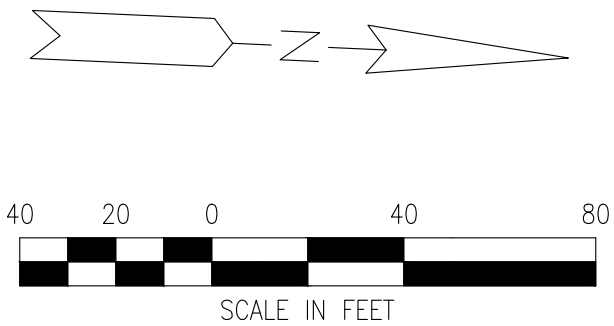
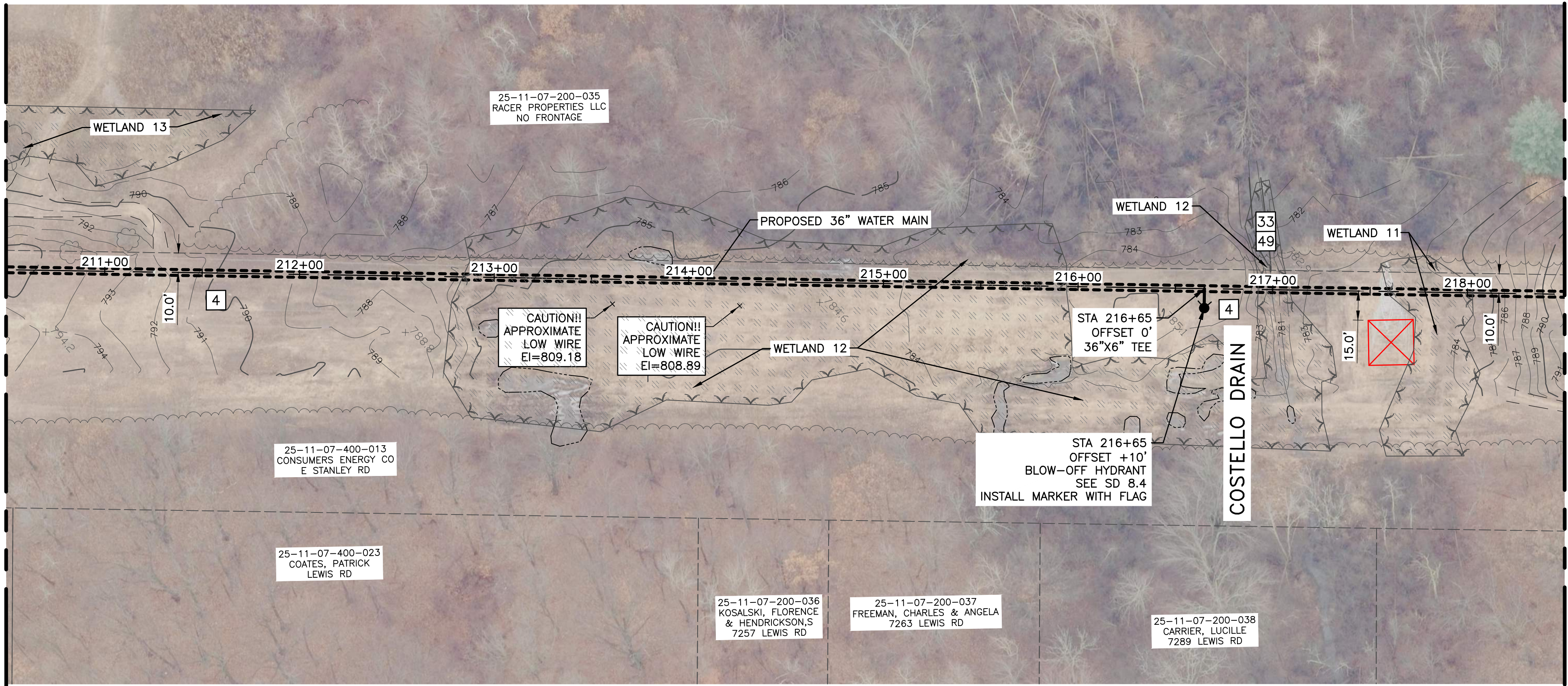
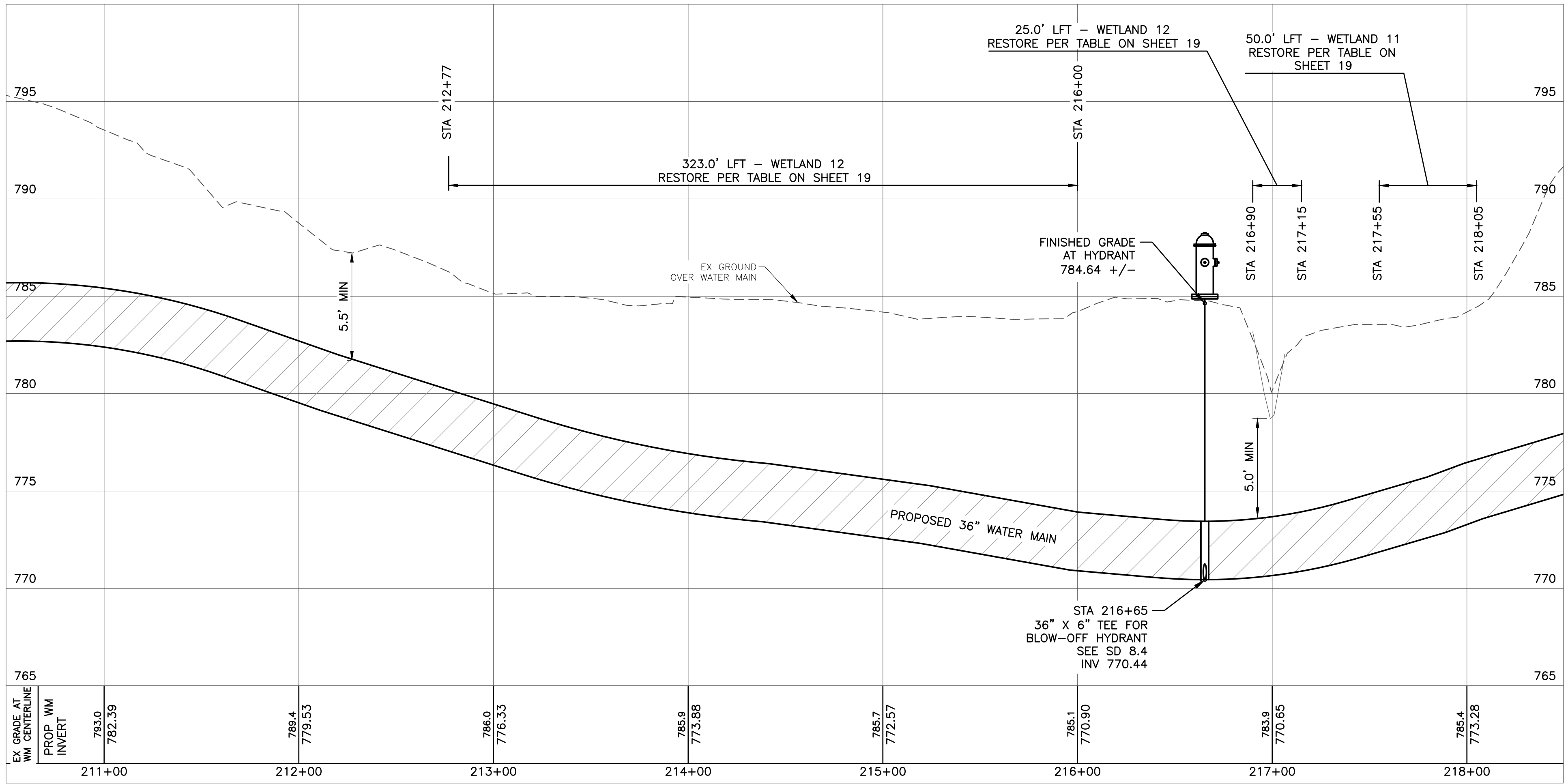


MATCH LINE STA 210+50 SEE SHEET 53



MATCH LINE STA 218+50 SEE SHEET 55



NOTES

1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 28

ISSUED FOR: DATE: BY:

JOB NO.
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SHEET

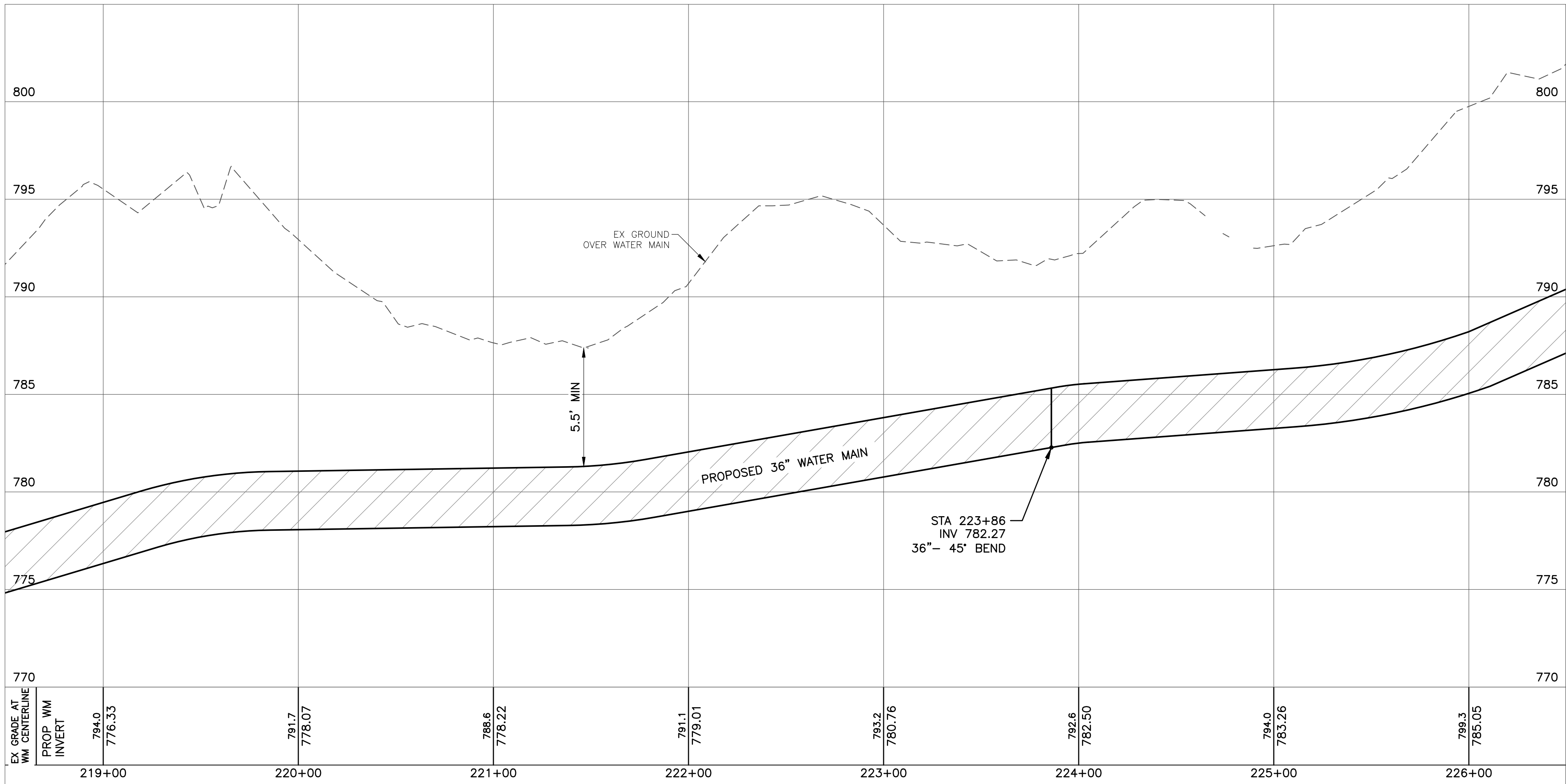
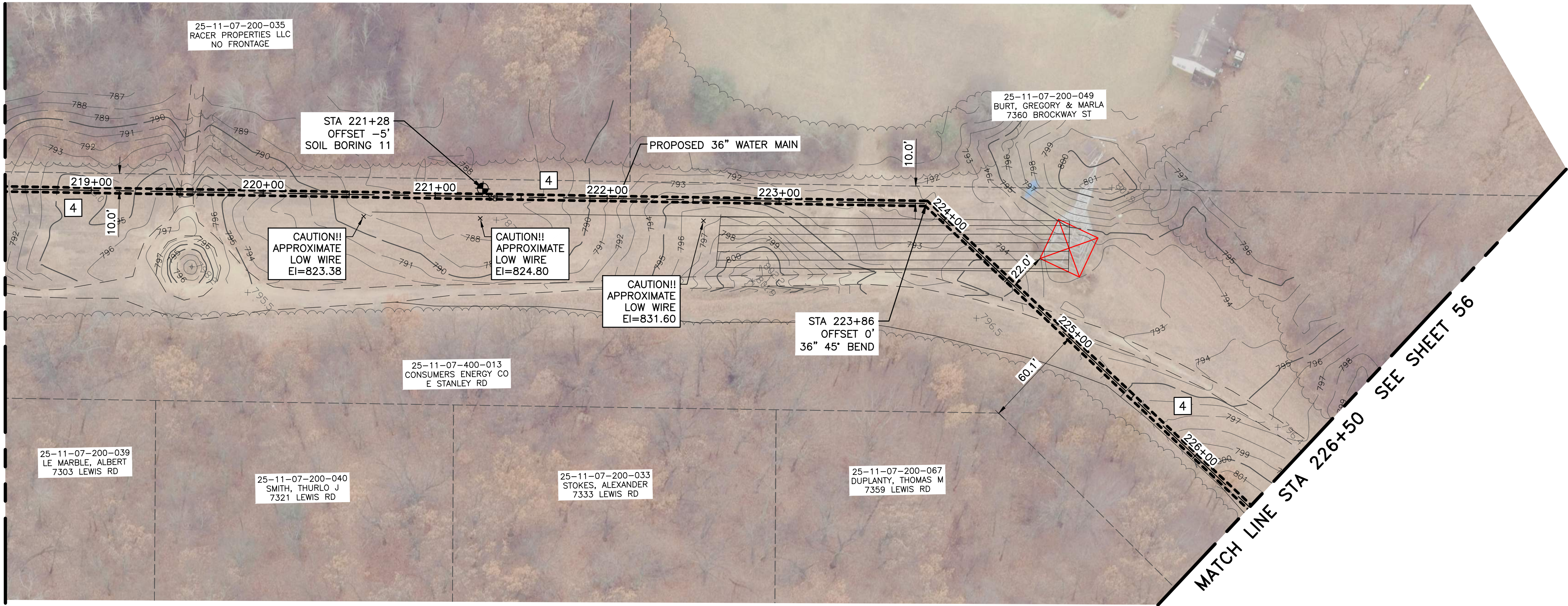
54

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PROJECT: MANAGER: JESSA R. KAYEVO, PE FIELD BOOK INFORMATION: CA\FW\WORK\03048735\CUB-FLTS-PLAN-PROF-4.DWG - PP-29 - PLOTTED: 2/7/2020 10:44 AM BY: RUGGLES, TIMOTHY

MATCH LINE STA 218+50 SEE SHEET 54



NOTES

1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 29

ISSUED FOR: DATE: BY:

JOB NO.
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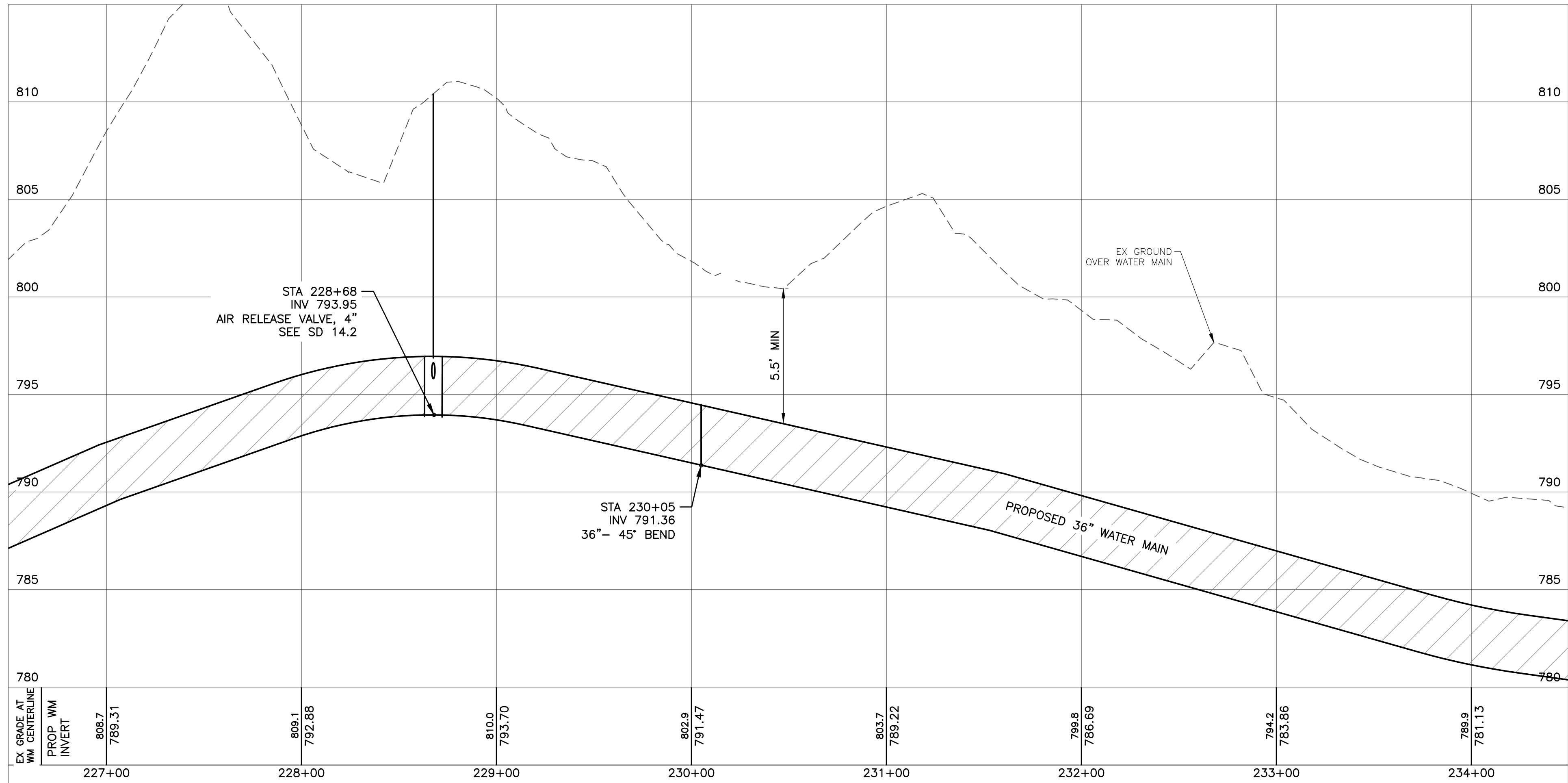
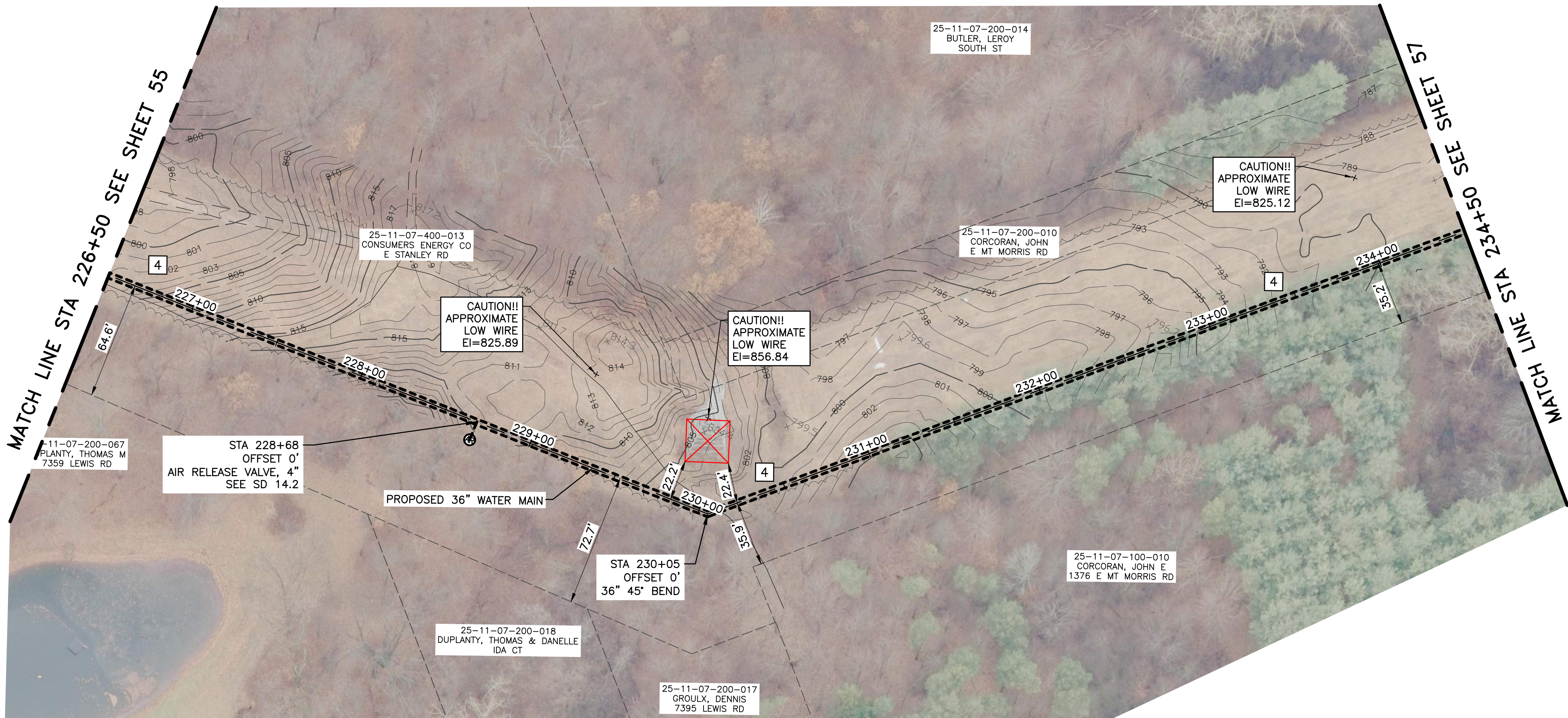
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PROJECT: MANAGER: JESSA R. KAYEVO, PE
CA:\PW\WORK\03048735\CUP-PLANS-PLAN-PROF-4.DWG - PP-30 - PLOTTED: 2/7/2020 10:44 AM BY: RUGGLES, TIMOTHY



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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 30

ISSUED FOR: DATE: BY:

JOB NO.
COF1068.01F

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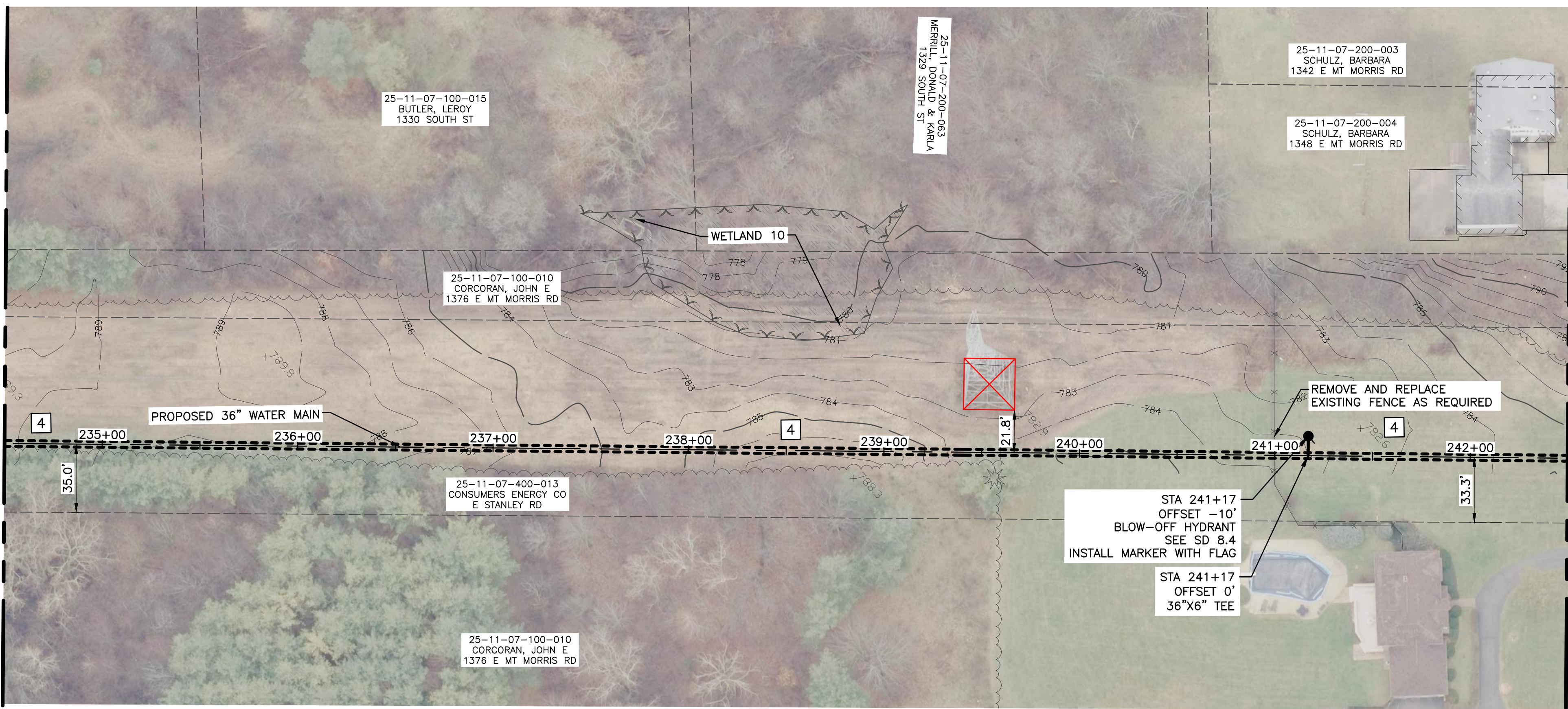
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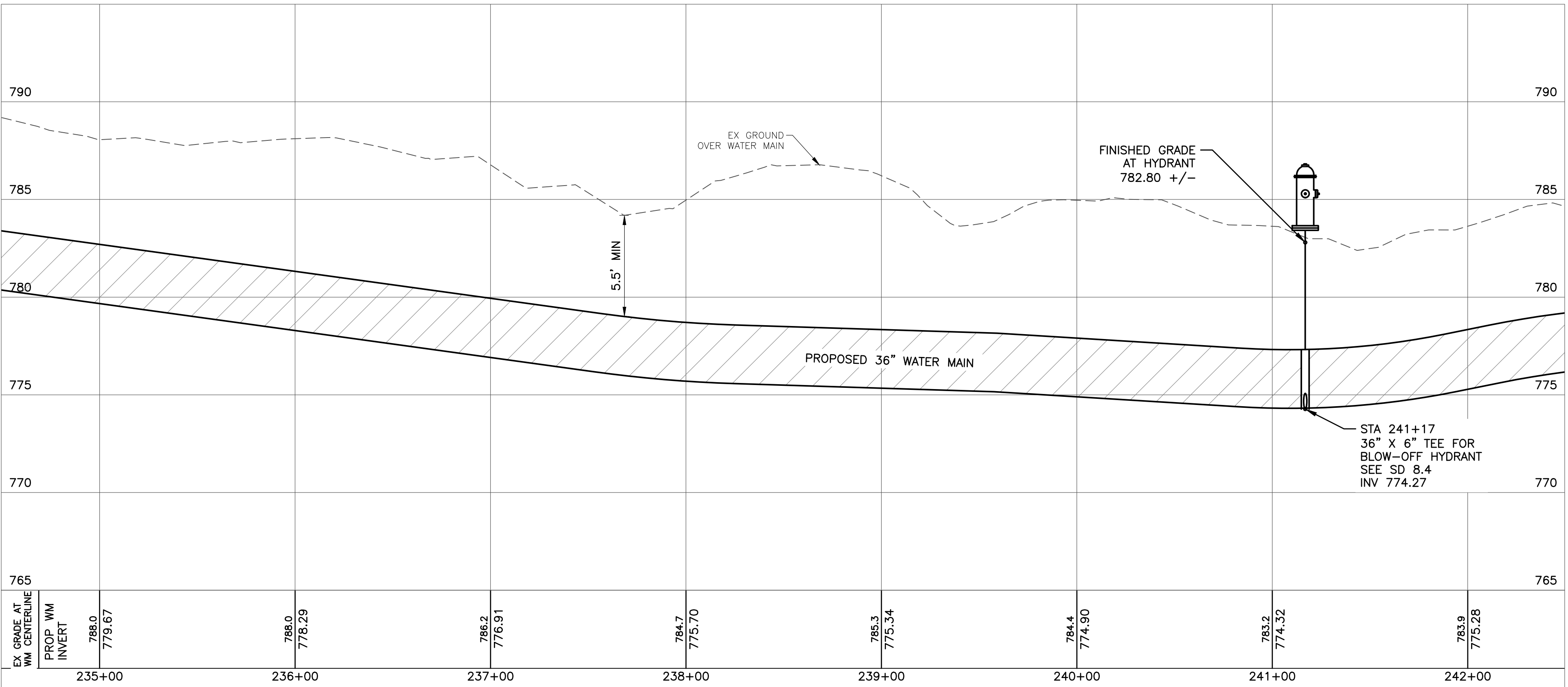
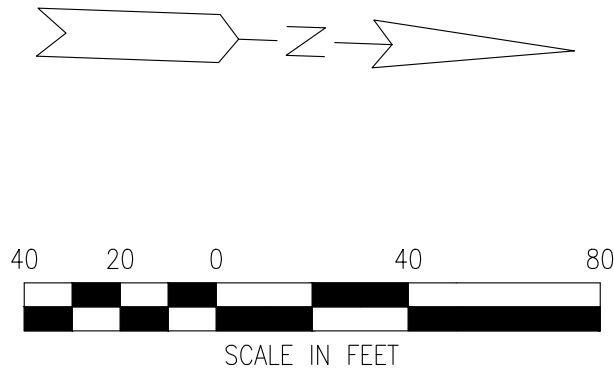
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MATCH LINE STA 234+50 SEE SHEET 56



MATCH LINE STA 242+50 SEE SHEET 58



NOTES

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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 31

ISSUED FOR: DATE: BY:

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57

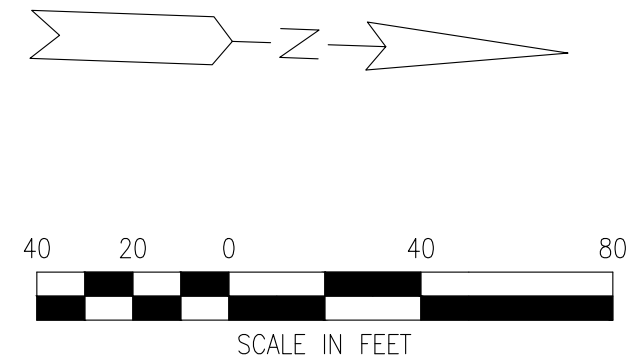
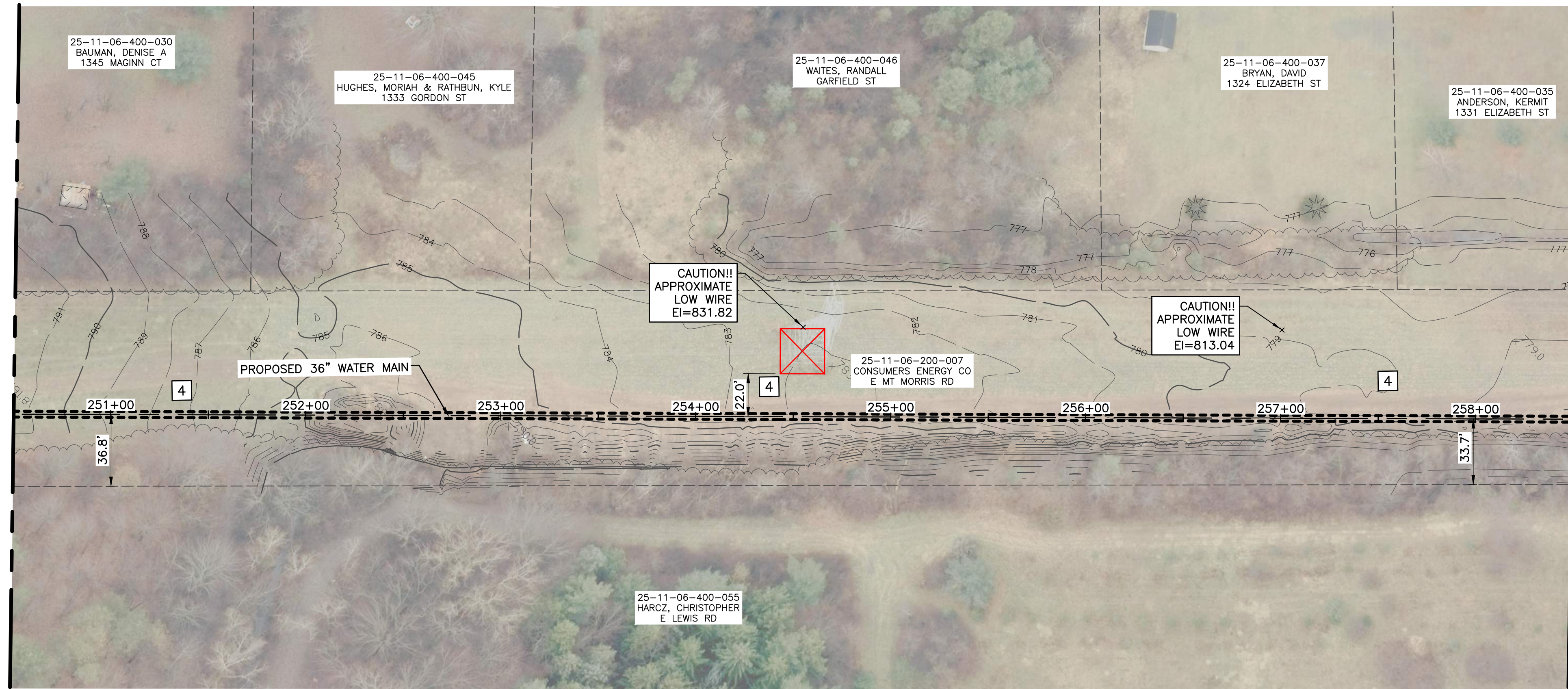
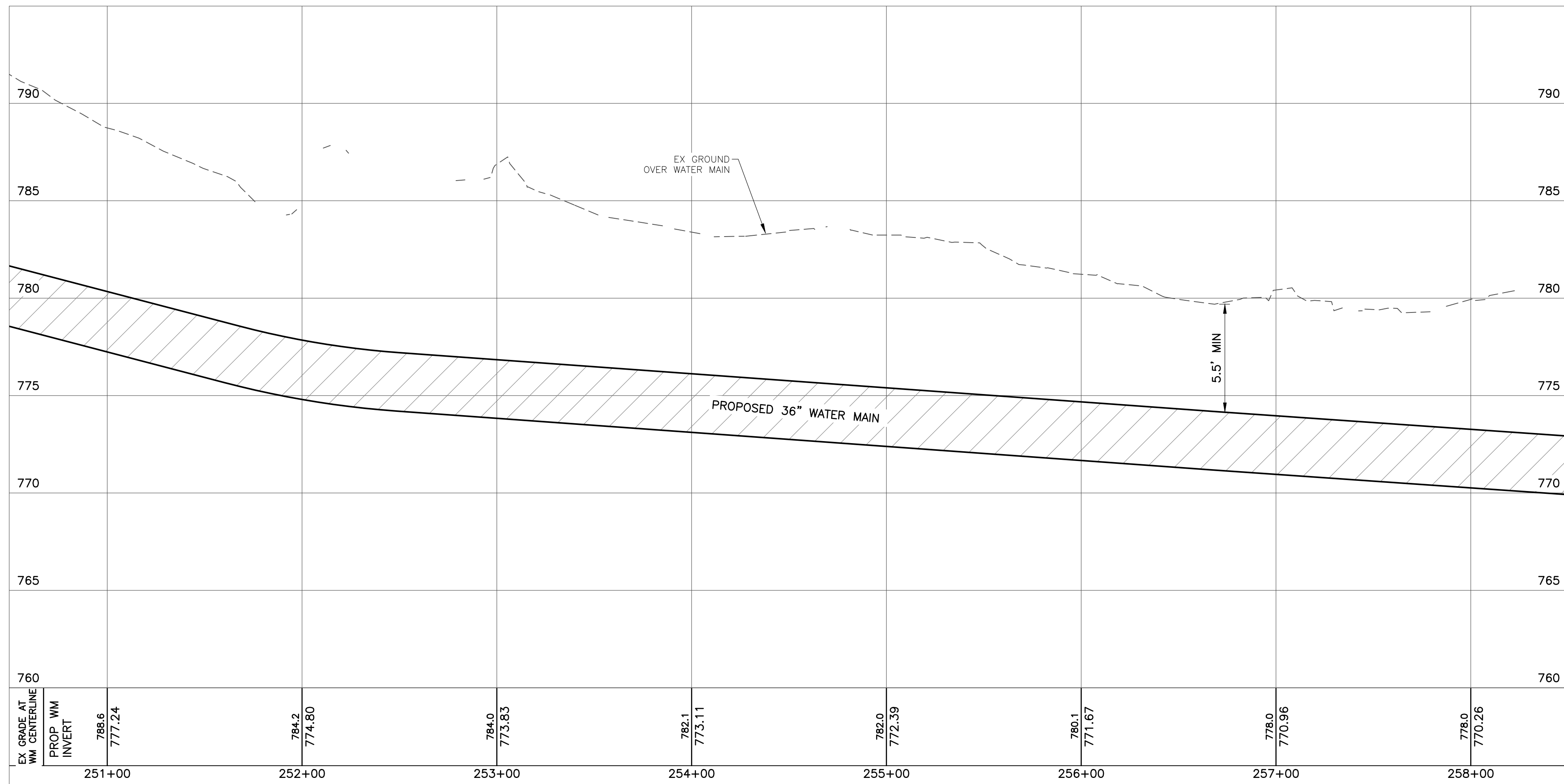


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PROJECT MANAGER: Jason R. Kenyon, PE
FIELD BOOK INFORMATION:
C:\PW_WORK\00948736\CUP-PROF-5.DWG - PP-33 - PLOTTED 2/7/2020 10:47 AM BY RUGGLES, TIMOTHY



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NOTES

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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 33

ISSUED FOR: DATE: BY:

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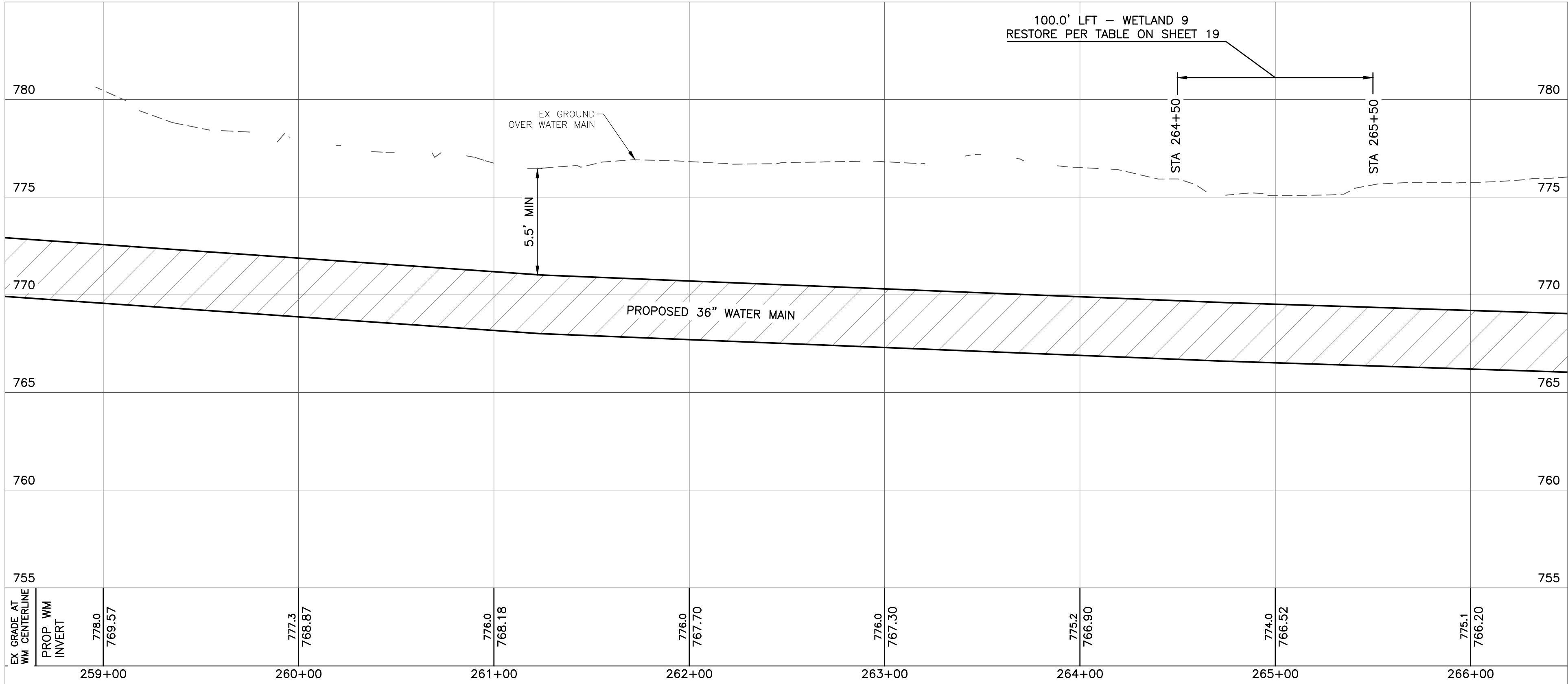
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PROJECT: MANAGER: JESSA R. KAYEVO, PE FIELD BOOK INFORMATION: C:\PW\WORK\2\0348735\CUP-FLTS-PLAN-PROF-5.DWG - PP-34 - PLOTTED: 2/7/2020 10:47 AM BY: RUGGLES, TIMOTHY



