA	Lowest Price Technically Acceptable
MW	Megawatt
NAICS	North American Industry Classification System
NCAIED	National Center for American Indian Enterprise Development
NOI	Notice of Intent
PIP-II	Proton Improvement Plan project
PMP	Project Management Plan
PTAC	Procurement Technical Assistance Center
QA	Quality Assurance
RFI	Request for Information

RFP	Request for Proposal
RMP	Risk Management Plan
SBA	Small Business Administration
SEB	Source Evaluation Board
SEP	Source Evaluation Plan
SF	Square Feet
SCLIN	Subcontract Line Item Number
SWPPP	Storm Water Pollution Prevention Plan
UCC	Uniform Commercial Code
WBS	Work Breakdown Structure

A ACQUISITION BACKGROUND AND OBJECTIVES

1 STATEMENT OF NEED

1.1 BRIEF STATEMENT OF NEED

The purpose of the Cryogenics Plant Building is to house cryogenic plant equipment and related utilities to be used to cool the superconducting cryogenic modules for the PIP-II accelerator.

An approximately 23,000-SF building is proposed to house cryogenic equipment including compressors, cold boxes, storage tanks, vaporizers, nitrogen separators, purification equipment/skids, transfer lines, overhead cranes, control systems, and support equipment. The building is being designed by Gensler Architects (Subcontract 633670 and Subcontract 651024 IDIQ Task 1 (SCLIN 1, 652482)).

The building will be constructed in the Main Ring infield of the Fermilab site on the PIP-II campus. This site for the Cryogenics Plant Building was selected because of its adjacency to the future PIP-II Linac Complex.

A Subcontractor (NAICS 236220 Commercial and Institutional Building Construction) will be selected to provide all labor, materials, bonding, safety, quality, transportation, and supervision to mobilize and construct the PIP-II Cryogenics Plant Building on the Fermilab site.

1.2 SUMMARY OF TECHNICAL AND CONTRACTUAL HISTORY

Gensler Architects prepared independent cost estimates (bottoms-up estimate aka parametric FAR 15.404-1 (b) (2) (iii)) for the Cryogenics Plant Building based on FRA's conceptual design, 40% design (Subcontract 633670, Gensler Architects), and 60% design (Subcontract 651024 IDIQ Task 1 (SCLIN 1, 652482, also Gensler Architects)).

In response to value engineering, the 60% design cost estimate included costs to combine the Cryogenics Plant Building with the functions of the PIP-II Utility Plant Building. It is estimated the Cryogenics Plant Building size will increase from 14,000 SF to approximately 23,000 SF when combined with the Utility Plant Building functions. FRA found merit to combine the buildings. Subcontract 651024 IDIQ Task 3 (SCLIN 1, 656032) to design a combined Cryogenics Plant and Utility Building. This combined procurement is known as the Cryogenics Plant Building. 90% design will be completed June 12, 2019.

1.3 ACQUISITION ALTERNATIVES

FRA considered the following acquisition alternative:

- FRA considered whether the Linac Complex could be combined with construction of the Cryogenics Plant Building. Because of schedule constraints to house cryogenics plant equipment to be donated by an international collaborator, this acquisition alternative was not selected.

1.4 PROGRAM DOCUMENTS

This is a list of the most relevant critical decision and description documents related to this acquisition.

- CD-0 Approve Mission Need
- CD-1 Approve Alternative Selection and Cost Range
- DOE Preliminary Project Execution Plan
- Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)
- Resource Loaded Schedule and Work Breakdown Structure (WBS) Dictionary
- Project Management Plan
- Quality Assurance Plan
- Hazard Analysis Report
- Integrated Environment, Safety, and Health Management Plan

2 APPLICABLE PROJECT CONDITIONS

2.1 REQUIREMENTS FOR COMPABILITY WITH EXISTING OR FUTURE SYSTEMS OR PROGRAMS

The scope of this acquisition is to construct the Cryogenics Plant Building to house cryogenic plant equipment supplied by an international collaborator, and related utilities.

The design of the Cryogenics Plant Building will provide space and infrastructure to accommodate the size and type of equipment required by the PIP-II project. Typical equipment layouts and configurations were considered during the design of the building. The design of the building is based on the conservative sizing requirements to allow for maximum size and weight of cryogenic equipment being considered for donation.

This acquisition is for the building and infrastructure only. The cryogenic equipment will be obtained from an international collaborator. Installation of the cryogenic equipment will be accomplished as a separate procurement.

