

SAINT PAUL REGIONAL WATER SERVICES WEST ST. PAUL PUMP STATION GENERATOR AND ELECTRICAL IMPROVEMENTS

WEST ST. PAUL, MN

ELECTRICAL DRAWINGS

SYMBOL	WIRING SYSTEMS
	#10 INDICATES WIRE SIZE. IF NOT NOTED #12 AWG CONDUCTORS SHALL BE USED
	HOME RUN
	L101 PANEL NUMBER 3.5 CIRCUIT NUMBER
	NOTE: ANY CIRCUITS WITHOUT FURTHER DESIGNATION IS A TWO WIRE CIRCUIT. A GREATER NUMBER OF WIRES ARE INDICATED BY CROSS MARKS
	LP-1/3 PANELBOARD/CIRCUIT NUMBER
	HT712 FIXTURE TYPE A SWITCH DESIGNATION B CIRCUIT NUMBER C PANEL NAME D
	GROUNDING CONDUCTOR
	HOT CONDUCTOR
	NEUTRAL CONDUCTOR
	CONDUIT CAPPED OR BUSHED
	CONDUIT CONTINUATION
	BRANCH CIRCUIT (UNDER FLOOR OR UNDER GROUND)
	GROUND

SYMBOL	EQUIPMENT SYSTEMS
	TERMINAL CABINETS
	ANNUNCIATORS
	FIRE ALARM CONTROL PANEL
	FIRE ALARM ANNUNCIATOR
	BRANCH CIRCUIT PANELS (250V OR LESS)
	BRANCH CIRCUIT PANELS (277/480V)
	DISTRIBUTION PANEL OR SWITCHBOARD
	SWITCHBOARD MAIN
	DRY TYPE TRANSFORMER - SIZE AS NOTED ON DRAWING
	DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
	DISCONNECT SWITCH & MAGNETIC MOTOR STARTER IN SAME LOCATION
	MANUAL MOTOR STARTING SWITCH (W/OVERLOADS)
	MOTOR RATED SWITCH
	MANUAL MOTOR CONTROL SWITCH
	CONTROL TRANSFORMER
	RELAY
	CONTRACTOR
	THERMOSTAT
	AUXILIARY EQUIPMENT (AS NOTED)
	JUNCTION BOX
	MANHOLE
	HAND HOLE
	GROUNDING SYSTEM BUS BAR

SYMBOL	MISC. DEVICES
	CABLE TRAY - SIZE AS NOTED
	WIREMOLD
	PLUG STRIP - OUTLET SPACING AS SHOWN OR SPECIFIED
	INDICATES NOTE ON PLAN
	EQUIPMENT OR APPLIANCE (NO. REFERS TO SCHEDULE)
	FEEDER NUMBER
	MECHANICAL EQUIPMENT CROSS REFERENCE (NO. REFERS TO SCHEDULE).

