

# City of Owosso

## WTP Electrical Improvements

### Shiawassee County, Michigan

Issued for Bids and Construction      April 16, 2025

Project Number:    241875  
DWSRF Project:     7880-01



fishbeck.com      1515 Arboretum Drive  
800.456.3824      Grand Rapids, Michigan

GENERAL

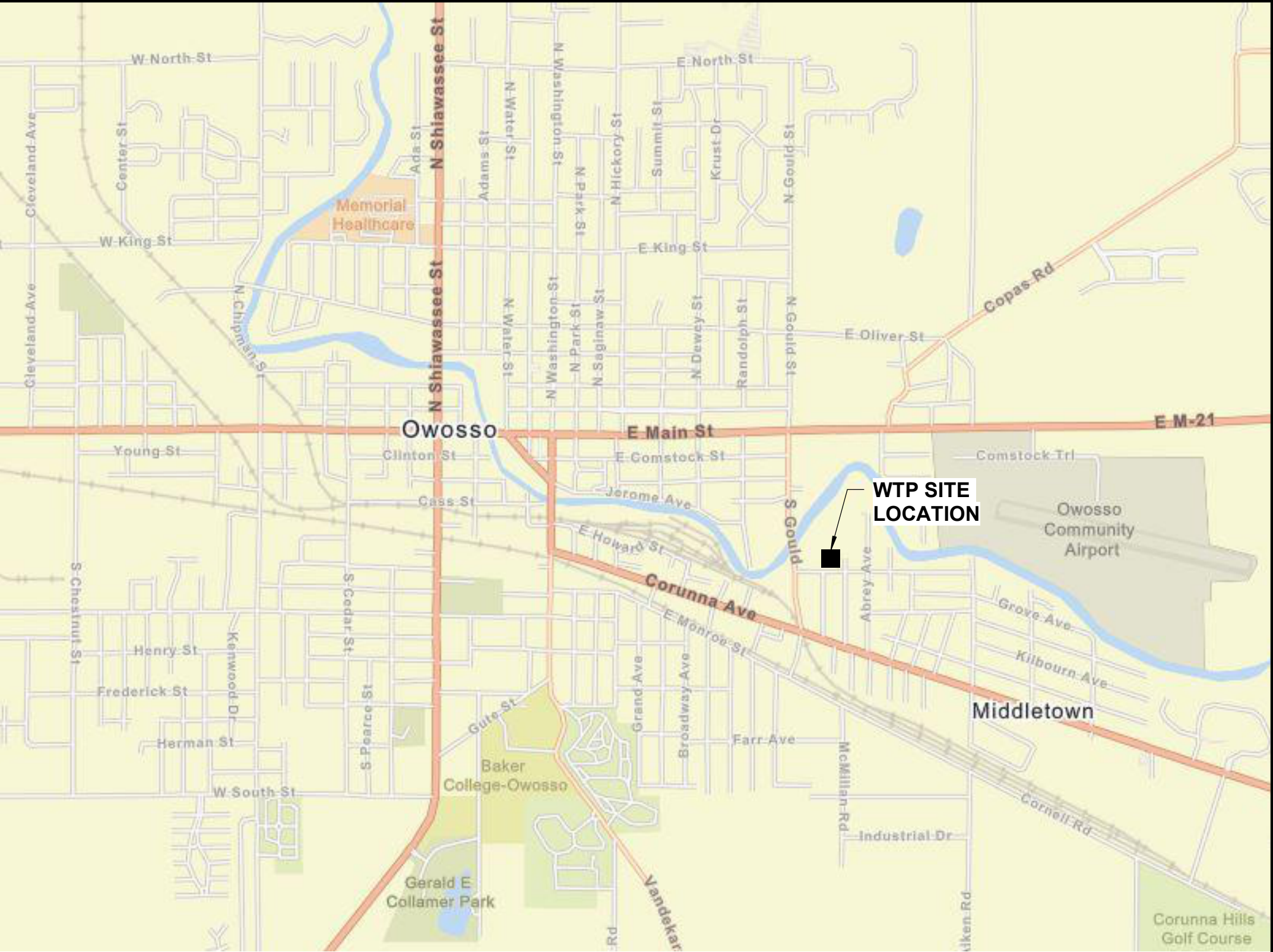
G101    COVER SHEET

CIVIL

C101    SITE PLANS

ELECTRICAL

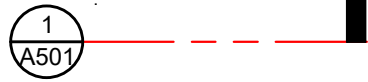
- E001    SECTIONS, DETAILS, AND GENERAL NOTES
- E002    SITE PLAN
- E003    PHOTOS
- E401    ONE LINE DIAGRAM, ELEVATIONS, AND ENCLOSURE PLAN
- E402    ONE LINE DIAGRAM
- E601    GROUNDING DETAILS



LOCATION MAP  
SCALE: NOT TO SCALE

GRAPHIC SYMBOLS

SECTION CUT LINE



ELEVATION, SECTION, AND  
DETAIL DESIGNATION

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

PLAN DESIGNATION

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

NORTH

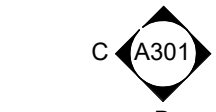
LEVEL CALLOUT

FIRST FLOOR  
100'-0"

EXTERIOR ELEVATION TAG



INTERIOR ELEVATION / PHOTO TAG



NORTH ARROW  
DESIGNATION



NORTH

ROOM NAME  
AND NUMBER

ROOM NAME

101

ENLARGED DETAIL FRAME



ELEVATION TARGET

SPOT ELEVATION

EXISTING GRID

NEW CONSTRUCTION  
GRID

REVISION CLOUD

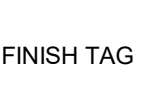
EL. 100'-0"

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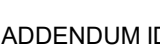
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SIGNAGE TAG



FINISH TAG



BULLETIN IDENTIFICATION



ADDENDUM IDENTIFICATION



SKETCH IDENTIFICATION



BARRIER FREE LOCATION



NEW CONSTRUCTION  
KEY NOTE



DEMOLITION  
KEY NOTE



BUILDING CODE INFORMATION

APPLICABLE CODES

ELECTRICAL CODE:

2023 NATIONAL ELECTRICAL CODE (NEC) (AS AMENDED - MICHIGAN  
AMENDMENTS PART 8 RULES)



City of Owosso  
Shiawassee County, Michigan

WTP Electrical Improvements

REVISIONS

4/16/2025    BIDS AND CONSTRUCTION

Drawn By    CMACE

Designer    JCONDIE

Reviewer    MSTACK

Manager    BVANZEE

Hard copy is intended to be  
24"x36" when plotted. Scale(s)  
indicated and graphic quality may  
not be accurate for any other size.

PROJECT NO.

241875

SHEET NO.

**G101**

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## SYMBOL LEGEND

	REMOVE GRAVEL PAVEMENT FULL DEPTH		GUARD RAIL
	1'x1 1/2" WASHED CRUSHED LIMESTONE		FENCE LINE
	BENCH MARK		GRAVEL SURFACE
	PROPERTY LINE		PAVED SURFACE
	ROW LINE		EXISTING CURB & GUTTER
	EASEMENT LINE		BARRIER FREE MARKING
	SOIL BORING		8" SAN
	SHRUBS		12" STM
	CONIFEROUS TREE		CATCH BASIN CURB AND LAWN TYPE
	DECIDUOUS TREE		VALVE
	TREE LINE		HYDRANT
	WETLAND		6" WTR
	EDGE OF WATER		PLUG
	CONTOUR MAJOR		4" FM
	CONTOUR MINOR		2" GAS
	LIGHT		ELEC
	UTILITY POLE		FIBER OPTICS
	SIGN		UNDERGROUND TELEPHONE
	MAIL BOX		2" OIL
			6" STEAM
			2" SPRK
			CABLE TELEVISION
			TELEPHONE PEDESTAL

