

SHEET NUM.												PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
3	4	9	10	11	12							01/SAF/OT	EXT	TOTAL				
<b>ROADWAY</b>																		
LS												LS	201	11000	LS	CLEARING AND GRUBBING		
		1,475										1,475	202	23000	1,475	SY	PAVEMENT REMOVED	3
		14,257										14,257	202	30001	14,257	SF	WALK REMOVED, AS PER PLAN	3
		1,958										1,958	202	32000	1,958	FT	CURB REMOVED	3
		5										5	202	58100	5	EACH	CATCH BASIN REMOVED	
	10											10	203	10000	10	CY	EXCAVATION	
	10	243										253	203	20000	253	CY	EMBANKMENT	
		104										104	204	10000	104	SY	SUBGRADE COMPACTION	
		14,875										14,875	608	10001	14,875	SF	4" CONCRETE WALK, AS PER PLAN	4
		5,099										5,099	608	52001	5,099	SF	CURB RAMP, AS PER PLAN	4
		80										80	608	53020	80	SF	DETECTABLE WARNING	
<b>EROSION CONTROL</b>																		
	227											227	659	00300	227	CY	TOPSOIL	4
	2,100											2,100	659	00500	2,100	SY	SEEDING AND MULCHING, CLASS 1	4
	0.41											0.41	659	20000	0.41	TON	COMMERCIAL FERTILIZER	4
	12											12	659	35000	12	MGAL	WATER	4
	30,000											30,000	832	30001	30,000	EACH	EROSION CONTROL, AS PER PLAN	4
<b>DRAINAGE</b>																		
		30										30	611	04400	30	FT	12" CONDUIT, TYPE B	
		4										4	611	98151	4	EACH	CATCH BASIN, NO. 3, AS PER PLAN	4
		4										4	611	98630	4	EACH	CATCH BASIN ADJUSTED TO GRADE	
		5										5	611	99575	5	EACH	MANHOLE, NO. 3, AS PER PLAN	4
		5										5	611	99654	5	EACH	MANHOLE ADJUSTED TO GRADE	
	500											500	SPECIAL	61199820	500	LB	MISCELLANEOUS METAL, AS PER PLAN	4
<b>PAVEMENT</b>																		
		680										680	253	90100	680	SY	PAVEMENT REPAIR, MISC.: STREET OPENING REPAIR, TYPE A AND TYPE B	3
	400											400	254	01000	400	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 1.5"	4
		18										18	301	46000	18	CY	ASPHALT CONCRETE BASE, PG64-22, 6"	
		18										18	304	20000	18	CY	AGGREGATE BASE, 6"	
	17											17	441	50000	17	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	4
		1,601										1,601	609	26000	1,601	FT	CURB, TYPE 6	
		104										104	609	72000	104	SY	CONCRETE MEDIAN	
<b>WATER WORK</b>																		
		2										2	638	10400	2	EACH	FIRE HYDRANT ADJUSTED TO GRADE	
		8										8	638	10800	8	EACH	VALVE BOX ADJUSTED TO GRADE	
		4										4	638	10900	4	EACH	SERVICE BOX ADJUSTED TO GRADE	
<b>TRAFFIC CONTROL</b>																		
			131									131	630	03100	131	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
			4									4	630	79200	4	EACH	SIGN ATTACHMENT ASSEMBLY, MAST ARM	
			20									20	630	79500	20	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
			265									265	630	80100	265	SF	SIGN, FLAT SHEET	
			15									15	630	84900	15	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
				10								10	630	86002	10	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
					23							23	630	87500	23	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
					2							2	630	87520	2	EACH	REMOVAL OF POLE MOUNTED SIGN AND REERECTION	
					42							42	630	97700	42	EACH	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB)	13
						1						1	644	00100	1	MILE	EDGE LINE, 4"	
												97	644	00500	97	FT	STOP LINE, 18"	
												2,748	644	00600	2,748	FT	CROSSWALK LINE, 12"	
												3,040	644	00600	3,040	FT	CROSSWALK LINE, 24"	
												68	644	20800	68	FT	YIELD LINE	
												1	644	50100	1	EACH	PAVEMENT MARKING, MISC.: REMOVAL OF PAVEMENT MARKING	13
												2,906	644	50300	2,906	FT	PAVEMENT MARKING, MISC.: REMOVAL OF PAVEMENT MARKING	13
												649	646	10500	649	FT	CROSSWALK LINE, 12"	
												809	646	10500	809	FT	CROSSWALK LINE, 24"	

**GENERAL SUMMARY**

DESIGN AGENCY	<b>B&amp;N</b> burgesnicole.com
DESIGNER	MDO
REVIEWER	AR 09-08-20
PROJECT ID	113330
SHEET	7
TOTAL	91

MODEL: Sheet PAPER SIZE: 17x11 (in.) DATE: 3/30/2021 TIME: 6:03:27 PM USER: loucks  
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**CUY**




CUY

MODEL: Sheet PAPER: 17x11 (in.) DATE: 3/30/2021 TIME: 6:04:42 PM USER: boucks  
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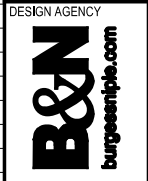
Intersection Priority Number	SHEET CODE	Intersection	202	202	202	202	203	204	253	301	304	608	608	608	609	609	611	611	611	611	611	638	638	638	
			PAVEMENT REMOVED	WALK REMOVED, AS PER PLAN	CURB REMOVED	CATCH BASIN REMOVED	EMBANKMENT	SUBGRADE COMPACTION	PAVEMENT REPAIR, MISC.: STREET OPENING REPAIR, TYPE A AND TYPE B	ASPHALT CONCRETE BASE, PG64-22, 6"	AGGREGATE BASE, 6"	4" CONCRETE WALK, AS PER PLAN	CURB RAMP, AS PER PLAN	DETECTABLE WARNING	CURB, TYPE 6	CONCRETE MEDIAN	CATCH BASIN ADJUSTED TO GRADE	MANHOLE ADJUSTED TO GRADE	CATCH BASIN, NO. 3, AS PER PLAN	MANHOLE, NO. 3, AS PER PLAN	12" CONDUIT, TYPE B	FIRE HYDRANT ADJUSTED TO GRADE	VALVE BOX ADJUSTED TO GRADE	SERVICE BOX ADJUSTED TO GRADE	
			SY	SF	FT	EACH	CY	SY	SY	CY	CY	SF	SF	SF	FT	SY	EACH	EACH	EACH	EACH	FT	EACH	EACH	EACH	
1	38	Chester Ave at E. 70th St	35.2	391.0	36.0				35.2				391.0		36.0										
2	39	Chester Ave at E. 71th St	38.2	238.0	25.0				38.2			238.0			25.0										
5	40	Superior Ave at E 87th Street	49.7					28.7	21.0	4.8	4.8			16		28.7									
6	41	Superior Ave at E. 91st St	80.9	489.0	45.0			25.1	30.6	4.2	4.2	426.0	103.0	16	18.6	25.1	1.0								
7	43	Superior Ave at E. 99st St	62.3	339.0	55.0			26.4	35.9	4.4	4.4	389.8	113.0	16	43.0	26.4									
8	45	Superior Ave at East Blvd	53.5	253.8	49.0			23.3	34.0	3.9	3.9	167.5	120.0	16	37.0	23.3									
9	47	St. Clair/E. 103rd	8.9	520.0	40.0				9.0			384.0	152.0	16	8.0		1.0								
11	51	W. 116th/Clifton		243.0								243.0													
12	53	Detroit/W. 95th	8.9	302.0	40.0				8.9			213.0	130.0		18.0									1.0	
15	57	Detroit/W. 49th	25.1	960.0	114.0				25.0			684.0	483.0		36.0		1.0								
16	59	Madison/W. 74th midblock	9.0	200.0	40.0				9.0			160.0	93.0		28.0										
21	62	W. 9th/Johnson Court	9.0	600.0	40.0				9.0			453.0	162.0		8.0										
22	63	W. 9th/West Lakeside Avenue		68.0								68.0													
23	64	Lee midblock south of Telfair	7.0	250.0	28.0				7.0			126.0	91.0		16.0										
27	68	Mayfield at E. 124th Place	49.0	819.0	140.0	1.0			49.0			986.0	272.0		130.0				1.0	1.0	8.0	1.0	1.0	1.0	1.0
28	70	Mayfield at Murray Hill Road	72.0	506.0	81.0	1.0	24.5		23.0			706.0	221.0		53.0				1.0				1.0		1.0
29	72	Mayfield at Colman Ave	95.0	761.0	111.0	1.0	31.5		32.0			1040.0	233.0		76.0			1.0	1.0	6.0			1.0		1.0
30	74	Mayfield at Random Road	26.0	250.0	33.0		8.5		9.0			322.0	72.0		22.0										
31	76	Larchmere at E. 130th St	87.0	796.0	98.0	1.0	29.5		28.0			609.0	315.0		315.0			1.0	1.0	6.0					
32	77	Larchmere at E. 128th St	76.0	527.0	104.0		25.0		26.0			663.0	300.0		67.0										
33	78	Larchmere at E. 127th St	85.0	641.0	90.0		30.0		25.0			947.0	205.0		70.0		1.0								
34	79	Larchmere at E. 126th St	89.0	880.0	96.0		31.5		26.0			671.0	207.0		77.0						1.0	3.0	1.0		
35	80	Larchmere at E. 122nd St	89.0	558.0	96.0		31.5		26.0			883.0	237.0		67.0		1.0					2.0	1.0		
36	81	Larchmere at E. 121st St	88.0	465.0	101.0		31.0		26.0			672.0	238.0		71.0		1.0								
39	83	Broadway/Barkwill	2.0	24.0	8.0				2.0			24.0			8.0										
44	87	Lorain/W. 162nd	17.3	18.0	14.0				17.0			18.0			14.0										
45	88	Benham/E. 93rd	9.0	440.0	40.0				9.0			284.0	152.0		8.0										
49	89	E. 13th St and Rockwell Ave	40.0	1380.0	176.0				40.0			771.0	649.0		80.0		2.0	1.0							
50	90	Broadway/McBride	21.6	104.0	12.0				22.0			104.0			12.0										
51	91	Chester Ave. at E. 13th St	241.0	1234.0	246.0	1			57.0			2622.0	160.0		257.0				1.0	1.0	10.0				
TOTALS CARRIED TO GENERAL SUMMARY			1475	14257	1958	5	243	104	680	18	18	14875	5099	80	1601	104	4	5	4	5	30	2	8	4	

