



HONOLULU AUTHORITY for RAPID TRANSPORTATION

Daniel A. Grabauskas
EXECUTIVE DIRECTOR AND CEO

July 28, 2016

TO: HART Board of Directors

THROUGH: Daniel A. Grabauskas
Executive Director and CEO 

FROM: Chris Takashige 
Officer-in-Charge

Kai Nani Krause 
Deputy Director Construction West

SUBJECT: HNTB Technical Design Management
West Oahu Farrington Highway Guideway, Contract No. CT-HRT-10H0137
Kamehameha Highway Guideway, Contract No. CT-HRT-11H0195

Overview

Approve bilateral contract change orders in the credit amounts of \$4,517,160 (West Oahu Farrington Highway Guideway) and \$3,810,560 (Kamehameha Highway Guideway) to compensate the Design-Builder's designers, HNTB and their Subconsultants, for design management for the period of August 25, 2012 through the design completion date of March 31, 2015. This time period includes the 13-month Archaeological Inventory Survey (AIS) investigation suspension period. Requests for additional design work and changed design work extended HNTB's design duration on both alignments.

Justification

Design management was expressly excluded from authorized design change orders with the understanding it would be addressed in the future as a separate change order. The approach of addressing design management cost separately from the technical design work was established early in the project with HART and the Design-Builder during the development and negotiation of the notice to proceed (NTP) delay change orders and again during the AIS suspension period. HNTB was compensated for authorized design changes during this time period.

The considerable amount of change on both projects increased the base design work and extended the design duration thereby increasing HNTB's design management effort. In response to the changes, HNTB submitted and contracted 66 change requests (34 WOFH, 32 KHG) for additional technical design work requested by HART after August 2012.



In order to help mitigate design review delays, HNTB repackaged the utility designs into smaller packages for agencies such as HDOT, BWS, and HECO. This increased the number of originally anticipated or agreed upon design submittal packages from 42 to 130 (WOFH) and from 39 to 50 (KHG).

The most significant issues that increased the design management duration are as follows:

- Delay with Utility Agency/Third Party Agreements
- HDOT requested changes (Traffic Signal System, extended paving limits, intersection configuration changes, etc)
- Delayed NTP for the Core Systems Contract (CSC) delayed design interface, which caused redesign of traction power substation sites and other system sites
- Revisions to Leeward Community College Station and site design
- Revisions to stations loads and structural modifications to the guideway
- Addition of Rail Rescue Carts and Storage Cabinets
- Abandoned Utility Removals

All work associated with this Contract Change Order is inclusive of all services and deliverables associated with HNTB's Design Management, including but not limited to the following:

- Design management costs for additional design work and changed design work performed in the period of August 25, 2012 through the end of the design duration, including the Archaeological Inventory Survey (AIS) investigation suspension period.
- Design management, interface management, coordination, and project documentation, including project controls, quality control, document control, and all other management tasks.
- All design management staff, including subconsultant staff, key discipline managers, quality control managers, CADD managers, document control specialists, project control specialists, project schedulers, and project administrative support.

These changes are new items not associated with any prior executed change orders.

Recommendation

HART Board of Directors to approve bilateral contract change orders for "Fair and Reasonable" compensation based on the design management costs included in the Design-Builder's original Contract, subsequent Contract Change Orders, and level of effort consistent with the needs of the project. It should be noted that the recommended compensation is approximately 48 percent of the Design-Builder's original requested compensation for WOFH, and approximately 62 percent of the Design-Builder's original requested compensation for KHG.



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Fiscal Impact

These change orders would require an allocation from WOFH budget contingency of \$4,517,160 and from KHH budget contingency Of 3,810,560 to fund this change value.



**HNTB Technical Design Management Costs
for
WOFH and KHG Contracts
July 28, 2016**

Summary of Change

The two bilateral change orders compensate the Design-Builder's designers, HNTB, and their subconsultants for Technical Design Management for the period August 25, 2012 through March 31, 2015 (WOFH) and April 30, 2015 (KHG).

