

GP CONSULT SA

Projects Department

EC&I CONSTRUCTION PROCEDURES

MANUAL

ROLE-BASED OPERATIONAL PROCEDURES

Project Manager | Site Manager | Planner | QS | QC | Doc Controller | HR | Supervisors | Projects Engineer

Document Number	GPC-ECI-PROC-002
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Status	Approved for Construction
Document Owner	Dave Opperman — Manager Projects
Discipline	Electrical, Control & Instrumentation (EC&I)
Applies To	All EC&I Construction Projects — GP Consult SA
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DOCUMENT CONTROL

Rev	Date	Description	Prepared By	Reviewed By	Approved By
00	2025	Draft Issue for Review	QC Officer	Site Manager	D. Opperman
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PROCEDURE PROC-01

SITE PROJECT MANAGER

EC&I Project Delivery Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-01
Revision	Rev 01
Reporting To	Manager – Projects
Discipline	EC&I Construction
Applies To	All EC&I site-based projects

1.1 Purpose

This procedure defines how the Site Project Manager (PM) shall set up, manage, control, and close out an EC&I construction project on behalf of GP Consult SA. It covers every stage from site establishment through to final handover, providing a structured sequence of actions, responsibilities, and minimum standards the PM must maintain throughout project execution.

1.2 Site Establishment — Week 1 Actions

1.2.1 Mobilisation Checklist

MANDATORY

All items in this checklist must be completed and signed off before construction work commences on any GP Consult SA project.

#	Establishment Action	Responsible	Deadline	Done ✓
1	Confirm site access, security, and welfare facilities with client	PM	Day 1	
2	Set up site offices, document store, and notice boards	PM / Site Mgr	Day 1	
3	Confirm temporary power, water, and sanitation availability	Site Mgr	Day 1	
4	Establish stores and material lay-down areas	Stores / PM	Day 2	
5	Confirm and distribute the approved baseline schedule to all team leaders	Planner / PM	Day 2	
6	Issue RACI matrix — all roles understand their responsibilities	PM	Day 2	
7	Confirm HR onboarding list is approved and mobilise first gang	HR / PM	Day 1–3	
8	Brief all supervisors on scope, schedule, quality plan, and safety requirements	PM / SM	Day 3	
9	Confirm all initial AFC drawings are distributed to QC and supervisors	QC / Doc Ctrl	Day 3	
10	Hold first client kick-off / coordination meeting; issue Minutes	PM	Day 3–5	

11	Confirm permit system (PTW) is operational and Safety Officer is on site	Safety / PM	Day 1	
12	Confirm all test equipment is calibrated and on site	QC	Day 3	

1.3 Department Establishment Responsibilities

The PM, in collaboration with the Manager – Projects, is responsible for the operational readiness of the following departments before construction commences:

- Onboarding & Project Startup Team — mobilisation lists, induction records, access cards.
- Safety, Labour & Compliance Department — HSE plan issued, PTW system active, toolbox talk register started.
- Human Resources & Industrial Relations — employment contracts issued, attendance system in place.
- Stores & Material Management — lay-down areas established, MRIR process active, bin card system running.
- Transport & Logistics — daily DFL transport confirmed, vehicle logs in place.
- Construction Execution — supervisors deployed, tools and equipment issued, gang lists confirmed.
- Project Planning & Controls — baseline schedule approved, lookahead system started, morning meeting format confirmed.
- Quality Control (QA/QC) — QC plan issued, ITP register open, drawing register active.
- Commercial / Finance / Cost Control — BoQ loaded, PPC format agreed with client, VO process confirmed.

1.4 Daily Project Management Routine

1.4.1 Morning (06:00 – 08:00)

1. Review overnight safety incidents, access issues, and absenteeism report from HR.
2. Chair or attend the daily morning supervisory meeting with the Planner.
3. Review the 1-week lookahead — confirm critical path activities are resourced and unblocked.
4. Issue any formal instructions, drawing updates, or scope changes to the Site Manager.
5. Confirm all permits required for the day are in place or in progress.

1.4.2 Mid-Day (12:00 – 14:00)

6. Walk at least two active work fronts — verify actual production against the daily plan.
7. Check safety compliance at work fronts (PPE, PTW, LOTO where applicable).
8. Review any issues or constraints raised by the Site Manager; resolve or escalate.

1.4.3 End of Day (16:00 – 18:00)

9. Receive end-of-day production report from the Planner and Site Manager.
10. Review daily site diary; sign off before close of business.
11. Confirm next day's priorities and communicate to Site Manager.
12. Review and action any client correspondence received during the day.

1.5 Scope & Change Control Procedure

● MANDATORY

NO work shall be done outside the contracted scope without a formal Change Request (CR). Verbal approvals from the client do not constitute contract changes.

Step	Action	Owner	Output Document
1	Change or additional work is identified on site or by client instruction	PM / SM	Scope Event Log entry

2	PM prepares a formal Change Request (CR) with description, drawings, and preliminary impact assessment	PM	Change Request Form (CRF)
3	PM quantifies time impact (with Planner) and cost impact (with QS)	PM / Planner / QS	Impact Assessment Sheet
4	CR is submitted to client for formal approval	PM	CRF + Impact Assessment
5	Client approval received in writing (email, MOM, or formal instruction)	Client	Written Approval Record
6	Approved CR is distributed to: Planner (schedule update), QS (cost update), QC (ITP update if needed), Site Mgr (execution)	PM	CR Distribution Record
7	Updated baseline schedule and BoQ issued to all departments	Planner / QS	Revised Schedule + BoQ

NOTE

If the client instructs work that is not in scope and a CR has NOT been signed, the PM must issue a Potential Change Notice (PCN) to the client in writing within 24 hours, stating that the work is being done on a without-prejudice basis pending formal approval.

1.6 Risk & Issue Management

Weekly Risk Register Review

13. PM reviews the Risk Register every Monday in the weekly team meeting.
14. Each risk is assessed for likelihood and impact; mitigation actions are updated.
15. New risks identified during the week are added immediately by the PM or Planner.
16. Delay or disruption events are documented with photographic evidence and timestamped diary entries.
17. Early Warning Notices are issued to the client within the timeframe required by the contract (NEC: 2 weeks; FIDIC: as specified).

1.7 Weekly PM Reporting Cycle

Report	Frequency	Recipient	Content Summary
Weekly Progress Report	Weekly (Monday)	Manager – Projects + Client	EV%, SPI, CPI, access issues, key risks, photo progress
PM Daily Diary	Daily	Filed on site + Doc Controller	Weather, headcount, activities, decisions, issues
Risk Register Update	Weekly	PM + Client (if required)	Updated risk status, new risks, mitigations
Cost Performance Report	Monthly	Manager – Projects	DFL, P&G recovery, material usage vs budget
EV Analysis	Weekly	PM + QS + Planner	PV vs EV vs AC, SPI, CPI, forecast at completion

1.8 Earned Value & Cost Monitoring

Weekly Earned Value Calculation

18. Planner compiles EV from production quantities submitted by supervisors.
19. QS validates claimed quantities against measured works on site.
20. PM reviews EV dashboard: SPI below 0.85 triggers a mandatory recovery plan within 48 hours.

21. CPI below 0.90 triggers a cost recovery review meeting with Manager – Projects.
22. EV data feeds directly into the monthly PPC; no quantities may be claimed that have not been verified by the QS and signed off by the PM.

1.9 Stakeholder Engagement

- RACI matrix is issued at project start and updated whenever roles change.
- Weekly client coordination meeting is chaired by the PM; minutes issued within 24 hours.
- All client instructions received by any team member must be forwarded to the PM for logging.
- No team member other than the PM (or PM's nominated deputy) shall make commercial commitments to the client.

