

NIELSON NIGERIA LIMITED

**QUALITY ASSURANCE POLICY MANUAL
FOR 2003**

TABLE OF CONTENTS	PAGE
QUALITY STATEMENT	1
1.0 INTRODUCTION	3
2.0 DEFINITIONS	4
3.0 COMPANY’S QUALITY POLICY	6
4.0 QUALITY MANAGEMENT STRUCTURE	8
5.0 OUTLINE OF THE MAIN BUSINESS PROCESSES	10
6.0 DEPARTMENTAL PROCEDURES	14
7.0 PROCESS CONTROL MECHANISM	18
8.0 CONCLUSION	21
APPENDIXES	

1.0 INTRODUCTION

THE QUALITY ASSURANCE MANUAL

PURPOSE:

This manual is the key to understanding how **NIELSON NIGERIA LIMITED**, manage our Comprehensive Engineering, Surveying Offshore hydrographic and project management services business to ensure that services provided to our customers are quality assured and agreed specifications and requirements.

SCOPE

The Quality Assurance Manual Incorporates:

- Objective or Mission Statement or Company's overall policy
- Management Structure
- Outline of the main Business Processes
- Departmental Procedures
- Process Control Mechanism

REFERENCES:

Reference is made in this manual to:

- Nielson Quality Management Definitions
- Shell (SPDC) Topographical Procedure Guide
- International Standard Organization ISO 9801- Quality Management and Quality Assurance Standard
- Quality Assurance Guide

Edited by Fred Owen and Derek Mardment.

USE OF MANUAL

This manual shall be issued to all senior staff of the company as a reference manual and to NIELSON's customers/clients as key to understanding our operations.

1.0 DEFINITIONS:

QUALITY MANUAL

The quality manual is a document that covers the whole operation of the organization with respect to quality assurance. The manual comprises of standard company procedures, which are not specific to any project.

QUALITY

The totality of features and characteristic of a product or service that bear on its ability to satisfy the specified need.

QUALITY PLAN

A document that sets out the specific quality practices, resource available and sequence of activities relevant to a particular process.

QUALITY ASSURANCE (QA)

This is the totality of all those planned and systematic activities necessary to provide adequate confidence to management and the customer (client) that a product or service will satisfy specific requirements first time.

QUALITY CONTROL (QC)

The procedures, monitoring process, criteria for workmanship, (personnel training and experience) and approvals necessary that are put in place to guarantee the quality of the products or services.

QUALITY SYSTEM

The organization, responsibilities, procedures, processes and resources established to ensure the quality of products or services required. The Quality Manual and Quality Plan together form the Quality System.

QUALITY MANAGEMENT

This is the planning, assurance, control and improvement of quality in production, construction or services.

RELIABILITY

Is the ability of an item (Instrument, Equipment Machine or Heat) to perform a required function under stated conditions for a stated period of time.

1.0 COMPANY'S OVERALL POLICY: OR OBJECTIVES STATEMENT

Our vision in **NIELSON** is to be among the leader in Geo-referenced information services provider with effective presence in Nigeria, Africa and indeed Oil&Gas,Engineering and building industry Worldwide Using the best available resources (both human and material) and rendering services to the complete satisfaction of our clients.

To achieve this:

We are recruiting only academically and professionally qualified surveyors and Engineers to manage our operations. The same caliber of staff shall be engaged as our Quality Assurance/Quality Control Agents: Technologist, Technicians and Craftsmen of proven ability only shall be used to execute our projects.

We have commenced implementing a Quality System based on the principle of “do it once, do it right” which will ensure the efficiency and safety of any of our project processes. We plan to achieve full documentation of our operational procedures and standards in line with the standards in ISO 9001, Statutory Regulations and the Nigeria Standards Organization. These are reference documents against which our own system can be tested for compliance.

We plan to forge ahead in Engineering Surveying Construction Works, Positioning and Offshore Survey operations by establishing auditable procedures for such operations. We are fully equipped with all the necessary instruments/machinery/equipment's for all our operations.

We are fully digital in our Surveying and Engineering design methods in all our operations. Surveying data, plans and charts are submitted in computer medium designed to suit the needs of our clients.

Our overriding policy is to ensure that no job is rejected or returned by our clients on any of the following considerations:

- Non achievement of agreed specifications and standards
- Not meeting statutory regulations
- Not meeting agreed target dates or no longer required due to late completion or submission .

