

LINCOLN STREET PARKING GARAGE REHABILITATION ADDITIONAL WORK

PURPOSE:

CAUSES AND COSTS OF GARAGE ADDITIONAL WORK

OWNER:

**CITY OF
AUBURN**

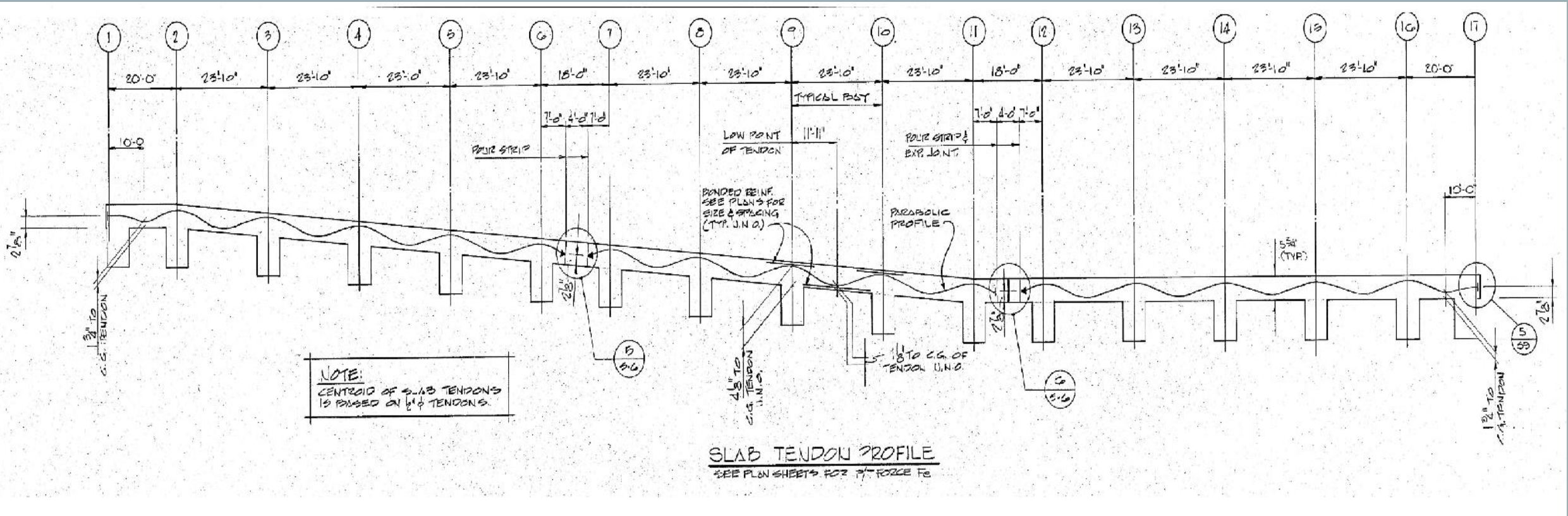
ENGINEER:

**POPLI DESIGN
GROUP
PENFIELD, NY**

CONTRACTOR:

