266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY

SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

DEMOLITION MEANS AND METHODS – PHASE 1 & 2 EQUIPMENT USE

AT

1568 BROADWAY, NEW YORK, NY

1568 Air Broadway is 45 story building that was constructed around and over a 4 story landmarked theater. 1568 Air Broadway is to be partially demolished.

Phase 1: Demolition from roof to 16th Floor

Phase 2: Demolition from 16th Floor to 1st Floor

I. STRUCTURE CAPACITY AND SURVEY FOR TYPICAL SLABS

A. <u>BASED ON STRUCTURAL DRAWINGS</u>

Full sets of structural plans are available.

The live load capacity for floors 9-43 is 40 PSF.

The live load capacity for EMR and mechanical floors is 100 PSF.

The live load capacity for floors 1-8 is 100 PSF.



Floors 9 through 44 (Roof) are comprised of 8" reinforced concrete two-way flat slabs, supported over shear walls and columns.

Floors 1 through 8 are comprised of concrete slab on metal deck, supported by steel framing.

B. BASED ON SURVEY AND STRUCTURAL INVESTIGATION

Although the area of observation and access were limited, no sign of weakness or damage were noted during the structural assessment walkthrough of the building.

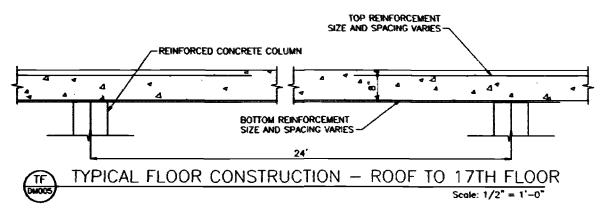
266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

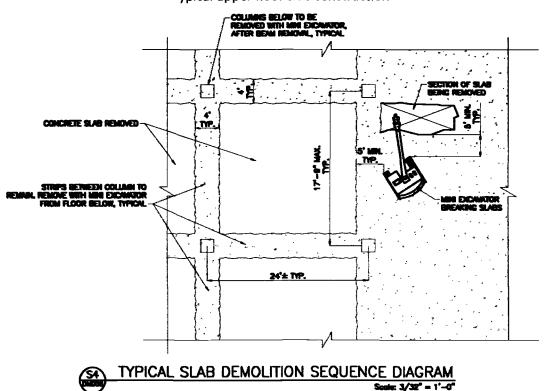
CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

C. Floor construction from structural plans



Typical upper floor slab construction



Typical two-way slab removal diagram as shown on means and methods.

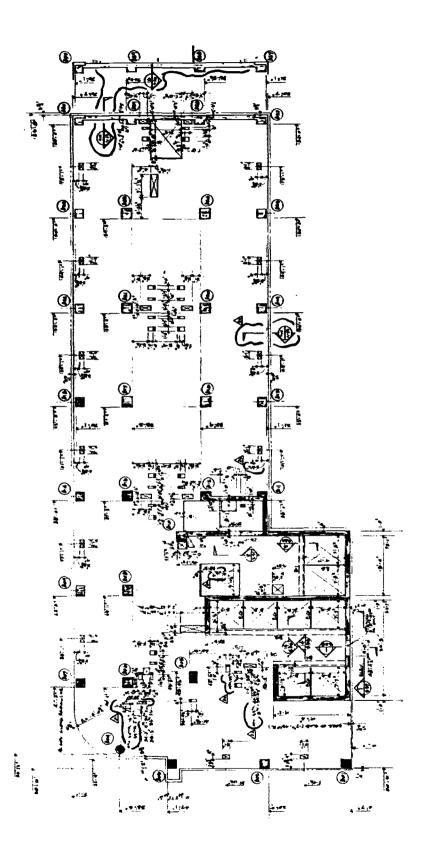
Consulting Engineers, P.C.

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY

SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17



Consulting Engineers, P.C.

266 Merrick Road, Suite 300

Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY

SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

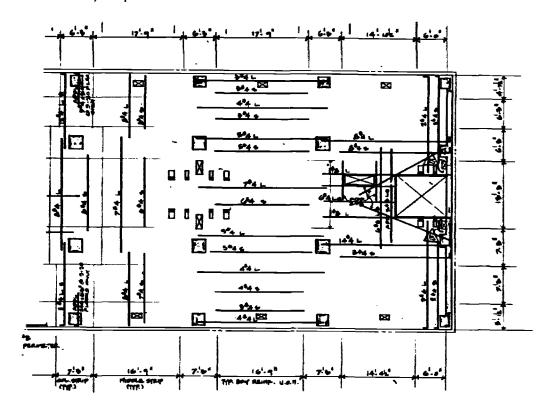
Floor Construction (floors 1 through 8) Concrete slab on 20 Ga Metal Deck

Floor	Conc. Depth (t _c) in.	Concrete Weight	Deck Depth (t _d) in.	Conc. Strength (f'c) psi
1 st	5"	N.W.	3"	4,000
2 nd	4 ½"	N.W.	3"	5,000
3 rd – 6 th	3 ¼"	L.W.	3"	3,000
7 th	5"	N.W.	3"	4,000
8 th	7"	N.W.	3"	4,000

Floors 9 through 44 are 8" N.W. two-way concrete slabs.

Floors 9-16 have 6,000 psi concrete.

Floors 17-44 have 4,000 psi concrete.



9TH-43RD FLOOR PLAN BOTTOM BARS

CONCRETE STRENGTH

FLOORS 17TH - 16TH - 6000PSI FLOORS 17TH - ROOF - 4000PSI

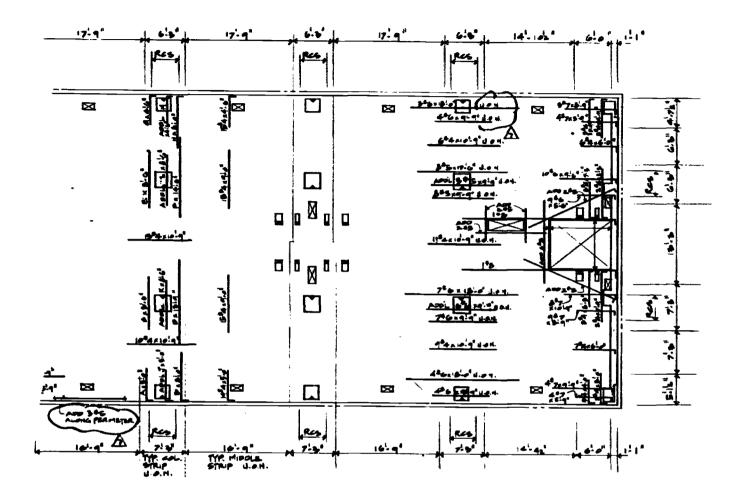
Consulting Engineers, P.C.

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN



REINFORGING SCHEDULE												
FLACE	FLOOR DASIC BARS APPITIONAL BARS							ARS				
1000	^	•	6	9	S.	F	9	•		K	·	М
974- 20TH	338	348	38	48	318	448	248	3 FB	3*8	548	62	318
2174 - 32 NO	247	347	348	3 tB	348	348						
35 RD - 45 RD												

9TH-43RD FLOOR PLAN TOP BARS

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

II. ANALYSIS OF UPPER FLOORS.

A. <u>DEMOLITION EQUIPMENT</u>

					Wheelbase/Track	
Machine type	Operating weight	Capacity	Tipping load	Width	L.	Tire/Track
Catanaillan 22C	Lbs	Lbs	Lbs	in	in	in
Caterpillar 226 Skid steer loader	5,830	1,500	2,710	72	38	12
BOBCAT S160 skid steer loader	6,115	1,600	3,301	66	41	10
BOBCAT 331 mini excavator	7,185			61	61	12.6
BOBCAT 430 mini excavator	8,025	_		68	75	12.6
ТАКЕИСНІ ТВ135	7,831			63	64	14
BROKK 150 demolition robot	3,595			31	33	8
BROKK 180 demolition robot	4,300			44	60	8
Caterpillar 303.5D CR mini excavator	7,800			70	87	12
Caterpillar 303 CR mini excavator	7,835			61	88	12
Caterpillar 303.5C CR mini excavator	8,200			70	88	12
Caterpillar 304E CR mini excavator	8,500			77	76	13
Caterpillar 304D CR mini excavator	8,500			77	76	13
CASE CX31B	7,679			61	61	11.8

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY
SHEET NO _____

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

The heaviest loader is the Bobcat S160 which weighs 9.4 kips if you consider the tipping load.

The heaviest mini-excavator is the CAT 304E which weighs 8.5 kips.

B. ANALYSIS OF STRUCTURE UNDER DEMOLITION

The existing structure will be modeled to evaluate the impact of the equipment, and debris load over the slabs. The critical area of operation is the east portion of the slabs, where the support spacing is at its maximum and the tributary area supporting the loads is largest.

The load cases will be modeled in RISA 3D.

The load cases considered are:

Original building Design loads:

LC1 (Intact Slab): 1.2 Dead Load (100PSF) + 1.6 LL (40PSF)

LC1 will be used as a reference to verify the validity of the modeling and as a comparison benckmark.

Demolition loads:

The first seven load cases will check a 9,000 LB mini-excavator working on floors 9-17 with no debris and a 1.6 Live Load factor.

LC2 to LC6 -Three heavy Mini-Excavators on intact Slab:

1.2 Dead Load (100PSF) + 1.6 Machine Load (9 Kip loader/2 tracks)

LC7 to LC8 -Three heavy Mini-Excavators on partially demolished Slab:

1.2 Dead Load (100PSF) + 1.6 Machine Load (9 Kip loader/2 tracks)

The next eight load cases will check the Bobcat S160 working on floors 9-17 with debris and a 1.6 Live Load factor. The machine is only permitted to operate on these floors if they are shored as shown in the plans.

LC9 to LC16- Three heavy loaders on intact:

1.2 Dead Load (100PSF) + 1.6 Debris Load (60PSF) + 1.6 Machine Load (9.42 Kip loader/2 wheels)

The debris is taken as the dead load of the slab above (100PSF) adjusted by the ratio of the slab demolished (without strips remaining)/ total area:

Typical bay area: 17.75' x 24' = 426 Sq.Ft

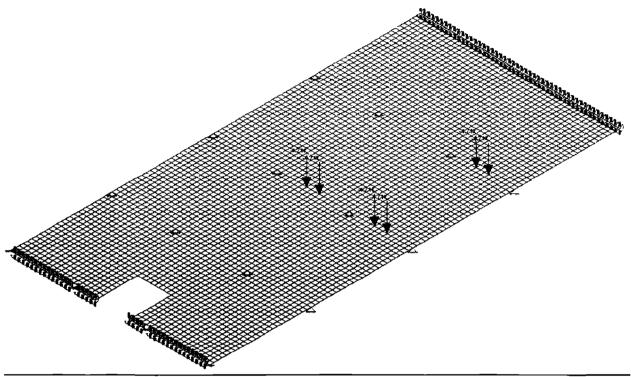
Typical area of strips to remain at each bay: $4' \times (24' + 17.75') = 167 \text{ Sq.Ft}$ Total ratio of slab removal at one time: $(426 - 167) / 426 = 0.607 \approx 60\%$

• Debris load = 100PSF x 0.6 = 60PSF

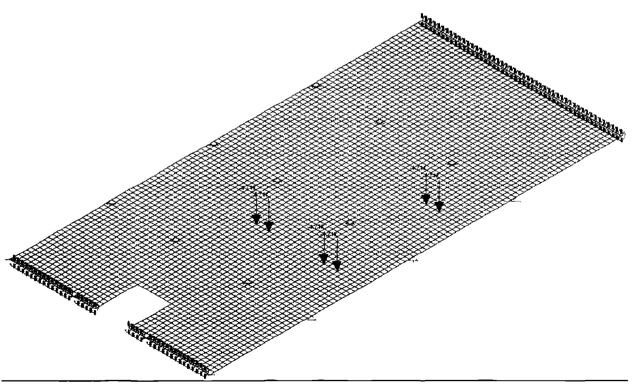
266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17



Machine Loading 1



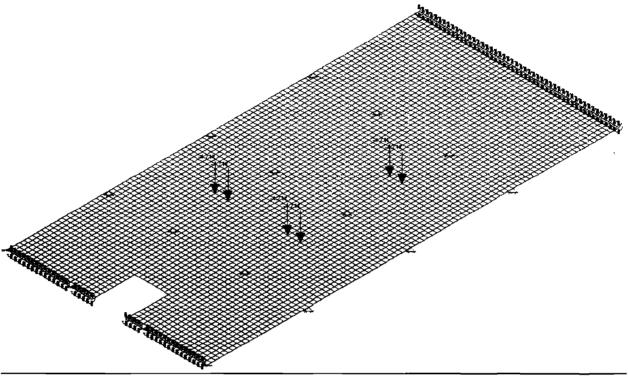
Machine Loading 2

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

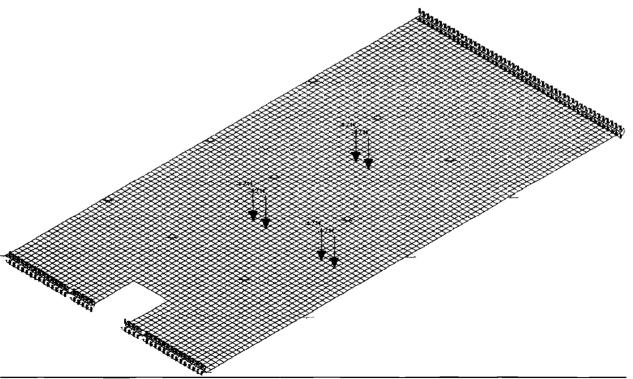
JOB: 1568 BROADWAY

SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17



Machine Loading 3

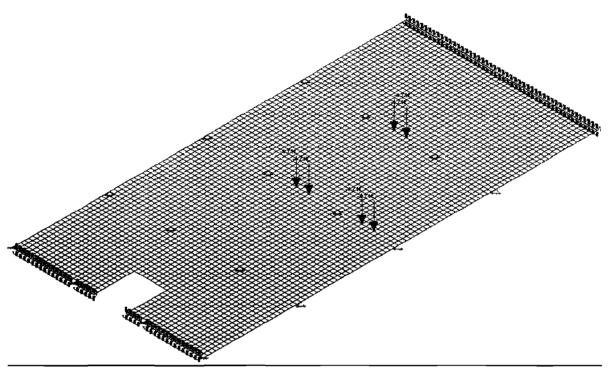


Machine Loading 4

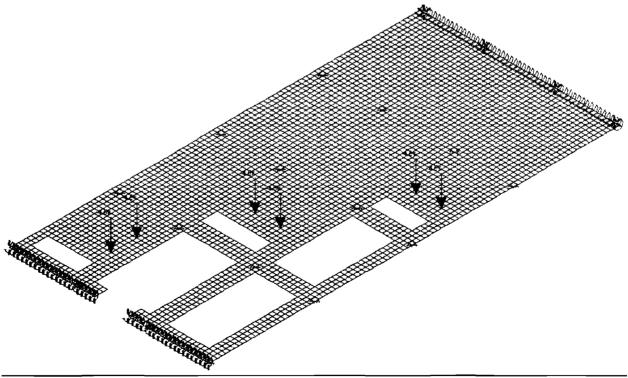
266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17



Machine Loading 5

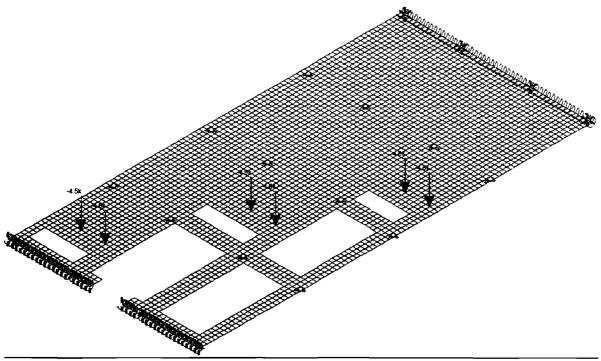


Machine Loading 6

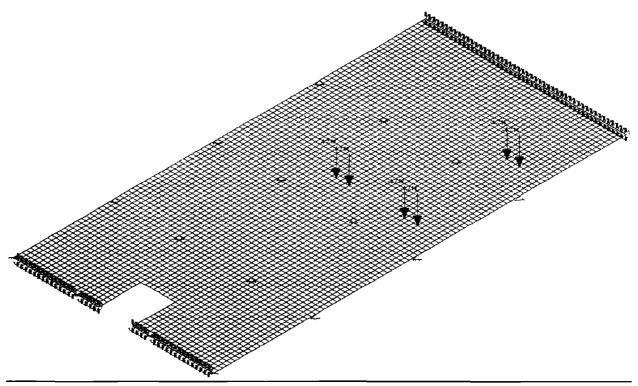
266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17



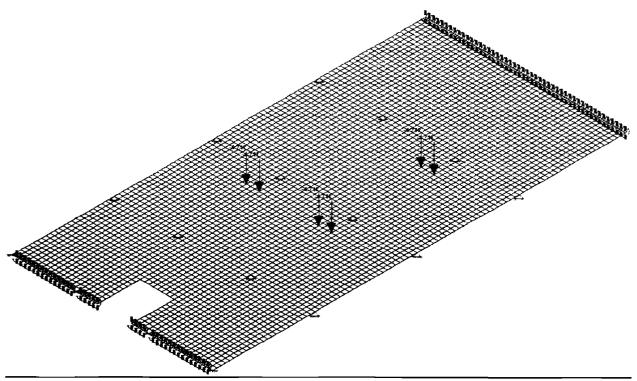
Machine Loading 7



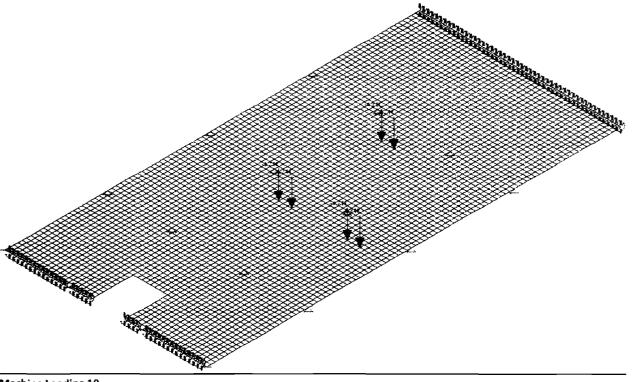
Machine Loading 8

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com **JOB: 1568 BROADWAY** SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17



Machine Loading 9



Consulting Engineers, P.C.

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

SHEET NO _____ RR & AIS _ DATE.

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

JOB: 1568 BROADWAY

The flexural strength for the slab is as follow:

I. Long span direction - Mx:

Compressive strength of concrete at 28 days ≈ 6,000 PSI

POSITIVE BENDING – inner bay

Column strip:

Minimum bottom reinforcement at column strip: (10) #4 on a 6'-3" strip \sim #4 @ 7.5" ϕ Mn = .9 x As x fy x (d-a/2)

As = $0.196 \times 12/7.5 = 0.31 \text{ sq.in/ft}$ a = $0.31 \times 60000 / (0.85 \times 6000 \times 12) = 0.31 \text{ in.}$ $\phi \text{Mn} = 0.9 \times 0.31 \times 60000 \times (8 - .75 - .25 - 0.31/2) = 114585 \text{ #.in} = 114.5 \text{ K.in/ ft at slab strip}$

Demand load in bay: 71 K.in/ft Check

Slab strip:

Minimum bottom reinforcement at slab strip: (13) #4 on a 13'-3" strip ~ #4 @ 12"

As = 0.196 sq.in/ft a = 0.196 x 60000 / (0.85 x 6000 x 12) = 0.192 in. ϕ Mn = 0.9 x 0.196 x 60000 x (8 ~ .75 - .25 - 0.192/2) = 73072 #.in = 73 K.in/ ft at column strip

Demand load in bay LC1: 67.5 K.in/ft Check

POSITIVE BENDING – outer bays

Column strip:

Minimum bottom reinforcement at column strip: (6) #4 on a 4'-7½" strip \sim #4 @ 9" ϕ Mn = .9 x As x fy x (d-a/2)

As = $0.196 \times 12/9 = 0.261 \text{ sq.in/ft}$ a = $0.261 \times 60000 / (0.85 \times 6000 \times 12) = 0.26 \text{ in.}$ $\phi \text{Mn} = 0.9 \times 0.261 \times 60000 \times (8 - .75 - .25 - 0.26/2) = 96825 \text{ #.in} = 96.8 \text{ K.in/ ft} \text{ at slab strip}$

Demand load in bay: 71 K.in/ft Check

Slab strip:

Minimum bottom reinforcement at slab strip: (7) #4 on a 6'-3" strip ~ #4 @ 10"

As = $0.196 \times 12/10 = .235 \text{ sq.in/ft}$ a = $0.235 \times 60000 / (0.85 \times 6000 \times 12) = 0.23 \text{ in.}$ $\phi \text{Mn} = 0.9 \times 0.23 \times 60000 \times (8 - .75 - .25 - 0.23/2) = 85510 \text{ #.in} = 85.5 \text{ K.in/ ft at column strip}$

Demand load in bay LC1: 67.5 K.in/ft Check

266 Merrick Road, Suite 300

Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

NEGATIVE BENDING - inner bay

Column strip:

Minimum top reinforcement at column: (19) #5 on a 6'-3" strip ~ #5 @ 4"

 $As = 0.31 \times 12/4 = 0.93 \text{ sq.in/ft}$ $a = 0.93 \times 60000 / (0.85 \times 6000 \times 12) = 0.91 in.$ Φ Mn = 0.9 x 0.93 x 60000 x (8 - .75 - 5/16 - 0.91/2) = 325551 #.in = 325K.in/ ft at column strip

Demand load in most loaded bay: 261 K.in/ft Check

Slab strip:

Minimum top reinforcement at column: (13) #4 on a 13'-3" strip ~ #4 @ 12"

As = 0.196 sq.in/ft $a = 0.196 \times 60000 / (0.85 \times 6000 \times 12) = 0.192 in.$ ϕ Mn = 0.9 x 0.196 x 60000 x (8 - .75 - .25 - 0.192/2) = 73072 #.in = 73 K.in/ft at slab strip

Demand load in most loaded bay: 72.5 K.in/ft Check

NEGATIVE BENDING – outer bays

Column strip:

Minimum top reinforcement at column: (7) #6 on a 4'-7½" strip ~ #6 @ 8"

 $As = 0.44 \times 12/8 = 0.66 \text{ sq.in/ft}$ $a = 0.66 \times 60000 / (0.85 \times 6000 \times 12) = 0.65 in.$ Φ Mn = 0.9 x 0.65 x 60000 x (8 - .75 - 3/8 - 0.65/2) = 229905 #.in = 230K.in/ ft at column strip

Demand load in most loaded bay: 133.4 K.in/ft Check

Slab strip:

Minimum top reinforcement at column: (6) #4 on a 6'-3" strip ~ #4 @ 12"

As = 0.196 sq.in/ft $a = 0.196 \times 60000 / (0.85 \times 6000 \times 12) = 0.192 in.$ ϕ Mn = 0.9 x 0.196 x 60000 x (8 - .75 - .25 - 0.192/2) = 73072 #.in = 73 K.in/ ft at slab strip

Demand load in most loaded bay: 73.5 K.in/ft Check

Consulting Engineers, P.C.

266 Merrick Road, Suite 300

Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

II. Short span direction - Mx:

Compressive strength of concrete at 28 days = 6,000 PSI

POSITIVE BENDING

Column strip:

Minimum bottom reinforcement at slab strip: (12) #4 on a 6'-3" strip ~ #4 @ 7"

 $As = 0.196 \times 12 / 7 = .336 \text{ sq.in/ft}$

 $a = 0.336 \times 60000 / (0.85 \times 6000 \times 12) = 0.32 in.$

 ϕ Mn = 0.9 x 0.336 x 60000 x (8 - .75 - .25 - 0.32/2) = 124104 #.in = 124.1 K.in/ ft at column strip

Demand load in most loaded bay: 56.8 K.in/ft

Check

Slab strip:

Minimum bottom reinforcement: (13) #4 on a 17'-9" strip ~ #4 @ 15"

 $As = 0.196 \times 12 / 15 = .157 \text{ sq.in/ft}$

 $a = 0.157 \times 60000 / (0.85 \times 6000 \times 12) = 0.154 in.$

 ϕ Mn = 0.9 x 0.157 x 60000 x (8 - .75 - .25 - 0.192/2) = 58680 #.in = 58.6 K.in/ft

Demand load in most loaded bay: 22.5 K.in/ft Check

NEGATIVE BENDING

Column strip:

Minimum top reinforcement at column: (10) #8 on a 6'-3" strip ~ #8 @ 8"

 $As = 0.79 \times 12/8 = 1.2 \text{ sq.in/ft}$

 $a = 1.2 \times 60000 / (0.85 \times 6000 \times 12) = 1.2 in.$

 ϕ Mn = 0.9 x 1.2 x 60000 x (8 - .75 - .5 - 1.2/2) = 398,520 #.in = 398.5K.in/ft

Demand load in most loaded bay: 199 K.in/ft Check

Slab strip:

Minimum top reinforcement at column: (15) #4 on a 16'-9" strip ~ #4 @ 14"

 $As = 0.196 \times 12/14 = .17 \text{ sq.in/ft}$

 $a = 0.17 \times 60000 / (0.85 \times 6000 \times 12) = 0.17 in.$

 ϕ Mn = 0.9 x 0.17 x 60000 x (8 - .75 - .25 - 0.17/2) = 65,775 #.in = 65.5 K.in/ft at slab strip

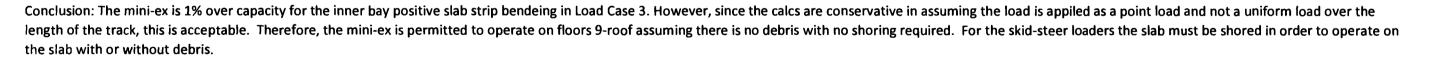
Demand load in most loaded bay: 1.1 K.in/ft Check

The analysis for LC1 (original building loads, 100 PSF DL + 40PSF LL) shows that the modeling done is accurate enough to obtain capacities that are fairly close the member strengths and can be used for comparison with demolition loads.

Howard I Shapiro Associates Consulting Engineers, P.C. Email: AStock@HISAssoc.com Job: 16119.00.00 Address: 1568 Broadway

Engineer: AJS Date: 5/24/2107

				Load Ca	ise				Long span (N	/lx) – K.in/ft				Short span (My) – K.in/ft			
Description	#	Machine	#Mach.	Debris	Formula	Mx+c co Outer Bay	lumns trip Inner Bay	}	lab strip Inner Bay	Mx-c col Outer Bay	umn strip Inner Bay	 	lab strip Inner Bay	My+c columns strip	My+s slab strip	My-c columns strip	My-s slab strip
40 PSF LL	LC1	N/A	N/A	N/A	1.2DL+1.6LL	71.0	71.0	67.0	67.5	133.5	261.0	72.5	72.5	57	22.5	199	1.5
	LC2	Mini	3	NO	1.2DL+1.6 ML1	48.3	46.1	42.2	43.7	153.2	168.8	49.0	46.3	74	21.8	176	4
	LC3	Mini	3	NO	1.2DL+1.6 ML2	68.6	66.8	76.0	73.9	157.6	185.2	51.8	45.7	53	42.6	167	1.3
ļ	LC4	Mini	3	NO	1.2DL+1.6 ML3	45.4	78.1	44.9	56.4	144.7	183.9	45.3	47.2	41	14.1	159	1.2
Mini-Ex with	LC5	Mini	3	NO	1.2DL+1.6 ML4	71.6	67.5	79.0	72.6	136.3	182.0	46.7	48.8	46	38.7	164	5
no debris and	LC6	Mini	3	NO	1.2DL+1.6 ML5	46.3	46.0	43.1	42.1	153.0	168.8	46.7	48.2	66	17.1	174	5.8
no shoring	LC7	Mini	3	NO	1.2DL+1.6 ML6 Partially Demolished	76.2	65.8	58.1	50.2	117.9	150.2	46.2	39.6	39.4	57.9	127.8	0
	LC8	Mini	3	NO	1.2DL+1.6 ML7 Partially Demolished	92.2	76.6	61.6	49.0	124.3	150.2	46.6	39.1	39.6	53.3	129	0
	LC9	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML1	57.1	47.1	40.8	44.1	158.2	191.6	48.4	46.6				
	LC10	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML2	71.7	60.7	73.1	65.0	172.2	189.6	47.9	46.6	Î			
Charad flags	LC11	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML3	59.8	70.9	50.1	48.9	150.7	190.3	46.8	46.4				
Shored floor	LC12	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML4	55.8	59.0	67.5	64.0	128.7	202.6	47.3	46.4]			
with Loader	LC13	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML5	47.0	46.6	43.5	40.5	139.7	189.3	46.9	47.6			-	
and debris	LC14	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML8	54.1	47.5	45.4	44.5	160.3	189.8	52.1	47.1				
	LC15	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML9	59.4	61.8	48.1	42.7	150.3	193.1	46.3	46.0				
	LC16	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML10	51.1	57.1	49.3	53.4	134.5	192.0	47.0	46.5				
	LC9	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML1	71.1	54.8	55.6	44.2	135.1	156.3	49.2	47.3				
lawar flaar	LC10	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML2	87.4	70.6	71.3	52.2	154.6	173.3	46.7	46.7				
Lower floor	LC11	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML3	73.6	71.2	61.4	50.2	135.9	171.1	47.0	46.6				
with no EQ	LC12	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML4	58.8	68.2	53.7	63.9	132.1	175.7	47.3	46.5				
and no	LC13	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML5	47.7	52.1	43.8	50.2	141.4	170.9	47.7	48.3				
Debris, posts	LC14	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML8	65.8	51.6	52.9	44.8	133.4	162.4	53.4	47.8				
only	LC15	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML9	72.6	63.9	59.0	45.6	135.8	162.1	47.5	47.0				
	LC16	Heavy	3	Yes	1.2DL+1.6 DebL+1.6 ML10	52.7	62.9	47.2	58.5	135.7	171.0	47.5	46.8				
			_	-	Slab capacity	96.8	114.5	85.5	73.0	230.0	325.0	73.0	73.0	124	58.6	398.5	65.5
						ОК	OK	ОК	01% Over	ОК	OK	ОК	ОК	ОК	ОК	ОК	OK





Engineer: AJS Date: 5/24/2107

Timber Post Allowable Loads - 4x4

Use 4"x4" Actual Dimension = 3.5" x 3.5" d = 3.5 in 12.25 in² A = F_c = 1350 psi Doug-Fir No. 2 or better $C_D =$ (Impact = 2.0, Cons = 1.25)2.0 C_M = 0.9 wet service condition C, = 1.0 ordinary range of temperature $C_F =$ 1.0 (12/d)^1/9 F*c = F_c C_D C_M C_t C_F F*c = 2430 psi $K_{cE} =$ 8.0 580,000 psi E'min = E' = 1,600,000 psi c = 8.0 A = $[1 + (F_{cE}/F_{c}^{*})]/2c$ B = $(F_{cE}/F_c^*)/c$ A - sqrt(A² - B) C_P = F'c = F*_c C_p

Clear Ht.(ft)	F _{cE} (psi)	F* _c (psi)	Α	В	C _P	F' _c (psi)	P _{ALL (k)}
8.00	617	2430	8.0	0.3	0.24	580	7.1
8.50	546	2430	8.0	0.3	0.21	518	6.3
8.71	520	2430	0.8	0.3	0.20	495	6.1
9.00	487	2430	8.0	0.3	0.19	465	5.7
9.50	437	2430	0.7	0.2	0.17	420	5.1

Applied Load: 5.3 kips Post Length: 8.71 feet

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO ____

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

The shear strength for the slab is as follow:

Face of column strip shear: $\phi V'c = 2\lambda Vf_c*I*d = 0.85*2*1.0*(4000)1/2*(15*12)*8 = 155$ kips Punching shear: $\phi V'p = 4\lambda Vf_c*bo*d = 0.85*4*1.0*(4000)^1/2*(4*20)*8 = 138$ kips

Contributory area for face of column shear: $24' \times 8.83' / 2 = 106 \text{ Sq.ft}$

<u>Critical demand loads for loader operation and 60PSF debris, assuming the machine wheel is at the edge of the column with up one machine each bay:</u>

 $Vuc = (1.2 \times 100PSF + 1.6 \times 60PSF) \times 106 Sq.ft + 1.6 \times 9,416 Lbs = 38.0 kips$

 $< \phi V'c = 155 \text{ kips}$

OK

Vup = 1.6 x 9,416 Lbs / 2 = 7.5 kips $< \phi V'p = 138 \text{ kips}$ OK

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com JOB: 1568 BROADWAY SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

ANALYSIS OF LOWER FLOORS (1-8). III.

