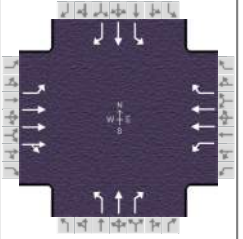


HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Kleingers Group			Duration, h	0.250		
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other		
Jurisdiction	Delaware County	Time Period	No-Build AM	PHF	0.92		
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00		
Intersection	Fourwinds Drive	File Name	2038 aNo-Build_Sunbury at Fourwinds AM.xus				
Project Description	2038 No-Build AM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	69	1970	30	140	710	197	10	130	350	79	119	7

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		6.4	0.6	66.0	29.0	0.0	0.0				
		Yellow		4.0	0.0	4.0	4.0	0.0	0.0				
		Red		2.0	0.0	2.0	2.0	0.0	0.0				

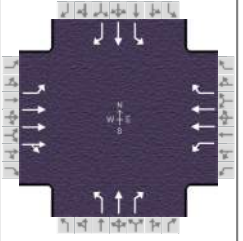
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		5.0		5.0
Phase Duration, s	12.4	72.0	13.0	72.6		35.0		35.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.0	0.0	3.0	0.0		3.2		3.2
Queue Clearance Time (g _s), s	4.3		6.9			31.0		18.0
Green Extension Time (g _e), s	0.1	0.0	0.1	0.0		0.0		1.3
Phase Call Probability	0.92		0.99			1.00		1.00
Max Out Probability	0.00		0.01			1.00		0.03

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	75	1452	722	152	772	214	11	141	380	86	129	8
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1682	1668	1602	1601	1425	1231	1682	1425	1218	1682	1425
Queue Service Time (g _s), s	2.3	41.0	41.2	4.9	17.0	9.4	0.9	8.3	29.0	7.5	7.6	0.5
Cycle Queue Clearance Time (g _c), s	2.3	41.0	41.2	4.9	17.0	9.4	8.5	8.3	29.0	16.0	7.6	0.5
Green Ratio (g/C)	0.60	0.55	0.55	0.61	0.55	0.55	0.24	0.24	0.30	0.24	0.24	0.24
Capacity (c), veh/h	417	1850	918	190	1777	791	279	406	428	269	406	344
Volume-to-Capacity Ratio (X)	0.180	0.785	0.787	0.799	0.434	0.271	0.039	0.348	0.890	0.320	0.318	0.022
Back of Queue (Q), ft/ln (95 th percentile)	35.8	571	595.2	118.3	258.2	141.7	12.3	157.9	478.1	104.9	143.3	7.8
Back of Queue (Q), veh/ln (95 th percentile)	1.4	22.0	22.9	4.5	9.9	5.5	0.5	6.1	18.4	4.0	5.5	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.00	0.00	0.39	0.00	0.47	0.05	0.00	0.80	0.42	0.00	0.03
Uniform Delay (d ₁), s/veh	11.5	21.4	21.4	25.3	15.7	14.0	40.9	37.7	40.1	44.3	37.4	34.7
Incremental Delay (d ₂), s/veh	0.1	3.4	6.8	5.2	0.8	0.8	0.0	0.2	19.5	0.3	0.2	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	11.5	24.8	28.2	30.5	16.4	14.8	40.9	37.9	59.6	44.6	37.6	34.7
Level of Service (LOS)	B	C	C	C	B	B	D	D	E	D	D	C
Approach Delay, s/veh / LOS	25.4		C	18.0		B	53.4		D	40.2		D
Intersection Delay, s/veh / LOS	27.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	2.09	B	2.59	C	2.45	B
Bicycle LOS Score / LOS	1.72	B	1.43	A	1.37	A	0.86	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Kleingers Group			Duration, h	0.250		
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other		
Jurisdiction	Delaware County	Time Period	No-Build PM	PHF	0.92		
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00		
Intersection	Fourwinds Drive	File Name	2038 aNo-Build_Sunbury at Fourwinds PM.xus				
Project Description	2038 No-Build PM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	47	1560	20	200	1550	239	30	129	200	183	159	8

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	5.7	3.6	64.7	28.0	0.0	0.0			
				Yellow	4.0	0.0	4.0	4.0	0.0	0.0			
				Red	2.0	0.0	2.0	2.0	0.0	0.0			

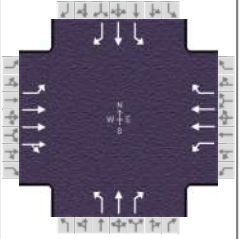
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		5.0		5.0
Phase Duration, s	11.7	70.7	15.3	74.3		34.0		34.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.0	0.0	3.0	0.0		3.2		3.2
Queue Clearance Time (g _s), s	3.6		9.2			16.9		29.9
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		1.3		0.0
Phase Call Probability	0.82		1.00			1.00		1.00
Max Out Probability	0.00		1.00			0.03		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	51	1147	570	217	1685	260	33	140	217	199	173	9
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1682	1670	1602	1601	1283	1183	1682	1425	1219	1682	1425
Queue Service Time (g _s), s	1.6	28.6	28.6	7.2	57.4	13.1	2.9	8.4	14.9	19.6	10.5	0.6
Cycle Queue Clearance Time (g _c), s	1.6	28.6	28.6	7.2	57.4	13.1	13.4	8.4	14.9	27.9	10.5	0.6
Green Ratio (g/C)	0.59	0.54	0.54	0.62	0.57	0.57	0.23	0.23	0.31	0.23	0.23	0.23
Capacity (c), veh/h	157	1814	901	267	1822	730	232	392	443	259	392	333
Volume-to-Capacity Ratio (X)	0.324	0.633	0.633	0.814	0.925	0.356	0.140	0.357	0.491	0.767	0.440	0.026
Back of Queue (Q), ft/ln (95 th percentile)	35.4	417.3	429.2	194.3	761.6	178	39.4	158.4	225.9	281.8	198.8	9
Back of Queue (Q), veh/ln (95 th percentile)	1.4	16.1	16.5	7.5	29.3	6.8	1.5	6.1	8.7	10.8	7.6	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.00	0.00	0.65	0.00	0.59	0.16	0.00	0.38	0.81	0.00	0.04
Uniform Delay (d ₁), s/veh	26.2	19.3	19.3	20.7	23.5	14.0	45.0	38.5	33.6	50.2	39.3	35.5
Incremental Delay (d ₂), s/veh	0.4	1.7	3.4	13.6	9.5	1.4	0.1	0.2	0.3	11.7	0.3	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	26.6	21.0	22.7	34.4	33.0	15.3	45.2	38.7	33.9	61.9	39.6	35.5
Level of Service (LOS)	C	C	C	C	C	B	D	D	C	E	D	D
Approach Delay, s/veh / LOS	21.7		C	31.0		C	36.6		D	51.2		D
Intersection Delay, s/veh / LOS	29.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	2.09	B	2.59	C	2.45	B
Bicycle LOS Score / LOS	1.46	A	2.27	B	1.13	A	1.12	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Kleingers Group			Duration, h	0.250		
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other		
Jurisdiction	Delaware County	Time Period	Build AM	PHF	0.92		
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00		
Intersection	Fourwinds Drive	File Name	2038 Build_Sunbury at Fourwinds AM.xus				
Project Description	2038 Build AM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	74	1970	30	140	710	216	10	131	350	132	124	23

Signal Information				Signal Phases								
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	6.5	0.5	66.0	29.0	0.0	0.0	2		3		4	
Yellow	4.0	0.0	4.0	4.0	0.0	0.0	5		6		7	
Red	2.0	0.0	2.0	2.0	0.0	0.0	8					

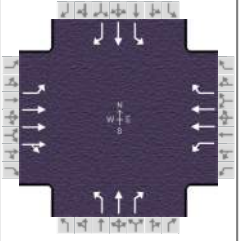
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		5.0		5.0
Phase Duration, s	12.5	72.0	13.0	72.5		35.0		35.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.0	0.0	3.0	0.0		3.2		3.2
Queue Clearance Time (g _s), s	4.5		6.9			31.0		23.7
Green Extension Time (g _e), s	0.1	0.0	0.1	0.0		0.0		1.1
Phase Call Probability	0.93		0.99			1.00		1.00
Max Out Probability	0.00		0.01			1.00		0.44

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	80	1452	722	152	772	235	11	142	380	143	135	25
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1682	1668	1602	1601	1425	1225	1682	1425	1216	1682	1425
Queue Service Time (g _s), s	2.5	41.0	41.2	4.9	17.0	10.6	0.9	8.4	29.0	13.3	7.9	1.6
Cycle Queue Clearance Time (g _c), s	2.5	41.0	41.2	4.9	17.0	10.6	8.8	8.4	29.0	21.7	7.9	1.6
Green Ratio (g/C)	0.60	0.55	0.55	0.61	0.55	0.55	0.24	0.24	0.30	0.24	0.24	0.24
Capacity (c), veh/h	417	1849	917	190	1774	790	275	406	428	269	406	344
Volume-to-Capacity Ratio (X)	0.193	0.785	0.787	0.800	0.435	0.297	0.040	0.350	0.889	0.534	0.332	0.073
Back of Queue (Q), ft/ln (95 th percentile)	38.5	571.7	595.9	118.3	258.6	158.5	12.4	159.1	477.7	187	149.9	26
Back of Queue (Q), veh/ln (95 th percentile)	1.5	22.0	22.9	4.6	9.9	6.1	0.5	6.1	18.4	7.2	5.8	1.0
Queue Storage Ratio (RQ) (95 th percentile)	0.13	0.00	0.00	0.39	0.00	0.53	0.05	0.00	0.80	0.47	0.00	0.10
Uniform Delay (d ₁), s/veh	11.5	21.4	21.4	25.3	15.7	14.3	41.1	37.7	40.1	46.7	37.5	35.1
Incremental Delay (d ₂), s/veh	0.1	3.4	6.8	5.3	0.8	1.0	0.0	0.2	19.4	1.1	0.2	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	11.6	24.8	28.2	30.6	16.5	15.3	41.2	37.9	59.5	47.8	37.7	35.2
Level of Service (LOS)	B	C	C	C	B	B	D	D	E	D	D	D
Approach Delay, s/veh / LOS	25.4		C	18.1		B	53.3		D	42.3		D
Intersection Delay, s/veh / LOS	28.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	2.09	B	2.59	C	2.45	B
Bicycle LOS Score / LOS	1.73	B	1.44	A	1.37	A	0.99	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Kleingers Group			Duration, h	0.250		
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other		
Jurisdiction	Delaware County	Time Period	Build PM	PHF	0.92		
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00		
Intersection	Fourwinds Drive	File Name	2038 Build_Sunbury at Fourwinds PM.xus				
Project Description	2038 Build PM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	62	1560	20	200	1550	288	30	134	200	211	162	17

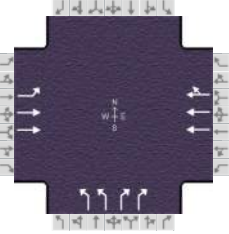
Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	6.3	3.1	64.1	28.5	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	0.0	0.0			
				Red	2.0	0.0	2.0	2.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		5.0		5.0
Phase Duration, s	12.3	70.1	15.4	73.2		34.5		34.5
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.0	0.0	3.0	0.0		3.2		3.2
Queue Clearance Time (g _s), s	4.2		9.3			16.8		30.5
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		1.4		0.0
Phase Call Probability	0.89		1.00			1.00		1.00
Max Out Probability	0.00		1.00			0.03		1.00

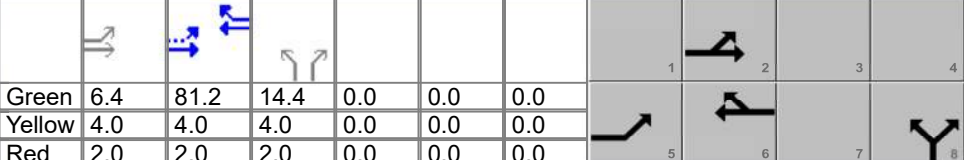
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	67	1147	570	217	1685	313	33	146	217	229	176	18
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1682	1670	1602	1601	1283	1180	1682	1425	1213	1682	1425
Queue Service Time (g _s), s	2.2	28.9	28.9	7.3	58.6	17.0	2.9	8.7	14.8	19.8	10.7	1.2
Cycle Queue Clearance Time (g _c), s	2.2	28.9	28.9	7.3	58.6	17.0	13.6	8.7	14.8	28.5	10.7	1.2
Green Ratio (g/C)	0.59	0.53	0.53	0.61	0.56	0.56	0.24	0.24	0.32	0.24	0.24	0.24
Capacity (c), veh/h	159	1798	893	266	1794	719	235	399	450	260	399	338
Volume-to-Capacity Ratio (X)	0.423	0.638	0.638	0.817	0.939	0.436	0.139	0.365	0.483	0.881	0.441	0.055
Back of Queue (Q), ft/ln (95 th percentile)	46.4	422.3	434.5	194.1	787.1	224.7	39.3	164.1	224.4	353.5	201.2	19.3
Back of Queue (Q), veh/ln (95 th percentile)	1.8	16.2	16.7	7.5	30.3	8.6	1.5	6.3	8.6	13.6	7.7	0.7
Queue Storage Ratio (RQ) (95 th percentile)	0.15	0.00	0.00	0.65	0.00	0.75	0.16	0.00	0.37	0.88	0.00	0.08
Uniform Delay (d ₁), s/veh	27.1	19.7	19.7	21.0	24.5	15.3	44.8	38.2	33.2	51.3	39.0	35.3
Incremental Delay (d ₂), s/veh	0.7	1.7	3.5	14.1	11.0	1.9	0.1	0.2	0.3	26.7	0.3	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	27.7	21.5	23.2	35.1	35.5	17.3	44.9	38.4	33.5	78.0	39.2	35.4
Level of Service (LOS)	C	C	C	D	D	B	D	D	C	E	D	D
Approach Delay, s/veh / LOS	22.3		C	32.9		C	36.2		D	60.0		E
Intersection Delay, s/veh / LOS	31.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.09	B	2.09	B	2.59	C	2.45	B
Bicycle LOS Score / LOS	1.47	A	2.32	B	1.14	A	1.19	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Kleingers Group			Duration, h	0.250	
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other	
Jurisdiction	Delaware County	Time Period	No-Build AM	PHF	0.94	
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00	
Intersection	I-71 NB Ramps	File Name	2038 aNo-Build_Sunbury at NB Ramps AM.xus			
Project Description	2038 No-Build AM					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	70	599			1200	20	287		90			

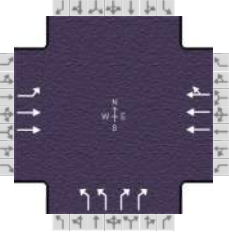
Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	6.4	81.2	14.4	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		8.3		9.0		
Phase Duration, s	12.4	99.6		87.2		20.4		
Change Period, (Y+R _c), s	6.0	6.0		6.0		6.0		
Max Allow Headway (MAH), s	3.0	0.0		0.0		3.1		
Queue Clearance Time (g _s), s	3.5					13.5		
Green Extension Time (g _e), s	0.1	0.0		0.0		0.9		
Phase Call Probability	0.92					1.00		
Max Out Probability	0.00					0.00		

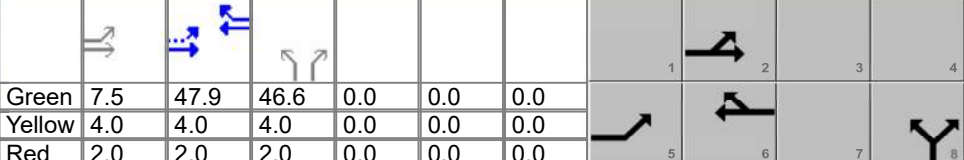
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3		18			
Adjusted Flow Rate (v), veh/h	74	637			868	430	305		96			
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1601			1682	1667	1555		1261			
Queue Service Time (g _s), s	1.5	6.6			22.9	13.5	11.5		4.2			
Cycle Queue Clearance Time (g _c), s	1.5	6.6			22.9	13.5	11.5		4.2			
Green Ratio (g/C)	0.75	0.78			0.68	0.68	0.12		0.12			
Capacity (c), veh/h	347	2498			2276	1128	373		302			
Volume-to-Capacity Ratio (X)	0.215	0.255			0.381	0.381	0.819		0.317			
Back of Queue (Q), ft/ln (95 th percentile)	18.1	73.6			202.8	207	205.7		60.4			
Back of Queue (Q), veh/ln (95 th percentile)	0.7	2.8			7.8	8.0	7.9		2.3			
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.00			0.00	0.00	0.34		0.10			
Uniform Delay (d ₁), s/veh	7.2	3.6			8.5	8.5	51.5		48.3			
Incremental Delay (d ₂), s/veh	0.1	0.2			0.5	1.0	1.7		0.2			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	7.3	3.9			8.9	9.4	53.3		48.5			
Level of Service (LOS)	A	A			A	A	D		D			
Approach Delay, s/veh / LOS	4.2		A	9.1		A	52.1		D	0.0		
Intersection Delay, s/veh / LOS	14.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.03	B	1.35	A	2.33	B	2.48	B
Bicycle LOS Score / LOS	1.07	A	1.20	A		F		

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Kleingers Group			Duration, h	0.250	
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other	
Jurisdiction	Delaware County	Time Period	No-Build PM	PHF	0.94	
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00	
Intersection	I-71 NB Ramps	File Name	2038 aNo-Build_Sunbury at NB Ramps PM.xus			
Project Description	2038 No-Build PM					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	1019			1179	40	1040		420			

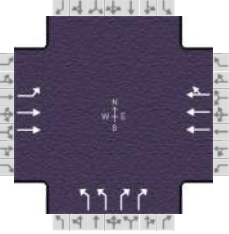
Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	7.5	47.9	46.6	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		8.3		9.0		
Phase Duration, s	13.5	67.4		53.9		52.6		
Change Period, (Y+R _c), s	6.0	6.0		6.0		6.0		
Max Allow Headway (MAH), s	3.0	0.0		0.0		3.1		
Queue Clearance Time (g _s), s	7.4					42.5		
Green Extension Time (g _e), s	0.2	0.0		0.0		4.1		
Phase Call Probability	0.99					1.00		
Max Out Probability	0.00					0.05		

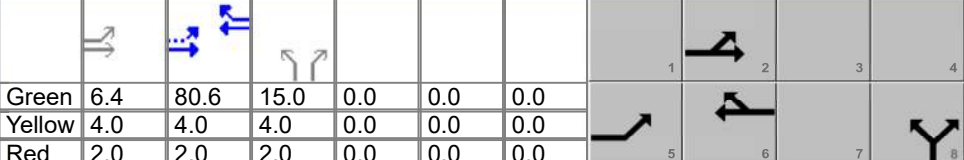
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2			6	16	3		18			
Adjusted Flow Rate (v), veh/h	128	1084			870	427	1106		447			
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1601			1682	1652	1555		1261			
Queue Service Time (g _s), s	5.4	30.0			31.7	25.2	40.5		15.8			
Cycle Queue Clearance Time (g _c), s	5.4	30.0			31.7	25.2	40.5		15.8			
Green Ratio (g/C)	0.48	0.51			0.40	0.40	0.39		0.39			
Capacity (c), veh/h	216	1638			1342	659	1209		980			
Volume-to-Capacity Ratio (X)	0.591	0.662			0.648	0.648	0.915		0.456			
Back of Queue (Q), ft/ln (95 th percentile)	92.5	424.2			398.6	407.9	572.7		210.3			
Back of Queue (Q), veh/ln (95 th percentile)	3.6	16.3			15.3	15.7	22.0		8.1			
Queue Storage Ratio (RQ) (95 th percentile)	0.18	0.00			0.00	0.00	0.95		0.35			
Uniform Delay (d ₁), s/veh	24.6	21.7			29.2	29.2	34.8		27.3			
Incremental Delay (d ₂), s/veh	1.0	2.1			2.4	4.9	6.7		0.1			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	25.6	23.8			31.7	34.1	41.5		27.4			
Level of Service (LOS)	C	C			C	C	D		C			
Approach Delay, s/veh / LOS	24.0	C		32.5	C		37.5	D	0.0			
Intersection Delay, s/veh / LOS	31.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	1.40	A	2.33	B	2.48	B
Bicycle LOS Score / LOS	1.49	A	1.20	A		F		

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	The Kleingers Group			Duration, h	0.250	
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other	
Jurisdiction	Delaware County	Time Period	Build AM	PHF	0.94	
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00	
Intersection	I-71 NB Ramps	File Name	2038 Build_Sunbury at NB Ramps AM.xus			
Project Description	2038 Build AM					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	70	604			1202	20	301		90			

Signal Information													
Cycle, s	120.0	Reference Phase	2	Green	6.4	80.6	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On										