1.10 Project Close-Out Procedure

Close-Out Action	Owner	Timing
Final QC punch list compiled and all Category A items closed	QC Officer	2 weeks before handover
All NCRs closed with client sign-off	QC Officer	Before handover meeting
Final as-built drawings submitted to client	Site Mgr / Doc Ctrl	Before handover
Quality Dossier complete and indexed per system	QC Officer	Before handover
All equipment manuals, calibration certs, and test records in dossier	QC / Doc Ctrl	Before handover
Final account prepared and submitted to client	QS	At practical completion
Retention release schedule issued	QS	At PC + defects period
Lessons learned document completed and shared with Manager – Projects	PM	Within 2 weeks of PC
All site equipment de-hired and tools returned to stores	Site Mgr	Within 1 week of PC
Final handover meeting held; Handover Certificate signed by PM and client	PM	At PC

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-02

EC&I SITE MANAGER

Construction Execution Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-02
Revision	Rev 01
Reporting To	Site Project Manager
Discipline	EC&I — Electrical, Control & Instrumentation
Applies To	All EC&I site execution activities

2.1 Purpose

This procedure defines how the EC&I Site Manager shall execute, control, and report on all Electrical, Control, and Instrumentation construction works on site. It covers the daily production cycle, drawing control, quality oversight, materials management, invoicing support, and commissioning handover — integrating all field functions into a coordinated and measurable delivery operation.

2.2 Pre-Construction Setup

|2.2.1 Drawing & Document Readiness

●

MANDATORY

No construction work shall commence on any work front without a verified, current AFC drawing in the supervisor's possession. The Site Manager is accountable for enforcing this requirement.

23.

Receive the AFC drawing register from the QC Officer on Day 1.
24.

Set up supervisor drawing files — one file per supervisor, clearly labelled with their assigned area.
25.

Distribute latest cable schedules, loop diagrams, instrument installation details, and specs to each supervisor.
26.

Establish a drawing revision control log: each time a new revision is received, old revisions are collected and destroyed from supervisor files.
27.

Confirm document control handshake with the Document Controller: Site Manager receives all new drawing issues directly.

|2.2.2 Material & Tool Readiness

28.

Review the Bill of Materials (BOM) with the Stores Controller before mobilisation.
29.

Confirm first-wave material deliveries have been MRIR-inspected and approved by QC before issuing to supervisors.
30.

Set up tool issue register: every tool issued to a supervisor must be signed out and returned at end of shift.
31.

Verify that all calibrated test equipment (Meggers, loop testers, multimeters) is on site, within calibration date, and assigned to QC.
32.

Allocate mechanical equipment (drum stands, cable rollers, manlift) to work fronts per the weekly lookahead.

2.3 Daily Execution Routine

|2.3.1 Morning Briefing (Before Works Commence)

Time	Action	Responsible	Output
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06:00	Attend site safety toolbox talk with all workers	Safety Officer + Site Mgr	Signed Toolbox Talk Register
06:30	Chair supervisory morning meeting: communicate day's critical path, priorities, constraints	Site Manager	Daily Work Plan distributed
06:45	Confirm all permits are in place for the day's activities	Safety Officer	Permits on file
07:00	Deploy gangs to work fronts — confirm each supervisor has correct AFC drawings	Site Manager	Daily deployment confirmed

2.3.2 During the Shift

33. Walk all active work fronts at least twice per shift — morning and afternoon.
34. Check: drawing being worked to is current revision; work sequence is correct; quality of workmanship is acceptable.
35. Immediately stop any work where an incorrect drawing or unsafe practice is observed; issue a corrective instruction and document it.
36. Receive live production feedback from supervisors at mid-shift and update running quantity log.
37. Coordinate material issues from stores to work fronts: do not issue materials that have not been MRIR-approved.
38. Manage trade interface: ensure cable ladder is sufficiently ahead of cable pulling; cable pulling is sufficiently ahead of terminations.

2.3.3 End of Shift

39. Collect Daily Supervisor Diaries from all supervisors before workers leave site.
40. Compile the Site Manager's Daily Diary: total headcount, production by discipline, constraints, safety events, decisions made.
41. Submit diary and production data to the Planner by 17:00.
42. Confirm next day's plan with the Planner; communicate to supervisors.
43. Ensure all tools returned to stores; stores controller reconciles issue register.

2.4 Quality & Drawing Control Procedure

2.4.1 AFC Drawing Distribution

Step	Action	Owner
1	New drawing revision received from Doc Controller or QC	Document Controller
2	Site Manager verifies revision is newer than current and confirms with QC	Site Manager
3	New revision distributed to affected supervisor(s); supervisor signs receipt	Site Manager
4	Superseded revision collected from supervisor and physically destroyed	Site Manager
5	Drawing register updated with new revision number and distribution date	Doc Controller



WARNING

Never allow work to proceed on a drawing marked 'SUPERSEDED', 'FOR REVIEW', 'NOT FOR CONSTRUCTION', or with no revision marking. Any doubt — stop work and refer to QC.

2.4.2 NCR Process — Site Manager's Role

44. Site Manager may raise an NCR when non-conforming work is identified during field walks.
45. Stop the work; tag the non-conforming area 'DO NOT PROCEED — NCR RAISED' with the NCR number.
46. Advise the QC Officer immediately; QC issues the formal NCR.
47. Investigate root cause with the supervisor; implement corrective action.
48. Re-inspect corrected work; confirm to QC that work is ready for QC re-inspection.
49. Do not allow the work front to continue past the NCR area until QC closes the NCR.

2.5 Materials Management Procedure

Action	Trigger	Responsible	Record
MRIR inspection of incoming materials	Every delivery	QC Officer + Site Mgr	MRIR Form
Material issued to work front	Daily, per supervisor request	Site Mgr + Stores	Material Issue Sheet
Material returns (unused or excess)	End of activity or daily	Site Mgr + Stores	Return-to-Store Record
Defective material quarantined	On identification	Site Mgr + QC	NCR + Hold Tag
Material shortage reported to procurement	When stock < 3-day demand	Site Mgr	Procurement Request
Material wastage recorded	Weekly	Site Mgr	Wastage Report to PM

2.6 Invoicing Certification Support

50. The Site Manager is responsible for ensuring that only genuinely installed, QC-accepted works are submitted for certification.
51. Daily production quantities are verified by the Site Manager before submission to the Planner.
52. The Site Manager co-signs the weekly quantity verification sheet with the QS.
53. The Site Manager must ensure that all supervisor daily sheets are completed and submitted before the monthly PPC cut-off date.
54. Variation work: the Site Manager must record all variation activities separately in the daily diary with quantities, labour, and plant used — this feeds the QS's VO claim.

2.7 Commissioning Readiness

Pre-Commissioning Gate	Verified By	Sign-Off Required
All cables for the system pulled and tagged	Site Mgr + QC	Site Mgr
All terminations complete and QC-inspected	QC Officer	QC Officer
All IR/Megger tests passed	QC Officer	QC + Client
All loop folders pre-filled with test records	QC Officer	QC Officer
All NCRs for the system closed	QC Officer	QC + Client
Category A punch list items closed	Site Mgr + QC	PM + Client
Energisation Permit obtained	PM + Client	PM + Client Rep

 **CRITICAL — DO NOT PROCEED WITHOUT COMPLETING**

Do NOT energise any system until ALL rows in the table above are signed off. Partial completion is not acceptable. The Site Manager bears personal accountability for ensuring energisation safety.

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-03

SITE PLANNER

Schedule Management & Earned Value Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-03
Revision	Rev 01
Reporting To	Site Project Manager
Tools	Primavera P6 / MS Project
Applies To	All EC&I construction schedule and EV activities

3.1 Purpose

This procedure defines how the Site Planner shall develop, maintain, update, and report on the project schedule and earned value performance for all EC&I construction activities. It covers the baseline schedule, weekly update cycle, daily lookahead process, EV calculations, and delay documentation requirements.

