

Performance Audit

Road Surface Repair Works on the Arterial and Distributor Road Network *Follow-up*

Report by the Auditor General

December 2013





Performance Audit

Road Surface Repair Works on the Arterial
and Distributor Road Network

Follow-up

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List of Abbreviations

A&CE	Architect and Civil Engineer
AD	Arterial and Distributor
BOQ	Bill of Quantity
DOC	Department Of Contracts
FA	Framework Agreement
FO	Field Officer
HO	Head Office
LN	Legal Notice
MCCEI	Malta Chamber of Commerce, Enterprise and Industry
MIP	Malta Industrial Parks
MU	Maintenance Unit
NAO	National Audit Office
RID	Roads and Infrastructure Directorate
SOP	Standard Operating Procedure
TM	Transport Malta
QC	Quality Control
WIC	Work Item Category

Executive summary

Executive summary

1. In March 2011, the National Audit Office (NAO) published an audit report, entitled *“Road Surface Repairs on the Arterial and Distributor Road Network”*, which delved into the value-for-money and performance considerations pertaining to road surface repair works carried out on the local Arterial and Distributor road network. From this audit report, various issues and concerns emerged, which, in NAO’s opinion, undermined efficiency, effectiveness and economy considerations of the system employed to address the mentioned works. To this end, and in order to assess whether the concerns highlighted during the 2011 audit report were consequently adequately addressed by the Roads and Infrastructure Directorate, this Office saw it fit to revisit these identified issues and measure the level of take-up of NAO’s proposed recommendations by the Directorate. This follow-up study was therefore aimed at presenting an accurate rendition of the situation and consequently assess whether any improvements were registered in the period between the publication of the original report and this follow-up audit.

Conclusions

2. NAO is concerned about the clause in the Framework Agreement (FA) document governing the manner by which call-offs attracting identical bids or which would not have attracted any offers, are awarded. This Office is of the opinion that, in taking into consideration solely the cumulative value of call-offs carried out by the participating contractors while merely ascertaining that the respective contractor has consistently complied with set specifications, Roads and Infrastructure Directorate (RID) is generating a somewhat avoidable risk of not rewarding best practices among the participating service providers. Bidding for and consequently being awarded with the largest amount of call-offs (thereby accumulating the highest value) does not intrinsically imply that the contractor in question is the best performer, but merely that he has sufficient capacity to address large volumes of work while consistently complying to set specifications. As shown in this report, a scenario might occur in which a contractor who does not have the capacity to engage in large volumes of work is, in fact, the best performer (that is, he exceeds the minimum set quality requirements). To this end, NAO opines that RID should not run the risk of denying such parties from being offered the opportunity to conduct the works in question as these service providers would offer the highest probability of good value interventions to the benefit of the tax payer.

3. One of the most significant causes for concern is the provision within the FA document which allows a fifty per cent mark-up on work interventions which are commissioned

as emergency works. While NAO understands that works carried out during night hours present much reduced inconvenience to the road users, this Office still opines that, according to its calculations, this figure is a considerably inflated one and which therefore does not adequately reflect the increase in costs incurred by the contractors carrying out work interventions during night hours. Such an evitable shortcoming puts major unnecessary strains on the Directorate's financial situation and consequently result in poor allocation of taxpayers' funds.

4. The inclusion of imprecise references and misquotations in any agreement generates obvious risks which potentially might lead to negative repercussions. Having the FA document featuring references to work items' numeric labels which, at the time of original drafting, did not exist, might have created a potential source of confusion in interpreting the precise implications of the relevant clauses. Likewise, the instruction to service providers to adhere to a misquoted legislation during the progression of works, leaves the Directorate in a somewhat weak position insofar as enforcing penalties on non-compliance is concerned.
5. Echoing the salient finding of the 2011 NAO audit report, this Office is gravely concerned with the risks associated with the prevalent situation of having issued call-offs attracting a solitary bid each. The fact that, from a sample of twelve supposedly competitive tenders, (that is: three relating to road side repair works; six governing major patching works; and three concerning tenders issued by means of the fast-track procedure), ten attracted a single bid each, once again begs the question as to whether the participating contractors are acting in a genuinely competitive manner while bidding for works commissioned by RID. Such practice continues to undermine possible economical benefits usually associated with normal competitive behaviour from which the Directorate might stand to benefit. Compounding this concern is the observation made by NAO that seven out of these ten identified cases in the reviewed sample featured bids that amounted to the precise same value as the estimate issued by RID during the respective tendering stages. To this end, NAO is forced to conclude that, in tendering at precisely the maximum allowable amount of a call-off, the respective contractor would, somehow, be aware that no competition is threatening the forwarded offer. Such a situation is obviously highly undesirable as it greatly diminishes the integrity of the overall procurement process.
6. NAO is also concerned about the viability and reliability of Article 46 of the FA document, which Article details price revision mechanisms of work item rates as quoted in the same agreement. As explained in the findings presented in this report, the results of one of the studies commissioned by RID to an external consultancy firm varied considerably from those of another exercise by the same company. While the first study was intended at providing an opinion on the revision of prices by making use of methods quoted in Article 46, the second study was based on the review of a sample of actual costs incurred by contractors. Although government should always endeavour in procuring such services at the lowest possible rates, it is also of utmost importance that the providing contractors are fairly remunerated for the services rendered. Should such a consideration not be adequately addressed in an agreement such as the FA, the credibility of the same document will inevitably diminish which would in turn increase the risks of non compliance by the participating contractors.
7. NAO acknowledges the challenges being faced by RID, especially those relating to the disputes on work item rates as well as instances of non-participation by contractors in FA call-offs. To this end, this Office commends the Directorate for the effort and energy invested for the numerous attempts to address such issues. Nonetheless, NAO is concerned about the decision taken by the Directorate to accept and allow payments which were in excess of the aggregate percentage increase comprised of

the results of the external consultants' second study as well as NAO's additional mark-up intended at covering costs associated with carrying out night-time interventions (which excess payments, according to NAO's calculations, amounted to €410,370.36). To this end, this Office opines that the repeated application of the emergency works provision (which allowed for a fifty per cent mark-up on FA prices) therefore resulted in the dilution of value-for-money considerations of the hot asphaltting interventions procured in this manner. NAO is also deeply concerned about the situation in which the Directorate is practically forced into a state of operational paralysis by the participating contractors with the threat of non-participation so that the latter's pricing requests are met. A clear distinction must be drawn between the benchmark rates and the asking price being petitioned by the contractors. In assuming that the benchmark rates as validated by the external consultants reflect an accurate and fair representation of what contractors should be remunerated for services rendered (which rates are inclusive of a ten per cent profit mark-up), NAO contends that the asking price being pushed for by participating contractors may be an attempt to inflate profit gains rather than to cover operational costs.

8. NAO is also adverse to the idea of commissioning works in the form of direct orders. Given that the 5+5 Summit is a high profile event, its organisation would generally be known well in advance prior to it actually being held. To this end, NAO cannot justify any method of procurement other than a normal FA call-off for the acquisition of road resurfacing services, given that adequate notice would have been provided for such preparations. Resorting to direct orders or conducting interventions as emergency works only serves as a source of diminished competitiveness to the detriment of economical as well as possibly quality considerations. Additionally, NAO is also highly concerned with the fact that while the contractor engaged to carry out the works governed by the reviewed direct order was favoured with the fifty per cent mark-up permissible under the emergency works provision, the required works (or parts thereof) were in actuality carried out during normal working hours. Such a situation presents significant value-for-money concerns, as while the contractor was remunerated with what, in NAO's opinion, is an inflated amount (even if works were carried out during night hours), the fact that the interventions were carried out during normal working hours meant that no inconvenience to road users was alleviated at the time. To this end, this Office commends RID and Transport Malta (TM) Head Office (HO) in responding to this identified concern in a timely manner by immediately initiating an internal investigation.
9. NAO acknowledges RID's concerns about the current arrangement of having to dedicate some of its resources to oversee projects commissioned by Enemalta and Water Services Corporation for works issued under the FA. NAO however draws attention to potential risks associated with the proposed initiative of having the three entities issuing and consequently operating under different FAs. This Office perceives the potential risk of RID creating a similar undesirable situation as that identified in the 2011 report concerning the difference in rates for similar items in the Directorate's FA and the one issued by Malta Industrial Parks (MIP). NAO opines that having different FAs being issued rather than a collective one, mitigates the benefits associated with a united front approach.
10. Echoing the 2011 report, NAO is still of the opinion that having Field Officers (FO) carrying out inspection rounds on an individual basis poses avoidable risks, especially insofar as health and safety as well as defect identification are concerned. Having a situation, in which a single officer simultaneously deals with the collective responsibilities associated with such a practice, is one which, in NAO's opinion, inevitably results in otherwise preventable shortcomings to the detriment of RID's

general effectiveness. As a consequence, the value of the money invested in these operational activities might be compromised.

11. NAO acknowledges the effort invested by RID in attempting to streamline the manner in which identified defects are recorded by the inspecting FOs. However, considering that the different FOs still record identified defects in somewhat differing manners, NAO still perceives that relatively minor risks prevail to the collected information's integrity and completeness.
12. This Office also notes the evident effort put in by the Directorate in setting up a detailed database to adequately record the road surface defects identified by the FOs. Although this tool is still subject to improvement, NAO still considers that RID has come a long way in systemising its approach towards prioritisation of works in developing the new database which serves as an invaluable tool unto which such a process is rooted.
13. While NAO highly commends the Directorate on the initiative taken intended at furthering the technical knowledge of its staff, this Office is still somewhat concerned with the persistent lack of accredited qualifications RID's FOs possess. Recognising that the risks associated with such a situation have been (in practice and to some extent) mitigated by organised internal Technical Meetings, NAO is still of the opinion that not having adequately qualified staff may present the possibility of reduced performance while carrying out assigned responsibilities.
14. NAO acknowledges the evident effort put in by RID in obtaining more detailed insurance policies from participating contractors. In contrast with the case of the original audit report, the clear indication of the level of indemnity each policy offers gives the Directorate the reassurance that, should an accident occur, sufficient cover is available insofar as third party liability is concerned.
15. While every enterprise must ascertain that any individuals assigned to carry out works commissioned on its behalf are engaged under acceptable conditions as set by law, this responsibility is perceived to be somewhat greater insofar as government entities are concerned as they are generally regarded to be the benchmark for such considerations. To this end NAO commends both RID and TM HO in providing the necessary measures in ascertaining that these conditions were met for the commissioned works under NAO's review.
16. Insofar as the bid bond issue is concerned, NAO understands that the process of ascertaining that such a guarantee is submitted may not prove to be cost effective. To this end, this Office acknowledges the Directorate's sense of practicality but still remains somewhat concerned about the risks such a system might present to RID, namely that the latter might incur administrative costs associated with the processing of received tenders in vain in the eventuality that these are withdrawn prematurely.
17. NAO acknowledges the fact that the reviewed road side repair works contracts, together with hot asphaltting interventions commissioned through normal FA call-offs, were all covered by a performance guarantee which amounts to the required ten per cent of the bid price. This Office is however concerned with the lack of such reassurance in the case of the hot asphaltting contracts commissioned under the FA emergency provision, the fast-track major patching works agreements which tendering process was managed by TM's HO, as well as the reviewed direct order. RID's explanation on why such guarantees were not sought in the case of emergency works due to time restrictions, does not, in NAO's opinion, suffice. Although these contracts are supposed to be of a fast nature, they still consume considerable

amounts of public funds while presenting considerable negative implications on road users in the case of bad workmanship. To this end, the immediate access to funds by TM to rectify such potential shortcomings is of paramount importance. Further compounding this concern is the fact that, as explained earlier in this report, the utilisation of the emergency provision within the FA contract has practically become the order of the day to address pricing issues of particular work items as well as to take the advantage of such works being carried out at night. Similar concerns apply to the direct order which governed a hot asphaltting intervention in preparation for the 5+5 summit. The occurrence of such a high profile event would be known well in advance, and any required preparations, if planned correctly, could be carried out in an orderly and predetermined manner. It is NAO's opinion that having to resort to emergency interventions to address such needs is indicative of poor governance. Similarly, NAO is greatly concerned with TM's HO approach of not requesting a performance guarantee in the case of the fast-track contracts for which tendering process it was responsible. NAO deems it as an unacceptable practice that such an important safeguard is deliberately omitted during the procurement of such services, especially when one considers the somewhat costly nature of these interventions.

18. NAO is pleased to note that, unlike the departmental tenders which were issued in the scoped period of the original audit report, the FA document does not feature clauses which allow engaged contractors to forego skid resistance specifications. The Office is of the opinion that such a development serves to mitigate obvious health and safety risks to road users which were posed by this clause at the time of the 2011 NAO study.
19. The efforts made by the Directorate to issue tenders which reflected the actual work item quantities envisaged to be required by planned interventions rather than issuing a template (as was the case in the departmental tenders reviewed during the 2011 report), have been duly noted by NAO. This Office is of the opinion that such a development aids RID to better assess the most economically advantageous bid from the submitted pool. This opinion is based on the fact that the per unit item in a submitted bid might vary depending on the specific requirements dictated by the individual nature of each intervention. To this end, in quoting an approximation which is as close as possible to the actual required work items, rather than quoting a template configuration at tendering stage, NAO opines that the most economically advantageous offer in the individual circumstances will become more apparent to the Directorate, and consequently ensures greater reliability in the selection process.
20. This Office acknowledges RID's take-up of one of NAO's recommendations' made in the 2011 audit report, insofar as the documentation of the progression of work interventions is concerned. Such a marked development reflects a higher level of good governance within the Directorate. On the other hand RID did not formally introduce a Standard Operating Procedure (SOP) for such monitoring processes, as was also recommended by NAO in its original audit report. Nonetheless this process is still, by and large, being carried out in a standardised manner by RID's FOs.
21. NAO is of the opinion that the removal of clauses in issued permits which were contradictory to the nature of work interventions they governed, put the Directorate in a position of strength in the eventuality of a contestation as, due to this development, the integrity of the permit document is strengthened.
22. This Office however, is also concerned about the fact that three permits out of an analysed sample of eighteen contracts, could not be reproduced by RID for NAO's review. This shortcoming could have been caused, for example, by such documentation not being issued by the Directorate in the first place at the time of the commissioning of works, or that such documents were not adequately filed and consequently misplaced.

Either way, NAO considers this as unacceptable as every effort should be made to ascertain that such important documentation is kept comprehensively in order.

23. NAO positively notes the significant improvement registered since the 2011 report insofar as traffic management during asphaltting interventions is concerned. The level of planning being presently carried out goes into minute details and is a considerable leap forward from the system employed during the progression of the original audit. This very positive development undoubtedly creates an increased sense of order during the progression of asphaltting works, which in turn results in much reduced inconvenience to the road users at large.
24. This Office also acknowledges the improved manner by which communication between the Directorate and assigned contractors occurs in the case of cold patching works. The fact that this process is now being documented implies that an audit trail is in place and that principles of good practice are applied. The presence of FOs during the actual progression of work interventions is also commended by NAO as this is conducive to good governance.
25. NAO does not contend the professional judgement of RID's Architect and Civil Engineers (A&CE)s in interpreting QC test results which would have marginally fallen out of set parameters. However this Office perceives risks of such decisions not being backed up by a documented and officiated formal structure which clearly defines an objective approach to the A&CEs interpretation of the above mentioned results.
26. With respect to the FA clause stipulating that the contractor with the highest accumulated call-off value should be awarded call-offs which would either have attracted identical bids or no offers at all, NAO suggests that RID amends this proviso so that it better reflects the promotion of good practices and performance. To this end, NAO recommends that such call-offs are awarded according to a proven track record thereby rewarding high quality achievers.
27. NAO also strongly urges the Directorate to conduct the necessary studies in determining the adequate rate at which participating contractors should be recompensed for works carried out during night hours. In so doing, RID would be ascertaining that the service provider is adequately remunerated for the services rendered while simultaneously ensuring value-for-money for the tax-payer.
28. With respect to the wrong referencing and misquotations identified in the FA document, NAO encourages RID to exercise more care in the review of the still-to-be-issued new FA prior to final publication. To this end, the Directorate would be minimising the risks of such a situation to reoccur thus ensuring a more incontrovertible document.
29. Although NAO is of the opinion that the Directorate per se is not the main source creating the undesirable situation of having only a single bid being received for issued FA call-offs, this Office still encourages RID to endeavour in actively seeking ways by which this situation could be mitigated. First and foremost, NAO urges RID to vigorously monitor the bidding patterns of the participating contractors and identify the cause leading to this persistent reduced competitiveness. If conclusive evidence is found that commercial misconduct prevails among the participating contractors, the Directorate should report such shortcomings to the relevant authorities without delay, so that adequate corrective action is taken and enforcement imposed. Secondly, this Office also recommends that the Directorate should weigh the possibility of issuing call-offs on an EU level rather than restricting a call-off issue to the pool of local

Recommendations

suppliers. Being aware that minimum financial threshold requirements have to be satisfied to be able to issue an EU-wide tender, NAO recommends that RID compiles a schedule covering required planned interventions for a one or two-year period and issue a collective call-off for their address. In so doing, the Directorate would be introducing additional competition and induce healthy competitive behaviour for the issued call-offs, thereby increasing the possibility of registering increased economy considerations in its tendering process. NAO also suggests that this call for tender should also include coverage for the procurement of unplanned emergency works.

30. In re-issuing a new FA to govern future interventions, NAO urges RID to give due consideration to the price revision mechanism included in the pertinent document. NAO recommends that an extensive and exhaustive study is carried out so that the method by which quoted prices are to be revised reflects real cost fluctuations both on a local and international level. Such a mechanism should ensure that participating contractors are fairly remunerated for services rendered while ensuring that Government is not paying amounts which are in excess of prices considered fair and reasonable at the time.
31. NAO urges RID to ascertain that the new FA features rates which accurately reflect fair prices at the time, while as stated in the previous recommendation, ensuring that an adequate mechanism for price revision is in place to address cost fluctuations. NAO also advises the Directorate not to acquiesce to any pressures posed by the contractors for the application of rates which are higher than those considered fair and reasonable. To this end, this Office once again draws attention to its recommendation in point 29 above for RID to consider introducing additional competition by issuing tenders on an EU level rather than confining them to the local suppliers. In so doing, RID would put itself in a position of strength during negotiations and minimise the risk of being subjected to the threat of operational paralysis.
32. This Office also opines that RID should only make use of direct orders as a last resort. As stated earlier, it is not common practice for high profile events to be organised in a short amount of time thereby limiting planning time frames. The occurrence of such events would be known well in advance, thus allowing for the proper scheduling and execution of works. In view of this, NAO urges RID to persistently endeavour in preserving and promoting competition as much as possible by issuing normal competitive FA call-offs to address the required works in such circumstances. This Office also urges RID to persistently effect payments which are a fair representation of the work carried out by engaged contractors. If a mark-up is to be applied for works carried out outside normal working hours, then this should only be effected if the engaged contractor is compliant with the latter requirement. While NAO strongly advises the Directorate to adopt a zero tolerance approach in this regard, it once again commends the timely initiation of corrective action with respect to the case reviewed by NAO.
33. Insofar as the issuance of separate FAs is concerned, NAO recommends that the Directorate adopts one of the following two measures. The first is that the FA is still issued in a manner which encompasses the procurement processes of the three entities involved but which also features a clear and fair allocation of responsibilities among the three entities. In so doing, the united front approach would be preserved while the onus of such procurement process is fairly distributed among the involved beneficiaries. Alternatively, should RID still opine that the best way forward is to issue separate FAs, NAO urges the Directorate to ascertain that in depth consultations are held so that uniformity of quoted rates across the concerned government entities is assured. In so doing RID and the other entities involved would be mitigating the possibility of creating a repeated occurrence of the complication identified in the 2011

NAO audit report, in which conflicting rates between two government agreements were used as leverage by contractors during disputes.

34. With respect to adopting a system whereby FOs are assigned to carry out inspection rounds on an individual basis, NAO once again recommends that an alternate system is devised whereby two FOs are deployed for the execution of such inspections. Taking into account the considerations forwarded by RID during meetings held as part of the fieldwork stage of this follow-up audit, NAO recognises and accepts the fact that certain features of the road structure and signage are best evaluated from the driver's perspective. NAO is of the opinion, however, that this does not imply that a single FO per inspection is sufficient, but merely that the driver can contribute to the identification of defects. The responsibility of detecting other defects, which are evident and can be identified merely by visual observation, should still be entrusted to the accompanying FO. In so doing, the responsibilities associated with such a practice would be distributed between the two Officers, thereby mitigating the aforementioned risks.
35. While NAO commends RID for its efforts in streamlining the FOs reporting process when recording defects identified on the local AD road network, it urges the Directorate to persist in continuous improvements towards a situation where the different FOs would adopt a completely standardised approach, thereby ensuring complete consolidation of information. NAO also once again suggests that technological aides could be procured to assist these FOs during their inspection rounds and ascertain the compilation of more complete and accurate information.
36. While NAO commends RID's efforts in setting up the central database of identified defects, it also urges the Directorate to enhance, at the earliest, this tool into a fully consolidated instrument unto which the Directorate's prioritisation process may fully rely, thereby reaping the full benefit that could be reaped from such an initiative.
37. With respect to the persisting issue of having RID's FOs not being adequately qualified, NAO once again recommends that the Directorate endeavours in identifying suitable courses leading to recognised qualifications, thereby encouraging the Officers in question to undertake such tuition. Seeing a somewhat healthy level of interest shown by the FOs with respect to the organised internal Technical Meetings, NAO trusts that such an opportunity would be well received by the Officers in question.
38. Insofar as the level of detail included in the forwarded insurance policies is concerned, NAO encourages RID to continuously persist in soliciting comprehensive documentation from the participating contractors so as to ascertain that compliance and adequate coverage in the eventuality of an accident.
39. NAO commends RID and TM HO in adopting measures to ascertain that individuals employed by the engaged contractors benefit from at least the minimum level of working conditions as specified by law. To this end, NAO encourages these entities to continue applying these conditions consistently to all commissioned works so as to minimise the possibility of precarious employment conditions.
40. With respect to RID's reasoning insofar as the bid bonds issue is concerned, NAO is of the opinion that the Directorate is essentially promoting good governance in not engaging in a cost-ineffective compliance exercise. This Office however suggests that RID should include a proviso in the new FA which subjects prospective bidders to penalties should they withdraw their submitted bids prematurely. In so doing, the Directorate would not have to actively screen each submitted offer for this somewhat

nominal protection, but still be able to ensure redress should any bidder default in this regard.

41. In view of the lack of performance guarantees covering interventions commissioned with the emergency works provision, NAO urges RID to rectify this situation at the earliest. In so doing, the Directorate would be ensuring that, in the eventuality of poor workmanship, it would have ready access to funds thereby being in a position to enforce applicable penalties. Given the implied importance of this issue, RID should adopt a no-compromise approach in ascertaining that such guarantees are in order prior to commissioning road surface repair interventions.
42. NAO commends the Directorate in removing the clause featured in the departmental tenders as utilised during the scoped period of the 2011 report and which stated that skid resistance requirements could be ignored by commissioned contractors. This Office urges RID to continually adopt such an approach towards health and safety considerations so that unnecessary risks are mitigated, thereby preventing potential detrimental consequences to road users.
43. This Office also highly lauds RID's efforts in quoting more precise and individualised quotes of required works during the tendering stage of each intervention. Given the advantages such a system proffers, NAO encourages RID to sustain this approach to continually ensure greater value for the funds invested in such interventions.
44. This Office encourages RID to persist in documenting ongoing works given the benefits that such a practice offers. In so doing, the Directorate would be in a better position to identify, and substantiate with evidence, any shortcomings during the progression of commissioned interventions. To this end, RID should endeavour to consistently find ways and means by which to improve this recording procedure, thereby continuously enhancing its robustness and completeness. Furthermore, NAO once again recommends the drafting and inclusion of an SOP to ascertain a fully standardised approach to this very important aspect of the contract management function.
45. While NAO acknowledges the fact that the new permit templates do not feature clauses which are inconsistent with the nature of works they govern, NAO urges the Directorate to ensure that such documentation is consistently and appropriately managed for ease of reference.
46. This Office highly commends RID's new approach toward traffic management and encourages the Directorate to adopt this organised methodology throughout all commissioned works, as this results in less disruption for road users.
47. NAO also noted the improvement registered insofar as the commissioning and monitoring of cold asphalt interventions are concerned. To this end, this Office encourages the Directorate to maintain such good practices while consistently proactively seek ways for continued improvement.
48. While NAO does not contend the professional judgement of RID's A&CEs, it nonetheless opines that the decision-making process, of whether to accept or otherwise QC tests results which would have marginally fallen out of set parameters, should be documented and officiated in a formal structure. In so doing, the Directorate would be mitigating risks of subjectivity between different A&CEs and provide a solid framework within which such Officials are to operate.

Chapter 1

Introduction

Chapter 1 - Introduction

This first chapter is intended at presenting some introductory background portraying the system by which asphaltting works are carried out on the local arterial and distributor road network. Following this preface, salient findings, conclusions and recommendations which emanated from the March 2011 audit report entitled “*Road Surface Repairs on the Arterial and Distributor Road Network*” are presented, these being the basis upon which this follow-up audit was developed. Towards the end of this chapter, the scope, objectives and methodology used to compile this report are explained, while synopses outlining the issues covered in the relevant subsequent chapters are also presented.

1.1 Relevance of the Study

1.1.1 In March 2011, the National Audit Office (NAO) published an audit report, entitled “Road Surface Repairs on the Arterial and Distributor Road Network”, which delved into the value-for-money and performance considerations pertaining to road surface repair works carried out on the local Arterial and Distributor (AD) road network. From this audit report, various issues and concerns emerged, which in NAO’s opinion undermined efficiency, effectiveness and economy considerations of the system employed to address the mentioned works.

1.1.2 In order to assess whether the concerns highlighted during the 2011 audit report were adequately addressed, NAO saw it fit to revisit these identified issues and measure the level of take-up of NAO’s proposed recommendations by the Roads and Infrastructure Directorate (RID). To this end, this follow-up study was aimed at presenting an accurate rendition of the situation and consequently assess whether any improvements were registered in the period between the publication of the original report and this follow-up audit.

