	SHEET INDEX
SHEET	DESCRIPTION
CS	Title Sheet
G-001	General Notes
G-002	Basis of Design
G-003	Yard Grading Plan
G-004	Existing Yard Piping Layout
G-005	Primary Elements & Valve Schedule Plan
G-006	General Notes, Code Analysis, and Compliance Plans
V-101	Existing Pump - ELEV 711.00±
V-102	Existing Pump - ELEV 716.50
V-103	Existing Pump - ELEV 730.00
V-104	Existing Plumbing
C-101	Demolition Plan - ELEV 711.00±
C-102	Demolition Plan - ELEV 716.50
C-103	Demolition Plan - ELEV 730.00
C-104	Proposed Pump - ELEV 711.00±
C-105	Proposed Pump - ELEV 716.50
C-106	Proposed Pump - ELEV 730.00
C-107	Proposed Pump Piping Profiles
C-108	Demolition Plan - Pump Suction Manifold Chamber
C-109	Proposed Plan - Pump Suction Manifold Chamber
C-110	Chemical Feed Plan
C-111	P.I.D.
A0.1	Abbreviation, ADA Mounting Heights, and Phasing Plan
A1 1	New Work Composite Plan
A4 1	Boof Plan
Δ4.2	Details
A5 1	Exterior Elevations
A8.2	Enlarged Toilet Room Plans and Interior Elevations
P0.1	Combined Plumbing Removal and Installation Plans
F 101	Existing Pump #1 VED
E-101	Existing Pump #1 VFD
E-102	
E-103	
E-104	
E-105	
E-106	
E-107	
E-108	Existing Pump #1 VFD
E-109	Existing Pump #1 VFD
E-110	Existing Pump #1 VFD
E-111	Existing Pump #1 VFD
E-112	Existing Pump #1 VFD
E-113	Existing Pump #1 VFD
E-114	Existing Pump #1 VFD
E-115	Existing Pump #1 VFD
E-116	Existing Pump #1 VFD
E-117	Existing Pump #1 VFD
E-118	Existing Pump #1 VFD
E-01	Electrical General Information
EL1.0	Lower Level 3 (Pump Rooms) Plan - Lighting
EL1.1	Lower Level 1 (Mezzanine) Plan - Lighting
EL1.2	Lower Level 2 (Cat Walk) Plan - Lighting
EL1.3	Ground Floor Plan - Lighting
EP1.1	Lower Level 1 (Mezzanine) Plan - Lighting
EP1.3	Ground Floor Plan - Power
E6.1	Diagrams
E6.2	Schedules
ED1.0	Lower Level 3 (Pump Rooms) Plan - Demolition
ED1.3	Ground Floor Plan - Power Demolition
ELD1.0	Lower Level 3 (Pump Rooms) Plan - Lighting Demolition
ELD1 1	Lower Level 1 (Mezzanine) - Lighting Demolition
FID1 3	Ground Floor Plan - Lighting Demolition





PROJECT LOCATION

GENERAL NOTES

THE CONTRACTOR SHALL CALL "MISS DIG" (1-800-482-7171) THREE WORKING DAYS, EXCEPT SATURDAY, SUNDAY, AND HOLIDAYS PRIOR TO COMMENCEMENT OF ANY WORK.

ALL UTILITIES SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE THE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE CITY OF FLINT CODE OF ORDINANCES.

CITY OF FLINT DEPARTMENT OF PUBLIC WORKS DORT PUMP STATION REHABILITATION





INNOVATIVE IDEAS **EXCEPTIONAL DESIGN** UNMATCHED CLIENT SERVICE \mathbb{N}

Project Location:

City of Flint Section 32 of T8N, R6E, Geographic Township of Genesee Genesee County, Michigan 48505

CITY OF FLINT OFFICIALS

SHELDON NEELEY	MAYOR
ERIC MAYS	CITY COUNCIL 1ST WARD
MAURICE DAVIS	CITY COUNCIL 2ND WARD
SANTINO J. GUERRA	CITY COUNCIL 3RD WARD
KATE FIELDS	CITY COUNCIL 4TH WARD
JERRI WINFREY-CARTER	CITY COUNCIL 5TH WARD
HERBERT WINFREY	CITY COUNCIL 6TH WARD
MONICA GALLOWAY	CITY COUNCIL 7TH WARD
ALLAN GRIGGS	CITY COUNCIL 8TH WARD
EVA WORTHING	CITY COUNCIL 9TH WARD

	APPROVED BY THE CI	TY OF FLINT
	DIRECTOR OF DEPARTMENT OF	F PUBLIC WORKS
	PROJECT DESCRIPTION: REHAB OF EXISTING PUMP STATIO	N.
	PREPARED UNDER THE SU	JPERVISION OF
	GREG J. GUCWA	
	REGISTERED PROFESSIONAL ENGINEER DLZ, INC. ORGANIZATION	REGISTRATION NO.
		GREGORY + GREGORY + L.GUCWA Enginaer No. 26533
1949-0188-00 SHEET 1 OF 61		DATE ISSUED: 11/06/20





	General Notes
	A. CONTRACTOR IS RESPONSIBLE TO CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS INCLUDING APPLICABLE ORDINANCES AND REFERENCED STANDARDS.
	B. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO SUBMITTING A BID OR BEGINNING ANY WORK. CONDITIONS FOUND TO BE IN VARIANCE FROM THE INFORMATION IN THE DRAWINGS OR PROJECT MANUAL SHALL BE SUBMITTED TO THE ARCHITECT IN WRITING FOR CLARIFICATION.
BLE	C. KEYNOTES ARE MEANT AS A GENERAL GUIDE FOR TYPICAL LOCATIONS. CONTRACTOR TO PERFORM FULL EXTENT OF WORK REQUIRED TO ACCOMPLISH DESIGN INTENT. THE ABSENCE OF A KEYNOTE DOES NOT ABSOLVE THE CONTRACTOR FROM PROVIDING THE FEATURE GRAPHICALLY INDICATED ON THE DRAWINGS
	D. SPECIFIC WORK ITEMS SHALL BE COORDINATED AND INTERFACED WITH ALL OTHER TRADES TO ALLOW FOR NEW CONSTRUCTION AND COMPLETE INSTALLATION AS REQUIRED TO ACCOMPLISH DESIGN INTENT.
	E. REFER TO DRAWINGS OF EACH TRADE OR DISCIPLINE FOR ADDITIONAL GENERAL NOTES AND INFORMATION, INCLUDING CIVIL/SITE DEVELOPMENT, ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL.
ΞT	F. CONTRACTOR IS RESPONSIBLE FOR ALL WORK IDENTIFIED ON ALL DRAWINGS AND INFORMATION IN THE PROJECT MANUAL, AS A COMPLETE PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE SPECIFIC SCOPE OF WORK FOR ANY SUBCONTRACTORS FOR THIS PROJECT
GET	G. FIELD VERIFY ACTUAL LOCATIONS OF EXISTING UNDERGROUND UTILITIES, STRUCTURES, WATER LINES, STORM AND SANITARY LINES, GAS LINES, ELECTRICAL CONDUIT, AND OTHER UNDERGROUND UTILITIES PRIOR TO PERFORMING EARTHWORK, EXCAVATION, OR UTILITY WORK. ENGAGE THE SERVICES OF A PRIVATE UTILITY LOCATE COMPANY IF NECESSARY TO COMPLETELY LOCATE EXISTING UNDERGROUND UTILITIES AND STRUCTURES.
	H. LOCATION OF ALL TEMPORARY FACILITIES SHALL BE COORDINATED WITH OWNER AND ARCHITECT PRIOR TO MOBILIZATION ON-SITE, INCLUDING BUT NOT LIMITED TO TEMPORARY STAGING AREA, MATERIAL STORAGE AREA, ACCESS DRIVE(S), PARKING AREA, TOPSOIL STOCKPILE AREA, WASTE DISPOSAL AREA, FIELD OFFICES AND TEMPORARY FACILITIES, JOB SIGN, AND TEMPORARY FENCING.
	 CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MISCELLANEOUS BLOCKING REQUIRED FOR INSTALLATION OF ALL BUILDING COMPONENTS, INCLUDING BUT NOT LIMITED TO FURNISHINGS, FIXTURES, EQUIPMENT, HARDWARE, BRACKETS, AND OWNER-PROVIDED EQUIPMENT. CONTRACTOR SHALL COORDINATE SPECIFIC REQUIREMENTS ASSOCIATED WITH EACH TRADE AND WITH OWNER'S REPRESENTATIVE.
	J. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MISCELLANEOUS WOOD AND METAL TRIM, FLASHING, CLIP ANGLES, ANCHORS, SUPPORTS, AND CLOSURE TRIM REQUIRED TO PROVIDE A COMPLETE, UNIFORM, AND WEATHERTIGHT ASSEMBLY AS REQUIRED TO ACCOMPLISH THE DESIGN INTENT.
	K. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. CONTRACTOR SHALL PROVIDE AND INSTALL ALL ACCESSORY COMPONENTS AS REQUIRED TO FULLY COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.
	L. CONTRACTOR SHALL PROVIDE ACCESS DOORS IN ALL WALLS AND CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, FIRE PROTECTION OR ELECTRICAL ITEMS MAY BE REQUIRED. ACCESS DOORS SHALL BE OF AN APPROPRIATE SIZE REQUIRED FOR EACH APPLICATION. WHERE APPLICABLE, ACCESS DOORS SHALL MATCH THE FIRE RATING OF THE WALL ASSEMBLY.
	M. WHERE DISCREPANCIES EXIST IN THE CONTRACT DOCUMENTS INCLUDING DISCREPANCIES BETWEEN DRAWINGS AND PROJECT MANUAL, CONTRACTOR SHALL REQUEST CLARIFICATION IN WRITING FROM ARCHITECT. THE CONTRACTOR SHALL NOT ASSUME ANY ITEM TAKES PRECEDENCE OVER THE OTHER. ANY ACTION THE CONTRACTOR MAKES PRIOR TO NOTIFICATION IN WRITING SHALL BE SOLELY AT THE CONTRACTOR'S RISK.
	 N. CONTRACTOR SHALL SEAL ALL PENETRATIONS IN EXTERIOR WALL AND ROOF ASSEMBLIES WITH APPROPRIATE JOINT SEALANT(S) AND FLASHING(S) TO MAINTAIN A WEATHERTIGHT AND AIRTIGHT BUILDING ENVELOPE. ALL JOINTS AND PENETRATIONS SHALL BE SEALED, GASKETED, OR WEATHER- STRIPPED TO MINIMIZE AIR LEAKAGE, INCLUDING THE FOLLOWING: JOINTS AROUND FENESTRATION AND DOOR FRAMES. JUNCTIONS BETWEEN WALLS AND FOUNDATIONS, BETWEEN WALLS AT BUILDING CORNERS, BETWEEN WALLS AND FLOORS OR ROOFS, AND BETWEEN WALLS AND FOUNDATIONS, BETWEEN WALLS AT BUILDING CORNERS, BETWEEN WALLS AND FLOORS OR ROOFS, AND BETWEEN WALLS AND ROOF OR WALL PANELS. OPENINGS AT PENETRATIONS OF UTILITY SERVICES THROUGH ROOFS, WALLS, AND FLOORS. JOINTS, SEAMS, AND PENETRATIONS OF VAPOR RETARDERS. ALL OTHER OPENINGS IN THE BUILDING ENVELOPE.
	O. COORDINATE WITH OTHER CONSTRUCTION ACTIVITIES AND CONSTRUCTION SEQUENCING WITH OTHER PROJECT(S) AND WORK BEING PERFORMED CONCURRENTLY ON-SITE.
	P. BUILDING ELEVATION 100'-0" EQUALS SITE ELEVATION
	DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION. R. ALL PENETRATIONS AND JOINTS IN FIRE-RATED WALL ASSEMBLIES AND FLOOR/CEILING ASSEMBLIES SHALL BE SEALED WITH THE FIRESTOPPING
	SYSTEM OR FIRE-RESISTIVE JOINT SYSTEM WHICH IS THE MOST APPROPRIATE FOR THE SPECIFIC APPLICATION BASED ON THE TYPE OF ASSEMBLY AND TYPE OF PENETRATING ELEMENT. SYSTEMS SHALL BE U.LLISTED FOR EACH APPLICATION. S. ALL VERTICAL FENESTRATION (OPERABLE AND FIXED GLAZED ASSEMBLIES) SHALL BE LABELED BY THE MANUFACTURER WITH U-FACTOR, SHGC
	RATING, SAFETY RATING, AND FIRE-RESISTANCE RATING, WHERE APPLICABLE. WINDOWS AND DOORS SHALL BE CERTIFIED AS MEETING AIR LEAKAGE REQUIREMENTS PER NFRC 400.
	CONTRACTOR SHALL NOT BE SCALED TO OBTAIN DIMENSIONS. IF THE DIMENSIONS CANNOT BE DETERMINED BY THE INFORMATION GIVEN, CONTRACTOR SHALL REQUEST CLARIFICATION FROM THE ARCHITECT. ALL DIMENSIONS ARE TO FACE OF STUD, FACE OF CMU, OR FACE OF CONCRETE, UNLESS NOTED OTHERWISE. CEILING HEIGHT DIMENSIONS ARE FROM FINISHED FLOOR TO FACE OF FINISHED CEILING MATERIALS, UNLESS NOTED OTHERWISE.
	U. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY DEWATERING ACTIVITIES AS PART OF THE BASE BID AMOUNT.
	Location Map
	PROJECT CITY OF FINIX AT A Plant *





EXISTING 15 MGD PUMP

Affinity La	aws Patter	son Pump			Affinity	Laws Xyle	<u>m Pump</u>	
Constant	Impeller	Diameter	1800	RPM	Constant	Constant Impeller Diameter		
			Constants Pat	tterson Pump				
			Q (GPM)	H (feet)				
N (RPM)	Q (GPM)	H (feet)	0	253	N (RPM)	Q (GPM)	H (feet)	
1500	0	175.6944	500	251	850	0	195.668	
	416.6667	174.3056	1500	240		1907.969	194.758	
	1250	166.6667	2500	220		5723.906	188.387	
	2083.333	152.7778	3500	180		7631.874	181.107	
	2916.667	125	4000	160		9539.843	174.736	
	3333.333	111.1111				11447.81	164.725	
1300	0	131.966	891	RPM	750	0	152.337	
	361.1111	130.9228	Constants X	ylem Pump		1683.502	151.628	
	1083.333	125.1852	Q (GPM)	H (feet)		5050.505	146.668	
	1805.556	114.7531	0	215		6734.007	141.000	
	2527.778	93.88889	2000	214		8417.508	136.040	
	2888.889	83.45679	6000	207		10101.01	128.246	
			8000	199				
900	0	63.25	10000	192	700	0	132.702	
	250	62.75	12000	181		1571.268	132.085	
	750	60				4713.805	127.764	
	1250	55				6285.073	122.82	
	1750	45				7856.341	118.506	
	2000	40				9427,609	111.71	

DI DATE: 11/6/2020 9:59:46 AM SAVE DATE: 11/6/2020 9:41:46 AM KLG X: \Projects\GFL\2019\1949\018800 Flint-Dort & Cedar\01_ConstDocs\CAD\CAD'

PUMP OPERATING RANGE



PROPOSED 5 MGD PUMP

	FLOW			Velocity in	n FPS		Hf = friction	on loss in	ft	Static Hea	d	TDH
MGD	GPM	CFS	48"	42"	30"	48"	42"	30"	Minimum	Maximum	Minimum	Maximum
0	0	0	0	0	0	0	0	0	113.5	162.5	113.5	162.5
1	694	1.55	0.12	0.16	0.39	0.005	0.01	0.03	113.5	162.5	113.55	162.55
2	1389	3.09	0.25	0.32	0.79	0.019	0.03	0.11	113.5	162.5	113.66	162.66
5	3472	7.74	0.62	0.81	1.97	0.11	0.17	0.63	113.5	162.5	114.41	163.41
10	6944	15.47	1.23	1.61	3.94	0.38	0.64	2.25	113.5	162.5	116.77	165.77
15	10417	23.2	1.85	2.41	5.9	0.81	1.32	4.76	113.5	162.5	120.39	169.39