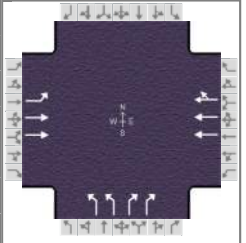
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		8.3		9.0		
Phase Duration, s	12.4	99.0		86.6		21.0		
Change Period, (Y+R _c), s	6.0	6.0		6.0		6.0		
Max Allow Headway (MAH), s	3.0	0.0		0.0		3.1		
Queue Clearance Time (g _s), s	3.5					14.1		
Green Extension Time (g _e), s	0.1	0.0		0.0		0.9		
Phase Call Probability	0.92					1.00		
Max Out Probability	0.00					0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3		18			
Adjusted Flow Rate (v), veh/h	74	643			869	431	320		96			
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1601			1682	1667	1555		1261			
Queue Service Time (g _s), s	1.5	6.8			23.0	13.7	12.1		4.1			
Cycle Queue Clearance Time (g _c), s	1.5	6.8			23.0	13.7	12.1		4.1			
Green Ratio (g/C)	0.74	0.78			0.67	0.67	0.12		0.12			
Capacity (c), veh/h	344	2482			2259	1120	388		315			
Volume-to-Capacity Ratio (X)	0.216	0.259			0.385	0.385	0.825		0.304			
Back of Queue (Q), ft/ln (95 th percentile)	18.7	78			206.2	210.9	213.4		60			
Back of Queue (Q), veh/ln (95 th percentile)	0.7	3.0			7.9	8.1	8.2		2.3			
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.00			0.00	0.00	0.36		0.10			
Uniform Delay (d ₁), s/veh	7.4	3.8			8.7	8.7	51.2		47.8			
Incremental Delay (d ₂), s/veh	0.1	0.3			0.5	1.0	1.7		0.2			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	7.5	4.0			9.2	9.7	53.0		48.0			
Level of Service (LOS)	A	A			A	A	D		D			
Approach Delay, s/veh / LOS	4.4		A	9.4		A	51.8		D	0.0		
Intersection Delay, s/veh / LOS	15.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.03	B	1.36	A	2.33	B	2.48	B
Bicycle LOS Score / LOS	1.08	A	1.20	A		F		

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	The Kleingers Group			Duration, h	0.250		
Analyst	Dave M	Analysis Date	2/11/2021	Area Type	Other		
Jurisdiction	Delaware County	Time Period	Build PM	PHF	0.94		
Urban Street	Sunbury Parkway	Analysis Year	2038	Analysis Period	1 > 7:00		
Intersection	I-71 NB Ramps	File Name	2038 Build_Sunbury at NB Ramps PM.xus				
Project Description	2038 Build PM						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	1022			1184	40	1084		420			

Signal Information				Signal Phases									
Cycle, s	120.0	Reference Phase	2	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Offset, s	0	Reference Point	End	Green	7.6	46.0	48.4	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0

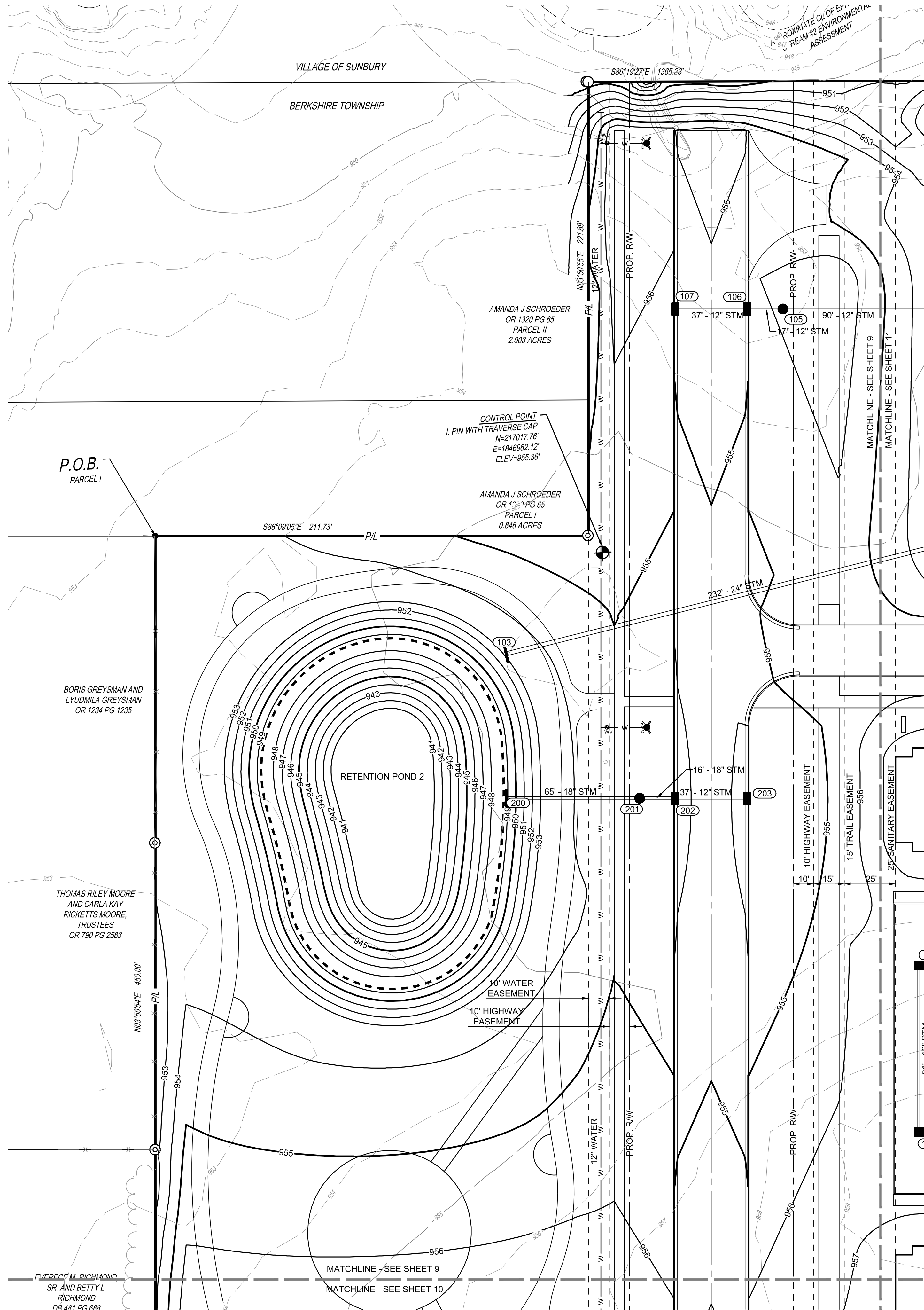
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		8.3		9.0		
Phase Duration, s	13.6	65.6		52.0		54.4		
Change Period, (Y+R _c), s	6.0	6.0		6.0		6.0		
Max Allow Headway (MAH), s	3.0	0.0		0.0		3.1		
Queue Clearance Time (g _s), s	7.6					44.2		
Green Extension Time (g _e), s	0.2	0.0		0.0		4.1		
Phase Call Probability	0.99					1.00		
Max Out Probability	0.00					0.08		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3		18			
Adjusted Flow Rate (v), veh/h	128	1087			873	429	1153		447			
Adjusted Saturation Flow Rate (s), veh/h/ln	1602	1601			1682	1652	1555		1261			
Queue Service Time (g _s), s	5.6	31.0			31.9	25.9	42.2		15.4			
Cycle Queue Clearance Time (g _c), s	5.6	31.0			31.9	25.9	42.2		15.4			
Green Ratio (g/C)	0.46	0.50			0.38	0.38	0.40		0.40			
Capacity (c), veh/h	210	1591			1290	633	1253		1017			
Volume-to-Capacity Ratio (X)	0.607	0.683			0.677	0.677	0.920		0.440			
Back of Queue (Q), ft/ln (95 th percentile)	95.5	440.5			412.2	422.6	595.3		205.5			
Back of Queue (Q), veh/ln (95 th percentile)	3.7	16.9			15.9	16.3	22.9		7.9			
Queue Storage Ratio (RQ) (95 th percentile)	0.19	0.00			0.00	0.00	0.99		0.34			
Uniform Delay (d ₁), s/veh	25.7	23.0			30.8	30.8	34.0		26.0			
Incremental Delay (d ₂), s/veh	1.1	2.4			2.9	5.7	7.5		0.1			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	26.7	25.4			33.7	36.5	41.5		26.1			
Level of Service (LOS)	C	C			C	D	D		C			
Approach Delay, s/veh / LOS	25.5	C		34.6	C		37.2	D	0.0			
Intersection Delay, s/veh / LOS	32.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	1.41	A	2.33	B	2.48	B
Bicycle LOS Score / LOS	1.49	A	1.20	A		F		

16.06.C.7. - Existing sewers, water mains, culverts and other underground facilities within the tract, adjacent to the tract or that will be used or are proposed to be used in developing the tract, indicating pipe sizes, grades and locations. We plan to tap into the existing sewer line that terminates almost right at the corner of Sherman Road and S. Three B's and K road. There are existing water lines along S. Three B's and K.

- a) **Please See Sheets 9-14 of Printed Engineering Set (Kleingers) that shows the remaining utility connections**
- b) Please see Sheets 15-16 on the Printed Engineering Set (Kleingers)- Sanitary Extension STA



- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP

CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE

www.kleingers.com
350 Worthington Rd
Suite B
Westerville, OH 43082
614.882.4311

SEAL:

BRENDAN M. FLEMING
REGISTERED PROFESSIONAL ENGINEER
E-81971

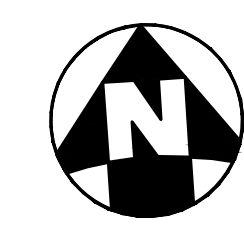
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PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

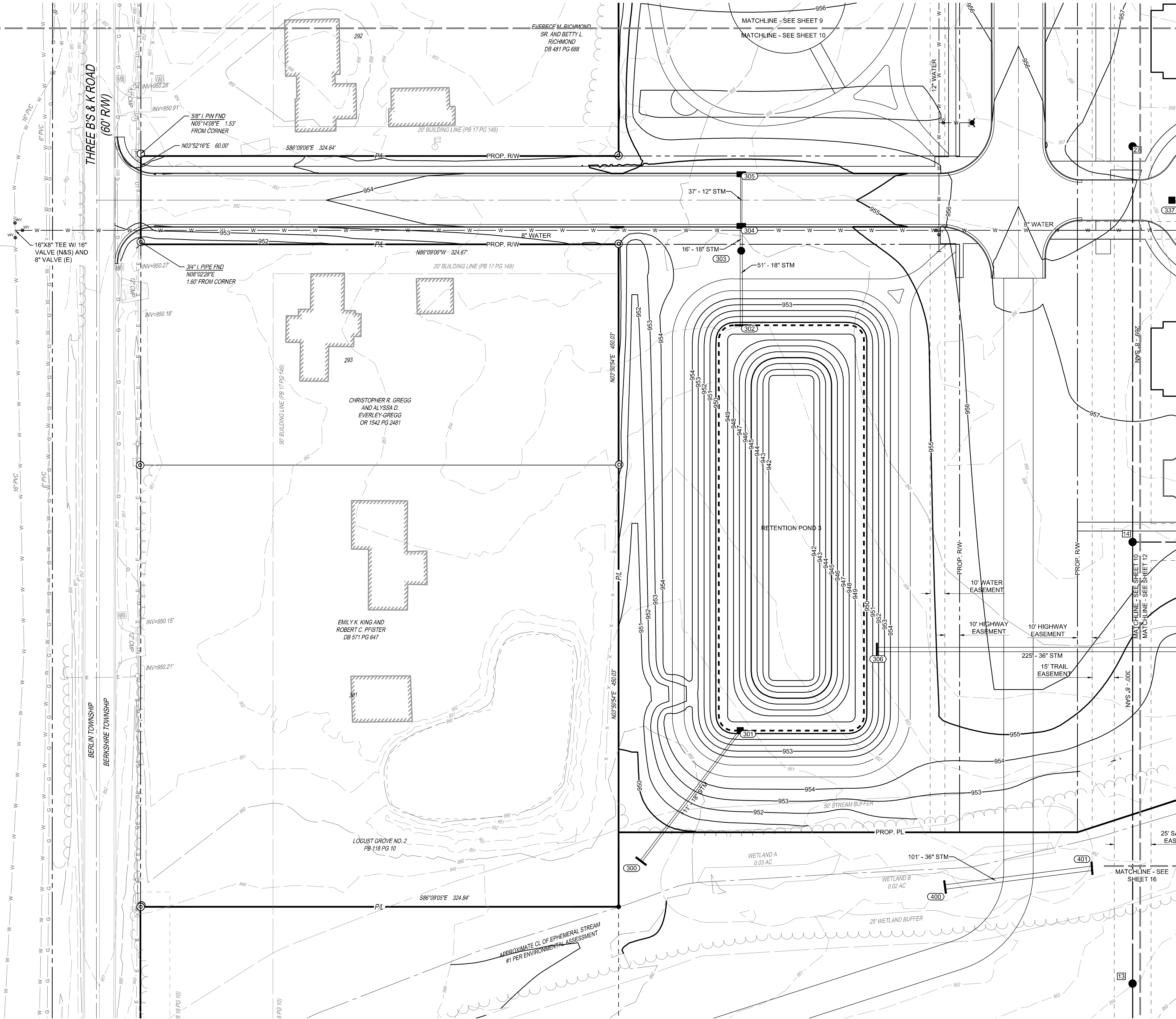
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DATE	04/23/2021
SCALE	1" = 30'

SHEET NAME:
GRADING AND UTILITY PLAN

SHEET NO.
9



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- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

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 Suite B
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 614.882.4311

SEAL:

BRENDAN M. FLEMING
 E-81971
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF OHIO

NO.	DATE	DESCRIPTION

PHOENIX PLACE
 FARM LOT 6, SEC. 2 TWP. 4, R. 18
 USML
 TOWNSHIP OF BERKSHIRE
 COUNTY OF DELAWARE, OHIO

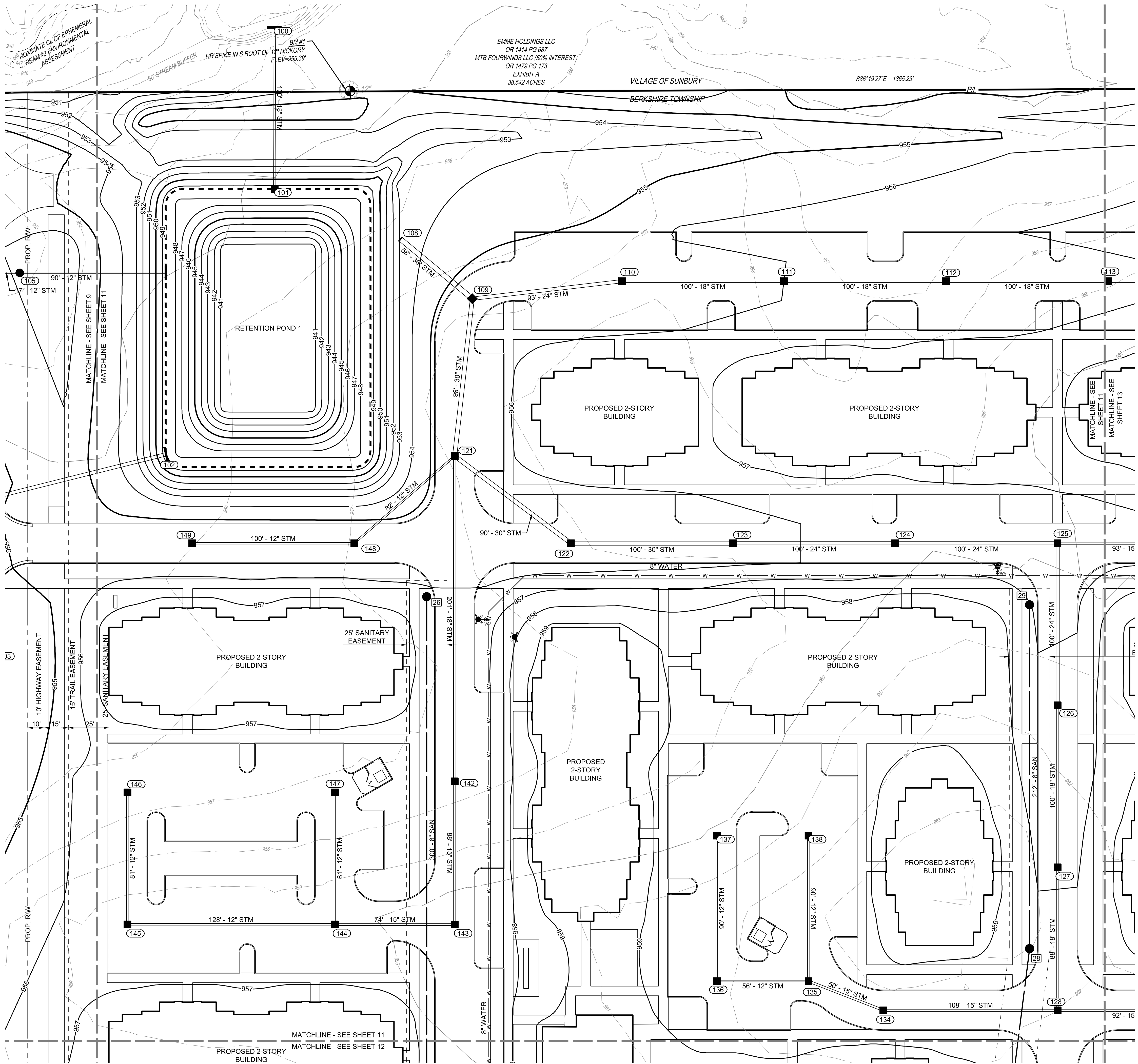
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DATE	04/23/2021
SCALE:	

SHEET NAME:
GRADING AND UTILITY PLAN

SHEET NO.
10



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- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP

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STATE OF OHIO

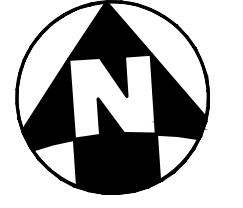
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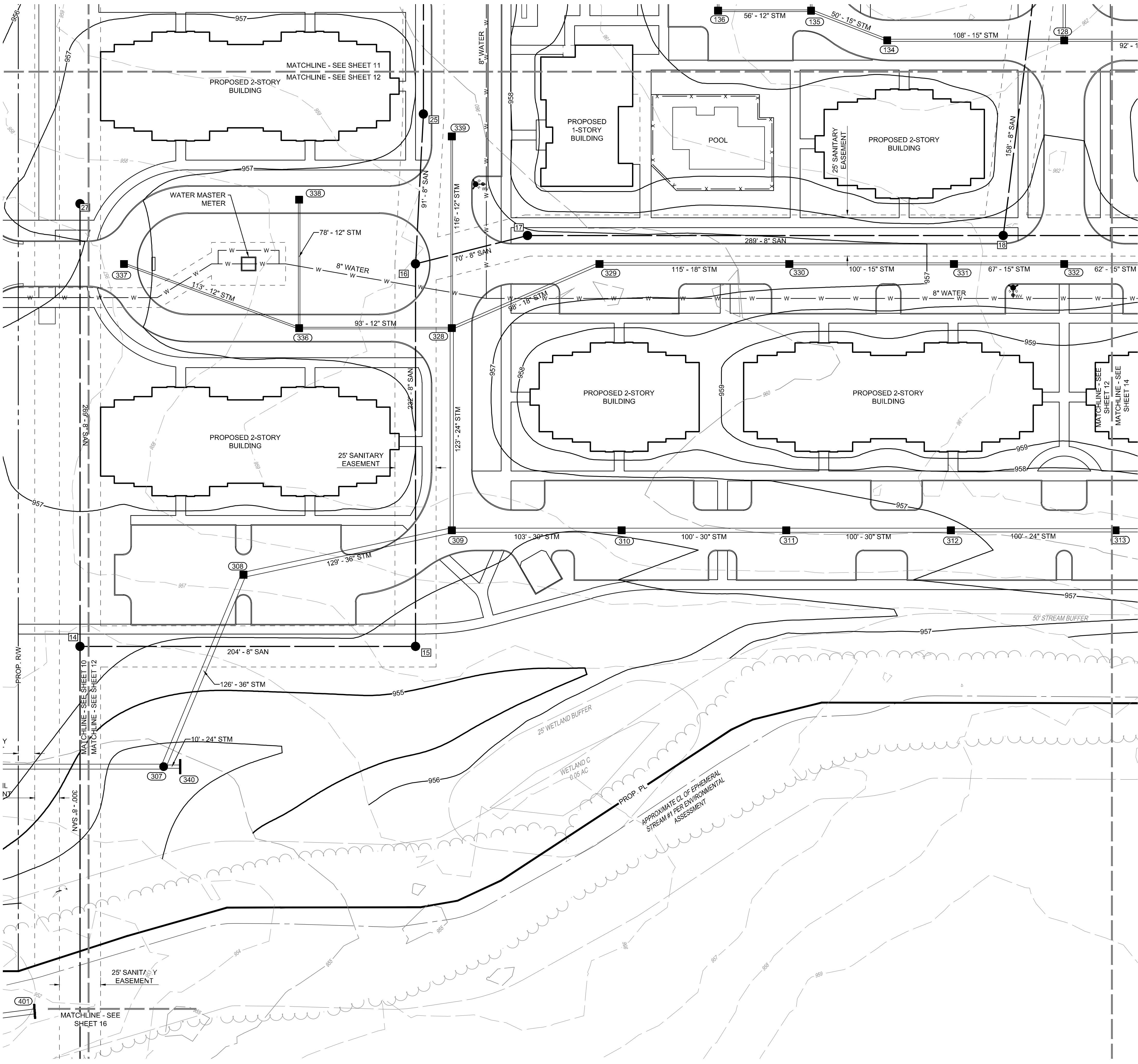
PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18 USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO: 200078_000
DATE: 04/23/2021
SCALE:
0 15 30 60

