Plotrol MVP Plan

MVP Goal:

Demonstrate trusted, automated land/asset monitoring using satellite imagery + AI change detection, surfaced through a web GIS dashboard with alerts and auditable evidence.

MVP must prove:

Satellite-based plot change detection works
Geo-AI insights are usable by real users
Alerts + evidence trail can be trusted
Platform is cloud-native and scalable

1) MVP Scope (What is IN vs OUT)

What is included in MVP

Functional:

Web-based GIS dashboard
Plot boundary management
Satellite imagery ingestion (optical)
AI-based change detection (batch)
Alert generation & basic workflow
Evidence storage (images + reports)
Immutable audit hash (light PlotVault)

Technical:

Multi-tenant backend (basic)
Secure auth (OAuth)
Cloud object storage
PostgreSQL + PostGIS
Batch AI pipeline (no real-time drones)

Excluded from MVP (Phase 2+)

Mobile app
Drone orchestration
IoT / edge sensors
ZKP proofs (hashing only)
Hyperspectral analytics
Bank / government integrations

2) High-Level MVP Architecture

Simplified MVP Stack:

Web GIS (React + Mapbox)
|
API Gateway + Auth
|
Backend Services (Plots, Alerts, Reports)
|
Geo-AI Pipeline (Satellite → AI → Results)
|
PostGIS + Object Storage
|
Audit Hash Ledger

3) MVP Delivery Plan & Timeline

Total Duration: 12–14 weeks (Assuming the core development team is full-time)

Phase	Duration	Deliverables
Phase 0 – Setup	1 week	Cloud infra, CI/CD, repo setup
Phase 1 – Core Platform	4 weeks	Backend APIs, auth, PostGIS, storage
Phase 2 – Geo-AI MVP	4 weeks	Satellite ingestion, AI change detection
Phase 3 – Web GIS	3 weeks	Interactive map, alerts, dashboards
Phase 4 – Hardening & Demo	2 weeks	Security, audit hash, pilot demo

4) Resources Needed (Lean MVP Team)

Core Team (5-6 people)

Role	Count	Notes	FTE Planned
Solution Architect	1	Owns end-to-end design	0.5 (weekly 20 hours)
Backend Engineer	2	APIs, workflows, data	2
Geo-AI / ML Engineer	1–2	Satellite + CV models	0.5 (weekly 20 hours)
Frontend Engineer	1	Web GIS dashboard	1
DevOps / Cloud Engineer	1	Kubernetes, CI/CD	0.25 (weekly 10 hours)
QA / Test Engineer	0.5	Functional + security	0.5

5) Cloud Infrastructure Options (AWS vs GCP vs Azure)

Recommended for MVP: AWS

Best balance of Geo, AI, scale, and startup velocity

Why AWS fits Plotrol MVP best
Mature S3 + PostGIS ecosystem
Strong event-driven architecture
GPU availability for AI
Easier global scaling later

AWS MVP Stack

Compute: EKS (Kubernetes)
Storage: S3 (imagery, reports)
DB: RDS PostgreSQL + PostGIS
AI: EC2 GPU (g4dn)
Events: EventBridge / SQS
Auth: Cognito / Keycloak
IaC: Terraform

6) MVP Success Metrics (What makes this a “win”)

Detect land changes with >80% precision
Alert generated within 24 hrs of satellite update
GIS dashboard usable by non-technical users
Evidence hash verifiable
System handles 1,000+ plots reliably

7) What This MVP Unlocks Next

After MVP validation, you can confidently move to:
Drone automation
Mobile app
Sensor fusion
ZKP-based compliance
Government & bank integrations