IOWA DEPARTMENT OF NATURAL RESOURCES

CONSTRUCTION DOCUMENTS
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

DNR PROJECT #22-05-91-01
IDOT PROJECT #SP-601-0(9)--7C-91

IOWA ONE CALL
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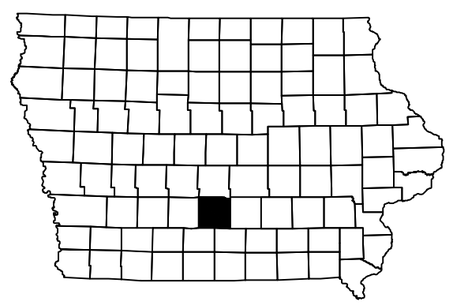

LICENSED PROFESSIONAL ENGINEER
BRETT A. JOHNSON
13653
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA. Brett Johnson 12/28/2021
BRETT A. JOHNSON, IOWA REG. NO. 13653 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
PAGES OR SHEETS COVERED BY THIS SEAL:
SHEETS 1-127

DIRECTORY

PROJECT MANAGER		CONSTRUCTION INSPECTOR	
COMPANY	IOWA DEPT OF NATURAL RESOURCES	COMPANY	IOWA DEPT OF NATURAL RESOURCES
ADDRESS	502 EAST 9TH STREET	ADDRESS	806 E. TRAIL RIDGE PLACE
CITY,STATE,ZIP	DES MOINES, IA 50319	CITY,STATE,ZIP	INDIANOLA, IA 50125
CONTACT	BRETT JOHNSON	CONTACT	JASON KRUSE
TELEPHONE	515-250-3711	TELEPHONE	515-250-3707
FAX		FAX	
EMAIL	brett.johnson@dnr.iowa.gov	EMAIL	jason.kruse@dnr.iowa.gov

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF REMOVAL OF THE EXISTING ASPHALT ROADS, CAMPGROUND CAMP PADS, ELECTRIC SERVICE LINES, DISPOSAL STATIONS AND REMOVAL OF TREES AND VEGETATION THAT ARE IN CONFLICT WITHIN THE WORK ZONE AND INSTALLING NEW PORTLAND CEMENT CONCRETE ROADS, NEW GRAVEL CAMP PADS, ELECTRIC SERVICES, WATER SERVICES, SANITARY SEWER SERVICES, INSTALLING A NEW DISPOSAL STATION AND SEEDING AND MULCHING ALL DISTURBED AREAS LOCATED AT LAKE AHQUABI STATE PARK IN WARREN COUNTY, IOWA.

AUTHORIZATION TO BID

Nick Dellaca — Digitally signed by Nick Dellaca Date: 2021.12.28 13:07:16 -06'00'
AUTHORIZATION - PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY DATE

Travis Baker — Digitally signed by Travis Baker Date: 2021.12.28 13:43:16 -06'00'
ENGINEERING BUREAU CHIEF DATE

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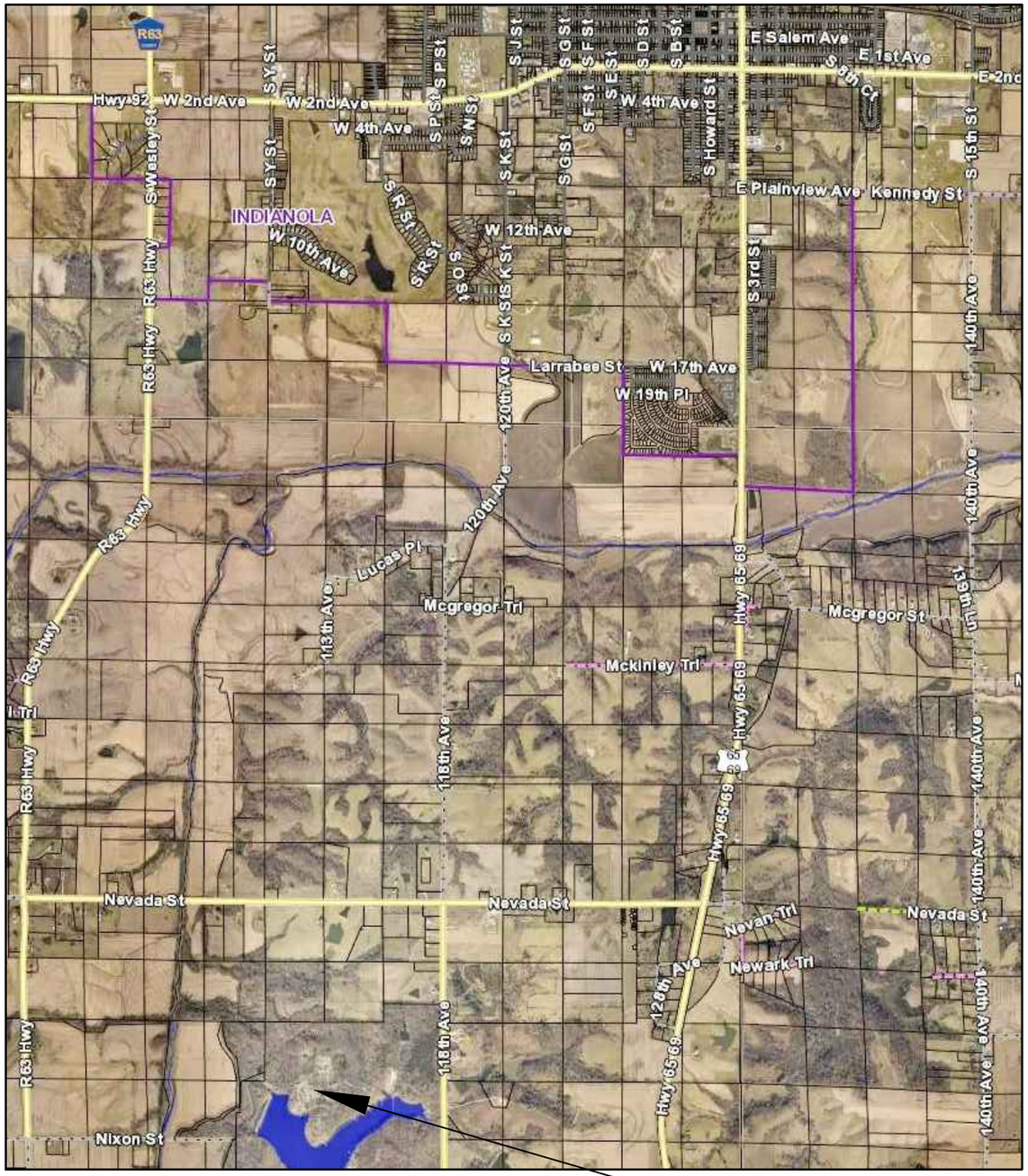
CONSULTANT:

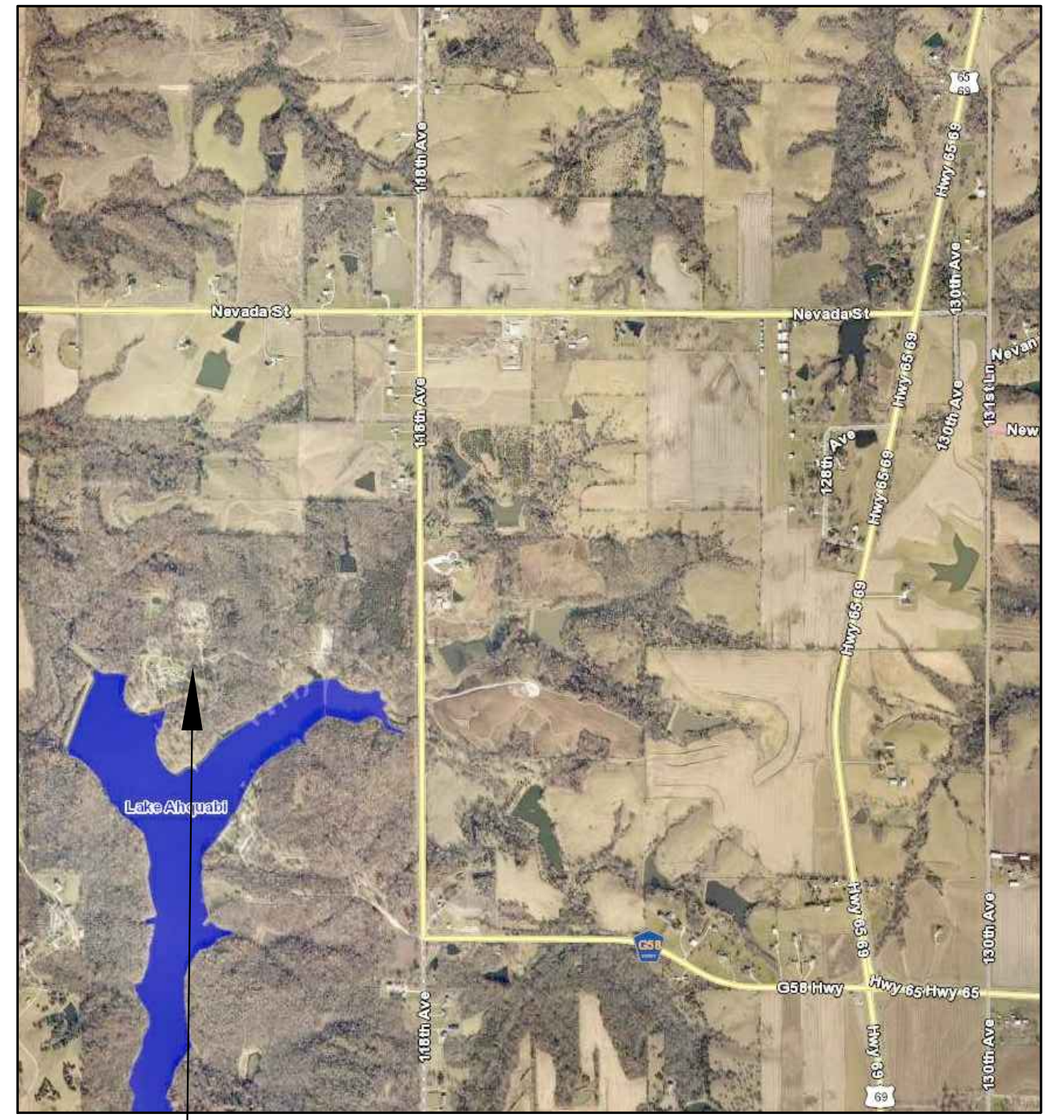
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

COVER SHEET
CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 1





PROJECT LOCATION

PROJECT LOCATION:
16510 118TH AVE
INDIANOLA, IA 50125
COORDINATES: 41°17'45.16"N (41.295878°), 93°35'28.42"W (93.5912278°)

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

VICINITY MAPS

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY: DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 2

ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY	NON-P&I	P&I
1	DEMOLITION	LS	1	0	1
2	CLEARING AND GRUBBING	LS	1	0	1
3	TREE CLEARING	LS	1	0	1
4	FULL DEPTH SAW CUT	LF	48	0	48
5	HMA PAVEMENT REMOVAL	SY	19,930	0	19,930
6	PCC REMOVAL	SY	520	0	520
7	GRADING	LS	1	0	1
8	12-INCH FILTER SOCK	LF	5,220	0	5,220
9	DREDGING OF THE SEWAGE LAGOONS	LS	1	1	0
10	NEW DUPLEX LIFT STATION COMPLETE W/CONTROLS, VALVE PIT & WIRING	LS	1	1	0
11	SANITARY SEWER CONNECTIONS TO EXISTING MANHOLE	EA	1	1	0
12	TYPE SW-301 48" DIAMETER SANITARY MANHOLE W/TYPE 'A' CASTING	EA	15	15	0
13	8-INCH SANITARY SEWER (SDR 26)	LF	294	294	0
14	6-INCH SANITARY SEWER (SDR 23.5)	LF	2,969	2,969	0
15	4-INCH SANITARY SEWER SERVICE (SDR 23.5)	LF	2,112	2,112	0
16	DISPOSAL STATION RV CLEANOUT CONNECTION	EA	1	1	0
17	RV SANITARY SEWER CLEANOUT CONNECTION	EA	52	52	0
18	6"x4" PVC SCHEDULE 40 SERVICE WYE	EA	51	51	0
19	SW-203 SANITARY SEWER CLEANOUT	EA	3	3	0
20	3"x3"x3"x3" HDPE OR PVC CROSS	EA	1	1	0
21	1-INCH HDPE PIPE	LF	2,537	2,537	0
22	2-INCH HDPE PIPE	LF	3,075	3,075	0
23	3-INCH HDPE PIPE	LF	611	611	0
24	2-INCH VALVE WITH CURB STOP	EA	5	5	0
25	3-INCH VALVE WITH CURB STOP	EA	3	3	0
26	WOODFORD MODEL S-3 SANITARY YARD HYDRANT W/DRAIN DOWN PIT (OR APPROVED EQUAL)	EA	57	57	0
27	WOODFORD MODEL S-4H SANITARY YARD HYDRANT W/DRAIN DOWN PIT (OR APPROVED EQUAL)	EA	3	3	0
28	WOODFORD MODEL S-4H SANITARY YARD HYDRANT W/O DRAIN DOWN PIT (OR APPROVED EQUAL)	EA	2	2	0
29	2"x2"x1" HDPE TEE	EA	35	35	0
30	2"x2"x2" HDPE TEE	EA	2	2	0
31	3"x3"x3" HDPE TEE	EA	12	12	0
32	2"x1" HDPE REDUCER	EA	12	12	0
33	3"x2" HDPE REDUCER	EA	15	15	0
34	3-INCH 45° HDPE OR PVC BEND	EA	2	2	0
35	WATER CONNECTION	EA	5	5	0
36	DISINFECTION	LS	1	1	0
37	TYPE SW-401 CIRCULAR CIRCULAR STORM MH W/SW-602 TYPE E CASTING	EA	2	0	2
38	TYPE SW-401 CIRCULAR CIRCULAR STORM MH W/SW-602 TYPE F CASTING	EA	2	0	2
39	TYPE SW-503 SINGLE GRATE INTAKE W/MH & SW-603 TYPE 'R&E' CASTINGS	EA	1	0	1
40	TYPE SW-506 DOUBLE GRATE INTAKE W/MH & SW-603 TYPE 'R&E' CASTINGS	EA	22	0	22
41	TYPE SW-512 CIRCULAR AREA INTAKE W/SW-604 TYPE 3A CASTING	EA	1	0	1
42	TYPE SW-512 CIRCULAR AREA INTAKE W/SW-604 TYPE 3B CASTING	EA	6	0	6

GENERAL NOTES

1. TWO WEEKS PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY:
   A. IOWA DNR PROJECT MANAGER: BRETT JOHNSON 515-250-3711
   B. DISTRICT INSPECTOR: JASON KRUSE 515-250-3707
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS). ALL CONSTRUCTION TESTING TO BE IN ACCORDANCE WITH SUDAS AND IS THE EXPENSE OF THE CONTRACTORS.
3. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ABOVE MENTIONED CONTACTS OF ANY DISCREPANCIES.
4. THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL PUBLIC AND/OR PRIVATE UTILITIES SERVING THE AREA TO DETERMINE THE PRESENT EXTENT AND LOCATION OF THEIR FACILITIES BEFORE BEGINNING WORK.
5. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROPER UTILITY IMMEDIATELY UPON BREAKING OR DAMAGE TO ANY UTILITY LINE OR APPURTENANCE, OR THE INTERRUPTION OF THEIR SERVICE. HE SHALL NOTIFY THE PROPER UTILITY INVOLVED. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED.
6. CONTRACTOR TO PROTECT ALL UTILITY, PAVING, BUILDINGS, ETC. OUTSIDE OF LIMITS OF PROPOSED CONSTRUCTION.
7. IN THE EVENT THAT THERE IS A DISCREPANCY BETWEEN THE QUANTITIES AND THE PLANS, THE DETAILED PLANS SHALL GOVERN.
8. MAINTAIN ALL CUT AND FILL AREAS TO ACCOMMODATE SURFACE DRAINAGE.
9. FINISHED GRADE ON ALL AREAS SHALL BE WITHIN 0.20 FOOT OF PLAN GRADE.
10. TOPSOIL SHALL BE SPREAD TO A MINIMUM THICKNESS OF 4-INCHES ON ALL DISTURBED UNPAVED AREAS ADJACENT TO PAVEMENT.
11. BACKFILL TO THE TOP OF ALL ROCK AND PAVEMENT SURFACES.
12. ALL ELEVATIONS ARE TO FINISH GRADE.
13. PROTECT ALL EXISTING TREES AND VEGETATION UNLESS OTHERWISE NOTED.
14 AN NPDES GENERAL PERMIT #2 WILL BE REQUIRED AS THE PROJECT IS DISTURBING 18.4 ACRES.
15. EARTHWORK QUANTITY IS ROUGHLY 18,000 CY, AND IS ROUGHLY BALANCED.
16. CONTRACTOR SHALL HYDRAULICALLY SEED ALL DISTURBED AREAS (APPROXIMATELY 8.5 ACRES). USE TYPE 1 (PERMANENT LAWN MIXTURE) SEED MIX FOR ALL DISTURBED AREAS IN ACCORDANCE WITH SUDAS SECTION 9010.
17. REMOVED TREES CAN BE HAULED DOWN TO THE DRAINED LAKE BED AND BURNED. FISHERIES DEPARTMENT MAY TAKE A FEW TREES TO BE SUBMERGED AND ANCHORED ON THE LAKE BOTTOM. COORDINATE WITH THE DNR INSPECTOR.
18. TOTAL COST ESTIMATE FOR THE FUNDING OF THE PROJECT IS $3,783,316.10 OF WHICH $1,451,515.60 IS NON-P&I ITEMS AND $2,331,800.50 IS P&I ITEMS.
19. THE ENTRANCE ROAD LEADING TO THE CAMPGROUND IS GOING TO BE REPLACED UNDER ANOTHER PROJECT (TO BE BID IN MAY/JUNE, 2022 APPROXIMATELY). THE DEMOLITION AND CONSTRUCTION OF THIS ENTRANCE ROAD CANNOT OCCUR UNTIL THE ROADS IN THE CAMPGROUND ARE COMPLETED. THE CONTRACTOR FOR THIS CAMPGROUND PROJECT WILL NEED TO COORDINATE CONSTRUCTION TIMELINES AND ACTIVITIES WITH THE CONTRACTOR WHO IS AWARDED THE CONTRACT FOR THE ENTRANCE ROAD.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM DESCRIPTION
1	DEMOLITION - CONTRACTOR TO DEMOLISH AND REMOVE CHECK-IN BUILDING AND 3 OTHER BUILDINGS AS DETAILED ON SHEETS #9, 11 AND 13. CONTRACTOR TO REMOVE BUILDINGS ENTIRELY FROM SITE AND LEGALLY DISPOSED PER LOCAL CODES AND REGULATIONS. CONTRACTOR TO CAP ALL UTILITIES.
2	CLEARING AND GRUBBING - CONTRACTOR TO CLEAR AND GRUB THE PROJECT SITE CONSISTING OF, BUT NOT LIMITED TO: 84 OUTLET POSTS (SALVAGE), 11,010 SY CAMPPAD GRAVEL, FIRE RINGS, EXISTING SIGNAGE, 16 CULVERTS, 2 DISPOSAL STATIONS, 4 HYDRANTS AND PADS, 517 LF CLAY SANITARY SEWER PIPE (SEE SANITARY SEWER PLANS), 2 LIGHT POLES, APPROXIMATELY 150 LF FENCING, PLAYGROUND AND EQUIPMENT AS DETAILED ON SHEETS #6-12 AND DISPOSE OF PROPERLY OFF-SITE IN ACCORDANCE WITH ALL RULES AND REGULATIONS.
3	TREE CLEARING - CONTRACTOR TO CLEAR APPROXIMATELY 1.55 ACRES AND 191 INDIVIDUAL TREES AS DETAILED ON SHEETS #6-12, INSPECTOR MAY REQUIRE ADDITIONAL TREES REMOVED IF THEY ARE IN CONFLICT WITH CONSTRUCTION ACTIVITIES. TREES WILL DOWNED BY STAFF PRIOR TO BAT HABITATION.
4	FULL DEPTH SAW CUT - CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT FULL DEPTH IN THE LOCATION SHOWN ON SHEET #12.
5	HMA REMOVAL - CONTRACTOR SHALL REMOVE THE EXISTING HMA CAMPGROUND ROADS AS DETAILED ON SHEETS #6-12. THE 19,930 SY HMA ROADS ARE ASSUMED TO BE AN AVERAGE OF 5-INCHES OF THICKNESS WHICH WILL YIELD APPROXIMATELY 4,750 TONS OF MATERIAL WHICH CAN BE CRUSHED AND USED AS GRANULAR SUBBASE FOR THE PAVEMENT IN ACCORDANCE WITH IDOT SECTION 4132.
6	PCC REMOVAL - CONTRACTOR SHALL REMOVE THE EXISTING PCC AS DETAILED ON SHEETS #6-12. CONTRACTOR CAN USE REMOVED PCC FOR RIPRAP AT THE LAKE OUTLET IN THE LOCATION SHOWN ON SHEET #44. REMOVED CONCRETE SHALL BE FREE OF ANY REBAR AND PLACED BELOW THE NORMAL LAKE ELEVATION (858.2').
7	GRADING - CONTRACTOR SHALL GRADE THE SITE (APPROXIMATELY 18,000 CY OF CUT/FILL) AS DETAILED ON SHEETS #67-79. TOPSOIL TO BE STRIPPED AND STOCKPILED AND RESPREAD TO A MINIMUM DEPTH OF 4-INCHES. EXISTING CAMP PAD GRAVEL MATERIAL CAN BE USED AS BASE FILL MATERIAL BELOW NEW CAMP PAD LOCATIONS AND IN DEEPER FILL LOCATIONS (LIKE CAMPPADS #89-93). ANY EXCESS CUT CAN BE WASTED OVER THE SITE.
8	12-INCH FILTER SOCK - CONTRACTOR TO INSTALL FILTER SOCK AS DETAILED ON SHEETS #37-45.
9	DREDGING OF THE SEWAGE LAGOONS - CONTRACTOR TO DREDGE THE SEWAGE LAGOONS FOR SLUDGE REMOVAL. QUANTITY OF MATERIAL IS ESTIMATED TO BE 130,000 GALLONS. SEE SHEET #13 AND SPECIFICATIONS FOR DETAILS.
10	NEW DUPLEX LIFT STATION COMPLETE W/CONTROLS, VALVE PIT & WIRING - CONTRACTOR TO INSTALL NEW LIFT STATION AS DETAILED ON SHEETS #26 & 27. CONTRACTOR TO INSTALL ALL ITEMS SHOWN AND MAKE ALL NECESSARY CONNECTIONS INCLUDING ELECTRICAL WIRING CONNECTIONS.
11	SANITARY SEWER CONNECTIONS TO EXISTING STRUCTURES - INSTALL SANITARY SEWER CONNECTIONS AS DETAILED ON SHEETS #13-27.
12	TYPE SW-301 48" DIAMETER MANHOLE WITH TYPE 'A' CASTING - INSTALL SANITARY SEWER MANHOLES AS DETAILED ON SHEETS #13-25.
13	8-INCH SANITARY SEWER (SDR 26) - INSTALL 8-INCH SANITARY SEWER WITH LOCATOR TAPE AS DETAILED ON SHEET #13-27.
14	6-INCH SANITARY SEWER (SDR 23.5) - INSTALL 6-INCH SANITARY SEWER WITH LOCATOR TAPE AS DETAILED ON SHEET #13-27.
15	4-INCH SANITARY SEWER SERVICE (SDR 23.5) - INSTALL 4-INCH SANITARY SEWER WITH LOCATOR TAPE AS DETAILED ON SHEET #13-27.
16	DISPOSAL STATION RV CLEANOUT CONNECTION - CONTRACTOR SHALL INSTALL DISPOSAL STATION RV CLEANOUT CONNECTION AS DETAILED ON SHEETS #13-14.
17	RV SANITARY SEWER CLEANOUT CONNECTION - CONTRACTOR SHALL INSTALL RV SANITARY SEWER CONNECTIONS FOR THE CAMPPADS AS DETAILED ON SHEETS #13-25.
18	6"x4" PVC SCHEDULE 40 SERVICE WYE - CONTRACTOR SHALL INSTALL 6"x4" SERVICE WYES AS SHOWN ON SHEETS #13-25.
19	SW-203 SANITARY SEWER CLEANOUT - INSTALL SANITARY SEWER CLEANOUTS AS DETAILED ON SHEETS #13-25.
20	3"x3"x3"x3" HDPE OR PVC CROSS - CONTRACTOR SHALL INSTALL 3"x3"x3"x3" HDPE OR PVC CROSS AS DETAILED ON SHEET #29.
21	1-INCH HDPE PIPE - CONTRACTOR SHALL INSTALL 1-INCH HDPE WITH TRACER WIRE AS DETAILED ON SHEETS #28-34.
22	2-INCH HDPE PIPE - CONTRACTOR SHALL INSTALL 2-INCH HDPE WITH TRACER WIRE AS DETAILED ON SHEET #28-34.
23	3-INCH HDPE PIPE - CONTRACTOR SHALL INSTALL 3-INCH HDPE WITH TRACER WIRE AS DETAILED ON SHEET #28-34.
24	2-INCH VALVE WITH CURB STOP - CONTRACTOR SHALL INSTALL 2-INCH VALVE & CURB BOX (MUELLER #E-25142N OR SIMILAR) AS DETAILED ON SHEETS #28-34.
25	3-INCH VALVE WITH CURB STOP - CONTRACTOR SHALL INSTALL 3-INCH VALVE & CURB BOX (MUELLER #E-25142N OR SIMILAR) AS DETAILED ON SHEETS #28-34.
26	WOODFORD MODEL S-3 SANITARY YARD HYDRANT W/DRAIN DOWN PIT - CONTRACTOR TO INSTALL WOODFORD MODEL S-3 SANITARY YARD HYDRANT (INCLUDING CURB STOP, CONCRETE PAD, DRAIN ASSEMBLY, DRAIN PIT, ETC - SEE DETAIL ON SHEET #28) IN LOCATIONS SHOWN ON SHEETS #28-34.
27	WOODFORD MODEL S-4H ADA SANITARY YARD HYDRANT W/DRAIN DOWN PIT - CONTRACTOR TO INSTALL WOODFORD MODEL S-4 SANITARY YARD HYDRANT (INCLUDING CURB STOP, CONCRETE PAD, DRAIN ASSEMBLY, DRAIN PIT, ETC - SEE DETAIL ON SHEET #28) IN LOCATIONS SHOWN ON SHEETS #28-34.
28	WOODFORD MODEL S-4H ADA SANITARY YARD HYDRANT W/O DRAIN DOWN PIT - CONTRACTOR TO INSTALL WOODFORD MODEL S-4 SANITARY YARD HYDRANT (INCLUDING CURB STOP AND BOX, ETC - SEE DETAIL ON SHEET #28) IN DISPOSAL ISLAND LOCATION SHOWN ON SHEET #32.
29	2"x2"x1" HDPE TEE - CONTRACTOR SHALL INSTALL 2"x2"x1" HDPE TEE AS DETAILED ON SHEETS #28-34.
30	2"x2"x2" HDPE TEE - CONTRACTOR SHALL INSTALL 2"x2"x2" HDPE TEE AS DETAILED ON SHEETS #28-34.
31	3"x3"x3" HDPE TEE - CONTRACTOR SHALL INSTALL 3"x3"x3" HDPE TEE AS DETAILED ON SHEETS #28-34.
32	2"x1" HDPE REDUCER - CONTRACTOR SHALL INSTALL 2"x1" HDPE REDUCER AS DETAILED ON SHEETS #28-34.
33	3"x2" HDPE REDUCER - CONTRACTOR SHALL INSTALL 3"x2" HDPE REDUCER AS DETAILED ON SHEETS #28-34.
34	3-INCH 45° HDPE OR PVC BEND - CONTRACTOR SHALL INSTALL 3-INCH 45° HDPE OR PVC BEND AS DETAILED ON SHEET #31.
35	WATER CONNECTION - CONTRACTOR TO CONNECT TO EXISTING WATER LINES AS DETAILED ON SHEETS #28-34.
36	DISINFECTION - COST OF DISINFECTION OF THE WATER LINES IN ACCORDANCE TO SUDAS.
37	TYPE SW-401 CIRCULAR CIRCULAR STORM MH W/SW-602 TYPE E CASTING - CONTRACTOR TO INSTALL TYPE SW-401 CIRCULAR CIRCULAR STORM MH W/SW-602 TYPE E CASTING AS SHOWN ON SHEETS #35-45.
38	TYPE SW-401 CIRCULAR CIRCULAR STORM MH W/SW-602 TYPE F CASTING - CONTRACTOR TO INSTALL TYPE SW-401 CIRCULAR CIRCULAR STORM MH W/SW-602 TYPE F CASTING AS SHOWN ON SHEETS #35-45.
39	TYPE SW-503 SINGLE GRATE INTAKE W/MH & SW-603 TYPE 'R&E' CASTINGS - CONTRACTOR TO INSTALL TYPE SW-503 SINGLE GRATE INTAKE W/MH & SW-603 TYPE 'R&E' CASTINGS AS SHOWN ON SHEETS #35-45.
40	TYPE SW-506 DOUBLE GRATE INTAKE W/MH & SW-603 TYPE 'R&E' CASTINGS - CONTRACTOR TO INSTALL TYPE SW-506 DOUBLE GRATE INTAKE W/MH & SW-603 TYPE 'R&E' CASTINGS AS SHOWN ON SHEETS #35-45.
41	TYPE SW-512 CIRCULAR AREA INTAKE W/SW-604 TYPE 3A CASTING - CONTRACTOR TO INSTALL TYPE SW-512 CIRCULAR AREA INTAKE W/SW-604 TYPE 3A CASTING AS SHOWN ON SHEETS #35-45.
42	TYPE SW-512 CIRCULAR AREA INTAKE W/SW-604 TYPE 3B CASTING - CONTRACTOR TO INSTALL TYPE SW-512 CIRCULAR AREA INTAKE W/SW-604 TYPE 3B CASTING AS SHOWN ON SHEETS #35-45.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

QUANTITIES & GENERAL NOTES

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 3

ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY	NON-P&I	P&I
43	TYPE SW-513 OPEN SIDED INTAKE W/SW-602 TYPE G CASTING	EA	2	0	2
44	4-INCH SLOTTED PVC SUBDRAIN	LF	213	0	213
45	SUBDRAIN CLEANOUT TYPE A-2	EA	6	0	6
46	12-INCH RCP CLASS III	LF	1,999.7	0	1,999.7
47	15-INCH RCP CLASS III	LF	854.7	0	854.7
48	18-INCH RCP CLASS III	LF	832.6	0	832.6
49	30-INCH RCP CLASS III	LF	427.4	0	427.4
50	18-INCH RCP CLASS III FES W/FOOTING & APRON GUARD	EA	1	0	1
51	30-INCH RCP CLASS III FES W/FOOTING & APRON GUARD	EA	1	0	1
52	20"(L)x36"(W)x48"(D) FOOTING LOCATED AT LAKE OUTLET	EA	2	0	2
53	PROCO SERIES 730 PROFLEX RUBBER CHECK VALVE (SLEEVE TYPE) (OR APPROVED EQUAL)	EA	2	0	2
54	FLEXSTORM #62LCBFX INLET FILTER (OR APPROVED EQUAL)	EA	46	0	46
55	FLEXSTORM #62MRDFX INLET FILTER (OR APPROVED EQUAL)	EA	16	0	16
56	CLASS 'D' RIPRAP	TONS	75	0	75
57	4'x4' SCOURSTOP TRANSITION MAT (WITH ANCHORS) (OR APPROVED EQUAL)	EA	32	0	32
58	PYRAMAT 75 HPTRM (OR APPROVED EQUAL)	SY	187	0	187
59	SHREDDED HARDWOOD MULCH	CY	10.4	0	10.4
60	MODIFIED SOIL	CY	125	0	125
61	3/8-INCH DIA CLEAN AGGREGATE	CY	10.4	0	10.4
62	1 TO 2 INCH CLEAN AGGREGATE	CY	62	0	62
63	SINGLE CAMPSITE OUTLET POST-50 AMP	EA	93	93	0
64	NO. 2 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE	LF	7,658	7,658	0
65	NO. 4 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE	LF	807	807	0
66	NO. 6 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE	LF	288	288	0
67	NO. 350 MCM SINGLE CONDUCTOR CABLE, TYPE USE	LF	2,640	2,640	0
68	NO. 300 MCM SINGLE CONDUCTOR CABLE, TYPE USE	LF	4,056	4,056	0
69	NO. 250 MCM SINGLE CONDUCTOR CABLE, TYPE USE	LF	9,177	9,177	0
70	NO. 4/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE	LF	7,101	7,101	0
71	NO. 3/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE	LF	1,521	1,521	0
72	NO. 2/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE	LF	900	900	0
73	NO. 1/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE	LF	864	864	0
74	ROADWAY CROSSING 3.5-INCH CONDUIT SCHEDULE 80 PVC	LF	27	27	0
75	ROADWAY CROSSING 3-INCH CONDUIT SCHEDULE 80 PVC	LF	229	229	0
76	ROADWAY CROSSING 2.5-INCH CONDUIT SCHEDULE 80 PVC	LF	616	616	0
77	ROADWAY CROSSING 2-INCH CONDUIT SCHEDULE 80 PVC	LF	228	228	0
78	ROADWAY CROSSING 1.5-INCH CONDUIT SCHEDULE 80 PVC	LF	25	25	0
79	DETECTABLE WARNING TAPE, 3-INCH ELECTRIC	LF	6,938	6,938	0
80	TRENCH, SINGLE CIRCUIT SECONDARY	LF	7,948	7,948	0
81	200 AMP CIRCUIT BREAKER	EA	12	12	0
82	175 AMP CIRCUIT BREAKER	EA	3	3	0
83	150 AMP CIRCUIT BREAKER	EA	2	2	0
84	ELECTRICAL CONNECTION TO CHECK-IN KIOSK AND LED LIGHT	LS	1	1	0
85	SPECIAL BACKFILL/GRANULAR BASE	TONS	9,140.6	510.6	8,630
86	6-INCH NON-REINFORCED PCC	SY	1,681.6	1,681.6	0
87	7-INCH NON-REINFORCED PCC	SY	25,962	0	25,962
88	6-INCH STANDARD PCC CURB AND 2-INCH DROP PCC CURB	LF	3,434	0	3,434
89	DISPOSAL ISLAND PAVEMENT	LS	1	0	1
90	GRANULAR BASE-SIDEWALKS	TONS	71.3	71.3	0
91	5-INCH NON-REINFORCED PCC SIDEWALKS	SY	348.5	348.5	0
92	0.5-INCH EXPANSION JOINT	LF	238	224	14
93	ENGINEERING FABRIC	SY	14,995	14,995	0
94	MACADAM STONE	TONS	2,924	2,924	0
95	CLASS 'A' CRUSHED STONE	TONS	1,762	1,762	0
96	4'x4'x5.5" REINFORCED PCC FIRE RING	EA	93	93	0
97	TRAFFIC CONTROL	EA	1	0	1
98	SEEDING, FERTILIZING AND MULCHING	AC	8.5	0	8.5
99	STREET SIGNAGE	LS	1	0	1
100	HANDICAP PARKING SIGNAGE	LS	1	1	0
101	STREET PAVEMENT MARKINGS	LS	1	0	1
102	PARKING SPACE PAVEMENT STRIPING, HANDICAP PARKING CROSS HATCH MARKINGS	LS	1	1	0
103	6' CONCRETE PARKING WHEEL STOPS	EA	7	7	0
104	8' CONCRETE PARKING WHEEL STOPS	EA	6	6	0
105	ENTRY KIOSK	LS	1	1	0
106	CONSTRUCTION SURVEY STAKING AND AS-BUILT SURVEY	EA	1	0	1
107	NPDES GENERAL PERMIT #2 & SWPPP	LS	1	0	1
108	MOBILIZATION	LS	1	0	1

ESTIMATE REFERENCE INFORMATION

ITEM NO.	
43	TYPE SW-513 OPEN SIDED INTAKE W/SW-602 TYPE G CASTING - CONTRACTOR TO INSTALL TYPE SW-513 OPEN SIDED INTAKE W/SW-602 TYPE G CASTING AS SHOWN ON SHEET #44.
44	4-INCH SLOTTED PVC SUBDRAIN - CONTRACTOR TO INSTALL 4-INCH SLOTTED PVC SUBDRAIN AS SHOWN ON SHEET #44.
45	SUBDRAIN CLEANOUT TYPE A-2 - CONTRACTOR TO INSTALL SUBDRAIN CLEANOUT TYPE A-2 AS SHOWN ON SHEET #44.
46	12-INCH RCP CLASS III - CONTRACTOR TO INSTALL 12-INCH RCP CLASS III AS SHOWN ON SHEETS #35-45.
47	15-INCH RCP CLASS III - CONTRACTOR TO INSTALL 15-INCH RCP CLASS III AS SHOWN ON SHEETS #35-45.
48	18-INCH RCP CLASS III - CONTRACTOR TO INSTALL 18-INCH RCP CLASS III AS SHOWN ON SHEETS #35-45.
49	30-INCH RCP CLASS III - CONTRACTOR TO INSTALL 30-INCH RCP CLASS III AS SHOWN ON SHEETS #35-45.
50	18-INCH RCP CLASS III FES W/FOOTING & APRON GUARD - CONTRACTOR TO INSTALL 18-INCH RCP CLASS III FES W/FOOTING & APRON GUARDS AS SHOWN ON SHEET #40.
51	30-INCH RCP CLASS III FES W/FOOTING & APRON GUARDS - CONTRACTOR TO INSTALL 30-INCH RCP CLASS III FES W/FOOTING & APRON GUARDS AS SHOWN ON SHEET #36.
52	20"(L)x36"(W)x48"(D) FOOTING LOCATED AT LAKE OUTLET - CONTRACTOR TO INSTALL 20"(L)x36"(W)x48"(D) FOOTING LOCATED AT LAKE OUTLET AS SHOWN ON SHEET #44.
53	PROCO SERIES 730 PROFLEX RUBBER CHECK VALVE (SLEEVE TYPE) - CONTRACTOR TO INSTALL PROCO SERIES 730 PROFLEX RUBBER CHECK VALVE (SLEEVE TYPE) LOCATED AT LAKE OUTLET AS SHOWN ON SHEET #44.
54	FLEXSTORM #62LCBFX INLET FILTER - CONTRACTOR TO INSTALL FLEXSTORM #62LCBFX INLET FILTER AS SHOWN ON SHEETS #35-45. (23 EXTRAS ARE TO BE GIVEN TO INSPECTOR)
55	FLEXSTORM #62MRDFX INLET FILTER - CONTRACTOR TO INSTALL FLEXSTORM #62MRDFX INLET FILTER AS SHOWN ON SHEETS #35-45. (8 EXTRAS ARE TO BE GIVEN TO INSPECTOR)
56	CLASS 'D' RIPRAP - CONTRACTOR TO INSTALL CLASS 'D' RIPRAP AS SHOWN ON SHEET #44.
57	4'x4' SCOURSTOP TRANSITION MAT (WITH ANCHORS) - CONTRACTOR TO INSTALL 4'x4' SCOURSTOP TRANSITION MAT (WITH ANCHORS) AS SHOWN ON SHEET #44.
58	PYRAMAT 75 HPTRM - CONTRACTOR TO INSTALL PYRAMAT 75 HPTRM AS SHOWN ON SHEET #44.
59	SHREDDED HARDWOOD MULCH - CONTRACTOR TO INSTALL SHREDDED HARDWOOD MULCH IN THE BIO-RETENTION CELL AS SHOWN ON SHEET #44.
60	MODIFIED SOIL - CONTRACTOR TO INSTALL MODIFIED SOIL IN THE BIO-RETENTION CELL AS SHOWN ON SHEET #44.
61	3/8-INCH DIA CLEAN AGGREGATE - CONTRACTOR TO INSTALL 3/8-INCH DIA CLEAN AGGREGATE IN THE BIO-RETENTION CELL AS SHOWN ON SHEET #44.
62	1 TO 2 INCH CLEAN AGGREGATE - CONTRACTOR TO INSTALL 1 TO 2 INCH CLEAN AGGREGATE IN THE BIO-RETENTION CELL AS SHOWN ON SHEET #44.
63	SINGLE CAMPSITE OUTLET POST-50 AMP - CONTRACTOR TO INSTALL SINGLE CAMPSITE OUTLET POST-50 AMP AS SHOWN ON SHEETS #46-66.
64	NO. 2 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE - CONTRACTOR TO INSTALL NO. 2 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE AS SHOWN ON SHEETS #46-66.
65	NO. 4 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE - CONTRACTOR TO INSTALL NO. 4 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE AS SHOWN ON SHEETS #46-66.
66	NO. 6 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE - CONTRACTOR TO INSTALL NO. 6 AWG GROUNDING CONDUCTOR CABLE, TYPE THW OR USE AS SHOWN ON SHEETS #46-66.
67	NO. 350 MCM SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 350 MCM SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
68	NO. 300 MCM SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 300 MCM SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
69	NO. 250 MCM SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 250 MCM SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
70	NO. 4/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 4/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
71	NO. 3/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 3/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
72	NO. 2/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 2/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
73	NO. 1/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE - CONTRACTOR TO INSTALL NO. 1/0 AWG SINGLE CONDUCTOR CABLE, TYPE USE AS SHOWN ON SHEETS #46-66.
74	ROADWAY CROSSING 3.5-INCH CONDUIT SCHEDULE 80 PVC - CONTRACTOR TO INSTALL ROADWAY CROSSING 3.5-INCH CONDUIT SCHEDULE 80 PVC AS SHOWN ON SHEETS #46-66.
75	ROADWAY CROSSING 3-INCH CONDUIT SCHEDULE 80 PVC - CONTRACTOR TO INSTALL ROADWAY CROSSING 3-INCH CONDUIT SCHEDULE 80 PVC AS SHOWN ON SHEETS #46-66.
76	ROADWAY CROSSING 2.5-INCH CONDUIT SCHEDULE 80 PVC - CONTRACTOR TO INSTALL ROADWAY CROSSING 2.5-INCH CONDUIT SCHEDULE 80 PVC AS SHOWN ON SHEETS #46-66.
77	ROADWAY CROSSING 2-INCH CONDUIT SCHEDULE 80 PVC - CONTRACTOR TO INSTALL ROADWAY CROSSING 2-INCH CONDUIT SCHEDULE 80 PVC AS SHOWN ON SHEETS #46-66.
78	ROADWAY CROSSING 1.5-INCH CONDUIT SCHEDULE 80 PVC - CONTRACTOR TO INSTALL ROADWAY CROSSING 1.5-INCH CONDUIT SCHEDULE 80 PVC AS SHOWN ON SHEETS #46-66.
79	DETECTABLE WARNING TAPE, 3-INCH ELECTRIC - CONTRACTOR TO INSTALL DETECTABLE WARNING TAPE, 3-INCH ELECTRIC AS SHOWN ON SHEETS #46-66.
80	TRENCH, SINGLE CIRCUIT SECONDARY - CONTRACTOR TO INSTALL TRENCH, SINGLE CIRCUIT SECONDARY AS SHOWN ON SHEETS #46-66.
81	200 AMP CIRCUIT BREAKER - CONTRACTOR TO INSTALL 200 AMP CIRCUIT BREAKER AS SHOWN ON SHEETS #46-66.
82	175 AMP CIRCUIT BREAKER - CONTRACTOR TO INSTALL 175 AMP CIRCUIT BREAKER AS SHOWN ON SHEETS #46-66.
83	150 AMP CIRCUIT BREAKER - CONTRACTOR TO INSTALL 150 AMP CIRCUIT BREAKER AS SHOWN ON SHEETS #46-66.
84	ELECTRICAL CONNECTION TO CHECK-IN KIOSK AND LED LIGHT - CONTRACTOR TO INSTALL POLE MOUNTED PARKING LED FIXTURE, PRECAST BASE, LED CANOPY LIGHT IN ENTRY KIOSK, CONDUITS AND THE ELECTRICAL CONNECTIONS TO BOTH THE LIGHT POLE FIXTURE AND THE CHECK-IN KIOSK LIGHT AS SHOWN ON SHEET #52. THIS IS A LUMP SUM BID ITEM FOR ALL.
85	SPECIAL BACKFILL/GRANULAR BASE - CONTRACTOR SHALL INSTALL 6-INCH SPECIAL BACKFILL OR GRANULAR BASE FOR THE ROADWAY BASE & PCC PARKING AREAS IN ACCORDANCE WITH IDOT SECTION 4132. SPECIAL BACKFILL CAN BE CRUSHED HMA (HMA THAT WAS REMOVED IN BID ITEM #4) IN ACCORDANCE WITH IDOT 4132.04.
86	6-INCH NON-REINFORCED PCC - CONTRACTOR TO INSTALL 6-INCH NON-REINFORCED PCC FOR THE PARKING AREAS AND ADA AND HOST CAMPPADS AS SHOWN ON SHEETS #68, 71, 72, 74, 75, 85, 88, 115 AND 119.
87	7-INCH NON-REINFORCED PCC - CONTRACTOR TO INSTALL 7-INCH NON-REINFORCED PCC FOR THE ROADWAYS AS DETAILED IN THE PLANS ON SHEETS #81-120.
88	6-INCH STANDARD CURB AND 2-INCH DROP CURB - CONTRACTOR TO INSTALL 6-INCH STANDARD CURB AND 2-INCH DROP CURB AS DETAILED IN THE PLANS ON SHEETS #81-120. THERE IS 2,518 LF OF 6-INCH STANDARD CURB AND 956 LF OF 2-INCH DROP CURB.
89	DISPOSAL ISLAND PAVEMENT - CONTRACTOR TO INSTALL DISPOSAL ISLAND PAVEMENT AS DETAILED IN THE PLANS ON SHEET #89. LUMP SUM BID ITEM TO INCLUDE 59 LF 6-INCH STANDARD CURB, 13.3 SY 6-INCH REINFORCED PCC PAVEMENT AND 5 TONS GRANULAR BASE.
90	GRANULAR BASE-SIDEWALKS - CONTRACTOR TO INSTALL 4-INCH GRANULAR BASE FOR PCC SIDEWALKS AS DETAILED IN THE PLANS.
91	5-INCH NON-REINFORCED PCC SIDEWALKS - CONTRACTOR TO INSTALL 5-INCH NON-REINFORCED PCC SIDEWALKS AS DETAILED IN THE PLANS.
92	0.5-INCH EXPANSION JOINT - CONTRACTOR TO INSTALL 0.5-INCH EXPANSION JOINT AROUND SHOWER BUILDINGS AND ABUTTING BOAT RAMP PAVEMENT AS DETAILED IN THE PLANS.
93	ENGINEERING FABRIC - CONTRACTOR SHALL INSTALL ENGINEERING FABRIC, MIRAFI 600X OR APPROVED EQUAL, BELOW CAMP PADS AS LOCATED IN THE PLANS. FABRIC SHALL CONFORM TO IOWA DOT SPECIFICATION SECTION 4196.01.
94	MACADAM STONE - CONTRACTOR TO INSTALL 4-INCH DEPTH MACADAM STONE ON TOP OF ENGINEERING FABRIC IN CAMP PADS AS LOCATED IN THE PLANS. MATERIAL SHALL CONFORM TO IOWA DOT SPECIFICATION SECTION 4122.02.
95	CLASS 'A CRUSHED STONE - CONTRACTOR TO INSTALL 2-INCHES OF CLASS 'A CRUSHED STONE ON TOP OF MACADAM STONE IN CAMP PADS AND 2-INCHES ON TOP OF EXISTING GRAVEL IN PARKING AREA AT END OF SHELTER ROAD AS LOCATED IN THE PLANS. THIS QUANTITY INCLUDES AN ADDITIONAL 10% TO ALLOW FOR COMPACTION.
96	4'x4x5.5" PCC FIRE RING - CONTRACTOR TO INSTALL 4'x4'x5.5" PCC FIRE RINGS FOR EACH CAMP PAD. SEE DETAIL ON SHEET #73. COORDINATE LOCATIONS WITH THE DNR INSPECTOR.
97	TRAFFIC CONTROL - CONTRACTOR TO INSTALL TYPE III BARRICADES OR SOME OTHER KIND OF ROAD CLOSURE BARRIER AT THE ENTRANCE TO KEEP THE GENERAL PUBLIC FROM ENTERING THE CONSTRUCTION SITE.
98	SEEDING, FERTILIZING AND MULCHING - CONTRACTOR SHALL HYDRAULICALLY SEED ALL DISTURBED AREAS (APPROXIMATELY 8.5 ACRES). USE TYPE 1 (PERMANENT LAWN MIXTURE) SEED MIX IN ACCORDANCE WITH SUDAS SECTION 9010.
99	STREET SIGNAGE - CONTRACTOR TO INSTALL STREET SIGNAGE AS DETAILED IN THE PLANS.
100	HANDICAP PARKING SIGNAGE - CONTRACTOR TO INSTALL HANDICAP PARKING SIGNAGE AS DETAILED IN THE PLANS.
101	STREET PAVEMENT MARKINGS - CONTRACTOR TO INSTALL STREET PAVEMENT MARKINGS AS DETAILED IN THE PLANS (CENTERLINE STRIPING ALONG ENTRANCE CAMPGROUND ROAD AND SHELTER ROAD).
102	PARKING SPACES PAVEMENT STRIPING, HANDICAP PARKING CROSS HATCH MARKINGS - CONTRACTOR TO INSTALL PARKING SPACES PAVEMENT STRIPING, HANDICAP PARKING CROSS HATCH MARKINGS AS DETAILED IN THE PLANS.
103	6' CONCRETE PARKING WHEEL STOPS - CONTRACTOR TO INSTALL 6' CONCRETE PARKING WHEEL STOPS AS DETAILED IN THE PLANS.
104	8' CONCRETE PARKING WHEEL STOPS - CONTRACTOR TO INSTALL 8' CONCRETE PARKING WHEEL STOPS AS DETAILED IN THE PLANS.
105	ENTRY KIOSK - CONTRACTOR TO INSTALL ENTRY KIOSK AS DETAILED IN THE PLANS.
106	CONSTRUCTION SURVEY STAKING AND AS-BUILT SURVEY - CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION SURVEY STAKING AND PROVIDING AN AS-BUILT SURVEY TO THE OWNER UPON COMPLETION OF THE PROJECT.
107	NPDES GENERAL PERMIT #2 & SWPPP - CONTRACTOR SHALL OBTAIN THE NECESSARY NPDES GENERAL PERMIT #2 AS GREATER THAN 1 ACRE OF AREA IS BEING DISTURBED WITH THIS PROJECT AND TO PREPARE A SWPPP IN ACCORDANCE WITH PERMIT #2. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING INSPECTIONS & RECORD KEEPING.
108	MOBILIZATION - COST FOR CONTRACTOR TO MOBILIZE.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

QUANTITIES & GENERAL NOTES

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

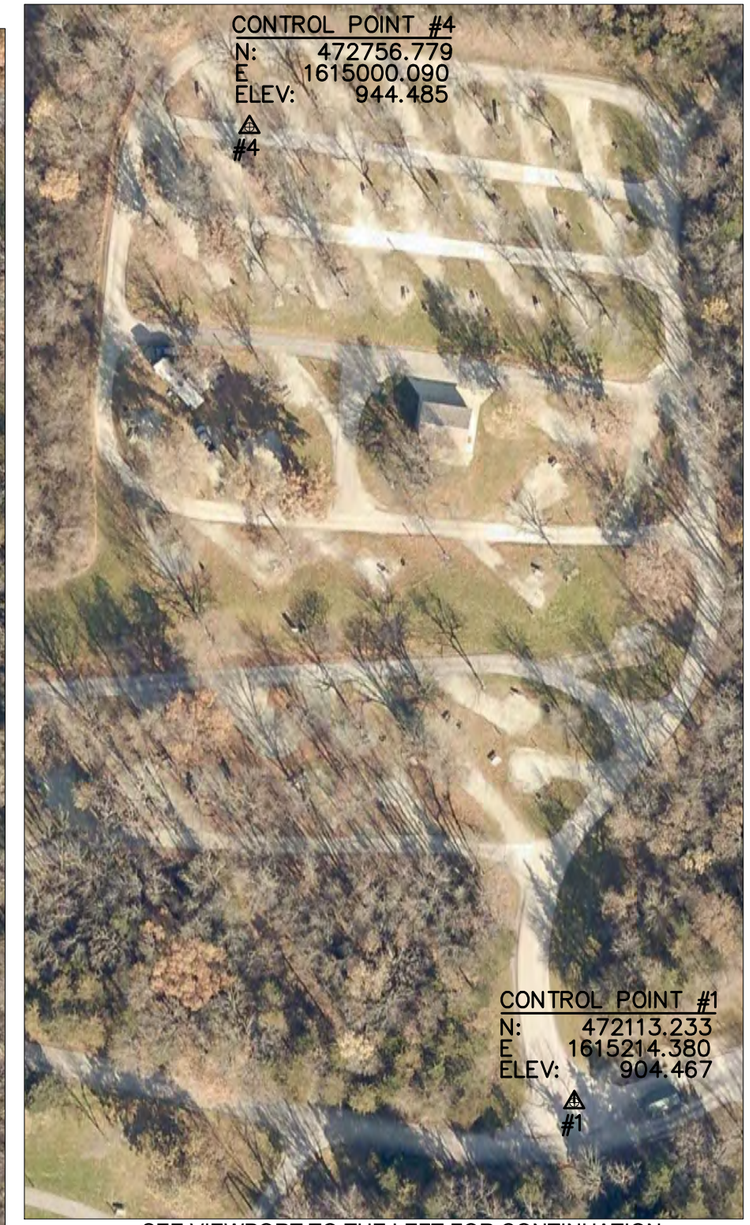
PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 4

SEE VIEWPORT TO THE RIGHT FOR CONTINUATION



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FEET

SURVEY CONTROL NOTES

1. SURVEY CONTROL POINT COORDINATES ARE STATE PLANE.
2. MANY OF THE CONTROL POINTS ARE PK NAILS SET IN THE EXISTING ASPHALT SURFACE WHICH WILL BE REMOVED DURING THE DEMOLITION PHASE, SURVEYOR SHOULD ESTABLISH ADDITIONAL CONTROL POINTS OUTSIDE OF CONSTRUCTION AREAS.
3. SURVEYOR IS RESPONSIBLE FOR CONFIRMING THE ACCURACY OF ANY CONTROL POINTS USED.
4. SURVEY WAS DONE BY SHIVE-HATTERY, INC.

