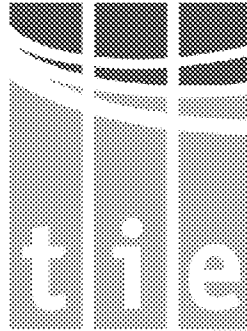


Commercially Sensitive and in Confidence
Ingliston Park and Ride 1
FOISA Exempt



INGLISTON PARK AND RIDE ONE

LESSONS LEARNED REPORT

14TH SEPTEMBER 2007

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Ingliston Park and Ride 1
DRAFT Lessons Learned Report
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1.0 Context and Commission

1.1 **tie** was commissioned by CEC to project manage and procure Ingliston Park and Ride on the Council's behalf in 2003.

1.2 **tie** had been newly created by the City to deliver congestion charging and a package of up-front initiatives labelled as the Integrated Transport Initiative (ITI). The relationship between the Council and **tie** was difficult still under development as many of the roles, responsibilities and delegated authority parameters were still being debated.

1.3 **tie** had been created as a project management company and the ethos was to hire contract and manage advice services and work and thereby offset all risks onto third parties.

1.4 As **tie** was employing an agent (Halcrow) utilising an existing contract for the ITI project as an agent for the IPR1 project to undertake the following activities:

- Undertake the outline design
- Prepare the procurement strategy & advise on form of contract
- Prepare tender documents and run the tendering process
- Manage the contract for implementation

1.5 As **tie** employed Halcrow as an agent, neither CEC, nor **tie** carried out any checking of the design relying on the agent's PI duties under their terms of engagement supported by suitable professional indemnity insurance to offset risk from having approved a design and therefore underwrite its adequacy.

1.4.1.6 It was essential that work commenced early in order to provide alternative options to bringing cars into the city in advance of congestion charging and in advance of the Congestion Charging referendum.

1.5.7 The project was managed for **tie** by a combination of the Project Director and a Project Manager, albeit day to day responsibility was given to Halcrow and it appears that with **tie** employed employing very lighter touch project management interventions on the service provider

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Comment [SB2]: Still under development?

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Comment [SB3]: Contract services

Comment [SB4]: Services

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Comment [SB5]: Duties under their terms of engagement, supported by suitable Professional Indemnity Insurance

Comment [SB6]: Was this a politically imposed deadline or one which tie set internally?

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Comment [SB7]: Both tie employees?

Comment [SB8]: On the service provider and or on the Works Contract?

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who's duty it was to manage the contractor. than is now common practice in tie.

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Lessons learned.

- No clear definition of roles and responsibilities between tie and CEC
- No check processes in place for design
- Responsibility was given to Halcrow for the day to day management of the process and light touch management employed by tie
- Extension of existing consultancy contracts for new commissions needs to be properly evaluated to ensure that this is appropriate

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Comment [SB9]: What selection process applied to the Halcrow appointment?

Ways in which lessons learned are now being applied by tie

- Clear functional specifications in place or Project Registry documents put in place with clients
- Much stronger project management processes in place with clear stage-gates to pass before going from one stage of a project to the next
- Governance of projects clearly defined – Steering Group in place for IPR2 and Board for Tram
- More collaborative approach with Client /delivery team / designers
- Roles established with clearer Delegated authority rules in place
- Formal sign-off with tie's client on completion of Stage gates or elements of the commission

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Comment [SB10]: Sounds like the pragmatic solution but did tie formally record this decision regarding procurement rules etc?

Comment [SB11]: Who set / agreed evaluation guidelines?

Comment [SB12]: Were scope of supervision and contract programme agreed with tie?

2.0 Procurement Strategy

2.1 tie extended Halcrow's existing commission as a work package relating to the ITI. Halcrow recommended the procurement strategy which was

- Halcrow design to planning approval stage,
- Halcrow prepare design and build contract documents, tender the contract, and assess tender.
- Design and Build contractor responsible for all other approvals. Halcrow supervise contract on lump sum basis limited to 6 months.

