

A Case Study in Strategic Cost Management and Value Engineering

St. Andrews High School, F Block Construction, Period 2025–2026

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Abstract - The F Block Project delivered total certified savings of ₹2,48,72,743—close to ₹2.5 Crores—through a focused and disciplined approach to value engineering and cost management. These savings came from fourteen initiatives, grouped into three main areas: Cost Avoidance and Waste-to-Revenue (32.4%), Strategic Sourcing and Direct Negotiation (40.5%), and Value Engineering and Method Optimization (27.0%).

Several efforts stood out. Dismantled building scrap was converted into revenue, earning ₹24.47 Lakhs. Excavation and soil carting costs were eliminated by engaging external agencies, saving ₹56.26 Lakhs. Elevator costs were brought down through negotiation, saving ₹74.30 Lakhs. Re-specifying Geo Foam led to a 62% reduction in unit rate, adding ₹43.01 Lakhs in savings.

Notably, just three items—Elevators, Geo Foam, and UG Sump Excavation—contributed ₹1.47 Crores, or 59% of the total savings. This shows how targeting high-cost areas can yield major returns. Overall, the project demonstrates how strong commercial negotiation, innovative engineering, and agile resource management can deliver significant financial benefits, setting a benchmark for future projects.

Keywords: Value Engineering, Cost Avoidance, Strategic Sourcing, Direct Negotiation, Waste-to-Revenue, Resource Management, Cost Optimization, Project Savings, Supplier Negotiation, Method Optimization, Geo Foam, F Block Project

1. INTRODUCTION

The F Block Project represents a significant achievement in construction cost management, demonstrating how strategic planning and innovative execution can deliver substantial financial value without compromising project objectives. In an industry where cost overruns and resource inefficiencies are common challenges, this project successfully realized total certified savings of ₹2,48,72,743—nearly ₹2.5 Crores—through a comprehensive and multifaceted approach.

The savings were achieved by combining three key strategies: cost avoidance and waste-to-revenue initiatives, strategic sourcing and direct supplier negotiations, and value engineering with method optimization. These approaches

addressed every stage of project execution, from excavation and soil management to material procurement and specification refinement. High-impact interventions, particularly in elevators, Geo Foam, and underground sump excavation, played a dominant role, together accounting for 59% of total savings.

This report presents a detailed breakdown of the savings initiatives, categorized analysis of value drivers, and key insights drawn from the project's success. It highlights how proactive negotiation, creative resource management, and engineering innovation can transform potential cost centers into opportunities for significant financial gain. The F Block Project thus serves as a benchmark for future projects seeking to maximize value through disciplined cost management.

2. DETAILED BREAKDOWN OF SAVINGS INITIATIVES

The total certified savings of ₹2,48,72,743 were realized through fourteen distinct initiatives, each contributing to the overall value engineering effort. Table 1 presents a comprehensive summary of these initiatives, including the savings amount and the methodology employed.

Table 1. Detailed Breakdown of Savings Initiatives

Sr. No.	Description	Savings Amount (₹)	Key Highlights & Methodology
1	Dismantled Building Scrap Value	24,46,950	Waste to Wealth: Scrap value adjusted in running bills, converting potential waste disposal cost into revenue.
2	UG Sump Excavation	30,03,055	Major Cost Avoidance: Excavation done free of cost by an external agency until hard rock level.
3	Soil Carting Away – F Block	13,00,000	Cost Avoidance: Lifting and carting of soil executed free of cost, likely through strategic partnerships.

4	Soil Carting Away – UG Sump	13,23,400	Cost Avoidance: Lifting and carting of soil executed free of cost, contributing significantly to earthwork savings.
5	150mm Wet Mix Macadam	12,06,618	Value Engineering: Item descope and replaced with a more efficient and cost-effective method/specification.
6	PCC-M 10	1,88,707	Direct Negotiation: Cost reduction achieved through direct negotiations with the concrete supplier.
7	RCC-M 30	7,63,745	Direct Negotiation: Cost reduction achieved through direct negotiations with the concrete supplier.
8	RCC-M 40	1,99,943	Direct Negotiation: Cost reduction achieved through direct negotiations with the concrete supplier.
9	Steel	14,95,860	Strategic Sourcing: Significant savings secured via direct and aggressive supplier negotiations.
10	Geo Foam	43,00,800	Major Value Engineering: Unit rate drastically reduced from ₹8,676 to ₹3,300 per Cum (62% reduction) through re-sourcing or technical reevaluation.
11	Barricading	9,62,668	Cost Optimization: Scope and method optimized through value engineering implementation.
12	Site Office and Administration	1,85,435	Cost Optimization: Efficient setup and procurement reducing initial setup capital outlay.
13	Paver Blocks Removal	65,562	Cost Optimization: Optimized method or resource allocation for minor works.
14	Elevators	74,30,000	Major Strategic Sourcing: Very significant savings secured via direct supplier negotiations

			for a high-value package.
	TOTAL	2,48,72,743	

As shown in Table 1, the savings initiatives varied significantly in scale and approach. The following sections categorize these initiatives into three strategic groups to provide a clearer picture of the value drivers.

