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**SDC**  
**SOLENOIDAL DETECTOR NOTES**

**FAX FROM DAVE ETHERTON TO BILL EDWARDS**  
**RE: SDC HALL EXCAVATION**

**D. Etherton**

**September 10, 1990**

SDC-90-00080

# SSC LABORATORY

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## TELEFAX COVER SHEET

TO: Bill Edwards

FAX #: 415-486-6668

FROM: Dave Esterton Tel # 214-708-6141

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

# OF PAGES: 10  
(including cover page)

### COMMENTS

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To: Bill Edwards

I have attached modifications of the sketches shown in the Friday facilities meeting. The following descriptions apply:

- 1a. This excavation profile is believed to be the requirement for open cut excavation in the Austin Chalk material on the west side of the collider ring. The benches have a 2-meter offset for every 8-meters of vertical cut. The depth to the beamline at IR 2 (called WIN - West Inner North IR) is as shown. Location at IR 1 (WN) adds an additional 12 meters depth to beamline. Since the IR 2 location will be cheaper for hall and shafts and allow facilities closer to the IR it appears to be the place to consider it for now.
- 1b. The plan view of the excavation cut boundaries with dimensions. Note that the utility and cable shafts are currently coming up through the bench cuts. This may not be a problem but a better approach may be to bring them vertical as soon as you can (to reduce horizontal tunneling) and then run in subsurface troughs to needed locations.
- 2a. Since I do not have a detector assembly and construction schedule, I phased facilities around hall beneficial occupancy. The hall is basically the critical path for facility construction related to completing detector construction. With a construction duration of about 30 months after contract award (following Title I and Title II), the BOD plus your down hole construction duration must add up to July 1998 or so. This means you need hall BOD prior to Jan. 1995. I can tell you this is tight! This type of constraint is what will drive surface assembly versus underground assembly of calorimeters. Not to mention cost of underground assembly activities

when you add the 25% efficiency factor many people believe will be the case.

- 2b. Upon completion of the hall, I propose a temporary personnel shaft headhouse be constructed to handle construction personnel and some equipment prior to the need for the Operations Center.
- 2c. Permanent structures like the Utility and Services buildings and a Construction headhouse can probably be built over the excavation cut within 6 months.
- 2d. This sketch shows addition of the Operations Center at some time before detector commissioning. There will be pressure to utilize time phasing of the facilities with a lean toward renovation so you don't create big warehouses.

This scenario is rough and needs optimization.

To begin this we should identify the specifications for each building which would include requirements during detector construction, assembly, check-out, and operation. The specifications would necessarily include space requirements achieved by the type of activities being housed, crane or other movement needs, environment needs, roof cover requirements, machinery and electrical needs, and what I'll call the operational logistics - when each building is needed and when it's no longer needed. From this information we can start figuring out how to phase construction and renovation and determine where to best place the structures.

I know Richard is eager to get some of the questions answered regarding geotechnical issues and building placement, I am too. Hopefully some of the answers will start coming in. But we still don't really know the requirements. I would offer that the type of interaction that Mike Harris and Tim Thurston describe would be more useful than working up lots of scenarios. What are the requirements? What will drive the designs? How much flexibility will the technical systems have to tolerate civil constraints? What will be the civil costs of accommodating the detectors needs? Truly this is an iterative process.

