JUDGMENT : Judge Humphrey Lloyd QC TCC 29 March 2006

1. In this action ERDC claims payment for the construction of new sports facilities for Brunel University (Brunel) at a location known as Site 3, which forms part of Brunel's Uxbridge campus. The works, known as "Phase 1", comprised a new outdoor athletics track with associated field events, an equipment storage building, and associated floodlighting and landscaping ("the works"). Later phases were to comprise pitches for football, rugby and hockey, and the upgrading of existing netball and tennis courts.

2. In December 2001 ERDC submitted a tender for the works which were to be carried out on the basis of the JCT Standard Form of Contract With Contractor's Design, 1998 Edition. Under the proposed terms Carless and Adams Partnership (CAP) were to be Brunel's Employer's Agent and Quantity Surveyor. (Brunel's other consultants included Building Design Partnership (BDP) for landscaping and "GVA Grimley" (Grimley) for planning.) On 5 February 2002 Brunel decided, having considered competing tenders, to appoint ERDC to undertake the works. However, it was also decided that the formal execution of contract documents ought to be deferred until after the grant of full planning permission (which was expected in a relatively short space of time). Pending full planning permission, it was agreed that ERDC would progress with the design of the works under the terms of a letter of appointment. The first letter of appointment was issued on 6 February 2002. A further letter of appointment was issued on 30 April 2002, followed by a third on 15 May 2002. All three letters were returned countersigned by ERDC as provided by their terms. ERDC commenced construction of the works on 27 May 2002. Clear planning permission had still not been obtained when ERDC started work, and two further letters of appointment were issued on 1 July 2002 and 2 August 2002. (ERDC did not countersign and return these letters.) The authority under the final of these letters expired on 1 September 2002. Contract documents were never executed. Following this date ERDC continued with the works even though no further letters of appointment were forthcoming. The athletics track was completed on 22 October 2002, some 3½ weeks after the date that ERDC had planned to meet. The majority of the remaining works were finished by the end of November 2002.

3. On being sent contract documents for signature ERDC, in a letter to CAP of 3 December 2002, declined to do so and claimed (for the first time) that it would only continue work on the basis that all work carried out by it would be valued on a quantum meruit basis rather than in accordance with the valuation principles applicable under the JCT Standard Form of Building Contract with Contractor's Design ("the JCT Valuation Rules"). Its letter read:
"Dear Sirs
Brunel University – Running Track
We refer to our meeting at the University on 20 November 2002 and confirm having received from you various packages referred to as "Contract Documents".
As you are aware the letter of intent expired during early September and the work content of the project has changed significantly disrupting and changing the original planned intent. It is therefore not possible for us to sign these Contract Documents and we write to confirm formally that the terms thereof are unacceptable to ERDC.
Notwithstanding the foregoing, we are prepared to continue work on the project in accordance with the agreed scope of works and any changes instructed thereto but strictly on the basis that all work carried out by us is valued on a Quantum Merit basis.
Unless we hear from you to the contrary, then we will assume that you are agreeable to the foregoing and we will continue to construct the works on the foregoing basis and will discuss with you our weekly and monthly programming including all costing information available."

4. Prior to December 2002 ERDC had submitted eight Applications for Payment based on the Contract Sum Analysis referred to in the Second Recital of the proposed conditions of contract and following the JCT Valuation Rules. The Contract Sum Analysis had evidently been prepared by CAP from the Contract Sum Analysis which had been appended by ERDC to its tender dated 3 December 2001 with amendments and which was then endorsed and adopted by ERDC as the basis for its applications for payment submitted between 10 June (Application for Payment No 2) and 29 November 2002 (Application for Payment No 8).

5. Brunel did not accept ERDC's contention that all the work should be valued on a quantum meruit basis. At a Site Meeting No. 9 on the date after ERDC letter, 4 December 2002, CAP said that ERDC had to provide reasons why they were not willing to sign the documents that it had and without them work would not be valued "on a quantum meruit basis". Despite a further request from CAP on 16 December 2002, ERDC did not do so until it sent a letter of claim in July 2003, although in the meantime it continued to maintain its basic position (see its letter of 23 December 2002). In this action ERDC's main claim is that all the works should be valued on a costs plus basis. Brunel says that the works should be valued in accordance with the arrangements proposed and, until late 2002, followed by both parties.

6. ERDC left site, by agreement, at the end of March 2003. The works were then not entirely complete. After December 2002 ERDC had completed the mains electrical connection, lighting installation, planting and top soiling, construction of a pedestrian crossing to Kingston Lane, the placing of turf strips/fencing as a temporary measure to either side of the track, fencing to the tennis courts and other minor fencing works, and screeding and drainage works to the steeple jump.

7. ERDC called, as witnesses of fact, Mr Colin Blank, Contracts Manager of J B Corrie & Co Ltd, ERDC's fencing sub-contractor; Mr David Comminskey, a General Foreman employed by ERDC; Mr Donald Cunningham who was employed as a quantity surveyor by ERDC until July 2003 based in ERDC's Head Office in Edinburgh and who gave evidence by videolink from Malaysia); Mr Gordon Thompson, Contracts Manager of the Sports Surfacing Division of ERDC; Mr Paul Merriman, a Foreman employed by ERDC; Mr Dan Shotton, a Partner in DW Shotton Landscapes, ERDC's Landscaping sub-contractor; Mr Brian Blunden, Floodlighting Division Manager for Lorne Stewart Plc, ERDC's

Lighting sub-contractor; Mr Joseph Lenzie, a Site Agent employed by ERDC; Mr David Reynolds, Sports Surfacing Director of ERDC Group Limited; Mr Ronald G Mitchell, Managing Director of ERDC Group Limited. The evidence of Mr Niall Barry was admitted under the Civil Evidence Act. There were witness statements from others (Mr Denis Betts, Mr William Kinross and Mr Jon Mawson) who were not called but whose evidence was treated as agreed. In the event little reference was made to witnesses that were not called.

8. Brunel called Mr Stuart Binnie, a Partner in the firm of Carless and Adams Partnership (CAP) and a Chartered Quantity Surveyor; Mr John Martin Jones, a landscape architect working for Building Design Partnership (BDP, retained by Brunel); Mr Phillip Christopher Keeley, a Senior Consultant at Materials Science Consultants Limited; and Mr Tom Enright, Clerk of Works, of Hickton Consultants. The evidence (that I admitted) of Mr David Rumsey, Commercial Manager of Mace Limited (trading as C2C Management Limited) was agreed. The evidence of Mr Paul Farley, Brunel's Deputy Director of Estates until mid 2004, was received under the Civil Evidence Act.

9. ERDC did not call any expert opinion evidence on delay. It called as its expert on quantum Mr Robert Burt, an Associate Director of Trett Consulting. Brunel called Mr Ian Robinson, a Partner in Davis Langdon LLP, Chartered Quantity Surveyors, to express opinions on matters of delay and to give evidence in relation to quantum. Mr Burt was somewhat constrained on quantum by his instructions, e.g. *"My instructions in respect of ERDC's Primary Case and hence this present exercise, are that the original tendered prices are not binding, relevant to or determinative of the measure of reasonable cost"*.

   Mr Burt expressed no opinions about delay and disruption. Mr Ian Robinson had carried out a detailed analysis that was contained and discussed in his Report on Delay. Both experts had put in an immense amount of work in preparing their reports, in answering questions and in four joint and other helpful statements.

10. There was the usual volume of documents. An indication of the complexity of the ramifications of the case may be seen from the length of the written closing submissions,

11. As a general preliminary observation I have to say that I found that the conduct of each party during the work was not appealing. ERDC, although evidently a leader in the design and execution of sports grounds, displayed a marked lack of consistent and effective management. It was needed on a design and build project which was being carried out way from its base in Scotland and, inevitably, with numerous sub-contractors and suppliers. A high degree of skilful co-ordination and supervision was plainly required but was not apparently provided. On the other hand in 2002 Brunel's approach (with which I include, collectively, its advisers) seemed not to take account of the short working period actually available for outdoor work. In addition, whilst it was understandable that Brunel wanted the track ready for the start of the academic year it did not appear to have made up its mind as to what it wanted. Either by changes of mind or indecision it managed to make things difficult for ERDC. However I consider that ERDC was treated fairly by CAP in valuing the work and in determining what extensions of time might be granted, especially bearing in mind the lack of information provided by ERDC. Paradoxically, perhaps, I mention these views at this stage solely to get them out of the way. Attitudes in 2002 and in 2003 are now water under the bridge. With a very few exceptions I have decided the issues in this case without regard to them as the issues in the main require a completely objective approach, although not too clinical an approach. Put another way, this is not a case in which the merits are all on one side and not the other. Similarly, these are only general impressions of each party, corporately, as it were. I have not formed any views about the competence or otherwise of any individual, particularly those whom I saw and heard, other than to recognise that a number of them (on both sides) were doing their work well and professionally in trying circumstances.

12. The first primary issue between the parties is whether the work done prior to 1 September was done prior to any contract or contracts and, if so, what contract(s). The second main issue concerns the valuation of the work done. Although the parties disagree about the basis on which the works should be valued, it does not translate into a large amount on a basic valuation. The greater difference between the parties depends not on valuation but on the position in relation to delay and disruption and items excluded by Brunel, e.g. those termed Potential Further Entitlements (PFEs) by ERDC. In summary, the respective positions of the experts on valuation at the outset of the trial were given as follows:

Description	Burt (ERDC)	Robinson (Brunel)
Valuation on basis of JCT Valuation Rules	£1,537,141.71	£1,517,105.90
Valuation on cost plus basis	£1,643,282.03 (excl. PFEs)	£1,610,348.34

13. However ERDC's "Primary Case" took its claim on a cost plus basis, using Mr Burt's figures, to £1,970,273.52 (or £2,109,019.83 in final form), inclusive of PFEs and at the highest level of profit whereas, as set out in the table above, the amount assessed by Mr Robinson the same basis was £1,610,348.34. Leaving aside profit the difference was £210,490.41. The figures assessed according to the JCT Valuation rules (see the table above) gave an overall difference of £20,035.81. The figures come from the schedules to the experts' last joint statement. Brunel's case at the end of the trial was that the total valuation was £1,508,377.16 on a JCT basis and £1,624,915.62 on a cost plus basis.

13. Brunel paid ERDC £1,266,366.30. That amount will be deducted from the appropriate gross valuation. Brunel had formally maintained in its Counterclaim that ERDC had been overpaid by about £50,000 (but that has been overtaken). However Brunel maintains a Counterclaim for unfinished and defective work and design which comes to about £145,000, excluding about £43,000 for professional fees.

14. Essentially the issues between the parties may be grouped as follows:
    1. On what basis is the Work done prior to 1 September to be valued?
    2. On what basis is the Work done after 1 September to be valued?
    3. Has sufficient allowance been made for any delay or disruption experienced by ERDC?
    4. What is due to ERDC in respect of the work done?
    5. Is that amount to be adjusted on account of Brunel's "Counterclaim"?

    The issues overlap so the discussion of and answers to some or parts of them may appear out of sequence.

1. Valuation of Work done prior to 1 September 2002

15. It is common ground that there was no contract after 1 September 2002. The first issue is therefore the effect of the letters of intent. The first letter read:

"6 February 2002
The ERDC Group Limited
20 Harvest Road
NEWBRIDGE
Midlothian
EH28 8LW
BY POST AND FACSIMILE

For the attention of D Reynolds/G Anderson Esq

Dear Sirs,

Re: Brunel University Sports Facility, Site 3 – Phase 1 (XCC)

We write to inform you that your adjusted tender for the above works in the sum of £1,238,635.00 has been recommended for acceptance. However, the University are not in a position to award a contract until certain planning conditions are discharged.

In the meantime in order to enable you to deliver the works in line with the Construction Programme of 8 weeks design/mobilisation period and 18 weeks construction, the University is prepared to issue this letter of appointment pending the execution of the Formal Contract subject to the following terms and conditions:

1. You are hereby authorised to carry out design, planning and procurement works as necessary to make a full and proper start to the works once full planning permission has been received subject to satisfactory insurances and liaison with the University Authorities which shall comprise some or all of the following but not restricted to the following:-
   - *Design works in order to gain full planning permission*
   - *Submission of samples*
   - *Planning and procurement in preparation for a start on site*

   Work shall be paid for in accordance with the normal valuation and certification rules of the JCT Standard Form of Building Contract With Contractor's Design to a maximum of £15,000.00 until the issue of a further letter of intent and agreed revised sum or signing of the contracts.

   However such payment will not include any entitlement for loss of profit on any works not carried out.

   No expense shall be incurred in excess of the above sum or agreed revised sum until such time as the formal Contract Documents have been signed.

2. Your appointment shall be deemed to have commenced as at the date of the initial letter of intent issued on 6 February 2002.

3. Until formal execution of the Contract your appointment will be governed by the terms of this letter and the first letter of intent referred to in item 2. However upon the execution of the Contract performance by you of the works authorised by this letter shall be deemed to have been carried out under the Contract and according to its terms and conditions.

4. In the event that the Contract has not been entered into by the 1 April 2002 the appointment conferred by this letter shall terminate with immediate effect. Subject thereto the terms of this letter will apply unless and until either:-

4.1 The appointment pursuant hereto is terminated by Brunel University in accordance with the JCT Standard Form of Building Contract With Contractor's Design, or

4.2 The Contract is entered into by you and Brunel University.

5. In the event of early termination of the appointment pursuant to this letter in accordance with the provisions of paragraph 4 Brunel University shall pay you a fair and reasonable amount (which shall not exceed fifteen thousand pounds) (£15,000.00) taking into account any and all monies as have been provided prior to determination and all disbursements PROVIDED ALWAYS that where your appointment is terminated by Brunel University in accordance with the JCT Standard Form of Building Contract With Contractor's Design as a result of failure by you to perform and observe any of the terms and conditions hereof the University shall be entitled to deduct from such monies and cost of procuring a replacement Contractor, complete such of the works as remain to be performed.

6. Subject to your acceptance of the foregoing terms and conditions, Brunel University hereby confirms that it will pay you up to the sum of fifteen thousand pounds (£15,000.00) in respect of the provision of the works required under the terms of this letter.

7. Please provide us with a copy of your developed Health and Safety Plan as soon as possible, but in any case at least five days prior to any work commencing on site.

This letter constitutes an instruction to you to commence work but only as necessary for you to ensure that the agreed construction programme is met.

As you are aware planning permission has been granted subject to the finalisation of an S106 Agreement and certain conditions being discharged before full permission is granted and works may commence on site. Details of this are contained in our letter to yourselves dated 31 January 2002. Your reply to this letter dated 1 February 2002 confirms that you will be able to submit the relevant information, etc. within 10 working days after the date of this letter. Should planning permission, sufficient to commence works on site, not be received by the planned start on site date Brunel University reserves the right to extend the start on site date through discussion and agreement with yourselves.

You shall release no information concerning this interim arrangement publicly without the Employer's prior approval in writing.

Please confirm by return that the above terms are acceptable to you by countersigning and returning one copy of this letter.

Yours faithfully,
Paul Farley
DEPUTY DIRECTOR – ESTATES'

16. The differences between that letter and the later letters are mostly immaterial. However I take as an example the second letter of intent dated 30 April 2002 as it referred to the first letter. It read

"Dear Sirs

<u>Brunel University, Sports Facility. Site 3 – Phase 1 (XCC)</u>

We write to inform you that your adjusted tender for the above works in the sum of £1,238,635.00 has been recommended for acceptance. However, the University is not in a position to award a full contract until certain planning conditions are discharged.

In the meantime in order to enable you to deliver the Works in line with the Construction Programme of 2 weeks mobilisation commencing from the date of this letter and 18 weeks construction thereafter in the sum of £1,238,635.00, the University is prepared to issue this letter of appointment pending the execution of the Formal Contract subject to the following terms and conditions:

1. You are hereby authorised to carry out design, planning and procurement works as necessary to make a full and proper start to the Works on 15 May 2002 subject to satisfactory insurances and liaison with the University Authorities which shall comprise some or all of the following but not restricted to the following:-

- *Design works in order to gain full planning permission*
- *Submission of samples*
- *Planning and procurement in preparation for a start on site*
- *Completion of track design and associated works*
- *Sub-contractor design of floodlighting, irrigation and fencing*
- *Track surfacing sub-contractor confirmation*
- *CDM regulations 1994 & QA requirements*

Work shall be paid for in accordance with the normal valuation and certification rules of the JCT Standard Form of Building Contract With Contractor's Design to a maximum of £38,000.00 until the issue of a further letter of intent and agreed revised sum or signing of the contracts.

However such payment will not include any entitlement for loss of profit on any works not carried out.

No expense shall be incurred in excess of the above sum or agreed revised sum until such time as the formal Contract Documents have been signed.

2. Your appointment shall be deemed to have commenced as at the date of the initial letter of intent issued on 6 February 2002.

3. Until formal execution of the Contract your appointment will be governed by the terms of this letter and the first letter of intent referred to in item 2. However upon the execution of the Contract performance by you of the works authorised by this letter shall be deemed to have been carried out under the Contract and according to its terms and conditions.

4. In the event that the Contract has not been entered into by 15 May 2002 the appointment conferred by this letter shall terminate with immediate effect. Subject thereto the terms of this letter will apply unless and until either:-

4.1 The appointment pursuant hereto is terminated by Brunel University in accordance with the JCT Standard Form of Building Contract With Contractor's Design, or

4.2 The Contract is entered into by you and Brunel University.

5. In the event of early termination of the appointment pursuant to this letter in accordance with the provisions of paragraph 4 Brunel University shall pay you a fair and reasonable amount (which shall not exceed thirty eight thousand pounds) (£38,000.00) taking into account any and all monies as have been provided prior to determination and all disbursements PROVIDED ALWAYS that where your appointment is terminated by Brunel University in accordance with the JCT Standard Form of Building Contract With Contractor's Design as a result of failure by you to perform and observe any of the terms and conditions hereof the University shall be entitled to deduct from such monies and cost of procuring a replacement Contractor, complete such of the works as remain to be performed.

6. Subject to your acceptance of the foregoing terms and conditions, Brunel University hereby confirms that it will pay you up to the sum of thirty eight thousand pounds (£30,000.00) in respect of the provision of the works required under the terms of this letter.

7. Please provide us with a copy of your developed Health and Safety Plan as soon as possible, but in any case at least five days prior to any work commencing on site.

This letter constitutes an instruction to you to procure works to enable a start on site to be made on 15 May 2002 to ensure that the agreed construction programme is met.

As you are aware planning permission has been granted subject to the finalisation of an S106 Agreement and certain conditions being discharged before full permission is granted and works may commence on site. Should planning permission, sufficient to commence works on site, not be received by the planned start on site date Brunel University reserves the right to extend the start on site date through discussion and agreement with yourselves.

You shall release no information concerning this interim arrangement publicly without the Employer's prior approval in writing.

Please confirm by return that the above terms are acceptable to you by countersigning and returning one copy of this letter.

Yours faithfully
Paul Farley
DEPUTY DIRECTOR – ESTATES"

17. ERDC's case was that there was no contract in any form prior to 1 September 2002. Mr Hargreaves contended that essential terms were never agreed; "the Works" was never agreed so there was either no agreement on an essential term or a fundamental uncertainty. Each letter of intent contained a termination provision: "In the event that the Contract has not been entered into by … the appointment conferred by this letter shall terminate with immediate effect." Thus ERDC might do some "work", but "the Works" as a whole were never available to it with the result that the scope of the work which were the subject of the letters of intent was inherently uncertain, in a manner not normally seen in letters of intent. The full corpus of the Work was never going to be available to ERDC so long as this termination provision remained in the letters of intent (which it always did). The last letter of intent expired on 1 September 2002, well before completion. As the letter of intent recognised, the uncertainty was an inevitable consequence of Brunel not being in a position to contract for all the work until it had received planning consent or until each of the planning conditions had been met. This did not occur until 15 October 2002 (e.g. landscaping), by which time the last letter of intent had expired.

18. Any contract would have had to resolve the date by which work was to be completed. It would have had to deal with liability for defects: was Brunel to claim or to have a valuation reduced? The date for completion had not been agreed (which I accept). As the work comprised landscaping there had to be agreement about weather, extension of time and damages for delay. Nothing was agreed about instructions or variations. The wording of the letter of intent was uncertain. The word "Work" used in it was uncertain. The words "valuation … rules" (or "certification rules") did not appear in the With Contractor's Design Conditions (clauses 12.5 and 12.6. These clauses dealt with the valuation of additional or substituted work under Alternative B. The words "valuation rules" appeared in the margin at this point.