SURVEY CONTROL POINTS

SURVEY CONTROL POINT #1		SURVEY CONTROL POINT #2	
N:	472113.233	N:	471378.896
E:	1615214.380	E:	1614992.130
ELEV:	904.467	ELEV:	884.869
PK NAIL SET IN ASPHALT		PK NAIL SET IN ASPHALT	

SURVEY CONTROL POINT #3		SURVEY CONTROL POINT #4	
N:	471723.515	N:	472756.779
E:	1614550.980	E:	1615000.090
ELEV:	8734.187	ELEV:	944.485
PK NAIL SET IN ASPHALT		PK NAIL SET IN ASPHALT	

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

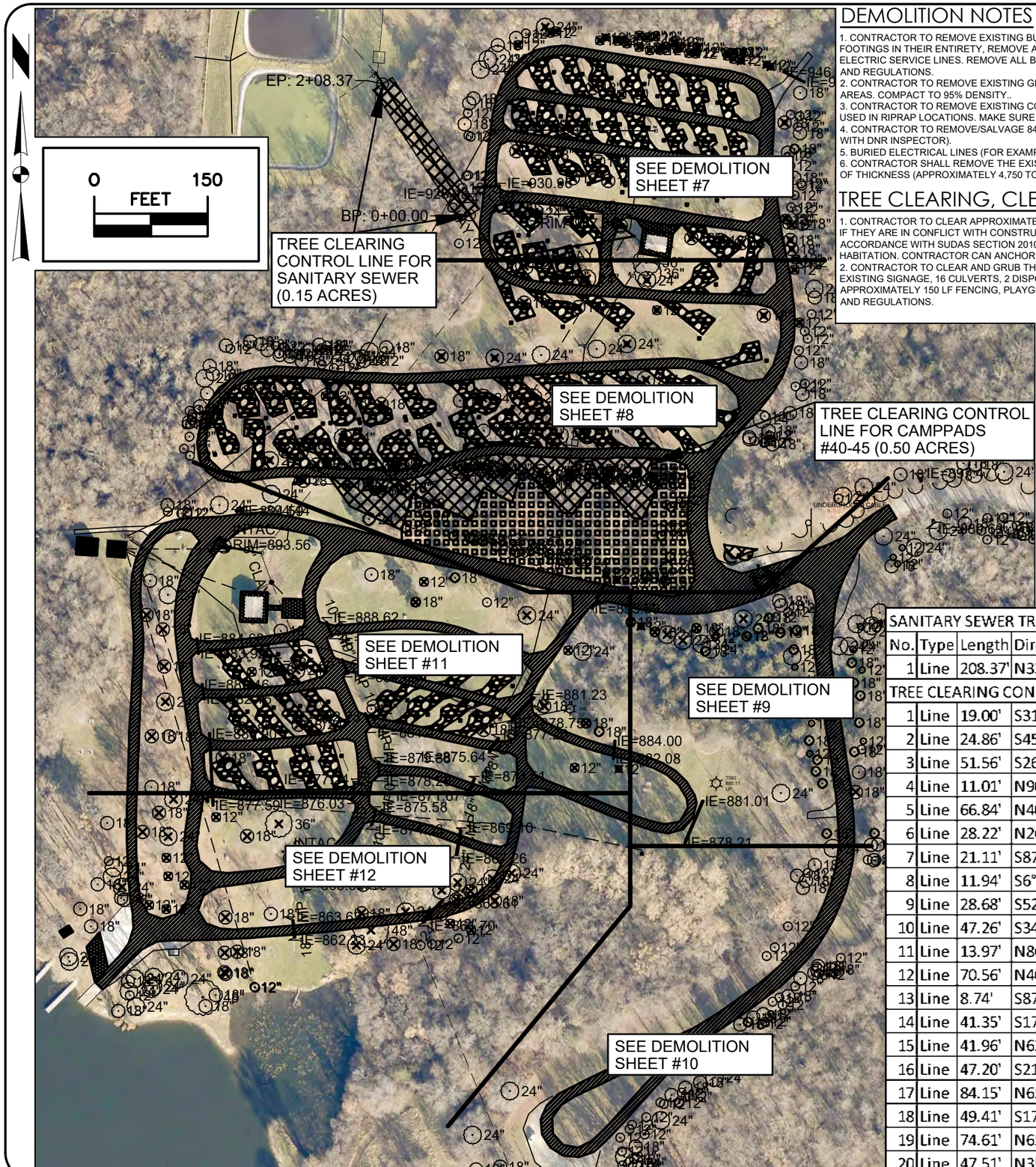
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SURVEY CONTROL

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 5



DEMOLITION NOTES

1. CONTRACTOR TO REMOVE EXISTING BUILDING STRUCTURES WHERE DETAILED. REMOVAL SHALL INCLUDE THE ENTIRE BUILDING STRUCTURE, ROOF, FLOORS, WALLS, FOOTINGS IN THEIR ENTIRETY, REMOVE ALL PAVEMENT, SIDEWALKS, WATER SERVICE LINES (INSTALL WATERPROOF CAPS), SANITARY SEWER SERVICE LINES (CAP) AND ELECTRIC SERVICE LINES. REMOVE ALL BUILDING CONTENTS, DEBRIS, ETC. WITHIN BUILDINGS. CONTRACTOR TO DISPOSE OF PROPERLY IN ACCORDANCE WITH ALL RULES AND REGULATIONS.
2. CONTRACTOR TO REMOVE EXISTING GRAVEL IN AREAS DETAILED (ASSUMED 4 INCH DEPTH). GRAVEL CAN BE USED AS BASE FILL UNDER NEW CAMP PADS AND IN FILL AREAS. COMPACT TO 95% DENSITY..
3. CONTRACTOR TO REMOVE EXISTING CONCRETE SIDEWALKS AND PARKING AREAS AS SHOWN. CONCRETE FROM DEMOLITION AREAS (SIDEWALKS, SLABS, ETC) CAN BE USED IN RIPRAP LOCATIONS. MAKE SURE CONCRETE IS FREE FROM REBAR (IF PRESENT) BEFORE PLACEMENT. COORDINATE LOCATIONS WITH DNR INSPECTOR.
4. CONTRACTOR TO REMOVE/SALVAGE 84 EXISTING 50-AMP ELECTRICAL CAMPSITE OUTLET POSTS (TRANSFER SALVAGED OUTLET POSTS TO PARK PERSONNEL, COORDINATE WITH DNR INSPECTOR).
5. BURIED ELECTRICAL LINES (FOR EXAMPLE BETWEEN CAMPSITE OUTLET POSTS) CAN BE ABANDONED.
6. CONTRACTOR SHALL REMOVE THE EXISTING HMA CAMPGROUND ROAD IN THE AREAS SHOWN. THE HMA CAMPGROUND ROAD IS ASSUMED TO BE AN AVERAGE OF 5-INCHES OF THICKNESS (APPROXIMATELY 4,750 TONS). MAY USE CRUSHED HMA AS SPECIAL BACKFILL FOR THE ROADWAY BASE IN ACCORDANCE WITH IDOT SECTION 4132.

TREE CLEARING, CLEARING & GRUBBING NOTES

1. CONTRACTOR TO CLEAR APPROXIMATELY 0.85 ACRES AND 191 INDIVIDUAL TREES AS DETAILED ON SHEETS #6-12, INSPECTOR MAY REQUIRE ADDITIONAL TREES REMOVED IF THEY ARE IN CONFLICT WITH CONSTRUCTION ACTIVITIES. CONTRACTOR TO REMOVE TREES AS INDICATED, INCLUDING ROOTS, TO A DEPTH OF AT LEAST 12-INCHES IN ACCORDANCE WITH SUDAS SECTION 2010.3.01.C. PLACE BACKFILL TO FILL HOLE AND COMPACT. ALL TREES NEED TO BE REMOVED BEFORE MARCH 31, 2022 PRIOR TO BAT HABITATION. CONTRACTOR CAN ANCHOR REMOVED TREES IN LAKE BOTTOM FOR FISH HABITAT, COORDINATE WITH DNR INSPECTOR FOR LOCATIONS.
2. CONTRACTOR TO CLEAR AND GRUB THE PROJECT SITE CONSISTING OF, BUT NOT LIMITED TO: 84 OUTLET POSTS (SALVAGE), 11,010 SY CAMPPAD GRAVEL, FIRE RINGS, EXISTING SIGNAGE, 16 CULVERTS, 2 DISPOSAL STATIONS, 4 HYDRANTS AND PADS, 517 LF CLAY SANITARY SEWER PIPE (SEE SANITARY SEWER PLANS), 2 LIGHT POLES, APPROXIMATELY 150 LF FENCING, PLAYGROUND AND EQUIPMENT AS DETAILED ON SHEETS #6-12 AND DISPOSE OF PROPERLY OFF-SITE IN ACCORDANCE WITH ALL RULES AND REGULATIONS.

LEGEND

EXISTING/PROPOSED

—— —— SAN 8"	SANITARY SEWER
—— —— ST 8"	STORM SEWER
—— —— E	ELECTRIC LINE
—— —— W 2"	WATER MAIN
20" ASH	TREE TO BE REMOVED
	SURFACE HMA ROAD TO BE REMOVED
	CONCRETE TO BE REMOVED
	GRAVEL CAMP PAD TO BE REMOVED
	TREED AREAS TO BE REMOVED
	BRUSH/SMALL TREE AREAS TO BE REMOVED
	BUILDINGS TO BE REMOVED

SANITARY SEWER TREE CLEARING CONTROL LINE							
No.	Type	Length	Direction	Start Sta	End Sta	Start Point	End Point
1	Line	208.37'	N33° 29' 44"W	0+00.00'	2+08.37'	(1614884.1958',472598.4324')	(1614769.2049',472772.1948')
TREE CLEARING CONTROL LINE FOR CAMPPADS #40-45							
1	Line	19.00'	S31° 47' 04"W	0+00.00'	0+19.00'	(1615127.6105',472276.7265')	(1615117.6047',472260.5792')
2	Line	24.86'	S45° 45' 34"E	0+19.00'	0+43.86'	(1615117.6047',472260.5792')	(1615135.4176',472243.2323')
3	Line	51.56'	S26° 34' 51"W	0+43.86'	0+95.42'	(1615135.4176',472243.2323')	(1615112.3468',472197.1224')
4	Line	11.01'	N90° 00' 00"W	0+95.42'	1+06.43'	(1615112.3468',472197.1224')	(1615101.3394',472197.1224')
5	Line	66.84'	N40° 41' 34"W	1+06.43'	1+73.26'	(1615101.3394',472197.1224')	(1615057.7611',472247.7997')
6	Line	28.22'	N26° 18' 23"W	1+73.26'	2+01.49'	(1615057.7611',472247.7997')	(1615045.2535',472273.0999')
7	Line	21.11'	S87° 28' 55"W	2+01.49'	2+22.60'	(1615045.2535',472273.0999')	(1615024.1635',472272.1725')
8	Line	11.94'	S6° 02' 23"E	2+22.60'	2+34.54'	(1615024.1635',472272.1725')	(1615025.4197',472260.2995')
9	Line	28.68'	S52° 15' 10"E	2+34.54'	2+63.21'	(1615025.4197',472260.2995')	(1615048.0936',472242.7453')
10	Line	47.26'	S34° 50' 35"W	2+63.21'	3+10.48'	(1615048.0936',472242.7453')	(1615021.0903',472203.9548')
11	Line	13.97'	N86° 13' 22"W	3+10.48'	3+24.45'	(1615021.0903',472203.9548')	(1615007.1480',472204.8753')
12	Line	70.56'	N40° 27' 55"W	3+24.45'	3+95.01'	(1615007.1480',472204.8753')	(1614961.3522',472258.5611')
13	Line	8.74'	S87° 34' 09"W	3+95.01'	4+03.75'	(1614961.3522',472258.5611')	(1614952.6242',472258.1906')
14	Line	41.35'	S17° 46' 00"W	4+03.75'	4+45.10'	(1614952.6242',472258.1906')	(1614940.0073',472218.8153')
15	Line	41.96'	N62° 34' 28"W	4+45.10'	4+87.06'	(1614940.0073',472218.8153')	(1614902.7612',472238.1429')
16	Line	47.20'	S21° 44' 05"W	4+87.06'	5+34.26'	(1614902.7612',472238.1429')	(1614885.2833',472194.3003')
17	Line	84.15'	N65° 24' 32"W	5+34.26'	6+18.41'	(1614885.2833',472194.3003')	(1614808.7664',472229.3180')
18	Line	49.41'	S17° 27' 16"W	6+18.41'	6+67.81'	(1614808.7664',472229.3180')	(1614793.9466',472182.1850')
19	Line	74.61'	N65° 17' 16"W	6+67.81'	7+42.43'	(1614793.9466',472182.1850')	(1614726.1651',472213.3786')
20	Line	47.51'	N35° 32' 01"W	7+42.43'	7+89.94'	(1614726.1651',472213.3786')	(1614698.5510',472252.0440')

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

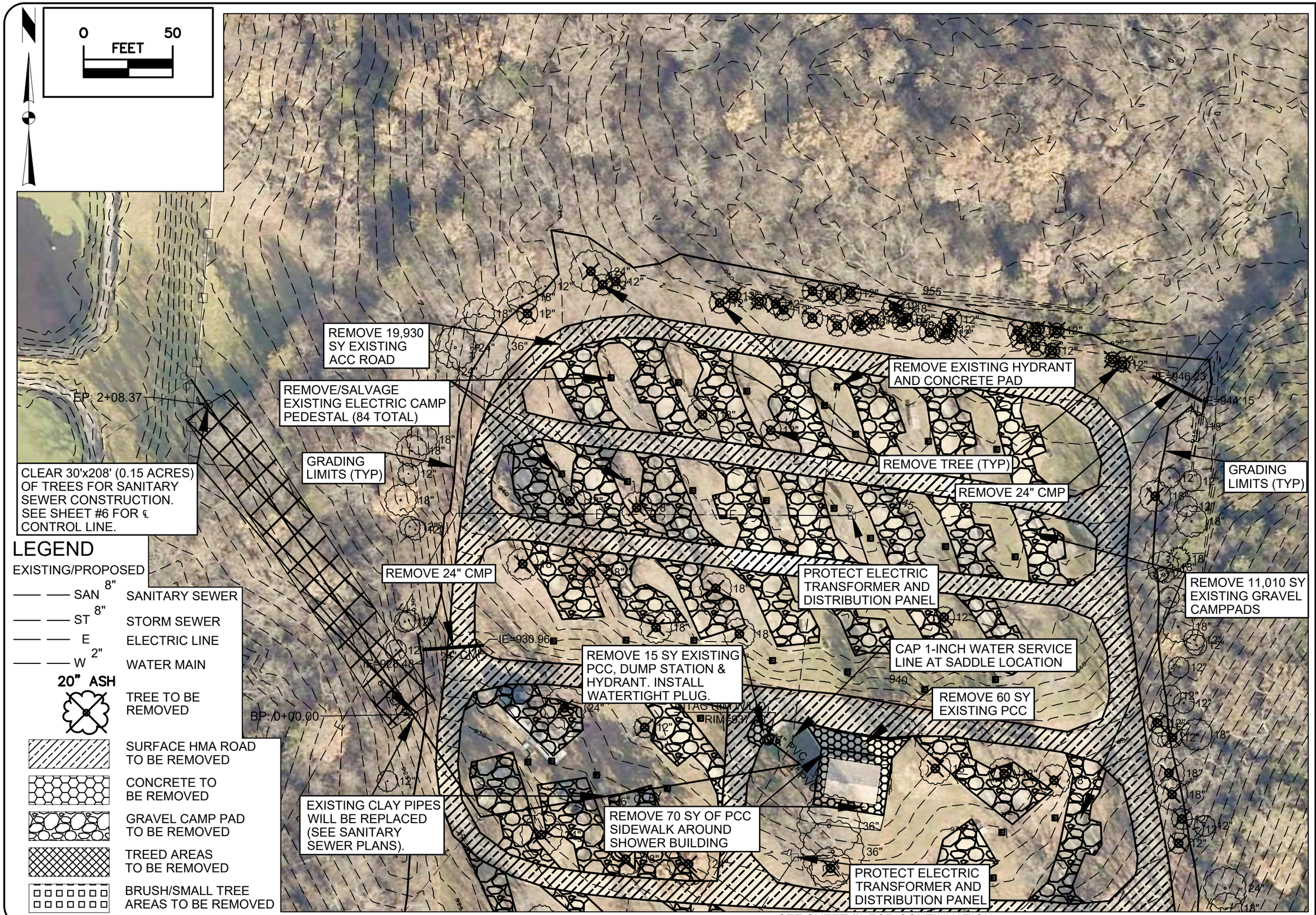
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

OVERALL DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 6



SEE SHEET #8 FOR CONTINUATION

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DNR

DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

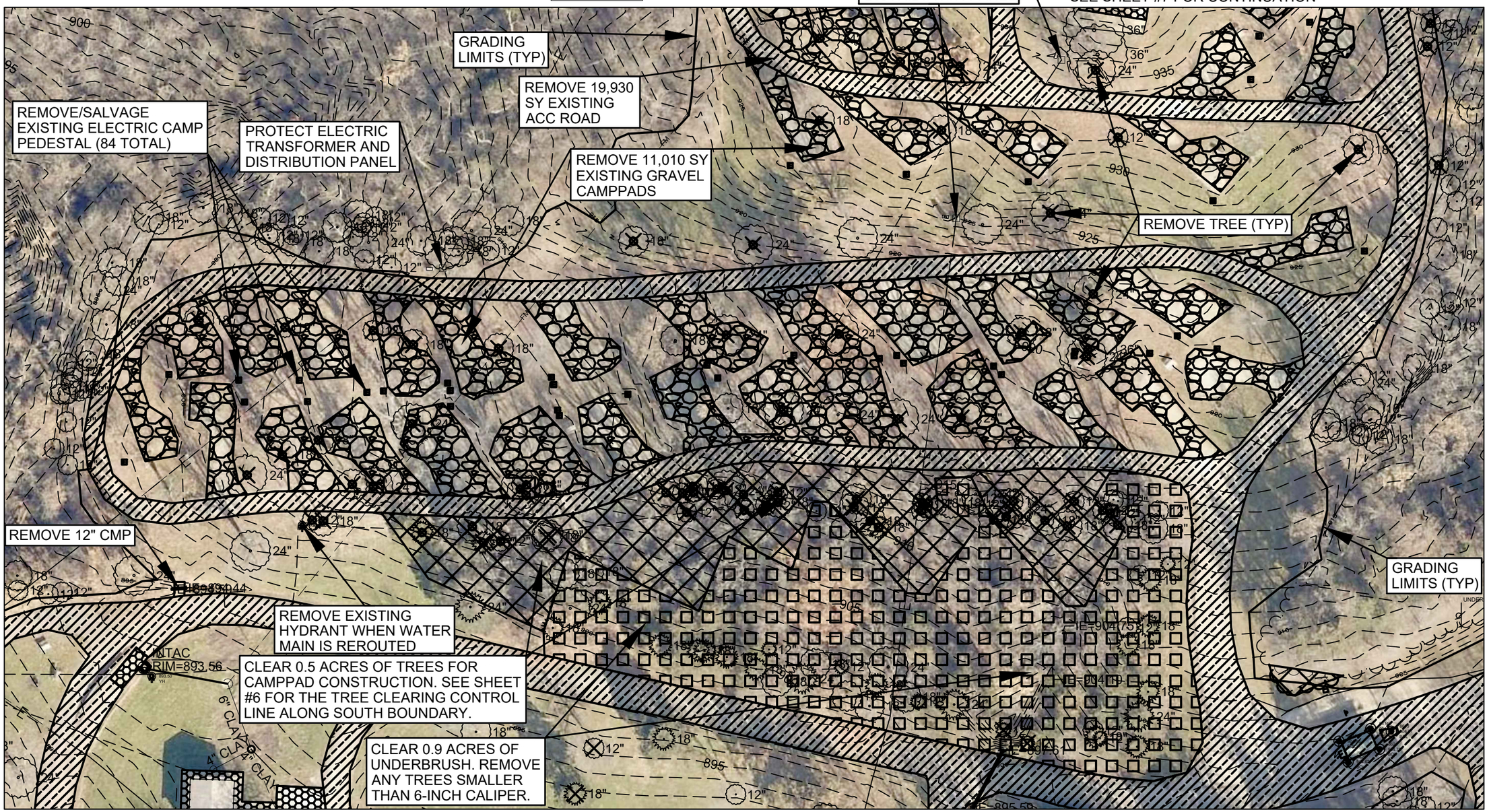
SHEET No: 7

LEGEND

EXISTING/PROPOSED

—— —— SAN 8"	SANITARY SEWER
—— —— ST 8"	STORM SEWER
—— —— E	ELECTRIC LINE
—— —— W 2"	WATER MAIN
20" ASH	TREE TO BE REMOVED
	SURFACE HMA ROAD TO BE REMOVED
	CONCRETE TO BE REMOVED
	GRAVEL CAMP PAD TO BE REMOVED
	TREED AREAS TO BE REMOVED
	BRUSH/SMALL TREE AREAS TO BE REMOVED

0 60
FEET



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

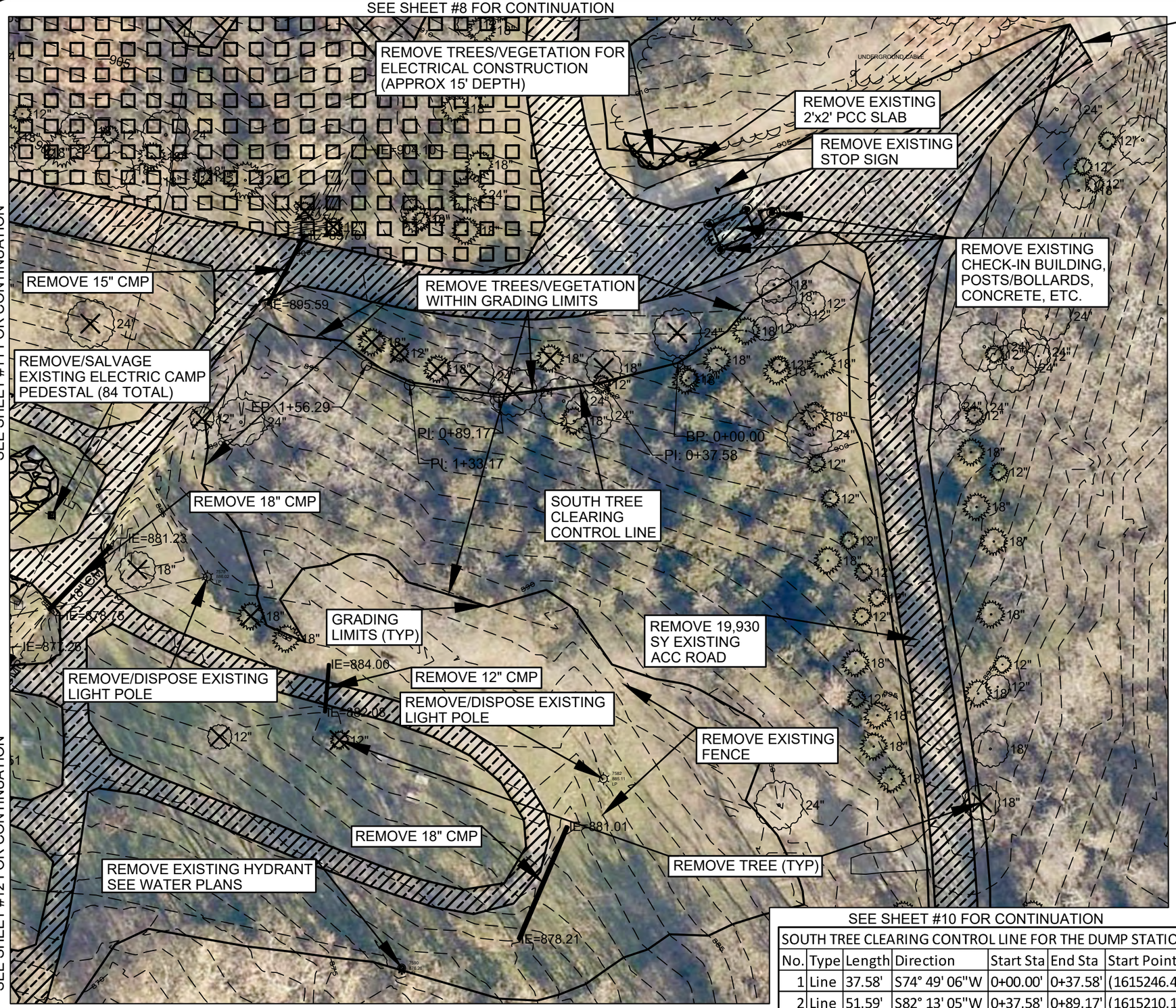
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 8

SEE SHEET #8 FOR CONTINUATION

SEE SHEET #11 FOR CONTINUATION



START LOCATION OF PROPOSED ROAD. CONTRACTOR CAN REMOVE ACC ROAD EAST OF THIS LOCATION FOR EASE OF CONSTRUCTION. E:1615443.2012', N:472205.7418'

N

0 FEET 50

LEGEND

EXISTING/PROPOSED

- SAN 8" — SANITARY SEWER
- ST 8" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- 20" ASH — TREE TO BE REMOVED
- SURFACE HMA ROAD TO BE REMOVED
- CONCRETE TO BE REMOVED
- GRAVEL CAMP PAD TO BE REMOVED
- TREED AREAS TO BE REMOVED
- BRUSH/SMALL TREE AREAS TO BE REMOVED

SEE SHEET #10 FOR CONTINUATION

SEE SHEET #12 FOR CONTINUATION

SOUTH TREE CLEARING CONTROL LINE FOR THE DUMP STATION CONSTRUCTION

No.	Type	Length	Direction	Start Sta	End Sta	Start Point	End Point
1	Line	37.58'	S74° 49' 06"W	0+00.00'	0+37.58'	(1615246.4023',472050.0768')	(1615210.1327',472040.2351')
2	Line	51.59'	S82° 13' 05"W	0+37.58'	0+89.17'	(1615210.1327',472040.2351')	(1615159.0168',472033.2494')
3	Line	44.00'	N82° 01' 41"W	0+89.17'	1+33.17'	(1615159.0168',472033.2494')	(1615115.4467',472039.3510')
4	Line	23.12'	N65° 19' 34"W	1+33.17'	1+56.29'	(1615115.4467',472039.3510')	(1615094.4355',472049.0035')

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

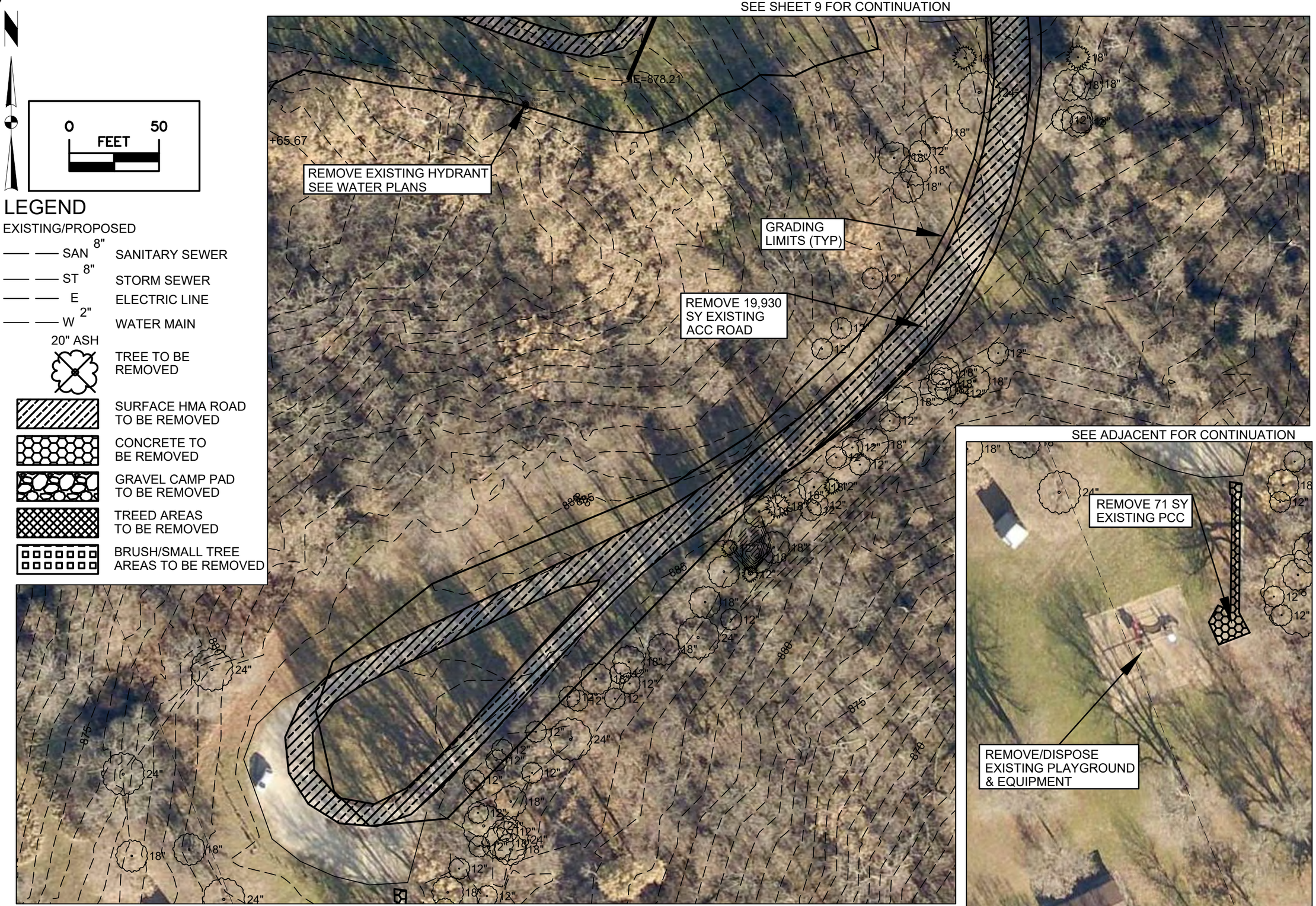
PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 9

SEE SHEET 9 FOR CONTINUATION



LEGEND

EXISTING/PROPOSED

- SAN 8" — SANITARY SEWER
- ST 8" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- 20" ASH — TREE TO BE REMOVED
- SURFACE HMA ROAD TO BE REMOVED
- CONCRETE TO BE REMOVED
- GRAVEL CAMP PAD TO BE REMOVED
- TREED AREAS TO BE REMOVED
- BRUSH/SMALL TREE AREAS TO BE REMOVED

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 10

DEMOLITION NOTES

1. CONTRACTOR TO REMOVE EXISTING BUILDING STRUCTURES. REMOVAL SHALL INCLUDE THE ENTIRE BUILDING STRUCTURE, ROOF, FLOORS, WALLS, FOOTINGS IN THEIR ENTIRETY, REMOVE ALL PAVEMENT AND ELECTRIC SERVICE LINES. REMOVE ALL BUILDING CONTENTS, DEBRIS, ETC. WITHIN BUILDINGS. ALL MATERIAL SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED PER LOCAL CODES AND REGULATIONS.

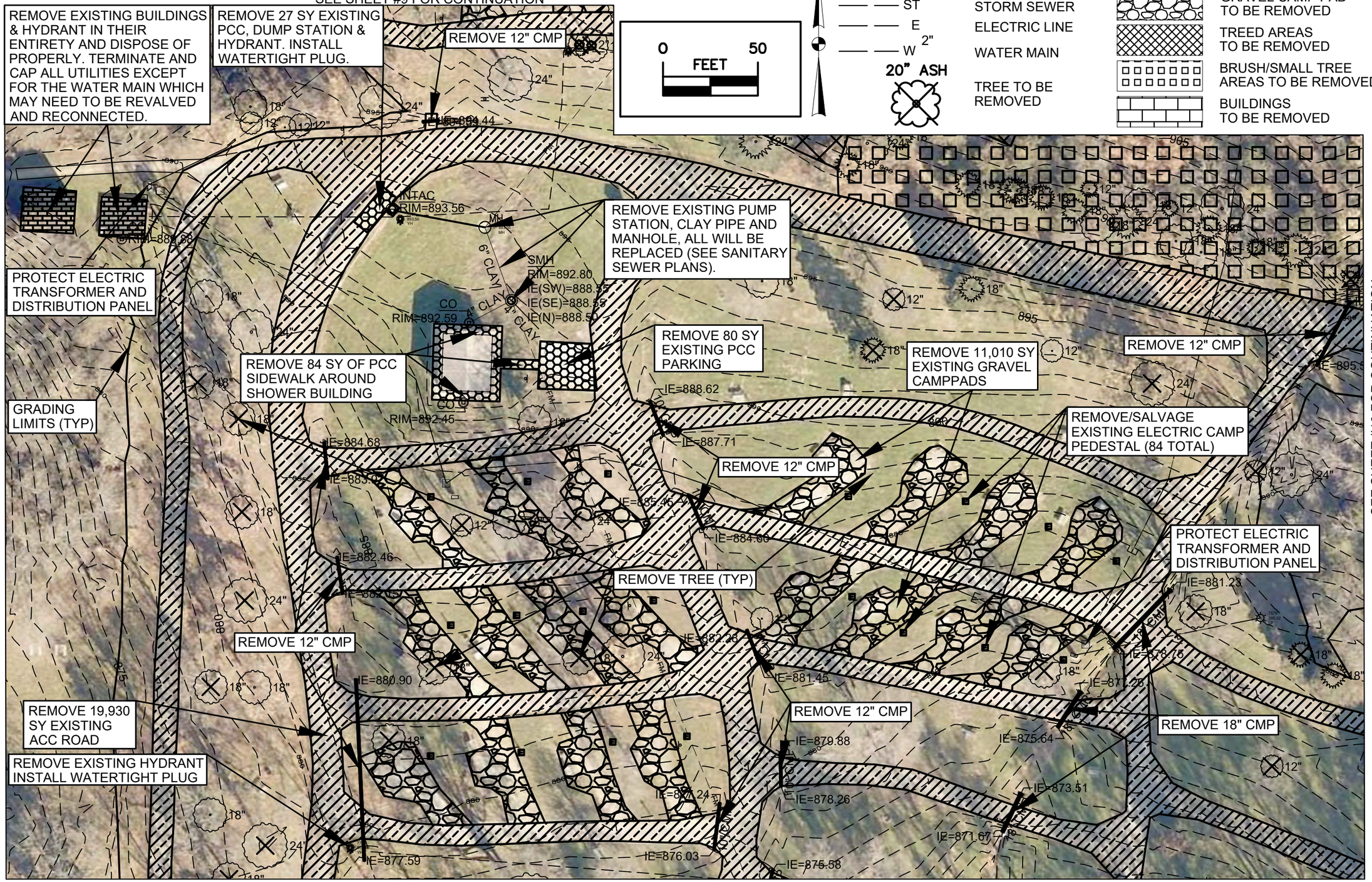
SEE SHEET #9 FOR CONTINUATION

LEGEND

EXISTING/PROPOSED

- SAN 8" — SANITARY SEWER
- ST 8" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- 20" ASH — TREE TO BE REMOVED
- SURFACE HMA ROAD TO BE REMOVED
- CONCRETE TO BE REMOVED
- GRAVEL CAMP PAD TO BE REMOVED
- TREED AREAS TO BE REMOVED
- BRUSH/SMALL TREE AREAS TO BE REMOVED
- BUILDINGS TO BE REMOVED

0 50 FEET



SEE SHEET #10 FOR CONTINUATION

SEE SHEET #12 FOR CONTINUATION

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DNR

DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 11

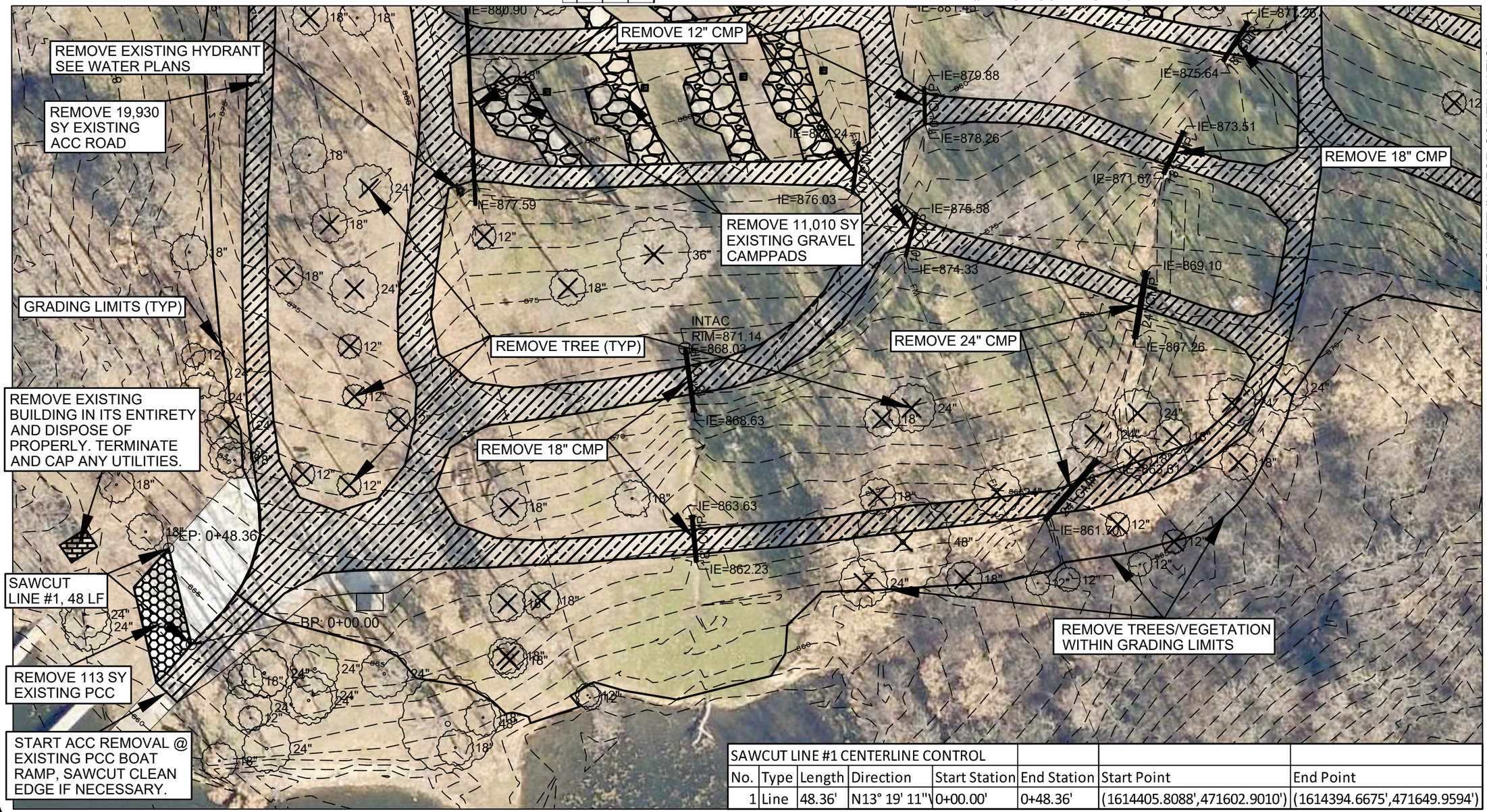
LEGEND

EXISTING/PROPOSED

—— —— SAN 8"	SANITARY SEWER
—— —— ST 8"	STORM SEWER
—— —— E	ELECTRIC LINE
—— —— W 2"	WATER MAIN
20" ASH	TREE TO BE REMOVED
	SURFACE HMA ROAD TO BE REMOVED
	CONCRETE TO BE REMOVED
	GRAVEL CAMP PAD TO BE REMOVED
	TREED AREAS TO BE REMOVED
	BRUSH/SMALL TREE AREAS TO BE REMOVED
	BUILDINGS TO BE REMOVED

0 60 FEET

SEE SHEET #11 FOR CONTINUATION



SEE SHEET #10 FOR CONTINUATION

SAWCUT LINE #1 CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	48.36'	N13° 19' 11"W	0+00.00'	0+48.36'	(1614405.8088',471602.9010')	(1614394.6675',471649.9594')

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

DEMOLITION PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 12

SANITARY SEWER NOTES

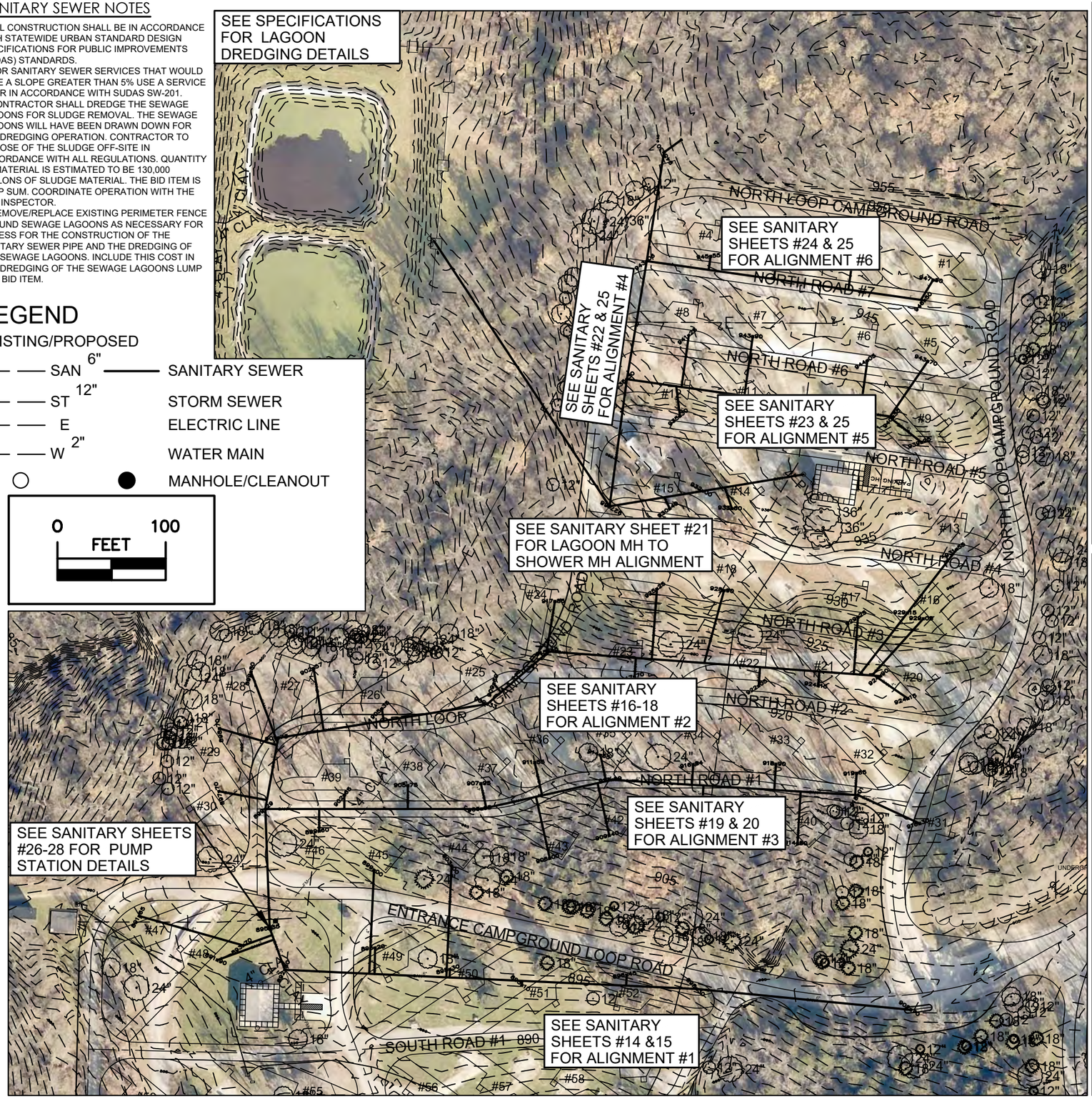
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS) STANDARDS.
2. FOR SANITARY SEWER SERVICES THAT WOULD HAVE A SLOPE GREATER THAN 5% USE A SERVICE RISER IN ACCORDANCE WITH SUDAS SW-201.
3. CONTRACTOR SHALL DREDGE THE SEWAGE LAGOONS FOR SLUDGE REMOVAL. THE SEWAGE LAGOONS WILL HAVE BEEN DRAWN DOWN FOR THE DREDGING OPERATION. CONTRACTOR TO DISPOSE OF THE SLUDGE OFF-SITE IN ACCORDANCE WITH ALL REGULATIONS. QUANTITY OF MATERIAL IS ESTIMATED TO BE 130,000 GALLONS OF SLUDGE MATERIAL. THE BID ITEM IS LUMP SUM. COORDINATE OPERATION WITH THE DNR INSPECTOR.
4. REMOVE/REPLACE EXISTING PERIMETER FENCE AROUND SEWAGE LAGOONS AS NECESSARY FOR ACCESS FOR THE CONSTRUCTION OF THE SANITARY SEWER PIPE AND THE DREDGING OF THE SEWAGE LAGOONS. INCLUDE THIS COST IN THE DREDGING OF THE SEWAGE LAGOONS LUMP SUM BID ITEM.

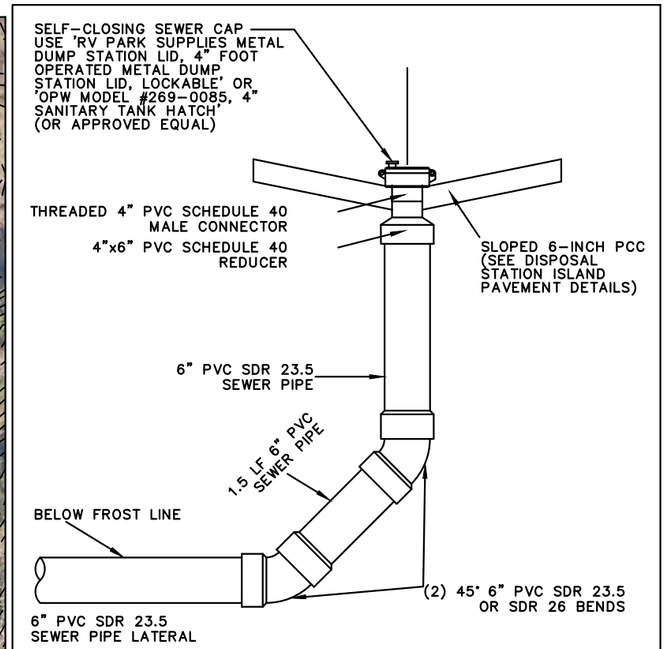
LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- ○ ● — MANHOLE/CLEANOUT

0 100 FEET

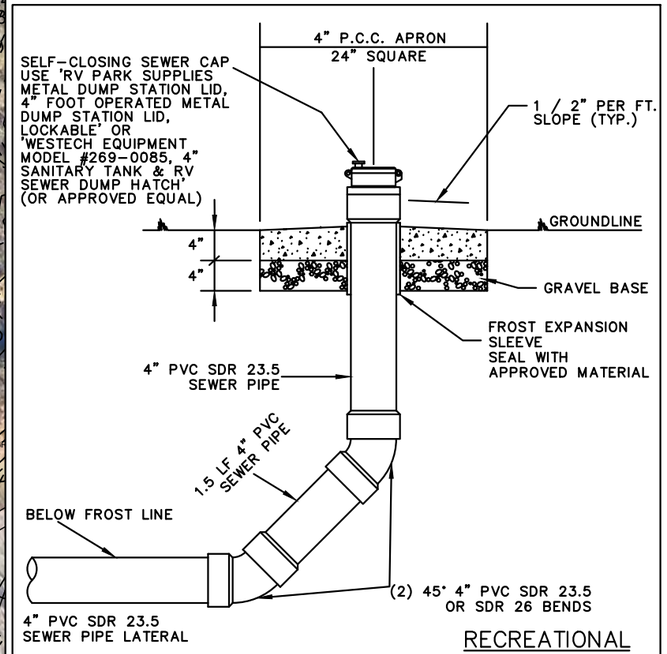




NOTE: RV DISPOSAL STATION CLEANOUT CONNECTION BID ITEM TO INCLUDE BENDS, PIPING, CONNECTOR, REDUCER & SEWER CAP AS SHOWN ABOVE.

DISPOSAL STATION SANITARY SEWER RV CONNECTION

NOT TO SCALE



NOTE: RV SANITARY SEWER CONNECTION BID ITEM TO INCLUDE BENDS, PIPING, GRAVEL BASE, CONCRETE APRON, SLEEVE & SEWER CAP AS SHOWN ABOVE.

RECREATIONAL VEHICLE TO SANITARY SEWER CONNECTION

NOT TO SCALE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

OVERALL SANITARY PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 13

SEE SHEET #16
FOR CONTINUATION

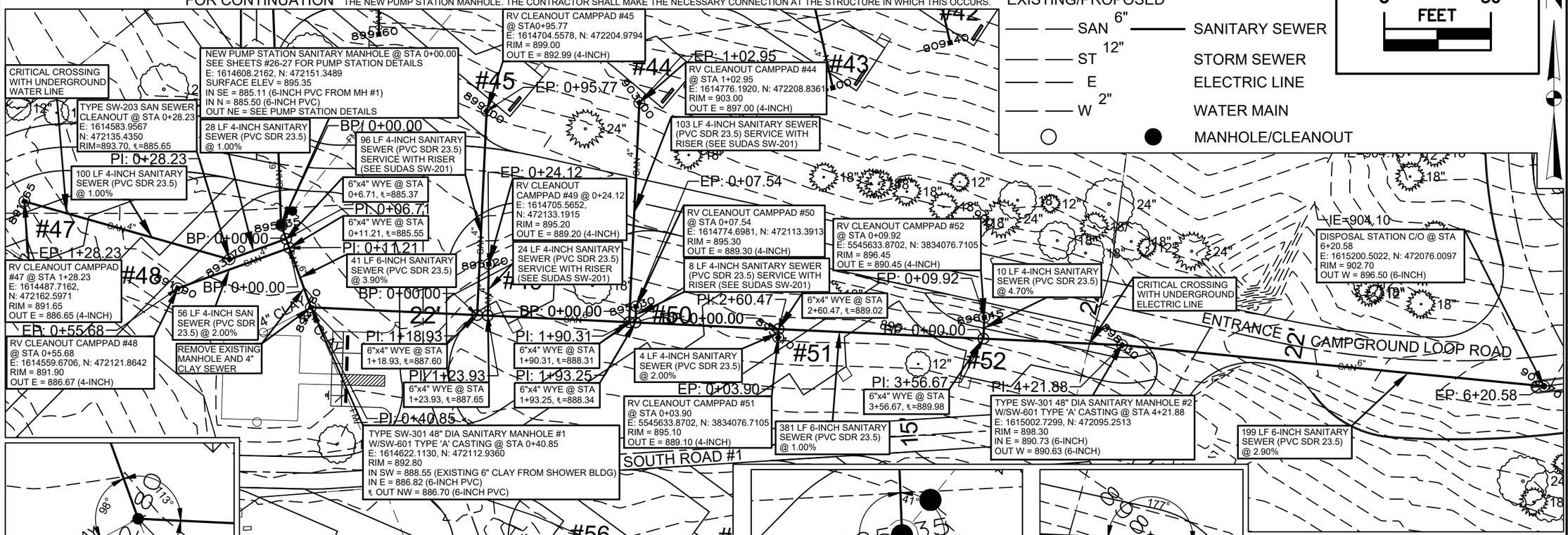
NOTE: THE FORCE MAIN ALIGNMENT COMING FROM THE SOUTH BEACH AREA IS APPROXIMATE. CAUTION WILL NEED TO TAKE PLACE FOR ANY UTILITY CONSTRUCTION THAT OCCURS ALONG ITS PATH. IN THE EVENT THAT THE FORCE MAIN IS DAMAGED DURING CONSTRUCTION ACTIVITY, THE CONTRACTOR MUST MAKE THE APPROPRIATE REPAIRS AT THE CONTRACTORS EXPENSE. THIS FORCE MAIN EITHER FLOWS INTO MANHOLE #1 OR THE NEW PUMP STATION MANHOLE. THE CONTRACTOR SHALL MAKE THE NECESSARY CONNECTION AT THE STRUCTURE IN WHICH THIS OCCURS.