1.0 QUALITY MANAGEMENT STRUCTURE

4.1 INTRODUCTION

Personnel independent of those having direct responsibility for the work being performed shall carry out quality assurance/control processes. The assurance of Quality depends not only on the quality of work produced by the different disciplines, but also on the efficient co-ordination and facing their various activities. The flowchart below illustrates the commitment of management to the implementation of a Quality System for the company. The responsibility that goes with each of the positions is described below.

THE QUALITY MANAGER

The Quality Manager (Surveying/Engineering) reports to the General Manager Surveying or Engineering) and is responsible for implementing the quality policies and standards of the company. Amongst others, he is responsible for the quality system in operation and ensures regular audits of the system, contractual requirements and adherence to statutory regulations, shall liaise with the Projects Manager in his operations.

4.3 QUALITY ASSURANCE SUPERVISOR

Reports to the Quality Manager.

Reviews reports from Quality Assurance/Control Surveyors and Engineers.

Review reports and approves or improves.

Interacts with Project Supervisor in project monitoring.

4.4 QUALITY SURVEYORS/ENGINEERS

Reports to the Quality Assurance/Control Supervisor carry out regular audit of operational procedures. Total commitment and dedication to quality start from the Chief Executive and transmitted through all levels of management to the operations Departments Surveying/Engineering/Supplies.

FIG. 2 QUALITY ASSURANCE SWAMP

NIELSON NIGERIA LTD.			
		SIGN	DATE
CHECKED BY			

1.0 OUTLINE OF THE MAIN BUSINESS PROCESSES

Construction Engineering Surveying on land, Swamp and offshore and supply business is our main areas of operation. To render these services to customers, the client identifies his need for the service. A proposal is then made to the client on the modalities of the project which shall include, methodology, duration HSES plan, logistics support, personnel and equipment, cost data evaluation/analysis and reporting and presentation. Included with the proposal is the quality assurance statement. Quality assurance starts at the issue of a work or purchase and terminates with the acceptance of the work item. One other factor is the ability to perform.

5.1 DEFINITION OF PROCESSES

The business processes can be sub-divided into three parts: -

Theoretical Process

Field Process, and

Office Process.

5.1.1 THEORETICAL PROCESS

The theoretical process in Engineering is the design of the subject for construction. Giving it such attributes like length, width, height or elevation, curvature, weight or volume etc. there are what the field process would translate to physical reality.

In surveying the theoretical process would be the reduction of such Parameters like Azimuth, angle or Distance to conform with the mathematical expression.

5.1.2 FIELD PROCESS

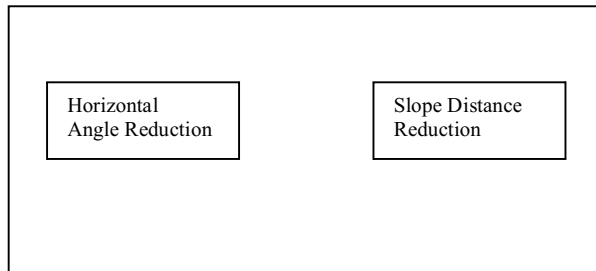
The implementation of the theoretical process at site is the field process. In Engineering, it is the actual construction to conform with design specifications. In surveying it includes activities such as instrument Calibration, Angular observation and reduction application of correction factors, and others. Details are set out in the Quality plan.

In supplies, it is the recommendations indicated on the Purchase Order.

5.1.3 OFFICE PROCESS

The office process in Engineering is the production of designed plans and diagrams. The office process in surveying is the testing of the field data by alternate methods. More corrections are applied to measured or device variables to obtain more accuracy

and reliability. The figure shows a flow chart of the office activities of a Quality Assurance Department.



5.1 REPORTING AND PRESENTATION

As far as possible reports will standardized on the following:

Character

Character font	-	Courier
Character size	-	16
Character attribute	-	Bold and Underline
Paragraph indentation	-	0.0"
Line spacing	-	Single

All reports will contain:

Title Page:	Showing the (job number), Report title, Date of the survey/report, the Client and Contractor.
Contents Page:	Listing sections and appendices (if any)
Introduction:	Giving an overview of the report and briefly commenting on any significant aspects covered by the report – giving reference to the section in which they are discussed in more detail.
Work Order:	A copy of the Work Order.

Report Integrity: A page listing the names of the people involved in compiling the report. Each person will sign the page against their names and date their signature.

All reports will contain:

Title Page Showing the job number (as defined by the Work Order) the date of the work, the client and contractor's name.

