Technical Supervision and Reporting



Guidelines for Technical Supervision and Reporting

Table of Contents

1 Introduction 1
1.1 Background 1
2 Technical Supervision 1
2.1 Inspection and Testing of Works 1
2.2 Records 3
2.2.1 General 3
2.2.2 Contract Documents 3
2.2.3 Record Drawings 3
2.2.4 Site Diary 4
2.2.5 Progress Record 4
2.2.6 Site Instructions 4
2.2.7 Minutes of Meetings and Correspondence 4
2.2.8 Record Photographs 4
2.2.9 Request for Inspection and Survey Check 5
2.2.10 Materials Testing 5
2.2.11 Miscellaneous Records 5
3 Site Meetings 6
3.1 Frequency 6
3.2 Typical Topics 6
3.3 Records 7
4 Safety 7
4.1 Responsibility 7
4.2 Contractor's Safety Organisation 8
4.3 Checking of Temporary Works 8
4.4 Reporting of Site Incidents and Accidents 8
4.5 Construction Site Safety Manual 9
4.6 Site Safety Cycle 9
4.7 Safety Training 10
5 Environmental Safeguards 10

5.1 Environmental Management Plan 10
5.2 Air Quality 11
5.3 Water Quality 11
5.4 Waste Management 11
5.5 Noise Control 11
5.6 Vibration Control 11
5.7 Protection on Existing Streams or Rivers 12
5.8 Environmental Management 12
6 Implementation Plan, Progress and Expenditure 12
6.1 Contractor's Implementation Plan at Commencement 12
6.2 Updating and Revision of Works Implementation Plan 13
7 Procedures on Completion of Works 13
7.1 Prior to Issue of Taking-over Certificate 13
7.1.1 Test on Completion 13
7.1.2 Testing and Commissioning 14
7.1.3 Taking-Over Certificate 14
7.1.4 Handing-Over Completed Works (Provisional Handover) 14
7.1.5 Outstanding Works 15
7.1.6 Working During the Defects Notification Period 15
7.2 Post completion (Final Handover) 15
7.2.1 Project Completion Report 15
8 Technical Reporting 17
8.1 General Requirements of Technical Reporting 17
8.2 Ability to Deep-Dive into Detail 17
8.3 Level of Redundant Input 17
8.4 Amount of Manual Adjustments 18
8.5 Relative Size of Variances 18
8.6 Number of Discrepancies 18
8.7 Clearly Defined Objectives and Purpose 18
8.8 Usefulness for Decision-Making 18
8.9 Usefulness and Ease of Understanding 19
8.10 Ability to Satisfy Regulatory Requirements 19
8.11 Reporting Layout, Timing and Distribution 19

8.12 Report Types and Formats 19
8.13 General Content of Technical Report 19
8.13.1 Project General Information 20
8.13.2 Project Presentation 20
8.13.3 Work Progress 20
8.13.4 Works Inputs 20
8.13.5 Timeliness 20
8.13.6 Financial Status 21
8.13.7 Environmental & Socio Aspects 21
8.13.8 Safety 21
8.13.9 Book Keeping 21
8.13.10 Summary and Recommendations 21
9 Annexes 1
9.1 Request for Inspection Form 1
9.2 Inspection and Test Plan (ITP) Form 2
9.3 Foundation Settlement Recording Form 3

TABLES

Table 1: Site meetings organisation 7
Table 2: Sample summary of final account 16

MODIFICATION HISTORY

Version	Date	Authors	Summary of Changes
V0	08/09/2021	Joseph Désiré TWUBAHIMANA	Original version
		Innocent Mupenzi	Original version

ABBREVIATIONS

Abbreviation	Description
BoQ	Bill of Quantity
DCM	Daily Coordination Meeting
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EWS	Engineering Works Schedule
H	Holdpoint
ITP	Inspection Test Plan
KfW	KfW Development Bank
LODA	Local Administrative Entities Development Agency
MPM	Monthly Progress Meeting
PPE	Personal Protection Equipment
RDB	Rwanda Development Board
RIF	Request for Inspection Form
S	Surveillance
ToR	Terms of reference
V	Verification
W	Witness
WPM	Weekly Progress Meeting

1 Introduction

1.1 Background

An infrastructure project can fail for many reasons and one contributing factor can be ineffective project reporting systems. Yet implementing an effective project reporting system is also one of the most difficult project management challenges.

Project reporting requires coordinated information and integration from all project phases and construction activities, ranging from initiation and planning to project closeout and commissioning.

No organisation can afford to prepare and produce project reports in a reactive manner. Governing boards, shareholders, and regulators establishing high standards for project performance in order to help ensure that project are delivered on time, within budget, and to the expectations established by the project's stakeholders. To help accomplish this goals, projects should implement project reporting systems tailored to their own industry, while meeting the reporting needs of the project.