The increased Technical Design Management costs were due to changes and delays to the design portion of the contracts that occurred on each project. The change orders are in the amounts of \$4,517,160 (WOFH) and \$3,810,560 (KHG).

Additional and Changed Design Work for the WOFH Contract:

Issues Increasing Technical Design Management duration:

- Delays with Utility Agency/Third Party Agreements
- HDOT changes – signals, paving, configuration, etc.
- Delayed NTP for Core Systems Contract
- DLNR right of entry delays near Piers 55-61
- Right of entry delays in Work Area 6
- Leeward Community College station and sign design revisions
- Station loading and guideway structural modification revisions
- Hoopili mass grading
- Hoopili station relocation
- Waiawa scour analysis and design change
- Kaloï scour analysis and design change

Additional and Changed Design Work for the KHG Contract:

Issues increasing Technical Design Management duration:

- Delays with Utility Agency/Third Party Agreements
- HDOT changes – signals, paving, configuration, etc.
- Delayed NTP for Core Systems Contract
- Station loading and guideway structural modification revisions
- Addition of rail rescue carts and storage cabinets

Change Order Basis

These Change Orders are for extended Technical Design Management work performed on both the WOFH and KHG contracts. They include new items that were not paid for under previously executed contract change orders.

HNTB's extended design management costs were expressly excluded from previous design change orders, due to the significant number of overlapping changes occurring through this time period, with the understanding that it would be addressed in the future as a separate change order.

This allowed HART to review the extended design management effort after completion and negotiate reasonable compensation for this item. **The result of which reduced the overall cost by over 38 percent or approximately \$5.0 million.**

Change Order Scope

The following additional Technical Design Management services are included in these Change Orders:

- Design management costs for additional design work and changed design work performed in the period of August 25, 2012 through the end of the design duration, including the Archaeological Inventory Survey (AIS) investigation suspension period.
- Design management, interface management, coordination, and project documentation, including project controls, quality control, document control, and all other management tasks.
- All design management staff, including subconsultant staff, key discipline managers, quality control managers, CADD managers, document control specialists, project control specialists, project schedulers, and project administrative support.

Change Order Cost Analysis

WOFH Contract

The original contract included a design duration of 579 calendar days, Oct. 29, 2009 to May 31, 2011, and a design fee of \$24,820,000, which included \$3,180,000 for design management.

- This duration and fee was later updated with Construction Change Orders (CCO) No. 12 and No. 44, which includes \$3,730,000 for HNTB's extended design management for the time period May 31, 2011 to August 24, 2012, an additional 451 days.
- With the addition of compensation included in CCOs No. 12 and No. 14, HNTB's amended design fee was \$37,855,233, which includes \$6,910,000 for design management over the 1030 day period.
- Based on this fee and duration, their average daily design management rate was approximately \$6,700 ($\$6,910,000 / 1,030$ days) from the beginning of contract to the Archeological Inventory Survey (AIS) suspension time period, August 25, 2012.

Change Order Cost Analysis

WOFH Contract

HART's estimate of costs considered the level of effort required during this time period, including the AIS suspension period. The analysis concluded:

- Technical design management staff classifications are consistent with the on-going tasks and technical needs of the project.
- Significant changes to the design and delayed design completion was beyond the control of the design-builder.
- Requests for additional design work and changed design work extended HNTB's design duration to March 31, 2015.
- HNTB was compensated for additional design work and changed design work through the time period of August 24, 2012 to March 31, 2015.
- HNTB's extended technical design management costs were expressly excluded from design change orders for the period of August 24, 2012 to March 31, 2015, a total of 949 days.

Change Order Cost Analysis

WOFH Contract – HART’s Estimate of Costs

HART’s estimate of costs is based on the technical design management costs included in the original contract and subsequent Construction Change Orders up to August 25, 2012, which equates to an average of \$6,700 per day.

