

- GENERAL NOTES:**
- BASE DRAWING REPRODUCED FROM THE STRUCTURAL PLAN PREPARED BY WSP CANTOR SENKIN TITLED "FOUNDATION GENERAL ARRANGEMENT PLAN" DATED 19 JUNE 2012. ALL LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO VERIFICATION IN THE FIELD.
 - ALL ELEVATIONS ARE APPROXIMATE AND REFER TO THE MANHATTAN BOROUGH PRESIDENT DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL MEASURED AT SANDY HOOK, NJ.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING HIS WORK SUCH THAT NO DAMAGE OR ADVERSE IMPACT TO THE NEIGHBORING BUILDINGS AND STRUCTURES RESULT, AND FOR PERFORMING NEIGHBORING/ADJACENT BUILDING AND STRUCTURE MONITORING DURING SOIL EXCAVATION AND EXCAVATION SUPPORT CONSTRUCTION TO KEEP HIMSELF CONTINUOUSLY INFORMED OF THEIR CONDITIONS.
 - A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK AND RETAINED DIRECTLY BY THE OWNER SHALL PERFORM SPECIAL INSPECTION OF THE EXCAVATION SUPPORT WORK IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1704.19 OF THE NYC BUILDING CODE.
 - CONTRACTOR SHALL NOTIFY NYCDOB AND NEIGHBORING BUILDING OWNERS PER THE REQUIREMENTS OF THE LATEST NYC BUILDING CODE PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
 - CONTRACTOR SITE SAFETY AND SITE LOGISTICS ARE BEYOND THE SCOPE OF THESE DRAWINGS AND ARE NOT ADDRESSED HEREIN.
 - ON-SITE TOP OF ROCK ELEVATIONS INDICATED ON THE DRAWINGS ARE INFERRED BASED ON TOP OF ROCK OBSERVED IN DRILLED BORINGS. THE ACTUAL TOP OF ROCK MAY VARY IN THE FIELD.
 - THE SUPPORT OF EXCAVATION DESIGN IS BASED ON A 300 PSF UNIFORM SURCHARGE AT THEIR FINAL STAGE OF CONSTRUCTION ARE BASED ON A 150 PSF UNIFORM SURCHARGE. HORIZONTAL PRESSURES FROM THESE LOADS ARE ASSUMED TO HAVE A TRIANGULAR LOAD DISTRIBUTION EXTENDING 15 FT IN DEPTH FROM THE SURFACE. HIGHER SURCHARGE LOADS CAN BE APPLIED ONLY AFTER REVIEW AND APPROVAL BY THE DESIGN ENGINEER.
 - THE MOST RECENT PROVISIONS OF THE NEW YORK CITY BUILDING CODE SHALL GOVERN THIS WORK.
 - THE WORK SHOWN IN THESE DRAWINGS SHALL BE EXECUTED IN CONJUNCTION WITH THOSE OF THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, STEEL/CIVIL DRAWINGS AND DRAWINGS OF ALL OTHER DISCIPLINES. DISCREPANCIES BETWEEN THESE DRAWINGS AND THOSE OF OTHER DISCIPLINES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION PRIOR TO COMMENCING WORK.
 - SHOULD FIELD CONDITIONS CONFLICT WITH THOSE INDICATED ON THESE DRAWINGS, THE DESIGNER SHALL BE IMMEDIATELY NOTIFIED TO DETERMINE IMPACTS TO THE DESIGN AND TO PROVIDE ANY REQUIRED DESIGN CHANGES.
 - THE FOLLOWING DRAWINGS ARE INCLUDED IN THIS SET:
 DWG NO. TITLE
 SOE-001 EXCAVATION SUPPORT KEY & INDEX PLAN
 SOE-002 SHEETED EXCAVATIONS PART PLANS, CROSS-SECTIONS & SEQUENCE
 SOE-003 EXCAVATION SUPPORT ELEVATIONS, CROSS-SECTIONS & SEQUENCE
 SOE-004 EXCAVATION SUPPORT ELEVATIONS, CROSS-SECTIONS & SEQUENCE
 SOE-005 EXCAVATION SUPPORT ELEVATIONS, CROSS-SECTIONS & SEQUENCE
 SOE-006 EXCAVATION SUPPORT DETAILS
- STRUCTURAL STEEL NOTES**
- STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992, GRADE 50, U.O.N.
 - STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36, U.O.N.
 - FIELD WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1-08.
 - WELDING ELECTRODES SHALL BE E70XX, UNLESS NOTED OTHERWISE. FILET WELDS SHALL NOT BE LESS THAN 3/16-INCH.
 - REFER TO DRAWING FO-001.00 AND THE PROJECT SPECIFICATIONS FOR STRUCTURAL STEEL REQUIREMENTS RELATED TO ALL OTHER WORK.
- CONCRETE NOTES**
- CAST-IN-PLACE CONCRETE SHALL BE CONTROLLED CONCRETE AND SHALL HAVE A MINIMUM UNFINISHED COMPRESSIVE STRENGTH AT 28 DAYS (FC) OF 4,000 PSI U.O.N.
 - CONCRETE REINFORCEMENT BARS SHALL CONSIST OF DEFORMED BILLET STEEL MEETING ASTM A615, GRADE 60.
 - MECHANICAL SPLICES SHALL DEVELOP THE FULL TENSILE CAPACITY OF THE PARENT REINFORCING BAR.
 - MINIMUM CONCRETE COVER SHALL BE IN ACCORDANCE WITH ACI 318.
 - TOLERANCES FOR CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 117.
 - ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED A MINIMUM OF 3/4" INCHES.
 - REFER TO DRAWING FO-001.00 AND ASSOCIATED SPECIFICATIONS FOR CONCRETE REQUIREMENTS RELATED TO ALL OTHER WORK.
- SOLDER PILE AND LAGGING AND SHEET PILE NOTES**
- STEEL H-PILES, C-CHANNELS AND SHEET PILING SHALL CONFORM TO ASTM A-572 GRADE 50.
 - SHEET PILING AND SOLDER PILES SHALL BE INSTALLED TO WITHIN 3/4" OF THEORETICAL LOCATION. SHEETS AND SOLDER PILES SHALL NOT DEVIATE MORE THAN 1" FROM PLUMB. SHEETS AND SOLDER PILES DRIVEN OUTSIDE OF THE ABOVE TOLERANCES SHALL BE EXTRACTED AND REDRIVEN.
 - TIMBER SHALL BE CONSTRUCTION GRADE, ROUGH CUT FULL SIZE, SOUTHERN PINE WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1800 PSI. 3" X 4" TIMBER LAGGING SHALL BE INSTALLED FROM GROUND SURFACE TO EXTENT OF EXCAVATION (TOP-DOWN).
- INSTALLATION AND EXCAVATION SEQUENCE NOTES**
- CONTRACTOR SHALL FIELD LOCATE EXISTING STRUCTURES AND UTILITIES TO ENSURE NECESSARY CLEARANCES.
 - PRE-TRENCH AS NECESSARY TO CLEAR OBSTRUCTIONS AND REMAINANT FOUNDATION ELEMENTS WHICH MAY EFFECT THE INSTALLATION OF SOLDER PILES AND SHEET PILES.
 - GRADE SURFACE AS REQUIRED TO PROVIDE LEVEL WORKING PLATFORM.
 - SET PILING RIG AT DESIRED LOCATION AND PLUMB THE PILE PRIOR TO DRIVING.
 - DRIVE SOLDER PILES AND SHEET PILES TO REQUIRED MINIMUM DEPTHS VIBRATION AND SURVEY MONITORING SHALL BE PERFORMED CONTINUOUSLY DURING DRIVING.
 - THE TOP OF ALL PILES SHALL EXTEND A MINIMUM OF 6" INCHES ABOVE THE GROUND SURFACE.
 - INSTALL BRACING AS REQUIRED INCLUDING DRILLING OF TIEBACKS. REFER TO DRAWING SOE-005 FOR SCHEDULE AND INSTALLATION NOTES.
 - CONTINUE EXCAVATION AS REQUIRED TO ACHIEVE SUBGRADE ELEVATION. DEWATER LOCALLY AS REQUIRED FOR INSTALLATION OF PERMANENT FOUNDATIONS.
 - INSTALL PERMANENT FOUNDATIONS AS REQUIRED.
 - BRACING SHALL REMAIN IN-PLACE UNTIL ADEQUATE SUPPORT IS PROVIDED BY PERMANENT STRUCTURAL ELEMENTS (I.E. FOUNDATION WALLS AND INTERMEDIATE FLOOR SLABS).
 - MONITORING OF WALL MOVEMENTS AND ADJACENT STRUCTURES SHALL BE PERFORMED CONTINUOUSLY DURING ALL OPERATIONS. REFER TO NOTES ON DRAWING SOE-005 FOR DETAILS.
- NEW YORK CITY BUILDING DEPARTMENT NOTES**
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE 2008 NEW YORK CITY BUILDING CODE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF BUILDINGS AND ADJACENT PROPERTY OWNERS 24-48 HOURS PRIOR TO COMMENCING EXCAVATION AS PER SECTION 3304.3.1 AND 3304.3.2 OF THE NEW YORK CITY BUILDING CODE.
 - ALL WORK CONTAINED HEREIN SHALL BE SUBJECT TO SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE NEW YORK CITY BUILDING CODE. SPECIAL INSPECTORS SHALL MEET THE QUALIFICATIONS OUTLINED IN THE RULES OF THE CITY OF NEW YORK, SECTION 101-06, DATED 6-30-08. REQUIRED SPECIAL INSPECTIONS INCLUDE:
 A. SOILS AS PER SECTION 1704.7
 a. SITE PREPARATION
 b. FILL PLACEMENT
 c. IN-PLACE SOIL DENSITY
 B. CONCRETE CONSTRUCTION AS PER SECTION 1704.4
 a. CONCRETE MIX DESIGN
 b. CONCRETE CYLINDERS AND TESTING
 c. CAST-IN-PLACE CONCRETE INCLUDING PLACEMENT OF FORM WORK AND REINFORCING STEEL
 C. EXCAVATION - SHEETING, SHORING AND BRACING AS PER 1704.19 AND 3304.4.1
 a. SHEET PILE INSTALLATION
 b. EXCAVATION
 c. STEEL CONSTRUCTION AS PER SECTION 1704.3
 a. WELDING
 - IN CONFORMANCE WITH THE NEW YORK CITY BUILDING CODE, THE OWNER'S ENGINEER SHALL BE RETAINED TO CONDUCT THE NECESSARY SPECIAL INSPECTIONS FOR THE PROPOSED WORK AS APPROPRIATE.
 - REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION ON SCOPE AND DETAILED REQUIREMENTS FOR INSPECTIONS AND TESTING.
 - REFER TO THE PROJECT SPECIFICATIONS AND DRAWINGS FOR INSPECTION AND TESTING REQUIREMENTS PERTAINING TO WORK OF OTHER TRADES.