19. Even if there was a contract Mr Hargreaves maintained that a valuation upon a quantum meruit was required since any contract that had been made had not allocated the risk of delay and disruption and it would be entirely wrong for ERDC not to be able to recover delay and disruption as it had not accepted any risk of delay or disruption, still less any risk based upon an allocation such as that contemplated by the JCT Conditions (With Contractor's Design).

20. For Brunel Mr McCall contended that it was clear that not only were contracts intended but they eventuated. The letters used contractual language: *"letter of appointment …. subject to the following terms and conditions .."; "governed by the terms of this letter"; "… works required under the terms of this letter". They culminated in seeking ERDC's countersignature to confirm that "the above terms are acceptable to you".* That was intended to be an acceptance.

21. In the letters the first paragraph referred to a defined package of works and a contract sum; the second paragraph referred to the construction programme of 8 weeks design/mobilisation and 18 weeks' construction; in the paragraph at the top of the second page dealt with the basis of payment and an upper limit to the authority given by the letter; the start of the "appointment" was set; as was the "long-stop date" for and possible termination of the authority. The letter sought ERDC's countersignature by way of confirmation that "the above terms are acceptable to you".

22. Mr McCall submitted that ERDC's case as to lack of certainty was wrong. First, valuation and payment was sufficiently certain: the phrase "the normal valuation and certification rules of the JCT Standard Form of Building Contract With Contractor's Design" was adequate and effective. Brunel's expert, Mr Ian Robinson, had no doubts about it. In his Report on Quantum ("the Robinson Quantum Report") he explained that the phrase "normal valuation and certification rules" was a reference to those in clauses 12, 13, 26 and 30 of the JCT Design and Build Form. His Report then dealt in detail with the application of the JCT form. From the Employer's Requirements Alternative B (see clause 12.5) was chosen so as to provide for payment to be made periodically as agreed as provided by clause 30.3. As may be seen from clause 30.2B, ERDC would be entitled to payment for "the total value of work properly executed including any design work carried out by the Contractor" plus, of course amounts in respect of Changes to the Employer's Requirements (valued in accordance with clause 12) and to any sums in respect of "direct loss and/or expense" ascertained in accordance with clause 26. ERDC was also entitled under that clause to payment for materials intended for incorporation in the works stored on and off site. There was also a Contract Sum: £1,238,635 as set out in the letters. That was for the defined scope of works and the Employer's Requirements.

23. Secondly, there was also sufficient certainty in terms of time and programme. The letters specified a contract period of 8 weeks for design and mobilisation and 18 weeks for construction. This was in fact reflected in ERDC's original programme, albeit it had a completion date a few days later than 28 September 2002. Thirdly, the position about weather was equally certain. The risk of poor weather was not resolved and therefore was at the risk of ERDC. Mr McCall relied on the evidence of Mr Binnie who said that the obvious importance of good weather at certain periods was discussed but no special provisions were required. Mr Reynolds when cross-examined, was reluctant to accept Mr Binnie's account but it is to be preferred. ERDC's Monthly Contract Report for May 2002 states under Item 2: "There is no allowance for weather delays". Fourthly, the letters did not deal with liquidated damages but that was not essential

to an agreement. Had a contract for all the work been made, Mr McCall submitted that there would have been a retrospective agreement (see para 3 of the letters). Mr Binnie said that the amount was agreed at £3,000 per week. Fifthly, the lack of a provision for extending time did not prevent agreement.

24. Mr McCall referred to ***Hall & Tawse South Ltd v Ivory Gate Ltd*** (1999) 62 Con LR 117 in which (at page 118) Judge Thornton QC said : *"The reason why this dispute has arisen is because the work started pursuant to, or following, what the parties have referred to as a letter of intent sent on 23 October 1995. This letter actually set up a contractual relationship, pursuant to which the work started, which is a bilateral contract. A letter of intent is usually a unilateral assurance intended to have contractual effect if acted upon, whereby reasonable expenditure reasonably incurred in reliance upon such a letter will be reimbursed. Such a letter places no obligation on the recipient to act upon it and there is usually no obligation to continue with the work or to undertake any defined parcel of work, the recipient being free to stop work at any time. The effect of such a letter is to promise reasonable reimbursement if the recipient does, in fact, act upon it. However, the letter in question … is one which imposes obligations on both parties. It requires the plaintiff to commence the Works. These Works consist of a defined package of work and contract administration. The plaintiff had an option of whether or not to start work but, having started, the plaintiff was under an obligation to continue with the Works and not to stop, unless the defendant appointed another contractor or gave notice abandoning the work or the contract was superseded by one of the two successor contracts envisaged by the letter … I propose, therefore, to refer to this contract as "the provisional contract"*

25. Mr McCall argued that where there was evidence, objectively, of a joint intention to create contractual relations, the court will try to recognise any intended agreement as a contract. He referred to Chitty on Contracts, 28th edition, Vol. 1, para 2-129: *"The courts do not expect commercial documents to be drafted with strict legal precision. The cases provide many examples of judicial awareness of the danger that too strict an application of the requirement of certainty would result in the striking down of agreements intended by businessmen to have binding force. The courts are reluctant to reach such a conclusion, particularly where the parties have acted on the agreement. As Lord Wright said in* ***Hillas & Co Ltd v Arcos Ltd*** *(1932) 147 LT 503 at page 514:*

'Businessmen often record the most important agreements in crude and summary fashion, modes of expression sufficient and clear to them in the course of their business may appear to those unfamiliar with the business far from complete or precise. It is accordingly the duty of the court to construe such documents fairly and broadly, without being too astute or subtle in finding defects; but, on the contrary, the court should seek to apply the old maxim of English law, verba ita sunt intelligenda ut res magis valeat quam pereat. That maxim, however, does not mean that the court is to make a contract for the parties, or to go outside the words they have used, except in so far as they are appropriate implications of law."

26. In support of Brunel's case Mr McCall added that that policy was also illustrated by the willingness of the courts to imply terms rather than not to recognise an agreement as a contract, especially where the "contract" has been performed. He cited ***Mamidoil-Jetoil Greek Petroleum Co SA v Okta Crude Oil Refinery*** [2001] 2 Lloyd's Rep 76. In that case Rix LJ said at page 89: *"…particularly in commercial dealings between parties who are familiar with the trade in question, and particularly where the parties have acted in the belief that they had a binding contract, the Courts are willing to imply terms, where that is possible, to enable the contract to be carried out.*

Where a contract has once come into existence, even the expression 'to be agreed' in relation to future executory obligations is not necessarily fatal to its continued existence.

Particularly in the case of contracts for future performance over a period, where the parties may desire or need to leave matters to be adjusted in the working out of their contract, the Courts will assist the parties to do so, so as to preserve rather than destroy bargains, on the basis that what can be made certain is itself certain. Certum est quod certum reddi potest.

This is particularly the case where one party has either already had the advantage of some performance which reflects the parties' agreement on a long term relationship, or has had to make an investment premised on that agreement."

Decision

27. Letters of intent come in all sorts of forms. Some are merely expressions of hope; others are firmer but make it clear that no legal consequences ensue; others presage a contract and may be tantamount to an agreement "subject to contract"; others are contracts falling short of the full-blown contract that is contemplated; others are in reality that contract in all but name. There can therefore be no prior assumptions, such as looking to see if words such as "letter of intent" have or have not been used. The phrase "letter of intent" is not a term of art. Its meaning and effect depend on the circumstances of each case.

28. In this instance there can be no doubt, in my judgment, that there was a clear intention to create legal relations. That is plain from the text of the letters itself (exemplified by the extracts quoted above) and, in the case of the first three letters, by the formal countersignature by ERDC. However Mr Hargreaves is correct to draw attention to the need for certainty. It is essential for the determination of the rights and obligations that the parties intend them to be legally binding. It may be trite to say that contracts for construction work generally require agreement on the scope of the work or services to be undertaken (although framework or term contracts with only indicia as to the work to be done are valid), on the price or rates or other mechanism for determining what it is to be paid (although in the absence of such agreement some term will usually be implied), on the method by and time within which payment is to be made (although here again, quite apart from statute, such as the Housing Grants etc Act 1996, the common law may imply terms), on the time within which the work or services are to be performed (although a reasonable time will be implied if there is no agreement). The parties may of course also designate other matters as so essential to a concluded contract that without agreement on them there will be no legally enforceable agreement. Even without such selection, it may be clear that there has to be agreement on something without which there could be no contract.

29. Equally I have no doubt that the letters and their acceptance by ERDC were contracts, perhaps of the classic "if" or "conditional" variety. Both their background and their terms demonstrate that Brunel was not going to contract unconditionally for the whole of the Works. Instead it decided to offer ERDC a familiar limited contract which would readily ensure that, when it was able to conclude the full contract that was contemplated, that contract would take effect retroactively with the minimum of difficulties. In this instance Brunel decided that the limit should primarily be by reference to value, with limits on scope of work or services, being secondary, presumably since ERDC was responsible for design.

30. I do not consider that there was any uncertainty or other factor that prevents each letter and its acceptance being a contract, the second and subsequent contracts effectively superseding the previous one. The fourth and fifth letters were accepted by ERDC's conduct in continuing to execute the works without demur to the terms upon which they were carried out. The work is clearly set out in each letter. The amount payable is that to be determined by the application of the JCT conditions on the assumption that the work formed part of a contract for the whole works, e.g. by the use of clauses 12, 13, 26 and 30 of the JCT Design and Build Form which I regard as aptly and adequately described by the term "normal valuation and certification rules" and the use of a Contract Sum Analysis to which I have referred and which ERDC itself treated as agreed in its applications. In so far as the terminology used might be regarded as a matter upon which expert evidence might be required (which in the TCC it is plainly not) then Mr Robinson's views are right and to be accepted. In so far as it was necessary for a duration or programme to be established (e.g. for the purposes of the application of clause 26) then the letters did so in the references to the overall periods for mobilisation and execution which was not only more than sufficient but was regarded as such as that form of words was agreed. There was no official start date: ERDC was only authorised to make a start. It did so on 23 May 2002. There was no postponement. There was therefore no pre-start delay in the sense employed by ERDC. I do not regard the absence of formal agreement as to liquidated damages as essential, nor was it so treated by ERDC. It had priced its tender on Brunel's intentions and I have little doubt that the formal contract would have been executed on that basis. I cannot see that there would have been any difficulty on either side in filling in the blanks and executing the documents (unless of course either party were to resile from a position previously agreed or established). Obviously the letters, although remarkably thorough, do not comprehensively deal with certain eventualities but there is nothing in them or missing from them that prevents an effective contract and which cannot be supplied by interpretation or implication.

31. Mr Hargreaves however argued that if, contrary to ERDC's primary case, there was a contract nevertheless it did not make provision for the extension of the completion date (if agreed), or for the valuation of variations.

32. In my judgment for the reasons already given I do not accept that there was no mechanism for an extension of time: there was an agreed date for completion; the JCT conditions contained a provision for extending time. The point is however academic. A provision for an extension of time exists to protect an employer's right to liquidated damages should there be an "act of prevention" which would otherwise disentitle the employer to damages for the contractor's failure to complete by the agreed completion date and also to protect a contractor from liability for damages where the completion date cannot be met by the occurrence of an event that would otherwise have fallen within the contractor's sphere of risk or responsibility. The absence of any mechanism might have been material had ERDC failed to complete the Works on time and been in breach of a contract. That never arose.

33. A point arose over the timing of the letters. It was said that there were periods when no letters were effective i.e. between 1-30 April 2002 and 2-27 August 2002. The point can disposed of shortly. Each letter took effect from the date of the first letter: "Your appointment shall be deemed to have commenced as at the date of the initial letter of intent issued on 6 February 2002". The value in each letter obviously covered work done in the periods in question. The last letter was also backdated to 2 August 2002.

34. It was however suggested that there could be no proper valuation. Mr Hargreaves drew attention to clause 12.5.6: *"Provided that no allowance shall be made under clause 12.5 for any effect upon the regular progress of the Works or for any other direct loss and/or expense for which the Contractor would be reimbursed by payment under any other provisions in the Conditions."*

    He contended that unless there was some other provision ERDC had no contractual means whereby the "effect upon the regular progress of the Works or any other direct loss and/or expense" arising out of the variations might be valued. ERDC's case was that there were considerable variations prior to 1 September and by that date some had delayed the works or disrupted other operations and, as a result, the works carried out before 1 September 2002 were almost unrecognisable from the original Works. Thus a valuation should not be carried out by reference to the Contract Sum Analysis, but rather on a basis which used cost as a starting-point.

35. I do not accept this part of ERDC's case. Clause 26 was available. Its operation does not depend on the existence of a completion date. Delay can be assessed by reference to the progress that a contractor could reasonably have been expected to make, assessed by reference to the contractor's forecasts such as its programmes. Disruption is always based on the contractor's own programmes and estimates. ERDC's case that even if there were a contract the valuation would have to be upon a quantum meruit is therefore incorrect. I see no reason why clause 26 or any other comparable provision of the JCT conditions could not be available and operated (subject to compliance with any pre-conditions). Thus the restriction on valuations in clause 12.5.6 need not prejudice ERDC and has not done so.

36. Accordingly the work done pursuant to the letter contracts prior to the expiry of the last contract on 1 September 2002 is to be treated and valued as if it had been carried out under the contract contemplated by the last letter. It is not to be valued on a quantum meruit basis. The valuation should be made applying the relevant rates and prices. Where the "contract" rates or prices would not be applicable, either party is free to contend for a different and more appropriate

rate or price or valuation by reference to cost, if reasonable. Thus Brunel, like any employer, is not bound by the opinion formed by CAP unless, of course, there was an agreement binding on it (e.g. by the use and application of a contractual procedure) or if it would not be fair or equitable to ERDC to use another rate or price or basis of valuation.

2. Valuation of Work after 1 September 2002

37. ERDC's case on the principles to be applied was virtually the same as its case on the valuation on work done prior to 1 September (had it succeeded in establishing it should be valued on the basis of a quantum meruit). Its starting point was the relatively recent case of ***Sanjay Lachhani v. Destination Canada (UK) Ltd.*** (1997) 13 Const L.J. 279. In it Mr. Recorder Colin Reese Q.C. said: "*In my opinion, as a general rule, a 'fair value' of work undertaken by X for and at the request of Y on Y's property (real or personal) ought to recognise an entitlement to a reasonable or normal profit margin over and above the costs actually and properly incurred in carrying out the work in question.*"

Mr Hargreaves submitted that this stated the law correctly. The decision had been cited (and quoted from) in the First Supplement to the Sixth Edition of Goff & Jones' The Law of Restitution with implicit approval. He also referred to ***Serck Controls Ltd. v. Drake & Scull Engineering Ltd.*** (2000) 73 Con LR 100. He said that in that case a slightly different approach had been adopted by Judge Hicks QC at pages 109-110: *"A quantum meruit claim may, however, arise in a wide variety of circumstances, across a spectrum which ranges at one end from an express contract to do work at an unquantified price, which expressly or by implication must then be a reasonable one, to work (at the other extreme) done by an uninvited intruder which nevertheless confers on the recipient a benefit which, for some reason, such as estoppel or acquiescence, it is unjust for him to retain without making restitution to the provider…*

At the first end of the spectrum … the measure should clearly be the reasonable remuneration of the claimant; at the other it should be the value to the defendant. In between there is a borderline, the position of which may be debatable."

Mr Hargreaves said that ERDC's case justified reasonable remuneration: all the work should be valued on a costs plus basis.

38. On inefficiency or delay Mr Hargreaves submitted that the analysis in Keating on Building Contracts (7th Edition) was helpful: *"Assessment of a reasonable sum. The courts have laid down no rules limiting the way in which a reasonable sum is to be assessed. Where a quantum meruit is recoverable for work done outside a contract, it is wrong to regard the work as though it had been performed to any extent under the contract. The contractor should be paid at a fair commercial rate for the work done. Where a quantum meruit is recoverable for work done pursuant to a void contract, it is wrong in principle to apply the provisions of the void contract to the assessment of the quantum meruit… But it is unclear whether, in determining what is a reasonable sum, it is permissible or relevant to consider the plaintiff's conduct in performing the work and whether by reason of such conduct the defendant has suffered any unnecessary additional costs…".*

Again in **Sanjay** the judge had said: *"If the legitimate interests of a building contractor, such as the plaintiffs, are also to be taken into account then it seems to me that, in principle, as a minimum, all costs **reasonably** and **necessarily** incurred in **properly** carrying out the works ought to be reimbursed… [Recorder's emphasis]*

Such a price must be the sum of the costs likely to have been incurred by a reasonably efficient person or organisation and a margin of some sort (e.g. lump sum or percentage addition) over and above those costs, otherwise economic activity of this type would not be worthwhile."

In ***Serck Controls Ltd. v. Drake & Scull Engineering Ltd.*** (2000) 73 Con LR 100, Judge Hicks Q.C. had also said: *"The site conditions and other circumstances in which the work was carried out, including the conduct of the other party, are relevant to the assessment of reasonable remuneration. The conduct of the party carrying out the work may be relevant. If the value is being assessed on a 'costs plus' basis then deduction should be made for time spent in repairing or repeating defective work or for inefficient working. If the value is being assessed by reference to quantities, such matters are irrelevant to the basic valuation. A deduction should be made on either basis for defects remaining at completion because the work handed over at completion is thereby worth less."*

In ***Sanjay*** the judge had also said: *"If, instead of ascertaining a 'market value', it is thought appropriate to calculate a 'fair value' from the costs actually incurred by the person or organisation which carried out the works, then the three words highlighted above [these were: "reasonably and necessarily incurred in properly carrying out the works"] would provide the key to the necessary effective control over the level of reimbursable costs if the legitimate interests of the owner are also to be respected. Having established such an objective base figure, a margin of some sort will fall to be calculated and added thereto. If the building contractor works inefficiently and/or if the building contractor leaves defective work then, quite obviously, the actual costs incurred by the building contract must be appropriately adjusted and/or abated to ensure that the owner will not be required to pay more than the goods and services provided are truly (objectively) worth."*

Mr Hargreaves said that these two quotations showed that the contractor must recover prolongation and disruption costs provided that the contractor is not responsible for the delay or inefficiency. ERDC also relied on the following: Brunel could have dismissed ERDC at any stage for any reason e.g. if ERDC was going slow or working inefficiently, and taken on its sub-contractors. Yet ERDC remained at Brunel's request.

39. Brunel accepted that works carried out after 1 September 2002 are to be valued on a quantum meruit basis. However it contended that ERDC's cost plus based approach was not appropriate. Mr McCall submitted that in the circumstances there should be a continuation of the contractual approach. He relied on some other dicta in Sanjay at page 284: *"A building contractor should not be better off as a result of the failure to conclude a contract than he would have been if his offer had been accepted, i.e., in practical terms, in a case such as this, the price which the building contractor thought he was to get for the works (because he thought his offer had been accepted) must be the upper limit of the remuneration to which*

he could reasonably claim to be entitled, even if at that level of pricing the building contractor would inevitably have ended up showing an overall loss."

Mr McCall referred to ***Emden's Construction Law*** where there is a passage to the same effect although approached in a different way: *"If a claim in restitution can be sustained, the measure of damages will usually be the reasonable value of the benefit received by the defendant. In most cases this will normally be the market value, in the sense of a sum which would have been agreed on by a willing supplier and buyer, including a profit element. The measure should also have regard to the particular relationship between the parties and any advantages or disadvantages to them which arise out of that relationship. It may also take into account any prior discussions between the parties, and possibly the manner in which the services were performed. And where there is a concluded contract, but it is unenforceable, the contract itself may be good evidence of the value of the services performed."*

40. Mr McCall also referred to ***Hudson's Building and Engineering Contracts*** (11th ed.) 1-264 where the distinction is made between claims on the basis of an implied promise to pay and those based on restitution. In a restitutionary claim such as the present case, the editor says: *"The principle of restoration of benefit which is at the heart of true quasi contract means that the resulting obligation of the defendant is not to pay a reasonable price or remuneration based on the cost incurred by the plaintiff, but to reimburse him for the value of the advantage, if any, received by the defendant as a result of the work done or services performed. While, depending on the facts, the value of the work to the defendant may in many cases be equivalent to a reasonable compensatory price or remuneration for the plaintiff, it may on the facts of some cases be less, and sometimes nil."*

Mr McCall pointed out that Judge Wilcox applied this passage in ***Costain Civil Engineering v Zanen Dredging*** (1996) 85 BLR 77 at 94. He maintained that the principle was that, in assessing a quantum meruit, a contractor is entitled to a fair commercial rate or price for the work done. In determining the reasonableness of the remuneration, a court will take into account tender costs (as in Sanjay) and even abortive pre-contract negotiations as to price (he cited ***Way v Latilla*** [1937] 3 All E.R. 759 at pages 764 and 766). He therefore submitted the assessment should be made on ERDC's tender rates and prices since they had been used by the parties throughout the works (even after 1 September) and they were reasonable commercial rates.

