1 INTRODUCTION

Quality Surveillance Ltd (QSL) has conducted pavement marking contract audits in the past for a number of Road Controlling Authorities (RCA) – Local Authorities or State Roading Authorities. These audits have been initiated for a variety of specific reasons, but have been generally initiated where the relationship between the client and contractor has changed for some reason. QSL also offers contract surveillance activities and internal auditing services to contractors.

The principal of QSL is Ross Ridings. Ross Ridings is the Director of Quality Surveillance Ltd, a company he set up in 1997 to provide health and safety and quality services to the civil construction sector. Since this time Ross has provided services to a wide range of industries including thermocouple manufacture, mobile locksmiths, motor mechanics, roading contractors, and tree felling. Ross has expertise in Technical Writing, industrial measurement, documented systems, work-place HSE & Quality Programmes, and Auditing both projects and systems. Ross has a particular expertise in roadmarking and has been involved in the development of a number of Transit New Zealand specifications and NZ Roadmarkers Federation documents.

The pavement-marking environment is significantly different to that of a few years ago. There have been significant changes, and indeed these changes are still occurring. In both traditional method based contracts and the newer performance based contracts, there is the impact of new materials and application processes.

This changing environment can make it difficult for RCA's and contractors to make decisions, or determine robust policy positions. In addition, there is an increasing legislation requirements which place the Principal at risk if the Contractor is unaware of their duties, or is negligent in carrying them out.

Stakeholders faced with making these decisions require factual information to enable decisions to be made effectively. A one-off contract audit, or a properly designed and managed ongoing audit programme is the most cost effective and efficient means of providing the facts required. Audits provide a series of snap-shots in time, which can then be used to produce a representative view of the industry / project.

2 PAVEMENT MARKING CONTRACTS

Traditional method based pavement marking contracts are managed for the Principal either by an Engineer specifically contracted for this duty, or a Road Controlling Authority employee acting as the Engineer to the contract.

The Engineer's duties, and those of the Engineer's Representative, include a degree of audit in their Contract Surveillance activities. However, the Contractor / Engineer relationship often precludes the degree of independence necessary for effective auditing.

This lack of independence is in part due to issues such as:

a) The need to develop ongoing working/legal relationships,
b) The Engineer has selected the contractor at time of tender, and
c) The Contractor may not have been the Engineer's preferred service provider, eg tender is selected on the basis of lowest price conforming tender and the tender price was significantly less than the Engineers estimate.

The introduction of a requirement for documented systems such as AS/NZS ISO 9001:2000 has meant that pavement marking operations have been subject to audits:

a) During certification by JAZANZ registered Certification Auditors, and
b) As part of internal/self audit built into quality system

However the information gathered during these audits is subject to agreements between the Certification Bodies and their Clients (the Contractors) and as such are not readily available to those having to set policy or make decisions about the industry.

3 Why Audit?

This question needs to be answered early in any discussion on contract surveillance, as audits are performed by auditors, and the right auditors cost a lot to employ. Before undertaking contract audits, the Principal needs to know the justification for committing the resources.
So what is the justification for using either an independent auditor or RCA staff to audit a contractor?

- All decisions need factual input
- An audit systematically analyses objective evidence and presents facts rather than preconceived ideas
- The audit report promotes factual communication between the client and the contractor
- An audit provides an unbiased assessment of compliance with contractual requirements
- An audit assists with providing an unbiased assessment of the status of the work being carried out, the condition of the equipment being used, the procedures being used and any training / retraining requirements, and lastly
- Identification of opportunities for improvement based on the auditors experience and observations
- Identification of the potential risks faced by the RCA and the contractor
- An audit can provide useful training for the RCA personnel who participate as observers.
- Recommendations for corrective action

4 When should audits be carried?

QSL has often been contracted to carry out an audit when the RCA has lost confidence in the contractor. This is a valid but not desirable situation.
Effective contract management uses audits at various stages during the contract cycle:

- Initial audits should be carried out at approximately 90 days of the commencement of the contract. This allows for identification that appropriate processes and controls have been established.
- Routine Audits at anniversary dates of the contract or project milestones.
- Exit Audit near the end of the contract term.

5 What Makes an Effective Audit?

To be effective audits require a number of elements. This paper discusses each element, its importance and the critical parts of it. The discussion will cover:

- Audit Decision Process
- Audit Type & Scope
- Auditor Independence
- Auditor Knowledge and Experience
- Checklists & Procedures
- Communication of Findings
- Confidentiality
- Contact Specifications
- Contract Conditions
- Corrective Actions
- Relationships
- Use of Information Gained

Recommendations are provided in bold text.