SHEET NAME:
GRADING AND UTILITY PLAN

SHEET NO.
11





- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FD FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP

CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE

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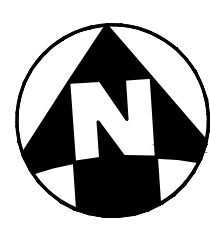
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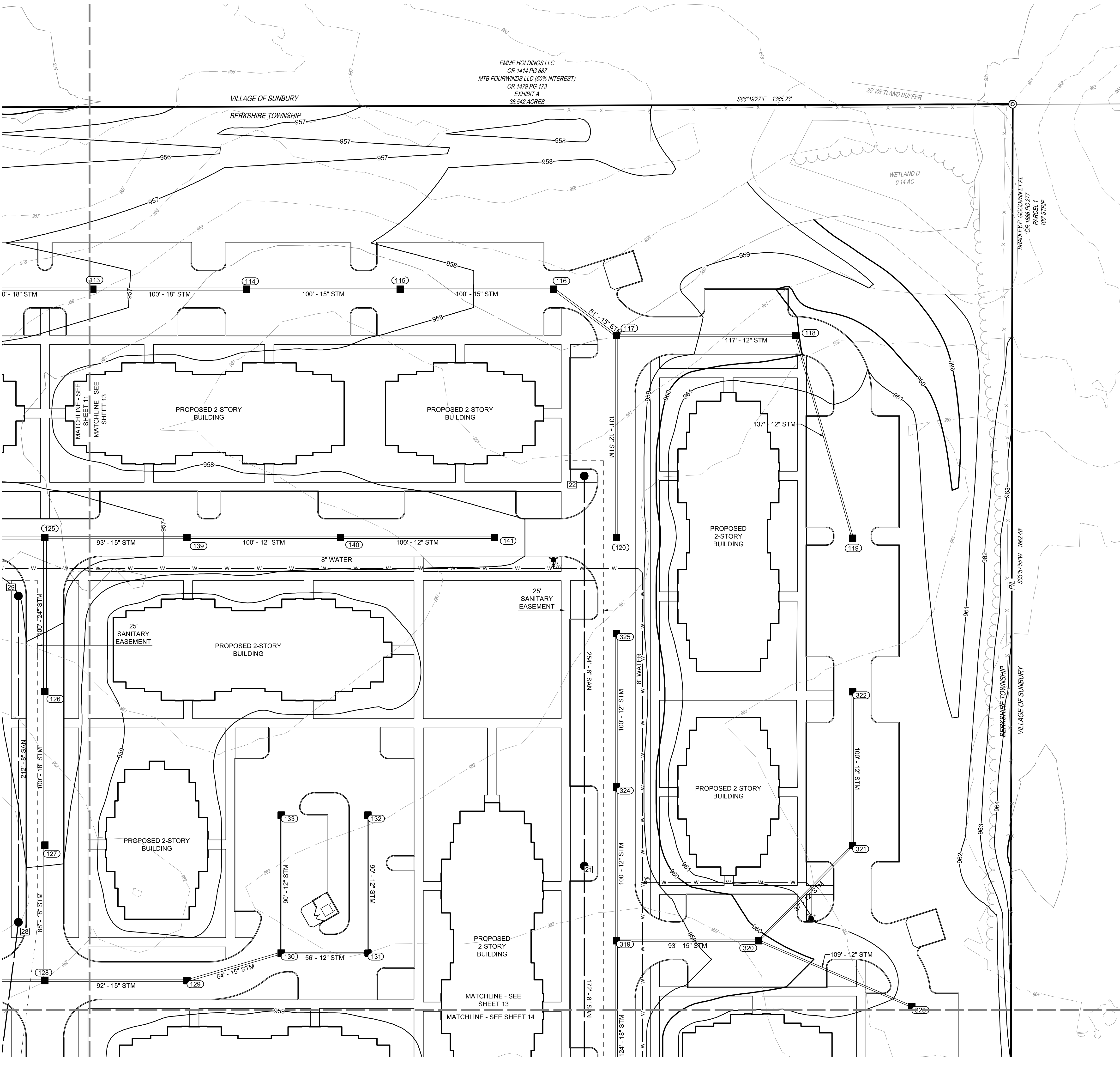
PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078,000
DATE	04/23/2021
SCALE	1" = 30'

SHEET NAME:
GRADING AND UTILITY PLAN

SHEET NO.
12





- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FH FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP

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E-81971
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION

PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18 USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078.000
DATE	04/23/2021
SCALE	

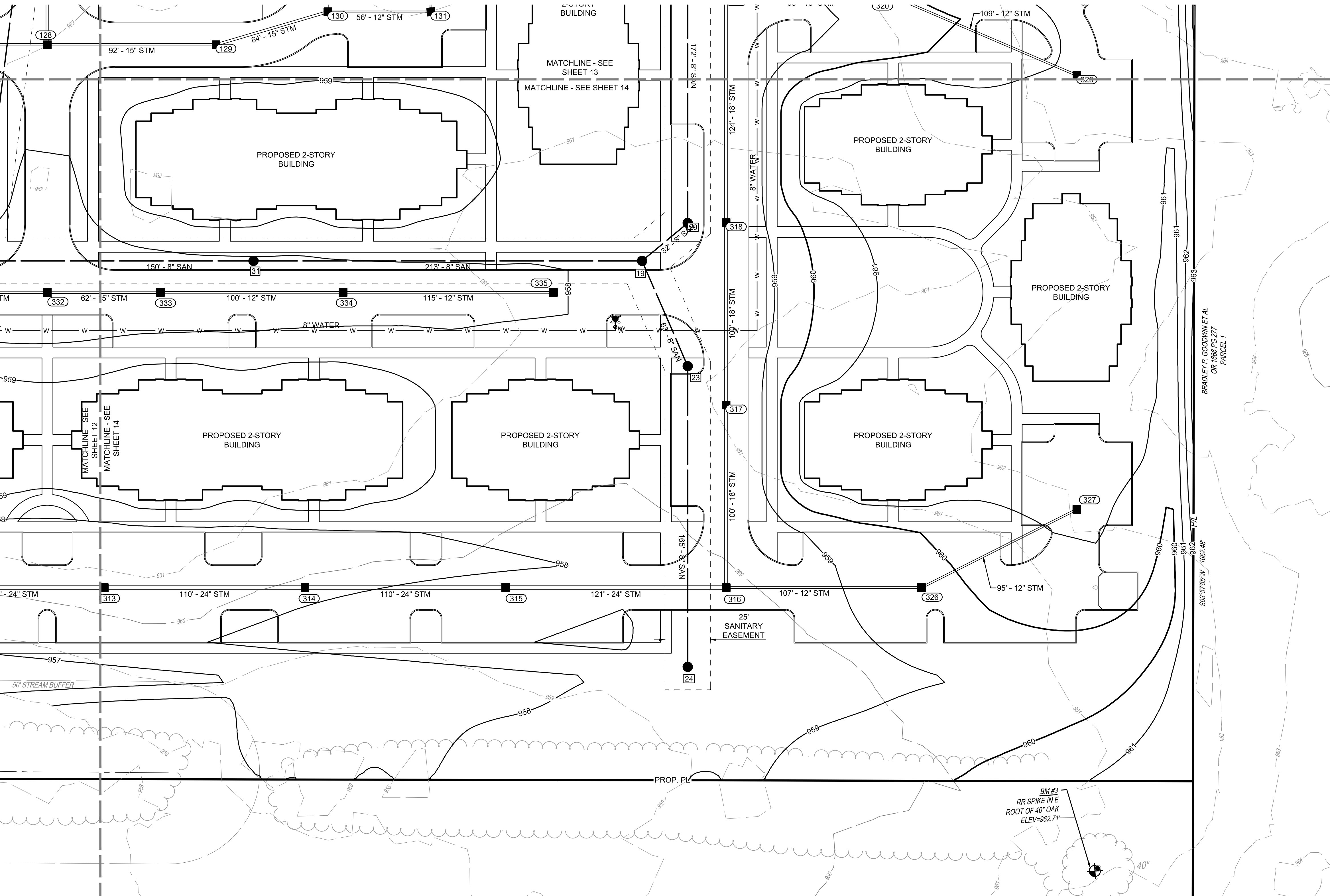
SHEET NAME:
GRADING AND UTILITY PLAN

SHEET NO.
13



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INSPIRED PEOPLE > CREATIVE DESIGN > TRANSFORMING COMMUNITIES



- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP

CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE

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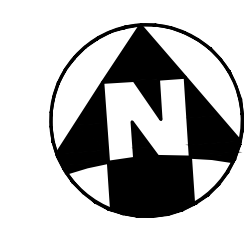
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FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

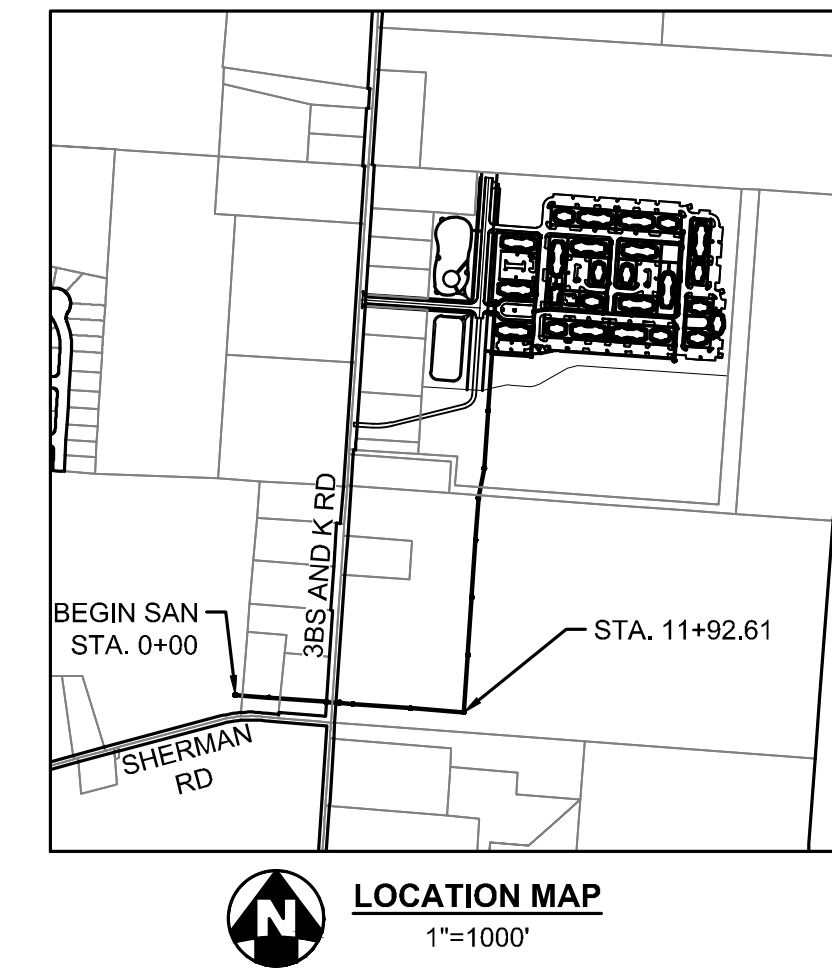
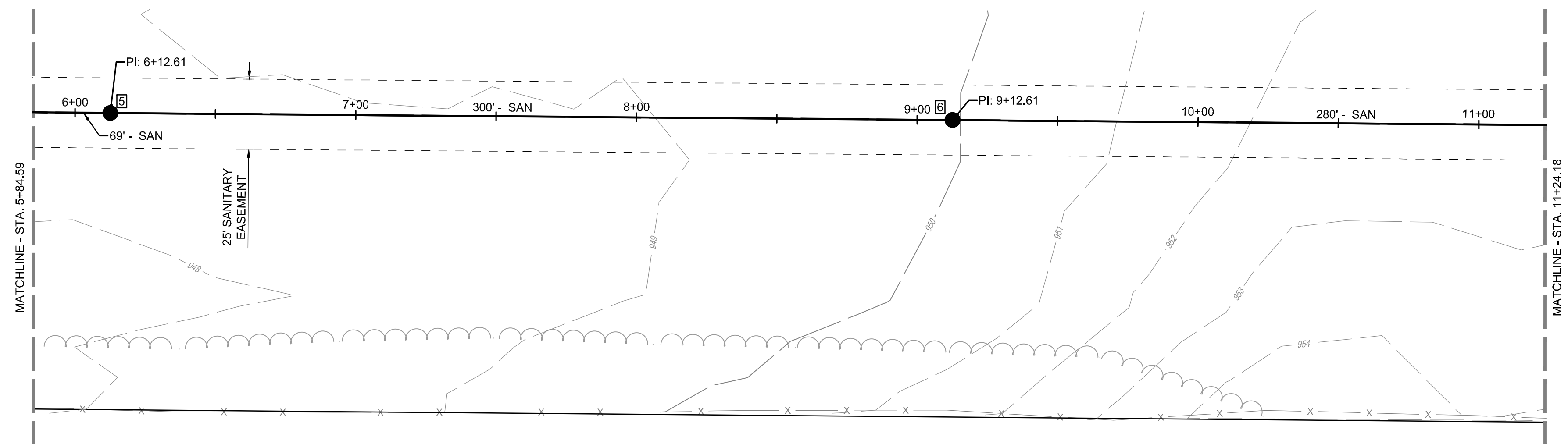
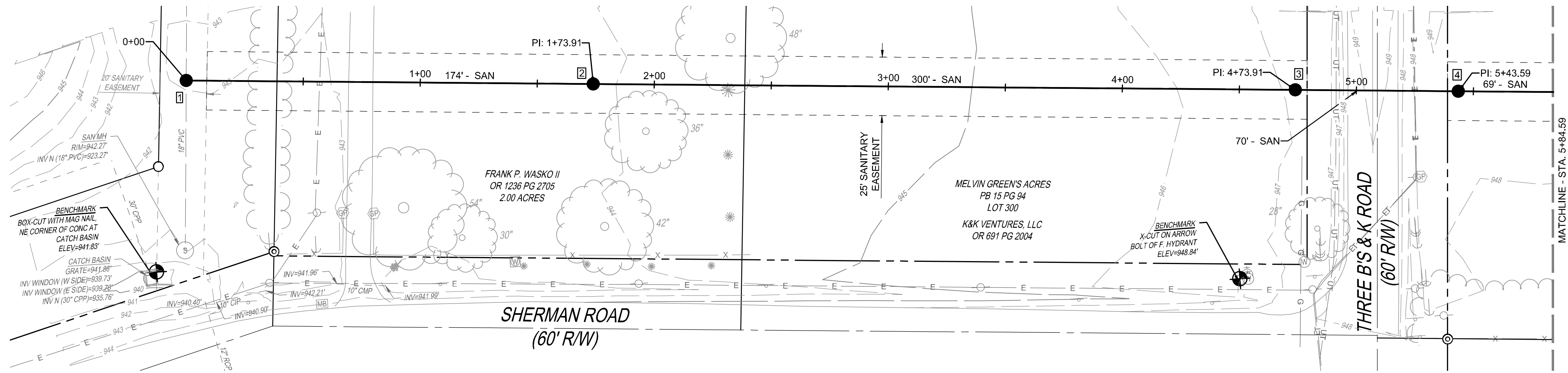
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DATE: 04/23/2021
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SHEET NAME:
GRADING AND UTILITY PLAN

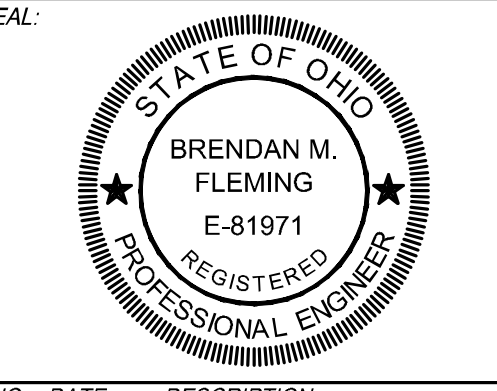
SHEET NO.
14



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- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - w WATER PIPE
 - (101) CATCH BASIN
 - (101) HEADWALL
 - (101) MANHOLE
 - (101) CURB INLET
 - (101) SANITARY MANHOLE
 - ^w WATER VALVE
 - FIRE HYDRANT
 - 950- EXISTING MAJOR CONTOUR
 - 949- EXISTING MINOR CONTOUR
 - 950- PROPOSED MAJOR CONTOUR
 - 949- PROPOSED MINOR CONTOUR
 - PROPOSED POND
 - - - GRADING LIMITS
 - ~ SWALE ARROW
 - ← FLOOD ROUTE



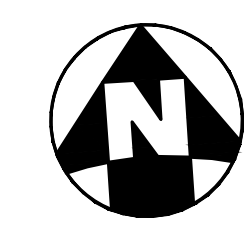
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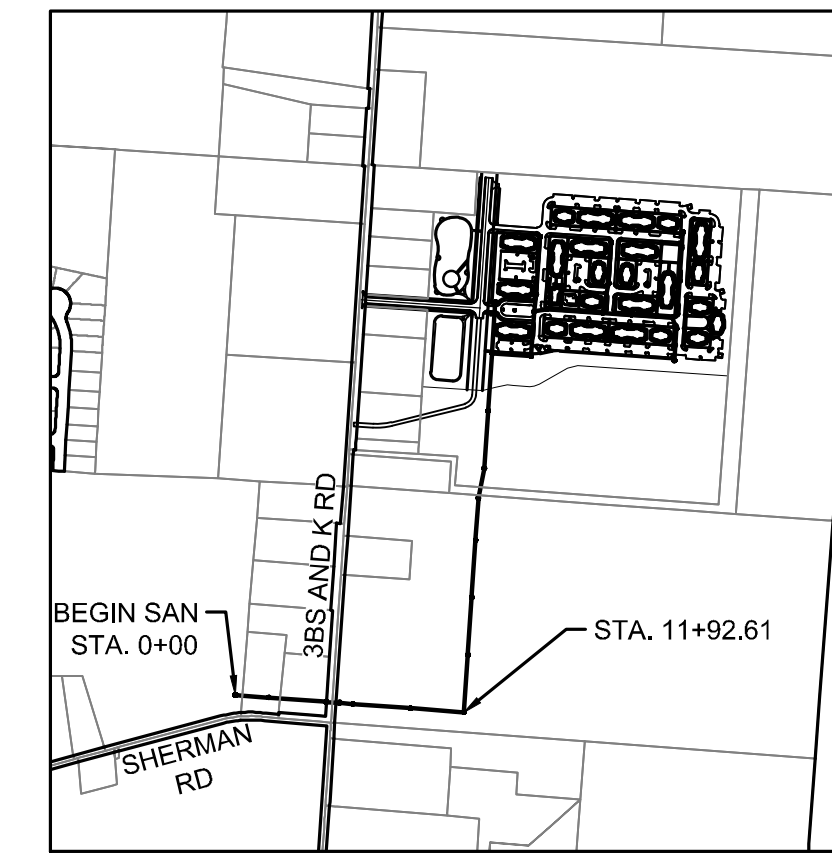
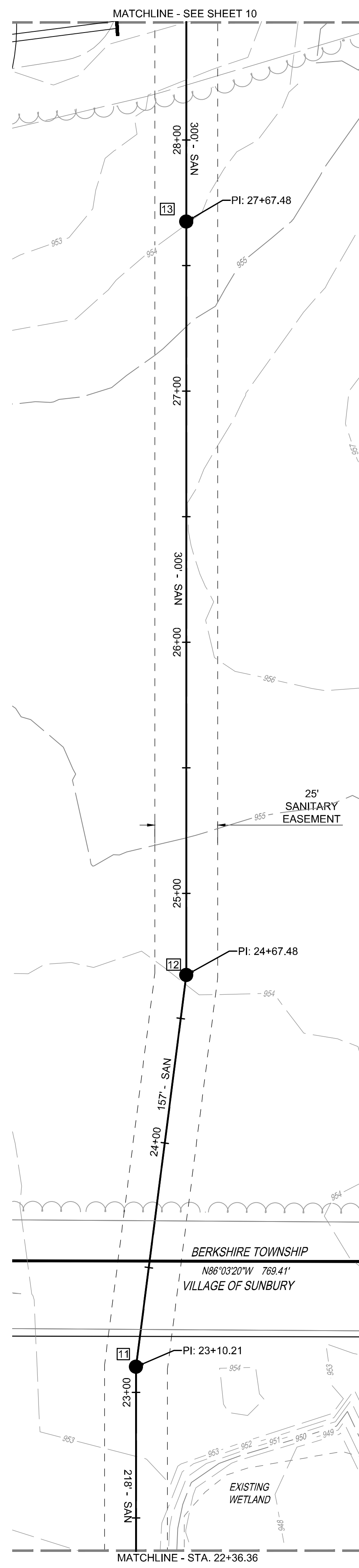
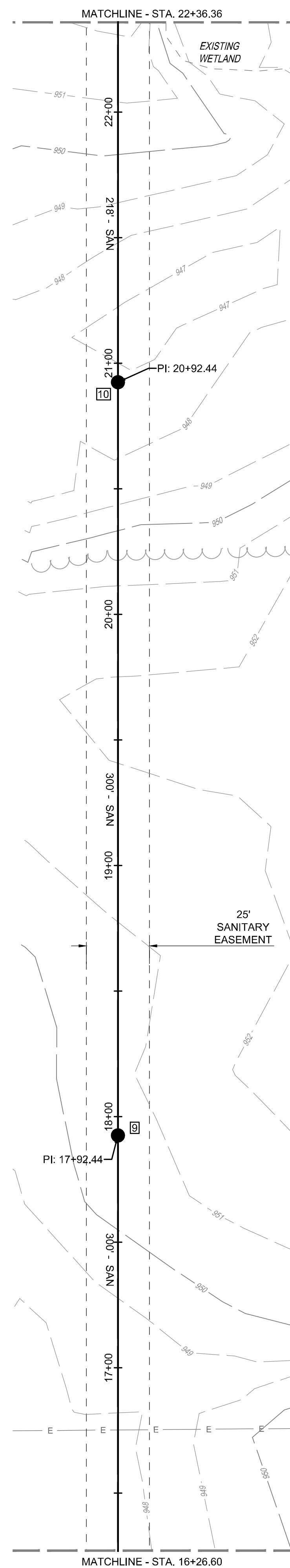
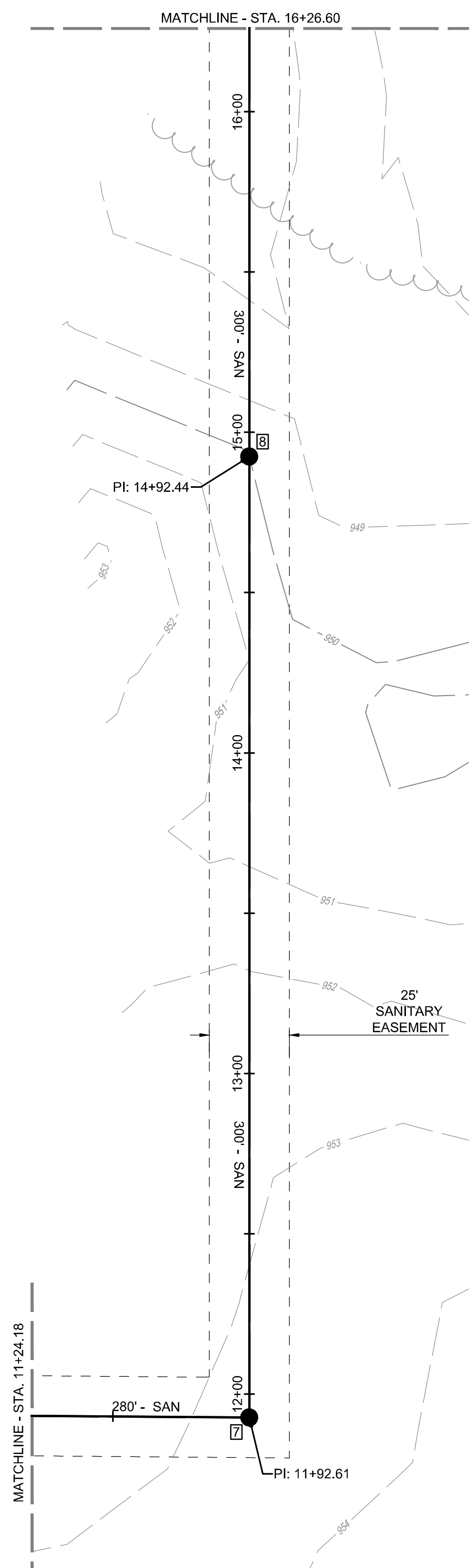
PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.:	200078_000
DATE:	04/23/2021
SCALE:	