2.2 KNOWN COST CONSTRAINTS

For construction of the Cryogenics Plant Building, there are no known cost constraints.

2.3 KNOWN SCHEDULE CONSTRAINTS

The Cryogenics Plant Building must be ready to receive equipment by the 3rd Quarter of Fiscal Year 2021 to accommodate delivery from an international collaborator in the PIP-II project.

2.4 KNOWN CAPABILITY AND PERFORMANCE CONSTRAINTS

This 23,000-SF Cryogenics Plant Building will accommodate the cryogenics equipment for the PIP-II project. This building is required to be outfitted with a minimum of 3 Megawatts (MW) of electrical power and 1,400 gallons per minute of industrial cooling water.

This building will consist of the following spaces:

Cold Box Station – The cold box station will primarily house the 52' long x 26.25' wide x 23' tall cold box and related support equipment. The maximum weight of the cold box will be 165,347 pounds. This space will be constructed as conditioned high bay space with an overhead bridge crane, concrete floor slab, and exposed construction. The space will be designed to provide oxygen-deficient hazard ventilation systems.

Warm Compressor Station – This warm compressor station will house the compressor systems to support the cold box. The compressor system consists of compressor skids, oil absorber skids, oil coalesce skids, oil dryer skids, gas management panels, and control panels. The largest single piece of equipment is 77,162 pounds. This space will be constructed as conditioned high bay space with an overhead bridge crane, concrete floor slab, and exposed construction. The compressor systems will process a minimum of 1,400 gallons per minute of industrial cooling water. The space will be designed to provide oxygen-deficient hazard ventilation systems.

Support Space – The support space will house the control room, office space, network room, and related support functions for the building. This space will be constructed with office-level finishes.

Mechanical/Utilities Space – The mechanical space will house the mechanical and electrical systems to support the operation of the building. This space will be constructed as ventilated space with a concrete floor slab, structural steel mezzanine, and exposed construction.

Exterior Space – The exterior space will include space for storage tanks, access roads, parking, and local site improvements associated with the Cryogenics Plant Building.

2.5 OTHER SIGNIFICANT CONDITIONS AFFECTING THIS ACQUISITION

The Cryogenics Plant Building design must be completed before RFP release for building construction. Design is scheduled to be completed June 12, 2019 (Subcontract 651024 IDIQ Task 3 (SCLIN 3, 656032, Gensler Architects)).

Site clearing (Subcontract 652483, Whittaker Construction) must be completed before construction of the Cryogenics Plant Building can begin. Site clearing is scheduled to be completed June 30, 2019.

The Cryogenics Plant Building will require electrical power, industrial cooling water, domestic water supply, chilled water, make-up water, sanitary sewer, and communication connections to the existing Fermilab site infrastructure. The extensions of these utilities to the building site are being constructed under a separate project. This project will need to be completed approximately six (6) months prior to the beneficial occupancy of the Cryogenics Plant Building in order to allow sufficient time for connection, testing, and commissioning of the impacted systems.

3 COST

3.1 ESTABLISHED COST GOALS FOR THIS ACQUISITION

The cost goal is \$20,850,000. This is based on \$16,679,220 (construction cost estimate at 60% design complete) plus \$4,169,750 (25% estimate uncertainty).

3.2 LIFE-CYCLE COST

The design process will incorporate value engineering and lifecycle cost analysis for component and subsystems design decisions (Subcontract 651024 IDIQ Task 1 (SCLIN 1, 652482, Gensler Architects)).

3.3 DESIGN-TO-COST

NOT APPLICABLE

4 CAPABILITY OR PERFORMANCE

4.1 THE MINIMUM REQUIRED CAPABILITIES OR PERFORMANCE CHARACTERISTICS OF THE SUPPLIES OR THE PERFORMANCE STANDARDS OF THE SERVICES BEING ACQUIRED

Capabilities and performance characteristics are described in Part A, Paragraph 2.4 of this Acquisition Plan for Construction of a Cryogenics Plant Building.

4.2 HOW THESE ARE RELATED TO THE NEED

These are the minimum requirements to meet PIP-II scope.

5 DELIVERY OR PERFORMANCE-PERIOD REQUIREMENTS

5.1 DELIVERY SCHEDULE OR PERIOD OF PERFORMANCE

Deliverable	Due Date
Award Subcontract	2QFY20
Begin Construction	2QFY20
Complete Construction	3QFY21

5.2 DESCRIBE THE BASIS FOR ESTABLISHING DELIVERY OR PERFORMANCE-PERIOD REQUIREMENTS

Delivery estimates were based on experience with other projects. Consideration of size and complexity of building were considered.

