



121.06 – Lab Interfaces

R. Wielgos, L3 Manager

DOE CD-2/3a Independent Project Review

SC4

January 29, 2020

A Partnership of:

US/DOE

India/DAE

Italy/INFN

UK/UKRI-STFC

France/CEA, CNRS/IN2P3

Poland/WUST



About Me

- PIP-II Deputy Manager for Conventional Facilities
- Relevant Experience
 - Licensed Professional Engineer (PE);
 - Project Management Professional (PMP);
 - 10+ years at Fermilab;
 - 30+ years utility and infrastructure engineering;
 - UUP-SLI Project L3 Manager for High Voltage Infrastructure;
 - 2018 CD-4
 - SUI-SLI Project L3 Manager for Electrical Infrastructure;
 - 2019 CD-0
 - General Plant Project Manager;
 - Master Substation Bypass
 - Computer System Upgrades – VoIP
 - Utility Corridor

Outline

- Lab Interfaces
- Utility Requirements
- Schedule
- Area Improvements
- Summary

1. Does the proposed technical design satisfy the performance requirements? Do the Key Performance Parameters (KPP's) provide a satisfactory indication of the project's completeness?
2. Are the interfaces to the existing accelerator complex identified and defined? Do the planned hardware upgrades to the existing complex fully support the ultimate performance goal of 1.2 MW operation of the complex?
3. Is the resource-loaded schedule complete, consistent and credible so that it can serve as the cost and schedule part of the project's performance baseline? Is it compatible with the funding guidance provided by High Energy Physics? Have the project's risks been fully analyzed and accounted for in the contingency estimate?
4. Is the project team properly staffed with individuals that have the required skills to deliver the proposed technical scope within the baseline budget and schedule?
5. In-kind international contributions are described in bi-lateral agreements called Project Planning Documents (PPD's). Does the project baseline and in-kind scope contributions defined in the PPD's present the complete scope required to meet the KPP's? Are the delivery dates for in-kind scope sufficiently understood to establish the credibility of CD-4 date? Does the Project have a credible plan for managing the deliverables including acceptance, Q/A, and risk management.
6. Does the project have a certified Earned Value Management System and have they demonstrated their ability to utilize it as an effective project management tool?
7. Is the documentation required by DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets* for CD-2 complete and in good order?
8. Are Environment Safety and Health aspects being properly addressed?
9. Has the project responded satisfactorily to the recommendations from the previous independent project review?
10. In regard to CD-3a; is the scope of the 3a package appropriate and justified? Are the associated designs sufficiently mature to support the requested CD-3a cost and schedule? Have the appropriate design reviews been completed?

Lab Interfaces

- PIP-II Interface Documentation [\[1\]](#), [\[2\]](#), [\[3\]](#)
 - Shut down Coordination
 - Main Ring Crossing 2024
 - Booster Connection 2025
 - Facilities Support
 - FESS Engineering
 - Subject Matter Experts
 - Engineering and Construction Processes and Procedures
 - Facilities Management
 - Maintenance Responsibilities at AUP
 - Point of Responsibility Defined

[\[1\]](#) – Memorandum of Agreement can be found in PIP-II-doc-528

[\[2\]](#) – PIP-II Master Interface Control Documents (ICD) can be found in Teamcenter ED00010433 and PIP-II-doc-2492

[\[3\]](#) – PIP-II Conventional Facilities Technical Document (FRS & TRS) can be found in PIP-II doc-2492

Lab Interfaces

- PIP-II Interface Documentation [1], [2], [3]
- General Plant Projects
 - Utility Corridor Project (FY19)
 - Master Substation Electrical Feeder (planned FY21)
 - Kautz Road Electrical Feeder (planned FY25)
- Central Utility Building
 - Capacities (CHW, MAU)
 - Upgrade Plans
- Wilson Hall Footprint Area
 - Coordination with other projects

[1] – Memorandum of Agreement can be found in PIP-II-doc-528

[2] – PIP-II Master Interface Control Documents (ICD) can be found in Teamcenter ED00010433 and PIP-II-doc-2492

[3] – PIP-II Conventional Facilities Technical Document (FRS & TRS) can be found in PIP-II doc-2492