GENERAL NOTES	
<ol style="list-style-type: none"> BRANCH CIRCUIT DESIGNATIONS AS INDICATED ON THESE DRAWINGS ARE FOR CLARIFICATION ONLY AND DO NOT REPRESENT EXACT CIRCUIT DESIGNATIONS IN THE PANELS SERVING THE AREAS. EXACT LOCATIONS AND/OR DESIGNATIONS SHALL BE ADJUSTED AS REQUIRED TO PROVIDE BALANCED LOADING OF ALL THE PHASES IN THE PANEL. WHERE AN ELECTRICAL OR COMMUNICATION SYSTEM IS CALLED OUT TO BE INTERCONNECTED WITH AN EXISTING SYSTEM THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE POINT OF THE INTERCONNECTION AS WELL AS THE MEANS OF INTERCONNECTION WITH THE EXISTING SYSTEM. INSTALLATION OF ALL FIXTURES SHALL COMPLY WITH ALL INTERNATIONAL BUILDING CODE REQUIREMENTS. INTERRUPTING RATINGS NOTED IN SCHEDULES SHALL APPLY TO THE ENTIRE PANELBOARD AND/OR SWITCHBOARD. ALL EQUIPMENT SHALL BE FULLY RATED FOR SHORT CIRCUIT CURRENT NOTED. LABEL ALL TERMINAL CABINETS TO INDICATE THEIR FUNCTION. ALL ELECTRICAL BOXES THAT ARE ABANDONED DURING THE COURSE OF THE PROJECT SHALL HAVE A BLANK COVERPLATE. ADJUST MOUNTING HEIGHTS OF ELECTRICAL DEVICES IF REQUIRED SO AS NOT TO INTERFERE WITH RADIATION. WHEREVER THE INSTALLATION OF ELECTRICAL EQUIPMENT CONFLICTS WITH EXISTING CONDITIONS NOT SHOWN ON THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL DETERMINE A SATISFACTORY ALTERNATIVE MEANS FOR INSTALLATION AND VERIFY IT WITH THE ENGINEER PRIOR TO INSTALLATION. DEVICE LOCATIONS SHOWN ON THESE PLANS AND NOTED EXISTING HAVE BEEN DERIVED FROM EXISTING PLANS AND MAY NOT BE INSTALLED AS SHOWN. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ROUTING PATHS. WHERE ELECTRICAL DEVICES ARE LOCATED ADJACENT TO LIGHT SWITCHES, MOUNT ALL DEVICES AT THE SAME ELEVATION. OR LINE OF PLUMB. PROVIDE ALL ELECTRICAL DEMOLITION WORK AS REQUIRED TO FACILITATE THE NEW WORK. DEMOLITION DRAWINGS INDICATE DESIGN INTENT AND MAY NOT BE INCLUSIVE OF ALL MISCELLANEOUS AND INCIDENTAL ITEMS. NO ALLOWANCE 	<p>WILL BE MADE FOR THE CONTRACTORS FAILURE TO FAMILIARIZE THEMSELV WITH THE EXISTING BUILDING CONDITIONS AND THE AMOUNT OF EFFORT TO COMPLETE THE NEW ELECTRICAL WORK AS SHOWN ON THE DRAWINGS.</p> <ol style="list-style-type: none"> PROVIDE ALL ELECTRICAL DEMOLITION WORK IN AREAS WHERE NOTED. PROVIDE DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT, LIGHT FIXTURES, DEVICES, PANELBOARDS, CONDUIT AND CABLE IN THESE AREAS. TURN OVER EQUIPMENT TO OWNER THAT WHICH THEY DESIRE TO RETAIN. ALL OTHER EQUIPMENT SHALL BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF LAMPS AND BALLASTS AND MUST COMPLY WITH ALL STATE AND FEDERAL REGULATIONS GOVERNING THEIR DISPOSAL. INFORMATION ABOUT PROPER LAMP AND BALLAST DISPOSAL IS AVAILABLE FROM THE "MINNESOTA POLLUTION CONTROL AGENCY" AT 1-800-657-3724. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURERS APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.

INDEX TO ELECTRICAL SHEETS	
E1.0	ELECTRICAL TITLE SHEET
E1.1	SITE PLAN
E1.2	EXISTING PARTIAL LAYOUT PLAN
E1.3	NEW PARTIAL LAYOUT PLAN
E2.1	PARTIAL ONE LINE DIAGRAM - NOT ISSUED
E2.2	NEW ONE LINE DIAGRAM - NOT ISSUED
E3.1	ELECTRICAL SCHEDULE AND DETAILS - NOT ISSUED

