383/9/7/11/2.

30th January, 1959 N.I.(G.P.)(59) 4

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

SECOND PHASE OF BUILDING AT THE RUTHERFORD LABORATORY

Note by Dr. Pickavance

1. The minimum accommodation estimated to be required for the operational staff, Institute staff and visitors working with the 7 GeV proton synchrotron, was included in the main building scheme approved as part of the 7 GeV proton synchrotron project (paper N.I.(G.P.)(57) 3). This accommodation, together with available prefabricated wooden buildings was estimated to be sufficient for a staff of 121 (not including industrial employees). It was stated in the paper that approval might be requested for more space later, when requirements were more accurately known.

2. Since the date of paper N.I.(G.P.)(57) 3, it has become clear that the number to be accommodated and the space required for the purposes considered in the paper is considerably greater than was then estimated. In particular, the engineering staff required to operate and maintain the accelerator, and the number of physicists required to develop the accelerator and the research equipment for use with it, were greatly under-estimated.

3. Secondly, there are now building requirements which are concerned with the laboratory as a whole rather than with the 7 GeV proton synchrotron specifically, and which were not included in the original building scheme. For example, the space required for the proton linear accelerator has increased, and must be met by using the prefabricated wooden buildings which were expected to contribute to the accommodation of the 7 GeV proton synchrotron staff.

4. Thirdly, it was at first thought that the A.E.R.E. should provide the accommodation for certain groups in the A.E.R.E. Accelerator Division, working for the Institute at the Rutherford Laboratory and also for a group of the Electronics Division working in the area. However it is now considered that the Institute should own all the Buildings on the Rutherford Laboratory site, and should therefore take responsibility for providing the buildings for all A.E.R.E. staff on the site. Nearly all of this staff are engaged in providing services to the Institute. However, it is proposed in the interests of efficient management, to keep the headquarters of the A.E.R.E. Accelerator Division on the Rutherford Laboratory site, and to keep with it a small staff (at present about 20) engaged in accelerator research which is not on behalf of the Institute. It is proposed that the portion of the A.E.R.E. Accelerator Division serving the Institute, the small group just mentioned who are engaged in other work, and the electronics group should be housed rent-free in Institute premises (subject to review if the circumstances should change greatly).

5. For the above reasons, there is a large further requirement for Institute buildings at the Laboratory. The opportunity has therefore been taken to make plans for a second phase of building as an integrated scheme, which will also leave freedom for further development when this is required.

6. The Chief Architect, A.E.R.E. has prepared a development scheme shown on drawing 470/HAL/20/A copies of which will be brought to the meeting, and has tabulated the items with their area and roughly estimated cost as follows:-

No. shown on plan	Nett usable area	Gross area	Description	Order of cost £.
1	24,000	30,000	Extension of 470.1, 18,000 ft.sup. labs. and 6000 ft.sup. offices.	200,000
2	2,500	3,000	Extension of 470.2 2,500 sq.ft. of offices	20,000
3	2,000	2,000	Extension of 470.2 preparation area. (already approved by the project committee)	11,000
4	2,500	2,500	Materials store	14,000
5. a.	10,000	12,000	Offices in south block on first and second floors 10,000 sq.ft.	
b.	3,000	3,500	Industrial staff accommodation in north block on ground and first floor	90,000
c.	1,000	1,000	Garage ground floor south block	
6		3,000	Radio Chemical Laboratory (no particulars)	30,000
7	4,800	4,800	Extension of 470.8 Engineering Lab. and test rig shop	30,000
8	5,000	5,000	Heavy equipment store	30,000
9	1,750	2,000	New entrance and admin block for 412	10,000
10	6,000	6,000	Bubble Chamber plant room	55,000
			New main road	10,000
			Total	500,000
			Fees 10%	50,000
			Total	550,000

7. The items (except items 4, 8 and 10) have already been very briefly described to the Committee at the time of the preparation of the 1959/60 Estimate.