## NOTES

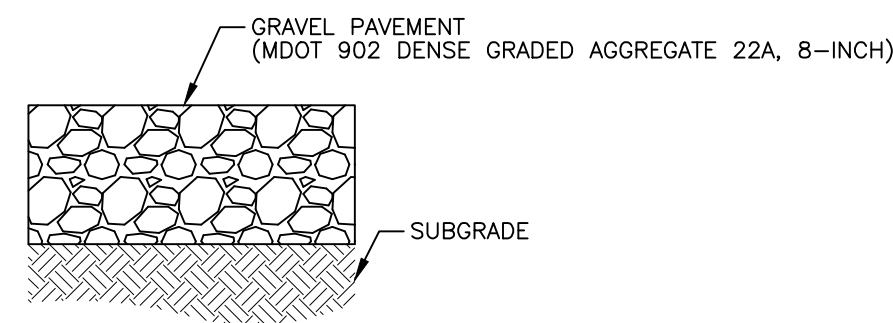
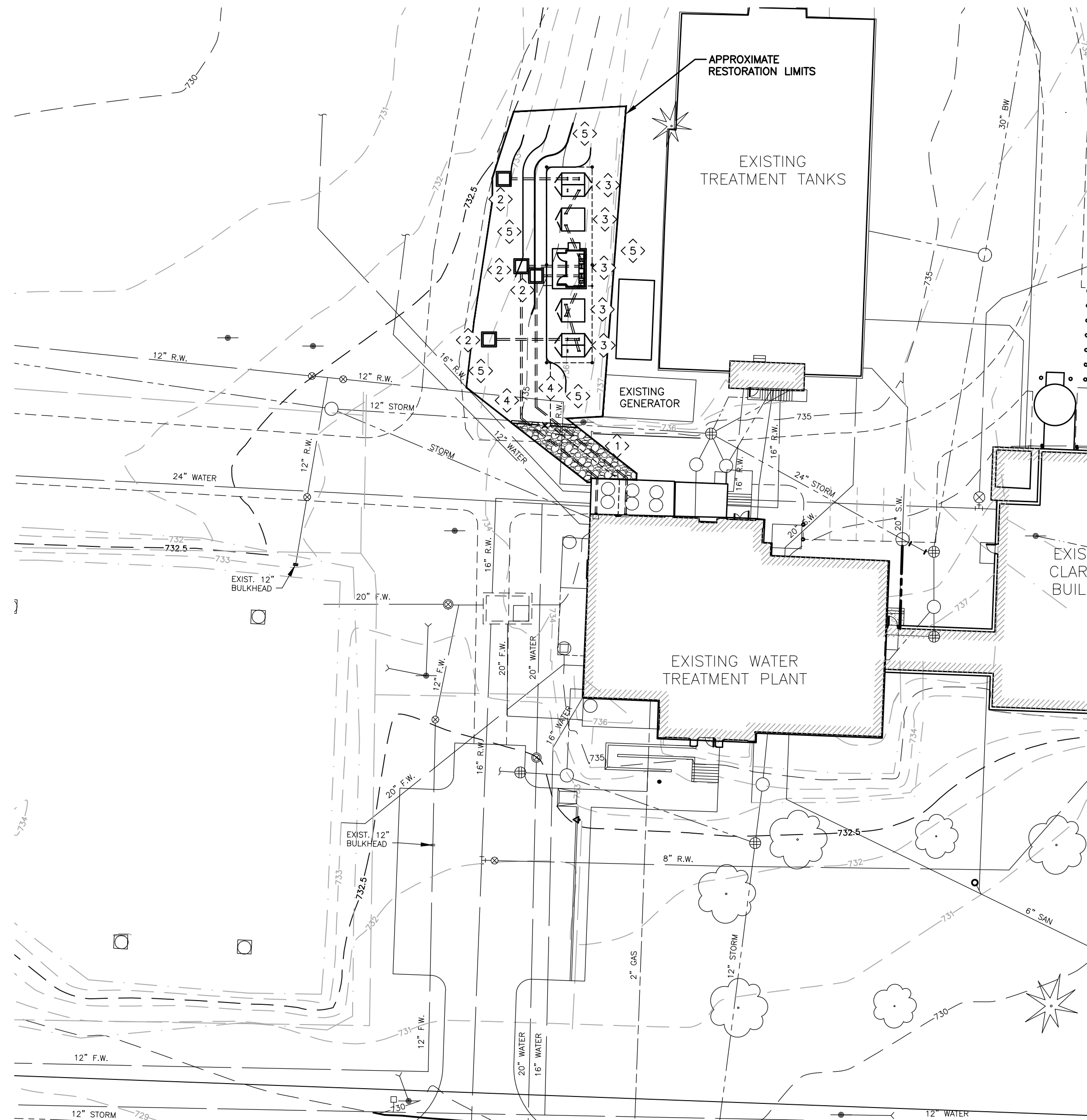
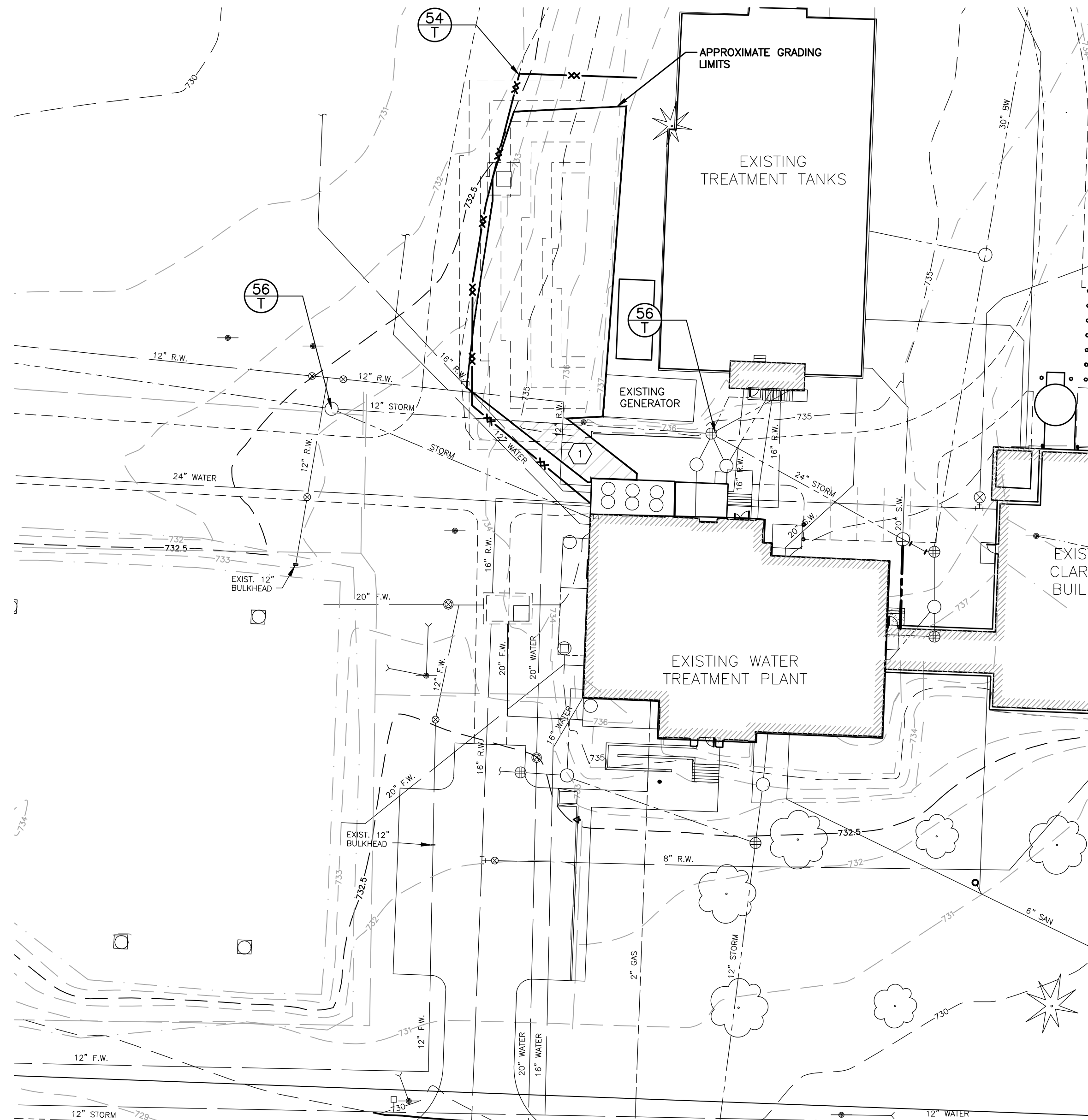
1. FIELD VERIFY THE EXTENT OF REMOVALS AND DEMOLITION PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DEVIATIONS FROM INFORMATION SHOWN.
2. PRIOR TO CONSTRUCTION ALL FENCING, BARRICADES, ENCLOSURES, ETC., MUST BE INSTALLED AND APPROVED BY OWNER OR CONSTRUCTION MANAGER.
3. DISPOSE OF DEMOLITION AND EXCAVATION MATERIALS IN ACCORDANCE WITH CONTRACT DOCUMENTS.
4. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE IN PLACE PRIOR TO STARTING REMOVALS AND DEMOLITION.
5. UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE PLANS, PROTECT ALL SIDEWALKS, DRIVES, CULVERTS, DRAINAGE STRUCTURES, AND ABOVE AS WELL AS BELOW GRADE UTILITIES. REMOVE AND REPLACE ALL SUCH ITEMS DAMAGED OR DESTROYED DURING CONSTRUCTION WITH NEW AT NO ADDITIONAL COST TO THE OWNER.
6. PROTECT EXISTING TREES TO REMAIN WITH TEMPORARY FENCING AT THE DRIP LINE. NO GROUND DISTURBANCE OR STORAGE OF MATERIAL/EQUIPMENT SHALL OCCUR WITHIN THE DRIP LINE LIMITS.
7. COORDINATE REMOVAL OR REPLACEMENT OF ELECTRICAL, TELEPHONE, CABLE TV, WATER, FIBER OPTIC CABLE AND/OR GAS LINES WITH THE AFFECTED UTILITY COMPANY. PROVIDE ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY AS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN THE CONSTRUCTION LIMITS. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH THE WORK.
8. PERFORM CLEARING, GRUBBING, TREE AND STUMP REMOVAL, TOPSOIL REMOVAL AND STOCKPILING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
9. BEFORE REMOVING OR ABANDONING ANY UTILITY PIPES, VERIFY NEW UTILITY PIPE HAS BEEN INSTALLED, TESTED AND IS OPERATIONAL.
10. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. VERIFY CRITICAL INVERT INFORMATION PRIOR TO BEGINNING CONSTRUCTION.
11. SAWCUT AND REPLACE DAMAGE CAUSED TO SURROUNDING AREA PAVEMENT OUTSIDE THE CONSTRUCTION LIMITS AT NO ADDITIONAL COST TO THE OWNER.
12. 100 YEAR FLOOD PLAN = 732.00'

## KEY NOTES

1. PLACE ABOUT 400 SQUARE FEET OF GRAVEL DRIVE PER DETAIL THIS SHEET.
2. SEE ELECTRICAL SHEETS FOR HANDHOLE DETAILS AND PLACEMENT.
3. SEE ELECTRICAL SHEETS FOR PAD DETAILS AND PLACEMENT. TOP OF EACH PAD AT 736.5'
4. SEE ELECTRICAL SHEETS FOR CONDUIT PLACEMENT AND DETAILS
5. SEED AREAS AFFECTED BY INSTALLATION OF ELECTRICAL EQUIPMENT WITH TDS MDOT SEED MIX AT 220 LB/ACRE IN ACCORDANCE WITH 32 92.00 TURF AND GRASSES UNLESS NOTED OTHERWISE

## DEMOLITION KEY NOTES

1. REMOVE ABOUT 400 SQUARE FEET OF EXISTING GRAVEL DRIVE

GRAVEL DRIVE PATCHING  
PROPOSED CROSS SECTION  
NO SCALEEGLE SOIL EROSION AND  
SEDIMENTATION CONTROL MEASURES

KEY	DETAIL	CHARACTERISTICS
54		Use geotextile and posts or poles. May be constructed or prepackaged. Easy to construct and locate as necessary.
56		Manufactured filter bag inserted under coating. Collects sediment at catch basin inlet.

