

# Evaluation of Progress, Risks, and Construction Cost for project HOPE

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Project HOPE includes 3 buildings (C, D, E) under construction with total CFA of 75,243m<sup>2</sup>. It is estimated that the total project cost will increase significantly compared to both budgeted value ( $\approx$  PHP3.5B ) or awarded value ( $\approx$  PHP2.95B) due to risks, uncertainties, and potential variation orders (VOs) incurred. There is a high level of uncertainty on the certified progress value ( $\approx$  1.2B) claimed by the developer that does not match with the progress declared in the S-curve for the same period. In addition, it has been identified that there is no concrete proof of total actual payment to date, thus it is not possible to identified unbilled Work In Progress (WIP). The developer claimed that the total Cost to Completion is around  $\approx$ 2.42B, leading to a total project cost of  $\approx$  3.6B (48,370PHP/m<sup>2</sup>). However, this cost does not include potential claimable VOs such as the EOT claims with value of more than PHP400M. Per our analysis, the total project cost will be about PHP4B, with the balance of Progress to Complete to be approximately PHP2.8B (including 10% of contingency). This will eventually lead the cost per CFA to be around 53,603 Peso/m<sup>2</sup>, which is considered to be the lower bound market value for grade A office building in Clark.

Earned Value Management | S-curve Analysis | Variation Order | Risks

This article includes a number of sections with focus exclusively on evaluation of S-curve, Cost Report, and Estimate provided by the developer. Arcadis has also tried to interpret and re-validate values.

All tables in PDFs documents are extracted using R package "pdfTool" with customized codes written by Arcadis team. This code allows us to copy automatically all tables from the PDFs and paste them into tabular forms in google sheet, which is securely shared with the Client. Thus, in reading this article, we advise readers to refer to the GoogleSheet link for detailed calculation.

## 1. The Progress

### S-curve.

### Certified Value in Cost Report.

## 2. Unawarded Value

## 3. Claims or Variation Order

## 4. Risk

### Foreseeable Risk.

### Random Risk and Contingencies.

## 5. Payment Progress

## 6. Cost to Completion and Total Project Cost

### A. Arcadis Analysis.

### Significance Statement

This article has been prepared for Altus team to have high level understanding on the Cost, Risk, and Progress of the HOPE project. Note: Arcadis analysis is a high level analysis based on the evaluation on provided set of documents and data. Precise quantity surveying or validation of risks and VOs is not part of the scope. Thus, the readers shall keep in mind of this for mutual understanding and communication.

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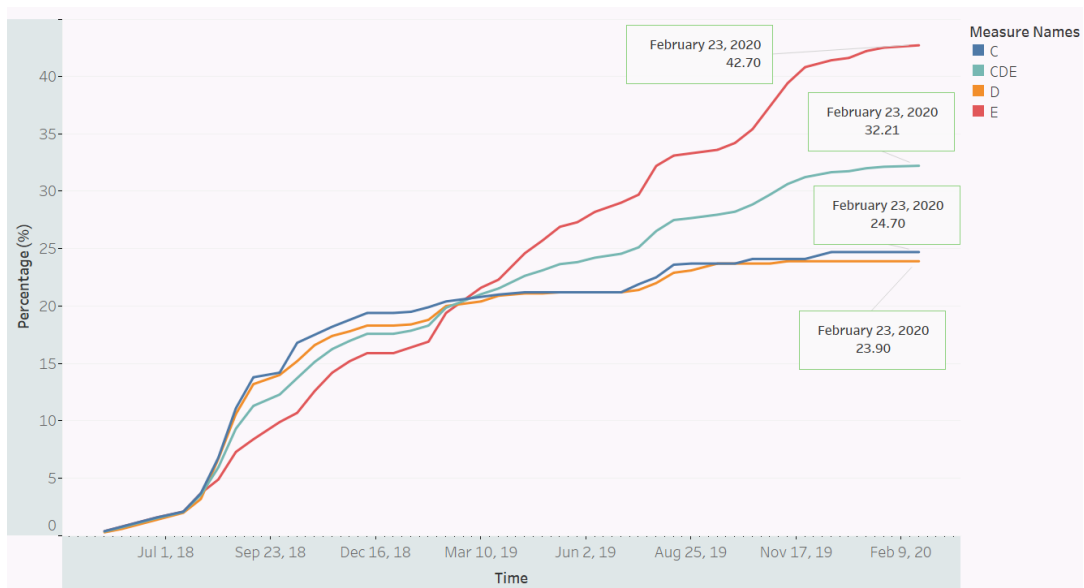


Fig. 1. Percentage of Completion by the end of February 2020.