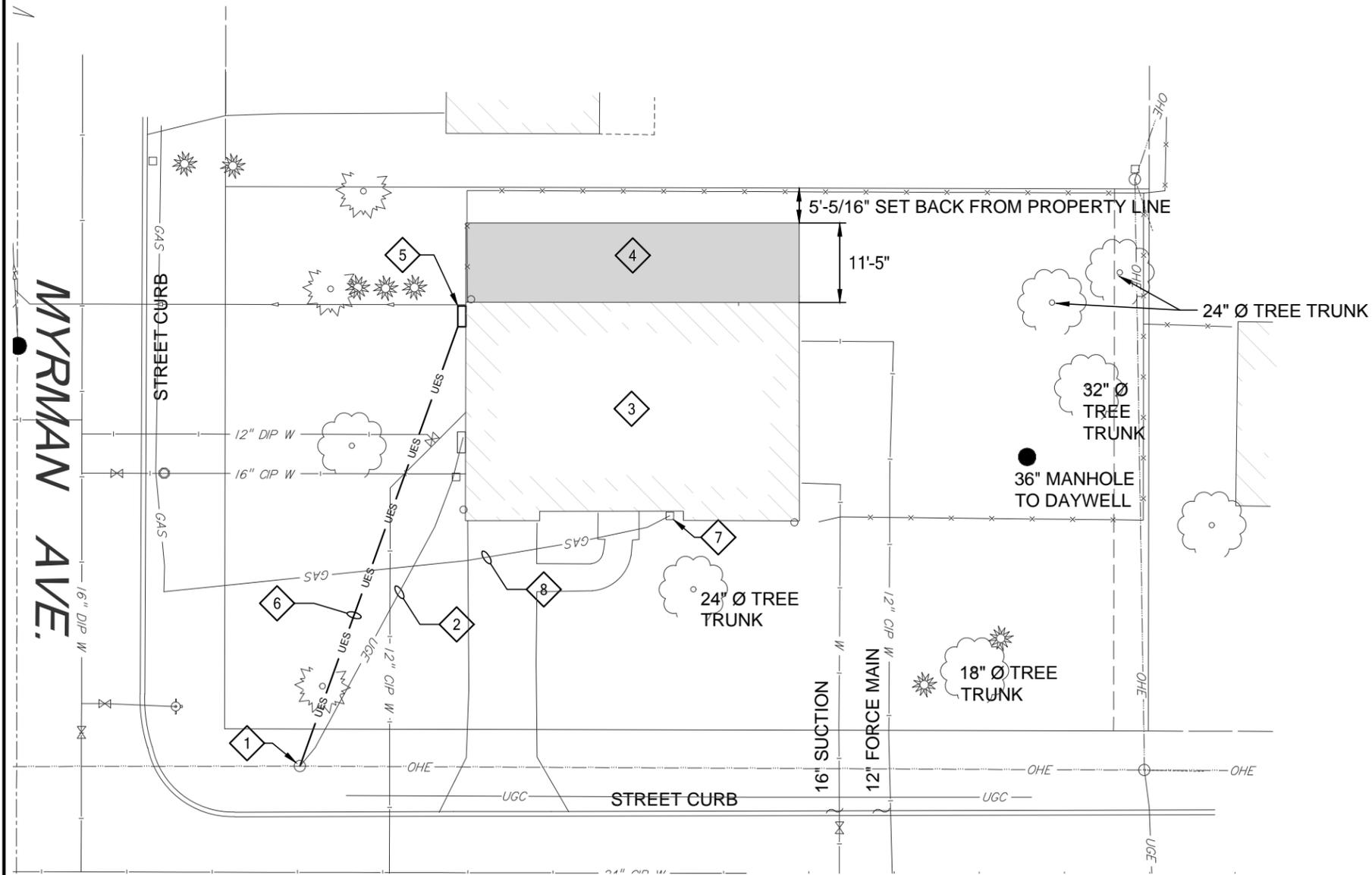
LINETYPE LEGEND	
	NEW FIXTURE
	EXISTING FIXTURE TO BE REMOVED
	EXISTING FIXTURE TO REMAIN OR BE REUSED
	NEW DEVICE
	EXISTING DEVICE TO BE REMOVED
	EXISTING DEVICE TO REMAIN OR BE REUSED
	NEW DEVICE
	EXISTING DEVICE TO BE REMOVED
	EXISTING DEVICE TO REMAIN OR BE REUSED

Project Number:
16-005
Date:
04/21/2016
Drawing No.
E1.0

CUP SUBMITTAL
NOT FOR CONSTRUCTION
APRIL 21, 2016

Project:
Saint Paul Regional Water Services
Title:
Electrical Title Sheet
West St. Paul Pump Station Generator and Electrical Improvements
1365 Bidwell Street, West St. Paul, MN 55118