3. CATEGORIZED SAVINGS ANALYSIS

The total savings have been grouped into three primary strategic categories to provide a clearer picture of the value drivers and their contribution. Table 2 presents this categorized analysis.

Table 2. Categorized Savings Analysis

Strategic Category	Savings Amount (₹)	% of Total Savings	Description & Examples
1. Cost Avoidance & Waste-to-Revenue	80,73,405	32.4%	Initiatives that entirely eliminated a planned expense or generated revenue from waste. This was the most significant contributor. Examples: UG Sump Excavation (₹30.03L), Soil Carting (₹26.23L), and Dismantled Scrap Value (₹24.47L).
2. Strategic Sourcing & Direct Negotiation	1,00,79,055	40.5%	Savings achieved by directly engaging with suppliers and vendors to secure better pricing for materials and services. Examples: Elevators (₹74.30L), Steel (₹14.96L), and various concrete grades (₹11.52L).

3. Value Engineering & Method Optimization	67,20,283	27.0%	Savings from re-engineering solutions, descoping unnecessary items, and optimizing execution methods for greater efficiency. Examples: Geo Foam (₹43.01L), Wet Mix Macadam (₹12.07L), and Barricading (₹9.63L).
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Section 3 reveals that Strategic Sourcing and Direct Negotiation emerged as the largest category, contributing 40.5% of total savings. Section 4 presents key insights derived from this categorized analysis.

4. KEY INSIGHTS AND HIGHLIGHTS

The analysis presented in Sec. 3 yields several important insights regarding the project's cost management success.

4.1 Dominance of High-Impact Initiatives

The project's success was driven by a few very high-value actions. Just three items—Elevators, Geo Foam, and UG Sump Excavation—account for ₹1.47 Crores (59%) of the total savings. This demonstrates the importance of focusing efforts on high-cost areas. As shown in Sec. 2, these three initiatives alone justified the entire value engineering program.

4.2 Strategic Shift in Approach

The largest category, Strategic Sourcing (40.5%), shows a proactive move from standard procurement to aggressive, direct negotiations, yielding massive returns, especially for major packages like Elevators. This shift, detailed in Sec. 3, represents a fundamental change in how the project team approached vendor engagement.

4.3 Excellent Resource Management

The Cost Avoidance & Waste-to-Revenue category (32.4%) highlights exceptional project management. By creatively managing soil and excavation, the team turned major cost centers into opportunities, saving over ₹80 Lakhs. The initiatives described in Sec. 2, particularly Items 2, 3, and 4, exemplify this approach.

4.4 Significant Engineering Innovation

The Value Engineering efforts on Geo Foam were exceptionally successful, achieving a 62% cost reduction per unit. This is a classic example of challenging a specification and finding a more economical solution without compromising function. Eq. (1) expresses the percentage reduction achieved:

$$\text{Reduction (\%)} = [(8,676 - 3,300) / 8,676] \times 100 = 62\% \text{ (1)}$$

As Eq. (1) demonstrates, the unit rate reduction from ₹8,676 to ₹3,300 per Cum represents a substantial engineering achievement.

5. METHODOLOGY

The methodology adopted for the F Block Project's savings and value engineering program was structured, multi-phased, and collaborative in nature. The approach was designed to systematically identify, evaluate, and implement cost-saving opportunities across all stages of project execution. The following sections describe the key phases and techniques employed.

5.1 Identification Phase

The first phase involved a comprehensive review of all project components, bills of quantities (BOQ), specifications, and planned expenditures. The project team, in collaboration with procurement, engineering, and site execution teams, conducted detailed audits to identify potential areas of savings. As referenced in Sec. 2, fourteen distinct initiatives were identified, ranging from material procurement to excavation and waste management.

5.2 Evaluation and Prioritization

Once potential savings avenues were identified, each initiative was evaluated based on:

- **Potential savings value** (high, medium, or low impact)
- **Ease of implementation**
- **Risk to project timeline and quality**
- **Stakeholder impact**
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High-impact items such as elevators, Geo Foam, and UG Sump Excavation (Sec. 4.1) were prioritized for immediate action due to their disproportionate contribution to total savings.