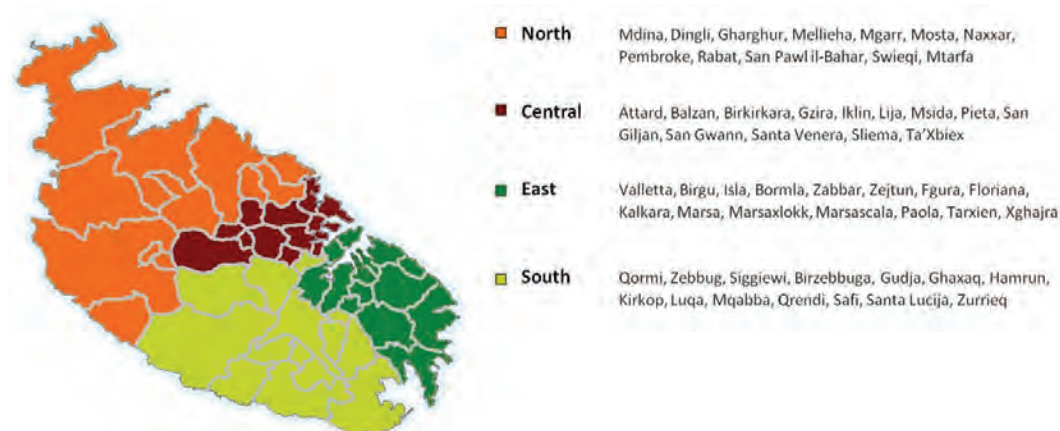
1.2 Background as at 2011

1.2.1 The maintenance of the AD road network falls under the responsibility of Transport Malta (TM) which in turn, delegates this same duty to RID. It is important to note that residential and private roads fall under the responsibility of the relevant local council or owner respectively, while Malta Industrial Parks (MIP) is responsible for the upkeep of roads within industrial estates. It must also be noted that the Gozitan road network does not fall under RID’s responsibility but is, in turn, tended to by the Ministry for Gozo.

1.2.2 At the time of the original report, the AD road network spanned over a length of approximately 150 kilometres. In order for these roads to be better managed, RID divided this network into four main areas, namely North, Central, East and South. This categorisation is illustrated in Figure 1.1, reproduced hereunder for ease of reference.

1.2.3 Each of these areas was assigned to one of four Area Architect and Civil Engineers (A&CE) within RID's Maintenance Unit (MU). These A&CEs were responsible for a multitude of tasks concerning the AD road network, however, as far as road surface maintenance was concerned, their assigned responsibility included: the identification of road surface defects; the prioritisation of works; and the management of any asphaltting work contracts commissioned within their respective allocated areas. The four A&CEs were managed and coordinated by the MU Manager and, in turn, were assisted by RID's Field Officers (FOs). These FOs were instrumental in RID's operational activity as they were delegated with a number of key tasks, ranging from conducting inspection rounds intended at identifying road surface defects, to being physically present during the progression of works as monitoring agents.

Figure 1.1: Areas of Responsibility



1.2.4 The 2011 performance audit report on road surface repair works revolved around the review and subsequent analysis of asphaltting works commissioned in the period between August 2009 and January 2010. At the time of review, it was common practice for RID to issue such work contracts through departmental tenders. Not going through the Department of Contracts (DOC) and opting to issue such tenders on a departmental basis meant that RID could issue works with a maximum value of €46,587.47, as this was the limit applicable for departmental tenders at the time.

1.2.5 These departmental tenders specified that all works being carried out on the AD road network should be in line with the technical specifications detailed in Legal Notice (LN) 364/2003. It is worth noting that, in 2010 (and therefore during the progression of the original audit), this LN was superseded with LN 29/2010.

1.2.6 It is of paramount importance to emphasise that the original audit, as well as this follow-up study, are concerned solely with maintenance works on road surfaces, essentially omitting works involving constructive or reconstructive procedures. Interventions on the local road network that are deemed to involve works of resurfacing nature are normally exclusively concerned with the uppermost level of asphalt of the road structure. This section of the road's composition is referred to as the wearing course,

which generally runs to a depth of between four to five centimetres. It must also be noted that, although not a common practice, maintenance works could also be carried out in the levels of asphalt immediately below the wearing course, with the intention of regulating areas of greater deterioration. Generally speaking however, interventions affecting the underlying strata (especially the Base Course and Foundation) transforms the procedure into a reconstructive one and therefore such works do not form part of the resurfacing system under review.

1.2.7 At this point, it is also important to recall that the original audit report specified two main types of repair interventions which were carried out by RID on the local AD road network at the time. The first of these is referred to as cold patching, which essentially entails cold asphalt being placed in potholes as a temporary measure to make the road safe for users within the shortest possible timeframe following defect identification. This kind of patching is reserved solely for such purposes as its rather simplistic nature makes it inadequate to address other defects (such as cracking, depressions, edge deterioration and reduced skid resistance) or to serve as a long term remedial solution. The second type of repair intervention is referred to as either hot or major asphaltting works. This procedure consists of employing heavy machinery to excavate the wearing course and then relay it with hot asphalt, essentially forming a new road surface. Such practice is generally intended at addressing significant stretches of road surface area, thereby addressing a number of defects at once. Such intervention, axiomatically, is immeasurably more complex than the cold asphaltting procedure and is therefore significantly costlier, thereby requiring a much higher level of expertise. Apart from being considered a long-term solution intended at addressing identified defects, it is also worth noting that hot asphaltting interventions are also deemed to be instrumental to the extension of the life expectancy of the road structure. During meetings with RID Officials, NAO was informed that the servicing of the uppermost layer of asphalt drastically reduced the risks of damages occurring in underlying strata, thereby preserving the road's foundation and consequently its whole structure for a longer period of time.

1.3.1 Following the comprehensive review of RID's maintenance system at the time, NAO identified a number of concerns which, in its opinion, undermined the overall efficiency and effectiveness of RID's operation (presented in Table 1.1). In view of such shortcomings, NAO proceeded to present corresponding recommendations intended at eliminating or mitigating these problems. This follow-up audit is rooted in these considerations and aims to identify whether progress in this regard has been registered or otherwise.

1.3 Concerns identified in 2011 and Corresponding Recommendations to be Followed-Up

Table 1.1 - Salient Issues and Concerns Identified in the 2011 Audit Report

2011 Performance Audit on Road Surface Repair Works	
Chapter	Salient Issues
Chapter 2 - Identification of Road Surface Defects and Prioritisation of Works	Lack of an updated and reliable database documenting identified road defects
	No consolidated and standardised system adopted by FOs during their inspection rounds
	Individual FOs having to monitor the road network while driving, presenting evident healthy and safety risks as well as undermining the efficacy of the inspection process
	RID FOs lacking necessary academic qualifications
Chapter 3 - Tendering Process	Works issued at identical quantities at tendering stage, thereby not representing actual required quantities
	The required Performance Guarantees not always submitted by commissioned contractors, while those which were, not always meet the set requirements
	Submitted bids not always covered by the required bid bond
	The level of indemnity covered by submitted insurance policies not always being of the required amount
	Not all engaged contractors submitting the required declaration stating that the employment conditions afforded to the employees working on the intervention conform to legal requirements
	The departmental tender template used to govern hot asphaltting interventions specifically stating that skid resistance requirements as per pertinent LN did not apply to these works.
	A single bidder pattern for the commissioned works prevailed, undermining a healthy competitive environment
Chapter 4 - Contract Management	No comprehensive documentation during the actual progression of works was kept by FOs
	Permits issued by RID containing two inconsistencies with normal practice: (1) that area of excavation could not exceed 5 sq.m. (2) that no mechanised machinery could be used in the excavation
	Traffic Conditions of Permit not varying according to actual exigencies
	On-site visits not conducted and recorded immediately after the completion of cold patching works
	Documentation on the communication to commence cold patching works, together with that associated with its monitoring, was not always found to be clearly and comprehensively completed
	Works consistently approved by RID even in instances of out-of-specification results when conducting quality tests
Chapter 5 - Framework Agreement	Framework Agreement to address the maximum value of contracts issue while maintaining the advantage of expediency
	The Framework Agreement system to be introduced and utilised as the main method of procurement

- 1.3.2 Taking the natural progression of the maintenance process as a guideline to the study's approach, the audit team set off by noting shortcomings in the identification phase of the system. As part of the fieldwork for the 2011 audit, NAO officials accompanied RID's FOs during their inspection rounds, during which two main observations were made.
- 1.3.3 The first identified concern was the fact that the FOs carry out these inspection rounds on an individual basis and, therefore, they are never accompanied by other RID staff members. NAO opines that such practice raises major concerns, more specifically that the FO is not able to dedicate the required full attention to either the driving (thereby creating evident health and safety risks for himself and other road users) or to the identification of defects. NAO also noted that this concern was also highlighted by an RID Official in an undated internal report. No remedial action had been taken till the completion of NAO's original study in this regard.
- 1.3.4 In an attempt to mitigate such a situation, NAO proposed that a single dedicated driver could be assigned who would be responsible to drive RID's FOs during their inspection rounds. Such a measure would ensure that the FOs would be able to dedicate their full attention in identifying road defects, without compromising driving attention.
- 1.3.5 The second shortcoming identified by the audit team while accompanying RID's FOs during their inspection rounds involved the fact that, although there were templates available for the recording of road surface defects, not all FOs made use of them during their rounds. It was noted that some of the FOs recorded such faults in an ad hoc manner and sometimes made use of blank papers to jot down informal notes. In drafting the original audit report, NAO expressed its concern at the risk posed by such an extemporised approach, possibly resulting in the FOs not being able to present a comprehensive picture of the road defects to their respective A&CEs due to incomplete and somewhat disorganised record keeping.
- 1.3.6 In view of this concern and its associated risks, NAO urged RID to ascertain that its FOs make use of a single consolidated template to record road surface defects. In so doing, RID would be minimising the risk of not having all the gathered information arriving at the A&CEs, who require such information to be able to base the prioritisation process of the maintenance programme.
- 1.3.7 Apart from the above two concerns, NAO also observed that in considering the vital role played by the FOs in RID's maintenance operation, it becomes evident that such officers need to be adequately qualified to carry out their assigned tasks. While recognising that experience is a valid contributor to any expertise, NAO was concerned with the lack of technical qualifications which RID's FOs possessed. This deficiency was further substantiated by the results of a test administered to these officers in 2008. This assessment was conducted following a 30-hour course, in which the five FOs working within RID's MU obtained a relatively low average mark of 54.8%. Further compounding this concern, was the fact that a satisfactory performance in this test was still not considered sufficient to ascertain that the participants are fully competent for their positions, as it merely sought to assess whether the candidates have at least an elementary level of knowledge in the subject area.
- 1.3.8 NAO was, and still is, of the opinion that such poor performance in what was considered to be a basic assessment, is of major concern. Such a situation presents a multitude of risks on different fronts within RID's operation, especially one considering the responsibilities delegated to these officers. In view of this, NAO recommended that ongoing dedicated training had to be provided to these personnel in order to maximise their potential and minimise the risks associated with such a situation.

- 1.3.9 The final concern identified in relation to the identification of road defects and prioritisation of works, was the lack of a central consolidated database recording identified defects and subsequent required work interventions. NAO noted that such a shortcoming made it much more difficult for the MU to prioritise between required work interventions in a manner which best reflects the needs of the local AD road network.
- 1.3.10 In view of this, NAO recommended that efforts are made for a central, consolidated database to be set up by RID's MU, intended at serving as a basis onto which works prioritisation is adequately drawn.
- 1.3.11 Through a sample of files pertaining to work interventions carried out by RID, NAO could review and analyse the tendering process relating to such commissions at the time of the 2011 report. During this analysis, a number of concerns were identified, which in NAO's opinion put RID in a disadvantageous position.
- 1.3.12 The analysis of the files relating to the chosen sample showed that, on numerous occasions, missing, incomplete or inadequate documentation (which was required by the tender document) was provided by the bidding parties. Such documentation included bid bonds, performance guarantees, insurance policies and statements declaring that the engaged provider's employees are afforded with adequate working conditions as stipulated by local legislation.
- 1.3.13 The fact that, on numerous instances, RID did not have in its possession copies of such documents but still awarded contracts to defaulting bidders, axiomatically presented a multitude of risks. The lack of bid bonds left RID in a vulnerable position of not being able to impose penalties should tenders be withdrawn prematurely. On the other hand, not being in possession of a copy of an adequate performance guarantee posed the risk of RID not being able to easily withdraw the necessary funds to rectify bad workmanship on the commissioned projects. Not being able to ascertain whether the provider is covered by an adequate insurance policy put RID at risk in the eventuality of accidents. Similarly, the lack of statements declaring that the provider's staff are employed with adequate working conditions was leaving RID exposed to the possibility that personnel working on its projects were not provided with at least the minimum employment conditions as set by law.
- 1.3.14 In view of these risks, NAO recommended that RID should invest more effort in ascertaining the provision of all the required documentation by the prospective bidders and especially by the contractors selected to carry out commissioned works. Such practice puts RID in a more favourable position of being able to manage each work contract with higher authority and minimises the risks of the Directorate having to face anomalous and potentially significantly costly situations. NAO also suggested that RID should keep copies of such documentation readily available for ease of reference should a situation meriting their use occur.
- 1.3.15 In analysing the process of how tenders are issued, NAO noted that contracts for different hot asphaltting projects were all issued for the same amount of works, irrespective of the particular needs and requirements of each individual intervention. NAO observed that in employing such practice, it could be the case that the most economically advantageous bid for a particular, specific intervention, could be outmanoeuvred by another bid which happens to be more adapt to the itemised template within the tender document.

- 1.3.16 In view of such a concern, NAO proposed that RID should endeavour in reproducing as approximate an estimate as possible to each works project it commissions. In so doing, the Directorate would be maximising the possibility of determining which bid is in reality the most economically advantageous for the configuration of each particular intervention.
- 1.3.17 One of the more salient concerns identified by NAO in the 2011 audit report, was the trend of having a single bid being submitted for the vast majority cases of the reviewed sample of work interventions. More specifically, NAO noted that 33 out of the 35 reviewed contracts of work relating to hot asphaltting interventions attracted a single bidder each at tendering stage. Such a finding raised major concern for NAO as it is highly anomalous for such a situation to occur in similar circumstances. This abnormality was further compounded when one considers the fact that these tenders were all issued in a relatively short timeframe, thereby essentially making it more difficult to understand how 33 of these tenders were contested only by a single bidder.
- 1.3.18 Furthering this concern was the inconsistent pattern by which a particular contractor placed bids for identical amounts of works (as explained in 1.3.15) under different circumstances. Whereas this contractor consistently placed bids at €62,908.22 for the five uncontested tenders he was subsequently awarded, in the only case where his offer was challenged by another bidder, the same prospective provider placed a substantially lower bid (that is €55,778.05, which is 11.33% lower than his normal bid price), for the same amount of works as quoted in the other five contracts.
- 1.3.19 These findings forced NAO to seriously question the competitiveness by which these tenders were being submitted by the pool of available suppliers. In view of this, NAO strongly recommended that such tenders for works are published in a sporadic manner in an attempt to minimise the risk of having a false inflation of demand, which might be the cause of such an evident decrease in competitiveness. In so doing, NAO trusted that RID tenders would potentially attract lower prices and a higher level of quality standards.
- 1.3.20 The final concern identified by NAO at the time which related to the tendering process for asphaltting works, gravitated around the anomaly of having RID deliberately instructing prospective bidders to overlook a technical specification relating to skid resistance as outlined in the respective legal notice governing such works. Given the importance that should be given to skid resistance in such interventions due to health and safety considerations, NAO found it of grave concern that the departmental tender document used at the time, expressly directed the service providers that such specifications were not applicable for the tendered works.
- 1.3.21 In view of this, NAO urged RID to take one of two actions as necessary. NAO recommended that RID should either remove such a clause from the template tender document or that, should the Directorate be of the professional opinion that the material used by the contractors provides sufficient skid resistance to road users, it should endeavour in promoting a change in legislation which better reflects such parameters. In adopting any one of these two measures RID would be ascertaining compliance to local legislation, which is a consideration that should always prevail in awarded contracts.

- 1.3.22 As an integral part in the assessment of value for money and performance considerations, NAO looked into the manner by which RID managed the awarded contracts for road surface repair works. As highlighted in the 2011 report, during this evaluation, NAO came across a number of concerns and consequently proposed corresponding recommendations to address such issues.
- 1.3.23 During the 2011 study, NAO noted that, in the case of hot asphaltting interventions, FOs were expected to conduct a number of site visits during the progression of commissioned works. During such inspections the FOs were directed to document the actual progress of work and the conditions (including weather) surrounding the intervention. It was however noted that, although the FOs were issued with a daily report template unto which they were to record their observations, these forms were not consistently filled-in in a comprehensive manner. NAO perceived such practice as a risk for RID, which results in the Directorate not having reliable documentary evidence to put forward should quality or timeliness contestations arise. To this end, NAO proposed that a Standard Operating Procedure (SOP) governing the documentation of work processes should be introduced so as to provide guidance to the FOs on what is expected from them in a detailed and formal manner, thereby minimising the risk of data omission.
- 1.3.24 During the review of documentation, NAO also noted that the permits governing hot asphaltting works contained two conditions which were highly inconsistent with the manner by which this kind of intervention is normally carried out. These conditions called for: the total area of the intervention not to exceed five square meters; and only hand or pneumatic hand tools to be used during the excavation, thereby not allowing mechanical excavators. Both of these conditions are evidently not congruent with the conventional manner by which hot asphaltting is laid, thereby causing the permit document to incur reduced credibility and integrity.
- 1.3.25 While conducting this study, NAO also observed that RID made use of a template document intended to outline traffic management conditions to be adhered to by the engaged contractors during the progression of works. This Office was however concerned with the fact that these conditions did not vary from one intervention to another, but rather, the Directorate used this template in a one-size-fits-all approach. Given that different AD roads experience different usage and may present different challenges if closed for repairs, NAO saw such an approach as one which posed avoidable risks of creating unnecessary but significant inconveniences to road users during the progression of the commissioned works.
- 1.3.26 In the case of cold patching works, NAO also observed that FOs were not present during the progression of works. In tandem with this concern was the fact that, in most cases, the only documentation kept which certified the completion of works, were photographs taken by the FOs responsible for the respective region. These photographs however, did not detail the date and time when they were taken and therefore it could not be ascertained whether the FOs' inspection was carried out immediately after the completion of works or after significant time had elapsed. This posed potential risks of having contractors not responding in time (leaving potholes, and therefore their associated risks, exposed to road users for longer than necessary) and RID not being in a position to verify such delay. In view of this, NAO recommended that RID should ascertain that each FO should conduct a site visit immediately after completion of works and comprehensively document the intervention so as to put RID in a favourable position should it need to contest the quality or timeliness of the procured work.

1.3.27 In addition, NAO was also concerned with the fact that, in the case of cold patching interventions, communication with the selected provider was generally carried out in an informal manner. It was noted that in such cases RID officials would correspond by phone even though they had a set template to be used as a 'Work Order'. NAO observed that, on some occasions, this form was sometimes completed during or after the actual works would have been carried out and, even so, it was not completed comprehensively. This implied that important details (such as 'Requested Response Time' and 'Description Of Works') were omitted, thereby presenting risks of RID not being able to enforce penalties if the provider defaulted.

1.3.28 With respect to contract management, NAO identified one final concern in its 2011 audit report. This issue gravitated around the audit team's observation that the vast majority of the Quality Control (QC) test results carried out for the interventions under review were consistently found to be differing from set specifications. Adding further concern, was the fact that the QC officer in charge of these tests consistently advised to accept the works which resulted in off-specifications and to monitor the situation till the expiration of the guarantee period. In the original report, NAO expressed its opinion that this reactive rather than proactive approach to quality, jeopardises the value of the newly resurfaced roads. This is so because although such roads would not have developed defects during the guarantee period, there still was the possibility of degradation occurring well before the average lifespan normally expected if material which is compliant to set specifications is used. In view of this, NAO strongly urged RID to adopt a more rigid approach to such non-compliance and determinately seek corrective action. Alternatively, NAO also suggested that RID could extend the guarantee period to match the average life expectancy of a resurfaced road. In so doing the integrity of these works would be ensured throughout their entire expected life span.

1.3.29 During the progression of the original report, NAO was informed that RID intended to introduce a Framework Agreement (FA) which would govern (among other road maintenance and construction interventions) hot and cold asphaltting works on the AD road network. This agreement was intended to address two main issues, namely to expedite the timeliness by which tenders could be issued and to increase the maximum value for which works can be commissioned.

1.3.30 The process which led to the materialisation of this agreement is explained in detail in Chapter 2 of this report.

1.4.1 The objective of this study is to verify whether the concerns identified in the 2011 NAO report have been addressed by RID either by means of implementing NAO's recommendations or by any other corrective action. Once this identification is complete, the report will present further recommendations, and/or reinforce original ones on recurring shortcomings. Recommendations will also be put forward on any other concerns emerging from changes to RID's operational systems coming into affect during the period between the publication of the two NAO reports.

1.4.2 It is also important to note that the aim of this study is to evaluate the process being adopted by RID in carrying out the works in question. To this end, the financial compliance of these projects is not being reviewed by NAO. Therefore, while on numerous occasions reference is made to amounts paid to contractors by the

Framework Agreement

1.4 Scope and Objectives

Directorate for works carried out, it was not within the scope of this study to carry out a financial and compliance exercise of the respective and actual payments effected by RID.

- 1.4.3 As stated earlier, the subsequent sections of this report will feature considerations on the FA currently being utilised by the Directorate to commission required works. It is important to note that this agreement encompasses a multitude of work interventions of varying nature. Worth noting is also the fact that the FA covers works commissioned not only by RID, but also by Enemalta and the Water Services Corporation. For the purposes of this study, however, works commissioned by the latter two institutions have not been reviewed by NAO.
- 1.4.4 This follow-up audit is limited to the verification and assessment of changes pertaining to findings identified by NAO in its 2011 report. This means that the report will once again focus solely on repair works carried out on road surfaces, thereby completely omitting road reconstruction works and any operations pertaining to road furnishings and other infrastructure. The report will also be limited to interventions carried out on the AD road network, therefore omitting residential, private and other roads falling under the responsibility of MIP. The road network in Gozo falls under the responsibility of the Ministry for Gozo and will therefore also not feature in this study.
- 1.4.5 The pricing exercise conducted by NAO and consequently presented in Chapter 2 of this report, is based on the assumption that the results of the report entitled “*Review of Contractors’ claim for revision to the Framework Rates*” are correct. This report was compiled in August 2012 by external consultants commissioned by RID to calculate a fair representation of rates pertaining to particular work items at the time. This report was forwarded to NAO by the Directorate during the progression of this study.
- 1.4.6 The findings of this follow-up report are as at April 2013 and reflect fieldwork carried out by the audit team up to this date.
- 1.5.1 This study was compiled by applying a spectrum of research and analytical methods. The first step into addressing this audit was to conduct a detailed review of the original report to extract the salient findings and concerns, thereby forming the basis onto which this follow-up audit could be constructed. Following this identification process, a series of structured and semi-structured meetings with the concerned auditees (namely RID Officials) ensued, in which the discussion mainly revolved around the previously mentioned identified issues and whether any corrective actions were taken since the publication of NAO’s 2011 audit report.
- 1.5.2 Requests for relevant information and documentation were put forward to key auditees throughout the audit process. This requested documentation, among others, included relevant contracts, performance guarantees, insurance policies, Bill of Quantities (BOQ), documentation generated during RID’s monitoring process and quality test results.
- 1.5.3 For the purpose of this study, a sample of thirteen contracts with an aggregate value of €1,284,368.14 was chosen for review. These contracts, which covered a variety of resurfacing work interventions, were primarily chosen on the basis of financial materiality. NAO also reviewed the BOQs of forty-five hot asphaltting works contracts commissioned by RID as emergency works, amounting to a total value of €4,273,528.95. Furthermore, this Office also conducted a detailed review of the files of five of these emergency works.

1.5 Methodology

1.6 Report Structure

1.5.4 Upon receipt of the requested information and documentation, NAO conducted pertinent analysis to extract its audit findings. Apart from the review of the aforementioned documentation with the aim of assessing to what extent value for money considerations were respected throughout all the procurement processes, NAO also carried out an extensive pricing exercise to determine what the costs of asphaltting interventions should have been following the 2012 revision in prices (delved in detail in Chapter 2).

1.6.1 This follow-up audit is laid out as identified in the below synopses. Relevant conclusions and recommendations are integrated in each chapter.

- **Chapter 1: Introduction** – This first chapter is intended at presenting some introductory background portraying the system by which asphaltting works are carried out on the local arterial and distributor road network. Following this preface, salient findings, conclusions and recommendations which emanated from the March 2011 audit report entitled "Road Surface Repairs on the Arterial and Distributor Road Network" are presented, these being the basis upon which this follow-up audit was developed. Towards the end of this chapter, the scope, objectives and methodology used to compile this report are explained, while synopses outlining the issues covered in the relevant subsequent chapters are also presented.
- **Chapter 2: The Evolution of RID's Procurement Process** – In this chapter, an in-depth analysis is presented on the methods utilised by RID to procure Road Surface Repair Works on the Arterial and Distributor Road Network. The procurement method used by RID at the time of the NAO 2011 report is revisited and sets off this part of the study so that a clear comparison with the present system can be drawn later on. Following this, details are given on the efficiency, effectiveness and economy considerations presented by the Framework Agreement currently in vigore and the challenges surrounding its implementation. Attention is also conferred to the different methods of awarding contracts, other than the Framework Agreement arrangement, utilised by RID during the period under review to address road surface repairs. To this end, a sample analysis of works procured by means of these different methods is presented to better evaluate related value-for-money and performance considerations.
- **Chapter 3: Follow-up on RID's Operations** – This final chapter presents a comprehensive evaluation of actions taken by RID on the concerns identified by NAO during the 2011 audit study. For ease of reference, this section of the report retains an overall similar layout and sequence as was used in the original study. The tackled concerns are divided into three parts, each of which can be identified within the core three chapters of the preceding study. More specifically, this chapter presents NAO's findings on RID's identification of road surface defects and prioritisation of works, tendering process, as well as contract management.

