Town of Trumbull

5866 Main Street
Trumbull, CT 06611
203-452-5005

POLICE STATION BUILDING COMMITTEE

Angelo Magliocco, Chairman
Shawn Haley
Keith Klain
Arthur Lemay
Donna Seidell
Scott Thornton

Police Station Building Committee
Regular Meeting
Wednesday, September 16, 7:00 p.m.

AGENDA

The above meeting will be conducted remotely. In person public attendance is not permitted. The public can access the meeting remotely on ZOOM Videoconference by accessing the URL or phone number below, and entering the specified Meeting ID and Password.
Join the meeting online:
Police Station Building Committee Meeting
Sep 16, 2020 7:00 PM
Join the meeting online:
https://zoom.us/j/94393393309?pwd=MlRsTWFYNEZOWHdzVGpXWXJuMjlGZz09
Webinar ID: 943 9339 3309
Password: 345492
Join by telephone: (929) 205-6099 or (888) 475-4499 (Toll Free) / Webinar ID: 943 9339 3309

1. Call to Order
2. Pledge of Allegiance
3. Public Comment
4. Approval of Minutes, August 13, 2020 meeting
5. New Business
   A. Project Update
      I. Review Budget/Expenditures
      II. Project Status Update and Next Steps
      III. Approve Invoices
6. Old Business
7. Adjournment

Town of Trumbull

5866 Main Street
Trumbull, CT 06611

POLICE STATION BUILDING COMMITTEE

Lisa Labella, Chairman
Angelo Magliocco, Vice Chairman
Shawn Haley
Keith Klain
Arthur Lemay
Donna Seidell
Scott Thornton

Police Station Building Committee
August 13, 2020
MINUTES

The Police Station Building Committee meeting, conducted via on-line Zoom, was called to order at 7:08 p.m. by Chairperson Angelo Magliocco.

Members present via Zoom : Angelo Magliocco
Shawn Haley
Arthur Lemay
Scott Thornton

Also Present: Assistant Chief Glenn Byrnes
George Estrada – Trumbull Public Works Director
Dan Martin – Trumbull Assistant Finance Director
Kevin Bova – Trumbull Purchasing Agent
Jim Nugent – Trumbull Town Attorney
Brian Humes – Jacunski-Humes
Lisa Labella

Members Absent: Donna Seidell
Keith Klain

Pledge of Allegiance

Public Comment

No one from the public made a comment at the meeting.

Approval of Minutes, July 9, 2020 meeting
A motion to approve the minutes as presented was made by Thornton and seconded by Haley. The vote in favor was unanimous.

New Business

Review Budget

Mr. Martin reported that available balance for the project is @ $15,500. Some of this funding is from unspent balances remaining on several of the line items. This total balance remaining excludes the cost of the bonding.

Project Update

Mr. Humes advised the committee that his Project Summary document has an error, in that only Change Orders # 1 - # 8 are included and not #9. He stated that the Punch list items have been completed by Bismark.

However, a new issue has arisen regarding the Firing Range acoustics. He advised that when the Firing Range is operational the sound of gunfire can be heard outside the building. There are now duct openings in the firing range wall and the noise is being heard through those openings. Commissioning agent, Kohler Ronan inspected this area as part of their commissioning work. With only two officers firing, a decibel level test was done and the results were within the Town decibel level; however, the noise is still a nuisance. While Kohler Ronan was on site, they investigated some contract work that had not then been completed on the duct work. Mr. Humes advised that instead of going back to Bismark on the noise attenuation, he reached out to Jaffe Holden, an acoustic/audio consulting company in Norwalk. He contracted with them for $5,000 for site visits and their recommendations on the noise attenuation. Jaffe Holden feels that with some remediation a solution to the noise level can be found. Mr. Humes advised that once Jaffe Holden provides the recommendations a determination can be made as to how much of the work will fall in the contract scope and how much would be additional scope of work for the Town.

A 50% deposit on the consulting work has been paid to Jaffe Holden by Jacunsky-Humes and Mr. Humes is asking the Town to share that cost. He also stated that there would be no additional cost to the Town for the work done by Jacunsky-Humes and Kohler Ronan on this issue. Mr. Humes stated that he hopes to have the recommendations from Jaffe Holden within the next two weeks. He stated that this problem with the noise was not anticipated. The committee posed several questions on this matter to Mr. Humes and continued discussion.

Mr. Estrada stated that there needs to be a solution to resolve the noise issue, that anyone on the outside of the building can clearly hear the noise from the Firing Range and that the situation with the neighbors continues to be tense. Mr. Humes suggested that the noise coming off the outdoor equipment was ok now, but Mr. Estrada took exception to the statement as the noise off the equipment is a constant issue with the neighbors. Mr. Estrada hopes that the vinyl fencing around the outdoor equipment will help stop the sound projecting to the neighbors. Mr. Humes suggested that since the firing range has not operated in 13 years, the neighbors are unused to hearing the sound of gun fire.

Mr. Estrada stated categorically that the Town would never have accepted a plan that had such an impact on the neighbors and that the Town will not accept anything less than zero impact on them now. Mr. Lemay questioned whether they should have finished putting up the buffer fencing before seeking additional remediation options. Mr. Humes stated that he believed it is better to have the inspection to see what needs to be done first; Mr. Estrada agreed that it was better to bring in the professional engineers to review the firing range issue.

Mr. Estrada reported that the security chain link fence has been installed on the property perimeter. In addition, the vinyl fence will be installed to buffer the sound from the outdoor equipment. Per his sound engineer, the vinyl fence, at as much as 8 feet high, should have a

dramatic impact on noise. In addition, Mr. Estrada reported that a wall of six-foot-tall Arborvitaes has already been planted.

Returning to the firing range noise, Assistant Chief Byrnes noted that the firing range is now only being used during daytime hours, however, there will be firing at night so the noise of gunfire will be more noticeable during the quieter nighttime hours. He would like to be able to expand the usable hours of the firing range. Mr. Humes stated that he believes the consultant has numerous solutions and options. **Mr. Estrada asked Mr. Humes to check on the lack of lower level flashing.** Mr. Nugent questioned if there was still money in the budget for the audio consultant charges and Mr. Martin advised there was.

Mr. Magliocco stated that he was frustrated that the issue was not resolved by the contractor and that he would like to see the report from Jaffe Holden before voting on the shared payment for that consultant; vote on that shared payment will be held off pending the report.