3.2 Schedule Setup — Project Start

|3.2.1 Work Breakdown Structure (WBS)

The project schedule shall be structured using the following WBS as a minimum:

WBS Level 1	WBS Level 2 (Examples)
1. Site Establishment	1.1 Mobilisation 1.2 Temporary Services 1.3 MRIR Inspections
2. Cable Ladder Installation	2.1 Supports 2.2 Main Ladder Routes 2.3 Secondary Routes 2.4 Earthing Bonds
3. Cable Installation	3.1 Power Cables 3.2 Control Cables 3.3 Instrument Cables 3.4 Fibre
4. Instrument Installation	4.1 Instrument Mounting 4.2 Decabon Tubing 4.3 Signal Wiring
5. Cable Terminations	5.1 MCC/Panel Terminations 5.2 Field Devices 5.3 JBs 5.4 Earthing
6. Electrical Testing	6.1 IR/Megger 6.2 Continuity 6.3 Phase Rotation 6.4 Loop Checks
7. Pre-Comm & Commissioning	7.1 Pre-Comm Checks 7.2 Energisation 7.3 Functional Testing 7.4 Handover
8. Project Management	8.1 PM Administration 8.2 Quality 8.3 Safety 8.4 Close-Out

|3.2.2 Schedule Levels

Level	Description	Issued To	Frequency
Level 1	Milestone Schedule	Client + PM	Project start; major changes only
Level 2	Construction Execution Baseline (approved)	Client + PM + All Leads	Baselined at project start; revised post-approved CR only
Level 3	Detailed Discipline Schedule	Site Manager + Supervisors	Weekly update
Level 4	1-Week & 3-Week Lookahead	All Supervisors + Foremen	Daily (1-week) / Weekly (3-week)

|3.2.3 Productivity Rates & Duration Calculation

Durations shall be calculated from the following base productivity assumptions, adjusted for site-specific conditions:

Activity	Crew Composition	Base Productivity	Shift	Working Days/Week
Cable Installation	2 Electricians + 4 Assistants + 1 Gang Leader	715 m/crew/day	12 hrs	6 days
Cable Ladder Installation	2 Boilermakers + 4 Assistants	65 m/crew/day	12 hrs	6 days
Decabon / Impulse Tubing	1 Instrument Tech + 2 Assistants	195 m/crew/day	12 hrs	6 days
Cable Terminations	2 Electricians + 1 Supervisor	120 terminations/day/crew	12 hrs	6 days
Instrument Installation	1 Instrument Tech + 1 Assistant	8–12 instruments/day	12 hrs	6 days
IR/Megger Testing	1 Electrician + 1 QC Assistant	60–80 cables/day	12 hrs	6 days
Loop Checking	1 Instrument Tech + 1 QC + 1 DCS Operator	15–25 loops/day	12 hrs	6 days

NOTE

All productivity rates are subject to revision once actual site conditions, material availability, and crew quality are confirmed. The Planner must update rates within the first two weeks of production based on actual measured output.

3.3 Daily Planner Routine

3.3.1 Morning Meeting (06:30 daily)

55. Chair or co-chair morning supervisory meeting with Site Manager.
56. Distribute printed daily work plan to each supervisor — one page per work front.
57. Communicate: which activities are on the critical path today; what the minimum acceptable production target is per crew; access constraints or material shortages that will affect today's plan.
58. Receive feedback from supervisors on yesterday's actual vs planned quantities — update the schedule tracker immediately.

3.3.2 During the Day

59. At mid-shift, physical runner (or planner walk) confirms actual progress at each work front.
60. Update daily production log in real time — do not wait until end of day to record actual quantities.
61. Identify and document any delay events immediately: time of occurrence, cause, impact on activities, and estimated time lost.

3.3.3 End of Day

62. Receive Daily Supervisor Diaries from Site Manager by 17:00.
63. Compile end-of-day production summary and submit to PM and Site Manager.
64. Update schedule file with actual progress; reforecast remaining durations where needed.
65. Flag any activities where float has dropped below 3 days to the PM for immediate attention.

3.4 Weekly Schedule Update Cycle

Day	Activity	Output
Monday	Review previous week's actual progress; update schedule; recalculate EV; prepare weekly progress report	Updated schedule file + EV report

Monday	Present weekly progress report to PM and client (where required)	Signed weekly progress report
Tuesday	Issue 3-week lookahead to all supervisors and Site Manager	3-week lookahead plan
Wednesday	Material readiness review with procurement: confirm materials available for activities in Weeks 2–3 of lookahead	Material readiness log
Thursday	Meet with QS to validate production quantities for PPC claim (at month end)	Signed quantity verification sheet
Friday	Issue next week's 1-week lookahead; brief supervisors in end-of-week meeting	1-week lookahead plan + daily assignments

3.5 Earned Value Management

3.5.1 EV Calculation Method

Earned Value shall be calculated weekly using the following method:

66. Budget at Completion (BAC) = total contract value of rateable items in BoQ.
67. Planned Value (PV) = % of BAC planned to be complete by today's date per the baseline schedule.
68. Earned Value (EV) = % of BAC actually completed (measured physical progress × unit rate from BoQ).
69. Actual Cost (AC) = total labour, material, plant costs incurred to date.
70. Schedule Performance Index (SPI) = $EV \div PV$. SPI < 1.0 = behind schedule.
71. Cost Performance Index (CPI) = $EV \div AC$. CPI < 1.0 = over budget.
72. Estimate at Completion (EAC) = $BAC \div CPI$.

KPI	Trigger Level	Required Action	Timeframe
SPI	< 0.90	Issue Recovery Plan to PM	Within 48 hours
SPI	< 0.80	Recovery plan + escalation to Manager – Projects	Immediately
CPI	< 0.90	Cost review meeting with PM and QS	Within 1 week
CPI	< 0.80	Formal cost recovery plan; escalate to Manager – Projects	Within 48 hours

3.6 Delay Documentation Procedure

73. Every delay event, regardless of cause, must be documented on the day it occurs.
74. Entries in the Delay Register must include: date, time, description of the event, activities impacted, estimated time lost (hours and days), cause category (client/access, weather, design, procurement, own), and evidence (photos, emails, diary entries).
75. Delays caused by the client or third parties must be formally notified to the client within the timeframe required by the contract.
76. All delay data is used by the PM and QS to prepare Extension of Time (EOT) and Disruption claims.

MANDATORY

Never discard delay records. All delay documentation must be filed in the project document control system. This information forms the evidentiary basis for any commercial claim.

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			

Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-04

QUANTITY SURVEYOR (Q/S)

Commercial Control & Certification Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-04
Revision	Rev 01
Reporting To	Site Project Manager
Focus	Measurement, Valuation, Cost Control & Claims
Applicable MoM	CESMM, POMI, SABS 1200, or contract-specific MoM

4.1 Purpose

This procedure defines how the Quantity Surveyor shall measure, value, certify, and commercially control all EC&I construction works on behalf of GP Consult SA. It covers the monthly Progress Payment Certificate (PPC) process, variation management, subcontractor valuations, cost forecasting, and final account preparation.

4.2 Monthly PPC Cycle

4.2.1 PPC Preparation Timeline

Week	Action	Owner
Week 1	Confirm cut-off date for the current PPC with client	QS + PM
Week 2–3	Collect and review daily production quantities from Planner; spot-check key items on site	QS + Planner
Week 3	Conduct joint measurement walk with client QS (or EPCM); agree disputed quantities	QS + Client QS
Week 4 (–5 days)	Submit draft PPC to client for review and comment	QS
Week 4 (–2 days)	Resolve any client objections; agree certified quantities	QS + PM + Client
Week 4 (final)	PM signs off certified PPC; formal invoice submitted	QS + PM

4.2.2 Measurement Procedure

77. Use the project's approved Method of Measurement at all times — do not deviate.
78. Measure completed works from: installed quantities (physically measured on site), as-built drawings, approved supervisor daily sheets, and loop/continuity test records (testing must be complete before electrical circuits can be claimed).
79. Complete the Measurement Sheet (aligned with the BoQ structure) and obtain Site Manager sign-off before submitting to client.
80. For underground or concealed works — measure and certify before covering up; photographs are mandatory evidence.

MANDATORY

No quantity shall be claimed in a PPC that has not been physically verified on site by the QS or by a delegated, signed-off quantity inspector. Estimated or assumed quantities are not acceptable.

4.3 Variation Order (VO) Management

VO Stage	Action	Owner	Record
Identification	Identify change from contract scope — record in VO Log with date and description	QS + PM	VO Log entry
Quantification	Measure or estimate quantities affected by the change	QS	VO Quantity Sheet
Valuation	Price the VO using contract rates (preferred) or daywork rates (if no applicable rate)	QS	VO Valuation Sheet
Substantiation	Compile evidence: drawing changes, site diaries, labour records, material records	QS + Site Mgr	VO Substantiation Pack
Submission	Submit VO to client with full backup — reference the original Change Request or Instruction	QS + PM	Formal VO Submission
Negotiation	Attend VO meeting with client; document any agreed adjustments	QS + PM	Meeting Minutes
Agreement	Obtain written agreement of VO value; include in next PPC	QS + PM	Signed VO Agreement

4.4 Subcontractor Valuation Procedure

81. All subcontractor claims are received, checked, and certified by the QS before payment is processed.
82. Each claim is measured against actual work done on site — not against the subcontractor's own production records without verification.
83. The QS verifies: quantities are correct, work is in scope, quality standards have been met (QC sign-off required), and the claim complies with the subcontract terms.
84. Subcontractor payments are made only after the main contract PPC for the same period has been certified — back-to-back payment unless the subcontract specifies otherwise.