41. Mr McCall also relied on Mr Robinson's Quantum Reports and evidence. In paragraph 2.75 of Mr Robinson's Quantum Report he set out the various tenders received. He said: *2.75 I am aware that tenders for the project were received from a total of four contractors, including ERDC, in December 2001. Each tenderer was given the option to submit two tenders – one assuming a construction period of 30 weeks (Option A) and one assuming a construction period of the tenderer's own choice (Option B). In the event only three tenderers submitted a tender under Option B, and in all cases the tendered construction period was 26 weeks. One tenderer did not submit a tender under Option A. The tenders received were as follows:*

Tenderer	Option A	Option B
ERDC	£1,208,244.03	1,204,176.47
G Thornton (Contracts) Ltd	£1,204,178.00	1,204,178.00
McArdle Astro Turf	£1,272,143.00	-
Charles Lawrence Surfaces plc	-	£1,296,184.00

Therefore (and Mr Binnie concurred) the difference between the lowest and highest tenders was no more than 4% either side of the mid-point between the two, with the tenders being almost the same. Mr Robinson also cross-checked the tenders against comparable rates in the 2002 Spon's Price Books. His practice edits Spon's Books. He set out his analysis in appendix 8 to his Quantum Report. In para 2.84 of the Report he concluded: *"[ERDC's rates] cannot, therefore, be seen as unreasonable or otherwise prejudicial to ERDC. Similarly, whilst it has been difficult to find comparable rates in Spon's for some of the more specialist items of work (for instance the track surfacing) it is again apparent from ERDC's disclosure documentation that the rates in ERDC's March Tender Estimate are consistent with rates paid to ERDC's sub-contractors for these works."*

Decision

42. It has rightly been said that there are no hard and fast rules for the assessment of a quantum meruit. All the factors have to be considered. This is not a case in which there was no contract. In such circumstances the assessment of a quantum meruit is usually based on actual cost (which will include on and off site overheads, with in the latter case some estimates or extrapolations being required), provided that it was reasonable (which can frequently be checked by the use of standard rates and prices such as Spon) and was reasonably and not unnecessarily incurred, plus an appropriate addition for profit. Nor is it a case where the contractor's tender and its rates or prices do not make allowance for the risks and responsibilities to be borne by a contractor undertaking this type of work. In addition ERDC continued to work for a considerable time after 1 September 2002 as if the previous arrangements were still in existence. On the other hand, the circumstances in which ERDC worked were no longer those contemplated by the contract and there is considerable force in ERDC's contention that it should not lose and that it should not be worse off because Brunel was still not in a position to contract (on any basis).

43. However I have come to the firm conclusion that, on the facts of this case, which are unusual in that there was a move from contractual to a non-contractual basis, it would be not right to switch from an assessment based on ERDC's rates to

one based entirely on ERDC's costs. The move was not marked at the time and ERDC only made its position clear at a much later stage by which time all the main elements of work were either substantially complete or, seemingly, heading for completion. ERDC applied for payment and was paid (until December 2002) on the basis of the principles set out in the first letter of intent, i.e. in accordance with the JCT Valuation Rules, as Mr Cunningham said. After 1 September some 40% (by value) of the work remained to be done. Mr Robinson sensibly and pertinently said, as quantity surveyor: "a price or rate that was reasonable before 1 September, in my opinion, does not become unreasonable after 1 September simply because the authority in the letter of appointment expires". I agree. The conditions in which the remaining work was carried out did not differ materially from those which (it must be assumed) were originally contemplated. In addition ERDC applied for a proportion of the value of work in accordance with the Contract Sum Analysis. For variations, however, ERDC used the rates in its March Tender Estimate or breakdown, rather than the Contract Sum Analysis. Although CAP did not have that breakdown the use of such rates was sensible as the former provided a much better basis. It would not now be right to depart from it as ERDC used it. Such a contractual basis must be regarded as in principle fair for the purposes of a quantum meruit, especially here, where, for example, it is clear that ERDC's tender was not abnormally low but was close to others. Mr Robinson's analysis convincingly demonstrated that ERDC's tender was commercial. He also checked the rates and prices shown in the March Tender Breakdown with the 2002 Spons Price Books. His conclusion (which I accept) was that ERDC's rates and prices were also objectively reasonable.

44. Its use would avoid the problem identified in Sanjay with which I entirely agree: *"A building contractor should not be better off as a result of the failure to conclude a contract than he would have been if his offer had been accepted, i.e., in practical terms, in a case such as this, the price which the building contractor thought he was to get for the works (because he thought his offer had been accepted) must be the upper limit of the remuneration to which he could reasonably claim to be entitled, even if at that level of pricing the building contractor would inevitably have ended up showing an overall loss."*

It would thus not be unfair to Brunel, if that is relevant, which I consider that it is, if an objective view is required. In addition, I am satisfied from an examination of Mr Robinson's work that, if properly approached and applied, ERDC should be fairly and properly remunerated for doing the work in the circumstances in which it found itself after 1 September 2002. Where appropriate Mr Robinson valued ERDC's work on a cost basis as he considered that "the JCT Rules" required such a valuation to be fair. He did this even where CAP had decided to apply the rates.

45. In my judgment a quantum meruit for the work done after 1 September should be assessed on the same basis as that done before that date. In making that assessment it is necessary also to consider the value of the benefit received or conferred, although, as Goff & Jones on Restitution points out, the benefit need not be realised; it need only be "realisable". Construction work is the product of labour, plant and materials, managed over a period of time. The costs of management (commonly termed overheads, whether "site" or "head office") are generally included in the rates and prices, and will be recovered by payment at such rates and prices. If a project takes longer than allowed for in the rates and prices the contractor may incur management costs which will not be so recovered. In assessing a quantum meruit by reference to rates and prices (whether contractual or conventional, such as those in ***Spon***) it would ordinarily be right to see that something is included for the costs incurred should the execution of the works be prolonged beyond the period contemplated by the rates (taking into account the risks for which the rates must be taken to have covered for otherwise there may be duplication) and a fair allowance for time-related costs will not otherwise be achieved. Assessment by reference to actual cost will not require such an exercise. On the other hand, whether the assessment is made by reference to cost or to rates and prices, it is in my view clear from the authorities that the party paying for the benefit is not to be required to pay for delay or inefficiency. Accordingly in arriving at the total payable by reference to rates and prices it will be necessary to look at what the contractor should have recovered by the use of those rates and prices.

46. Finally, I should deal with ERDC's case as to December 2002 and the following months. Mr Hargreaves argued that Brunel kept ERDC on site for its benefit and should therefore pay for its presence. He referred to CAP's email of 24 December 2002 which was an acknowledgement that ERDC was incurring costs and at Brunel's request and for Brunel's benefit. *"Further to the message I left on your mobile can we arrange a meeting for early in the new year. In order to reduce your mounting costs might I suggest the possibility of omitting the infield works, store building, extension of paving etc from your Works this would then enable you to concentrate on the extensive snagging list remedial works with a view to handing over the track by the 13th January 2003 and in turn enable us to release further monies. Obviously this approach would then enable you to cease incurring further site set up costs, particularly when we do not know yet when the weather will allow the infield works to commence."*

ERDC replied on 22 January 2003: *"…We advised you in our letter of 3rd December 2002 Ref. RGM/RK that we are only continuing on the basis that we will be paid on a Quantum Meruit basis. …If we can agree a further certification and payment to account, we would return to site to complete all remedial works at no cost to the University, and any outstanding works unaffected by weather conditions. We would leave site eliminating any further wastage of expenditure and return in the Spring to complete all outstanding works".*

Mr Hargreaves also relied on communications with Chris Steffen such as one of 6 February 2003: "*As you are aware the strategy at present is to remove ERDC from the site at the most convenient opportunity. We need to agree by what process and procedure this takes place…"*

I have to say that I do not read this correspondence (or any other evidence) as an acceptance or acknowledgement by Brunel that if ERDC was entitled to be paid a quantum meruit then it would be paid its recurring site or other costs such that it could not now argue not to pay them.

Conclusion on Valuation

47. The upshot therefore is that the work done prior to 1 September 2002 is to be valued under the JCT Valuation Rules and that the amount due in respect of the work done thereafter although recoverable upon a quantum meruit is also to be assessed primarily by reference to the rates and prices pertaining to the work done before that date. That means, that subject to such differences there may be as to Mr Robinson's valuations, they represent the valuation and assessments to be applied, as Mr Robinson's assessment was therefore made on the right lines, balancing both the application of ERDC's rates and prices against the evidence of cost and valuing on the latter basis where appropriate. I shall therefore use it as the basis for determining what is due to ERDC by way of a quantum meruit. It was however prepared using Mr Robinson's opinions on delay. I shall therefore now consider ERDC's case on delay, generally following the order of its presentation. On specific items, I shall look first at the Electrical Connection, then Lighting, and then other matters relied on by ERDC and Brunel, to see if Mr Robinson's opinions (e.g. that an proper assessment ought not to allow time-related costs after 1 November 2002) require alteration. I shall then turn to other aspects where Mr Robinson's valuation may require alteration, although many of the differences and points at issue stemmed from divergences between the experts on the assessment on a cost plus basis.

3. Allowances for any delay or disruption experienced by ERDC.

48. I. will first deal with some general points on the parties' cases on delay and disruption. First, ERDC presented a case which constructed a critical path until ERDC left site on 31 March 2003. Its salient points were:

1. The Earthworks and the Athletics Track were critical until 22 October 2002 (in September and October 2002, following an instruction to accelerate, all efforts and resources were being expended on the Athletics Track);
2. Thereafter, until 17 January 2003, Lighting Planning Approval and/or the HV Electrical Connection were critical;
3. Thereafter until 12 February 2003, Electrical Connection and power-on were critical, when the floodlighting was commissioned;
4. Thereafter until 15 March 2003, the Track (as to running length) and/or the North boundary fence were critical.
5. Thereafter until 31 March 2003, the Track (as to running length) was critical.

49. The purpose of this was to counter the views expressed by Mr Robinson, viz. that ERDC was "justified" (i.e. not culpable) in taking until 22 October 2002 or 1 November 2002 to complete the Works. He said in his conclusions in Section 4 of his Delay Report and summarised in paragraph 4.3: *"In overall summary, it is my opinion that ERDC ought reasonably to have completed the majority of those works which it did eventually complete by 22 October 2002. The lighting installations ought reasonably to have been completed and commissioned by 1 November 2002. Beyond that date only a small number of further items of work (mainly to the fencing and the pedestrian crossing) ought to have remained and almost all of those works were located off the main site. The planting works would always have been required to be carried out after the end of October 2002 but, in themselves, ought not to have involved ERDC in any time-related site establishment and management costs of any significance."*

Mr Robinson modified these views to the extent that he agreed works would have gone into November. Brunel had also thought that ERDC might have had an "extension" until the end of November 2002. For example, Mr Reynolds sent an email to CAP dated 23 December 2002: *"I think we are all aware of the main reasons for the delays: (a) delayed start on site; (b) reduced contract period; (c) increased topsoil depth; (d) importation of suitable fill; (e) attenuation tank; (g) no planning consent."*

Brunel relied on it since, in cross-examination, Mr Reynolds confirmed that the views were what he understood to be ERDC's position, rather than merely his own. ERDC therefore wished to concentrate on the period from October 2002 to March 2003.

50. I do not accept ERDC's case on its "critical path". First, it is not supported by any evidence either factual or opinion. The fact that ERDC did not call an expert on delay would not itself be material if a critical path was otherwise supported. Secondly, it is therefore, as Mr McCall rightly said, presented as a matter of submission or conclusion. Thirdly, I do not consider that such a critical path is of any real value to this case where the issues are one of quantification of time-related and other costs of the effect of certain events. Fourthly, Mr Robinson did make a very careful and cogent analysis with that objective.

51. Mr Robinson wished to establish why ERDC remained on site after the time originally contemplated for completion i.e. around the end of September 2002 (the difference between 28 September or 4 October 2002 is, as I have said, immaterial as neither was ever a contractual date in the ordinary sense) and whether it was a result of factors for which ERDC was responsible. His primary purpose was of course to see if quantum should be adjusted accordingly. He therefore looked at the athletics track, the infield, the outfield (including outfield events), landscaping and fencing, drainage, the mains electrical supply and the electrical installations (including the site lighting), and the equipment storage building. As his Delay Report recounts he then prepared a fragnet of the relevant activities from ERDC's Original Programme CP/2186/00. Each fragnet showed ERDC's original planned programme intent for that element of the work. He also prepared a similar fragnet setting out ERDC's actual as-built progress in respect of the same element of the work. In that way, as he said, he produced an 'as-planned versus as-built' programme for each element of the work. In so far as the as-built dates on these programmes were later than the as-planned dates this evidenced the extent of programme slippage to each activity and, overall, to each element of the work. On the basis of the facts set out in that Report, Mr Robinson ascertained what he believed to be the reasons for the programme slippage apparent from the 'as-planned versus as-built' programmes. He then offered an opinion as to the responsibility. He concentrated especially on investigating the 28 separate Delay Events which ERDC had pleaded in paragraphs 2.2.4 and 3.1.1 of Annexure A to the Particulars of Claim as the cause of delays to its progress of up to 26 weeks and 2 days. His

conclusions in relation to the elements of work set out above and the 28 Delay Events identified by ERDC are set out in Section 4 of his Quantum Report.

52. Mr Robinson was however cross-examined as to why he had not produced by way of a programme, the as built critical path of all the works. He explained that he frowned on as-built critical paths since an as-built programme was essentially a record of when things happened and, as such, it did not contain a logic network. In order to create an as-built critical path a logic network would have to be imposed on it but such a programme was not intended to have a logic network imposed upon it. That as-built critical path does not recognise the fact that during the course of a project the critical path will move from time to time. In my view that is a perfectly satisfactory explanation, and certainly for this case. Mr Robinson was not however cross-examined on what such a critical path would have showed. It was said that these were questions of fact and taken up with witnesses of fact and that there was no point in putting the case again to Mr Robinson. I do not criticise counsel for not having done so but without Mr Robinson's views I cannot accept the submissions made that since Brunel had not grappled with ERDC's case with the result that its case was not tested by Brunel with ERDC's witnesses and that the works relied on were also not tested with ERDC's witnesses and therefore ERDC's case was not made out. In my judgment the reverse is not only just as valid but correct. I have no grounds for not accepting Mr Robinson's approach and his conclusions (other than in a few areas to which I shall refer).

53. It was part of ERDC's case that there were delays prior to the start of work which had the effect of moving its original planning back by a month, so that the track works were postponed from June, July and August into July, August, September and one week into October. There is no doubt that works of this nature are sensitive to weather. However ERDC in my view accepted the fact that, through the evolution of the first three letters of intent, the period of execution which was based on 8 weeks' mobilisation and 18 weeks on site ("26 weeks overall from award of contract") was put back ultimately to 27 May 2002, with works commencing on 5 June 2002. It was equally clear that, whatever might have been the position earlier, from early April 2002, there was no float in ERDC's programme to allow for overrun and still maintain progress on track work etc. On 11 April 2002 Grimley recorded that in order "to meet this timetable it is essential that development works commence on site on 29 April 2002". Mr Binnie agreed that that was so. Equally, as already set out, although ERDC had worries about weather and voiced them there was no agreement that ERDC were not to shoulder the risk of bad weather and so the rates and prices are to be viewed on that basis.

54. So too with site conditions. Any difficulties in gaining access to the whole or any part of the site must be treated as having been allowed for by ERDC in its rates. Such evidence as there was showed that the difficulties were not unusual. There were of course other problems. Thus Mr Blank said that the difficulties to which he referred in his evidence related to deliveries of materials which were affected by other activities of ERDC and wet ground conditions both of which would normally be within ERDC's risk to assume and to manage.

55. ERDC, in relation both to time and to cost, maintained that where there was a letter of intent it was less easy to control sub-contractors. Brunel challenged this proposition. As a general statement it has some plausibility, largely because a contractor is not likely to commit itself to a subcontractor unless it has secured a contract. However in certain sectors of the industry much business is done perfectly well without formality. The evidence that I received did not really support ERDC's case. For example, although Mr Cunningham said that the line marking contractor and the steelwork sub-contractor for the storage building had been difficult to appoint because there was no contract, only a letter of intent, neither sub-contractor was called. Similarly Mr Cunningham suggested that PG Bevan stated they were not interested in pricing for the storage building because of the existence of a letter of intent. However a letter from PG Bevan dated 2 October 2002 makes it clear that there were other reasons. On the other hand, Mr Blank of JB Corrie said that they were keen to do the work because of their relationship with ERDC whether or not under a letter of intent. (See also the minutes of the pre-start meeting with JB Corrie on 11 July 2002.)

56. Progress was certainly affected by the need to comply with the conditions attaching to planning permission before work (the otherwise permitted development) could lawfully start. Yet in my judgment ERDC was right to say that there was no blanket restriction. It is clear from the evidence of Mr Binnie that the local planning authority relaxed its attitude so as to permit some development to start but the conditions had to be met in relation to certain parts. I now move to specific topics.

Electrical Connection

57. Considerable time was spent on the history of the electrical connection. The supply of electricity to the site was not energised until 17 January 2003 for which ERDC claims it is not responsible. Brunel's case is that ERDC was responsible but in any event that other works were delayed by ERDC which meant that any delay to the electrical connection was immaterial. The other works included the storage building (suspended unfinished on 18 November 2002), footpath lighting, paths & paving, fencing, landscaping and planting, top soiling, the mains water connection, turf strips and temporary fencing to the track perimeter, and remedial works. The late energisation of the supply did not hold up any other activities other than commissioning by ERDC's electrical sub-contractors and therefore did not lead to time-related costs being incurred at anything other than a relatively insignificant level.

58. Paragraph 1.1 of the Performance Specification in the Employer's Requirements: *"The Contractor will be responsible for providing power and water supplies to the scheme and liaising with the Statutory Authorities…"*.

Other provisions dealt with the supply on the site so it was clear that a low voltage (i.e transformed high voltage) supply had to be provided – see paragraph 3.1.6 (Equipment Store): *"The cost shall include for provision of internal lighting, security lighting and providing an electricity supply to the store"*.

Contract Addendum no. 1 (16 November 2001) said: *"In addition to the Electrical requirements contained in the tender documents the following is to be allowed for:*

Make provision in the design and construction of the electrical works for sufficient mains electrical supply and site distribution to suitable locations, for the requirements of all the sports facilities planned to be built in this and subsequent phases in order to avoid any disturbance to the completed Phase 1 works when subsequent phases are built. The intention is not to provide electrical distribution on the site/s of subsequent facilities within this phase."

Contract Addendum no. 2 (by way of a letter of 23 November 2001) said: *"Make allowance for the following additional Provisional Sum*

Include the Provisional Sum of £100,000

The work is defined as follows
Mains electrical connection (including builders work in connection with the mains connection) for entire Site 3 and site distribution to areas of subsequent phases of work as defined in Item 5 of Amendments to Tender Information 1.
It is NOT intended that this provisional sum covers for electrical works and site distribution to the Phase 1 works."