High level in elevated tank 893.5 Iow level in elevated tank 863.5 Tank operating range 30 Tank operating range 30 Reservoir operating range 19 Static head 20 Maxinum High elevated tank level minus low reservoir level Maxinum High elevated tank level minus high reservoir level Maxinum High elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Maxinum High elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Pipe friction losses calculation 113.5 Feet Requivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe Pipe length 1155 48 inch Dutterfly valves 3 ea @ 50 lf/ea 150 150 LF 1300 Requivalent 48 inch pipe length 1351 Feed @ 150 lf/ea 1300 162 S @ 100 lf/ea 100 130 inch Butterfly valves 4 ea @ 40 lf/ea 160 161 S & IF 1350 170 LF 1910 181 S IF 30 <	Pump Hydraulic	Calculat	tions			
High level in elevated tank 893.5 s and set of the set						
High level in elevated tank893.5Iow level in elevated tank863.5Tank operating range30High level in reservoir750minimum level in reservoir731Reservoir operating range19fect10Static head10MaxinumHigh levated tank level minus lowHigh level in reservoir893.5 - 731.0 =MaxinumHigh elevated tank level minus high reservoir levelMaxinumHigh elevated tank level minus high reservoir levelMaxinumB63.5 - 750.0 =MinimumLow elevated tank level minus high reservoir lowReservoir operating range113.5 FeetMinimumB63.5 - 750.0 =Pipe friction losses calculation113.5 FeetReducers 3 ea @ 100 lf/ea1105 LFA8 inch 90 degree bends 3 ea @ 120 lf/ea300 LFReducers 3 ea @ 100 lf/ea1300 LFA2 inch 91 pe150 LFPipe length130 LFStatic fly valves 4 ea @ 40 lf/ea160 LF30 inch pipe160 LF161 butterfly valves 4 ea @ 40 lf/ea160 LF30 inch pipe160 LF30 inch butterfly valves 4 ea @ 21 lf/ea300 LF30 inch butterfly valves 4 ea @ 21 lf/ea300 LF30 inch butterfly valves 4 ea @ 21 lf/ea300 LF30 inch butterfly valves 4 ea @ 21 lf/ea300 LF30 inch butterfly valves 4 ea @ 21 lf/ea300 LF30 inch butterfly valves 4 ea @ 21 lf/ea300 LF30 inch butterfly valves 2 ea @ 21 lf/ea300 LF <t< td=""><td></td><td>and some</td><td></td><td>Management and</td><td></td><td></td></t<>		and some		Management and		
low level in elevted tank 863.5 Tank operating range 30 feet High level in reservoir 750 Maximum level in reservoir 731 Reservoir operating range 19 feet Maxinum High elevated tank level minus low reservoir level Maxinum High elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Pipe friction losses calculation equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch 90 uper bends 3 ea @ 201f/ea 48 inch 90 uper bends 3 ea @ 1201f/ea 49 inch 91/ea 41 inch pipe length 1155 LF 42 inch Butterfly valves 3 ea @ 201f/ea 42 inch Butterfly valves 3 ea @ 1201f/ea 300 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 10 inch check valve expressed in 30 ich diameter 716 a 717 a 718 LF 729 a 720 a 720 a 720 b 720 b 720 b 720 b 720	High level in elevate	d tank		893.5		
Tank operating range30 feetHigh level in reservoir750Minimum level in reservoir731Reservoir operating range19 feetStatic head10MaxinumHigh elevated tank level minus low reservoir levelMaxinumHigh elevated tank level minus high reservoir levelMinimum low elevated tank level minus high reservoir levelMinimum low elevated tank level minus high reservoir levelMinimum low elevated tank level minus high reservoir levelPipe friction losses calculationequivalent pipe length for 48 inch diameter line from reservoir to pump48 inch PipePipe length1155 LF48 inch 90 degree bends 3 ea @ 50 lf/ea300 LF42 inch 90 degree bends 3 ea @ 120 lf/ea300 LF42 inch pipe1350 LF42 inch pipe1350 LF42 inch butterfly valves 4 ea @ 40 lf/ea160 LF76 e 2 ea @ 200 lf/ea400 LF30 inch pipe130 LF30 inch pipe300 LF41 and 22 a 22 IIf/ea42 LF30 inch pipe300 LF41 and 32 LF300 LF42 In pipe length300 LF30 inch pipe <td>low level in elevted</td> <td>tank</td> <td></td> <td>863.5</td> <td>-</td> <td></td>	low level in elevted	tank		863.5	-	
High level in reservoir 750 minimum level in reservoir 731 Reservoir operating range 19 feet Static head 10 Maxinum High elevated tank level minus low reservoir level Maxinum High elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level 113.5 Feet Minimum Low elevated tank level minus high reservoir level 113.5 Feet Pipe friction losses calculation 113.5 Feet equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe 1155 LF Pipe length 1150 LF 48 inch 90 degree bends 3 ea @ 50 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Misic 130 LF Equivalent 48 inch pipe length 1350 LF 42 inch pipe 1350 LF Pipe length 130 LF 30 inch pipe 130 LF 30 inch pipe 100 LF 30 inch pipe 100 LF 30 inch pipe 22 LF 30 inch pipe 30 LF 30 inch pipe 30 LF 100 LF 228 LF <td>lank operating range</td> <td>9</td> <td></td> <td>30</td> <td>feet</td> <td></td>	lank operating range	9		30	feet	
All of the service o	High level in records	hir .		750		
Reservoir operating range 19 feet Reservoir operating range 19 feet Static head Maxinum High elevated tank level minus low reservoir level 893.5 - 731.0 = 162.5 Feet Minimum Low elevated tank level minus high reservoir level 863.5 - 750.0 = 113.5 Feet Pipe friction losses calculation equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe Pipe length 1155 LF 48 inch Butterfly valves 3 ea @ 50 lf/ea 150 LF Tee 1 @ 150 lf/ea 150 LF Reducers 3 ea @ 100 lf/ea 300 LF Reducers 3 ea @ 100 lf/ea 300 LF Equivalent 48 inch pipe length 1815 LF 42 inch pipe 1 Pipe length 1815 LF 42 inch pipe 1 Pipe length 1815 LF 42 inch pipe 1 Pipe length 1815 LF 42 inch pipe 1 Free 2 ea @ 200 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 160 LF Tee 2 ea @ 150 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 160 LF Tee 2 ea @ 150 lf/ea 160 LF Tee 2 ea @ 150 lf/ea 160 LF Tee 1 ea @ 238 lf/ea 228 LF Triction Loss Calculation 16 228 LF Friction Loss Calculation 178 LF Reducers 2 ea @ 150 lf/ea 130 cl F 1328 lF Friction Loss Calculation 178 LF L = pipe length 48" 1815 ft L = pipe length 48" 1815 ft Q = Flow in CFS C = 100	minimum level in re	servoir		730		
Static head Image Image Image Maxinum High elevated tank level minus low reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Pipe friction losses calculation Image equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe Image Pipe friction losses calculation Image 48 inch Dutterfly valves 3 ea @ 50 lf/ea 150 LF 48 inch Dutterfly valves 3 ea @ 120 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 1300 LF Pipe length 1350 LF 42 inch Dutterfly valves 4 ea @ 40 lf/ea 160 LF 42 inch pipe Image Pipe length 1350 LF 43 inch 90 degree bends 3 ea @ 120 lf/ea 160 LF 42 inch butterfly valves 4 ea @ 40 lf/ea 160 LF 42 inch butterfly valves 4 ea @ 40 lf/ea 160 LF 30 inch pipe Image Image Pipe length 300 LF Image 30 inch pipe Image Image Pipe length 30 LF Image 30 in	Reservoir operating	range		19	feet	
Static head High elevated tank level minus low reservoir level Maxinum High elevated tank level minus low reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Pipe friction losses calculation 113.5 Feet equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe 1155 LF Pipe length 1155 LF 48 inch Diterfly valves 3 ea @ 50 lf/ea 150 LF 48 inch pipe length 1350 LF 48 inch pipe length 130 LF 42 inch pipe 130 LF 42 inch pipe 1300 LF Pipe length 1300 LF 30 inch pipe 300 LF 30 inch pipe 300 LF 30 inch butterfly valves 4 ea @ 40 lf/ea 300 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 42 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 300 LF 30 inch pipe 30 LF<		141180		10		
Maxinum High elevated tank level minus low reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level B63.5 - 750.0 = 113.5 Feet Pipe friction losses calculation 113.5 Feet Bequivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe Pipe length 1155 LF 48 inch Butterfly valves 3 ea @ 50 lf/ea 150 LF Tee 1 @ 150 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Misc 130 LF Equivalent 48 inch pipe length 1815 LF 42 inch pipe 1300 LF Pipe length 1350 LF 42 inch pipe 1300 LF 30 inch pipe 1300 LF 30 inch butterfly valves 4 ea @ 40 lf/ea 1600 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 420 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 300 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 300 LF 30 inch butterfly valve x = a @ 150 lf/ea 300 LF 410 inch check valve expre	Static head					
Maxinum High elevated tank level minus low reservoir level Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level Bind 863.5 - 750.0 = 113.5 Feet Pipe friction Red. 5 - 750.0 = 113.5 Feet Pipe friction Inc. 1 Inc. 1 Binch Pipe Inc. 1 Inc. 1 Pipe length Inc. 1 Inc. 1 Binch Pipe Inc. 1 Inc. 1 Pipe length Inc. 1 Inc. 1 Binch Dodegree bends 3 ea @ 1201f/ea 3000 LF Reducers 3 ea @ 100 If/ea Ins.0 IF Alinch Dodegree bends 3 ea @ 1201f/ea Ins.0 IF Alinch Dipe Ins.0 IF Pipe length Ins.0 IF Alinch Dutterfly valves 4 ea @ 401f/ea Inf.0 IF Tee 2 ea @ 200 If/ea Inf.0 IF Inich Dutterfly valves 2 ea @ 21 If/ea Inf.0 IF Inich Ceck valve expressed in 30 ich diameter Inf.1 Inich Ceck valve expressed in 30 ich diameter Inf.1 Inich Check valve expressed in 30 ich diameter Inf.2 Ininch check valve expressed in 30 ich diameter<	Static neau					
Minimum Low elevated tank level minus high reservoir level 863.5 - 750.0 = 113.5 Feet Pipe friction losses calculation 113.5 Feet Pipe friction losses calculation 113.5 Feet Requivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe 1155 Pipe friction losses calculation 155 48 inch Pipe 1155 Pipe length 1155 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 48 inch 90 degree bends 3 ea @ 120 lf/ea 300 48 inch 90 degree bends 3 ea @ 120 lf/ea 300 Kainch pipe 1350 LF 1350	Maxinum High	elevated t	ank level	minus low	reservoir l	evel
Minimum Low elevated tank level minus high reservoir level Minimum Low elevated tank level minus high reservoir level 863.5 - 750.0 = 113.5 Feet Pipe friction losses calculation 113.5 Feet equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe 1155 Pipe friction losses calculation 150 48 inch Dutterfly valves 3 ea @ 50 lf/ea 150 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 Reducers 3 ea @ 100 lf/ea 300 Misc 130 Equivalent 48 inch pipe length 1815 Vipe length 130 Vipe length 1350 Vipe length 30 Vipe length 30 Vipe length 30 <td></td> <td></td> <td>893.5 - 73</td> <td>1.0=</td> <td>162.5</td> <td>Feet</td>			893.5 - 73	1.0=	162.5	Feet
Minimum Low elevated tank level minus high reservoir level 863.5 - 750.0 = 113.5 Feet Pipe friction losses calculation 113.5 Feet 113.5 Feet Pipe friction losses calculation 113.5 Feet 113.5 Feet Pipe friction losses calculation 115.5 LF 113.5 Feet Pipe length 1155 LF 113.5 Feet Pipe length 1155 LF 15.5 LF 48 inch Pipe 1155 LF 15.5 LF Tee 1 @ 150 lf/ea 300 LF 300 LF Reducers 3 ea @ 100 lf/ea 300 LF 1300 LF Quivalent 48 inch pipe length 1350 LF 15.5 LF Pipe length 1350 LF 130 LF Yei nch pipe 113.5 LF 130 LF Yei nch pipe 113.5 LF 130 LF Yei nch pipe 1350 LF 1910 LF Yei nch pipe 130 LF 1910 LF Yei nch Butterfly valves 4 ea @ 40 lf/ea 160 LF Yei nch Butterfly valve 2 ea @ 21 lf/ea 30 LF Yei nch Butterfly valve 2 ea @ 21 lf/ea 300 LF Yei nch Butterfly valve 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF						
Pipe friction losses calculation Image: second constraints of the second con	Minimum Low eleva	ted tank le	evel minus	high reser	voir level	
Pipe friction losses calculation Income of the second constraint of the second constrel to the second consecond constraint of the second constraint of			863.5 - 750	0.0=	113.5 Feet	
Pipe friction losses calculationImage: calculationImage: calculationequivalent pipe length1155LFHinch Pipe1155LFWinch Butterfly valves 3 ea @ 50 lf/ea150LFTe 1 @ 150 lf/ea150LF48 inch 90 degree bends 3 ea @ 120 lf/ea360LFReducers 3 ea @ 100 lf/ea300LFReducers 3 ea @ 100 lf/ea300LFEquivalent 48 inch pipe length1815LFVisc130LFEquivalent 48 inch pipe length1350LFVisc160LFTe 2 ea @ 200 lf/ea400LF30 inch pipe1910LF30 inch pipe1910LF30 inch pipe300LF30 inch pipe300LF10 inch check valve expressed in 30 ich diameter718718 LF238 lf/ea238Friction Loss Calculation1328hf = 4.727/d^4.89 x L x (Q/C)61.851328D =pipe length3.5 ftL = pipe length48"48"1815 ft42"1910 ft30"1328 ftQ = Flow in CFSC = 100						
Pipe friction losses calculation intervalue intervalue intervalue equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe 1155 LF 48 inch Butterfly valves 3 ea @ 50 lf/ea 150 LF 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Misc 130 LF Equivalent 48 inch pipe length 1350 LF 42 inch pipe 1350 LF Pipe length 1350 LF 42 inch pipe 140 LF 72 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF 730 inch pipe 200 lf/ea 400 LF 760 inch Butterfly valve 2 ea @ 21 lf/ea 42 LF 710 inch beck valve expressed in 30 ich diameter 718 LF 710 inch beck valve expressed in 30 ich diameter 718 LF 711 Di inch beck valve expressed in 30 ich diameter 718 LF 712 Di pipe length 300 LF 300 714 LF 238 LF 1328 715 LF 2						
equivalent pipe length for 48 inch diameter line from reservoir to pump 48 inch Pipe 1155 LF Pipe length 1155 LF 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Misc 130 LF Equivalent 48 inch pipe length 1315 LF 42 inch pipe 1350 LF Pipe length 1350 LF 42 inch pipe 1350 LF 742 inch pipe 1350 LF 754 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF 756 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF 767 inch Butterfly valves 2 ea @ 21 lf/ea 42 LF 30 inch pipe 30 LF 1910 Pipe length 30 LF 300 LF 30 inch pipe 2a@ 150 lf/ea 300 LF 718 LF 300 LF 300 LF 718 LF 300 LF 300 LF 718 LF 300 LF 300 LF	Pipe friction losses of	alculation				
48 inch Pipe Inthe setter fly valves 3 ea @ 50 lf/ea 1155 LF 48 inch Butterfly valves 3 ea @ 50 lf/ea 150 LF 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Reducers 3 ea @ 100 lf/ea 1300 LF Equivalent 48 inch pipe length 1350 LF 42 inch pipe 1350 LF 42 inch pipe 1350 LF 42 inch pipe 1350 LF 30 inch pipe 1300 LF 30 inch pipe 300 LF 30 inch pipe 300 LF 130 inch claretr/ly valve 2 ea @ 21 lf/ea 420 10 inch claretr/ly valve 2 ea @ 21 lf/ea 300 160 LF 300 170 LF 300 1815 LF 300 1910 LF 300 1910 LF 300 <	equivalent pipe leng	gth for 48 i	nch diame	ter line fro	m reservoi	r to pump
Pipe length 1155 LF 48 inch Butterfly valves 3 ea @ 50 lf/ea 150 LF Tee 1 @ 150 lf/ea 150 LF 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Reducers 3 ea @ 100 lf/ea 1300 LF Reducers 3 ea @ 100 lf/ea 1300 LF Reducers 2 ea @ 100 lf/ea 1300 LF 42 inch pipe 1350 LF 42 inch pipe 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF 176 1910 LF 176 30 inch pipe 100 LF 1910 LF 30 inch pipe 30 LF 1815 LF 10 inch cleck valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF 300 Tee 1 ea @ 238 lf/ea 238 LF 300 LF Tee 1 ea @ 238 lf/ea 238 LF 300 LF Tee 1 ea @ 238 lf/ea 238 LF 301 301 L	48 inch Pipe					
48 inch Butterfly valves 3 ea @ 50 lf/ea 150 LF Tee 1 @ 150 lf/ea 150 LF 48 inch 90 degree bends 3 ea @ 120 lf/ea 360 LF Reducers 3 ea @ 100 lf/ea 300 LF Misc 130 LF Equivalent 48 inch pipe length 1815 LF 42 inch pipe 1350 LF 42 inch pipe 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 400 LF 30 inch pipe 1910 LF 90 inch pipe 1150 LF 130 inch pipe 1150 LF 130 inch dutterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 11328 LF Friction Loss Calculation 11328 LF Inf = 4.727/d^4.89 x L x (Q/C)61.85 11328 LF Inf = 4.727/d^4.89 x L x (Q/C)61.85 11328 LF Inf = 4.727/d^4.89 x L x (Q/C)61.85 11328 LF Inf = 4.727/d^4.89 x L x (Q/C)61.85 11328 LF Inf = 4.727/d^4.89 x L x (Q/C)61.85 11328 LF	Pipe length				1155	LF
1ee 1 @ 150 IT/ea 150 IF 48 inch 90 degree bends 3 ea @ 120 If/ea 360 IF Reducers 3 ea @ 100 If/ea 300 IF Misc 130 IF Equivalent 48 inch pipe length 1815 IF 22 inch pipe 1350 IF Pipe length 1350 IF 42 inch pipe 1350 IF 42 inch pipe 1350 IF 42 inch pipe 1350 IF 42 inch Butterfly valves 4 ea @ 40 If/ea 160 IF Tee 2 ea @ 200 If/ea 400 IF 30 inch pipe 1910 IF 30 inch pipe 130 IF 30 inch check valve expressed in 30 ich diameter 718 IF 10 inch check valve expressed in 30 ich diameter 718 IF Reducers 2 ea @ 150 If/ea 300 IF Tee 1 ea @ 238 If/ea 238 IF Friction Loss Calculation Image: Single Content in the single	48 inch Butterfly val	ves 3 ea @	50 lf/ea		150	LF
An inclusional production between productional productions of a digital production of the producting the production of the producting the produ	lee 1 @ 150 lt/ea	ndo 2	12016/		150	
Misc 130 LF Equivalent 48 inch pipe length 1815 LF 42 inch pipe 1350 LF Pipe length 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF 700 LF 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF 700 LF 1910 LF 701 LF 1910 LF 702 Pipe length 30 LF 30 inch pipe 100 LF 1910 701 Check valve expressed in 30 ich diameter 718 LF 7030 Inch check valve expressed in 30 ich diameter 718 LF 701 Check valve expressed in 30 ich diameter 718 LF 7030 LF 300 LF 1328 704 LS LF 1328 LF 701 LS LF 1328 LF 701 LS LF 1328 LF 701 LS LF LF 1328	48 Inch 90 degree be	nus 3 ea @	120 IT/ea		360	
Law Law LF Equivalent 48 inch pipe length 1815 LF Pipe length 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 400 LF Tee 2 ea @ 200 lf/ea 400 LF 30 inch pipe 1350 LF 90 inch check valve expressed in 30 ich diameter 718 LF 10 inch check valve expressed in 30 ich diameter 718 LF 10 inch check valve expressed in 30 ich diameter 718 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1320 LF br = 4.727/d^4.4.89 x L x (Q/C) 61.85 100 100 D =pipe diameter in feet 4 ft 11320 LF L = pipe length 3.5 ft 100 100 L = pipe length 48" 1815 ft 100 100 L = pipe length 48" 1828 ft 100 100 L = pipe length 48" 1828 ft 100 100 L = pipe length 48" 1828 ft 100 10	Misc	nyed			120	LF LF
42 inch pipe 1350 LF 42 inch pipe 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 400 LF 30 inch pipe 1910 LF 30 inch pipe 30 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1328 LF D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft L = pipe length 48" 1815 ft 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	Equivalent 48 inch pi	ipe length			1815	LF
42 inch pipeImage: state of the	,					
Pipe length 1350 LF 42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 400 LF Tee 2 ea @ 200 lf/ea 1910 LF 30 inch pipe 1910 LF Pipe length 30 LF 30 inch pipe 30 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1328 LF hf = 4.727/d^44.89 x L x (Q/C)61.85 120 LF D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft L = pipe length 30" 3.5 ft 2.5 ft Q = Flow in CFS C = 100	42 inch pipe					Year In 12
42 inch Butterfly valves 4 ea @ 40 lf/ea 160 LF Tee 2 ea @ 200 lf/ea 400 LF Tee 2 ea @ 200 lf/ea 1910 LF 30 inch pipe 30 LF Pipe length 30 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1328 lF hf = 4.727/d^44.89 x L x (Q/C)61.85 1328 LF D =pipe diameter in feet 4 ft 3.5 ft 1 2.5 ft 1 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	Pipe length	Para and and	The second se		1350	LF
Tee 2 ea @ 200 lf/ea 400 LF 30 inch pipe 1910 LF 30 inch pipe 30 LF 30 inch pipe 30 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1328 lF hf = 4.727/d^4.89 x L x (Q/C)61.85 1328 LF D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft L = pipe length 48" 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	42 inch Butterfly valv	ves 4 ea @	40 lf/ea		160	LF
30 inch pipe 1910 LF 30 inch pipe 30 LF 30 inch butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1328 IF hf = 4.727/d^4.89 x L x (Q/C)61.85 - D =pipe diameter in feet 4 ft 3.5 ft - 2.5 ft - 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	Tee 2 ea @ 200 lf/ea	1			400	LF
30 inch pipe 30 IF 910 elength 30 LF 30 inch Butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Tee 1 ea @ 238 lf/ea 1328 IF Friction Loss Calculation 1328 IF hf = 4.727/d^4.89 x L x (Q/C)61.85 1328 I D =pipe diameter in feet 4 ft 1 3.5 ft 1 1 1 L = pipe length 48" 1815 ft 1 30" 1328 ft 1 1 30" 1328 ft 1 1					1910	LF
Pipe length 30 LF 30 inch Butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Tee 1 ea @ 238 lf/ea 1328 LF Friction Loss Calculation 1328 LF hf = 4.727/d^4.89 x L x (Q/C)61.85 1 D =pipe diameter in feet 4 ft 3.5 ft 1 2.5 ft 1 L = pipe length 48" 1815 ft 42" 1910 ft 1 30" 1328 ft 1 Q = Flow in CFS C = 100 1	30 inch nine					
30 inch Butterfly valve 2 ea @ 21 lf/ea 42 LF 10 inch check valve expressed in 30 ich diameter 718 LF Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Friction Loss Calculation 1328 IF hf = 4.727/d^4.89 x L x (Q/C) 61.85 1328 D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft L = pipe length 48" 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	Pipe length				30	LE
10 inch check valve expressed in 30 ich diameter718LFReducers 2 ea @ 150 lf/ea300LFTee 1 ea @ 238 lf/ea238LFTee 1 ea @ 238 lf/ea1328IFFriction Loss Calculation1328IFhf = 4.727/d^4.89 x L x (Q/C)61.85100100D =pipe diameter in feet4 ft100L = pipe length48"1815 ft42"1910 ft10030"1328 ft100Q = Flow in CFSC = 100100	30 inch Butterfly valv	ve 2 ea @ 3	21 lf/ea		42	LF
Reducers 2 ea @ 150 lf/ea 300 LF Tee 1 ea @ 238 lf/ea 238 LF Tee 1 ea @ 238 lf/ea 1328 IF Friction Loss Calculation 1328 IF hf = 4.727/d^44.89 x L x (Q/C)61.85 1328 IF D =pipe diameter in feet 4 ft 3.5 ft 1 2.5 ft 1 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	10 inch check valve	expressed	in 30 ich di	ameter	718	LF
Tee 1 ea @ 238 lf/ea 238 LF 1328 lF 1328 lF 1328 lF 1328 lF Friction Loss Calculation 1 hf = 4.727/d^4.89 x L x (Q/C)61.85 1 D =pipe diameter in feet 4 ft 3.5 ft 1 2.5 ft 1 1 1<	Reducers 2 ea @ 150	lf/ea			300	LF
Image: Normal system Image: Normal system <t< td=""><td>Tee 1 ea @ 238 lf/ea</td><td>•</td><td></td><td></td><td>238</td><td>LF</td></t<>	Tee 1 ea @ 238 lf/ea	•			238	LF
Friction Loss Calculation hf = $4.727/d^4.89 \times L \times (Q/C)61.85$ D =pipe diameter in feet 4 ft 3.5 ft					1328	IF
Friction Loss Calculation Image: Calculation of the second s						
hf = 4.727/d^4.89 x L x (Q/C)61.85 D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft L = pipe length 48" 1815 ft 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	Friction Loss Calculat	tion				
D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft L = pipe length 48" 1815 ft 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	hf = 4.727/d^4.89 x I	x (Q/C)61	85			
D =pipe diameter in feet 4 ft 3.5 ft 2.5 ft 2.5 ft 48" 1815 ft 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100						
3.5 ft 2.5 ft 2.5 ft L = pipe length 48" 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	D =pipe diameter in	feet	4 ft			
L = pipe length 48" 1815 ft 42" 1910 ft 30" 1328 ft			3.5 ft			
L = pipe length 48" 1815 ft 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100			2.5 ft			
40 1015 ft 42" 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	I = pipe length	10"	1015 ft			
42 1910 ft 30" 1328 ft Q = Flow in CFS C = 100	L = pipe length	48 42"	1010 ft			
Q = Flow in CFS C = 100		+2 30"	1378 ft			
	0 = Flow in CES	C = 100	132011			
		0 - 100				