4.5 Cost Forecasting & Cash Flow

Report	Frequency	Content	Recipient
Cost-to-Complete Forecast	Monthly	Remaining quantities × unit rates + identified risk allowance	PM + Manager Projects
Cash Flow Forecast	Monthly	Expected monthly PPC values for balance of project	PM + Finance
Budget vs Actual Report	Monthly	Actual spend vs budgeted cost per work package	PM
DFL & P&G Recovery Check	Weekly	Labour cost recovery analysis — is revenue covering DFL spend?	PM + Site Mgr

4.6 Final Account Procedure

85. Issue a Final Account Notice to the client upon practical completion, listing all outstanding items: unagreed VOs, pending claims, remeasured quantities, retention release.
86. Compile the Final Account Schedule: contract sum, agreed variations, agreed claims, adjustments, final certified sum.
87. Negotiate and agree the Final Account with the client; any disputed items must be escalated to the PM and Manager – Projects.
88. Once signed, the Final Account Schedule and all backup documents are filed in the project close-out file.

89. Issue retention release notices at the contractually agreed dates; track and follow up with client until full payment is received.

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-05

QUALITY CONTROLLER (QC)

EC&I Quality Control Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-05
Revision	Rev 01
Reporting To	Site Project Manager / Site Manager
Standards	ISO 9001, IEC 60364, SANS 10142, IEC 60529, IEC 60079
Applies To	All EC&I construction, testing, and commissioning activities

5.1 Purpose

This procedure defines how the Quality Controller shall plan, implement, record, and report on all quality control activities for EC&I construction works. It integrates drawing control, material inspection, workmanship inspection, testing, NCR management, and Quality Dossier compilation into a single operational framework.

5.2 Quality Control Plan — Minimum Requirements

The QC Officer shall issue a project-specific Quality Control Plan (QCP) within the first 5 days of mobilisation. The QCP shall include as a minimum:

- Quality objectives and KPIs for the project
- Approved ITP register — one ITP per discipline/activity
- Drawing register with current revision status
- Material receiving procedure (MRIR process)
- NCR process and NCR register
- Calibration register for all test equipment on site
- Quality Dossier structure and compilation plan
- Hold Points and Witness Points matrix (requires client notification requirements)
- QC inspection frequency and sampling plan

5.3 Material Receiving Inspection Procedure (MRIR)

● MANDATORY

No material shall be issued for installation without a completed and approved MRIR. The QC Officer is the gatekeeper for all material approvals.

Step	MRIR Action	Acceptance Criteria	Reject Action
1	Verify delivery documentation against Purchase Order (quantities, descriptions, specifications)	100% match to PO	Reject delivery; notify PM and procurement
2	Inspect physical condition of materials — cables, instruments, panels, fittings	No damage; no deformation; packaging intact	Quarantine; raise NCR; photograph and log
3	Verify cable drum markings against cable schedule (type, voltage, size, length)	Exact match to schedule	Do not issue; raise query; notify Site Manager

4	Verify instrument calibration certificates — must be valid and within date	Cal cert ≤ 12 months or per specification	Do not install; send for recalibration
5	Verify material test certificates and manufacturer data sheets are present	Certs match material batch number	Reject pending receipt of correct certs
6	Tag approved materials 'APPROVED FOR INSTALLATION'	All items tagged before issue to stores	Cannot be issued without tag
7	Tag rejected materials 'HOLD — DO NOT USE' with NCR number	Quarantine area established	Removed from site within 3 working days

5.4 Daily Inspection Routine

5.4.1 Morning

90. Review yesterday's inspection reports; identify any outstanding actions or follow-up inspections needed.
91. Attend morning supervisory meeting — advise on hold points scheduled for today; confirm drawing readiness.
92. Check calibration register — confirm all test equipment in use today is within calibration date.

5.4.2 Site Inspections — By Discipline

Discipline	Key Inspection Points	Inspection Frequency	Record
Cable Ladder	Support spacing, level, splice quality, earth bonds	100% of installed sections	IR-LADDER form
Cable Installation	Bend radius, segregation, cable tags, cleating, no damage	Daily walk; 100% before sign-off	IR-CABLE form
Cable Terminations	Ferrules, core labels, torque, wiring diagram compliance, glands	100% of termination panels	IR-TERM form
Instrument Installation	Tag number, orientation, process connection, tubing support	100% per instrument loop	IR-INST form
Earthing & Bonding	Connection quality, conductor size, continuity test result	100% of connections	IR-EARTH form
Electrical Testing	Test equipment calibration, test procedure compliance, results	100% witnessed by QC	Test reports

5.5 ITP Hold Point & Witness Point Management

Point Type	Definition	QC Action	Client Notification
Hold Point (H)	Work MUST STOP. No work beyond this point without QC and client sign-off.	Stop work; inspect; record; issue sign-off request to client	Written notification minimum 24 hrs in advance (or per contract)
Witness Point (W)	Client may attend; work may proceed after agreed notice period if client does not attend.	Notify client; inspect regardless of attendance; record results	Written notification minimum 24 hrs in advance
Review Point (R)	QC reviews documents only; no physical inspection	Review documents; sign off; file	Not required unless specified

	required.		
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⚠ WARNING

Never proceed past a HOLD POINT without the required signatures. If the client fails to attend within the agreed notice period, the QC Officer must consult the PM before deciding whether to proceed.

5.6 NCR Management Procedure

5.6.1 NCR Classification

Class	Description	Work Status	Response Time
Major NCR	Affects safety, structural integrity, or system function	STOP WORK immediately	Client notification + corrective action plan within 24 hrs
Minor NCR	Does not immediately affect safety but does not meet specification	Work in other areas may continue	Corrective action within agreed timeframe
Observation	Potential non-conformance; not yet requiring formal NCR	Monitor; address proactively	Reviewed at weekly QC meeting

5.6.2 NCR Process

Step	Action	Owner
1	Identify non-conformance; describe clearly and specifically; photograph evidence	QC Officer
2	Issue NCR form with unique NCR number from the NCR Register	QC Officer
3	Tag non-conforming work or material immediately	QC Officer
4	Notify Site Manager and PM; determine if work stop is required	QC Officer
5	Investigate root cause with supervisor and Site Manager	QC Officer + Site Mgr
6	Issue corrective action instruction: repair, rework, replace, or concession request	QC Officer
7	Implement corrective action	Site Manager + Supervisor
8	Re-inspect corrected work; verify full compliance	QC Officer
9	Obtain client co-signature on NCR closure where required by the ITP	QC Officer + Client
10	Close NCR in register; file all evidence in Quality Dossier	QC Officer

5.7 Electrical Testing Procedure — QC Role

5.7.1 Insulation Resistance (IR / Megger) Testing

Cable Type	Test Voltage	Minimum IR Result	Pre-Test Requirement
LV Power Cables (up to 1kV)	500 VDC	≥ 1 MΩ	Disconnect at both ends; earth all cores not under test
Control Cables	500 VDC	≥ 100 MΩ	Disconnect at both ends; earth all cores not under test
Instrument Cables (I&C)	250–500 VDC	≥ 100 MΩ	Disconnect at both ends; confirm no live instruments connected

Motor Windings	500–1000 VDC	$\geq 1 \text{ M}\Omega$ (PI test for motors $>11\text{kW}$)	Motor uncoupled; supply isolated and LOTO applied
Step	IR Test Action	Record	
1	Verify LOTO is in place; confirm cable is disconnected at both ends	Safety check before test	
2	Short and earth all cores NOT under test at both ends	Test setup record	
3	Apply test voltage for 60 seconds minimum; record final stable reading	Cable Test Record Sheet	
4	Discharge cable: short all cores to earth for minimum 60 seconds after test	Discharge confirmation	
5	QC Officer signs the Cable Test Record; Planner records completion in schedule	Signed test record	

5.7.2 Continuity Testing

93. Test end-to-end continuity of each conductor core from panel to field device.
94. Verify correct wiring by cross-referencing each core against the loop drawing and wiring diagram.
95. Test earth continuity from each equipment frame and enclosure back to the main earth bar.
96. Record all results; sign off on the Continuity Test Record.