Items 1, 5 and 7 make the main provision for additional accommodation for physicists, engineering staff and industrial staff. A garage for official cars is also included (there are already five on the site). In accordance with paragraph 4 above, Item 1 includes not only the laboratory and office block in the Institute estimate (£48,000 - see N.I.(G.P.)(58) 13) but also the laboratory and office block for A.E.R.E. Accelerator Division physicists which was put at the same time into the A.E.R.E. Estimates (£135,000). In both cases all the expenditure was forecast for "future years" i.e. after 1959/60 but it is now desired to make a start in 1959/60 if money proves to be available through savings or delays elsewhere in the Institute programme.

Item 2 is an extension of the 7 GeV proton synchrotron control block offices. This is regarded as an extension to the buildings specifically for the 7 GeV machine, and it is proposed to seek approval for it as part of that project, through the agreed channels.

Item 3 an extension to the preparation area, is also regarded as part of the 7 GeV building project, and has already been approved by the Project Committee under their delegated powers.

Item 4 is a local store for A.E.R.E. Accelerator Division. It was included in the A.E.R.E. Estimates (£15,000 all in "future years") but as explained in paragraph 4 above it is now considered that the Institute should be responsible.

Item 6 is a proposed radiochemical laboratory. It is included here for consideration of siting, but approval of this item is not requested at present.

Item 8 is a store for large items of experimental equipment and engineering plant which from time to time will not be needed in the experimental area and would cause congestion there. The original intention was to store such items in the preparation area and the ancillary plant (Arcon) building but the engineers now consider that the whole of these buildings will be needed for assembly and workshop purposes.

Item 9 provides for one new prefabricated wooden office building for the P.L.A., in a position now occupied by temporary huts. This would become the main entrance to the P.L.A. group of buildings, on the south side, facing the rest of the Laboratory. Approval of this small item will be sought in due course.

Item 10 is the plant room and adjacent hard standing required to accommodate the plant for the large National hydrogen bubble chamber and the heavy liquid chamber recently discussed by the Governing Board (N.I.(59) first meeting Minute 10). It will be recalled that a sum of £25,000 for a test house for the hydrogen bubble chamber was included in the estimates. The testing and servicing space for the bubble chamber itself has been provided by an extension of the main experimental area, which has been approved by the Project Committee as part of the main 7 GeV accelerator project. The fixed plant to serve the bubble chamber, however, requires a separate building. Although full details of the requirement are not yet known, the building will be required quickly for installation of plant for the testing of the bubble chamber, and sufficient information has now been obtained to allow a reasonable estimate of the space required. The size of the proposed building allows a margin for uncertainty.

8. I am satisfied that the accommodation requested, which is sufficient for an additional 200 staff, is necessary for the efficient operation, development and use of the 7 GeV proton synchrotron, and the Rutherford Laboratory in general, and that it would provide reasonably adequate accommodations in so far as the needs can now be forseen. It does not, however, provide for any possible additional research facilities at the Laboratory, nor for additional administrative staff which would be required if it became necessary to undertake some of the services now provided by the A.E.R.E. The scheme proposed is capable of extension.

9. I propose to discuss the designs, as they develop, with potential users of the Rutherford Laboratory, who will then be able to see that their needs are met.

10. The Committee's approval of the general scheme and layout is requested.

It is recommended that items 1, 4, 5, 7 and 8 should be undertaken under one contract to be placed by competitive tender. The Chief Architect estimates that the preparation of working drawings, bills of quantities and invitations to tender would take six months from the date of approval of the scheme, and that the work would take fifteen months to complete thereafter.

If the Committee approve, it is requested that Treasury approval of this project should be sought, at an estimated total cost of £364,000, and that approval should be given for starting the project in the financial year 1959/60, if funds are found to be available through savings or delays elsewhere in the Institute's programme.

It is recommended that Item 10 should be undertaken under a separate contract to be placed by competitive tender at an estimated price of £55,000. If the Committee approve, it is requested that authority be obtained for this project also, and the Committee are asked to approve its commencement in 1959/60 if funds are found to be available.