

SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING PROJECT

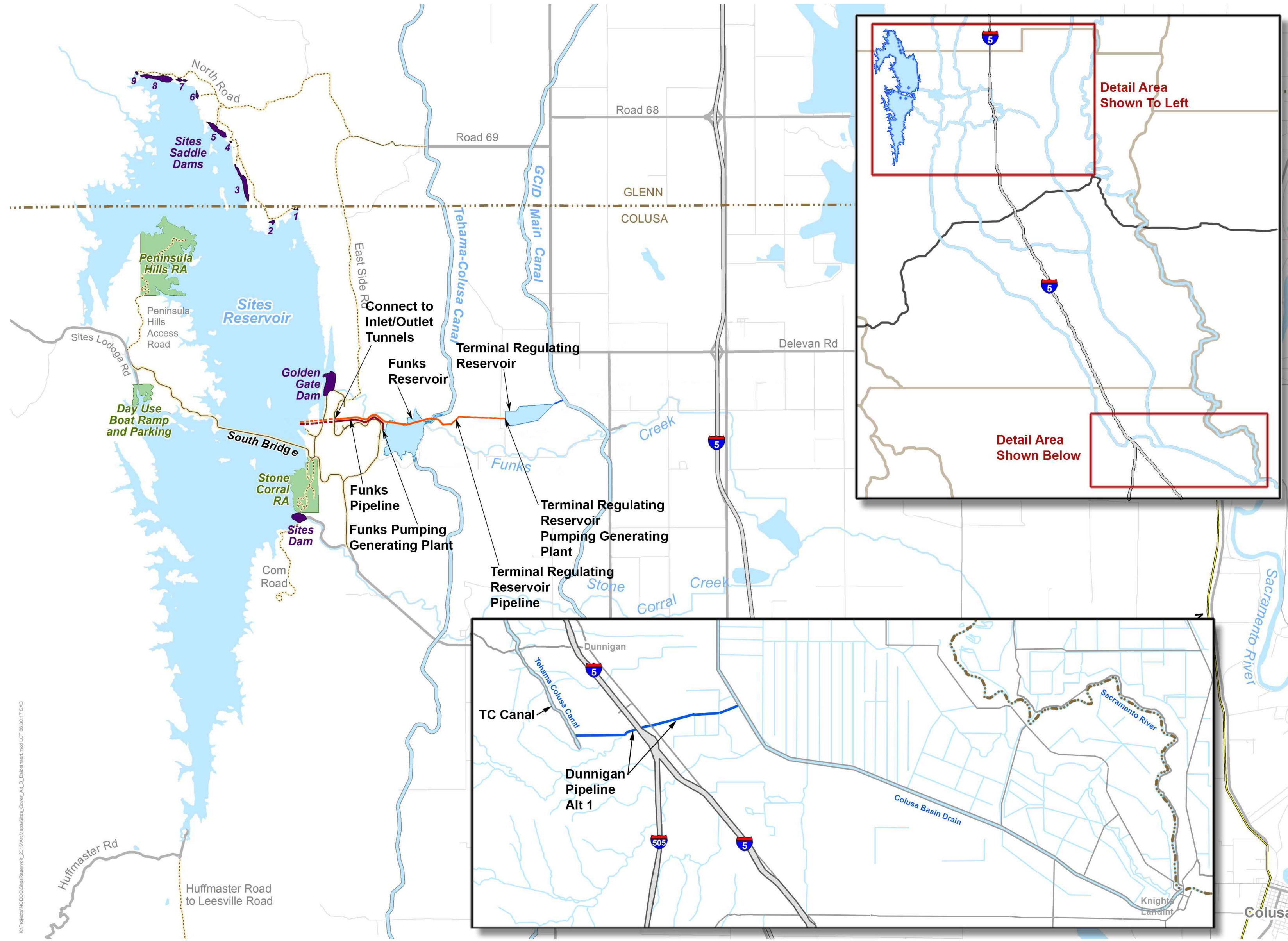
FUNKS RESERVOIR 230KV SUBSTATION

30% DESIGN - CLIENT REVIEW

DECEMBER 4, 2023



PROJECT LOCATION MAP



OVERALL PROJECT SITE MAP - DUNNIGAN PIPELINE NOT INCLUDED IN THIS PACKAGE

Plot Date: 12/4/2023 11:44 AM File: C:\pwworking\hdr_sites_reservoir\dms02764\MPG-0001-G-0001_FNK_SUB.dwg Saved By: DCAVE

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:
D. CAVE

DRAWN BY:
D. CAVE

CHECKED BY:
W. OHLIN

IN CHARGE:
P. RUDE

DATE:
12-04-2023

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REGISTERED PROFESSIONAL ENGINEER
WAYNE J. OHLIN
72287
CALIFORNIA



SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING
GENERAL
COVER SHEET,
LOCATION MAP AND SITE MAP

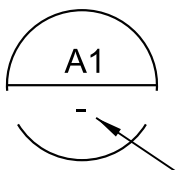
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.

0 1"

DRAWING NO.
MPG-0001-G-0001
SHT 1 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION


GENERAL SYMBOLS



DETAIL DESIGNATION
DRAWING NUMBER
WHERE SHOWN

MPG-2155-D-5001

USE DASH WHEN
SHOWN ON SAME SHEET



MPG-2155-D-3001

0330-056 STANDARD DETAIL

ON DRAWING WHERE DETAIL OR SECTION IS CALLED OUT

(A1) **DETAIL**
SCALE

MPG-2155-D-2001

(D1) **SECTION**
SCALE

MPG-2155-D-2001

STANDARD DETAIL NAME 0330-056
NTS

ON DRAWING WHERE DETAIL OR SECTION IS SHOWN

DRAWING NUMBERING LEGEND

MPG-2155-S-2001


LOCATION / PACKAGE CODE
FACILITY / AREA NUMBER

DRAWING TYPE CODE
DISCIPLINE DESIGNATOR

LOCATION / PACKAGE NUMBER AND CODE	MPG FACILITY / AREA NUMBERS	DISCIPLINE DESIGNATOR	DRAWING TYPE CODE
1 - STS - SITES RESERVOIR 2 - MPG - MAXWELL / SITES PUMPING AND GENERATING 3 - SCD - RESERVOIR CLEARING AND DEMOLITION 4 - HFR - HUFFMASTER ROAD 5 - DNP - DUNNIGAN PIPELINE 6 - CCA - TEHAMA-COLUSA CANAL AUTHORITY 7 - CID - GLENN-COLUSA IRRIGATION DISTRICT 8 - REC - SITES RECREATION 9 - MIT - SITES MITIGATION	0001 - GENERAL 0010 - GEOTECH 0045 - OVERALL SITE CIVIL 0060 - OVERALL SITE ELECTRICAL 0065 - INSTRUMENTATION AND CONTROLS 2005 - ACCESS ROADS 2010 - TRANSMISSION 2015 - PGE POI SWITCHYARD 2030 - VALVE VAULT 2040 - ENVIRONMENTAL WATER PIPELINE DISSIPATION STRUCTURE 2100 - FNK - TEMPORARY CONSTRUCTION 2105 - FNK - SITE CIVIL 2107 - FNK - RETAINING WALL 2110 - FNK - YARD PIPING 2115 - FNK - RESERVOIR 2120 - FNK - PIPELINE 2125 - FNK - SITE AND GENERAL ELECTRICAL 2130 - FNK - SUBSTATION 2135 - FNK - INSTRUMENTATION AND CONTROLS 2145 - FNK - ADMINISTRATION AND OPERATIONS BUILDING 2150 - FNK - MAINTENANCE AND STORAGE BUILDING 2155 - FNK - PUMPING PLANT 2160 - FNK - SWITCHGEAR BUILDING 2161 - FNK - EMERGENCY GENERATOR 2165 - FNK - GENERATING PLANT 2170 - FNK - CHILLER YARD 2171 - FNK - HVAC BUILDING 2175 - FNK - EMERGENCY DISSIPATION STRUCTURE 2180 - FNK - FIRE WATER TANK 2181 - FNK - FIRE WATER PUMPING PLANT 2185 - FNK - SURGE CONTROL SYSTEM 2190 - FNK - FLOW METER VAULT 2200 - TRR - TEMPORARY CONSTRUCTION 2205 - TRR - SITE CIVIL 2207 - TRR - SHEET PILE WALL 2210 - TRR - YARD PIPING 2215 - TRR - RESERVOIR 2220 - TRR - PIPELINE 2225 - TRR - SITE ELECTRICAL 2230 - TRR - SWITCHYARD 2231 - TRR - SUBSTATION 2235 - TRR - INSTRUMENTATION AND CONTROL 2240 - TRR - TRANSMISSION 2255 - TRR - PUMPING PLANT 2260 - TRR - SWITCHGEAR BUILDING 2261 - TRR - EMERGENCY GENERATOR 2265 - TRR - GENERATING PLANT 2270 - TRR - CHILLER YARD 2271 - TRR - HVAC BUILDING 2275 - TRR - ENERGY DISSIPATION STRUCTURE 2280 - TRR - FIRE WATER TANK 2281 - TRR - FIRE WATER PUMPING PLANT 2285 - TRR - SURGE CONTROL SYSTEM 2291 - TRR - CHECK STRUCTURE 1 2292 - TRR - CHECK STRUCTURE 2 2293 - TRR - CHECK STRUCTURE 3 2294 - TRR - CHECK STRUCTURE 4	A - ARCHITECTURAL B - GEOTECHNICAL C - CIVIL D - PROCESS MECHANICAL E - ELECTRICAL F - FIRE PROTECTION FET - FOUNDATION EXCAVATION AND TREATMENT G - GENERAL H - HVAC I - INTERIORS J - PLUMBING K - TRANSMISSION L - LANDSCAPE M - BUILDING MECHANICAL N - INSTRUMENTATION AND CONTROLS P - PIPELINE Q - EQUIPMENT R - ROADWAY S - STRUCTURAL T - TELECOMMUNICATIONS V - SURVEY MAPPING Y - YARD PIPING	0000 - GENERAL AND 3D RENDERINGS 1000 - DEMOLITION 2000 - PLANS AND PLAN AND PROFILE 3000 - SECTIONS, ELEVATIONS AND PROFILES 4000 - ENLARGED PLANS 5000 - DETAILS 6000 - SCHEDULES AND DIAGRAMS 7000 - USER DEFINED 8000 - USER DEFINED 9000 - STD DETAILS

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: D. CAVE
 DRAWN BY: D. CAVE
 CHECKED BY: W. OHLIN
 IN CHARGE: P. RUDE
 DATE: 12-04-2023



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SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING
 GENERAL
 GENERAL SYMBOLS
 AND DRAWING NUMBERING LEGEND

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
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 REDUCED PLOTS

0 1"

DRAWING NO.
 MPG-0001-G-0020
 SHT 4 OF 91

LEGEND AND SYMBOLS

EXISTING FEATURES		PROPOSED FEATURES		EXISTING FEATURES		PROPOSED FEATURES	
	DRAIN ROCK		FENCE		SLOPE PERCENT OR RISE:RUN		SLOPE PERCENT OR RISE:RUN
	SUBSTATION FENCE		GATE		FLOW ARROW		FLOW ARROW
	GATE		DIRECTION ARROW		WATER SURFACE		WATER SURFACE
	MAJOR CONTOURS		PIEZOMETER		EARTH SLOPE		EARTH SLOPE
	MINOR CONTOURS						
	SILO(S), TANK(S)		STEEL CHECKER PLATE		BENTONITE CEMENT GROUT		BENTONITE CEMENT GROUT
	TRAFFIC SIGN		BENTONITE PELLET SEAL		CUTOFF WALL (DETAILS/SECTIONS)		CUTOFF WALL (DETAILS/SECTIONS)
	FIRE HYDRANT		ORIGINAL GROUND		AGGREGATE BASE		AGGREGATE BASE
	POST		DAM/LEEVEE FILL		DAM/LEEVEE EMBANKMENT FILL		DAM/LEEVEE EMBANKMENT FILL
	TREE		FINE SAND		CONCRETE		CONCRETE
	PALM TREE		CLSM		ROCK SLOPE PROTECTION		ROCK SLOPE PROTECTION
	BUSH		ASPHALT CONCRETE PAVEMENT		GRAVEL SURFACING		GRAVEL SURFACING
	POLE		CUTOFF WALL (PLANS)		LIMITS OF WORK		LIMITS OF WORK
	SURVEY CONTROL POINT		BREAK LINE		PIPE BREAK LINE		PIPE BREAK LINE
	MANHOLE		CENTERLINE		SPRING LINE CENTERLINE		SPRING LINE CENTERLINE
	MISC UTILITY		DEMOLITION		STRUCTURE, BUILDING OR FACILITY		STRUCTURE, BUILDING OR FACILITY
	UTILITY BOX		EXISTING PIPE TO BE ABANDONED		EXISTING PIPE TO BE DEMOLISHED		EXISTING PIPE TO BE DEMOLISHED
	TRAFFIC LIGHT		CONSTRUCTION CONTRACT LIMIT		CONSTRUCTION EASEMENT		CONSTRUCTION EASEMENT
	UTILITY JUNCTION		CABLE TV		COMMUNICATION		COMMUNICATION
	BILLBOARD		FIRE PROTECTION WATER SUPPLY		GUARD RAIL		GUARD RAIL
	CATCH BASIN, RECT		PROPERTY LINE		CONTRACTOR STAGING BOUNDARY		CONTRACTOR STAGING BOUNDARY
	VA-TRAF-BARR-POST		RIGHT OF WAY		SILT FENCE		SILT FENCE
	COMMUNICATION ANTENNA		TELEPHONE OVERHEAD		TELEPHONE UNDERGROUND		TELEPHONE UNDERGROUND
	UTILITY VALVE		TEMPORARY CONSTRUCTION EASEMENT		PERMANENT EASEMENT		PERMANENT EASEMENT
	SIGN, REFLECTIVE						
	MAILBOX						
	STORM DRAIN INLET						
	ROAD, CENTER						
	ROAD, ALIGNMENT						
	ROAD						
	DRIVEWAY						
	BUILDING OUTLINE						
	WALL, RETAINING WALL						
	WALL, RETAINING WALL WITH CONC BARRIER						
	PIPE, UNIDENTIFIED						
	HEADWALL						
	CULVERT						
	SANITARY SEWER UNDERGROUND PIPE		SANITARY SEWER MANHOLE		WATER UNDERGROUND PIPE		WATER UNDERGROUND PIPE
	SANITARY SEWER MANHOLE		NATURAL GAS UNDERGROUND PIPE		FIBER OPTIC LINE		FIBER OPTIC LINE
	WATER UNDERGROUND PIPE		ELEC UNDERGROUND		ELEC OVERHEAD		ELEC OVERHEAD
	NATURAL GAS UNDERGROUND PIPE		POWER POLE		GUY WIRE		GUY WIRE
	FIBER OPTIC LINE		GUY ANCHOR		TRANSMISSION TOWER, METAL		TRANSMISSION TOWER, METAL
	ELEC UNDERGROUND		CANAL				
	ELEC OVERHEAD						
	POWER POLE						
	GUY WIRE						
	GUY ANCHOR						
	TRANSMISSION TOWER, METAL						
	CANAL						
	RAILROAD						
	DITCH/FLOW LINE						
	STORM DRAIN UNDERGROUND PIPE		STORM DRAIN MANHOLE		SLOPE BANK, CUT		SLOPE BANK, CUT
	STORM DRAIN MANHOLE		SLOPE BANK, FILL		SPOT ELEVATION		SPOT ELEVATION
	SLOPE BANK, CUT		BORE LOCATION AND NUMBER		TEST PIT LOCATION AND NUMBER		TEST PIT LOCATION AND NUMBER
	SLOPE BANK, FILL		DWR AUGER HOLE		DWR CORE HOLE		DWR CORE HOLE
	SPOT ELEVATION		USBR CORE HOLE		GEOTECHNICAL BORING		GEOTECHNICAL BORING
	BORE LOCATION AND NUMBER		STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES				
	TEST PIT LOCATION AND NUMBER						
	DWR AUGER HOLE						
	DWR CORE HOLE						
	USBR CORE HOLE						
	GEOTECHNICAL BORING						
	STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES						
	N 1000.00						
	E 1000.00						

Plot Date: 12/11/2023 7:07 AM
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REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:	B. CHELONIS
DRAWN BY:	B. CHELONIS
CHECKED BY:	W. OHLIN
IN CHARGE:	P. RUDE
DATE:	12-04-2023



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REGISTERED PROFESSIONAL ENGINEER
 BECKY K. CHELONIS
 C 59851
 CALIFORNIA



SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 GENERAL
 CIVIL LEGEND




VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"
DRAWING NO.
MPG-0001-G-0101
SHT 5 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

Plot Date: 8/2/2023 8:57 AM
Saved By: DCAVE
File: C:\pwworking\hdr_sites_reservoir\mns01711\MPG-0001-G-0301.dwg

1	2	3
DESIGN CRITERIA		
1.	APPLICABLE CODE: 2022 CALIFORNIA BUILDING CODE (CBC) INCLUDING REFERENCED CODES AND STANDARDS.	
2.	REFER TO FACILITY DRAWINGS FOR ADDITIONAL AND SPECIFIC STRUCTURE LOADINGS AND REQUIREMENTS.	
3.	ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS SPECIFICALLY NOTED OTHERWISE.	
4.	DEAD LOADS: SELF WEIGHT	
5.	ROOF LOADS: GROUND SNOW LOAD, P _g = 0 PSF ROOF LIVE LOAD = 20 PSF	
6.	FLOOR LIVE LOADS: PROCESS AREAS = 200 PSF ELECTRICAL AREAS = 300 PSF CORRIDORS, STAIRWAYS, ACCESS WAYS = 100 PSF WALKWAYS AND ELEVATED PLATFORMS = 100 PSF VEHICLE DRIVE AREAS = AASHTO DESIGN TRUCK OR DESIGN TANDEM	
7.	WIND LOADS: ASCE 7-16 METHOD = MWFRS DIRECTIONAL PROCEDURE, UNO BASIC WIND SPEED (3-SECOND GUST) = 104 MPH, RISK CATEGORY IV BASIC WIND SPEED (3-SECOND GUST) = 100 MPH, RISK CATEGORY III BASIC WIND SPEED (3-SECOND GUST) = 93 MPH, RISK CATEGORY II EXPOSURE CATEGORY = C	
8.	FUNKS RESERVOIR SEISMIC LOADS: MAPPED SPECTRAL RESPONSE ACCELERATIONS S _s = 0.867g S ₁ = 0.359g SITE-SPECIFIC DESIGN SPECTRAL RESPONSE ACCELERATIONS S _{DS} = 0.TBDg S _{D1} = 0.TBDg SITE CLASS = D SEISMIC DESIGN CATEGORY = D	
9.	TERMINAL REGULATING RESERVOIR SEISMIC LOADS: MAPPED SPECTRAL RESPONSE ACCELERATIONS S _s = 0.841g S ₁ = 0.350g SITE-SPECIFIC DESIGN SPECTRAL RESPONSE ACCELERATIONS S _{DS} = 0.TBDg S _{D1} = 0.TBDg SITE CLASS = D SEISMIC DESIGN CATEGORY = D	
10.	RISK CATEGORY = SEE FACILITY DRAWINGS	
11.	IMPORTANCE FACTOR = SEE FACILITY DRAWINGS	
12.	LATERAL FORCE-RESISTING SYSTEM = SEE FACILITY DRAWINGS	
13.	FUNKS RESERVOIR SOIL DESIGN PARAMETERS: NET ALLOWABLE SOIL BEARING PRESSURES: = TBD PSF (SHALLOW FOUNDATIONS) GROUNDWATER (GW) ELEVATION: MAXIMUM HIGH GW = EL 205.0 EQUIVALENT DRAINED FLUID PRESSURES: ACTIVE: = TBD PCF AT REST: = TBD PCF PASSIVE: = TBD PCF EQUIVALENT UNDRAINED FLUID PRESSURES: ACTIVE: = TBD PCF AT REST: = TBD PCF PASSIVE: = TBD PCF DYNAMIC FLUID PRESSURES: YIELDING WALLS LATERAL FORCE: = TBD H LBS (APPLIED AT 0.6H) NON-YIELDING WALLS: = TBD H PSF WHERE H IS HEIGHT OF SOIL ADJACENT TO THE WALL VERTICAL SURCHARGE: = EQUIVALENT 2 FT OF SOIL COEFFICIENT OF FRICTION: = 0.TBD MODULUS OF SUBGRADE REACTION = TBD PCI (1 FT SQUARE PLATE) NATIVE SOIL UNIT WEIGHT = TBD PCF MINIMUM FOOTING EMBEDMENT DEPTH: = TBD IN	
14.	TERMINAL REGULATING RESERVOIR SOIL DESIGN PARAMETERS: NET ALLOWABLE SOIL BEARING PRESSURES: = TBD PSF (SHALLOW FOUNDATIONS) GROUNDWATER (GW) ELEVATION: MAXIMUM HIGH GW = EL 124.0 EQUIVALENT DRAINED FLUID PRESSURES: ACTIVE: = TBD PCF AT REST: = TBD PCF PASSIVE: = TBD PCF EQUIVALENT UNDRAINED FLUID PRESSURES: ACTIVE: = TBD PCF AT REST: = TBD PCF PASSIVE: = TBD PCF DYNAMIC FLUID PRESSURES: YIELDING WALLS LATERAL FORCE: = TBD H ² LBS (APPLIED AT 0.6H) NON-YIELDING WALLS: = TBD H PSF WHERE H IS HEIGHT OF SOIL ADJACENT TO THE WALL VERTICAL SURCHARGE: = EQUIVALENT 2 FT OF SOIL COEFFICIENT OF FRICTION: = 0.TBD MODULUS OF SUBGRADE REACTION = TBD PCI (1 FT SQUARE PLATE) NATIVE SOIL UNIT WEIGHT = TBD PCF MINIMUM FOOTING EMBEDMENT DEPTH: = TBD IN	
15.	FACTOR OF SAFETY FOR BOUYANCY UPLIFT RESISTANCE: NORMAL OPERATION FOS = 1.5 MINIMUM SCHEDULED MAINTENANCE FOS = 1.25 MINIMUM EXTREME MAINTENANCE FOS = 1.1 MINIMUM	

4	5	6
GENERAL INFORMATION		
1.	FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).	
2.	DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.	
3.	VERIFY FINAL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION OF THESE ELEMENTS.	
4.	FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.	
5.	DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC., UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.	
6.	VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.	
INSPECTION AND TESTING		
1.	SPECIAL INSPECTION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR INSPECTIONS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL SCHEDULE BOTH INSPECTIONS.	
2.	SPECIFIED CONCRETE AND MASONRY AND OTHER MATERIAL TESTING RELATED TO SPECIAL INSPECTION DURING CONSTRUCTION WILL BE OWNER FURNISHED.	
3.	SPECIFIED LABORATORY TEST MIXES AND SIMILAR TEST RESULTS TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO SPECIFICATIONS, AND SUBMITTED FOR REVIEW PRIOR TO ACCEPTANCE FOR USE ON THE PROJECT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.	
4.	SPECIAL INSPECTION AND TESTS AND STRUCTURAL OBSERVATION (OWNER FURNISHED) IS REQUIRED IN ACCORDANCE WITH CBC SECTIONS 110 AND 1704 AS INDICATED IN THE STATEMENT OF SPECIAL INSPECTIONS. REFER TO DRAWINGS [xxx] TO [xxx].	
FOUNDATIONS		
1.	REFER TO GEOTECHNICAL DATA REPORT NO. TBD.	
2.	EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE AND DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.	
3.	FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC BORINGS, TEST PITS AND DATA REPORTS.	
4.	NO BACKFILL SHALL BE PLACED BEHIND WALLS UNTIL THE WALL'S CONCRETE HAS ATTAINED 100 PERCENT AND TOP SUPPORTING SLAB'S CONCRETE HAS ATTAINED 80 PERCENT OF THEIR SPECIFIED 28 DAY COMPRESSIVE STRENGTH, OR UNTIL TOP-OF-WALL FRAMING SYSTEMS, INCLUDING STEEL DIAPHRAGMS, HAVE BEEN COMPLETED.	
5.	NO BACKFILL SHALL BE PLACED BEHIND CANTILEVERED, FREE TOP, WALLS UNTIL THE CONCRETE HAS ATTAINED 100 PERCENT OF ITS SPECIFIED 28 DAY COMPRESSIVE STRENGTH.	
6.	USE OF EXPLOSIVES IS ONLY ALLOWED WITH WRITTEN PERMISSION FROM ENGINEER.	
FORMWORK, SHORING, AND BRACING		
1.	STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.	
2.	TEMPORARY SHORING SHALL REMAIN IN PLACE UNTIL ELEVATED CONCRETE FLOOR OR SLABS HAVE REACHED 80 PERCENT OF THE 28 DAY COMPRESSIVE STRENGTH AS DETERMINED BY FIELD CYLINDER BREAKS.	
3.	"BURY" BARS OR "CARRIER" BARS ARE NOT ALLOWED FOR THE BOTTOM MATS OF REINFORCING IN ALL ELEVATED SLABS AND ARE NOT ALLOWED FOR THE TOP MATS OF REINFORCING IN ELEVATED SLABS LESS THAN 12 INCHES THICK.	

7	8	9	10																																																																																																																																																																								
CONCRETE REINFORCING																																																																																																																																																																											
1.	REINFORCING STEEL: TYPICAL: ASTM A615, GRADE 60 WELDED: ASTM A706, GRADE 60																																																																																																																																																																										
2.	FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI "MANUAL OF STANDARD PRACTICE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".																																																																																																																																																																										
3.	CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE: WHEN CAST AGAINST EARTH: 3" INTERIOR, DRY, HUMIDITY CONTROLLED AREAS: WALLS AND SLABS: 3/4" BEAM STIRRUPS AND COLUMN TIES: 1 1/2" OTHER CONCRETE SURFACES: 2"																																																																																																																																																																										
4.	REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING STANDARD DETAIL. WALL CORNER REINFORCING SIZES AND SPACINGS SHALL BE AS SHOWN ON THE DRAWINGS AND REFERENCED TO THIS DETAIL. TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE CORNER HORIZONTAL REINFORCING.																																																																																																																																																																										
5.	90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.																																																																																																																																																																										
6.	WALL FOOTING CORNER AND INTERSECTION REINFORCEMENT BARS SHALL BE EXTENDED INTO CONNECTING FOOTINGS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING FOOTING. OUTSIDE FACE WALL FOOTING REINFORCEMENT SHALL BE LAPPED WITH CORNER BARS. ALL WALL FOOTING REINFORCEMENT SHALL BE CONTINUOUS THROUGH COLUMNS OR PILASTERS FOOTINGS.																																																																																																																																																																										
7.	LAP VERTICAL WALL BARS WITH DOWELS FROM BASE SLABS AND EXTEND INTO TOP FACE OF ROOF SLABS AND LAP WITH TOP SLAB REINFORCEMENT. PROVIDE A MINIMUM OF FOUR FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL SHOWN OR REQUIRED BY NOTES ABOVE.																																																																																																																																																																										
8.	LOCATE ELEVATED SLAB AND BEAM TOP BAR SPLICES AT MIDSPAN AND BOTTOM BAR SPLICES AT SUPPORTS.																																																																																																																																																																										
9.	REINFORCING STEEL FOR FOOTINGS AND SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON BAR SUPPORTS WITH SPACERS TO KEEP REINFORCING ABOVE THE PREPARED GRADE. LIFTING REINFORCING OFF GRADE DURING CONCRETE PLACEMENT IS NOT PERMITTED.																																																																																																																																																																										
10.	REFER TO OPENING REINFORCING STANDARD DETAILS.																																																																																																																																																																										
11.	REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:																																																																																																																																																																										
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PRELIMINARY - NOT FOR CONSTRUCTION

CAST IN PLACE CONCRETE

- 28-DAY COMPRESSIVE STRENGTHS (TO MEET STRUCTURAL STRENGTH REQUIREMENTS):
 HYDRAULIC STRUCTURES: 4,500 PSI
 BUILDING STRUCTURES: 4,000 PSI
 CONCRETE FILL: 3,500 PSI
 CURBS AND SIDEWALKS: 3,500 PSI
 DUCT BANKS AND PIPE ENCASEMENTS
 NOT INTEGRAL WITH FOUNDATIONS: 3,500 PSI
- 56-DAY COMPRESSIVE STRENGTHS (TO MEET DURABILITY REQUIREMENTS FOR ACI 318 AND ACI 350):
 HYDRAULIC STRUCTURES: 5,000 PSI
 BUILDING STRUCTURES: 4,500 PSI
 CONCRETE FILL: 4,000 PSI
 CURBS AND SIDEWALKS: 4,000 PSI
 DUCT BANKS AND PIPE ENCASEMENTS
 NOT INTEGRAL WITH FOUNDATIONS: 4,000 PSI
- CONTINUOUS WATERSTOP AS SPECIFIED SHALL BE INSTALLED IN ALL CONSTRUCTION JOINTS IN WALLS AND SLABS OF WATER HOLDING BASINS AND BELOW GRADE STRUCTURES UNLESS SPECIFICALLY NOTED OTHERWISE.
- CONSTRUCTION JOINTS INDICATED ARE SUGGESTED LOCATIONS. CONTRACTOR MAY REVISE LOCATION OF JOINTS, SUBJECT TO SPECIFIED REQUIREMENTS. LAYOUT SHOWING ALL CONSTRUCTION JOINT LOCATIONS SHALL BE SUBMITTED FOR REVIEW BY ENGINEER.
- ROUGHEN AND CLEAN CONSTRUCTION JOINTS IN WALLS AND SLABS AS SPECIFIED PRIOR TO PLACING ADJACENT CONCRETE, EXPOSING CLEAN AGGREGATE OF 1/4" AMPLITUDE SOLIDLY EMBEDDED IN MORTAR MIX.
- COORDINATE PLACEMENT OF OPENINGS, PIPE PENETRATIONS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.
- NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.
- CONDUIT SHALL NOT BE PLACED PARALLEL WITH BEAM OR COLUMN REINFORCEMENT UNLESS SPECIFICALLY INDICATED IN DRAWINGS.
- PATCH FORM TIE HOLES IN ACCORDANCE WITH STANDARD DETAILS.

CONCRETE UNIT MASONRY

- MASONRY WALL TYPE: SPECIAL REINFORCED WALLS.
 - DESIGN COMPRESSIVE STRENGTH, f_m , OF THE FINISHED ASSEMBLY AND MATERIAL PROPERTIES SHALL BE PER THE TABLE BELOW.
 - MORTAR: ASTM C270, TYPE S, HYDRATED.
 - GROUT: ASTM C476 COARSE GROUT. USE OF WATER REDUCERS OR SUPERPLASTICIZERS IS NOT PERMITTED.
 - CONCRETE MASONRY UNITS: ASTM C90, MEDIUM WEIGHT, LINEAR SHRINKAGE SHALL NOT EXCEED 0.065 PERCENT.
- | DESIGN COMPRESSIVE STRENGTH f_m (PSI) | UNIT STRENGTH (PSI) | GROUT STRENGTH (PSI) MIN / MAX | MORTAR PROPERTIES |
|---|---------------------|--------------------------------|-------------------|
| 2,000 | 1,900 | 2,000 / 3500 | Type S |
- PLACE COURSES IN WALLS, COLUMNS, AND PILASTERS IN RUNNING BOND PATTERN.
 - PROVIDE MATCHING FOUNDATION DOWELS FOR ALL TYPICAL AND ADDITIONAL VERTICAL BARS.
 - PROVIDE VERTICAL BARS AND DOWELS WITH LAP LENGTHS AS SHOWN IN DETAIL 0422-004.
 - STAGGER ADJACENT LAP SPLICES BY 24 INCHES WHEN SEPARATED BY 3 INCHES OR LESS.
 - PROVIDE NUMBER OF FULL HEIGHT VERTICAL BARS AT EDGES OF OPENINGS AS SHOWN IN DETAIL 0422-004.
 - PROVIDE FULL HEIGHT VERTICAL BARS IN 3 CELLS AT WALL CORNERS AND INTERSECTIONS AS SHOWN IN DETAIL 0422-001.
 - PROVIDE HORIZONTAL CORNER AND INTERSECTION BARS WITH LAP LENGTHS AS SHOWN IN DETAIL 0422-001.
 - PROVIDE REINFORCED LINTELS ABOVE AND REINFORCED BOND BEAMS BELOW OPENINGS AS SHOWN IN DETAIL 0422-002.
 - PROVIDE FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS IN CELLS ADJACENT TO OPENINGS AS SHOWN IN DETAIL 0422-002.
 - GROUTING: SOLID GROUT ALL CMU WALLS.
 - DO NOT PLACE CONDUIT IN CELLS CONTAINING PARALLEL REINFORCEMENT.

WELDING

- WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS), LATEST EDITION:
 D1.1. STRUCTURAL WELDING CODE – STEEL
 D1.2. STRUCTURAL WELDING CODE – ALUMINUM
 D1.3. STRUCTURAL WELDING CODE – SHEET STEEL
 D1.4. STRUCTURAL WELDING CODE – REINFORCING STEEL
 D1.6. STRUCTURAL WELDING CODE – STAINLESS STEEL
- REPAIR WELDS FOUND DEFECTIVE IN ACCORDANCE WITH AWS D1.1 CLAUSE 7.25.
- USE INTERMITTENT WELDS AND A LOW HEAT INPUT WELDING PROCESS AT FIELD WELDS OF EMBED PLATES AND ANGLES TO AVOID SPALLING OR CRACKING OF THE EXISTING CONCRETE.
- BUTT JOINT AND GROOVE WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP) UNLESS INDICATED OTHERWISE.

STRUCTURAL STEEL AND METAL FABRICATIONS

- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:
 W-SHAPES A992
 MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETC. A36
 SQUARE OR RECTANGULAR STEEL TUBING A500, GRADE C
 STEEL PIPE A53, GRADE B
 STAINLESS STEEL SHAPES A276
- ALUMINUM SHALL CONFORM TO THE FOLLOWING STANDARDS:
 STRUCTURAL SHAPES B308
 PLATES B209
- STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, CURRENT EDITION, AND CURRENT OSHA STANDARDS.
- FASTENERS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO THE FOLLOWING EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE:
 UNLESS SHOWN OTHERWISE F3125, GRADE A325, TYPE1
 ANCHOR BOLTS (AB)
 STAINLESS STEEL F593, AISI TYPE 304 OR 316, CONDITION CW
 STEEL F1554, GR 36
 GALVANIZED STEEL F1554, GR 36 / A153
 MACHINE BOLTS (MB) A307, GRADE B
- ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE OF OIL, DIRT AND PAINT.
- NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL IS PERMITTED WITHOUT THE WRITTEN APPROVAL OF JACOBS.
- ALL STEEL MEMBERS EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED TO ASTM A123 UNLESS NOTED OTHERWISE. MEMBERS THAT ARE WELDED AFTER GALVANIZING SHALL BE TOUCHED UP WITH A ZINC RICH COATING AFTER COMPLETIONS AND INSPECTION OF THE WELD.

OPEN WEB METAL JOIST FRAMING

- JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AISC AND THE STEEL JOIST INSTITUTE (SJI).
- SEE ROOF FRAMING PLANS FOR DESIGN LOADS.
- LOADS INDICATED ON THE DRAWINGS ARE MINIMUM DESIGN LOADS AND SHALL NOT BE CONSTRUED TO BE ALL LOADS APPLICABLE TO THE DESIGN OF THE JOISTS. DEAD LOADS INFERRED BY THE DRAWINGS WHICH WOULD BE INCLUDED IN COMMON PRACTICE, INCLUDING EQUIPMENT LOADS AND CONSTRUCTION LOADS, SHALL BE INCLUDED IN THE DESIGN.
- VERIFY AND COORDINATE EQUIPMENT WEIGHTS, LOCATIONS, AND ATTACHMENT REQUIREMENTS PRIOR TO JOIST FABRICATION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE VERTICAL AND LATERAL SUPPORT OF EQUIPMENT AS SPECIFIED IN SECTION 01 88 15, ANCHORAGE AND BRACING. JOIST MANUFACTURER SHALL COORDINATE AND SUPPLY ADDITIONAL DIAGONAL WEB MEMBERS AT CONCENTRATED LOAD LOCATIONS.
- JOIST SIZES AND CHORD SIZES INDICATED ON THE PLANS ARE MINIMUM ONLY. DESIGN BY THE JOIST MANUFACTURER MAY RESULT IN A LARGER SIZE. JOISTS SHALL HAVE DOUBLE ANGLE CHORDS.
- DESIGN JOIST TOP CHORD AT END OF ROOF SUB-DIAPHRAGMS AND JOISTS DESIGNATED AS DRAG STRUTS FOR ADDITIONAL AXIAL LOAD (BOTH TENSION AND COMPRESSION) AS INDICATED ON THE ROOF FRAMING PLANS.
- PROVIDE CALCULATIONS, PRODUCT DATA, MATERIAL PROPERTIES, CONNECTION DETAILS, ETC FOR ALL TYPES OF JOISTS. CALCULATIONS SHALL BE STAMPED AND SIGNED BY AN ENGINEER REGISTERED IN THE STATE OF CA.
- JOIST BRIDGING, BOTTOM CHORD BRACING, AND OTHER ACCESSORIES SHALL BE PER THE MANUFACTURER'S STANDARDS AND AS INDICATED ON THE DRAWINGS. BRACING SHALL EXTEND TO WALLS, SEE DETAIL 0521-022.
- JOISTS SHALL BE CAMBERED FOR DEAD LOAD AS REQUIRED BY SJI. PROVIDE STANDARD SJI CAMBER UNLESS NOTED OTHERWISE. JOIST CAMBER SHALL BE SHOWN ON SHOP DRAWINGS.

STEEL DECKING

- FOR DECK SIZE, GAGE, AND FASTENING CONFIGURATIONS, SEE FRAMING PLANS. FASTENING CONFIGURATIONS SHOWN ARE SPECIFIC TO THE DECK PRODUCT USED AS BASIS OF DESIGN. CONTRACTOR SHALL FASTEN THE DECKING IN ACCORDANCE WITH INSTALLED DECK MANUFACTURER'S RECOMMENDATIONS TO MEET SPECIFIED CAPACITY REQUIREMENTS.
- WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3 "STRUCTURAL WELDING CODE SHEET STEEL".
- DECKING SHALL HAVE A MINIMUM 1 1/2 INCHES BEARING ON SUPPORTS.
- DECKING SHALL BE CONTINUOUS OVER THREE SPANS MINIMUM, EXCEPT WHERE SHOWN OTHERWISE.
- LOCATE OPENINGS FOR EQUIPMENT PER OTHER DISCIPLINE DRAWINGS.

DEFERRED SUBMITTALS

- DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO INSTALLATION OF THAT PORTION OF THE WORK.
- THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET BUILDING PERMITTING REQUIREMENTS FOR DESIGNED SYSTEMS. PRIOR TO INSTALLATION OF THE INDICATED STRUCTURAL ELEMENT, EQUIPMENT, DISTRIBUTION SYSTEM, OR COMPONENT OR ITS ANCHORAGE, SUBMIT THE REQUIRED CALCULATIONS AND SUPPORTING DATA AND DRAWINGS FOR REVIEW AND ACCEPTANCE.