Maria-Teresa Fernandez
 Buildings
 APPROVED
 Under Directive 2 of 1975
 Date/Time: Dec 7, 2012 - 3:53 PM
 NYC Development Hub



Date	Description	No.
08/21/2012	ALAN POEPEL PROFESSIONAL ENGINEER	1

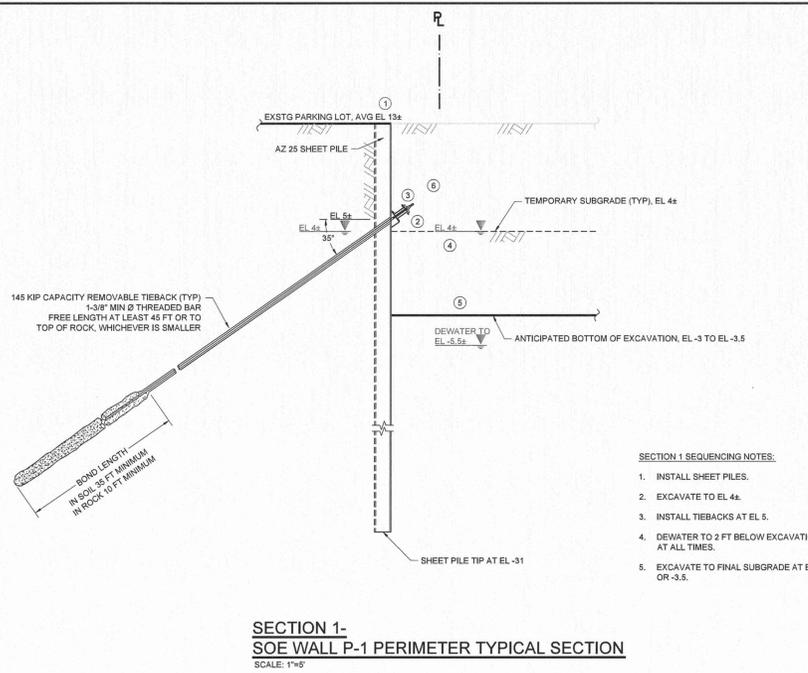


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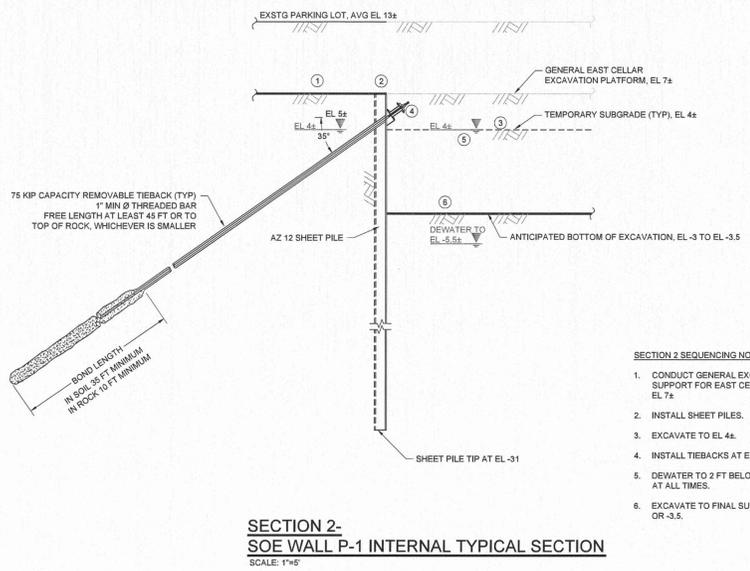
Project No. 170201301	Drawing No. SOE-001
Date 08/21/2012	Scale AS SHOWN
Drawn By LFP	1 Of 6
Last Revised 08/21/2012	

RIVERSIDE CENTER, BUILDING 2 EXCAVATION SUPPORT KEY AND INDEX PLAN

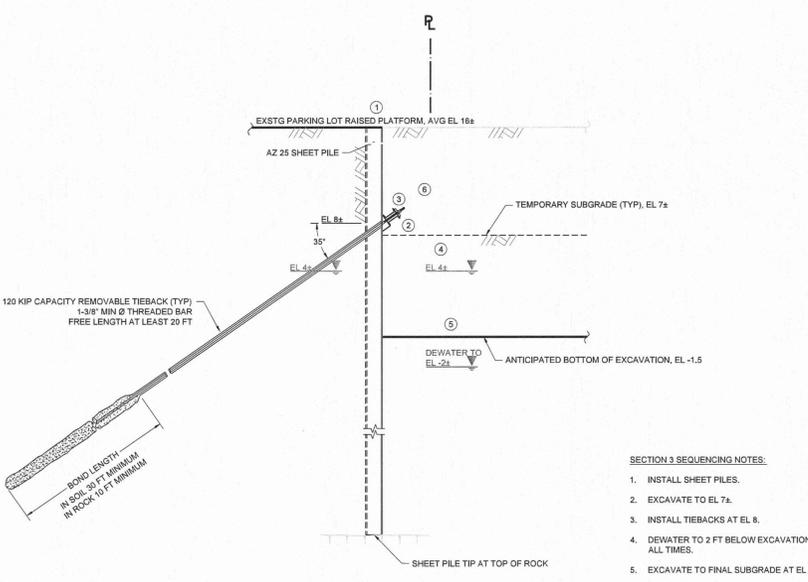
17 - 29 WEST END AVENUE NEW YORK, NEW YORK



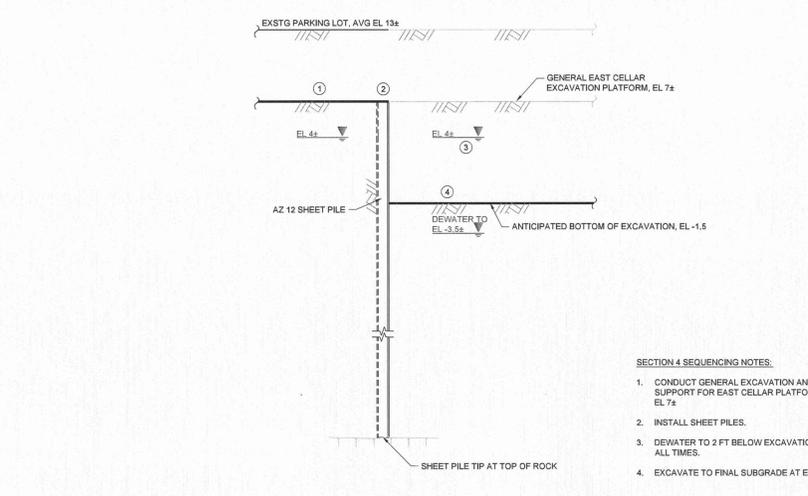
SECTION 1- SOE WALL P-1 PERIMETER TYPICAL SECTION
SCALE: 1"=6'



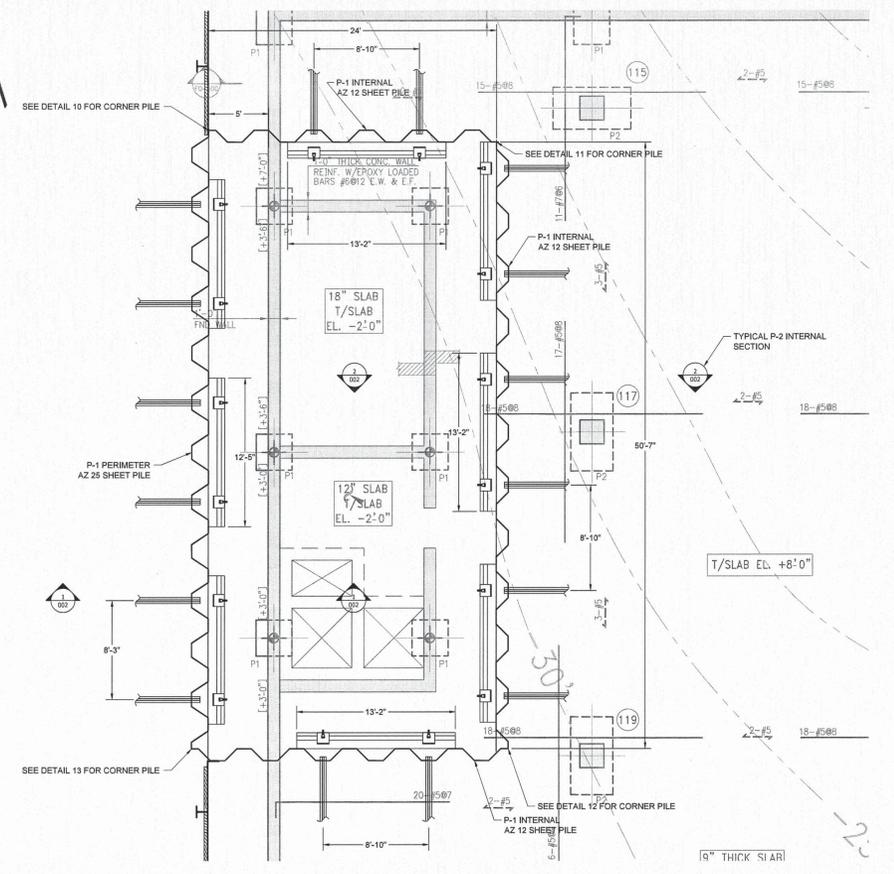
SECTION 2- SOE WALL P-1 INTERNAL TYPICAL SECTION
SCALE: 1"=6'