5.3 Strategic Approaches Employed

The project employed three primary methodologies to realize savings, as categorized in Sec. 3:

5.3.1 Cost Avoidance and Waste-to-Revenue

This approach focused on eliminating planned expenses entirely or converting waste into revenue. Techniques included:

- Engaging external agencies to perform excavation and soil carting free of cost (Items 2–4, Table 1)
- Adjusting scrap value from dismantled buildings into running bills (Item 1, Table 1)

5.3.2 Strategic Sourcing and Direct Negotiation

The project team directly engaged with suppliers and vendors to secure favorable pricing. This involved:

- Aggressive negotiations for high-value packages such as elevators (Item 14, Table 1)
- Direct negotiations with concrete suppliers for PCC and RCC grades (Items 6–8, Table 1)
- Strategic sourcing of steel through competitive supplier engagement (Item 9, Table 1)
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5.3.3 Value Engineering and Method Optimization

This methodology involved re-engineering solutions, descoping unnecessary items, and optimizing execution methods. Key actions included:

- Re-specifying Geo Foam, achieving a 62% unit rate reduction (Item 10, Table 1; Eq. 1)
- Descoping 150mm Wet Mix Macadam and replacing it with a more cost-effective specification (Item 5, Table 1)
- Optimizing barricading scope and site office setup (Items 11–12, Table 1)

5.4 Implementation and Monitoring

Each approved initiative was implemented with clear accountability assigned to relevant team members. Savings were tracked and certified through running bills and financial statements. Regular review meetings ensured that savings targets were met and that no compromise was made on quality, safety, or project timelines.

5.5 Validation and Certification

All savings were validated through documented evidence, including supplier agreements, revised BOQs, and certified bills. The total certified savings of ₹2,48,72,743 (Table 1) were formally verified and approved by the project's financial and contracts teams.

5.6 Summary of Methodology

In summary, the methodology combined proactive identification, rigorous evaluation, strategic negotiation, engineering innovation, and disciplined monitoring. This structured approach enabled the F Block Project to achieve exceptional value engineering outcomes, as demonstrated by the categorized savings analysis in Sec. 3 and the key insights in Sec. 4.

6. OBSERVATIONS

The detailed analysis of the F Block Project's savings and value engineering initiatives, as presented in Secs. 2 through 5, yields several notable observations. These observations highlight patterns, relationships, and lessons that emerge from the project's cost management journey.

6.1 Concentration of Savings in Few Initiatives

A striking observation is the disproportionate contribution of a small number of initiatives to the total savings. As noted in Sec.

4.1, just three items—Elevators (₹74.30 Lakhs), Geo Foam (₹43.01 Lakhs), and UG Sump Excavation (₹30.03 Lakhs)—together account for ₹1.47 Crores, or 59% of the total certified savings. This concentration suggests that identifying and targeting high-value opportunities yields exponentially greater returns than pursuing numerous small-scale savings.

6.2 Strategic Sourcing as the Largest Value Driver

Among the three strategic categories analyzed in Sec. 3, Strategic Sourcing and Direct Negotiation emerged as the largest contributor at 40.5% (₹1,00,79,055). This observation underscores the power of direct vendor engagement and competitive negotiation, particularly for high-value packages such as elevators, steel, and concrete. The project demonstrates that procurement is not merely a transactional function but a strategic lever for significant cost reduction.

6.3 Cost Avoidance Through Creative Resource Management

The Cost Avoidance and Waste-to-Revenue category contributed 32.4% (₹80,73,405) of total savings. Of particular note is the project's success in eliminating excavation and soil carting costs entirely by engaging external agencies on a no-cost basis (Items 2–4, Table 1). Additionally, converting dismantled building scrap into revenue (Item 1, Table 1) exemplifies how waste streams can be transformed into value streams. This observation highlights the importance of creative thinking and partnership-building in resource management.

6.4 Value Engineering Delivers Disproportionate Impact

The Geo Foam initiative stands out as a landmark value engineering achievement. As shown in Eq. (1), the unit rate was reduced from ₹8,676 to ₹3,300 per Cum—a 62% reduction—resulting in savings of ₹43.01 Lakhs (Item 10, Table 1). This observation demonstrates that challenging established specifications and re-evaluating technical requirements can yield dramatic cost benefits without compromising functionality or quality.