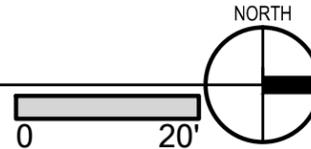
engineering design initiative
 1112 north 5th street.
 minneapolis, mn 55411
 (612) 343-8865 ph (612) 343-8882 fax
 www.edimilest.com



PLAN NOTES:

1. EXISTING UTILITY POLE MOUNTED TRANSFORMERS FOR 240 VOLT DELTA HIGH LEG ELECTRICAL SERVICE.
2. EXISTING UNDERGROUND ELECTRICAL SERVICE TO FACILITY. DISCONNECT AND REMOVE AFTER NEW SERVICE INSTALLED. COORDINATE WITH UTILITY.
3. EXISTING BUILDING.
4. NEW BUILDING ADDITION.
5. NEW WALL MOUNTED METER CABINET.
6. NEW UNDERGROUND ELECTRICAL SERVICE TO BE FURNISHED AND INSTALLED UP THE UTILITY POLE BY THE CONTRACTOR FROM THE NEW METER CABINET. ARRANGE WITH THE UTILITY FOR THE INSTALLATION OF A NEW 480/277 VOLT 3 PHASE 4 WIRE SERVICE TO THE FACILITY. UTILIZE TWO (2) 3-1/2" CONDUITS EACH WITH FOUR (4) 350 KEMIL CONDUCTORS PLUS ONE (1) 2/0 AWG GROUND.
7. EXISTING GAS METER.
8. APPROXIMATE ROUTE OF EXISTING GAS SERVICE LINE. CONTRACTOR SHALL ARRANGE WITH XCEL ENERGY TO UPGRADE SERVICE TO REQUIREMENTS NEEDED TO FEED THE NEW GENERATOR ALONG WITH OTHER BUILDING LOADS. SEE MECHANICAL FOR MORE DETAILS.