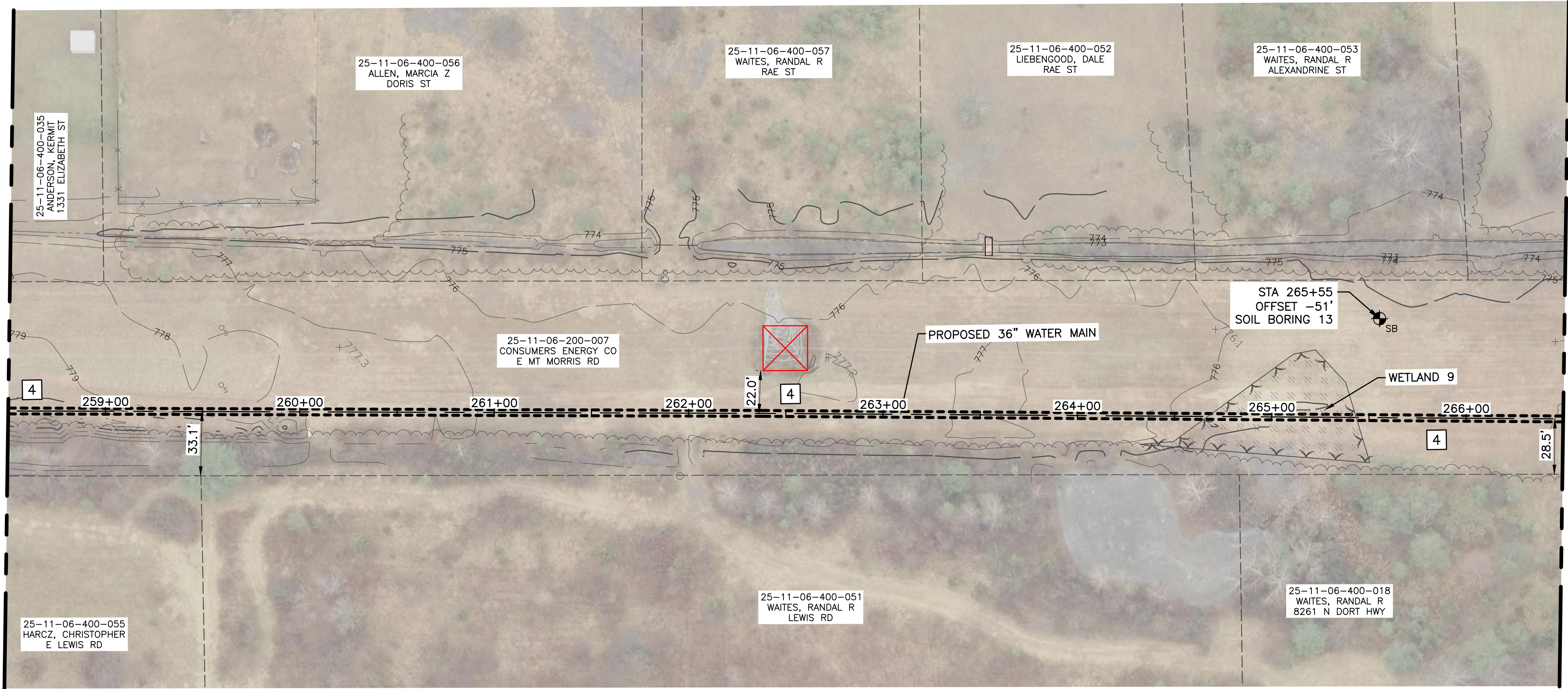
Know what's below.
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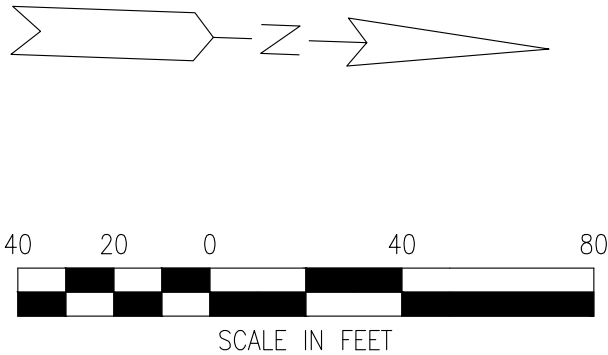
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MATCH LINE STA 258+50 SEE SHEET 59



MATCH LINE STA 266+50 SEE SHEET 61



CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 34

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DESCRIPTION

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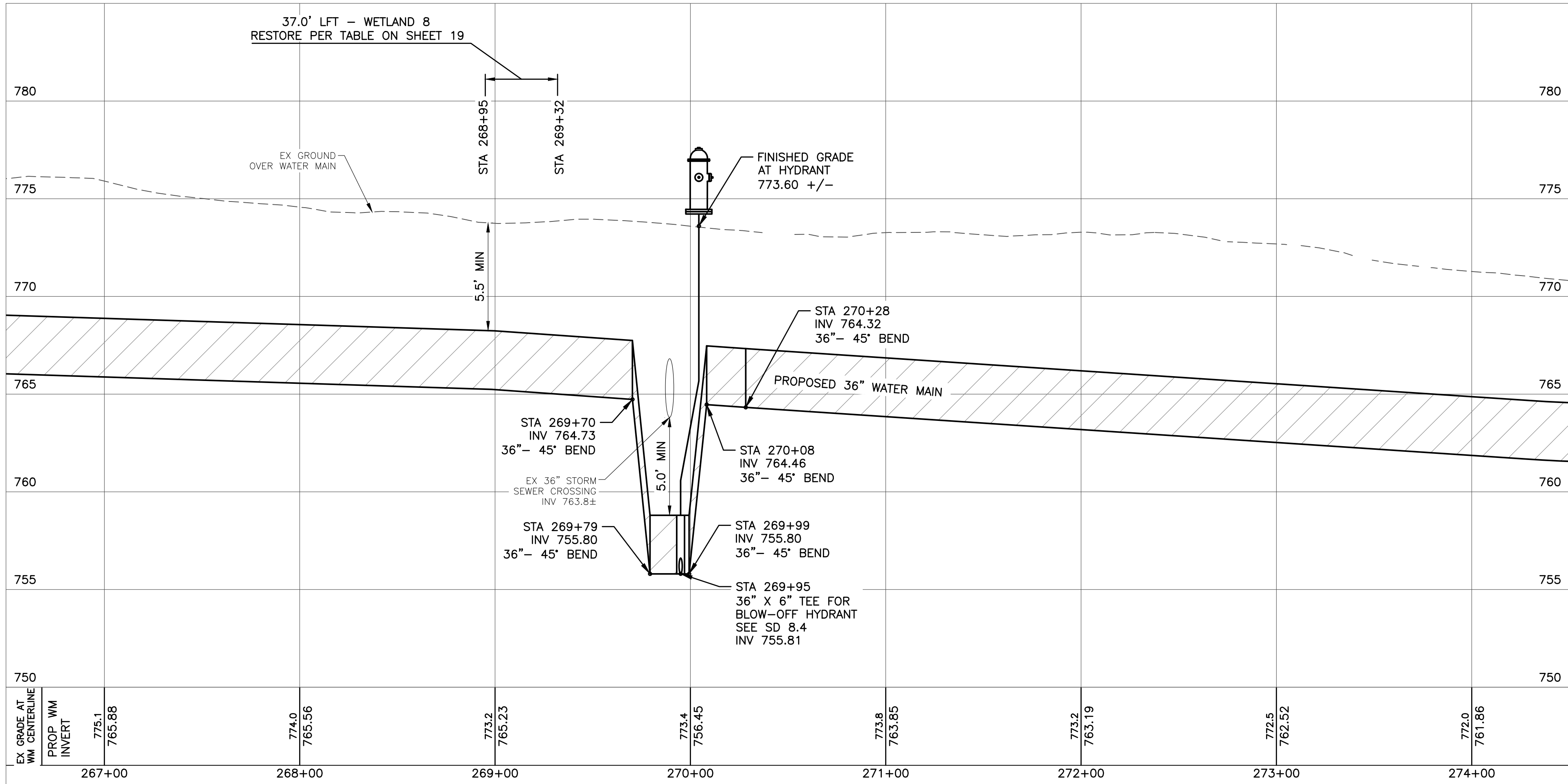
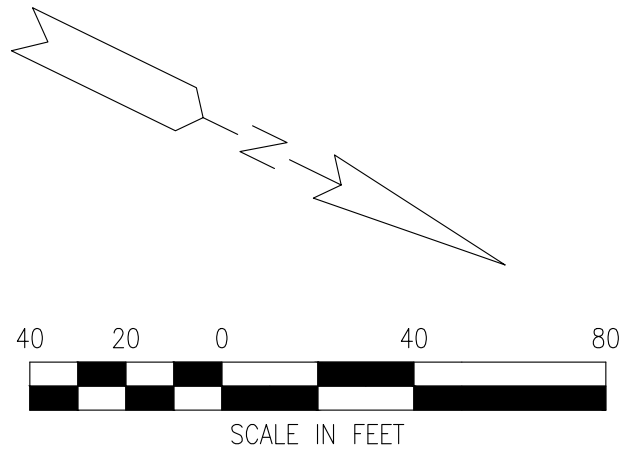
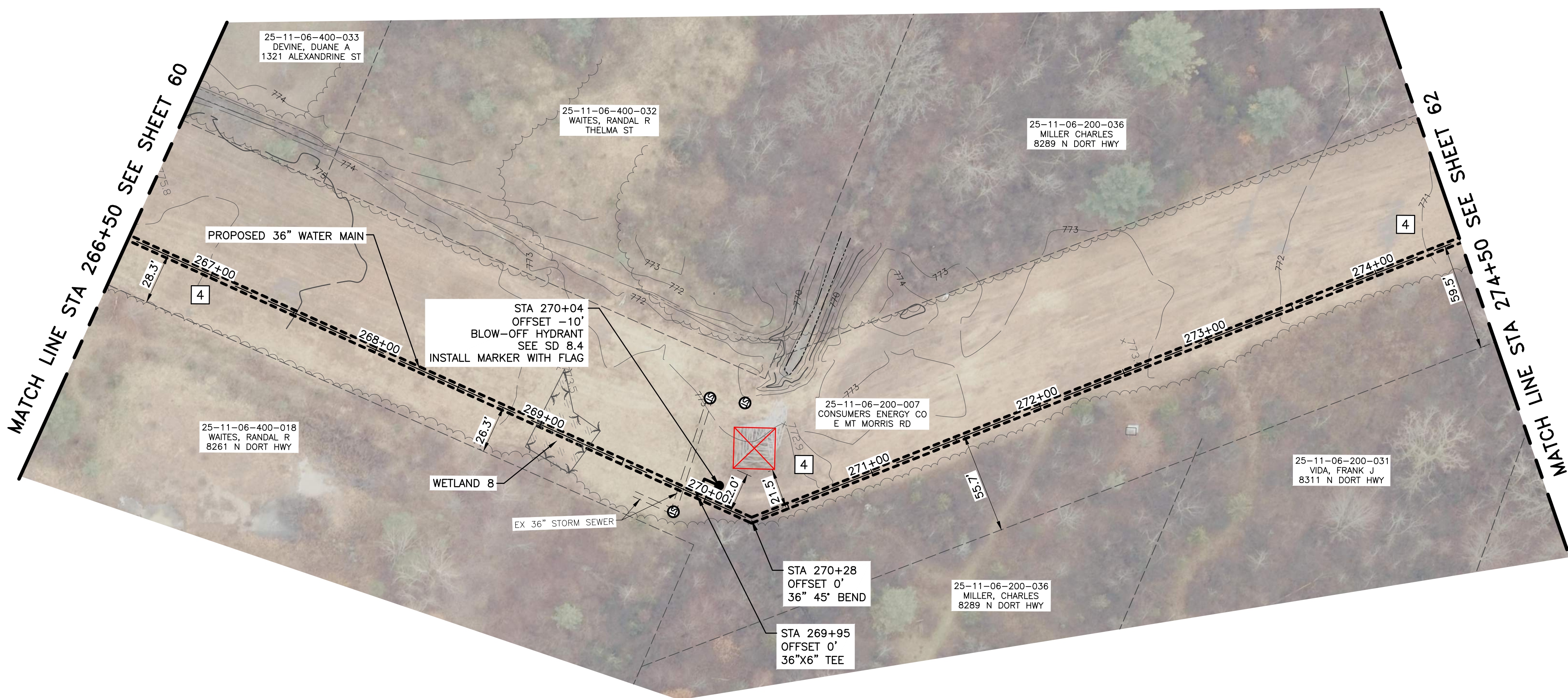
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BY

PROJECT: MANAGER: JESSA R. KAYEVO, PE FIELD BOOK INFORMATION: C:\PW\WORK\2\0348735\CUP-PLTS-PLAN-PROF-5.DWG - PP-35 - PLOTTED: 2/7/2020 10:47 AM BY: RUGGLES, TIMOTHY



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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 35

ISSUED FOR: DATE: BY:

JOB NO.
COF1068.01F

SHEET

61

555 S. Saginaw Street, Suite 201
Flint, MI 48502
www.wadetrim.com

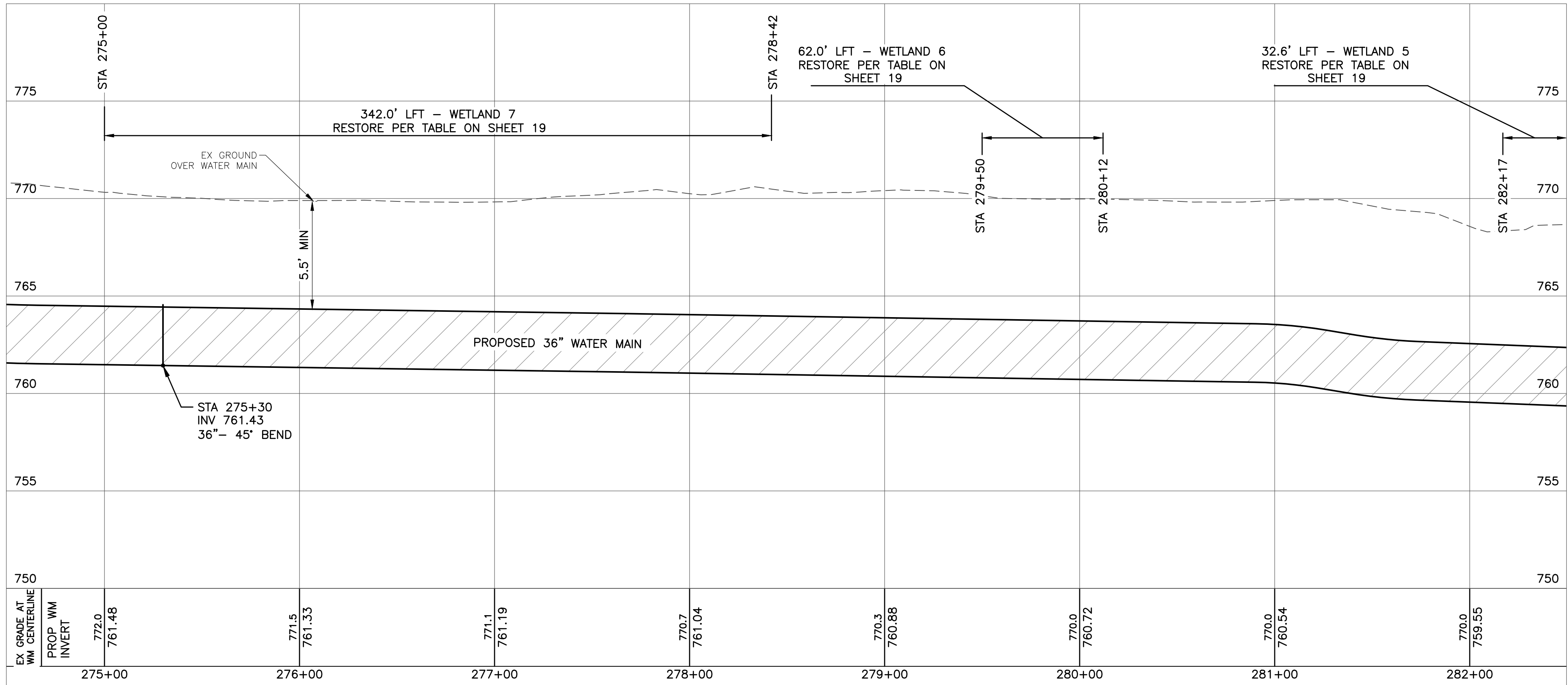


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PROJECT: MANAGER: JESSA R. KAYEVO, PE FIELD BOOK INFORMATION: C:\PW\WORK\03848736\03848736-PLAN-PROF-5.DWG - PP-36 - PLOTTED: 2/7/2020 10:48 AM BY: RUGGLES, TIMOTHY

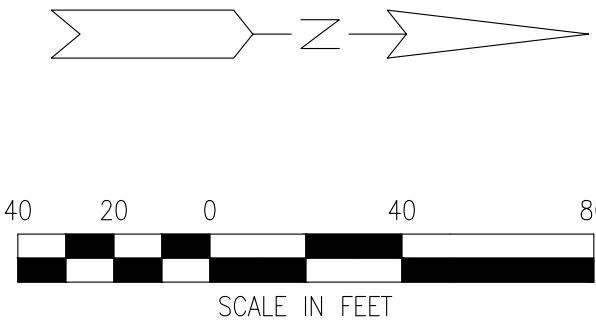
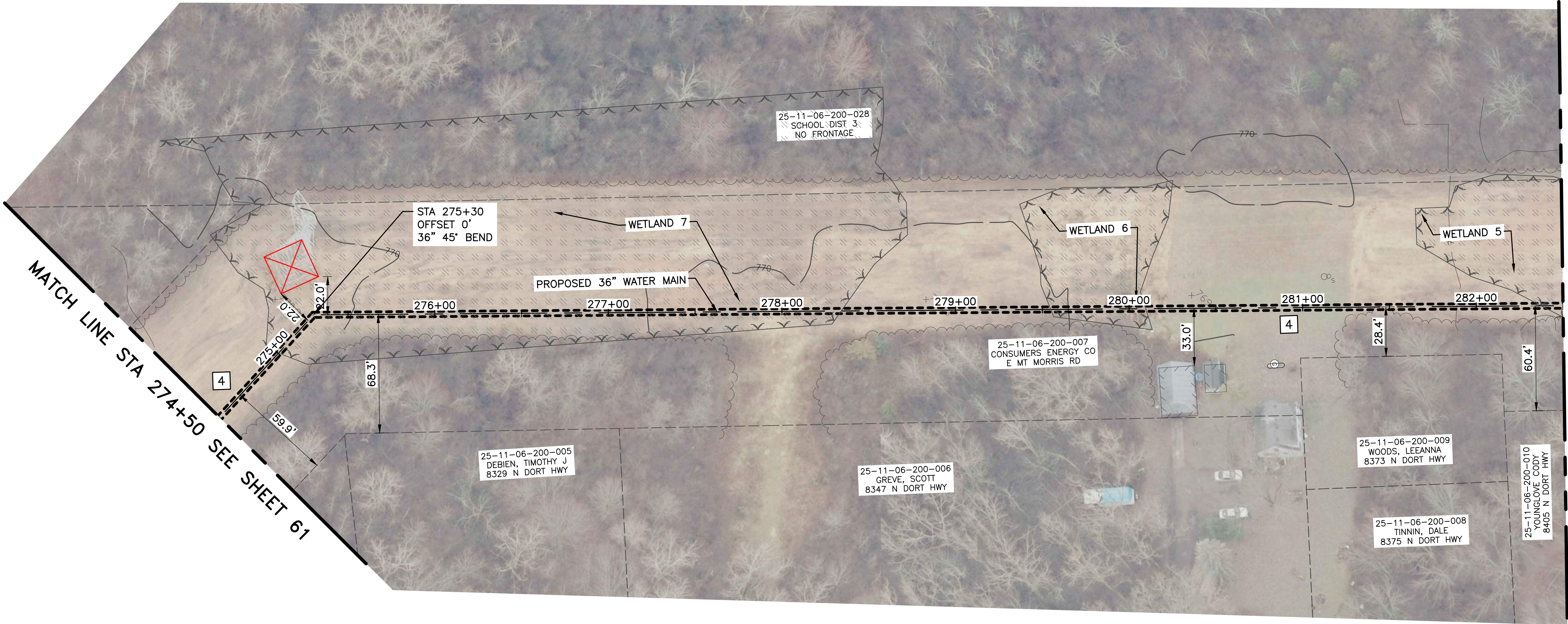


Know what's below.
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NOTES

1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.



CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 36

ISSUED FOR: DATE: BY:

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62

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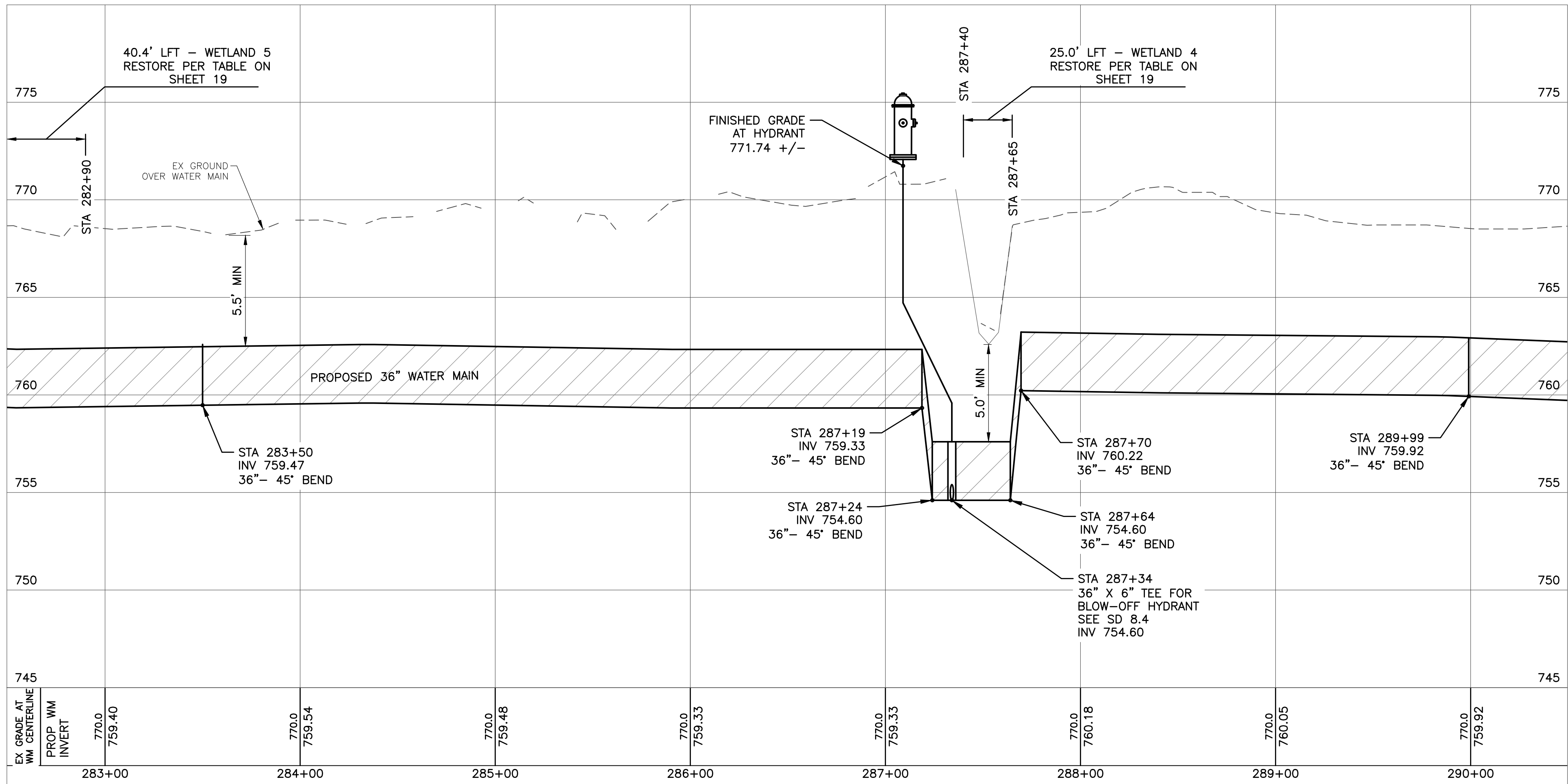
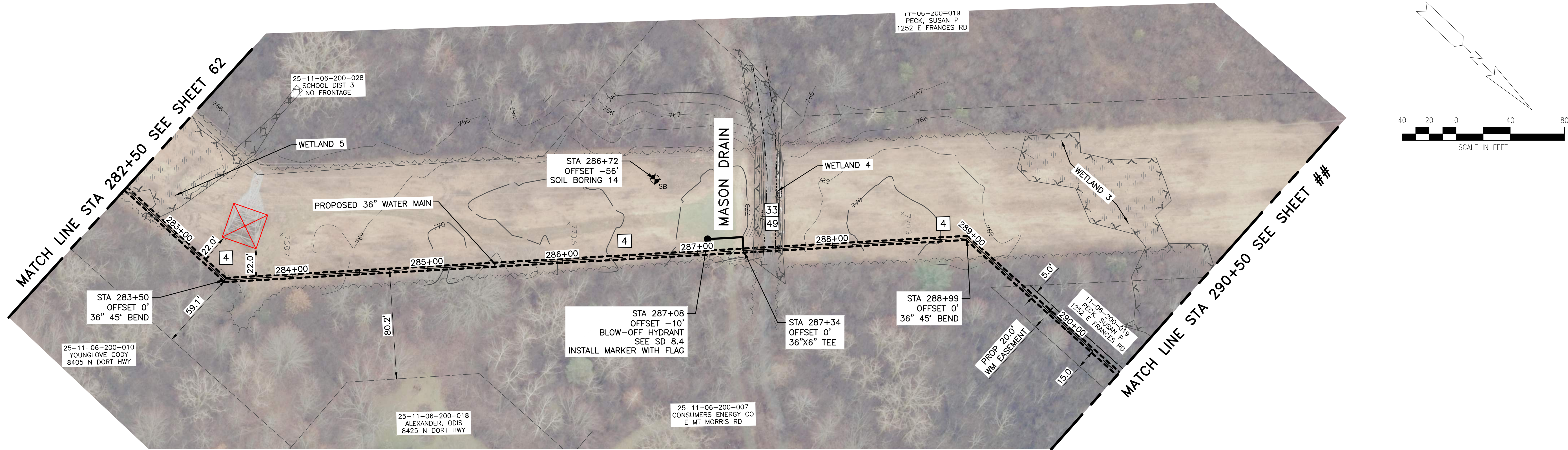


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PROJECT: MANAGER: JASON R. KAYEVO, PE
CA/PW WORKS: D0348735, CUB-PLTS-PLAN-PROF-5.DWG - PP-37 - PLOTTED: 2/7/2020, 10:48 AM, BY: RUGGLES, TIMOTHY
FIELD BOOK INFORMATION:



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NOTES

1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
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1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 37

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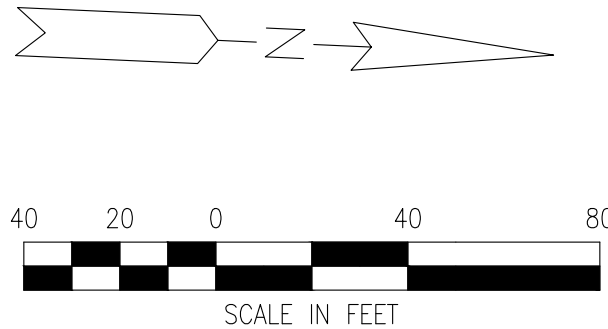
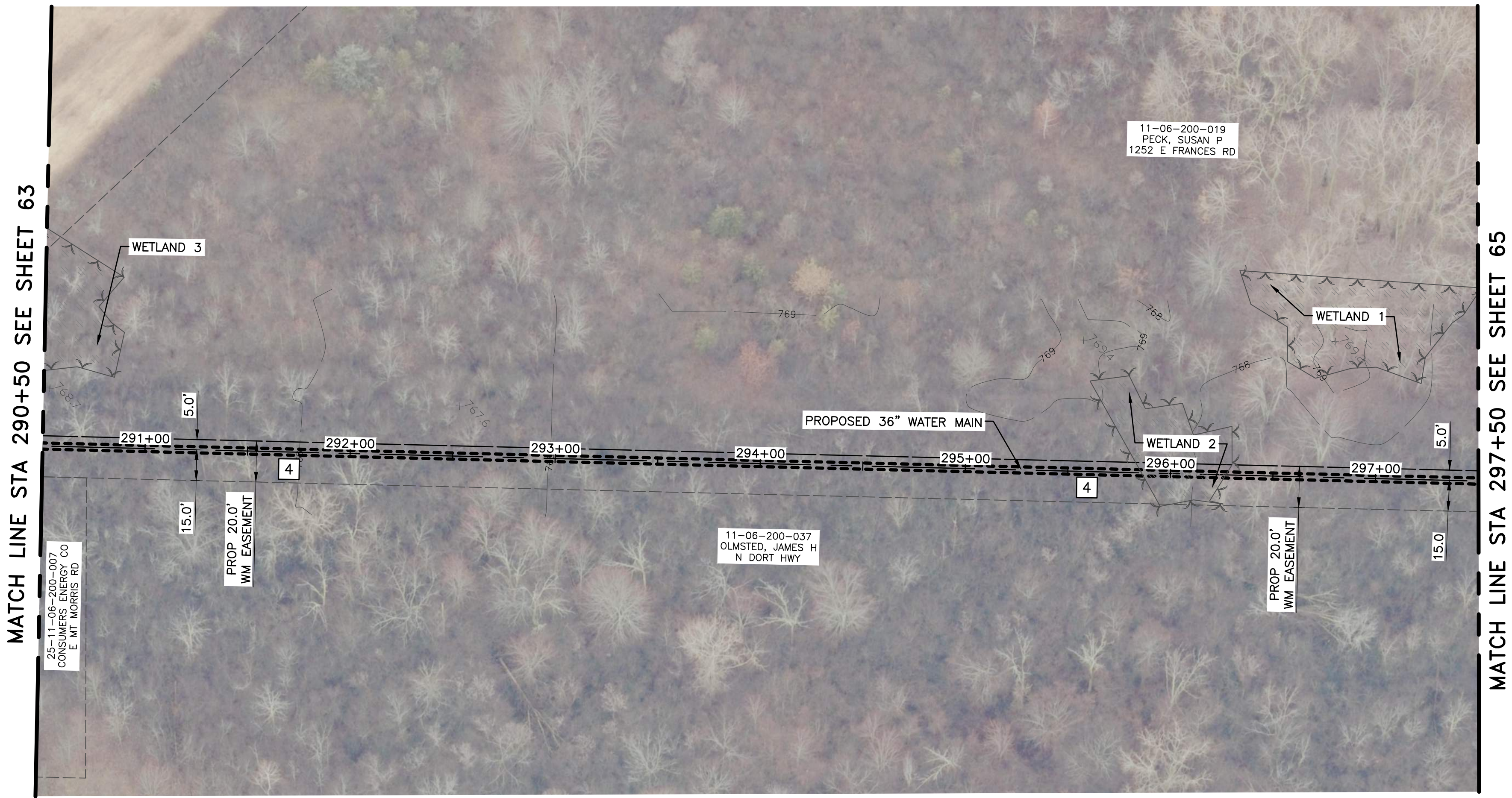
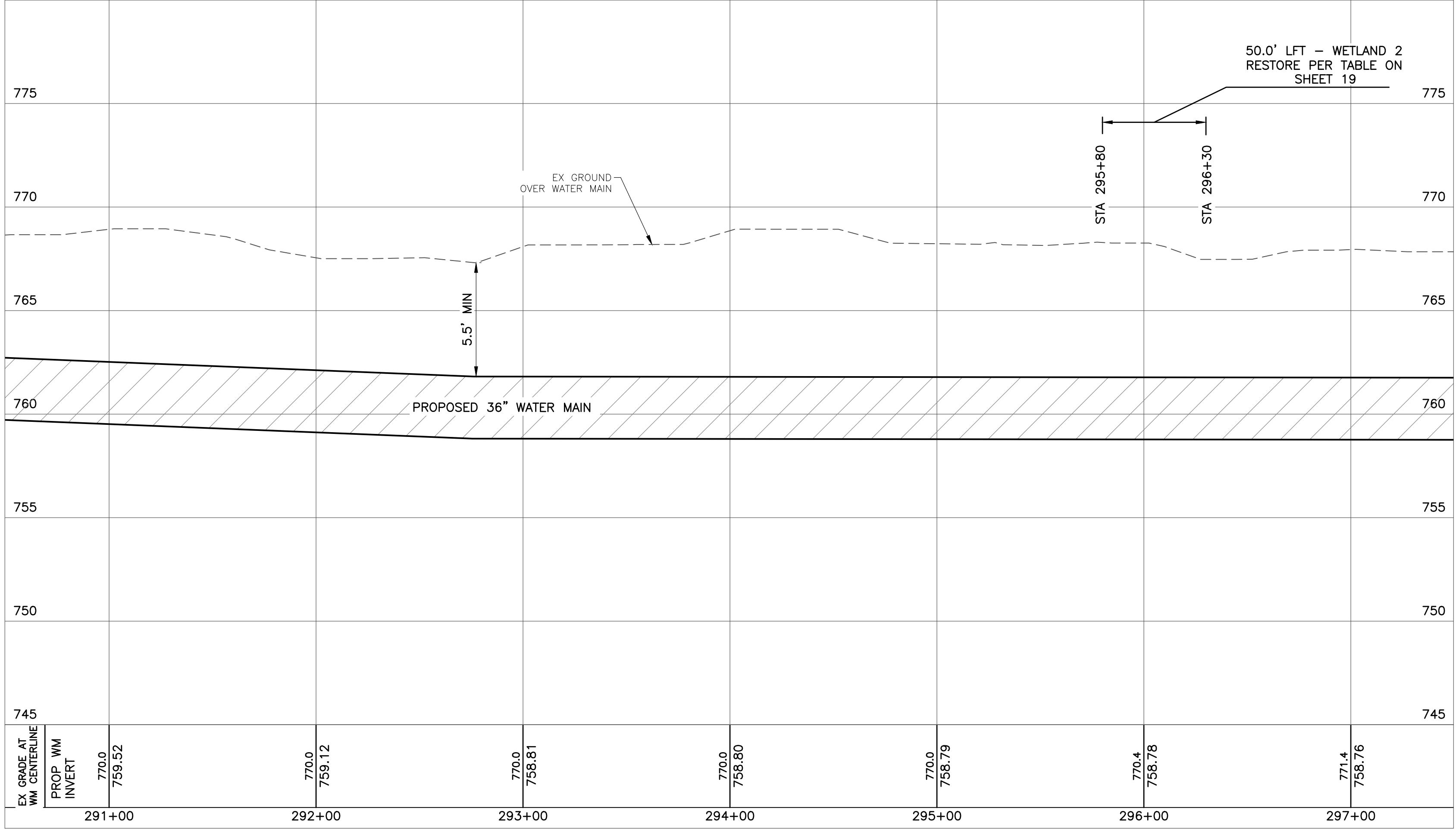
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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN AND PROFILE SHEET 38

ISSUED FOR: DATE: BY:

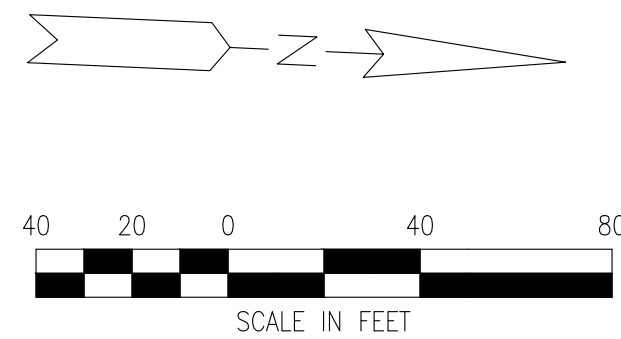
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BENCHMARK #10
SOUTH RIM OF SANITARY
MANHOLE
ELEVATION=772.89










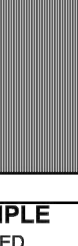

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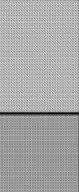



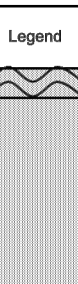

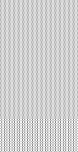

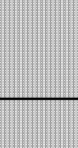




Know what's below.
Call before you dig.


		Construction Testing Services 3300 E. Bristol Road, Burton, MI 48529 PHONE: (810) 603-0766 FAX: (810) 603-0786						
JOB NO.		S-19-219 LOG OF SOIL BORING NO.				6		
PROJECT:		City of Flint Secondary Water Supply						
LOCATION:		Flint, Michigan						
DATE:		9/9/19			SURFACE ELEVATION: Existing			
Sample & Type	Depth	Legend	Soil Description	SPT Blows per 6"	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		5" Topsoil - Medium Compact, Moist, Sandy, Black w/occ Pebble					
6A SS	2		Clay - Stiff, Moist, Sandy, Brown w/occ Pebble & Oxidation (CL - Low Plasticity Clay)	3				
	3			5				
	4			5				
6B SS	5		5'6"	5				
	6			8	16.7	140.1	11264	14.7
	7			9				
6C SS	8		Clay - Very Stiff, Moist, Brown w/Pebble	6				
	9			13				
	10			16				
6D SS	11		8'6"	8				
	12			11				
	13			16				
	14		Sand - Compact, Moist, Silty, Brown					
6E SS	15							
	16							
	17		17'0"	7				
	18			11				
	19			13				
6F SS	20		Sand - Compact, Wet, Brown	4				
	21			5				
	22			8				
TYPE OF SAMPLE		BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS				
D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -		* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		G.W. ENCOUNTERED AT 17 FT. 9 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 16 FT. 4 INS. G.W. AFTER HOURS FT. INS. G.W. VOLUMES Heavy				

			Construction Testing Services 3300 E. Bristol Road, Burton, MI 48529 PHONE: (810) 603-0766 FAX: (810) 603-0786					
JOB NO. S-19-219 LOG OF SOIL BORING NO. 8			PROJECT: City of Flint Secondary Water Supply					
LOCATION: Flint, Michigan			DATE: 9/7/19 SURFACE ELEVATION: Existing					
Sample & Type	Depth	Legend	Soil Description	SPT Blows per 6"	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		6" Topsoil - Medium Compact, Moist, Sandy, Clayey, Black w/Roots					
8A SS	2		Clay - Stiff, Moist, Silty, Sandy, Variegated (CL - Low Plasticity Clay)	3				
	3			4				
	4			5				
8B SS	5		5'0"	3				
	6		4	25.8	125.2	2040	15.5	
			6'0" Clay - Stiff, Moist, Silty, Sandy, Variegated w/Brown Sand Seams	4				
8C SS	7		Clay - Stiff, Moist, Silty, Sandy, Brown	4				
	8			6				
	9			10				
8D SS	10		9'6"	6				
	11		Clay - Stiff, Moist, Silty, Blue	7				
	12			7				
	13		13'0"					
8E SS	14		Sand - Compact, Wet, Brown	3				
	15			4				
	16			7				
	17		17'0"					
	18		Clay - Stiff, Moist, Silty, Sandy, Blue					
8F SS	19			5				
	20		20'6" End of Boring	5				
	21			5				
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS			
D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -			* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		G.W. ENCOUNTERED AT 5 FT. 0 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 7 FT. 0 INS. G.W. AFTER HOURS FT. INS. G.W. VOLUMES Heavy			

			Construction Testing Services 3300 E. Bristol Road, Burton, MI 48529 PHONE: (810) 603-0766 FAX: (810) 603-0786					
JOB NO.		S-19-219			LOG OF SOIL BORING NO.		7	
PROJECT:		City of Flint Secondary Water Supply						
LOCATION:		Flint, Michigan						
DATE:		9/7/19			SURFACE ELEVATION:		Existing	
Sample & Type	Depth	Legend	Soil Description	SPT Blows per Ft.	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		1'0" Topsoil - Medium Compact, Moist, Sandy, Brown w/Roots					
7A SS	2		Clay - Firm, Moist, Silty, Sandy, Variegated (CL - Low Plasticity Clay)	2				
	3			3				
	4			5				
7B SS	5			3	24.3	129.4	4867	15.5
	6		6'0"	5				
7C SS	7		Clay - Very Stiff, Moist, Silty, Sandy, Brown w/Wet Sand Seams	3				
	8			7				
	9			9				
7D SS	10			8				
	11		10'0"	9				
	12			10				
	13		Clay - Stiff to Very Stiff, Moist, Silty, Blue					
7E SS	14							
	15			6				
	16			6				
	17		16'6"	7				
	18							
	19							
7F SS	20			Clay - Extremely Stiff, Moist, Silty, Blue	11			
	21			16				
	22			20				
TYPE OF SAMPLE			Continued	GROUND WATER OBSERVATIONS				
D. - DISTURBED				G.W. ENCOUNTERED AT 6 FT. 0 INS.				
U.L. - UNDIST. LINER				G.W. ENCOUNTERED AT FT. INS.				
S.T. - SHELBY TUBE				G.W. ON COMPLETION 13 FT. 4 INS.				
S.S. - SPLIT SPOON				G.W. AFTER 10 HOURS 4 FT. 2 INS.				
R.C. - ROCK CORE			G.W. VOLUMES Heavy					
OTHER								
* The soil descriptions shown on the logs are from visual observations. No classification tests were performed.								
Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.								