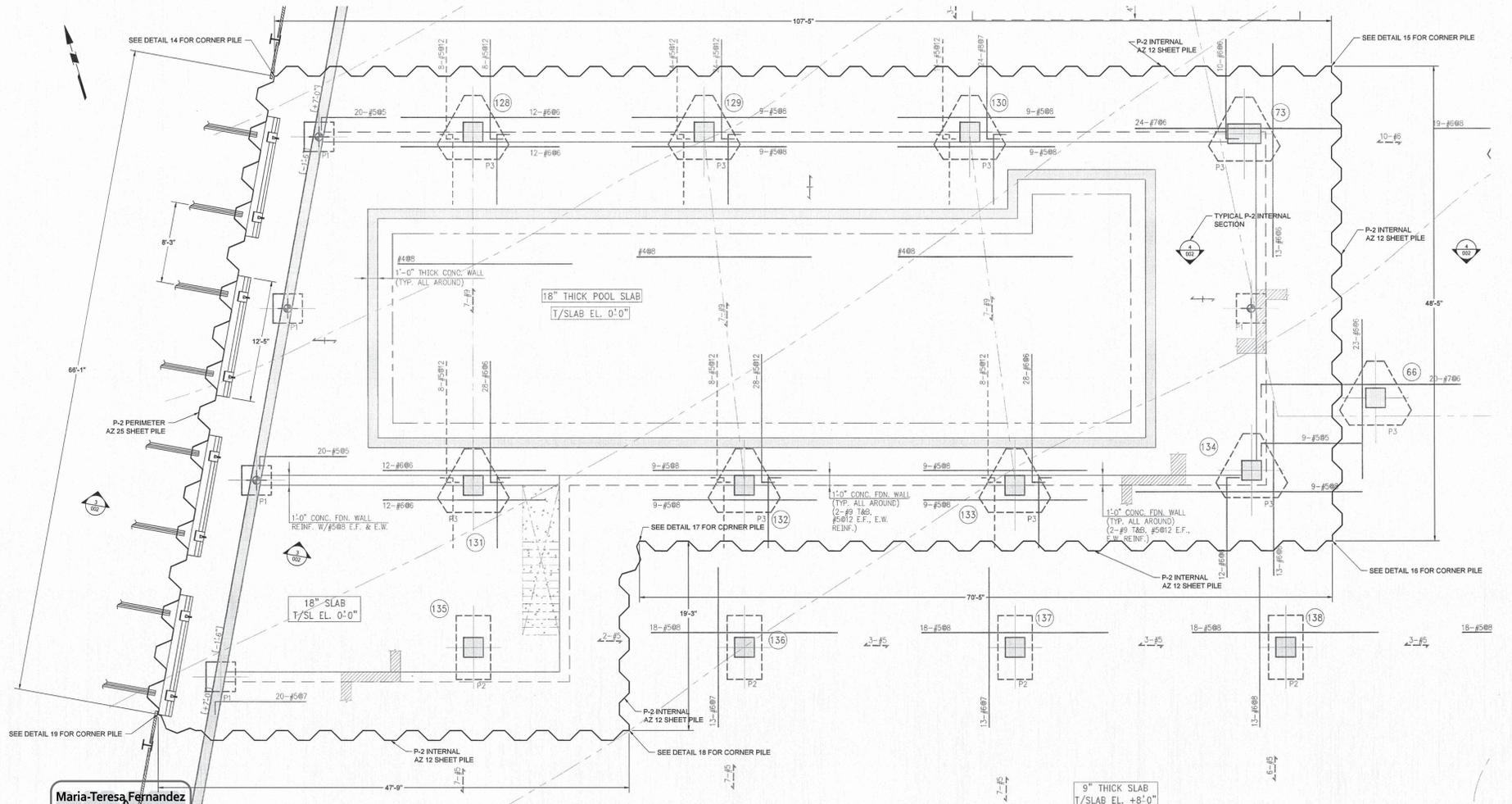
SECTION 3- SOE WALL P-2 PERIMETER TYPICAL SECTION
SCALE: 1"=6'



SECTION 4- SOE WALL P-2 INTERNAL TYPICAL SECTION
SCALE: 1"=6'



PART PLAN 1- SOE WALL P-1
SCALE: 1"=6'



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08/21/2012	PROFESSIONAL ENGINEER	1

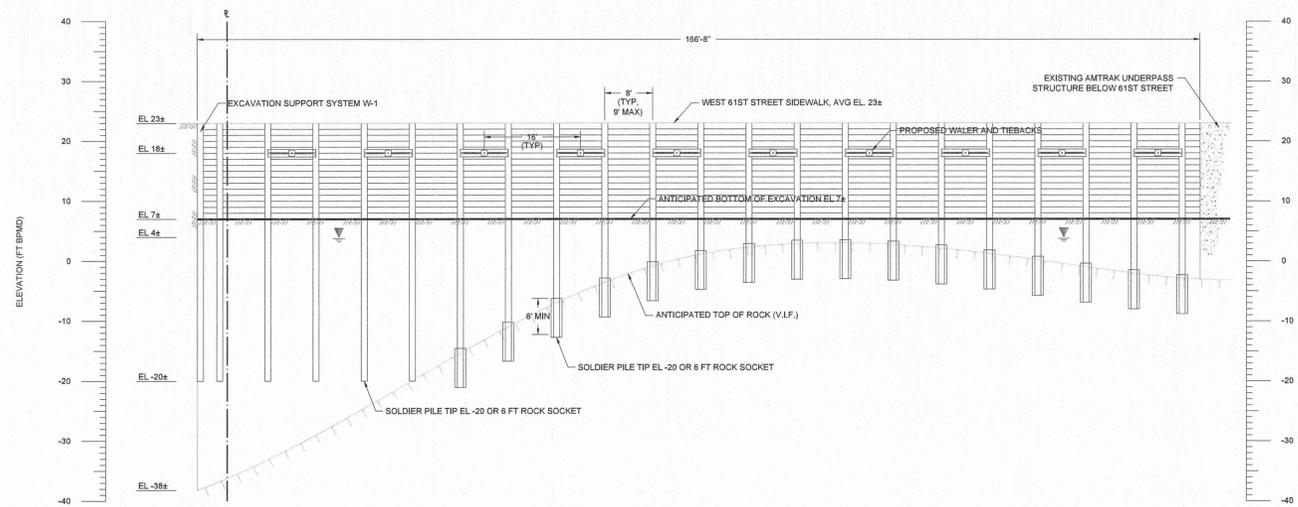
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17 - 29 WEST END AVENUE
RIVERSIDE CENTER, BUILDING 2
NEW YORK

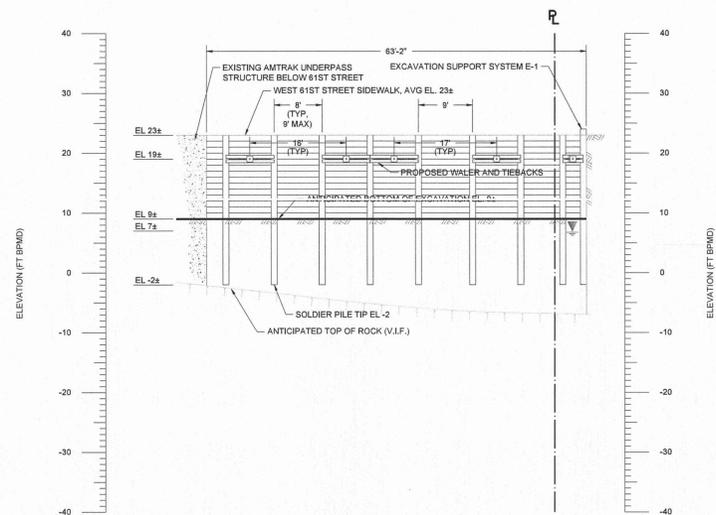
Drawing Title
SHEETED EXCAVATIONS PART PLANS, CROSS-SECTIONS AND SEQUENCE

Project No.	170201301	Drawing No.	SOE-002
Date	08/21/2012	Scale	AS SHOWN
Drn. By	LFP	Last Revised	08/21/2012
		2 OF 6	



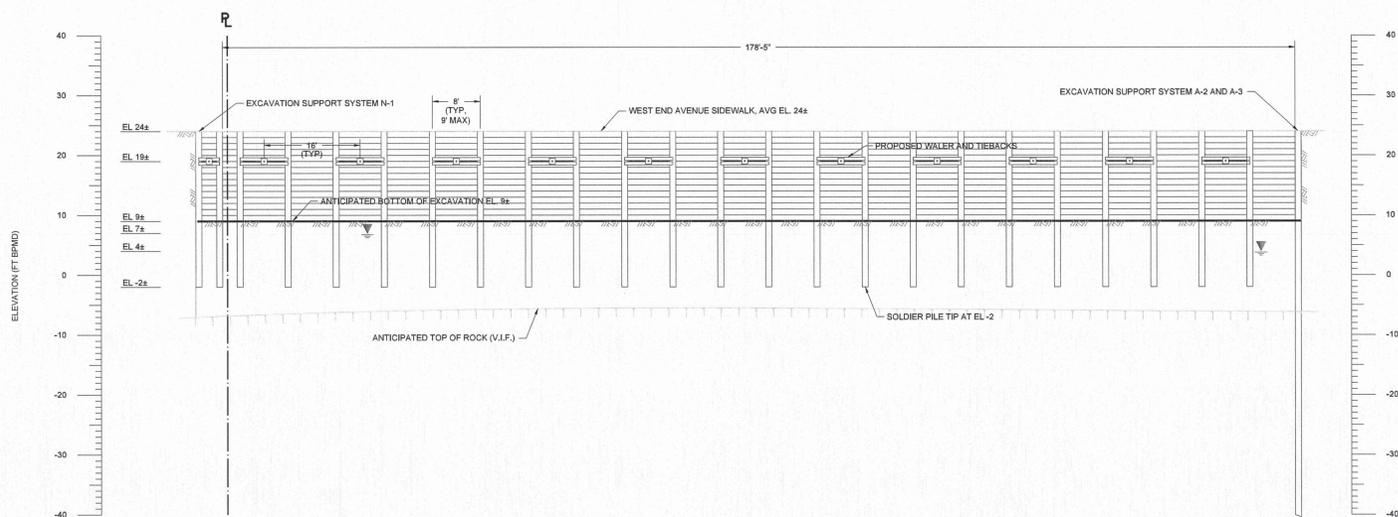
SOE WALL N-1 ELEVATION (FACING NORTH)