ROADWAY SUBSUMMARY

DESIGN AGENCY  
  
 DESIGNER  
 MDO  
 REVIEWER  
 AR 09-08-20  
 PROJECT ID  
 113330  
 SHEET TOTAL  
 9 91

Intersection Priority Number	SHEET CODE	Intersection	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	630	630	630	630	630	630
			GROUND ROD	CONNECTION, FUSED PULL APART	CONNECTION, UNFUSED PULL APART	CONNECTION, UNFUSED BOLTED	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE	NO. 10 AWG POLE AND BRACKET CABLE	CONDUIT, 2", 725.05	CONDUIT, 3", 725.05	CONDUIT, 3", 725.05 CONCRETE ENCASED	REMOVAL OF LUMINAIRE AND REERECTION	TRENCH				PULL BOX, 725.06, SIZE 4	POWER SERVICE	LIGHT POLE REMOVED	LIGHT POLE REMOVED FOR REERECTION	LIGHT POLE FOUNDATION, 24" X 8' DEEP	GROUND MOUNTED SUPPORT, NO. 3 POST	SIGN ATTACHMENT ASSEMBLY, MAST ARM	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	SIGN, FLAT SHEET
			EACH	EACH	EACH	EACH	FT	FT	FT	FT	FT	EACH	FT							FT	EACH	EACH	SF	EACH	EACH
1	38	Chester Avenue & East 70th Street	3						186		108		163		4										
2	39	Chester Avenue & East 71st Street	4						171		112		159		4										
5	40	Superior Avenue & East 87th Street																							
6	42	Superior Avenue & East 91st Street	1						8				8									6	28.5		
7	44	Superior Avenue & East 99th Street	2						134				134							54			2	4.5	
8	46	Superior Avenue & East Boulevard	1						65				65												
9	47	Saint Clair Avenue & East 103rd Street	2																						
10	48	West 112th Street & Clifton Boulevard	2												1					16	2	4	53		
11	51	West 116th Street and Clifton Boulevard	2												1						2	4	53		
12	54	Detroit Avenue & West 95th Street																							
13	55	Detroit Avenue & West 80th Street	1																						
14	56	Detroit Avenue & West 67th Street	2																						
15	58	Detroit Avenue & West 49th Street																							
16	59	Madison Avenue & West 74th Street - Midblock																		30			18		
17	60	West 61st Street & Lorain Avenue																							
20	61	West 3rd Street & Frankfort Avenue	2																					4	1
21	62	West 9th Street & Johnson Court	2																						
22	63	West 9th Street & West Lakeside Avenue	2	2	1	3	30	40	17		1	17					1	1						3	1
23	64	Lee Road (Midblock) South of Telfair Avenue	2																					2	2
24	65	East Boulevard & Juniper Road	2																			2	22		
25	66	East Boulevard & Ford Drive	2																	15			13	1	1
26	67	East Boulevard & Wade Oval Drive	2																	16		2	44	1	1
27	69	Mayfield Road & East 124th Place	2																					1	1
28	71	Mayfield Road & Murray Hill Road	2																						
29	73	Mayfield Road & Coltman Road	2																						
30	75	Mayfield Road & Random Road	1																						
31	76	Larchmere Boulevard & East 130th Street																							
32	77	Larchmere Boulevard & East 128th Street																							
35	80	Larchmere Boulevard & East 122nd Street																							
36	81	Larchmere Boulevard & East 121st Street																							
38	82	Magnet Avenue & East 55th Street	2																					1	1
39	83	Broadway Avenue & Barkwill Avenue	2	2	1	3	15	30	5		1	5					1	1					1	1	
41	84	Broadway Avenue & Portage Avenue	2																						
42	85	Broadway Avenue & Blanche Avenue	2																					1	1
43	86	Broadway Avenue & Hillman Avenue	2																						
44	87	Lorain Avenue & West 162nd Street	1						56		43	56			2										
45	88	Benham Avenue & East 93rd Street	2																						
49	89	East 13th Street & Rockwell Avenue	2																						
50	90	Broadway Avenue & McBride Avenue	1						66	56	56	66		2											
51	91	Chester Avenue & East 13th Street	1						28			28													
TOTALS CARRIED TO GENERAL SUMMARY			58	4	2	6	45	70	736	56	319	2	701		12	2		2	2	131	4	20	265	15	10


TRAFFIC SUBSUMMARY



DESIGN AGENCY  
 BPT  
 REVIEWER  
 AR 12/4/2020  
 PROJECT ID  
 113330  
 SHEET TOTAL  
 10 91

Intersection	Priority Number	SHEET CODE	Intersection																							
			630	630	630	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632		
			REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	REMOVAL OF POLE MOUNTED SIGN AND REECTION	SIGNING, MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB)	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN	SIGNALIZATION, MISC.: PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, RETROFITTED	PEDESTRIAN PUSHBUTTON	MESSENGER WIRE, 7 STRAND, 1/4" DIAMETER WITH ACCESSORIES	SIGNALIZATION, MISC.: UNLASH AND RELASH MESSENGER WIRE	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	LOOP DETECTOR LEAD-IN CABLE	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	PEDESTAL FOUNDATION	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG	CONDUIT RISER, 2" DIAMETER	PEDESTAL, 8", TRANSFORMER BASE	PEDESTAL, 11", TRANSFORMER BASE	PEDESTAL, 15", TRANSFORMER BASE	STRAIN POLE, TYPE TC-81.11, DESIGN 8	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 2, AS PER PLAN	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12, AS PER PLAN		
			EACH	EACH	EACH	EACH	EACH	EACH	FT	FT	FT	FT	FT	EACH	EACH	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
1	38			2		8		8		135	910		910		3			1		3						
2	39					8		8		138	906		906		4			1		4						
5	40									42	121															
6	42					1	1	1		42	121				1			1	1							
7	44					2	2				347				2				2							
8	46					1	5			102	166				1		7	1	1							
9	47			2										2									2			
10	48					2		2	91		151	268	164	2		30	759	1					2			
11	51					2		2	98		158	275	171	2		30	254	1					2			
12	54					2				55	115							1								
13	55					6			146	70	430			1				2			1					
14	56			2										2								2				
15	58					2	4		65	65	236							2								
16	59																									
17	60		2		2										2						2					
20	61		4		2										2						2					
21	62				2										2						2					
22	63		1		2										2						2					
23	64				2									2								2				
24	65				2										2						2					
25	66				2										2						2					
26	67				2										2						2					
27	69		1		2										2						2					
28	71		3		2										2						2					
29	73		3		2										2						2					
30	75		2		2										1						1					
31	76																									
32	77																									
35	80																									
36	81																									
38	82		1		2										2						2					
39	83		1		2										2						2					
41	84		2		2										2						2					
42	85		1		2										2						2					
43	86		2		2										2						2					
44	87					4	2			89	378				1					1						
45	88				2									2									2			
49	89				2										2						2					
50	90					8			58		722				1			1	1							
51	91					1					134				1				1							