ORKING DAYS YOU DIG CALL 1-800-482-7171 www.missdig.org	G PLANNING M SERVICES
811 3 FULL W	ARCHITECTURE • ENGINEERIN SURVEYING • CONSTRUCTIC
WARNING UTILITY LOCATIONS ARE NOT CONFIRMED. THOSE SHOWN WERE OBTAINED FROM UTILITY OWNERS OR FROM UTILITY OWNERS OR PLANS. THREE FULL WORKING DAYS PRIOR TO BEGINNING WORK THE	NOTIFY UTILITY OWNERS TO HAVE WORK AREA STAKED AND HE SHALL PROTECT OR HAVE RELOCATED, AS NOTED IN THE SPECIFICATIONS, ALL UTILITIES THAT MIGHT IN TERFERE WITH CONSTRUCTION.
LIBSS LIBSS	
City of Flint 1101 S. Saginaw Street Flint, Michigan 48502	Basis of Design Dort Pump Station Rehab
MARK ISSUED BID SUBM —	FOR DATE ITTAL 11/6/20 —
	-
	-
DRAWN BY: DESIGN BY: CHECKED BY:	- BSW GJG GJG
J&A JOB NUMBER	a: 1949-0188-00
SHEET NO.)02







	VALVE SCHEDULE								
ID	NEW	EXISTING	SIZE	FUNCTION	CONTROL	TYPE			
1		Х	48"	ISOLATION	HAND				
2	Х		48"	ISOLATION	HAND	BUTTERFLY			
3	Х		30"	PUMP ISOLATION	HAND	BUTTERFLY			
4	Х		10"	CHECK VALVE	NONE	SILENT CHECK			
5	Х		30"	PUMP ISOLATION	HAND	BUTTERFLY			
6		Х	30"	PUMP ISOLATION	HAND	BUTTERFLY			
7		Х	16"	PUMP CONTROL	HYDRAULIC				
8		Х	30"	PUMP ISOLATION	HAND	BUTTERFLY			
9	Х		30"	PUMP ISOLATION	HAND	BUTTERFLY			
10	Х		10"	CHECK VALVE	NONE	SILENT CHECK			
11	Х		30"	PUMP ISOLATION	HAND	BUTTERFLY			
12	Х		30"	PUMP ISOLATION	HAND	BUTTERFLY			
13	Х		10"	CHECK VALVE	NONE	SILENT CHECK			
14	Х		16"	PUMP ISOLATION	HAND	BUTTERFLY			
15		Х		ISOLATION	HAND				
16		Х	42"	ISOLATION	HAND				
17		X	42"	ISOLATION	HAND				
18		X	42"	ISOLATION	HAND				
19		X	42"	ISOLATION	HAND				

AYS Call before you dig CALL <i>MISS DIG System, Inc.</i> 1-800-482-7171 www.missdig.net	EXCEPTIONAL DESIGN UNMATCHED CLIENT SERVICE
811 3 FULL WORKING D	ARCHITECTURE • ENGINEERING • PLANNIN SURVEYING • CONSTRUCTION SERVICE
WARNING UTILITY LOCATIONS ARE NOT CONFIRMED. THOSE SHOWN WERE OBTAINED FROM UTILITY OWNERS OR PLANS. THREE FULL WORKING DAYS PRIOR TO BEGINNING WORK THE CONTRACTOR SHALL	NOTIFY UTILITY OWNERS TO HAVE WORK AREA STAKED AND HE SHALL PROTECT OR HAVE RELOCATED, AS NOTED IN THE SPECIFICATIONS, ALL UTILITIES THAT MIGHT I N T E R F E R E W I T H C O N S T R U C T I O N .
	Valve Schedule Jushing Road Jint, Michigan
City of Flint 1101 S. Saginaw Street Flint, Michigan 48502	Primnary Elements and V Dort Pump Station Diversion F
MARK ISSUED F BID SUBM	ILE OR DATE ITTAL 11/6/20 -
-	
	- - - -
DRAWN BY: DESIGN BY: CHECKED BY:	YD GJG GJG
DLZ JOB NUMBER: SHEET NO. G-C	1949-0188-00 005

	-	_		
_	1 .	_	NΙ	•
	(7		I M	
_	\sim	_		_







LOWER LEVEL 2 (CATWALK) CODE COMPLIANCE PLAN 3 PLAN SCALE: 1/16" = 1'-0" NORTH



LOWER LEVEL 1 (MEZZANINE) CODE COMPLIANCE **PLAN** SCALE: 1/16" = 1'-0" NORTH



FIRST FLOOR CODE COMPLIANCE PLAN \bigcirc SCALE: 1/16" = 1'-0" NORTH

LOWER LEVEL 3 (PUMP ROOMS) CODE COMPLIANCE

BUILDING CODE SUMMARY

A. PROJECT SUMMARY 1. 11,408 SF EXISTING PUMP STATION

- a. 6,939 SF GROUND FLOOR: ALTERATION LEVEL
- b. 1,370 SF LOWER LEVEL 1: ALTERATION LEVEL c. 3,098 SF LOWER LEVEL 2: ALTERATION LEVEL 2
- d. REROOFING : ALTERATION LEVEL 1 e. EXTERIOR MASONRY REPAIR, 350 LF TUCK POI
- ALTERATION LEVEL REPAIR

2. EXISTING PUMPSTATION CONSTRUCTION: a. YEAR: 1948 b. SQUARE FOOTAGE: 11,192 SF

3. STRUCTURAL FRAMING SYSTEM: EXISTING TO REMAIN

4. FLOOR SYSTEM:

- EXISTING TO REMAIN
- 5. FOUNDATION SYSTEM: EXISTING TO REMAIN

6. ROOFING SYSTEM:

2-PLY MODIFIED BITUMEN ROOFING SYSTEM

B. GOVERNING BUILDING CODES 1. BUILDING CODE: 2015 MICHIGAN REHBILITATION

- 2. PLUMBING CODE: 2015 MICHIGAN PLUMBING COI
- 3. ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL
- 4. MECHANICAL CODE: 2015 MICHIGAN MECHANICA
- 5. ENERGY CODE: 2015 MICHIGAN ENERGY CONSE
- 90.1-2013 WITH MICHIGAN AMENDMENTS)
- 6. FIRE CODE 2012 INTERNATIONAL FIRE CODE

C. OCCUPANCY CLASSIFICATION 1. USE GROUP F-1 (EXISTING)

D. OCCUPANCY SEPARATION 1. NOT NEEDED

E. CONSTRUCTION CLASSIFICATION 1. I-B (EXISTING)

F. FIRE RESISTIVE REQUIREMENTS

- 1. BEARING WALLS EXTERIOR:
- 2. BEARING WALLS INTERIOR : 3. NON BEARING WALLS - EXTERIOR:
- 4. STRUCTURAL FRAME:
- 5. PARTITIONS PERMANENT:
- 6. SHAFT ENCLOSURES:
- 7. FLOORS AND ASSOCIATED SECONDARY MEMBERS:
- 8. ROOFS AND ASSOCIATED SECONDARY MEMBERS:
- 9. STAIRWAYS CONSTRUCTION:

G. ALLOWABLE HEIGHT AND AREA (TABLE 504.4 AND TA EXISTING TO REMAIN

H. OCCUPANT LOAD

ROOM		(ASSIGNABLE)	00
NO.	ROOM NAME	AREA	
LOWER	LEVEL 3		
12	LOW LIFT PUMP ROOM	1499 SF	
17	HIGH LIFT PUMP ROOM	1362 SF	
		2861 SF	
LOWER	LEVEL 2 (MEZZANINE)		
10	LOWER LEVEL MEZZANINE 2	490 SF	
		490 SF	
LOWER	LEVEL 1		
14	SCREEN ROOM	1371 SF	
18	LOWER LEVEL MEZZANINE 1	493 SF	
		1864 SF	
GROUNI	D FLOOR PLAN		
1	MOTOR ROOM	3041 SF	
2	TOILET AND LOCKER RM.	152 SF	
3	SWITCH GEAR ROOM	848 SF	
4	CHLORINE ROOM	250 SF	
5	CHLORINATOR ROOM	297 SF	
6	TRANSFORMER	168 SF	
7	JAN.	15 SF	
8	OBSERV.	104 SF	
9	STORAGE	1111 SF	
		5985 SF	
Grand to	tal	11200 SF	

- I. EXIT WIDTH REQUIRED 1. EXISTING TO REMAIN
- J. FIRE SUPRESSION
- 1. NONE (EXISTING TO REMAIN)

K. FIRE ALARM SYSTEM EXISTING TO REMAIN

M. PLUMBING FIXTURES PROVIDED:

OCCUPANCY	ANTICIPATED MAX. OCCUPANT LOAD	WATER	CLOSET
F1	38	REQ'D	PROV.
		1	1
NOTES:			

1. WATER CLOSETS PROVIDED MEET THE MINIMUM N N. THERMAL VALUES

- 1. ROOF: R-30
- O. EXIT ACCESS DOORWAYS WHERE 2 EXITS ARE REQUIRED, THE SEPARATION DISTLESS THAN 1/3 THE LENGTH OF THE MAXIMUM OVERAL SERVED.
- P. EXIT ACCESS TRAVEL DISTANCE (TABLE 1016.1) USE GROUP S-1: 200' MAX. MAXIMUM EXIT ACCESS TRAVEL DISTANCE: (89'-10")
- Q. COMMON PATH OF EGRESS TRAVEL DISTANCE (TABLE 1014.3) USE GROUP F-1: 100' MAX. MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: (58'-10"

RY N LEVEL N LEVEL TUCK PO TUCK PO	1 1 2 INTING & 9 CODE DE . CODE AL CODE	50 RESEALING:					811 3 FULL WORKING DAYS BEFORE YOU DIG CALL MISS DIG System, Inc. 1-800-482-7171 www.missdig.net	ARCHITECTURE • ENGINEERING • CONSTRUCTION SERVICE DIZ MICHIGAN, INCOMPLICE IDEAS BIZ MICHIGAN, INCOMPLICE DIZ MICHIGAN, INC
S) CODE							THIS RECORD DRAWING IS BASED ON THE DESIGN OF RECORD AND INFORMATION FURNISHED BY THE CONTRACTOR TO THE ARCHITECT/ENGINEER. THE ARCHITECT/ENGINEER. IS NOT	ACCURACY OR ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED TO IT, AND DOES NOT REPRESENT THAT THIS RECORD DRAWING ACCURATELY DEPICTS ACTUAL CONSTRUCTION.
EMBERS: MBERS: 4.4 AND TA	EXISTII EXISTII EXISTII EXISTII EXISTII EXISTII EXISTII EXISTII ABLE 506.2	NG TO REMAIN NG TO REMAIN 2)					OF FLINT	RAL NOTES, CODE ANALYSIS AND LIANCE PLANS T PUMP STATION ABILITATION ABILITATION
	1/300 1/300 1/300 1/300 0 1/300 1/300 1/300 1/300 0 1/300	10 2 2 5 2 7 11 11 3 1 1 1 1 1 1					CITY	
LOSETS PROV. 1	1/300 LAVATOF REQ'D P 1 JUMBER R	1 19 38 RIES (SEE NOTE 2) URINALS 'ROV. REQ'D PROV. 1 0 1 EQUIRED.	DRINKING FOUNTAIN / REQ'D PROV 1 0	(SEE NOTE 3) SHOWERSREQ'D00	SERVICE SINK REQ'D PROV. EXIST EXIST	EM. SHOWER / EYE WASH REQ'D PROV. EXIST EXIST	NO. RE	VISION DATE
ATION DIS M OVERA . 1) 89'-10") E E (TABLE	TANCE OF LL DIAGON	F EXIT DOORS SHALL NAL DIMENSION OF T	NOT BE HE AREA				DRAWN DESIGNED CHK'D APPRV'D D PROJECT NUMBER G DRAWING NUMB	I BY: SHT DBY: NDL DBY: NDL DBY: LAF ATE: 11/06/20 2 1949-0188-00 ENERAL BER

G-006

















LOW LIFT PUMPS







REMOVE AND DISPOSE THE INTERMEDIATE STEADY BEARING STRUCTURE

REMOVE EXISTING SHIPS LADDER







HIGH SERVICE PUMP - PROPOSED PLAN - ELEV 711.00±

SEE SHEET C-107 FOR SECTIONS

LOW LIFT PUMPS

.







C-105





SCALE: 3/8" = 1'

ABBREVIATIONS: ANCHOR BOLT A.B. A.C. A.C.T AIR CONDITIONING ACOUSTICAL CEILING A.D. AREA DRAIN ADD. ADDENDUM A.F.F. A.F.G. ABOVE FINISHED FLC ABOVE GRADE A.P. ACCESS PANEL A.P.C. ACOUSTICAL PLASTE A.V. AUDIO VISUAL ADMIN. ADMINISTRATION AGGR. AGGREGATE ALT. ALTERNATE ALUM. ALUMINUM APPROX. APPROXIMATE ARCH. ARCHITECT (ARCHITE ASPH. ASPHALT ASSOC. ASSOCIATE AVG. AVERAGE B.(BOTT.) BOTTOM BB B.C. BOND BEAM BOTTOM OF CURB B.F. BARRIER FREE B.F.P. BACK FLOW PREVEN B.L. BUILDING LINE B.M. **BENCH MARK** B.T.U. BRITISH THERMAL UI B.U. BD. BTWN BUILT UP BOARD BETWEEN BLDG. BUILDING BLK. BLOCK BLK. BLKG. BM. BR BRG. BRZ. BSMT. BLOCKING BEAM BULLET RESISTANT BEARING BRONZE BASEMENT CONDUIT CAB. C.B. CABINET CATCH BASIN C.B. CB. C.C. CEM. CER. C.F.M. CG C.I. C.I.P. C.I.P. CORNER BAR CENTER TO CENTER CEMENT CERAMIC CUBIC FEET PER MIN CORNER GUARD CAST IRON CAST IRON PIPE CIRCLE OR CIRCULAR CJ CONTROL JOINT CKBD. CHALKBOARD CL C.L. CLG. CLOS. CENTERLINE CONSTRUCTION LINE CEILING CLOSET CLR. C.M.U. C.O. COL. CLEAR CONCRETE MASONR CLEAN OUT COLUMN COMP. COMPACTED CONC. CONCRETE COND. CONDENSATE CONSTRUCTION CONST. CONT. CONTINUOUS CONTR. CONTRACTOR COORD. COORDINATE CORR. CORG. CPT. CSJ C.S. CORRIDOR CORRUGATED CARPETING CONSTRUCTION JOIN CAULKING SEAM CTB CTF CTW CTR. CU. CW CERAMIC TILE BASE CERAMIC TILE FLOOR CERAMIC TILE WALL CENTER OR CENTER CUBIC COLD WATER DEEP D.F. DRINKING FOUNTAIN D.L. D.S. DEAD LOAD DOWN SPOUT d.s. DBL. DEG. DEMO DEPT. DIA. DIM. DR. DWG. DTL. DOUBLE DEGREE DEMOLISH (ED) DEPARTMENT DIAMETER DIMENSION DOOR DRAWING DETAIL EAST E.A. E.C. E.F. EXHAUST AIR ELECTRICAL CONTRA EXHAUST FAN E.I.F.S. EXT. INSULATION FIN EXPANSION JOINT EJ EMER. EMERGENCY E.PAN. ELECTRICAL PANEL E.W. EACH WAY E.W.C. ELECTRIC WATER CO ELEVATION EL. ELEC. ELECTRICAL OR ELEC ELEV. ELEVATOR ENG. EQ. E.S. ENGINEER OR ENGIN EQUAL EXPOSED STRUCTUR EQUIP. ETC. EXIST. EXP. EQUIPMENT ET CETERA EXISTING EXPANSION EXT. EXTERIOR

C.

F.A.C.P. F.A.I. F.C. F.D. FIRE ALARM CONTRO FRESH AIR INTAKE FURNACE FOOR DRAIN FIRE EXTINGUISHER FIRE EXTINGUISHER FIRE HOSE CABINET FLOOR MOUNTED FIN RADIATION FOOD SERVICE FIELD VERIFY

F.E.

F.E.C.

F.H.C.

F.M. F.R.

F.S.

F.V.

