

Village of Oak Park - Lake Street Improvements

Change Order; Scope of Work – Vaults

Background

During Phase I several subsurface vaults have been identified beneath sidewalks within the project limits. The roofs of these vaults will likely need to be modified during streetscape construction in order to achieve the goals of this project. For purposes of a contract change order, the following assumption are used for determining amount and extent of effort:

- All six (6) utility vaults will have been adjusted prior to construction of LSI at the correct elevation, cross-slope and structural requirements.
- The one (1) vault located within the street pavement area at approximately STA 41+15 is a utility vault and will not require any special plan sheet or detail other than what was included in the original project scope as part of pavement rehabilitation or reconstruction.
- Effort contained in this change order generally includes vault design and associated investigations, coordination, and design for the remaining twelve (12) vaults. It is anticipated that the vaults on average will require structural design, details and cadd work. Calculation for all work items are included with the Cost Estimate for Consultant services (see attachment).

To date, nineteen (19) areas have been identified throughout the project limits (approximately 5,600 SF). These areas have been identified visually through voluntary owner surveys and through physical inspection. In addition, a Ground Penetrating Radar (GPR) survey has been performed in an effort to identify areas where voids are present under the sidewalks so that the design team can design for these areas, if necessary. The plan areas, depths, proximity to buildings, configurations and uses for the vaults vary widely. It is reasonable to assume that any necessary design work required will be unique to each location. Additional investigation should be performed prior to design to gain proper insight into the configuration of the vaults that need to be modified.

The general scope of work anticipated for vault roof construction includes removing the existing vault roof, cutting down the existing vault support (masonry, concrete, etc.) to accommodate the proposed vault roof cross section, and constructing the proposed vault roof. Existing vault roof supports may need to be modified or replaced. Vaults not currently serving any purpose and not attached to any interior building space may be able to be economically filled.

One of the parameters in the design of the proposed vault roofs is the desire to not add any vertical loads to existing building elements when constructing the proposed vault roofs. If geometry precludes the use of the existing vault roof support for a proposed vault roof, new support will need to be designed. Reinforced concrete, steel, or a combination of the two will be used to create independent structural support for the vault roof. When new support is required and there is existing access to the vault area from the interior of a building, the proposed support will be configured, if reasonable, to maintain the existing opening to the extent possible. In these cases the proposed support may be tied laterally to existing building elements by bolts or other means of anchorage.

Design loading for the vault roofs is anticipated to include:

- a. DL: self-weight of structural elements, weight of surface treatment (bluestone), allowance for future additions (planters, etc.)
- b. LL: maximum effect of AASHTO H10 vehicle, or 100 psf

TEG staff, in coordination with Village of Oak Park staff, have determined that the best way forward is to perform additional due diligence in Phase I in order to include construction details for the areas in the Phase II plans. In order to provide details for the Phase II plans, several activities need to occur:

1. Identify each of the vaults (done)
2. Determine the interior dimensions of each of the vaults
3. Determine what is housed within in each of the vaults (utilities, storage, HVAC, etc.)
4. Determine if there are any obstructions to lowering the bottom surface of the vault roof (the bottom surface of the sidewalk). If there are obstructions within 2 feet of the existing bottom of vault roof, determine if the obstructions interfere with the proposed vault. These items could be components attached to the bottom of the vault roof that will need to be relocated, or utilities that cross through the vault.
5. Where the vault is adjacent to or extends into the interior of a building, determine the locations of building elements (columns, beams, pumps, façade elements, etc.) that will influence the proposed vault design and the need for protection during construction
6. Where the vault is an extension of an adjacent interior building space, determine the need for shielding to protect the interior space from demolition dust and debris
7. Determine the need for shielding of elements within the vaults (plumbing, utilities, etc.) to protect sensitive items from damage during existing vault roof removal
8. Determine the types of formwork allowed. Where the interior of a vault will not be accessible after the proposed roof is cast, a stay-in-place system will need to be specified.
9. Where vaults are independent of buildings, coordinate with utilities to schedule the vault work to be performed by the utilities to meet the goals of the project
10. Determine proposed vault roof cross section and details for the desired bluestone finish of the walking surface of the vault roof

Task 1: Vault Investigation/Survey

Task 1a – Additional effort required to identify, locate, dimension, and determine a scope of adjustment work for each of the nineteen (19) vaults. This task includes coordination and management of LSI corridor GPR survey, review of GPR reports, meetings, and preliminary scope assessment. It is expected that these studies will reveal that only 12 vaults will need to be addressed in tasks 1b through 1e.