TOTALS CARRIED TO GENERAL SUMMARY	23	2	42	47	16	21	458	738	4895	543	2151	13	47	60	1020	12	6	8	33	1	8	4		
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DESIGN AGENCY  
  
 DESIGNER: BPT  
 REVIEWER: AR 12/4/2020  
 PROJECT ID: 113330  
 SHEET: 11 TOTAL: 91

TRAFFIC SUBSUMMARY

**GROUNDING AND BONDING**

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.
  - A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
  - B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
  - C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
  - D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
  - E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
  - F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.
2. CONDUITS.
  - A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
  - B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
  - C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
  - D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

**GROUNDING AND BONDING (CONT'D)**

3. WIRE FOR GROUNDING AND BONDING.
  - A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:
    - I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
    - II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
    - III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
    - IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
  - B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.
4. GROUND ROD.
  - A. A 3/4-INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
  - B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.
5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:
 

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK	STRIPE YELLOW ARROW	NOT USED

**GROUNDING AND BONDING (CONT'D)**

6. POWER SERVICE AND DISCONNECT SWITCH.
  - A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
  - B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.
    - I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
    - II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.
7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

**TEST HOLE PERFORMED**

IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER UNDERGROUND UTILITIES WHILE EXCAVATING FOR SIGNAL SUPPORT FOUNDATIONS OR SIMILAR FOUNDATIONS. AFTER ACCURATELY IDENTIFYING THE PROPOSED LOCATION OF THE FOUNDATION, AS SHOWN IN THE PLANS AND AFTER MODIFYING THAT LOCATION, IF NECESSARY, BASED ON THE FIELD MARKING OF UNDERGROUND UTILITY LOCATION, THE CONTRACTOR DISCOVERS A UTILITY CONFLICT DURING THE EXCAVATION OPERATION, THE CONTRACTOR WILL BE COMPENSATED FOR EACH PARTIAL FOUNDATION EXCAVATION ACCORDING TO THE BID PRICE.

BEFORE THE CONTRACTOR BEGINS THE EXCAVATION AT THE MODIFIED LOCATION, THE CONTRACTOR SHALL VERIFY THAT THERE WILL BE NO OVERHEAD UTILITY CONFLICTS RESULTING FROM THE NEW SIGNAL SUPPORT LOCATION. NEW

SUPPORT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

THE WORK WILL INCLUDE BACKFILLING, COMPACTING, AND RESTORATION OF THE EXCAVATION TO THE SITE'S ORIGINAL CONDITION.

EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH ITEM 632 TEST HOLE PERFORMED TO BE USED AT THE DIRECTION OF THE ENGINEER.

**ITEM 632 - SIGNAL SUPPORT, TYPE TC-81.22, (BY DESIGN), AS PER PLAN**

THIS ITEM SHALL CONFORM TO ITEM 632.15 AND 732.11, EXCEPT THAT POLES SHALL BE TAPERED TUBES OF CONTINUOUS TAPER. POLE CONSISTING OF STRAIGHT SECTIONS WITH A TAPERED EFFECT ACCOMPLISHED BY THE USE OF REDUCERS SHALL NOT BE PERMITTED. POLES SHALL BE ROUND IN SHAPE. OCTAGON SHAPED POLES ARE NOT PERMITTED. IN ADDITION THE SIGNAL SUPPORTS SHALL BE POWDER COATED DARK BRONZE #F-283 PER CITY OF CLEVELAND SPECIFICATION. A PAINT CHIP SAMPLE SHALL BE SUBMITTED TO THE CITY OF CLEVELAND ENGINEER AT LEAST 7-DAYS PRIOR TO ORDERING MATERIALS FOR REVIEW AND APPROVAL.

PAYMENT FOR ITEM 632 SIGNAL SUPPORT, TYPE TC-81.22, (BY DESIGN), AS PER PLAN SHALL BE PER EACH SUPPORT AND BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK.

**SIGNAL SUPPORTS**

DUE TO THE POSSIBILITY OF CONFLICT WITH EXISTING OR PROPOSED UNDERGROUND OBSTRUCTIONS (INCLUDING THE POSSIBILITY IF UNREINFORCED OBSTRUCTIONS) WHICH COULD AFFECT THE LOCATION OF THE FOUNDATIONS FOR THESE ITEMS, AND CONSEQUENTLY, THE DESIGN OF THE VARIOUS SUPPORTS, AND/OR ARMS, THE CONTRACTOR SHALL NOT PLACE ORDERS FOR THESE ITEMS UNTIL THE FOUNDATIONS HAVE BEEN INSTALLED, AND HE HAS RECEIVED FROM THE ENGINEER, WRITTEN NOTICE TO PROCEED WITH THE ORDERS FOR THESE ITEMS.

IF ANY FOUNDATION LOCATIONS MUST BE ADJUSTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, WHO WILL DETERMINE THE REVISED LOCATIONS AND IF ANY SUPPORT DESIGN CHANGES ARE NECESSARY, IN CONSULTATION WITH THE MAINTAINING AGENCY, THE CONTRACTOR WILL NOTE BE RESPONSIBLE FOR DETERMINING THE REVISED DESIGN, THE ENGINEER WILL SUBSEQUENTLY INFORM THE CONTRACTOR OF ANY CHANGES NECESSARY, AND AUTHORIZE THEM TO ORDER THE SUPPORTS.

THE CONTRACTOR SHALL, WHEN DEVELOPING HIS PROGRESS SCHEDULE, AND THOSE OF HIS SUBCONTRACTOR, ENSURE THAT THE FOUNDATIONS ARE INSTALLED AT THE EARLIEST TIME AS IS FEASIBLE AND PRACTICAL, AND SHALL INCLUDE SUFFICIENT TIME IN THE PROGRESS SCHEDULE FOR THE ORDERING, MANUFACTURING, DELIVERY, AND INSTALLATION OF THESE ITEMS AFTER THE FOUNDATION ARE IN PLACE.

NO PAYMENTS FOR DELIVERED MATERIALS FOR THESE ITEMS WILL BE MADE UNTIL THE FOUNDATIONS ARE IN PLACE, AND IF CHANGES IN THE DESIGN OF THESE ITEMS AREA REQUIRED, NO PAYMENTS WILL BE MADE FOR ITEMS MANUFACTURED TO THE ORIGINAL DESIGNS.

THE CONTRACTOR SHALL PROTECT PEDESTRIANS AND VEHICLES FROM EXPOSED ANCHOR BOLTS UNTIL THE ASSOCIATED SIGNAL SUPPORTS IS ERECTED, THE METHOD OF COVERING THE ANCHOR BOLTS SHALL BE APPROVED BE THE ENGINEER.

ALL COSTS ASSOCIATED WITH THE PROCEDURES AS OUTLINED ABOVE SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE UNIT PRICE BED (EACH) FOR:

ITEM 632, STRAIN POLE, TYPE TC-81.11, (BY DESIGN)

ITEM 632, SIGNAL SUPPORT, TYPE TC-81.22 (BY DESIGN), AS PER PLAN

**ITEM 632 - REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM, PEDESTRIAN HYBRID BEACON**

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732 THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING PEDESTRIAN HYBRID BEACON AND MOUNTING BRACKETS.

PAYMENT FOR ITEM 632 REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM PEDESTRIAN HYBRID BEACON SHALL BE PER EACH REMOVED AND DISPOSED AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK.

