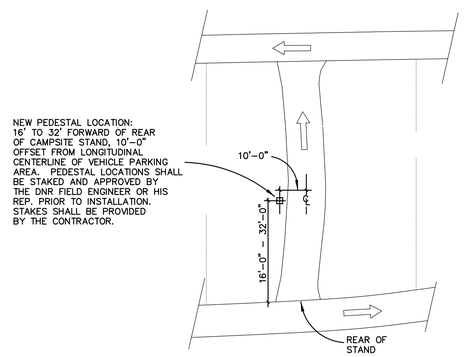
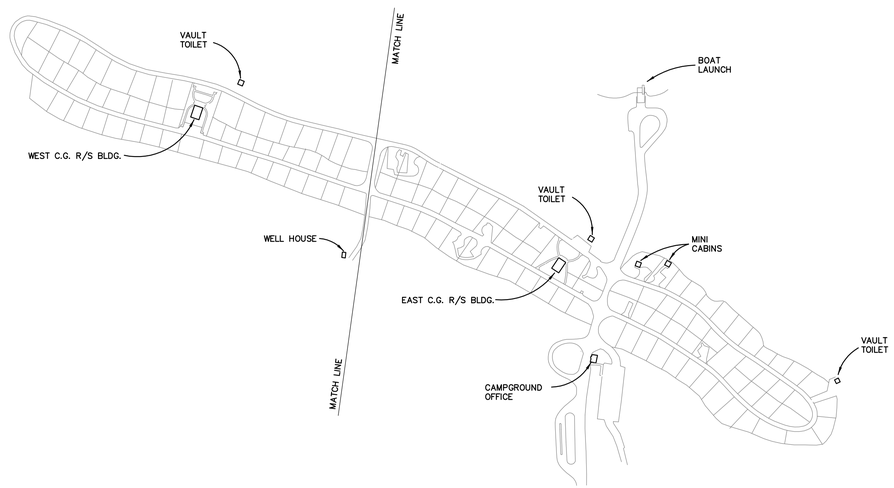
PROUD LAKE RECREATION AREA

OAKLAND COUNTY, MICHIGAN
CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROJECT NO. 24-3238
DMB FILE NO. 751/10041.AGY



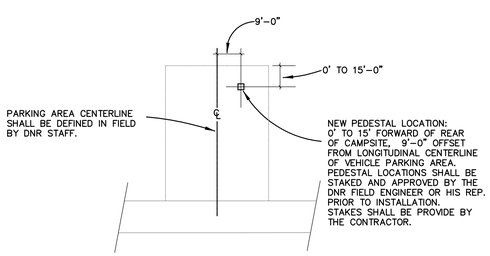
TYPICAL PULL THRU CAMPSITE

NO SCALE



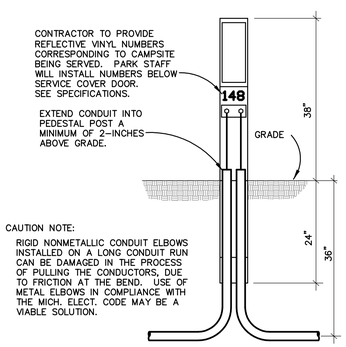
PROUD LAKE RECREATION AREA

NO SCALE



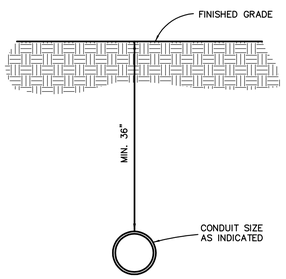
TYPICAL STANDARD CAMPSITE WITHOUT DEFINED STAND

NO SCALE



PEDESTAL DETAIL

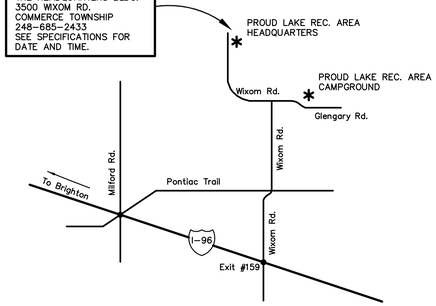
NO SCALE



UNDERGROUND CONDUIT INSTALLATION DETAIL

NO SCALE

THE MANDATORY PRE-BID MEETING WILL BE HELD AT THE HEADQUARTERS BLDG. 3500 WIXOM RD. COMMERCE TOWNSHIP 248-685-2433 SEE SPECIFICATIONS FOR DATE AND TIME.



LOCATION MAP

NO SCALE

CONTACT INFORMATION

DNR DESIGN ENGINEER, JOHN BARKER	517-373-9907
DNR PARK SUPERVISOR, PAUL AUGSBURGER	248-685-2433
DNR FIELD ENGINEER, KEN DAVIS	517-930-0990
DNR DISTRICT PLANNER, KRISTEN BENNETT	248-797-5385
DTE PLANNER DERRICK SANBORN	248-427-2952

DRAWING INDEX

T	TITLE SHEET
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E2	EXISTING UTILITY SITE PLAN - WEST CAMPGROUND
E3	DEMOLITION SITE PLAN - EAST CAMPGROUND
E4	DEMOLITION SITE PLAN - WEST CAMPGROUND
E5	ELECTRICAL SITE PLAN - EAST CAMPGROUND
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E11	SOIL EROSION CONTROL SITE PLAN

OFFICE OF LAND AND FACILITIES
DESIGN & CONSTRUCTION SERVICES

☐ APPROVED: _____ SECTION MANAGER DATE

☐ APPROVED: _____ ENGINEERING SUPERVISOR DATE

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF LAND AND FACILITIES
DESIGN & CONSTRUCTION SECTION
P.O. BOX 30033 LANSING, MI 48909-7933
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Michigan DNR

10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

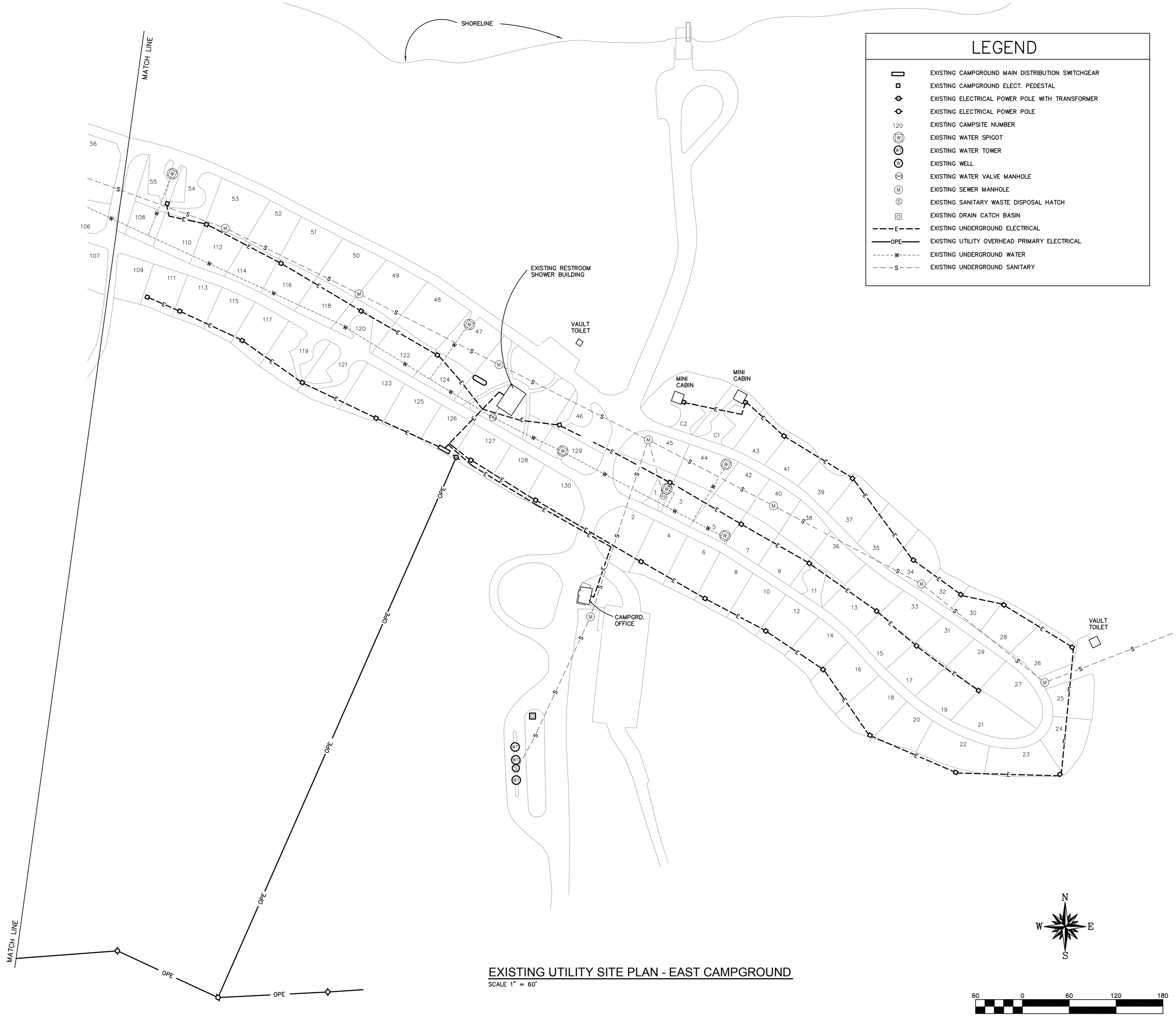
TITLE SHEET

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

T

THIS DRAWING INDICATES THE APPROX. LOCATION OF KNOWN ACTIVE AND INACTIVE UNDERGROUND UTILITIES BASED UPON A COMBINATION OF ORIGINAL AND AS-BUILT DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY UNDERGROUND UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.

OPEN CUT TRENCHING SHALL NOT BE ALLOWED ACROSS BITUMINOUS ROADWAYS, ANY BITUMINOUS SURFACES, OR CONCRETE FLATWORK. UTILITIES SHALL BE JACKED OR BORED A MINIMUM OF 36-INCHES BELOW THESE SURFACES.



LEGEND

- EXISTING CAMPGROUND MAIN DISTRIBUTION SWITCHGEAR
- EXISTING CAMPGROUND ELECT. PEDESTAL
- EXISTING ELECTRICAL POWER POLE WITH TRANSFORMER
- EXISTING ELECTRICAL POWER POLE
- 120 EXISTING CAMPSITE NUMBER
- EXISTING WATER SPIGOT
- EXISTING WATER TOWER
- EXISTING WELL
- EXISTING WATER VALVE MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING SANITARY WASTE DISPOSAL HATCH
- EXISTING DRAIN CATCH BASIN
- E EXISTING UNDERGROUND ELECTRICAL
- OPE EXISTING UTILITY OVERHEAD PRIMARY ELECTRICAL
- W EXISTING UNDERGROUND WATER
- S EXISTING UNDERGROUND SANITARY

EXISTING UTILITY SITE PLAN - EAST CAMPGROUND

SCALE 1" = 60'

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CAMPGROUND ELECTRICAL SYSTEM UPGRADE

PROUD LAKE RECREATION AREA

OAKLAND COUNTY

EXISTING UTILITY SITE PLAN - EAST CAMPGROUND

PROJECT NO.	24-3238
INDEX	14420
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DESIGNED BY	JB
PROJ. MGR.	JB

E1

EXISTING UTILITY SITE PLAN - WEST CAMPGROUND

SCALE 1" = 60'

LEGEND

- EXISTING CAMPGROUND MAIN DISTRIBUTION SWITCHGEAR
- EXISTING CAMPGROUND ELECT. PEDESTAL
- EXISTING ELECTRICAL POWER POLE WITH TRANSFORMER
- EXISTING ELECTRICAL POWER POLE
- 120 EXISTING CAMPSITE NUMBER
- EXISTING WATER SPIGOT
- EXISTING WATER TOWER
- EXISTING WELL
- EXISTING WATER VALVE MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING SANITARY WASTE DISPOSAL HATCH
- EXISTING DRAIN CATCH BASIN
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OPEN CUT TRENCHING SHALL NOT BE ALLOWED ACROSS BITUMINOUS ROADWAYS, ANY BITUMINOUS SURFACES, OR CONCRETE FLATWORK. UTILITIES SHALL BE JACKED OR BORED A MINIMUM OF 36-INCHES BELOW THESE SURFACES.