5.3 EXPLAIN AND PROVIDE REASONS FOR ANY URGENCY IF IT RESULTS IN CONCURRENCY OF DEVELOPMENT AND PRODUCTION OR CONSTITUTES JUSTIFICATION FOR NOT PROVIDING FOR FULL AND OPEN COMPETITION

NOT APPLICABLE

6 TRADEOFF OF REQUIREMENTS

As part of the design process, the conventional facilities design team (Gensler and FRA) included local construction companies with a wide range of experience to provide constructability, cost, and schedule input that has resulted in plans to simplify the design and speed of construction.

Tradeoffs employed a) combine Utility and Cryogenics Plant buildings, b) use material readily available and produced locally (where possible), and c) exclude non-standard materials (where possible).

7 MAKE OR BUY

NOT APPLICABLE

8 RISKS

The PIP-II Project Team uses the Fermilab Risk Management Procedure for Projects as its Risk Management Plan (RMP), described in the Preliminary Project Execution Plan and the Project Management Plan. The RMP addresses the methodology for identifying, planning, and managing risk in the DOE CD lifecycle.

The PIP-II Project Team actively manages a Risk Register to identify risks, analyze the probability of occurrence and consequences of each risk, assign potential cost and schedule impacts and associated project-held contingencies, and develop mitigation measures. The PIP-II Project team uses information from the Risk Register to communicate with management team members including DOE-FSO.

8.1 Technical, Cost, and Schedule risks

The risk table below is based on the information in the Risk Register on April 12, 2019 and is based on the full Cryogenics Building construction scope of work. Strategies to identify and reduce the impact of risks are located in the PIP-II Risk Register.

Risk	RI-ID	Title	Probab	Cost Impact	Schedule Impact	Risk Rank	Risk Status
Threat	RT-121-06-001	Subproject requirements changes impact the Conventional Facilities	32.50%	250 -- 600 -- 2000 k\$	2 -- 6 -- 12 months	2 (Medium)	Open
Threat	RT-121-06-003	Construction bids exceed estimates	15.00%	100 -- 500 -- 750 k\$	0 -- 1 -- 3 months	2 (Medium)	Open
Threat	RT-121-06-005	Cryoplant Design Requirements	25.00%	10 -- 150 -- 500 k\$	0 -- 3 -- 8 months	2 (Medium)	Open
Threat	RT-121-06-006	Cryoplant cooling water is good quality enabling system simplification	50.00%	0 -- 75 -- 250 k\$	0 -- 0 -- 0 months	2 (Medium)	Open
Threat	RT-121-06-008	Cryoplant Cooling Water	10.00%	150 -- 500 -- 750 k\$	0 -- 1 -- 3 months	2 (Medium)	Open
Threat	RT-121-06-010	Poor Interface Definition	25.00%	25 -- 150 -- 300 k\$	1 -- 6 -- 9 months	2 (Medium)	Open
Threat	RT-121-06-011	Schedule slippage for long-lead time equipment	10.00%	10 -- 50 -- 100 k\$	1 -- 6 -- 8 months	2 (Medium)	Open
Threat	RT-121-06-013	Delineation of construction packages is unclear or incomplete	25.00%	0 -- 200 -- 500 k\$	0 -- 1 -- 3 months	1 (Low)	Open
Threat	RT-121-06-014	Quality deficiencies result in decreased performance	5.00%	0 -- 500 -- 1500 k\$	0 -- 1 -- 4 months	1 (Low)	Open
Threat	RT-121-06-020	Errors/Omissions in Construction Documents	5.00%	0 -- 200 -- 600 k\$	0 -- 0.5 -- 1 months	1 (Low)	Open
Threat	RT-121-06-021	Extreme Weather Delays Construction	10.00%	0 -- 100 -- 250 k\$	0.5 -- 1 -- 3 months	1 (Low)	Open
Threat	RT-121-06-023	Poor Performance by Construction Subcontractor	15.00%	0 -- 50 -- 150 k\$	1 -- 3 -- 6 months	1 (Low)	Open
Threat	RT-121-06-025	Unavailability of Construction Workforce	5.00%	0 -- 250 -- 300 k\$	0 -- 2 -- 6 months	1 (Low)	Open
Threat	RT-121-06-026	Substantial Claim by Subcontractor	5.00%	100 -- 150 -- 200 k\$	0 -- 2 -- 6 months	1 (Low)	Open
Threat	RT-121-06-027	Unknown Subsurface Conditions	10.00%	0 -- 50 -- 150 k\$	0.5 -- 1 -- 2 months	1 (Low)	Open
Threat	RT-121-06-028	Construction Escalation Greater Than Predicted	10.00%	-100 -- 100 -- 200 k\$	0 -- 0 -- 0 months	1 (Low)	Open
Threat	RT-121-06-030	Equipment Induced Vibrations Impact Accelerator Operations	10.00%	25 -- 50 -- 100 k\$	0 -- 1 -- 3 months	1 (Low)	Open
Threat	RT-121-06-037	Labor Action Delays Construction	5.00%	10 -- 15 -- 50 k\$	0 -- 0.5 -- 1 months	0 (Negligible)	Open
Threat	RT-121-06-038	Permitting Delay	5.00%	0 -- 10 -- 20 k\$	0.5 -- 2 -- 6 months	1 (Low)	Open
Threat	RT-121-06-039	Cryogenic plant building BO delayed	10.00%	0 k\$	6 months	1 (Low)	Open