Chapter 2

The Evolution of RID's Procurement Process

Chapter 2 - The Evolution of RID's Procurement Process

In this chapter, an in-depth analysis is presented on the methods utilised by RID to procure Road Surface Repair Works on the Arterial and Distributor Road Network. The procurement method used by RID at the time of the NAO 2011 report is revisited and sets off this part of the study so that a clear comparison with the present system can be drawn later on. Following this, details are given on the efficiency, effectiveness and economy considerations presented by the Framework Agreement currently *in vigore* and the challenges surrounding its implementation. Attention is also conferred to the different methods of awarding contracts, other than the Framework Agreement arrangement, utilised by RID during the period under review to address road surface repairs. To this end, a sample analysis of works procured by means of these different methods is presented to better evaluate related value-for-money and performance considerations.

2.1 Procurement of Maintenance Services identified in the 2011 Audit Report

- 2.1.1 Throughout the course of the original audit, NAO observed that the standard method of procurement of services employed by RID was through the issuance of departmental tenders. Although the Directorate voiced concern about the €46,587.47 limit that characterised this method of procurement, it nonetheless considered it as the swiftest manner to issue such contracts, given that the alternative method called for a relatively much lengthier process of issuing calls for the required works through the Department Of Contracts (DOC).
- 2.1.2 RID's concern regarding the limit for which such contracts could be issued was also shared by NAO in its 2011 report, in which it pointed out the risk of the Directorate having to forgo certain economies of scale which could have been possible if larger projects were commissioned, especially in the case of hot asphaltting interventions. This financial limit constrained RID to resurface local roads in a partial manner, which practice essentially resulted in a number of different interventions being carried out on a single road. This method of conducting repair works in part presented the disadvantage of RID having to incur fixed costs (which are normally associated with the start-up and natural progression of a new project cycle) more than once to resurface one complete AD road. In addition, having a number of hot patching interventions, rather than one whole resurfacing project on the same road, somewhat diminishes the ridability of the resurfaced road as more joints in the surface would axiomatically be required.
- 2.1.3 In order to address these concerns, RID proposed the implementation of the FA, which was intended to cover a multitude of work interventions on the local road

network. These interventions include construction of roads, road surface repair works as well as utility work interventions. This agreement was to be issued through the DOC and interested applicants were to submit their intention to participate in one of three different levels of works. As can be seen in Table 2.1, each level of works entails more complex and substantial interventions than the one preceding it. RID's intention was that interested parties were to express their interest and consequently sign the agreement, whereby this contract was to run for a period of two years and subject for renewal once expired.

2.1.4 By adopting this arrangement, RID would have been in a position to issue call-offs under the three set levels of work for a maximum of €500,000 for each intervention. This substantial allowance would have comfortably addressed the issue created by the imposition of the limited maximum value levels featuring in the departmental tenders, which were the main method of procurement during the 2011 study. In addition, and of great importance to the Directorate, by issuing call-offs from an already signed contract rather than having to award a new contract for each intervention, the FA was also expected to accelerate the procurement process.

Table 2.1: The Different Level of Works governed by the Framework Agreement

Level	1	2	3
Type of Road works interventions	1. Repair and maintenance of residential/urban roads; 2. Trenching works not exceeding a maximum trench length of 50m at any one point in time and not in arterial roads	1. Repair and maintenance of residential/urban, distributor, commercial and tourist areas roads; 2. Repairs and maintenance in arterial roads when site occupancy is less than 5sq.m.; 3. Trenching works not exceeding a maximum trench length of 200m at any one time	1. Repair and maintenance of arterial and distributor roads; 2. Construction of residential/urban roads; 3. Trenching works exceeding 200m in length at any one time
Location of works (Occupancy)	Residential/urban roads	Residential/urban, distributor, commercial and tourist area roads, and arterial roads in particular circumstances	Residential/Urban, distributor, commercial and tourist area roads, and arterial roads
Provision of materials for works	N/A	N/A	The provision of materials and products used in any part of the above type of works

Adapted from: Framework Agreement Document

2.2 The Framework Agreement Document

- 2.1.5 As outlined in the 2011 audit report, however, RID informed NAO that the first attempt to issue this agreement in October 2009 was largely unsuccessful as no contractors came forward to participate. The potential participating parties voiced a number of reasons which led to this rejection, but the most pressing of their concerns was the price levels for each quoted work item, stating that they were too low and therefore did not reflect the market prices at the time. Suppliers also pointed out that no mechanism for the revision of prices was included in the FA document and this, therefore, created major risks on them should an increase in the prices of raw materials and wages occur during the operational timeframe of the agreement. Worth noting is the fact that MIP issued another separate FA during the period in which RID was actively receiving intents of participation for its own agreement. The fact that MIP's agreement included similar work items as those covered by the Directorate's FA, but which featured considerably more favourable rates than those quoted by the latter, further strengthened the contractors' position that the prices as quoted by RID were too low. This circumstance further supplemented the already significant disgruntlement among contractors.
- 2.1.6 In view of this set-back, RID amended its FA document, particularly the rates pertaining to the covered work items and in January 2011, re-issued this revised tender. A clarification meeting was held with interested parties a few days following the issue of the amended FA document, in which the Directorate sought to answer queries put forward by prospective bidders. This second attempt attracted a largely positive response from the private contractors and consequently 29 of the 32 contractors who showed intent of participation, were accepted by RID to partake in this agreement.
- 2.2.1 With the original audit report indicating that the way forward for the procurement of road resurfacing services by RID was the implementation of the FA, NAO analysed the FA document *in vigore* in order to assess the extent to which this presented value-for-money to the taxpayer. While the NAO is of the opinion that the agreement per se, by and large, promoted efficiency, effectiveness and economy in the awarded contracts, two main concerns emanated from the analysis of the FA document.
- 2.2.2 The first of the above mentioned concerns relates to clauses in the document detailing the manner by which a call-off is to be awarded in the case of either a tie between two or more lowest bids or in instances where no bids are put forward for tendered work. More specifically, NAO has reservations about the following clauses:
- 1.1.11.a *In the event of a draw between Providers, the Contracting Authority shall adjudicate the contract to that competing Provider, as registered for the applicable level, who has already been allocated, and has satisfactorily carried out the highest cumulative value of "Call-Offs", in monetary terms, under the framework agreement.*
- 1.1.11.b *Similarly in instances when none of the otherwise qualified providers submits an offer, the Contracting Authority shall award the "Call-Off" to the Provider who has already been allocated, and has satisfactorily carried out the highest cumulative value of "Call-Offs", in monetary terms, for works in that specific level, under the framework agreement.*
- 1.1.11.c *Provided that in instances falling under section 1.1.11(b), if in the opinion of the Contracting Authority Providers in the specific level cannot be awarded a Call-Off contract due to their prevailing work load then the Contracting Authority shall be empowered to award the Call-off contract to that Provider*

who has already been allocated, and has satisfactorily carried out the highest cumulative value of “Call Offs”, in monetary terms, for works in the next higher level, under the framework agreement,

Source: Framework Agreement Document

2.2.3 The Directorate explained the rationale behind this clause by stating that in having the largest cumulative value of call-offs being awarded to a particular contractor implies that this particular service provider would have carried out the assigned projects in a manner which consistently complies with at least the minimum set requirements. NAO does however have reservations about such reasoning as it is of the opinion that, in adopting such an approach, RID would be in essence ignoring certain quality considerations. In other words, NAO contends that the consistent adherence to the minimum set quality requirements does not intrinsically imply that the particular contractor is the best performer, but merely that the service provider in question is consistently compliant. It could however be the case that other interested parties would be capable and willing to exceed such expectations but which for some reason or another (for example, due to lack of capacity) they opt not to participate in a large number of RID’s commissioned call-offs.

2.2.4 The second concern, and perhaps the more significant of NAO’s two main concerns relating to the FA document, revolves around the fifty per cent permissible mark-up on interventions carried out as emergency works. More specifically, the FA document stipulates that at any time during the effective running of the agreement, two contractors participating at level three works (one in the northern and the other in the southern part of the island), are to be on call, twenty-four hours a day for a one week period, and ready to conduct emergency works as necessary should RID so require. In ensuring the smooth running of the overall process, RID has to draw a roster based on a one week cyclical rotation and identify which contractors are to be on call during which weeks of the year. More specifically, the FA document stipulates that:

71.6 On call duty by Provider

The Provider is to provide a stand by duty service for emergency works as indicated at clause 1.1.12 of Part 1 of Volume 1 – Preliminary Section: Expressions of Interest.

The duty period shall cover 24 hours per day starting at 07.00 hours on Monday morning till 07.00 hours on the successive Monday. The following conditions are also applicable:

a) Once the Provider has started work during the on call period, the same Provider must finalise this work even if the works exceed the on call period.

b) The on call Provider, as indicated by the official roster, will be deemed to be responsible to honour all commitments arising during the on call period.

There shall be two stand by Providers simultaneously on ‘on call’ duty, at any time, one to cope with emergency works in the North and the other in the South of Malta . . .

. . . The Contracting Authority shall draw up a roster from among the panel of approved Providers and each Provider shall be informed in writing about his commitments at least four weeks in advance.

Providers who are ‘on call’ are required to have a satisfactory means of communication to enable the Contracting Authority officials to call them at short notice on a 24-hour basis.

Source: Framework Agreement Document

2.2.5 The schedule of Unit Rates, as listed in the FA document, allows for rates (as reproduced in Table 2.2) to be paid by RID to participating contractors should the latter conduct emergency works. These rates are intended to address the discomforts associated with being on call and the increase in costs (most notably wages) that are part and parcel in conducting operations during night-time, on Sundays as well as on public holidays.

Table 2.2: Emergency Works rates as quoted in the Framework Agreement

14.000	EMERGENCY WORKS	UNIT	RATE
14.001	Minimum Fee to be paid to contractor for individual call-up	no.	240.00
14.002	On call Allowance	Week	350.00
14.003	Extra over for night work carried out during the period: 9pm – 7am, Sundays and Public Holidays	% increase of rate	50%

Source: Framework Agreement Document

2.2.6 With respect to the permissible fifty per cent mark up on normal rates as illustrated in Table 2.2, NAO conducted pertinent analysis to determine whether this is an accurate representation of what a commissioned contractor, engaged in emergency works (and therefore operating either during night hours, on Sundays or, during public holidays), should be remunerated for services rendered. To this end, NAO made reference to a study commissioned by RID to an external consultancy firm (which study is discussed in detail in subsequent parts of this chapter), which determined what the rates for particular work items should be if costs plus a profit mark-up of ten per cent is applied. For the purposes of this study and for ease of reference, these rates will be referred to as 'benchmark rates' throughout this report. The aforementioned work items generally comprise a major portion of hot asphaltting services provided by commissioned contractors.

2.2.7 In analysing this external consultancy's report, NAO observed that the main cost which might be justified in being favoured with an increased rate per item procured during night time hours, on Sundays or, on public holidays, relates to labour. Other costs featuring in the external consultant's which constitute a hot asphaltting intervention include, among others: Aggregate; Bitumen; Dumping Charges; Wear and Tear; Electricity; Fuel Oil; Shovel; Green Diesel and; Testing, which in themselves are inert to the timing in which the asphaltting operation is carried out. Taking fuel oil as an example, one can safely conclude that the cost incurred by the contractor occurs at the procurement stage of this resource. This means that whether such a resource is utilised during daytime or during night hours is largely inconsequential insofar as cost fluctuations due to timing are concerned. In addition, NAO also considered the fact that, as previously illustrated in Table 2.2, the FA also allows for an On-Call Allowance of €350 to the participating contractors, which compensates for the somewhat irregular exigencies dictated by the nature of being on stand-by.

2.2.8 As stated earlier, NAO however understands that it might be the case that the cost of labour does, in actual fact, vary if operations run during night hours, on Sundays or, on public holidays. While RID contends that other overheads might also increase if operations run during night hours, it has on the whole agreed that these comprise very minor weighting when compared to the increase in labour costs. To this end and in preferring to be overtly prudent and simultaneously offer the benefit of the doubt given that NAO is, in this particular instance, relying solely on secondary data, this Office opted to apply a hundred per cent increase in the labour cost apportionment.

In so doing, NAO ascertains that the resultant figure will encapsulate overtime costs together with any other hidden expenses.¹

2.2.9 For this exercise, NAO focused on Work Item Categories (WIC) '2', '3', '10' and '11', which relate to: the excavation of existing road surface; trench excavation; the supply as well as laying of concrete works and; the laying of new asphalt respectively (a description of all WICs is presented in Table 2.3). The study conducted by RID's external consultants also encompassed analysis of WICs '5' and '8', however upon review, NAO found that it could not extract the labour apportionment for these two latter categories². Since the exercise conducted by the external consultants did not cover the remaining WICs (that is, '1', '4', '6', '7', '9', '12' and '13'), this Office was not in a position to assess their respective labour cost components. Attention should however be drawn to the fact that, in aggregate, WICs '2', '3', '10' and '11' constituted 89.85% of the total costs of the projects under review. Given this very high apportionment of the total cost of asphaltting projects constituted by the reviewed WICs, NAO is confident that by reviewing the latter, a largely accurate approximation could be drawn of the cost of labour in a hot asphaltting intervention.

Table 2.3: Description of WICs

WIC Ref.	Description
1	Preliminaries
2	Road Formation Works
3	Trench Excavation Works by Mechanical Equipment Including Mini Excavator
4	Trench Backfilling
5	Installation of Buried Infrastructures
6	Common Service Utility Ducts
7	Construction of Manholes. Covers and Frames
8	Footpath Construction and Reinstatement Works
9	Wall Construction Works
10	Ancillary Items
11	Asphalt Road Paving Works and Trench Reinstatement
12	Pelican Crossings
13	Miscellaneous Works
14	Emergency Works

¹ It must be noted that the rates as validated by the external consultants, and used by NAO for this exercise, did not solely incorporate the wages of the employees but also: national insurance; bonuses; premium due to work hardship and; ancillary costs. These rates are also inclusive of a certain amount of overtime allowance (at a 1.5 hourly rate). Fully aware that some of the above would not vary if additional overtime hours are worked by employees, NAO opted to still include them in its calculations to serve as an allowance for potential additional costs which are not visible by this Office since it is acting on secondary information. Summarily, the external consultants estimated that the daily cost of an employee amounted to €122.

² In the case of work item category '5', NAO encountered exchange problems from one unit to another. Apart from this, the inclusion of this work item featured in only two contracts, making it an exceptional occurrence and which could therefore be considered as outlier cases. It must also be said that the total cost of this category in all of the reviewed contracts amounted to €2,832.02, which makes it largely inconsequential (amounting to merely 0.097% of the total cost of the reviewed projects). On the other hand, the external consultants' report did not feature any labour cost allocation in the case of work item category '8'.

2.2.10 As presented in Table 2.4, NAO calculated that labour costs constitute: 7.36% of WIC2; 9.57% of WIC3; 30.92% of WIC10 and; 9.32% of WIC11. To determine how these individual percentages would affect the total cost of a hot asphaltting intervention should they be doubled so as to cover overtime costs and any hidden expenses, NAO calculated what portion of the total cost each WIC accounted for (the process for which is explained in greater detail in section 2.3.37 of this report). When both of these sets of figures were offset against each other, NAO could conclude that a rate of 8.49% can be considered as a largely accurate approximation of the labour cost apportionment in the total cost of a hot asphaltting intervention. Therefore, should a full hundred per cent increment of this figure be applied to allow for potential overtime rates as well as any hidden costs, this would result in the same amount of increase in costs, which is a significantly lower figure than the permissible fifty per cent allowance permissible in the case of emergency works.

Table 2.4: Labour Cost Percentage Apportionment in Hot asphaltting Projects

WIC	Labour Cost as a % in WIC	Weighting of WIC w.r.t Total Cost of a Hot Asphaltting Project	Labour Cost as a % in Total Cost of a Hot Asphaltting Project
2	7.36%	5.00%	0.37%
3	9.57%	0.46%	0.04%
10	30.92%	1.01%	0.31%
11	9.32%	83.37%	7.77%
TOTAL			8.49%

2.2.11 Apart from the preceding four main concerns, two further shortcomings were identified from the review of the FA document. The first of these two relates to clause 46.2.3 of Article 46: Price Revision, which stipulates:

Requested revisions, in terms of para 46.2.1, to the following items of the published Schedule of Rates at Volume 4 namely items 11.011, 11.012, 11.013, 11.014, 11.015 and 11.016 the Contracting Authority will process the demand or claim for price revision by referral to the Central Government Authority for approval by the General Contracts Committee. The result of this procedure will be final."

Source: Framework Agreement Document

2.2.12 The schedule of rates included in the original FA document, does not include items to which 11.015 and 11.016 are assigned as item numbers. As can be observed in Table 2.5 later on in this chapter, the two items immediately following work item 11.014 in the FA schedule are those labelled 11.024 and 11.025, both of which govern price levels of particular asphaltting interventions. It must however be noted that item numbers 11.015 and 11.016 were eventually included in the August 2012 addendum to the FA (explained in detail in section 2.3 of this report). This however does not affect NAO's finding as Clause 46.2.3 of Article 46 was included in the FA well before the introduction of this addendum, and therefore, a misquotation of work item referencing still essentially occurred.

2.2.13 The second of these lesser but nonetheless relevant shortcomings is the mis-quoting of the Legal Notice covering the relevant work interventions. As identified in the original audit report, LN29/2010 is the legislation governing, amongst others, road

surface repair works. It was however noted that the FA document stipulates that “*The Provider shall fulfil all the obligations imposed by Legal Notice 20 of 2001*”. Given that LN 29/2001, in actuality, is entitled “Local Councils (Delegation of Enforcement) (Amendment) Order”, and therefore is not concerned with road surface repair works, NAO can safely conclude that this was a misquotation of the pertinent legislation.

2.3 Methods of Procurement reviewed in 2013

- 2.3.1 As mentioned earlier, the introduction of the FA was intended to govern all procurement of road surface repair works. RID however indicated that although a significant level of interest was displayed upon the signing of the agreement, contractors once again started voicing concern on the set rates later on during the running time of the agreement, particularly where level three works (the level at which the more substantial interventions are governed, and in which hot asphaltting projects are included) were concerned. This disgruntlement culminated during the second quarter of 2012, in which call-offs were repeatedly being uncontested by the participating contractors.
- 2.3.2 During meetings with NAO, RID indicated that in order to address this issue, the Directorate opted to resort to different methods of procurement for hot patching works. To this end, apart from issuing normal FA call-offs for both road side repair works and major patching interventions, RID also opted to issue: what RID refers to as Fast-Track Tenders; FA call-offs which avail of the emergency works provision; and Direct Orders.
- 2.3.3 Cold Patching interventions are governed by contracts issued through FA call-offs, generally at works level two or three, and which are intended to address road side repair works. More specifically, such contracts are aimed at addressing a variety of works, including but not limited to wall and footpath construction works, the installation of pelican crossings, fitting of manholes, trench backfilling as well as cold patching works (which is the only work item governed by this kind of contract being considered in this study). Each of these contracts covers one of the identified four regions as presented in the preceding chapter. It must also be noted that this type of FA call-off is not intended to address one single project, but rather takes form of a running contract from which numerous pertinent work interventions are commissioned on a need basis. RID consequently affects payments accordingly for every intervention successfully carried out by the contractor. Once the collective value of commissioned and billed works borders the maximum value for which the contract was awarded, RID initiates the required proceedings to issue a fresh tender to govern such interventions within the same region. Each awarded road side repairs contract has an effective duration of one year, during which period interventions can be commissioned by RID.
- 2.3.4 Since the implementation of the FA, RID has issued a total of forty one road side repair works contract across the four regions and in order to examine in detail this method of procurement, NAO selected a sample of three such contracts for its review. Each of these three road-side repair works contracts was intended to address relevant works in one of the four different regions as apportioned by RID (as explained in 1.2.2 and Figure 1). More specifically, these contracts covered the Central, East and South regions and upon issuance were awarded for €54,851, €51,559.94 and €54,851 respectively.

Normal Framework Agreement Call- Offs - Road Side Repair Works

2.3.5 Worth of note is the fact that in the cases of the two contracts relating to the Central and South regions, both call-offs attracted solitary bids (by two different contractors) which, after due consideration, were both accepted by the Directorate with relevant contracts being awarded. In addition, NAO also noted that in both of these cases, the forwarded bids were identical to RID's estimate (that is €54,851). On the other hand, the tender relating to the East region was contested by two other different bidding parties who both placed bids below RID's estimates. The bid placed by one of the competing contractors amounted to €44,826.93 while the other stood at €51,559.94. Although the former bid was lower, failure by the contractor to submit the bank guarantee as required in the FA document caused this offer to be disqualified during evaluation, resulting in the tender to be in turn offered to the latter competitor.

2.3.6 As stated earlier in this report, the FA also encompasses the procurement of major patching works. RID issues tenders for such interventions through a level three FA work call-off, essentially limiting the invitation of participation to contractors registered for this particular level. Major patching works, (as explained in greater detail in section 1.2.7 of this report) in essence consist of the scarification of a sizeable area of old road surface and the re-laying of this upper-most part of the road surface by using a mixture of hot asphalt. The heavy machinery utilised during the progression of such interventions, together with the relatively high costs involved, classify this type of works as one of the most significant carried out by RID.

2.3.7 The FA signed in 2010 saw 34 of these type of call-offs being made to address road defects in the local AD network, of which six were chosen by NAO to serve as the audit sample for this contract variety. These contracts related to resurfacing works carried out on: 'Triq Attard' in Zebbug; 'Triq Alamein' in Pembroke³; 'Triq Sant Andrija' in San Giljan; Ellul Mercer Bridge also in San Giljan; slip road off 'Santa Venera' Tunnels in Santa Venera; and slip roads off 'Hamrun Bypass' in Hamrun. These contracts were awarded for the sums of: €29,967.50; €69,746; €49,590; €87,532.50; €34,367.50; and €29,967.50 respectively.

2.3.8 During the review of documentation pertaining to these work interventions, NAO noted that five of these six contracts attracted a single bid each. On the other hand, no offers were received for the tender intended at addressing road surface defects in 'Triq Alamein'. In view of this latter case, RID invoked clause 1.1.11.b of the FA (quoted in section 2.2.2 of this report) and offered these works to the contractor who, by that time, had carried out the highest cumulative value of call-offs.

2.3.9 In the five reviewed major patching works contracts where a single pattern bid prevailed, NAO noted that, similarly to the case of two of the road side repair contracts, these bids were submitted at the exact same value as the RID estimates. All of these five offers were eventually successful in securing contracts for works.

2.3.10 As stated earlier in this chapter, although considerable interest was shown by contractors upon the second issue and consequent signing of the FA, contestations about price levels of certain work items (Appendix A refers) still arose during the effective duration of the agreement in question. Contractors started voicing their concerns that the prices as quoted in this agreement were not an accurate

³ No bids were received for this tender and RID awarded contract by availing itself of the clause stating that in such cases the contract is awarded to the contractor with the highest accumulated call-off value

representation of the market prices at the time, and to this end, service providers were being negated fair compensation for work carried out. While numerous concerns prevailed, the principal among these voiced by the participating contractors mainly related to the sudden increases in bitumen material and fuel prices. These two components are the primary items in the composition of the asphalt mixture and consequently constitute a considerable portion of the total cost. In view of this, on the 17th of January 2012, the participating contractors presented an official request (reproduced in Appendix B) to TM through the Road Contractors Business Section of the Malta Chamber of Commerce, Enterprise and Industry (MCCEI), urging the authority to revise the schedule of rates so that the maximum allowable bid rates better reflect actual market prices.

2.3.11 The FA document allowed for a revision of the agreed-upon prices of work items only in the eventuality of considerable variation in either one (or a combination) of three cost components, namely: dumping charge rates; fuel price levels and; bitumen material costs. More specifically, the FA document stipulates:

Article 46: Price Revision

- 46.1 *Prices contained in the schedule of rates at Volume 4 shall be deemed:*
- a) *to have been determined on the basis of the conditions in force on the date set for the closing of this invitation.;*
 - b) *to have taken account of the legislation and the relevant tax arrangements applicable at the reference date fixed in Article 46.1.(a);*

Save what is stated in the preceding clause/s, the Contracting Authority recognises that there may be circumstances that affect the Schedule of Rates attached to this document that may warrant a price revision during the life of the Framework Agreement. Such exercise shall be undertaken upon demand or claim to this effect by the contracting parties. For purposes of this exercise, the elements that may affect the Schedule of Rates are being identified and limited to substantial changes to any of the following three elements namely i) dumping charge rates ii) price of fuel and iii) price of bitumen. The demand or claim for a price revision is limited to one or all of the three identified elements – no demand for a price revision based on other elements other than these three elements will be entertained. . .

- 46.2.2 *With exception of items covered by para 46.2.3, such revision shall be determined by the trend in the harmonised consumer price index EICP EU-15/EU-25 published for the first time by the Office for Official Publications of the European Communities in the Eurostar New Cronos Database <http://wwwcc.cec/newcronos/> (Theme 2 – Economy and Finance: - Prices: -HICP – Harmonized Indices of Consumer Prices: HMIDX – Monthly data (index).*

Revision shall be calculated in accordance with the following formula:

$$Pr=Po(Ir/Io)$$

Where:

Pr = revised price:

Po = price in the original agreement:

Io=index for the month corresponding to the final date for submission of Expression of Interest

Ir = index for the month corresponding to the ultimate date of receipt of the letter requesting a revision of prices.