N W E S

60 0 60 120 180

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CAMPGROUND ELECTRICAL SYSTEM UPGRADE

PROUD LAKE RECREATION AREA

OAKLAND COUNTY

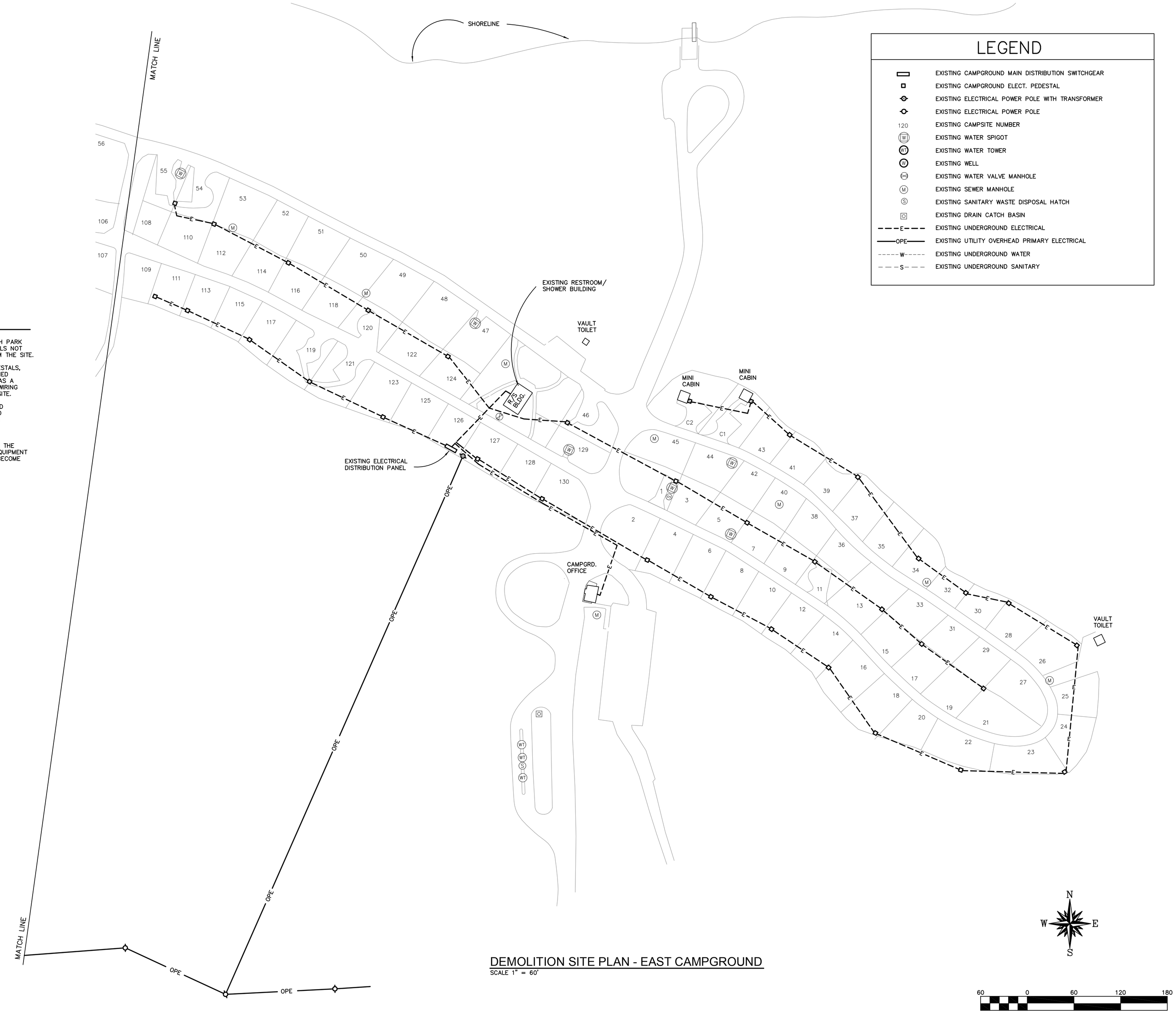
EXISTING UTILITY SITE PLAN - WEST CAMPGROUND

PROJECT NO.	24-3238
INDEX	14420
PCA	95905
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E2

SITE ELECTRICAL DEMOLITION NOTES

1. REMOVE ALL CAMPGROUND ELECTRICAL PEDESTALS & JUNCTION POSTS. COORDINATE WITH PARK MANAGER ANY PEDESTALS TO BE SALVAGED BY THE CONTRACTOR FOR OWNER. PEDESTALS NOT SALVAGED SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
2. UNDERGRD. HORIZONTAL SECONDARY BR. CIRCUIT WIRING SERVING THE CAMPGROUND PEDESTALS, CAMPGROUND MAIN DISTRIBUTION PANELS AND CAMPGROUND BUILDINGS MAY BE ABANDONED IN PLACE. ALL RISERS AND ABOVE GRADE BRANCH CIRCUIT WIRING SHALL BE REMOVED AS A MINIMUM, TO A POINT EQUAL WITH THE UNDERGROUND HORIZONTAL RUN. ALL REMOVED WIRING AND CONDUIT SHALL BECOME PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE.
3. REMOVE CAMPGROUND MAIN DISTRIBUTION SWITCH GEAR, ASSOCIATED UNISTRUT RACKS AND CONCRETE BASES. COORDINATE WITH PARK MANAGER ANY SWITCH GEAR TO BE SALVAGED BY THE CONTRACTOR FOR THE OWNER. UNISTRUT FRAMES, CONCRETE BASES AND SWITCH GEAR NOT SALVAGED FOR OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE.
4. REMOVE JUNCTION BOX, WALL MOUNTED PEDESTAL AND DISCONNECT SWITCH MOUNTED ON THE EXTERIOR WALL OF EACH MINI CABIN. COORDINATE WITH PARK MANAGER ANY OF THIS EQUIPMENT TO BE SALVAGED BY THE CONTRACTOR FOR OWNER. EQUIPMENT NOT SALVAGED SHALL BECOME PROPERTY OF TYHE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
5. SEE SHEET E2 FOR COORDINATION WITH EXISTING UNDERGROUND UTILITIES.



DEMOLITION SITE PLAN - EAST CAMPGROUND

SCALE 1" = 60'

LEGEND

- EXISTING CAMPGROUND MAIN DISTRIBUTION SWITCHGEAR
- EXISTING CAMPGROUND ELECT. PEDESTAL
- EXISTING ELECTRICAL POWER POLE WITH TRANSFORMER
- EXISTING ELECTRICAL POWER POLE
- 120 EXISTING CAMPSITE NUMBER
- EXISTING WATER SPIGOT
- EXISTING WATER TOWER
- EXISTING WELL
- EXISTING WATER VALVE MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING SANITARY WASTE DISPOSAL HATCH
- EXISTING DRAIN CATCH BASIN
- E EXISTING UNDERGROUND ELECTRICAL
- OPE EXISTING UTILITY OVERHEAD PRIMARY ELECTRICAL
- W EXISTING UNDERGROUND WATER
- S EXISTING UNDERGROUND SANITARY

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CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

DEMOLITION SITE PLAN - EAST CAMPGROUND

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E3

DEMOLITION SITE PLAN - WEST CAMPGROUND

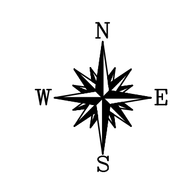
SCALE 1" = 60'

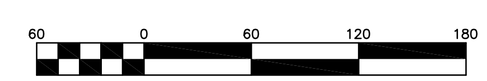
LEGEND

	EXISTING CAMPGROUND MAIN DISTRIBUTION SWITCHGEAR
	EXISTING CAMPGROUND ELECT. PEDESTAL
	EXISTING ELECTRICAL POWER POLE WITH TRANSFORMER
	EXISTING ELECTRICAL POWER POLE
120	EXISTING CAMPSITE NUMBER
W	EXISTING WATER SPIGOT
WT	EXISTING WATER TOWER
W	EXISTING WELL
WV	EXISTING WATER VALVE MANHOLE
M	EXISTING SEWER MANHOLE
S	EXISTING SANITARY WASTE DISPOSAL HATCH
	EXISTING DRAIN CATCH BASIN
E	EXISTING UNDERGROUND ELECTRICAL
OPE	EXISTING UTILITY OVERHEAD PRIMARY ELECTRICAL
W	EXISTING UNDERGROUND WATER
S	EXISTING UNDERGROUND SANITARY

SITE ELECTRICAL DEMOLITION NOTES

1. REMOVE ALL CAMPGROUND ELECTRICAL PEDESTALS & JUNCTION POSTS. COORDINATE WITH PARK MANAGER ANY PEDESTALS TO BE SALVAGED BY THE CONTRACTOR FOR OWNER. PEDESTALS NOT SALVAGED SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
2. UNDERGRD. HORIZONTAL SECONDARY BR. CIRCUIT WIRING SERVING THE CAMPGROUND PEDESTALS, CAMPGROUND MAIN DISTRIBUTION PANELS AND CAMPGROUND BUILDINGS MAY BE ABANDONED IN PLACE. ALL RISERS AND ABOVE GRADE BRANCH CIRCUIT WIRING SHALL BE REMOVED AS A MINIMUM, TO A POINT EQUAL WITH THE UNDERGROUND HORIZONTAL RUN. ALL REMOVED WIRING AND CONDUIT SHALL BECOME PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE.
3. REMOVE CAMPGROUND MAIN DISTRIBUTION SWITCH GEAR, ASSOCIATED UNISTRUT RACKS AND CONCRETE BASES. COORDINATE WITH PARK MANAGER ANY SWITCH GEAR TO BE SALVAGED BY THE CONTRACTOR FOR THE OWNER. UNISTRUT FRAMES, CONCRETE BASES AND SWITCH GEAR NOT SALVAGED FOR OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE.
4. SEE SHEET E3 FOR COORDINATION WITH EXISTING UNDERGROUND UTILITIES.





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Michigan DNR

10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

DEMOLITION SITE PLAN - WEST CAMPGROUND

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E4

EAST–A SWITCHBOARD ELECTRICAL SCHEDULE

BRANCH NUMBER	LOAD	TOTAL BRANCH LENGTH	BRANCH FEEDERS	CONDUIT SIZE
* EA–1	(4) 30/20 AMP, (2) 50/30/20 AMP PEDESTALS	675'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–2	(3) 30/20 AMP, (3) 50/30/20 AMP PEDESTALS	525'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–3	(5) 30/20 AMP, (1) 50/30/20 AMP PEDESTALS	550'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–4	(4) 50/30/20 AMP PEDESTALS	250'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–5	(3) 30/20 AMP, (3) 50/30/20 AMP PEDESTALS	330'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–6	R/S BUILDING, (2) 50/30/20 AMP PEDESTALS	355'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–7	(3) 50/30/20 AMP PEDESTALS	230'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.

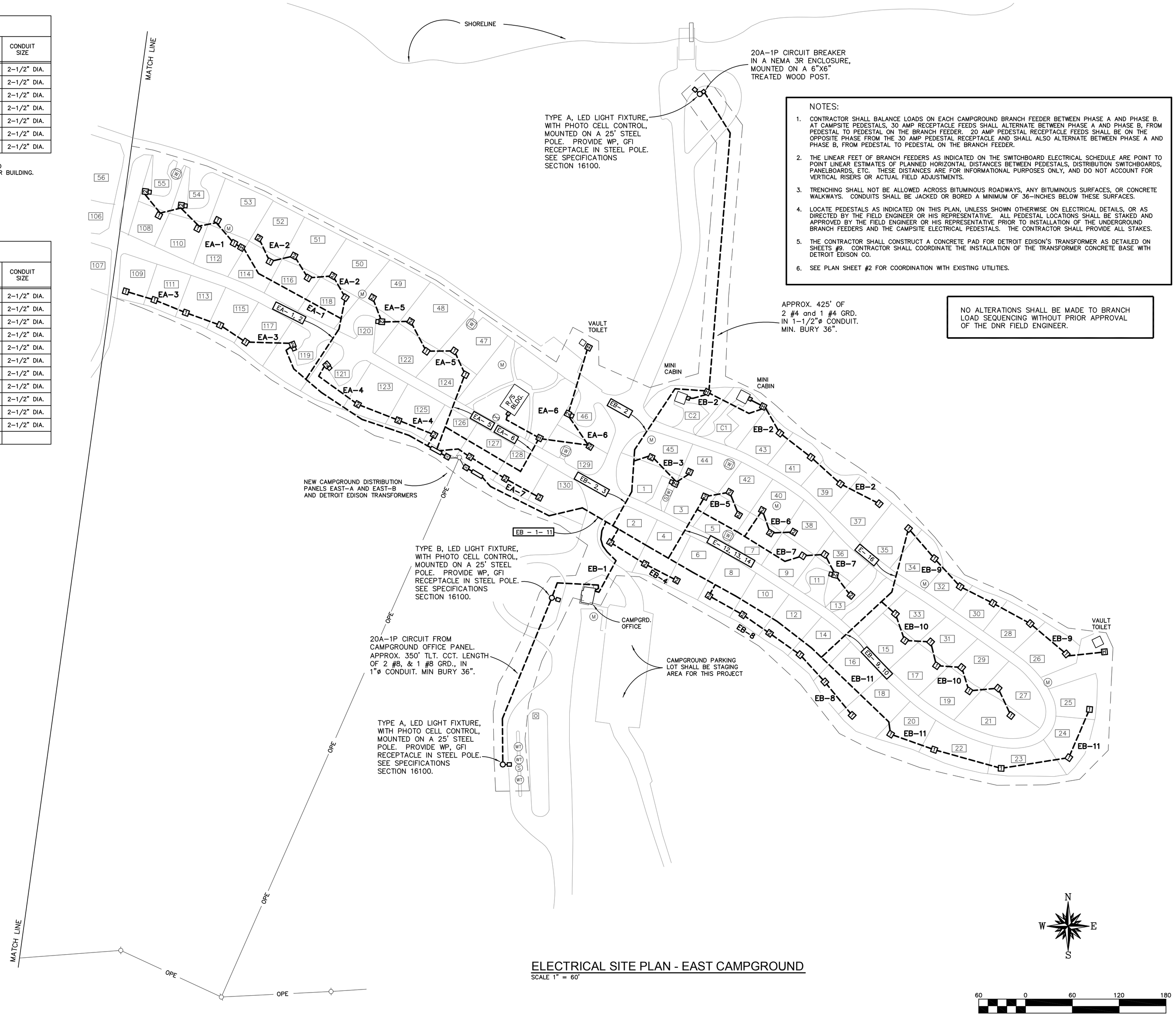
* FUTURE DESIGN WILL ELIMINATE (6) CAMPSITES (53, 54, 55, 108, 110 & 112) ON CIRCUIT EA–1 AND INSTALL A NEW RESTROOM/SHOWER BUILDING. HANDHOLE WILL SERVICE FUTURE RESTROOM/SHOWER BUILDING.