Approval of Invoice

Bismark invoice #9 Dated 7/31/20 $72,575.17
Mr. Humes advised that the invoice included 50% of the retainage in addition to the completed punch list work. A motion was made by Thornton and seconded by Lemay, to approve Bismark Invoice 9, dated 7/31/20 in the amount of $72,575.17. The motion was approved on a unanimous vote.

Project Update, continued

Assistant Chief Byrnes reviewed the punch list he proved to the committee. He stated that since the list had been provided, the furniture has all been received and the manuals and warrantees were received yesterday. He will update the list and provide it to the committee.

Chairman Magliocco thanked Mr. Estrada and DPW for all the work they have been doing with the neighbors.

The next meeting of the committee will tentatively be on Thursday, August 27, 2020 depending on the availability of the acoustical report.

Old Business
No old business

Adjournment

A motion to adjourn was made at 7:55 PM by Lemay, seconded by Thornton and approved unanimously.

Respectfully submitted,
Laurel Anderson
Clerk of Committee

INTERIOR RENOVATIONS					
TRUMBULL POLICE DEPARTMENT					
Project Budget Worksheet (B2016)	Bismark Construction BUDGET	Payments To Date proj	Purchase Orders proj	Balance Available proj	
Hard Costs:					
Base Bid Scope	$ 1,767,000.00	$ 1,731,906.41	$ 35,093.59	$ 0.00	
Alternate No. 1 - replace all cell plumbing fixtures / valves	82,000	16,882.68	65,117.32	-	
Alternate No. 2 - provide for new Physical Training Room	50,100	50,100.00	-	-	
Potential Value Engineering during construction phase	(30,000)		(30,000.00)	-	
Subtotal (Bismark Original PO Amount)	$ 1,869,100.00	$ 1,798,889.09	$ 70,210.91	$ 0.00	
Bissmark Change Orders	136,598.20	158,566.20	(21,968.00)	-	SEE PAGE 2
Subtotal (Total Bismark PO with Change Orders)	$ 2,005,698.20	$ 1,957,455.29	$ 48,242.91	$ 0.00	
Soft Costs:					
Furniture/Fixtures/Equipment / AV (loose equipment, loose furniture, cell cameras, cell audio relocations)	$50,000	$58,106.84	$0.00	($8,106.84)	SEE PAGE 2
High Density Filing Systems (for relocated Evid. Storage)	40,000	32,012.68	-	7,987.32	
Architectural / Engineering Fees (lump sum, fixed fee)	135,800	130,160.00	600.00	5,040.00	SEE PAGE 2
Design Additional Services (rooftop HVAC, cell fixtures)	33,200			33,200.00	
Design Additional Services (Additional Mechanical lower Level RTU)		6,600.00		(6,600.00)	
Firing Range Repairs		18,964.75	-	(18,964.75)	
Additional Interior Design		1,270.75		(1,270.75)	
Owner's Project Manager / Clerk (allowance)	20,000	8,483.19		11,516.81	
Kohler Ronan (Commissioning)	(5,800)			(5,800.00)	
Total Owner's Project Manager / Clerk (allowance)	14,200	8,483.19	-	5,716.81	
Hazardous Materials Testing / Monitoring (allowance)	15,000	20,420.75	-	(5,420.75)	
Printing, Advertising, Bid Expenses (allowance)	2,000	566.17		1,433.83	
Admin. Costs / Owner's Expenses (allowance)	20,000			20,000.00	
Owner's Bond Costs (1% of total project costs)	24,000	9,984.78		14,015.22	
Local Permitting Fees	assumed waived				
Subtotal	$ 334,200.00	$ 286,569.91	$ 600.00	$ 47,030.09	
Owner's Contingency (8% of hard costs)	(20,768.70)	4,302.75	18,635.00	(43,706.45)	SEE PAGE 2
Project Total	$ 2,319,130	$ 2,248,327.95	$ 67,477.91	$ 3,323.64	
	$ 25,907			$ 25,906.50	
Actual available-rounded	$ 2,345,036			$ 29,230.14	

INTERIOR RENOVATIONS					
TRUMBULL POLICE DEPARTMENT					
Project Budget Worksheet (B2016)	Bismark	Payments	Purchase		Balance
	Construction	To Date	Orders		Available
	BUDGET	proj	proj		proj
Bismark Change Orders					
PCCO #003 Additional Abatement in Firing Range	44,970.38	44,970.38	0.00		-
PCCO #004 Leveling of Locker Room concrete flooring	7,918.00	7,918.00	0.00		-
PCCO #005 Credit allowance for additional asbestos removal	(20,000.00)		(20,000.00)		-
PCCO #006 Corridor Duct Containment for Removals	7,145.65	7,145.65	0.00		-
PCCO #007 Credit for PVC in liew of cast iron	(1,665.00)	(1,665.00)	0.00		-
PCCO #008 Credit for revised ductwork installation at corridors	(3,140.00)	(3,140.00)	0.00		-
PCCO #009 Credit for delayed use of portable toilet facilities	(807.00)	(807.00)	0.00		-
PCCO #010 Request to perform duct cleaning	5,024.25	5,024.25	0.00		-
PCCO #011 Additional tile at female locker room	1,675.10	1,675.10	0.00		-
PCCO #012 Furnish and Install 4 lights in observation room	3,320.47	3,320.47	0.00		-
PCCO #013 Furnish and Install additional fire alram equipment	7,866.86	7,866.86	0.00		-
PCCO #014 Furnish and Install additional lighting for firing range	3,259.06	3,259.06	0.00		-
PCCO #017 Furnish and Install lighting in evidence room	2,500.00	2,500.00	0.00		-
AIA CO# 6 Credit for damaged light pole that was hit during construction	(1,968.00)		(1,968.00)		-
PCCO #018 Additional Services, hallway floor, ceiling and breakroom	78,165.00	78,165.00	0.00		-
AIA CO# 8 Furnish and Install Dedication Plaque	1,629.43	1,629.43	0.00		-
AIA CO# 9 Additional Evidence Storage Light	704.00	704.00	-		-
			-		-
	136,598.20	158,566.20	(21,968.00)		-
Furniture/Fixtures/Equipment / AV (loose equipment, loose furniture, cell cameras, cell audio relocations)	50,000.00				
Omni Data Cell Block Cameras		27,165.92	-		
Omni Data S2 Access Control		2,988.04	-		
Omni Data Access Control for Records Room		1,219.02	-		
Norcom Locker Room Radio Speakers		1,712.16	-		
Firing Range Furniture		13,220.51	-		
Alarms By Precision		220.00	-		
United Alarm		672.00	-		
Utility Communicatons (Radio Speakers for Gym and Firing Range)		1,255.00	-		
Amazon (2 TV's and HDMI Cables)		995.81	-		
Best Buy TV Wall Mounts		425.38			
DeClercq Office Group (Firing Range/Break Room Furniture)		8,233.00	-		
			-		
	50,000.00	58,106.84	-		(8,106.84)
Architectural / Engineering Fees (lump sum, fixed fee)	120,000				
Jacunski Humes Architects		120,000.00	-		
Jacunski Humes Architects Additional Design Services NTE	10,000	4,960.00			
Kohler Ronan (Commissioning)	5,800	5,200.00	600.00		
	135,800.00	130,160.00	600.00		5,040.00