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JOB NO. S-19-219 LOG OF SOIL BORING NO. 9			PROJECT: City of Flint Secondary Water Supply						
LOCATION: Flint, Michigan			DATE: 9/7/19 SURFACE ELEVATION: Existing						
Sample & Type	Depth	Legend	Soil Description	SPT Blows per 6"	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %	
	1		6" Topsoil - Compact, Moist, Sandy, Black w/Roots						
9A SS	2		Sand - Compact, Moist, Brown w/Pebbles	6					
	3			7					
	4			7					
9B SS	5		3'9"	10					
	6		10	5.9					
	7		13						
	8								
9C SS	9		Sand - Compact to Very Compact, Moist, Brown w/Pebble & Stone (SM - Silty Sand)	12					
	10			15					
	11			17					
	12								
9D SS	13		13'0"	13					
	14			14					
	15			16					
	16								
9E SS	17		Sand - Compact, Wet, Brown w/Gravel	4					
	18			5					
	19			6					
	20								
9F SS	21		20'6" End of Boring	4					
	22			4					
	23			6					
	24								
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL	GROUND WATER OBSERVATIONS					
D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -			* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.	G.W. ENCOUNTERED AT 13 FT. 0 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 11 FT. 7 INS. G.W. AFTER HOURS FT. INS. G.W. VOLUMES Heavy					

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JOB NO. S-19-219 LOG OF SOIL BORING NO. 7			PROJECT: City of Flint Secondary Water Supply					
LOCATION: Flint, Michigan			DATE: 9/7/19 SURFACE ELEVATION: Existing					
Sample & Type	Depth	Legend	Soil Description	SPT Blows per Ft.	Moisture %	Natural WL P.C.F.	Unc. Comp. Strength	Str. %
	21		Clay - Extremely Stiff, Moist, Silty, Blue					
	22							
	23							
	24							
7G SS	25					15		
	26	25'6"	End of Boring		16			
	27				19			
	28							
	29							
	30							
	31							
	32							
	33							
	34							
	35							
	36							
	37							
	38							
	39							
	40							
	41							
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL	GROUND WATER OBSERVATIONS				
D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -			* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.	G.W. ENCOUNTERED AT 6 FT. 0 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 13 FT. 4 INS. G.W. AFTER 10 HOURS 4 FT. 2 INS. G.W. VOLUMES Heavy				

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JOB NO.		S-19-219		LOG OF SOIL BORING NO. 10						
PROJECT:		City of Flint Secondary Water Supply								
LOCATION:		Flint, Michigan								
DATE:		9/7/19		SURFACE ELEVATION: Existing						
Sample & Type	Depth	Legend	Soil Description	SPT Blows per 6"	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %		
	1		4" Topsoil - Medium Compact, Moist, Sandy, Black w/Roots							
10A SS	2		Sand - Medium Compact to Compact, Moist, Brown		2					
	3				3					
	4				3					
10B SS	5		6'0"							
	6				3					
	7				5					
	8				5					
10C SS	9		Sand - Medium Compact to Compact, Wet, Brown (SM - Silty Sand)							
	10				3					
	11				4					
	12				6					
	13		11'6"							
	14									
10E SS	15			Sand - Compact, Wet, Grey		2				
	16					4				
	17		5							
	18		14'6"							
	19									
10F SS	20			Clay - Stiff, Moist, Sandy, Blue w/Wet Sand Seams		5				
	21					6				
	22		6							
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL	GROUND WATER OBSERVATIONS						
D. - DISTURBED				G.W. ENCOUNTERED AT 6 FT. 0 INS.						
U.L. - UNDIST. LINER				G.W. ENCOUNTERED AT FT. INS.						
S.T. - SHELLEY TUBE				G.W. ON COMPLETION 6 FT. 6 INS.						
S.S. - SPLIT SPOON				G.W. AFTER HOURS FT. INS.						
R.C. - ROCK CORE			G.W. VOLUMES Heavy							
OTHER -										

ISSUED FOR: DATE: BY:

JOB NO. COF1068.01F

SHEET 67

555 S. Saginaw Street, Suite 201
Flint, MI 48502
www.wadetrims.com

WADE TRIM

CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
SOIL BORING LOG SHEET 2

DESCRIPTION


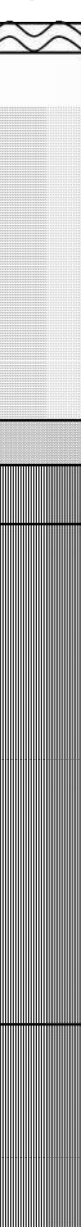
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





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







BY











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		JOB NO.	S-19-219 LOG OF SOIL BORING NO.			11		
		PROJECT:	City of Flint Secondary Water Supply					
		LOCATION:	Flint, Michigan					
DATE:		9/9/19 SURFACE ELEVATION:			Existing			
Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Sr. %
	1		5" Topsoil - Compact, Moist, Sandy, Dark Brown w/Roots					
11A SS	2							
	3							
	4							
11B SS	5		Sand - Medium Compact to Compact, Moist, Brown (SP - Poorly Graded Sand)					
	6							
11C SS	7		6'9"					
	8		7'6" Clay - Stiff, Moist, Sandy, Brown					
	9		8'6" Clay - Stiff, Moist, Silty, Sandy, Blue w/Wet Sand Seams					
11D SS	10							
	11							
	12							
	13		Clay - Stiff, Moist, Blue w/Wet Sand Seams					
11E SS	14							
	15							
	16							
	17		17'0"					
	18							
11F SS	19		Clay - Very Stiff, Moist, Silty, Sandy, Blue					
	20							
	21		20'6" End of Boring					
TYPE OF SAMPLE		BORING PLUGGED WITH NATURAL SOIL			GROUND WATER OBSERVATIONS			
D. - DISTURBED		* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.			G.W. ENCOUNTERED AT 7 FT. 0 INS.			
U.L. - UNDIST. LINER					G.W. ENCOUNTERED AT FT. INS.			
S.T. - SHELBY TUBE					G.W. ON COMPLETION 11 FT. 6 INS.			
S.S. - SPLIT SPOON					G.W. AFTER HOURS FT. INS.			
R.C. - ROCK CORE					G.W. VOLUMES Light			
OTHER								

			Construction Testing Services 3300 E. Bristol Road, Burton, MI 48529 PHONE: (810) 603-0766 FAX: (810) 603-0786							
JOB NO.			S-19-219		LOG OF SOIL BORING NO.		12			
PROJECT:			City of Flint Secondary Water Supply							
LOCATION:			Flint, Michigan							
DATE:			9/7/19		SURFACE ELEVATION:		Existing			
Sample & Type	Depth	Legend	Soil Description			SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Sr. %
	1		5" Topsoil - Compact, Moist, Sandy, Dark Brown w/Roots							
12A SS	2		Possible Fill Sand - Compact, Moist, Brown w/Pebble & occ/Stone			5				
	3					7				
	4		3'6"			7				
12B SS	5		Possible Fill Sand - Medium Compact, Moist, Clayey, Brown w/occ Pebble & Stone (SC - Clayey Sand)			2				
	6					3	12.2	121.8		
	7					4				
12C SS	8		7'7"			3				
	9		8'6" Clay - Stiff, Moist, Sandy, Variegated w/Black Tint			4				
12D SS	10		9'6" Clay - Stiff, Moist, Silty, Blue			5				
	11					8				
	12					9				
	13					11				
	14									
12E SS	15		Sand - Compact, Wet, Fine, Grey			4				
	16					4				
	17					7				
	18									
	19									
12F SS	20					7				
	21		20'6" End of Boring			8				
						9				
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL			GROUND WATER OBSERVATIONS				
D. - DISTURBED						G.W. ENCOUNTERED AT 13 FT. 0 INS.				
U.L. - UNDIST. LINER						G.W. ENCOUNTERED AT 12 FT. 7 INS.				
S.T. - SHELBY TUBE						G.W. ON COMPLETION 12 FT. 7 INS.				
S.S. - SPLIT SPOON						G.W. AFTER HOURS FT. INS.				
R.C. - ROCK CORE						G.W. VOLUMES Heavy				
OTHER -										

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		JOB NO.	S-19-219	LOG OF SOIL BORING NO.	13				
PROJECT:		City of Flint Secondary Water Supply							
LOCATION:		Flint, Michigan							
DATE:		9/7/19 SURFACE ELEVATION: Existing							
Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Sr. %	
	1		6" Topsoil - Medium Compact, Moist, Sandy, Dark Brown w/Roots						
13A SS	2			Sand - Medium Compact, Moist, Brown w/occ Pebble & Stone	3				
	3				4				
	4			3'6"					
13B SS	5		Clay - Very Stiff, Moist, Silty, Sandy, Variegated (CL - Low Plasticity Clay)	4					
	6			7	18.6	132.2	8029	15.5	
	7		6'0"	9					
13C SS	8		Clay - Very Stiff, Moist, Silty, Sandy, Brown & Blue	5					
	9			7					
	10		8'3"	10					
13D SS	11		Clay - Stiff, Moist, Silty, Sandy, Blue	4					
	12			6					
	13		11'6"	8					
13E SS	14			7					
	15			9					
	16		Clay - Very Stiff, Moist, Silty, Sandy, Blue w/occ Pebble	10					
	17								
	18								
	19								
13F SS	20			8					
	21			11					
			20'6" End of Boring	12					
TYPE OF SAMPLE		BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS					
D. - DISTURBED		* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		G.W. ENCOUNTERED AT				FT.	INS.
U.L. - UNDIST. LINER				G.W. ENCOUNTERED AT				FT.	INS.
S.T. - SHELBY TUBE				G.W. ON COMPLETION				FT.	INS.
S.S. - SPLIT SPOON				G.W. AFTER HOURS				FT.	INS.
R.C. - ROCK CORE				G.W. VOLUMES None					
OTHER:									

			Construction Testing Services 3300 E. Bristol Road, Burton, MI 48529 PHONE: (810) 603-0766 FAX: (810) 603-0786								
JOB NO.			S-19-219			LOG OF SOIL BORING NO.		14			
PROJECT:			City of Flint Secondary Water Supply								
LOCATION:			Flint, Michigan								
DATE:			9/7/19			SURFACE ELEVATION:		Existing			
Sample & Type	Depth	Legend	Soil Description				SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Sr. %
	1		4" Topsoil - Medium Compact, Moist, Sandy, Dark Brown w/Roots								
14A SS	2						3				
	3		Sand - Medium Compact, Moist, Slightly Clayey, Brown w/Pebble				3				
	4						5				
14B SS	5		4'6"				3				
	6						5	12.9	134.5	4988	12.1
	7		Clay - Stiff, Moist, Sandy, Variegated (CL - Low Plasticity Clay)				8				
14C SS	8						12				
	9		7'0"				13				
14D SS	10						8				
	11		Clay - Very Stiff to Extremely Stiff, Moist, Silty, Sandy, Brown w/occ Pebble & Stone				12				
	12						13				
	13						10				
14E SS	14						15				
	15						19				
	16		11'6"				8				
	17						9				
	18						7				
14F SS	19						8				
	20		20'6"				10				
	21		End of Boring								
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL				GROUND WATER OBSERVATIONS				
D. - DISTURBED							G.W. ENCOUNTERED AT FT. INS.				
U.L. - UNDIST. LINER							G.W. ENCOUNTERED AT FT. INS.				
S.T. - SHELBY TUBE						G.W. ON COMPLETION FT. INS.					
S.S. - SPLIT SPOON						G.W. AFTER HOURS FT. INS.					
R.C. - ROCK CORE						G.W. VOLUMES None					
OTHER -											

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		JOB NO.	S-19-219		LOG OF SOIL BORING NO.	15		
		PROJECT:	City of Flint Secondary Water Supply					
		LOCATION:	Flint, Michigan					
DATE:		9/7/19		SURFACE ELEVATION:	Existing			
Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Sr. %
	1		6" Topsoil - Medium Compact, Moist, Sandy, Dark Brown w/Roots					
15A SS	2		Sand - Medium Compact, Moist, Brown w/Pebble	3				
	3		2'6"	4				
	4		Clay - Stiff, Moist, Silty, Sandy, Variegated w/occ Pebble (CL - Low Plasticity Clay)	3				
15B SS	5			4	14.3	131.5	2482	15.5
	6		6'0"	6				
15C SS	7			5				
	8			8				
	9			14				
15D SS	10		Clay - Very Stiff, Moist, Sandy, Brown	8				
	11			13				
	12			17				
	13							
15E SS	14							
	15		12'6"	10				
	16			11				
	17			12				
	18							
	19		Clay - Very Stiff, Moist, Silty, Sandy, Blue w/occ Pebble					
15F SS	20			10				
	21			12				
			20'6" End of Boring	15				
TYPE OF SAMPLE		BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS				
D. - DISTURBED				G.W. ENCOUNTERED AT FT. INS.				
U.L. - UNDIST. LINER				G.W. ENCOUNTERED AT FT. INS.				
S.T. - SHELBY TUBE				G.W. ON COMPLETION FT. INS.				
S.S. - SPLIT SPOON				G.W. AFTER HOURS FT. INS.				
R.C. - ROCK CORE								
OTHER -								
				</				



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JOB NO. S-19-219 LOG OF SOIL BORING NO. 16
PROJECT: City of Flint Secondary Water Supply
LOCATION: Flint, Michigan
DATE: 10/25/19 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		4" Asphalt					
	2		1'0" Fill Sand - Medium Compact, Moist, Dark Brown w/Broken Asphalt					
16A SS	3		2'8" Sand - Medium Compact, Moist, Brown w/Pebble	2				
	4		3'6" Clay - Firm, Moist, Silty, Sandy, Variegated w/Green Tint	3				
	5			5				
16B SS	6			1				
	7			1	15.2			
	8			1				
16C SS	9			0				
	10			0				
	11		Sand - Loose, Wet, Fine, Brown (SM-Silty Sand)	1				
	12							
16D SS	13			0				
	14			0				
	15			1				
	16							
	17							
	18							
	19							
16E SS	20		Clay - Stiff, Moist, Silty, Sandy, Blue w/occ Pebble	4				
	21			5				
	22			7				
	23							
	24							
	25							
	26							
	27							
	28							
	29							
16F SS	30		Clay - Extremely Stiff, Moist, Sandy, Blue w/occ Pebble					
	31			9				
	32			16				
	33			18				
	34							
TYPE OF SAMPLE				BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS		
D. - DISTURBED						G.W. ENCOUNTERED AT 3 FT. 6 INS.		
U.L. - UNDIST. LINER						G.W. ENCOUNTERED AT FT. INS.		
S.T. - SHELBY TUBE				* The soil descriptions shown on the logs are from visual observations. No classification tests were performed.		G.W. ON COMPLETION 2 FT. 6 INS.		
S.S. - SPLIT SPOON						G.W. AFTER HOURS FT. INS.		
R.C. - ROCK CORE				Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		G.W. VOLUMES Heavy		
OTHER -								



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JOB NO. S-19-219 LOG OF SOIL BORING NO. 17
PROJECT: City of Flint Secondary Water Supply
LOCATION: Flint, Michigan
DATE: 10/25/19 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		4" Topsoil - Medium Compact, Moist, Sandy, Black w/Roots					
	2		Sand - Medium Compact, Moist, Brown w/Pebble & occ/Stone					
17A SS	3		2'9" Clay - Firm, Moist, Silty, Sandy, Variegated w/Green Tint, Possible Swamp Bottom	3				
	4		4'0" Clay - Firm, Moist, Silty, Sandy, Variegated w/occ Pebble	3				
17B SS	5		6'0" Clay - Firm, Moist, Silty, Sandy, Variegated w/occ Pebble	2				
	6			1				
17C SS	7			2				
	8		Clay - Stiff, Moist, Silty, Sandy, Brown (CL - Low Plasticity Clay)	3	14.7	132.8	2982	15.5
	9			6				
17D SS	10		9'6" Clay - Very Stiff, Moist, Silty, Sandy, Blue w/Brown Sand Seams	3				
	11			5				
	12	11'9"		14				
	13							
	14		Clay - Stiff, Moist, Silty, Sandy, Blue w/occ Pebble					
17E SS	15		15'0" Clay - Stiff, Moist, Silty, Sandy, Blue w/occ Pebble & Wet Grey Sand Seams	3				
	16		17'0" Clay - Stiff, Moist, Silty, Sandy, Blue w/occ Pebble & Wet Grey Sand Seams	4				
	17			6				
	18							
	19		Clay - Extremely Stiff, Moist, Silty, Sandy, Blue w/occ Pebble					
17F SS	20			10				
	21			18				
				22				
TYPE OF SAMPLE D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -				BORING PLUGGED WITH NATURAL SOIL * The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		GROUND WATER OBSERVATIONS G.W. ENCOUNTERED AT 15 FT. 0 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 23 FT. 6 INS. G.W. AFTER HOURS FT. INS. G.W. VOLUMES Heavy		



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JOB NO. S-19-219 LOG OF SOIL BORING NO. 16
PROJECT: City of Flint Secondary Water Supply
LOCATION: Flint, Michigan
DATE: 10/25/19 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str %
	21		Clay - Extremely Stiff, Moist, Sandy, Blue w/occ Pebble					
	22							
	23							
	24							
16G SS	25				9			
	26				19			
	27				22			
	28							
	29							
16H SS	30				11			
	31			30'6" End of Boring	18			
	32				24			
	33							
	34							
	35							
	36							
	37							
	38							
	39							
	40							
	41							
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS			
D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -			* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		G.W. ENCOUNTERED AT 3 FT. 6 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 2 FT. 6 INS. G.W. AFTER HOURS FT. INS. G.W. VOLUMES Heavy			



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JOB NO. S-19-219 LOG OF SOIL BORING NO. 17
PROJECT: City of Flint Secondary Water Supply
LOCATION: Flint, Michigan
DATE: 10/25/19 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	21	30'6"	Clay - Extremely Stiff, Moist, Silty, Sandy, Blue w/occ Pebble					
	22							
	23							
	24							
17G SS	25				10			
	26				13			
	27				14			
	28							
	29							
17H SS	30				12			
	31				17			
	32				18			
	33							
	34							
	35							
	36							
	37							
	38							
	39							
	40							
	41							
TYPE OF SAMPLE			BORING PLUGGED WITH NATURAL SOIL		GROUND WATER OBSERVATIONS			
D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -			* The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.		G.W. ENCOUNTERED AT 15 FT. 0 INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION 23 FT. 6 INS. G.W. AFTER HOURS FT. INS. G.W. VOLUMES Heavy			

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Flint, MI 48502
(810) 603-0766
www.wadetrim.com



CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY

SOIL BORING LOG SHEET 4

ISSUED FOR: DATE: BY:

JOB NO.
COF1068.01F

SHEET

69

GENERAL NOTES

1. DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES ARE BASED ON PREVIOUS CONTRACT DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING W/ FIELD MEASUREMENTS ALL DIMENSIONS AND ELEVATIONS FOR FABRICATION AND/OR MODIFICATIONS OR ADDITIONS BEING MADE UNDER THIS CONTRACT. ANY DISCREPANCIES SHALL BE PRESENTED TO THE OWNER AND ANY DESIGN CONFLICTS SHALL BE RESOLVED WITH OWNER PRIOR TO FABRICATIONS OR CONSTRUCTION OF IMPACTED ITEMS.
2. MATERIALS FOR THE FOLLOWING FACILITY COMPONENTS SHALL BE AS INDICATED BELOW UNLESS NOTED OTHERWISE:
 - A. SUMP GRATING . . . GALV. STEEL
3. ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN WITH THE ± SYMBOL, ARE APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.
4. ALL DIMENSIONS OR ELEVATIONS MARKED WITH AN ASTERISK "*" SHALL BE DETERMINED OR VERIFIED WITH EQUIP. MFR. CERTIFIED SHOP DRAWINGS OR FIELD MEASUREMENTS OF EXISTING CONSTRUCTION BEFORE FABRICATION AND CONSTRUCTION.
5. ALL ADHESIVE ANCHORING SYSTEMS FOR POST-INSTALLED ANCHORS AND/OR REINFORCING DOWELS IN CONCRETE OR MASONRY SHALL BE PER SPECIFICATIONS AT SIZE AND SPACING INDICATED ON DRAWINGS WITH EMBEDMENT DEPTH INDICATED ON DRAWINGS.
6. ALL POST-INSTALLED ANCHOR BOLTS INTO NEW OR EXISTING CONCRETE SHALL BE ASTM A316 STAINLESS STEEL THREADED ROD WITH STAINLESS STEEL WASHER AND NUT, UNO.

CAST-IN-PLACE CONCRETE

- THE DETAILING, BENDING, AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI STANDARD 350-06/350R-06 CODE AND ACI DETAILING MANUAL, SP-66 (94). FIELD BENDING SHALL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER
2. ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
3. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 PSI @ 28 DAY UNLESS OTHERWISE NOTED.
4. WATERSTOPS SHALL BE PROVIDED AT ALL CONSTRUCTION JOINTS, CONTROL JOINTS AND EXPANSION JOINTS (UNLESS NOTED OTHERWISE).
5. ALL STIRRUPS AND TIES SHALL BE CLOSED TYPE WITH 135 DEGREE HOOKS, U.N.O.
6. ALL COLD JOINTS IN CONCRETE STRUCTURES SHALL HAVE A CONTINUOUS WATERSTOP CREATING A WATERTIGHT JOINT AS DETAILED. WHERE NOT SPECIFIED ALL COLD JOINTS SHALL HAVE A HYDROPHILIC WATERSTOP PER SPECIFICATIONS.
7. THE LENGTH OF ALL LAP SPLICES SHALL BE AS SPECIFIED IN "REINFORCING TENSION SPLICE TABLE" ON THIS SHEET UNLESS OTHERWISE INDICATED IN DRAWINGS. WHEN BARS OF DIFFERENT SIZE ARE BEING LAPPED, THE LENGTH SHALL BE THE SPECIFIED LAP LENGTH OF THE LARGER BAR.
8. BOTTOM AND TOP REINFORCING BARS FOR ALL DISCONTINUOUS ENDS OF BEAMS AND SLABS SHALL HAVE HOOKS AND SPLICES CONFORMING TO ACI MANUAL OF STANDARD PRACTICE.
9. ALL FILLET AND TOPPING CONCRETE SHALL BE HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 6000 PSI. FILLET CONCRETE, SHALL BE PLACED TO PRODUCE CONTOURS INDICATED ON PLANS, AND SHALL RECEIVE SMOOTH FLOAT FINISH.
10. CONCRETE COVER OVER PRIMARY REINFORCEMENT SHALL BE (2) INCHES MINIMUM (1 1/2" FOR COLUMN TIES AND BEAM STIRRUPS), UNLESS NOTED OTHERWISE, AND (3) INCHES MINIMUM WHERE CAST AGAINST EARTH.
11. CAST-IN-PLACE CONCRETE CONSTRUCTION JOINTS:
 - A. ALL CONSTRUCTION JOINTS SHALL HAVE FORMED KEYWAYS AND WATERSTOPS (WHERE INDICATED) PER DETAILS ON SHEET S-2.
12. CAST-IN-PLACE CONCRETE WALLS WHICH SUPPORT AN ELEVATED SLAB SHALL NOT BE BACKFILLED UNTIL THE ELEVATED SLAB IS PLACED AND CURED.
13. ALL EXPOSED EDGES OF BEAMS, COLUMNS, SLABS AND WALLS SHALL BE CHAMFERED 3/4".

METALS

1. MISCELLANEOUS METALS SHALL CONFORM TO ASTM A-36.
2. ALL GALVANIZED STEEL SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123, UNO.
3. ALL 11/2" DEEP STEEL GRATING INDICATED ON PLANS SHALL BE TYPE 15-SGI-4 GRATING AND SHALL HAVE A MINIMUM ALLOWABLE WORKING STRESS OF 12,000 PSI WITH THE FOLLOWING MINIMUM SECTION PROPERTIES:
 $S_x = 0.90 \text{ IN}^3/\text{FT}$
 $I_x = 0.675 \text{ IN}^4/\text{FT}$



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SOILS

1. DUE TO THE PROXIMITY OF EXISTING STRUCTURES, ROADS AND UTILITIES, IT WILL BE NECESSARY TO PROVIDE TEMPORARY EARTH RETENTION FOR CONSTRUCTION WITHIN DEEP EXCAVATIONS. SELECTION AND DESIGN OF TEMPORARY EARTH RETENTION SYSTEMS AND PROTECTION OF EXISTING STRUCTURES, ROADS AND UTILITIES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DESIGN CALCULATIONS FOR PROPOSED EARTH RETENTION MEASURES, SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN, SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING RELATED EXCAVATION WORK.
2. SOIL BORING DATA IS INCLUDED IN THE SPECIFICATIONS FOR INFORMATION ABOUT THE UNDERGROUND CONDITIONS ONLY AT THE LOCATIONS WHERE THE BORINGS WERE MADE. THE OWNER DOES NOT REPRESENT OR WARRANT THAT THE UNDERGROUND CONDITIONS ENCOUNTERED DURING CONSTRUCTION SHALL CONFORM TO THOSE DESCRIBED IN THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL DRAW THEIR OWN CONCLUSIONS AS TO SOIL CONDITIONS FROM THEIR OWN EXPERIENCE, INDEPENDENT KNOWLEDGE, AND INVESTIGATION OF THE SITE. THE CONTRACTOR SHALL OBTAIN ADDITIONAL SUBSURFACE CONDITION INFORMATION AS THEY CONSIDER NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR SHALL PREPARE AN EXCAVATION PLAN INCLUDING SIDE SLOPES PROPOSED, TEMPORARY OR PERMANENT EARTH RETENTION SYSTEMS, AND DEWATERING OR DEPRESSURIZING SYSTEMS FOR REVIEW PRIOR TO START OF WORK.

FOUNDATIONS

1. CONTRACTOR SHALL BE AWARE OF AND VERIFY LOCATION OF ALL UNDERGROUND UTILITIES, TANKS, ETC. DUE CARE SHALL BE EXERCISED DURING CONSTRUCTION ACTIVITIES SUCH THAT EXISTING UTILITIES ARE NOT DAMAGED.
 2. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN AN APPROVED MANNER. ALL EXCAVATIONS SHALL CONFORM TO OSHA REQUIREMENTS.
 3. ALL EXCAVATION, FILLING, BACKFILLING, FOUNDATION AND COMPACTION CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL EXPLORATION REPORT, REQUIREMENTS NOTED ON THE DRAWINGS, AND PROJECT SPECIFICATIONS, UNO.
 4. BARRICADE ALL OPEN EXCAVATIONS OCCURRING AS PART THE WORK AND POST WITH WARNING LIGHTS.
 5. SLOPE OR BENCH SIDES OF EXCAVATIONS TO COMPLY WITH CODES AND ORDINANCES HAVING JURISDICTION. PROVIDE SHORING OR SHIELDING WHERE SLOPING IS NOT POSSIBLE BECAUSE OF SPACE RESTRICTION OR STABILITY OF MATERIAL EXCAVATED.
- MISCELLANEOUS**
1. BEFORE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT FOUNDATION, PAD AND CURB DIMENSIONS, AND THE SIZES AND LOCATIONS OF ANCHOR BOLTS FROM MANUFACTURER'S CERTIFIED SHOP DRAWINGS.
 2. CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND ACCOMMODATE OPENINGS AND EMBEDDED ITEMS SHOWN ON OTHER DRAWINGS.
 3. ALL ADHESIVE ANCHORING SYSTEMS FOR POST INSTALLED ANCHORS AND/OR REINFORCING DOWELS IN CONCRETE AND MASONRY SHALL BE "HIT-HY 200 ADHESIVE ANCHORING SYSTEM" BY HILTI AT SIZE AND SPACING INDICATED ON DRAWINGS (OR APPROVED EQUAL).
 4. PROVIDE EXPANDED METAL CLOSURES AND SUPPORT FRAMING, MATCHING MATERIAL AND FINISH OF ADJACENT GUARDRAILS, AT ALL EQUIPMENT OPENING LOCATIONS, AS REQUIRED TO MEET FEDERAL AND LOCAL SAFETY REGULATIONS.

MISCELLANEOUS

1. BEFORE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT FOUNDATION, PAD AND CURB DIMENSIONS, AND THE SIZES AND LOCATIONS OF ANCHOR BOLTS FROM MANUFACTURER'S CERTIFIED SHOP DRAWINGS.
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BAR SIZE	TENSION LAP LENGTH	* TOP BARS
#3	16"	22"
#4	20"	29"
#5	24"	36"
#6	29"	43"
#7	42"	63"
#8	48"	72"
#9	54"	81"
#10	61"	91"
#11	67"	101"

NOTES

1. ABOVE TABLE IS FOR NORMAL WEIGHT CONCRETE;
f'c=5,000 PSI AND REINFORCING STEEL; fy=60,000 PSI.
2. ALL SPLICES SHOULD BE CONSIDERED TENSION SPLICES USING
LAP LENGTHS IN TABLE ABOVE UNLESS SPECIFICALLY SHOWN
OTHERWISE ON THE DRAWINGS.
3. LENGTHS ARE BASED ON LAP CLASS B SPLICES WITH
CENTER TO CENTER SPACING OF BARS EQUAL TO OR
GREATER THAN 6 DIAMETERS.
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12"
OF CONCRETE CAST UNDER THEM.
5. USE TENSION LAP LENGTHS FOR HORIZ & VERT. WALL BARS.

STRUCTURAL ABBREVIATIONS

ALT	ALTERNATE	ID	INSIDE DIAMETER
ALUM	ALUMINUM	IE	INVERT ELEVATION
		IF	INSIDE FACE
B/	BOTTOM	IN	INCHES
BLDG	BUILDING	INFL	INFLUENT
BM	BEAM	INT	INTERIOR
BOT	BOTTOM		
BSMT	BASEMENT	JT	JOINT
CHAN	CHANNEL	KIP	THOUSAND POUNDS
CIP	CAST-IN-PLACE	KB	KNEE BRACE
CJ	CONSTRUCTION		
JOINT		LP	LOW POINT
CL	CENTERLINE	LGTH	LENGTH
CLR	CLEAR		
COL	COLUMN	MAX	MAXIMUM
CONC	CONCRETE	MFR	MANUFACTURER
CONST	CONSTANT	MIN	MINIMUM
CONSTR	CONSTRUCTION	MO	MASONRY OPENING
CONT	CONTINUOUS		
CLSM	CONTROLLED LOW	NF	NEAR FACE
	STRENGTH MATERIAL	NS	NEAR SIDE
COR	CORNER	NTS	NOT TO SCALE
CY	CUBIC YARD	NIC	NOT IN CONTRACT
DET	DETAIL	OC	ON CENTER
DIA / Ø	DIAMETER	OD	OUTSIDE DIAMETER
DIAG	DIAGONAL	OF	OUTSIDE FACE
DISC	DISCONTINUOUS	OPNG	OPENING
DIST	DISTANCE		
DWLS	DOWELS	PEMB	PRE-ENGINEERED
			METAL BUILDING
EJ	EXPANSION JOINT	PSF	POUNDS PER SQ.
EE	EACH END	FOOT	
EF	EACH FACE	PSI	POUNDS PER SQ.
EFF	EFFLUENT	INCH	
ES	EACH SIDE		
EW	EACH WAY	REINF	REINFORCEMENT
EA	EACH	RE	REFER TO
EL/ ELEV	ELEVATION		
EX	EXISTING	SCHED	SCHEDULE
EXT	EXTERIOR/	SET	SETTLING
EXTENSION		SHTS	SHEETS
		SIM	SIMILAR
FD	FLOOR DRAIN	SJ	SLAB CONTROL
FF	FAR FACE	JOINT	
FS	FAR SIDE	SS	STAINLESS STEEL
FIN	FINISH	STIR	STIRRUPS
FL	FLOOR	STRUCT	STRUCTURAL
FND	FOUNDATION		
FST	FINAL SETTLING	TOS	ELEVATION TOP OF
TANK			STRUCTURAL STEEL
FT	FEET	T/	TOP
		Typ	TYPICAL
GALV	GALVANIZED		
GR	GRADE	UNO	UNLESS NOTED
			OTHERWISE
H/	HORIZONTAL		
HP	HIGH POINT	V	VERTICAL
HK	HOOK		
HT	HEIGHT	WP	WORK POINT