- 46.2.3 *Requested revisions, in terms of para 46.2.1, to the following items of the published Schedule of Rates at Volume 4 namely items 11.011, 11.012, 11.013, 11.014, 11.015 and 11.016 the Contracting Authority will process the demand or claim for price revision by referral to the Central Government Authority for approval by the General Contracts Committee. The result of this procedure will be final.*
- 46.2.4 *Downward revision of prices shall also be expected in the course of the restricted competitive written consultation stage conducted with Providers*

Source: Framework Agreement Document

- 2.3.12 The request put forward by the participating contractors through MCCEI presented two proposed schedules of rates. One of these (referred to as 'Document B') presented how much, in the contractors' opinion, prices should be revised upwards should the price revision formula as set in Article 46 of the FA be used. It is important to highlight that the letter sent by MCCEI indicated that, in calculating these revisions and in utilising the formula in the FA document (Article 46, Clause 46.2.2), use was made *"of the Retail Price Index (All Items Index) found on the website of the Central Bank of Malta taking into consideration the price revision index from Dec 2010 till May 2011"*. NAO observed that this contrasts with the specific directions set in the FA document, which clearly stipulate that, in making use of the revision formula, the Harmonised Consumer Price Index (HICP) should be taken into account.
- 2.3.13 In addition, clause 46.2.2 of Article 46 clearly specifies that this revision formula should be adopted for the reconsideration of work item prices included in the FA with the exception of those covered by clause 46.2.3, namely 11.011, 11.012, 11.013, 11.014, 11.024 and 11.025⁴. These quoted work items relate to a variety of major patching interventions, more specifically to the laying of different mixtures of hot asphalt in such projects. Furthermore, this latter clause stipulates that the revision of these particular items should be executed by means of a process in which the contracting authority (in this case RID) refers calculated revisions to the Central Government Authority for consequent approval by the General Contracts Committee.
- 2.3.14 The other schedule included in the January 2012 request forwarded by the participating contractors to TM through MCCEI (entitled 'Document A'), features a compilation of proposed rates as calculated by the contractors on what price levels of various cost components (utilised in work interventions covered by the FA but not limited to either the three components covered by Article 46, nor the method of revision set by this same Article) should be. This schedule is delved into greater detail under the next subheading of this chapter entitled *"Major Patching Works Call-Offs availing of the Framework Agreement Emergency Works Provision"*.
- 2.3.15 Seeing that the contractors' concerns merited due consideration, on 13th April 2012, RID issued the first of two requests to an external consultancy firm for the compilation of a detailed review of the rates as quoted in the FA. This study was aimed at calculating the increase in rates in accordance with the mechanisms set in Article 46 of the FA document. In so doing, the Directorate aimed at confirming, or otherwise, the claims made by the contractors in 'Document B' as well as determining by how much work items within the agreement should be revised upwards in view of international fuel and bitumen price increases. The report by the external consultants was completed and subsequently submitted to the Directorate on 24th May 2012, and the identified increase in prices related to the period between July 2010 and May 2011, as was in the case of the claim submitted by MCCEI on behalf of the participating contractors.

⁴ As highlighted earlier in points 2.2.5 and 2.2.6 of this report, work items 11.015 and 11.016 do not, in reality, feature in the original FA document. To this end, the NAO assumes that this was a misquoting error and that clause 46.2.3 of Article 46 of the FA, in actuality, refers to items 11.024 and 11.025. In fact, the external consultants took the exact same approach as NAO when conducting their studies.

- 2.3.16 In complying with clause 46.2.2 of Article 46 of the FA, the external consultants adopted two main approaches in compiling their proposed revision of prices. For the items not specifically singled out in clause 46.2.3 of Article 46 of the FA document, the external consultants applied the revision formula with the HICP on the relevant rates for the period mentioned above. On the other hand, in calculating applicable revisions for items 11.011 to 11.025, the external consultants took only in consideration the increase in fuel and bitumen prices. As these work items do not include dumping charges, these did not feature in their calculations.
- 2.3.17 The results of this exercise showed that, during the period in question, fuel prices increased by thirty per cent, while that of bitumen rose by a margin of twenty per cent. Given that fuel and bitumen on their own are not considered as whole work items and are therefore not specifically listed in the FA document but rather constitute a portion of a number of scheduled work items, the external consultants applied these percentage increases to the fuel and bitumen components accordingly to the original rates of relevant items as quoted in the FA (namely items 11.011 to 11.025). The resultant increases in WIC 2 and 11 (being the most significant contributors in a hot asphaltting intervention) are illustrated in Table 2.5.
- 2.3.18 In view of these results, RID drafted an addendum to the original FA which reflected the new price levels as proposed in the study carried out by the external consultants. In August 2012, the Directorate invited every contractor participating in the FA to sign a copy of this supplement. The new rates (reproduced in Appendix C) were to be applied in retrospect for all call-offs issued as from July 2011 onwards.
- 2.3.19 During meetings with RID officials, NAO however learnt that the contractors only signed this addendum so that they would not forfeit their participation in the FA, as it transpired that the participating parties were nonetheless still of the opinion that these revised rates were once again falling short of what they should be remunerated for services rendered. Although the revised rates as included in the addendum exceeded those quoted in 'Document B' as forwarded by the MCCEI, participating contractors still maintained that the aggregate costs incurred by themselves in rendering services to RID were significantly higher, particularly when taking into consideration increases in costs of other operational components not covered by Article 46 of the FA. In view of this, participation in the FA call-offs by the contractors steadily decreased, and by the end of August 2012, no submissions were being received by the directorate for its call for tenders, essentially leaving RID in a state of operational paralysis insofar as conducting asphaltting interventions was concerned.

Table 2.5: Comparison between Original Framework Agreement Rates, MCCEI’s Claim for Revision as per ‘Document B’ and the 1st Revision Proposed by External Consultants

ITEM	DESCRIPTION	UNIT	ORIGINAL FA RATE (€)	MCCEI CLAIM ‘DOCUMENT B’ (€)	EXTERNAL CONSULTANTS 1 st REVISION (€)	IMPLEMENTED INCREASE IN ADDENDUM
2.01	Oversite excavation in any type of ground using mechanical equipment and remove from site. Rate shall include required dumping charges.	cu.m	11.00	11.16	11.38	3.5%
2.02	Oversite excavation in any type of ground using planar equipment – up to passes of 150mm and remove from site. Rate shall include required dumping charges.	cu.m	13.25	13.44	13.71	3.5%
11.011	0/25 mm for Base Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: +10mm of the required level and 4m straight edge	sq. m.	14.08	14.28	15.50	10.1%
11.012	0/19 mm for Binder Course 60mm thick in carriage way, hard shoulder and hardstrip Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: +6mm of the required level and 4m straight edge	sq. m.	11.35	11.51	12.50	10.1%
11.013	0/12.5 mm for Wearing Course 40mm thick in carriage way (using imported aggregate), hard shoulder and hardstrip. Compaction degree:97%(Marshall Spec 50 blows EF) Regularity: +4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	sq. m.	9.30	9.44	10.15	9.2%
11.014	0/12.5 mm for Wearing Course 40mm thick in carriage way, hard shoulder and hardstrip. Regularity: +4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	sq. m.	7.44	7.55	8.20	10.2%
11.024	0/19mm for Base Wearing Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: +10mm of the required level and 4m straight edge	sq. m.	14.84	15.06	16.36	10.2%
11.025	0/19mm for Base Wearing Course 100mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: +10mm of the required level and 4m straight edge	sq. m.	18.55	18.82	20.45	10.2%

2.3.20 In an attempt to breakthrough this stalemate, RID decided to adopt what it refers to as the fast-track tender procedure. This method of procuring outsourced maintenance services essentially entailed adopting a procedure similar to the departmental tender process as utilised by RID and reviewed by NAO in the original audit report. The procedure made use of in this procurement method however has one significant variation from the one analysed during the 2011 study. While during the original audit it was observed that the process, in its entirety, was managed by RID, presently the receipt and evaluation of bids, the selection of the successful service provider, as well as the signing of the contract of works, was undertaken by TM’s Head Office (HO). This system therefore operates by having RID informing HO of the works it requires and the latter initiating and completing the procurement process accordingly. Once the successful bidder is selected and the contract signed, HO informs RID of the outcome for the latter to carry on with the execution of works with the assigned contractor.

- 2.3.21 What RID sought to capitalise from such a method of procurement, was to incentivise the participating contractors to submit bids (particularly those pertaining to asphaltting works) without being restrained by maximum rates as quoted in the FA document. In so doing the Directorate aimed to have a clear indication of what the providers' expectations are in terms of price levels for different work items. In essence therefore, RID aimed at obtaining a clear picture of what the market prices were at the time.
- 2.3.22 Although this exercise was primarily focused on tenders concerning the construction of residential roads, three of such tenders were intended at procuring services for major patching works. These three contracts, which governed interventions on 'Triq Joe Gasan' in Hamrun, 'Triq il-Bajja tar-Rinella' in Kalkara and 'Triq il-Foss' in Fgura, were all included in NAO's sample for analysis.
- 2.3.23 During review NAO observed that, once again, a sole bidder pattern prevailed in this type of contract as all three cases attracted a single bid each. Also worth of note is that in the three instances, the submitted offers were accepted by TM following the evaluation process. The value of these bids amounted to €159,550.90 in the case of 'Triq Joe Gasan', €49,307 for 'Triq il-Bajja tar-Rinella' and €50,307 with respect to 'Triq il-Foss'.
- 2.3.24 In endeavouring to establish a fair set of prices for the contested work items quoted in the FA document, RID commissioned a second study to the same external consultancy firm, intended at validating, or otherwise, MCCEI's calculations in 'Document A' (that is, the schedule proposing upward revision of rates reflecting the increase in prices of various costs making up work items quoted in the FA, and therefore not limited to either the three costs identified in Article 46, nor to the mechanisms specified within).
- 2.3.25 In carrying out this study, the external consultants based their conclusions on evidence and results obtained through the: validation of costs against invoices and other documentation as well as explanations provided by participating contractors; tests of reasonableness; and other publicly available information such as that available on the National Statistics Office and Enemalta websites. This second report was completed, and subsequently forwarded to RID, on 10th August 2012 and presented the consultancy's interpretation of prices relating to work items as quoted in the FA at the time. The results most relevant to this follow-up audit, namely work items in cost categories '2' and '11', are presented in Table 2.6.
- 2.3.26 Following the receipt of these results, RID endeavoured in establishing what implications such increases in rates would have on the overall financial situation of the Directorate. To this end, an internal exercise (Appendix D refers) was carried out by RID officials in which the increases (as validated by this second study compiled by the external consultancy firm) were applied to already completed projects. This was done so as to determine and assess the viability of the overall percentage increase in costs for the Directorate should these validated rates be applied.
- 2.3.27 In order to arrive at such a result, the Directorate reviewed 120 files pertaining to completed projects carried out through FA call-offs, which governed hot asphaltting interventions as well as road construction projects. By conducting a review of the BOQ of the reviewed files, RID Officials determined what portion of the total costs comprised the work items under review. As a result of this analysis, RID Officials determined that the aggregation of these items constituted fifty-five per cent of the combined total costs of the reviewed projects.

Major Patching Works Call-Offs availing of the Framework Agreement Emergency Works Provision

2.3.28 RID Officials then proceeded to break down the individual contribution each WIC revision contributed to this fifty-five per cent apportionment of the total costs of the reviewed projects. This exercise showed that the work items which scored highest in terms of weighting were those assigned to categories '2' (excavation works) and '11' (laying of hot asphalt) which, as already stated in this report, incidentally are the two main components of hot asphalt interventions. As can be seen in Table 2.7, according to RID's internal study, these categories were estimated to amount to twenty-six and fifty-two per cent of the total amount which constitutes the fifty-five per cent cost apportionment from the total price of the work items under review.

Table 2.6: Comparison between Rates in FA Addendum, the 2nd Revision Proposed by External Consultants and MCCEI's Claim for Revision as per 'Document A'

ITEM	DESCRIPTION	UNIT	RATES AS PER FA ADDENDUM (€)	EXTERNAL CONSULTANTS 2 nd REVISION (€)	VALIDATED INCREASE	MCCEI CLAIM 'DOCUMENT A' (€)
2.01	Oversite excavation in any type of ground using mechanical equipment and remove from site. Rate shall include required dumping charges.	cu.m	11.38	20.66	81.6%	16.74
2.02	Oversite excavation in any type of ground using planar equipment – up to passes of 150mm and remove from site. Rate shall include required dumping charges.	cu.m	13.71	20.66	50.7%	20.57
11.011	0/25 mm for Base Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: +10mm of the required level and 4m straight edge	sq. m.	15.50	19.45	25.5%	23.59
11.012	0/19 mm for Binder Course 60mm thick in carriage way, hard shoulder and hardstrip Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: +6mm of the required level and 4m straight edge	sq. m.	12.50	14.75	18.0%	17.87
11.013	0/12.5 mm for Wearing Course 40mm thick in carriage way (using imported aggregate), hard shoulder and hardstrip. Compaction degree:97%(Marshall Spec 50 blows EF) Regularity: +4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	sq. m.	10.15	13.30	31.0%	15.92
11.014	0/12.5 mm for Wearing Course 40mm thick in carriage way, hard shoulder and hardstrip. Regularity: +4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	sq. m.	8.20	10.05	22.6%	12.14
11.024	0/19mm for Base Wearing Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: +10mm of the required level and 4m straight edge	sq. m.	16.36	20.00	22.2%	24.17
11.025	0/19mm for Base Wearing Course 100mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: +10mm of the required level and 4m straight edge	sq. m.	20.45	24.99	22.2%	30.21

2.3.29 Each cost categorisation was then analysed by RID to determine the applicable percentage increase in its price should the external consultant’s validated rates be adopted. The internal analysis conducted by the Directorate showed that, work items under category ‘2’ were expected to increase by sixty-nine percent while those under category ‘11’ were gauged to increase by thirty-six per cent. Making reference once again to Table 2.7, one can see that when these percentage increases are offset against the overall cost weighting assigned to their respective category, it results that the increase in rates of category ‘2’ would affect the fifty-five per cent cost apportionment by 17.94 per cent, while the upward increase in category ‘11’ prices would see the same raise by 18.72 per cent. The above mentioned tabulation also shows that, according to RID, the fifty-five per cent cost apportionment from the total price of the work items under review increased by a total of forty-eight per cent when the applicable price increases of all the contested work items are taken into consideration. The Directorate’s study further concludes that this increase is transposed into a total of twenty-six per cent if applied on the total cost of the reviewed projects.

2.3.30 During meetings with NAO, RID officials explained that in view of this result, and in an attempt to address the issue of contractors abstaining from bidding for issued call-offs, the Directorate opted to start commissioning the required work interventions as ‘Emergency Works’. In so doing, item category ‘14’ could be availed of, which (as previously illustrated in Table 2.2) allowed for a fifty per cent mark-up on total contract prices. Given the substantial difference between the mark-up permissible under this proviso and the twenty-six per cent calculated by RID’s study, NAO queried the Directorate on the reasoning behind this decision. In this regard, RID Officials indicated that in, applying this mark-up, the Directorate would ascertain that the contractors would be more fairly remunerated for services rendered, while citizens at large would benefit from reduced inconvenience by having work interventions on the local AD network being carried out at night (more specifically between 9pm and 7am). To this end, RID officials indicated to NAO that the difference between the fifty per cent permissible mark-up and the calculated increase of twenty-six per cent could be tolerated as it would serve to cover additional costs incurred by the supplying contractor in conducting night-time operations. RID Officials, however further indicated that no detailed and documented study was carried out to substantiate this latter claim and that this was rather based on years of operational experience.

Table 2.7: RID’s Internal Study showing the projected effect of Price Increases in each Category on the 55% apportionment from total cost

ITEM CATEGORY	% PRICE INCREASE IN CATEGORY ACCORDING TO CONSULTANTS’ VALIDATED RATES	% CONTRIBUTION OF INDIVIDUAL CATEGORIES TO THE AMOUNT CONSTITUTING 55% APPORTIONMENT FROM TOTAL COST	EFFECT OF CATEGORY’S PRICE INCREASE ON THE 55% APPORTIONMENT FROM TOTAL COST
‘2’	69%	26%	17.94%
‘3’	73%	1%	0.73%
‘5’	117%	3%	3.51%
‘8’	42%	7%	2.94%
‘10’	38%	11%	4.18%
‘11’	36%	52%	18.72%
TOTAL INCREASE IN COST OF THE 120 REVIEWED PROJECTS			48%

- 2.3.31 In the period between the introduction of the FA and NAO's cut-off date, RID commissioned forty-five hot asphaltting interventions as emergency works. NAO however noted that the Directorate did not affect payment of the fifty per cent permissible mark-up under the emergency works provision in seven instances out of these forty-five contracts. Upon the review of email correspondence attached to BOQs relating to these cases, NAO noted that the principal reason for not awarding this increase was that works were not in actual fact carried out during night hours, on Sundays or on public holidays by the commissioned contractors, making them ineligible for this compensation. On the other hand, thirty-seven contracts commissioned as emergency works were recompensed with the full fifty per cent mark-up as stipulated in the emergency works provision. These latter contracts amounted to a total value of €4,065,971.1 (inclusive of mark-up). The BOQ of the one remaining contract could not be made available to NAO by RID as it could not be found by the latter at the time in which an official request was made. During the publication process of this study, however, RID informed NAO that this file has been eventually found. Given the very advanced stages of this report when notified of the file's discovery, NAO could not include the latter in its analysis.
- 2.3.32 Apart from being concerned with the fact that no detailed and documented study was carried out to clearly justify the difference between the mark-up permissible under the emergency works provision and the twenty-six per cent figure calculated in RID's internal study, this Office identified two further shortcomings concerning the manner by which the aforementioned RID study was carried out. The first of these concerns relates to the fact that RID's computation (which consequently yielded the twenty-six per cent figure) was based on the difference between the rates as validated by the external consultancy firm during their second study and the prices as quoted in the original FA document (that is, not on the rates as quoted in the August 2012 addendum). On the other hand, however, in the thirty-seven cases where the fifty per cent increase permissible by the emergency works provision was availed of, this increase was in fact applied on the rates applicable at the time, that is, the ones officiated by the August 2012 addendum. The rates introduced by this addendum are axiomatically higher than those quoted in the original FA and this results in RID's calculation being a somewhat inflated estimation. The baseline on which RID Officials based their computations was lower to that upon which the fifty per cent mark-up was, in actuality, being applied. This consequently implies that, in actual fact, the difference between RID's exercise and the fifty per cent permissible mark-up under the emergency works provision is greater than envisaged.
- 2.3.33 NAO's second concern relates to the fact that, as stated earlier, the weightings as determined in RID's internal study were calculated on the results following review of files pertaining to both hot asphaltting interventions and the construction of new roads. This consequently means that this weight allocation does not specifically reflect the apportionment of costs in a hot asphaltting intervention on its own, as this measure is essentially distorted with cost apportionment considerations relating to road construction projects. In fact, while reviewing BOQs of all the hot asphaltting works which availed of the emergency works provision, NAO calculated that the contested items amounted to an overall weighting of 79.69% of the total costs of these projects. This figure contrasts sharply with the diluted fifty-five per cent computed by RID.
- 2.3.34 In view of the above concerns, NAO reviewed the BOQs of the forty-four hot asphaltting contracts commissioned as emergency works during the period under review (Appendix E refers). In so doing, this Office determined what the actual total increase in prices should have been for these projects when applying the rates as

validated by the external consultants⁵. To ascertain a comparable result and given that, as stated earlier, RID was in actuality applying the fifty per cent permissible mark-up on the rates as revised in the August 2012 Addendum, NAO adopted these same rates as its baseline unto which the validated increases were consequently applied. Table 2.8 presents the calculated percentage increases in the prices of the contested work items.

Table 2.8: Difference between rates as quoted in Addendum and External Consultants' Validated Rates

ITEM	UNIT	RATES AS PER FA ADDENDUM (€)	EXTERNAL CONSULTANTS 2nd REVISION (€)	INCREASE IN RATES
2.010	Cu.M.	11.38	20.66	81.55%
2.020	Cu.M.	13.71	20.66	50.69%
3.010	Cu.M.	28.97	48.52	67.48%
3.020	Cu.M.	32.07	55.20	72.12%
5.308	M	37.82	43.08	13.91%
5.309	M	66.59	101.08	51.79%
8.003	Sq.M.	9.52	12.74	33.82%
10.011	Cu.M.	86.22	116.60	35.24%
11.011	Sq.M.	15.50	19.45	25.48%
11.012	Sq.M.	12.50	14.75	18.00%
11.013	Sq.M.	10.15	13.30	31.03%
11.014	Sq.M.	8.20	10.05	22.56%
11.024	Sq.M.	16.36	20.00	22.25%
11.025	Sq.M.	20.45	24.99	22.20%

2.3.35 For the purpose of an accurate assessment of how these individual increases would affect the overall total cost of a project, NAO calculated the average weight apportionment each contested work item had with respect to the total cost of a hot asphaltting intervention. These weightings were determined by the review of the BOQs of the forty-four contracts issued as emergency works in the period under review (that is, the thirty-seven reviewed contracts which were favoured with a full fifty per cent mark up as well as the seven which were not due to incompliance with set timing requirements). For the calculation to adequately reflect the weighting each contested work item had with respect to the total cost of a hot asphaltting intervention, the mark-up permissible by the emergency works provision was removed from the total price figure of the thirty-seven contracts to which it was applied. By removing this allowance, NAO calculated that the forty-four reviewed contracts amounted to a collective value of €2,916,765.92. The calculated weight apportionments are presented in Table 2.9 together with the respective increases in the contested rates as validated by the external consultants. The same tabulation also features the resultant increase in the total price of a hot asphaltting project should the previous two measures be offset against each other. As can be seen from Table 2.9, NAO estimates that a hot patching project should increase by a total of 23.95% if the external consultants' rates are applied.

⁵ The rates as validated by the external consultants are inclusive of a 10% profit mark-up

2.3.36 Should RID opt to continue conducting major patching works during night hours so as to benefit from reduced inconvenience to road users, it could be the case that private contractors would ask for compensation insofar as labour overtime is concerned. To this end, NAO added the estimation of 8.49% (discussed in detail earlier in section 2.2.11 of this report), which represents an allowance for labour overtime costs, to the 23.95% calculated increases as validated by the external consultants. The resultant figure amounts to a total increase of 32.45%, which implies that, when taking the FA Addendum rates as a reference point, the fifty per cent permissible mark-up is essentially an overestimation of approximately 17.55%. When presented with this finding, RID Officials contended that, given that the rates as quoted by the FA Addendum were clearly not acceptable and that those validated by the external consultants were deemed to be a fair representation of what contractors should be remunerated for services rendered, the latter should be taken as the point of reference rather than the former. This interpretation implies that the permissible mark-up quoted in the emergency works proviso would result in an excess of 13.25% over the rates validated by external consultants rather than NAO's calculation of 17.55%. This Office however draws attention to the fact that, regardless of which method of calculation is used, the final result in monetary terms remains the same.

Table 2.9: Weight Allocation, the Validated Price Increase of each contested Work Item and the resultant increase in Total Cost of a Hot Asphaltting Intervention

ITEM	UNIT	WEIGHT OF WORK ITEM w.r.t. TOTAL COST OF INTERVENTION	INCREASE IN RATES	RESULTANT INCREASE IN TOTAL COST OF INTERVENTION	RESULTANT INCREASE IN TOTAL COST OF INTERVENTION (BY WIC)
2.010	Cu.M.	0.23%	81.55%	0.19%	2.34%
2.020	Cu.M.	4.25%	50.69%	2.15%	
3.010	Cu.M.	0.43%	67.48%	0.29%	0.29%
3.020	Cu.M.	0.00%	72.12%	0.00%	
5.308	M	0.00%	13.91%	0.00%	0.00%
5.309	M	0.00%	51.79%	0.00%	
8.003	Sq.M.	0.02%	33.82%	0.01%	0.01%
10.011	Cu.M.	0.59%	35.24%	0.21%	0.21%
11.011	Sq.M.	5.56%	25.48%	1.42%	21.10%
11.012	Sq.M.	12.32%	18.00%	2.22%	
11.013	Sq.M.	56.29%	31.03%	17.47%	
11.014	Sq.M.	0.00%	22.56%	0.00%	
11.024	Sq.M.	0.00%	22.25%	0.00%	
11.025	Sq.M.	0.00%	22.20%	0.00%	
INCREASE IN TOTAL COST OF A HOT ASPHALTING INTERVENTION				23.95%	23.95%

2.3.37 Assuming that the calculations and consequent results of the exercise carried out by the external consultants were accurate, NAO calculated that if these validated increases were to be applied to all the forty-four contracts under review, these would have amounted to a total of €3,863,158.59. In reality, however, the actual total price paid for these forty-four contracts (which include the thirty-seven instances which availed of the fifty per cent mark-up permissible by the emergency works provision) was that of €4,273,528.95. This therefore implies that in the period between the introduction of the FA and NAO's cut-off date, RID has essentially affected an aggregate excess payment of approximately €410,370.36 over and above the benchmark price increases (as validated by the external consultants) in favour of the participating contractors.

