Appendix A

Integrated Structural Stress Testing & Downside Analysis

This Appendix consolidates three structured stress scenarios into a single analytical framework.

Its purpose is not to model optimism, but to examine structural durability under adverse conditions.

The scenarios assess resilience across three distinct risk domains:

1. **Internal Capital & Cash Flow Stress**
   (sales slowdown, infrastructure overruns, repayment pressure)

2. **Governance & Institutional Friction**
   (leadership conflict, voting deadlock, operational disagreement)

3. **Market & Macro Contraction**
   (external price compression, demand slowdown, extended absorption)

Each scenario isolates a different stress vector while evaluating the same underlying question:

> Does structural pressure translate into systemic collapse —
> or into extended timelines within preserved architecture?

The analysis focuses on:

- Capital protection mechanisms
- Infrastructure continuity
- Governance stability
- Repayment discipline
- Ownership continuity

The objective is to demonstrate whether stress alters magnitude of risk —
or merely duration of exposure.

The architecture is tested for controlled degradation rather than speed-dependent success.

The following sections examine each stress domain independently.

Part 1

Structural Stress Testing & Downside Analysis

1. Purpose

This appendix evaluates the resilience of the Granjalotes capital and governance structure under adverse conditions.

The objective is not projection optimism.

The objective is structural durability.

Two stakeholder perspectives are analyzed:

• Capital Providers (Development Loan holders)
• Lot Owners (Active Participants)

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2. Baseline Structural Assumptions

For modeling purposes:

- 50 total lots projected
- 50% pledged before land acquisition
- Early Capital loans: €2,000,000
- 3.5% simple annual interest
- 5% annual minimum principal discipline (Phase 3 onward)
- 20% contingency buffer included in acquisition model
- Liquidity protection threshold active

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3. Moderate Stress Scenario

Assumptions:

- Only 25% of lots convert in Phase 2
- Core Infrastructure costs increase by 20% (storm event)
- Sales slow for 18 months
- No catastrophic legal or political disruption

Investor Impact

- Interest accrues at 3.5% simple
- No compounding
- No forced maturity
- Principal repayment delayed but not impaired
- Sales-based repayments continue as liquidity permits

Outcome:

Repayment timeline extends.
Capital security remains intact.
No structural default event triggered.

Lot Owner Impact

- Phase 3 amortization discipline activates
- Temporary increase in monthly contribution possible
- Increased incentive to stimulate sales
- No loss of ownership rights
- Infrastructure protected by liquidity floor

Outcome:

Temporary financial pressure.
Structural integrity maintained.

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4. Severe Stress Scenario

Assumptions:

- 25% lot conversion
- 2 years of minimal additional sales
- 20% infrastructure overrun fully consuming contingency
- Interest accrues during stagnation

Financial Pressure:

Development Loans: €2,000,000
Annual interest: €80,000
Minimum principal (Phase 3): €100,000

Total annual obligation: €180,000

If only 12 owners active:

Approx. €15,000 per owner annually
Approx. €1,250 per month

This represents a high but temporary pressure level.

Investor Perspective Under Severe Stress

- Interest continues to accrue linearly
- No compounding
- No balloon maturity
- Exit Pool fast lane available
- Structural repayment discipline enforced

Capital exposure extends in time, not magnitude.

Lot Owner Perspective Under Severe Stress

- Elevated temporary contribution
- Strong incentive to accelerate sales
- Governance mechanisms intact
- Infrastructure completion protected
- Structural ownership retained

Pressure converts into coordination incentive rather than collapse risk.

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5. Structural Observations

The system converts financial shock into:

Time extension
Incentive alignment
Governance coordination pressure

It does not create:

Balloon maturity crisis
Compounding debt explosion
Automatic default cascade
Forced asset liquidation

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6. Structural Conclusion

Under modeled stress scenarios:

• The project does not structurally default
• Capital exposure increases in duration, not magnitude
• Infrastructure completion remains protected
• Governance retains authority
• Ownership continuity remains intact

The architecture prioritizes survivability over speed.

Part 2

Governance Resilience & Investor Protection Analysis

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1. Purpose

This appendix evaluates the resilience of the governance architecture under internal disagreement, decision friction, or political fragmentation.

The objective is to assess whether governance instability could:

• Disrupt capital discipline
• Impair infrastructure completion
• Suspend repayment mechanics
• Create structural default risk

The focus is investor protection under non-ideal governance conditions.