INTERIOR RENOVATIONS					
TRUMBULL POLICE DEPARTMENT					
Project Budget Worksheet (B2016)	Bismark	Payments	Purchase		Balance
	Construction	To Date	Orders		Available
	BUDGET	proj	proj		proj
Owner's Contingency (8% of hard costs)	150,000.00				150,000.00
PCCO #003 Additional Abatement in Firing Range	(44,970.38)				(44,970.38)
PCCO #004 Leveling of Locker Room concrete flooring	(7,918.00)				(7,918.00)
PCCO #005 Credit allowance for additional asbestos removal	20,000.00				20,000.00
PCCO #006 Corridor Duct Containment for Removals	(7,145.65)				(7,145.65)
PCCO #007 Credit for PVC in liew of cast iron	1,665.00				1,665.00
PCCO #008 Credit for revised ductwork installation at corridors	3,140.00				3,140.00
PCCO #009 Credit for delayed use of portable toilet facilities	807.00				807.00
PCCO #010 Request to perform duct cleaning	(5,024.25)				(5,024.25)
PCCO #011 Additional tiel at female locker room	(1,675.10)				(1,675.10)
PCCO #012 Furnish and Install 4 lights in observation room	(3,320.47)				(3,320.47)
PCCO #013 Furnish and Install additional fire alram equipment	(7,866.86)				(7,866.86)
PCCO #014 Furnish and Install additional lighting for firing range	(3,259.06)				(3,259.06)
PCCO #017 Furnish and Install lighting in evidence room	(2,500.00)				(2,500.00)
Firing Range Repairs	(18,964.75)				(18,964.75)
Jacunski Humes Additional Design Services	(1,270.75)				(1,270.75)
Jacunski Humes Additional Sevices NTE	(10,000.00)				(10,000.00)
Damaged Light Pole	(1,968.00)	1,968.00			(3,936.00)
PCCO #018 Additional Services, hallway floor, ceiling and breakroom	(78,165.00)				(78,165.00)
EP Maintenance (Strip, seal and wax basement corridor)		1,300.00			(1,300.00)
AIA CO# 8 Furnish and Install Dedication Plaque	(1,628.43)				(1,628.43)
AIA CO# 9 Additional Evidence Storage Light	(704.00)				(704.00)
Fairfield County Flooring (Hallway Cove Molding)		650.00			(650.00)
Sherwin Williams (Hallway Paint)		241.94			(241.94)
Rings End Paint & Supply (Paint Brushes, Tape, Paint Tray)		142.81			(142.81)
Frankson Fence Company (PD Firing Range HVAC Enclosure			18,635.00		(18,635.00)
	(20,768.70)	4,302.75	18,635.00		(43,706.45)

JaffeHolden

Firing Range Noise Measurement and Analysis Report

Trumbull Police Department
Trumbull, Connecticut

Prepared for:

Brian W. Humes, AIA

Jacunski Humes Architects

JH #20-7228

August 24, 2020

JaffeHolden.com
Headquarters: 114-A Washington Street, Norwalk, CT 06854 • 203.838.4167
Office Locations: Houston, TX and Raleigh, NC

INTRODUCTION AND BACKGROUND

Jaffe Holden Acoustics was retained by Jacunski Humes Architects to provide advice on the acoustical requirements necessary to control gunshot noise at the Trumbull Police Department from being heard by neighboring residential properties. On August 7, 2020 a consultant from Jaffe Holden Acoustics visited the Police Department in Trumbull, Connecticut and conducted an acoustic analysis. The scope of the analysis included a qualitative and a quantitative assessment of noise heard on the exterior of the building structure. It is apparent that the present noise issue is due to recent mechanical system renovations of the indoor firing range. The noise is exclusively emanating from the east side of the building.

It is Jaffe Holden's understanding that the Police Department's shooting range has remained inactive for a number of years due to an issue with inadequate airflow. Desire to recommission the shooting range necessitated a renovation of mechanical systems. Prior to the renovation of the mechanical system, shooting events were virtually inaudible along the exterior of the building façade. The renovations introduced a large return air ductwork system to the eastern exterior of the building. The system now includes an approximately 60-foot long exterior duct path that terminates at three new penetrations of the building façade.

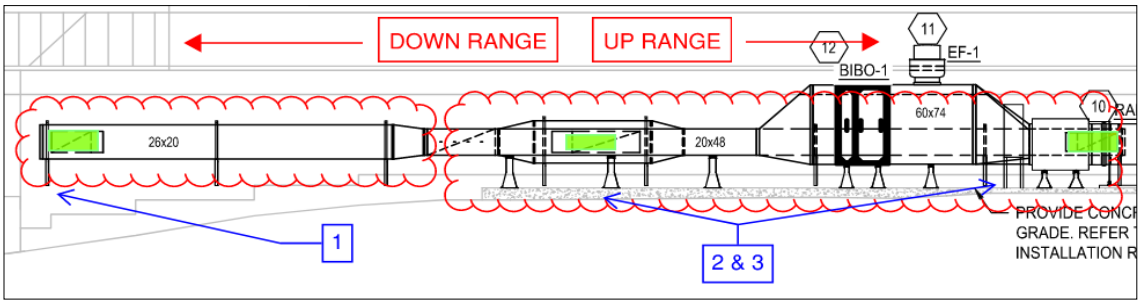
QUALITATIVE ANALYSIS

The qualitative acoustic analysis investigation began with a walkthrough of the affected areas. During the analysis, there was a shooter on the range who was firing a standard police firearm at a consistent pace. This allowed the aural examination of multiple locations in the area.