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2.2 A Inception Report was produced by Halcrow outlining how they would manage the project from inception through execution.

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2.2.2.3 This phase of the project went well, was delivered on time and on budget.

Comment [SB13]: Does this mean on time, on budget and to the acceptable quality standard?

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3.0 Delivery

3.1 Stage 1 Halcrow design to planning approval stage.

3.1.1 This part of the project ran well with the scope agreed with the City and a collaborative approach taken to optioneering including Lothian Buses.

3.2 Stage 2a Halcrow prepare design and build contract documents

3.2.1 This part of the project seemed to run well as the scope had been previously agreed and using the same engineering team ensured that there was no information missed. The contract proposed by Halcrow was used this was NEC2 Option A design and build lump sum with activity schedule. A procurement strategy document was produced by Halcrow on this basis.

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Comment [SB14]: Did Halcrow provide a report with logical argument for NEC2 and did tie formally accept this recommendation in writing or merely by its future actions?

3.2.2 tie initially chose not to train the project manager in this form of contract and its application. This was partially because it seemed relatively straight forward and Halcrow were to carry out the contract project management and supervisory roles.

Comment [SB15]: Was this a conscious decision or by default?

3.2.3 It was suggested by Halcrow that the NEC suit of contracts gave opportunity for value engineering in the same way as was being realised on what is now known as Fastlink. What Halcrow did not make clear was that this contract, was not the same as used on Fastlink, but from the same suite, which was designed to shift all risk onto the contractor which should have been positive. However the contractor held control over any design or quality details not specifically laid out in the contract.

Comment [SB16]: Were these issues argued at the time or is it hindsight?

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3.2.4 A further advantage was that Halcrow's outline design under the contract was a "specimen design" and not part of the works information. This meant that no design failings by Halcrow at outline could be used by the contractor to verify his own design failings.

3.2.5 However, there are a number of issues where there was not full transparency within the contract documents as follows;

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- All elements of scope as agreed with CEC outlined in the specimen design drawings should have been detailed in "the works information" it is not clear that this was the case, – this was not the case
- There were various contradictions over the position of the site boundary. One of these failings was noted during the tender period and corrected as a tender bulletin. Border Construction used this tender bulletin out of context to draw doubt over their contractual obligation to determine the boundary.
- ~~As the property was in transition between the previous owner and the Council a check could not be carried out on the various buildings to be demolished. The pre tender health and safety plan highlighted the risk of asbestos being part of the construction of the chicken shed. The outcome of this will be discussed later.~~
- There was no **tie** risk register for the project which would have identified any areas of risk that should have been considered in terms of the overall contingency levels to be applied, or indeed transferring these risks to the contractor.
- The contract attempted to pass all risks for utility diversions to the contractor but agreed to pay for these via the contract as compensation events. The contract was not clear on exactly what costs and risks remained with the contractor and what remained with **tie**/CEC

Comment [SB17]: Surely this is a matter of fact. Either they were included or they were not.

3.2.6 Halcrow prepared the activity schedule, an outline programme and a favourable pretender estimate and the contract was tendered.

Lessons learned

- **tie** project managers should be adequately trained to take a commercial view on forms of contract being recommended by consultants and in particular the risk transfer that these contracts achieve if they are being asked to recommend the decision suggested by the service provider....
- No check of the outline design was undertaken and so no inherent risks in this were identified before this was used for the basis of tender.
- Risk registers should be put in place at an early stage.

How lessons learned are now being applied by tie

- TSS are used to carry out an independent design review of the Tram project and CEC have been involved in reviewing the design of IPR2. **tie** own and control the risk register. **Tie tie** now takes a much more

Comment [SB18]: Was this contemplated at the time of concluding decisions on contract type / form and details?

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Comment [SB19]: Only if tie are asking the PM to recommend the decision suggested by the service provider. If not, the training should be appropriate for the role and understanding the tie PM needs to discharge their duties.

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hands on role in managing the project and more commercial support is provided to ensure that contracts deliver the best overall risk transfer for the client.