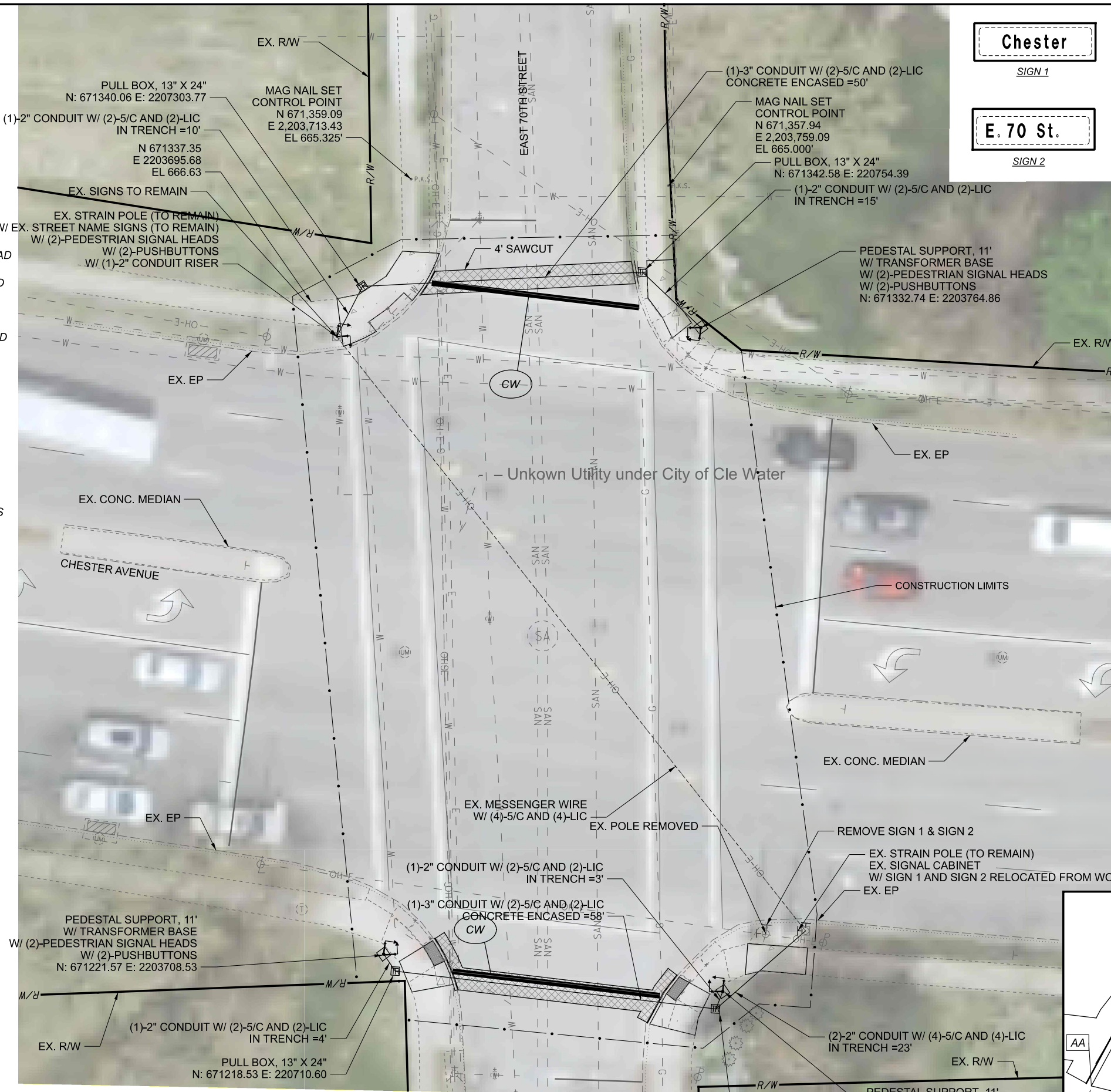


LEGEND

- OVERHEAD SIGN SUPPORT
  - PEDESTAL SUPPORT
  - ⊠ TRAFFIC CONTROLLER CABINET
  - PROPOSED SIGNAL CONDUIT
  - ▢ TRAFFIC PULL BOX
  - ▣ LIGHTING PULL BOX
  - PUSHBUTTON
  - CONVENTIONAL LUMINARE
  - ↘ PROPOSED PEDESTRIAN SIGNAL HEAD
  - PROPOSED VEHICULAR SIGNAL HEAD
- 
- (PMR) PAVEMENT MARKING TO BE REMOVED
  - (SL) STOP LINE, 18"
  - (CW) CROSSWALK LINE\*
  - (ELY) EDGE LINE, YELLOW
  - (YL) YIELD LINE

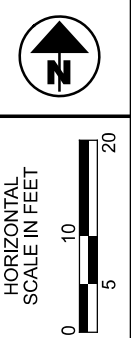
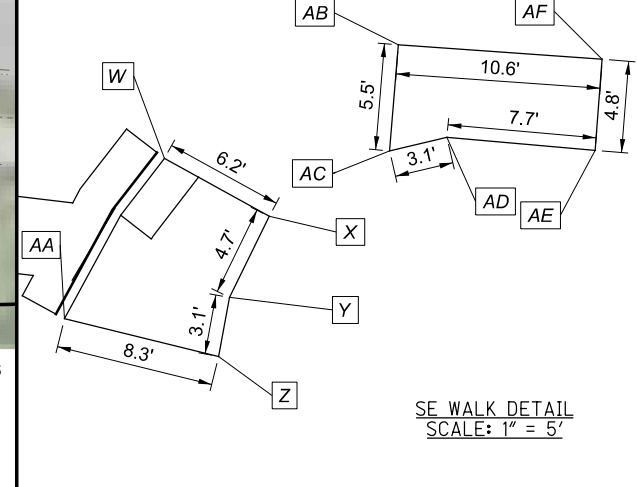
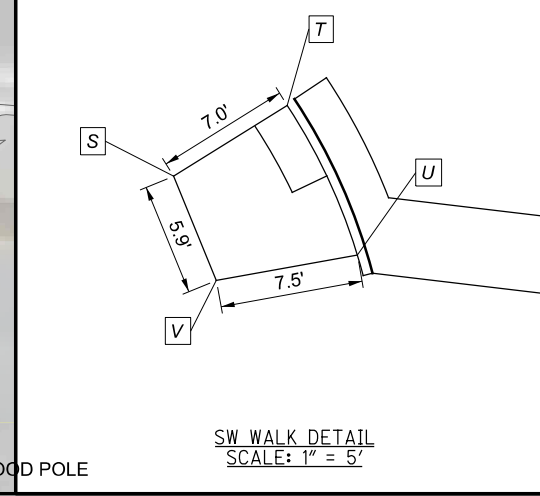
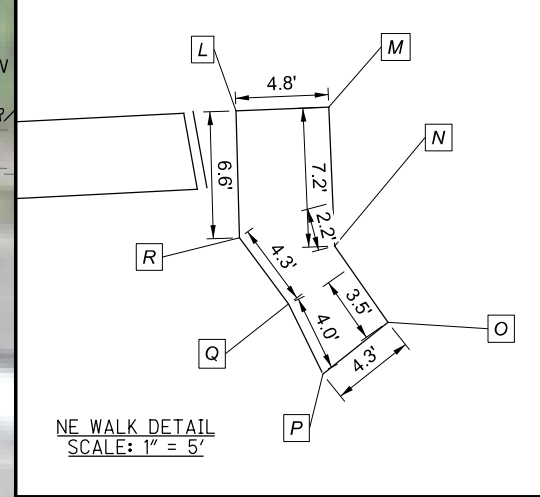
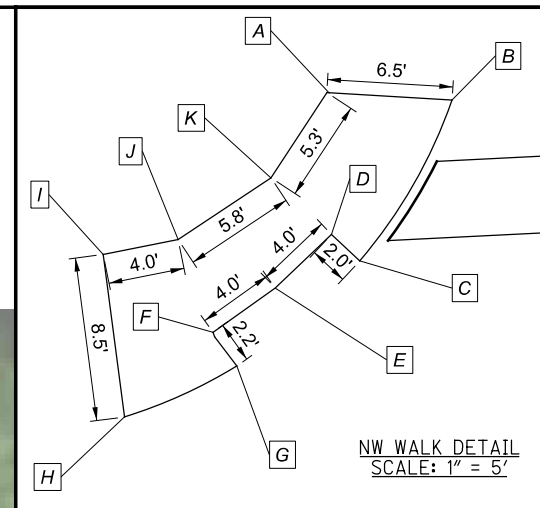
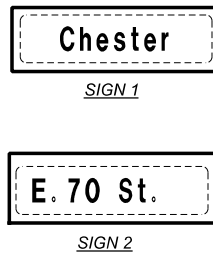
\* ITEM 646 ON CONCRETE AND BRICK SURFACES