Floor Construction (floors 1 through 8) Concrete slab on 20 Ga Metal Deck

Floor	Conc. Depth (t _c) in.	Concrete Weight	Deck Depth (t _d) in.	Conc. Strength (f'c) psi
1 st	5"	N.W.	3"	4,000
2 nd	4 ½"	N.W.	3"	5,000
3 rd - 6 th	3 ¼"	L.W.	3"	3,000
7 th	5"	N.W.	3"	4,000
8 th	7"	N.W.	3"	4,000

DEMOLITION EQUIPMENT (same as above on page 6)

The Bobcat S160 skidsteer load will be used once again as the governing machine.

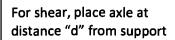
6,115# (base weight) + 3,200# (tipping load) = 9,315# (on 1 axle when tipping) /2wheels = 4,658 #/wheel

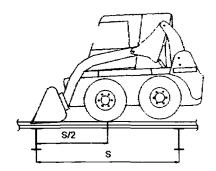
Since some of these slabs and beams will remain, we will utilize the following load cases:

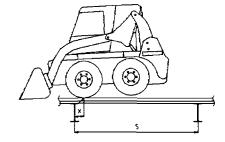
1.2 DL + 1.6 Demolition Live load +1.6 Debris load for the machine load checks

B. **ANALYSIS OF SLABS**

For flexure place axle at center of slab span.







> Engineer: AJS Date: 5/08/2107

1st Floor Slab

Deck Construction

Deck depth (t _d)	in.
Deck gage	
Deck Strength (F _y)	ksi ksi
Deck area (A _s)	in ²
Conc Depth (t _c)	
Total Depth (h)	8 in.
Conc Strength (f'c)	4010 psi
Conc. Area (A _c)	in ²
Reinforcement	
Reinf. Area (A _s)	in ²
Reinf. Cover	in
Reinf. Strength	ksi
Conc Weight	pcf
Conc. DL	78.5
Debris Load	Psf

Positive Bending

<u>Positive Bending</u>		
Φ	187	
a	0.60	in
d	6.5	in
ФМп	129	kip-in
Wheel Width		in
bm	1.7	ft
Span (L)		ft
Machine loc. (X)	5.6	ft
be (calc)	7,3	ft
be_max	5.6	ft
bem	5.6	ft
Machine Width	Andrew Sylven	ft
Spread (flexure)	10.1	ft
Machine Weight	9316	lbs
Mu	102	kip-in

Shear Capacity

Φ	# 75	
λ		
ΦVd	3475	lbs
ФVс	5815	lbs
ΦVd + ΦVc	9235	lbs
$4*A_c*Vf'_c$	15508	lbs
ΦVn	9235	lbs
ΦVn Machine Loc. (x)	9235 0.67	
		ft
Machine Loc. (x)	0.67	ft ft
Machine Loc. (x) be(calc)	0.67	ft ft ft

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4\sqrt{f'_c} A_c$$

$$\emptyset V_c = \emptyset 2 \lambda \sqrt{f'_c} A_c$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2V_{DL} + 1.6V_{Debris} + 1.6V_{EQ}$$

$$V_{DL} = \frac{W_{DL} \times L}{2}$$
 $V_{Debris} = \frac{W_{Debris} \times L}{2}$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

Mu 102 kip-in
$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$
 Check OK

$$b_{m} = b_{2}(wheel\ width) + 2 \times t_{c}$$

$$a = \frac{A_{s}F_{y}}{.85f'_{c}b}$$

$$\emptyset M_{n} = \emptyset A_{s}F_{y}\left(d - \frac{a}{2}\right)$$

$$M_{DL}=rac{W_{DL} imes L^2}{8}$$
 $M_{EQ}=rac{W_{EQ} imes L}{4}$ / Spread $M_{Debris}=rac{W_{Debris} imes L^2}{8}$

$$M_u = 1.2M_{DL} + 1.6M_{Debris} + 1.6M_{EQ}$$

Engineer: AJS Date: 5/04/2107

2nd Floor Slab

Deck Construction

	
Deck depth (t _d)	in.
Deck gage	
Deck Strength (F _y)	ksi 🐰 🗱
Deck area (A _s)	in ²
Conc Depth (t _c)	in.
Total Depth (h)	7.5 in.
Conc Strength (f'c)	statii psi
Conc. Area (A _c)	in ²
Reinforcement	100
Reinf. Area (A _s)	in ²
Reinf. Cover	in
Reinf. Strength	ksi
Conc Weight	pcf
Conc. DL	72.5
Debris Load	Psf

Positive Bending

· ••••		
Φ		
a	0.48	in
d	6	in
ФМп	119.5	kip-in
Wheel Width		in
bm	1.58	ft
Span (L)		ft
Machine loc. (X)	4.6	ft
be (calc)	6.17	ft
be_max	5.34	ft
bem	5.34	ft
Machine Width		ft
Spread (flexure)	10.8	ft
Machine Weight	5616	lbs
Mu	72.1	kip-in
Check	OK	

$$b_m = b_2(wheel width) + 2 \times t_c$$

$$a = \frac{A_s F_y}{.85 f'_c b}$$

$$\emptyset M_n = \emptyset A_s F_y \left(d - \frac{a}{2} \right)$$

Shear Capacity

Φ	0.75	
λ		
ΦVd	3430	lbs
ФVс	5972	lbs
ΦVd + ΦVc	9392	lbs
4*A _c *√f' _c	15924	lbs
ΦVn	9392	lbs
Machine Loc. (x)	0.63	ft
be(calc)	2.17	ft
be check	2.17	ft
Vu	4683	lbs
Check	OK	

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4\sqrt{f'_c} A_c$$

$$\emptyset V_c = \emptyset 2\lambda \sqrt{f'_c} A_c$$

$$\psi v_c = \psi z \lambda \sqrt{\int_{c} A_c}$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2V_{DL} + 1.6V_{Debris} + 1.6V_{EQ}$$

$$V_{DL} = \frac{W_{DL} \times L}{2} \, V_{Debris} = \frac{W_{Debris} \times L}{2}$$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$M_{DL} = \frac{W_{DL} \times L^2}{8}$$

$$M_{Debris} = \frac{W_{Debris} \times L^2}{8}$$
 $M_{EQ} = \frac{W_{EQ} \times L}{4}$ Spread

$$M_u = 1.2M_{DL} + 1.6M_{Debris} + 1.6M_{EQ}$$

Engineer: AJS Date: 5/04/2107

3rd Floor through 6th Floor Slabs

Deck Construction

Deck depth (t _d)	in.
Deck gage	
Deck Strength (F _y)	AL ksi
Deck area (A _s)	in ²
Conc Depth (t _c)	in.
Total Depth (h)	6.25 in.
Conc Strength (f'c)	sade psi
Conc. Area (A _c)	in ²
Reinforcement	
Reinf. Area (A _s)	in ²
Reinf. Cover	in
Reinf. Strength	ksi
Conc Weight	pcf
Conc. DL	45.52083

Positive Bending

Positive Bending		_
Φ		
a	0.797	in
d	4.75	in
ФМп	90	kip-in
Wheel Width		in
bm	1.375	ft
Span (L)		ft
Machine loc. (X)	5.7	ft
be (calc)	7.04	ft
be_max	4.63	ft
bem	4.63	ft
Machine Width		ft
Spread (flexure)	10.8	ft
Machine Weight	**************************************	lbs
Mu	88	kip-in

Shear Capacity

Φ	8.75	
λ	0.85	
ΦVd	3428	lbs
ФVс	3094	lbs
ΦVd + ΦVc	6514	lbs
4*A _c *√f' _c	9706	lbs
ΦVn	6514	lbs
Machine Loc. (x)	0.52	ft
be(calc)	1.87	ft
be check	1.87	ft
Vu	5197	lbs
Check	OK	

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4 \sqrt{f'_c} A_c$$

$$\emptyset V_c = \emptyset 2\lambda \sqrt{f'_c} A_c$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2V_{DL} + 1.6V_{Debris} + 1.6V_{EQ}$$

$$V_{DL} = \frac{W_{DL} \times L}{2} V_{Debris} = \frac{W_{Debris} \times L}{2}$$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

Check OK

$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$a = \frac{A_s F_y}{.85 f'_c b}$$

$$M_{DL} = \frac{W_{DL} \times L^2}{8}$$

$$M_{Debris} = \frac{W_{Debris} \times L^2}{8}$$
 $M_{EQ} = \frac{W_{EQ} \times L}{4}$ / Spread

$$M_u = 1.2 M_{DL} + 1.6 M_{Debris} + 1.6 M_{EQ}$$

$$b_m = b_2(wheel\ width) + 2 \times t_c$$

 $\emptyset M_n = \emptyset A_s F_y \left(d - \frac{a}{2} \right)$

Job: 16119.00.00

Address: 1568 Broadway

Engineer: AJS Date: 5/04/2107

5th Floor Alternate Slab

DI-	~ -			
Deck	Con	stru	ıction	

Deck depth (t _d)	3	in.
Deck gage		
Deck Strength (F _y)		ksi
Deck area (A _s)		in ²
Conc Depth (t _c)		in.
Total Depth (h)	8	in.
Conc Strength (f'c)	19.7(6.11)	psi
Conc. Area (A _c)		in ²
Reinforcement		
Reinf. Area (A _s)		in ²
Reinf. Cover		in
Reinf. Strength		ksi
Conc Weight		pcf
Conc. DL	62.29167	

Positive Bending

Positive Bending		_
Φ		
a	0.797	in
<u>d</u>	6.5	in
ФМп	127	kip-in
Wheel Width		in
bm	1.67	ft
Span (L)		ft
Machine loc. (X)	5.7	ft
be (calc)	7.33	ft
be_max	5.56	ft
bem	5.56	ft
Machine Width		ft
Spread (flexure)	10.13	ft
Machine Weight	and the second second	lbs
Mu	95	kip-in

Shear Capacity

Φ	0.75	
λ	0.85	
ΦVd	3420	lbs
ФVс	3094	lbs
ΦVd + ΦVc	6514	lbs
4*A _c *vf' _c	9706	lbs
ΦVn	6514	lbs
Machine Loc. (x)	0.67	ft
be(calc)	2.29	ft
be check	2.29	ft
Vu	4579	lbs
Check	OK	

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4\sqrt{f'_c}A_c$$

$$\emptyset V_c = \emptyset 2 \lambda \sqrt{f'_c} A_c$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2V_{DL} + 1.6V_{Debris} + 1.6V_{EO}$$

$$V_{DL} = \frac{W_{DL} \times L}{2} V_{Debris} = \frac{W_{Debris} \times L}{2}$$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

OK
$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$a = \frac{A_s F_y}{.85 f'_c b}$$

$$\emptyset M_n = \emptyset A_s F_y \left(d - \frac{a}{2} \right)$$

$$b_m = b_2(wheel\ width) + 2 \times t_c$$

$$M_{DL} = \frac{W_{DL} \times L^2}{8}$$

$$M_{Debris} = \frac{W_{Debris} \times L^2}{8}$$
 $M_{EQ} = \frac{W_{EQ} \times L}{4}$ Spread

$$M_u = 1.2 M_{DL} + 1.6 M_{Debris} + 1.6 M_{EO}$$

Job: 16119.00.00

Address: 1568 Broadway

Engineer: AJS Date: 5/04/2107

6th Floor Alternate Slab

Deck Construction

Deck depth (t _d)	in.
Deck gage	4.5
Deck Strength (F _y)	AD ksi
Deck area (A _s)	SEM in ²
Conc Depth (t _c)	in.
Total Depth (h)	8 in.
Conc Strength (f'c)	psi psi
Conc. Area (A _c)	in ²
Reinforcement	
Reinf. Area (A _s)	in ²
Reinf. Cover	in
Reinf. Strength	ksi
Conc Weight	pcf
Conc. DL	78.54167

Positive Bending

Positive benuing	
Φ	
a	0.797 in
d	6.5 in
ФМп	127 kip-in
Wheel Width	in
bm	1.67 ft
Span (L)	ft
Machine loc. (X)	5.7 ft
be (calc)	7.33 ft
be_max	5.56 ft
bem	5.56 ft
Machine Width	-5.4 ft
Spread (flexure)	10.1 ft
Machine Weight	lbs
Mu	99.0 kip-in

Shear Capacity

Φ	0.75	
λ		
ΦVd	3470	lbs
ФVс	3093.7	lbs
ΦVd + ΦVc	6513.7	lbs
4*A _c *√f' _c	9705.6	lbs
ΦVn	6514	lbs
Machine Loc. (x)	0.67	ft
be(calc)	2.29	ft
be check	2.29	ft
Vu	4689	lbs
Check	OK	

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4\sqrt{f'_c} A_c$$

$$\emptyset V_c = \emptyset 2\lambda \sqrt{f'_c} A_c$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2 V_{DL} + 1.6 V_{Debris} + 1.6 V_{EQ}$$

$$V_{DL} = \frac{W_{DL} \times L}{2} V_{Debris} = \frac{W_{Debris} \times L}{2}$$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

Check OK

$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$a = \frac{A_s F_y}{.85 f'_o h} \qquad M_{DL} = \frac{W_{DL} \times L^2}{8}$$

$$M_{Debris} = \frac{W_{Debris} \times L^2}{8}$$
 $M_{EQ} = \frac{W_{EQ} \times L}{4}$ / Spread

$$M_u = 1.2M_{DL} + 1.6M_{Debris} + 1.6M_{EO}$$

$$b_m = b_2(wheel\ width) + 2 \times t_c$$

 $\emptyset M_n = \emptyset A_s F_y \left(d - \frac{a}{2} \right)$

Engineer: AJS Date: 5/04/2107

7th Floor Slab

Deck Construction

Deck depth (t _d)	3 in.
Deck gage	10 Sept. 11
Deck Strength (F _y)	ksi 🖖 🎎 ksi
Deck area (A _s)	est in ²
Conc Depth (t _c)	in.
Total Depth (h)	8 in.
Conc Strength (f'c)	psi psi
Conc. Area (A _c)	√21.3 in²
Reinforcement	
Reinf. Area (A _s)	in ²
Reinf. Cover	in
Reinf. Strength	ksi
Conc Weight	pcf
Conc. DL	78.54

Positivo Ronding

Positive Bending		
Φ		
a	0.598	in
<u>d</u>	6.5	in
ФМп	128.6	kip-in
Wheel Width		in
bm	1.67	ft
Span (L)	* *	ft
Machine loc. (X)	6.3	ft
be (calc)	7.92	ft
be_max	5.56	ft
bem	5.56	ft
Machine Width		ft
Spread (flexure)	10.13	ft
Machine Weight	and the second	lbs
Mu	114.8	kip-in

Shear Capacity

Φ	0.75	
λ		
ΦVd	3420	lbs
ФVс	5815	lbs
ΦVd + ΦVc	9235	lbs
4*A _c *Vf' _c	15508	lbs
ΦVn	9235	lbs
Machine Loc. (x)	0.67	ft
be(calc)	2.30	ft
be check	2.30	ft
Vu	4833	lbs
Check	ОК	

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4\sqrt{f'_c} A_c$$

$$\emptyset V_c = \emptyset 2 \lambda \sqrt{f'_c} A_c$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2V_{DL} + 1.6V_{Debris} + 1.6V_{EQ}$$

$$V_{DL} = \frac{W_{DL} \times L}{2} V_{Debris} = \frac{W_{Debris} \times L}{2}$$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

Check OK

$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$a = \frac{A_s F_y}{.85 f'_c b}$$

$$M_{DL} = \frac{W_{DL} \times L^2}{8}$$

$$\emptyset M_n = \emptyset A_s F_y \left(d - \frac{a}{2} \right)$$

$$M_{Debris} = \frac{W_{Debris} \times L^2}{\Omega}$$
 $M_{EQ} = \frac{W_{EQ} \times L}{4}$ / Spread

$$b_m = b_2(wheel\ width) + 2 \times t_c$$

$$b_m = b_2(wheel\ width) + 2 \times t_c$$
 $M_u = 1.2M_{DL} + 1.6M_{Debris} + 1.6M_{EQ}$

> **Engineer: AJS** Date: 5/04/2107

8th Floor Slab

Deck	Con	stru	ıction
------	-----	------	--------

Deck depth (t _d)	in.
Deck gage	
Deck Strength (F _y)	ksi 🔏 ksi
Deck area (A₅)	in ²
Conc Depth (t _c)	in.
Total Depth (h)	10 in.
Conc Strength (f'c)	psi
Conc. Area (A _c)	in ²
Reinforcement	
Reinf. Area (A _s)	in ²
Reinf. Cover	in
Reinf. Strength	ksi ksi
Conc Weight	pcf
Conc. DL	102.7

Positive Bending		_
Φ		
a	0.598	in
d	8.5	in
ФМп	170.1	kip-in
Wheel Width		in
bm	2	ft
Span (L)		ft
Machine loc. (X)	7.0	ft
be (calc)	9.0415	ft
be_max	6.23	ft
bem	6.23	ft
Machine Width		ft
Spread (flexure)	10.8	ft
Machine Weight		lbs
Mu	142.6	kip-in

Shear Capacity

Φ	0.75	
λ	1	
ΦVd	34.20	lbs
ФVс	7969	lbs
ΦVd + ΦVc	11389	lbs
4*A _c *Vf' _c	21251	lbs
ΦVn	11389	lbs
Machine Loc. (x)	0.83	ft
be(calc)	2.78	ft
be check	2.78	ft
Vu	4671	lbs
Check	OK	

$$\emptyset V_n = \emptyset V_d + \emptyset V_c \le 4\sqrt{f'_c} A_c$$

$$\emptyset V_c = \emptyset 2\lambda \sqrt{f'_c} A_c$$

$$b_e = b_m + (1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$V_u = 1.2V_{DL} + 1.6V_{Debris} + 1.6V_{EQ}$$

$$V_{DL} = \frac{W_{DL} \times L}{2} V_{Debris} = \frac{W_{Debris} \times L}{2}$$

$$V_{EQ} = \frac{W_{EQ}}{2} \times L/Spread$$

$$b_e = b_m + 2(1 - \frac{X}{L})X \le 8.9(\frac{t_c}{h})$$

$$a = \frac{A_s F_y}{.85 f'_c b}$$

$$M_{DL} = \frac{W_{DL} \times L^2}{8}$$

$$\emptyset M_n = \emptyset A_s F_y \left(d - \frac{a}{2} \right)$$

$$M_{Debris} = \frac{W_{Debris} \times L^2}{8}$$
 $M_{EQ} = \frac{W_{EQ} \times L}{4}$ Spread

$$b_m = b_2(wheel\ width) + 2 \times t_c$$

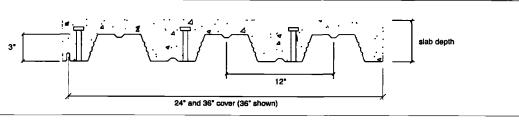
$$b_m = b_2(wheel\ width) + 2 \times t_c$$
 $M_u = 1.2M_{DL} + 1.6M_{Debris} + 1.6M_{EQ}$



3" LOK-FLOOR

3" x 12" deck $F_y = 40$ ksi $f'_c = 3$ ksi 145 pcf concrete

Studs are not required for composite slab action. Studs on the cross-section indicate that it is possible to install studs at the beams.



	DECK PROPERTIES									
Gage	t	w	Aa	l _p	S _p	Sn	φЯь₀	фЯы	φVn	studs
22	0.0295	1.7	0.500	0.765	0.416	0.441	720	1270	2200	0.49
20	0.0358	2.1	0.610	0.953	0.548	0.577	820	1450	3420	0.60
19	0.0418	2.4	0.710	1.112	0.680	0.692	1100	1930	4660	0.70
18	0.0474	2.8	0.810	1.261	0.793	0.790	1380	2430	5900	0.79
16	0.0598	3.5	1.020	1.593	0.998	0.998	2120	3710	7420	0.79

	No. and Plants 27.75	Ø. 1. 10 . 1. 17 . 12.		and a coll with	COMPC	SITE PROP	ERTIES			A-1 - E'7 - 3-172		
	444		*			1	444			Inshered Sp		A COLOR
			nw.	* ***	5.			•	apan .	edên :	spari*	le in
5.50	62.44	37.6	0.333	48	1.31	10.1	44.61	5700	7.84	9.46	9.86	0.023
6.00	70.94	42.0	0.375	54	1.50	12.9	51.25	6110	7.47	8.68	9.04	0.027
6.50	79.44	46.6	0.417	60	1.71	16.3	58.14	6540	6.95	8.02	8.35	0.032
7.00	87.94	51.3	0.458	66	1.92	20.2	65.23	6980	6.52	7.45	7.76	0.036
7.50	96.44	56.3	0.500	73	2.13	24.7	72.47	7440	6.14	6.96	7.25	0.041
8.00	104.94	61.3	0.542	79	2.35	29.8	79.84	7910	5.81	6.53	6.80	0.045
8.25	109.19	63.9	0.563	82	2.46	32.6	83.57	8150	5.65	6.33	6.59	0.047
8.50	113.44	66.6	0.583	85	2.57	35.6	87.32	8400	5.50	6.14	6.40	0.050
5.50	74.69	37.6	0.333	48	1.57	10.8	53.50	6920	9.20	10.76	11.21	0.023
6.00	85.06	42.0	0.375	54	1.81	13.8	61.49	7330	8.76	9.87	10.28	0.027
6.50	95.43	46.6	0.417	60	2.05	17.3	69.79	7760	8.29	9.12	9.50	0.032
. 7.00	_ 105.80	51.3	0.458	66	2.30	21.5	78.33	8200	7.78	8.48	8.83	0.036
7.50	116.17	56.3	0.500	73	2.56	26.2	87.08	8660	7.33	7.92	8.25	0.041
₩8.00₩	126.54	61.3	0.542	79	2.82	31.6	96.00	9130_	6.93	7.43	7.74	0.045 ⊮
8.25	131.73	63.9	0.563	82	2.95	34.6	100.50	9370	6.74	7.21	7.51	0.047
8.50	136.91	66.6	0.583	85	3.09	37.7	105.04	9620	6.57	7.00	7.29	0.050
5.50	85.36	37.6	0.333	48	1.80	11.3	61.44	7000	10.40	12.62	13.04	0.023
6.00	97.43	42.0	0.375	54	2.07	14.5	70.61	7820	9.90	12.08	12.48	0.027
6.50	109.50	46.6	0.417	60	2.35	18.2	80.17	8680	9.47	11.61	11.99	0.032
7.00	121.57	51.3	0.458	66	2.64	22.5	90.02	9440	9.22	11.18	11.55	0.036
7.50	133.64	56.3	0.500	73	2.94	27.5	100.12	9900	8.98	10.51	10.95	0.041
8.00	145.71	61.3	0.542	79	3.24	33.1	110.41	10370	8.76	9.86	10.27	0.045
8.25	151.74	63.9	0.563	82	3.40	36.2	115.62	10610	8.66	9.57	9.97	0.047
8.50	157.78	66.6	0.583	85	3.55	39.5	120.87	10860	8.56	9.29	9.68	0.050
5.50	95.58	37.6	0.333	48	2.02	11.9	69.22	7000	11.34	13.49	13.94	0.023
6.00	109.35	42.0	0.375	54	2.33	15.2	79.55	7820	10.78	12.92	13.35	0.027
6.50	123.12	46.6	0.417	60	2.65	19.1	90.34	8680	10.32	12.42	12.83	0.032
7.00	136.89	51.3	0.458	66	2.97	23.6	101.48	9560	10.04	11,97	12.37	0.036
7.50	150.66	56.3	0.500	73	3.31	28.7	112.91	10480	9.77	11.56	11.95	0.041
8.00	164.43	61.3	0.542	79	3.66	34.6	124.57	11420	9.53	11.19	11.57	0.045
8.25	171.32	63.9	0.563	82	3.83	37.8	130.48	11850	9.42	11.02	11.39	0.047
8.50	178.20	66.6	0.583	85	4.00	41.2	136.43	12100	9,31	10.86	11.22	0.050
5.50	95.58	37.6	0.333	48	2.48	13.0	69.22	7000	12.86	15.12	15.46	0.023
6.00	109.35	42.0	0.375	54	2.86	16.6	79,55	7820	12.23	14.49	14.97	0.027
6.50	123.12	46.6	0.417	60	3.25	20.8	90.34	8680	11.70	13.93	14.40	0.032
7.00	136.89	51.3	0.458	66	3.66	25.6	101.48	9560	11.37	13.43	13.88	0.036
7.50	150.66	56.3	0.500	73	4.08	31,2	112.91	10480	11.08	12.98	13.41	0.041
8.00	164.43	61.3	0.542	79	4.50	37.5	124.57	11420	10.80	12.57	12.99	0.045
8.25	171.32	63.9	0.563	82	4.72	41.0	130.48	11910	10.67	12.38	12.79	0.047
8.50	178.20	66.6	0.583	85	4.94	44.7	136.43	12400	10.55	12.19	12.60	0.050

Note:

50 ksi materiai is also available. See website for load tables.

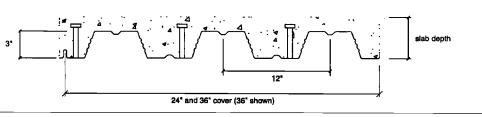
3" LOK-FLOOR - NW



3" LOK-FLOOR

3" x 12" deck $F_y = 40$ ksi $f'_c = 3$ ksi 115 pcf concrete

Studs are not required for composite slab action. Studs on the cross-section indicate that it is possible to install studs at the beams.



Gage	t	w	A	lρ	S _p	Sn	φRы	φВы	φVn	studs
22	0.0295	1.7	0.500	0.765	0.416	0.441	720	1270	2200	0.59
20	0.0358	2.1	0.610	0.953	0.548	0.577	820	1450	3420	0.71
19	0.0418	2.4	0.710	1.112	0.680	0.692	1100	1930	4660	0.83
18	0.0474	2.8	0.810	1.261	0.793	0.790	1380	2430	5900	0.94
16	0.0598	3.5	1.020	1.593	0.998	0.998	2120	3710	7420	0.94

						COMPO	SITE PROF	PERTIES					
	1	e de la companya de		le la				400	øVa 💮		Inchared Sp	en it	
	100	101	100	fir	pai		int.	43	Da.	Span	2 - SDAT	apan.	A
5.77	5.50	62.44	37.6	0.333	38	1.25	7.5	42.68	4820	8.59	10.83	11.19	0.023
	6.00	70.94	42.0	0.375	43	1.44	9.6	49.11	5130	8.20	10.26	10.69	0.027
	6.25	75.19	44.3	0.396	46	1.54	10.8	52.43	5290	8.03	9.88	10.29	0.029
	6.50	79.44	46.6	0.417	48	1.64	12.1	55.80	5450	7.86	9.52	9.92	0.032
	7.00	87.94	51.3	0.458	53	1.84	14.9	62.72	5780	7.57	8.88	9.25	0.036
	7.25	92.19	53.8	0.479	55	1.94	16.5	66.24	5960	7.43	8.60	8.95	0.038
70	7.50	96.44	56.3	0.500	58	2.05	18.2	69.80	6130	7.28	8.33	8.67	0.041
	8.00	104.94	61.3	0.542	62	2.26	21.9	77.02	6480	6.81	7.83	8.16	0.045
	5.50	74.69	37.6	0.333	38	1.50	8.1	51.02	5250	10.10	12.48	12.89	0.023
	6.00	85.06	42.0	0.375	43	1.72	10.4	58.71	5870	9.63	11.66	12.15	0.027
	6.25	90.25	44.3	0.396	46	1.84	11.6	62.69	6180	9.42	11.23	11.69	0.029
	6.50	95.43	46.6	0.417	48	1.96	13.0	66.74	6510	9.23	10.83	11.28	0.032
	7.00	105.80	51.3	0.458	53	2.20	16.0	75.06	7000	8.87	10.10	10.52	0.036
	7.25	110.99	53.8	0.479	55	2.33	17.7	79.30	7180	8.71	9.78	10.18	0.038
	7.50	116.17	56.3	0.500	58	2.46	19.5	83.59	7350	8.56	9.47	9.86	0.041
	8.00	126.54	61.3	0.542	62	2.71	49.5	39.31	D	8.12	8.91	9.28	0.045
	5.50	85.36	37.6	0.333	38	1.71		58.4 3	\$250	11.44	13.69	14.15	0.023
	6.00	97.43	42.0	0.375	43	1 97			70	10.90	13.14	13.58	0.027
	6.25	103.46	44.3	0.396	46	2.11	1123		180	10.66	12.89	13.33	0.029
	6.50	109.50	46.6	0.417	48		166	7	9510	10.44	12.66	13.08	0.032
	7.00	121.57	51.3	0.458	53	2.52	1701	80.0	7170	10.03	12.22	12.63	0.036
	7.25	127.60	53.8	0.479	55	2.67	19.6	90 66	7510	9.84	12.02	12.42	0.038
$\{(\cdot,\cdot)_{i\in I}\}$	7.50	133.64	56.3	0.500	58		2 7	95	7860	9.67	11.83	12.22	0.041
	8.00	145.71	61.3	0.542	62	. 41	24	105	8570	9.39	11.47	11.85	0.045
	5.50	95.58	37.6	0.333	38	1.92	9.1	65.67	5250	12.48	14.62	15.11	0.023
	6.00	109.35	42.0	0.375	43	2.21	11.6	75.56	5870	11.89	14.05	14.52	0.027
	6.25	116.24	44.3	0.396	46	2.36	13.0	80.70	6180	11.62	13.78	14.24	0.029
Br. 4	6.50	123.12	46.6	0.417	48	2.52	14.5	85.94	6510	11.38	13.53	13.99	0.032
E de l	7.00	136.89	51.3	0.458	53	2.83	17.9	96.72	7170	10.93	13.07	13.51	0.036
	7.25	143.78	53.8	0.479	55	3.00	19.7	102.24	7510	10.72	12.86	13.29	0.038
	7.50	150.66	56.3	0.500	58	3.16	21.7	107.82	7860	10.53	12.65	13.08	0.041
	8.00	164.43	61.3	0.542	62	3.50	26.1	119.18	8570	10.23	12.27	12.68	0.045
	5.50	95.58	37.6	0.333	38	2.34	10.0	65.67	5250	13.92	16.38	16.31	0.023
	6.00	109.35	42.0	0.375	43	2.70	12.7	75.56	5870	13.50	15.74	15.87	0.027
	6.25	116.24	44.3	0.396	46	2.88	14.3	80.70	6180	13.19	15.44	15.67	0.029
	6.50	123.12	46.6	0.417	48	3.08	15.9	85.94	6510	12.91	15.17	15.49	0.032
	7.00	136.89	51.3	0.458	53	3.47	19.6	96.72	7170	12.40	14.66	15.15	0.036
	7.25	143.78	53.8	0.479	55	3.67	21.7	102.24	7510	12.16	14.42	14.90	0.038
	7.50	150.66	56.3	0.500	58	3.87	23.8	107.82	7860	11.94	14.19	14.67	0.041
	8.00	164.43	61.3	0.542	62	4.29	28.6	119.18	8570	11.60	13.77	14.23	0.045

Note: 50 ksl material is also available. See website for load tables.