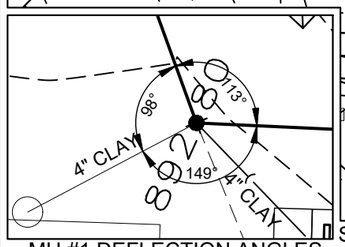
LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT

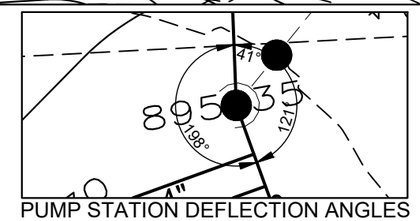
0 FEET 50



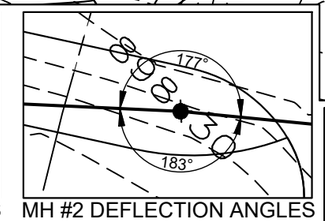


MH #1 DEFLECTION ANGLES

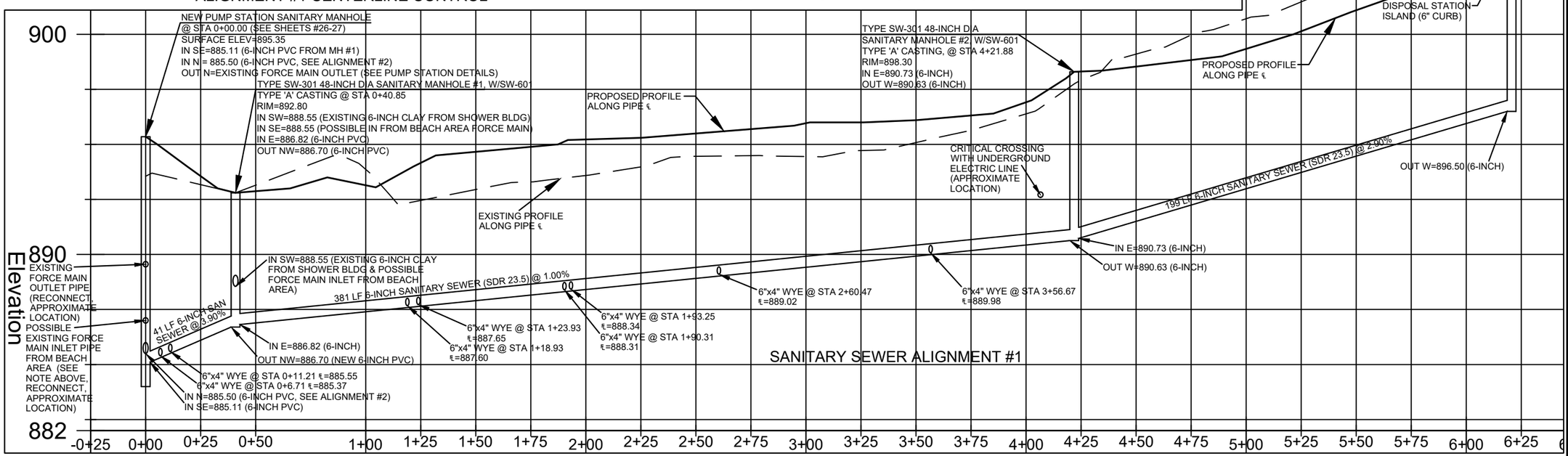
SEE SHEET #15 FOR SANITARY SEWER ALIGNMENT #1 CENTERLINE CONTROL



PUMP STATION DEFLECTION ANGLES



MH #2 DEFLECTION ANGLES



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

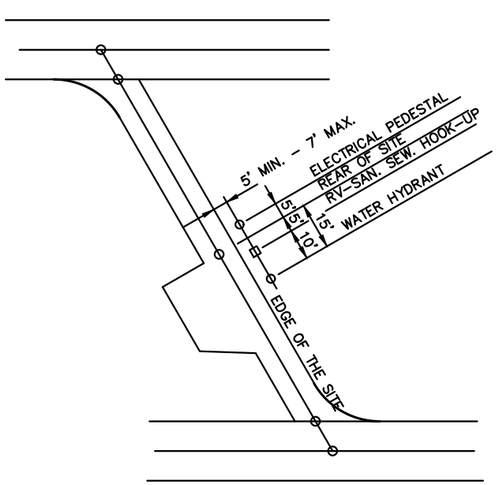
SANITARY SEWER ALIGNMENT #1

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 14

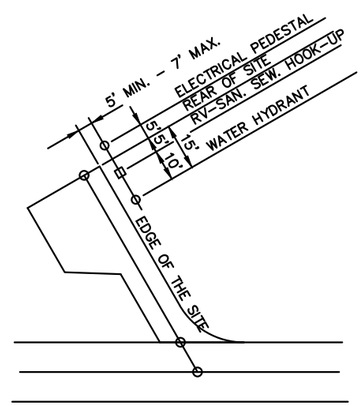
SANITARY SEWER ALIGNMENT #1 CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	6.71'	S19° 53' 20"E	0+00.00'	0+06.71'	(1614608.2162',472151.3489') NEW PUMP STATION MH	(1614610.4995',472145.0375') WYE FOR PAD #47
2	Line	4.50'	S19° 53' 20"E	0+06.71'	0+11.21'	(1614610.4995',472145.0375') WYE FOR PAD #47	(1614612.0301',472140.8066') WYE FOR PAD #48
3	Line	29.64'	S19° 53' 20"E	0+11.21'	0+40.85'	(1614612.0301',472140.8066') WYE FOR PAD #48	(1614622.1130',472112.9360') MH #1
4	Line	78.08'	S87° 20' 23"E	0+40.85'	1+18.93'	(1614622.1130',472112.9360') MH #1	(1614700.1128',472109.3119') WYE FOR PAD #45
5	Line	4.99'	S87° 20' 23"E	1+18.93'	1+23.93'	(1614700.1128',472109.3119') WYE FOR PAD #45	(1614705.0996',472109.0802') WYE FOR PAD #49
6	Line	66.39'	S87° 20' 23"E	1+23.93'	1+90.31'	(1614705.0996',472109.0802') WYE FOR PAD #49	(1614771.4138',472105.9990') WYE FOR PAD #44
7	Line	2.94'	S87° 20' 23"E	1+90.31'	1+93.25'	(1614771.4138',472105.9990') WYE FOR PAD #44	(1614774.3483',472105.8627') WYE FOR PAD #50
8	Line	67.23'	S87° 20' 23"E	1+93.25'	2+60.47'	(1614774.3483',472105.8627') WYE FOR PAD #50	(1614841.5014',472102.7425') WYE FOR PAD #51
9	Line	96.19'	S87° 20' 23"E	2+60.47'	3+56.67'	(1614841.5014',472102.7425') WYE FOR PAD #51	(1614937.5919',472098.2779') WYE FOR PAD #52
10	Line	65.21'	S87° 20' 23"E	3+56.67'	4+21.88'	(1614937.5919',472098.2779') WYE FOR PAD #52	(1615002.7299',472095.2513') MH #2
11	Line	198.71'	S84° 26' 35"E	4+21.88'	6+20.58'	(1615002.7299',472095.2513') MH #2	(1615200.5022',472076.0097') DISPOSAL STATION C/O
SANITARY SERVICE TO PAD #47 CENTERLINE CONTROL							
1	Line	28.23'	S70° 06' 40"W	0+00.00'	0+28.23'	(1614610.4995',472145.0375') WYE FOR PAD #47	(1614583.9567',472135.4350') C/O
2	Line	100.00'	N74° 14' 21"W	0+28.23'	1+28.23'	(1614583.9567',472135.4350') C/O	(1614487.7162',472162.5971') RV C/O PAD #47
SANITARY SERVICE TO PAD #48 CENTERLINE CONTROL							
1	Line	55.68'	S70° 06' 40"W	0+00.00'	0+55.68'	(1614612.0301',472140.8066') WYE FOR PAD #48	(1614559.6706',472121.8642') RV C/O PAD #48
SANITARY SERVICE TO PAD #45 CENTERLINE CONTROL							
1	Line	95.77'	N2° 39' 37"E	0+00.00'	0+95.77'	(1614700.1128',472109.3119') WYE FOR PAD #45	(1614704.5578',472204.9794') RV C/O PAD #45
SANITARY SERVICE TO PAD #49 CENTERLINE CONTROL							
1	Line	24.12'	N1° 06' 22"E	0+00.00'	0+24.12'	(1614705.0996',472109.0802') WYE FOR PAD #49	(1614705.5652',472133.1915') RV C/O PAD #49
SANITARY SERVICE TO PAD #44 CENTERLINE CONTROL							
1	Line	102.95'	N2° 39' 37"E	0+00.00'	1+02.95'	(1614771.4138',472105.9990') WYE FOR PAD #44	(1614776.1920',472208.8361') RV C/O PAD #49
SANITARY SERVICE TO PAD #50 CENTERLINE CONTROL							
1	Line	7.54'	N2° 39' 37"E	0+00.00'	0+07.54'	(1614774.3483',472105.8627') WYE FOR PAD #50	(1614774.6981',472113.3913') RV C/O PAD #50
SANITARY SERVICE TO PAD #51 CENTERLINE CONTROL							
1	Line	3.90'	S2° 39' 37"W	0+00.00'	0+03.90'	(1614841.5014',472102.7425') WYE FOR PAD #51	(1614841.3203',472098.8438') RV C/O PAD #51
SANITARY SERVICE TO PAD #52 CENTERLINE CONTROL							
1	Line	9.92'	N2° 39' 37"E	0+00.00'	0+09.92'	(1614937.5919',472098.2779') WYE FOR PAD #52	(1614938.0522',472108.1848') RV C/O PAD #52



SINGLE PULL THROUGH SITE

UTILITY LOCATIONS—FULL HOOK UPS

NOT TO SCALE



SINGLE BACK-IN SITE

UTILITY LOCATIONS—FULL HOOK UPS

NOT TO SCALE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #1

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

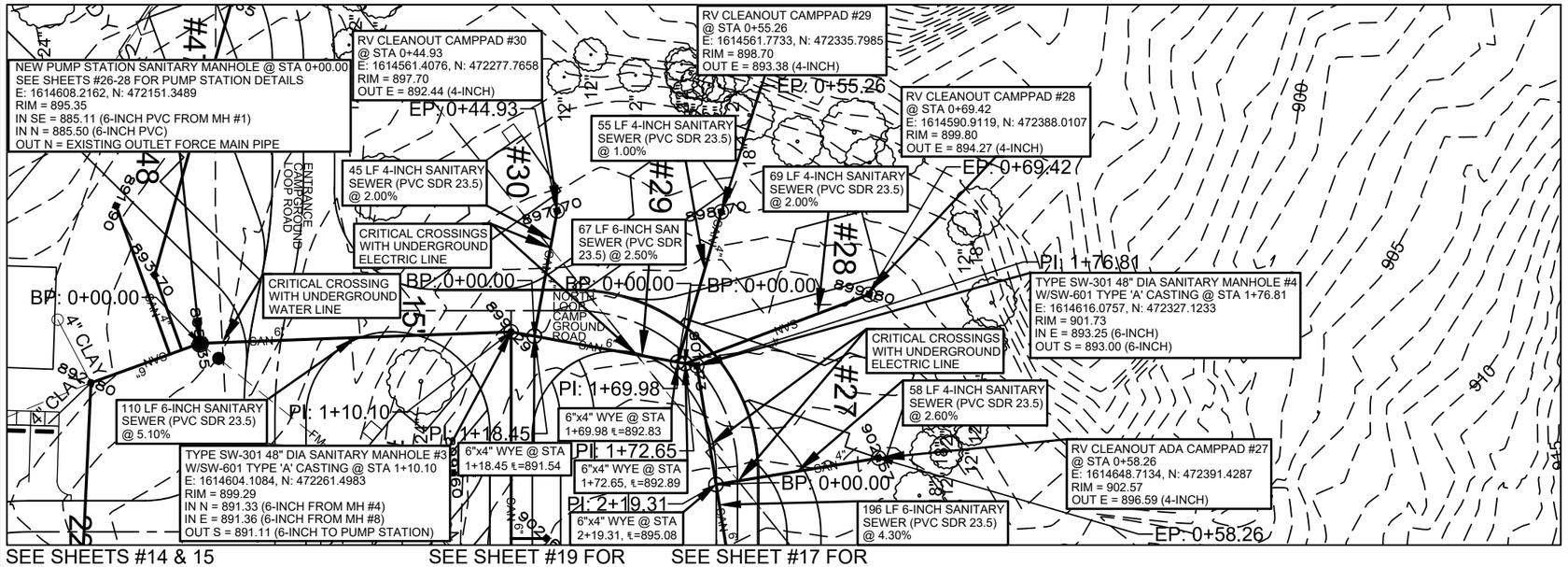
DRAWN BY:

CHK'D BY:

PROJECT NUMBER: 22-05-91-01

DATE: 12/29/2021

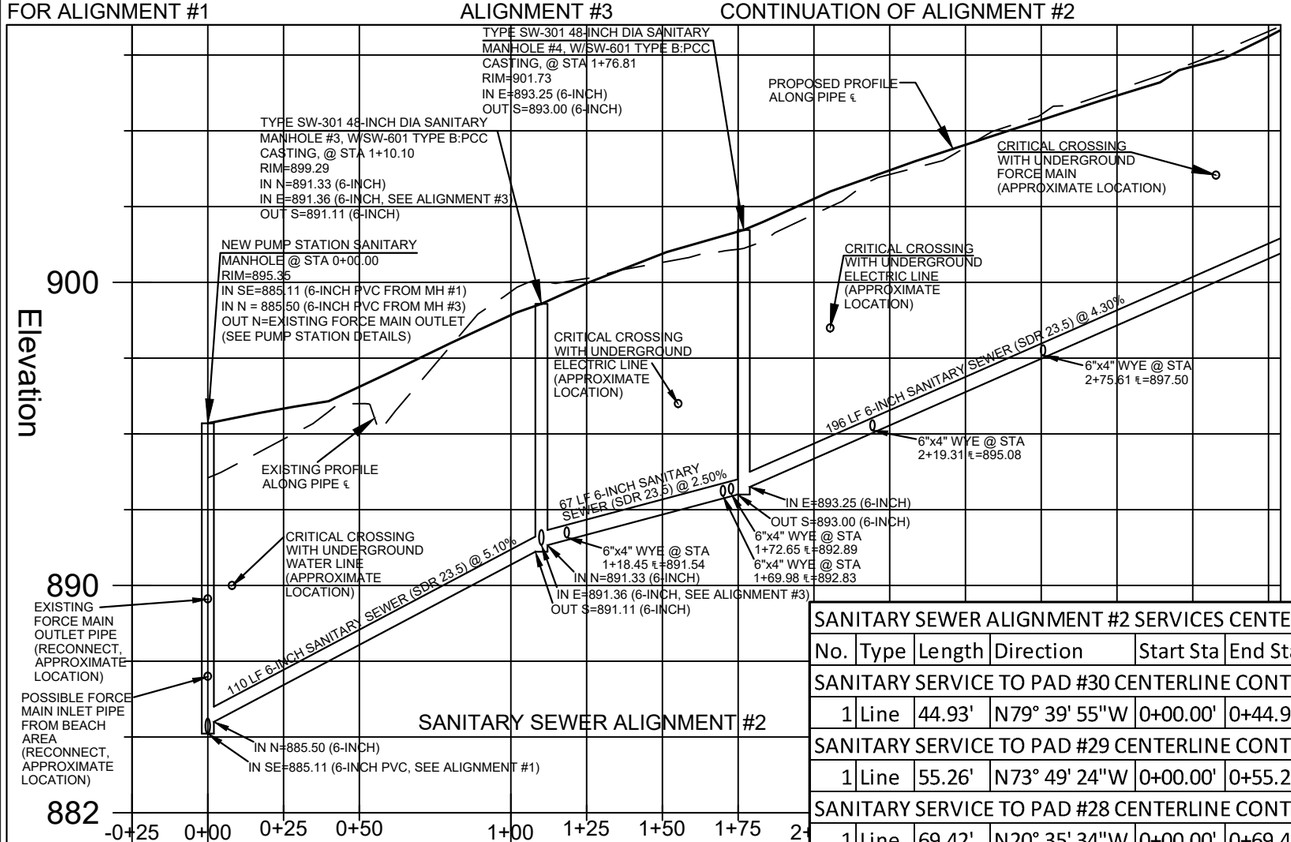
SHEET No: 15



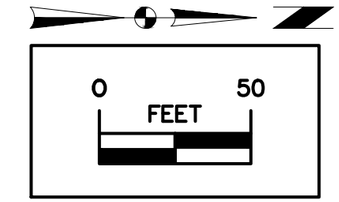
SEE SHEETS #14 & 15 FOR ALIGNMENT #1

SEE SHEET #19 FOR ALIGNMENT #3

SEE SHEET #17 FOR CONTINUATION OF ALIGNMENT #2



SEE SHEET #17 FOR CONTINUATION OF ALIGNMENT #2

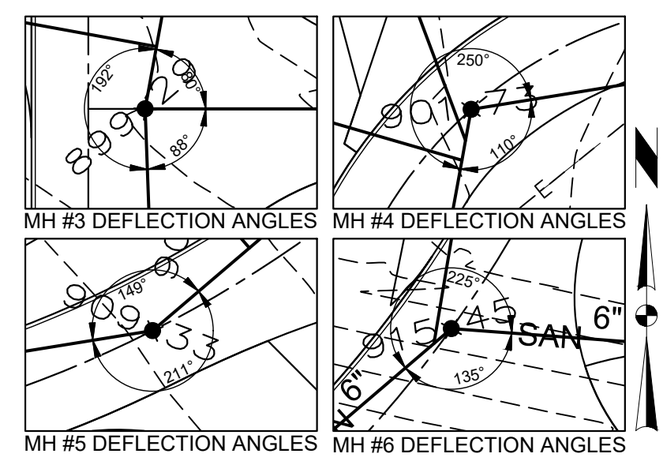


LEGEND

EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○	MANHOLE/CLEANOUT

SEE SHEET #18 FOR SANITARY SEWER ALIGNMENT #2 CENTERLINE CONTROL



MH #3 DEFLECTION ANGLES

MH #4 DEFLECTION ANGLES

MH #5 DEFLECTION ANGLES

MH #6 DEFLECTION ANGLES

SANITARY SEWER ALIGNMENT #2 SERVICES CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Sta	End Sta	Start Point	End Point
SANITARY SERVICE TO PAD #30 CENTERLINE CONTROL							
1	Line	44.93'	N79° 39' 55"W	0+00.00'	0+44.93'	(1614605.6051',472269.7059') WYE FOR PAD #30	(1614561.4076',472277.7658') RV C/O PAD #30
SANITARY SERVICE TO PAD #29 CENTERLINE CONTROL							
1	Line	55.26'	N73° 49' 24"W	0+00.00'	0+55.26'	(1614614.8499',472320.4016') WYE FOR PAD #29	(1614561.7733',472335.7985') RV C/O PAD #29
SANITARY SERVICE TO PAD #28 CENTERLINE CONTROL							
1	Line	69.42'	N20° 35' 34"W	0+00.00'	0+69.42'	(1614615.3286',472323.0263') WYE FOR PAD #28	(1614590.9119',472388.0107') RV C/O PAD #28
SANITARY SERVICE TO ADA PAD #27 CENTERLINE CONTROL							
1	Line	58.26'	N9° 12' 16"W	0+00.00'	0+58.26'	(1614658.0321',472333.9221') WYE FOR PAD #27	(1614648.7134',472391.4287') RV C/O PAD #27

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #2

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 16

0 50
FEET

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT

SEE SHEET #18 FOR SANITARY SEWER ALIGNMENT #2 CENTERLINE CONTROL

SEE SHEET #16 FOR SANITARY SEWER MH #5 & #6 DEFLECTION ANGLES

Station 4+00 5+00 6+00 7+00 8+00

Station 2+00

920

910

Elevation

TYPE SW-301 48-INCH DIA SANITARY MANHOLE #7, W/SW-601 TYPE 'A' CASTING, @ STA 7+54.51 RIM=924.90 OUT W=918.02 (6-INCH)

PROPOSED PROFILE ALONG PIPE ℄

EXISTING PROFILE ALONG PIPE ℄

TYPE SW-301 48-INCH DIA SANITARY MANHOLE #6, W/SW-601 TYPE B:PCC CASTING, @ STA 4+47.15 RIM=915.45 IN E=908.20 (6-INCH) OUT SW=907.95 (6-INCH)

CRITICAL CROSSING WITH UNDERGROUND ELECTRIC LINE (APPROXIMATE LOCATION)

CRITICAL CROSSING WITH UNDERGROUND WATER LINE (APPROXIMATE LOCATION)

TYPE SW-301 48-INCH DIA SANITARY MANHOLE #5, W/SW-601 TYPE B:PCC CASTING, @ STA 3+72.49 RIM=909.33 IN NE=901.95 (6-INCH) OUT W=901.68 (6-INCH)

307 LF 6-INCH SANITARY SEWER (SDR 23.5) @ 3.20%

6"x4" WYE @ STA 6+97.88 ℄=916.22

6"x4" WYE @ STA 6+42.99 ℄=914.47

6"x4" WYE @ STA 5+91.24 ℄=912.81

6"x4" WYE @ STA 5+42.65 ℄=911.26

6"x4" WYE @ STA 5+27.96 ℄=910.79

6"x4" WYE @ STA 7+29.79 ℄=917.24

6"x4" WYE @ STA 7+46.68 ℄=917.79

6"x4" WYE @ STA 7+35.21 ℄=917.42

6"x4" WYE @ STA 7+49.09 ℄=917.86

OUT W=918.02 (6-INCH)

IN E=908.20 (6-INCH) OUT SW=907.95 (6-INCH) 6"x4" WYE @ STA 4+44.12 ℄=907.68

75 LF 6-INCH SANITARY SEWER (SDR 23.5) @ 8.00%

6"x4" WYE @ STA 3+89.28 ℄=903.29

IN NE=901.95 (6-INCH) OUT W=901.68 (6-INCH)

SANITARY SEWER ALIGNMENT #2

SEE SHEET #16 FOR MANHOLE DEFLECTION ANGLES

RV CLEANOUT CAMPPAD #13 @ STA 1+46.28 E: 1615242.9332, N: 472501.2484 RIM = 931.55 OUT E = 925.55 (4-INCH)

SEE SHEET #16 FOR CONTINUATION

PROPOSED PROFILE ALONG PIPE ℄

CRITICAL CROSSING WITH UNDERGROUND FORCE MAIN (APPROXIMATE LOCATION)

CRITICAL CROSSING WITH UNDERGROUND ELECTRIC LINE (APPROXIMATE LOCATION)

196 LF 6-INCH SANITARY SEWER (SDR 23.5) @ 4.30%

6"x4" WYE @ STA 2+75.61 ℄=897.50

6"x4" WYE @ STA 2+19.31 ℄=895.08

NORTH ROAD #4

NORTH ROAD #3

NORTH ROAD #2

RV CLEANOUT CAMPPAD #19 @ STA 0+65.00 E: 1614966.0297, N: 472464.6971 RIM = 925.25 OUT E = 919.25 (4-INCH)

RV CLEANOUT CAMPPAD #18 @ STA 0+69.40 E: 1615027.9754, N: 472463.2402 RIM = 928.90 OUT E = 922.90 (4-INCH)

74 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 3.20%

TYPE SW-203 SANITARY SEWER CLEANOUT @ STA 0+71.95 E: 1615197.3762, N: 472442.5223 SURFACE ELEV=929.15, ℄=923.18

RV CLEANOUT CAMPPAD #16 @ STA 0+70.58 E: 1615212.0481, N: 472437.1842 RIM = 929.05 OUT E = 923.05 (4")

RV CLEANOUT CAMPPAD #24 @ STA 0+48.84 E: 1614871.7263, N: 472453.1300 RIM = 917.85 OUT E = 911.85 (4-INCH)

RV CLEANOUT CAMPPAD #17 @ STA 0+52.48 E: 1615151.7438, N: 472438.4114 RIM = 929.25 OUT E = 923.25 (4-INCH)

72 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

71 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

49 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

69 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

65 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

TYPE SW-301 48" DIA SANITARY MANHOLE #6 W/SW-601 TYPE B:PCC CASTING @ STA 4+47.15 E: 1614865.9965, N: 472406.9196 RIM = 915.45 IN E = 908.20 (6-INCH) OUT SW = 907.95 (6-INCH)

CRITICAL CROSSING WITH UNDERGROUND ELECTRIC AND WATER LINE

307 LF 6-INCH SAN SEWER (PVC SDR 23.5) @ 3.20%

52 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

6"x4" WYE @ STA 6+42.99 ℄=914.47

6"x4" WYE @ STA 6+97.88 ℄=916.22

6"x4" WYE @ STA 5+27.96 ℄=910.79

6"x4" WYE @ STA 7+49.09 ℄=917.86

TYPE SW-301 48" DIA SANITARY MANHOLE #4 W/SW-601 TYPE B:PCC CASTING @ STA 1+76.81 E: 1614616.0757, N: 472327.1233 RIM = 901.73 IN E = 893.25 (6-INCH) OUT S = 893.00 (6-INCH)

RV CLEANOUT ADA CAMPPAD #27 @ STA 0+58.26 E: 1614648.7134, N: 472391.4287 RIM = 902.57 OUT E = 896.59 (4-INCH)

RV CLEANOUT CAMPPAD #25 @ STA 0+10.28 E: 1614815.3269, N: 472377.1465 RIM = 909.60 OUT E = 903.60 (4-INCH)

58 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.60%

10 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 3.10%

RV CLEANOUT CAMPPAD #26 @ STA 0+11.22 E: 1614711.8086, N: 472353.9984 RIM = 905.35 OUT E = 899.35 (4-INCH)

11 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

18 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 5.00%

6"x4" WYE @ STA 5+42.65 ℄=911.26

6"x4" WYE @ STA 5+91.24 ℄=912.81

6"x4" WYE @ STA 4+44.12 ℄=907.68

75 LF 6-INCH SANITARY SEWER (PVC SDR 23.5) @ 8.00%

6"x4" WYE @ STA 3+89.28 ℄=903.29

RV CLEANOUT CAMPPAD #23 @ STA 0+17.50 E: 1614945.3025, N: 472383.5063 RIM = 917.70 OUT E = 911.69 (4-INCH)

18 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

6"x4" WYE @ STA 7+29.79 ℄=917.24

37 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.00%

RV CLEANOUT CAMPPAD #20 @ STA 0+37.43 E: 1615197.9494, N: 472363.4323 RIM = 924.15 OUT E = 918.60 (4-INCH)

13 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)

6"x4" WYE @ STA 7+46.68 ℄=917.79

6"x4" WYE @ STA 7+35.21 ℄=917.42

CRITICAL CROSSING WITH UNDERGROUND FORCE MAIN

TYPE SW-301 48" DIA SANITARY MANHOLE #5 W/SW-601 TYPE B:PCC CASTING @ STA 3+72.49 E: 1614809.2412, N: 472358.4249 RIM = 909.33 IN NE = 901.95 (6-INCH) OUT W = 901.68 (6-INCH)

196 LF 6-INCH SANITARY SEWER (PVC SDR 23.5) @ 4.30%

RV CLEANOUT CAMPPAD #22 @ STA 0+17.50 E: 1615060.0121, N: 472375.0223 RIM = 922.05 OUT E = 916.05 (4-INCH)

RV CLEANOUT CAMPPAD #21 @ STA 0+13.30 E: 1615115.0638, N: 472375.1649 RIM = 924.15 OUT E = 918.15 (4-INCH)

CRITICAL CROSSING WITH UNDERGROUND ELECTRIC LINE

SEE SHEET #16 FOR CONTINUATION

SEE SHEET #19 FOR SANITARY SEWER ALIGNMENT #3

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #2

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 17

SANITARY SEWER ALIGNMENT #2 CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	110.10'	N2° 06' 55"W	0+00.00'	1+10.10'	(1614608.1720',472151.4710') NEW PUMP STATION MH	(1614604.1084',472261.4983') MH #3
2	Line	8.34'	N10° 20' 05"E	1+10.10'	1+18.45'	(1614604.1084',472261.4983') MH #3	(1614605.6051',472269.7059') WYE FOR PAD #30
3	Line	51.53'	N10° 20' 05"E	1+18.45'	1+69.98'	(1614605.6051',472269.7059') WYE FOR PAD #30	(1614614.8499',472320.4016') WYE FOR PAD #29
4	Line	2.67'	N10° 20' 05"E	1+69.98'	1+72.65'	(1614614.8499',472320.4016') WYE FOR PAD #29	(1614615.3286',472323.0263') WYE FOR PAD #28
5	Line	4.16'	N10° 20' 05"E	1+72.65'	1+76.81'	(1614615.3286',472323.0263') WYE FOR PAD #28	(1614616.0757',472327.1233') MH #4
6	Line	42.50'	N80° 47' 44"E	1+76.81'	2+19.31'	(1614616.0757',472327.1233') MH #4	(1614658.0321',472333.9221') WYE FOR ADA PAD #27
7	Line	56.30'	N80° 47' 44"E	2+19.31'	2+75.61'	(1614658.0321',472333.9221') WYE FOR ADA PAD #27	(1614713.6027',472342.9271') WYE FOR PAD #26
8	Line	96.89'	N80° 47' 44"E	2+75.61'	3+72.49'	(1614713.6027',472342.9271') WYE FOR PAD #26	(1614809.2412',472358.4249') MH #5
9	Line	16.79'	N49° 29' 16"E	3+72.49'	3+89.28'	(1614809.2412',472358.4249') MH #5	(1614822.0049',472369.3309') WYE FOR PAD #25
10	Line	54.84'	N49° 29' 16"E	3+89.28'	4+44.12'	(1614822.0049',472369.3309') WYE FOR PAD #25	(1614863.6962',472404.9541') WYE FOR PAD #24
11	Line	3.03'	N49° 29' 16"E	4+44.12'	4+47.15'	(1614863.6962',472404.9541') WYE FOR PAD #24	(1614865.9965',472406.9196') MH #6
12	Line	80.82'	S85° 46' 12"E	4+47.15'	5+27.96'	(1614865.9965',472406.9196') MH #6	(1614946.5933',472400.9586') WYE FOR PAD #23
13	Line	14.68'	S85° 46' 12"E	5+27.96'	5+42.65'	(1614946.5933',472400.9586') WYE FOR PAD #23	(1614961.2355',472399.8756') WYE FOR PAD #19
14	Line	48.59'	S85° 46' 12"E	5+42.65'	5+91.24'	(1614961.2355',472399.8756') WYE FOR PAD #19	(1615009.6954',472396.2915') WYE FOR PAD #18
15	Line	51.75'	S85° 46' 12"E	5+91.24'	6+42.99'	(1615009.6954',472396.2915') WYE FOR PAD #18	(1615061.3029',472392.4746') WYE FOR PAD #22
16	Line	54.89'	S85° 46' 12"E	6+42.99'	6+97.88'	(1615061.3029',472392.4746') WYE FOR PAD #22	(1615116.0446',472388.4259') WYE FOR PAD #21
17	Line	31.92'	S85° 46' 12"E	6+97.88'	7+29.79'	(1615116.0446',472388.4259') WYE FOR PAD #21	(1615147.8728',472386.0719') WYE FOR PAD #17
18	Line	5.42'	S85° 46' 12"E	7+29.79'	7+35.21'	(1615147.8728',472386.0719') WYE FOR PAD #17	(1615153.2746',472385.6723') WYE FOR PAD #13
19	Line	11.48'	S85° 46' 12"E	7+35.21'	7+46.68'	(1615153.2746',472385.6723') WYE FOR PAD #13	(1615164.7185',472384.8259') WYE FOR PAD #16
20	Line	2.40'	S85° 46' 12"E	7+46.68'	7+49.09'	(1615164.7185',472384.8259') WYE FOR PAD #16	(1615167.1152',472384.6487') WYE FOR PAD #20
21	Line	5.42'	S85° 46' 12"E	7+49.09'	7+54.51'	(1615167.1152',472384.6487') WYE FOR PAD #20	(1615172.5212',472384.2488') MH #7
SANITARY SERVICE TO PAD #26 CENTERLINE CONTROL							
1	Line	11.22'	N9° 12' 16"W	0+00.00'	0+11.22'	(1614713.6027',472342.9271') WYE FOR PAD #26	(1614711.8086',472353.9984') RV C/O PAD #26
SANITARY SERVICE TO PAD #25 CENTERLINE CONTROL							
1	Line	10.28'	N40° 30' 44"W	0+00.00'	0+10.28'	(1614822.0049',472369.3309') WYE FOR PAD #25	(1614815.3269',472377.1465') RV C/O PAD #25
SANITARY SERVICE TO PAD #24 CENTERLINE CONTROL							
1	Line	48.84'	N9° 27' 47"E	0+00.00'	0+48.84'	(1614863.6962',472404.9541') WYE FOR PAD #24	(1614871.7263',472453.1300') RV C/O PAD #24
SANITARY SERVICE TO PAD #23 CENTERLINE CONTROL							
1	Line	17.50'	S4° 13' 48"W	0+00.00'	0+17.50'	(1614946.5933',472400.9586') WYE FOR PAD #23	(1614945.3025',472383.5063') RV C/O PAD #23
SANITARY SERVICE TO PAD #19 CENTERLINE CONTROL							
1	Line	65.00'	N4° 13' 48"E	0+00.00'	0+65.00'	(1614961.2355',472399.8756') WYE FOR PAD #19	(1614966.0297',472464.6971') RV C/O PAD #19
SANITARY SERVICE TO PAD #18 CENTERLINE CONTROL							
1	Line	69.40'	N15° 16' 20"E	0+00.00'	0+69.40'	(1615009.6954',472396.2915') WYE FOR PAD #18	(1615027.9754',472463.2402') RV C/O PAD #18
SANITARY SERVICE TO PAD #22 CENTERLINE CONTROL							
1	Line	17.50'	S4° 13' 48"W	0+00.00'	0+17.50'	(1615061.3029',472392.4746') WYE FOR PAD #22	(1615060.0121',472375.0223') RV C/O PAD #22
SANITARY SERVICE TO PAD #21 CENTERLINE CONTROL							
1	Line	13.30'	S4° 13' 48"W	0+00.00'	0+13.30'	(1615116.0446',472388.4259') WYE FOR PAD #21	(1615115.0638',472375.1649') RV C/O PAD #21
SANITARY SERVICE TO PAD #17 CENTERLINE CONTROL							
1	Line	52.48'	N4° 13' 48"E	0+00.00'	0+52.48'	(1615147.8728',472386.0719') WYE FOR PAD #17	(1615151.7438',472438.4114') RV C/O PAD #17
SANITARY SERVICE TO PAD #13 CENTERLINE CONTROL							
1	Line	71.95'	N37° 48' 10"E	0+00.00'	0+71.95'	(1615153.2746',472385.6723') WYE FOR PAD #13	(1615197.3762',472442.5223') C/O
2	Line	74.32'	N37° 48' 10"E	0+71.95'	1+46.28'	(1615197.3762',472442.5223') C/O	(1615242.9332',472501.2484') RV C/O PAD #13
SANITARY SERVICE TO PAD #16 CENTERLINE CONTROL							
1	Line	70.58'	N42° 06' 44"E	0+00.00'	0+70.58'	(1615164.7185',472384.8259') WYE FOR PAD #16	(1615212.0481',472437.1842') RV C/O PAD #16
SANITARY SERVICE TO PAD #20 CENTERLINE CONTROL							
1	Line	37.43'	S55° 28' 08"E	0+00.00'	0+37.43'	(1615167.1152',472384.6487') WYE FOR PAD #20	(1615197.9494',472363.4323') RV C/O PAD #20

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

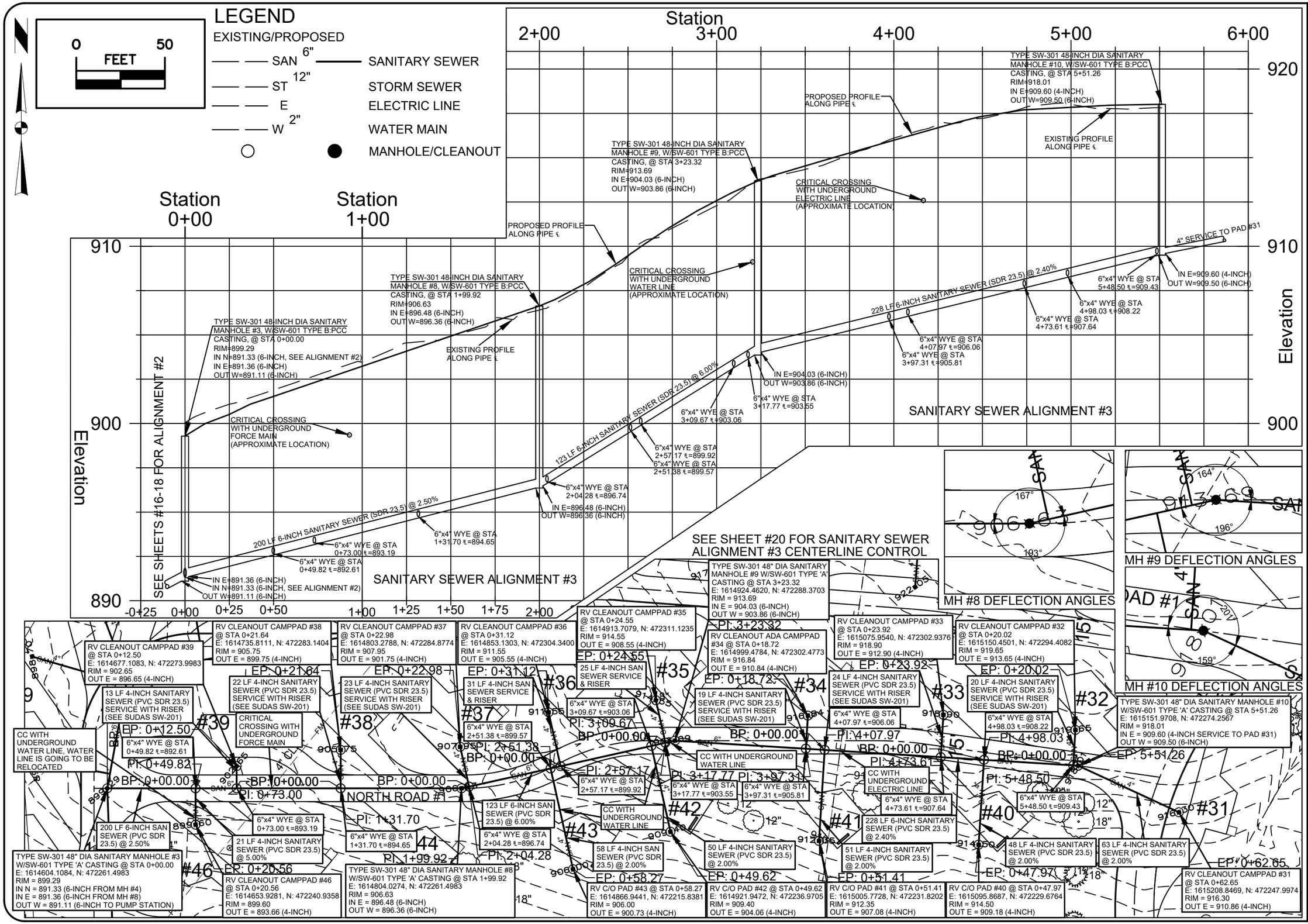
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #2

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 18


LEGEND
EXISTING/PROPOSED
0 50
FEET
SAN 6" SANITARY SEWER
ST 12" STORM SEWER
E ELECTRIC LINE
W 2" WATER MAIN
MANHOLE/CLEANOUT
Station
2+00 3+00 4+00 5+00 6+00
Station 0+00
Station 1+00
910
900
890
Elevation
SEE SHEETS #16-18 FOR ALIGNMENT #2
-0+25 0+00 0+25 0+50 1+00 1+25 1+50 1+75 2+00
TYPE SW-301 48-INCH DIA SANITARY MANHOLE #3, W/SW-601 TYPE B:PCC CASTING, @ STA 0+00.00 RIM=899.29 IN N=891.33 (6-INCH, SEE ALIGNMENT #2) IN E=891.36 (6-INCH) OUT W=891.11 (6-INCH)
CRITICAL CROSSING WITH UNDERGROUND FORCE MAIN (APPROXIMATE LOCATION)
IN E=891.36 (6-INCH)
IN N=891.33 (6-INCH, SEE ALIGNMENT #2)
OUT W=891.11 (6-INCH)
6"x4" WYE @ STA 0+49.82 ℄=892.61
6"x4" WYE @ STA 0+73.00 ℄=893.19
200 LF 6-INCH SANITARY SEWER (SDR 23.5) @ 2.50%
SANITARY SEWER ALIGNMENT #3
TYPE SW-301 48-INCH DIA SANITARY MANHOLE #8, W/SW-601 TYPE B:PCC CASTING, @ STA 1+99.92 RIM=906.63 IN E=896.48 (6-INCH) OUT W=896.36 (6-INCH)
EXISTING PROFILE ALONG PIPE ℄
PROPOSED PROFILE ALONG PIPE ℄
6"x4" WYE @ STA 1+31.70 ℄=894.65
6"x4" WYE @ STA 2+04.28 ℄=896.74
IN E=896.48 (6-INCH)
OUT W=896.36 (6-INCH)
123 LF 6-INCH SANITARY SEWER (SDR 23.5) @ 6.00%
6"x4" WYE @ STA 3+09.67 ℄=903.06
TYPE SW-301 48-INCH DIA SANITARY MANHOLE #9, W/SW-601 TYPE B:PCC CASTING, @ STA 3+23.32 RIM=913.69 IN E=904.03 (6-INCH) OUT W=903.86 (6-INCH)
CRITICAL CROSSING WITH UNDERGROUND WATER LINE (APPROXIMATE LOCATION)
6"x4" WYE @ STA 2+57.17 ℄=899.92
6"x4" WYE @ STA 2+51.38 ℄=899.57
IN E=904.03 (6-INCH)
OUT W=903.86 (6-INCH)
6"x4" WYE @ STA 3+17.77 ℄=903.55
228 LF 6-INCH SANITARY SEWER (SDR 23.5) @ 2.40%
6"x4" WYE @ STA 3+97.31 ℄=905.81
6"x4" WYE @ STA 4+07.97 ℄=906.06
6"x4" WYE @ STA 4+73.61 ℄=907.64
6"x4" WYE @ STA 4+98.03 ℄=908.22
6"x4" WYE @ STA 5+48.50 ℄=909.43
4" SERVICE TO PAD #31
IN E=909.60 (4-INCH)
OUT W=909.50 (6-INCH)
TYPE SW-301 48-INCH DIA SANITARY MANHOLE #10, W/SW-601 TYPE B:PCC CASTING, @ STA 5+51.26 RIM=918.01 IN E=909.60 (4-INCH) OUT W=909.50 (6-INCH)
EXISTING PROFILE ALONG PIPE ℄
SANITARY SEWER ALIGNMENT #3
SEE SHEET #20 FOR SANITARY SEWER ALIGNMENT #3 CENTERLINE CONTROL
MH #8 DEFLECTION ANGLES
167° 193°
MH #9 DEFLECTION ANGLES
164° 196°
MH #10 DEFLECTION ANGLES
159°
RV CLEANOUT CAMPPAD #39 @ STA 0+12.50 E: 1614677.1083, N: 472273.9983 RIM = 902.65 OUT E = 896.65 (4-INCH)
RV CLEANOUT CAMPPAD #38 @ STA 0+21.64 E: 1614735.8111, N: 472283.1404 RIM = 905.75 OUT E = 899.75 (4-INCH)
RV CLEANOUT CAMPPAD #37 @ STA 0+22.98 E: 1614803.2788, N: 472284.8774 RIM = 907.95 OUT E = 901.75 (4-INCH)
RV CLEANOUT CAMPPAD #36 @ STA 0+31.12 E: 1614853.1303, N: 472304.3400 RIM = 911.55 OUT E = 905.55 (4-INCH)
RV CLEANOUT CAMPPAD #35 @ STA 0+24.55 E: 1614913.7079, N: 472311.1235 RIM = 914.55 OUT E = 908.55 (4-INCH)
RV CLEANOUT ADA CAMPPAD #34 @ STA 0+18.72 E: 1614999.4784, N: 472302.4773 RIM = 916.84 OUT E = 910.84 (4-INCH)
RV CLEANOUT CAMPPAD #33 @ STA 0+23.92 E: 1615075.9540, N: 472302.9376 RIM = 918.90 OUT E = 912.90 (4-INCH)
RV CLEANOUT CAMPPAD #32 @ STA 0+20.02 E: 1615150.4501, N: 472294.4082 RIM = 919.65 OUT E = 913.65 (4-INCH)
TYPE SW-301 48" DIA SANITARY MANHOLE #9 W/SW-601 TYPE 'A' CASTING @ STA 3+23.32 E: 1614924.4620, N: 472288.3703 RIM = 913.69 IN E = 904.03 (6-INCH) OUT W = 903.86 (6-INCH)
TYPE SW-301 48" DIA SANITARY MANHOLE #10 W/SW-601 TYPE 'A' CASTING @ STA 5+51.26 E: 1615151.9708, N: 472274.2567 RIM = 918.01 IN E = 909.60 (4-INCH SERVICE TO PAD #31) OUT W = 909.50 (6-INCH)
TYPE SW-301 48" DIA SANITARY MANHOLE #3 W/SW-601 TYPE 'A' CASTING @ STA 0+00.00 E: 1614604.1084, N: 472261.4983 RIM = 899.29 IN N = 891.33 (6-INCH FROM MH #4) IN E = 891.36 (6-INCH FROM MH #8) OUT W = 891.11 (6-INCH TO PUMP STATION)
TYPE SW-301 48" DIA SANITARY MANHOLE #8 W/SW-601 TYPE 'A' CASTING @ STA 1+99.92 E: 1614804.0274, N: 472261.4983 RIM = 906.63 IN E = 896.48 (6-INCH) OUT W = 896.36 (6-INCH)
RV CLEANOUT CAMPPAD #46 @ STA 0+20.56 E: 1614653.9281, N: 472240.9358 RIM = 899.60 OUT E = 893.66 (4-INCH)
RV C/O PAD #43 @ STA 0+58.27 E: 1614866.9441, N: 472215.8381 RIM = 906.00 OUT E = 900.73 (4-INCH)
RV C/O PAD #42 @ STA 0+49.62 E: 1614921.9472, N: 472236.9705 RIM = 909.40 OUT E = 904.06 (4-INCH)
RV C/O PAD #41 @ STA 0+51.41 E: 1615005.7728, N: 472231.8202 RIM = 912.35 OUT E = 907.08 (4-INCH)
RV C/O PAD #40 @ STA 0+47.97 E: 1615095.8687, N: 472229.6764 RIM = 914.50 OUT E = 909.18 (4-INCH)
RV CLEANOUT CAMPPAD #31 @ STA 0+62.65 E: 1615208.8469, N: 472247.9974 RIM = 916.30 OUT E = 910.86 (4-INCH)
13 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)
22 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)
23 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)
31 LF 4-INCH SAN SEWER SERVICE & RISER
25 LF 4-INCH SAN SEWER SERVICE & RISER
19 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)
24 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)
20 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) SERVICE WITH RISER (SEE SUDAS SW-201)
CRITICAL CROSSING WITH UNDERGROUND FORCE MAIN
CC WITH UNDERGROUND WATER LINE, WATER LINE IS GOING TO BE RELOCATED
CC WITH UNDERGROUND WATER LINE
CC WITH UNDERGROUND ELECTRIC LINE
CC WITH UNDERGROUND WATER LINE
NORTH ROAD #1
200 LF 6-INCH SAN SEWER (PVC SDR 23.5) @ 2.50%
21 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 5.00%
123 LF 6-INCH SAN SEWER (PVC SDR 23.5) @ 6.00%
58 LF 4-INCH SAN SEWER (PVC SDR 23.5) @ 2.00%
50 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.00%
51 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.00%
228 LF 6-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.40%
48 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.00%
63 LF 4-INCH SANITARY SEWER (PVC SDR 23.5) @ 2.00%
#39 #38 #37 #36 #35 #34 #33 #32 #31 #46 #44 #43 #42 #41 #40
CONSULTANT:
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
SANITARY SEWER ALIGNMENT #3
CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA
NO. BY DATE REVISION
DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 19

SANITARY SEWER ALIGNMENT #3 CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	49.82'	N90° 00' 00"E	0+00.00'	0+49.82'	(1614604.1084',472261.4983') MH #3	(1614653.9281',472261.4983') WYE FOR PAD #46
2	Line	23.18'	N90° 00' 00"E	0+49.82'	0+73.00'	(1614653.9281',472261.4983') WYE FOR PAD #46	(1614677.1083',472261.4983') WYE FOR PAD #39
3	Line	58.70'	N90° 00' 00"E	0+73.00'	1+31.70'	(1614677.1083',472261.4983') WYE FOR PAD #39	(1614735.8111',472261.4983') WYE FOR PAD #38
4	Line	68.22'	N90° 00' 00"E	1+31.70'	1+99.92'	(1614735.8111',472261.4983') WYE FOR PAD #38	(1614804.0274',472261.4983') MH #8
5	Line	4.36'	N77° 25' 19"E	1+99.92'	2+04.28'	(1614804.0274',472261.4983') MH #8	(1614808.2834',472262.4479') WYE FOR PAD #37
6	Line	47.10'	N77° 25' 19"E	2+04.28'	2+51.38'	(1614808.2834',472262.4479') WYE FOR PAD #37	(1614854.2556',472272.7054') WYE FOR PAD #43
7	Line	5.79'	N77° 25' 19"E	2+51.38'	2+57.17'	(1614854.2556',472272.7054') WYE FOR PAD #43	(1614859.9074',472273.9665') WYE FOR PAD #36
8	Line	52.49'	N77° 25' 19"E	2+57.17'	3+09.67'	(1614859.9074',472273.9665') WYE FOR PAD #36	(1614911.1417',472285.3982') WYE FOR PAD #42
9	Line	8.11'	N77° 25' 19"E	3+09.67'	3+17.77'	(1614911.1417',472285.3982') WYE FOR PAD #42	(1614919.0540',472287.1636') WYE FOR PAD #35
10	Line	5.54'	N77° 25' 19"E	3+17.77'	3+23.32'	(1614919.0540',472287.1636') WYE FOR PAD #35	(1614924.4620',472288.3703') MH#9
11	Line	74.00'	S86° 27' 01"E	3+23.32'	3+97.31'	(1614924.4620',472288.3703') MH#9	(1614998.3191',472283.7885') WYE FOR ADA PAD #34
12	Line	10.66'	S86° 27' 01"E	3+97.31'	4+07.97'	(1614998.3191',472283.7885') WYE FOR ADA PAD #34	(1615008.9557',472283.1287') WYE FOR PAD #41
13	Line	65.64'	S86° 27' 01"E	4+07.97'	4+73.61'	(1615008.9557',472283.1287') WYE FOR PAD #41	(1615074.4730',472279.0643') WYE FOR PAD #33
14	Line	24.41'	S86° 27' 01"E	4+73.61'	4+98.03'	(1615074.4730',472279.0643') WYE FOR PAD #33	(1615098.8388',472277.5528') WYE FOR PAD #40
15	Line	50.47'	S86° 27' 01"E	4+98.03'	5+48.50'	(1615098.8388',472277.5528') WYE FOR PAD #40	(1615149.2106',472274.4279') WYE FOR PAD #32
16	Line	2.77'	S86° 27' 01"E	5+48.50'	5+51.26'	(1615149.2106',472274.4279') WYE FOR PAD #32	(1615151.9708',472274.2567') MH#10
SANITARY SERVICE TO PAD #46 CENTERLINE CONTROL							
1	Line	20.56'	S0° 00' 00"E	0+00.00'	0+20.56'	(1614653.9281',472261.4983') WYE FOR PAD #46	(1614653.9281',472240.9358') RV C/O PAD #46
SANITARY SERVICE TO PAD #39 CENTERLINE CONTROL							
1	Line	12.50'	N0° 00' 00"E	0+00.00'	0+12.50'	(1614677.1083',472261.4983') WYE FOR PAD #39	(1614677.1083',472273.9983') RV C/O PAD #39
SANITARY SERVICE TO PAD #38 CENTERLINE CONTROL							
1	Line	21.64'	N0° 00' 00"E	0+00.00'	0+21.64'	(1614735.8111',472261.4983') WYE FOR PAD #38	(1614735.8111',472283.1404') RV C/O PAD #38
SANITARY SERVICE TO PAD #37 CENTERLINE CONTROL							
1	Line	22.98'	N12° 34' 41"W	0+00.00'	0+22.98'	(1614808.2834',472262.4479') WYE FOR PAD #37	(1614803.2788',472284.8774') RV C/O PAD #37
SANITARY SERVICE TO PAD #43 CENTERLINE CONTROL							
1	Line	58.27'	S12° 34' 41"E	0+00.00'	0+58.27'	(1614854.2556',472272.7054') WYE FOR PAD #43	(1614866.9441',472215.8381') RV C/O PAD #43
SANITARY SERVICE TO PAD #36 CENTERLINE CONTROL							
1	Line	31.12'	N12° 34' 41"W	0+00.00'	0+31.12'	(1614859.9074',472273.9665') WYE FOR PAD #36	(1614853.1303',472304.3400') RV C/O PAD #36
SANITARY SERVICE TO PAD #42 CENTERLINE CONTROL							
1	Line	49.62'	S12° 34' 41"E	0+00.00'	0+49.62'	(1614911.1417',472285.3982') WYE FOR PAD #42	(1614921.9472',472236.9705') RV C/O PAD #42
SANITARY SERVICE TO PAD #35 CENTERLINE CONTROL							
1	Line	24.55'	N12° 34' 41"W	0+00.00'	0+24.55'	(1614919.0540',472287.1636') WYE FOR PAD #35	(1614913.7079',472311.1235') RV C/O PAD #35
SANITARY SERVICE TO ADA PAD #34 CENTERLINE CONTROL							
1	Line	18.72'	N3° 32' 59"E	0+00.00'	0+18.72'	(1614998.3191',472283.7885') WYE FOR PAD #34	(1614999.4784',472302.4773') RV C/O PAD #34
SANITARY SERVICE TO PAD #41 CENTERLINE CONTROL							
1	Line	51.41'	S3° 32' 59"W	0+00.00'	0+51.41'	(1615008.9557',472283.1287') WYE FOR PAD #41	(1615005.7728',472231.8202') RV C/O PAD #41
SANITARY SERVICE TO PAD #33 CENTERLINE CONTROL							
1	Line	23.92'	N3° 32' 59"E	0+00.00'	0+23.92'	(1615074.4730',472279.0643') WYE FOR PAD #33	(1615075.9540',472302.9376') RV C/O PAD #33
SANITARY SERVICE TO PAD #40 CENTERLINE CONTROL							
1	Line	47.97'	S3° 32' 59"W	0+00.00'	0+47.97'	(1615098.8388',472277.5528') WYE FOR PAD #40	(1615095.8687',472229.6764') RV C/O PAD #40
SANITARY SERVICE TO PAD #32 CENTERLINE CONTROL							
1	Line	20.02'	N3° 32' 59"E	0+00.00'	0+20.02'	(1615149.2106',472274.4279') WYE FOR PAD #32	(1615150.4501',472294.4082') RV C/O PAD #32
SANITARY SERVICE TO PAD #31 CENTERLINE CONTROL							
1	Line	62.65'	S65° 13' 03"E	0+00.00'	0+62.65'	(1615151.9708',472274.2567') WYE FOR PAD #31	(1615208.8469',472247.9974') RV C/O PAD #31