5.1 Audit Depth / Type

Audits vary in both depth and scope. There are two levels of audit, 1) Systems Audits, and 2) Compliance Audits:

1. Systems Audits ascertain whether or not there is a management system in existence that provides confidence that the activity is being accomplished as required. These are often carried out as a "desk audit".
2. Compliance Audits determine whether or not the documented system is being followed and whether it is effective or not.

Often where AS/NZS ISO 9000 based systems are contractually required and generally in place, compliance type audits are commonly assumed to be appropriate. However, it cannot be assumed all the necessary systems are in place, or that they being carried out properly, or that they are effective. A limited system type audit needs to be incorporated into the introductory stage of any audit.

All Contract Audits, regardless of depth, must include an element of systems auditing.

5.2 Audit Scope

This is the most critical component of any audit activity. The Auditor and Auditee(s) need to know the extent of the audit, what areas are to be covered and, just as importantly, what is outside the bounds of the auditor/audit process.

The audit extent must be clearly and concisely scoped to ensure that the audit is effective and is efficiently carried out with a minimum of fuss.

The Auditor needs to be able to investigate sufficiently well to be able to make an objective observation based on real evidence; however the Auditee's right to privacy must be preserved.

It is important that the audit is aimed at determining the level of compliance while the organisation carries on "as normal", not while it is on the defensive.

Audits encounter the interfaces between processes that occur in any delivery of product or service. For this reason, even if the intent is to limit an audit to a single marking operation, the interface between the client's representative and contractor will invariably occur because they have supplied the instructions / specifications. Therefore, the degree to which the interface is to be investigated needs to be considered and included in the scope of the audit.

Scoping statements which clearly describe the extent of the audit, must be developed for each audit, including the degree to which interfaces are included.

5.3 Auditor Independence

It is critical that the Auditor is independent of the function being audited to ensure that evidence is gathered and judged objectively and impartially. The requirements for Auditing in accordance with International Standards are described in ISO 10011.

The Principal or RCA will inevitably have to consider whether or not it to use their staff, and just who to use, or if an external auditor is required. This is important to ensure that any preconceived ideas are not transformed into so-called “factual evidence”.

While it can be useful for the Auditor to have a person who assists as reference and guide, who can provide supporting information, Auditors must take positive steps to guard against becoming involved in “witch-hunts” or pursuing personal vendettas.

The Auditor must be independent of the processes being audited to ensure that preconceived ideas are not transformed into actual audit findings. Auditors need to identify and declare freedom from conflicts.

5.4 Confidentiality

The Auditor must tread a fine line between gathering objective evidence and using industry knowledge / experience to satisfy himself of competency / compliance, and appearing to "pump" the Auditee for information. It is critical that the Auditor has, or gains, the confidence of the Auditee so that personal/company information gained during the audit is not shared unnecessarily, or reported in a damaging way.

The Auditors must be required to sign a statement of confidentiality.

The audit report format must include a statement as to the purpose of the information, name the intended recipients and state that information cannot be disclosed to any further parties.

5.5 Auditor Skills and Knowledge

The confidence in the audit findings hinges on the ability of the auditor. Unless all parties are confident that the Auditor knows what he is doing, there is the risk of challenges (emotional, physical and legal) at each and every stage of the project.

In addition to a number of particular attributes, the Auditor must have the correct knowledge to be able to perform effectively. However, the risk of over-auditing by an industry "expert" must be guarded against.

Auditors must have the knowledge required which would include:

- **Auditing practices**
- **Processes involved in the particular operation / process being audited**
- **Calculations and determinations**
- **The criteria applying to the contract being audited**
- **Quality/health and safety/environmental standards**
- **Common practices for the industry concerned**
- **Contractual and legislative requirements**

5.6 Use of Information

The type and extent of information received and processed during an audit can be huge, as are the purposes that this information can be put to. As mentioned in the earlier sections, the Auditee's trust must be gained so the use to which the audit information is to be put must be clarified prior to the auditing.

The range of uses for the information may include:

1. Simple fact gathering, information of a general nature, used to describe current environment
2. Fact gathering on specific issues; information used to prescribe industry response
3. Fact gathering; information used to rate Contractors / Consultant Engineer
4. Fact gathering; information used to "prompt" Contractor(s) / Consultant to respond
5. Fact gathering; information used as basis for application of non payment or damages clauses of contracts

The purpose for which any audit information is to be used must be clarified prior to the audit. This information needs to be in the scope statement.

5.7 Engineer to Contract Responsibility / Relationship

The relationship and legal responsibilities of both the Contractor and the Engineer to the Contract must be recognised if the audit is to be credible and no breaches of contract are to occur.

The Contractor and Consultant Engineer must both be involved in any audit of the contract works. The legal status of the Auditor and Audit Report Findings needs to be clear.