Results Section Giving co-ordinate listing of all surveyed points used or derived in the survey.

Personnel List - A list of all personnel involved throughout the course of the job.

Equipment List - A list of all instrument/equipment's and serial numbers.

Daily Log - A time ordered account of the events that occurred during the course of the job.

1.0 DEPARTMENTAL PROCEDURES

Departmental work instruction, for specific projects, which constitute the quality plan are written for each engineering, surveying and supply function by the relevant Project Manager or delegated by them to a responsible and competent person. These should include:

- ❖ Collection and collation of data, measurement procedure
- ❖ Documentation
- ❖ project Schedule
- ❖ Calculations
- ❖
 - Methods
 - Approved sources of physical property data
 - Computer programs validated for use on the project
- ❖ Specifications
 - Format
 - Maintenance of register
- ❖ Design Standards and codes
- ❖ Checking and approval
- ❖ Reporting

- ❖ Maintenance of records and any other special requirements of the project not covered by these.

Another aspect of the quality plan is the Project Co-ordination procedure.

6.1 **PROJECT CO-ORDINATION PROCEDURE:**

The project co-ordination procedure is normally written by the Project Manager in order to ensure the company's procedures and the customers. It should include the following.

- ❖ Scope of project
- ❖ Project team, and organization
- ❖ Quality objectives
- ❖ Communication between the customer, contractor and sub-contractor (if any)
- ❖ Project Schedule
- ❖ Payment Schedule
- ❖ Files References
- ❖ Progress Reporting
- ❖ Special features of the projected. Design codes
- ❖ Regulatory requirements, climax conditions, health, safety hazards and Environmental impact
- ❖ Nominated Personnel
- ❖ Document Distribution Schedule
- ❖ Drawing and Design Changes

And any other special requirements not covered by these.

6.2 **THE MAIN ACTIVITIES**

The main activities which **NIELSON NIG. LTD.** Engages in includes:

Engineering Functions:

Comprehensive Surveying Services Hydrographic/Bathymetric Surveys Dredging Consultant, Engineering Designs, General Building supervision, Mechanical, Petroleum, Petrochemical Engineering, Project Management, Procurement and others.

Land/Swamp Operations:

- Location Surveys
- Preliminary Investigation and Full Preparation Surveys
- As-Built Surveys
- **Pipeline Route Surveys(Flowlines, Delivery lines & Trucklines.)**

- Claims or Spillage Surveys
- Details Surveys, Tank Farm Monitoring
- GPS Control Surveys.

Offshore Survey Operations:

- Tides and Tidal Streams (Current Measurement)
- Bathymetric or Sounding
- Seabed Sampling
- Temperature and Salinity
- Wave measurement
- Submarine Acoustic Investigations
 - ◆ Sideways looking sonar
 - ◆ Shallow seismic profiling
- Rig Positioning
- Navigation
- Meteorological Observations
 - ◆ Wind speed
 - ◆ Air temperature
 - ◆ Air pressure

All the above activities involve measurement of one quality or the other, or indirectly. Predominate among which are angles and distance. The end products of these processes are maps, plans charts. To ensure quality products, the inputs must be qualitative. That is why **NIELSON** is committed in engaging well qualified and experienced personnel and the equipment's they use are of the state-of-the-art standard.

1.0 PROCESS CONTROL MECHANISM

An essential ingredient of the Quality Management System is the process control mechanism which ensures that all operators understand the need for quality product and to get it right the first time and all the times. The quality assurance processes commence with the issue of Work Order/Purchase Order and terminate with the acceptance of the job or item, and issuance of work completion certificate

7.1 **WORK ORDER OR CONTRACT DOCUMENT REVIEW**

Each work order is reviewed to ensure that:

- ◆ The requirements are adequately defined and documented
- ◆ Any requirements or specifications different from those in the Work Proposal are resolved.
- ◆ The Contractor has the capability to meet Work order requirements. The necessary financial, technical and managerial resources. Records of such reviews shall be kept., based on the review, a briefing instruction is prepared for the field operator in-charge of the project by the project supervisor.

The Briefing Instructions shall include but not limited to the following:

1. Documented work instructions defining the manner of data acquisition and processing, use of suitable production installation equipment's suitable working environment, compliance with reference standards/codes and quality plan; where the absence of such instructions would adversely affect quality.
2. Use of suitable equipment/instrument/machinery.
The project Engineer or Surveyor shall ensure that he fully understand the job requirements and shall conduct his activities accordingly to the briefing/instructions.