- Project managers own the contract. Specialised tie staff are employed to scrutinise commercial issues.
- The tie utility delivery team has undertaken additional investigations regarding utilities and contract directly in advance of the Main infrastructure programme. Care has to be taken to ensure that direct links are kept open between the design and delivery teams.
- Risk registers are put in place for all new commissions

Comment [SB20]: Is being?

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3.3 Stage 2b Halcrow tender the contract

3.3.1 3.3.1 Halcrow managed the tender process letting the tender and responding to tender queries. During this period the tendering contractors raised concern that utility companies were not responding to their queries to allow them to provide realistic bids. Tenderers were informed that works for statutory undertakers were to be paid by tie as compensation events under the contract. It was not made clear to tie that this included works carried out by the contractor. This tender bulletin was the core basis for the dispute with Border. Border later asserted that this removed all risk with regard to programme and costs relating to the significant utility diversions which were required including services and power supplies. While Border Construction was not completely successful at adjudication on this, there was sufficient confusion to cause serious doubt and damage tie's defence.

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Comment [SB21]: Did tie have any right of review or structured sign off with Halcrow re tender queries and their response?

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Comment [SB22]: Does not mean anything without framework of tender assessment, ie is this in price, quality, programme, resources or anything else the evaluation methodology covered?

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Lessons learned

- Clarity is required in contracts in respect of contractor costs and risk and those to remain with the client, together with a clearly defined process for ensuring this clarity during tender period.

How lessons learned are now being applied by tie

- Risk allocation matrices are now developed for contracts to outline how risk transfers.

3.4 Stage 2c Tender Assessment

3.4.1 3.4.1 All tenders were very close. However, Border was the lowest tenderer and provided the best detail and so was awarded the contract. An option for reduced scope and sectional programme delivery was proposed to Border and a revised contract price was accepted. -Halcrow prepared the tender assessment and

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supplementary assessment.- The programme and the activity schedule did not include any allowance for utility diversions.

3.4.2 A tender assessment report was finalised leading to award of the construction contract.



- Border's assumptions regarding utilities should have been noted and clarified before the tender was accepted to avoid ambiguity.

Comment [SB23]: No comment on Halcrow and tie's failure to notice this issue? Was the programme evaluated?

3.5 Stage 3 Contract Execution and Supervision

3.5.1 The contract required that Border provide;

- A contract programme within 2 weeks of commencement of the contract ~~this~~ this was not provided. Halcrow did not specify which software should be used to create or interrogate the programme. Border did not provide a compliant programme and Halcrow did not write to Border requesting it. The software used by Border construction was a package called Project Commander which Halcrow did not have software rights to read. Eventually after several months and direct instruction from tie Border provided Halcrow's supervisor with a laptop with the software provided. Either the software did not provide Halcrow with sufficient ability to scrutinise the programme or Halcrow were not sufficiently adept in its use to highlight shortcomings or potential efficiencies.
- A detailed design package and report for review by Halcrow before commencing site works. This was not provided.
- A schedule of testing to be undertaken during the execution of the works. Halcrow allowed works to commence without this being provided.

Comment [SB24]: Not clever language: too vague

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3.5.2 In addition, it is clear that Halcrow and tie were found wanting in the following respects during the construction phase of the project: the following issues in both Halcrow's management of the contract and tie's management of Halcrow have been identified:

- Halcrow's supervisor assessed compensation events incorrectly. This was later ~~caught~~ identified following a change of staff. This was raised during the adjudication and the adjudicator upheld Halcrow's right to reassess. ~~However, had the compensation~~

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events been assessed appropriately in the first case then Border would have had less grounds for dissatisfaction.

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- A compensation event was allowed for asbestos removal from one of the buildings to be demolished. Halcrow did not point out to the contractor that this possibility was raised in the pre-tender Health and safety plan and therefore should have been at Border's risk. It may also have been included in the programme if clarified at that stage.