**CRANE-HOGAN
STRUCTURAL
SYSTEMS INC.
SPENCERPORT, NY**

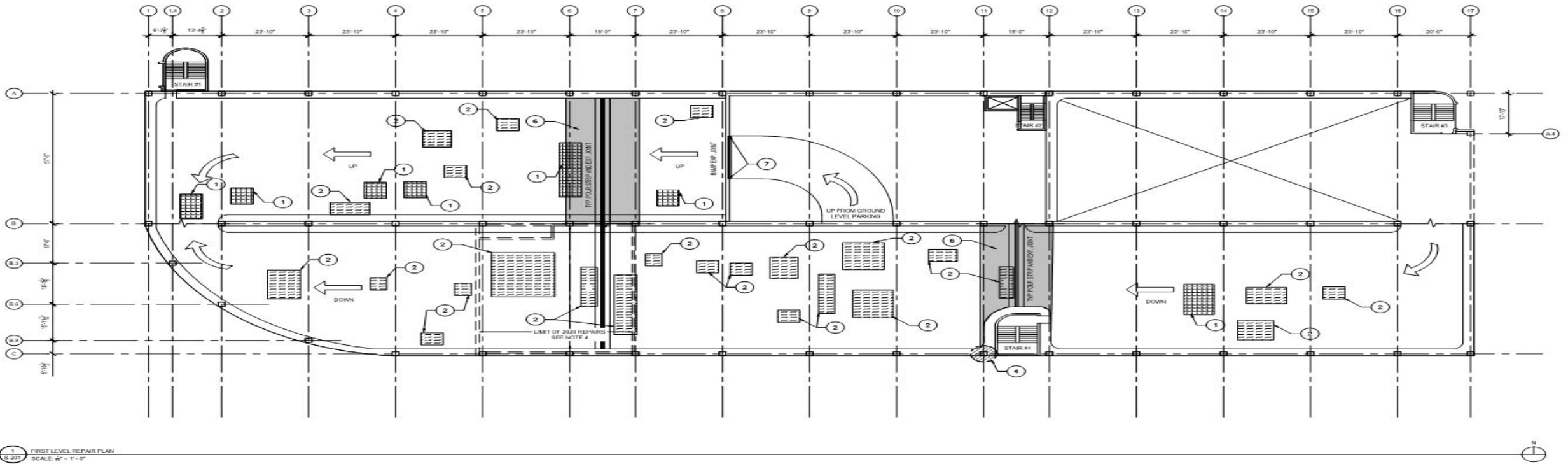
TYPICAL SLAB TENDON LAYOUT



HOW THE GARAGE IS PUT TOGETHER:

SLAB TENDONS ARE THE HEART OF THE STRUCTURAL INTEGRITY OF THIS BUILDING

FEBRUARY 2021 FLOOR INSPECTION



FEBRUARY 2021 A VISUAL INSPECTION WAS PERFORMED:

1. INSPECTION OF JOINTS

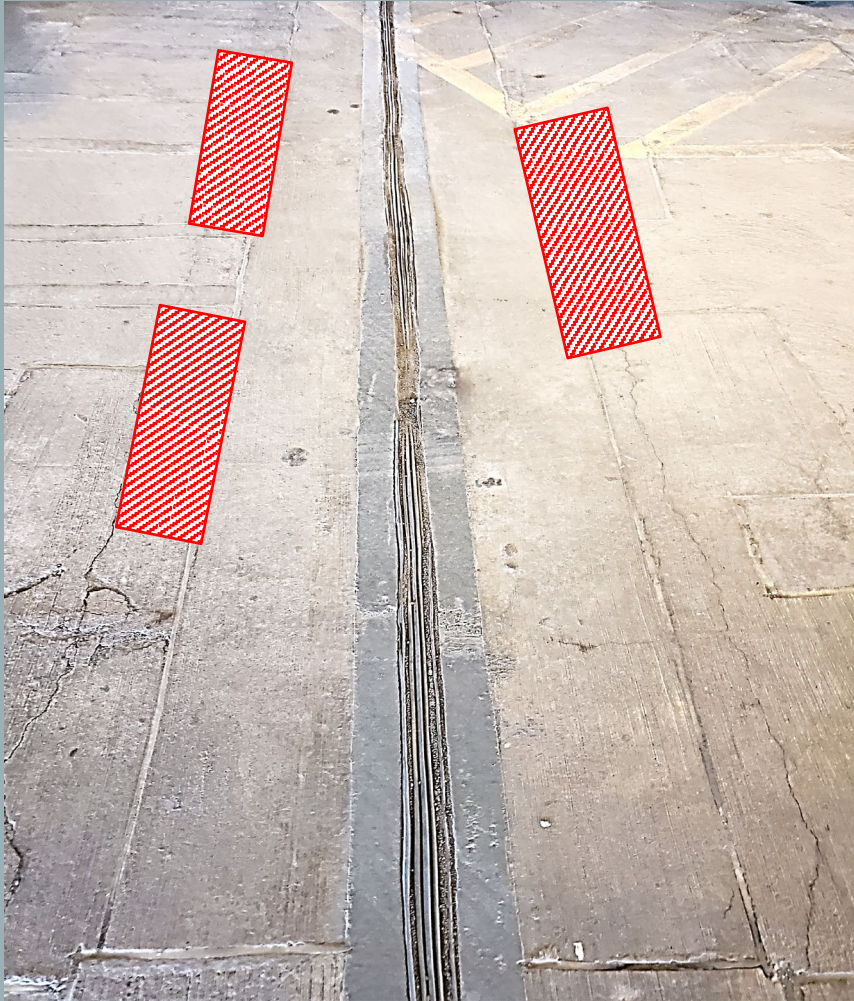
2. SOUNDING OF SLAB TO LOCATE DELAMINATED CONCRETE