8.2 Top Three (3) Risks

The highest risks associated with the Cryogenics Plant Building are discussed below with respect to acquisition planning.

Risk RT-121-06-006 – Cryoplant Design Requirements

If the cryogenics plant design requirements are not fully specified during design (Subcontract 651024 IDIQ Task 1 (SCLIN 1, 652482, Gensler Architects)), the building could require modifications which jeopardize cost/schedule objectives. This risk is mitigated by close coordination with in-house designers and collaborators, and, when appropriate, the selected vendor is required to understand and document the interface and design requirements for the cryogenics plant equipment. In addition, the design of the building is based on the conservative sizing requirements for the international collaborator's plant equipment donation. The building has been designed to allow for equipment the international collaborator is considering donating.

Risk RT-121-06-003 – Construction Bids Exceed Estimates

If the construction proposals exceed the budgeted estimate, then the cost and schedule will be impacted which jeopardizes project goals. This risk is mitigated by a) including a reasonable contingency in overall project budget, b) designing to a target estimate, c) revisiting the estimate periodically throughout the design process, and d) including in the bid documents add/deduct alternates to provide flexibility.

Risk RT-121-01-019 – Major Accident/Incident on Fermilab Site

If there is a significant accident, incident, or near-miss on the Fermilab site, then there is potential for a work stoppage until investigations and associated corrective actions are completed, jeopardizing the Project's cost and schedule goals. Risk for this Procurement for Construction of a Cryogenics Plant is mitigated by maintaining a vigorous safety program and adequate level of staffing for project ES&H support and oversight at the Project, Laboratory, and DOE level. Fermilab PIP-II Construction Coordinators provide daily assistance/oversight, including construction safety, heavy equipment inspection, and independent oversight. All onsite activities follow the Fermilab ES&H manual. Subcontractors will follow the Fermilab Worker Safety and Health Program to facilitate the development of a Subcontractor-specific ES&H Plan. Frequent methods of communication and feedback deployed to facilitate safety will include daily tailgate and weekly contractor meetings. Job Safety Analyses (JSA's) will be written for all high-risk activities.

8.3 Risk Reassessment

Beneficial Occupancy risk (RT-121-06-039) is included in the risk register but is ranked as low. FRA will revisit this risk prior to 90% design completion to determine if additional beneficial occupancy areas are required.

B PLAN OF ACTION

1 SUBCONTRACT TYPE(S)

1.1 SUBCONTRACT TYPE(S) BY KEY PART OF THE WORK

Firm Fixed Price was selected as the Subcontract type because the requirements will be clearly defined.

1.2 RATIONALE FOR SELECTION OF SUBCONTRACT TYPES

Since the technical requirements will be clearly defined in a drawing package, a Firm Fixed Price contract type has been selected. A Cost contract type was not selected because the requirements are clearly defined. Labor Hour and Time and Material subcontract type are not appropriate for this acquisition because we have clearly defined requirements.

1.3 FUTURE SUBCONTRACT TYPES

NOT APPLICABLE

2 PAYMENT AND FINANCING

Payment will be based on a construction schedule of values. There is no financing.

3 SOURCES

3.1 PROSPECTIVE SOURCES OF SUPPLIES OR SERVICES THAT CAN MEET THE NEED

To maximize competition, the solicitation will be posted on FBO. FRA will also reach out to our supply chain (FRA Construction Bid List, Attachment A) to notify them of the Solicitation.