5.7.3 Loop Checking Procedure

97. Confirm all cables for the loop are terminated correctly per loop drawing at both ends.
98. Apply a calibrated 4–20mA signal at the field instrument terminal using an approved loop calibrator.
99. Verify at the DCS/PLC: 4mA = 0%, 12mA = 50%, 20mA = 100% of the process variable range.
100. Test all configured alarm setpoints: verify annunciation at LOLO, LO, HI, HIHI levels in the DCS.
101. Test any associated shutdowns or interlocks linked to the loop.
102. QC Officer and client engineer must co-sign the Loop Test Record before the loop is considered complete.

5.8 Quality Dossier Structure

One Quality Dossier shall be compiled per system boundary. Each dossier shall contain the following in order:

Tab	Content	Responsible
1	Cover page, document index, system boundary definition	QC Officer
2	Approved ITP with all inspection sign-offs	QC Officer
3	Material Receiving Inspection Reports (MRIRs)	QC Officer
4	Inspection Reports — all disciplines (ladder, cable, terminations, instruments, earthing)	QC Officer
5	Electrical Test Reports — IR, continuity, phase rotation, earthing	QC Officer
6	Instrument Loop Test Records	QC Officer
7	Calibration Certificates — all instruments and test equipment	QC Officer
8	NCR Register — all NCRs closed (or open NCRs listed with agreed close date)	QC Officer
9	Punch List — all Category A items closed; Category	Site Manager

	B items listed with dates	
10	As-built / redline drawings	Site Manager
11	Equipment manuals and OEM documentation	Site Manager / Doc Ctrl
12	Client acceptance certificates and Handover Certificate	PM + Client

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-06

SITE DOCUMENT CONTROLLER

Document & Record Management Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-06
Revision	Rev 01
Reporting To	Site Project Manager / QC Officer
Systems	Aconex, Procore, SharePoint, BIM360, or email-based controlled distribution
Applies To	All project documentation from mobilisation to close-out

6.1 Purpose

This procedure defines how the Site Document Controller shall set up, operate, and maintain the project document management system for all EC&I construction works. It covers the document filing structure, drawing control, QA/QC record management, correspondence control, and final dossier compilation.

6.2 Document Control System Setup — Day 1

MANDATORY

The document control system must be fully operational before any construction documents are issued to site. The Document Controller is responsible for establishing the system within 48 hours of mobilisation.

Setup Action	Standard Required	Responsible
Create master folder structure on shared drive or EDMS platform	Per GP Consult SA folder naming convention	Doc Controller
Set up AFC Drawing Register with columns: Drawing No., Title, Discipline, Current Rev, Issue Date, Distributed To	All fields populated at receipt of first drawing set	Doc Controller
Set up TQ & RFI Log — numbered from TQ-001 and RFI-001	Log active within 24 hrs of mobilisation	Doc Controller + QC
Set up Document Transmittal Log — outgoing and incoming	All transmittals logged from Day 1	Doc Controller
Establish physical drawing files for: Site Manager, each Supervisor, QC, PM, Stores	Labelled; current revision only; controlled distribution	Doc Controller
Set up NCR Register, Inspection Register, and Punch List Register	Templates per GP Consult SA standards	Doc Controller + QC
Set up Calibration Certificate Register	All test equipment on site listed from Day 1	Doc Controller + QC

6.3 Drawing Control Procedure

6.3.1 Receiving New Drawings / Revisions

Step	Action	Owner	Record
1	Receive new drawing from client, EPCM, or design office	Doc Controller	Incoming Transmittal Log
2	Check drawing number, revision, discipline, and title; log in AFC Drawing Register	Doc Controller	Drawing Register updated
3	Confirm new revision supersedes previous revision; update 'superseded' status in register	Doc Controller	Register updated
4	Distribute new revision to QC Officer and Site Manager immediately	Doc Controller	Distribution Record
5	QC Officer verifies revision and distributes to affected supervisors	QC Officer	Supervisor sign-off on receipt
6	Retrieve and destroy superseded revisions from all supervisor files	QC Officer + Doc Ctrl	Destruction confirmed in register
7	File original hard copy or confirmed digital version in master drawing file	Doc Controller	Master file updated

WARNING

SUPERSEDED DRAWINGS ARE NOT TO BE LEFT IN CIRCULATION. A construction site where supervisors are working to different revisions is a leading cause of rework, NCRs, and cost overruns.

6.3.2 Redline Markup Tracking

103. When site staff mark up a drawing (field change, cable rerouting, instrument relocation), the Document Controller logs the markup in the Redline Drawing Log.
104. Redline drawings are scanned and filed digitally as soon as possible — not held by supervisors.
105. The Doc Controller distributes redline copies to the design office or QA for as-built updating.
106. Redlines are reconciled against issued as-built drawings before close-out.

6.4 Technical Query (TQ) / RFI Procedure

Step	TQ / RFI Action	Owner	Deadline
1	Site staff identifies a drawing ambiguity, conflict, or missing detail	Supervisor / Site Mgr	Immediately on identification
2	TQ/RFI raised and logged by Doc Controller; numbered sequentially from the register	Doc Controller	Within 24 hours of identification
3	TQ/RFI reviewed by QC Officer and Site Manager for completeness and priority	QC + Site Mgr	Same day as raised
4	TQ/RFI issued to client/EPCM/design office via formal transmittal	Doc Controller	Within 24 hours of QC review
5	Response received; logged in register with date received and response summary	Doc Controller	On receipt
6	QC Officer reviews response; distributes to affected parties	QC Officer	Within 24 hours of receipt
7	TQ/RFI closed in register; updated drawing issued if applicable	Doc Controller	Within 48 hours of resolution

MANDATORY

No TQ shall remain open for more than 7 calendar days without a formal status update to the PM. Open TQs that are blocking construction activities must be escalated to the PM immediately for client escalation.

6.5 QA/QC Documentation Control

Document Type	Filing Location	Update Frequency	Responsible
MRIR Forms	Quality Dossier — Tab 3	Per delivery	Doc Controller + QC
Inspection Reports	Quality Dossier — Tab 4	Daily (as completed)	Doc Controller + QC
Test Records (IR, continuity, loop)	Quality Dossier — Tab 5/6	Per test completed	Doc Controller + QC
Calibration Certificates	Calibration Register + Quality Dossier — Tab 7	On receipt / renewal	Doc Controller
NCR Forms	NCR Register + Quality Dossier — Tab 8	Per NCR raised/closed	Doc Controller + QC
ITP Sign-Off Sheets	Quality Dossier — Tab 2	Per inspection milestone	Doc Controller + QC
Punch List	Quality Dossier — Tab 9	Continuously	Doc Controller + Site Mgr

6.6 HSE Documentation Control

HSE Record	Filing Location	Upload Platform	Frequency
Toolbox Talk Registers	HSE File — Toolbox Talks	Intercyte / Passport360 / Key360	Daily
Incident Reports	HSE File — Incidents	Safety management platform	Per incident
PTW Originals (closed)	HSE File — Permits	EDMS or physical file	After closure, same day
LOTO Records	HSE File — LOTO Log	Physical file	Per isolation
Lifting Certificates	HSE File — Lifting Plans	EDMS	Per lift
Scaffold Inspection Tags	HSE File — Scaffold Register	Physical file	Weekly
Labour Induction Records	HSE File — Inductions (or HR if present)	Safety platform	Per induction

6.7 Weekly Document Status Report

The Document Controller shall issue a weekly document status report every Friday covering:

- Drawing register: number of drawings current vs total; outstanding revisions expected.
- TQ/RFI Log: open TQs with age and responsible party; closed TQs this week.
- Document Submission Matrix: overdue submissions to client; upcoming submission deadlines.
- Calibration Register: equipment approaching or exceeding calibration due date.
- QA/QC Tracker: missing sign-offs, unsigned test records, incomplete inspection reports.

- Redline Drawing Status: outstanding redlines not yet returned to design office.