EAST–B SWITCHBOARD ELECTRICAL SCHEDULE

BRANCH NUMBER	LOAD	TOTAL BRANCH LENGTH	BRANCH FEEDERS	CONDUIT SIZE
EB–1	CAMPGROUND OFFICE BUILDING	400'	(3) #2/0, (1) #4 GRD.	2–1/2" DIA.
EB–2	(4) 30/20 AMP PEDESTALS, (2) MINI CABINS	850'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–3	(3) 50/30/20 AMP PEDESTALS	475'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–4	(3) 50/30/20 AMP PEDESTALS	420'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–5	(3) 50/30/20 AMP PEDESTALS	525'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–6	(3) 50/30/20 AMP PEDESTALS	610'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–7	(2) 30/20 AMP, (2) 50/30/20 AMP PEDESTALS	700'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–8	(3) 30/20 AMP, (3) 50/30/20 AMP PEDESTALS	700'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–9	(6) 30/20 AMP PEDESTALS	1100'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–10	(8) 30/20 AMP PEDESTALS	995'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–11	(5) 30/20 AMP PEDESTALS	1060'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.

LEGEND

	CAMPGROUND MAIN DISTRIBUTION SWITCHBOARD
O	UTILITY PAD MOUNT TRANSFORMER
1	30/20 AMP ELECTRICAL PEDESTAL
2	50/30/20 AMP ELECTRICAL PEDESTAL
M	METERED 30/20 AMP ELECTRICAL PEDESTAL
4	METERED 50/30/20 AMP ELECTRICAL PEDESTAL
H	IN GROUND HAND HOLE
	EXTERIOR MAIN DISCONNECT
E–4	EAST DISTRIBUTION SWITCHBOARD, BRANCH #4
E– 8 – 18	BRANCHES #8 THRU #18 (EAST SWITCHBOARD)
E– 12, 13, 14	BRANCHES #12, #13 AND #14 (EAST SWITCHBOARD)
	NEW UNDERGROUND SINGLE PHASE ELECTRICAL IN CONDUIT
NUPE	NEW UTILITY UNDERGROUND PRIMARY ELECTRICAL
	LIMITS OF DISTURBANCE
OPE	EXISTING UTILITY OVERHEAD PRIMARY ELECTRICAL
	EXISTING ELECTRICAL POWER POLE
M	EXISTING MAN HOLE
S	EXISTING SANITARY WASTE DISPOSAL HATCH
D	EXISTING DRAIN CATCH BASIN
W	EXISTING WATER HYDRANT TO BE REMOVED BY OTHERS
	EXISTING WATER VALVE MANHOLE TO BE REMOVED BY OTHERS
WT	EXISTING WATER TOWER
W	EXISTING WELL
120	CAMPSITE NUMBER TO BE INSTALLED ON PEDESTAL



NOTES:

1. CONTRACTOR SHALL BALANCE LOADS ON EACH CAMPGROUND BRANCH FEEDER BETWEEN PHASE A AND PHASE B. AT CAMPSITE PEDESTALS, 30 AMP RECEPTACLE FEEDS SHALL ALTERNATE BETWEEN PHASE A AND PHASE B, FROM PEDESTAL TO PEDESTAL ON THE BRANCH FEEDER. 20 AMP PEDESTAL RECEPTACLE FEEDS SHALL BE ON THE OPPOSITE PHASE FROM THE 30 AMP PEDESTAL RECEPTACLE AND SHALL ALSO ALTERNATE BETWEEN PHASE A AND PHASE B, FROM PEDESTAL TO PEDESTAL ON THE BRANCH FEEDER.
2. THE LINEAR FEET OF BRANCH FEEDERS AS INDICATED ON THE SWITCHBOARD ELECTRICAL SCHEDULE ARE POINT TO POINT LINEAR ESTIMATES OF PLANNED HORIZONTAL DISTANCES BETWEEN PEDESTALS, DISTRIBUTION SWITCHBOARDS, PANELBOARDS, ETC. THESE DISTANCES ARE FOR INFORMATIONAL PURPOSES ONLY, AND DO NOT ACCOUNT FOR VERTICAL RISERS OR ACTUAL FIELD ADJUSTMENTS.
3. TRENCHING SHALL NOT BE ALLOWED ACROSS BITUMINOUS ROADWAYS, ANY BITUMINOUS SURFACES, OR CONCRETE WALKWAYS. CONDUITS SHALL BE JACKED OR BORED A MINIMUM OF 36–INCHES BELOW THESE SURFACES.
4. LOCATE PEDESTALS AS INDICATED ON THIS PLAN, UNLESS SHOWN OTHERWISE ON ELECTRICAL DETAILS, OR AS DIRECTED BY THE FIELD ENGINEER OR HIS REPRESENTATIVE. ALL PEDESTAL LOCATIONS SHALL BE STAKED AND APPROVED BY THE FIELD ENGINEER OR HIS REPRESENTATIVE PRIOR TO INSTALLATION OF THE UNDERGROUND BRANCH FEEDERS AND THE CAMPSITE ELECTRICAL PEDESTALS. THE CONTRACTOR SHALL PROVIDE ALL STAKES.
5. THE CONTRACTOR SHALL CONSTRUCT A CONCRETE PAD FOR DETROIT EDISON'S TRANSFORMER AS DETAILED ON SHEETS #9. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE TRANSFORMER CONCRETE BASE WITH DETROIT EDISON CO.
6. SEE PLAN SHEET #2 FOR COORDINATION WITH EXISTING UTILITIES.

NO ALTERATIONS SHALL BE MADE TO BRANCH LOAD SEQUENCING WITHOUT PRIOR APPROVAL OF THE DNR FIELD ENGINEER.

ELECTRICAL SITE PLAN - EAST CAMPGROUND

SCALE 1" = 60'

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Michigan DNR

10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

ELECTRICAL SITE PLAN - EAST CAMPGROUND

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E5

ELECTRICAL SITE PLAN - WEST CAMPGROUND

SCALE 1" = 60'

WEST SWITCHBOARD ELECTRICAL SCHEDULE

BRANCH NUMBER	LOAD	TOTAL BRANCH LENGTH	BRANCH FEEDERS	CONDUIT SIZE
W–1	(6) 30/20 AMP, (2) 50/30/20 AMP PEDESTALS	690'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–2	(8) 30/20 AMP PEDESTALS	735'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–3	(9) 30/20 AMP PEDESTALS	640'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–4	(9) 30/20 AMP PEDESTALS	730'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–5	(4) 30/20 AMP, (3) 50/30/20 AMP PEDESTALS	415'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–6	(4) 30/20 AMP, (3) 50/30/20 AMP PEDESTALS	375'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–7	(4) 50/30/20 AMP PEDESTALS	600'	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
W–8	RESTROOM/SHOWER BUILDING	200'	(3) #2/0, (1) #4 GRD.	2–1/2" DIA.
W–9	WELL HOUSE BUILDING	700'	(3) #2/0, (1) #4 GRD.	2–1/2" DIA.

NOTES:

1. CONTRACTOR SHALL BALANCE LOADS ON EACH CAMPGROUND BRANCH FEEDER BETWEEN PHASE A AND PHASE B. AT CAMPSITE PEDESTALS, 30 AMP RECEPTACLE FEEDS SHALL ALTERNATE BETWEEN PHASE A AND PHASE B, FROM PEDESTAL TO PEDESTAL ON THE BRANCH FEEDER. 20 AMP PEDESTAL RECEPTACLE FEEDS SHALL BE ON THE OPPOSITE PHASE FROM THE 30 AMP PEDESTAL RECEPTACLE AND SHALL ALSO ALTERNATE BETWEEN PHASE A AND PHASE B, FROM PEDESTAL TO PEDESTAL ON THE BRANCH FEEDER.
2. THE LINEAR FEET OF BRANCH FEEDERS AS INDICATED ON THE SWITCHBOARD ELECTRICAL SCHEDULE ARE POINT TO POINT LINEAR ESTIMATES OF PLANNED HORIZONTAL DISTANCES BETWEEN PEDESTALS, DISTRIBUTION SWITCHBOARDS, PANELBOARDS, ETC. THESE DISTANCES ARE FOR INFORMATIONAL PURPOSES ONLY, AND DO NOT ACCOUNT FOR VERTICAL RISERS OR ACTUAL FIELD ADJUSTMENTS.
3. TRENCHING SHALL NOT BE ALLOWED ACROSS BITUMINOUS ROADWAYS, ANY BITUMINOUS SURFACES, OR CONCRETE WALKWAYS. CONDUITS SHALL BE JACKED OR BORED A MINIMUM OF 36–INCHES BELOW THESE SURFACES.
4. LOCATE PEDESTALS AS INDICATED ON THIS PLAN, UNLESS SHOWN OTHERWISE ON ELECTRICAL DETAILS, OR AS DIRECTED BY THE FIELD ENGINEER OR HIS REPRESENTATIVE. ALL PEDESTAL LOCATIONS SHALL BE STAKED AND APPROVED BY THE FIELD ENGINEER OR HIS REPRESENTATIVE PRIOR TO INSTALLATION OF THE UNDERGROUND BRANCH FEEDERS AND THE CAMPSITE ELECTRICAL PEDESTALS. THE CONTRACTOR SHALL PROVIDE ALL STAKES.
5. THE CONTRACTOR SHALL CONSTRUCT A CONCRETE PAD FOR DETROIT EDISON'S TRANSFORMER AS DETAILED ON SHEETS #9 AND #10. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE TRANSFORMER CONCRETE BASE WITH DETROIT EDISON CO.
6. SEE PLAN SHEET #3 FOR COORDINATION WITH EXISTING UTILITIES.

NO ALTERATIONS SHALL BE MADE TO BRANCH LOAD SEQUENCING WITHOUT PRIOR APPROVAL OF THE DNR FIELD ENGINEER.