Clause 12.3 of the JCT Conditions (With Contractor's Design 98) say: *"The Employer shall issue instructions to the Contractor in regard to the expenditure of provisional sums (if any) included in the Employer's Requirements."*

ERDC included the Provisional Sum in their Contract Sum Analysis as follows:

"6. ELECTRICAL	
6.1 Electrical supply connection & site distribution	£ SEE PROV SUM
6.2 Floodlighting to track, infield and field events	£68,810.00
6.3 General site lighting	£15,720.00
6.4 Access control system	£2,183.00
6.5 Builder's work in connection with electrical installation	£3,985.65
6.6 Any other electrical	£ ---

59. These provisions were carried forward in that they were not altered by CAP for issue on 21 May 2002. However they were clearly erroneous as the Provisional Sum of £100,000 was not for site distribution. Indeed on 26 March 2002 ERDC had written to O'Brien Price Cheltenham: *"We also require to bring power, water and telephone services to the site and will require mechanical and electrical design services to liaise with the local utilities with regards the loading requirements etc from the details supplied by our Sub-Contractors for the mechanical and electrical installations"*

In addition on 9 April 2002 ERDC was sent a copy of a letter from BDP to CAP attaching the revised electrical strategy and referring to drawing (9-) LP016 rev A which had recently been issued. BDP's revised electrical installation strategy included: *"A new 450kVA HV three phase incomer shall be supplied to the site by the Regional Electricity Company Scottish & Southern … The Contractor shall contact the Utility and make all arrangements for this connection to be made to a new substation to be built to the REC requirements to allow for both their equipment and new LV distribution switchgear to be accommodated".*

Drawing (9-) LP016 Rev A showed the requirement for substation as part of the scheme, and Note 5 on the drawing stated: *"The contractor shall arrange for the connection of an HV supply from the utility".*

At the briefing meeting on 18 April 2002, arrangements were made for ERDC to liaise about utilities.

60. However the inclusion of the provisional sum made it necessary for an instruction to be issued. That came effectively by Contract Instruction 1 (CI) on 23 May 2002 and CI 2 on 27 May 2002. CI 1 said: *"1.03: Follow up and liaise with Electrical Engineer and Southern Electric to progress design, cost finalisation and construction of mains electrical supply as referred to in attached letter from BDP dated 22 April 2002 and as shown on the following drawing:*

Site 3 Sports Facilities
Electrical and Ancillary Services Indicative Containment

Drawing (9-) LP016 Rev AA".

Drawing (9-) LP016 Rev AA was "Issued For Construction". Note 5 said: "The contractor shall arrange for the connection of an HV supply from the utility". The letter of 22 April 2002 from BDP to S&S requested a high voltage supply. It read:

"Mr Don McConnel
Connections Designer
Scottish and Southern
Dear Sir
BRUNEL UNIVERSITY, UXBRIDGE SITE 3 SPORTS DEVELOPMENT
Further to our previous telephone conversations regarding the above site for which you provided a budget cost to one of the tendering parties for an LV supply we are writing to formally request a quotation for the supply and installation of a 5004 VA supply to the site. However we require an HV supply complete with meeting circuit breaker. The associated transformer

shall be supplied, and installed by our clients' contractor and owned by the client. An increase in capacity has been allowed to account for all existing LV supplies to the site which shall be re-supplied from the new substation.

Please therefore forward a quotation including a timescale of how soon the supply could be available on site. Your specific requirements for civil works including substation construction etc will also be helpful at this stage.

We understand you will be extremely busy, however, if you could treat this as a matter of urgency it will be most appreciated by all parties involved. The client, Brunel University are keen to make their new facilities available to their students and local community as soon as possible

We have included a copy of a drawing showing the extent of the site which is alongside Kingston Lane. If you require further information, payment or signatures etc please do not hesitate to contact us and we shall endeavour to reply quickly.

Yours sincerely Stuart Carrick For Building Design Partnership Ltd"

Cl 2 said: *"With reference to Contract Instruction 1.03, attached is a quotation and further information dated 21 May 2002 received from S+S for obtaining the electrical connection and supply onto the above site."*

It attached a long and clear quotation from Scottish & Southern for new electricity connections. (Brunel's supplier was NPower.) It was subject to there being other agreements such as the Supply Agreement, the Meter Operator Services Agreement and the Connection Agreement before the supply would be energised. A substation had also to be provided.

61. ERDC placed much reliance on the fact that BDP also had an obligation to "arrange for new supply." However the two are not mutually exclusive. On a design and build project it is not at all unusual for parties' contractual obligations to overlap. The client's interests may be better served in that way. On 18 February 2002 CAP had sent an email to Dave Reynolds to confirm that ERDC had commenced discussions with the services supply bodies, adding that ERDC should liaise with Martin Jones of BDP with regard to site wide electrical distribution.

62. In my judgment ERDC was now bound to get on with whatever was needed to provide electricity. If any approvals or permissions were required it had either to obtain them or to advise Brunel or its advisers as to what was needed. I accept that ERDC would not have been obliged to get all that was necessary such as a planning permission for the substation or to obtain Brunel's wayleave in respect of the mains supply or substation or to get the agreements listed by Scottish & Southern (S&S) signed, or to get a lease for the substation but it was bound to advise Brunel on what it needed in respect of these matters. Mr Binnie said ERDC was obliged to obtain a Supply Agreement between NPower and Brunel, a Meter Operator Services Agreement and a wayleave. It is at such points that BDP might also be obliged to act.

63. Thus on 31 May 2002, ERDC wrote to CAP asking for clarifications: *"We refer to your Contract Instruction No. 02 regarding the quotation for the new electricity connection from S&S.*
For the avoidance of doubt can you please confirm that this is an instruction to:
Accept their quotation on behalf of the Client.
Complete the quotation acceptance on behalf of the Client.
Pay the connection charge of £69,074.00 in advance.
If so can you provide the name of the Client's proposed electricity supplier and their meter operator.
Can you also issue an additional instruction to undertake the civil works that S&S have excluded.
As this is quite a large sum we would be grateful if an Interim Payment could be made to cover this amount plus initial design costs and site establishment. We will phone you on your return from holiday to discuss the above".

64. CAP replied on 5 June 2002: *"In reply to your letter dated 31 May 2002 we confirm that the 3 points you raise in relation to the Contract Instruction are correct. Please liaise directly with Bob Stiff, the University's Energy Manager, (01895 274 000), Brunel University Estates Department, Cleveland Road, UXBRIDGE, UB8 3PH, bob.stiff@brunel.ac.uk) for details of the electricity supplier & mater operator. He does have a copy of the quote given by S+S.*

Can you please provide your cost for the building and civil works in connection with the mains supply cable and substation. Please liaise with Martin Jones of BDP regarding any specific requirements he may have for the substation enclosure. We will issue an instruction for this work in due course.

As requested, you may submit an interim payment claim for the works completed thus far. The University will pay the cost of the connection charge in this claim provided that evidence is given that S+S have been paid.

We trust the above answers your queries."

In my view ERDC got a clear answer to each point that it had raised. I do not accept that the second paragraph entitled ERDC to wait for an instruction in relation to the "building and civil works in connection with the mains supply cable and substation". CAP wanted ERDC's cost which would then be included in a formal instruction. ERDC did not need to be instructed to do not only what it was obliged to do but also what it by then knew was needed, viz the civil works that S&S was expecting others to do. This is underlined by the reference to "specific requirements" which were to be obtained from Martin Jones of BDP. They formed part of CAP's answer and thus the further clarification of Cl 2 which ERDC sought so to become part of Cl 2. ERDC's subsequent position is at variance with its letter of 10 June 2002 S&S on 10 June 2002 enclosing the acceptance of the quotation acceptance, and the Connection Agreement, referring to NPower as the supplier, and proposing to appoint S&S as the Meter Operator. (ERDC referred to itself as "Customer".) On the same day ERDC applied for payment of the amount quoted by S&S. I consider that ERDC was well aware of its responsibilities to get on with all aspects of the electrical supply.

65. It is therefore surprising that, following a meeting with S&S on 24 July 2002, Mr Murphy of ERDC (who was not au fait with the S&S quotation) sent a handwritten fax to Mr Steffen of CAP on 25 July 2002 in which he said (referring to S&S's quotation):
"Chris
I have met with Lawrie Tattersall of Scottish & Southern Electrical on Site yesterday. From the quote, Ref J103780, they shall only install an 11KV ring main cable. This cable is to be installed in a 4m x 4m approved building/box and a transformer must be installed in a separate compartment to give a low voltage supply suitable for the site. Other than the ring main the quote covers none of the other works. i.e. building and transformer by the developer.
S+S Electrical anticipate installing the cable mid September. In order to progress the works details of the building and slab are required."

If ERDC required details it had only to ask BDP. CAP's answer was prompt and in the circumstances quite moderate:
"John
With regard to your fax on the above. The work involved in the electrical supply relating to ERDC's work and that covered by S+S's quote is covered in Contract instructions 1 & 2. The letter from BDP (StuartCarrick) requesting the quote was also included together with the relevant drawing.
As requested in the CI's please liaise with Stuart Carrick firstly or secondly Kevin Featherstone of IDP regarding any requirements relating to the electrical works which are unclear or for which you need further information to complete the design. The substation needs to have sufficient capacity to be able to supply the remainder of the site when these phases are built. Please also refer to the Amendments to Tender, information for certain specific requirements on the electrical supply (this has been covered in the electrical drawing that was issued).
We are writing to them to request if there are any special requirements relating to the substation enclosure. Although the design and size of this part of your design there may be special requirements placed on the design due to planning requirements.
Is mid September the earliest they will be able to commence their works?
We believe that a meeting needs to be held with ourselves and the design team to ensure clarity on the requirements, please advise when this can be held."

On the same day CAP wrote to Mr Martin Jones at BDP: *"The design of the Substation enclosure is for ERDC to do. However, we need to forward to them any special requirements relating to the design, which we assume would really only relate to aesthetics and any planning constraints.*

As previously requested can you please urgently confirm to ERDC what the requirements are for this enclosure. Please liaise with GVA Grimley as necessary."

It was suggested that ERDC was entitled to wait and see whether there would be any special requirements placed on the design due to planning requirements. Obviously there might have been such limitations but the answer was to ask BDP about that possibility, not to assume that there might be (but I do not believe that ERDC made any such assumption). Mr Murphy was not called by ERDC.

66. I agree with Brunel's comment that if ERDC was uncertain about any requirements, there was no good reason to wait until 25 July 2002. It could then have obtained quotations from sub-contractors. As it was it did not do so until much later, although Mr Thompson agreed in cross-examination that a quotation from Grandcroft could have been obtained from 25 July 2002. ERDC did not bring in a specialist electrical engineer, Mr Lopez, until the end of October 2002 nor did it obtain a quotation from Grandcroft until 1 November 2002. If Mr Lopez and Grandcroft had been brought in earlier (e.g. soon after CAP's letter of 5 June May 2002) anything outstanding could have been resolved. The reason seems to be that ERDC was not ready to do the works. Therefore, even though the location of the substation was changed on 13 September 2002 it did not affect ERDC.

67. As it turned out, because ERDC had not followed up the letter of 5 June 2002, it then became clear from Grimley that planning approval was required before the substation could start (see letter of 31 July. Mr Binnie was right in his view that ERDC had an obligation under the Employer's Requirements to have initiated enquiries as to whether there were any planning requirements.

68. BDP issued substation drawings promptly on 2 August 2002. ERDC issued their proposals for the substation on 6 August 2002. It sought approval of housings. On 13 August 2002 Grimley asked for approval from Hillingdon. On 16 August 2002 S&S wrote to BDP asking for a location plan and agreement about the lease. BDP replied on 28 August 2002 with a plan showing the location of the substation, and providing a contact with Nabarro Nathanson to deal with the lease.

69. To take stock therefore at 1 September 2002, it is clear to me that any delay (at this stage potential, not actual) was attributable to ERDC's failure to follow up CI 1 and CI 2 (to "follow up" was what was called for) on receipt of the letter of 5 June until the end of July. Had the contract contemplated been made there would therefore have been no grounds for an extension of time and on the contract made there is no reason to make any alteration to the valuations made by Mr Robinson.

70. After 1 September the question is whether there should be any further allowance to reflect the time that ERDC spent on site. At a meeting on 11 September 2002 it was recorded that "The necessary legal agreements have been forwarded by BDP to S&S and Nabarro Nathanson". That included the lease and, probably, the Supply Agreement and the Meter Operator Services Agreement. To that extent ERDC was no longer responsible for them, save to ensure that any questions were promptly answered and that Brunel's advisers were kept aware of ERDC's needs for the timing of their

completion. On the other hand ERDC had to deal with the substation for whose design it was responsible. On 20 August 2002 ERDC submitted details of housing for the substation units for approval and comment (something which could have been done earlier) and at the site meeting on 21 August it was asked to get on with the design of the substation enclosures.

71. On 9 September 2002 ERDC submitted a revised programme to completion and in its e-mail said: *"If the substation could be relocated or the design simplified then the electrical supply would ae available sooner and would improve hand over date".*

ERDC had to revise its design for the retaining structure to the bank behind the substation enclosures. At the site meeting on 11 September BDP suggested that the substation should be sited so as to avoid the need for a retaining structure. The revised position for the substation was issued on 13 September 2002. Planning approval was sought and obtained. The base was formed by 16 October and cast in the week ending 20 October 2002. ERDC was formally told of the planning approval thereafter so the lack of its receipt did not hinder ERDC's progress.

72. Thereafter ERDC, having brought in Mr Lopez in October, obtained a quotation from Grandcroft on 1 November 2002 which carried out its work (the HV/LV transformer and switchgear) at approximately the same time as S&S was working. The lease was also being negotiated between S&S and Nabarros. (Any delays in this transaction appear to have been mainly on Brunel's side; the lease was still in draft form in January 2003.) Other agreements were also not complete but, for example, full details of the supply had not been provided by ERDC by 6 December. On 16 December ERDC told CAP that the meters were due to be installed on 17 December 2002 and substations could then be energised on that day, depending on NPower giving S&S approval to install the meters. In my judgment ERDC was thereafter waiting for the completion of the lease.

73. Looked at as an assessment of a quantum meruit I do not accept Brunel's case that ERDC was responsible for the delay until 17 January 2003 when the system was energised. The final month was plainly not its responsibility. However, in my judgment I can see no reason to conclude that the delay in producing the lease would have occurred when it did, had work on site been better advanced. If ERDC had got on with what was required by Cl 1 and Cl 2 I am sure that the position reached by September would have been reached some two months earlier. The works on site would then have been ready for the mains electrical connection by the end of September 2002 (at the latest). I note that S&S were in a position in September 2002 to bring its supply within the site boundary so if ERDC had planned and co-ordinated this part of the scheme, ERDC's failure to engage Grandcroft is not justifiable. It is the reason why the system could not have been energised until the end of November 2002. The shift in the siting of the substation was not foreseen and, had ERDC been working as it should, it would have taken place earlier. It cannot therefore justify not engaging Grandcroft prior to early September nor can I see why, once the change in the position was known, ERDC could not have lined up Grandcroft to do the work when required. Accordingly any other allowance given under this head alone would be limited to September 2002.

Lighting

74. The planning permission obtained by Brunel said in Condition 10: *"No floodlighting or other form of external lighting (including security lighting) shall be installed unless it is in accordance with details which have previously been submitted to and approved in writing by the Local Planning Authority. Such details shall include location, height, type and direction of light sources, intensity of illumination and shielding to eliminate vertical and horizontal light spillage….".*

The Employer's Requirements stated:

"4.2.1 The contractor is entirely responsible for the design and development of all lighting systems to be installed in the external areas … The design development shall take cognisance of the performance requirements … and of all mandatory and legislative requirements

4.5.2 In consideration to the footpath network to be illuminated the lamp types to be proposed should be indicative of the 'white light' source as proposed in the floodlight scheme"

75. The "floodlighting scheme" may be taken to be BDP's "University Site 3 Lighting Report" which was incorporated into the invitation to tender. That report said: *"Colour Appearance and Rendition" …*

"Light sources will be selected from the 'white' light lamp types producing good colour rendering properties and colour appearance to suit the surfaces being illuminated. Typically lamps will include metal halide, high pressure sodium de-luxe or 'white sodium' and fluorescent (triphospher). The selected colour appearance will depend upon the areas being illuminated.

In the areas outside of the sports arenas, i.e. footpaths, it is intended to utilise 'white' light sources of different colour temperature to accent the varying priorities, e.g. pedestrian, vehicular, planting and landscape. Similarly, luminaire mounting heights will differ in changing areas from the transition of public highways to sports facilities. This change accents the social and leisure nature of the complex – differentiating and enhancing its socialness from the surrounding areas. These changes integrate the facilities into the environs in a considered manner such that when completed they will fit as a cohesive part."

On 31 January 2002 ERDC was asked to confirm that it would provide the information to meet the planning Condition within 10 working days. ERDC replied on 1 February 2002: *"We confirm that if awarded the … contract we would be able to progress the items… and forward the information required to those concerned within 10 working days"*

76. This part of the case is concerned with when ERDC produced a satisfactory lamp type. The Employer's Requirements were not particularly clear. There was debate between BDP and ERDC as to what was likely to be acceptable. ERDC's case in part maintained that there were variations. If it is material, I disagree. In my view the objective was that the

lighting would meet the planning conditions, as a matter of common sense as well as "legislative requirements". Had ERDC actually explicitly tendered on a certain basis there might have been room for arguing that there had been a variation. The same might also have been the case if ERDC had been allowed to place an order for luminaires or fitments that would have satisfied the planners but had then been required to make an alteration to meet Brunel's wishes. The early discussions and changes were about how to meet the planning requirements. In addition none of these changes actually affected progress.

77. ERDC's chosen sub-contractor was Lorne Stewart. On 18 February it sent Lorne Stewart the Employer's Requirements and on 9 March, having had a discussion with BDP, it told Lorne Stewart that its proposals were unacceptable. A meeting was arranged for 18 April at which amongst other things lighting as to be discussed. At a meeting on 22 May 2002 (the first Site Meeting) it was noted that the ERDC had still to submit its revised proposals. They had not been provided a month later. At the pre-start meeting with Lorne Stewart on 20 June 2002 it was recorded: *"Lorne Stewart advised that they would approach the Clients Specified footpath luminaire supplier to produce a drawing showing the lux levels to the footpath. THIS IS URGENTLY REQUIRED FOR PLANNING."*

ERDC at this stage showed no sign that it did not know what BDP or Grimley were looking for in terms of lighting design, calculations or lux levels. Nevertheless for all practical purposes the pathway lighting proposals had still not been forwarded by ERDC by the time of Site Meeting 2 on 10 July 2002. In mid July Hillingdon told Grimley that the design that it had received was not yet acceptable. Mr Karl Dafe forwarded this e-mail from Hillingdon's lighting consultant, Mr Tim Edwards:

"Karl

The floodlighting design is much improved and should not present a problem but I think we should reserve the right to require any additional shielding or lantern adjustments if we judge there to be a problem.

The footpath lighting proposals SOX is not acceptable due to light pollution and the Council's responsibilities under section 17 of the Crime and Disorder Act. BS5489 part 3 recommends the use of high pressure sodium lighting where "pedestrian activities predominate" or "areas that are environmentally sensitive".

In my 20 years experience of using both high and low pressure sodium light sources I find that high pressure sodium to be the more economic due to the better light control of the lanterns and longer lamp life. It has been shown in a recent study the 35 sox lamp consumes 58w on average not the 49w as stated n the Philips documentation. Also by using the ME50/SGS201 lantern with the reflector in position 5 rather than position 1 the spacings can be increased by 50% reducing the number of columns by a third.

Tim"

78. As ERDC had submitted no proposals by the time of the next site meeting on 31 July 2002, BDP wrote on 6 August to ERDC to remind it that it was still waiting for details and to check the Employer's Requirements and on 23 August to record that it had received nothing. Hillingdon's views were discussed at the Site Meeting no 4 on 21 August. BDP then suggested to ERDC (on 29 August 2002) that it might consider "Thorn Decostreet" luminaries. The letter read in part: *"… With regards to the planning officers concern on light pollution, would you please consider Thorn 'Decostreet' luminaries on 4.00m post tops for the footpath lighting.*

We would advise the small dia. Decostreet 1 type (458mm dia.) with flat glass to eliminate any upward light. The lamp to be as Employers Requirements which from memory is 70w CDM-T metal halide (white light) All to be mounted on 4.00m tubular (or conical if preferred) columns.

We need revised calculations to submit to planners.

With regard to the repositioned floodlight columns, we need to see revised lighting calculations confirming light levels are compliant.