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2. Structural Separation of Risk Domains

The framework intentionally separates:

• Structural rules (80–100% thresholds)
• Operational decisions (50% threshold)
• Capital repayment discipline (predefined and not annually renegotiated)
• Liquidity protection mechanisms

This separation prevents short-term political disagreement from interfering with long-term capital architecture.

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3. Voting Caps as Anti-Capture Mechanism

Phase-based voting caps ensure that:

• Early capital concentration does not translate into permanent dominance
• No individual may accumulate decisive control through lot aggregation
• Authority gradually normalizes to one vote per person in Phase 4

This prevents both:

Founder capture
And investor bloc dominance

Capital providers are protected by predefined rules rather than influence politics.

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4. Predefined Capital Discipline

Repayment structure is embedded in the framework and does not require annual discretionary approval.

Specifically:

• 3.5% simple interest accrues automatically
• Sales-based principal repayment executes automatically
• Minimum principal discipline activates at Phase 3
• Liquidity floor protects infrastructure and reserve

These mechanics operate independently of political alignment.

Governance disagreement does not suspend capital obligations.

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5. Removal & Continuity Mechanism

If leadership becomes contested:

• Removal requires high structural threshold (80%)
• Interim Continuity Board activates via capital vote
• Infrastructure contracts remain binding
• Repayment discipline continues

Leadership change does not invalidate capital commitments.

This prevents executive conflict from destabilizing financial structure.

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6. Deadlock Scenario Analysis

Under a hypothetical evenly split owner base:

• Operational matters remain resolvable via simple majority
• Structural principles remain protected via high thresholds
• Capital repayment rules remain automatic

Deadlock may slow expansion decisions but cannot trigger default.

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7. Non-Compliance Handling

Owner contribution obligations attach to ownership shares.

Non-compliance results in:

• Suspension of voting rights
• Property-based enforcement mechanisms
• Potential forced sale under defined procedures

This prevents minority obstruction from paralyzing financial continuity.

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8. Litigation Containment

The Constitution includes a stepped conflict resolution process:

• Direct negotiation
• Structured mediation
• Formal escalation

This reduces the probability of immediate external litigation disrupting operations.

Even in legal dispute scenarios:

• Core Infrastructure funds remain ring-fenced
• Reserve minimum remains protected
• Debt does not accelerate

Financial structure remains insulated from governance friction.

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9. Investor Risk Characterization

Under modeled governance stress:

Capital risk transforms into:

Extended repayment timeline
Slower development progression
Temporary operational friction

It does not transform into:

Balloon maturity risk
Debt compounding escalation
Automatic cross-default cascade
Forced liquidation trigger

The architecture prioritizes controlled degradation over systemic collapse.

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10. Structural Conclusion

The governance model is designed to:

• Prevent concentration risk
• Prevent political suspension of repayment discipline
• Protect infrastructure funding
• Preserve investor claims during leadership transition
• Ensure survivability under internal disagreement

Governance conflict may affect speed.

It does not structurally impair capital security.

Part 3

Market Value & Macro Downside Consideration

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1. Market Exposure Context

The Granjalotes structure is not designed as a short-term land appreciation vehicle.

The capital model is based on:

- Productive land utility
- Infrastructure-enabled buildability
- Structured territorial coherence
- Controlled lot supply

The model does not depend on rapid external price inflation.

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2. Hypothetical Market Contraction Scenario

In a scenario where regional rural land values decline materially (e.g., 20–30%):

The following structural characteristics apply:

- Development Loans are not secured by speculative resale valuation.
- There is no balloon maturity requiring forced liquidation.
- No compounding interest escalation exists.
- No margin-call mechanism exists.
- Repayment remains time-based and sales-based.

Capital exposure may extend in duration,
but it is not mechanically accelerated by market pricing fluctuations.

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3. Structural Stability Under Price Compression

If lot demand slows due to broader market conditions:

- Sales-based repayment slows proportionally.
- Minimum amortization discipline remains.
- Infrastructure value remains intrinsic.
- Agricultural continuity preserves land utility.

The project transitions into slower absorption rather than distress liquidation.

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4. Risk Profile Summary

Under market contraction:

Risk transforms into:

- Extended timeline
- Reduced development velocity

It does not transform into:

- Structural default
- Forced asset sale
- Accelerated debt cascade

The architecture prioritizes durability over speculative leverage.