3" LOK-FLOOR - LW

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY SHEET NO

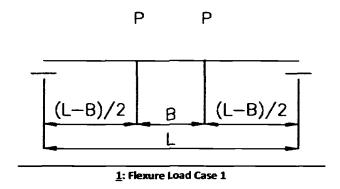
CALCULATED BY: BP & AJS DATE: 6/12/17

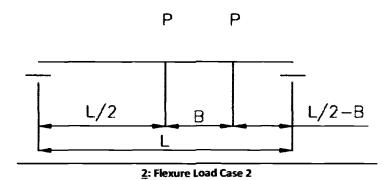
CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

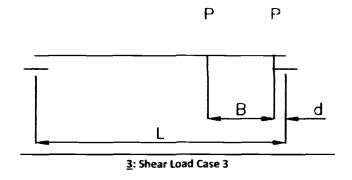
C. ANALYSIS OF FIRST FLOOR FRAMING

The framing will be analyzed for the load of the heaviest equipment allowed inside the building (Bobcat S160 Skid Steer Loader on 2 wheels at tipping – 9,315 lbs/2 wheels = 4658 lbs)

The Framing will be analyzed at multiple locations on each floor. See floor plans for which beams were analyzed. The following load cases were used:







Job #15318.00.00
Date: 5/24/2017
Calculated By: AS
Checked By:

Beam #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Ben
B _e	99	84	54.501	84	90	55.75	103.98	138	72	96	58.5	75	57	103.5	54.501	60	116.499
T _C							5	5						3	7	- 3	
A _c									44.3	3,000	44.4	44.3		44.5	44.3	44.3	64.3
Fy					31		- 6		36	515	36	35	(C)		35	36	
As									F 49	162	5	E Park	5.57	201.1	5.57	5.49	
d			12.7		11.77	(3.1	2210	26.7	12.7	23.6	12.2	15.7	12.2	237	12.7	13.7	
$\mathbf{t}_{\mathbf{w}}$	1,300		0.23	0.515	0.3	. 775	Dag	0.46	0.23	0.395	0.235	0.25	0.235	0.415	0.235	0.23	5.4
b _f	7.01		5		- 5		1,09		5	7.0	4.01	5.5	- 4 01	8.97	4.01	5	-3.74
t _f	0.505	22.0066			425	1	0.68	0.64	0.935	0.505	0.35	0.345	0.35	0.585	0.35	0.335	9,615
\mathbf{Q}_{n}	17.2	172	i dice		17.2	17.2	71-172	14.6	174	146	172	17.1	17.1	17.1	17.1	17.1	12.7
Studs	20			74	38	10	36	78	24	, 44	20	28	20	39	12	24	31
С	344	561.6	137.6	1080.4	370.8	172	619.2	889.2	233.64	583.2	200.52	276.48	200.52	666.9	200.52	233.64	530.1
a	1.0	2.0	0.7	3.8	1.2	0.7	1.4	1.9	2.2	2.6	2.3	2.5	2.4	2.5	1.5	2.7	1.8
P_c	116.1	-5.5	45.4	248.6	-2.6	13.2	89.0	-3.7	-2.6	-3.5	-1.1	-2.4	-1.1	23.8	-1.1	-2.6	59.7
A _c	3.22	-0.15	1.26	6.91	-0.07	0.37	2.47	-0.10	-0.07	-0.10	-0.03	-0.07	-0.03	0.66	-0.03	-0.07	1.66
t _i	0.46	-0.02	0.25	0.58	-0.01	0.09	0.27	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.07	-0.01	-0.01	0.20
ΣMn	777	647	217	2898	498	203	1143	1465	230	806	186	293	186	982	193	226	881
ΦM_n	699	583	195	2608	448	183	1028	1318	207	726	167	264	167	884	174	203	793
Mu (k-ft)	288	209	105	336	222	96	295	679	141	263	93	133	85	247	89	96	365
% Used	0.41	0.36	0.54	0.13	0.50	0.53	0.29	0.52	0.68	0.36	0.55	0.51	0.51	0.28	0.51	0.47	0.46
Check	OK	ÖΚ	DK .	ĐΚ	9	OΚ	OK	ox :	OK	OX - L.	dk'	CK	OK .	OK	<u>e</u> ;;	or t	ok ,
		588.2819			451.7489			1325.741	209.967	732.1161	168.492	266.421	168.039		174.629	206.0499	799.4086

$$C = \min(A_{sw}F_y + 2A_{sf}F_y \text{ or } 0.85f'_cA_c \text{ or } \sum Q_n)$$

$$b_e = \min(\frac{L}{8} \text{ or } \frac{\text{Trib Width}}{2})$$

$$a = \frac{C}{0.85f'_cb}$$

$$P_y = A_sF_y$$

$$P_c = \frac{P_y - C}{2}$$

$$t_i = \frac{A_c}{b_f}$$

Job #15318.00.00 Date: 5/24/2017 Calculated By: AS Checked By:____

Beam Check

Bobcat S160

Machine Weight	5752 lbs	Wheel or Outrigger Dimensions	
Tipping Load	3200 lbs	Base (Lm) 3.4 ft	Fy 36 ksi
Total Weight	8952 lbs	Gage (B) 4.5 ft	
Wheel 1 (P1)	4476 lbs	Width (b) 10 in	Deb. load 25 psf
Wheel 2 (P2)	4476 lbs	المعادمة الم	Downward and the second

		` '		Land the section of t	_1												
<u>Flexure Check</u>	<u> </u>	on a low as a support a	an an disease is a new section	i kladen ir karla salik ir praeson administration salik	h was ride a contract of the		nageria a salapari a compressional and a salap	on and high springers	a . agusta na . ng - datagram guarana q	AND CHARGE WITH BEREIT LES	- Table of the same of the same	t . e m e dit i la diferencia de la marciado fun	Law Mr. Addarda Law and America				
Beam #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Ben
Floor	1	1	1	1	1	2	2	2	3	3	3	3M	3M	4	4	4M	2
Shape	W24x55	W14x53	W14x22	W36x150	W18x35	W12x19	W24x76	W27x84	W14x22	W24x55	W12x19	W16x26	W12x19	W24X68	W12x19	W14x22	W21x62
Length (ft)	33.0	28.0	18.2	39.0	30.0	18.6	35.3	46.0	24.0	37.5	19,5	26.5	19.0	35.0	18.2	20.0	38.8
Trib.(ft)	9.7	9.0	10.0	7.0	8.4	8.3	8.7	15.0	10.1	8.0	8.5	6.3	7.5	8.6	10.0	8.3	10.6
Zx (in3)	134.0	87.1	33.2	581.0	66.5	24.7	200.0	244.0	33.2	134.0	24.7	44.2	24.7	177.0	24.7	33.2	190.0
Slab d (in)	5.0	5.0	5.0	5.0	5.0	4.5	4.5	4.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	5.0
Deck d (in)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	是是10
Conc W	NW	NW	NW	NW	NW	NW	NW	NW	LW	LW	LW	LW	LW	LW	LW	LW.	LW
wsl (psf)	79	79	79	79	79	73	73	73	46	46	46	46	46	46	46	46	62
M db (k-ft)	33	22	10	33	24	9	34	99	18	35	10	14	8	33	10	10	50
M dl (k-ft)	111	74	33	133	78	27	109	310	35	74	19	27	16	71	20	20	136
Meq (k-ft)	64	52	30	77	57	31	69	93	44	74	33	49	32	68	30	35	77
Mu (k-ft)	288	209	105	336	222	96	295	679	141	263	93	133	85	247	89	96	365
ΦMn (k-ft)	362	235	90	1569	180	67	540	659	90	362	67	119	67	478	67	90	389
% used	0.80	0.89	1.17	0.21	1.24	1.45	0.55	1.03	1.57	0.73	1.39	1.12	1.27	0.52	1.33	1.07	0.94
Check	100	≥ b.x.	N.G.	· O.A.	1115	N.6	图图	N.G.	N.G.	o.x.	N.G.	'il'a	* N.G.	o.K.	N.G.	N.G.	O.K.

Since some beams have failed, see next page for a flexure strength check using the composite beam incorporating the shear studs

Shear Check

d (in)	23.6	13.9	13.7	35.9	17.7	12.2	23.9	26.7	13.7	23.6	12.2	15.7	12.2	23.7	12.2	13.7	
:w (in)	0.395	0.37	0.23	0.625	0.3	0.235	0.44	0.46	0.23	0.395	0.235	0.25	0.235	0.415	0.235	0.23	
Aw (in2)	9.3	5.1	3.2	22.4	5.3	2.9	10.5	12.3	3.2	9.3	2.9	3.9	2.9	9.8	2.9	3.2	
Vdeb (k)	4.0	3.2	2.3	3.4	3.1	1.9	3.8	8.6	3.0	3.8	2.1	2.1	1.8	3.8	2.3	2.1	
Veq (k)	8.3	8.2	7.8	8.4	8.3	7.9	8.4	8.5	8.1	8.4	7.9	8.2	7.9	8.4	7.8	7.9	
VdI (k)	12.6	9.9	7.1	10.7	9.9	5.6	11.1	25.0	5.5	6.8	3.8	3.8	3.2	6.9	4.1	3.8	
Vu (k)	34.8	30.1	24.7	31.8	30.1	22.3	32.8	57.4	24.5	27.6	20.5	20.9	19.4	27.7	21.1	20.6	
ΦVn(k)	181.2	100.0	61.3	436.2	103.2	55.7	204.4	238.8	61.3	181.2	55.7	76.3	55.7	191.2	55.7	61.3	
% used	0.19	0.30	0.40	0.07	0.29	0.40	0.16	0.24	0.40	0.15	0.37	0.27	0.35	0.14	0.38	0.34	
Check	OK	OK	OK	OK	OK	OK	OK(OK	OK	OK.	OK	OK	OK	OK	OK	OK	N.G.

$$\emptyset M_n = 0.9 F_{\nu} Z_X$$

$$M_{DL} = w_{DL} \times Trib \ Width \times L^2 \div 8$$

$$M_{DB} = w_{DB} \times Trib \ Width \times L^2 \div 8$$

$$M_u = 1.2M_{DL} + 1.6M_{DB} + 1.6M_{EO}$$

$$M_{EQ} = \left[\frac{P_1}{2} + P_2\left(1 - \frac{L}{2} + B\right)\right] \frac{L}{2} \le P_1 \frac{L - B}{2}$$

$$V_{DL} = w_{DL} \times Trib \ Width \ \times \frac{L}{2}$$

$$V_{DB} = w_{DB} \times Trib \ Width \ \times \frac{L}{2}$$

$$V_{u} = 1.2V_{DL} + 1.6V_{DB} + 1.6V_{EQ}$$

$$\emptyset V_n = \emptyset 0.6 F_y A_w \qquad A_w = 0$$

$$V_{DB} = w_{DB} \times Trib \ Width \times \frac{L}{2}$$

$$V_{EQ} = P_1 \left(1 - \frac{d}{I} \right) + P_2 \left(1 - \frac{D+B}{I} \right)$$

$$V_{\rm u} = 1.2V_{DL} + 1.6V_{DB} + 1.6V_{EQ}$$

266 Merrick Road, Suite 300 Email: AStock@HISAssoc.com

JOB: 1568 BROADWAY

SHEET NO

CALCULATED BY: BP & AJS DATE: 6/12/17

CHECKED BY: SB/PY DATE: CLIENT: PAVARINI McGOVERN

D. CONCLUSION

The slab and framing on floors 1-8 can safely support the Bobcat S160 and other listed equipment.

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NEW YORK, NY 10036

MEANS AND METHODS NOTES

1. THE BUILDING IS A 45 STORY HOTEL (1568 AIR BROADWAY), WITH CAST IN PLACE CONCRETE STRUCTURE AT THE UPPER FLOORS AND CONCRETE AND STEEL AT THE LOWER FLOORS. THE BUILDING IS CURRENTLY ERECTED OVER AN EXISTING THEATER (1564 BROADWAY). IT IS PROPOSED TO BE ENTIRELY DEMOLISHED DOWN TO THE 16TH FLOOR DURING PHASE 1 AND THAT PART OF THE LOWER FLOORS IS REMOVED AND RECONFIGURED TO ALLOW FOR THE ERECTION OF A NEW STRUCTURE DURING PHASE 2.

THE DEMOLITION IS SEPARATED INTO TWO MAIN PHASES OF WORK

PHASE 1: DEMOLITION OF THE STRUCTURE DOWN TO THE 16TH FLOOR PHASE 2: DEMOLITION OF PART OF THE EXISTING STRUCTURE, CONCURRENT WITH ERECTION OF NEW STRUCTURE AND INSTALLATION OF SHORING AND BRACING ALTHOUGH THE DEMOLITION IS SEPARATED IN TWO DISTINCTIVE PHASES, SOME SITE ACTIVITY FOR BOTH PHASES MAY BE CONDUCTED CONCURRENTLY WHEN SITE LOGISTICS ALLOWS IT AND WHEN THEY DO NOT POSE A SAFETY CONCERN. FOR EXAMPLE, INSTALLATION OF SHORING AND BRACING AT THE LOWER FLOORS MAY BE DONE CONCURRENTLY TO THE DEMOLITION OF THE UPPER FLOORS

THIS SUBMITTAL INCLUDES THE USE OF MECHANICAL EQUIPMENT (MECHANICAL MEANS).

SITE FENCE, SIDEWALK SHED, SCAFFOLD AND OTHER PROTECTION SHALL BE PROVIDED AS REQUIRED PRIOR TO THE START OF THE DEMOLITION WORK. APPROVAL FROM THE NEIGHBORING PROPERTIES SHALL BE SECURED TO ALLOW THE INSTALLATION OF FENCE, SCAFFOLD, ROOF PROTECTION OR ANY OTHER PROTECTION THAT IS

PROPOSED TO EXTEND INTO THEIR PROPERTY THE DEMOLITION SHALL BE DONE IN COMPLIANCE WITH THE NYC BUILDING CODE (CHAPTER 33) AND ALL OSHA 1926 STANDARDS OF CONSTRUCTION

DEBRIS AND STRUCTURES BEING REMOVED SHALL BE CONSTANTLY WETTED TO LIMIT DUST EMISSION. WATER FOR DUST CONTROL IS PROVIDED USING A FIRE HYDRANT WITH INTERMEDIATE BOOSTER PUMPS OR WITH AN ALTERNATE SOURCE OF WATER. CONTRACTOR SHALL SECURE A DEP PERMIT TO ALLOW HYDRANT TO BE USED FOR

CONTRACTOR SHALL NOTIFY DOB (BEST SQUAD; PH: 212-393-2550) AT LEAST 24 HOURS, BUT NO MORE THAN 48 HOURS, PRIOR TO THE START OF WORK.

THE EXISTING SPRINKLER SYSTEM WILL BE CONVERTED TO A DRY SYSTEM AND WILL REMAIN ACTIVE THROUGHOUT THE COURSE OF WORK. THE SYSTEM WILL BE CUT AND CAPPED AT EACH FLOOR AS DEMOLITION WORK PROGRESSES. WORK ON SPRINKLER SYSTEM SHALL BE IN CONFORMANCE WITH BC3303.7.4.2 AND REQUIRES A SEPARATE DOB PERMIT. ALL AREAS USED BY PUBLIC SHALL BE MAINTAINED FREE FROM ICE, SNOW, GREASE, DEBRIS, EQUIPMENT, MATERIALS, PROJECTIONS, TOOLS, OR OTHER ITEMS,

SUBSTANCES, OR CONDITIONS THAT MAY CONSTITUTE A SLIPPING, TRIPPING OR OTHER HAZARD.

10. VERIFY ALL CONDITIONS IN THE FIELD. ANY DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND DRAWINGS, OR ANY UNUSUAL CONDITIONS SHALL BE REPORTED IMMEDIATELY, IN WRITING, TO THE CONSTRUCTION MANAGER AND ENGINEER.

11. THIS BUILDING TO BE DEMOLISHED IS NOT A WEAKENED STRUCTURE AS DEFINED IN BC 3306.7. WHERE ACCESSIBLE, VISUAL SURVEY OF THE SLABS WAS PERFORMED AS PART OF THE EVALUATION TO ASSESS THE SOUNDNESS OF THE EXISTING FRAMING AND SLABS.

ADJACENT BUILDINGS OWNERS SHALL BE NOTIFIED OF UPCOMING DEMOLITION OPERATIONS IN WRITING NOT LESS THAN 10 DAYS PRIOR TO THE SCHEDULED STARTING DATE OF THE DEMOLITION AS PER NYC B.C. 3306.3.2.

THE STANDPIPE SHALL HAVE AN ALARM SYSTEM CONFORMING TO DOB AND FIRE DEPARTMENT REQUIREMENTS.

AN ALT-2 APPLICATION SHALL BE FILLED FOR REMOVAL AND HYDROSTATIC TESTING AND CAPPING OF THE STANDPIPE SYSTEM AFTER THE DEMOLITION OF EACH

FLOOR STANDPIPE IS TO BE PAINTED RED WHEN EXPOSED.

SPRINKLER SYSTEM TO BE REMOVED PRIOR TO DEMOLITION, PENDING DOB AND FDNY APPROVAL. AN ALT-2 APPLICATION SHALL BE FILED FOR THIS REMOVAL THE EXISTING FIRE ALARM SYSTEM SHALL BE REMOVED PRIOR TO DEMOLITION, PENDING DOB AND FDNY APPROVAL. AN ALT-2 APPLICATION SHALL BE FILED FOR THIS

A FIRE WATCH SHALL BE PROVIDED ONSITE AT ALL TIMES (24/7).

REMOVAL

THE BUILDING CODE REQUIRES THE SPECIAL INSPECTOR TO PERFORM A MINIMUM OF 3 SPECIAL INSPECTIONS, ONE BEFORE, DURING AND AFTER DEMOLITION, FOR MOST MECHANICAL DEMOLITION (B.C. 3306.6). THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE SPECIAL INSPECTOR IN A TIMELY FASHION TO ALLOW FOR INSPECTIONS.1. SPECIAL INSPECTIONS (SPECIAL INSPECTOR SHALL BE HIRED BY THE OWNER):

MECHANICAL DEMOLITION

STRUCTURAL STABILITY-EXISTING BUILDINGS CONTRACTOR SHALL NOTIFY ENGINEER 72 HOURS PRIOR TO START OF WORK AND SHALL PROVIDE ENGINEER AND SPECIAL INSPECTOR WITH A REGULAR PROGRESS

UNTIL STRUCTURAL WORK IS DONE.

PROTECTION OF HISTORIC STRUCTURES DURING DEMOLITION:

A CONDITION SURVEY OF ADJACENT BUILDINGS SHALL BE PERFORMED PRIOR TO DEMOLITION IN ACCORDANCE WITH NYC BUILDING CODE REQUIREMENT (3309.3) CRACK GAGES SHALL BE INSTALLED ON PRE-EXISTING CRACKS AS IDENTIFIED DURING THE PRE-DEMOLITION CONDITION SURVEY AND MONITORED PERIODICALLY DURING DEMOLITION.

1560 BROADWAY IS AN INTERIOR LANDMARK STRUCTURE AND SHALL BE MONITORED IN ACCORDANCE WITH TPPN #10/88 1552 BROADWAY IS AN EXTERIOR LANDMARK STRUCTURE AND SHALL BE MONITORED IN ACCORDANCE WITH TPPN #10/88

CONTRACTOR'S DUTIES & LIMIT OF ENGINEER'S RESPONSIBILITY: 1. THE PLANS HEREIN PRESENT A GENERAL SCHEME FOR DEMOLITION. DUE TO THE NATURE OF DEMOLITION, IT IS IMPOSSIBLE FOR THE ENGINEER TO ANTICIPATE ALL CONDITIONS OR CONTINGENCIES. IF THE CONTRACTOR COMES ACROSS A CONDITION OR CIRCUMSTANCE THAT IS ASSESSED TO NEED THE ENGINEER'S SCRUTINY, THE

CONTRACTOR SHALL PROVIDE TIMELY NOTIFICATION TO THE ENGINEER. THE ENGINEER HAS NO ONGOING PRESENCE ON THE SITE, NO CONTROL OF ACTIVITIES ON THE SITE, NO SUPERVISORY ROLE AND NO FIELD RESPONSIBILITY FOR SITE

THE CONTRACTOR IS RESPONSIBLE FOR SUPERVISION OF THE WORK INCLUDING PERSONNEL PROTECTION IN ACCORDANCE WITH OSHA AND OTHER APPLICABLE

REGULATIONS, PUBLIC PROTECTION IN ACCORDANCE WITH THE NYC BUILDING CODE AND PROTECTION OF ADJACENT PROPERTIES.

IN ORDER TO BE ABLE TO CARRY OUT DUTIES IMPOSED IN BC CHAPTERS 17 AND 33, THE SPECIAL INSPECTOR AND THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR BETWEEN 24 AND 72 HOURS PRIOR TO THE START OF STRUCTURAL DEMOLITION.

THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PROMPTLY OF ANY DEVIATION FROM THE APPROVED PLAN, UNEXPECTED CONDITIONS OR INCIDENTS INVOLVING INJURY, COLLAPSE, PROPERTY DAMAGE OR VIOLATIONS ISSUED BY GOVERNMENT ENTITIES.

DEMOLITION SEQUENCE:

A. PREPARATION WORK: A.1. REMOVE AND DISPOSE OF ANY HAZARDOUS OR FLAMMABLE MATERIAL

A.2. VERIFY THAT THE BUILDING IS ASBESTOS FREE (ORIGINAL CONSTRUCTION IS ORIGINALLY BUILT IN THE 1990s.) PROCEED WITH ASBESTOS AND LEAD ABATEMENT IF

ANY. ANY ABATEMENT IS PART OF SEPARATE SUBMITTAL A.3. INSTALL SIDEWALK SHED, SCAFFOLD, FENCE, ROOF PROTECTION AND HOIST AS SHOWN FOR SAFETY ZONE. PROVIDE ANY OTHER PROTECTION OR SIGNS REQUIRED. A.4. INSTALL PROTECTION AT DEBRIS CHUTE, INCLUDING THE COVER AT ALL THE OPENING AT THE INTERMEDIATE FLOORS, THE BUMPER AND RAIL AT THE THE TOP WORKING

FLOOR AND THE DEBRIS DEFLECTOR AND SHIELD AT THE BASE. A.5. REMOVE THE PERIMETER GLASS WINDOWS, A MINIMUM OF 5 FLOORS AHEAD OF THE STRUCTURAL DEMOLITION FLOOR WORKING FROM SCAFFOLD OR FLOOR. INSTALL SOLID PLYWOOD TO COVER ALL OPENINGS AT FLOOR BELOW WORKING FLOOR, TYPICALLY.

STRUCTURE DEMOLITION:

B.1. PHASE I: COMPLETE DEMOLITION DOWN TO THE 16TH FLOOR:

SEE DM-101 FOR DETAIL

B.2. PHASE II: SELECTIVE DEMOLITION 16TH FLOOR & DOWN

PHASE 2 DEMOLITON DEAILS TO BE INCLUDED IN SUBSEQUENT SUBMITTAL AS AN AMENDMENT TO THESE PLANS.

TYPICAL WORK SEQUENCE AND CONTRACTOR SAFETY ZONE

1. AT THE START OF THE WORK SHIFT, CONTRACTOR SHALL ESTABLISH A CONTROLLED ACCESS AREA. SUCH AREA CAN BE MOVED OR INCREASED DURING THE WORK DAY AS THE DEMOLITION PROGRESSES AND IT MAY ENCOMPASS THE ENTIRETY OR PART OF THE BUILDING FLOOR AREA:

1.1. FULLY COVER ANY STAIRS OR FLOOR OPENINGS ON THE FLOOR BELOW THE WORKING FLOOR TO CONTAIN ALL FALLING DEBRIS. ENSURE THAT (2) MEANS OF

EGRESS REMAIN ACCESSIBLE FOR THE WORKERS. USE SCAFFOLD STAIR TOWER ON WORKING FLOOR IF NECESSARY.

VERIFY THAT ANY WINDOWS OR WALL OPENINGS BELOW THE WORKING FLOOR ARE TIGHTLY COVERED WITH A SOLID ENCLOSURE. INSTALL SOLID PLYWOOD PROTECTION AT THE SCAFFOLD AROUND THE WORKING AREA. SEE TYPICAL DETAILS.

PROVIDE CABLE AND NETTING, GUARDRAILS OR EQUAL MEANS TO PHYSICALLY DELINEATE THE WORKING AREA. THE AREA SHALL BE TOTALLY CLOSED ON BOTH THE WORKING LEVEL AND THE FLOOR BELOW THE WORKING LEVEL. THE WORKING AREA SHALL BE ACCESSIBLE ONLY BY MACHINE OPERATORS AND ESSENTIAL PERSONNEL, SUCH AS BURNERS. TIE BACKS REQUIRED WHEN WORKING AT PROXIMITY OF A LEADING EDGE. ACCESS TO THE FLOOR BELOW THE WORK AREA (TO CLEAN DEBRIS AWAY OR TO FACILITATE BEAM REMOVAL) ALLOWED ONLY WHEN SLAB DEMOLITION IS NOT IN PROGRESS WITHIN 20'.

ENSURE THAT THE CREWS ON THE WORKING FLOOR AND ON THE FLOOR BELOW HAVE A MEAN TO MAINTAIN CONSTANT CONTACT, SUCH AS RADIOS.

VERIFY THAT CHUTE IS SOUND AND PROTECTED. ONCE THE CONTROLLED ACCESS AREA IS ESTABLISHED, DEMOLITION OF THE SLABS, FRAMING WALLS AND COLUMNS MAY START AS SHOWN. DEBRIS TO BE CLEANED OUT OF THE WORKING AREA (SLAB DEMOLITION ABOVE SHALL BE STOPPED OR LOCATED A MINIMUM DF 20' FROM THE CLEANUP OPERATION).

AT THE END OF A WORKING SHIFT, VERIFY THAT THE AREA IS REASONABLY CLEAN OF DEBRIS AND THAT THE REQUIRED EGRESSES REMAIN UNOBSTRUCTED. INSTALL

FALL PROTECTION AT ALL LEADING EDGES. 4. PRIOR TO EXITING THE MACHINE, THE OPERATOR MUST BACK THE EQUIPMENT 10' AWAY FROM OPEN EDGES.

MECHANICAL EQUIPMENT FOR DEMOLITION (SEE DMO-006 & DMO-008)

HAND HELD MECHANICAL TOOLS FOR WALL REMOVAL AND FLOOR DISMANTLING:

- ELECTRIC CHIPPING GUN
- JACK HAMMER
- OXY—ACETYLENE BURNING OUTFIT ELECTRICAL GRINDER
- GAS-POWERED DEMOLITION SAW CHAINSAW
- GENERATOR COMPRESSOR

MECHANICAL EQUIPMENT ALLOWED ON FLOORS:

BOBCAT 430 MINI EXCAVATOR; WEIGHT = 8,025 LBS

- CATERPILLAR 303.5D CR MINI EXCAVATOR: WEIGHT = 7.800 LBS
- CATERPILLAR 303C CR MINI EXCAVATOR; WEIGHT = 7,835 LBS CATERPILLAR 303.5C CR MINI EXCAVATOR; WEIGHT = 8,200 LBS
- CATERPILLAR 304E CR MINI EXCAVATOR; WEIGHT = 8,497 LBS
- CATERPILLAR 304D CR MINI EXCAVATOR; WEIGHT = 8,500 LBS
- BROKK 150 DEMOLITION ROBOT; WEIGHT = 3,595 LBS BROKK 180 DEMOLITION ROBOT; WEIGHT = 4,190 LBS
- BOBCAT 331 COMPACT EXCAVATOR; WEIGHT: 7,185 LBS TAKEUCHI TB135 MINI EXCAVATOR: WEIGHT: 7,831 LBS
- CASE CX31B MINI EXCAVATOR: WEIGHT: 7.679 LBS - BOBCAT S150 (OR S160) SKID STEER LOADER; WEIGHT: 6,115 LBS- SEE DMO-008
- CATERPILLAR 226 SKID STEER LOADER; WEIGHT = 5,830 LBS
- BOBCAT 553 SKID STEER LOADER; WEIGHT = 3,704 LBS

LIST OF DRAWINGS

PLOT PLAN AND MEANS AND METHODS NOTES DMO-002.00 PHASE 1: SAFETY ZONE PLAN DMO-003.00 PHASE 1: PROTECTION SECTIONS AT START OF PROJECT PHASE 1: PROTECTION SECTIONS AT START OF PROJECT DMO-004.00 DMO-005.00 PHASE 1: TYPICAL PROTECTION DETAILS PHASE 1: TYPICAL PROTECTION DETAILS 2 DMO-006.00 DMO-007.00 PHASE 1: DEBRIS CHUTE DETAILS PHASE 1: SHORING DETAILS: FLOORS 9-ROOF DMO-008.00 PHASE 1: ELEVATOR MACHINE ROOF AND LEVEL 2 DEMOLITION PLANS AND SEQUENCE DMO-101.00 PHASE 1: ELEVATOR MACHINE ROOF AND LEVEL 2 DEMOLITION SECTIONS DMO-102.00 DMO-103.00 PHASE 1: ELEVATOR MACHINE ROOF AND LEVEL 2 DEMOLITION SECTIONS DMO-104.00 PHASE 1: ELEVATOR MACHINE 1 AND MAIN ROOF DEMOLITION PLANS PHASE 1: ELEVATOR MACHINE 1 AND MAIN ROOF DEMOLITION SECTIONS DMO-105.00 PHASE 1: ELEVATOR MACHINE 1 AND MAIN ROOF DEMOLITION SECTIONS DMO-106.00 DMO-107.00 PHASE 1: TYPICAL FLOOR DEMOLITION PLAN PHASE 1: 43RD TO 17TH FLOOR DEMOLITION SECTIONS DMO-108.00

PHASE 1: 43RD TO 17TH FLOOR DEMOLITION SECTIONS DMO-109.00 DMO-301.00 NYC DOB BUILDING CODE NOTES

DMO-302.00 MACHINES SPECIFICATIONS: MINI EXCAVATORS ON SLABS MACHINES SPECIFICATIONS: LOADERS ON SLABS AND 1ST FLOOR EQUIPMENT DMO - 303.00

-FOR REQ. SHORING (FL 9-ROOF)

PHASE 1 DEMOLITION SEQUENCE STEP A: EMR ROOF & EMR LEVEL 2

STEP C: 43RD FLOOR TO 17TH FLOOR

STEP B: EMR LEVEL 1 & MAIN ROOF

DOB APP# ALT-1 ALTERATION 121191236 PENDING **SCAFFOLDING** PENDING . HOIST PENDING SPRINKLER STANDPIPE PENDING SIDEWALK SHED PENDING PENDING FENCE

APPLICATIONS FILED IN CONJUNCTION WITH THIS WORK:

DRAWING INTENT

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY

FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

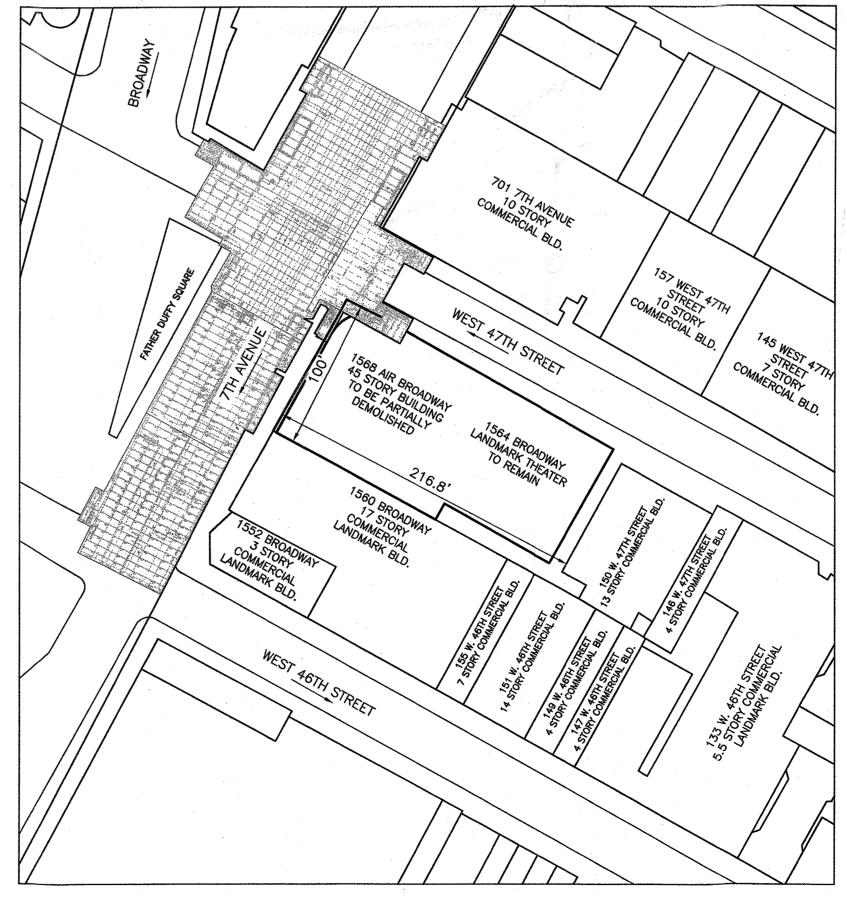
THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

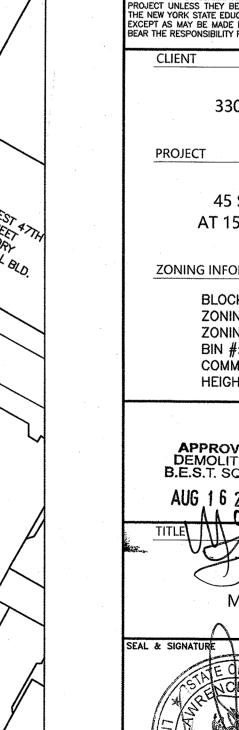
THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

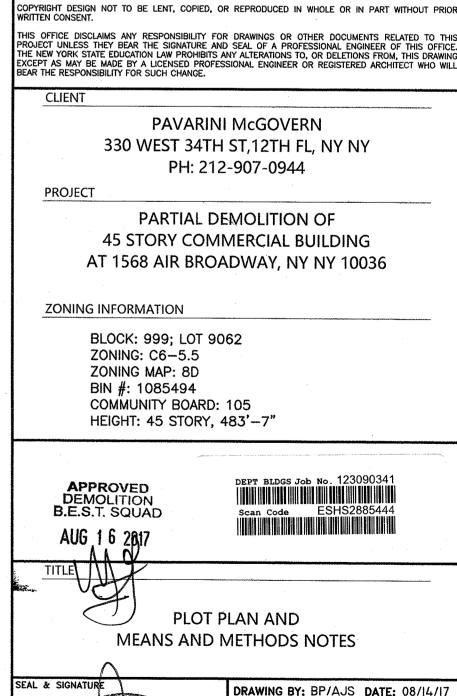
ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.