SCALE: 1"=10'



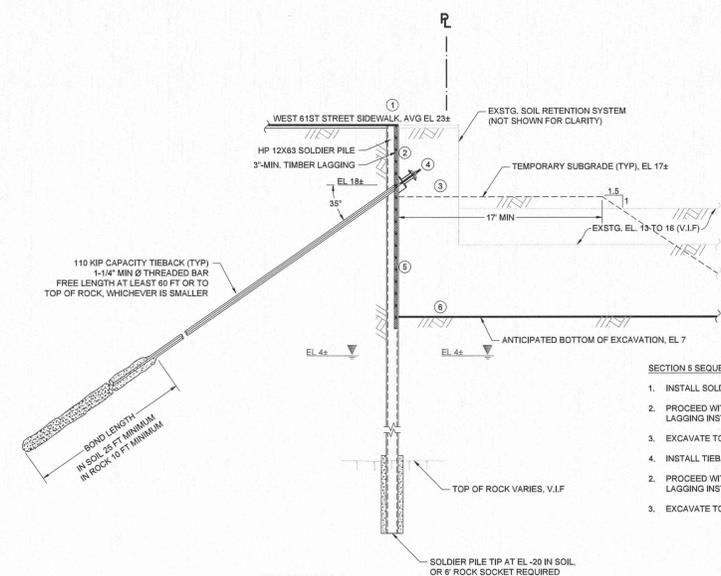
SOE WALL N-2 ELEVATION (FACING NORTH)

SCALE: 1"=10'



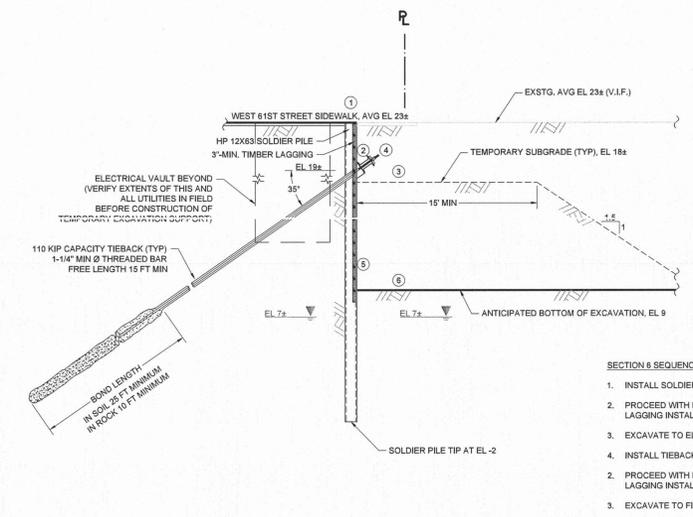
SOE WALL E-1 ELEVATION (FACING EAST)

SCALE: 1"=10'



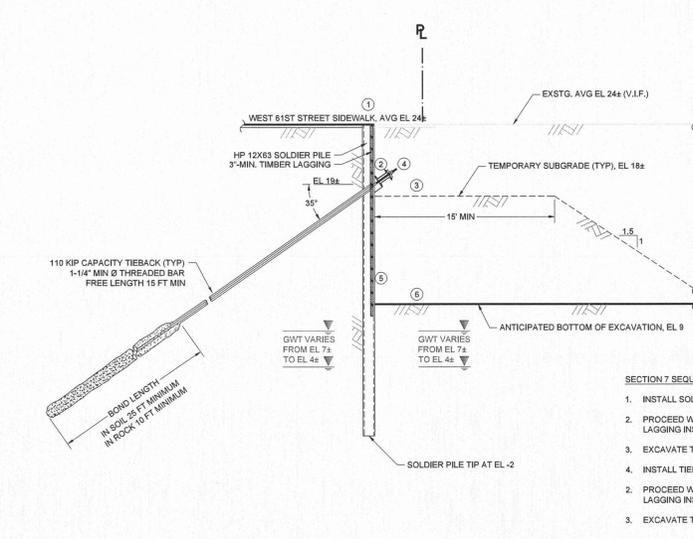
SECTION 5-
SOE WALL N-1 TYPICAL SECTION

SCALE: 1"=5'



SECTION 6-
SOE WALL N-2 TYPICAL SECTION

SCALE: 1"=5'



SECTION 7-
SOE WALL E-1 TYPICAL SECTION

SCALE: 1"=5'

- NOTES:
1. SURFACE ELEVATIONS WERE OBTAINED FROM A SURVEY PROVIDED BY EXTELL TO MUESER RUTLEDGE CONSULTING ENGINEERS AND REPRODUCED IN THE "SUBSURFACE INVESTIGATION REPORT" BY MUESER RUTLEDGE CONSULTING ENGINEERS DATED 14 SEPTEMBER 2011. THIS INFORMATION IS SUBJECT TO VERIFICATION IN THE FIELD.
 2. ON-SITE TOP OF ROCK ELEVATIONS INDICATED ON THE DRAWINGS ARE INFERRED BASED ON TOP OF ROCK OBSERVED IN DRILLED BORING LOCATIONS. THE ACTUAL TOP OF ROCK MAY VARY IN THE FIELD.
 3. REFER TO SHEETS SOE-001 FOR PLAN VIEW AND SOE-006 FOR DETAILS.

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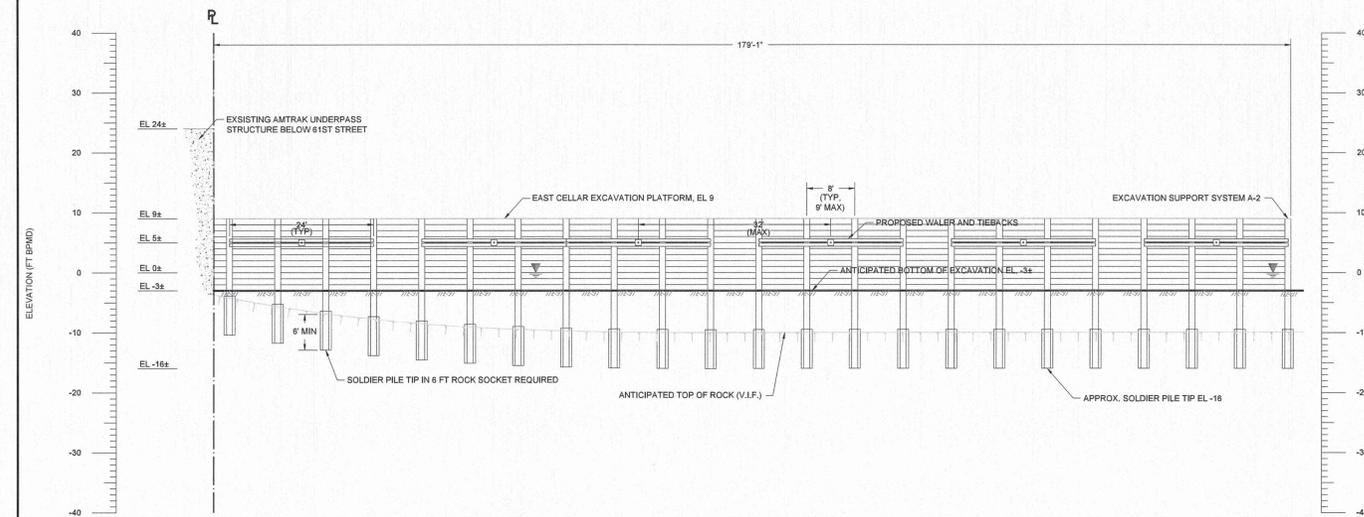
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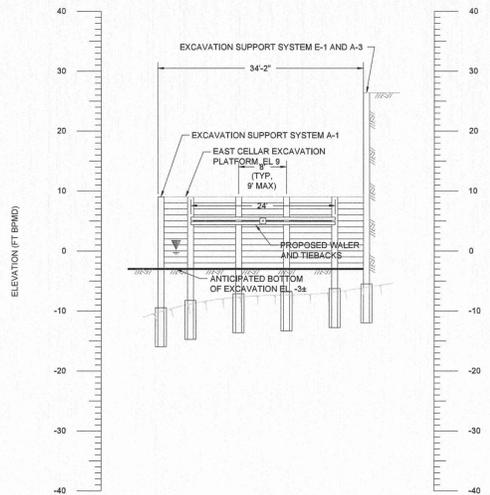
17 - 29 WEST END AVENUE
**RIVERSIDE CENTER,
 BUILDING 2**
 NEW YORK

Project No. 170201301
 Date 08/21/2012
 Scale AS SHOWN
 Dwn. By LFP
 Last Revised 08/21/2012

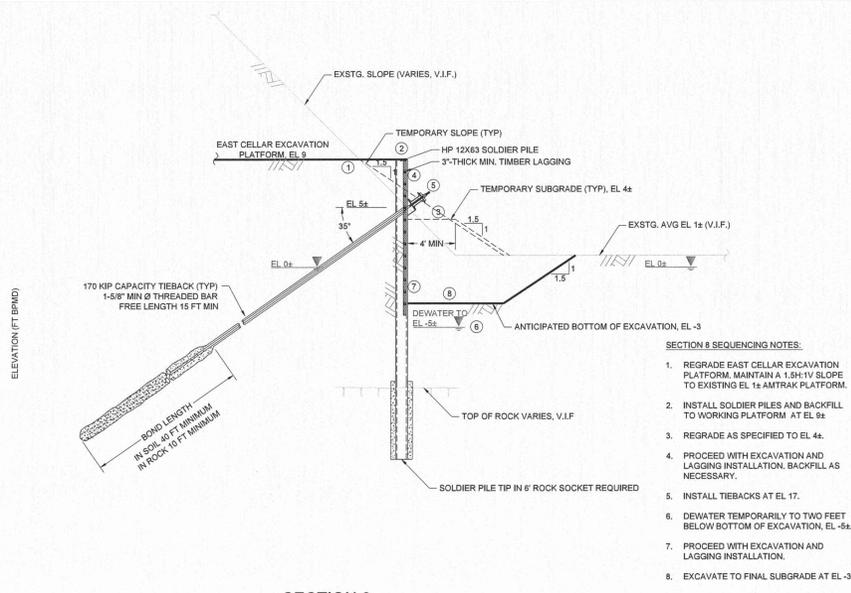
Drawing Title
**EXCAVATION SUPPORT
 ELEVATIONS,
 CROSS-SECTIONS AND
 SEQUENCE**
 Drawing No.
SOE-003
 2 Of 6