3.2 REQUIRED SOURCES AND OTHER SOURCES

Required sources of supply (FAR Part 8) do not offer the construction work scope to be performed for this procurement.

3.3 SMALL BUSINESS CONSIDERATIONS

Based on market research, we do not expect to receive offers from two responsible small businesses. Therefore, this procurement will not be set aside for small businesses.

Small businesses are readily available and capable to perform as sub-tier Subcontractors to construct the Cryogenics Plant Building. A small business plan will be required if this procurement is awarded to large business.

3.4 MARKET RESEARCH

Market research was performed at SAM.gov, Vetbiz.gov, PTAC, National Center for American Indian Enterprise Development (NCAIED), and the Small Business Administration (SBA). A Sources Sought notice was published in FBO.gov (April 2019). Based on market research, FRA does not expect to receive offers from two responsible small businesses. Therefore, this procurement will not be set aside for small businesses.

4 COMPETITION

4.1 HOW COMPETITION WILL BE SOUGHT, PROMOTED, AND SUSTAINED THROUGHOUT THE COURSE OF THE ACQUISITION

The goal of this procurement is to strive for competition. FRA will utilize FBO to maximize competition and, per Part B paragraph 3.1 of this Cryogenics Plant Acquisition Plan, Construction Contractors known to FRA (FRA Construction Bid List, Attachment A) will be alerted to the solicitation.

4.2 COMPETITIVE METHOD TO BE USED

Lowest Price Technically Acceptable (LPTA) source selection method in accordance with FAR 15.101-2 will be used. Past performance will be evaluated in accordance with FAR 15.305.

The lowest price technically acceptable source selection process is appropriate when best value is expected to result from selection of the technically acceptable proposal with the lowest evaluated price.

4.3 COMPETITION: MAJOR COMPONENTS OR SUBSYSTEMS

NOT APPLICABLE. Major components and subsystems will be furnished and installed by the Subcontractor.

4.4 COMPETITION: LOGISTICS, SPARES, AND REPAIR PARTS

NOT APPLICABLE

4.5 COMPETITION: LOWER TIER SUBCONTRACTS

NOT APPLICABLE. The Subcontractor is responsible for lower tier Subcontractors.

4.6 COMPETITION: FOLLOW-ON SUBCONTRACTS

NOT APPLICABLE

5 SOURCE SELECTION PROCEDURES

5.1 SOLICITATION PROCESS

FRA will post the RFP for the Cryogenics Plant Building by use of the FBO.gov website. Interested parties will be required to submit a response to mandatory technical requirements and provide a cost proposal.

The Procurement Specialist will serve as the sole point of contact for all solicitation-related inquiries from actual or prospective Offerors. During the evaluation, exchanges with industry may include clarifications, communications, and discussions. All such exchanges will be supervised and documented by the Procurement Specialist. Information will be equally available to all prospective Offerors.

5.2 EVALUATION PROCESS

The evaluation process will be conducted in accordance with the SEP that will be prepared and submitted with the RFP for DOE approval. Per FAR 15.101-2, evaluation factors and significant subfactors that establish the requirements of acceptability will be set forth in the solicitation. Scope will represent typical conventional civil construction with a well-defined set of drawings and specifications.

5.3 EVALUATION FACTORS

Interested vendors are required to submit a response to mandatory requirements, technical proposal, and cost proposal. Mandatory go/no go criteria will be created to evaluate all of the proposals. These criteria will focus on the following four main areas.

Scope: Offerors' experience and personnel to perform Cryogenics Plant construction.

Schedule: Offerors' project schedule management experience, ability to meet the project schedule, and availability of technical resources to complete the work within schedule constraints.

Budget: Offerors' budget planning, estimating, and management experience to deliver the project on-budget and to cost field change orders.

ESH&Q: Offerors' ESH&Q project experience.

5.4 The SEP and solicitation will specify award will be made on the basis of the lowest evaluated price of proposals meeting the acceptability standards for non-cost factors.

Selection Factor. The offeror who meets all of the non-price evaluation factors and has the lowest price will be selected.

5.5 RELATIONSHIP OF EVALUATION FACTORS TO THE ATTAINMENT OF THE ACQUISITION OBJECTIVES

Per FAR 15.101-2, the RFP will include evaluation factors that ensure the Offerors' ability to meet the scope. The evaluation factors will enable FRA to assess if the Offeror meets or exceeds acceptable standards to perform the type of work identified in the RFP documents.

