

NACHO LOS — Software Requirements Specification

Software Requirements Specification — version-controlled

1. Document Control

Field	Value
Document Title	NACHO LOS — Software Requirements Specification
Document ID	SRS-NACHO-LOS-001
Current Version	1.0.1
Previous Version	1.0.0 — frozen, git tag <code>srs-v1.0.0</code>
Owner	Christa Votaw
Last Updated	2026-09-21
Requirements source	Branch <code>pos-v1</code> @ <code>c4144c20</code> — ★ the branch production deploys from, not <code>master</code>
Change source	The live review queue (<code>FEEDBACK.md</code>), 2026-09-01 → 2026-09-21
Reviewer	Sharon LittleJohn — F-204 – F-226 filed 9/6–9/7, F-228 / F-229 emailed 9/8

★ **Versioning convention.** This set follows the **SRS template**: a revision that adds or changes requirements without breaking one already issued is a **PATCH** bump (1.0.0 → 1.0.1). ⚠ Part II §12 states the PRD's older semantic-versioning scheme, under which this would be a minor bump. **The template governs this document**; Part II §12 is retained for the record and superseded by §1–3 and §6 here.

★ **The seam was re-verified in this revision and does not move.** SM-01 – SM-12 are unchanged — checked against this revision and against the 2026-09-21 permissions lane. **SRS-NACHO-INT-001 is reissued as v1.0.1 to carry that verification record**, not because a seam rule changed: a no-change that has been checked is worth stating, and a version nobody can date is worth nothing. The one item that will move the seam later is **DM-11** (MERS MIN) — a MISMO field, specified here, not built, and the first thing that would touch **SM-01**. See §8.

★★ **This revision supersedes the LOS document issued 2026-09-06.** The set emailed on that date carried **LOS v1.0.0**; production moved in roughly twenty places over the following two days, and again on **2026-09-21** when the permissions lane — **D-01** roles per window, **D-02** the second standing backup, **D-04** the wire second control — reached the build, gated on named tests. **SRS-NACHO-POS-001 v1.0.1 from that send remains current**; its requirements are unaffected.

🛑 **§8 lists what is NOT built and the input each item is waiting on.** Read it before estimating: a requirement appearing in §4 is not a claim that it is live.

2. Revision History

Rule: every incoming version gets ONE new row. Never delete old rows.

Version	Date	Source	Change Type	Description of Changes	Affected Req IDs
1.0.0	2026-09-01	CLEAR Home Loans	Baseline	Initial requirements, issued to the development team	All
1.0.1	2026-09-21	CLEAR Home Loans — live review queue	New functionality · Updated	11 new requirements (Loan Summary section navigation, layout and shading; MERS MIN at application; fixed screen chrome; the SSN role split); 13 updated, principally the task floor, the pipeline reconciliation and in-file navigation. No requirement removed.	BS-07 · BS-08 · BS-09 · BS-10 · DM-11 · AD-14 · FU-07 · RC-11 · UX-07 · SEC-21 · SEC-22 · DM-01 · TK-01 · TK-02 · TK-03 · TK-04 · TK-05 · TK-08 · TK-09 · TK-10 · TK-11 · PL-01 · PL-02 · UX-05

Change Types: Baseline · New functionality · Updated · Removed · Clarified (wording only, no scope change)

3. Change Detail Log

Changes in v1.0.1

Every row cites the **F-number it came from** — the identifier already used in the live review queue, so a developer can trace a requirement back to the note that caused it.

New functionality — 11 requirements

Req ID	Change Type	Previous (v1.0.0)	New (v1.0.1)	Reference
BS-07	New functionality	—	★ In-page section navigation on the Loan Summary — Open Files moves into the top navy bar, to the right. The area it vacated becomes hyperlinks to sections within this same page — Borrowers, Subject Property, Details of Transaction. 🚫 The links jump within the Loan Summary; they do not open another screen.	F-216
BS-08	New functionality	—	★ Borrower Information sits top-left and is editable in place — Borrower Information is the top-left block of the Loan Summary. Borrower details can be edited on this screen. A change opens a pop-out window from the origin of the data — the Personal Information screen of the URLA/1003 — so the edit is made against the source of record, not a copy.	F-218
BS-09	New functionality	—	Application Information sits directly beneath Borrower Information — Application Information follows Borrower Information on the Loan Summary. The majority of the section is mapped from other sections and is read-only here ; named fields — Channel among them — remain editable in place.	F-226
BS-10	New functionality	—	Loan Summary sections are visually distinguished, not a continuous list of fields — Each section carries shading and separation so sections are distinguishable at a glance. ⚠️ Partially satisfied . The shading and visual separation are live; the field layout within each section is NOT built to the intended design and is held pending the style example the reviewer is sending. See §7.	F-217
DM-11	New functionality	—	★ MERS MIN is generated at application and its fields always render — The MIN is generated at the time of application , not at funding; it does not change when the loan funds; it transfers to the investor. It therefore exists on a new loan and must appear on one. 🚫 The fields are built as placeholders and render even when the value is not yet populated — the wider rule being corrected is that fields currently vanish when data is unavailable. ⚠️ Not built . The MIN is not yet routed through the API — see §7.	F-228
AD-14	New functionality	—	★ A standing backup names two holders, not one — STANDING_BACKUP resolves a covered role to two standing backers — Post-Closer and Director of Operations for the Closer/Funder seat. 🚫 One backup is insufficient by construction: where a control requires two different people (see FU-07), a single backer cannot both act and approve, and the first wire above threshold deadlocks while the primary is out. Each backer resolves to a seat a real person holds. ✅ Built and gated on T-13 (12/0) — branch pos-v1, 2026-09-21.	D-02 · T-13
FU-07	New functionality	—	★★ Wire release carries a second control, and the releaser may never countersign their own wire — Countersignature is required on two independent triggers, either sufficient : (a) the amount reaches \$750,000 ; (b) the wire instructions are new or changed since verification , at any amount. 🚫 Neither trigger alone is adequate — a dollar threshold cannot catch the correct amount sent to a wrong destination, which is what wire fraud actually is. A second capability, countersign-wire (Closer · Funder · Post-Closer), is distinct from release. ★ The constraint is per wire and per person, not per role : Funder and Post-Closer both hold release and countersign at the role level, so the grant matrix alone permits self-approval; the release record refuses countersigner == releaser on that specific wire, which is the only place the rule can be expressed. Only one pending release may be open on a loan at a time. ✅ Built and gated on T-06 / T-06b (23/0) — branch pos-v1, 2026-09-21.	D-04 · T-06 · T-06b
RC-11	New functionality	—	★ A second window on the same file opens read-only, names who holds the edit, and offers one take-over — Two windows open on the same loan do not silently overwrite one another. The second window opens read-only, names the window currently holding the edit , and carries exactly one control to take the edit over. Drafts are keyed per window, not to one shared per-file store. ✅ Built and gated on T-17 — branch pos-v1, 2026-09-21.	D-01 · T-17
UX-07	New functionality	—	★ Screen chrome stays fixed while content scrolls — Two surfaces, one requirement, built once : the search-grid column headers on the role desks, and the top Loan Summary bars (milestone, borrower, loan number) on every in-file page. Both remain visible while the list beneath them scrolls. The reviewer loses the column headers after 10–12 rows today and cannot tell which field she is reading. 🚫 A position:sticky element inside a non-scrolling ancestor does not stick — that was the original defect.	F-204 · F-225
SEC-21	New functionality	—	★★ Full SSN visibility is split by role — operations sees it, sales and the borrower side do not — Approved by the product owner 2026-09-21 . Operations roles in the LOS — Processor, Underwriter, Closer, Post-Closer — see the full Social Security number on named LOS screens, because the files cannot be worked without it. Loan Officer and every borrower-facing surface, including the entire POS, remain limited to the last four . The control is the role, not the screen alone, and every reveal is written to the audit record. ⚠️ Not built. ⚠️ The Loan Officer seat was not named explicitly by the product owner — see §7.	F-229

Req ID	Change Type	Previous (v1.0.0)	New (v1.0.1)	Reference
SEC-22	New functionality	—	★★ The active role resolves per window, not per browser — Identity and token live in shared browser storage; which role is currently being worn does not. The active role is scoped to the single window — carried in the URL so a reload restores it, and held in per-window storage across in-app navigation. 🛑 Switching role in one window must not change the role in another. This is the reviewer's own stated requirement (D-01, 2026-08-28): <i>two instances, different roles and different files, worked simultaneously, neither overwriting the other</i>. ⚠️ This is a client-side resolution rule, not a new trust boundary — the server already refuses on the token and only ever subtracts capability; what changes is which role the window claims. ✅ Built and gated on T-16 / T-17 (18/0, two browser contexts, shared identity, separate active roles and drafts) — branch <code>pos - v1</code>, 2026-09-21.	D-01 · T-16

Updated — 13 requirements

Req ID	Change Type	What changed	Reference
DM-01	Updated	1003/URLA field set extended and its address presentation changed: Alternate Names added and labelled AKA Names ; Language Preference added below it (English / Spanish / Other, defaulting to English); marital-status options extended. Addresses now use the compacted view — the whole address, residency type and duration on a single line — replacing one line per element	F-219 · F-220
TK-01	Updated	The task command centre is scoped to the role that is looking at it. The processor desk carried 353 tasks across 53 files ; it now carries 76 across 14 . ⚠️ 31 of the 53 files were never the processor's — the count was not merely noisy, it was wrong	F-205 · F-207 · F-224
TK-02	Updated	The standing-rules block is removed from the in-file task panel — removed, not hidden behind a toggle. It sat directly above each file's conditions and was read as a task count	F-206
TK-03	Updated	★ The task floor . A milestone is not a task and a state is not a task. <i>Suspended</i> , <i>Suspended 11 days</i> , <i>Set the File Up</i> and <i>Rate lock expired / expiring</i> were being emitted as tasks. Only work a role must perform generates a task	F-207
TK-04	Updated	Condition-generated tasks are gated on milestone. The PTF Verbal VOE condition carried <code>when: () => true</code> and therefore fired on every file regardless of status — 52 of them . It now fires only once the loan reaches Approved	F-209
TK-05	Updated	Clock-generated tasks no longer include rate-lock expiry as a task in its own right; lock state is surfaced on the file, not as work	F-207
TK-08	Updated	Due dates are editable from the task itself , by the role holding it — a borrower's timing or a pushed appraisal changes the date without leaving the list	F-223
TK-09	Updated	A role can comment on a task it holds, from the task	F-223
TK-10	Updated	Saved views apply inside a file, not only across the desk. The in-file grid opens on the reviewer's six columns in her order — Task · Due · Days · ICD out · Last day to issue ICD · Channel — and the group-by control is gone inside a file . ★ The blocker was <code>gcolsMust</code> forcing <code>['borrower', 'task']</code> onto every grid: correct on a desk spanning 14 files, wrong inside one	F-224
TK-11	Updated	A role can mark a task done from the task list	F-223
PL-01	Updated	★ The pipeline views reconcile to one population . My Dashboard reported 18 active files while My Desk reported 53 for the same processor. Both now report the same number, and the number is the role's own active files	F-210
PL-02	Updated	Scope-derived visibility narrowed on the borrower-facing queue. Requested From Borrower shows only the processor's own active loans — 🛑 not pre-approvals , which the loan officer chases at that stage, and 🛑 not files in the Purchased milestone , which can never legitimately owe a borrower document. <code>buildNeeds()</code> previously raised an ask for every file it saw	F-211 · F-215
UX-05	Updated	★ <i>One screen at a time inside a file</i> now means navigation without leaving the file . Operations works from the left-side menu; the 1003/URLA, Tasks and UW Conditions open in the file view rather than on their own screens requiring a click back to the 1003. Tasks has a route back to the loan file, and the top and left menus are no longer redundant and inconsistent with one another	F-213 · F-221 · F-222

Shipped in this period but changing no requirement

★ **Recorded deliberately**. A defect fix is not a specification change, and listing it as one inflates the spec and hides what actually moved.

Reference	What it was
F-212	The Overview section highlight on the Loan Summary — a defect in the active-section treatment, fixed. ⚠️ The screen-structure half of this row is not shipped and is held in §7
F-214	My Desk no longer snaps back to the top when scrolling stops — the half that actually blocked the reviewer, fixed. ⚠️ The layout half of this row is not shipped and is held in §7

Internal tooling —  not product, excluded from §4

Reference	What it was
F-208	Per-screen rate-and-comment on the role landing screens before a loan file is opened — My Dashboard, My Desk, Pipeline, Conditions, Requested From Borrower.  This is the review bench , not the product: it exists so the reviewer can grade each screen. Excluded from §4 deliberately

4. Requirements

Requirement IDs are carried forward unchanged and new requirements are **appended at the end of their group** — BS-07 – BS-10 continue Group BS, DM-11 continues Group DM, UX-07 and SEC-21 continue their non-functional groups.  No existing ID was renumbered, reused or removed.

Rows changed in this revision carry **1.0.1** in *Last Updated*. Rows introduced in this revision carry **1.0.1** in *Introduced*.

Priority mapping. The PRD grades each requirement by **Tier** (DEMO / PILOT / PROD — a *sequencing* instruction) and **Type** (required / desired). Mapped to MoSCoW as: **required** → **Must** · **desired** → **Should**.  Tier is deliberately **not** used for MoSCoW.

4.1 Functional Requirements — 286 requirements (was 278)

Group DM — The one data model (PRD §6.2)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
DM-01	Progressive 1003 / URLA (236 fields) fed from the POS — no re-key	Must	DEMO	required	1.0.0	1.0.1	Active
DM-02	★ Copy a file from an existing loan without carrying AUS findings, MERS/MIN or the property address	Must	PROD	required	1.0.0	—	Active
DM-03	New-construction property-tax projection by state	Must	PROD	required	1.0.0	—	Active
DM-04	Area Median Income auto-pull on property entry, for program eligibility	Must	PROD	required	1.0.0	—	Active
DM-05	★ USPS address verification — warn, do not stop	Must	PILOT	required	1.0.0	—	Active
DM-06	★ LinkedLoan — a true second lien with its own loan number , linked to the first	Must	PROD	required	1.0.0	—	Active
DM-07	Representative credit-score logic, program-configurable	Must	PILOT	required	1.0.0	—	Active
DM-08	Pre-AUS data validations — required fields complete, construction type set, property type correct	Must	PILOT	required	1.0.0	—	Active
DM-09	QCReview as a first-class object on the loan, not a spreadsheet beside it	Must	PROD	required	1.0.0	—	Active
DM-10	Field-level lineage — every value knows its source	Should	PROD	desired	1.0.0	—	Active
DM-11	★ MERS MIN is generated at application and its fields always render	Must	PILOT	required	1.0.1	—	Active

Group TK — The task engine and command centre (PRD §6.3)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
TK-01	Task command centre — all files, filterable, per role	Must	DEMO	required	1.0.0	1.0.1	Active
TK-02	In-file task panel on every role screen	Must	DEMO	required	1.0.0	1.0.1	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
TK-03	Tasks generated from milestone entry	Must	DEMO	required	1.0.0	1.0.1	Active
TK-04	Tasks generated from condition creation — PTD → processor, PTF → funder	Must	PILOT	required	1.0.0	1.0.1	Active
TK-05	★ Clock-generated tasks — TRID, lock expiry, incompleteness 30/60/90, grace period, insuring aging	Must	PILOT	required	1.0.0	1.0.1	Active
TK-06	Rule-generated tasks — state-specific and standard	Must	PILOT	required	1.0.0	—	Active
TK-07	★ Cross-role requests from Admin-defined standard-task lists	Must	PILOT	required	1.0.0	—	Active
TK-08	Editable per-file due dates	Must	DEMO	required	1.0.0	1.0.1	Active
TK-09	Comments on your own task	Must	DEMO	required	1.0.0	1.0.1	Active
TK-10	Saved views per role, persisted	Must	PILOT	required	1.0.0	1.0.1	Active
TK-11	Self-created tasks	Must	DEMO	required	1.0.0	1.0.1	Active
TK-12	Skills-based / just-in-time routing	Should	PROD	desired	1.0.0	—	Active

Group DC — The document engine (PRD §6.4)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
DC-01	Auto-recognise and label inbound documents — barcode-aware, and recognised when not barcoded	Must	PILOT	required	1.0.0	—	Active
DC-02	Auto-separate into buckets — no manual pulling-apart of a package	Must	PILOT	required	1.0.0	—	Active
DC-03	★ Package by label (FHA insuring, investor delivery) in the correct stacking order	Must	PROD	required	1.0.0	—	Active
DC-04	★ Strip document security on package assembly; log the event	Must	PROD	required	1.0.0	—	Active
DC-05	Custom forms and templates with data-field mapping	Must	PROD	required	1.0.0	—	Active
DC-06	In-system e-signature for underwriting and internal documents	Must	PROD	required	1.0.0	—	Active
DC-07	Reclassify, or reject with a message back to the borrower	Must	PILOT	required	1.0.0	—	Active
DC-08	Trailing-document tracking — what is owed, from whom, how old	Must	PROD	required	1.0.0	—	Active
DC-09	★ Correct CD terminology throughout — never "preliminary"	Must	DEMO	required	1.0.0	—	Active

Group CO — The compliance engine and the three gates (PRD §6.5)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
CO-01	Gate #1 — disclosure send, blocking	Must	PILOT	required	1.0.0	—	Active
CO-02	Gate #2 — milestone change, blocking before Clear to Close	Must	PILOT	required	1.0.0	—	Active
CO-03	Gate #3 — final document request, blocking	Must	PROD	required	1.0.0	—	Active
CO-04	★ A failure names the check, names the figure, and assigns a cure task	Must	PILOT	required	1.0.0	—	Active
CO-05	★ Role-restricted override with a typed reason, reported weekly	Must	PROD	required	1.0.0	—	Active
CO-06	TRID clock engine and the six-piece application trigger	Must	PILOT	required	1.0.0	—	Active
CO-07	★ Pre-Intent-to-Proceed fee gate, enforced at the data layer	Must	PILOT	required	1.0.0	—	Active
CO-08	Intent to Proceed as its own timestamped act	Must	PILOT	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
CO-09	Tolerance buckets as computed properties of a fee , not a manual classification	Must	PILOT	required	1.0.0	—	Active
CO-10	CD three-business-day scheduling block, across the seam	Must	PROD	required	1.0.0	—	Active
CO-11	ATR/QM and points-and-fees threshold tests	Must	PILOT	required	1.0.0	—	Active
CO-12	HOEPA federal plus state and local high-cost tests	Must	PROD	required	1.0.0	—	Active
CO-13	HPML / rate-spread test and its escrow consequence	Must	PROD	required	1.0.0	—	Active
CO-14	Loan-officer compensation validation against the fee sheet	Must	PROD	required	1.0.0	—	Active
CO-15	Bona-fide discount-point check, automatic	Must	PILOT	required	1.0.0	—	Active
CO-16	HMDA collection and LAR with validity and quality edit checks	Must	PROD	required	1.0.0	—	Active
CO-17	Adverse-action timing with specific, traceable reasons	Must	PILOT	required	1.0.0	—	Active
CO-18	★ Counteroffer → adverse-action clock	Must	PROD	required	1.0.0	—	Active
CO-19	Notice of incomplete application, 30/60/90, as tasks and reports	Must	PILOT	required	1.0.0	—	Active
CO-20	★ Withdrawn ≠ denied; automation halts on both	Must	PILOT	required	1.0.0	—	Active
CO-21	Employee-loan compliance handling	Must	PROD	required	1.0.0	—	Active
CO-22	PACER check	Should	PROD	desired	1.0.0	—	Active
CO-23	Retention policy and legal hold	Must	PROD	required	1.0.0	—	Active
CO-24	Investor-approval documents retained — non-delegated and brokered	Must	PILOT	required	1.0.0	—	Active
CO-25	★ One-action examination pull, exportable	Must	PROD	required	1.0.0	—	Active

Group QC — Quality control and quality assurance (PRD §6.6)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
QC-01	Scheduled monthly QC draw at a configured percentage	Must	PROD	required	1.0.0	—	Active
QC-02	Random and discretionary composition enforced	Must	PROD	required	1.0.0	—	Active
QC-03	Pre-close / pre-funding review that can gate the milestone	Must	PROD	required	1.0.0	—	Active
QC-04	Post-close review with agency deadline clocks	Must	PROD	required	1.0.0	—	Active
QC-05	★ Reviewer independence enforced via touch history and RBAC	Must	PROD	required	1.0.0	—	Active
QC-06	Rejected-application review queue (EOCA and fair lending)	Must	PROD	required	1.0.0	—	Active
QC-07	Findings → severity → corrective action → closure	Must	PROD	required	1.0.0	—	Active
QC-08	QC findings feed the training report	Should	PROD	desired	1.0.0	—	Active
QC-09	Agency-format QC export	Must	PROD	required	1.0.0	—	Active

Group PR / AC — Origination, processing and conditions (PRD §6.7)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
PR-01	Order all services from the LOS; the response is recorded in the file	Must	PILOT	required	1.0.0	—	Active
PR-02	Auto-fire vendor orders on milestone entry	Must	PILOT	required	1.0.0	—	Active
PR-03	AUS run in-system, findings stored	Must	PILOT	required	1.0.0	—	Active
PR-04	★ AUS re-run diff — what changed, not just the latest run	Should	PROD	desired	1.0.0	—	Active
PR-05	★ Credit review (not re-order), with the representative-score rule shown	Must	PILOT	required	1.0.0	—	Active
PR-06	Credit supplements ordered in-system	Must	PROD	required	1.0.0	—	Active
PR-07	Submission checklist gate; touch count tracked	Must	PROD	required	1.0.0	—	Active
PR-08	★ Non-delegated: upload the package to the investor, track it back	Must	PROD	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
PR-09	⚠️ Brokered channel path (~10–15% of volume)	Must	PROD	required	1.0.0	—	Active
PR-10	TBD-approval path without triggering the three-day rule	Must	PROD	required	1.0.0	—	Active
AC-01	Enhanced Conditions — automatic by product	Must	PILOT	required	1.0.0	—	Active
AC-02	Automatic conditions by state (e.g. Texas A(6) lock, South Carolina attorney)	Must	PILOT	required	1.0.0	—	Active
AC-03	Texas 50(a)(4) support alongside A(6)	Must	PROD	required	1.0.0	—	Active
AC-04	Automatic conditions from flags — trust, POA, manufactured home, buydown, DPA	Must	PROD	required	1.0.0	—	Active
AC-05	★ Batch conditions built once, auto-applied	Must	PROD	required	1.0.0	—	Active
AC-06	Conditions tagged by source — <code>auto·FHA</code> , <code>auto·state</code> , <code>auto·flag</code>	Must	PILOT	required	1.0.0	—	Active
AC-07	PTA / PTD / PTC / PTF taxonomy with gating behaviour	Must	PILOT	required	1.0.0	—	Active

Group UW / GV — Underwriting, including the government panels (PRD §6.8)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
UW-01	1003 and AUS side by side ; income, asset and collateral tabs	Must	PILOT	required	1.0.0	—	Active
UW-02	Condition builder — library, batch, custom	Must	PILOT	required	1.0.0	—	Active
UW-03	Decision: Approve / Suspend / Deny → the adverse-action path	Must	PILOT	required	1.0.0	—	Active
UW-04	Appraisal XML auto-populate	Must	PROD	required	1.0.0	—	Active
UW-05	Reconsideration-of-value forms and a defined process	Must	PROD	required	1.0.0	—	Active
UW-06	E-sign underwriting documents in-system	Must	PROD	required	1.0.0	—	Active
UW-07	OCR a non-delegated investor approval → mirror its conditions	Should	PROD	desired	1.0.0	—	Active
GV-01	FHA panel — case number, CAIVRS, LDP/GSA, ADP code, identity of interest	Must	PILOT	required	1.0.0	—	Active
GV-02	★ FHA mortgage-insurance premium auto-calculation by LTV and term, recalculating, with pennies dropped	Must	PILOT	required	1.0.0	—	Active
GV-03	FHA 203(k) fields when applicable	Should	PROD	desired	1.0.0	—	Active
GV-04	VA Certificate of Eligibility and entitlement, including remaining entitlement	Must	PILOT	required	1.0.0	—	Active
GV-05	★ VA funding fee auto-calculated, exemption drives it to \$0 , recalculating	Must	PILOT	required	1.0.0	—	Active
GV-06	VA residual income by region and household size	Must	PROD	required	1.0.0	—	Active
GV-07	VA refinance comparison and net-tangible-benefit panel, auto-populated	Must	PROD	required	1.0.0	—	Active
GV-08	★ VA non-allowable fees enforced on the fee sheet	Must	PROD	required	1.0.0	—	Active
GV-09	Veteran property-tax exemption flag with state logic	Must	PROD	required	1.0.0	—	Active
GV-10	USDA GUS, guarantee and annual fee, AMI and property eligibility	Must	PROD	required	1.0.0	—	Active

Group FE / CL / FU — Fees, closing and funding (PRD §6.9)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
FE-01	The 2015 itemisation, by section	Must	PILOT	required	1.0.0	—	Active
FE-02	★ Controlled fee-name dropdown — no free-hand fee names	Must	PILOT	required	1.0.0	—	Active
FE-03	★ Type-to-fill title company; 🛑 no vendor record created for a one-off payee	Must	PILOT	required	1.0.0	—	Active
FE-04	Individual fee box — paid-by, can-shop / did-shop, and it shows the LE section and the CD section	Must	PILOT	required	1.0.0	—	Active
FE-05	B-box mark-all with per-line override	Must	PILOT	required	1.0.0	—	Active
FE-06	ICD title swap moves fees out of the 10% tolerance bucket	Must	PILOT	required	1.0.0	—	Active
FE-07	Finance-charge auto-flag with an admin override	Must	PROD	required	1.0.0	—	Active
FE-08	Smart-fee / national-title placeholder at initial disclosure → the service-provider list	Must	PROD	required	1.0.0	—	Active
FE-09	★ Branch × State × Product fee templates load into the 2015	Must	PILOT	required	1.0.0	—	Active
FE-10	Review ribbon → jump to the LE or CD page	Should	PROD	desired	1.0.0	—	Active
FE-11	🕒 ★★ A full fee sheet built in 5–10 minutes	Must	PILOT	required	1.0.0	—	Active
CL-01	Aggregate escrow with the full CD visible	Must	PROD	required	1.0.0	—	Active
CL-02	Two-month cushion; taxes due ≤ 30 days → line 907	Must	PROD	required	1.0.0	—	Active
CL-03	Vesting panel — full type list, write-ins, title-holder-only	Must	PROD	required	1.0.0	—	Active
CL-04	Exhibit and legal — "see Exhibit A" default, trustee by state, riders	Must	PROD	required	1.0.0	—	Active
CL-05	★ Closing checkboxes with defined consequences	Must	PROD	required	1.0.0	—	Active
CL-06	In-system closing checklist as a gate	Must	PROD	required	1.0.0	—	Active
CL-07	★ ICD issuance gated by compliance pass #3	Must	PROD	required	1.0.0	—	Active
CL-08	Disclosure tracking screen, auto-dated	Must	PILOT	required	1.0.0	—	Active
CL-09	Change-of-circumstance reason table with timing tests	Must	PILOT	required	1.0.0	—	Active
CL-10	True document-vendor sync — all fields, all programs	Must	PROD	required	1.0.0	—	Active
CL-11	UCD round trip, in-system	Must	PROD	required	1.0.0	—	Active
FU-01	Funding worksheet → total fees → net wire	Must	PROD	required	1.0.0	—	Active
FU-02	Standard fees prefill; override allowed and logged	Must	PROD	required	1.0.0	—	Active
FU-03	★ Second liens and down-payment assistance populate the wire	Must	PROD	required	1.0.0	—	Active
FU-04	★★ PTF conditions gate the release	Must	PROD	required	1.0.0	—	Active
FU-05	Wire request and confirmation logged	Must	PROD	required	1.0.0	—	Active
FU-06	MERS register → warehouse, with the warehouse-MERS field	Must	PROD	required	1.0.0	—	Active
FU-07	★★ Wire release carries a second control, and the releaser may never countersign their own wire	Must	PROD	required	1.0.1	—	Active