PLANS HEREIN DO NOT SHOW EXISTING PARTITIONS, CEILINGS, MECHANICAL PIPING, ELEVATOR MOTORS, HVAC EQUIPMENT OR ANY OTHERS NON-STRUCTURAL MISCELLANEOUS ITEMS THAT ARE MAY ALSO BE PART OF THE SCOPE OF DEMOLITION. CONTRACTOR SHALL VERIFY THE EXISTENCE OF SUCH ITEMS IN THE FIELD.

THE BUILDING IS CURRENTLY OCCUPIED BY TENANTS. IT IS SCHEDULED TO BE VACATED IN OCTOBER 2017. PRE DEMOLITION INSPECTION MAY NOT BE SCHEDULED UNTIL BUILDING IS TOTALLY VACANT.







CONSULTING ENGINEERS P

TEL: (516) 791-2600 FAX: (516) 791-5425

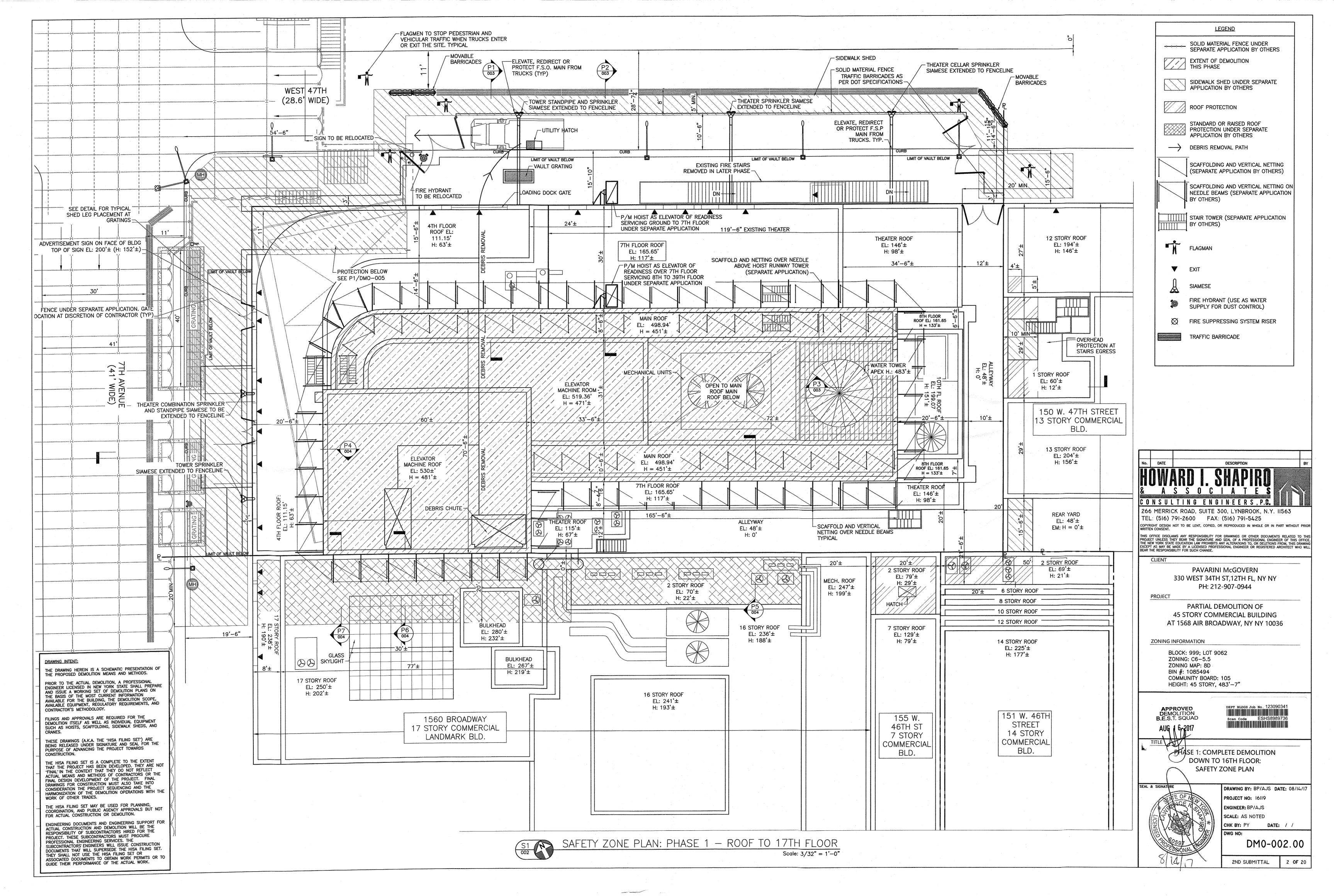
266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563

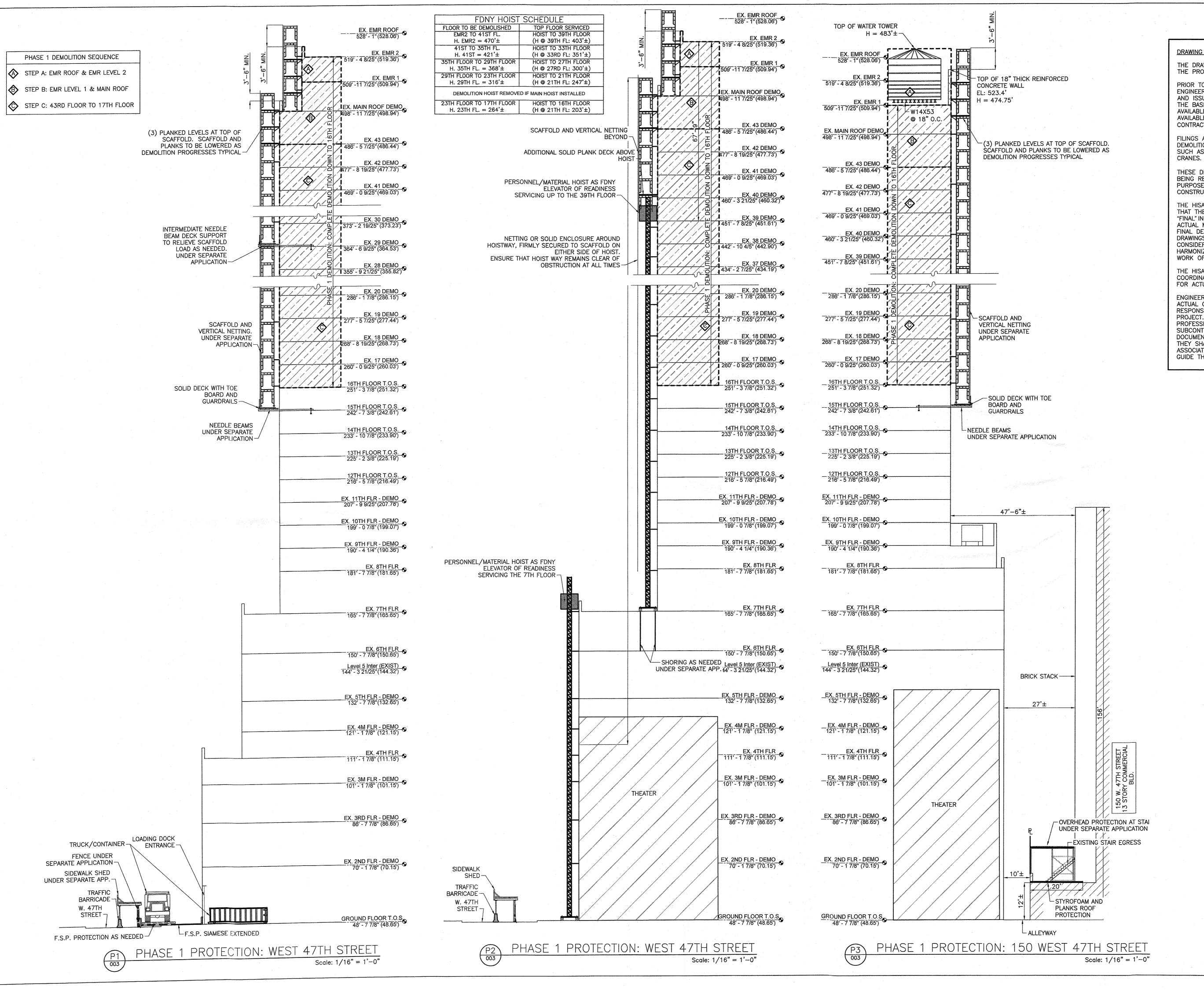


PROJECT NO: 16119 **ENGINEER: BP/AJS** SCALE: AS NOTED DWG NO: DMO-001.00

2ND SUBMITTAL

1 **OF** 20





DRAWING INTENT:

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY.

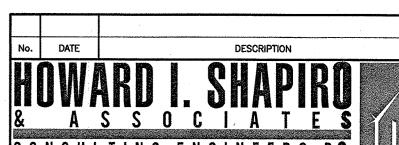
FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.



CONSULTING ENGINEERS, P.G. 266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563 TEL: (516) 791-2600 FAX: (516) 791-5425 COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

PAVARINI McGOVERN 330 WEST 34TH ST,12TH FL, NY NY PH: 212-907-0944

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

ZONING INFORMATION

BLOCK: 999; LOT 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

DEMOLITION B.E.S.T. SQUAD

DEPT BLDGS Job No. 123090341
Scan Code ESHS0074146

HASE 1: COMPLETE DEMOLITION DOWN TO 16TH FLOOR: PROTECTION SECTION AT START OF PROJECT

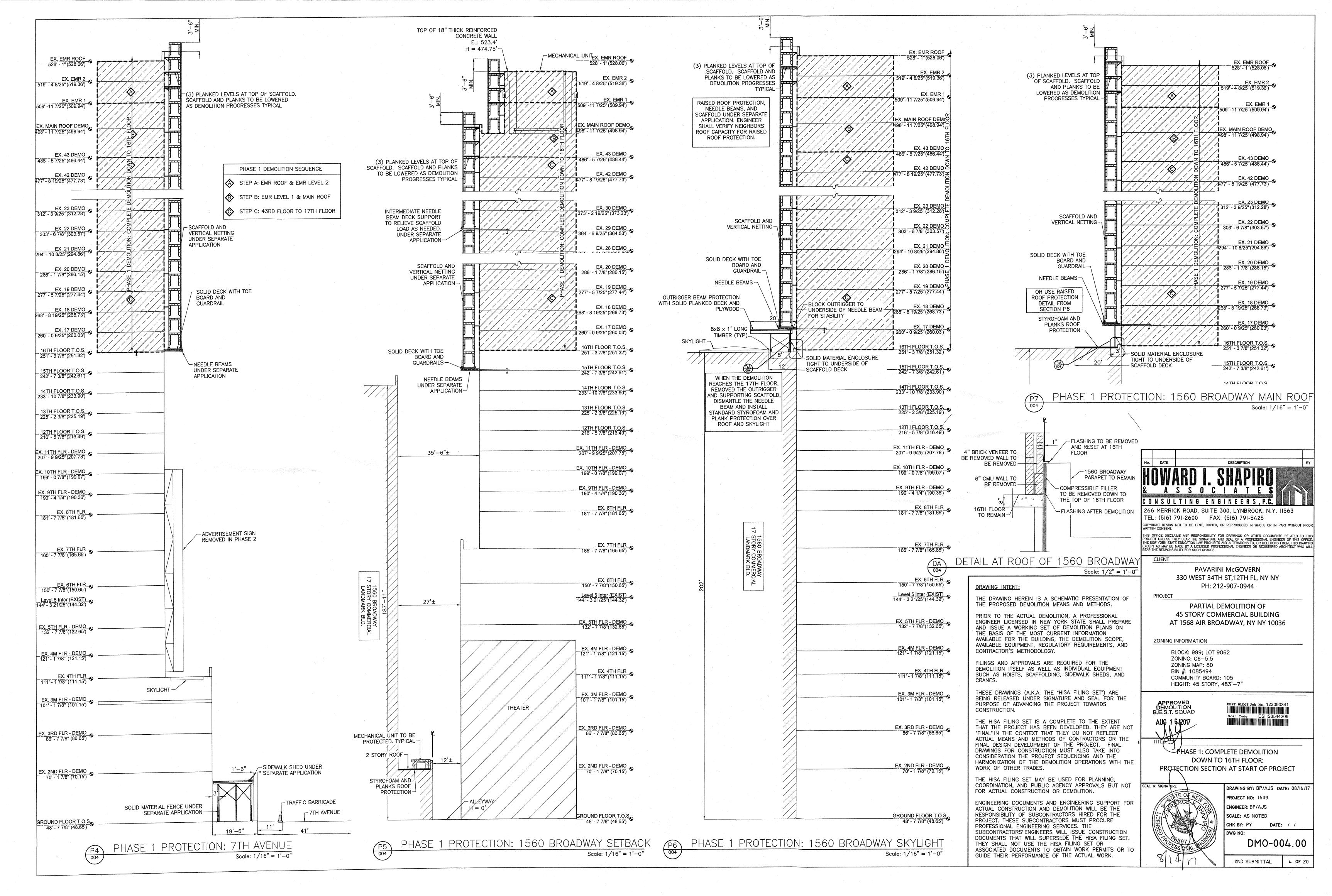


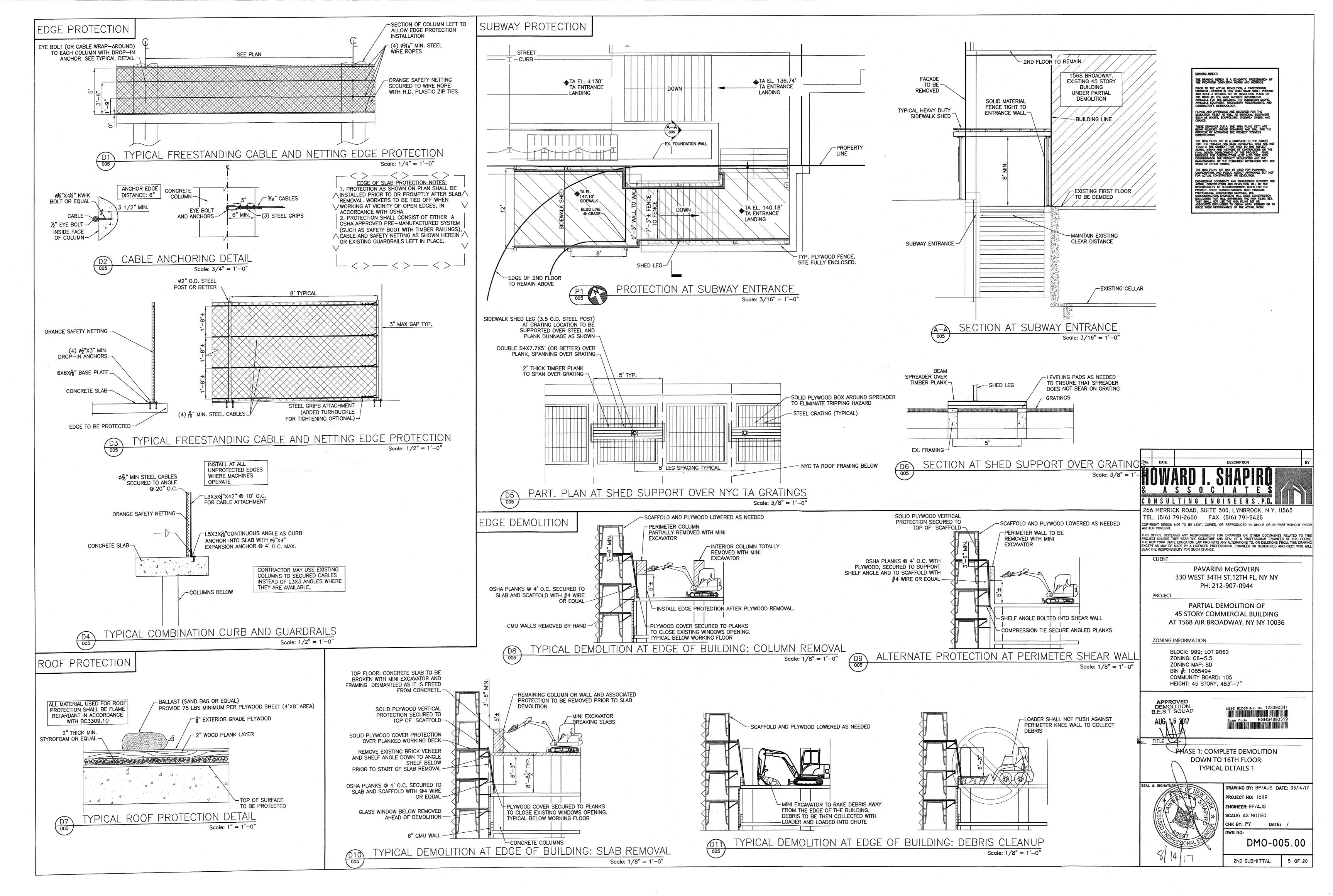
DRAWING BY: BP/AJS DATE: 08/14/17 PROJECT NO: 16119 ENGINEER: BP/AJS

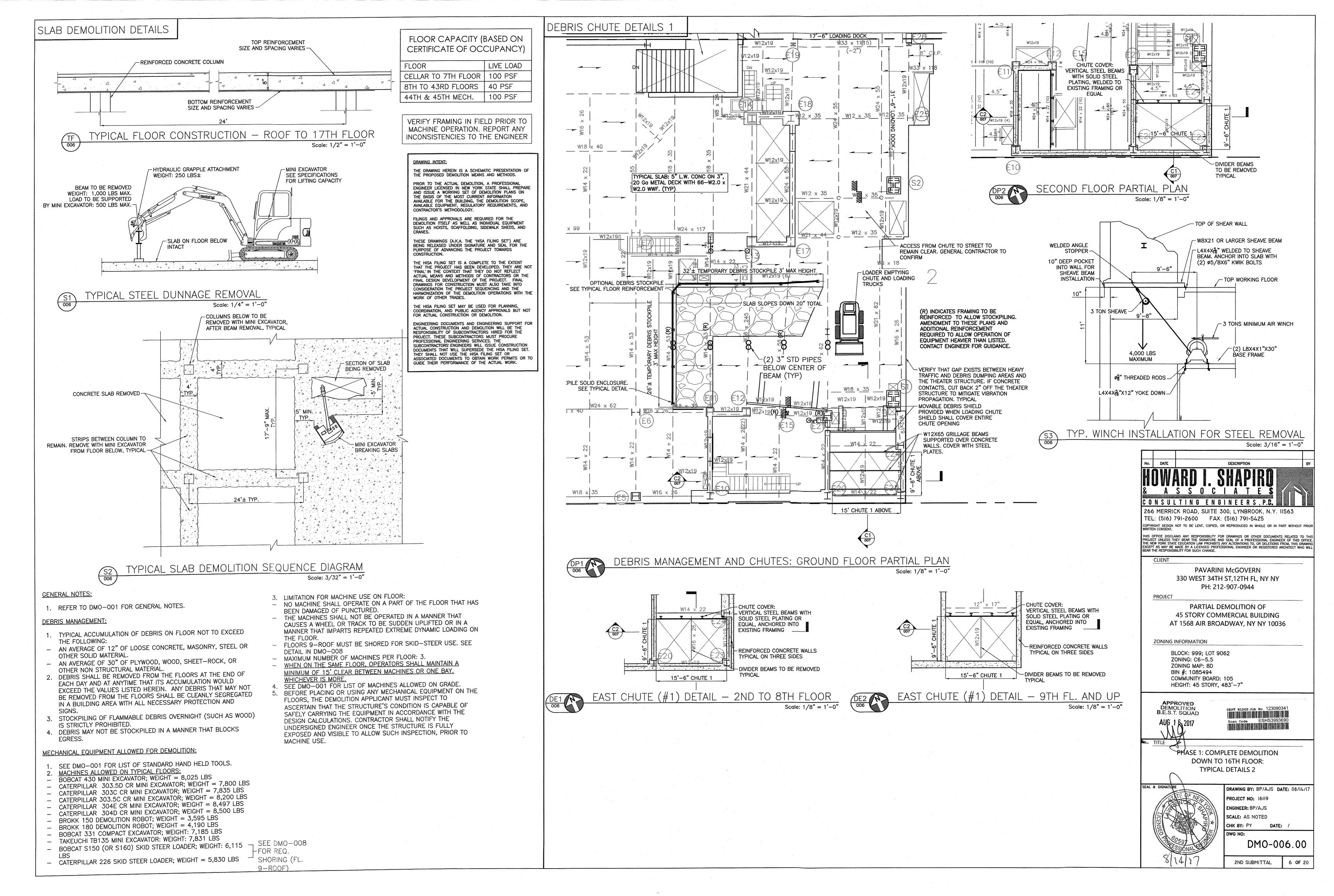
SCALE: AS NOTED CHK BY: PY DATE: / / DWG NO:

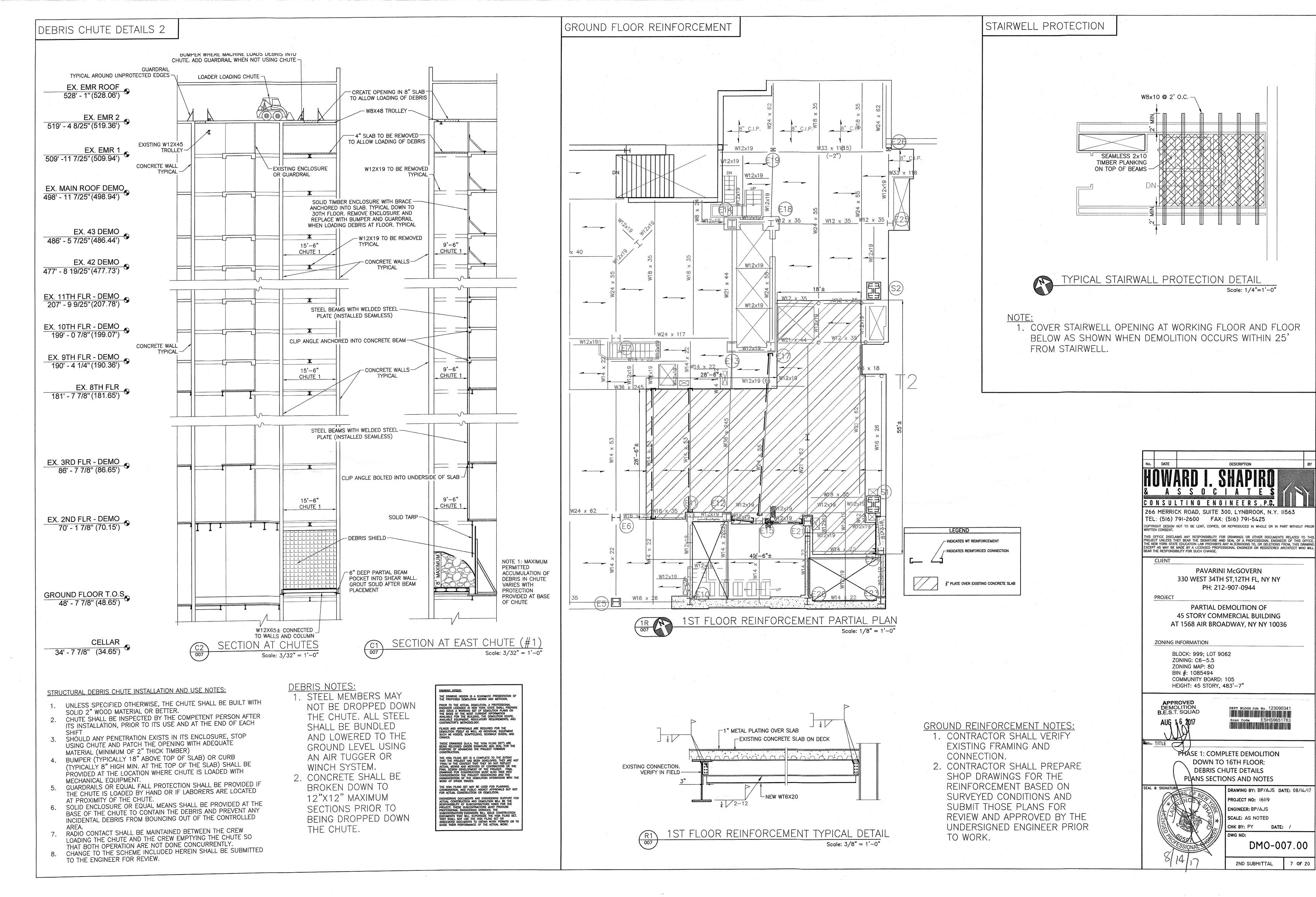
DMO-003.00

2ND SUBMITTAL 3 OF 20









DRAWING INTENT:

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY.

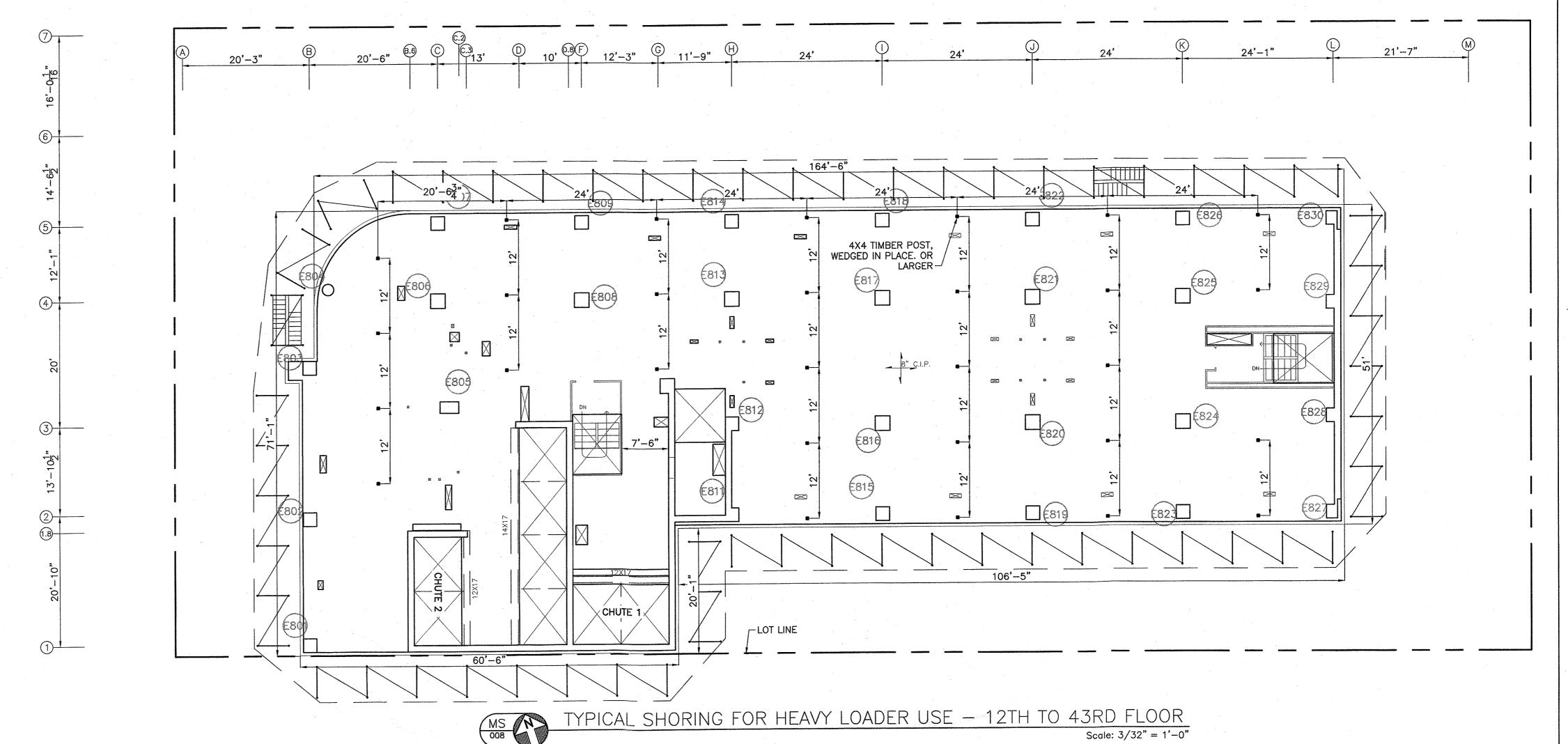
FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND CRANES.

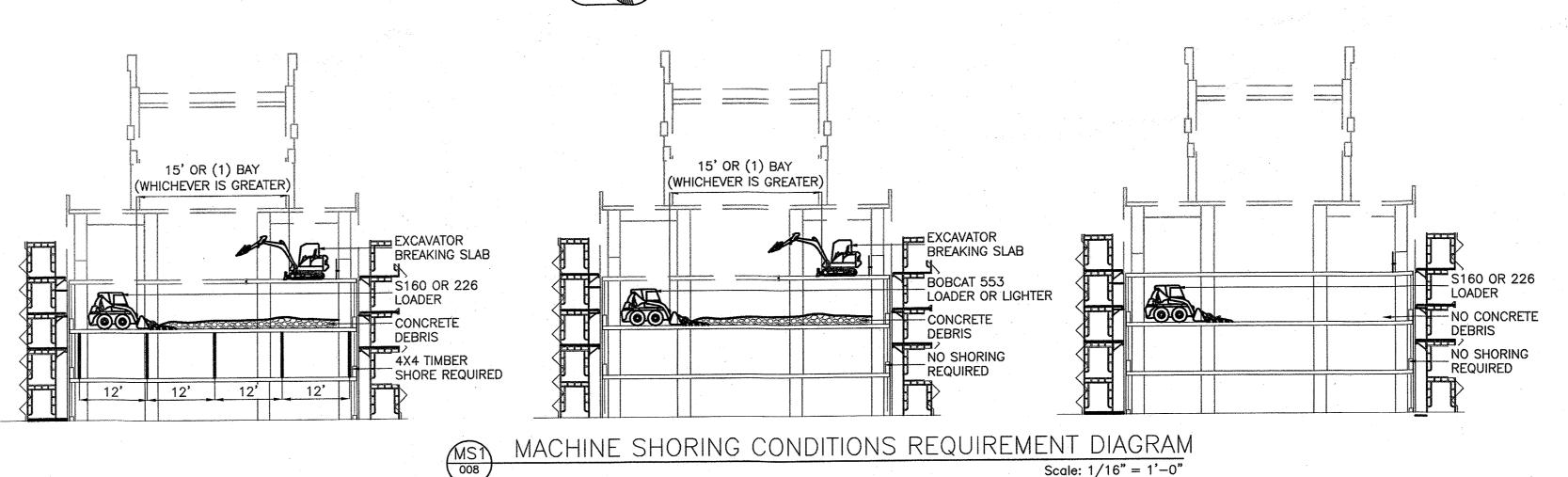
THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

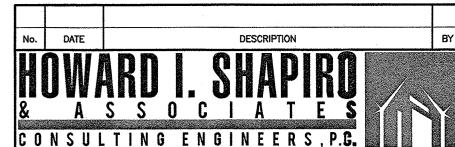
ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.