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #3

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

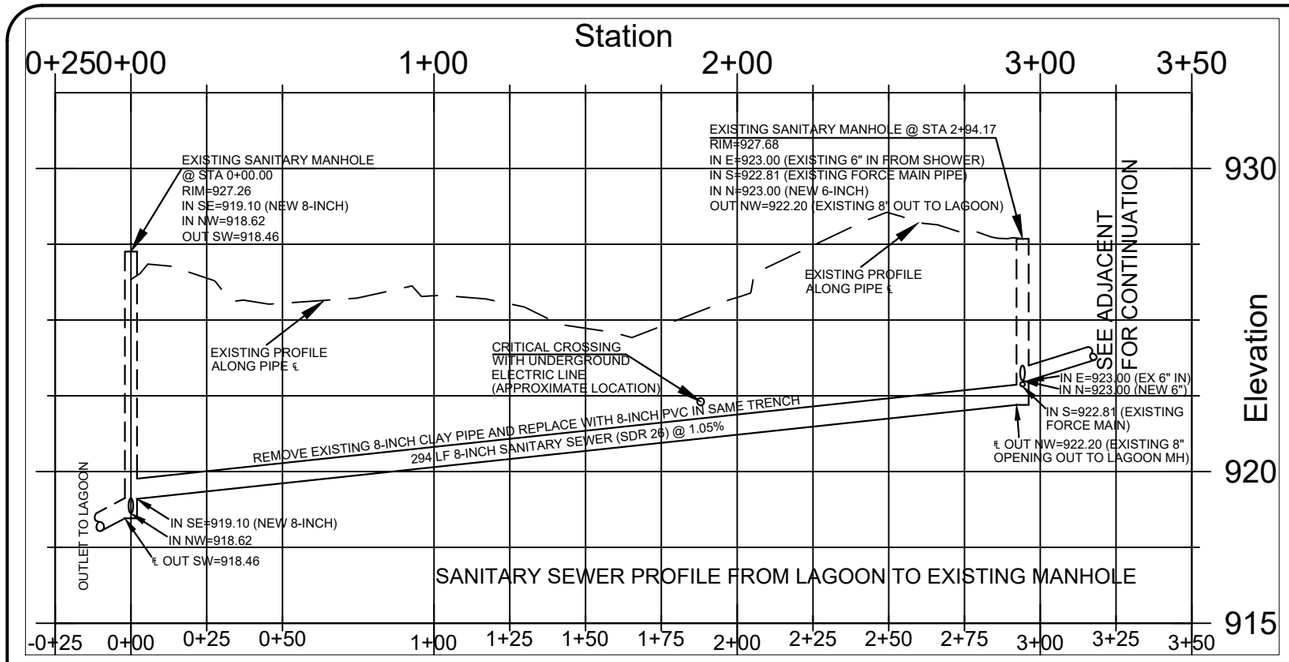
DRAWN BY:

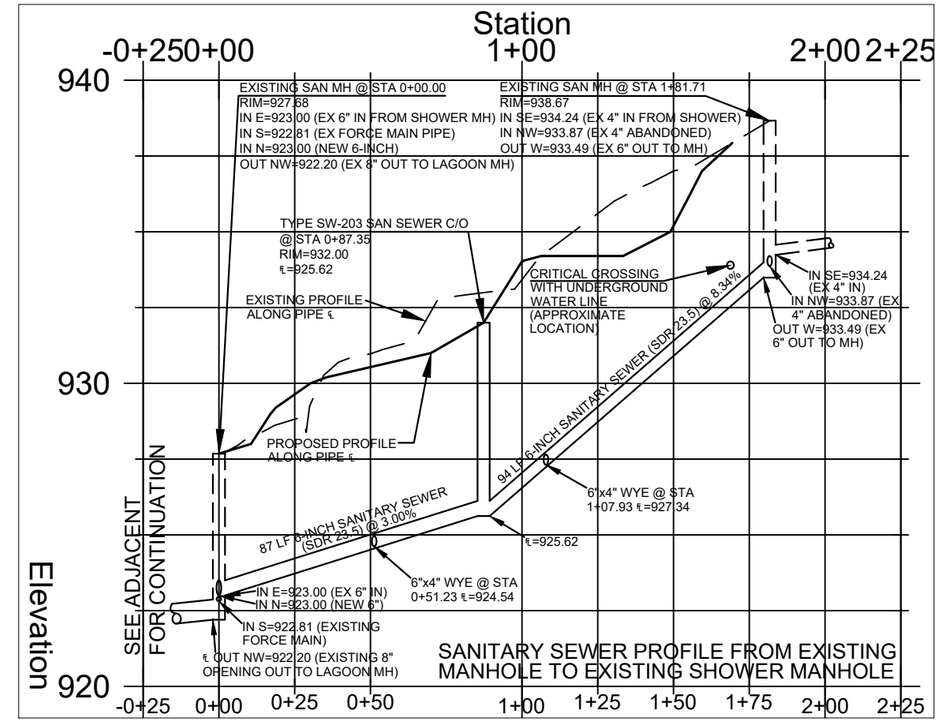
PROJECT NUMBER: 22-05-91-01

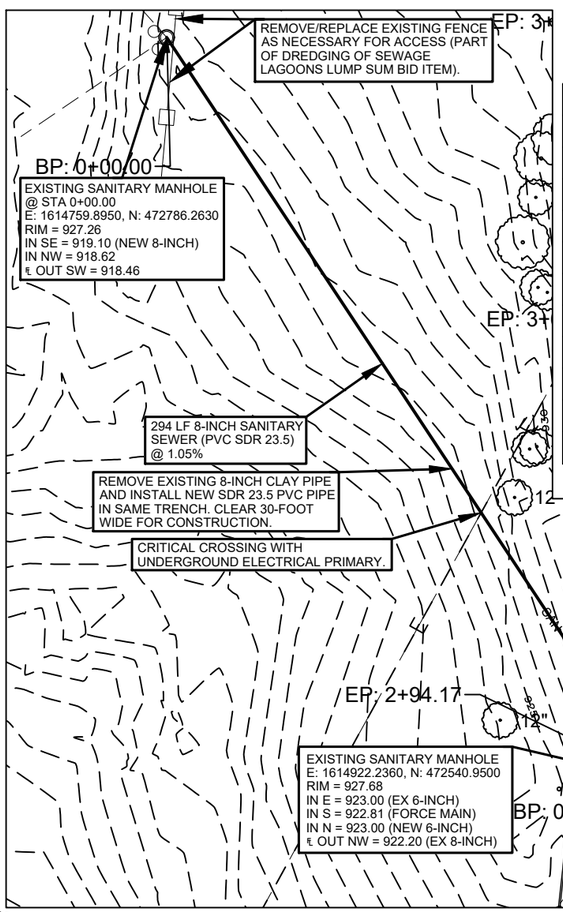
CHK'D BY:

DATE: 12/29/2021

SHEET No: 20

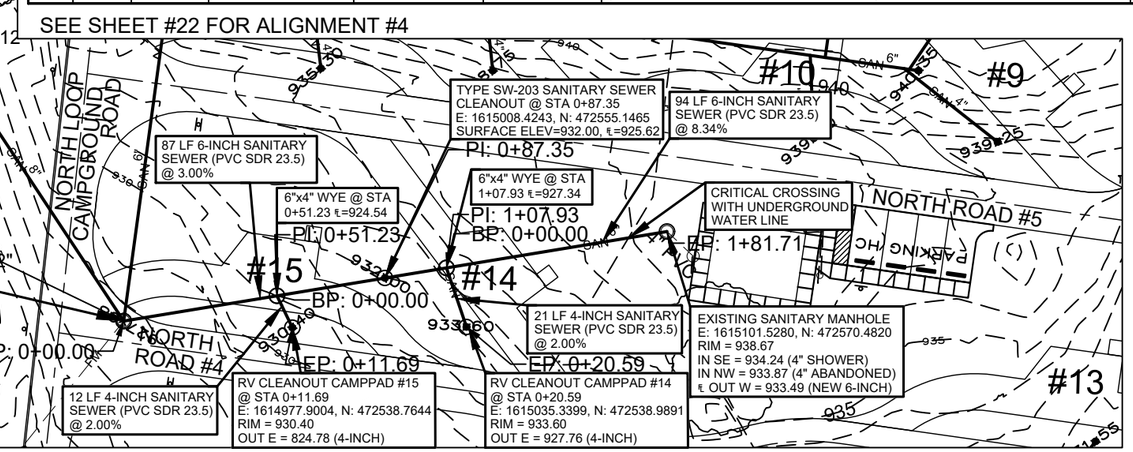






SANITARY SEWER ALIGNMENT FROM LAGOON TO EXISTING MANHOLE CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	294.17'	S33° 29' 44"E	0+00.00'	2+94.17'	(1614759.8950',472786.2630') LAGOON MH	(1614922.2360',472540.9500') EXISTING MH
SANITARY SEWER ALIGNMENT FROM EXISTING MANHOLE TO SHOWER MH CENTERLINE CONTROL							
1	Line	51.23'	N80° 38' 48"E	0+00.00'	0+51.23'	(1614922.2360',472540.9500') EXISTING MH	(1614972.7858',472549.2763') WYE FOR PAD #15
2	Line	36.12'	N80° 38' 48"E	0+51.23'	0+87.35'	(1614972.7858',472549.2763') WYE FOR PAD #15	(1615008.4243',472555.1465') C/O
3	Line	20.58'	N80° 38' 48"E	0+87.35'	1+07.93'	(1615008.4243',472555.1465') C/O	(1615028.7330',472558.4916') WYE FOR PAD #14
4	Line	73.78'	N80° 38' 48"E	1+07.93'	1+81.71'	(1615028.7330',472558.4916') WYE FOR PAD #14	(1615101.5280',472570.4820') EXISTING SHOWER MH
SANITARY SERVICE TO PAD #15 CENTERLINE CONTROL							
1	Line	11.69'	S25° 56' 45"E	0+00.00'	0+11.69'	(1614972.7858',472549.2763') WYE FOR PAD #15	(1614977.9004',472538.7644') RV C/O PAD #15
SANITARY SERVICE TO PAD #14 CENTERLINE CONTROL							
1	Line	20.59'	S18° 42' 54"E	0+00.00'	0+20.59'	(1615028.7330',472558.4916') WYE FOR PAD #14	(1615035.3399',472538.9891') RV C/O PAD #14

SEE SHEET #22 FOR ALIGNMENT #4



0 FEET 50

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

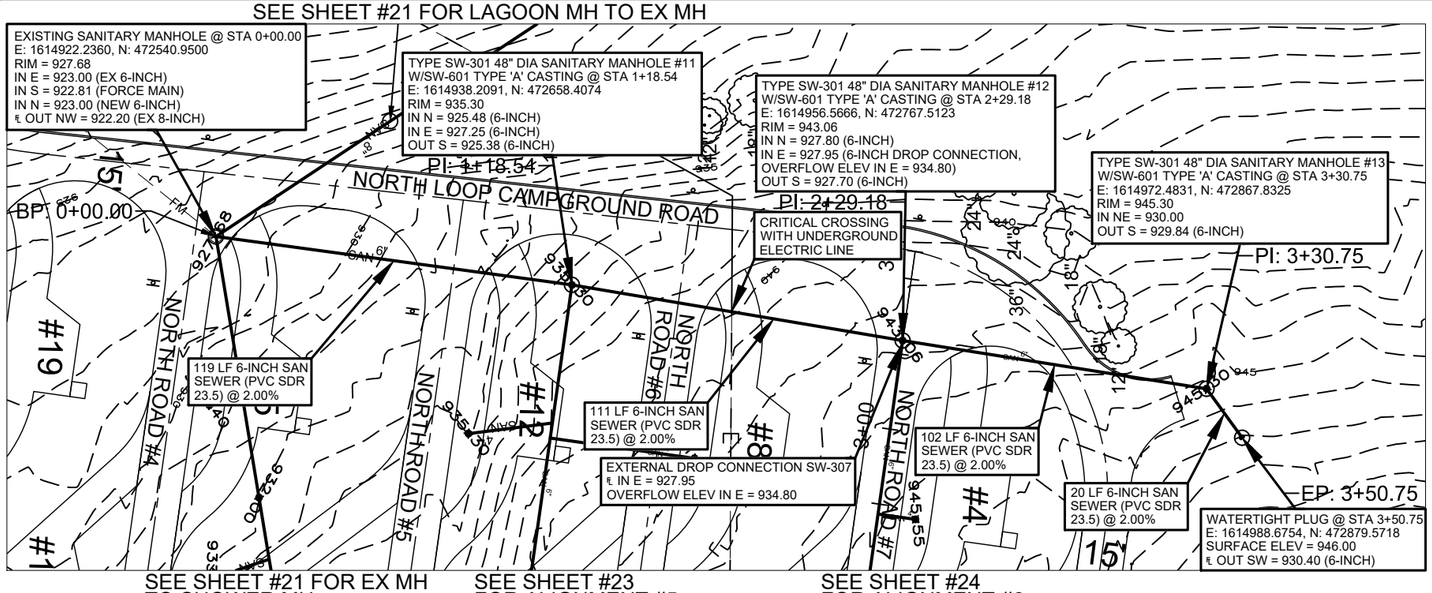
SAN SEWER: LAGOON TO SHOWER

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 21

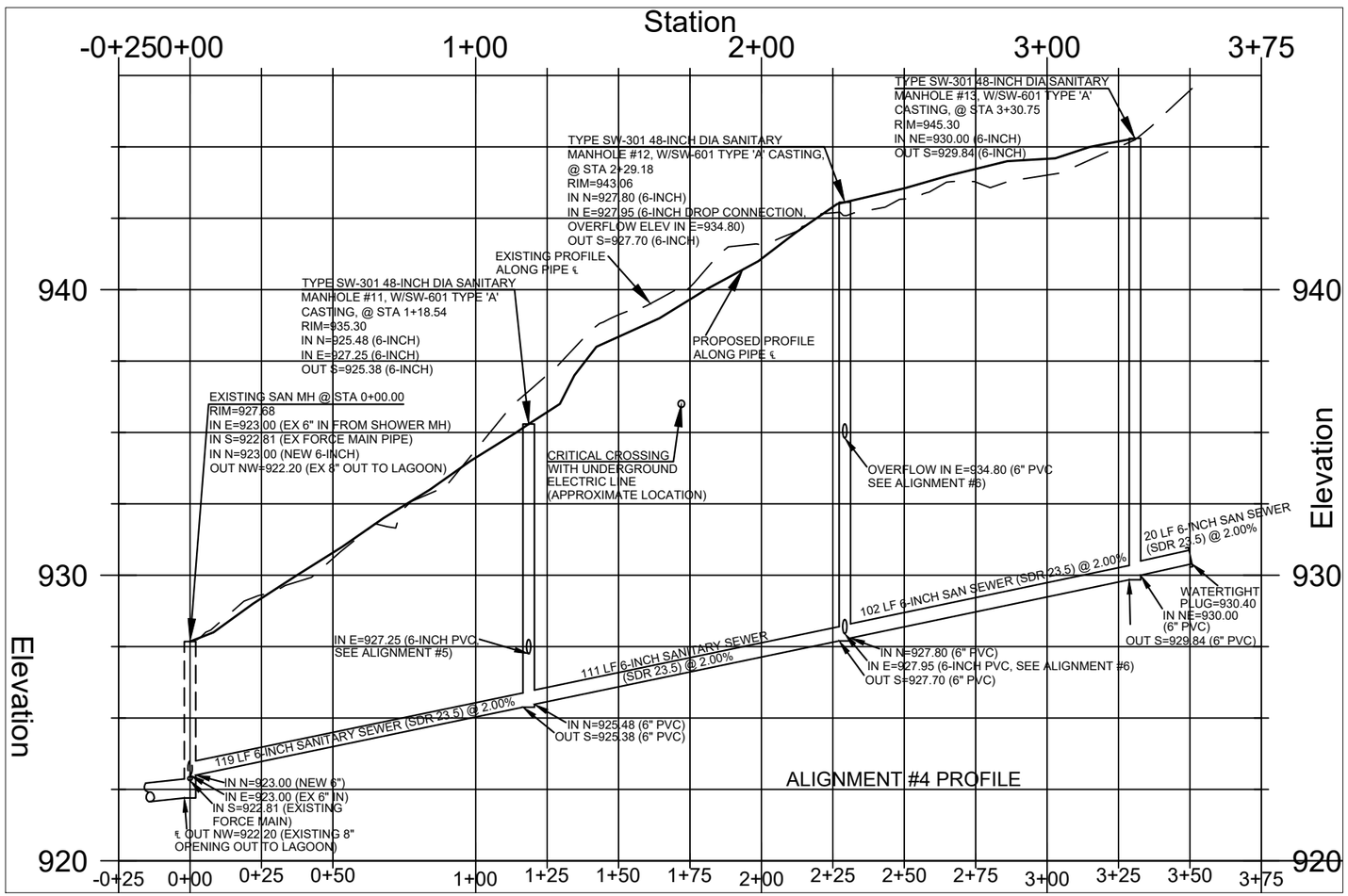
SEE SHEET #21 FOR LAGOON MH TO EX MH

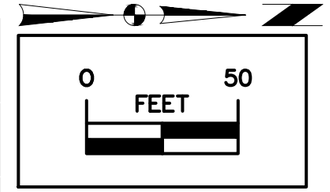


SEE SHEET #21 FOR EX MH TO SHOWER MH

SEE SHEET #23 FOR ALIGNMENT #5

SEE SHEET #24 FOR ALIGNMENT #6



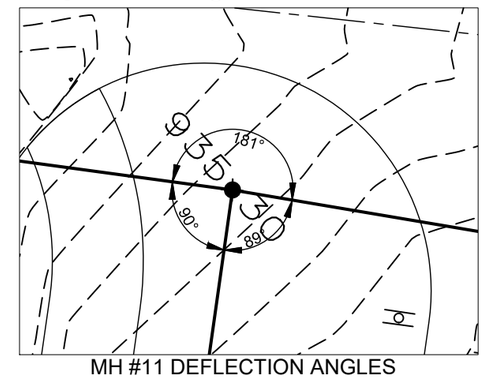


SEE SHEET #25 FOR SANITARY SEWER ALIGNMENTS #4, 5 & 6 CENTERLINE CONTROL

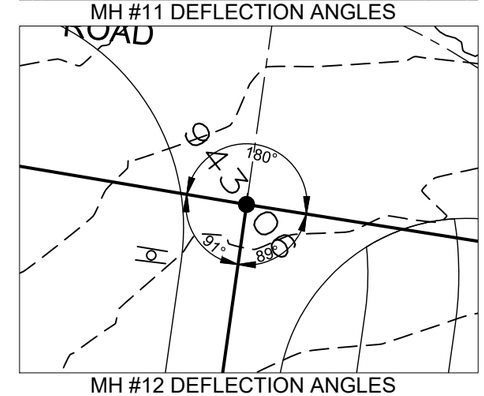
LEGEND

EXISTING/PROPOSED

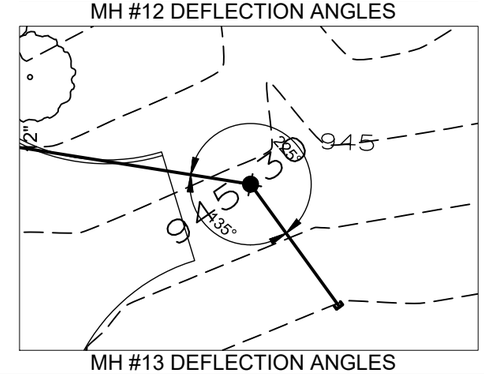
—— —— SAN 6" ——	SANITARY SEWER
—— —— ST 12"	STORM SEWER
—— —— E	ELECTRIC LINE
—— —— W 2"	WATER MAIN
○ ●	MANHOLE/CLEANOUT



MH #11 DEFLECTION ANGLES



MH #12 DEFLECTION ANGLES



MH #13 DEFLECTION ANGLES

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #4

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

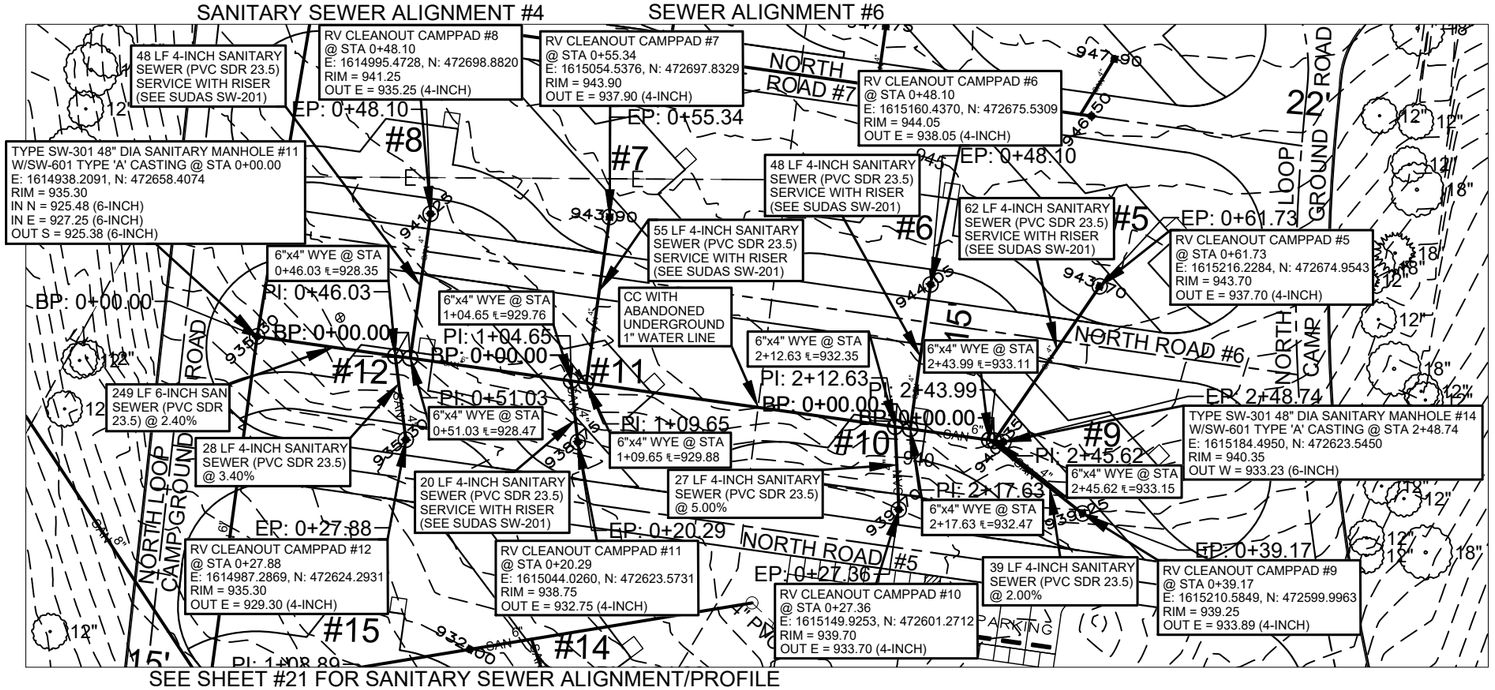
CHK'D BY:

DATE: 12/29/2021

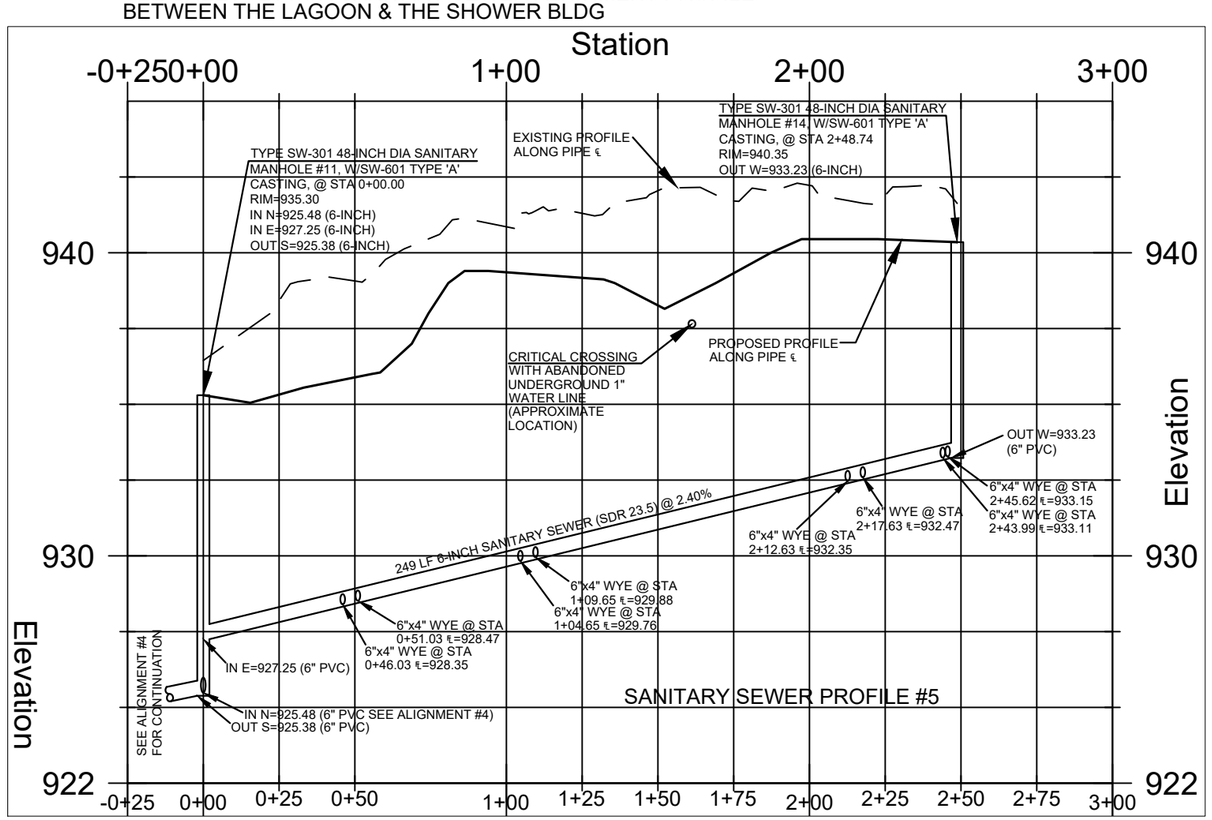
SHEET No: 22

SEE SHEET #22 FOR SANITARY SEWER ALIGNMENT #4

SEE SHEET #24 FOR SANITARY SEWER ALIGNMENT #6



SEE SHEET #21 FOR SANITARY SEWER ALIGNMENT/PROFILE BETWEEN THE LAGOON & THE SHOWER BLDG



SEE SHEET #25 FOR SANITARY SEWER ALIGNMENTS #4, 5 & 6 CENTERLINE CONTROL

0 50 FEET

LEGEND

EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○ ●	MANHOLE/CLEANOUT

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

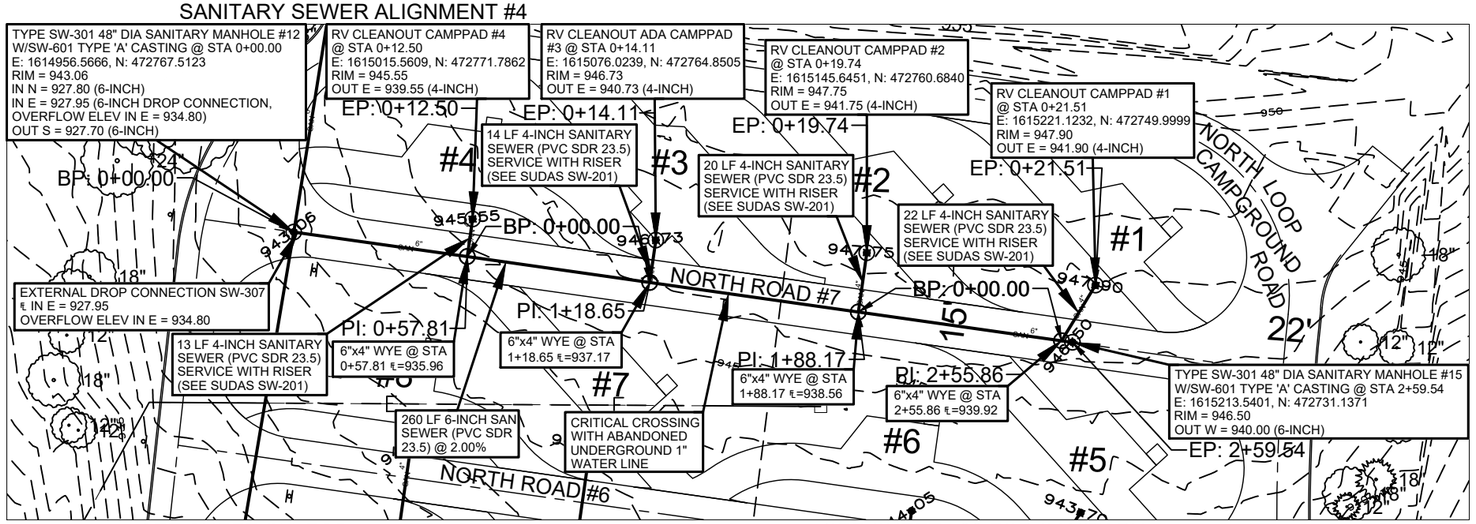
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

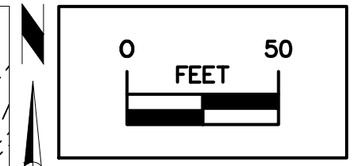
SANITARY SEWER ALIGNMENT #5

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 23



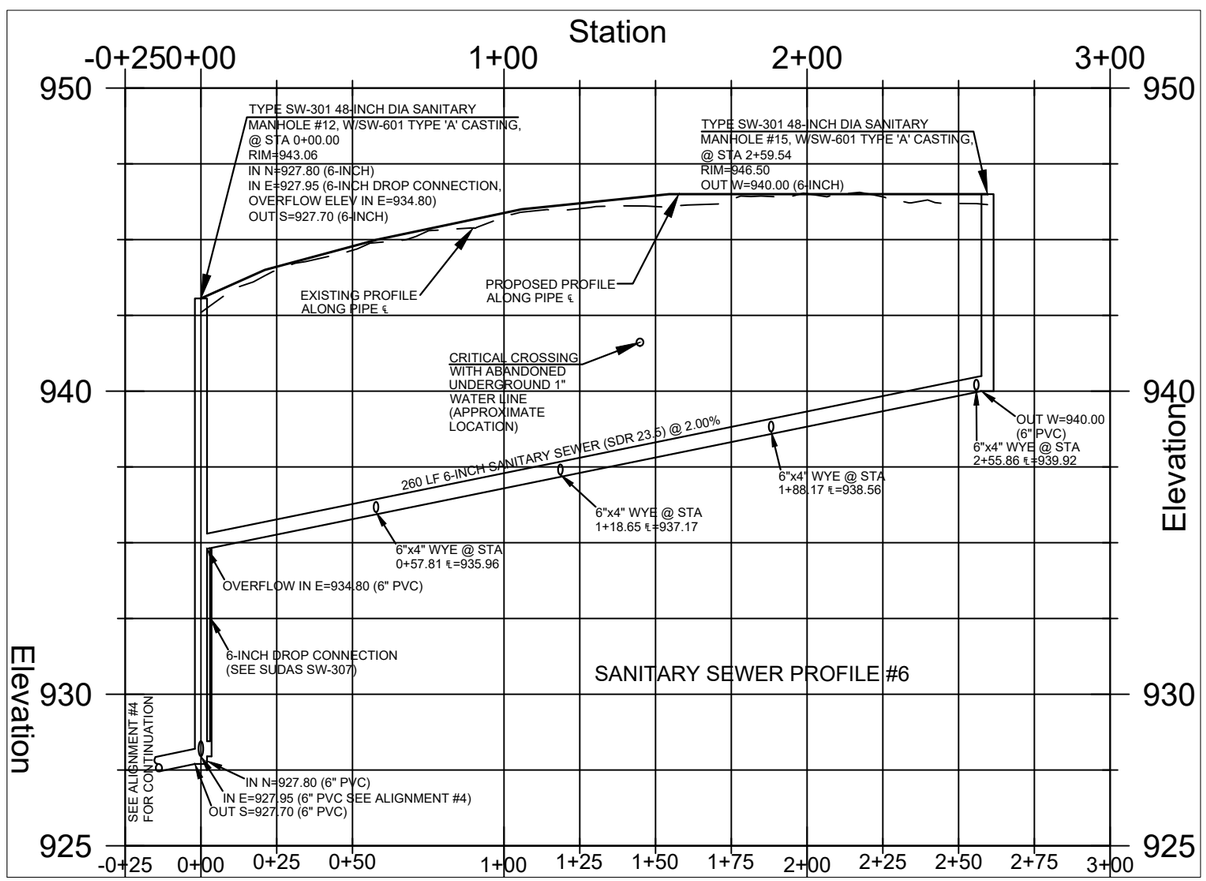


LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT

SEE SHEET #25 FOR SANITARY SEWER ALIGNMENTS #4, 5 & 6 CENTERLINE CONTROL



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER ALIGNMENT #6

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 24

SANITARY SEWER ALIGNMENT #4 CENTERLINE CONTROL							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	118.54'	N7° 44' 39"E	0+00.00'	1+18.54'	(1614922.2360',472540.9500') EXISTING MH	(1614938.2091',472658.4074',0.0000') MH #11
2	Line	110.64'	N9° 33' 03"E	1+18.54'	2+29.18'	(1614938.2091',472658.4074') MH #11	(1614956.5666',472767.5123',0.0000') MH #12
3	Line	101.57'	N9° 00' 55"E	2+29.18'	3+30.75'	(1614956.5666',472767.5123') MH #12	(1614972.4831',472867.8325') MH #13
4	Line	20.00'	N54° 03' 30"E	3+30.75'	3+50.75'	(1614972.4831',472867.8325') MH #13	(1614988.6754',472879.5718') WATERTIGHT PLUG
SANITARY SEWER ALIGNMENT #5 CENTERLINE CONTROL							
1	Line	46.03'	S81° 56' 35"E	0+00.00'	0+46.03'	(1614938.2091',472658.4074') MH #11	(1614983.7805',472651.9567') WYE FOR PAD #12
2	Line	5.00'	S81° 56' 35"E	0+46.03'	0+51.03'	(1614983.7805',472651.9567') WYE FOR PAD #12	(1614988.7312',472651.2559') WYE FOR PAD #8
3	Line	53.63'	S81° 56' 35"E	0+51.03'	1+04.65'	(1614988.7312',472651.2559') WYE FOR PAD #8	(1615041.8307',472643.7395') WYE FOR PAD #11
4	Line	5.00'	S81° 56' 35"E	1+04.65'	1+09.65'	(1615041.8307',472643.7395') WYE FOR PAD #11	(1615046.7814',472643.0388') WYE FOR PAD #7
5	Line	102.98'	S81° 56' 35"E	1+09.65'	2+12.63'	(1615046.7814',472643.0388') WYE FOR PAD #7	(1615148.7447',472628.6056') WYE FOR PAD #10
6	Line	5.00'	S81° 56' 35"E	2+12.63'	2+17.63'	(1615148.7447',472628.6056') WYE FOR PAD #10	(1615153.6954',472627.9048') WYE FOR PAD #6
7	Line	26.36'	S81° 56' 35"E	2+17.63'	2+43.99'	(1615153.6954',472627.9048') WYE FOR PAD #6	(1615179.7935',472624.2105') WYE FOR PAD #9
8	Line	1.63'	S81° 56' 35"E	2+43.99'	2+45.62'	(1615179.7935',472624.2105') WYE FOR PAD #9	(1615181.4056',472623.9823') WYE FOR PAD #5
9	Line	3.12'	S81° 56' 35"E	2+45.62'	2+48.74'	(1615181.4056',472623.9823') WYE FOR PAD #5	(1615184.4950',472623.5450') MH #14
SANITARY SERVICE TO PAD #12 CENTERLINE CONTROL							
1	Line	27.88'	S7° 13' 25"E	0+00.00'	0+27.88'	(1614983.7805',472651.9567') WYE FOR PAD #12	(1614987.2869',472624.2931') RV C/O PAD #12
SANITARY SERVICE TO PAD #8 CENTERLINE CONTROL							
1	Line	48.10'	N8° 03' 25"E	0+00.00'	0+48.10'	(1614988.7312',472651.2559') WYE FOR PAD #8	(1614995.4728',472698.8820') RV C/O PAD #8
SANITARY SERVICE TO PAD #11 CENTERLINE CONTROL							
1	Line	20.29'	S6° 12' 45"E	0+00.00'	0+20.29'	(1615041.8307',472643.7395') WYE FOR PAD #11	(1615044.0260',472623.5731') RV C/O PAD #11
SANITARY SERVICE TO PAD #7 CENTERLINE CONTROL							
1	Line	55.34'	N8° 03' 25"E	0+00.00'	0+55.34'	(1615046.7814',472643.0388') WYE FOR PAD #7	(1615054.5376',472697.8329') RV C/O PAD #7
SANITARY SERVICE TO PAD #10 CENTERLINE CONTROL							
1	Line	27.36'	S2° 28' 23"E	0+00.00'	0+27.36'	(1615148.7447',472628.6056') WYE FOR PAD #10	(1615149.9253',472601.2712') RV C/O PAD #10
SANITARY SERVICE TO PAD #6 CENTERLINE CONTROL							
1	Line	48.10'	N8° 03' 25"E	0+00.00'	0+48.10'	(1615153.6954',472627.9048') WYE FOR PAD #6	(1615160.4370',472675.5309') RV C/O PAD #6
SANITARY SERVICE TO PAD #9 CENTERLINE CONTROL							
1	Line	39.17'	S51° 49' 07"E	0+00.00'	0+39.17'	(1615179.7935',472624.2105') WYE FOR PAD #9	(1615210.5849',472599.9963') RV C/O PAD #9
SANITARY SERVICE TO PAD #5 CENTERLINE CONTROL							
1	Line	61.73'	N34° 20' 24"E	0+00.00'	0+61.73'	(1615181.4056',472623.9823') WYE FOR PAD #5	(1615216.2284',472674.9543') RV C/O PAD #5
SANITARY SEWER ALIGNMENT #6 CENTERLINE CONTROL							
1	Line	57.81'	S81° 56' 35"E	0+00.00'	0+57.81'	(1614956.5666',472767.5123') MH #12	(1615013.8089',472759.4095') WYE FOR PAD #4
2	Line	60.84'	S81° 56' 35"E	0+57.81'	1+18.65'	(1615013.8089',472759.4095') WYE FOR PAD #4	(1615074.0467',472750.8827') WYE FOR ADA PAD #3
3	Line	69.52'	S81° 56' 35"E	1+18.65'	1+88.17'	(1615074.0467',472750.8827') WYE FOR ADA PAD #3	(1615142.8785',472741.1394') WYE FOR PAD #2
4	Line	67.69'	S81° 56' 35"E	1+88.17'	2+55.86'	(1615142.8785',472741.1394') WYE FOR PAD #2	(1615209.8973',472731.6527') WYE FOR PAD #1
5	Line	3.68'	S81° 56' 35"E	2+55.86'	2+59.54'	(1615209.8973',472731.6527') WYE FOR PAD #1	(1615213.5401',472731.1371') MH #15
SANITARY SERVICE TO PAD #4 CENTERLINE CONTROL							
1	Line	12.50'	N8° 03' 25"E	0+00.00'	0+12.50'	(1615013.8089',472759.4095') WYE FOR PAD #4	(1615015.5609',472771.7862') RV C/O PAD #4
SANITARY SERVICE TO ADA PAD #3 CENTERLINE CONTROL							
1	Line	14.11'	N8° 03' 25"E	0+00.00'	0+14.11'	(1615074.0467',472750.8827') WYE FOR ADA PAD #3	(1615076.0239',472764.8505') RV C/O ADA PAD #3
SANITARY SERVICE TO PAD #2 CENTERLINE CONTROL							
1	Line	19.74'	N8° 03' 25"E	0+00.00'	0+19.74'	(1615142.8785',472741.1394') WYE FOR PAD #2	(1615145.6451',472760.6840') RV C/O PAD #2
SANITARY SERVICE TO PAD #1 CENTERLINE CONTROL							
1	Line	21.51'	N31° 27' 39"E	0+00.00'	0+21.51'	(1615209.8973',472731.6527') WYE FOR PAD #1	(1615221.1232',472749.9999') RV C/O PAD #1

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SAN SEWER ALIGNMENTS #4, 5 & 6 CTL

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY	DATE	REVISION

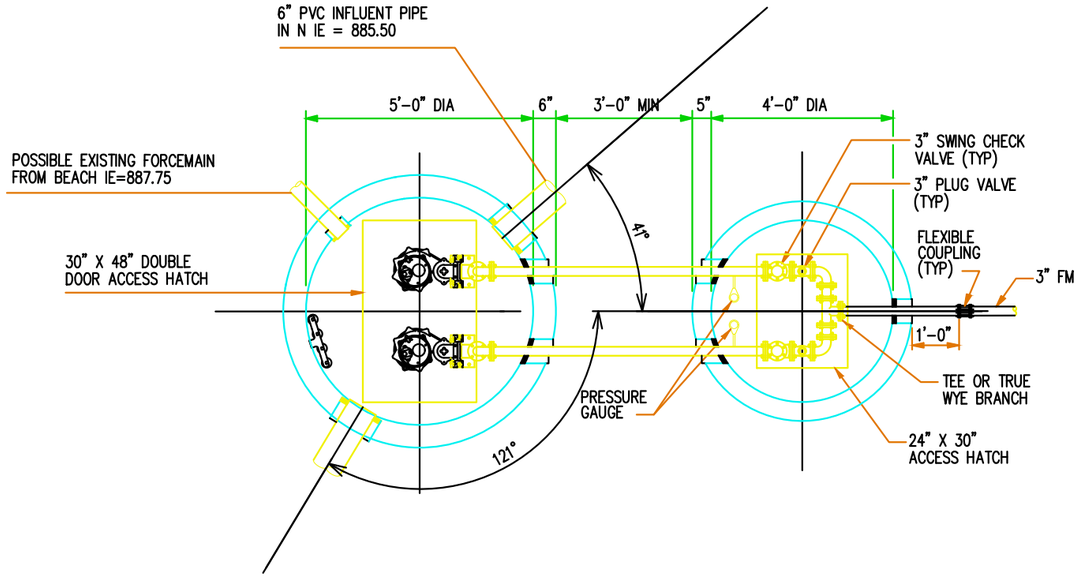
DRAWN BY:

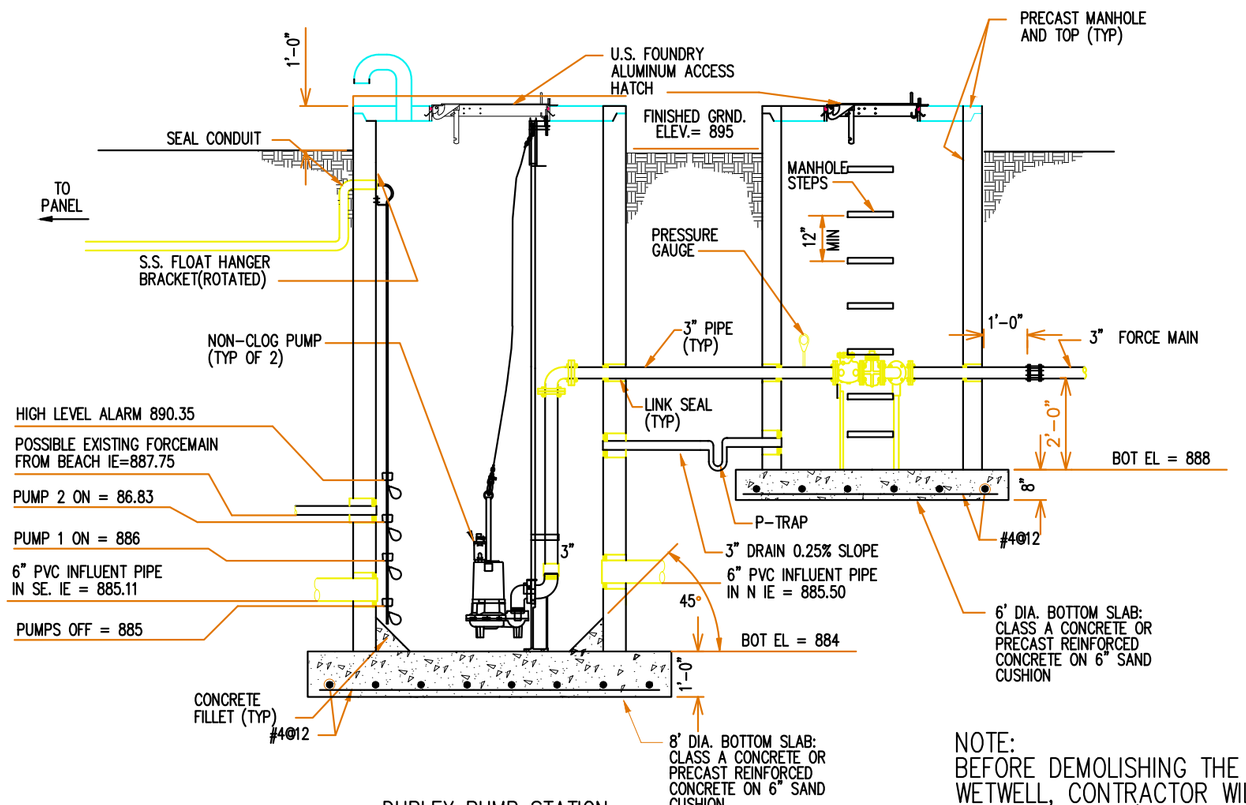
CHK'D BY:

PROJECT NUMBER: 22-05-91-01

DATE: 12/29/2021

SHEET No: 25





DUPLEX PUMP STATION

NOT TO SCALE

DUPLEX STATION

FURNISHED BY CONTRACTOR:

2 – "HYDROMATIC HPGFX–300 SUBMERSIBLE GRINDER PUMPS
60 GPM @43' TDH (OR APPROVED EQUAL)
COMPLETE WITH

- 50' OF POWER CORD
- 2– 3 HP, 230/1 SUBMERSIBLE MOTOR
- 2–STAINLESS STEEL LIFTING CHAIN
- 2–SEAL KIT (SPARE)
- 2– 3" MTM RAIL SYSTEM –BASE ELBOW, SEALING FLANGE
- 1–SS CORD AND FLOAT HANGER
- 4–FLOATS–NON MERCURY

1 – COMPATIBLE CONTROL PANEL COMPLETE AS FOLLOWS:
NEMA 4X ENCLOSURE
FLASHING HIGHWATER ALARM LIGHT AND HORN
PADLOCK PROVISION
CIRCUIT BREAKERS
HP RATED CONTACTOR
DUPLEX PUMP CONTROLLER WITH TERMINALS
ALTERNATING RELAY
H–O–A SWITCHES
RUN LIGHTS
LIGHTNING ARRESTOR
SWING DEAD INNER DOOR
LEVEL CONTROL SYSTEM (MECHANICALLY ACTIVATED/FLOATS 4)
MOTOR OVER–TEMP RELAYS W/INCDICATOR LIGHTS
ELAPSED TIME METERS
SEAL FAILURE CIRCUIT AND INDICATION
ANTI–CONDENSATION HEATER WITH THERMOSTAT
UL LABEL

1 – START–UP AND TRAINING

1 – U.S. FOUNDRY ALUMINUM ACCESS HATCH FOR LIFT STATION, 30" X 48" DUPLEX, 300 PSF, BITUMINOUS PAINT AND HOLD OPEN HANDLE

1 – U.S. FOUNDRY ALUMINUM ACCESS HATCH FOR VALVE BOX, 24" X 30" SIMPLEX, 300 PSF, BITUMINOUS PAINT AND HOLD OPEN HANDLE

FURNISHED BY CONTRACTOR:

1 – PRECAST CONCRETE WET WELL AND TOP WITH CAST–IN–PLACE (OR PRECAST) BASE

1 – PRECAST CONCRETE VALVE VAULT AND TOP WITH CAST–IN–PLACE (OR PRECAST) BASE

2 – PLUG VALVES, 3", CAST OR DUCTILE IRON

2 – CHECK VALVES, 3", CAST OR DUCTILE IRON

1 – ALL PIPING, COUPLINGS, ELBOWS, ETC. ABOVE BASE ELBOW – SCH 40 GALVANIZED STEEL PIPE OR SCH 80 PVC

1 – PIPE AND FITTINGS FOR VALVE VAULT DRAIN TO WET WELL

1 – PIPE AND FITTINGS FOR WET WELL VENT

2 – PRESSURE GAUGES AND FITTINGS

NOTE:
BEFORE DEMOLISHING THE EXISTING LIFT STATION WETWELL, CONTRACTOR WILL VERIFY AND RECORD ALL THE STUBOUTS (LOCATION AND ELEVATION) TO ORDER THE NEW WETWELL.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

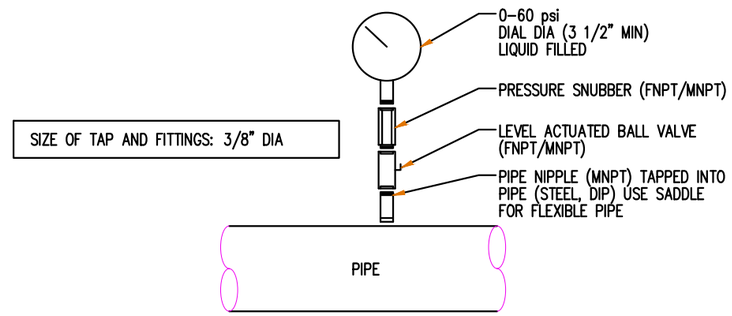
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER PUMP STATION

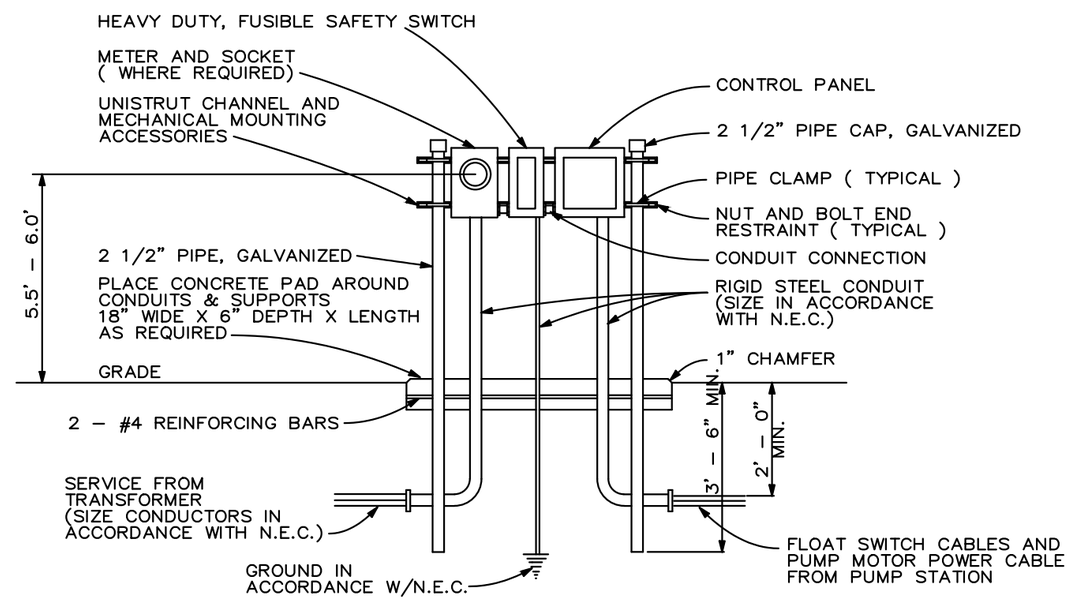
CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 26



GAUGE INSTALLATION DETAIL



STANDARD PUMP STATION CONTROL PEDESTAL

NOT TO SCALE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILING
502 E. 9TH ST., DES MOINES, IA 50319-0034

SANITARY SEWER PUMP STATION

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY	DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

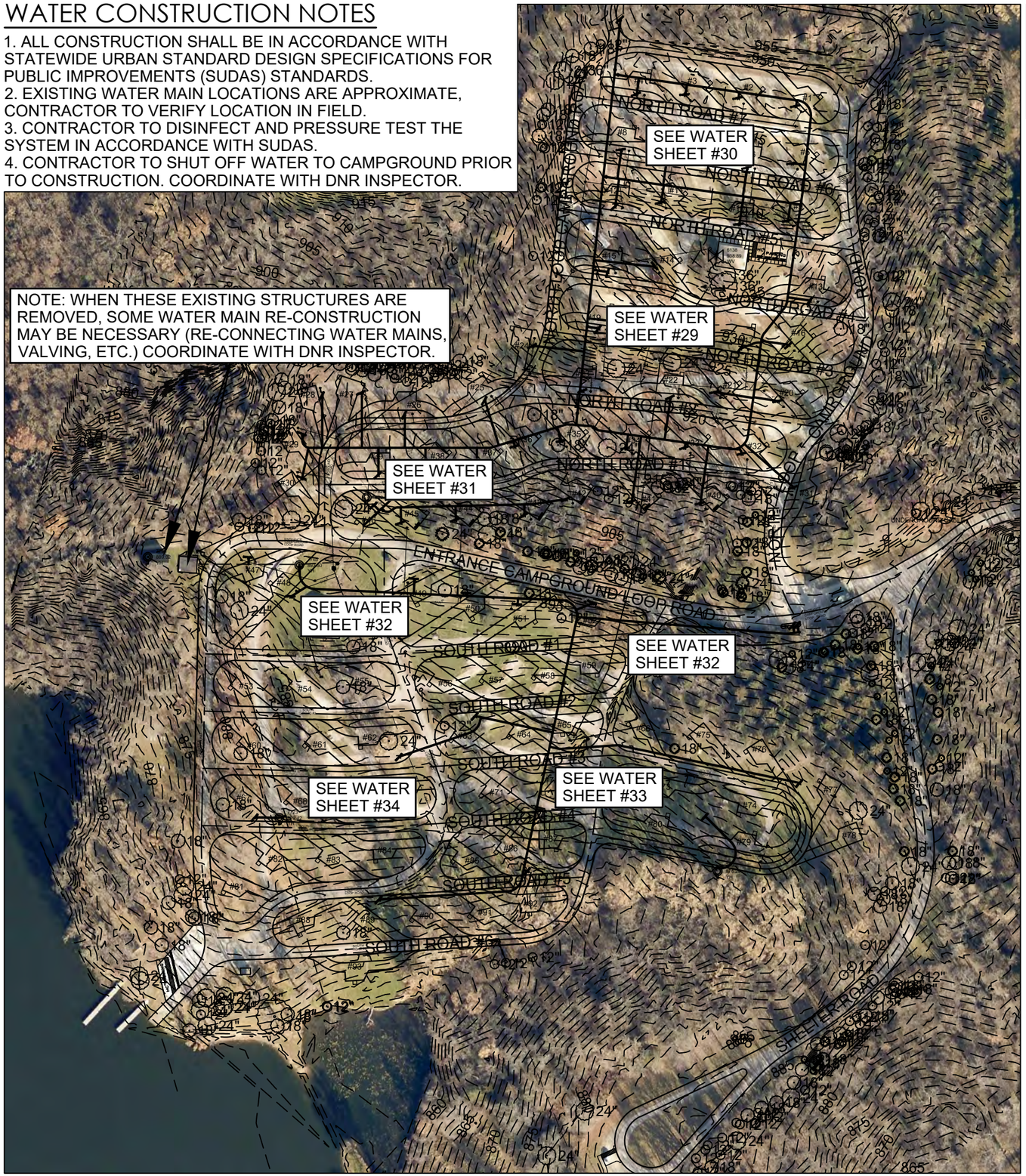
CHK'D BY:

DATE: 12/29/2021

SHEET No: 27

WATER CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS) STANDARDS.
2. EXISTING WATER MAIN LOCATIONS ARE APPROXIMATE, CONTRACTOR TO VERIFY LOCATION IN FIELD.
3. CONTRACTOR TO DISINFECT AND PRESSURE TEST THE SYSTEM IN ACCORDANCE WITH SUDAS.
4. CONTRACTOR TO SHUT OFF WATER TO CAMPGROUND PRIOR TO CONSTRUCTION. COORDINATE WITH DNR INSPECTOR.