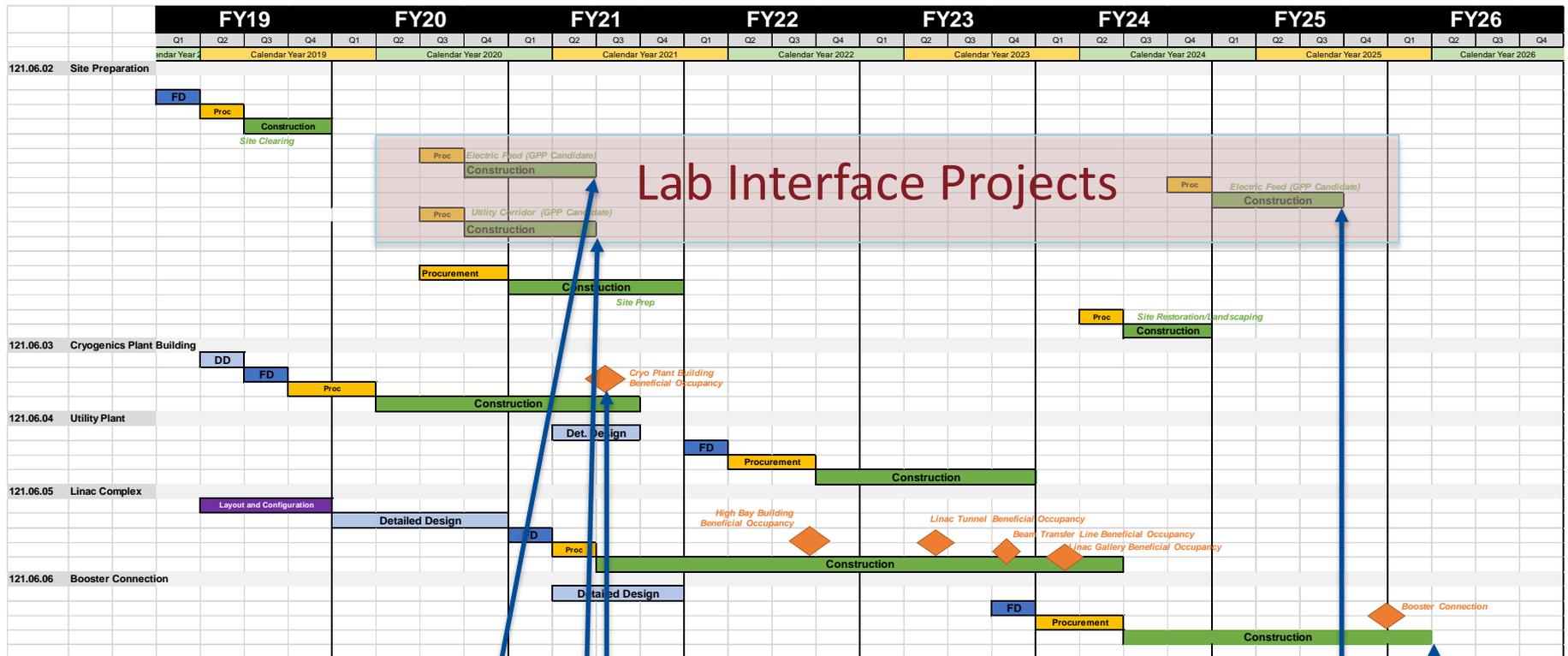
Utility Requirements

	Requirement*	Source		
		PIP-II	GPP	Laboratory
Electrical Power	~24 MW		X	MSS
Industrial Cooling Water	1,400 gpm **		X	Sitewide System
Chilled Water	600 tons	~350 tons	Piping	250 tons from CUB **
Tower Make Up Water	100 gpm		X	CUB
Domestic Water	35-50psi		X	DWS System
Sanitary Sewer			X	SS System
Data/Comm		Fiber	Ductbank	From Mac Room
Roadway		New		Existing

*Requirements Data Source: Room Data Sheets, (Steve Dixon: PIP-II CD2 DOE IPR Plenary CF Dixon)