6.5 Synergy Across Methodologies

A notable observation is that the savings initiatives were not isolated efforts but often reinforced one another. For example, the UG Sump Excavation (Item 2, Table 1) and Soil Carting initiatives (Items 3–4, Table 1) collectively addressed the same earthwork challenge through complementary approaches. Similarly, the concrete negotiations (Items 6–8, Table 1) and steel sourcing (Item 9, Table 1) together strengthened the project's procurement position. This synergy suggests that a holistic, multi-pronged strategy is more effective than isolated cost-cutting measures.

6.6 Scalability and Replicability

The methodologies employed—direct negotiation, waste-to-revenue conversion, and value engineering—are not unique to the F Block Project. The observations from this project suggest

that these approaches are scalable and replicable across other construction projects, provided there is strong leadership commitment, cross-functional collaboration, and a culture of continuous improvement.

6.7 Importance of Documentation and Certification

The fact that all savings were formally certified (Table 1) and validated through documented evidence (Sec. 5.5) highlights the importance of rigorous tracking and financial verification. Without such discipline, savings may remain unrealized or unacknowledged. This observation reinforces the need for robust monitoring systems in any value engineering program.

6.8 Benchmark for Future Projects

Finally, the F Block Project sets a high benchmark for cost management in construction. The observations from this project—particularly the dominance of high-impact initiatives, the strategic shift toward direct negotiation, and the success of engineering innovation—provide a roadmap for future projects seeking to maximize value. As noted in Sec. 7, these observations confirm that disciplined, multifaceted cost management is both achievable and highly rewarding.

7. CONCLUSION

The F Block Project serves as a stellar example of how a disciplined, multifaceted cost management strategy can lead to substantial financial benefits. By effectively combining commercial negotiation strength, innovative engineering solutions, and agile resource management, the project team has delivered outstanding value, setting a strong benchmark for future projects. The categorized analysis in Sec. 3 and the insights presented in Sec. 4 confirm that focusing on high-impact initiatives, shifting toward strategic sourcing, managing resources creatively, and pursuing engineering innovation are the key drivers of successful value engineering. The total certified savings of ₹2,48,72,743 stand as testament to what can be achieved when value engineering is embedded as a core project philosophy rather than an afterthought.

DECLARATIONS

I hereby declare that the report titled "F Block Project – Savings & Value Engineering Summary Report" is a true and accurate representation of the cost management initiatives and savings achieved during the execution of the F Block Project.

I further declare the following:

1. Authenticity of Data

All savings amounts, percentages, and figures presented in this report—including the total certified savings of ₹2,48,72,743 (Table 1)—are based on verified financial records, certified running bills, supplier agreements, and approved value engineering proposals. The categorized analysis in Sec. 3 and the detailed breakdown in Sec. 2 accurately reflect the

documented outcomes of the project's cost management program.

2. Originality of Work

This report represents original work carried out by the project team. The methodologies described in Sec. 5—including cost avoidance, strategic sourcing, direct negotiation, and value engineering—were developed and implemented specifically for the F Block Project. Where external agencies or suppliers were engaged, their contributions have been duly acknowledged in the relevant sections.

3. No Conflict of Interest

I declare that there is no personal, financial, or professional conflict of interest that could have influenced the identification, evaluation, or reporting of the savings initiatives described in this report. All decisions were made in the best interest of the project and its stakeholders.

4. Compliance with Standards

The savings reported herein were achieved without compromising project quality, safety standards, timelines, or contractual obligations. All value engineering proposals were reviewed and approved through the project's formal change management process before implementation.

5. Verification and Certification

The savings figures presented in this report have been validated through documented evidence, including revised bills of quantities, supplier contracts, and certified payment records, as outlined in Sec. 5.5. The total certified savings have been formally approved by the project's financial and contracts teams.

6. Confidentiality

Certain commercial details, including specific supplier names and negotiated rates, may have been withheld or generalized in this report to protect confidential business information. Such omissions do not affect the accuracy or completeness of the savings reported.

7. Limitation of Liability

This report is intended for internal project review and benchmarking purposes. While every effort has been made to ensure accuracy, the authors assume no liability for any decisions made by third parties based on the contents of this report.

8. Acknowledgment of Contributions

I acknowledge the contributions of all project team members, procurement specialists, engineering staff, site execution teams, and external partners whose efforts made these savings possible. Their collaboration and commitment to value

engineering were instrumental in achieving the results documented in this report.

Declaration Statement

I solemnly affirm that the information provided in this report is true, complete, and correct to the best of my knowledge and belief. I understand that any misrepresentation of facts may result in appropriate action as per applicable policies and regulations.

References

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