Major infrastructure projects, with significant budget, can require years of planning, design and construction. Projects of this magnitude require not only a team of experienced professionals, but also a set of extensive resources, tools and systems. Major projects have a large volume of data and complex data sources and need a project management infrastructure capable of supporting the extensive regulatory, financial, management and other stakeholder reporting requirements.

2 Technical Supervision

The construction of even a small building or for any other civil engineering work involves so many specialized skills and trades that works often cannot be undertaken by a single construction firm. Instead, the work is generally done by a team consisting of the general contractor and a number of specialty subcontractors (in some cases).

The general contractor's own work may be limited to certain components of the project (such as the structural components, load-bearing walls, reinforced concrete beams and columns, and roof and floor slabs), with all the remaining work subcontracted.

In general the supervisor will follow and report on the following construction parameters.

2.1 Inspection and Testing of Works

The supervisor personnel shall at all reasonable times:

- Have full access to all parts of site and to all places from which natural materials are being obtained.

- During production, manufacture and construction (at site and elsewhere), be entitled, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of plant and production and manufacture of materials.

The contractor shall give the supervisor's staff full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the contractor from any obligation or responsibility.

The contractor shall give notice to the supervisor whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The supervisor shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the contractor that the supervisor does not require to do so.

Except as otherwise specified in the contract, the contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials , and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The contractor shall agree, with the supervisor, the time and place for the specified testing of any plant, materials and other parts of the works.

The supervision staff should communicate with the contractor at daily coordination meeting for the schedule of inspection and testing for coming days. When more than two inspections and / or testing are demanded at the same time, the supervisor's staff should make arrangements with the contractor the order of inspection and / or testing minimizing the adverse influence on the project.

The supervisor's staff should also monitor the construction progress closely, maybe refer to the contractor's three month rolling programme, and manage by themselves to be fully aware the method of inspection/testing, acceptance criteria and other requirements for coming inspection and testing as scheduled.

The **"***inspection test plan*" is the most essential document for control the quality of the works, which usually be prepared by the contractor and the supervisor will review the contractors inspection test plan (ITP) carefully and make sure the ITP covers all requirements in the specification. Further it should be linked between "*Engineering Works Schedule*" (EWS) without inconsistencies.

Sample forms of inspection and test plan are basically required to include and identify the followings:

- The sequence of inspection and testing activities
- The inspection and testing requirements of either activities or materials
- The acceptance criteria or relevant specification
- The level of inspection required including the provision for witnessing by supervisor
- Any certification requirements or records to be kept.

For the *item*: The level of inspection required including the provision for witnessing by supervisor; control points are defined as follows:

- Hold point (H): approval shall be obtained before subsequent operations proceed. Request for inspection form to be submitted to party before inspection and test is performed.
- Witness (W): request for inspection form to be submitted to party for witnessing the test and for confirming that the results are correctly recorded.
- Verification (V): make sure that the required inspection and test is completed and records demonstrating compliance with the specified requirements exist where appropriate.

- Surveillance (S): continual monitoring and / or analysis of the inspection and test records to ensure that specified requirements have been fulfilled.

The "*Request for Inspection Form"*: Requests for inspection forms are prepared, the form has a cell for entering inspection and test points, specified in the inspection and test plan, which are corresponding to the inspection and test conducted on site requested by the request for inspection forms, for better traceability of the records.

The engineer should assign a quality record controller in his office, who is responsible for not only collecting and maintaining the quality records, but also he / she examines the quality records are processed according to the ITP and monitors no missing inspection and testing occur.

2.2 Records

2.2.1 General

The keeping of good comprehensive records is very important. Records serve three basic purposes:

- They provide information for the administration of the contract, and in particular, for the evaluation of work done for payment.
- They provide the management with necessary information on progress, the level of resources and the condition of the works, on which engineering and management decisions may be based.
- They provide information on the history of the works, so that facts are available for the evaluation of claims or resolution of disputes should these arise.

2.2.2 Contract Documents

A copy of the signed contract documents, including a set of the original contract drawings should always be kept in the site office. The supervisor's staffs should make a list of the document and update regularly if any.

2.2.3 Record Drawings

A set of drawings should be kept separate from the set of original contract drawings, the latter being kept intact for reference only. To ensure the building up of a comprehensive set of record drawings as the works proceed, the following should be observed:

- A set of drawings comprising the contract drawings and one copy of all revised drawings and additional drawings issued to the contractor shall be designated for record purposes.
- Where the as-constructed work deviates from the drawings, the as-built details should be recorded as soon as possible and marked in red ink on the relevant drawings in the set to record exact dimensions and positions of the finished work.

- Where details of the finished work are the subject of a record survey, either a copy of the survey plan produced should be kept in the set or the results of the survey should be abstracted and incorporated into the relevant drawings.