MACHINE SHORING NOTES:

- 1. SHORING AS SHOWN IS REQUIRED FOR SKID-STEER LOADER USE.
- 2. SHORING TO BE PROVIDED TO SUPPORT THE SLAB THAT WILL RECEIVE THE DEMOLITION DEBRIS AND WHERE THE LOADERS ARE USED.



266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563
TEL: (516) 791-2600 FAX: (516) 791-5425
COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

WRITTEN CONSENT.

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

PAVARINI McGOVERN
330 WEST 34TH ST,12TH FL, NY NY
PH: 212-907-0944

PROJECT

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

ZONING INFORMATION

- BLOCK: 999; LOT 9062 ZONING: C6-5.5 ZONING MAP: 8D
- BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

APPROVED
DEMOLITION
B.E.S.T. SQUAD
AUG 1 6,2017



PHASE 1: COMPLETE DEMOLITION
DOWN TO 16TH FLOOR:
SHORING DETAILS
FLOORS 9-ROOF

CHK BY: PY

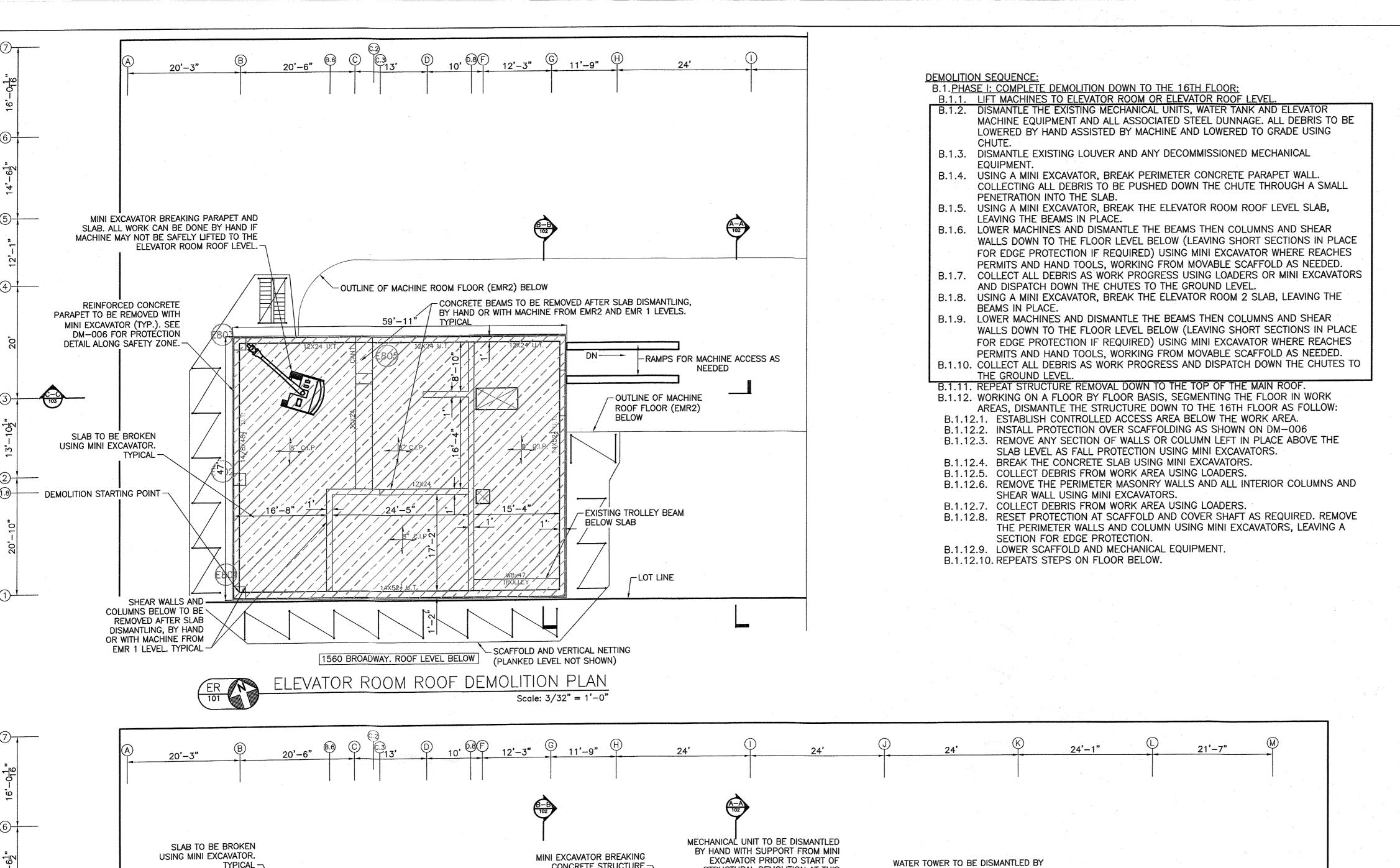


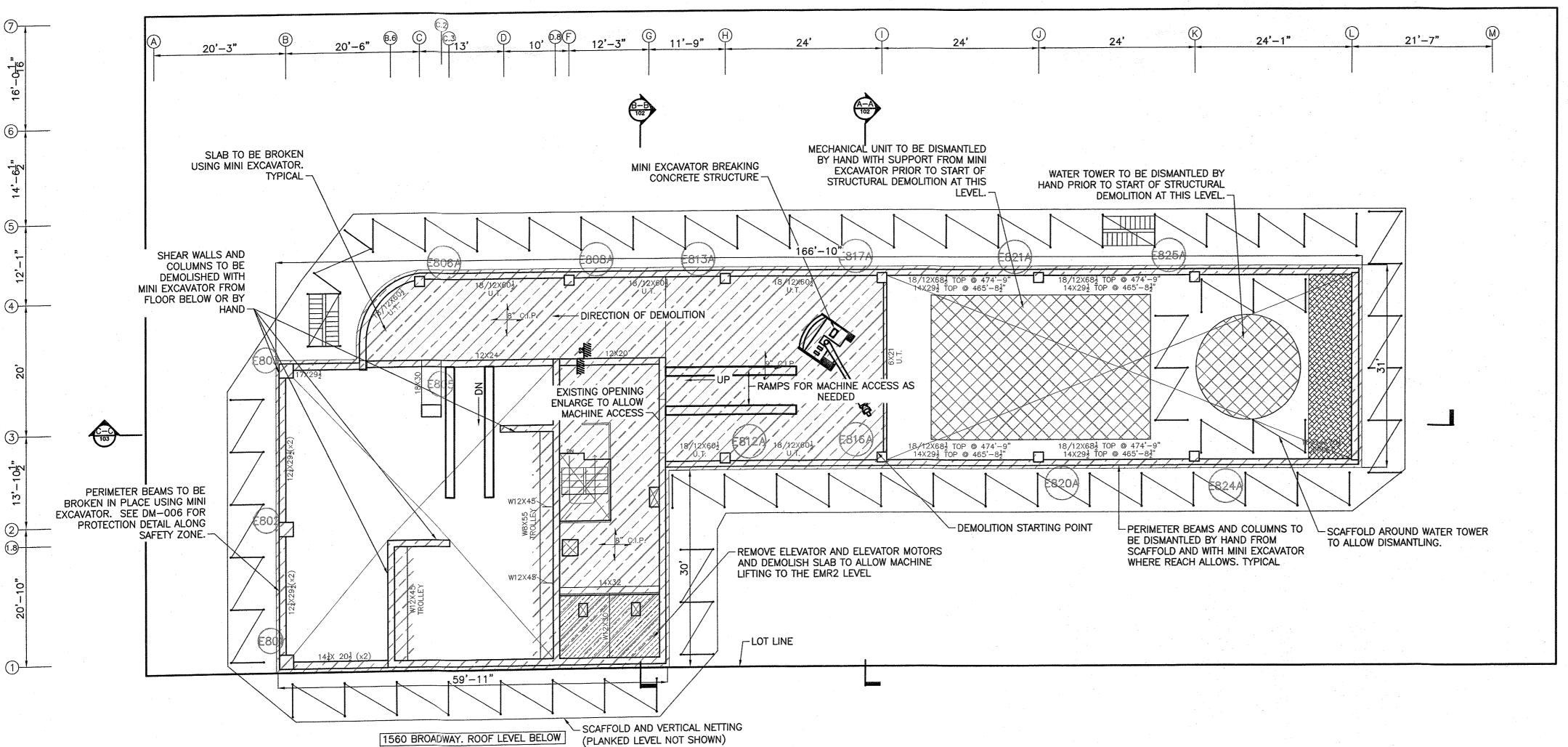
DRAWING BY: BP/AJS DATE: 08/14/17
PROJECT NO: 16119
ENGINEER: BP/AJS
SCALE: AS NOTED

DMO-008.00

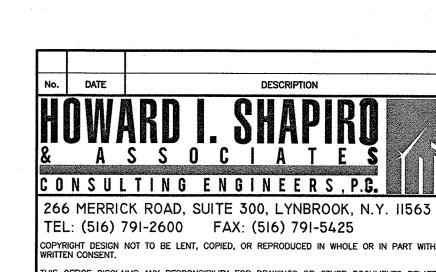
DATE: /

2ND SUBMITTAL 8 OF 20





ELEVATOR ROOM 2 (EMR2) DEMOLITION PLAN



COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT. THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY ON LOWEST OF THE RESPONSIBILITY FOR SUCH CHANGE.

LEGEND

SCAFFOLDING AND VERTICAL NETTING

SCAFFOLDING AND VERTICAL NETTING ON

EXTENT OF DEMOLITION

ROOF PROTECTION

NEEDLE BEAMS

STAIR TOWER

RISER AND MAIN

⊗∗FHV RISER AND FIRE HOSE

FIRE SUPPRESSING SYSTEM

THIS PHASE

PAVARINI McGOVERN 330 WEST 34TH ST,12TH FL, NY NY PH: 212-907-0944

DRAWING INTENT:

CRANES.

CONSTRUCTION.

WORK OF OTHER TRADES.

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF

ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE

AND ISSUE A WORKING SET OF DEMOLITION PLANS ON

AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND

SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT

"FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT

FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL

DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO

CONSIDERATION THE PROJECT SEQUENCING AND THE

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT

FOR ACTUAL CONSTRUCTION OR DEMOLITION.

PROFESSIONAL ENGINEERING SERVICES. THE

ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE

HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR

ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE

RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE

SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION

DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET.

ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO

PROJECT. THESE SUBCONTRACTORS MUST PROCURE

THEY SHALL NOT USE THE HISA FILING SET OR

GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.

PURPOSE OF ADVANCING THE PROJECT TOWARDS

BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE

AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE,

THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL

THE BASIS OF THE MOST CURRENT INFORMATION

FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT

CONTRACTOR'S METHODOLOGY.

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

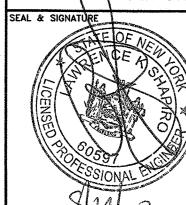
ZONING INFORMATION

BLOCK: 999; LOT 9062 **ZONING: C6-5.5** ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

DEMOLITION B.E.S.T. SQUAD

DEPT BLDGS Job No. 123090341

PHASE 1: COMPLETE DEMOLITION DOWN TO 16TH FLOOR: **ELEVATOR MACHINE ROOF AND LEVEL 2**

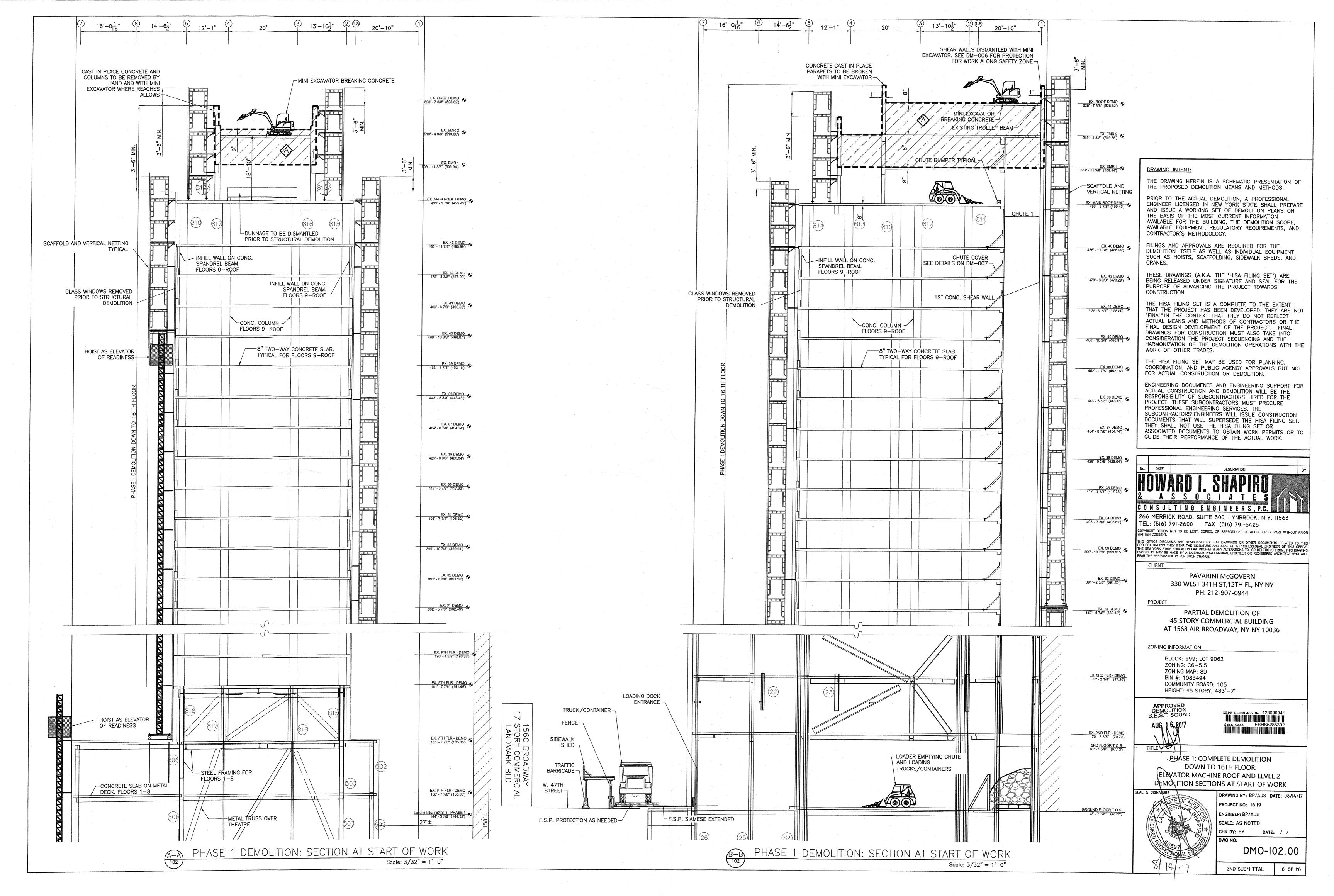


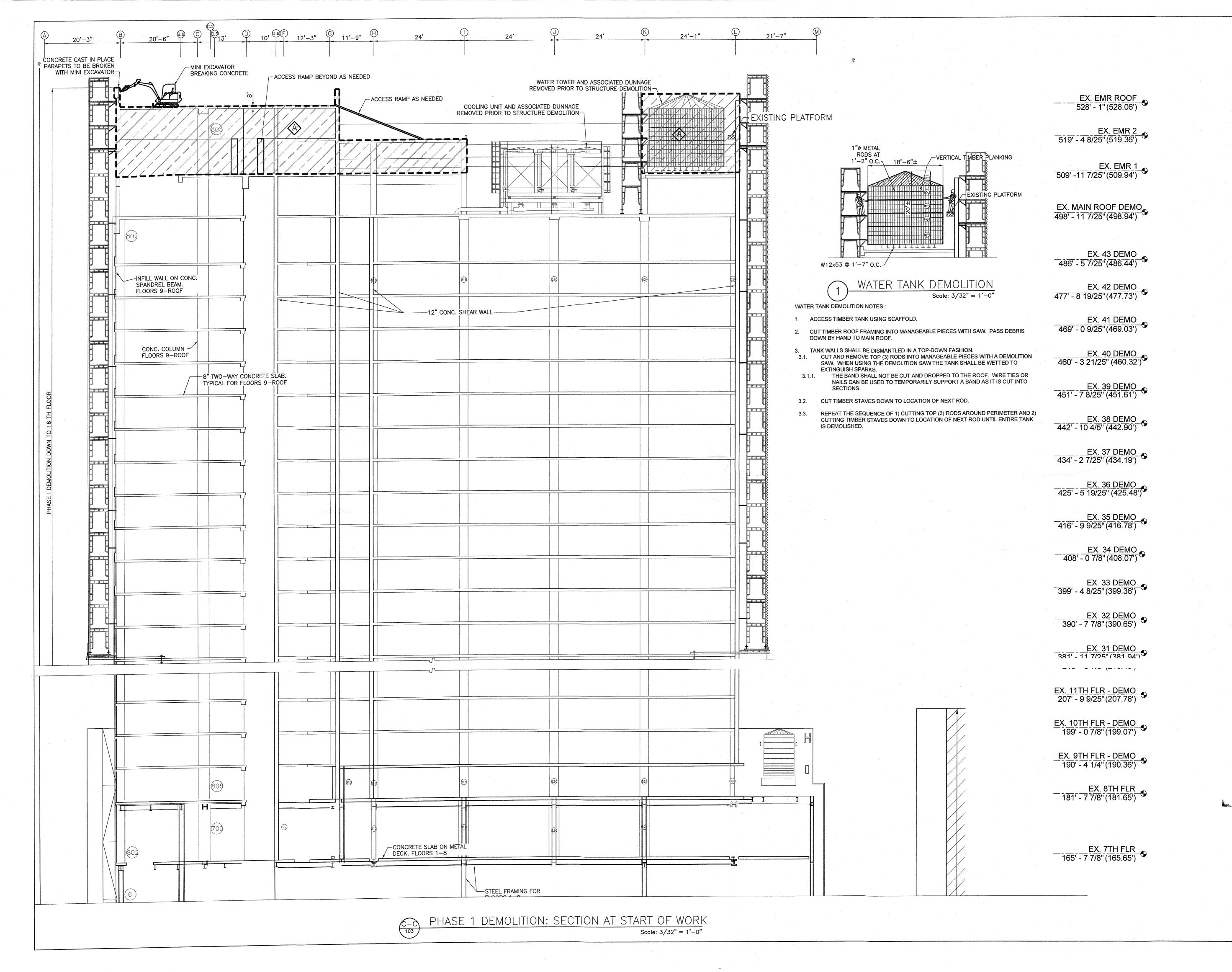
DAMOLITION PLANS AND SEQUENCE DRAWING BY: BP/AJS DATE: 08/14/17 PROJECT NO: 16119

ENGINEER: BP/AJS SCALE: AS NOTED CHK BY: PY DATE: / /

DMO-101.00

2ND SUBMITTAL 9 **OF** 20





DRAWING INTENT:

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY.

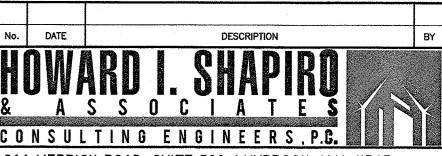
FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND CRANES

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.



266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. II563 TEL: (516) 791-2600 FAX: (516) 791-5425

COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

CLIENT

PAVARINI McGOVERN 330 WEST 34TH ST,12TH FL, NY NY PH: 212-907-0944

PROJECT

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

ZONING INFORMATION

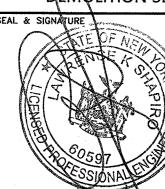
BLOCK: 999; LOT 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

APPROVED
DEMOLITION
B.E.S.T. SQUAD
AUG A 6 2017

DEPT BLDGS Job No. 123090341

Scan Code ESHS4621028

PHASE 1: COMPLETE DEMOLITION
DOWN TO 16TH FLOOR:
ELEVATOR MACHINE ROOF AND LEVEL 2
DEMOLITION SECTIONS AT START OF WORK

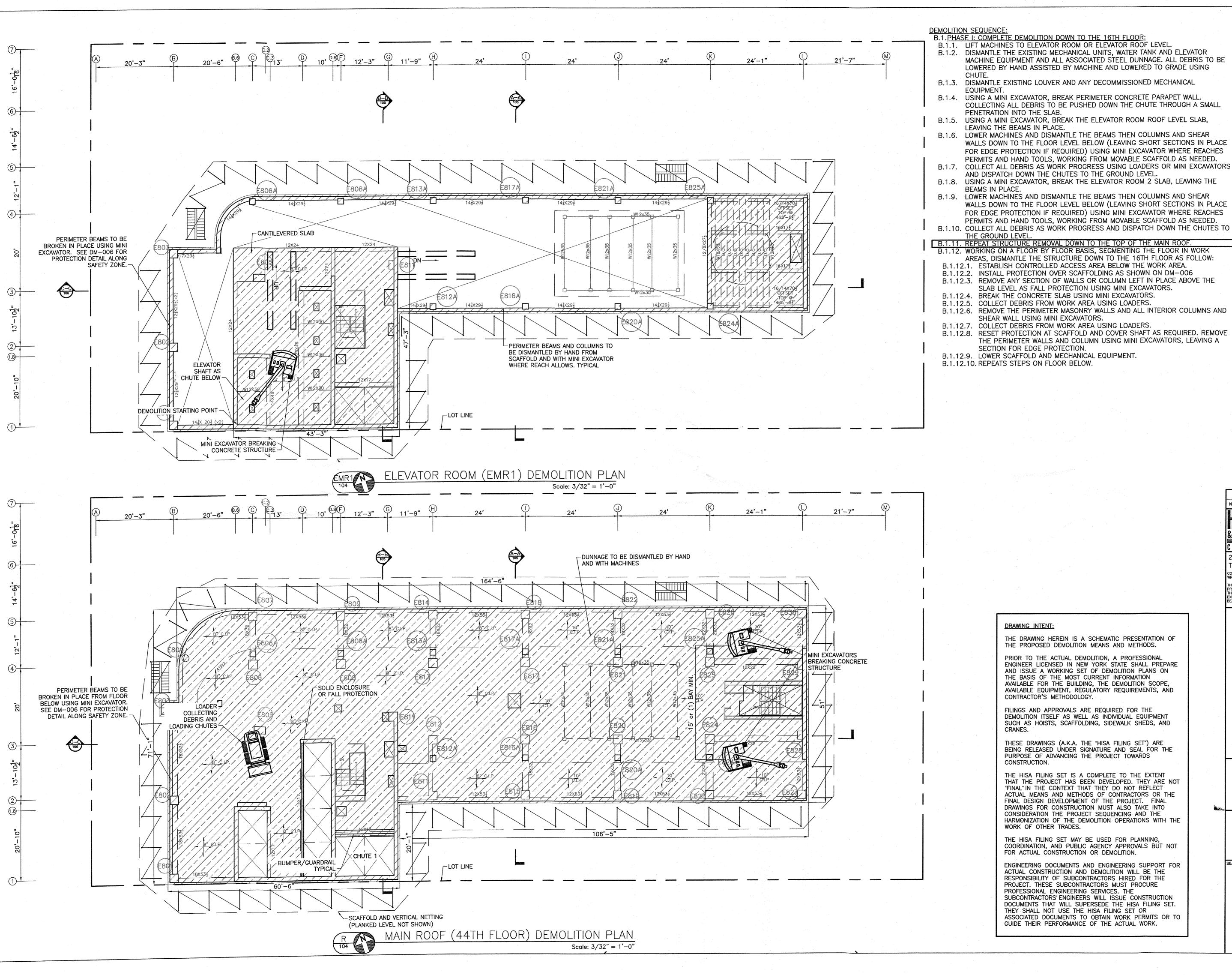


DRAWING BY: BP/AJS DATE: 08/14/17
PROJECT NO: 16119
ENGINEER: BP/AJS

SCALE: AS NOTED
CHK BY: PY DATE: / /
DWG NO:

DMO-103.00

2ND SUBMITTAL II OF 20



LEGEND B.1. PHASE I: COMPLETE DEMOLITION DOWN TO THE 16TH FLOOR B.1.1. LIFT MACHINES TO ELEVATOR ROOM OR ELEVATOR ROOF LEVEL. B.1.2. DISMANTLE THE EXISTING MECHANICAL UNITS, WATER TANK AND ELEVATOR MACHINE EQUIPMENT AND ALL ASSOCIATED STEEL DUNNAGE. ALL DEBRIS TO BE LOWERED BY HAND ASSISTED BY MACHINE AND LOWERED TO GRADE USING EXTENT OF DEMOLITION ___ THIS PHASE B.1.3. DISMANTLE EXISTING LOUVER AND ANY DECOMMISSIONED MECHANICAL ROOF PROTECTION USING A MINI EXCAVATOR, BREAK PERIMETER CONCRETE PARAPET WALL. COLLECTING ALL DEBRIS TO BE PUSHED DOWN THE CHUTE THROUGH A SMALL PENETRATION INTO THE SLAB. SCAFFOLDING AND VERTICAL NETTING USING A MINI EXCAVATOR, BREAK THE ELEVATOR ROOM ROOF LEVEL SLAB, LEAVING THE BEAMS IN PLACE. B.1.6. LOWER MACHINES AND DISMANTLE THE BEAMS THEN COLUMNS AND SHEAR SCAFFOLDING AND VERTICAL NETTING ON WALLS DOWN TO THE FLOOR LEVEL BELOW (LEAVING SHORT SECTIONS IN PLACE NEEDLE BEAMS FOR EDGE PROTECTION IF REQUIRED) USING MINI EXCAVATOR WHERE REACHES PERMITS AND HAND TOOLS, WORKING FROM MOVABLE SCAFFOLD AS NEEDED. B.1.7. COLLECT ALL DEBRIS AS WORK PROGRESS USING LOADERS OR MINI EXCAVATORS

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY.

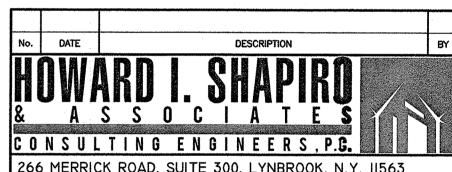
FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.



STAIR TOWER

RISER AND MAIN

RISER AND FIRE HOSE

FIRE SUPPRESSING SYSTEM

266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563 TEL: (516) 791-2600 FAX: (516) 791-5425 COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

PAVARINI McGOVERN 330 WEST 34TH ST,12TH FL, NY NY PH: 212-907-0944

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

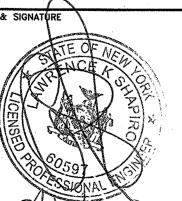
ZONING INFORMATION

BLOCK: 999; LOT 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

DEMOLITION B.E.S.T. SQUAD

DEPT BLDGS Job No. 123090341 Scan Code ESHS9003289

PHASE 1: COMPLETE DEMOLITION DOWN TO 16TH FLOOR: **ELEVATOR MACHINE ROOM 1 AND MAIN ROOF DEMOLITION PLANS AND SEQUENCE**

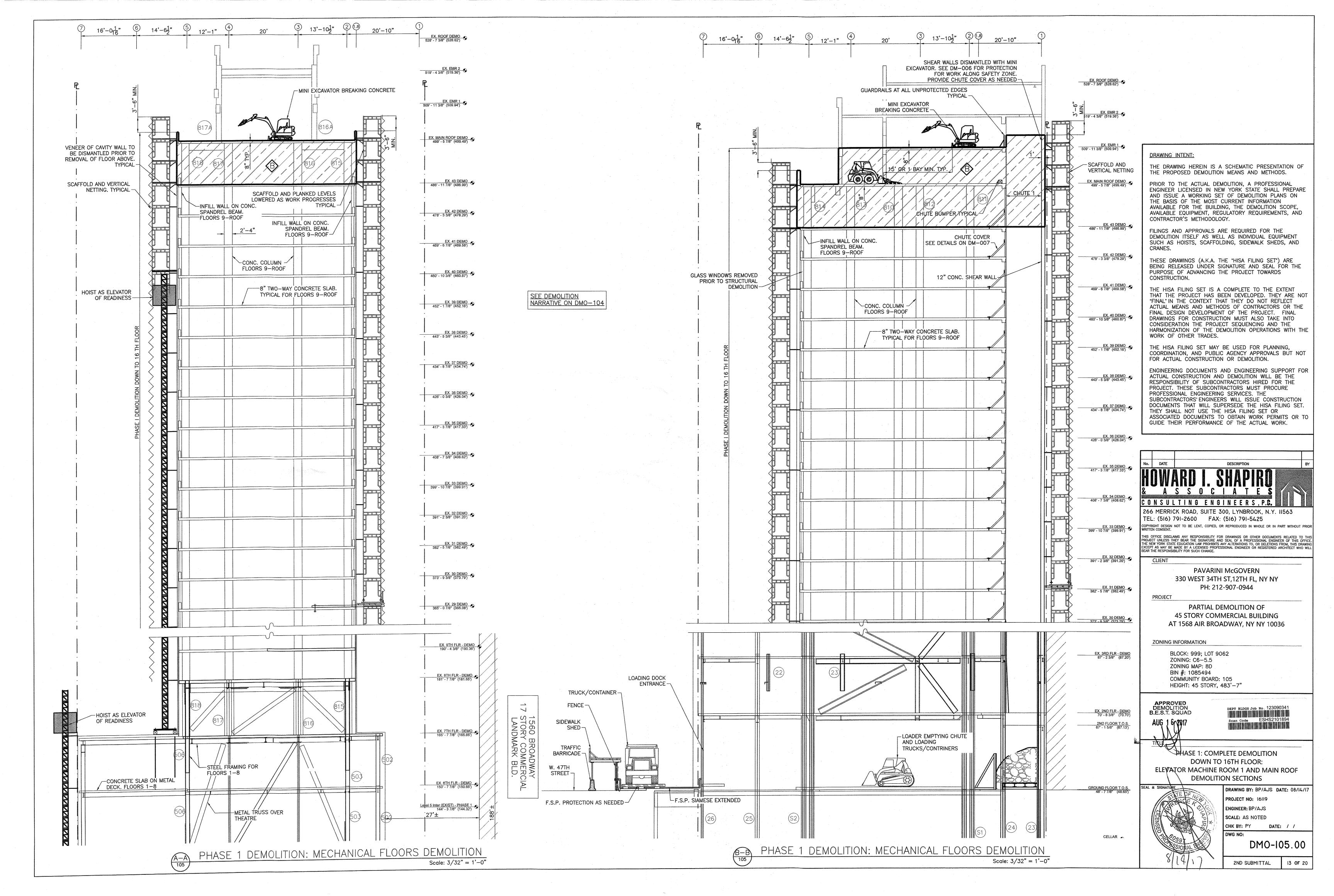


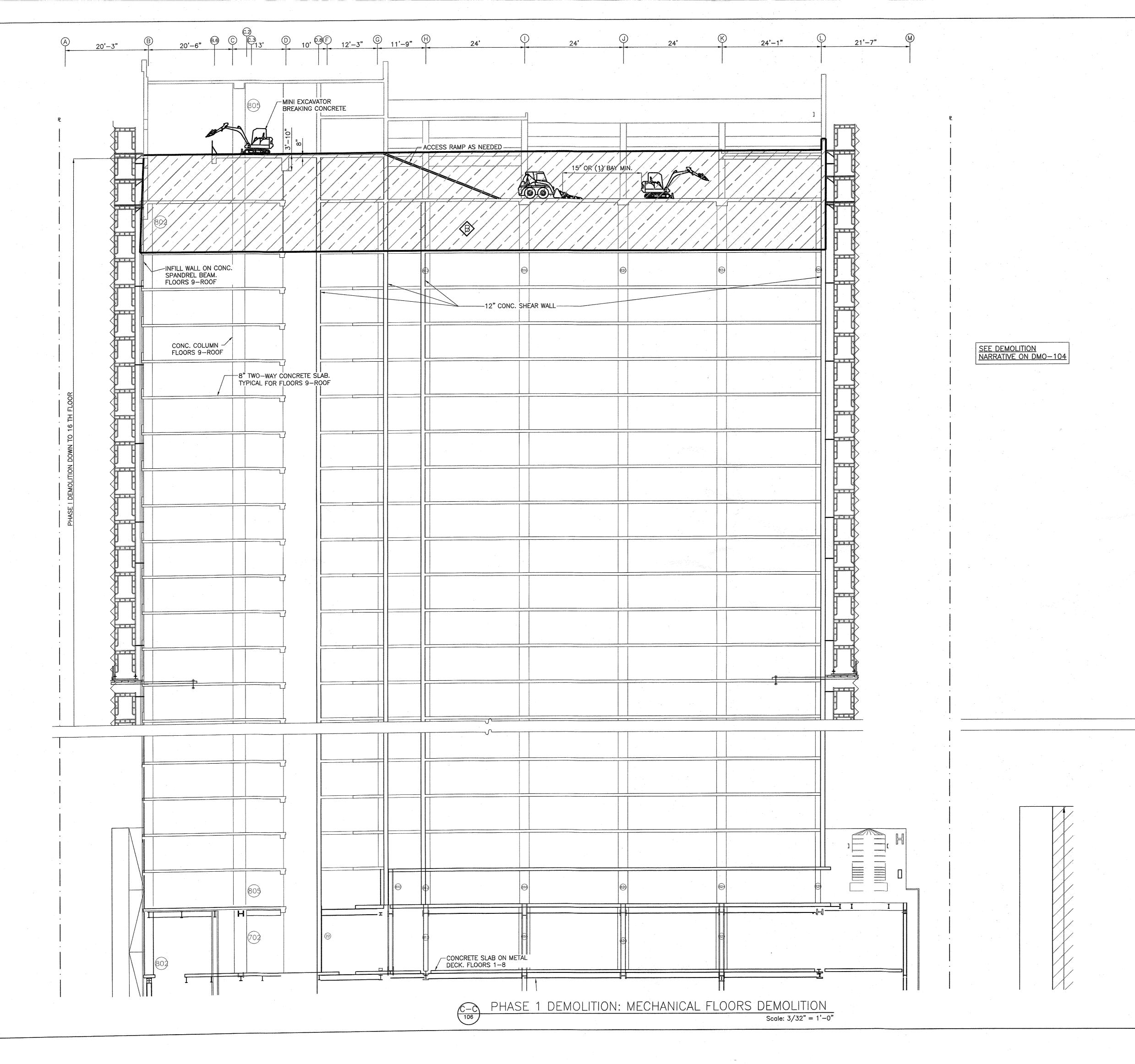
DRAWING BY: BP/AJS DATE: 08/14/17 PROJECT NO: 16119 ENGINEER: BP/AJS SCALE: AS NOTED CHK BY: PY DATE: / /