TEMPORARY  
MEASUREPERMANENT  
MEASUREDEMOLITION PLAN  
SCALE: 1" = 30'  
0 15 30 60UTILITY LAYOUT PLAN  
SCALE: 1" = 30'  
0 15 30 60MICHIGAN  
8113 full working days before you dig:  
1-800-482-7171  
on the web at: www.missdig.orgfishbeck  
Engineers | Architects | Scientists | Constructors

City of Owosso

Shiawassee County, Michigan

WTP Electrical Improvements

## REVISONS

4/16/2025 | BIDS AND CONSTRUCTION

Drawn By SKLAW  
Designer SKLAW  
Reviewer JNKRAMER  
Manager BVANZEE

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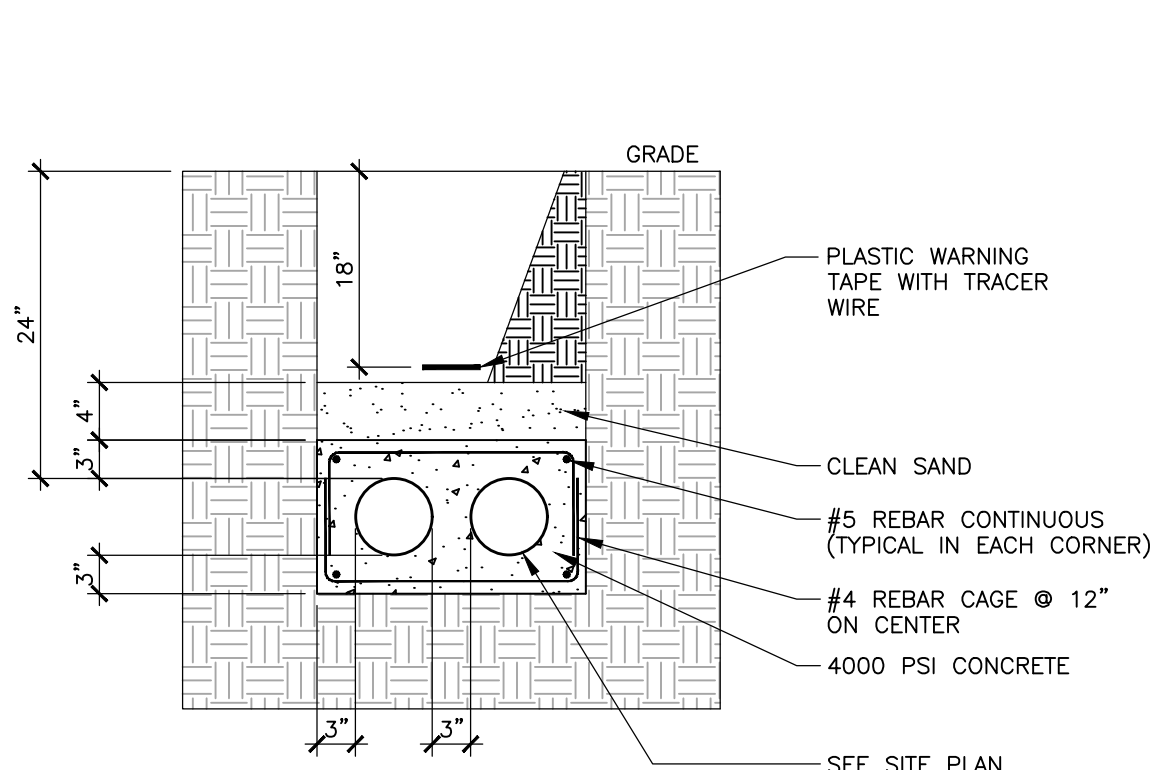
PROJECT NO.  
241875

SHEET NO.

C101

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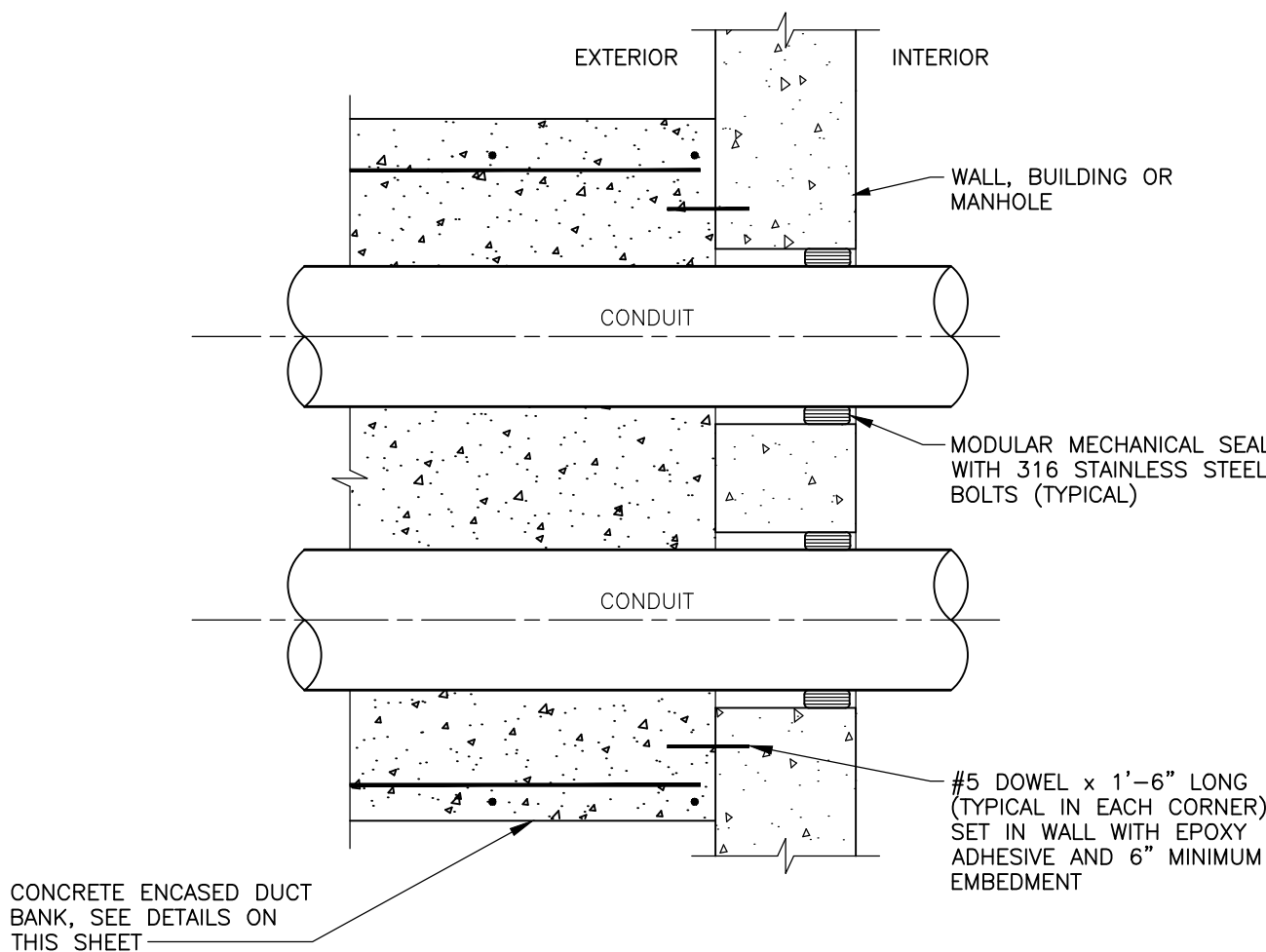
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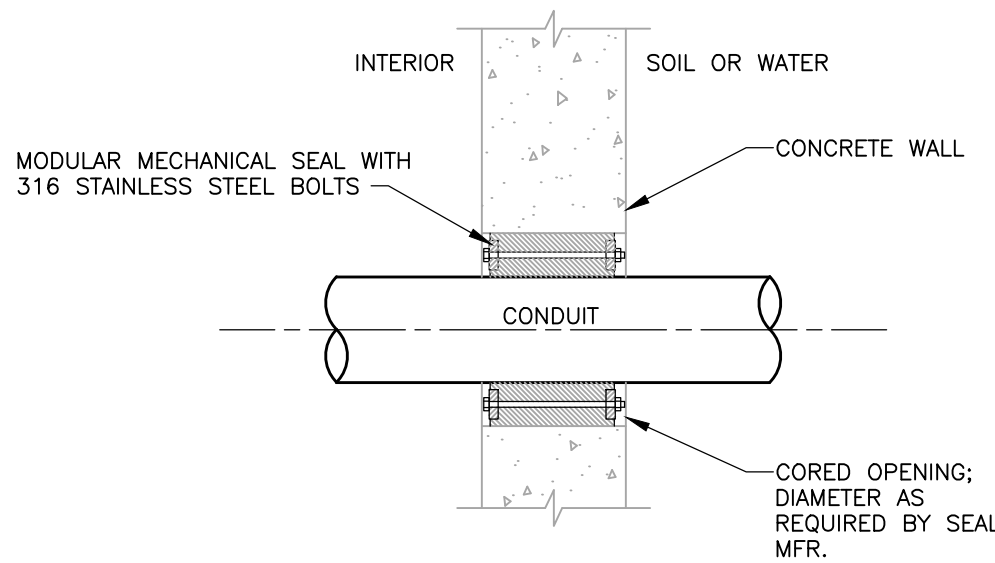
DUCT BANK SECTION NOTES

1. COORDINATE CONDUIT SIZE AND CONCRETE ENCASEMENT REQUIREMENTS FOR PRIMARY CONDUITS WITH CONSUMERS ENERGY.

TYPICAL DUCT BANK SECTION  
NO SCALE



TYPICAL CONDUIT DUCT BANK TERMINATION AT WALL DETAIL  
NO SCALE



WALL PENETRATION DETAIL NOTES

1. WALL PENETRATION FOR CONDUIT PASSING THROUGH CORED OPENING IN CONCRETE WALLS WITH SOIL OR WATER ON ONE SIDE. ABOVE GRADE PENETRATIONS TO BE SIMILAR.