Group PC — Post-close, insuring and investor delivery (PRD §6.10)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
PC-01	★ Post-close tracker — the spreadsheet becomes the screen	Must	PROD	required	1.0.0	—	Active
PC-02	Dated event log, auto-timestamped	Must	PROD	required	1.0.0	—	Active
PC-03	Insuring by program — FHA MIC, VA LGC, USDA Loan Note Guarantee	Must	PROD	required	1.0.0	—	Active
PC-04	★ Aging view: funded > X days without insuring	Must	PROD	required	1.0.0	—	Active
PC-05	VA funding-fee 15-day remittance clock	Must	PROD	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
PC-06	★ Investor Connect — two-way delivery and tracking	Must	PROD	required	1.0.0	—	Active
PC-07	Per-investor delivery profiles	Must	PROD	required	1.0.0	—	Active
PC-08	Purchase conditions return as routed in-file tasks	Must	PROD	required	1.0.0	—	Active
PC-09	★ Purchase Advice auto-reconciliation with mismatch flags	Must	PROD	required	1.0.0	—	Active
PC-10	★ On Purchased: MERS transfer → goodbye letter → payoff → finalise	Must	PROD	required	1.0.0	—	Active
PC-11	Post-close issue log feeds the training report	Should	PROD	desired	1.0.0	—	Active

Group SE / BD — Secondary market and buydowns (PRD §6.11)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
SE-01	Lock desk — lock, extend, re-lock at the correct plan code	Must	PILOT	required	1.0.0	—	Active
SE-02	★ Extension cost captured and attributed	Must	PROD	required	1.0.0	—	Active
SE-03	Lock-expiration alerts routed to the loan officer	Must	PILOT	required	1.0.0	—	Active
SE-04	Position, commitments, best execution, delivery	Must	PROD	required	1.0.0	—	Active
SE-05	Hedging and pull-through analytics	Should	PROD	desired	1.0.0	—	Active
BD-01	Buydown radio, type dropdown, funding source	Must	PILOT	required	1.0.0	—	Active
BD-02	Subsidy schedule auto-calculated	Must	PILOT	required	1.0.0	—	Active
BD-03	★ Qualifying-rate rule applied correctly to AUS and DTI	Must	PILOT	required	1.0.0	—	Active
BD-04	★ Plan code maps to pricing and document generation	Must	PILOT	required	1.0.0	—	Active
BD-05	Buydown agreement generated; escrow custodial account funded	Must	PROD	required	1.0.0	—	Active

Group WS — The worksheet and form library (PRD §6.12)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
WS-01	FHA Streamline worksheet with the full calculation chain	Must	PROD	required	1.0.0	—	Active
WS-02	FHA streamline required wait-period calculator	Must	PROD	required	1.0.0	—	Active
WS-03	Upfront MIP refund calculator, from the endorsement date	Must	PROD	required	1.0.0	—	Active
WS-04	VA IRRRL / cash-out comparison with net tangible benefit	Must	PROD	required	1.0.0	—	Active
WS-05	VA Joint Applicants worksheet	Must	PROD	required	1.0.0	—	Active
WS-06	VA eligibility / entitlement worksheet	Must	PROD	required	1.0.0	—	Active
WS-07	Texas A(6) 2% fee-cap worksheet	Must	PROD	required	1.0.0	—	Active
WS-08	Escrow Holdback Agreement for Repairs	Must	PROD	required	1.0.0	—	Active
WS-09	Verbal verification of employment form	Must	PROD	required	1.0.0	—	Active
WS-10	Specific power-of-attorney forms, mapped	Must	PROD	required	1.0.0	—	Active
WS-11	New-construction tax projection by state	Must	PROD	required	1.0.0	—	Active
WS-12	Closing matrix by state	Should	PROD	desired	1.0.0	—	Active

Group EC — eClose, eNote and RON (PRD §6.13)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
EC-01	eClosing room — hybrid, full eClose, and RON paths	Must	PROD	required	1.0.0	—	Active
EC-02	★ MISMO eNote with a real XMLSIG signature — not the string "UNSIGNED"	Must	PROD	required	1.0.0	—	Active
EC-03	eVault — tamper-evident authoritative-copy custody and transfer	Must	PROD	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
EC-04	RON: notary session, identity proofing, recorded audio-video, journal	Must	PROD	required	1.0.0	—	Active
EC-05	eClose eligibility by state, investor and county e-recording	Must	PROD	required	1.0.0	—	Active
EC-06	E-recording submission and recorded-document return tracking	Must	PROD	required	1.0.0	—	Active
EC-07	eNote registered to the MERS eRegistry as controller and location	Must	PROD	required	1.0.0	—	Active

Group RC — Controls the operations notes did not name (PRD §6.14)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
RC-01	★ OFAC / SDN / watchlist screening on all parties	Must	PILOT	required	1.0.0	—	Active
RC-02	★★ Wire-fraud control: verified payee, callback verification, account validation	Must	PILOT	required	1.0.0	—	Active
RC-03	NMLS Mortgage Call Report data and export	Must	PROD	required	1.0.0	—	Active
RC-04	US title-insurance rating — filed rates, simultaneous issue	Must	PROD	required	1.0.0	—	Active
RC-05	Investor-specific document stacking templates	Must	PROD	required	1.0.0	—	Active
RC-06	Hazard, flood and MI policy tracking with expiration alerts	Must	PROD	required	1.0.0	—	Active
RC-07	SSO / OAuth 2.0 (Okta, Azure AD, Google)	Must	PILOT	required	1.0.0	—	Active
RC-08	Document version control	Must	PROD	required	1.0.0	—	Active
RC-09	Flood-zone determination with life-of-loan monitoring	Must	PROD	required	1.0.0	—	Active
RC-10	★ Right-of-rescission tracking on applicable refinances	Must	PROD	required	1.0.0	—	Active
RC-11	★ A second window on the same file opens read-only, names who holds the edit, and offers one take-over	Must	PROD	required	1.0.1	—	Active

Group BS — ★★ The Loan Summary screen (PRD §6.15)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
BS-01	★ Loan Summary as the file-open screen — role-scoped, organised in sections	Must	DEMO	required	1.0.0	—	Active
BS-02	★ File-detail band identical across roles — the backup's first read	Must	DEMO	required	1.0.0	—	Active
BS-03	Role-scoped summary tiles — closer, post-closer, processor, underwriter, manager	Must	PILOT	required	1.0.0	—	Active
BS-04	★ Operations-defined custom fields as first-class data — reportable, filterable, task-able	Must	PILOT	required	1.0.0	—	Active
BS-05	Quick links that open the target form pre-populated , including external tools in context	Must	PILOT	required	1.0.0	—	Active
BS-06	The two-screen pattern enforced per role: task landing + Loan Summary	Must	DEMO	required	1.0.0	—	Active
BS-07	★ In-page section navigation on the Loan Summary	Must	DEMO	required	1.0.1	—	Active
BS-08	★ Borrower Information sits top-left and is editable in place	Must	DEMO	required	1.0.1	—	Active
BS-09	Application Information sits directly beneath Borrower Information	Must	DEMO	required	1.0.1	—	Active
BS-10	Loan Summary sections are visually distinguished, not a continuous list of fields	Must	DEMO	required	1.0.1	—	Active

Group CZ — The Closing Disclosure workspace (PRD §6.16)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
CZ-01	★ CDEZ — all five CD pages on one screen, directly beneath the 2015	Must	PILOT	required	1.0.0	—	Active
CZ-02	RegZ-CD control record: plan code, alternative lender, disclosure info, MI	Must	PILOT	required	1.0.0	—	Active
CZ-03	Closing vendor info — lender, title, Docs-Prepared-By exactly as printed	Must	PILOT	required	1.0.0	—	Active
CZ-04	CD page 3 Summaries of Transactions — prorations, payoffs, seller credits	Must	PILOT	required	1.0.0	—	Active
CZ-05	CD page 4 AP Table / AIR Table on adjustable loans	Must	PROD	required	1.0.0	—	Active
CZ-06	★★ The audit gates Order Docs — disabled until the compliance audit clears	Must	PILOT	required	1.0.0	—	Active
CZ-07	★ Audit findings in red with go-to-field links, not a report	Must	PILOT	required	1.0.0	—	Active
CZ-08	Reconcile the CD to the settlement statement without a second window	Must	PROD	required	1.0.0	—	Active
CZ-09	Closing conditions pull into the lender's closing instructions	Must	PROD	required	1.0.0	—	Active

Group LS — Loan-officer enablement (PRD §6.17)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
LS-01	LO pricing and scenario comparison, using the program engine	Must	PILOT	required	1.0.0	—	Active
LS-02	Pre-qualification / pre-approval letter from the LO, POS-aligned	Must	PILOT	required	1.0.0	—	Active
LS-03	LO compensation and commission visibility per loan	Should	PROD	desired	1.0.0	—	Active
LS-04	Referral-source and partner attribution reporting	Must	PROD	required	1.0.0	—	Active
LS-05	★ Lead → application conversion, held in the Portal, not the LOS	Must	PROD	required	1.0.0	—	Active
LS-06	LO co-pilot: next-best-action per file, with reasons	Should	PROD	desired	1.0.0	—	Active
LS-07	Production goals, pacing and forecast	Must	PILOT	required	1.0.0	—	Active
LS-08	Rate-watch, repeat-client and refinance-opportunity alerts	Should	PROD	desired	1.0.0	—	Active

Group AD / PL / AU — Admin, pipeline, reporting and audit (PRD §6.18)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
AD-01	★ Real RBAC — the role × capability matrix, with a workspace per role	Must	PILOT	required	1.0.0	—	Active
AD-02	Users and loan officers with state licences and expirations ; regions; branches	Must	PILOT	required	1.0.0	—	Active
AD-03	Fee templates by branch / state / product	Must	PILOT	required	1.0.0	—	Active
AD-04	Business rules and milestone gates	Must	PROD	required	1.0.0	—	Active
AD-05	Custom fields and forms with mapping	Must	PROD	required	1.0.0	—	Active
AD-06	Investors and delivery profiles	Must	PROD	required	1.0.0	—	Active
AD-07	★ Program and plan codes mapped to pricing and the document vendor	Must	PILOT	required	1.0.0	—	Active
AD-08	Standard-task dropdown libraries	Must	PILOT	required	1.0.0	—	Active
AD-09	Per-role pipelines, saved views, task templates	Must	PILOT	required	1.0.0	—	Active
AD-10	★ Configuration versioning and change audit	Must	PROD	required	1.0.0	—	Active
AD-11	★ Sandbox — test a rule in staging before it goes live	Must	PROD	required	1.0.0	—	Active
AD-12	Closing document plan codes by investor, and stacking templates	Must	PROD	required	1.0.0	—	Active
AD-13	Compliance audit settings, including default channel banked/brokered	Must	PILOT	required	1.0.0	—	Active
PL-01	Dual pipeline views — data grid and loan summary	Must	PILOT	required	1.0.0	1.0.1	Active
PL-02	Scope-derived visibility — branch / regional / national	Must	PILOT	required	1.0.0	1.0.1	Active
PL-03	★ Aging buckets with non-colour-only status	Must	PILOT	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
PL-04	Touch counts by role	Must	PROD	required	1.0.0	—	Active
PL-05	Reporting — pull-through, cycle time, channel mix, exports	Must	PROD	required	1.0.0	—	Active
PL-06	KPI framework surfaced natively — turn times, error rates	Should	PROD	desired	1.0.0	—	Active
PL-07	AI bottleneck detection and SLA alerts	Should	PROD	desired	1.0.0	—	Active
AU-01	★ Immutable audit trail — field, milestone, vendor, condition, permission	Must	PILOT	required	1.0.0	—	Active
AU-02	Compliance gate results and overrides recorded	Must	PILOT	required	1.0.0	—	Active
AU-03	Reconcile to the document vendor's disclosure trail	Must	PROD	required	1.0.0	—	Active
AD-14	★ A standing backup names two holders, not one	Must	PROD	required	1.0.1	—	Active

Group IN — Integrations (PRD §6.19)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
IN-01	Credit, flood and VOE via the credit vendor API	Must	PILOT	required	1.0.0	—	Active
IN-02	AUS — Fannie Mae DU and Freddie Mac LPA	Must	PILOT	required	1.0.0	—	Active
IN-03	★ Document vendor true sync — all fields, all programs	Must	PROD	required	1.0.0	—	Active
IN-04	MERS OnLine / API register and transfer	Must	PROD	required	1.0.0	—	Active
IN-05	FHA Connection — case number, CAIVRS, insuring	Must	PROD	required	1.0.0	—	Active
IN-06	Appraisal order and XML return	Must	PROD	required	1.0.0	—	Active
IN-07	Title request through the LOS, with the action recorded	Must	PROD	required	1.0.0	—	Active
IN-08	MI quotes and certificates; the non-delegated upload path	Must	PROD	required	1.0.0	—	Active
IN-09	Fraud detection	Must	PROD	required	1.0.0	—	Active
IN-10	4506-C / SSA-89 ordering	Must	PROD	required	1.0.0	—	Active
IN-11	GSE UCD collection	Must	PROD	required	1.0.0	—	Active
IN-12	Verification of assets	Should	PROD	desired	1.0.0	—	Active
IN-13	★ Pricing engine plan codes, both directions	Must	PILOT	required	1.0.0	—	Active
IN-14	★ Integration health visible on screen when a vendor is down	Must	PROD	required	1.0.0	—	Active

Group AI — Artificial intelligence inside the line (PRD §6.20)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
AI-01	Income calculator, showing its work	Should	PROD	desired	1.0.0	—	Active
AI-02	★ The income calculator states its own uncertainty and routes to a human	Should	PROD	desired	1.0.0	—	Active
AI-03	Document classification and auto-label to a condition	Should	PROD	desired	1.0.0	—	Active
AI-04	★ Condition-clearing suggestions — a human clears	Should	PROD	desired	1.0.0	—	Active
AI-05	Discrepancy flags — name versus W-2, employer mismatch	Should	PROD	desired	1.0.0	—	Active
AI-06	Next-best-action with a stated reason	Should	PROD	desired	1.0.0	—	Active
AI-07	★★ Guardrail charter enforced in code	Must	PROD	required	1.0.0	—	Active
AI-08	Model governance — versioning, disparate-impact testing, traceability	Must	PROD	required	1.0.0	—	Active
AI-09	Written AI/ML governance framework — the six required elements	Must	PILOT	required	1.0.0	—	Active
AI-10	On-demand AI disclosure pack — types used, purpose, safeguards	Must	PILOT	required	1.0.0	—	Active
AI-11	★ Per-loan AI provenance — what the model saw, its output, who reviewed it, what they did	Must	PILOT	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
AI-12	Tenant-scoped governance — a licensee can satisfy the framework on their own instance	Must	PROD	required	1.0.0	—	Active

Group CM — Commercialisation (PRD §6.21)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
CM-01	★ Tenant onboarding — a new lender configured without engineering	Must	—	—	1.0.0	—	Active
CM-02	Per-tenant branding, fee templates, plan codes, investors	Must	—	—	1.0.0	—	Active
CM-03	★ Tenant-scoped credentials — each lender's own agency and vendor accounts	Must	—	—	1.0.0	—	Active
CM-04	SOC 2 controls evidenced by the platform, not asserted	Must	—	—	1.0.0	—	Active
CM-05	★ Tenant data isolation provable on demand	Must	—	—	1.0.0	—	Active
CM-06	Versioned release train with tenant-level upgrade control	Must	—	—	1.0.0	—	Active
CM-07	Support model — tiers, SLAs, escalation, status page	Must	—	—	1.0.0	—	Active
CM-08	★ Third-party POS slot — open in both directions	Must	—	—	1.0.0	—	Active

Group MB — The mobile companion (PRD §6.22)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
MB-01	★ Task command centre on a phone — the single most valuable mobile surface	Must	PILOT	required	1.0.0	—	Active
MB-02	Pipeline read and search by borrower last name	Must	PILOT	required	1.0.0	—	Active
MB-03	Approvals and single-tap decisions	Must	PROD	required	1.0.0	—	Active
MB-04	Comment on a task	Must	PILOT	required	1.0.0	—	Active
MB-05	Conditions review — read, and clear with a note	Must	PROD	required	1.0.0	—	Active
MB-06	★ Alerts that carry consequence — lock expiring, grace period ending, insuring aging, ICD unsent with closing inside seven days	Must	PILOT	required	1.0.0	—	Active
MB-07	E-sign internal and underwriting documents	Should	PROD	desired	1.0.0	—	Active
MB-08	★ Desktop-only screens show read-only plus the reason	Must	PILOT	required	1.0.0	—	Active
MB-09	★ The backup-coverage day designed for the phone	Must	PROD	required	1.0.0	—	Active

Group SM — The seam (PRD §6.23)

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
SM-01	MISMO 3.4 push, idempotent by POS loan UUID	Must	DEMO	required	1.0.0	—	Active
SM-02	Event subscription with the full event set	Must	PILOT	required	1.0.0	—	Active
SM-03	Signed webhooks with replay protection	Must	PROD	required	1.0.0	—	Active
SM-04	★ Reconcile to truth , not delta application	Must	PILOT	required	1.0.0	—	Active
SM-05	Dead-letter queue surfaced to a human	Must	PROD	required	1.0.0	—	Active
SM-06	Daily reconciliation sweep with drift alerting	Must	PROD	required	1.0.0	—	Active

Req ID	Requirement	Priority	Tier	Type	Introduced	Last Updated	Status
SM-07	★★★ Published, versioned stage mapping table	Must	DEMO	required	1.0.0	—	Active
SM-08	LosAdapter interface with two implementations	Must	PILOT	required	1.0.0	—	Active
SM-09	★ The TRID trigger timestamp carried across the seam	Must	PILOT	required	1.0.0	—	Active
SM-10	★★★ Synchronous, confirmed adverse-action automation halt	Must	PILOT	required	1.0.0	—	Active
SM-11	Multi-tenancy mapping across both systems	Must	PROD	required	1.0.0	—	Active
SM-12	Sandbox parity — the full flow without a real borrower	Must	PILOT	required	1.0.0	—	Active

4.2 Non-Functional Requirements — 72 requirements (was 69)

★★★ Density and the speed standard (PRD §7.1)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
DEN-01	★ Tabular data renders as tables — real columns, alignment on the decimal, rows that scan. 🛑 Not stacked cards , which are a phone pattern that wastes 60% of a monitor.	Every grid surface	Must	1.0.0	—	Active
DEN-02	★ Row density on grid surfaces — pipeline, task centre, fee itemisation	40–60 visible rows on a 1080p screen	Must	1.0.0	—	Active
DEN-03	Section navigation is hyperlinked and always visible	Every multi-section screen	Must	1.0.0	—	Active
DEN-04	★ The left rail stays while in a file. Losing it to a hamburger menu on a desktop is a downgrade dressed as minimalism.	Every file screen	Must	1.0.0	—	Active
DEN-05	★★★ The stopwatch: a full fee sheet in 5–10 minutes , down from 20–25 today	Acceptance criterion, not a sentiment. A build that passes the feature test and fails the stopwatch has not passed.	Must	1.0.0	—	Active
DEN-06	Keyboard-first	Tab order follows the form, not the DOM . Enter commits. Numeric fields take a number without a mouse.	Must	1.0.0	—	Active
DEN-07	No modal for the common case	The individual-fee box refines a fee; it is not where every fee must be entered	Must	1.0.0	—	Active

Performance (PRD §7.2)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
PERF-01	Task command centre first render	< 1.5 s with a realistic dataset	Must	1.0.0	—	Active
PERF-02	Loan Summary open	< 1.5 s	Must	1.0.0	—	Active
PERF-03	Grid render — pipeline at 5,000 files, task centre at 2,000 tasks	< 2 s p95, and the grid stays responsive while scrolling	Must	1.0.0	—	Active
PERF-04	Field-to-field response on the fee itemisation	< 100 ms. Perceptible lag here is what makes DEN-05 unreachable.	Must	1.0.0	—	Active
PERF-05	Search by borrower last name	< 300 ms p95	Must	1.0.0	—	Active
PERF-06	Compliance gate evaluation	< 2 s , and never a silent timeout — a gate that fails open is worse than no gate	Must	1.0.0	—	Active
PERF-07	API read / write	< 300 ms / < 800 ms p95	Must	1.0.0	—	Active
PERF-08	Document package assembly	Acknowledged < 3 s ; assembly asynchronous with visible progress	Must	1.0.0	—	Active

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
PERF-09	Report and export generation	Interactive < 5 s; anything longer runs as a job with notification	Must	1.0.0	—	Active

Security (PRD §7.5)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
SEC-01	★★ Server-side authorisation, always	Every capability check on the server. The tell that permissions are cosmetic is that a super-admin sees the same screen as everyone else.	Must	1.0.0	—	Active
SEC-02	★ Deny by default	A route is staff-only unless explicitly declared public. A new route that forgets to check anything refuses .	Must	1.0.0	—	Active
SEC-03	★ Both checks, always	A capability check and a scope check. Holding <code>decision</code> does not entitle a seat to a file outside their scope.	Must	1.0.0	—	Active
SEC-04	Object-level authorisation	Every read of a loan verifies entitlement to that loan. An enumerable identifier with no ownership check is the defect class this prevents.	Must	1.0.0	—	Active
SEC-05	Encryption in transit	TLS 1.2 minimum, 1.3 preferred, including internal hops	Must	1.0.0	—	Active
SEC-06	Encryption at rest	All loan data; SSN and account numbers additionally field-level encrypted	Must	1.0.0	—	Active
SEC-07	Key management	Managed key service, rotatable, never in source control , never one master key for all data	Must	1.0.0	—	Active
SEC-08	MFA	Required for every staff seat, no exceptions by role	Must	1.0.0	—	Active
SEC-09	SSO	OAuth 2.0 / SAML against the corporate directory (RC-07)	Must	1.0.0	—	Active
SEC-10	★ No PII in URLs, logs or analytics	SSNs never logged, never in a query string, never in an error message	Must	1.0.0	—	Active
SEC-11	Tenant isolation	Enforced at the data layer, not by a WHERE clause a developer must remember	Must	1.0.0	—	Active
SEC-12	★ Wire-fraud controls	Verified payee, callback verification, account validation (RC-02). The largest single-loss risk in mortgage operations.	Must	1.0.0	—	Active
SEC-13	Watchlist screening	OFAC / SDN on all parties , not only the borrower (RC-01)	Must	1.0.0	—	Active
SEC-14	Upload safety	Type-verified, size-bounded, malware-scanned, served from a non-executing domain	Must	1.0.0	—	Active
SEC-15	Webhook hardening	Signature verification, replay protection, idempotency	Must	1.0.0	—	Active
SEC-16	Dependency and secret hygiene	Automated scanning; secret scanning that blocks the commit	Must	1.0.0	—	Active
SEC-17	Independent penetration test	Before launch and annually	Must	1.0.0	—	Active
SEC-18	SOC 2 Type II	★ Evidenced by the platform, not asserted (CM-04)	Must	1.0.0	—	Active
SEC-19	Least privilege	Standing production data access is exceptional, logged and time-bound	Must	1.0.0	—	Active
SEC-20	Incident response	Written, tested, wired to the GLBA 30-day breach-notification posture	Must	1.0.0	—	Active

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
SEC-21	★★ Full SSN visibility is split by role — operations sees it, sales and the borrower side do not	Approved by the product owner 2026-09-21. Operations roles in the LOS — Processor, Underwriter, Closer, Post-Closer — see the full Social Security number on named LOS screens, because the files cannot be worked without it. Loan Officer and every borrower-facing surface, including the entire POS, remain limited to the last four. The control is the role, not the screen alone, and every reveal is written to the audit record. ⚠ Not built. ⚠ The Loan Officer seat was not named explicitly by the product owner — see §7.	Must	1.0.1	—	Active
SEC-22	★★ The active role resolves per window , not per browser	Identity and token live in shared browser storage; which role is currently being worn does not. The active role is scoped to the single window — carried in the URL so a reload restores it, and held in per-window storage across in-app navigation. 🛑 Switching role in one window must not change the role in another. This is the reviewer's own stated requirement (D-01, 2026-08-28): <i>two instances, different roles and different files, worked simultaneously, neither overwriting the other.</i> ⚠ This is a client-side resolution rule, not a new trust boundary — the server already refuses on the token and only ever subtracts capability; what changes is which role the window claims. ✅ Built and gated on T-16 / T-17 (18/0, two browser contexts, shared identity, separate active roles and drafts) — branch <code>pos - v1</code> , 2026-09-21.	Must	1.0.1	—	Active

Auditability and data integrity (PRD §7.6)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
DATA-01	★★ Append-only audit trail	Every field change, milestone, vendor order, condition, permission change, gate result and override. No update path. No delete path.	Must	1.0.0	—	Active
DATA-02	★ One-action examination pull	The complete, timestamped story of any loan, exported in one action (CO-25)	Must	1.0.0	—	Active
DATA-03	★ Auto-date on event; never type a date	Received, sent, viewed, signed, ordered, funded, purchased, registered, transferred — the system stamps them. A date a human typed cannot support a compliance argument.	Must	1.0.0	—	Active
DATA-04	Field-level lineage	Every value knows its source (DM-10)	Must	1.0.0	—	Active
DATA-05	★ One data point, many views	The insuring log, the pipeline grid, the loan summary and the manager's report are filtered views of one loan object . If two of them can disagree, the system is broken.	Must	1.0.0	—	Active
DATA-06	Configuration is versioned	Fee templates, business rules and gates carry version history and a change audit (AD-10)	Must	1.0.0	—	Active
DATA-07	Backups	Encrypted, geographically separated, with restores actually tested	Must	1.0.0	—	Active
DATA-08	⚠ Transactional integrity	Paired writes must both succeed. The reference build's storage engine has no transactions — see §8 and §11 G3.	Must	1.0.0	—	Active