2.2.4 Site Diary

The site diary is one of the most important records for the contract, its primary aim being to record facts. It should therefore contain an accurate and concise record of the progress of work, plant and labour employed, weather and site conditions, and any occurrences which affect the progress and / or quality of the work, including the extent to which they are affected. In addition, comments on causes of delays and disruptions to normal progress should be noted where appropriate.

2.2.5 Progress Record

The site engineer shall coordinate his staff to record the progress apart from the as-built progress filled in the works programme which shall be submitted to the supervisor as the constructor's monthly report. Then the supervisor should compare with both progress records in order to bring up-to-date every month. There must be some discrepancy between the records, the supervisor shall discuss and agree with the contractor to confirm the discrepancy and correct.

2.2.6 Site Instructions

Instructions given to the contractor on site should be issued on the standard for "*Site instruction*". The form may also be issued by the supervisor's staffs, with delegated authority. However, it should not be used for ordering variations where the standard form "supervisor's instruction" should be employed for such circumstances.

2.2.7 Minutes of Meetings and Correspondence

Minutes of meetings with the contractor, including monthly meetings, meetings with utilities, rate fixing meetings etc.. And all correspondence with the contractor will form part of the records of the contract and must therefore be kept in the site engineer's office and stored in conformity with the filing system.

2.2.8 Record Photographs

The main purposes of taking photographs are:

- To provide a visual record of the conditions of the site and surroundings before and during the course of the contract (supplement the photographic survey record of initial survey record prepared by the contractor).
- To record particular features of the work, especially which will later be recorded (such as works progress).

These photographs should be kept together with the following information:

- Date on which the photograph was taken
- Exact location and description of the subject photographed.

2.2.9 Request for Inspection and Survey Check

The standard form "*Request for inspection form*" (RIF) should be used for recording the contractor's request for inspection and / or survey for work performed and the supervisor's permission to proceed with proposed work after inspection/survey of the proceeding stage. The purpose of using this RIF standard form is to improve communications on site and provide a record of sequence of events. The supervisor should respond to the contractor's request for inspection expeditiously.

2.2.10 Materials Testing

Tests required in the project shall be carried in accordance with latest version of approved inspection and test plan (ITP) and the test reports should be printed, inspection and testing point (I&T point) numbers corresponding to each test scheduled in the ITP. Records of test on materials used in the contract should be kept by the supervisor according to I&T Point.

2.2.11 Miscellaneous Records

2.2.11.1 Record for Soil and Rock Conditions

Full records should be kept of the soil and rock conditions as the works progress, apart from their importance during construction in respect of the method of working, conformation of original design, safety, progress evaluation etc.. Records will be of great value for future maintenance of the works and also for planning future works in the vicinity.

2.2.11.2 Settlement and Movement Records

These should be carefully planned at an early stage, particularly for works where settlement/movement is expected. The surveyor should be consulted to devise a method for monitoring and recording the movements efficiently.

2.2.11.3 Concrete Casting Records

A record should be kept of the location, date, time, grade, approximate quantity, test cube reference numbers, and supplier (if more than one source) of each concrete pour. Where a structure is cast in more than one operation, the sequence of casting should also be recorded. This types of record will be particularly useful in the subsequent identification of materials in a structure should it be necessary to investigate the extent of non-complying materials.

2.2.11.4 Bar Bending Schedules

These are required for all works with reinforced concrete construction. Schedules should be prepared on the standard for. All bar bending schedules should be kept in the site office with reinforced concrete drawings. They should be updated in the same manner as record drawings. It should be noted that bending schedules shall be prepared by the contractor and drawings. It should be noted that bending schedules shall be prepared by the contractor and drawings, it should be noted that bending that bending schedules shell be prepared by the contractor and submitted to the supervisor for approval before bending of reinforcements starts.

2.2.11.5 Record of Materials on Site

A record of materials delivered to site should be kept to enable the supervisor to certify interim payment regarding the materials on site. This record should include separate sections for each type of material, listing the quality delivered, date of delivery, (and time of delivery when appropriate), together with such information as delivery tickets, trucks numbers and any other useful data. The format of the record should be agreed with the contractor prior to delivery of materials on site.

3 Site Meetings

3.1 Frequency

Site meetings should be called and chaired by supervisor once a week and month, named weekly progress meeting and monthly progress meeting respectively, and ad-hoc meetings as required.

Daily coordination meetings should be held every day at each works areas or sections and chaired by the site engineer and / or inspectors. The supervisor's staffs should try to manage daily coordination meetings finishing in a short time, in order to do so, they are requested to prepare the materials in advance, such as agenda, previous meeting minutes, etc.

3.2 Typical Topics

Typical topics discussed during the meeting should include progress and programme of the works, site supervision, and site resources including labour and plant, workmanship, materials, inspection and testing and site safety.