AE	BB	REVIAT	10	NS	V nissdig.net	S SIGN ENT SERVICE
					below ou dig , Inc. , www.mis	e Ideas 'Al desi d clien, '
G TILE	F.W.C. FIN. FLR.	FABRIC WALL COVERING FINISH FLOOR	QTY. R	QUANTITY THERMAL RESISTANCE	what's before y 3 System, 32-7171	/ATIVE PTION TCHEI DLZ MI
	FT. FTG.	FOOT OR FEET FOOTING	R. RAD.(R.)	RISER OR RIGHT RADIUS	now 1 SS DIG 300-48	NOV XCEI
JOR	G.A.	GAUGE	R.A. R.B. BBR	RETURN AIR RUBBER BASE RUBBER	⊼O≊ ⁴	
ER CEILING	G.R.V. GL.	GRAVITY ROOF VENTILATOR GLASS	RD. R.D.	ROAD ROOF DRAIN	AYS	
	GND. GR.	GROUND GRADE	REC. REF.	RECESSED REFERENCE		NNIN
	GYP.BD.		REV. REM.	REVISION REMOVABLE		- PLA
ECTURAL)	н. Н.В. н м	HIGH HOSE BIBB HOLLOW METAL	R.H. R.H.R. RCP	RIGHT HAND RIGHT HAND REVERSE REINFORCED CONCRETE PIPE	WO KE Y(
	H.O.A. H.V.A.C.	HAND-OFF-AUTOMATIC HEATING VENTILATING & AIR-	RE: RECPT.	REFER TO: RECEPTACLE	ULL	
	HW	CONDITIONING HOT WATER	RECT. REFR.	RECTANGLE OR RECTANGULAR REFRIGERATOR	3 F BE	- ENG
	HWS HWR HDWD	HOT WATER SUPPLY HOT WATER RETURN HARDWOOD	REINF. REQD. REV	REINFORCE (D) (ING) (MENT) REQUIRED REVERSE		G • G
ITER	HDWR. HT.(HGT.)	HARDWARE HEIGHT	RFG. R.H.	ROOFING RIGHT HAND	ò	ITEC'EVIN
NIT	H.D.P. HORIZ.	HIGH DENSITY PARTICALE BOARD HORIZONTAL	RHR RLG.	RIGHT HAND REVERSE RAILING		ARCH
	HK. HYD.	HYDRAULIC	RM. R.R. RT.	ROOM RAIL ROAD RIGHT		_
	I.D. I.F.	INSIDE DIAMETER INSIDE FACE	ROW (R/W RVS.	/)RIGHT OF WAY REVERSE	NG IS ATION HE R. THE IS NOT IS NOT	AWING AWING CTS CTS TION.
	I.R. IN.	INSIDE RADIUS INCH	RWC. RWL	MAIN WATER COLLECTOR RAIN WATER LEADER	DRAWI E DESIG INFORM OR TO 1 OR TO 1 GINEEF GINEER COR COR COR COR COR COR COR COR COR COR COR	PROVID DT REPI ORD DF STRUC
	INFO. INSUL. INT.	INFORMATION INSULATION INTERIOR	S.A. S.A.T.	SUPPLY AIR SUSPENDED ACOUSTICAL TILE	RECORE TO NTH TRACT TRACTEN FECT/EN PONSIB ACCUR,	AATION JOES N URATEL URATEL JAL CON
	INV.	INVERT	S.C. S.F.S.	SEALED CONCRETE STORE FRONT SYSTEM	THIS F BASEI BASEI FL COI ARCHIT ARCHIT RES	
	JAN. J.B.	JANITOR OR JANITORIAL JUNCTION BOX	S.P. S. S. S.	STAND PIPE SOUTH STAINLESS STEEL	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	_
	JT.	JOINT	S. TO S. SHM.	STAINLESS STEEL STUD TO STUD SECURITY HOLLOW METAL	OF FLINT, MICH	
	K.D. KIT.	KILN-DRIED KITCHEN	S.V. SAN.	SHEET VINYL SANITARY	1855	
IUIE	к.О. КР.	KNOCKOUT KICK PLATE	SCHED. SECT. SEW	SCHEDULE SECTION SEWER		လ်
R	L. LAM.	LEFT LAMINATED	SHT. SHWR.	SHEET SHOWER		НТ Н
	LAV. LBS.	LAVATORY POUNDS	SIM. S.O.	SIMILAR SECTIONAL OVERHEAD		
Ē	LG. LGTH L.H.	LARGE LENGTH LEFT HAND	SPECS. SPKR. SQ.	SPECIFICATIONS SPEAKER SQUARE		မ က H
	LFT.(LF.) L.H.R.	LINEAR FEET LEFT HAND REVERSE	ST. STD.	STEEL STANDARD		
(Y UNII	L.L. L.O.A. L IN	LIVE LOAD LENGTH OVER ALL LINEAR	STOR. STRUCT. SUSP	STORAGE STRUCTURAL SUSPENDED		N M M M M
	LTG.	LIGHTING	SW.	SWITCH		NO SY O
	M.C. M.D.P.	MECHANICAL CONTRACTOR MAIN DISTRIBUTION PANEL	T T.&B. T.&C	TEMPERED TOP AND BOTTOM TONGUE AND GROOVE		
	M.O. MATL.	MAN HOLL MASONRY OPENING MATERIAL	T.C. T.C.C.	TOP CURB TEMP. CONTROL CONTRACTOR	F	S, A TUI TO
	MAX. MECH.	MAXIMUM MECHANICAL	T.C.P. T.P.	TEMP. CONTROL PANEL TEPID WATER		A P C N
NT	MEMB. MEZZ. MER	MEMBRANE MEZZANINE MANUEACTURER	T.W.C. TBB TEI	TEPID WATER CONTROLLER TILE BACKER BOARD TELEPHONE		
R	MIN. MISC.	MINIMUM MISCELLANEOUS	TEMP. TERR.	TEMPERATURE TERRAZZO	OF	
RING	MIX. MK.		THRU. TKBD.	THROUGH TACK BOARD	Υ	BBR D D R H H H
	M.O. MSRY. MTD.	MASONRY OPENING MASONRY MOUNTED	TOL. TYP.	TOILET TOLERANCE TYPICAL	C	A A D R
I	MTL. MTG.	METAL MOUNTING	U	HEAT TRANSFER COEFFICIENT		
	Ν. ΝΔ(Ν/Δ)	NORTH	U.F.D. U.L. UNO	UNDER FLOOR DUCT UNDERWRITER'S LABORATORIES UNI ESS NOTED OTHERWISE	\mathbb{R}	I
	N.I.C. NF	NOT IN CONTRACT NEAR FACE	U.V. UR.	UNIT VENTILATOR URINAL		
	N.O.P. NO.	NOT OTHERWISE PROVIDED NUMBER	UTIL.	UTILITY		
	N.T.S.	NOMINAL NOT TO SCALE	VAP. VAR.	VAPOR VARIES		
	OA. O.A.	OVERALL OUTSIDE AIR	VCB V.C.P.	VINYL COVE BASE VITRIFIED CLAY PIPE		
ACTOR	0.A.I. 0.C. 0.D.	ON CENTER OUTSIDE DIAMETER	VERT. VEST.	VERTICAL VESTIBULE		
IISH SYSTEM	0. TO 0. OF	OUT TO OUT OUTSIDE FACE	VENT. VIF	VENTILATE VERIFY IN FIELD	V	N
	O.R. OL. OFC	OUTSIDE RADIUS OVERLOAD OFFICE	VOL. V.P. V.S	VOLUME VENT PIPE VENT STACK		
DOLER	OH OPNG.	OVERHEAD OPENING	VWC	VINYL WALL COVERING		
CTRIC	OPP. OR. OPIC	OPPOSITE OUTSIDE RADIUS ORIGINAL	W. W.C. WD	WEST WATER CLOSET WOOD		
NEERING	OZ.	OUNCE	W.F. WH	WOOD WASH FOUNTAIN WALL HUNG	1 BID SUBMITTAI	11/06/20
RE	P.A. P.C.	PIPE ANCHOR PLUMBING CONTRACTOR	W.H. W.I.	WATER HEATER WROUGHT IRON		
	P.D. P.J.F. PRV	PRESSURE DROP PRE MOLDED JOINT FILLER PRESSURE REDUCING VALVE	WP W.P. WT	WORKING POINT WATERPROOFING WIND LOAD		
	PASS. PAT.	PASSENGER PATTERN	W.M. WS	WALK OFF MAT WEATHER STRIP		
OL PANEL	PERP. P.LAM. PLAS	PERPENDICULAR PLASTIC LAMINATE PLASTIC	W.S. W.W.F. WT	WORK SINK WELDED WIRE FABRIC WEIGHT		
	PLAS. PLBG. PLYWD.	PLUMBING PLYWOOD	XFMR	TRANSFORMER		
CABINET	PNEU. PNL.	PNEUMATIC PANEL	XFR	TRANSFER		
	PREFAB. PROJ. PT.	PREFABRICATED PROJECT PAINT	чр. YCO	YARD YARD CLEAN OUT		SHT
	P.CONC. PTN.	PRECAST CONCRETE SLAB PARTITION	。 ±	DEGREE PLUS OR MINUS	DESIGNED BY: CHK'D BY: APPRV'D BY:	NDL NDL LAF
	PV. PVC.	PAVERS POLYVINYL CHLORIDE	Ø	DIAMTER CENTERLINE PLATE	DATE:	11/06/20
	QCV Q.T.	QUICK COUPLER VALVE QUARRY TILE	г & Х	AND BY		1949-0188-00
	QUAL.	QUALITY	@ #	AT NUMBER	GENE DRAWING NUMBER	
			VV/	WITH	AC).1

				ROO	M FINIS	SH SC	HEDUL	E					
	FLOORS		WALLS								CEILING		
			NORTH		EA	EAST		SOUTH		WEST			REMARKS
M NAME	MAT.	BASE	MAT.	FINISH									
R ROOM	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	
	EXIST.	EXIST.	EXIST.	PT.									
	EXIST.	EXIST.	EXIST.	PT.									
MOC	EXIST.	EXIST.	EXIST.	PT.									
R ROOM	EXIST.	EXIST.	EXIST.	PT.									
M	EXIST.	EXIST.	EXIST./CMU	PT./EXIST									
ER	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	
LOCKER RM.	EXIST.	EXIST.	EXIST.	QT	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	QT	EXIST.	EXIST.	
	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	

	DOO	R				FRAME					DETAILS			
	DOOR	DOOR		FRAME	FRAME	FRAME	FRAME	FRAME	FIRE			THRES		REM
EIGHT	TYPE	MATERIAL	GLAZING	WIDTH	HEIGHT	DEPTH	TYPE	MATERIAL	RATING	HEAD	JAMB	HOLD		
- 0"	A	FRP	-	3' - 4"	7' - 2"	1'- 2"	1	FRP	-	2/A3.1	3/A3.1	4/A3.1	1,2,3	
- 0"	В	FRP	GL1	3' - 4"	7' - 2"	1' - 1"	1	FRP	-	2/A3.1	3/A3.1	5/A3.1	1.3	

GENERAL NOTES:

- A. REFER TO G-001 PROJECT GENERAL NOTES FOR
- ADDITIONAL INFORMATION. B. REFER TO PROJECT MANUAL FOR ADDITIONAL
- REQUIREMENTS. C. FIELD VERIFY ALL DOOR DIMENSIONS.

KEYNOTES

- 020401 REMOVE EXISTING MASONRY
- 020801 REMOVE EXISTING HOLLOW METAL DOOR AND FRAME
- 022601 REMOVE EXISTING LAMP POSTS AND WIRING. SEE ELECTRICAL. REPAIR CONCRETE TO MATCH EXISTING.
- 040110 BRICK MASONRY REPAIR
- 040120 BRICK MASONRY REPOINTING
- 081210 REPAIR EXISTING ALUMINUM FRAME
- 081600 NEW FRP DOOR AND FAME IN EXISTING OPENING, REFER TO DOOR AND FRAME SCHEDULE.
- 099110 INTERIOR PAINTING
- 262711 INSTALL CONDUIT FOR EXTERIOR WALL MOUNTED LIGHTING AND SEAL PENETRATION IN EXTERIOR WALL. SEE ELECTRICAL.
- 265621 INSTALL EXTERIOR WALL MOUNTED LIGHT. SEE ELECTRICAL.

C:\RevitBackups\2020\1949-0188-00_ARCH_mrheingansGJ7XA.rvt 11/6/2020 12:05:48 PM

	<section-header><section-header><list-item><list-item><list-item></list-item></list-item></list-item></section-header></section-header>	811 3 FULL WORKING DAYS Call before you dig MISS DIG System, Inc. 1-800-482-7171 www.missdig.net	ARCHITECTURE • ENGINEERING • CONSTRUCTION SERVICE DIATCHED CLIENT SERVICE DIATCHED CLIENT SERVICE DIATCHED CLIENT SERVICE
	KEYNOTES 020701 EXISTING ROOF PENETRATION OR CURB TO REMAIN. PROVIDE NEW FLASHING. 020702 EXISTING SKYLIGHT TO REMAIN. PROVIDE NEW FLASHING.	THIS RECORD DRAWING IS BASED ON THE DESIGN OF RECORD AND INFORMATION FURNISHED BY THE CONTRACTOR TO THE ARCHITECT/ENGINEER. THE ARCHITECT/ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OR COMPLICTIFNESS OF THE	INFORMATION PROVIDED TO IT, AND DOES NOT REPRESENT THAT THIS RECORD DRAWING ACCURATELY DEPICTS ACTUAL CONSTRUCTION.
C	 022203 REMOVE AND REINSTALL EXISTING ROOF DRAIN WITH NEW ROOFING SYSTEM 075211 REMOVE EXISTING ROOFING SYSTEM, PREPARE SUBSTRATE FOR RE-ROOFING. INSTALL NEW POLYISOCYANURATE INSULATION, 1/2" COVER BOARD AND 2-PLY MODIFED BITUMEN ROOFING SYSTEM 077102 NEW METAL COPING OVER EXISTING STONE CAP 077111 REMOVE AND REPLACE METAL GUTTER 		
7102		CITY OF FLINT	ROOF PLAN DORT PUMP STATION REHABILITATION
7102			
		NO. REVISION	DN DATE 11/06/20
		DRAWN BY: DESIGNED BY: CHK'D BY: APPRV'D BY: DATE: PROJECT NUMBER ARCHITE	SH1 NDL LDF 11/06/20 1949-0188-00 ECTURE
	SCALE: 1/8" = 1'-0" 0 4' - 0" 8' - 0" 16' - 0"	DRAWING NUMBER	.1

C:\RevitBackups\2020\1949-0188-00_ARCH_mrheingansGJ7XA.r

BRICK ATED CONRETE IG NCRETE TING EPOXY EBAR NS) DNCRETE IRY GRADE 100'-0"	<section-header><section-header><list-item><list-item><list-item></list-item></list-item></list-item></section-header></section-header>	811 3 FULL WORKING DAYS BEFORE YOU DIG CALL 1-800-482-7171 www.missdig.net	ARCHITECTURE - ENGINEERING - PLANNING SURVEYING - CONSTRUCTION SERVICE DLZ MICHIGAN, INC
		THIS RECORD DRAWING IS BASED ON THE DESIGN OF RECORD AND INFORMATION FURNISHED BY THE CONTRACTOR TO THE ARCHITECT/ENGINEER. THE ARCHITECT/ENGINEER. THE ACCURACY OR ACCURACY OR COMPICTENTION	INCOMPLETENCES OF THE INFORMATION PROVIDED TO IT, AND DOES NOT REPRESENT THAT THIS RECORD DRAWING ACCURATELY DEPICTS ACTUAL CONSTRUCTION.
ETAL COUNTERFLASHING ASTENED 8" O.C. [203MM] /NEOPRENE WASHERS EALANT, REFERENCE PECIFICATION ERMINATION BAR FASTENED 8"o.c. MAX. [203mm] IROUGH BUTYL TAPE AP FLASHING PLY 9" MIN. 28MM] ON FIELD ASE FLASHING PLY 6" N. [152MM] ON FIELD			
ODIFIED MEMBRANE ASE PLY OVERBOARD SULATION KISTING VAPOR BARRIER O REMAIN DNCRETE DECK OCKING		CITY OF FLINT	DETAILS DORT PUMP STATION REHABILITATION
SEALANT, REFERENCE SPECIFICATION COUNTERFLASHING FASTENED @ 8" o.c. MAX. [203mm] THROUGH BUTYL TAPE (MIN. 1.5" EMBEDMENT) SEALANT, REFERENCE SPECIFICATION TERMINATION BAR FASTENED @ 8"o.c. MAX. [203mm] THROUGH BUTYL TAPE (MIN. 1.5" EMBEDMENT) CAP FLASHING PLY 9" MIN. [228mm] ON FIELD BASE FLASHING PLY 6" MIN. [152mm] ON FIELD CANT STRIP MODIFIED MEMBRANE BASE PLY		NO. REVISI 1 BID SUBMITTAI	ON DATE 11/06/20
COVERBOARD INSULATION EXISTING VAPOR BARRIER TO REMAIN CONCRETE DECK	SCALE: $1 \frac{1}{2^n} = 1 \cdot 0^n$	DRAWN BY: DESIGNED BY: CHK'D BY: CHK'D BY: DATE: PROJECT NUMBER ARCHITE DRAWING NUMBER	SHT NDL NDL NDL 11/06/20 1949-0188-00 ECTURE

3	4	5	6	7	8	9
			040140		040140	
				_ \		

 I
 ENLARGED DEMOLITION PLAN @ TOILET

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

(WH)

	GENERAL NOTES:		SVICE
	 A. REFER TO PROJECT GENERAL NOTES AND INFORMATION. B. REFER TO SHEET G1.3 FOR STANDARD ADA MOUNTING HEIGHTS OF ALL FIXTURES, ACCESSORIES, AND SIGNAGE 	elow dig 	DEAS - DESIGN CLIENT SEF IIGAN, INC
	KEYNOTES	what's b6 before you IG System, Inc 82-7171 w	VATIVE II EPTIONAL ATCHED (DLZ MICH
	020901 REMOVE AND REPLACE TILE	Know Call 1058 10-4	NNO EXCE
	021001 REMOVE TOILET PARTITION	×0≥÷	
	022201 REMOVE PLUMBING FIXTURE	CALI	R A G
	022202 REMOVE EXISTING MIRROR		
	022204 EXISTING SHOWER TO REMAIN	OUI	PLA
		. WO KE Y	
	DAMAGE FROM INSTALLATION OF NEW PLUMBING FIXTURES AND BATHROOM ACCESSORIES.		
	102101 TOILET COMPARTMENT, FLOOR ANCHORED AND OVERHEAD-BRACED	0	
	102803 SURFACE MOUNTED JUMBO ROLL TOILET TISSUE DISPENSER		ARCI
	102804 SURFACE MOUNTED SANITARY NAPKIN DISPOSAL UNIT	I HE	EEENT EESENT ON.
	102810 SURFACE MOUNTED PAPER TOWEL DISPENSER	CD DRAWIN HE DESIGI I INFORMA I INFO	N REPOVIDE VOT REPR CORD DR ELY DEPIC NSTRUCTI
	102812 SURFACE MOUNTED AUTOMATIC PAPER TOWEL DISPENSER	IS RECOR SED ON TI SORD AND FURNISHI HITECT/EI HITECT/EI ACCUR	OCMATELIC OCMATION ND DORMATION ND DORMATION ND DORMATION CCURATE CCURATE COURATE COURATE
	102818 SURFACED MOUNTED AUTOMATIC SOAP DISPENSER	ARCIC REC	IT, AF THA AC
	102836 24"x36" MIRROR UNIT	FLINT, MC	
	224210 PLUMBING FIXTURES 224211 RECONNECT NEW WATER CLOSET TO EXISTING		
	SANITARY AND DOMESTIC COLD-WATER CONNECTIONS.		
	224220 URINAL		Q
	224253 RECONNECT NEW UTILITY SINK WITH EXISTING SANITARY AND DOMESTIC PLUMBING PIPING.		S AN
			ANS
			PL/
ER			WO NO
			NS TIC
			TA N
		5	NA'
			TA TO
			L UI
		Ь Ю	RGI T F AB
21.4.1		≿	ILAI DR
PLAN 2' - 0"		<u>.</u>	
		T	π
		A A	
022205			
022204			
102804			
		NO. REVISI	ON DATE
102101		1 BID SUBMITTA	11/06/20
224220			
• • 224253			
		DRAWN BY:	SHT
		DESIGNED BY: CHK'D BY: APPRV'D BY:	NDL NDL LAF 11/06/20
		PROJECT NUMBER	1949-0188-00
(R)		ARCHIT	ECTURE
AN @ TOILET	SCALE: 1/2" - 1/2"	DRAWING NUMBER ΔS	31
	SCALE: 1/2" = 1'-0" 0 1' - 0" 0 1' - 0" 4' - 0"		/.