★ Device and platform — where the LOS diverges from the POS (PRD §7.7)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
DEV-01	★★ Desktop-first, by decision	Processors, underwriters, closers and funders work a file at a computer. A tablet at worst. Never a phone. Dense desktop layouts are correct here.	Must	1.0.0	—	Active
DEV-02	★ A phone is redirected, not degraded	Real work screens send a phone to <code>/los/desktop-only</code> with a reason. This is a declared non-surface , not a failure.	Must	1.0.0	—	Active
DEV-03	The mobile companion is a separate product surface	Four read-mostly panels (MB-01 to MB-09). It is not "the LOS, smaller."	Must	1.0.0	—	Active
DEV-04	🛑 Named phone exclusions	The 2015 fee itemisation · aggregate escrow · the funding worksheet and net wire · document packaging · the full 1003 review · admin configuration	Must	1.0.0	—	Active

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
DEV-05	Browsers	Current and previous major versions of Chrome, Edge, Firefox and Safari	Must	1.0.0	—	Active
DEV-06	Screen size	Designed for 1080p and above; usable at 1366×768 without horizontal scroll on primary grids	Must	1.0.0	—	Active
DEV-07	★ Two-monitor use is a first-class case	Nothing may depend on a viewport-width assumption that breaks when a window is half a screen	Must	1.0.0	—	Active

★ Usability — the backup rule (PRD §7.9)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
UX-01	★★ A trained person who did not build the file can use any screen	Visible context — what stage, what is outstanding, what was requested and by whom — not tribal knowledge held by whoever normally sits there	Must	1.0.0	—	Active
UX-02	The task list is the day	Nobody opens a random file. The landing screen is tasks, never a file list.	Must	1.0.0	—	Active
UX-03	★ Every field has a home	There is no "oops, forgot about this" page. Orphan fields are how a system becomes unlearnable — and how the same value gets entered twice, differently.	Must	1.0.0	—	Active
UX-04	A refusal names the next step	Which capability was required, and which seat holds it (§4.7)	Must	1.0.0	—	Active
UX-05	One screen at a time inside a file	Not one long scrolling page (§5.2)	Must	1.0.0	1.0.1	Active
UX-06	★ Acceptance test for UX-01	Hand a colleague a file mid-stage with no verbal briefing and have them identify the next three actions from the screen alone	Must	1.0.0	—	Active
UX-07	★ Screen chrome stays fixed while content scrolls	Two surfaces, one requirement, built once : the search-grid column headers on the role desks, and the top Loan Summary bars (milestone, borrower, loan number) on every in-file page. Both remain visible while the list beneath them scrolls. The reviewer loses the column headers after 10–12 rows today and cannot tell which field she is reading. 🛑 A <code>position:sticky</code> element inside a non-scrolling ancestor does not stick — that was the original defect.	Must	1.0.1	—	Active

Observability (PRD §7.10)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
OBS-01	★ Compliance-clock monitoring	Alert before a TRID, CD, rescission, incompleteness, insuring or funding-fee-remittance deadline is missed	Must	1.0.0	—	Active
OBS-02	★ Override reporting	Every compliance-gate override reported to compliance weekly (CO-05)	Must	1.0.0	—	Active
OBS-03	Touch counts and cycle time instrumented	The \$3.5 measures, from launch	Must	1.0.0	—	Active
OBS-04	Vendor health surfaced on the working screen	Not only on an operations dashboard (IN-14)	Must	1.0.0	—	Active
OBS-05	Distributed tracing	One operator action traceable end to end	Must	1.0.0	—	Active
OBS-06	Structured logs, no PII	SEC-10 holds absolutely	Must	1.0.0	—	Active
OBS-07	★ Drift alerting on the seam	The daily POS ↔ LOS reconciliation reports what it healed , not merely that it ran	Must	1.0.0	—	Active

Disaster recovery (PRD §7.11)

Req ID	Requirement	Target / Detail	Priority	Introduced	Last Updated	Status
DR-01	Recovery Time Objective	4 hours	Must	1.0.0	—	Active
DR-02	Recovery Point Objective	15 minutes	Must	1.0.0	—	Active
DR-03	Tested restore	At least annually, with the result written down	Must	1.0.0	—	Active
DR-04	Runbooks per failure mode	Including "the POS is unreachable", "the document vendor is down", "the pricing engine is down on a lock day"	Must	1.0.0	—	Active
DR-05	★ Funding-day continuity	A funding cannot be silently deferred by an outage. Wires in flight, and their state, must be recoverable and reconcilable.	Must	1.0.0	—	Active

Priority scale: Must / Should / Could / Won't (MoSCoW)

5. Out of Scope

Item	Why it is named rather than omitted
Loan servicing	Servicing is released. Deliberate and settled.
Commercial and multifamily (5+ unit)	Different regulations, documents and underwriting
Reverse mortgages	A separate product with its own rulebook
Construction-to-permanent	Deferred, not cancelled
International and territory lending	Deferred by explicit scope decision
The borrower experience	That is POS_version1.0.0

Excluded since 1.0.0. Unchanged in 1.0.1.

6. How this document is maintained

1. **Freeze the current version.** SRS-NACHO-LOS-001_v1.0.1 is never edited again.
2. **Bump Document Control** on the new file.
3. **Compare the incoming requirements against §4** — new, updated, removed.
4. **Add one row to §2 Revision History.**
5. **Fill a new §3 Change Detail block.**
6. **Update §4 in place** — edit updated text, append new IDs at the end of their group, strike through removed ones and keep the row.

ID rules: every requirement keeps its ID forever · a removed ID is never reused · removed requirements stay struck through · updated requirements show only the CURRENT text, history in §3.

🛑 **Generated, never hand-typed.** `node build-srs-los-101.mjs` . The build **refuses to overwrite** an issued version.

7. Open decisions raised by this revision

#	Decision	Impact
O-101L-1	⚠️ The Loan Summary field layout is not built as it needs to be. BS-10 shipped the shading and the visual separation between sections; the arrangement of fields inside each section is still waiting on the style example the reviewer said she would send. Until it arrives this screen is visually sectioned but not laid out to the intended design. 🛑 Do not design it from convention.	Blocks: BS-group visual work · F-217
O-101L-2	⚠️ The Loan Summary screen structure is waiting on the reviewer's map. F-212 asks why Overview sits under <i>The File</i> when it is the same as the Loan Summary, and why the page is one continuous scroll rather than discrete screens. She said examples would follow. The rebuild waits on that screen-by-screen breakdown; the highlight defect alone was fixed.	Blocks: Loan Summary rebuild · F-212
O-101L-3	⚠️ The My Desk layout half of F-214 is unbuilt and is waiting on the same design direction. The scroll defect is fixed; how the views should be laid out is not decided.	Blocks: My Desk layout · F-214
O-101L-4	★ DM-11 (MERS MIN) is specified but not routed. The requirement is approved and recorded; the MIN still has to be routed through the API before the placeholder fields carry a real value. ⚠️ Re-check the seam when this is built — MERS MIN is a MISMO field and may touch SM-01 (MISMO 3.4 push), which would be the first change to reach SRS-NACHO-INT-001.	Blocks: DM-11 build · F-228
O-101L-6	★ D-07 — the Pulse org tree has no contract. The reporting hierarchy is owned by Pulse and the LOS is to consume it read-only, but we have no access to that system. It was deliberately not stubbed . Until the contract exists, branch → region groupings stay placeholders and every report that rolls up by region is provisional.	Blocks: org-tree consumption · reporting roll-ups · G4
O-101L-5	⚠️ The Loan Officer seat is unresolved in SEC-21. The product owner approved the operations / borrower-side split and named the POS as staying limited. The reviewer's original proposal placed Loan Officer with the limited group , not with operations. SEC-21 is written that way. Confirm before build — the LO sits in the LOS but is a sales seat, and this is the one seat the split does not obviously decide.	Blocks: SEC-21 build · F-229

⚠️ **Still open from v1.0.0, unchanged:** the **disclosure-ownership conflict** (all disclosures send from the LOS, per the reviewer, against the blueprint and the POS Atlas) and the **brokered channel** (~10–15% of volume, absent from the prior blueprint). **Q3** — the Loan Summary specification that was cut off mid-sentence at capture on 8/31 (F-121) — **remains open and is not resolved by this revision**, notwithstanding the four new BS requirements. 🛑 Do not complete it from convention.

8. ★★★ Not built — and what is required to build it

Read this section before estimating. Every row below is blocked on **an input that has not been supplied**, not on developer time. Nothing here is waiting on the development team, and nothing here should be designed from convention to fill the gap — each item was left deliberately incomplete rather than invented.

What is not built	Requirement	Why it is not built	What is required
Loan Summary field layout	BS-10 · F-217	The shading and the visual separation between sections are live. The arrangement of fields <i>inside</i> each section is not built to the intended design — the screen is sectioned but not laid out.	★ The style example Sharon said she would send. She named a page whose style she wants the Loan Summary to follow. 🛑 Not to be designed from convention.
Loan Summary screen structure	F-212	Only the Overview highlight defect was fixed. The underlying question — why Overview sits under <i>The File</i> when it is the same as the Loan Summary, and whether the page should be one continuous scroll or discrete screens — is unanswered.	★ Sharon's screen-by-screen map. She wrote that examples would follow; they have not arrived.
My Desk view layout	F-214	The scroll defect is fixed — the view no longer snaps back to the top. How the views should actually be laid out was never specified.	Layout direction for the My Desk views.
★ Pulse org tree — the source of the reporting hierarchy	D-07	The org tree lives in Pulse and stays there; the LOS consumes it read-only . Nothing is built, deliberately: the branch → region groupings in the register remain placeholders (see G4).	★ A read contract with Pulse. We have no access to that system yet. 🛑 It was explicitly held rather than stubbed — a stub here would invent a hierarchy the company already maintains elsewhere.

What is not built	Requirement	Why it is not built	What is required
MERS MIN end to end	DM-11 · F-228	The requirement is approved and specified in this revision. Nothing is built: the placeholder fields have no value to carry because the MIN is not yet routed.	★ The MIN routed through the API. ⚠ Re-check SM-01 (MISMO 3.4 push) when it is — MERS MIN is a MISMO field and this is the one item in this revision that could later move SRS-NACHO-INT-001.
Full-SSN role split	SEC-21 · F-229	Approved by the product owner 2026-09-21 and specified here. Not built either way.	⚠ Confirmation of the Loan Officer seat. Operations (Processor, Underwriter, Closer, Post-Closer) sees the full number; the POS and every borrower-facing surface stay at last four. The LO sits in the LOS but is a sales seat, and was not named. SEC-21 currently places the LO with the limited group, per Sharon's original proposal.
LOS Loan Summary specification (from v1.0.0)	Q3 · F-121	🚫 Open since 8/31 and NOT resolved by this revision. The note specifying the Loan Summary screen was cut off mid-sentence at capture, immediately after the subject-property address field. Everything before the cut is written as requirements; the remainder was deliberately not invented.	The rest of the original note. 🚫 Do not complete it from convention — this was offered once and declined.
Disclosure ownership	Open since v1.0.0	Unresolved conflict: Sharon states all disclosures send from the LOS; the blueprint and the POS Atlas disagree. Nothing can be built correctly while the system of record is disputed.	A decision on which system owns disclosure send.
Brokered channel	Open since v1.0.0	Roughly 10–15% of volume, absent from the prior blueprint entirely. No requirements exist for it.	The brokered-channel workflow, from someone who runs it.

How to read this against §3. A requirement can be *specified here and listed as new in §3 while still appearing above* — BS-10, DM-11 and SEC-21 all do. The specification is settled; the build is not. 🚫 **A requirement's presence in §4 is not a claim that it is live.** The *Tier* column sequences it; this section says what is holding it.

Where an item is partially built, §3 records the part that shipped under *Shipped in this period but changing no requirement* (F-212, F-214) or as a new requirement carrying a ⚠ marker (BS-10). The half that shipped is real and on production; the half above is not.

Part II — The v1.0.0 specification, retained

This is the document issued 2026-09-01, reproduced verbatim — the mortgage primer, business context, roles and capabilities, the manufacturing line and screen inventory, the data model, compliance requirements, integrations, open decisions, and the expanded reasoning after each requirement group. It remains the best explanation of *why* the product is shaped as it is.

⚠ **Where Part II and §3/§4 differ, §3 and §4 govern.** Part II describes the product as it was specified on 1 September; the 24 changes listed in §3 have happened since. Part II is **not** updated in place — that is what makes the change auditable.

NACHO LOS — Product Requirements Document

The lender-side half of the CLEAR mortgage platform

Document	LOS_version1.0.0
Product	NACHO LOS — the loan origination system (where the loan is manufactured)
Version	1.0.0 — the baseline. Every later change is versioned; see §12.
Issued	2026-09-01
Subject-matter authority	Christa Votaw, National Sales Director, CLEAR Home Loans. Sharon LittleJohn, Director of Operations, is the source of record for the operational line — the roster, the milestone spine, the fee sheet, closing and post-closing.
Prepared by	Willis, working from the live build and their specifications
Audience	The development team building the production system

Companion documents	POS_version1.0.0 (the borrower-facing system) · INTEGRATION_version1.0.0 (how the two connect). All three are one specification.
Scope	United States only. Retail, non-delegated correspondent, and brokered channels. Purchase and refinance. 1–4 unit residential.
Reference build	https://nachomamas.pages.dev/los/ — working software, not a mockup. Where this document says a thing is BUILT, it is running there today.

Read this first

You are not expected to know anything about mortgages. §2 teaches the domain from zero, and it is the same primer that appears in POS_version1.0.0 — written once so the two halves can never teach you two different things about the same regulation.

What an LOS actually is. It is not a database of loans. It is a **manufacturing line**. A loan arrives from the borrower-facing system as raw material and leaves as a saleable asset. Between those two points it passes through named stations, each staffed by a specific role, each with a gate that must pass before the file may advance. When you are unsure how to model something, ask what a factory would do — that is nearly always the right answer here.

The mortgage judgment in this document is the deliverable. Most of the rules are federal law and several are the difference between a loan an investor will buy and a loan CLEAR is forced to keep. Where a requirement exists because of a regulation it says so and cites it. **Do not optimise those away.**

Four things that are not negotiable:

1. **Permissions are enforced on the server, never in the screen.** The tell that permissions are cosmetic is that a super-admin sees the same screen as everyone else.
2. **Deny by default.** A route is staff-only unless explicitly named public. A route written next month that forgets to check anything must **refuse**, not permit.
3. **A refusal names what to do next.** When the software turns somebody away it says which capability was required and which seat holds it. A gate that only says "no" teaches people to route around the system.
4. **Compliance gates block; they do not warn.** See §6 group CO. A warning is a suggestion, and a suggestion at the moment somebody is trying to ship is a suggestion that gets ignored.

How this document is organised

§	What it covers	Who needs it
1	What the LOS is, scope, and its relationship to the other two documents	Everyone
2	★ Mortgage fundamentals — the domain, from zero	Everyone, first
3	Business context, the operating model, and how success is measured	Product, leadership
4	★ Roles, capabilities, scope and coverage — build this before any screen	Everyone
5	The manufacturing line, station by station, and the 53-screen inventory	Everyone
6	★ Functional requirements — 278, numbered and tiered	Engineering, QA
7	★ Non-functional requirements	Engineering, QA, ops
8	The data model	Engineering
9	Compliance requirements, rule by rule	Engineering, QA, compliance
10	Integrations	Engineering
11	What is still open — decisions, conflicts, and known gaps	Product, leadership
12	Change control, versioning, glossary, appendices	Everyone

⚠ **§4 comes before §5 on purpose.** A screen that looks right sitting on top of a wrong permission model is the most expensive kind of wrong, because it is invisible until an examiner or an incident finds it.

Requirement IDs never change and are never reused. A requirement is referenced as `C0-06` or `FE-04` for the life of the product. Where you need to be unambiguous across documents, write `LOS-C0-06`.

1 • Introduction

1.1 What the LOS is

LOS stands for "loan origination system." It is the software CLEAR's own staff work in — the processors, underwriters, closers, funders, post-closers, the lock desk, managers and administrators.

★ **It is a manufacturing line, not a database.** A loan arrives from the POS and passes through stations: intake, processing, underwriting, conditions, closing, funding, post-closing, and finally sale to an investor. Each station has an owner, a gate, and a set of tasks it fires on entry.

Half	Name	Who uses it	What it does
Front	POS — <code>POS_version1.0.0</code>	Borrower, referral partner, loan officer	Wins the loan, collects the application and documents, keeps the borrower informed
Back	LOS — this document	CLEAR staff	Verifies, decides, prices, closes, funds, insures, and sells the loan

1.2 The one-sentence product goal

Every operator opens one screen and knows what to do next; every file's next action is visible to whoever picks it up; and no loan advances past a gate it has not actually passed.

1.3 What the LOS is *not*

- **It is not a borrower-facing system.** 🛑 **The LOS never authenticates a borrower.** Borrower identity, the application experience, the referral partner and the AI borrower assistant all live in the POS.
- **It is not a servicing system.** CLEAR releases servicing. Post-close uploads go to whoever purchased the loan. This closes the scope cleanly and it stays closed.
- **It is not a CRM.** Leads and sales pipeline live in the LO Portal / POS and must never clutter the LOS.

1.4 ★ The rule of thumb for the seam

The POS owns the humans. The LOS owns the loan.

The most expensive failure in a POS/LOS programme is both sides implementing the same logic and then disagreeing at runtime. Every shared concern has **exactly one** system of record, listed in `INTEGRATION_version1.0.0` §3. The two that matter most:

- ★ **Loan status / milestone is the LOS.** Authoritative. The POS mirrors and presents; **it never computes a stage.**
- ★ **Underwriting decisions are the LOS.** The POS decides nothing. This is a compliance boundary as much as an architectural one.

1.5 Scope

In scope:

- United States only. Purchase and refinance. 1–4 unit residential.
- Loan types: Conventional, FHA, VA, USDA, Jumbo, Non-QM.
- ★ **Three channels, not two:**

Channel	Approximate share	What changes
Retail	Majority	The full line, in-house end to end

Channel	Approximate share	What changes
Correspondent, non-delegated underwriting	~20–25%	Disclose and process in-house → the processor uploads the package to the investor to underwrite → investor conditions come back and are mirrored internally → finish in-house with documents, wire and funding
Brokered	~10–15%	Disclose and hand off

⚠ **The brokered channel is a known gap** — it was absent from the prior blueprint entirely, which left roughly one loan in eight without a home in the system. It is specified at minimum level in §6 (PR-09) and named as an open item in §11.

Out of scope:

Out of scope	Why it is named rather than omitted
Loan servicing	Servicing is released. Deliberate and settled.
Commercial and multifamily (5+ unit)	Different regulations, documents and underwriting
Reverse mortgages	A separate product with its own rulebook
Construction-to-permanent	Deferred, not cancelled
International and territory lending	Deferred by explicit scope decision
The borrower experience	That is POS_version1.0.0

1.6 ★ The commercial ambition, and why it changes the architecture

CLEAR intends this platform to be **licensable to other lenders**, not merely used in-house. That is not a phase-two concern — it is an architectural constraint from the first commit, and it is why §6 carries a **Commercialisation** group and why §7 treats multi-tenancy as foundational.

The practical consequences: tenant onboarding without engineering; per-tenant branding, fee templates, plan codes and investors; **tenant-scoped credentials**, so each lender uses their own agency and vendor accounts; tenant data isolation **provable on demand**; and a third-party POS slot, because a licensee may arrive with their own front end.

2 · Mortgage fundamentals — the domain from zero

Read this section even if you are in a hurry. Almost every strange-looking requirement in this document is strange because of something in here. An engineer who skips this section will build something that looks right and is illegal, and will not be able to tell the difference.

Nothing in this section is CLEAR-specific. This is how the American mortgage industry works.

2.1 What a mortgage actually is

A **mortgage** is a loan used to buy or refinance real estate, where the property itself is the collateral. If the borrower stops paying, the lender can take the property.

Two documents do the work, and they are not the same thing:

- **The note** — the borrower's promise to repay. This is the debt.
- **The mortgage** (called a **deed of trust** in some states) — the document that pledges the property as security for that promise. This is the lien.

The **borrower** is the person taking the loan. A **co-borrower** is a second person equally on the note. The **lender** is the company advancing the money — in this document, CLEAR Home Loans.

2.2 The five-minute version of how a loan happens

Here is the whole lifecycle. Everything in both documents is somewhere on this line.

- ① Shopping A person wonders what they can afford. No application, no credit pull, no commitment. THIS IS WHERE THE POS STARTS.
- |
- ② Pre-qualification A rough estimate based on what they tell us. Not verified, not a promise. Gives them a number and gives us a lead.
- |
- ③ Application They formally apply. This is the "1003" (§2.6). The moment six specific pieces of information exist, a legal clock starts (§2.9).
- |
- ④ Disclosures Within 3 business days we must hand them a Loan Estimate — a standard-format document showing the rate, payment and costs. They then say "keep going" (Intent to Proceed). ⚠ Before they say it, we may not charge them for anything except the credit report.
- |
- ⑤ Processing ← THE FILE CROSSES FROM POS TO LOS HERE
Staff verify everything: income, assets, employment, the property. Documents are collected. An appraisal is ordered. Title is ordered.
- |
- ⑥ Underwriting A licensed underwriter decides: approve, approve-with-conditions, suspend, or deny. Almost always approve-with-conditions.
- |
- ⑦ Conditions The list of things still needed. The single biggest source of delay in the entire industry. Cleared one at a time.
- |
- ⑧ Clear to Close All conditions satisfied. The loan may now be closed.
- |
- ⑨ Closing Final numbers are disclosed (the Closing Disclosure) at least 3 business days before signing. Then the borrower signs.
- |
- ⑩ Funding Money is wired. On a purchase this is same-day. On a refinance of a primary residence the borrower has a 3-day right to cancel first, which is why "Closed" and "Funded" are separate milestones.
- |
- ⑪ Post-closing The file is completed, insured if government-backed, and packaged.
- |
- ⑫ Purchased The loan is sold to an investor. CLEAR gets its money back and lends it again. This is how the business actually works.

Why ⑫ matters to you as an engineer: CLEAR does not keep these loans. It sells them. An investor will refuse to buy a loan whose paperwork is wrong, and will force CLEAR to buy it back if a defect is found later. That is why this system is so obsessive about records, timestamps and proof. Sloppy data is not untidy — it is unsaleable.

2.3 Who does what — the roles

These are real jobs held by real people. The software models them exactly.

Role	Plain-English job	Where they work
Borrower	The customer	POS
Referral partner (real-estate agent, builder)	Sends CLEAR the customer. The growth engine of the business.	POS
Loan Officer (LO)	Licensed salesperson. Owns the relationship, takes the application, quotes terms. Only a licensed LO may do these things (§2.10, SAFE Act).	POS + LOS
Loan Officer Assistant (LOA)	Supports the LO. May not set terms.	POS + LOS
Processor	Assembles and verifies the file. Orders appraisal, title, verifications. The workhorse of the middle.	LOS
Processing Manager	Runs the processors. Assigns work, covers gaps.	LOS
Underwriter	Licensed decision-maker. The only role that may approve or deny.	LOS
Closer	Prepares the final numbers and the closing package.	LOS
Funder	Releases the money. Only this role may release a wire.	LOS
Post-Closer	Finishes the file after funding: insuring, MERS, investor delivery.	LOS

Role	Plain-English job	Where they work
Secondary / Lock Desk	Owens the interest rate. Only this role may confirm a rate lock.	LOS
Manager	Oversight across a branch, region, or the company.	LOS
Admin	Configures the system: fee templates, rules, seats.	LOS

★ **Separations that look like friction and are not.** Several of these splits exist so that no single person controls a whole risk. The person who *orders* a credit report is not the person who *reviews* it. The person who *decides* the loan is not the person who *releases the money*. Do not "simplify" these — each one is listed in §4 with the reason it exists.

2.4 The money words

You will see these constantly. They are all simple.

Term	What it means	Why it matters
Principal	The amount borrowed	—
Interest / note rate	The percentage charged annually	—
P&I	Principal and Interest — the loan payment alone	—
PITI	P&I plus property Taxes and homeowners Insurance	This is the real monthly payment. Quoting P&I alone makes a payment look 25–35% smaller than it is, which is why this system always breaks it out.
Escrow / impounds	The lender collects 1/12 of taxes and insurance each month and pays them when due	An "escrow waiver" means the borrower pays them directly
LTV — Loan-to-Value	Loan ÷ property value, as a %	Drives pricing and whether mortgage insurance is required
CLTV	Same, counting <i>all</i> liens including a second mortgage	—
DTI — Debt-to-Income	Monthly debts ÷ monthly gross income, as a %	The core affordability test. Most programs cap it around 43–50%.
MI / PMI — Mortgage Insurance	Insurance protecting the <i>lender</i> if the borrower defaults	Generally required when LTV > 80%. Can be borrower-paid or lender-paid.
Points	1 point = 1% of the loan amount, paid up front to lower the rate	—
Buydown	Paying to reduce the rate, either permanently (points) or temporarily (e.g. a "2-1 buydown")	—
APR	A rate figure that folds in certain costs. Not the same as the note rate.	Legally defined. Never invent this number.
Rate lock	The lender guarantees a rate for a set number of days	Expires. An expired lock costs real money.
Float	The rate is not locked yet and moves with the market	—
Cash to close	What the borrower must actually bring on closing day	The number borrowers care about most
Reserves	Money left over after closing, measured in months of payments	Some programs require it
Appraisal	An independent professional opinion of the property's value	If it comes in below the purchase price, the deal is in trouble
Title	Legal ownership, and the search proving no one else has a claim	—

2.5 The four loan types

Type	Backed by	Notable	Typical borrower
Conventional	Fannie Mae / Freddie Mac (the "GSEs")	Best pricing for strong credit; MI required over 80% LTV	Most borrowers

Type	Backed by	Notable	Typical borrower
FHA	Federal Housing Administration	Low down payment, lenient credit; mortgage insurance for the life of the loan in most cases	First-time and credit-challenged buyers
VA	Department of Veterans Affairs	No down payment, no MI, a one-time "funding fee"; requires a Certificate of Eligibility	Veterans, active duty, some surviving spouses
USDA	Department of Agriculture	No down payment; property must be in an eligible rural area and income must be under a cap	Rural buyers

FHA, VA and USDA are collectively called "government" or "GOVT" loans. They each have extra steps, extra documents and extra government systems to talk to. That is why the LOS has separate government screens.

Conforming vs jumbo: the GSEs will only buy loans under an annually-set dollar limit. Under it is *conforming*; over it is *jumbo* and is sold elsewhere with stricter terms.