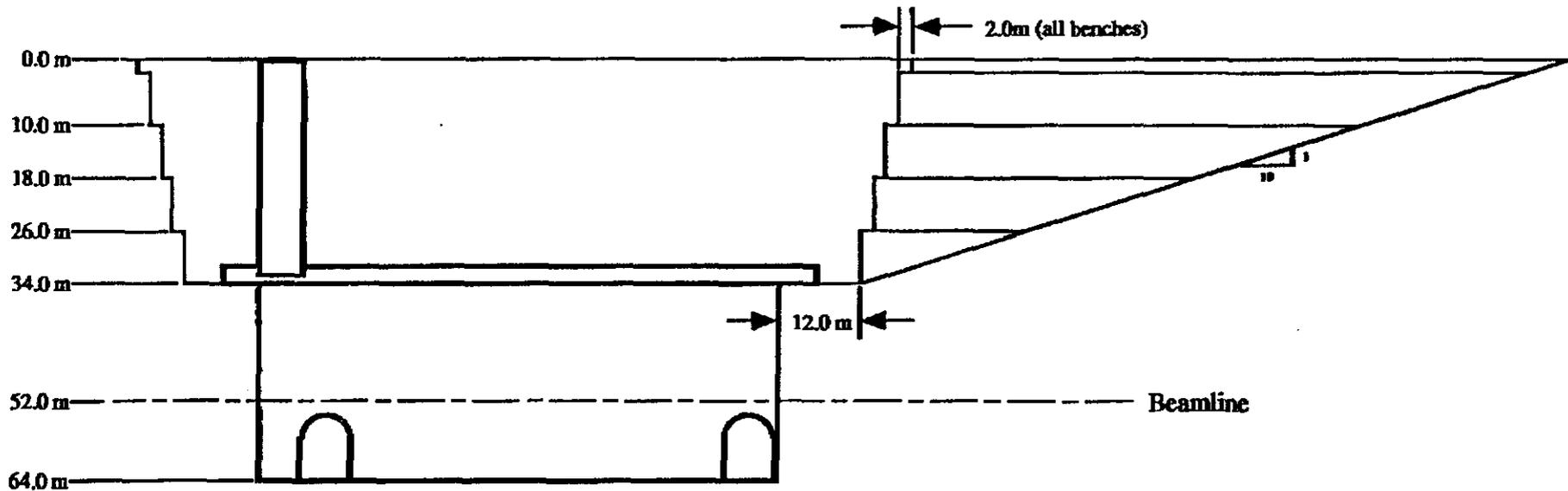
Enough rhetoric. Jon Piles will be interfacing with you as far as surface and underground facilities and infrastructure design and etc. My area of responsibility is costing/scheduling/planning so I will be interested in what comes out as building specs for costing purposes and when the facilities will be required. I am still looking for a MacProject or Open Plan type schedule which will help us understand the needs of the detector assembly at least as far as when facilities might be needed and possibly the numbers of people which will be showing up to do the work. It will be kept in confidence if that is a concern. Please respond.

Best Regards,

Dave Etherton

# SDC at WIN (IR 2) Showing Expected Excavation Cut

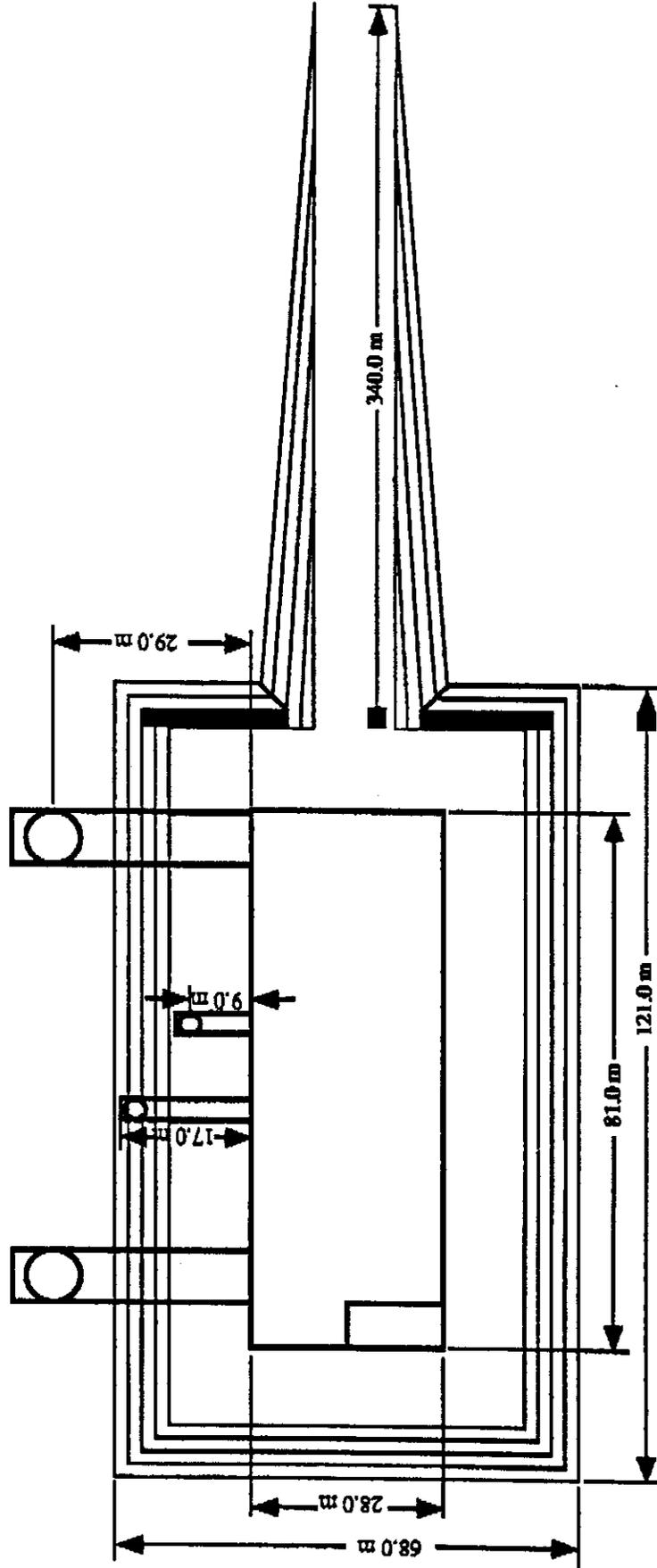
Depth to Hall Floor = 64 m  
Depth to Shelf = 34 m