EQUIPMENT ABBREVIATIONS:	PLUMBING ABBREVIATIONS:	GENERAL INSTALLATION NOTES:	GENER/
AD AREA DRAIN <u>CB</u> CATCH BASIN <u>DF</u> DRINKING FOUNTAIN <u>EWC</u> ELECTRIC WATER COOLER EC ELOOR CLEAN OUT	AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE BT BRINE TANK BV BALANCING VALVE CONT CONTINUATION	1. INSTALLATION OF PLUMBING FIXTURES AND ACCESSORIES, INCLUDING FLUSH CONTROL VALVES INTENDED FOR PEOPLE WITH DISABILITIES, SHALL BE IN ACCORDANCE WITH ADA REQUIREMENTS.	1. DEMOLITION PL DEMOLITION W SPECIFICATION INDICATED ON
FD FLOOR DRAIN GI GREASE INTERCEPTOR HB HOSE BIBB LAV LAVATORY	CW CW DN DOWN DWG. DRAWING ELEV. ELEVATION	2. INSTALLATION OF PLUMBING PIPING SHALL BE FULLY COORDINATED WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, AND HVAC DRAWINGS TO AVOID CONFLICT.	CONSIDERED A OR THE COMPL DEMOLITION IN SHORING AND
MB MOP BASIN OI OIL INTERCEPTOR RD ROOF DRAIN RP RECIRCULATING PUMP SH SHOWER	G NATURAL GAS GPM GALLONS PER MINUTE HW HOT WATER HWR HOT WATER RETURN IE INVERT ELEVATION	 NO PLUMBING (WATER, DRAINS, VENT, OR GAS PIPING) SHALL BE INSTALLED DIRECTLY ABOVE ANY ELECTRICAL PANELS. COORDINATE WITH OTHER DIVISIONS BEFORE PROCEEDING WITH INSTALLATION. 	ACCORDINGLY. COMPLETE REM NECESSARY TO EXPRESLY SHO
SK SINK TD TRENCH DRAIN TV TEMPERING VALVE UR URINAL	LKW LAVATORY KITCHEN WASTE MAX MAXIMUM MIN MINIMUM OS&Y OUTSIDE SCREW & YOKE	 IF NON DESIGN BASE EQUIPMENT IS SELECTED, CONTRACTOR SHALL BEAR ADDITIONAL COSTS FOR MODIFICATIONS TO THE ORIGINAL SYSTEM(S). 	2. THE CONTRACT ALL EXISTING P REMOVAL WOR DRAWING OR IN
WH WALL HYDRANT WC WATER CLOSET WH WATER HEATER WS WATER SOFTENER	PHE PLATE HEAT EXCHANGER ST STORM SQFT SQUARE FEET TS TEMPERATURE SENSOR	 PROVIDE WATER HAMMER ARRESTERS AT PLUMBING FIXTURES AND GROUPS OF PLUMBING FIXTURES THAT ARE SUBJECT TO WATER HAMMER. SELECT ARRESTERS IN ACCORDANCE WITH THE PLUMBING AND DRAINAGE INSTITUTE STANDARD. 	CONTRACT WO OWNER'S REPF 3. ALL DEMOLITIO
RAFTING SYMBOLS:	TYP TYPICAL V VENT VTR VENT THROUGH ROOF W WASTE	6. CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS, LABOR AND EQUIPMENT PERMIT FEES, REQUIRED FOR, OR INCIDENTAL TO THE INSTALLATION OF A COMPLETE AND	ACCORDANCE MICHIGAN, OSH 4. CONTRACTOR
22XXXX KEY NOTES		OPERATIONAL PLUMBING SYSTEM AS INDICATED IN THE CONTRACT DOCUMENTS INCLUDING SPECIFICATIONS.	PAYING FOR AL
02XXXX DEMOLITION KEY NOTES		 ALL PLUMBING SERVICES GOING INTO THE BUILDING AND LEAVING THE BUILDING SHALL BE CONNECTED TO THE SITE UTILITIES, 	DEMOLITION W
DETAIL REFERENCE NUMBER SHEET ON WHICH DETAIL		COORDINATE WITH SITE UTILITIES DWGS. COORDINATE ALL EXTERIOR UNDERGROUND PLUMBING WORK WITH THE SITE UTILITIES BEFORE COMMENCING WORK. COORDINATE ALL UNDERGROUND PIPING WITH FOUNDATION DRAWINGS	6. THE CONTRACT DIMENSIONS, L WORK.
		 ALL PLUMBING WORK SHALL BE IN CONFORMANCE WITH THE INTERNATIONAL PLUMBING CODE LATEST EDITION ADORTED BY 	7. OWNER RESER MATERIAL INDIC
X SHEET ON WHICH DETAIL IS FOUND		THE STATE OF MICHIGAN WITH MICHIGAN AMENDMENTS, MUNICIPAL OR CITY CODES, AND THE AUTHORITY HAVING JURISDICTION.	8. ALL ITEMS DES EQUIPMENT, PI ASSOCIATED W PIPING PATCH
		 INSTALL BALL VALVE CLOSE TO WATER MAIN ON EACH BRANCH AND RISER SERVING PLUMBING EQUIPMENT AND FIXTURES. INSTALL BALL VALVES ON PIPIG PRIOR TO ENTERING CHEMICAL STORAGE ROOMS. 	PENETRATIONS REPLACED. CAI ORDER TO PRE EXISTING. THE COORDINATE V
		10. PIPING HANGERS AND SUPPORTS SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIALS.	TO REMOVAL.
		11. CONTRACTOR SHALL PROVIDE ACCESS DOORS IN ALL WALLS AND CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL.	9. PATCH, REPAIR MATERIALS ANI NEW CONDITIO

D

	PLUMBING FIXTURE SCHEDULE									
TAG	DESCRIPTION	ACCEPTABLE MANUFACTURER	SAN/WASTE	VENT	COLD WATER	HOT WATER				
S-1	ONE PIECE LEAKPROOF MOLDED POLYPROPYLENE CONSTRUCTION WITH INCLUDED DUAL HANDLE FAUCET, 6" SWING END, AERATOR, AND HOSE CONNECTION END. MOLD AND MILDEW-RESISTANT COMPONENTS.	MUSTEE UTILITUB CO-POLYPURE MODEL 14CP OR EQUIVALENT SUPPLIES AND STOPS - WOLVERINE BRASS INC. MODEL ENCORE; T&S BRASS. MIXING VALVE - ASSE 1070 COMPLIANT.	1-1/2"	1-1/4"	3/4"	3/4"	PROVIDE NSF 61 LIS REQUIREMENTS PRO MIXING VALVE.			
WC-1	BOWL - VITREOUS CHINA, WHITE, ELONGATED, SIPHON JET, FLOOR MOUNTED, BOTTOM DISCHARGE, 1 1/2" TOP SPUD, LOW WATER CONSUMPTION (1.6 GPF/6.0 LPF). ■ FLUSH VALVE - QUIET EXPOSED, DIAPHRAGM TYPE, CHROME PLATED FLUSHOMETER WITH METAL OSCILLATING NON-HOLD-OPEN HANDLE, 1" I.P.S. SCREWDRIVER BACK-CHECK ANDLE STOP. VANDAL RESISTANT STOP CAP, ADJUSTABLE TAIL PIECE, VACUUM BREAKER FLUSH CONNECTION, SPUD COUPLING, WALL AND SPUD FLANGES FOR 1/2" TOP SPUD. ■ SEAT - WHITE HIGH IMPACT, EXTRA HEAVY DUTY SOLID PLASTIC, OPEN FRONT, ELONGATED, CHEMICAL RESISTANT, OPEN FRONT. MODEL-IN SURFACE CHECK AND STAINLESS STEEL HINGE POSTS.	BOWL - AMERICAN STANDARD "MADERA" MODEL NO. 3461.001; KOHLER; CRANE; MANSFIELD; BRIGGS. ■ FLUSH VALVE - ZURN "AQUAFLUSH" MODEL Z-6000 LOW CONSUMPTION (1.6 GPF/6.0 LPF); DELANY; SLOAN. ■ SEAT - OLSONITE "COMFORT" MODEL 95; BEMIS; CHURCH; BENEKE; CENTOCO	4"	2"	1"	-	MOUNT WATER CLOS			

PLUMBING, OR FIRE PROTECTION ITEMS MAY BE REQUIRED.

ACCESS DOORS SHALL BE OF AN APPROPRIATE SIZE REQUIRED

FOR EACH APPLICATION. WHERE APPLICABLE, ACCESS DOORS SHALL MATCH THE FIRE RATING OF THE WALL ASSEMBLY.

IERAL REMOVAL NOTES:

TION PLANS ARE PROVIDED AS A GUIDE. COORDINATE TION WITH NEW CONSTRUCTION DRAWING SHEETS, CATIONS, AND FINAL DESIGN INTENTION. ANY DEMOLITION ED ON THESE DRAWINGS ARE SHOWN IN GENERAL TO E THE EXTENT OF MAJOR DEMOLITION AND IS NOT TO BE ERED AS A RECORD DRAWING OF EXISTING CONDITIONS COMPLETE EXTENT OF REQUIRED DEMOLITION ACTIVITIES. FION INCLUDES PROVISION OF TEMPORARY BRACING, G AND SUPPORT TO ASSURE SAFE OPENINGS INGLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TE REMOVAL AND DISPOSAL OF ALL MATERIALS SARY TO ACHIEVE THE DESIGN INTENT, WHETHER LY SHOWN OR NOT.

ITRACTOR SHALL VISIT THE SITE PRIOR TO BID AND VERIFY TING PLUMBING SYSTEMS TO DETERMINE EXTENT OF L WORK. ANY ITEMS NOT SPECIFICALLY INDICATED ON G OR IN SPECIFICATION THAT ARE IN CONFLICT WITH CT WORK SHALL BE BROUGHT TO THE ATTENTION OF THE

S REPRESENTATIVE PRIOR TO BID FOR CLARIFICATION. OLITION WORK SHALL BE PERFORMED IN STRICT ANCE WITH ALL APPLICABLE SECTIONS OF THE STATE OF N, OSHA, AND NFPA.

CTOR SHALL BE RESPONSIBLE FOR OBTAINING AND FOR ALL PERMITS AND INSPECTIONS.

OLITION WORK SHALL BE COORDINATED WITH TION WORK SHOWN ON OTHER CONTRACT DRAWINGS.

ITRACTOR SHALL VERIFY EXISTING FIELD CONDITION,

ONS, LOCATIONS, AND QUANTITIES PRIOR TO BEGINNING

RESERVES THE RIGHT TO SALVAGE ANY EQUIPMENT OR L INDICATED TO BE DEMOLISHED.

IS DESIGNATED TO BE REMOVED SHALL INCLUDE ALL ENT, PIPING, HANGERS, POWER, AND CONTROLS TED WITH THE ITEM TO BE REMOVED. CAP ASSOCIATEED PATCH WALL TO MATCH EXISTING WHERE THROUGH ATIONS AND/OR REMOVALS OCCURED TO NOT BE ED. CAREFULLY AND SKILLFULLY REMOVAL ALL ITEMS IN TO PREVENT DAMAGE. REPAIR FINISHES TO MATCH . THE OWNER HAS SALVAGE RIGHTS TO ALL REMOVALS. NATE WITH THE OWNER SPECIFIC SALVAGE ITEMS PRIOR

REPAIR, RESTORE, AND REFINISH ALL ADJACENT ALS AND CONSTRUCTION INTENDED TO REMAIN TO LIKE-NEW CONDITION AS WELL AS CORRECTION OF DAMAGE RESULTING FROM DEMOLITION OR NEW CONSTRUCTION ACTIVITIES. PATCH AND REPAIR EXISTING SURFACES LEFT EXPOSED AFTER DEMOLITION, AND PREPARE THEM FOR NEW CONSTRUCTION. INFILL VOIDS LEFT BY DEMOLITION TO MATCH SURROUNDING.

REMARKS

TED FACUET. MOUNT TO MEET ADA OVIDE ASSE-1070 LISTED THERMISTATIC

SET TO MEET ADA REQUIREMENTS.

KEYNOTES

022204 EXISTING SHOWER TO REMAIN

- 022206 REMOVE EXISTING PLUMBING FIXTURE. TEMPORARILY CAP/VALVE EXISTING DOMESTIC AND SANITARY PLUMBING CONNECTIONS FOR FUTURE RECONNECTION.
- 022207 REMOVE EXISTING PLUMBING FIXTURE. CAP/VALVE EXISTING DOMESTIC COLD-WATER & SANITARY CONNECTIONS AND PATCH WALL TO MATCH ADJACENT FINAL WALL CONDITIONS.
- 224211 RECONNECT NEW WATER CLOSET TO EXISTING SANITARY AND DOMESTIC COLD-WATER CONNECTIONS.

F	G	H	J	K	L	М	N
	CUSTOMER:	CITY OF FLINT					
TOMER	ORDER NUMBER:	11-001262					
	DISTRIBUTOR:	MCNAUGHTON -	MCKAY ELECTRIC	, ,			
BUTOR	ORDER NUMBER:	P.D.# 5567913					
	PROJECT:	3RD A∨E PUMP	HOUSE				
ROJECT	ORDER NUMBER:						
IATION	ORDER NUMBER:	7012749					

EQUIPMENT DESCRIPTION	PAGE DESCRIPTION	SHEET
	PROJECT TITLE AND DRAWING INDEX	1
	GENERAL NOTES AND DEVICE DESIGNATIONS	2
	DNE LINE DIAGRAM AND KEY INTERLOCKING	3
	POWER WIRING INTERCONNECTIONS	4
	CONTROL WIRING INTERCONNECTIONS AND TERMINAL BLOCK LAYOUTS	5-6
MEDIUM VOLTAGE AC DRIVE	LINE AND LOAD CONNECTIONS	7
	RECTIFIER, INVERTER AND COMMON MODE CHOKE	8
	MAIN COOLING FAN	9
	CONTROL POWER DISTRIBUTION	10-11
	GATE DRIVER POWER SUPPLIES	12
	OPTICAL INTERFACE BOARDS	13
	ANALOG CONTROL BOARD	14-15
	EXTERNAL I/O BOARD	16
	SPACE HEATER CIRCUITS	17
	SYMBOL TABLE	18

	INT	DATE		ſ			OF	NDER NO.			
	₽₩	2012-04-25	CUSTOMER	·				11-001262			
	DISTRIBUTOR			MCNAUGHTEN - MCKAY ELECTRIC			P.0.#	5567913			
			PROJECT	381	AVE PUMP HUUSE						
F			G	Н	1	K		L		M	Ν
			· · · · ·								