2.6 The 1003 (say "ten-oh-three")

The **Uniform Residential Loan Application**, also called the **URLA**. It is the single standardised mortgage application form used across the entire United States, and it has been mandatory in its current form since **1 March 2021**.

- It carries **236 data fields across 9 sections**.
- Its data format is **MISMO 3.4 / ULAD** — an XML standard. This is how loan data moves between systems, including from the POS to the LOS and out to the agencies.
- The nine sections: ① personal information ② employment and income ③ real estate owned ④ the loan and the property ⑤ declarations ⑥ acknowledgments ⑦ military service ⑧ demographic information ⑨ the loan officer's own section.

★ **The part that makes it hard to build:** the form is heavily **conditional**. Whether a field must be asked depends on prior answers. Under 24 months at the current address means prior addresses are required until 24 months is continuously covered. Self-employment opens an entire additional schedule. A "yes" on a declaration opens follow-up questions. Building the 1003 as a flat form is the single most common way a POS ships looking fine and fails underwriting. §6 group B specifies every trigger.

2.7 The documents that matter

Document	When	What it is
1003 / URLA	Application	The application itself (§2.6)
AUS findings	After the file is assembled	The GSEs' automated underwriting verdict — Fannie's is DU (Desktop Underwriter), Freddie's is LPA (Loan Product Advisor). It returns Approve/Eligible, Refer, or Caution, plus the exact documents required. It is close to the law of the file.
Loan Estimate (LE)	Within 3 business days of application	Standard 3-page form: rate, payment, costs. Legally required, legally formatted.
Closing Disclosure (CD)	≥3 business days before signing	The LE's final counterpart. Actual numbers.
1008 / Transmittal	Underwriting	The underwriter's summary of the decision
Note	Closing	The promise to repay
Deed of Trust / Mortgage	Closing	The lien on the property
Closing package	Closing	Everything signed at the table, typically 100–150 pages

2.8 Conditions — where loans actually die

An underwriter almost never says a flat yes. They say **"approved, subject to these conditions."** A condition is an outstanding item: a missing bank statement, an explanation for a large deposit, proof that a debt was paid off.

- **PTD — Prior To Docs.** Must be satisfied before the closing package is drawn.
- **PTF — Prior To Funding.** Must be satisfied before money moves.
- **Clear to Close (CTC)** means every PTD condition is cleared.

Chasing conditions is the slowest part of every mortgage. A large share of both documents is devoted to making it faster.

2.9 ★ The clocks — why timing is a feature

Several federal rules are expressed as **deadlines**, and missing one is a violation regardless of intent. The software runs these clocks; humans are not trusted to remember them.

Clock	Rule	Consequence of missing it
LE within 3 business days	Once an "application" exists (see below), the Loan Estimate must be delivered within 3 business days	A TRID violation
CD at least 3 business days before consummation	The borrower must have the final numbers 3 business days before signing	Closing must be delayed
Adverse action within 30 days	If an application is denied, the borrower must be told, with specific reasons	An ECOA violation
⚠️ The counteroffer trap	If we counteroffer and the borrower does not accept within 30 days, it <i>becomes</i> an adverse action needing a notice	Missed constantly, because the file still feels alive
Appraisal copies	Every valuation must be delivered promptly on completion, or ≥3 business days before consummation, whichever is earlier	An ECOA valuations violation
Counseling list within 3 business days	A list of local housing counsellors, pulled from the CFPB source no more than 30 days before it is given	A hardcoded list becomes a violation on a schedule

★★ **What legally counts as an "application" — the six pieces.** This is the most important definition in the entire document. Under TRID, an application exists the moment the lender has received all six of:

1. The borrower's **name**
2. The borrower's **income**
3. The borrower's **Social Security number** (to pull credit)
4. The **property address**
5. An **estimate of the property's value**
6. The **loan amount** sought

The instant the sixth arrives, the 3-business-day Loan Estimate clock starts, whether anyone noticed or not. The system must detect that moment and timestamp it. **Pulling credit does not start this clock. Collecting the sixth piece does.**

★ **The fee rule that attaches to it.** Once an application exists, **the only fee that may be charged before the borrower receives the Loan Estimate and separately indicates Intent to Proceed is a bona fide credit-report fee.** No appraisal fee, no application fee, no processing deposit. And documents may be *invited* but may not be *required* before Intent to Proceed. Both of these are enforced at the data layer in this system, because a policy reminder is not a control.

"Business day" has two different definitions inside TRID. They are codified in the system, not approximated. Getting this wrong silently shifts every deadline.

2.10 The regulators, and what each one wants

You do not need to read the regulations. You do need to recognise the names, because the requirements cite them.

Short name	Full name	What it governs, in one line
TRID	TILA-RESPA Integrated Disclosure	The LE and CD, and their timing. The big one.
Reg Z	Truth in Lending Act	Cost of credit, advertising, the disclaimer on estimates
RESPA	Real Estate Settlement Procedures Act	Settlement costs, and §8 : no paying for referrals
ECOA / Reg B	Equal Credit Opportunity Act	No discrimination; adverse-action notices; appraisal delivery
HMDA / Reg C	Home Mortgage Disclosure Act	Collecting demographic data for government monitoring
FCRA	Fair Credit Reporting Act	Credit pulls need permissible purpose and consent
HPPA	Homebuyers Privacy Protection Act (effective 4 March 2026)	Bans reselling a mortgage credit inquiry as a "trigger lead" unless a two-part test is met

Short name	Full name	What it governs, in one line
TCPA	Telephone Consumer Protection Act	Texting and calling consent, quiet hours, opt-out
CAN-SPAM	—	Commercial email: postal address, working unsubscribe
E-SIGN / UETA	—	What makes an electronic signature legally count
GLBA	Gramm-Leach-Bliley Act	Safeguarding customer financial data; MFA and encryption
SAFE Act	—	Only a licensed loan originator may take an application or offer/negotiate terms. This is why the AI assistant may never quote a rate.
UDAAP	—	No unfair, deceptive or abusive practices. Governs tone and honesty, not just legality.

⚠ Standing caveat. This document is a product specification, not legal advice. Every control described here is reviewed and signed off by CLEAR's compliance counsel before launch. Where counsel's decision is still outstanding, §11 says so explicitly rather than guessing.

2.11 Vocabulary you will meet in the code

Term	Meaning
GSE	Government-Sponsored Enterprise — Fannie Mae and Freddie Mac
AUS	Automated Underwriting System — DU or LPA
DU / LPA	Fannie's and Freddie's AUS
MISMO	The XML data standard for mortgage data
MERS	Mortgage Electronic Registration Systems — the national registry tracking who owns a loan; every loan gets a MIN number
PPE	Product & Pricing Engine — the system that returns real rates
VOA / VOI / VOE	Verification of Assets / Income / Employment
RON	Remote Online Notarization — closing by video. Legal in 49 states + DC.
eNote	An electronic promissory note, registered on the MERS eRegistry
COC	Change of Circumstance — a valid reason to re-issue a Loan Estimate
ITP	Intent to Proceed
NMLS	The national licensing registry. Every LO has an NMLS number that must be displayed.
LE / CD	Loan Estimate / Closing Disclosure
CTC	Clear to Close
ICD	Initial Closing Disclosure
NOIA	Notice of Incomplete Application

3 · Business context and the operating model

3.1 The problem being solved

The work in a mortgage back office is inflated far beyond the loan itself by three things: **re-keying** the same value into several systems, **portal-hopping** between a dozen external websites, and **manual tracking** in spreadsheets that live beside the system rather than in it.

★ **The design intent is that growth is absorbed by removing touches, not by adding people.**

Load today	Where it goes
A manual post-close spreadsheet and "twenty different buckets" of documents	The post-close screen and the document engine (§6 PC, DC)
Portal-hopping — FHA Connection, the GSE UCD portal, MERS, investor portals	In-system integrations (§10)
Re-keying between the LOS and the document vendor	True field and program sync (§IN-03)

Load today	Where it goes
20–25 minutes per title-fee update	Templates and type-to-fill (FE-09, FE-11)
Manually built conditions	Enhanced Conditions fired from file attributes (§6 AC)
Manually tracked incompleteness notices and insuring aging	Clock-generated tasks (TK-05)

⚠ **The honest caveat, stated because it changes how you should build.** Every one of those substitutions is software that has to be *right*. **Automation that is 90% right in operations does not save 90% of the time — it saves much less, because now somebody has to check it.** That is why every requirement group in §6 carries a "done = testable" statement, and why the acceptance script (MAINT-07) is part of the deliverable rather than an afterthought.

3.2 ★ The roster, as the shop actually runs

This is not an org chart. These are the real seats, and getting them wrong reshapes screens.

Role	Owns which milestones	Lives in	What matters
Loan Officer	Application Taken → Initial Disclosures Sent	LO Portal / POS	Originates. Orders credit at pre-approval. Sends initial disclosures and revised Loan Estimates. Leads and sales pipeline never clutter the LOS.
Loan Officer Assistant	—	LO Portal / POS	Sales-side support. Not an operations role.
Processor	Processing → Initial Submission → Resubmission	LOS	★ Reviews the credit the LO ordered — does not re-order it. Orders appraisal, title, flood, VOE, 4506-C. Runs AUS. Clears conditions. Requests the Initial Closing Disclosure from the closer.
Processing Manager	—	LOS	Runs the processors; assigns work; covers gaps.
Underwriter	Approved / Suspended → Clear to Close	LOS	Assess, decide, condition, clear. Government panels appear when the loan type requires them. E-signs underwriting documents in-system.
Closer / Funder	Clear to Close → Docs Out → Funded	LOS	★ One seat, one person. Balances the file, issues closing documents — the 2015 fee itemisation, aggregate escrow, vesting, exhibit/legal, the ICD — then the funding worksheet and the net wire. Her only MERS involvement is confirming the MIN printed on the Deed of Trust.
Post-Closer	Post Closing → Purchased	LOS	Insuring by program, document packaging, Investor Connect, the entire MERS lifecycle , the UCD, trailing documents, the post-close issue log. Also backup closer/funder.
Secondary / Lock Desk	Parallel: lock → commit → sell	LOS	Locks tied to the pricing engine at the correct plan code; commitments; best execution; delivery.
Manager	Oversight, no milestone	LOS	Scope-dependent views (branch / regional / national); dual pipeline views; touch counts; reporting.
Admin	Configuration	LOS	RBAC, business rules, fee templates, conditions, custom fields and forms, licences, investors, plan codes.

★ Three corrections that reshape screens if you get them wrong:

1. **The loan officer orders credit, in the POS, at pre-approval.** Not the processor. A processing screen with an "order credit" button as its primary action is modelled on the wrong shop.
2. **Closer and funder are one seat, not two roles with a handoff.** That screen carries the balance-then-issue-then-fund arc without pretending somebody else picks it up.
3. **The post-closer owns the UCD, not the closer.** The natural-looking assignment is the wrong one.

3.3 ★ The milestone spine

This is canonical and its order is verbatim from the Director of Operations.

Application Taken (Initial Disclosures Sent) → Processing → Initial Submission → Approved / Suspended → Resubmitted / Condition Submission → Clear to Close → Docs Out (Sent) → Closed → Funded → Post Closing → Purchased

Withdrawn and Denied are first-class milestones, not error states. Each is wired to its own process.

Every milestone carries three things: **an owner, a gate that must pass before advancing, and the task set it fires on entry.**

★ **"Closed" and "Funded" are separate on purpose.** On a refinance of a primary residence a three-day rescission period sits between them. **Systems that collapse the two print wrong dates on exactly the loans where dates matter most.**

3.4 ★ Backup coverage is a first-class requirement

Closing/funding and post-closing are **two people**, each with a designated backup, and the Director of Operations backs up both. That is a concentration risk the software must **absorb** rather than ignore.

What it means in the build:

- Every role screen is legible to a trained person who **did not build the file.**
- Task ownership is reassignable in one action, with the reason recorded.
- Requests between roles carry **who asked, for what, by when** — so a stand-in can answer them.
- The mobile companion is designed for **the covering person's day**, not for a generic phone user.
- ★ **Acceptance test:** hand a colleague a file mid-stage with no verbal briefing, and have them identify the next three actions **from the screen alone.**

3.5 Success measures

Metric	Why	Target
★ Touches per loan	The direct measure of whether the system removed work or moved it	Reduce against the current baseline
Cycle time by stage	Where files actually sit	Reduce; expose the bottleneck
Pull-through	Started → funded	Establish, then improve
Cost to manufacture	The dollar case	Beat the current baseline
★ Title-fee update time	The stopwatch requirement (FE-11)	20–25 min today → 5–10 min
Compliance gate pass rate and override count	A gate that is always overridden is not a gate	Overrides reported weekly
Files funded >X days without insuring	The classic post-close leak	Zero aged beyond the agency clock
Backup cold-start test	§3.4	Next three actions identified from the screen alone

3.6 The competitive bar

The LOS is measured against **Encompass, Blue Sage, LendingPad, Byte** and **MeridianLink**. On the compliance engine specifically the position is deliberately modest: **match the market leader, do not try to beat it.** That is the audit and saleability floor and there is no prize for novelty in it.

The differentiators are elsewhere: the document engine, the built-in worksheet library, Investor Connect, the MERS lifecycle, the change-of-circumstance engine, and — most of all — **the seam** with the POS, which no competitor has because no competitor owns both halves.

4 · Roles, capabilities, scope and coverage

⚠ **Build this section before you build a screen.** Everything in §5 and §6 sits on top of it. A screen that looks right on a wrong permission model is the most expensive kind of wrong.

4.1 The identity model — a person is not a role is not a scope

Three separate ideas that systems routinely collapse into one, and that collapse is where permission bugs come from.

Concept	What it is	Example
Person	A human being with a login	Toni
Role	What kind of work they do	Closer

Concept	What it is	Example
Scope	Which files they may see	Branch · Region · National · Own

A person may hold **more than one role** (a Closer who also covers as a Funder). A role does not imply a scope — two processors can hold the same role and see different files. **A capability check answers "may this act happen?"; a scope check answers "on this file?"** Both run, always, and both run on the server.

4.2 The eleven roles

Role	May be assigned a file	Summary
Loan Officer	✓	Originates; orders credit; runs AUS; requests locks
Loan Officer Assistant	✓	Sales-side support; runs AUS; no term-setting
Processor	✓	Reviews credit, orders services, builds the file, clears conditions
Processing Manager	✓	Processor capabilities plus assignment and channel
Underwriter	✓	The only role that decides; signs underwriting documents
Closer	✓	Fees, escrow, vesting, exhibits, the ICD, closing documents
Funder	✓	The only role that releases a wire
Post-Closer	✓	Insuring, MERS, UCD, investor delivery, trailing documents
Secondary / Lock Desk	✓	The only role that confirms a lock
Manager	✗	Oversight, override, cross-branch visibility
Admin	✗	Configuration

★ **Manager and Admin are deliberately not assignable to a file.** They are **authorities over the shop, not a desk a loan sits on**. Putting them in the assignment picker invites a file to be parked on somebody whose job is to oversee it, and a file parked on an overseer is a file nobody is working.

4.3 The capability registry — 31 capabilities

Permissions are **capabilities, not roles**. A route checks `may(seat, 'release-wire')`, never `seat.role === 'Funder'`. This is what makes coverage, delegation and multi-hat seats possible without rewriting authorisation logic every time the shop changes.

Capability	Held by
<code>order-credit</code>	Loan Officer
<code>review-credit</code>	Processor · Processing Manager · Underwriter
<code>order-services</code>	Processor · Processing Manager
<code>run-aus</code>	Loan Officer · LOA · Processor · Processing Manager · Underwriter
<code>decision</code>	Underwriter
<code>sign-uw</code>	Underwriter
<code>govt-file</code>	Processor · Processing Manager · Underwriter
<code>enter-fees</code>	Closer · Post-Closer · Admin
<code>fee-templates</code>	Admin
<code>issue-docs</code>	Closer · Post-Closer
<code>release-wire</code>	Funder
<code>mers</code>	Post-Closer
<code>ucd</code>	Post-Closer
<code>insuring</code>	Post-Closer · Funder
<code>investor-deliver</code>	Post-Closer · Manager

Capability	Held by
lock-request	Loan Officer · LOA · Secondary/Lock Desk · Manager · Admin
lock-confirm	Secondary / Lock Desk · Manager · Admin
vesting	LO · LOA · Processor · Processing Manager · Closer · Manager · Admin
record-consent	LO · LOA · Processor · Processing Manager · Manager · Admin
clear-docs	LO · LOA · Processor · Processing Manager · Underwriter · Manager · Admin
file-docs	LO · LOA · Processor · Processing Manager · Manager · Admin
edit-1003	LO · LOA · Processor · Processing Manager · Underwriter · Manager · Admin
partner-write	LO · Assistant · Processor · Manager · Admin
advance	Every operating role · Manager · Admin
assign-team	Admin · Manager · Processing Manager
set-channel	Processing Manager · Secondary · Manager · Admin
lead-book	LO · LOA · Manager · Admin
view-all	Manager · Processing Manager · Admin · Secondary · Processor · Underwriter · Closer · Funder · Post-Closer
override-gate	Manager · Admin
configure	Admin
cross-surface	Admin

4.4 ★★ Deliberate separations — do not "simplify" these

Each of these looks like friction and is a control. Every one exists so that **no single person owns a whole risk**. If a future requirement asks you to merge two of them, that is a decision for CLEAR's compliance function, not a refactor.

Separation	Why it exists
★ order-credit (LO) vs review-credit (Processor, PM, Underwriter —  not the LO)	A shop where the person who orders the report also clears it has no second pair of eyes on the one document the whole decision rests on .
★ decision vs sign-uw (both Underwriter)	Deciding and signing are two acts . The signature is what makes the decision a record.
★ release-wire (Funder only)	The wire is the highest-consequence act in the system . An Admin who needs it uses override-gate and leaves a record.
★ enter-fees vs fee-templates	An Admin may change the templates behind the fee sheet and the sheet on a file, but reaches anything else through a logged override. A blanket super-admin is exactly the cosmetic-permissions failure this model exists to prevent.
★ mers and ucd are separate, both Post-Closer	The Closer confirms the MIN prints on the Deed of Trust and stops there . The Post-Closer owns the whole MERS lifecycle <i>and</i> the UCD. Registering a lien and filing a dataset are different acts.
★ investor-deliver separate from mers and ucd	Delivering a closed loan to the party that buys it is a different act from registering a lien. The seat that delivers answers for the delivery. The Manager holds it too, because a post-closer out for a week cannot mean a shop that cannot sell loans .
★ govt-file (Processor, PM, Underwriter —  not the LO)	The FHA case number, CAIVRS/LDP/GSA results, the VA Certificate of Eligibility and the USDA determination are ordered and recorded by the processor and read by the underwriter. The seat that wants the loan approved does not get to type the eligibility result that approves it .
★ lock-request vs lock-confirm	Anyone may ask. Only the lock desk makes a lock real .
★ partner-write excludes Underwriting	An underwriter talking directly to the buyer's agent about a file she is deciding is a conversation that should go through the loan officer.

And one deliberate widening, for the same kind of reason:

★ **run-aus** includes the **Loan Officer and the LOA**. A loan officer who cannot run automated underwriting is handing the processor a file that nobody has established is approvable — which is the opposite of what the handoff is for. This is not a convenience widening; it is what makes the handoff mean something.

And one deliberate backup: **insuring** includes the **Funder**, because a file that funds late on a Friday gets its first trailing documents logged by the desk that funded it. That is coverage, not a claim that closing owns insuring.

4.5 Data visibility — who sees which files

Scope is separate from capability (§4.1). A capability says *what act*; scope says *on which files*.

Scope	Sees
Own	Files where this seat is on the assignment set
Branch	Every file in their branch
Regional	Every file across their branches
National	Every file in the tenant

➖ **Scope never crosses a tenant.** Tenant isolation is enforced at the data layer, not by a **WHERE** clause a developer must remember (§7 SEC-10).

⚠ **The branch and region groupings in the reference build are placeholders.** There is no authoritative branch list in the source material and **no NMLS branch IDs are recorded**. This must be replaced with CLEAR's real org chart before build. See §11 D4.

4.6 ★ Coverage — the thing a permanent permission map cannot express

A role × capability matrix describes the shop on a normal day. **It cannot describe Tuesday**, when the closer is out and somebody has to issue documents anyway.

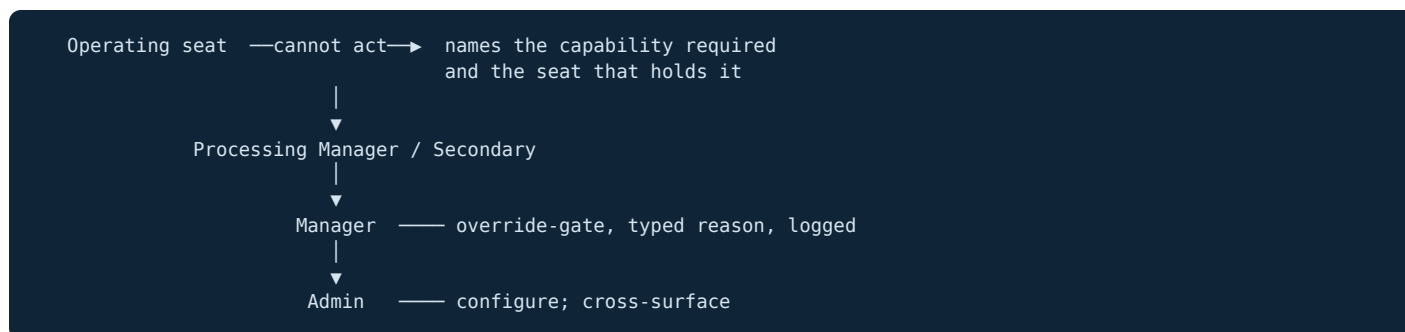
Coverage is therefore a **first-class, configured, time-bounded fact**, not an informal arrangement and not a permanent permission widening:

- A seat may be designated to **cover** another seat, for a stated period.
- Coverage grants the covered seat's capabilities **for that period only**, and expires on its own.
- **Every act taken under coverage is stamped as such** — actor, covered-for, reason, time. An examiner asking "why did a Post-Closer issue closing documents on 14 March?" gets an answer.
- Coverage is **visible on the file**, so the borrower's next question does not go to somebody on holiday.

★ **This is why the Post-Closer permanently carries the closing capabilities** (**issue-docs** , **enter-fees** , **insuring**). That is not coverage — it is a **configured fact** about how this shop runs, because the post-closer *is* the designated backup closer/funder. Coverage handles the rest.

4.7 The escalation ladder

When a seat cannot act, the software must say **who can** — a refusal that only says "no" teaches people to route around the system.



★ **Every override is role-restricted, requires a typed reason, and is reported to compliance weekly.** A gate nobody can pass in an emergency gets worked around. A gate that records **who passed it and why** gets respected.

4.8 The handoff ladder — who may move a file, and where

advance is held broadly, but it is **not** permission to move a file anywhere. A seat may advance a file only into the stage its own role owns or hands off to (§3.2, §3.3). The compliance gate (§6 CO-02) runs on every advance regardless of who requested it, and blocks on failure.

Done = testable: a Processor attempting to move a file from Processing directly to Clear to Close is refused, told which seat owns that transition, and no state changes.

5 · The manufacturing line and the screen inventory

5.1 ★★ The two-screen pattern — every role has exactly two

This is the single most important interaction rule in the LOS, and it is what keeps the whole system from becoming a widget wall.

	The landing screen	The in-file screen
Scope	Every file you touch	This one loan
Opens on	★ Your task command centre — never a file list	★ The Loan Summary — never a blank form
Answers	<i>What do I do next?</i>	<i>What is going on with this one?</i>
Carries	Saved views on the left rail; sortable and filterable on any field	Section navigation on the left; that file's task panel on the right
Example	"ICD not sent and closing ≤ 7 days" → 4 files	Alvarez #100482 → tiles, custom fields, quick links

★ **Clicking a task lands you inside that file at the right tab** — not at its front door. That single behaviour is most of the felt difference between a system that runs the day and one you have to drive.

Why two and not three: a third "dashboard" layer is where widget walls come from, and nobody works from them. The cross-file view is a task list; the single-file view is the Loan Summary; there is no third thing.

Done = testable: sign in as any operations role → land on tasks, not files. Click a task → arrive in the file **at the tab that task concerns**. Open a file directly → arrive at the Loan Summary.

5.2 ★ The navigation model inside a file

One screen at a time, reached from the left rail. The rail is the file's anatomy, and it stays visible the entire time a seat is in the file.

⊖ **Do not build the loan file as one long scrolling page with every section stacked on it.** This is an explicit correction from the subject-matter expert against the current reference build, and the reasoning is operational rather than aesthetic:

"Once we are in a file, we should be able to use the left-hand menu screens to work through the file — one screen at a time. Scrolling to one section and then back up is not efficient. I don't want the processor, UW or closer to click on one of the screens and then leave this view — they should be able to move between screens easily."

The requirements this produces:

- 1. Each left-rail entry is **its own screen**, not an anchor into a long page.
 - 2. Moving between rail entries **keeps the rail** — a seat never has to navigate "back" to reach the next section.
 - 3. The rail order matches the order the file is actually worked (§5.3), not the order the sections were built.
 - 4. Nothing appears in two places. If a panel belongs on the Loan Summary it does not also live on the rail, and vice versa.
- ⚠ This is tracked as an open correction in §11 because the rail ordering and the final placement of two specific panels are still being settled with the subject-matter expert.

5.3 The line, station by station

- ① INTAKE /los/intake
A POS application becomes a loan file. The handoff is reconciled against the POS right now, and each field's owner is named. ★ The adapter boundary lives here, so the POS can be replaced without touching the LOS.
- ② SET IT UP /los/loan · /los/app · /los/credit · /los/vesting
The Loan Summary is the story of the file. If it is wrong here, the disclosures go out wrong and the whole loan is affected. Credit is REVIEWED here – it was ORDERED in the POS by the loan officer.
- ③ DISCLOSE /los/disclosures · /los/counseling · /los/fees · /los/coc
⊖ COMPLIANCE GATE #1 – blocking. The six-piece application test, the three-business-day Loan Estimate deadline, intent to proceed, the consent ledger, the counselling list.
- ④ WORK IT /los/orders · /los/income · /los/aus · /los/needslist · /los/conditions
Order title, flood, VOE, 4506-C and the appraisal. Show the income arithmetic. Run AUS and log every run. Chase what is owed.
- ⑤ SUBMIT /los/submitgate
The required gate before underwriting, plus a touch count. "Submit" is never a guess.
- ⑥ UNDERWRITE /los/uw · /los/govt · /los/atrqm · /los/tbd
⊖ COMPLIANCE GATE #2 – blocking, notably before Clear to Close.
The largest screen in the build. Approve · Suspend · Deny.
↳ /los/adverse (ECOA)
- ⑦ PRICE & LOCK /los/lock · /los/secondary · /los/buydown
Requesting and confirming a lock are different capabilities on purpose.
- ⑧ CLOSE /los/cd · /los/escrow · /los/exhibits · /los/closing · /los/forms
⊖ COMPLIANCE GATE #3 – blocking. Closing documents cannot issue until it clears.
- ⑨ FUND /los/funding · /los/wire
★ The highest-consequence act in the system. Prior-to-funding conditions gate the release.
- ⑩ POST-CLOSE /los/postclose · /los/packaging · /los/pcissues
Insuring, MERS, the UCD round trip, Investor Connect, trailing documents.
- ⑪ PURCHASED
The loan is sold. MERS transfer → goodbye letter → payoff → finalise.