3. REVIEW OF PREVIOUS CONSTRUCTION WORK

TOP SIDE OF EXPANSION JOINT PRE-CONSTRUCTION

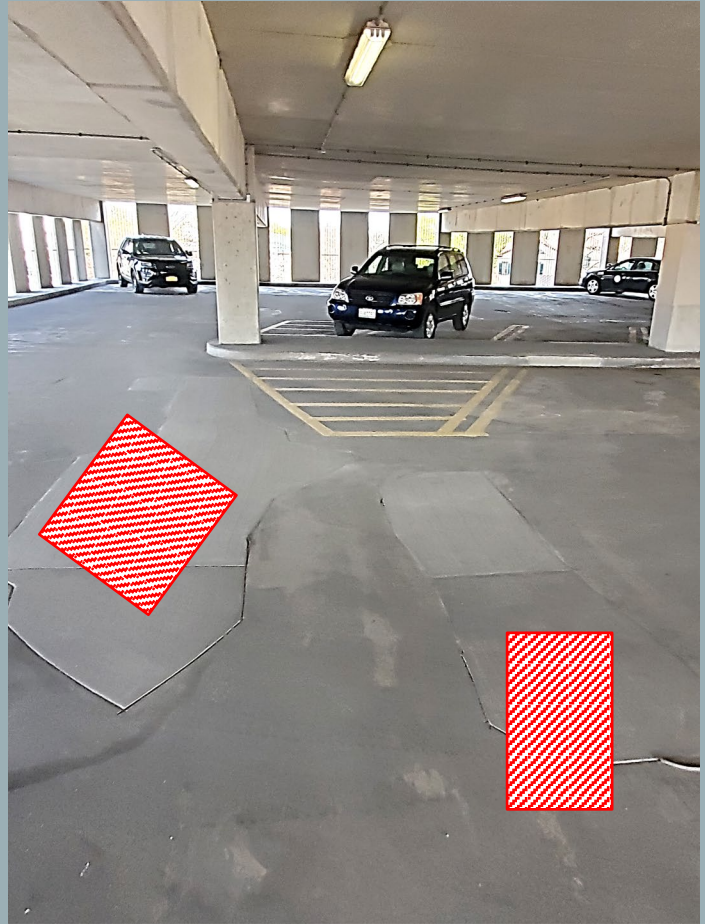
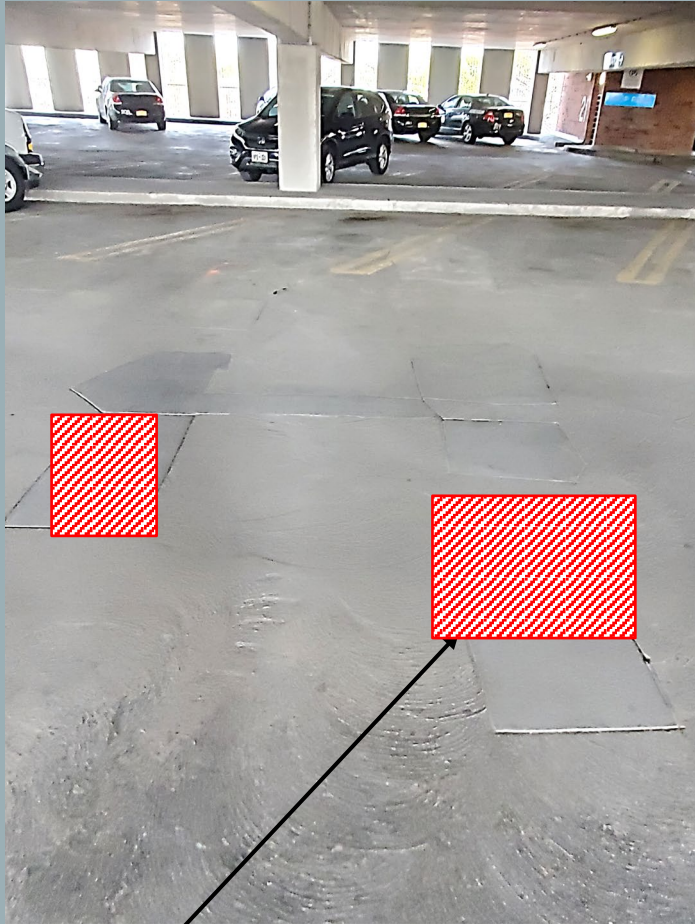
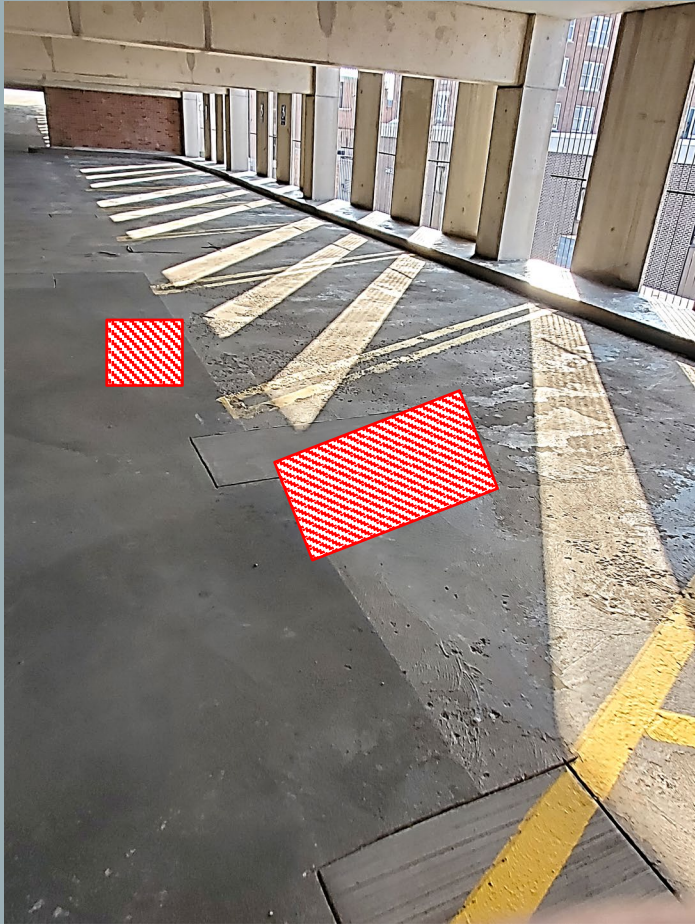