1				AL NUTES							
2	<u>/1</u>	REMOTE EQUIPMEN	Т								[
3	<u>/6</u>	FOR CUSTOMER US	\$E.								
Ļ	/8	CURRENT LIMITING	Ĵ								
	/9	REMALVE NUMPER \	WHEN CONNECTING REN	NTE EQUIPMENT							
	100										
þ	<u>/23</u>	<u>DANGER:</u> MORE	THAN DNE LIVE CIRC	UIT.							
,	<u>/47</u>	REFER TO PUBLIC	ATION 20COMM-UM010	EN-P.							
1	<u>/10</u> 0	<u>WARNING:</u> Ground must be	CONNECTED TO PREVE	NT HIGH VOLTAGES FROM BE	ING APPLIED T⊡ DRI∨E	CONTROL BOARDS.					
	/101	LV CONTROL WIRI	ING WITHIN THE VFD	ENCLOSURE SHALL BE #16 A	VG UNLESS OTHERWISE M	NDTED.					
	<u>/10</u> 4	LOCATED IN DRIV	E LOW VOLTAGE CONT	ROL SECTION,							
	<u>/10</u> 5	DE∨ICE IS M⊡UNT	ED ON THE LOW VOLT	AGE DOOR OF THE DRIVE.							
	/110	PROVISION FOR R	EMATE EMERGENCY ST	IP. CUSTIMER SUPPLIED. RE	MUVE JUMPER WHEN INS	TALLING REMOTE EMER	RENCY STOP. W	/HFN	THERE IS	MIRF	
	404	THAN ONE REMOTE	EMERGENCY STOP CU	STOMER MUST WIRE IN SERIE	S. EMERGENCY STOP PL	ISH BUTTON MUST HAV	E A MAINTAINED	CON	TACT.		
	/124	LUCATED IN THE	DRIVE INPUT UNIT (CC	JSTUMER SUPPLIED,							
	<u>/12</u> 7	Y THE DRIVE INTER AND CLOSING DF	LOCK (DIC RELAY) TO THE INPUT DEVICE, TH	THE INPUT DEVICE FEEDING HIS IS REQUIRED FOR THE PI	THE DRIVE MUST HAVE RECTION OF THE DRIV	CONTROL OVER THE DECEMBER OF AULT	DPENING CONDITIONS.				
	<u>/12</u> 8	B DRIVE INPUT PRO ON THE XIO BOAR	TECTION CONTACTS SU D. THE CONTACT MUS	CH AS OVERLOAD, IF USED, T OPEN TO TRIP THE DRIVE	SHOULD BE CONNECTED AND OPEN THE INPUT.	TO THE INPUT PROTEC	TION (IN9A)				
	1.10	IF INPUT PROTECT	FIDN IS NOT USED THE	CUSTOMER IS RESPONSIBLE	TO INSTALL A JUMPER	BETWEEN D-401 AND I	D-609				
	<u>/14</u> 2	ATTENTION: PRIOR TO MAINTAI	IN THE DRIVE, TUP DRIVE CON	ROL CIRCUITS, REMOVE 120	AC POWER BY						
	1=0	PRESSING THE UP	S ON/OFF BUTTON,								
	<u> </u>	THAT THE SHIELDS M	BE GROUNDED AT THE	INE END OF THE CABLE,	T THE TRANSDUCER.	LUATING, IT IS RECU	IMMENDED				
-											
-											
_											
			WIRE NUMBERING FOR	SINGLE PHASE CIRCUITS							
			WIRE NUMBERING FOR	SINGLE PHASE CIRCUITS	LAST NUMBER LISED	1					
	DRI	CIRCUIT DR	WIRE_NUMBERING_FOR DEVICE	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199	LAST NUMBER USED						
	DRI AC	CIRCUIT OR IVE ASSOCIATED ST POWER SUPPLY CIR	WIRE NUMBERING FOR DEVICE ARTERS CUIT AND Ø1 FANS CUIT	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399	LAST NUMBER USED						
	DRI AC DC	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT	WIRE_NUMBERING_FOR ≥ DEVICE ARTERS ≷CUIT_AND_Ø1_FANS ≷CUIT	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499	LAST NUMBER USED N/A 220 305 410						
	DRI AC DC AC XID	CIRCUIT OR IVE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O	WIRE NUMBERING FOR DEVICE ARTERS CUIT AND Ø1 FANS CUIT	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699	LAST NUMBER USED N/A 220 305 410 507A 647A						
	DRI AC DC AC XID XID	CIRCUIT OR IVE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O	WIRE NUMBERING FOR DEVICE ARTERS CUIT AND Ø1 FANS CUIT	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899	LAST NUMBER USED N/A 220 305 410 305 410 507A 647A N/A N/A						
	DRI AC DC ACB XID XID XID XID	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 13 I/O 14 C ACE HEATER(S)	WIRE_NUMBERING_F⊡R ≥ DEVICE ARTERS ≷CUIT_AND_Ø1_FANS ≷CUIT	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099	LAST NUMBER USED N/A 220 305 410 40 305 410 40 40 40 40 40 40 40 40 40 40 40 40 40						
	DRI AC DC ACB XID XID XID SPA MIS	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 13 I/O C ACE HEATER(S) CC	WIRE NUMBERING FOR DEVICE ARTERS CUIT AND Ø1 FANS CUIT	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1100-1199	LAST NUMBER USED N/A 220 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 305 410 410 410 410 410 410 410 410 410 410						
	DRI AC DC AC ACB XIO XIO XIO XIO XIO XIO XIO XIO XIO XIO	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O C ACE HEATER(S) C INTERCONNECTIONS TICAL NUMBERS AT	WIRE_NUMBERING_FOR ≷ DE∨ICE ARTERS ≷CUIT_AND_Ø1_FANS ≷CUIT CUIT BETWEEN_DRIVE_AND EACH_END,	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1100-1199 ASSUCIATED UNITS WILL BE	 LAST NUMBER USED N/A 220 305 410 220 305 410 507A 647A 647A N/A 647A N/A N/A N/A N/A N/A N/A 1001 1122B TAGGED WITH 						
	DRI AC DC ACB XID XID XID XID XID XID XID XID XID XID	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 12 I/O 13 I/O 14 I/O 15 I/O 15 I/O 16 I/O 17 I/O 17 I/O 18 I/O 19 I/O 19 I/O 10 I/O 10 I/O 10 I/O 10 I/O 10 I/O 10 I/O 10 I/O 11 I/O 12 I/O 13 I/O 13 I/O 14 I/O 15 I/O 15 I/O 16 I/O 17 I/O 17 I/O 18 I/O 19 I/O 19 I/O 10 I	WIRE NUMBERING FOR ≷ DEVICE ARTERS ≷CUIT AND Ø1 FANS ≷CUIT BETWEEN DRIVE AND EACH END. IDNS WILL BE PREFIXED	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1100-1199 ASSUCIATED UNITS WILL BE ED WITH THE DESTINATION I WITH THE SOURCE DESIGNA	LAST NUMBER USED N/A 220 305 410 220 305 410 507A 647A N/A 647A N/A 647A N/A 1001 1122B TAGGED WITH ESIGNATION. TION.						
	DRI AC DC AC ACB XID XID XID XID XID XID XID XID XID XID	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 13 I/O 13 I/O 14 C ACE HEATER(S) CC INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS	WIRE_NUMBERING_FOF ≷ DE∨ICE ARTERS ≷CUIT_AND_Ø1_FANS ≷CUIT BETWEEN_DRIVE_AND EACH_END. IDNS_WILL_BE_PREFIXED NS_WILL_BE_PREFIXED	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1100-1199 ASSDCIATED UNITS WILL BE ED WITH THE DESTINATION I WITH THE SOURCE DESIGNA	LAST NUMBER USED N/A 220 305 220 305 410 305 410 305 410 305 410 410 305 410 305 410 305 410 305 410 410 305 410 410 410 410 410 410 410 410 410 410						
	DRI AC DC ACB XID XID XID XID XID XID XID XID XID XID	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 12 I/O 13 I/O 12 I/O 13 I/O 12 I/O 13 I/O 13 I/O 14 I/O 15 I/O 15 I/O 16 I/O 17 I/O 17 I/O 18 I/O 19 I/O 19 I/O 19 I/O 10	WIRE_NUMBERING_FDF ≥ DEVICE ARTERS ≷CUIT_AND Ø1 FANS ≷CUIT BETWEEN_DRIVE_AND EACH_END. IDNS_WILL_BE_PREFIXED NS_WILL_BE_PREFIXED DESIGNATION	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 500-599 600-699 600-699 700-799 800-899 900-999 1000-1099 1000-1099 1000-1099 1000-1099 200-299	LAST NUMBER USED N/A 220 305 410 220 305 410 507A 647A N/A 647A N/A 647A N/A 1001 1122B TAGGED WITH ESIGNATION. TION.						
	DRI AC DC ACB XID XID XID XID XID XID XID XID XID XID	CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 12 I/O 13 I/O 12 I/O 13 I/O 12 I/O 13 I/O 14 I/O 15 I/O 15 I/O 16 I/O 17 I/O 17 I/O 18 I/O 19 I/O 19 I/O 10	WIRE_NUMBERING_F⊡F ≷ DEVICE ARTERS ≷CUIT_AND Ø1 FANS ≷CUIT BETWEEN DRIVE AND EACH END. IDNS WILL BE PREFIXED NS WILL BE PREFIXED DESIGNATION	SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1000-1099 1000-1099 1000-1099 WITH THE DESTINATION I WITH THE SOURCE DESIGNA -300 WIRE NUMBER	LAST NUMBER USED N/A 220 305 410 507A 647A 410 507A 647A N/A 647A N/A 1001 1122B TAGGED WITH ESIGNATION. TION.			INT	DATE		
	DRI DRI AC DC AC AC XID XID XID XID XID XID XID XID XID XID	CIRCUIT OR CIRCUIT OR VE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 13 I/O 13 I/O 13 I/O 13 I/O 13 I/O 13 I/O 13 I/O 14 INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS SIC	WIRE_NUMBERING_FDF ≥ DEVICE ARTERS <cuit_and fans<br="" ø1=""><cuit< td=""><td>2: SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-109 2012-04-25 1 1</td><td>LAST NUMBER USED N/A 220 305 410 507A 647A N/A A10 N/A 101 1122B TAGGED WITH ESIGNATION. TION.</td><td>ISION AM APPR⊡∨AL</td><td></td><td>INT RW</td><td>DATE 2012-04-25</td><td>CUSTOMER DISTRIBUTOR</td><td></td></cuit<></cuit_and>	2: SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-109 2012-04-25 1 1	LAST NUMBER USED N/A 220 305 410 507A 647A N/A A10 N/A 101 1122B TAGGED WITH ESIGNATION. TION.	ISION AM APPR⊡∨AL		INT RW	DATE 2012-04-25	CUSTOMER DISTRIBUTOR	
	DRI AC DC AC ACB XIO XIO XIO XIO XIO NIS ALL IDEN CONT POWE	CIRCUIT OR CIRCUIT OR CVE ASSOCIATED ST POWER SUPPLY CIR POWER SUPPLY CIR CONTROL CIRCUIT B I/O 11 I/O 12 I/O 13 I/O 13 I/O 13 I/O 13 I/O 13 I/O 13 I/O 14 C ACE HEATER(S) C C INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONNECTIONS TICAL NUMBERS AT ROL INTERCONN	WIRE NUMBERING FOR VIRE NUMBERING FOR DEVICE ARTERS CUIT AND Ø1 FANS CUIT BETWEEN DRIVE AND EACH END. IDNS WILL BE PREFIXED DESIGNATION CERTIFIED DESIGNATION CERTIFIED D. CHOWDHURY DRAWN R. WANNER	E SINGLE PHASE CIRCUITS DESIGNATED NUMBERS 1-199 200-299 300-399 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1000-1099 1000-1099 400-499 500-599 600-699 700-799 800-899 900-999 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 1000-1099 WITH THE DESTINATION I WITH THE SDURCE DESIGNA -300 WIRE NUMBER DATE 2012-04-25 1 DATE 2012-04-13 1	LAST NUMBER USED N/A 220 305 410 220 305 410 507A 647A 0 647A 0 647A 0 1001 1122B 1001 1122B TAGGED WITH ESIGNATION. TION.	ISION AM APPROVAL		INT RW	DATE 2012-04-25	CUSTOMER DISTRIBUTOF PROJECT	

r _____ v

. _____ ,

L

____ •

_____ o

20-CDMM-E	ETHERNET/IP ADAPTER							
ACB	ANALOG CONTROL BOARD							
APO	AIR PRESSURE DIFFERENTIAL TRANSDUCER							
CB×	CIRCUIT BREAKER							
СМС	СОММОЛ МОДЕ СНОКЕ							
CP-S								
CT×	CURRENT TRANSFORMER							
DI	DRIVE INPUT CONTACTOR							
DIC	DRIVE INPUT CONTROL RELAY							
DICR1	DRIVE INPUT CONTACTOR PILOT RELAY							
DIIS	DRIVE INPUT ISOLATING SWITCH							
DILR	DRIVE INPUT LINE REACTOR							
ПРМ								
	DRIVE TERMINAL BLUCKS							
EMC	ELECTRU-MAGNETIC CHUKE							
THERE IS MORE ETM	ELAPSED TIME METER							
ACT. FLT	FAULT RELAY							
FPT	FAN POWER TRANSFORMER							
F×	FUSE							
GFC	GATE FIRING CIRCUIT							
GFCT	GROUND FAULT CURRENT TRANSFORMER							
HECSDC1	HALL FEFERT CURRENT SENSOR (DC LINK)							
HECSU								
HECSU	HALL EFFECT CURRENT SENSER (U PHASE)							
HEUSW	HALL EFFEUT CURRENT SENSUR (W PHASE)							
IFM	INTERFACE MODULE							
IGDPS×	ISOLATED GATE DRIVE POWER SUPPLY							
IN∨	INVERTER							
LFC	LINE FILTER CAPACITORS							
LRFN	LINE REACTOR FAN							
MFC	MOTOR FILTER CAPACITORS							
MFN1	MAIN COOLING FAN							
MENIC	ΜΑΙΝ ΕΑΝ ΟΠΝΤΑΟΤΠΡ							
MENIMO								
MFN2								
MFN2C	REDUNDANI FAN CUNIACIUR							
MFN2MP	REDUNDANT FAN MOTOR PROTECTOR							
MOV	METAL DXIDE VARISTOR							
MSH	MOTOR SPACE HEATER							
MSR	MONITORING SAFETY RELAY							
MTR	MOTOR							
NR	NEUTRAL RESISTOR							
DIBBI	OPTIC INTERFACE BASE BOARD (INVERTER SIDE)							
DIBBR	OPTIC INTERFACE BASE BOARD (RECTIFIER SIDE)							
זוזוח	OPTIC INTERFACE BOARD (INVERTER SIDE)							
	OPTIC INTERFACE ROARD (RECTIFIER SIDE)							
FSIA								
PSIC	AC/DC CUNVERTER (REDUNDANT)							
PS2	DC/DC CONVERTER							
PV550	OPERATOR INTERFACE							
RDY	READY RELAY							
REC	RECTIFIER							
RUN	RUN RELAY							
R×	RESISTOR							
SA	SURGE ARRESTOR							
	SPACE HEATER RELAY							
SR	SIAKI KELAY							
I								
22	SURGE SUFFRESSUR							
SS TFB×	TEMPERATURE FEEDBACK BOARD							
SS TFB× TSC	TEMPERATURE FEEDBACK BOARD CURRENT DUTPUT TRANSDUCER							

· ____

Н

_____ •

· ____ · · · ___ ·

J

0 _____ 0 F _____ 7 0 _____

К

TSV	VOLTAGE OUTPUT TRANSDUCER
UPS	UNINTERRUPTABLE POWER SUF
∨BF	VIBRATION MONITOR FAULT AU
VSB×	VOLTAGE SENSING BOARD
WRN	WARNING RELAY
XIO×	EXTERNAL INPUTS/DUTPUTS
XM-120	VIBRATION MONITOR
XM-361	TEMPERATURE MONITOR/CONTR

EXISTING 2400

	INT	DATE					0	RDER NO.		
	₽₩	2012-04-25	CUSTOMER		11-	001262		GENE		
			DISTRIBUTOR	MCNAUGH	MCNAUGHTEN - MCKAY ELECTRIC			5567913		
			PROJECT	3RD AVE PUMP HOUSE						
F			G	Н	J	K	[L	М	Ν

 _	 M	N	P	Q <u>COLOUR</u>	R DESIGNATIONS	01	Know what's below Call before you dig <i>MISS DIG System, Inc.</i> 1-800-482-7171 www.missdig.org	INNOVATIVE IDEAS EXCEPTIONAL DESIGN UNMATCHED CLIENT SERVICE
TSV	VOLTAGE OUTPUT TRANSDUC			A	AMBER	02	DAYS	
VBF	VIBRATION MONITOR FAULT	AUXILIARY RELAY		BLK	BLACK			NINN
∨SB× WRN	VOLTAGE SENSING BOARD			В	BLUE	04	VORK	
XIDx	EXTERNAL INPUTS/DUTPUTS			BR	BROWN	05		
КМ-120 (M-361	VIBRATION MONITOR TEMPERATURE MONITOR/CON	TROLLER		С	CLEAR	06	3 FL BEF	
				G	GREEN	07		
				DRG	DRANGE	08) à	HITEC
				R	RED	09		ARCI
				W	WHITE	10		ALL ALLALL ALLALL ALLALL ALLALL ALLALL ALLALL
				Y	YELLOW	11	VING ATIONS COBL, TONS CONTENS	VOLUE VO
				Abbrev	IATIONS		WARD UTILITY LOC/ NOT CONFIRM SHOWN WERE FROM UTILITY PLANS. TF	MUNING BEGINNING CONTRACT NOTIFY UTILI TO HAVE W STAKED AND PROTECT THE SPECIFIC UTILITIES TI UNILITIES TI
				AC	ALTERNATING CURREN		HIGAN	7,
				DC	DIRECT CURRENT		1855	
				GND	GROUND			7
				LV	LOW VOLTAGE	10		
				M∨	MEDIUM VOLTAGE			
				PE	EARTH GROUND	- 19	o et	ab E
				SG	SAFETY GROUND		tre 50	
				TE	SIGNAL GROUND		$^{>}_{N}$ $^{4}_{X}$	
						22 23 24 25 26 27	City of Flint 1101 S. Saginaw Flint Michioan	ELECTRICA Dort Pump Statio
	NG 2400 M	VOLT A ENERAL NOTES AND DEVICE DE N	SIGNATIONS BULLETIN SIZE P	7000A 105A REV D 1 Q	DLEY V Allen-Bra wg. No. 7012749-001-12E R	28 29 30 31 32 33 34 35 36 37 36 37 38 37 38 39 40 40 41 5HEET 2 0F 18 AutoCAD®	MARK ISSU BID S I I I I I I I I I I I I I I I I I I I	N.T.S. JED FOR DATE SUBMITTAL 11/6/2 —
· ·]	DRAWN DESIGN CHECKED	BY: GJG BY: GJG
							J&A JOB NUN	1BER: 1949-0188-00
							1	

SHEET NO. E-102

ICAL DESIGN tation Rehab

ELECTRIC Dort Pump Sta

DATE 11/6/20

)2	DANGER
)3	SYSTEM INTEGRITY DEPENDS ON HAVING ONLY ONE KEY FOR EACH INTERCHANGE DESIGNATION. IF MORE KEYS ARE AVAILABLE THE INTERLOCKING INTEGRITY IS LOST. SAFETY OF PERSONNEL
)4	THE CUSTOMER MUST ENSURE THAT HIS CONFIGURATION OF THIS EQUIPMENT INTO HIS SYSTEM DOES NOT RESULT IN DAMAGE TO THIS EQUIPMENT, THE SYSTEM SHOWN HERE IS DESIGNED TO ACHIEVE THE FUNCTION DESCRIBED BELOW.
)5	DANGER
)6	DBSERVE CAPACITOR DANGER LABELS ON DOORS, EXTERNAL CONTROL VOLTAGES WILL BE PRESENT, SEE DIAGRAMS.
)7	FUNCTION THE KEY INTERLOCK SYSTEM PREVENTS ACCESS TO THE MEDIUM VOLTAGE SECTIONS OF THE POWERFLEX 7000 DF
)8	UNTIL THE MEDIUM VOLTAGE SUPPLY IS LOCKED OFF AT THE DRIVE INPUT CONTACTOR/BREAKER UNIT. TO GAIN ACCESS TO THE DRIVE MEDIUM VOLTAGE SECTIONS
)9	1) IF THE DRIVE IS RUNNING THE MOTOR, FIRST STOP THE MOTOR.
10	 2) DPEN THE INPUT CONTACTOR/BREAKER BY PRESSING DRIVE EMERGENCY STOP. 3) DPEN THE INPUT ISOLATING SWITCH (OR RACK OPEN THE BREAKER). LOCK IT OPEN AND REMOVE KEY K1. 4) INPERT KEY KA INTER THE DRUP E KEY DEED LOOK IN THE DRIVE INVERTED (DEOTIES). OF ALL NO.
.1	 4) INSERT KEY KI INTO THE DOUBLE KEY DOUR LOCK IN THE DRIVE INVERTER/RECTIFIER SECTION. THIS DOOR CAN NOW BE UNLOCKED AND THE K2 KEY CAN BE REMOVED. 5) THE K2 KEY CAN NOW BE USED TO UNLOCK THE CABLING SECTION.
.2	6) TO RESTORE EQUIPMENT TO ORIGINAL SERVICE POSITION, REVERSE THE ABOVE STEPS.
.3	
4	LEGEND
.5	L-O LOCKED OPEN
.6	L-C LOCKED CLOSED
7	K KEY INTERLOCK ON ISOLATION SWITCH
.8	K KEY INTERLOCK ON MV DOOR
9	(K)K) MULTIPLE BARREL KEY INTERLOCK ON ISOLATION SWITCH
20	K K MULTIPLE BARREL KEY INTERLOCK ON MV DOOR
21-	KKKK TRANSFER BLOCK
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
85	
36	
37	
38	
39	
0	THIS DRAWING IS THE PROPERTY OF ROCKWELL AUTOMATION, INC. OR ITS SUBSTIDARIES AND MAY NOT BE COPIED.
4	USED ER DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY RECKWELL AUTOMATION, INC. DRAWN DRAWN RUCKWELL AUTOMATION, INC. DRAWN RUCKWELL AUTOMATION, INC. R V/ANNER RUCKWELL AUTOMATION, INC.
-1	R, WHINER LOLD 04 13

	INT	DATE		ſ			01	RDER NO.		
	RV	2012-04-25	CUSTOMER		11-	001262				
			DISTRIBUTOR MCNAUGHTEN - MCKAY ELECTRIC					5567913		
			PROJECT	3RD AVE PUMP HOUSE						
F			G	Н	J	K		L	М	Ν

-	А	В	С	D		E	
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21-							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
40 39							
40	THIS DRAWING IS THE PROPERTY OF ROCKWELL AUTOMATION, INC. OR ITS SUBSIDIARIES AND MAY NOT BE COPIED,	CERTIFIED	DATE REV 2012-04-25 1	E	REVISION NG PROGRAM APP	'ROVAL	
-11	OSLU UK JUSULISED FUR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ROCKWELL AUTOMATION, INC.	DRAWN R. WANNER	DATE 2012-04-13				

· · <u> </u>	a a s a s a s	· ·	· · · · · · · · · · · · · · · · · · ·	P 9 P 0 P 0	e e e e e e e e e e e e e e e e e e e	· · · · · · · · · · · · · · · · · · ·	· · ·
F	G	Н	J	K	L	М	N

	INT	DATE			CITY OF FLINT		OF	DER NO.		
	R₩	2012-04-25	CUSTOMER				11-	001262		
			DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.O.#	5567913		
				207						
			PROJECT	381	AVE PUMP HUUSE					
F			C	ч	 т			т	M	N
г			G	11	9	K		Г	1/1	11

	INT	DATE		C	ITY OF FLINT		01	DER NO.		
	₽₩	2012-04-25	CUSTOMER				11-	001262		CON
			DISTRIBUTOR	MCNAUGHT	ON - MCKAY ELECTRIC		P.D.#	5567913		
				10.555.555						
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	н	1	К	-	L	М	Ν

E-	1	0

	G	· · · · · · · -	 H	· · · · -	 	 K	 L			 N
IUM VOLTAG	<u>e drive</u>								!	
IUM VOLTAG SERIES 7012749	<u>E DRIVE</u> 9-001-12									
CUSTOMER'S										
							FΧI	STING	$\frac{1}{24}$	$\bigcirc \bigcirc \land$

	INT	DATE		ſ			OI	RDER NO.		
	₽₩	2012-04-25	CUSTOMER				11-	001262		CONT
	1.6.14	LOIL OF LO	DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.D.#	5567913		
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	Н	1	K	[L	М	Ν

E-107

	INT	DATE		ſ			01	RDER NO.		
	RV	2012-04-25	CUSTOMER				11-	001262		
			DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.D.#	5567913		
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	Н	1	K	[L	М	Ν

	R.M.	2012-04-25									,	1
	1. 44	LOIL OF LO	DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.0.#	5567913				1
			PROJECT	3RD	AVE PUMP HOUSE							
			I ROBLET									
F			G	Н	J	K	Σ.	L		М	I	Ν
												· · ·