Table 3: Site meetings organisation

Meetings	venue	Chaired by	Attendance	addenda
Daily coordination meeting (DCM)	Site offices	Site engineer	Consultant and contractors' site staff	Daily progress, works for tomorrow , site safety
Weekly progress meeting (WPM)	Consultants office	Supervisor	Representatives from each party	Progress review , progress forecast
Monthly progress meeting (MPM)	Consultant's meeting office	Supervisor	Representatives from each party	Progress review , progress forecast
Technical meeting	Consultant's meeting office	Supervisor	Technical staff from each party	Solution on technical problems
Ad-hoc meeting	To be announced	To be announced	To be announced	To be announced

3.3 Records

Matters discussed at site meetings should be recorded in the minutes by supervisor's staff. The sequential number of the meetings, date, time, venue and whoever attends should be stated. The minutes of meetings should be sent to all participants for their comment and confirmation. The supervisor should provide reasonable time for the participants to return their comments, if any.

The meeting should be conducted with reference to the minutes of previous meetings and by checking of actions as recorded in the minutes.

4 Safety

4.1 Responsibility

It is the contractor's responsibility to ensure the safety of all persons on site and the general public during execution of the works. The supervisor and his all supervisory staff should encourage the contractor and his workers to use safe methods of working and remind them of the provisions of the safety regulations and relevant regulations.

4.2 Contractor's Safety Organisation

The contractor shall appoint full time safety personnel including a full time safety officer who has adequate experience in the scope of the works. The contactor's safety personnel shall supervise and monitor implementation of a healthy and safety plan.

4.3 Checking of Temporary Works

The contractor is responsible for the design and stability of all temporary works required in the contract.

The supervisor's staff is required to examine the contractor's design details concerning the design, erection, use and removal of the temporary works and shall satisfy himself that it contains no obvious deficiency. In particular, the supervisor's staff is to carry out all necessary checks to ensure that the methods proposed by the contractor do not have a detrimental effect on the permanent works.

Where the requirements for checking, testing or inspecting temporary works have been given in the contract then these requirements are to be implemented and monitored accordingly. In the majority of cases where no such specific requirements are stated, the supervisor's staff should make all checks as appear to be reasonable as to the adequacy of the design and implementation, pointing out any errors or areas of uncertainty that become apparent.

The responsibility for the temporary works remains with the contractor but no work should be commenced until the supervisor has issued his consent in writing upon making such verification.

4.4 Reporting of Site Incidents and Accidents

All accidents causing personal injury, affecting the works or adjacent property, and incidents on or adjacent to the site are to be recorded by the supervisor's staff. An accident is classified as a notifiable accident if:

- It has led to fatality, or
- The victim is in critical condition, or
- The media have arrived on site or have telephoned to ask information concerning the accident.

Then, where practicable, the situation should be extensively photographed. The supervisor's staff should ensure that all evidence and facts are recorded. This must be done as soon after the occurrence of the event as practically possible. When ascertaining and recording the evidence and facts it is necessary to ensure that nothing is said or done which will:

- Suggest that the contractor has been relieved of any responsibilities or liabilities,
- Interfere with the relationship between the contractor and any insurance company, or
- Admit any liability on behalf of government or government employees.

4.5 Construction Site Safety Manual

The contractor shall devise and implement a project specific health and safety plan to fully comply with the requirements of the contract, all relevant enactments, code of practice, safety guidelines, the requirements of the independent risk assessment, project conditions, proposed work activities and relevant international standards.

The Engineer will give approval on the contractor's health and safety plan, the plan shall be reviewed and revised time to time for the improvement.

4.6 Site Safety Cycle

Since the site safety cycle is operated in many countries worldwide, and it is evaluated effective for improvement of construction safety, especially safety awareness of all personnel on site, the supervisor should encourage the contractor to employ the site safety cycle as described below:

A. Daily cycle

- Pre-work exercise and safety meeting (Morning briefing)
- Hazard identification actively meeting (Tool box talk)
- Pre-work safety checks,
- Safety inspection by project manager or his/her representatives,
- Guidance and supervision during work,
- Safety coordination meeting,
- Daily cleaning and tidying up of the site, and
- Checking of the site after each day's work

B. Weekly Cycle

- Weekly safety walk by contractor's representative and safety officer in company with the representatives from each party;
- Weekly meeting attending, and
- Weekly overall cleaning and tidying up of the site

C. Monthly Cycle

- Site safety meeting (including pre-meeting inspection) attending by representatives from each party; and
- Monthly progress meeting.

4.7 Safety Training

The supervisor should ensure that adequate site safety training is provided to his staff, particularly those responsible for the administration and/or supervision of the contract on sites. He/she should prepare and maintain the schedule of safety training for the implementation throughout the contract period.