- 2.3.38 During meetings with the Directorate, NAO presented this finding to key RID officials to solicit their feedback. As a response, the Directorate once again stated that, due to the planned interventions being mostly composed of WIC 2 and 11, the excess payment over that which was validated by the external consultants was deemed tolerable. The Directorate also highlighted that, in the meantime, if the contractors were not favoured by such an increase, the Contracting Authority could not exclude the possibility that contractors will once again refrain from submitting bids to issued call-offs. They once again drew NAO's attention to the fast-track exercise which was carried out to determine what the contractor's expectations were insofar as rates for commissioned works are concerned. RID Officials indicated that in these instances (which were mainly concerned with day-time works), participating contractors placed bids which could be approximated by the application of the fifty per cent mark up allowable by the implementation of the emergency works provision. Given that the Directorate's operations is largely dependent on the participation of the contractors, RID stated that it could once again find itself in a state of operational paralysis if contractors' requests are not met.
- 2.3.39 Since the introduction of the FA, RID has commissioned five hot asphaltting projects by means of a direct order, of which one was chosen as a sample by NAO (based on financial materiality and completeness of works). This chosen project was subsequently analysed in depth of detail by NAO for the assessment of value-for-money considerations. It should be noted that these five contracts were intended to address defects in the respective AD roads which were of primary importance in view of the 5+5 Summit held in 2012. The direct order contract on which NAO conducted its analysis related to hot asphaltting interventions on part of 'Triq il-Buskett' and 'Triq Inzul ix-Xemx' in Rabat and had an estimated value of €235,000.
- 2.3.40 Of significant importance in such method of procurement undoubtedly is the manner by which the contractor selection process is carried out. During correspondence with the NAO, RID officials indicated that in selecting such a contractor two basic criteria are utilised, namely: that the selected contractor is one of the best performers; and that the appointed service provider has his own asphaltting plant. Should the selected contractor not be able to carry out these works, the contract is offered to the next ranking service provider in terms of past registered performance.
- 2.3.41 In addition, during the review of the file pertaining to the direct order chosen as part of NAO's sample, this Office observed that the direction given by one of RID's managers (which guidance was endorsed by both the TM Chairman incumbent at the time as well as the then Permanent Secretary for the Ministry for Infrastructure, Transport and Communications) was to allocate the fifty per cent permissible mark-up under the emergency works provision, provided that these works are carried out outside normal working hours. Upon further review however, NAO noted that, although the contractor was favoured with the fifty per cent permissible mark-up under the emergency works provision, the daily reports compiled by the Directorate's FOs (substantiated with photographic evidence) show that, in actual fact, works were carried out during normal working hours. When presented with this finding, RID Officials indicated to NAO that this matter was referred to TM top management and that an internal investigation was initiated.

2.4 RID's Proposed Way Forward

- 2.4.1 Although a series of complications and setbacks prevailed in the implementation of the FA, RID remains firm on retaining a similar tool for the procurement of required services. The FA currently being utilised by RID is intended at governing a variety of services procured by the Directorate, Water Services Corporation, as well as Enemalta. This means that call-offs can be issued by any one of these entities under the same agreement for a wide variety of work interventions. During meetings with RID officials, NAO has however learnt that this setup was proving to be too onerous on RID's operations. The difficulties encountered in this regard principally revolved around the fact that, irrespective of the beneficiary, the call-offs for works commissioned by either one of these three entities were being issued by the Directorate. In addition, RID Officials also stated that RID had to deploy a project leader on all works commissioned through this FA, even though the said works would be required by any one of the other two entities.
- 2.4.2 Such an arrangement was proving to be too onerous on the Directorate and to this end, RID suggests that the new FA should govern solely the procurement of services as required by RID, so that the Directorate could dedicate its full resources to the management of its own projects. Similarly, it is envisaged that the other two utility bodies will also be making use of such methods of procurement but separately and independently from RID. This segregation however does not imply that all forms of communication and collaboration between the different entities will be severed. In fact, RID's intention is that regular consultations are held with both Water Services Corporation and Enemalta so as to approach the required works as efficiently and effectively as possible while minimising the risks of having the operational activities of one entity impinging on the plans and quality of works of the others.
- 2.4.3 It is also important to note that RID is of the opinion that the separate FAs should feature identical rates for common work interventions. In so doing, the Directorate aims to minimise the possibility of contestations on price levels from participating contractors by utilising the different agreements as leverage. This echoes NAO's concern identified in the 2011 audit report, in which contractors used MIP's agreement in substantiating their claims that the prices being offered by RID at the time were too low. When queried whether coordination with this entity was registered as recommended in the original audit report, RID indicated that, although assistance was provided to MIP by the Directorate on the compilation of technical and road specifications, no formal commercial collaboration had been achieved till the present day.

2.5 Conclusions

- 2.5.1 NAO is concerned about the clause in the FA document governing the manner by which call-offs attracting identical bids or which would not have attracted any offers, are awarded. This Office is of the opinion that, in taking into consideration solely the cumulative value of call-offs carried out by the participating contractors while merely ascertaining that the respective contractor has consistently complied with set specifications, RID is generating a somewhat avoidable risk of not rewarding best practices among the participating service providers. Bidding for and consequently being awarded with the largest amount of call-offs (thereby accumulating the highest value) does not intrinsically imply that the contractor in question is the best performer, but merely that he has sufficient capacity to address large volumes of work while consistently complying to set specifications. As stated earlier in this report, a scenario might occur in which a contractor who does not have the capacity to engage in large volumes of work is, in fact, the best performer (that is, he exceeds the minimum set quality requirements). To this end, NAO opines that RID should not run the risk of denying such parties from being offered the opportunity to conduct the works in

question as these service providers would offer the highest probability of good value interventions to the benefit of the taxpayer.

- 2.5.2 One of the most significant causes for concern is the provision within the FA document which allows a fifty per cent mark-up on work interventions which are commissioned as emergency works. While NAO understands that works carried out during night hours present much reduced inconvenience to the road users, this Office still opines that, according to its calculations, this figure is a considerably inflated one and which therefore does not adequately reflect the increase in costs incurred by the contractors carrying out work interventions during night hours. Such an evitable shortcoming puts major unnecessary strains on the Directorate's financial situation and consequently results in poor allocation of taxpayers' funds.
- 2.5.3 The inclusion of imprecise references and misquotations in any agreement generates obvious risks which potentially might lead to negative repercussions. Having the FA document featuring references to work items' numeric labels which, at the time of original drafting, did not exist, might have created a potential source of confusion in interpreting the precise implications of the relevant clauses. Likewise, the instruction to service providers to adhere to a misquoted legislation during the progression of works, leaves the Directorate in a somewhat weak position insofar as enforcing penalties on non-compliance is concerned.
- 2.5.4 Echoing the salient finding of the 2011 NAO audit report, this Office is gravely concerned with the risks associated with the prevalent situation of having issued call-offs attracting a solitary bid each. The fact that, from a sample of twelve supposedly competitive tenders, (that is: three relating to road side repair works; six governing major patching works; and three concerning tenders issued by means of the fast-track procedure), ten attracted a single bid each, once again begs the question as to whether the participating contractors are acting in a genuinely competitive manner while bidding for works commissioned by RID. Such practice continues to undermine possible economical benefits usually associated with normal competitive behaviour from which the Directorate might stand to benefit. Compounding this concern is the observation made by NAO that seven out of these ten identified cases in the reviewed sample featured bids that amounted to the precise same value as the estimate issued by RID during the respective tendering stages. To this end, NAO is forced to conclude that, in tendering at precisely the maximum allowable amount of a call-off, the respective contractor would, somehow, be aware that no competition is threatening the forwarded offer. Such a situation is obviously highly undesirable as it greatly diminishes the integrity of the overall procurement process.
- 2.5.5 NAO is also concerned about the viability and reliability of Article 46 of the FA document, which Article details price revision mechanisms of work item rates as quoted in the same agreement. As explained in the findings presented earlier in this chapter, the results of the first study commissioned by RID to an external consultancy firm varied considerably from those of the second study by the same company. While the first study was intended at providing an opinion on the revision of prices by making use of methods quoted in Article 46, the second study was based on the review of a sample of actual costs incurred by contractors. Although government should always endeavour to procure such services at the lowest possible rates, it is also of utmost importance that the engaged contractors are fairly remunerated for the services rendered. Should such a consideration not be adequately addressed in an agreement such as the FA, the credibility of the same document will inevitably diminish. This would in turn increase the risks of non compliance by the participating contractors.

- 2.5.6 NAO acknowledges the challenges being faced by RID, especially those relating to the disputes on work item rates as well as instances of non-participation by contractors in FA call-offs. To this end, this Office commends the Directorate for the effort and energy invested for the numerous attempts to address such issues. Nonetheless, NAO is concerned about the decision taken by the Directorate to accept and allow payments which were in excess of the aggregate percentage increase comprised of the results of the external consultants' second study as well as NAO's additional mark-up intended at covering costs associated with carrying out night-time interventions. To this end, this Office opines that the repeated application of the emergency works provision therefore resulted in the dilution of value-for-money considerations of the hot asphaltting interventions procured in this manner. NAO is also deeply concerned about the situation in which the Directorate is practically forced into a state of operational paralysis by the participating contractors with the threat of non-participation so that the latter's pricing requests are met. A clear distinction must be drawn between the benchmark rates and the asking price being petitioned by the contractors. In assuming that the benchmark rates as validated by the external consultants reflect an accurate and fair representation of what contractors should be remunerated for services rendered (which rates are inclusive of a ten per cent profit mark-up), NAO contends that the asking price being pushed for by participating contractors may be an attempt to inflate profit gains rather than to cover operational costs.
- 2.5.7 NAO is also adverse to the idea of commissioning works in the form of direct orders. Given that the 5+5 Summit is a high profile event, its organisation would generally be known well in advance prior to it actually being held. To this end, NAO cannot justify any method of procurement other than a normal FA call-off for the acquisition of road resurfacing services, given that adequate notice would have been provided for such preparations. Resorting to direct orders or conducting interventions as emergency works only serves as a source of diminished competitiveness to the detriment of economical as well as possibly quality considerations. Additionally, NAO is also highly concerned with the fact that while the contractor engaged to carry out the works governed by the reviewed direct order was favoured with the fifty per cent mark-up permissible under the emergency works provision, the required works (or parts thereof) were in actuality carried out during normal working hours. Such a situation presents significant value-for-money concerns, as while the contractor was remunerated with what, in NAO's opinion, is an inflated amount (even if works were carried out during night hours), the fact that the interventions were carried out during normal working hours meant that no inconvenience to road users was alleviated at the time. To this end, this Office commends RID and TM HO in responding to this identified concern in a timely manner by immediately initiating an internal investigation.
- 2.5.8 NAO acknowledges RID's concerns about the current arrangement of having to dedicate some of its resources to oversee projects commissioned by Enemalta and Water Services Corporation for works issued under the FA. NAO however draws attention to potential risks associated with the proposed initiative of having the three entities issuing and consequently operating under different FAs. This Office perceives the potential risk of RID creating a similar undesirable situation as that identified in the 2011 report concerning the difference in rates for similar items in the Directorate's FA and the one issued by MIP. NAO opines that having different FAs being issued rather than a collective one, mitigates the benefits associated with a united front approach.

- 2.6.1 With respect to the FA clause stipulating that the contractor with the highest accumulated call-off value should be awarded call-offs which would either have attracted identical bids or no offers at all, NAO suggests that RID amends this proviso so that it better reflects the promotion of good practices and performance. To this end, NAO recommends that such call-offs are awarded according to a proven track record thereby rewarding high quality achievers.
- 2.6.2 NAO also strongly urges the Directorate to conduct the necessary studies in determining the adequate rate at which participating contractors should be recompensed for works carried out during night hours. In so doing, RID would be ascertaining that the service provider is adequately remunerated for the services rendered while simultaneously ensuring value-for-money for the taxpayer.
- 2.6.3 With respect to the wrong referencing and misquotations identified in the FA document, NAO encourages RID to exercise more care in the review of the still-to-be-issued new FA prior to final publication. To this end, the Directorate would be minimising the risks of such a situation to reoccur thus ensuring a more incontrovertible document.
- 2.6.4 Although NAO is of the opinion that the Directorate per se is not the main source creating the undesirable situation of having only a single bid being received for issued FA call-offs, this Office still encourages RID to endeavour in actively seeking ways by which this situation could be mitigated. First and foremost, NAO urges RID to vigorously monitor the bidding patterns of the participating contractors and identify the cause leading to this persistent reduced competitiveness. If conclusive evidence is found that commercial misconduct prevails among the participating contractors, the Directorate should report such shortcomings to the relevant authorities without delay, so that adequate corrective action is taken and enforcement imposed. Secondly, this Office also recommends that the Directorate should weigh the possibility of issuing call-offs on an EU level rather than restricting a call-off issue to the pool of local suppliers. Being aware that minimum financial threshold requirements have to be satisfied to be able to issue an EU-wide tender, NAO recommends that RID compiles a schedule covering required planned interventions for a one or two-year period and issue a collective call-off for their address. In so doing, the Directorate would be introducing additional competition and induce healthy competitive behaviour for the issued call-offs, thereby increasing the possibility of registering increased economy considerations in its tendering process. NAO also suggests that this call for tender should also include coverage for the procurement of unplanned emergency works.
- 2.6.5 In re-issuing a new FA to govern future interventions, NAO urges RID to give due consideration to the price revision mechanism included in the pertinent document. NAO recommends that an extensive and exhaustive study is carried out so that the method by which quoted prices are to be revised reflects real cost fluctuations both on a local and international level. Such a mechanism should ensure that participating contractors are fairly remunerated for services rendered while ensuring that Government is not paying amounts which are in excess of prices considered fair and reasonable at the time.
- 2.6.6 NAO urges RID to ascertain that the new FA features rates which accurately reflect fair prices at the time, while as stated in the previous recommendation, ensuring that an adequate mechanism for price revision is in place to address cost fluctuations. NAO also advises the Directorate not to acquiesce to any pressures posed by the contractors for the application of rates which are higher than those considered fair and reasonable. To this end, this Office once again draws attention to its recommendation in section 2.6.4. above for RID to consider introducing additional competition by

issuing tenders on an EU level rather than confining them to the local suppliers. In so doing, RID would put itself in a position of strength during negotiations and minimise the risk of being subjected to the threat of operational paralysis.

2.6.7 This Office also opines that RID should only make use of direct orders as a last resort. As stated earlier, it is not common practice for high profile events to be organised in a short amount of time thereby limiting planning time frames. The occurrence of such events would be known well in advance, thus allowing for the proper scheduling and execution of works. In view of this, NAO urges RID to persistently endeavour in preserving and promoting competition as much as possible by issuing normal competitive FA call-offs to address the required works in such circumstances. This Office also urges RID to persistently effect payments which are a fair representation of the work carried out by engaged contractors. If a mark-up is to be applied for works carried out outside normal working hours, then this should only be effected if the engaged contractor is compliant with the latter requirement. While NAO strongly advises the Directorate to adopt a zero tolerance approach in this regard, it once again commends the timely initiation of corrective action with respect to the case identified by NAO.

2.6.8 Insofar as the issuance of separate FAs is concerned, NAO recommends that the Directorate adopts one of the following two measures. The first is that the FA is still issued in a manner which encompasses the procurement processes of the three entities involved but which also features a clear and fair allocation of responsibilities among the three entities. In so doing, the united front approach would be preserved while the onus of such procurement process is fairly distributed among the involved beneficiaries. Alternatively, should RID still opine that the best way forward is to issue separate FAs, NAO urges the Directorate to ascertain that in depth consultations are held so that uniformity of quoted rates across the concerned government entities is assured. In so doing RID and the other entities involved would be mitigating the possibility of creating a repeated occurrence of the complication identified in the 2011 NAO audit report, in which conflicting rates between two government agreements were used as leverage by contractors during disputes.

Chapter 3

Follow-up on RID's Operations

Chapter 3 - Follow-up on RID's Operations

This final chapter presents a comprehensive evaluation of actions taken by RID on the concerns identified by NAO during the 2011 audit study. For ease of reference, this section of the report retains an overall similar layout and sequence as was used in the original study. The tackled concerns are divided into three parts, each of which can be identified within the core three chapters of the preceding study. More specifically, this chapter presents NAO's findings on RID's identification of road surface defects and prioritisation of works, tendering process, as well as contract management.

3.1 Identification of Road Surface Defects and Prioritisation of Works

3.1.1 During the progression of the 2011 study, NAO officials observed that the Directorate's FOs carried out inspection rounds on an individual basis. As stated earlier, NAO is of the opinion that such a practice presents risks, whereby these individuals are not able to dedicate full attention to neither the driving nor the identification of road defects. Consequently, in view of this concern, this Office enquired with RID Officials whether such a practice presently prevails following NAO's recommendation (made in the original study) for an alternate approach to this system. During meetings held with RID Officials, NAO was informed that the Directorate has only adopted such a suggestion in the cases of night-time inspections. RID explained that the Directorate was still of the opinion that a single driver inspection would be more desirable, since when identifying defects one should not merely conduct a visual check but should also experience the feel that the road surface transmits to the user. In addition, RID Officials have also informed NAO that the Directorate endeavoured to introduce the concept of 'self explaining roads', which concept aims to ensure that the local road network is user friendly and clearly transmits directions to road users. RID officials stated that this further substantiates the need to have an FO actually driving through the road network so that he could ascertain whether the intended benefits from this concept are actually presented to road users. However, NAO was also informed that the Directorate attempted to reduce health and safety risks associated with such a practice by instructing the FOs to park their vehicles in adequate places prior to

registering identified faults. This was deemed necessary since, on some occasions, Officers logged down faults while driving, presenting obvious risks to themselves and others. The FOs are also instructed to take photos of the observed flaws for record purposes.

- 3.1.2 In tandem with the above concern, during its 2011 review, NAO also noted that the method utilised by the FOs to record identified defects during their inspection rounds was largely carried out in an *ad hoc* and unsystematic manner. In NAO's opinion, this created risks of incomplete or incorrect information being registered and therefore a consolidated database could not be adequately constructed. To this end, NAO once again assessed the current system in place to determine whether any improvements have been registered in this regard. Following its assessment, NAO is pleased to report that improvements were noted in the manner by which FOs record identified defects, most noticeably that, unlike in the original study, these Officers are now making use of the template as prepared by RID. While highly evident and substantial efforts were invested to address this issue, NAO observed that different FOs still record these identified defects in somewhat differing manners.
- 3.1.3 One final issue emanating from the 2011 study, concerning the identification of defects process, is related to the lack of a consolidated database of such defects unto which an adequate prioritisation system could be based. NAO once again acknowledges the improvements made by the Directorate in this regard. Although still subject to improvement, RID have devised a detailed database into which the identified flaws on the local AD road network are recorded and subsequently used for a comprehensive prioritisation process. In fact, RID Officials have stated that this database was considered to be sufficiently reliable, so much so that it served as a principal tool in the drafting of the budgetary proposal for the year 2014.
- 3.1.4 During meetings held with RID Officials, NAO queried whether any action has been taken in addressing the issue with respect to the Directorate's FOs considerable lack of necessary and relevant qualifications. In this regard, the Office learnt that these FOs still do not possess any formal credentials with respect to the technical aspect of their assigned responsibilities. However, during meetings with NAO, RID Officers indicated that an initiative is currently underway to provide what the Directorate refers to as Technical Meetings. During these sessions, key RID Officials provide specialised tuition to their colleagues. As can be observed in Table 3.1, this initiative came into effect in mid-August 2011 and respective meetings have been held on a somewhat regular basis. RID officials further stated that these meetings are open for all of the Directorate's employees but attendance for these sessions is not considered to be compulsory. Nonetheless RID Officials stated that, although not compulsory, these sessions are generally well attended by the Directorate's staff, particularly by the FOs.

Table 3.1: Sample of Technical Meetings held between 19/08/2011 and 19/04/2013

Date	Subject	Designation
19.08.11	Selection and Installation of Traffic Signs	Asst. Manager
18.11.11	Testing Services - TM/MNL Agreement	Asst. Manager
13.01.12	Storm water drainage by drilling boreholes and major patching issues	Senior Manager
27.01.12	Calculation of Storm Water Pipes	A&CE
27.01.12	Calculation of Reservoir Volumes	A&CE
09.03.12	Registry and filing system	Senior Manager
23.03.12	Road Safety Audits Guidelines	Head -Traffic Management Unit
18.05.12	Sampling	Asst. Manager
15.06.12	Storm water drainage by drilling boreholes and major patching issues	NA
20.07.12	RID's performance	Chief Officer
19.10.12	Photos expected by Field Officers during Road Works	Manager – QS
19.10.12	Coldgrip Case Study featured on the BBA website	NA
19.10.12	Clarification of "Category 2" in traffic signs specifications	Asst. Manager
19.10.12	Clarification about pg 21 to 24 of Series 1200	Asst. Manager
19.10.12	Setting up of Register of Engineering Reports and Books of the RID	Head - Quality Assurance
19.10.12	Introduction of launch of tender with Type 2 road markings	Head - Quality Assurance
19.10.12	Series 1700 – Concrete	Asst. Manager
19.10.12	Imported Aggregate – Questioning the relevance of the term "imported" in the specifications.	NA
19.10.2012	Salina Coast Road Tender – Some of the Outside Technical Review Findings	NA
02.11.2012	Road Layers & Materials	Senior Technical Officer
16.11.2012	Assessment of Sample Plate Bearing results	Senior Technical Officer
16.11.2012	Assessment Sample Benkelman Beam results	Senior Technical Officer
16.11.2012	Assessment of Road Foundations	Senior Technical Officer
16.11.2012	Terminology of Road Foundations and Road Build Up	Senior Technical Officer
30.11.2012	Asphalt mix design	Senior Technical Officer
30.11.2012	Review of QC testing results	Senior Technical Officer
11.01.2013	Breakfast Meeting Follow-Up & Discussion	Chief Officer
18.01.2013	Road Accidents	Senior Manager
08.02.2013	Following up on the subgrade presentations	Senior Technical Officer
08.03.2013	Question & Answer Session - General issues	Chief Officer
05.04.2013	Asphalt Concrete	Quality Assurance
19.04.2013	Crack Repair Works	A&CE

- 3.2.1 During the progression of this follow-up audit, NAO sought to establish whether during the two year period since the publication of the original audit report, the Directorate has taken corrective action intended at rectifying the situation of having less than complete documentation being submitted by bidders during tendering stage. During the original study, NAO identified that these shortcomings were, on numerous occasions, most notably registered with respect to bid-bonds, performance guarantees, insurance policies, and statements indicating that the bidder's employees benefit from working conditions as specified by law. In evaluating whether such shortcomings have been adequately addressed in the period since the publication of the original NAO report, this Office examined the files pertaining to work interventions chosen as its sample for review.
- 3.2.2 NAO has observed that all seven contractors who were awarded the reviewed interventions, have successfully submitted a detailed copy of an insurance policy which covers contracted works. This Office is also pleased to note that, unlike in the case of the 2011 audit report, the level of indemnity in all the forwarded insurance policies sufficiently covers the €233,000 third party liability required by the FA document.
- 3.2.3 With regard to statements indicating that the bidder's employees benefit from working conditions as specified by law, NAO was provided with copies of six of such statements relating to works governed by the FA. Another contractor was engaged solely in one of the reviewed fast track tenders, which contracts was therefore not governed by the conditions set by the FA. However when queried, TM HO indicated that the fast track tender template utilised by the Authority states that the General Conditions for Works Contracts, as stipulated by the Department of Contracts, apply, which conditions ordain that engaged contractors are to conform with local employment legislation. More specifically they state that:

“. . . the Contractor shall be bound to conform and comply with Chapter 452 of The Laws of Malta (Employment and Industrial Relations Act, 2002 – Act No. XXII of 2002) and to all regulations/legal notices that form part of this Act.”

Source: General Conditions for Works Contracts - Version 1.03 (26/04/2013)

- 3.2.4 During the 2011 audit report, NAO had voiced its concern about the fact that not all commissioned works were adequately covered by the required bid-bond. To this end, the Office examined the chosen sample for this follow-up audit to determine whether such a situation has since been rectified or otherwise. During review, NAO noted that, while the contractors were expected to submit bid-bonds upon joining the FA, these guarantees are not included as a contractual obligation for individual call-offs. When RID officials were queried about this practice, they informed NAO that the effort that would have to be invested in ascertaining that such a requirement is complied with would be too onerous and possibly costlier than the amount covered by the guarantee itself. To this end, the Directorate decided to waive this condition to preserve practicality.
- 3.2.5 In the original audit, concerns were also raised with respect to the submission of adequate performance guarantees. This requisite was still required by the FA document for every call-off as was the case with the departmental tenders reviewed in the original audit report. The performance guarantee required by the FA was set at a value of ten per cent of the total bid price, which differs from the fifteen per cent as required by the previous favoured method of procurement. During its study NAO noted that all six reviewed hot asphaltting interventions which were issued by a normal FA call-off (and therefore not availing of the emergency works provision), were covered by a performance guarantee of ten per cent of the bid price put forward by the successful

3.3 Contract Management

contestant. The same applies to all three road side repair work contracts examined by NAO for this follow-up audit. Of concern to this Office, however, is the fact that no performance guarantees were sought from each respective successful bidder in the case of the five hot asphaltting contracts availing of the FA emergency provision, the three fast-track major patching works agreements (which tendering process was managed by TM's HO), as well as the direct order reviewed in NAO's sample. When queried about this practice, RID Officials stated that the nature of emergency works would generally require that such contracts are commissioned swiftly, and this could be compromised should the Directorate pressure the engaged contractor to obtain a performance guarantee from his respective bank. Similarly, RID Officials also stated that the Direct Order under NAO's review was processed under the emergency works provision and consequently the same principles for not requesting a performance guarantee applied. TM's HO Officials echoed RID's response when queried about the lack of a performance guarantee. When processing the fast-track tenders no such reassurance was sought from the contractors at tendering stage by the Authority.

3.2.6 In the original audit report, NAO highlighted its concern about a clause included in the departmental tenders which were issued at the time, which stated that 'The provisions of Series 900, Section 921, Para 3, "*Road Works (Design & Construction) Standard and Regulations 2003*", as per Legal Notice 364 of 2003, the requirements to skid resistance is not applicable in these contracts due to the nature of the interventions envisaged.' Upon reviewing the FA document, NAO has observed that no such clause is included in the agreement which currently governs the procurement of road surface repair works. In addition, NAO also observed that the BOQs of the reviewed works all featured the use of material that has better skid resistance properties than the one used during the progression of the 2011 report⁶.

3.2.7 One final shortcoming in RID's tendering process, which was identified in the 2011 report, concerned the fact that all the departmental tenders used to procure such services quoted identical amount of works irrespective of the actual requirements related to the relevant work project they governed. This resulted in bidders putting forward offers on a configuration which, essentially, did not reflect the actual requirements of each respective intervention. NAO positively noted that such practice is no longer being applied by the Directorate. Upon review of the selected sample of works, NAO observed that the tender of each intervention (especially those involving hot asphaltting works) features work item requirements which are tailor made to the particular needs of the specific project.