DMO-104.00

2ND SUBMITTAL

12 **OF** 20





EX. EMR ROOF 528' - 1" (528.06')

EX. EMR 2 519' - 4 8/25" (519.36')

EX. EMR 1 509' -11 7/25" (509.94')

EX. MAIN ROOF DEMO 498' - 11 7/25"(498.94')

EX. 43 DEMO 486' - 5 7/25" (486.44')

EX. 42 DEMO 477' - 8 19/25" (477.73')

EX. 41 DEMO 469' - 0 9/25" (469.03')

EX. 40 DEMO 460' - 3 21/25" (460.32')

EX. 39 DEMO 451' - 7 8/25" (451.61')

EX. 38 DEMO 442' - 10 4/5" (442.90')

EX. 37 DEMO 434' - 2 7/25" (434.19')

EX. 36 DEMO 425' - 5 19/25" (425.48')

EX. 35 DEMO 416' - 9 9/25" (416.78')

EX. 34 DEMO 408' - 0 7/8" (408.07')

EX. 33 DEMO 399' - 4 8/25" (399.36')

EX. 32 DEMO 390' - 7 7/8" (390.65')

EX. 31 DEMO 381' - 11 7/25" (381.94')

EX. 30 DEMO

12TH FLOOR T.O.S. 216' - 5 7/8"(216.49')

EX. 11TH FLR - DEMO 207' - 9 9/25" (207.78')

EX. 10TH FLR - DEMO 199' - 0 7/8" (199.07')

EX. 9TH FLR - DEMO 190' - 4 1/4" (190.36')

EX. 8TH FLR 181' - 7 7/8" (181.65')

EX. 7TH FLR 165' - 7 7/8" (165.65')

DRAWING INTENT:

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY.

FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.



266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563 TEL: (516) 791-2600 FAX: (516) 791-5425 COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

CLIENT

PAVARINI McGOVERN 330 WEST 34TH ST,12TH FL, NY NY PH: 212-907-0944

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

ZONING INFORMATION

BLOCK: 999; LOT 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

APPROVED DEMOLITION B.E.S.T. SQUAD

DEPT BLDGS Job No. 123090341
Scan Code ESHS1927325

∠PHASE 1: COMPLETE DEMOLITION DOWN TO 16TH FLOOR: **ELEVATOR MACHINE ROOM 1 AND MAIN ROOF DEMOLITION SECTIONS**

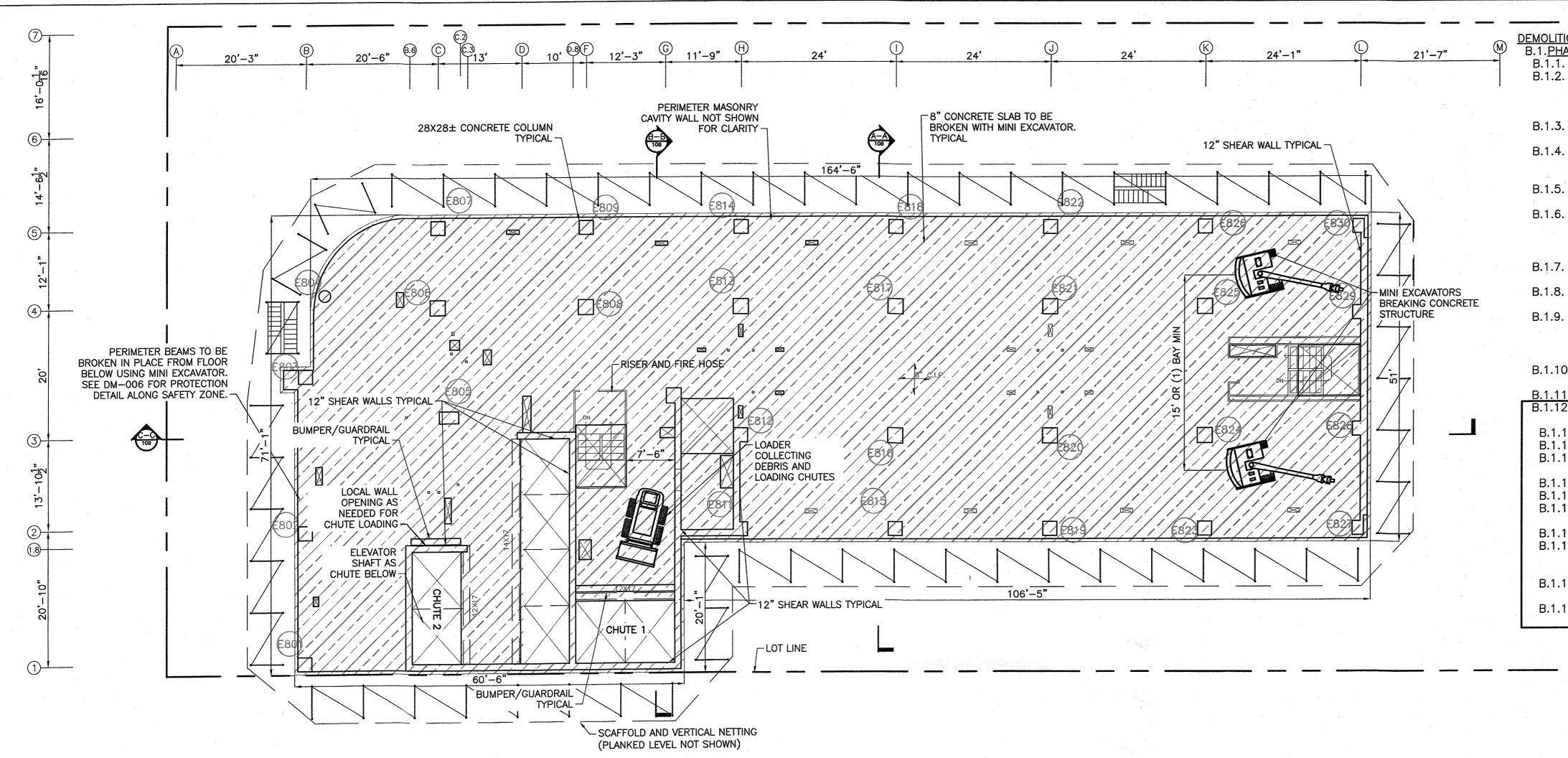
CHK BY: PY

DRAWING BY: BP/AJS DATE: 08/14/17 PROJECT NO: 16119 ENGINEER: BP/AJS SCALE: AS NOTED

DMO-106.00

DATE: / /

14 OF 20 2ND SUBMITTAL



TYPICAL FLOOR (43RD TO 17TH FLOOR) DEMOLITION PLAN

Scale: 3/32" = 1'-0"

DEMOLITION SEQUENCE: B.1. PHASE I: COMPLETE DEMOLITION DOWN TO THE 16TH FLOOR: B.1.1. LIFT MACHINES TO ELEVATOR ROOM OR ELEVATOR ROOF LEVEL B.1.2. DISMANTLE THE EXISTING MECHANICAL UNITS, WATER TANK AND ELEVATOR MACHINE EQUIPMENT AND ALL ASSOCIATED STEEL DUNNAGE. ALL DEBRIS TO BE EXTENT OF DEMOLITION LOWERED BY HAND ASSISTED BY MACHINE AND LOWERED TO GRADE USING ✓ THIS PHASE CHUTE. B.1.3. DISMANTLE EXISTING LOUVER AND ANY DECOMMISSIONED MECHANICAL EQUIPMENT. ROOF PROTECTION B.1.4. USING A MINI EXCAVATOR, BREAK PERIMETER CONCRETE PARAPET WALL. COLLECTING ALL DEBRIS TO BE PUSHED DOWN THE CHUTE THROUGH A SMALL PENETRATION INTO THE SLAB. USING A MINI EXCAVATOR, BREAK THE ELEVATOR ROOM ROOF LEVEL SLAB, LEAVING THE BEAMS IN PLACE. B.1.6. LOWER MACHINES AND DISMANTLE THE BEAMS THEN COLUMNS AND SHEAR WALLS DOWN TO THE FLOOR LEVEL BELOW (LEAVING SHORT SECTIONS IN PLACE NEEDLE BEAMS FOR EDGE PROTECTION IF REQUIRED) USING MINI EXCAVATOR WHERE REACHES PERMITS AND HAND TOOLS, WORKING FROM MOVABLE SCAFFOLD AS NEEDED. B.1.7. COLLECT ALL DEBRIS AS WORK PROGRESS USING LOADERS OR MINI EXCAVATORS AND DISPATCH DOWN THE CHUTES TO THE GROUND LEVEL. USING A MINI EXCAVATOR, BREAK THE ELEVATOR ROOM 2 SLAB, LEAVING THE BEAMS IN PLACE. B.1.9. LOWER MACHINES AND DISMANTLE THE BEAMS THEN COLUMNS AND SHEAR FIRE SUPPRESSING SYSTEM WALLS DOWN TO THE FLOOR LEVEL BELOW (LEAVING SHORT SECTIONS IN PLACE RISER AND MAIN FOR EDGE PROTECTION IF REQUIRED) USING MINI EXCAVATOR WHERE REACHES RISER AND FIRE HOSE PERMITS AND HAND TOOLS, WORKING FROM MOVABLE SCAFFOLD AS NEEDED. B.1.10. COLLECT ALL DEBRIS AS WORK PROGRESS AND DISPATCH DOWN THE CHUTES TO THE GROUND LEVEL. . REPEAT STRUCTURE REMOVAL DOWN TO THE TOP OF THE MAIN ROOF B.1.12. WORKING ON A FLOOR BY FLOOR BASIS, SEGMENTING THE FLOOR IN WORK AREAS, DISMANTLE THE STRUCTURE DOWN TO THE 16TH FLOOR AS FOLLOW: B.1.12.1. ESTABLISH CONTROLLED ACCESS AREA BELOW THE WORK AREA. B.1.12.2. INSTALL PROTECTION OVER SCAFFOLDING AS SHOWN ON DM-006 B.1.12.3. REMOVE ANY SECTION OF WALLS OR COLUMN LEFT IN PLACE ABOVE THE SLAB LEVEL AS FALL PROTECTION USING MINI EXCAVATORS. B.1.12.4. BREAK THE CONCRETE SLAB USING MINI EXCAVATORS. B.1.12.5. COLLECT DEBRIS FROM WORK AREA USING LOADERS.

DRAWING INTENT:

CONSTRUCTION.

WORK OF OTHER TRADES.

CONTRACTOR'S METHODOLOGY.

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF

THE PROPOSED DEMOLITION MEANS AND METHODS.

THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND

FILINGS AND APPROVALS ARE REQUIRED FOR THE

PURPOSE OF ADVANCING THE PROJECT TOWARDS

DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE

THE HISA FILING SET IS A COMPLETE TO THE EXTENT

CONSIDERATION THE PROJECT SEQUENCING AND THE

THE HISA FILING SET MAY BE USED FOR PLANNING,

FOR ACTUAL CONSTRUCTION OR DEMOLITION.

THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO

HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE

COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT

BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE

AND ISSUE A WORKING SET OF DEMOLITION PLANS ON

o. DATE DESCRIPTION ASSOCIATE S ICONSULTING ENGINEERS.P.G

<u>LEGEND</u>

SCAFFOLDING AND VERTICAL NETTING

STAIR TOWER

SCAFFOLDING AND VERTICAL NETTING ON

266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563 TEL: (516) 791-2600 FAX: (516) 791-5425 COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

PAVARINI McGOVERN 330 WEST 34TH ST,12TH FL, NY NY PH: 212-907-0944

PROJECT

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NY NY 10036

ZONING INFORMATION

BLOCK: 999; LOT 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105 HEIGHT: 45 STORY, 483'-7"

B.E.S.T. SQUAD

DEPT BLDGS Job No. 123090341 Scan Code ESHS1709428

ITLE PHASE 1: COMPLETE DEMOLITION DOWN TO 16TH FLOOR: TYPICAL FLOOR (43RD TO 17TH FLOOR)

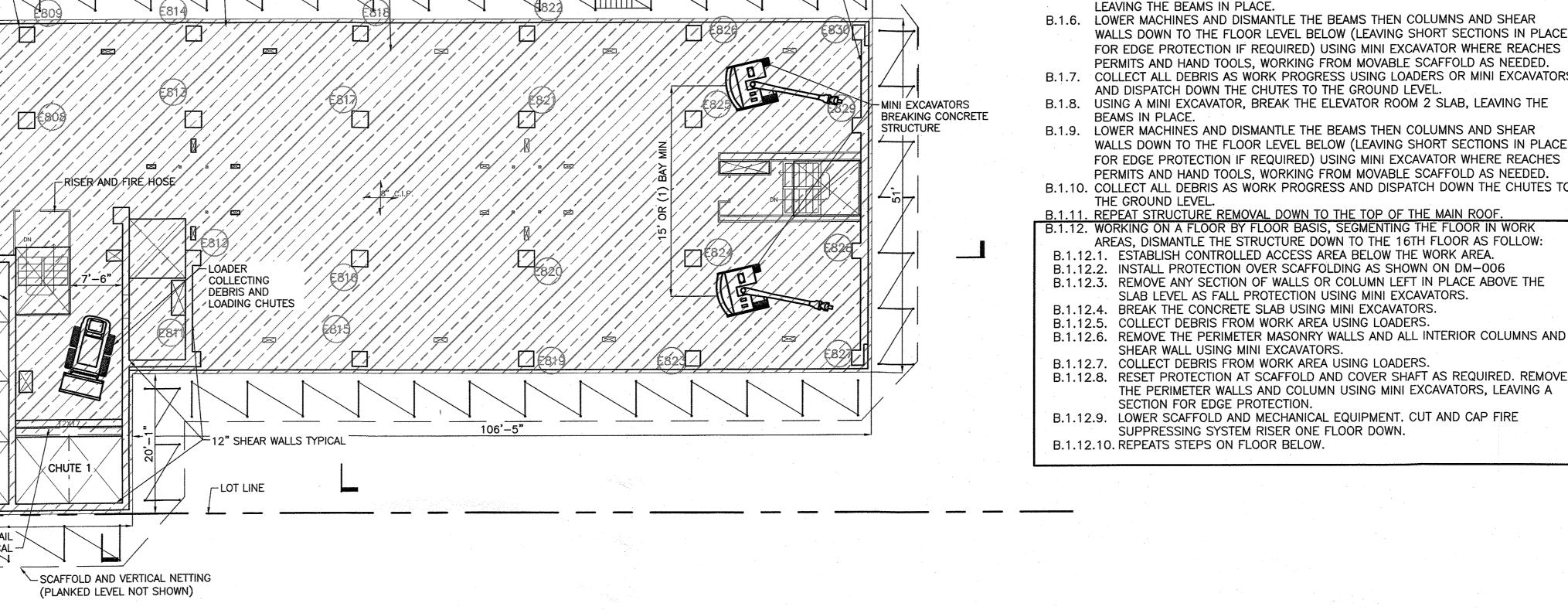
DEMOLITION PLANS AND SEQUENCE DRAWING BY: BP/AJS DATE: 08/14/17 PROJECT NO: 16119

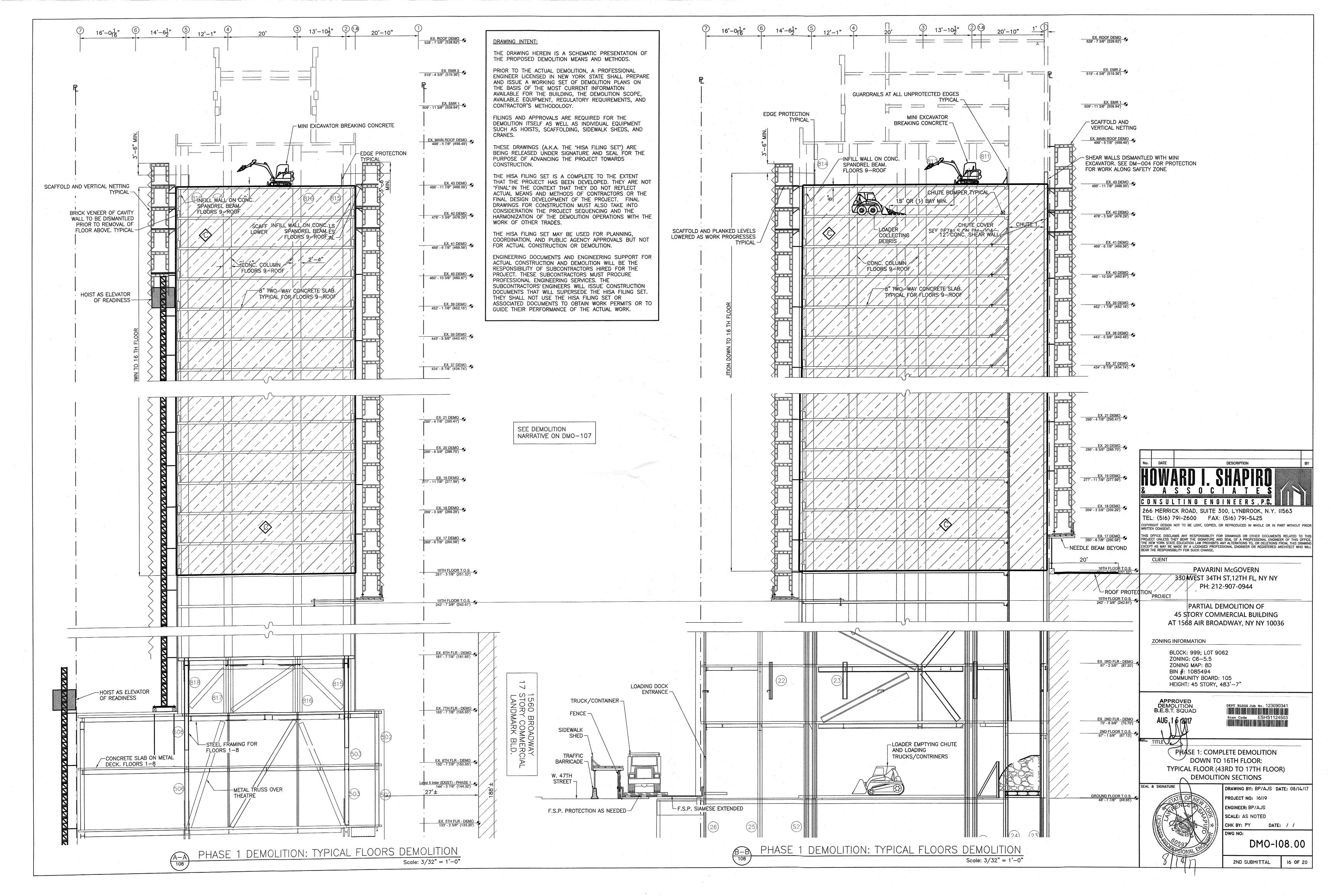
ENGINEER: BP/AJS SCALE: AS NOTED CHK BY: PY DATE: / /

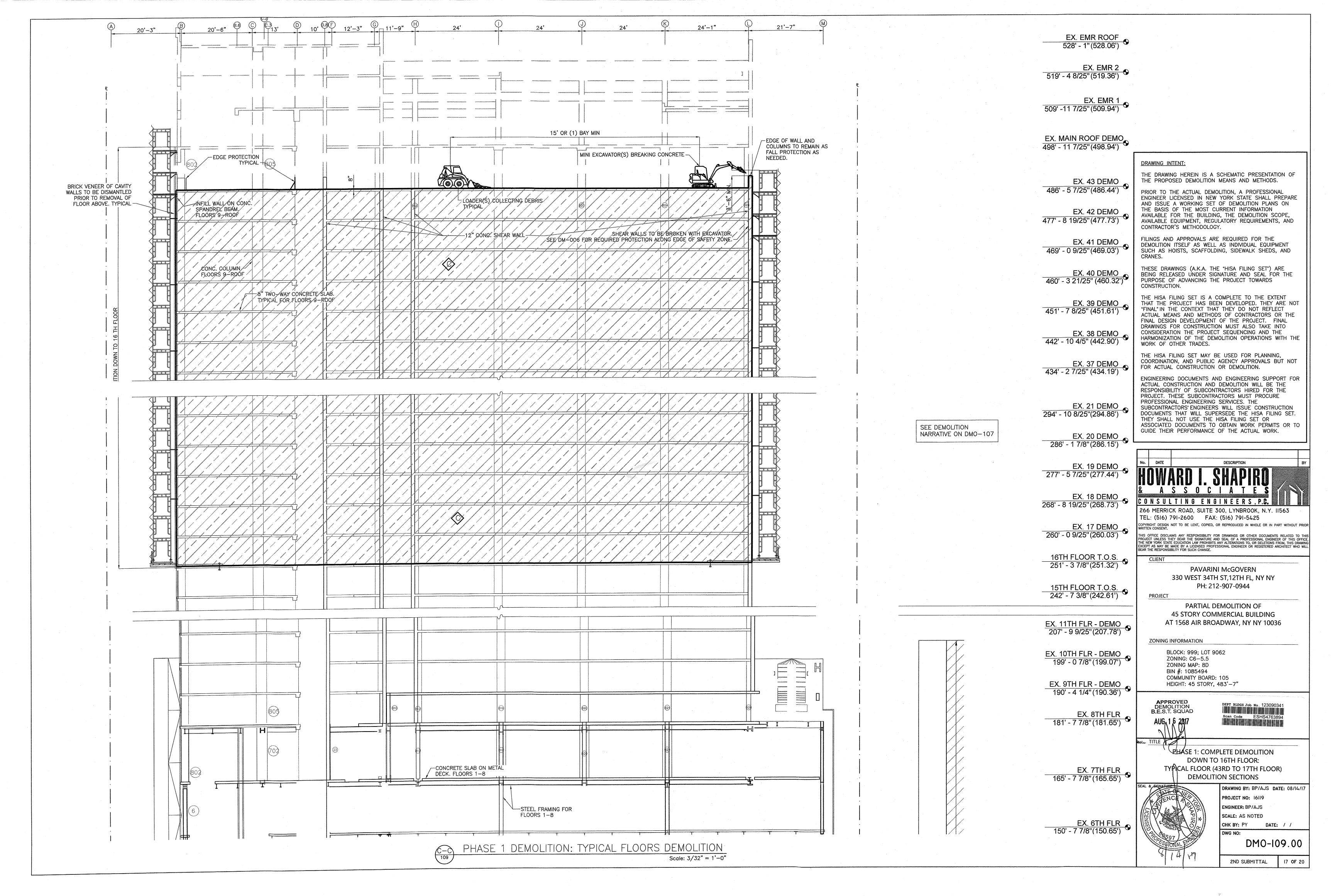
DWG NO: DMO-107.00

2ND SUBMITTAL 15 **OF** 20

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.







SECTION BC 3306 DEMOLITION

3306.2 PROTECTION OF PEDESTRIANS AND ADJOINING PROPERTY.

DEMOLITION OPERATIONS SHALL NOT COMMENCE UNTIL THE APPLICABLE PEDESTRIAN AND ADJOINING PROPERTY PROTECTION IS IN PLACE AS REQUIRED BY SECTIONS 3307, 3308 AND 3309.

3306.2.1. SAFETY ZONE.

A SAFETY ZONE SHALL BE PROVIDED AROUND ALL DEMOLITION AREAS TO PREVENT PERSONS FROM ENTERING SUCH ZONE. WHERE DEMOLITION OCCURS ON THE EXTERIOR OF A BUILDING, SUCH ZONE SHALL BE APPROVED THE COMMISSIONER PRIOR TO THE COMMENCEMENT OF DEMOLITION. WHERE MECHANICAL DEMOLITION EQUIPMENT, OTHER THAN HANDHELD DEVICES, IS TO BE USED FOR THE FULL DEMOLITION OF A BUILDING, THE SAFETY ZONE, SHALL BE EQUAL TO OR GREATER THAN HALF THE HEIGHT OF THE BUILDING TO BE DEMOLISHED; SUCH SAFETY ZONE MAY BE REDUCED BY THE SAME RATIO AS THE BUILDING IS BEING DEMOLISHED.

EXCEPTION:

APPROVAL OF THE COMMISSIONER IS NOT REQUIRED FOR A SAFETY ZONE ESTABLISHED FOR DEMOLITION ON THE EXTERIOR OF A BUILDING, PROVIDED THE WORK IS A MINOR ALTERATION OR ORDINARY REPAIR AND IS ACCOMPLISHED WITHOUT ANY MECHANICAL DEMOLITION EQUIPMENT, OTHER THAN HANDHELD DEVICES

3306.8. DEMOLITION SEQUENCE.

ANY STRUCTURAL MEMBER THAT IS BEING DISMEMBERED SHALL NOT SUPPORT ANY LOAD OTHER THAN ITS OWN WEIGHT. NO WALL, CHIMNEY, OR OTHER STRUCTURAL PART SHALL BE LEFT IN SUCH CONDITION THAT IT MAY COLLAPSE OR BE TOPPLED BY WIND, VIBRATION OR ANY OTHER CAUSE. THE METHOD OF REMOVAL OF ANY STRUCTURAL MEMBER SHALL NOT DESTABILIZE REMAINING MEMBERS. ALL HANDLING AND MOVEMENT OF MATERIAL OR DEBRIS SHALL BE CONTROLLED SUCH THAT IT WILL NOT DEVELOP UNACCOUNTED IMPACT LOADS ON THE STRUCTURE.

3306.8.2 MASONRY BUILDINGS WITH WOODEN FLOORS.

DEMOLITION OF MASONRY BUILDINGS WITH WOODEN FLOORS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

- 1. DEMOLITION OF WALLS AND PARTITIONS SHALL PROCEED IN A SYSTEMATIC MANNER, AND ALL WORK ABOVE EACH TIER OF FLOOR BEAMS SHALL BE COMPLETED BEFORE ANY OF THE SUPPORTING STRUCTURAL MEMBERS ARE DISTURBED.
- SECTIONS OF MASONRY WALLS SHALL BE NOT BE LOOSENED OR PERMITTED TO FALL IN SUCH MASSES AS TO AFFECT THE CARRYING CAPACITY OF FLOORS OR THE STABILITY OF STRUCTURAL SUPPORTS.
- NO SECTION OF WALL WITH A HEIGHT MORE THAN 22 TIMES ITS THICKNESS SHALL BE PERMITTED TO STAND WITHOUT BRACING DESIGNED BY A REGISTERED DESIGN PROFESSIONAL.

3306.9.9 STAIRS.

ALL ENCLOSED VERTICAL SHAFTS AND STAIRS SHALL BE MAINTAINED ENCLOSED AT ALL FLOORS EXCEPT THE UPPERMOST FLOOR BEING DEMOLISHED, AND ALL WORK ON THE UPPERMOST FLOOR SHALL BE COMPLETED BEFORE STAIR AND SHAFT ENCLOSURES ON THE FLOOR BELOW ARE DISTURBED. ALL HAND RAILS AND BANISTERS SHALL BE LEFT IN PLACE UNTIL ACTUAL DEMOLITION OF SUCH FLOOR IS IN PROGRESS.

3306.10 FLOORS.

THE SAFEGUARDS OF SECTIONS 3306.9.10.1 THROUGH 3306.10.3 SHALL APPLY TO DEMOLITION OPERATIONS INVOLVING FLOORS.

3306.9.10.1 BEARING PARTITIONS AND HEADERS.

NO BEARING PARTITION SHALL BE REMOVED FROM ANY FLOOR UNTIL THE FLOOR FRAMING SYSTEM ON THE FLOOR ABOVE HAS BEEN REMOVED AND LOWERED. ALL HEADER BEAMS AND HEADERS AT STAIR OPENINGS AND CHIMNEYS SHALL BE CAREFULLY EXAMINED AND, WHERE REQUIRED, SHALL BE SHORED FROM THE CELLAR FLOOR THROUGH SUCCESSIVE FLOORS. ALL OPERATIONS SHALL BE CONTINUALLY MONITORED BY A QUALIFIED PERSON DESIGNATED BY THE PERMIT HOLDER AS THE WORK PROGRESSES TO DETECT ANY HAZARDS THAT MAY DEVELOP.

3306.9.10.2 FLOOR OPENINGS.

OPENINGS IN ANY FLOOR SHALL NOT AGGREGATE MORE THAN 25 PERCENT OF THE AREA OF THAT FLOOR UNLESS IT CAN BE SHOWN BY SUBMISSION FROM A REGISTERED DESIGN PROFESSIONAL TO THE SATISFACTION OF THE COMMISSIONER THAT LARGER OPENING WILL NOT IMPAIR THE STABILITY OF THE STRUCTURE.

3306.9.10.03 PROTECTION OF FLOOR OPENINGS.

FLOOR OPENINGS USED FOR THE REMOVAL OF DEBRIS SHALL COMPLY WITH SECTION 3306.9.12.1. EVERY OPENING NOT USED FOR THE REMOVAL OF DEBRIS IN ANY FLOOR SHALL BE SOLIDLY PLANKED OVER BY PLANKING NOT LESS THAN 2 INCHES (51 MM) IN THICKNESS, OR EQUIVALENT SOLID MATERIAL, AND LAID CLOSE.

