24th April, 1963. NI/GP/63/8

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

Increased Estimate for the Electron Laboratory

Note by the Chairman

1. Firm proposals and estimates for the Electron Laboratory buildings were submitted by Professor Merrison to the Governing Board on 28th March in paper NI/63/6. At the Board's request, these proposals and estimates have been examined at a special meeting by representatives of the Institute and the A.E.A., and a copy of the notes of this meeting is appended. It was concluded that the proposed buildings were well planned and not excessive. The new estimated cost is higher than the amount allowed for when the approved estimate was prepared, and it was recommended that correspondingly increased Treasury approval should be sought.

2. The present Treasury approval is for £3.29 million. This figure was put to the Treasury in August, 1962 with the following breakdown:-

| | | |
|---|---|---|
| Site | | £ 50,000 |
| Buildings | | £1,340,000 |
| Plant | | £1,440,000 |
| Contingency | | £ 460,000 |
| | Total | £3,290,000 |

In giving approval, the Treasury made it a condition that the N.I.R.N.S. would give them an opportunity to comment on the control estimate as soon as it was ready.

3. The new estimate for the project is £3.88 million made up as follows:

| | | £ | £ |
|---|---|---|---|
| Site | | | 50,000 |
| Building | - Estimate | 1,636,000 | |
| | - Contingency 10% | 164,000 | |
| | - Fees 15% | 270,000 | |
| | | 2,070,000 | 2,070,000 |
| Plant | - Estimate | 1,467,000 | |
| | - Contingency 20% | 293,000 | |
| | | 1,760,000 | 1,760,000 |
| | | | £3,880,000 |

The status of the estimates and contingency provisions both for plant and buildings were considered by the special meeting and it was agreed that the estimates were still "project estimates" rather than "control estimates" but that they were estimates of a kind on which it was usual and proper to seek substantive Treasury approval. The building contingency of 10% was stated to be 5% less than would be

usual for a similar project in the A.E.A. at a similar stage, and it was recognised and agreed that there would be little or no scope for minor additions to requirements. The contingency of 20% on the plant estimate was discussed and considered to be just adequate.

4. I recommend to the Committee that Treasury approval should now be sought for an increase in the cost of the Electron Laboratory capital scheme by £580,000, bringing the total approval to £3,880,000. I shall be grateful if members will let me know by 7th May whether they agree.

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Note of a Special Meeting held on 18th April, 1963

to discuss The Electron Laboratory Buildings

| Present: | | |
|---|---|---|
| | Lord Bridges | (Chairman) |
| | Mr. E. L. Ashley | UKAEA Engineering Group |
| | Professor J. M. Cassels | NIRNS |
| | Mr. A. E. Drake | UKAEA |
| | Professor B. H. Flowers | NIRNS |
| | Mr. M. J. Moore | Electron Laboratory |
| | Sir Leonard Owen | UKAEA |
| | Mr. F. A. Tatford | UKAEA |
| | Professor A. W. Merrison | Director, Electron Laboratory |
| | Dr. J. A. V. Willis | (Secretary) |

1. The meeting had been arranged at the request of the N.I.R.N.S. Governing Board to consider in detail the proposals for buildings for the Electron Laboratory. At the Chairman's request, Professor Merrison described the proposed buildings with the help of paper NI/63/6 and a model of the site.

2. The following points were made in discussion of the proposed buildings:-

(a) Professor Flowers asked where storage rings would be sited if they were later added, and whether the beam path to them would unduly clutter the experimental area. Professor Merrison said that the beam would go through the experimental area, but could be kept to one side of it.

(b) Sir Leonard Owen asked why there was one large experimental area in the position shown if it would be unsafe to work in with the machine running. Professor Merrison explained that the layout with the experimental area overlapping a considerable section of the ring including three long straight sections, was very convenient and flexible for experiments. It did however lead to one big area. The radiation would come mainly from the experimental beam lines and targets rather than the synchrotron ring itself, which could be adequately shielded.

(c) Discussion followed on the size of the experimental area and it was agreed that this was not excessive. It was thought quite likely that it would later have to be extended, and room had been left for this purpose.