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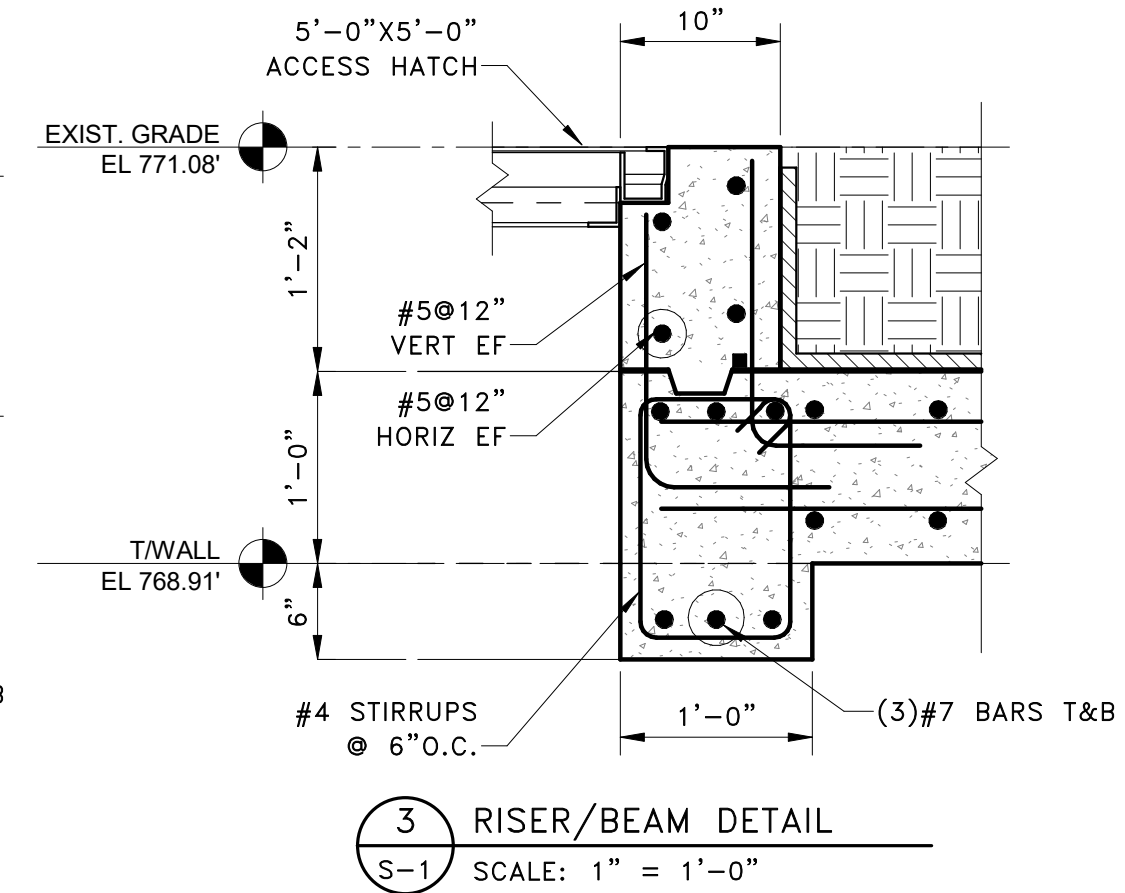
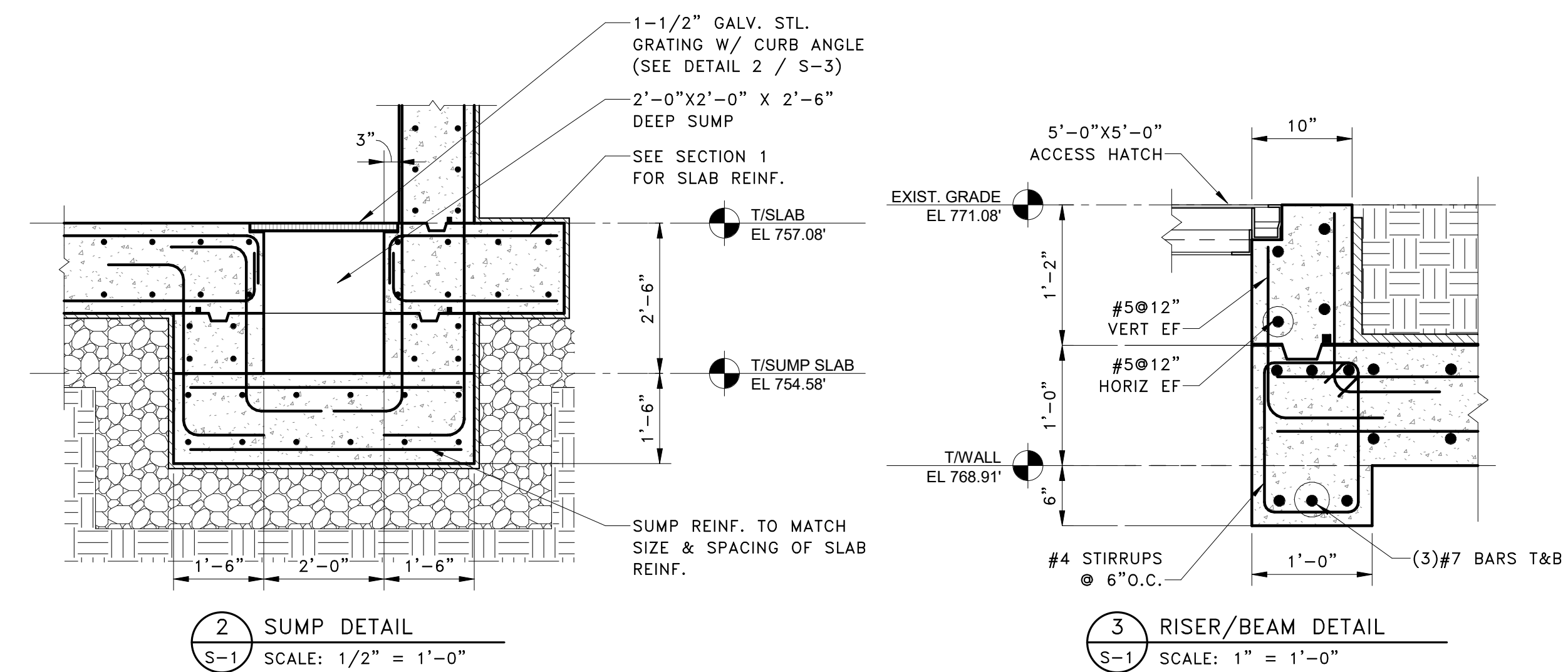
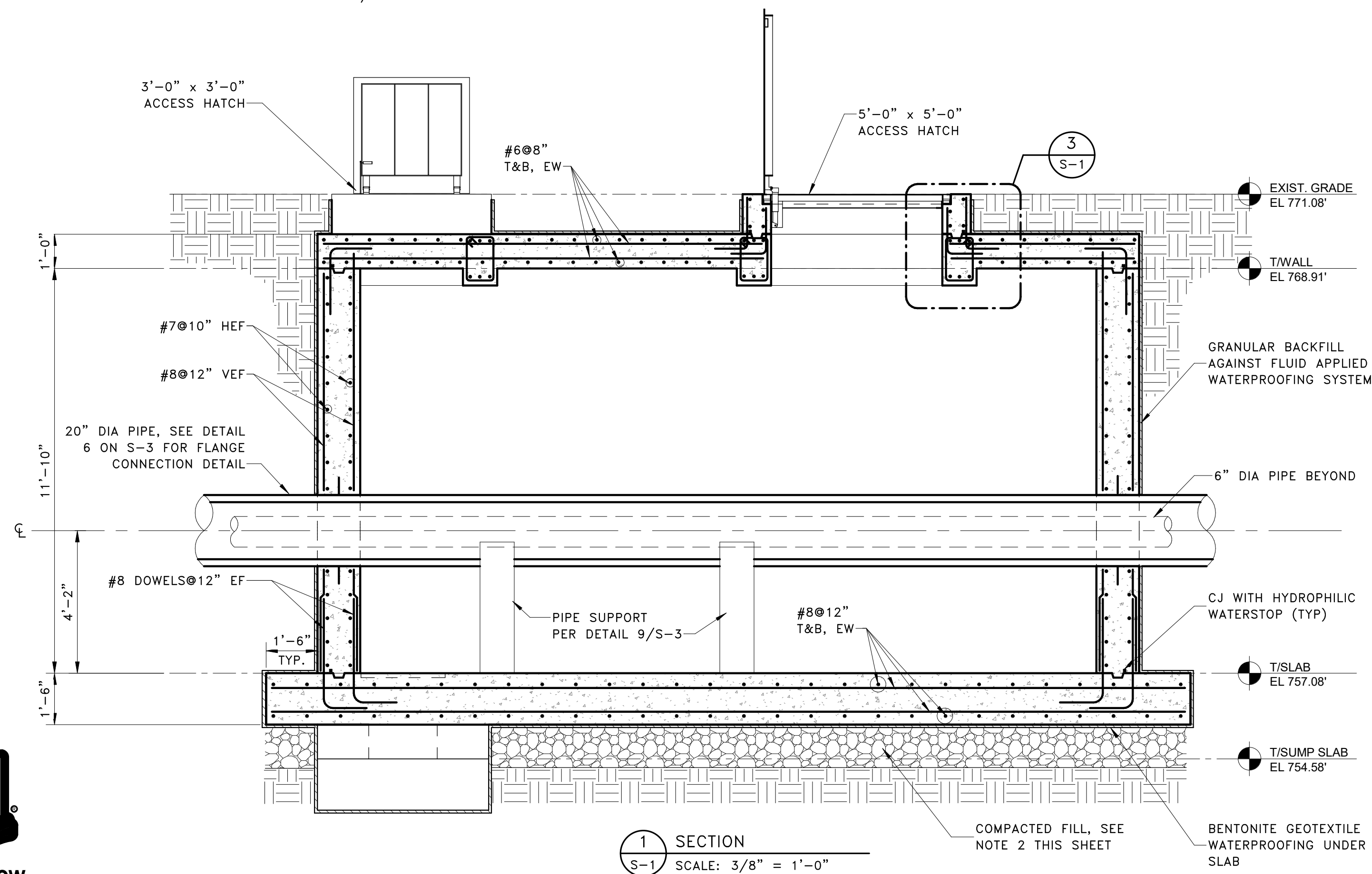
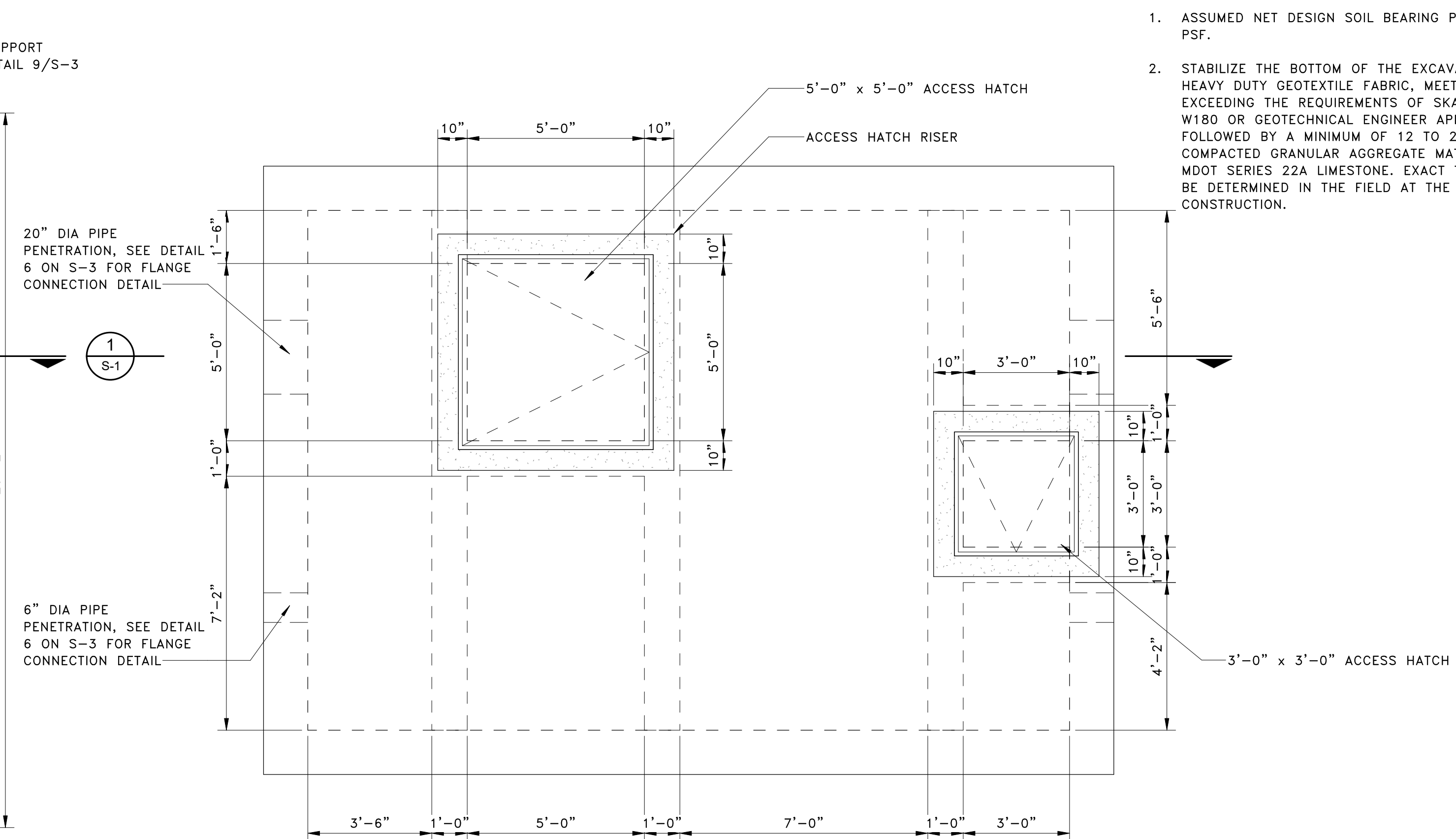
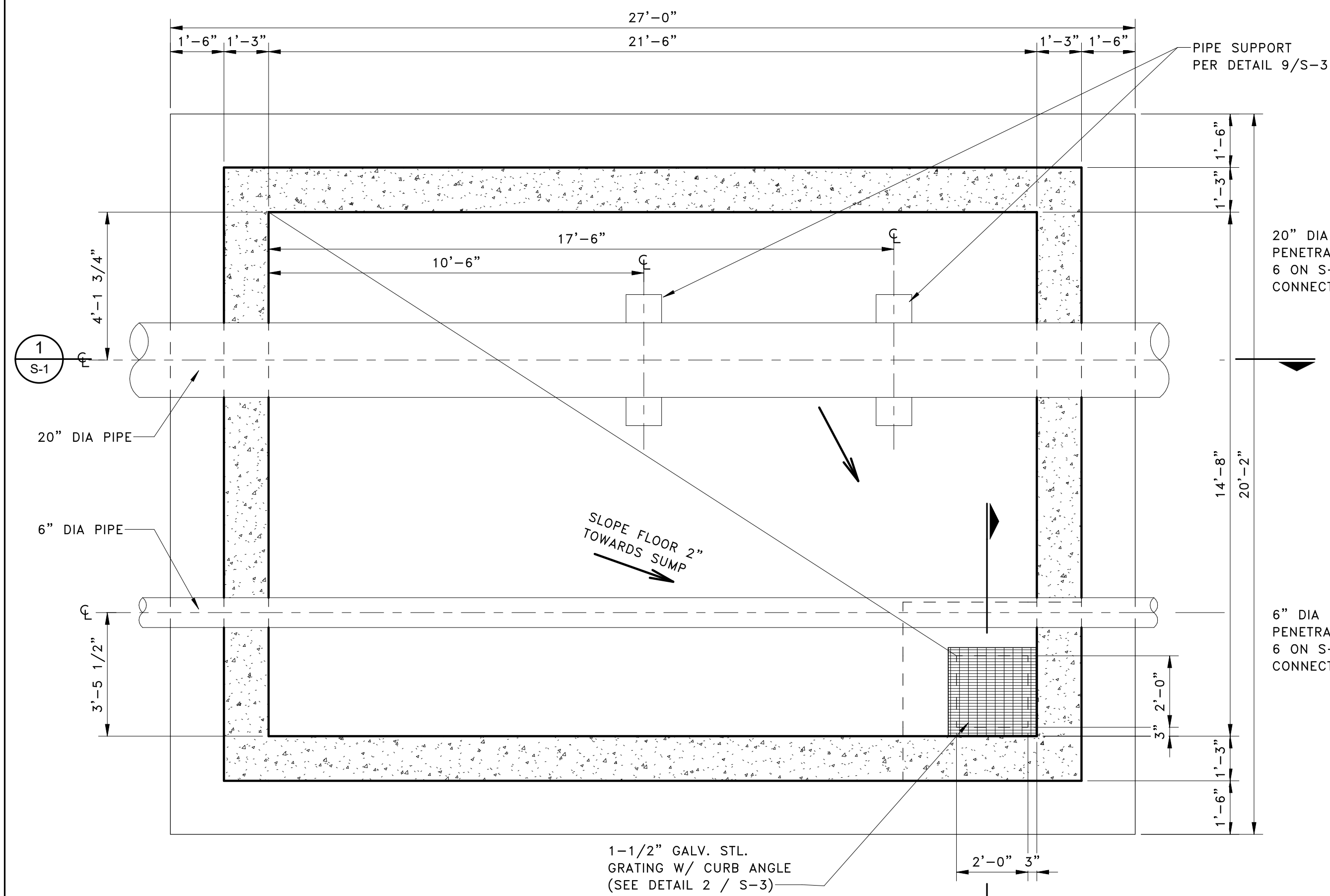
CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
STRUCTURAL
GENERAL NOTES AND ABBREVIATIONS

ISSUED DATE: BY:
FOR:

JOB
NO. COF1068.01F

SHEET

S-0



- NOTES:
1. ASSUMED NET DESIGN SOIL BEARING PRESSURE IS 2000 PSF.
 2. STABILIZE THE BOTTOM OF THE EXCAVATION WITH A HEAVY DUTY GEOTEXTILE FABRIC, MEETING OR EXCEEDING THE REQUIREMENTS OF SKAPS INDUSTRIES W180 OR GEOTECHNICAL ENGINEER APPROVED EQUAL, FOLLOWED BY A MINIMUM OF 12 TO 24 INCHES OF COMPACTED GRANULAR AGGREGATE MATERIAL TYPE A2 MDOT SERIES 22A LIMESTONE. EXACT THICKNESS SHALL BE DETERMINED IN THE FIELD AT THE TIME OF CONSTRUCTION.



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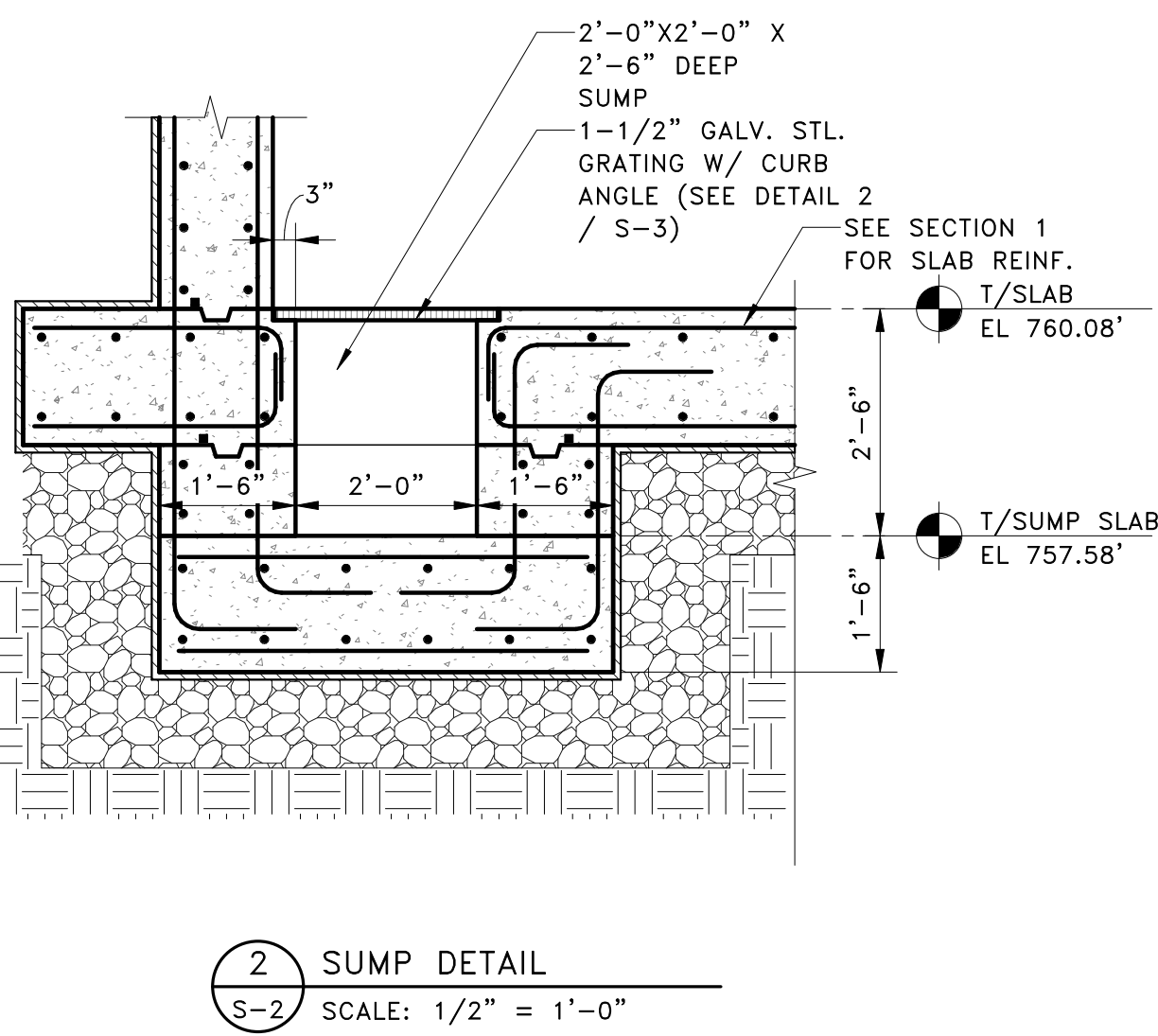
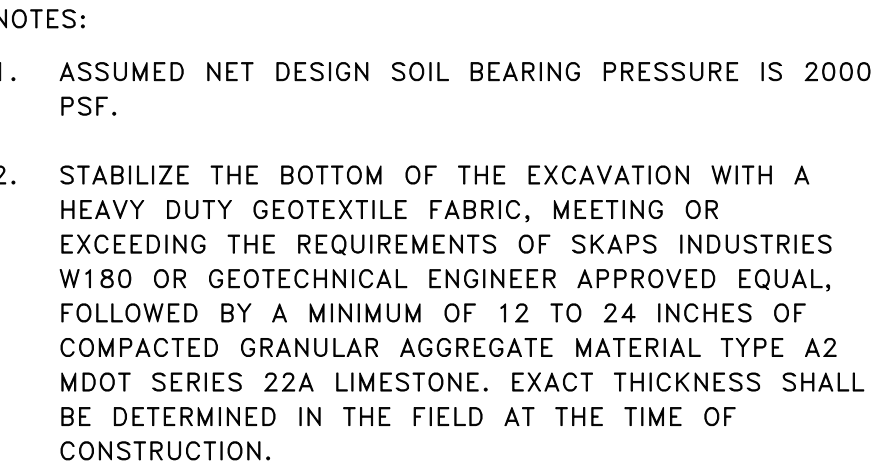
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36" SECONDARY WATER SUPPLY
STRUCTURAL
GCDC METER VAULT PLAN AND SECTION

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STRUCTURAL
CITY OF FLINT METER VAULT PLAN AND SECTION

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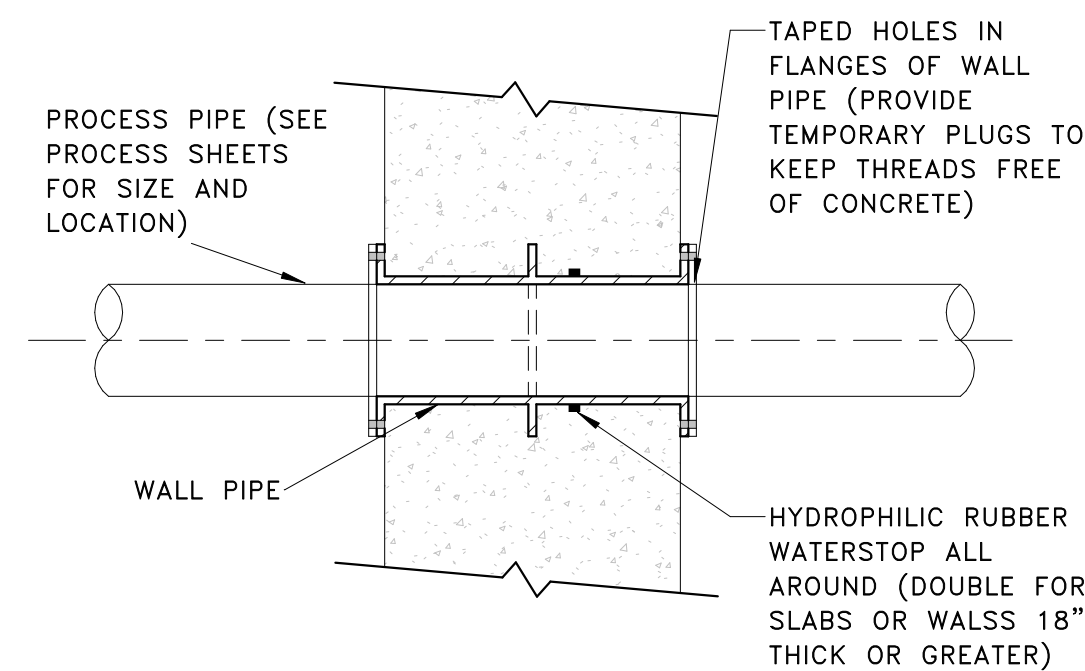
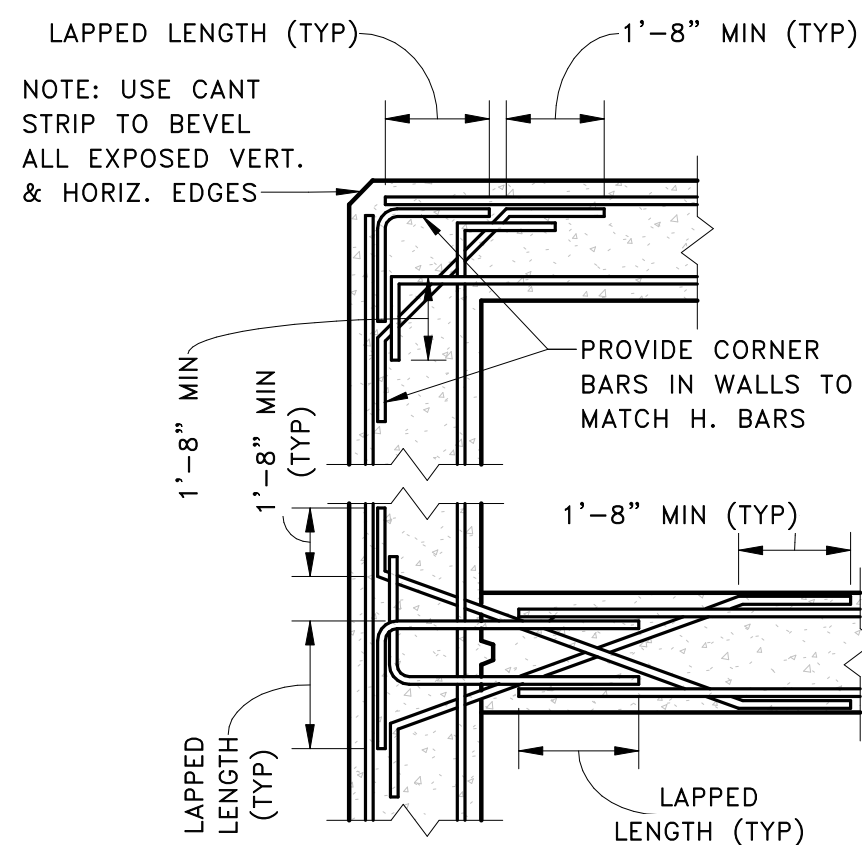
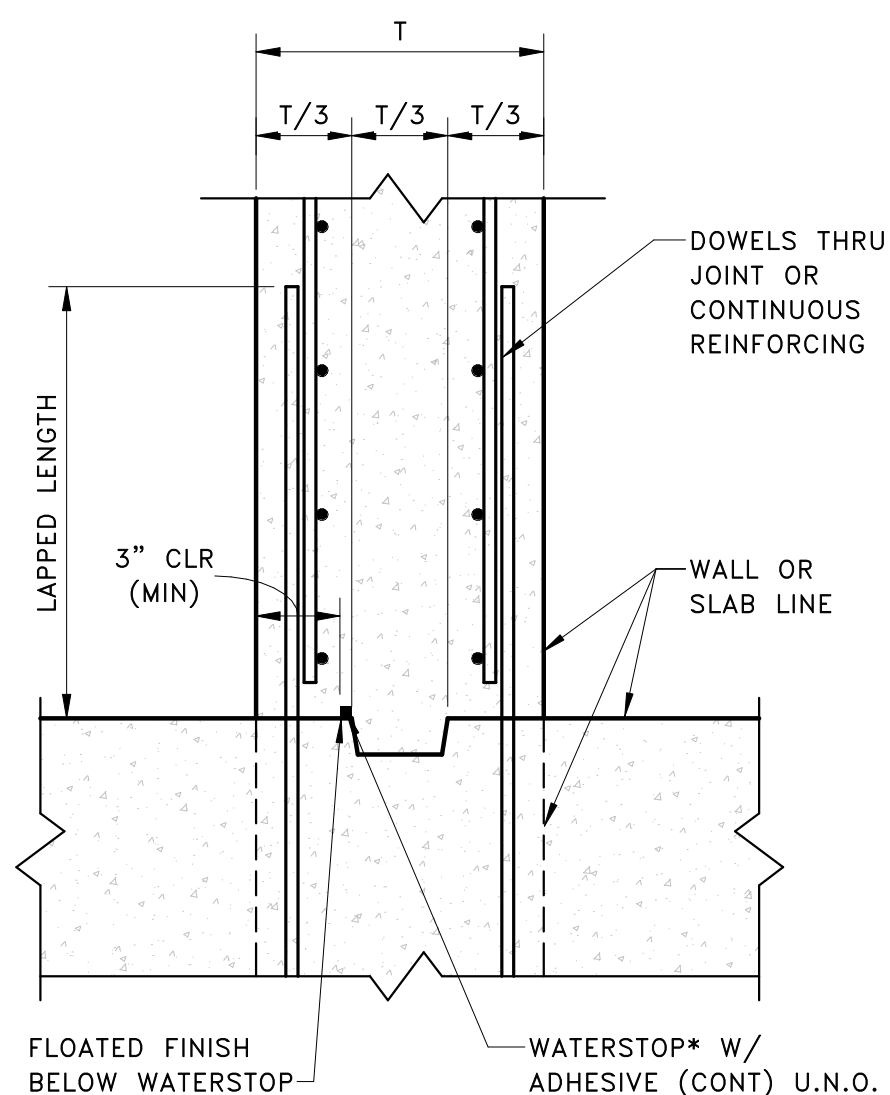
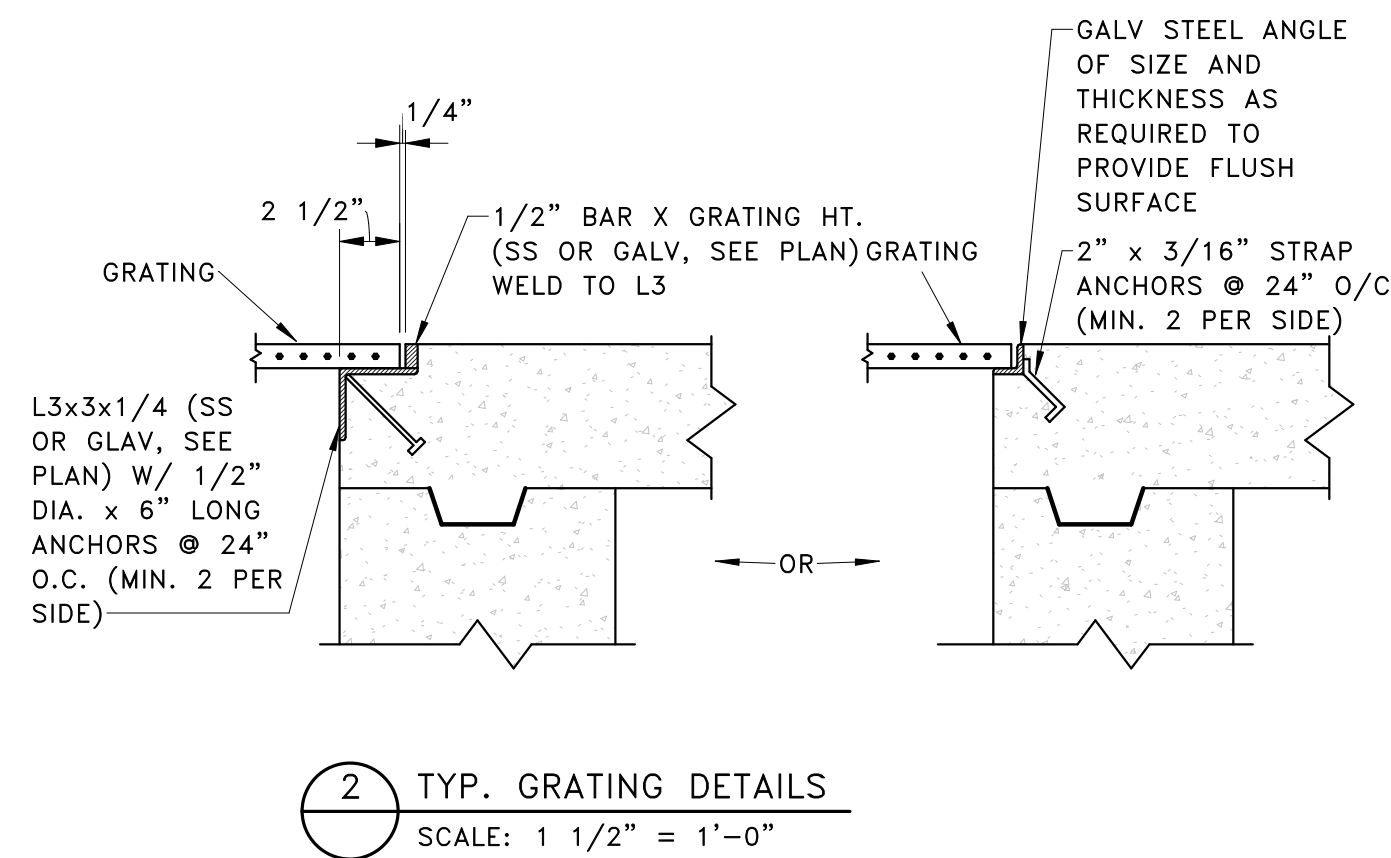
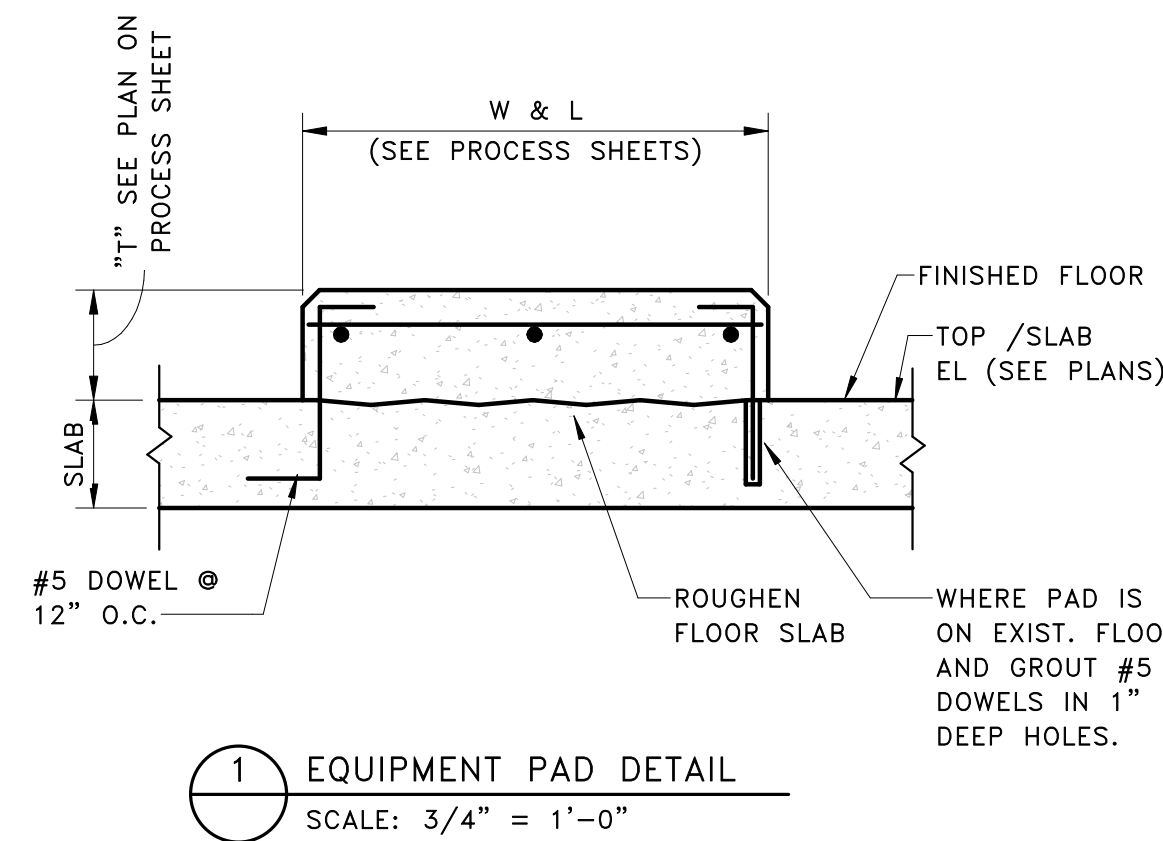
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




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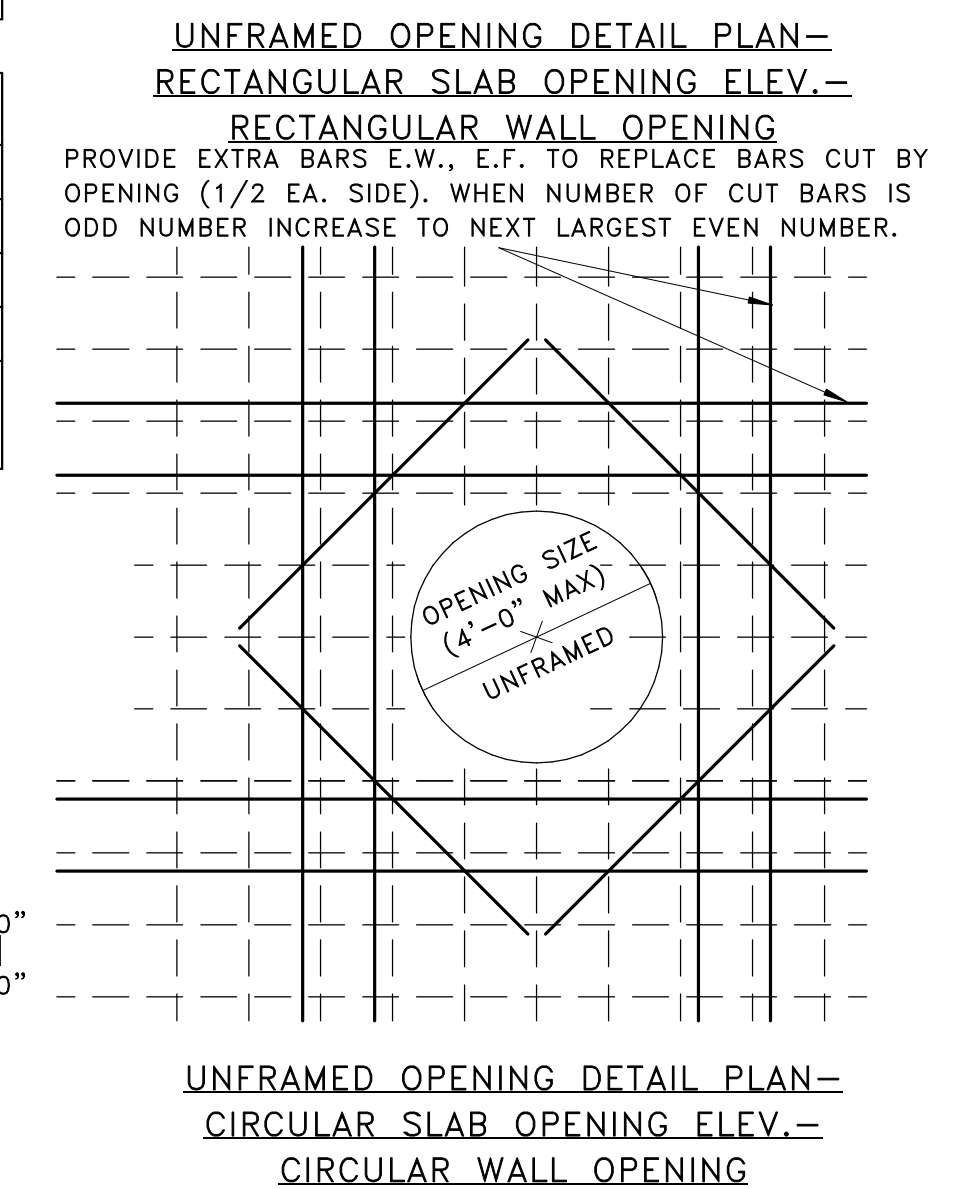
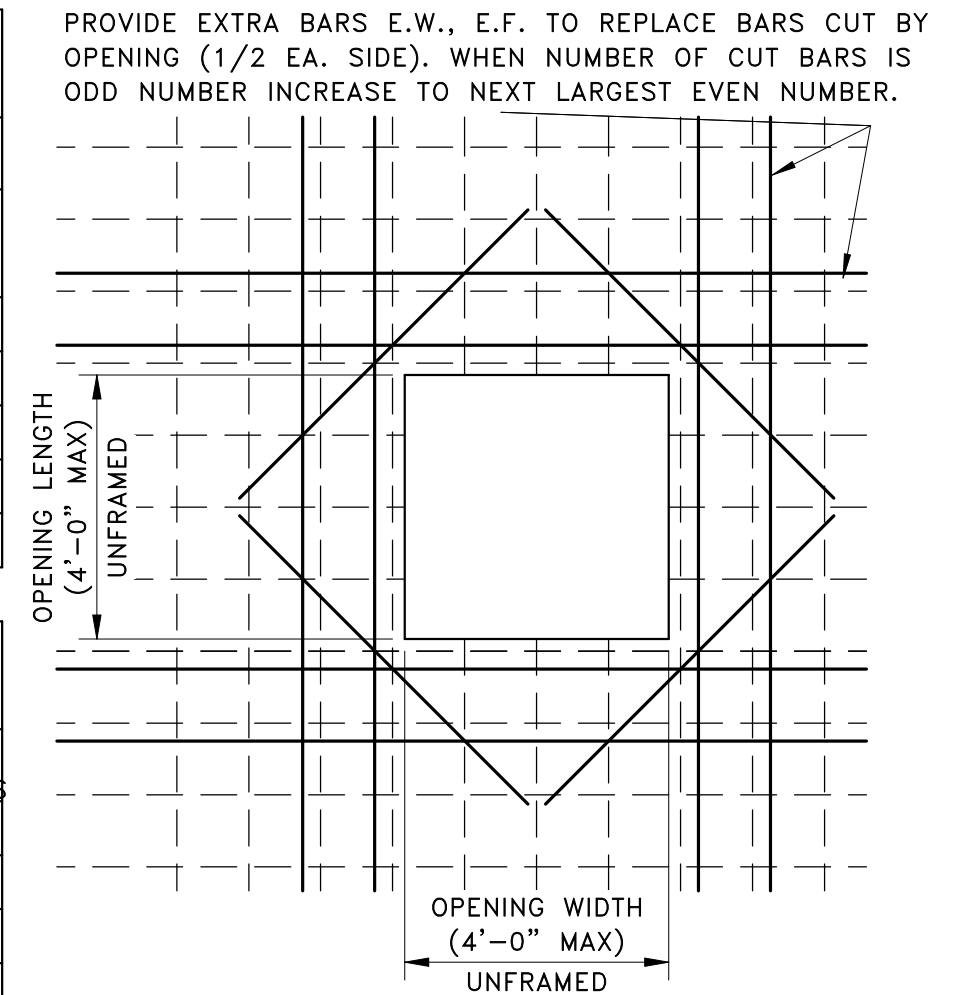
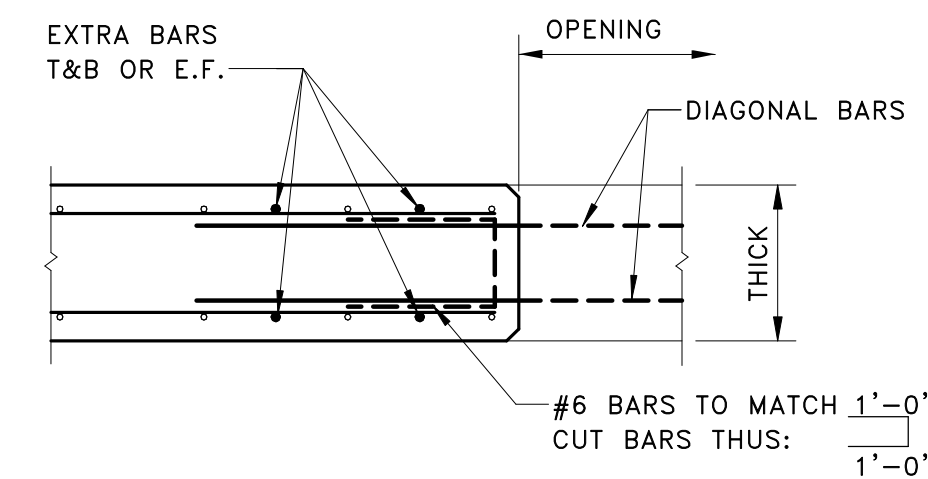
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DIAGONAL BARS ALL OPENINGS				
SLAB OR WALL THICKNESS		DIAG. BARS - (4) SIDES OF OPENING F.F.: EQUAL SPACING		
FROM	TO & INCLUDING	NO.	BAR SIZE	LENGTH
0	8"	1	 #4	3'-0"
8"	16"	2	 #5	4'-0"
16"	24"	2	 #6	5'-0"
24"	32"	3	 #6	5'-0"
32"	40"	3	 #7	6'-0"

LENGTH OF EXTRA BARS CENTERED ON Q OF OPENING			
BAR SIZE	LENGTH = OPENING PLUS	BAR SIZE	LENGTH = OPENING PLUS
 #4	3'-0"	 #8	10'-0"
 #5	4'-0"	 #9	12'-0"
 #6	6'-0"	 #10	16'-0"
 #7	8'-0"	 #11	20'-0"