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-07

SITE HR OFFICER

Workforce Management & Compliance Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-07
Revision	Rev 01
Reporting To	Site Project Manager
Scope	Full workforce lifecycle — recruitment to demobilisation
Legislation	Local Labour Law, Client-Specific Requirements, Local Content Obligations

7.1 Purpose

This procedure defines how the Site HR Officer shall manage, administer, and report on the full workforce lifecycle for all GP Consult SA EC&I project personnel. It covers mobilisation, time and attendance, payroll support, compliance, disciplinary management, and employee welfare — ensuring the project workforce is legally compliant, adequately resourced, and productively engaged throughout the project.

7.2 Recruitment & Onboarding Procedure

7.2.1 Pre-Mobilisation Checklist

MANDATORY

No worker shall commence work on site until ALL items in this checklist are complete. The HR Officer is accountable for enforcing this gate. Violations expose GP Consult SA to significant legal and client contractual risk.

#	Pre-Mobilisation Requirement	Responsible	Client Requirement?
1	Signed employment contract issued and returned	HR Officer	Yes
2	Valid identification document — copy on file	HR Officer	Yes
3	Medical fitness certificate (if required by client)	HR Officer	Usually yes
4	Site induction completed — GP Consult SA induction	HR + Safety	Yes
5	Client-specific induction completed (where required)	Safety + HR	Yes
6	Certification verification: trade test, COID registration, relevant qualifications	HR Officer	Usually yes
7	PPE issued and signed for	Stores + HR	Yes
8	Personnel added to attendance register, gang list, and site access system	HR Officer	Yes
9	Emergency contact details on file	HR Officer	No — internal
10	Worker informed of disciplinary code and house rules; signed confirmation	HR Officer	No — internal

7.3 Time & Attendance Procedure

7.3.1 Daily Attendance

107. Attendance is recorded at morning muster before shift starts — 06:00 or as per shift start time.
108. All workers must sign the Daily Attendance Register or clock in via the approved clocking system.
109. HR Officer must be on site at muster to personally manage the attendance process — not delegated to supervisors except in agreed circumstances.
110. Late arrivals are logged with time of arrival and flagged for performance monitoring.
111. Early departures require PM or Site Manager authorisation; record reason and time.

7.3.2 Weekly Time & Attendance Sheet

Column	Content Required
Full Name	As per ID document / employment contract
ID/Employee Number	Unique identifier per worker
Position / Trade	As per employment contract
Monday – Saturday	Hours worked per day (or absent marker: SL=sick leave, AL=annual leave, AWOL=absent without leave, UA=unauthorised)
Total Hours	Sum of all hours worked for the week
Overtime Hours	Hours in excess of agreed normal hours — must be pre-authorised by PM
DFL Rate / Shift Allowance	Applicable allowances for the period
Signature	Worker signs weekly to confirm correctness of hours

MANDATORY

The weekly Time & Attendance Sheet must be: signed by the Site Manager, approved by the PM, and submitted to Leanne Woods (EnI HR) AND Paula / GP Consult (Gerhard Jnr) by the deadline each week. Late submission is a reportable HR failure.

7.4 Absentee Tracking & Reporting

Column	Required Content
Date	Date of absence
Full Name	Employee's full name as per ID
Position	Trade / role
Reason	Known reason (e.g. sick leave, personal, AWOL, unexcused) — if unknown, state 'Unknown — under investigation'
Duration	Number of days
Action Taken	E.g. verbal warning issued, sick note received, no action (valid), HR investigation started
Notes	Any relevant context or patterns

NOTE

Persistent absenteeism (more than 3 unexcused absences in a 4-week period) triggers a formal disciplinary process. The HR Officer must notify the PM within 24 hours of identifying a persistent absentee pattern.

7.5 Payroll Coordination Procedure

112. HR Officer compiles the weekly payroll input pack: signed attendance sheet, approved overtime, DFL records, and applicable allowances.
113. Payroll input is cross-checked against the production schedule — if attendance records show significant discrepancy from site productivity, the HR Officer must flag to the PM for investigation.
114. All overtime must be pre-authorised by the PM in writing (email or signed OT authorisation form) before being submitted for payment.
115. Payroll disputes are resolved by the HR Officer in conjunction with HQ HR; the PM is notified of any unresolved disputes within 24 hours.
116. HR Officer maintains a running payroll reconciliation so that at any point in the project, total labour cost to date is known.

7.6 Disciplinary Management Procedure

Stage	Trigger	Process	Owner
Verbal Warning	First minor offence (late, low productivity, minor safety breach)	HR issues verbal warning; record in disciplinary file with date and description	HR Officer
Written Warning (1st)	Second minor offence or first serious offence	Written warning issued; worker signs acknowledgement; copy to HR file	HR Officer + SM
Written Warning (Final)	Third minor offence or second serious offence	Final written warning; worker and HR sign; PM notified	HR + PM
Formal Hearing	Gross misconduct or after final written warning	Formal disciplinary hearing with independent chairperson; worker has right to representation	HR Officer + PM
Dismissal	Outcome of hearing — gross misconduct proven	Written dismissal notice; accrued pay calculated; client access revoked	HR + PM
Appeal	Worker disputes outcome	Appeal heard by Manager – Projects or designated senior manager	Manager – Projects

WARNING

All disciplinary actions must comply with applicable local labour law and the terms of the employment contract. The HR Officer must consult HQ HR before proceeding with any formal hearing or dismissal. Failure to follow correct procedure exposes GP Consult SA to unfair dismissal claims.

7.7 Employee Welfare & Representative Forum

117. HR Officer shall facilitate the election of an Employee Representative Forum within the first 2 weeks of the project.
118. Monthly Employee Representative meetings are held on-site; HR Officer chairs; minutes are taken and circulated within 48 hours.
119. All unresolved worker issues from the representative meeting are escalated to the PM and Manager – Projects.
120. Transport and accommodation issues are managed proactively by the HR Officer — reported delays or welfare complaints must be resolved within 24 hours.
121. Any health incident, injury, or HR-related welfare issue is reported to the PM and Safety Officer on the same day.

Role	Name	Signature	Date
Prepared By — QC Officer			

Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-08

CONSTRUCTION SUPERVISORS

Daily Execution & Reporting Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-08
Revision	Rev 01
Reporting To	EC&I Site Manager
Scope	EC&I construction activities — assigned discipline or work front
Applies To	All construction supervisors and working foremen

8.1 Purpose

This procedure defines the daily execution, reporting, and accountability requirements for all GP Consult SA construction supervisors. The supervisor is the frontline leader who translates the planned work into physical reality. This procedure ensures that every supervisor operates to a consistent standard of safety, quality, production, and documentation.

8.2 Start of Shift — Supervisor Checklist

#	Action	Done ✓
1	Sign in on the daily attendance register	
2	Attend the morning toolbox talk — sign the register	
3	Attend the morning supervisory meeting — receive day's work plan from Site Manager/Planner	
4	Confirm your gang is fully present; report absentees to HR immediately	
5	Confirm all required permits (PTW, WAH, etc.) are issued and in hand	
6	Verify you have the CURRENT AFC drawing for today's work front (confirm with QC)	
7	Confirm required materials are available and MRIR-approved in stores	
8	Confirm tools are available; sign out tools from stores register	
9	Confirm QC hold points or witness points scheduled for today	
10	Brief your gang on today's work, sequence, safety requirements, and quality expectations	

MANDATORY

A supervisor who starts work without completing this checklist — especially Steps 5, 6, and 9 — is in violation of GP Consult SA site procedures and may be removed from the work front.

8.3 During the Shift — Execution Standards

|8.3.1 Production & Sequence

- Execute work in the sequence shown on the AFC drawing and per the Site Manager's instructions.

- Do not improvise or change the sequence without explicit approval from the Site Manager.
- Track your team's actual production quantities in real time — do not rely on memory at end of shift.
- When the day's plan is achieved, report to the Site Manager for reassignment — do not occupy a work front without purpose.

8.3.2 Safety Supervision

- Supervisor is on the work front at all times when the gang is working — not in the office or site camp.
- Any unsafe act, unsafe condition, near-miss, or incident must be stopped and reported immediately.
- Stop work if the permit conditions change (e.g. adjacent work creates new hazard, weather change, energy source changes).
- Enforce PPE compliance — any worker without correct PPE is removed from the work front until compliant.