**DELAMINATED
CONCRETE (TYP.)
DETERMINED BY
NON-DESTRUCTIVE
TESTING**



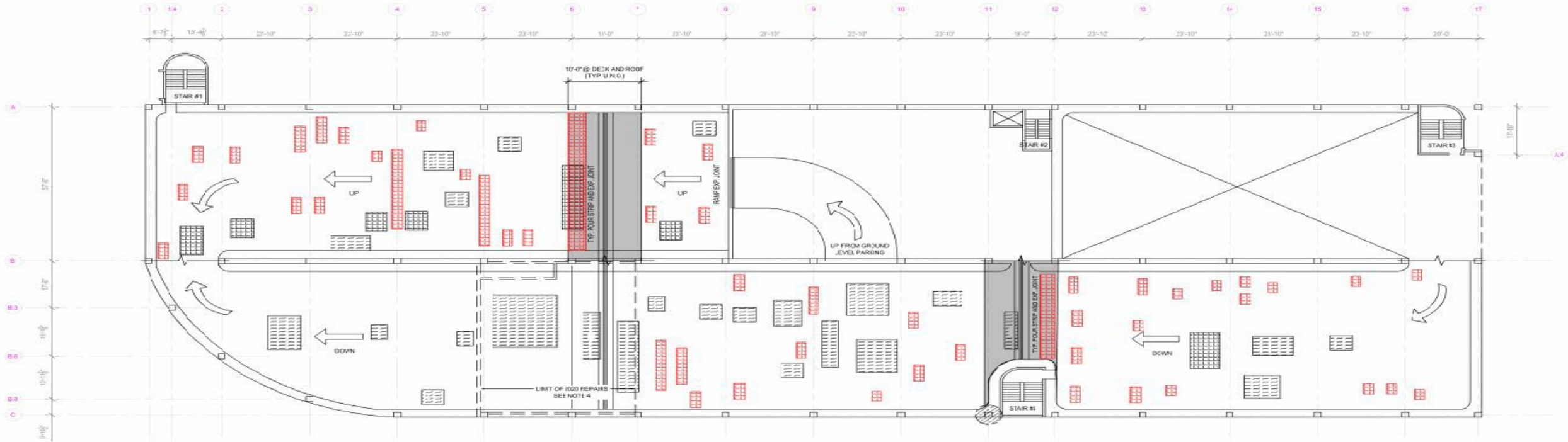
DELAMINATED CONCRETE NOTED DURING INSPECTION AT EXPANSION JOINTS

EXISTING TOP OF SLAB CONDITION



**DELAMINTATED CONCRETE (TYP.)
DETERMINED BY NON-DESTRUCTIVE TESTING**

MARCH 15, 2022 FLOOR INSPECTION



NOTE: ADDITIONAL AREAS FOUND BY THE LATEST INSPECTION ARE DEPICTED IN RED

1 FIRST LEVEL REPAIR PLAN
5-2021 SCALE: 1/4" = 1'-0"



MARCH 15, 2022 A VISUAL INSPECTION WAS PERFORMED:

1. INSPECTION OF JOINTS

2. SOUNDING OF SLAB TO LOCATE DELAMINATED CONCRETE

TOP SIDE OF SLAB REPAIR – SHALLOW DEPTH DURING CONSTRUCTION



- **MORE WATER INFILTRATED SLAB**
- **MORE CORROSION OF REINFORCING**
- **MORE CONCRETE REMOVAL**
- **MORE NEW CONCRETE**
- **MORE CONCRETE REINFORCING**

TENDON REPAIR

12/28/2021 11:22

TOP SIDE OF EXPANSION JOINT DURING CONSTRUCTION

MARCH 2022:

- **ADDITIONAL REINFORCING CORROSION THAN ANTICIPATED:**
 - **MORE CONCRETE EXCAVATION**
 - **MORE TENDON REPAIRS**
 - **MORE CONCRETE REPLACEMENT**

SHORING POST

CONCRETE REMOVAL AND REPLACEMENT

10/ 6/2021 11:12



TOP SIDE OF SLAB REPAIR – FULL DEPTH DURING CONSTRUCTION



- MORE WATER INFILTRATED SLAB
- MORE CORROSION OF REINFORCING
- MORE CONCRETE REMOVAL
- MORE NEW CONCRETE
- MORE CONCRETE REINFORCING
- REPAIR TENDONS

GREASE AND SHEATH TENDON

1/ 6/2022 13:41

COMPLETED ROOF DECK



- **NEW STRIPING**
- **NEW PROTECTIVE DECK MEMBRANE**
- **CONCRETE COLUMN REPAIRS**
- **NEW CONCRETE PLACEMENT**

10/28/2021 12:12

MEMBRANE INSTALLED ON ROOF DECK



- **NEW PROTECTIVE DECK MEMBRANE WILL BE INSTALLED THROUGHOUT THE ENTIRE PARKING GARAGE**
- **WATERPROOFING SYSTEM IS CRUCIAL FOR THE LONGEVITY OF THE PARKING GARAGE**
- **INSTALLATION WARRANTY 10 YEARS**
- **INSTALLATION PROCEDURE:**
 - **POWER WASH EXISTING DECK**
 - **REPAIR EXISTING JOINTS AND CRACKS WITH SEALANT**
 - **INSTALL FLOOR PRIMER**
 - **INSTALL FLOOR INTERMEDIATE COAT**
 - **INSTALL FINISH AGGREGATE TOP COAT**

MAJOR BID ITEMS EFFECTED BY OVER RUNS

- **CONCRETE SLAB REMOVAL**
- **SHALLOW CONCRETE REMOVAL**
- **SHORING**
- **CONCRETE INSTALLATION**
- **CONCRETE REPAIR**
- **TENDON SPLICE**
- **REPLACE ANCHORS**
- **TEMPORARY ANCHORS**
- **SPLICE AND STRESS TENDON JOINT SEALANT**

BIDDING AND COSTS

CONSIDERING THE DEMOLITION OF THE EXISTING PARKING GARAGE WOULD BE APPROX. 2 MILLION DOLLARS AND TO CONSTRUCT A NEW PARKING GARAGE WITH THE SAME CAPACITY WOULD BE AN ADDITIONAL 20 MILLION, IT WAS RECOMMENDED TO REHABILITATE THE EXISTING GARAGE.

ON JUNE 14, 2021, BIDS WERE RECEIVED

- **CRANE-HOGAN STRUCTURAL SYSTEMS INC.**
 - **TOTAL BASE BID WITH ALTERNATES - \$2,155,040.00**
- **LUPINI CONSTRUCTION, INC.**
 - **TOTAL BASE BID WITH ALTERNATES - \$8,105,413.80**

ON JULY 1, 2021, THE CITY COUNCIL AWARDED CRANE-HOGAN STRUCTURAL SYSTEMS INC THE TOTAL BASE BID WITH ALTERNATES OF \$2,155,040.00

BIDDING AND COSTS

- **PROJECT WAS BID AS AN ITEMIZED PROPOSAL**
- **ALL COST OVER RUNS CONTROLLED BY BID ITEMS**
- **BASED ON PRESENT OBSERVATIONS, OPINION OF PROBABLE COST TO COMPLETE IS AS FOLLOWS:**

• **CONSTRUCTION (CRANE-HOGAN) = \$798,000**

• **CONSTRUCTION INSPECTION (POPLI) = \$ 40,000**

ADDITIONAL INSPECTION SERVICES

• **ADDITIONAL FUNDING NEEDED = \$838,000**

ORIGINAL CONTRACT AMOUNT – CRANE-HOGAN \$2,155,040.00

+ PROPOSED CHANGE ORDER #1 \$ 798,000.00

REVISED CONTRACT AMOUNT– CRANE-HOGAN \$2,953,040.00

(37% Increase)

BID ITEM COST BREAKDOWN

CONTINUATION SHEET

AIA DOCUMENT G703

Lincoln Street Parking Garage Rehabilitation Project

ESTIMATE:
PERIOD ENDING:

Budget - Draft 4
03/21/22

NO.	DESCRIPTION OF WORK	QTY	UNIT	UNIT PRICE	SCHEDULED VALUE	TOTAL WORK TO DATE AND PROJECTED WORK TO COMPLETION			PROJECTED WORK REMAINING		PERCENT COMPLETE	BALANCE TO FINISH	RETAINAGE @: 0.00%
						QTY TO DATE	TOTAL QTY	TOTAL AMOUNT	QTY	THIS PERIOD			
BASE BID													
GC WORK													
011200-1	Project Coordinator	1.00	LS	\$ 68,000.00	\$ 68,000.00	1.00	1.00	\$68,000.00	-	\$0.00	100.00%	\$0.00	\$0.00
0121000	Allowance -	1.00	LS	\$ 120,000.00	\$ 120,000.00	0.065	1.000	\$120,000.00	0.935	\$112,200.00	100.00%	\$0.00	\$0.00
015000-1	Temporary Facilities and Controls	1.00	LS	\$ 20,000.00	\$ 20,000.00	1.00	1.00	\$20,000.00	-	\$0.00	100.00%	\$0.00	\$0.00
015000-2	Slab Shoring	20.00	EA	\$ 250.00	\$ 5,000.00	151.00	301.00	\$75,250.00	150.00	\$37,500.00	1505.00%	(\$70,250.00)	\$0.00
015000-3	Engineer's Office	6.00	MO	\$ 1,500.00	\$ 9,000.00	6.00	6.00	\$9,000.00	-	\$0.00	100.00%	\$0.00	\$0.00
015000-4	Special Inspections	1.00	LS	\$ 20,000.00	\$ 20,000.00	1.00	1.00	\$20,000.00	-	\$0.00	100.00%	\$0.00	\$0.00
017113-1	Mobilization and Demobilization	1.00	LS	\$ 71,000.00	\$ 71,000.00	1.00	1.00	\$71,000.00	-	\$0.00	100.00%	\$0.00	\$0.00
CONCRETE REMOVALS													
024119-1	Slab Removal - Full Depth 6"	400.00	SF	\$ 70.00	\$ 28,000.00	677.00	1,176.00	\$82,320.00	499.00	\$34,930.00	294.00%	(\$54,320.00)	\$0.00
024119-3	Slab Removal - Post-Tension Strip 5.5"-7"	400.00	SF	\$ 70.00	\$ 28,000.00	365.00	836.00	\$58,520.00	471.00	\$32,970.00	209.00%	(\$30,520.00)	\$0.00
024119-4	Shallow Removal - Top of Slab/Beam 3"	2,000.00	SF	\$ 55.00	\$ 110,000.00	1,505.00	6,845.00	\$376,475.00	5,340.00	\$293,700.00	342.25%	(\$266,475.00)	\$0.00
024119-5	Shallow Removal - Bottom of Slab 2"-4"	6,800.00	SF	\$ 5.00	\$ 34,000.00	62.00	62.00	\$310.00	-	\$0.00	0.91%	\$33,690.00	\$0.00
024119-6	Shallow Concrete Removal - Beams 2"-4"	300.00	SF	\$ 110.00	\$ 33,000.00	-	0.00	\$0.00	-	\$0.00	0.00%	\$33,000.00	\$0.00
024119-7	Shallow Concrete Removal - Columns 2"-5"	200.00	SF	\$ 90.00	\$ 18,000.00	200.00	200.00	\$18,000.00	-	\$0.00	100.00%	\$0.00	\$0.00
024119-7A	Full Concrete Column Top Removal	4.00	CY	\$ 1,100.00	\$ 4,400.00	1.00	1.00	\$1,100.00	-	\$0.00	25.00%	\$3,300.00	\$0.00
024119-8	Slab Removal - Curb 6"	100.00	SF	\$ 85.00	\$ 8,500.00	139.00	377.00	\$32,045.00	238.00	\$20,230.00	377.00%	(\$23,545.00)	\$0.00
REBAR													
032000-1	ReBar Reinforcing	3,000.00	LB	\$ 11.00	\$ 33,000.00	1,274.00	6,190.00	\$68,090.00	4,916.00	\$54,076.00	206.33%	(\$35,090.00)	\$0.00