There are two immediately noticeable sources of noise along the east side of the building; the first is a full spectrum steady state noise emanating from the return air fan, and the second is the short transient sound of gunshots emanating from the shooting range. The object of this report is to provide recommendations for noise control of the transient acoustic energy emanating from the range.

The primary source of gunshot noise (#1 below) is clearly heard from the return-air duct that is located at the end of the shooting range. This duct is a standard sheet metal duct with 1" thick foil faced insulation. This area also has a poorly sealed access door that contributes to the issue. Secondary and tertiary sources of noise (#2 & #3 below) are clearly heard emanating from the long span of ductwork and the two penetrations further up range of the primary source. It is apparent when standing close to the system that significant vibration is occurring in the ductwork, implying a large amount of energy existing in the system.

Image 1: Areas Emanating Interior Gunshot Noise



Noise sources with high levels of energy and transient amplitudes are unique in their ability to easily attract the attention of the human ear. This distracting source type produces unique reflections and timing cues that give the human ear the ability to easily localize the source in space. Alternatively, a noise source with a full-spectrum and steady state sonic signature is often harder for the ear to distinguish or localize. This makes mitigation of gunshot type of sounds uniquely challenging. An effective noise control solution for a full-spectrum and steady state noise source will not require the same level of care as that required for a high-energy and transient source.

QUANTITATIVE ANALYSIS

Similar to the qualitative analysis, there was a shooter on the range firing during the quantitative analysis. The shooter fired a standard police firearm at a consistent pace, enabling measurements to be taken from numerous positions. The noise levels were measured using a Bruel and Kjaer 2270 sound level meter at 10 different locations throughout the affected area. At each location, measurements were conducted for 5-10 seconds. Following the site visit, the data was analyzed by defining the 1% loudness for each measurement (The loudest 1% of active measurement time). This enabled Jaffe Holden to capture the high energy transient nature of gunshot sounds without the need for synchronized measurements. Sound pressure levels for each octave band are shown in Table 1.

Table 1: Sound Pressure Level measurements calculated for 1% loudness

	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	dBA
1. Downrange Penetration	80	76	72	70	70	68	69	63	76
2. Access Panel Open	80	86	87	95	97	95	92	86	101
3. Property Line #1	71	69	59	58	59	55	50	49	63
4. Property Line #2	68	69	61	60	57	52	49	50	63
5. West side of PD driveway	79	71	61	61	58	62	57	57	67
6. Close range to duct	81	78	77	73	66	57	50	46	74
7.Close range to duct	83	88	82	77	73	69	67	65	80
8. Close range to duct	81	89	79	75	70	61	54	47	78
9. Close range to duct	81	88	76	71	71	67	64	56	77
10. Source Measurement	107	115	115	122	123	124	124	121	130

Quantitative analysis shows nominal levels of more than 70dBA at close range to the mechanical system. JaffeHolden believes that an effective solution will provide approximately 30-40dB of reduction in the mid-frequencies (500Hz-1kHz).

As mentioned above, it was discussed on site that measurement location #1 is the most-noticeable source of gunshot noise. If comparing measurement #1 to measurement #7 (which was taken near the most up-range façade penetration), one will find that the energy level occurring up-range is considerably larger in the 250Hz- and 500Hz range than that occurring down range at the most-noticeable source. This is significant because of the large quantity of energy that low frequencies carry. Frequencies less than 500Hz are often the most difficult to effectively attenuate.

DISCUSSION AND CONCLUSIONS

When dealing with mechanical noise, there can be many sources of noise and many paths by which the noise travels to areas of interest. In this instance, it is apparent that considerable energy from gunshot events in the Trumbull PD shooting range is making its way into the new unlined sheet metal ducts, reverberating through the duct system, and transmitting to the exterior by breaking-out of the duct system along the exterior of the building. A secondary path for noise transmission exists through unsealed duct penetrations at each large return air branch. The distinct sound of gunshots is easily heard at the nearest (east) property line.

Jaffe Holden does not believe that the issue is only with the down-range penetration, or the 'primary source' as described above. In keeping with standard psycho-acoustic theory, if the department decides to only furnish noise control measures for this segment of the mechanical system, we believe that the secondary and tertiary noise sources will then become the next-most-obvious source of noise. Our recommendations aim to treat the system holistically in order to avoid unnecessary complexity or multi-segment 'good, better, best' approaches that can carry significant cost and schedule implications.

The recommendations below have been developed to provide a level of noise control that aims to reduce the noise such that it matches the levels heard on the exterior before any renovations occurred. That is to say, the stated goal is minimal or no noise present. However, any noise control measures taken will perform less than that of the discrete double concrete wall that was present pre-renovation. We believe that the recommendations furnished below will provide the highest level of noise control available without completely replacing the sheet metal duct work, or building massive sound-blocking walls.