1 West St. Paul Pump Station - Site Plan
SCALE: 1" = 20'-0"

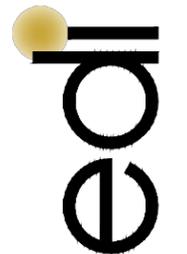


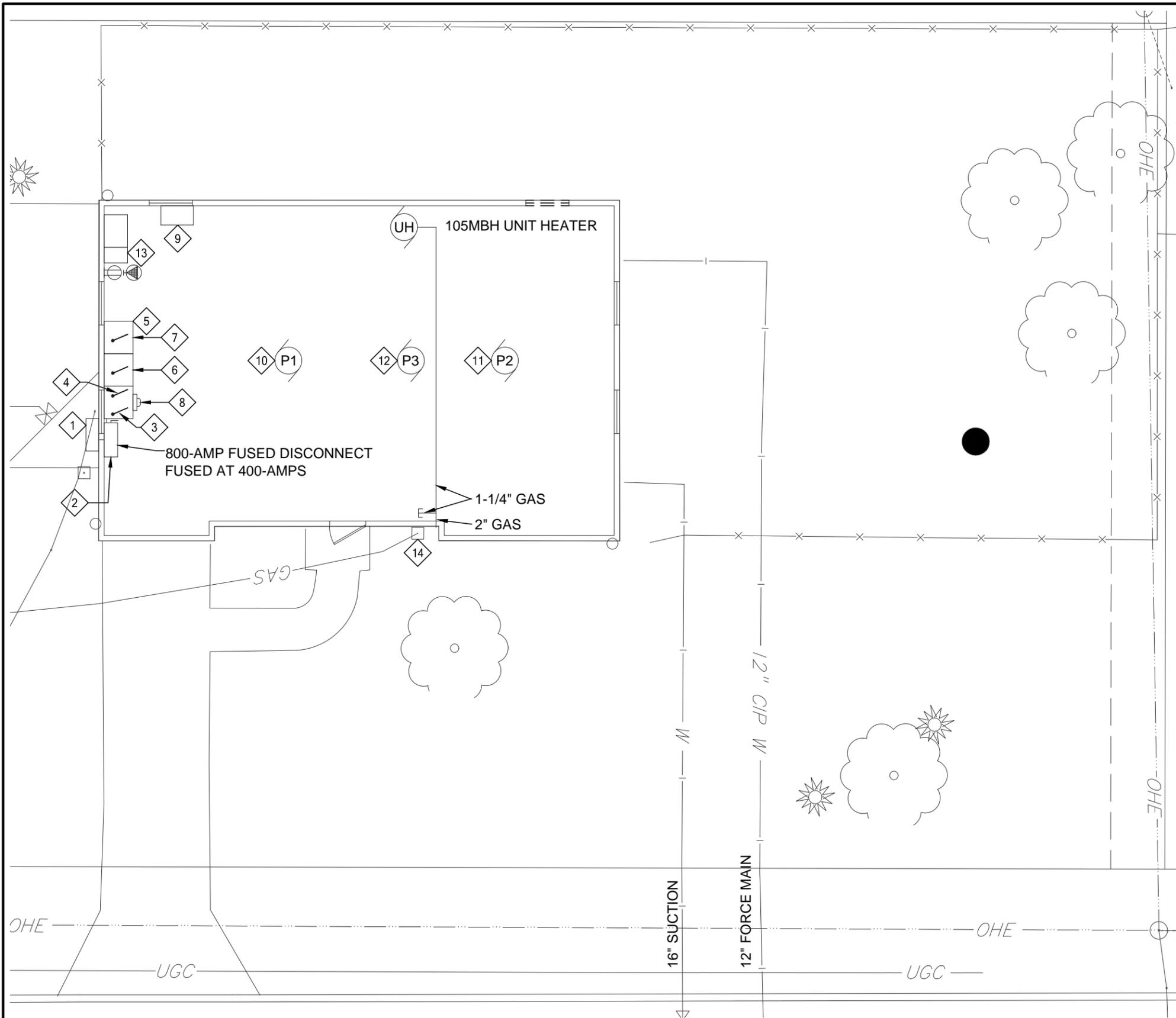
Project Number:
16-005
Date:
04/21/2016
Drawing No.
E1.1

CUP SUBMITTAL
NOT FOR CONSTRUCTION
APRIL 21, 2016

Project:
Saint Paul Regional Water Services
Title:
Site Plan
West St. Paul Pump Station Generator and Electrical Improvements
1365 Bidwell Street, West St. Paul, MN 55118

engineering design initiative
1112 north 5th street.
minneapolis, mn 55411
(612) 343-3655 ph (612) 343-5882 fax
www.edimilest.com





PLAN NOTES: #

1. EXISTING GENERATOR CONNECTION BOX.
2. EXISTING 800-AMP FUSED DISCONNECT SWITCH FOR GENERATOR CONNECTION.
3. EXISTING AUXILLARY POWER MANUAL SWITCH LOCATED IN FIRST SECTION OF SWITCHGEAR.
4. EXISTING 800-AMP, 240-VOLT, 3-PHASE MAIN UTILITY DISCONNECT SWITCH LOCATED IN FIRST SECTION OF SWITCHGEAR.
5. EXISTING WESTINGHOUSE THREE SECTION 800-AMP, 120/240-VOLT, 3-PHASE ELECTRICAL GEAR.
6. SECOND SECTION OF GEAR WITH CONTROLLER FOR PUMP #1.
7. THIRD SECTION OF GEAR WITH CONTROLLER FOR PUMP #2 AND PUMP #3.
8. EXISTING UTILITY METER
9. EXISTING RTU-30.
10. EXISTING 30 HP, 230-VOLT, 74-AMP, 1770 RPM, 3-PHASE, MOTOR FOR PUMP P1.
11. EXISTING 50 HP, 230-VOLT, 125-AMP, 1780 RPM, 3-PHASE, MOTOR FOR PUMP P2.
12. EXISTING 50 HP, 230-VOLT, 119-AMP, 3-PHASE, MOTOR FOR PUMP P3.
13. EXISTING PANEL BOARD.
14. EXISTING GAS METER.