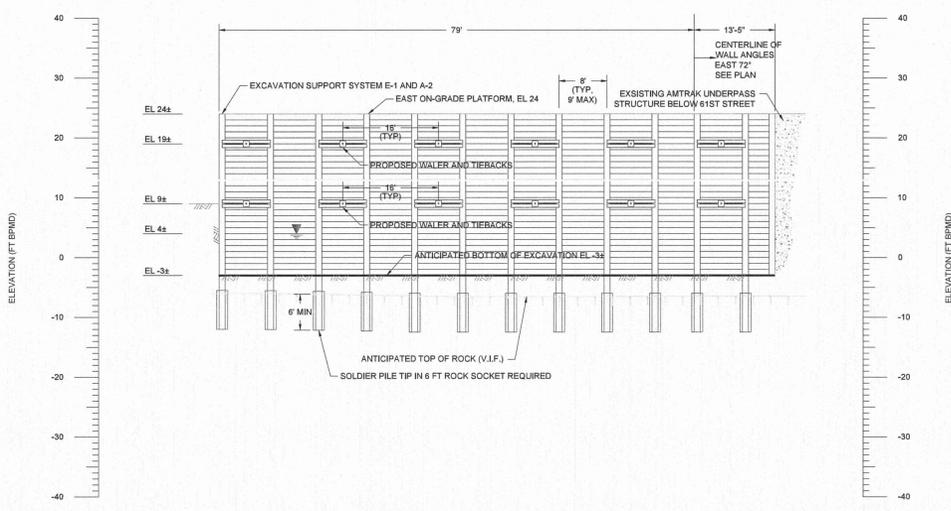
SOE WALL A-1 ELEVATION (FACING EAST)
SCALE: 1"=10'



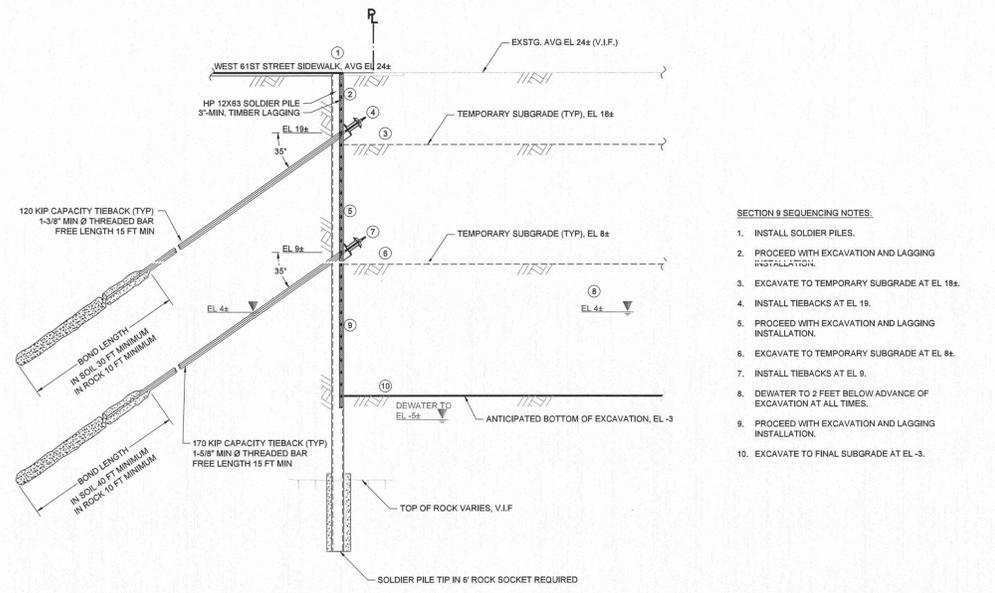
SOE WALL A-2 ELEVATION (FACING NORTH)
SCALE: 1"=10'



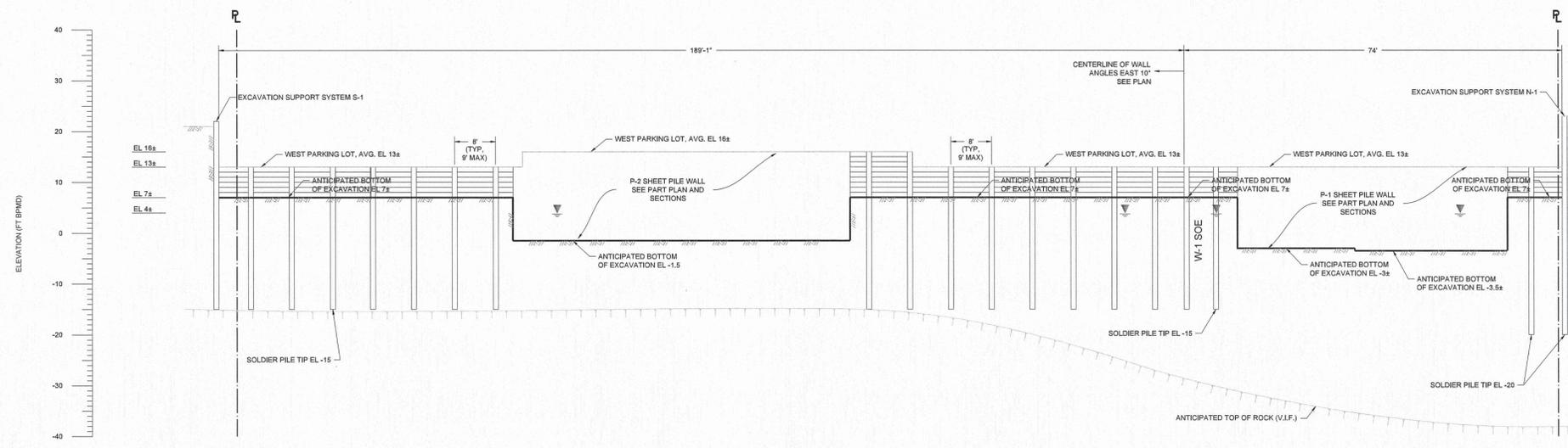
SECTION 8 - SOE WALL A-1 AND A-2 TYPICAL SECTION
SCALE: 1"=5'



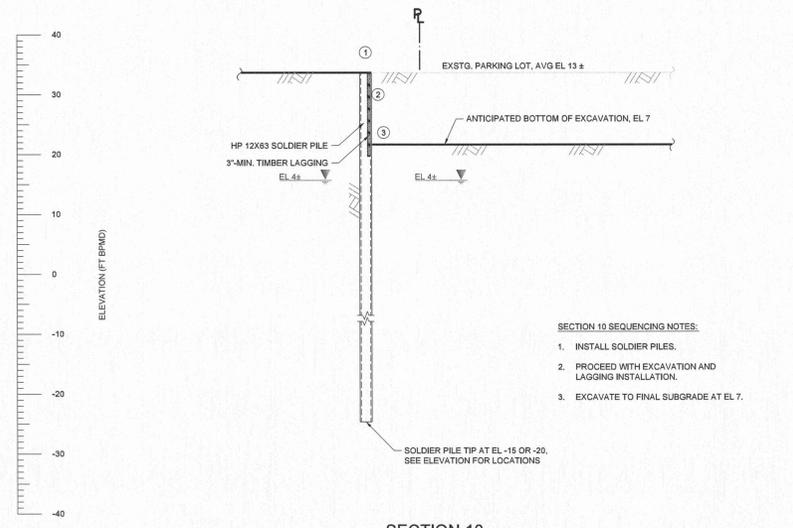
A-3 ELEVATION VIEW
SCALE: 1"=10'



SECTION 9 - SOE WALL A-3 TYPICAL SECTION
SCALE: 1"=5'



SOE WALL W-1 ELEVATION (FACING WEST)
SCALE: 1"=10'



SECTION 10 - SOE WALL W-1 TYPICAL SECTION
SCALE: 1"=5'

NOTES:
1. SURFACE ELEVATIONS WERE OBTAINED FROM A SURVEY PROVIDED BY EXTELL TO MUESSER RUTLEDGE CONSULTING ENGINEERS AND REPRODUCED IN THE "SUBSURFACE INVESTIGATION REPORT" BY MUESSER RUTLEDGE CONSULTING ENGINEERS DATED 14 SEPTEMBER 2011. THIS INFORMATION IS SUBJECT TO VERIFICATION IN THE FIELD.
2. ON-SITE TOP OF ROCK ELEVATIONS INDICATED ON THE DRAWINGS ARE INFERRED BASED ON TOP OF ROCK OBSERVED IN DRILLED BORING LOCATIONS. THE ACTUAL TOP OF ROCK MAY VARY IN THE FIELD.
3. REFER TO SHEETS SOE-001 FOR PLAN VIEW AND SOE-009 FOR DETAILS.