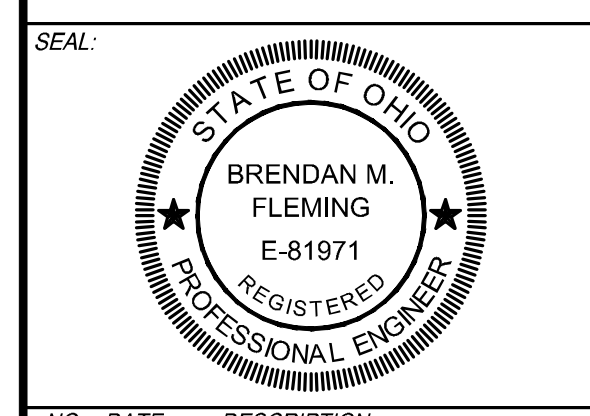
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**SANITARY
EXTENSION STA.
0+00 TO 11+24.18**

SHEET NO.
15





- PROPOSED LEGEND**
- STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - WATER PIPE
 - CATCH BASIN
 - HEADWALL
 - MANHOLE
 - CURB INLET
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 - PROPOSED MINOR CONTOUR
 - PROPOSED POND
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 - SWALE ARROW
 - FLOOD ROUTE



NO.	DATE	DESCRIPTION

PHOENIX PLACE
 FARM LOT 6, SEC. 2 TWP. 4, R. 18 USML
 TOWNSHIP OF BERKSHIRE
 COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078.000
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SCALE	

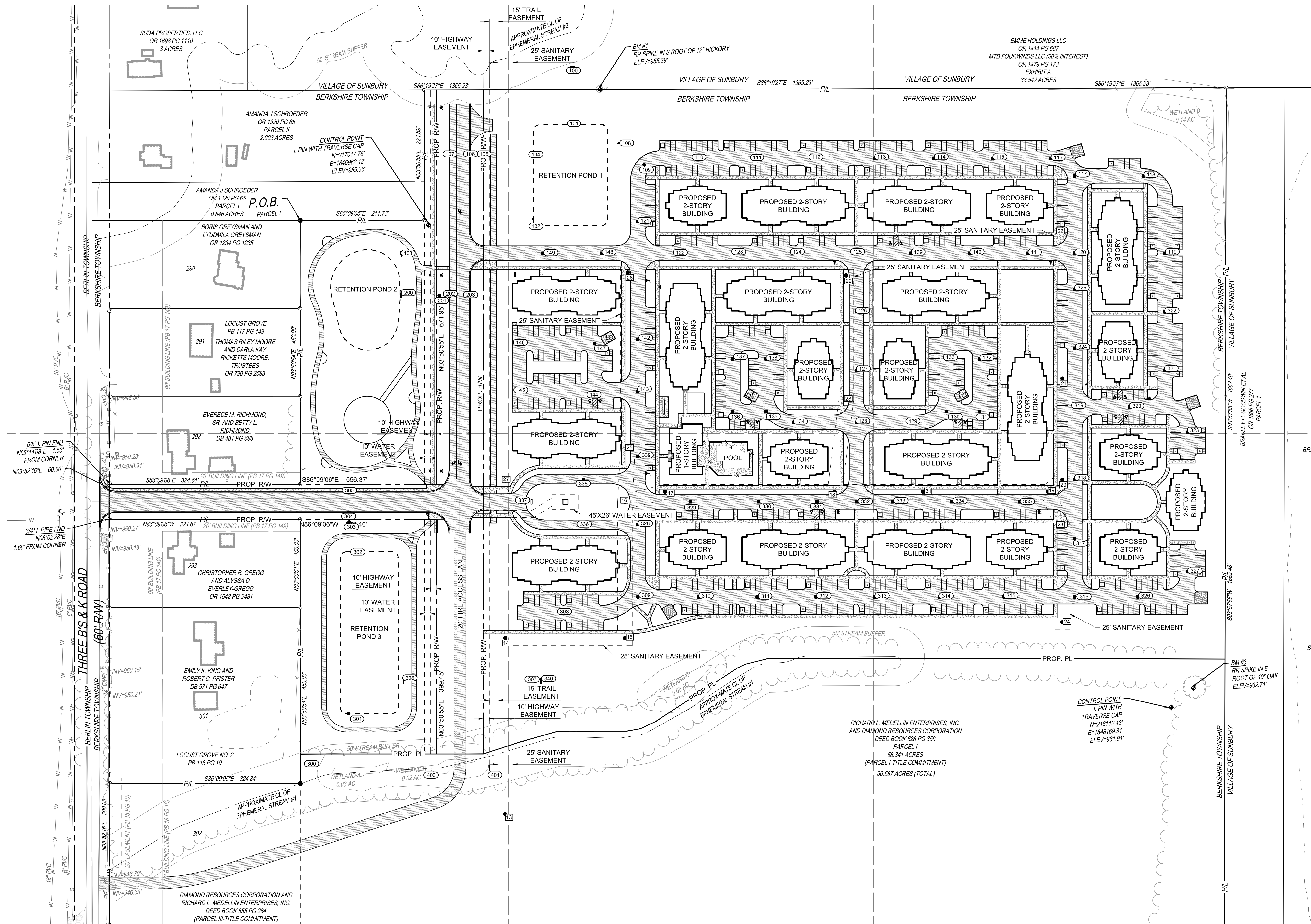
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SHEET NO.
16

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16.06.C.8. - The adjoining lines of adjacent tracts, parcels or lots.

- b. Please See Sheets 3-8 of The Printed Engineering Plan (Kleingers) – Location Plan**



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SEAL:

BRENDAN M. FLEMING
E-81971
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION

PHOENIX PLACE
 FARM LOT 6, SEC. 2 TWP. 4, R. 18
 USML
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 COUNTY OF DELAWARE, OHIO

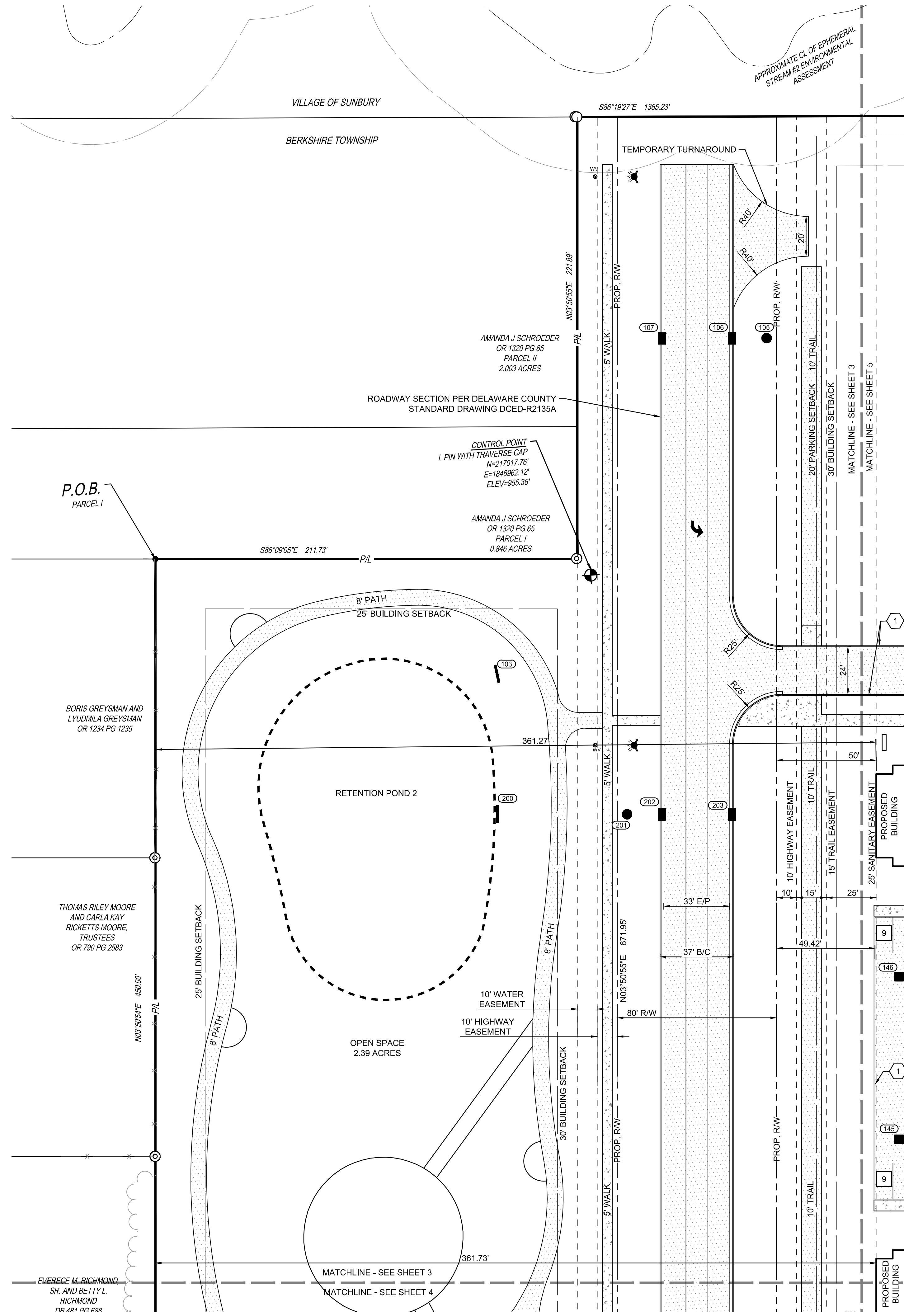
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DATE:	04/23/2021
SCALE:	

SHEET NAME:
OVERALL LOCATION PLAN

SHEET NO.
2



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PROPOSED LEGEND

- CATCH BASIN
- HEADWALL
- MANHOLE
- CURB INLET
- SANITARY MANHOLE
- WATER VALVE
- FIRE HYDRANT
- ASPHALT PAVEMENT
- CONCRETE WALK
- HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED PARKING COUNT
- PROPOSED POND

CODED NOTES

- 6" FULL HEIGHT CURB

NOTES

1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR FACE OF CURB UNLESS OTHERWISE NOTED.
3. ALL STANDARD PARKING SPACES ARE 9'W x 20'L
4. ALL ADA SPACES ARE 8'W x 20'L.
5. SITE RADII ARE DESIGNED TO ACCOMMODATE EMERGENCY AND FIRE-FIGHTING APPARATUS.
6. ALL EDGES OF PAVEMENT SHALL HAVE 6" FULL HEIGHT CURB.

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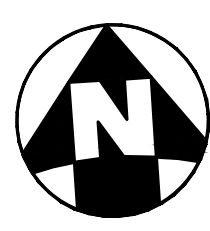
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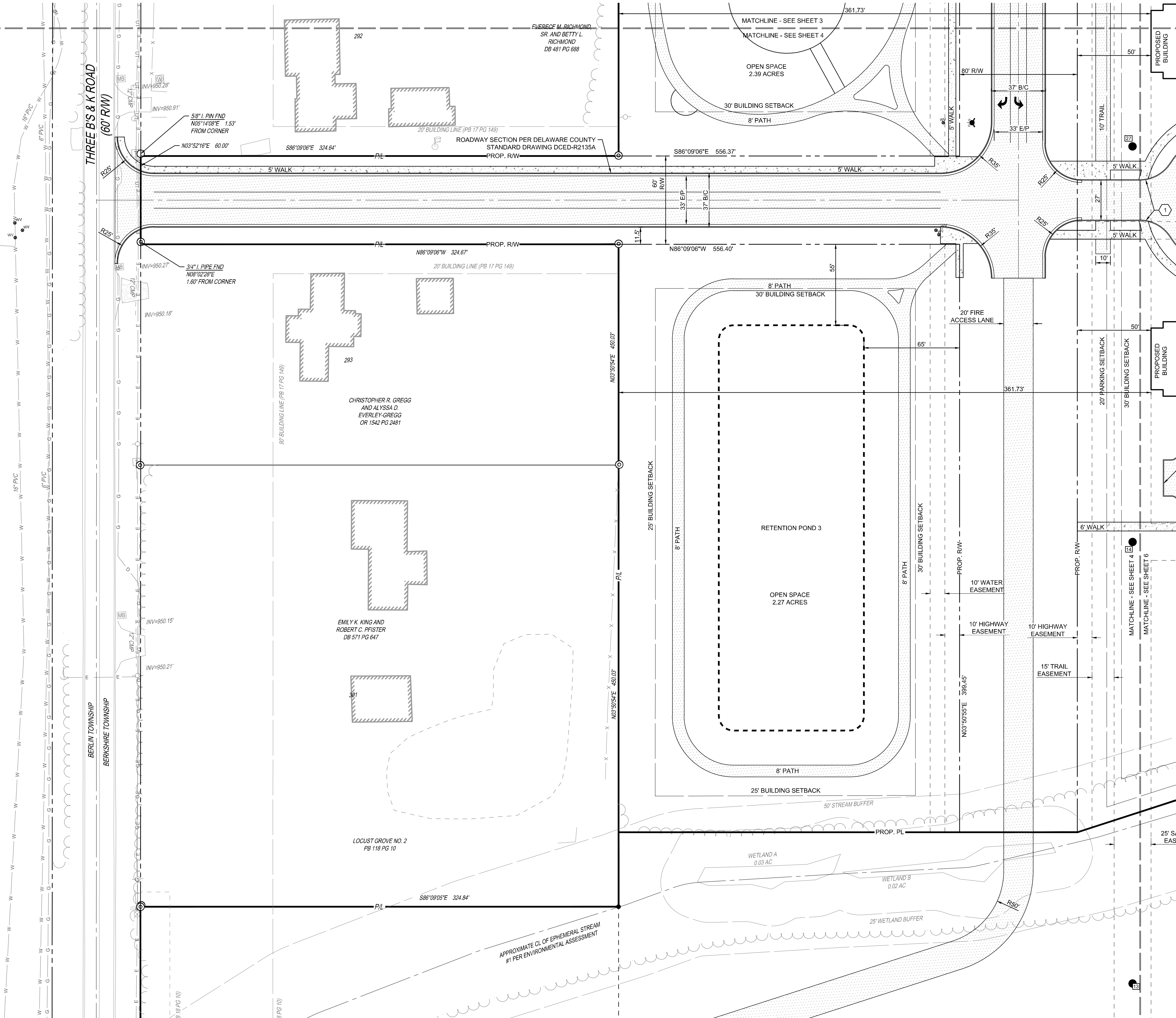
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USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078.000
DATE:	04/23/2021
SCALE:	

SHEET NAME:
LOCATION PLAN

SHEET NO.
3





PROPOSED LEGEND

- CATCH BASIN
- HEADWALL
- MANHOLE
- CURB INLET
- SANITARY MANHOLE
- WATER VALVE
- FIRE HYDRANT
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- PROPOSED PARKING COUNT
- PROPOSED POND

CODED NOTES

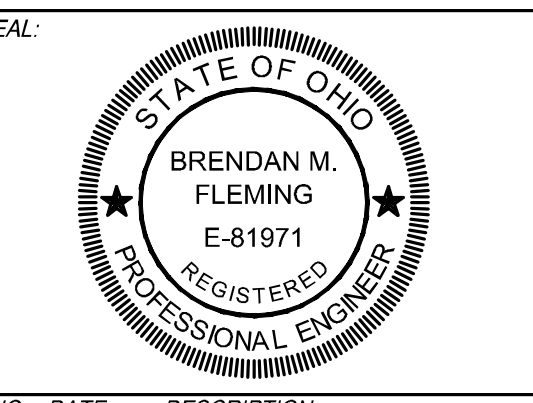
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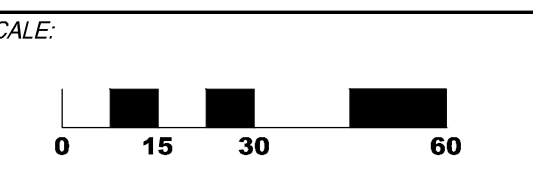
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NO.	DATE	DESCRIPTION