(d) Professor Flowers enquired about the adequacy of counting room space. Professor Merrison said that there were two counting rooms 30' x 30' and 60' x 30', which he considered adequate to start with. There was room for extension.

(e) The laboratory and office block was discussed. Professor Merrison said that it was proposed to build 22,500 sq. ft. to start with, and a further 13,500 sq. ft. later when the details of the laboratory were clearer. Both parts were however included in the estimate. The rooms were convertible between laboratories and offices and it was planned to have about half of the total area as laboratories initially. The total number of staff using this building would be about 120, plus some visitors.

(f) Sir Leonard Owen enquired about cooling water. Mr. Moore said that water would be drawn from the canal and returned to another branch of the canal through a mile of pipe, but the distance along the canal from intake to outfall was about 3 miles. The pipes would be adequate for dealing with a heat load of 15 MW.

(g) The canteen had not been designed in detail, but the general plan was for 90 people at each of two sittings, and a total cost of £30,000.

3. The estimated cost was then discussed:

(a) Mr. Drake pointed out that the Treasury approval for the scheme, given in August, 1962 was for £3.29m, and that the estimate on which this approval was based included £1.34m for buildings. By contrast, Professor Merrison's present estimate for buildings was £1.636m, or £1.88m including 15% fees. Professor Merrison said that this was the whole extent of the increase in the estimate, as the estimate for the plant remained virtually unchanged.

(b) It was agreed that the contingency provision, previously shown as one item, ought now to be considered separately for the buildings and for the plant. There was considerable discussion about the appropriate percentage of contingency on the building estimates. Sir Leonard Owen said that on a comparable project in the A.E.A., 15% contingency would normally be allowed at this stage. It was, however, agreed that the requirements had been stated to the A.E.A. Engineering Group in considerable detail and that the Institute accepted that there would be very little scope indeed for minor changes or additions. The Institute were responsible for the finance, and wished to keep the expenditure on this project within the estimate now being put forward. On this basis, it was agreed that a contingency of only 10% on the buildings would be included.

(c) The contingency on the plant estimate was next discussed. Mr. Drake pointed out that if the total contingency were left unchanged at £460,000 and the agreed 10% contingency on the buildings were deducted from this, approximately 20% contingency on the plant estimate would be left. After discussion, it was agreed that this would be just about right at the present stage.

(d) Professor Cassels suggested that the principal causes of the increase in the building estimate should be summarised, and Professor Merrison gave the four main causes as the following:-

(i) The present estimate was the result of much more elaborate and extensive work. A similarly full estimate made at the time of the original one would, it now appeared, have given a higher figure than was then estimated.

(ii) Building costs had risen by about 10% (£140,000) since the date of the previous estimate (but not all of this increase had been since the Treasury approval in August, 1962).

(iii) One requirement had been considerably under-estimated in the original plans, i.e. the space required for equipment serving the synchrotron. The extra space was in fact being provided rather cheaply in the new plans by roofing in the area within the synchrotron ring, but the increase nevertheless amounted to £150,000.

(iv) The cost of bringing services to the site had been represented in the previous estimate by a token sum, the site being unknown. The present estimate exceeded the token sum by £140,000.

4. With regard to the Treasury's condition that they should see the control estimate, Sir Leonard Owen said that the present building estimate was not a control estimate. That would be completed in about six months time. The present estimate was however one of the kind on which he would expect to go to the Treasury for approval. (Secretary's note: the status of the plant estimate was not fully discussed in this context but it is similar to that of the buildings).

The meeting recommended that the present estimates should now be submitted to the Treasury for approval, with an explanation of their nature as stated by Sir Leonard Owen above.

5. The Chairman said that he would refer the recommendations of the meeting to the Institute's General Purposes Committee by correspondence.

6. The Chairman authorised the sending out of invitations to tender for the building work and said that he would like the Treasury to be informed that this had been done when they were asked to approve the increased cost. But he made it clear that approval to place the contract could not be given yet.

7. The Chairman asked Professor Merrison and Mr. Ashley to proceed with the next steps towards the acquisition of the land.