7.2 **EQUIPMENT CALIBRATION**

Having identified the construction and measurement to be made and the accuracy required the appropriate Machine or Equipment is selected. Regularly these equipment or instruments are calibrated to ensure they are capable of the accuracy and precision required such calibration records are maintained for reference. Standard Survey Methods/practices are employed in the data acquisition.

Conformity with the required standard are regularly verified by quality assurance personnel. The verification activities shall include inspection of equipment's and materials. Monitoring of construction and data acquisition methods and testing of data by carrying out alternative calculations. All acquired data shall be subjected to verification to ensure conformity with the mathematical model. Any non-conformity data shall be repeated before the crew leaves the work site.

7.2 QUALITY ASSURANCE RECORDS

NIELSON NIG. LTD. Shall establish and maintain procedures for identification, collection, filling, storage, indexing, maintenance and disposition of quality records. These records shall be maintained to demonstrate achievement of the required quality and the effective operation of the quality system. Relevant sub-contractor quality record shall be part of these data.

All quality records shall be legible and identifiable to the product or service involved. Quality records shall be stored and maintained in such a way that they are readily retrievable in facilities that provide a suitable environment to minimize deterioration or damage and to prevent loss. Retention times of quality records shall be made available for evaluation by the client or his representative for an agreed period.

7.3 INTERNAL QUALITY AUDITS

There is an established process of auditing the quality system against the requirements of the standard or specification covering the Quality Plan. The essential elements of the audit are:

- ◆ A schedule of audit
- ◆ A team trained in the auditing techniques
- ◆ A formal audit procedure with properly documented records showing audit results.
- ◆ Corrective action and follow-up procedure.

7.4 CORRECTIVE ACTION

- (a) Investigating the cause of non-conforming product and the corrective action needed to prevent re-occurrence.
- (b) Analyzing all processes work operations, concessions quality records, service reports and customer complaints to detect and eliminate potential causes of non-conforming products.
- (c) Applying control to ensure that corrective actions are taken and that they are effective.
- (d) Implementing and recording changes in procedures resulting from corrective actions.
- (e)

7.2 QUALITY ASSURANCE TRAINING

NIELSON NIG. LTD. Shall establish and maintain procedures for identifying the training needs and provide for the training of all personnel performing activities affecting quality. Personnel performing specific assigned tasks shall be qualified on the basis of appropriate education, training and/or experience as required. Appropriate records of training shall be maintained.

1.0 CONCLUSION

The quality policy of **NIELSON NIG. LTD.** Is the establishment and maintenance of a quality system, which will ensure that the requirements of the customers are consistently met. Our quality objective is that our products and services are “fit for the purpose” for which it is required. The vision in all our operation is to “get it right the first time and all the times”. To this end we recognize that:

- ◆ Professionalism is the key to quality products and services.

A factor that informed our employing only qualified and experienced personnel.

- ◆ Efficient quality management reduces cost in production or services.
- ◆ Quality improvement is a continuous process.

Our style of operation requires that before we accept and proceed on any job, we shall establish that we have the necessary financial, technical and managerial resources to carry out the contract requirement.