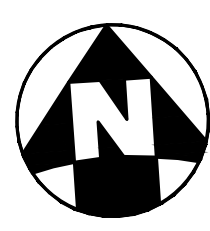
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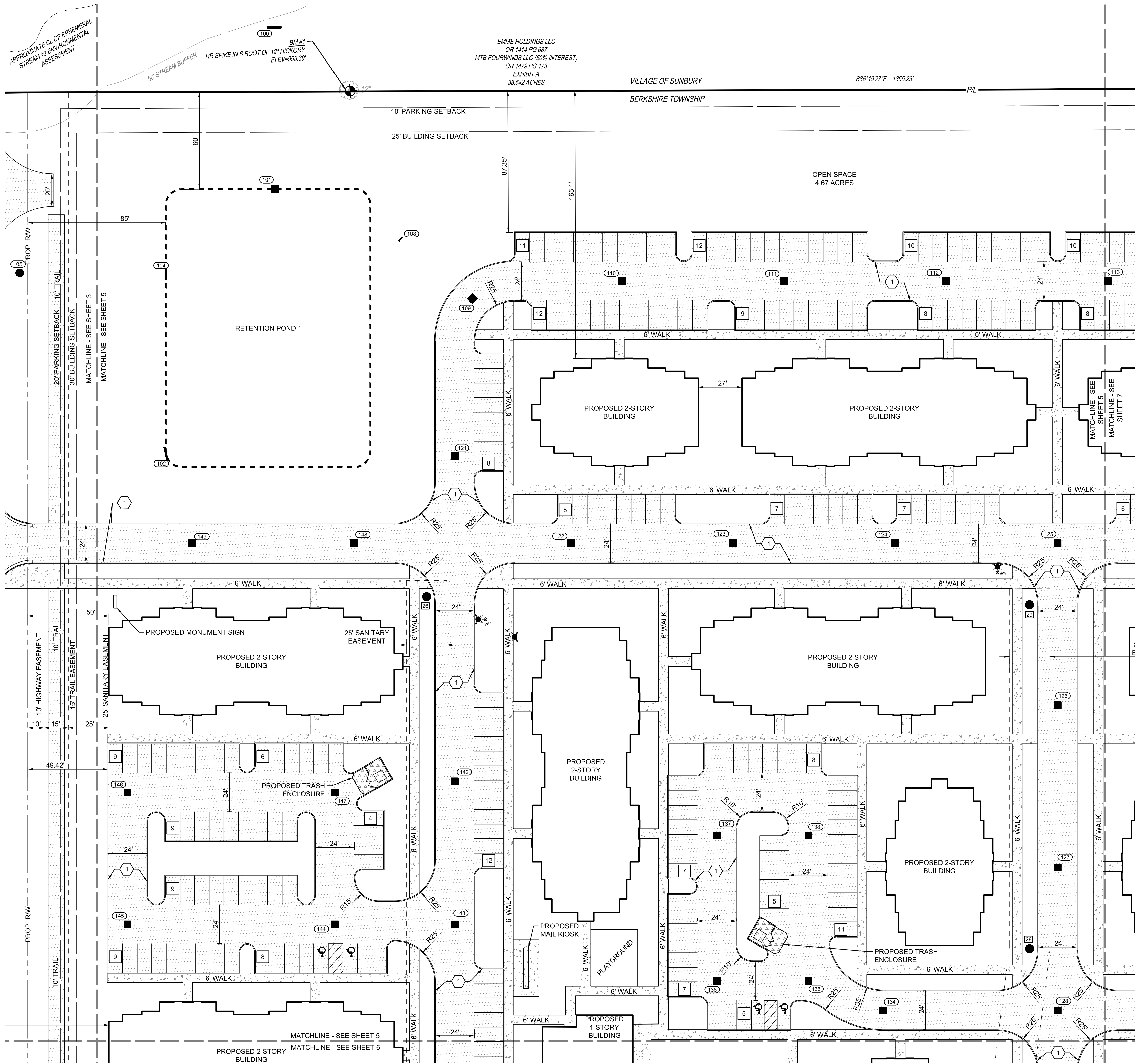
PROJECT NO: 200078.000
 DATE: 04/23/2021



SHEET NAME:
LOCATION PLAN

SHEET NO.
4





PROPOSED LEGEND

- CATCH BASIN
- HEADWALL
- MANHOLE
- CURB INLET
- SANITARY MANHOLE
- WATER VALVE
- FIRE HYDRANT
- ASPHALT PAVEMENT
- CONCRETE WALK
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- PROPOSED PARKING COUNT
- PROPOSED POND

CODED NOTES

- 6' FULL HEIGHT CURB

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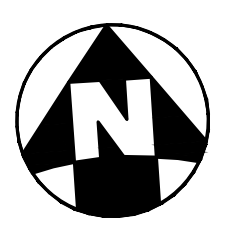
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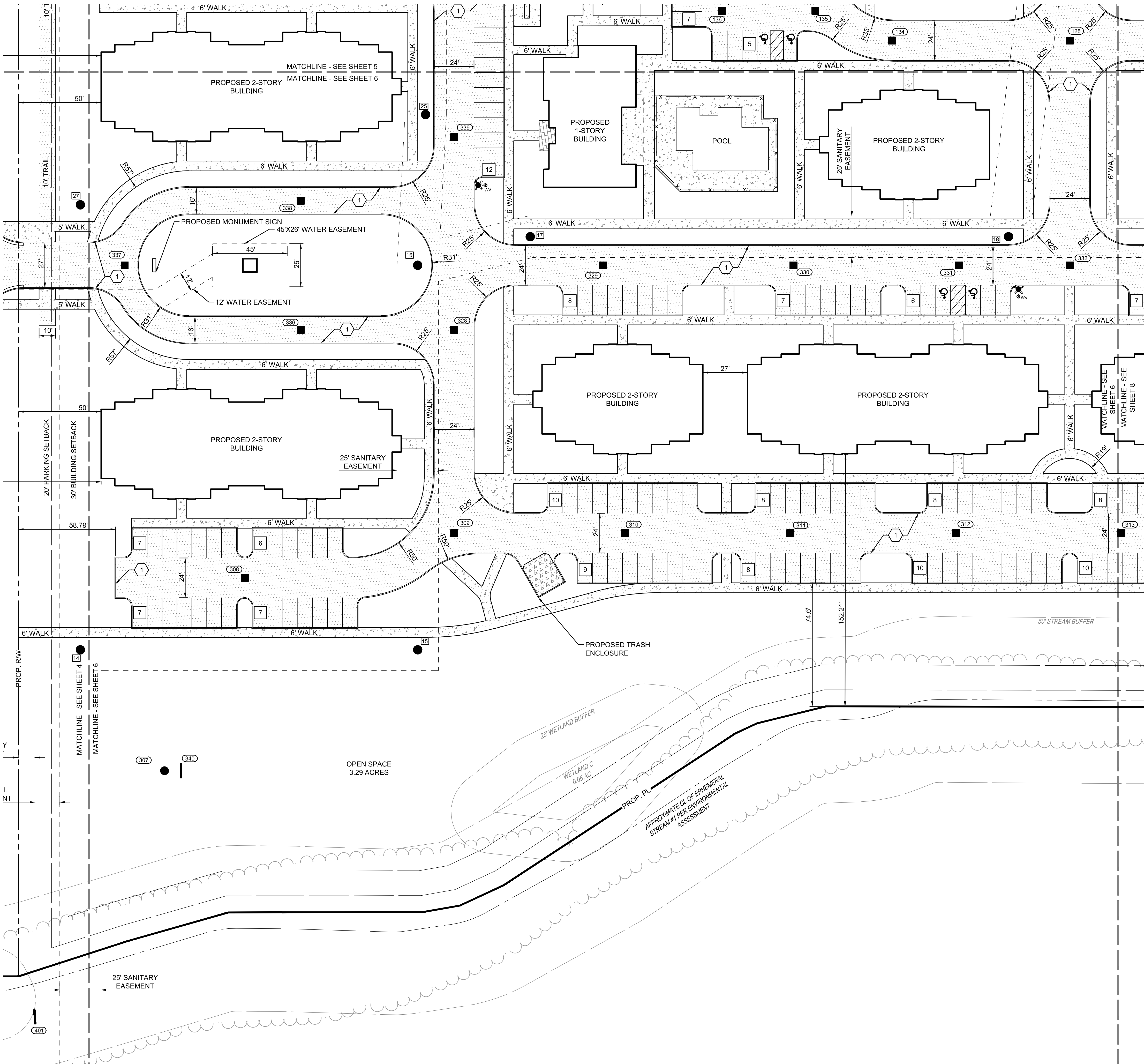
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 COUNTY OF DELAWARE, OHIO

PROJECT NO: 200078_000
 DATE: 04/23/2021
 SCALE:

SHEET NAME:
LOCATION PLAN

SHEET NO.
5





PROPOSED LEGEND

- CATCH BASIN
- HEADWALL
- MANHOLE
- CURB INLET
- SANITARY MANHOLE
- WATER VALVE
- FIRE HYDRANT
- ASPHALT PAVEMENT
- CONCRETE WALK
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CODED NOTES

- 6' FULL HEIGHT CURB

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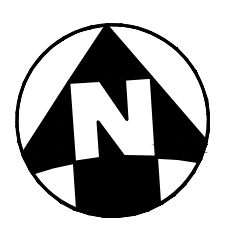
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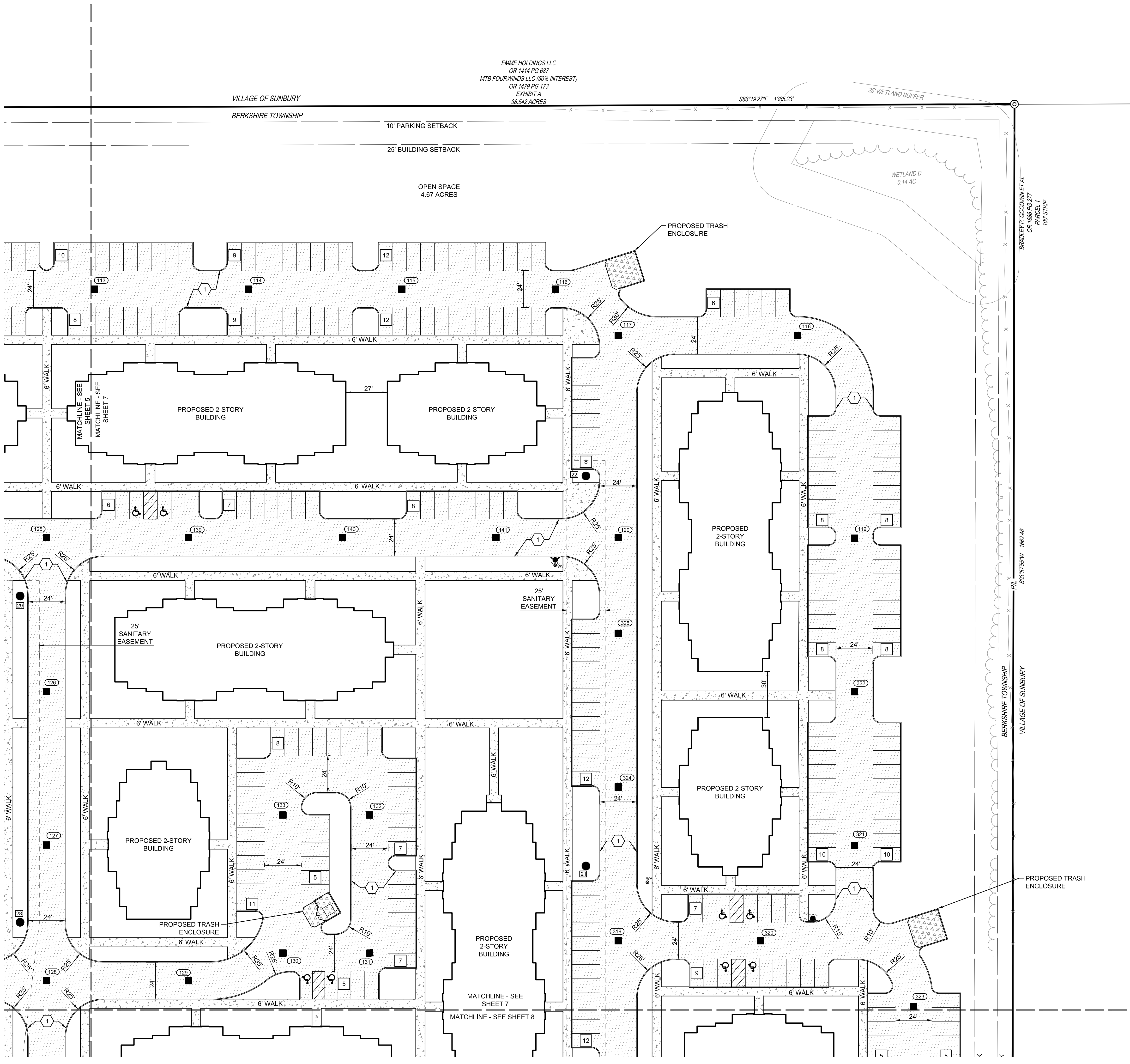
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PROJECT NO: **200078,000**
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SHEET NAME:
LOCATION PLAN

SHEET NO:
6





PROPOSED LEGEND

- CATCH BASIN
- HEADWALL
- MANHOLE
- CURB INLET
- SANITARY MANHOLE
- WATER VALVE
- FIRE HYDRANT
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- PROPOSED POND

CODED NOTES

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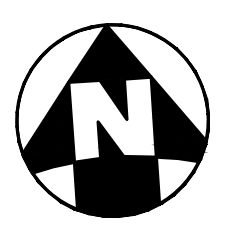
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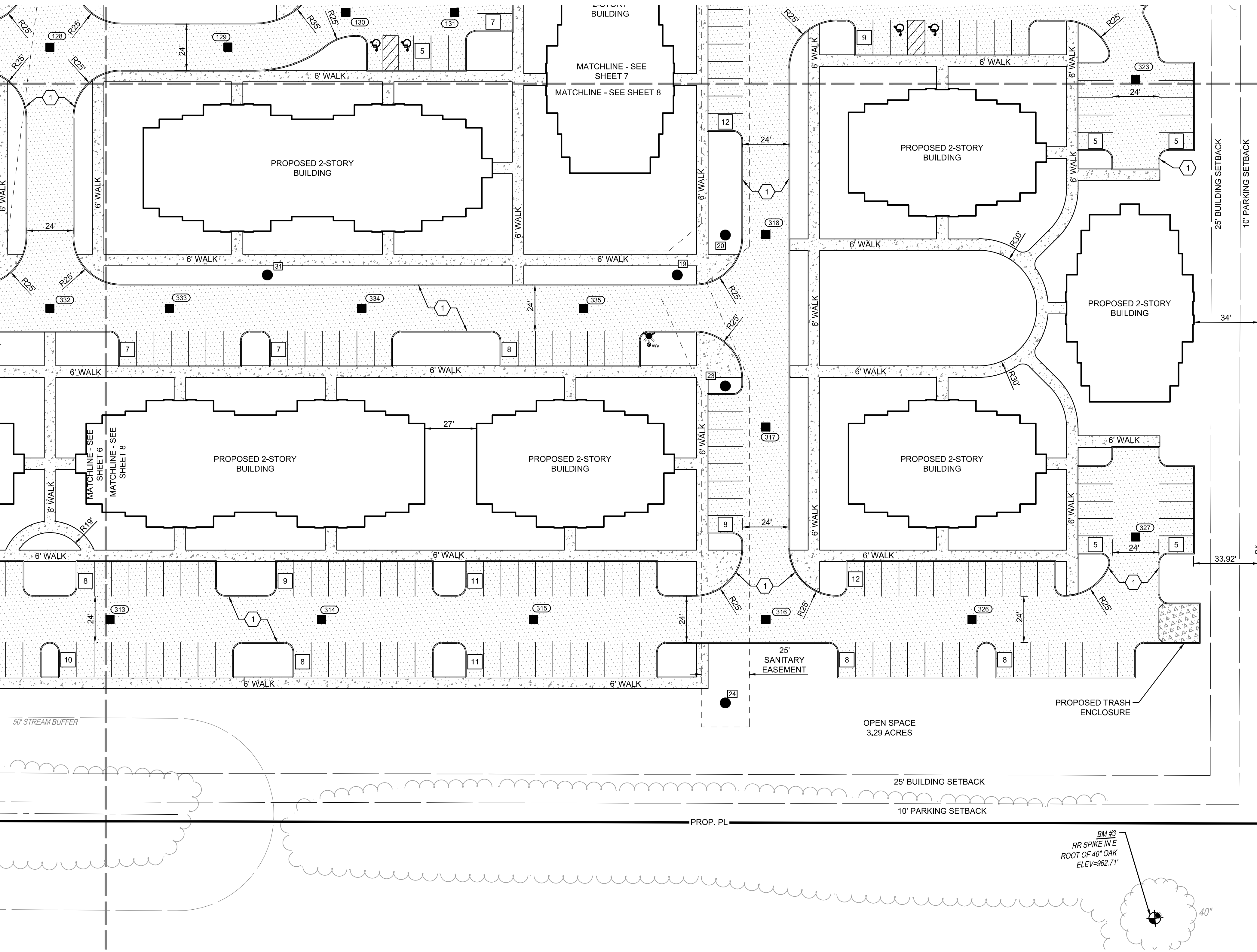
PHOENIX PLACE
 FARM LOT 6, SEC. 2 TWP. 4, R. 18 USML
 TOWNSHIP OF BERKSHIRE
 COUNTY OF DELAWARE, OHIO

PROJECT NO. **200078.000**
 DATE: **04/23/2021**
 SCALE:

SHEET NAME:
LOCATION PLAN

SHEET NO.
7





PROPOSED LEGEND

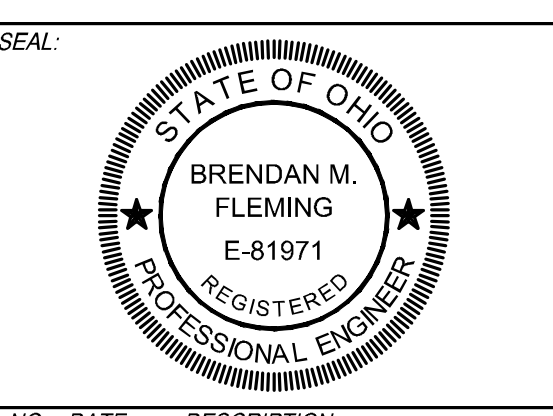
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- FIRE HYDRANT
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- PROPOSED PARKING COUNT
- PROPOSED POND

CODED NOTES

- 6' FULL HEIGHT CURB

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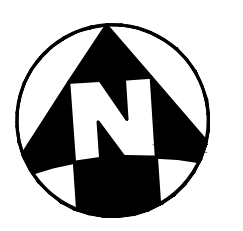
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 COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078,000
DATE:	04/23/2021
SCALE:	

SHEET NAME:
LOCATION PLAN

SHEET NO.
8



16.06.C.9. - Existing zoning restrictions and deed restrictions, if any.

Parcel:	41723001023000
Size	58.341 Acres
Underlying Zoning (Default Zoning)	Planned Commercial and Office District
Overlay District (Subject to Zoning Commission Approval of Development Plan)	Planned Mixed Use District Overlay

As Section 16.02 of the Zoning Resolution says, a property may only be developed as provided by its underlying zoning designation UNLESS the Zoning Commission approves an application from the property owner to submit it to the provisions of the Mixed Use District:

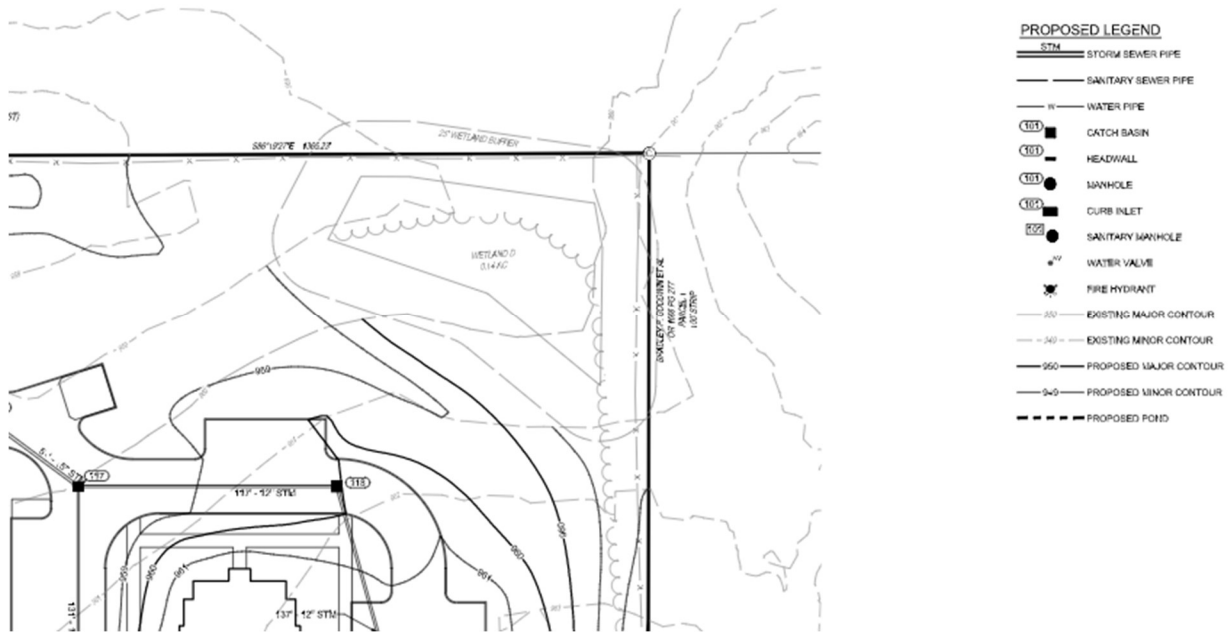
The existing zoning regulations and districts for such area shall continue to apply to all property within the PMUD unless the Berkshire Township Zoning Commission approves an Application of an owner of property to subject the owner's property to the provisions of the PMUD. Such an Application shall be made in accordance with the provisions of Section 16.06 of the Berkshire Township Zoning Resolution and shall include a Development Plan in compliance with the provisions of Section 16.06(C).