SPECIFICATION SECTION	ITEM
01 88 15	ANCHORAGE AND BRACING
05 21 19	OPEN WEB STEEL JOIST FRAMING
33 16 13.12	BOLTED STEEL STORAGE TANK
40 05 15	PIPING SUPPORT SYSTEMS
OTHER	ANY EQUIPMENT OR COMPONENT IN WHICH A TECHNICAL SPECIFICATION REQUIRES SUBMITTAL OF EQUIPMENT OR ANCHORAGE SYSTEM CALCULATIONS

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DESIGNED BY:	J. KELLOGG
DRAWN BY:	S. METCALF
CHECKED BY:	H. HENRIKSON
IN CHARGE:	P. RUDE
DATE:	12-04-2023



REGISTERED PROFESSIONAL ENGINEER
 JEREMY KELLOGG
 5698 CALIFORNIA



SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING
 GENERAL
 STRUCTURAL NOTES 2

VERIFY SCALES <small>BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.</small>
DRAWING NO. MPG-001-G-0302 SHT 7 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

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ONE-LINE DIAGRAM

CONTROL DIAGRAM

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION															
	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE		DRAWOUT FUSED SWITCH AND VACUUM CONTACTOR, MEDIUM VOLTAGE		PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		LIMIT SWITCH, NORMALLY OPEN, CLOSING AT END OF TRAVEL															
	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE, UNO		DRAWOUT VACUUM CONTACTOR, MEDIUM VOLTAGE		PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		LIMIT SWITCH, NORMALLY CLOSED, OPENS AT END OF TRAVEL															
	CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO		MEDIUM VOLTAGE CABLE STRESS CONE TYPE TERMINATION, OPEN TERMINATOR OR BELOW		PUSH-BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK		TEMPERATURE SWITCH, OPENS ON TEMPERATURE RISE															
	CIRCUIT BREAKER, MAGNETIC TRIP SHOWN, TRIP RATING SHOWN, 3 POLE, UNO		SWITCH - LOAD BREAK, GROUP OPERATED, MEDIUM VOLTAGE		3 POSITION SELECTOR SWITCH MAINTAINED CONTACT		TEMPERATURE SWITCH, CLOSING ON TEMPERATURE RISE															
	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE, UNO		SWITCH W/ARCING HORNS, MEDIUM VOLTAGE		SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION WHEN NEEDED FOR CLARITY		FLOAT SWITCH, NORMALLY OPEN, CLOSING ON DESCENDING LEVEL															
	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE, UNO		DISCONNECTING FUSE - SOLID MATERIAL, MEDIUM VOLTAGE	<table border="1"> <tr><th colspan="4">POSITION</th></tr> <tr><th>CKT</th><th>HAND</th><th>OFF</th><th>REMOTE</th></tr> <tr><td>1</td><td>X</td><td>O</td><td>O</td></tr> <tr><td>2</td><td>O</td><td>O</td><td>X</td></tr> </table> X - CLOSED CONTACT O - OPEN CONTACT	POSITION				CKT	HAND	OFF	REMOTE	1	X	O	O	2	O	O	X		FLOAT SWITCH, NORMALLY OPEN, CLOSING ON RISING LEVEL
POSITION																						
CKT	HAND	OFF	REMOTE																			
1	X	O	O																			
2	O	O	X																			
	SWITCH, CURRENT RATING INDICATED, 3 POLE, UNO		SWITCH - HOOK STICK OPERATED, SINGLE POLE, MEDIUM VOLTAGE		TOGGLE SWITCH, ON-OFF TYPE		PRESSURE SWITCH, NORMALLY CLOSED, OPENS ON RISING PRESSURE															
	FUSE, CURRENT RATING AND QUANTITY INDICATED		FUSE - EXPULSION, HOOK STICK OPERATED, SINGLE POLE, MEDIUM VOLTAGE		SELECTOR SWITCH, ON-OFF TYPE		PRESSURE SWITCH, NORMALLY OPEN, CLOSING ON RISING PRESSURE															
	MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED, FVNR UNO		GROUND SWITCH, GANG OPERATED		MUSHROOM HEAD PUSHBUTTON SWITCH		FLOW SWITCH, CLOSING ON INCREASED FLOW															
	ELECTRONIC STARTER/SPEED CONTROL RVSS = REDUCED VOLTAGE SOFT STARTER ASD = AC ADJUSTABLE SPEED DRIVE DC = DC ADJUSTABLE SPEED DRIVE RVAT = REDUCED VOLTAGE AUTO TRANSFORMER TYPE RVRT = REDUCED VOLTAGE REACTOR TYPE		TERMINAL BLOCK LUG		INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR		FLOW SWITCH, OPENS ON INCREASED FLOW															
	CABLE OR BUS CONNECTION POINT		DELTA CONNECTION		INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN S - STROBE B - BLUE R - RED C - CLEAR W - WHITE		NEUTRAL GROUND CURRENT LIMITING RESISTOR															
	KEY INTERLOCK		WYE GROUNDED CONNECTION, SOLID GROUND		INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN S - STROBE B - BLUE R - RED C - CLEAR W - WHITE		CALIBRATING RESISTOR															
	SURGE ARRESTER (GAS TYPE)		WYE NEUTRAL GROUND RESISTOR OR IMPEDANCE CONNECTION		ELAPSED TIME METER		TACHOMETER GENERATOR															
	CAPACITOR - KVAR INDICATED, 3 PHASE		RELAY OR DEVICE, FUNCTION NUMBER AS INDICATED		MOTOR STARTER CONTACTOR COIL		GROUND FAULT SENSOR															
	AC MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED		CURRENT TRANSFORMER, ZERO SEQUENCE, RATIO AND QUANTITY INDICATED		CONTROL RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT		FLASHER															
	GENERATOR, KW/KVA RATING SHOWN		BUSHING CURRENT TRANSFORMER, MULTI-RATIO AND QUANTITY INDICATED		TIME DELAY RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT		SEALED CONTACT															
	ANALOG METER WITH SWITCH - SCALE RANGE SHOWN V = VOLTAGE KW = KILOWATTS A = AMPERAGE KVAR = KILOVAR PF = POWER FACTOR		METAL OXIDE SURGE ARRESTER, MAXIMUM CONTINUOUS OVERVOLTAGE RATING AND QUANTITY INDICATED		SOLENOID VALVE, X INDICATES NUMERICAL ORDER IN CIRCUIT		BUZZER															
	DIGITAL POWER METER (MULTIFUNCTION)		MULTI-FUNCTION DIGITAL RELAY MPR = MOTOR PROTECTION RELAY FMR = FEEDER MANAGEMENT RELAY MMR = MAIN MANAGEMENT RELAY GPR = GENERATOR PROTECTIVE RELAY		CONTACT - NORMALLY OPEN		POTENTIOMETER															
	UTILITY REVENUE METER				CONTACT - NORMALLY CLOSED		RESISTOR															
	GROUND				REMOTE DEVICE		BLOWN FUSE INDICATOR															
	TRANSFORMER, SIZE, VOLTAGE RATINGS AND PHASE INDICATED				TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSING WHEN ENERGIZED AND TIMED OUT		COAXIAL CABLE															
	SHIELDED ISOLATION TRANSFORMER				TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPENS WHEN ENERGIZED AND TIMED OUT		DUPLEX RECEPTACLE															
	POTENTIAL TRANSFORMER, VOLTAGE RATING AND QUANTITY INDICATED				TIME DELAY RELAY CONTACT, CLOSING WHEN ENERGIZED, OPENS WHEN DE-ENERGIZED AND TIMED OUT		RELAY, WITH MECHANICAL LATCH															
	CURRENT TRANSFORMER, RATIO(100:5) AND QUANTITY INDICATED (3)				TIME DELAY RELAY CONTACT, OPENS WHEN ENERGIZED, CLOSING WHEN DE-ENERGIZED AND TIMED OUT		FULLWAVE DIODE BRIDGE (AC TO DC)															
	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS DIVISION				MOTOR SPACE HEATER																	
	TRANSIENT VOLTAGE SURGE SUPPRESSOR				TERMINAL BLOCK, REMOTE																	
	SURGE PROTECTIVE DEVICE				TERMINAL BLOCK, INTERNAL																	
	DRAWOUT POWER CIRCUIT BREAKER, MEDIUM VOLTAGE				FUSED TERMINAL BLOCK																	
	NON DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE				FUSE RATING INDICATED																	
	DRAWOUT FUSED SWITCH AND CONTACTOR, MEDIUM VOLTAGE				TRANSFORMER, CONTROL POWER																	
					THERMOCOUPLE																	
					CAPACITOR																	
					BATTERY																	

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:	C. CUSWORTH
DRAWN BY:	E. GARCIA
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DATE:	12-04-2023

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SITES RESERVOIR
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 GENERAL ELECTRICAL LEGEND 1

VERIFY SCALES	BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
	0 1"
DRAWING NO.	MPG-0001-G-0601
SHT	8 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

POWER SYSTEM PLAN

GROUND SYSTEM PLAN

ABBREVIATIONS

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED. RACEWAY, CONDUCTOR, TERMINATION AND CONNECTION IN THIS DIVISION
	MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN
	PANELBOARD - SURFACE MOUNTED
	PANELBOARD LETTER OR NUMBER FACILITY NUMBER LP - LOW VOLTAGE PANEL DP - DISTRIBUTION PANEL
	PANELBOARD - FLUSH MOUNTED
	TERMINAL JUNCTION BOX
	MOTOR, SQUIRREL CAGE INDUCTION
	GENERATOR, VOLTAGE AND SIZE AS INDICATED
	HOME RUN - DESTINATION SHOWN
	EXPOSED CONDUIT AND CONDUCTORS*
	CONCEALED CONDUIT AND CONDUCTORS*
NOTE: ALL UNMARKED CONDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND CONDUCTORS IN 3/4" CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF NO. 12 CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE.	
	CROSSHATCHES WITH BAR INDICATE NO. 10 CONDUCTOR. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.
	CONDUIT AND CONDUCTOR CALLOUT, SEE LEGEND.
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED
	CONDUIT TERMINATION AT CABLE TRAY
	EXISTING CONDUIT / DUCT BANK
	BUS DUCT - SEE SPECIFICATIONS
	CONCRETE ENCASED CONDUIT
	DIRECT BURIED CONDUIT
	FIBER OPTIC CONDUIT
	CONCRETE ENCASED DUCT BANK WHERE XXXX IS THE DUCT BANK NAME. SEE CIRCUIT AND RACEWAY CODING DEFINITION
	CONCEALED CONDUIT ROUTING AREA
	CONDUIT ROUTING AREA
	CABLE TRAY
	TRANSFORMER
	GENERAL CONTROL OR WIRING DEVICE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE
	CONTROL STATION. SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED
	NONFUSED DISCONNECT SWITCH, CURRENT RATING INDICATED, 3 POLE
	FUSED DISCONNECT SWITCH, CURRENT RATING INDICATED (60/40, 60 = SWITCH RATING / 40 = FUSE RATING) 3 POLE
	COMBINATION CIRCUIT BREAKER AND MAGNETIC STARTER, NEMA SIZE INDICATED
	BREAKER SEPARATELY MOUNTED, CURRENT RATING INDICATED (100/40, 100 = FRAME SIZE; 40 = TRIP RATING) 3 POLE
	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED
	LIGHTING CONTACTOR, CURRENT RATING INDICATED
	STARTER, MAGNETIC NEMA SIZE INDICATED

SYMBOL	DESCRIPTION
	CONVENIENCE RECEPTACLE - DUPLEX UNLESS NOTED OTHERWISE WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK CRE - CORROSION RESISTANT GFCI - GROUND FAULT CIRCUIT INTERRUPTER SUBSCRIPT NUMBER AT RECEPTACLE INDICATES CIRCUIT
	240V RECEPTACLE
	CONVENIENCE RECEPTACLE - QUADRUPLEX
	MULTI OUTLET ASSEMBLY
	DUPLEX CONVENIENCE RECEPTACLE - FLUSH IN FLOOR
	CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE
	RECEPTACLE, SPECIAL PURPOSE-NEMA CONFIGURATION AND AMPERAGE INDICATED
	THERMOSTAT
	UTILITY REVENUE METERING FACILITY
	ELECTRIC UNIT HEATER
	ELECTRIC AIR CONDITIONER (SELF CONTAINED UNIT)
	UTILITY POLE WITH GUY WIRE
	ELECTRICAL BOX/VAULT IDENTIFICATION XX: HH - HANDHOLE MH - MANHOLE PB - PULLBOX
	YY: MV - MEDIUM VOLTAGE POWER P - LOW VOLTAGE POWER C - CONTROL
	ZZ: IDENTIFICATION NUMBER (e.g. 01)

LIGHTING SYSTEM PLAN

	LUMINAIRE, SEE SCHEDULE
	LUMINAIRE WITH INTERNAL BATTERY BACKUP, SEE SCHEDULE
	STRIP LUMINAIRE, SEE SCHEDULE
	LUMINAIRE AND POLE, SEE SCHEDULE
	WALL MOUNTED LUMINAIRE, SEE SCHEDULE
	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN
	STANDBY LIGHTING UNIT, SURFACE MOUNTED, SEE SCHEDULE
	EXIT LIGHTS - FILLED SECTION INDICATES LIGHTED FACE, ARROW INDICATES EGRESS DIRECTIONAL INDICATORS, XX = FIXTURE NUMBER, SEE SCHEDULE
	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER AT LUMINAIRE INDICATES CIRCUIT
	WALL SWITCH: 2- DOUBLE POLE P- PILOT LIGHT 3- THREE WAY K- KEY OPERATED 4- FOUR WAY D- DIMMER WP- WEATHERPROOF CRE- CORROSION RESISTANT EX- EXPLOSIONPROOF L- MOMENTARY 3-WAY M - MOTOR RATED MS- MANUAL STARTER WITH OVERLOADS LV- ON/OFF/DIMMING (0-10V)
	OCCUPANCY SENSOR
	LIGHTING CONTACTOR
	MOTION DETECTOR
	PHOTOCELL

	GROUND ROD
	GROUND ROD IN TEST WELL
	GROUNDING CONDUCTOR, SIZE AS INDICATED
	PIGTAIL FOR CONNECTION TO EQUIPMENT CABINET OR FRAME
	EQUIPMENT GROUND BUS
	EQUIPMENT NEUTRAL BUS

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION	ABBREVIATIONS	DESCRIPTION
A	AMMETER, AMPERE, AMBER	M	MAGNETIC CONTACTOR
AF	AMPERE FRAME	MCC	MOTOR CONTROL CENTER
AFD	ADJUSTABLE FREQUENCY DRIVE	MH	MANHOLE, METAL HALIDE
AFF	ABOVE FINISHED FLOOR	MO	MOTOR OPERATER
AFG	ABOVE FINISHED GRADE	MS	MOTOR STARTER
AS	AMMETER SWITCH, AMPERE SENSOR	MSC	MFR SUPPLIED CABLE
ASU	AIR SUPPLY UNIT	MT	MOUNT
AT	AMPERE TRIP	MTD	MOUNTED
ATC	AUTOMATIC THROWOVER CONTROL	N	NEUTRAL
ATS	AUTOMATIC TRANSFER SWITCH	NA	NON-AUTOMATIC
BC	BARE COPPER	NC	NORMALLY CLOSED
BCP	BRANCH CIRCUIT PANEL	NL	NIGHT LIGHT
BPP	BRANCH POWER PANEL	NO	NORMALLY OPEN
BRKR	BREAKER	NP	NAMEPLATE
C	CONDUIT, CONTACTOR	OC	ON CENTER
CB	CIRCUIT BREAKER	OL	OVERLOAD RELAY
CC	CONTROL CABLE	PB	PULL BOX, PUSH BUTTON SWITCH
CKT	CIRCUIT	PC	PHOTOCELL
CPT	CONTROL POWER TRANSFORMER	PH	PHASE
CR	CONTROL RELAY	PMR	PHASE MONITOR RELAY
CRE	CORROSION-RESISTANT	PNL	PANEL
CRS	COATED RIGID STEEL CONDUIT	PS	PRESSURE SWITCH
CT	CURRENT TRANSFORMER	PT	POTENTIAL TRANSFORMER
DC	DIRECT CURRENT	PVC	POLYVINYL CHLORIDE CONDUIT
DIV	DIVISION	R	RED
E	EMPTY	RCPT	RECEPTACLE
EO	ELECTRIC OPERATOR	REQD	REQUIRED
EQPT	EQUIPMENT	RM	REMOTE MULTIPLEXER
ESS	EMERGENCY SHUTDOWN SWITCH	RS	RIGID STEEL CONDUIT
ETM	ELAPSED TIME METER	RT	REMOTE TELEMETRY
EXST	EXISTING	RVNR	REDUCED VOLTAGE NON-REVERSING
FDR	FEEDER	RVR	REDUCED VOLTAGE REVERSING
F	FUSE	SA	SURGE ARRESTOR
FLR	FLOOR	SCCR	SHORT CIRCUIT CURRENT RATING
FLUOR	FLUORESCENT	S/N	SOLID NEUTRAL
FVNR	FULL VOLTAGE NON-REVERSING	SPD	SPEED
FVR	FULL VOLTAGE REVERSING	SST	STAINLESS STEEL
G	GREEN, GROUND	SV	SOLENOID VALVE
GALV	GALVANIZED	SW	SWITCH
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SWBD	SWITCHBOARD
GFR	GROUND FAULT RELAY	T	THERMOSTAT
GND	GROUND	TB	TERMINAL BOARD
H	HIGH SPEED	TC	TIME CLOSE
HH	HANDHOLE	TD	TEMPERATURE DETECTOR
HID	HIGH INTENSITY DISCHARGE	TDR	TEMPERATURE DETECTOR RELAY
HPS	HIGH PRESSURE SODIUM	TDB	TERMINAL JUNCTION BOX
HS	HAND SWITCH	T.O.	TIME OPEN
IC	INTERRUPTING CAPACITY	TS	TEMPERATURE SWITCH
I & C	INSTRUMENTATION AND CONTROL	TSP	TEMPERATURE SWITCH
INCAND	INCANDESCENT	TST	TEMPERATURE SWITCH
INST	INSTANTANEOUS	TYP	TYPICAL
		UH	UNIT HEATER
		UVR	UNDER VOLTAGE RELAY
		V	VOLTMETER, VOLT
		VS	VOLTMETER SWITCH

ABBREVIATIONS	DESCRIPTION	ABBREVIATIONS	DESCRIPTION
J, J-BOX	JUNCTION BOX	W	WATT
K	KEY INTERLOCK	WHD	WATT HOUR DEMAND METER
L	LIGHTING CONTACTOR, LOW SPEED	WP	WEATHERPROOF
LOS	LOCKOUT STOP PUSH BUTTON	XFDR	TRANSFORMER
LR	LATCHING RELAY	XFMR	TRANSFORMER
LT FLEX	LIQUID TIGHT FLEX CONDUIT		
LTS	LIGHTS		

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SITES RESERVOIR
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GENERAL ELECTRICAL LEGEND 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"
DRAWING NO.
MPG-001-G-0602
SHT 9 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

**ONE LINE PROTECTION RELAYING AND
ELEMENTARY DIAGRAMS - 1**

SYMBOL	DESCRIPTION
51 or	DEVICE FUNCTION NUMBER INDICATED, SEE DEVICE TABLE
	CONTROL SWITCH TRIP
	CONTROL SWITCH CLOSE
43/CS	43 - DEVICE FUNCTION NUMBER, SEE DEVICE TABLE
	VOLTMETER SWITCH
	AMMETER SWITCH
	INDICATING LAMP - SWITCHBOARD TYPE INDICATING LAMP LENS COLORS INDICATED AS FOLLOWS: A - AMBER R - RED B - BLUE W - WHITE G - GREEN
	VOLTMETER
	AMMETER
	WATTMETER
	FREQUENCY METER
	POWER FACTOR METER
	WATT-HOUR METER
	ELAPSED TIME METER
	TACHOMETER
	WATTS TRANSDUCER
	POWER FACTOR TRANSDUCER
	TIME DELAY
4	RELAY COIL, DEVICE FUNCTION NUMBER PER ANSI 37.2 - AMERICAN STANDARD MANUAL AND AUTOMATIC STATION CONTROL, SUPERVISORY AND ASSOCIATED TELEMETRY EQUIPMENT
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	REMOTE DEVICE
	TEST SWITCH CURRENT ELEMENT
	TEST SWITCH POTENTIAL ELEMENT
	NEUTRAL CONNECTION
	DIODE
	INSTRUMENTATION CABLE, SHIELDED
	NEUTRAL GROUNDING RESISTOR
	PHASE SHIFTING TRANSFORMER

**ONE LINE PROTECTION RELAYING AND
ELEMENTARY DIAGRAMS - 2**

DEVICE FUNCTION NO.	DEVICE DESCRIPTION
21	IMPEDANCE/DISTANCE RELAY
25A	AUTOMATIC SYNCHRONIZER
25C	SYNCH CHECK RELAY
27	UNDERVOLTAGE RELAY
32	REVERSE POWER RELAY
40	GENERATOR LOSS OF EXCITATION RELAY
43CSE	AUTOMATIC POWER TRANSFER AND LOAD CONTROL MODE SEL. SWITCH
43CSX	MODE SEL. SWITCH
46	GENERATOR CURRENT UNBALANCE RELAY
49	THERMAL RELAY
50GS	INSTANTANEOUS OVERCURRENT DEVICE, GROUND SENSOR
50	INSTANTANEOUS OVERCURRENT DEVICE,
51	TIME OVERCURRENT RELAY
51G	TIME OVERCURRENT RELAY, GROUND FAULT
51V	TIME OVERCURRENT, VOLTAGE RESTRAINED
52	POWER CIRCUIT BREAKER
52CSX	POWER CIRCUIT BREAKER CONTROL SWITCH
59	OVERVOLTAGE RELAY
60	VOLTAGE OR CURRENT BALANCE RELAY
65A	ENGINE GOVERNOR, SPEED CONTROL
65A, MOP	ENGINE GOVERNOR, SPEED CONTROL MOTOR OPERATED POTENTIOMETER
65A, RL	ENGINE GOVERNOR, SPEED CONTROL RAISE/LOWER SWITCH
65B	ENGINE GOVERNOR, LOAD CONTROL
65B, MOP	ENGINE GOVERNOR, LOAD CONTROL MOTOR OPERATED POTENTIOMETER
65B, RL	ENGINE GOVERNOR, % LOAD RAISE/LOWER SWITCH
65E	AUTOMATIC POWER TRANSFER AND LOAD CONTROL, WOODWARD APTL
65F	AUTOMATIC GENERATOR LOADING CONTROL, WOODWARD AGLC
67	DIRECTIONAL TIME OVERCURRENT RELAY
74	ALARM RELAY
810/U	FREQUENCY RELAY, OVER/UNDER
86	LOCKOUT RELAY
87	DIFFERENTIAL PROTECTIVE RELAY
90	VOLTAGE REGULATOR
90, MOP	ENGINE EXCITATION, POWER OPERATED POTENTIOMETER
90PF	ENGINE EXCITATION, POWER FACTOR CONTROL
90RL	ENGINE EXCITATION, RAISE/ LOWER SWITCH

X = DEVICE NUMBER, WHEN THERE ARE MULTIPLE UNITS

GENERAL CIRCUIT CONDUCTOR AND CONDUIT IDENTIFICATION

POWER CIRCUIT CALLOUTS		MULTICONDUCTOR POWER CABLE CIRCUIT CALLOUTS	
[P1] [1/2"FLEX, 2#12, #12G]	[P24] [1"C, 3#8, 3#14, 1#10G]	[PC1] [3/4"C, 1 (3C#12, 1#12G) TYPE 2]	
[P2] [3/4"C, 2#12, 1#12G]	[P25] [1"C, 3#8, 4#14, 1#10G]	[PC2] [3/4"C, 1 (3C#10, 1#10G) TYPE 2]	
[P3] [3/4"C, 3#12, 1#12G]	[P26] [1"C, 3#8, 5#14, 1#10G]	[PC3] [3/4"C, 1 (3C#8, 1#10G) TYPE 2]	
[P4] [3/4"C, 4#12, 1#12G]	[P27] [1"C, 2#6, 1#10G]	[PC4] [3/4"C, 2 (3C#12, 1#12G) TYPE 2]	
[P5] [3/4"C, 5#12, 1#12G]	[P28] [1"C, 3#6, 1#8G]	[PC5] [1"C, 2 (3C#10, 1#10G) TYPE 2]	
[P6] [3/4"C, 6#12, 1#12G]	[P29] [1"C, 3#6, 2#14, 1#8G]	[PC1A] [3/4"C, 1 (2C#12, 1#12G) TYPE 2]	
[P7] [3/4"C, 7#12, 1#12G]	[P30] [1 1/4"C, 3#6, 3#14, 1#8G]	[PC2A] [3/4"C, 1 (2C#10, 1#10G) TYPE 2]	
[P8] [3/4"C, 8#12, 1#12G]	[P31] [1 1/4"C, 3#6, 4#14, 1#8G]		
[P9] [3/4"C, 3#12, 2#14, 1#12G]	[P32] [1 1/4"C, 3#6, 5#14, 1#8G]		
[P10] [3/4"C, 3#12, 3#14, 1#12G]	[P33] [1 1/4"C, 3#4, 1#8G]		
[P11] [3/4"C, 3#12, 4#14, 1#12G]	[P34] [1 1/4"C, 3#4, 3#14, 1#8G]		
[P12] [3/4"C, 3#12, 5#14, 1#12G]	[P35] [1 1/4"C, 3#4, 5#14, 1#8G]		
[P13] [3/4"C, 3#12, 6#14, 1#12G]	[P36] [1 1/4"C, 3#3, 1#6G]		
[P14] [1"C, 3#12, 7#14, 1#12G]	[P37] [1 1/4"C, 3#3, 3#14, 1#6G]		
[P15] [3/4"C, 2#10, 1#10G]	[P38] [1 1/4"C, 3#2, 1#6G]		
[P16] [3/4"C, 3#10, 1#10G]	[P39] [1 1/2"C, 3#1, 1#6G]		
[P17] [3/4"C, 3#10, 2#14, 1#10G]	[P40] [2"C, 3#1, 3#14, 1#6G]		
[P18] [3/4"C, 3#10, 3#14, 1#10G]	[P41] [2"C, 3#2/0, 1#4G]		
[P19] [3/4"C, 3#10, 4#14, 1#10G]	[P42] [2"C, 3#3/0, 1#4G]		
[P20] [1"C, 3#10, 5#14, 1#10G]	[P43] [2"C, 3#4/0, 1#3G]		
[P21] [1"C, 2#8, 1#10G]			
[P22] [1"C, 3#8, 1#10G]			
[P23] [1"C, 3#8, 2#14, 1#10G]			
ANALOG CIRCUIT CALLOUTS		CONTROL CIRCUIT CALLOUTS	
[A1] [3/4"C, 1 TYPE 3]	[C1] [3/4"C, MSC]	[CC3] [3/4"C, 1-3C TYPE 1]	
[A2] [3/4"C, 2 TYPE 3]	[C2] [3/4"C, 2#14, 1#14G]	[CC5] [3/4"C, 1-5C TYPE 1]	
[A3] [1"C, 3 TYPE 3]	[C3] [3/4"C, 3#14, 1#14G]	[CC7] [3/4"C, 1-7C TYPE 1]	
[A4] [1 1/4"C, 4 TYPE 3]	[C4] [3/4"C, 4#14, 1#14G]	[CC9] [1"C, 1-9C TYPE 1]	
[A5] [1 1/4"C, 5 TYPE 3]	[C5] [3/4"C, 5#14, 1#14G]	[CC12] [1"C, 1-12C TYPE 1]	
[A6] [1 1/4"C, 6 TYPE 3]	[C6] [3/4"C, 6#14, 1#14G]	[CC19] [1 1/2"C, 1-19C TYPE 1]	
[A7] [1 1/2"C, 7 TYPE 3]	[C7] [3/4"C, 7#14, 1#14G]	[CC25] [1 1/2"C, 1-25C TYPE 1]	
[A8] [1 1/2"C, 8 TYPE 3]	[C8] [3/4"C, 8#14, 1#14G]	[CC37] [2"C, 1-37C TYPE 1]	
[A9] [1 1/2"C, 9 TYPE 3]	[C9] [3/4"C, 9#14, 1#14G]	[CC31] [1-7C #12 TYPE 1]	
[A10] [2"C, 10 TYPE 3]	[C10] [3/4"C, 10#14, 1#14G]		
[A11] [2"C, 11 TYPE 3]	[C11] [3/4"C, 11#14, 1#14G]		
[A12] [2"C, 12 TYPE 3]	[C12] [3/4"C, 12#14, 1#14G]		
[A13] [2"C, 13 TYPE 3]	[C13] [3/4"C, 13#14, 1#14G]		
[A14] [2"C, 14 TYPE 3]	[C14] [1"C, 14#14, 1#14G]		
[A15] [3/4"C, 1 TYPE 4]	[C15] [1"C, 15#14, 1#14G]		
[A16] [3/4"C, 2 TYPE 4]	[C16] [1"C, 16#14, 1#14G]		
[A17] [1"C, 3 TYPE 4]	[C17] [1"C, 17#14, 1#14G]		
[A18] [1 1/4"C, 4 TYPE 4]	[C18] [1"C, 18#14, 1#14G]		
[A19] [1 1/4"C, 5 TYPE 4]	[C19] [1"C, 19#14, 1#14G]		
[A20] [1 1/4"C, 6 TYPE 4]	[C20] [1"C, 20#14, 1#14G]		
[A21] [1 1/2"C, 7 TYPE 4]	[C21] [1"C, 21#14, 1#14G]		
[A22] [1 1/2"C, 8 TYPE 4]	[C22] [1"C, 22#14, 1#14G]		
[A23] [2"C, 9 TYPE 4]	[C23] [1"C, 23#14, 1#14G]		
[A24] [3/4"C, 1-4 pr. TYPE 5]	[C24] [1 1/4"C, 24#14, 1#14G]		
[A25] [1"C, 2-4 pr. TYPE 5]	[C25] [1 1/4"C, 25#14, 1#14G]		


NOTES:

1. FOR CABLE TYPES, SEE SPECIFICATIONS.
2. POWER CIRCUIT CALLOUTS ARE BASED ON THE AREA OF THW CONDUCTORS. CONTROL CIRCUIT CALLOUTS ARE BASED ON THE AREAS OF SCHEDULE 40 PVC CONDUIT AND TYPES XHHW & XHHW-2 INSULATION.
3. SIZING OF CONDUCTORS #14WG AND SMALLER BASED ON AMPACITIES AT 60 DEGREES C, SIZING OF CONDUCTORS #1/0AWG AND LARGER BASED ON AMPACITIES AT 75 DEGREES C.
4. WHERE CIRCUITS ARE UNDERGROUND, DIRECT BURIED OR CONCRETE ENCASED, MINIMUM CONDUIT SIZE SHALL BE 1".
5. FOR METRIC CONDUIT SIZES USE THE FOLLOWING CONVERSION:

Plot Date: 11/22/2023 8:16 AM
 Saved By: RS033139
 File: C:\pwworking\hd_r_sites_reservoir\dwgs\01711\MPG-0001-G-0603.dwg

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY:	C. CUSWORTH
DRAWN BY:	E. GARCIA
CHECKED BY:	J. LANDMAN
IN CHARGE:	P. RUDE
DATE:	12-04-2023



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CRAIG M. CUSWORTH
19120 CALIFORNIA




SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING
GENERAL
ELECTRICAL LEGEND 3

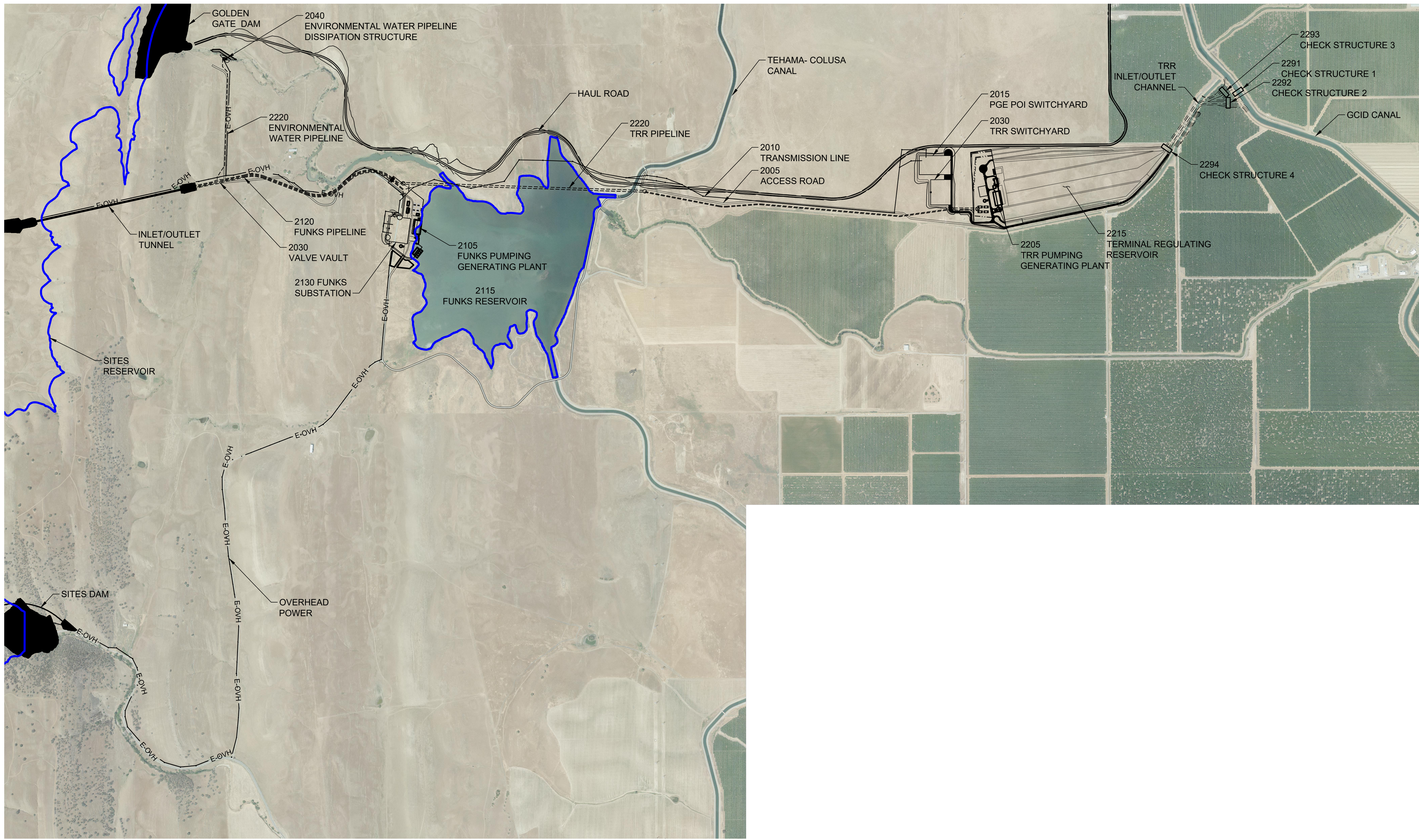
VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.

 1"

DRAWING NO.
MPG-0001-G-0603
SHT 10 OF 91

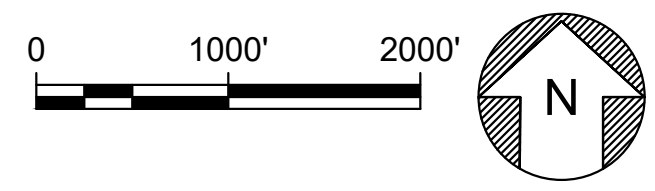
PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL NOTES

1. AERIAL PHOTOGRAPHY WAS FLOWN ON MAY 13 AND 14, 2022 BY GEOTERRA, INC. AND WAS DELIVERED TO JACOBS IN SEPTEMBER 2022.
2. MAPPING WAS COMPILED BY R.E.Y. ENGINEERS, INC. FROM AERIAL LIDAR DATA, COLLECTED BY GEOTERRA, INC. ON FEBRUARY 8 AND 9, 2022, AND SUPPLEMENTAL GROUND SURVEY AND BATHYMETRY PERFORMED BY R.E.Y. ENGINEERS.
3. HORIZONTAL DATUM: 2011 REALIZATION OF THE NORTH AMERICAN DATUM OF 1983 (NAD83(2011)), EPOCH 2017.50. MAPPING PROJECTION IS US STATE PLANES COORDINATES, CALIFORNIA ZONE 2, SURVEY FEET.
4. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID18.
5. SOURCE OF BATHYMETRY IN FUNKS RESERVOIR: R.E.Y. ENGINEERS, INC CONDUCTED THE BATHYMETRIC SURVEY IN SEPTEMBER OF 2020. DATA COLLECTION WAS BY EXTENDED RANGE-POLE WITH GPS RTK ROVER FROM A RAFT. DENSE VEGETATION IN THE RESERVOIR PREVENTED USE OF SONAR.
6. CONTOUR INTERVAL IS 1 FOOT UNLESS OTHERWISE SHOWN
7. SITES PROJECT JOINT POWERS AUTHORITY GPS CONTROL NETWORK ESTABLISHED IN JANUARY 2023 RECORD OF SURVEY IS RECORDED WITH COLUSA COUNTY RECORDS, DOCUMENT NUMBER 2023-0001608 AND WAS FILED JUNE 27, 2023..

PLAN
HORIZ SCALE: 1" = 1000'



Plot Date: 11/30/2023 11:59 AM File: C:\pwworking\hdr_sites_reservoir\dms01741\MPG-0045-C-2001.dwg Saved By: DCAVE

DESIGNED BY:	B. CHELONIS
DRAWN BY:	B. CHELONIS
CHECKED BY:	W. OHLIN
IN CHARGE:	P. RUDE
DATE:	12-04-2023

REV	DATE	BY	CHK	APPR	DESCRIPTION



REGISTERED PROFESSIONAL ENGINEER
BECKY K. CHELONIS
C 59851
CALIFORNIA

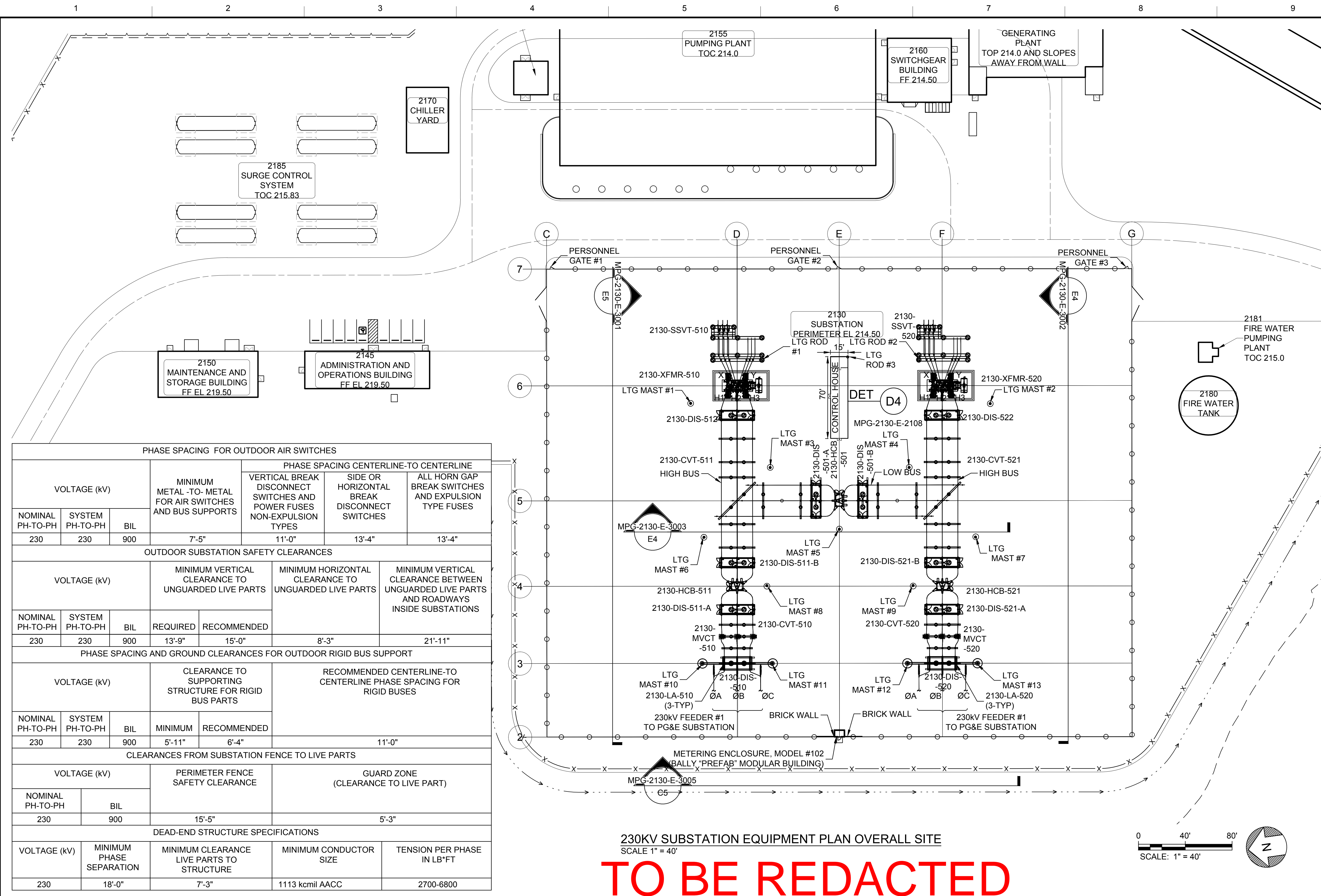


SITES RESERVOIR
MAXWELL / SITES PUMPING AND GENERATING
CIVIL
OVERALL LOCATION
AND SURVEY CONTROL
PLAN

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS. 0 1" 1"
DRAWING NO. MPG-0045-C-2001 SHT 11 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

Plot Date: 11/28/2023 2:05 PM File: C:\pwworking\hdr_sites_reservoir\dwg\1143\MPG-2130-E-2100.dwg Saved By: MZARETSKY



GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 EQUIPMENT PLAN, SECTOR 1: MPG-2130-E-2101
 EQUIPMENT PLAN, SECTOR 2: MPG-2130-E-2102
 EQUIPMENT PLAN, SECTOR 3: MPG-2130-E-2103
 EQUIPMENT PLAN, SECTOR 4: MPG-2130-E-2104
 EQUIPMENT PLAN, SECTOR 5: MPG-2130-E-2105
 EQUIPMENT PLAN, SECTOR 6: MPG-2130-E-2106
 ONE LINE DIAGRAM: MPG-2130-E-6001
- FOR OVERALL SITE CIVIL PLAN SEE MPG-2105-C-2001

SHEET KEY NOTES

PHASE SPACING FOR OUTDOOR AIR SWITCHES	
VOLTAGE (kV)	MINIMUM METAL -TO- METAL FOR AIR SWITCHES AND BUS SUPPORTS
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH
230	230
BIL	900
7'-5"	11'-0"

KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106

VOLTAGE (kV)		MINIMUM METAL -TO- METAL FOR AIR SWITCHES AND BUS SUPPORTS		PHASE SPACING CENTERLINE-TO CENTERLINE		VERTICAL BREAK DISCONNECT SWITCHES AND POWER FUSES NON-EXPULSION TYPES		SIDE OR HORIZONTAL BREAK DISCONNECT SWITCHES		ALL HORN GAP BREAK SWITCHES AND EXPULSION TYPE FUSES	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	7'-5"	11'-0"	13'-4"	13'-4"					
230	230	900	7'-5"	11'-0"	13'-4"	13'-4"					

OUTDOOR SUBSTATION SAFETY CLEARANCES							
VOLTAGE (kV)		MINIMUM VERTICAL CLEARANCE TO UNGUARDED LIVE PARTS		MINIMUM HORIZONTAL CLEARANCE TO UNGUARDED LIVE PARTS		MINIMUM VERTICAL CLEARANCE BETWEEN UNGUARDED LIVE PARTS AND ROADWAYS INSIDE SUBSTATIONS	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	REQUIRED	RECOMMENDED	8'-3"	21'-11"	
230	230	900	13'-9"	15'-0"	8'-3"	21'-11"	

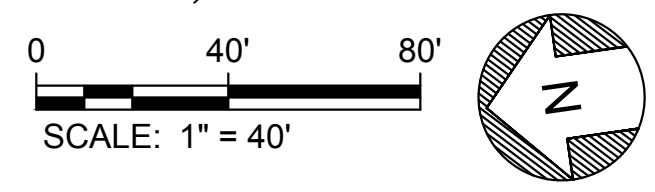
PHASE SPACING AND GROUND CLEARANCES FOR OUTDOOR RIGID BUS SUPPORT					
VOLTAGE (kV)		CLEARANCE TO SUPPORTING STRUCTURE FOR RIGID BUS PARTS		RECOMMENDED CENTERLINE-TO CENTERLINE PHASE SPACING FOR RIGID BUSES	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM	RECOMMENDED	11'-0"
230	230	900	5'-11"	6'-4"	11'-0"

CLEARANCES FROM SUBSTATION FENCE TO LIVE PARTS		
VOLTAGE (kV)		PERIMETER FENCE SAFETY CLEARANCE
NOMINAL PH-TO-PH	BIL	15'-5"
230	900	15'-5"

DEAD-END STRUCTURE SPECIFICATIONS				
VOLTAGE (kV)	MINIMUM PHASE SEPARATION	MINIMUM CLEARANCE LIVE PARTS TO STRUCTURE	MINIMUM CONDUCTOR SIZE	TENSION PER PHASE IN LB*FT
230	18'-0"	7'-3"	1113 kcmil AACC	2700-6800

230KV SUBSTATION EQUIPMENT PLAN OVERALL SITE
 SCALE 1" = 40'

TO BE REDACTED



DESIGNED BY:	M. NESSABI
DRAWN BY:	M. ZARETSKY
CHECKED BY:	C. VANSANT/M.NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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 E 23322
 CALIFORNIA

SITES RESERVOIR

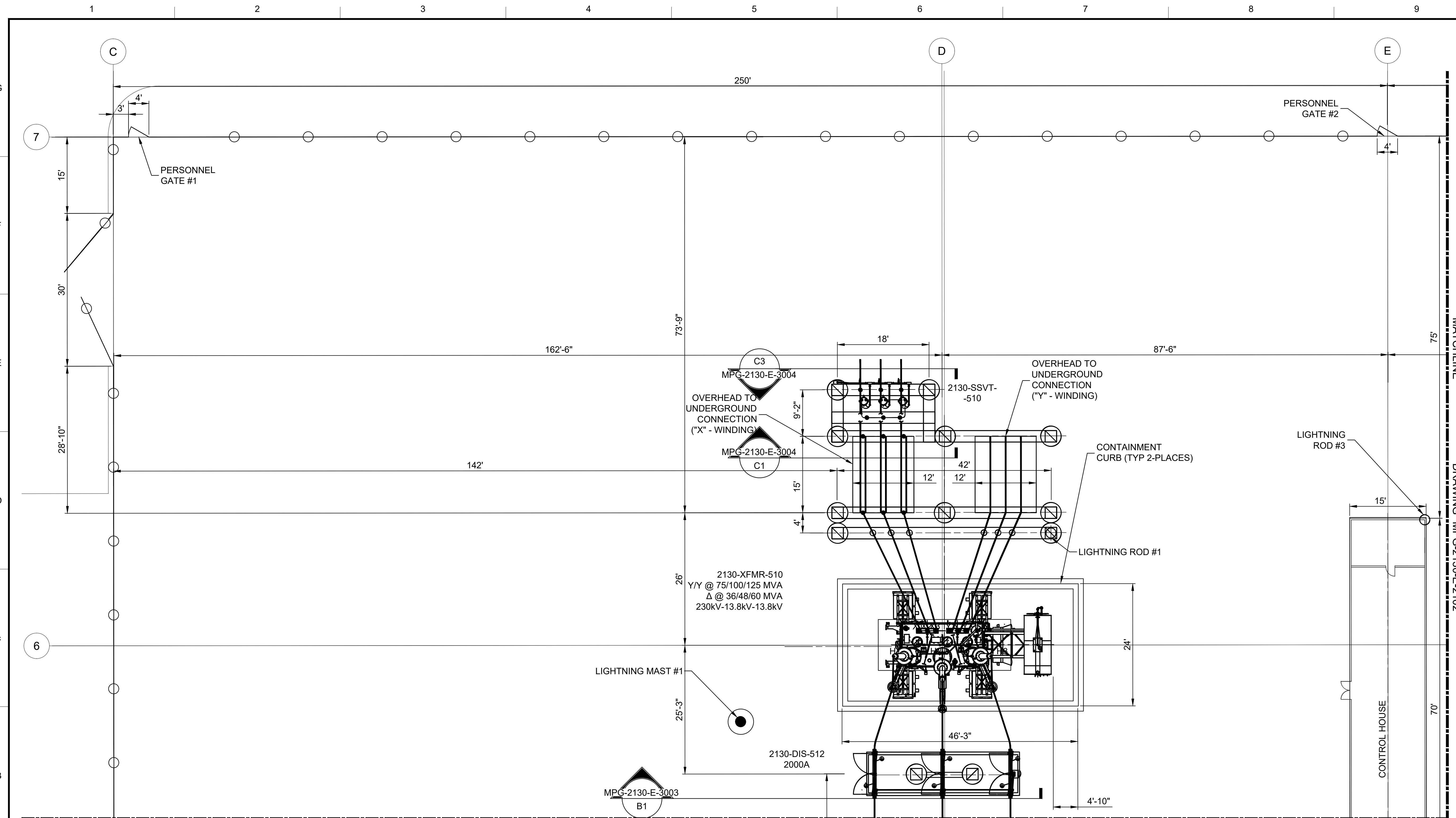
MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 OVERALL SITE PLAN

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
 0 40 80
 SCALE: 1" = 40'

DRAWING NO.
 MPG-2130-E-2100
 SHT 12 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

Plot Date: 10/26/2023 2:18 PM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2101.dwg
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GENERAL NOTES

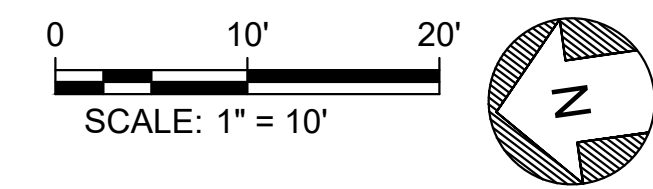
1. FACILITY DRAWINGS ARE AS NOTED BELOW:

EQUIPMENT PLAN, OVERALL SITE:
 MPG-2130-E-2001
 EQUIPMENT PLAN, SECTOR 2:
 MPG-2130-E-2102
 EQUIPMENT PLAN, SECTOR 3:
 MPG-2130-E-2103
 EQUIPMENT PLAN, SECTOR 4:
 MPG-2130-E-2104
 EQUIPMENT PLAN, SECTOR 5:
 MPG-2130-E-2105
 EQUIPMENT PLAN, SECTOR 6:
 MPG-2130-E-2106
 ONE LINE DIAGRAM:
 MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106



MATCHLINE DRAWING MPG-2130-E-2103

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY:
M. ZARETSKY

DRAWN BY:
M. ZARETSKY

CHECKED BY:
M. NESSABI

IN CHARGE:
P. RUDE

DATE:
12-04-2023

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 R.G. Vanderweil Engineers, LLP
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 Boston, MA 02210