3.3.1 One of the observations made in the original audit report was the fact that documentation relating to the monitoring of ongoing works was not adequately kept by the Directorate's FOs. To this end, NAO examined files pertaining to the chosen sample to determine whether such a situation prevailed following the publishing of the 2011 report. Upon review, this Office has noted that visible efforts have been made by RID to document works in progress, both in the case of hot asphaltting interventions as well as during cold patching works. Among the compiled documentation, NAO observed that daily report sheets were duly filled in and consequently included in the respective work files. Complementing these reports were photos which comprehensively showed the progression of works during the interventions in question.

⁶ All BOQs showed that the commissioned projects made use of foreign aggregate (which possesses better skid resistance properties) rather than the local variant that was used during the 2011 study.

- 3.3.2 During the 2011 audit report, NAO observed that the permits issued by RID's Trenching Section, covering commissioned hot asphaltting works, contained two conditions which were inconsistent with the manner by which this kind of intervention is normally carried out. These conditions called for the total area of the intervention not to exceed five square meters; and that no mechanical excavators could be engaged in such works and therefore only hand or pneumatic hand tools could be used during the excavation. Both of these conditions are evidently not congruent with the conventional manner by which hot asphaltting is laid, thereby causing the permit document to incur reduced credibility. To this end, NAO analysed the permits which were issued to cover the sample of works selected for this follow-up audit and consequently was pleased to note that no such clauses contradicting the very nature of works they cover were included in the permits being presently utilised by RID. This Office however also noted that, in three instances out of the sample of the reviewed eighteen work contracts (which as stated earlier varied in nature), RID could not find, and consequently forward to this Office, copies of the pertinent permit documentation.
- 3.3.3 During the progression of this follow-up audit, NAO noted a significant improvement in the design of the traffic management system drawn by RID for each commissioned work intervention. Upon reviewing the files chosen as its sample, this Office observed that a map of the immediate surrounding area of the planned respective intervention was prepared by the Directorate for each work project. These maps presented a detailed plan on the manner by which traffic would be managed by a comprehensive signage system. In addition, NAO was informed that, once works would be underway, RID's FOs would conduct inspections and ascertain that the proposed traffic management system is in place, most notably by ensuring that all the planned traffic signs are adequately installed for maximum mitigation of traffic inconvenience within the area. These FOs are also instructed to take photographic evidence accordingly to document the situation as is in actuality, which documentation is in turn included in the respective work files for audit trail purposes.
- 3.3.4 During the compilation of the original audit report, NAO noted that the manner by which the need for cold patching works was communicated to the respective contractors was generally conducted in a largely informal manner, on occasions relying merely on a telephone conversation. NAO had also voiced concern on the fact that RID's FOs were not present during either the progression of works or upon completion of cold patching interventions. This shortcoming presented the risk of RID not being able to ascertain that these works were carried out on time. Furthermore, it was also observed that the progression of work in these cases was not adequately documented, which practice thereby presented risks should contestations on the quality of the final product arise. In view of these concerns, this follow-up study revisited the system presently utilised by RID for procuring such services. Following its review, NAO once again notes the considerable improvement in RID's operational systems. During meetings with RID Officials, NAO was informed that the Directorate has devised a new system of how to carry out cold asphaltting interventions. NAO observed that, presently, communication with the respective contractors to start works is carried out by email for audit trail purposes. Such emails are generally sent on a weekly basis (provided that there are no defects which present immediate high risks to road users on the road network) and would include a list of interventions required in the area for which the respective contractor would be responsible. This email would also detail the day in which these works are to be carried out, which date is generally planned to coincide on a Saturday for reduced inconvenience to road users. During its review, NAO also noted photographic evidence taken during the actual progression of works, indicating the presence of FOs during the time such interventions were carried out.

3.4 Conclusions

- 3.3.5 One final consideration with respect to contract management gravitates around the fact that, during the original audit report, NAO observed that although a significant portion of the reviewed QC test results were not within set specifications, the QC Officer in charge consistently advised for these results to be accepted given that the said works were covered with a guarantee period. Seeing that such a practice might have presented avoidable value-for-money concerns, this Office reviewed the QC test results in the files pertaining to the works chosen as NAO's sample for this follow-up audit. As stated earlier, these works included six hot asphaltting contracts which were commissioned through a normal FA call-off, five major patching works call-offs availing of the emergency works provision, three tenders issued by the fast-track procedure and, one direct order. Given the rather simplistic nature of cold patching interventions, RID Officials have indicated that visual inspections suffice in such cases and consequently no detailed QC tests are necessary.
- 3.3.6 During its review, NAO once again noted that, on occasions, QC test results did not fall within set parameters. This Office solicited RID's feedback in this regard and was consequently informed that, in the reviewed cases where such results varied from set specifications, the respective A&CEs assigned to each of these projects were of the professional opinion that these did so only marginally and that such discrepancies could therefore be tolerated. RID Officials further elaborated that strict adherence to set parameters could prove to be counterproductive as certain considerations, such as road usage, would not be taken into account. NAO was also informed that, in instances in which QC test results yielded significant variances, penalties have been accordingly enforced or, in the worse cases, the contractors concerned were ordered to redo the works in question.
- 3.4.1 Echoing the 2011 report, NAO is still of the opinion that having FOs carrying out inspection rounds on an individual basis poses avoidable risks, especially insofar as health and safety as well as defect identification are concerned. Having a situation in which a single officer simultaneously deals with the collective responsibilities associated with such a practice, is one which, in NAO's opinion, inevitably results in otherwise preventable shortcomings to the detriment of RID's general effectiveness. As a consequence, the value of the money invested in these operational activities might be compromised.
- 3.4.2 NAO acknowledges the effort invested by RID in attempting to streamline the manner in which identified defects are recorded by the inspecting FOs. However, considering that the different FOs still record identified defects in somewhat differing manners, NAO still perceives that relatively minor risks prevail to the collected information's integrity and completeness.
- 3.4.3 This Office also notes the evident effort put in by the Directorate in setting up a detailed database to adequately record the road surface defects identified by the FOs. Although, as stated earlier, this tool is still subject to improvement, NAO still considers that RID has come a long way in systemising its approach towards prioritisation of works in developing the new database which serves as an invaluable tool unto which such a process is rooted.
- 3.4.4 While NAO highly commends the Directorate on the initiative taken intended at furthering the technical knowledge of its staff, this Office is still somewhat concerned with the persistent lack of accredited qualifications RID's FOs possess. Recognising that the risks associated with such a situation have been (in practice and to some extent) mitigated by organised internal Technical Meetings, NAO is still of the opinion that not

having adequately qualified staff may present the possibility of reduced performance while carrying out assigned responsibilities.

- 3.4.5 NAO acknowledges the evident effort put in by RID in obtaining more detailed insurance policies from participating contractors. In contrast with the case of the original audit report, the clear indication of the level of indemnity each policy offers gives the Directorate the reassurance that, should an accident occur, sufficient cover is available insofar as third party liability is concerned.
- 3.4.6 While every enterprise must ascertain that any individuals assigned to carry out works commissioned on its behalf are engaged under acceptable conditions as set by law, this responsibility is perceived to be somewhat greater insofar as government entities are concerned as they are generally regarded to be the benchmark for such considerations. To this end NAO commends both RID and TM HO in providing the necessary measures in ascertaining that these conditions were met for the commissioned works under NAO's review.
- 3.4.7 Insofar as the bid bond issue is concerned, NAO understands that the process of ascertaining that such a guarantee is submitted may not prove to be cost effective. To this end, this Office acknowledges the Directorate's sense of practicality but still remains somewhat concerned about the risks such a system might present to RID, namely that the latter might incur administrative costs associated with the processing of received tenders in vain in the eventuality that these are withdrawn prematurely.
- 3.4.8 NAO acknowledges the fact that the reviewed road side repair works contracts, together with hot asphaltting interventions commissioned through normal FA call-offs, were all covered by a performance guarantee which amounts to the required ten per cent of the bid price. This Office is however concerned with the lack of such reassurance in the case of the hot asphaltting contracts commissioned under the FA emergency provision, the fast-track major patching works agreements which tendering process was managed by TM's HO, as well as the reviewed direct order. RID's explanation on why such guarantees were not sought in the case of emergency works due to time restrictions, does not, in NAO's opinion, suffice. Although these contracts are supposed to be of a fast nature, they still consume considerable amounts of public funds while presenting considerable negative implications on road users in the case of bad workmanship. To this end, the immediate access to funds by TM to rectify such potential shortcomings is of paramount importance. Further compounding this concern is the fact that, as explained earlier in this report, the utilisation of the emergency provision within the FA contract has practically become the order of the day to address pricing issues of particular work items as well as to take the advantage of such works being carried out at night. Similar concerns apply to the direct order which governed a hot asphaltting intervention in preparation for the 5+5 summit. The occurrence of such a high profile event would be known well in advance, and any required preparations, if planned correctly, could be carried out in an orderly and predetermined manner. It is NAO's opinion that having to resort to emergency interventions to address such needs is indicative of poor governance. Similarly, NAO is greatly concerned with TM's HO approach of not requesting a performance guarantee in the case of the fast-track contracts for which tendering process it was responsible. NAO deems it as an unacceptable practice that such an important safeguard is deliberately omitted during the procurement of such services, especially when one considers the somewhat costly nature of these interventions.
- 3.4.9 NAO is pleased to note that, unlike the departmental tenders which were issued in the scoped period of the original audit report, the FA document does not feature clauses which allow engaged contractors to forego skid resistance specifications. The Office is

of the opinion that such a development serves to mitigate obvious health and safety risks to road users which were posed by this clause at the time of the 2011 NAO study.

- 3.4.10 The efforts made by the Directorate to issue tenders which reflected the actual work item quantities envisaged to be required by planned interventions rather than issuing a template (as was the case in the departmental tenders reviewed during the 2011 report), have been duly noted by NAO. This Office is of the opinion that such a development aids RID to better assess the most economically advantageous bid from the submitted pool. This opinion is based on the fact that the per unit item in a submitted bid might vary depending on the specific requirements dictated by the individual nature of each intervention. To this end, in quoting an approximation which is as close as possible to the actual required work items, rather than quoting a template configuration at tendering stage, NAO opines that the most economically advantageous offer in the individual circumstances will become more apparent to the Directorate and consequently ensures greater reliability in the selection process.
- 3.4.11 This Office acknowledges RID's take-up of one of NAO's recommendations, made in the 2011 audit report, insofar as the documentation of the progression of work interventions is concerned. Such a marked development reflects a higher level of good governance within the Directorate. On the other hand RID did not formally introduce a SOP for such monitoring processes, as was also recommended by NAO in its original audit report. Nonetheless this process is still, by and large, being carried out in a standardised manner by RID's FOs.
- 3.4.12 NAO is of the opinion that the removal of clauses in issued permits, which were contradictory to the nature of work interventions they governed, put the Directorate in a position of strength in the eventuality of a contestation as, due to this development, the integrity of the permit document is strengthened.
- 3.4.13 This Office however, is also concerned about the fact that three permits out of an analysed sample of eighteen contracts, could not be reproduced by RID for NAO's review. This shortcoming could have been caused, for example, by such documentation not being issued by the Directorate in the first place at the time of the commissioning of works, or that such documents were not adequately filed and consequently misplaced. Either way, NAO considers this as unacceptable as every effort should be made to ascertain that such important documentation is kept comprehensively in order.
- 3.4.14 NAO positively notes the significant improvement registered since the 2011 report insofar as traffic management during asphaltting interventions is concerned. The level of planning being presently carried out goes into minute details and is a considerable leap forward from the system employed during the progression of the original audit. This very positive development undoubtedly creates an increased sense of order during the progression of asphaltting works, which in turn results in much reduced inconvenience to the road users at large.
- 3.4.15 This Office also acknowledges the improved manner by which communication between the Directorate and assigned contractors occurs in the case of cold patching works. The fact that this process is now being documented implies that an audit trail is in place and that principles of good practice are applied. The presence of RID's FOs during the actual progression of work interventions is also commended by NAO as this is conducive to good governance.
- 3.4.16 NAO does not contend the professional judgement of RID's A&CEs in interpreting QC test results which would have marginally fallen out of set parameters. However this Office perceives risks of such decisions not being backed up by a documented and

officialiated formal structure which clearly defines an objective approach to the A&CEs interpretation of the above mentioned results.

3.5 Recommendations

- 3.5.1 With respect to adopting a system whereby FOs are assigned to carry out inspection rounds on an individual basis, NAO once again recommends that an alternate system is devised whereby two FOs are deployed for the execution of such inspections. Taking into account the considerations forwarded by RID during meetings held as part of the fieldwork stage of this follow-up audit, NAO recognises and accepts the fact that certain features of the road structure and signage are best evaluated from the driver's perspective. NAO is of the opinion, however, that this does not imply that a single FO per inspection is sufficient, but merely that the driver can contribute to the identification of defects. The responsibility of detecting other defects, which are evident and can be identified merely by visual observation, should still be entrusted to the accompanying FO. In so doing, the responsibilities associated with such a practice would be distributed between the two Officers, thereby mitigating the aforementioned risks.
- 3.5.2 While NAO commends RID for its efforts in streamlining the FOs reporting process when recording defects identified on the local AD road network, it urges the Directorate to persist in continuous improvements towards a situation where the different FOs would adopt a completely standardised approach, thereby ensuring complete consolidation of information. NAO also once again suggests that technological aides could be procured to assist these FOs during their inspection rounds and ascertain the compilation of more complete and accurate information.
- 3.5.3 While NAO commends RID's efforts in setting up the central database of identified defects, it also urges the Directorate to enhance, at the earliest, this tool into a fully consolidated instrument unto which the Directorate's prioritisation process may fully rely, thereby reaping the full benefit that could be reaped from such an initiative.
- 3.5.4 With respect to the persisting issue of having RID's FOs not being adequately qualified, NAO once again recommends that the Directorate endeavours in identifying suitable courses leading to recognised qualifications, thereby encouraging the Officers in question to undertake such tuition. Seeing a somewhat healthy level of interest shown by the FOs with respect to the organised internal Technical Meetings, NAO trusts that such an opportunity would be well received by the Officers in question.
- 3.5.5 Insofar as the level of detail included in the forwarded insurance policies is concerned, NAO encourages RID to continuously persist in soliciting comprehensive documentation from the participating contractors so as to ascertain that compliance and adequate coverage in the eventuality of an accident.
- 3.5.6 NAO commends RID and TM HO in adopting measures to ascertain that individuals employed by the engaged contractors benefit from at least the minimum level of working conditions as specified by law. To this end, NAO encourages these entities to continue applying these conditions consistently to all commissioned works so as to minimise the possibility of precarious employment conditions.
- 3.5.7 With respect to RID's reasoning insofar as the bid bonds issue is concerned, NAO is of the opinion that the Directorate is essentially promoting good governance in not engaging in a cost-ineffective compliance exercise. This Office however suggests that RID should include a proviso in the new FA which subjects prospective bidders to penalties should they withdraw their submitted bids prematurely. In so doing, the Directorate would not have to actively screen each submitted offer for this somewhat nominal protection, but still be able to ensure redress should any bidder default in this regard.

- 3.5.8 In view of the lack of performance guarantees covering interventions commissioned with the emergency works provision, NAO urges RID to rectify this situation at the earliest. In so doing, the Directorate would be ensuring that, in the eventuality of poor workmanship, it would have ready access to funds thereby being in a position to enforce applicable penalties. Given the implied importance of this issue, RID should adopt a no-compromise approach in ascertaining that such guarantees are in order prior to commissioning road surface repair interventions.
- 3.5.9 NAO commends the Directorate in removing the clause featured in the departmental tenders as utilised during the scoped period of the 2011 report and which stated that skid resistance requirements could be ignored by commissioned contractors. This Office urges RID to continually adopt such an approach towards health and safety considerations so that unnecessary risks are mitigated, thereby preventing potential detrimental consequences to road users.
- 3.5.10 This Office also highly lauds RID's efforts in quoting more precise and individualised quotes of required works during the tendering stage of each intervention. Given the advantages such a system proffers, NAO encourages RID to sustain this approach to continually ensure greater value for the funds invested in such interventions.
- 3.5.11 This Office encourages RID to persist in documenting ongoing works given the benefits that such a practice offers. In so doing, the Directorate would be in a better position to identify, and substantiate with evidence, any shortcomings during the progression of commissioned interventions. To this end, RID should endeavour to consistently find ways and means by which to improve this recording procedure, thereby continuously enhancing its robustness and completeness. Furthermore, NAO once again recommends the drafting and inclusion of an SOP to ascertain a fully standardised approach to this very important aspect of the contract management function.
- 3.5.12 While NAO acknowledges the fact that the new permit templates do not feature clauses which are inconsistent with the nature of works they govern, NAO urges the Directorate to ensure that such documentation is consistently and appropriately managed for ease of reference.
- 3.5.13 This Office highly commends RID's new approach toward traffic management and encourages the Directorate to adopt this organised methodology throughout all commissioned works as this results in less disruption for road users.
- 3.5.14 NAO also noted the improvement registered insofar as the commissioning and monitoring of cold asphalt interventions are concerned. To this end, this Office encourages the Directorate to maintain such good practices while consistently proactively seek ways for continued improvement.
- 3.5.15 While NAO does not contend the professional judgement of RID's A&CEs, it nonetheless opines that the decision-making process, of whether to accept or otherwise QC tests results which would have marginally fallen out of set parameters, should be documented and officiated in a formal structure. In so doing, the Directorate would be mitigating risks of subjectivity between different A&CEs and provide a solid framework within which such Officials are to operate.

Appendices

Appendix A – Extract from Original Framework Agreement Rates Schedule
(Including Contested Items)

2.000	ROAD FORMATION WORKS		
2.010	Oversite excavation in any type of ground using mechanical equipment and remove from site. Rate shall include any required dumping charges.	cu.m.	11.00
2.020	Oversite excavation in any type of ground using planar equipment - up to passes of 150mm and remove from site. Rate shall include any required dumping charges.	cu.m.	13.25
2.030	Breaking up of existing concrete kerbs and remove from site. Rate shall include any required dumping charges.	m.	2.60
2.040	Breaking up of existing concrete paving in footways and remove from site. Rate shall include any required dumping charges.	sq.m	3.50
2.050	Modifying &/or Raising/Lowering the level of Gratings and Manhole Cover and the respective frames:	no.	50.00
2.060	Supply, deposit, level and compact in layers as required, Type A sub base material	Cu.m.	8.00
2.070	Supply, deposit, level and compact in layers as required, Type 1: Granular base course material	cu.m.	14.00
2.080	Supply and lay Cement Bound Material (Cement Stabilisation)	cu.m.	34.00
3.000	TRENCH EXCAVATION WORKS BY MECHANICAL EQUIPMENT INCLUDING MINI EXCAVATOR		
3.010	Excavate trench in any type of material to a depth not exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried	cu.m.	28.00

ITEM	DESCRIPTION	UNIT	RATE
3.020	Excavate trench in any type of material to a depth exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.	cu.m.	€ 31.00
3.030	Chase in retaining walls including covering back of chase with approved matching material and cart away all surplus material. This item is not applicable to works related to any chases for the provision of water house services as such work is covered in item 5.206.	m	58.23
3.040	Excavate 100mm to 200mm wide and 450mm deep trench for Enemalta cable and cart away material to an approved dumping site. No extra payments shall be made for working around or along other existing buried infrastructure. Rate shall include any required dumping charges.	m	4.54
3.050	Excavate 100mm to 200mm wide and 750mm deep trench for Enemalta cable and cart away material to an approved dumping site. No extra payments shall be made for working around or along other existing buried infrastructure. Rate shall include any required dumping charges.	m	7.90
	<u>Excavation by hand or by compressor</u>		
3.060	Excavate by hand tools or compressor in any type of material and cart away all resulting material to an approved dumping site. (any depth) Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.	cu.m	65.97

5.000	INSTALLATION OF BURIED INFRASTRUCTURES		
5.101	Cable Laying Network		
5.102	Lay and position properly cable/s less than or equal to 35mm in diameter , including the provision and laying of two layers of 80mm thick fine hard crushed stone (sand) with particle size not exceeding 5mm and surround to cable. Rate applicable for cable uplifiting works.	m	2.89
5.103	Extra over to lay, position and tie cable/s properly on cable supports equal to or less than 35mm in diameter above a height of 1.5 metres from existing ground level.	m	1.24

ITEM	DESCRIPTION	UNIT	RATE
			€
5.104	Extra over to lay and position properly cable/s on cable supports equal to or less than 35mm in diameter in a culvert.	m	1.24
5.105	Lay and position properly cable/s greater than 35mm in diameter but less than 80mm in diameter including the provision and laying of two layers of 80mm thick fine hard crushed stone (sand) with particle size not exceeding 5mm and surround to cable. Rate applicable for cable uplifting works.	m	3.52
5.106	Extra over to lay, position and tie cable/s properly on cable supports greater than 35mm in diameter but less than 80mm in diameter above a height of 1.5 metres from existing ground level.	m	3.35
5.107	Extra over to lay and position properly cable/s on cable supports greater than 35mm in diameter but less than 80mm in diameter in a culvert.	m	3.35
5.108	Lay and position properly cable/s greater than 80mm diameter, including the provision and laying of two layers of 80mm thick fine hard crushed stone (sand) with particle size not exceeding 5mm and surround to cable. Rate applicable for cable uplifting works.	m	4.12
5.109	Extra over to lay and position properly cable/s on cable supports greater than 80mm in diameter in a culvert.	m	5.50
5.110	Laying of earth mat, covering with 250mm thick layer of sieved soil and watering. The rate shall include the cost for the laying of earth mat both along the trench and down into the earth holes as requested by the Engineer or his representative. The rate shall include the cost for transport, mixing and pouring of low resistance earth interface such as Bentonite when required by Enemalta Engineer or his representative. The rate to lay the earth mat is per linear metre irrespective of the number cores and the plane at which it is laid.	m	2.61
5.111	Cable laying, extending and bolting of earth conductor in culvert.	m	3.02
5.112	Drawing of cable equal to or less than 35mm diameter through pipes.	m	3.02
5.113	Remove and re-lay of cover slabs weighing up to 50 kilograms on top of culvert and to leave it as it was found.	no.	2.06
5.114	Remove and re-lay of cover slabs weighing greater than 50 kilograms on top of culvert and to leave it as it was found.	no.	6.87
	<u>Warning Slabs</u>		
5.115	Supply, transport and lay concrete or franka cable warning slabs. The rate to lay slabs is per linear metre of each row of slabs laid.	m	1.37
5.116	Supply, lay and spread evenly a layer of sand in trench and/or joint bay/s over and above the 16cms thickness mentioned in item B1 where require but not more than 30cm thick.	cu.m.	13.30

ITEM	DESCRIPTION	UNIT	RATE
			€
	Transportation		
5.117	Load, transport and unload Enemalta cables/s, not exceeding 2(two) tonne in weight.	to	27.49
5.118	Load, transport and unload Enemalta cables/s, exceeding 2(two) tonne in weight.	to	27.49
5.119	Extra over on Items (L.1 to L.2) when this work is carried out after normal working hours including Saturdays, Sundays and Public Holidays.	to	13.74
	Miscellaneous		
5.120	Transport, lay, fix and align 50mm or 100mm or 150mm diameter UPVC pipes including gluing, and the supply and placing of draw wire when necessary.	m	1.24
5.121	Boring of holes for stay rods 1.2m x 5cms including grouting.	no.	32.98
5.122	Boring of earth holes for earth rods not exceeding (6m)deep including grouting.	no.	76.96
5.123	Boring of earth holes for earth rods (more than 6m but equal to or less than 50m deep) including grouting.	m	18.14
5.124	Boring of earth holes for earth rods (more than 50m deep) including grouting.	m	22.54
5.125	Load, transport, level and install in position feeder pillar.	no.	123.69
5.126	Load, transport, level and install in position cable hangers up to 4(four) hole-fixing.	no.	9.62
5.201	Potable water mains network		
5.202	Collect and transport from WSC stores, lay and connect ductile iron cement lined pipes as instructed by the Engineer-in-Charge. Pipes of the following diameters:		
a.	63mm	m	1.86
b.	80mm	m	2.91
c.	100 mm	m	2.91
d.	150 mm	m	4.66
e.	250 mm	m	5.82
f.	300 mm	m	7.45
g.	350 mm	m	9.08
h.	400 mm	m	9.08
i.	450 mm	m	9.43
j.	500 mm	m	13.98
k.	600 mm	m	13.98
5.203	Collect and transport from WSC stores, and connect any ductile iron fittings (sluice valves, butterfly valves, air valves, fire hydrants, control valves, flanged pipes, bends and meters etc) instructed by the Engineer-in-Charge. Fittings of the following diameters:		
a.	63mm	no.	3.49
b.	80mm	no.	9.90
c.	100 mm	no.	9.90
d.	150 mm	no.	11.65
e.	250 mm	no.	27.95
f.	300 mm	no.	27.95

ITEM	DESCRIPTION	UNIT	RATE
			€
g.	350 mm	no.	27.95
h.	400 mm	no.	46.59
i.	450 mm	no.	46.59
j.	500 mm	no.	46.59
k.	600 mm	no.	46.59
	<u>Installation of water house services</u>		
5.204	POLYETHYLENE PIPES AND FITTINGS PROVIDED BY WSC. Excavation around pipe perpendicular to the trench for installation of tapping (Installation of tapping by WSC)	no.	16.31
5.205	Installation of tapping ferrule on water mains	no.	2.33
5.206	Excavate trench by pneumatic hammer for house service from main to house frontage including carting away of material from site. Cut bituminous road surface to its full depth, (on both sides of trench) with straight edges parallel to line of trench. Rates to include for edge sealants for any extra length of cut. Collect, transport and lay PE (polyethylene) pipes for house service inclusive of fittings. Pipes and fittings to be collected from WSC's stores. Collect from WSC stores, transport and place stop cock covers. Rate to include for the construction of stopcock chamber and fixing of frame for stopcock cover. Chase in wall along consumer's premises and plaster after installation of service pipe. Supply, ram and compact lean concrete (as per Series 2600, Clause 2603) around water main up to support pipe and to road formation level over trench/pits for house service.	m	16.31
5.207	Shifting of water meters (excluding pipework)	no.	11.65
5.208	Connection to existing mains (Taghqieda) Rate covers work on pipe work only and does not include for any excavation, backfilling, dumping charges and the provision of fittings which shall be paid for separately under the respective items.		
a.	80mm	no.	50.00
b.	100 mm	no.	50.00
c.	150 mm	no.	50.00
d.	250 mm	no.	75.00
e.	300 mm	no.	75.00
f.	350 mm	no.	150.00
g.	400 mm	no.	150.00
h.	450 mm	no.	150.00
i.	500 mm	no.	150.00
j.	600 mm	no.	150.00
5.209	Extra over existing rates for installation of house services to allow for additional work involved in pipe sleeving of house services	m	3.66
	<u>Temporary water supply</u>		
5.210	Collect from WSC stores, lay, install and connect to existing water services temporary PE water main above ground and disconnection of existing temporary supply on completion (PE pipes and fittings provided by WSC)	no.	6.99