Upon receiving such an Application and Development Plan, if the Berkshire Township Zoning Commission determines that the Application and Development Plan comply with the provisions of this Article 16 and approves the Application, the Berkshire Township Zoning Commission shall cause the zoning map to be changed so that the underlying zoning district no longer applies to such property, with the property being thenceforth located in the PMUD and subject to the regulations thereunder.

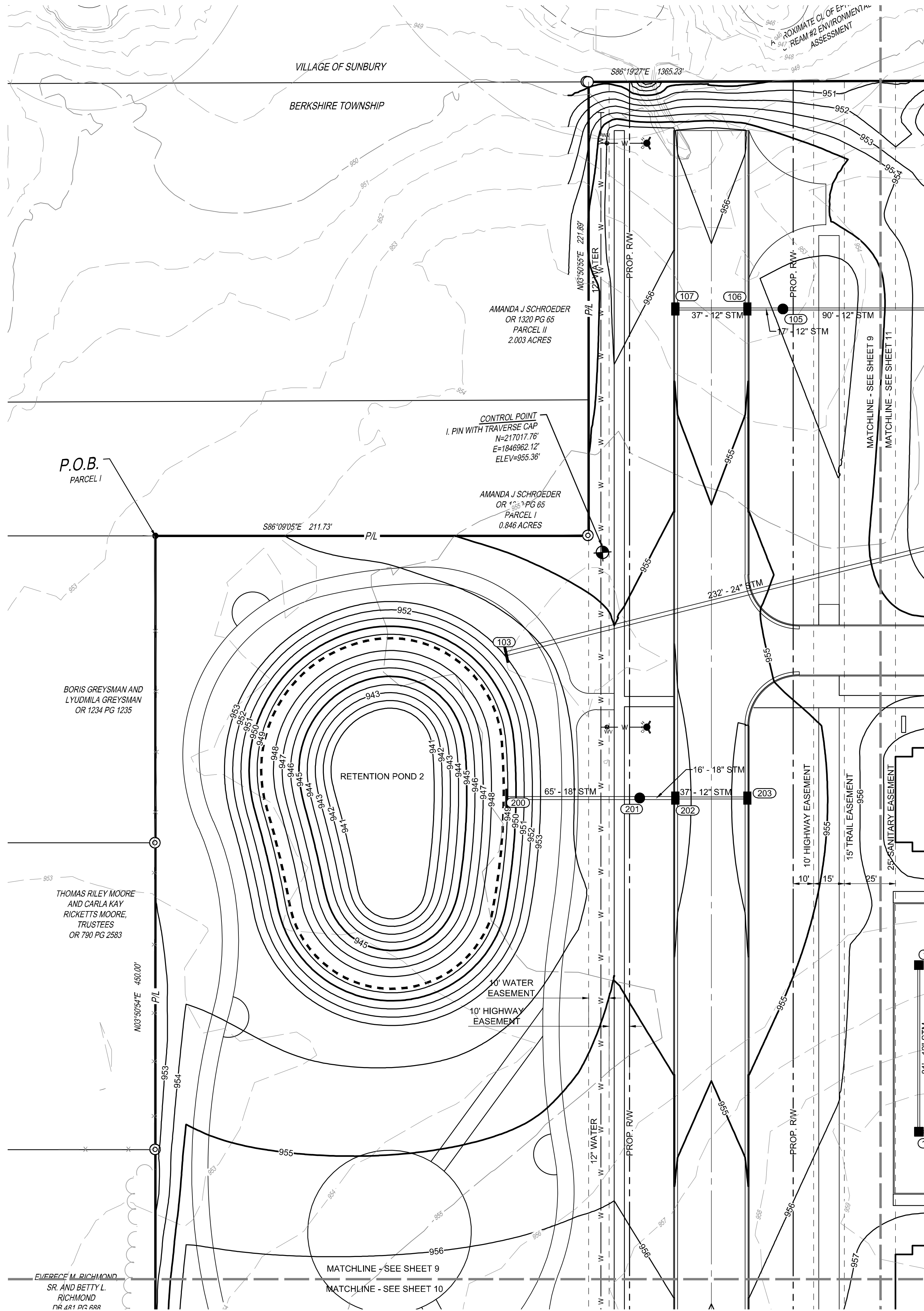
Please accept this letter as a request to pull down the PMUD, which we plan to maintain compliance.

16.06.C.10 - Existing topography, drainage channels, wooded areas, watercourses, wetlands and other significant physical features.

a. Please See Sheets 9-14 of The Printed Engineering Plan (Kleingers) – Grading and Utility Plan. Below is a sample showing the northwest corner of our lot showing one area of wetlands, with the 25’ setback.



b. Please see the attached wetlands study that indicates the wetlands that were identified are not large enough to warrant the more stringent permitting process from USACE. We also don't plan to build any buildings on any of the identified areas, so the wetland mitigation measures aren't applicable to this project. Our second fire access road will cross one wetland on the southern portion of the land, though it's not a large enough acreage to require USACE review. The permitting process for this will be completed along with our construction permits.



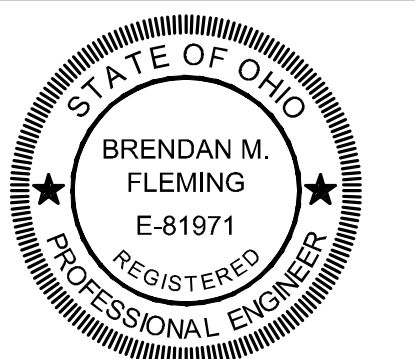
PROPOSED LEGEND

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- PROPOSED POND



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SEAL:



NO. DATE DESCRIPTION

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 FARM LOT 6, SEC. 2 TWP. 4, R. 18
 USML
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 COUNTY OF DELAWARE, OHIO

PROJECT NO. 200078.000

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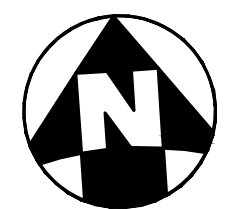


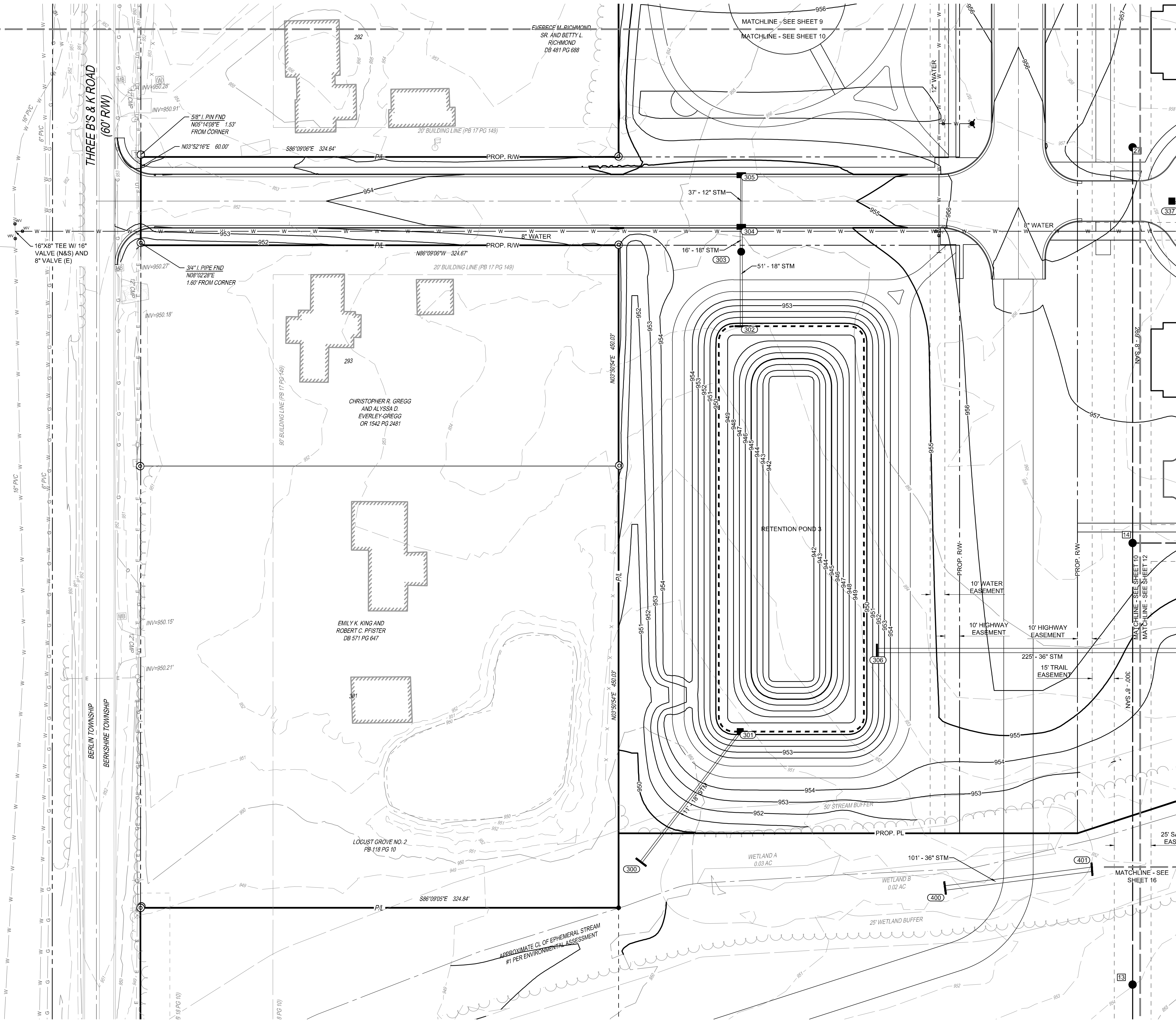
SHEET NAME:

GRADING AND UTILITY PLAN

SHEET NO.

9





- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
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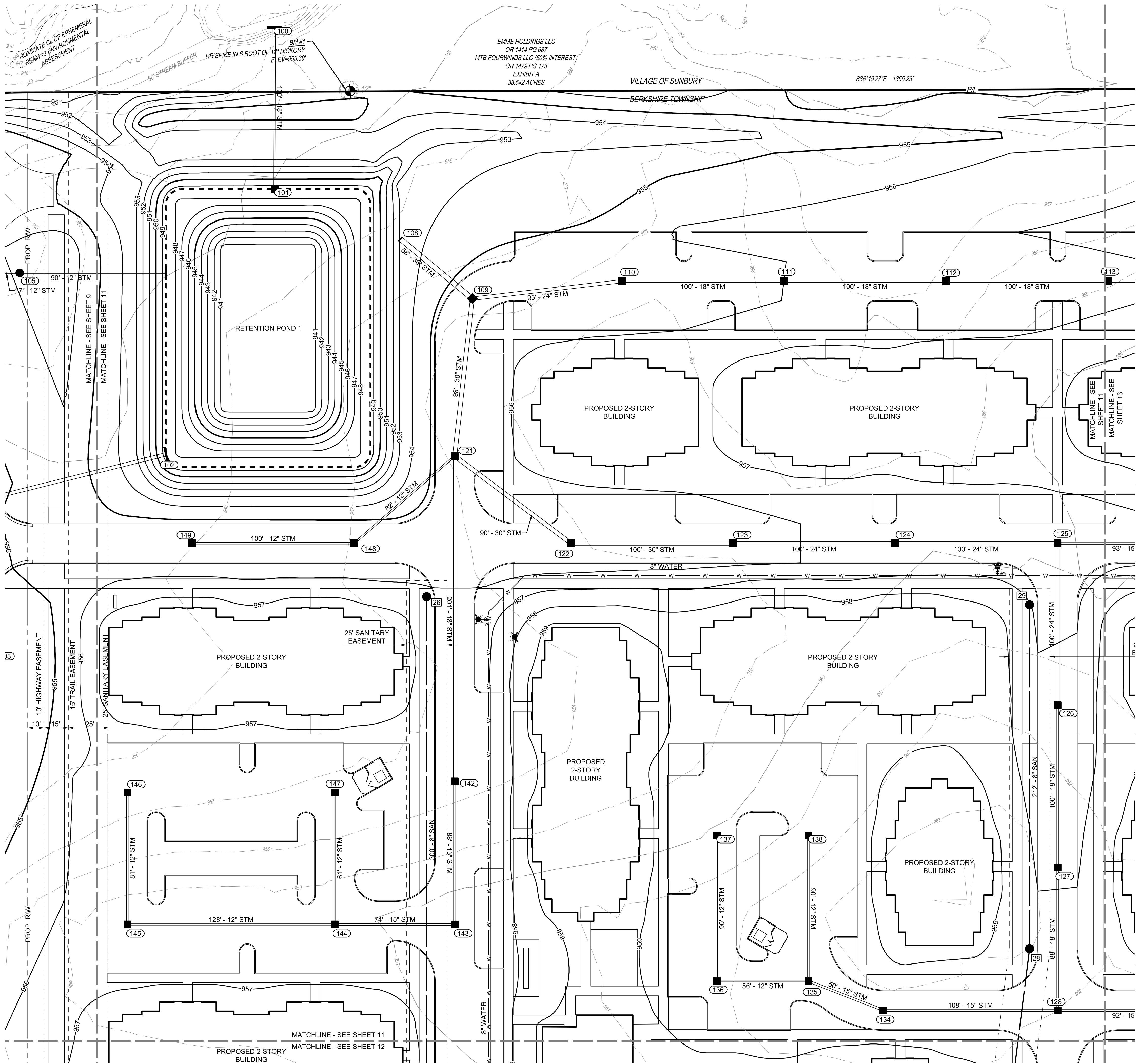
NO.	DATE	DESCRIPTION

PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078,000
DATE	04/23/2021
SCALE:	

SHEET NAME:
GRADING AND UTILITY PLAN

SHEET NO.
10



- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP
 CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
 www.kleingers.com
 350 Worthington Rd
 Suite B
 Westerville, OH 43082
 614.882.4311

SEAL:

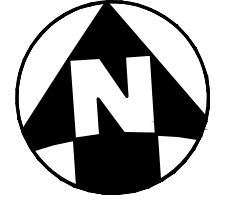
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 TOWNSHIP OF BERKSHIRE
 COUNTY OF DELAWARE, OHIO

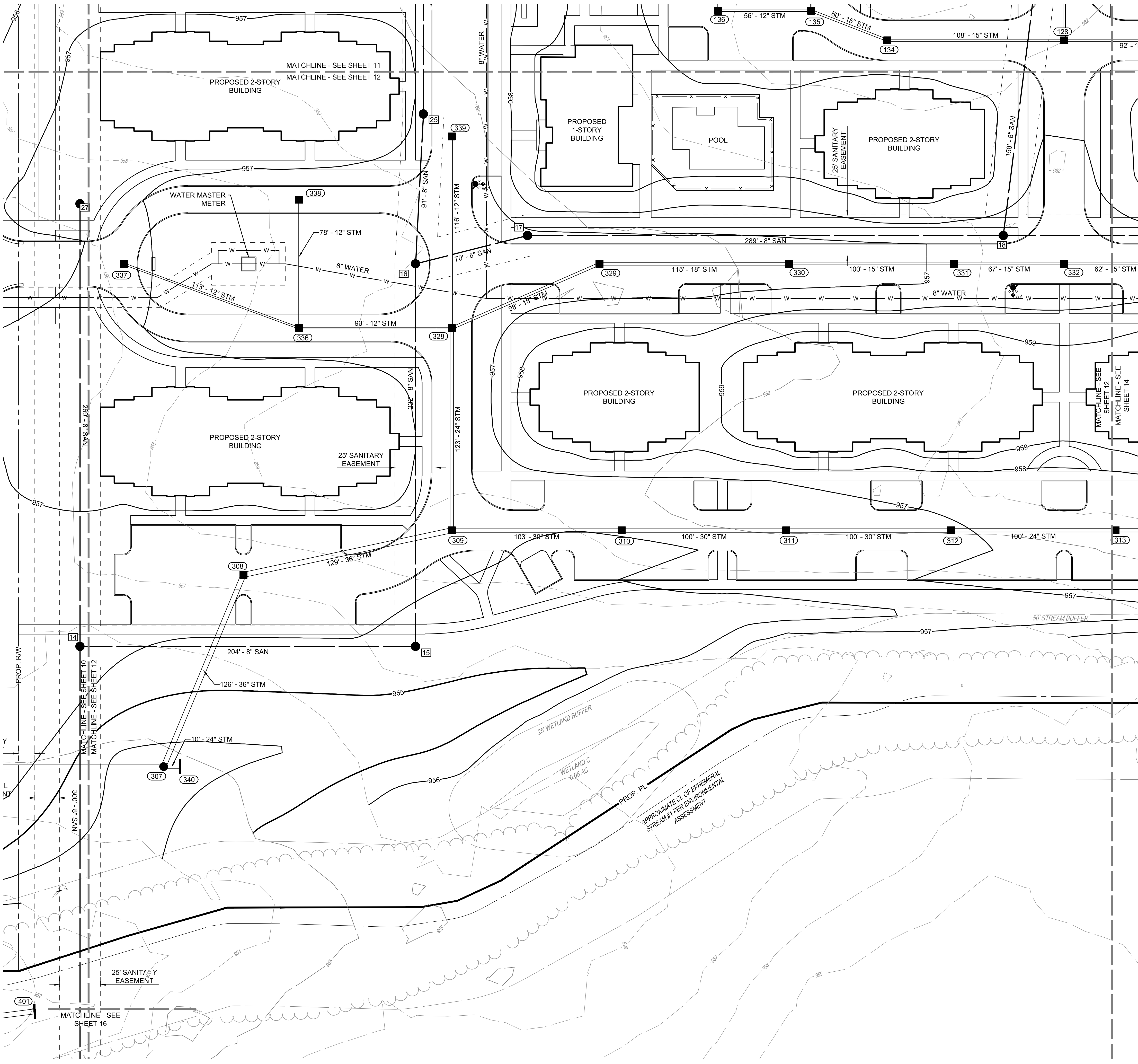
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11



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- PROPOSED LEGEND**
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 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FD FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
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614.882.4311

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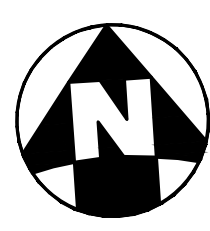
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FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

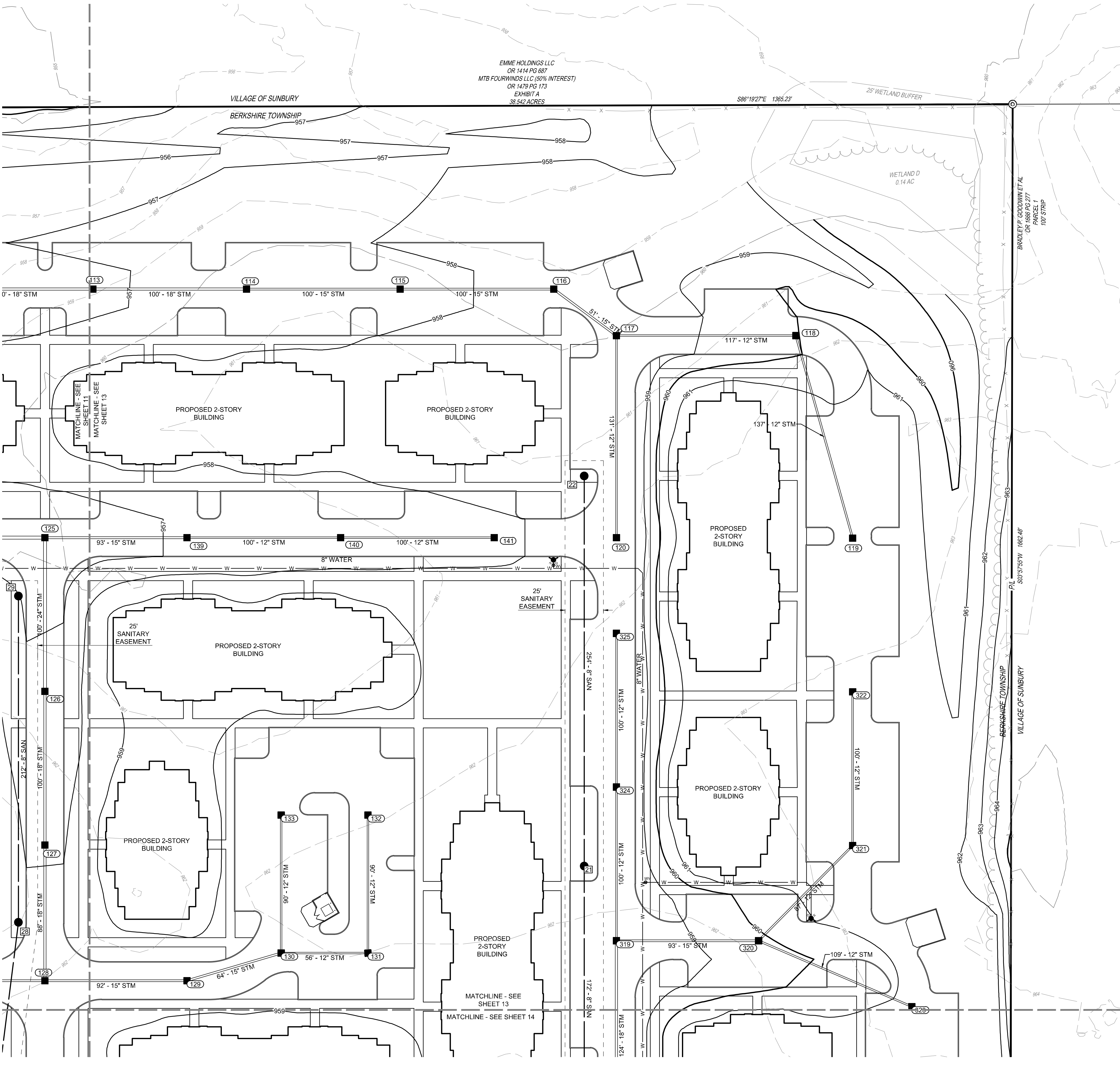
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- PROPOSED LEGEND**
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 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FH FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