E-108

	INT	DATE		ſ	CITY OF FLINT		ORD	ER NO.		
	RW	2012-04-25	CUSTOMER				11-00	1262		
			DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.O.# 5	567913		
I										
			PROJECT	3RD	AVE PUMP HOUSE					
F		I	G	Н	J	ŀ	۲ I	L	М	Ν

	INT	DATE					OF	DER NO.		
	PW	2012-04-25	CUSTOMER	,			11-	001262		
	1.5.10		DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.D.#	5567913		
			DDAID	3RD	AVE PUMP HOUSE					
			PROJECT							
F			G	Н	1	 K	[L	М	Ν

L

М

	INT	DATE					OR	DER NO.		
	RW	2012-04-25	CUSTOMER				11-0	001262		
			DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.0.#	5567913		
			PROJECT	3RI	AVE PUMP HOUSE					
F			G	Н	J	ŀ	ا د	L	М	Ν

1	1
_	

1	+56V				+20V	1	R	2U1A	➡ 08-J27
2	+56∨ C⊡MM	P1		<u>م</u>	СПИМ	2	BLK	2U1A	➡ 08-J27
3	EARTH								
				6	+20V	1	R	2U1B	► 08-K27
				ľ.	СОММ	2	BLK	2U1B	► 08-K27
			5	。	+20V	1	R	2U4A	➡ 08-G27
			LIE	립	СШММ	5	BLK	2U4A	➡ 08-G27
	IGDPS3	}	UPP						
	(REC-1/4/	/3>	Ŋ		+20V	1	R	2U4B	► 08-H27
			2	E	СОММ	2	BLK	2U4B	➡ 08-H27
			50						
				<u></u>	+20V	1	R	2V3A	► 08-J32
				E	СОММ	2	BLK	2V3A	► 08-J32
					+20V	1	R	2V3B	⊷ 08-КЗ2
				E	СОММ	2	BLK	2V3B	⊷ 08-КЗ2

G

1

I

J

Κ

1

 \mathbf{L}

1

М

Η

1

1 2	+56∨ +56∨ C⊡MM	P1			P8	+20∨ C⊡MM	1 2	R BLK	2V6A 2V6A	➡ 08-G32 ➡ 08-G32
3	EARTH					+20V	1	R	2V6B	► 08-H32
					64	COMM	2	BLK	2V6B	► 08-H32
				S	。	+20V	1	R	2W5A	► 08-J38
	IGDPS4			C SUPPLIES	E I	COMM	2	BLK	2W5A	► 08-J38
			1			+20V	1	R	2W5B	► 08-K38
				д V03	1 T	COMM	2	BLK	2W5B	► 08-K38
				lu		+201	1	R	2V2A	-
					P12	COMM	5	BLK	2W2A	► 08-G38
						1.2014	1	R	2W2B	► 00 U20
					P13		1	BLK	2W2B	→ 08-H38

	INT	DATE		C				01	RDER NO.			
	RW	2012-04-25	CUSTOMER			11-	001262					
			DISTRIBUTOR	MCNAUGHTEN - MCKAY ELECTRIC				P.D.# 5567913				
I												
			PROJECT	3RD	AVE PUMP HOUSE							
F			G	Н	1	I	K		L		М	Ν

Κ

 \mathbf{L}

Μ

G

н

J

	INT	DATE		CITY OF FLINT ORDER NO.							
	R\/	2012-04-25	CUSTOMER				11-	001262			
	1		DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.D.# 5567913				
			PROJECT	3RD	3RD AVE PUMP HOUSE						
			Indulor							1	
F		ļ	G	Н	1	K		L	М		Ν

	INT	DATE		CITY DF FLINT			01	RDER NO.		
	RW	2012-04-25 CUSTOMER			11-	001262				
	1.1.1		DISTRIBUTOR	MCNAUGH	MCNAUGHTEN - MCKAY ELECTRIC		P.D.# 5567913			
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	Н	1	K		L	М	N

E-115

	INT	DATE		CITY DF FLINT			0	RDER NO.		
	RV	2012-04-25	CUSTOMER		MCNAUGHTEN - MCKAY ELECTRIC		11-	001262		
		LOIL OF LO	DISTRIBUTOR	MCNAUGH			P.D.# 5567913			
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	Н	J	K		L	М	Ν

F	G	Н	J	K	L	М	N

			•	
	•		e	
(A1) (A2)	SR ⊣⊢ 16-E07 600	XID1 (J6, J7) INPUTS - 120/240V AC J6-1 INOA INOB J6-2 NDT STOP (ENABLE)		XID1 (J1,J2, J4, OUTPUTS - 1A @ 24V DC, OR 240V AC (J1-17 OUTOA
]	601	JG-3 IN1A IN1B JG-4 START		
		J6-5 IN2A IN2B J6-6 FORWARD		
		J6-7 IN3A IN3B J6-8 REVERSE		
		J6-9 IN4A IN4B J6-10		
	605	J6-11 IN5A IN5B J6-12		
		JG-13 INGA INGB JG-14 DRIVE RESET		
		JG-15 IN7A IN7B JG-16 REQUEST TO BYPASS (SYNCH)		
		J7-1 IN8A IN8B J7-2 TRANSFER TO DRIVE (DESYNCH)		
]SED=0K	D-609	J7-3 IN9A IN9B J7-4 INPUT PRETECTION 1 (INPUT PRET'N #1)		
2]	610	J7-5 IN10A IN10B J7-6 ISTX/DILR DVERTEMPERATURE (INPUT XFMR/LR DT)	•	J2-13 DUT10A
]	611	J7-7 IN11A IN11B J7-8 DCL OVERTEMPERATURE (DC LINK OT)	•	J2-11 DUT11A CONFIG 4
	613	J7-9 IN12A IN12B J7-10	•	J2-9 DUT12A CONFIG 5
	614	IN13B J7-12 INPUT PRETECTION 2 (INPUT PRET'N #2) IN14B I7-14		J2-7 DUT13A CONFIG 6
•	615	AUXILIARY TRIP (AUXILIARY PROT'N) J7-15 IN15A () IN15B J7-16		J2-5 DUT14A CONFIG 7
		FAN STATUS		J2-3 DUT15A
			XI⊡1J4-ACB 15-G19 ◀ 8C	J25 AC B J25
1400 VULI ALLE	IN DRA	ULLI VFU		

	INT	DATE	CITY OF FLINT	OF	DER NO.					
	RW	2012-04-25		11-	001262					
			DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC		P.D.# 5567913			
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	Н	J	K		L	M	Ν

	INT	DATE		CITY OF FLINT			OF	RDER NO.		
	RW 2012-04-25	CUSTOMER				11-	001262			
	1		DISTRIBUTOR	MCNAUGH	TON - MCKAY ELECTRIC	P.D.# 5567913		5567913		
			PROJECT	3RD	AVE PUMP HOUSE					
F			G	Н	1	K		L	М	Ν

WI	RING		SWITCHES AND	INPUT DEVICES		DUTPUT	DEVICES		RESISTORS, CAPS,	WINDINGS AND GROUNI
CONDUCTOR, OR CONDUCTIVE PATH			SWITCH, SINGLE THROW	NEMA	Ϋ́ς IEC	COIL, OPERATING	- NEMA		CAPACITOR	(
CONDUCTOR, ASSOCIATED OR FUTURE NOT SUPPLIED BY ROCKWELL AUTOMATION			SWITCH, TOGGLE (MAINTAINED POSITION) TRANSFER, SINGLE POLE		ζ ζ δ IEC	COIL, BLOWOUT	о-//-о NEMA		RESISTOR, GENERAL	NE NE
TEMPORARY WIRING			PUSHBUTTON NORMALLY OPEN (MAKE) / NORMALLY CLOSED (BREAK)		E-\/E-/	FAN (30 INDUCTION MOTOR)		F 3~ IEC	RESISTOR, ADJUSTABLE (POTENTIOMETER)	
COPPER BUS BAR			SWITCH, MUSHROOM HEAD, (MAINTAINED)	NEMA		FAN (10 INDUCTION MOTOR)	- NEMA	F 1~ IEC	REACTOR, SATURABLE CORE	
MECHANICALLY CONNECTED			CONTACT NORMALLY OPEN (MAKE) / NORMALLY CLOSED (BREAK)			INDUCTION MACHINE		M 3~ IEC	₩INDING	
CABLE, MULTICONDUCTOR		4 IEC	ON-DELAY TIMED CONTACT NORMALLY OPEN (MAKE) / NORMALLY CLOSED (BREAK)			INDUCTION MACHINE (SYNCHRONOUS)		MS 3~ IEC	TRANSFORMER, WITH MAGNETIC CORE	•
CONDUCTOR, CROSSING OF PATHS OR CONDUCTORS NOT CONNECTED		IEC	DFF-DELAY TIMED CONTACT NORMALLY DPEN (MAKE) / NORMALLY CLOSED (BREAK)			LIGHT, INDICATING (PILDT, SIGNALLING, DR SWITCHBOARD)		× IEC	TRANSFORMER, CURRENT	\$ NE
CENDUCTER, JUNCTION OF CONNECTED PATHS, CONDUCTORS OR WIRES			SWITCH, FLOW - ACTUATED, CLOSES ON INCREASE IN FLOW	NEMA		LIGHT, INDICATING PUSH-TD-TEST	o NEMA	⊢ ↓ I	HALL EFFECT CURRENT SENSOR	+ M -
CONDUCTOR, SHIELDED SINGLE OR MULTICONDUCTOR		IEC	SWITCH, LIQUID LEVEL ACTUATED (FLDAT) CLDSING DN RISING LEVEL	°€ NEMA		LIGHT, INDICATING (LED TYPE)			GREUND	
CONDUCTORS, TWISTED			SWITCH, PRESSURE OR VACUUM OPERATED CLOSING ON RISING PRESSURE			METER (*1 METER'S FUNCTION)	NEMA	* IEC	** PE - EARTH GROUND SG - SAFETY GROUND TE - SIGNAL GROUND	
WIRE GAUGE MARKER	6		SWITCH, TEMPERATURE ACTUATED, DPENING DN RISING TEMPERATURE	NEMA		RECEPTACLE			FERRITE	-
CONNECTOR, SEPARABLE OR JACKS ENGAGED	— ((— — IEC	SWITCH, SELECTOR (MULTIPOSITION) WITH CONTACT CLOSED INDICATOR X - INDICATES CONTACTS CLOSE	<u>.</u>		PLC DUTPUT			GROUNDING BALL	Ş
TERMINAL	O	O		NEMA) IEC	GENERATOR	\bigcirc		POWER ELECTR	REINIC DEVICES
TERMINAL (ROCKWELL AUTOMATION USE ONLY)			SWITCH, SELECTOR (MULTIPOSITION) WITH PUSHBUTTON TYPE CONTACT MECHANISM X - INDICATES CONTACTS CLOSED				NEMA		DIODE, SEMICONDUCTOR	
TERMINAL BLOCKS			PLC INPUT		IEC				RECTIFIER SILICON CONTROLLED	
- BARRIER E - END BARRIER		IEC							SYMMETRICAL GATE-COMMUTATED THYRISTOR AND GATE DRIVER BOARD	
WIRED TO / FROM DESTINATION (ARROW DIRECTION RELATIVE TO FLOW OF DRAWING ONLY)	2-A01 DR 2-A01 ZDNE SHEET		EXISTIN	NG 24	00 VOL	_T ALLEN BF	RADLE`	y vfd	RECTIFIER, FULL WAVE BRIDGE	
THIS DRAWING IS THE PROPERTY OF ROCKWELL AUTOMATION, INC. OR ITS JBSIDIARIES AND MAY NOT BE COPIED, SED OR DISCLOSED FOR ANY PURPOSE	DATE R 2012-04-25	EV 1	REVISION ENG PROGRAM APPROVAL		INT DATE RW 2012-04-25	CUSTOMER DISTRIBUTOR MCNAUG	CITY OF FLINT HTON - MCKAY ELECTRI	с	ORDER NO. 11-001262 P.D.# 5567913	

J&A JOB NUMBER: 1949-0188-00

E-118

SHEET NO.

	LIGHTING FIXTURE SCHEDULE			ELECTRICAL SYMBOL LIST				
	[LIGHTING FIXTURE TYPES]			ŀ	SYMBOL	DESCRIPTION		
TYPE	DESCRIPTION	MOUNTING	WATTS	ľ		STRIP LED LIGHT FIXTURE (TYPICAL FOR 2', 4', 6' AND 8' LENGTHS)		
"LA"	8' LONG VOLUMETRIC LED LIGHTING FIXTURE, STEEL HOUSING, 8,800 LUMENS, MVOLT, 3500K	PENDANT OR	68 WATTS	ŀ	ю	WALL MOUNTED LED LIGHT FIXTURE		
	COLOR TEMPERATURE, SNAP ON FROSTED DIFFUSER, WHITE PAINT FINISH, 80CRI COLOR RENDERING INDEX, WHITE FINISH.	SURFACE (AS INDICATED)		ŀ		WALL MOUNTED LIGHT FIXTURE ON NIGHT LIGHT CIRCUIT		
	LITHONIA: ZL-1N-L96-10,000L-FST-MVOLT-35K-80CRI-WH			ŀ	0	SURFACE LIGHT FIXTURE		
				ŀ	X	PENDANT MOUNTED LIGHT FIXTURE		
"I.B"	SAME AS "LA", EXCEPT 6,700 LUMENS.	PENDANT	48 WATTS	ŀ	н	WALL MOUNTED LIGHT FIXTURE		
22		OR SURFACE		-	∞- □	SINGLE HEAD SITE / PARKING LOT LIGHTING FIXTURE		
				ŀ		EMERGENCY LIGHTING UNIT		
				-	 	EXIT LIGHT, CEILING MOUNTED - ARROW AS INDICATED		
"I C"	SAME AS "LA" EXCEPT 4'-0" LONG AND 3000 LUMENS.	SURFACE	25 WATTS	-	ΗΦ	EXIT LIGHT, WALL MOUNTED - ARROW AS INDICATED		
		Sommol	20 WAT15	ŀ		DIRECTION ARROW		
				-	**	DIRECTION ARROW		
				-	S	SINGLE POLE SWITCH		
"LD"	4' LONG VOLUMETRIC LED LIGHTING FIXTURE, GASKETED, FIBERGLASS HOUSING, 3000 LUMENS,	PENDANT 10'-0"	18 WATTS	ŀ	S_	DOUBLE POLE SWITCH		
	MVOLT, 3500K COLOR TEMPERATURE, 80CRI, ACRYLIC LOW PROFILE CLEAR LENS, WHITE PAINT FINISH, 80CRI COLOR RENDERING INDEX.			ŀ	• <u>-</u> \$2	THREE WAY SWITCH		
	FEM-L48-3000LM-LPAFL-MD-35K-80CRL WLF END2			-	 S τ	MANUAL MOTOR STARTER WITH THERMOL PROTECTION		
				-		DISCONNECT SWITCH. FUSED (NF = NON FUSED)		
"I.E."	SURFACE MOUNTED VAPOR TIGHT LED LIGHTING FIXTURE, SUITABLE FOR WET LOCATION, CAST	SURFACE	15 WATTS	-		COMBINATION MAGNETIC STARTER / DISCONNECT SWITCH (FUSED)		
	ALUMINUM HOUSING, SEALED GASKET, 4000K COLOR TEMPERATURE, FROSTED GLASS DIFFUSER, 600LUMENS, 15 WATTS,	SUMMEL		-		CONTROL PANEL BY MECHANICAL TRADES		
	GOTHAM CATALOG NUMBER: OLV-TCM (CEILING MOUNT). OLV-TWM (WALL MOUNT)			-		CONTROL PANEL BY MECHANICAL TRADES WITH INTEGRAL DISCONNECT SWITCH		
				-		DISTRIBUTION PANEL		
"LF"	WALL MOUNTED LED LIGHTING FIXTURE WITH TWO ENGINES, 700MA DRIVE CURRENT, 4000K,	SUDEACE WALL	71 WATTS	-		LIGHTING / RECEPTACLE / EQUIPMENT PANEL (TYPICAL FOR 12, 30, 42, 60 AND 84 SLOT)		
	TYPE 4 MEDIUM DISTRIBUTION, 7000 LUMENS, 30 LED'S	MOUNTED		-	6	SINGLE PHASE MOTOR		
				-	 	THREE PHASE MOTOR		
	LITHONIA DSXW2-LED-30C-700-40K-T4M-MVOLT-DDBXD			-		MAGNETIC STARTER		
"LG"	SAME AS "LF" EXCEPT ONE ENGINE (20 LED'S), AND 5000 LUMENS	SURFACE WALL	47 WATTS	-		TRANSFORMER		
20		MOUNTED		-	 P	PULLBOX		
				-		DUPLEX RECEPTACLE (48" A F F. OR AS NOTED)		
				ŀ	••••••••••••••••••••••••••••••••••••••	CROUND ROD		
"OI A"	OUTDOOR WALL MOUNTED LED LIGHTING FIXTURE ONE ENGINE (10 LED'S) 5000K COLOR	CUDEACE	26 WATTS	ŀ	 @/_@	OCCUPANCY SENSOR - CEILING / WALL MOUNTED (TYPE AS NOTED)		
0LA	TEMPERATURE, TYPE T4M DISTRIBUTION, MVOLT, PHOTOELECTRIC CELL, DARK BRONZE, 2,500	SURFACE	wo millio	ŀ		EXISTING TO BE DEMOLISHED		
	LITHONIA CATALOC NUMBER: DSY-W1.1ED.10C.700MA.50K.TAM.MVOLT.PE.DDRYD			-				
				-				
<i>"\\</i> "	EXIT SIGN WITH 6" HIGH RED LETTERS, BRUSHED ALUMINUM STENCIL FACE, DIE-CAST		1 WATT	-	AFF	ABOVE FINISHED ELOOR		
X	HOUSING, L.E.D. LAMPS, SEALED MAINTENANCE-FREE NICKEL CADMIUM BATTERY, (SINGLE OR DOUBLE FACE WITH DIRECTIONAL ARROWS AND MOUNTING AS INDICATED ON	UNIVERSAL	1 WATT	-	(F)	FXISTING INSTALLATION TO REMAIN		
	DRAWING). 1WATT			-	FM	FMFRGFNCY		
	LITHONIA CAT. # LQM-S-W-R-120/277-ELN-SD			-	CFI	CROUND FAULT INTERRUPTER		
"FBII"	EMERGENCY BATTERY LIGHTING UNIT WITH WHITE THERMOPLASTIC HOUSING. TWO (2) 3.3W	UNIVERSAL	(2) 3 3 WATTS	-	UNO	UNLESS NOTED OTHERWISE		
	HIGH PERFORMANCE LED LAMPS, 640 LUMENS, MULTI VOLTAGE, 9.6 VOLT LITHIUM ION PHOSPHATE MAINTENANCE-FREE BATTERY, SELF-DIAGNOSTIC SYSTEM AND FULLY AUTOMATIC SOLID STATE CHARGER, IMPACT RESISTANT, CORROSION PROOF, BACK LIT TEST SWITCH, LED STATUS INDICATOR, UNIVERSAL J-BOX MOUNTING PATTERN. THE LAMP HEADS HAVE A UNIQUE TRACK AND SWIVEL ARRANGEMENT PERMITTING FULL RANGE OF DIRECTION OF OPTICAL AIMING. LITHONIA CAT. # ELM4L-UVOLT-LTP	MOUNTING	(<i>L</i>) 5.5 WATTS	l				
"EBUX"	COMBINATION EXIT SIGN AND EMERGENCY BATTERY UNIT WITH 6" HIGH RED LETTERS, BRUSHED ALUMINUM STENCIL FACE, DIE-CAST HOUSING, L.E.D. LAMPS, SEALED MAINTENANCE-FREE NICKEL CADMIUM BATTERY, (SINGLE OR DOUBLE FACE WITH DIRECTIONAL ARROWS, AND MOUNTING AS INDICATED ON DRAWING). 1W LITHONIA CAT. # LHQM-LED-R-HO-N-SD	UNIVERSAL	1 WATT					
"EBUX1"	REMOTE EMERGENCY LIGHTING UNIT WITH BRONZE POLYCARBONATE HOUSING, ONE (1) 1.5W LINEAR PATTERN LED LAMPS, 9.6 VOLT, SELF-DIAGNOSTIC SYSTEM, WEATHER PROOF, CAST ALUMINUM. SUITABLE WITH USE WITH TYPE "EBUX" (SEE ABOVE), 1.5W LITHONIA CAT. # ELA-QWP-L0309-SD	UNIVERSAL	1.5 WATTS					
			1					

ELECTRICAL SHEET INDEX
DESCRIPTION
ELECTRICAL GENERAL INFORMATION
LOWER LEVEL 3 (PUMP ROOMS) - LIGHTING
LOWER LEVEL 1 (MEZZANINE) - LIGHTING
GROUND FLOOR PLAN - LIGHTING
LOWER LEVEL 1 (MEZZANINE) - POWER
GROUND FLOOR PLAN - POWER
ONE-LINE DIAGRAMS
SCHEDULES
LOWER LEVEL 3 (PUMP ROOMS) - LIGHTING DEMOLITION
LOWER LEVEL 1 (MEZZANINE) - LIGHTING DEMOLITION
GROUND FLOOR PLAN - LIGHTING DEMOLITION
GROUND FLOOR PLAN - POWER DEMOLITION

	ELECTRICAL SHEET INDEX
SHEET	DESCRIPTION
E0.1	ELECTRICAL GENERAL INFORMATION
EL1.0	LOWER LEVEL 3 (PUMP ROOMS) - LIGHTING
EL1.1	LOWER LEVEL 1 (MEZZANINE) - LIGHTING
EL1.2	GROUND FLOOR PLAN - LIGHTING
EP1.1	LOWER LEVEL 1 (MEZZANINE) - POWER
EP1.3	GROUND FLOOR PLAN - POWER
E6.1	ONE-LINE DIAGRAMS
E6.2	SCHEDULES
ELD1.0	LOWER LEVEL 3 (PUMP ROOMS) - LIGHTING DEMOLITION
ELD1.1	LOWER LEVEL 1 (MEZZANINE) - LIGHTING DEMOLITION
ELD1.2	GROUND FLOOR PLAN - LIGHTING DEMOLITION
ED1.3	GROUND FLOOR PLAN - POWER DEMOLITION

OVERVIEW OF ELECTRICAL SCOPE

THIS OVERVIEW OF SCOPE IS INCLUDED TO GIVE THE CONTRACTOR A GENERAL OVERVIEW OF THE PROJECT REQUIREMENTS. THE OVERVIEW IS NOT ALL INCLUSIVE AND IS NOT INTENDED TO, AND SHOULD NOT BE USED TO, ESTABLISH CONTRACT LIMITS OR PRICING INCLUSIONS. THE CONTRACT DOCUMENTS SHALL BE USED TO ESTABLISH CONSTRUCTION CONTRACT SCOPE.