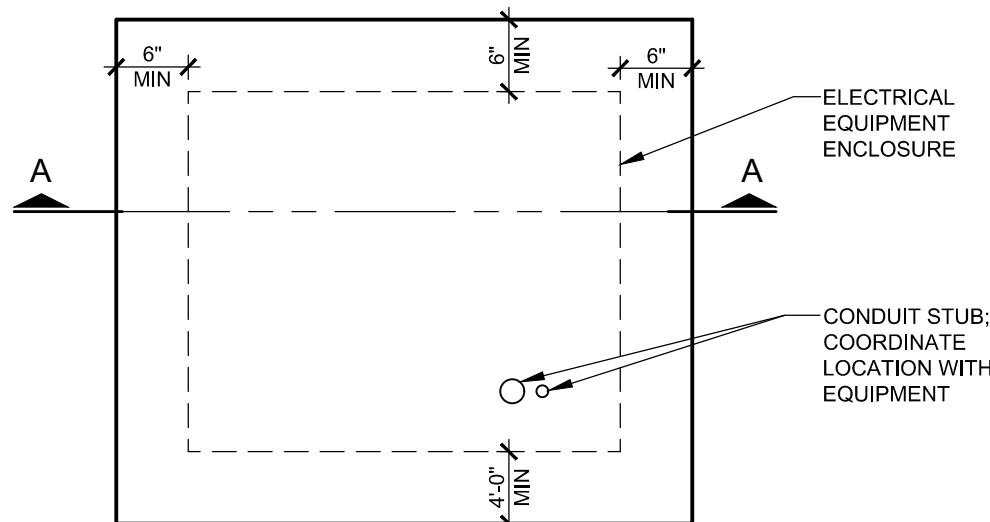
WALL PENETRATION DETAIL  
NO SCALE

GENERAL NOTES

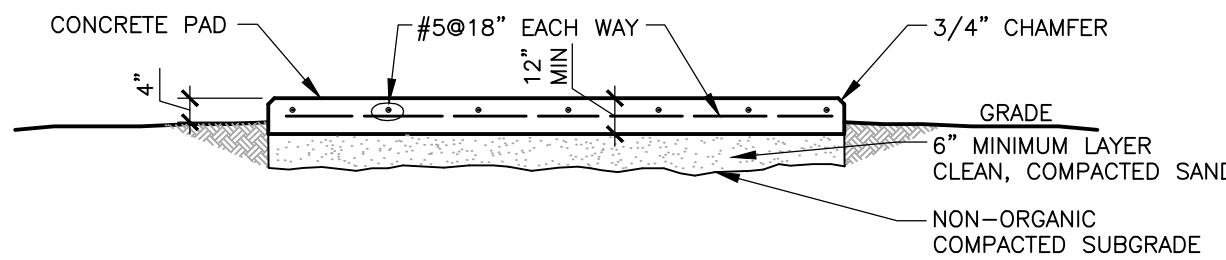
1. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE ELECTRICAL DESIGN INTENT. PROVIDE WORK AND MATERIALS REQUIRED FOR COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEMS THAT FULLY MEET THE ELECTRICAL DESIGN INTENT. ELECTRICAL WORK TO CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION. SEE SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS AND ITEMS THAT MAY BE REQUIRED ABOVE AND BEYOND THE MINIMUM REQUIREMENTS THAT ARE OUTLINED IN THE NEC.
2. THOROUGHLY AND CAREFULLY REVIEW ALL DRAWINGS, SPECIFICATIONS, AND WORK SCOPES IN CONTRACT DOCUMENTS PRIOR TO BIDS AND CONSTRUCTION. WHERE THERE ARE CONFLICTS AMONG THE DRAWINGS, SPECIFICATIONS, AND WORK SCOPES, THE MORE STRINGENT OR GREATER QUANTITY REQUIREMENTS APPLY.
3. ALL ELECTRICAL EQUIPMENT TO BE UL LISTED.
4. SEE INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC REQUIREMENTS RELATED TO TESTING, MANUFACTURER STARTUP, TRAINING, ETC. APPLICABLE TESTING AND MANUFACTURER STARTUP REPORTS TO BE SUBMITTED AND APPROVED PRIOR TO THE DEVELOPMENT OF ELECTRICAL PUNCH LISTS.
5. ALL CONDUCTORS, INCLUDING GROUNDED CONDUCTORS (NEUTRALS), TO BE LABELED AT ALL ENDS AND JOINTS WITH THE CORRESPONDING PANELBOARD NAME AND CIRCUIT NUMBER, OR OTHERWISE IDENTIFIED TO CORRESPOND WITH THE ASSOCIATED EQUIPMENT MANUFACTURER'S IDENTIFICATION SYSTEM.
6. AT A MINIMUM, PROVIDE 1#12, 1#12N, 1#12G FOR 20A BRANCH CIRCUITING, UNO. MINIMUM CONDUIT SIZE IS 3/4". UNO. NO MORE THAN (9) CURRENT CARRYING CONDUCTORS, ALLOWED IN A RACEWAY, UNO. EQUIPMENT GROUNDING CONDUCTORS TO BE SIZED IN ACCORDANCE WITH THE NEC AND MAY BE SHARED. ALL GROUNDED CONDUCTORS (NEUTRALS) SHALL BE TREATED AS CURRENT CARRYING CONDUCTORS.
7. PROVIDE A DEDICATED GROUNDED CONDUCTOR (NEUTRAL) FOR EACH BRANCH CIRCUIT. SHARED NEUTRALS ARE NOT ALLOWED.
8. INSTALL GREEN, INSULATED, COPPER EQUIPMENT GROUNDING CONDUCTORS IN RACEWAYS INCLUDING ALL FLEXIBLE METAL CONDUITS AND NON-METALLIC RACEWAYS. GREEN, INSULATED, EQUIPMENT GROUNDING CONDUCTORS TO BE INSTALLED WITH ALL FEEDERS AND BRANCH CIRCUITS.
9. PROVIDE FIRESTOPPING FOR ALL CONDUIT AND OTHER ELECTRICAL EQUIPMENT PENETRATIONS THROUGH FLOORS, WALLS, AND CEILINGS TO MAINTAIN FIRE RATINGS.
10. LIMIT VOLTAGE DROP IN CONDUCTORS TO 2% FOR FEEDERS AND 3% FOR BRANCH CIRCUITS ASSUMING FULL LOAD CONDITIONS. VOLTAGE DROP NOT TO EXCEED 5% FROM THE ELECTRICAL SERVICE TO THE FURTHEST ELECTRICAL DEVICE.
11. PROVIDE THERMAL SEALS IN ALL CONDUITS THAT RUN FROM CONDITIONED SPACES TO UNCONDITIONED SPACES.
12. ALL JUNCTION BOXES SERVING BRANCH CIRCUIT WIRING TO BE LABELED TO IDENTIFY THE CIRCUIT(S) ROUTED THROUGH EACH RESPECTIVE JUNCTION BOX USING BRADY LABELS.
13. CONDUCTORS INSTALLED IN WIREWAYS THAT CONTAIN MORE THAN 30 CURRENT CARRYING CONDUCTORS TO BE DERATED IN ACCORDANCE WITH THE NEC.
14. DO NOT USE LOAD CENTERS, PANELBOARDS, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND OTHER POWER DISTRIBUTION EQUIPMENT AS RACEWAYS.
15. SEE SPECIFICATION SECTION 26 05 34, RACEWAYS FOR ELECTRICAL SYSTEMS, FOR PROJECT SPECIFIC RACEWAY INSTALLATION REQUIREMENTS.
16. SEE SPECIFICATION SECTION 26 05 53, IDENTIFICATION FOR ELECTRICAL SYSTEMS, FOR PROJECT SPECIFIC IDENTIFICATION REQUIREMENTS.