Task 1b - Investigation: This task includes work necessary to determine interior dimensions of up to twelve (12) existing vaults. Gain access to the interior of the vaults in order to locate columns, beams, pipes, and other elements within the vaults. Above-surface elements that may be impacted by the vault work will be located and inventoried (i.e. building façade elements).

Task 1c – Design access to vaults with no existing means of access, and design repairs to access holes. Coordinate with contractor to install access holes and perform repairs. (Contractor costs not included in this fee proposal)

Task 1d – Coordinate asbestos testing. (Asbestos testing costs not included in this fee proposal)

Task 1e - Additional Owner Coordination: Coordination required in order to gain access and take measurements to be used as the basis for design.

Direct Costs Exception – Task 1b does not cover the unknown cost of labor for drilling (camera) and concrete sawing (head entry access) into closed vaults. Task 1d does not include costs for asbestos removal. Both of these costs are recommended to be handles via direct bill to Village of Oak Park.

Task 2: Owner Coordination

This task includes coordination with building owners who have interior spaces that extend into vaults that will have vault roof replacement performed. Owners will be identified, and initial outreach will be performed to explain the project and the need for work in their space. This task is intended to cover TEG effort to keep impacted owners informed and to get their input in configuration, where appropriate.

Task 3: Vault Design

This task includes the determination of a suitable proposed vault system and the associated costs. Where multiple alternatives are acceptable, preliminary design will be performed to determine which will be more cost effective. A feasible sequence of construction will be developed.

PS&E drawings will be developed including a plan, elevation, cross section and details of each the vaults in the existing (developed in Task 1) and proposed condition.

Specifications will be required to further define the construction. Specification effort is included in this task.

Task 4: Utility Company Coordination

This task includes the performance specification design of vault roofs that will be constructed by utility companies. This work will include the development of drawings and specifications for use by the utility company in modifying their vaults to meet the goals of this project.

Task 5: ODCs

Direct costs include only

1. Prints & postage
2. Vehicle mileage @ \$0.535/mile
3. Ventilation equipment rental for vaults with no existing means of access
4. Additional insurance costs incurred to add private-entity owners as additional insured

PAYROLL ESCALATION TABLE
FIXED RAISES
COST PLUS FIXED FEE

FIRM NAME
 PRIME/SUPPLEMENT

Thomas Engineering Group
Supplement

DATE 08/18/17
 PTB NO. _____

CONTRACT TERM
 START DATE
 RAISE DATE

2 MONTHS
9/1/2017
1/1/2018

OVERHEAD RATE
 COMPLEXITY FACTOR
 % OF RAISE

142.20%
0
3.00%

ESCALATION PER YEAR

9/1/2017 - 10/31/2017

2
2

= 100.00%
 = 1.0000

The total escalation for this project would be:

0.00%

PAYROLL RATES

FIRM NAME
PRIME/SUPPLEMENT
PSB NO.

Thomas Engineering Gr DATE
Supplement

08/18/17

ESCALATION FACTOR

0.00%

CLASSIFICATION	CURRENT RATE	CALCULATED RATE
Principal	\$88.00	\$70.00
Project Manager/Senior Resident Engineer	\$77.33	\$70.00
Project/Resident Engineer V	\$64.18	\$64.18
Project/Resident Engineer IV	\$57.13	\$57.13
Project/Resident Engineer III	\$49.75	\$49.75
Project/Resident Engineer II	\$37.58	\$37.58
Design/Construction Engineer I	\$26.41	\$26.41
Chief Surveyor	\$46.20	\$46.20
Senior Technician	\$42.50	\$42.50
Technician III	\$34.90	\$34.90
Design/Construction Intern	\$15.00	\$15.00
Business Administration Head	\$51.75	\$51.75
		\$0.00
		\$0.00
		\$0.00
		\$0.00
		\$0.00
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**COST PLUS FIXED FEE
COST ESTIMATE OF CONSULTANT SERVICES**

FIRM

Thomas Engineering Group

PSB

PRIME/SUPPLEMENT

Supplement

OVERHEAD RATE

COMPLEXITY FACTOR

1.422

0

DATE

08/18/17

[illegible]

DBE 0.00%

AVERAGE HOURLY PROJECT RATES

FIRM	<u>Thomas Engineering Group</u>
PSB	<u></u>
PRIME/SUPPLEMENT	<u>Supplement</u>