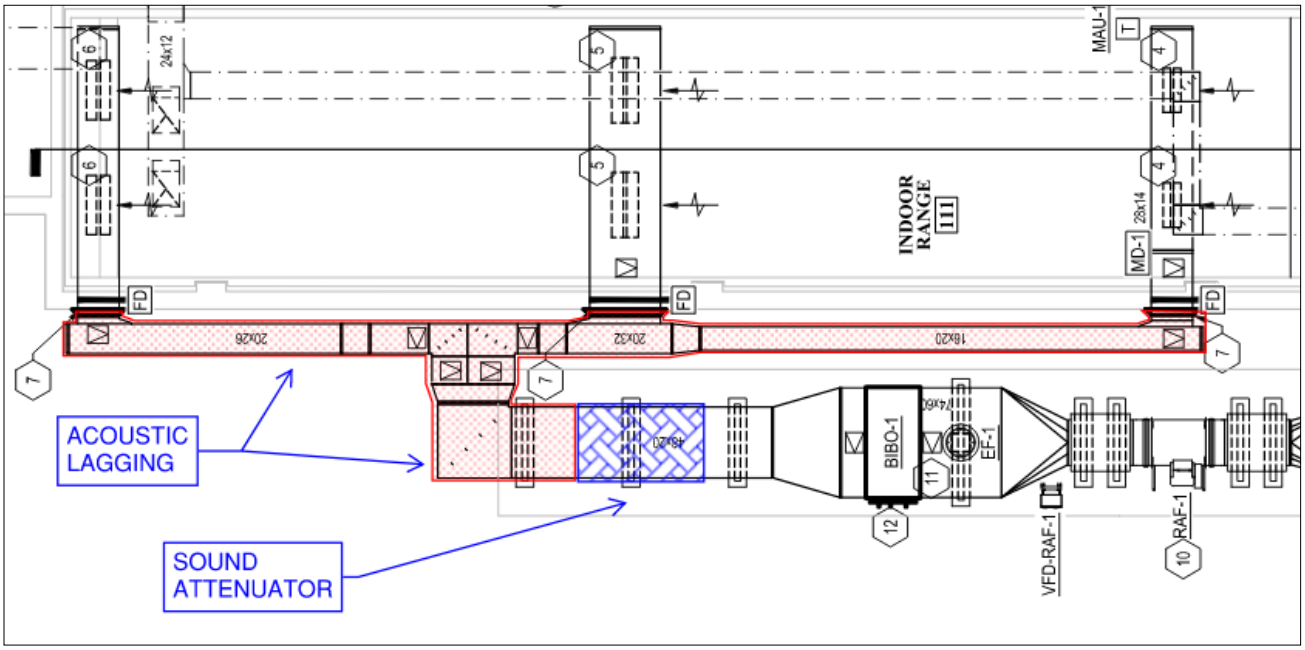
RECOMMENDATIONS

Jaffe Holden's recommendations are as follows:

- Completely seal all penetrations of ductwork present on the interior of the building.
    - No rigid contact should occur between duct and scheduled penetration. Gaps between sheet metal duct and the scheduled partition should be stuffed tight with mineral wool type insulation. The gap should then be sealed with a permanently flexible joint sealant.
- Add a composite absorptive and mass-loaded acoustic lagging to the exterior insulated ductwork system as shown in Appendix A, Image 2. Do not remove existing duct insulation.
    - The product BOD will be Kinetics Noise Control Sound Absorber/Noise Barrier Composite system, **KBC-200BQQ**. See appendix A.
- Install a 72" sound attenuator as shown in Appendix A, Image 2. Also see Appendix B.
- If possible, add 1"-thick internal acoustic lining to the return air sheet metal duct that occurs on the interior of the building. This recommendation is optional due to the potential risk of lead contamination.

APPENDIX A

Image 2: Diagram of Acoustic Lagging, Sound Attenuator Location



Acoustic Lagging Specification Items:

- Kinetics Noise Control composite lagging system shall be fully sealed and cover the entirety of exterior duct work up to the specified sound attenuator.
- The acoustic lagging should be installed to the insulated ducts. Do not remove 1”-thick foil faced insulation unless absolutely necessary.
- **KBC200BQQ** variant shall be used.
- The access door at the down-range duct branch shall receive a discrete double layer removable panel with ‘hook and loop’ method of removal for each of the two removable panels.
- This acoustic lagging product is an engineered system provided by KNC. The product is provided manufactured to the appropriate size with some additional instruction and materials for field modifications (minor penetrations).

Table 2: Transmission Loss (dB) Performance for KNC Acoustic Lagging System

	125Hz	*250Hz*	*500Hz*	*1kHz*	*2kHz*	*4kHz*
KBC200BQQ	16	20	30	40	51	55

APPENDIX B

Table 2: Sound Attenuator Performance Data

	63Hz	*125Hz*	*250Hz*	*500Hz*	*1kHz*	*2kHz*	*4kHz*	*8kHz*
Insertion Loss (dB)	5	5	14	26	36	26	20	20
Regenerated Noise	55	50	49	48	48	47	38	37
Pressure Drop = 0.1 in. w.g.								

Sound attenuator specification items:

- Acoustical performance shall be established by ASTM E-477-96 procedures. Dynamic insertion loss, air generated noise and aerodynamic performance test results, both in positive and negative flow, with pressure drop ratings shall be supplied that meets or exceeds requirements established later in this Specification.

- Acceptable Manufacturers:
  - Vibro-Acoustics
    Scarborough, Ontario, Canada M1X 1A2
    416-291-7371 www.vibro-acoustics.com
  - DynaSonics
    Fort Worth, TX 76111
    817-831-9679 www.dynasonics.com/
  - The AeroSonics Corporation
    California, MO 65018

    573-796-4151 www.aerosonics.com/
  - IAC Acoustics, a division of Sound Seal,
    North Aurora, IL
    630-270-1790 www.iacacoustics@soundseal.com

- The sound attenuator should be located per Appendix A, Image 2. The location should be equidistant on both sides from any adjacent elbows, transitions, or equipment in order to maximize performance and reduce regenerated noise and pressure drop.

Please don't hesitate to reach out if clarification or further consultation is desired. Jaffe Holden does expect to conduct a final site visit once the above recommendations have been incorporated. The intent of that evaluation will be to document the improved exterior noise levels.

****

JaffeHolden

August 4, 2020

Brian Humes
JH Architects
bhumes@jharchitects.net

Re: Trumbull Police Department Noise Evaluation
Proposal for Acoustic Consultation Services
Reference JH#P20-7228

Dear Brian,

Jaffe Holden is pleased to submit the following proposal for acoustic consultation services in connection with the Trumbull Police Department project in Trumbull, CT. We understand the department has completed a new firing range that is presenting some noise challenges.

SCOPE OF SERVICES

Our scope includes one site visit to examine the space and the HVAC system, take measurements and recommend a solution. After remediation, we will return for a second site visit to conduct follow-up measurements to ensure compliance.

MEETINGS AND SITE VISITS

This proposal includes the following number of out-of-town consultant-trips for site visits. Please note that a virtual meeting may be substituted for a site visit, pending COVID-19 travel restrictions.

Trips to Trumbull:

	Acoustics
Site Visits	2

*Note: One trip is defined as one consultant attending one round trip.