GENERAL DEMOLITION NOTES

1. EXISTING ELECTRICAL ITEMS INDICATED IN DRAWINGS ARE BASED ON OWNER'S LIMITED RECORD DRAWINGS AND ENGINEER'S LIMITED FIELD OBSERVATIONS. VISIT SITE TO UNDERSTAND COMPLETELY CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION OF DEVICES AND EQUIPMENT REQUIRED TO FACILITATE DEMOLITION WORK AT NO ADDITIONAL COST TO OWNER.
2. DRAWINGS DO NOT INDICATE ALL ELECTRICAL EQUIPMENT AND DEVICES INTENDED TO BE REMOVED OR MODIFIED. DRAWINGS INDICATE MAJOR ELECTRICAL EQUIPMENT, FIXTURES, AND DEVICES THAT ARE REQUIRED TO BE REMOVED OR MODIFIED. REMOVE OR RELOCATE ELECTRICAL EQUIPMENT, FIXTURES, AND DEVICES AS NECESSARY FOR A COMPLETE AND PROFESSIONAL INSTALLATION.
3. FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF WORK AND INCLUDE ALL COSTS ASSOCIATED WITH DEMOLITION IN BASE BID.
4. DISCONNECT AND REMOVE ALL CONDUIT, CONDUCTORS, AND DEVICES ASSOCIATED WITH EQUIPMENT BEING DEMOLISHED. EXPOSED CONDUIT, JUNCTION BOXES, AND DEVICES TO BE DISCONNECTED AND REMOVED. CONCEALED CONDUIT, JUNCTION BOXES, AND DEVICES MAY BE ABANDONED IN PLACE. ALL CONDUCTORS TO BE COMPLETELY REMOVED BACK TO SOURCE OR LAST ACTIVE DEVICE. PROVIDE BLANK COVERS FOR ANY BOXES ABANDONED IN PLACE.
5. COORDINATE AND SEQUENCE DEMOLITION WORK SUCH THAT PLANT REMAINS IN CONTINUOUS OPERATION THROUGHOUT CONSTRUCTION. PLAN ALL INTERRUPTIONS TO ELECTRICAL SERVICE WITH OWNER A MINIMUM OF 72 HOURS IN ADVANCE.
6. PROVIDE TEMPORARY POWER, LIGHTING, AND CONTROLS AS REQUIRED TO KEEP EXISTING EQUIPMENT TO REMAIN IN SERVICE.
7. FOR ELECTRICAL EQUIPMENT TO BE REUSED, FIELD VERIFY EQUIPMENT CONFIGURATION AND ADVISE ENGINEER IF CIRCUITING REQUIREMENTS ARE DIFFERENT FROM THAT INDICATED ON PLANS. RE-CIRCUIT EQUIPMENT AS REQUIRED TO FACILITATE REUSE.
8. ELECTRICAL EQUIPMENT NOT SPECIFICALLY IDENTIFIED TO BE DISCONNECTED AND REMOVED IS TO BE MAINTAINED.
9. CROSSHATCHING IDENTIFIES DEVICES/EQUIPMENT TO BE DISCONNECTED AND REMOVED. DEMOLISH ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE OR LAST ACTIVE DEVICE, UNLESS NOTED OTHERWISE.
17. UNLESS NOTED OTHERWISE, DISPOSE OF ALL REMOVED MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. DISPOSAL OF MATERIALS TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS INCLUDING TCLP TESTING.



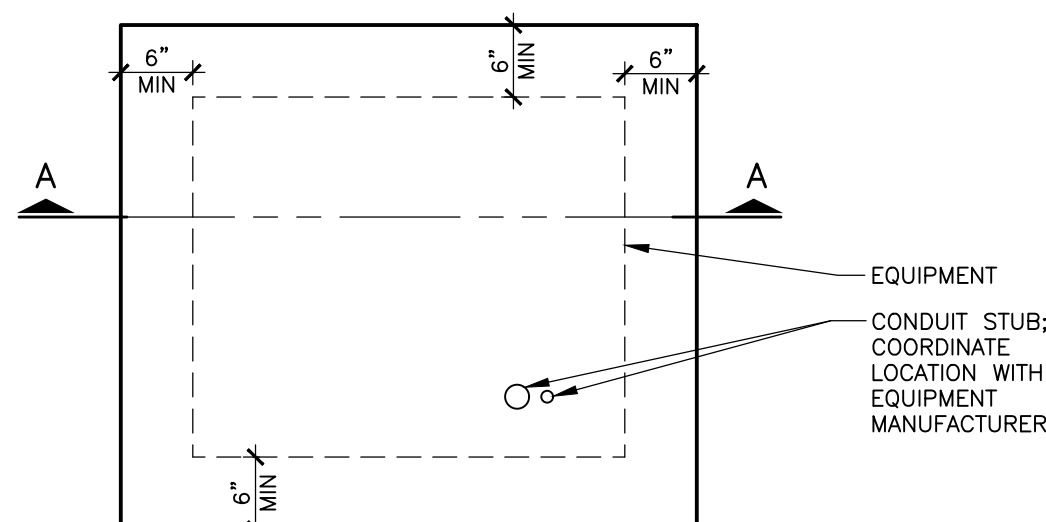
PLAN VIEW



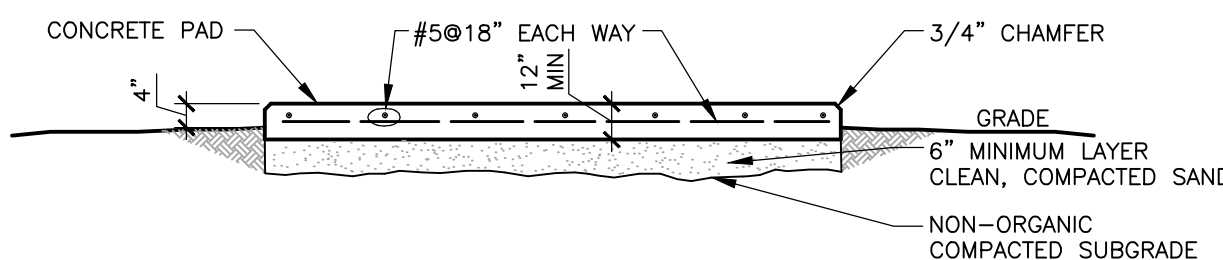
SECTION A-A

NOTE: FOLLOW MANUFACTURER'S DRAWINGS FOR SIZE AND ANCHOR BOLT SETTINGS

ELECTRICAL EQUIPMENT ENCLOSURE PAD DETAIL  
NO SCALE



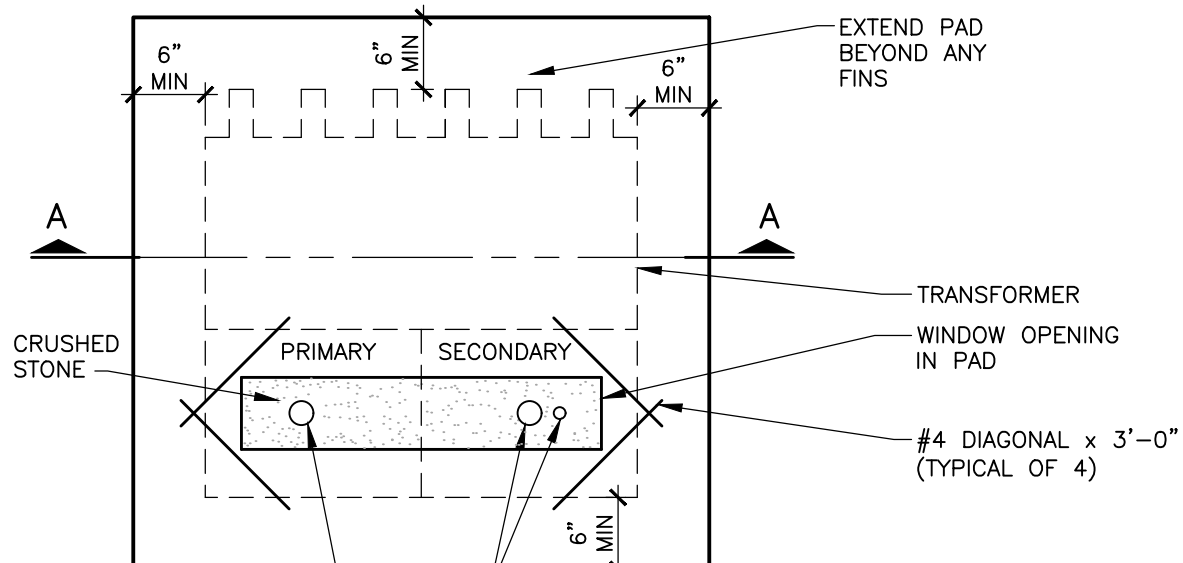
PLAN VIEW



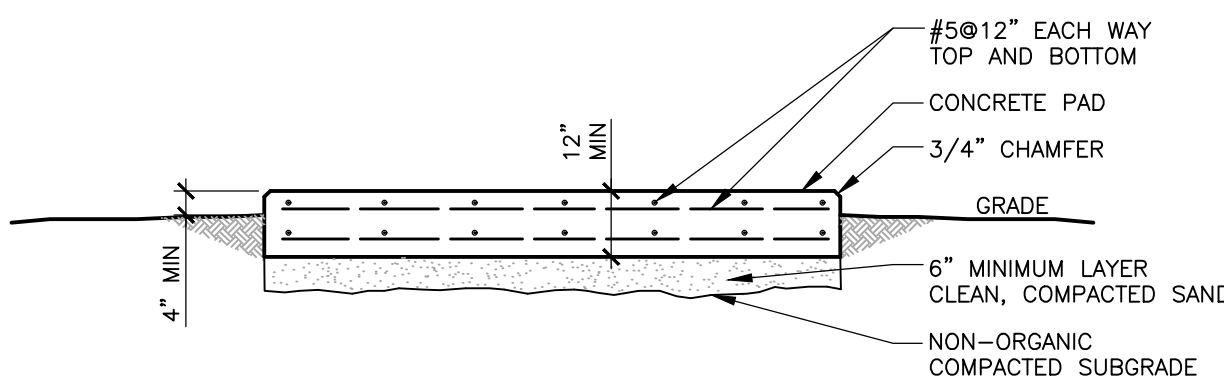
SECTION A-A

NOTE: FOLLOW MANUFACTURER'S DRAWINGS FOR SIZE AND ANCHOR BOLT SETTINGS

PRIMARY SWITCHGEAR PAD DETAIL  
NO SCALE



PLAN VIEW



SECTION A-A

NOTE: FOLLOW MANUFACTURER'S DRAWINGS FOR SIZE AND ANCHOR BOLT SETTINGS.