- tie raised concern early in proceedings regarding a number of early warnings that the supervisor was minded to convert to compensation events particularly relating to statutory authorities. Halcrow readdressed this. However the supervisor in the interim had made his interpretation clear to the contractor who used this later to undermine tie's position at adjudication. Border produced internal e-mails between the supervisor and the project manager which demonstrated that initially the project manager did not understand the contract and initially agreed with Border's position to the detriment of tie. These e-mails were extracted from the laptop provided to Halcrow by Borders.

- Following project delay the site supervision extended beyond the initial lump sum assumption of 6 months. Had tie's claim for liquidated damages been upheld this would not have been problematic. However since it was not upheld additional cost has arisen as a result of these fees.

- The number of early warnings escalated. Halcrow were directly instructed by tie to address issues with the programme and financial management. This included instruction to commission quantity surveying support. This advice instruction was largely ignored by Halcrow. tie implemented tie site staff to focus on delivery with particular regard to quality and programme. A change of Halcrow staff brought the return of the party largely responsible for the creation of the contract and this was the point at which many of the previous errors were realised and remediated. However, Border by this time considered that there was significant grounds for grievance.

- tie's Project Manager changed during this process

- Border Construction was given a confirmation of verbal instruction (CVI) to remove unsuitable material from site this was amended from calling the material contaminated. The CVI was

Comment [SB25]: If the re-assessment was judged fair, then this is not relevant.

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Comment [SB26]: It may have also been included within the programme

Comment [SB27]: When and was it in writing?

Comment [SB28]: How and what confidentiality breach was there?

Comment [SB29]: Were any early warnings raised by Halcrow?

Comment [SB30]: ?

Comment [SB31]: What role and responsibility did they have?

Comment [SB32]: How?

Comment [SB33]: Are you suggesting this is a reason for tie to be "found wanting"?

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signed by the site supervisor as was the amendment. Halcrow should not have issued this instruction. The supervisor should have insisted that Border demonstrate that the material was suitable to be retained in its proposed location under the contract. The adjudicator upheld Borders' argument and tie were required to pay the significant double handling and haulage costs.

Comment [SB34]: If it is a Halcrow error have we pursued it with them?

- Under the contract Border should have contracted with the statutory authorities for any diversionary works and Halcrow should have issued a compensation event. In order to attempt to obtain a cost sharing discount from the authorities tie agreed to contract direct. It was still Border's responsibility to arrange the works and provide estimates which Halcrow should have verified. This was not the process undertaken a rough schedule was produced by the original site supervisor and no further attempt was made by Halcrow to verify the works carried out or the values claimed by the SUs.
- The most significant problem with regard to programme was a Scottish Power cable which was found to be across the proposed carriageway at a shallow depth and intertwined with telecoms. Both Border and the site supervisor asserted that this was a new cable put in over a weekend and that they could not have influenced this or foreseen it. Evidence has since come to light that this cable was already in existence before construction commenced. Halcrow made no attempt to clarify with Scottish Power the status of the cable and therefore whether the requirement for its diversion should have been investigated sooner.
- It has further come to light that due to the alteration of the alignment of the footpath on Eastfield road that CEC street lighting was required to carry out significant diversionary works for which tie is liable to pay direct costs as contracted as Street lighting is a registered statutory undertaker. Halcrow did not include the cost of this diversion within the draft schedule of utility estimates or verify the quantity of work undertaken. Halcrow asserted that this was new supply for which Border were liable. This has resulted in late resolution beyond the conclusion of annual accruals for the predicted overspend.
- A completion certificate was provided to Border Construction on receipt of the building warrant. No clear schedule of deliverables had been produced to be signed off despite direct requests. Final handover of the site was difficult as the

Comment [SB35]: By Halcrow?

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supervisor was taken ill. His replacement was diligent in preparing a post completion snagging list.

- However some faults have come to light which should have been noted during construction.
- Commissioning of the site was particularly difficult as CEC had not assigned staff responsible for maintenance and operation of the site. CEC was not helped in this as clear guidance was not provided by the contractor on the operation of several of the elements of the site. CEC is now addressing this issue.

Comment [SB36]: Who agreed handover arrangements?

Further due to industrial action by bus drivers the site stood empty for a number of weeks before officially opening in September 2005.