1 West St. Paul Pump Station - Existing Partial Layout Plan
 SCALE: 1" = 10'-0"
 NORTH

Project Number: 16-005	Date: 04/21/2016	Drawing No. E1.2
CUP SUBMITTAL NOT FOR CONSTRUCTION APRIL 21, 2016		
Project: Saint Paul Regional Water Services		
Title: Existing Partial Layout Plan West St. Paul Pump Station Generator and Electrical Improvements		
1365 Bidwell Street, West St. Paul, MN 55118		

engineering design initiative
 1112 north 5th street.
 minneapolis, mn 55411
 (612) 343-3655 ph (612) 343-5882 fax
 www.edimined.com

PLAN NOTES:



1. FURNISH AND INSTALL NEW 600 AMP, 600V, 3 PHASE 4 WIRE WALL MOUNTED METER CABINET. COORDINATE WITH ELECTRICAL UTILITY FOR REQUIREMENTS.
2. FURNISH AND INSTALL NEW GENERATOR ON CONTRACTOR FURNISHED PAD. SEE DETAILS AND SPECIFICATIONS FOR FURTHER INFORMATION.
3. FURNISH AND INSTALL TWO (2) 3-1/2" CONDUITS UNDERGROUND FOR SERVICE FEED TO MSB FROM METERING CABINET. SEE SHEET E2.2 FOR WIRING DETAILS.
4. FURNISH AND INSTALL NEW MAIN SWITCH BOARD MSB WITH 600 AMP MAIN BREAKER. SEE SHEET E2.2 AND SPECIFICATIONS FOR MORE DETAILS. MAXIMUM HEIGHT OF UNIT TO BE 72"
5. FURNISH AND INSTALL AUTOMATIC TRANSFER SWITCH ATSI. SEE SHEET E2.2 AND SPECIFICATIONS FOR MORE DETAILS. MAXIMUM HEIGHT OF UNIT TO BE 72".
6. FURNISH AND INSTALL NEW MCC. SEE SHEET E2.2 AND SPECIFICATIONS FOR DETAILS. MAXIMUM HEIGHT OF UNIT SHALL BE 72".
7. FURNISH AND INSTALL NEW MANUAL TRANSFER UNIT MTSI. SEE SHEET E2.2 FOR MORE DETAILS.
8. FURNISH AND INSTALL NEW GENERATOR DOCKING STATION TO REPLACE EXISTING. SEE SHEET E2.2 FOR MORE DETAILS.
9. FURNISH AND INSTALL NEW WALL MOUNTED TRANSFORMER T1. SEE SHEET E2.2 AND SPECIFICATIONS FOR MORE DETAILS.
10. FURNISH AND INSTALL NEW 200 AMP PANEL BOARD. SEE SHEET E2.2 AND SPECIFICATIONS FOR MORE DETAILS.
11. RELOCATE EXISTING CONVENIENCE AND WELDING RECEPTACLE TO ADJACENT WALL. WIRE TO NEW PANEL L1.
12. DISCONNECT AND REMOVE EXISTING 240 VOLT SERVICE AND DISTRIBUTION SWITCH GEAR AFTER NEW SERVICE AND DISTRIBUTION SWITCH INSTALLED AND TESTED. COORDINATE WITH OWNER, UTILITY, AND ENGINEER TO KEEP DOWNTIME TO A MINIMUM OF SIX (6) HOURS.
13. REWIRE EXISTING PUMPS FOR OPERATION AT 480 VOLTS SEE SHEET E2.2 FOR FURTHER DETAILS.
14. NOT USED.
15. FURNISH AND INSTALL ONE (1) HANDHOLE FOR ROUTING OF CABLES FROM METERING CABINET TO MSB. UTILIZE QUAZITE #PG2436BA36 OR APPROVED EQUAL.