POINT	NORTHING	EASTING	ELEVATION
A	671346.30	2203711.90	665.21
B	671345.91	2203718.43	665.08
C	671337.53	2203713.62	665.40
D	671338.91	2203712.15	665.38
E	671336.12	2203709.22	665.50
F	671333.81	2203705.98	665.63
G	671332.06	2203707.22	665.66
H	671329.40	2203701.36	665.85
I	671337.87	2203700.25	665.70
J	671338.65	2203704.16	665.58
K	671341.75	2203708.83	665.38
L	671344.60	2203755.28	664.87
M	671344.81	2203760.12	665.02
N	671337.57	2203760.42	664.91
O	671333.60	2203763.19	664.85
P	671330.90	2203759.81	664.83
Q	671334.56	2203758.02	664.83
R	671337.99	2203755.46	664.86
S	671220.26	2203711.34	665.60
T	671223.95	2203717.26	665.31
U	671216.16	2203720.91	665.27
V	671214.83	2203713.57	665.64
W	671217.48	2203761.02	664.49
X	671214.47	2203766.48	664.62
Y	671210.23	2203764.41	664.76
Z	671207.15	2203763.84	664.96
AA	671209.12	2203755.81	664.78
AB	671223.40	2203773.20	664.46
AC	671217.87	2203772.75	664.58
AD	671218.57	2203775.74	664.57
AE	671217.89	2203783.46	664.52
AF	671222.65	2203783.83	664.27



NOTES:  
 - UNLESS OTHERWISE NOTED, ALL UTILITIES AND OTHER ITEMS WITHIN THE WORK LIMITS ARE TO REMAIN

- ▨ PAVEMENT REMOVED
- ▤ PROPOSED CONCRETE WALK



DETAILED PLAN  
 CHESTER AVENUE & EAST 70TH STREET

DESIGN AGENCY  
**B&N**  
 burgeonpie.com

DESIGNER  
 MDO

REVIEWER  
 AR 09-08-20

PROJECT ID  
 113330

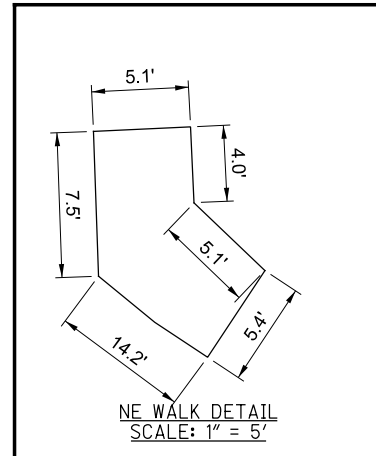
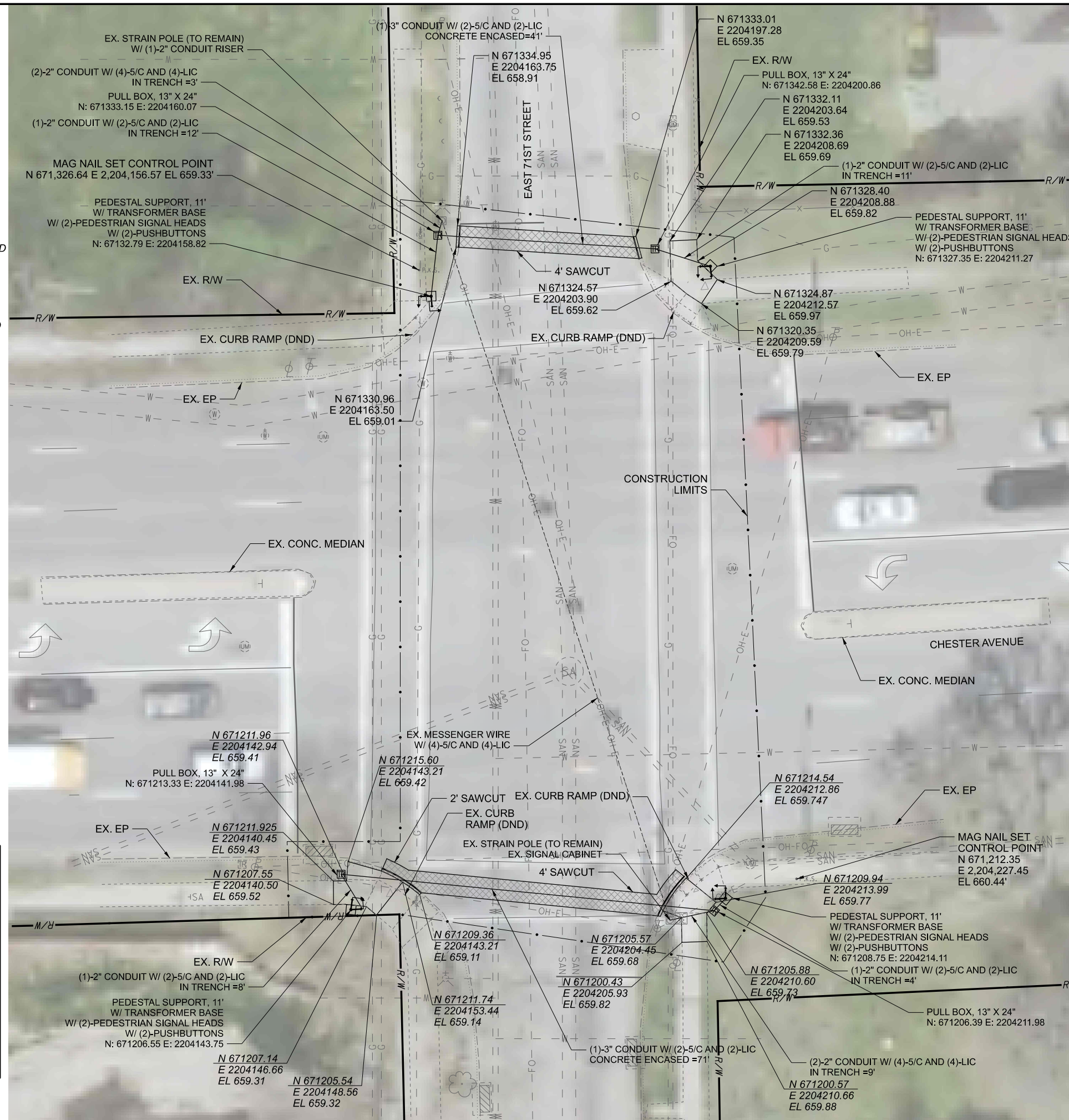
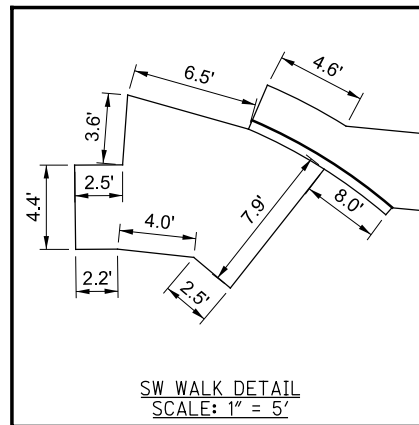
SHEET TOTAL  
 38 91



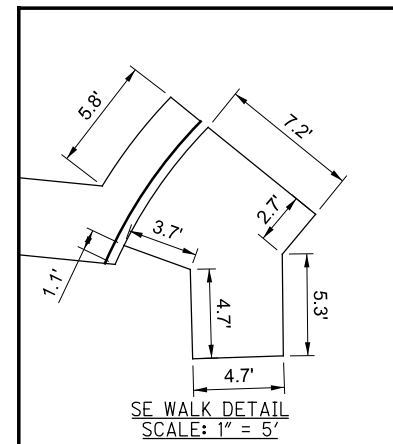
LEGEND

- OVERHEAD SIGN SUPPORT
- PEDESTAL SUPPORT
- TRAFFIC CONTROLLER CABINET
- PROPOSED SIGNAL CONDUIT
- TRAFFIC PULL BOX
- LIGHTING PULL BOX
- PUSHBUTTON
- CONVENTIONAL LUMINARE
- PROPOSED PEDESTRIAN SIGNAL HEAD
- PROPOSED VEHICULAR SIGNAL HEAD
- PAVEMENT MARKING TO BE REMOVED
- STOP LINE, 18"
- CROSSWALK LINE\*
- EDGE LINE, YELLOW
- YIELD LINE

