1 Detailed Week-by-Week Schedule (8-Week Timeline)

1.1 Phase 1: Project Initiation, Architecture & Core Foundation

Week	Week 1: Project Kickoff, Architecture & Core Infrastructure
Phase	Project Initiation & Architecture + Core Platform Foundation
Key Activities	• Kickoff meeting and team onboarding • NDA execution and dataset handoff • Architecture design and review • Security framework definition • Technology stack finalization • Development environment setup • CI/CD pipeline skeleton • PostgreSQL setup with RLS implementation • Authentication service (JWT, SSO/SAML/OIDC) • Multi-tenancy framework with tenant isolation • User and role management backend • Redis cache layer setup • S3-compatible blob storage integration • Basic API gateway configuration • React frontend foundation with routing • Basic UI components and design system
Deliverables	• Architecture document with diagrams • Security and threat model document • Infrastructure-as-Code (IaC) foundation • Database schema design (initial) • Development standards and guidelines • Working authentication system • PostgreSQL with RLS enforced • Tenant management APIs • User CRUD operations • Storage service for documents • Basic frontend dashboard
Milestones	Architecture sign-off by stakeholders, Authentication and tenant isolation verified

Week	Week 2: Contract Management, Templates & Approval Workflows
Phase	Core Platform Foundation + Workflow & Approval Engine
Key Activities	- Contract CRUD operations and APIs - Template management system - Clause library with versioning - Contract intake forms (configurable) - DOCX/PDF import and export functionality - Version control for contracts and templates - Workflow engine design and implementation - Multi-level approval system (conditional routing) - Notification service (email, in-app) - Escalation rules and SLA timers - Audit trail for all workflow actions - Admin console for workflow configuration - Workflow UI components and status tracking - WebSocket integration for real-time updates
Deliverables	- Contract management APIs (REST/GraphQL) - Template and clause library - Document upload and storage - Contract version history - Working approval workflow engine - Configurable workflow rules - Notification system - Admin workflow management console - Complete audit logging
Milestones	End-to-end contract creation and retrieval working, Contract approval flow successfully tested

Week	Week 3: Full-Text Search, Semantic Search & Repository
Phase	Repository & Search (Combined Full-Text + Semantic)
Key Activities	- Central contract repository implementation - PostgreSQL FTS configuration with pg_trgm - Full-text indexing pipeline - Basic search API endpoints - Faceted filtering (status, type, date, parties) - Search UI with advanced filters - OCR integration for scanned documents - Document metadata management - pgvector extension setup and configuration - Embedding generation pipeline - Vector similarity search implementation - Natural language query processing "Find similar contracts" feature - Semantic search API endpoints - Search results ranking and relevance tuning - Hybrid search (FTS + semantic) integration
Deliverables	- Full-text search functionality - Repository with filtering capabilities - Search API documentation - OCR processing pipeline - Semantic search functionality - Vector database with embeddings - Similarity search APIs - Enhanced search UI with semantic capabilities
Key Personnel	Backend Engineers (2-3), Database Engineer, ML Engineer, Frontend Engineer (2)

Week	Week 4: AI Infrastructure & Complete Contract Generation
Phase	AI - Contract Generation (Complete)
Key Activities	• AI inference gateway setup • PII redaction system implementation • LLM API integration (with fallback options) • Contract generation prompt engineering • Clause provenance tracking system • Template-based generation logic • Merge-field population with validation • Business rules engine for mandatory clauses • Alternative clause suggestions with rationales • Confidence scoring for generated content • User review and approval workflow • Async generation for large documents • Progress UI for generation tasks • Contract generation UI/UX • Validation testing on buyer-supplied dataset • Performance optimization (target ≤5s for 1-3 pages) • Model invocation audit logging
Deliverables	• AI inference gateway • PII redaction service • Basic contract generation capability • Clause provenance system • Complete contract generation feature • Validation report (accuracy ≥90%) • Generation UI with review workflow • Performance metrics documentation
Milestones	First AI-generated contract with provenance, Contract generation meets accuracy targets (≥90%)

Week	Week 5: AI Extraction, Classification & Analysis
Phase	AI - Extraction & Classification
Key Activities	• Metadata extraction (parties, dates, values, terms) • Clause classification system • Obligation extraction with task creation • Auto-summarization (executive + per-section) • Explainability features (text span highlighting) • Validation testing on buyer dataset • Per-tenant model controls and opt-out • Batch processing for existing contracts
Deliverables	• Metadata extraction (≥90% accuracy) • Clause classification (≥88% precision/recall) • Obligation extraction (≥85% precision) • Auto-summarization feature • Validation reports for all AI features
Milestones	All AI extraction features meet accuracy targets