THIS OVERVIEW OF SCOPE INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

- ELECTRICAL: 1. REMOVE AND DISPOSE OF EXISTING LIGHTING, EMERGENCY EGRESS/EXIT LIGHTING, POWER DISTRIBUTION EQUIPMENT, VFD'S, DATA/COMMUNICATION SYSTEMS/EQUIPMENT AS INDICATED. 2. PROVIDE LIGHTING, EMERGENCY EGRESS/EXIT LIGHTING AND SITE/BUILDING LIGHTING SYSTEMS. INCLUDING CONTROLS AND EXTENSION/CONNECTION TO EXISTING BUILDING SERVICES.
- 3. PROVIDE POWER DISTRIBUTION SYSTEMS, EQUIPMENT INCLUDING PRIMARY FEEDER, OUTDOOR PAD MOUNTED TRANSFORMER, ALLEN BRADLEY VFD'S, VFD CABLING, STARTERS, DISCONNECTS, RECEPTACLES AS INDICATED.
- 4. PROVIDE DATA/COMMUNICATION SYSTEM RACEWAYS AS INDICATED. 5. PROVIDE GROUNDING SYSTEM AS INDICATED / REQUIRED.
- 6. PROVIDE A SHORT CIRCUIT ANALYSIS, PROTECTIVE DEVICE COORDINATION STUDY AND ARC FLASH HAZARD CALCULATIONS AND LABELING.

PROJECT REQUIREMENTS

PROVIDE ALL NECESSARY PERMITS. ALL WORK SHALL BE INSTALLED TO COMPLY WITH THE OWNER'S STANDARDS, STATE AND LOCAL CODES INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING CODES AND THEIR RELATED REFERENCES.

2017 NATIONAL ELECTRICAL CODE AS AMENDED BY THE MICHIGAN CONSTRUCTION CODE

- PART 8, ELECTRICAL CODE RULES. NFPA 101 LIFE SAFETY CODE 2012 (AS REFERENCED)
- 2015 MICHIGAN ENERGY CODE
- 2015 INTERNATIONAL FIRE CODE (AS REFERENCED)
- 2015 MICHIGAN BUILDING CODE
- 2015 MICHIGAN MECHANICAL CODE
- 2015 MICHIGAN PLUMBING CODE
- 2015 INTERNATIONAL FUEL GAS CODE
- 2013 NFPA 110 AND NFPA 111

MANUFACTURER AND MODEL NUMBER LISTED REPRESENTS THE BASIS OF DESIGN FOR THIS PROJECT. THE ELECTRICAL CONTRACTOR SHALL BEAR ALL ADDITIONAL COST ASSOCIATED WITH USING EQUIPMENT BY OTHER APPROVED MANUFACTURERS INCLUDING ADDITIONAL COSTS BY OTHER TRADES.

ALL EQUIPMENT INSTALLED SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE FIELD OR PROJECT CONDITIONS DO NOT ALLOW ALL MANUFACTURER'S RECOMMENDATIONS TO BE MET, THE INSTALLING CONTRACTOR SHALL SUBMIT IN WRITING TO THE ENGINEER THE PROPOSED DEVIATION, IN A SKETCH FORM, ACCOMPANIED BY THE MANUFACTURER'S CONCURRENCE.

gel Design Inc. itecture uthfield, Michigan 48076-3046	IMBER					_			SAL
© 2020 DiClemente Siegel Design Inc	Elint								
	Michidar	Michigan CITY OF FLINT DORT PUMP STATION RENOVATIONS			ELECTRICAL GENERAL INFORMATION				
	DIRAWN: ACC CHK'D: SM		DESIGNED: SMU	APPRV'D: SM	DATE: 08/07/20	PROJECT NUMBER		1949-0188-00	
) NOT ALLOW ALL MANUFACTURER'S SHALL SUBMIT IN WRITING TO THE MPANIED BY THE MANUFACTURER'S	NO. REVISION	OWNER REVIEW	PROGRESS REVIEW	FINAL OWNER REVIEW	BIDS				
THE BASIS OF DESIGN FOR THIS DDITIONAL COST ASSOCIATED WITH JDING ADDITIONAL COSTS BY OTHER E WITH THE MANUFACTURER'S	DATE	05/13/20	07/21/20	07/24/20	08/07/20				
ED TO COMPLY WITH THE OWNER'S TED TO, THE FOLLOWING CODES IGAN CONSTRUCTION CODE									
IT INCLUDING PRIMARY FEEDER, EY VFD'S, VFD CABLING, STARTERS, DICATED. CE COORDINATION STUDY AND ARC							ARC	SUR	
ICING INCLUSIONS. THE CONTRACT TRACT SCOPE. FOLLOWING: CY EGRESS/EXIT LIGHTING, POWER SYSTEMS/EQUIPMENT AS INDICATED. NG AND SITE/BUILDING LIGHTING UNECTION TO EXISTING BUILDING							HITECTURE . ENGI	VEYING . CONST	Select DLZ (
FOR A GENERAL OVERVIEW OF THE /E AND IS NOT INTENDED TO, AND							NEERING • PL	RUCTION SE	ompany

C E S C

))))	DiClemente Siegel Design Inc. Engineering and Architecture 28105 Greenfield Road, Southfield, Michigan 48076-3046 248.569.1430 Fax 248.569.0096 www.dsdonline.com
These documents are instru	ments of service for use solely with respect to this project. DSD
the authors and owners of th	eir respective instruments of service and shall retain all common

ervice and shall retain all common law, statutory and other reserved right including copyrights. DSD grants to the owner a nonexclusive license to reproduce DSD's instruments of service solely for the purposes of constructing, using and maintaining this project. These documents are traditional plan and specification documents that are not intended to be used by the contractor as shop drawings.

00

88

1949-018

DIAGRAMS

Final dimensions, equipment access, routing, miscellaneous fittings, final installation and coordination is the contractor's responsibility

PA	NELBOAR	D DESIGNATION PP-B		LOCATION	MOTOR ROOM
	225 A	MP BUS <u>200A</u> M.C.B.		_ M.L.O.	MOUNTING: FL
CKT	UA			1 19	LOAD TV
NO.	VA		20A	$\begin{array}{c c} 1 & L^2 & 20A \\ \hline & & \hline & \end{array}$	
1	•	LIGHTS - SO ₂ TANK ROOM	20A	20A	CHLORINE STORAG
3	•	LIGHTS - $SO_2^{\tilde{2}}$ CONTROL ROOM	20A	20A	SO ₂ STORAGE EME
5	•	SE PUMP ROOM	20A	20A	NE PUMP ROOM
7	•	SW PUMP ROOM	20A	20A	GAGE BOARD
9	•	LOW LIFT BASEMENT - WEST END	201	201	– SPARE
11		EAST ENTRY & CHLORINE RM			EAST BALCONY
13		SUBSTATION & SWITCHBOARD			SPARE
15		CL ₂ SSOV SYSTEM			SWITCH ROOM PLU
17		SPARE	20A	15A	BASEMENTS STRO
19	-	SPARE	20A	20A	LOW LIFT BASEME
91	•	COACH LIGHTS & WEST	20A	20A	
۵۱ ۵۵	•	HEATER FAN HIGH LIFT BASEMENT, FRONT	20A	20A	
23	•	ENT., TRANS, LOCKER RM SWITCHGFAR LIGHTING &	20A	20A	NW SWIICH ROOM
25	•	EMERG. LIGHT	20A	60A	- SPARE
27	•	WEST BALCONY	20A	├─† _Ţ	- POWER PANEL PP-
29		RESERVE PLUGS	60A	204	
31			- T -	201	- SPARE
33		BOILER ROOM SUBPANEL			CHLORINE ROOM I
35			- 50A		CHLORINE ROOM H
37		UNKNOWN	╞╲┻	20A	CHLORINE ALRM &
39			20A	20A	DAMPERS
41	·	WATER HEATER		20A	- FXIT & FMFRGENC
	UTNC		0/		
RE	CEPTACL	<u> </u>	_ % = % =	= = 1000	·VA 0 VA (FIRST 10.000 V
RE	CEPTACL	E VA AT 50	_ % =		. VA
MI	SC.	<u> </u>	_ % =	=	. VA
TO	TAL	VA TOTAL DEM	AND =	=	· VA240

IANE	LDUAR	CD DESIGNATION <u>PP-D</u>			LOC	ATION_	SWITCHGEAR ROOM		
<u>15</u>	50 /	AMP BUS	M.C.B.	<u> 150</u>	<u>A</u> M.L	0.	MOUNTING: FLUSH	SURFACE _	<u>X</u>
SPEC	CIAL RE	QUIREMENTS							
NO.	VA	LOAD TYPE		15A	A B	C 15A	LOAD TYPE	VA	No No
1	•				•	\vdash			. 2
3		SO ₂ EF-2		-^	┼┿	<u>+</u> -↑-	CHLOR-A-VAC PUMP		4
5							-		6
7				- T -	┥┼		-		8
9		SO ₂ EVAPORATOR		-/	┼┿	╞╌╋╴	- CHLORINE HOIST FEED		1(
11							-		12
13		SPACE			♦ -	-T	-		14
15		SPACE			┼┿	–∱-	SPARE		16
17		SPACE				┥ _^-	-		18
19		SPACE			┥┼		- SPACE		20
21		SPACE			┼┿		- SPACE		22
23		SPACE				┥── -	SPACE		24
25		SPACE			┥┼		SPACE		26
27		SPACE			-		SPACE		28
29		SPACE				↓ -	SPACE		30
LIGHT RECE RECE MISC	TING EPTACI EPTACI	VA AT E VA AT E VA AT VA AT	100 100 50	. % . % . %	= = =	10000	VA) VA (FIRST 10,000 VA AT 100%) VA VA		

PA	NELBOAI	RD DESIGNATION PP-E		LOCA	TION	SWITCHG	EAR ROOM
	125	AMP BUS M.C.B.	T25A	(M.L.C	Э.	MOU	INTING: FLU
SP	ECIAL RE	QUIREMENTS					
CKT NO.	VA	LOAD TYPE	154 I	1 L	² 204		LOAD TYP
1		MAIN CONTROL PANEL		┝──┤		UNIT HE	ATER & VAI K ROOM
3		LIGHTS - SO ₂ TANK ROOM LIGHTS - SO ₂ CONTROL ROOM				SO ₂ PRC	CESS CON
5		PUMP #9 HEATER		┝─┤		UNIT HE	ATER MTROL ROO
7		SAMPLE PUMP AT MIXING			20A	SO ₂ SUL	FONATORS
9		MIXING CHAMBER CONTROL	20A		20A	SO ₂ DET	ECTORS
11	•	FLOWMETER	20A		20A	DIMP #0	-8 HEATER
11	•		20A		20A	5-20R Q	UAD RECEP
15	•	DECEDT DELOW DANEL	20A		20A	(HYPOC) 5-20R Q	HLORITE SY UAD RECEP
15	•	RECEPT BELOW PANEL	30A		_	(HYPOČ	HLORITE SY
17	•	SOUTH GUARD SHACK				SPACE	
19	•				- –	SPACE	
21	•		-T-	┥──┤		SPACE	
23		DATTERT CHARGER	┝┻ᅳ		┝ -	SPACE	
25		SPACE	┝ ⊸	┝─┤		SPACE	
27		SPACE	┞ —	_┥	- –	SPACE	
29		SPACE	⊨ _•		L	SPACE	
LIG	HTING	VA AT100	_% =			VA	
RE	CEPTACI	.E <u>.</u> VA AT <u>100</u>	_ % =	=	10000	VA (FIR	ST 10,000 V
RE	CEPTACI	<u>.E .</u> VA AT <u>50</u>	_ % =	=		VA	
MIS	SC.	VA AT	_ % =	=	<u> </u>	_ VA	
TO	TAL	VA TOTAL DEM	AND =	=		VA	240

ALL CIRCUIT BREAKERS ARE 20A-1P, UNLESS NOTED OTHERWISE.

											NNING
DULE											S • PLA
1 NG: FLUSH SUR	RFACE X	-									JCTIO Inpany
	VA	- <u> </u>									Z Con
OM	• VA	2									ONS Sct DL
TORAGE RM LIGHTS E EMERG LIGHT		4									Sele
DOM		6							ATTA		NG CTU
D		8									
NY	•	12									UR
		14									A N
OM PLUGS		16									
STROBES		18									
SEMENT, EAST END		20 22									
ROOM PLUGS	•	24									
		26									2
EL PP-E		28							,(S-x	10^{17}
		30							A X	$\mathcal{N}^{\mathcal{O}}$	•
OOM EXHAUST FAN	•	34						·	N'S'	7	
COOM HEATER		36						c	07-		
LRM & PANEL ALRM		38									
		40									
RGENCY LIGHTS		42									
0,000 VA AT 100%)											
V =	<u> </u>	A						ATE 21/20	24/20		
DULE ROOM NG: FLUSH SUR AD TYPE R & VALVE HEATERS DOM SS CONTROL PANEL R	PFACE X VA							DRAWN: JCO CHK'D: Checker NO. F	APPRVD: Approver FI Approver DATE: Issue Date	PROJECT NUMBER	1949-0188-00
ATORS	•	6 8						gan			
ORS		10						Michi			
EATER RECEPTACIE		12							ŝ		
RITE SYSTEM) RECEPTACLE	•	14							N(
KILE SYSTEM)	•	18							ТЮ		
		20							٨٨		
		22							9		
	•	24 26							X EV		
	•	28									
		30									
0,000 VA AT 100%)	1								TAT		S
240 v								[ר כ ס		IULI
									ORT PUM		SCHED
									Ď		
								Flint			
				DiClemente Engineering and 28105 Greenfield Roa 248.569.1430 Fax	Siegel Design Inc Architecture Id, Southfield, Michigan 4807 248.569.0096	© 2020 DiCle 	mente Siegel Design Inc. No.	NUMBER	C	Ņ	CAL
			These documents or	www.dsdonline.com	solely with respect to this project	19-1304-E6.2	2.dwg	ING	(0	TRIC
			These documents ar the authors and owne including copy These documents are t Final dimensions, eau	and unions of service for USE rs of their respective instrument ights. DSD grants to the owner aditional plan and specification pment access, routing, miscella	a nonexclusive license to repro- purposes o documents that are <u>not</u> intende neous fittings, final installation a	common law, statutory a poduce DSD's instrument f constructing, using and d to be used by the con and coordination is the c	and other reserved rights, is of service solely for the d maintaining this project. tractor as shop drawings. contractor's responsibility.	DRAW	L	L	ELEC

0 2 4 8

16

SCALE: 3/16" = 1'-0" 0 2 4 8 16

Project No.

19-1304

ACADFile

19-1304-ED1.3.dwg

purposes of constructing, using and maintaining this project.

DiClemente Siegel Design Inc. Engineering and Architecture

248.569.1430 Fax 248.569.0096

www.dsdonline.com

28105 Greenfield Road, Southfield, Michigan 48076-3046

These documents are instruments of service for use solely with respect to this project. DSD and DSD's consultants shall be deemed

the authors and owners of their respective instruments of service and shall retain all common law, statutory and other reserved rights, including copyrights. DSD grants to the owner a nonexclusive license to reproduce DSD's instruments of service solely for the

These documents are traditional plan and specification documents that are not intended to be used by the contractor as shop drawings. Final dimensions, equipment access, routing, miscellaneous fittings, final installation and coordination is the contractor's responsibility

9

.

GROUND FLOOR PLAN DEMOLITION

 \mathcal{C}

 \bigcirc

ш

SCALE: 3/16" = 1'-0"

0 2 4 8 16

Final dimensions, equipment access, routing, miscellaneous fittings, final installation and coordination is the contractor's responsibility.

ELEVATION NOT TO SCALE

SHEET NOTES:

 $\langle c \rangle$

1. UTILIZE CIRCUIT TRACE TO VERIFY ALL BRANCH CIRCUITS PRIOR TO DEMOLITION.

DEMOLITION KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

DISCONNECT, REMOVE, AND PROPERLY DISPOSE WALL MOUNTED LIGHTING FIXTURE.

SHEET NOTES:

1. UTILIZE CIRCUIT TRACE TO VERIFY ALL BRANCH CIRCUITS PRIOR TO DEMOLITION.

These documents are traditional plan and specification documents that are <u>not</u> intended to be used by the contractor as shop drawings. Final dimensions, equipment access, routing, miscellaneous fittings, final installation and coordination is the contractor's responsibility.

DEMOLITION KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

NOT TO SCALE

1. UTILIZE CIRCUIT TRACE TO VERIFY ALL BRANCH CIRCUITS PRIOR TO DEMOLITION.

DEMOLITION KEYED NOTES: (APPLICABLE THIS SHEET ONLY)

DISCONNECT, REMOVE, AND PROPERLY DISPOSE WALL MOUNTED LIGHTING FIXTURE.

including copyrights. DSD grants to the owner a nonexclusive license to reproduce DSD's instruments of service solely for the

These documents are traditional plan and specification documents that are not intended to be used by the contractor as shop drawings. Final dimensions, equipment access, routing, miscellaneous fittings, final installation and coordination is the contractor's responsibility.

purposes of constructing, using and maintaining this project.

Ш

0 2 4 8

16