5 Environmental Safeguards

The contractor shall take all reasonable steps to protect environment (both on and off the site) and to limit damage and nuisance to people and property resulting from population, noise and other results of his operations.

The contractor shall ensure that emissions, surface discharges and effluent form contractor's activities shall not exceed the values stated in the specification or prescribed by applicable laws.

5.1 Environmental Management Plan

The supervisor to review for approval the Contractor's Environmental and Social Management Plan has been prepared complying with the following requirements:

- The contractor will be issued with the employer's Environmental Impact Assessment Report (ESIA). The ESIA shall be regarded as the minimum standard to be achieved but it does not relieve the contractor of any statutory duty.
- The contractor shall take all reasonable precautions to avoid any nuisance arising from the execution of the works. This should be accomplished where at all possible by suppression of nuisance at source rather than abatement of nuisance once generated.
- The provision listed herein regarding environmental protection shall apply to and be binding upon the contractor for any tart of the works on the site and shall apply to and be binding on his subcontractors. The contractor shall ensure that proper and adequate provisions to this end are included in all subcontracts.
- The contractor shall employ appropriate construction methods and carry out the works in a manner as to minimize any adverse impact on air, noise and water quality and the existing environment within or outside any construction sites during the contract.
- The contractor shall submit an Environment and Social Management Plan (ESMP) indicating how they will comply with the contract requirements. The plan shall be properly implemented by the contract during the contract.

Possible environmental damages and mitigation measures are described in the following sections.

5.2 Air Quality

If after commencement of the works of the contractor's equipment and/or method of working are found to be causing serious air pollution impacts, they shall be inspected by the supervisor and remedial proposals shall be drawn up by the Contractor.

5.3 Water Quality

The Contractor shall not discharge directly or indirectly (by runoff) or cause or permit or suffer to be discharged into any public sewer, storm water drain channel, stream course or river, any effect or foul or contaminated water. The Contractor shall provide, operate and maintain within premises or otherwise, suitable works for the treatment and disposal of such effluent or foul or contaminated water.

5.4 Waste Management

The contractor shall be responsible for the control of all waste generated from construction activities, the removal of waste and implementation of any measures to minimize any adverse impact to the environment and public. Where possible the waste shall be separated into recyclable items and hazardous waste shall be disposed of. All disposal of waste, including hazardous waste and recycling, shall be in accordance with the relevant local laws and regulations.

5.5 Noise Control

The contractor shall take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on or off the site shall not cause excessive noise which may disturb any occupant of any nearby dwellings, schools, hospitals or premises with similar sensitivity to noise.

The contractor shall submit details of Equipment including method of use and construction operations together with proposed measures of limiting noise wherefrom that shall include, but not limited to the relocation of noise emitting plant, the use of silencers, mufflers, acoustic shields, shed or screens and shall be based upon the best proven practice.

5.6 Vibration Control

All mechanical equipment and construction processes on or off site shall not cause excessive vibration which may disturb any occupant of any nearby dwellings, schools, hospitals or premises with similar sensitivity to vibration. Vibration caused by any construction activities, including

movement of construction equipment, shall be in accordance with relevant local laws and regulations.

5.7 Protection on Existing Streams or Rivers

Natural streams or rivers within or adjacent to the site where no work is being carried out shall be kept clean and free of floating debris. All equipment and working methods to be used in or near the natural streams or rivers shall be planned to reduce disturbance. No material storing or no parking of the Contractor's Equipment or other vehicles near the streams or rivers is allowed.

5.8 Environmental Management

The Contractor's environment performance shall be monitored and controlled through the Weekly Safety Walk, Pre-meeting site inspection of monthly Progress Meeting. If the supervisor considers that the contractor has exhibited consistently poor environmental performance, it should be duly reflected in the Report on Contractor's Performance.

6 Implementation Plan, Progress and Expenditure

The Contractor shall plan in full detail the full scope of the contract taking into account the complex nature and different phases and aspects of the contract and shall provide Works Programme which reflect the details planning undertaken and which are realistic, achievable and are accompanied by supporting information.

The contractor shall monitor performance against the Works Program required by the contract. The Contractor shall include for direct daily monitoring of the progress of the Works and the preparation of written reports submitted every month which shall include all necessary supporting data. The Contractor shall maintain full and comprehensive progress records on Site.

6.1 Contractor's Implementation Plan at Commencement

The implementation schedule or plan should normally be in the form of the bar chart. As the contract involving a large number of inter-related activities, the programme needs to be in the form of a network diagram and programmed on the Microsoft Project software or similar. Critical activities and the critical path should be identified on the programme, as extension of time of the Works described in this manual is normally examined and measure on the critical path.

When the works implementation plan is submitted by the Contractor, the works implementation plan should be analysed and examined for the following points:

- Whether details shown on the programme, in respect of sequence, method and timing, conform with the requirements of the contract
- Whether the programme is over-optimistic in respect of any critical activity or the works as a whole.