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 CALIFORNIA



SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT PLAN - SECTOR 1

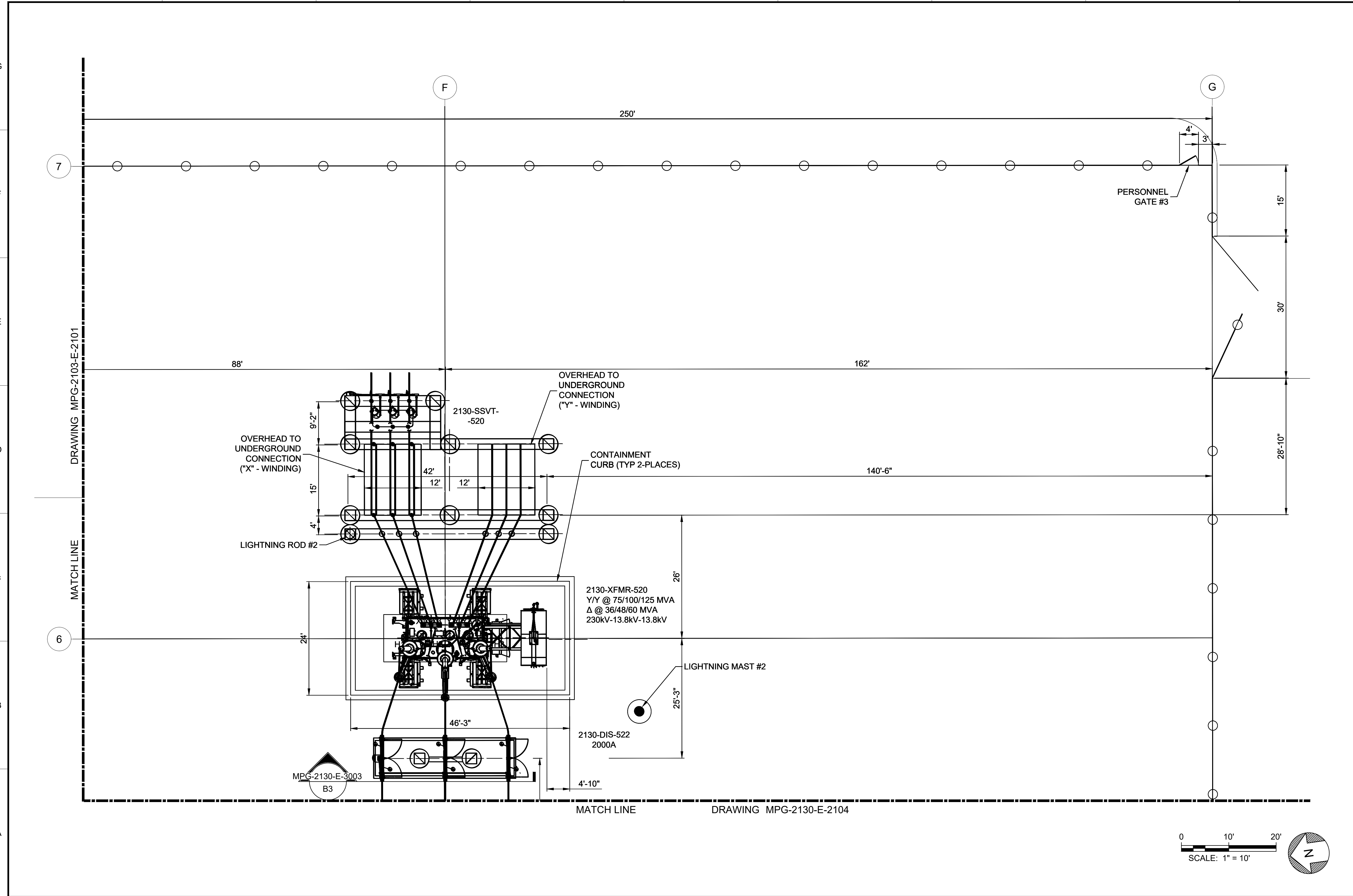
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 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

0 1" 1"

DRAWING NO.
 MPG-2130-E-2101
 SHT 13 OF 91

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GENERAL NOTES

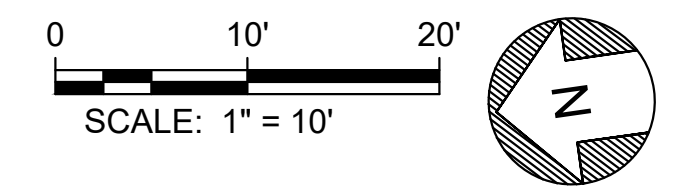
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 EQUIPMENT PLAN, SECTOR 3: MPG-2130-E-2103
 EQUIPMENT PLAN, SECTOR 4: MPG-2130-E-2104
 EQUIPMENT PLAN, SECTOR 5: MPG-2130-E-2105
 EQUIPMENT PLAN, SECTOR 6: MPG-2130-E-2106
 ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES



KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106



REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: M. ZARETSKY
 DRAWN BY: M. ZARETSKY
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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 POWER GROUP
R.G. Vanderweil Engineers, LLP 817-423-7423 TEL
 714-944-0444 FAX
 BOSTON, MA 02210

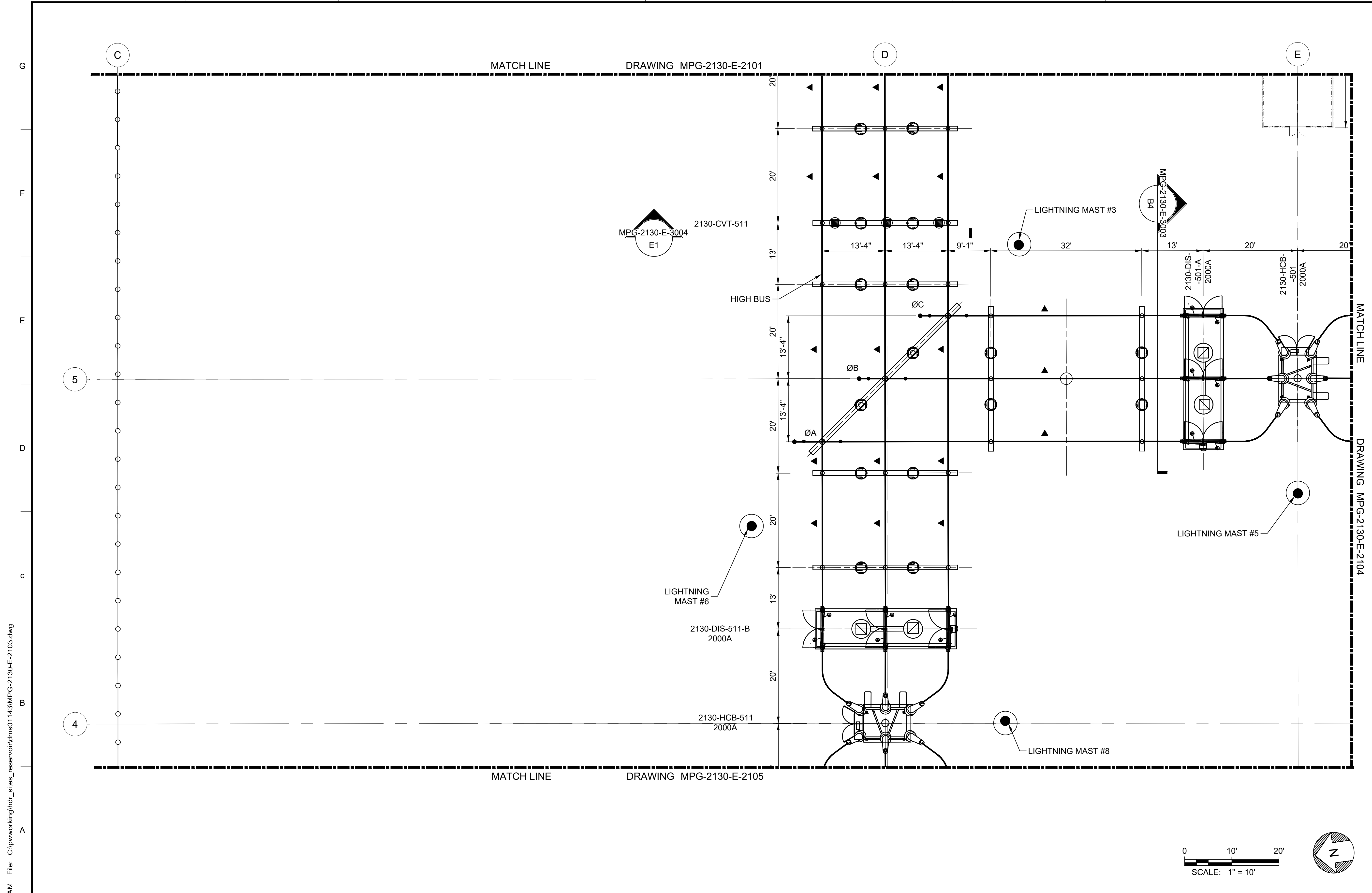
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 E 23322
 CALIFORNIA



SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT PLAN - SECTOR 2

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2102
 SHT 14 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL NOTES

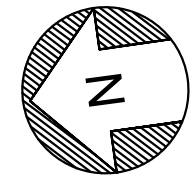
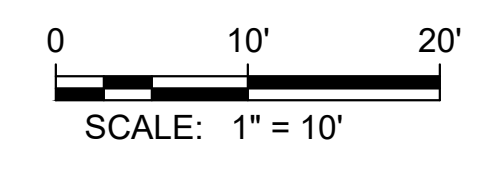
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 EQUIPMENT PLAN, SECTOR 1: MPG-2130-E-2101
 EQUIPMENT PLAN, SECTOR 2: MPG-2130-E-2102
 EQUIPMENT PLAN, SECTOR 4: MPG-2130-E-2104
 EQUIPMENT PLAN, SECTOR 5: MPG-2130-E-2105
 EQUIPMENT PLAN, SECTOR 6: MPG-2130-E-2106
 ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

- ▲ - TUBING WITH CABLE FOR VIBRATION DAMPING

KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106



Plot Date: 10/26/2023 7:57 AM
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DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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SITES RESERVOIR
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 ELECTRICAL
 FUNNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT PLAN - SECTOR 3

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
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 MPG-2130-E-2103
 SHT 15 OF 91

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GENERAL NOTES

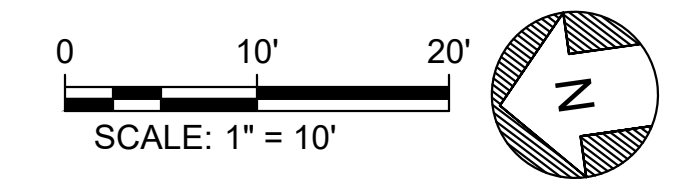
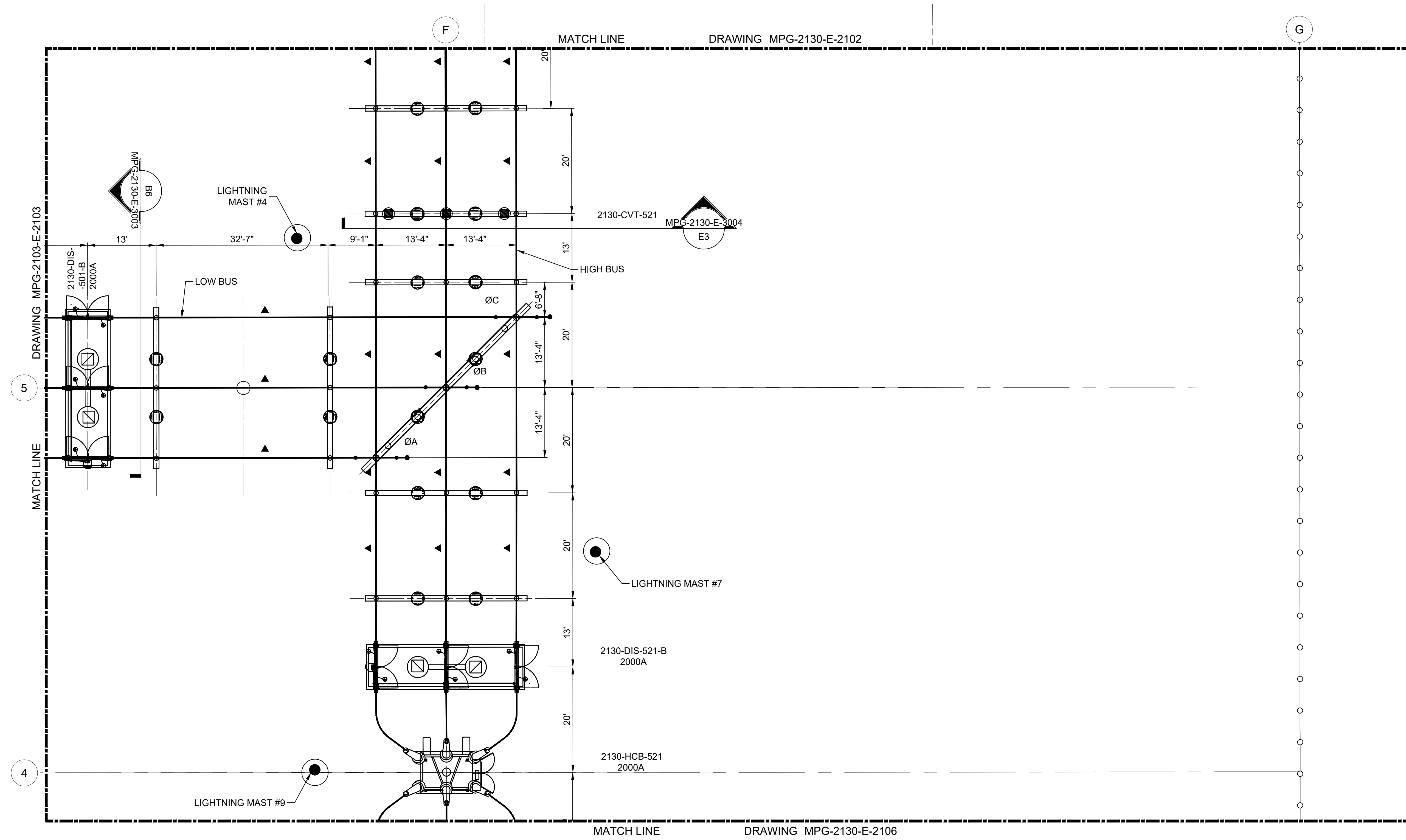
- FACILITY DRAWINGS ARE AS NOTED BELOW:
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 EQUIPMENT PLAN, SECTOR 1: MPG-2130-E-2101
 EQUIPMENT PLAN, SECTOR 2: MPG-2130-E-2102
 EQUIPMENT PLAN, SECTOR 3: MPG-2130-E-2103
 EQUIPMENT PLAN, SECTOR 5: MPG-2130-E-2105
 EQUIPMENT PLAN, SECTOR 6: MPG-2130-E-2106
 ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

- ▲ - TUBING WITH CABLE FOR VIBRATION DAMPING

KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106



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 Saved By: MZARETSKY

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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 E 23322
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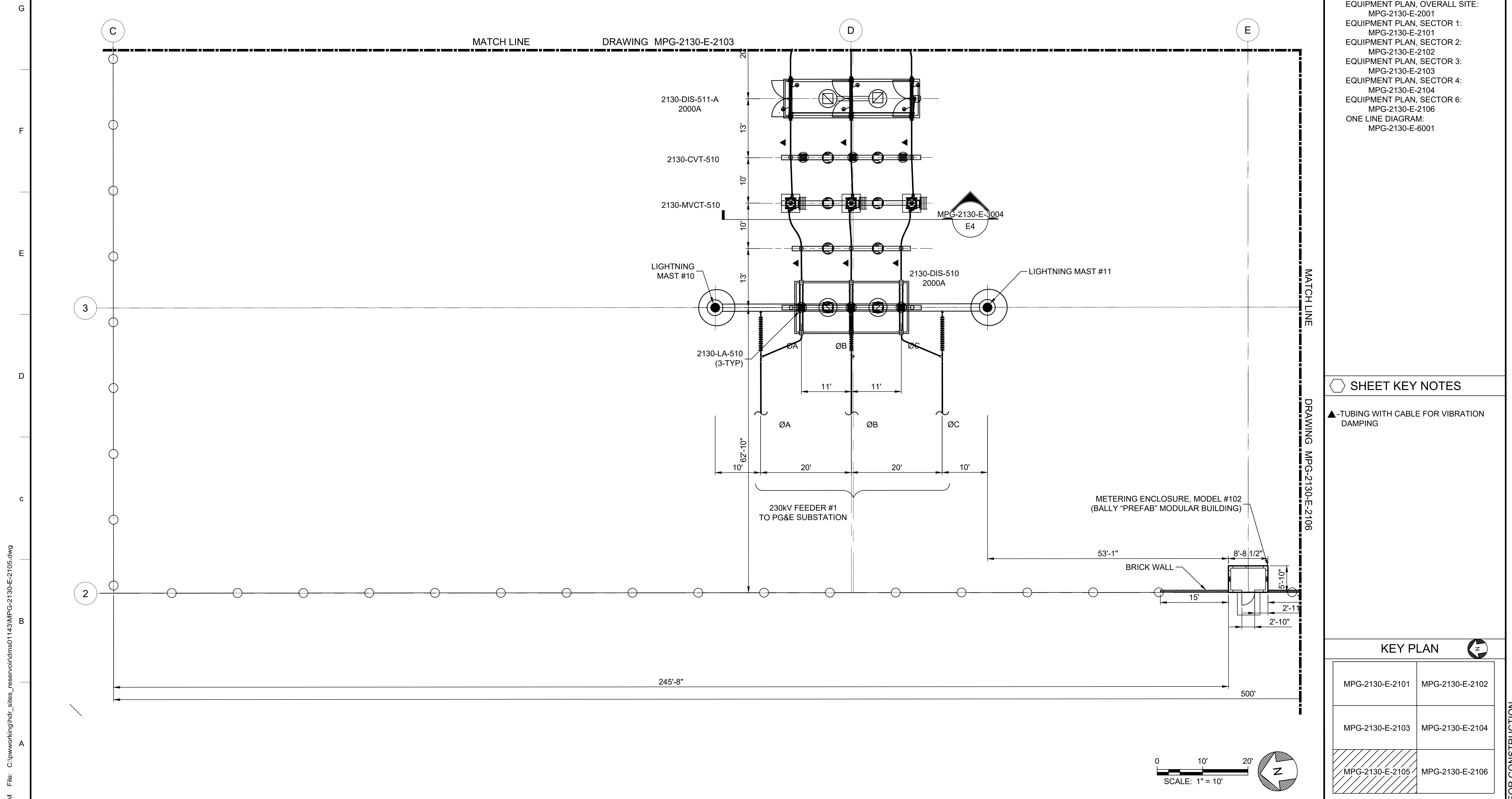


SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT PLAN - SECTOR 4

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS

 DRAWING NO.
 MPG-2130-E-2104
 SHT 16 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
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 EQUIPMENT PLAN, SECTOR 1: MPG-2130-E-2101
 EQUIPMENT PLAN, SECTOR 2: MPG-2130-E-2102
 EQUIPMENT PLAN, SECTOR 3: MPG-2130-E-2103
 EQUIPMENT PLAN, SECTOR 4: MPG-2130-E-2104
 EQUIPMENT PLAN, SECTOR 6: MPG-2130-E-2106
 ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

- ▲ - TUBING WITH CABLE FOR VIBRATION DAMPING

KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106

Plot Date: 10/26/2023 8:04 AM
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 File: C:\pwworking\hdr_sites_reservoir\hms01143\MPG-2130-E-2105.dwg

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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SITES RESERVOIR
 MAXWELL/ SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT PLAN - SECTOR 5

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
 0 10' 1"

DRAWING NO.
 MPG-2130-E-2105
 SHT 17 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 EQUIPMENT PLAN, OVERALL SITE: MPG-2130-E-2001
 EQUIPMENT PLAN, SECTOR 1: MPG-2130-E-2101
 EQUIPMENT PLAN, SECTOR 2: MPG-2130-E-2102
 EQUIPMENT PLAN, SECTOR 3: MPG-2130-E-2103
 EQUIPMENT PLAN, SECTOR 4: MPG-2130-E-2104
 EQUIPMENT PLAN, SECTOR 5: MPG-2130-E-2105
 ONE LINE DIAGRAM: MPG-2130-E-6001

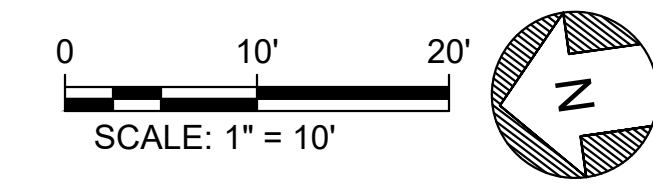
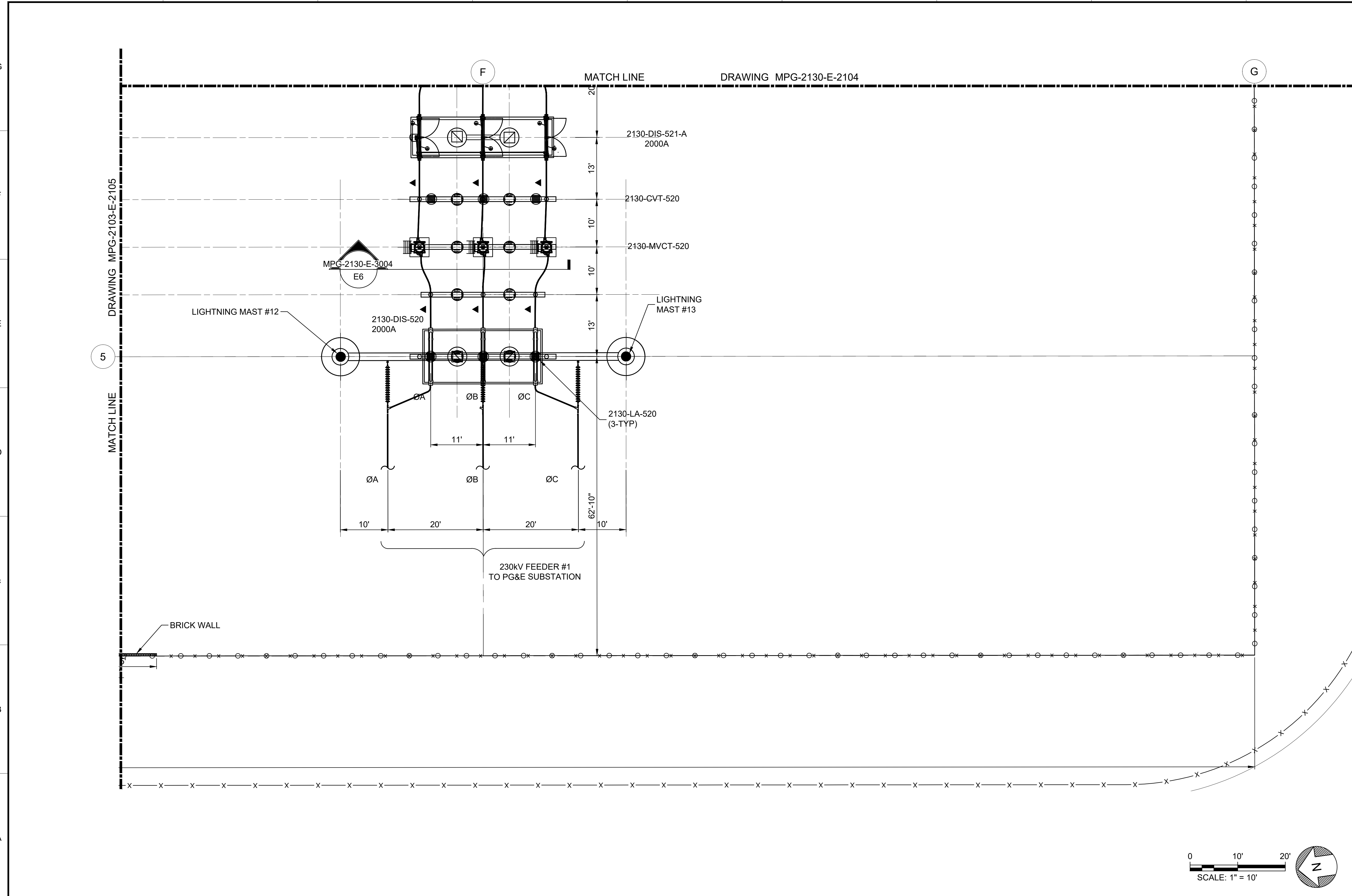
SHEET KEY NOTES

- ▲ -TUBING WITH CABLE FOR VIBRATION DAMPING

KEY PLAN

MPG-2130-E-2101	MPG-2130-E-2102
MPG-2130-E-2103	MPG-2130-E-2104
MPG-2130-E-2105	MPG-2130-E-2106

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
 0 1" 1"
 DRAWING NO. MPG-2130-E-2106
 SHT 18 OF 91



Plot Date: 1/9/2023 1:55 PM
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 File: C:\pwworking\hdc_sites_reservoir\dms01143\MPG-2130-E-2106.dwg

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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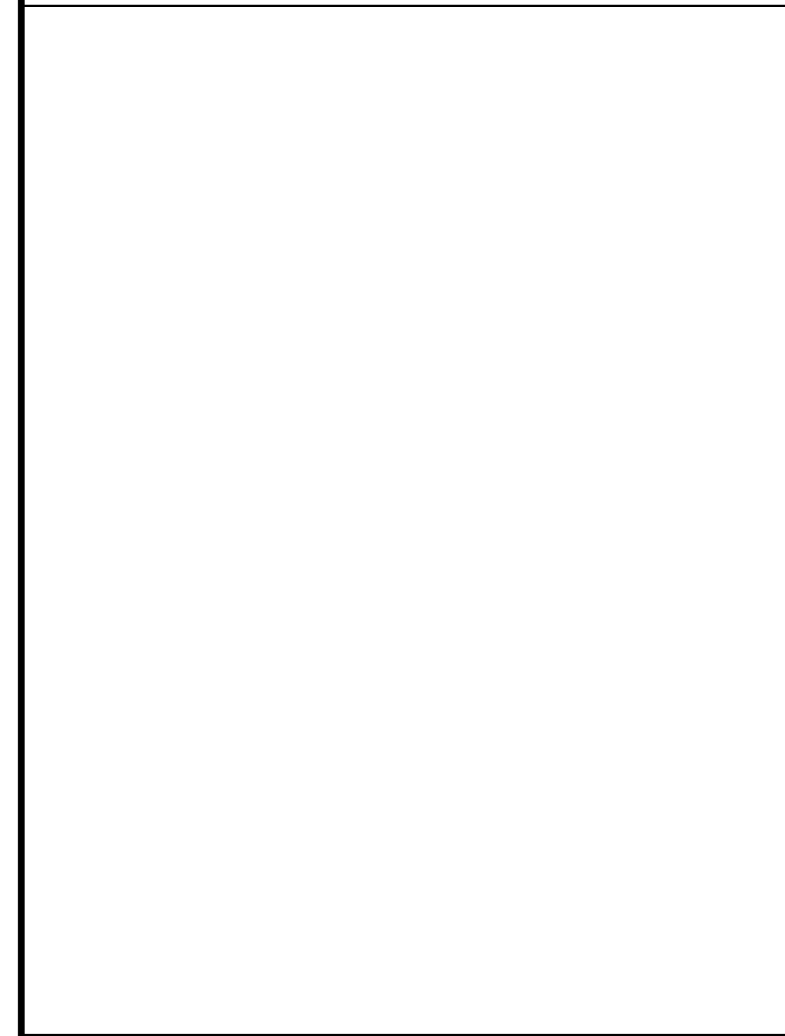
SITES RESERVOIR
 MAXWELL/ SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT PLAN - SECTOR 6

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

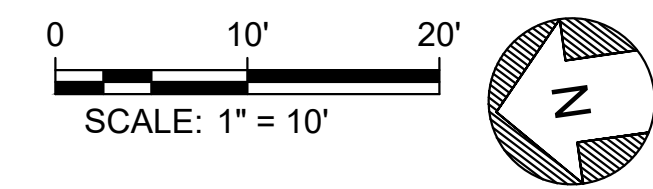
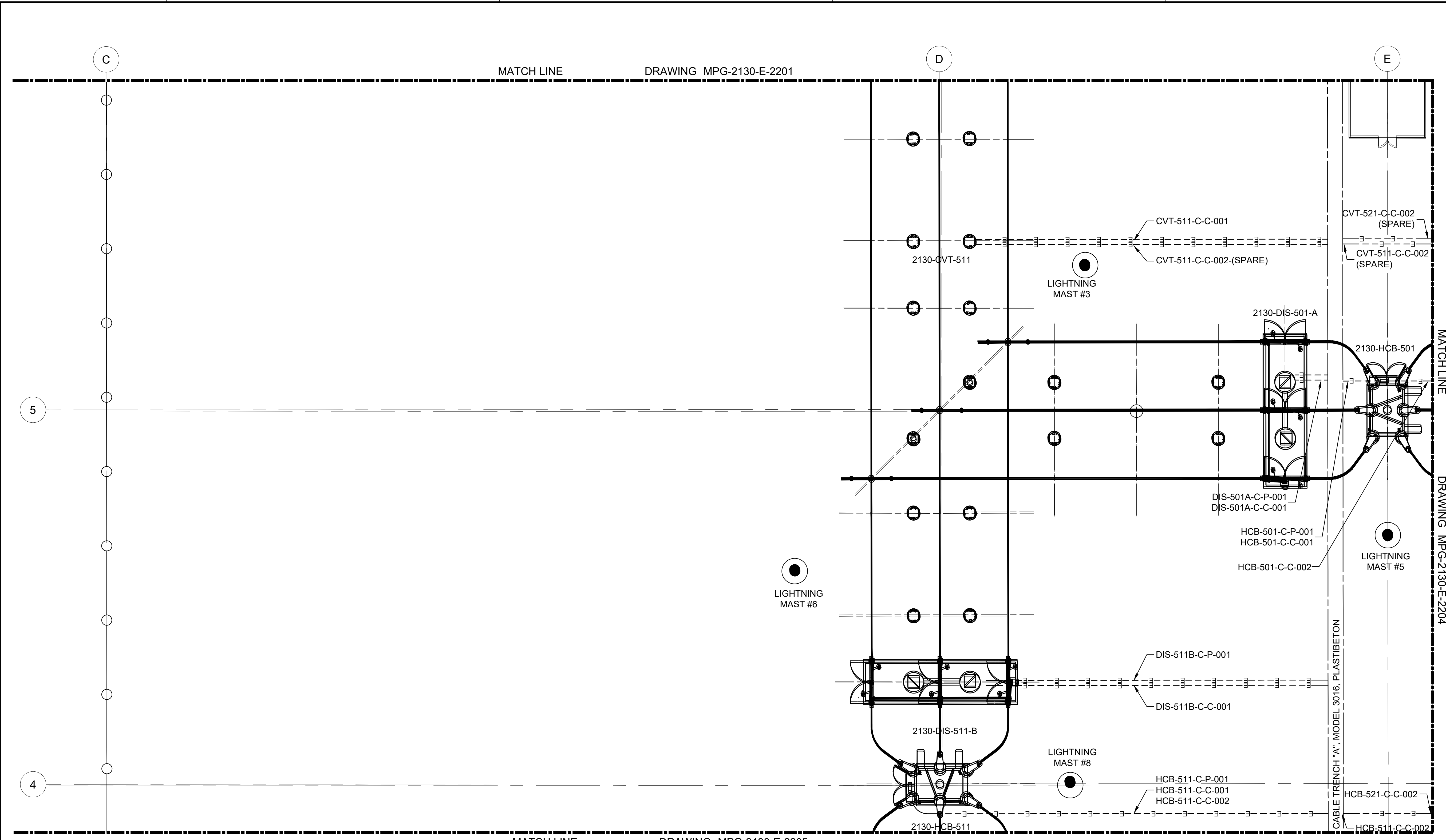
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 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 1: MPG-2130-E-2201
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 2: MPG-2130-E-2202
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 4: MPG-2130-E-2204
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 5: MPG-2130-E-2205
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 6: MPG-2130-E-2206
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES



KEY PLAN

MPG-2130-E-2201	MPG-2130-E-2202
MPG-2130-E-2203	MPG-2130-E-2204
MPG-2130-E-2205	MPG-2130-E-2206



Plot Date: 10/30/2023 9:43 AM
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REV	DATE	BY	CHK.	APPR.	DESCRIPTION

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 DRAWN BY: M. ZARETSKY
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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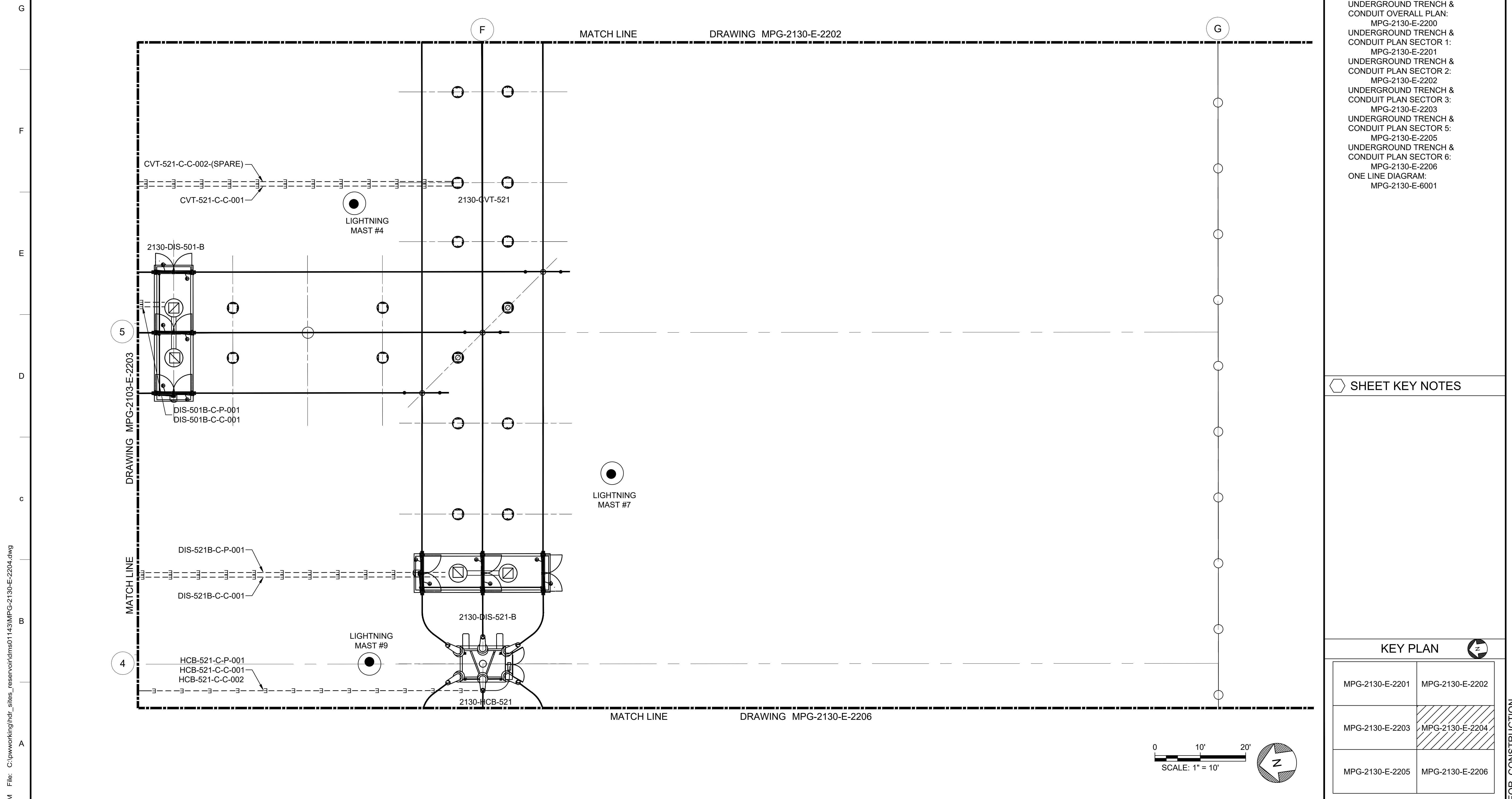


SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 3

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
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DRAWING NO.
 MPG-2130-E-2203
 SHT 24 OF 91

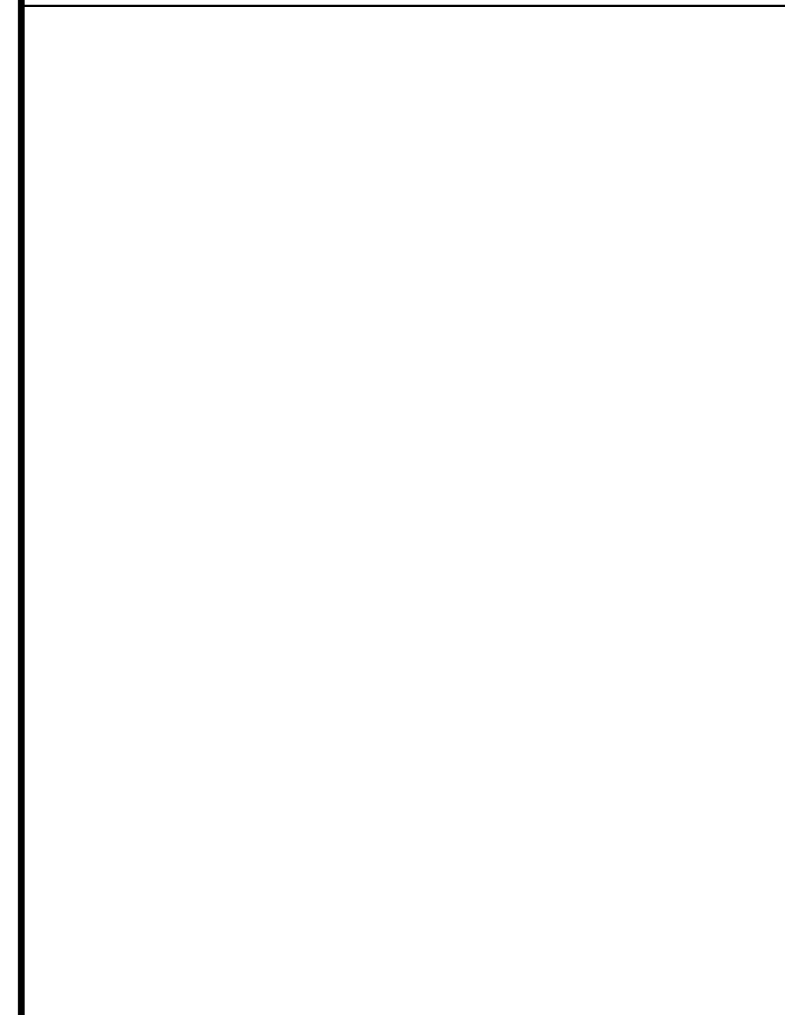
PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 - UNDERGROUND TRENCH & CONDUIT OVERALL PLAN: MPG-2130-E-2200
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 1: MPG-2130-E-2201
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 2: MPG-2130-E-2202
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 3: MPG-2130-E-2203
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 5: MPG-2130-E-2205
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 6: MPG-2130-E-2206
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES



KEY PLAN

MPG-2130-E-2201	MPG-2130-E-2202
MPG-2130-E-2203	MPG-2130-E-2204
MPG-2130-E-2205	MPG-2130-E-2206

Plot Date: 10/30/2023 9:50 AM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2204.dwg
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 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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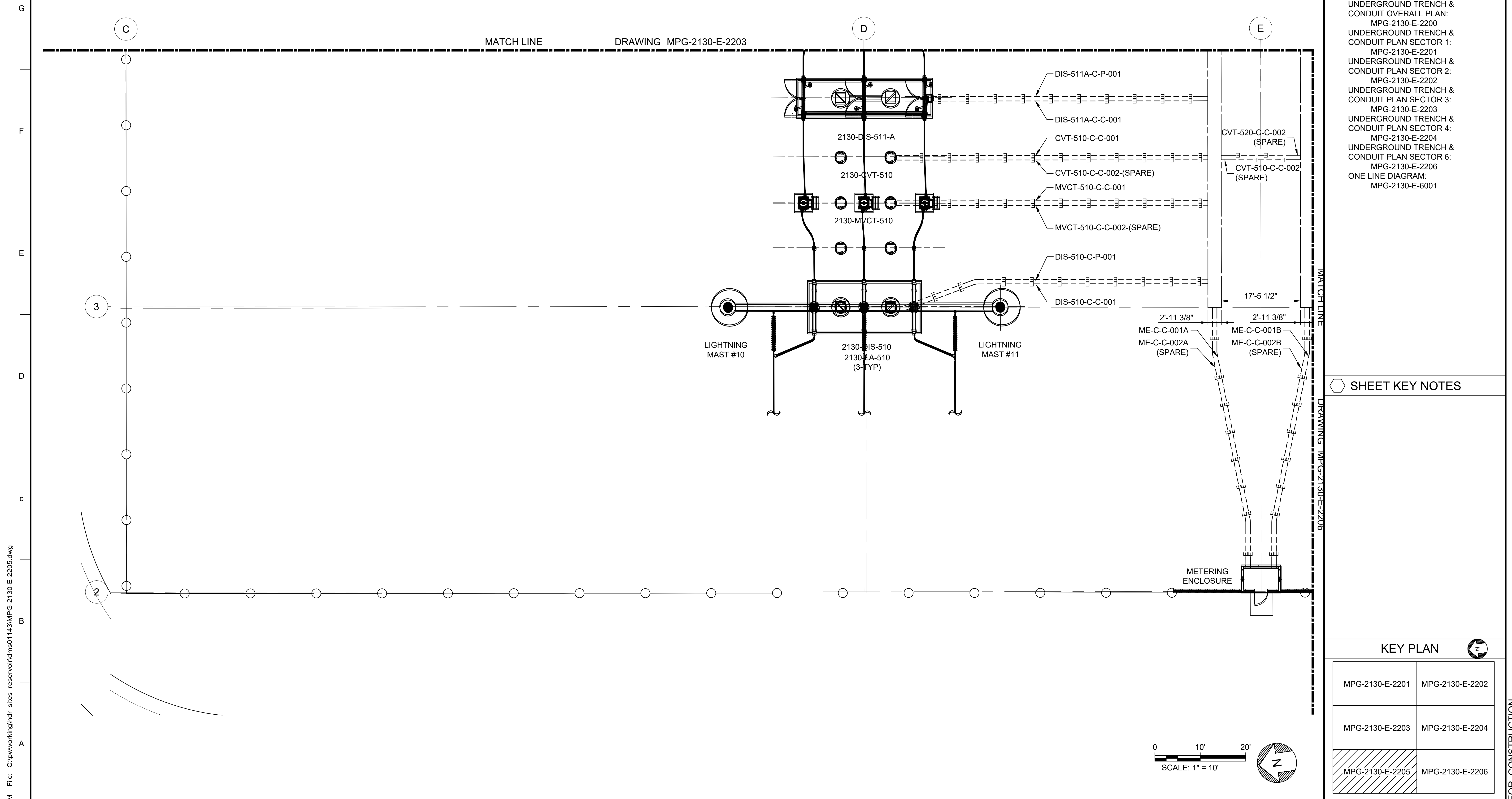
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SITES RESERVOIR
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 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 4

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2204
 SHT 25 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



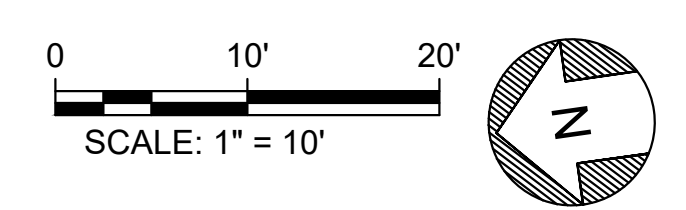
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 - UNDERGROUND TRENCH & CONDUIT OVERALL PLAN: MPG-2130-E-2200
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 1: MPG-2130-E-2201
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 2: MPG-2130-E-2202
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 3: MPG-2130-E-2203
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 4: MPG-2130-E-2204
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 6: MPG-2130-E-2206
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2201	MPG-2130-E-2202
MPG-2130-E-2203	MPG-2130-E-2204
MPG-2130-E-2205	MPG-2130-E-2206



Plot Date: 10/30/2023 9:55 AM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2205.dwg
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DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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FUNKS RESERVOIR
230KV SUBSTATION
UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 5

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
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DRAWING NO.
MPG-2130-E-2205
SHT 26 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