Week	Week 6: E-Signature, Obligations & Security Hardening
Phase	E-Sign & Obligations + Security Hardening
Key Activities	- In-house e-signature implementation - Signature anchors and positioning - Sequential and parallel signing workflows - Cryptographic tamper-evidence mechanism - Proof-of-execution metadata (who, when, IP, hash) - Certificate generation for signed documents - Write-once storage for execution proofs - Obligation management system - Task creation with owners and due dates - Renewal and expiry alerts - Obligation playbooks and reminders - Cloudflare WAF configuration - Rate limiting and bot management - RBAC implementation review and testing - MFA enforcement - TLS configuration (everywhere) - AES-256 encryption at rest verification - KMS key management setup - SAST/DAST scan execution - Vulnerability assessment - Security documentation updates
Deliverables	- Complete in-house e-sign system - Tamper-evident signed documents - Execution metadata storage - Obligation and renewal management - Automated reminder system - Cloudflare security fully configured - SAST/DAST reports - Security audit documentation - Encryption verification report - Threat model updates
Milestones	E-sign execution verified with tamper evidence, Security baseline established, no critical vulnerabilities

Week	Week 7: Performance Testing, Observability & CI/CD
Phase	Security & Performance + Observability & DevOps
Key Activities	• Load testing with k6 (1,000 concurrent users) • Database query optimization • Caching strategy refinement • API response time optimization • CDN configuration tuning • Bottleneck identification and resolution • Performance baseline documentation • Scalability testing • Disaster recovery testing • Prometheus deployment and configuration • Grafana dashboard creation (system, business metrics) • Loki/ELK centralized logging setup • OpenTelemetry instrumentation • Distributed tracing implementation • Alert rules and notification channels • SLO/SLI definition and monitoring • Log retention and rotation policies • CI/CD pipeline hardening (GitHub Actions) • Automated test integration (unit, integration, E2E) • Staged deployment configuration (dev, staging, prod) • Terraform IaC completion and validation • Helm charts finalization • Secrets management (Vault/AWS Secrets Manager) • Backup and restore automation • Operational runbooks creation • On-call procedures documentation
Deliverables	• Load test reports • Performance optimization report • Median API response <500ms verified • Scalability documentation • DR test results • Complete observability stack • Grafana dashboards (10+ key metrics) • Centralized logging with search • Alert configuration • Tracing for key workflows • Production-ready CI/CD pipelines • Complete IaC (Terraform + Helm) • Automated backup/restore tested • Operational runbooks • Test coverage report (>80%)
Milestones	Performance targets met (500ms median for simple queries), Full observability operational with alerts, Automated deployment to all environments successful

Week	Week 8: UAT, Production Deployment & Project Handover
Phase	User Acceptance Testing + Deployment & Handover
Key Activities	- End-to-end UAT scenarios execution - Critical bug resolution - API documentation completion (OpenAPI + Postman) - Security verification and final audit - User documentation finalization - Admin documentation completion - Production deployment execution - Smoke testing in production - Production monitoring verification - Knowledge transfer sessions (technical team) - Knowledge transfer sessions (operations team) - Knowledge transfer sessions (business users) - All documentation handover - Operational training - Support procedures documentation - IP transfer execution - Project closure sign-off - Final stakeholder presentation
Deliverables	- UAT completion report - All critical bugs resolved - API documentation complete (OpenAPI + Postman) - Security verification complete - Production deployment successful - User documentation - Admin documentation - Technical documentation - Knowledge transfer materials - Training materials - Support runbooks - IP transfer documentation - Project closure report
Milestones	End-to-end UAT scenarios passed, all critical bugs resolved, Production deployment complete, knowledge transfer sessions finished, all documentation delivered, IP transfer executed, project closure signed off

Week	Phase	Milestone & Acceptance Criteria
1	Initiation + Foundation	Architecture and security framework approved by stakeholders; Authentication system operational with SSO, PostgreSQL with RLS enforced, tenant isolation verified
2	Foundation + Workflow	End-to-end contract creation working with templates, clause library functional, DOCX/PDF import-export operational; Approval workflow tested with multi-level routing, notifications, and escalation rules; audit trail complete
3	Search	Full-text search operational with PostgreSQL FTS and pg_trgm, faceted filtering working, OCR pipeline functional; Semantic search operational with pgvector embeddings, natural language queries working, "find similar" feature tested
4	AI Generation	AI inference gateway operational with PII redaction, basic contract generation working with clause provenance; Contract generation meets targets: merge-field accuracy $\geq$90%, human acceptance $\geq$85%, validation report complete
5	AI Extraction	All AI extraction features operational and validated: metadata extraction $\geq$90%, clause classification $\geq$88%, obligation extraction $\geq$85%, summarization functional
6	E-Sign + Security	In-house e-sign complete with sequential/parallel flows, tamper-evidence verified, execution metadata stored; obligation management system operational with renewal alerts; Cloudflare WAF configured, RBAC and MFA enforced, encryption verified, SAST/DAST scans completed with no critical vulnerabilities
7	Performance + Observability	Load test passed: 1,000 concurrent users with median API response <500ms, database optimized, caching strategy validated; Complete observability stack operational: Prometheus, Grafana dashboards, centralized logging, distributed tracing, alerts configured; CI/CD fully automated with staged deployments, IaC complete (Terraform + Helm), backup/restore tested, operational runbooks finalized
8	UAT + Handover	End-to-end UAT scenarios passed, all critical bugs resolved, API documentation complete (OpenAPI + Postman), security verification complete; Production deployment complete, knowledge transfer sessions finished, all documentation delivered, IP transfer executed, project closure signed off