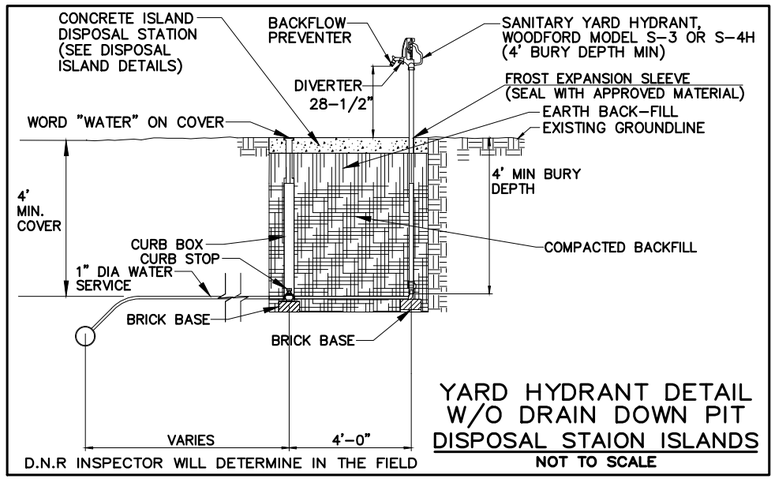
0 FEET 150

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

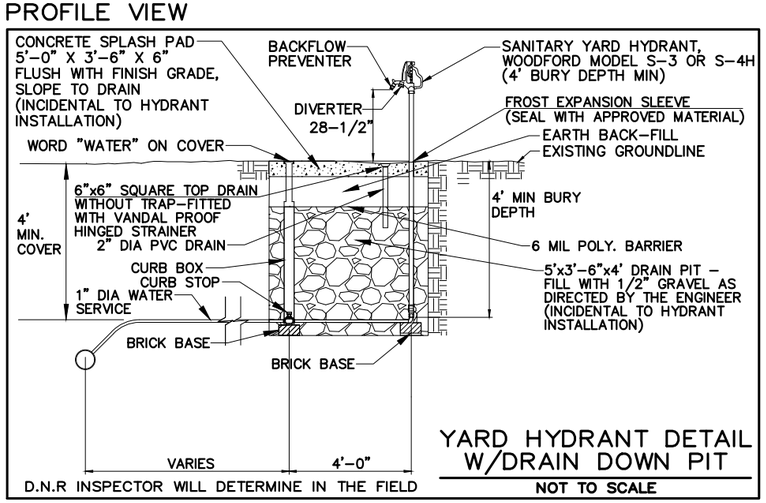
PROFILE VIEW



YARD HYDRANT DETAIL W/O DRAIN DOWN PIT
DISPOSAL STAION ISLANDS
NOT TO SCALE

NOTE: YARD HYDRANT BID ITEM IS TO INCLUDE ALL ITEMS SHOWN IN DETAIL: CURB STOP & BOX, ETC.

PROFILE VIEW



YARD HYDRANT DETAIL W/DRAIN DOWN PIT
NOT TO SCALE

NOTE: YARD HYDRANT BID ITEM IS TO INCLUDE ALL ITEMS SHOWN IN DETAIL: DRAIN ASSEMBLY, DRAIN PIT, 2.0 SY PCC SLAB, CURB STOP & BOX, ETC.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

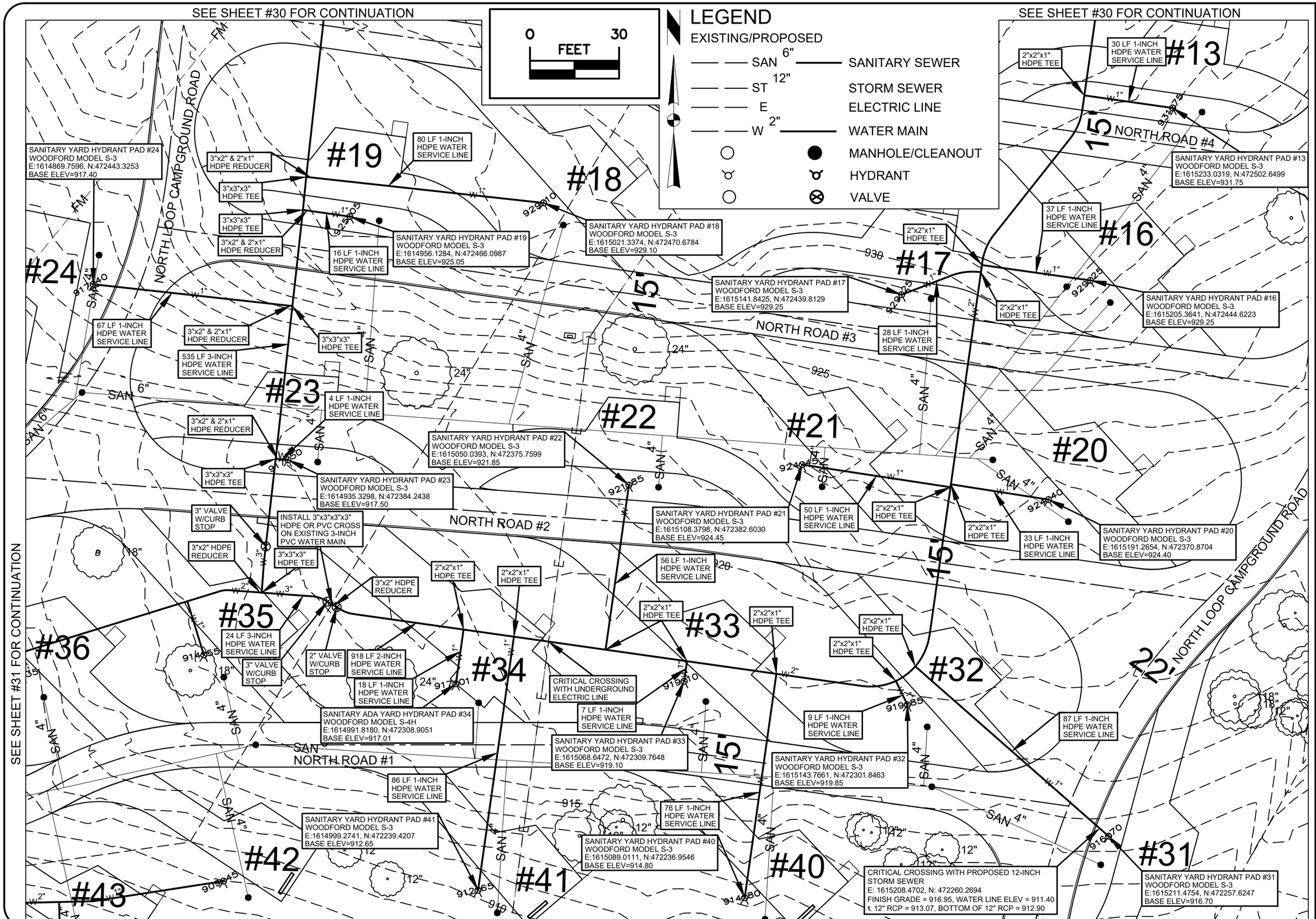
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

OVERALL WATER PLAN

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 28



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

WATER PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

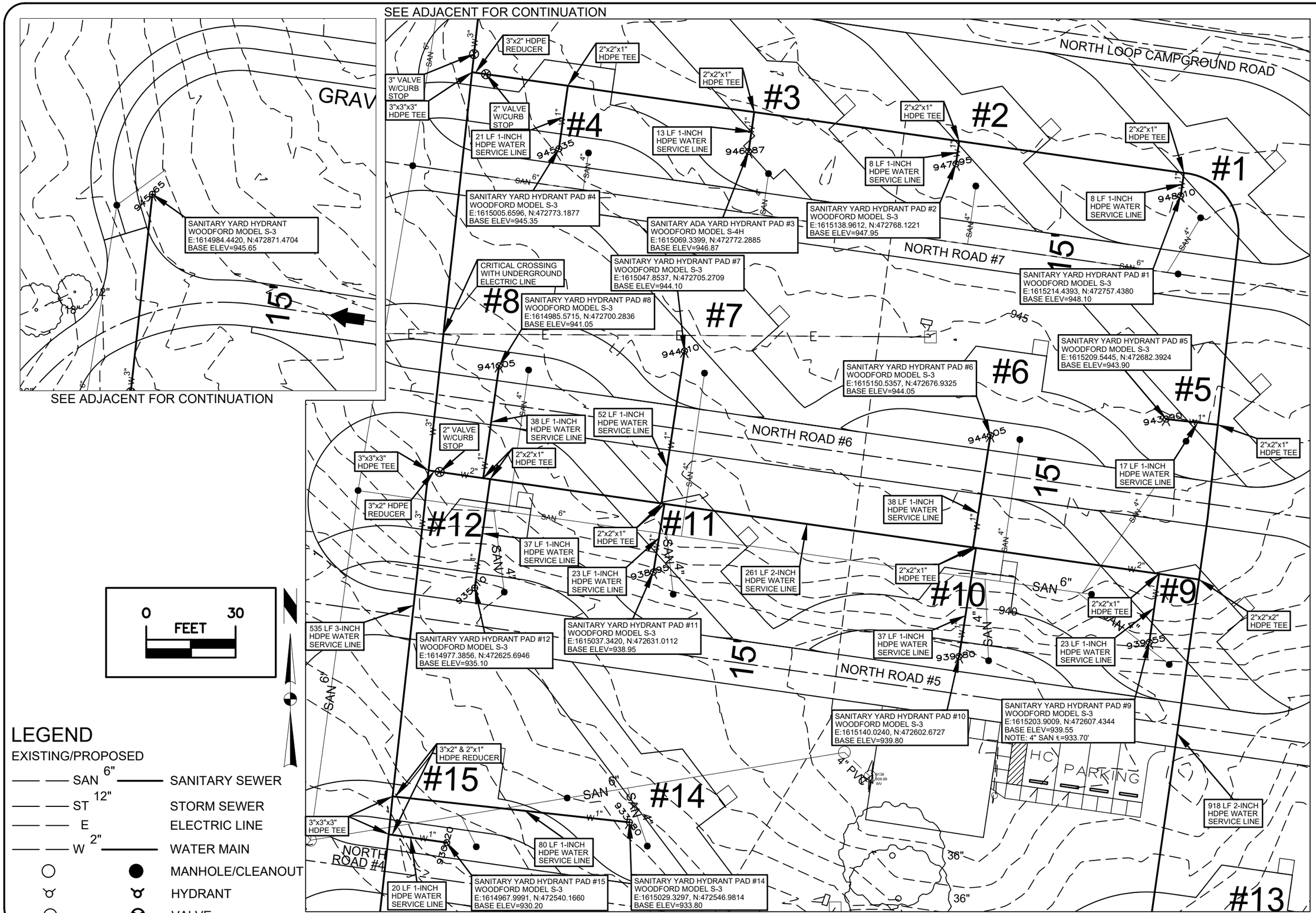
DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 29



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

WATER PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY: DATE	REVISION

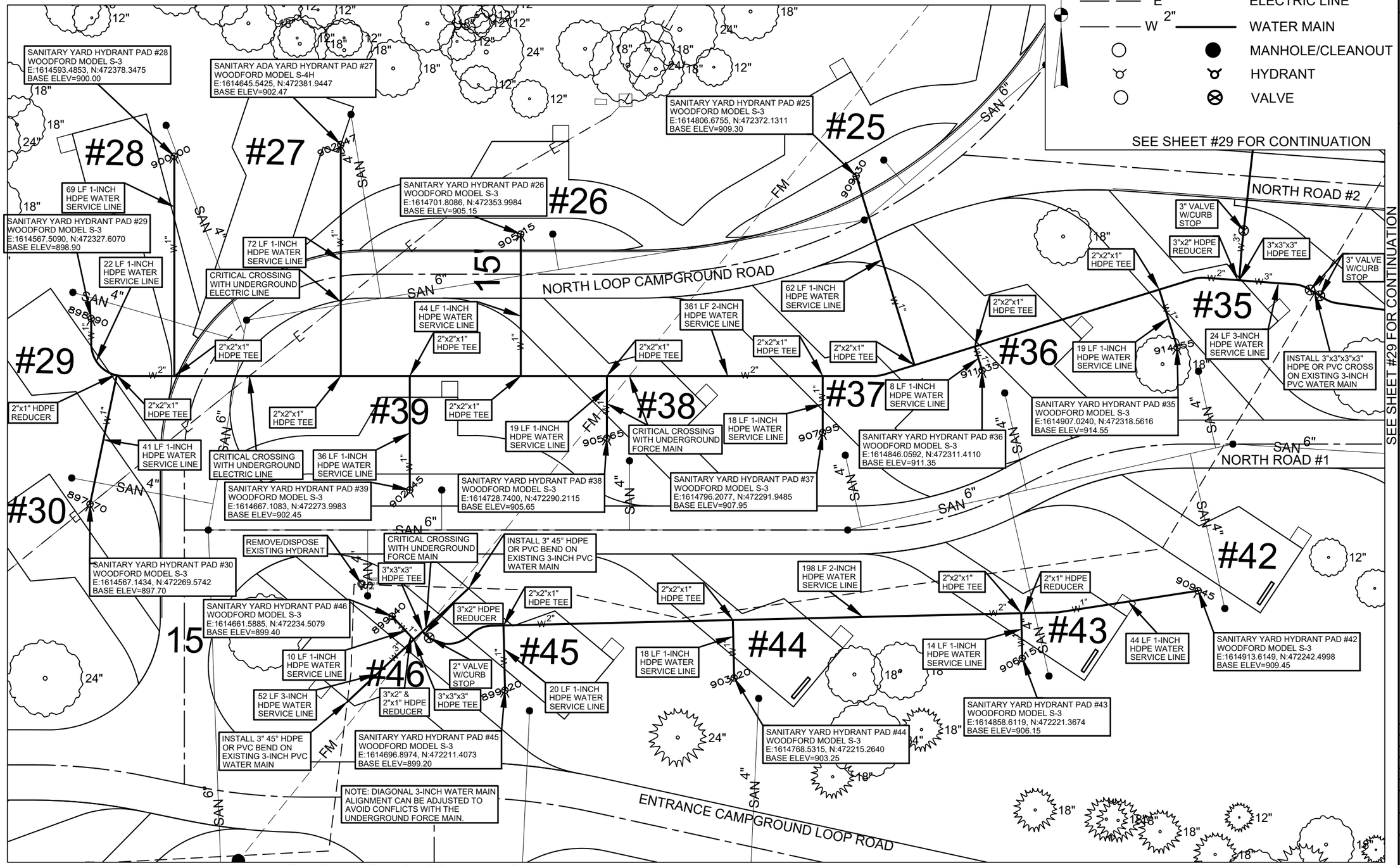
DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 30



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

WATER PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

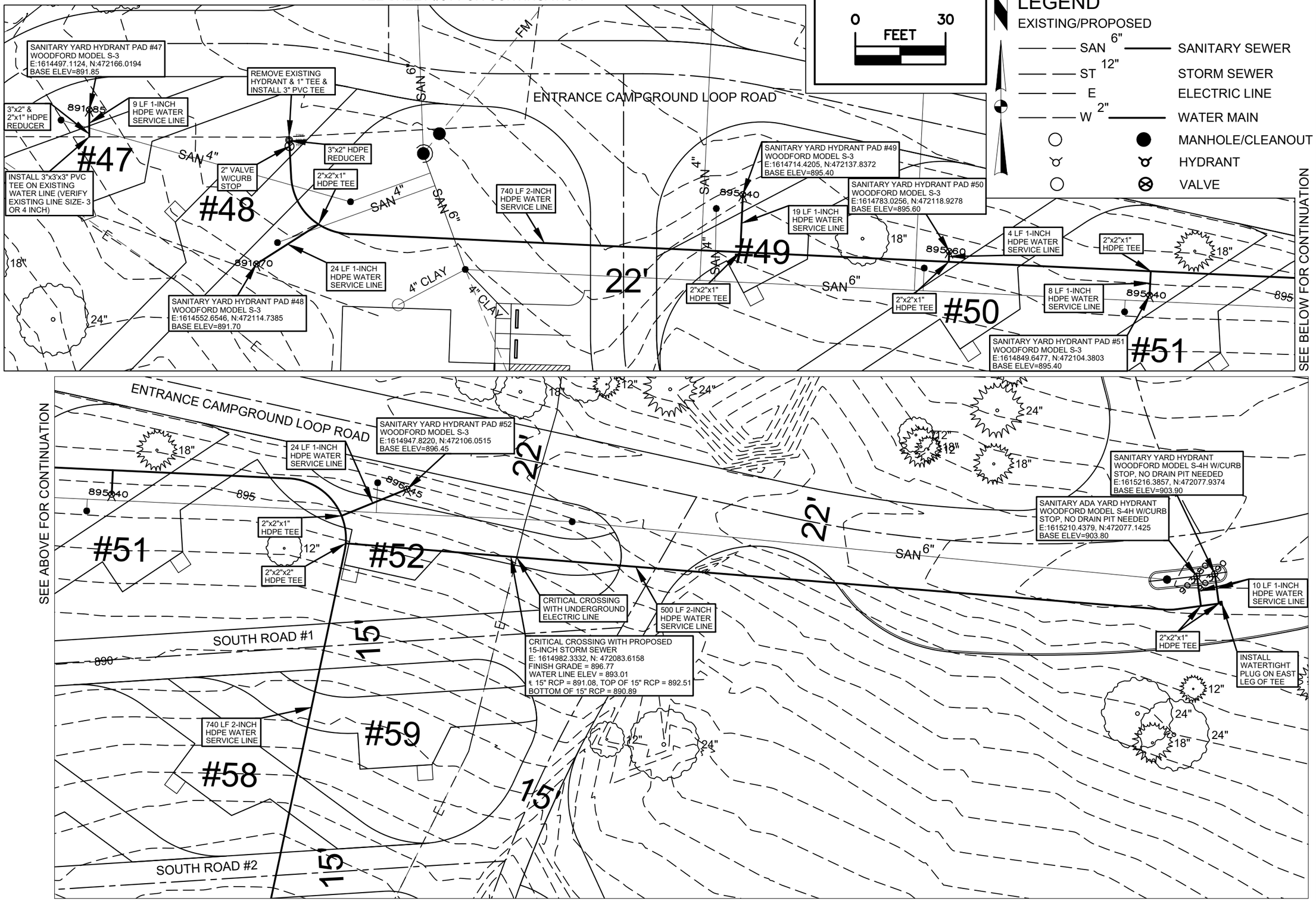
PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 31

SEE SHEET #31 FOR CONTINUATION



SEE SHEET #33 FOR CONTINUATION

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

WATER PLAN

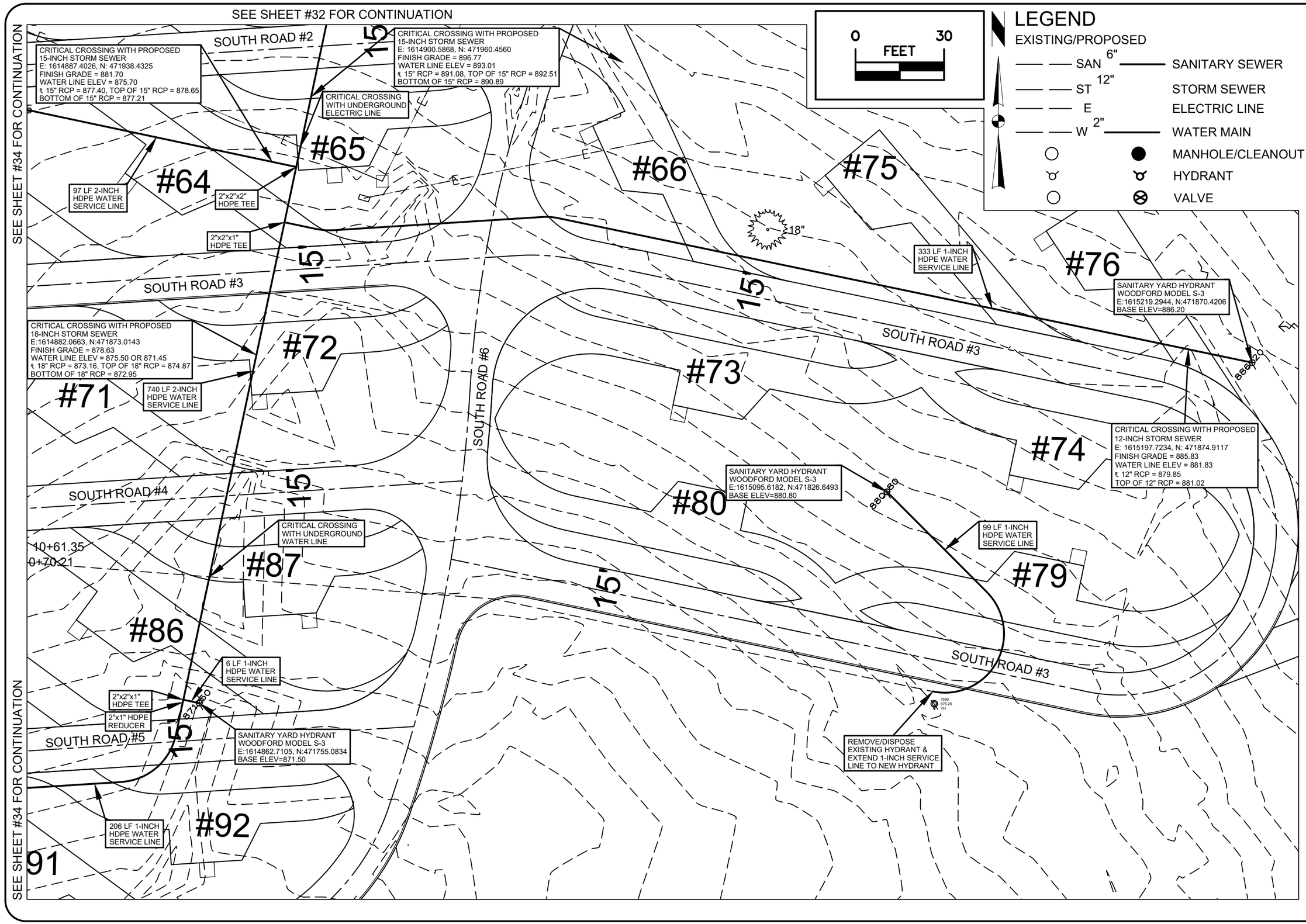
CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 32



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

WATER PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO	BY / DATE	REVISION

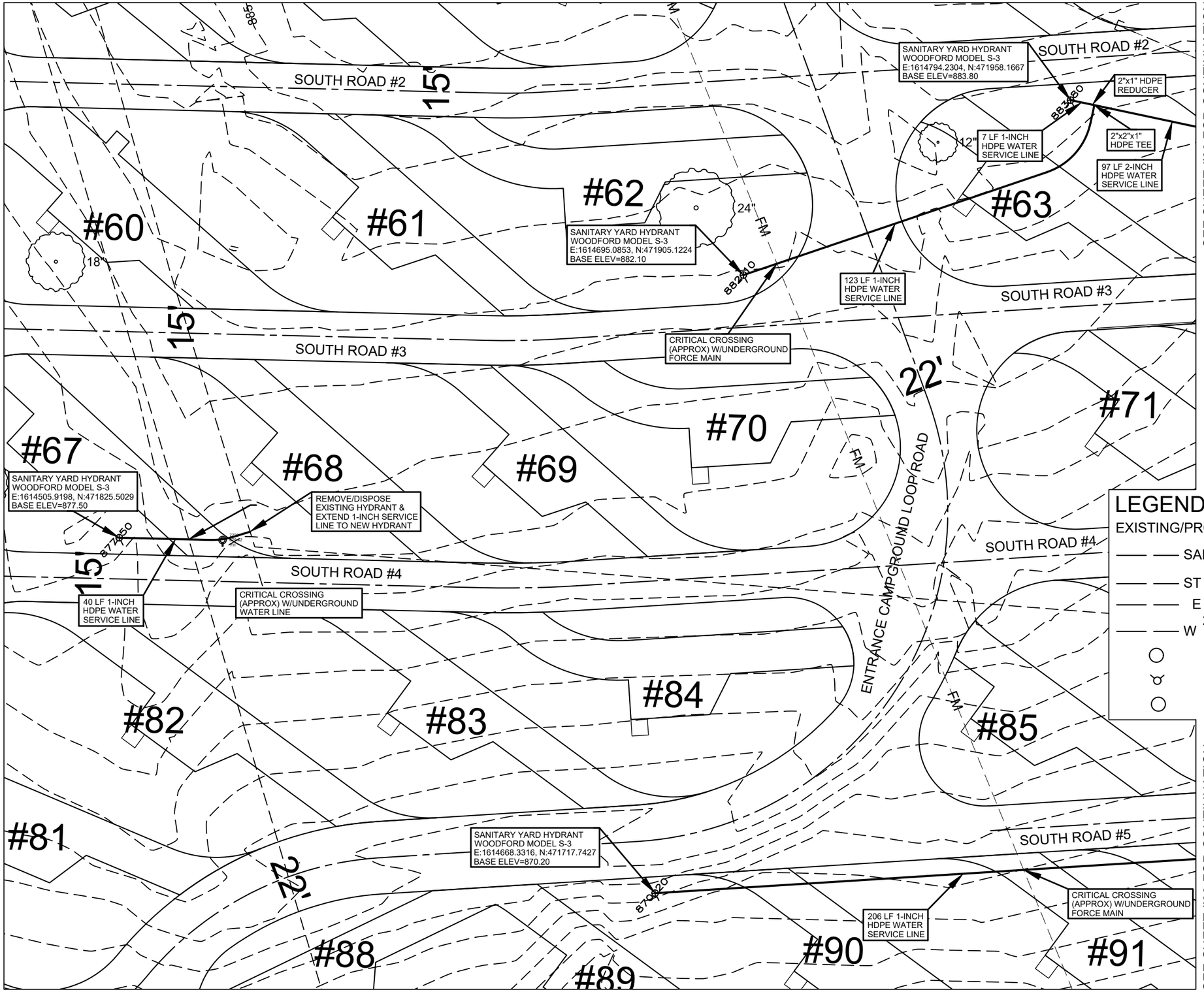
DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 33



SEE SHEET #33 FOR CONTINUATION

SEE SHEET #33 FOR CONTINUATION

0 FEET 30

LEGEND

EXISTING/PROPOSED

SAN	6"	SANITARY SEWER
ST	12"	STORM SEWER
E		ELECTRIC LINE
W	2"	WATER MAIN
		MANHOLE/CLEANOUT
		HYDRANT
		VALVE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

WATER PLAN

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

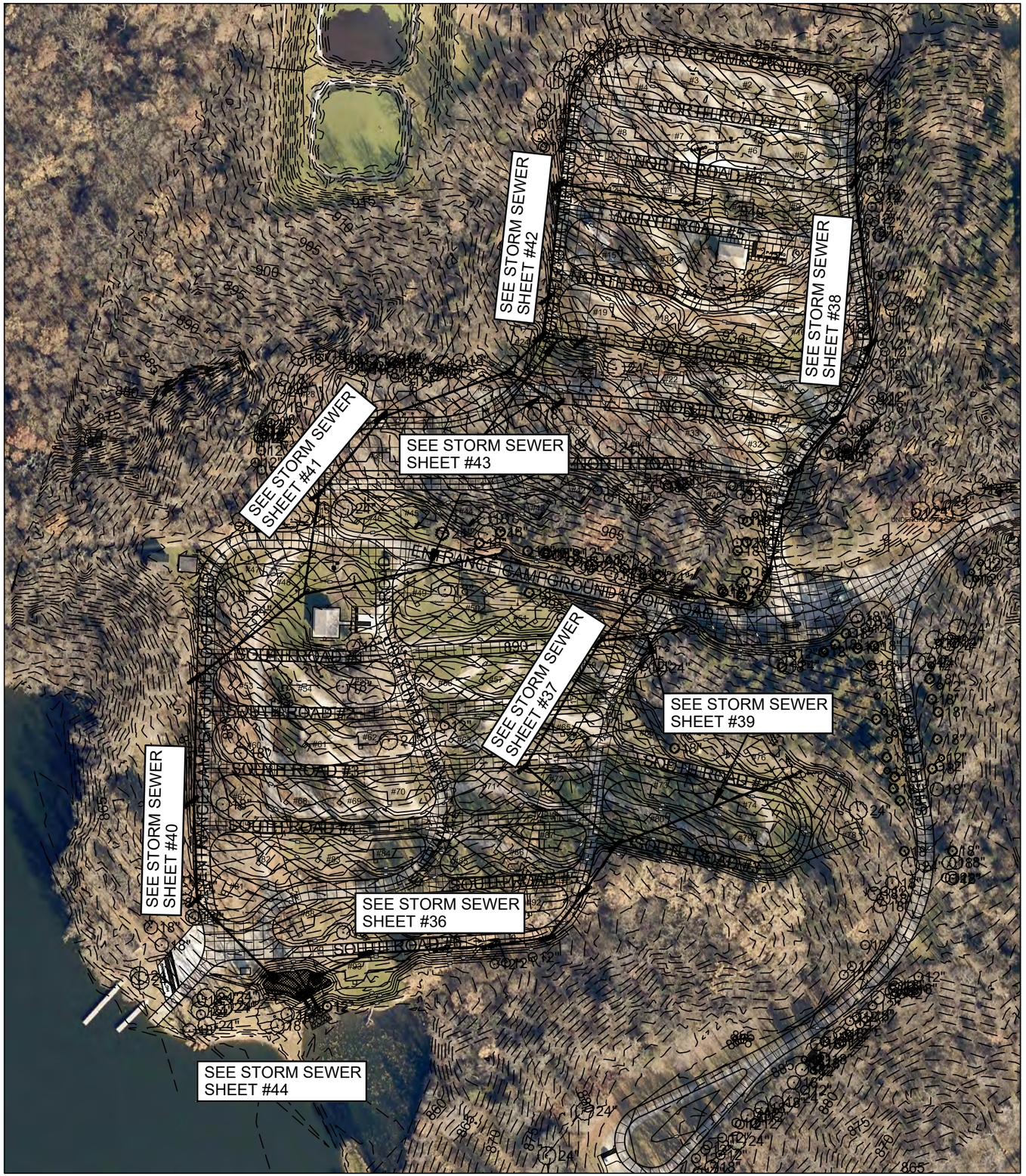
DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 34



0 FEET 150

LEGEND

EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○ ●	MANHOLE/CLEANOUT
♂ ♂	HYDRANT
○ ⊗	VALVE

STORM SEWER NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATEWIDE URBAN STANDARD DESIGN SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (SUDAS) STANDARDS.
2. ALL STATIONING ALONG THE STORM SEWER CENTERLINE IS IN ACCORDANCE WITH SUDAS. THE LOCATION STATION FOR ALL INTAKES LOCATED IN THE ROADWAYS IS AT THE BACK OF CURB AND MID-POINT OF THE STRUCTURE.
3. SEE SHEET #45 FOR STORM SEWER CENTERLINE CONTROL.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

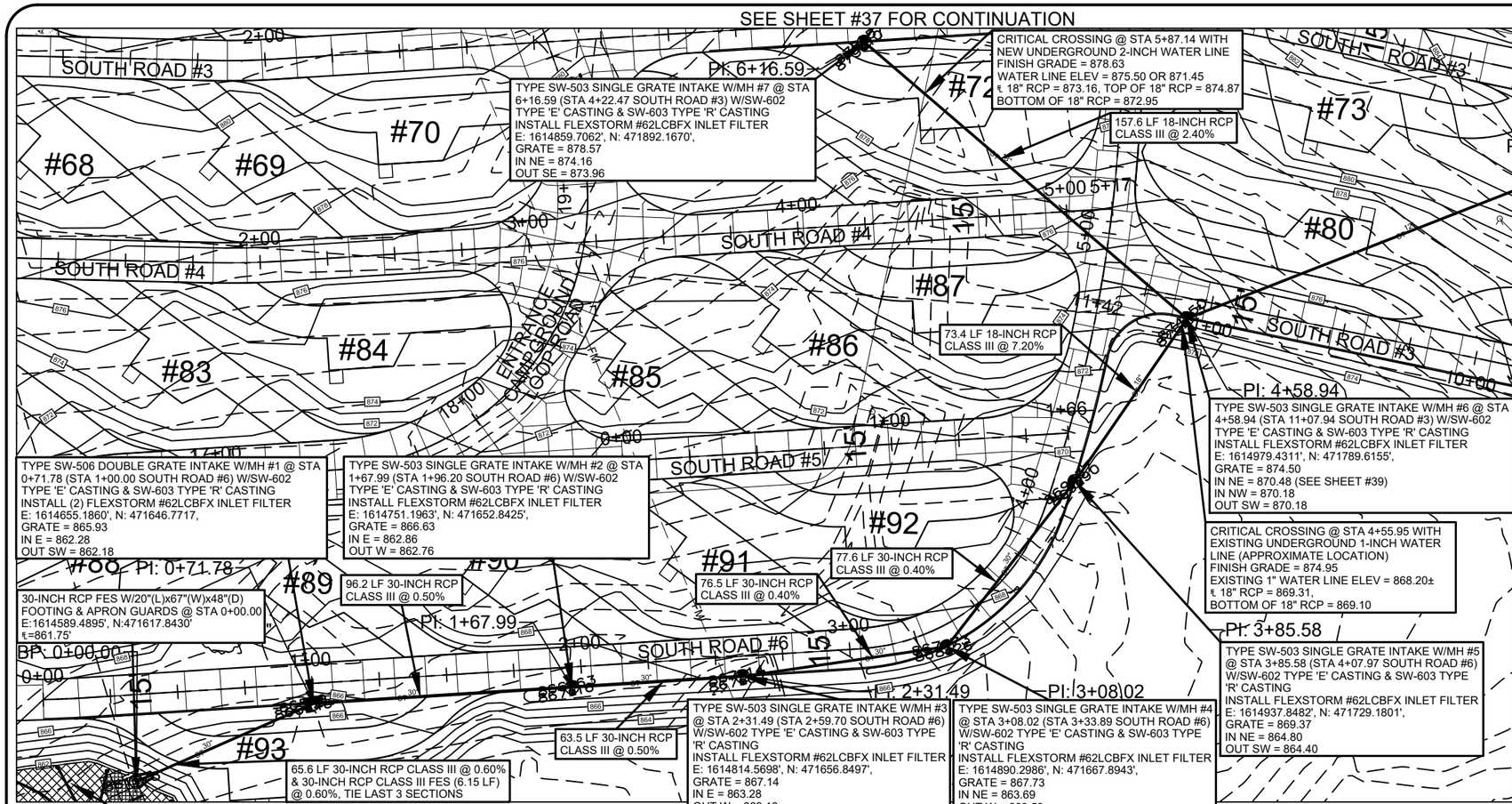
OVERALL STORM SEWER PLAN

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021

SHEET No: 35



0 FEET 50

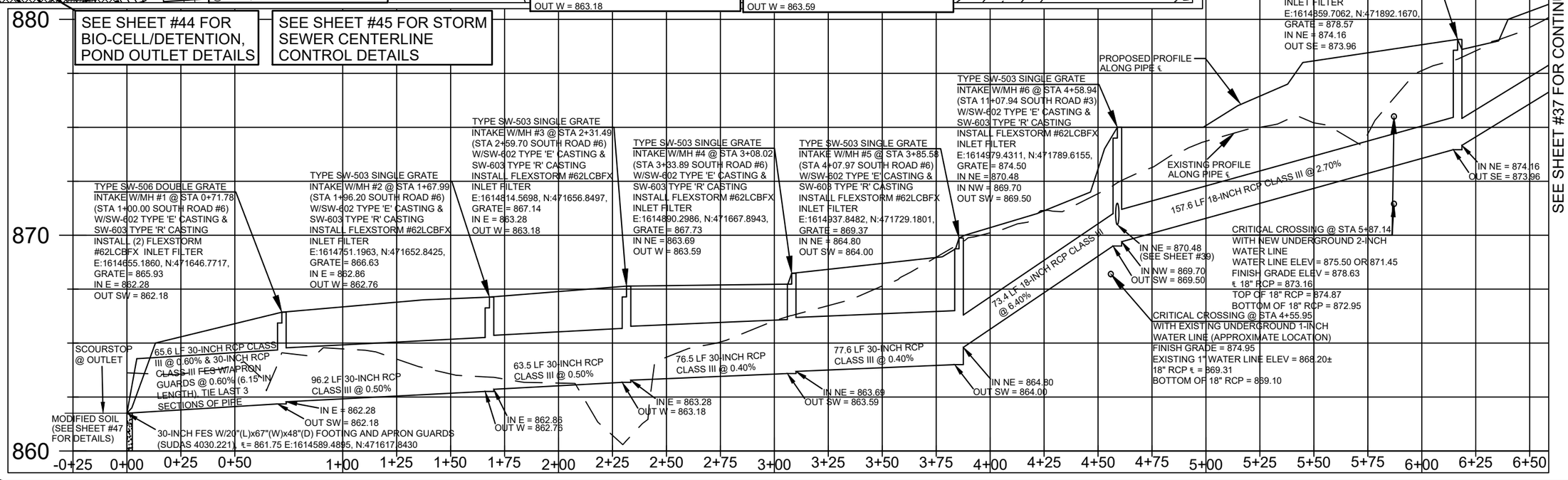
LEGEND

EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○	MANHOLE/CLEANOUT
☿	HYDRANT
○	VALVE

SEE SHEET #44 FOR BIO-CELL/DETENTION, POND OUTLET DETAILS

SEE SHEET #45 FOR STORM SEWER CENTERLINE CONTROL DETAILS



SEE SHEET #37 FOR CONTINUATION

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (EAST SIDE)

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 36

SEE SHEET #38 FOR CONTINUATION

TYPE SW-503 SINGLE GRATE INTAKE W/MH #12 @ STA 11+74.27 (STA 1+50.00 NORTH LOOP CAMPGROUND ROAD) W/SW-602 TYPE 'E' CASTING & SW-603 TYPE 'R' CASTING
INSTALL FLEXSTORM #62LCBFX INLET FILTER
E: 1615199.0656', N: 472233.7082',
GRATE = 915.01
IN N = 910.98
OUT S = 910.88

TYPE SW-503 SINGLE GRATE INTAKE W/MH #13 @ STA 12+21.39 (STA 2+00.00 NORTH LOOP CAMPGROUND ROAD) W/SW-602 TYPE 'E' CASTING & SW-603 TYPE 'R' CASTING
INSTALL FLEXSTORM #62LCBFX INLET FILTER
E:1615214.7946, N:472278.1310,
GRATE = 918.57
IN N = 914.57
OUT S = 914.47

TYPE SW-512 CIRCULAR AREA INTAKE #9 @ STA 9+00.63 (STA 4+58.75, 16.36' RT OF ℄ ENTRANCE CAMPGROUND LOOP ROAD)
W/SW-604 TYPE '3B' CASTING
INSTALL FLEXSTORM #62MRDFX INLET FILTER
E: 1615019.6820', N: 472125.5340',
GRATE = 897.75
IN E = 894.42
OUT SW = 894.22

TYPE SW-512 CIRCULAR AREA INTAKE #10 @ STA 10+33.67 (STA 3+22.29, 16.0' RT OF ℄ ENTRANCE CAMPGROUND LOOP ROAD)
W/SW-604 TYPE '3B' CASTING
INSTALL FLEXSTORM #62MRDFX INLET FILTER
E: 1615150.9640', N: 472103.9565',
GRATE = 901.85
IN NE = 898.35
OUT W = 898.15

TYPE SW-503 SINGLE GRATE INTAKE W/MH #11 @ STA 10+82.46 (STA 0+59.97 NORTH LOOP CAMPGROUND ROAD) W/SW-602 TYPE 'E' CASTING & SW-603 TYPE 'R' CASTING
INSTALL FLEXSTORM #62LCBFX INLET FILTER
E: 1615178.4943', N: 472144.2285',
GRATE = 906.81
IN N = 902.89
OUT SW = 902.79

TYPE SW-401 CIRCULAR STORM MH #8 @ STA 8+07.75 (STA 5+17.70 ON ℄ SOUTH ROAD #1) W/SW-602 TYPE 'F' CASTING
E: 1614957.8972', N: 472056.1902',
RIM = 892.71
IN NE = 889.02
IN E = 887.65 (SEE SHEET #39)
OUT SW = 885.63

TYPE SW-401 CIRCULAR STORM MH #8 @ STA 8+07.75 (STA 5+17.70, ON ℄ SOUTH ROAD #1) W/SW-602 TYPE 'F' CASTING
E:1614957.8972, N:472056.1902,
RIM = 892.71
IN NE = 889.02
IN E = 887.65
OUT SW = 885.63

CRITICAL CROSSING @ STA 8+60.67 WITH NEW UNDERGROUND 6-INCH SANITARY SEWER LINE
FINISH GRADE = 897.80
℄ 6" SAN = 890.53, TOP OF 6" SAN = 891.08
℄ 15" RCP = 891.98, BOTTOM OF 15" RCP = 891.80

CRITICAL CROSSING @ STA 8+48.59 WITH EXISTING UNDERGROUND ELECTRIC LINE (APPROX. LOCATION)
FINISH GRADE = 896.93
ELECTRIC LINE ELEV = 893.50± (VERIFY)
℄ 15" RCP = 891.31
TOP OF 15" RCP = 892.75

CRITICAL CROSSING @ STA 8+44.48 WITH NEW UNDERGROUND 2-INCH WATER LINE
FINISH GRADE = 896.77
WATER LINE ELEV = 893.01
℄ 15" RCP = 891.08, TOP OF 15" RCP = 892.51
BOTTOM OF 15" RCP = 890.89

CRITICAL CROSSING @ STA 6+70.51 WITH NEW UNDERGROUND 2-INCH WATER LINE
FINISH GRADE = 881.70
WATER LINE ELEV = 875.70
℄ 15" RCP = 877.40
TOP OF 15" RCP = 878.65
BOTTOM OF 15" RCP = 877.21

CRITICAL CROSSING @ STA 6+96.18 WITH NEW UNDERGROUND 2-INCH WATER LINE
FINISH GRADE = 882.50
WATER LINE ELEV = 877.25
℄ 15" RCP = 878.94
BOTTOM OF 15" RCP = 878.75

CRITICAL CROSSING @ STA 6+79.04 WITH EXISTING UNDERGROUND ELECTRIC LINE (APPROX. LOCATION)
FINISH GRADE = 882.20
ELECTRIC LINE ELEV = 879.40± (VERIFY)
EXPOSE ELECTRIC LINE FOR SLACK
℄ 15" RCP = 877.91
TOP OF 15" RCP = 879.34

TYPE SW-503 SINGLE GRATE INTAKE W/MH #7 @ STA 6+16.59 (STA 4+22.47 SOUTH ROAD #3) W/SW-602 TYPE 'E' CASTING & SW-603 TYPE 'R' CASTING
INSTALL FLEXSTORM #62LCBFX INLET FILTER
E: 1614859.7062', N: 471892.1670',
GRATE = 878.57
IN NE = 874.16
OUT SE = 873.96

SEE SHEET #36 FOR CONTINUATION

SEE SHEET #45 FOR STORM SEWER CENTERLINE CONTROL DETAILS

91.8 LF 12-INCH RCP CLASS III @ 8.70%

48.8 LF 12-INCH RCP CLASS III @ 9.10%

133.0 LF 15-INCH RCP CLASS III @ 2.80%

92.9 LF 15-INCH RCP CLASS III @ 5.60%

191.2 LF 15-INCH RCP CLASS III @ 6.00%

47.1 LF 12-INCH RCP CLASS III @ 7.40%

90.0 LF 12

91.8 LF 12-INCH RCP CLASS III @ 8.70%

48.8 LF 12-INCH RCP CLASS III @ 9.10%

EXISTING PROFILE ALONG PIPE ℄

PROPOSED PROFILE ALONG PIPE ℄

CRITICAL CROSSING @ STA 12+02.45 WITH NEW UNDERGROUND 1-INCH WATER LINE
FINISH GRADE = 916.95
WATER LINE ELEV = 911.40
℄ 12" RCP = 913.07
BOTTOM OF 12" RCP = 912.90

IN N = 910.98
OUT S = 910.88

IN N = 914.57
OUT S = 914.47

IN N = 902.89
OUT SW = 902.79

IN NE = 898.35
OUT W = 898.15

IN E = 894.42
OUT SW = 894.22

IN NE = 889.02

IN E = 887.65 (SEE SHEET #39)

OUT SW = 885.63

IN NE = 874.16
OUT SE = 873.96

0 FEET 50

LEGEND

EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○ ●	MANHOLE/CLEANOUT
♂ ♂	HYDRANT
○ ⊗	VALVE

Elevation: 920, 910, 900, 890, 880

5+75 6+00 6+25 6+50 6+75 7+00 7+25 7+50 7+75 8+00 8+25 8+50 8+75 9+00 9+25 9+50 9+75 10+00 10+25 10+50 10+75 11+00 11+25 11+50 11+75 12+00 12+25 12+50 12

SEE SHEET #38 FOR CONTINUATION

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (EAST SIDE)

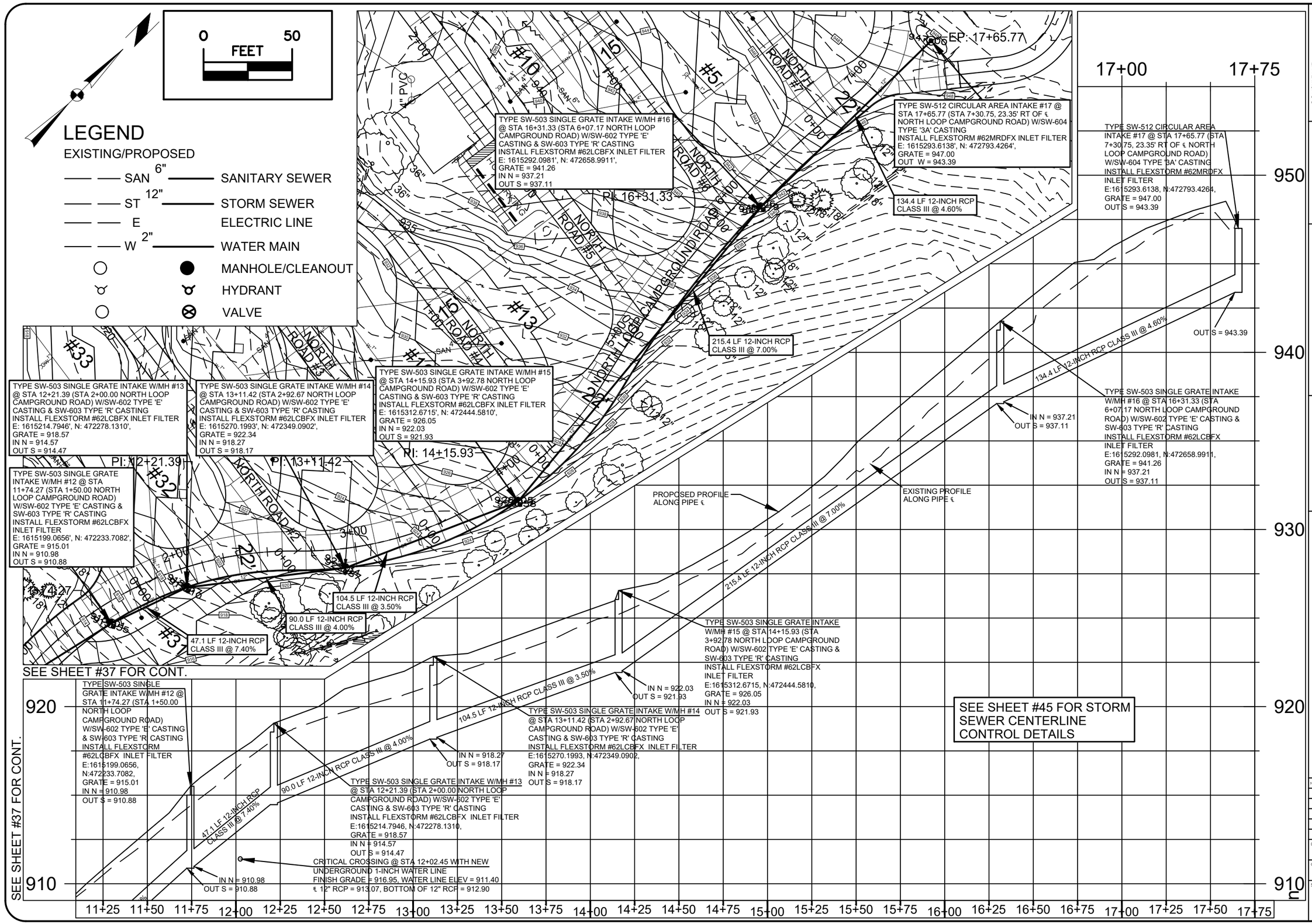
CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 37



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (EAST SIDE)

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

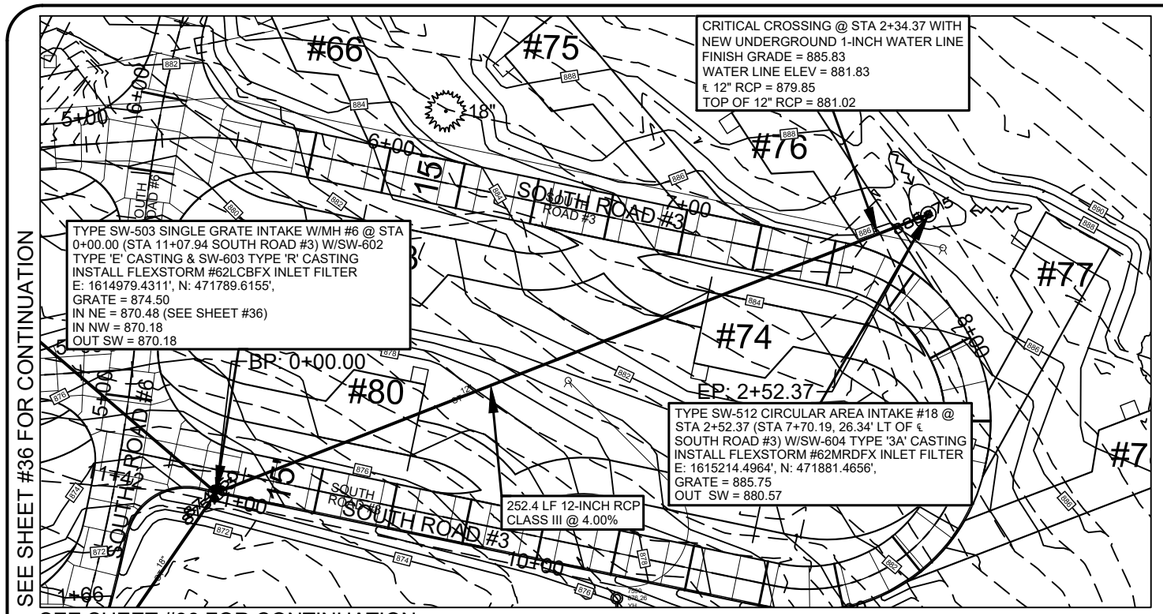
DRAWN BY:

PROJECT NUMBER: 22-05-91-01

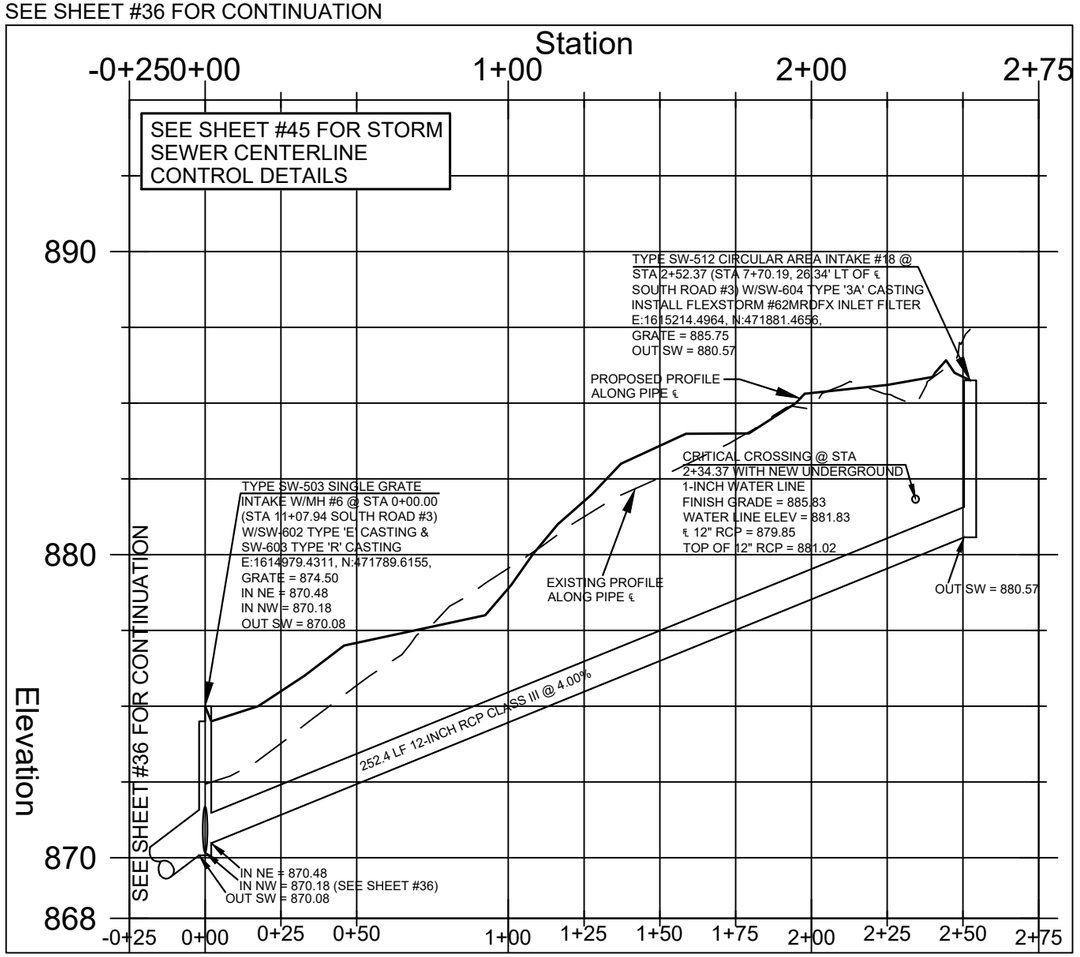
CHK'D BY:

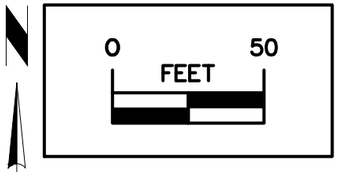
DATE: 12/29/2021

SHEET No: 38



SEE SHEET #36 FOR CONTINUATION



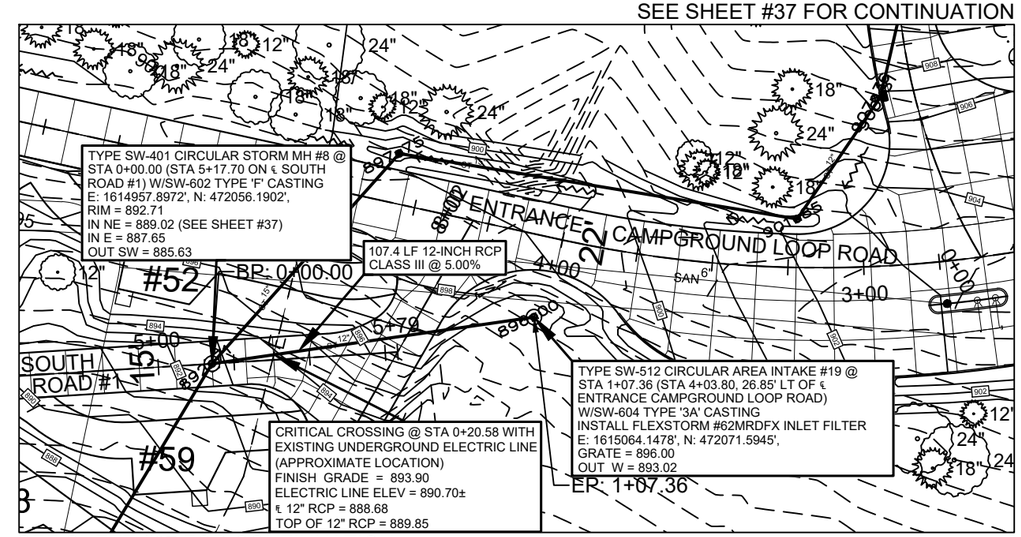


LEGEND

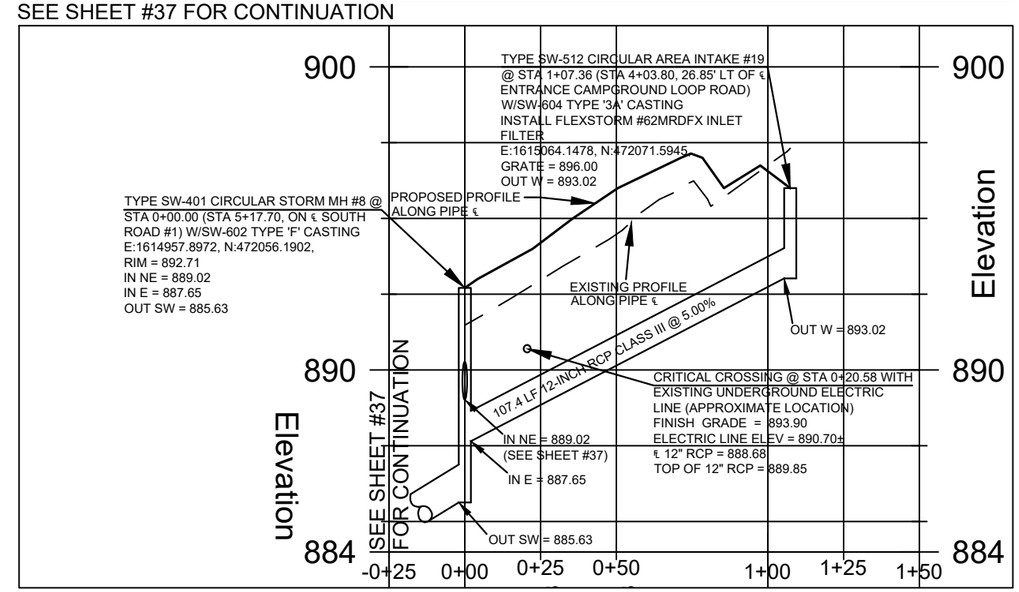
EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

SEE SHEET #37 FOR CONTINUATION



SEE SHEET #37 FOR CONTINUATION



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (EAST SIDE)

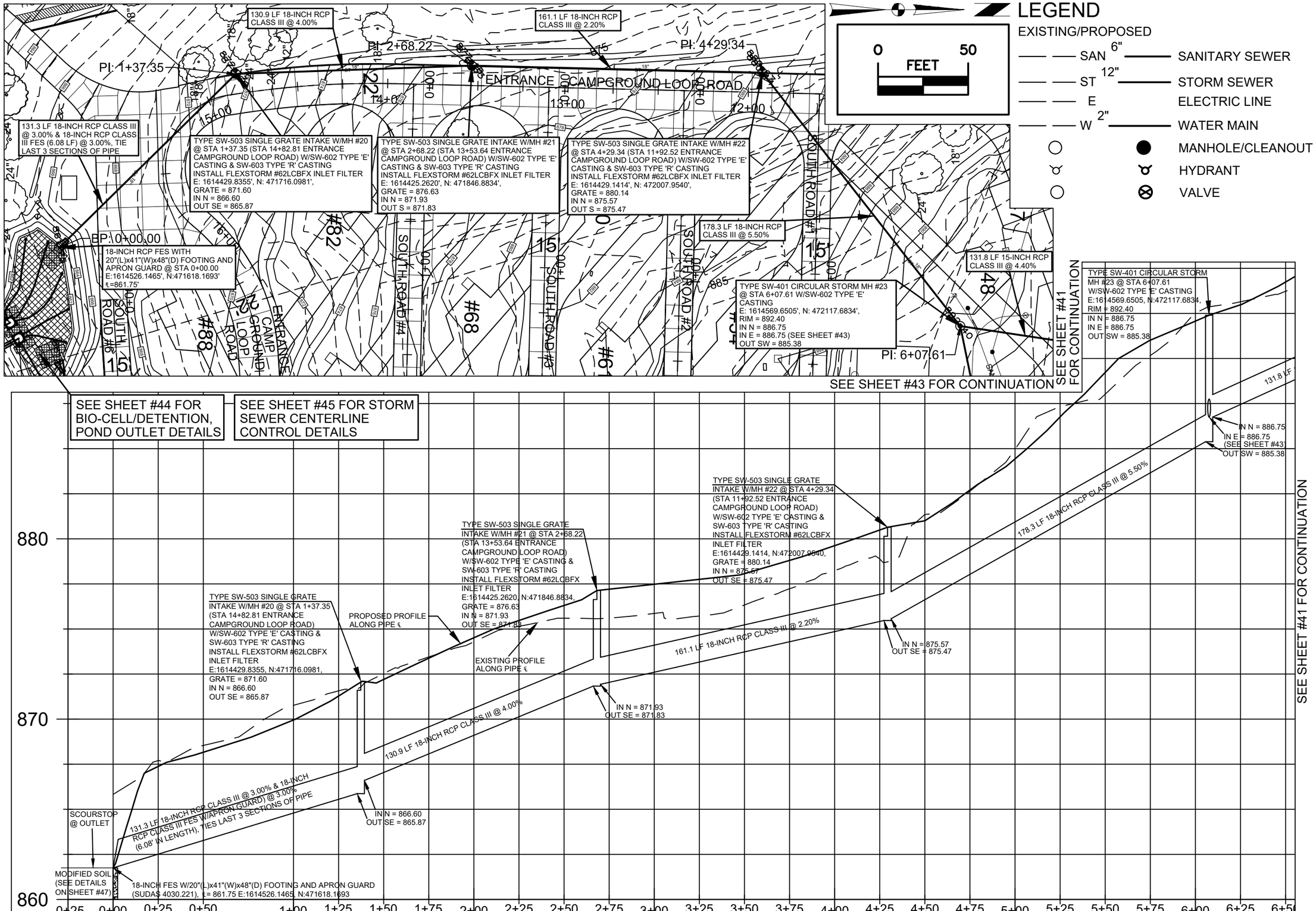
CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 39



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

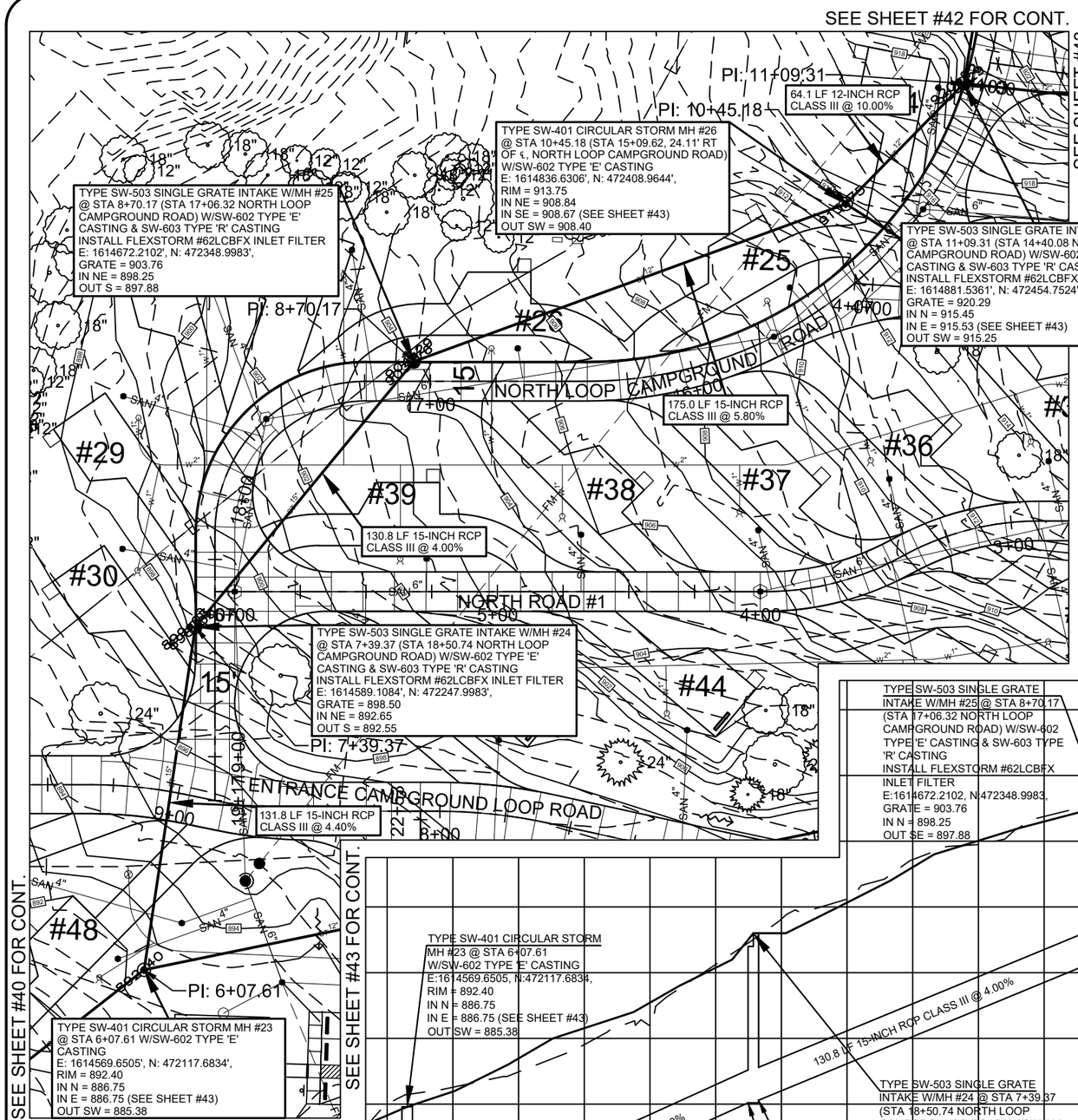
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (WEST SIDE)

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 40



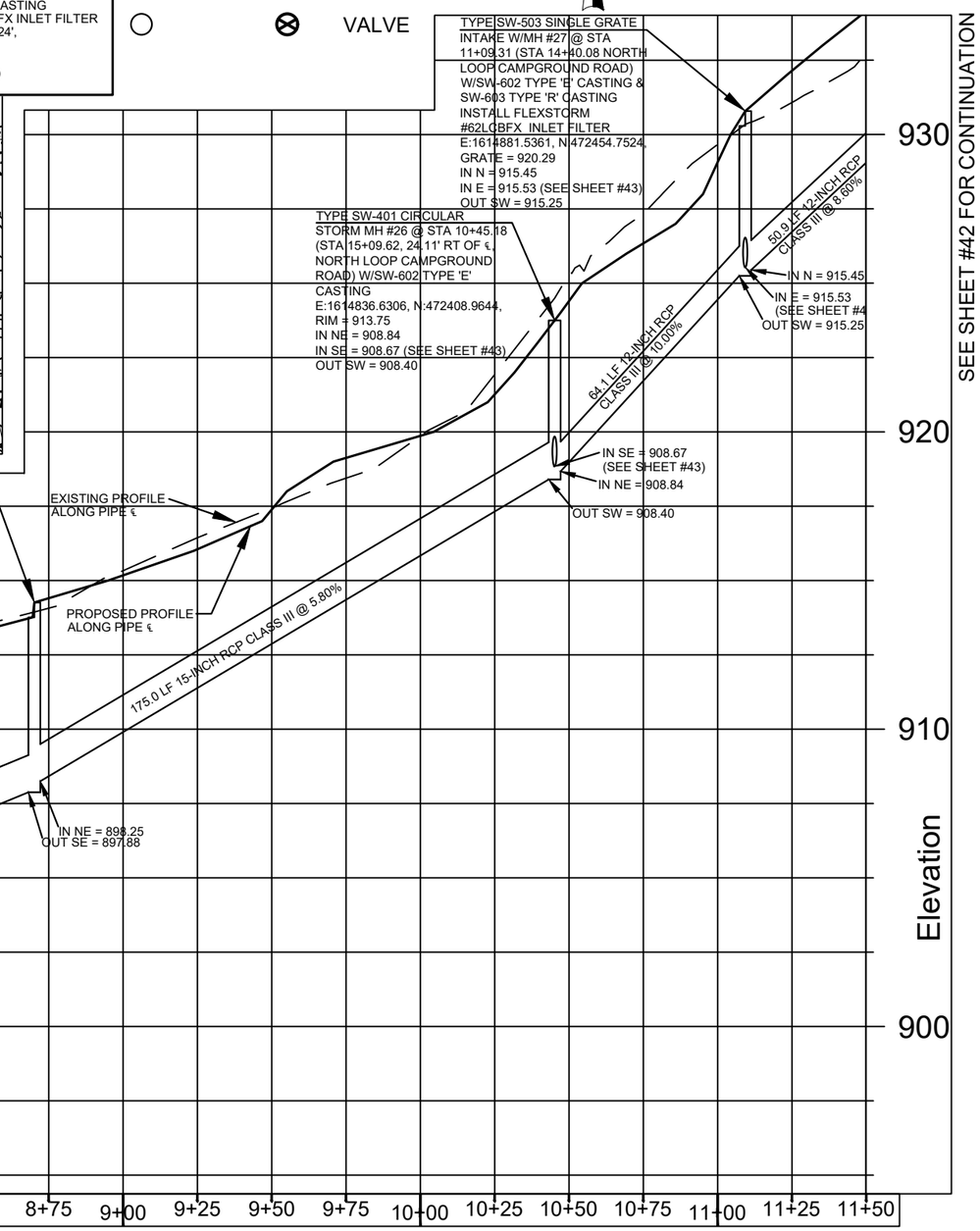
SEE SHEET #45 FOR STORM SEWER CENTERLINE CONTROL DETAILS

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

0 FEET 50



SEE SHEET #42 FOR CONTINUATION

SEE SHEET #40 FOR CONTINUATION

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (WEST SIDE)

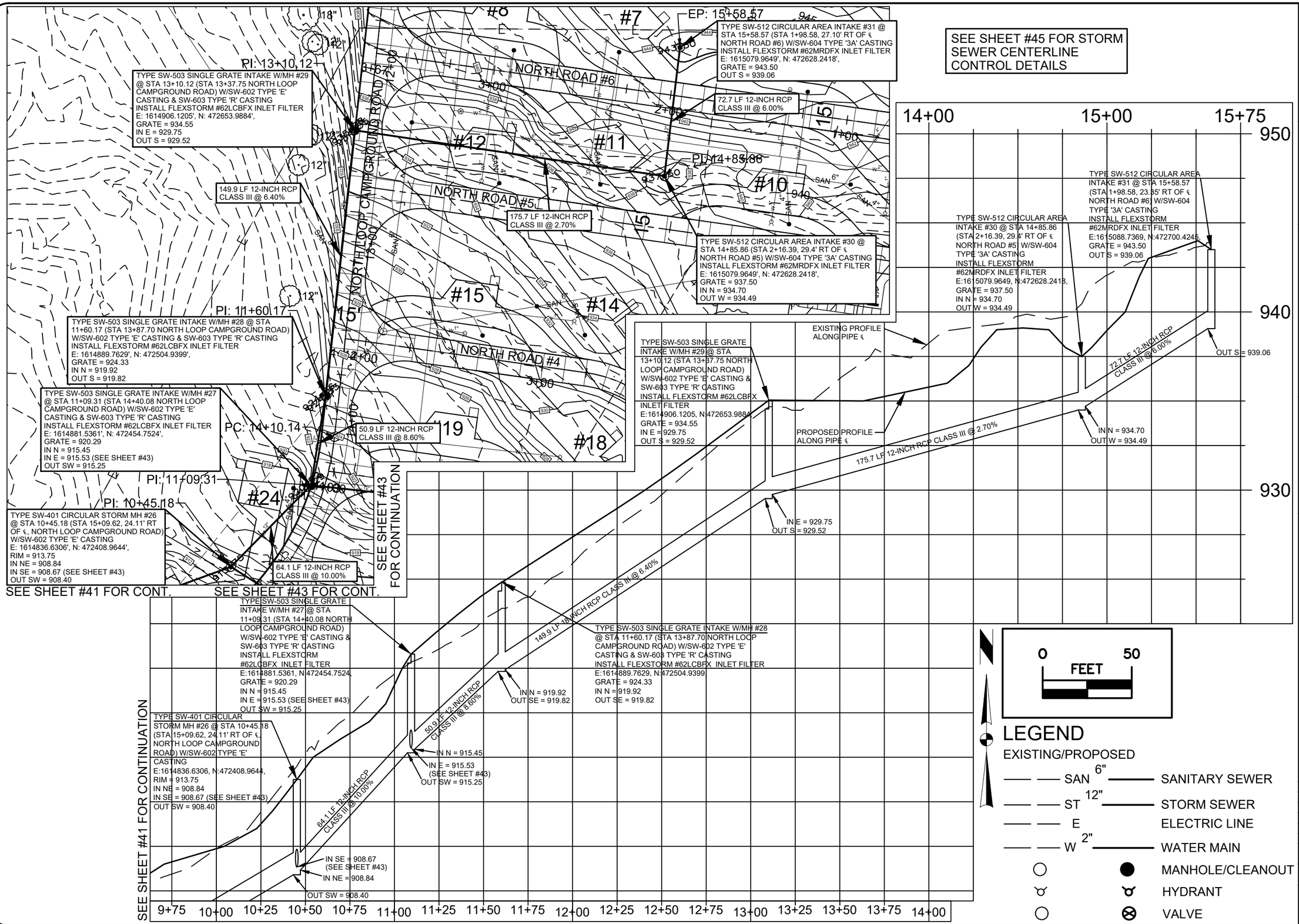
CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 41



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (WEST SIDE)

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DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: **42**

LEGEND

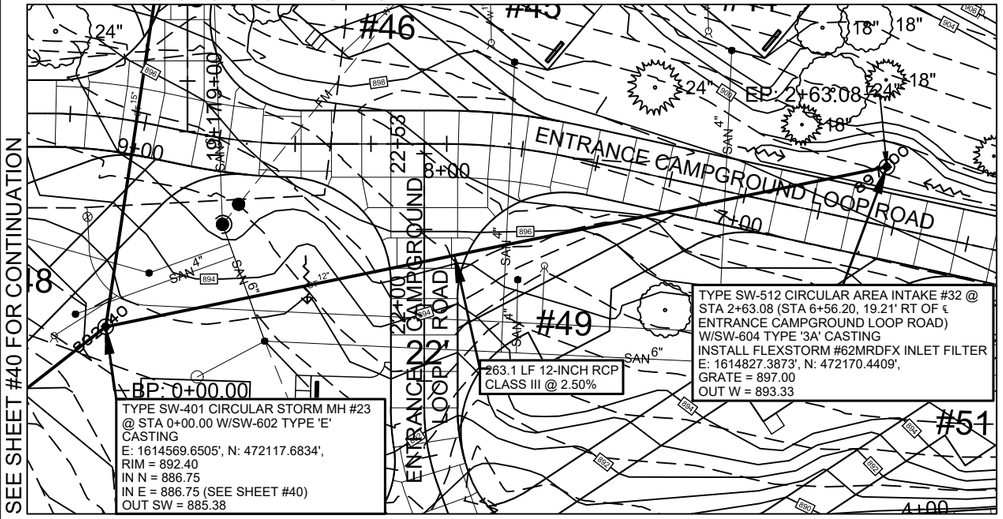
EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

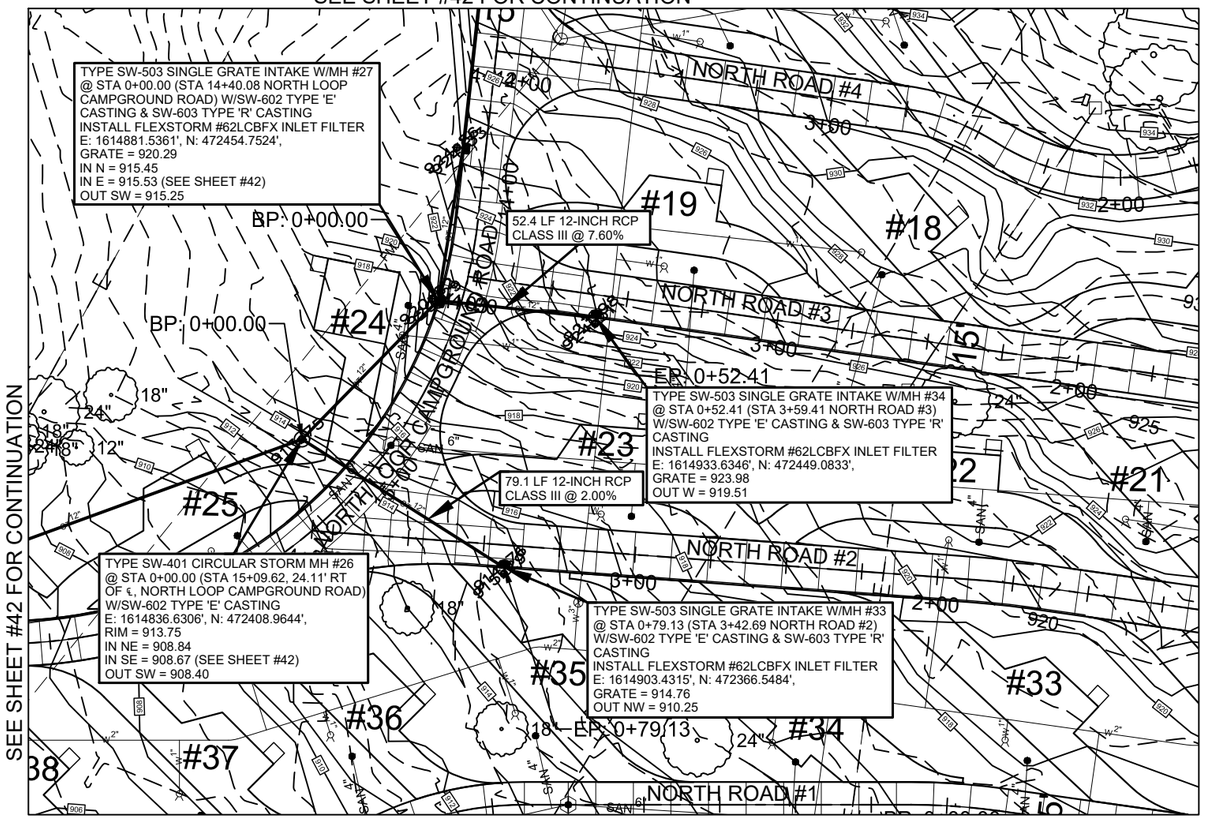
0 50 FEET

SEE SHEET #45 FOR STORM SEWER CENTERLINE CONTROL DETAILS

SEE SHEET #40 FOR CONTINUATION



SEE SHEET #42 FOR CONTINUATION



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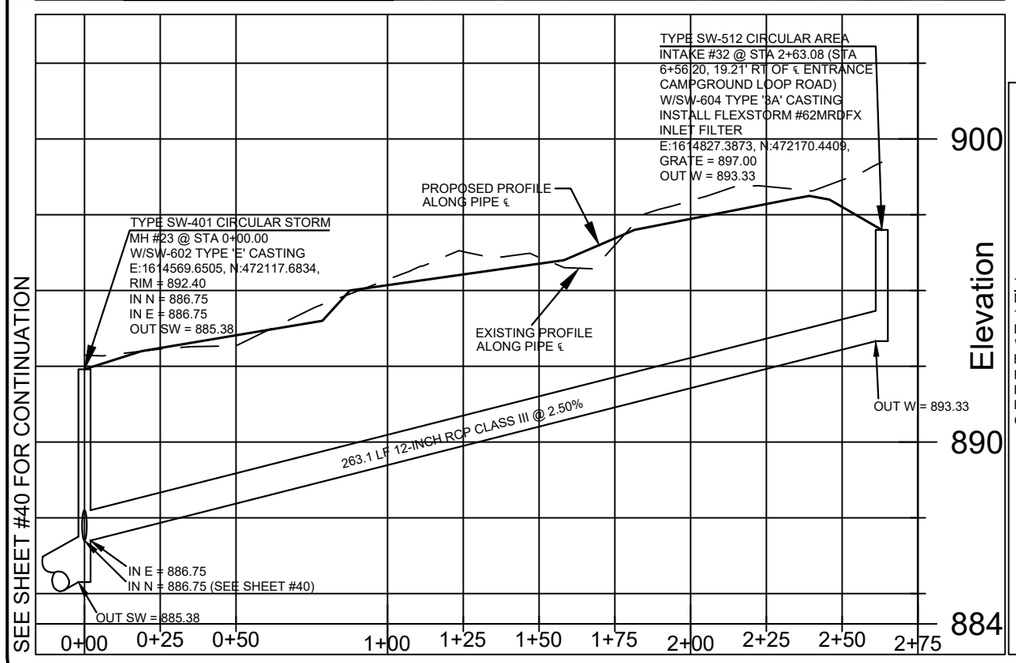
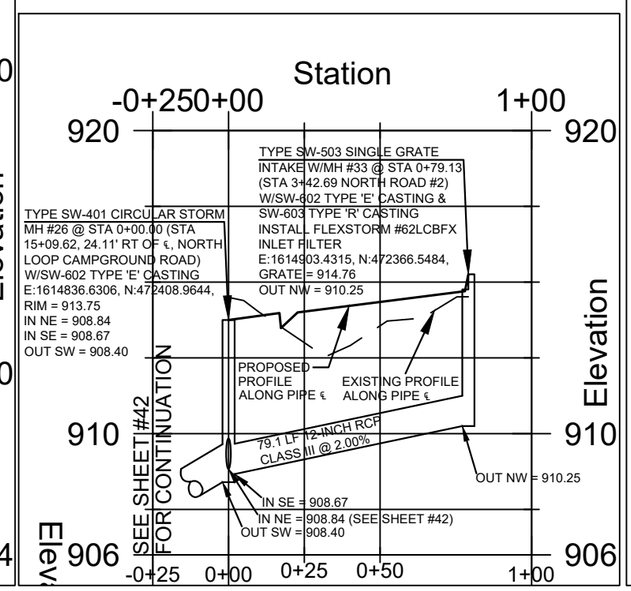
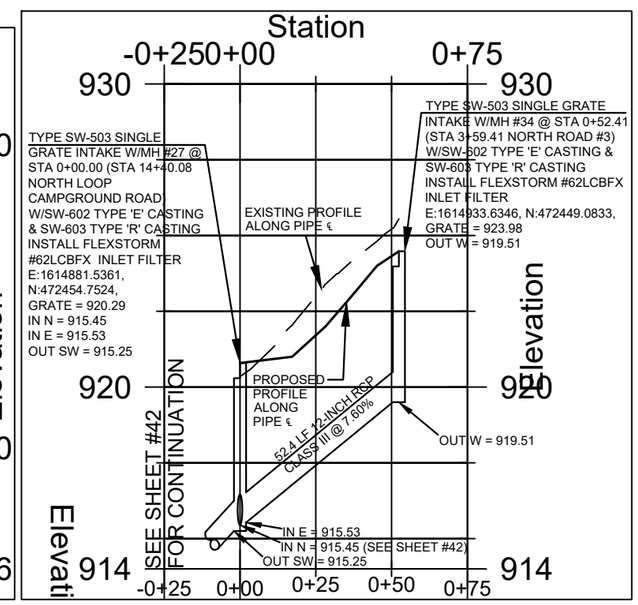


SEE SHEET #42 FOR CONTINUATION



SEE SHEET #42 FOR CONTINUATION



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (WEST SIDE)

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:

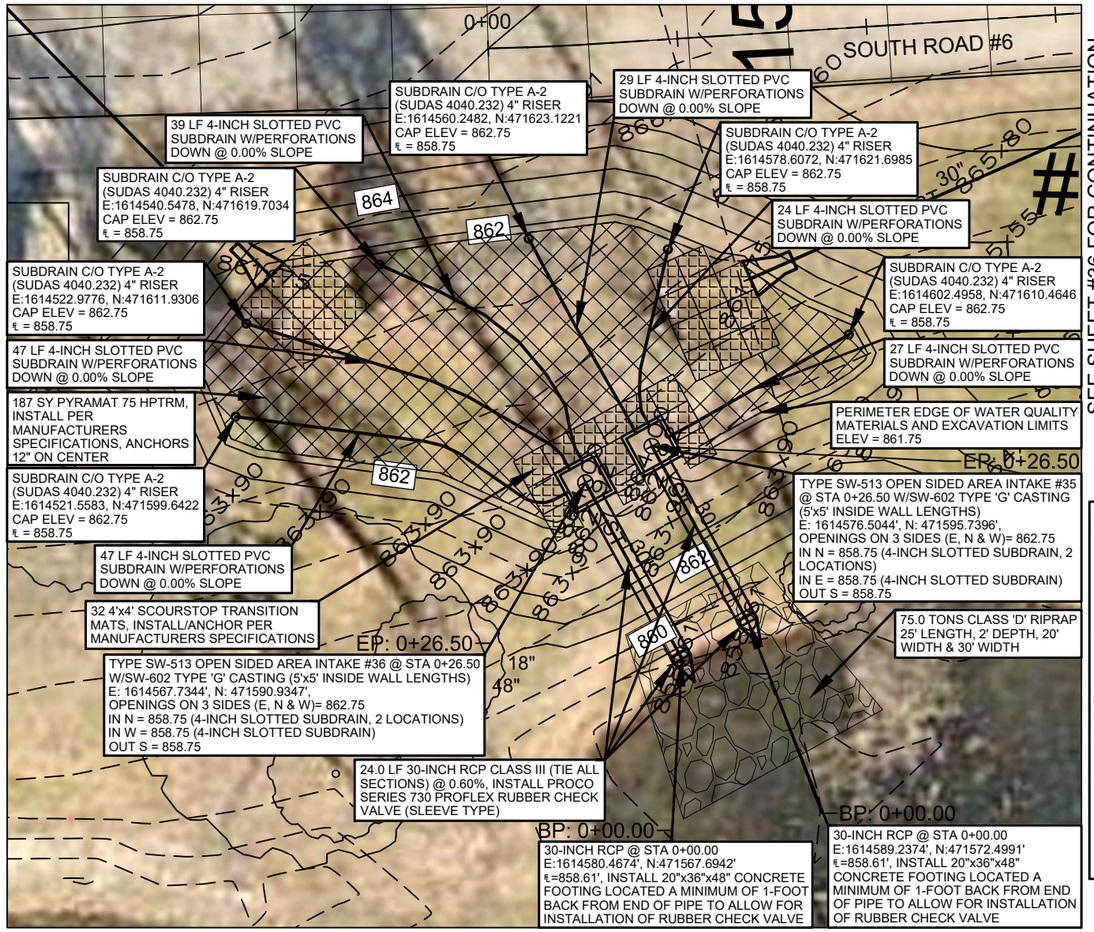
CHK'D BY:

PROJECT NUMBER: 22-05-91-01

DATE: 12/29/2021

SHEET No: 43

SEE SHEET #40 FOR CONTINUATION



SEE SHEET #36 FOR CONTINUATION

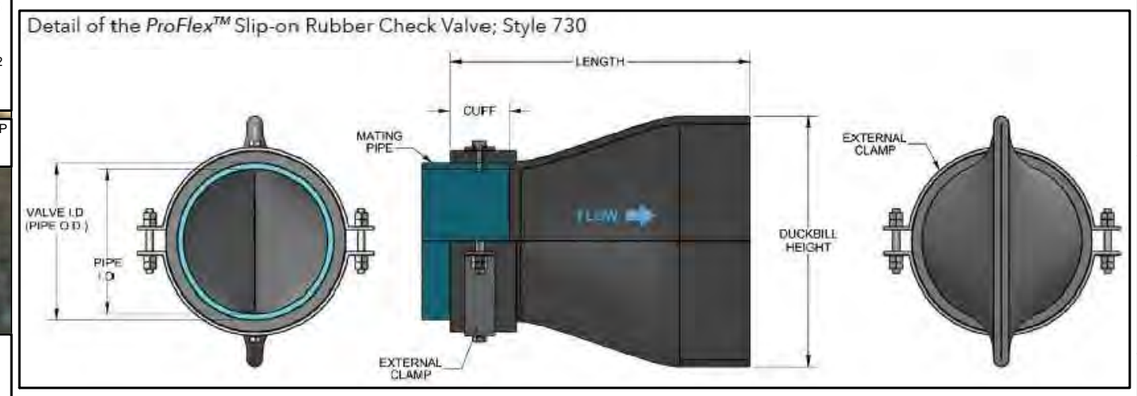
0 FEET 20

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

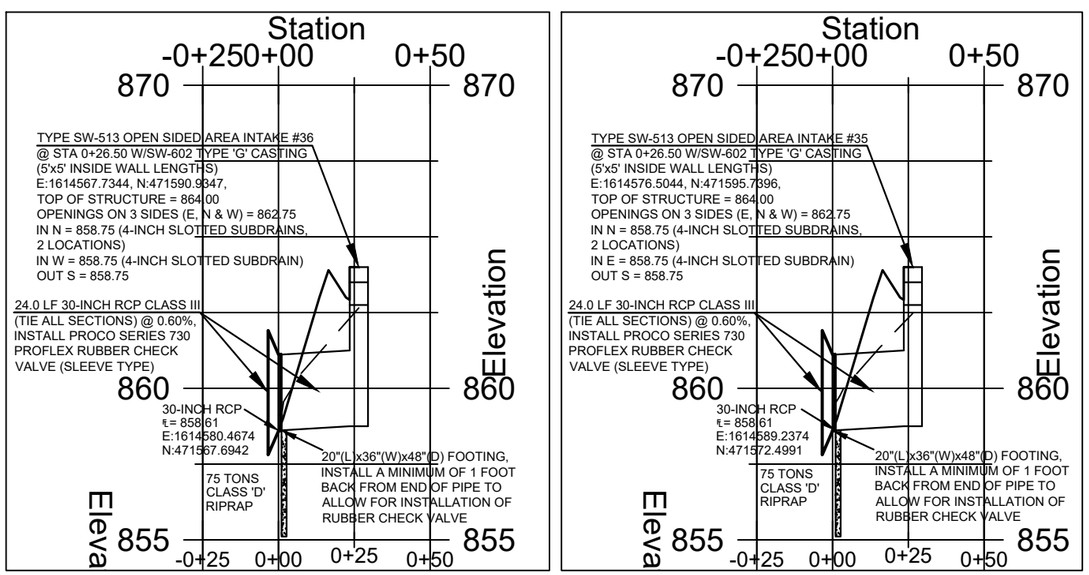
PROCO SERIES 730 PROFLEX RUBBER CHECK VALVE



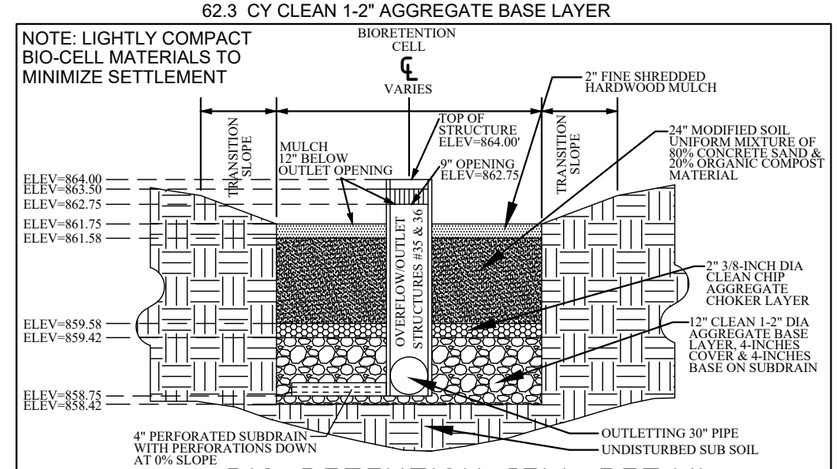
SEE SHEET #45 FOR STORM SEWER CENTERLINE CONTROL

BIO-CELL QUANTITIES

208 CY GRADING (CORING OUT WATER QUALITY/DETENTION AREA)
213 LF 4-INCH SLOTTED PVC SUBDRAIN
10.4 CY SHREDDED HARDWOOD MULCH
125 CY MODIFIED SOIL
10.4 CY 3/8-INCH DIA CLEAN AGGREGATE
62.3 CY CLEAN 1-2" AGGREGATE BASE LAYER



NOTE: LIGHTLY COMPACT BIO-CELL MATERIALS TO MINIMIZE SETTLEMENT



BIO-RETENTION CELL DETAIL

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (BIO-CELL AREA)

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 44

STORM SEWER ALIGNMENT ALONG EAST SIDE OF CAMPGROUND

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	71.78'	N66° 14' 03"E	0+00.00'	0+71.78'	(1614589.4895',471617.8430',861.75')	(1614655.1860',471646.7717',866.43')
2	Line	96.20'	N86° 22' 55"E	0+71.78'	1+67.99'	(1614655.1860',471646.7717',866.43')	(1614751.1963',471652.8425',867.13')
3	Line	63.50'	N86° 22' 55"E	1+67.99'	2+31.49'	(1614751.1963',471652.8425',867.13')	(1614814.5698',471656.8497',867.64')
4	Line	76.53'	N81° 42' 08"E	2+31.49'	3+08.02'	(1614814.5698',471656.8497',867.64')	(1614890.2986',471667.8943',868.23')
5	Line	77.57'	N37° 48' 24"E	3+08.02'	3+85.58'	(1614890.2986',471667.8943',868.23')	(1614937.8482',471729.1801',869.87')
6	Line	73.36'	N34° 31' 49"E	3+85.58'	4+58.94'	(1614937.8482',471729.1801',869.87')	(1614979.4311',471789.6155',875.00')
7	Line	157.64'	N49° 25' 05"W	4+58.94'	6+16.59'	(1614979.4311',471789.6155',875.00')	(1614859.7062',471892.1670',879.07')
8	Line	191.17'	N30° 54' 23"E	6+16.59'	8+07.75'	(1614859.7062',471892.1670',879.07')	(1614957.8972',472056.1902',892.71')
9	Line	92.88'	N41° 42' 03"E	8+07.75'	9+00.63'	(1614957.8972',472056.1902',892.71')	(1615019.6820',472125.5340',897.75')
10	Line	133.04'	S80° 39' 59"E	9+00.63'	10+33.67'	(1615019.6820',472125.5340',897.75')	(1615150.9640',472103.9565',901.85')
11	Line	48.78'	N34° 21' 25"E	10+33.67'	10+82.46'	(1615150.9640',472103.9565',901.85')	(1615178.4943',472144.2285',907.31')
12	Line	91.81'	N12° 56' 50"E	10+82.46'	11+74.27'	(1615178.4943',472144.2285',907.31')	(1615199.0656',472233.7082',915.51')
13	Line	47.13'	N19° 29' 52"E	11+74.27'	12+21.39'	(1615199.0656',472233.7082',915.51')	(1615214.7946',472278.1310',919.07')
14	Line	90.03'	N37° 58' 57"E	12+21.39'	13+11.42'	(1615214.7946',472278.1310',919.07')	(1615270.1993',472349.0902',922.84')
15	Line	104.51'	N23° 58' 42"E	13+11.42'	14+15.93'	(1615270.1993',472349.0902',922.84')	(1615312.6715',472444.5810',926.55')
16	Line	215.39'	N5° 28' 51"W	14+15.93'	16+31.33'	(1615312.6715',472444.5810',926.55')	(1615292.0981',472658.9911',941.76')
17	Line	134.44'	N0° 38' 45"E	16+31.33'	17+65.77'	(1615292.0981',472658.9911',941.76')	(1615293.6138',472793.4264',947.00')

STORM SEWER ALIGNMENT TO INTAKE #18

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	252.37'	N68° 39' 26"E	0+00.00'	2+52.37'	(1614979.4311',471789.6155',875.00')	(1615214.4964',471881.4656',885.75')

STORM SEWER ALIGNMENT TO INTAKE #19

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	107.36'	N81° 45' 03"E	0+00.00'	1+07.36'	(1614957.8972',472056.1902',892.71')	(1615064.1478',472071.5945',896.00')

STORM SEWER ALIGNMENT ALONG THE WEST SIDE OF THE CAMPGROUND

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	137.35'	N44° 31' 22"W	0+00.00'	1+37.35'	(1614526.1465',471618.1693',861.75')	(1614429.8355',471716.0981',872.09')
2	Line	130.87'	N2° 00' 10"W	1+37.35'	2+68.22'	(1614429.8355',471716.0981',872.09')	(1614425.2620',471846.8834',877.12')
3	Line	161.12'	N1° 22' 47"E	2+68.22'	4+29.34'	(1614425.2620',471846.8834',877.12')	(1614429.1414',472007.9540',880.63')
4	Line	178.28'	N52° 00' 44"E	4+29.34'	6+07.61'	(1614429.1414',472007.9540',880.63')	(1614569.6505',472117.6834',892.40')
5	Line	131.76'	N8° 29' 32"E	6+07.61'	7+39.37'	(1614569.6505',472117.6834',892.40')	(1614589.1084',472247.9983',898.99')
6	Line	130.79'	N39° 26' 50"E	7+39.37'	8+70.17'	(1614589.1084',472247.9983',898.99')	(1614672.2102',472348.9983',904.25')
7	Line	175.01'	N69° 57' 45"E	8+70.17'	10+45.18'	(1614672.2102',472348.9983',904.25')	(1614836.6306',472408.9644',913.75')
8	Line	64.13'	N44° 26' 33"E	10+45.18'	11+09.31'	(1614836.6306',472408.9644',913.75')	(1614881.5361',472454.7524',920.78')
9	Line	50.86'	N9° 18' 33"E	11+09.31'	11+60.17'	(1614881.5361',472454.7524',920.78')	(1614889.7629',472504.9399',924.82')
10	Line	149.94'	N6° 15' 47"E	11+60.17'	13+10.12'	(1614889.7629',472504.9399',924.82')	(1614906.1205',472653.9884',935.04')
11	Line	175.74'	S81° 34' 32"E	13+10.12'	14+85.86'	(1614906.1205',472653.9884',935.04')	(1615079.9649',472628.2418',937.50')
12	Line	72.71'	N6° 55' 44"E	14+85.86'	15+58.57'	(1615079.9649',472628.2418',937.50')	(1615088.7369',472700.4245',973.50')

STORM SEWER ALIGNMENT TO INTAKE #32

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	263.08'	N78° 25' 54"E	0+00.00'	2+63.08'	(1614569.6505',472117.6834',892.40')	(1614827.3873',472170.4409',897.00')

STORM SEWER ALIGNMENT TO INTAKE #33

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	79.13'	S57° 35' 10"E	0+00.00'	0+79.13'	(1614836.6306',472408.9644',913.75')	(1614903.4315',472366.5484',915.25')

STORM SEWER ALIGNMENT TO INTAKE #34

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	52.41'	S83° 47' 23"E	0+00.00'	0+52.41'	(1614881.5361',472454.7524',920.78')	(1614933.6346',472449.0833',924.47')

STORM SEWER ALIGNMENT FROM INTAKE #35 TO OUTLET

No.	Type	Length	Direction	Start Station	End Station
1	Line	26.50'	N28° 43' 03"W	0+00.00'	0+26.50'

Start Point	End Point
(1614589.2374',471572.4991',858.61')	(1614576.5044',471595.7396',864.00')

STORM SEWER ALIGNMENT FROM INTAKE #36 TO OUTLET

No.	Type	Length	Direction	Start Station	End Station
1	Line	26.50'	N28° 43' 03"W	0+00.00'	0+26.50'

Start Point	End Point
(1614580.4674',471567.6942',858.61')	(1614567.7344',471590.9347',864.00')

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

STORM SEWER PLAN (& CONTROL)

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY	DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 45

0 150
FEET

LEGEND

EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○ ●	MANHOLE/CLEANOUT
☿ ☿	HYDRANT
○ ⊗	VALVE

ELECTRIC CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2020 NEC CODE FOR CONSTRUCTION.
2. CONSISTENTLY THROUGHOUT THE PROJECT, THE PHASE 'A' CONDUCTOR, THE PHASE 'B' CONDUCTOR, AND THE NEUTRAL CONDUCTOR SHALL BE DISTINGUISHED FROM EACH OTHER BY COLOR CODING, OR BY SURFACE DEFORMATIONS OR OTHER MARKINGS IN THE CONDUCTOR INSULATION. THE GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION.
3. THE CONDUCTOR SIZES AND THE PLAN ARRANGEMENT OF THE LOADS ON EACH CIRCUIT WERE SELECTED TO LIMIT THE MAXIMUM CIRCUIT VOLTAGE DROP, FROM THE TRANSFORMER TO THE FURTHEST CAMPSITE OUTLET ON THE CIRCUIT, TO 3% (3.6 VOLTS ON EACH 120V PHASE).
4. ALL CONDUCTORS SHALL BE COPPER.