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350 Worthington Rd
Suite B
Westerville, OH 43082
614.882.4311

SEAL:

BRENDAN M. FLEMING
E-81971
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION

PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18 USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078.000
DATE	04/23/2021
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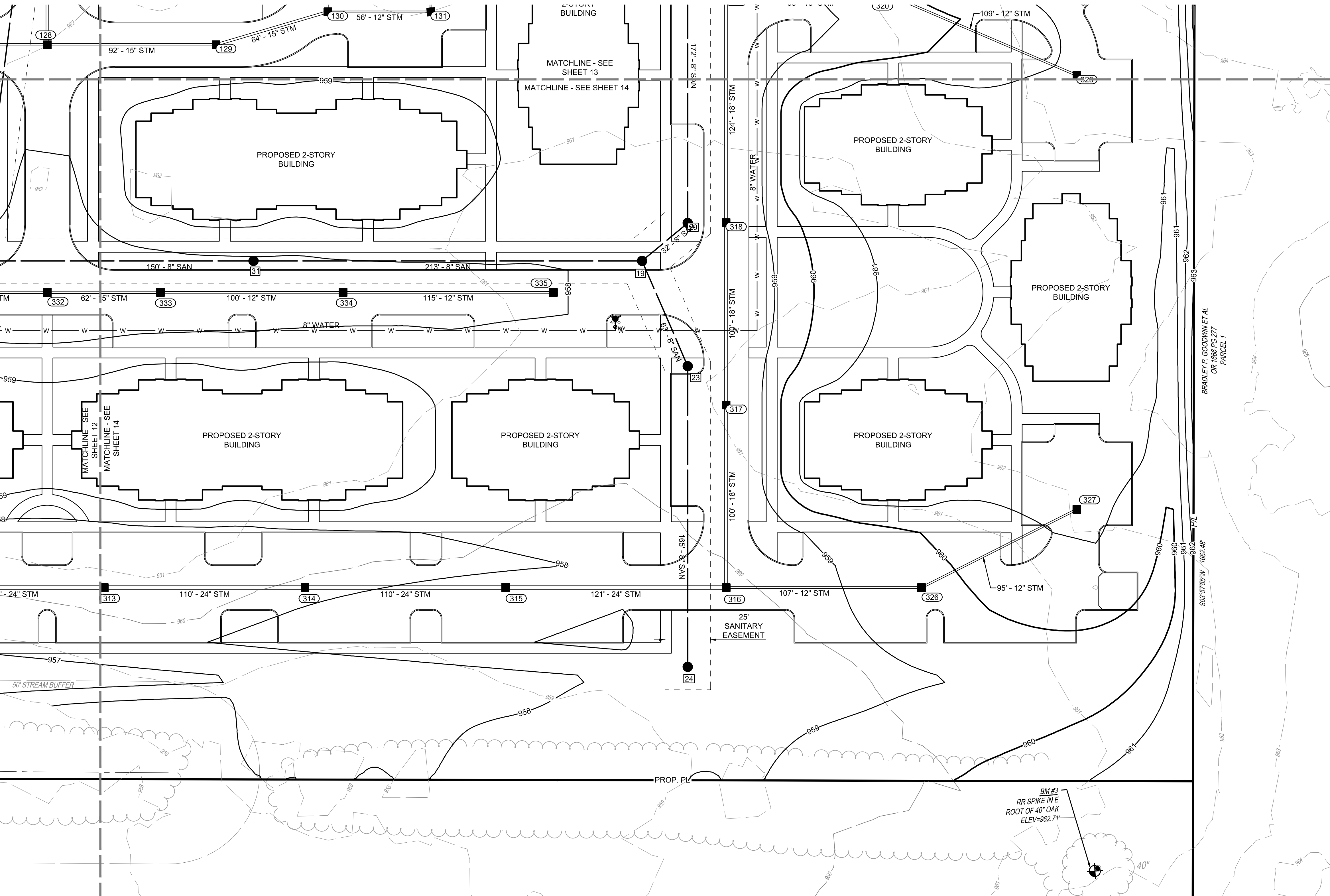
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INSPIRED PEOPLE > CREATIVE DESIGN > TRANSFORMING COMMUNITIES



- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - W WATER PIPE
 - 101 CATCH BASIN
 - 101 HEADWALL
 - 101 MANHOLE
 - 101 CURB INLET
 - 101 SANITARY MANHOLE
 - WV WATER VALVE
 - FW FIRE HYDRANT
 - 950 EXISTING MAJOR CONTOUR
 - 949 EXISTING MINOR CONTOUR
 - 950 PROPOSED MAJOR CONTOUR
 - 949 PROPOSED MINOR CONTOUR
 - PROPOSED POND

THE KLEINGERS GROUP

CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE

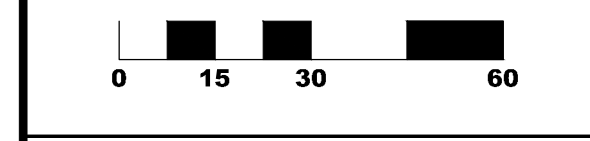
www.kleingers.com
350 Worthington Rd
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614.882.4311

SEAL:

NO.	DATE	DESCRIPTION

PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO: 200078.000
DATE: 04/23/2021
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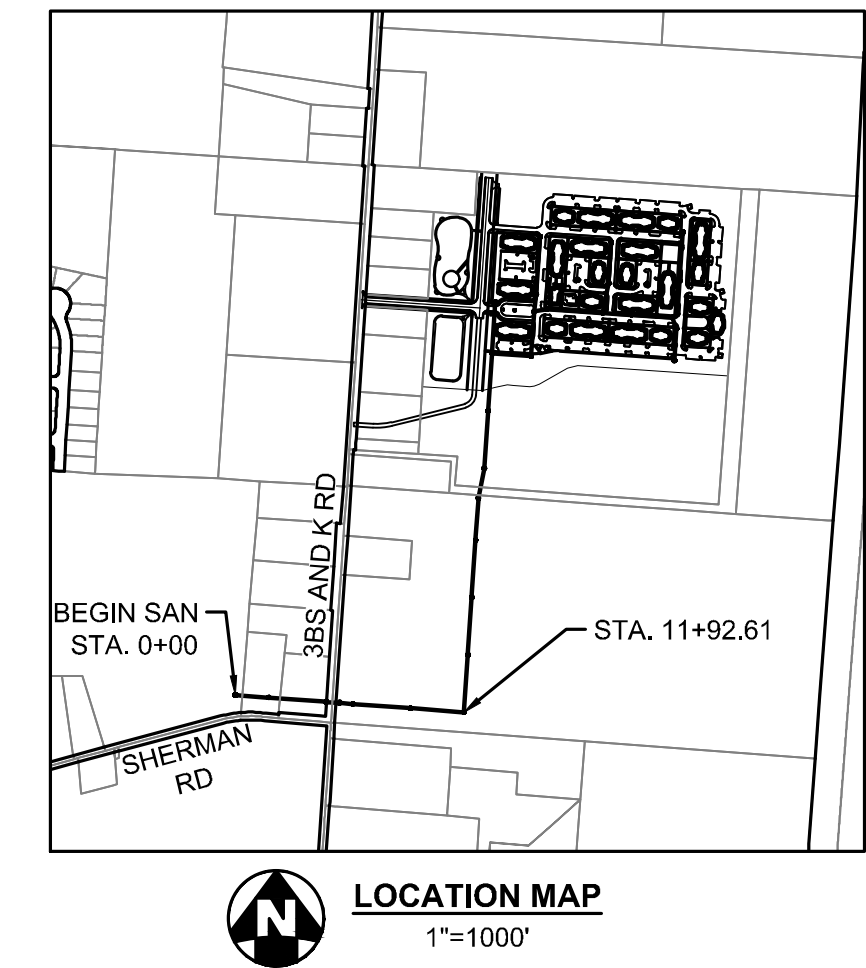
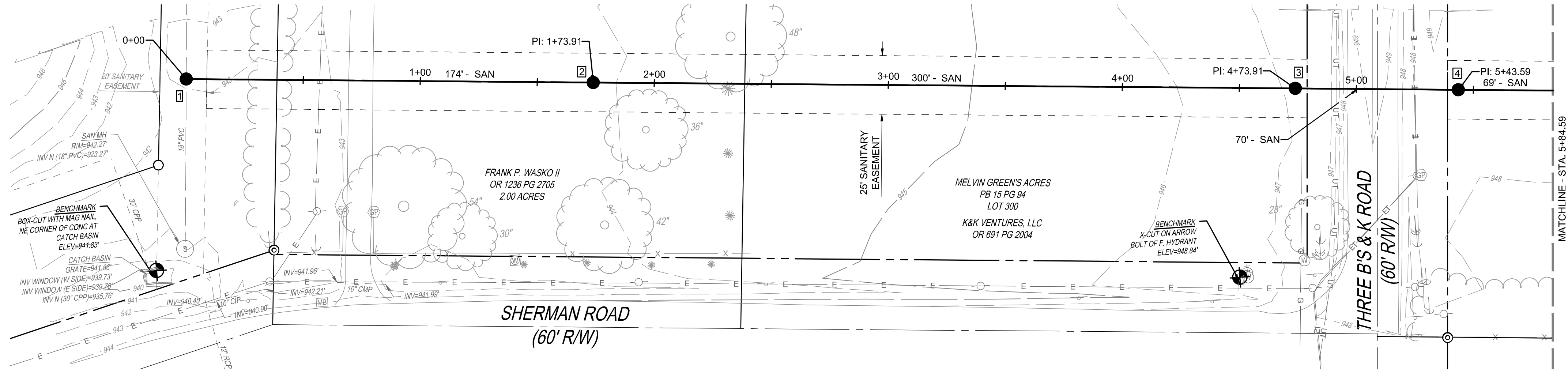


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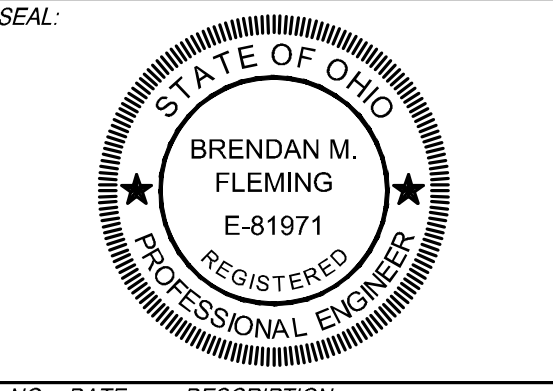
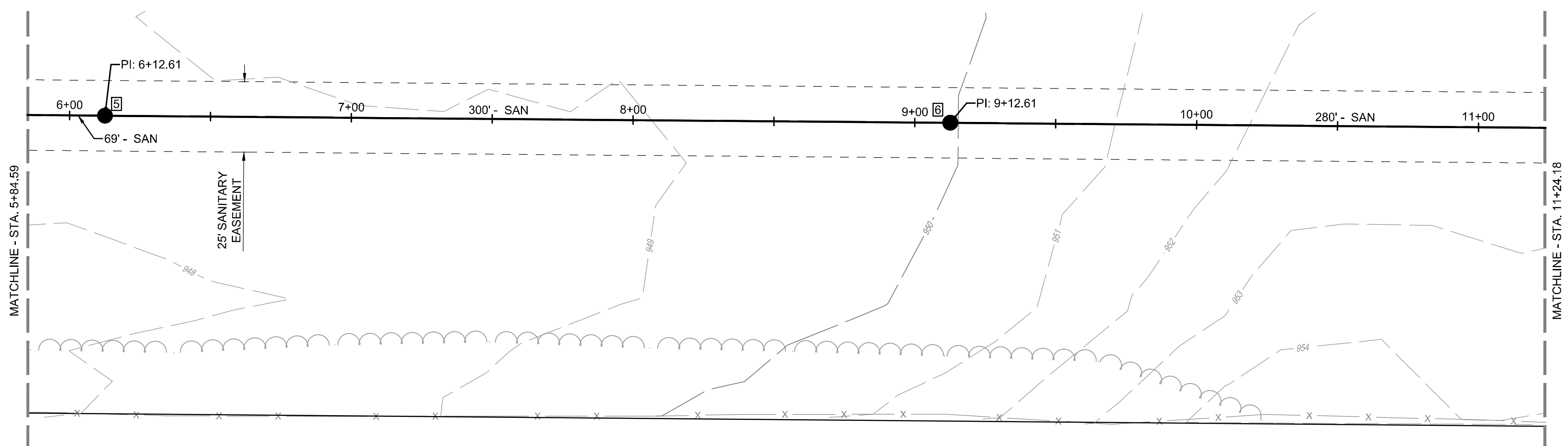
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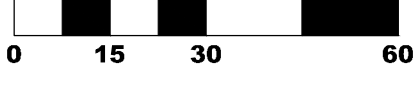


- PROPOSED LEGEND**
- STM STORM SEWER PIPE
 - SANITARY SEWER PIPE
 - w WATER PIPE
 - (101) CATCH BASIN
 - (101) HEADWALL
 - (101) MANHOLE
 - (101) CURB INLET
 - (101) SANITARY MANHOLE
 - ^w WATER VALVE
 - FIRE HYDRANT
 - 950- EXISTING MAJOR CONTOUR
 - 949- EXISTING MINOR CONTOUR
 - 950- PROPOSED MAJOR CONTOUR
 - 949- PROPOSED MINOR CONTOUR
 - - - PROPOSED POND
 - - - GRADING LIMITS
 - ~ SWALE ARROW
 - ← FLOOD ROUTE



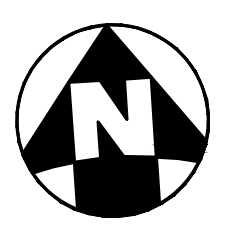
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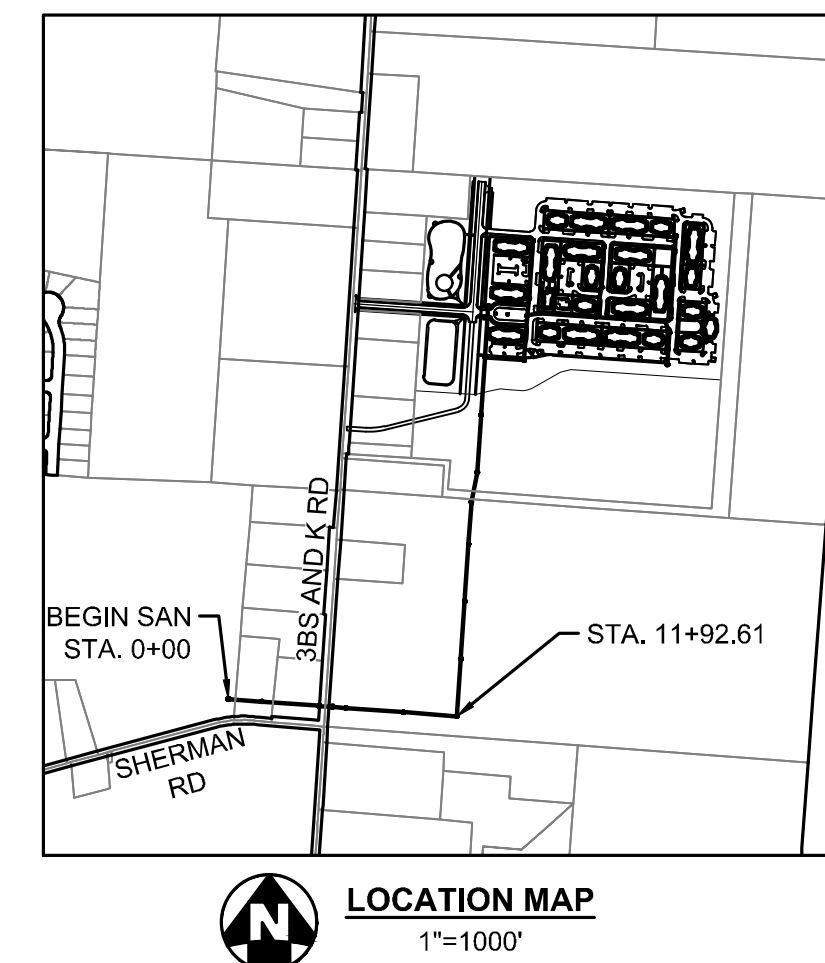
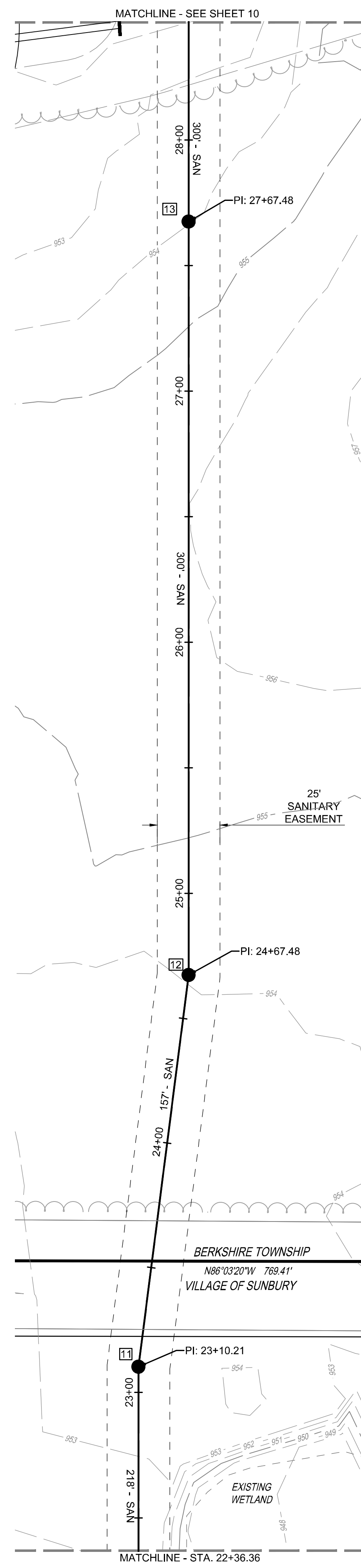
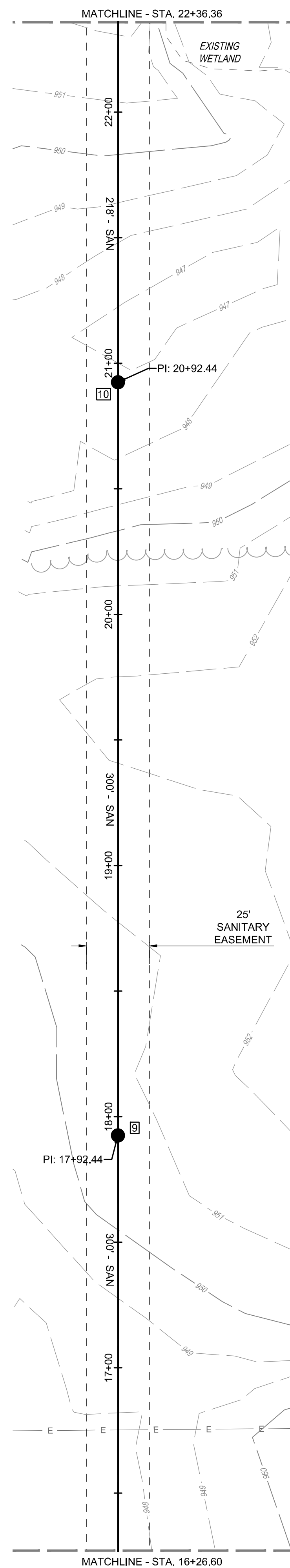
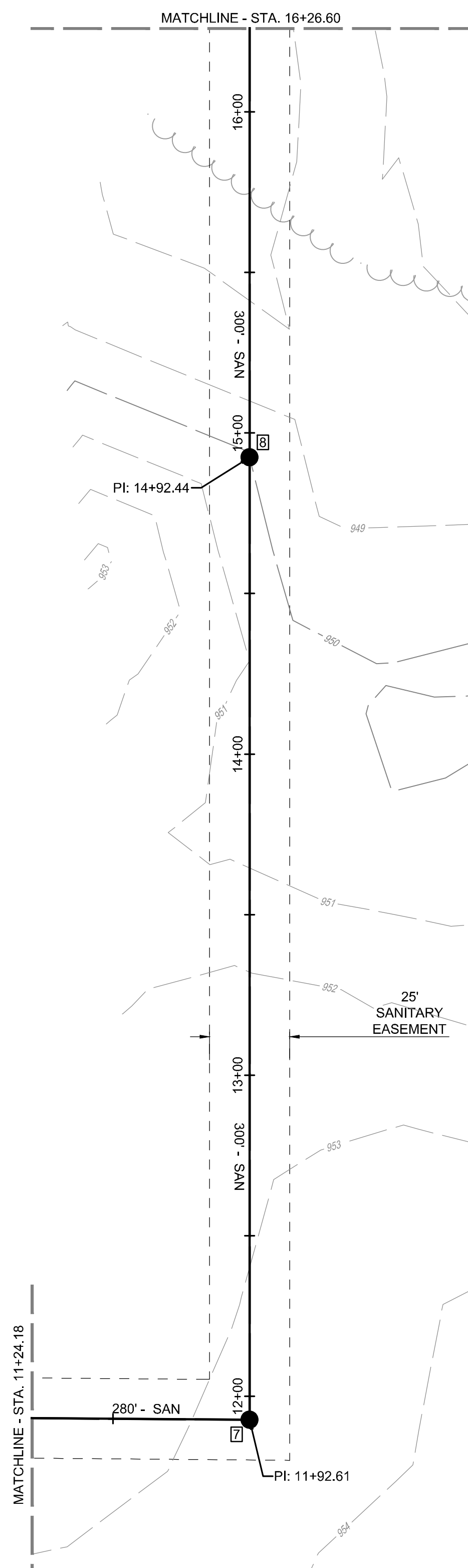
PHOENIX PLACE
 FARM LOT 6, SEC. 2 TWP. 4, R. 18
 USML
 TOWNSHIP OF BERKSHIRE
 COUNTY OF DELAWARE, OHIO