ITEM	DESCRIPTION	UNIT	RATE
			€
5.211	Excavate for connection or disconnection of existing network connection of temporary water main, backfill and reinstate in temporary reinstatement.	no.	39.60
5.212	Excavate pit, blank off existing tapping etc.	no.	39.60
5.301	<u>Waste water network</u>		
5.302	Collect from WSC stores, deliver to site, lay, align, level and join 200mm diameter pipes in trench as directed	m	5.12
5.303	Connection to existing sewer manhole including rendering/sealing of connection	no.	116.47
5.304	Provision of a CCTV report and video evidence of the newly constructed main sewers complete with photographs of each manhole constructed. These are to be presented to the Engineer	m	6.99
5.305	Repair/connect to newly lay main sewer, broken (or new) household connections. Rate is to include all necessary fittings, accessories, pipes and supply and laying of concrete and backfilling	no.	349.41
5.306	Supply and lay saddles to connections	no.	34.94
5.307	Supply and lay Y-branches to connections	no.	50.33
	<u>uPVC pipes and fittings in trench</u>		
5.308	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN2 SDR 51 with the following dimensions:		
a	200mm diameter	m	21.08
b	250mm diameter	m	24.98
c	300mm diameter	m	25.87
d	350mm diameter	m	34.08
e	400mm diameter	m	48.89
f	450mm diameter	m	49.79
g	500mm diameter	m.	51.19
5.309	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN4 SDR 51 with the following dimensions:		
a	125mm diameter	m.	6.06
b	150mm diameter	m.	7.92
c	200mm diameter	m.	22.54
d	250mm diameter	m.	26.70
e	300mm diameter	m.	27.65
f	400mm diameter	m.	52.25
g	500mm diameter	m.	54.72
h	600mm diameter	m.	74.54
i	700mm diameter	m.	107.15
j	800mm diameter	m.	146.75
k	1000mm diameter	m.	181.69

8.000	FOOTPATH CONSTRUCTION & REINSTATEMENT WORKS		
8.001	Supply, lay, bed, back and point 255mm high, precast concrete kerbs, 1000mm long, laid straight or curved exceeding 12m radius. Bedding and backing to be insitu unreinforced concrete grade C15. RCD 1100/1	m.	11.00
8.002	Cast in-situ C20 concrete gutter 200mm wide x 150mm deep. Rate is to include for all necessary formwork.	m.	4.00
8.003	Supply and lay 100mm thick, in-situ, C20 concrete mix in footways. Rate is to include for the formation of expansion joints at 5m centres, brush finish, & the necessary supply and compaction of infill material. RCD 1100/5	sq.m.	9.20
8.004	Supply, Transport & Lay 300x300mm PVC junction boxes in footpaths, including C15 concrete Surround	no.	21.00
	Reinstatement and Kerb		
8.005	Carefully remove existing pavement flagstones/ slabs / blocks / tiles, stacking of same for later re-use and relaying same to proper alignment and levels following water service laying and connection. Rate inclusive of bedding, preparation and grouting. No extra payment shall be made for the supply of any damaged slabs or blocks or tiles to reinstate pavement to match existing.	sq.m.	11.65
8.006	Supply and lay pavement to match existing and to proper alignment and levels following water service laying and connection. Rate inclusive of bedding, preparation and grouting:		
a.	concrete tiles (grey type)	sq.m.	16.31
b.	concrete tiles (colour type)	sq.m.	17.47
c.	concrete blocks (grey type)	sq.m.	22.13
d.	concrete blocks (colour type)	sq.m.	24.46
e.	softstone franka slab	sq.m.	20.96
8.007	Laying and grouting of:		
a.	hardstone paving	sq.m.	44.00
b.	lava (pedestrian)	sq.m.	35.75
c.	lava (vehicular)	sq.m.	47.00
d.	porfido	sq.m.	41.25
8.008	Supply and lay stencil-crete	sq.m.	29.00

10.000	ANCILLARY ITEMS		
10.001	C15 concrete infill to precast concrete hollow block walls (per skin)	sq.m.	5.00
10.002	Extra over for increase in Concrete Grade	cu.m.	11.65
10.003	C15 concrete infill to cavities & around blocks.	cu.m.	70.00
10.004	Extra Over for Ashlar Masonry Finish (Fuq il-Fil)	sq.m.	5.00

ITEM	DESCRIPTION	UNIT	RATE
			€
10.005	Supply and lay DPC	sq.m.	7.00
10.006	Supply and lay plastic sheeting	sq.m.	0.80
10.007	Supply and lay C25 concrete coping including throating, and drip checks. Rate is to include all necessary formwork. RCD 2400/1to10	cu.m.	260.00
10.008	Sand-Cement pointing of Joints	sq.m.	4.60
10.009	Sand-Cement based rendering to surfaces (4mm thick)	sq.m.	4.50
10.010	Rake out joints of exposed surfaces of blockwork walls to a depth of not less than 15mm, point with cement / sand mortar to a neat flush joint. Render surface in two layers of cement sand mortar and including proprietary water-proofing additive.	sq.m.	4.00
10.011	Supply, transport, lay, and finish off for all concrete works of the following grades:		
a	C 10	cu.m.	50.00
b	C 15	cu.m.	70.00
c	C 20	cu.m.	80.00
d	C 25	cu.m.	90.00
e	C 30	cu.m.	100.00
f	C 35	cu.m.	110.00
	<u>Reinforcement</u>		
10.012	Supply, cut, bend, and fix reinforcement bars detailed as per specifications:		
a	T32	kg.	1.40
b	T25	kg.	1.40
c	T20	kg.	1.40
d	T16	kg.	1.40
e	T12	kg.	1.40
f	T10	kg.	1.40
g	R12	kg.	1.40
h	R10	kg.	1.40
10.013	Supply and lay BRC Mesh Fabric including overlap, detailed as per specifications.		
a	A98	sq.m.	5.60
b	C503	sq.m.	6.80
10.014	Provide, erect and strike down formwork for framework foundation.	sq.m.	15.5
11.000	ASPHALT ROAD PAVING WORKS AND TRENCH REINSTATEMENT		
	<u>Black Top Reinstatement over trenches</u>		
11.001	Cut bituminous road surface to its full depth with vertical straight edges parallel to line of trench. Rates to include for edge sealants	m	1.15

ITEM	DESCRIPTION	UNIT	RATE
			€
11.002	Surface cold milling over trench/pits to bring to formation level and load and cart away material to approved dumping site including dumping charges.	sq.m.	3.30
11.003	Supply and lay 80mm 0/19 mm for Base Wearing Course hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m.	21.32
11.004	Supply and lay 100mm 0/19 mm for Base Wearing Course hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m.	24.00
11.005	Supply and lay 120mm hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs in two layers (i) 0/25 mm for Base Course 80mm thick and (ii) 0/12.5 mm for Wearing Course 40mm thick up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m.	29.77
11.006	Supply, transport and lay cold asphalt paving mixture in accordance to specifications and approved mix designs. Rate is to include for the necessary bitumen emulsion required as per approved mix design. Cold Asphalt any thickness in carriage way, hard shoulder and hardstrip. Regularity: 4mm, 4m straight edge. Cross slope: +/- 0.4% of required cross slope	cu.m.	165.00
11.007	0/12.5 mm for Wearing Course 50mm thick for minor patching works to approved mix design, in carriage way, hard shoulder and hardstrip. Rate included surface cold milling and carting away of the resulting material from site, the painting of the vertical edges of any joints with hot bitumen and the supply and spraying of tack coat. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m.	12.00
11.008	Supply premixed asphalt surface repair material in 25kg Bags	no.	4.00
11.009	Supply premixed asphalt surface repair material in bulk	to	85.00
	<u>Asphalt road paving works and wide trench reinstatement</u>		
11.010	Supply, transport and lay hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs. Rate is to include for the necessary bitumen required as per ASTM D3515 and approved mix design, and the painting of the vertical edges of any joints with hot bitumen		

ITEM	DESCRIPTION	UNIT	RATE
			€
11.011	0/25 mm for Base Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	sq.m.	14.08
11.012	0/19 mm for Binder Course 60mm thick in carriage way, hard shoulder and hardstrip Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m.	11.35
11.013	0/12.5 mm for Wearing Course 40mm thick (using imported aggregate) , hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	sq.m.	9.30
11.014	0/12.5 mm for Wearing Course 40mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	sq.m.	7.44
11.024	0/19 mm for Base Wearing Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	sq.m.	14.84
11.025	0/19 mm for Base Wearing Course 100mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	sq.m.	18.55
11.026	Working around and modifying projections.	no.	31.00
11.027	Cut into existing asphalt as squaring off using rotary saw.	m.	3.00
11.028	Supply and spray bitumen emulsion tack coat	sq.m.	0.40
11.029	Sweeping of road surface and carting away of resulting material	sq.m.	2.00

Appendix B – Official letter sent by contractors to Transport Malta requesting a revision in rates and their proposed price levels.



17th January 2012

The Director General
Department of Contracts
Notre Dame Ravelin
Floriana VLT 2000

The Chairman
Malta Transport Authority
Roads and Infrastructure Directorate
Triq Agius de Soldanis
Sta Venera SVR 1910

Dear Sirs,

Re : Road Building Contractors Division

We are writing on behalf of the Road Contractors Business Section of The Malta Chamber of Commerce, Enterprise and Industry in connection with the Framework Agreement for the construction and maintenance of roads and for trenching and plant laying works for the extension and renewal of electricity cable, potable water and waste water pipe network in different localities in Malta and Gozo – CT 2151/2010.

We make reference to the letter dated 29th April 2011 and present Document 'A' enclosed which clearly shows the proposed prices which reflect the increase in price of various commodities used on various works undertaken. We are also enclosing Document 'B' which indicates the increase in prices according to the price revision formula contained in the framework agreement. For this price revision we made use of the Retail Price Index (All Items Index) found on the website of the Central Bank of Malta taking into consideration the price revision index from Dec 2010 till May 2011.

Albeit this calculation is according to the price revision formula, we firmly believe that the proposed prices mentioned in Doc 'A' show the correct price that should be given to the contractors, which are currently being compensated at below cost price.

Further revisions need to be made to reflect the price inflation to date as costs have continued to spiral upwards, details of which will follow in future correspondence.

Yours faithfully,


Vincent Borg
Chairman
Road Contractors Business Section



Your voice in business

Collaborating Partners:



THE MALTA CHAMBER OF COMMERCE, ENTERPRISE AND INDUSTRY
The Exchange Buildings, Republic Street, Valletta VLT 1117 - Malta
Vat reg 152 MT | 281-6435 | Tel: (+356) 2123 3073 - Fax: (+356) 2124 5223
E-mail: info@maltachamber.org.mt - www.maltachamber.org.mt

Road Formation Works per Cubic Metre

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
2.01	Oversite excavation in any type of ground using mechanical equipment and remove from site. Rate shall include any required dumping charges.	Dumping Charges				2.75	6.41
		Transport to Quarry				2.00	4.66
		Equipment				0.90	2.10
		Wear and Tear				0.35	0.82
		Sub Total 1				6.00	13.98
		Profit (10%)				0.60	1.40
		Sub Total 2				6.60	15.37
		VAT			1.19	2.77	
		Total Including VAT	Cu.M.	11.00	7.19	16.74	
2.02	Oversite excavation in any type of ground using planar equipment - up to passes of 150mm and remove from site. Rate shall include any required dumping charges.	Dumping Charges				2.75	6.41
		Transport to Quarry				2.00	4.66
		Equipment				1.70	3.96
		Wear and Tear				0.35	0.82
		Sub Total 1				6.80	15.84
		Profit (10%)				0.68	1.58
		Sub Total 2				7.48	17.42
		Vat			1.35	3.14	
		Total Including VAT	Cu.M.	13.25	8.83	20.56	

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
3.01	Excavate trench in any type of material to a depth not exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.	Dumping Charges			2.75	6.41	
		Transport to Quarry			2.00	4.66	
		Equipment			6.67	15.54	
		Wear and Tear			0.35	0.82	
		Sub Total 1			11.77	27.42	
		Profit (10%)			1.18	2.74	
		Sub Total 2			12.95	30.16	
Vat			2.33	5.43			
		Total Including VAT	Cu.M.	28.00	15.28	35.59	
3.02	Excavate trench in any type of material to a depth exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.	Dumping Charges			2.75	6.41	
		Transport to Quarry			2.00	4.66	
		Equipment			8.00	18.63	
		Wear and Tear			0.35	0.82	
		Sub Total 1			13.10	30.51	
		Profit (10%)			1.31	3.05	
		Sub Total 2			14.41	33.57	
Vat			2.59	6.04			
		Total Including VAT	Cu.M.	31.00	17.00	39.61	

uPVC pipes

Item No.	Description	Unit	Current	Proposed
			€	€
5.308	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN2 SDR 51 with the following dimensions:			
a	200mm Diameter	m	21.08	24.87
b	250mm Diameter	m	24.98	29.48
c	300mm Diameter	m	25.87	30.53
d	350mm Diameter	m	34.08	40.21
e	400mm Diameter	m	48.89	57.69
f	450mm Diameter	m	49.79	58.75
g	500mm Diameter	m	51.19	60.40
5.309	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN4 SDR 51 with the following dimensions:			
a	125mm Diameter	m	6.06	7.15
b	150mm Diameter	m	7.92	9.35
c	200mm Diameter	m	22.54	26.60
d	250mm Diameter	m	26.7	31.51
e	300mm Diameter	m	27.65	32.63
f	400mm Diameter	m	52.25	61.66
g	500mm Diameter	m	54.72	71.14
h	600mm Diameter	m	74.54	108.08
i	700mm Diameter	m	107.15	150.01
j	800mm Diameter	m	146.75	198.11
k	1000mm Diameter	m	181.69	245.28

Footpath Construction

Item No.	Description	Unit	Current		Proposed	
			€	€	€	€
8.003	Supply and lay 100mm thick, in-situ, C20 concrete mix in footways. Rate is to include for the formation of expansion joints at 5m centres, brush finish, & the necessary supply and compaction of infill material. RCD 1:100/5	sq. m.	9.20		11.50	

Ancillary Items

Item No.	Description	Unit	Current		Proposed	
			€	€	€	€
10.011	Supply, transport, lay, and finish off for all concrete works of the following grades:					
a	C10	Cu.m.	50		59.55	
b	C15	Cu.m.	70		82.5	
c	C20	Cu.m.	80		94	
d	C25	Cu.m.	90		106	
e	C30	Cu.m.	100		118	
f	C35	Cu.m.	110		140	

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
11.01.1	0/25 mm for Base Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	Electricity Fuel Oil Aggregate Bitumen (6.6% @ €500) Labour Shovel Green Diesel Laying + Transport to Site SUBTOTAL 1 Testing (2%) Profit (10%) SUBTOTAL 2 VAT Total incl. VAT Total incl. VAT Total incl. VAT			3.54 5.38 7.95 14.17 1.00 1.00 4.50 6.00 43.54 0.87 4.35 48.76 8.78 57.54 126.59		8.25 12.53 18.52 33.01 2.33 2.33 10.48 13.98 101.42 2.03 10.14 113.59 20.45 134.04 294.88
			Sq. M.	14.08	10.13		23.59

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
11.012	0/19 mm for Binder Course 60mm thick in carriage way, hard shoulder and hardstrip Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	Electricity Fuel Oil Aggregate Bitumen (6.8% @ €500) Labour Shovel Green Diesel Laying + Transport to Site SUBTOTAL 1 Testing (2%) Profit (10%) SUBTOTAL 2 VAT Total incl. VAT Total incl. VAT Total incl. VAT					
						3.54 5.38 7.95 14.60 1.00 1.00 4.50 6.00 43.97 0.88 4.40 49.25 8.86 58.11 127.84	8.25 12.53 18.52 34.01 2.33 2.33 10.48 13.98 102.42 2.05 10.24 114.71 20.65 135.36 297.80
			Sq. M.	11.35	7.67		17.87

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
11.013	0/12.5 mm for Wearing Course 40mm thick in carriage way (using imported aggregate), hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	Electricity Fuel Oil Aggregate Bitumen (4.5% @ €500) Labour Shovel Green Diesel Laying + Transport to Site SUBTOTAL 1 Testing (2%) Profit (10%) SUBTOTAL 2 VAT Total incl. VAT Total incl. VAT				3.54 5.38 15.08 9.66 1.00 1.00 4.50 6.00 46.16 0.92 4.62 51.70 9.31 61.01 170.81	8.25 12.53 35.13 22.50 2.33 2.33 10.48 13.98 107.52 2.15 10.75 120.43 21.68 142.10 397.89
		Total incl. VAT	Sq. M.	9.30	6.83	15.92	

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
11.014	0/12.5 mm for Wearing Course 40mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	Electricity Fuel Oil Aggregate Bitumen (7.2% @ €500) Labour Shovel Green Diesel Laying + Transport to Site SUBTOTAL 1 Testing (2%) Profit (10%) SUBTOTAL 2 VAT Total incl. VAT Total incl. VAT		3.54 5.38 7.95 15.45 1.00 1.00 4.50 6.00 44.82 0.90 4.48 50.20 9.04 59.23 130.32		8.25 12.53 18.52 35.99 2.33 2.33 10.48 13.98 104.40 2.09 10.44 116.93 21.05 137.98 303.55	
		Total incl. VAT	Sq. M.	7.44	5.21	12.14	

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
11.024	0/19 mm for Base Wearing Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	Electricity Fuel Oil Aggregate Bitumen (7.1% @ €500) Labour Shovel Green Diesel Laying + Transport to Site SUBTOTAL 1 Testing (2%) Profit (10%) SUBTOTAL 2 VAT Total incl. VAT Total incl. VAT Total incl. VAT			3.54 5.38 7.95 15.24 1.00 1.00 4.50 6.00 44.61 0.89 4.46 49.96 8.99 58.96 129.70		8.25 12.53 18.52 35.50 2.33 2.33 10.48 13.98 103.91 2.08 10.39 116.38 20.95 137.33 302.13
			Sq. M.	14.84	10.38		24.17

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed	
				€	LM	€	LM
11.025	0/19 mm for Base Wearing Course 100mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	Electricity Fuel Oil Aggregate Bitumen (7.1% @ €500) Labour Shovel Green Diesel Laying + Transport to Site SUBTOTAL 1 Testing (2%) Profit (10%) SUBTOTAL 2 VAT Total incl. VAT Total incl. VAT Total incl. VAT				3.54 5.38 7.95 15.24 1.00 1.00 4.50 6.00 44.61 0.89 4.46 49.96 8.99 58.96 129.70	8.25 12.53 18.52 35.50 2.33 2.33 10.48 13.98 103.91 2.08 10.39 116.38 20.95 137.33 302.13

Road Formation Works per Cubic Metre

Item No.	Description	Breakdown	Unit	Current		Proposed		PI Formula	
				€	€	€	€	€	€
2.01	Oversite excavation in any type of ground using mechanical equipment and remove from site. Rate shall include any required dumping charges.								
		Total Including VAT	Cu.M.	11.00	16.74				11.16
2.02	Oversite excavation in any type of ground using planar equipment - up to passes of 150mm and remove from site. Rate shall include any required dumping charges.								
		Total Including VAT	Cu.M.	13.25	20.56				13.44

Item No.	Description	Breakdown	Unit	Current		Proposed		PI Formula
				€	€	€	€	
3.01	Excavate trench in any type of material to a depth not exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.							
		Total Including VAT	Cu.M.	28.00	35.59	28.41		
3.02	Excavate trench in any type of material to a depth exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.							
		Total Including VAT	Cu.M.	31.00	39.61	31.45		

uPVC pipes

Item No.	Description	Unit	Current		Proposed		PI Formula
			€	€	€	€	
5.308	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN2 SDR 51 with the following dimensions:						
a	200mm Diameter	m	21.08	24.87	21.39		
b	250mm Diameter	m	24.98	29.48	25.34		
c	300mm Diameter	m	25.87	30.53	26.25		
d	350mm Diameter	m	34.08	40.21	34.57		
e	400mm Diameter	m	48.89	57.69	49.60		
f	450mm Diameter	m	49.79	58.75	50.51		
g	500mm Diameter	m	51.19	60.40	51.93		
5.309	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN4 SDR 51 with the following dimensions:						
a	125mm Diameter	m	6.06	7.15	6.15		
b	150mm Diameter	m	7.92	9.35	8.04		
c	200mm Diameter	m	22.54	26.60	22.87		
d	250mm Diameter	m	26.7	31.51	27.09		
e	300mm Diameter	m	27.65	32.63	28.05		
f	400mm Diameter	m	52.25	61.66	53.01		
g	500mm Diameter	m	54.72	71.14	55.51		
h	600mm Diameter	m	74.54	108.08	75.62		
i	700mm Diameter	m	107.15	150.01	108.71		
j	800mm Diameter	m	146.75	198.11	148.88		
k	1000mm Diameter	m	181.69	245.28	184.33		

Footpath Construction

Item No.	Description	Unit	Current	Proposed	PI Formula
			€	€	€
8.003	Supply and lay 100mm thick, in-situ, C20 concrete mix in footways. Rate is to include for the formation of expansion joints at 5m centres, brush finish, & the necessary supply and compaction of infill material. RCD 1100/5	sq. m.	9.20	11.50	9.33

Ancillary Items

Item No.	Description	Unit	Current		Proposed		PI Formula
			€	€	€	€	
10.011	Supply, transport, lay, and finish off for all concrete works of the following grades:						
a	C10	Cu.m.	50	59.55	50.73		
b	C15	Cu.m.	70	82.5	71.02		
c	C20	Cu.m.	80	94	81.16		
d	C25	Cu.m.	90	106	91.31		
e	C30	Cu.m.	100	118	101.45		
f	C35	Cu.m.	110	140	111.60		

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed		PI Formula	
				€	€	€	€	€	€
11.011	0/25 mm for Base Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	Total incl. VAT	Sq. M.	14.08	23.59			14.28	
11.012	0/19 mm for Binder Course 60mm thick in carriage way, hard shoulder and hardstrip Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	Total incl. VAT	Sq. M.	11.35	17.87			11.51	
11.013	0/12.5 mm for Wearing Course 40mm thick in carriage way (using imported aggregate), hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	Total incl. VAT	Sq. M.	9.30	15.92			9.44	

Asphalt road paving works and wide trench reinstatement

Item No.	Description	Breakdown	Unit	Current		Proposed		PI Formula
				€	€	€	€	
11.014	0/12.5 mm for Wearing Course 40mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the required level and 4m straight edge Cross slope: +/- .4% of the required cross slope	Total incl. VAT	Sq. M.	7.44	12.14			7.55
11.024	0/19 mm for Base Wearing Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	Total incl. VAT	Sq. M.	14.84	24.17			15.06
11.025	0/19 mm for Base Wearing Course 100mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the required level and 4m straight edge	Total incl. VAT	Sq. M.	18.55	30.21			18.82

Appendix C – Extract from Framework Agreement Addendum Rates Schedule
(Including Contested Items- Highlighted)

ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
2.000	ROAD FORMATION WORKS				
2.010	Oversite excavation in any type of ground using mechanical equipment and remove from site. Rate shall include any required dumping charges.	cu.m.	11.38		--
2.020	Oversite excavation in any type of ground using planar equipment - up to passes of 150mm and remove from site. Rate shall include any required dumping charges.	cu.m.	13.71		--
2.030	Breaking up of existing concrete kerbs and remove from site. Rate shall include any required dumping charges.	l.m.	2.60		--
2.040	Breaking up of existing concrete paving in footways and remove from site. Rate shall include any required dumping charges.	sq.m	3.50		--
2.050	Modifying &/or Raising/Lowering the level of Gratings and Manhole Cover and the respective frames:	no.	50.00		--
2.060	Supply, deposit, level and compact in layers as required, Type A sub base material	cu.m.	8.00		--
2.070	Supply, deposit, level and compact in layers as required, Type 1. Granular base course material	cu.m.	14.00		--
2.080	Supply and lay Cement Bound Material (Cement Stabilisation)	cu.m.	34.00		--

ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
3.000	TRENCH EXCAVATION WORKS BY MECHANICAL EQUIPMENT INCLUDING MINI EXCAVATOR				
3.010	Excavate trench in any type of material to a depth not exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.	cu.m.	28.97		-
3.020	Excavate trench in any type of material to a depth exceeding 2.5 metres and cart away material to an approved dumping site. Rate is to include for shuttering, shoring, falsework, pumping, protection from ingress of any type of water, dewatering and provision of dry conditions for the laying of buried plant. Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure.	cu.m.	32.07		-
3.030	Chase in retaining walls including covering back of chase with approved matching material and cart away all surplus material. This item is not applicable to works related to any chases for the provision of water house services as such work is covered in item 5.206.	m	58.23		-
3.040	Excavate 100mm to 200mm wide and 450mm deep trench for Enemalta cable and cart away material to an approved dumping site. No extra payments shall be made for working around or along other existing buried infrastructure. Rate shall include any required dumping charges.	m	4.54		-
3.050	Excavate 100mm to 200mm wide and 750mm deep trench for Enemalta cable and cart away material to an approved dumping site. No extra payments shall be made for working around or along other existing buried infrastructure. Rate shall include any required dumping charges.	m	7.90		-
	<u>Excavation by hand or by compressor</u>				
3.060	Excavate by hand tools or compressor in any type of material and cart away all resulting material to an approved dumping site. (any depth) Rate shall include any required dumping charges. No extra payments shall be made for working around or along other existing buried infrastructure	cu.m	65.97		-

ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
5.000	INSTALLATION OF BURIED INFRASTRUCTURES				
5.101	<u>Cable Laying Network</u>				
5.102	Lay and position properly cable/s less than or equal to 35mm in diameter, including the provision and laying of two layers of 80mm thick fine hard crushed stone (sand) with particle size not exceeding 5mm and surround to cable. Rate applicable for cable uplifting works	m	2.89		-
5.103	Extra over to lay, position and tie cable/s properly on cable supports equal to or less than 35mm in diameter above a height of 1.5 metres from existing ground level.	m	1.24		-
5.104	Extra over to lay and position properly cable/s on cable supports equal to or less than 35mm in diameter in a culvert.	m	1.24		-
5.105	Lay and position properly cable/s greater than 35mm in diameter but less than 80mm in diameter including the provision and laying of two layers of 80mm thick fine hard crushed stone (sand) with particle size not exceeding 5mm and surround to cable. Rate applicable for cable uplifting works.	m	3.52		-
5.106	Extra over to lay, position and tie cable/s properly on cable supports greater than 35mm in diameter but less than 80mm in diameter above a height of 1.5 metres from existing ground level.	m	3.35		-
5.107	Extra over to lay and position properly cable/s on cable supports greater than 35mm in diameter but less than 80mm in diameter in a culvert.	m	3.35		-
5.108	Lay and position properly cable/s greater than 80mm diameter, including the provision and laying of two layers of 80mm thick fine hard crushed stone (sand) with particle size not exceeding 5mm and surround to cable. Rate applicable for cable uplifting works	m	4.12		-
5.109	Extra over to lay and position properly cable/s on cable supports greater than 80mm in diameter in a culvert.	m	5.50		-
5.110	Laying of earth mat, covering with 250mm thick layer of sieved soil and watering. The rate shall include the cost for the laying of earth mat both along the trench and down into the earth holes as requested by the Engineer or his representative. The rate shall include the cost for transport, mixing and pouring of low resistance earth interface such as Bentonite when required by Erenalta Engineer or his representative. The rate to lay the earth mat is per linear metre irrespective of the number cores and the plane at which it is laid.	m	2.61		-
5.111	Cable laying, extending and bolting of earth conductor in culvert.	m	3.02		-
	carried forward				-
ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
	brought forward				0.00
5.112	Drawing of cable equal to or less than 35mm diameter through pipes	m	3.02		-
5.113	Remove and re-lay of cover slabs weighing up to 50 kilograms on top of culvert and to leave it as it was found.	nr	2.06		-
5.114	Remove and re-lay of cover slabs weighing greater than 50 kilograms on top of culvert and to leave it as it was found.	nr	6.87		-
	<u>Warning Slabs</u>				
5.115	Supply, transport and lay concrete or franka cable warning slabs. The rate to lay slabs is per linear metre of each row of slabs laid.	m	1.37		-
5.116	Supply, lay and spread evenly a layer of sand in trench and/or joint bay/s over and above the 16cms thickness mentioned in item B1 where require but not more than 30cm thick.	cu.m	13.30		-

	<u>Transportation</u>				
5.117	Load, transport and unload Enemalla cables/s, not exceeding 2(two) tonne in weight.	Tonne	27.49		-
5.118	Load, transport and unload Enemalla cables/s, exceeding 2(two) tonne in weight.	Tonne	27.49		-
5.119	Extra over on Items (L.1 to L.2) when this work is carried out after normal working hours including Saturdays, Sundays and Public Holidays.	Tonne	13.74		-
	<u>Miscellaneous</u>				
5.120	Transport, lay, fix and align 50mm or 100mm or 150mm diameter UPVC pipes including gluing, and the supply and placing of draw wire when necessary.	m	1.24		-
5.121	Boring of holes for stay rods 1.2m x 5cms including grouting.	nr	32.98		-
5.122	Boring of earth holes for earth rods not exceeding (8m)deep including grouting.	nr	76.96		-
5.123	Boring of earth holes for earth rods (more than 6m but equal to or less than 50m deep) including grouting	m	18.14		-
5.124	Boring of earth holes for earth rods (more than 50m deep) including grouting.	m	22.54		-
5.125	Load, transport, level and install in position feeder pillar.	nr	123.69		-
5.126	Load, transport, level and install in position cable hangers up to 4(four) hole-fixing	nr	9.62		-
TOTAL CARRIED TO SUMMARY SHEET					-
ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
5.201	<u>Potable water mains network</u>				
5.202	Collect and transport from WSC stores, lay and connect ductile iron cement lined pipes as instructed by the Engineer-in-Charge. Pipes of the following diameters:				
a.	63mm	m	1.85		-
b.	80mm	m	2.91		-
c.	100 mm	m	2.91		-
d.	150 mm	m	4.66		-
e.	250 mm	m	5.82		-
f.	300 mm	m	7.45		-
g.	350 mm	m	9.08		-
h.	400 mm	m	9.08		-
i.	450 mm	m	9.43		-
j.	500 mm	m	13.98		-
k.	600 mm	m	13.98		-
5.203	Collect and transport from WSC stores, and connect any ductile iron fittings (sluice valves, butterfly valves, air valves, fire hydrants, control valves, flanged pipes, bends and meters etc) instructed by the Engineer-in-Charge. Fittings of the following				
a.	63mm	No	3.49		-
b.	80mm	No.	9.90		-
c.	100 mm	No.	9.90		-
d.	150 mm	No.	11.65		-
e.	250 mm	No.	27.95		-
f.	300 mm	No.	27.95		-
g.	350 mm	No.	27.95		-

h.	400 mm	No.	46.59		-
i.	450 mm	No.	46.59		-
j.	500 mm	No.	46.59		-
k.	600 mm	No.	46.59		-
	<u>Installation of water house services</u>				
	POLYETHYLENE PIPES AND FITTINGS PROVIDED BY WSC.				
5.204	Excavation around pipe perpendicular to the trench for installation of tapping (Installation of tapping by WSC)	No.	16.31		-
5.205	Installation of tapping ferrule on water mains	No.	2.33		-
5.206	Excavate trench by pneumatic hammer for house service from main to house frontage including carting away of material from site. Cut bituminous road surface to its full depth (on both sides of trench) with straight edges parallel to line of trench. Rates to include for edge sealants for any extra length of cut. Collect, transport and lay PE (polyethylene) pipes for house service inclusive of fittings. Pipes and fittings to be collected from WSC's stores. Collect from WSC stores, transport and place stop cock covers. Rate to include for the construction of stopcock chamber and fixing of frame for stopcock cover. Chase in wall along consumer's premises and plaster after installation of service pipe. Supply, ram and compact lean concrete (as per Series 2600, Clause 2603) around water main up to support pipe and to road formation level over trench/pits for house service.	lm	16.31		-
	carried forward				-
ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
	brought forward				0.03
5.207	Shifting of water meters (excluding pipework)	No.	11.65		-
5.208	Connection to existing mains (Taghqedda) Rate covers work on pipe work only and does not include for any excavation, backfilling, dumping charges and the provision of fittings which shall be paid for separately under the respective items				
a.	80mm	No.	50.00		-
b.	100mm	No.	50.00		-
c.	150mm	No.	50.00		-
d.	250mm	No.	75.00		-
e.	300mm	No.	75.00		-
f.	350mm	No.	150.00		-
g.	400mm	No.	150.00		-
h.	450mm	No.	150.00		-
i.	500mm	No.	150.00		-
j.	600mm	No.	150.00		-
5.209	Extra over existing rates for installation of house services to allow for additional work involved in pipe sleeving of house services	lm	3.66		-
	<u>Temporary water supply</u>				
5.210	Collect from WSC stores, lay, install and connect to existing water services temporary PE water main above ground and disconnection of existing temporary supply on completion (PE pipes and fittings provided by WSC)	No.	6.99		-
5.211	Excavate for connection or disconnection of existing network connection of temporary water main, backfill and reinstate in temporary reinstatement.	No.	39.60		-
5.212	Excavate pit, blank off existing tapping etc.	No.	39.60		-

TOTAL CARRIED TO SUMMARY SHEET					
ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
5.301	Waste water network				
5.302	Collect from WSC stores, deliver to site, lay, align, level and join 200mm diameter pipes in trench as directec	m	5.12		-
5.303	Connection to existing sewer manhole including rendering/sealing of connection	No.	116.47		-
5.304	Provision of a CCTV report and video evidence of the newly constructed main sewers complete with photographs of each manhole constructed. These are to be presented to the Engineer	m	6.99		-
5.305	Repair/connect to newly lay main sewer, broken (or new) household connections. Rate is to include all necessary fittings, accessories, pipes and supply and laying of concrete and backfilling	No.	349.41		-
5.306	Supply and lay saddles to connections	No.	34.94		-
5.307	Supply and lay Y-branches to connections	No.	50.33		-
	uPVC pipes and fittings in trench				
5.308	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN2 SDR 51 with the following dimensions:				
a	200mm diameter	l.m.	21.81		-
b	250mm diameter	l.m.	25.84		-
c	300mm diameter	l.m.	26.76		-
d	350mm diameter	l.m.	35.26		-
e	400mm diameter	l.m.	50.58		-
f	450mm diameter	l.m.	51.51		-
g	500mm diameter	l.m.	52.96		-
5.309	Supply, transport and lay in proper gradient and alignment in trench uPVC pipes and fittings with suitable approved joints, manufactured to BS EN 140-1:1998 Type UNI 303/2 and with Class Rigidity SN4 SDR 51 with the following dimensions:				
a	125mm diameter	l.m.	6.27		-
b	150mm diameter	l.m.	8.19		-
c	200mm diameter	l.m.	23.32		-
d	250mm diameter	l.m.	27.62		-
e	300mm diameter	l.m.	28.61		-
f	400mm diameter	l.m.	54.06		-
g	500mm diameter	l.m.	56.61		-
h	600mm diameter	l.m.	77.12		-
i	700mm diameter	l.m.	110.86		-
j	800mm diameter	l.m.	151.82		-
k	1000mm diameter	l.m.	187.97		-

ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
8.000	FOOTPATH CONSTRUCTION & REINSTATEMENT WORKS				
8.001	Supply, lay, bed, back and point 255mm high, precast concrete kerbs, 1000mm long, laid straight or curved exceeding 12m radius. Bedding and backing to be insitu unreinforced concrete grade C15. RCD 1100/1	l.m.	11.00		-
8.002	Cast in-situ C20 concrete gutter 200mm wide x 150mm deep. Rate is to include for all necessary formwork.	l.m.	4.00		-
8.003	Supply and lay 100mm thick, in-situ, C20 concrete mix in footways. Rate is to include for the formation of expansion joints at 5m centres, brush finish, & the necessary supply and compaction of infill material. RCD 1100/5	sq.m.	9.52		-
8.004	Supply, Transport & Lay 300x300mm PVC junction boxes in footpaths, including C15 concrete Surround	No.	21.00		-
	<u>Reinstatement and Kerb</u>				
8.005	Carefully remove existing pavement flagstones/ slabs / blocks / tiles, stacking of same for later re-use and relaying same to proper alignment and levels following water service laying and connection. Rate inclusive of bedding, preparation and grouting. No extra payment shall be made for the supply of any damaged slabs or blocks or tiles to reinstate pavement to match existing	sq.m.	11.65		-
8.006	Supply and lay pavement to match existing and to proper alignment and levels following water service laying and connection. Rate inclusive of bedding, preparation and grouting:				
a.	concrete tiles (grey type)	sq.m.	16.31		-
b.	concrete tiles (colour type)	sq.m.	17.47		-
c.	concrete blocks (grey type)	sq.m.	22.13		-
d.	concrete blocks (colour type)	sq.m.	24.46		-
e.	softstone franka slab	sq.m.	20.96		-
8.007	Laying and grouting of:				
a.	hardstone paving	sq.m.	44.00		-
b.	lava (pedestrian)	sq.m.	35.75		-
c.	lava (vehicular)	sq.m.	47.00		-
d.	porfido	sq.m.	41.25		-
8.008	Supply and lay stencil-crete	sq.m.	29.00		-

ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
10.000	ANCILLARY ITEMS				
10.001	C15 concrete infill to precast concrete hollow block walls (per skin)	sq.m	5.00		-
10.002	Extra over for increase in Concrete Grade	cu.m	11.65		-
10.003	C15 concrete infill to cavities & around blocks.	cb.m.	70.00		-
10.004	Extra Over for Ashlar Masonry Finish (Fuq il-Fil)	sq.m	5.00		-
10.005	Supply and lay DPC	sq.m	7.00		-
10.006	Supply and lay plastic sheeting	sq.m	0.80		-
10.007	Supply and lay C25 concrete coping including throating, and drip checks. Rate is to include all necessary formwork, RCD 2400/1to10	cu.m	260.00		-
10.008	Sand-Cement pointing of Joints	sq.m	4.60		-
10.009	Sand-Cement based rendering to surfaces (4mm thick)	sq.m	4.50		-
10.010	Rake out joints of exposed surfaces of blockwork walls to a depth of not less than 15mm, point with cement / sand mortar to a neat flush joint. Render surface in two layers of cement sand mortar and including proprietary water-proofing additive.	sq.m	4.00		-
10.011	Supply, transport, lay, and finish off for all concrete works of the following grades:				
a	C 10	cu.m	51.73		-
b	C 15	cu.m	72.42		-
c	C 20	cu.m	82.77		-
d	C 25	cu.m	93.11		-
e	C 30	cu.m	103.46		-
f	C 35	cu.m	113.80		-
	<u>Reinforcement</u>				
10.012	Supply, cut, bend, and fix reinforcement bars detailed as per specifications:				
a	T32	kg	1.40		-
b	T25	kg	1.40		-
c	T20	kg	1.40		-
d	T16	kg	1.40		-
e	T12	kg	1.40		-
f	T10	kg	1.40		-
g	R12	kg	1.40		-
h	R10	kg	1.40		-
10.013	Supply and lay BRC Mesh Fabric including overlap, detailed as per specifications.				
a	A98	sq.m	5.60		-
b	C503	sq.m	6.80		-
10.014	Provide, erect and strike down formwork for framework foundation.	sq.m	15.50		-

ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
11.000	ASPHALT ROAD PAVING WORKS AND TRENCH REINSTATEMENT				
	<u>Black Top Reinstatement over trenches</u>				
11.001	Cut bituminous road surface to its full depth with straight edges parallel to line of trench. Rates to include for edge sealants	lm	1.15		-
11.002	Surface cold milling over trench/pits to bring to formation level and load and cart away material to approved dumping site including dumping charges.	sq.m	3.30		-
11.003	Supply and lay 80mm 0/19 mm for Base Wearing Course hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m	21.32		-
11.004	Supply and lay 100mm 0/19 mm for Base Wearing Course hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m	24.00		-

11.005	Supply and lay 120mm hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs in two layers (i) 0/25 mm for Base Course 80mm thick and (ii) 0/12.5 mm for Wearing Course 40mm thick up to a width of 1499mm. Rate to include for the required mix bitumen and for the painting of the vertical edges of any joints with hot bitumen. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m	29.77		-
11.006	Supply, transport and lay cold asphalt paving mixture in accordance to specifications and approved mix designs. Rate is to include for the necessary bitumen emulsion required as per approved mix design. Cold Asphalt any thickness in carriage way, hard shoulder and hardstrip. Regularity: 4mm, 4m straight edge. Cross slope: +/- 0.4% of required cross slope	cu.m	165.00		-
11.007	0/12.5 mm for Wearing Course 50mm thick for minor patching works to approved mix design, in carriage way, hard shoulder and hardstrip. Rate included surface cold milling and carting away of the resulting material from site, the painting of the vertical edges of any joints with hot bitumen and the supply and spraying of tack coat. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the required level and 4m straight edge	sq.m	12.00		-
carried forward					
ITEM	DESCRIPTION	UNIT	RATES	QTY	AMOUNT
brought forward					0.00
11.008	Supply premixed asphalt surface repair material in 25kg Bags	No.	4.00		-
11.009	Supply premixed asphalt surface repair material in bulk	to	85.00		-
<u>Asphalt road paving works and wide trench reinstatement</u>					
11.010	Supply, transport and lay hot dense bituminous paving mixture in accordance to ASTM D3515 and approved mix designs. Rate is to include for the necessary bitumen required as per ASTM D3515 and approved mix design, and the painting of the vertical edges of any joints with hot bitumen				
11.011	0/25 mm for Base Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 10mm of the req'd level and 4m straight edge	sq.m	15.50		-
11.012	0/19 mm for Binder Course 60mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 6mm of the req'd level and 4m straight edge	sq.m	12.50		-
11.013	0/12.5 mm for Wearing Course 40mm thick in carriage way (using imported aggregate), hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the req'd level and 4m straight edge. Cross slope: +/- .4% of the required cross slope	sq.m	10.15		-
11.014	0/12.5 mm for Wearing Course 40mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 97% (Marshall Spec 50 blows EF) Regularity: + 4mm of the req'd level and 4m straight edge. Cross slope: +/- .4% of the required cross slope	sq.m	8.20		-

11.015	Compaction degree: 97%(Marshall Spec 50 blows EF) Regularity: + 4mm of the req'd level and 4m straight edge Cross slope: +/- 4% of the required cross slope	0/12.5 mm for re	sq.m.	11.63		-
11.016	Compaction degree: 97%(Marshall Spec 50 blows EF) Regularity: + 4mm of the req'd level and 4m straight edge Cross slope: +/- 4% of the required cross slope	0/19 mm for Base	sq.m.	9.30		-
11.024	0/19 mm for Base Wearing Course 80mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the req'd level and 4m straight edge		sq.m.	16.36		-
11.025	0/19 mm for Base Wearing Course 100mm thick in carriage way, hard shoulder and hardstrip. Compaction degree: 96% (Marshall Spec 50 blows EF) Regularity: + 10mm of the req'd level and 4m straight edge		sq.m.	20.45		-
11.026	Working around and modifying projections.		no.	31.00		-
11.027	Cut into existing HRA as squaring off using rotary saw.		l.m.	3.00		-
11.028	Supply and spray tack coat		sq.m.	0.40		-
11.029	Sweeping of road surface and carting away of resulting material		sq.m.	2.00		-

Roads and Infrastructure Directorate
**Analysis of impact of revision to current
Framework Rates**
20 September 2012
DRAFT

SUMMARY OF RESULTS

Summary of results

- The total project cost of the 120 projects reviewed amounted to Eur8.6million.
- The total cost of the BOQ items reviewed amounted to Eur4.7million, which represents c:55% of the total project cost.
- A summary of the total cost by item indicates that items 2x and 11x are commonly used and represent a large portion of the total cost of a project.

Summary of total project cost of files reviewed

Projects Reviewed	Total project cost *	Cost of items reviewed	% of total cost
120	8,588,007	4,737,108	55%

* Total Project cost as per contract BOQ

Summary of cost by BOQ item

BOQ Item	Total - Euro	%
2.x	1,214,979	26%
3.x	70,407	1%
5.x	128,197	3%
8.x	352,544	7%
10.x	527,488	11%
11.x	2,443,492	52%
Total	4,737,108	100%

Summary of results (2)

- Applying the PwC validated rates to the BOQ quantities would increase their overall cost by c.Eur2.3million, representing a 48% increase on the current value.
- The majority of the increase is driven by items 2x (oversite excavation) and 11x (asphalting) which generate an increase of Eur0.8 and Eur0.9 respectively.

Analysis of increase by item with proposed rates

BOQ Item	Current Rate	Revised Rate	Increase	+ %	% of total
2.x	1,214,979	2,051,445	836,465	69%	37%
3.x	70,407	121,703	51,296	73%	2%
5.x	128,197	277,953	149,756	117%	7%
8.x	352,544	500,653	148,109	42%	7%
10.x	527,488	730,366	202,879	38%	9%
11.x	2,443,492	3,321,715	878,223	36%	39%
Total - €	4,737,108	7,003,836	2,266,727	48%	100%

Summary of results (3)

- As a result the total project cost would increase from Eur8.6million to Eur10.8million - an increase of c.26% on the current project value.

Impact on total Project Cost

	Current Proj. Cost	Revised Proj. Cost	Increase	% Increase
Total - €	8,588,007	10,854,734	2,266,727	26%

- Details on the rates used in this assessment can be found in Appendix 1, whilst Appendix 2 includes an analysis of the increase by item.

Appendix E – Summary of NAO’s Interpretive Study on the External Consultant’s Validated Rates

Summary of NAO’s Interpretive Study on the External Consultant’s Validated Rates														
				Number of Reviewed Contracts	Actual Total Contract Value	Total Contract Value (without Emergency Mark-up - 14.00%)	ACTUAL % INCREASE PAID BY BIC	Total Remaining W.J.C. (without Emergency Mark-up)						
				45	4,273,528.95	2,916,765.92	46.52%	329,813.02						
Total 2.010	Total 2.020	Total 3.010	Total 3.020	Total 5.308	Total 5.309	Total 8.003	Total 10.011 (a-f)	Total 11.011	Total 11.012	Total 11.013	Total 11.014	Total 11.024	Total 11.025	
6,808.30	123,952.87	12,504.91	0.00	0.00	130.73	601.60	17,269.73	162,204.89	359,224.43	1,641,801.65	0.00	11,230.52	0.00	
% Weight of Total 2.010 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 2.020 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 3.010 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 3.020 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 5.308 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 5.309 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 8.003 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 10.011 (a-f) w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 11.011 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 11.012 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 11.013 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 11.014 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 11.024 w.r.t. Total Contract Value (without Emergency Mark-up)	% Weight of Total 11.025 w.r.t. Total Contract Value (without Emergency Mark-up)	
0.23%	4.25%	0.43%	0.00%	0.00%	0.00%	0.02%	0.59%	5.56%	12.32%	56.29%	0.00%	0.06%	0.00%	
% Weight of Total Contested Items in W.J.C.2 w.r.t. Total Contract Value (without Emergency Mark-up)				% Weight of Contested W.J.C.s (part 2s and 11s w.r.t. Total Contract Value (without Emergency Mark-up)				% Weight of Total Contested Items in W.J.C.11 w.r.t. Total Contract Value (without Emergency Mark-up)						
4.48%				1.05%				74.17%						
External Consultants’ Validated % Price Increase w.r.t. 2.010	External Consultants’ Validated % Price Increase w.r.t. 2.020	External Consultants’ Validated % Price Increase w.r.t. 3.010	External Consultants’ Validated % Price Increase w.r.t. 3.020	External Consultants’ Validated % Price Increase w.r.t. 5.308	External Consultants’ Validated % Price Increase w.r.t. 5.309	External Consultants’ Validated % Price Increase w.r.t. 8.003	External Consultants’ Validated % Price Increase w.r.t. 10.011 (a-f)	External Consultants’ Validated % Price Increase w.r.t. 11.011	External Consultants’ Validated % Price Increase w.r.t. 11.012	External Consultants’ Validated % Price Increase w.r.t. 11.013	External Consultants’ Validated % Price Increase w.r.t. 11.014	External Consultants’ Validated % Price Increase w.r.t. 11.024	External Consultants’ Validated % Price Increase w.r.t. 11.025	
81.55%	50.69%	67.48%	72.12%	13.91%	51.79%	33.82%	35.24%	25.48%	18.00%	31.03%	22.56%	22.25%	22.20%	
% Increase in Total Contract Cost when 2.010 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 2.020 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 3.010 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 3.020 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 5.308 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 5.309 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 8.003 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 10.011 (a-f) is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 11.011 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 11.012 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 11.013 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 11.014 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 11.024 is applied with External Consultants’ Validated Increase	% Increase in Total Contract Cost when 11.025 is applied with External Consultants’ Validated Increase	
0.19%	2.15%	0.29%	0.00%	0.00%	0.00%	0.01%	0.21%	1.42%	2.22%	17.47%	0.00%	0.00%	0.00%	
% INCREASE ON CONTRACT PRICES WHEN EXTERNAL CONSULTANTS’ REVISION OF PRICES IS APPLIED														
23.95%*														
% INCREASE ON CONTRACT PRICES WHEN POTENTIAL OUTSIDE OF NORMAL WORKING HOURS COSTS (at double rate) ARE APPLIED														
8.49%*														
TOTAL % INCREASE ON CONTRACT PRICES WHEN APPLYING EXTERNAL CONSULTANTS’ VALIDATED INCREASES AND OUTSIDE OF NORMAL WORKING HOURS COSTS AT DOUBLE HOURLY RATE														
32.45%*														
ACTUAL BILLED TOTAL CONTRACT PRICE							TOTAL CONTRACT PRICE IF EXTERNAL CONSULTANTS; VALIDATE INCREASES + NAO’S ESTIMATION OF OUTSIDE OF NORMAL WORKING HOURS COSTS ARE INCLUDED							
€4,273,528.95*							€3,863,158.59*							
EXCESS PAYMENTS (DUE TO THE UTILISATION OF THE 50% MARK-UP PERMISSIBLE UNDER THE EMERGENCY CLAUSE) SINCE THE INTRODUCTION OF THE FA														
€410,370.35*														

(*Figures are rounded to two decimal places)

Recent NAO Publications

NAO Audit Reports

February 2012	Performance Audit: Safeguarding Malta's Groundwater
March 2012	Performance Audit: Employment Opportunities for Registered Disabled Persons
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July 2013	Performance Audit: An Analysis of the Effectiveness of Enemalta Corporation's Fuel Procurement
September 2013	Performance Audit: Enforcement Action by MEPA within the Outside Development Zone
November 2013	An Analysis of the National Lotteries Good Causes Fund

NAO Work and Activities Report

January 2013	Work and Activities of the National Audit Office 2012
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