DATE 08/18/17

SHEET 1 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJECT RATES			1a. Add. Prelim. Effort			1b. Investigation			1c. Gain Access/Entry			1d. Asbestos			1e. Add. Owner Coord.		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Principal	70.00	0																	
Project Manager/Senior Engineer	70.00	8	1.11%	0.77	8	8.70%	6.09												
Project/Resident Engineer	64.18	92	12.72%	8.17	60	65.22%	41.86										4	20.00%	12.84
Project/Resident Engineer	57.13	0																	
Project/Resident Engineer	49.75	0																	
Project/Resident Engineer	37.58	383	52.97%	19.91	24	26.09%	9.80	80	50.00%	18.79	24	100.00%	37.58	8	100.00%	37.58	16	80.00%	30.06
Design/Construction	26.41	80	11.07%	2.92				80	50.00%	13.21									
Chief Surveyor	46.20	0																	
Senior Technician	42.50	0																	
Technician III	34.90	160	22.13%	7.72															
Design/Construction	15.00	0																	
Business Administration	51.75	0																	
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TOTALS		723	100%	\$39.49	92	100.00%	\$57.75	160	100%	\$32.00	24	100%	\$37.58	8	100%	\$37.58	20	100%	\$42.90

AVERAGE HOURLY PROJECT RATES

FIRM	<u>Thomas Engineering Group</u>
PSB	<u></u>
PRIME/SUPPLEMENT	<u>Supplement</u>

DATE 08/18/17

SHEET 2 OF 5

PAYROLL	AVG				2. Owner Coordination			3. Vault Design			4. Utility Company Coord.								
CLASSIFICATION	HOURLY RATES	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Principal	70.00																		
Project Manager/Ser	70.00																		
Project/Resident Eng	64.18				8	33.33%	21.39	20	5.33%	3.42									
Project/Resident Eng	57.13																		
Project/Resident Eng	49.75																		
Project/Resident Eng	37.58				16	66.67%	25.05	195	52.00%	19.54	20	100.00%	37.58						
Design/Construction	26.41																		
Chief Surveyor	46.20																		
Senior Technician	42.50																		
Technician III	34.90							160	42.67%	14.89									
Design/Construction	15.00																		
Business Administra	51.75																		
TOTALS		0	0%	\$0.00	24	100%	\$46.45	375	100%	\$37.86	20	100%	\$37.58	0	0%	\$0.00	0	0%	\$0.00

LSI Change Order #2 - Labor Detail

Item	Notes	Unit	Quantity	Rate	Total
1a. Additional preliminary effort	2 weeks for 2 person team onsite				
		Vehicle Day	10	55	\$550.00
1b. Investigation Survey			3	55	\$165.00
	2.5 days of 1 TEG and 1 VOP staff w saw/drill				
1c. Gain Access/Entry		Vehicle Miles	90	0.535	\$48.15
1d. Asbestos					
	4 meetings				
		Vehicle Miles	120	0.535	\$64.20
1e. Additional Owner Coordination					
	none				\$0.00
2. Owner Coordination					
	3 site visit (w or w/out mtg)	Vehicle Miles	90	0.535	\$48.15
3. Vault Design					
	none				\$0.00
4. Utility Company Coord.					
	3 meetings				
		Vehicle miles	90	0.535	\$48.15
TOTAL					\$923.65

LSI Change Order #2 - Direct Cost Detail

Item	Notes	Staff	Hours	Sheets	hrs/sheet	Total
1a. Additional preliminary effort	Various staff site visits, vault entires, meetings, research and GPR coordination/surveys					
		various	128	1	1	128
1b. Investigation Survey	2 sturctural staff for 2 weeks					
		2	80	1	1	160
1c. Gain Access/Entry	1 TEG sturctural staff accomonied by 1 VOP staff (saw or drill) to gain entry					
		1	24	1	1	24
1d. Asbestos	1 TEG staff to work w ENV firm and identify additionalwork/costs for removal					
		1	8	1	1	8
1e. Additional Owner Coordination	1 TEG staff communicating and perfmng necessary site visit for issues caused by vault work					
		1	20	1	1	20
2. Owner Coordination	Assumes only half of the vaults will require coordination after access has been gained and conflicts determined					
		1	4	6	1	24
3. Vault Design	2 plan sheets (2 hrs ea.) for 12 vaults for drawing and details + CADD work (0.3 staff)	1.3	1	24	12	374.4
4. Utility Company Coord.	1 TEG structural staff to share informaiton and meet on site 3 times					
		1	20	1	1	20
		TOTAL				758.4