APPENDIXES

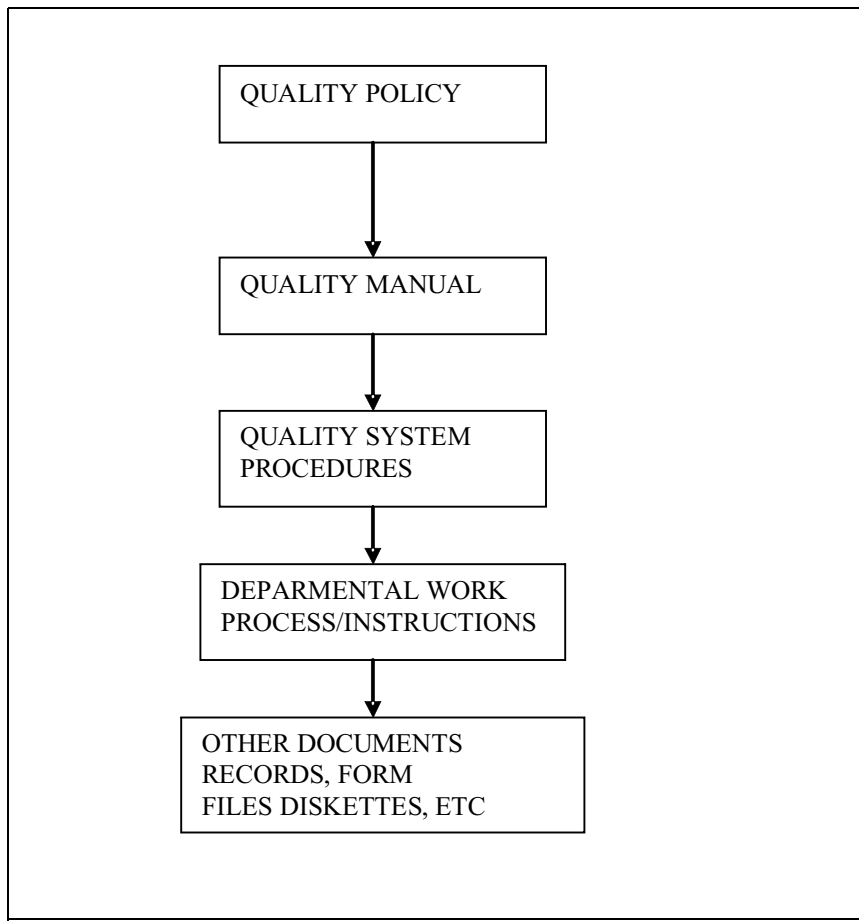
- Principles of Quality Assurance
- Quality System Documentation Flowchart
- Planning Sequence Flowchart
- Checklist for Quality control on Preliminary Investigation Site/Access Route Survey.
- Checklist, Quality Control for full Preparations Survey ,access Route Survey including Flow lines

Checklist for Quality Control of trunk and Delivery line Surveys.