COMPENSATION

1. **Fees** - Our fixed fees for the above scope of services are as follows: $5,000.
2. **Retainer** – Prior to commencing work, Jaffe Holden shall be paid a retainer equal to 50 percent of the total contract fee. The retainer will be applied to the final project invoice.
3. **Expenses** – Expenses incurred in connection with the project will be billed in addition to our fees at net cost. Reimbursable expenses include printing, mailing, and shipping; rental and shipping of equipment; and travel, including airfare, ground transportation, meals, and lodging.

We are agreeable to executing a contract that you may provide, subject to our review and approval. Otherwise, this proposal, including the attached terms and conditions, shall serve as our contract. Your signature below will indicate your acceptance of this proposal and serve as authorization for us to proceed with the work.

Thank you for asking us to submit our proposal. If you have any questions, please contact me.

Sincerely,

Russ Cooper, Principal
Jaffe Holden

AUTHORIZATION

For: JH Architects

By: _____

Date: 3.5.2020

CONTRACT TERMS AND CONDITIONS

1. **Authorization to Proceed** – Jaffe Holden Acoustics, Inc. (Jaffe Holden) shall not perform services for the client under this agreement until Jaffe Holden receives written authorization to proceed. Any delays or costs caused by the client's failure to provide such notice in a timely manner shall be the sole responsibility of the client.

2. **Validity Period** – This proposal shall be valid for a period of time not to exceed 90 days after the date of issuance of the proposal or contract. Jaffe Holden shall not be obligated to honor a proposal or contract which is not accepted within 90 days after issuance.

3. **Retainer** – Prior to commencing work, Jaffe Holden shall be paid a retainer equal to 50 percent of the total contract fee. The retainer will be applied to the final project invoice.

4. **A COVID-19 Health and Safety Plan** – A plan that conforms with Centers for Disease Control, OSHA, or local equivalent guidelines, shall be in place at any workplace or site visited by Jaffe Holden staff. At a minimum, the plan shall require that areas visited by Jaffe Holden staff have limited occupancy during the visit, that all people in proximity to Jaffe Holden staff wear masks, and that six foot separation be maintained. Should a COVID-19 Health and Safety Plan not be in place, or if there are deficiencies in the implementation of the plan, Jaffe Holden reserves the right not to enter the premises.

5. **Billing and Payments** – Prompt payment for Jaffe Holden's services is a material part of the consideration of this agreement.

   a. Monthly invoices will be submitted by Jaffe Holden in proportion to the work performed during the preceding month. All invoices shall be processed and paid within thirty (30) days of receipt.
   b. Payments shall be in United States funds drawn upon United States banks.
   c. Payment delayed beyond one hundred twenty (120) days' period will be subject to a service charge of 1 ¼ percent per month (15 percent per annum). Jaffe Holden reserves the right to suspend work on the project if any payments are delayed beyond one hundred twenty (120) days' period.
   d. If the Client objects to all or any portion of an invoice, the client shall notify Jaffe Holden in writing within fourteen (14) calendar days of the invoice date, identify the cause of the disagreement, and pay when due that portion of the invoice not in dispute.

6. **Design Responsibility** – Jaffe Holden employees and design consultants are not licensed architects or engineers of any kind. Jaffe Holden does not provide architectural or engineering services nor provide an architect's or engineer's seal on contract documents.

7. **Standard of Care** – Services performed by Jaffe Holden under this agreement will be performed in a manner consistent with the degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances. No other guarantee, express or implied, is made.

8. **Limitation of Liability** – In recognition of the relative risks and benefits of the project to the client and Jaffe Holden, the risks have been allocated such that the client agrees, to the fullest extent permitted by law, to limit the liability of Jaffe Holden, and of Jaffe Holden's consultants, to the client and to the general contractor and its subcontractors, and suppliers, or any other third party, on the project for any and all liability, claims, demands, damages, expenses (including attorneys, expert and administrative fees) (hereinafter "liability") from any cause or causes, so that the total aggregate liability of Jaffe Holden, and its consultants, to all those named shall not exceed $50,000, or Jaffe Holden's total fee for services rendered on this project, whichever is greater. This limitation of liability includes, but is not limited to allegations of negligence, indemnity, breach of contract, strict liability, or warranty or any other claim or cause of action.

9. **Insurance** – Jaffe Holden will, at its sole cost and expenses, throughout the performance of its services pursuant to this agreement, maintain the following insurance coverage. Costs associated with insurance coverages over and above those listed below shall be born in their entirety by the client:

    a. Commercial General Liability Insurance: Two million dollars ($2,000,000) per occurrence and four million dollars ($4,000,000) general aggregate.
    b. Umbrella Liability: Five Million ($5,000,000), cannot be applied to Professional Liability Insurance.
    c. Commercial Automobile Liability Insurance: One million dollars ($1,000,000) per occurrence.
    d. Worker's Compensation Insurance: As required by applicable Connecticut state law.
    e. Employer's Liability Insurance: One million dollars ($1,000,000) per occurrence.
    f. Professional Liability Insurance: Five million dollars ($5,000,000) per occurrence and five million dollars ($5,000,000) general aggregate, for a period of at least three (3) years after completion.

10. **Indemnification** – To the fullest extent permitted by law, client hereby agrees to defend, indemnify, and hold harmless Jaffe Holden and its clients, employees, and agents (hereinafter "Jaffe Holden Parties") from and against any and all claims arising out of or caused by the negligence or intentional acts of client, general contractors, sub-contractors, material suppliers or any third party. However, the client has no obligation to defend, indemnify, or hold harmless Jaffe Holden Parties in the event that the claim was caused by the sole negligence or intentional acts of Jaffe Holden.

11. **Suspension** – Upon written notice to Jaffe Holden, the client may suspend Jaffe Holden's work. The client shall compensate Jaffe Holden for all services including reimbursable expenses performed prior to the receipt of the written notice. Should the work be resumed more than six months from the date of suspension, the estimated cost of the work shall be re-negotiated. Jaffe Holden will not be responsible for any damages claimed by the client or owner including delay or any other consequential damages arising out of Jaffe Holden's invoking suspension of its services due to said lack of payment.

12. **Contract Termination** – Should the project be abandoned or should the client elect to terminate Jaffe Holden services for other reasons prior to Jaffe Holden's completion of the work, Jaffe Holden shall be paid for services performed including reimbursable expenses up to the date of Jaffe Holden's receipt of the notice of termination. Such compensation shall be in proportion to work performed. Either the client or Jaffe Holden can terminate this agreement, without cause, upon ten (10) days written notice to the other party.