6.2 Updating and Revision of Works Implementation Plan

The Contractor should be required to revise the works implementation plan or works programme during the course of the contract, for example:

- An extension of time for completion of the Works or any section of the Works has been granted by the supervisor.
- Progress is too slow to ensure completion by the due date and the contractor has been so informed.
- Progress on critical activities is falling behind the original programme or the latest revised programme, particularly where the contractor had been informed that his programme was in the opinion of the supervisor r overoptimistic.

7 Procedures on Completion of Works

7.1 Prior to Issue of Taking-over Certificate

The contractor shall complete the whole of works within the time for completion including following (a) and (b) for issue of the "*Taking-Over Certificate*":

a. Achieving the passing of the tests on completion
b. Completing all work which is stated in the contract as being as being required for the works or sections to be considered to be completed to the purposes of taking over, except for any minor outstanding work and defects which will not substantially affect the use of the works or section for their intended purpose.

7.1.1 Test on Completion

The supervisor should confirm the contractor has submitted "*As-Build Drawings*" and documents, as required, and operation and maintenance manual in accordance with specification prior to commencement of the test on completion.

Immediately after the test on completion, the suitable corrected manual shall be compiled into its final form and to be submitted to the supervisor for approval. The Taking-Over Certificate will not be issued until all copies of the final "*Operation and Maintenance Manual(s)"* have been handed over.

7.1.2 Testing and Commissioning

The contractor shall carry out tests during construction to demonstrate the performance of the works to the satisfaction of the supervisor that:

- The works comply fully with the specifications.
- The plant performs satisfactorily when function under both manual and automatic control mode.

The tests shall include, but not limited to:

- Factory tests
- Site tests
- Test on completion.

The test on completion shall not be commenced until all (a) Laboratory tests and (b) site tests are completed complying with the specifications and the testing records/or reports submitted to the satisfactory of the supervisor.

7.1.3 Taking-Over Certificate

When the works are approaching substantial completion, normally the contractor will try their best to receive the Taking-Over certificate without delay or even earlier that the time for completion because the contractor could proceed further the following steps, which are beneficial for him:

- The contractor can pass the responsibility of the care for the works and goods to the employer.
- The contractor will submit statements at completion with the supporting documents for final payment.

7.1.4 Handing-Over Completed Works (Provisional Handover)

When the works are approaching substantial completion, the supervisor should liaise with the employer to arrange a joint inspection within relevant authority of the employer responsible for the future operation and maintenance of the completed works. The results of inspection shall be recorded to show, among other things, all complete items distinguishing between those items for which the contractor is responsible under the contract and those which are not. When works are completed, a further/final inspection shall be made at a later stage.

Handing over notes covering at least the following headings should be prepared and jointly signed by the engineer's representative and the officer of the employer responsible for taking over the works:

- Date of joint inspection(s);
- A list of outstanding works/defects which will not substantially affect the use of the works or section for their intended purpose;
- Schedule of as-build drawing and documents; and
- Any relevant remarks.

7.1.5 Outstanding Works

A list of outstanding works requiring attention or action shall be prepared at the effective date of the certificate of completion. A taking-over certificate shall not be issued until the contractor undertakes to carry out all these outstanding works or otherwise agreed.

7.1.6 Working During the Defects Notification Period

During the "D*efects Notification Period"*, any defects arising, which the maintenance department of the employer considers may be the contractor's liability, should be referred to the supervisor's representative for action.

If the contractor is instructed to carry out repairs to damage occurring during the defects notification period, which is not due to the contractor, the employer and other parties if necessary, to check whether all outstanding works have been completed and any further works are required. Should any defects or deficiencies of any kind be identified, then the contractor shall be notified for remedial works.

7.2 Post completion (Final Handover)

The supervisor shall issue the performance certificate after the latest of the expiry dates of the defects notification period, or as soon thereafter as the contractor has supplied all the contractor's documents and completed and tested all works, including remedying any defects. A copy of the performance certificate shall be issued to the employer. The significance of the performance certificate for the contractor are as follows:

- The contractor submits a final statement as the application for final payment certificate.
- The performance security is returned by the employer to the contractor within contractual period after receiving a copy of the performance certificate.
- The second half of the retention amount is released to the contractor within contractual period after receiving a copy of performance certificate.
- The performance certificate confirms that Contractor's obligations are considered as completed.
- The performance certificate constitutes the final acceptance of the works.

7.2.1 Project Completion Report

The "*Project Completion Report*" is recommended to be prepared and submitted to the employer after the completion of the project. The project completion report will be prepared by summarizing the supervisor's quarterly progress reports including a final financial summary with the content presented in the following table.