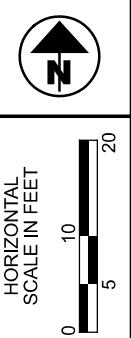
\* ITEM 646 ON CONCRETE AND BRICK SURFACES



- PAVEMENT REMOVED
- PROPOSED CONCRETE WALK



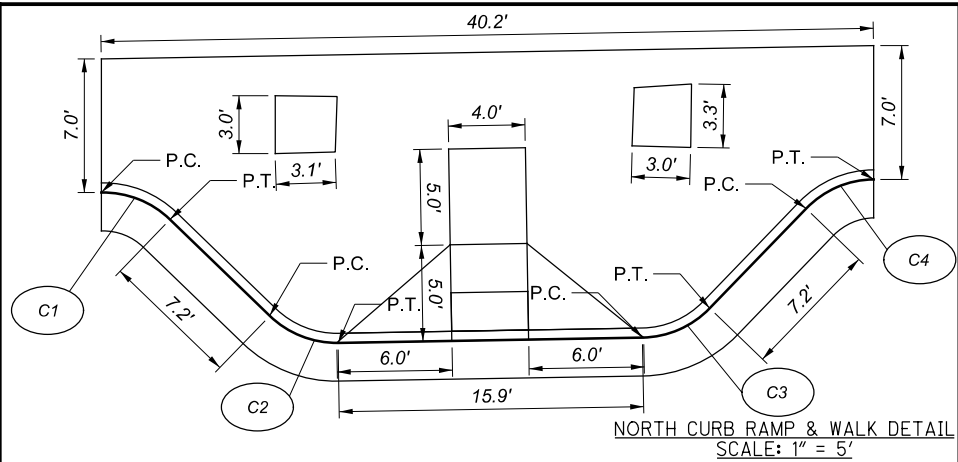
NOTES:  
- UNLESS OTHERWISE NOTED, ALL UTILITIES AND OTHER ITEMS WITHIN THE WORK LIMITS ARE TO REMAIN



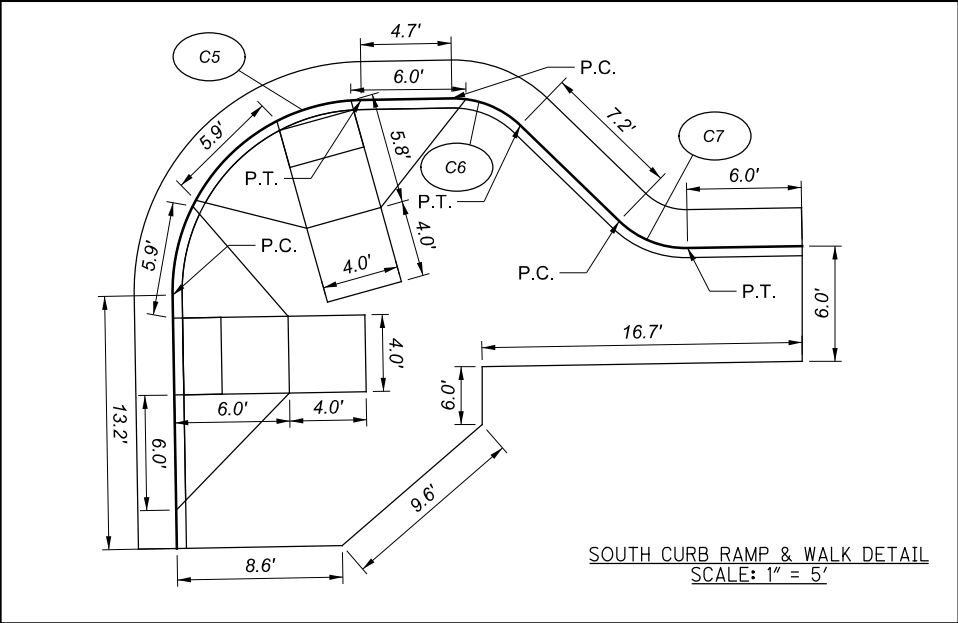
DETAILED PLAN  
CHESTER AVENUE & EAST 71ST STREET

DESIGN AGENCY	
<b>B&amp;N</b> burgessnoble.com	
DESIGNER	MDO
REVIEWER	AR
PROJECT ID	113330
SHEET	TOTAL
39	91





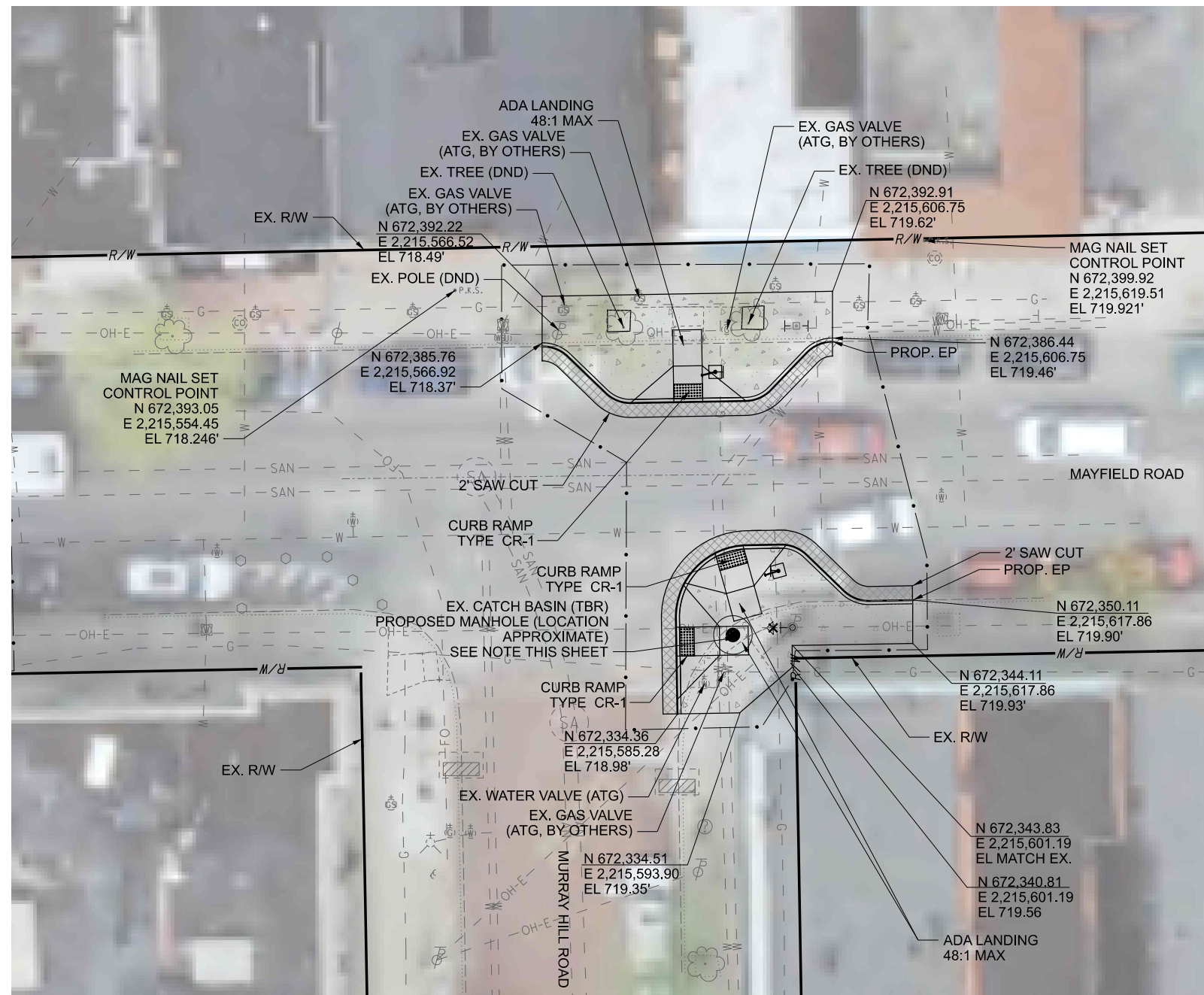
NORTH CURB RAMP & WALK DETAIL  
 SCALE: 1" = 5'