Would you please ask Lorne Stewart to confirm what light levels will apply to the field event areas outside the perimeter of the track…."

79. ERDC submitted details of Thorlux lighting, which was the incorrect type, (although that type had been previously contemplated). ERDC sent BDP's suggestion to Lorne Stewart (on 4 September) and quickly received details (on 9 September). It seems that they lay in ERDC's office for a month before being sent to BDP on 9 October. Mr Thompson could offer no real explanation and ERDC accept responsibility for the delay. However BDP could not immediately use the material as the fax copy was poor and not properly presented for the site. Nonetheless Hillingdon approved these details so on 19 November ERDC was able to instruct Lorne Stewart to go ahead with the erection of floodlights and the procurement of the footpath lights. They could not be delivered until the week commencing 6 January 2003. Work to the lighting equipment could therefore not start on site until the week commencing 13 January 2003. Installation was completed during the week of 27 January. The footpath lights were finally commissioned on 12 February 2003.

80. But for the fact that ERDC did however get paid as if there had been a change resulting from BDP's request 29 August, I would not have said that there was an instruction to ERDC or a variation. It was a suggestion as to how ERDC might comply with its obligations.

81. It is clear that the delays to the footpath lighting are subsumed in the delay to the electrical connection. If examined separately, it is in my view plain it was not until the end of August (or early September, taking account of the change) that ERDC had the details and information necessary to satisfy the planning condition. Had it then been submitted I see no reason why it would not have reached Hillingdon and been approved by it in September (taking a generous view of the time needed). From what actually happened from mid-November it seems that that it would then have taken Lorne Stewart some six weeks thereafter to have obtained the fittings and two weeks (based on the actual period in January

2003) to have installed and, subject to supply, to have commissioned the lights, i.e. by the beginning of December 2002 at the latest. So leaving aside the question of supply Brunel would not be responsible for any period thereafter but ERDC would be entitled to time-related costs up to 1 December 2002. To that extent my conclusion is not the same as Mr Robinson's.

Other Matters Relating to Delay

82. The next question is: are there any other matters beyond those allowed by Brunel in reliance on Mr Robinson's reports, i.e. beyond 22 October 2002 or 1 November 2002? Mr Robinson accepted that progress was retarded by matters such as increased topsoil depth, importation of suitable fill and the attenuation tank. It is clear that ERDC's work changed and took longer as a result. Mr Binnie agreed that, from 27 May 2002 until 26 July 2002, ERDC had been carrying out variations and that progress on footpaths, fencing and drainage had not been as expected during that period. For example, fencing did not start until around the end of August 2002, when ERDC had planned to start it on 1 July 2002. Footpaths were to have begun by 8 July 2002 but did not start until the end of July 2002. It is however necessary briefly to consider events which are accepted to have had some impact or which might have done so.

Attenuation Tank

83. The attenuation tank (or storm water retention tank) was a variation (ERDC's Delay Event No 3). It was also built off-site. It was ordered at the outset. Its construction started on 24 June and was completed around 21 July 2002. It obviously delayed the start of outfield drainage and the main outfall. ERDC accepted Mr Robinson's conclusions in para 3.82 and 3.83 of his Report (as put to Mr Binnie for his agreement):

"Delay Event No 3

3.82 ERDC's claimed Delay Event No 3 relates to the construction of the storm water retention tank. There is no dispute between the parties as to the fact that this was a significant additional item of work. Neither is there a dispute as to when this work was carried out and completed. Excavation work appears to have commenced during week commencing 24 June 2002. Construction of the tank itself was completed by 21 July 2002 and the construction of the outfield drains commenced on 25 July 2002. This represents a delay to the commencement of the outfield drainage of almost 5 weeks when compared to ERDC's Original Programme. In the event the outfield drainage was substantially completed (with the exception of kerb channels and gullies) by 16 August 2002. Again this was some 5 weeks later than indicated on ERDC's Original Programme.

3.83 The effect of the instruction to construct the attenuation tank, therefore, was to delay the commencement and substantial completion of the outfield drainage by approximately 5 weeks. Substantial completion of the main out fall drain was also delayed by some 6 weeks compared to ERDC's Original Programme. However, I do not consider that these delays to the drainage activities would themselves have delayed overall completion of the track and other works beyond the planned completion date of 28 September 2002."

There is therefore nothing further to consider. The construction of the tank may have used resources that would have been employed elsewhere, although I doubt it.

84. Equally there is no difference about a subsequent requirement to turf in the vicinity of the tank as required by CVI 21 (Delay Event 23). The work was done between 14 and 19 October 2002. As Mr Robinson said CVI ought not to have detained ERDC on site beyond 22 October 2002 when the work to the track was substantially completed.

Quantities of Topsoil

85. The quantities of topsoil to be stripped tripled and additional suitable fill had to be imported for the cut and fill operation (Delay Events 1 and 2). This might all have been completed by 5 July but was not finished until 26 July 2002 which delayed the works by about 3.5 weeks, according to Mr Robinson's Report which was agreed.

Ducts across Kingston Lane

86. The attenuation tank, together with revisions to the surface water connection to the River Pinn and work on services ducts across Kingston Lane, prevented drainage starting on 25 June as planned by ERDC (Delay Events 4 and 12). On 19 July CAP sent this fax to ERDC: *"Further to our meeting yesterday to establish what measures can be taken to accelerate the programme. Please go ahead with the drainage acceleration as discussed which is due to commence very shortly.*

Please forward the firmed up costs for the above and the other items we discussed in due course.

As Mr Binnie made plain when cross-examined this instruction was pragmatic. CAP was in no position to decide who was responsible for the delays or their extent since at that stage it had had no information from ERDC. However the drainage work was substantially finished by 16 August 2002. There was no effect on completion.

Footpaths

87. Footpaths were also late. They were to have been constructed between 8 July and 30 August. They were put back three weeks, to the end of July. They were recorded as being 40% complete by 9 August 2002. Although at a meeting on 5 August 2002 ERDC was instructed to follow BDP drawing (9-) LP016, it was then instructed on 8 August 2002 to install a further ducting system as shown on drawing (-9) LP016AA. As the ducting system was close to the previously excavated and stoned footpaths, and at a lower level, the footpath works had to be suspended until the ducting had been installed. Duct chambers had to be ordered and it took a week for them to be delivered. Installation of the ducting was carried out between 19 August and 4 September 2002. The footpaths were recommenced. Laying of block paving then started although the laying of sub-bases and kerbs continued until at least the end of October 2002. Block paving continued until at least early January 2003.

Infield Drainage

88. Similarly variations to infield drainage did not affect the overall position. ERDC started the infield drainage around 24 July 2002 and initially completed it around the middle or late August 2002. Thereafter screening and placing of the topsoil started in the infield, but with variations. The infield drainage had been varied around 15 July 2002 as a result of which a second upper layer of topsoil was introduced which was to be screened to 10mm (20mm was originally envisaged). BDP changed the detail on ERDC's proposal on 31 July 2002, the effect of which to move the sand/gravel layer up into the upper layer of topsoil. Accordingly, ERDC had to place the second layer of topsoil (screened) and then excavate through it to elevate the layer of gravel and sand into the top layer of topsoil. The works of screening, laying topsoil, back excavating and bringing up the sand and gravel layer began in mid August 2002 and continued to the end of September 2002. The infield drains were re-excavated during week commencing 16 September 2002 and screening and placing of topsoil continued until the end of September 2002 and were therefore complete before 22 October.

89. Meanwhile, on 10 September 2002, Mr. Binnie sent Mr. Thompson an email saying that the latest programme showing track completion by 25 October 2002 was not acceptable to Brunel and that it had to be ready by 7 October 2002. "I can't emphasise strongly enough the University's requirement". Mr. Binnie accepted that the dates in the letter were very tight and that there could be no guarantee that they would be achieved. ERDC had difficulties in meeting this request. It could not get its subcontractors to accelerate although I do not accept Mr Thompson's evidence that ERDC had no means of compelling its subcontractors to begin work at all. In the email Mr Binnie suggested four operations that might be speeded up. The first was to adopt the quickest artificial oxidisation process possible (viz. spraying the surface of the track). This was a labour-intensive task involving the scrubbing of 4000m^2 of track and required some diversion of resources from other works. The same applied to the second suggested item in the email (synthetic surface). Although the third item (line marking) was the responsibility of ERDC's subcontractor, Trackmasters, ERDC helped it by supplying labour – so there was spare labour. Although work on the track was accelerated by a week on the early September 2002 programme, it was not completed by 7 October 2002 but some 10 days later.

Fencing and Pathways

90. Mr Hargreaves submitted that, given these demands, in effect ERDC did the best that it could on fencing and pathways. He said that it was for ERDC (in consultation with CAP and BDP) to set out the line of the fencing for its subcontractor and to clear roots and ERDC had not had time to get around to this since it had been carrying out varied and accelerated work since the very start of the project. He relied on an account from ERDC's sub-contractor (JB Corrie) as set out in its letter of 21 October 2002: *"We have considered deploying extra labour on-site but at the time of writing we have only two or three days' work in hand. My information from site tells me that the line of fencing at the rear of the houses still has to be defined and then tree roots have to be cleared from this line. We appreciate your efforts that went into having us appointed as fencing contractors."*

Mr Blank could not really recall the circumstances which Corrie answered ERDC's criticism of lack of labour. At Site Meeting 7, on 23 October 2002, a few days later it was recorded: *"4.08 – "The progress of the fencing and the footpaths have been particularly slow. ERDC say they are experiencing difficulty obtaining labour to complete these and other works."*

91. I find it difficult to see how ERDC could be allowed anything in respect of the fencing work. It had originally planned to start fencing on 1 July 2002 to complete the first stage 2 August 2002 and then to do a second stage between 16 September and 27 September 2002 (two weeks), i.e. a planned duration of seven weeks. Fencing could plainly be carried out at the same time as the main elements of the works, such as the infield, track, the outfield and the storage building. It was quite separate and on the periphery of the site, as Mr Binnie said. ERDC issued a letter of intent to JB Corrie on 8 July 2002. It said that fencing was programmed for completion on or before 20 September. Corrie was not troubled by ERDC's lack of a contract. In cross-examination Mr Blank agreed JB Corrie was keen to do the work, whether or not under a letter of intent because of its relationship with ERDC. (This was true of other sub-contractors.) The pre-start meeting with JB Corrie on 11 July 2002 shows its flexibility and willingness to co-operate:
"4.0 Programme was discussed and agreed as follows:
Start on Site ASAP
Completion date 28 September 2002
7.1 The Sub-Contractor indicated that the anticipated labour force would be 2-4 men
7.2 The Sub-Contractor confirmed that the required labour resources could be increased or decreased to suit the site requirements.
16.1 Normal site working hours ….
16.2 Overtime may be worked by the Sub-Contractor by prior arrangement with ERDC provided there are no additional costs to ERDC"

Items 7.2 and 16.2 are important. Fencing did not in fact start until around 19 August 2002. It continued in various forms and areas until the end of February 2003 , with the realignment of the north boundary fence being carried out in March 2003. The fencing work was affected by weather in that it became difficult to traverse the site and to work in muddy conditions but the work itself, being unaffected by wet weather, could still continue. Labour shortages were matters for Corrie and ERDC.

92. ERDC issued a programme on 9 September 2002 (some three weeks after the start of fencing) which allowed a further six weeks for completion of the fencing, against the seven weeks that had been envisaged by the pre-start programmes. Thus Corrie had more time to deal with any wet weather conditions. There were some additional fencing

works required by CVIs 12, 13 and 14 issued on 26 September and confirmed on 10 October 2002. ERDC programmed these works to be carried out along with the rest of the fencing in its November 2002 programmes, i.e. so ERDC did not envisage completing fencing before the end of November 2002. This additional work (Delay Event 20) did not affect ERDC's progress.

93. I have to conclude that there were no events that would justify any further allowance to ERDC. The problems with the fencing work appear to be simply slow progress by Corrie. Mr McCall referred to ERDC's fax of 17 October 2002 to JB Corrie which showed that there were no fencers on the site and only 20 metres of fence had been erected that week and to another fax from ERDC to JB Corrie dated 18 October 2002 in which ERDC said: *"We are disappointed to record that your fencers failed to show up again today. From commencement on site, your rate of production has been insufficient to finish your works within the programme period and your numerous recorded absences from site have only exacerbated the situation. We seek your assurance by return that additional resources will be brought to site to make up for the time you have lost on this and other occasions."*

Equipment Storage Building

94. The Employer's Requirements called for:

"3.1.6 Equipment Store

The Contractor shall design and construct an equipment store of approximately 100m² in accordance with Drawing No. SKS3A001 Rev A.

The cost shall include for provision of internal lighting, security lighting and providing an electricity supply to the store."

The equipment storage building was redesigned as Brunel wanted the temperature within the building not to fall below 10°C. ERDC included this requirement in its design. When it submitted its drawings for the storage building it acknowledged:

"We confirm that the design for the Equipment Store has been carried out to comply with Approved documents L2 to maintain an internal design temperature of 10°C …".

ERDC's programme was issued thereafter so the change had no effect. ERDC had originally planned to start the storage building on 8 July 2002 and to complete it by 20 September 2002, working on it at the same time as the infield, track, outfield and fencing works. Work did not in fact begin until the week of 23 September 2002. ERDC moved the location of the building, evidently to avoid the need for a retaining wall. This was discovered around 28 October 2002. On 18 November 2002, ERDC were instructed to stop work on the building. By that time only the foundations and steel frame had been completed; the brickwork and blockwork were partially complete; but the roof had not started. ERDC at that time had planned to finish some time in January 2003. ERDC never resumed work on the building. The building has not been demolished or moved.

95. The reason for the late start was attributed to delay in connection with the approval of the design of the doors (Delay Event 7). Fabrication drawings for the steelwork could not be finalised until the doors had been settled. In March 2002 BDP told ERDC that Brunel required doors of more heavy duty than the roller shutters proposed by ERDC. This was repeated at Site Meeting No. 1 on 19 June 2002: *"6.03 Approval of the storage building design is required urgently. Concern was expressed at the long term maintenance and repair difficulties that the non standard type insulated roller shutter door being proposed would pose. Alternative door to be looked at."*

96. In early July 2002 ERDC got a list of manufacturers of insulated roller shutter and sectional overhead doors but it did not then send details to CAP or BDP. On 14 August 2002 ERDC told CAP that it was dealing with getting details of the roller doors but the details had still not been provided by Site Meeting No 4 on 21 August 2002: *"5.13 A proposed roller shutter door for the store building was discussed. This to be formally proposed along with details being sent: ERDC".*

ERDC eventually provided the details on 23 August 2002 and on 3 September 2002 on insulated folding doors. On 5 September 2002 BDP said that Brunel wished to have sliding doors and not roller shutters. ERDC provided details on 20 September 2002, and on 24 September 2002 CAP said that ERDC could place an order for them. The steelwork could then be fabricated.

97. ERDC had to provide samples of materials for the store building for Hillingdon to approve. Despite numerous requests reiterated with increasing urgency (made at Site Meeting No 2 on 10 July 2002; in a letter from Grimley to ERDC of 11 July 2002; at Site Meeting No 3 on 31 July 2002; in an email from CAP on 15 August 2002; at Site Meeting No 4 on 21 August 2002; Site Meeting No 5 on 11 September 2002 (by which time some samples were being provided) and in another email from CAP of 3 October 2002; and again on 9 October 2002). It was therefore not until 17 October 2002 that Hillingdon wrote to GVA approving the samples for the building and confirming that Condition 10 had been met. Bricks were not delivered until the week ending 3 November 2002. Bricklaying commenced straightaway but this was three weeks behind ERDC's programme of 9 September 2002.

98. I can see no answer to Brunel's case (adopting Mr Robinson's opinion) that had ERDC submitted proposals in time for a start at the beginning of August (i.e. 4 weeks behind programme) then the building should have been finished in early October and before the track was complete and thus the overrun was its responsibility. In "*Notes on Cause of Delay to the Building*" which were written by Mr Murphy he said *"it is safe to assume that had the original programme prevailed the steelwork should have been erected by 29 July 2002. The delay encountered is therefore 12 weeks. However this may be difficult to substantiate as we did not ask for approval of the steelwork sub-contractor until the 20th August 2002".* In my view there should be no allowance for the fact ERDC worked on the building after 22 October 2002.

Weather

99. Any delays to progress due to poor weather prior to 22 October are covered. ERDC's Delay Events 9 and 26 related only to bad weather before 9 September. It cannot therefore have delayed completion of the track beyond 22 October 2002. Thereafter, the weather was inevitably not suitable for some of the work being undertaken, although already noted in relation to fencing, a distinction has to be made between its effect on access and on the operations themselves. Grading cannot take place if the ground is wet. In due course parts of the site became waterlogged. The effect of working in winter was described by ERDC in Annexure A, item 27 to the Particulars of Claim. Mr Binnie accepted it as a reasonable summary.

Landscaping

100. "Soft" landscaping was required (planting, turfing and seeding on various parts of the site). In its original programme, ERDC had planned to start this section of the works with planting on 9 September 2002 and to finish it by 27 September 2002, along with the final stages of the rest of the works. Landscaping did not in fact start until the end of September 2002, with planting commencing in the first week of December 2002. The work continued until mid-March 2003.

101. ERDC called Mr Dan Shotton who undertook the landscaping for ERDC. He was clear that planting should take place during the optimum period between November and February and that he would not recommend planting in September or even October.

102. A change in the planning conditions was negotiated. Strictly no work could have been done until a landscaping scheme had been approved by Hillingdon. In October the position was regularised so as to permit the scheme to be submitted after the start. From Mr Thompson's evidence (and Mr Shotton's evidence) I can see no connection between this event and the work on site. Mr Shotton had submitted a quotation and was waiting to hear from ERDC. In turn ERDC was waiting to hear from BDP as to whether there was an approved scheme. Once ERDC had that information it was able to produce its September 2002 programme. That showed landscaping starting on 21 October 2002 and finishing on 29 November 2002 with a two week break between 4 and 15 November 2002, i.e. 4 weeks' work. The actual scheme was approved later than September as it was for the whole of Brunel's project, not just the part let to ERDC, as Mr Binnie said.

103. I cannot agree with Mr Robinson's opinion that landscaping could have been carried out on dates earlier than shown on the September programme. ERDC could not move until there was a scheme. There were of course delays to the other elements of the project for which ERDC was responsible, but nonetheless completion was affected On the other hand, it does not follow that ERDC had to maintain a full presence on site in order to oversee Mr Shotton carrying out planting, as he explained. There is therefore no justification for full overheads.

104. Mr Shotton said that because of the delays to the athletics track (which held up movement on the site) and the wet weather, he was not able to seed in October (which ought to have been done by the end of September). On 21 October 2002 he wrote to ERDC to say that seeding would have to be postponed to April 2003 at the earliest. As Mr Shotton said, planting could be carried out. That started in early December. The bulk was finished by Christmas and the remainder (except in the area of the storage building) was completed early in January 2003. In 2003 work was halted by BDP.

Northern Boundary Fence

105. At the end of September it was discovered that the northern boundary fence was being built on the wrong line, probably because it had been wrongly set out by ERDC. A meeting took place on 26 September 2002. That is about all that is certain. There were competing accounts about what took place at the meeting. Mr Lenzie maintained that it was agreed that the work would be left provided that the end was in the right place. He said that ERDC would have been ready to put the work right there and then. Mr Jones could not recall anything being agreed. CAP's letter of 27 September 2002 about the meeting was accompanied by a page of detailed notes on fencing with three drawings and makes no mention of the agreement. ERDC did not write correcting it. The notes conclude by asking ERDC to get in touch if any details are unclear. They otherwise confirm what was agreed. ERDC did not submit a CVI which it usually did. Nor did later correspondence refer to an agreement. Mr McCall pointed to two letters which might have mentioned an agreement if there had been one: ERDC's letter of 17 December 2002 and BDP's letter of 19 December 2002. On the other hand the fence was not moved.

106. Mr Lenzie's evidence was clear and telling. There was certainly an agreement of some sort for otherwise the work would have been redone. The absence of writing in my view indicates, in my view, that it was hoped that no action would need to be taken. I do not consider that ERDC's potential default was being waived or condoned. There needs to be more than Mr Lenzie's simple account to lead to that conclusion. The risk of compliance being demanded therefore remained with ERDC. Thus when Hillingdon required the fence to be in correct position, ERDC was obliged to do the work. That it did so "as a gesture of good faith" is indicative only of the circumstances at that time. ERDC has no case for saying that it was kept on site or that it should be paid time-related costs.