PROJECT NO: 200078,000
 DATE: 04/23/2021
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


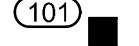
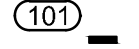


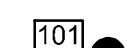


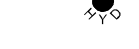
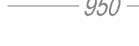
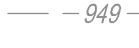
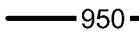
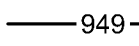



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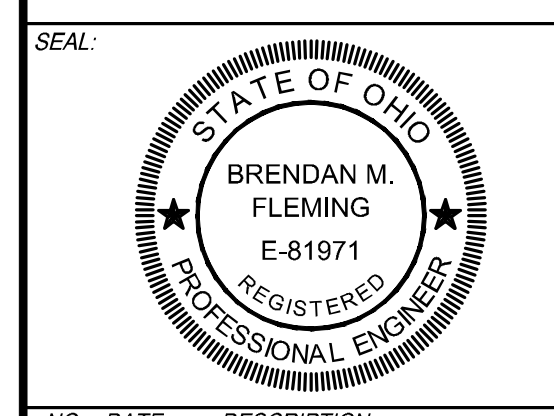
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15





PROPOSED LEGEND

-  STM STORM SEWER PIPE
-  SANITARY SEWER PIPE
-  WATER PIPE
-  CATCH BASIN
-  HEADWALL
-  MANHOLE
-  CURB INLET
-  SANITARY MANHOLE
-  WATER VALVE
-  FIRE HYDRANT
-  EXISTING MAJOR CONTOUR
-  EXISTING MINOR CONTOUR
-  PROPOSED MAJOR CONTOUR
-  PROPOSED MINOR CONTOUR
-  PROPOSED POND
-  GRADING LIMITS
-  SWALE ARROW
-  FLOOD ROUTE



NO.	DATE	DESCRIPTION

PHOENIX PLACE
FARM LOT 6, SEC. 2 TWP. 4, R. 18
USML
TOWNSHIP OF BERKSHIRE
COUNTY OF DELAWARE, OHIO

PROJECT NO.	200078_000
DATE:	04/23/2021
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**SANITARY
EXTENSION STA.
11+24.18 TO
28+46.79**

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16

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**JURISDICTIONAL WATERS
(WETLAND) DELINEATION REPORT**

OF

60-Acre Property
3B's and K Road
Galena, Delaware County, Ohio

A handwritten signature in black ink that reads "Paul Bowyer".

PAUL D. BOWYER, CPG
PROJECT MANAGER

PREPARED BY

Professional Service Industries, Inc.
5555 Canal Road
Cleveland, Ohio 44125

OCTOBER 29, 2020

PSI PROJECT No. 01373013

ANDREW PEIKEN
PRINCIPAL CONSULTANT

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- Figure 2. Jurisdictional Waters Boundary Delineation Map
- Figure 3. National Wetland Inventory Maps
- Figure 4. USDA NRCS Soil Maps

APPENDIX B – PROPERTY PHOTOGRAPHS

APPENDIX C – WETLAND/UPLAND DETERMINATION DATA FORMS

INTRODUCTION

The following Jurisdictional Waters (Wetland) Delineation Report was prepared for an approximately 60-acre study area, located east of 3B's and K Road, in Galena Twp, Delaware County Ohio (Figure 1). The delineation was performed in general accordance with the scope and limitations of the 1987 *United States Army Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the North Central and Northeast Regional Supplement.

For the purposes of this report, the term "wetlands" is used to refer to areas that meet the United States Army Corps of Engineers (USACE) wetland definition without regard to being jurisdictional or isolated.

OBJECTIVE OF WETLAND DELINEATION

The purpose of this delineation was to determine the total amount (acres) of USACE and State of Ohio wetlands and/or linear footage of jurisdictional stream that occurs on the subject property (study area). PSI examined on-site soil, vegetation, hydrology, and reviewed United States Geological Survey (USGS) topographic maps, National Wetland Inventory (NWI) maps, aerial photographs and the Delaware County Soil Survey.

DESCRIPTION OF THE PROPERTY (STUDY AREA)

The study area consisted of the 60-acres of active agricultural land (soy beans) with several wooded field divider areas (narrow wooded corridors), and a narrow wooded area along the east side of the property. A map showing the property boundaries, location of the delineated wetlands and data points is attached as Figure 2.

DATA COLLECTION METHODOLOGY

Paul Bowyer of PSI conducted the delineation of the parcel on October 22, 2020. The distribution of distinctive vegetative communities, combined with topographic and hydrologic data, was used to determine that four (4) wetland areas are present on the property. The wetland areas were photographed to provide the client, and potentially the USACE and/or Ohio EPA with visual information regarding the wetland and stream characteristics, as necessary (Appendix B).

PSI delineated wetlands of the US and/or State in accordance with the US Army Corps of Engineers 1987 Manual and regional supplement using the routine determination method. PSI established wetland boundaries using field measurements. PSI completed Northcentral and Northeast Regional Supplement Wetland Determination Data Forms at locations representing typical plant communities as needed. If applicable, plant communities, soils, and hydrological information were documented at an upland and wetland location at the delineated wetland perimeter at each of the data points.

Points within the study area were examined in accordance with the procedures set forth in the 1987 Manual and regional supplement. The upper soil profile was probed, and samples were examined to determine the soil's consistency, color, and moisture content. The soil color, value and chroma, as well as consistency, were used to characterize sampled soils. The soil moisture condition was used to determine the potential saturation or other wetland

hydrology characteristics. Random soil probe samples were taken to a depth of approximately 24 inches or refusal, whichever depth was shallower. Data collection points were recorded within the study area, including upland points.

After the field inspection was completed, the following sources were consulted to prepare the report:

- The List of Hydric Soils (National Resource Conservation Service (NRCS 2007)
- The National List of Plant Species that Occur in Wetlands: 1988 National Summary (Reed)
- The Soil Survey of Delaware County, Ohio
- USDA/NRCS PLANTS database, <http://plants.usda.gov/>

Detailed results of the delineation, including specific species of plants, hydrologic indicators and soil characteristics, can be found on the Wetland Determination Data Forms (attached).

One data form was completed for each of the data point locations. Random soil probes were taken to define the upland/wetland boundaries as well as at the documented data point locations. The vicinities of the data points were photographed with wetland characteristics visible. The completed data forms are attached in the appendix of this report. The locations of the data points are shown on Figure 2.

HYDROPHYTIC VEGETATION

Hydrophytic vegetation is typically found in wetland areas. At the subject site, the wetlands were characterized by the presence of hydrophytic emergent species in a former agricultural field setting. The hydrophytic species observed were dominant in the plant community and were growing within hydric soils. The indicator status of each plant species assigned is a measure of how often a species is located in a typical community area. Hydrophytic species do survive and grow in upland areas.

Generally, the status of each plant species is recorded on a data form with the estimated absolute cover percentage to determine if wetland status species are considered dominant for the community. Species prevalence was also determined based on the percentage cover of each species within the plot area.

The number of dominant species within a community with a status of OBL, FACW, or FAC are recorded and divided by the number of dominant species across all strata. If the quotient is more than 50%, the dominance test indicates a wetland community.

The total estimated cover percentage of each species' indicator status is recorded and multiplied by a constant to determine the total prevalence index. If the sum of the prevalence indices is less than or equal to 3.0, the plot area is within a wetland community.

The wetlands present within the study area met the 'Hydrophytic Vegetation' criteria and passed both the Rapid Test for Hydrophytic Vegetation and the Dominance Test. In some instances, a wetland area can be characterized by the lack of vegetation, in contrast to its surroundings.

HYDRIC SOILS

A soil map and description of the soil acronyms are included in the figures section of the Appendix. According to soil probes taken within the study area, hydric soils were present within the wetlands on the property.

The Delaware County soil survey map indicated that the soils mapped on the property consist primarily of the Bennington silt loam, Cardington silt loam, and Pewamo silty clay loam. The Pewamo silty clay loam is listed as a primary hydric soil type; additionally, the area mapped with this soil type generally aligns with were the majority of the site wetlands were observed. The soil map is appended.

NATIONAL WETLAND INVENTORY MAP (NWI)

The National Wetlands Inventory (NWI) map does not show wetland areas on the property. The map does indicate a stream in the location of the ephemeral channel identified by PSI. The NWI map is appended.

HYDROLOGIC CONDITIONS

Hydrology is a dynamic characteristic in wetlands and is often not present during periods of minimal seasonal precipitation. Indirect indicators are used to determine if wetland hydrology such as extended saturation or ponding has been present during the growing season. Examples of indirect hydrology indicators include water staining, flow patterns, buttressing of trees, and moss growth on trees near the ground surface. Water staining in leaves occurs when they are saturated or inundated for extended periods, causing the tannins or brown coloring in the leaves to leach out, leaving a grayish hue to the leaves. Mosses tend to colonize on trees in wet, damp wooded areas.

Evidence of extended soil saturation was observed at the wetlands mapped on the subject property. Observed hydrologic evidence included soil saturation at the time of the site visit. Limited shallow inundation may occur in the wetlands mapped in the spring.

DELINEATION INVESTIGATION RESULTS

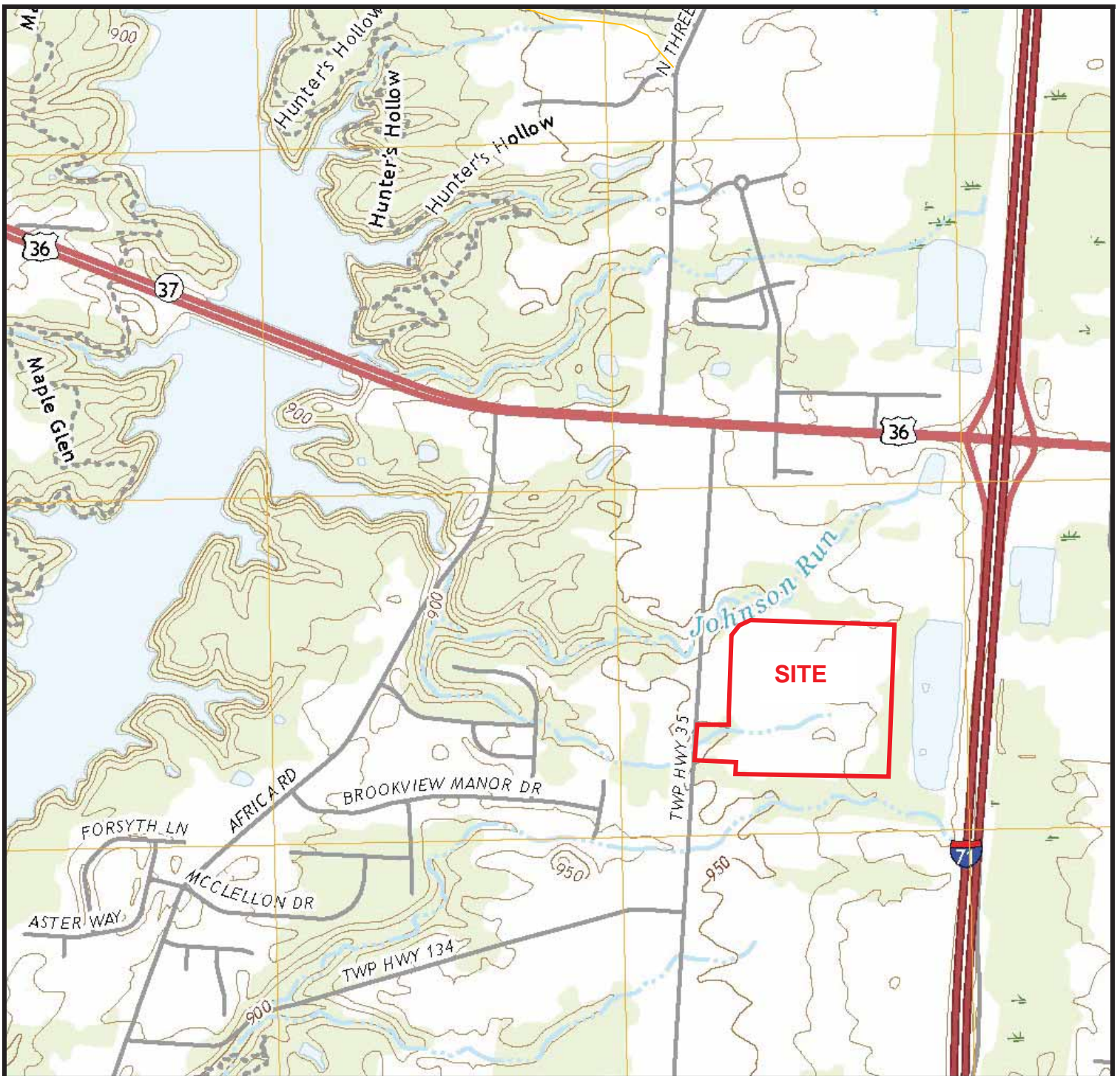
PSI performed a jurisdictional waters delineation on the 60-acre property. The purpose of the delineations was to determine the extent of wetland acreage or other jurisdictional waters currently present within the study areas. **Four (4) wetlands, totaling approximately 0.23 acres** within the study area was delineated and designated Wetlands A through D. The size and location of the delineated wetlands are shown on Figure 2. One ephemeral stream was also identified on the property, flowing within the southern tree-line between the two fields. The following table summarizes the waters identified.

Table 1. Summary of Jurisdictional Waters

Name	Size	Notes
Wetland A	0.03 acres	Emergent wetland along ephemeral channel
Wetland B	0.02 acres	Emergent wetland along ephemeral channel
Wetland C	0.05 acres	Emergent wetland at edge of ag field
Wetland D	0.13 acres	Emergent wetland at corner of ag field
Stream #1	~ 1400 LF	Ephemeral channel (poorly defined in some areas)

The wetlands identified by PSI on this property are located either immediately on or near two ephemeral channels, the flow westward, and eventually into Alum Creek (and Alum Creek Reservoir). However, based on current USACE jurisdictional criteria, there is potential that USACE will consider these wetlands (and the streams) to be non-jurisdictional, based on the ephemeral nature of the stream channels. Thus, these wetlands may be considered “isolated”. It should be noted that isolated wetlands area regulated (and permitted) in a similar manor to jurisdictional wetlands in Ohio, by the Ohio EPA. Only the USACE can make the final determination as to the wetlands jurisdictional status.

APPENDIX A - FIGURES

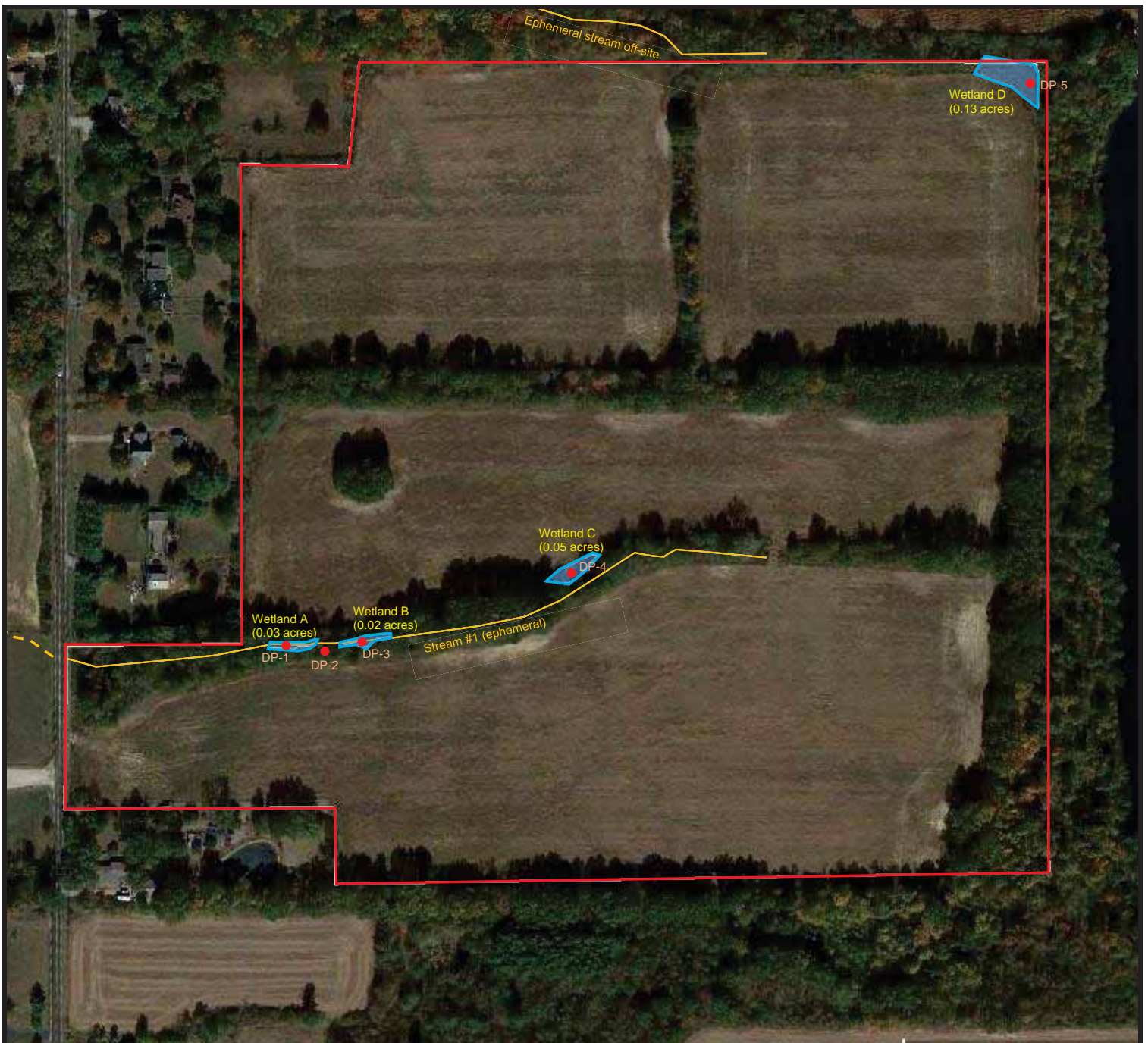


60-Acre Property
 3B's and K Road
 Galena, Ohio

Topo Map
 (2019 topo map)

Figure 1





60-Acre Property
 3B's and K Road
 Galena, Ohio

Figure 2

Wetland Delineation Map (Oct 2020)
 (2019 photo)



Soil Map—Delaware County, Ohio






























Soil Map may not be valid at this scale.

Map Scale: 1:4,400 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

-  Area of Interest (AOI)
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Delaware County, Ohio
 Survey Area Data: Version 19, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 17, 2015—Oct 2, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeA	Bennington silt loam, 0 to 2 percent slopes	11.7	18.8%
BeB	Bennington silt loam, 2 to 6 percent slopes	31.1	49.9%
Crd1B1	Cardington silt loam, 2 to 6 percent slopes	1.2	1.9%
Crd1C2	Cardington silt loam, 6 to 12 percent slopes, eroded	0.1	0.1%
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	18.2	29.2%
Totals for Area of Interest		62.3	100.0%



U.S. Fish and Wildlife Service

National Wetlands Inventory

map



October 29, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

APPENDIX B – PROPERTY PHOTOGRAPHS



1) Wetland A – largely devoid of vegetation (along a drainage way/ephemeral channel) at DP-1



2) Additional view of Wetland A (east end)