Maria-Teresa Fernandez
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Date/Time: Dec 7, 2012 - 3:53 PM
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Date Description No. Revisions

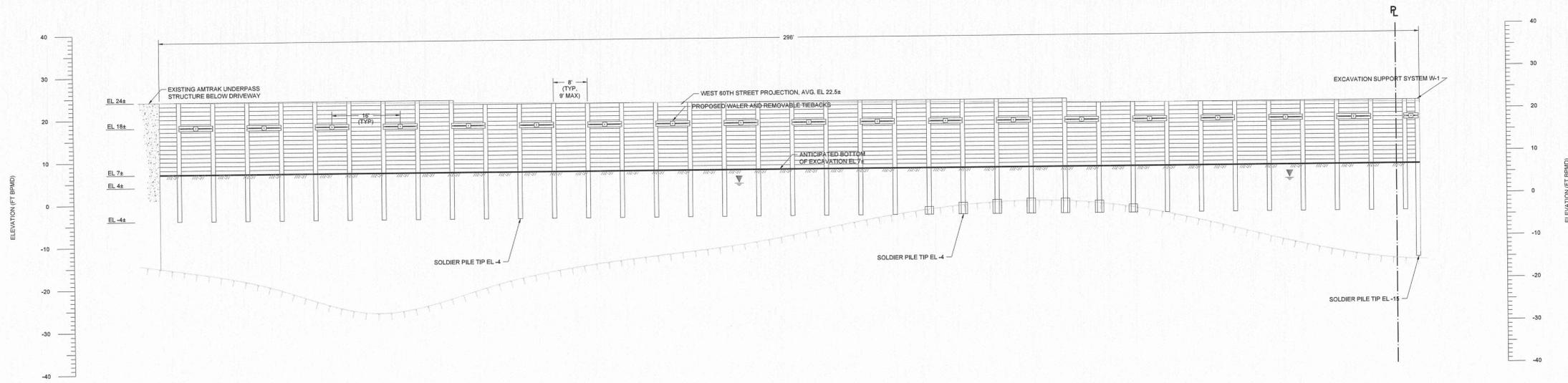
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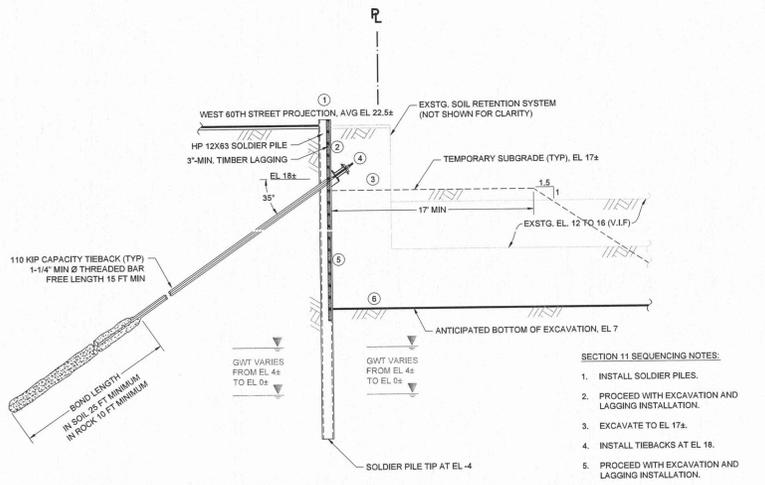
17 - 29 WEST END AVENUE
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NEW YORK

Drawing Title
EXCAVATION SUPPORT ELEVATIONS, CROSS-SECTIONS AND SEQUENCE

Project No. **170201301**
Date **08/21/2012**
Scale **AS SHOWN**
Dwn. By **LPF**
Last Revised **08/21/2012**
Drawing No. **SOE-004**
2 Of 6



SOE WALL S-1 ELEVATION (FACING SOUTH)
SCALE: 1"=12'



SECTION 11- SOE WALL S-1 TYPICAL SECTION
SCALE: 1"=8'

TIE-BACK ANCHOR NOTES:

- MATERIAL:**
 - ALL TIEBACKS SHALL BE SAS STRESSTEEL (OR EQUIVALENT), CONFORMING TO ASTM A-722.
 - PLATES SHALL CONFORM TO ASTM A-36.
 - NUTS & COUPLERS SHALL BE CAPABLE OF DEVELOPING 100% OF THE ULTIMATE STRENGTH OF THREADBAR.
 - CARE SHALL BE TAKEN NOT TO DAMAGE THE THREADBARS. THE BARS SHALL BE KEPT FREE OF DIRT OR OTHER DELETERIOUS SUBSTANCES.
 - THREADBARS SHALL NOT BE WELDED OR USED AS A GROUND FOR WELDING.
 - INSTALLATION PROCEDURES:**
 - NO LOSS OF GROUND DURING DRILLING SHALL BE ALLOWED. CASING SHALL BE INSTALLED TO TOP OF ROCK USING INTERNAL LIQUID FLUID FLUSH DRILLING TECHNIQUE. ALL DRILLING METHODS SHALL BE SUBMITTED FOR APPROVAL TO THE OWNER'S ENGINEER.
 - THE CONTRACTOR SHALL USE APPROPRIATE MEANS AND METHODS TO PREVENT SEEPAGE AND LOSS OF SOIL THROUGH THE ANNULAR SPACE BETWEEN THE STEEL SHEET PILES AND THE DRILL CASINGS. SUCH METHODS MAY INCLUDE DRILLING SOIL-CEMENT-BENTONITE COLUMNS BEHIND THE SHEET PILES, WELDING ANTI-SEEP COLLARS AT THE BACK ANCHOR LOCATIONS, PACKING HAY OR OTHER SUITABLE FILTER MATERIAL AROUND THE CASINGS, AND USE OF SACRIFICIAL CASINGS, ETC.
 - REJECTION OF HOLES: HOLES REJECTED BECAUSE OF NON-COMFORMANCE TO ALIGNMENT TOLERANCES OR BECAUSE THEY INTERCEPT OTHER HOLES SHALL BE FILLED WITH GROUT AND ANOTHER HOLE SHALL BE DRILLED AT THE CONTRACTOR'S EXPENSE.
 - GROUTING:**
 - EACH HOLE SHALL BE CLEANED OF ALL DRILL CUTTINGS, SLUDGE, AND DEBRIS BEFORE THE DRILL HOLE IS GROUTED.
 - GROUT SHALL BE CEMENT GROUT HAVING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI.
 - THE HOLES SHALL BE GROUTED FROM THE BOTTOM OF THE HOLE TO THE TOP WITH A TREMIE TUBE UNTIL UNCONTAMINATED GROUT RETURNS TO THE SURFACE.
 - GROUT SHALL BE PUMPED INTO THE DRILL HOLE PRIOR TO INSERTION OF THE THREADBAR.
 - THREADBAR PLACEMENT:**
 - CENTRALIZERS, SPACERS OR OTHER SUITABLE CENTERING DEVICES SHALL BE PLACED AT MAXIMUM 10-FOOT INTERVALS OR IN A SUFFICIENT NUMBER TO ENSURE ADEQUATE GROUT COVER OVER THE THREADBAR ASSEMBLY THROUGHOUT THE ENTIRE THREADBAR LENGTH. CENTRALIZERS AND SPACERS MAY BE MADE OF ANY MATERIAL (EXCEPT WOOD) NOT DELETERIOUS TO THE THREADBARS OR PVC SHEATHINGS, AND SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - A SMOOTH PLASTIC TUBING, FITTING SNUGLY OVER THE THREADBAR, SHALL BE PROVIDED IN THE FREE STRESSING LENGTH OF THE TIE-BACK ANCHORS AND SHALL GUARANTEE UNOBSTRUCTED ELONGATION DURING STRESSING.
 - THREADBAR CENTERLINES SHALL BE NORMAL TO THE BEARING PLATES.
 - CASING WITHDRAWAL:**
 - AFTER THREADBAR INSERTION, THE CASING SHALL BE WITHDRAWN WHILE SIMULTANEOUSLY PRESSURE GROUTING. THE MINIMUM GROUT PRESSURE SHALL BE 1 PSI PER FOOT OF EMBEDMENT BELOW GROUND SURFACE.
 - THE CONTRACTOR MAY CHOOSE TO LEAVE THE END SECTION OF THE CASING IN THE HOLE IN ORDER TO PREVENT SEEPAGE AND GROUND LOSS FROM AROUND THE THREADBAR.
- 3. TIE-BACK ANCHOR TESTING:**
- TEN PERCENT (10%) OF THE TIE-BACK ANCHORS SHALL BE PERFORMANCE TESTED. ALL OTHER ANCHORS SHALL BE PROOF TESTED USING A CALIBRATED CENTER HOLE JACK.
 - PERFORMANCE AND PROOF TESTING SHALL BE AS FOLLOWS:

PERFORMANCE TEST: AL, 25P, 50P, 75P, 100P, 120P, 150P, 200P, 250P, 300P, 350P, 400P, 450P, 500P, 550P, 600P, 650P, 700P, 750P, 800P, 850P, 900P, 950P, 1000P, 1050P, 1100P, 1150P, 1200P, 1250P, 1300P, 1350P, 1400P, 1450P, 1500P, 1550P, 1600P, 1650P, 1700P, 1750P, 1800P, 1850P, 1900P, 1950P, 2000P, 2050P, 2100P, 2150P, 2200P, 2250P, 2300P, 2350P, 2400P, 2450P, 2500P, 2550P, 2600P, 2650P, 2700P, 2750P, 2800P, 2850P, 2900P, 2950P, 3000P, 3050P, 3100P, 3150P, 3200P, 3250P, 3300P, 3350P, 3400P, 3450P, 3500P, 3550P, 3600P, 3650P, 3700P, 3750P, 3800P, 3850P, 3900P, 3950P, 4000P, 4050P, 4100P, 4150P, 4200P, 4250P, 4300P, 4350P, 4400P, 4450P, 4500P, 4550P, 4600P, 4650P, 4700P, 4750P, 4800P, 4850P, 4900P, 4950P, 5000P, 5050P, 5100P, 5150P, 5200P, 5250P, 5300P, 5350P, 5400P, 5450P, 5500P, 5550P, 5600P, 5650P, 5700P, 5750P, 5800P, 5850P, 5900P, 5950P, 6000P, 6050P, 6100P, 6150P, 6200P, 6250P, 6300P, 6350P, 6400P, 6450P, 6500P, 6550P, 6600P, 6650P, 6700P, 6750P, 6800P, 6850P, 6900P, 6950P, 7000P, 7050P, 7100P, 7150P, 7200P, 7250P, 7300P, 7350P, 7400P, 7450P, 7500P, 7550P, 7600P, 7650P, 7700P, 7750P, 7800P, 7850P, 7900P, 7950P, 8000P, 8050P, 8100P, 8150P, 8200P, 8250P, 8300P, 8350P, 8400P, 8450P, 8500P, 8550P, 8600P, 8650P, 8700P, 8750P, 8800P, 8850P, 8900P, 8950P, 9000P, 9050P, 9100P, 9150P, 9200P, 9250P, 9300P, 9350P, 9400P, 9450P, 9500P, 9550P, 9600P, 9650P, 9700P, 9750P, 9800P, 9850P, 9900P, 9950P, 10000P.