TRANSFORMER PAD DETAIL  
NO SCALE

City of Owosso

Shiawassee County, Michigan

WTP Electrical Improvements

REVISIONS

4/16/2025 | BIDS AND CONSTRUCTION

Drawn By JACONDIE  
Designer JACONDIE  
Reviewer MSTACK  
Manager BVANZEE

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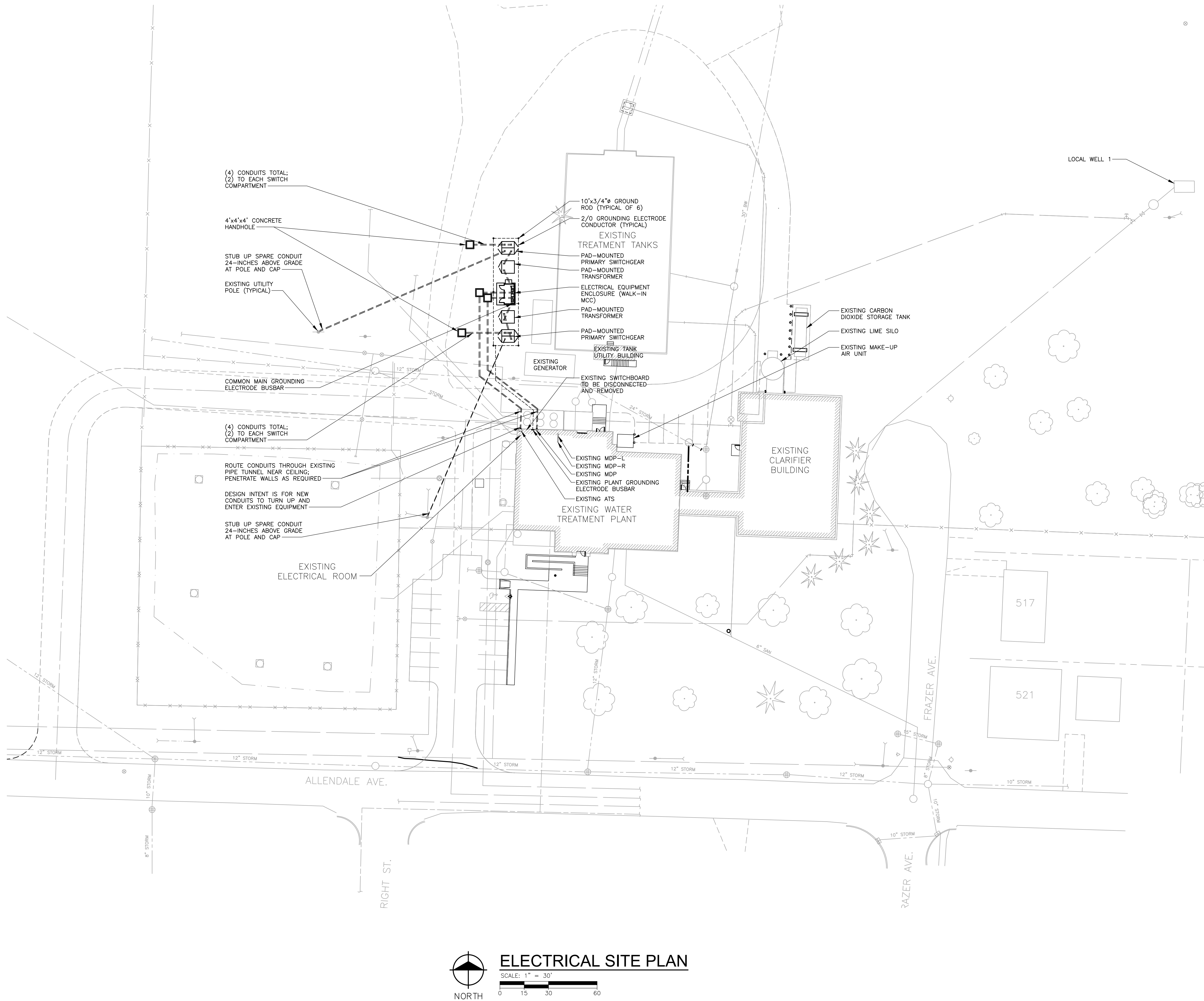
241875

SHEET NO.

E001

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PLT: INFO-Z:2024/21875/CADD/ED0121875.DWG LAYOUT: E002 DATE: 4/16/2025 TIME: 1:34:58 PM USER: JACONDIE



#### NOTES

1. DUCT SEALING PLUGS ARE REQUIRED WHERE CONDUITS TERMINATE AT EQUIPMENT INSIDE A BUILDING FOR ALL CONDUITS THAT ENTER EQUIPMENT FROM BELOW GRADE OR BUILDING EXTERIOR.
2. ALL REQUIRED UNDERGROUND/SITE CONDUITS MAY NOT NECESSARILY BE SHOWN. DRAWING SHOWS MAJOR DUCT BANKS OR CONDUIT RUNS THAT REQUIRE COORDINATION WITH OTHER SITE WORK. MINOR UNDERGROUND/SITE CONDUITS NOT IDENTIFIED HERE MAY BE ROUTED AS REQUIRED TO COORDINATE WITH OTHER SITE WORK AND DO NOT REQUIRE CONCRETE ENCASEMENT OR CONCRETE CAPS. COORDINATE FINAL CONDUIT ROUTING, STUB-UPS, AND DUCT BANK LOCATIONS WITH FINAL EQUIPMENT LAYOUTS AND LOCATIONS. PROTECT EXISTING UTILITIES THROUGHOUT CONSTRUCTION. RESTORE DRIVEWAYS AND ACCESS DRIVES TO EXISTING CONDITIONS, MATCH EXISTING MATERIALS.
3. SEE PAD DETAILS FOR REQUIRED EQUIPMENT PADS UNDER SWITCHGEAR, TRANSFORMER, AND ELECTRICAL EQUIPMENT ENCLOSURE (MCC).
4. SEE TYPICAL DUCT BANK SECTION FOR DUCT BANK INSTALLATION REQUIREMENTS. SEE ONE LINE DIAGRAM FOR QUANTITY OF CONDUITS IN DUCT BANKS.
5. SEE WALL PENETRATION AND DUCT BANK TERMINATION DETAILS FOR INSTALLATION REQUIREMENTS WHEN TERMINATING AT/ENTERING STRUCTURES.
6. SEE DISTRIBUTION SYSTEM GROUNDING DETAIL FOR REQUIRED CONNECTIONS BETWEEN EQUIPMENT AND GROUNDING ELECTRODE SYSTEM.
7. CONDUITS BELOW AND BETWEEN PAD-MOUNTED EQUIPMENT DO NOT NEED TO BE CONCRETE ENCASED.
8. EXISTING CABLE TRAYS (ONE LOCATED IN ELECTRICAL ROOM ON GRADE LEVEL AND TWO LOCATED IN HIGH SERVICE PUMP AREA ON LOWER LEVEL; NOT SHOWN FOR CLARITY) CAN BE UTILIZED FOR ROUTING CONDUCTORS (TYPICAL). PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR EACH FEEDER.
9. COORDINATE WORK AT EXISTING UTILITY POLES WITH CONSUMERS ENERGY. IT IS ASSUME THAT CONSUMERS ENERGY WILL METER ON THE SECONDARY SIDE OF EACH PAD-MOUNTED TRANSFORMER; COORDINATE WITH CONSUMERS ENERGY.

#### REVISIONS

4/16/2025 | BIDS AND CONSTRUCTION

Drawn By JACONDIE  
Designer JACONDIE  
Reviewer MSTACK  
Manager BVANZEE

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SHEET NO.

**E002**

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PLOT INFO: Z:\2024\241875\CADD\ED01241875.DWG LAYOUT: E003 DATE: 4/16/2025 TIME: 1:35:10 PM USER: JACONDIE