LEGEND

- CAMPGROUND MAIN DISTRIBUTION SWITCHBOARD
- UTILITY PAD MOUNT TRANSFORMER
- 1 — 30/20 AMP ELECTRICAL PEDESTAL
- 2 — 50/30/20 AMP ELECTRICAL PEDESTAL
- M — METERED 30/20 AMP ELECTRICAL PEDESTAL
- 4 — METERED 50/30/20 AMP ELECTRICAL PEDESTAL
- H — IN GROUND HAND HOLE
- EXTERIOR MAIN DISCONNECT
- W–4 — WEST DISTRIBUTION SWITCHBOARD, BRANCH #4
- W– 1 – 4 — BRANCHES #1 THRU #4 (WEST SWITCHBOARD)
- NEW UNDERGROUND SINGLE PHASE ELECTRICAL IN CONDUIT
- NUPE — NEW UTILITY UNDERGROUND PRIMARY ELECTRICAL
- LIMITS OF DISTURBANCE
- OPE — EXISTING UTILITY OVERHEAD PRIMARY ELECTRICAL
- EXISTING ELECTRICAL POWER POLE
- M — EXISTING MAN HOLE
- S — EXISTING SANITARY WASTE DISPOSAL HATCH
- EXISTING DRAIN CATCH BASIN
- W — EXISTING WATER HYDRANT TO BE REMOVED BY OTHERS
- EXISTING WATER VALVE MANHOLE TO BE REMOVED BY OTHERS
- WT — EXISTING WATER TOWER
- W — EXISTING WELL
- 104 — CAMPSITE NUMBER TO BE INSTALLED ON PEDESTAL

N W E S

60 0 60 120 180

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF LAND AND FACILITIES
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Michigan DNR

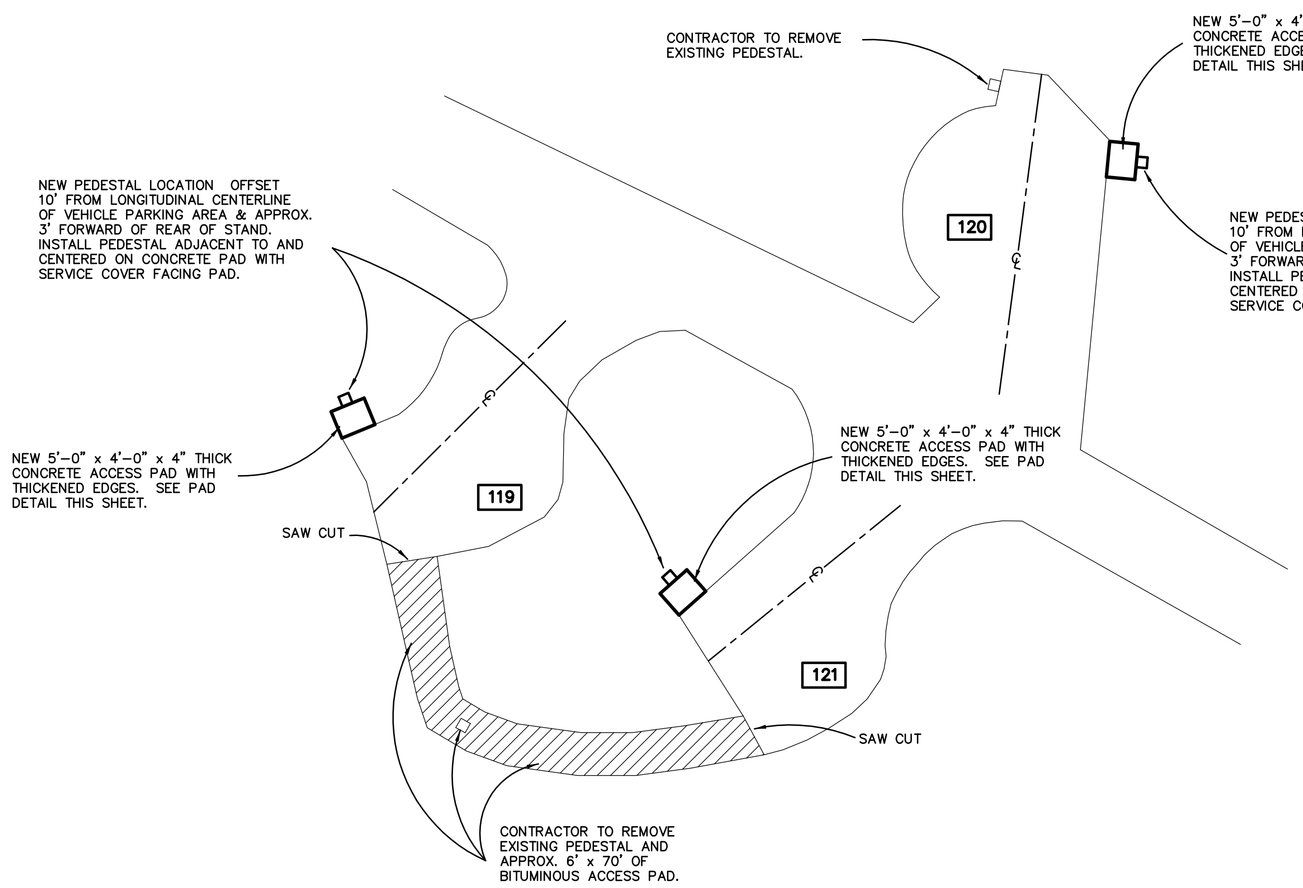
10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

ELECTRICAL SITE PLAN - WEST CAMPGROUND

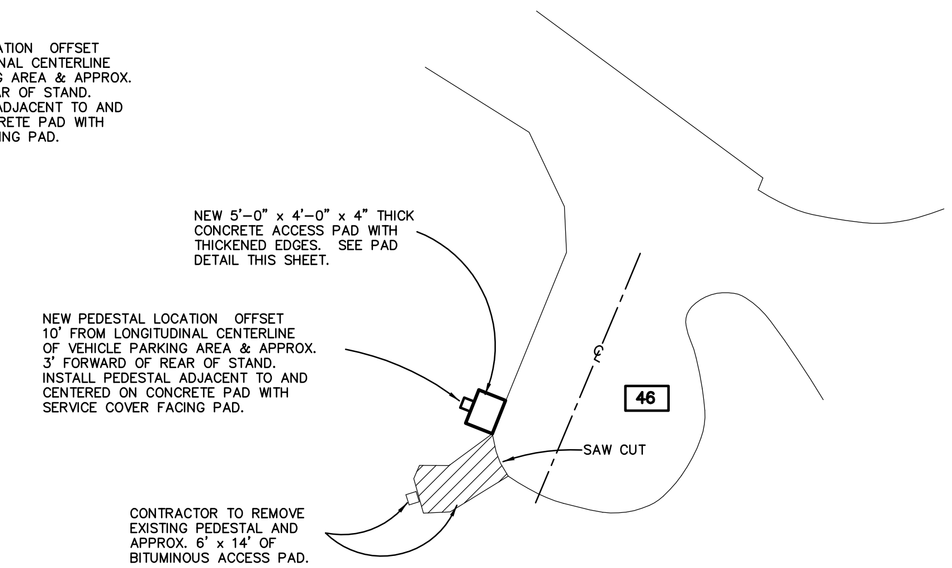
PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E6



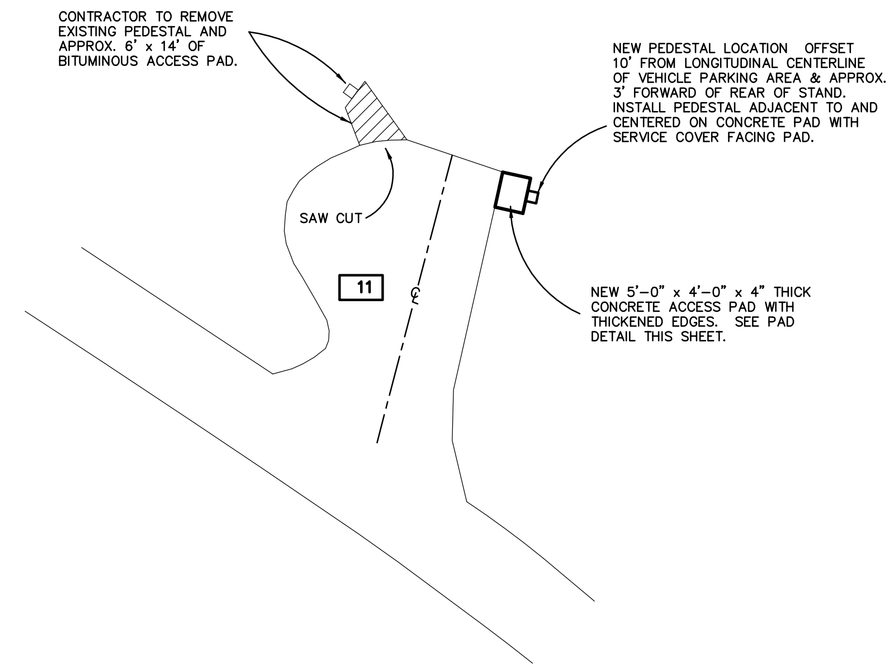
ACCESSIBLE CAMPSITE #119, #120 & #121

NO SCALE



ACCESSIBLE HOST CAMPSITE #46

NO SCALE

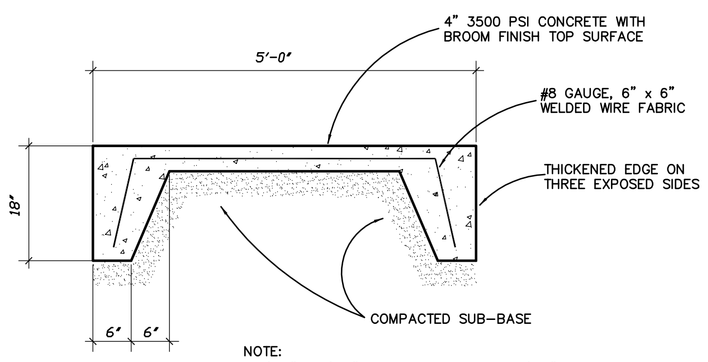


ACCESSIBLE CAMPSITE #11

NO SCALE

LEGEND

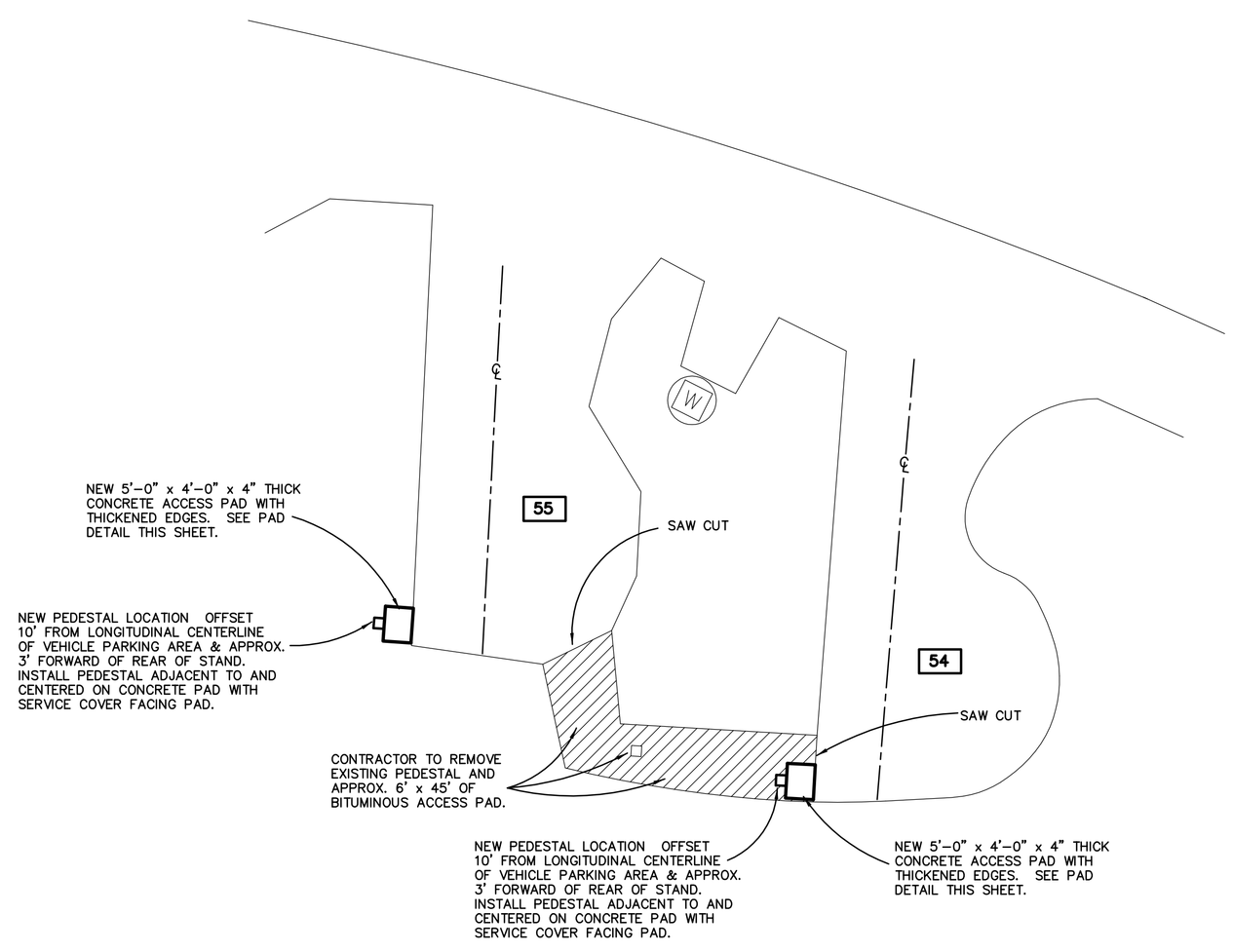
120	CAMPSITE NUMBER TO BE INSTALLED ON PEDESTAL BY CONTRACTOR
——— ℄ ———	CENTERLINE OF DEFINED VEHICLE PARKING AREA
■	NEW PEDESTAL TO BE INSTALLED BY CONTRACTOR
□	EXISTING PEDESTAL TO BE REMOVED BY CONTRACTOR



NOTE:
5'-0" x 4'-0" CONCRETE PAD WITH 5'-0" DIMENSION ADJACENT TO BITUMINOUS CAMPSITE STAND. SAW CUT BITUMINOUS AS REQUIRED TO PROVIDE A SQUARED – TIGHT, BUTT JOINT WITH A BARRIER FREE SMOOTH TRANSITION BETWEEN BITUMINOUS STAND AND CONCRETE PAD. CONCRETE PAD SHALL BE INSTALLED FLAT (±1% SLOPE).