Elevation Section

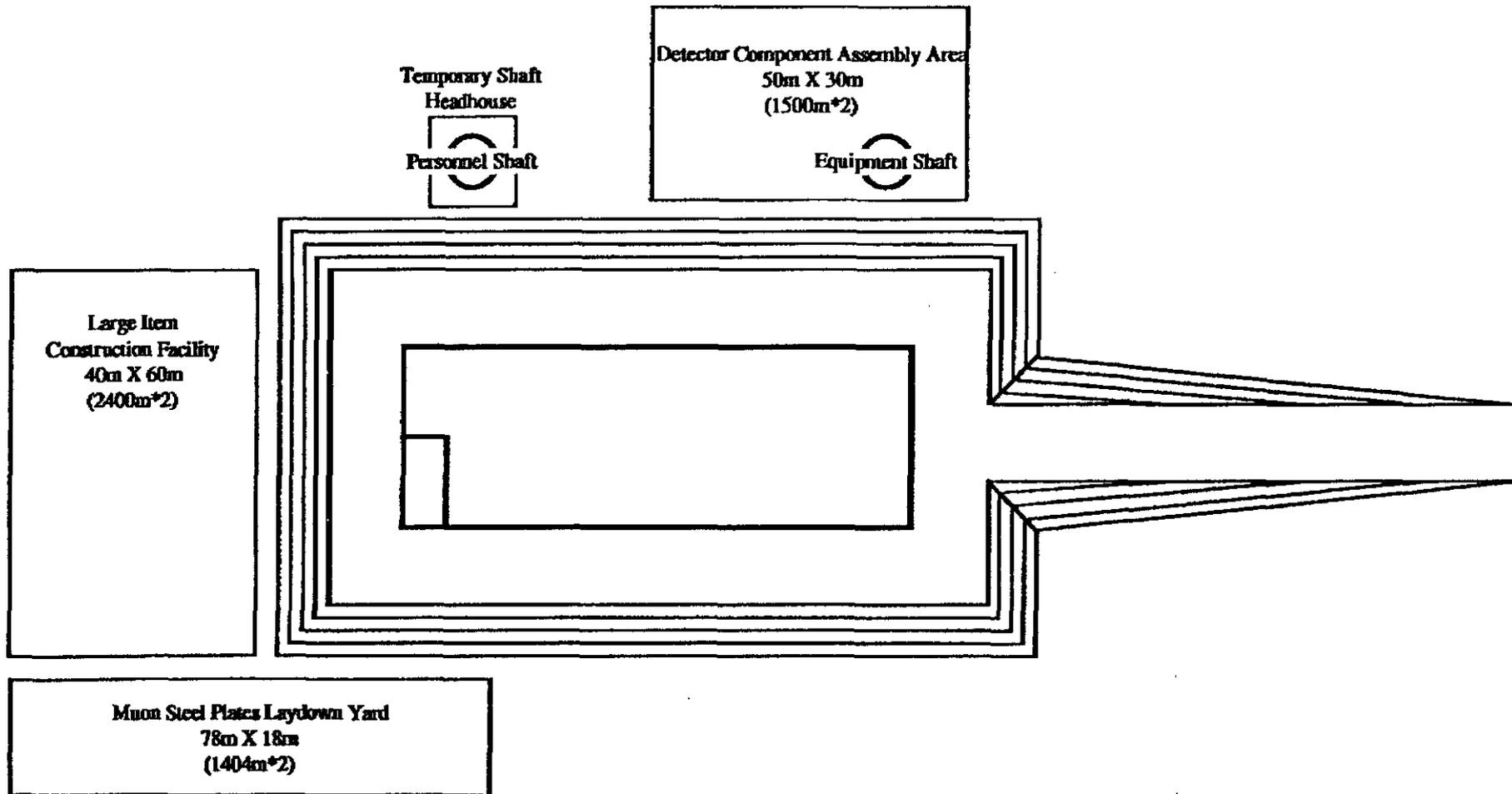
**SDC at WIN (IR):  
Showing Expected Excavation Cut**