POLES AND POLE-MOUNTED SWITCHES AND TRANSFORMERS  
NO SCALE



SOUTH ELECTRICAL SERVICE POLE-MOUNTED  
SWITCHES, TRANSFORMERS, AND METERING  
NO SCALE



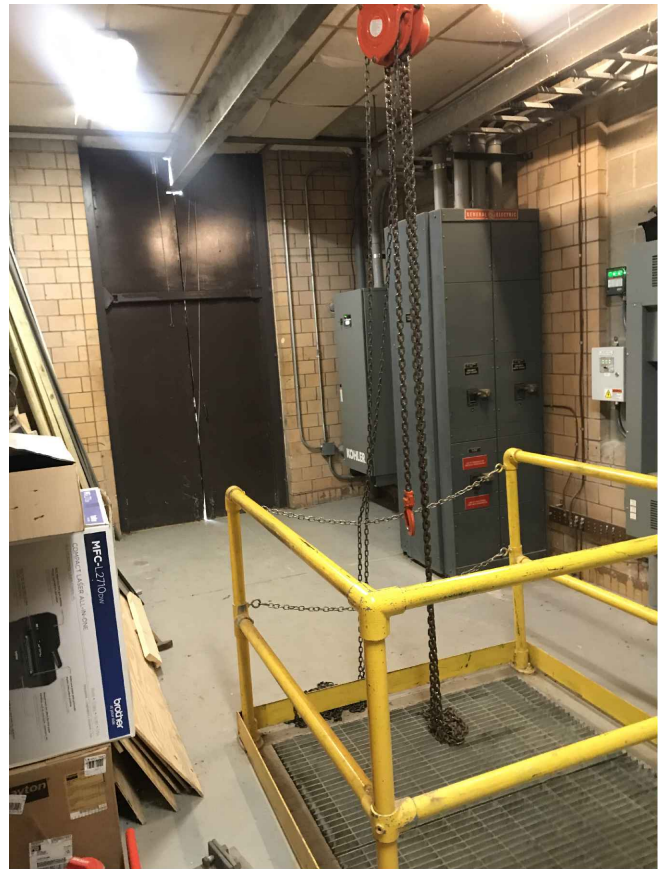
NORTH ELECTRICAL SERVICE  
POLE-MOUNTED TRANSFORMERS  
NO SCALE



NORTH ELECTRICAL SERVICE  
POLE-MOUNTED SWITCHES AND METERING  
NO SCALE



DIESEL GENERATOR (300 KW)  
NO SCALE



AUTOMATIC TRANSFER SWITCH, MAIN  
SWITCHBOARD, AND CABLE TRAY  
NO SCALE



AUTOMATIC TRANSFER SWITCH  
AND FREE-STANDING MAIN SWITCHBOARD  
NO SCALE



PLANT GROUNDING ELECTRODE BUSBAR  
NO SCALE



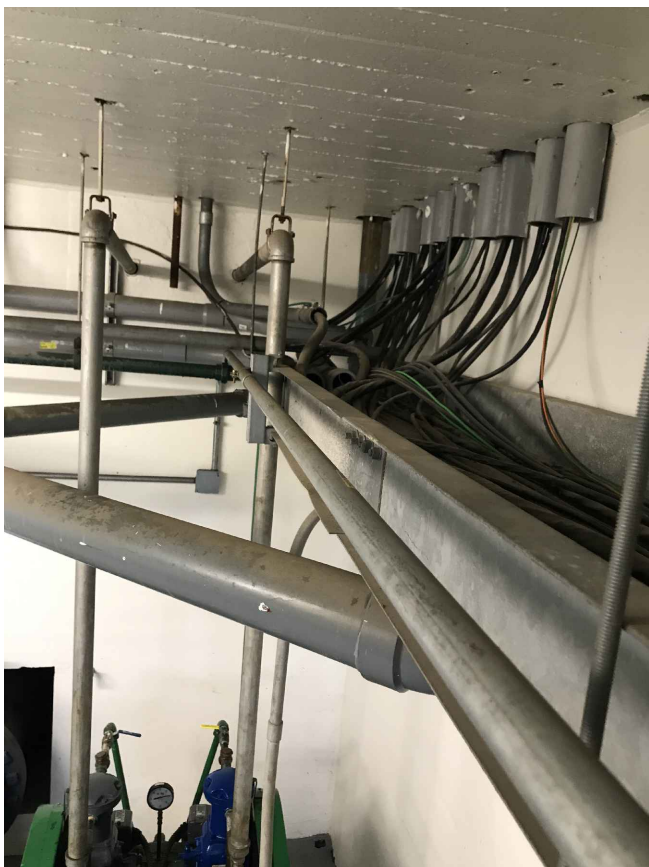
ELECTRICAL ROOM CABLE TRAY  
NO SCALE



PANELBOARD MDP  
NO SCALE



PANELBOARDS MDP-L AND MDP-R  
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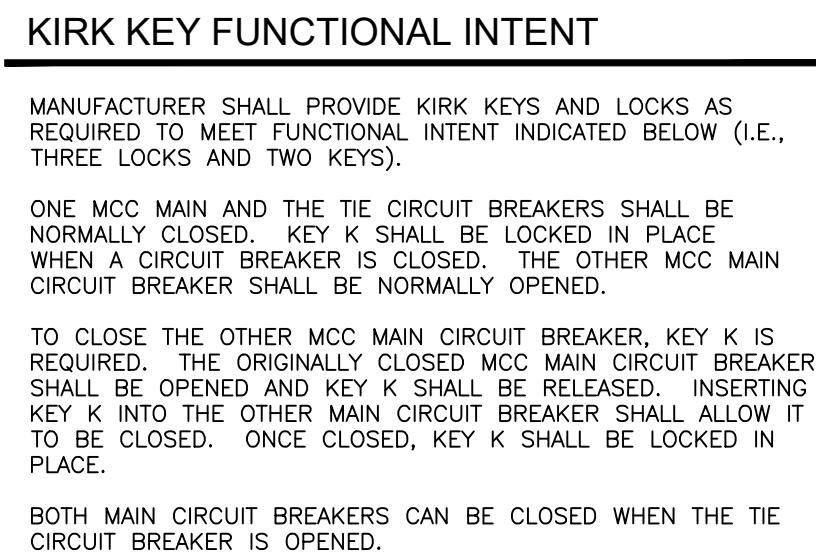