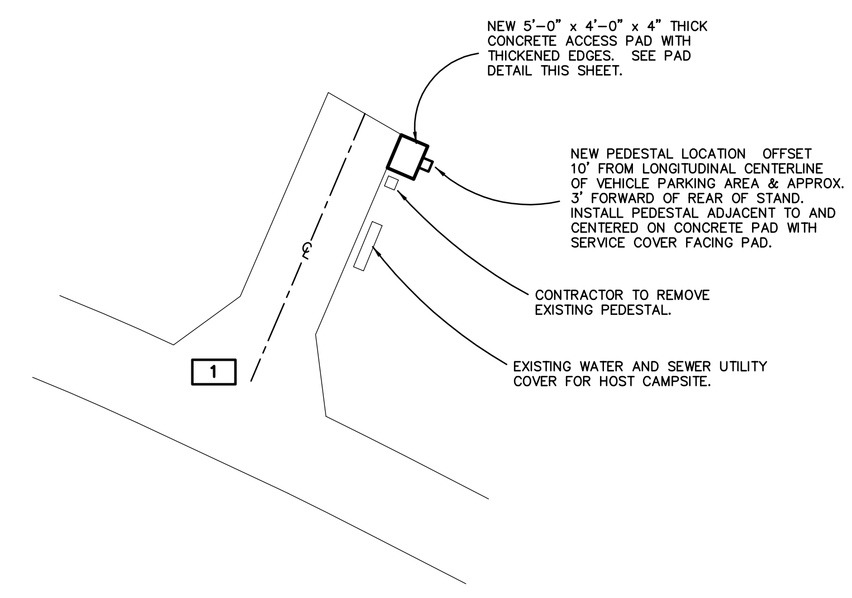
CONCRETE ACCESS PAD

NO SCALE



ACCESSIBLE CAMPSITE #54 & #55

NO SCALE



ACCESSIBLE HOST CAMPSITE #1

NO SCALE

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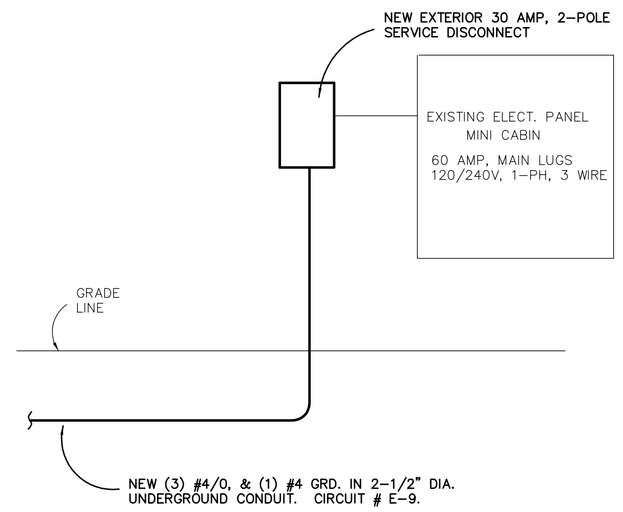
10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

CAMPSITE DETAILS

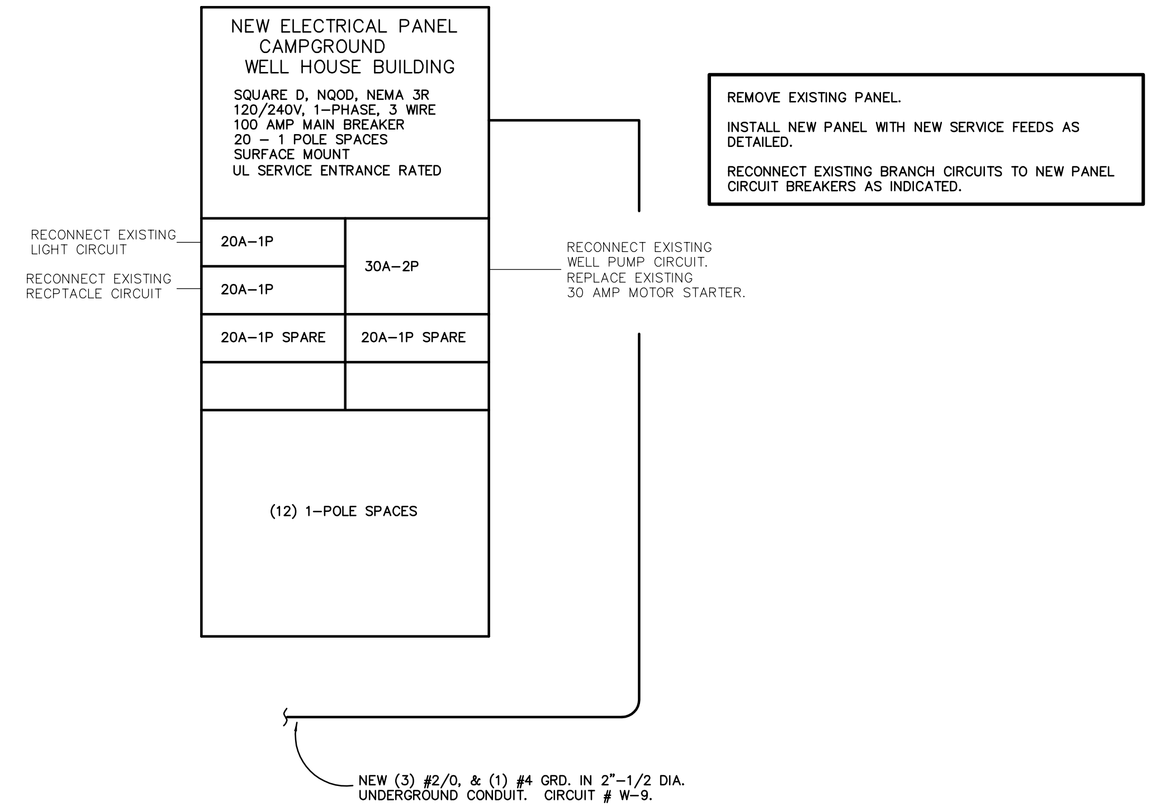
PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E7



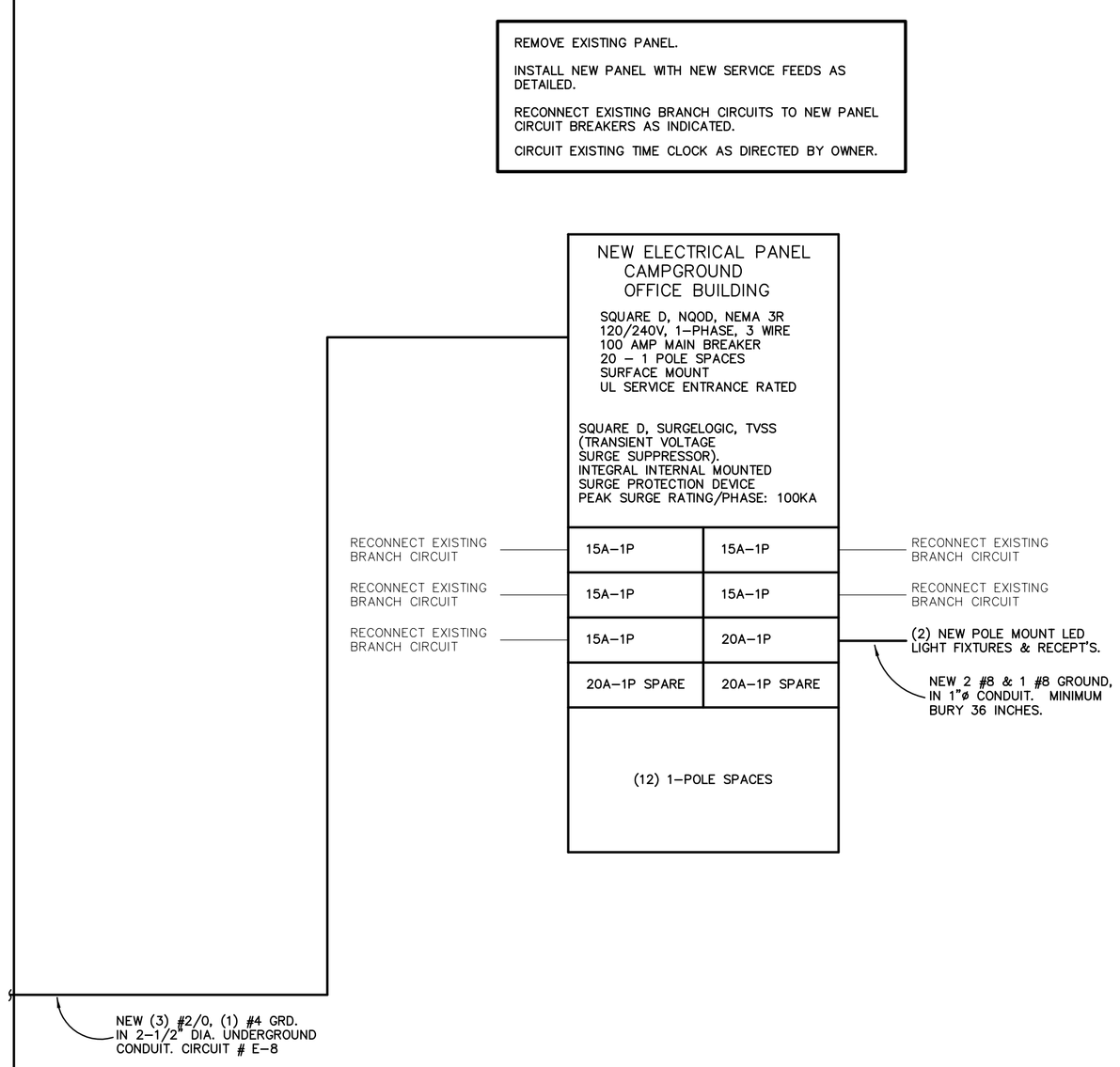
ELECTRICAL RISER DIAGRAM MINI CABIN (TWO REQUIRED)