Depth to Hall Floor = 4 m  
Depth to Shelf = 3 m



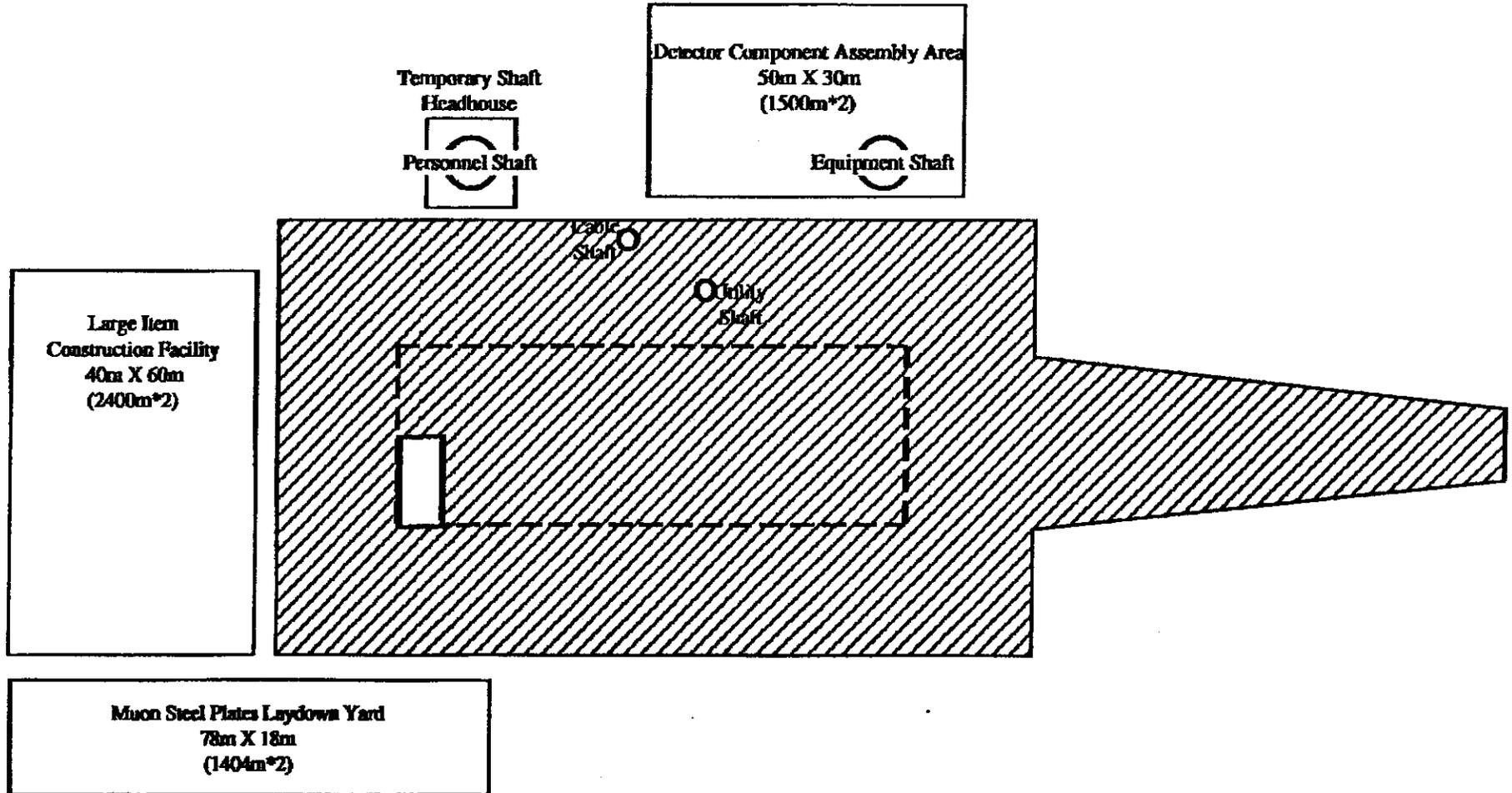
Plan View

**SDC at WIN (IR 2)  
Prior to Hall Beneficial Occupancy**