SOUTH CURB RAMP & WALK DETAIL  
 SCALE: 1" = 5'

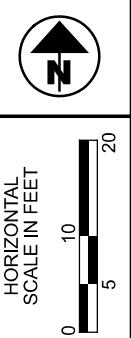
- PAVEMENT REMOVED
- PROPOSED CONCRETE WALK

CURVE NO.	RADIUS	CENTER POINT		BEGIN CURVE (PC)			END CURVE (PT)		
		NORTHING	EASTING	NORTHING	EASTING	ELEV. (TOC)	NORTHING	EASTING	ELEV. (TOC)
C1	5.0'	672380.26	2215566.62	672385.26	2215566.53	718.25	672383.85	2215570.10	718.40
C2	5.0'	672382.43	2215578.77	672378.83	2215575.29	718.71	672377.43	2215578.85	718.86
C3	10.0'	672382.70	2215594.62	672377.70	2215594.71	719.27	672379.22	2215598.22	719.31
C4	10.0'	672380.94	2215606.83	672384.42	2215603.24	719.28	672385.94	2215606.75	719.32
C5	10.0'	672347.73	2215595.05	672347.55	2215585.06	718.91	672357.73	2215594.89	719.28
C6	5.0'	672352.81	2215599.69	672357.80	2215599.61	719.38	672356.40	2215603.17	719.42
C7	5.0'	672355.01	2215611.80	672351.41	2215608.33	719.37	672350.01	2215611.89	719.41



PROPOSED MANHOLE  
 CONTRACTOR SHALL REMOVE THE EXISTING INLET CASTING AND CONE. CONTRACTOR SHALL REPLACE WITH A NEW MANHOLE CASTING AND CONE TO THE NEW WALK ELEVATION. CONTRACTOR SHALL USE EXTREME CARE TO NOT DISTURB ANY UTILITIES NEAR THE EXISTING STRUCTURE. CONTRACTOR SHALL ALSO TAKE CARE TO ENSURE NO VERTICAL DIFFERENCES BETWEEN THE MANHOLE LID AND THE CURB RAMP LANDING. ADDITIONAL QUANTITIES ARE SHOWN IN THE GENERAL NOTES FOR PAVEMENT WARPING TO ENSURE POSITIVE DRAINAGE.

- NOTES:
- UNLESS OTHERWISE NOTED, ALL UTILITIES AND OTHER ITEMS WITHIN THE WORK LIMITS ARE TO REMAIN
  - CONTRACTOR TO CONFIRM TIE-IN ELEVATIONS FOR WALK AND CURB REPLACEMENT OUTSIDE OF SURVEY LIMITS. CONTRACTOR TO MATCH EXISTING ELEVATION AT LOCATIONS CALLED OUT ON THE SHEET.



DETAILED PLAN - ROADWAY  
 MAYFIELD ROAD & MURRAY HILL ROAD

DESIGN AGENCY  
  
 DESIGNER: MDO  
 REVIEWER: AR 12/4/2020  
 PROJECT ID: 113330  
 SHEET: 70 TOTAL: 91

LEGEND

- OVERHEAD SIGN SUPPORT
- ▣ PEDESTAL SUPPORT
- ⊠ TRAFFIC CONTROLLER CABINET
- PROPOSED SIGNAL CONDUIT
- ▣ TRAFFIC PULL BOX
- ▣ LIGHTING PULL BOX
- PUSHBUTTON
- CONVENTIONAL LUMINARE
- ↘ PROPOSED PEDESTRIAN SIGNAL HEAD
- PROPOSED VEHICULAR SIGNAL HEAD

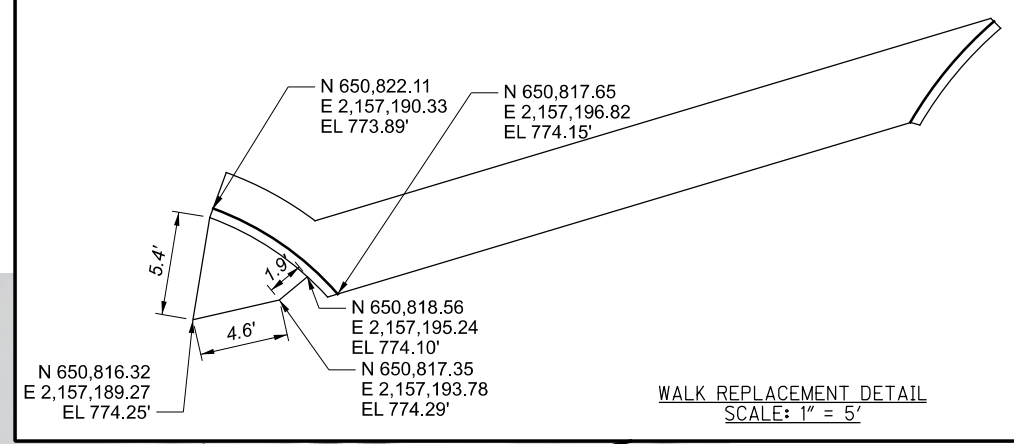
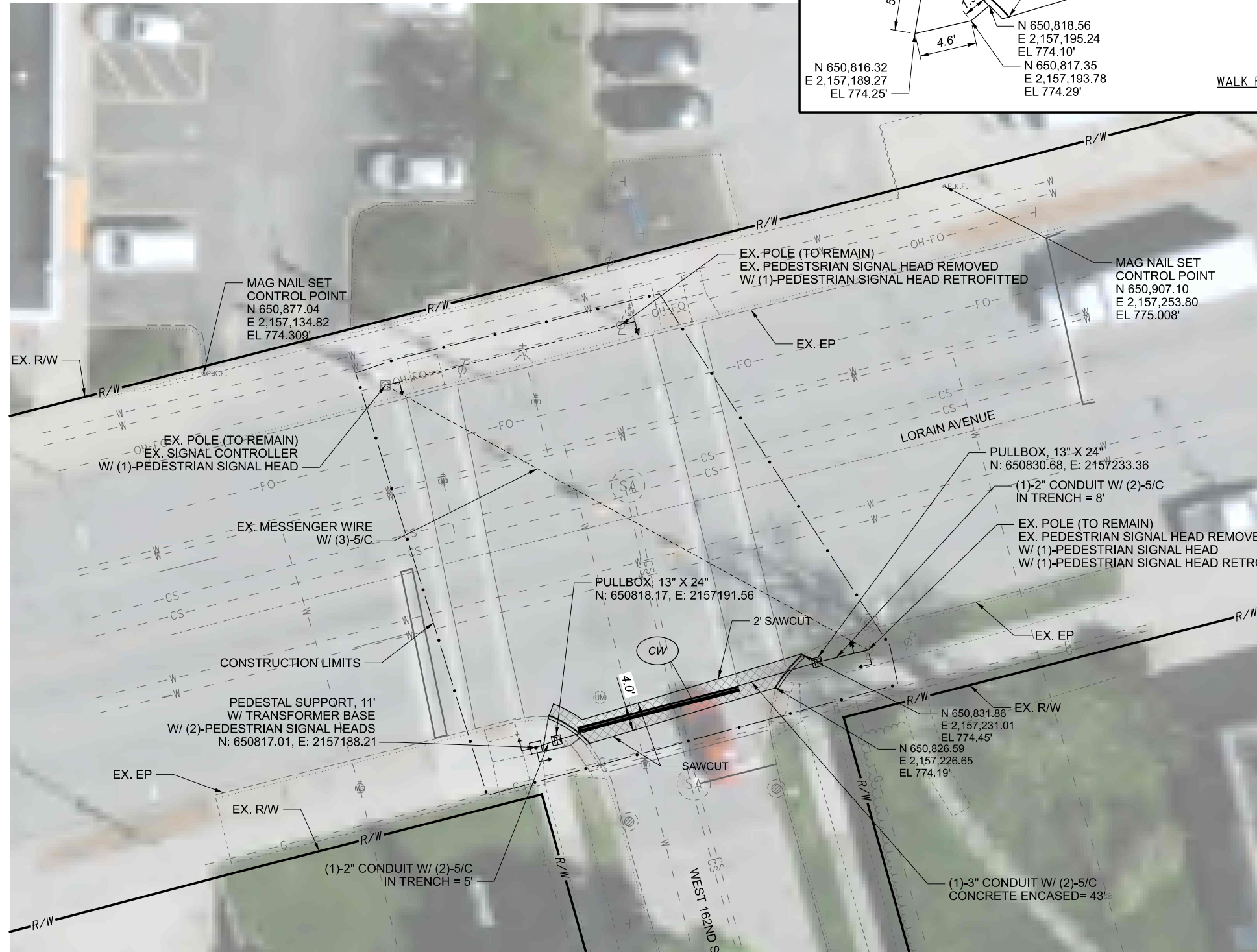
- PMR PAVEMENT MARKING TO BE REMOVED
- SL STOP LINE, 18"
- CW CROSSWALK LINE\*
- ELY EDGE LINE, YELLOW
- YL YIELD LINE