Project Number:
16-005

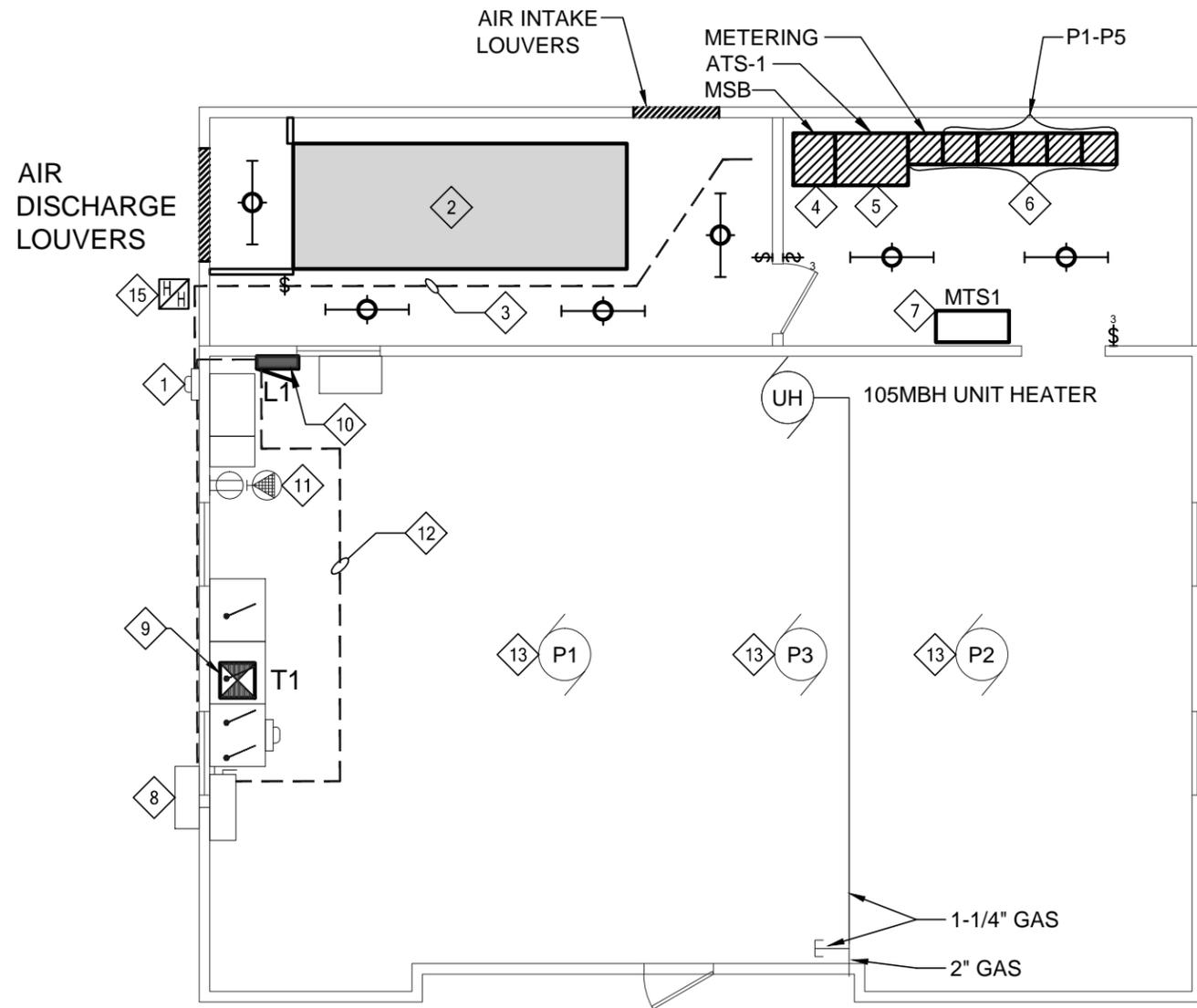
Date:
04/21/2016

Drawing No.
E1.3

CUP SUBMITTAL
NOT FOR CONSTRUCTION
APRIL 21, 2016

Project:
Saint Paul Regional Water Services
Title:
New Partial Layout Plan
West St. Paul Pump Station Generator and Electrical Improvements
1365 Bidwell Street, West St. Paul, MN 55118

engineering design initiative
1112 north 5th street.
minneapolis, mn 55411
(612) 343-3655 ph
(612) 343-5882 fax
www.edimilest.com



1

West St. Paul Pump Station - New Plan

SCALE: 1/8" = 1'-0"