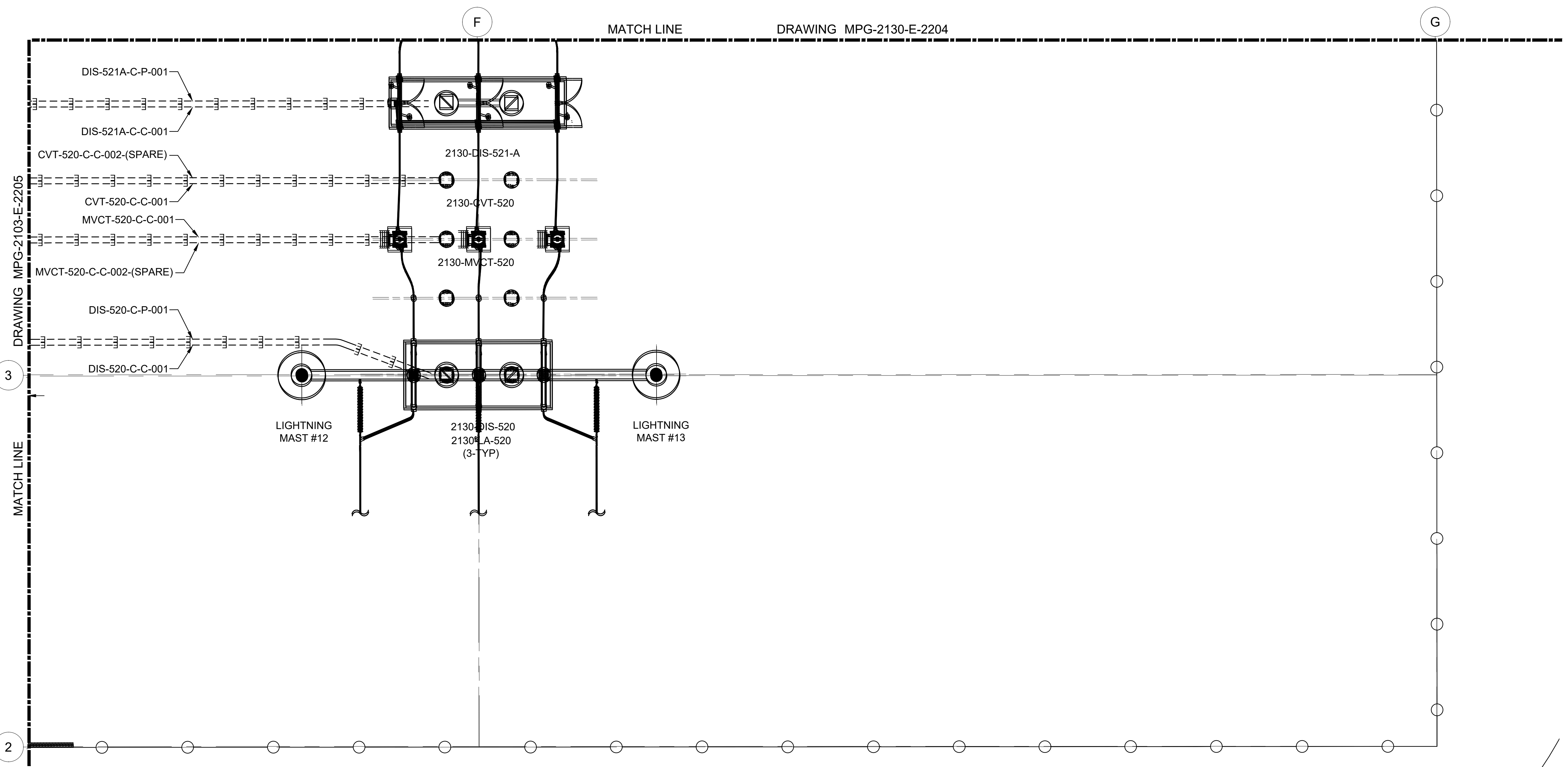
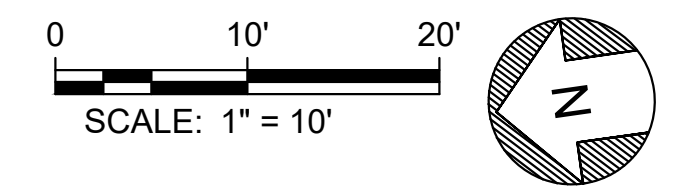
GENERAL NOTES

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 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 1: MPG-2130-E-2201
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 2: MPG-2130-E-2202
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 3: MPG-2130-E-2203
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 4: MPG-2130-E-2204
 - UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 5: MPG-2130-E-2205
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2201	MPG-2130-E-2202
MPG-2130-E-2203	MPG-2130-E-2204
MPG-2130-E-2205	MPG-2130-E-2206



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 IN CHARGE: P. RUDE
 DATE: 12-04-2023



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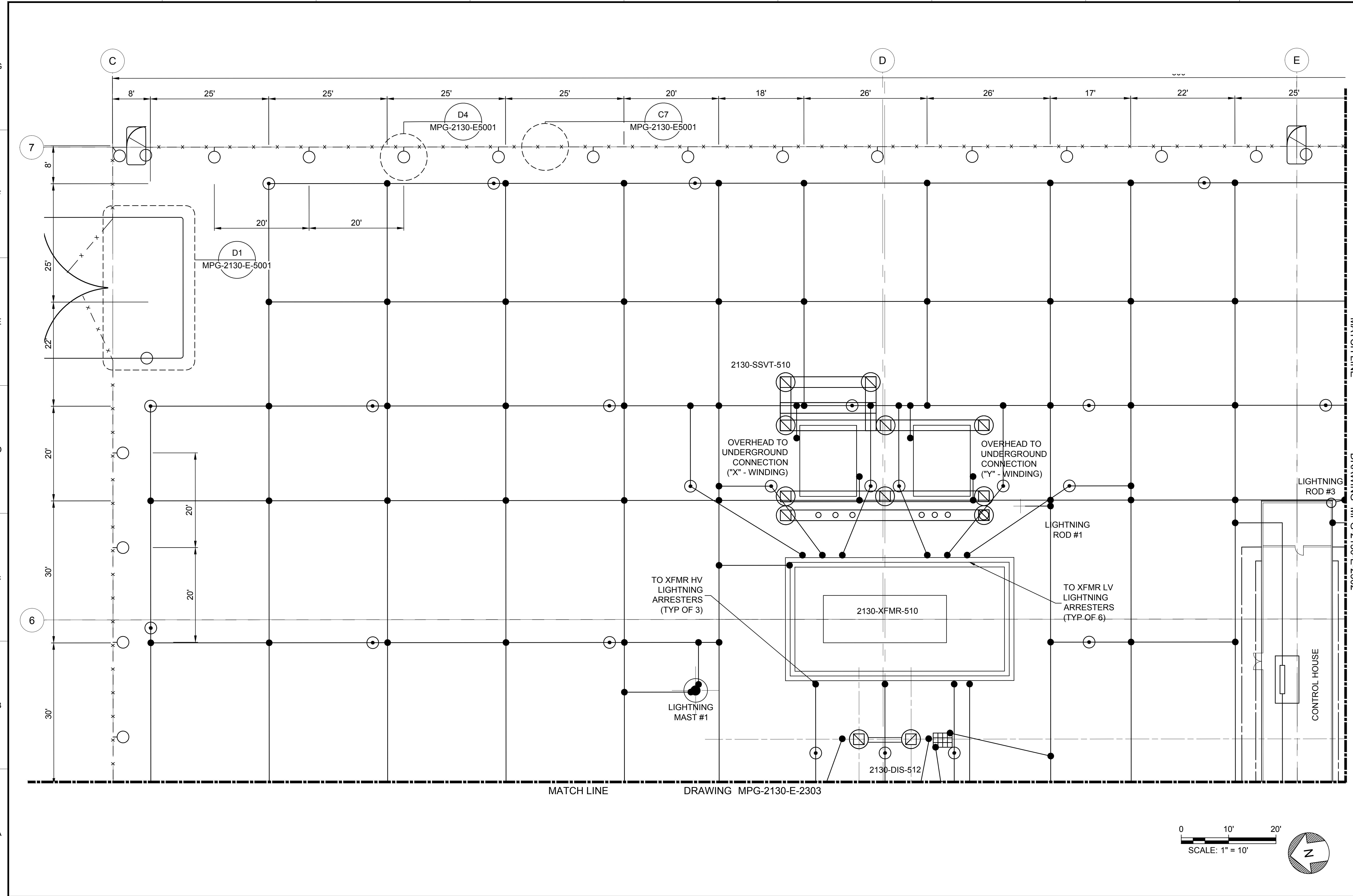


SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 UNDERGROUND TRENCH & CONDUIT PLAN SECTOR 6

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWINGS. ADJUST SCALES FOR
 REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2206
 SHT 27 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

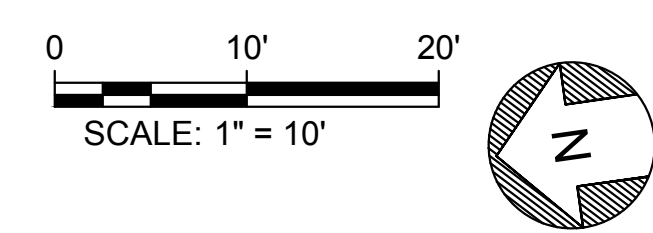
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 Saved By: MZARETSKY



GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 - GROUNDING PLAN, OVERALL: MPG-2130-E-2300
 - GROUNDING PLAN, SECTOR 2: MPG-2130-E-2302
 - GROUNDING PLAN, SECTOR 3: MPG-2130-E-2303
 - GROUNDING PLAN, SECTOR 4: MPG-2130-E-2304
 - GROUNDING PLAN, SECTOR 5: MPG-2130-E-2305
 - GROUNDING PLAN, SECTOR 6: MPG-2130-E-2306
 - GROUNDING DETAILS: MPG-2130-E-5001
 - ONE LINE DIAGRAM: MPG-2130-E-6001
 - PG&E GROUNDING REQUIREMENTS FOR OUTDOOR ELECTRICAL SUBSTATIONS: DWG.#067910
 - PG&E METHOD OF GROUNDING FENCES AND WIRE TRELLISES: DWG.#020607
 - PG&E STEEL GRATING TYPE SWITCH OPERATING PLATFORMS: DWG.#034851
 - LEGEND AND BOM: DWG MPG-2130-E-2300

SHEET KEY NOTES



REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: M. NESSABI
 DRAWN BY: M. ZARETSKY
 CHECKED BY: C. VANSANT/M.NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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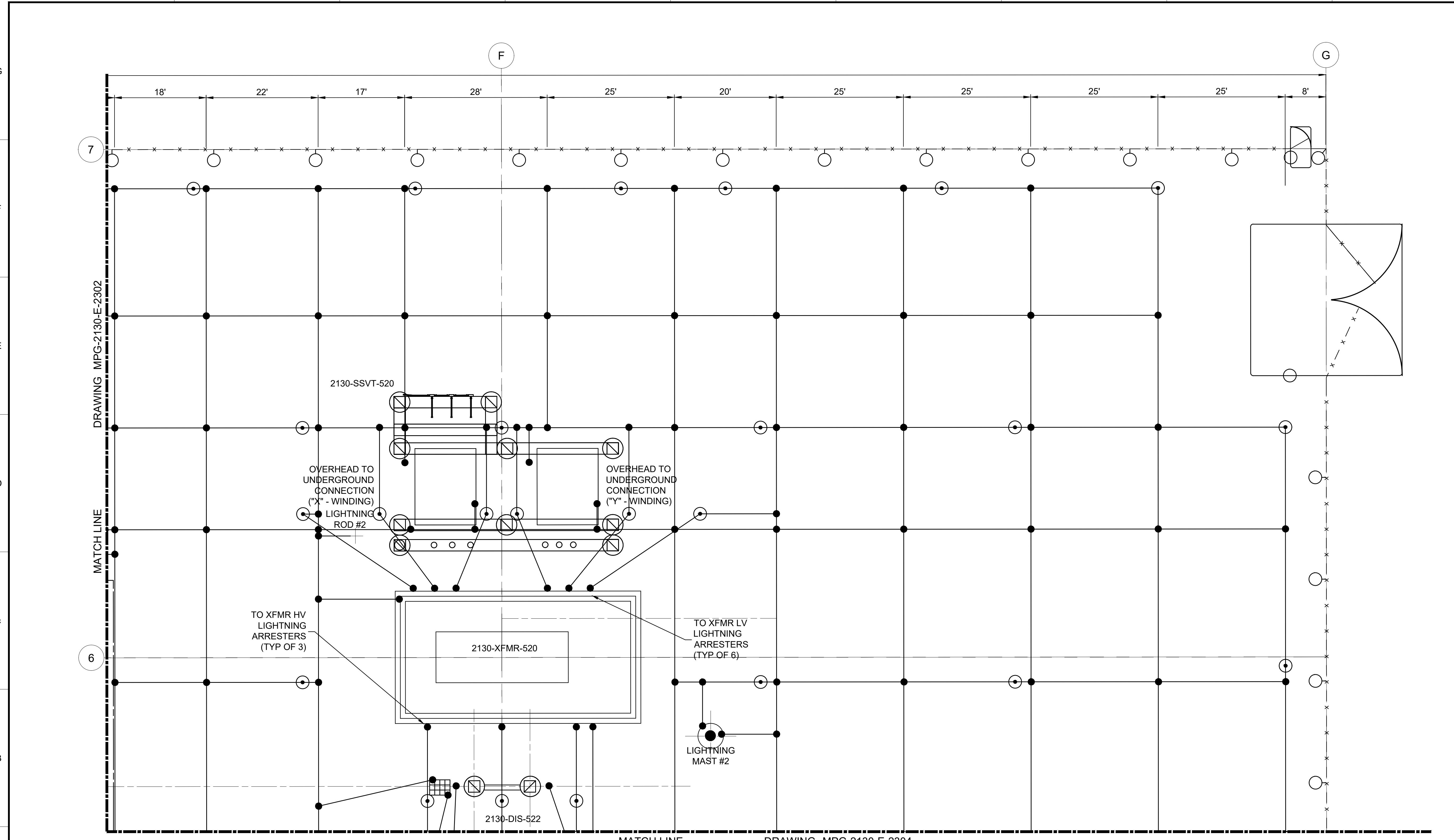


SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING PLAN - SECTOR 1

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
 0 1" 1"
 DRAWING NO.
 MPG-2130-E-2301
 SHT 29 OF 91

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GENERAL NOTES

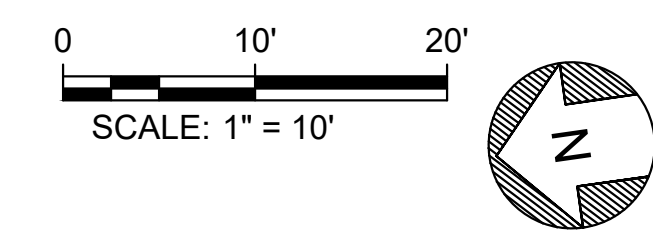
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 GROUNDING PLAN, SECTOR 1: MPG-2130-E-2301
 GROUNDING PLAN, SECTOR 3: MPG-2130-E-2303
 GROUNDING PLAN, SECTOR 4: MPG-2130-E-2304
 GROUNDING PLAN, SECTOR 5: MPG-2130-E-2305
 GROUNDING PLAN, SECTOR 6: MPG-2130-E-2306
 GROUNDING DETAILS: MPG-2130-E-5001
 ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES



KEY PLAN

MPG-2130-E-2301	MPG-2130-E-2302
MPG-2130-E-2303	MPG-2130-E-2304
MPG-2130-E-2305	MPG-2130-E-2306



REV	DATE	BY	CHK	APPR	DESCRIPTION

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 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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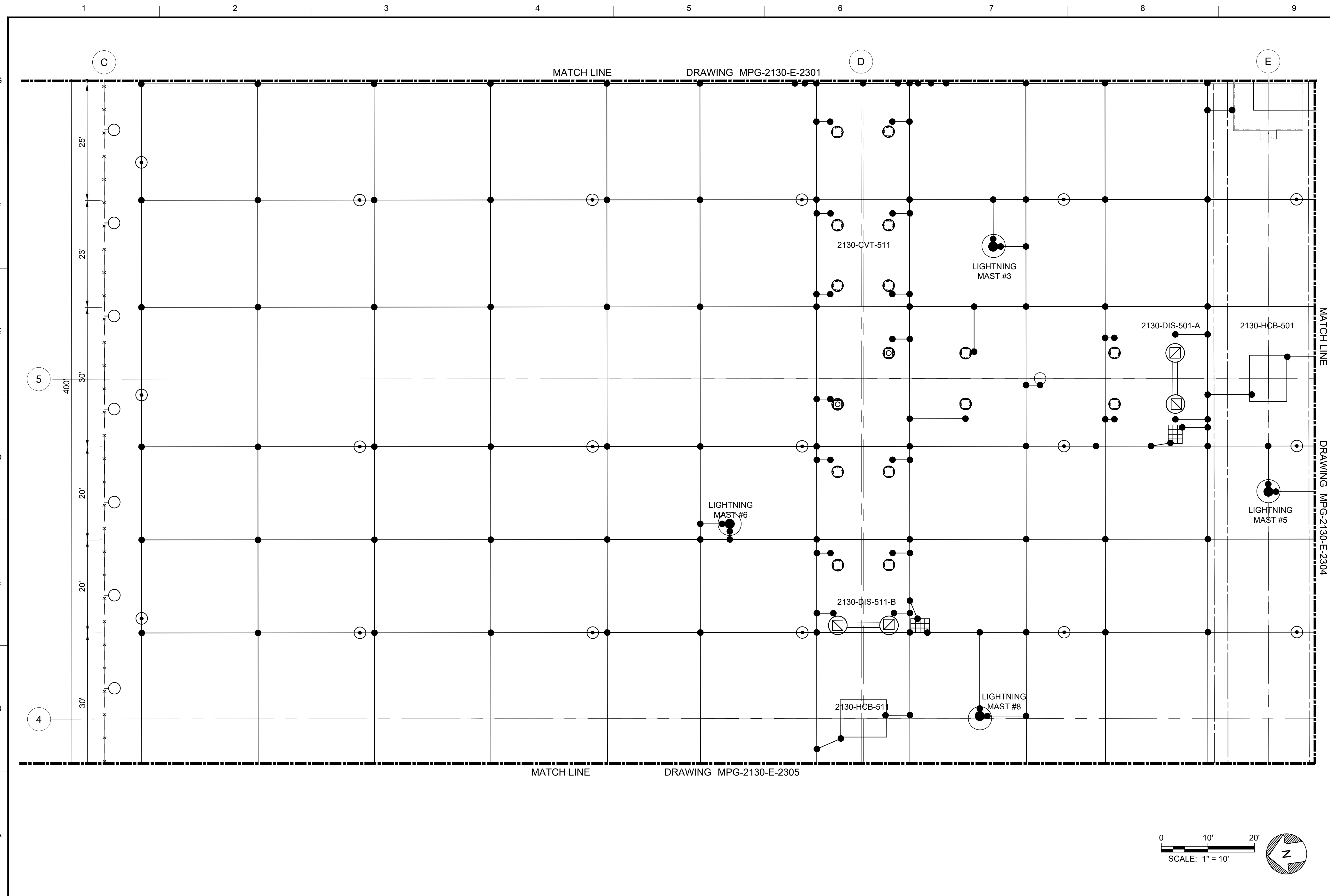


SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING PLAN - SECTOR 2

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2302
 SHT 30 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

Plot Date: 10/30/2023 1:54 PM
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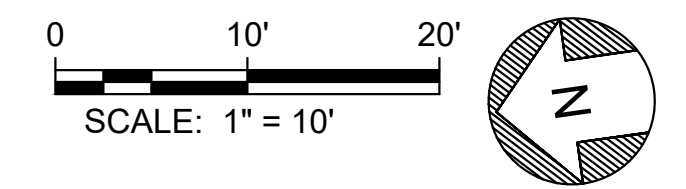
GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 - GROUNDING PLAN, OVERALL: MPG-2130-E-2300
 - GROUNDING PLAN, SECTOR 1: MPG-2130-E-2301
 - GROUNDING PLAN, SECTOR 2: MPG-2130-E-2302
 - GROUNDING PLAN, SECTOR 4: MPG-2130-E-2304
 - GROUNDING PLAN, SECTOR 5: MPG-2130-E-2305
 - GROUNDING PLAN, SECTOR 6: MPG-2130-E-2306
 - GROUNDING DETAILS: MPG-2130-E-5001
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2301	MPG-2130-E-2302
MPG-2130-E-2303	MPG-2130-E-2304
MPG-2130-E-2305	MPG-2130-E-2306



REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: M. ZARETSKY
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 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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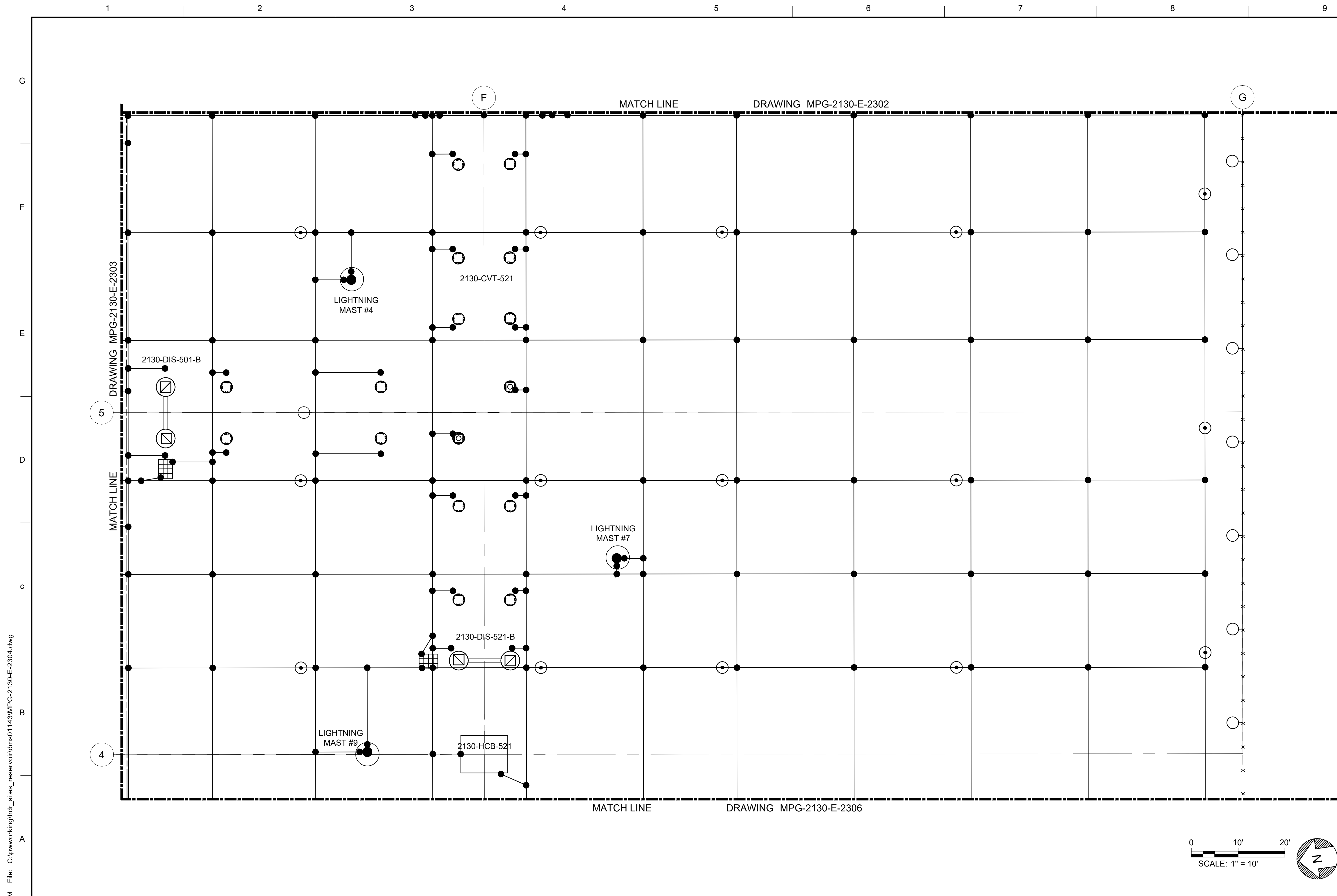
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SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING PLAN - SECTOR 3

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
 0 10 20 1"
 DRAWING NO.
 MPG-2130-E-2303
 SHT 31 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 - GROUNDING PLAN, OVERALL: MPG-2130-E-2300
 - GROUNDING PLAN, SECTOR 1: MPG-2130-E-2301
 - GROUNDING PLAN, SECTOR 2: MPG-2130-E-2302
 - GROUNDING PLAN, SECTOR 3: MPG-2130-E-2303
 - GROUNDING PLAN, SECTOR 5: MPG-2130-E-2305
 - GROUNDING PLAN, SECTOR 6: MPG-2130-E-2306
 - GROUNDING DETAILS: MPG-2130-E-5001
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2301	MPG-2130-E-2302
MPG-2130-E-2303	MPG-2130-E-2304
MPG-2130-E-2305	MPG-2130-E-2306

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REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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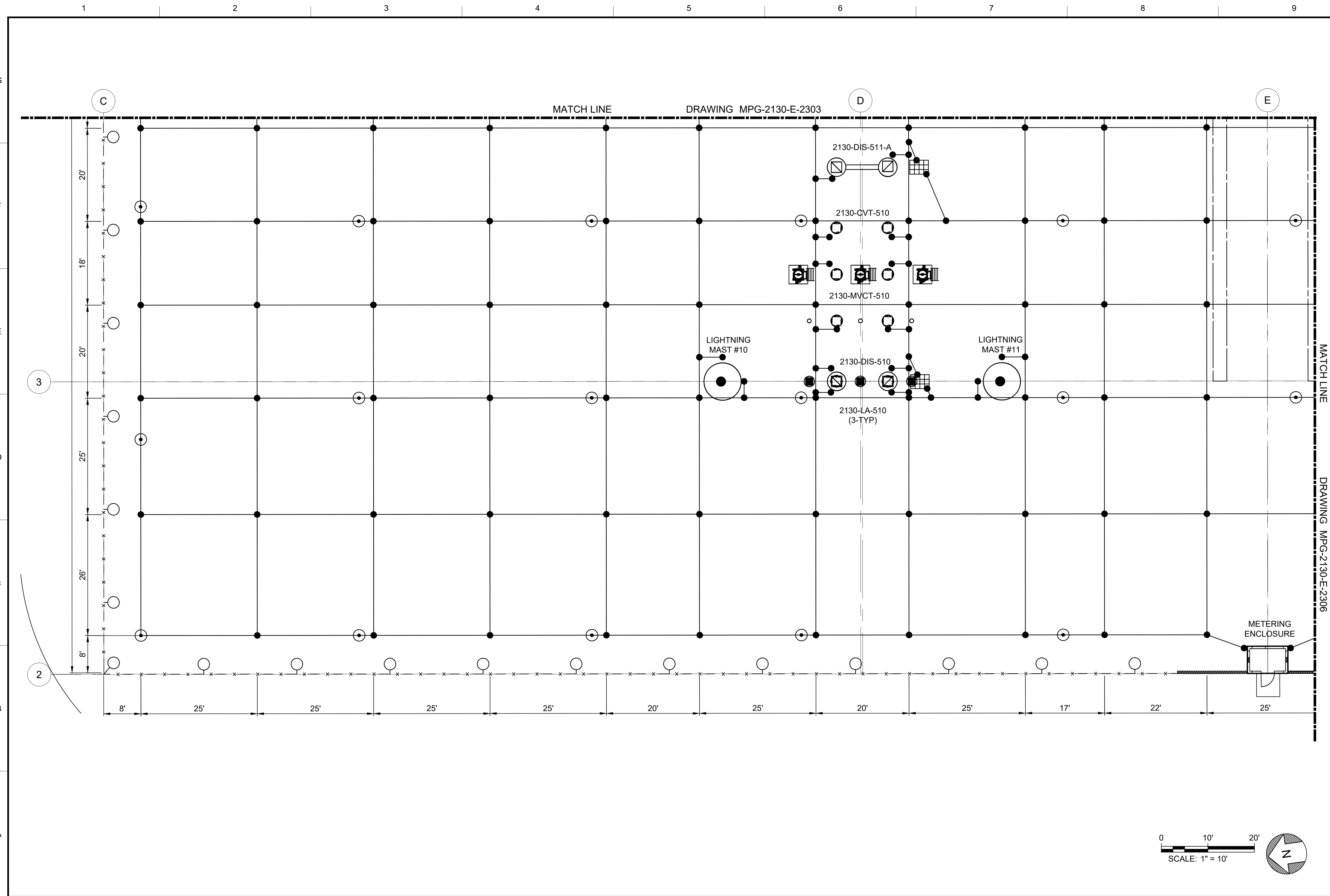
SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING PLAN - SECTOR 4

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS

 SCALE: 1" = 10'
 DRAWING NO.
 MPG-2130-E-2304
 SHT 32 OF 91

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Plot Date: 10/30/2023 1:50 PM
 Saved By: MZARETSKY
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GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 - GROUNDING PLAN, OVERALL: MPG-2130-E-2300
 - GROUNDING PLAN, SECTOR 1: MPG-2130-E-2301
 - GROUNDING PLAN, SECTOR 2: MPG-2130-E-2302
 - GROUNDING PLAN, SECTOR 3: MPG-2130-E-23043
 - GROUNDING PLAN, SECTOR 4: MPG-2130-E-2304
 - GROUNDING PLAN, SECTOR 6: MPG-2130-E-2306
 - GROUNDING DETAILS: MPG-2130-E-5001
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES



KEY PLAN	
MPG-2130-E-2301	MPG-2130-E-2302
MPG-2130-E-2303	MPG-2130-E-2304
MPG-2130-E-2305	MPG-2130-E-2306

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: M. ZARETSKY
 DRAWN BY: M. ZARETSKY
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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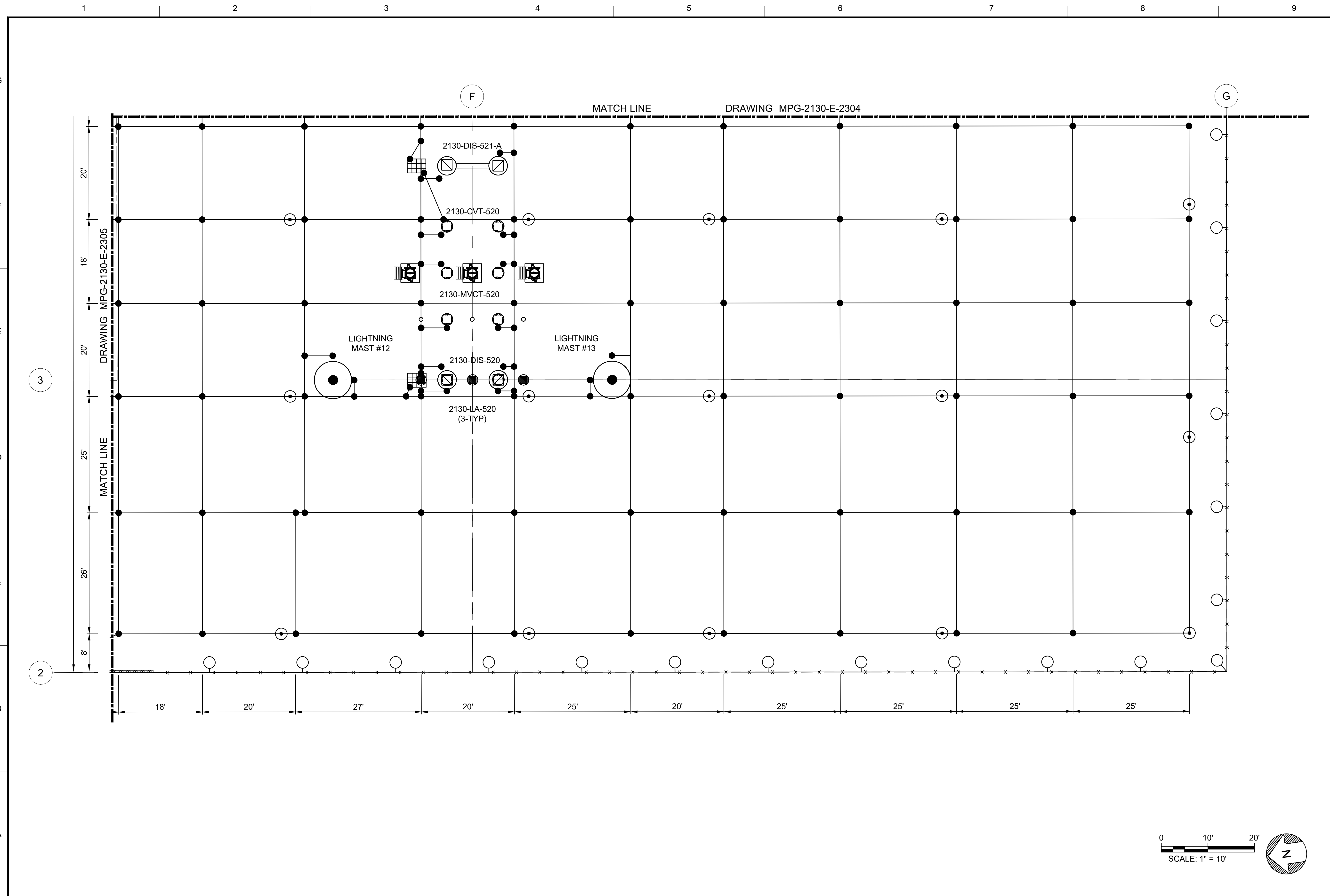


SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING PLAN - SECTOR 5

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
 0 10' 1"
 DRAWING NO.
 MPG-2130-E-2305
 SHT 33 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

Plot Date: 10/30/2023 1:47 PM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2306.dwg
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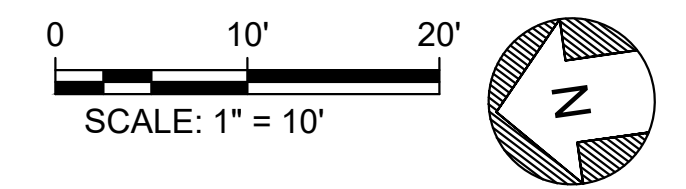
GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 - GROUNDING PLAN, OVERALL: MPG-2130-E-2300
 - GROUNDING PLAN, SECTOR 1: MPG-2130-E-2301
 - GROUNDING PLAN, SECTOR 2: MPG-2130-E-2302
 - GROUNDING PLAN, SECTOR 3: MPG-2130-E-2303
 - GROUNDING PLAN, SECTOR 4: MPG-2130-E-2304
 - GROUNDING PLAN, SECTOR 5: MPG-2130-E-2305
 - GROUNDING DETAILS: MPG-2130-E-5001
 - ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2301	MPG-2130-E-2302
MPG-2130-E-2303	MPG-2130-E-2304
MPG-2130-E-2305	MPG-2130-E-2306



REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY: M. ZARETSKY
 DRAWN BY: M. ZARETSKY
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING PLAN - SECTOR 6

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2306
 SHT 34 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

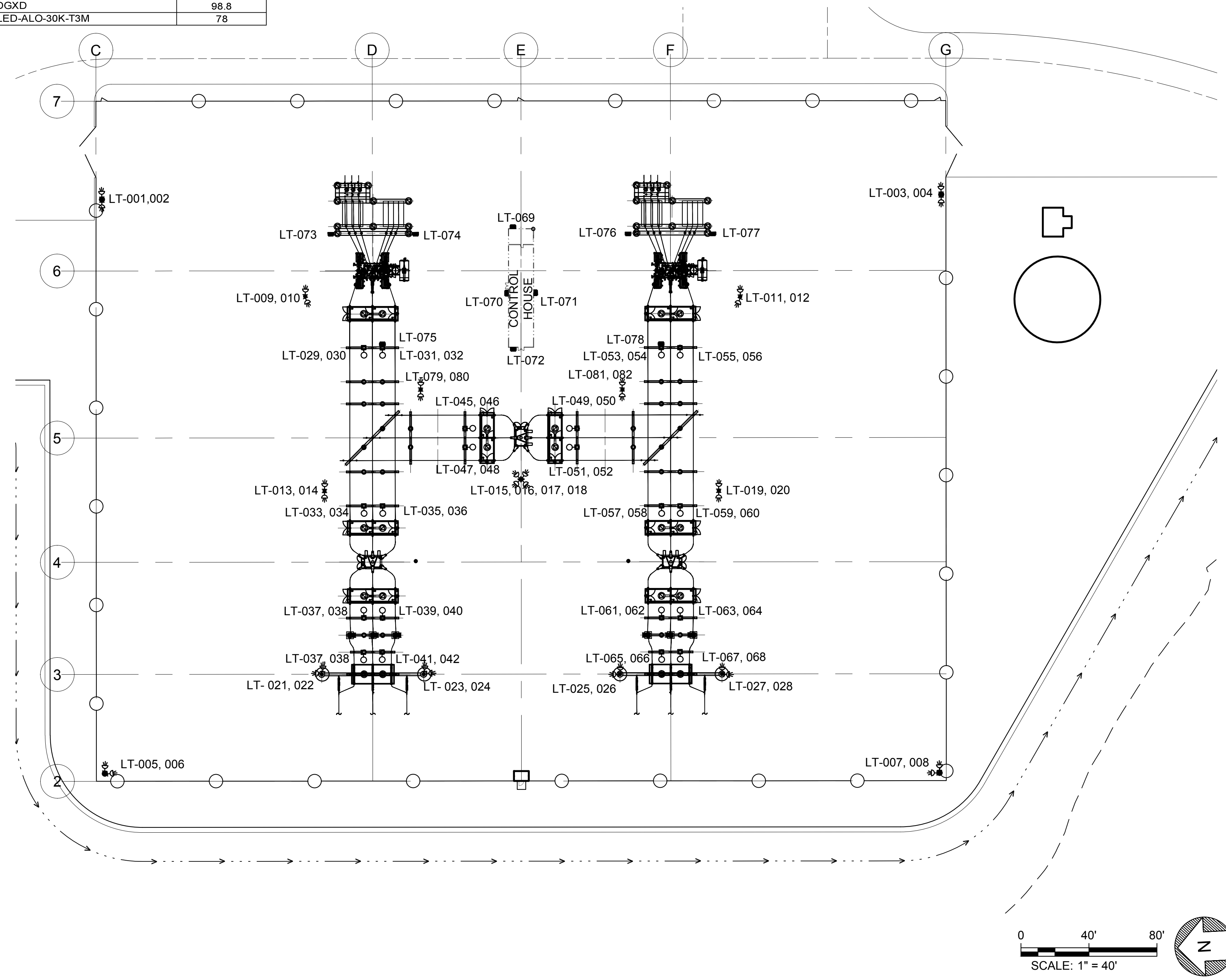
GENERAL NOTES

- TITLE 24 INDICATES OUTDOOR LIGHTING APPLICATIONS NOT REGULATED BY § 140.7 6.2.2.2.
- REFER TO DRAWING MPG-2130-E-5002 FOR LIGHTING INSTALLATION DETAIL.
- TYPE B FIXTURES TO BE MOUNTED IN PAIRS, ONE ILLUMINATING GROUND OPERATING AREA, ONE TO ILLUMINATE OVERHEAD EQUIPMENT.

FIXTURE #	FIXTURE TYPE	CKT #	MOUNTING HEIGHT	ORIENTATION (DEGREES)	TILT ANGLE
LT-001	Type E	CKT-XXX	30'	90	30
LT-002	Type E	CKT-XXX	30'	270	30
LT-003	Type E	CKT-XXX	30'	90	30
LT-004	Type E	CKT-XXX	30'	270	30
LT-005	Type E	CKT-XXX	30'	90	30
LT-006	Type E	CKT-XXX	30'	0	30
LT-007	Type E	CKT-XXX	30'	90	30
LT-008	Type E	CKT-XXX	30'	180	30
LT-009	Type E	CKT-XXX	30'	90	30
LT-010	Type E	CKT-XXX	30'	270	30
LT-011	Type E	CKT-XXX	30'	90	30
LT-012	Type E	CKT-XXX	30'	270	30
LT-013	Type E	CKT-XXX	30'	90	30
LT-014	Type E	CKT-XXX	30'	270	30
LT-015	Type E	CKT-XXX	30'	45	30
LT-016	Type E	CKT-XXX	30'	135	30
LT-017	Type E	CKT-XXX	30'	225	30
LT-018	Type E	CKT-XXX	30'	315	30
LT-019	Type E	CKT-XXX	30'	90	30
LT-020	Type E	CKT-XXX	30'	270	30
LT-021	Type E	CKT-XXX	30'	90	30
LT-022	Type E	CKT-XXX	30'	180	30
LT-023	Type E	CKT-XXX	30'	0	30
LT-024	Type E	CKT-XXX	30'	90	30
LT-025	Type E	CKT-XXX	30'	90	30
LT-026	Type E	CKT-XXX	30'	180	30
LT-027	Type E	CKT-XXX	30'	0	30
LT-028	Type E	CKT-XXX	30'	90	30
LT-029	Type B	CKT-XXX	25'	270	0
LT-030	Type B	CKT-XXX	25'	270	180
LT-031	Type B	CKT-XXX	25'	270	0
LT-032	Type B	CKT-XXX	25'	270	180
LT-033	Type B	CKT-XXX	25'	270	0
LT-034	Type B	CKT-XXX	25'	270	180
LT-035	Type B	CKT-XXX	25'	270	0
LT-036	Type B	CKT-XXX	25'	270	180
LT-037	Type B	CKT-XXX	25'	90	0
LT-038	Type B	CKT-XXX	25'	90	180
LT-039	Type B	CKT-XXX	25'	90	0
LT-040	Type B	CKT-XXX	25'	90	180
LT-041	Type B	CKT-XXX	25'	270	0
LT-042	Type B	CKT-XXX	25'	270	180
LT-043	Type B	CKT-XXX	25'	270	0
LT-044	Type B	CKT-XXX	25'	270	180
LT-045	Type B	CKT-XXX	15'	0	0
LT-046	Type B	CKT-XXX	15'	0	180
LT-047	Type B	CKT-XXX	15'	0	0
LT-048	Type B	CKT-XXX	15'	0	180
LT-049	Type B	CKT-XXX	15'	180	0
LT-050	Type B	CKT-XXX	15'	180	180
LT-051	Type B	CKT-XXX	15'	180	0
LT-052	Type B	CKT-XXX	15'	180	180
LT-053	Type B	CKT-XXX	25'	270	0
LT-054	Type B	CKT-XXX	25'	270	180
LT-055	Type B	CKT-XXX	25'	270	0
LT-056	Type B	CKT-XXX	25'	270	180
LT-057	Type B	CKT-XXX	25'	270	0
LT-058	Type B	CKT-XXX	25'	270	180
LT-059	Type B	CKT-XXX	25'	270	0
LT-060	Type B	CKT-XXX	25'	270	180
LT-061	Type B	CKT-XXX	25'	90	0
LT-062	Type B	CKT-XXX	25'	90	180
LT-063	Type B	CKT-XXX	25'	90	0
LT-064	Type B	CKT-XXX	25'	90	180
LT-065	Type B	CKT-XXX	25'	270	0
LT-066	Type B	CKT-XXX	25'	270	180
LT-067	Type B	CKT-XXX	25'	270	0
LT-068	Type B	CKT-XXX	25'	270	180
LT-069	Type S	CKT-XXX	8'	90	0
LT-070	Type S	CKT-XXX	8'	180	0
LT-071	Type S	CKT-XXX	8'	270	0
LT-072	Type S	CKT-XXX	8'	0	0
LT-073	Type S	CKT-XXX	15'	270	0
LT-074	Type S	CKT-XXX	15'	270	0

FIXTURE #	FIXTURE TYPE	CKT #	MOUNTING HEIGHT	ORIENTATION (DEGREES)	TILT ANGLE
LT-075	Type S	CKT-XXX	15'	180	0
LT-076	Type S	CKT-XXX	15'	270	0
LT-077	Type S	CKT-XXX	15'	270	0
LT-078	Type S	CKT-XXX	15'	0	0
LT-079	Type E	CKT-XXX	30'	90	30
LT-080	Type E	CKT-XXX	30'	270	30
LT-081	Type E	CKT-XXX	30'	90	30
LT-082	Type E	CKT-XXX	30'	270	30

FIXTURE TYPE	MANUFACTURER	MODEL #	LUMINAIRE WATTS PER FIXTURE
TYPE E	GARDCO	PFF-138L-700-NW-G2-UNV-A33-DGY	228
TYPE B	HOLOPHANE	PLED2 10000LM L5H MVOLT 40K 70CRI UNM DGXD	98.8
TYPE S	LITHONIA	TWH-LED-ALO-30K-T3M	78