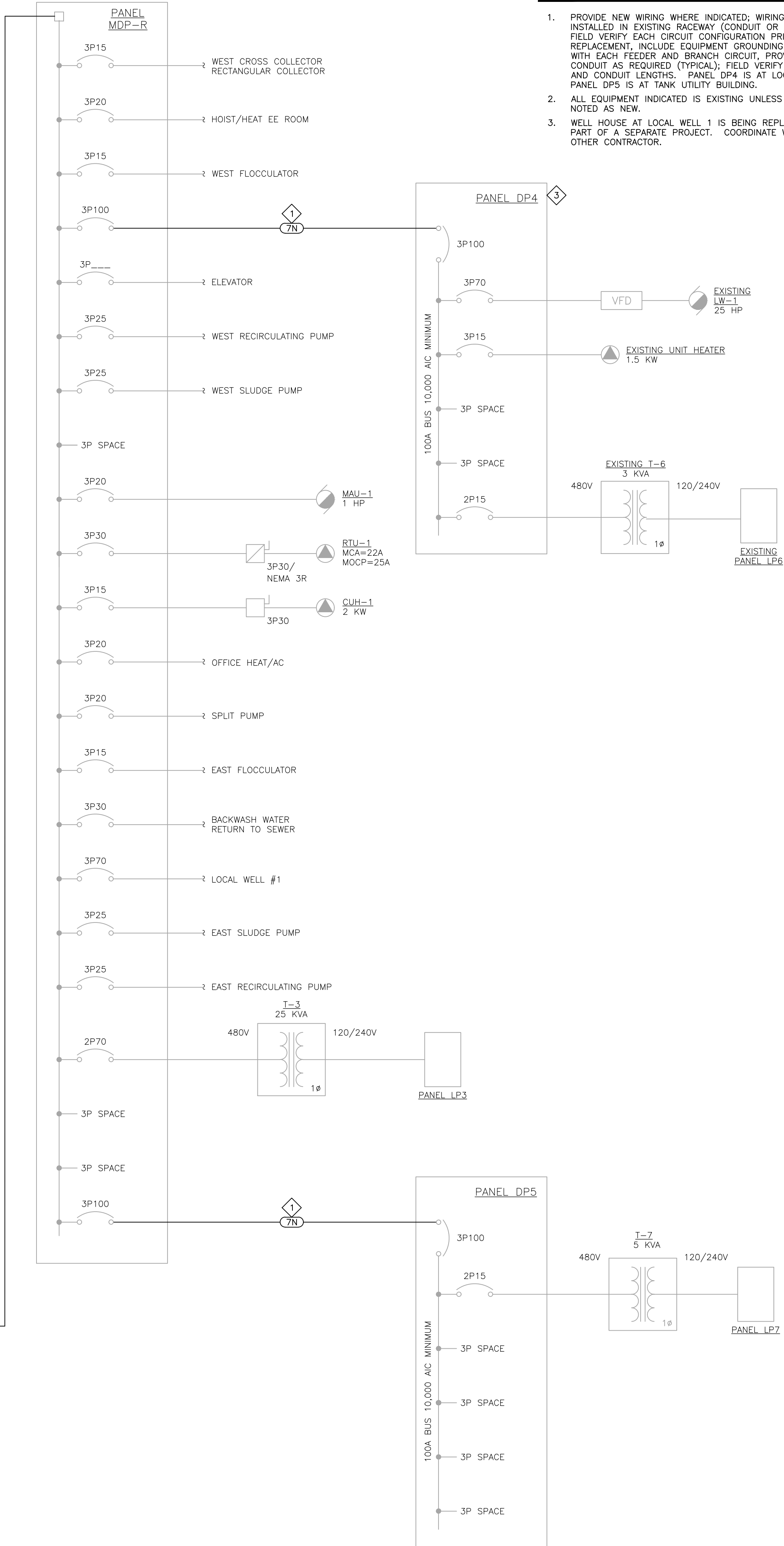
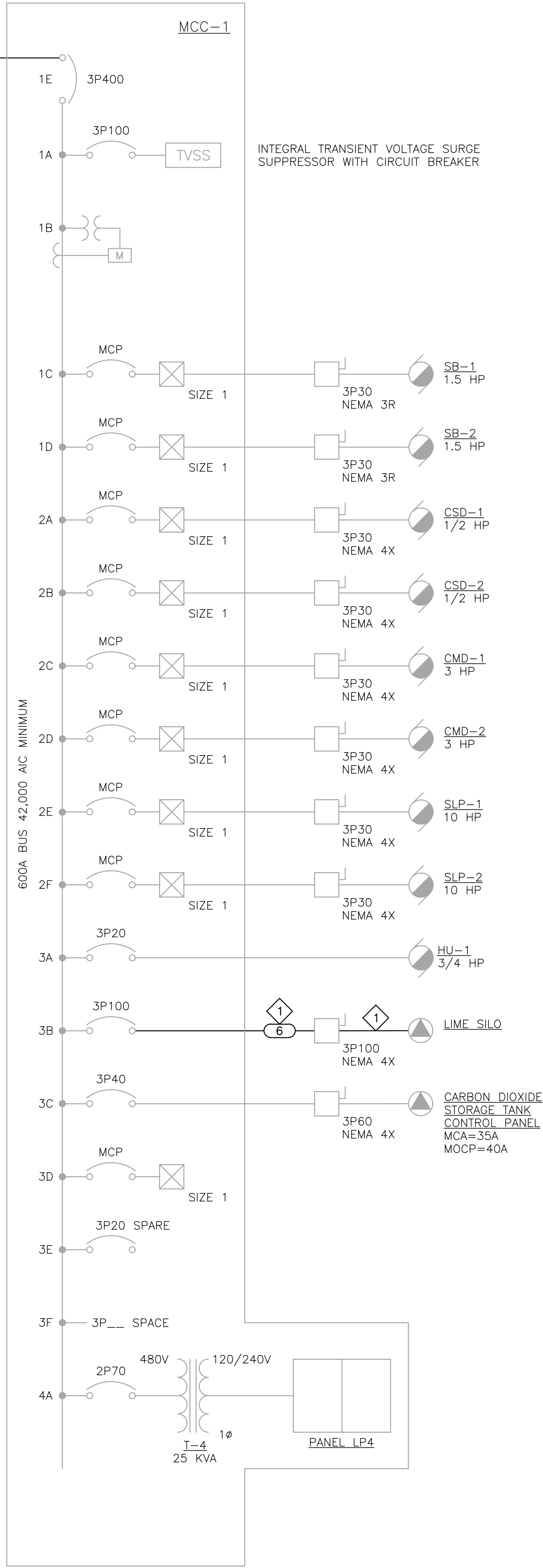
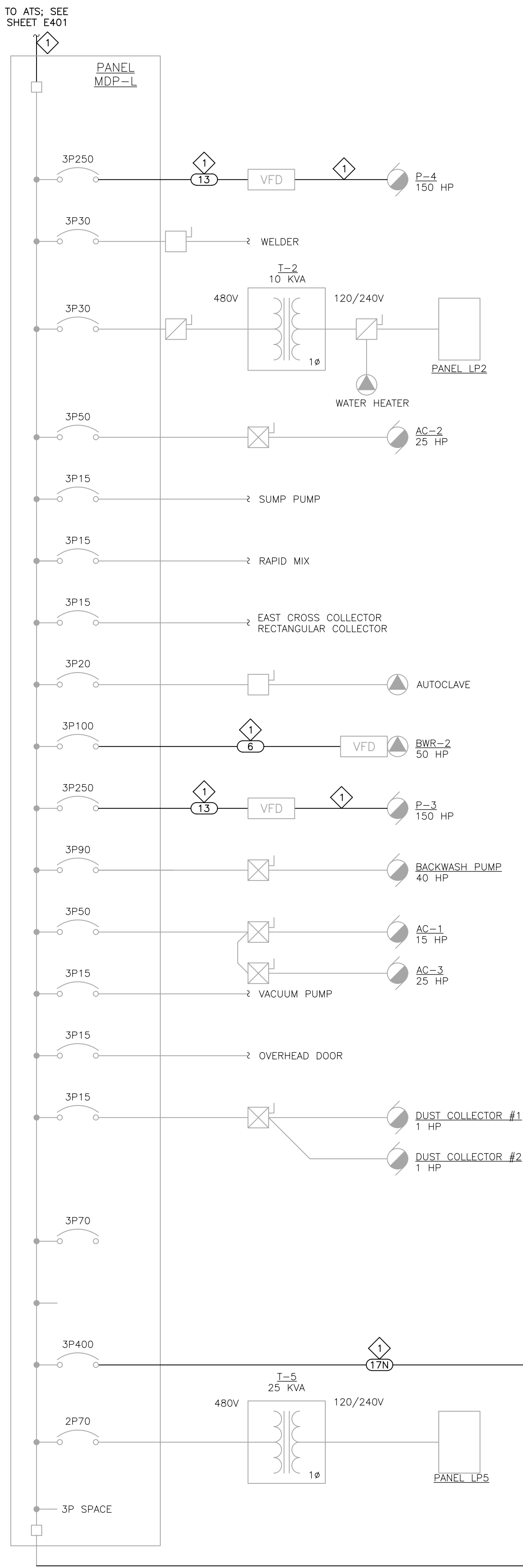
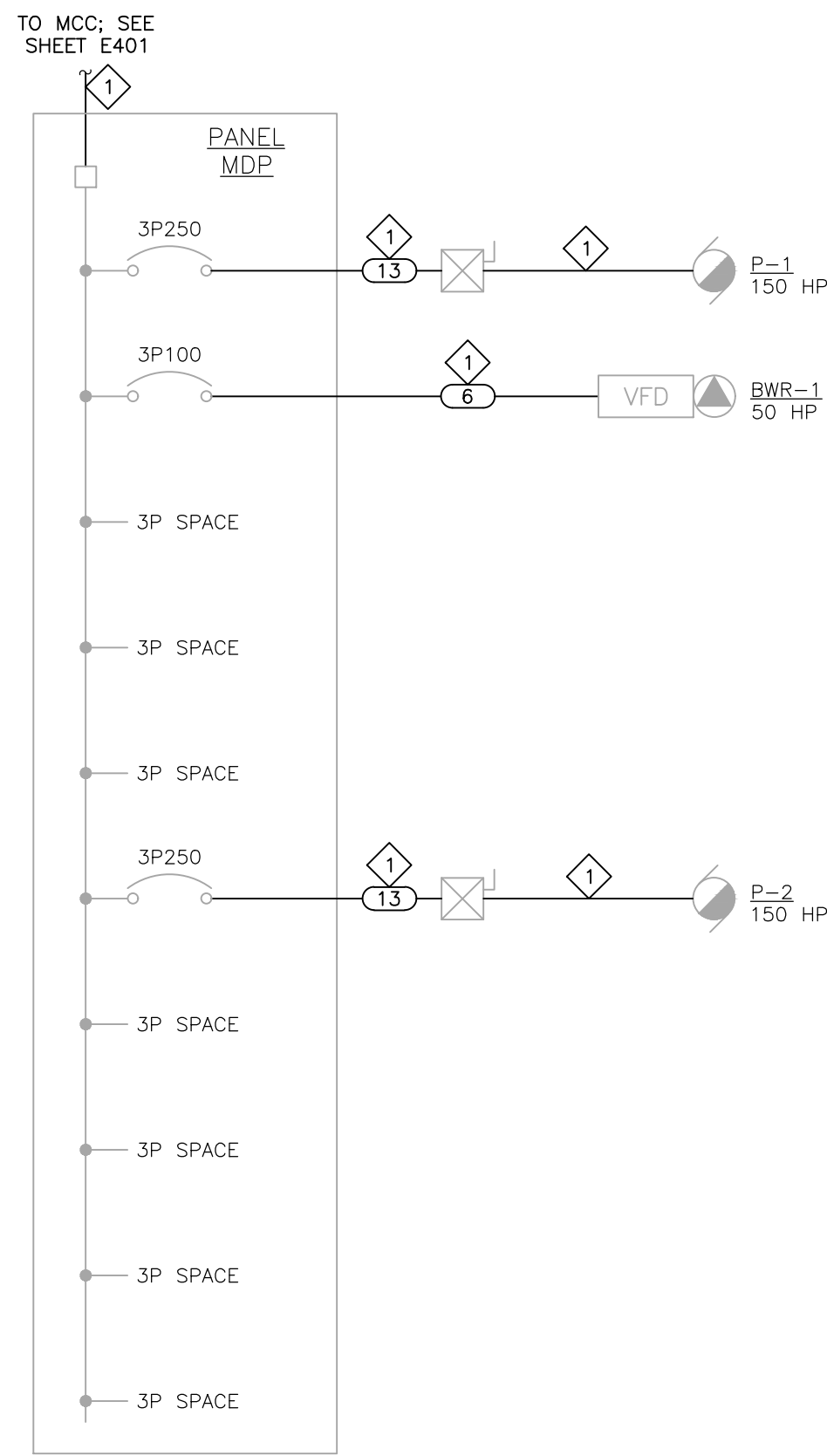
LOWER LEVEL CABLE TRAY  
UNDER MDP-L AND MDP-R  
NO SCALE

ELECTRICAL DEMOLITION NOTES

1. EXISTING OUTDOOR POLE-MOUNTED FUSED CUTOUT PRIMARY SWITCHES, POLE-MOUNTED TRANSFORMER BANKS, RELATED OVERHEAD CONDUCTORS AND POLES, AND SECONDARY CONDUIT AND CONDUCTORS ASSOCIATED WITH TWO EXISTING ELECTRICAL SERVICES TO BE DISCONNECTED, REMOVED, AND REPLACED BY NEW PAD-MOUNTED EQUIPMENT; ONE SERVICE AT AT TIME. SEE SITE PLAN AND PHOTOS.
2. COORDINATE DEMOLITION, REPLACEMENT, OR REUSE OF EXISTING POLE-MOUNTED PRIMARY METERING EQUIPMENT WITH CONSUMERS ENERGY. PROVIDE EMPTY PVC CONDUIT FOR USE BY CONSUMERS ENERGY AS REQUIRED BY CONSUMERS ENERGY FOR NEW METERING. NEW METERING MAY BE LOCATED ON SECONDARY SIDE OF EACH PAD-MOUNTED TRANSFORMER.
3. EXISTING FREE-STANDING MAIN SWITCHBOARD IN EXISTING ELECTRICAL ROOM TO BE DISCONNECTED AND REMOVED.
4. COORDINATE AND SEQUENCE WORK SUCH THAT A MINIMUM OF ONE SERVICE IS IN CONTINUOUS OPERATION THROUGHOUT CONSTRUCTION.







#### KEY NOTES

1. PROVIDE NEW WIRING WHERE INDICATED; WIRING CAN BE INSTALLED IN EXISTING RACEWAY (CONDUIT OR CABLE TRAY), FIELD VERIFY EACH CIRCUIT CONFIGURATION PRIOR TO REPLACEMENT, INCLUDE EQUIPMENT GROUNDING CONDUCTORS WITH EACH FEEDER AND BRANCH CIRCUIT, PROVIDE NEW CONDUIT AS REQUIRED (TYPICAL); FIELD VERIFY CONDUCTOR AND CONDUIT LENGTHS. PANEL DP4 IS AT LOCAL WELL 1. PANEL DP5 IS AT TANK UTILITY BUILDING.
2. ALL EQUIPMENT INDICATED IS EXISTING UNLESS OTHERWISE NOTED AS NEW.
3. WELL HOUSE AT LOCAL WELL 1 IS BEING REPLACED AS PART OF A SEPARATE PROJECT. COORDINATE WORK WITH OTHER CONTRACTOR.

#### ONE LINE DIAGRAM

NO SCALE

**City of Owosso**  
Shiawassee County, Michigan  
WTP Electrical Improvements

#### REVISONS

4/16/2025 | BIDS AND CONSTRUCTION

Drawn By JACONDIE  
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241875

SHEET NO.

**E402**