CONSULTANT:

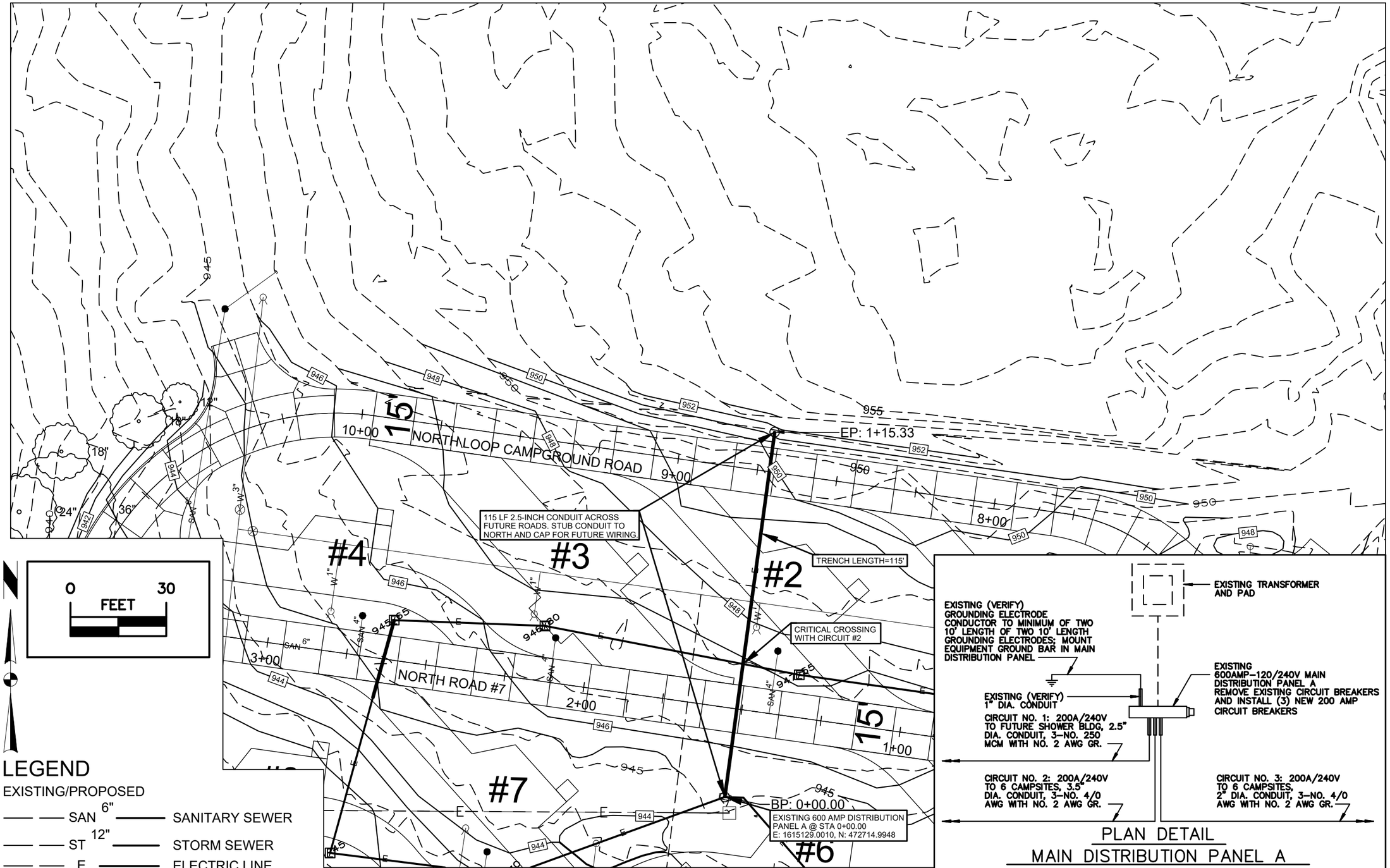
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

OVERALL ELECTRICAL PLAN

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 46



LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

SEE SHEET #48 FOR ELECTRICAL CIRCUIT #2 SEE SHEET #49 FOR ELECTRICAL CIRCUIT #3

ELECTRICAL CIRCUIT #1 ALIGNMENT

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	115.33'	N7° 47' 36"E	0+00.00'	1+15.33'	(1615129.0010',472714.9948') EX DIST PANEL A	(1615144.6399',472829.2624') END OF 2.5" CONDUIT

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #1

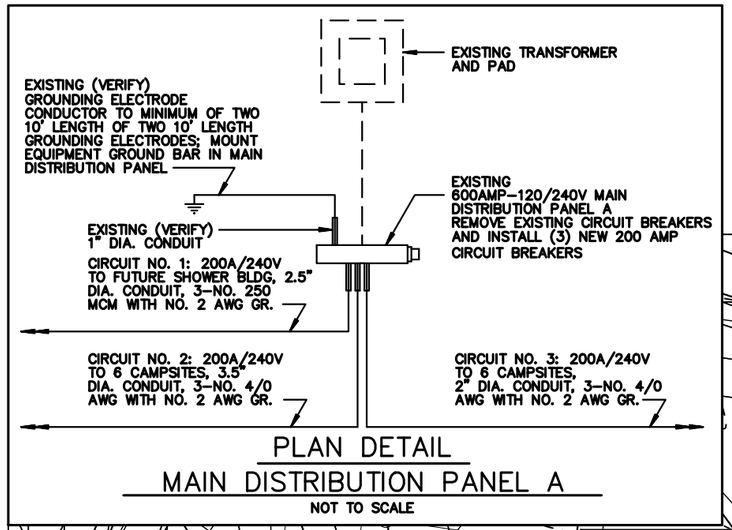
CONSTRUCTION PROJECT FOR:

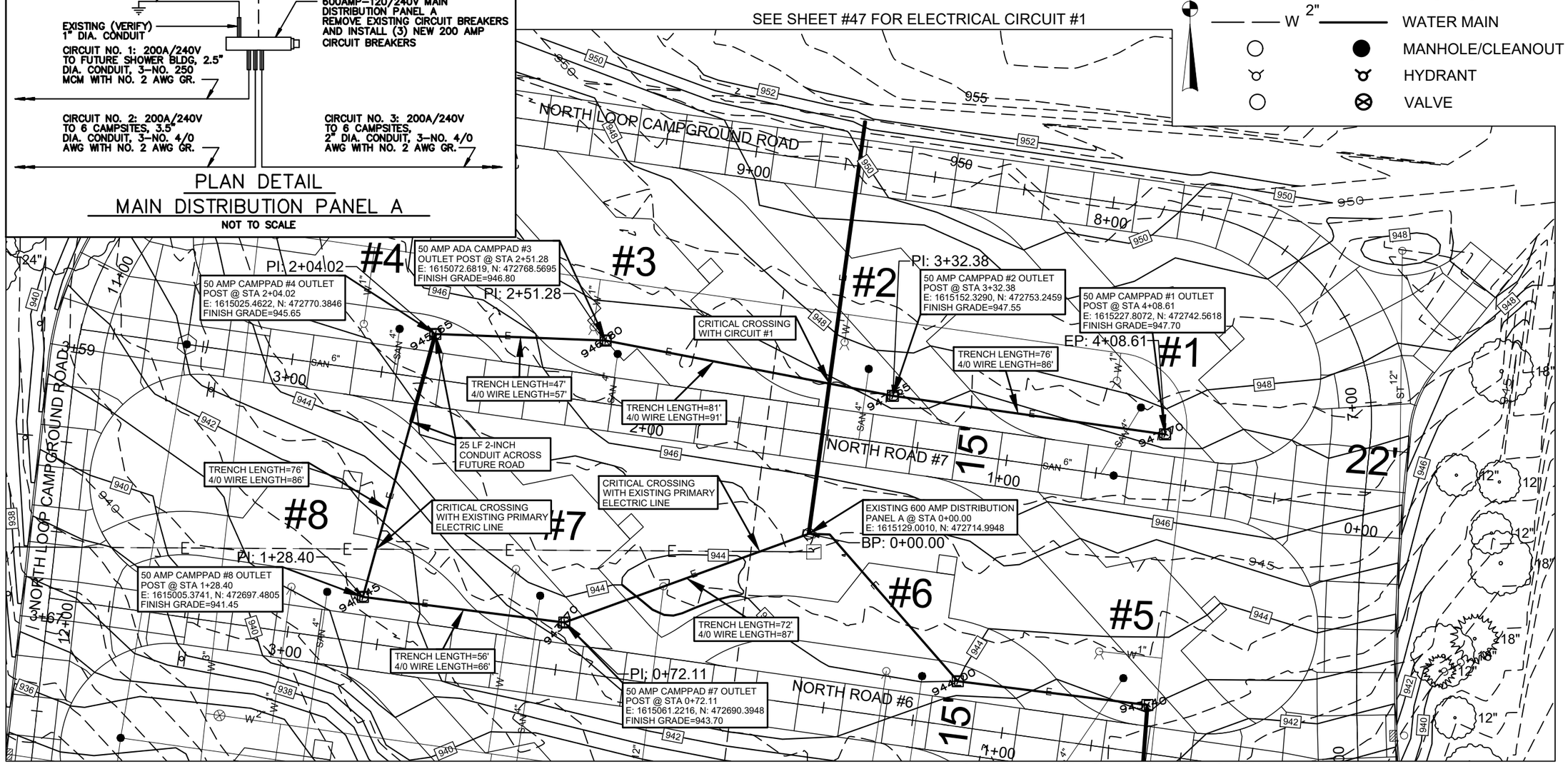
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 47





ELECTRICAL CIRCUIT #2 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	72.11'	S70° 03' 07"W	0+00.00'	0+72.11'	(1615129.0010',472714.9948') EX DIST PANEL A	(1615061.2216',472690.3948',943.70') CAMPPAD #7
2	Line	56.30'	N82° 46' 09"W	0+72.11'	1+28.40'	(1615061.2216',472690.3948',943.70') CAMPPAD #7	(1615005.3741',472697.4805',941.45') CAMPPAD #8
3	Line	75.62'	N15° 24' 18"E	1+28.40'	2+04.02'	(1615005.3741',472697.4805',941.45') CAMPPAD #8	(1615025.4622',472770.3846',945.65') CAMPPAD #4
4	Line	47.25'	S87° 47' 55"E	2+04.02'	2+51.28'	(1615025.4622',472770.3846',945.65') CAMPPAD #4	(1615072.6819',472768.5695',946.80') ADA CAMPPAD #3
5	Line	81.11'	S79° 06' 35"E	2+51.28'	3+32.38'	(1615072.6819',472768.5695',946.80') ADA CAMPPAD #3	(1615152.3290',472753.2459',947.55') CAMPPAD #2
6	Line	76.23'	S81° 56' 35"E	3+32.38'	4+08.61'	(1615152.3290',472753.2459',947.55') CAMPPAD #2	(1615227.8072',472742.5618',947.70') CAMPPAD #1

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

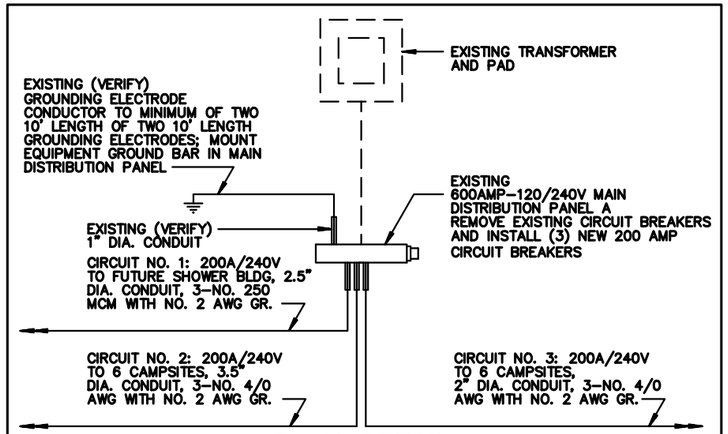
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #2

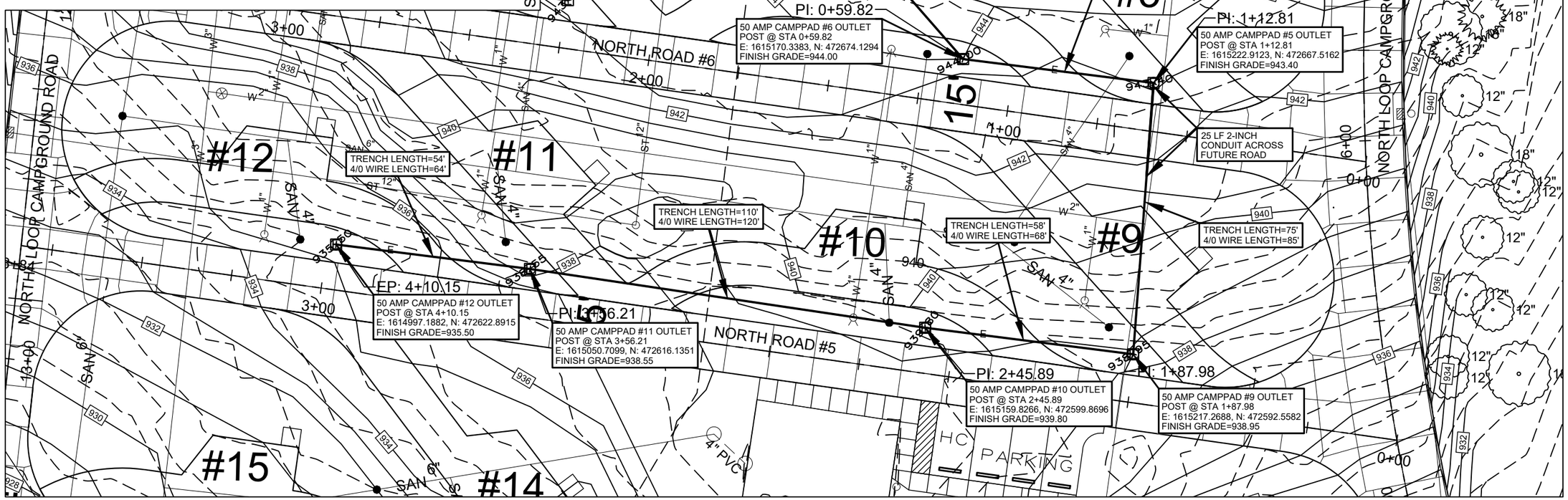
CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 48



PLAN DETAIL
MAIN DISTRIBUTION PANEL A
NOT TO SCALE



ELECTRICAL CIRCUIT #3 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	5.83'	S88° 05' 25"E	0+00.00'	0+05.83'	(1615129.0010',472714.9948') EX DIST PANEL A	(1615134.8248',472714.8006') PI POINT
2	Line	53.99'	S41° 07' 37"E	0+05.83'	0+59.82'	(1615134.8248',472714.8006') PI POINT	(1615170.3383',472674.1294',944.00') CAMPPAD #6
3	Line	52.99'	S82° 49' 50"E	0+59.82'	1+12.81'	(1615170.3383',472674.1294',944.00') CAMPPAD #6	(1615222.9123',472667.5162',943.40') CAMPPAD #5
4	Line	75.17'	S4° 18' 20"W	1+12.81'	1+87.98'	(1615222.9123',472667.5162',943.40') CAMPPAD #5	(1615217.2688',472592.5582',938.95') CAMPPAD #9
5	Line	57.91'	N82° 44' 46"W	1+87.98'	2+45.89'	(1615217.2688',472592.5582',938.95') CAMPPAD #9	(1615159.8266',472599.8696',939.80') CAMPPAD #10
6	Line	110.32'	N81° 31' 18"W	2+45.89'	3+56.21'	(1615159.8266',472599.8696',939.80') CAMPPAD #10	(1615050.7099',472616.1351',938.55') CAMPPAD #11
7	Line	53.95'	N82° 48' 19"W	3+56.21'	4+10.15'	(1615050.7099',472616.1351',938.55') CAMPPAD #11	(1614997.1882',472622.8915',935.50') CAMPPAD #12

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #3

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 49

0 30
FEET

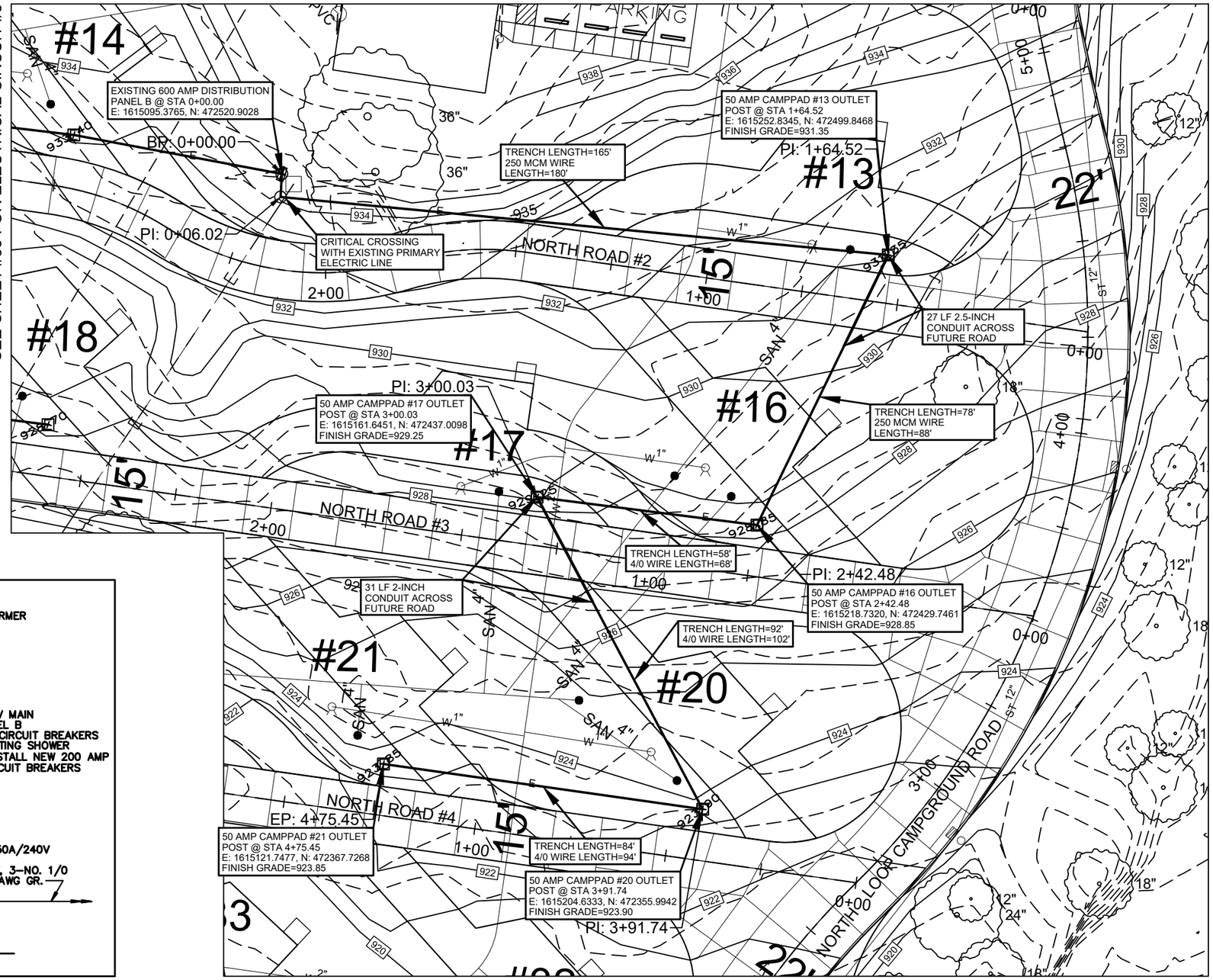
ELECTRICAL CIRCUIT #4 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	6.02'	S3° 09' 45"W	0+00.00'	0+06.02'	(1615095.3765',472520.9028') EX DIST PANEL B	(1615095.0446',472514.8943') PI POINT
2	Line	158.51'	S84° 33' 09"E	0+06.02'	1+64.52'	(1615095.0446',472514.8943') PI POINT	(1615252.8345',472499.8468',931.35') CAMPPAD #13
3	Line	77.96'	S25° 56' 31"W	1+64.52'	2+42.48'	(1615252.8345',472499.8468',931.35') CAMPPAD #13	(1615218.7320',472429.7461',928.85') CAMPPAD #16
4	Line	57.55'	N82° 44' 55"W	2+42.48'	3+00.03'	(1615218.7320',472429.7461',928.85') CAMPPAD #16	(1615161.6451',472437.0098',929.25') CAMPPAD #17
5	Line	91.71'	S27° 57' 04"E	3+00.03'	3+91.74'	(1615161.6451',472437.0098',929.25') CAMPPAD #17	(1615204.6333',472355.9942',923.90') CAMPPAD #20
6	Line	83.71'	N81° 56' 35"W	3+91.74'	4+75.45'	(1615204.6333',472355.9942',923.90') CAMPPAD #20	(1615121.7477',472367.7268',923.85') CAMPPAD #21

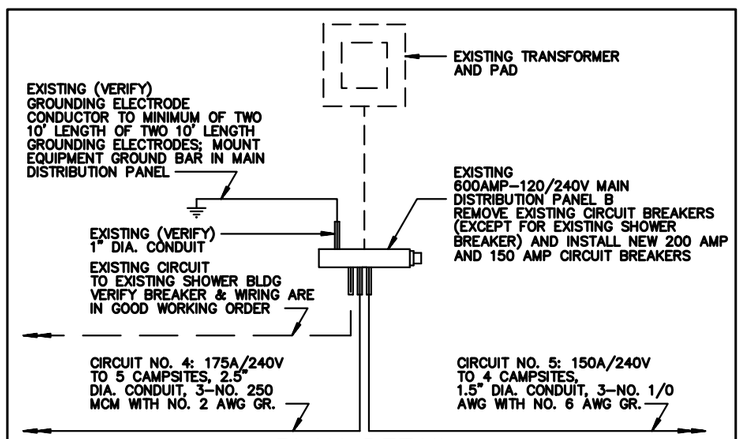
LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

SEE SHEET #53 FOR ELECTRICAL CIRCUIT #5





PLAN DETAIL
MAIN DISTRIBUTION PANEL B
NOT TO SCALE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

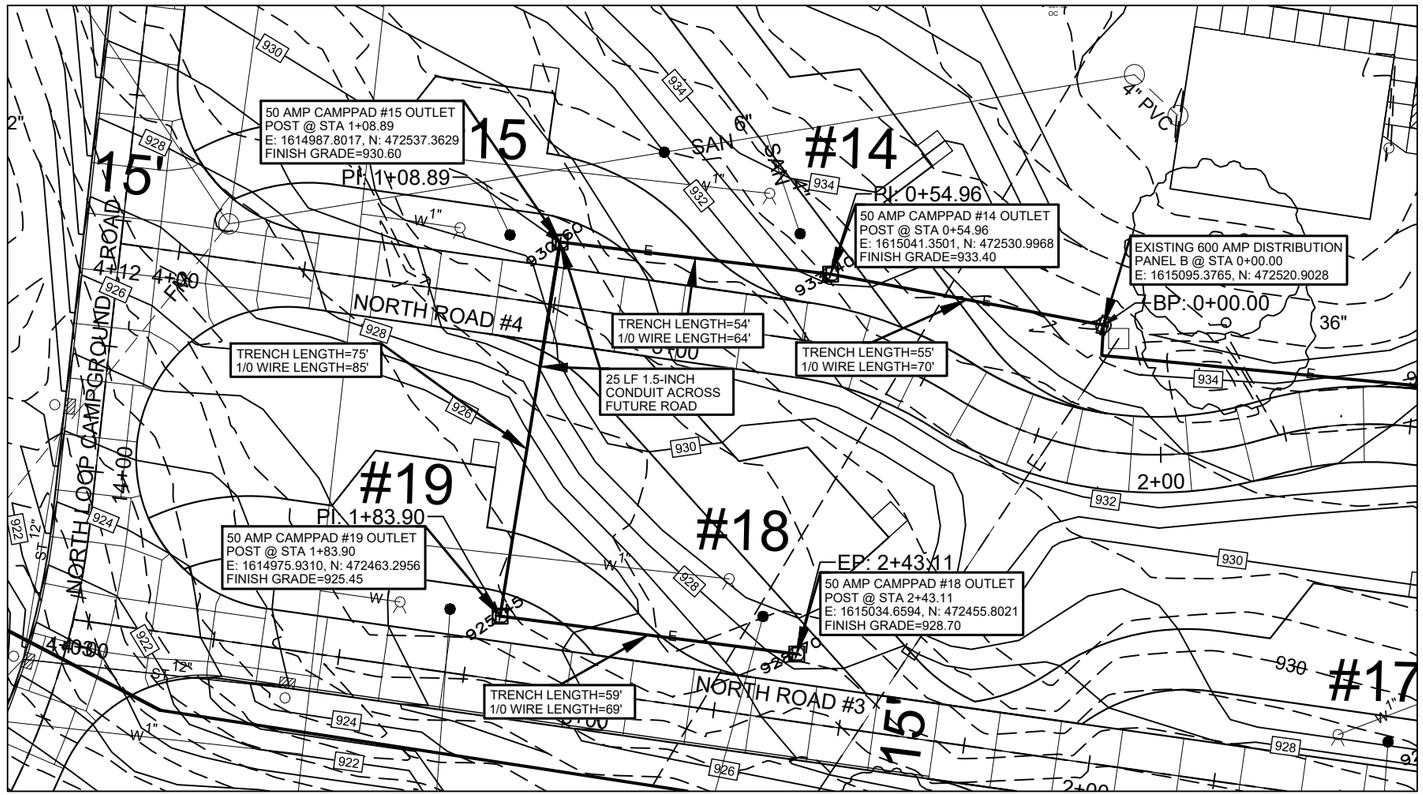
ELECTRICAL PLAN CIRCUIT #4

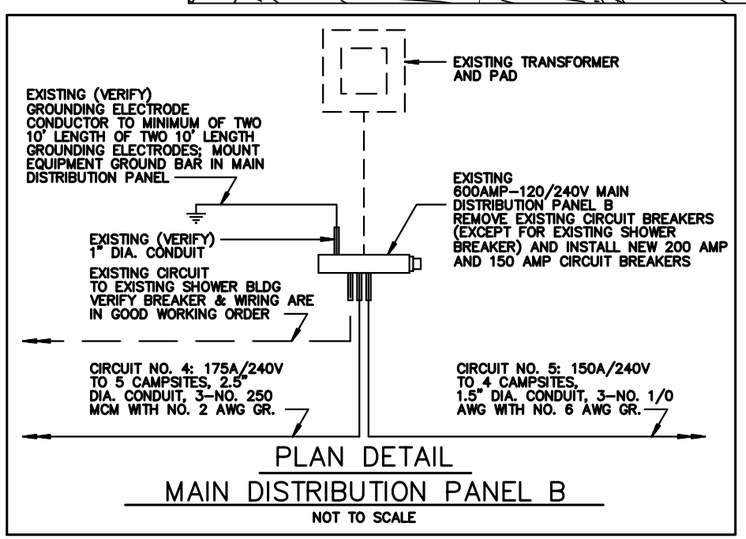
CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 50

ELECTRICAL CIRCUIT #5 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	54.96'	N79° 25' 02"W	0+00.00'	0+54.96'	(1615095.3792',472520.9022') EX DIST PANEL B	(1615041.3501',472530.9968',933.40') CAMPPAD #14
2	Line	53.93'	N83° 13' 13"W	0+54.96'	1+08.89'	(1615041.3501',472530.9968',933.40') CAMPPAD #14	(1614987.8017',472537.3629',930.60') CAMPPAD #15
3	Line	75.01'	S9° 06' 19"W	1+08.89'	1+83.90'	(1614987.8017',472537.3629',930.60') CAMPPAD #15	(1614975.9310',472463.2956',925.45') CAMPPAD #19
4	Line	59.20'	S82° 43' 43"E	1+83.90'	2+43.11'	(1614975.9310',472463.2956',925.45') CAMPPAD #19	(1615034.6594',472455.8021',928.70') CAMPPAD #18





PLAN DETAIL

MAIN DISTRIBUTION PANEL B

NOT TO SCALE

0 30
FEET

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #5

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY: DATE	REVISION

DRAWN BY:

CHK'D BY:

PROJECT NUMBER: 22-05-91-01

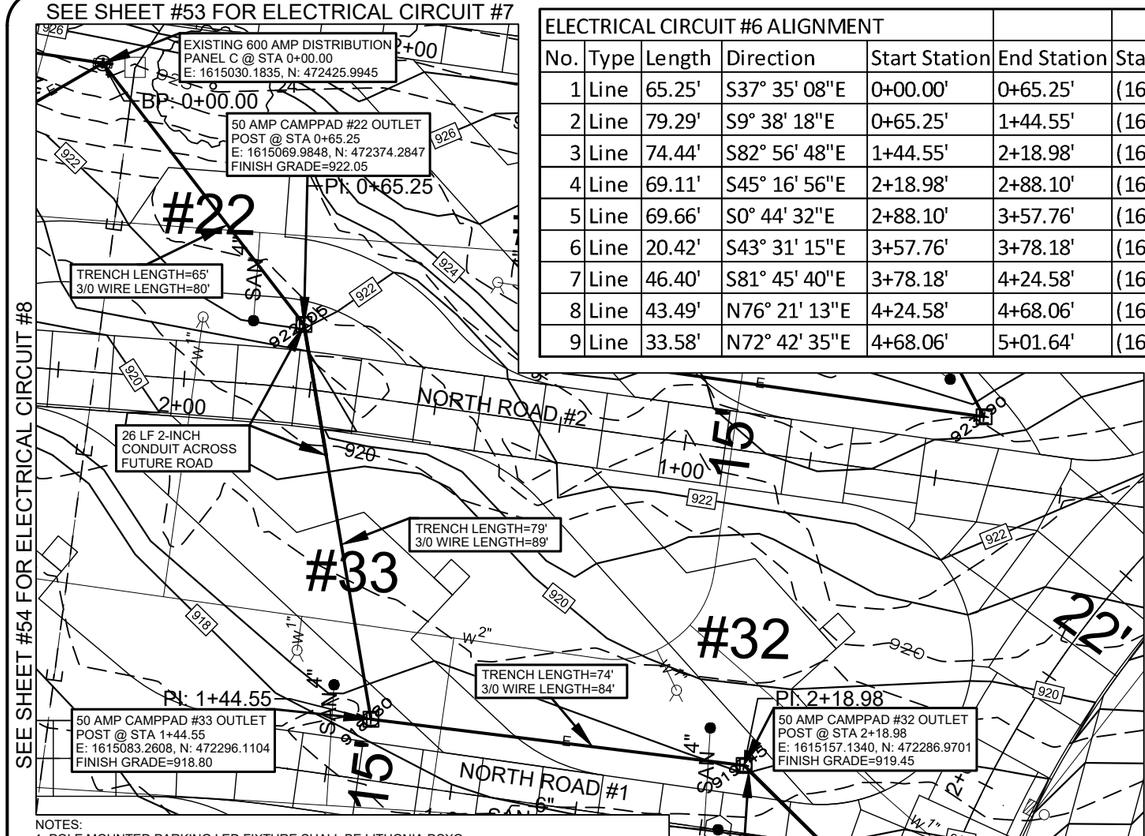
DATE: 12/29/2021

SHEET No: 51

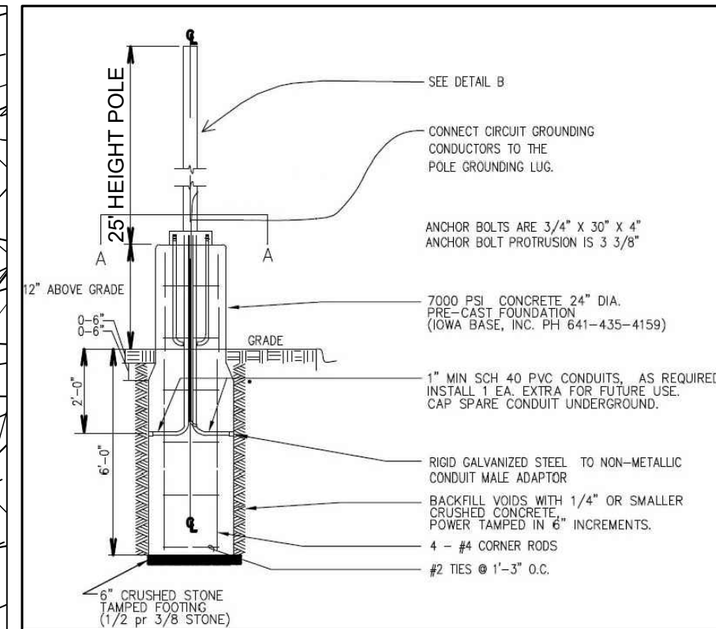
SEE SHEET #53 FOR ELECTRICAL CIRCUIT #7

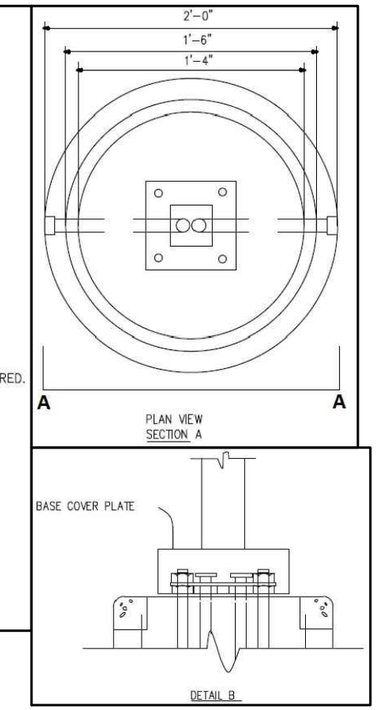
SEE SHEET #54 FOR ELECTRICAL CIRCUIT #8

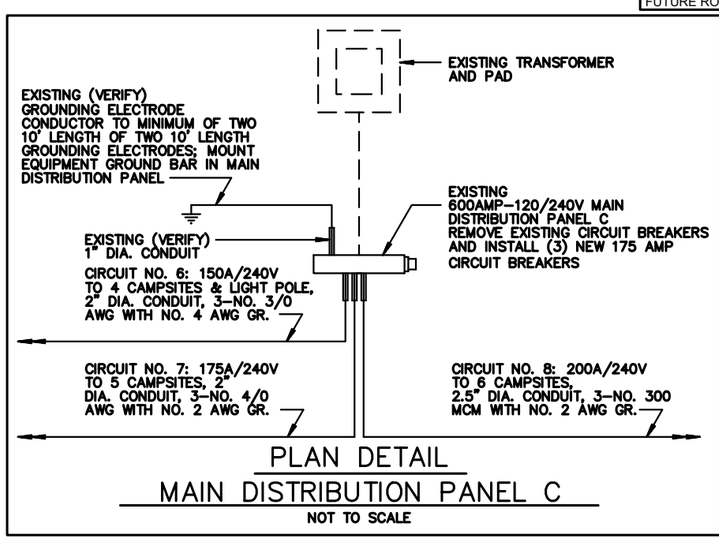
ELECTRICAL CIRCUIT #6 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	65.25'	S37° 35' 08"E	0+00.00'	0+65.25'	(1615030.1835',472425.9945') EX DIST PANEL C	(1615069.9848',472374.2847',922.05') CAMPPAD #22
2	Line	79.29'	S9° 38' 18"E	0+65.25'	1+44.55'	(1615069.9848',472374.2847',922.05') CAMPPAD #22	(1615083.2608',472296.1104',918.80') CAMPPAD #33
3	Line	74.44'	S82° 56' 48"E	1+44.55'	2+18.98'	(1615083.2608',472296.1104',918.80') CAMPPAD #33	(1615157.1340',472286.9701',919.45') CAMPPAD #32
4	Line	69.11'	S45° 16' 56"E	2+18.98'	2+88.10'	(1615157.1340',472286.9701',919.45') CAMPPAD #32	(1615206.2434',472238.3422',916.50') CAMPPAD #31
5	Line	69.66'	S0° 44' 32"E	2+88.10'	3+57.76'	(1615206.2434',472238.3422',916.50') CAMPPAD #31	(1615207.1459',472168.6869') PI POINT
6	Line	20.42'	S43° 31' 15"E	3+57.76'	3+78.18'	(1615207.1459',472168.6869') PI POINT	(1615221.2086',472153.8787') PI POINT
7	Line	46.40'	S81° 45' 40"E	3+78.18'	4+24.58'	(1615221.2086',472153.8787') PI POINT	(1615267.1293',472147.2297') PI POINT
8	Line	43.49'	N76° 21' 13"E	4+24.58'	4+68.06'	(1615267.1293',472147.2297') PI POINT	(1615309.3889',472157.4894') LIGHT POLE
9	Line	33.58'	N72° 42' 35"E	4+68.06'	5+01.64'	(1615309.3889',472157.4894') LIGHT POLE	(1615341.4468',472167.4684') ENTRANCE KIOSK LIGHT



NOTES:
1. POLE MOUNTED PARKING LED FIXTURE SHALL BE LITHONIA DSXO LED-40C-700-40K-T4M-MVOLT-RPA (OR APPROVED EQUAL). MOUNT AT VIA 25'0" STEEL TAPERED POLE. PROVIDE WITH MOTION SENSOR AND INTEGRAL PHOTOCELL. MOTION SENSOR REDUCES WATTAGE TO 25% OF ULL OUTPUT WHEN NO MOTION IS DETECTED FOR 5 MINUTES. REFER TO POLE MOUNT DETAIL ON THIS SHEET FOR PRECAST POLE BASE INFO. MINIMUM 10,000 LUMENS AT 4,000K CCT.
2. BID ITEM #84 IS A LUMP SUM ELECTRICAL BID ITEM AND SHALL INCLUDE ALL ITEMS DETAILED FOR THE LIGHT POLE (FIXTURE, POLE, PRECAST BASE, CONDUIT, WIRING, CONNECTIONS, ETC) AND FOR THE ENTRY KIOSK ITEMS INCLUDING THE LED LIGHT, WOOD BLOCKING, WIRING, CONDUIT, CONNECTIONS, INSTALLATION, ETC.







PLAN DETAIL
MAIN DISTRIBUTION PANEL C
NOT TO SCALE

0 30
FEET

LEGEND
EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
○	● MH/CLEANOUT
	HYDRANT
○	⊗ VALVE

CONSULTANT:

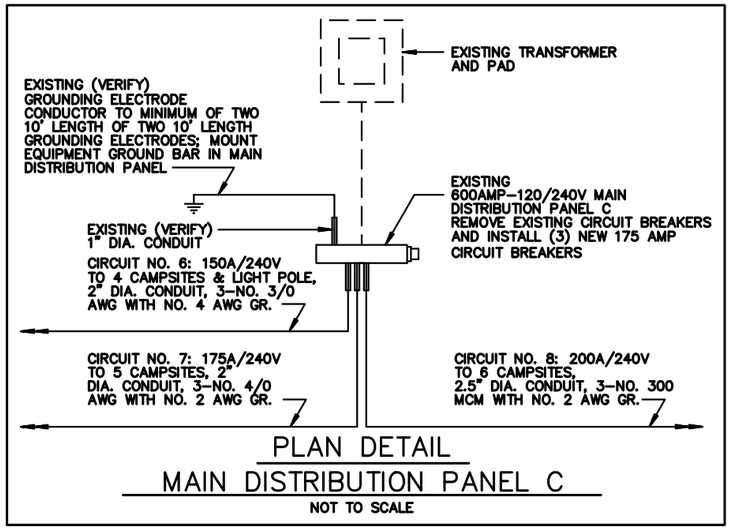
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

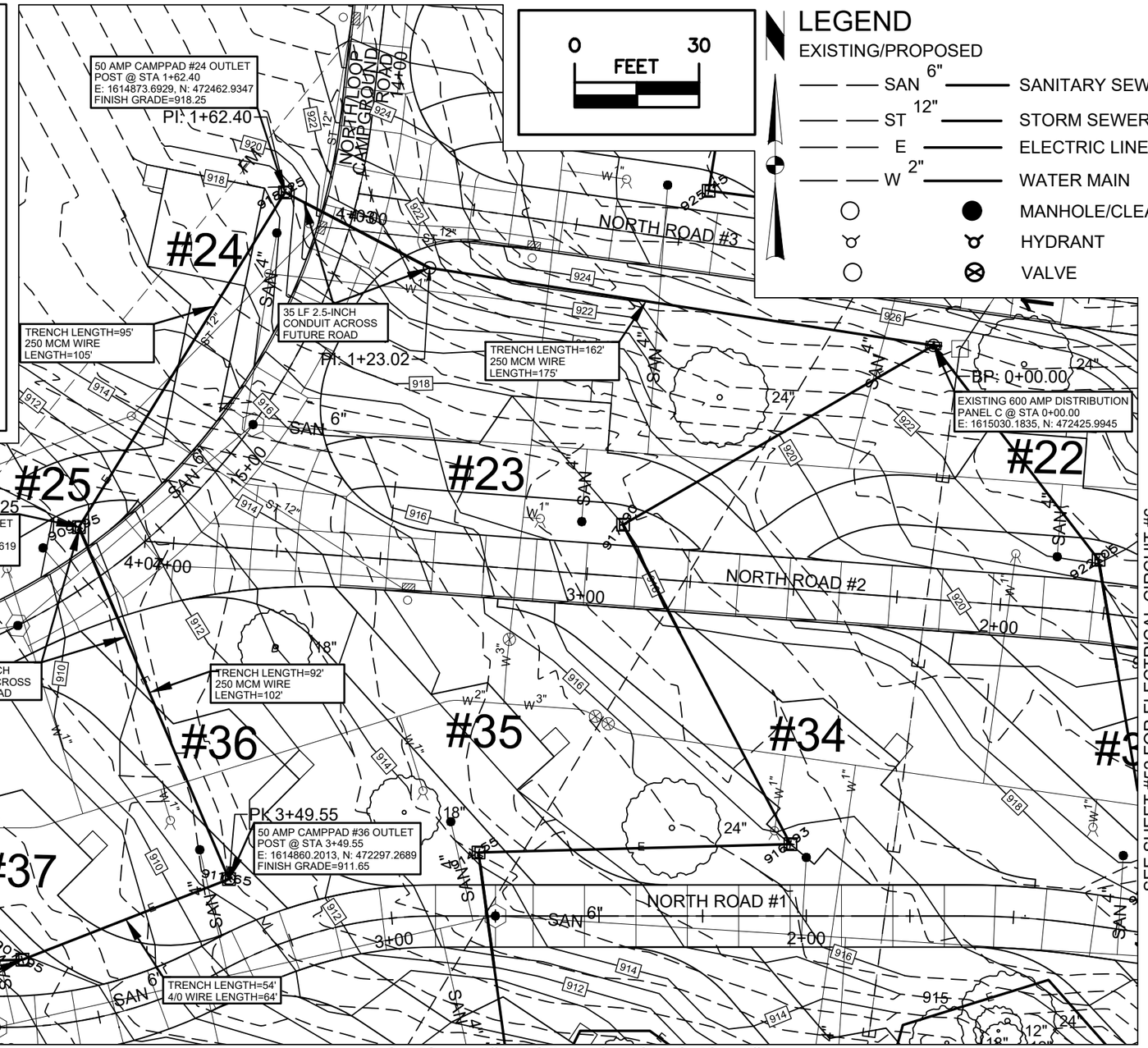
ELECTRICAL PLAN CIRCUIT #6

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 52





ELECTRICAL CIRCUIT #7 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	123.02'	N81° 15' 37"W	0+00.00'	1+23.02'	(1615030.1835',472425.9945') EX DIST PANEL C	(1614908.5926',472444.6866') PI POINT, CONDUIT
2	Line	39.38'	N62° 23' 46"W	1+23.02'	1+62.40'	(1614908.5926',472444.6866') PI POINT, CONDUIT	(1614873.6929',472462.9347',918.25') CAMPPAD #24
3	Line	94.85'	S31° 36' 42"W	1+62.40'	2+57.25'	(1614873.6929',472462.9347',918.25') CAMPPAD #24	(1614823.9782',472382.1619',909.95') CAMPPAD #25
4	Line	92.30'	S23° 06' 27"E	2+57.25'	3+49.55'	(1614823.9782',472382.1619',909.95') CAMPPAD #25	(1614860.2013',472297.2689',911.65') CAMPPAD #36
5	Line	53.52'	S68° 40' 26"W	3+49.55'	4+03.06'	(1614860.2013',472297.2689',911.65') CAMPPAD #36	(1614810.3498',472277.8063',907.95') CAMPPAD #37
6	Line	67.49'	S88° 31' 31"W	4+03.06'	4+70.55'	(1614810.3498',472277.8063',907.95') CAMPPAD #37	(1614742.8821',472276.0693',905.80') CAMPPAD #38

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

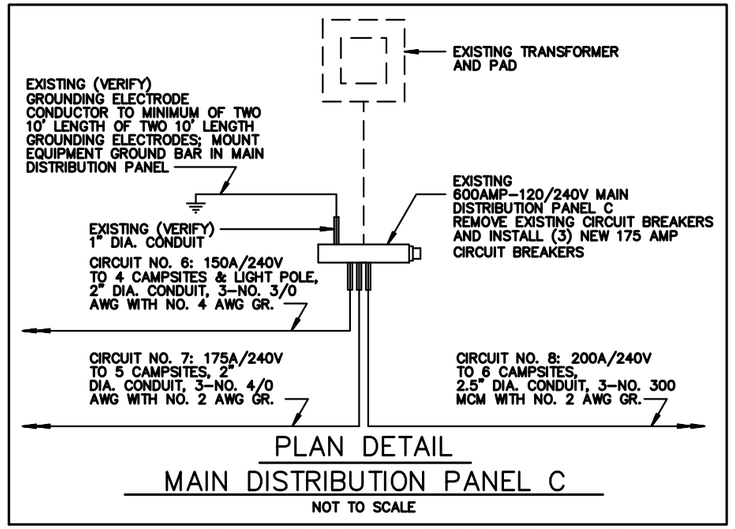
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #7

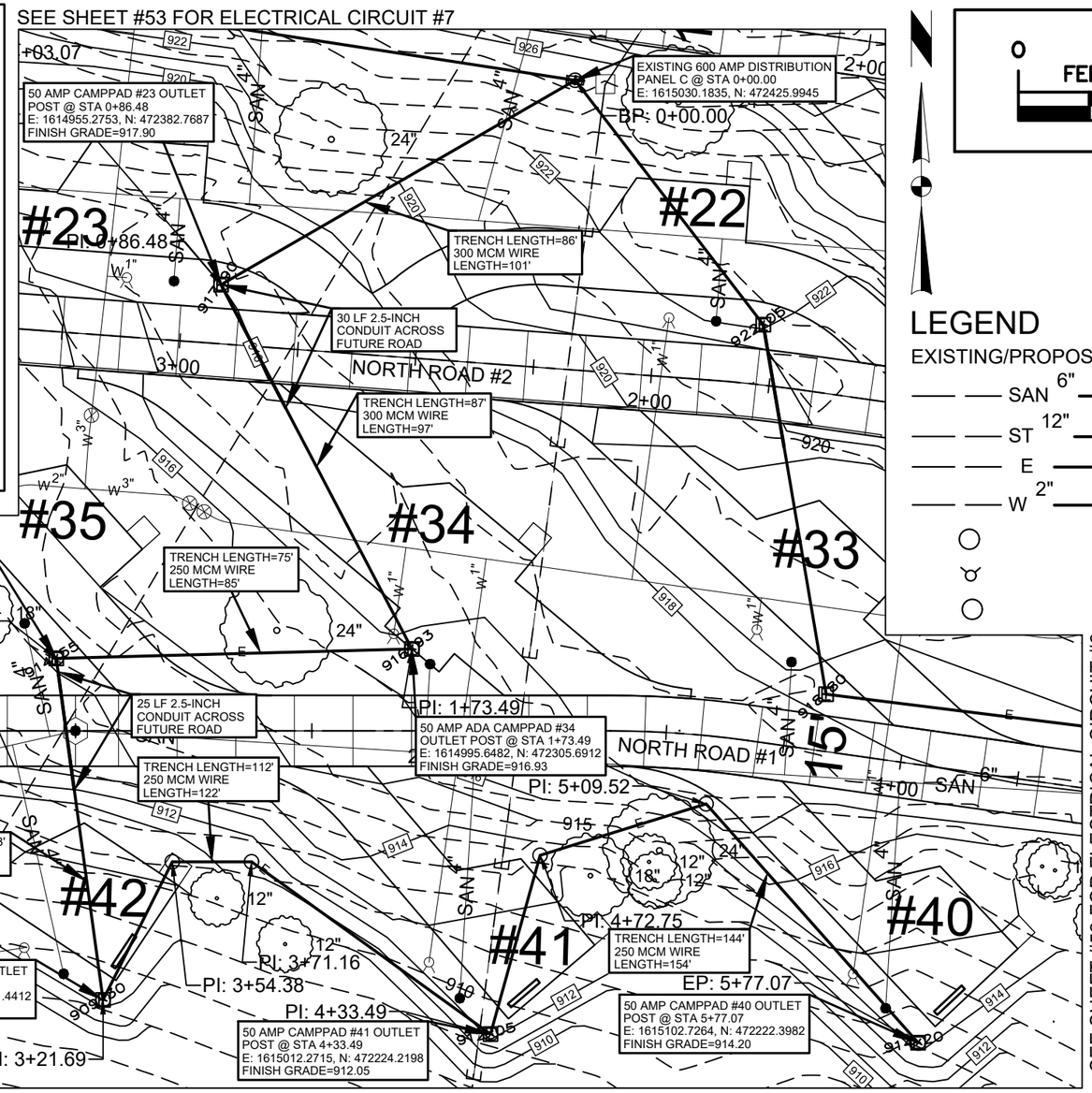
CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 53



PLAN DETAIL
MAIN DISTRIBUTION PANEL C
NOT TO SCALE



0 30
FEET

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

ELECTRICAL CIRCUIT #8 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	86.48'	S60° 00' 46"W	0+00.00'	0+86.48'	(1615030.1808',472425.9930') EX DIST PANEL C	(1614955.2753',472382.7687',917.90') CAMPPAD #23
2	Line	87.01'	S27° 38' 43"E	0+86.48'	1+73.49'	(1614955.2753',472382.7687',917.90') CAMPPAD #23	(1614995.6482',472305.6912',916.93') ADA CAMPPAD #34
3	Line	75.28'	S88° 28' 24"W	1+73.49'	2+48.78'	(1614995.6482',472305.6912',916.93') ADA CAMPPAD #34	(1614920.3919',472303.6854',914.55') CAMPPAD #35
4	Line	72.92'	S7° 47' 36"E	2+48.78'	3+21.69'	(1614920.3919',472303.6854',914.55') CAMPPAD #35	(1614930.2794',472231.4412',909.30') CAMPPAD #42
5	Line	32.69'	N26° 37' 39"E	3+21.69'	3+54.38'	(1614930.2794',472231.4412',909.30') CAMPPAD #42	(1614944.9295',472260.6617') PI POINT
6	Line	16.78'	N90° 00' 00"E	3+54.38'	3+71.16'	(1614944.9295',472260.6617') PI POINT	(1614961.7119',472260.6617') PI POINT
7	Line	62.32'	S54° 13' 01"E	3+71.16'	4+33.49'	(1614961.7119',472260.6617') PI POINT	(1615012.2715',472224.2198',912.05') CAMPPAD #41
8	Line	39.26'	N15° 31' 00"E	4+33.49'	4+72.75'	(1615012.2715',472224.2198',912.05') CAMPPAD #41	(1615022.7753',472262.0527') PI POINT
9	Line	36.77'	N72° 47' 28"E	4+72.75'	5+09.52'	(1615022.7753',472262.0527') PI POINT	(1615057.8980',472272.9310') PI POINT
10	Line	67.55'	S41° 34' 36"E	5+09.52'	5+77.07'	(1615057.8980',472272.9310') PI POINT	(1615102.7264',472222.3982',914.20') CAMPPAD #40

CONSULTANT:

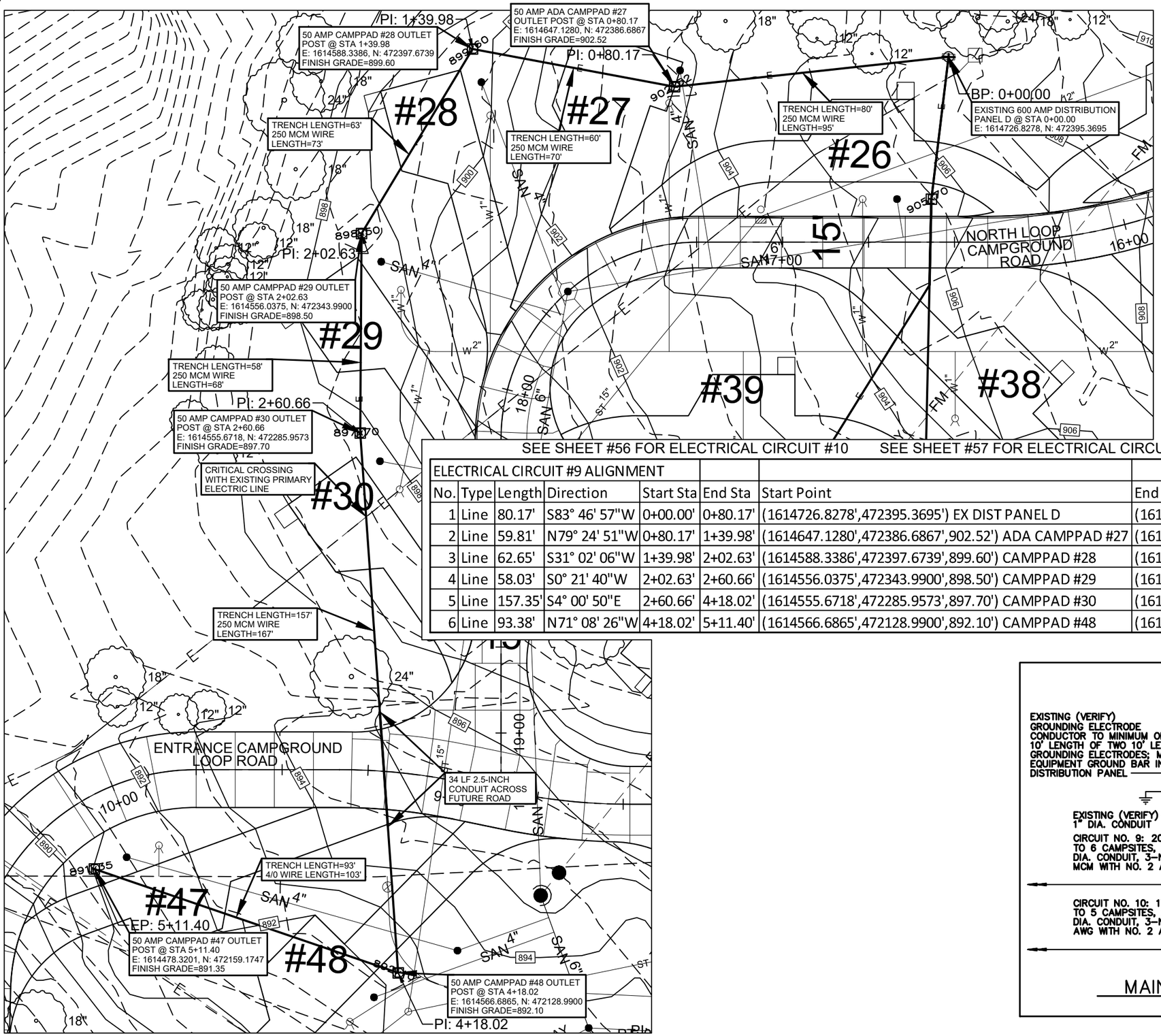
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #8

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 54



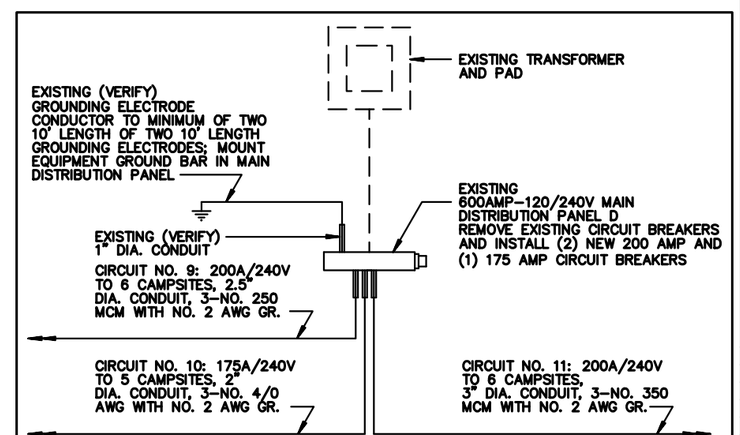
0 30
FEET

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

ELECTRICAL CIRCUIT #9 ALIGNMENT							
No.	Type	Length	Direction	Start Sta	End Sta	Start Point	End Point
1	Line	80.17'	S83° 46' 57"W	0+00.00'	0+80.17'	(1614726.8278',472395.3695') EX DIST PANEL D	(1614647.1280',472386.6867',902.52') ADA CAMPPAD #27
2	Line	59.81'	N79° 24' 51"W	0+80.17'	1+39.98'	(1614647.1280',472386.6867',902.52') ADA CAMPPAD #27	(1614588.3386',472397.6739',899.60') CAMPPAD #28
3	Line	62.65'	S31° 02' 06"W	1+39.98'	2+02.63'	(1614588.3386',472397.6739',899.60') CAMPPAD #28	(1614556.0375',472343.9900',898.50') CAMPPAD #29
4	Line	58.03'	S0° 21' 40"W	2+02.63'	2+60.66'	(1614556.0375',472343.9900',898.50') CAMPPAD #29	(1614555.6718',472285.9573',897.70') CAMPPAD #30
5	Line	157.35'	S4° 00' 50"E	2+60.66'	4+18.02'	(1614555.6718',472285.9573',897.70') CAMPPAD #30	(1614566.6865',472128.9900',892.10') CAMPPAD #48
6	Line	93.38'	N71° 08' 26"W	4+18.02'	5+11.40'	(1614566.6865',472128.9900',892.10') CAMPPAD #48	(1614478.3201',472159.1747',891.35') CAMPPAD #47