SHEET KEY NOTES

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

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REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY: M. NESSABI
 DRAWN BY: M. ZARETSKY
 CHECKED BY: C. VANSANT/M.NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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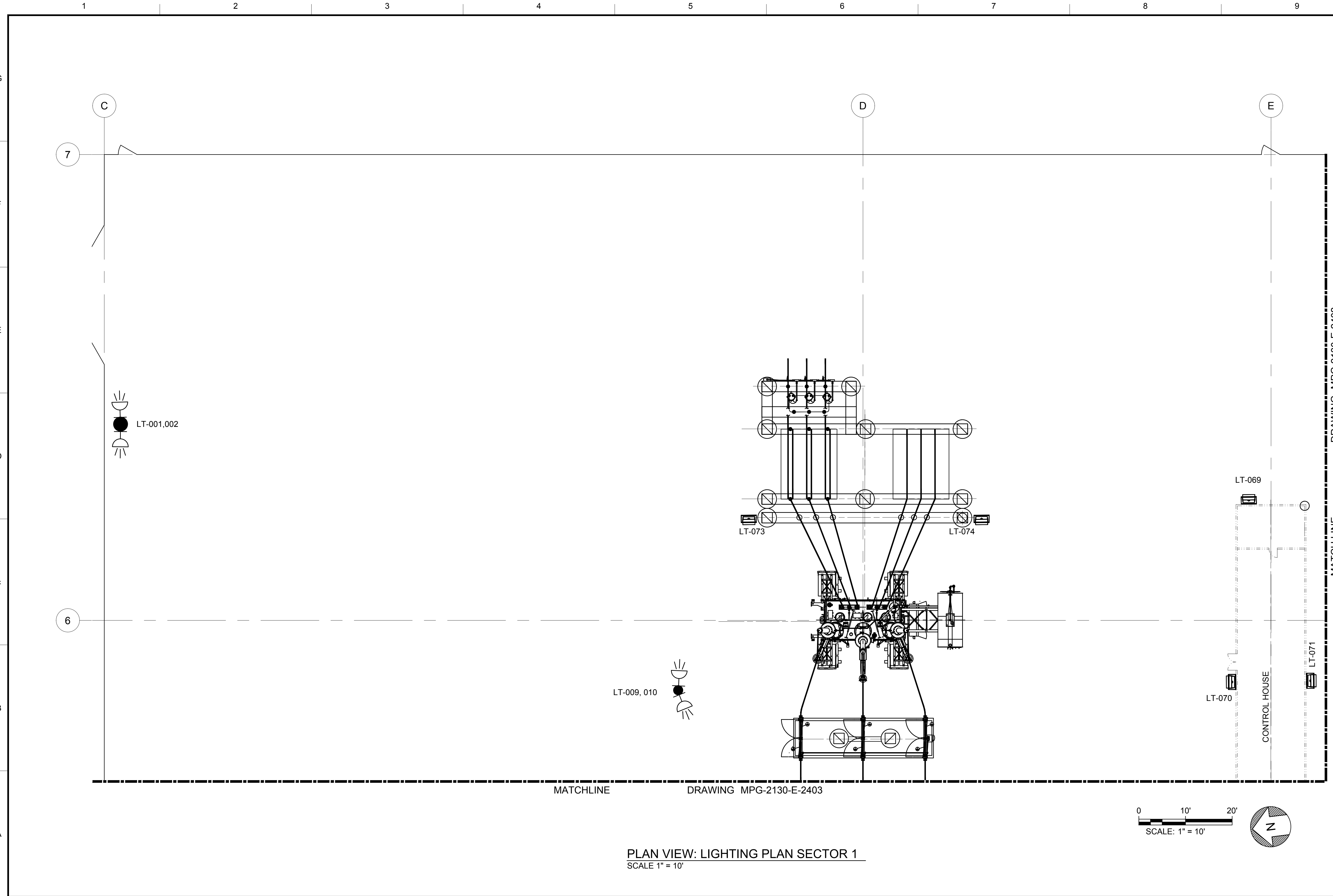
SITES RESERVOIR
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 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 LIGHTING STUDY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

 1" = 40'
 DRAWING NO.
 MPG-2130-E-2400
 SHT 35 OF 91

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PLAN VIEW: LIGHTING PLAN SECTOR 1
SCALE 1" = 10'

GENERAL NOTES

- FOR LUMINAIRE SCHEDULE REFER TO DRAWING MPG-2130-E-2400

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY:
M. NESSABI

DRAWN BY:
M. ZARETSKY

CHECKED BY:
C. VANSANT/M.NESSABI

IN CHARGE:
P. RUDE

DATE:
12-04-2023

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ELECTRICAL
FUNKS RESERVOIR
230KV SUBSTATION
LIGHTING PLAN SECTOR 1

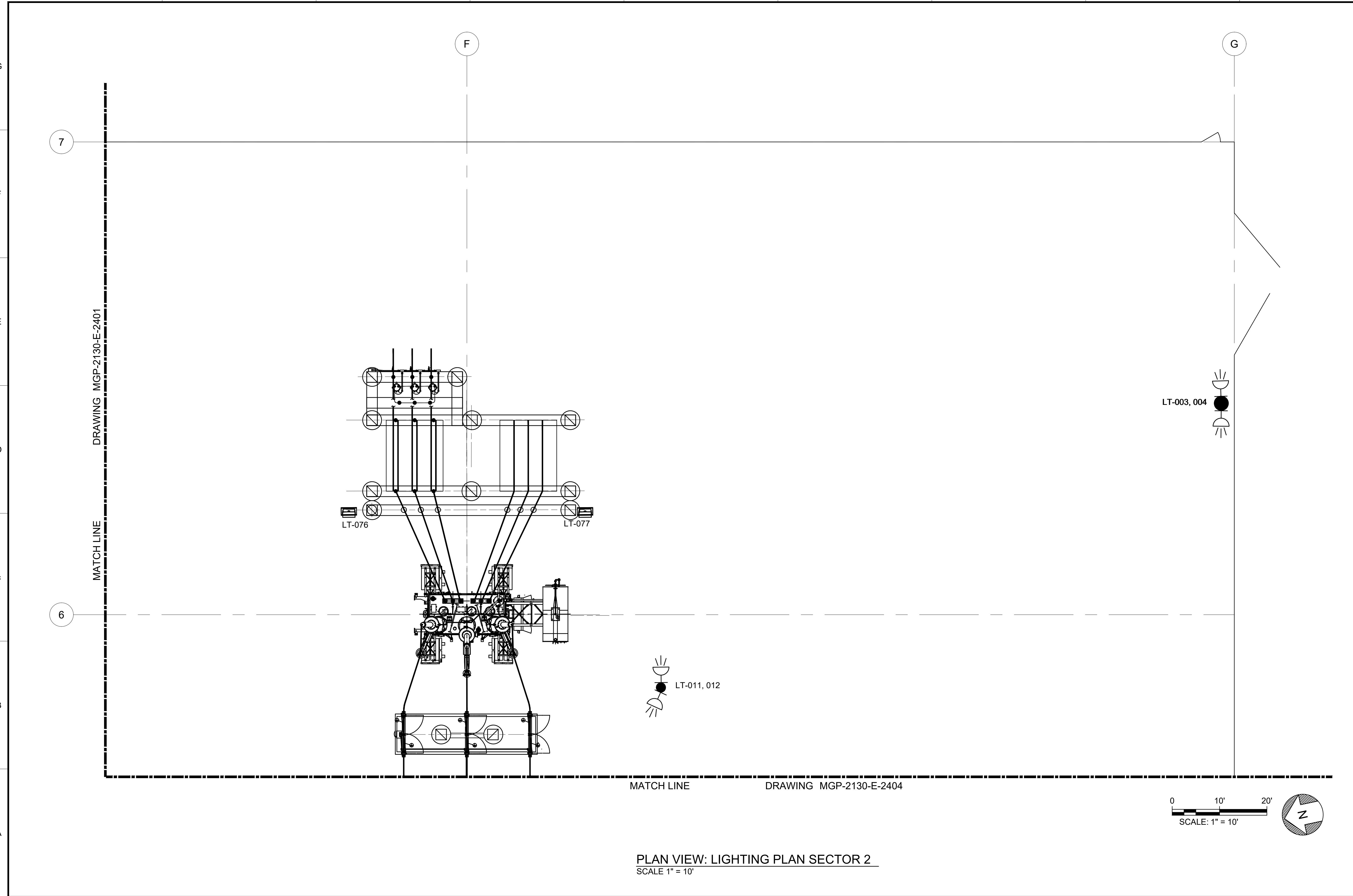
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BAR IS ONE INCH ON ORIGINAL
DRAWING. ADJUST SCALES FOR
REDUCED PLOTS

0 1"

DRAWING NO.
MPG-2130-E-2401
SHT 36 OF 91

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Plot Date: 10/30/2023 4:47 PM
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 File: C:\pwworking\hdr_sites_reservoir\hms01143\MPG-2130-E-2402.dwg



PLAN VIEW: LIGHTING PLAN SECTOR 2
SCALE 1" = 10'

GENERAL NOTES

- FOR LUMINAIRE SCHEDULE REFER TO DRAWING MPG-2130-E-2400

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY: S. PRENDERGAST
 DRAWN BY: S. PRENDERGAST
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023



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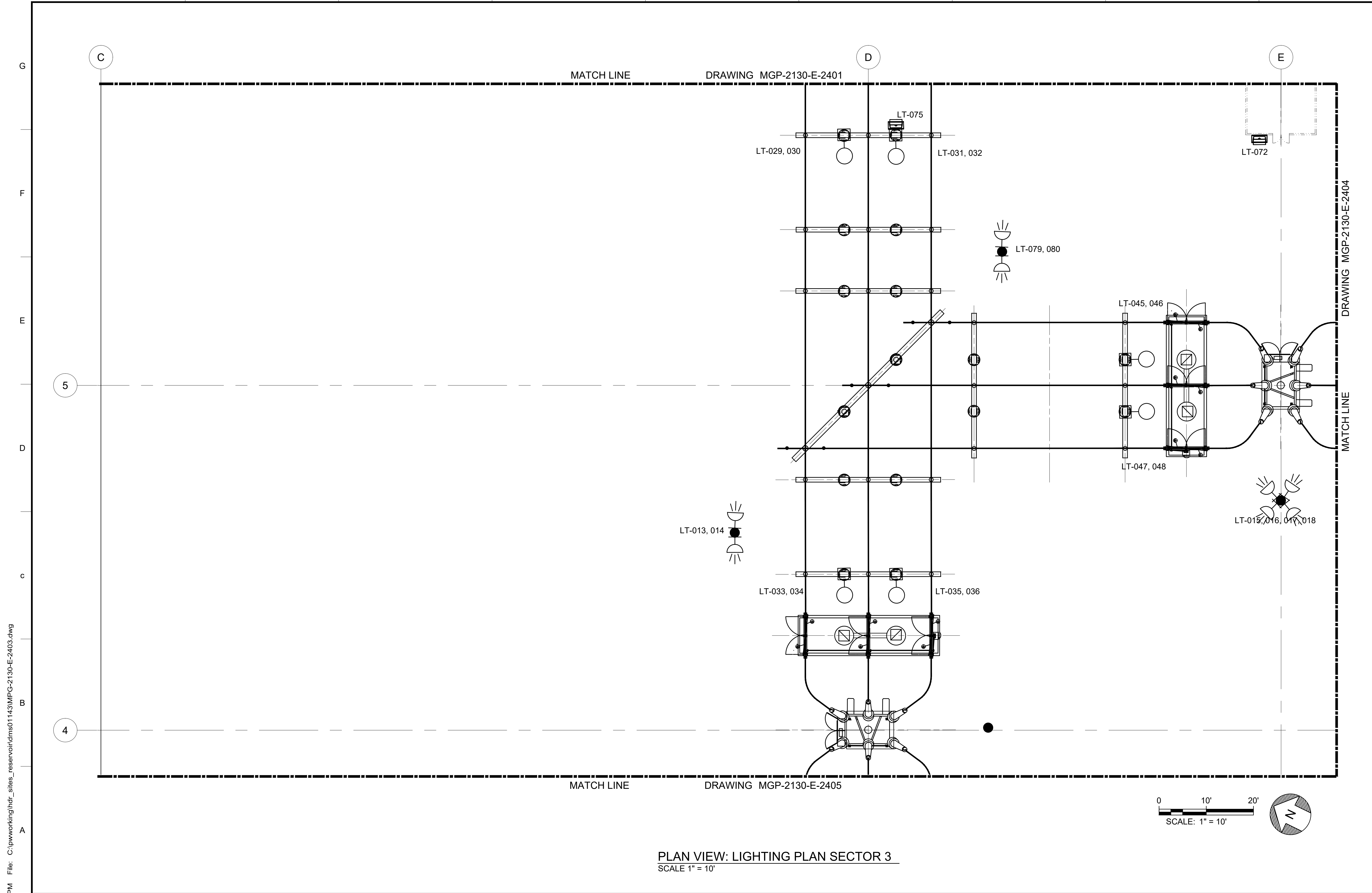


SITES RESERVOIR
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 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 LIGHTING PLAN SECTOR 2

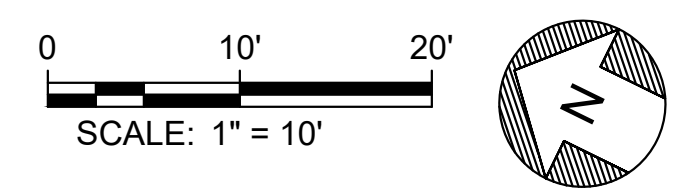
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 REDUCED PLOTS
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DRAWING NO.
 MPG-2130-E-2402
 SHT 37 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



PLAN VIEW: LIGHTING PLAN SECTOR 3
SCALE 1" = 10'



GENERAL NOTES

- FOR LUMINAIRE SCHEDULE REFER TO DRAWING MPG-2130-E-2400

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

Plot Date: 10/30/2023 4:51 PM File: C:\pwworking\hdr_sites_reservoir\hms01143\MPG-2130-E-2403.dwg Saved By: MZARE TSKY

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 IN CHARGE: P. RUDE
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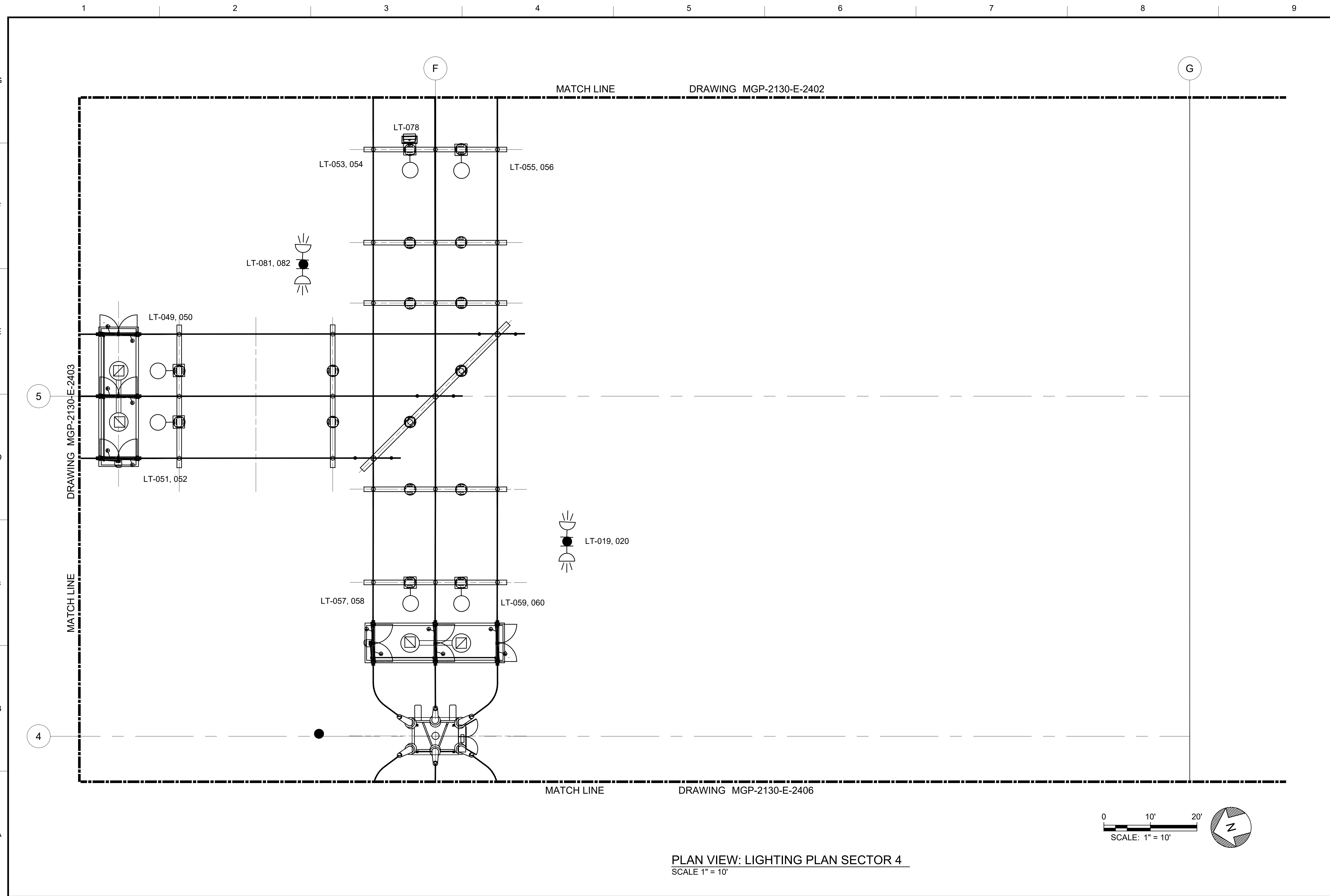
SITES RESERVOIR
 MAXWELL / SITES PUMPING & GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 LIGHTING PLAN SECTOR 3

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
 0 1" 0

DRAWING NO.
 MPG-2130-E-2403
 SHT 38 OF 91

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Plot Date: 10/30/2023 4:55 PM
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 File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2404.dwg



PLAN VIEW: LIGHTING PLAN SECTOR 4
 SCALE 1" = 10'

GENERAL NOTES

- FOR LUMINAIRE SCHEDULE REFER TO DRAWING MPG-2130-E-2400

SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: S. PRENDERGAST
 DRAWN BY: S. PRENDERGAST
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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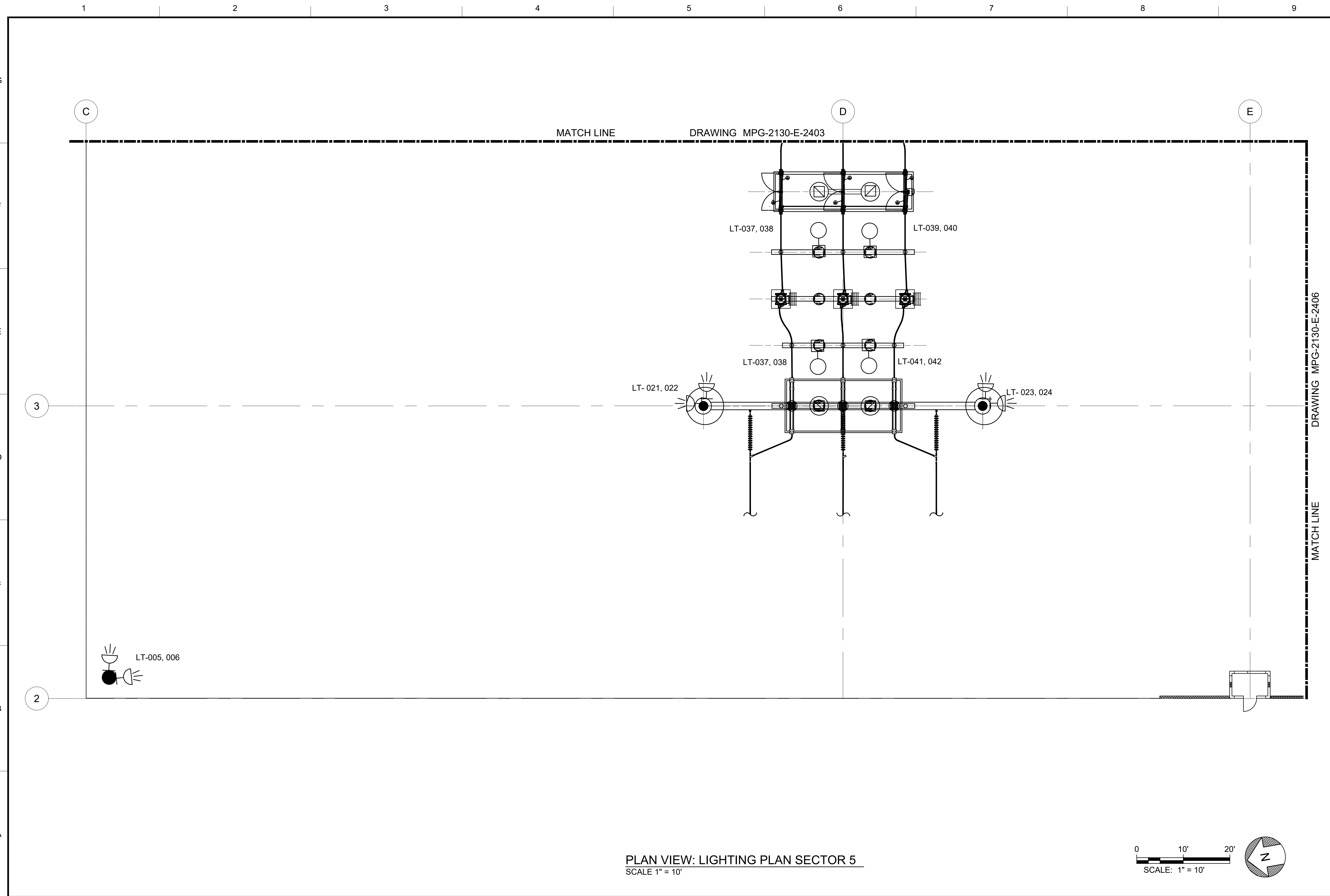


SITES RESERVOIR
 MAXWELL / SITES PUMPING & GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 LIGHTING PLAN SECTOR 4

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2404
 SHT 39 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

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GENERAL NOTES

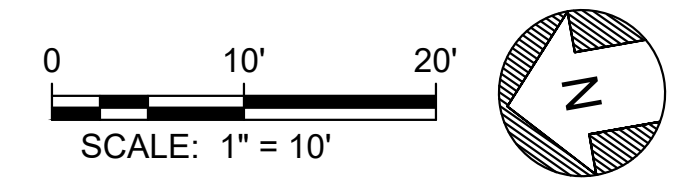
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SHEET KEY NOTES

KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406

PLAN VIEW: LIGHTING PLAN SECTOR 5
 SCALE 1" = 10'



REV	DATE	BY	CHK.	APPR.	DESCRIPTION

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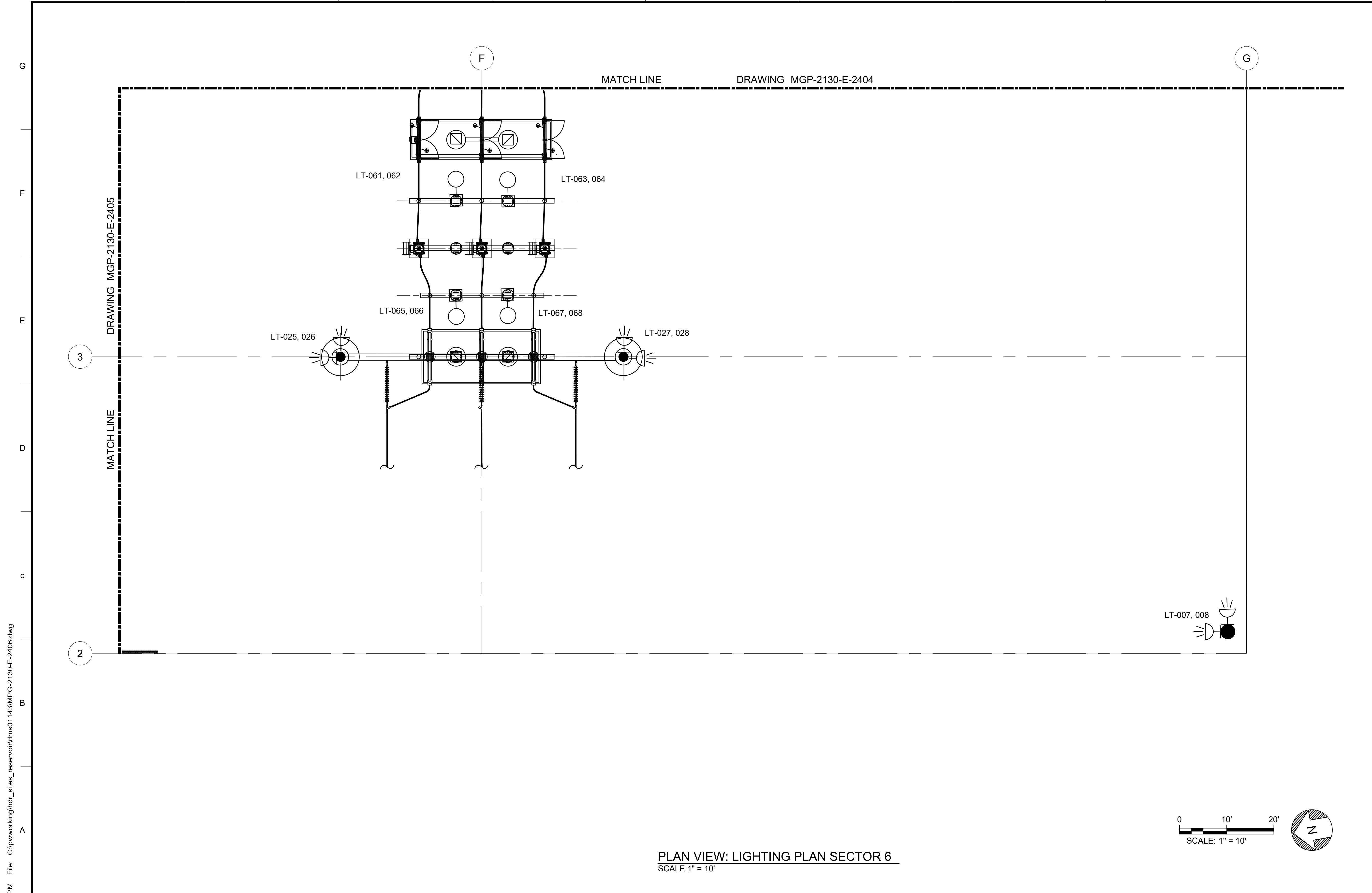
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SITES RESERVOIR
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 230KV SUBSTATION
 LIGHTING PLAN SECTOR 5

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL
 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS
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 DRAWING NO.
 MPG-2130-E-2405
 SHT 40 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



GENERAL NOTES

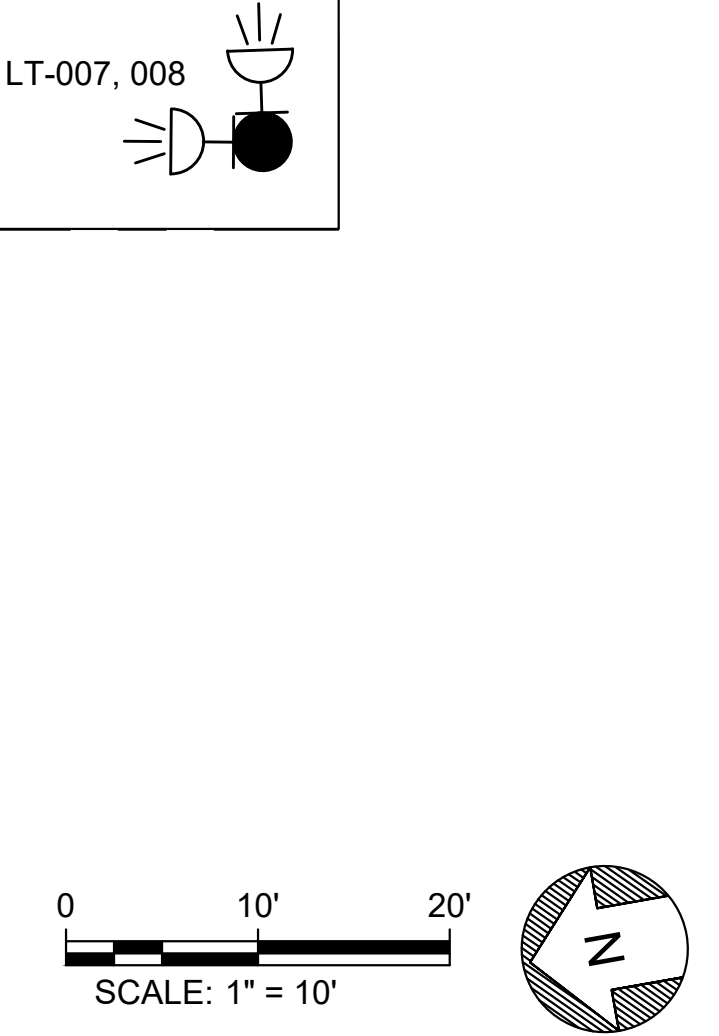
- FOR LUMINAIRE SCHEDULE REFER TO DRAWING MPG-2130-E-2400

SHEET KEY NOTES

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KEY PLAN

MPG-2130-E-2401	MPG-2130-E-2402
MPG-2130-E-2403	MPG-2430-E-2404
MPG-2130-E-2405	MPG-2130-E-2406



PLAN VIEW: LIGHTING PLAN SECTOR 6
SCALE 1" = 10'

Plot Date: 10/30/2023 5:03 PM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2406.dwg Saved By: MZARE TSKY

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 DRAWN BY: S. PRENDERGAST
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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SITES RESERVOIR
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 230KV SUBSTATION
 LIGHTING PLAN SECTOR 6

VERIFY SCALES
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 DRAWING. ADJUST SCALES FOR
 REDUCED PLOTS

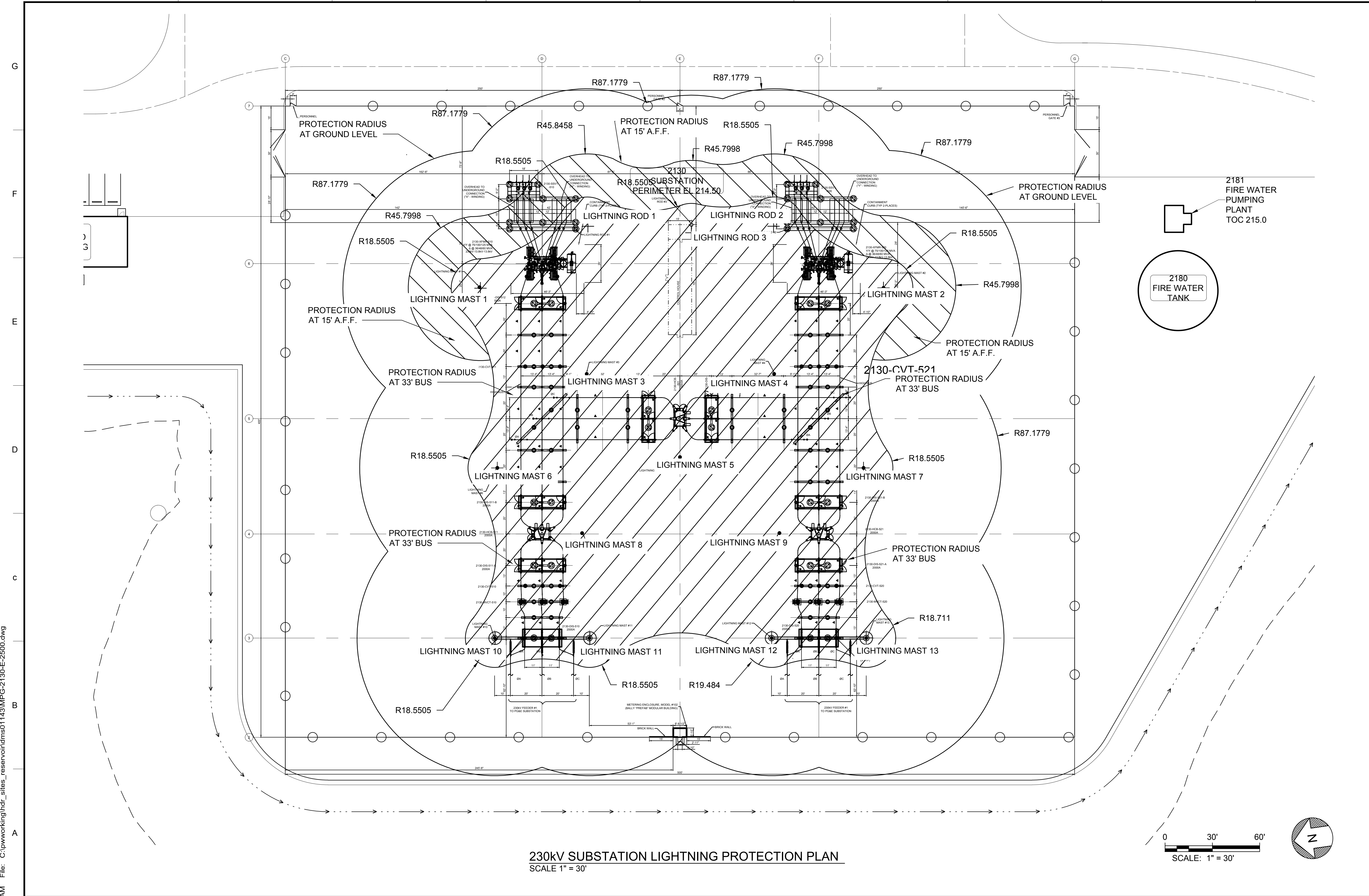
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DRAWING NO.
 MPG-2130-E-2406
 SHT 41 OF 91

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GENERAL NOTES

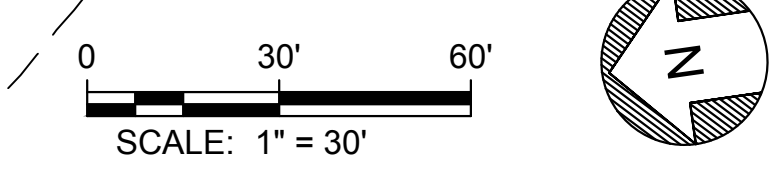
- IEEE Std 998TM - 2012, IEEE GUIDE TO DIRECT LIGHTNING STROKE, SHIELDING OF SUBSTATIONS METHOD: ROLLING SPHERE METHOD, STATIC MASTS ONLY.



SHEET KEY NOTES

KEY PLAN

230kV SUBSTATION LIGHTNING PROTECTION PLAN
SCALE 1" = 30'



Plot Date: 11/30/2023 8:59 AM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-2500.dwg Saved By: MZARETSKY

DESIGNED BY:	M. NESSABI
DRAWN BY:	M. ZARETSKY
CHECKED BY:	C. VANSANT/M.NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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SITES RESERVOIR
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FUNKS RESERVOIR
230KV SUBSTATION
LIGHTNING PROTECTION PLAN

VERIFY SCALES	BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
	0 30 60 1"
DRAWING NO.	MPG-2130-E-2500
	SHT 42 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

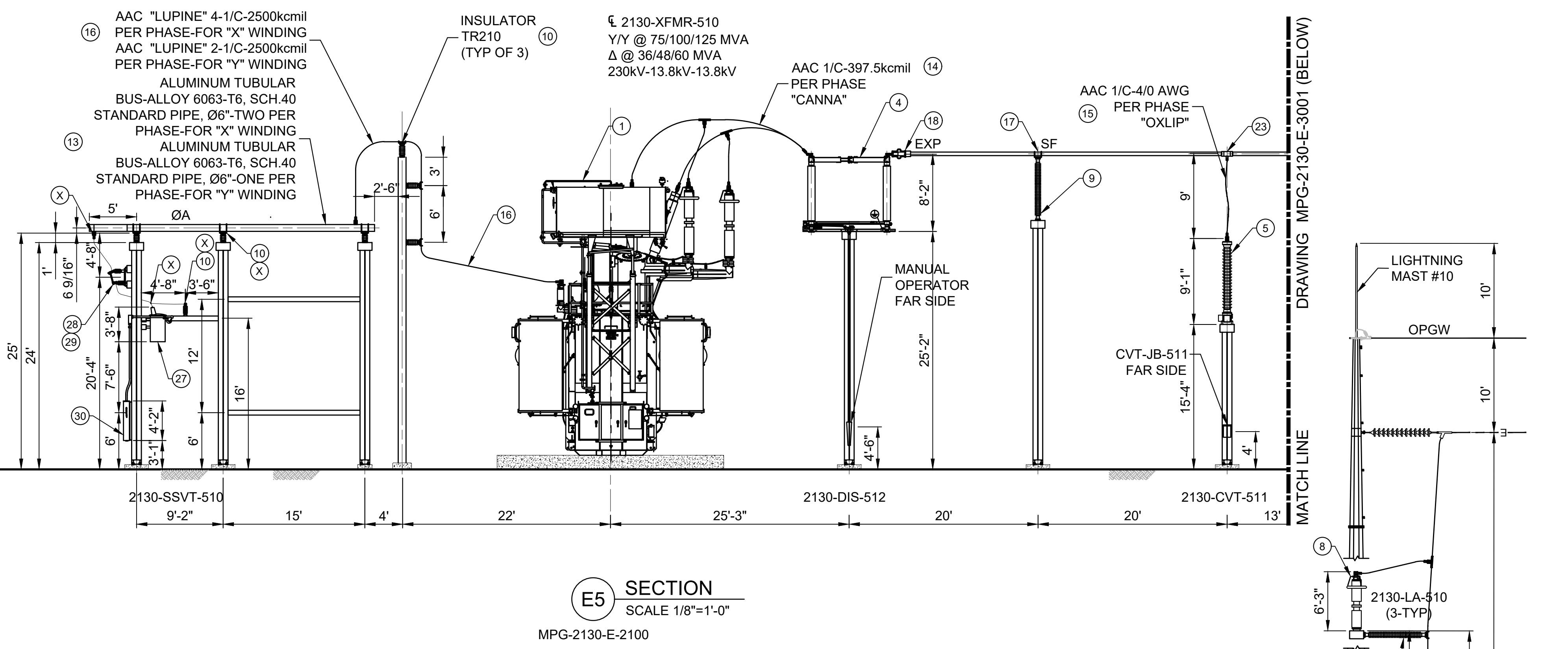
PHASE SPACING FOR OUTDOOR AIR SWITCHES						
VOLTAGE (kV)			PHASE SPACING CENTERLINE-TO-CENTERLINE			
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM METAL-TO-METAL FOR AIR SWITCHES AND BUS SUPPORTS	VERTICAL BREAK DISCONNECT SWITCHES AND POWER FUSES NON-EXPULSION TYPES	SIDE OR HORIZONTAL BREAK DISCONNECT SWITCHES	ALL HORN GAP BREAK SWITCHES AND EXPULSION TYPE FUSES
230	230	900	7'-5"	11'-0"	13'-4"	13'-4"

OUTDOOR SUBSTATION SAFETY CLEARANCES						
VOLTAGE (kV)			MINIMUM VERTICAL CLEARANCE TO UNGUARDED LIVE PARTS		MINIMUM HORIZONTAL CLEARANCE TO UNGUARDED LIVE PARTS	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	REQUIRED	RECOMMENDED	MINIMUM VERTICAL CLEARANCE BETWEEN UNGUARDED LIVE PARTS AND ROADWAYS INSIDE SUBSTATIONS	
230	230	900	13'-9"	15'-0"	8'-3"	

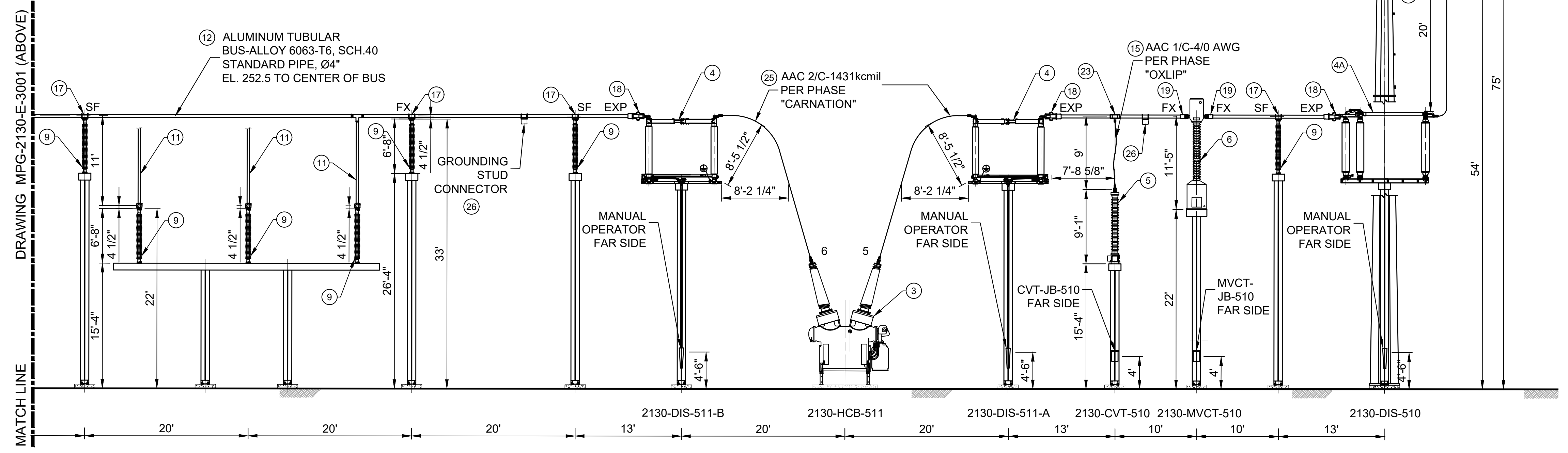
PHASE SPACING AND GROUND CLEARANCES FOR OUTDOOR RIGID BUS SUPPORT						
VOLTAGE (kV)			CLEARANCE TO SUPPORTING STRUCTURE FOR RIGID BUS PARTS		RECOMMENDED CENTERLINE-TO-CENTERLINE PHASE SPACING FOR RIGID BUSES	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM	RECOMMENDED		
230	230	900	5'-11"	6'-4"	11'-0"	

CLEARANCES FROM SUBSTATION FENCE TO LIVE PARTS				
VOLTAGE (kV)		PERIMETER FENCE SAFETY CLEARANCE		GUARD ZONE (CLEARANCE TO LIVE PART)
NOMINAL PH-TO-PH	BIL			
230	900	15'-5"		5'-3"

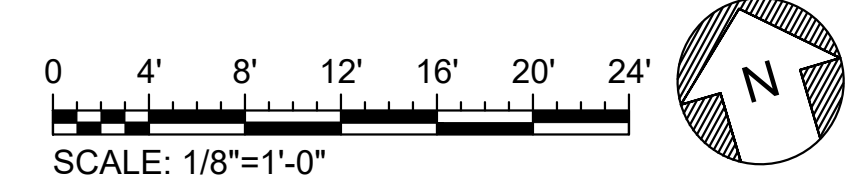
DEAD-END STRUCTURE SPECIFICATIONS				
VOLTAGE (kV)	MINIMUM PHASE SEPARATION	MINIMUM CLEARANCE LIVE PARTS TO STRUCTURE	MINIMUM CONDUCTOR SIZE	TENSION PER PHASE IN LB*FT
230	18'-0"	7'-3"	1113 kcmil AACC	2700-6800



E5 SECTION
SCALE 1/8"=1'-0"
MPG-2130-E-2100



E5 SECTION-CONTINUED
SCALE 1/8"=1'-0"
MPG-2130-E-2100



GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
EQUIPMENT PLAN, OVERALL SITE: MPG-2130-E-2100
BILL OF MATERIAL: MPG-2130-E-2107
EQUIPMENT SECTIONS - SECTOR 2: MPG-2130-E-3002
EQUIPMENT SECTIONS - SECTOR 3: MPG-2130-E-3003
EQUIPMENT SECTIONS - SECTOR 4: MPG-2130-E-3004
EQUIPMENT SECTIONS - SECTOR 5: MPG-2130-E-3005
ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

- ABBREVIATIONS
- SF : SLIP-FIT FITTING
 - FX : FIXED BUS SUPPORT FITTING
 - EXP : EXPANSION TYPE FITTING/CONNECTOR
 - OPGW : OPTICAL GROUND WIRE

KEY PLAN

Plot Date: 10/26/2023 2:09 PM File: C:\pwworking\hdr_sites_reservoir\dwg\1143\MPG-2130-E-3001.dwg Saved By: MZARETSKY

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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(530) 243-5831

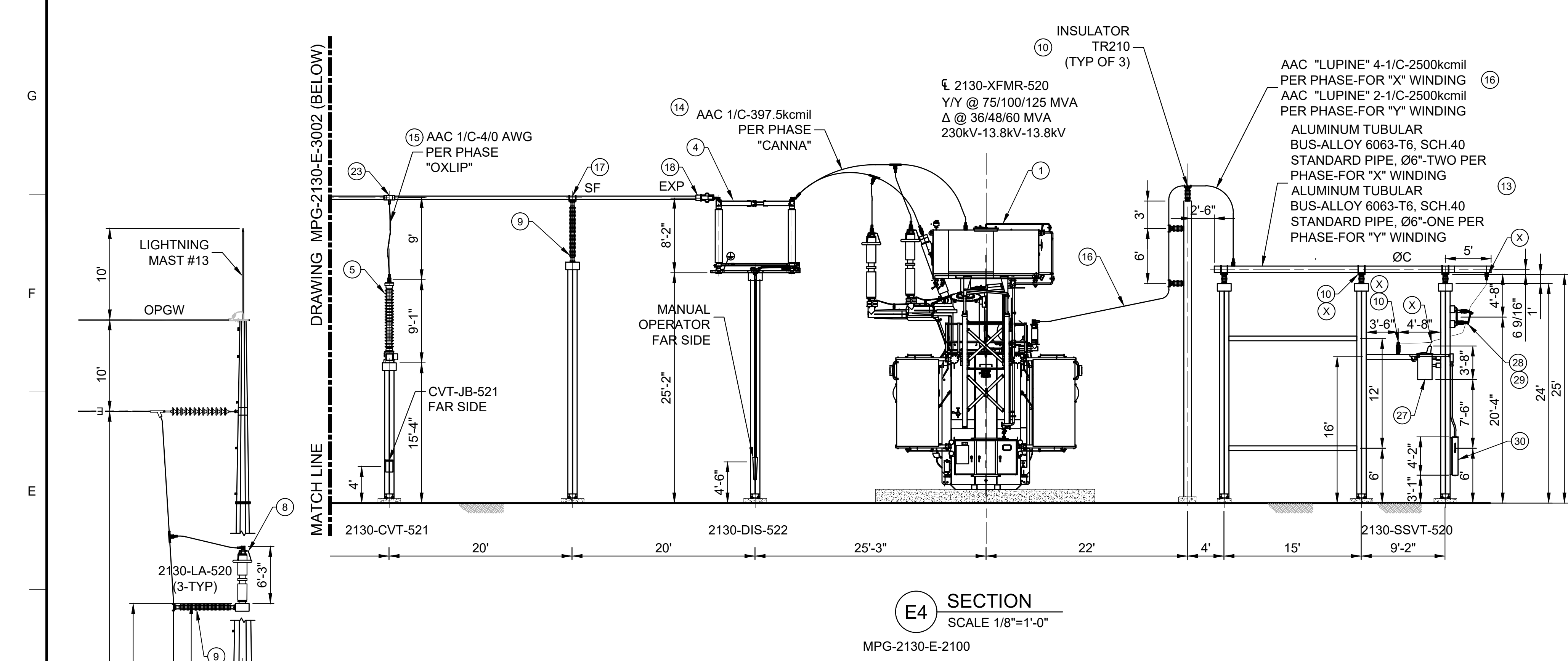
VANDERWEIL
POWER GROUP
R.G. Vanderweil Engineers, LLP
172 Adams Street
Boston, MA 02210