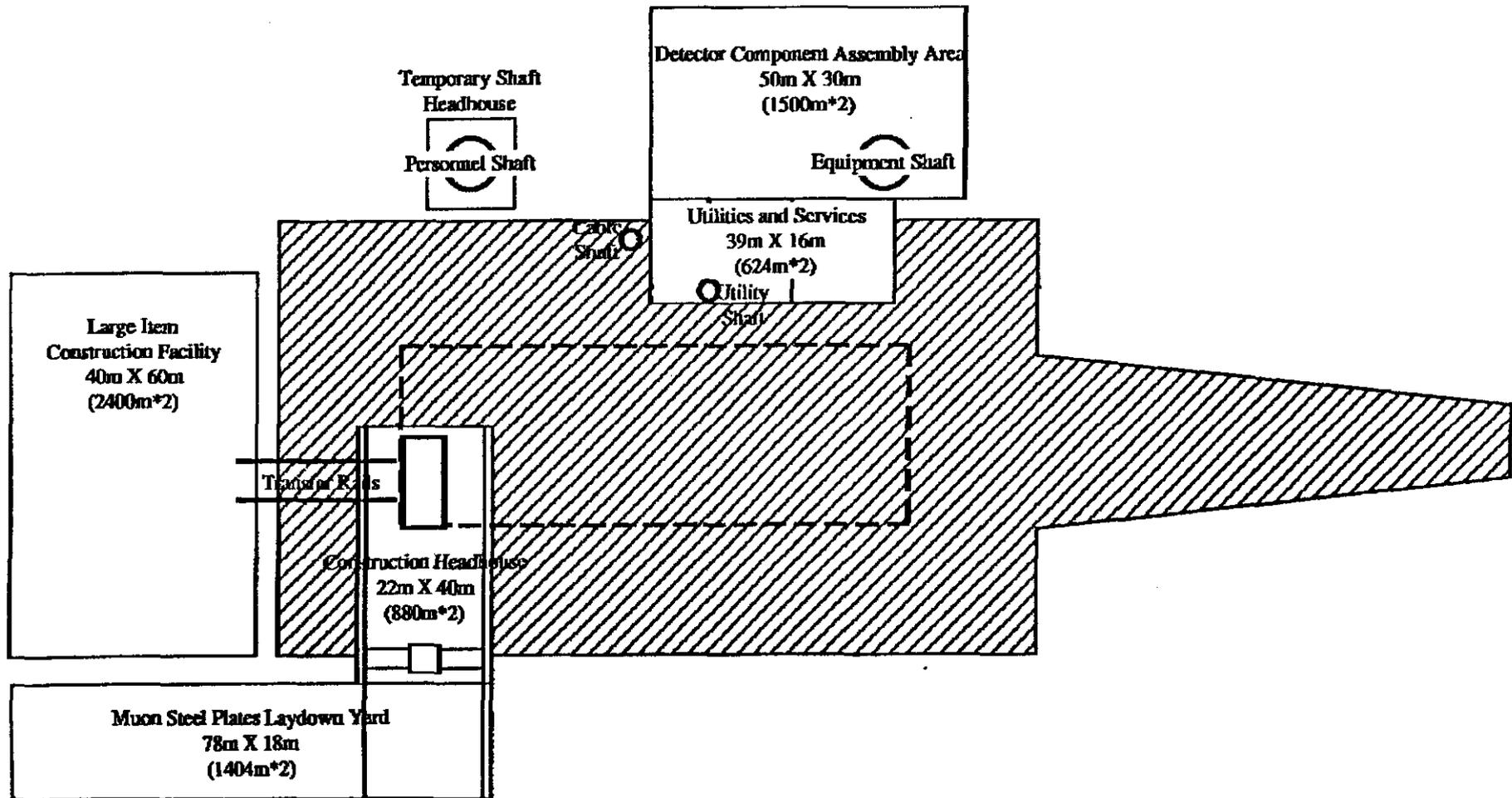
**Plan View**

**SDC at WIN (IR 2)  
at Hall Beneficial Occupancy**



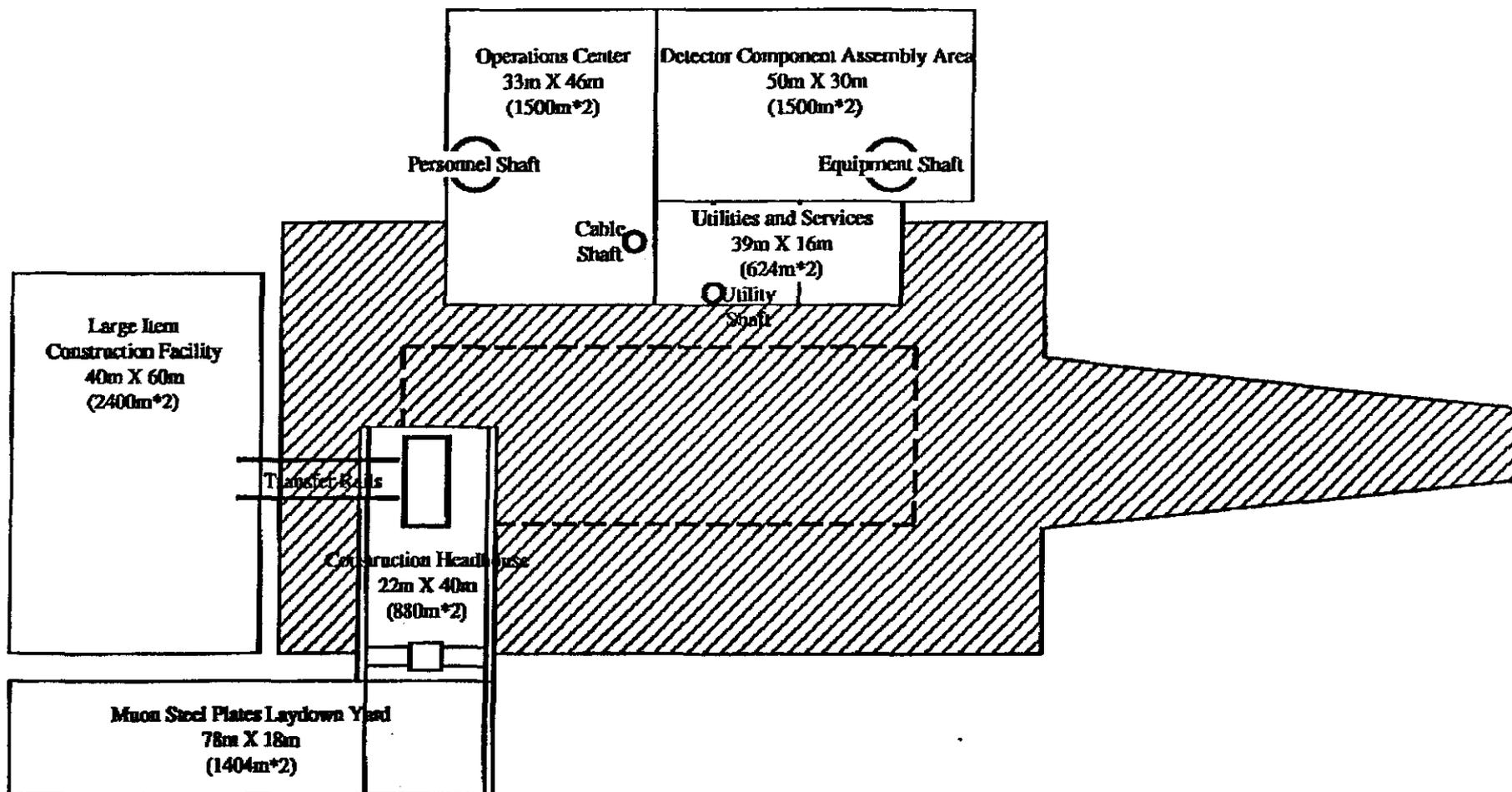
**Plan View**

**SDC at WIN (IR 2)  
6 Months after Half BOD**



Plan View

### SDC at WIN (IR 2) > 12 Months after Hall BOD



Plan View