



**GEODYN**  
SOLUTIONS



## **GEODYN 15 TPH CIRCULAR SUSTAINABILITY & REVENUE INITIATIVE**

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# EXECUTIVE SUMMARY



The Resort has the opportunity to establish itself as a leader in regenerative luxury hospitality by converting its organic waste streams into high-value Bio-NPK granulated fertilizer and reusable irrigation water.

The Geodyn 15 Ton-Per-Hour Circular Sustainability System transforms:

- Food waste
- Landscaping biomass
- Agricultural residues
- Third-party organic intake

Into:

- Bio-NPK Granulated Fertilizer (primary commercial product)
- Organic Fertilizer Pellets
- Soil Amendment Carbon Fluff
- Reclaimed Irrigation Water

Additionally, The Resort can generate guaranteed recurring revenue by accepting organic waste from surrounding businesses and municipalities and charging tipping fees.

The system operates via non-combustive indirect radiant sterilization, producing clean, odorless, pathogen-free outputs in under 30 minutes, with zero smoke, zero flame, and zero stack emissions.

This initiative converts waste from a cost center into a high-margin profit engine while reinforcing The Resort's identity as a sustainability-forward luxury destination.





# STRATEGIC VALUE TO THE RESORT

STRATEGIC AREA	BENEFIT
<i>Environmental Performance</i>	Eliminates methane-producing landfill organics
<i>Brand &amp; Guest Experience</i>	Demonstrates real ecological stewardship and wellness leadership
<i>Financial Strength</i>	Produces recurring revenue from fertilizer sales + tipping fees
<i>Operational Efficiency</i>	Reduces waste hauling, disposal fees, and freshwater consumption
<i>Regulatory &amp; ESG Alignment</i>	Future-proofs compliance with global environmental standards







# SYSTEM PERFORMANCE & CAPACITY

PARAMETER	SPECIFICATION
<i>Input Capacity</i>	300 tons/day of organic material
<i>Output Production</i>	150 tons/day fertilizer
<i>Processing Method</i>	Indirect radiant heat (100% pathogen kill)
<i>Emissions</i>	Zero-smoke, zero-flame, zero-odor
<i>Water Circularity</i>	Water is reclaimed and reused for golf course & landscape irrigation
<i>Contaminant Protection</i>	Organic waste sorter + metal detection system (included)
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<i>Water Circularity</i>	Extracted liquids are purified for irrigation and operations reuse





# BIO-NPK GRANULATED FERTILIZER

## FORMULA STRUCTURE

INPUT	BLEND RANGE	FUNCTION
<i>Organic Carbon Fluff</i>	35–60%	Soil carbon & moisture retention
<i>Urea (46-0-0)</i>	8–22%	Immediate nitrogen availability
<i>DAP (18-46-0)</i>	10–28%	Phosphorus supply & pellet strength
<i>Trace Minerals &amp; Humates</i>	1–4%	Improves nutrient uptake efficiency
<i>Optional Bacillus spp.</i>	0.1–0.5%	Soil microbiome repair & root support

## PRODUCT FORMAT

- 3–6 mm spherical granules
- Spreader-ready, storage-stable, export-compliant

## COMMERCIAL VALUE

\$500 per metric ton (baseline wholesale)



# EQUIPMENT SCOPE

## **ORGANIC WASTE SORTING & PRE-PROCESSING**

- Industrial feed conveyors
- Trommel separation screen
- Air-knife lightweight material removal
- Magnetic separator + metal detector (safety-critical)
- Biomass shredder
- Fine particle homogenizer mill

## **FERTILIZER PRODUCTION LINE**

- Precision weigh-feeder dosing for Urea + DAP + organic fluff
- Stainless-steel paddle/ribbon blending system
- Disc granulator with binder spray bar
- Low-temperature air dryer
- Counter-flow cooling unit
- Vibratory granule sizing screens
- Recycle loop for oversize granules
- Bulk bag filling & palletizing station

# CAPITAL EXPENDITURE (CAPEX)

ITEM	COST (USD)
<i>Geodyn 15 TPH Conversion System</i>	\$19,470,000
<i>Shipping, Installation, Training &amp; Commissioning</i>	\$1,750,000
<i>Granulated Fertilizer Manufacturing Line + Waste Sorting &amp; Metal Detection Systems</i>	\$5,500,000
<i>Total Project Investment</i>	\$26,720,000





# OPERATING EXPENDITURE (OPEX) — ANNUAL COST STRUCTURE

COST CATEGORY	DESCRIPTION	ANNUAL COST (USD)
<i>Labor &amp; Staffing</i>	Production, QC, maintenance, warehouse operations	\$480,000 – \$720,000
<i>Utilities</i>	Electricity, pumps, air handling, drying	\$260,000 – \$410,000
<i>Urea Supply</i>	Nitrogen source	\$420,000 – \$820,000
<i>DAP Supply</i>	Phosphorus structural agent	\$390,000 – \$750,000
<i>Trace Minerals &amp; Humates</i>	Bioavailability enhancers	\$55,000 – \$120,000
<i>Optional Bacillus spp.</i>	Soil microbiome enhancement	\$35,000 – \$95,000
<i>Maintenance &amp; Spare Parts</i>	Wear components, lubrication systems	\$120,000 – \$190,000
<i>Packaging &amp; Logistics</i>	Bulk bags, pallets, handling	\$85,000 – \$140,000
<i>Laboratory QC &amp; Compliance</i>	Nutrient testing, moisture checks, CFU confirmation	\$45,000 – \$95,000
<i>Insurance &amp; Operating Permits</i>	ESG & facility coverage	\$60,000 – \$110,000

*Total Annual OPEX*

*\$1,650,000 – \$2,100,000*

*Operating Cost Per Ton of Fertilizer*

*\$31–\$40 per ton (vs. \$500/ton sale price)*





# REVENUE MODEL

REVENUE STREAM	ANNUAL VALUE
<i>Tipping Fee Revenue</i> (300 tons/day × \$31/ton × 350 days)	\$3,255,000/year
<i>Fertilizer Sales</i> (150 tons/day × \$500/ton × 350 days)	\$26,250,000/year
<i>Total Annual Revenue</i>	\$29,505,000/year
<i>Net Annual Profit (after OPEX)</i>	\$27.4M – \$28.0M/year
<i>Payback Period</i>	0.9 – 1.1 years





# IMPLEMENTATION TIMELINE

PHASE	DURATION	OUTCOME
Engineering & Site Validation	2–9 WEEKS	Site layout, utility integration & permitting alignment
Fabrication & Shipping	12–18 WEEKS	System fabrication, QA, and ocean freight
Installation, Training & Testing	4–8 WEEKS	Mechanical assembly, operator training, & performance tuning
Commissioning & Full Operational Launch	1 WEEK	Continuous production & revenue generation begins

Total Deployment Time: ~19–36 Weeks







This initiative enables The Resort to:

- Convert waste into high-value commercial output
- Strengthen its luxury sustainability identity
- Reduce operating and environmental costs
- Generate strong, recurring revenue
- Lead the Caribbean in regenerative hospitality

Geodyn Solutions provides full engineering, installation, training, optimization, and long-term support.







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