5.8 Meetings

Legitimate audits commence with entry meetings and conclude with exit meetings. The primary purpose of the entry meeting is to "set-the-scene" and allay fears. The exit meeting is critical as it is used to present the summary of the findings and conclusions of the audit.

Entry and Exit meetings must be scheduled and held for each audit, or stage of a series of audits.

5.9 Checklists and Procedures

Checklists are a key tool, and are mandatory in International Quality Assurance Standard certification. Checklists provide a structured approach to the audit and visibly demonstrate the planning and preparation of the Auditor.

An experienced and knowledgeable Auditor will use a checklist as a prompt, while being prepared to investigate an issue in greater depths when appropriate.

It is for this reason that the New Zealand Roadmarkers Federation Inc. (NZRF) developed the Site Review Checklist which incorporates the relevant roadmarking industry calculations. The NZRF Site Review Checklist can be down-loaded from the NZRF website www.nzrf.co.nz

Checklists are used for each and every audit stage. Where checklists such as the NZRF Site Review Checklist are not available or suitable, they must be developed and reviewed prior to their use.

5.10 Spot Audits

Informal, "Spot Audits" or unannounced audits are often suggested. However, the use of such measures are usually more damaging, more costly and certainly less useful than audits where a degree of planning is carried out.

It is a common experience where someone turned up unannounced to "just to have a quick look at the project", which developed into an exercise of either justifying the visit, or sidelining key staff from the project works.

Informal audits rapidly become formal if and when deficiencies are identified. Sadly unless corrective action procedures are in place these deficiencies become costly and difficult to resolve, and good working relationships are damaged or destroyed. In addition such exercises end up taking more time and resources than properly planned and scheduled audits.

To be legitimate, ALL audits must be planned and announced in advance. Where some degree of "sampling" is required this is also announced in advance, e.g. "We will observe the marking activity on Contract XYZ on the week of 7 November".

5.11 Actions Taken

An integral part of effective audits is the corrective action decision step. The true value of the audit is not necessarily realised at report submission phase, but when action is taken to correct or eliminate the problems identified by the audit report.

Obviously, there would be little point in conducting an audit if the auditee knows that the Auditor will never verify that any corrective action is taken, or whether the actions taken were effective in resolving the deficiencies identified. Similarly, the timing of any corrective action / response is also important. .

The actions taken range from:

1. Purely remedial action (i.e. repaint markings at correct specification), to
2. Remedial and Corrective Action to be determined / agreed between supplier and clients representative (i.e. Auditor not involved), to
3. Remedial and Corrective Action determined / agreed between Auditor, supplier and clients representative with the clients representative closing out Corrective Action Request (CAR) (i.e. the Auditor not being involved in CAR Closeout), to
4. Remedial and Corrective Action determined / agreed between Auditor, supplier and clients representative with the Auditor closing out the CAR.

Remedial and Corrective Actions must be determined / agreed between Auditor, supplier and client's representative during the audit. The Auditor (or a delegate) needs to conduct a "follow-up" audit prior to closing out any Corrective Action Request.

5.12 Uses of Information Gained Through Audits

The primary risk with gathering any information through audits is that there is a likelihood of retrospectively using information for purposes that it was not originally intended for, such as instigating increased surveillance measures etc.

A possible method for dealing with this may be to view the auditing programme having two strands:

1. Gathering information to develop management and policy changes within the RCA, and
2. Contractual matters, where information is dealt with on a contract by contract basis.

The two strands must be separated and dealt with at an early stage in the audits. The separation would enable clear uses of information to be identified and policies arrived at for the various uses of the information gained.

The use of the findings of any audit, and any associated information, must be clearly stated at the Entry Meeting and confirmed at the Exit Meeting to ensure that any and all corrective actions are effective. The initiation of any subsequent “witch-hunts” needs to be guarded against by formalizing an on-going audit programme to ensure that Corrective Action Requests are closed-out.

6 In Conclusion

Using contract audits to observe the contractor's systems in action can provide:

1. Confidence that the contractor has good control of the work,
2. An indication of poorly managed processes in control of work set-up, monitoring of process characteristics, recording of inspection and test results, etc
3. An indication that RCA systems are not functioning as envisaged, or

Most often a combination of 2 and 3.

In our experience, audits generally find that good relationships are the key to resolving any difficulties between clients and providers. Where there is genuine desire to satisfy the client's needs, audits can be used to identify poorly translated needs for resolution. Where the contractor is primarily out to satisfy their own needs, contract audits can provide clear identification of contractual breeches.

It is easy to find non-compliances, what is difficult is to ascertain whether they are important and whether there is a practical process control change. If the Auditor hasn't made any meaningful recommendations, or raised any corrective action requests, the audit hasn't been effective!

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