Kerb to Running Track

107. I am unable to see that ERDC incurred any significant time-related costs in relation to the installation of a kerb to the running track which ought to have provided before the track was complete but which was only provided in March 2003 (Delay Event 8). It is not therefore necessary here to go into the history of whether or not the track complied with the requirement of the IAAF.

Snagging

108. I do not accept ERDC's case that it is entitled to an allowance for snagging. Rectifying defects is necessary to confer full value or benefit. The costs or rather, the risk of having to do so are included in its rates and prices. There are, broadly, three types of snagging: that carried out by a contractor during the works with a view to minimising apparent defects; that carried out formally or semi-formally, usually in conjunction with whoever is supervising the work in order to attain practical completion (this category may merge with the first category); and the identification of defects after practical completion. All are covered by the contractor's rates and prices (unless of course the contract requires the contractor to put right other people's mistakes in which case that work will be additional). Even if the quantum meruit were not being assessed by reference to rates and prices care would need to be taken to exclude any snagging that was beyond the norm.

109. It is clear that by the end of 2002 ERDC had a good deal to put right. On 24 December 2002 CAP wrote recording why ERDC was still on site: *"Further to the message I left on your mobile can we arrange a meeting for early in the new year. In order to reduce your mounting costs might I suggest the possibility of omitting the infield works, store building, extension of paving etc from your Works this would then enable you to concentrate on the extensive snagging list remedial works with a view to handing over the track by the 13th January 2003 and in turn enable us to release further monies. Obviously this approach would then enable you to cease incurring further site set up costs, particularly when we do not know yet when the weather will allow the infield works to commence."*

Remedial Works to Fencing

110. The fencing panels along the eastern boundary were installed the wrong way round. Remedial works were not commenced until December 2002. JB Corrie finished the work round by 8 January 2003.. However, still further remedial works to the fencing were found.. It is obvious that no allowance can be made for these events.

Conclusion on Delay

111. I consider that BDP's request of 29 August 2002 justifies an allowance for time related costs beyond 1 November until 1 December 2002.

4. What is due to ERDC in respect of the work done?

Valuation – General Points

112. I deal first with certain general points at issue that affect the assessment of a quantum meruit in this case.

Overheads

113. For completeness I deal both with the amount for overheads applicable to a costs plus valuation and to a valuation on a rates basis. As regards the costs plus valuation ERDC's accounting year ran from 1 November to 31 October. It was agreed between Mr Burt and Mr Robinson that from its audited accounts ERDC's head office and regional office overheads for 2002-2003 were 12.66% and from 2001 to 2002 were 12.92%. Which figure should apply? In my view the figure should be 12.66% which was generally adopted by Mr Burt and accepted by Mr Robinson as work was being carried out into 2003.

Additions to Variations and Provisional Sums

114. For the valuation of variations or provisional sum items, Mr Robinson applied 12.66% whereas during the works, a mark-up for overheads and profit of 25% had been used. Mr Robinson accepted that that had occurred as a rule. That percentage comprised 10% for overheads, 5% for profit, 5% for site preliminaries and 5% for site design. Brunel contended that since the actual figure was now available the assumptions made by the parties should be disregarded.

115. In my judgment the figure of 25% should be used. It was adopted as a matter of convention between the parties and I have no doubt that had a contract for the whole work been agreed and signed it would have been used. If the JCT valuation rules are to be used, as I think they should be, then they should be applied as the parties did or would have done. Accordingly, where there is a difference or PFE in issue that relates to the value of variations or provisional sums the figure of 20% or, including profit, 25%, should be used instead of Mr Robinson's figures.

Profit

116. The appropriate addition for profit has to be decided for ERDC's claim. ERDC had claimed 10%. This was difficult to justify. Mr Burt thought that 10% was "at the high end of the range which I would expect. In general terms, for work of this size and nature, in my experience I would expect a sports surfacing contractor of ERDC's size to aim to achieve a profit percentage in a band ranging from 5% to 10%." Mr Burt found that ERDC had achieved a profit of 1.09% of cost of sales (see its Summary Profit & Loss Accounts for the financial year ended 31 October 2003); that in tendering it had assumed 2.55% profit of cost of sales (see the tender analysis of 26 March 2002 – but an earlier one had indicated 1.12%); and that, as set out above, 5% for profit had been agreed by CAP.

117. Mr Robinson referred to guidance from the RICS, set out in The Surveyors' Construction Handbook published by the Royal Institution of Chartered Surveyors, paragraph 4.2.5.13: *"The level [of profit] should be that prevailing in the market during the period immediately following the original date for completion … it might, therefore, be higher or lower than that contemplated in the contract sum."*

He thought that, as a general principle, a contractor ought not to recover a level of profit from the use of his resources on a particular contract which he would have been unable to earn elsewhere in the market. On that basis Mr Robinson thought that 0.7% was the right figure (itself derived from ERDC's first March tender estimate) as it was close to the average of 0.77% operating profit achieved in the two years ending 31 October 2002 and 2003 (0.45% in the year ending 31 October 2002 and 1.09% in 2003). In addition it was consistent with the figure of £8,301.23 (or 0.67%) which ERDC had given as its "tender margin" in its Monthly Contract Reports, up to 29 November 2002. Since the

majority of ERDC's work had been completed by 31 October 2002 Mr Robinson would have preferred the first percentage. Mr Robinson also pointed out although ERDC had lost money on the Brunel project little of that loss had in fact been incurred prior to the end of October 2002.

118. On 29 April 2005 ERDC disclosed some management accounts from which it appeared that the profits for the Sports Surfacing Division of ERDC for the year ending 31 October 2002 were 4.85% and for year ending 31 October 2003 were 10.14%. Mr McCall did not object to them being read but maintained that their probative value was low since management accounts were not audited and were prepared for internal purposes and the person responsible for the preparation had not been called. In addition these accounts had just been prepared. The covering letter said: "Our accounts department has updated the management accounts". (That was reference to some earlier "management accounts" which were not put in evidence.)

119. The assessment required has to include an element for profit. It should not however be arrived at by reference to the profits of others. Mr Burt may well be right in saying that others make net profits of between 5 and 10% (although that would be higher than the annual average in many, if not most, sectors of the domestic construction industry). A reasonable addition for profit must be related to the contractor in question: what is the return that this contractor would have made? In my judgment, both for the purposes both of assessing an appropriate profit percentage for valuing work on a costs plus basis under the JCT Valuation Rules and for assessing a quantum meruit, the percentage addition in this case should be 0.7%. This was virtually the figure contemplated by ERDC for this project and near enough that used by it during the work. ERDC competed for the work and I do not see that Brunel should pay more than the amount which ERDC contemplated that it would receive. The figure appears low but it was originally the margin for risk and profit. On a costs plus basis there is no risk; the amount is now only profit so it is higher than ERDC might have received had there been a contract for the whole work. Nor do I consider that any adjustments should be made because ERDC had also assumed nil profit on the expenditure on provisional sums and Brunel's contingency item (even assuming that they were used). On the face of it ERDC appears to have been unrealistic but that is what ERDC did. Perhaps ERDC was expecting to make profits elsewhere, e.g. in sub-contracting for less than the amount estimated, but I have no evidence to justify a higher figure for that reason. Mr Robinson said that where he had valued on the basis of subcontractor accounts, he had used the margin for overheads and profit that ERDC anticipated making on that sub-contract, which was generally more than 0.7%. That percentage was only used by Mr Robinson where he had "fallen back on basic costs plus". (The figure used for variations will also not be affected.)

120. Finally, the management accounts establish nothing. They were not the contemporary accounts (which were never disclosed, if they existed), which occasionally have value, provided that they are endorsed by auditors or otherwise shown by other evidence to be reliable for the purposes for which they are tendered (e.g. on applications for security for costs). They have to be treated as an exercise of self-interested creativity.

Valuation of the Work

121. Thus the starting point is now the assessment made by Mr Robinson as presented as part of Brunel's final submissions. That reached a total of £1,508,377.15. The parties agreed that the material in their spreadsheets etc provided a sufficient agenda for a discussion of any adjustments to be made, depending on which basis for assessment was used. For convenience and completeness I shall use the four Schedules submitted by Mr Hargreaves as part of ERDC's final submissions to set out my decisions on various differences and the PFEs even though some are irrelevant, given my starting point for an assessment. The Schedules are appended. As they reproduce Brunel's case reasonably fairly it will not normally be necessary to supplement them for that purpose. It will also avoid criticisms of the kind made by Mr Hargreaves of Brunel's description of ERDC's case. I have not therefore restated Brunel's submissions but I have provided cross-references to the Appendices to Brunel's final submissions which I have read and considered (as well as the material that was helpfully referred to in each set of submissions). I have therefore reached my decisions on the basis of that information and other relevant evidence that I received. In order to deal with the case in a reasonably cost-effective matter many of the items in dispute (especially where the value was low, relatively or absolutely) were not explored at the trial as fully as they might have been (or at all) and the parties were content for me to decide the issues on that basis, almost as if I had been an arbitrator or expert.

122. In summary the alterations or adjustments required to Mr Robinson's assessment are:

Schedule C – Differences	£139,984.77
Mr Robinson's Assessment	£1,508,377.15
Total	£1,648,361.92

123. **5. Adjustment on account of Brunel's "Counterclaim".**

123. Brunel claim the costs or estimated costs of putting right or completing certain items of work (which I shall call for convenience "the defects". The claim totals £150,000 (including professional fees) which I do not discuss as it was not supported). Its case was presented in monetary form as if ERDC had been liable in contract for the defects, i.e. as if the amounts were due as damages. The first question that arises is whether Brunel can maintain such a claim or any claim for the defects against ERDC's right to be paid on a quantum meruit. Brunel could not maintain a claim for breach of the contracts made since the defects are in the work left by ERDC in 2003. There is no claim for breach prior to 1 September 2002. In paragraph 47 of its defence Brunel say in relation to the period after 1 September 2002: *"(e) In any event it is averred that the assessment of a reasonable sum needs to take into account the following:*

(i) The Claimant is entitled to payment for works necessarily, properly and reasonably carried out at the Defendant's request and for the Defendant's benefit.

(ii) The Claimant is not entitled to payment for defective work or for time spent in carrying out defective work.

(iii) The Claimant is not entitled to payment for rectifying defective work or for time spent in rectifying defective work

(iv) The Claimant is not entitled to payment for inefficiencies and/or delays in its works.

(v) A reasonable sum must reflect the value or worth of the works objectively and/or to the Defendant."

In the Counterclaim Brunel however say in paragraph 60: *"By reason of the above breaches, the Defendant has suffered loss and damage, namely the costs of remedial works, as set out in Schedule 3. Further or in the alternative, the Defendant is entitled to abate the Claimant's claims by the remedial costs set out in Schedule 3.*

In my judgment, should it be necessary, Brunel cannot maintain a claim for breach of contract since the defects are in the work left by ERDC on its departure from the site at the end of March 2003. There was no contract at that stage. There can therefore be no counterclaim in the classic sense – hence this section is termed "counterclaim".

124. Brunel's position was well put by Mr McCall. He pointed out that if ERDC was right in saying that there could be no adjustment or abatement then a contractor, who is not carrying out work under a contract but to fulfil an employer's requirements and does so in such a way that some of the work was of benefit because it was good work but other work was not, might rely on a restitutionary remedy to give it the benefit of the good work but not to bear the consequences of the bad. That would be contrary to the restitutionary principles of quantum meruit. In such a situation only the contractor benefits. What if the value of the defective work was higher than the value of the good work? Was the employer to suffer a net loss? He referred to ***Crown House*** and to ***Serck*** at paras 55-59:

"55. What emerges from the authorities, in my view, is that distinctions needs to be drawn. If the value is being assessed on a "costs plus" basis, for example from time sheets and hourly rates for labour, then deductions should be made for time spent in repairing or repeating defective work, and for inefficient working or (as is one of the allegations here) excessive tea-breaks and the like. If the value is being assessed by reference to quantities the claimant stands to gain nothing from such activities or inactivities and, if attributable to the claimant or his sub-contractors, they are irrelevant to the basic valuation; extra time and expense enter into the picture at this stage only if relied upon by the claimant as arising without fault on his part, as discussed in paragraphs 47 to 51 above. If such a claimant makes a claim based on extra time or expense which was in truth his own fault he should fail, but that is simply an issue of fact; Serck says that it has excluded such elements from its valuations.

56. A second distinction is that between defects made good during the course of the work, which are covered by the discussion in the last paragraph, and those remaining at completion. There should clearly be a deduction for the latter, if pleaded and proved, whatever the mode of valuation, simply because the work as handed over is thereby worth less, but no such plea is advanced here.

57. The third distinction is between what I have called "the basic valuation", which is the subject of the last two paragraphs, and matters which, even if expressed in terms of a "reduction" or "diminution" of the valuation, are in essence "cross-claims", in the words of Bingham LJ in ***Crown House****. They are in essence cross-claims because what the defendant seeks is in truth compensation for loss or expense suffered or liabilities incurred by reason of the claimant's conduct. The examples given in the above extracts are "tardy performance" and "unsatisfactory performance", but there may be others. It is, as I understand it, only to this last category that the extracts from* ***Crown House*** *and the last sentence of that from* ***Lachhani*** *above apply.*

58. If that is the nature of such claims they must depend upon breach of some duty by the claimant, so the first question is as to the nature and extent of the duties owed, in the absence of express terms, when carrying out such work, and in particular duties as to progress and co-operation with other trades, for no breach of any other duty seems to be at all relevant here. There is clearly no duty to adhere to any particular contractual programme, for there is no contract, and indeed in the present case it was precisely inability to agree upon a programme which was one of the reasons for failure to enter into a contract.

59. In fact no duty of any relevant kind, nor any breach of such a duty, is pleaded or relied upon by DS (except in relation to the separate point dealt with in paragraph 84 below), nor do I understand from Mr Burr's closing submissions on the law that any cross-claim of the kind now under discussion is in the end pursued; his contention is simply that DS should not be "penalised" by inefficient working or inadequate supervision on Serck's part, or be required to pay for hours spent in rectifying defective work. These are all matters within the scope of the principles discussed in paragraphs 55 and 56 above and do not involve the issue left open in the ***Crown House*** *case. I do not therefore have to decide that issue.*

125. On the submissions the following questions were likely to arise where the person liable to pay maintained that the quality or fitness of what was done or performed should be taken into account:

1. What standard or standards was the work or service to attain?
2. If it did not meet that standard then how was the value of the resulting work or service to be measured: by valuing as if it had been met the requisite standard (i.e it had been done properly) but adjusting that value by the actual or notional cost of what reasonably required to meet the required standard or by valuing the work or service in the condition in which it had been left?

On standards, I understood it to be common ground that the standard of the work would have to be examined in order that it could be valued. There was a difference in approach between the parties. If the remedy being granted was restitutionary then the standard would be that attaching to the request. By complying with the request there was accession to that standard. If the remedy was contractual then the standard would be that set by the agreement. In

practical terms there is in my view no material difference between the two approaches and none at all on the facts of this case where the standards were the contractual standards that had applied prior to 1 September 2002 and which continued to be applied thereafter. In the case of additional work they were set by the instruction or request. In the absence of a specification the usual standards would apply – the design and work would have to be a reasonably good quality and, in the case of work designed by ERDC, reasonably fit for its purpose.

126. The two approaches differ materially when it comes to valuation. Mr Hargreaves argued forcefully that since there was no contract the question was one of valuing the benefit conferred. If the work was so far short of the required standard as to be valueless then the value of the benefit would be nought. It could not however be less than nought as could happen if Brunel were right. If the costs of putting the work right exceeded its value then Brunel's case required ERDC to compensate Brunel. He said that there would be recovery where there had been "free acceptance" and an "incontrovertible benefit". He referred to Goff & Jones on Restitution, 6th ed. at para 1-023 where the editors also say: "Again, it is sufficient, in our view, that the benefit is realisable; it should not be necessary to demonstrate that it has been realised". At para 1-037 they say: *"In our view, the fact that the defendant may have suffered loss in consequence of the plaintiff's acts or inaction should not be taken into account in determining the quantum meruit award."*

He also referred me to ***Marston Construction v Kigass*** (1989) 46 BLR 109 at pages 128-129, **Countrywide Communications Ltd v ICL Pathway Ltd** [2000] CLC 324 (in which at page 347 that passage in ***Marston*** was adopted) **and** ***Cressman v Coys*** [2004] EWCA Civ 47; [2004] 1WLR 2775 in which there was extensive discussion by Mance LJ under the heading "Benefit". Having discussed "free acceptance" (see para 28ff) he turned to "incontrovertible benefit":

"33. The alternative basis of restitutionary recovery on which Coys rely is "incontrovertible benefit". This does not depend on analysis of the circumstances in which the benefit came to be acquired and fully enjoyed. It depends on the nature and value of the benefit as and when acquired. This basis of recovery was approved in principle by Hirst J in a dictum in ***Procter & Gamble Philippine Manufacturing Corpn. v. Peter Cremer GmbH (The Manila)*** *[1988] 3 AER 843. In* ***BP Exploration Co. (Libya) Ltd. v. Hunt (No. 2)*** *[1979] 1 WLR 783, Robert Goff J used a similar phrase at p.805D in relation to the Law Reform (Frustrated Contracts) Act 1943, which he explained at p.799D as grounded on principles of unjust enrichment. Professor Birks suggests as the test of incontrovertible benefit whether "no reasonable man would say that the defendant was not enriched". However he emphasises the major difference, in his view, between this and "the adoption of a straightforward objective standard of value" (p.116), and identifies two main cases in which the test should, in his view, be satisfied. They are cases of necessary expenditure (not here in issue) and cases of realised benefit. While he also identifies, under a third heading of "(c) others", some cases in which courts "simply took the view that the benefit was 'obvious'" (page 124), he evidently regards them as incompletely explained and exceptional cases of recourse to an objective standard.*

34. In contrast, Goff & Jones in addressing incontrovertible benefits submit that it should be sufficient "that the benefit is realisable" and that it should not be necessary to show that it has been realised (para. 1-023). They comment: ***"It is said that the principle of respect for the subjectivity of value would be subverted if this were accepted. But it may not be unreasonable, in some circumstances, to compel a person to sell an asset which another has mistakenly improved"***

Goff & Jones recognise that not every financial gain may be said to be realisable, and refer in this connection to the landowner who "subject to the equitable doctrine of acquiescence, is not obliged to make restitution to the mistaken improver even though the land can of course be sold or mortgaged". In ***The Manila*** *Hirst J recorded that it had been common ground between the parties that the test in cases of receipt of services was appropriately set out in Goff & Jones as being whether the defendant had "gained a financial benefit readily realisable without detriment to himself" (p.855f). In* ***Marston Construction Co. Ltd. v. Kigass Ltd.*** *(1989) 46 BLR 109, HHJ Bowsher QC preferred Goff & Jones's to Professor Birks' approach."*

127. In my judgment it would be strange if a defendant had to pay more than the true value of the benefit realised or realisable. ERDC is right to be concerned that, even if the benefit is valued overall (as it must be), the value might be unnecessarily reduced because Brunel's claim has been calculated as if it were a claim for damages for breach of contract. In assessing what is an appropriate quantum meruit for the whole or any part of the work done after 1 September 2002, Brunel cannot in my view reduce what ERDC might otherwise have received by something like a set-off or cross-claim equal to the costs of putting the work right, except perhaps where as a result of what ERDC did or did not do, there is no benefit or value. Hence professional fees, e.g. on the cost of the work, could never be taken into account. Even so, in such circumstances, there can be no negative result. ERDC cannot have to pay Brunel or forego what it would otherwise have received. However since the benefit has to be assessed overall, if, for example, work which was otherwise up to standard cannot be used because other work was not done or was not up to standard then the value must reflect that result. I also do not accept that because Brunel has not presented an alternative method of valuation, it will be unable to have its complaints, if true, reflected in the overall value. Paragraph 47(e)(v) of the Defence is correct. In arriving at a value any material submitted by Brunel, if established, may be taken into account.