**Based on current available system capacity

Schedule – Conventional Facilities Construction



Site Utilities Available
 Site Power Available
 Site Utilities/Power Required

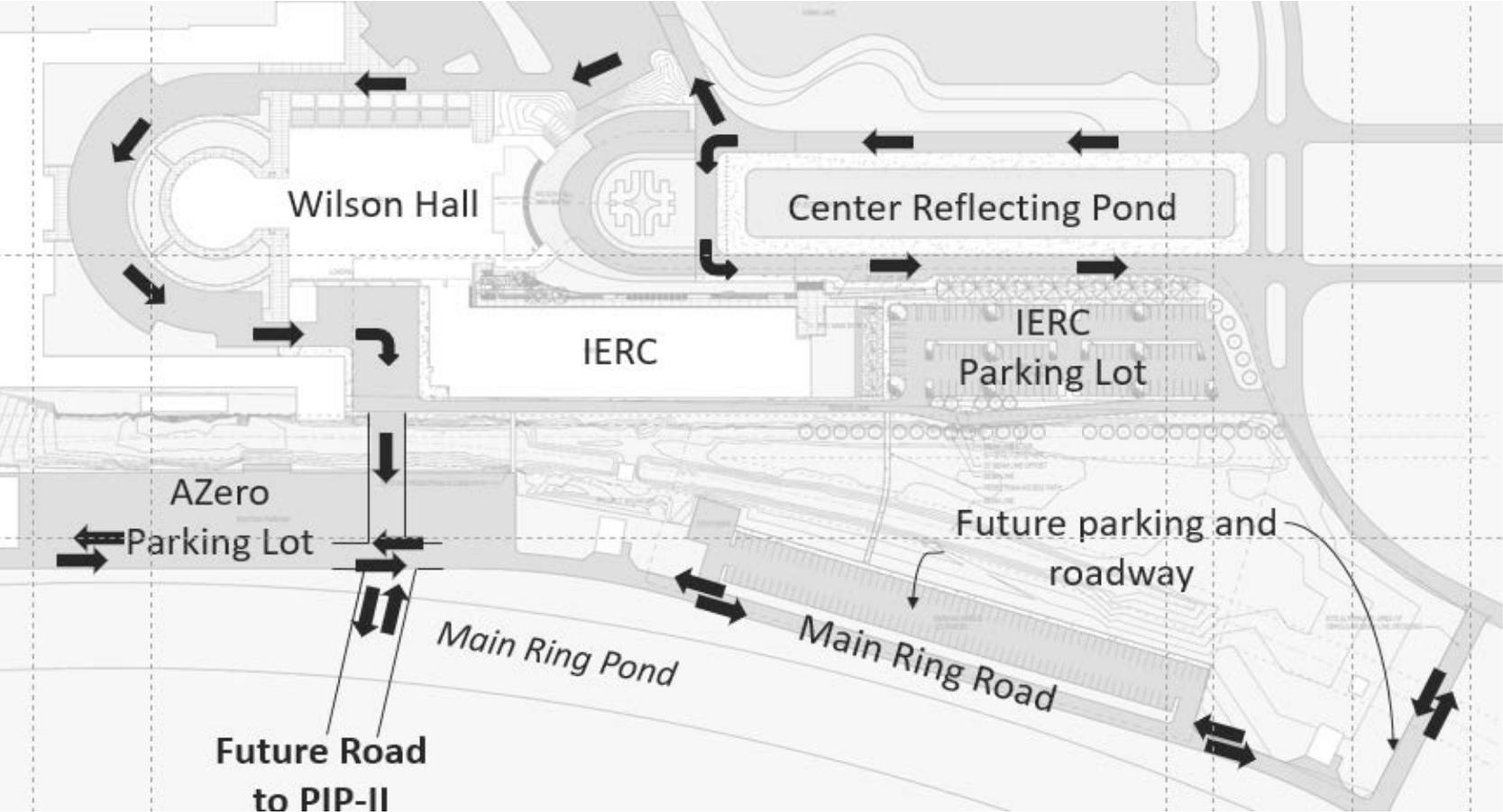
Final Site Power Available
 Final Site Utilities/Power Required

Schedule – GPP Projects

Title	Scope	Status	Schedule	Cost
Utility Corridor	Extension of utilities into the Main Ring area including domestic water service, industrial cooling water, sanitary sewer, chilled water, communication and electrical duct bank.	Project G19224 approved in July 2019.	<p>Approved milestones per approved Project Request Form:</p> <p>Construction Start: Mar-20</p> <p>Construction Complete: January 2021</p> <p>Note: These milestones will be adjusted via directive modification to match MSS Radial Electric Feed project</p>	\$8M
Master Substation Radial Electric Feed	Provides electrical services to the Main Ring area from the Master Substation.	<p>Project Plan being prepared.</p> <p>Anticipated approval in Q2 FY20</p>	<p>Proposed Milestones:</p> <p>Construction Start: September 2020</p> <p>Construction Complete: July 2021</p>	\$7.5M
Kautz Road Substation Radial Electric Feed	Provides electrical services to the Main Ring area from the Kautz Road Substation.	<p>Part of SLI Utilities Project</p> <p>Anticipated approval in Q1 FY24</p>	<p>Proposed Milestones:</p> <p>Construction Start: September 2024</p> <p>Construction Complete: July 2025</p>	\$8M

Area Improvements

- Wilson Hall Coordination



Summary

- Lab interfaces have been determined and documented
- Periodic coordination meetings are held
- Infrastructure requirements understood and confirmed to be provided by the laboratory (Utility Corridor & Electrical Feed).
- Schedule of construction for the infrastructure is integrated into the PIP-II schedule.
- Traffic Flow around the “Footprint” area is coordinated with the PIP-II Site Plan.