NO SCALE



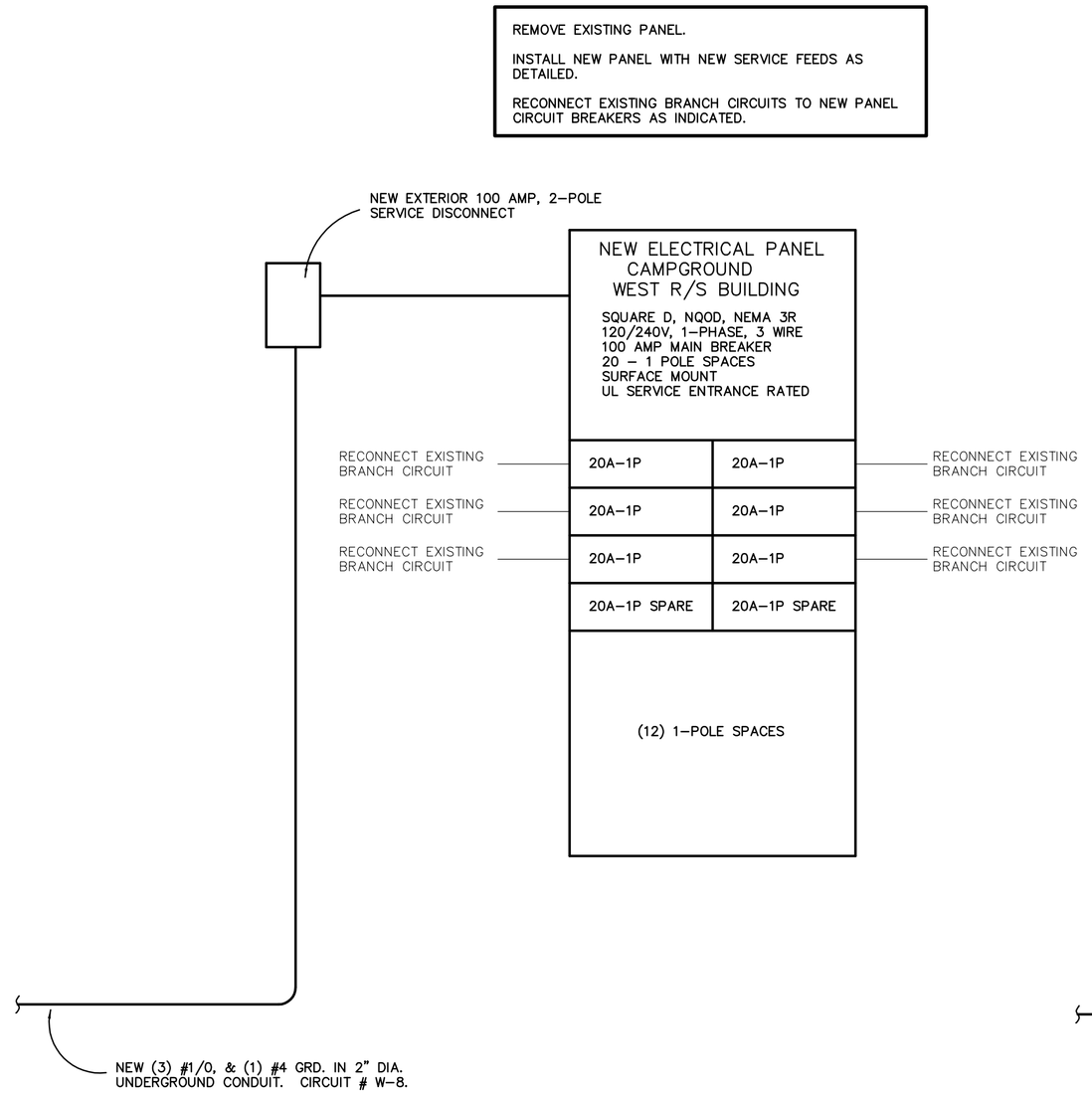
ELECTRICAL RISER DIAGRAM CAMPGROUND WELL HOUSE BUILDING

NO SCALE



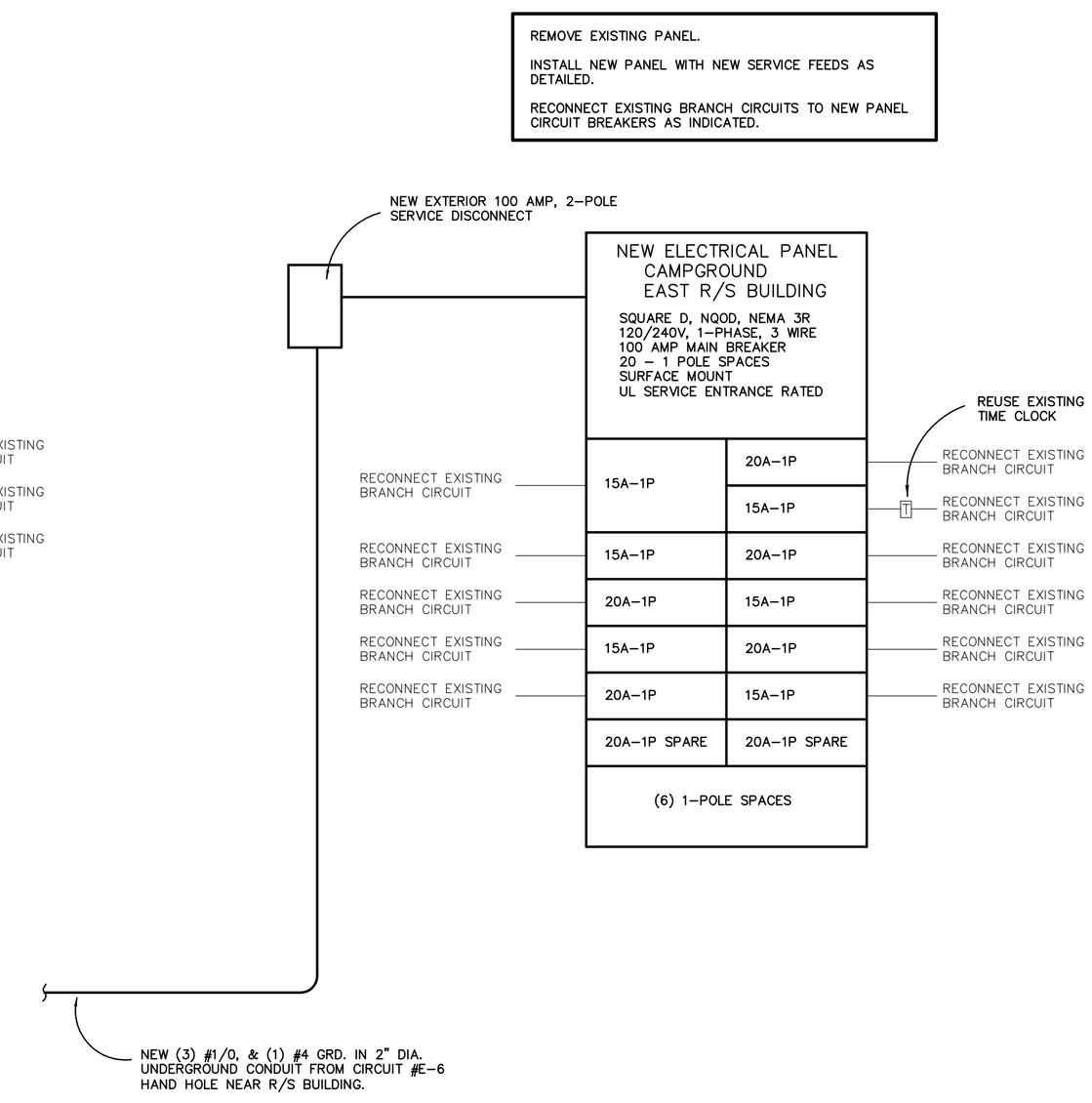
ELECTRICAL RISER DIAGRAM CAMPGROUND OFFICE BUILDING

NO SCALE



ELECTRICAL RISER DIAGRAM CAMPGROUND WEST R/S BUILDING

NO SCALE



ELECTRICAL RISER DIAGRAM CAMPGROUND EAST R/S BUILDING

NO SCALE

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Michigan DNR

10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE
RECREATION AREA
OAKLAND COUNTY

ELECTRICAL DETAILS

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E8

ELECTRICAL SCHEDULE – EAST–A DISTRIBUTION SWITCHBORAD

BRANCH NUMBER	CIRCUIT NUMBER	CALCULATED LOAD (VA)	NUMBER SITES	DEMAND FACTOR	ADJUSTED LOAD (VA)	ADJUSTED LOAD (VA) / 240V	OCPD	BRANCH CIRCUIT FEEDERS	CONDUIT SIZE
EA–1	SWBD 1	38,400	6	0.70	26,880	112 AMPS	200 AMPS	(3) #4/0 (1) #2 GRD.	2–1/2" DIA.
EA–2	SWBD 2	38,400	6	0.70	26,880	112 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–3	SWBD 3	30,000	6	0.70	21,000	88 AMPS	150 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–4	SWBD 4	48,000	4	0.75	36,000	150 AMPS	225 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–5	SWBD 5	46,800	6	0.70	32,760	137 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–6	SWBD 6	36,000	2+R/S.BLDG.	0.80	28,800	120 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EA–7	SWBD 7	36,000	3	0.80	28,800	120 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.

(15) 30 AMP PEDESTALS @ 3,600 VA	54,000 VA
(18) 50 AMP PEDESTALS @ 12,000 VA	216,000 VA
TOTAL CAMPSITE LOAD	270,000 VA
(NEC 551–73) DEMAND FACTOR	0.50
ADJUSTED CAMPSITE LOAD	135,000 VA
RESTROOM BUILDING @ 24,000 VA	24,000 VA
TOTAL LOAD	159,000 VA

$$\frac{159{,}000 \text{ VA}}{240 \text{ V}} = 663 \text{ AMPS}$$

ELECTRICAL SCHEDULE – EAST–B DISTRIBUTION SWITCHBORAD

BRANCH NUMBER	CIRCUIT NUMBER	CALCULATED LOAD (VA)	NUMBER SITES	DEMAND FACTOR	ADJUSTED LOAD (VA)	ADJUSTED LOAD (VA) / 240V	OCPD	BRANCH CIRCUIT FEEDERS	CONDUIT SIZE
EB–1	SWBD 8	24,000	OFFICE	0.60	14,400	60 AMPS	100 AMPS	(3) #2/0, (1) #4 GRD.	2–1/2" DIA.
EB–2	SWBD 9	28,800	6 + LGT.	0.70	20,160	84 AMPS	150 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–3	SWBD 10	36,000	3	0.80	28,800	120 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–4	SWBD 11	36,000	3	0.80	28,800	120 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–5	SWBD 12	36,000	3	0.80	28,800	120 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–6	SWBD 13	36,000	3	0.80	28,800	120 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–7	SWBD 14	31,200	4	0.75	23,400	98 AMPS	150 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–8	SWBD 15	46,800	6	0.70	32,760	137 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–9	SWBD 16	21,600	6	0.70	15,120	63 AMPS	150 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–10	SWBD 17	28,800	8	0.70	20,160	84 AMPS	150 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.
EB–11	SWBD 18	18,000	5	0.70	12,600	53 AMPS	150 AMPS	(3) #4/0, (1) #2 GRD.	2–1/2" DIA.

(28) 30 AMP PEDESTALS @ 3,600 VA	100,800 VA
(17) 50 AMP PEDESTALS @ 12,000 VA	204,000 VA
TOTAL CAMPSITE LOAD	304,800 VA
(NEC 551–73) DEMAND FACTOR	0.50
ADJUSTED CAMPSITE LOAD	152,400 VA
CAMPGROUND OFFICE @ 24,000 V,A	24,000 VA
MINI CABIN (2) @ 7,200 VA (EACH)	14,400 VA
TOTAL LOAD	190,800 VA

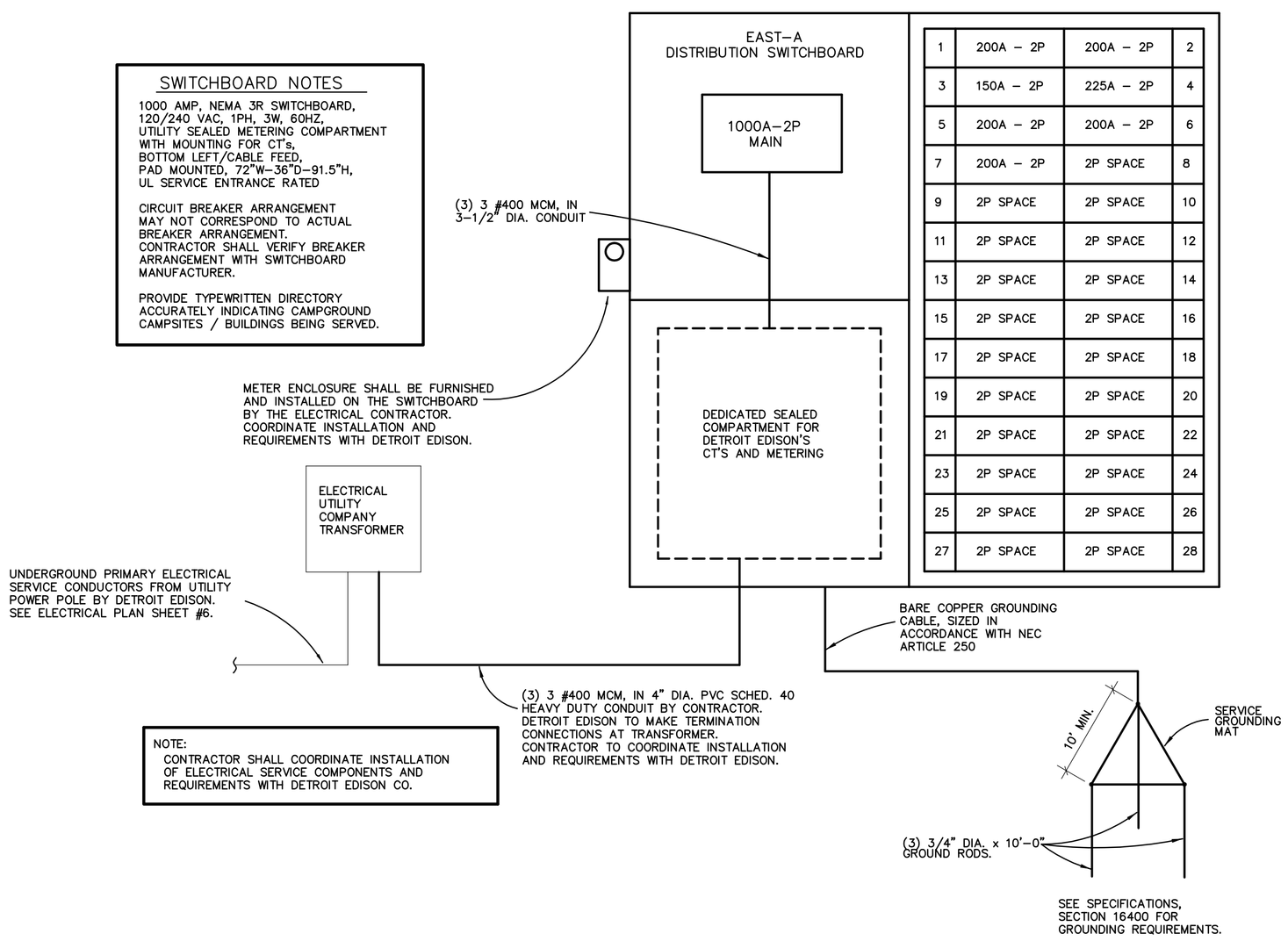
$$\frac{190{,}800 \text{ VA}}{240 \text{ V}} = 795 \text{ AMPS}$$