13. **Dispute Resolution** – All claims, disputes and other matters in question arising out of, or relating to, this agreement, or the breach thereof, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining unless the parties mutually agree otherwise. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law.
    a. Notice of the demand for arbitration shall be filed in writing with the other party to this Agreement and with the American Arbitration Association. The demand shall be made within a reasonable time after the claim, dispute, or another matter in question has arisen. In no event shall the demand for arbitration be made after the date when the institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.
    b. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.
14. **Non-Relative Litigation** – If there is any litigation between the design team and client which does not involve the work of Jaffe Holden, compensation to Jaffe Holden will not be withheld for work completed and all invoices rendered by Jaffe Holden in accordance with this contract will be paid accordingly.
15. **Attorney's Fees** – In the event of any litigation arising from or related to the services provided under this agreement, the prevailing party shall be entitled to recovery of all reasonable costs incurred, including staff time, court costs, reasonable attorney and expert fees and other litigation-related expenses.

* * *

KINETICS®

Sound Absorber/Noise Barrier Composites
Model KBC

Description

Kinetics KBC Sound Absorber/Noise Barrier Composites are thin, rugged, high-performing, flexible acoustical quilt and vinyl composites designed to solve noise control applications where sound absorption and sound blocking must be increased. KBC composites are available with 0.50, 1.0, or 2.0 psf (2.5, 4.9 or 9.8 kg/m^2) mass loaded vinyl barriers with a quilted aluminum cloth faced fiberglass absorber on one or both sides of the barrier.

KBC-50RBQ and 100RBQ are used when a noise source is located on one side of the acoustical material. Sound originating from the source is initially absorbed by the quilted fiberglass and then blocked by the vinyl barrier. The reflected sound waves are further dissipated by the fiberglass absorber.

KBC-50BQQ, 100BQQ, and 200BQQ perform in the same manner except that they are designed to absorb sound on both sides of the composite, with one side acting as a decoupling layer.

Kinetics KBC Composites can be installed free hanging or attached directly to a noise-radiating surface.KBC-50BQQ, 100BQQ, and 200BQQ are ideal as an internal lining on any rigid structure that requires significant transmission loss improvement. In this manner, the limp mass vinyl barrier is decoupled from the structure by the fiberglass absorber which allows the barrier to vibrate freely thus increasing sound transmission loss performance.

Application

KBC Sound Absorber/Noise Barrier Composites are ideal for many diverse industrial and OEM applications where both reverberation control and sound transmission loss are required. Industrial applications include enclosures, machinery cover linings, and additions to existing walls or barriers. Architectural applications include crosstalk barriers, room dividers, ceiling barriers, and pipe and duct wrap.

Specification

Sound Absorber/Noise Barrier composites shall be of the description and acoustical data listed in this brochure. Absorber/Barrier composites shall be model KBC by Kinetics Noise Control.

Sound Transmission Loss (dB)

ASTM E90-90

Product	Weight		Frequency (Hz)						
	lb/ft²	kg/m²	125	250	500	1000	2000	4000	STC*
KBC-50RBQ	0.7	3.4	6	12	17	27	38	46	23
KBC-100RBQ	1.3	6.4	10	16	22	30	42	49	27
KBC-50BQQ	1.0	4.9	7	12	18	31	46	50	24
KBC-100BQQ	1.5	7.4	11	16	28	41	50	53	29
KBC-200BQQ	2.5	12.5	16	20	30	40	51	55	33

*Per ASTM designation E413-87

Absorption Characteristics

Product	Octave Band Frequency (Hz)						
	125	250	500	1000	2000	4000	NRC
Q - 1" Quilt	0.12	0.47	0.85	0.84	0.64	0.62	0.70
Q2 - 2" Quilt	0.08	0.33	0.79	1.02	1.04	1.02	0.80

Product Types

KBC-50RBQ 0.50 psf (2.5 kg/m²) Limp Barrier Material, reinforced with a fiberglass screen, loaded with barium sulphate, with a quilted faced fiberglass absorber on one side. The barrier and absorber are silver in color. Available in 54" x 25' (1.37m x 7.62m) rolls. Nominal thickness 1" (25mm).

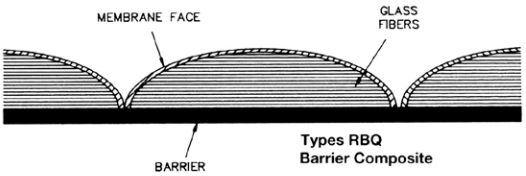
KBC-100RBQ 1.0 psf (4.9 kg/m²) Limp Barrier Material, reinforced with a fiberglass screen, loaded with barium sulphate, with a quilted faced fiberglass absorber on one side. The barrier and absorber are silver in color. Available in 54" x 25' (1.37m x 7.62m) rolls. Nominal thickness 1" (25mm).

KBC-50BQQ 0.50 psf (2.5 kg/m²) Limp Barrier Material, loaded with barium sulphate with a quilted faced fiberglass absorber on both sides. The absorber is silver in color. Available in 48" x 25' (1.22m x 7.62m) rolls. Nominal thickness 2" (51 mm).

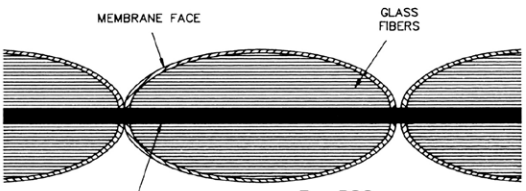
Vinyls and fiberglass facings are available in other colors. Consult Kinetics Noise Control for availability.

KBC-100BQQ 1.0 psf (4.9 kg/m²) Limp Barrier Material, loaded with barium sulphate, with a quilted faced fiberglass absorber on both sides. The absorber is silver in color. Available in 48" x 25' (1.22m x 7.62m) rolls. Nominal thickness 2" (51 mm).

KBC-200BQQ 2.0 psf (9.8 kg/m²) Limp Barrier Material, loaded with barium sulphate, with a quilted faced fiberglass absorber on both sides. The absorber is silver in color. Available in 48" x 12.5' (1.22m x 7.62m) rolls. Nominal thickness 2" (51 mm).



