30-Day "Zero-Pilot" Operations Backlog

Objective: Move from "Asynchronous APIs" to a "Validated Digital Twin."

Week 1: Foundation & Ingestion (The Pipeline)

- **Task 1.1: Authentication Bridge:** Secure production API keys for NASA Earthdata (GRACE/ECOSTRESS), ESA (Sentinel), and Tomorrow.io (Weather).
- **Task 1.2: Spatial Anchoring:** Initialize a **PostgreSQL/PostGIS** database. Define the SLV Bounding Box (37.1°N to 38.3°N) and establish the 30m Universal Grid.
- **Task 1.3: The Mass Pull:** Execute batch ingestion of 5 years (2018–2023) of CDSS static well levels and GRACE-FO mass anomalies.

Week 2: Forensic Validation (The Brain)

- **Task 2.1: The Lag Correlation:** Run the regression script to identify the delta (days) between satellite mass loss and physical well-level drops.
- **Task 2.2: Subsidence Mapping:** Process Sentinel-1 InSAR archives to identify the "Hotspots" of permanent aquifer collapse.
- **Task 2.3: Accuracy Report:** Generate the "2021 Hindcast" document. This is the primary proof-of-value for Day 30 investors.

Week 3: UI/UX & Alert Engine (The Interface)

- **Task 3.1: Crust-to-Canopy Viewer:** Build the Mapbox-based frontend. Implement the vertical Z-Axis slider allowing users to toggle from the "Aquifer Mass" up to the "Atmospheric VPD."
- **Task 3.2: Trigger Implementation:** Code the "Ghost Water" (PPA 2) and "Flash-Drought" (PPA 24) logic into the backend rule engine.
- **Task 3.3: Truth-Push:** Design and test the mobile notification system for sending "Decision Support" alerts to pilot growers.

Week 4: Commercialization & Demo (The Launch)

- **Task 4.1: Board Briefing:** Present the "Historical Accuracy Report" to the RGWCD and local sub-district managers.
- **Task 4.2: Investor Deck Finalization:** Align technical milestones with the $1.5M Seed Round ask.
- **Task 4.3: Onboarding:** Formally sign the "Commercial 5" Pilot Growers to the Participant Agreement (File #5).

Day 30 Deliverable: A functional, browser-based Digital Twin showing real-time SLV aquifer health and predictive drought alerts.