SWITCHBOARD NOTES

1000 AMP, NEMA 3R SWITCHBOARD, 120/240 VAC, 1PH, 3W, 60HZ, UTILITY SEALED METERING COMPARTMENT WITH MOUNTING FOR CT's, BOTTOM LEFT/CABLE FEED, PAD MOUNTED, 72"W–36"D–91.5"H, UL SERVICE ENTRANCE RATED

CIRCUIT BREAKER ARRANGEMENT MAY NOT CORRESPOND TO ACTUAL BREAKER ARRANGEMENT. CONTRACTOR SHALL VERIFY BREAKER ARRANGEMENT WITH SWITCHBOARD MANUFACTURER.

PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING CAMPGROUND CAMPSITES / BUILDINGS BEING SERVED.



1	200A – 2P	200A – 2P	2
3	150A – 2P	225A – 2P	4
5	200A – 2P	200A – 2P	6
7	200A – 2P	2P SPACE	8
9	2P SPACE	2P SPACE	10
11	2P SPACE	2P SPACE	12
13	2P SPACE	2P SPACE	14
15	2P SPACE	2P SPACE	16
17	2P SPACE	2P SPACE	18
19	2P SPACE	2P SPACE	20
21	2P SPACE	2P SPACE	22
23	2P SPACE	2P SPACE	24
25	2P SPACE	2P SPACE	26
27	2P SPACE	2P SPACE	28

NOTE:
CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SERVICE COMPONENTS AND REQUIREMENTS WITH DETROIT EDISON CO.

ELECTRICAL RISER DIAGRAM EAST-A DISTRIBUTION SWITCHBOARD

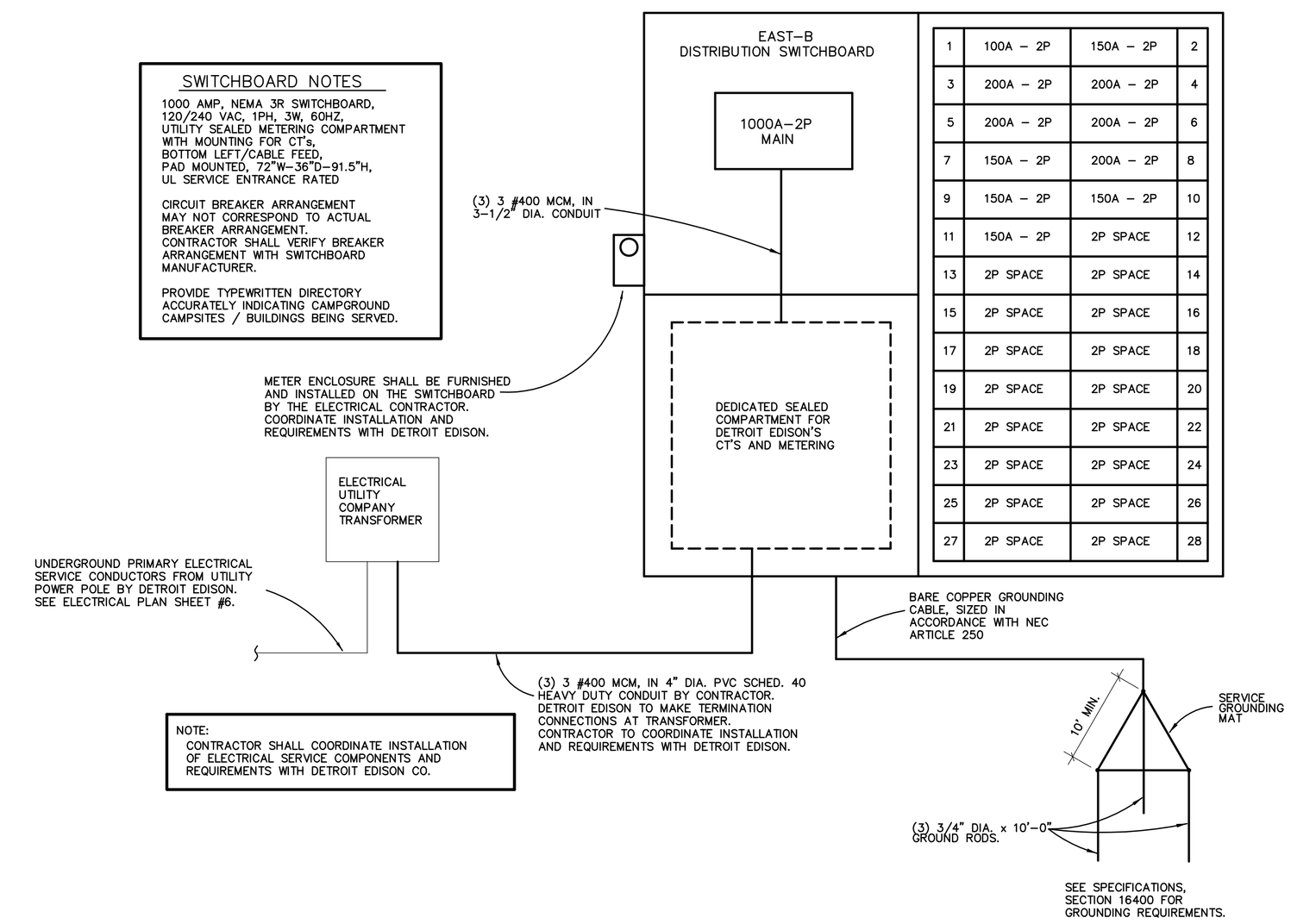
NO SCALE

SWITCHBOARD NOTES

1000 AMP, NEMA 3R SWITCHBOARD, 120/240 VAC, 1PH, 3W, 60HZ, UTILITY SEALED METERING COMPARTMENT WITH MOUNTING FOR CT's, BOTTOM LEFT/CABLE FEED, PAD MOUNTED, 72"W–36"D–91.5"H, UL SERVICE ENTRANCE RATED

CIRCUIT BREAKER ARRANGEMENT MAY NOT CORRESPOND TO ACTUAL BREAKER ARRANGEMENT. CONTRACTOR SHALL VERIFY BREAKER ARRANGEMENT WITH SWITCHBOARD MANUFACTURER.

PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING CAMPGROUND CAMPSITES / BUILDINGS BEING SERVED.



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3	200A – 2P	200A – 2P	4
5	200A – 2P	200A – 2P	6
7	150A – 2P	200A – 2P	8
9	150A – 2P	150A – 2P	10
11	150A – 2P	2P SPACE	12
13	2P SPACE	2P SPACE	14
15	2P SPACE	2P SPACE	16
17	2P SPACE	2P SPACE	18
19	2P SPACE	2P SPACE	20
21	2P SPACE	2P SPACE	22
23	2P SPACE	2P SPACE	24
25	2P SPACE	2P SPACE	26
27	2P SPACE	2P SPACE	28

NOTE:
CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SERVICE COMPONENTS AND REQUIREMENTS WITH DETROIT EDISON CO.

ELECTRICAL RISER DIAGRAM EAST-B DISTRIBUTION SWITCHBOARD

NO SCALE

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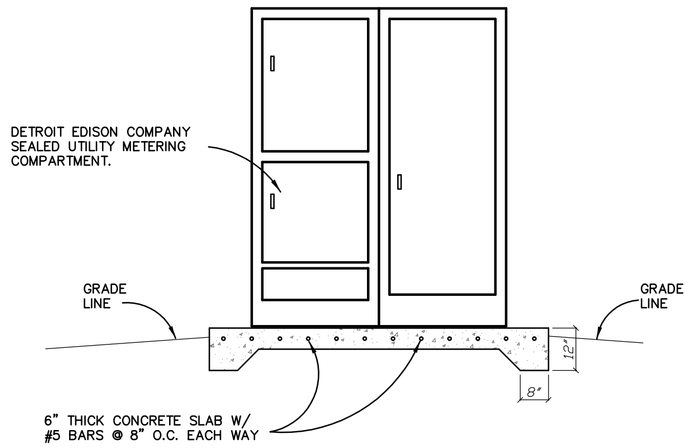
10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE RECREATION AREA
OAKLAND COUNTY

ELECTRICAL RISER DIAGRAMS

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E9



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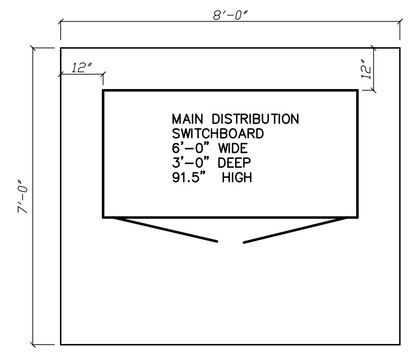


PLAN VIEW

NOTE:
PROVIDE ADEQUATE CONDUIT OPENINGS IN CONCRETE PAD. CONTRACTOR SHALL VERIFY CONDUIT OPENING PLACEMENT AND SIZE WITH SWITCHBOARD MANUFACTURER.

EAST-A & B & WEST DISTRIBUTION SWITCHBOARD DETAIL

NO SCALE

ELECTRICAL SCHEDULE – WEST DISTRIBUTION SWITCHBORAD

BRANCH NUMBER	CIRCUIT NUMBER	CALCULATED LOAD (VA)	NUMBER SITES	DEMAND FACTOR	ADJUSTED LOAD (VA)	ADJUSTED LOAD (VA) / 240V	OCPD	BRANCH CIRCUIT FEEDERS	CONDUIT SIZE
W-1	SWBD 1	45,600	8	0.70	31,920	133 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-2	SWBD 2	28,800	8	0.70	20,160	74 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-3	SWBD 3	32,400	9	0.70	22,680	95 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-4	SWBD 4	32,400	9	0.70	22,680	95 AMPS	200 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-5	SWBD 5	50,400	7	0.70	35,280	147 AMPS	225 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-6	SWBD 6	50,400	7	0.70	35,280	147 AMPS	225 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-7	SWBD 7	48,000	4	0.75	36,000	150 AMPS	225 AMPS	(3) #4/0, (1) #2 GRD.	2-1/2" DIA.
W-8	SWBD 8	24,000	R/S BLDG	0.60	14,400	60 AMPS	100 AMPS	(3) #2/0, (1) #4 GRD.	2-1/2" DIA.
W-9	SWBD 9	24,000	WELL BLDG	0.30	7,200	30 AMPS	100 AMPS	(3) #2/0, (1) #4 GRD.	2-1/2" DIA.