8.3.3 Drawing & Quality Control

- Work only to the drawing in your file — if the drawing does not match site conditions, STOP and raise a TQ.
- Never proceed past a QC hold point without the QC Officer's sign-off.
- If you identify a workmanship defect in your team's work — fix it before calling QC for inspection.
- Do not call QC for inspection if you know the work is not ready — this wastes time and damages the team's credibility.

8.4 Daily Supervisor Diary — Mandatory Fields

MANDATORY

The Daily Supervisor Diary is the primary record of what happened on site. It is used for: progress certification, delay claims, NCR investigations, and payment disputes. An incomplete or absent diary is a serious failure.

Field	Required Content	Acceptable?
Date	Full date — DD/MM/YYYY	Not acceptable: 'Tuesday'
Work Front / Location	Specific area — Building No., Equipment No., Cable Route ID	Not acceptable: 'MCC area'
Gang Composition	Names of all workers present; total headcount	Not acceptable: '8 workers'
Activities Performed	Specific task descriptions — 'pulled cable XY-101 on ladder route A to B; 85m completed'	Not acceptable: 'cable pulling'
Quantities Completed	Measurable units: metres of cable, number of terminations, number of instruments	Not acceptable: 'good progress'
Planned vs Actual	What was planned for the day; what was actually achieved; variance and reason	Required every day
Delays / Constraints	Any event that slowed or stopped work — with reason, duration, and evidence reference	Required when applicable
Safety Events	Any incident, near-miss, unsafe condition observed — even if not directly in your area	Required every day
Materials Used	Key materials consumed (cable metres, glands, terminations) — supports QS measurement	Required where applicable
Issues/Actions	Any unresolved issue, outstanding decision, or action needed from Site Manager or PM	Required when applicable

8.5 End of Shift — Supervisor Checklist

#	Action	Done ✓
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1	Record final production quantities for the day in diary	
2	Record any delays with reason and estimated impact	
3	Ensure work front is left safe: tools stowed, cables secured, no trip hazards	
4	Return all tools to stores; ensure tools register is signed	
5	Submit Daily Supervisor Diary to Site Manager by 17:00 (or shift end)	
6	Brief relief supervisor (if 24-hr or double-shift operation) on current status, open permits, hazards	
7	Ensure gang signs out on attendance register	

8.6 Weekly Earned Value Participation

- Supervisors participate in the weekly EV review with the Planner and PM every Monday.
- In this meeting, the supervisor understands: their actual production vs planned; whether their section is recovering or falling further behind; what acceleration is needed.
- If a supervisor's section is behind schedule, they are responsible for proposing a realistic recovery plan — not waiting to be told what to do.
- Supervisors who consistently fail to meet production targets without adequate explanation will be performance-managed by the Site Manager.

8.7 Specific Discipline Responsibilities

Cable Supervisor

- Maintain the cable pulling log — drum number, cable number, route, length pulled, date.
- Ensure cable tags are installed at both ends before moving to the next run.
- Track minimum bend radius compliance — use bend radius gauge where required.

Terminations Supervisor

- Ensure all terminations are completed per the wiring diagram and loop drawing — core-by-core.
- Ensure every core has a ferrule and correct label before calling QC inspection.
- Keep a termination completion log: panel number, date, QC sign-off status.

Instruments Supervisor

- Confirm instrument tag number against the instrument index before installation — no unverified instruments to be installed.
- Verify calibration certificates are valid before calling for QC receipt inspection.
- Track loop folder population — each instrument installed must be added to its loop folder on the same day.

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

PROCEDURE PROC-09

PROJECTS ENGINEER

Technical Coordination & Delivery Procedure — GP Consult SA | Projects Department

Document Ref	GPC-ECI-PROC-09
Revision	Rev 01
Reporting To	Manager – Projects
Location	Johannesburg HQ with regular site presence
Applies To	All EC&I project execution activities from inception to handover

9.1 Purpose

This procedure defines how the Projects Engineer shall manage, coordinate, and technically support the full delivery lifecycle of EC&I construction projects for GP Consult SA. It covers project initiation, procurement oversight, technical coordination, site presence during construction and commissioning, and project close-out.

9.2 Project Initiation & Setup

Action	Standard Required	Timing
Review contract documents, scope of work, and technical specifications	Full comprehension — identify all key technical, commercial, and contractual risks	Before mobilisation
Confirm scope with PM; identify any scope ambiguities and resolve with client	Scope Clarity Register populated	Week 1
Review all AFC drawings; raise design queries before construction commences	TQ Log opened; queries issued to designer	Week 1–2
Confirm procurement schedule against construction programme — identify critical path materials	Material readiness matrix issued to PM and procurement	Week 1
Confirm subcontract scope boundaries; attend subcontract kick-off meetings	Scope boundary document agreed in writing	Week 1–2
Issue project KPI targets to PM: SPI, CPI, NCR rate, lost time incidents	KPI Dashboard set up and published	Week 1

9.3 Technical Coordination During Construction

9.3.1 Drawing & Specification Management

122. Review all issued for construction drawings against the contract specifications before they are issued to site.
123. Identify and raise all design conflicts, missing details, and specification ambiguities as TQs before they cause construction problems on site.
124. Track TQ responses; escalate unanswered TQs older than 7 days to PM for client escalation.
125. Review all proposed method statements before construction commences — provide technical sign-off or reject with required changes.
126. Attend key client technical meetings as the GP Consult SA technical representative.

9.3.2 Procurement & Manufacturing Oversight

127. Monitor the procurement schedule against the construction programme — identify and escalate any at-risk deliveries.
128. Review Purchase Order requisitions for technical compliance before issue: confirm materials match project specifications and standards.
129. Liaise with suppliers on commercial and technical aspects of their offerings; confirm conformance with project specifications.
130. Where factory acceptance testing (FAT) is specified, attend or arrange GP Consult SA representation at the FAT.
131. Review and approve all supplier technical submittals and data sheets before materials are accepted.

Procurement Action	Trigger	Owner	Record
Review Purchase Requisition for technical compliance	Before each PO is issued	Projects Engineer	PR Review Sign-off
Review Supplier Technical Submittal	On receipt from supplier	Projects Engineer	Submittal Review Form
Attend / Arrange Factory Acceptance Test	When specified in contract	Projects Engineer	FAT Report
Review Delivery Documentation (MRIRs)	On delivery to site	QC Officer + PE	MRIR review sign-off
Escalate late deliveries to PM	When delivery is ≥ 5 days late vs programme	Projects Engineer	Escalation record

9.4 Site Presence Schedule

The Projects Engineer shall attend site at the following minimum frequency:

Project Phase	Required Frequency	Focus Areas During Visit
Site Establishment	At least 2 visits in Week 1	Confirm site setup, drawing readiness, MRIR system, team briefings
Construction Execution	Weekly (minimum)	Technical issue resolution, TQ status, drawing queries, QC review, client relations
Critical Milestones	100% attendance required	First MCC energisation, first loop test, first motor run, system handover milestones
Pre-Commissioning	Attend for full duration	Technical authority for commissioning sequence, energisation, fault resolution
Commissioning	Full-time site presence	Lead commissioning team; resolve technical issues; interface with client engineers
Punch List Close-Out	Weekly	Drive closure of technical punch list items; confirm as-built accuracy

MANDATORY

The Projects Engineer MUST be full-time on site during commissioning. Remote technical support during energisation and commissioning is not acceptable for GP Consult SA projects.

9.5 Commissioning Leadership Procedure

9.5.1 Pre-Commissioning Technical Review

132. Review all loop test records and IR test records before issuing a Pre-Commissioning Completion Certificate.

133. Review all open NCRs; confirm all Category A items are physically closed and not just administratively closed.
134. Review the commissioning sequence with the client's commissioning engineer — agree and document the energisation sequence.
135. Review all protection relay settings; confirm settings are in accordance with protection coordination study.
136. Confirm all instrument calibrations are current; instrument range is correct; engineering units match DCS configuration.