MONITORING NOTES

- PROVIDE MONITORING OF S.O.E. WALL MOVEMENTS, GROUNDWATER LEVELS, AND PUMPING FLOW RATES AS INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

THE MONITORING PROGRAM SHALL CONSIST OF:

 - OPTICAL SURVEY MONITORING POINTS.
 - SEISMOGRAPHS
 - WATER LEVEL READINGS DURING EXCAVATION AND DEWATERING OPERATIONS.
- PRIOR TO ANY SITE EXCAVATION BELOW EXISTING GRADE:
 - ESTABLISH SURVEY BASELINES FOR ADJACENT BUILDINGS AND INFRASTRUCTURE.
 - SUBMIT SAMPLE BASELINE LAYOUT AND SAMPLE DATA REPORT FORMS FOR APPROVAL.
- MONITORING FREQUENCY: CONTRACTOR SHALL TAKE AND RECORD ALL READINGS ON A DAILY BASIS. MONITORING SHALL CONTINUE UNTIL COMPLETION OF THE PERMANENT CELLAR AND GROUND FLOOR SLABS.
- ALERT LEVELS: SHOULD ANY OF THE FOLLOWING MAGNITUDES OF MOVEMENT BE DETECTED, THE CONTRACTOR SHALL IMMEDIATELY TAKE REMEDIAL ACTION AND ADVISE THE ENGINEER.
 - MONITORING POINTS: 0.25 INCHES TOTAL LATERAL MOVEMENT OR 0.0625 INCHES LATERAL MOVEMENT BETWEEN READINGS, 0.375 INCHES TOTAL VERTICAL MOVEMENT OR 0.0625 INCHES VERTICAL MOVEMENT BETWEEN READINGS.
 - VIBRATION: PEAK PARTICLE VELOCITIES EXCEEDING 2 INCHES PER SECOND.
 - WATER LEVEL: 2 FT INCREASE OR DECREASE IN ANY MEASUREMENT AFTER PUMPING HAS STABILIZED AT ANY TEMPORARY SUBGRADE DURING EXCAVATION.
- THE CONTRACTOR WILL DETERMINE IF CONTINGENCY PLANS ARE NECESSARY.
- IN THE EVENT THAT MONITORING INDICATES MOVEMENT EXCEEDS THE ABOVE DEFINED ALERT LEVELS (LATERAL OR VERTICAL), THE CONTRACTOR SHALL CEASE EXCAVATION AND PROVIDE STABILIZATION OF THE EXCAVATION SUPPORT SYSTEM VIA INSTALLATION OF TEMPORARY EARTHEN BERMIS AND/OR ADDITIONAL BRACING. ADDITIONAL EXCAVATION ACTIVITIES SHALL NOT PROCEED WITHOUT THE AUTHORIZATION OF THE OWNER'S ENGINEER.
- ALL SURVEY MONITORING POINTS SHALL BEAR A UNIQUE IDENTIFICATION. AS-BUILT PLANS SHALL BE PREPARED FOR ALL SURVEY MONITORING POINTS INSTALLED. PLANS SHALL BE AMENDED AS REQUIRED DURING CONSTRUCTION FOR THE ABANDONMENT, REPLACEMENT, OR ADDITION OF NEW SURVEY MONITORING LOCATIONS.
- THE CONTRACTOR SHALL PERFORM VIBRATION MONITORING DURING ALL OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE MAXIMUM PERMISSIBLE VIBRATION LEVEL (PPV) OF ALL CONSTRUCTION ACTIVITIES SHALL BE 0.5 INCHES PER SECOND AS MEASURED AT THE PROJECT SITE PERIMETER. THRESHOLD TRIGGER VALUES FOR GEOPHONES SHALL BE SET TO A MAXIMUM OF 0.125 INCHES PER SECOND.
- INSTALL SURVEY MONITORING POINTS AT LOCATIONS DETERMINED IN CONSULTATION WITH THE OWNER'S ENGINEER.
- INSTALL GROUNDWATER MONITORING WELLS AT LOCATIONS TO BE COORDINATED WITH THE OWNER'S ENGINEER.
- INSTALL SEISMOGRAPHS AT LOCATIONS DETERMINED IN CONSULTATION WITH THE OWNER'S ENGINEER.

DESIGN CASE	SOLDIER PILE, GRADE SO		LAGGING		TIEBACK					W/ALR		
	SPACING (FT)	PILE SIZE	MINIMUM TIP ELEVATION	THICKNESS (IN)	ELEVATION (FT, BPMVD)	DESIGN LOAD (KIPS)	SPACING (FT)	MINIMUM FREE LENGTH (FT)	MINIMUM BOND LENGTH (FT)	ANGLE	MINIMUM THREADBAR DIA. (IN)	W/ALR SIZE
N-1	8	HP12x63	EL -20 OR 6 FT ROCK SOCKET	3	+18	110	16	60	Soil: 25 Rock: 10	35	1-1/4"	2 C15x33.9
N-2	8	HP12x63	EL -2	3	+19	110	16	15	Soil: 25 Rock: 10	35	1-1/4"	2 C15x33.9
E-1	8	HP12x63	EL -2	3	+19	110	16	15	Soil: 25 Rock: 10	35	1-1/4"	2 C15x33.9
A-1	8	HP12x63	6 FT ROCK SOCKET	3	+5	170	16	15	Soil: 40 Rock: 10	35	1-5/8"	2 C15x33.9 (24 FT LONG)
A-2	8	HP12x63	6 FT ROCK SOCKET	3	+5	170	16	15	Soil: 40 Rock: 10	35	1-5/8"	2 C15x33.9 (24 FT LONG)
A-3	8	HP12x63	6 FT ROCK SOCKET	3	+19	120	16	15	Soil: 30 Rock: 10	35	1-3/8"	2 C15x33.9
		HP12x63	6 FT ROCK SOCKET	3	+9	170	16	15	Soil: 40 Rock: 10	35	1-5/8"	2 C15x33.9
S-1	8	HP12x63	EL -4	3	+18R	110	16	15	Soil: 25 Rock: 10	35	1-1/4"	2 C15x33.9
W-1	8	HP12x63	EL -15, EL -20	3	--	--	--	--	--	--	--	--

SOLDIER PILE AND LAGGING WALL MEMBER SIZE SCHEDULE

DESIGN CASE	SHEET PILE, GRADE SO		TIEBACK					W/ALR		
	PILE SIZE	MINIMUM TIP ELEVATION	ELEVATION (FT, BPMVD)	DESIGN LOAD (KIPS)	SPACING (FT)	MINIMUM FREE LENGTH (FT)	MINIMUM BOND LENGTH (FT)	ANGLE	MINIMUM THREADBAR DIA. (IN)	W/ALR SIZE
P-1 PERIMETER	AZ 25	EL -31	+5R	145	8.25	45	Soil: 35 Rock: 10	35	1-3/8"	2 C15x33.9
P-1 INTERNAL	AZ 12	EL -31	+5	75	8.85	45	Soil: 30 Rock: 10	35	1"	3 C15x33.9
P-2 PERIMETER	AZ 25	TOP OF ROCK	+8R	120	8.25	20	Soil: 30 Rock: 10	35	1-3/8"	2 C15x33.9
P-2 INTERNAL	AZ 12	TOP OF ROCK	--	--	--	--	--	--	--	--

SHEET PILE WALL MEMBER SIZE SCHEDULE

NOTES:

- SURFACE ELEVATIONS WERE OBTAINED FROM A SURVEY PROVIDED BY EXTELL TO MUESER RUTLEDGE CONSULTING ENGINEERS AND REPRODUCED IN THE "SUBSURFACE INVESTIGATION REPORT" BY MUESER RUTLEDGE CONSULTING ENGINEERS DATED 14 SEPTEMBER 2011. THIS INFORMATION IS SUBJECT TO VERIFICATION IN THE FIELD.
- ON-SITE TOP OF ROCK ELEVATIONS INDICATED ON THE DRAWINGS ARE INFERRRED BASED ON TOP OF ROCK OBSERVED IN DRILLED BORING LOCATIONS. THE ACTUAL TOP OF ROCK MAY VARY IN THE FIELD.
- REFER TO SHEETS SOE-001 FOR PLAN VIEW AND SOE-006 FOR DETAILS.

Maria-Teresa Fernandez

 APPROVED
 Under Directive 2 of 1975
 Date/Time: Dec 7, 2012 - 3:53 PM
 NYC Development Hub

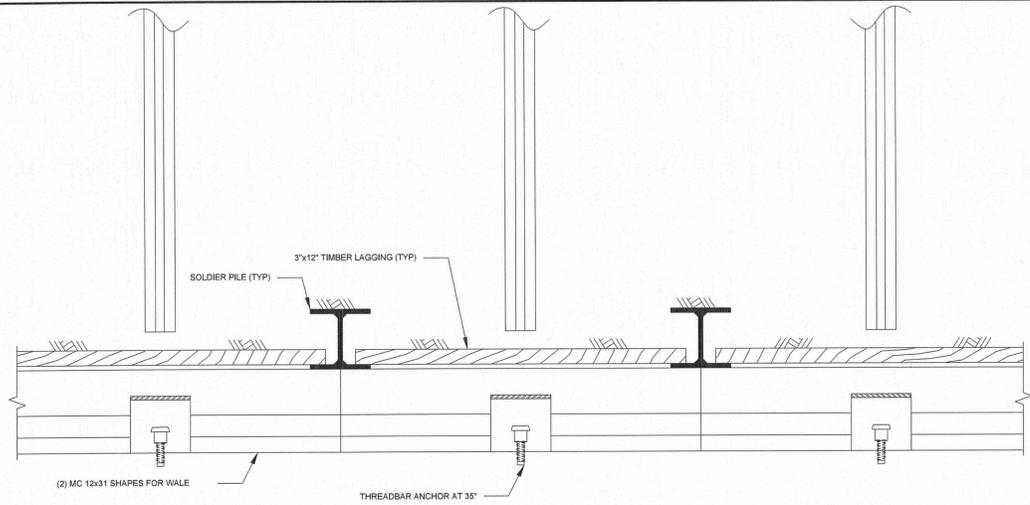
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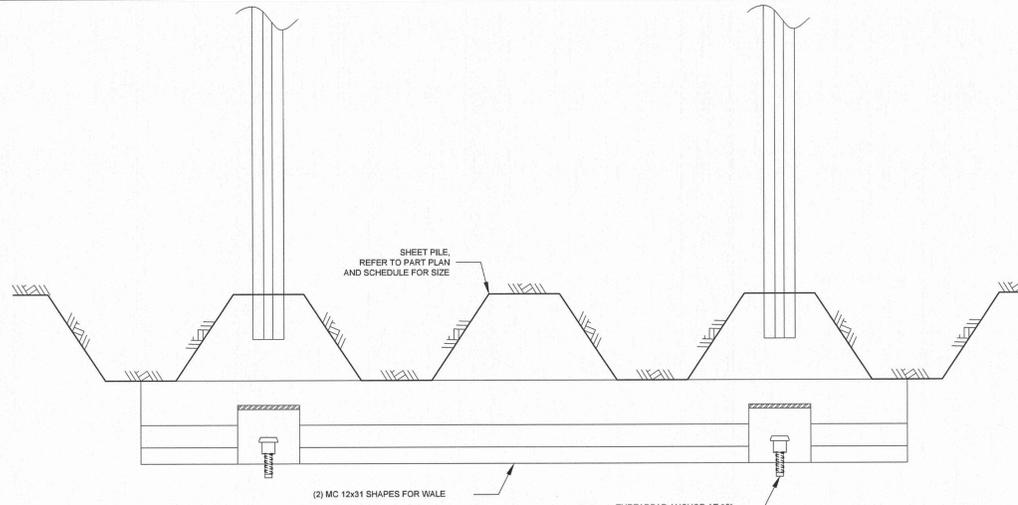
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RIVERSIDE CENTER, BUILDING 2
 NEW YORK