128. It was part of ERDC's case that Brunel had failed to mitigate its damage by not affording ERDC or its subcontractors an opportunity of putting things right beyond the time allowed up to the end of March 2003. For reasons already given, this plea, whilst understandable and correct in fact (in that no further opportunity was given after March 2003), is not apposite. The net benefit to Brunel cannot be affected by whether ERDC was not or was given chance of putting the work right or an investigation as to whether it was willing to do so. I shall not therefore deal further this part of ERDC's case when considering the principal items in the Counterclaim to which I now turn.

Item 1 Long/Triple Jump

1.1 Long/triple jump profile outside tolerances

129. Brunel's case was that under its Performance Specification (paragraph 3.9.2) the athletics track and field events runways was not to deviate by more than 3mm from the finished design level but the profile of the long/triple jump as built was outside the tolerances. This was noted as a defect in the MSC Technical Report dated 13 December 2002 (point 4.5), in MSC's letter to CAP dated 19 February 2003 and the March defects list (item 8.11).

130. ERDC's case (as ultimately presented) was that since the first rubber layer (said to be out of tolerance but was replaced in its entirety) was laid after 1 September 2002, the claim was misconceived. In any event ERDC had left the site before applying the two red layers of rubber and thus did not have the opportunity of bringing the first rubber layer up to tolerance. The work could not have been done until after April 2003. Mr. Jones accepted that such bringing up to tolerance on the first layer could have been done before November 2002.. There was no evidence as to any advice that Brunel had in relation to the need to replace the entire surface. Mr. Keeley accepted that his statement did not deal with the advice he had given Brunel. Furthermore any repair (or even complete replacement) would have been carried out at no expense to Brunel, or ERDC, by Polytan, if only Brunel had asked ERDC. Brunel had entirely failed to mitigate its loss in this respect. In fact, Brunel paid Polytan (via Blakedown who did the work). The claim included the cost of the two final layers of red sprayed rubber, which are by far the most expensive material element of the work. ERDC had not carried out this work and has not been paid for it. It was not possible to identify those elements to be split out of the £7,469.

Decision

131. In my judgment the last point is decisive. Plainly the work was not up to standard but in valuing a quantum meruit the cost of doing work not done by ERDC must not feature. There is no material available to me to arrive at any proper adjustment so there will be none. **Nil**

1.2 Long jump/triple jump: with the exception of the southern landing area, the kerbing was not laid to the correct level

132. Brunel's case was that ERDC's drawing C3677/8 Rev C dated 1 July 2002 set out its design for "typical field track sections" in accordance with the Performance Specification and showed that the long/triple jump runway was to be constructed with a crossfall of 0.5%. To achieve this crossfall the kerb at one side of the runway should have been set at 46.650m and the kerb at the other side set to 46.632m. The levels survey of the runway carried out by Blakedown and attached to C2C's fax to MSC dated 2 June 2003, showed that not only did the level of the kerbs along the length of the runway vary, but also that the crossfall fell to different sides along the length of the runway. This survey established that the levels of the kerbs deviated by significantly more than the 3mm allowed in paragraph 3.9.2 of the Performance Specification. ERDC also failed to comply with the British Standard for laying concrete pavers. Mr Thompson agreed that the levels survey showed deviations outside the tolerances specified. He also specifically stated that ERDC did not have a positive case to rebut the levels set out in that survey. Brunel used Blakedown to remove the kerbs and to relay them to the correct level in accordance with the Employer's Requirements at a cost of £1,350.00. The work was done pursuant to a Contract Instruction dated 12 June 2003: *"Break out kerbs to existing Long Jump run-up and 1 No. sandpit and relay in accordance with MSC drawing to be issued 16 June 2003."*

The figure was agreed by CAP, certified and supported by Mr Robinson.

133. ERDC's case was that it had had no opportunity to do the work. It was also ordered as a variation so the costs claimed (£1,350) were higher than necessary.

Decision

134. In my judgment there is no doubt that the kerbs had not been laid properly and had to be put right. However in the absence of an explanation as to why the work was done as a variation the measure of the adjustments could not be assessed at the figure claimed. In my view it would not be fair to ERDC to assess the figure as greater than £1,000.

£1,000

1.3 Long jump/triple jump: The take off boards could no longer be used as a consequence of the remedial work required as a result of defects 1.1 and 1.2.

135. Brunel's case was that ERDC installed take off boards in the middle lane of the long/triple jump runway, contrary to the Employer's Requirements. Mr Jones said that ERDC were required to remove them. Brunel relied on an admission in an ERDC document entitled "Abortive Works" that the drawing was incorrect and did not conform to the Employer's Requirements. The boards had to be removed again by Blakedown when it was discovered that the runway was outside tolerance. As the boards were set in steel troughs, removal affected them adversely. Mr Keeley gave an explanation of the defect. The cost for replacement boards was £2,580.

136. ERDC relied on the fact that this defect was amongst those not put to any ERDC witness. Mr Hargreaves therefore decided only to cross-examine Brunel's witnesses on the defects put to ERDC witnesses. Hence there was no real case from ERDC.

Decision

137. I do not think that in this instance I can ignore the clear and perfectly acceptable evidence of Mr Keeley and Mr Jones and make no finding. I have to decide on what I have seen and heard. A party cannot avoid a decision by electing not to adduce evidence. Mr McCall took a perfectly sensible approach in deciding to confine cross-examination to what Brunel considered to be the more important items and to rely on the evidence that it presented or that was elicited which might or might be sufficient. In the main questions were not asked about items of low financial value. This is consistent with cost-effective practice in this court where once the scene has been set and the ground generally prepared the judge is usually well able to reach conclusions even though some matters have not been explored fully or at all in cross-examination or

been the subject of oral or extensive submissions. These conclusions and observations apply to other items, such as those which were not taken up by Mr Hargreaves with Brunel's witnesses.

138. In my view Brunel has proved that the work was not up to standard. There should be an adjustment. In the absence of any reason why it should not be of the order of £2,580, I assess it at that figure. **£2,580**

Item 2 Earthworks and Drainage

2.1 The gradient of the embankments to the north of track (lower third), the entire southern embankment and mounding west of long triple jump were incorrect.

139. Brunel's case was that the gradient of the lower third portion of the embankment to the north of the track, the entire southern embankment and the mounding west of the long/triple jump were not in accordance with the performance specification, paragraph 3.16.1 which specified that the gradients were not to exceed 1 in 4. This was shown on ERDC's drawing C3677/2 Rev D dated 28 May 2002.. The defect was supported by Mr Jones's evidence, and shown on drawing (9)LP053 dated 12 May 2003. In its Response set out in the Scott Schedule ERDC accepted that the contours in a number of areas to the North and East of the track exceeded the specified gradient of 1 in 4. It was no answer that there had been a change in level, as Mr Jones in his evidence said, that ERDC had required the level of the track and infield to be reduced from 47m to 46.650m, as allowed by para 3.16.1 of the Specification, ERDC had not adjusted the surrounding contours and gradients to take account of the reduced level of the track.

140. In answer to ERDC's case that the final grading of the embankments would have been carried out later (during cultivation and seeding/turfing process it was submitted that on the evidence of Mr Martin Jones that was not the intention as recorded in December 2002 (see item 1.1 on the December defects list) when re-grading was to be carried out before landscaping operation began). In the event Blakedown re-built the embankments to the correct gradient by stripping the topsoil, re-excavating the bank, re-grading and replacing the topsoil. The cost was £15,593.50 made up as follows:

Clear areas of rubbish	£ 3,653.00
Remove and dispose of fence post hole arisings	£687.50
Re-grade and re-profile embankments	£11,253.00
TOTAL	£15,593.50

141. The first two items were said to be part of landscaping and earth works required to achieve the required standard. Brunel's case was that on the evidence of Mr Jones the removal of rubbish and of the fence post arisings had to be done in order to do the re-grading work.

142. ERDC's case was that Brunel had not established the deviation alleged; that the work had not been completed and that any corrections would have been done before seeding or turfing (see the December list and what Mr Jones agreed); that the claim was never broken down and included work that had nothing to do with re-grading embankments. (The removal of fence post hole arisings was claimed under item 10.1.)

Decision

143. This item has difficulties. First, in my judgment, it is clear from the evidence, especially that relied on by Brunel, that the work was not up to standard and that, contrary to ERDC's position, the re-grading required had to take place as a separate operation, although it might have taken place in the Spring of 2003 (see the December list). On the other hand the work actually undertaken and claimed under this head in my view goes beyond that required to bring the work up to standard. It ought also to be excluded in considering what adjustment is to be made to reflect the "benefit" of the work in the condition left by ERDC. The fact the cost was a lump sum and not broken down does not help Brunel. Nevertheless some adjustment is required and, doing the best I can, I assess to about 50% of £11,253 i.e. £5,600. **£5,600**

2.2 The topsoiling works were very uneven, the soil was contaminated with subsoil and contained excessive stone.

144. Brunel's case was that the topsoil on the outfield was left "in a terrible state" as it was put by Mr McCall, being uneven, contaminated with large lumps of subsoil and with stones in excess of the minimum size specified. The Performance Specification, paragraphs 5.14 and 5.15 provided that: *"Soil levels will be adjusted to produce a smooth surface with regular gradients to levels suitable for the appropriate finished level as indicated on the drawing, filling to be consolidated in consecutive layers not exceeding 225mm deep by heavy roller. Trim to uniform true surface leaving free of noticeable ruts and depressions"*

"Prepare all areas to be seeded by cultivating the area to a minimum of depth of 300 mm and levelling the area to specified levels. Bring the areas to a fine tilth by raking or harrowing and light rolling to achieve soil particles not in excess of 6mm. All stones above 10mm in any dimension should be removed from the surface to the approved contract's tip".

Brunel relied on Mr Martin Jones' evidence. In summary he said that ERDC was "fully aware" of the condition of the soil. The March defects list recorded the agreed position: see items 1.3, 1.4 and 1.5.

145. Mr Jones referred to photographs in his witness statement. Mr Thompson accepted in oral evidence that the soil was left in an irregular and lumpy state and that topsoil contaminated heavily with subsoil would have to be replaced before it could be raked to a fine tilth and smoothed for grass seed. The contaminated soil was removed (see drawing (9-)LP053) and was replaced with soil from the stockpile at a cost of £23,010, viz:

Remove contaminated topsoil & spoil - £7,205.00;

Complete topsoiling works to ensure 150mm of topsoil to areas to be seeded. Approx area 2900m^2 at £5.45- £15,805.00.

146. Mr Robinson thought the rate of £5.45 per m^2 to be high for placing 150 mm of top soil on prepared ground.

147. ERDC's case was that Brunel had not established how much work needed to be done in terms of quantities, nor was there detail of the degree of contamination nor what was meant by "excessive" stone. The photographs did not support the claim. As regards contamination by stone, Mr. Jones accepted that there was no obligation in the Earthworks section of the Employer's Requirements to screen topsoil in areas outside the infield and, as regards stone picking, Mr Jones also agreed that it was "up to ERDC" when they did this. Mr Jones also agreed that ERDC had not claimed for or been paid for turfing and seeding in the outfield as it remained to be done. Mr Hargreaves submitted that Brunel's claim for stone contamination therefore failed. On quantum ERDC also relied on Mr Jones' evidence, e.g. the rate of £5.45/m^2 was extortionate (as it was equal to £36.33/m^3).

Decision

148. In my judgment it is disingenuous of ERDC to suggest that the outfield was not in the state claimed by Brunel. That is apparent from the evidence of Mr Martin Jones, the photographs (even though they do not take one far) and, particularly, the defects lists. The issue is not whether the work was up to standard but whether it was complete. In my judgment it was not only plainly not complete but had not yet been completed. Brunel took over work which had to be completed. Judging from Mr Thompson's evidence in cross-examination, one might doubt if ERDC would ever have completed it properly. However that is not the point. ERDC had no obligation to complete as a result of the absence of any contract. Some one would have had to complete the work. To the extent that Brunel had not paid for work which was never proffered as complete it has received no benefit in respect of which an adjustment could be made. No adjustment could in any event be made in the circumstances. Furthermore the amounts put forward by Brunel are patently unsupportable as a basis for making any calculation. Brunel appear to have paid far too much. Its claim fails. **Nil**

2.3 Manhole covers had not been set to suit finished levels or in accordance with contractor's details.

149. Brunel's case was that this item was listed on the December defects list (see items 2.07, 2.10-2.14) and was not then disputed. In the event 15 manhole covers had to be removed and the brickwork put right for £1,425. Mr McCall submitted that as the manholes had been built, it would not have been normal practice to have completed the work immediately prior to landscaping operations, as suggested by the comments on the December list.

150. ERDC disputed the item. It was not the subject of cross-examination (see above).

Decision

151. It is clear from the documents that manholes were recorded as not being up to standard and ERDC evidently accepted that further work was required. I also accept Brunel's case that adjusting manhole covers is not an integral part of the landscaping works. Their levels are fixed. There should therefore be an adjustment. In the absence of any reason why it should not be of the order of £1,425.00, I assess it at that figure. **£1,425**

2.4 Waterlogging and surface water run off onto track from the north eastern embankment.

152. Brunel's case was the ERDC had not made sufficient provision to drain water from this embankment. The water came from up the embankment as appeared from a photograph. The Performance Specification required a system of below ground drains and perforated land drains and to undertake all necessary drainage works within the site appropriate to the conditions. Mr Thompson has admitted in cross examination that it should not have happened and that it was ERDC's duty "to undertake whatever drainage was necessary to prevent water spilling on to the track". ERDC had been reminded that the Employer's Requirements required a land drain and a collector drain in the northwest segment of the outside track and that ERDC's design did not do that (see also Mr Martin Jones' email to John Murphy dated 14 August 2002). A land drain had to be installed to relieve the problem at a cost of £3,201.00, viz.:

Install new cut-off drains (2nr)- £1,892.00;

Connect into existing system (2nr)- £220.00;

Reinstate existing cut-off drain - £1,089.00.

153. ERDC's case was that if additional drains were needed these were required as a direct result of the track levels being lowered pursuant to CAP's instruction, compliance with which would have been additional work. Since that work was not done by ERDC or paid for by Brunel, the latter had no claim. Mr Hargreaves also elicited from Mr Jones the admission that the last item did not relate to the claim.

Decision

154. This item also is not straightforward. First, I reject ERDC's case that the waterlogging was created by any change in level. The water did not come from the ground but from up the side of the embankment – see Mr Martin Jones' very clear evidence, both written and in cross-examination. ERDC's design did not fulfil the requirements of the Specification and was thus not up to standard. However since ERDC did not provide the additional drain to overcome the design flaw, can a defect in design be said to be affect the value of the benefit? In my judgment, it does since this is one of the reasons for emphasising that the benefit should be realisable and does not have to be realised. Put another way, the benefit may comprise a design and is not limited to the work as it was built. By the time that ERDC left the site the additional drainage should have been designed and installed. The area of the embankment was therefore not what it should have been. It was waterlogged and not drained. There must be an adjustment. There is no good reason to question the first two items (the third is to be disregarded) so an adjustment should be of the order of £2,000. **£2,000**

Item 3 Trackwork

3.1 Failure to screen infield topsoil down to 10mm and spread a consistent layer of soil in accordance with the Employer's Requirements

155. This item is a complaint about quality. Originally ERDC were only to screen out stones greater than 20mm (see paragraph 3.16.3 of the Performance Specification) but in the summer of 2002, following a report from the National Playing Fields Association, ERDC had to remove stones greater than 10mm. Brunel's case was that the infield contained numerous stones greater than 10mm; that there were substantial areas where there was no topsoil at all; and that there were areas where topsoil was contaminated with subsoil. Mr Martin Jones produced photographs. BDP's site survey carried out after ERDC had left site recorded in relation to the infield: *"There were still a number of low areas, an excessive amount of stones on what was supposedly a screened topsoil. The infield required laser grading, stone picking, further adjustments to drains to* suit finished levels, burying of manhole covers and spreading and levelling of sand prior to turfing."

Inturf were instructed by the University to complete the outstanding screening, to blind the infield with remnants of already screened topsoil, to import stone free soil and carry out turfing works to complete the infield works. The cost came to £23,227.81:

Stone removal (using specialist equipment to remove any large stone and debris) - £1,032.00;

Spread screened topsoil (using our recycling screening machine and the topsoil already on site, sieve 400 tonnes and spread accurately onto the inner field) - £5,698.00;

Import Mansfield sand rootzone (load and spread 600 tonnes) - £15,882.00.

Site establishment for this work: £615.81.

In his statement Mr Martin Jones explained that root zone material had been recommended by Inturf as the best way to deal with the defective topsoil left by ERDC.

156. ERDC's case was that it had carried out screening both before and after September 2002; that there was no complaint at the time either from Mr. Binnie or from Mr. Martin Jones that the topsoil was not being screened down to 10mm. The latter said that he thought that the screening was going ahead properly. It was suggested that the results were consistent with the need to re-excavate the trenches to "bring up" the sand and gravel layer which was a variation. In any event Mr. Martin Jones accepted that some fetching up of gravel was inevitable. Screening and spreading topsoil in the infield had finished by November when the infield was then left until March 2003. Mr Thompson explained that in such a period the soil would have compacted by the action of rain and cold and stones would have surfaced. In addition Mr Thompson said left that there were certain areas of the infield, approx 2 m close to the track, where topsoil had not been screened and laid at all, because this work had not been completed by the time the track surfacing works had begun (and accelerated). Finally, any remaining stone picking was something which ERDC would have done prior to turfing. Mr Thompson said in cross-examination, that in March 2003, there was no consistency to the infield soil, that it varied from patch to patch and that ERDC had never said that it was complete. In addition ERDC questioned the work done.

Decision

157. I am unable to accept Brunel's case. First, in my view, if ERDC had not screened the soil properly in the autumn of 2002 so that there were significant quantities of stone greater than 10mm they would surely have been visible and seen by Brunel's representatives. Secondly, the winter conditions were bound to affect the ground so that it would not be possible to conclude from any inspection or survey made after March 2003 that the stone then visible resulted from ERDC's supposed failure to screen properly. In addition, even if I had not reached that conclusion, the amount claimed by Brunel appears to include matters not referable to its complaint but to the ordinary completion of the work and other requirements of Brunel. There will be no adjustment in relation to this item. **Nil**

3.2 Lateral drains not in accordance with Employer's Requirements. Installed at a level to render them ineffective. ERDC's remedial works made no attempt to bring drains to surface.

158. Brunel's case was that ERDC completed the drainage system before completing topsoiling and backfilled the drainage trenches with topsoil, rather than the required levels of stone and sand, according to Mr Martin Jones' account. As a result the drains were installed too low and needed to be "brought to the surface", as Mr Jones said in an email to ERDC of 9 October 2002: *"the drains will need to be lifted in stone aggregate to within 150mm of pitch level and blinded with 150 sand.."*

BDP's site survey of July 2003 recorded the position *"The field drainage system had been installed prematurely before final levels had been established. The contractor assured us that the drains had been brought up to the surface when the final grading took place…"* …

Subsequent inspection of the field drainage system by specialist contractor and BDP revealed that the system had indeed been installed by ERDC at a level well below the finished level of the pitch. The drain runs visible on the surface were just gravel filled trenches say 500mm deep with no pipes… There was standing water in one of the trial excavations. Deeper excavation revealed that the drainage system was some 300mm below the base of these gravel filled trenches and not even on the same line."

Mr Binnie said: *"…it was ascertained that ..the stone in the top layer of topsoil was out of sync with the stone in the bottom layer and where in fact the actual drainpipe was."*

This defect was listed at item 2.02 of the December defects list. ERDC's comment in March 2003 was that this was not ERDC design work and that an instruction was required. A new system of lateral drains was provided rather than attempting to locate all the pipes laid by ERDC and to bring the drain system to the surface. The cost was £22,038.27:

Install 125mm main drains (including all materials and based on 290 metres) - £4,680.00;

Install 80mm lateral drains (again including all materials and based on 1610 metres) - £16,306.00;

Connections (connect drains into existing chambers already constructed based on two chambers) - £468.00.

Site establishment costs : £584.27.