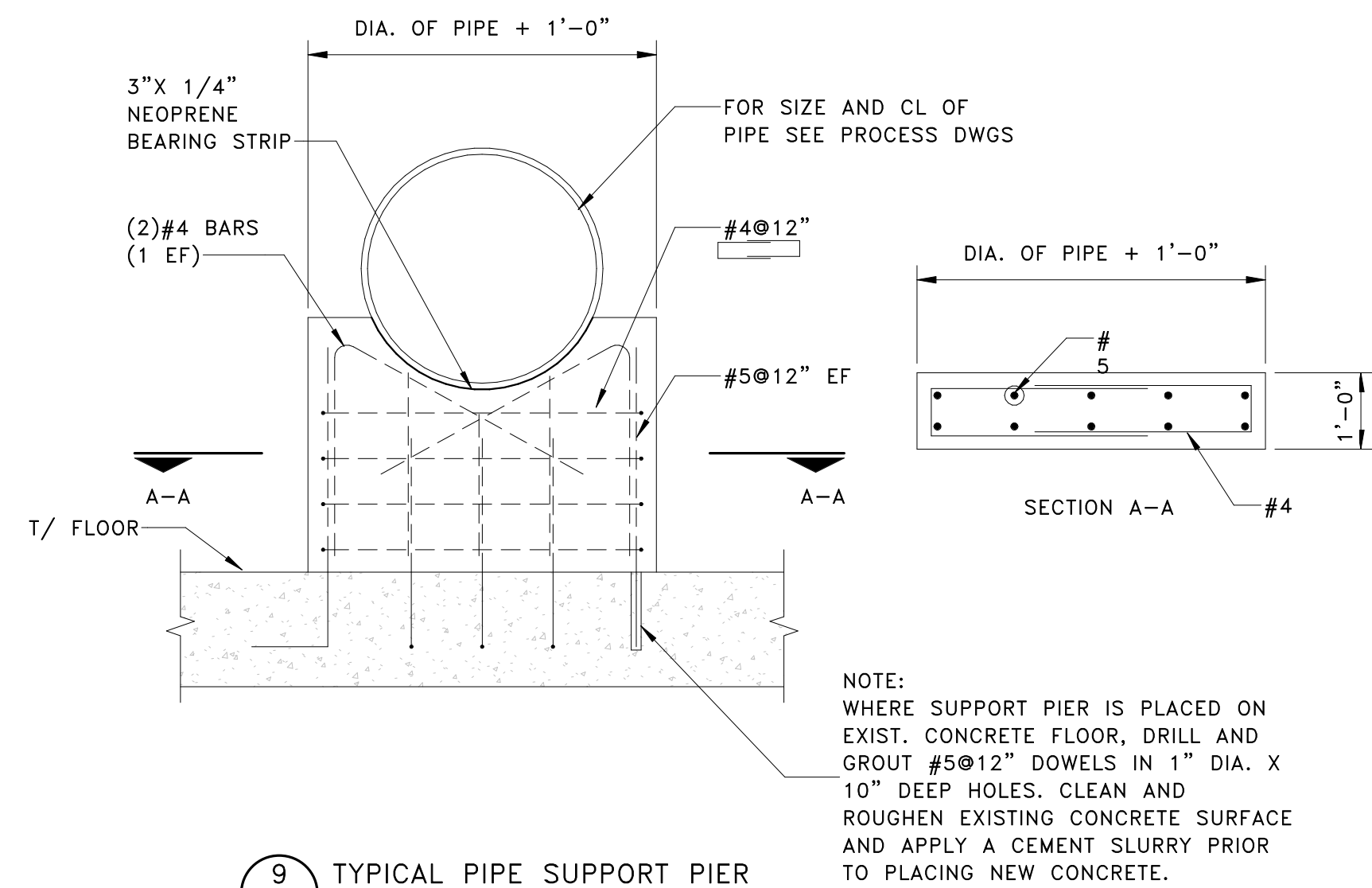
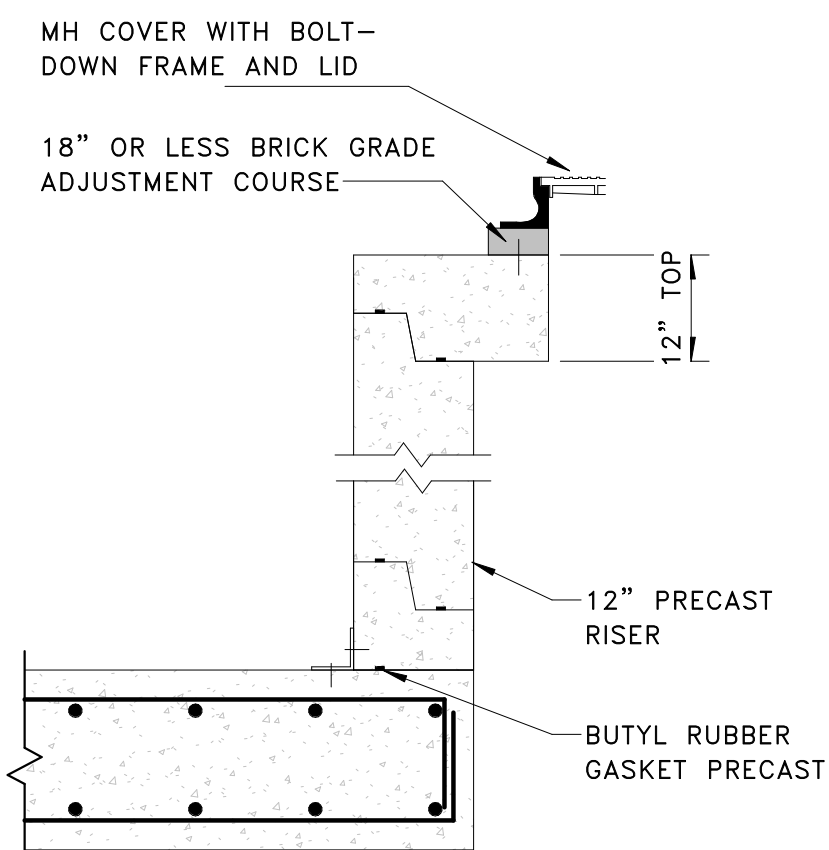
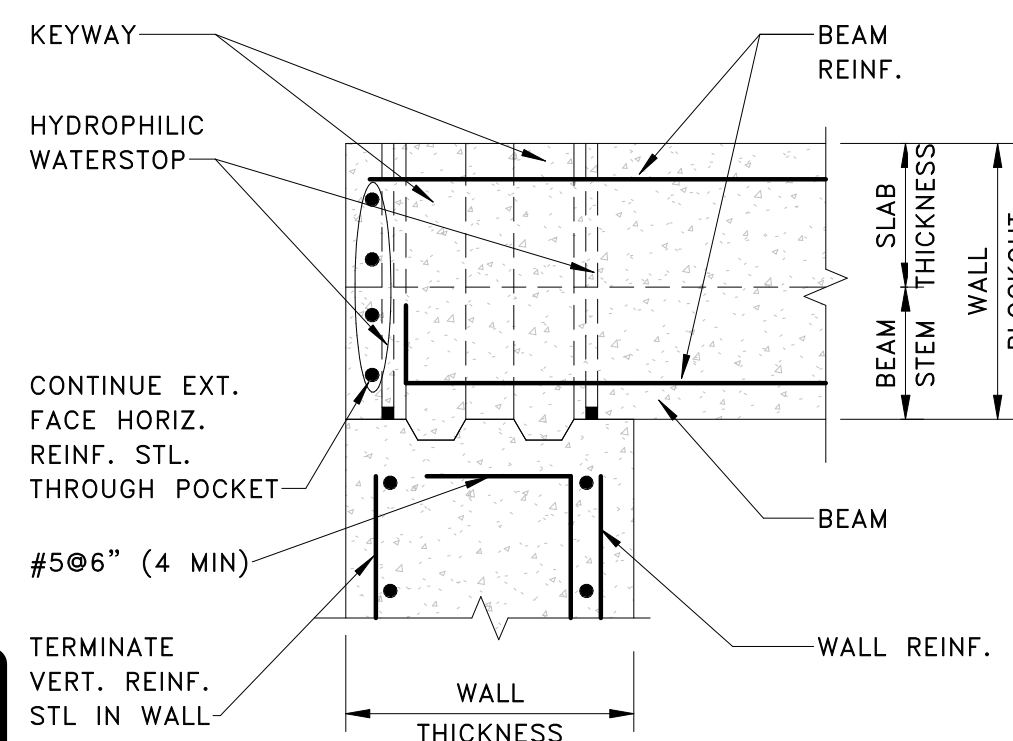
OPENING REINFORCEMENT SCHEDULE				
TYPE OF OPENING	THICKNESS	REINFORCEMENT REQUIRED		
		EXTRA	DIAGONAL	[- BARS
UNFRAMED	16" OR LESS	YES	YES	NO
	16" TO 4'-0"	YES	YES	YES
FRAMED (BEAMS)	ALL	NO	YES	NO



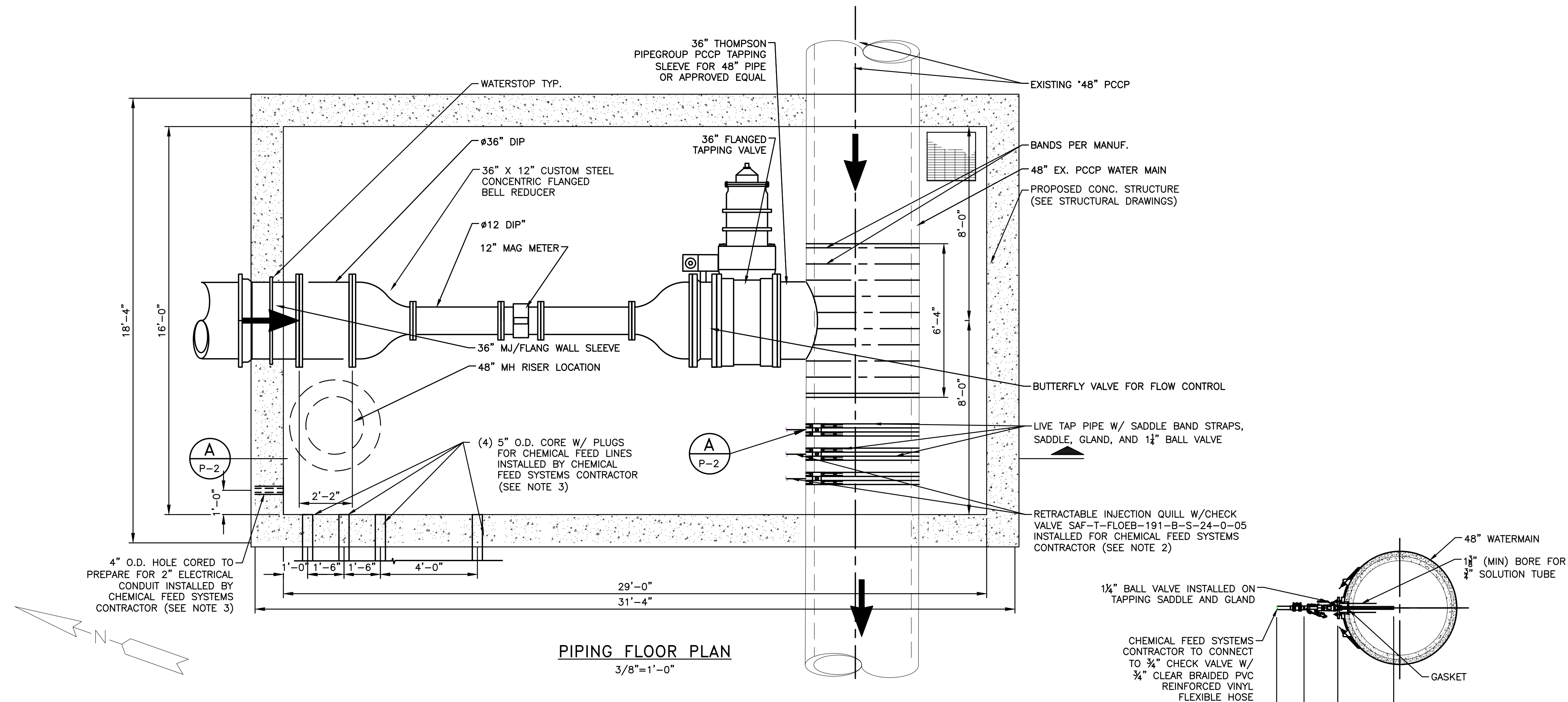
(FOR MEMBERS UP TO 18" THICK) EITHER SHOWN ON
SECTION OR NOTED AS
C.J. ON PLAN

*NOTE

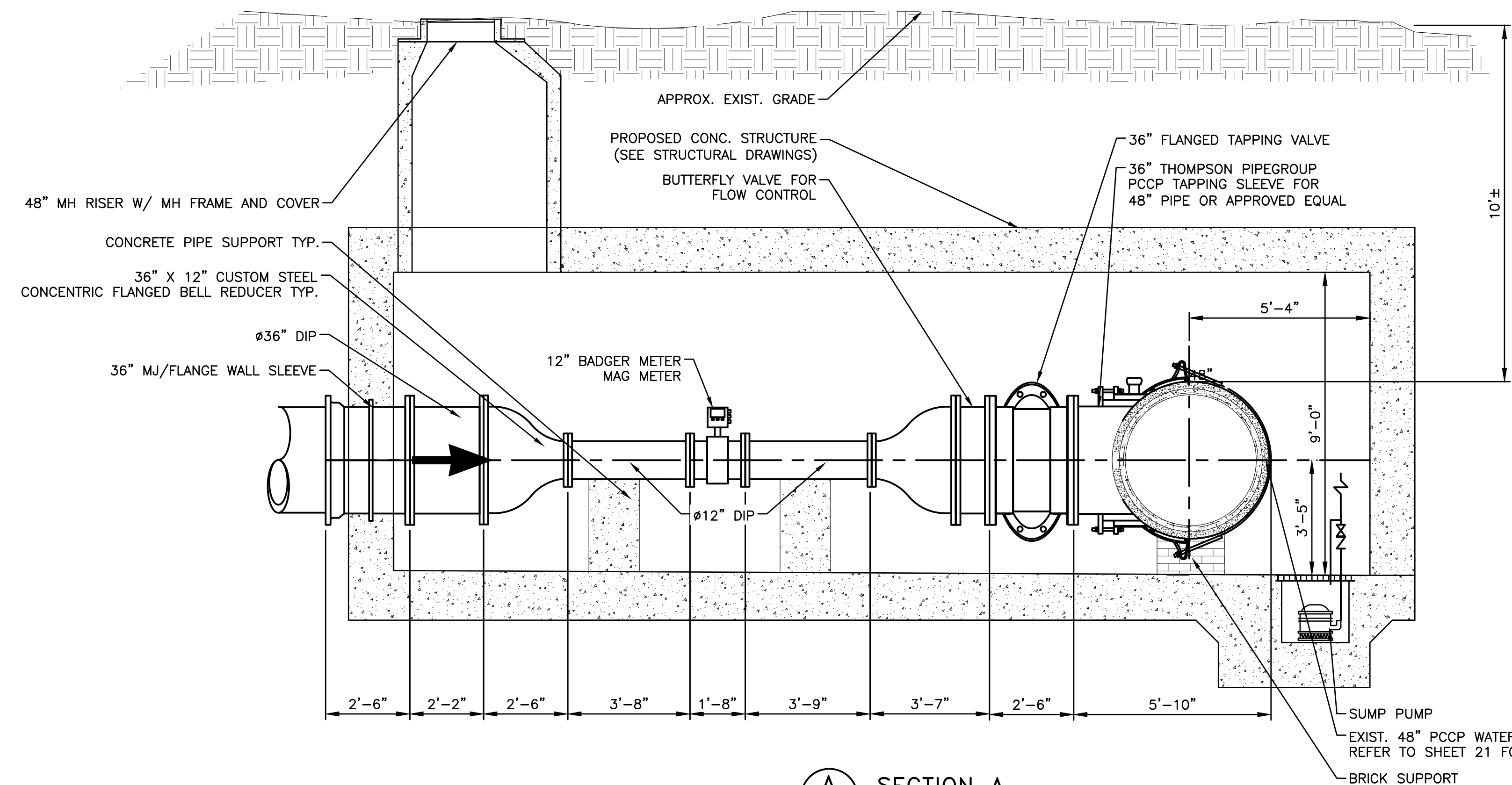
1. HYDROPHILIC RUBBER WATERSTOP SHALL BE USED IN ALL CAST-IN-PLACE CONCRETE BELOW GROUNDWATER TABLE.
2. BENTONITE WATERSTOP (NSF 61 CERTIFIED) MAY BE USED AT ALL OTHER JOINTS IN CAST-IN-PLACE CONCRETE CONSTRUCTION.
3. ALL UNFORMED SURFACES WHERE WATERSTOP IS TO BE ADHERED SHALL HAVE A FLOATED FINISH.
4. ALL KEYWAYS SHALL BE CONSTRUCTED USING WOOD FORM EMBEDDED IN PLASTIC CONCRETE AND REMOVED AFTER CURING.



NOTE:
WHERE SUPPORT PIER IS PLACED ON
EXIST. CONCRETE FLOOR, DRILL AND
GROUT #5@12" DOWELS IN 1" DIA. X
10" DEEP HOLES. CLEAN AND
ROUGHEN EXISTING CONCRETE SURFACE
AND APPLY A CEMENT SLURRY PRIOR
TO PLACING NEW CONCRETE.



PIPING FLOOR PLAN
3/8"=1'-0"



SECTION A
3/8"=1'-0"



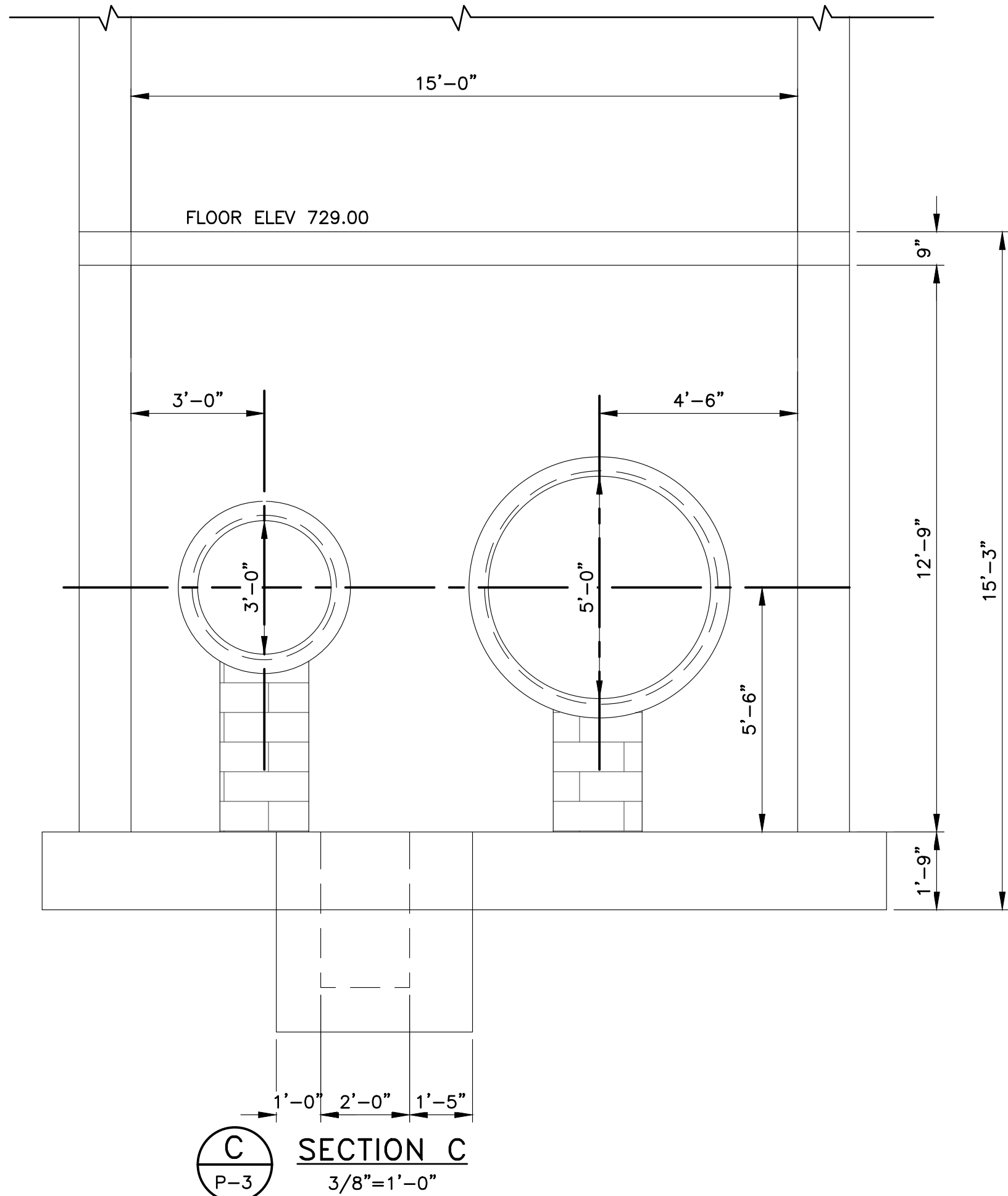
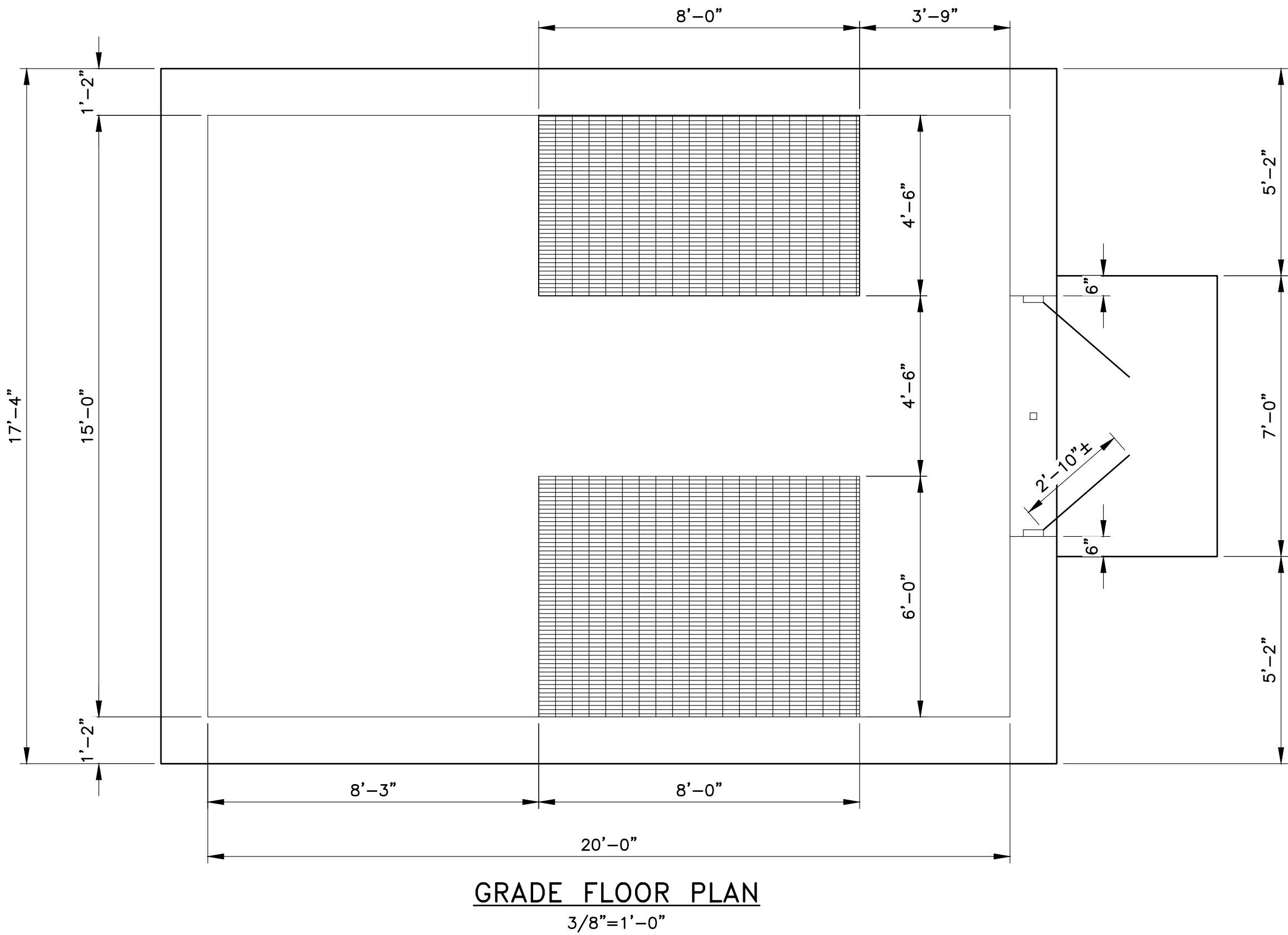
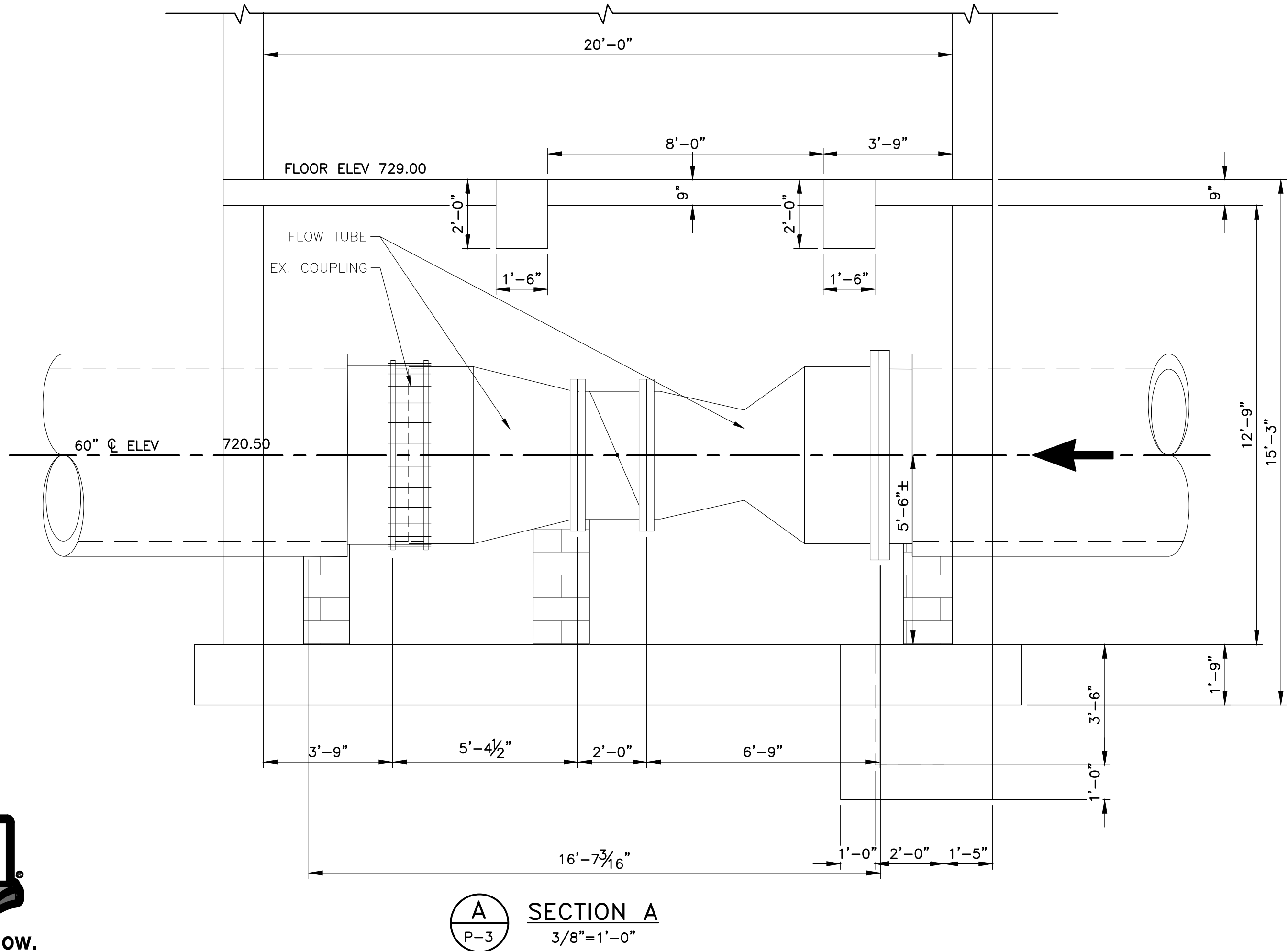
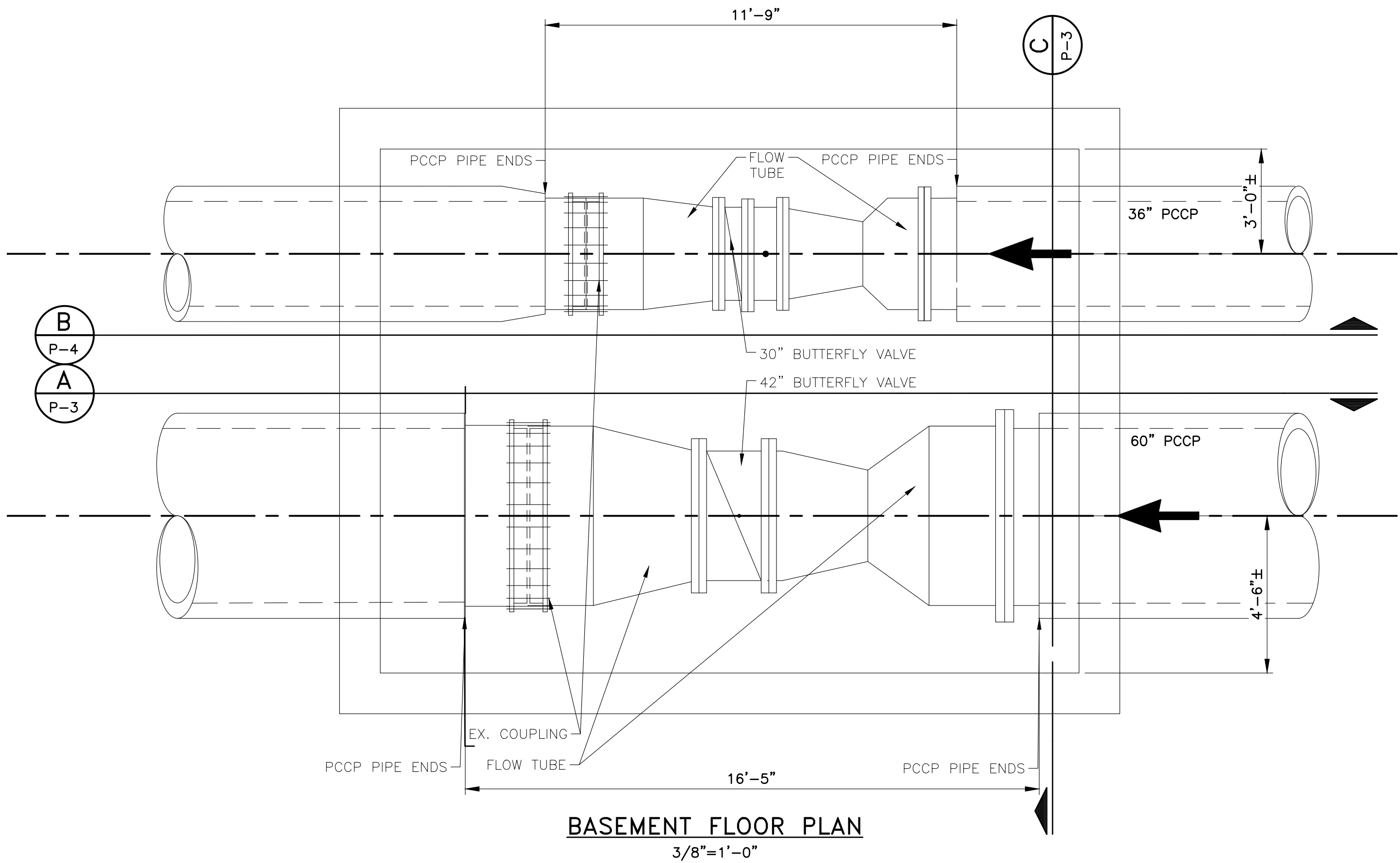
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PROJECT MANAGER: Jason R. Kenyon, PE
C:\PW\WORK2\00948736\CUP-PLTS-CONT-STA-2-UPDATES.DWG - P-3 - PLOTTED 2/7/2020 10:50 AM BY RUGGLES, TIMOTHY

FIELD BOOK INFORMATION:



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36" SECONDARY WATER SUPPLY
CONTROL STATION 2
EXISTING CONDITIONS SHEET 1

ISSUED FOR: DATE: BY:

JOB NO.
COF1068.01F

SHEET

P-3

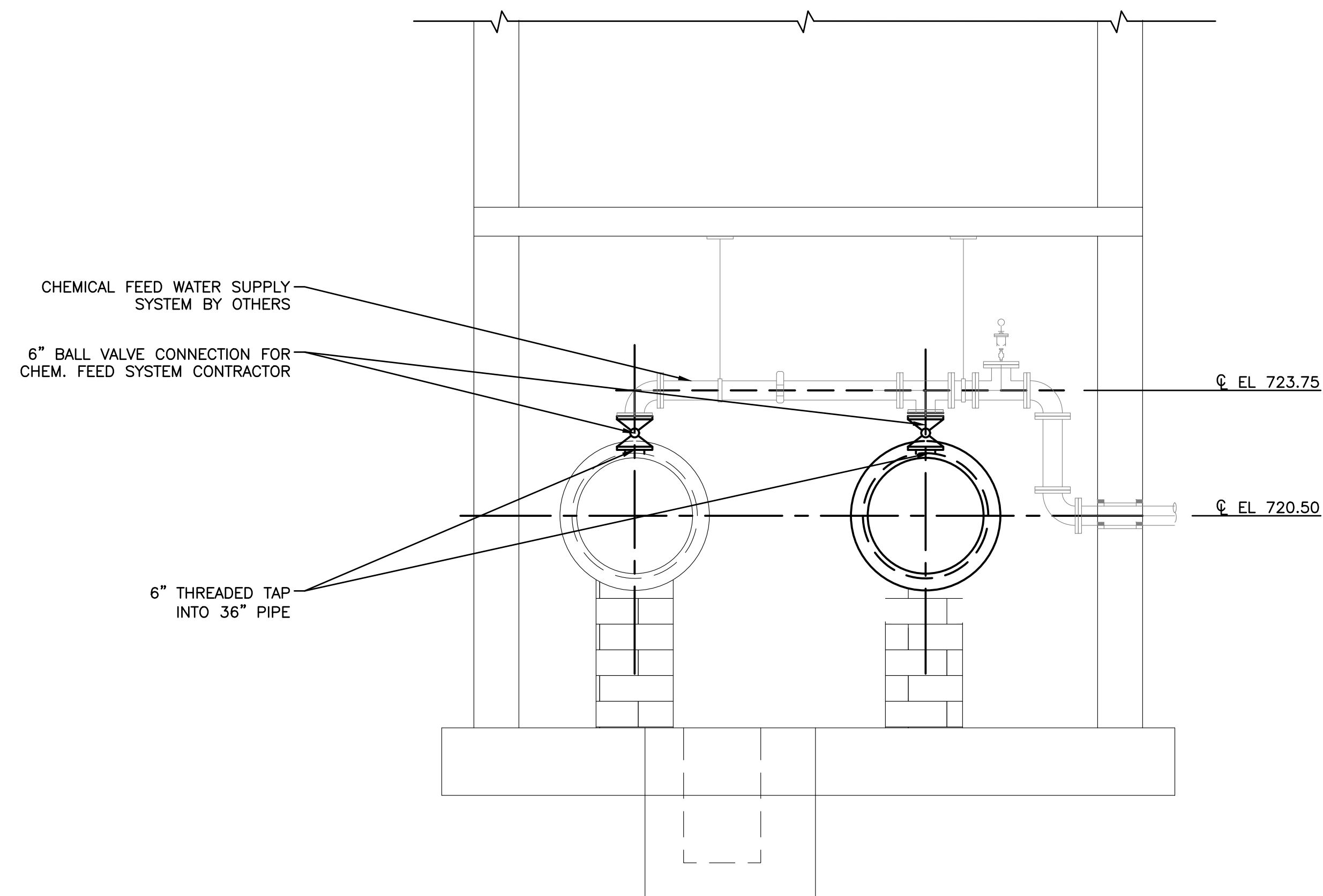
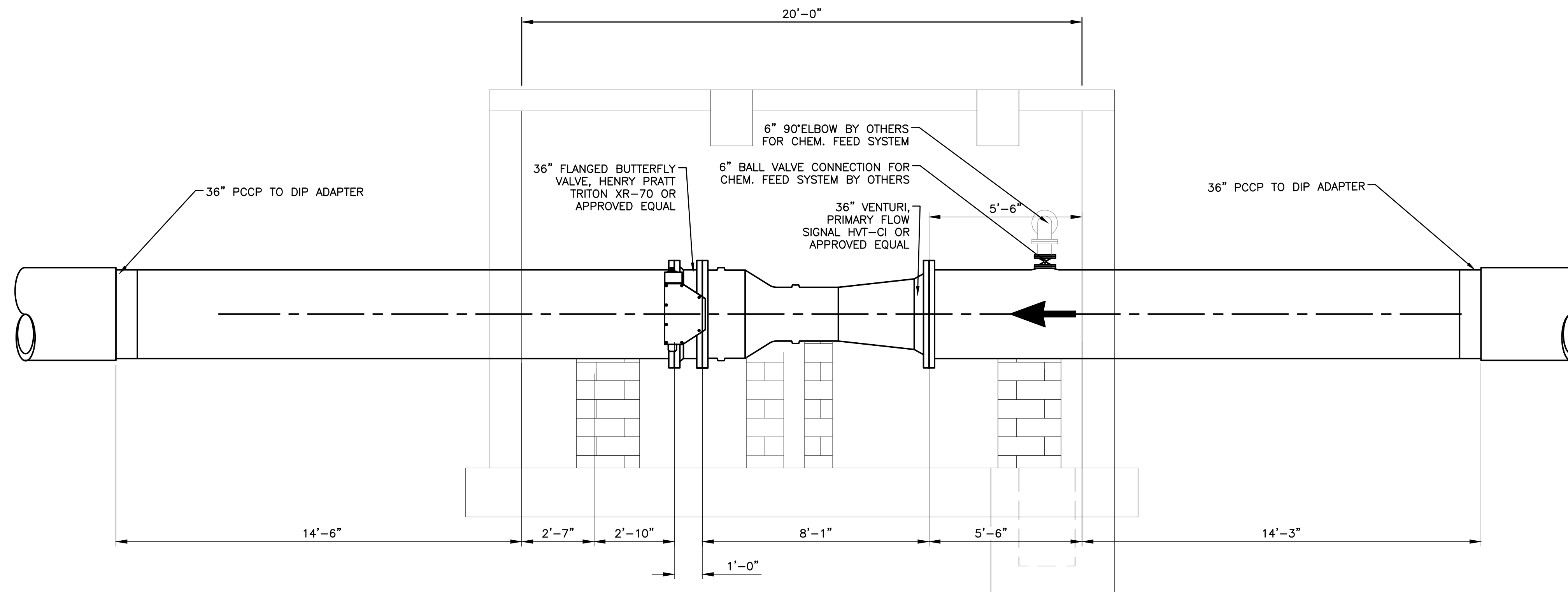
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36" SECONDARY WATER SUPPLY
CONTROL STATION 2