Table 4: Sample summary of final account

	Financial summary report on completion of contract	
1.	Project name	

	Financial summary report on completion of contract		
2.	Brief description of works		
3.	Original contract sum		Frw……..
4.	Final contract sum		Frw……..
5.	Excess/saving on contract sum		Frw……..
6.	Excess due to	(a) variations	Frw……..
		(b) price adjustments	Frw……..
		(c) Claims	Frw……..
		(d) Others	Frw……..
7.	Original estimated time for completion of the works		xx months
8.	Date of commencement of the works		
9.	Months of substantial completion of the works		…….months
10.	Actual time taken to complete the works		……days
11.	Extension of time granted for completion		…….days
12.	Deduction of delay damages for:		
	(a) Section I	…..days @ Frw……/day	Frw
	(b) Section II	…..days @ Frw……/day	Frw
	(c) Whole of the works	…..days @ Frw……/day	Frw
13.	Provisional taking over certificate has issued on		…….
14.	Defects notification period:	From……	To……..
15.	Retention money was released:		
	(a) First half (50%)	On……..	Frw……
	(b) Second half (50%)	On…..	Frw …….

	Financial summary report on completion of contract	
16.	Performance security was returned to the contractor	……
17.	Final handover certificate was issued on	……
18	Final payment certificate was issued on	……
19	Final payment was disbursed to the contractor	……
20	(c) Remarks	

8 Technical Reporting

8.1 General Requirements of Technical Reporting

The first component of any project reporting system is transparency and accuracy. Stakeholders demand accurate and transparent project information for making informed decisions and ensuring compliance with regulations, acts, and other project requirements. There are several key elements to consider in order to ensure the quality of technical report. These are described in the following sections.

8.2 Ability to Deep-Dive into Detail

It is important to be able to drill down to the source data, as there are multiple opportunities for irrelevant data to creep into project status reports. For example, subcontractors and sub-consultants might generate the information and pass it along to contractors, architects and engineers, and finally to the project manager. The information may not be properly vetted before it is reported or passed along. Problems can also arise from project account coding, issues exporting data from different job cost reporting systems, and a misunderstanding as to what scope items are included in each cost category. Errors that are identified may take a considerable amount of time of time and effort to sort out.

8.3 Level of Redundant Input

Many project reporting systems include redundant information, or the same data reported by different sources. This often creates confusion and can lead to duplicate entries or misreporting of key data.

8.4 Amount of Manual Adjustments

Manual adjustments are often necessary to produce reports that accurately reflect to current project status. However, a high volume of manual adjustments required to produce accurate project reports is often a red flag. It is important to uncover the root cause or causes contributing to this.

8.5 Relative Size of Variances

Project reporting results will often have variances from what the contract reports and from the project owner's accounting system. Again, large variances of total project costs are often red flags indicating the project reporting system requires further evaluation and remediation.

8.6 Number of Discrepancies

Most major projects produce reports that communicate different information and provide different levels of detail. However this information should not contradict itself. Discrepancies among reports are also red flags.

8.7 Clearly Defined Objectives and Purpose

Another important component of an effective project reporting system is developing clearly defined objectives and purpose. With the advent of sophisticated software programs and the ability to report large volumes of data on a real-time basis, there are almost limitless project reporting capabilities at an organisation's disposal. However, this can often be overwhelming if the data is not presented in an organised and meaningful way. There are several key elements to review when assessing the objectives and purpose of a construction project reporting system.

8.8 Usefulness for Decision-Making

Good systems facilitate decision making because they provide management with accurate and meaningful information. If management rates the usefulness of project reports as not-effective or not-very-effective, then the project reporting system required further evaluation.

8.9 Usefulness and Ease of Understanding

An effective project reporting system should be able to synthesise large volumes of data in simple and meaningful dashboards, snapshot reports and summary reports. It should also facilitate knowledge sharing by providing information in simple, easy-to-understand formats.

8.10 Ability to Satisfy Regulatory Requirements

The ability to provide quick and comprehensive support for regulatory proceedings is an important element of any construction project reporting system. It should be able to produce the required information in a timely and efficient manner, without the need for excessive ado reports or manual preparation of information.

Level of security and data integrity: Large projects often store project data in multiple formats and electronic systems, and each format has unique characteristics and levels of sensitivity and security/ privacy requirements. A good system will have clearly defined data integrity and security protocols for project information.

8.11 Reporting Layout, Timing and Distribution

The final component of an effective project reporting system is the layout, timing, level of detail, and distribution of project reports, there are several key elements to review.

8.12 Report Types and Formats

The report layout impacts the ability to communicate the underlying information effectively and is often as important as the information being reported. There are specialised and required reports on major projects covering safety, environment, schedule, and other quality and cost information. These reports are often the easiest to prepare and target specific stakeholders. Summary and status reports are much more challenging but can also prove invaluable if designed and presented in an effective manner.

8.13 General Content of Technical Report

The main chapters and theirs contents of technical report are in general as described in the following sections.