3306.9.11. STORAGE OF MATERIAL.

3306.9.11.1. EXAMINATION OF CONNECTIONS.

BEFORE ANY MATERIAL IS STORED ON ANY FLOOR, THE EXISTING FLOORING ADJACENT TO BEARING WALLS, SHEAR WALLS, BEAMS, AND COLUMNS SHALL BE REMOVED AND THE CONNECTIONS OF THE FLOOR FRAMING SYSTEM TO THE BEARING WALLS, SHEAR WALLS, BEAMS AND COLUMNS SHALL BE CAREFULLY EXAMINED BY A COMPETENT PERSON DESIGNATED BY THE PERMIT HOLDER TO ASCERTAIN THEIR CONDITION AND ADEQUACY TO SUPPORT SUCH MATERIAL. IF THE CONNECTIONS ARE FOUND TO BE IN POOR CONDITION OR INADEQUATE TO SUPPORT THE STORED MATERIAL, NO MATERIAL SHALL BE DEPOSITED ON THE FLOOR UNTIL THESE CONNECTIONS ARE SHORED FROM THE CELLAR FLOOR THROUGH EACH SUCCESSIVE FLOOR OR OTHERWISE STRENGTHENED TO SAFELY SUPPORT SUCH MATERIAL.

3306.9.12. REMOVAL OF MATERIAL.

DEBRIS, BRICKS, AND SIMILAR MATERIAL SHALL BE REMOVED THROUGH OPENINGS IN THE FLOORS OF THE STRUCTURE, OR BY MEANS OF CHUTES, BUCKETS, OR HOISTS THAT COMPLY WITH THE PROVISIONS OF THIS CHAPTER.

3306.12.1. PROTECTION OF FLOOR OPENINGS.

EVERY OPENING IN A FLOOR USED FOR THE REMOVAL OF DEBRIS SHALL BE TIGHTLY ENCLOSED WITH A SHAFT WAY, EXTENDING FROM FLOOR TO FLOOR, WITH SUCH SHAFT WAY ENCLOSED WITH:

- 1. PLANKING NOT LESS THAN 2 INCHES (51 MM) IN THICKNESS, OR EQUIVALENT SOLID MATERIAL, OR
- 2. WHERE THE OPENING IS USED FOR THE REMOVAL OF NONCOMBUSTIBLE MATERIAL, WIRE MESH MAY BE UTILIZED IN LIEU OF PLANKING, PROVIDED SUCH MESH IS NOT LESS THAN NUMBER 18 GAGE WIRE MESH, WITH OPENINGS IN THE WIRE NO LONGER THAN ½ INCH (13 MM), AND ALSO PROVIDED THAT THE MESH WIRE IS SECURELY ATTACHED, IN ACCORDANCE WITH DRAWINGS DEVELOPED BY A REGISTERED PROFESSIONAL, TO THE SHAFT WAY SO THAT THE WIRE MESH ENCLOSURE IN ANY LOCATION DOES NOT DEFLECT MORE THAN 2 INCHES (51 MM) WHEN A FORCE OF AT LEAST 200 POUNDS (890 N) IS APPLIED ALONG ANY HORIZONTAL PORTION OF SUCH WIRE MESH ENCLOSURE.

EXCEPTIONS:

- 1. IN BUILDINGS NOT MORE THAN SIX STORIES IN HEIGHT, A SHAFT WAY IS NOT REQUIRED. INSTEAD OPENINGS IN THE FLOOR SHALL BE SOLIDLY PLANKED OVER WHILE NOT IN USE BY PLANKING NOT LESS THAN 2 INCHES (51 MM) IN THICKNESS, OR EQUIVALENT SOLID MATERIAL, AND LAID CLOSE.
- 2. A SHAFT WAY IS NOT REQUIRED AT THE WORKING DECK. INSTEAD, OPENINGS IN THE WORKING DECK SHALL BE SOLIDLY PLANKED OVER WHILE NOT IN USE BY PLANKING NOT LESS THAN 2 INCHES (51 MM) IN THICKNESS, OR EQUIVALENT SOLID MATERIAL, AND LAID CLOSE.

3306.9.12.1.1 TEMPORARY REMOVAL OF PROTECTION.

WHEREVER SUCH PROTECTION REQUIRED BY SECTION 3306.9.12.1 HAS BEEN TEMPORARILY REMOVED TO PERMIT DEBRIS REMOVAL, THE FLOOR OPENING SHALL BE PROTECTED BY A GUARDRAIL SYSTEM THAT MEETS THE REQUIREMENTS OF SECTIONS 3308.7.1 THROUGH 3308.7.5. SUCH PROTECTION REQUIRED BY SECTION 3306.9.12.1 SHALL BE PROMPTLY REPLACED IN POSITION UPON THE CEASING OF SUCH WORK AT THE END OF EACH WORKDAY.

3306.9.12.2. PROTECTION OF WALL OPENINGS.

IN ANY BUILDINGS MORE THAN 25 FEET HIGH (7620 MM), ANY WINDOW OR OTHER EXTERIOR WALL OPENING THAT IS WITHIN 20 FEET (6096 MM) OF A FLOOR OPENING USED FOR THE PASSAGE OF DEBRIS FROM LEVELS ABOVE SHALL BE SOLIDLY BOARDED UP OR OTHERWISE SUBSTANTIALLY COVERED, UNLESS SUCH WINDOW OR OPENING IS SO LOCATED AS TO PRECLUDE THE POSSIBILITY OF ANY PERSON BEING INJURED BY MATERIALS THAT MAY FALL FROM SUCH WINDOW OR OPENING.

3306.11 COMPLETION OF DEMOLITION OPERATIONS.

ALL WORK REQUIRED FOR STRUCTURAL STABILITY AND PERMANENT WATERPROOFING OF ADJACENT BUILDINGS MUST BE COMPLETED PRIOR TO DEMOLITION SIGN—OFF.

OSHA 29 CFR 1926: SUBPART T-DEMOLITION

AUTHORITY: SECTION 107, CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (CONSTRUCTION SAFETY ACT) (40 U.S.C. 333); SECTIONS 4, 6, 8, OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (29 U.S.C. 653, 655, 657); SECRETARY OF LABOR'S ORDER No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), OR 9-83 (48 FR 35736), AS APPLICABLE.

1926.850 PREPARATORY OPERATIONS.

- A) PRIOR TO PERMITTING EMPLOYEES TO START DEMOLITION OPERATIONS, AN ENGINEERING SURVEY SHALL BE MADE, BY A COMPETENT PERSON, OF THE STRUCTURE TO DETERMINE THE CONDITION OF THE FRAMING, FLOORS, AND WALLS, AND POSSIBILITY OF UNPLANNED COLLAPSE OF ANY PORTION OF THE STRUCTURE. ANY ADJACENT STRUCTURE WHERE EMPLOYEES MAY BE EXPOSED SHALL ALSO BE SIMILARLY CHECKED. THE EMPLOYER SHALL HAVE IN WRITING EVIDENCE THAT SUCH A SURVEY HAS BEEN PERFORMED.
- B) WHEN EMPLOYEES ARE REQUIRED TO WORK WITHIN A STRUCTURE TO BE DEMOLISHED WHICH HAS BEEN DAMAGED BY FIRE, FLOOD, EXPLOSION, OR OTHER CAUSE, THE WALLS OR FLOOR SHALL BE SHORED OR BRACED.
- C) ALL ELECTRIC, GAS, WATER, STEAM, SEWER, AND OTHER SERVICE LINES SHALL BE SHUT OFF, CAPPED, OR OTHERWISE CONTROLLED, OUTSIDE THE BUILDING LINE BEFORE DEMOLITION WORK IS STARTED. IN EACH CASE, ANY UTILITY COMPANY WHICH IS INVOLVED SHALL BE NOTIFIED IN ADVANCE.
- D) IF IT IS NECESSARY TO MAINTAIN ANY POWER, WATER OR OTHER UTILITIES DURING DEMOLITION, SUCH LINES SHALL BE TEMPORARILY RELOCATED, AS NECESSARY, AND PROTECTED.
- E) IT SHALL ALSO BE DETERMINED IF ANY TYPE OF HAZARDOUS CHEMICALS, GASES, EXPLOSIVES, FLAMMABLE MATERIALS, OR SIMILARLY DANGEROUS SUBSTANCES HAVE BEEN USED IN ANY PIPES, TANKS, OR OTHER EQUIPMENT ON THIS PROPERTY. WHEN THE PRESENCE OF ANY SUCH SUBSTANCES IS APPARENT OR SUSPECTED, TESTING PURGING SHALL BE PERFORMED AND THE HAZARD ELIMINATED BEFORE DEMOLITION IS STARTED.
- F) WHERE A HAZARD EXISTS FROM FRAGMENTATION OF GLASS, SUCH HAZARDS SHALL BE REMOVED.
- G) WHERE A HAZARD EXISTS TO EMPLOYEES FALLING THROUGH WALL OPENINGS, THE OPENING SHALL BE PROTECTED TO A HEIGHT OF APPROXIMATELY 42 INCHES.
- H) WHEN DEBRIS IS DROPPED THROUGH HOLES IN THE FLOOR WITHOUT THE USE OF CHUTES, THE AREA INTO WHICH THE MATERIAL IS DROPPED SHALL BE COMPLETELY ENCLOSED WITH BARRICADES NOT LESS THAN 42 INCHES HIGH AND NOT LESS THAN 6 FEET BACK FROM THE PROJECTED EDGE OF THE OPENING ABOVE. SIGNS, WARNING OF THE HAZARD OF FALLING MATERIALS, SHALL BE POSTED AT EACH LEVEL. REMOVAL SHALL NOT BE PERMITTED IN THIS LOWER AREA UNTIL DEBRIS HANDLING CEASES ABOVE.
- I) ALL FLOOR OPENINGS, NOT USED AS MATERIAL DROPS, SHALL BE COVERED OVER WITH MATERIAL SUBSTANTIAL ENOUGH TO SUPPORT THE WEIGHT OF ANY LOAD WHICH MAY BE IMPOSED. SUCH MATERIAL SHALL BE PROPERLY SECURED TO PREVENT ITS ACCIDENTAL MOVEMENT.
- J) EXCEPT FOR THE CUTTING OF HOLES IN FLOORS FOR CHUTES, HOLES THROUGH WHICH TO DROP MATERIALS, PREPARATION OF STORAGE SPACE, AND SIMILAR NECESSARY PREPARATORY WORK, THE DEMOLITION OF EXTERIOR WALLS AND FLOOR CONSTRUCTION SHALL BEGIN AT THE TOP OF THE STRUCTURE AND PROCEED DOWNWARD. EACH STORY OF EXTERIOR WALL AND FLOOR CONSTRUCTION SHALL BE REMOVED AND DROPPED INTO STORAGE SPACE BEFORE COMMENCING THE REMOVAL OF EXTERIOR WALLS AND FLOORS IN THE STORY NEXT BELOW.
- K) EMPLOYEE ENTRANCES TO MULTISTORY STRUCTURES BEING DEMOLISHED SHALL BE COMPLETELY PROTECTED BY SIDEWALK SHEDS OF CANOPIES, OR BOTH, PROVIDING PROTECTION FROM THE FACE OF THE BUILDING FOR A MINIMUM OF 8 FEET. ALL SUCH CANOPIES SHALL BE AT LEAST 12 FEET WIDER THAN THE BUILDING ENTRANCES OR OPENINGS (1 FOOT WIDER ON EACH SIDE THEREOF), AND SHALL BE CAPABLE OF SUSTAINING A LOAD OF 150 POUNDS PER SQUARE FOOT.

1926.851 STAIRS, PASSAGEWAYS, AND LADDERS.

- A) ONLY THOSE STAIRWAYS, PASSAGEWAYS, AND LADDERS DESIGNATED AS MEANS OF ACCESS TO THE STRUCTURE OF A BUILDING, SHALL BE USED. OTHER ACCESS WAYS SHALL BE ENTIRELY CLOSED AT ALL TIMES.
- ALL STAIRS, PASSAGEWAYS, LADDERS AND INCIDENTAL EQUIPMENT THERETO, WHICH ARE COVERED BY THIS SECTION. SHALL BE PERIODICALLY INSPECTED AND MAINTAINED IN A CLEAN SAFE CONDITION.
- IN A MULTISTORY BUILDING, WHEN A STAIRWELL IS BEING USED, IT SHALL BE PROPERLY ILLUMINATED BY EITHER NATURAL OR ARTIFICIAL MEANS, AND COMPLETELY AND SUBSTANTIALLY COVERED OVER AT A POINT ON WHICH WORK IS BEING PERFORMED, AND ACCESS TO THE FLOOR WHERE THE WORK IS IN PROGRESS SHALL B THROUGH A PROPERLY LIGHTED, PROTECTED, AND SEPARATE PASSAGEWAY.

1926.852 CHUTES.

- A) NO MATERIAL SHALL BE DROPPED TO ANY POINT LYING OUTSIDE THE EXTERIOR WALLS OF THE STRUCTURE UNLESS THE AREA IS EFFECTIVELY PROTECTED.
- B) ALL MATERIALS CHUTES, OR SECTIONS THEREOF, AT AN ANGLE OF MORE THAN 45° FROM THE HORIZONTAL, SHALL BE ENTIRELY ENCLOSED, EXCEPT FOR OPENINGS EQUIPPED WITH CLOSURES AT OR ABOUT FLOOR LEVEL FOR THE INSERTION OF MATERIALS. THE OPENINGS SHALL NOT EXCEED 48 INCHES IN HEIGHT MEASURED ALONG THE WALL OF THE CHUTE. AT ALL STORIES BELOW THE TOP FLOOR, SUCH OPENINGS SHALL BE KEPT CLOSED WHEN NOT IN USE.
- C) A SUBSTANTIAL GATE SHALL BE INSTALLED IN EACH CHUTE AT OR NEAR THE DISCHARGE END. A COMPETENT EMPLOYEE SHALL BE ASSIGNED TO CONTROL THE OPERATION OF THE GATE, AND THE BACKING AND LOADING OF TRUCKS.
- D) WHEN OPERATIONS ARE NOT IN PROGRESS, THE AREA SURROUNDING THE DISCHARGE END OF A CHUTE SHALL BE SECURELY CLOSED OFF.
- E) ANY CHUTE OPENING, INTO WHICH WORKMEN DUMP DEBRIS, SHALL BE PROTECTED BY A SUBSTANTIAL GUARDRAIL APPROXIMATELY 42 INCHES ABOVE THE FLOOR OR OTHER SURFACE ON WHICH THE MEN STAND TO DUMP THE MATERIAL. ANY SPACE BETWEEN THE CHUTE AND THE EDGE OF OPENINGS IN THE FLOORS THROUGH WHICH IT PASSES SHALL BE SOLIDLY COVERED OVER.

- F) WHERE THE MATERIAL IS DUMPED FROM MECHANICAL EQUIPMENT OR WHEELBARROWS, A SECURELY ATTACHED TOEBOARD OR BUMPER, NOT LESS THAN 4 INCHES THICK AND 6 INCHES HIGH, SHALL BE PROVIDED AT EACH CHUTE OPENING.
- G) CHUTES SHALL BE DESIGNED AND CONSTRUCTED OF SUCH STRENGTH AS TO ELIMINATE FAILURE DUE TO IMPACT OF MATERIALS OR DEBRIS LOADED THEREIN.

1926.853 REMOVAL OF MATERIALS THROUGH FLOOR OPENINGS.

ANY OPENINGS CUT IN A FLOOR FOR THE DISPOSAL OF MATERIALS SHALL BE NO LARGER IN SIZE THAN 25 PERCENT OF THE AGGREGATE OF THE TOTAL FLOOR AREA, UNLESS THE LATERAL SUPPORTS OF THE REMOVED FLOORING REMAIN IN PLACE. FLOORS WEAKENED OR OTHERWISE MADE UNSAFE BY DEMOLITION OPERATIONS SHALL BE SHORED TO CARRY SAFELY THE INTENDED IMPOSED LOAD FROM DEMOLITION OPERATIONS.

1926.854 REMOVAL OF WALLS, MASONRY SECTIONS, AND CHIMNEYS.

- A) MASONRY WALLS, OR OTHER SECTIONS OF MASONRY, SHALL NOT BE PERMITTED TO FALL UPON THE FLOORS OF THE BUILDING IN SUCH A MASSES AS TO EXCEED THE SAFE CARRYING CAPACITIES OF THE FLOORS.
- B) NO WALL SECTION, WHICH IS MORE THAN ON STORY IN HEIGHT, SHALL BE PERMITTED TO STAND ALONE WITHOUT LATERAL BRACING, UNLESS SUCH WALL WAS ORIGINALLY DESIGNED AND CONSTRUCTED TO STAND WITHOUT SUCH LATERAL SUPPORT, AND IS IN A CONDITION SAFE ENOUGH TO BE SELF—SUPPORTING. ALL WALLS SHALL BE LEFT IN A STABLE CONDITION AT THE END OF EACH SHIFT.
- C) EMPLOYEES SHALL NOT BE PERMITTED TO WORK ON THE TOP OF A WALL WHEN WEATHER CONDITIONS CONSTITUTE A HAZARD.
- D) STRUCTURAL OR LOAD—SUPPORTING MEMBERS ON ANY FLOOR SHALL NOT BE CUT OR REMOVED UNTIL ALL STORIES ABOVE SUCH A FLOOR HAVE BEEN DEMOLISHED AND REMOVED. THIS PROVISION SHALL NOT PROHIBIT THE CUTTING OF FLOOR BEAMS FOR THE DISPOSAL OF MATERIAL OF FOR THE INSTALLATION OF EQUIPMENT, PROVIDED THAT THE REQUIREMENTS OF 1926.853 AND 1926.855 ARE MET.
- E) FLOOR OPENINGS WITHIN 10 FEET OF ANY WALL BEING DEMOLISHED SHALL BE PLANKED SOLID, EXCEPT WHEN EMPLOYEES ARE KEPT OUT OF THE AREA BELOW.
- F) IN BUILDINGS OF "SKELETON-STEEL" CONSTRUCTION, THE STEEL FRAMING MAY BE LEFT IN PLACE DURING THE DEMOLITION OF MASONRY. WHERE THIS IS DONE, ALL STEEL BEAMS, GIRDERS, AND SIMILAR STRUCTURAL SUPPORTS SHALL BE CLEARED OF ALL LOOSE MATERIAL AS THE MASONRY DEMOLITION PROGRESSES DOWNWARD.
- G) WALKWAYS, OR LADDERS SHALL BE PROVIDED TO ENABLE EMPLOYEES TO SAFELY REACH OR LEAVE ANY SCAFFOLD OR WALL.
- H) WALLS, WHICH SERVE AS RETAINING WALLS TO SUPPORT EARTH OR ADJOINING STRUCTURES, SHALL NOT BE DEMOLISHED UNTIL SUCH EARTH HAS BEEN PROPERLY BRACED OR ADJOINING STRUCTURES HAVE BEEN PROPERLY UNDERPINNED.
- I) WALLS, WHICH ARE TO SERVE AS RETAINING WALLS AGAINST WHICH DEBRIS WILL BE PILED, SHALL NOT BE SO USED UNLESS CAPABLE OF SAFELY SUPPORTING THE IMPOSED LOAD.

1926.855 MANUAL REMOVAL OF FLOORS.

- A) OPENINGS CUT IN A FLOOR SHALL EXTEND THE FULL SPAN OF THE ARCH BETWEEN SUPPORTS.
- B) BEFORE DEMOLISHING ANY FLOOR ARCH, DEBRIS AND OTHER MATERIAL SHALL BE REMOVED FROM SUCH ARCH AND OTHER ADJACENT FLOOR AREA. PLANKS NOT LESS THAN 2 INCHES BY 10 INCHES IN CROSS SECTION, FULL SIZE UNDRESSED, SHALL BE PROVIDED FOR, AND SHALL BE USED BY EMPLOYEES TO STAND ON WHILE BREAKING DOWN FLOOR ARCHES BETWEEN BEAMS. SUCH PLANKS SHALL BE SO LOCATED AS TO PROVIDE A SAFE SUPPORT FOR THE WORKMEN SHOULD THE ARCH BETWEEN THE BEAMS COLLAPSE. THE OPEN SPACE BETWEEN PLANKS SHALL NOT EXCEED 16 INCHES.
- C) SAFE WALKWAYS, NOT LESS THAN 18 INCHES WIDE, FORMED OF PLANKS NOT LESS THAN 2 INCHES THICK IF WOOD, OR OF EQUIVALENT STRENGTH OF METAL, SHALL BE PROVIDED AND USED BY WORKMEN WHEN NECESSARY TO ENABLE THEM TO REACH ANY POINT WITHOUT WALKING UPON EXPOSED BEAMS.
- D) STRINGERS OF AMPLE STRENGTH SHALL BE INSTALLED TO SUPPORT THE FLOORING PLANKS, AND THE ENDS OF SUCH STRINGERS SHALL BE SUPPORTED BY FLOOR BEAMS OR GIRDERS, AND NOT BY FLOOR ARCHES ALONE.
- E) PLANKS SHALL BE LAID TOGETHER OVER SOLID BEARINGS WITH THE ENDS OVERLAPPING AT LEAST 1
- F) WHEN FLOOR ARCHES ARE BEING REMOVED, EMPLOYEES SHALL NOT BE ALLOWED IN THE AREA DIRECTLY UNDERNEATH. AND SUCH AN AREA SHALL BE BARRICADED TO PREVENT ACCESS TO IT.
- G) DEMOLITION OF FLOOR ARCHES SHALL NOT BE STARTED UNTIL THEY, AND THE SURROUNDING FLOOR AREA FOR A DISTANCE OF 20 FEET, HAVE BEEN CLEARED OF DEBRIS AND ANY OTHER UNNECESSARY MATERIALS.

1926.856 REMOVAL OF WALLS, FLOORS, AND MATERIAL WITH EQUIPMENT.

- MECHANICAL EQUIPMENT SHALL NOT BE USED ON FLOORS OR WORKING SURFACES UNLESS SUCH FLOORS OR SURFACES ARE OF SUFFICIENT STRENGTH TO SUPPORT THE IMPOSED LOAD.
- B) FLOOR OPENINGS SHALL HAVE CURBS OR STOP-LOGS TO PREVENT EQUIPMENT FROM RUNNING OVER
- C) MECHANICAL EQUIPMENT USED SHALL MEET THE REQUIREMENTS SPECIFIED IN SUBPARTS N AND O IN THIS PART.

1926.857 STORAGE

- A) THE STORAGE OF WASTE MATERIAL AND DEBRIS ON ANY FLOOR SHALL NOT EXCEED THE ALLOWABLE FLOOR LOADS.
- B) IN BUILDINGS HAVING WOODEN FLOOR CONSTRUCTION, THE FLOORING BOARDS MAY BE REMOVED FROM NOT MORE THAN ONE FLOOR ABOVE GRADE TO PROVIDE STORAGE SPACE FOR DEBRIS, PROVIDED FALLING MATERIAL IS NOT PERMITTED TO ENDANGER THE STABILITY OF THE STRUCTURE.
- WHEN WOOD FLOOR BEAMS SERVE TO BRACE INTERIOR WALLS OR FREE—STANDING EXTERIOR WALLS, SUCH BEAMS SHALL BE LEFT IN PLACE UNTIL OTHER EQUIVALENT SUPPORT CAN BE INSTALLED TO REPLACE THEM.
- D) FLOOR ARCHES, TO AN ELEVATION OF NOT MORE THAN 25 FEET ABOVE GRADE, MAY BE REMOVED TO PROVIDE STORAGE AREA FOR DEBRIS: PROVIDED, THAT SUCH REMOVAL DOES NOT ENDANGER THE STABILITY OF THE STRUCTURE.
- E) STORAGE SPACE INTO WHICH MATERIAL IS DUMPED SHALL BE BLOCKED OFF, EXCEPT FOR OPENINGS NECESSARY FOR THE REMOVAL OF MATERIAL. SUCH OPENINGS SHALL BE KEPT CLOSED AT ALL TIMES WHEN MATERIAL IS NOT BEING REMOVED.

1926.859 (G)

A) DURING DEMOLITION, CONTINUING INSPECTIONS BY A COMPETENT PERSON SHALL BE MADE AS THE WORK PROGRESSES TO DETECT HAZARDS RESULTING FROM WEAKENED OR DETERIORATED FLOORS, OR WALLS, OR LOOSENED MATERIAL. NO EMPLOYEE SHALL BE PERMITTED TO WORK WHERE SUCH HAZARDS EXIST UNTIL THE ARE CORRECTED BY SHORING, BRACING, OR OTHER EFFECTIVE MEANS.

DRAWING INTENT

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE AND ISSUE A WORKING SET OF DEMOLITION PLANS ON THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE, AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND CONTRACTOR'S METHODOLOGY.

FILINGS AND APPROVALS ARE REQUIRED FOR THE DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE PURPOSE OF ADVANCING THE PROJECT TOWARDS CONSTRUCTION.

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT "FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO CONSIDERATION THE PROJECT SEQUENCING AND THE HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE WORK OF OTHER TRADES.

THE HISA FILING SET MAY BE USED FOR PLANNING, COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT FOR ACTUAL CONSTRUCTION OR DEMOLITION.

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE PROJECT. THESE SUBCONTRACTORS MUST PROCURE PROFESSIONAL ENGINEERING SERVICES. THE SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET. THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.

HOWARD SHAPER & A S S O C I A T E S C O N S U L T I N G E N G I N E E R S . P.C.

266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563
TEL: (516) 791-2600 FAX: (516) 791-5425
COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR

WRITTEN CONSENT.

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL

CLIENT

PAVARINI MCGOVERN

330 WEST 34TH STREET, 12 TH FL, NEW YOK, NY 10001
PH: 212-907-0944

PROJECT

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NEW YORK, NY 10036

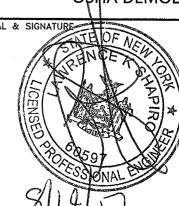
ZONING INFORMATION

BLOCK: 999; LOT: 9062
ZONING: C6-5.5
ZONING MAP: 8D
BIN #: 1085494
COMMUNITY BOARD: 105
HEIGHT: 45 STORY 483'-7"



Scan Code ESHS6463638

SECTION BC 3306 - DEMOLITION & OSHA DEMOLITION REGULATIONS

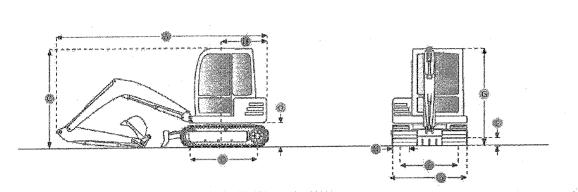


DRAWING BY: BP DATE: 8/14/17
PROJECT NO: 16119.00.00
ENGINEER: BP
SCALE: AS NOTED
CHK BY: PY DATE: 8/14/17

DM-301.00

3RD SUBMITTAL 18 OF 20





Boom/Stick Option (HEX) 1			y a sain a mineral management
A. SHIPPING LENGTH OF UNIT	16.1 ft in	4898.1 mm	
C, SHIPPING HEIGHT OF UNIT	8 ft in	2426.2 mm	
I. MAX CUTTING HEIGHT	15 ft in	4571 mm	
J. MAX LOADING HEIGHT	10.3 ft in	3125 mm	
K. MAX REACH ALONG GROUND	16.7 ft in	5097 mm	
L. MAX VERTICAL WALL DIGGING DEPTH	7.1 ft in	2175 mm	
M. MAX DIGGING DEPTH	10.1 ft in	3066 mm	
Dimensions			And the second s
B. WIDTH TO OUTSIDE OF TRACKS	5.8 ft in	1780 mm	
D. LENGTH OF TRACK ON GROUND	6.3 ft in	1932 mm	
G. HEIGHT TO TOP OF CAB	8 ft in	2426 mm	
Undercarriage			
N. SHOF SIZE	12.6 in	320 mm.	Literature (Eli

12.6 in 320 mm

90.9 L/min

8024.8 lb

24 gal/min

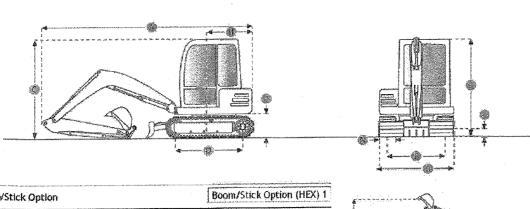
CATERPILLAR 303.5C CR MINI EXCAVATOR

ALTERNATOR SUPPLIED AMPERAGE

HYDRAULIC PUMP FLOW CAPACITY

1770 mm 5'9"

HYDRAULIC SYSTEM RELIEF VALVE PRESSURE

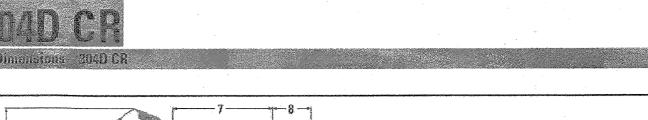


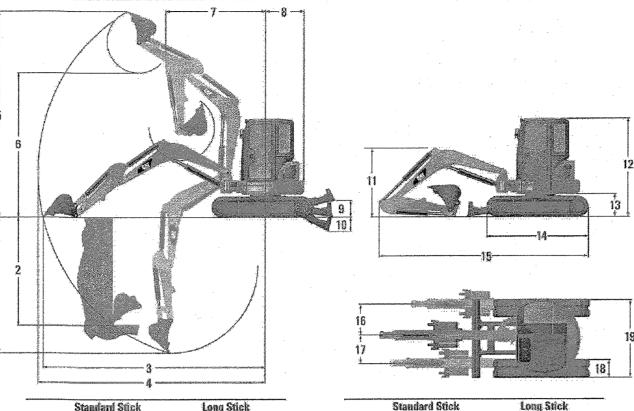
Boom/Stick Option	Boom/Stick Op	otion (HEX) 1	
A. SHIPPING LENGTH OF UNIT	15.8 ft in	4820 mm	
C. SHIPPING HEIGHT OF UNIT	8.2 ft in	2500 mm	
I. MAX CUTTING HEIGHT	16.5 ft in	5020 mm	
J. MAX LOADING HEIGHT	11.8 ft in	3570 mm	
K, MAX REACH ALONG GROUND	17.2 ft in	5240 mm	
L. MAX VERTICAL WALL DIGGING DEPTH	8.2 ft in	2490 mm	
M. MAX DIGGING DEPTH	10.3 ft in	3150 mm	
Dimensions	ઇમ્મળોને?વંપ્લાનાંમિકં≁વંદ્રદ્રોઝનેફેટનહેન્?\$પૅકાંડાનાં.i.i.s.sarrus		
B, WIDTH TO OUTSIDE OF TRACKS	5.8 ft in	1780 mm	and the same of th
D. LENGTH OF TRACK ON GROUND	7.3 ft in	2220 mm	
E. GROUND CLEARANCE	1.1 ft in	340 mm	
G. HEIGHT TO TOP OF CAB	8.2 ft in	2500 mm	
H. TAIL SWING RADIUS	3.2 ft in	970 mm	A series of the
O. COUNTERWEIGHT CLEARANCE	1.8 ft in	565 mm	് ഇവരെ പ്രവേശ് വാന്ത്രിയ അത് അത്രം അവരെ അത്രം ക്രവ്യാവ് വര് വ്യാത്ത്യം
Undercarriage	·		
F. TRACK GAUGE	4.8 ft in	1480 mm	
N. SHOE SIZE	12 in	300 mm	
Operational			o en efectivo (il pregnata frictifica de la francia de la compania de la francia de la compania de la francia Compania
OPERATING WEIGHT	8200 lb	3719.5 kg	- market
FUEL CAPACITY	13.5 gal	51 L	
COOLING SYSTEM FLUID CAPACITY	1.6 gal	6 L	•
HYDRAUILC SYSTEM FLUID CAPACITY	17.2 gal	65 L	
ENGINE OIL CAPACITY	1.6 gal	6 L	· · · · · · · · · · · · · · · · · · ·
OPERATING VOLTAGE	12 V		₹