These costs were projected forward to the end of the design period (949 days) and excluded compensation for the 13-month AIS suspension period (387 days) since HART did not direct the designer-builder to stop design efforts.

| HART's Estimate of Costs | | Estimated |
|--------------------------|---|---------------------|
| Item No. | Description | Amount |
| 1 | Technical Design Management | \$ 3,765,400 |
| 2 | Design-Builder Change Analysis Preparation ² | \$ - |
| | Subtotal Costs | \$ 3,765,400 |
| 3 | Mark-Ups (Profit, Bond, GET) | \$ 231,840 |
| | Totals | \$ 3,997,240 |
| Notes: | 1) The basis for this cost is the average management cost of \$6,700 per day over the previous 1,030 days per HNTB's own documentation for the period before August 24, 2012. | |
| | 2) In accordance with the General Conditions of Design-Build (GCDB), Section 5.3(a), these costs are included in the Contract price and thus disallowed. | |

Change Order Cost Analysis

KHG Contract

The original contract included a design duration of 470 calendar days, Feb. 15, 2011 to May 30, 2012, and a design fee of \$19,770,000, which included \$2,800,000 for design management.

- This duration and fee was later updated with Construction Change Order (CCO) No. 10, which includes \$200,869 for HNTB's extended design management for the time period May 30, 2012 to August 24, 2012, an additional 86 days.
- With the addition of compensation included in CCO No. 10, HNTB's amended design fee was \$20,300,000, which includes \$3,000,869 for design management over the 556 day period.
- Based on this fee and duration, their average daily design management rate was \$5,400 ($\$3,000,869 / 556$ days) for the beginning of contract to the AIS suspension time period, August 25, 2012.

Change Order Cost Analysis

KHG Contract

HART's estimate of costs considered the level of effort required during this time period, including the AIS suspension period. The analysis concluded:

- Technical design management staff classifications are consistent with the on-going tasks and technical needs of the project.
- Significant changes to the design and delayed design completion was beyond the control of the design-builder.
- Requests for additional design work and changed design work extended HNTB's design duration to April 30, 2015.
- HNTB was compensated for additional design work and changed design work through the time period of August 24, 2012 to April 30, 2015.
- HNTB's extended technical design management costs were expressly excluded from design change orders for the period of August 24, 2012 to April 30, 2015, a total of 979 days.

Change Order Cost Analysis

KHG Contract – HART’s Estimate of Costs

HART’s estimate of costs is based on the technical design management costs included in the original contract and subsequent Construction Change Orders up to August 25, 2012, which equates to an average of \$5,400 per day.

These costs were projected forward to the end of the design period (949 days) and excluded compensation for the 13-month AIS suspension period (387 days) since HART did not direct the designer-builder to stop design efforts.

| HART's Estimate of Costs | | Estimated |
|--------------------------|---|---------------------|
| Item No. | Description | Amount |
| 1 | Technical Design Management | \$ 3,191,400 |
| 2 | Design-Builder Change Analysis Preparation ² | \$ - |
| | Subtotal Costs | \$ 3,191,400 |
| 3 | Mark-Ups (Profit, Bond, GET) | \$ 200,120 |
| | Totals | \$ 3,391,520 |
| Notes: | 1) The basis for this cost is the average management cost of \$5,400 per day over the previous 556 days per HNTB's own documentation for the period before August 24, 2012. | |
| | 2) In accordance with the General Conditions of Design-Build (GCDB), Section 5.3(a), these costs are included in the Contract price and thus disallowed. | |

Cost Impact of the Change Orders

| WOHF | |
|---|--------------------|
| Contractor's Change Request | \$7,690,977 |
| Negotiated Change Order Amount | \$4,517,160 |
| HART's Original Estimate | \$3,997,240 |
| Difference | |
| Significant reduction due to denial of time during 13 month AIS suspension period and limitation to 4 full time equivalent (FTE) personnel after restart. | |
| KHG | |
| Contractor's Change Request | \$5,602,614 |
| Negotiated Change Order Amount | \$3,810,560 |
| HART's Original Estimate | \$3,391,520 |
| Difference | |
| Significant reduction due to denial of time during 13 month AIS suspension period and limitation to 2.5 full time equivalent (FTE) personnel after restart. | |
| Total Cost Impact of this Change (2 contracts) | \$8,327,720 |

Mahalo!