8.13.1 Project General Information

The general information of the project comprises:

- Date of the report (when was this supervision report issued)
- District
- Sector
- Works contract amount (Million Rwf)
- Supervision Contract amount (Million Rwf)
- Works contract implementation period (Start Date/End Date)
- Contract Period of Supervision Mission (Start Date/End Date)
- Supervision Report Number (from the beginning of the mission).

8.13.2 Project Presentation

This presentation comprises at least the following information and steps:

- The report is signed by the supervisor and officially be communicated to the District.
- A short description of the project is provided with purpose of the project, project location, description of main components with figures.
- The contract information (contractual period, amount and potential addendum) mentioned for both supervision and contractor are indicated.

8.13.3 Work Progress

The overall work progress in percentage is provided. The work progress is provided as a percentage for each category of works or works components. The detailed work progress for each BOQ item is provided (three columns in the BOQ: quantity planned, quantity performed so far; and percentage).

The report should contain pictures with caption showing the work progress and key steps achieved during the reporting period.

8.13.4 Works Inputs

This section aims to provide information on the works inputs. This includes:

- To indicated the supply and quality of materials used during the reporting period.
- To report on the workforce (by position and gender).
- To report on the equipment and machines used by the contractor.
- To provide detailed information on the days worked and days off as well as particular event (like heavy rainfall) that may have happened and disturbed the works are reported.

8.13.5 Timeliness

This section aims to inform on the timelines of the implementation. The latest works planning from the contractor is provided. The supervisor analysis of the progress of each work components compared to the planning and calculates the different delays for each for component.

If applicable, the reasons of the delays are explained.

The major activities expected to happen during the next reporting period being are presented.

8.13.6 Financial Status

This section includes information such as:

- To present the overall rate of expenditure for the works contract as percentage of the total contract value.
- To summarize the approval of the contractor's invoice(s) by the supervision and their transmission to the District.
- To present the current status and the monitoring for the payment of workers and sub-contractors.
- To present an updated cashflow plan for works where changes have been made.
- To present the overall rate of expenditure for the supervision contract as percentage of the entire contract value.
- To present a summary of all supervisor invoices with their status.

8.13.7 Environmental & Socio Aspects

- The environmental measures identified during the ESIA are presented.
- The social measures (like compensation for expropriation and implementation of mitigation measures) are presented.

8.13.8 Safety

The supervisor reports on how safety (for the workers and for the population) is implemented on site.

8.13.9 Book Keeping

- The Minutes of the Meetings held during the reporting period are provided.
- A copy of the Site Diary (Journal de Chantier) is provided.
- A copy of the letters send and received by supervisor (and any other important letter) is included.

8.13.10 Summary and Recommendations

- A summary of main observations is provided.
- The main issues are reported.
- The recommendations and way forward are included.

9 Annexes

9.1 Request for Inspection Form

S/No	Inspection Task	Inspection Frequency		Referenced Standard	Referenced Code
		Continuous during task listed	Periodically During task listed		
1	Excavation		X		
2	Foundation		X		
3	Columns		X		
4	Beams		X		
5	Slabs		X		
6	Walls masonry		X		
7	Plastering		X		
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

9.2 Inspection and Test Plan (ITP) Form

Contract number:		**Project Name:**					
Item	**Specifications Section (examples)**	**Test Required**	**Frequency**	**Test by (all verified by consultant representative /supervisor)**	**Date completed**	**Date forwarded officially to consultant**	**Remarks**
1	Concrete	Mixing and delivery	Each truck	Concrete Supplier / Contractor			
2	Concrete	Concrete: Three cylinders, slump, air, temperature	1 composite per truck load delivered	Third party inspector (lab)			
3	Water distribution Systems	Hydrostatic Testing of Water System	See Project terms of references	Plumbing subcontractor /contractor			
4	Water distribution Systems	Pressure and leakage Test	See Project terms of references	Plumbing subcontractor /contractor			
5	Water distribution Systems	Bacteriological Examination	After disinfection before use	Plumbing subcontractor /contractor			
6	Water distribution Systems	Mechanical and Electrical Testing (Pump System)	See specifications	Plumbing subcontractor /contractor			
7	Water distribution Systems	Leak Test	Until passing	Plumbing subcontractor /contractor			
8	Water distribution Systems	Pressure Test	Until passing	Plumbing subcontractor /contractor			
9							
10							
11							
12							
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14							
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16							
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9.3 Foundation Settlement Recording Form

Apparatus: Rod Gage

Project: ……

Rod Gage No:……

Date installed:……

Installed by:……

Inspected by:……

Readings by:……

Foundation initial elevation:……

Date	**Rod elevations (m)**	
	Rod elevation (m)	**Total settlement (Difference from initial) (m)**

Note: One copy should be submitted weekly to: Consultant and to the client