

BNL-105830-2014-TECH EP&S No. 115;BNL-105830-2014-IR

791 Experimental area

G. M. Bunce

July 1985

Collider Accelerator Department Brookhaven National Laboratory

U.S. Department of Energy

USDOE Office of Science (SC)

Notice: This technical note has been authored by employees of Brookhaven Science Associates, LLC under Contract No.DE-AC02-76CH00016 with the U.S. Department of Energy. The publisher by accepting the technical note for publication acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this technical note, or allow others to do so, for United States Government purposes.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Alternating Gradient Synchroton Department BROOKHAVEN NATIONAL LABORATORY Associated Universities, Inc. Upton, New York 11973

> EP&S Division Technical Note No. 115

791 Experimental Area

Gerry M. Bunce

16 July 1985

This is the least-developed piece of the project. We have looked at the analyzing magnets and have a preliminary layout for the experimental area. Some changes have been requested on this layout.

I. Analyzing Magnets

Both magnets (a 48D48 and a 96D40) are to run with $\rm p_{T}$ = .3 GeV/c, $\rm \beta Bd\ell$ = 10 kg meters.

<u>48D48</u> With a 36" gap (a minimum of 33.9" was requested) (standard gap is 18"), l_{eff} = 62.3" (this comes from Kelvin Li data with mirror plates [see Fig. 1]). Therefore, B = 6.3 kg. The present coils will do this--the B is 18.5 kg with an 18" gap.

> Field uniformity is a problem. We have decided to shim the gap as needed to improve the uniformity.

coils have been designed with the same cross section as the existing coils and these should be ordered by July 30th. The advantage to us in power usage of doing this versus pushing a 120D36 very hard is shown in Fig. 2 (from W. Leonhardt).

Since we have decided to create a window-frame magnet (i.e. not a split coil arrangement like the 48D48), the field quality should be excellent.

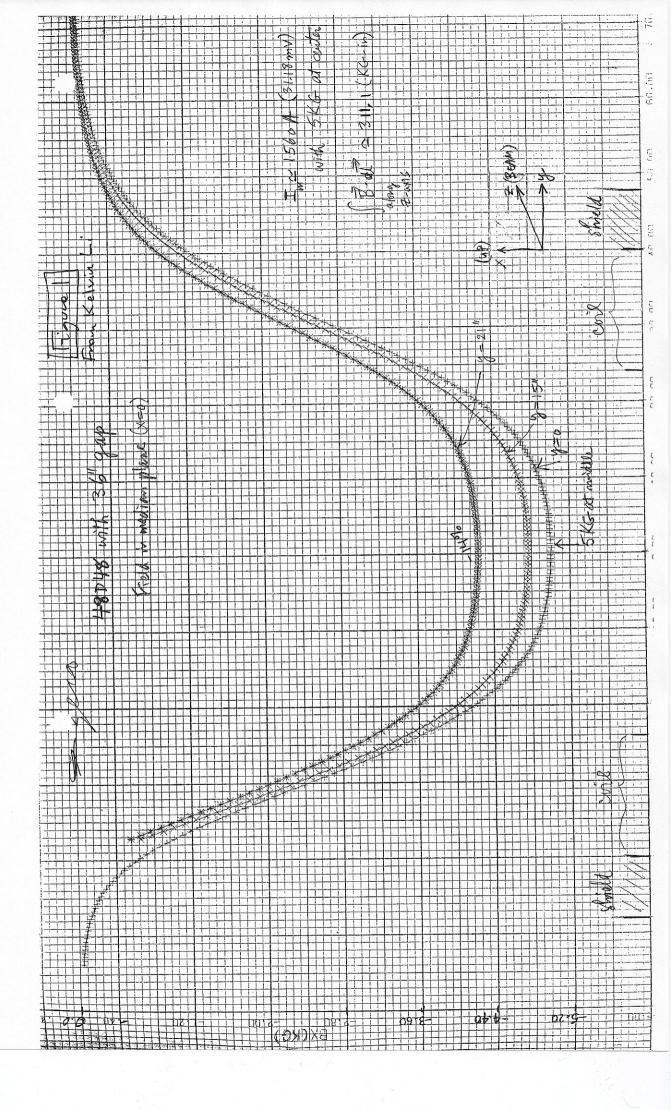
II. Experimental Area

An early layout is available dated 4/19/85. The changes requested are:

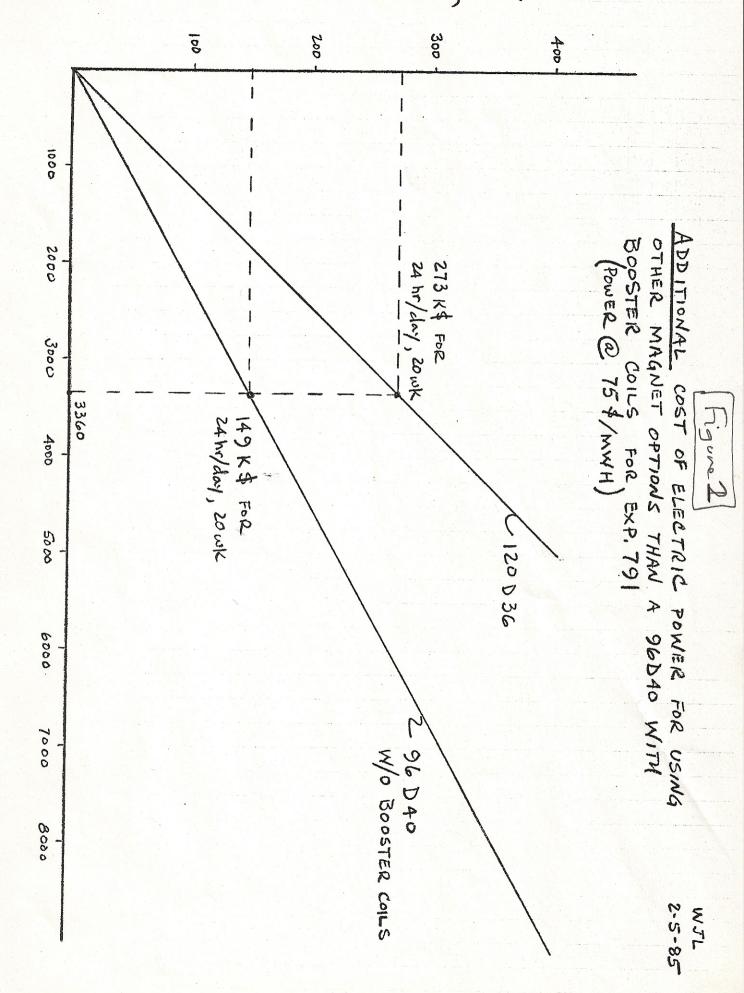
- a longer polarimeter (12 to 14 meters versus the 7 meters shown on the drawing.
- additional space to the sides of the lead glass and polarimeter (3.5 meters to each side).

We do not yet have trailer positions. The drawing shows the Christiansen trailer being used by 791, but it would be preferred to set up trailers in back of EEBA, in the B test beam trailer area. They will need a fast electronics trailer close to the lead glass region of their experiment, possibly between B5 and B1 or above their beam line. Since the trailer can't move, once installed, we need to understand E791's plans for their calorimeter before selecting a trailer position.

They have requested that the fast electronics trailer dimensions be $8' \ge 20'$, and three "main" trailers $3 \ge (8' \ge 20' \ge 8' \text{ high}(?))$. It is our guess that this main trailer space is too cramped.



ADDITIONAL ELECTRIC COST, K\$



RUNNING TIME, hrs.