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Comment [SB37]: You are already paying Halcrow to do this. Either ensure they provide the service or eliminate that service and undertake it direct, provided the systems / processes and competent staff are available.

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Lessons Learned

- *Ensure site supervision staff appropriately trained in contracted risks and responsibility*
- *Where possible retain/employ site supervisory staff responsible directly to the client*
- *IT should not be provided by the contractor for use by tie staff as information on this can be found and used by contractor staff.*
- *Ensure that the scope is described as deliverables and that these are scheduled, programmed and delivered.*
- *Extreme care to be taken over use of CVIs*
- *One supervisors' snagging list to be recorded and updated throughout contract so as changes of staff do not allow elements to be forgotten*
- *Programme must comply with the contract and be provided in a format which can be scrutinised by the project managers*

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- Adequate appropriately trained support staff should verify Works are complete, payments due and negotiated claims and certify payments due
- Comments required about formality and rigor of reporting by Halcrow to tie and necessary structured recorded challenge on deficiencies etc. Also no comment about how tie valued the services provided by Halcrow and what was measured / and how poor performance was measured or addressed. There was a lack of rigour employed by tie in management of the contract with Halcrow. This manifested itself in a lack of contract administrations document being kept to track historic events

Comment [SB38]: What / who do you mean?
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How lessons learned are now being implemented by tie.

- Stage-gate review process is in place. This ensure that the project is ready to move from the phase it is in to the next phase
- tie now employs direct planning resource to assist with management of programme
- Programme format and planning tools to be used are now defined in contracts
- Commercial support is now employed by tie to manage contract administration of projects
- Site staff has been employed directly by tie to supervise contracts on the ground. Construction management processes are in place to assist with this.

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Where is the section on how these are being implemented?

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4.0 Defects Correction Period and Latent Defects

4.1 Border put measures in place to correct all notified defects despite the live dispute over the final account. Some of these works were not carried out within the defects correction period. However Halcrow failed to interpret the contract correctly. At the end of the defects correction period final payment of retention minus the project manager's estimate for the final works should be made. There is no provision under the contract to extend the defects correction period unless the client cannot grant access to carry out the works. Even so Halcrow did not extend the defects correction period but continued to withhold the defects certificate until Border had finalised all snagging.

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4.2 In late 2006 early 2007 significant design defects occurred. These are covered as design defects under the contract for which the liability is with the designer as sub contractor to Border construction. During investigation of these design defects their occurrence has been found to be compounded by construction defects not noted or notified during construction or the defects correction period. These defects should be

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rectified by the contractor if however the construction defects are challenged by the contractor as out of warranty then the recourse has to be on the parties entrusted with supervision of the contract.

Comment [SB39]: Is this action being taken?

5.0 Dispute Resolution and Adjudication

5.1 The most significant elements of the adjudication are considered above however how the dispute was dealt with requires to be recorded. It was tie's understanding that only Border could raise an adjudication on this issue as they were pursuing tie for the outstanding values disputed.

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Comment [SB40]: What action exactly?

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5.2 Both tie and Dundas and Wilson specifically requested that Halcrow supply all site records and correspondence. The written information produced by Halcrow was extremely limited.

Comment [SB41]: You have previously stated that only Borders could raise the adjudication; now you are saying tie could have brought it sooner.

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Comment [SB42]: From D&W?

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Lesson Learned

- tie could have brought this action Borders to adjudication much sooner and reduced Border's opportunities to waste the project manager's resource on erroneous additional claims. The grounds for this action would have been to dispute the values claimed by Border.
- An early adjudication by tie would have allowed tie to choose an adjudicator specialised in law and to have prepared the notices and referrals specific to only tie's requirements. This would have been complete before Border had the opportunity to create confusing and conflicting programmes made up post contract.

Comment [SB43]: This is the first real suggestion that we were unhappy with the D&W performance as well as Halcrow. This needs more detail.