REGISTERED PROFESSIONAL ENGINEER
MANSOUR NESSABI
E 23322
CALIFORNIA

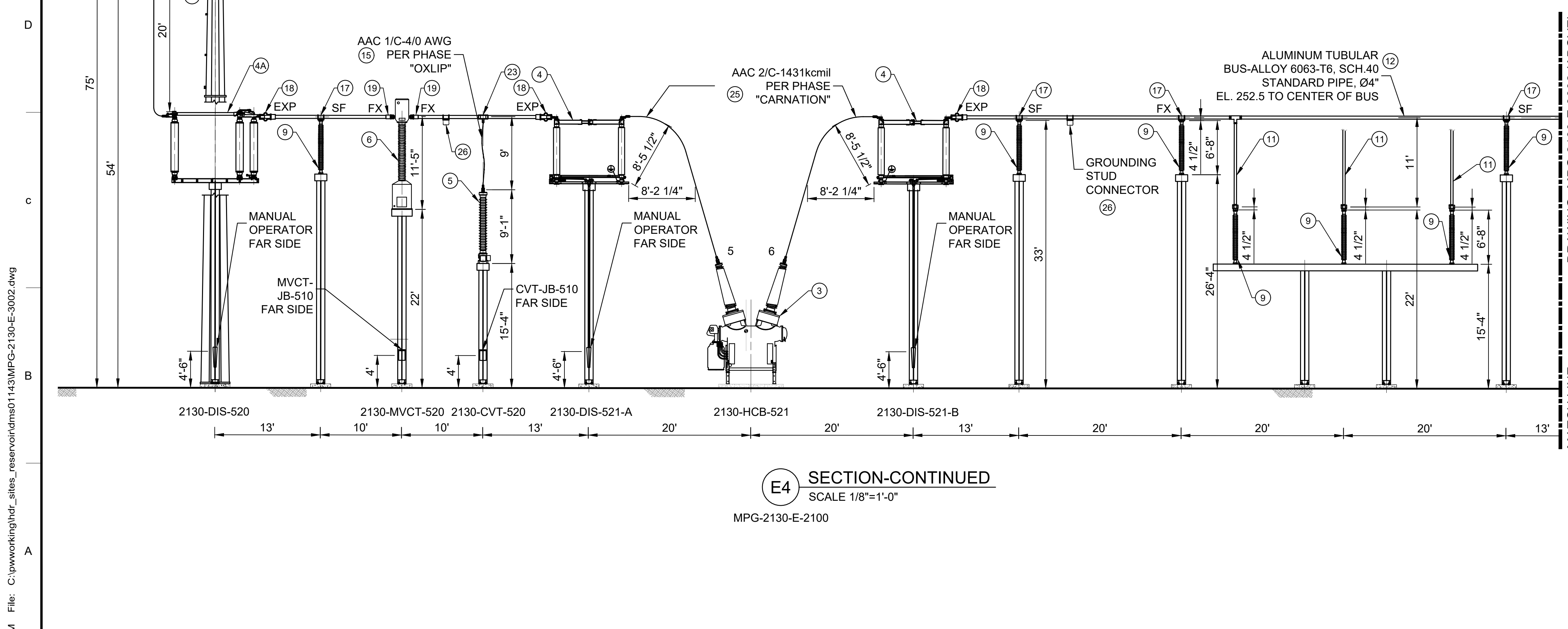
SITES RESERVOIR
MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
FUNKS RESERVOIR
230KV SUBSTATION
EQUIPMENT SECTIONS - SECTOR 1

VERIFY SCALES	BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
	0 4 8 12 16 20 24 1"
DRAWING NO.	MPG-2130-E-3001
SHT	43 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



E4 SECTION
SCALE 1/8"=1'-0"
MPG-2130-E-2100



E4 SECTION-CONTINUED
SCALE 1/8"=1'-0"
MPG-2130-E-2100

PHASE SPACING FOR OUTDOOR AIR SWITCHES					
VOLTAGE (kV)		MINIMUM METAL-TO-METAL FOR AIR SWITCHES AND BUS SUPPORTS	PHASE SPACING CENTERLINE-TO-CENTERLINE		
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH		VERTICAL BREAK DISCONNECT SWITCHES AND POWER FUSES NON-EXPULSION TYPES	SIDE OR HORIZONTAL BREAK DISCONNECT SWITCHES	ALL HORN GAP BREAK SWITCHES AND EXPULSION TYPE FUSES
230	230	900	7'-5"	11'-0"	13'-4"

OUTDOOR SUBSTATION SAFETY CLEARANCES					
VOLTAGE (kV)		MINIMUM VERTICAL CLEARANCE TO UNGUARDED LIVE PARTS	MINIMUM HORIZONTAL CLEARANCE TO UNGUARDED LIVE PARTS	MINIMUM VERTICAL CLEARANCE BETWEEN UNGUARDED LIVE PARTS AND ROADWAYS INSIDE SUBSTATIONS	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH			BIL	REQUIRED
230	230	900	13'-9"	15'-0"	8'-3"

PHASE SPACING AND GROUND CLEARANCES FOR OUTDOOR RIGID BUS SUPPORT					
VOLTAGE (kV)		CLEARANCE TO SUPPORTING STRUCTURE FOR RIGID BUS PARTS		RECOMMENDED CENTERLINE-TO-CENTERLINE PHASE SPACING FOR RIGID BUSES	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM	RECOMMENDED	
230	230	900	5'-11"	6'-4"	11'-0"

CLEARANCES FROM SUBSTATION FENCE TO LIVE PARTS					
VOLTAGE (kV)		PERIMETER FENCE SAFETY CLEARANCE		GUARD ZONE (CLEARANCE TO LIVE PART)	
NOMINAL PH-TO-PH	BIL				
230	900	15'-5"		5'-3"	

DEAD-END STRUCTURE SPECIFICATIONS				
VOLTAGE (kV)	MINIMUM PHASE SEPARATION	MINIMUM CLEARANCE LIVE PARTS TO STRUCTURE	MINIMUM CONDUCTOR SIZE	TENSION PER PHASE IN LB*FT
230	18'-0"	7'-3"	1113 kcmil AAC	2700-6800

GENERAL NOTES

1. FACILITY DRAWINGS ARE AS NOTED BELOW:

EQUIPMENT PLAN, OVERALL SITE:
MPG-2130-E-2100

BILL OF MATERIAL
MPG-2130-E-2107

EQUIPMENT SECTIONS - SECTOR 1:
MPG-2130-E-3001

EQUIPMENT SECTIONS - SECTOR 3:
MPG-2130-E-3003

EQUIPMENT SECTIONS - SECTOR 4:
MPG-2130-E-3004

EQUIPMENT SECTIONS - SECTOR 5:
MPG-2130-E-3005

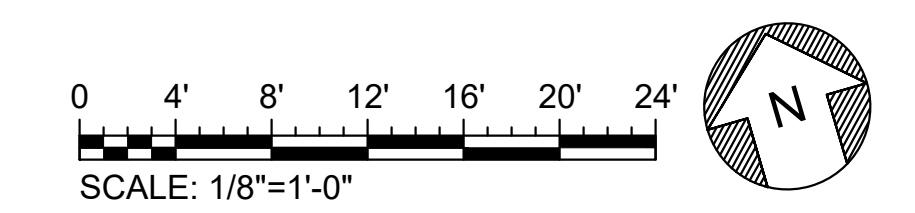
ONE LINE DIAGRAM:
MPG-2130-E-6001

SHEET KEY NOTES

ABBREVIATIONS

SF : SLIP-FIT FITTING
FX : FIXED BUS SUPPORT FITTING
EXP : EXPANSION TYPE FITTING/CONNECTOR
OPGW : OPTICAL GROUND WIRE

KEY PLAN



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Print Date: 10/26/2023 2:07 PM
Saved By: MZARETSKY

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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714-866-0000 FAX
Boston, MA 02210

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E 23322
CALIFORNIA



SITES RESERVOIR
MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
FUNKS RESERVOIR
230KV SUBSTATION
EQUIPMENT SECTIONS - SECTOR 2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

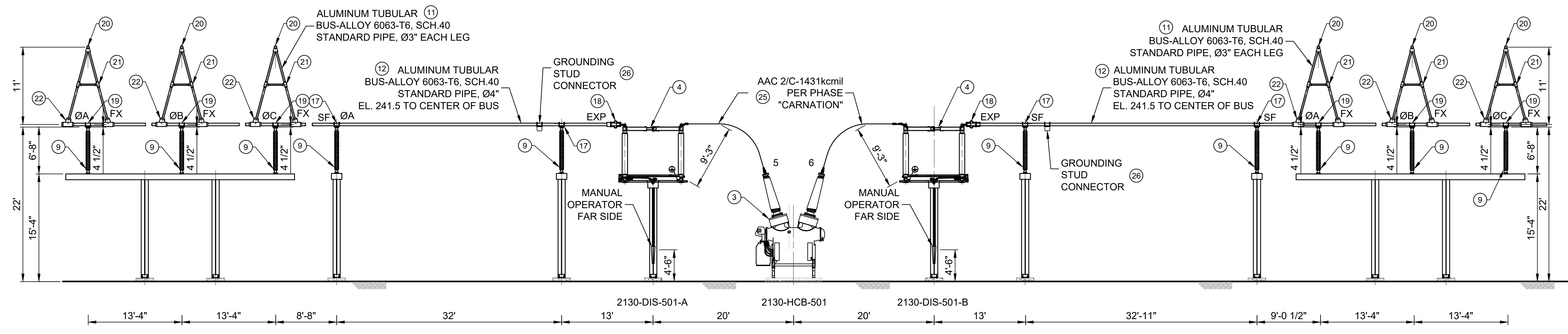
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DRAWING NO.
MPG-2130-E-3002
SHT 44 OF 91

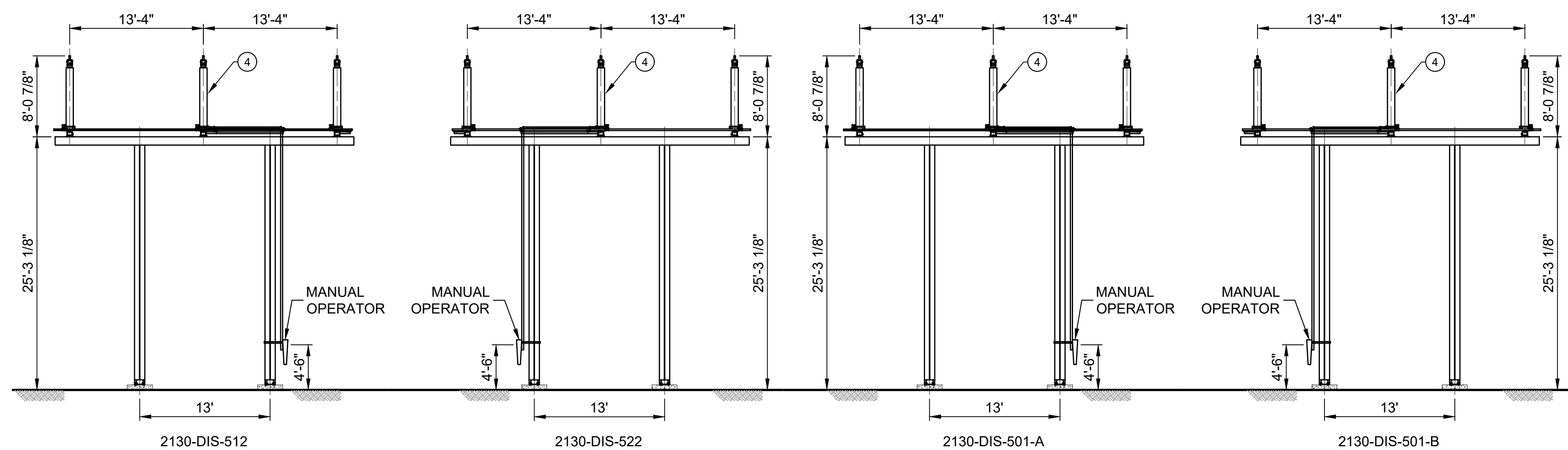
PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
- EQUIPMENT PLAN, OVERALL SITE:
MPG-2130-E-2100
- BILL OF MATERIAL
MPG-2130-E-2107
- EQUIPMENT SECTIONS - SECTOR 1:
MPG-2130-E-3001
- EQUIPMENT SECTIONS - SECTOR 2:
MPG-2130-E-3002
- EQUIPMENT SECTIONS - SECTOR 4:
MPG-2130-E-3004
- EQUIPMENT SECTIONS - SECTOR 5:
MPG-2130-E-3005
- ONE LINE DIAGRAM:
MPG-2130-E-6001



E4 SECTION
SCALE: 1/8" = 1'-0"
MPG-2130-E-2100



B1 SECTION DIS 512 (TYP. FOR DIS 511-B, 511-A, 510)
SCALE: 1/8" = 1'-0"
MPG-2130-E-2101

B3 SECTION DIS 522 (TYP. FOR DIS 521-B, 521-A, 520)
SCALE: 1/8" = 1'-0"
MPG-2130-E-2102

B4 SECTION DIS 501-A
SCALE: 1/8" = 1'-0"
MPG-2130-E-2103

B6 SECTION DIS 501-B
SCALE: 1/8" = 1'-0"
MPG-2130-E-2104

PHASE SPACING FOR OUTDOOR AIR SWITCHES					
VOLTAGE (KV)			PHASE SPACING CENTERLINE-TO-CENTERLINE		
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM METAL-TO-METAL FOR AIR SWITCHES AND BUS SUPPORTS	VERTICAL BREAK DISCONNECT SWITCHES AND NON-EXPULSION TYPES	ALL HORN GAP BREAK SWITCHES AND EXPULSION TYPE FUSES
230	230	900	7'-5"	11'-0"	13'-4"

OUTDOOR SUBSTATION SAFETY CLEARANCES					
VOLTAGE (KV)			MINIMUM VERTICAL CLEARANCE TO UNGUARDED LIVE PARTS	MINIMUM HORIZONTAL CLEARANCE TO UNGUARDED LIVE PARTS	MINIMUM VERTICAL CLEARANCE BETWEEN UNGUARDED LIVE PARTS AND ROADWAYS INSIDE SUBSTATIONS
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	REQUIRED	RECOMMENDED	
230	230	900	13'-9"	15'-0"	8'-3"
					21'-11"

PHASE SPACING AND GROUND CLEARANCES FOR OUTDOOR RIGID BUS SUPPORT					
VOLTAGE (KV)			CLEARANCE TO SUPPORTING STRUCTURE FOR RIGID BUS PARTS		
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM	RECOMMENDED	RECOMMENDED CENTERLINE-TO-CENTERLINE PHASE SPACING FOR RIGID BUSES
230	230	900	5'-11"	6'-4"	11'-0"

CLEARANCES FROM SUBSTATION FENCE TO LIVE PARTS			
VOLTAGE (KV)		PERIMETER FENCE SAFETY CLEARANCE	GUARD ZONE (CLEARANCE TO LIVE PART)
NOMINAL PH-TO-PH	BIL		
230	900	15'-5"	5'-3"

DEAD-END STRUCTURE SPECIFICATIONS				
VOLTAGE (KV)	MINIMUM PHASE SEPARATION	MINIMUM CLEARANCE LIVE PARTS TO STRUCTURE	MINIMUM CONDUCTOR SIZE	TENSION PER PHASE IN LB*FT
230	18'-0"	7'-3"	1113 kcmil AACC	2700-6800

SHEET KEY NOTES

- ABBREVIATIONS
- SF : SLIP-FIT FITTING
 - FX : FIXED BUS SUPPORT FITTING
 - EXP : EXPANSION TYPE FITTING/CONNECTOR

KEY PLAN



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DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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BOSTON, MA 02210

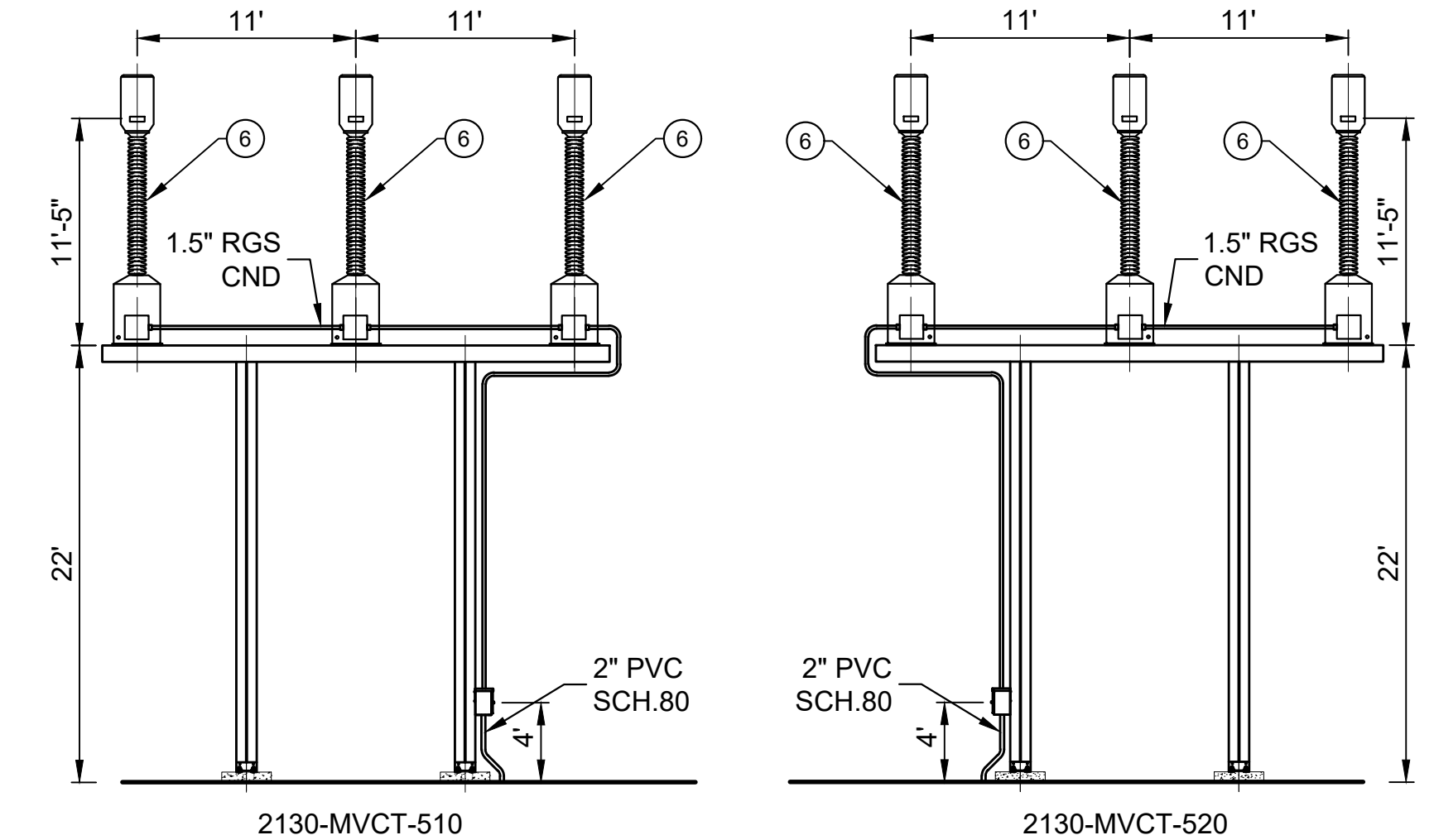
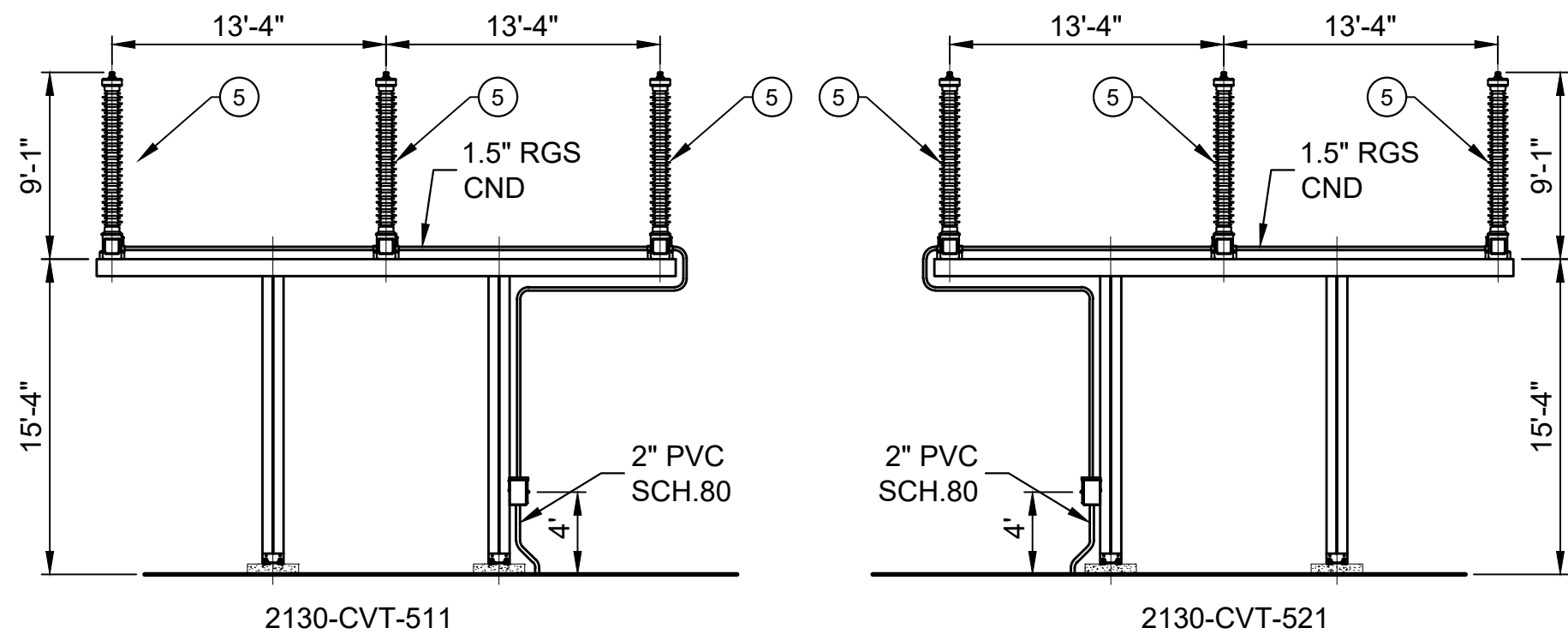
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E 23322
CALIFORNIA



SITES RESERVOIR
MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
FUNKS RESERVOIR
230KV SUBSTATION
EQUIPMENT SECTIONS - SECTOR 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
0 1"
DRAWING NO.
MPG-2130-E-3003
SHT 45 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION



PHASE SPACING FOR OUTDOOR AIR SWITCHES					
VOLTAGE (kV)		PHASE SPACING CENTERLINE-TO-CENTERLINE			
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	VERTICAL BREAK DISCONNECT SWITCHES AND POWER FUSES NON-EXPULSION TYPES	SIDE OR HORIZONTAL BREAK DISCONNECT SWITCHES	ALL HORN GAP BREAK SWITCHES AND EXPULSION TYPE FUSES
230	230	900	7'-5"	11'-0"	13'-4"

OUTDOOR SUBSTATION SAFETY CLEARANCES					
VOLTAGE (kV)		MINIMUM VERTICAL CLEARANCE TO UNGUARDED LIVE PARTS		MINIMUM HORIZONTAL CLEARANCE TO UNGUARDED LIVE PARTS	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	REQUIRED	RECOMMENDED	MINIMUM VERTICAL CLEARANCE BETWEEN UNGUARDED LIVE PARTS AND ROADWAYS INSIDE SUBSTATIONS
230	230	900	13'-9"	15'-0"	21'-11"

PHASE SPACING AND GROUND CLEARANCES FOR OUTDOOR RIGID BUS SUPPORT					
VOLTAGE (kV)		CLEARANCE TO SUPPORTING STRUCTURE FOR RIGID BUS PARTS		RECOMMENDED CENTERLINE-TO-CENTERLINE PHASE SPACING FOR RIGID BUSES	
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM	RECOMMENDED	
230	230	900	5'-11"	6'-4"	11'-0"

CLEARANCES FROM SUBSTATION FENCE TO LIVE PARTS			
VOLTAGE (kV)		PERIMETER FENCE SAFETY CLEARANCE	
NOMINAL PH-TO-PH	BIL	GUARD ZONE (CLEARANCE TO LIVE PART)	
230	900	15'-5"	
		5'-3"	

DEAD-END STRUCTURE SPECIFICATIONS				
VOLTAGE (kV)	MINIMUM PHASE SEPARATION	MINIMUM CLEARANCE LIVE PARTS TO STRUCTURE	MINIMUM CONDUCTOR SIZE	TENSION PER PHASE IN LB*FT
230	18'-0"	7'-3"	1113 kcmil AACC	2700-6800

GENERAL NOTES

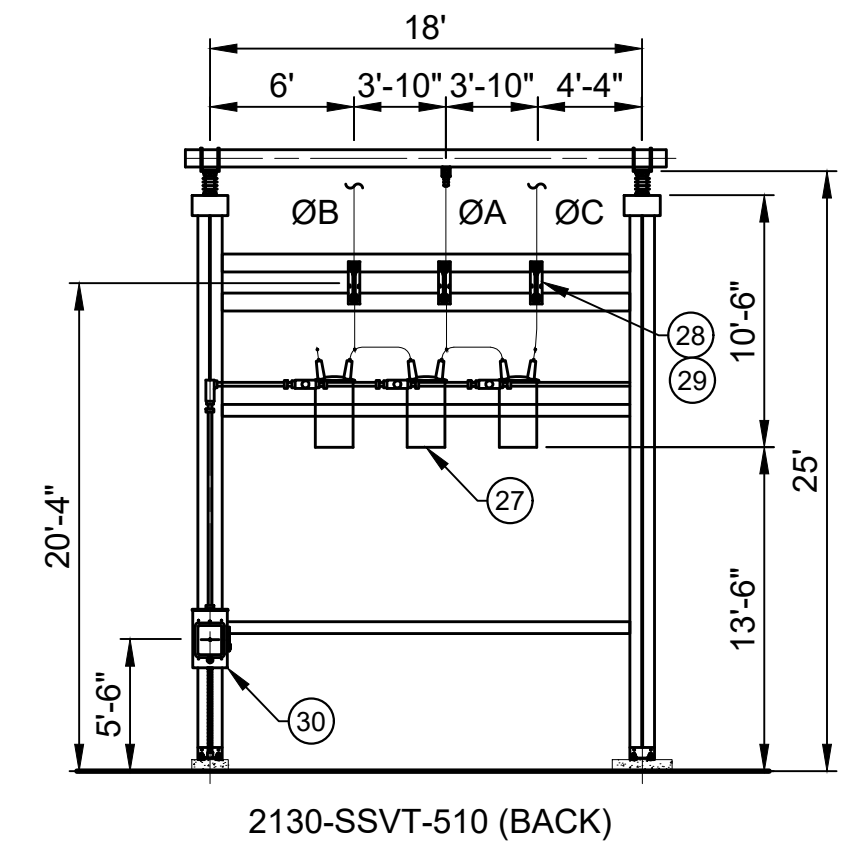
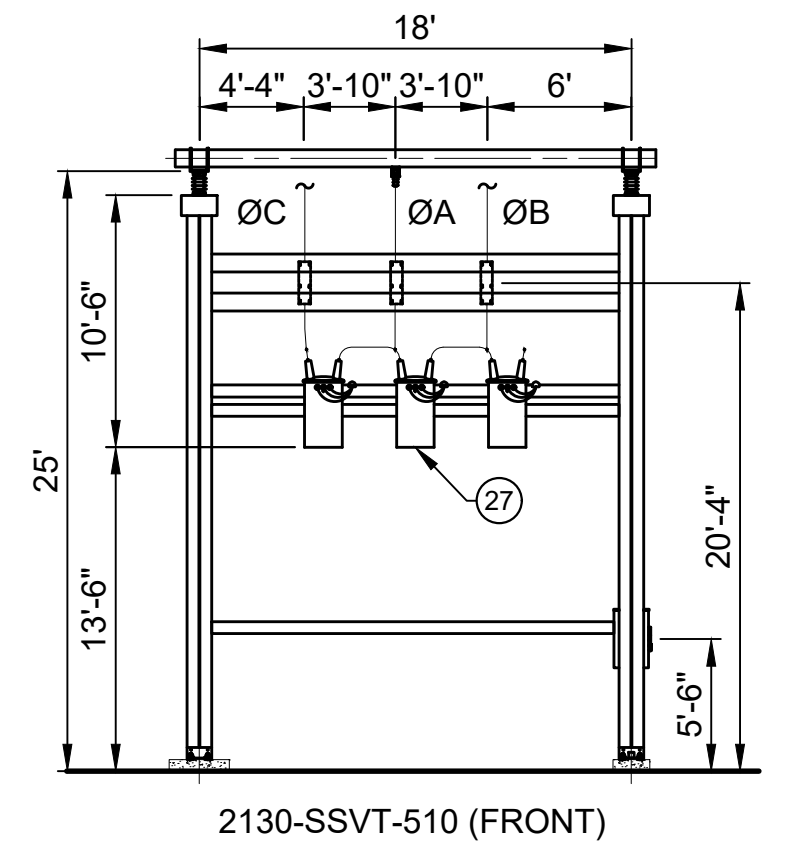
- FACILITY DRAWINGS ARE AS NOTED BELOW:
 EQUIPMENT PLAN, OVERALL SITE: MPG-2130-E-2100
 BILL OF MATERIAL: MPG-2130-E-2107
 EQUIPMENT SECTIONS - SECTOR 1: MPG-2130-E-3001
 EQUIPMENT SECTIONS - SECTOR 2: MPG-2130-E-3002
 EQUIPMENT SECTIONS - SECTOR 3: MPG-2130-E-3003
 EQUIPMENT SECTIONS - SECTOR 5: MPG-2130-E-3005
 ONE LINE DIAGRAM: MPG-2130-E-6001

E1 SECTION CVT-511 (TYP. FOR CVT-510)
SCALE: 1/8" = 1'-0"
MPG-2130-E-2103

E3 SECTION CVT-521 (TYP. FOR CVT-520)
SCALE: 1/8" = 1'-0"
MPG-2130-E-2104

E4 SECTION MVCT-510
SCALE: 1/8" = 1'-0"
MPG-2130-E-2105

E6 SECTION MVCT-520
SCALE: 1/8" = 1'-0"
MPG-2130-E-2106



C1 SECTION SSVT-510 (TYP. FOR SSVT-530)
SCALE: 1/8" = 1'-0"
MPG-2130-E-2101

C3 SECTION SSVT-510 (TYP. FOR SSVT-530)
SCALE: 1/8" = 1'-0"
MPG-2130-E-2101

SHEET KEY NOTES

KEY PLAN



Plot Date: 10/26/2023 1:15 PM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-3004.dwg Saved By: MZARETSKY

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY: M. ZARETSKY
 DRAWN BY: M. ZARETSKY
 CHECKED BY: M. NESSABI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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VANDERWEIL POWER GROUP
 R.G. Vanderweil Engineers, LLP
 617-423-7423 TEL
 714 Adams Street
 Boston, MA 02210

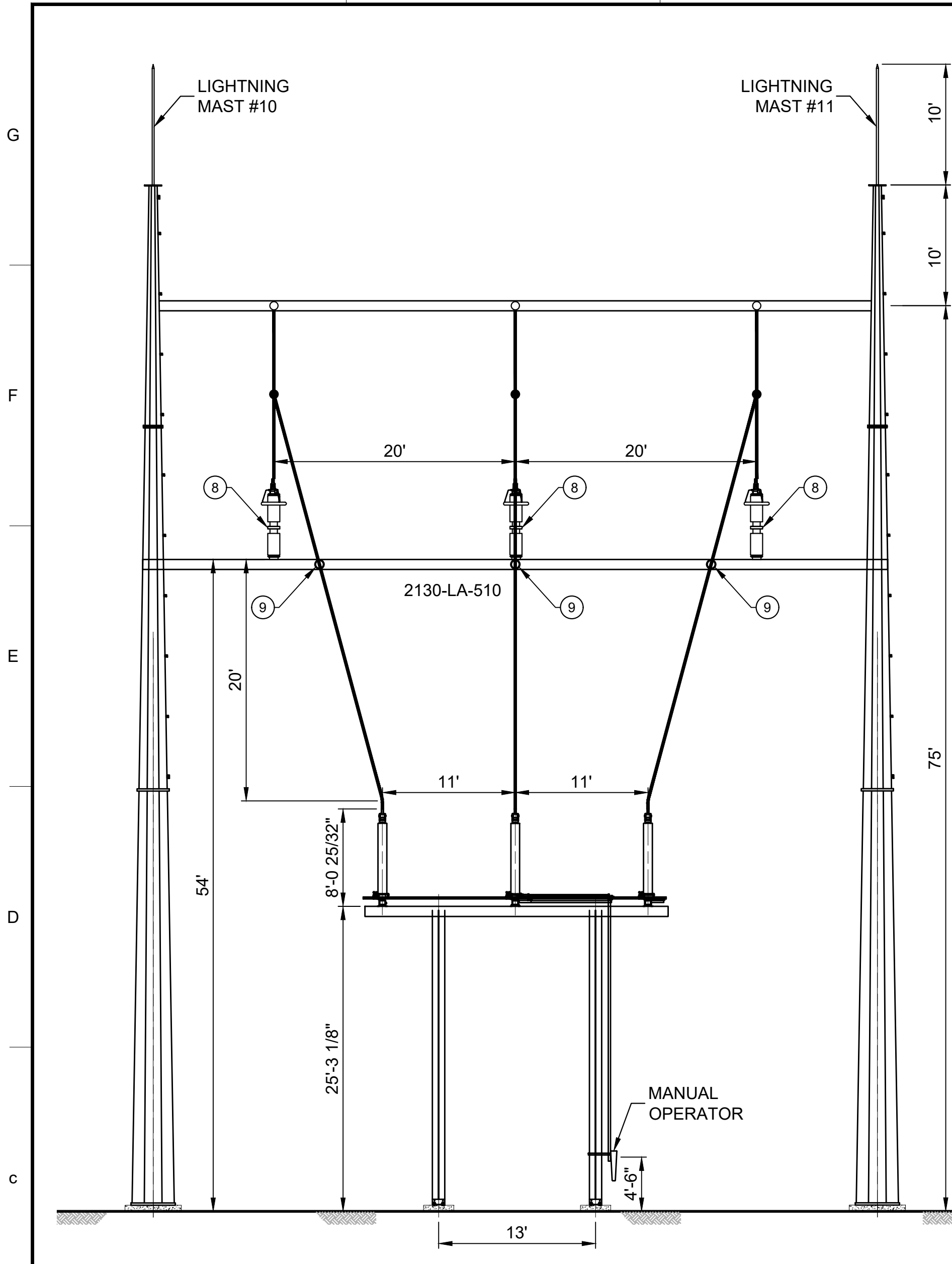
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 E 23322
 CALIFORNIA



SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 EQUIPMENT SECTIONS - SECTOR 4

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
 0 1"
 DRAWING NO.
 MPG-2130-E-3004
 SHT 46 OF 91

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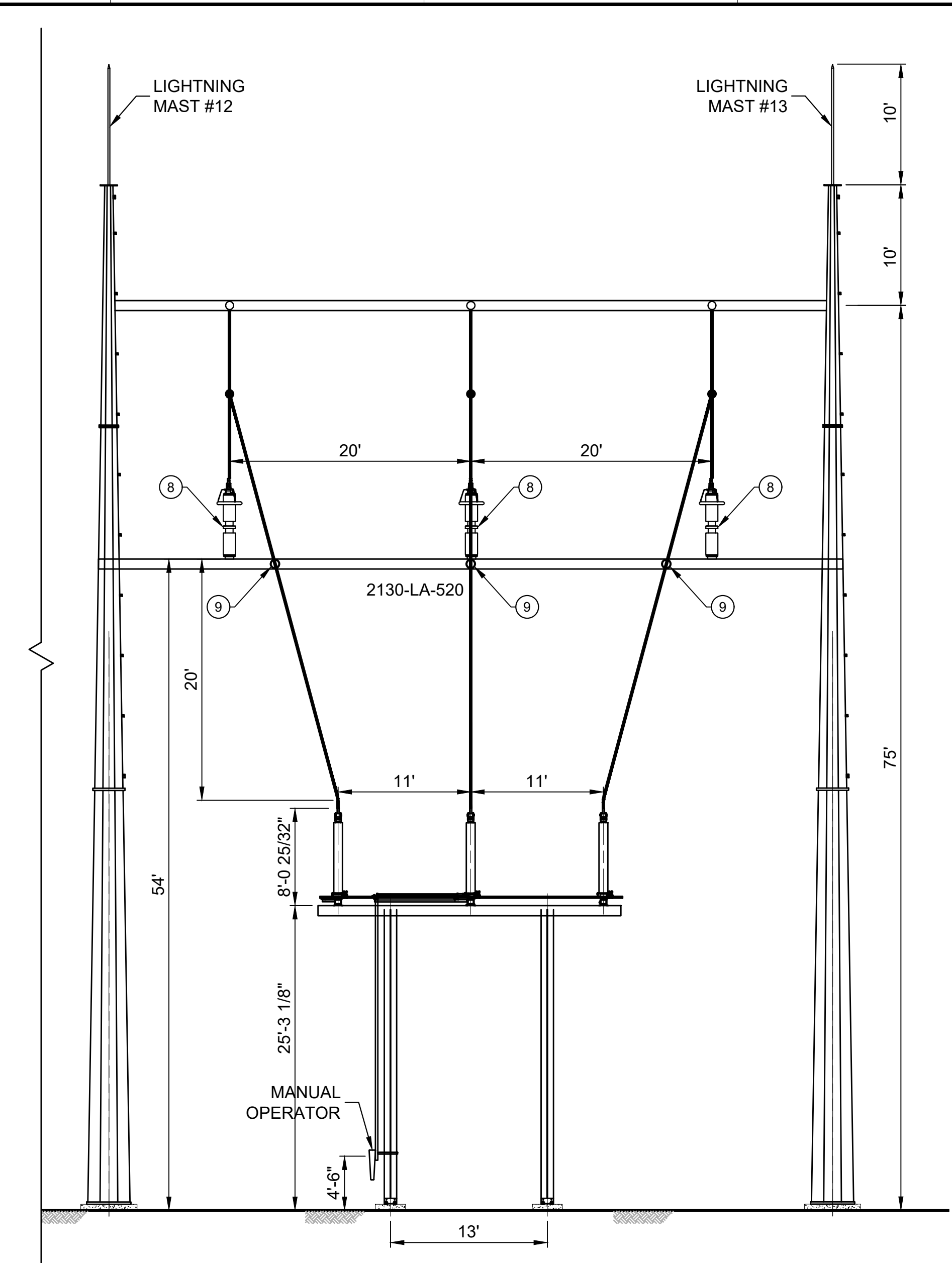
PHASE SPACING FOR OUTDOOR AIR SWITCHES						
VOLTAGE (kV)			PHASE SPACING CENTERLINE-TO-CENTERLINE			
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM METAL-TO-METAL FOR AIR SWITCHES AND BUS SUPPORTS	VERTICAL BREAK DISCONNECT SWITCHES AND POWER FUSES NON-EXPULSION TYPES	SIDE OR HORIZONTAL BREAK DISCONNECT SWITCHES	ALL HORN GAP BREAK SWITCHES AND EXPULSION TYPE FUSES
230	230	900	7'-5"	11'-0"	13'-4"	13'-4"

OUTDOOR SUBSTATION SAFETY CLEARANCES						
VOLTAGE (kV)			MINIMUM VERTICAL CLEARANCE TO UNGUARDED LIVE PARTS		MINIMUM HORIZONTAL CLEARANCE TO UNGUARDED LIVE PARTS	MINIMUM VERTICAL CLEARANCE BETWEEN UNGUARDED LIVE PARTS AND ROADWAYS INSIDE SUBSTATIONS
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	REQUIRED	RECOMMENDED		
230	230	900	13'-9"	15'-0"	8'-3"	21'-11"

PHASE SPACING AND GROUND CLEARANCES FOR OUTDOOR RIGID BUS SUPPORT					
VOLTAGE (kV)			CLEARANCE TO SUPPORTING STRUCTURE FOR RIGID BUS PARTS		RECOMMENDED CENTERLINE-TO-CENTERLINE PHASE SPACING FOR RIGID BUSES
NOMINAL PH-TO-PH	SYSTEM PH-TO-PH	BIL	MINIMUM	RECOMMENDED	
230	230	900	5'-11"	6'-4"	11'-0"

CLEARANCES FROM SUBSTATION FENCE TO LIVE PARTS			
VOLTAGE (kV)		PERIMETER FENCE SAFETY CLEARANCE	GUARD ZONE (CLEARANCE TO LIVE PART)
NOMINAL PH-TO-PH	BIL		
230	900	15'-5"	5'-3"

DEAD-END STRUCTURE SPECIFICATIONS				
VOLTAGE (kV)	MINIMUM PHASE SEPARATION	MINIMUM CLEARANCE LIVE PARTS TO STRUCTURE	MINIMUM CONDUCTOR SIZE	TENSION PER PHASE IN LB*FT
230	18'-0"	7'-3"	1113 kcmil AACC	2700-6800



METERING ENCLOSURE, MODEL #102 (BALLY "PREFAB" MODULAR BUILDING)

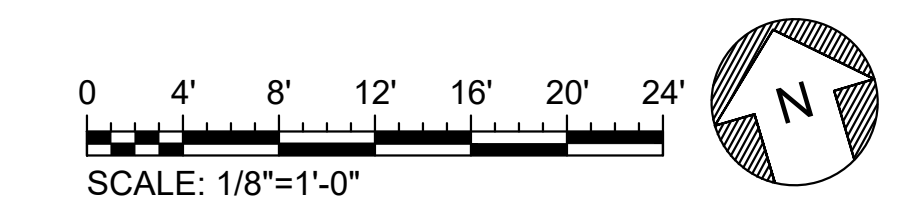
SECTION MOD-510, LA-510,
MOD-520, LA-520
SCALE: 1/8" = 1'-0"
MPG-2130-E-2100

GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
EQUIPMENT PLAN, OVERALL SITE: MPG-2130-E-2100
BILL OF MATERIAL: MPG-2130-E-2107
EQUIPMENT SECTIONS - SECTOR 1: MPG-2130-E-3001
EQUIPMENT SECTIONS - SECTOR 2: MPG-2130-E-3002
EQUIPMENT SECTIONS - SECTOR 3: MPG-2130-E-3003
EQUIPMENT SECTIONS - SECTOR 4: MPG-2130-E-3004
ONE LINE DIAGRAM: MPG-2130-E-6001

SHEET KEY NOTES

KEY PLAN



Plot Date: 10/26/2023 1:10 PM File: C:\pwworking\hdr_sites_reservoir\dms01143\MPG-2130-E-3005.dwg Saved By: MZARETSKY

DESIGNED BY:	M. ZARETSKY
DRAWN BY:	M. ZARETSKY
CHECKED BY:	M. NESSABI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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POWER GROUP
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Boscon, MA 02212

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E 23322
CALIFORNIA



SITES RESERVOIR
MAXWELL / SITES PUMPING AND GENERATING ELECTRICAL
FUNKS RESERVOIR
230KV SUBSTATION
EQUIPMENT SECTIONS - SECTOR 5

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
DRAWING NO.
MPG-2130-E-3005
SHT 47 OF 91