5.4 The screen inventory — 53 screens, built and live

5.4.1 The desk — where a seat lands

Path	What it is for
/los/	The landing screen for every seat. Two things stacked: the task list — which IS the working day , grouped the way that seat groups it — and the pipeline of files that seat may see. Everything else is reached from here or from a file.
/los/queue	The same day reduced to one column of "what do I do next". Fed by the Life of a Loan engine rather than the task table, so the order is the order the closing date demands , not the order things were created.
/los/tasks	The task board: create, assign, and see every task on a file. The editing surface the desk deliberately does not carry.
/los/mobile	The phone companion. ★ Deliberately not the LOS — four read-mostly panels (your desk, files, alerts, who you are covering). Every real work screen redirects a phone to /los/desktop-only .

5.4.2 The loan file — one loan, in the order it is worked

Path	What it is for
/los/loan	★★ The single most important screen in the build. Everything known about one loan: assignments, contacts, dates, notes, custom fields, the document folder, the audit of every field change, the compliance gate the file is standing at, the conditions it is waiting on, and the Life of a Loan card. Every other file screen is reached from its left rail.

Path	What it is for
/los/timeline	Life of a Loan. The closing date is an object with dependencies, not a text field: the backward plan from that date, what is holding it, who has the ball, and what happens if the date moves. The only screen that can answer <i>"will we actually close on the 14th?"</i>
/los/app	The 1003 / URLA itself, section by section, with an audit of every correction and who made it. Reading it is every operations seat's job; the acts on it are server-refused unless the seat holds <code>edit-1003</code> .
/los/intake	Where a POS application becomes a loan file. Shows the handoff that arrived, reconciles the two halves right now , and names which side owns which field.
/los/credit	Who may order credit, the consent that must exist first, the report on file, and the review. ★ Ordering is the LO's act; reviewing is the Processor's — the server enforces the split.
/los/income	Income and liabilities, showing its work : employers, each income source with the arithmetic visible, monthly obligations, and the DTI those produce. A number a processor cannot defend is a number this screen will not print alone.
/los/aus	Run findings, log every run, mark which run is operative, file an external certificate. States what changed since the last run — the question an underwriter actually asks.
/los/orders	Service orders: title, flood, VOE, 4506-C, appraisal. The Processor orders; every seat can read the status , because the LO is the one the borrower asks <i>"has title been ordered yet?"</i>
/los/appraisal	Appraisal and ECOA valuations: the right-to-receive notice, a log of every valuation (not just the appraisal), and the three-business-day waiver.
/los/conditions	PTA, PTD, PTF, plus title, appraisal and insurance conditions. Condition sets built once and applied in one action. ★ A condition is an ADDRESS — <code>/los/loan?id=X#need-bank2</code> lands on the row and rings it.
/los/needslist	The needs list and document inbox in one view: whose turn it is, what is owed, what is out for signature, who has been chased and when. The screen that answers "why is this file quiet?"
/los/submitgate	The required gate before underwriting, the advisory services that ought to be ordered, and a touch count.
/los/uw	★ The underwriting workstation — the largest screen in the build. At-a-glance, key 1003 fields, AUS findings, income sources and the underwriter's own income decision, assets, appraisal, conditions, the decision, the e-signature of underwriting documents, the decision log, and the FHA / VA / USDA panels. Gated on <code>decision</code> .
/los/govt	FHA case numbers, CAIVRS / LDP / GSA, the VA COE, the USDA determination. Reading is open to every seat because the LO fields <i>"did my case number come back?"</i> ; filing is refused without <code>govt-file</code> .
/los/tbd	TBD approval — approving a borrower before there is a property. Runs the three-day clock, states plainly what the approval did NOT test , lists the six pieces, and surfaces known disagreement rather than hiding it.
/los/atrqm	The ATR/QM path and the employee-loan check: safe harbour or rebuttable presumption, decision attempts recorded, and the HMDA record it feeds. Reviewer-independence applies — a person cannot clear their own file.
/los/lock	Rate lock on one file: request, confirm, asked-vs-confirmed, extensions and their cost, full lock history.
/los/fees	★ Fee itemisation and the tolerance engine — §1026.19(e)(3) baselines, §1026.4 classification, the VA fee check, and an activity log stamping every change. Gated on <code>enter-fees</code> ; an override is its own capability.
/los/disclosures	Initial disclosures: the application trigger, the six-piece test, the three-business-day deadline, re-disclosure, intent to proceed, and the consent ledger showing which of the four consents exist and what each permits.
/los/cd	The Closing Disclosure: summary, the LE-vs-CD tolerance check, the comparison, the rescission window on a refinance, and a CD event timeline. Gated on <code>issue-docs</code> .
/los/coc	★ Changed circumstance: the COC log, recording a new one, the waiting-period tracker, and the tolerance structure a COC actually resets. This is the screen a TRID examination opens first.
/los/escrow	The RESPA §1024.17 escrow analysis: inputs, aggregate summary, the twelve-month disbursement schedule, the low-point cushion, a new-construction tax projection, and the CD page-2 preview the borrower will actually see.
/los/exhibits	Which security instrument by state, which riders this file triggers, manufactured-home affixation, what is open. States clearly that it does not draft documents.
/los/vesting	How title will be held, and vesting history — because vesting changes late and quietly.
/los/closing	The milestone timeline, the clear-to-close gate, the appointment tracker, final fee reconciliation, cash-to-close verification, the disbursement worksheet and net wire, and post-signing actions.
/los/funding	The funding worksheet and standard fee schedule: prefill from templates, second liens and down-payment assistance, the net wire, and an override log recording who changed what, from what, to what.
/los/wire	★ Settlement and closing wire instructions, with the wire-fraud warning first, because that is the order a human should read it in. Gated on <code>release-wire</code> .

Path	What it is for
/los/postclose	Insuring, MERS, the UCD round trip, Investor Connect, the collateral stacking order, packages by label, what the Purchased event fired, and a stamped activity log.
/los/packaging	Assemble documents by label into a package, track e-signed returns, keep manifests. Explicitly does not sign, send or transmit anything.
/los/pissues	Every defect found after closing, logged by step, seat and category — so recurring ones become training topics. ★ It says out loud what these numbers are NOT, because a defect count read as a scoreboard is how you teach people to stop logging defects.
/los/adverse	Adverse action and ECOA: three outcomes with three different obligations, the counteroffer clock, the notice of incompleteness, the notice with reason codes and delivery tracing, and the decision history. Gated on <code>decision</code> .
/los/hmda	HMDA collection under Regulation C, through to a LAR export preview.
/los/counseling	The HUD counselling list required by RESPA §1024.20 — generated for this file's location, with delivery logged.
/los/preapproval	★ A letter is a FROZEN COPY, not a live view — changing the loan amount afterwards does not change an issued letter. Shows what the referral partner is authorised to issue, what the file has actually earned, and — when there is no letter — why not .
/los/buydown	The buydown calculator: parameters, side-by-side comparison, year-by-year schedule, escrow and cost breakdown, break-even. Open to every seat; it computes, it does not commit.
/los/forms	The standard form library, filtered to the forms that apply to this file. The API refuses a form that does not apply, a blank required field, and the CD (which <code>/los/cd</code> owns).
/los/worksheets	The worksheet and form library — all eight. ★ It also carries a claim the page had to withdraw, kept visible rather than deleted.
/los/portals	Exactly what goes to FHA Connection, the VA portal and the investor for this file. ★ It is a packing list, not a connection — nothing is transmitted.

5.4.3 Shop-wide, oversight and the control plane

Path	What it is for
/los/secondary	The lock pipeline, live position and expiry alerts across every file in the shop , best execution, commitments, the fallout tracker, the delivery checklist. Gated on <code>lock-confirm</code> .
/los/manager	Pipeline snapshot, pull-through, cycle time, channel mix, conversion funnel, by branch, by loan officer, aging detail, suspended files, compliance-gate distribution. Gated on <code>view-all</code> .
/los/qc	Quality control: why the module exists, ENFORCED reviewer independence — not promised, enforced , queues built from the live pipeline, the sampling plan, findings and corrective action, and an honest ordered list of what it still needs.
/los/audit	The system activity log — every event, every actor, every file. Manager and Admin only.
/los/admin	★ The control plane. Twelve tabs: users and roles, fee templates, the condition library, condition sets, custom fields, coverage and escalation, plan codes, investors, automation rules, audit and compliance settings, referral partners, and the live surface list of every user face in the product. Gated on <code>configure</code> .
/los/seats	The roster: every seat and what each role may do. Admin only — this was open to a Processor until it was closed by explicit decision.
/los/permissions	Who can do what, person by person: what they can do, where they can go, what they cannot do and who to ask instead , plus what the borrower and referral partner may do without a CLEAR seat. Admin only.
/los/settings	A person's own seat record: profile, password, which hats are on today , how their task list groups, saved views, open files. Shows nobody else's anything.

5.4.4 Wayfinding and refusal

Path	What it is for
/los/map	Every built screen on both sides of the product, one click each. The review index, and how a tester reaches a screen with no rail row yet.
/los/denied	★ The refusal screen is a user face too , and for some seats it is the only screen they will ever see on a gated path. It names the capability they lack and who holds it , rather than saying no. It carries no gate of its own — a gated denial page bounces to itself forever.
/los/desktop-only	An interstitial, not a destination: what a phone gets when it opens a desk screen. Declared a non-surface on purpose.

5.5 What every LOS screen carries

Consistent chrome, so a covering seat is never lost (\$3.4):

- **The file-detail band** — identical across every role. This is the backup's first read.
- **The left rail** — the file's anatomy, always visible while in a file.
- **The task panel for this file**, in the right rail, labelled plainly **Tasks (this file)**.
- **The compliance gate the file is standing at**, and what is blocking it.
- **Who the file is assigned to**, and who is covering.

6 · Functional requirements

6.0 How to read this section

There are **278 numbered functional requirements** in nineteen groups. Every one has an ID, a tier, a type, and — for the ones where a reasonable engineer would build the wrong thing — an expanded specification after its group's table.

The IDs are stable and permanent. C0-06 means the same thing forever. They are the IDs already used in the reference build and every prior conversation with CLEAR, carried forward unchanged rather than renumbered. Where you need to be unambiguous across documents, write LOS-C0-06 .

Column	Meaning
Tier	DEMO — needed for the controlled demonstration. PILOT — needed for the first supervised real loan. PROD — needed to fully replace the current system.
Type	Required — the floor. Desired — the moat, not the floor.
Done = testable	Each group closes with the test that proves it.

Tier is a sequencing instruction, not a quality one. A PROD-tier requirement is not optional; it is not needed to fund the first loan. Build DEMO, then PILOT, then PROD, and do not let a PROD item be quietly reclassified because it is hard.

Group	Count	Tier spread
Data model and foundations	10	1 DEMO · 2 PILOT · 7 PROD
Task engine	12	5 DEMO · 6 PILOT · 1 PROD
Document engine	9	1 DEMO · 3 PILOT · 5 PROD
★ Compliance engine and gates	25	13 PILOT · 12 PROD
QC / QA	9	9 PROD
Origination, processing and conditions	17	—
Underwriting (incl. government)	17	—
Fees, closing and funding	28	—
Post-close, insuring and secondary	21	—
Worksheets and forms	12	12 PROD
eClose / eNote / RON	7	7 PROD
Controls the operations notes did not name	10	—
Admin, RBAC, pipeline and reporting	21	—
Integrations	14	—
AI	12	—
Commercialisation	8	8 PROD
★ The seam	12	—

Group	Count	Tier spread
Mobile companion	9	—
Loan-officer enablement, Loan Summary, CD	25	—
Total	278	13 DEMO · 99 PILOT · 166 PROD · 254 required, 24 desired

6.1 The four engines

Four systems everything else stands on. **Build these right and every screen in §5 gets easier; build them wrong and no amount of screen design rescues the product.**

6.2 Group DM — The one data model

What this is. One loan object is the single source of truth. Every screen is a view onto it. A value entered at its source **flows outward and is never re-typed**.

ID	Requirement	Tier	Type
DM-01	Progressive 1003 / URLA (236 fields) fed from the POS — no re-key	DEMO	required
DM-02	★ Copy a file from an existing loan without carrying AUS findings, MERS/MIN or the property address	PROD	required
DM-03	New-construction property-tax projection by state	PROD	required
DM-04	Area Median Income auto-pull on property entry, for program eligibility	PROD	required
DM-05	★ USPS address verification — warn, do not stop	PILOT	required
DM-06	★ LinkedLoan — a true second lien with its own loan number , linked to the first	PROD	required
DM-07	Representative credit-score logic, program-configurable	PILOT	required
DM-08	Pre-AUS data validations — required fields complete, construction type set, property type correct	PILOT	required
DM-09	QCReview as a first-class object on the loan, not a spreadsheet beside it	PROD	required
DM-10	Field-level lineage — every value knows its source	PROD	desired

★ The mapping chains — these are the contract

Each row is a testable claim, not a description.

Entered once	Mapped everywhere, with no re-key
Property address (POS)	USPS verify → appraisal order → title order → flood → CD → legal/exhibit → Deed of Trust → MERS. Change it once; every one updates.
Income (documents / VOE)	Income calculation → 1003 → AUS → DTI → conditions → CD affordability. One number, one source.
Program + plan code	Pricing → AUS → document set → fee sheet → disclosures. ⚠ This is the chain that is broken in the current system and it is what produces wrong Initial Closing Disclosures.
Fees (the 2015 itemisation)	LE → ICD → CD → closing documents → funding worksheet. Each fee carries its LE section, CD section, tolerance bucket and finance-charge flag.
Vesting and closing flags	Conditions → document riders → the deed and security instrument.

★ DM-06 — why **LinkedLoan** is a first-class object

A down-payment-assistance or piggyback second that needs its own TRID document set is **not a credit line on the 1003**. The current system can create a standalone second but cannot link it, and the result is a second lien that is **invisible on the funding screen**. Own object, own loan number, own disclosures, linked to the first, **and it populates the funding worksheet** (FU-03).

★ DM-05 / DM-02 / DM-03 — three small rules with real consequences

- **USPS verification warns, never stops.** New construction frequently is not listed yet. A hard stop blocks disclosures on legitimate files.
- **Copy-a-file must know what must *not* travel.** The obvious implementation copies everything; the useful one refuses to carry AUS findings, the MERS number, and the property address.
- **New-construction taxes must project land *plus* the built structure.** The current-year assessment is land only. Getting this wrong understates the payment on exactly the loans where the borrower is most stretched.

Done = testable: change a borrower's property address once → the disclosures, appraisal order, title order, CD and Deed of Trust all reflect it with **zero re-entry**, and the audit trail shows a single edit with its downstream propagation.

6.3 Group TK — The task engine and command centre

What this is. Tasks are first-class objects the **system generates** — from milestones, conditions, dates and rules. **Not a list a human maintains.** A system where a human keeps the real list in a spreadsheet has not replaced the spreadsheet; it has added to it.

★ **Corollary that is worth taking literally: if a spreadsheet exists in operations today, it is a screen the LOS is missing.**

ID	Requirement	Tier	Type
TK-01	Task command centre — all files, filterable, per role	DEMO	required
TK-02	In-file task panel on every role screen	DEMO	required
TK-03	Tasks generated from milestone entry	DEMO	required
TK-04	Tasks generated from condition creation — PTD → processor, PTF → funder	PILOT	required
TK-05	★ Clock-generated tasks — TRID, lock expiry, incompleteness 30/60/90, grace period, insuring aging	PILOT	required
TK-06	Rule-generated tasks — state-specific and standard	PILOT	required
TK-07	★ Cross-role requests from Admin-defined standard-task lists	PILOT	required
TK-08	Editable per-file due dates	DEMO	required
TK-09	Comments on your own task	DEMO	required
TK-10	Saved views per role, persisted	PILOT	required
TK-11	Self-created tasks	DEMO	required
TK-12	Skills-based / just-in-time routing	PROD	desired

Saved views are the feature, not a nicety

These are the actual hunts operators make, and each must be expressible:

"ICD not sent and closing ≤ 7 days" · "funded > 30 days without an insuring certificate" · "AUS not run" · "waiting on borrower" · "non-delegated uploads pending investor underwriting" · "my rush files"

★ TK-07 — why cross-role task wording is controlled

When one role sends work to another, the task text comes from **Admin-defined dropdown lists**, not free text, plus a due date. It lands in the recipient's command centre attributed to the sender.

Why it matters: free-text task requests are unsearchable and unreportable. Controlled ones let a manager ask *"how many ICD requests came in late this month?"* and get an answer.

Three properties that are easy to miss: tasks keep generating as the file moves (they are not a punch list written at intake); any role can create tasks for themselves; and every task carries owner, due date, status, comments, source (auto or manual), the linked loan and field, and priority.

Done = testable: a processor filters *"ICD not sent + closing ≤ 7 days"* and works the exact list. Clearing a condition auto-closes its task **and** fires the next role's task with no manual step. A request from the processor appears in the closer's command centre with the sender, due date and standard wording intact.

6.4 Group DC — The document engine

What this is. Recognise, label and separate documents automatically, then let any role assemble them by label into one package. This is one of the strongest differentiators in the build and the direct answer to a post-closer's "twenty different buckets."

ID	Requirement	Tier	Type
DC-01	Auto-recognise and label inbound documents — barcode-aware, and recognised when not barcoded	PILOT	required
DC-02	Auto-separate into buckets — no manual pulling-apart of a package	PILOT	required
DC-03	★ Package by label (FHA insuring, investor delivery) in the correct stacking order	PROD	required
DC-04	★ Strip document security on package assembly; log the event	PROD	required
DC-05	Custom forms and templates with data-field mapping	PROD	required
DC-06	In-system e-signature for underwriting and internal documents	PROD	required
DC-07	Reclassify, or reject with a message back to the borrower	PILOT	required
DC-08	Trailing-document tracking — what is owed, from whom, how old	PROD	required
DC-09	★ Correct CD terminology throughout — never "preliminary"	DEMO	required

★ DC-04 — why stripping security is a requirement

Credit reports and similar documents arrive with PDF security that makes them **impossible to upload to an investor**. Today somebody works around this by hand. The system strips security on package assembly and **logs that it happened** — the log is what makes the strip defensible.

★ DC-05 — why custom forms need field mapping

Escrow holdback agreements, verbal verification of self-employment, specific power-of-attorney forms: today these are **typed by hand** because the current system cannot map fields into a custom form. That is the requirement — mapping, not a template library.

DC-09 — vocabulary is a requirement, not pedantry

A Closing Disclosure is **initial, revised, final, or post-closing**. Never "preliminary." There are no "tenants" in a mortgage file. Wrong vocabulary on screen teaches new hires wrong vocabulary in front of borrowers and investors.

Done = testable: an e-signed closing package returns → documents auto-separate into the correct buckets with **no manual sorting**; the FHA insuring package builds **in one action** in the right stacking order; a credit report uploads to the investor with security stripped and the strip event logged.

6.5 Group CO — The compliance engine and the three gates

What this is. ★★ **The audit and saleability floor.** It runs the full check set automatically and **blocks the advance on a failure**.

Why gates, not reports

Today the check runs when closing documents are requested, from the document vendor, plus a compliance product that produces a large, hard-to-read output on manual request. The practical effect is that **a problem surfaces at the moment you are trying to ship** — the most expensive possible moment to find it.

Gate	Fires at	Blocks
#1	Disclosure send	Initial disclosures and revised Loan Estimates
#2	Milestone change	Advancement past the gated milestone, notably before Clear to Close
#3	Final document request	Issuance of closing documents

ID	Requirement	Tier	Type
CO-01	Gate #1 — disclosure send, blocking	PILOT	required
CO-02	Gate #2 — milestone change, blocking before Clear to Close	PILOT	required
CO-03	Gate #3 — final document request, blocking	PROD	required

ID	Requirement	Tier	Type
CO-04	★ A failure names the check, names the figure, and assigns a cure task	PILOT	required
CO-05	★ Role-restricted override with a typed reason, reported weekly	PROD	required
CO-06	TRID clock engine and the six-piece application trigger	PILOT	required
CO-07	★ Pre-Intent-to-Proceed fee gate, enforced at the data layer	PILOT	required
CO-08	Intent to Proceed as its own timestamped act	PILOT	required
CO-09	Tolerance buckets as computed properties of a fee , not a manual classification	PILOT	required
CO-10	CD three-business-day scheduling block, across the seam	PROD	required
CO-11	ATR/QM and points-and-fees threshold tests	PILOT	required
CO-12	HOEPA federal plus state and local high-cost tests	PROD	required
CO-13	HPML / rate-spread test and its escrow consequence	PROD	required
CO-14	Loan-officer compensation validation against the fee sheet	PROD	required
CO-15	Bona-fide discount-point check, automatic	PILOT	required
CO-16	HMDA collection and LAR with validity and quality edit checks	PROD	required
CO-17	Adverse-action timing with specific, traceable reasons	PILOT	required
CO-18	★ Counteroffer → adverse-action clock	PROD	required
CO-19	Notice of incomplete application, 30/60/90, as tasks and reports	PILOT	required
CO-20	★ Withdrawn ≠ denied; automation halts on both	PILOT	required
CO-21	Employee-loan compliance handling	PROD	required
CO-22	PACER check	PROD	desired
CO-23	Retention policy and legal hold	PROD	required
CO-24	Investor-approval documents retained — non-delegated and brokered	PILOT	required
CO-25	★ One-action examination pull, exportable	PROD	required

★★ CO-04 / CO-05 — how a gate must behave

A compliance panel shows pass/fail per category at each gate. A failure **blocks the milestone, names the specific check and the number**, and **drops a cure task on the right role**. The result is stored, timestamped and immutable.

Not "validation failed". Instead:

"Points and fees exceed the 5% QM limit — reduce by \$312 or re-price. A cure task has been assigned to the closer."

The anti-requirement, and it matters as much as the gate: an override exists, it is role-restricted, it requires a typed reason, and **every override is reported to compliance weekly**. ★ A gate nobody can pass in an emergency gets worked around; a gate that records who passed it and why gets respected.

! A verification note, stated honestly

The check list above originates in part as a competitor's **published coverage summary**. That is a good *scope statement* and a poor *specification*. **Before build, each line must resolve to a citation, an input, a threshold and a test case.**

➖ **Coverage copied from marketing copy is not a compliance control.** Building to the list as written is how you get a system that claims a check it does not really perform — which is **worse than not claiming it**, because the shop then relies on it.

Done = testable: attempt Docs Out on a loan that breaches the points-and-fees limit → the system blocks it, names the failed check with the actual figure and the limit, creates a cure task assigned to the closer, and records the block in the audit trail — **before any document can issue**.

6.6 Group QC — Quality control and quality assurance

What this is. ⚠️ **This entire module was absent from the prior blueprint.** Investors and agencies require a quality-control programme; a lender without one cannot sell loans reliably and cannot survive an audit.

ID	Requirement	Tier	Type
QC-01	Scheduled monthly QC draw at a configured percentage	PROD	required
QC-02	Random and discretionary composition enforced	PROD	required
QC-03	Pre-close / pre-funding review that can gate the milestone	PROD	required
QC-04	Post-close review with agency deadline clocks	PROD	required
QC-05	★ Reviewer independence enforced via touch history and RBAC	PROD	required
QC-06	Rejected-application review queue (ECOA and fair lending)	PROD	required
QC-07	Findings → severity → corrective action → closure	PROD	required
QC-08	QC findings feed the training report	PROD	desired
QC-09	Agency-format QC export	PROD	required

★ QC-05 — enforced, not promised

A person cannot review a file they touched. This is checked against the file's actual touch history, not against a role name — because the same person may have worn a different hat on that file three weeks ago. This is the difference between a QC module and a QC theatre.

6.7 Group PR / AC — Origination, processing and conditions

What this is. The middle of the line. The processor assembles and verifies the file, orders every outside service, runs automated underwriting, and works the condition list.

ID	Requirement	Tier	Type
PR-01	Order all services from the LOS; the response is recorded in the file	PILOT	required
PR-02	Auto-fire vendor orders on milestone entry	PILOT	required
PR-03	AUS run in-system, findings stored	PILOT	required
PR-04	★ AUS re-run diff — what changed, not just the latest run	PROD	desired
PR-05	★ Credit review (not re-order), with the representative-score rule shown	PILOT	required
PR-06	Credit supplements ordered in-system	PROD	required
PR-07	Submission checklist gate; touch count tracked	PROD	required
PR-08	★ Non-delegated: upload the package to the investor, track it back	PROD	required
PR-09	⚠️ Brokered channel path (~10–15% of volume)	PROD	required
PR-10	TBD-approval path without triggering the three-day rule	PROD	required
AC-01	Enhanced Conditions — automatic by product	PILOT	required
AC-02	Automatic conditions by state (e.g. Texas A(6) lock, South Carolina attorney)	PILOT	required
AC-03	Texas 50(a)(4) support alongside A(6)	PROD	required
AC-04	Automatic conditions from flags — trust, POA, manufactured home, buydown, DPA	PROD	required
AC-05	★ Batch conditions built once, auto-applied	PROD	required
AC-06	Conditions tagged by source — <code>auto·FHA</code> , <code>auto·state</code> , <code>auto·flag</code>	PILOT	required
AC-07	PTA / PTD / PTC / PTF taxonomy with gating behaviour	PILOT	required

★ PR-05 — the credit split, restated because it reshapes the screen

The loan officer orders credit, in the POS, at pre-approval. The processor reviews it and does not re-order it. A processing screen with an "order credit" button as its primary action is modelled on the wrong shop. The representative-score rule — the middle score of each applicant, then the lowest of those, **program-configurable** — must be **shown**, not implied, because it drives pricing, AUS and eligibility.

★ PR-08 / PR-09 — the two channels that are not retail

Non-delegated correspondent (~20–25%). Disclose and process in-house → the processor uploads the package to the investor to underwrite → **the investor's approval PDF is OCR'd and its conditions mirrored into the file, so the processor works one list, not two** (UW-07) → finish in-house with documents, wire and funding. ★ **Every document used to approve the loan with the investor must be retained in our file for audit** (CO-24).