Drawing Title
EXCAVATION SUPPORT ELEVATIONS, CROSS-SECTIONS AND SEQUENCE

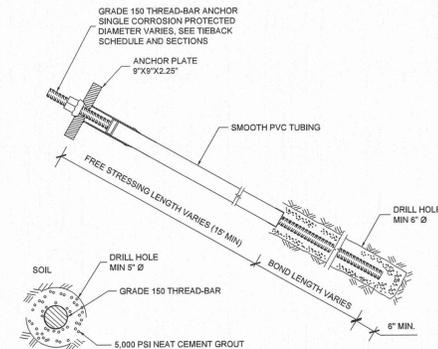
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 Date 08/21/2012
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 Last Revised 08/21/2012
 2 OF 6



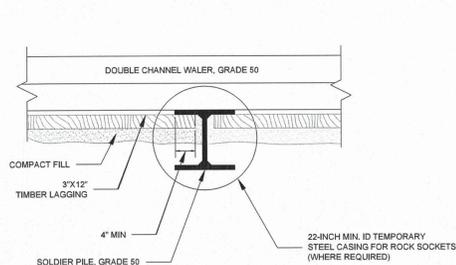
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NOT TO SCALE



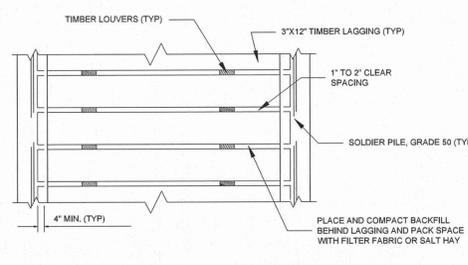
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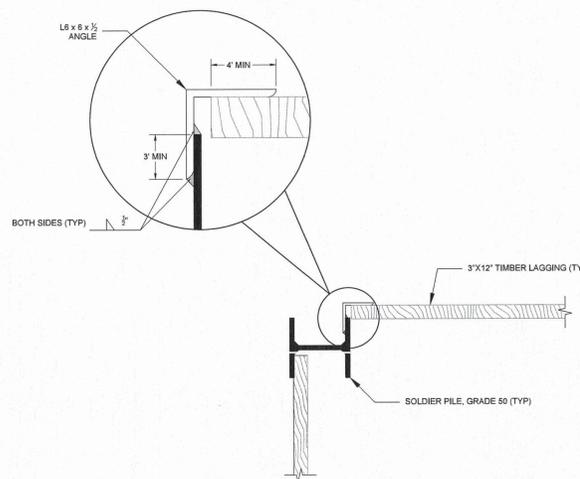
DETAIL 3: TIEBACK
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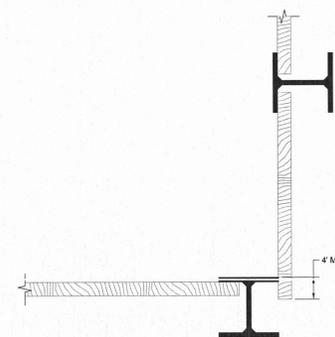
DETAIL 4: SOLDIER PILE CLOSE-UP
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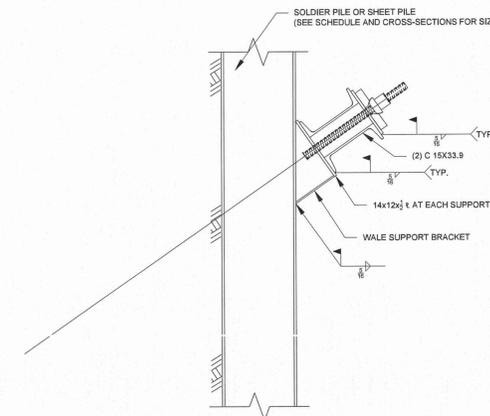
DETAIL 5: LAGGING INSTALLATION
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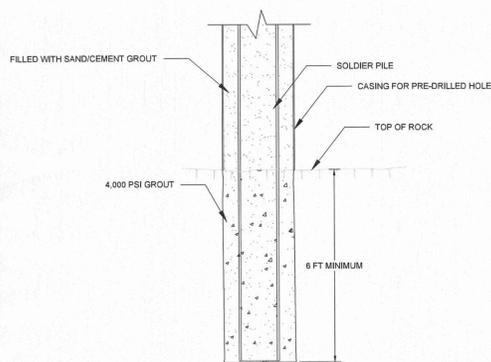
DETAIL 6: EXTERIOR CORNER DETAIL (TYP)
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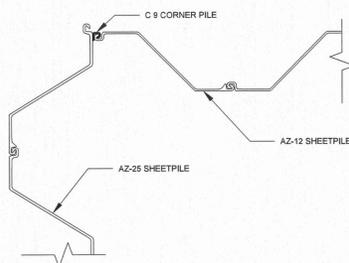
DETAIL 7: INTERIOR CORNER DETAIL (TYP)
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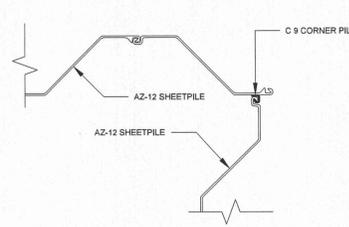
DETAIL 8: TIEBACK SUPPORT
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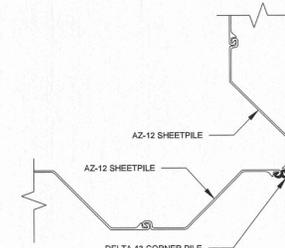
DETAIL 9: TYPICAL ROCK SOCKET
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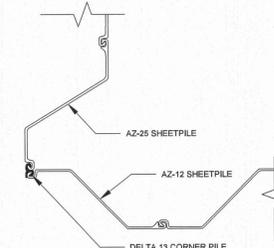
DETAIL 10: P-1 CORNER PILE DETAIL
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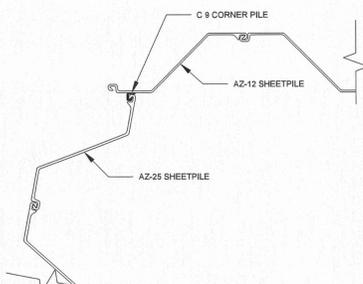
DETAIL 11: P-1 CORNER PILE DETAIL
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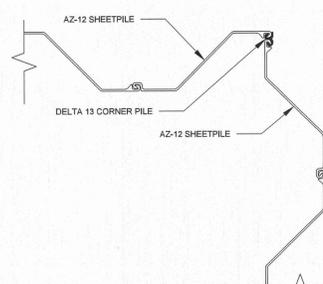
DETAIL 12: P-1 CORNER PILE DETAIL
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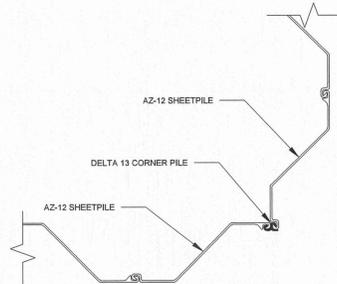
DETAIL 13: P-1 CORNER PILE DETAIL
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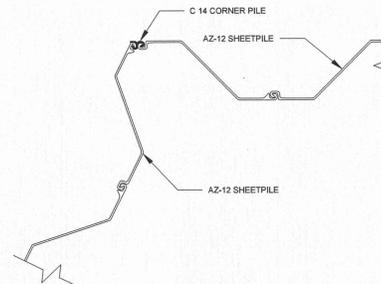
DETAIL 14: P-2 CORNER PILE DETAIL
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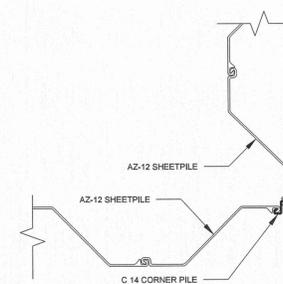
DETAIL 15: P-2 CORNER PILE DETAIL
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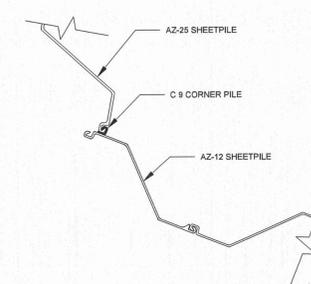
DETAIL 16: P-2 CORNER PILE DETAIL
NOT TO SCALE



DETAIL 17: P-2 CORNER PILE DETAIL
NOT TO SCALE



DETAIL 18: P-2 CORNER PILE DETAIL
NOT TO SCALE



DETAIL 19: P-2 CORNER PILE DETAIL
NOT TO SCALE

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Excavation Support
DETAILS

Project No. 170201301
Date 08/21/2012
Scale AS SHOWN
Dwn. By LFP
Last Revised 08/21/2012
Drawing No. SOE-006
6 OF 6