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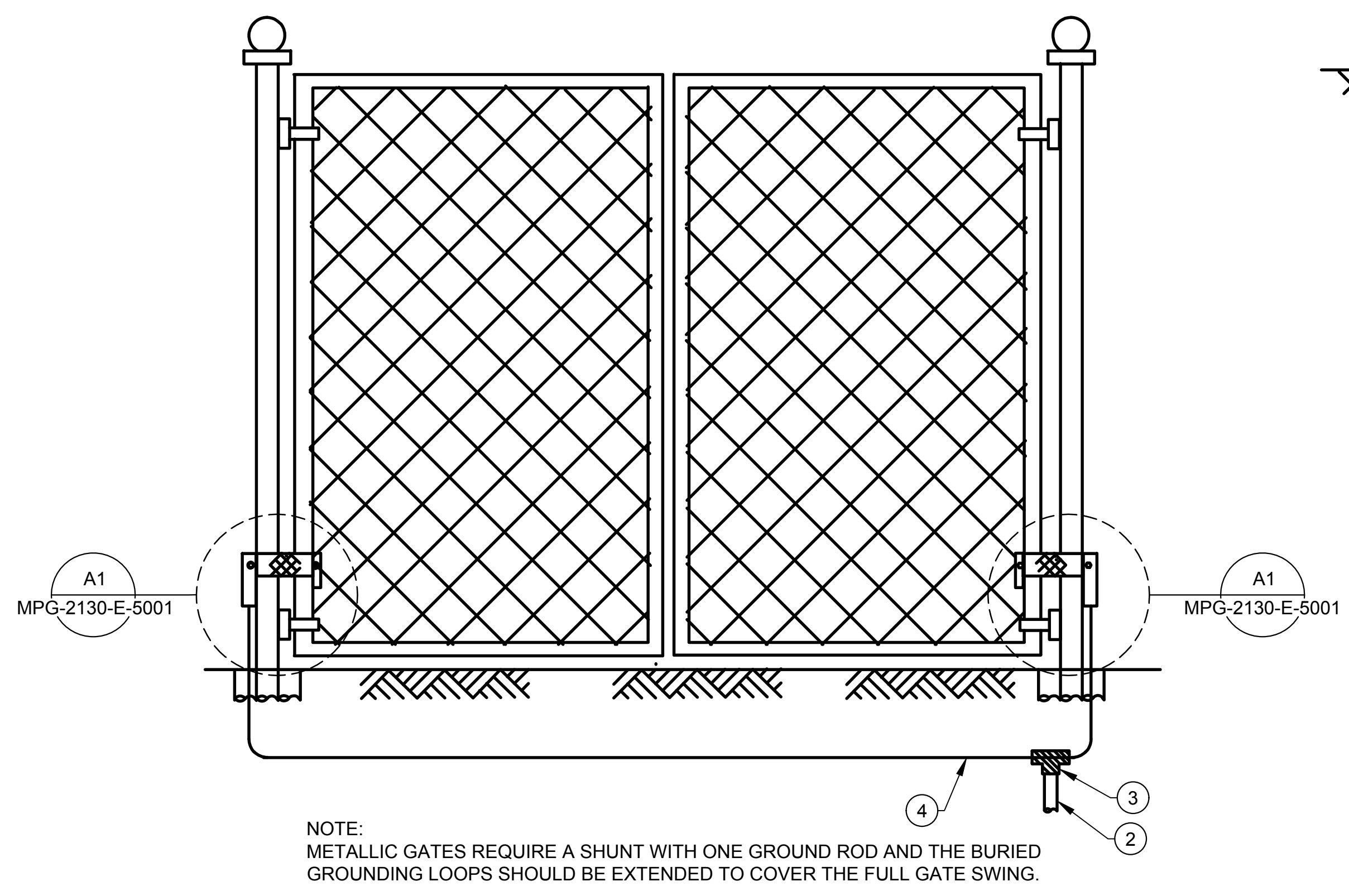
GENERAL NOTES

- FACILITY DRAWINGS ARE AS NOTED BELOW:
 OVERALL GROUNDING PLAN:
 MPG-2130-E-2300
 BILL OF MATERIAL:
 MPG-2130-E-2300

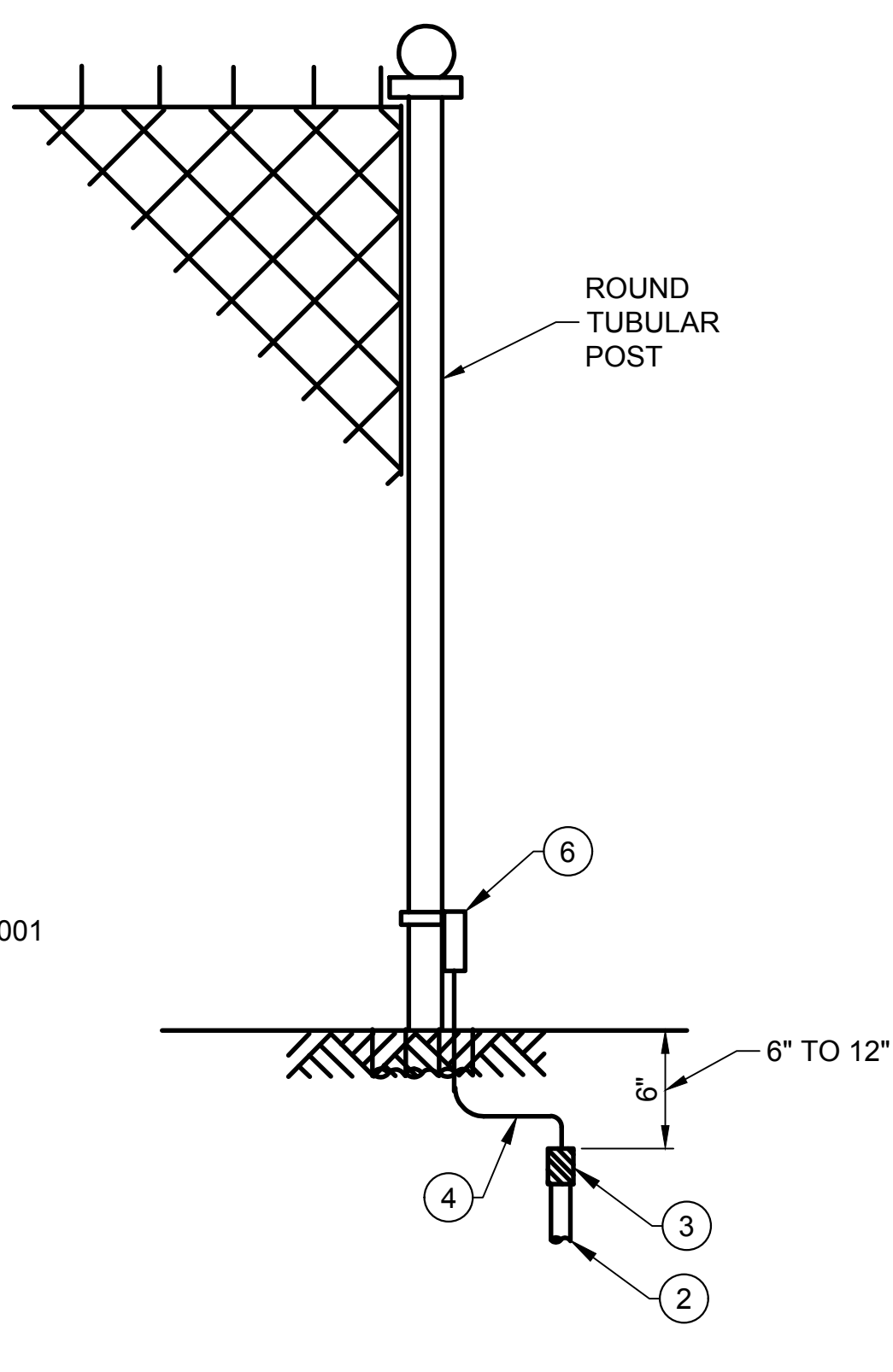
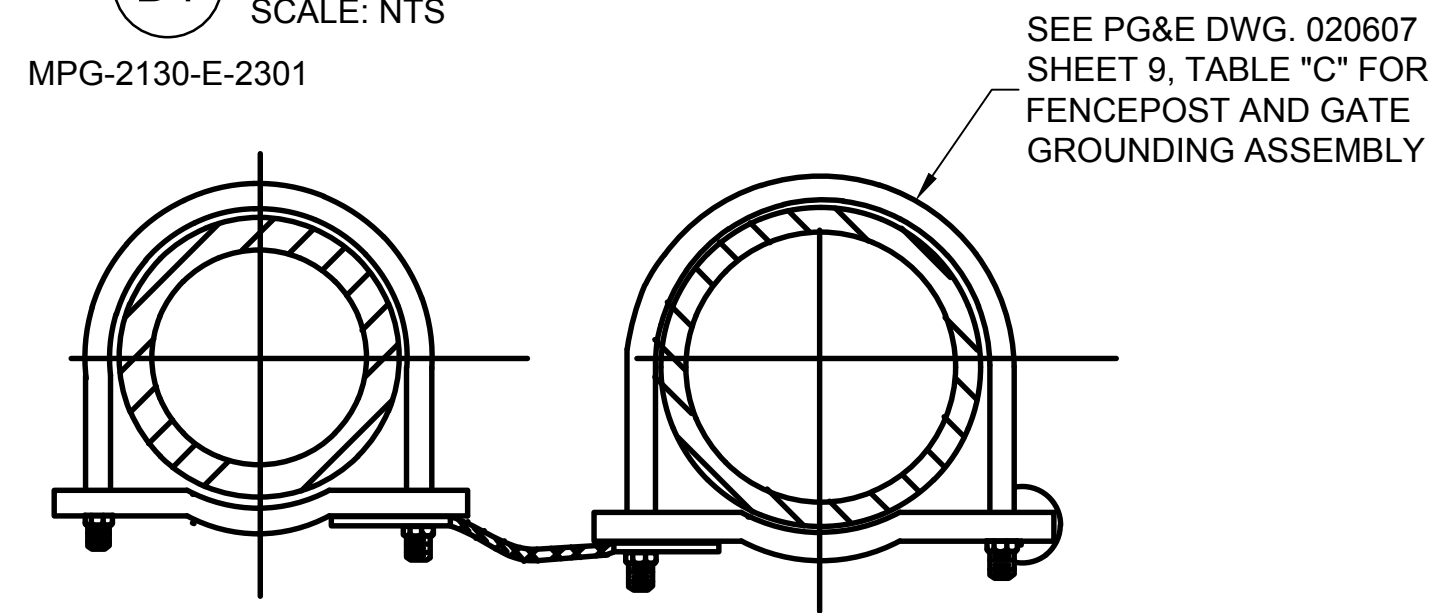
SHEET KEY NOTES

KEY MAP

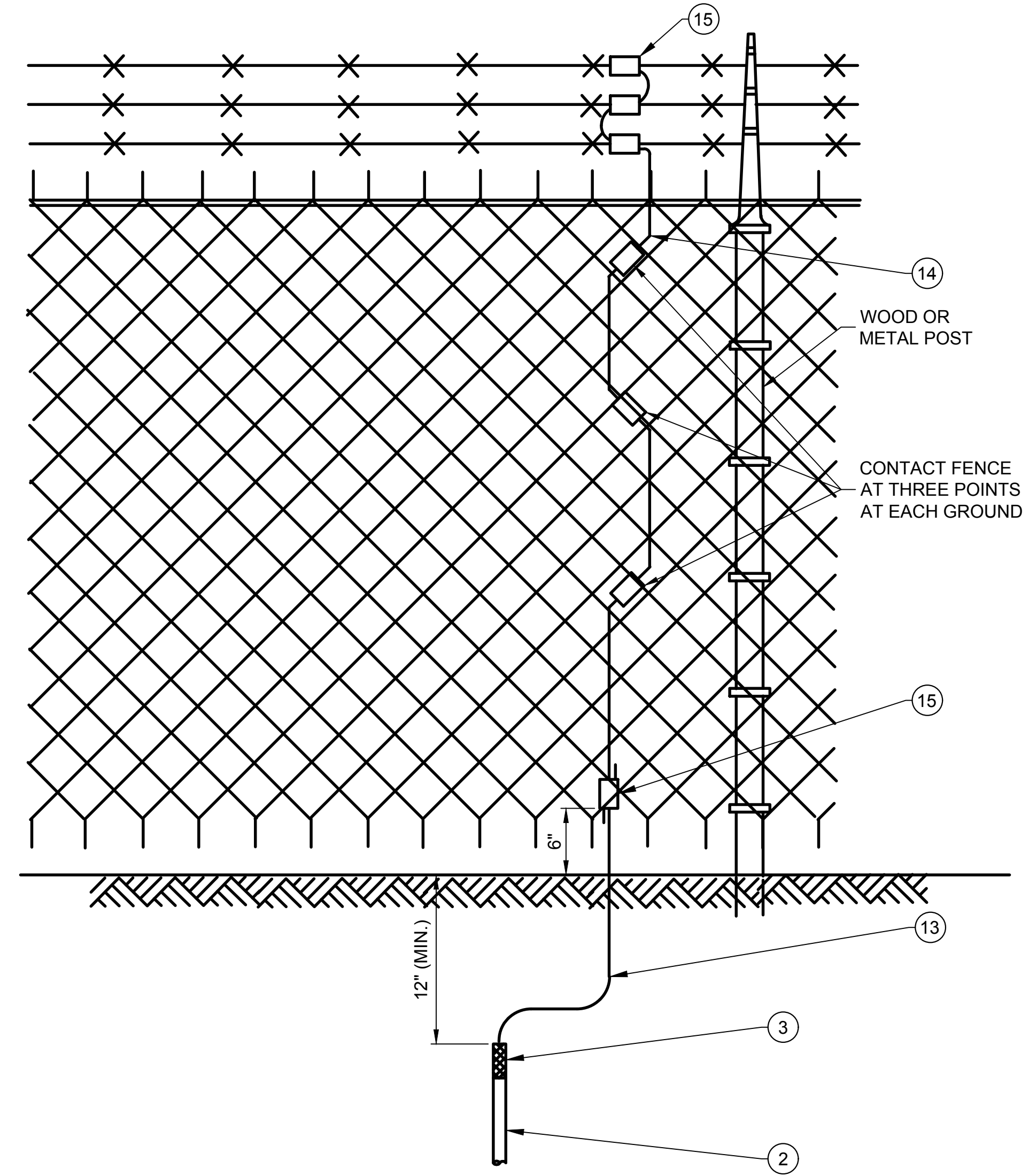
VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
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DRAWING NO.
 MPG-2130-E-5001
 SHT 48 OF 91



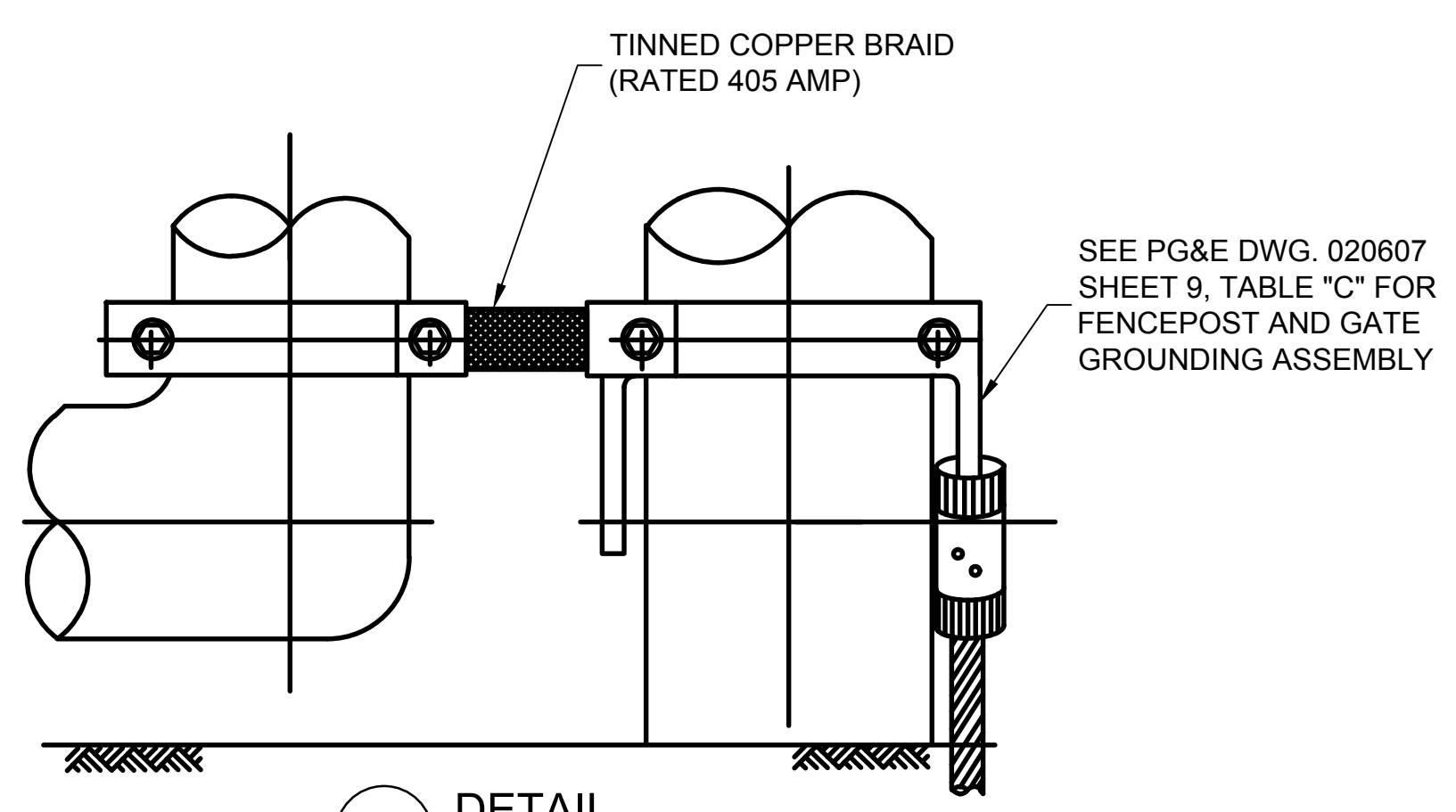
D1 DETAIL (GROUNDING OF GATE)
 SCALE: NTS
 MPG-2130-E-2301



D4 DETAIL (GROUNDING OF POST)
 SCALE: NTS
 MPG-2130-E-2301



C7 DETAIL (GROUNDING OF FENCE)
 SCALE: NTS
 MPG-2130-E-2301



A1 DETAIL
 SCALE: NTS
 MPG-2130-E-5001

REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:
M. NESSABI
 DRAWN BY:
M. ZARETSKY
 CHECKED BY:
C. VANSANT/M.NESSABI
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SITES RESERVOIR
 MAXWELL / SITES PUMPING AND GENERATING
 ELECTRICAL
 FUNKS RESERVOIR
 230KV SUBSTATION
 GROUNDING DETAILS

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL:

- G1. THE INTENT OF THE STRUCTURAL DRAWINGS IS TO SHOW THE MAIN STRUCTURAL FEATURES AND DESIGN FOR THE COMPLETED PROJECT. EQUIPMENT, CIVIL/SITE, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION AND OTHER COMPONENTS NECESSARY TO CONSTRUCT THE PROJECT ARE SHOWN INCIDENTALLY ONLY AND NOT COMPLETELY. ALL CONTRACT DOCUMENTS AND SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS DURING ALL PHASES OF CONSTRUCTION.
- G2. DISCREPANCIES BETWEEN STRUCTURAL AND OTHER TRADE DRAWINGS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ENGINEER DURING CONSTRUCTION FOR CLARIFICATION PRIOR TO INITIATION OF ANY WORK.
- G3. PERFORM ALL CONSTRUCTION IN CONFORMANCE WITH THE BUILDING AND DESIGN CODES REFERENCED BELOW. THE PROJECT DOCUMENTS REFER TO THE FOLLOWING CODES AND STANDARDS, UNLESS NOTED OTHERWISE:
 - A. LOCAL BUILDING CODE AMENDMENTS:
CALIFORNIA BUILDING CODE 2022, TITLE 24, VOLUME 2, PART 2
 - B. REFERENCE DESIGN LOADING CODE: "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES AND SUPPLEMENT NO. 1," AMERICAN SOCIETY OF CIVIL ENGINEERS, STRUCTURAL ENGINEERING INSTITUTE, ASCE 7-16
 - C. REFERENCE STRUCTURAL CONCRETE CODE: "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE," AMERICAN CONCRETE INSTITUTE, ACI 318-19
 - D. REFERENCE STRUCTURAL STEEL CODE: "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC 360-16
 - E. REFERENCE STRUCTURAL STEEL SEISMIC CODE: "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS," AISC 341-16.
- G4. THE CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR THE SAFETY OF ADJACENT STRUCTURES, PROPERTY AND PUBLIC.
- G5. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATIONS AND DIMENSIONS OF ALL CHASES, SLOTS, INSERTS, CURBS, OPENINGS, SLEEVES, ANCHOR BOLTS, FLOOR SLOPE, ANGLE FRAMES AND ALL OTHER PROJECT REQUIREMENTS NOT INDICATED ON THE STRUCTURAL DRAWINGS.
- G6. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ANCHOR BOLTS, NUTS, WASHERS, GROUT, CONCRETE PADS AND REINFORCING STEEL REQUIRED FOR THE PROPER INSTALLATION OF ALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS.
- G7. PROVIDE HYDROPHILIC WATER SWELLING STRIPS IN ALL CONSTRUCTION JOINTS WHERE INDICATED ON THE DRAWINGS AND BETWEEN DRY AREAS AND ANY SOURCE OF LIQUID INCLUDING GROUND WATER.
- G8. WORK NOT INCLUDED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT A CORRESPONDING LOCATION SHALL BE INCLUDED.
- G9. DETAILS SHOWN AS TYPICAL ARE APPLICABLE TO ALL SIMILAR CONDITIONS.
- G10. CONTRACTORS ARE REQUIRED TO FULLY EXAMINE THE DRAWINGS AND SPECIFICATIONS, VISIT THE SITE AND INFORM THEMSELVES AS TO ALL EXISTING CONDITIONS AND LIMITATIONS PRIOR TO SUBMITTING A BID. FAILURE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND LIMITATIONS WILL IN NO WAY RELIEVE THE BIDDER FROM FURNISHING MATERIALS OR PERFORMING WORK AT NO ADDITIONAL COST TO THE OWNER.
- G12. ONLY USE DIMENSIONS INDICATED ON THE DRAWINGS. DO NOT SCALE DRAWINGS.
- G13. ASSUME EQUAL SPACING BETWEEN ESTABLISHED DIMENSIONS IF NOT INDICATED ON THE DRAWINGS.
- G14. CENTERLINES OF FRAMING MEMBERS, COLUMNS AND FOUNDATIONS COINCIDE WITH GRID LINES AND INTERSECTIONS UNLESS OTHERWISE NOTED.
- G15. CENTERLINES OF GRADE BEAMS AND WALLS COINCIDE WITH CENTERLINES OF FOUNDATIONS UNLESS OTHERWISE NOTED.
- G16. CONTRACTOR SHALL COORDINATE THE BOTTOM OF BASE PLATE ELEVATIONS WITH THE AS BUILT TOP OF SUPPORT ELEVATIONS.

FOUNDATIONS

- F1. REFER TO THE GEOTECHNICAL REPORT PREPARED BY DATED..... FOR BORING DATA AND SPECIFIC FOUNDATION CONSTRUCTION REQUIREMENTS.
- F2. FOUNDATIONS HAVE BEEN DESIGNED BASED ON THE FOLLOWING DESIGN VALUES FROM THE GEOTECHNICAL REPORT:
 - A. SPREAD FOOTINGS: ALLOWABLE BEARING PRESSURE
- F3. ALL BACKFILL UNDER STRUCTURAL SLABS AND MATS SHALL BE COMPACTED IN SPECIFIED LIFTS TO 95 PERCENT OF MAXIMUM DRY DENSITY, UNLESS OTHERWISE INDICATED OR SPECIFIED.
- F4. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE EXCAVATION WHERE NECESSARY AND SHALL PROVIDE SHEETING, TIEBACKS, BRACING AND UNDERPINNING TO PROTECT ADJACENT UTILITY STRUCTURES, AS REQUIRED.
- F5. FOUNDATION CONCRETE SHALL NOT BE PLACED IN WATER OR ON FROZEN GROUND.
- F6. PROVIDE A MINIMUM 6-INCH LAYER OF COMPACTED CRUSHED STONE CONFORMING TO THE SPECIFICATIONS UNDER ALL SLABS ON GRADE.
- F7. ALL REQUIRED INSERTS, SLEEVES, CONDUITS, EMBEDMENTS AND PENETRATIONS MUST BE VERIFIED WITH THE RESPECTIVE TRADES PRIOR TO PLACING CONCRETE.
- F8. DOWELS FROM FOUNDATIONS INTO PIERS, PILASTERS, COLUMNS, BUTTRESSES OR WALLS SHALL BE THE SAME SIZE AND NUMBER AS REINFORCEMENT IN PIER, PILASTERS, COLUMNS, BUTTRESSES OR WALLS ABOVE, EXCEPT WHERE OTHERWISE NOTED.
- F9. CONTRACTOR SHALL PROVIDE CONTINUOUS DRAINAGE BY MECHANICAL MEANS TO CONTROL SURFACE AND UNDERGROUND WATER AS REQUIRED DURING CONSTRUCTION.
- F10. CONTRACTOR SHALL ENSURE THAT GROUNDWATER LEVELS UNDER ADJACENT STRUCTURES AND PROPERTIES ARE NOT LOWERED.
- F11. THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE VALIDITY OF THE SUBSURFACE CONDITIONS DESCRIBED ON THE DRAWINGS, SPECIFICATIONS, BORING LOGS, OR TEST PITS. THIS DATA IS INCLUDED TO ASSIST THE CONTRACTOR DURING BIDDING AND SUBSEQUENT CONSTRUCTION AND REPRESENT CONDITIONS AT THE BOREHOLE AND TEST PIT LOCATIONS AT THE PARTICULAR TIME THESE INVESTIGATIONS WERE CONDUCTED.
- F12. BASEMENT FOUNDATION WALLS SHALL BE BRACED PRIOR TO BACKFILLING. BRACING SHALL REMAIN IN PLACE UNTIL SLABS AND BEAMS FRAMING INTO THE WALL HAVE BEEN PLACED AND HAVE ATTAINED 100% OF THEIR DESIGN STRENGTH.

Ø = DIAMETER ⊕ = REFERENCE ELEVATION OR WORK POINT

REINFORCED CONCRETE:

- C1. CONCRETE STRENGTHS SHALL MEET THE FOLLOWING 28-DAY COMPRESSIVE STRENGTHS (F_c), UNLESS OTHERWISE NOTED:
 - A. FOOTINGS: 4,000 PSI
 - B. FOUNDATION WALLS: 4,000 PSI
 - C. COLUMNS: 4,000 PSI
 - D. WALLS: 4,000 PSI
 - E. BEAMS: 4,000 PSI
 - F. SLABS ON GRADE: 5,000 PSI
- C2. PROVIDE NORMAL WEIGHT CONCRETE WITH A CURED DENSITY OF 145 +/- 5 PCF, AND AGGREGATE CONFORMING TO C33, UNLESS OTHERWISE NOTED.
- C5. THE FOLLOWING IS PROHIBITED IN CONCRETE CONSTRUCTION:
 - A. CALCIUM CHLORIDE OR CHLORIDE CONTAINING AGENTS.
 - B. RECYCLED CONCRETE.
 - C. EMBEDDED ALUMINUM CONDUIT OR ALUMINUM MATERIALS IN CONTACT WITH CONCRETE.
- C6. ALL CONCRETE SHALL CONTAIN REINFORCEMENT. IF REINFORCEMENT IS NOT SPECIFICALLY INDICATED ON THE DRAWINGS, VERIFY WITH THE STRUCTURAL ENGINEER THAT PLAIN CONCRETE HAS BEEN USED.
- C7. REINFORCEMENT SHALL CONFORM TO THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES, UNLESS OTHERWISE NOTED:
- C8. DETAIL REINFORCEMENT BASED ON THE PROJECT REQUIREMENTS, ACI 318, ACI MNL-66 AND ACI 315, UNLESS NOTED OTHERWISE.
- C9. WHERE A 90-DEG, 135-DEG OR 180-DEG HOOK IS GRAPHICALLY INDICATED, PROVIDE CORRESPONDING ACI STANDARD HOOKS, UNLESS NOTED OTHERWISE.
- C10. DOWELS SHALL MATCH SIZE AND SPACING OF MAIN REINFORCEMENT, TYPICAL, UNO.
- C11. ALL LAP SPLICES ARE TO BE TENSION LAP SPLICES PER THE LAP SPLICE AND EMBEDMENT SCHEDULE.
- C12. LAP REINFORCEMENT ONLY AT LOCATIONS SPECIFICALLY DETAILED ON THE DRAWINGS. CONTINUOUS REINFORCEMENT MAY BE SPLICED AT LOCATIONS DETERMINED BY THE CONTRACTOR USING TENSION LAP SPLICES.
- C13. LAP WELDED WIRE REINFORCEMENT TWO PANEL SPACINGS, TYP.
- C14. REINFORCING DOWELS, WATERSTOPS AND OTHER EMBED ITEMS SHALL BE INSTALLED AND SECURED PRIOR TO CONCRETE PLACEMENT. "WET-SETTING" OF EMBEDDED ITEMS IS NOT PERMITTED.
- C15. CLEAN AND ROUGHEN TO 1/4" AMPLITUDE ALL EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE PRIOR TO PLACEMENT.
- C16. LAP LOCATIONS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
 - A. GRADE BEAM/WALL (TOP HORIZONTAL REINF): CENTER OF SPAN
 - B. GRADE BEAM/WALL (BOTTOM HORIZ REINF): AT SUPPORTS
 - C. WALL INSIDE FACE (VERTICAL REINF): AT SUPPORT
 - D. WALL OUTSIDE FACE (VERTICAL REINF): AT MIDHEIGHT OF WALL
 - E. TERMINATE BARS AT DISCONTINUOUS ENDS WITH STANDARD HOOKS.
- C17. PROVIDE EPOXY COATED REINFORCEMENT AND ACCESSORIES IN AREAS OF DIRECT EXPOSURE TO THE ENVIRONMENT, CHEMICALS, OR DEICING FOR THE AREAS INDICATED ON THE DRAWINGS.
- C19. PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI-318. SUBMIT SHOP DRAWINGS SHOWING PROPOSED CONSTRUCTION JOINT LOCATIONS, DETAILS AND PLACEMENT SEQUENCE FOR APPROVAL PRIOR TO PROCEEDING WITH THE WORK.
- C20. HORIZONTAL CONSTRUCTION JOINTS IN FOOTINGS, PILE CAPS, MAT FOUNDATIONS, GRADE BEAMS, BEAMS, SLABS AND WALLS ARE NOT PERMITTED UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER.
- C21. PLACE CONSTRUCTION JOINTS AS FOLLOWS
 - A. FOUNDATION WALLS: MINIMUM OF 8 FEET FROM ANY WALL INTERSECTION, PILASTER, PIER OR WALL OPENING.
 - B. BEAMS AND GRADE BEAMS: WITHIN THE MIDDLE THIRD OF THE CLEAR SPAN SUBJECT TO APPROVAL.
- C22. SIZE OF CONCRETE PLACEMENTS SHALL BE AS FOLLOWS:
 - A. FOOTINGS AND WALLS: MAX. LENGTH: 30' UNLESS OTHERWISE NOTED
 - B. SLABS ON GRADE: MAX. LENGTH: 30', MAX. AREA: 900 SF.
- C23. PROVIDE CONTINUOUS WATERSTOPS AT ALL CONSTRUCTION JOINTS EXPOSED TO SOIL OR WATER.
- C24. CONCRETE SLABS, SHALL BE PLACED SUCH THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.
- C25. ALL KEYS SHALL BE 2" X 4" (NOMINAL) UNLESS OTHERWISE NOTED.
- C26. FLOOR AND ROOF SLOPES WILL BE AN INTEGRAL PART OF STRUCTURAL SLABS. SEPARATE CONCRETE FILL IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS. CONCRETE CAST ON SLOPED SURFACES SHALL BEGIN AT THE LOWEST ELEVATION AND CONTINUE MONOLITHICALLY TOWARD HIGHER ELEVATIONS UNTIL THE INTENDED PLACEMENT IS COMPLETED.
- C27. NOT ALL OPENINGS THROUGH CONCRETE SLABS AND WALLS ARE SHOWN ON THE STRUCTURAL DRAWINGS. OPENINGS AND INSERTS SHALL BE VERIFIED WITH ALL TRADES PRIOR TO PLACING CONCRETE.
- C28. PROVIDE SEALANT JOINTS FOR ALL EXPOSED TO VIEW CONSTRUCTION JOINTS, CONTROL JOINTS AND SHEAR KEYS.
- C29. PROVIDE A MINIMUM OF #4@12" EACH WAY, EACH FACE FOR ALL WALLS, SLABS OR PADS UNLESS OTHERWISE NOTED. .

GENERAL NOTES

- 1. FOR FOUNDATION KEY PLAN SEE MPG-2130-S-2100
- 2. FOR STRUCTURAL KEY PLAN SEE MPG-2130-S-2200

Plot Date: 11/29/2023 9:52 AM File: C:\pwworking\hndr_sites_reservoir\dms01143\MPG-2130-S-0001.dwg Saved By: NMCMAHON

DESIGNED BY:	N. MCMAHON
DRAWN BY:	N. MCMAHON
CHECKED BY:	W. SILADI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

REV	DATE	BY	CHK.	APPR.	DESCRIPTION



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SITES RESERVOIR

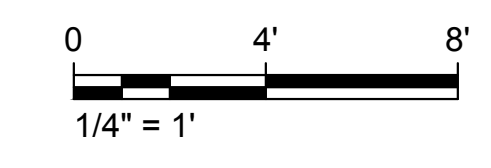
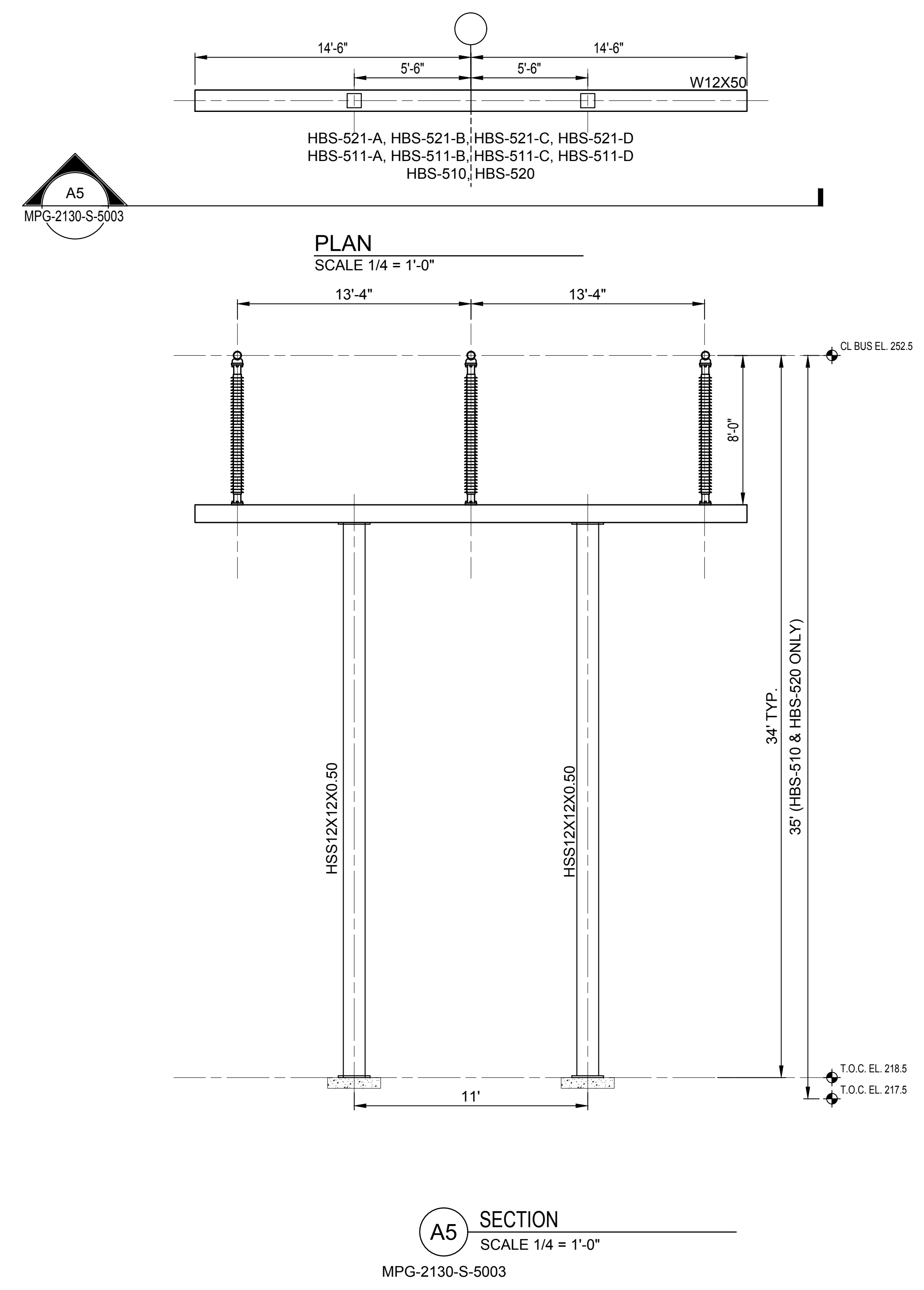
MAXWELL / SITES PUMPING AND GENERATING STRUCTURAL
FUNKS RESERVOIR 230 KV SUBSTATION
GENERAL STRUCTURAL NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
0 1"
DRAWING NO.
MPG-2130-S-0001
SHT 65 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



Plot Date: 11/29/2023 10:49 AM File: C:\pwworking\hdi_sites_reservoir\dms01143\MPG-2130-S-5003.dwg Saved By: CCASSELL

REV	DATE	BY	CHK	APPR	DESCRIPTION

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SITES RESERVOIR
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 FUNKS RESERVOIR 230 KV SUBSTATION
 HIGH BUS SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

VERIFY SCALES
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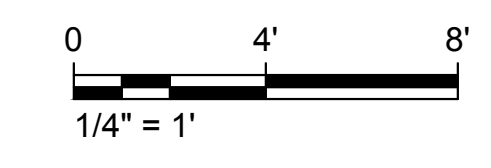
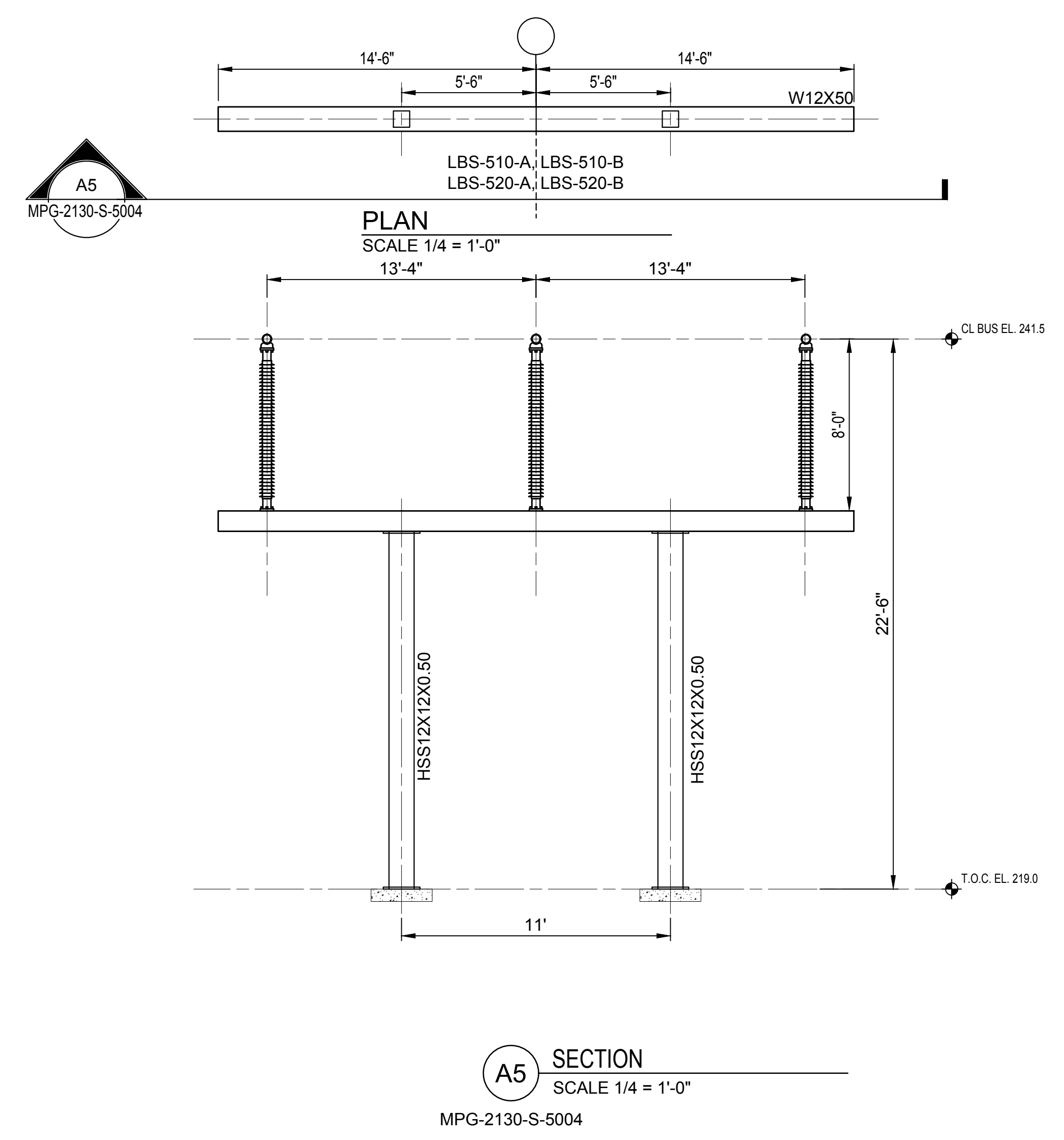
1/4" = 1'

DRAWING NO.
 MPG-2130-S-5003
 SHT 80 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

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2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



Plot Date: 11/29/2023 10:50 AM File: C:\pwworking\hdi_sites_reservoir\dms01143\MPG-2130-S-5004.dwg Saved By: CCASSELL

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: N. MCMAHON
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SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING STRUCTURAL
 FUNKS RESERVOIR 230 KV SUBSTATION
 LOW BUS SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

VERIFY SCALES
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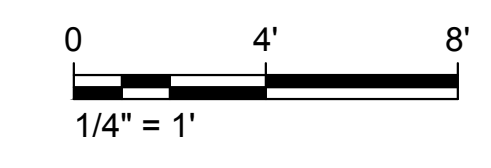
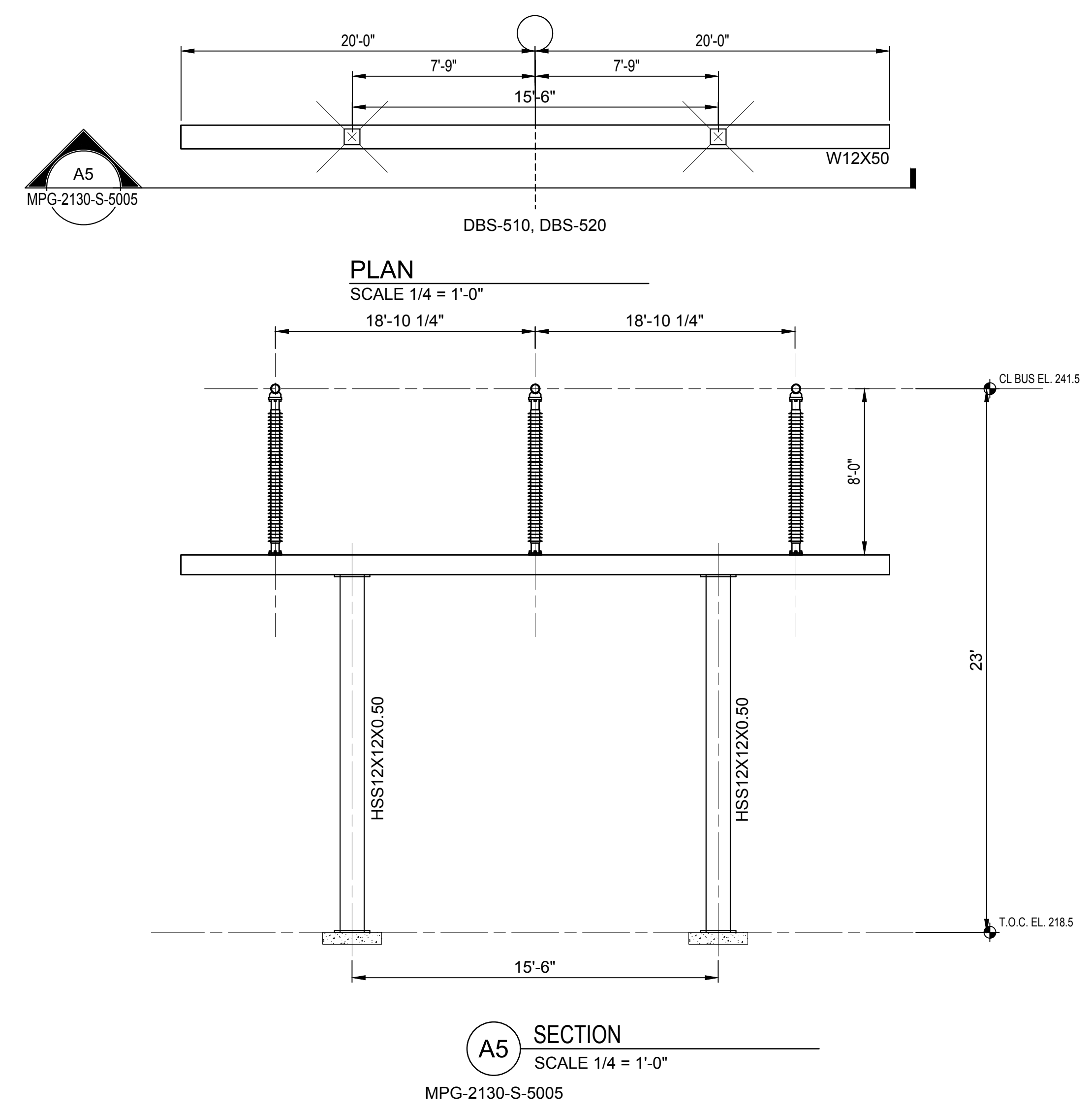
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 1/4" = 1'