23.1 gal/min 87.6 L/min

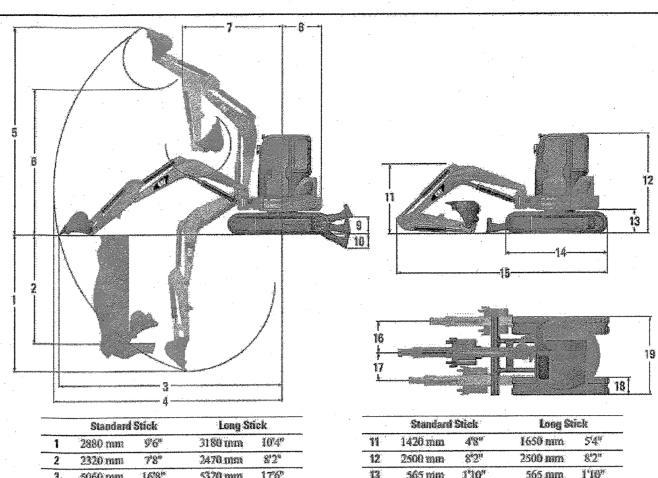
perating Weight with Canopy

3855 kg 8,500 lb





00040320800530008000000000000000000000000000		ausaucontrologicos ir daundo escribiros de la francisco de la francisco de la francisco de la francisco de la f	STATE OF STA			ya.s. 53.00	***************************************	
Standard	Stick	Long St	ick	-	Standard	Stick	Long St	rick
130 mm	10'3"	3430 mm	11'3"	11	1480 mm	4'10"	1770 mm	5'9"
420 mm	810 ^{ss}	2560 mm	815"	12	2500 mm	820	2500 mm	8'2"
220 mm	17'1"	5470.mm	18'0"	13	565 mm	1,10 _e	565 mm	1'10"
350 mm	17:70	5590 mm	18'4"	14	2220 mm	7:3"	2220 mm	7'3"
980 mm	16'5"	5070 mm	16'8"	15	4820 mm	15'10"	4930 mm	16'2"
590 mm	11'9"	3690 mm	12'1"	16	735 mm	25%	735 mm	2'5"
110 mm	6'11"	2220 mm	7'3"	17	670 mm	2'2"	670 mm	212"
975 mm	3/2"	975 mm	3:2"	18	350 mm	$I_{i}I_{ir}$	350 mm	1:1"
400 mm	1:44	400 mm	1'4"	19	1950 mm	6'5"	1950-mm	6'5"



	Standard	Standard Stick		tick
1	2880 mm	9'6"	3180 mm	10°4"
2	2320 mm	78"	2470 mm	8'2"
3	5060 mm	16'8"	5320 mm	176"
4	5200 mm	1718	5440 mm	17'10"
5	4920 mm	16'2"	5030 mm	16'6"
6	3520 mm	116"	3640 mm	11'11"
7	2060 mun	6'90	2180 mm	72"
0	896 mm	2"11"	890 mm	2'11"
9	400 mm	1'4"	400 mm	1'4"
O.	470 mm	1'7"	470 mm	1'7"

perating Weight with Canopy 303.5D CR 3540 kg 7,800 lb

1185 mm 46.65"

200 mm 7.9" 200 mm 7.9"

1180 mm 46.5"

780x195 mm 30.7" x 7.67"

0,048 N/mm²

14 lbf/in²

Technical Data MEASUREMENTS

Transport height, lowest

Normal position

Ground clearance

Rock blade (front and rear)

Ground pressure, tracks

Track gauge

Track length

Transport width, removed outrigger feet

Driving tracks at inner position

Transport length, excl. of attachment 2340 mm 92.13" Transport height, normal position 1245 mm 49.02"

Operating width, outriggers extended 1200 mm 47.24"

Working radius (depending on tool) 3.5-4.5 m

Weight, complete excl of attachment 1630 kg 3595 lb

4-----Boom/Stick Option (HEX) 1 Boom/Stick Option A. SHIPPING LENGTH OF UNIT 16.9 ft in 5100 mm C. SHIPPING HEIGHT OF UNIT 8.2 ft in 2500 mm I. MAX CUTTING HEIGHT 16.3 ft in 4950 mm J. MAX LOADING HEIGHT 11.5 ft in 3490 mm K. MAX REACH ALONG GROUND 16.9 ft in 5100 mm 7.1 ft in 2400 mm M. MAX DIGGING DEPTH 9.7 ft in 2910 mm B. WIDTH TO DUTSIDE OF TRACKS 5.1 ft in 1550 mm 7.3 ft in 2220 mm D. LENGTH OF TRACK ON GROUND E. GROUND CLEARANCE 1 ft in 315 mm G. HEIGHT TO TOP OF CAE 8.2 ft in 2500 mm H. TAIL SWING RADIUS 2.6 ft in 777.2 mm 1.9 ft in 565 mm

Weight complete excl attachment

Ground pressure, tracks, excl attachment

Flap down outriggers

Telescopic arm

Weight attachment, max

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF

THE PROPOSED DEMOLITION MEANS AND METHODS.

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE

THE BASIS OF THE MOST CURRENT INFORMATION

FILINGS AND APPROVALS ARE REQUIRED FOR THE

CONTRACTOR'S METHODOLOGY.

CONSTRUCTION.

WORK OF OTHER TRADES.

AND ISSUE A WORKING SET OF DEMOLITION PLANS ON

AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE,

DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE

PURPOSE OF ADVANCING THE PROJECT TOWARDS

BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE

THE HISA FILING SET IS A COMPLETE TO THE EXTENT THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT

ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE

HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE

COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR

ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE

RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE

SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION

DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET.

THEY SHALL NOT USE THE HISA FILING SET OR ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO

PROJECT. THESE SUBCONTRACTORS MUST PROCURE

GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.

"FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT

FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL

DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO

CONSIDERATION THE PROJECT SEQUENCING AND THE

THE HISA FILING SET MAY BE USED FOR PLANNING,

FOR ACTUAL CONSTRUCTION OR DEMOLITION.

PROFESSIONAL ENGINEERING SERVICES. THE

SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND

Rock blade with support legs 1900 kg 4190 lb

Rock blade with support legs 0.040 MPa 5.8 psi

Flap down outriggers 0.041 MPa 5,95 psi

Telescopic arm +0,002 MPa +0,29 psi

Undercarriage		
N, SHOE SIZE	11.8 in	300 mm
Operational		
OPERATING WEIGHT	7835 lb	3555 kg
FUEL CAPACITY	11.9 gal	45 L
COOLING SYSTEM FLUID CAPACITY	1.6 gal	6 L
HYDRAUILC SYSTEM FLUID CAPACITY	17.2 gal	65 L
ENGINE OIL CAPACITY	1.6 gal	6 L
OPERATING VOLTAGE	12 V	
ALTERNATOR SUPPLIED AMPERAGE	50 amps	
HYDRAULIC SYSTEM RELIEF VALVE PRESSURE	3553 psi	245 kPa
HYDRAULIC PUMP FLOW CAPACITY	23.1 gal/min	87.6 L/min

1950 kg 4300 lb

+215 kg 474 lb

230 kg 507 lb

CATERPILLAR 303C CR MINI EXCAVATOR

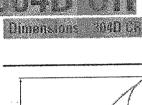


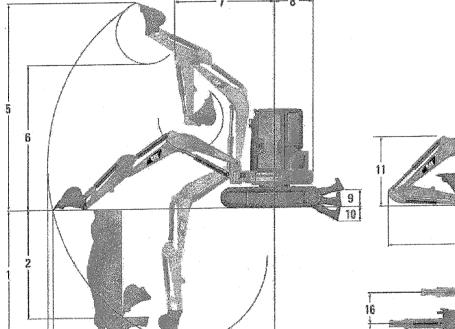


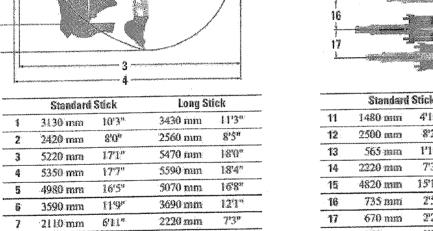
N. SHOE SIZE

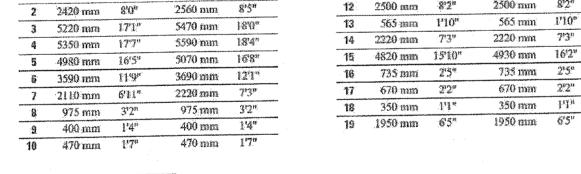
OPERATING WEIGHT

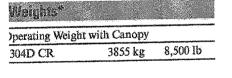
HYDRAULIC PUMP FLOW CAPACITY









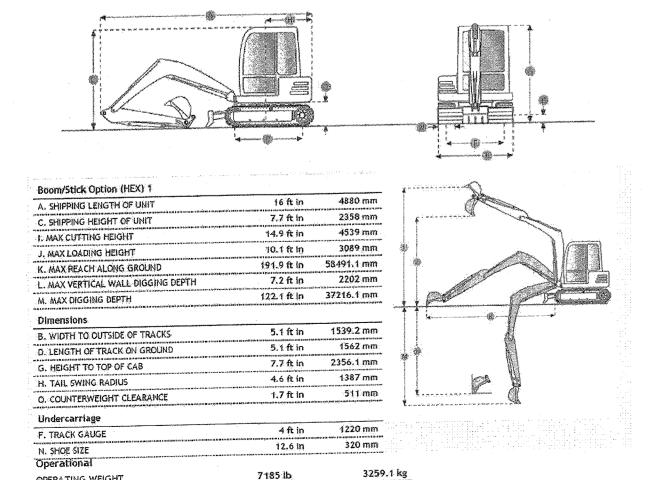


OPERATING WEIGHT

HYDRAULIC PUMP FLOW CAPACITY

FUEL CAPACITY

BOBCAT 331 MINI EXCAVATOR

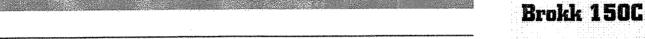


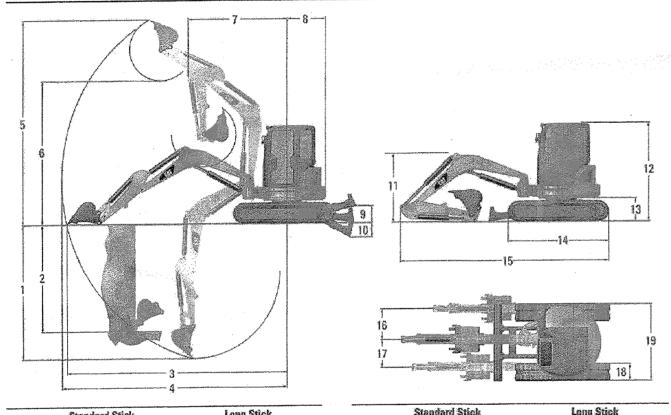
15.3 gal

24 gal/min

57.9 L

90.9 L/min



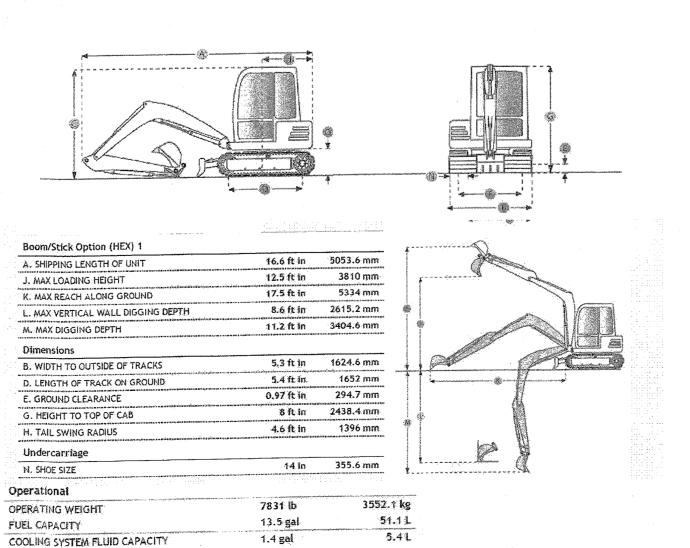


	Standard Stick		Long Stick			Standard	Long Stick		
1	3130 mm	10'3"	3430 mm	11'3"	79	1480 mm	4'10"	1770 mm	5'9"
2	2420 mm	8'0"	2560 mm	8'5"	12	2500 mm	812"	2500 mm	8'2"
3	5220 mm	17'1"	5470 mm	18'0°	13	565 mm	1'10"	565 mm	1'10"
4	5350 mm	17'7"	5590 mm	18'4"	14	2220 mm	7'3"	2220 mm	7'3"
5	4980 mm	16'5°	5070 mm	16'8"	15	4820 mm	15'10"	4930 mm	16'2"
6	3590 mm	11'9"	3690 mm	12'1"	16	735 mm	215**	735 mm	2'5"
7	2110 mm	6'11"	2220 mm	7'3"	17	670 mm	2'2"	670 mm	2'2"
8	975 mm	3'2"	975 mm	3'2"	18	350 mm	1,1,	350 mm	1'1"
<u> </u>	400 mm	1'4"	400 mm	14"	19	1950 mm	6'5"	1950 mm	6*5"
10	470 mm	1'7"	470 mm	1'7"					

8,497 lb

Vveights*
Operating Weight with Canopy

3854 kg TAKEUCHI TB135 MINI EXCAVATOR



85.2 L

20684.3 kPa

75 L/min

4,8L

22.5 gal

1.3 gai

3000 psi

19.8 gal/min

12 Y

HYDRAUILC SYSTEM FLUID CAPACITY

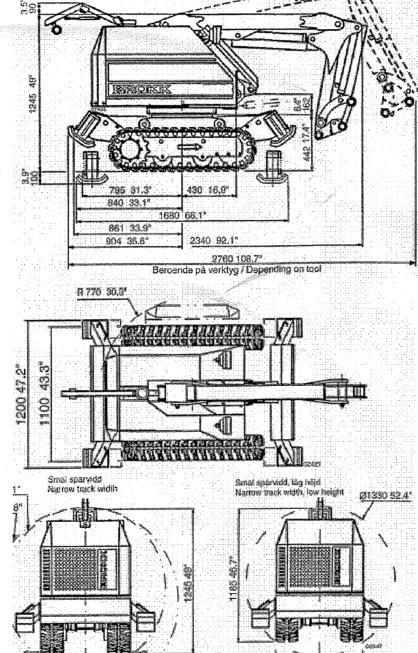
ALTERNATOR SUPPLIED AMPERAGE

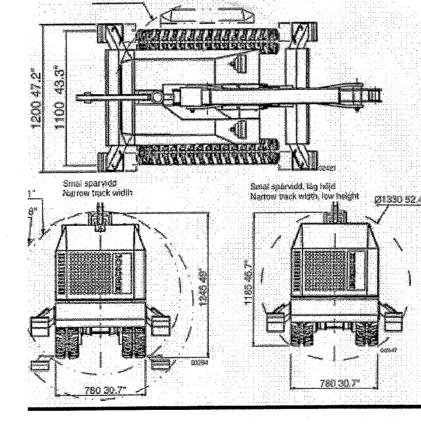
HYDRAULIC PUMP FLOW CAPACITY

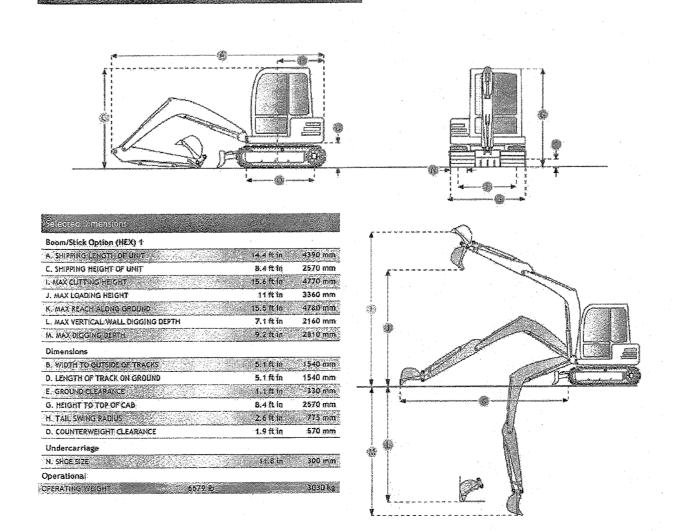
HYDRAULIC SYSTEM RELIEF VALVE PRESSURE

ENGINE OIL CAPACITY

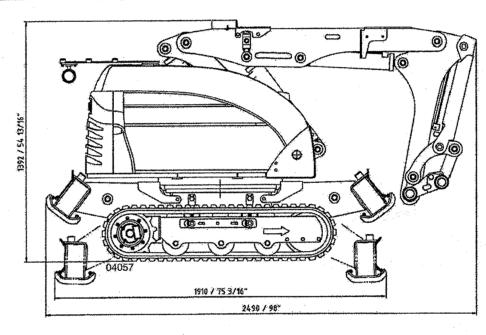
OPERATING VOLTAGE

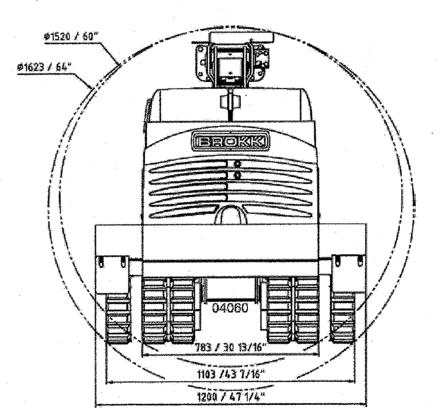






Brokk 180





CONSULTING ENGINEERS PC 266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563 TEL: (516) 791-2600 FAX: (516) 791-5425

COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

CLIENT

PAVARINI MCGOVERN 330 WEST 34TH STREET, 12 TH FL, NEW YOK, NY 10001 PH: 212-907-0944

PROJECT

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NEW YORK, NY 10036

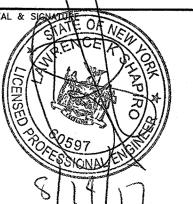
ZONING INFORMATION

BLOCK: 999; LOT: 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105

HEIGHT: 45 STORY 483'-7"

APPROVED DEMOLITION B.E.S.T. SQUAD DEPT BLDGS Job No. 123090341 Scan Code ESHS5727210

MACHINE SPECIFICATIONS MINI EXCAVATOR ON SLABS

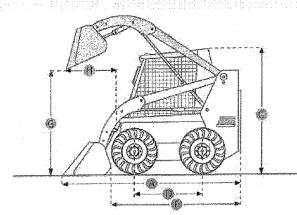


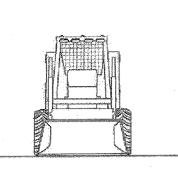
DRAWING BY: BP DATE: 8/14/17 PROJECT NO: 16119.00.00 ENGINEER: BP SCALE: AS NOTED CHK BY: PY DATE: 8/14/17

DM-302.00

3RD SUBMITTAL

BOBCAT S160 SKID STEER LOADER (OR S150)

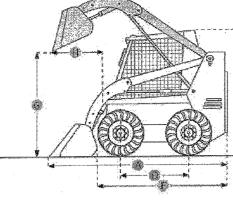


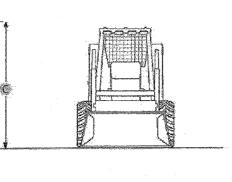


A. LENGTH WITH BUCKET	10.9 ft in	3310 mm
B. WIDTH OVER TIRES	5.5 ft in	1676 mm
C. HEIGHT TO TOP OF CAB	6.4 ft in	1938 mm
D. WHEELBASE	3.4 ft in	1030 mm
F. LENGTH W/O BUCKET	8.5 ft in	2588 mm
6. CLEARANCE AT MAX LIFT AND DUMP	7.6 ft in	2310 mm
H. REACH AT MAX LIFT AND GUMP	18.1 in	459.7 mm

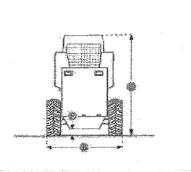
perational PERATIONAL WEIGHT	opinississississississississississississis	2773.7 kg
JEL CAPACITY	24 gal	91 L
PERATING SPEED	7.3 mph	11.7 km/h
Y SPEED	11.1 mph	17.9 km/h

CATERPILLAR 226 SKID STEER LOADER

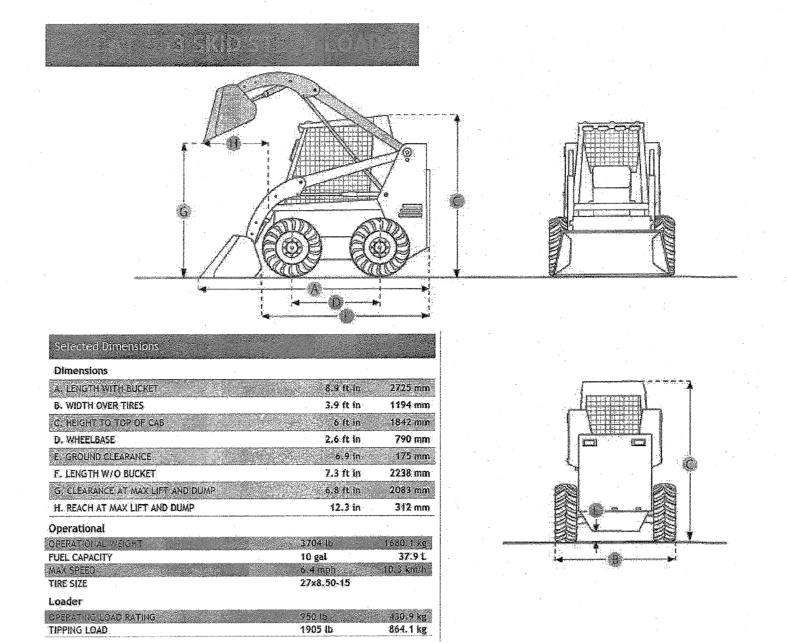


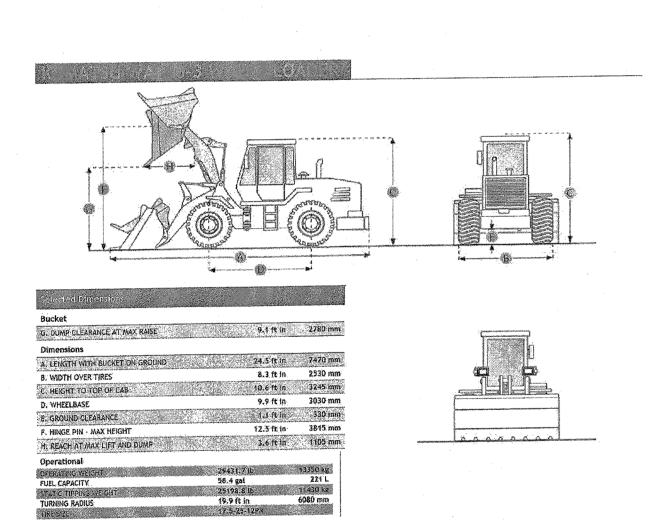


Dimensions		
A. LENGTH WITH BUCKET	10.6 ft. in	3233 mm
E. WIDTH OVER TIRES	6 tt in	1829 mm
C. HEIGHT TO TOP OF CAB	6.4 ft in	1950 mm
O. WHEELBASE	3.2 ft in	986 mm
E. GROUND CLEARANCE	7.7 in	195 aam
F. LENGTH W/O BUCKET	8.3 it in	2519 mm
G. CLEARANCE AT MAX LIFT AND DUMP	7.1 t in	2169 mm
H. REACR AT MAX LIFT AND DUMP	21.5 io	546 mm

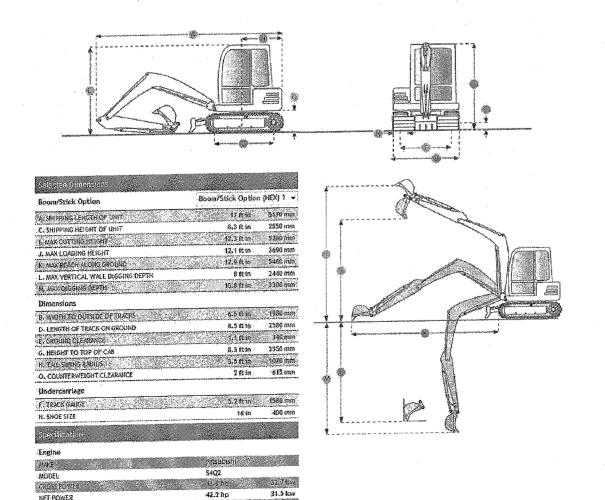


Operational		
OPERATIONAL WEIGHT	5830 lb	2644.4 k
FUEL CAPACITY	15.9 gal	60
HYDRAULIC SYSTEM FLUID CAPACITY	14.5 gal	55
OPERATIKIÓ SPEED	6,9 mph	11.1 km/
WAX SPEED	6.9 mph	11.1 km/
Loader		
OPERATING LOAD RATING	1500 lb	680.4 k
FIPPING LOAD	2710 lb	1229.2 k
BUCKET CAPACITY	0.48 yd3	0.37 m



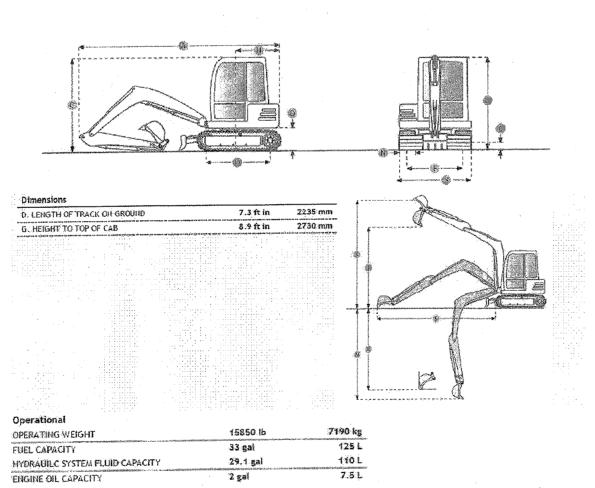


CATERPILLAR 304C CR MIDI EXCAVATOR



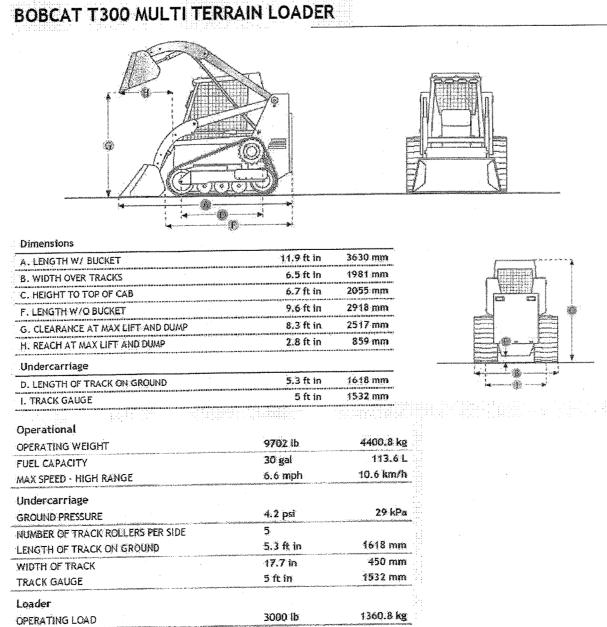
02ER470N2-WEIGHT 1934A (D. 4920/A.E.

KOMATSU PC78US-6 MIDI EXCAVATOR



TIPPING LOAD

BUCKET CAPACITY



0.52 yd3

4176.7 kg

0.4 m3

CONSULTING ENGINEERS PC

266 MERRICK ROAD, SUITE 300, LYNBROOK, N.Y. 11563 TEL: (516) 791-2600 FAX: (516) 791-5425

COPYRIGHT DESIGN NOT TO BE LENT, COPIED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

THIS OFFICE DISCLAIMS ANY RESPONSIBILITY FOR DRAWINGS OR OTHER DOCUMENTS RELATED TO THIS PROJECT UNLESS THEY BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER OF THIS OFFICE. THE NEW YORK STATE EDUCATION LAW PROHIBITS ANY ALTERATIONS TO, OR DELETIONS FROM, THIS DRAWING EXCEPT AS MAY BE MADE BY A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO WILL BEAR THE RESPONSIBILITY FOR SUCH CHANGE.

DRAWING INTENT:

CRANES.

CONSTRUCTION.

WORK OF OTHER TRADES.

CONTRACTOR'S METHODOLOGY.

THE DRAWING HEREIN IS A SCHEMATIC PRESENTATION OF

THE PROPOSED DEMOLITION MEANS AND METHODS.

THE BASIS OF THE MOST CURRENT INFORMATION AVAILABLE FOR THE BUILDING, THE DEMOLITION SCOPE,

FILINGS AND APPROVALS ARE REQUIRED FOR THE

PURPOSE OF ADVANCING THE PROJECT TOWARDS

DEMOLITION ITSELF AS WELL AS INDIVIDUAL EQUIPMENT

SUCH AS HOISTS, SCAFFOLDING, SIDEWALK SHEDS, AND

THESE DRAWINGS (A.K.A. THE "HISA FILING SET") ARE

THE HISA FILING SET IS A COMPLETE TO THE EXTENT

"FINAL" IN THE CONTEXT THAT THEY DO NOT REFLECT

FINAL DESIGN DEVELOPMENT OF THE PROJECT. FINAL

DRAWINGS FOR CONSTRUCTION MUST ALSO TAKE INTO

CONSIDERATION THE PROJECT SEQUENCING AND THE

THE HISA FILING SET MAY BE USED FOR PLANNING,

ACTUAL CONSTRUCTION AND DEMOLITION WILL BE THE

RESPONSIBILITY OF SUBCONTRACTORS HIRED FOR THE

SUBCONTRACTORS' ENGINEERS WILL ISSUE CONSTRUCTION

DOCUMENTS THAT WILL SUPERSEDE THE HISA FILING SET.

ASSOCIATED DOCUMENTS TO OBTAIN WORK PERMITS OR TO

PROJECT. THESE SUBCONTRACTORS MUST PROCURE

THEY SHALL NOT USE THE HISA FILING SET OR

GUIDE THEIR PERFORMANCE OF THE ACTUAL WORK.

FOR ACTUAL CONSTRUCTION OR DEMOLITION.

PROFESSIONAL ENGINEERING SERVICES. THE

THAT THE PROJECT HAS BEEN DEVELOPED. THEY ARE NOT

ACTUAL MEANS AND METHODS OF CONTRACTORS OR THE

HARMONIZATION OF THE DEMOLITION OPERATIONS WITH THE

COORDINATION, AND PUBLIC AGENCY APPROVALS BUT NOT

ENGINEERING DOCUMENTS AND ENGINEERING SUPPORT FOR

BEING RELEASED UNDER SIGNATURE AND SEAL FOR THE

PRIOR TO THE ACTUAL DEMOLITION, A PROFESSIONAL ENGINEER LICENSED IN NEW YORK STATE SHALL PREPARE

AND ISSUE A WORKING SET OF DEMOLITION PLANS ON

AVAILABLE EQUIPMENT, REGULATORY REQUIREMENTS, AND

PAVARINI MCGOVERN 330 WEST 34TH STREET, 12 TH FL, NEW YOK, NY 10001 PH: 212-907-0944

PROJECT

PARTIAL DEMOLITION OF 45 STORY COMMERCIAL BUILDING AT 1568 AIR BROADWAY, NEW YORK, NY 10036

ZONING INFORMATION

BLOCK: 999; LOT: 9062 ZONING: C6-5.5 ZONING MAP: 8D BIN #: 1085494 COMMUNITY BOARD: 105

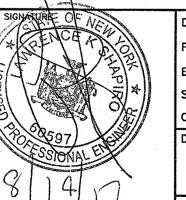
HEIGHT: 45 STORY 483'-7"

APPROVED DEMOLITION B.E.S.T. SQUAD



MACHINE SPECIFICATIONS LOADERS AND SLABS AND

MACHINES AT THE FIRST FLOOR ENGINEER: BP



DRAWING BY: BP DATE: 8/14/17 PROJECT NO: 16119.00.00 SCALE: AS NOTED CHK BY: PY DATE: 8/14/17

DM-303.00

3RD SUBMITTAL 20 OF 20