5.6 SELECTION AND DECISION PROCESS

The Procurement Specialist is responsible for ensuring the selection and decision process is accomplished in accordance with the Acquisition Plan, Request for Proposal, and SEP.

6 ACQUISITION CONSIDERATIONS

6.1 PRODUCT OR SERVICE DESCRIPTIONS

NOT APPLICABLE

6.2 PERFORMANCE-BASED ACQUISITION

NOT APPLICABLE

6.3 MULTIPLE YEAR AND OPTIONS

NOT APPLICABLE

6.4 SPECIAL SOLICITATION PROVISIONS, TERMS AND CONDITIONS, OR FAR/DEAR DEVIATIONS

This procurement for construction of a Cryogenics Plant Building will utilize standard FRA Construction Subcontracting Terms and Conditions.

7 FUNDING

7.1 FUNDING ESTIMATES

This acquisition is not expected to be fully funded from the start of construction. The effort will be aligned with funding received.

FISCAL YEAR	FUNDING
FY20 AND FY21	\$20.85M

8 PROPERTY AND EQUIPMENT

8.1 PURCHASED OR LEASED PERSONAL PROPERTY OR EQUIPMENT

NOT APPLICABLE

8.2 PURCHASE OR LEASED REAL PROPERTY

NOT APPLICABLE

8.3 UTILITIES INFRASTRUCTURE

The Cryogenics Plant Building will require electrical power, industrial cooling water, domestic water supply, chilled water, make-up water, sanitary sewer, and communication connections to the existing Fermilab site infrastructure. The extensions of these utilities are being constructed under a separate project and are anticipated to be completed approximately six (6) months prior to the beneficial occupancy of the Cryogenics Plant Building. The Cryogenics Plant Building Subcontractor will construct the connections and be responsible for tying into the Fermilab utility infrastructure.

8.4 FRA-PROVIDED GOVERNMENT FURNISHED PROPERTY

A total of 10 helium and nitrogen storage tanks will be available to the Subcontractor based on their schedule requirements. The appropriate Property Clause will be flowed down to the subcontract.

9 FRA-PROVIDED GOVERNMENT FURNISHED INFORMATION

The RFP will include drawings of the Cryogenics Plant Building obtained from Subcontract 651024 IDIQ Task 3 (SCLIN 3, 656032).

10 LOGISTICS CONSIDERATIONS

The Subcontractor will require access to the Fermilab site. Liaison with a) security for site access and badging, b) safety, and c) quality will be required.

11 QUALITY ASSURANCE, TEST, EVALUATION, INSPECTION, AND ACCEPTANCE

The PIP-II project has implemented a rigorous quality control/quality assurance program described in PIP-II-DOC-142 that includes both design and construction phase systems to mitigate quality issues.

As part of proposals, Offerors shall submit a project-specific construction Quality Control Plan for FRA evaluation. The requirements for the Quality Control Plan are stated in 014100 Quality Requirements and will be supplied as part of the RFP.

FRA will perform Quality Assurance (QA) oversight of the Subcontractor's Quality Control activities. Surveillance will be accomplished throughout construction on a daily basis.

The Subcontractor will be subject to assessments, inspections, and witness-and-hold points by FRA to ensure compliance with the subcontract requirements including specifications, codes, standards, drawings, and subcontract deliverables. Subcontract language shall define and ensure FRA's right to establish witness-and-hold points for which the Subcontractor shall give prior notice to FRA.

Final acceptance will be upon successful inspection of full performance of the Major Building components and beneficial occupancy.

Major Building Components:

- 1) Excavation
- 2) Foundation
- 3) Install Steel
- 4) Install Building Envelope
- 5) Mechanical (e.g. fire protection, HVAC, overhead bridge crane)
- 6) Electrical
- 7) Plumbing

12 WARRANTIES

Warranties will be required for specific equipment as follows:

1-year workmanship warranty

2-year aluminum curtainwall material warranty

- 10-year insulating glass material warranty
- 20-year insulating metal wall panel warranty
- 20-year roof warranty

13 ENVIRONMENTAL, HEALTH, AND SAFETY

13.1 ENVIRONMENTAL CONSIDERATIONS

This construction work was included as part of the Environmental Assessment for the Construction and Operation of the Proton Improvement Plan II Project at Fermi National Accelerator Laboratory, DuPage and Kane counties, Illinois. A finding of no significant impact (FONSI) was issued on January 25, 2019.

A Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) was submitted to the Illinois Environmental Protection Agency (IEPA) on February 1, 2019. FRA received a Storm Water Permit from IEPA in March 2019.

13.2 HEALTH AND SAFETY CONSIDERATIONS

The subcontract will be performed in accordance with 10 CFR 851, Worker Safety and Health Program, to ensure protection of workers, the public, and the environment. FRA will perform ES&H oversight of the worksite.

According to FRA ES&H, for construction projects the most common injuries are finger and hand injuries. We will be proactive and keep safety in the forefront of this acquisition with the objective to keep our Subcontractor safe. Job planning and hazard analyses, daily tool box meetings, and periodic walkthroughs are our strategies to reduce and mitigate risk.

13.3 RADIATION PROTECTION CONSIDERATIONS

NOT APPLICABLE

14 SECURITY CONSIDERATION

14.1 PHYSICAL SECURITY

Standard Fermilab Subcontractor access will be required.

14.2 INFORMATION SECURITY

NOT APPLICABLE

15 EXPORT AND IMPORT CONTROL

NOT APPLICABLE

16 SUBCONTRACT MANAGEMENT

16.1 EARNED VALUE MANAGEMENT SYSTEM

The PIP-II Project plans to baseline in the summer of 2019 with cost and schedule tools (Primavera P6 and Cobra) in accordance with FRA standards and the FRA Earned Value Management System (EVMS). Once the PIP-II Cryogenics Plant construction is baselined, this system will be used to monitor and evaluate project progress and performance against the deliverables for the duration of this scope of work. Variances, indices, and forecasts will be used to monitor, assess, and forecast progress.

The performance of the Subcontractor will also be monitored through reporting of labor hours, weekly meetings, and regular interaction with their staff.

16.2 COST, SCHEDULE, AND PERFORMANCE MANAGEMENT

16.2.1 Subcontract management will be performed to ensure the delivery of project requirements in accordance with the subcontract terms and conditions.

16.2.2 Procurement will:

1. Establish and maintain a file for subcontract documentation and ensure that this documentation is appropriate for the value of the subcontract and sufficient to establish the propriety of the procurement transaction and the reasonableness of the price paid.
2. Monitor the Subcontractor's efforts and compliance with the terms of the subcontract.
3. Incorporate revisions and/or changes to subcontract specifications and/or the statement of work through preparation of subcontract modifications.
4. Lead evaluation and negotiation of Subcontractor proposals related to directed or requested changes.
5. Work as a member of the project team to keep appropriate personnel informed of the progress of the work and issues as they arise.
6. Obtain the assistance and coordinate the activities of specialists in procurement, property, quality assurance, legal, audit, accounts payable, engineering, and regulatory requirements.
7. Track and monitor invoices.
8. Immediately contact the Subcontractor to determine the reason for delayed delivery, if any, and update the procurement file accordingly.

16.2.3 The PIP-II Project will:

1. Finalize a cost-loaded baseline Critical Path Method schedule prior to the start of work and maintain and update cost-loaded Critical Path Method schedule as the project progresses.
2. Monitor project progress and manage the work to ensure that work proceeds in accordance with the Critical Path Method schedule.
3. Track and manage all changes via the change control procedure in the PIP-II Project Management Plan (PMP).
4. Ensure compliance with the subcontract documents through the application of the Project's Quality Assurance Plan.

16.3 HOW CHANGES WILL BE MANAGED

Changes will be managed through the PIP-II Change Management Plan DocDB #2946.

17 OTHER CONSIDERATIONS

See Part A, Paragraph 2.5 Other Significant Conditions, of this Acquisition Plan for Construction of a Cryogenics Plant.

17.1 LABOR AND BUY AMERICAN ACT

Subcontract will be subject to the FRA prime contract labor and purchasing flow-downs with clauses included in the RFP.

18 MILESTONES FOR THE ACQUISITION CYCLE

Activity	Planned Completion Date
Acquisition Plan Draft Complete Submit to FSO for Review and Approval	2QFY19
RFP Draft Complete Submit to FSO for Review and Approval	3QFY19
Issue RFI (FBO)	3QFY19
Issue RFP (FBO)	4QFY19
Evaluate and Negotiate	1QFY20
Submit to DOE for Approval of Subcontract Award	1QFY20
Award Subcontract	2QFY20
Kickoff Meeting	2QFY20
Delivery Complete	3QFY21