\* ITEM 646 ON CONCRETE AND BRICK SURFACES

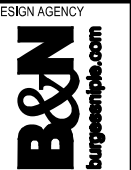
- ▣ PAVEMENT REMOVED
- ▣ PROPOSED CONCRETE WALK

NOTES:

- UNLESS OTHERWISE NOTED, ALL UTILITIES AND OTHER ITEMS WITHIN THE WORK LIMITS ARE TO REMAIN


















DETAILED PLAN  
 LORAIN AVENUE & WEST 162ND STREET



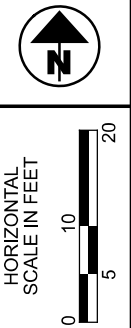
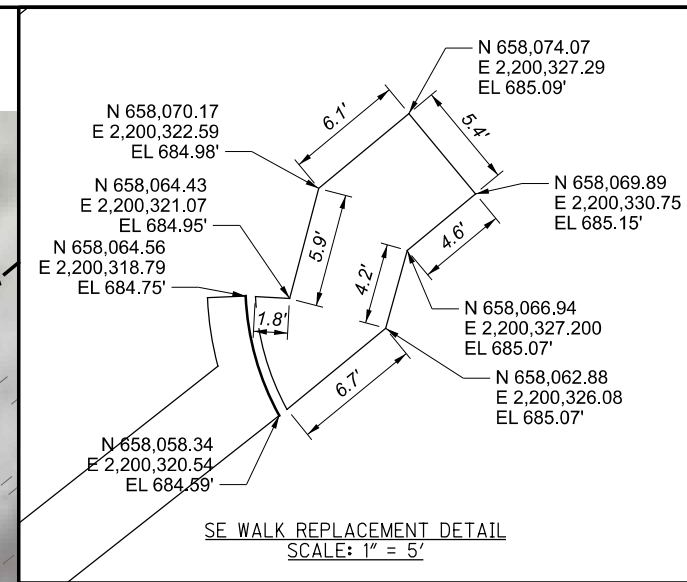
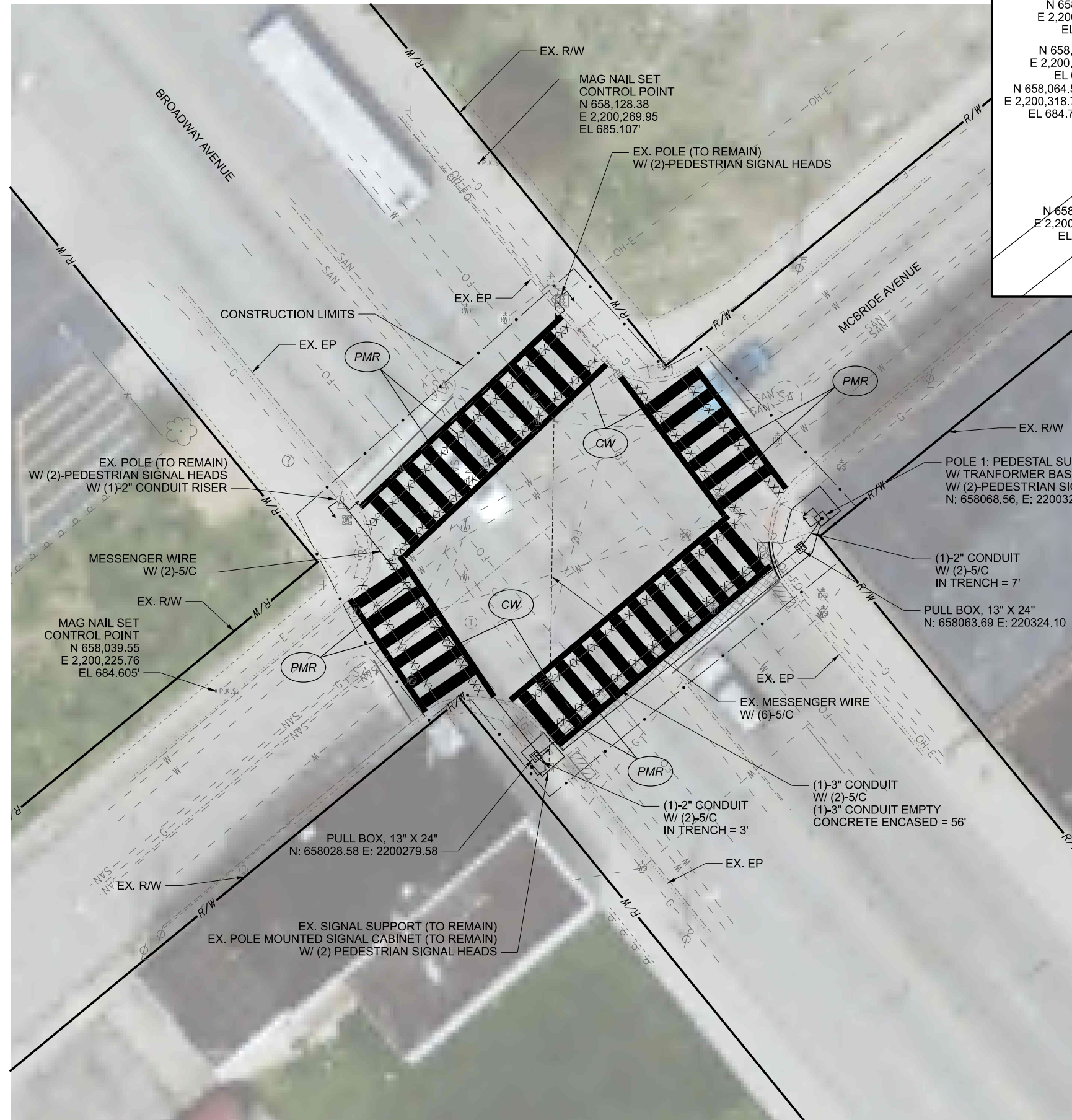
DESIGNER	MDO
REVIEWER	AR
PROJECT ID	113330
SHEET	87
TOTAL	91



LEGEND

-  OVERHEAD SIGN SUPPORT
-  PEDESTAL SUPPORT
-  TRAFFIC CONTROLLER CABINET
-  PROPOSED SIGNAL CONDUIT
-  LIGHTING PULL BOX
-  LIGHTING PULL BOX
-  PUSHBUTTON
-  CONVENTIONAL LUMINARE
-  PROPOSED PEDESTRIAN SIGNAL HEAD
-  PROPOSED VEHICULAR SIGNAL HEAD
  
-  PMR PAVEMENT MARKING TO BE REMOVED
-  SL STOP LINE, 18"
-  CW CROSSWALK LINE\*
-  ELY EDGE LINE, YELLOW
-  YL YIELD LINE

\* ITEM 646 ON CONCRETE AND BRICK SURFACES



DETAILED PLAN  
 BROADWAY AVENUE & MCBRIDE AVENUE

DESIGN AGENCY	
<b>B&amp;N</b> burgensteph.com	
DESIGNER	MDO
REVIEWER	AR
PROJECT ID	113330
SHEET	TOTAL
90	91

NOTES:  
 - UNLESS OTHERWISE NOTED, ALL UTILITIES AND OTHER ITEMS WITHIN THE WORK LIMITS ARE TO REMAIN