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6.0 Post Adjudication

6.1 Advice from D&W was that challenges to an adjudicator's decision are rarely upheld. However by not even lodging an arbitration notice tie lost all rights to counter on anything but new evidence.

6.2 tie have met with D&W and Halcrow about the lessons we have learned from the project. Whilst tie initially felt that D&W could have done more to support tie, following the meeting with them concluded that this was not the case. D&W were constrained by the lack of information provided to them by Halcrow.

Lesson Learned

- The arbitration notice should always be prepared and lodged to protect position to challenge in future. This does not need to be enacted and

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could bring the other party back to the table to resolve final minor issues e.g. the error in liquidated damages assessment made by the adjudicator

Comment [SB44]: Not consistent with the discussion held after the decision was debated with SB/SC/LMcC/GB

7.0 Overall Lessons Learned

- **tie** gave day to day responsibility for managing the contract to Halcrow. While **tie** had been set up as a Project Management organisation, it appeared to give this responsibility to Halcrow for IPR1. **tie** takes a much more pro-active approach to managing projects today.
- **tie** management of the contract with Halcrow was not satisfactory during the construction phase. Steps are ongoing to ensure that much more robust contract management is in place for all contracts by ensuring an appropriate level of contract management staff within project teams.
- **tie** was not strong in weak in terms of commercial support – this has now been addressed.
- Project management processes were in the process of being implemented in **tie** when IPR1 commenced. This meant that the roles of project manager's were not clearly defined. **tie** now has project management procedures which Project Managers' must comply with.
- There was no clear governance in place for the project and roles & responsibilities were not clear between **tie** and CEC. There are now clear governance arrangements in place for all **tie** projects and these are defined in the Project Registry document-Document (PRD) that must be put in place for each **tie** project.
- **tie** has a stagegate process that is used as projects move from one stage to the next. This allows review of the stage to date, readiness for the stage ahead to be assessed and lessons to be transferred.
- **tie's** response when disputes are raised should be strengthened and escalated within the organisation to ensure adequate support for the process.

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8.0 Final Summary

8.1 The budget for the IPR1 project was £3.072m and the AFC is ££3.303m. The difference is broken down as follows a variance of £231k to budget due to:

8.28.1:

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- Adjudication decision £455k
- CEC lighting invoice increased cost by £21k

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- Reduction by Halcrow cancelling final 2 invoices -£31k

8.2 ~~tie~~ have met with D&W and Halcrow about the lessons we have learned from the project.

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Comment [SB45]: This is the first real suggestion that we were unhappy with the D&W performance as well as Halcrow. This needs more detail.

8.38.2 tie has analysed the likelihood of taking action against both parties to try and recoup some of the overspend. However, given the weakness of tie's project management through the process, ~~feels~~ believes that this would have a low likelihood of success and so have discounted this option.

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8.48.3 tie has however, managed to get Halcrow to cancel it's last 2 invoices to the sum of £31k reducing the overall overspend by this amount.

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8.58.4 tie continues to push borders Borders directly on the remaining maintenance manuals and roofing and drainage issues to allow Handback of the site to CEC.

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8.68.5 Drainage lessons have been incorporated into the design of IPR2 which is due to start construction in October. This will alleviate the problems on the existing site.

Comment [SB46]: Surely more than just Drainage lessons have been incorporated into IPR2

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8.6 A stage-gate review of IPR2 has been held to ensure all the lessons learned from IPR1 have been incorporated

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8.7 ~~There needs to be comment on the lessons learned on managing service providers and reliance on them, together with company review processes to support and challenge the Project Management team. This also helps provide a more robust risk management and assurance process for tie Ltd.~~ tie now has a set of Project Management processes in place which it did not have when IPR1 was implemented. In addition, the Tram project has a detailed set of plans and procedures tailored specifically for the Tram. These include a project management plan, procedures of dealing with risk & change management.

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8.7

9.0 How lessons learned are to be Cascaded

9.1 SUSAN: I will discuss with you directly. This report will be circulated within the Tram Management Team for review as a first step.

9.2 A briefing to be held with all Project Managers and commercial staff to share the lessons from this project.

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