PROPOSED IMPROVEMENTS SHEET 2

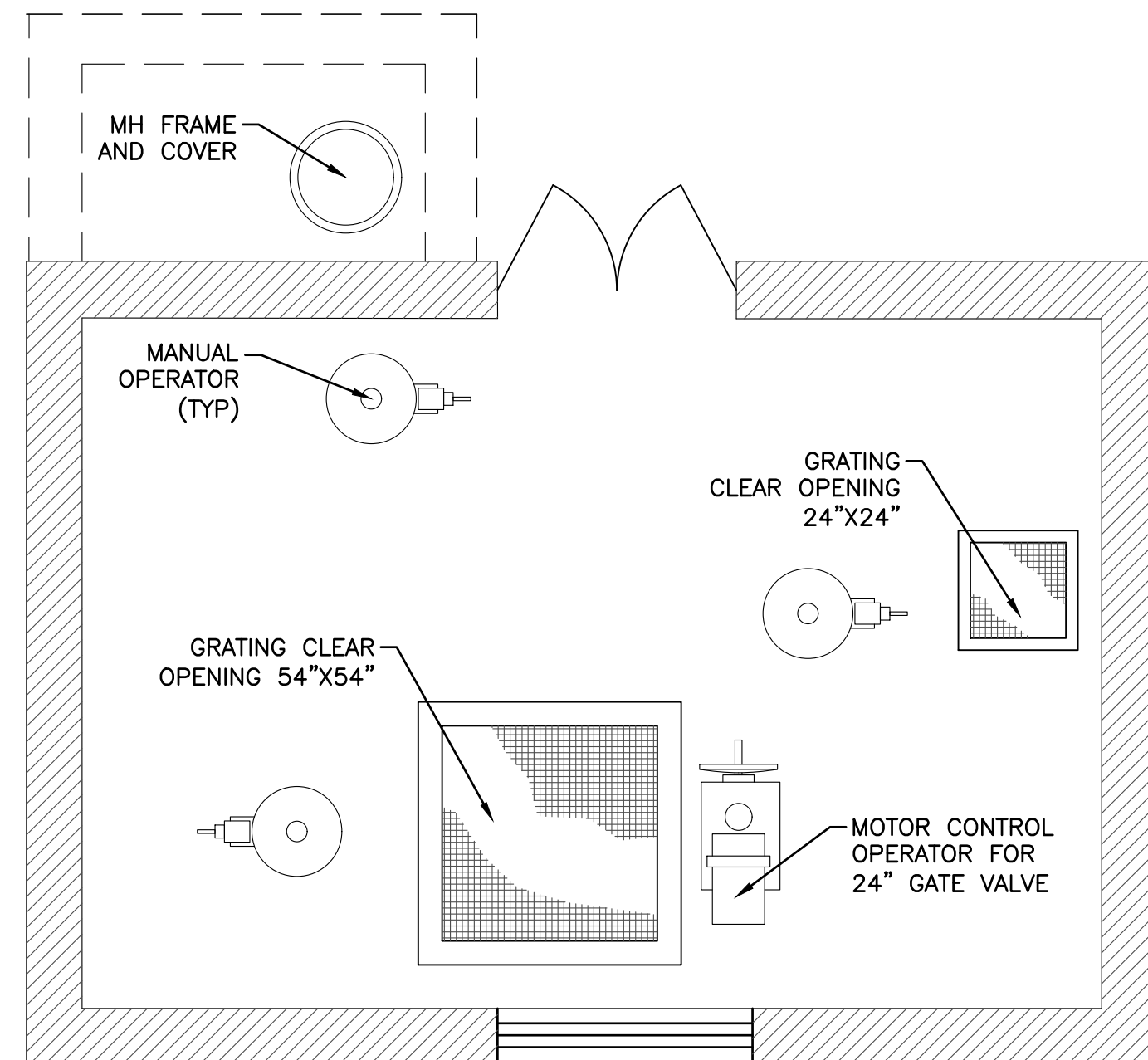
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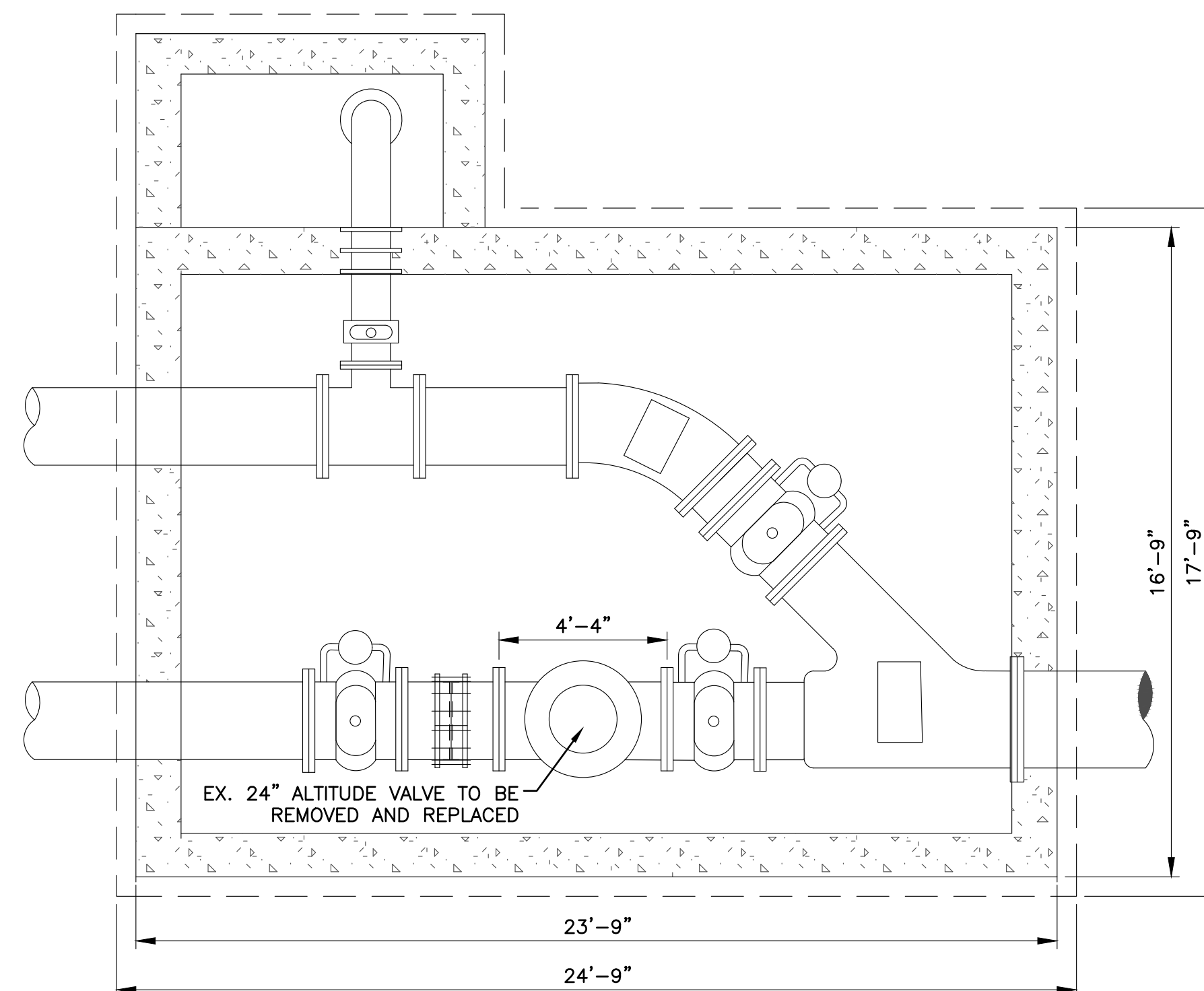
SHEET

P-6

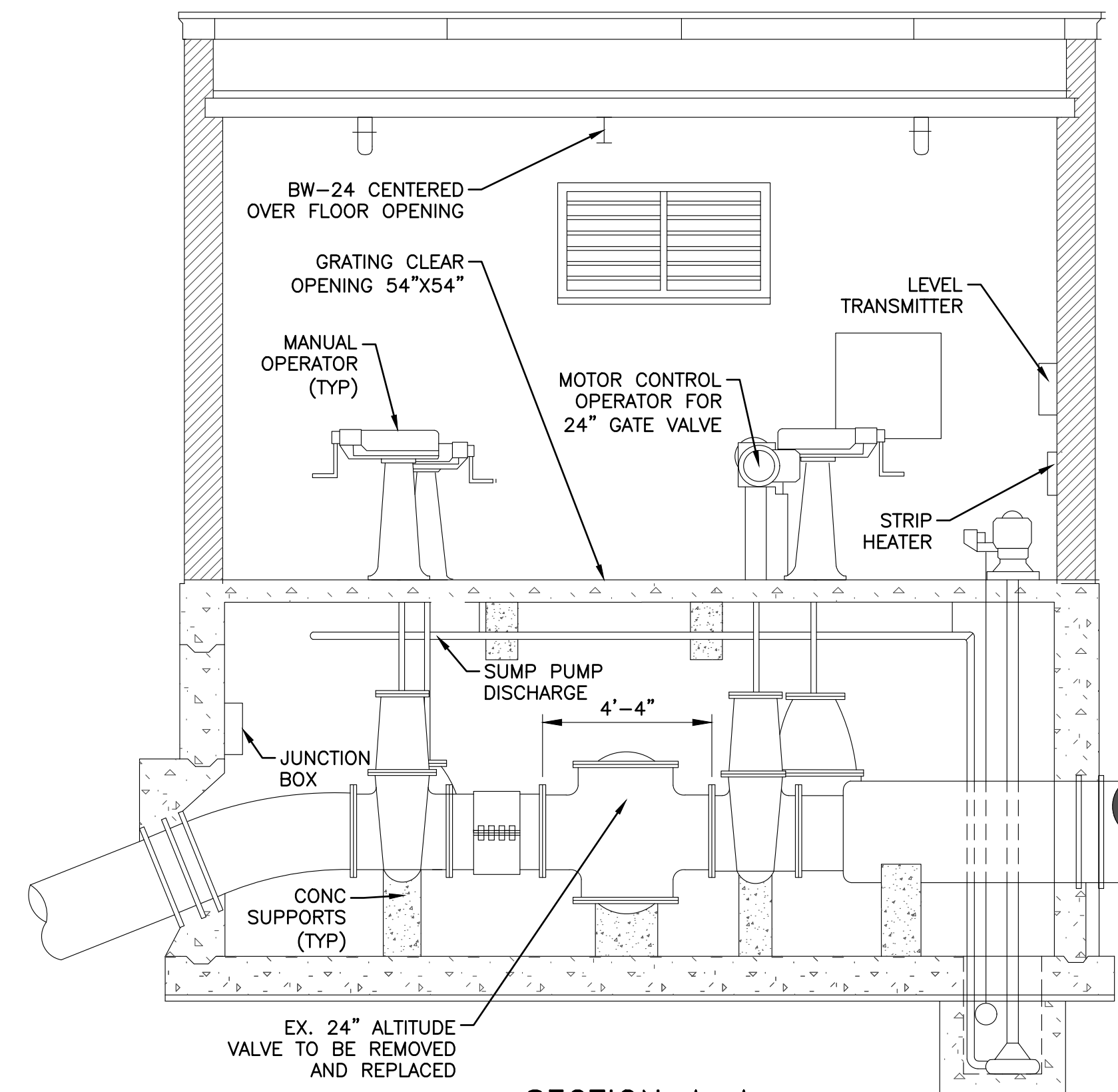
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FLOOR PLAN
SCALE: 1:40



BASEMENT PLAN
SCALE: 1:40



SECTION A-A
SCALE: 1:40

- NOTES:**
1. CONTRACTOR SHALL COORDINATE WITH THE CITY OF FLINT WATER DEPARTMENT IN TO SHUT DOWN AND DRAIN THE ELEVATED STORAGE TANK PRIOR TO THE REMOVAL AND REPLACEMENT OF THE 24-INCH ALTITUDE VALVE LOCATED INSIDE THE BASEMENT OF THE TANK HOUSE. CONTRACTOR SHALL ALLOW THE CITY UP TO 2 WEEKS (14 CALENDAR DAYS) TO EMPTY THE TANK, AND THEREFORE SHALL PLAN ACCORDINGLY.
 2. ONCE THE ELEVATED STORAGE TANK IS DRAINED, CONTRACTOR SHALL REMOVE AND REPLACE THE EXISTING 24-INCH ALTITUDE VALVE FROM THE TANK HOUSE BUILDING, ALONG WITH ITS ANCILLARY EQUIPMENT, WIRING, ETC.
 3. CONTRACTOR SHALL THEN INSTALL A NEW 24-INCH DOUBLE-ACTING ALTITUDE VALVE, INCLUDING REQUIRED ANCILLARY EQUIPMENT, WIRING, ETC. THE VALVE SHALL BE MANUFACTURED BY ROSS VALVE MFG. CO., INC. OR A ENGINEER-APPROVED EQUAL.
 4. REFER TO SHEET E.XX FOR INFORMATION RELATED TO THE ELECTRICAL AND CONTROL WIRING FOR THE NEW ALTITUDE VALVE.

[illegible]

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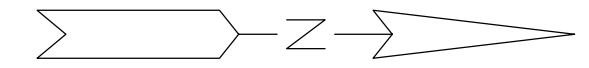
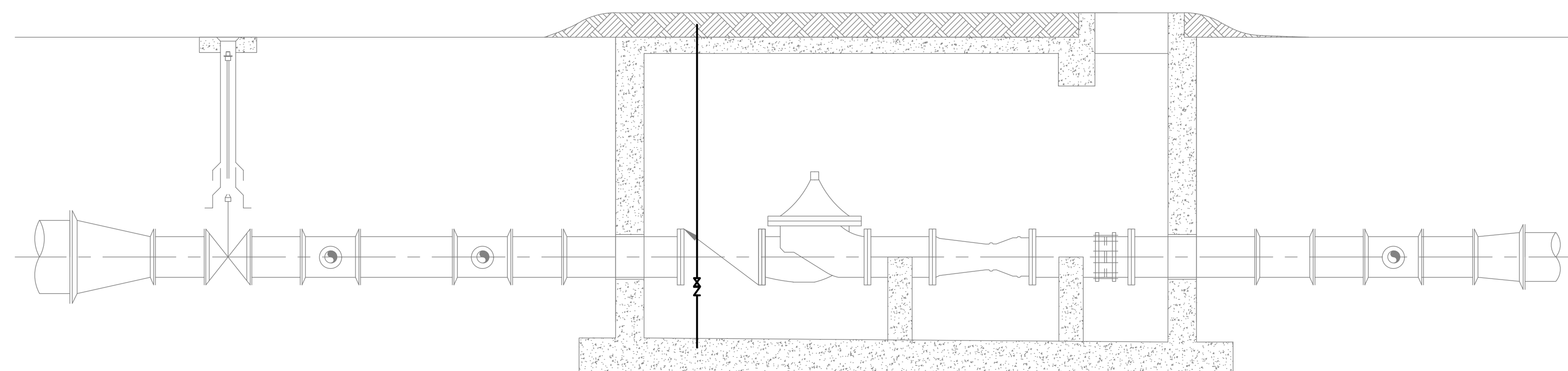
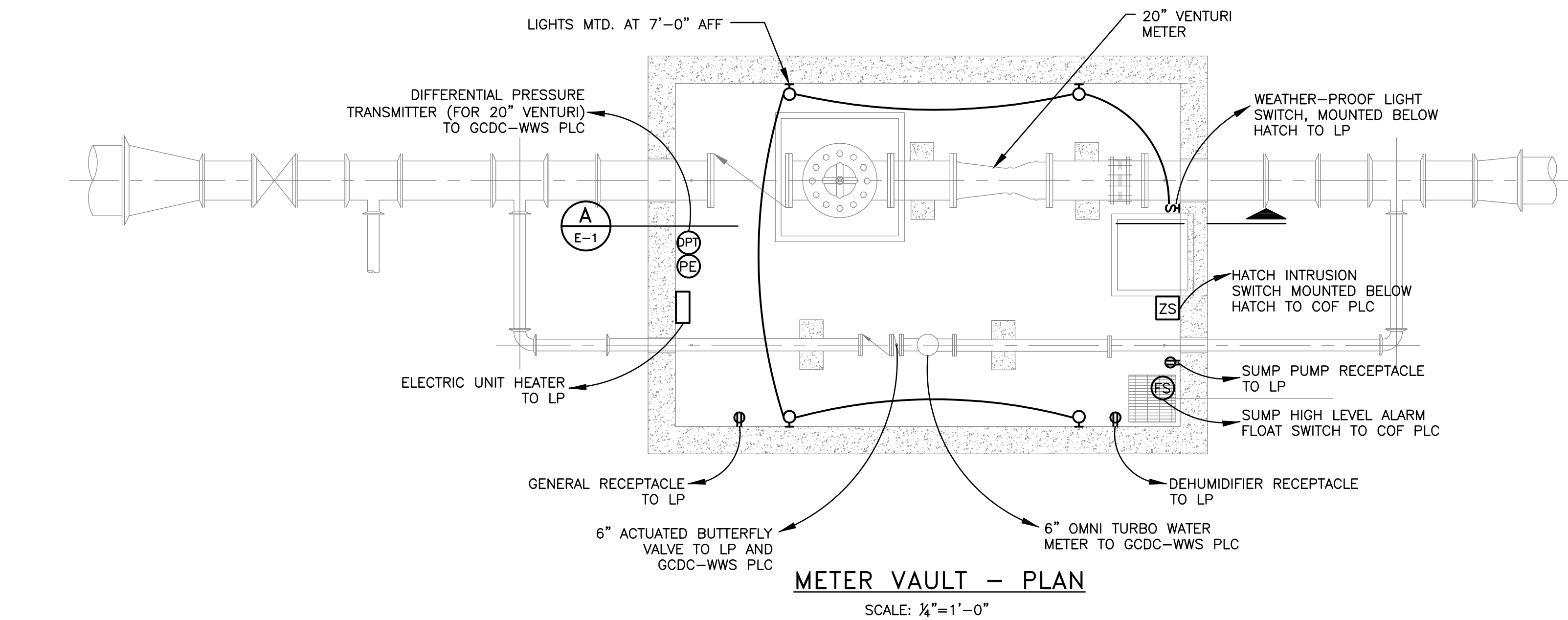
CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
TANK HOUSE
ALTITUDE VALVE REMOVAL & REPLACEMENT

ISSUED FOR: DATE: BY:

JOB NO.
COF1068.01F

SHEET

P-7



Know what's **below**.
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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502

36" SECONDARY WATER SUPPLY
PROPOSED- GCDC METER VAULT AT FRANCES RD
ELECTRICAL PLAN

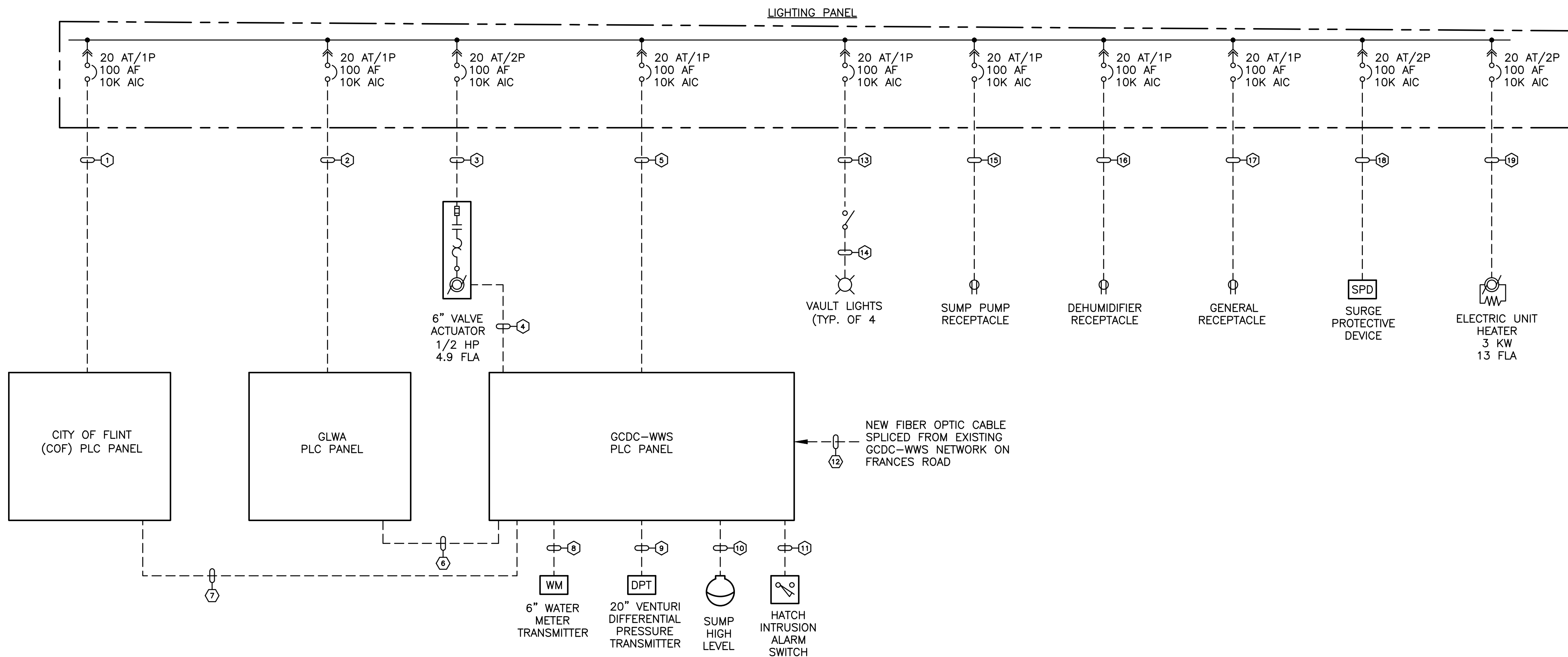
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SHEET

E-1

RISER DIAGRAM



CABLE SCHEDULE									
NO.	CONDUIT LABEL	FROM	TO	CONDUIT		CABLE			
				SIZE	TYPE	QTY. AND SIZE	VOLT	TYPE	COMMENTS
1	COFPLC-PWR-1	LIGHTING PANEL	COF PLC PANEL	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
2	GLWAPLC-PWR-1	LIGHTING PANEL	GLWA PLC PANEL	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
3	VA6-PWR-1	LIGHTING PANEL	6" ACTUATOR	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	240V. POWER
4	VA6-CTRL-1	GCDC PLC PANEL	6" ACTUATOR	3/4"	RGS	10#14	600	THWN-2	120V. CONTROL
5	GCDCPLC-PWR-1	LIGHTING PANEL	GCDC PLC PANEL	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
6	GCDC/GLWA-COM-1	GLWA PLC PANEL	GCDC PLC PANEL	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. 20" FLOW
						1#16 TWIST. SHIELD PAIR	600	PVC	24V. 6" FLOW
						1#16 TWIST. SHIELD PAIR	600	PVC	24V. 20" FLOW
7	GCDC/COF-COM-1	COF PLC PANEL	GCDC PLC PANEL	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. 20" FLOW
						1#16 TWIST. SHIELD PAIR	600	PVC	24V. 6" FLOW
8	WM6-CTRL-1	6" WM	GCDC PLC PANEL	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. 6" FLOW
9	DPT20-CTRL-1	20" DPT	GCDC PLC PANEL	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. 20" FLOW
10	GCDCPLC-CTRL-1	FLOAT SWITCH	GCDC PLC PANEL	3/4"	RGS	2#14	600	THWN-2	120V. CONTROL
11	GCDCPLC-CTRL-2	LIMIT SWITCH	GCDC PLC PANEL	3/4"	RGS	2#14 + 1#14 GND	600	THWN-2	120V. CONTROL
12	GCDC-COM-1	CCDC	GCDC PLC PANEL	2"	PVC	FIBER OPTIC CABLE	N/A	-	COMMUNICATION
13	LIGHTS-PWR-1	LIGHTING PANEL	LIGHT SWITCH	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
14	LIGHTS-PWR-2	LIGHTS (TYP.)	LIGHT SWITCH	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
15	SPRECP-PWR-1	LIGHTING PANEL	SUMP PUMP REC.	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
16	DHRECP-PWR-1	LIGHTING PANEL	DEHUMID. RECIP.	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
17	GENRECP-PWR-1	LIGHTING PANEL	GENERAL RECIP.	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
18	SPD-PWR-1	LIGHTING PANEL	SPD	3/4"	RGS	3#12 + 1#12 GND	600	THWN-2	120V. POWER
19	EUH-PWR-1	LIGHTING PANEL	UNIT HEATER	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	240V. POWER

PANEL:		LIGHTING PANEL		100A BUS (10K AIC)				
VOLTAGE: 240/120 VAC PHASE: 1 WIRE: 3 MAIN: 100 AMP/2P TYPE: NEMA 4X STAINLESS STEEL MOUNTING: SURFACE								
CKT	BKR	LOAD	VA	PH	VA	LOAD	BKR	CKT
1	20A/2P	ELECTRIC UNIT HEATER	1560	A	0	SURGE PROTECTIVE DEVICE (SPD)	20A/2P	2
3			1560	B	0			4
5			588	A	1176			SUMP PUMP RECEPTACLE
7	20A/2P	6" VALVE ACTUATOR	588	B	600	DEHUMIDIFIER RECEPTACLE	20A/1P	8
9	20A/1P	METER PIT LIGHTS	200	A	180	GENERAL RECEPTACLE	20A/1P*	10
11	20A/1P	GCDC-WWS PLC PANEL	600	B	600	CITY OF FLINT PLC PANEL	20A/1P	12
13	20A/1P	GLWA PLC PANEL	600	A	0	SPARE	20A/1P	14
15	20A/1P	SPARE	0	B	0	SPARE	20A/1P	16
17	SPACE	SPACE	0	A	0	SPACE	SPACE	18
19	SPACE	SPACE	0	B	0	SPACE	SPACE	20
TOTAL:								
A=4304							B=3948	
TOTAL CONNECTED LOAD: 8252								

* GFCI CIRCUIT BREAKER



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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502

36" SECONDARY WATER SUPPLY

PROPOSED— GCDC METER VAULT AT FRANCES RD
ELECTRICAL DIAGRAM AND SCHEDULES

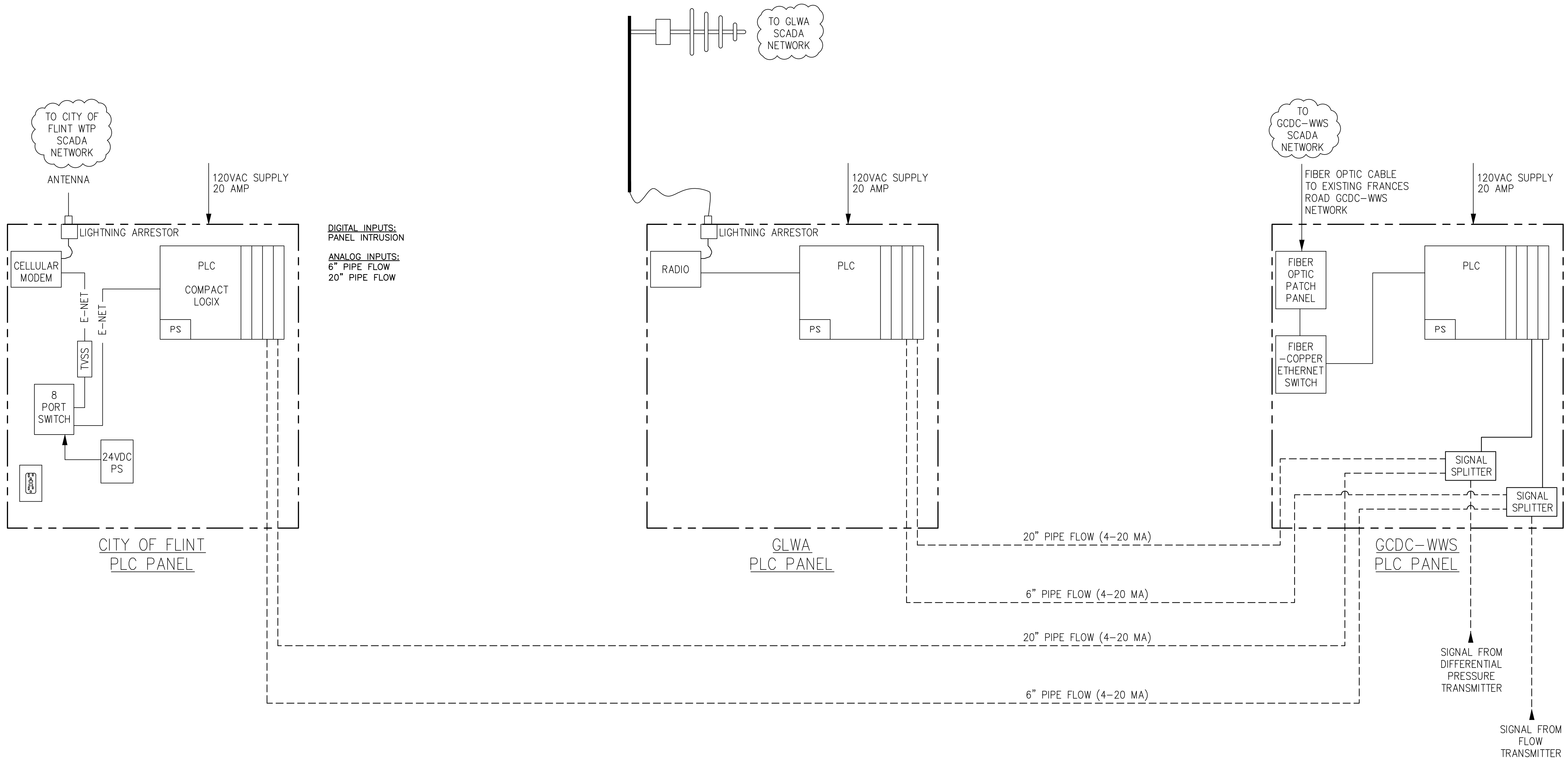
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SHEET

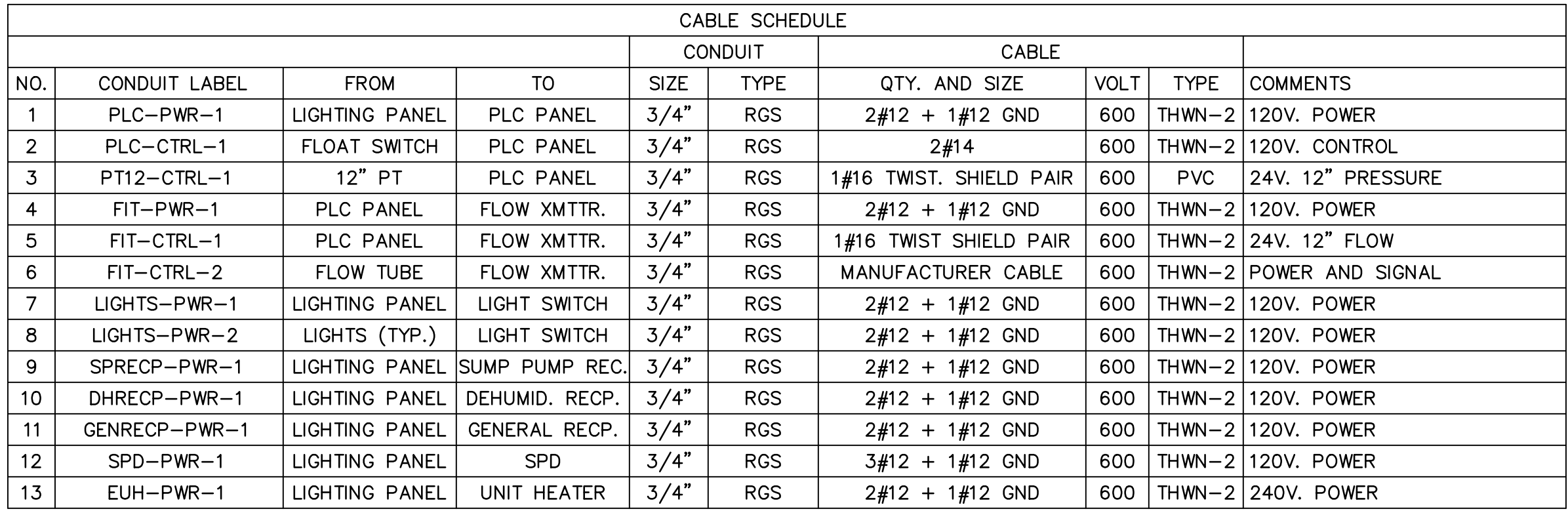
E-2

PROJECT MANAGER: JESSIE B. KOSKOV, PE
C:\PL\WORK\SCHWAB\09683\9683-PLS-PROC-PLAN.DWG - E-3 - PLOTTED 2/9/2020 9:27 PM BY: SCHWAB, ALAN



CITY OF FLINT 1101 S. SAGINAW STREET FLINT, MI 48502 36" SECONDARY WATER SUPPLY PROPOSED— GCDC METER VAULT AT FRANCES RD NETWORK DIAGRAM			 WADE TRIM		555 S. Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 www.wadefirm.com	
ISSUED FOR:			DATE:	BY:		
JOB NO. COF1068.01F			REV#	DATE	DESCRIPTION	
SHEET E-3						

LIGHTING PANEL



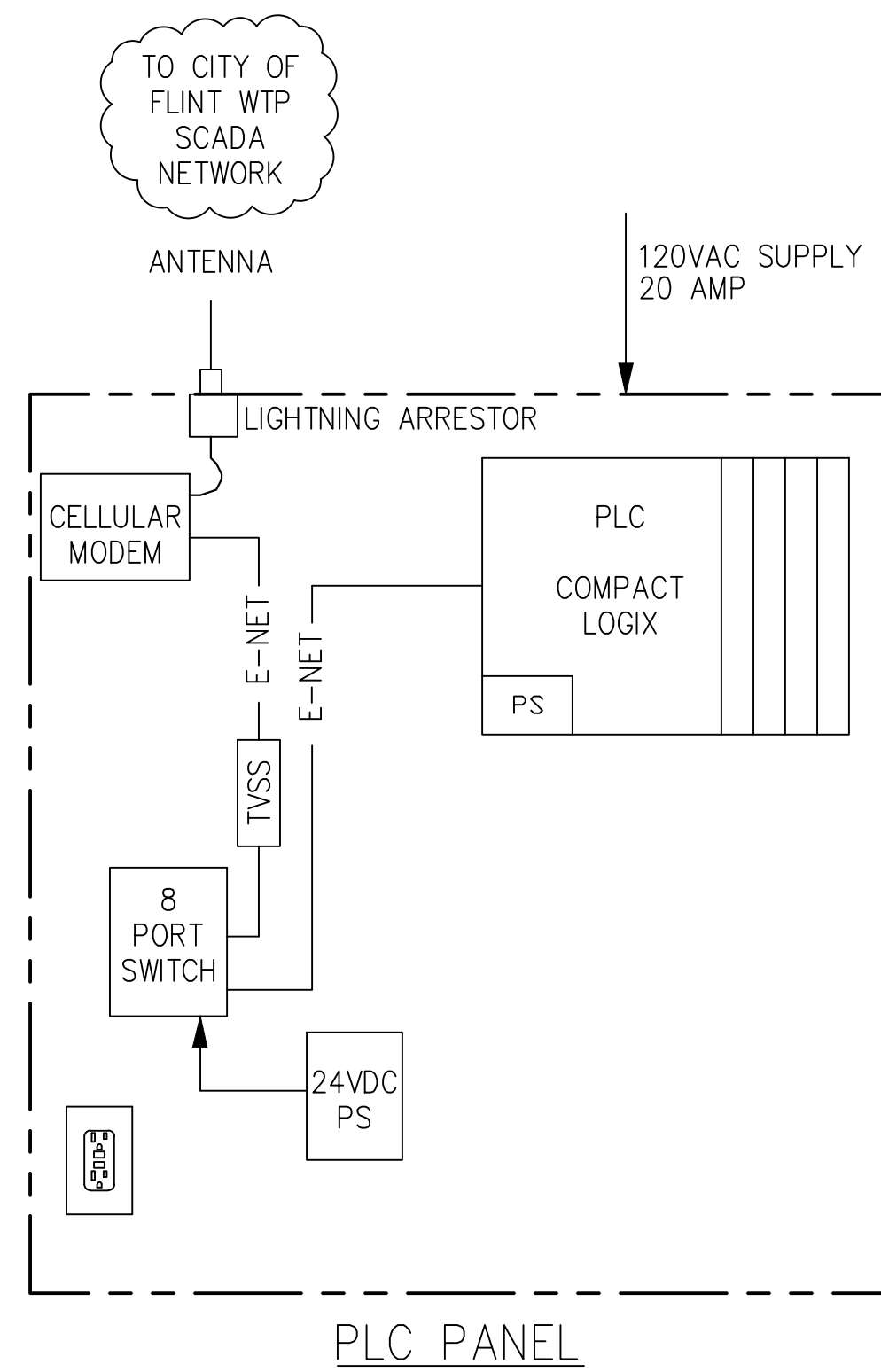
* GFCI CIRCUIT BREAKER



E-5



Know what's **below**.
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DIGITAL INPUTS:
SUMP HIGH LEVEL
VAULT HATCH INTRUSION
PANEL INTRUSION

ANALOG INPUTS:
12' PIPE FLOW
12" PIPE PRESSURE

CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
CITY OF FLINT METER VAULT
NETWORK DIAGRAM

ISSUED FOR: DATE: BY:

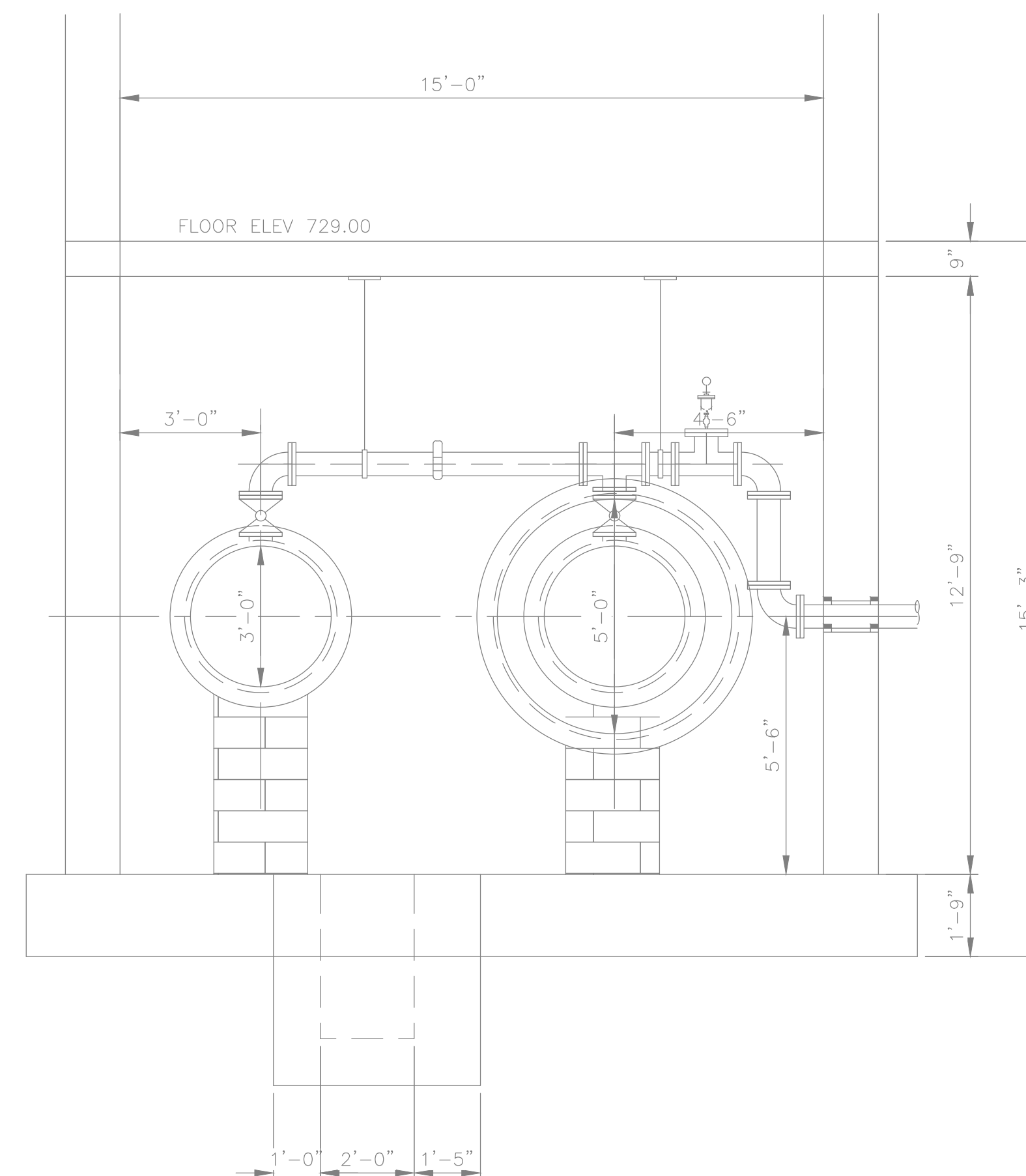
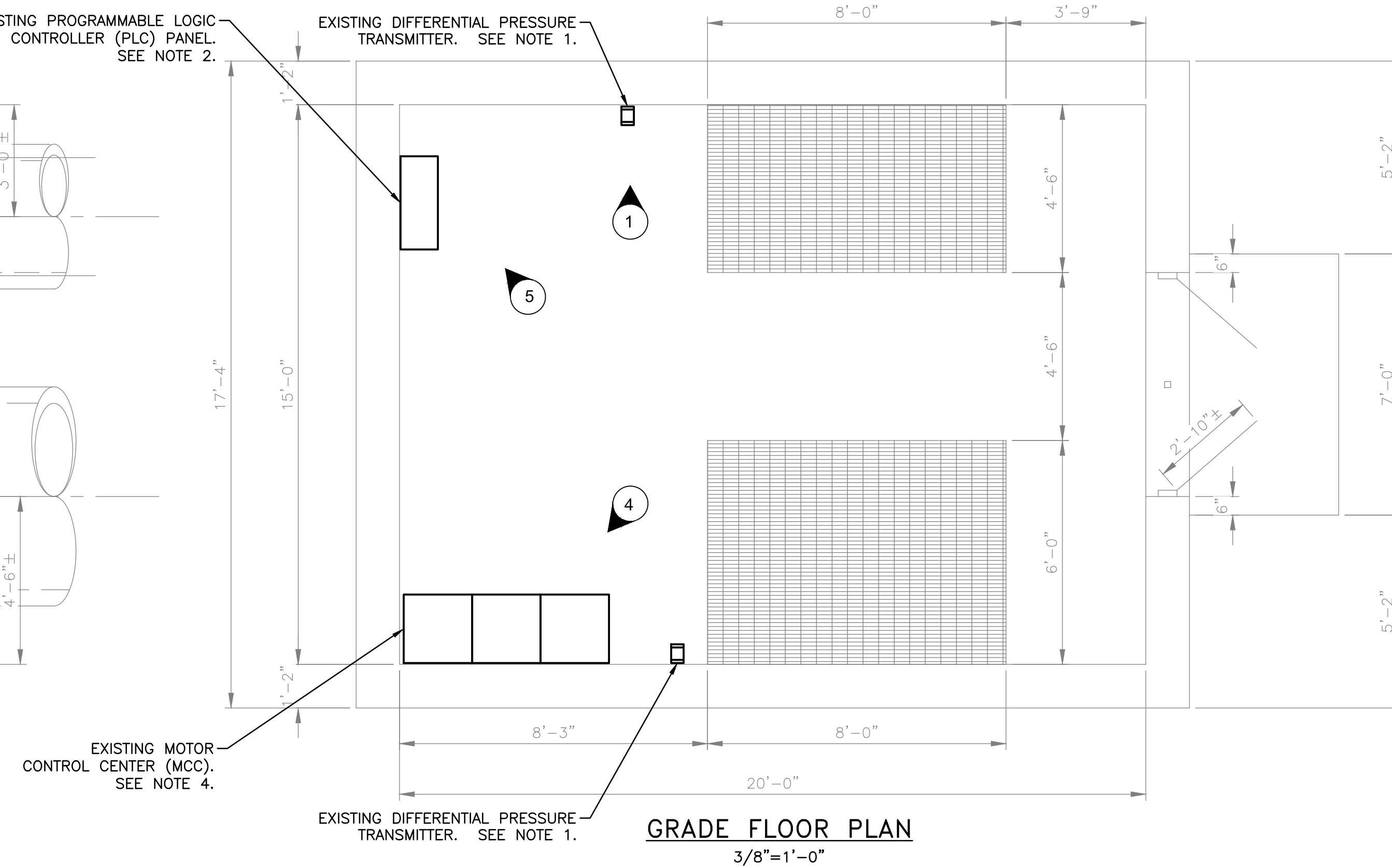
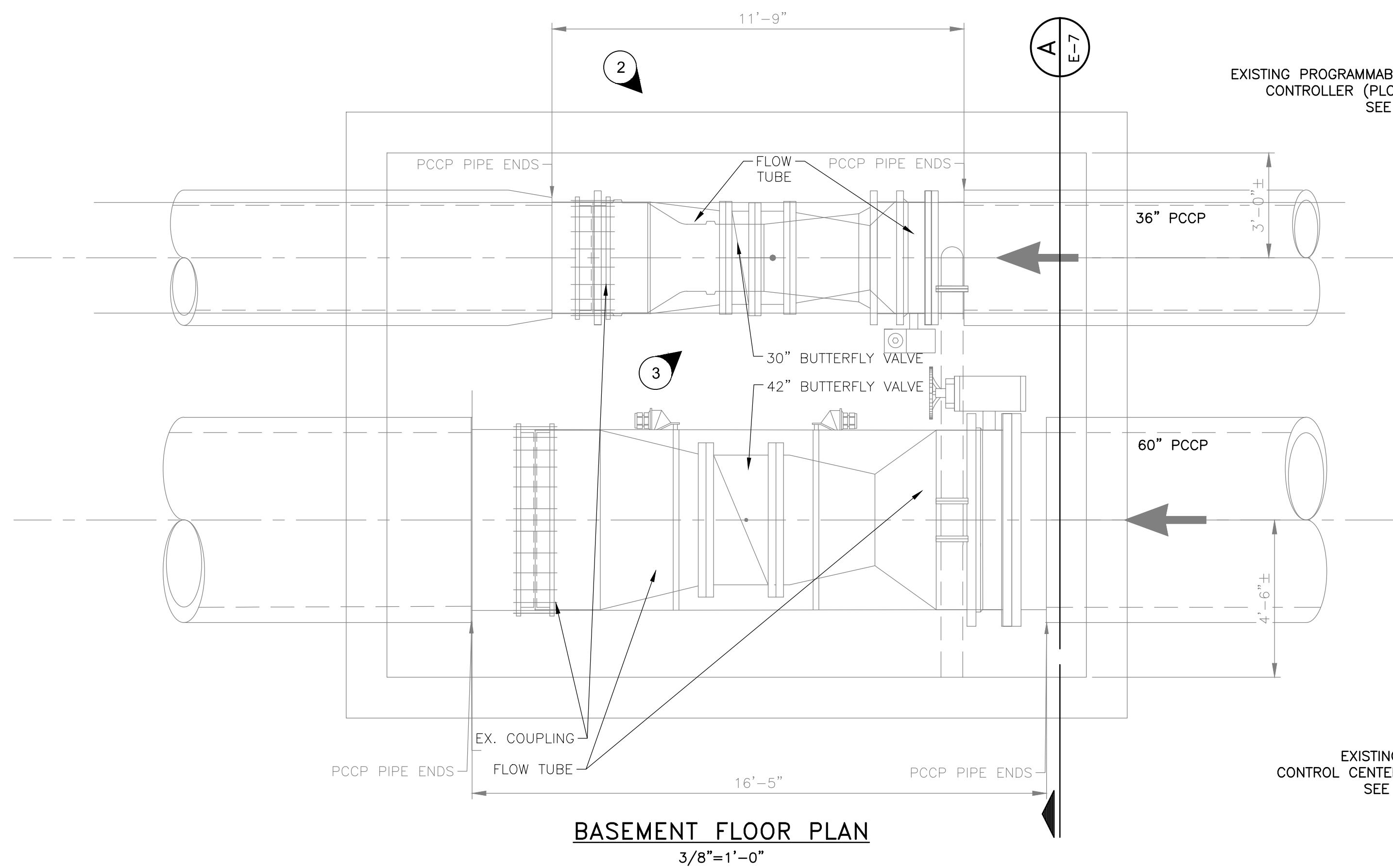
JOB NO.
COF1068.01F


SHEET

E-6

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 REFERS TO A NUMBERED PICTURE. THE DIRECTION OF THE ARROW INDICATES THE CAMERA ANGLE. SEE SHEET E-8 FOR PICTURES.

NOTES:

1 EXISTING DIFFERENTIAL PRESSURE TRANSMITTER: REPLACE EXISTING DIFFERENTIAL PRESSURE TRANSMITTER, 3-WAY VALVE MANIFOLD, AND PRESSURE GAUGES. REPLACE 1" COPPER PIPING FROM THE PRESSURE TRANSMITTER TO THE NEW VENTURI. REPLACE THE EXISTING WIRING FROM THE PRESSURE TRANSMITTER TO THE PLC PANEL. TYPICAL FOR 2 LOCATIONS.

2 EXISTING PLC PANEL: TERMINATE NEW WIRING FOR THE DIFFERENTIAL PRESSURE TRANSMITTERS AND BUTTERFLY VALVE ACTUATORS. PROGRAM THE ALLEN-BRADLEY SLC 5/04 PROCESSOR TO CONTROL THE TWO BUTTERFLY VALVE ACTUATORS AND RE-SCALE THE PRESSURE TRANSMITTER SIGNALS IF NEEDED.

3 EXISTING MOTOR CONTROL CENTER: INSTALL
NEW 20A/3P FEEDER FUSED DISCONNECT
SWITCH BUCKET INTO THE EXISTING
ALLEN-BRADLEY CENTERLINE MCC FOR THE 60"
VALVE ACTUATOR.



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CITY OF FLINT
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36" SECONDARY WATER SUPPLY
CONTROL STATION 2
ELECTRICAL PLAN

ISSUED FOR: DATE: BY:

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COF1068.01F

SHEET

E-7

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PROJECT MANAGER: Jesse B. Kenney, PE
C:\P\WORK\ASCHWAB\00948736\EUP-PLTS-CONT-STA-2-UPDATES.DWG - E-8 - PLOTTED 2/9/2020 11:02 PM BY SCHWAB, ALAN



Know what's below.
Call before you dig.

PRESSURE TRANSMITTER
TYPICAL OF 2

1
E-7



REPLACE THE EXISTING DIFFERENTIAL PRESSURE TRANSMITTER, 3-WAY MANIFOLD VALVE, GAUGES, AND 1/2" COPPER PIPING CONDUIT, AND WIRING.

VALVE ACTUATORS

2
E-7

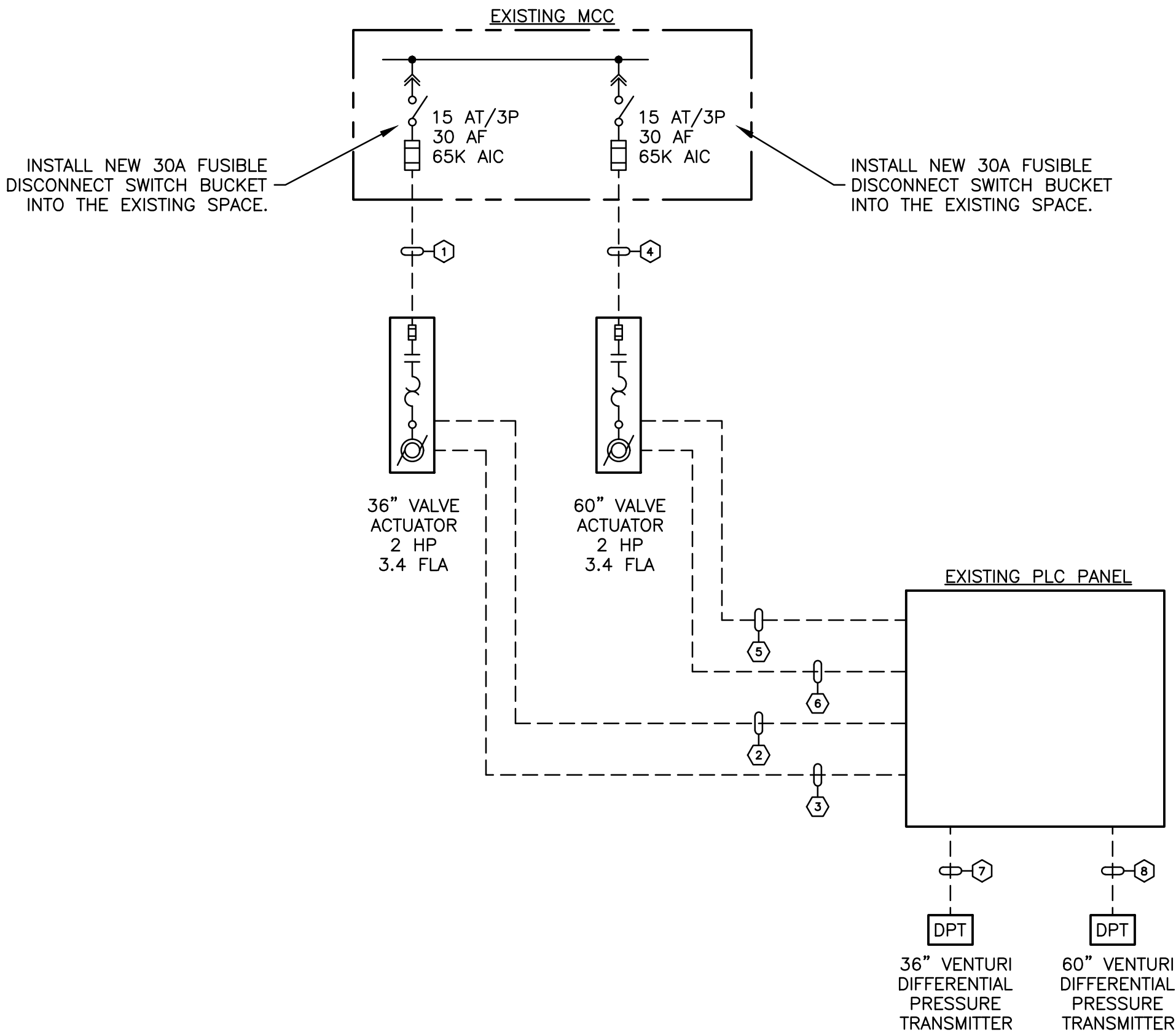


REPLACE EXISTING 36" VALVE ACTUATOR, CONDUIT, AND WIRING.

VALVE ACTUATORS

2
E-7

RISER DIAGRAM



REPLACE EXISTING 36" VALVE ACTUATOR, CONDUIT, AND WIRING.

VALVE ACTUATOR

3
E-7

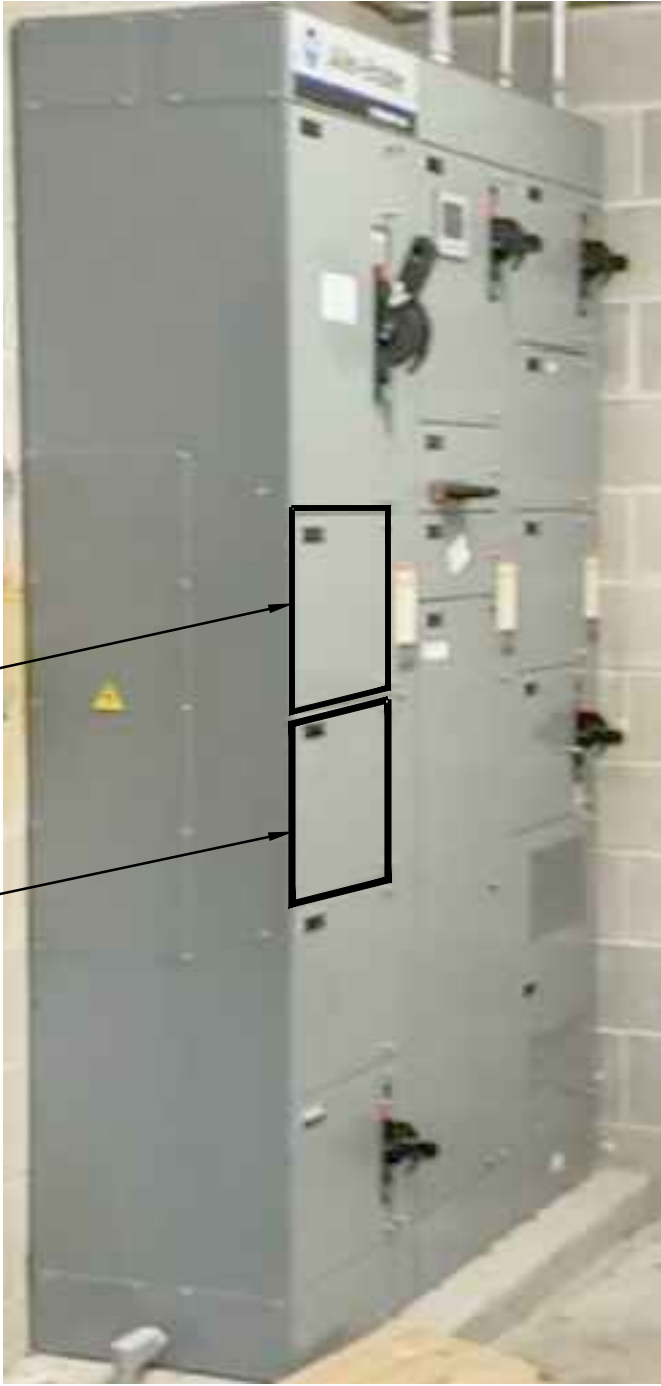


INSTALL A NEW 1.0 SPACE FACTOR (12") MCC BUCKET WITH 30 AMP FUSIBLE DISCONNECT SWITCH TO FEED THE 36" VALVE ACTUATOR.

INSTALL A NEW 1.0 SPACE FACTOR (12") MCC BUCKET WITH 30 AMP FUSIBLE DISCONNECT SWITCH TO FEED THE 60" VALVE ACTUATOR.

MOTOR CONTROL CENTER

4
E-7



PLC PANEL

5
E-7



CABLE SCHEDULE									
NO.	CONDUIT LABEL	FROM	TO	CONDUIT		CABLE			COMMENTS
				SIZE	TYPE	QTY. AND SIZE	VOLT	TYPE	
1	VA36-PWR-1	MCC DISCONNECT	36" ACTUATOR	3/4"	RGS	3#10 + 1#10 GND	600	THWN-2	480V. POWER
2	VA36-CTRL-1	PLC PANEL	36" ACTUATOR	3/4"	RGS	2#14	600	THWN-2	120V. ACTUATOR IN REMOTE
3	VA36-CTRL-2	PLC PANEL	36" ACTUATOR	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. ACTUATOR POS SETPOINT
4	VA60-PWR-1	MCC DISCONNECT	60" ACTUATOR	3/4"	RGS	3#10 + 1#10 GND	600	THWN-2	480V. POWER
5	VA60-CTRL-1	PLC PANEL	60" ACTUATOR	3/4"	RGS	2#14	600	THWN-2	120V. ACTUATOR IN REMOTE
6	VA60-CTRL-2	PLC PANEL	60" ACTUATOR	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. ACTUATOR POS SETPOINT
7	DP36-CTRL-1	PLC PANEL	36" DPT	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. 36" FLOW
8	DP60-CTRL-1	PLC PANEL	60" DPT	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. 60" FLOW

ISSUED FOR: DATE: BY:

JOB NO.
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SHEET
E-8

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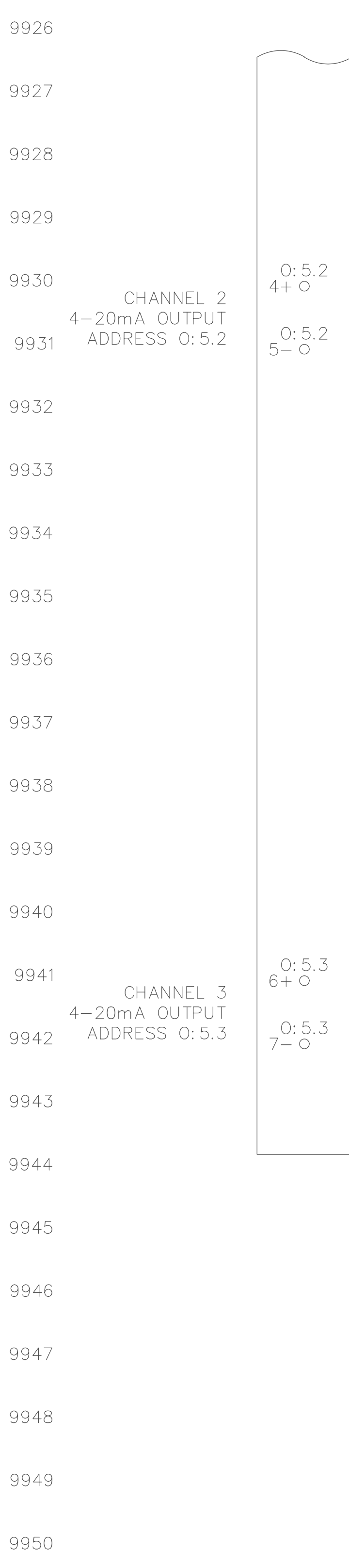
CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
CONTROL STATION 2
PHOTOS AND DIGRAMS

DESCRIPTION

DATE

REV#

BY

[illegible]

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CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
CONTROL STATION 2
PLC ANALOG OUTPUT MODIFICATIONS

ISSUED FOR:	DATE:	BY:

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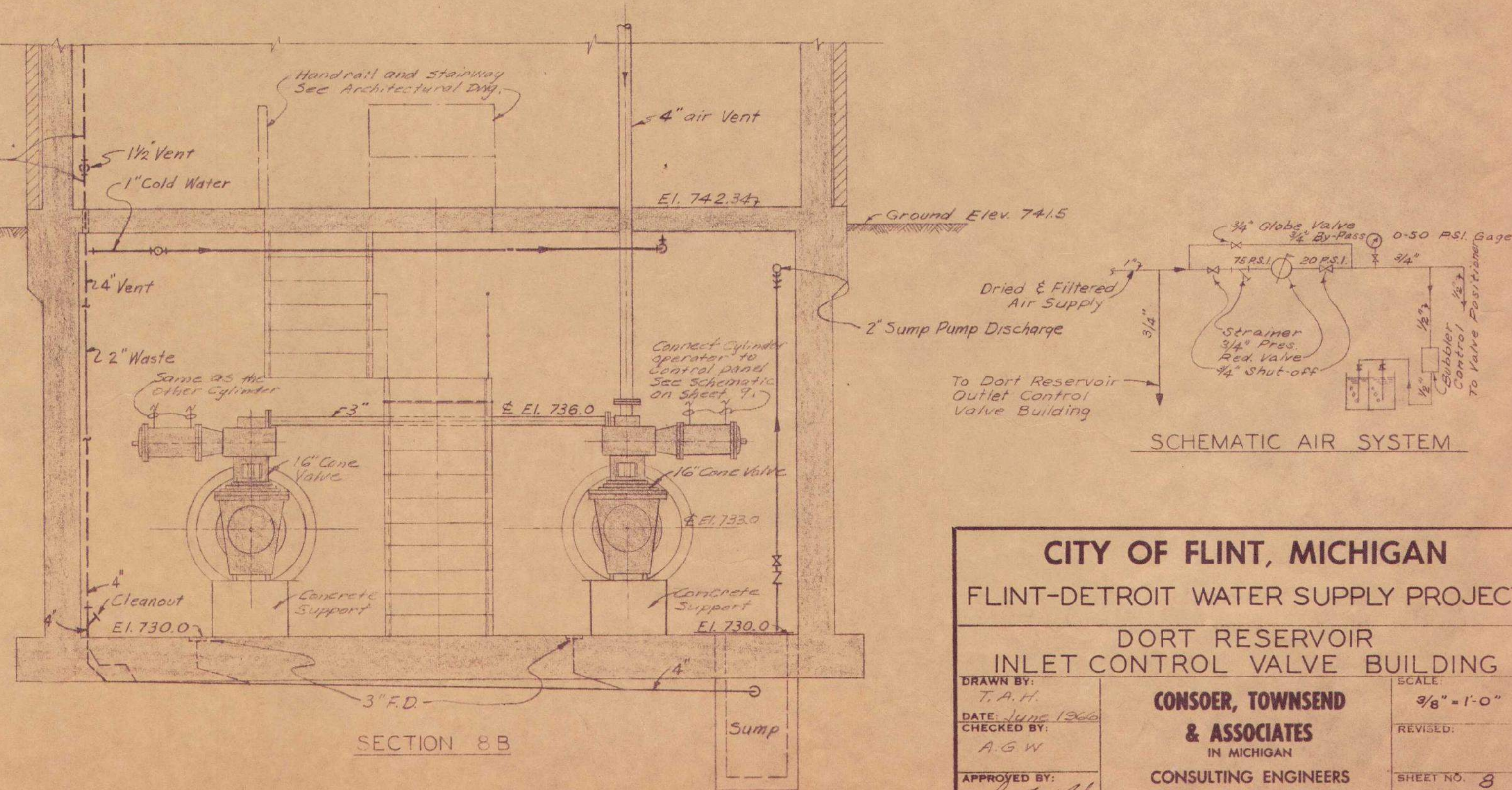
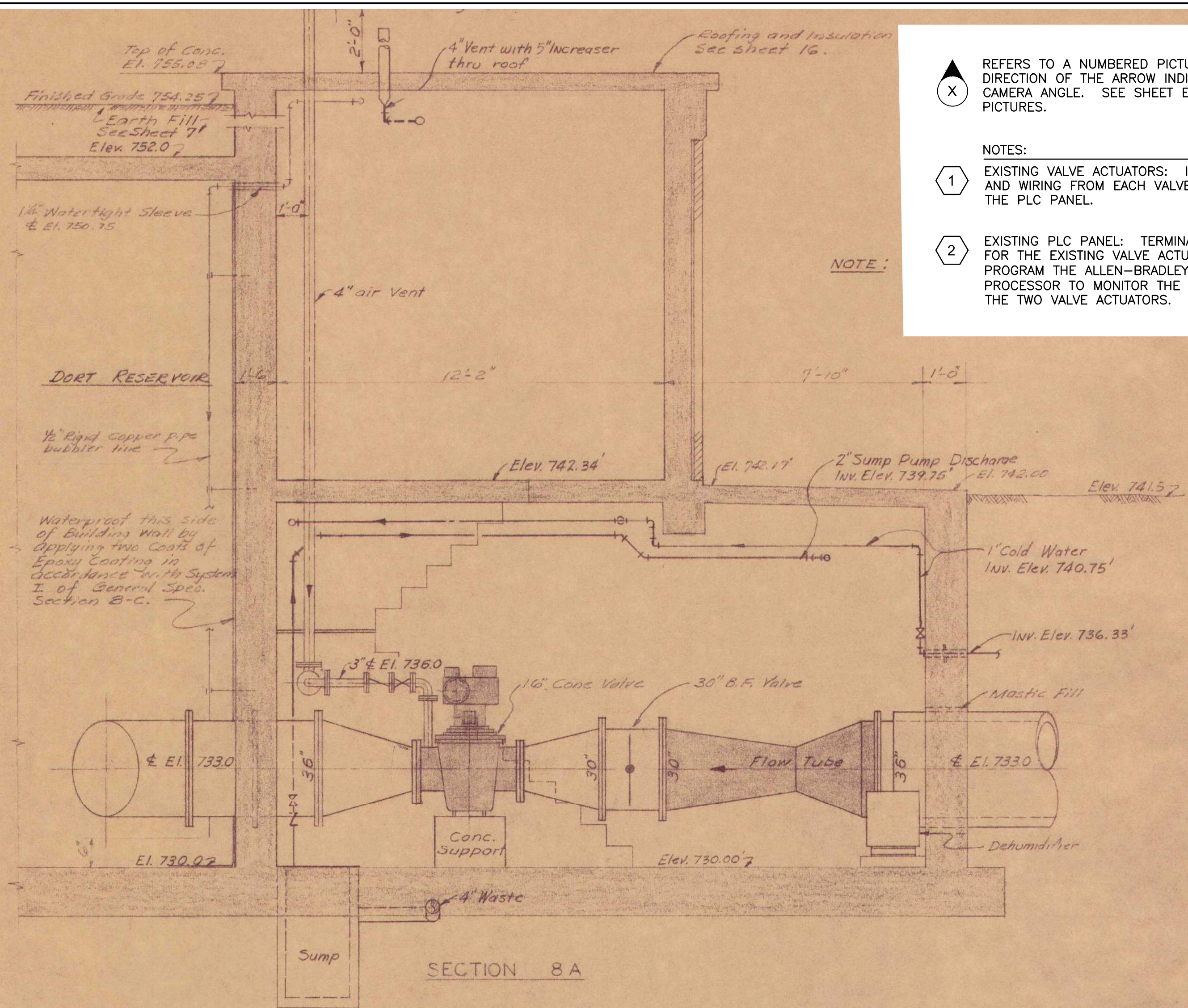
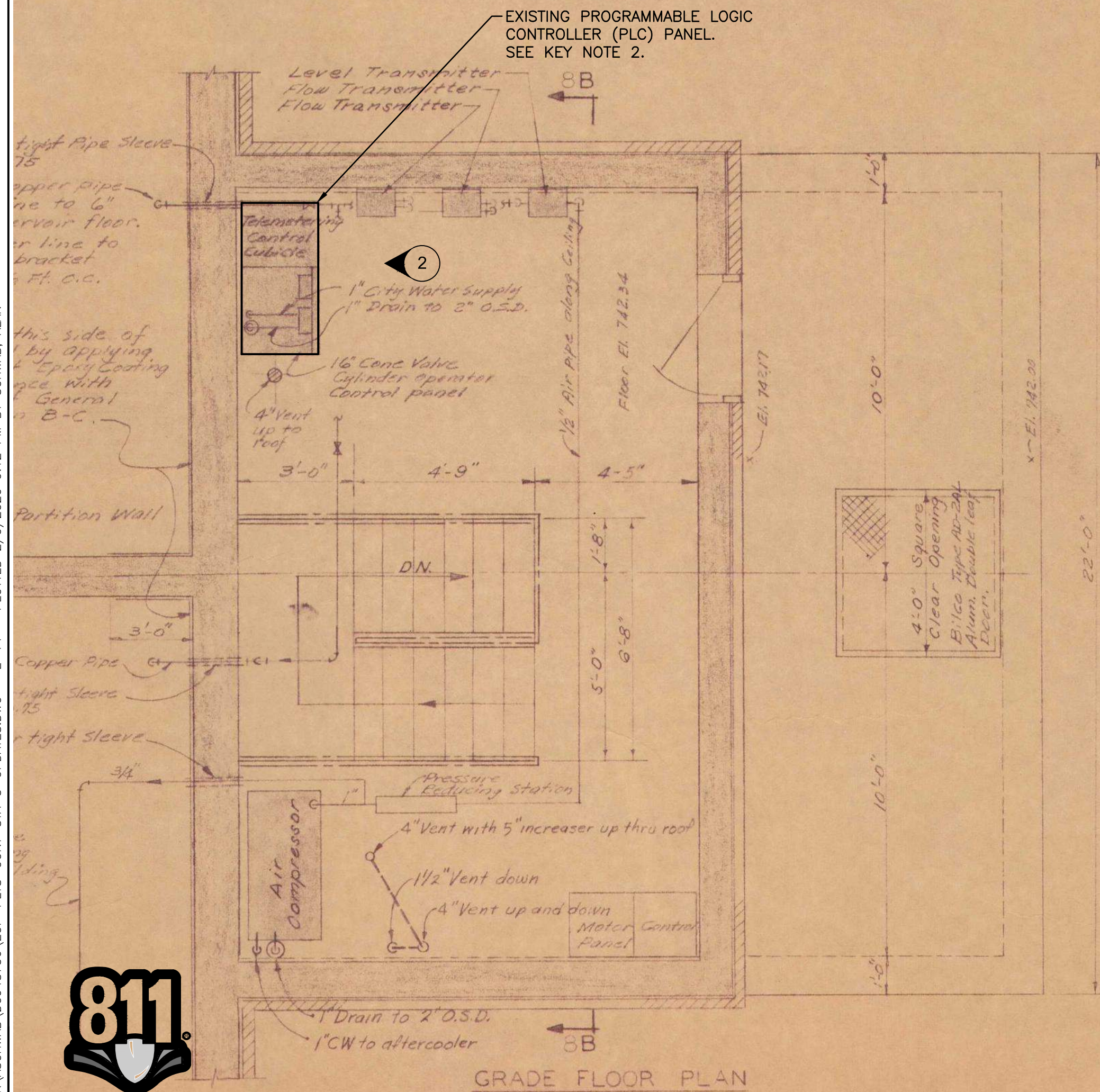
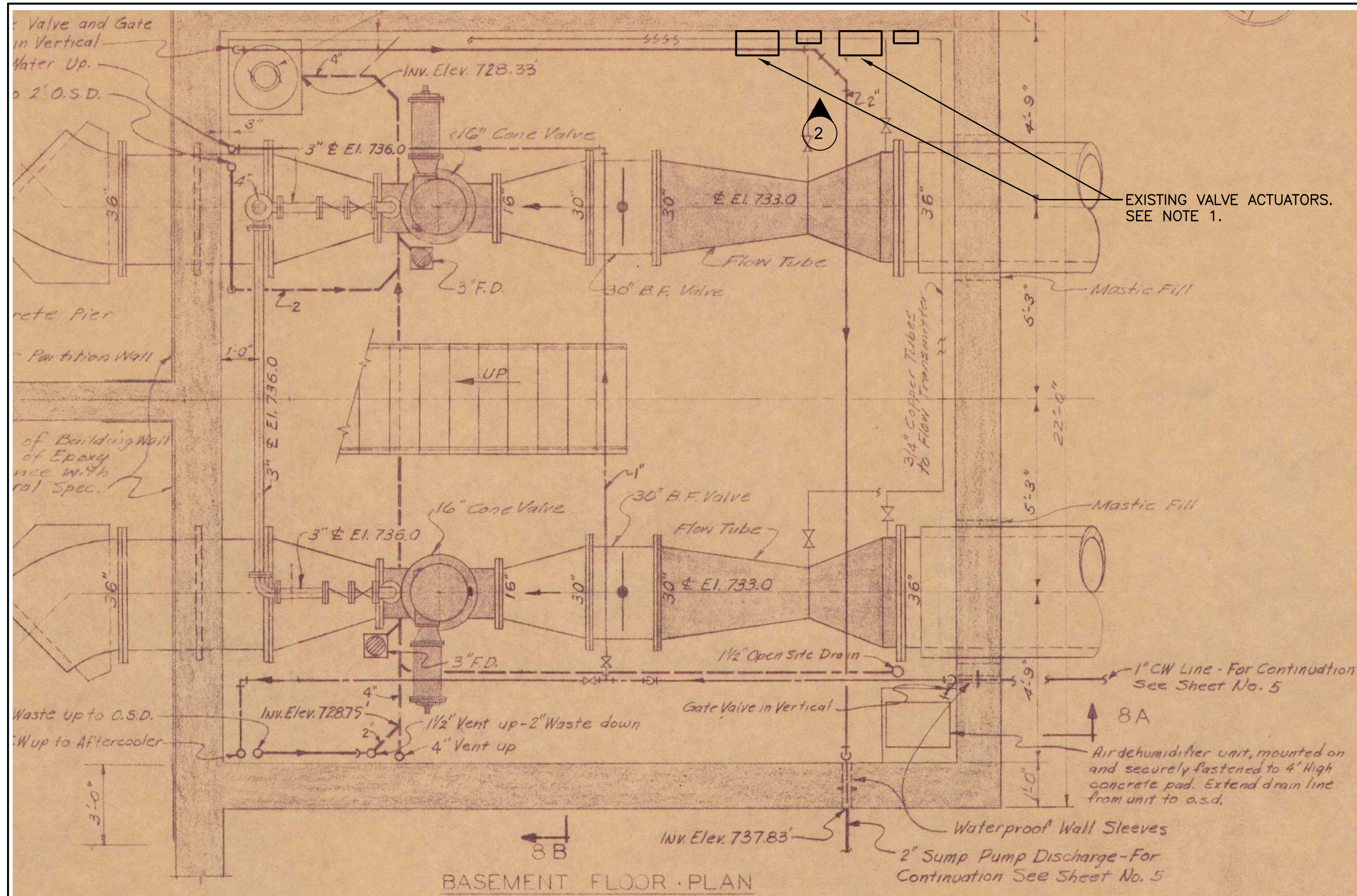
SHEET
E-13

PROJECT: MANAGER: JASON R. KENYON, PE
C:\P\WORK\ASCHWAB\00948736\FLINT-DETROIT WATER SUPPLY PROJECT-STA-3-UPDATES.DWG - E-14 - FLOTTED 2/9/2020 9:12 PM BY SCHWAB, ALAN

FIELD BOOK INFORMATION:



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CITY OF FLINT, MICHIGAN
FLINT-DETROIT WATER SUPPLY PROJECT
DORT RESERVOIR
INLET CONTROL VALVE BUILDING

CONSOER, TOWNSEND & ASSOCIATES
IN MICHIGAN
CONSULTING ENGINEERS

SCALE: 3/8" = 1'-0"
REVISED:
SHEET NO. 8
OF 40 SHEETS

DRAWN BY: T. A. H.
DATE: June 1960
CHECKED BY: A. G. W.
APPROVED BY: Leo F. Nelson

REFERS TO A NUMBERED PICTURE. THE DIRECTION OF THE ARROW INDICATES THE CAMERA ANGLE. SEE SHEET E-15 FOR PICTURES.

NOTES:

1 EXISTING VALVE ACTUATORS: INSTALL CONDUIT AND WIRING FROM EACH VALVE ACTUATOR TO THE PLC PANEL.

2 EXISTING PLC PANEL: TERMINATE NEW WIRING FOR THE EXISTING VALVE ACTUATORS. PROGRAM THE ALLEN-BRADLEY SLC 5/04 PROCESSOR TO MONITOR THE POSITION FOR THE TWO VALVE ACTUATORS.

CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
CONTROL STATION 3
ELECTRICAL PLAN

ISSUED FOR: DATE: BY:

JOB NO. C0F1068.01F

SHEET

E-14

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DESCRIPTION

DATE

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BY

PROJECT MANAGER: Jesse B. Kenney, PE
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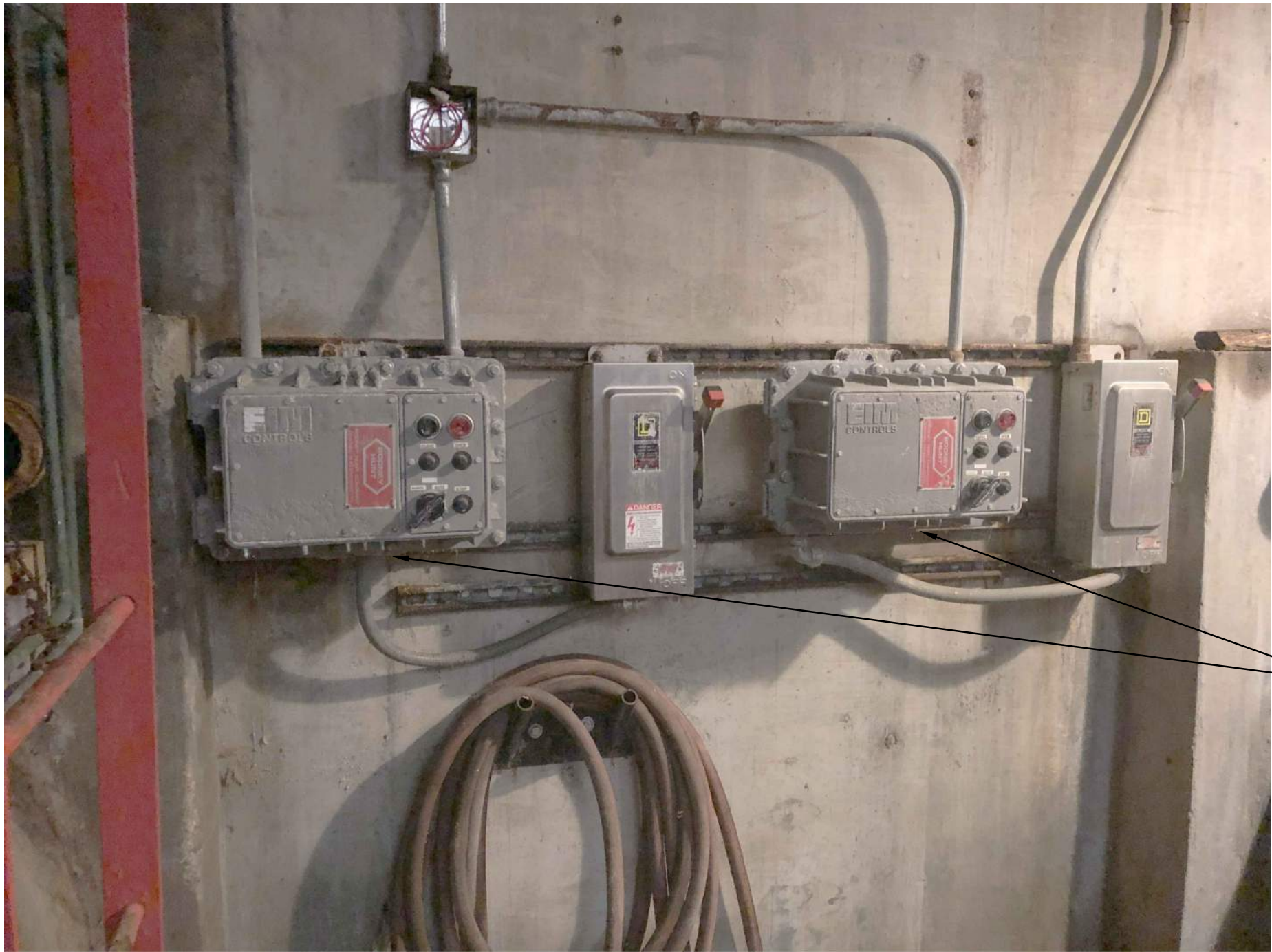


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PLC PANEL

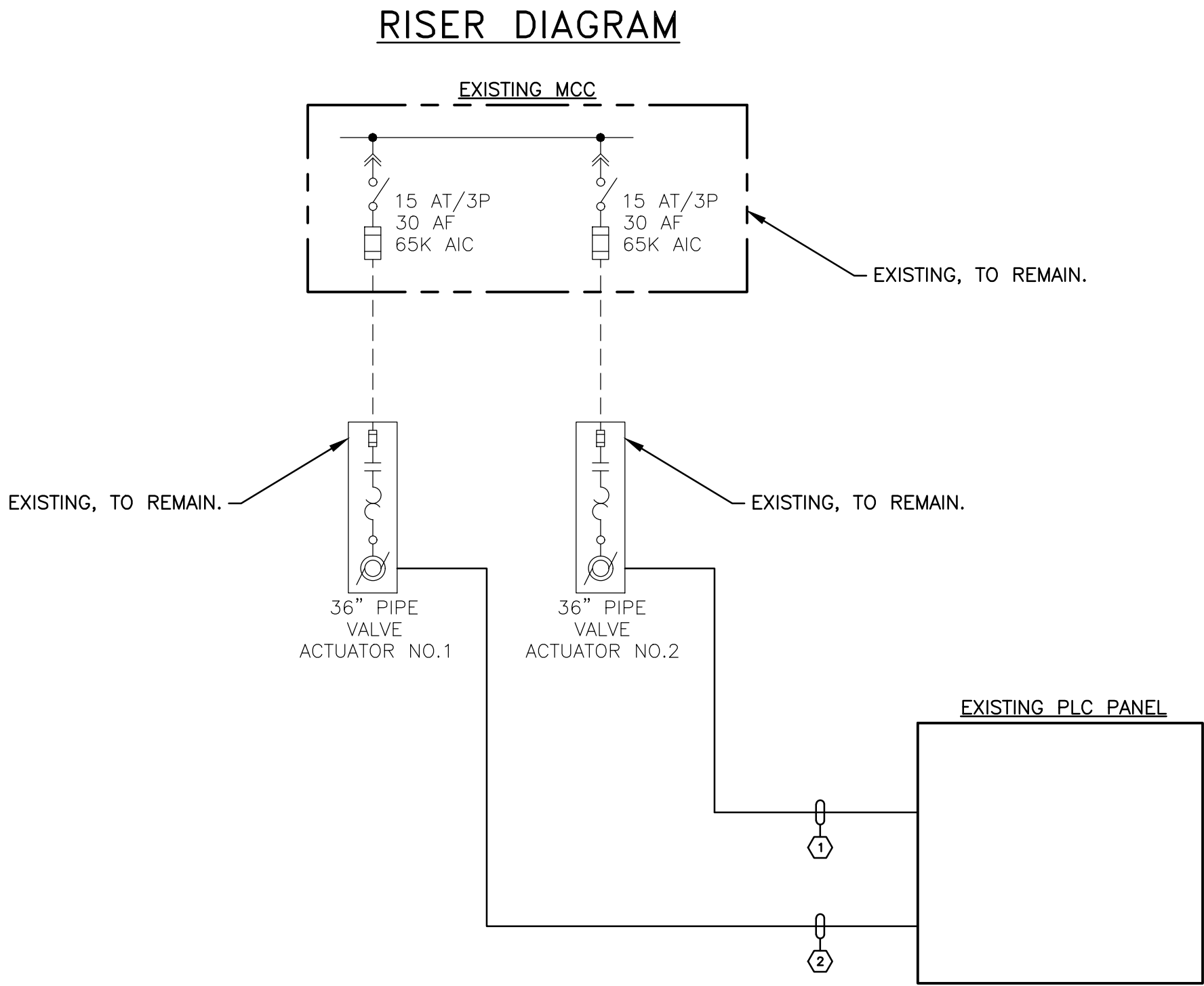
2
E-14



INSTALL NEW CONDUIT AND WIRING
FROM EACH VALVE ACTUATOR TO
THE PLC PANEL.