032000-2	#5 Bar Weld Splice	800.00	EA	\$ 20.00	\$ 16,000.00	246.00	1,326.00	\$26,520.00	1,080.00	\$21,600.00	165.75%	(\$10,520.00)	\$0.00
033000-1	Normal Height Concrete - 5000 PSI Concrete	50.00	CY	\$ 1,560.00	\$ 78,000.00	18.00	44.00	\$68,640.00	26.00	\$40,560.00	88.00%	\$9,360.00	\$0.00
	Normal Height Concrete - Mortar	-	CY	\$ 5,994.00	\$ -	-	4.50	\$26,973.00	4.50	\$26,973.00	0.00%	(\$26,973.00)	\$0.00
033000-2	Epoxy Doweled Reinforcing	4,000.00	INCH	\$ 2.00	\$ 8,000.00	1,392.00	8,000.00	\$16,000.00	6,608.00	\$13,216.00	200.00%	(\$8,000.00)	\$0.00
POST TENSIONING													
033816-1	Expose, Clean and Coat Slab Post Tensioning	100.00	EA	\$ 240.00	\$ 24,000.00	63.00	168.00	\$40,320.00	105.00	\$25,200.00	168.00%	(\$16,320.00)	\$0.00
033816-2	Splice Slab Tendon	100.00	EA	\$ 480.00	\$ 48,000.00	16.00	45.00	\$21,600.00	29.00	\$13,920.00	45.00%	\$26,400.00	\$0.00
033816-3	Splice and Stress Slab Tendon	100.00	EA	\$ 840.00	\$ 84,000.00	75.00	194.00	\$162,960.00	119.00	\$99,960.00	194.00%	(\$78,960.00)	\$0.00
033816-4	Replace Anchor and Stress Slab Tendon	100.00	EA	\$ 840.00	\$ 84,000.00	71.00	177.00	\$148,680.00	106.00	\$89,040.00	177.00%	(\$64,680.00)	\$0.00
033816-5	Grease and Sheath Post-Tension Strand	100.00	EA	\$ 50.00	\$ 5,000.00	264.00	514.00	\$25,700.00	250.00	\$12,500.00	514.00%	(\$20,700.00)	\$0.00
033816-6	Temporary Anchor	100.00	EA	\$ 300.00	\$ 30,000.00	58.00	163.00	\$48,900.00	105.00	\$31,500.00	163.00%	(\$18,900.00)	\$0.00
033816-7	Additional Tendon Strand	1,000.00	LF	\$ 6.00	\$ 6,000.00	153.00	435.00	\$2,610.00	282.00	\$1,692.00	43.50%	\$3,390.00	\$0.00
CONCRETE REPLACEMENT													
037300-1	Overhead and Vertical Concrete Rehabilitation <4"	4,000.00	SF	\$ 20.00	\$ 80,000.00	262.00	262.00	\$5,240.00	-	\$0.00	6.55%	\$74,760.00	\$0.00
037300-2	Horizontal Concrete Rehabilitation - Concrete	2,000.00	SF	\$ 30.00	\$ 60,000.00	1,505.00	5,373.00	\$161,190.00	3,868.00	\$116,040.00	268.65%	(\$101,190.00)	\$0.00
	Horizontal Concrete Rehabilitation - Mortar	-		\$ 45.00			1,472.00	\$66,240.00	1,472.00		0.00%	(\$66,240.00)	\$0.00
037300-3	Rout and Seal Existing Cracks	1,000.00	LF	\$ 12.00	\$ 12,000.00	447.00	3,000.00	\$36,000.00	2,553.00	\$30,636.00	300.00%	(\$24,000.00)	\$0.00
037300-4	Existing Rebar Cleaning & Coating	5,600.00	LF	\$ 2.00	\$ 11,200.00	1,609.00	5,573.00	\$11,146.00	3,964.00	\$7,928.00	99.52%	\$54.00	\$0.00