DRAWING NO.
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 SHT 81 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

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2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



Plot Date: 11/29/2023 10:51 AM File: C:\pwworking\hdi_sites_reservoir\dms01143\MPG-2130-S-5005.dwg Saved By: CCASSELL

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: N. MCMAHON
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SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING
 STRUCTURAL
 FUNKS RESERVOIR 230 KV SUBSTATION
 DIAGONAL BUS SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

VERIFY SCALES
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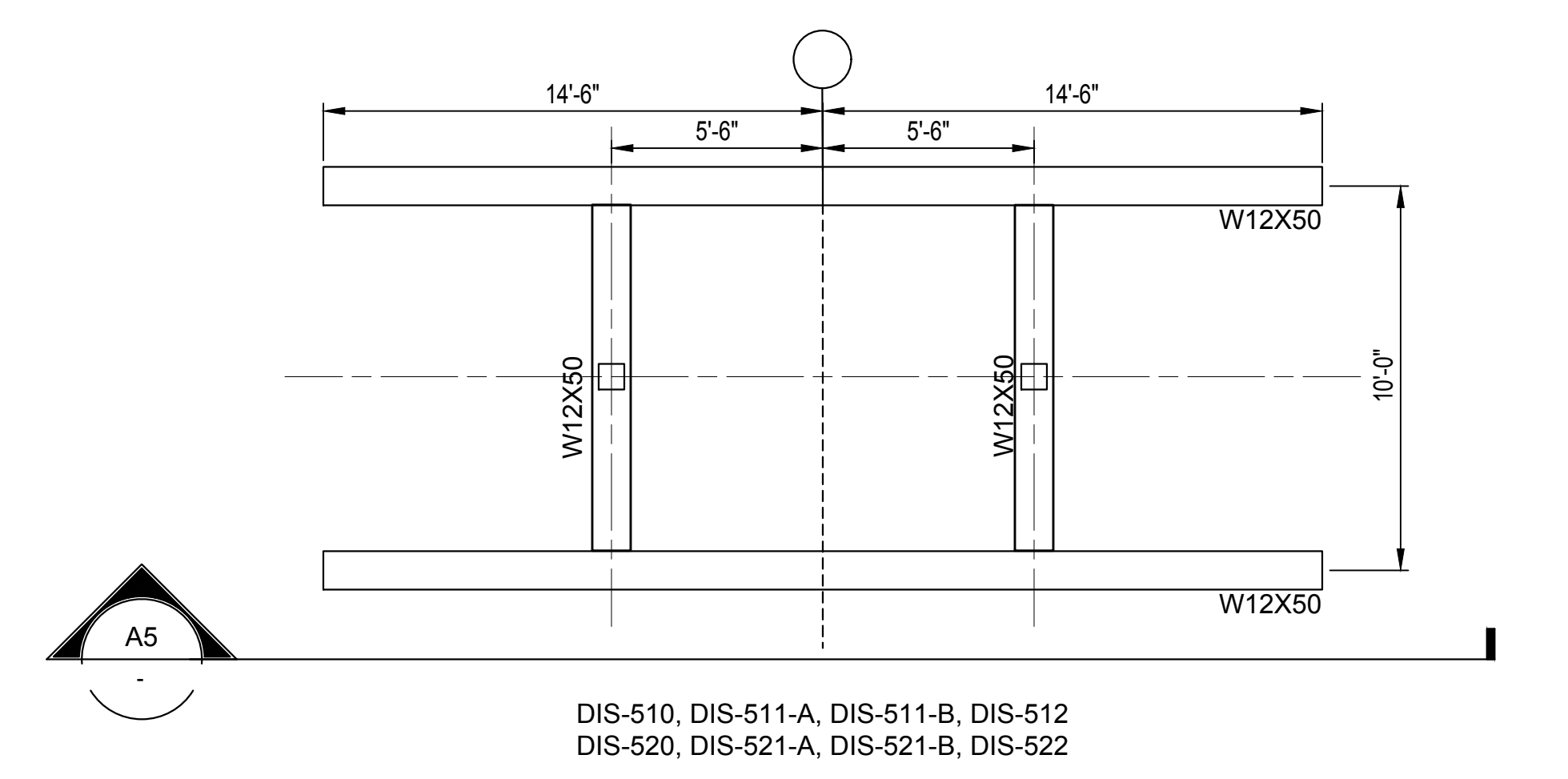
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 MPG-2130-S-5005
 SHT 82 OF 91

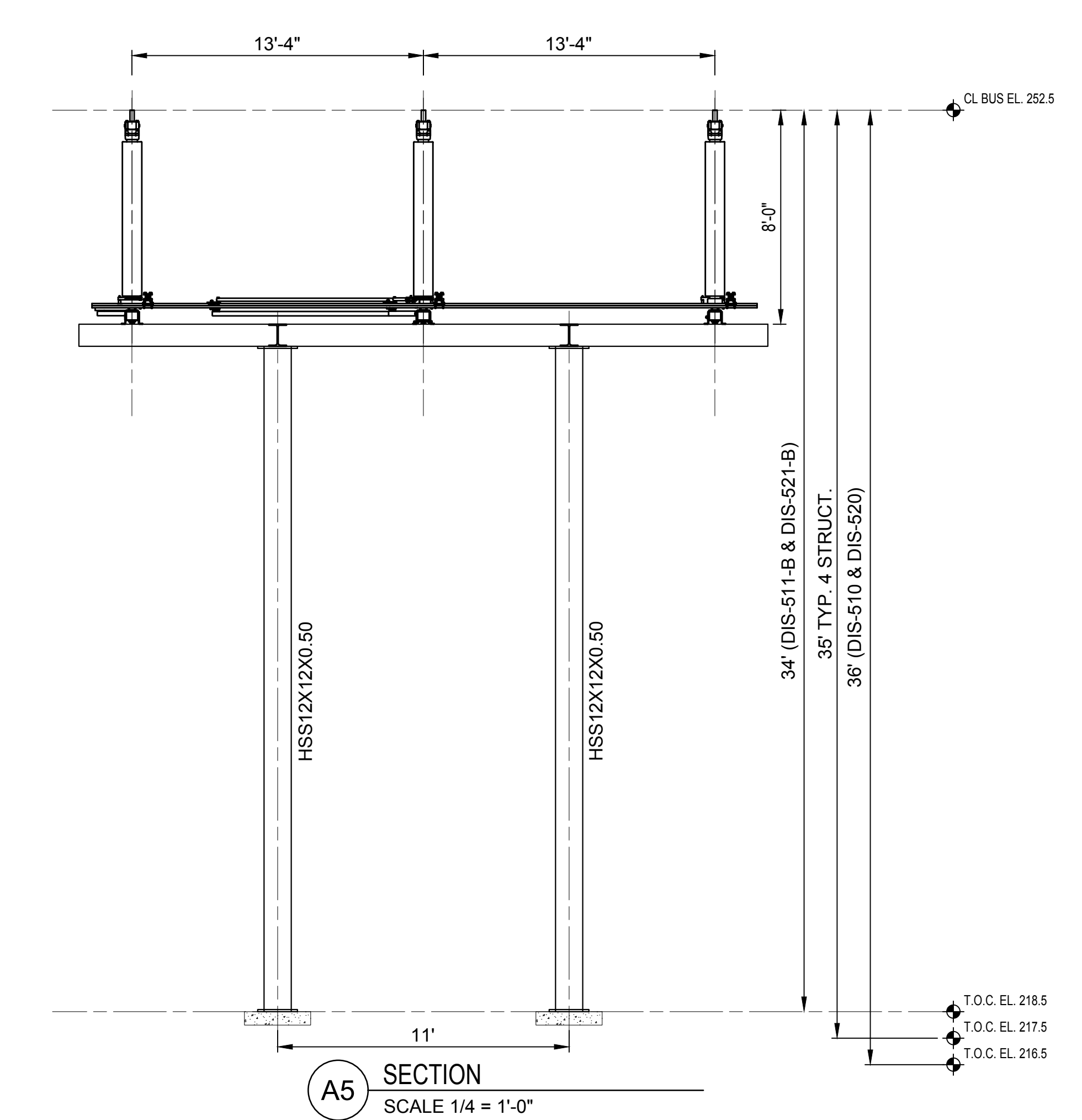
PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

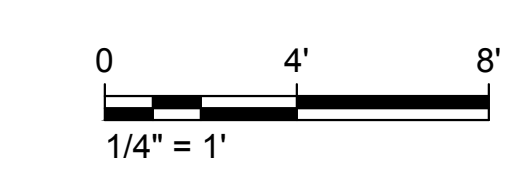
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2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



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



A5 SECTION
SCALE 1/4" = 1'-0"



Plot Date: 11/29/2023 10:54 AM File: C:\pwworking\hdi_sites_reservoir\dms01143\MPG-2130-S-5006.dwg Saved By: NMCMAHON

REV	DATE	BY	CHK.	APPR.	DESCRIPTION

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 CHECKED BY: W. SILADI
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 DATE: 12-04-2023

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SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING STRUCTURAL
 FUNKS RESERVOIR 230 KV SUBSTATION
 HIGH DISCONNECT SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

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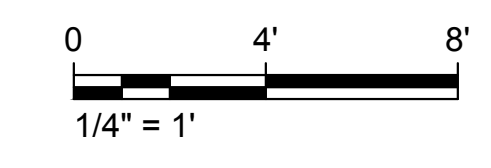
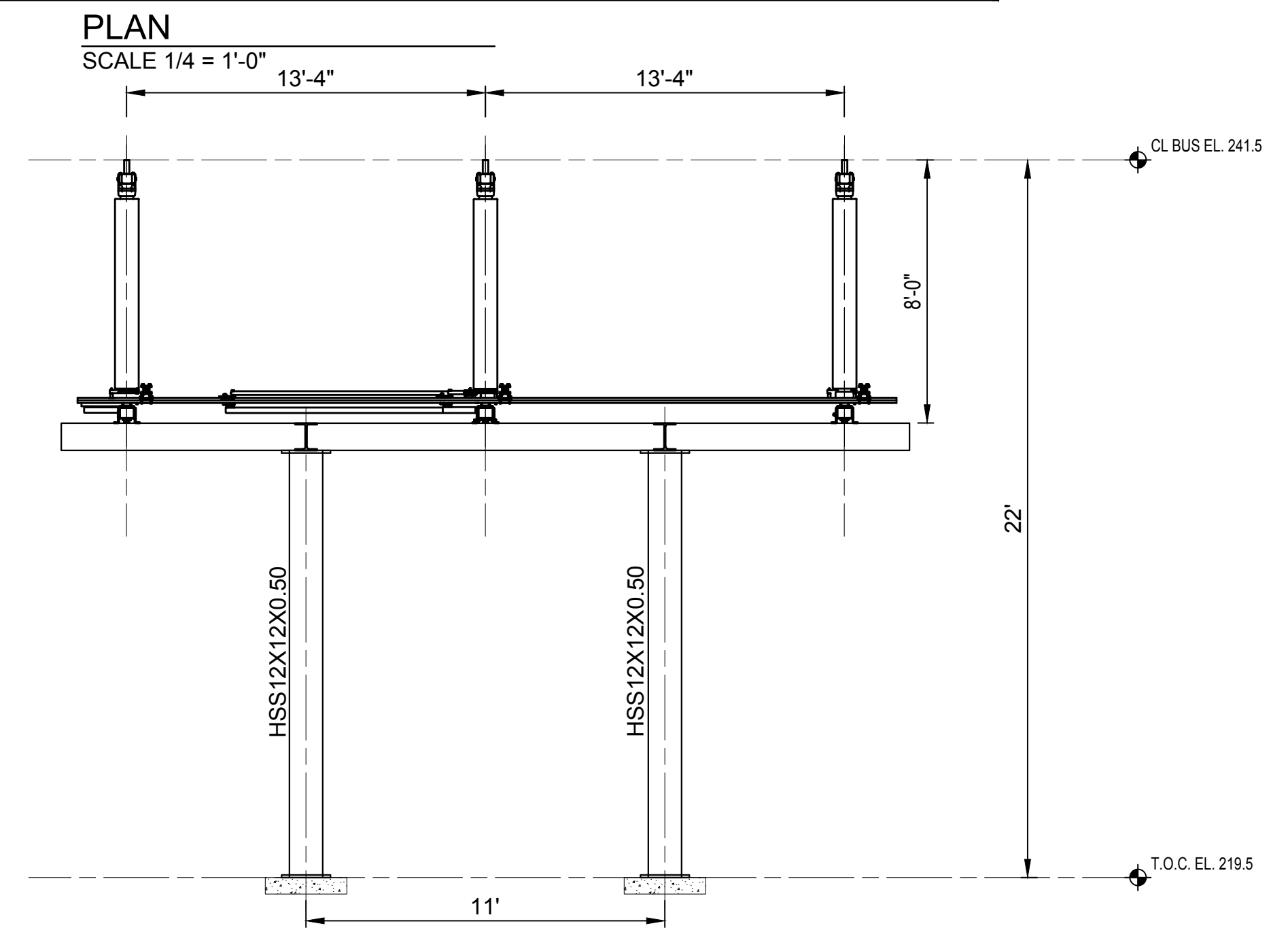
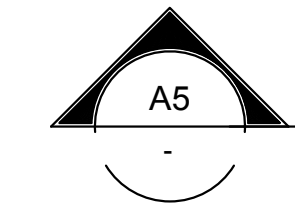
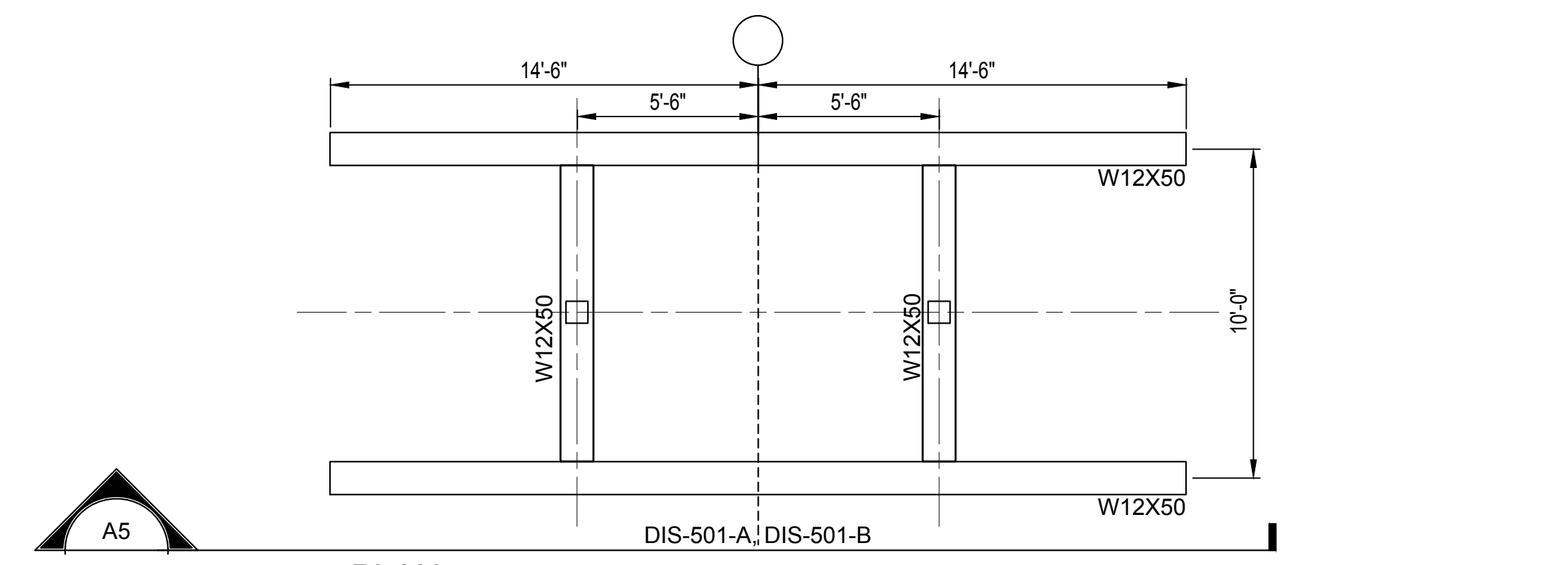
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 1/4" = 1'

DRAWING NO.
 MPG-2130-S-5006
 SHT 83 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



Plot Date: 11/29/2023 10:59 AM File: C:\pwworking\hdi_sites_reservoir\dms01143\MPG-2130-S-5007.dwg Saved By: NMCMAHON

REV	DATE	BY	CHK	APPR.	DESCRIPTION

DESIGNED BY: N. MCMAHON
 DRAWN BY: N. MCMAHON
 CHECKED BY: W. SILADI
 IN CHARGE: P. RUDE
 DATE: 12-04-2023

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SITES RESERVOIR

MAXWELL / SITES PUMPING AND GENERATING STRUCTURAL
 FUNKS RESERVOIR 230 KV SUBSTATION
 LOW DISCONNECT SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

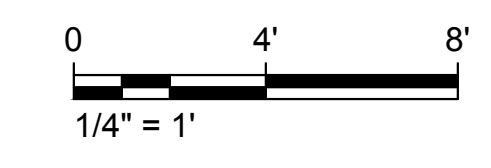
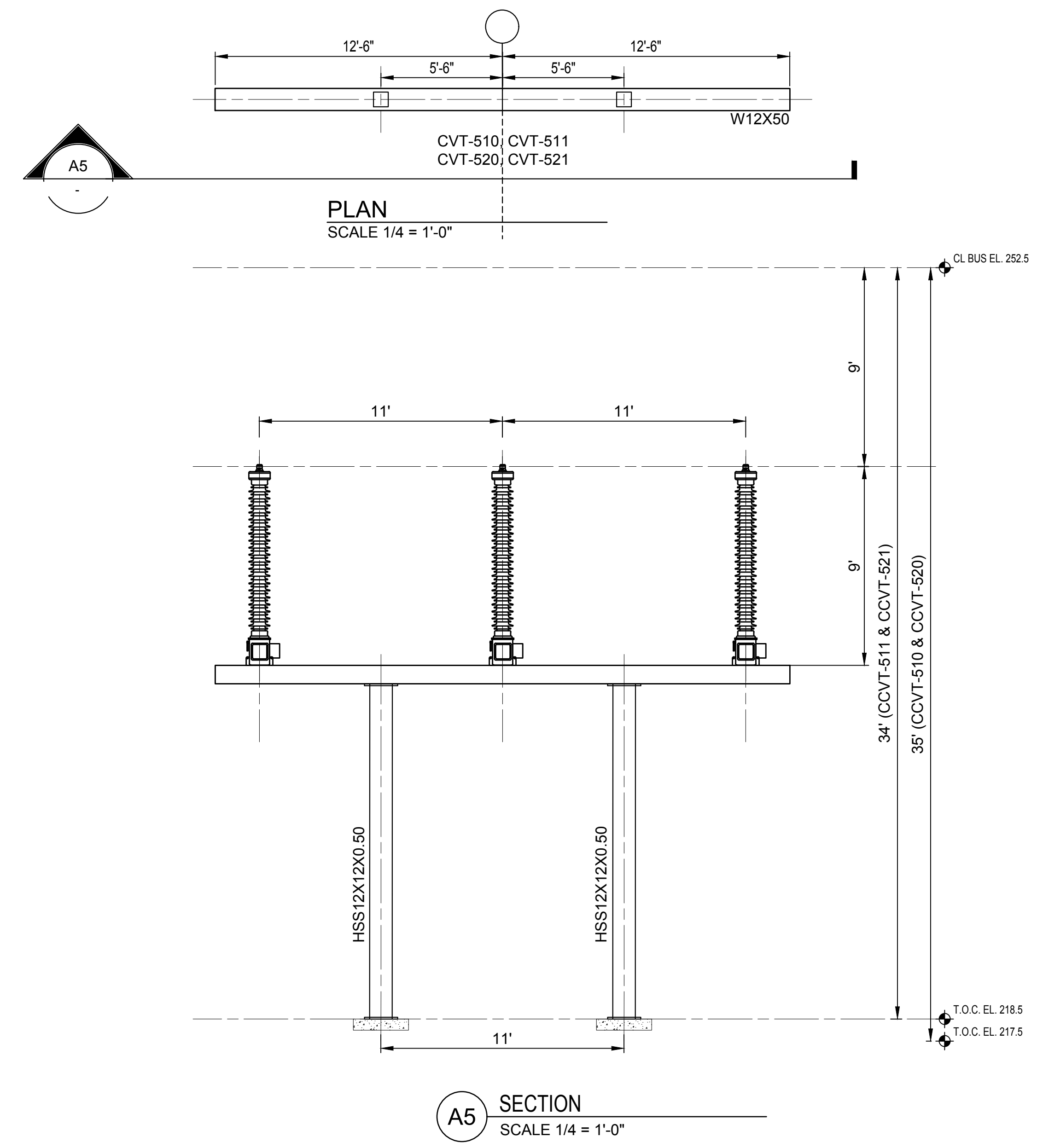
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

DRAWING NO.
 MPG-2130-S-5007
 SHT 84 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



Plot Date: 11/29/2023 11:00 AM File: C:\pwworking\hdi_sites_reservoir\dms01143\MPG-2130-S-5006.dwg Saved By: NMCMAHON

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SITES RESERVOIR

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 CCVT SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

VERIFY SCALES
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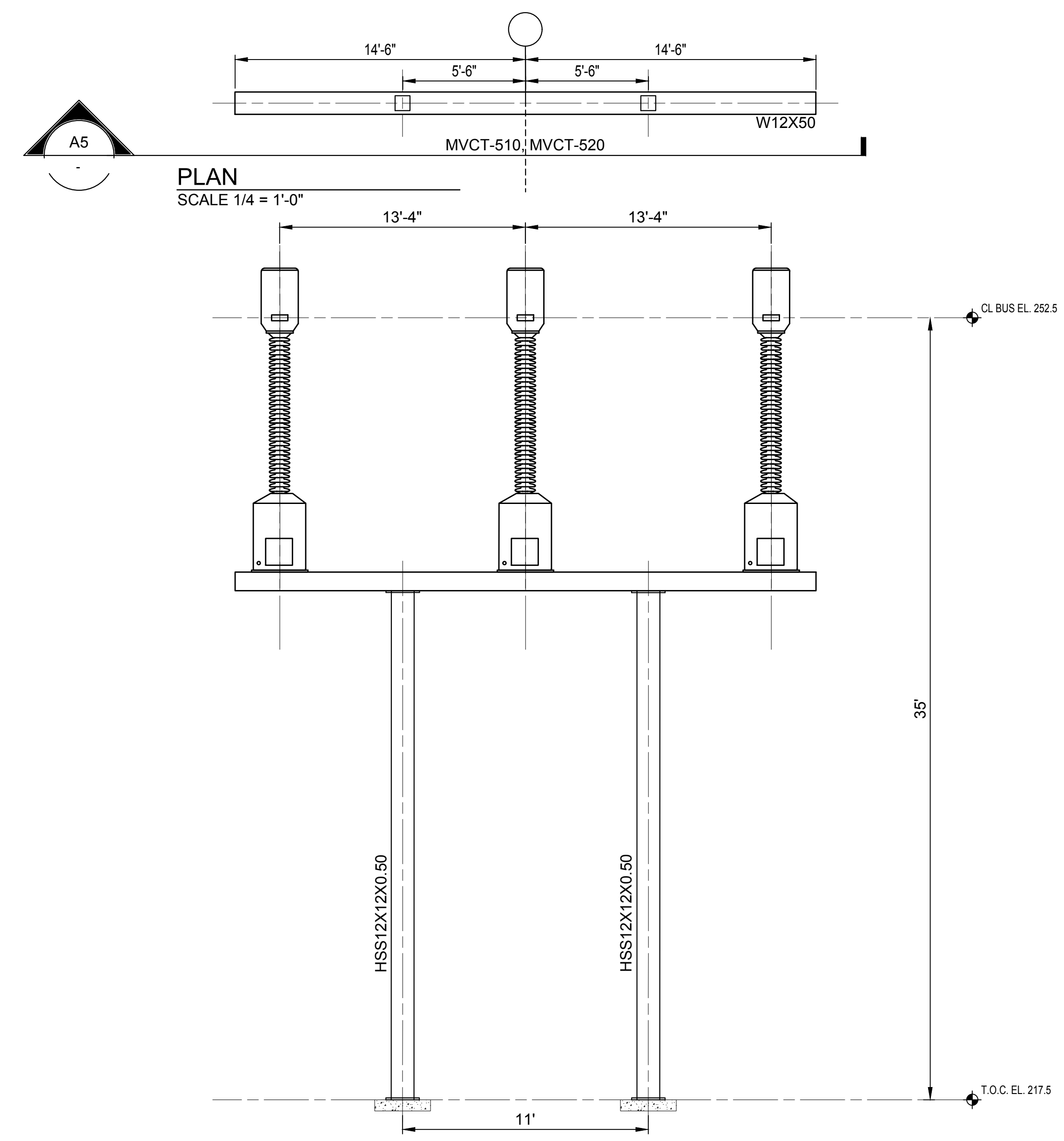
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DRAWING NO.
 MPG-2130-S-5008
 SHT 85 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

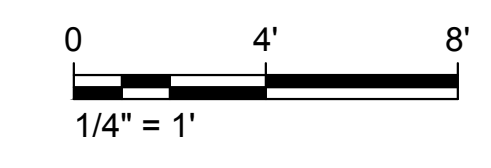
GENERAL NOTES

1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURAL LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



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

A5 SECTION
SCALE 1/4" = 1'-0"



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SITES RESERVOIR

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 FUNKS RESERVOIR 230 KV SUBSTATION
 MVCT SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

VERIFY SCALES
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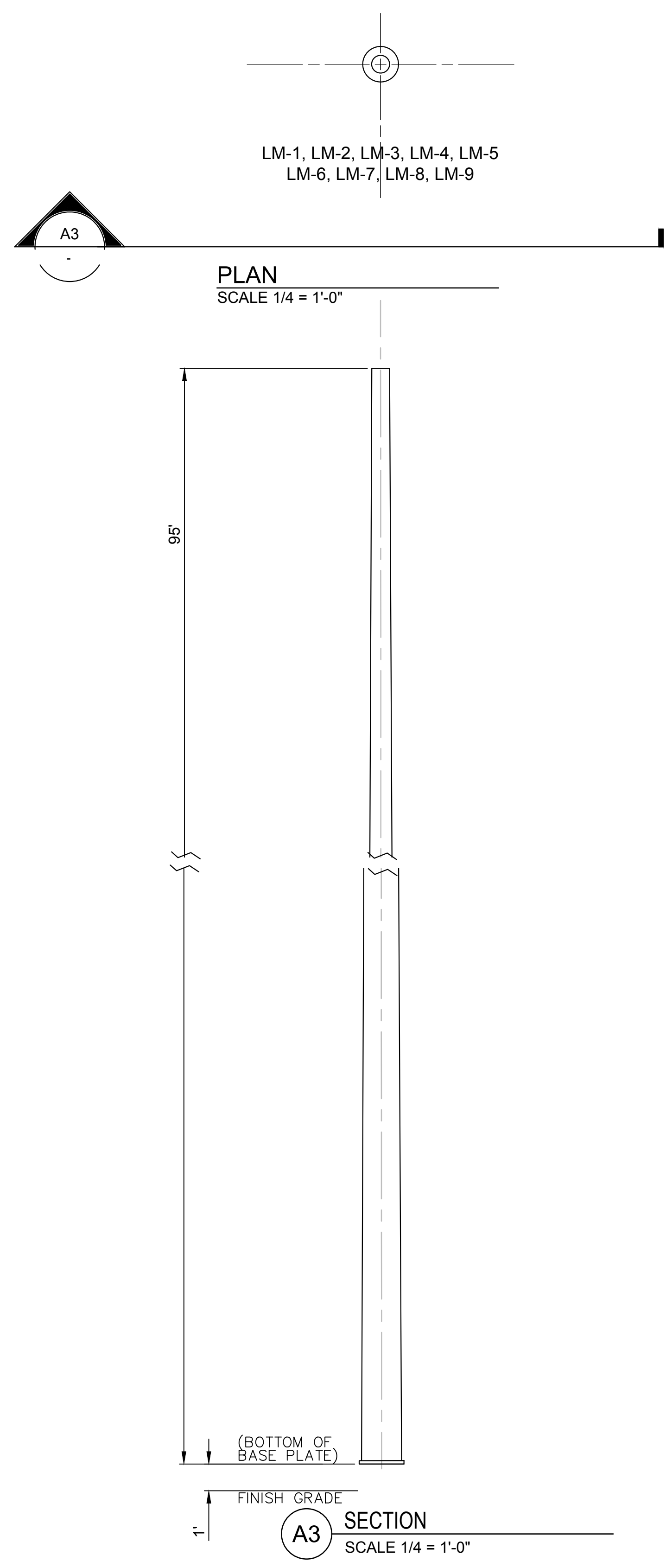
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 1/4" = 1'

DRAWING NO.
 MPG-2130-S-5009
 SHT 86 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURE LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002
4. STRUCTURE DESIGN BY VENDOR



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REV	DATE	BY	CHK	APPR	DESCRIPTION

DESIGNED BY:
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DRAWN BY:
N. MCMAHON

CHECKED BY:
W. SILADI

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DATE:
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SITES RESERVOIR

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LIGHTNING MAST STEEL STRUCTURE
PLAN & DETAILS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL
DRAWING. ADJUST SCALES FOR
REDUCED PLOTS

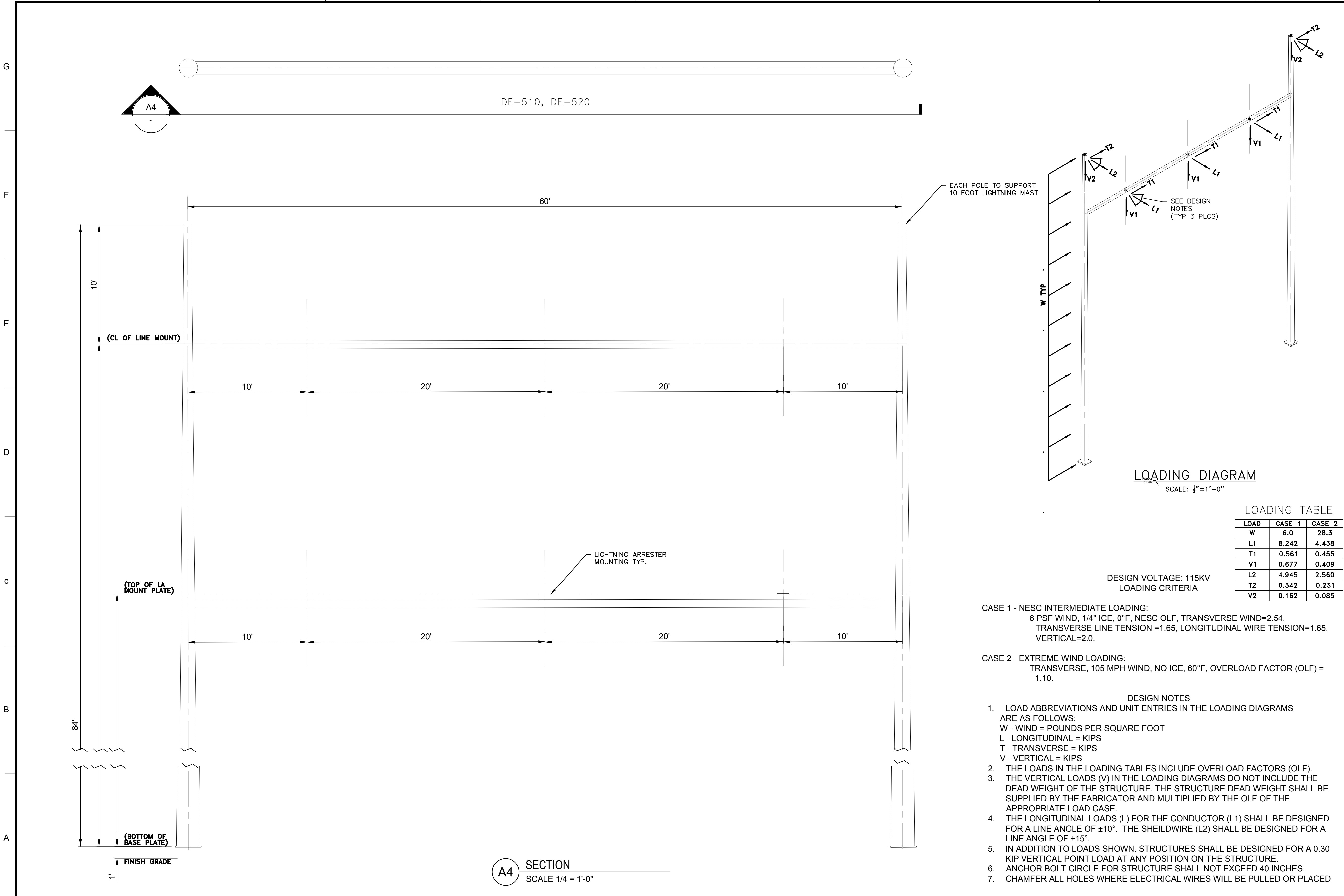
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DRAWING NO.
MPG-2130-S-5010
SHT 87 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION

GENERAL NOTES

1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURE LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002
4. STRUCTURE DESIGN BY VENDOR



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

LOADING TABLE

LOAD	CASE 1	CASE 2
W	6.0	28.3
L1	8.242	4.438
T1	0.561	0.455
V1	0.677	0.409
L2	4.945	2.560
T2	0.342	0.231
V2	0.162	0.085

DESIGN VOLTAGE: 115KV
LOADING CRITERIA

- CASE 1 - NESC INTERMEDIATE LOADING:**
6 PSF WIND, 1/4" ICE, 0°F, NESC OLF, TRANSVERSE WIND=2.54, TRANSVERSE LINE TENSION =1.65, LONGITUDINAL WIRE TENSION=1.65, VERTICAL=2.0.
- CASE 2 - EXTREME WIND LOADING:**
TRANSVERSE, 105 MPH WIND, NO ICE, 60°F, OVERLOAD FACTOR (OLF) = 1.10.

- DESIGN NOTES**
1. LOAD ABBREVIATIONS AND UNIT ENTRIES IN THE LOADING DIAGRAMS ARE AS FOLLOWS:
W - WIND = POUNDS PER SQUARE FOOT
L - LONGITUDINAL = KIPS
T - TRANSVERSE = KIPS
V - VERTICAL = KIPS
 2. THE LOADS IN THE LOADING TABLES INCLUDE OVERLOAD FACTORS (OLF).
 3. THE VERTICAL LOADS (V) IN THE LOADING DIAGRAMS DO NOT INCLUDE THE DEAD WEIGHT OF THE STRUCTURE. THE STRUCTURE DEAD WEIGHT SHALL BE SUPPLIED BY THE FABRICATOR AND MULTIPLIED BY THE OLF OF THE APPROPRIATE LOAD CASE.
 4. THE LONGITUDINAL LOADS (L) FOR THE CONDUCTOR (L1) SHALL BE DESIGNED FOR A LINE ANGLE OF ±10°. THE SHEILDWIRE (L2) SHALL BE DESIGNED FOR A LINE ANGLE OF ±15°.
 5. IN ADDITION TO LOADS SHOWN. STRUCTURES SHALL BE DESIGNED FOR A 0.30 KIP VERTICAL POINT LOAD AT ANY POSITION ON THE STRUCTURE.
 6. ANCHOR BOLT CIRCLE FOR STRUCTURE SHALL NOT EXCEED 40 INCHES.
 7. CHAMFER ALL HOLES WHERE ELECTRICAL WIRES WILL BE PULLED OR PLACED

A4 SECTION
SCALE 1/4 = 1'-0"

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CHECKED BY:	W. SILADI
IN CHARGE:	P. RUDE
DATE:	12-04-2023

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FUNKS RESERVOIR 230 KV SUBSTATION
DEAD END STEEL STRUCTURE
PLAN & DETAILS

VERIFY SCALES
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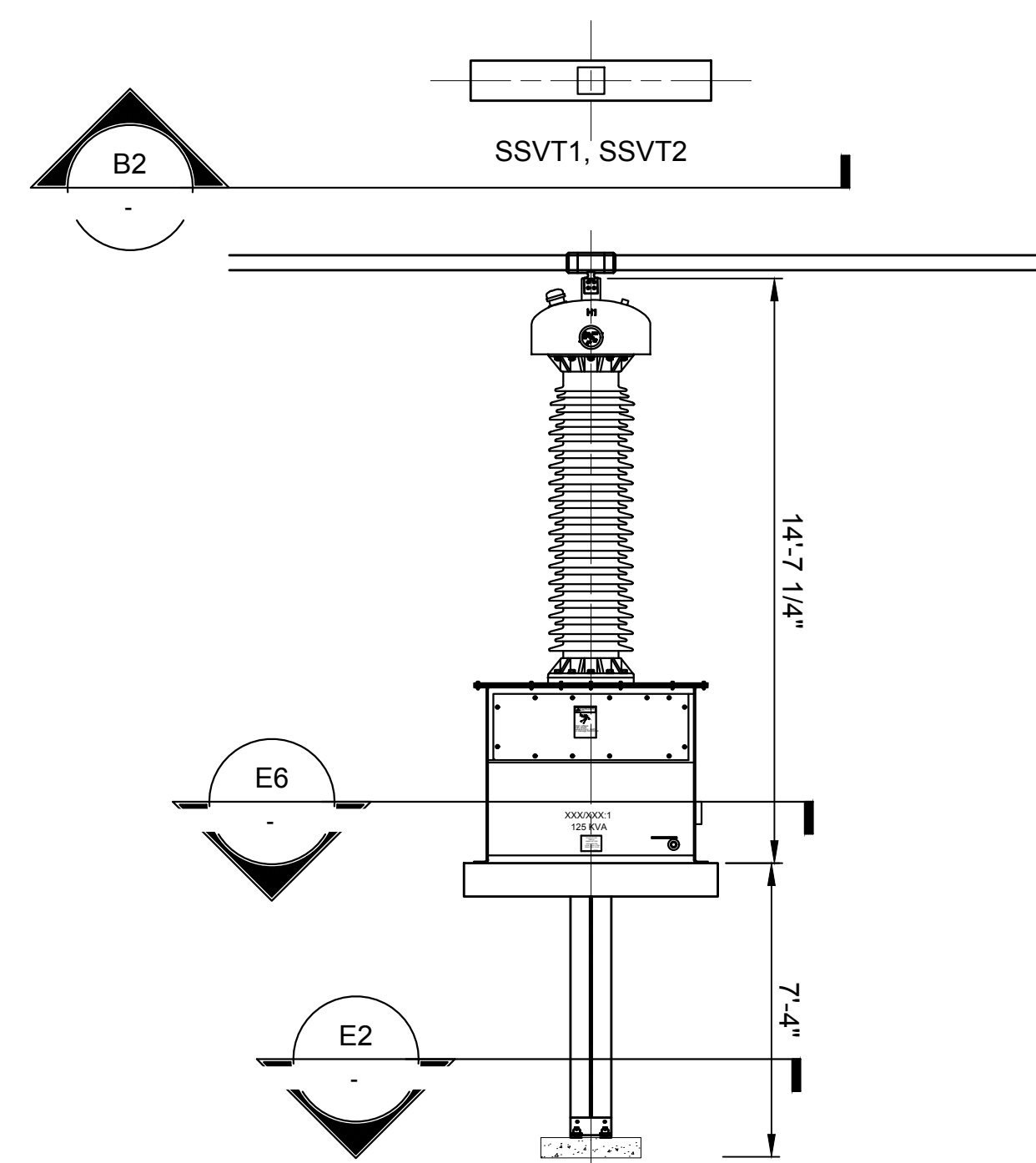
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DRAWING NO.
MPG-2130-S-5011
SHT 88 OF 91

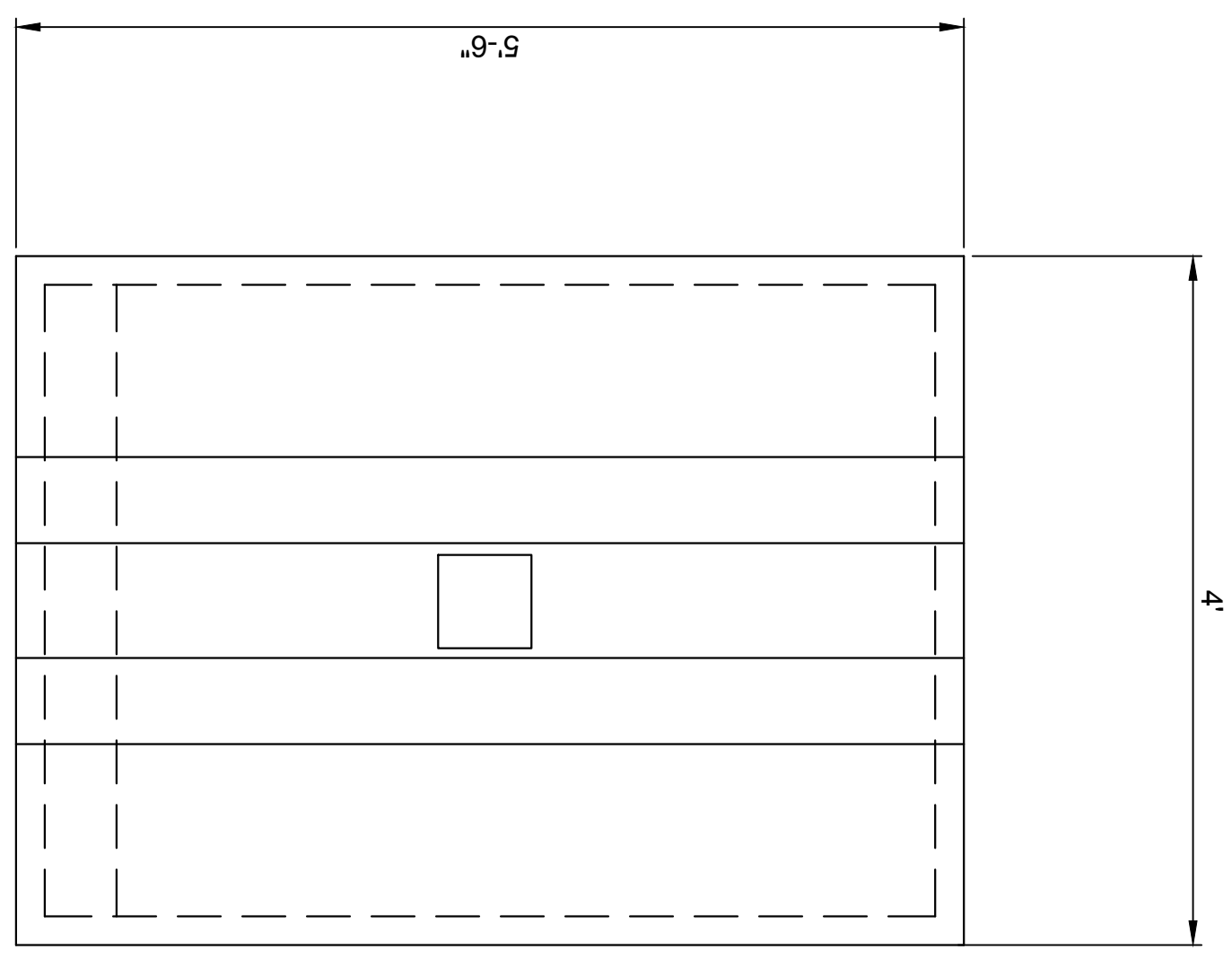
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GENERAL NOTES

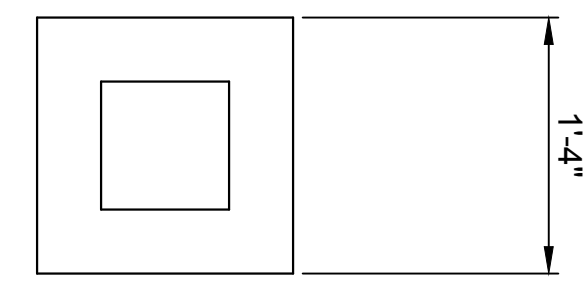
1. FOR GENERAL NOTES SEE MPG-2130-S-0001
2. FOR STRUCTURE LOCATIONS SEE MPG-2130-S-2200 AND MPG-2130-S-2203 THRU MPG-2130-S-2206
3. FOR STRUCTURE SCHEDULE SEE MPG-2130-S-6002



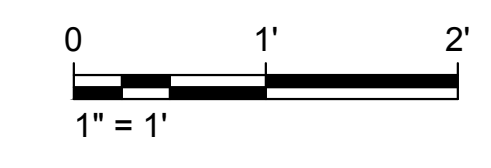
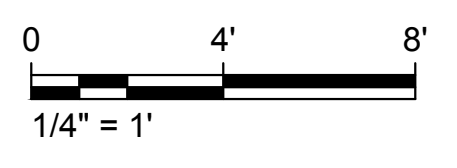
B2 SECTION
SCALE 1/4" = 1'-0"



E6 SECTION
SCALE 1" = 1'-0"



B6 SECTION
SCALE 1" = 1'-0"



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 IN CHARGE: P. RUDE
 DATE: 12-04-2023



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SITES RESERVOIR
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 STATION SERVICE SUPPORT STEEL STRUCTURE
 PLAN & DETAILS

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS.
 0 1 1'

DRAWING NO.
 MPG-2130-S-5012
 SHT 89 OF 91

PRELIMINARY - NOT FOR CONSTRUCTION