VALVE ACTUATORS

1
E-14



CABLE SCHEDULE									
NO.	CONDUIT LABEL	FROM	TO	CONDUIT		CABLE			COMMENTS
				SIZE	TYPE	QTY. AND SIZE	VOLT	TYPE	
1	VA36N01-CTRL-1	PLC PANEL	36" ACTUATOR 1	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. ACTUATOR POS FEEDBACK
2	VA36N02-CTRL-1	PLC PANEL	36" ACTUATOR 2	3/4"	RGS	1#16 TWIST. SHIELD PAIR	600	PVC	24V. ACTUATOR POS FEEDBACK

CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
CONTROL STATION 3
PHOTOS AND DIAGRAMS

ISSUED FOR: DATE: BY:

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C0F1068.01F

SHEET

E-15

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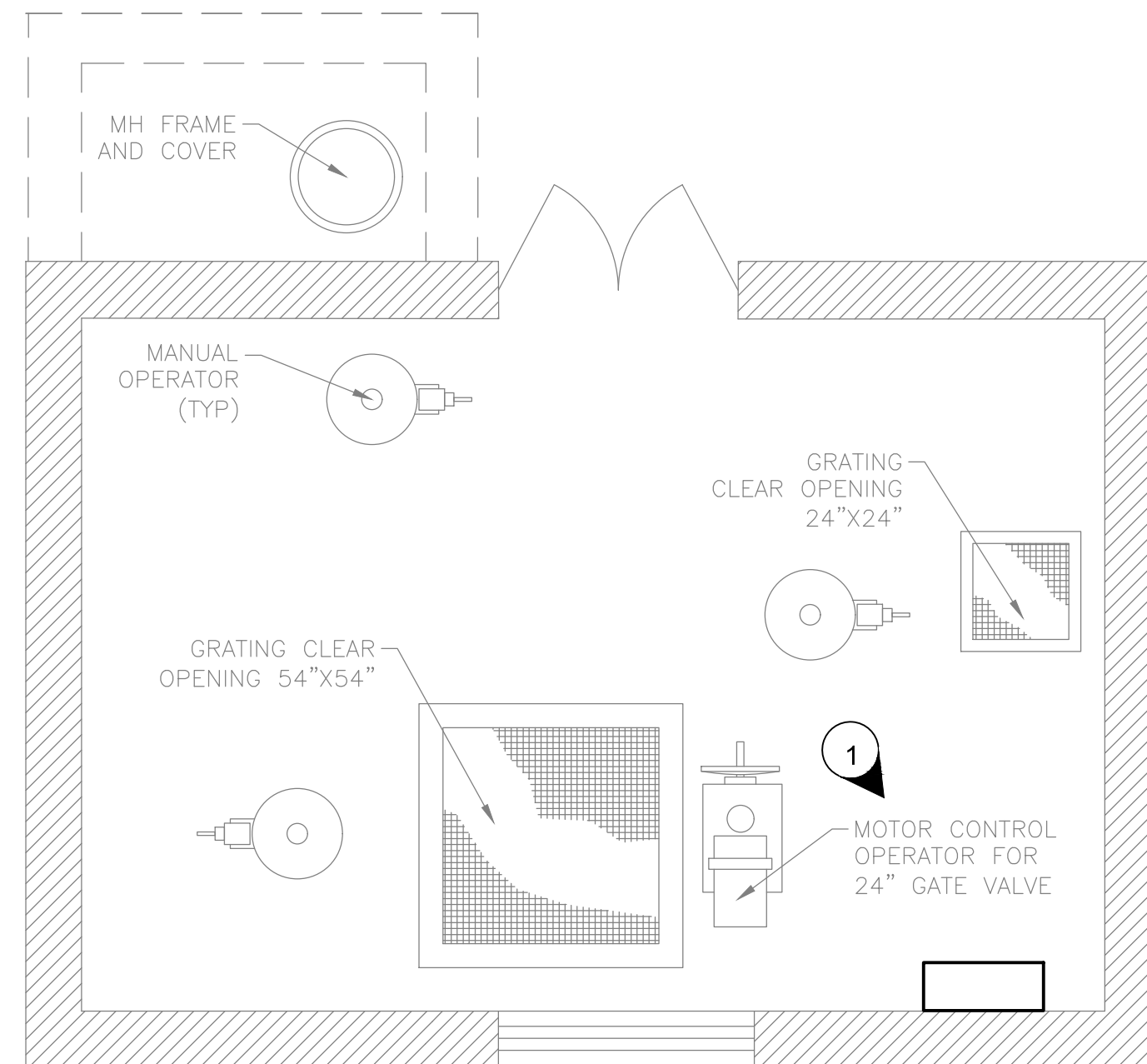
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DESCRIPTION

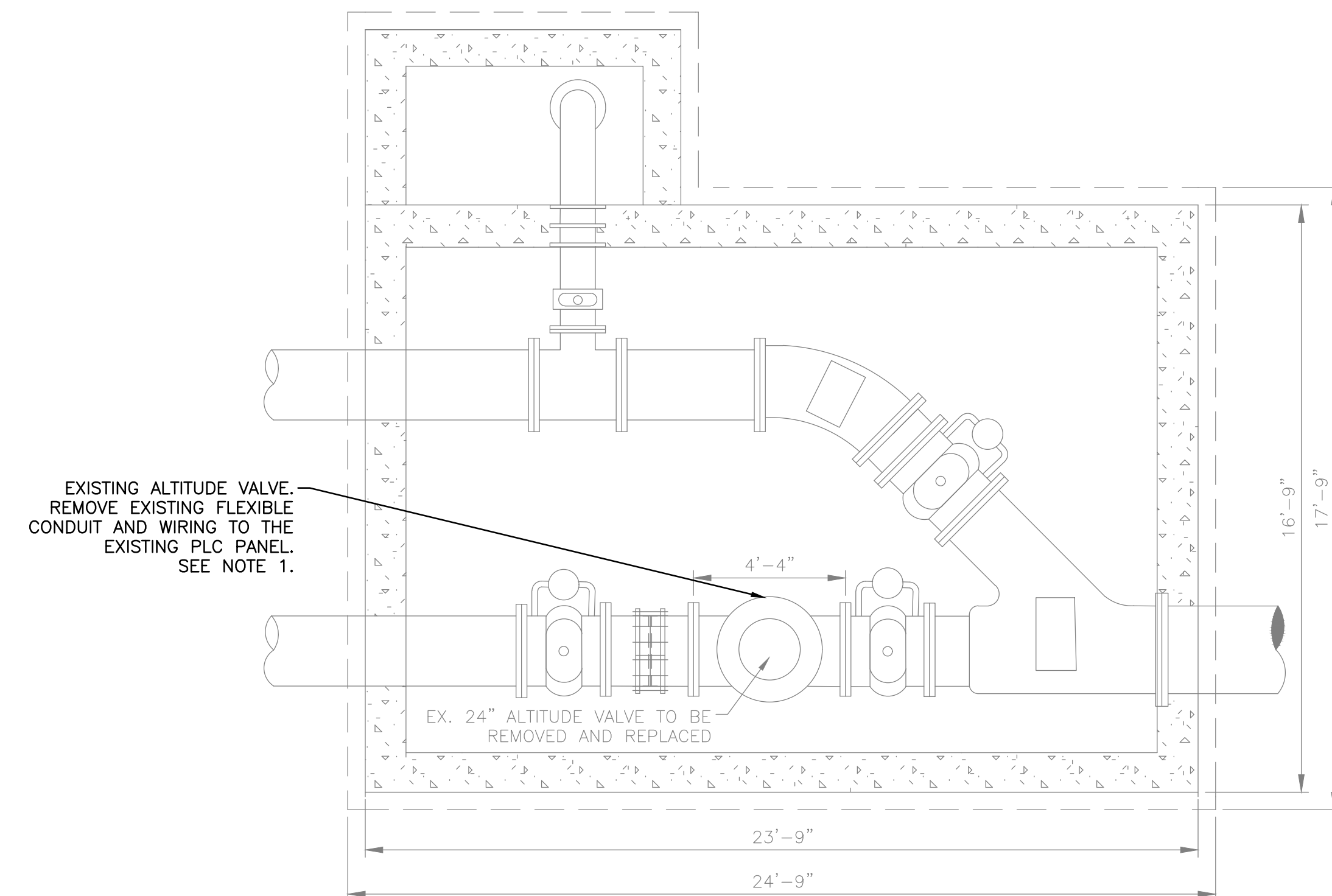
DATE

REV#

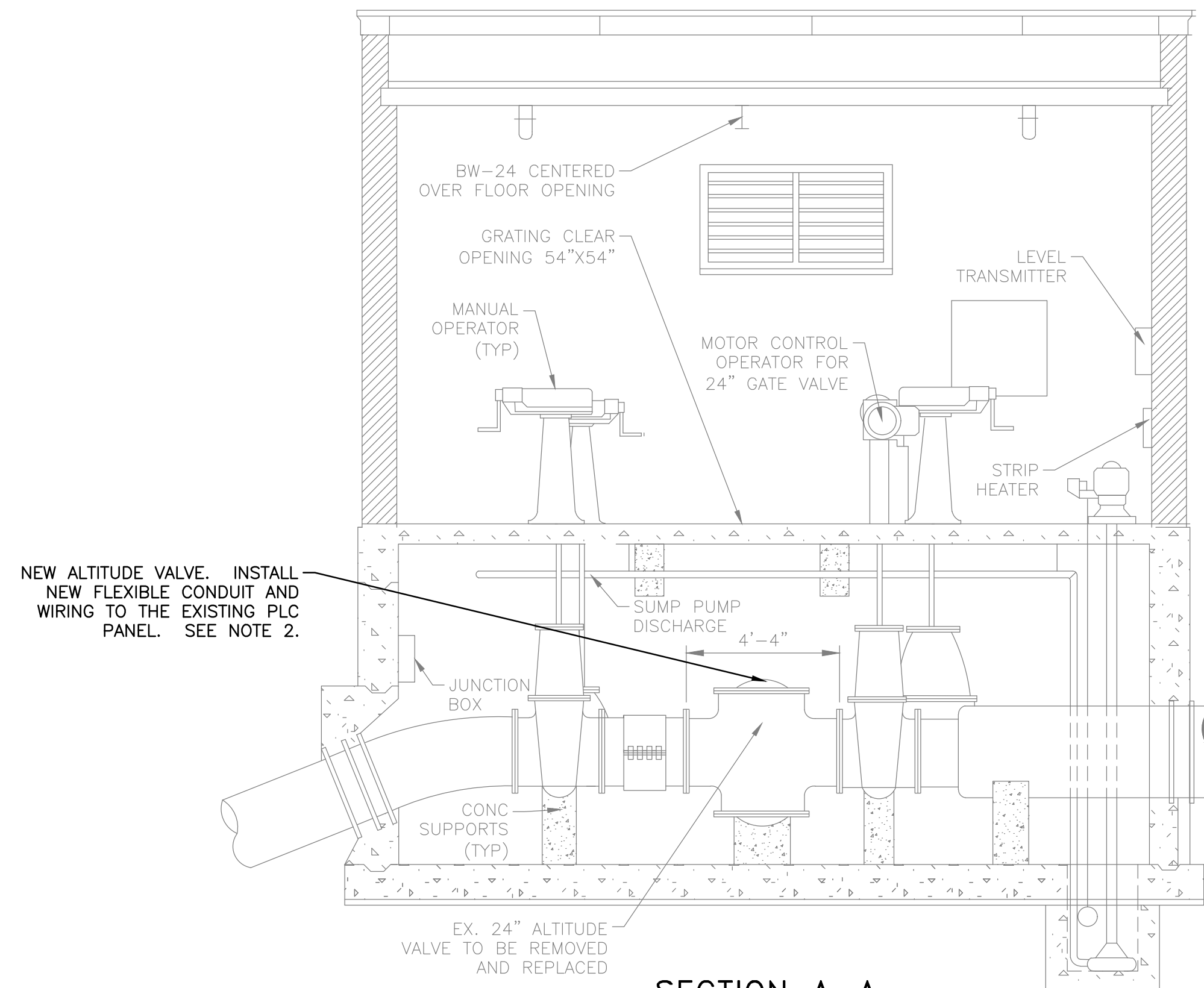
BY




FLOOR PLAN
SCALE: 1:40



BASEMENT PLAN
SCALE: 1:40



SECTION A-A
SCALE: 1:40

 REFERS TO A NUMBERED PICTURE. THE DIRECTION OF THE ARROW INDICATES THE CAMERA ANGLE. SEE SHEET E-17 FOR PICTURES.

NOTES:

1 EXISTING ALTITUDE VALVE: REMOVE THE EXISTING FLEXIBLE CONDUIT AND WIRING FROM THE ALTITUDE VALVE TO THE PLC PANEL.

NEW ALTITUDE VALVE: INSTALL NEW FLEXIBLE
CONDUIT AND WIRING FROM THE ALTITUDE
VALVE TO THE PLC PANEL.

2 EXISTING PLC PANEL: TERMINATE NEW WIRING FOR THE DIFFERENTIAL PRESSURE TRANSMITTERS AND BUTTERFLY VALVE ACTUATORS. PROGRAM THE ALLEN-BRADLEY SLC 5/04 PROCESSOR TO CONTROL THE TWO BUTTERFLY VALVE ACTUATORS AND RE-SCALE THE PRESSURE TRANSMITTER SIGNALS IF NEEDED.



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www.wadetrim.com

1101 S. SAGINAW STREET
CITY OF FLINT
FLINT, MI 48502

36" SECONDARY WATER SUPPLY
TANK HOUSE
ELECTRICAL PLAN

SUED FOR: DATE: BY:

OB NO.
COF1068.01F

HEET

E-16

1
E-16



2
E-16

CABLE SCHEDULE									
				CONDUIT		CABLE			
NO.	CONDUIT LABEL	FROM	TO	SIZE	TYPE	QTY. AND SIZE	VOLT	TYPE	COMMENTS
1	VA24-CTRL-1	PLC PANEL	24" VALVE	3/4"	EXIST/LFMC	4#14 + 1#14 GND	600	THWN-2	120V. CONTROL

[illegible]

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PHOTOS AND DIGRAMS

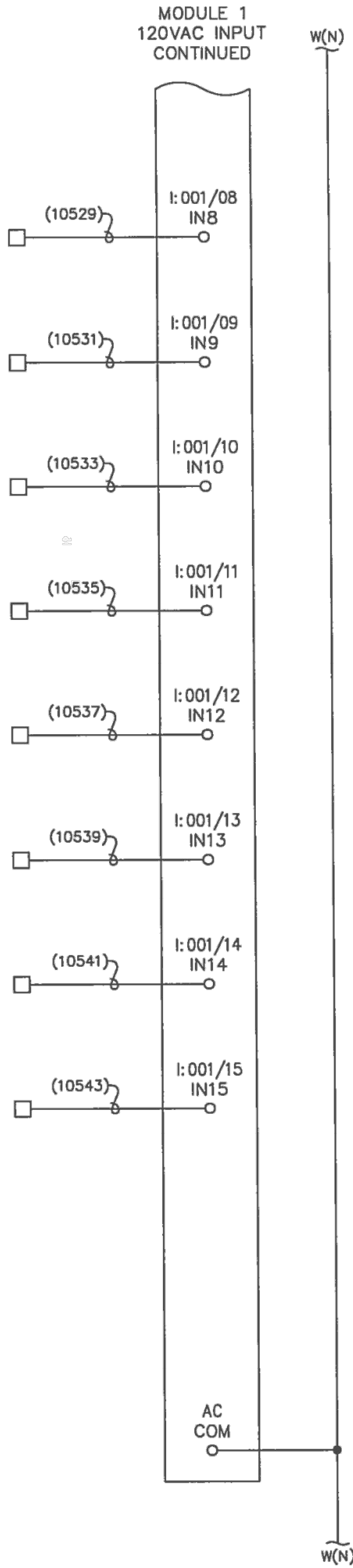
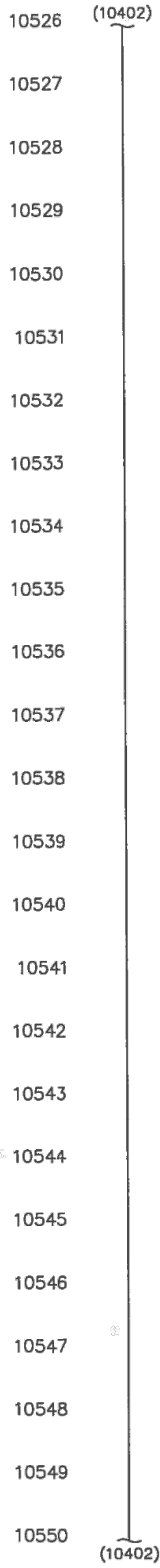
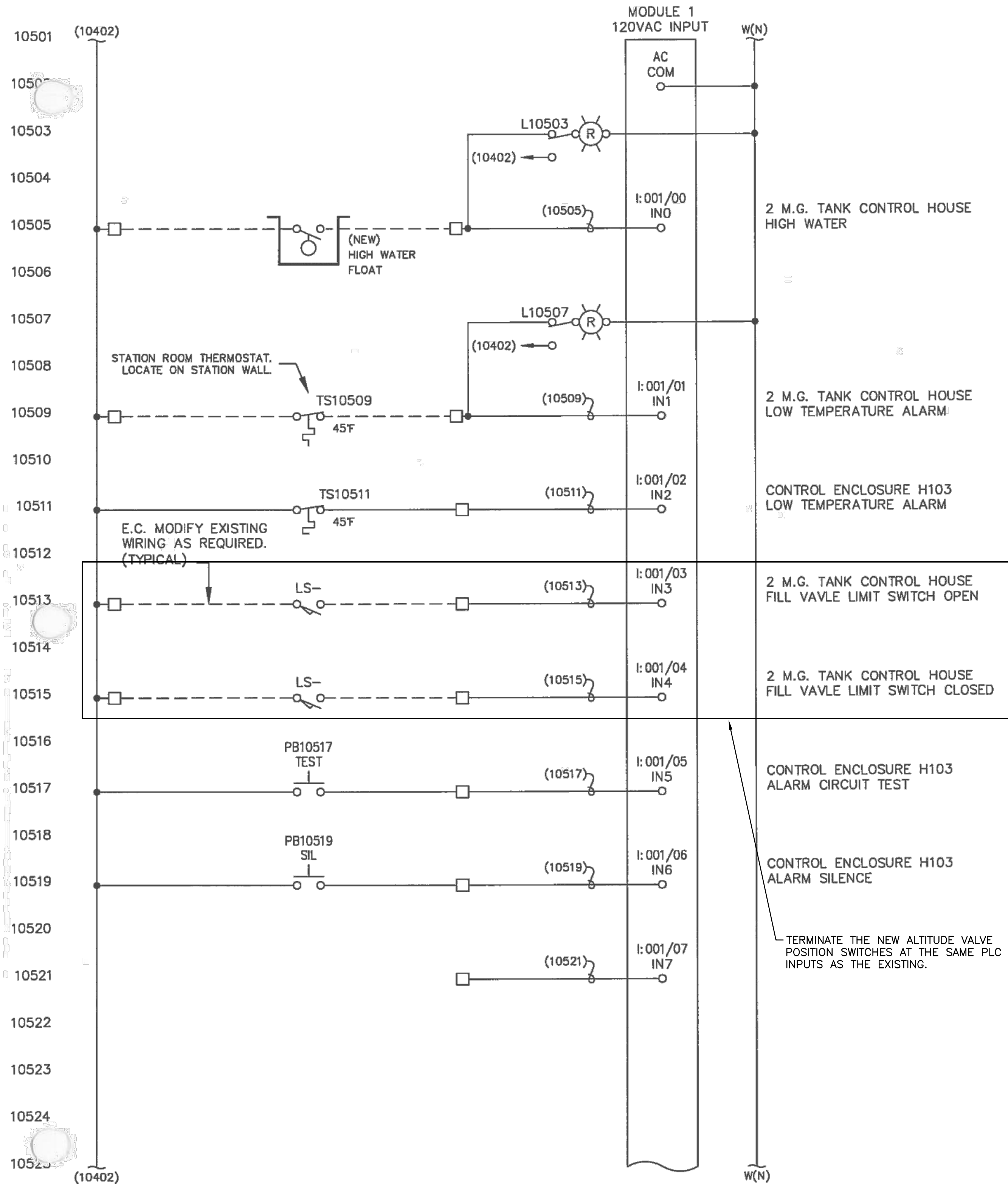
JOB NO.
COF1068.01F

E-17

PROJECT: MANAGER: JASON B. KENYON, PE
CAPW: WORK\ASCHWAB\00948736\EUP-PLTS-PRESSURE REDUCING PILDWG - E-18 - PLOTTED 2/9/2020 10:27 PM BY SCHWAB, ALAN



Know what's below.
Call before you dig.



CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
TANK HOUSE
PLC DIGITAL INPUT MODIFICATIONS

ISSUED FOR: DATE: BY:

JOB NO.
C0F1068.01F

SHEET

E-18

555 S. Saginaw Street, Suite 201
Flint, MI 48502
www.wadetrिम.com



© Wade Trim Group, Inc.

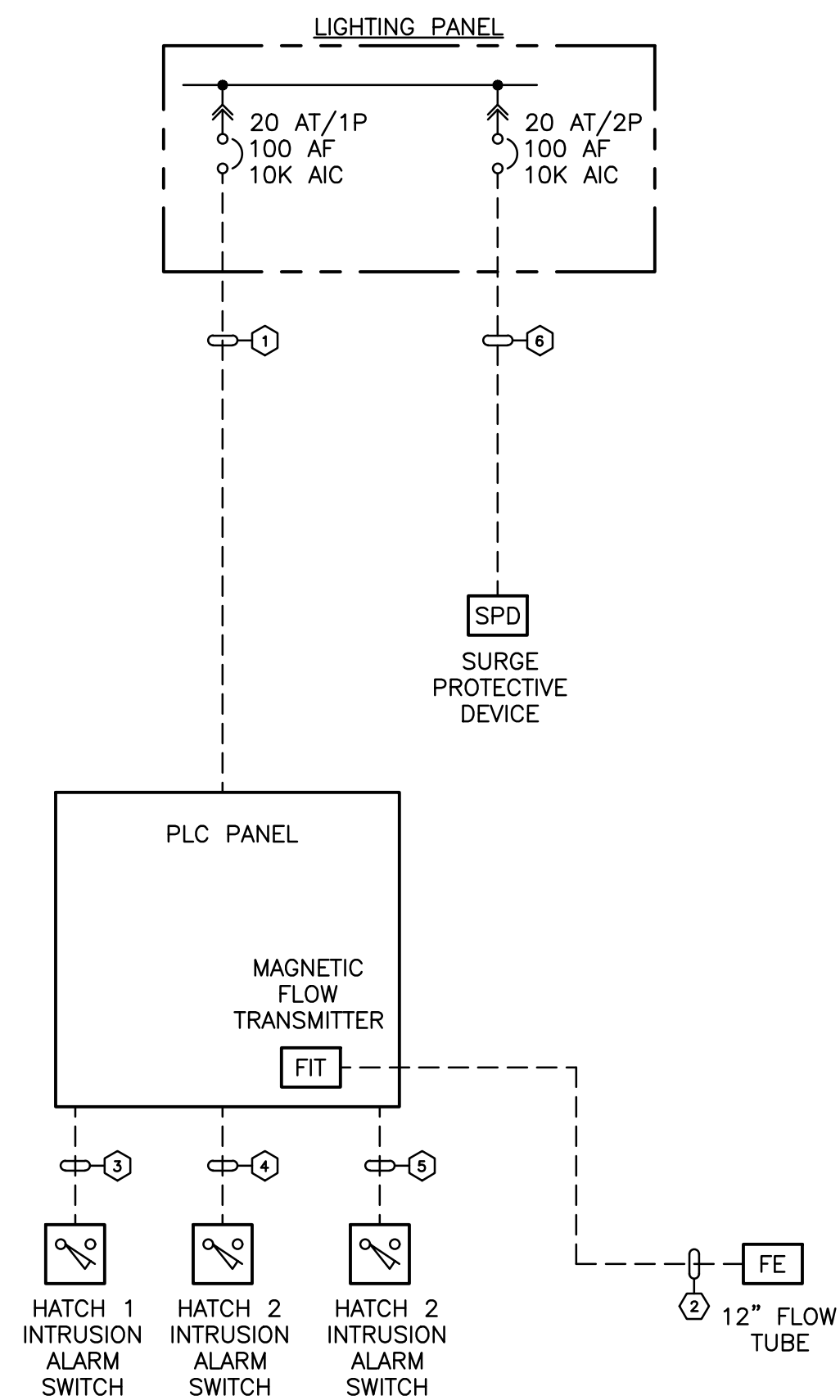
DESCRIPTION

DATE

REV#

BY

RISER DIAGRAM



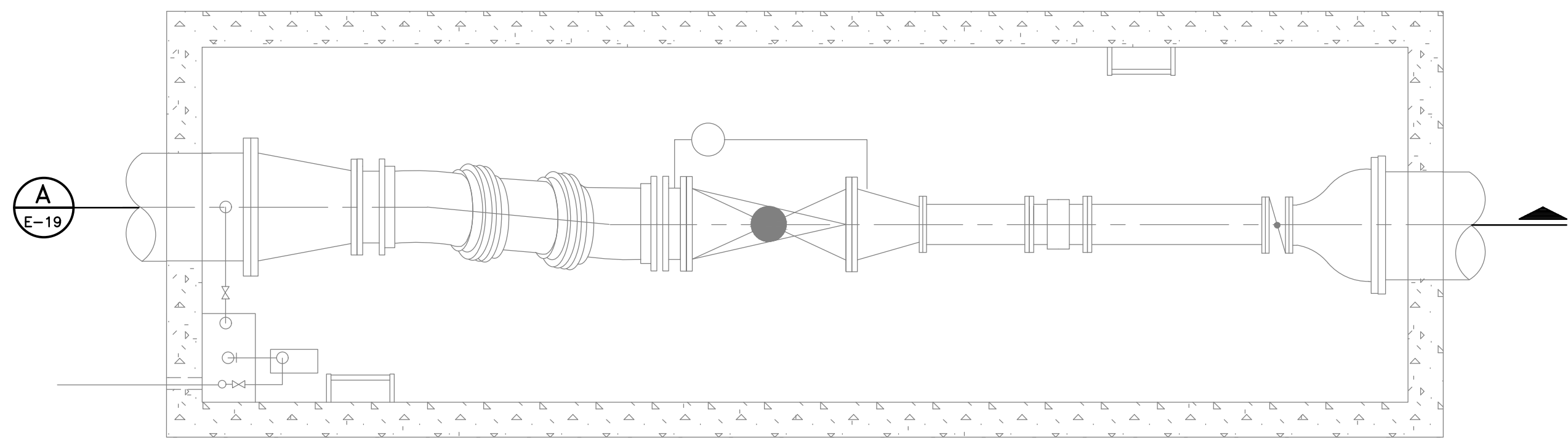
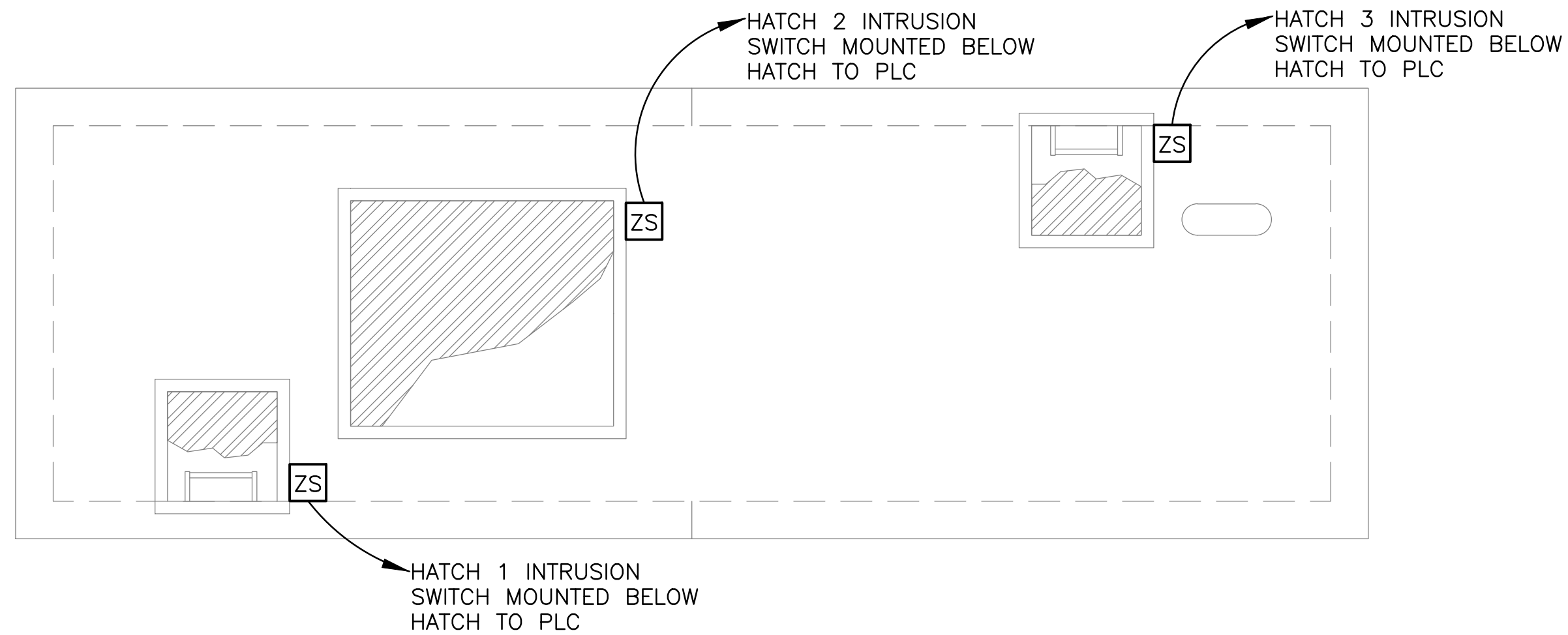
CABLE SCHEDULE									
				CONDUIT		CABLE			
NO.	CONDUIT LABEL	FROM	TO	SIZE	TYPE	QTY. AND SIZE	VOLT	TYPE	COMMENTS
1	PLC-PWR-1	LIGHTING PANEL	PLC PANEL	3/4"	RGS	2#12 + 1#12 GND	600	THWN-2	120V. POWER
2	FIT-CTRL-1	FLOW TUBE	FLOW XMTR.	3/4"	RGS	MANUFACTURER CABLE	600	THWN-2	POWER AND SIGNAL
3	ZS1-CTRL-1	LIMIT SWITCH 1	PLC PANEL	3/4"	RGS	2#14 + 1#14 GND	600	THWN-2	120V. CONTROL
4	ZS2-CTRL-1	LIMIT SWITCH 2	PLC PANEL	3/4"	RGS	2#14 + 1#14 GND	600	THWN-2	120V. CONTROL
5	ZS3-CTRL-1	LIMIT SWITCH 3	PLC PANEL	3/4"	RGS	2#14 + 1#14 GND	600	THWN-2	120V. CONTROL
6	SPD-PWR-1	LIGHTING PANEL	SPD	3/4"	RGS	3#12 + 1#12 GND	600	THWN-2	120V. POWER

PANEL:			LIGHTING PANEL			100A BUS (10K AIC)						
VOLTAGE: 240/120 VAC			PHASE: 1		WIRE: 3		MAIN: 100 AMP/2P		TYPE: NEMA 4X STAINLESS STEEL		MOUNTING: SURFACE	
CKT	BKR		LOAD			VA	PH	VA	LOAD		BKR	CKT
1	20A/1P	CITY OF FLINT PLC PANEL				600	A	0	SURGE PROTECTIVE DEVICE (SPD)		20A/2P	2
3	20A/1P	SPARE				0	B	0			4	
5	20A/1P	SPARE				0	A	0			6	
7	SPACE	SPACE				0	B	0	SPACE		SPACE	8
9	SPACE	SPACE				0	A	0	SPACE		SPACE	10
11	SPACE	SPACE				0	B	0	SPACE		SPACE	12
13	SPACE	SPACE				0	A	0	SPACE		SPACE	14
15	SPACE	SPACE				0	B	0	SPACE		SPACE	16
17	SPACE	SPACE				0	A	0	SPACE		SPACE	18
19	SPACE	SPACE				0	B	0	SPACE		SPACE	20
TOTAL:												
A=600											B=0	
TOTAL CONNECTED LOAD: 600												

* GFCI CIRCUIT BREAKER

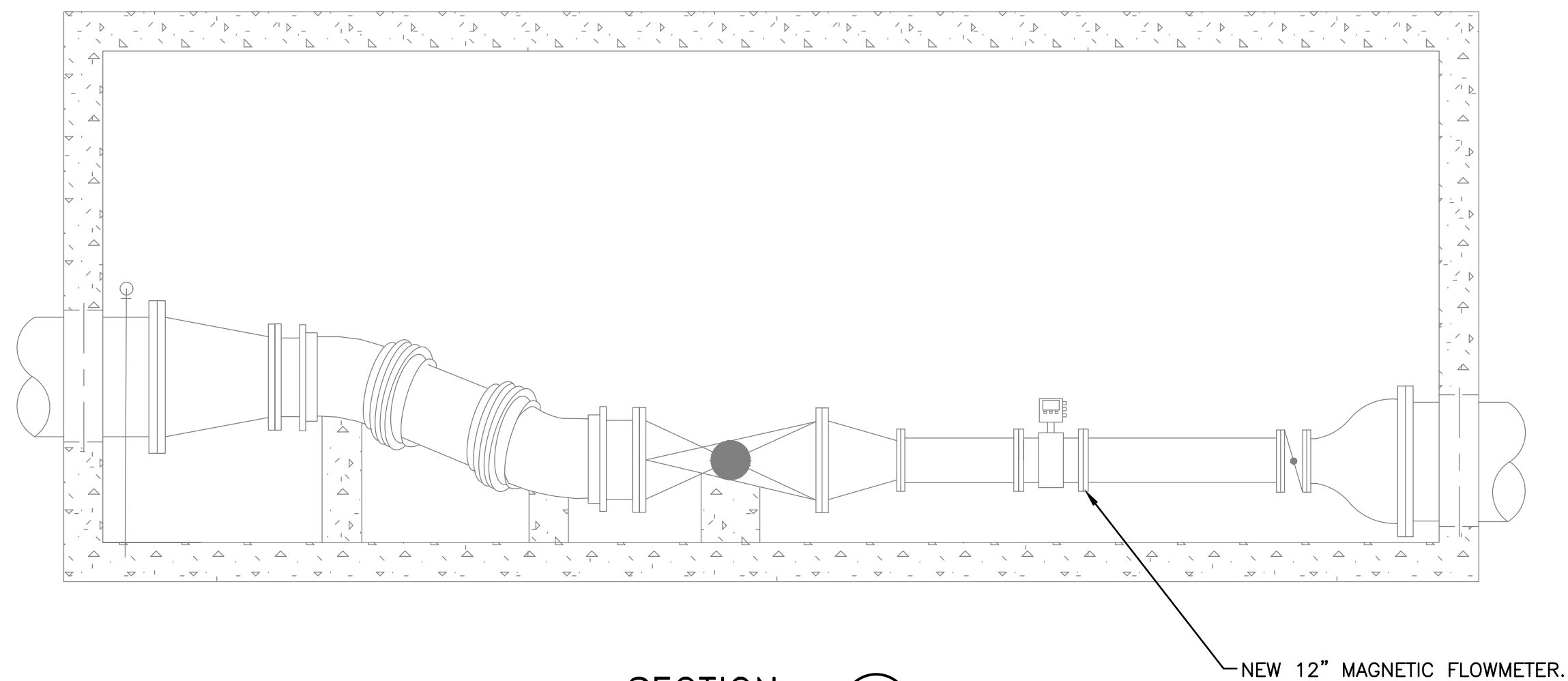


Know what's **below**.
Call before you dig.



PROPOSED MODIFICATIONS METER VAULT – PLAN

SCALE: 1/4"=1'-0"



SECTION

SCALE: 1/4"=1'-0"



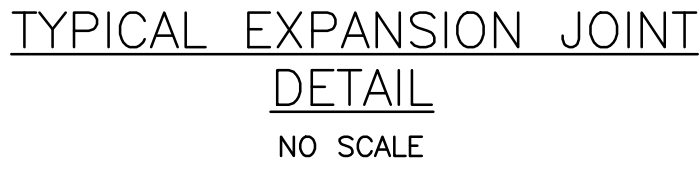
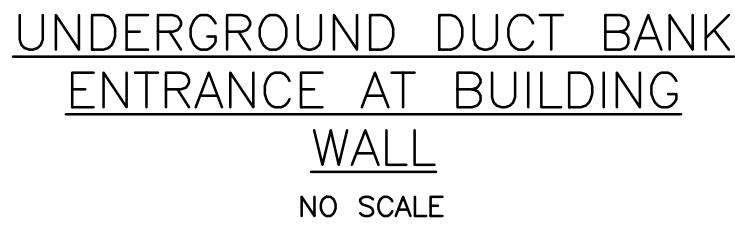
CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
RESERVOIR METER VAULT
ELECTRICAL PLAN

ISSUED FOR: DATE: BY:

JOB NO.
COF1068.01F

SHEET

E-19



1. PROVIDE CONDUIT SEAL WITH WATERPROOFING MEMBRANE FOR ALL CONDUITS INSTALLED THROUGH CORED HOLES IN METER WALLS.