19 IDENTIFICATION OF PARTICIPANTS IN ACQUISITION PLAN PREPARATION

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Attachment A

FRA Construction Bid List

Company	Size	Socio-Economic	Company	Size	Socio-Economic
1 Alpha CxÉ, Inc.			42 Kroeschell, Inc.		
2 Amalgamated Services, Inc.	Small	Disadvantaged, Minority Owned, woman Owned	43 Krusinski Construction Company		
3 American First Contracting	Small	Service Disabled, Veteran Owned	44 Lamp Incorporated	Large	
4 Antigua, Inc	Small	Disadvantaged, Minority Owned, woman Owned	45 Leopardo Companies, Inc	Small	
5 Architectural Consulting Group, Inc	Small	Service Disabled, Veteran Owned	46 Madison Construction	Large	
6 Barnard Construction Co	Large		47 McCarthy Building Companies, Inc.	Large	
7 Barton Malow Company	Large		48 Milhouse Engineering Construction, Inc	Small	Disadvantaged, Minority Owned
8 Bear Construction	Large		49 Mortenson	Large	
9 Benchmark Construction Company	Small		50 Norcon Inc.	Small	
10 Berglund Construction Co., Inc.	Large		51 Oakley Construction Co., Inc.	Small	Minority Owned
11 Berhanu Construction	Small	Minority Owned	52 Pacific Construction Services	Small	
12 Blinderman	Small	Woman Owned	53 Paul Borg Construction Company	Small	
13 BlueYonder Inc		Service Disabled	54 Powers Sons Construction Co.		
14 BMW Constructors, Inc.			55 Ragnar Benson Construction	Large	
15 Brown Momen, Inc	Small	Minority Owned	56 Rausch Construction Company Inc.	Small	Minority Owned, woman Owned
16 Builders Land Inc	Small	Minority Owned	57 RC Wegman Construction	Small	
17 CPI-Construction Planners Inc	Small	Disadvantaged, Service Disabled, Veteran Owned	58 Richards Weyer Construction Co., Inc.	Small	
18 CREA Construction	Small	Minority Owned, woman Owned	59 Riedy Construction	Small	
19 Direct Steel LLC	Small	woman Owned	60 River City Construction		
20 Eagle Concrete	Small		61 Ryan Companies US, Inc.		
21 ECS, Inc.	Small		62 Scale Construction Inc.		
22 Elite Construction and Environmen	Small	Minority Owned	63 Schramm Construction	Small	
23 F.H. Paschen, Inc.	Large		64 Simpson Construction	Small	
24 F.H. Paschen, S.N. Nielsen Associat	Large		65 The Bowa Group	Small	
25 Frederick Quinn Corporation	Small		66 Tower Contracting, LLC	Small	
26 Gavig Construction Company	Small	Veteran Owned	67 Trice Construction Company		Disadvantaged, Minority Owned
27 George Sollitt Construction Company			68 Troop Contracting, Inc	Small	Service Disabled, Veteran Owned
28 Gilbane Building Company	Large		69 Tuscany Construction, inc.	Small	
29 Hart Sons LLC			70 V3 Companies	Small	
30 HATCH US Operations	Large		71 Veteran Design Construction, Inc	Small	Service Disabled
31 Hawk Contracting Group, LLC	Small	Service Disabled, Veteran Owned	72 Victor Construction Co., Inc.	Small	
32 Henry Bros Construction	Large		73 Vissering Construction Company	Large	
33 Herlihy Mid-Continent Company	Large		74 Walsh Construction Company	Large	
34 Horcher Construction Inc.	Small		75 Ward Commercial Construction	Small	
35 IHC Construction Companies LLC	Large		76 WE O'Neil Construction Co.	Large	
36 Illinois Constructors Corporation	Large		77 Weaver Construction		
37 JL Burke Contracting	Small	Service Disabled, Veteran Owned	78 Whiting-Turner	Large	
38 John Burns Construction Co.	Large		79 Whittaker Construction	Small	HubZone
39 Joseph J. Henderson Son, Inc.	Large		80 William A. Randolph, Inc.	Large	
40 Kenny Construction	Large		81 Williams Brothers Construction, Inc.	Large	
41 Kiewit Infrastructure Co.	Large		82 Wills Burke Kelsey Associates, Ltd.	Small	

Attachment B

Request for Information (RFI) Response Summary

RFI Number	RFI201904
Posting Duration (days)	14
NAICS	236220
Respondents	4
Large	2
Alaskan Native / 8(a) SDB	1
WOSB	1
Qualified Respondent	*1

* The qualified respondent's Socio-Economic status is: Alaskan Native / 8(a) SDB.