159. ERDC's case was that its work was not useless such that a new system was needed. It had installed the pipes and it had backfilled as required (including by way of variation whereby there might be too many layers). Brunel had not surveyed the site; it had accepted Inturf's recommendation to have new system, without any investigation, albeit that there was concern at the time. Mr Carl Baldwin sent an email to Mr Martin Jones on 14 April 2003: *I still have not seen any conditions reports following the inspections on site on 1/4/03, concerning the drainage systems, electrical or irrigation works…"*

Mr Jones replied: *"I have spoken with Inturf and told them that the only drainage that we require is reinstatement work after the final grading. This assumes that the infield drainage is compliant. We will request some exploratory pits whilst they are on site to assess in what condition ERDC have left the infield drains…. What we need is for Inturf to be appointed as soon as possible…"*

Decision

160. Mr Hargreaves was not overstating the position when he submitted that "matters did not improve with this item". I am not able to conclude on the basis of the evidence provided by Brunel that the drainage system effectively did not function and was useless so as to justify a new system. There were a few trial pits and a recommendation from a person with an interest. In financial terms Inturf may have been right to say that it would cost Brunel more to try to find where the system was defective or the drainpipes were missing. However I cannot conclude that ERDC conferred no benefit on Brunel or that there should be an adjustment without more evidence to justify the steps taken. Accordingly there will be no adjustment.

Nil

3.3 The blind surface catch pits were incorrectly constructed and not in accordance with ERDC drawing C3677/3 Rev D.

161. Brunel's case for this small item was that contrary to ERDC's drawing C3677/3 Rev D dated 1 July 2002 the cover level was at the level of the pitch, rather than being buried. The defect was listed at item 2.12 on the December defects list. The remedial work cost £264.00.

162. ERDC did not advance a positive case.

Decision

163. There appears to be no answer to this complaint. In my view Brunel has proved that the work that was not up to standard. There should be an adjustment. In the absence of any reason why it should not be of the order of £250 I assess it at that figure. **£250**

3.4 No connection between CP6 and steeple chase water jump drain down.

164. Brunel's case was that an access draining point at the bottom of the pit had not been connected to the drainage system itself, as Mr Martin Jones recounted. Then in the course of excavating by hand to find the drain cover it was discovered that there was a leak in the water pit which also had to be put right, but according to Mr Keeley's statement, there is still a leak. The costs come to £2,425 and are:

Excavate and locate existing drain and make the new connection: £2,350.00.

Water integrity test of the water jump: £75.00.

165. ERDC did not advance a positive case (see above) other than that the cost should be that for item 4.03.11 of Appendix A4 to the Particulars of Claim: £100.48

Decision

166. There appears to be no answer on liability. In my view Brunel has proved that the original fault disclosed work that was not up to standard. There should be an adjustment but I do not consider that it could possibly be measured in terms of the costs claimed. Equally ERDC's figure appears far too modest. In my view a figure of £500 would be appropriate to measure the apparent effect on benefit. **£500**

Item 4 Store Building

4.1 The damp proof course had been constructed at the incorrect level. The brick and block walls were also structurally unsound as large cracks were found in them near the jamb of the smaller door.

167. Mr Thompson agreed that the store building was left in the state complained of and that the work was defective. The DPC had been set 450mm too low and the finished floor level was not achievable using the slab construction proposed in ERDC's drawings, due to the incorrect location of the store building. In addition to the cost of demolition works, store doors, and construction (£1,032) Brunel's case relied on an assessment by CAP since the works paid for went beyond the immediate remedy. CAP's assessment was £4,996.19, making £6,028.19 claimed by Brunel.

168. ERDC did not contest the state of the building. It merely said that it would have put it right.

Decision

169. I trust that ERDC would have put right these defects since they ought never to have been present. In terms of adjustment, Brunel's case is still contractual, so in fairness to ERDC an assessment should be of the order of £5,000. **£5,000**

Item 5 Off site Drainage

5.1 Drainage system not tested and certified

170. Brunel's case was that ERDC accepted that it had yet to provide the certification (see its reply to the March defects list: "to be arranged"). The cost was estimated by CAP to be £250. Brunel had not obtained the certificate and did not intend to do so until it had recovered the cost from ERDC.

171. ERDC did not advance a positive case (see above). However Mr Hargeaves made a general (and telling) submission in relation to items which had not been put right. Over two years had elapsed since ERDC and Brunel had every opportunity to carry out remedial works. It had contractors on site for the phase 2 works. Other work had been put right. Either Brunel had no intention of carrying out the work or, more likely, the supposed defect was either non-existent or exaggerated and Brunel would do little or nothing to correct it. Mr Hargreaves reminded me that on Day 1 I had raised questions about Brunel's position but it took 10 days for Brunel to apply to adduce evidence from Mr Rumsey, for which limited permission only was eventually given. It was not as if Brunel could not afford the money. The works formed part of a £13 million development.

Decision

172. Although it is not necessary to establish loss or damage in financial terms in order to determine the value of a benefit, in this instance the fact that the certificate has still not been obtained, the lack of any evidence of material disadvantage to Brunel, and the low estimate relied on by Brunel lead me to conclude there has been no real effect and that there should be no adjustment. The criticisms made by Mr Hargreaves are in my judgment valid and militate against any effect on benefit. These conclusions apply elsewhere (see later). **Nil**

5.2 CCTV survey of drainage not provided

173. Brunel's case was similar to the previous item. In its reply to the March list ERDC had agreed that the CCTV survey had not been provided. The cost was estimated by CAP to be £500, but Brunel was not going to do the work until paid by ERDC.

174. ERDC did not advance a positive case (see above).

Decision

175. I repeat what I have said in relation to the previous item. There has been no real effect and that there should be no adjustment. **Nil**

Item 6 Builders' work associated with electrical installation

6.1 Reinstatement of Kingston Lane verges and hedge disturbed by services crossing works.

176. This item was not pursued.

6.2 No drainage provision to cable draw pits.

177. Paragraph 3.20.5 of the Performance Specification in the Employer's Requirements states: *"The Contractor shall provide cable ducts beneath the athletics track at 4 No. positions near the tangent points, to permit the passage of power and control cables, photofinish cables, public address cables, etc., terminating in chambers with covers at ground level. The chambers are to be adequately drained. At each position there shall be 2 No. ducts, of minimum 150mm diameter, each fitted with 2 No. draw cords. With his tender, the Contractor shall provide a drawing showing the proposed construction and exact locations of these ducts."*.

Mr Martin Jones explained that draw pits had to be constructed to enable the contractor to pull (or draw) cables through the ducting on site. The requirements of paragraph 3.20.5 are not limited to the catch pits required beneath the athletics track as all such chambers have to be adequately drained. ERDC did not provide drainage in about one-third of the 40 draw pits on site. It professed an intention to rectify the situation. In the March defects list it was noted that drainage "was being made to all boxes". Mr McCall for Brunel was sceptical about ERDC's intentions since the drainage ought to have been provided: first, the item had been in the December defects list and ERDC had never submitted its proposals to BDP.

178. However Brunel has not done the work (estimated cost £8,309.92) and will not do so until it has recovered the cost from ERDC.

179. ERDC did not advance a positive case (see above).

Decision

180. I repeat what I have said in relation to the two previous items. If the problem was really as material as Brunel's case suggested the work would have been done. I cannot therefore conclude that there has been a real effect on the benefit and that there should be any adjustment. **Nil**

6.3 Duct entry detail on all ducts not in accordance with manufacturer recommendations.

181. Brunel's case was the ducts protruded too far into the draw pits and needed to be cut back so as not to impinge on the working area in the draw pits. ERDC accepted that work needed to be done. As before Brunel has not done the work (estimated to be only £274.43) as it would only do so once it has recovered the money from ERDC.

182. ERDC did not advance a positive case (see above).

Decision

183. I repeat what I have said in relation to earlier similar items. There has been no real effect and that there should be no adjustment. **Nil**

6.4 2 no. draw pit chambers in the south west corner of site were not of sufficient size for the number of cables required.

184. ERDC accepted that this work had to put right. Brunel did so at a cost of £656. However ERDC said that one of the draw pits was bigger but Mr Jones said that this was so that some one could work at that depth.

Decision

185. Mr Jones' explanation is reasonable. I do not consider that there is any "betterment" or break in the chain of causation so that it could be said that Brunel's costs were avoidable or not attributable to ERDC's error. Brunel is entitled to an adjustment of £656. **£656**

6.5 Cables lack identification tags in every draw pit.

186. Brunel's case was that ERDC failed to label each cable on site. The defect was listed in March 2003. The estimated cost of providing labelling was £528.59. Brunel only going to do the work if paid by ERDC.

187. ERDC did not advance a positive case (see above).

Decision

188. I repeat what I have said in relation to similar previous items. There has been no real effect and that there should be no adjustment. **Nil**

6.6 Kingston Lane draw pits not built in accordance with agreed details. Brickwork leaning, no lintel over duct work.

189. There is no dispute about the fact that the draw pit was not up to standard, and, it seems, that it had to be demolished and rebuilt. The cost was £1,975.00.

190. ERDC's case is that the cost should be that for item 4.01.1 of Appendix A4 to the Particulars of Claim in the sum of £172.40. Brunel claim the actual cost.

Decision

191. There should be an adjustment but I do not consider that it could possibly be measured in terms of ERDC's figure which appears to be far too modest and is apparently for completing the work that had already been done. In my view since this work was worthless the cost claimed would confer the benefit: £1,975. **£1,975**

Item 7 Irrigation system

7.1 Location of local electric heater required to be moved as prone to damage in position.

192. Brunel claim £48.52 to move an electrical heater. That is the estimated cost. Despite the fact Brunel's case was that there was a safety risk Brunel was not going to move it until paid by ERDC.

193. ERDC did not advance a positive case (see above).

Decision

194. I repeat what I have said in relation to the previous item. There has been no real effect and that there should be no adjustment. If the complaint were correct then Brunel would be acting irresponsibly, at the least, in not doing the work. **Nil**

7.2 Failure to provide a wiring diagram and permanent labelling in this area.

195. This another small value item: £62.67. Nonetheless Brunel did not intend to put it right until paid by ERDC which had failed to label the irrigation system or to provide a wiring diagram.

196. ERDC did not advance a positive case (see above

Decision

197. I repeat what I have said in relation to similar items. There has been no real effect and that there should be no adjustment.

Nil

7.3 **No backflow valve on water meter**

198. Brunel's case was that there ought to have been a back flow valve. The item was included in the December defects list and the March defects list and was evidently accepted by ERDC. The cost for the remedial works was £675.00.

199. ERDC did not advance a positive case (see above), other than that the cost should be that for item 4.06.1 of Appendix A4 to the Particulars of Claim in the sum of £270.56.

Decision

200. There appears to be no answer on liability. A valve was required to meet the requirements of the Water Authority. There should be an adjustment but ERDC's figure appears to be on the low side. In my view a figure of £500 would be appropriate to measure the apparent effect on benefit. **£500**

7.4 Failure to have identification trace/tape visible on water supply

201. Brunel's case was that ERDC had failed to identify the pipework running beneath the central area with blue warning tape marked 'water', as is standard practice. The defect was apparently accepted by ERDC – see the December and March defects lists. However Brunel was not going to do the work (estimated cost £1,608.78) until it has recovered the costs from ERDC.

202. ERDC did not advance a positive case (see above).

Decision

203. There appears to be no answer on liability. However I repeat what I have said in relation to similar items. There has been no real effect and there should be no adjustment. **Nil**

7.5 Water supply trench to irrigation plant not reinstated.

204. This item was not pursued by Brunel.

Item 8 Electrical installation

8.1 Labelling of LV panel is outstanding.

8.2 A cover plate has been fitted over the LV room trenches however a rebate has not been cut into the tope of the trenches.

205. ERDC agreed a figure included in a sum of £399.53 covering these items (8.1, 8.2) and items 8.4-8.6.

8.3 Track power supply manholes defectively constructed.

206. Brunel's case was that the pits contained an electrical socket attached to 'a rough sawn piece of timber' fixed into the manhole 'with relatively poor levels of workmanship'. The pits also flooded with water and unsafe to use. Thus Brunel had two unusable power points. ERDC had agreed that work was required to rectify the position – see the March defects list. The cost was estimated by CAP as £1,239.23. However Brunel was only going to carry out the work once it had been paid by ERDC.

207. ERDC did not advance a positive case (see above).

Decision

208. There is no answer on liability. However I repeat what I have said in relation to similar items. I cannot see that there has been any real effect. There should be no adjustment. **Nil**

8.4 Failure to seal gap between the substations and floor slabs.
8.5 Failure to make good damage to floor slabs.
8.6 Failure to make good cracks, scratches, dents and holes in GRP substation enclosures.

209. See items 8.1 and 8.2 above: £399.53. **£399.53**

Item 9 Hard Landscaping

9.1 Failure to make good trip hazards around chamber covers of 2 no. chambers located in paved footpath between northern fence line and pedestrian crossing.

210. Brunel's case was that the two chambers covers were not flush and were a hazard. They were on the December and March defects lists. ERDC undertook some work to rectify the problem after the December defects list but the risk of tripping on the covers remained. The cost of rectification was estimated at £100, but despite the fact that the situation was hazardous (on Brunel's case) Brunel was only going to do the work once ERDC had paid.

211. ERDC did not advance a positive case (see above).

Decision

212. There is no apparent answer on liability. However I repeat what I have said in relation to similar items. I cannot see that there has been any real effect and in my view there should be no adjustment. **Nil**

9.2 Failure to make good damage/settlement caused by site traffic.

213. Brunel here claim that ERDC used the path running along the track beside Kingston Lane as an access route for its vehicles and thus damaged the path. The results were listed in the March defects list. Brunel did not make good such damage as was (estimated to cost no more than £750) and was not going to do so until paid by ERDC.

214. ERDC did not advance a positive case (see above).

Decision

215. As there was no contract, this seems to be a claim in tort rather an answer to a claim for a quantum meruit. Even though there is no apparent answer on liability in tort I shall not allow anything against ERDC's claim since in view of the time that had passed there can now only be nominal damage. Alternatively, and more relevantly, I repeat what I have said in relation to similar items. I cannot see that there has been any real effect and in my view there should be no adjustment. **Nil**

Item 10 Fencing and Associated Work

10.1 Fence posts leaning/unstable due to inadequate concrete footings.

216. Brunel's case was that on ERDC's departure many fence post were left leaning as footings or posts had not been set in concrete to ground level. Some posts were loose and unstable. ERDC had been carrying out remedial work to the posts by topping up the concrete when they left site (the work was described as "ongoing" in the March defects list) but had done about 30%. The BDP Report of July 2003 stated: *"ERDC had been topping up the concrete to the fence posts. This has not been successful and the concrete had not keyed to the original concrete. A number of posts are unstable, particularly along the southern boundary"*

Further work was required to bring the concrete footings to ground level and to correct fence posts that were unstable. The estimated cost of rectification was £12,612.90, but Brunel was not going to do the work until paid by ERDC.

217. ERDC's case was to deny that anything was left unfinished. Fencing did not start towards the end of August 2002 and thus was in the main done after 1 September 2002. When cross-examined Mr Jones said that he was "not aware of the fence posts leaning at this stage" although he had found some that had rocked. He also agreed that the work could easily have been done by Brunel. Brunel's case was therefore to be dismissed.

Decision

218. I agree with ERDC. On the evidence presented by Brunel I am unable to conclude what posts were not up to standard when ERDC left the site (although it is clear that the original work was not satisfactory). Nor can I conclude that there is a material effect on benefit. If any part of the fence was not performing its function then Brunel would surely have put it right. There will be no adjustment. I also repeat what I have said in relation to comparable items. **Nil**

10.2 Corners are unstable and detail not in accordance with manufacturer's instructions.

219. Brunel's case was that there were no fence corners. They were called for by the Expamet fencing guidelines. ERDC used another supplier which did not require installation details or guidelines. The defect was included in the December and the March defects lists. The estimated cost for eight corner posts was £343.13, but Brunel was not going to do the work until paid by ERDC.

220. ERDC did not advance a positive case (see above).

Decision

221. The position on liability in a contractual sense is not at all clear. As ERDC was not contractually bound to use Expamet it would be necessary to establish that corners were required using the Ash and Lacy system adopted by ERDC. On the material before me I am unable to conclude, despite inclusion in the defects lists, that ERDC ought to have provided corners as part of the benefit for which it seeks restitution. In any event, if I am wrong on this, I repeat what I have said in relation to the previous item and other items where Brunel did not rectify the supposed defect. I cannot see that there has been any real effect and in my view there should be no adjustment. **Nil**

Item 11 Athletics Track

11.1 White lining not on synthetic surface on last 40m before finish line.

222. Brunel's case was that ERDC ought to have provided this white lining since it was required under the IAAF Rules – see Paragraph 3.9.2 of the Employer's Requirements: *"Circuit width:- sufficient to ensure that the outer white line is marked entirely on the synthetic surfaces, as required by the IAAF and UKA Rules".*

Mr Keeley when explained in his witness statement that in order for the facilities to be used for competition use, certification by UK Athletics is required but that it might issue conditional certification and when cross-examined said that the IAAF Rules & Regulations stipulate that the whole of the white line on a running track has to be laid on the requisite synthetic surfaces. Some one (Mr Miller) from the South East Athletics Association carried out an inspection on 24 April 2004 and was not willing to certify the track without the white lining but no report to that effect was forthcoming. Brunel had to engage Blakedown for the lining at a cost of £4,476.05.

223. ERDC's case was that Brunel had failed to establish why the need for the lining was not known earlier. There was no evidence about the rectification cost as I had refused permission to Brunel to adduce evidence from Mr Rumsey about it.

Decision

224. This item might be explicable in terms of a contractual claim. ERDC submitted its design of the track for approval. It was not until a year after it had left that this question arose. Brunel failed to give proper disclosure (admitted to have been selective). On the face of it however ERDC should have provided such lining but without evidence of cost or loss I cannot assesses what adjustment, if any, might be made. There will therefore be none. **Nil**

Item 12 Pole Vault Base Plates

12.1 Pole vault base plates in Synthetic D fixed incorrectly into track.

225. Brunel's case was that ERDC installed the base plates too far into the ground and accordingly not in accordance with the manufacturer's specified method of installation. The cost of these remedial works was £460.00. However another pole vault was provided and then Brunel decided that it did not need that installed by ERDC and so it was removed and filled in.

226. ERDC did not advance a positive case (see above).

Decision

227. Since Brunel removed the pole vault I do not consider that its complaint (which I have no reason not to uphold) now ranks for consideration as there can be no reduction in a benefit which was realised but about which I have no evidence that it proved not to be useable. I cannot see that there has been any real effect. In my judgment there should be no adjustment.

Nil

Summary

Item	Amount
1.1	Nil
1.2	1,000
1.3	2,580
2.1	5,600
2.2	Nil
2.3	1,425
2.4	2,000
3.1	Nil
3.2	Nil
3.3	250
3.4	500
4.1	5,000

5.1	**Nil**
5.2	**Nil**
6.1	**Nil**
6.2	**Nil**
6.3	**Nil**
6.4	**656**
6.5	**Nil**
6.6	**1,975**
7.1	**Nil**
7.2	**Nil**
7.3	**500**
7.4	**Nil**
7.5	**399.53**
8.1 – 8.6	**Nil**
9.1	**Nil**
9.2	**Nil**
10.1	**Nil**
10.2	**Nil**
11.1	**Nil**
12.1	**Nil**
	£21,885.53

Conclusion on Assessment

228. Accordingly I conclude that the balance payable to ERDC for its work is £360,110.09, plus VAT.

Basic Valuation	£1,648,361.92
Less "Counterclaim"	£21,885.53
	£1,626,476.39
Less Paid:	£1,266,366.30
	£360,110.09
VAT. @ 17.5%	£63,019.26
TOTAL	£423,129.35

229. I am aware that in arriving at this conclusion there may still be some elements of double-counting. However I do not believe that they are very significant or that I should have gone further and removed them. The manner in which I have had to consider many of the points at issue has required me to be rigorous in examining and deciding each as if it were a contractual claim on its merits. What is ultimately required is an overall assessment of the value of ERDC's work, e.g. in terms of a restitutionary benefit and taking account of the circumstances in which it came to be carried out. I consider that the total represents just that.

Interest

230. ERDC's case included a claim for interest in relation to sums that it said were due to it each month that it had been kept out of its money. Such a claim cannot form part of the assessment of a quantum meruit. Interest may be awarded in the usual way to compensate a party from being kept out of its money.

Simon Hargreaves (instructed by Pinsent Masons) for the claimant.
Duncan McCall (instructed by Nabarro Nathanson) for the defendant.