BID ITEM COST BREAKDOWN

CONTINUATION SHEET

AIA DOCUMENT G703

Lincoln Street Parking Garage Rehabilitation Project

ESTIMATE:
PERIOD ENDING:

Budget - Draft 4
03/21/22

NO.	DESCRIPTION OF WORK	QTY	UNIT	UNIT PRICE	SCHEDULED VALUE	TOTAL WORK TO DATE AND PROJECTED WORK TO COMPLETION			PROJECTED WORK REMAINING		PERCENT COMPLETE	BALANCE TO FINISH	RETAINAGE @: 0.00%
						QTY TO DATE	TOTAL QTY	TOTAL AMOUNT	QTY	THIS PERIOD			
MASONRY													
042000-1	Remove and Replace Existing 12" CMU	100.00	SF	\$ 85.00	\$ 8,500.00	-	0.00	\$0.00	-	\$0.00	0.00%	\$8,500.00	\$0.00
WATERPROOFING													
071800-1	Traffic Deck Coating - New	6,000.00	SF	\$ 8.00	\$ 48,000.00	0.00	3,700.00	\$29,600.00	3,700.00	\$29,600.00	61.67%	\$18,400.00	\$0.00
071800-2	Traffic Deck Coating - Replacement	2,000.00	SF	\$ 12.00	\$ 24,000.00	0.00	2,000.00	\$24,000.00	2,000.00	\$24,000.00	100.00%	\$0.00	\$0.00
071800-3	Roof Deck Coating - New	1,240.00	SF	\$ 10.00	\$ 12,400.00	1401.00	3,251.00	\$32,510.00	1,850.00	\$18,500.00	262.18%	(\$20,110.00)	\$0.00
071800-4	Roof Deck Coating - Replacement	500.00	SF	\$ 11.00	\$ 5,500.00	489.00	989.00	\$10,879.00	500.00	\$5,500.00	197.80%	(\$5,379.00)	\$0.00
079100-1	Penetrating Sealer	2,000.00	SF	\$ 1.00	\$ 2,000.00	0.00	2,000.00	\$2,000.00	2,000.00	\$2,000.00	100.00%	\$0.00	\$0.00
079200-1	Reseal Existing Joints	600.00	LF	\$ 10.00	\$ 6,000.00	512.00	1,400.00	\$14,000.00	888.00	\$8,880.00	233.33%	(\$8,000.00)	\$0.00
079200-2	New Joint Sealant	1,000.00	LF	\$ 7.00	\$ 7,000.00	0.00	3,700.00	\$25,900.00	3,700.00	\$25,900.00	370.00%	(\$18,900.00)	\$0.00
079513-1	Deck Expansion Joint	300.00	LF	\$ 180.00	\$ 54,000.00	78.00	300.00	\$54,000.00	222.00	\$39,960.00	100.00%	\$0.00	\$0.00
079513-19	Stair and Elevator Expansion Joint	500.00	LF	\$ 225.00	\$ 112,500.00	447.00	447.00	\$100,575.00	-	\$0.00	89.40%	\$11,925.00	\$0.00
079514-2	Deck Compression Seal Removal & Replacement	228.00	LF	\$ 140.00	\$ 31,920.00	0.00	228.00	\$31,920.00	228.00	\$31,920.00	100.00%	\$0.00	\$0.00
STOREFRONT													
096723-1	Stair Repairs	2,100.00	SF	\$ 23.00	\$ 48,300.00	2494.00	2,494.00	\$57,362.00	-	\$0.00	118.76%	(\$9,062.00)	\$0.00
084413-1	Glazed Aluminum curtain Wall at Elevator (NEP Gl)	300.00	SF	\$ 110.00	\$ 33,000.00	0.00	350.00	\$38,500.00	350.00	\$38,500.00	116.67%	(\$5,500.00)	\$0.00
METALS													
055000-1	Miscellaneous Metals	3,000.00	LBS	\$ 5.00	\$ 15,000.00	0.00	3,000.00	\$15,000.00	3,000.00	\$15,000.00	100.00%	\$0.00	\$0.00
SUBTOTAL BASE BID					\$1,564,220.00	\$2,325,075.00			\$1,356,131.00		(\$760,855.00)	\$0.00	
ALTERNATES													
071800-GC-1	Deck Coating Removal and Replacement	74,000.00	SF	\$ 4.40	\$ 325,600.00		74,000.00	\$325,600.00	74,000.00	\$325,600.00	100.00%	\$0.00	\$0.00
071800-GC-2	Roof Coating Removal and Replacement	27,000.00	SF	\$ 5.15	\$ 139,050.00	34,049.00	34,049.00	\$175,352.35	0.00	\$0.00	126.11%	(\$36,302.35)	\$0.00
071800-GC-3	Garage Striping	7,600.00	LF	\$ 1.20	\$ 9,120.00	4,144.00	8,644.00	\$10,372.80	4,500.00	\$5,400.00	113.74%	(\$1,252.80)	\$0.00
040110-GC-4	Brick Cleaning	1,500.00	SF	\$ 5.50	\$ 8,250.00		0.00	\$0.00	0.00	\$0.00	0.00%	\$8,250.00	\$0.00
040120.63-GC-5	Brick Replacement	100.00	SF	\$ 110.00	\$ 11,000.00		0.00	\$0.00	0.00	\$0.00	0.00%	\$11,000.00	\$0.00
084113-GC-6	Door Removal and Replacement at Stair Enclosure	4.00	EA	\$ 9,600.00	\$ 38,400.00		5.00	\$48,000.00	5.00	\$48,000.00	125.00%	(\$9,600.00)	\$0.00
084113-GC-7	Exterior and Interior Window Removal and Replace	900.00	SF	\$ 50.00	\$ 45,000.00		1,050.00	\$52,500.00	1,050.00	\$52,500.00	116.67%	(\$7,500.00)	\$0.00
088000-GC-9	Glazing	200.00	SF	\$ 72.00	\$ 14,400.00		230.00	\$16,560.00	230.00	\$16,560.00	115.00%	(\$2,160.00)	\$0.00
SUBTOTAL ALTERNATIVES					\$590,820.00	\$628,385.15			\$448,060.00		(\$37,565.15)	\$0.00	
TOTAL AMENDED CONTRACT VALUE:					\$2,155,040.00	\$2,953,460.15			\$1,804,191.00		(\$798,420.15)	\$0.00	