Brokered (~10–15%). ⚠️ **This was absent from the prior blueprint entirely**, which left roughly one loan in eight without a home in the system. At minimum it needs: a distinct milestone path, a distinct disclosure-responsibility model, distinct compensation handling, and retention of the approval documentation. **This is an open gap, not a solved one** — see §11.

★ AC-01 / AC-05 / AC-07 — conditions as a generated set

Conditions are **fired from the file's own attributes** — product, state, and flags — not built by hand each time. The taxonomy carries gating behaviour, which is the part that makes it real:

Tag	Means	Gates
PTA	Prior to Approval	The underwriting decision
PTD	Prior to Docs	Issuance of the closing package
PTC	Prior to Closing	The closing appointment
PTF	Prior to Funding	★ Release of the wire (FU-04)

★ **Conditions are addressable.** `/los/loan?id=X#need-bank2` lands on the row and rings it. This is what lets a task, an email or a note point at one specific outstanding item rather than at a screen.

Done = testable: an FHA loan on a Texas cash-out refinance opens with its FHA conditions, its Texas A(6) conditions and its flag-driven conditions already present, each tagged with its source, and each PTF item visibly blocking the wire.

6.8 Group UW / GV — Underwriting, including the government panels

What this is. The decision. `/los/uw` is the largest screen in the build and it is gated on the `decision` capability, held **only** by the Underwriter.

ID	Requirement	Tier	Type
UW-01	1003 and AUS side by side ; income, asset and collateral tabs	PILOT	required
UW-02	Condition builder — library, batch, custom	PILOT	required
UW-03	Decision: Approve / Suspend / Deny → the adverse-action path	PILOT	required
UW-04	Appraisal XML auto-populate	PROD	required
UW-05	Reconsideration-of-value forms and a defined process	PROD	required
UW-06	E-sign underwriting documents in-system	PROD	required
UW-07	OCR a non-delegated investor approval → mirror its conditions	PROD	desired

The government panels — FHA, VA, USDA

These appear **only when the loan type requires them**. Each government program has extra steps, extra documents and extra government systems.

ID	Requirement	Tier	Type
GV-01	FHA panel — case number, CAIVRS, LDP/GSA, ADP code, identity of interest	PILOT	required
GV-02	★ FHA mortgage-insurance premium auto-calculation by LTV and term, recalculating, with pennies dropped	PILOT	required

ID	Requirement	Tier	Type
GV-03	FHA 203(k) fields when applicable	PROD	desired
GV-04	VA Certificate of Eligibility and entitlement, including remaining entitlement	PILOT	required
GV-05	★ VA funding fee auto-calculated, exemption drives it to \$0 , recalculating	PILOT	required
GV-06	VA residual income by region and household size	PROD	required
GV-07	VA refinance comparison and net-tangible-benefit panel, auto-populated	PROD	required
GV-08	★ VA non-allowable fees enforced on the fee sheet	PROD	required
GV-09	Veteran property-tax exemption flag with state logic	PROD	required
GV-10	USDA GUS, guarantee and annual fee, AMI and property eligibility	PROD	required

★ **GV-02's "pennies dropped" is not a rounding preference.** FHA MIP calculation drops fractional cents in a specific way; a generic rounding produces a figure that disagrees with FHA's own and the loan fails insuring. Small rule, expensive to discover late.

★ **GV-08 is enforcement, not a warning.** Certain fees may not be charged to a VA borrower. The fee sheet must **refuse** them, in the same way the pre-ITP fee gate refuses (CO-07).

Done = testable: a VA loan with an exempt veteran shows a \$0 funding fee, refuses a non-allowable fee on the 2015 itemisation with a named reason, and populates the net-tangible-benefit panel without re-entry.

6.9 Group FE / CL / FU — Fees, closing and funding

What this is. ★ The densest and most consequential part of the LOS. The fee itemisation feeds the Loan Estimate, the Initial Closing Disclosure, the Closing Disclosure, the closing documents and the wire. **An error here is an error on all five.**

★ **The design rule for these screens, in the Director of Operations' own words:**

"The 2015 fee screen should look like an actual fee worksheet — dense, spreadsheet-like. Not an app on a phone."

The fee itemisation

ID	Requirement	Tier	Type
FE-01	The 2015 itemisation, by section	PILOT	required
FE-02	★ Controlled fee-name dropdown — no free-hand fee names	PILOT	required
FE-03	★ Type-to-fill title company; ➔ no vendor record created for a one-off payee	PILOT	required
FE-04	Individual fee box — paid-by, can-shop / did-shop, and it shows the LE section and the CD section	PILOT	required
FE-05	B-box mark-all with per-line override	PILOT	required
FE-06	ICD title swap moves fees out of the 10% tolerance bucket	PILOT	required
FE-07	Finance-charge auto-flag with an admin override	PROD	required
FE-08	Smart-fee / national-title placeholder at initial disclosure → the service-provider list	PROD	required
FE-09	★ Branch × State × Product fee templates load into the 2015	PILOT	required
FE-10	Review ribbon → jump to the LE or CD page	PROD	desired
FE-11	🕒 ★ ★ ★ A full fee sheet built in 5–10 minutes	PILOT	required

★★ **FE-11 — the stopwatch is an acceptance criterion**

A title-fee update takes 20–25 minutes today and must take 5–10. This is not a sentiment; it is a test. **If a build passes the feature test and fails the stopwatch, it has not passed.**

What that requires, concretely:

- **Type-to-fill payees.** Type a title company; its whole fee block fills.  **No vendor record is created for a one-off payee** — an HOA we will never see again must not become permanent data.
- **Select-all with per-line override** — the B-box "mark all shopped" button *and* its exception.
- **Templates that pre-load.** The fee sheet does not start blank; the branch × state × product template fills it.
- **Keyboard-first.** Tab order follows **the form, not the DOM**. Enter commits. Numeric fields take a number without a mouse.
- **No modal for the common case.** The individual-fee box is where a fee is *refined*, not where every fee must be *entered*.

★ **FE-02 exists because free-hand fee names destroy the tolerance engine.** A fee whose name is typed cannot be reliably classified into a tolerance bucket, cannot be reliably flagged as a finance charge, and cannot be compared between the LE and the CD. The dropdown is the control that makes CO-09 possible.

Closing

ID	Requirement	Tier	Type
CL-01	Aggregate escrow with the full CD visible	PROD	required
CL-02	Two-month cushion; taxes due ≤ 30 days → line 907	PROD	required
CL-03	Vesting panel — full type list, write-ins, title-holder-only	PROD	required
CL-04	Exhibit and legal — "see Exhibit A" default, trustee by state, riders	PROD	required
CL-05	★ Closing checkboxes with defined consequences	PROD	required
CL-06	In-system closing checklist as a gate	PROD	required
CL-07	★ ICD issuance gated by compliance pass #3	PROD	required
CL-08	Disclosure tracking screen, auto-dated	PILOT	required
CL-09	Change-of-circumstance reason table with timing tests	PILOT	required
CL-10	True document-vendor sync — all fields, all programs	PROD	required
CL-11	UCD round trip, in-system	PROD	required

★ **CL-05 — "checkboxes with defined consequences."** Several closing checkboxes silently change which documents generate and which riders attach. Each one must state, on screen, what it will do. A checkbox whose effect is invisible is how a wrong document set reaches a closing table.

Funding

ID	Requirement	Tier	Type
FU-01	Funding worksheet → total fees → net wire	PROD	required
FU-02	Standard fees prefill; override allowed and logged	PROD	required
FU-03	★ Second liens and down-payment assistance populate the wire	PROD	required
FU-04	★★ PTF conditions gate the release	PROD	required
FU-05	Wire request and confirmation logged	PROD	required
FU-06	MERS register → warehouse, with the warehouse-MERS field	PROD	required

★★ **The wire is the highest-consequence act in the system**

`release-wire` is held by the **Funder alone** (§4.4). Beyond the capability check:

- **PTF conditions block the release** (FU-04). Not warn — block.
- **The wire-fraud warning appears first**, before the instructions, because that is the order a human should read it in.
- **Wire-fraud controls are mandatory** (RC-02): verified payee, callback verification, account validation.
- **Every override is logged with who changed what, from what, to what** (FU-02).
-  **A wire is not a phone action.** Building it as one is a risk decision disguised as a convenience feature (§7 DEV-07).

Done = testable: a file with one outstanding PTF condition cannot release a wire; the refusal names the condition; clearing it releases the block and the whole sequence appears in the audit trail with actor and timestamp.

6.10 Group PC — Post-close, insuring and investor delivery

What this is. The half of the process most systems abandon. The loan has funded; it is not yet money. It must be insured if it is a government loan, registered with MERS, delivered to the investor who buys it, and reconciled when they pay.

★ **This module's specification is a spreadsheet that exists today.** A post-closer's manual tracker and government insuring log are **not** workarounds to be tolerated — they are the requirement.

ID	Requirement	Tier	Type
PC-01	★ Post-close tracker — the spreadsheet becomes the screen	PROD	required
PC-02	Dated event log, auto-timestamped	PROD	required
PC-03	Insuring by program — FHA MIC, VA LGC, USDA Loan Note Guarantee	PROD	required
PC-04	★ Aging view: funded > X days without insuring	PROD	required
PC-05	VA funding-fee 15-day remittance clock	PROD	required
PC-06	★ Investor Connect — two-way delivery and tracking	PROD	required
PC-07	Per-investor delivery profiles	PROD	required
PC-08	Purchase conditions return as routed in-file tasks	PROD	required
PC-09	★ Purchase Advice auto-reconciliation with mismatch flags	PROD	required
PC-10	★ On Purchased: MERS transfer → goodbye letter → payoff → finalise	PROD	required
PC-11	Post-close issue log feeds the training report	PROD	desired

★ PC-06 — the promise behind Investor Connect

Zero investor-portal logins. The seat that delivers a loan answers for that delivery, which is why `investor-deliver` is its own capability separate from `mrs` and `ucd` (\$4.4). The Manager holds it too, because a post-closer out for a week cannot mean a shop that cannot sell loans.

★ PC-09 — reconciliation is where money is silently lost

A Purchase Advice is the investor's statement of what they actually paid. **Auto-reconcile it against what was expected and flag every mismatch.** Manual reconciliation of these is how a lender discovers a pricing error six months and forty loans later.

PC-11 and the defect log — read this before designing the screen

`/los/pcissues` logs every defect found after closing, by step, by seat and by category, so the recurring ones become training topics.

★ **The screen must say out loud what these numbers are NOT.** A defect count read as a scoreboard is how you teach people to stop logging defects — at which point the module actively makes the shop worse than having no module. This framing is a requirement, not copy.

6.11 Group SE / BD — Secondary market and buydowns

ID	Requirement	Tier	Type
SE-01	Lock desk — lock, extend, re-lock at the correct plan code	PILOT	required
SE-02	★ Extension cost captured and attributed	PROD	required
SE-03	Lock-expiration alerts routed to the loan officer	PILOT	required
SE-04	Position, commitments, best execution, delivery	PROD	required
SE-05	Hedging and pull-through analytics	PROD	desired
BD-01	Buydown radio, type dropdown, funding source	PILOT	required
BD-02	Subsidy schedule auto-calculated	PILOT	required
BD-03	★ Qualifying-rate rule applied correctly to AUS and DTI	PILOT	required
BD-04	★ Plan code maps to pricing and document generation	PILOT	required

ID	Requirement	Tier	Type
BD-05	Buydown agreement generated; escrow custodial account funded	PROD	required

★ **SE-02 — attribution decides who pays.** A lock extension costs money. Whether the delay was **borrower-caused or lender-caused** determines who bears that cost, and it **will** be argued about later. Capture it at the moment of extension, not in the argument.

★ **BD-03 — the buydown qualifying-rate trap.** A temporary buydown reduces the borrower's payment in early years, but most programs require qualifying at the **note rate**, not the bought-down rate. Applying the wrong one to DTI produces a file the AUS approves and the investor rejects.

★ **BD-04 — the plan code is the chain.** It must drive pricing **and** document generation. This is the same broken chain named in DM's mapping table, and it is what produces wrong Initial Closing Disclosures today.

6.12 Group WS — The worksheet and form library

What this is. ★ A genuine differentiator, and an unglamorous one. These are the calculations operators do today **in Excel, beside the system**. Each one is a place where a wrong number reaches a borrower or an agency.

ID	Requirement	Tier	Type
WS-01	FHA Streamline worksheet with the full calculation chain	PROD	required
WS-02	FHA streamline required wait-period calculator	PROD	required
WS-03	Upfront MIP refund calculator, from the endorsement date	PROD	required
WS-04	VA IRRRL / cash-out comparison with net tangible benefit	PROD	required
WS-05	VA Joint Applicants worksheet	PROD	required
WS-06	VA eligibility / entitlement worksheet	PROD	required
WS-07	Texas A(6) 2% fee-cap worksheet	PROD	required
WS-08	Escrow Holdback Agreement for Repairs	PROD	required
WS-09	Verbal verification of employment form	PROD	required
WS-10	Specific power-of-attorney forms, mapped	PROD	required
WS-11	New-construction tax projection by state	PROD	required
WS-12	Closing matrix by state	PROD	desired

★ **"With the full calculation chain" (WS-01) is the requirement.** A worksheet that prints an answer is worth less than one that shows its arithmetic, because **a number an operator cannot defend is a number they will not use** — they will go back to Excel, and the module will have failed while appearing complete.

⚠ **/los/worksheets** **currently carries a claim the page had to withdraw, kept visible rather than deleted.** That is the correct behaviour and it should be preserved: a retracted claim left visible is how a team stops re-making the same wrong assumption.

6.13 Group EC — eClose, eNote and RON

What this is. The digital closing spectrum. It is tiered PROD throughout — none of it is needed to fund the first loan, and all of it is needed to compete.

ID	Requirement	Tier	Type
EC-01	eClosing room — hybrid, full eClose, and RON paths	PROD	required
EC-02	★ MISMO eNote with a real XMLDSIG signature — not the string "UNSIGNED"	PROD	required
EC-03	eVault — tamper-evident authoritative-copy custody and transfer	PROD	required
EC-04	RON: notary session, identity proofing, recorded audio-video, journal	PROD	required
EC-05	eClose eligibility by state, investor and county e-recording	PROD	required
EC-06	E-recording submission and recorded-document return tracking	PROD	required

ID	Requirement	Tier	Type
EC-07	eNote registered to the MERS eRegistry as controller and location	PROD	required

★ **EC-02 is called out because a placeholder shipped once.** An eNote whose signature element reads `UNSIGNED` is not an eNote; it is an XML file that will be rejected at delivery. **The acceptance test is a successful MERS eRegistry registration, not a well-formed document.**

★ **EC-05 — eligibility is a three-way test.** A state may permit RON, an investor may refuse it, and the county may not accept electronic recording. All three must pass, and the screen must say **which one failed** when one does.

6.14 Group RC — Controls the operations notes did not name

What this is. ⚠ **These are requirements nobody asked for, and their absence would each have been discovered expensively.** They are listed separately rather than folded into other groups so that the reason they exist is not lost.

ID	Requirement	Tier	Type
RC-01	★ OFAC / SDN / watchlist screening on all parties	PILOT	required
RC-02	★★ Wire-fraud control: verified payee, callback verification, account validation	PILOT	required
RC-03	NMLS Mortgage Call Report data and export	PROD	required
RC-04	US title-insurance rating — filed rates, simultaneous issue	PROD	required
RC-05	Investor-specific document stacking templates	PROD	required
RC-06	Hazard, flood and MI policy tracking with expiration alerts	PROD	required
RC-07	SSO / OAuth 2.0 (Okta, Azure AD, Google)	PILOT	required
RC-08	Document version control	PROD	required
RC-09	Flood-zone determination with life-of-loan monitoring	PROD	required
RC-10	★ Right-of-rescission tracking on applicable refinances	PROD	required

Why each of these is here

- **RC-01 — OFAC screening on all parties.** Not just the borrower. Sellers, sometimes agents. A lender that closes a loan with a sanctioned party has a problem no amount of documentation fixes.
- **RC-02 — wire fraud is the largest single-loss risk in mortgage operations.** A verified payee, a callback to a known number, and account validation are the three controls that stop it. This is a PILOT-tier requirement, not a PROD one, because the first real loan moves real money.
- **RC-03 — the Mortgage Call Report** is a quarterly NMLS filing obligation. It is not optional and it needs its data captured all along, not reconstructed at quarter end.
- **RC-06 — insurance policies expire.** A funded loan with lapsed hazard coverage is an investor repurchase demand waiting to happen.
- **RC-09 — flood determination is life-of-loan**, not one-time. Zones are redrawn.
- ★ **RC-10 — the right of rescission** is why "Closed" and "Funded" are separate milestones (§3.3). On a refinance of a primary residence the borrower has three business days to cancel, and **funding before that window closes is a serious violation**. The tracker is the control.

6.15 Group BS — ★★ The Loan Summary screen

What this is. The screen a file opens to, and the most important single screen in the LOS after the underwriting workstation. Every system calls it something different — an Overview screen, a Borrower Summary. The name does not matter; the job does.

★ **In the subject-matter expert's own words:**

"This screen is the meat and potatoes — the story of the file. If things are incorrect here, the disclosures will go out incorrectly and could affect the overall loan if it isn't caught. This is the page that the file opens to and should not have other pages running on it. It is its own page."

ID	Requirement	Tier	Type
BS-01	★ Loan Summary as the file-open screen — role-scoped, organised in sections	DEMO	required
BS-02	★ File-detail band identical across roles — the backup's first read	DEMO	required
BS-03	Role-scoped summary tiles — closer, post-closer, processor, underwriter, manager	PILOT	required
BS-04	★ Operations-defined custom fields as first-class data — reportable, filterable, task-able	PILOT	required
BS-05	Quick links that open the target form pre-populated , including external tools in context	PILOT	required
BS-06	The two-screen pattern enforced per role: task landing + Loan Summary	DEMO	required

★★ BS-01 — the specified field set

⚠ **Section ordering is a preference, not a rule.** The subject-matter expert was explicit that grouping these sensibly is open to design judgement. **The fields themselves are not.**

① **Borrowers and contact information** Borrower and co-borrower names, **SSN, email, phone.** ★ This information **flows and is mapped from the 1003** — it is never re-keyed here.

② **Loan number** Generated when the file is either entered manually or arrives from the POS.

③ **Terms of the mortgage** — mostly standard dropdowns

Field	Behaviour
Purpose	Dropdown
Occupancy	Dropdown
Loan Type	Dropdown — e.g. Conventional
Program	Dropdown — e.g. HomeReady FNMA 30-year Fixed. ★ If the program is an ARM, a further panel opens to capture the ARM terms.
Term	★ Its own field, separate from Program — a borrower may choose a 25-year term on a 30-year fixed program, and the term decides payment and amortisation
Appraised Value	—
Purchase Price	When applicable
Down Payment	★ Both a % field and a \$ field. Either may be entered and the other calculates.
Loan Amount	Calculated from down payment against sale price
Note Rate	—
Escrow waiver	Yes / no radio

★ **Refinances differ:** a refinance carries **Refinance Type** (No Cash Out · Rate/Term · Limited Cash Out · Cash Out) and has **only an appraised value** — an estimate until the report arrives — **and a loan amount, to determine LTV.** There is no purchase price.

④ Mortgage insurance

- ★ **Always use the percentage, so it moves with loan-amount changes.** A hardcoded dollar premium silently becomes wrong the moment the loan amount changes.
- A pop-up calculator when the premium percentage is being added manually.
- ★ **Integrate MI quotes** so that the quote chosen pulls its percentage in and calculates the monthly payment.
- Lender-paid MI: yes / no radio.**
- The result must be **mappable into the Fannie Mae and Freddie Mac AUS.**
- ★ Show the **dollar amount if the borrower will pay upfront MIP in cash** — this **flows onto the fee sheet as a borrower fee.**
- A field for whether the upfront premium **will be financed into the loan.**

⑤ **Subject property** Property address, with a **valid / invalid** indication.

⚠️ **INCOMPLETE — and deliberately not guessed.** The subject-matter expert's specification for this screen was **cut off mid-sentence at capture**, immediately after the subject-property address field. Everything from the remainder of the Subject Property section onward is **missing and has not been invented**.

Do not fill this gap from convention. It is tracked as open item **Q3** in §11 and will be completed in a later version. Build sections ① through ④ and the property address; leave the section extensible.

★ BS-04 — custom fields must be real data

Operations-defined custom fields are **first-class**: reportable, filterable, and able to have tasks raised against them. A custom field that is only a text box on a screen is a note; a custom field that a manager can filter the whole pipeline by is a capability. This is the difference between the system absorbing the shop's real vocabulary and the shop keeping a spreadsheet.

★ BS-02 — the file-detail band is the backup rule made visible

The band is **identical across every role**, because it is the first thing a covering seat reads (§3.4). A band that reorders itself per role defeats its own purpose.

⚠️ Two placement corrections outstanding

Both are recorded rather than resolved, because they are the subject-matter expert's call:

1. **Life of a Loan must be removed from beneath the Loan Summary** — it already lives on the Tasks screen, and having it in both places is the duplication §5.2 rule 4 forbids.
2. **File Contacts moves onto the Loan Summary** and comes off the left rail.

6.16 Group CZ — The Closing Disclosure workspace

What this is. All five CD pages on one screen, directly beneath the 2015 fee itemisation, so the closer never works from a second window.

ID	Requirement	Tier	Type
CZ-01	★ CDEZ — all five CD pages on one screen, directly beneath the 2015	PILOT	required
CZ-02	RegZ-CD control record: plan code, alternative lender, disclosure info, MI	PILOT	required
CZ-03	Closing vendor info — lender, title, Docs-Prepared-By exactly as printed	PILOT	required
CZ-04	CD page 3 Summaries of Transactions — prorations, payoffs, seller credits	PILOT	required
CZ-05	CD page 4 AP Table / AIR Table on adjustable loans	PROD	required
CZ-06	★★ The audit gates Order Docs — disabled until the compliance audit clears	PILOT	required
CZ-07	★ Audit findings in red with go-to-field links, not a report	PILOT	required
CZ-08	Reconcile the CD to the settlement statement without a second window	PROD	required
CZ-09	Closing conditions pull into the lender's closing instructions	PROD	required

★★ CZ-06 and CZ-07 together are the whole point of this group. Compliance gate #3 (CO-03) is not a report the closer reads and then decides about — **it disables the button**. And when it fails, the findings are **red, in place, each linking to the field that caused them**. A finding that arrives as a separate document is a finding somebody has to translate back into a screen position, at the exact moment they are trying to ship.

6.17 Group LS — Loan-officer enablement

ID	Requirement	Tier	Type
LS-01	LO pricing and scenario comparison, using the program engine	PILOT	required
LS-02	Pre-qualification / pre-approval letter from the LO, POS-aligned	PILOT	required

ID	Requirement	Tier	Type
LS-03	LO compensation and commission visibility per loan	PROD	desired
LS-04	Referral-source and partner attribution reporting	PROD	required
LS-05	★ Lead → application conversion, held in the Portal, not the LOS	PROD	required
LS-06	LO co-pilot: next-best-action per file, with reasons	PROD	desired
LS-07	Production goals, pacing and forecast	PILOT	required
LS-08	Rate-watch, repeat-client and refinance-opportunity alerts	PROD	desired

★ **LS-05 states a boundary, not a feature.** Leads and sales pipeline live in the LO Portal / POS. **They must never clutter the LOS.** The LOS is where a loan is manufactured; it is not where a lead is worked.

★ **LS-02 must stay aligned with the POS.** A pre-approval letter is a **frozen copy, not a live view** — changing the loan amount afterwards does not change an issued letter. The POS owns issuance to referral partners; this requirement is the LOS-side view of the same object. See `INTEGRATION_version1.0.0 §3`.

6.18 Group AD / PL / AU — Admin, pipeline, reporting and audit

ID	Requirement	Tier	Type
AD-01	★ Real RBAC — the role × capability matrix, with a workspace per role	PILOT	required
AD-02	Users and loan officers with state licences and expirations ; regions; branches	PILOT	required
AD-03	Fee templates by branch / state / product	PILOT	required
AD-04	Business rules and milestone gates	PROD	required
AD-05	Custom fields and forms with mapping	PROD	required
AD-06	Investors and delivery profiles	PROD	required
AD-07	★ Program and plan codes mapped to pricing and the document vendor	PILOT	required
AD-08	Standard-task dropdown libraries	PILOT	required
AD-09	Per-role pipelines, saved views, task templates	PILOT	required
AD-10	★ Configuration versioning and change audit	PROD	required
AD-11	★ Sandbox — test a rule in staging before it goes live	PROD	required
AD-12	Closing document plan codes by investor, and stacking templates	PROD	required
AD-13	Compliance audit settings, including default channel banked/brokered	PILOT	required
PL-01	Dual pipeline views — data grid and loan summary	PILOT	required
PL-02	Scope-derived visibility — branch / regional / national	PILOT	required
PL-03	★ Aging buckets with non-colour-only status	PILOT	required
PL-04	Touch counts by role	PROD	required
PL-05	Reporting — pull-through, cycle time, channel mix, exports	PROD	required
PL-06	KPI framework surfaced natively — turn times, error rates	PROD	desired
PL-07	AI bottleneck detection and SLA alerts	PROD	desired
AU-01	★ Immutable audit trail — field, milestone, vendor, condition, permission	PILOT	required
AU-02	Compliance gate results and overrides recorded	PILOT	required
AU-03	Reconcile to the document vendor's disclosure trail	PROD	required

★ **AD-10 and AD-11 exist because configuration is code.** A fee template, a business rule and a milestone gate each change what the software does. They therefore need **versioning, a change audit, and a place to be tested before going live.** A shop that can change a blocking compliance gate in production with no version history has moved the risk, not removed it.

★ **AD-02 — licence expirations are load-bearing.** An LO whose state licence has lapsed must stop being assignable **on the expiry date**, without anyone remembering. This is the LOS side of the POS's H3.

★ **PL-03 — never colour alone.** An aging bucket that is communicated only by a red row is invisible to a colour-blind operator and to anyone printing or exporting. Shape or label as well (§7 A11Y-03).

6.19 Group IN — Integrations

ID	Requirement	Tier	Type
IN-01	Credit, flood and VOE via the credit vendor API	PILOT	required
IN-02	AUS — Fannie Mae DU and Freddie Mac LPA	PILOT	required
IN-03	★ Document vendor true sync — all fields, all programs	PROD	required
IN-04	MERS OnLine / API register and transfer	PROD	required
IN-05	FHA Connection — case number, CAIVRS, insuring	PROD	required
IN-06	Appraisal order and XML return	PROD	required
IN-07	Title request through the LOS, with the action recorded	PROD	required
IN-08	MI quotes and certificates; the non-delegated upload path	PROD	required
IN-09	Fraud detection	PROD	required
IN-10	4506-C / SSA-89 ordering	PROD	required
IN-11	GSE UCD collection	PROD	required
IN-12	Verification of assets	PROD	desired
IN-13	★ Pricing engine plan codes, both directions	PILOT	required
IN-14	★ Integration health visible on screen when a vendor is down	PROD	required

★ **IN-03 — "all fields, all programs" is the requirement, and the current gap.** Partial document- vendor sync is why values are re-keyed today and why wrong Initial Closing Disclosures are produced. A sync that covers the common program and leaves the government programs to manual entry has not satisfied this requirement.