9.5.2 Commissioning Execution

137. Lead the commissioning team in executing the agreed commissioning sequence.
138. All energisations require the Projects Engineer's sign-off on the Energisation Permit.
139. Conduct motor jog tests to verify rotation direction before full run.
140. Witness and sign all functional tests for critical systems.
141. Issue technical resolution directives for any commissioning defects found — do not allow temporary fixes on safety-critical systems.
142. Document all commissioning changes in the red-line record for as-built purposes.

9.6 Knowledge Management & Continuous Improvement

143. Compile a Lessons Learned report at the end of every project — minimum 10 items covering: scope management, procurement, construction execution, commissioning, and commercial.
144. Submit the Lessons Learned report to the Manager – Projects within 2 weeks of practical completion.
145. Contribute to the update of GP Consult SA standard procedures, method statements, and ITP templates based on project experience.
146. Conduct informal knowledge sharing sessions with junior engineers and supervisors during and after projects.
147. Identify training needs in the team and report to HR and Manager – Projects for planning purposes.

Role	Name	Signature	Date
Prepared By — QC Officer			
Reviewed By — Site Manager			
Approved By — Projects Manager	Dave Opperman		
Client / EPCM Representative			

APPENDIX A — SITE REGISTERS & TEMPLATES

A.1 NCR Register

NC R No.	Date Raised	Description	Work Package	Root Cause	Corrective Action	Res p.	Targ et Date	Statu s	Clos e Date	QC Sig n	Clie nt Sign
								Open			
								Open			

A.2 Inspection Register

Insp. No.	Date	ITP Ref	Activity / Discipline	Location / Area	H/W/R Type	Result	QC Signatur e	Client Signature
INS-001						Pass / Fail		
INS-002						Pass / Fail		

A.3 Punch List Register

Ite m No.	Dat e	Descriptio n	Locatio n	Syste m	Priorit y (A/B/C)	Raise d By	Targe t Close	Statu s	Close d By	Date Close d
PL-001					A			Open		
PL-002					B			Open		

A.4 Delay Register

Dela y No.	Dat e	Tim e	Descriptio n of Event	Cause Category	Activitie s Impacte d	Tim e Lost (hrs)	Evidenc e Ref	Client Notified ?	Notif . Date
DLY-001				Client / Own / Weather / Procurement / Design				Yes / No	
DLY-002									

A.5 MRIR Register

MRIR No.	Date	Delivery Note No.	Material Description	Qty Delivered	Qty Accepted	Rejection Reason	QC Signature	NCR No. (if any)
MRIR-001								
MRIR-002								

A.6 Daily Supervisor Diary Template

Field	Content
Date	
Supervisor Name	
Assigned Work Front / Area	
Total Gang Size	
Names Present	
Names Absent (reason)	
Permit Numbers in Place	
AFC Drawing No. & Rev in Use	
Activities Performed (with quantities)	
Planned Quantity Target for Today	
Actual Quantity Achieved	
Variance (over/under)	
Reason for Variance	
Delays / Constraints	
Safety Events / Observations	
Materials Used	
Issues / Actions Required	
Supervisor Signature	
Site Manager Reviewed	

APPENDIX B — CONSTRUCTION EQUIPMENT SCHEDULE

B.1 Construction & Installation Equipment

Item No.	Equipment	Description	Qty	Purpose
C-01	Mobile Crane	25–50 ton crane	1	Lifting MCCs, panels, cable drums
C-02	Forklift	3 ton forklift	1	Offloading equipment and materials
C-03	Manlift / Cherry Picker	10–18 m boom lift	2	Cable ladder and elevated installation
C-04	Cable Drum Jack Stands	Hydraulic cable jacks	2–4 sets	Cable pulling setup
C-05	Cable Rollers	Straight and corner rollers	50–100	Cable installation throughout routes
C-06	Scaffolding	Working at heights	5–10 tonnes	Elevated cable ladder and cable work
C-07	Portable Generator	20–50 kVA	1	Temporary construction power supply
C-08	LDV Vehicles	Site transport	3	Site transport and supervision
C-09	Personnel Bus	Personnel transport	1	DFL transport to/from site
C-18	Portable Welding Machine	Welding generator	8	Cable tray support fabrication
C-19	Angle Grinders	230 mm	8	Fabrication and cutting works

B.2 Test & Measurement Equipment

Item No.	Equipment	Description	Qty	Purpose / Calibration
T-01	Multimeters	Digital — CAT III	8	General electrical testing — calibrated
T-02	Insulation Tester (Megger)	500 VDC / 1kV / 5kV	4	Cable IR testing — calibrated
T-03	Earth Resistance Tester	Ground resistance tester	1	Earthing system verification — calibrated
T-04	Loop Calibrator	4–20mA HART capable	8	Instrument loop checks — calibrated
T-05	Phase Rotation Tester	3-phase rotation meter	2	Phase rotation verification — calibrated
T-06	Torque Wrenches	Electrical torque set	2	Terminal and busbar torque verification — calibrated
T-07	Clamp Meters	AC/DC clamp meters	4	Current measurement — calibrated
T-08	OTDR Tester	Fibre optic OTDR	1	Fibre optic commissioning — calibrated

B.3 Tools & Safety Equipment

Item No.	Equipment	Qty	Purpose
C-10	Hydraulic Cable Cutter (battery)	2	Cable preparation and cutting
C-11	Hydraulic Cable Crimper (battery)	2	Cable termination crimping
C-20	Industrial Label Printer	1	Cable and panel identification tags
C-21	Temporary Site Lighting (LED towers)	2	Night shift and poor visibility areas
C-22	Tool Storage Containers	2	Secure tool storage on site
C-23	Material Storage Containers (6m)	2	Cable and equipment storage
C-24	Safety Equipment	Various	Harnesses, lanyards, barriers, PPE — regulatory compliance
C-25	Communication Radios	6	Site coordination and supervision

APPENDIX C — MANNING PLAN & PRODUCTIVITY ASSUMPTIONS

C.1 Fixed Site Management Team

Role	Qty	Responsibility	Throughout Project?
Site Project Manager	1	Overall project delivery; client interface; schedule and resource management	Yes
EC&I Site Manager	1	Day-to-day field management; drawing control; work supervision	Yes
Site Planner	1	Schedule, EV, lookahead, delay documentation	Yes
Quantity Surveyor	1	Measurement, PPC, VOs, cost forecasting	Yes
Quality Control Officer	1	Quality inspections; ITP; NCR; dossier compilation	Yes
QC Assistants	2	Support QC Officer; document control; test record filing	Yes
Site Document Controller	1	Document management; drawing distribution; registers	Yes
HR Officer	1	Attendance, payroll coordination, discipline, welfare	Yes
Safety Officer	1	HSE plan; PTW; incident management; compliance	Yes
Safety Representatives	2	Toolbox talks; safety inspections; observation reporting	Yes

C.2 Weekly Crew & Headcount Plan (10-Week Reference)

Week	Cable Crews	Ladder Crews	Tubing Crews	Planned Cable (m)	Planned Ladder (m)	Total Headcount
1	1	3	0	4,290	1,170	37
2	2	4	0	8,580	1,560	51
3	2	4	1	8,580	1,560	54
4	3	5	1	12,870	1,950	68
5	4	5	1	17,160	1,950	75
6	4	5	0	17,160	1,950	72
7	3	5	0	12,870	1,950	65
8	2	4	0	8,580	1,560	51
9	2	3	0	8,580	1,170	44
10	1	2	0	3,049	180	30

C.3 Crew Productivity Assumptions

Activity	Crew Composition	Productivity Rate	Shift (hrs)	Days/Week
Cable Installation	2 Electricians + 4 Assistants + 1 Gang Leader	715 m/crew/day	12	6
Cable Ladder Installation	2 Boilermakers + 4 Assistants	65 m/crew/day	12	6
Decabon / Impulse Tubing	1 Instrument Tech + 2 Assistants	195 m/crew/day	12	6
Cable Terminations	2 Electricians + 1 Supervisor	120 terminations/crew/day	12	6
Instrument Installation	1 Instrument Tech + 1 Assistant	8–12 instruments/crew/day	12	6
IR / Megger Testing	1 Electrician + 1 QC Assistant	60–80 cables/day	12	6
Loop Checking	1 Instrument Tech + 1 QC + 1 DCS Operator	15–25 loops/day	12	6

— END OF EC&I CONSTRUCTION PROCEDURES MANUAL — ROLE-BASED PROCEDURES —
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