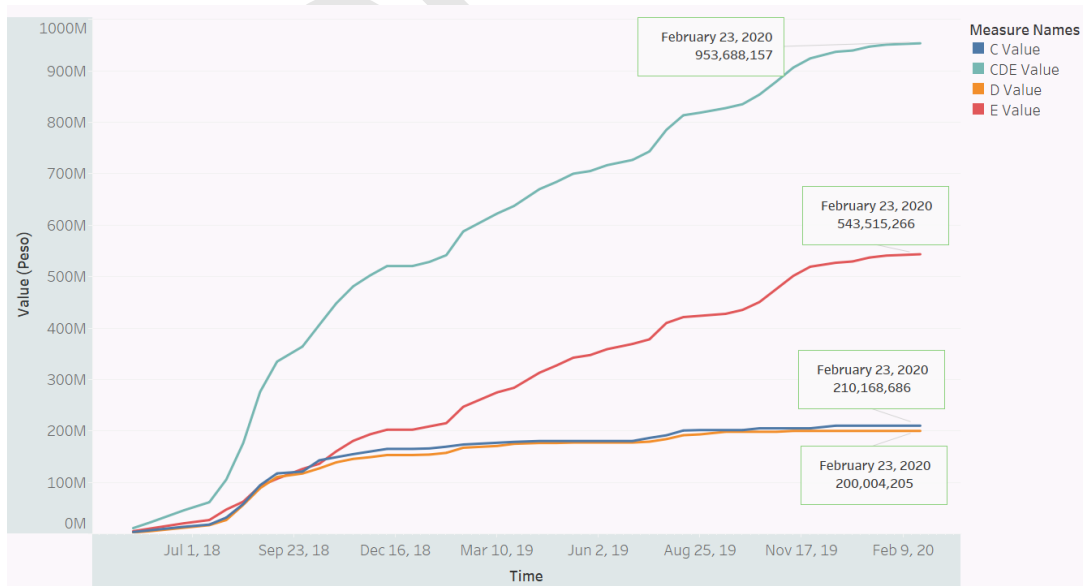


Fig. 2. Value of Completion by the end of February 2020.

Item	Description	Formula	ARCADIS1 - Surce			
			Buildings			
			C	D	E	CDE
<b>A</b>	<b>Total Value of Contract including VO to date</b>		1,078,346,966.88	1,060,945,678.17	1,599,390,322.42	3,738,682,967.46
A.1	Awarded Value		850,885,369.58	836,837,676.35	1,272,869,475.88	2,960,592,521.81
A.2	UnAwarded	6%	38,443,001.00	38,210,008.30	43,761,252.58	120,414,261.88
A.3	Potential VOs	1	151,424,308.01	148,924,368.18	226,520,970.34	526,869,646.53
A.4	Risks		37,594,288.29	36,973,625.34	56,238,623.61	130,806,537.24
<b>B</b>	<b>Total Payment Made to date</b>		174,745,357.74	166,294,070.29	451,907,328.85	792,946,756.88
<b>C</b>	<b>Total Cost to Complete</b>	<b>A-B</b>	903,601,609.14	894,651,607.88	1,147,482,993.56	2,945,736,210.58
<b>D</b>	<b>Unbilled Amount</b>					
D.1	Unbilled works done on site					
D.2	Unbilled works to complete onsite					
<b>E</b>	<b>Balance due for Payment</b>		35,423,328.55	33,710,134.36	91,607,937.35	160,741,400.25
<b>F</b>	<b>Amount of works completed</b>	<b>B+D.1+E</b>	210,168,686.29	200,004,204.65	543,515,266.20	953,688,157.13
<b>G</b>	<b>Percentage of works completed</b>	<b>F/A</b>	19.49%	18.85%	33.98%	25.51%
<b>H</b>	<b>Balance of works to complete</b>	<b>A-F</b>	868,178,280.59	860,941,473.52	1,055,875,056.22	2,784,994,810.33

Fig. 3. Analysis - Arcadis - Scurve.