★ **IN-14 — a vendor being down must be visible on the screen where the work is happening**, not only on an operations dashboard. An operator who does not know title ordering is failing will re-try it four times and then raise a support ticket.

6.20 Group AI — Artificial intelligence inside the line

★★ **The governing rule: AI in an LOS suggests; it never decides.** A licensed human makes every decision that has a regulatory consequence.

ID	Requirement	Tier	Type
AI-01	Income calculator, showing its work	PROD	desired
AI-02	★ The income calculator states its own uncertainty and routes to a human	PROD	desired
AI-03	Document classification and auto-label to a condition	PROD	desired
AI-04	★ Condition-clearing suggestions — a human clears	PROD	desired
AI-05	Discrepancy flags — name versus W-2, employer mismatch	PROD	desired
AI-06	Next-best-action with a stated reason	PROD	desired
AI-07	★★ Guardrail charter enforced in code	PROD	required
AI-08	Model governance — versioning, disparate-impact testing, traceability	PROD	required
AI-09	Written AI/ML governance framework — the six required elements	PILOT	required
AI-10	On-demand AI disclosure pack — types used, purpose, safeguards	PILOT	required

ID	Requirement	Tier	Type
AI-11	★ Per-loan AI provenance — what the model saw, its output, who reviewed it, what they did	PILOT	required
AI-12	Tenant-scoped governance — a licensee can satisfy the framework on their own instance	PROD	required

★ **Notice the tier and type split.** Every *capability* here is **desired** and PROD. Every *governance* requirement is **required**, and two of them are **PILOT** — meaning the governance must exist before the first supervised real loan, whether or not any model is doing anything interesting yet. Building the AI features first and the governance later is the failure mode this split exists to prevent.

★ **AI-11 — per-loan provenance is what makes an examination survivable.** For any loan, the system must answer: which model touched it, what did it see, what did it output, **who reviewed that output, and what did they do about it.** This is also the direct answer to the CFPB's position that a complex model does not excuse a creditor from giving specific adverse-action reasons (§9).

6.21 Group CM — Commercialisation

What this is. The requirements that make this a **licensable product** rather than one lender's internal tool (§1.6). They are all PROD-tier and all required.

ID	Requirement
CM-01	★ Tenant onboarding — a new lender configured without engineering
CM-02	Per-tenant branding, fee templates, plan codes, investors
CM-03	★ Tenant-scoped credentials — each lender's own agency and vendor accounts
CM-04	SOC 2 controls evidenced by the platform, not asserted
CM-05	★ Tenant data isolation provable on demand
CM-06	Versioned release train with tenant-level upgrade control
CM-07	Support model — tiers, SLAs, escalation, status page
CM-08	★ Third-party POS slot — open in both directions

★ **CM-03 is the one most easily missed.** Agency credentials (DU, LPA, FHA Connection, MERS) are issued **per lender**. A platform that holds one set of credentials centrally cannot be licensed at all. This has to be in the data model from the start.

★ **CM-08 exists because a licensee may already have a front end.** The seam (`INTEGRATION_version1.0.0`) must be an open contract in both directions, not a private channel between two halves that only work together.

6.22 Group MB — The mobile companion

★★ **The honest position, and the one this document commits to:** the LOS is a **desktop platform with a deliberate mobile companion**. Some screens shrink. Some must not. **Saying which is which is the design decision** — and a specification that promises "fully responsive" and ships a fee itemisation squeezed into 390 pixels has lied while appearing complete.

ID	Requirement	Tier	Type
MB-01	★ Task command centre on a phone — the single most valuable mobile surface	PILOT	required
MB-02	Pipeline read and search by borrower last name	PILOT	required
MB-03	Approvals and single-tap decisions	PROD	required
MB-04	Comment on a task	PILOT	required
MB-05	Conditions review — read, and clear with a note	PROD	required
MB-06	★ Alerts that carry consequence — lock expiring, grace period ending, insuring aging, ICD unsent with closing inside seven days	PILOT	required
MB-07	E-sign internal and underwriting documents	PROD	desired
MB-08	★ Desktop-only screens show read-only plus the reason	PILOT	required
MB-09	★ The backup-coverage day designed for the phone	PROD	required

Belongs on a phone: the task command centre · pipeline read-and-filter · approvals and single-tap decisions · commenting on a task · conditions review (the judgment call, not the document deep-dive) · consequence-carrying alerts · e-signature of internal documents · the status answer (*"where is the Alvarez file and who has it"*).

❌ **Does not belong on a phone, and the specification refuses to fake it:** the 2015 fee itemisation · aggregate escrow setup · **the funding worksheet and net wire** · document packaging and stacking · the full 1003 review · admin configuration.

★ **MB-08 is the rule that holds it together.** Where a screen is desktop-only, the phone shows a **clear, useful read-only view plus the one action that makes sense** — usually *"assign this to me"* or *"ask someone to do it."* It never shows a broken miniature of a desktop form. A blocked action states why: *"Fee entry is desktop-only — open on a computer."* **That is respect, not a limitation.**

★ **MB-09 makes it concrete.** When the closer is out and the Director of Operations steps in from her phone, what she needs is: **see the queue, know what is urgent, reassign, and tell someone.** Not to issue an Initial Closing Disclosure from a car. **Design the companion for that person on that day.**

6.23 Group SM — The seam

What this is. The twelve requirements that make the POS and the LOS one system. They are specified in full in `INTEGRATION_version1.0.0`; they are listed here so that the LOS build plan carries them.

ID	Requirement	Tier	Type
SM-01	MISMO 3.4 push, idempotent by POS loan UUID	DEMO	required
SM-02	Event subscription with the full event set	PILOT	required
SM-03	Signed webhooks with replay protection	PROD	required
SM-04	★ Reconcile to truth , not delta application	PILOT	required
SM-05	Dead-letter queue surfaced to a human	PROD	required
SM-06	Daily reconciliation sweep with drift alerting	PROD	required
SM-07	★★ Published, versioned stage mapping table	DEMO	required
SM-08	<code>LosAdapter</code> interface with two implementations	PILOT	required
SM-09	★ The TRID trigger timestamp carried across the seam	PILOT	required
SM-10	★★ Synchronous, confirmed adverse-action automation halt	PILOT	required
SM-11	Multi-tenancy mapping across both systems	PROD	required
SM-12	Sandbox parity — the full flow without a real borrower	PILOT	required

★★ **SM-10 is the one to read twice.** When a file is denied or withdrawn, the POS's borrower automation must stop — and the LOS must **know that it stopped**, synchronously and confirmed. An asynchronous "we sent the event" is not sufficient, because the failure mode is a marketing message reaching a borrower who was denied an hour ago. That is a fair-lending problem, not a bug.

7 · Non-functional requirements

Functional requirements say what the system does. These say **how well**, and they are just as testable. Every one has an ID of the form `LOS-NFR-<AREA>-<n>`.

⚠️ **The LOS's non-functional profile is the opposite of the POS's in one important way.** The POS is optimised for a nervous stranger on a phone. **The LOS is optimised for a trained operator at a desk for eight hours.** Do not carry POS instincts across; §7.7 is where they diverge most sharply.

7.1 ★★ Density and the speed standard

This is the LOS's defining non-functional requirement, and it is stated first because it is the one most often lost.

An operator sits at a desk, often at two monitors, for eight hours. They are not scrolling — they are **scanning, comparing and typing**. For them, whitespace is not calm, it is **distance**: every inch of padding is a row of the fee sheet they now have to scroll to reach.

ID	Requirement	Target
DEN-01	★ Tabular data renders as tables — real columns, alignment on the decimal, rows that scan. 🚫 Not stacked cards , which are a phone pattern that wastes 60% of a monitor.	Every grid surface
DEN-02	★ Row density on grid surfaces — pipeline, task centre, fee itemisation	40–60 visible rows on a 1080p screen
DEN-03	Section navigation is hyperlinked and always visible	Every multi-section screen
DEN-04	★ The left rail stays while in a file. Losing it to a hamburger menu on a desktop is a downgrade dressed as minimalism.	Every file screen
DEN-05	★★ The stopwatch: a full fee sheet in 5–10 minutes , down from 20–25 today	Acceptance criterion, not a sentiment. A build that passes the feature test and fails the stopwatch has not passed.
DEN-06	Keyboard-first	Tab order follows the form, not the DOM . Enter commits. Numeric fields take a number without a mouse.
DEN-07	No modal for the common case	The individual-fee box refines a fee; it is not where every fee must be entered

Test for DEN-02: if a closer has to scroll to see the \$1100 block while entering \$800, **the screen has failed**.

7.2 Performance

ID	Requirement	Target	Verified by
PERF-01	Task command centre first render	< 1.5 s with a realistic dataset	Load test with seeded data
PERF-02	Loan Summary open	< 1.5 s	Load test
PERF-03	Grid render — pipeline at 5,000 files, task centre at 2,000 tasks	< 2 s p95, and the grid stays responsive while scrolling	Load test
PERF-04	Field-to-field response on the fee itemisation	< 100 ms. Perceptible lag here is what makes DEN-05 unreachable.	Instrumented
PERF-05	Search by borrower last name	< 300 ms p95	Load test
PERF-06	Compliance gate evaluation	< 2 s, and never a silent timeout — a gate that fails open is worse than no gate	Test suite
PERF-07	API read / write	< 300 ms / < 800 ms p95	APM
PERF-08	Document package assembly	Acknowledged < 3 s; assembly asynchronous with visible progress	Load test
PERF-09	Report and export generation	Interactive < 5 s; anything longer runs as a job with notification	APM

7.3 Availability and reliability

ID	Requirement	Target
AVAIL-01	LOS availability during business hours	99.9%
AVAIL-02	★ Compliance gates fail closed	A gate that cannot evaluate blocks and says so . It never passes by default.
AVAIL-03	Graceful vendor degradation	A vendor being down degrades that function, is visible on the working screen (IN-14), and never corrupts file state
AVAIL-04	Idempotency	Every outbound call carries an idempotency key

ID	Requirement	Target
AVAIL-05	Event delivery	At-least-once with consumer de-duplication; out-of-order reconciled
AVAIL-06	Dead-letter visibility	Failures land where a human can see and act on them
AVAIL-07	★ Planned maintenance	Outside business hours, and never during a CD delivery window or a funding day
AVAIL-08	★ Clocks survive an outage	A TRID, rescission, incompleteness or insuring deadline does not pause because a service did . Clock state is durable and recalculated on recovery.

7.4 Scalability

ID	Requirement	Target
SCALE-01	Volume	50 → 5,000 loans/month is a configuration parameter, not a rebuild
SCALE-02	Seats	Hundreds of operators across branches and regions
SCALE-03	★★ Multi-tenancy is foundational	Tenant scoping on every record from the first migration. Not retrofittable, and \$1.6 makes it a commercial requirement rather than a technical preference.
SCALE-04	Statelessness	Application services horizontally scalable, no local session state
SCALE-05	Asynchronous heavy work	Package assembly, exports, reconciliation sweeps and vendor calls run on queues

7.5 Security

ID	Requirement	Detail
SEC-01	★★ Server-side authorisation, always	Every capability check on the server. The tell that permissions are cosmetic is that a super-admin sees the same screen as everyone else.
SEC-02	★ Deny by default	A route is staff-only unless explicitly declared public. A new route that forgets to check anything refuses .
SEC-03	★ Both checks, always	A capability check and a scope check. Holding <code>decision</code> does not entitle a seat to a file outside their scope.
SEC-04	Object-level authorisation	Every read of a loan verifies entitlement to that loan. An enumerable identifier with no ownership check is the defect class this prevents.
SEC-05	Encryption in transit	TLS 1.2 minimum, 1.3 preferred, including internal hops
SEC-06	Encryption at rest	All loan data; SSN and account numbers additionally field-level encrypted
SEC-07	Key management	Managed key service, rotatable, never in source control , never one master key for all data
SEC-08	MFA	Required for every staff seat, no exceptions by role
SEC-09	SSO	OAuth 2.0 / SAML against the corporate directory (RC-07)
SEC-10	★ No PII in URLs, logs or analytics	SSNs never logged, never in a query string, never in an error message
SEC-11	Tenant isolation	Enforced at the data layer, not by a WHERE clause a developer must remember
SEC-12	★ Wire-fraud controls	Verified payee, callback verification, account validation (RC-02). The largest single-loss risk in mortgage operations.

ID	Requirement	Detail
SEC-13	Watchlist screening	OFAC / SDN on all parties , not only the borrower (RC-01)
SEC-14	Upload safety	Type-verified, size-bounded, malware-scanned, served from a non-executing domain
SEC-15	Webhook hardening	Signature verification, replay protection, idempotency
SEC-16	Dependency and secret hygiene	Automated scanning; secret scanning that blocks the commit
SEC-17	Independent penetration test	Before launch and annually
SEC-18	SOC 2 Type II	★ Evidenced by the platform, not asserted (CM-04)
SEC-19	Least privilege	Standing production data access is exceptional, logged and time-bound
SEC-20	Incident response	Written, tested, wired to the GLBA 30-day breach-notification posture

7.6 Auditability and data integrity

ID	Requirement	Detail
DATA-01	★★ Append-only audit trail	Every field change, milestone, vendor order, condition, permission change, gate result and override. No update path. No delete path.
DATA-02	★ One-action examination pull	The complete, timestamped story of any loan, exported in one action (CO-25)
DATA-03	★ Auto-date on event; never type a date	Received, sent, viewed, signed, ordered, funded, purchased, registered, transferred — the system stamps them. A date a human typed cannot support a compliance argument.
DATA-04	Field-level lineage	Every value knows its source (DM-10)
DATA-05	★ One data point, many views	The insuring log, the pipeline grid, the loan summary and the manager's report are filtered views of one loan object . If two of them can disagree, the system is broken.
DATA-06	Configuration is versioned	Fee templates, business rules and gates carry version history and a change audit (AD-10)
DATA-07	Backups	Encrypted, geographically separated, with restores actually tested
DATA-08	⚠ Transactional integrity	Paired writes must both succeed. The reference build's storage engine has no transactions — see §8 and §11 G3.

7.7 ★ Device and platform — where the LOS diverges from the POS

ID	Requirement	Detail
DEV-01	★★ Desktop-first, by decision	Processors, underwriters, closers and funders work a file at a computer. A tablet at worst. Never a phone . Dense desktop layouts are correct here.
DEV-02	★ A phone is redirected, not degraded	Real work screens send a phone to <code>/los/desktop-only</code> with a reason. This is a declared non-surface , not a failure.
DEV-03	The mobile companion is a separate product surface	Four read-mostly panels (MB-01 to MB-09). It is not "the LOS, smaller."
DEV-04	🚫 Named phone exclusions	The 2015 fee itemisation · aggregate escrow · the funding worksheet and net wire · document packaging · the full 1003 review · admin configuration
DEV-05	Browsers	Current and previous major versions of Chrome, Edge, Firefox and Safari

ID	Requirement	Detail
DEV-06	Screen size	Designed for 1080p and above; usable at 1366×768 without horizontal scroll on primary grids
DEV-07	★ Two-monitor use is a first-class case	Nothing may depend on a viewport-width assumption that breaks when a window is half a screen

7.8 Accessibility and the eight-hour test

ID	Requirement	Target
A11Y-01	WCAG 2.2 level AA as the floor	Independently audited pre-launch
A11Y-02	★ Real focus states	Dense grids are unusable by keyboard without them
A11Y-03	★ No colour-only status	An aging highlight needs a shape or a label too (PL-03)
A11Y-04	★ Survives 125% Windows scaling	Without reflowing a grid into uselessness — the single most common accessibility failure in dense operational software
A11Y-05	Full keyboard operability of every grid	Including sort, filter, and row actions
A11Y-06	★★ The eight-hour test	<i>Would a person be tired by this screen at 4pm? Contrast that is too high is as fatiguing as contrast that is too low.</i>
A11Y-07	★ Errors state the rule and the cure	Not "validation failed". Instead: "Points and fees exceed the 5% QM limit — reduce by \$312 or re-price. A cure task has been assigned to the closer."
A11Y-08	★ Industry words, correctly	A CD is initial , revised , final or post-closing — never "preliminary." There are no "tenants" in a mortgage file. Wrong vocabulary on screen teaches new hires wrong vocabulary in front of borrowers and investors.

7.9 ★ Usability — the backup rule

ID	Requirement	Detail
UX-01	★★ A trained person who did not build the file can use any screen	Visible context — what stage, what is outstanding, what was requested and by whom — not tribal knowledge held by whoever normally sits there
UX-02	The task list is the day	Nobody opens a random file. The landing screen is tasks, never a file list.
UX-03	★ Every field has a home	There is no "oops, forgot about this" page. Orphan fields are how a system becomes unlearnable — and how the same value gets entered twice, differently.
UX-04	A refusal names the next step	Which capability was required, and which seat holds it (\$4.7)
UX-05	One screen at a time inside a file	Not one long scrolling page (\$5.2)
UX-06	★ Acceptance test for UX-01	Hand a colleague a file mid-stage with no verbal briefing and have them identify the next three actions from the screen alone

7.10 Observability

ID	Requirement	Detail
OBS-01	★ Compliance-clock monitoring	Alert before a TRID, CD, rescission, incompleteness, insuring or funding-fee-remittance deadline is missed
OBS-02	★ Override reporting	Every compliance-gate override reported to compliance weekly (CO-05)
OBS-03	Touch counts and cycle time instrumented	The \$3.5 measures, from launch
OBS-04	Vendor health surfaced on the working screen	Not only on an operations dashboard (IN-14)
OBS-05	Distributed tracing	One operator action traceable end to end

ID	Requirement	Detail
OBS-06	Structured logs, no PII	SEC-10 holds absolutely
OBS-07	★ Drift alerting on the seam	The daily POS ↔ LOS reconciliation reports what it healed , not merely that it ran

7.11 Disaster recovery

ID	Requirement	Target
DR-01	Recovery Time Objective	4 hours
DR-02	Recovery Point Objective	15 minutes
DR-03	Tested restore	At least annually, with the result written down
DR-04	Runbooks per failure mode	Including "the POS is unreachable", "the document vendor is down", "the pricing engine is down on a lock day"
DR-05	★ Funding-day continuity	A funding cannot be silently deferred by an outage. Wires in flight, and their state, must be recoverable and reconcilable.

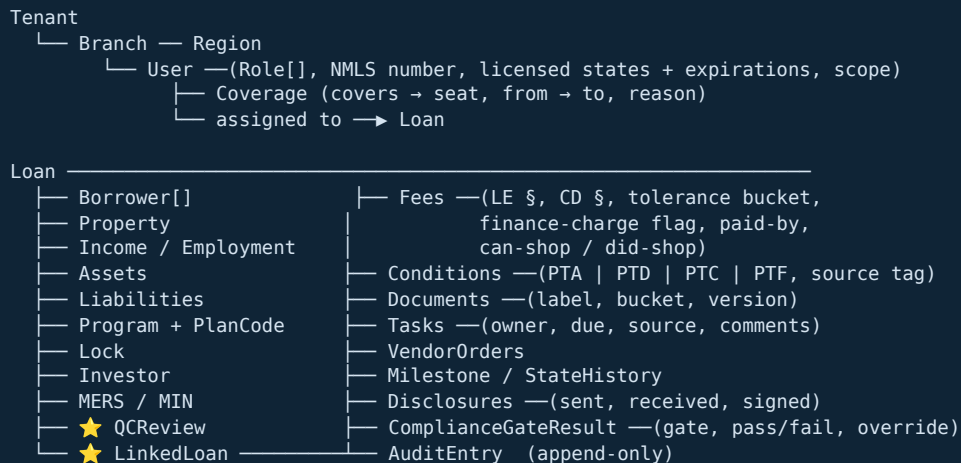
7.12 Maintainability and testability

ID	Requirement	Detail
MAINT-01	Vendors sit behind adapters	Including <code>LosAdapter</code> in the reverse direction for a third-party POS (CM-08)
MAINT-02	API-first, versioned	Breaking changes are versioned, never shipped in place
MAINT-03	★★ Dedicated test suites for the violation surfaces	The three compliance gates , the TRID clock , the tolerance engine , and the wire release . These do not share coverage with ordinary features.
MAINT-04	Rules are testable in staging before going live	AD-11
MAINT-05	Sandbox parity	The full flow, including the seam, without a real borrower (SM-12)
MAINT-06	🚫 Synthetic data only outside production	Real borrower data never enters a development or test environment.
MAINT-07	★ Browser-executable acceptance script	Click-by-click, role-by-role , expected-versus-actual, that a non-engineer at CLEAR can run. This is the acceptance gate.
MAINT-08	★ The cold-start test is automated where it can be	UX-06 as a scripted scenario per role

8 · The data model

8.1 Core entities

The loan object is the spine. **Every screen is a view onto it**, and a value entered at its source flows outward and is never re-typed.



8.2 ★ The two entities the prior blueprint omitted

Entity	Why it must be first-class
★ LinkedLoan	A true second lien with its own loan number , linked to the first, with its own TRID document set. A down-payment-assistance or piggyback second is not a credit line on the 1003 . The current system can create a standalone second but cannot link it, so the second is invisible on the funding screen . It must populate the funding worksheet (FU-03).
★ QCReview	Pre-close and post-close quality control as a real object on the loan , not a spreadsheet beside it. Reviewer independence (QC-05) is checked against the loan's actual touch history, which requires the review to live on the loan.

8.3 ★ The identity model in data

Three separate things (§4.1), and the schema must keep them separate:

Concept	Entity	Note
Person	User	May hold more than one role
Role	Role[] on the user	A role does not imply a scope
Scope	scope on the user	Own · Branch · Regional · National
★ Coverage	Coverage	Time-bounded , with a reason, and it expires on its own . Every act taken under it is stamped as such.

🚫 **Coverage is not a permission edit.** A system that implements coverage by temporarily adding a capability to a user has lost the ability to answer "why did a Post-Closer issue closing documents on 14 March?" — which is precisely the question an examiner asks.

8.4 ★ The fee is the most structured object in the system

A fee is not a name and an amount. Each fee carries, as **computed properties**, not manual classifications:

Property	Why
Fee name, from a controlled list	★ Free-hand names destroy the tolerance engine (FE-02)
LE section and CD section	Shown on the fee box itself (FE-04)
Tolerance bucket — zero, 10%, or unlimited	★ Computed (CO-09), so it cannot drift from the name
Finance-charge flag	Auto-flagged with an admin override (FE-07)
Paid-by	Borrower, seller, lender, other
Can-shop / did-shop	Drives the bucket and the service-provider list
Authorising act	★ The pre-ITP fee gate (CO-07) is enforced against this
Change history	Every change stamped with actor, from-value and to-value

8.5 Modelling rules that are requirements

#	Rule	Why
1	Every record is tenant-scoped	SCALE-03; and §1.6 makes it commercial, not merely technical
2	★ Credentials are tenant-scoped	CM-03. Agency credentials are issued per lender. A central credential set cannot be licensed at all.
3	The audit trail is append-only	No update path, no delete path
4	★ Dates are stamped by the system, never typed	DATA-03
5	Compliance gate results are immutable, including overrides	AU-02
6	Configuration is versioned	AD-10 — a fee template and a business rule change what the software does
7	One data point, many views	DATA-05. If the insuring log and the manager's aging report can disagree, they are not the same query.
8	★ Conditions are addressable	#need - bank2 must resolve to a row
9	The POS's stage is mirrored from here, never computed there	§1.4
10	★ A pre-approval letter is a frozen copy	Changing the loan amount does not change an issued letter

8.6 ⚠ A note on the storage engine

The reference build stores data in a key-value store that **has no transactions**. That was a reference-implementation convenience and it is **explicitly not a recommendation**.

The LOS has more paired writes than the POS, and several of them are consequential:

- A **compliance gate result** and the **milestone change** it permits.
- A **fee change** and the **tolerance-bucket recomputation** it triggers.
- A **condition clearing**, the **task it closes**, and the **next role's task it fires**.
- A **wire release** and the **PTF conditions** that authorised it.
- A **MERS transfer**, the **goodbye letter** and the **payoff**, on Purchased.

Production requires either a transactional store or an **explicitly designed and reviewed compensating pattern** for each of these. This is named in §11 as an open decision because it belongs to the implementation team — but **leaving it undecided is not an option**.

9 · Compliance requirements

⚠ **Standing caveat, binding on the whole section.** This is a product specification, not legal advice. Every control is reviewed and signed off by CLEAR's compliance counsel before launch. Where counsel's decision is outstanding, §11 names it rather than guessing.

★★ **The governing principle of the LOS's compliance posture, stated once:**

Gates block. They do not warn. A warning is a suggestion, and a suggestion at the moment somebody is trying to ship is a suggestion that gets ignored. See §6 group CO.

9.1 The compliance map — rule to control

Regime	The rule, short	The control
TRID (Reg Z + RESPA)	LE in 3 business days; Intent to Proceed; CD 3-day rule; tolerances	CO-06 to CO-10, the COC engine (CL-09), <code>/los/coc</code>
Reg Z §1026.19(e)(3)	Tolerance baselines — zero, 10%, unlimited	★ CO-09, as computed fee properties
Reg Z §1026.4	Finance-charge classification	FE-07

Regime	The rule, short	The control
Reg Z §1026.43 (ATR/QM)	Ability to repay; points-and-fees limits	CO-11, /los/atrqm
HOEPA §1026.32	Federal high-cost thresholds, plus state and local	CO-12
HPML §1026.35	Rate-spread test and its escrow consequence	CO-13
Reg Z §1026.23	★ Right of rescission on applicable refinances	RC-10, and why Closed ≠ Funded
RESPA §1024.17	Escrow analysis, aggregate accounting, cushion	/los/escrow , CL-01, CL-02
RESPA §1024.20	Homeownership counselling list	/los/counseling
ECOA / Reg B	Adverse action, incompleteness, counteroffer, valuations	CO-17 to CO-20, /los/adverse , /los/appraisal
HMDA / Reg C	Collection and the LAR, with edit checks	CO-16, /los/hmda
LO compensation rules	Compensation may not vary with loan terms	CO-14
NMLS	Licensing, and the Mortgage Call Report	AD-02, RC-03
GLBA Safeguards	Security program, MFA, encryption, breach notice	§7.5
OFAC / BSA	Watchlist screening on all parties	RC-01
State law	Texas A(6) and 50(a)(4); South Carolina attorney; permissible fees	AC-02, AC-03, WS-07
VA 38 CFR §36.4313	Non-allowable fees	★ GV-08, enforced on the fee sheet
Agency / investor	Insuring deadlines, delivery requirements, QC programme	PC-03 to PC-05, §6 group QC
Records retention	ECOA 25 months, plus HMDA, TILA and state	CO-23, CO-25

9.2 ★★ The three gates, restated

Gate	Fires at	Blocks	Requirement
#1	Disclosure send	Initial disclosures and revised LEs	CO-01
#2	Milestone change	Advancement, notably before Clear to Close	CO-02
#3	Final document request	★ Issuance of closing documents — it disables the Order Docs button (CZ-06)	CO-03

On failure, a gate must do four things, not one (CO-04):

1. **Block** the advance.
2. **Name the specific check.**
3. **Name the actual figure and the limit.**
4. **Drop a cure task on the correct role.**

And the result is stored, timestamped and **immutable**, including overrides (AU-02).