(40) 30 AMP PEDESTALS @ 3,600 VA	144,000 VA
(12) 50 AMP PEDESTALS @ 12,000 VA	144,000 VA
TOTAL CAMPSITE LOAD	288,000 VA
(NEC 551-73) DEMAND FACTOR	0.60
ADJUSTED CAMPSITE LOAD	172,800 VA
RESTROOM SHOWER BUILDING	14,400 VA
WELL HOUSE BUILDING	7,200 VA
TOTAL LOAD	194,400 VA

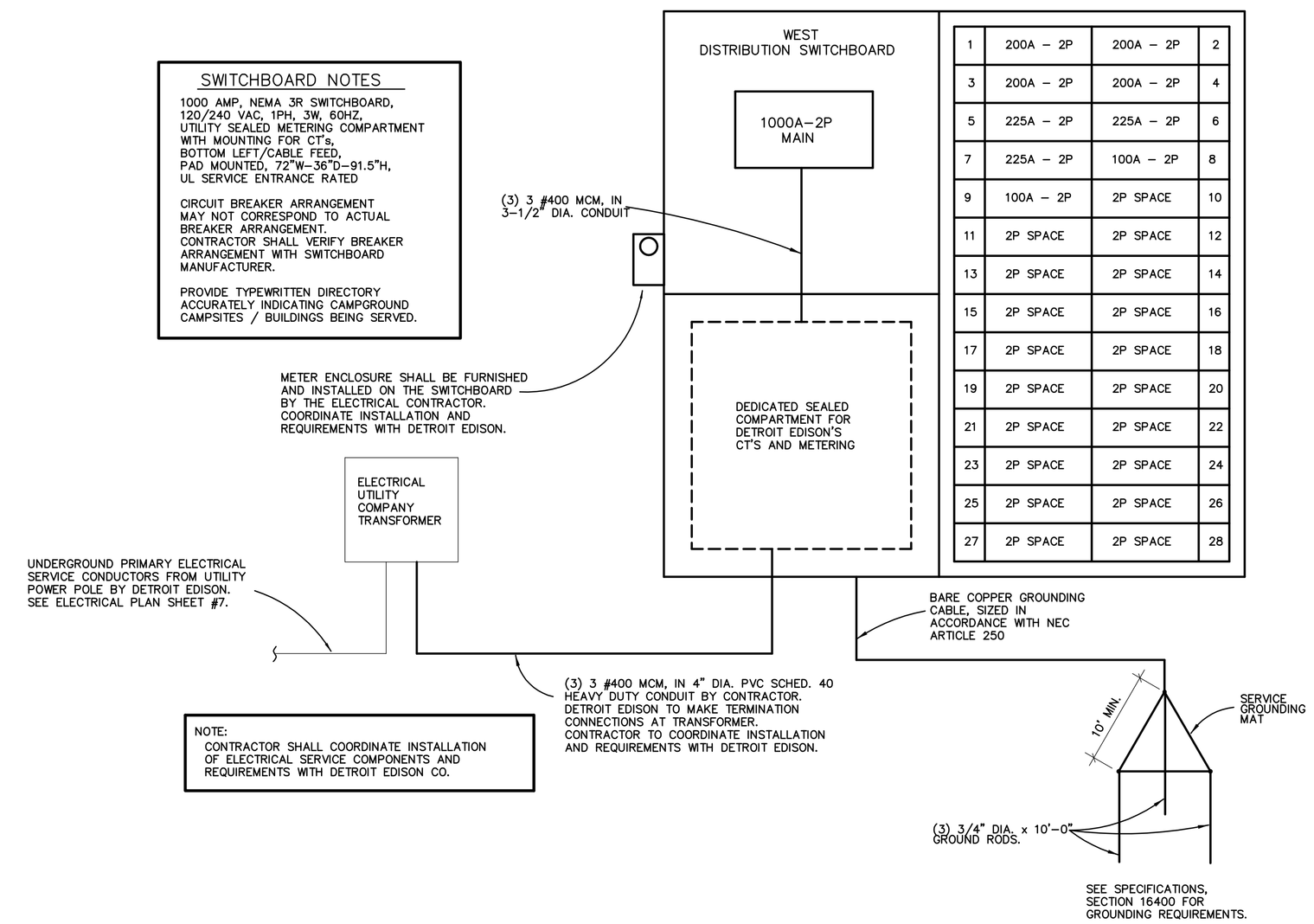
$$\frac{194{,}400 \text{ VA}}{240 \text{ V}} = 810 \text{ AMPS}$$

SWITCHBOARD NOTES

1000 AMP, NEMA 3R SWITCHBOARD, 120/240 VAC, 1PH, 3W, 60HZ, UTILITY SEALED METERING COMPARTMENT WITH MOUNTING FOR CT's, BOTTOM LEFT/CABLE FEED, PAD MOUNTED, 72"W-36"D-91.5"H, UL SERVICE ENTRANCE RATED

CIRCUIT BREAKER ARRANGEMENT MAY NOT CORRESPOND TO ACTUAL BREAKER ARRANGEMENT. CONTRACTOR SHALL VERIFY BREAKER ARRANGEMENT WITH SWITCHBOARD MANUFACTURER.

PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING CAMPGROUND CAMPSITES / BUILDINGS BEING SERVED.



1	200A – 2P	200A – 2P	2
3	200A – 2P	200A – 2P	4
5	225A – 2P	225A – 2P	6
7	225A – 2P	100A – 2P	8
9	100A – 2P	2P SPACE	10
11	2P SPACE	2P SPACE	12
13	2P SPACE	2P SPACE	14
15	2P SPACE	2P SPACE	16
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NOTE:
CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SERVICE COMPONENTS AND REQUIREMENTS WITH DETROIT EDISON CO.

ELECTRICAL RISER DIAGRAM WEST DISTRIBUTION SWITCHBOARD

NO SCALE

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF LAND AND FACILITIES
DESIGN & CONSTRUCTION SECTION
P.O. BOX 30033, LANSING, MI 48909-7933
517.241.1919 VOICE 517.241.4278 FAX

Michigan DNR

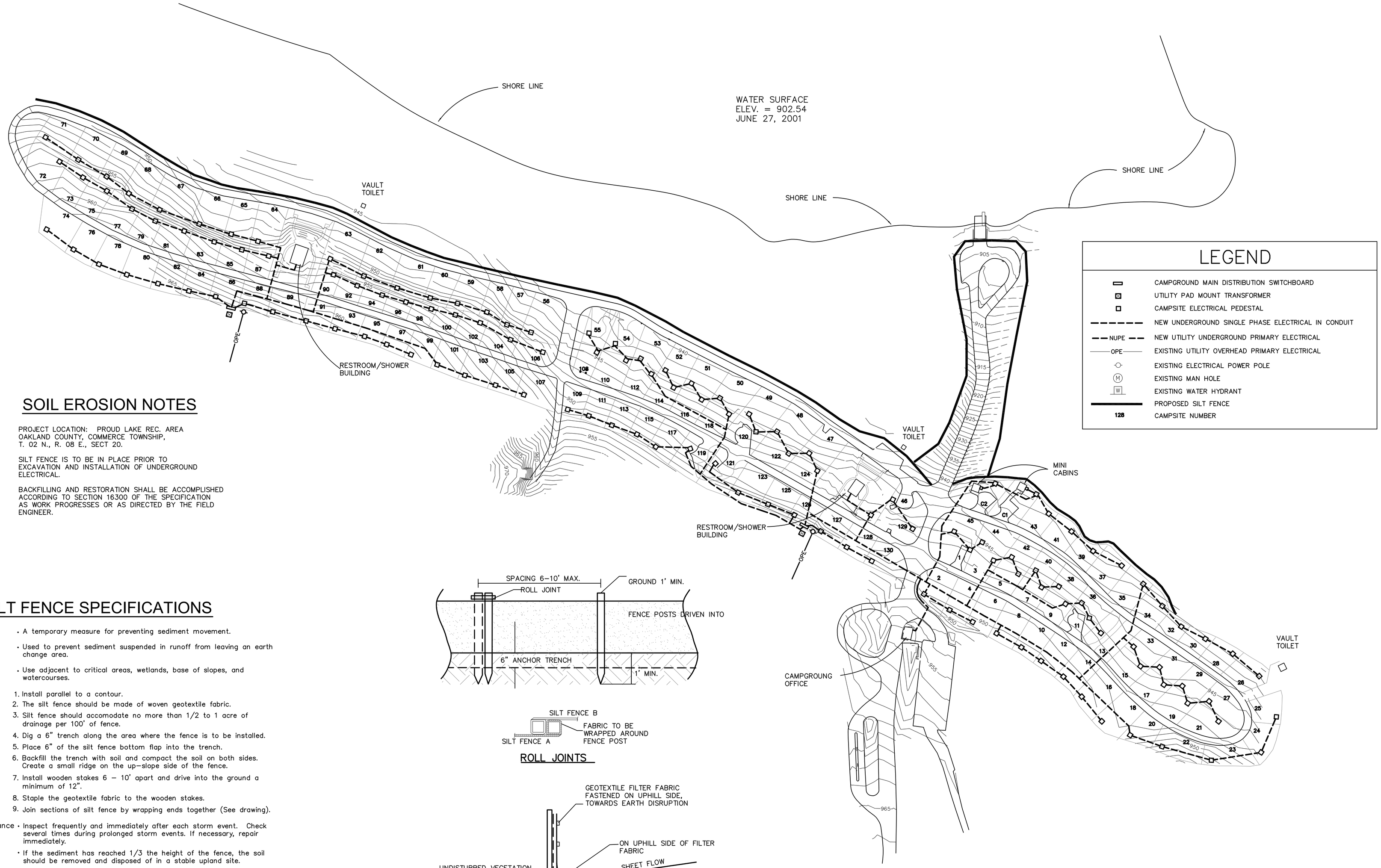
10/23/09	BIDS & CONSTRUCTION

CAMPGROUND ELECTRICAL SYSTEM UPGRADE
PROUD LAKE
RECREATION AREA
OAKLAND COUNTY

ELECTRICAL RISER DIAGRAMS

PROJECT NO.	24-3238
INDEX	14420
PCA	95805
DRAWN BY	JB
DESIGNED BY	JB
PROJ. MGR.	JB

E10



SOIL EROSION NOTES

PROJECT LOCATION: PROUD LAKE REC. AREA
OAKLAND COUNTY, COMMERCE TOWNSHIP,
T. 02 N., R. 08 E., SECT 20.

SILT FENCE IS TO BE IN PLACE PRIOR TO EXCAVATION AND INSTALLATION OF UNDERGROUND ELECTRICAL.

BACKFILLING AND RESTORATION SHALL BE ACCOMPLISHED ACCORDING TO SECTION 16300 OF THE SPECIFICATION AS WORK PROGRESSES OR AS DIRECTED BY THE FIELD ENGINEER.

SILT FENCE SPECIFICATIONS

When
- A temporary measure for preventing sediment movement.

Why
- Used to prevent sediment suspended in runoff from leaving an earth change area.

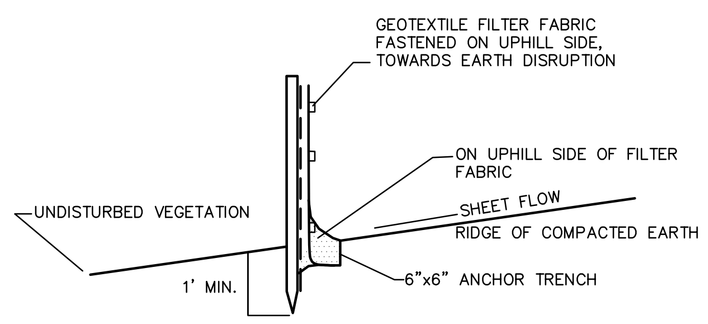
Where
- Use adjacent to critical areas, wetlands, base of slopes, and watercourses.

How
1. Install parallel to a contour.
2. The silt fence should be made of woven geotextile fabric.
3. Silt fence should accomodate no more than 1/2 to 1 acre of drainage per 100' of fence.
4. Dig a 6" trench along the area where the fence is to be installed.
5. Place 6" of the silt fence bottom flap into the trench.
6. Backfill the trench with soil and compact the soil on both sides. Create a small ridge on the up-slope side of the fence.
7. Install wooden stakes 6 – 10' apart and drive into the ground a minimum of 12".
8. Staple the geotextile fabric to the wooden stakes.
9. Join sections of silt fence by wrapping ends together (See drawing).

Maintenance
- Inspect frequently and immediately after each storm event. Check several times during prolonged storm events. If necessary, repair immediately.
- If the sediment has reached 1/3 the height of the fence, the soil should be removed and disposed of in a stable upland site.
- The fence should be re-installed if water is seeping underneath it or if the fence has become ineffective.
- Silt fence should be removed once vegetation is established and up-slope area has stabilized.

Limitations
- Silt fence may cause temporary ponding and could fail if too much water flows through the area.
- Do not use in areas with concentrated flows.
- Chance of failure increases if fence is installed incorrectly or if sediment accumulation is not removed.

ROLL JOINTS

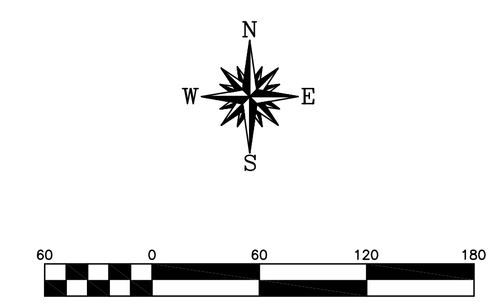


SILT FENCE DETAIL

NOT TO SCALE

SOIL EROSION CONTROL SITE PLAN

SCALE 1" = 60'



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