Item	Description	Formula	ARCADIS2 - Certified			
			Buildings			
			C	D	E	CDE
<b>A</b>	<b>Total Value of Contract including VO to date</b>		1,059,237,082.4	1,044,245,761.4	1,550,570,039.15	3,654,052,883.04
A.1	Awarded Value		850,885,369.58	836,837,676.35	1,272,869,475.88	2,960,592,521.81
A.2	UnAwarded	6%	30,147,074.03	29,618,876.42	44,895,683.14	104,661,633.59
A.3	Potential VOs	1	313,038.89	308,182.57	35,530,946.04	36,152,167.50
A.4	Risks		177,891,599.99	177,481,026.06	197,273,934.09	552,646,560.14
<b>B</b>	<b>Total Payment Made to date</b>		174,745,357.74	166,294,070.29	451,907,328.85	792,946,756.88
<b>C</b>	<b>Total Cost to Complete</b>	<b>A-B</b>	884,491,724.75	877,951,691.11	1,098,662,710.29	2,861,106,126.16
<b>D</b>	<b>Unbilled Amount</b>					
D.1	Unbilled works done on site					0.00
D.2	Unbilled works to complete onsite					
<b>E</b>	<b>Balance due for Payment</b>		173,688,778	176,895,666	72,700,761	423,285,205.13
<b>F</b>	<b>Amount of works completed</b>	<b>B+D.1+E</b>	348,434,135.71	343,189,736.01	524,608,090.29	1,216,231,962.01
<b>G</b>	<b>Percentage of works completed</b>	<b>F/A</b>	32.89%	32.86%	33.83%	33.28%
<b>H</b>	<b>Balance of works to complete</b>	<b>A-F</b>	710,802,946.78	701,056,025.39	1,025,961,948.86	2,437,820,921.03

Fig. 4. Analysis - Arcadis - Certified.

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Item	Description	Formula	GGDC	Buildings			
				C	D	E	CDE
<b>A</b>	<b>Total Value of Contract including VO to date</b>		<b>1,029,090,008.4</b>	<b>1,014,626,884.9</b>	<b>1,505,674,356.01</b>	<b>3,549,391,249.45</b>	
A.1	Awarded Value		850,885,369.58	836,837,676.35	1,272,869,475.88	2,960,592,521.81	
A.2	UnAwarded	6%				0.00	
A.3	Potential VOs	1	313,038.89	308,182.57	35,530,946.04	36,152,167.50	
A.4	Risks		177,891,599.99	177,481,026.06	197,273,934.09	552,646,560.14	
<b>B</b>	<b>Total Payment Made to date</b>		<b>174,745,357.74</b>	<b>166,294,070.29</b>	<b>451,907,328.85</b>	<b>792,946,756.88</b>	
<b>C</b>	<b>Total Cost to Complete</b>	<b>A-B</b>	<b>854,344,650.72</b>	<b>848,332,814.69</b>	<b>1,053,767,027.16</b>	<b>2,756,444,492.57</b>	
<b>D</b>	<b>Unbilled Amount</b>						
D.1	Unbilled works done on site					0.00	
D.2	Unbilled works to complete onsite						
<b>E</b>	<b>Balance due for Payment</b>		<b>173,688,778</b>	<b>176,895,666</b>	<b>72,700,761</b>	<b>423,285,205.13</b>	
<b>F</b>	<b>Amount of works completed</b>	<b>B+D.1+E</b>	<b>348,434,135.71</b>	<b>343,189,736.01</b>	<b>524,608,090.29</b>	<b>1,216,231,962.01</b>	
<b>G</b>	<b>Percentage of works completed</b>	<b>F/A</b>	<b>33.86%</b>	<b>33.82%</b>	<b>34.84%</b>	<b>34.27%</b>	
<b>H</b>	<b>Balance of works to complete</b>	<b>A-F</b>	<b>680,655,872.75</b>	<b>671,437,148.97</b>	<b>981,066,265.72</b>	<b>2,333,159,287.44</b>	

Fig. 5. Analysis - Arcadis - Certified.

19 **C. Benchmarking.** To compare the grade A office building cost per CFA.

20 **ACKNOWLEDGMENTS.** Please include your acknowledgments here, set in a single paragraph. Please do not include any acknowledgments  
21 in the Supporting Information, or anywhere else in the manuscript.