The override, and why it exists (CO-05): role-restricted, requires a typed reason, and **every override is reported to compliance weekly**. ★ A gate nobody can pass in an emergency gets worked around; a gate that records **who passed it and why** gets respected.

⚠ **The verification debt, stated plainly.** Part of the check list in CO-11 to CO-16 originates as a competitor's **published coverage summary**. That is a good scope statement and a poor specification. **Before build, each line must resolve to a citation, an input, a threshold and a test case.** 🚫 **Coverage copied from marketing copy is not a compliance control** — and a system that claims a check it does not perform is worse than one that claims nothing, because the shop then relies on it.

9.3 ★ The TRID clock, and who owns which half

⚠ **This is an open conflict, resolved provisionally. Read §11 D-02 before implementing.**

The three source documents disagree about who sends disclosures. The provisional split, which satisfies all three concerns:

Responsibility	Owner
★ Detect and timestamp the six-piece application trigger	POS — the six pieces land there, so that is where "an application now exists" becomes knowable

Responsibility	Owner
★ Generate and deliver disclosures, through the document vendor	LOS
★ Own the three-business-day deadline	LOS
Log the whole sequence	Both, and the seam carries the trigger timestamp as a first-class event (SM-09)

★★ Whoever owns delivery owns the deadline. That sentence is the whole point of the split.

The pre-ITP fee gate (CO-07) is enforced **at the data layer** on this side too: before Intent to Proceed, the fee model accepts exactly one fee type — a bona fide, reasonable credit-report fee. Every other fee is rejected by the model, not by a policy reminder.

Business-day arithmetic has two different definitions inside TRID. They are codified, never approximated.

9.4 ECOA — the three outcomes with three obligations

/los/adverse exists because these are genuinely different, and systems that treat them as one produce violations.

Outcome	Obligation	Requirement
Denied	Adverse-action notice within 30 days of a completed application, with specific principal reasons — never a generic code	CO-17
★ Counteroffer not accepted within 30 days	Becomes an adverse action, and the notice is then due. The timer everyone forgets, because the file still feels alive.	CO-18
Incomplete	A notice of incompleteness naming exactly what is missing , with a reasonable deadline — or an adverse-action notice. Silence is not an option.	CO-19
Withdrawn	🚫 Not the same as denied. All automation halts, on both.	CO-20, SM-10

★ **AI reason codes.** Where any model contributes to a decision, the principal reasons must be **specific and accurate**. The CFPB has been explicit that “*the algorithm did it*” is not a reason. This is why AI-11 (per-loan provenance) is a **required, PILOT-tier** requirement rather than a nice-to-have: it is the evidence that satisfies this rule.

9.5 Valuations — Reg B §1002.14

Obligation	Requirement
Notice of the right to receive a copy, within 3 business days of application	/los/appraisal
★ Copies of every appraisal and written valuation — including AVMs and desk reviews — delivered promptly on completion, or ≥3 business days before consummation, whichever is earlier	/los/appraisal
The applicant may waive the 3-day timing but must still receive copies at or before consummation, as its own consented, timestamped act	/los/appraisal

★ **The screen logs every valuation, not just the appraisal.** This is the single most common way the rule is breached — an AVM or a desk review is obtained, is not treated as a “valuation”, and is never delivered.

9.6 QC as a compliance obligation

Investors and agencies **require** a quality-control programme. §6 group QC is therefore not an efficiency feature:

- A monthly draw at a configured percentage, with **random and discretionary composition enforced**.
- Pre-close and post-close reviews, with **agency deadline clocks**.
- ★ **Reviewer independence enforced against the file's touch history**, not against a role name — because the same person may have worn a different hat on that file three weeks ago.
- ★ **A rejected-application review queue**, which is an ECOA and fair-lending control, not a quality one.
- Findings → severity → corrective action → closure, and an agency-format export.

9.7 Records, retention and the examination

- Retention codified **per record type**: ECOA 25 months, plus HMDA, TILA and state requirements, retaining to the longest applicable.
- Legal hold** freezes deletion on a matter, and the freeze is itself auditable.
- ★ **Investor-approval documents are retained for non-delegated and brokered loans (CO-24). Every document used to approve the loan with the investor must be in our file.**
- ★ **One-action examination pull (CO-25)**: the complete, timestamped story of any loan, exported in a single action.

9.8 The audit trail as the product's spine

Not plumbing. It is what makes every claim in this document provable:

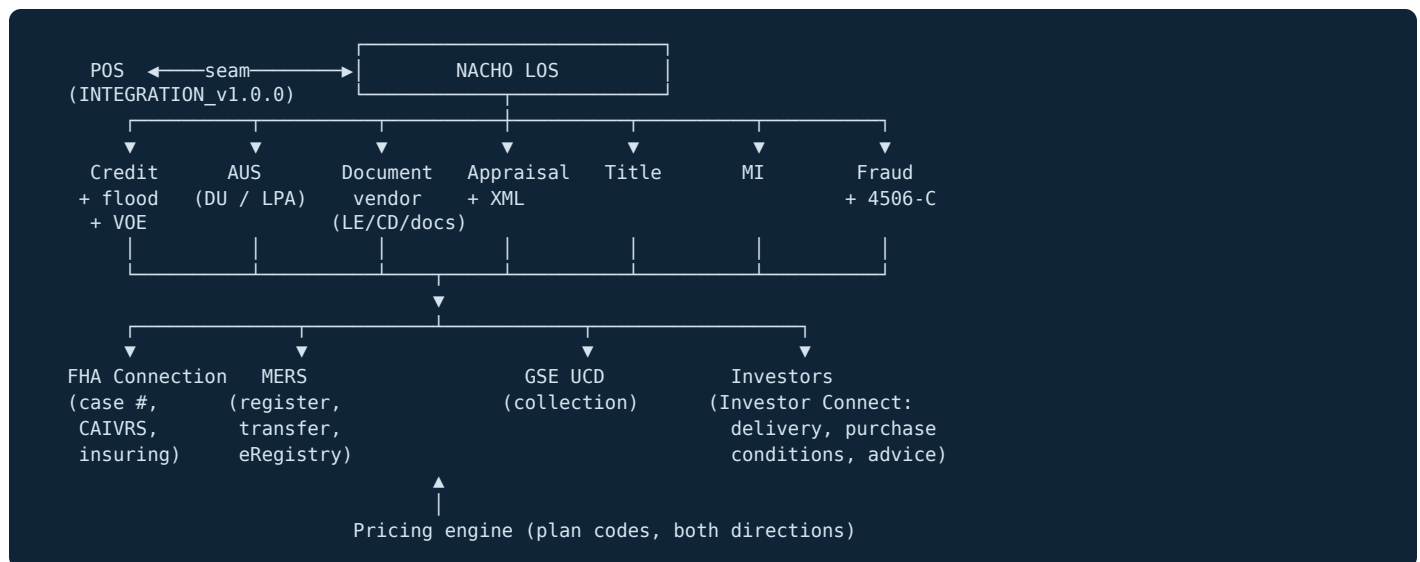
Every field change, milestone, vendor order, condition, permission change, gate result, override, coverage act, and wire release — **append-only**, with actor and timestamp, reconciled against the document vendor's own disclosure trail (AU-03).

★ **This is how CLEAR proves the gates held, the clocks were honoured, and the person who released the wire was entitled to.** It is also, per §1.6, part of what makes the platform licensable: CM-04 requires SOC 2 controls **evidenced by the platform, not asserted.**

10 · Integrations

★ **The design goal of this entire section, in one sentence: zero external portal logins.** Today an operator hops between FHA Connection, the GSE UCD portal, MERS, investor portals and a document vendor. Every hop is a re-key, a delay, and a place a value diverges.

10.1 The integration map



10.2 The integrations

#	Integration	What crosses	Requirement
1	Credit vendor	Credit report re-issue, flood determination, VOE	IN-01
2	AUS — DU and LPA	MISMO 3.4 in, findings out; every run logged, the operative run marked	IN-02, PR-03, PR-04
3	★ Document vendor	True sync — all fields, all programs. Generates the LE, ICD and CD and the closing package.	IN-03, CL-10
4	MERS	Register, transfer, and the eRegistry for eNotes	IN-04, EC-07, PC-10
5	FHA Connection	Case number, CAIVRS, insuring	IN-05, GV-01
6	Appraisal	Order out, XML back and auto-populated	IN-06, UW-04
7	Title	Request through the LOS, with the action recorded	IN-07

#	Integration	What crosses	Requirement
8	Mortgage insurance	Quotes and certificates; the non-delegated upload path	IN-08, and the Loan Summary MI panel (BS-01)
9	Fraud	Screening	IN-09
10	IRS transcripts	4506-C and SSA-89 ordering	IN-10
11	GSE UCD	Collection, round-trip	IN-11, CL-11
12	Verification of assets	—	IN-12 (desired)
13	★ Pricing engine	Plan codes in both directions	IN-13
14	★ Investor Connect	Two-way delivery, purchase conditions back as routed tasks, Purchase Advice reconciliation	PC-06 to PC-09
15	Watchlist	OFAC / SDN on all parties	RC-01
16	Flood	Determination and life-of-loan monitoring	RC-09

10.3 ★ Rules that apply to every integration

#	Rule	Requirement
1	Idempotency keys on every outbound call	AVAIL-04
2	Exponential-backoff retries with a dead-letter queue a human can see	AVAIL-06
3	★ Integration health visible on the screen where the work is happening — not only on an operations dashboard	IN-14
4	★ A vendor being down never corrupts file state. It degrades that function and says so.	AVAIL-03
5	Inbound webhooks are hardened — signature verification, replay protection, idempotency	SEC-15
6	★ Every vendor response is recorded in the file, not merely acted upon	PR-01
7	Every integration sits behind an adapter — the vendor choice must stay reversible	MAINT-01
8	Full sandbox parity, including the seam	MAINT-05, SM-12
9	★ Tenant-scoped credentials — each lender's own agency and vendor accounts	CM-03

10.4 ★★ The credential checklist — CLEAR's responsibility, not the developer's

Every one of these is sourced by CLEAR and none can be unblocked by writing code. This exact category of gap has stalled prior mortgage builds, so it is named explicitly and tracked in §11.

Credential	Needed for	Lead time
Fannie Mae DU (via Desktop Originator)	IN-02	★ Long — start first
Freddie Mac LPA (server-to-server)	IN-02	★ Long
FHA Connection access	IN-05, GV-01	Long
MERS organisation ID, plus eRegistry and eVault	IN-04, EC-03, EC-07	★ Long
GSE UCD collection access	IN-11	Long
Credit vendor account	IN-01	Medium
Document vendor account, with all programs enabled	IN-03	★ Medium — and the "all programs" part is the one that gets missed
Appraisal management account	IN-06	Medium
Title vendor integration	IN-07	Medium
MI provider accounts	IN-08	Medium
Fraud vendor account	IN-09	Medium
IRS transcript vendor	IN-10	Medium

Credential	Needed for	Lead time
Pricing engine credentials	IN-13	★ Also blocks the POS entirely — see <code>POS_version1.0.0</code> §11 D1
Investor delivery credentials, per investor	PC-06, PC-07	★ Ongoing, one per investor
Flood vendor account	RC-09	Medium
Watchlist screening	RC-01	Short

⚠ **The agency credentials are the critical path.** DU, LPA, FHA Connection and MERS each require an institutional application, not an API key purchase. **Start them before the first line of integration code is written**, because no amount of engineering shortens them.

11 · Open decisions, conflicts and known gaps

★ **A specification that hides its own uncertainty cannot be trusted on the parts it is confident about.** Nothing here is padding. Each item names what is undecided, who decides it, and what it blocks.

11.1 ⚠ Conflicts — where source documents actively disagree

These need settling **by a person, before code**, not by whichever developer writes it first.

★★ D-02 · Who sends disclosures

Three sources give three answers:

Source	Position
The Director of Operations, verbatim	**Currently the LO sends initial disclosures and revised LEs while the ICD is sent by the Closer — my team/processor sends the Revised LE if needed and closer sends ICD. ALL are sent in the LOS — not the POS. **
The prior NachoLOS blueprint	The LO sends initial disclosures from the POS / LO Portal
The POS specification	Assumed a POS-side delivery experience with the TRID trigger timestamped there

Recommendation, for the decision-maker to accept or reject: follow the Director of Operations. She is describing what a licensed shop does today under an existing compliance regime, and **disclosure delivery is not a place to introduce novelty for architectural tidiness.**

The provisional split now written into §9.3: the **POS** detects and timestamps the six-piece trigger; the **LOS** generates, delivers and **owns the three-business-day deadline**; both log; the seam carries the trigger timestamp as a first-class event.

★ **Whoever owns delivery owns the deadline.**

Blocks: the disclosure screens on both sides, and SM-09.

D-06 · The brokered channel

⚠ **Absent from the prior blueprint entirely**, which leaves roughly **one loan in eight** with no home in the system. Source material exists — a Broker Milestone Process and a Broker Channel Process document — and has not been incorporated.

At minimum it needs: a distinct milestone path, a distinct disclosure-responsibility model, distinct compensation handling, and retention of the approval documentation (CO-24).

Blocks: PR-09 and the channel dimension of AD-13.

11.2 Decisions that require CLEAR, not engineering

#	Open decision	Blocks
D1	★ The agency credentials — DU, LPA, FHA Connection, MERS. Institutional applications, not API-key purchases.	IN-02, IN-04, IN-05, and the entire government path. Critical path — start before any integration code.
D2	★ Pricing engine credentials. Also blocks the POS entirely.	IN-13, and the POS's payment playground

#	Open decision	Blocks
D3	The rest of the credential checklist (§10.4)	The corresponding integrations
D4	★ The real branch and region structure. No authoritative branch list exists in the source material and no NMLS branch IDs are recorded. Any grouping in the reference build is a placeholder.	§4.5 scope, PL-02, AD-02, and every manager view
D5	The investor list and per-investor delivery profiles	PC-06, PC-07, AD-06, AD-12
D6	The QC sampling percentage and plan	QC-01, QC-02
D7	Which document vendor , and confirmation that all programs are enabled on the contract	IN-03 — the "all programs" clause is the one that gets missed
D8	The transactional storage decision (§8.6)	Owned by the implementation team, but leaving it undecided is not an option

11.3 Decisions that require compliance counsel

⚠ Each is a place where the engineering team must **not** infer an answer.

#	Question	Blocks
C1	★★ The compliance check list must resolve to citations. Part of CO-11 to CO-16 originates as a competitor's published coverage summary. Each line needs a citation, an input, a threshold and a test case before it is built.	The scope of gates #1–#3. 🛑 Building to the list as written produces a system that claims a check it does not perform.
C2	State-specific condition and fee rules beyond Texas and South Carolina — which states, which rules	AC-02, AC-03, WS-07, WS-12
C3	The override policy — which roles, which gates, and what the weekly report must contain	CO-05
C4	Retention schedule sign-off per record type	CO-23
C5	The AI governance framework's six elements , as counsel wants them expressed	AI-09, AI-10

11.4 ⚠ Open requirements from the subject-matter expert

These are live and unresolved. Two of them are substantial.

★★ Q3 · The Loan Summary specification is incomplete

The specification for the Loan Summary screen (§6 BS-01) was **cut off mid-sentence at capture**, immediately after the subject-property address field. Everything from the remainder of the Subject Property section onward is **missing**.

🛑 **It has not been guessed, and it must not be.** Her own framing of this screen — *"the meat and potatoes, the story of the file; if things are incorrect here the disclosures will go out incorrectly"* — is exactly why inventing the remainder would be the wrong kind of helpful.

What is specified and buildable now: borrowers and contact information · loan number · terms of the mortgage including the ARM panel, the separate Term field and the dual %/\$ down payment · refinance types and their LTV-only path · the full mortgage-insurance panel · note rate · escrow waiver · the subject-property address with valid/invalid.

What is outstanding: the rest of the Subject Property section, and any sections that followed it.

Blocks: completion of BS-01 only. Build what is specified and leave the section extensible.

Q4 · The in-file navigation correction

The loan file currently renders as **one long scrolling page** with sections stacked on it. The correction is recorded in §5.2 and is unambiguous in principle — one screen at a time, reached from a persistent left rail. **Two placement details remain open:**

1. **Life of a Loan** is to be removed from beneath the Loan Summary (it already lives on the Tasks screen).
2. **File Contacts** moves onto the Loan Summary and comes off the rail.

The **final rail order** is still being walked through screen by screen by the subject-matter expert. **Blocks:** the rail configuration, not the navigation model.

Q5 · Seat roster details

Several real people's name spellings, and one instruction that did not transcribe cleanly, are outstanding before any roster is typed into a production system. **Blocks:** seeding real seats. It does not block the roles or capability model, which are settled.

11.5 Known gaps in the reference build

Stated rather than hidden, so nobody reads a working demo as a finished product.

#	Gap	Consequence
G1	★ It transmits nothing. No email, no SMS, no wire, no investor delivery, no agency filing. Every send is modelled and recorded as <i>owed</i> .	Deliberate — every integration seam is unwired rather than half-wired , which is the safer state to hand over. But no delivery path in §10 has been exercised against a live vendor .
G2	The loan files are demo data.	Correct and required (MAINT-06). §7.2 figures are targets, not measurements.
G3	★ The storage engine has no transactions.	See §8.6. The LOS has more consequential paired writes than the POS. Must be decided, not inherited.
G4	Branch → region groupings are placeholders.	See D4
G5	★ A live defect: an anonymous read of a loan by ID returns borrower information.	An object-level authorisation failure (§7 SEC-04). This is the first thing to fix , and it is named here rather than quietly patched because the <i>class</i> of defect matters more than the instance.
G6	/los/worksheets carries a claim the page had to withdraw, kept visible rather than deleted.	Correct behaviour — preserve it. A retracted claim left visible is how a team stops re-making the same wrong assumption.
G7	QC module is specified but thinly built. /los/qc states its own honest ordered list of what it still needs.	Group QC is entirely PROD-tier; this is sequencing, not a surprise.

11.6 Assumptions

If any of these is false, say so — several change the design rather than the schedule.

1. **The LOS is the system of record for loan status and for underwriting decisions.** The POS mirrors. If this inverts, the seam changes shape entirely.
2. **Servicing is released.** No retention. This closes the scope cleanly and stays closed.
3. **Three channels: retail, non-delegated correspondent, brokered.** US only, 1–4 unit.
4. ★ **The platform will be licensed to other lenders.** This is why multi-tenancy and tenant-scoped credentials are foundational rather than phase two.
5. **The LOS is desktop-first, with a deliberate mobile companion** — not a responsive version of itself.
6. **Real borrower data never enters a non-production environment.**
7. **The closer and funder are one seat; the post-closer is the designated backup.** Coverage handles everything else.

11.7 How an open item gets closed

An item leaves this section when it is answered **in a numbered section of a numbered version** — not in a message, a call, or a comment. The answer moves into the body, the item is struck, and the change appears in the changelog. **If it is not in a numbered section of a numbered version, it did not happen.**

12 · Change control, versioning and appendices

12.1 ★★ How this document changes

The subject-matter experts will keep refining these requirements. That is normal and expected. What kills a build is not changing requirements — it is **untracked** changes.

- 1 · **Every change gets an ID.** CHG-001, forever, never reused.

2 · A change record has a fixed shape: ID · date raised · status (draft → ready → sent → accepted / rejected / superseded) · area (POS or LOS, and the exact S-number and screen) · **Today** (what it does now) · **Wanted** (what it should do) · **Why** (the business reason — **this is what stops a developer "fixing" it wrong**) · priority · acceptance criteria · mockup.

3 · ★★ Changing your mind creates a NEW version, never a silent edit. CHG-014 becomes CHG-014 v2 , and the old text stays visible, marked superseded.

The development team must never find that a specification they already read has quietly changed underneath them. This is the single most important rule in this section.

4 · One dated artefact per batch — a changelog of only what is new, plus the current full document.

5 · If it is not in a numbered section of a numbered version, it did not happen.

12.2 Version numbering

Bump	When	Example
PATCH — 1.0.x	A description corrected or sharpened. No behaviour changed.	A requirement's wording clarified; an open item answered with no new work
MINOR — 1.x.0	Something new exists. Nothing already handed over changed meaning.	A new requirement; a new screen; a new integration
MAJOR — x.0.0	A contract already handed over changes meaning.	The stage table version changes; a capability moves between roles; a requirement is withdrawn

The three documents version independently — except the seam. ⚠️ **A change to anything in `INTEGRATION_version*` forces at least a MINOR bump in both POS and LOS**, because by definition both halves are affected.

★ **A capability moving between roles is a MAJOR change**, not a minor one. §4.4 exists because those separations are controls; moving one silently is exactly the kind of change this rule is designed to catch.

12.3 Changelog

Version	Date	What changed
1.0.0	2026-09-01	First delivery. The complete lender side: the mortgage primer, the role and capability model, all 278 functional requirements, the full non-functional set, the data model, the compliance map, integrations, and the open register — including the two unresolved conflicts (disclosure ownership, the brokered channel) and the incomplete Loan Summary specification, all named rather than guessed.

12.4 Appendix A — Requirements by tier

DEMO — 13. DM-01 · TK-01, TK-02, TK-03, TK-08, TK-09, TK-11 · DC-09 · SM-01, SM-07 · BS-01, BS-02, BS-06

PILOT — 99. The first supervised real loan. Notably includes the whole compliance-gate spine (CO-01, CO-02, CO-04, CO-06 to CO-09, CO-11, CO-15, CO-17, CO-19, CO-20, CO-24), the wire-fraud control (RC-02), OFAC screening (RC-01), the AI governance requirements (AI-09, AI-10, AI-11), the fee-sheet stopwatch (FE-11), and the seam (SM-02, SM-04, SM-08 to SM-10, SM-12).

PROD — 166. Everything needed to fully replace the current system, including the entire QC module, eClose, commercialisation, and the post-close and secondary groups.

★ **Tier is sequencing, not importance.** A PROD requirement is not optional; it is not needed to fund the first loan. **Do not let a PROD item be quietly reclassified because it is hard.**

12.5 Appendix B — Compliance citation table

Citation	Subject	Requirements
12 CFR §1026.19(e)(1)(iii)	LE within 3 business days	CO-06
12 CFR §1026.19(e)(2)(i)	Fee restriction before LE and ITP	CO-07

Citation	Subject	Requirements
12 CFR §1026.19(e)(2)(iii)	Documents not required before ITP	CO-07
12 CFR §1026.19(e)(3)	Tolerance baselines	CO-09, FE-04, FE-06
12 CFR §1026.19(f)	CD 3-business-day rule	CO-10
12 CFR §1026.4	Finance-charge classification	FE-07
12 CFR §1026.23	Right of rescission	RC-10
12 CFR §1026.32	HOEPA high-cost	CO-12
12 CFR §1026.35	HPML / rate spread, escrow consequence	CO-13
12 CFR §1026.43	ATR/QM, points and fees	CO-11, /los/atrqm
12 CFR §1002.9	Adverse action, 30 days, specific reasons; counteroffer	CO-17, CO-18
12 CFR §1002.9(c)	Notice of incompleteness	CO-19
12 CFR §1002.14	Valuations — right, delivery timing, waiver	/los/appraisal
12 CFR §1024.17	Escrow analysis, aggregate accounting, cushion	CL-01, CL-02
12 CFR §1024.20	Homeownership counselling list	/los/counseling
Regulation C (HMDA)	Collection and the LAR	CO-16
38 CFR §36.4313	VA non-allowable fees	GV-08
Texas Constitution art. XVI §50(a)(6), §50(a)(4)	Cash-out limits, 2% fee cap	AC-02, AC-03, WS-07
GLBA Safeguards Rule	Security program, MFA, encryption, breach notice	\$7.5
OFAC / SDN	Watchlist screening	RC-01
SAFE Act / NMLS	Licensing; Mortgage Call Report	AD-02, RC-03
CFPB Circulars 2022-03, 2023-03	Specific adverse-action reasons from complex models	CO-17, AI-11

12.6 Appendix C — Glossary

See §2.4, §2.10 and §2.11 for the full domain glossary. LOS-specific terms most likely to be misunderstood:

Term	The trap
Milestone	Carries an owner, a gate, and a task set. Not a status label.
★ Closed vs Funded	Separate , because rescission sits between them on a refinance
Withdrawn vs Denied	🚫 Different obligations. Not interchangeable.
PTA / PTD / PTC / PTF	Prior to Approval / Docs / Closing / Funding — each gates a different thing
ICD	Initial Closing Disclosure. 🚫 Never "preliminary".
The 2015	The fee itemisation, named for the year the form was adopted
Tolerance bucket	Zero, 10%, or unlimited. ★ A computed property, never typed.
COC	Change of Circumstance — a valid reason to re-issue and reset a baseline
MIN	The MERS identification number that prints on the Deed of Trust
UCD	Uniform Closing Dataset, delivered to the GSE collection solution
Purchase Advice	The investor's statement of what they actually paid
Non-delegated	We process; the investor underwrites
Brokered	We disclose and hand off
Coverage	★ Time-bounded, logged, expires on its own. Not a permission edit.
Representative score	Middle of each applicant, then lowest of those — program-configurable

12.7 Appendix D — Where this document came from

1. **The live build** — 53 LOS screens, the capability model, the stage spine and the enforced gates, read out of the running system rather than remembered.
2. **The subject-matter experts** — Christa Votaw's specifications and live review notes, and Sharon LittleJohn's operational blueprint and raw notes as the source of record for the line.
3. **Federal and state regulation**, cited inline and collected in Appendix B.
4. **The honest gaps** — where a source contradicted another, §11 says so; where a specification was truncated, §11 says exactly where.

★ Where a requirement exists because a real operator tripped over something — the pennies dropped on FHA MIP, the one-off payee that must not become a vendor record, the security stripped on package assembly, the defect log that says what it is not — **that history is preserved in the requirement text on purpose. A control whose reason has been forgotten is a control that gets removed in the next refactor.**

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