Types RBQ
Barrier Composite



Type BQQ
Barrier Composite

KINETICS Noise Control®

kineticsnoise.com
sales@kineticsnoise.com
1-800-959-1229

Bismark Construction Co Inc
100 BRIDGEPORT AVENUE
Milford, Connecticut 06460
P: (203) 876-8331

Project: 2046 - Trumbull Police Department Interior Renovations
158 Edison Road
Trumbull, Connecticut 06611
P: 203-876-8331
F: 203-876-8425

CHANGE EVENT #031 - Acoustical Modifications at Firing Range Duct Work

Origin:			
Date Created:	9/10/2020	**Created By:**	John Zsoldos
Status:	Pending	**Scope:**	TBD
Type:	Construction Contingency	**Change Reason:**	

Description:

Per recommendation of Acoustic Engineer - add sound lag acoustical blanket to outside duct work. Provide a sound trap (duct silencer) in the exhaust duct prior to filter rack. Note - the mechanical contractor does not recommend the sound trap as it is possible for lead particles to become lodged in the silencer.

We have separated out both of the above options in case you opt out of either one.

Filling around the duct work with mineral wool and sealing the penetrations is contract work and will be handled without additional cost.

SOUND LAG MATERIAL AND INSTALLATION

$32,450 - Cost for Sound Lag Insulation
$2,000 - Labor - 16 Man Hours @ 125/hr

$34,450 - Subtotal
$5167.50 - R&R Mechanical Profit and Overhead

$39,617.50 - Total for Sound Lag Insulation & Installation

EXTERIOR SOUND ATTENUATOR MATERIAL AND INSTALLATION

$1200 - Exterior Sound Attenuator
$800 - Duct Transitions
$2000 - Labor - 16 Man Hours @ $125/hr

$4000 - Subtotal
$600 - R&R Mechanical Profit and Overhead

$4600 - Total for Sound Attenuator Material and Installation

$44,217.50 - Total for Both
$3,040 - Site Supervision 32 Man Hours @ $95/hr (It will only be 16 hours of Supervision if one or the other is selected)

$47,257.50 - Subtotal
$4,725.75 - 10% Profit and Overhead (Subject to change if one option or the other is selected)
$945.15 - PPE/COVID Conditions (2% of Subtotal, Subject to change depending on option selected)

$52,928.40 - Grand Total

Attachments:

CHANGE EVENT LINE ITEMS

			Revenue			Cost					
Cost Code	**Cost Type**	**Vendor / Contract**	**ROM**	**Prime PCO**	**Latest Price**	**ROM**	**RFQ**	**Commit.**	**Latest Cost**	**Over/ Under**	**Budget Mod.**
			$0.00		$0.00	$0.00			$0.00	$0.00	
Grand Totals			**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**

Renovations - Trumbull Police Department

Outstanding Items as of 9/14/2020

Item	Responsible Party	Status/ Targeted Completion Date
Commissioning Items	Kohler Ronen	*Inspection conducted 7/22/2020:* *Additional work TBD*
Range modifications, per KR inspection • Ductwork corrections • Acoustic applications, etc.	• Bismark Construction • TBD	• *Pending* • *Pending*
Finish wall panels at Firing Range	Trumbull DPW	*Pending*
Remediation of HVAC for firing range • Plantings at property line • Fence at property line • Fence enclosure	Trumbull DPW • DPW • DPW • DPW	*In progress* • *Completed 7/17/2020* • *Completed 7/30/2020* • *Pending*
Range: redesigned door will not close	Bismark Construction	*Pending*
Men's Locker Room: add Emergency lighting	Bismark Construction	*Pending*
Exhaust system in three cells	Trumbull DPW/ AB Mechanical	*Completed 6/22/2020*
Complete modifications to Male Shower drains	Bismark Construction	*Completed 6/23/2020*
Repair locker boot drawer pulls	Bismark Construction	*Completed 6/23/2020*
Electrical: Complete outlet at one men's locker	Bismark Construction	*Completed 7/8/2020*
Electrical: dimming on one set Range fixtures	Bismark Construction	*Completed 7/9/2020*
Electrical: Complete lighting installations at Evidence Storage Room (change order)	Bismark Construction	*Completed 7/9/2020*
Table top for Firing Range	DeClercq Office Group	*Completed 7/10/2020*
Plaque, mount in lobby	Bismark Construction	*Completed 7/17/2020*
Provide O&M manuals and closeout documents	Bismark Construction	*Completed 8/11/2020*
Provide project warrantee documents	Bismark Construction	*Completed 8/11/2020*

JACUNSKI HUMES
ARCHITECTS, LLC

Rcvd 8/26/2020

August 24, 2020

Invoice No. 20244

Mr. Glenn C. Byrnes
Assistant Chief of Police
Trumbull Police Department
158 Edison Road
Trumbull, CT 06611

Re: Interior Renovations
Trumbull Police Department
158 Edison Road
Trumbull, CT
JH1828

INVOICE FOR ADDITIONAL SERVICES RENDERED TO DATE

Additional Mechanical / Electrical Engineering Services - Commissioning

Kohler Ronan, LLC, per attached Invoice dated 07/31/2020	$600.00
Total Now Due	**$600.00**

Please make check payable to: **Jacunski Humes Architects, LLC**

INV TRUMBULI.02A8

15 MASSIRIO DRIVE SUITE 101 BERLIN, CONNECTICUT 06037 FAX 860 828-9223 TEL 860 828-9221

KOHLER RONAN, LLC
CONSULTING ENGINEERS

INVOICE

No. 18080.2-3

07/31/2020

171 Madison Ave
8th Floor
New York, NY 10016
(212) 695-2422

93 Lake Avenue
Suite 301
Danbury, CT 06810
(203) 778-1017

Jacunski Humes Architects, LLC
15 Massirio Drive
Suite 101
Berlin, CT 06037

Trumbull Police Department Renovations - Commissioning Services

18080.2

For Services Rendered Through 7/31/2020

Professional Services

	Contract Amount	Previously Billed	% Complete	Invoice Amount
Commissioning Services	$5,800.00	$5,200.00	100.00%	$600.00
Total Professional Services	**$5,800.00**	**$5,200.00**		**$600.00**
Invoice Amount				**$600.00**

Please make check payable to:
Kohler Ronan LLC
93 Lake Avenue Suite 301
Danbury, CT 06810

Prior Billing Information

Project	Invoice No.	Invoice Date	Invoice Amount	Received	Balance