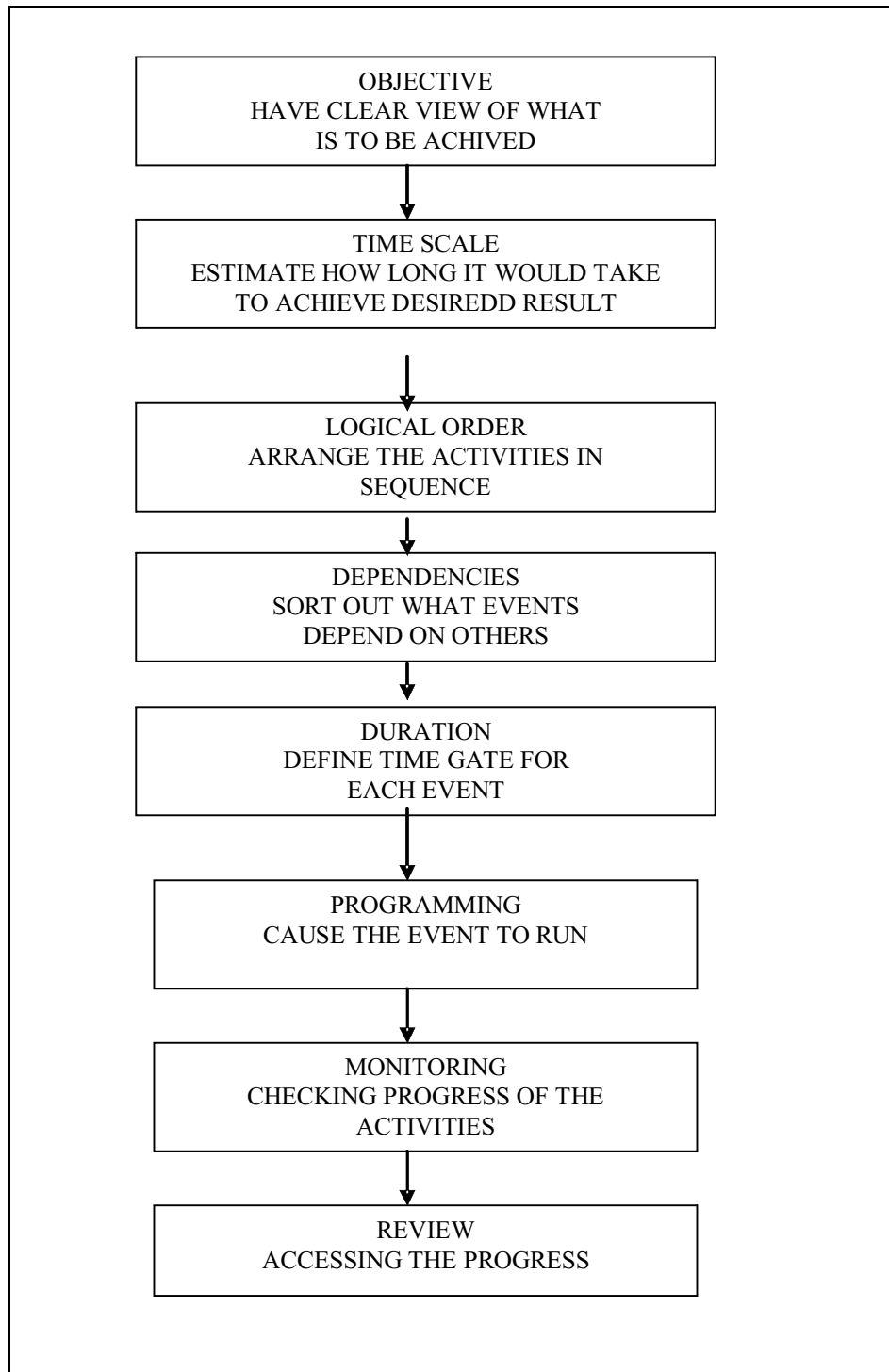
PRINCIPLES OF QUALITY ASURANCE

1. KNOW RESPONSIBILITIES
 - ORGANISATION, STRUCTURE, RESPONSIBILITIES
2. KNOW DUTIES
 - DEFINITION AND DESCRIPTIONS OF DUTIES
3. KNOW WHAT TO DO
 - CORRECT SPECIFICATIONS, DRAWINGS, ETC.
4. KNOW HOW TO DO IT
 - TRINING, PROCEDURES, INSTRUCTIONS
5. BE ABLE TO DO IT
 - RESOURCES, PLANS, PROCESS, MATERIAL
6. KNOW IT IS DONE
 - CHECKING, MEASURING, TESTING
7. RECORD IT HAS BEEN DONE
 - RECORDS, CERTIFICATES

QUALITY SYSTEM DOCUMENTATION FLOW CHART



PLANNING SEQUENCE



CHECKLIST FOR QUALITY CONTROL ON PRELIMINARY INVESTIGATION SITE/ACCESS/ROUTE SURVEY

TITLE:

DRAWING NO. AND DATE

ITEM NO		REMARKS
1	Rectangular grid is true and labeled correctly. Belt statement correct. Orientation correct.	
2	Approaches described fully	
3	Coordinates of Well target computed from reference point correctly and offset correct. Orientations correct.	
4	Water/Flood Levels stated.	
5	Routes show sufficient topographical Data, vegetation, building, elevations, obstructions.	
6	Datums local or related to established ones.	
7	Statements: I. Datums for elevants. II. Datum for depths III. Units used IV. Target position	
8	Situation map agrees with plan and vice versa.	
9	O.M.L boundaries shown correctly	
10	Adjacent installations etc. include.	

Date:

Signed: -----

Name: -----

**CHECKLIST QUALITY CONTROL FOR FULL PREPARATION
SITE/ACCESS SURVEY INCLUDING FLOWLINES**

TITLE:

DRAWING NO AND DATES

ITEM NO		REMARKS
1	Rectangular grid is true and labeled correctly.	
2	Belt statement correct. North arrow oriented correctly	
3	Well position agrees with P.I request or is within tolerance area.	
4	Boundaries noted with L.B, C.B, guide bearings and distances.	
5	Maximum Flood Level noted	
6	Vegetation boundaries shown	
7	Situation map agrees with plan or vice versa	
8	Statements: I. Datum II. Scale III. Area IV. Units V. Coordinates of connection	
9	O.M.L boundaries correctly shown	

Date:

Sign: -----

CHECKLIST FOR QUALITY CONTROL ON TRUNK & DELIVERY LINE SURVEYS

TITLE:

DRAWING NO. AND DATE

ITEM NO.		REMARKS
1	Rectangular grid is true and labelled correctly. Belt settlement correct. Orientation correct.	
2	Corrections shown	
3	All existing and proposed facilities marked and named	
4	O.M.L. Boundaries correctly shown	
5	Plan agrees with profile: I. Point identifiers II. Distances III. Vegetation boundaries IV. Elevations	
6	Situation map agrees with plan and vice versa.	
7	Statement: I. Datum for elevations II. Units III. Title IV. Total distance	
8	Bearing/Distance computation	
9	Elevations start/end	
10	Crossings marked	
11	O.P.L map and plan/profile agree	

Date:

Signed: -----

Name: -----