PLAN DETAIL
MAIN DISTRIBUTION PANEL D
NOT TO SCALE

CONSULTANT:

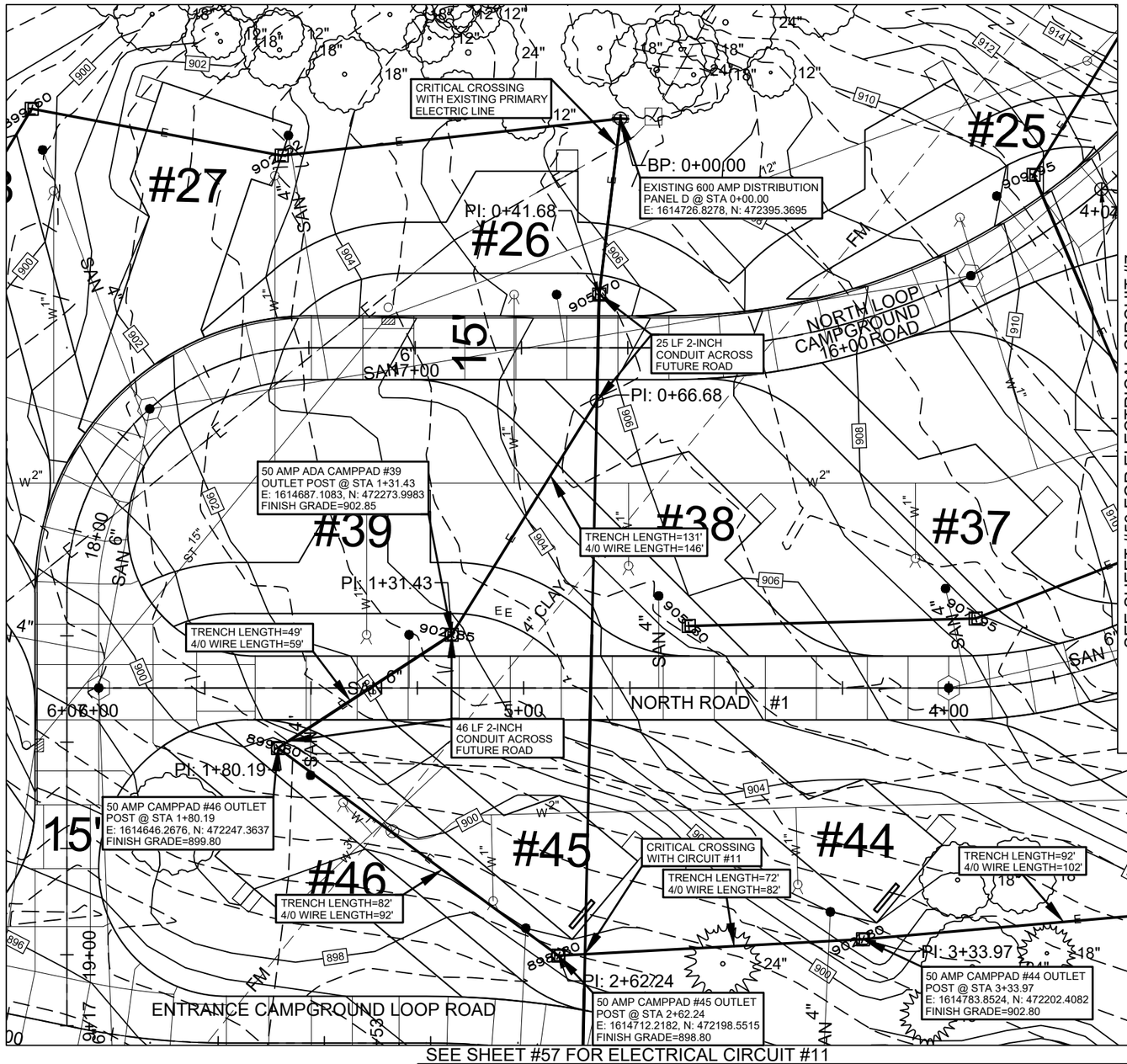
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

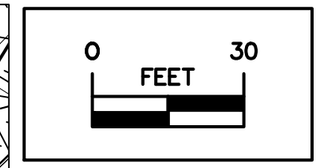
ELECTRICAL PLAN CIRCUIT #9

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 55

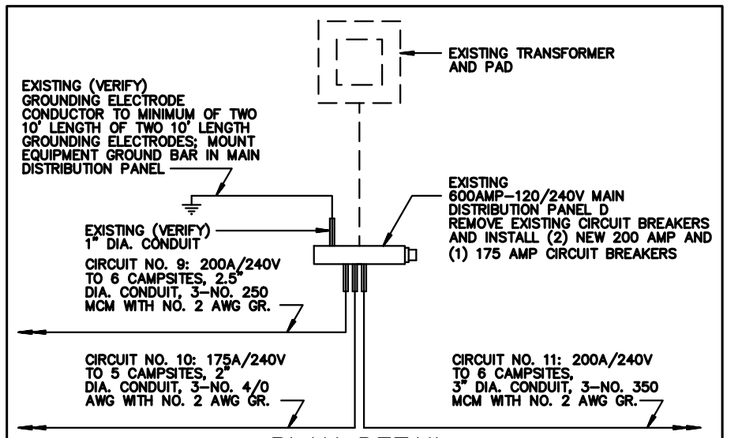




LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE



PLAN DETAIL
MAIN DISTRIBUTION PANEL D
NOT TO SCALE

SEE SHEET #57 FOR ELECTRICAL CIRCUIT #11

ELECTRICAL CIRCUIT #10 ALIGNMENT

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	42.57'	S13° 36' 24"W	0+00.00'	0+42.57'	(1614726.8230',472395.3714') EX DIST PANEL D	(1614721.8086',472353.9984') PI POINT, CONDUIT
2	Line	25.01'	S1° 14' 04"W	0+41.68'	0+66.68'	(1614721.8086',472353.9984') PI POINT, CONDUIT	(1614721.2699',472328.9983') PI POINT CONDUIT
3	Line	64.75'	S31° 50' 43"W	0+66.68'	1+31.43'	(1614721.2699',472328.9983') PI POINT CONDUIT	(1614687.1083',472273.9983',902.85') CAMPPAD #39
4	Line	48.76'	S56° 53' 21"W	1+31.43'	1+80.19'	(1614687.1083',472273.9983',902.85') CAMPPAD #39	(1614646.2676',472247.3637',899.80') CAMPPAD #46
5	Line	82.05'	S53° 29' 37"E	1+80.19'	2+62.24'	(1614646.2676',472247.3637',899.80') CAMPPAD #46	(1614712.2182',472198.5515',898.80') CAMPPAD #45
6	Line	71.74'	N86° 55' 06"E	2+62.24'	3+33.97'	(1614712.2182',472198.5515',898.80') CAMPPAD #45	(1614783.8524',472202.4082',902.80') CAMPPAD #44
7	Line	91.76'	N85° 03' 40"E	3+33.97'	4+25.74'	(1614783.8524',472202.4082',902.80') CAMPPAD #44	(1614875.2764',472210.3087',905.80') CAMPPAD #43

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

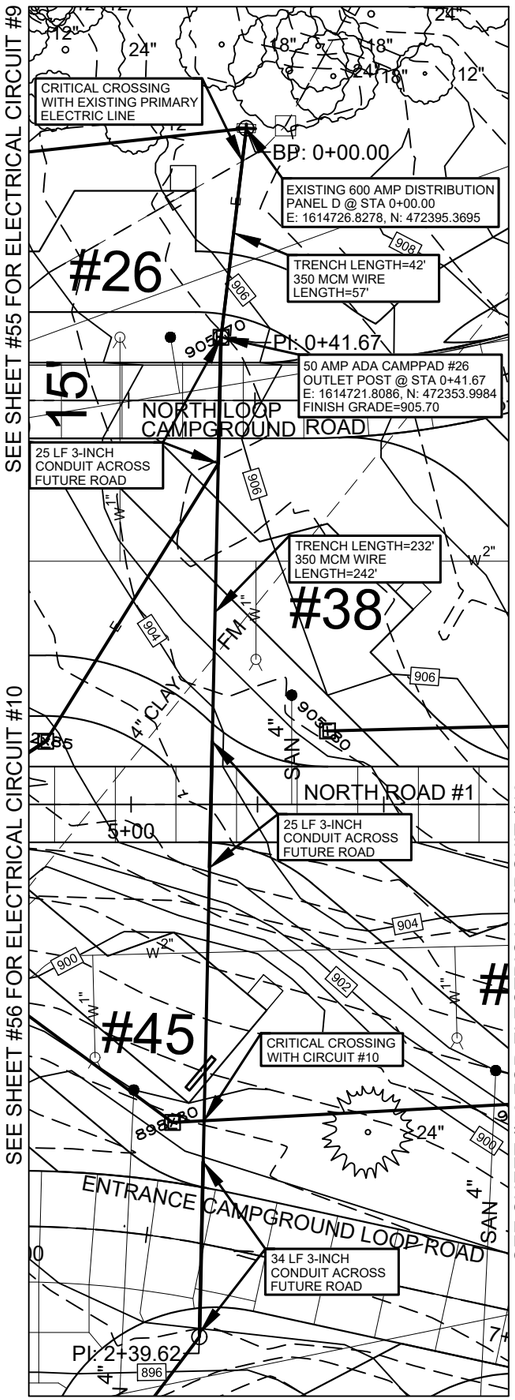
ELECTRICAL PLAN CIRCUIT #10

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 56

ELECTRICAL CIRCUIT #11 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	41.67'	S6° 54' 12"W	0+00.00'	0+41.67'	(1614726.8174',472395.3684') EX DIST PANEL D	(1614721.8086',472353.9984',905.70') CAMPPAD #26
2	Line	197.94'	S1° 14' 04"W	0+41.67'	2+39.62'	(1614721.8086',472353.9984',905.70') CAMPPAD #26	(1614717.5444',472156.1000') PI POINT, CONDUIT
3	Line	34.54'	S37° 05' 39"W	2+39.62'	2+74.16'	(1614717.5444',472156.1000') PI POINT, CONDUIT	(1614696.7098',472128.5459',894.70') CAMPPAD #49
4	Line	72.67'	S73° 27' 26"E	2+74.16'	3+46.83'	(1614696.7098',472128.5459',894.70') CAMPPAD #49	(1614766.3706',472107.8548',895.00') CAMPPAD #50
5	Line	68.19'	S77° 40' 56"E	3+46.83'	4+15.02'	(1614766.3706',472107.8548',895.00') CAMPPAD #50	(1614832.9928',472093.3072',894.75') CAMPPAD #51
6	Line	96.80'	N79° 52' 42"E	4+15.02'	5+11.82'	(1614832.9928',472093.3072',894.75') CAMPPAD #51	(1614928.2824',472110.3181',890.45') CAMPPAD #52
7	Line	68.43'	S1° 44' 00"E	5+11.82'	5+80.24'	(1614928.2824',472110.3181',890.45') CAMPPAD #52	(1614930.3520',472041.9236',890.10') CAMPPAD #59



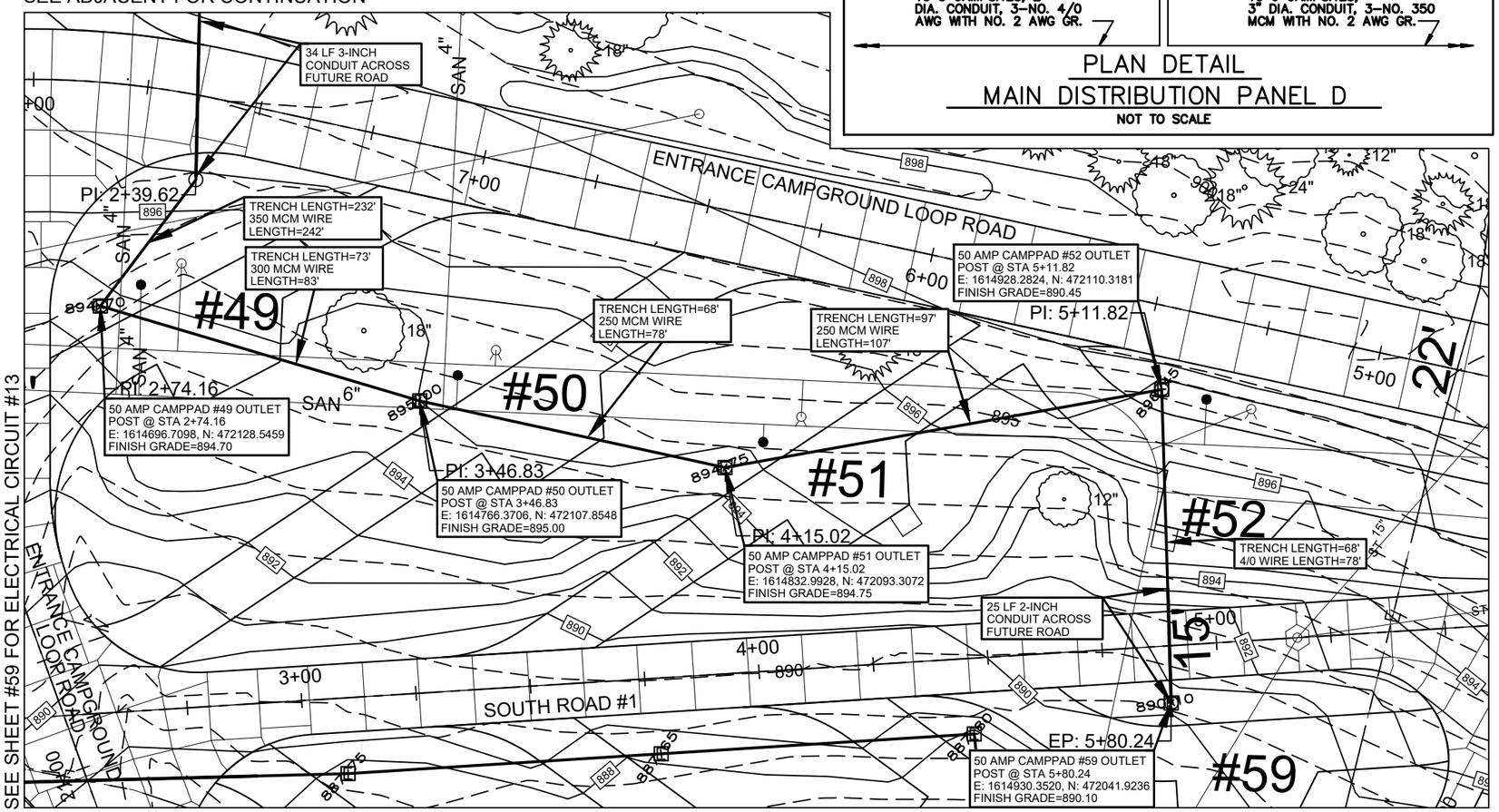
0 30 FEET

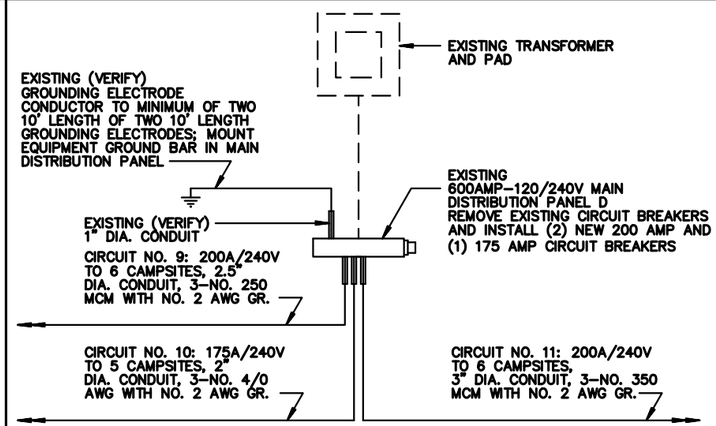
LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

SEE ADJACENT FOR CONTINUATION





PLAN DETAIL
MAIN DISTRIBUTION PANEL D
NOT TO SCALE

CONSULTANT:

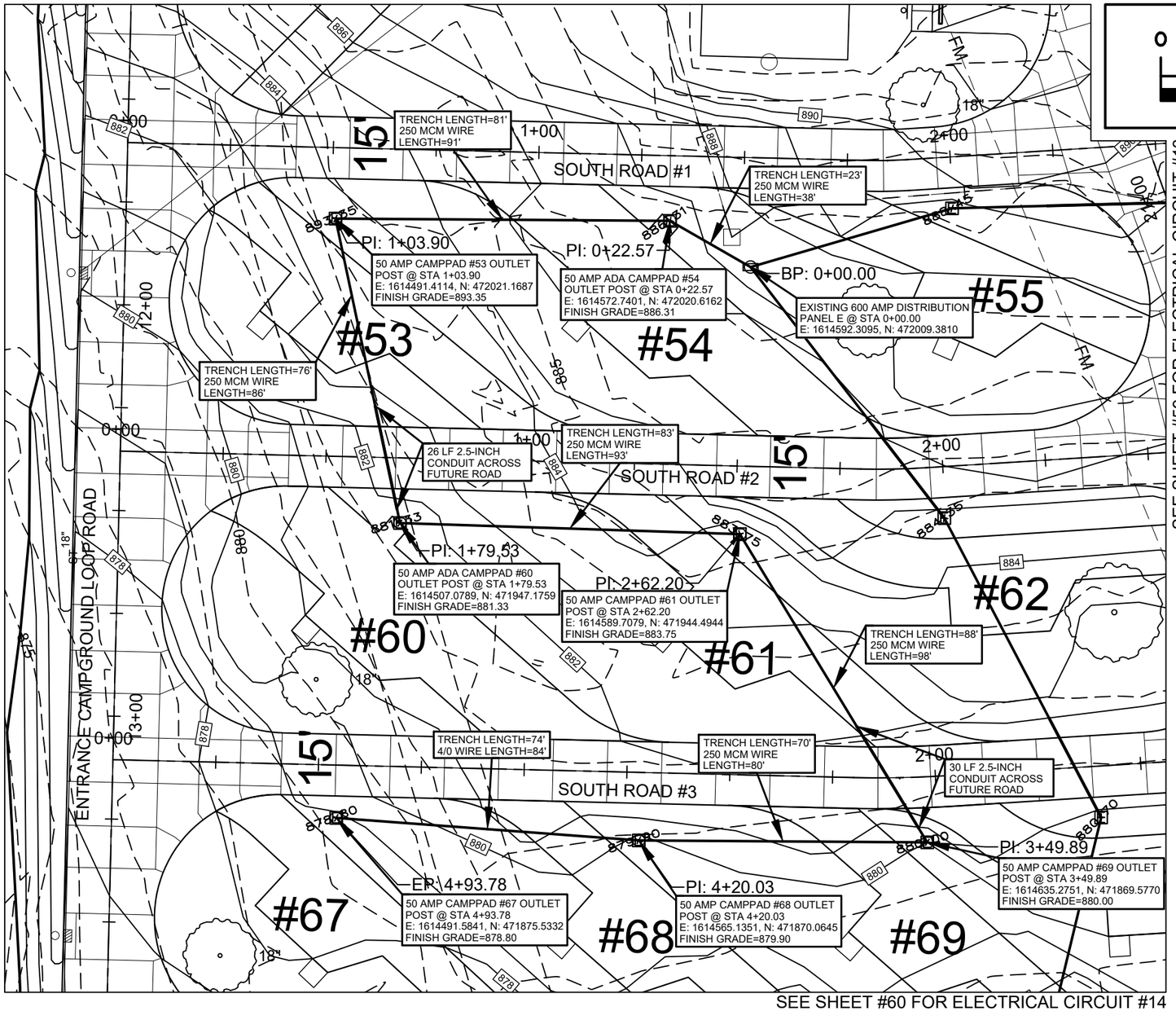
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #11

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

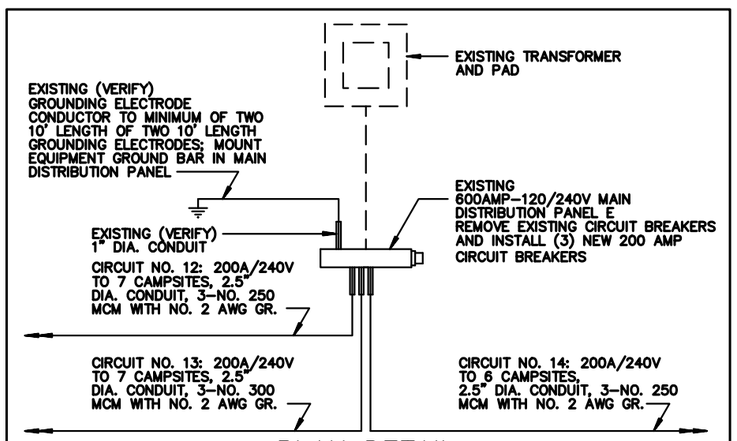
DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 57



LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE



PLAN DETAIL
MAIN DISTRIBUTION PANEL E
NOT TO SCALE

ELECTRICAL CIRCUIT #12 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	22.57'	N60° 08' 21"W	0+00.00'	0+22.57'	(1614592.3095',472009.3810') EX DIST PANEL E	(1614572.7401',472020.6162',886.31') ADA CAMPPAD #54
2	Line	81.33'	N89° 36' 39"W	0+22.57'	1+03.90'	(1614572.7401',472020.6162',886.31') ADA CAMPPAD #54	(1614491.4114',472021.1687',893.35') CAMPPAD #53
3	Line	75.63'	S11° 57' 19"E	1+03.90'	1+79.53'	(1614491.4114',472021.1687',893.35') CAMPPAD #53	(1614507.0789',471947.1759',881.33') ADA CAMPPAD #60
4	Line	82.67'	S88° 08' 29"E	1+79.53'	2+62.20'	(1614507.0789',471947.1759',881.33') ADA CAMPPAD #60	(1614589.7079',471944.4944',883.75') CAMPPAD #61
5	Line	87.69'	S31° 18' 34"E	2+62.20'	3+49.89'	(1614589.7079',471944.4944',883.75') CAMPPAD #61	(1614635.2751',471869.5770',880.00') CAMPPAD #69
6	Line	70.14'	N89° 36' 07"W	3+49.89'	4+20.03'	(1614635.2751',471869.5770',880.00') CAMPPAD #69	(1614565.1351',471870.0645',879.90') CAMPPAD #68
7	Line	73.75'	N85° 44' 52"W	4+20.03'	4+93.78'	(1614565.1351',471870.0645',879.90') CAMPPAD #68	(1614491.5841',471875.5332',878.80') CAMPPAD #67

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #12

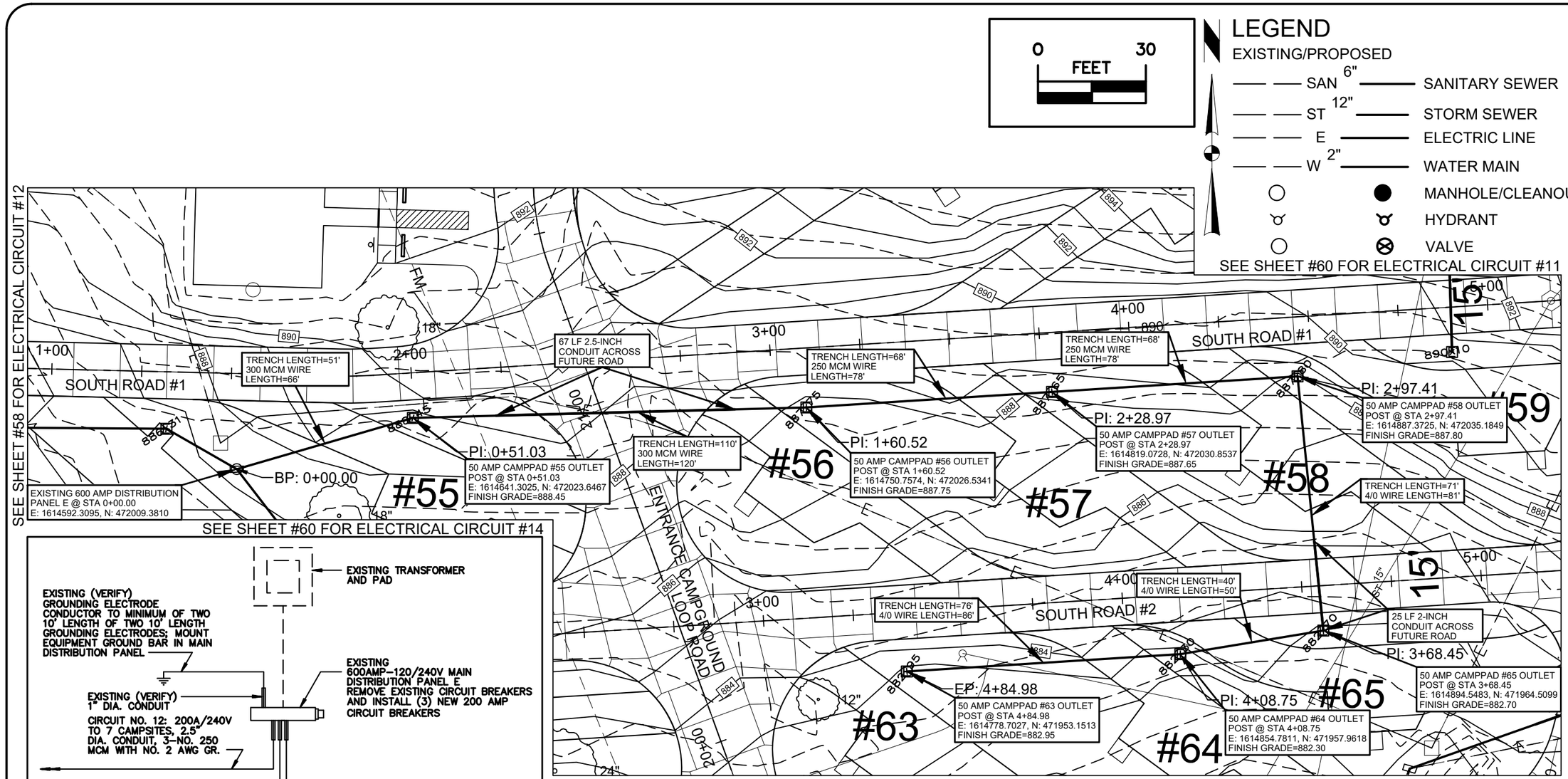
CONSTRUCTION PROJECT FOR:

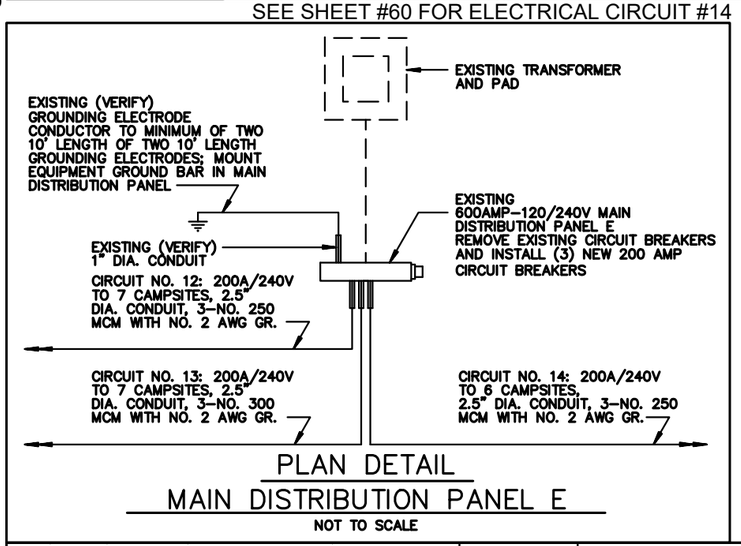
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 58





PLAN DETAIL
MAIN DISTRIBUTION PANEL E
NOT TO SCALE

ELECTRICAL CIRCUIT #13 ALIGNMENT

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	51.03'	N73° 45' 56"E	0+00.00'	0+51.03'	(1614592.3095',472009.3810') EX DIST PANEL E	(1614641.3025',472023.6467',888.45') CAMPPAD #55
2	Line	109.49'	N88° 29' 20"E	0+51.03'	1+60.52'	(1614641.3025',472023.6467',888.45') CAMPPAD #55	(1614750.7574',472026.5341',887.75') CAMPPAD #56
3	Line	68.45'	N86° 22' 55"E	1+60.52'	2+28.97'	(1614750.7574',472026.5341',887.75') CAMPPAD #56	(1614819.0728',472030.8537',887.65') CAMPPAD #57
4	Line	68.44'	N86° 22' 17"E	2+28.97'	2+97.41'	(1614819.0728',472030.8537',887.65') CAMPPAD #57	(1614887.3725',472035.1849',887.80') CAMPPAD #58
5	Line	71.04'	S5° 47' 51"E	2+97.41'	3+68.45'	(1614887.3725',472035.1849',887.80') CAMPPAD #58	(1614894.5483',471964.5099',882.70') CAMPPAD #65
6	Line	40.30'	S80° 38' 58"W	3+68.45'	4+08.75'	(1614894.5483',471964.5099',882.70') CAMPPAD #65	(1614854.7811',471957.9618',882.30') CAMPPAD #64
7	Line	76.23'	S86° 22' 55"W	4+08.75'	4+84.98'	(1614854.7811',471957.9618',882.30') CAMPPAD #64	(1614778.7027',471953.1513',882.95') CAMPPAD #63

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

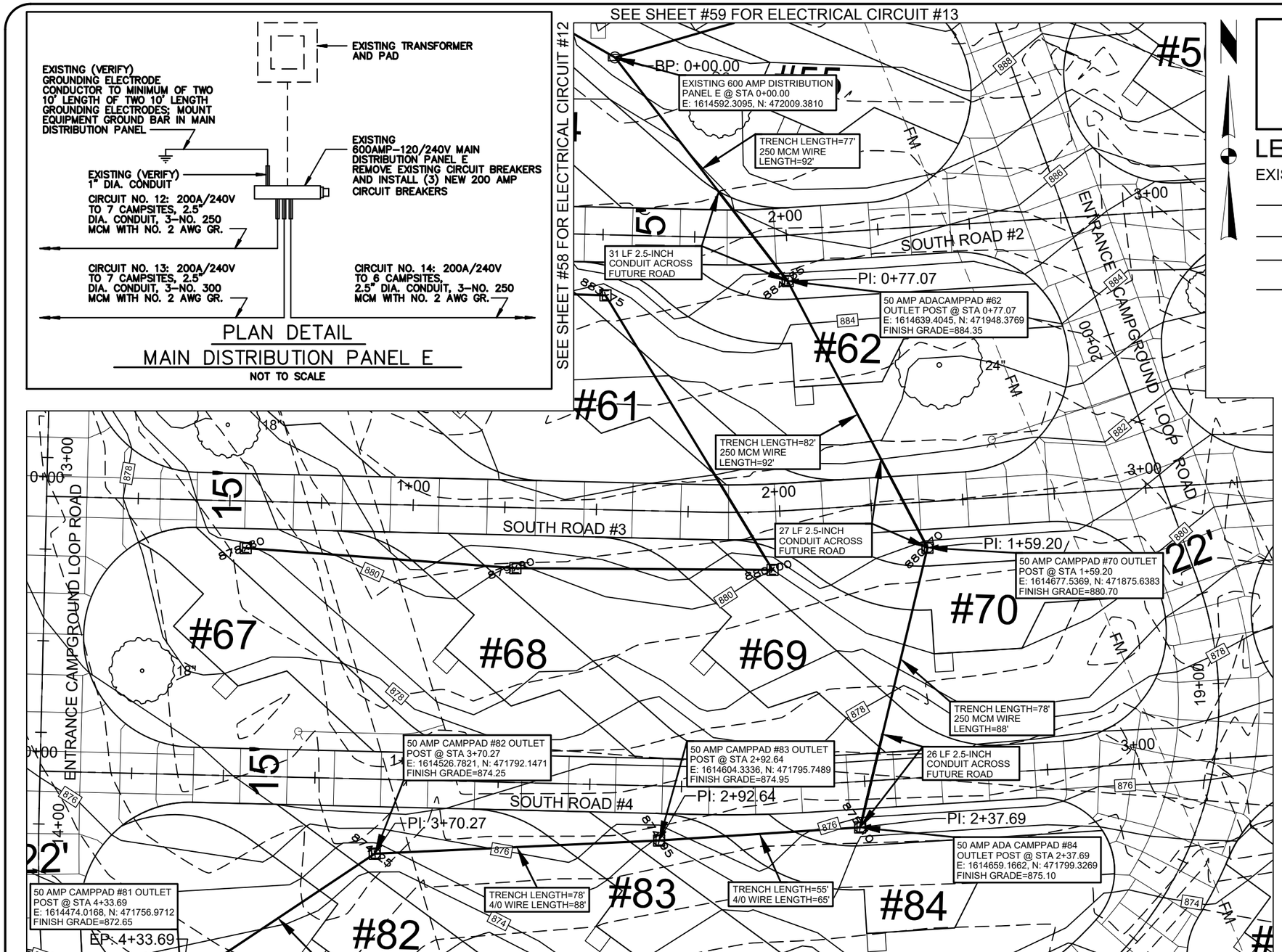
ELECTRICAL PLAN CIRCUIT #13

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 59

PLAN DETAIL
MAIN DISTRIBUTION PANEL E
NOT TO SCALE



0 FEET 30

LEGEND

EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE

ELECTRICAL CIRCUIT #14 ALIGNMENT

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	77.07'	S37° 40' 05"E	0+00.00'	0+77.07'	(1614592.3095',472009.3810') EX DIST PANEL E	(1614639.4045',471948.3769',884.35') CAMPPAD #62
2	Line	82.13'	S27° 39' 55"E	0+77.07'	1+59.20'	(1614639.4045',471948.3769',884.35') CAMPPAD #62	(1614677.5369',471875.6383',880.70') CAMPPAD #70
3	Line	78.49'	S13° 32' 08"W	1+59.20'	2+37.69'	(1614677.5369',471875.6383',880.70') CAMPPAD #70	(1614659.1662',471799.3269',875.10') CAMPPAD #84
4	Line	54.95'	S86° 15' 59"W	2+37.69'	2+92.64'	(1614659.1662',471799.3269',875.10') CAMPPAD #84	(1614604.3336',471795.7489',874.95') CAMPPAD #83
5	Line	77.64'	S87° 20' 27"W	2+92.64'	3+70.27'	(1614604.3336',471795.7489',874.95') CAMPPAD #83	(1614526.7821',471792.1471',874.25') CAMPPAD #82
6	Line	63.42'	S56° 18' 38"W	3+70.27'	4+33.69'	(1614526.7821',471792.1471',874.25') CAMPPAD #82	(1614474.0168',471756.9712',872.65') CAMPPAD #81

CONSULTANT:

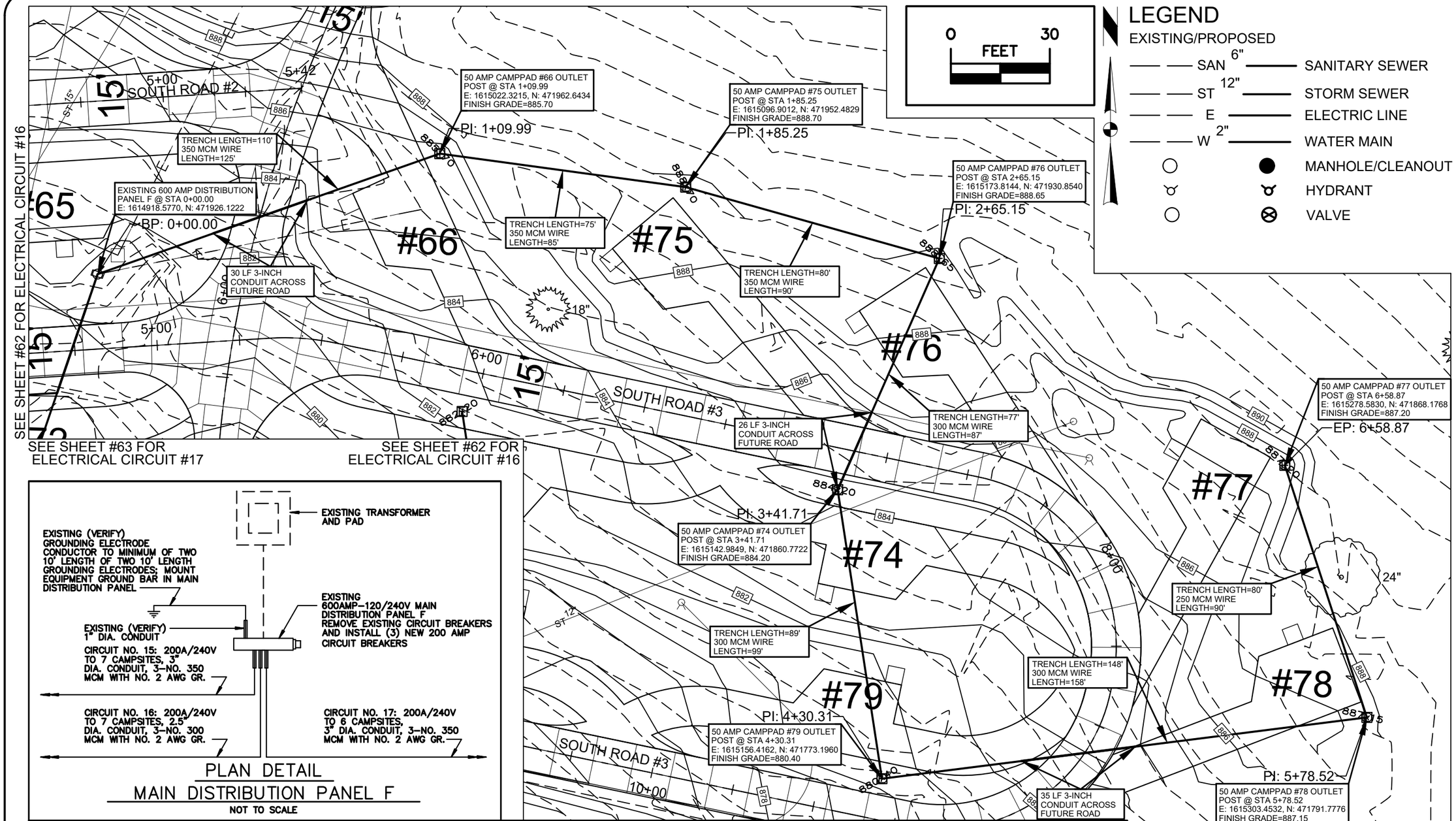
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #14

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 60



PLAN DETAIL
MAIN DISTRIBUTION PANEL F
NOT TO SCALE

ELECTRICAL CIRCUIT #15 ALIGNMENT

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	109.99'	N70° 36' 23"E	0+00.00'	1+09.99'	(1614918.5770',471926.1222') EX DIST PANEL F	(1615022.3215',471962.6434',885.70') CAMPPAD #66
2	Line	75.27'	S82° 14' 31"E	1+09.99'	1+85.25'	(1615022.3215',471962.6434',885.70') CAMPPAD #66	(1615096.9012',471952.4829',888.70') CAMPPAD #75
3	Line	79.90'	S74° 17' 36"E	1+85.25'	2+65.15'	(1615096.9012',471952.4829',888.70') CAMPPAD #75	(1615173.8144',471930.8540',888.65') CAMPPAD #76
4	Line	76.56'	S23° 44' 42"W	2+65.15'	3+41.71'	(1615173.8144',471930.8540',888.65') CAMPPAD #76	(1615142.9849',471860.7722',884.20') CAMPPAD #74
5	Line	88.60'	S8° 43' 10"E	3+41.71'	4+30.31'	(1615142.9849',471860.7722',884.20') CAMPPAD #74	(1615156.4162',471773.1960',880.40') CAMPPAD #79
6	Line	148.21'	N82° 47' 51"E	4+30.31'	5+78.52'	(1615156.4162',471773.1960',880.40') CAMPPAD #79	(1615303.4532',471791.7776',887.15') CAMPPAD #78
7	Line	80.35'	N18° 01' 54"W	5+78.52'	6+58.87'	(1615303.4532',471791.7776',887.15') CAMPPAD #78	(1615278.5830',471868.1768',887.20') CAMPPAD #77

CONSULTANT:

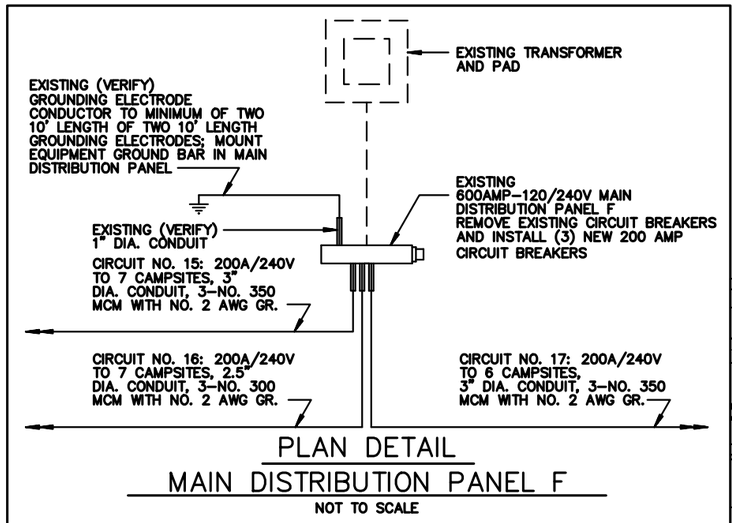
IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #15

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 61

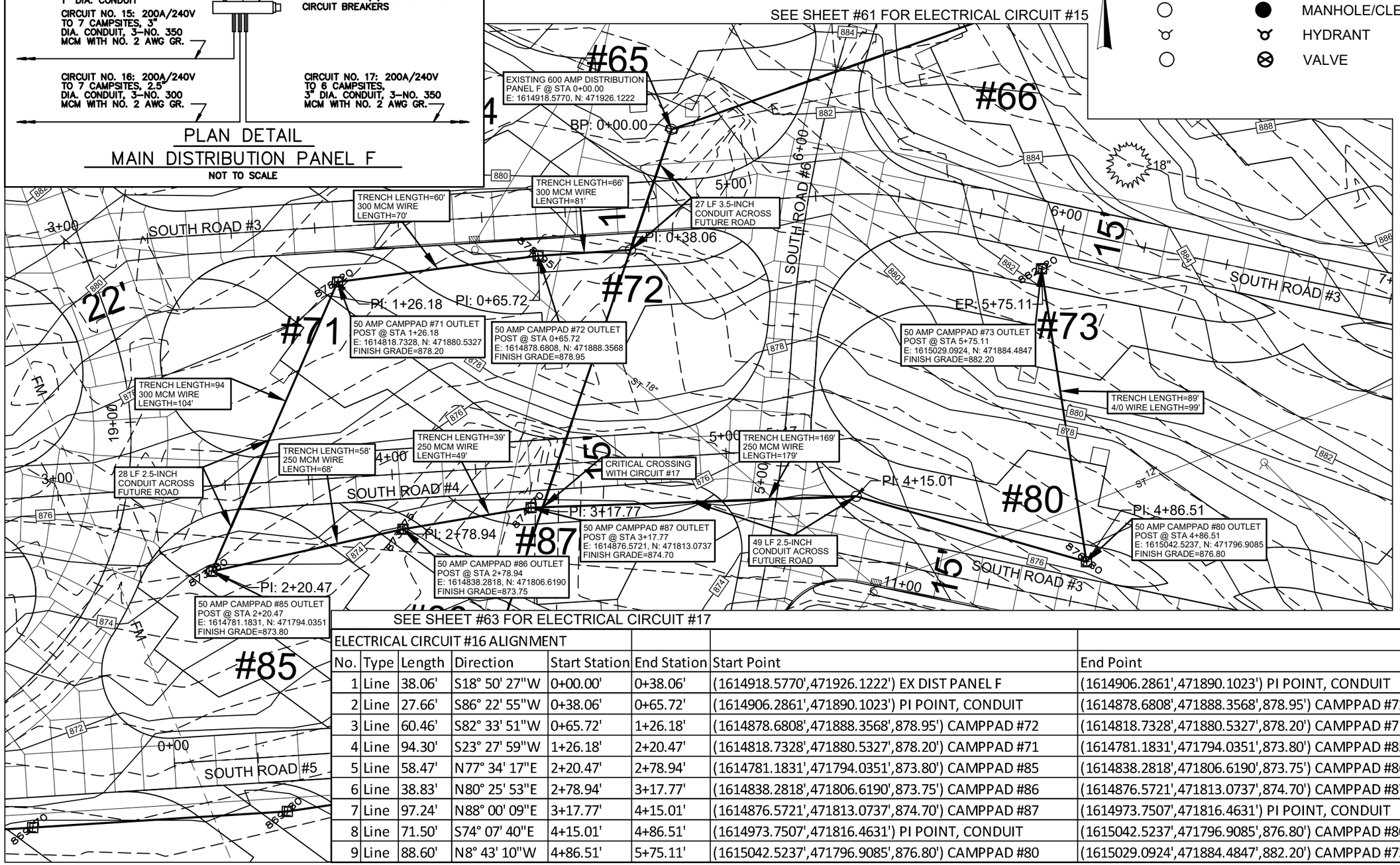


PLAN DETAIL
MAIN DISTRIBUTION PANEL F
NOT TO SCALE

0 30
FEET

LEGEND
EXISTING/PROPOSED

SAN 6"	SANITARY SEWER
ST 12"	STORM SEWER
E	ELECTRIC LINE
W 2"	WATER MAIN
	MANHOLE/CLEANOUT
	HYDRANT
	VALVE



SEE SHEET #63 FOR ELECTRICAL CIRCUIT #17

ELECTRICAL CIRCUIT #16 ALIGNMENT

No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	38.06'	S18° 50' 27"W	0+00.00'	0+38.06'	(1614918.5770',471926.1222') EX DIST PANEL F	(1614906.2861',471890.1023') PI POINT, CONDUIT
2	Line	27.66'	S86° 22' 55"W	0+38.06'	0+65.72'	(1614906.2861',471890.1023') PI POINT, CONDUIT	(1614878.6808',471888.3568',878.95') CAMPPAD #72
3	Line	60.46'	S82° 33' 51"W	0+65.72'	1+26.18'	(1614878.6808',471888.3568',878.95') CAMPPAD #72	(1614818.7328',471880.5327',878.20') CAMPPAD #71
4	Line	94.30'	S23° 27' 59"W	1+26.18'	2+20.47'	(1614818.7328',471880.5327',878.20') CAMPPAD #71	(1614781.1831',471794.0351',873.80') CAMPPAD #85
5	Line	58.47'	N77° 34' 17"E	2+20.47'	2+78.94'	(1614781.1831',471794.0351',873.80') CAMPPAD #85	(1614838.2818',471806.6190',873.75') CAMPPAD #86
6	Line	38.83'	N80° 25' 53"E	2+78.94'	3+17.77'	(1614838.2818',471806.6190',873.75') CAMPPAD #86	(1614876.5721',471813.0737',874.70') CAMPPAD #87
7	Line	97.24'	N88° 00' 09"E	3+17.77'	4+15.01'	(1614876.5721',471813.0737',874.70') CAMPPAD #87	(1614973.7507',471816.4631') PI POINT, CONDUIT
8	Line	71.50'	S74° 07' 40"E	4+15.01'	4+86.51'	(1614973.7507',471816.4631') PI POINT, CONDUIT	(1615042.5237',471796.9085',876.80') CAMPPAD #80
9	Line	88.60'	N8° 43' 10"W	4+86.51'	5+75.11'	(1615042.5237',471796.9085',876.80') CAMPPAD #80	(1615029.0924',471884.4847',882.20') CAMPPAD #73

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

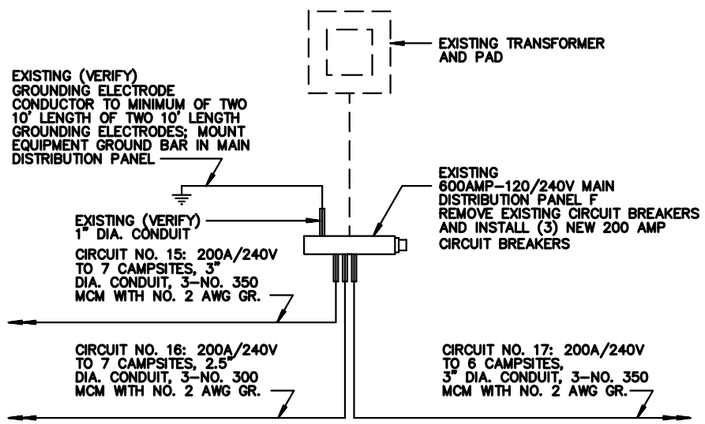
ELECTRICAL PLAN CIRCUIT #16

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 62

ELECTRICAL CIRCUIT #17 ALIGNMENT							
No.	Type	Length	Direction	Start Station	End Station	Start Point	End Point
1	Line	207.94'	S18° 50' 27"W	0+00.00'	2+07.94'	(1614918.5770',471926.1222') EX DIST PANEL F	(1614851.4232',471729.3197',869.70') CAMPPAD #92
2	Line	48.20'	S81° 35' 30"W	2+07.94'	2+56.15'	(1614851.4232',471729.3197',869.70') CAMPPAD #92	(1614803.7364',471722.2709',869.80') CAMPPAD #91
3	Line	76.23'	S86° 22' 55"W	2+56.15'	3+32.38'	(1614803.7364',471722.2709',869.80') CAMPPAD #91	(1614727.6579',471717.4604',869.70') CAMPPAD #90
4	Line	76.23'	S86° 22' 55"W	3+32.38'	4+08.61'	(1614727.6579',471717.4604',869.70') CAMPPAD #90	(1614651.5794',471712.6499',869.15') CAMPPAD #89
5	Line	104.21'	S82° 13' 24"W	4+08.61'	5+12.82'	(1614651.5794',471712.6499',869.15') CAMPPAD #89	(1614548.3249',471698.5483',869.75') CAMPPAD #88
6	Line	94.57'	S51° 30' 19"E	5+12.82'	6+07.39'	(1614548.3249',471698.5483',869.75') CAMPPAD #88	(1614622.3408',471639.6849',866.00') CAMPPAD #93

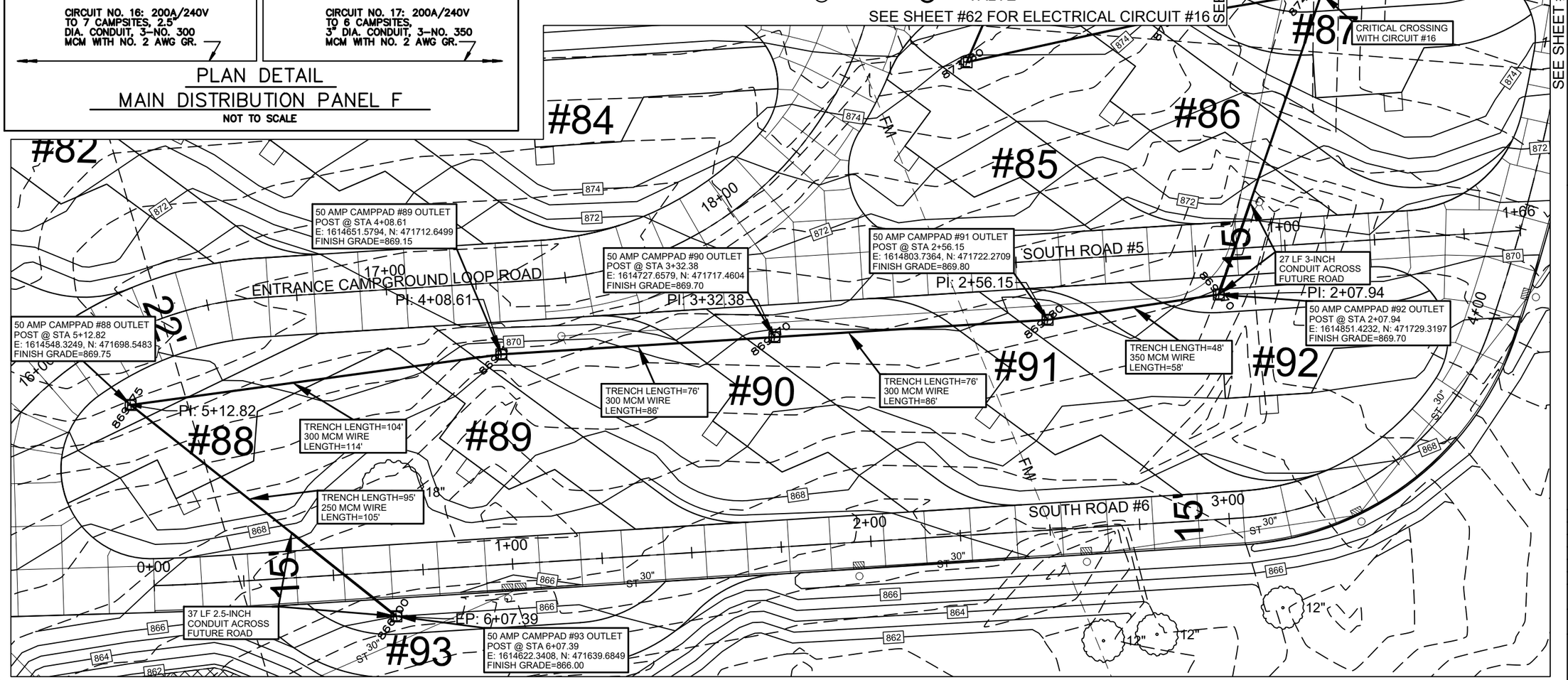


PLAN DETAIL
MAIN DISTRIBUTION PANEL F
NOT TO SCALE

0 30
FEET

LEGEND
EXISTING/PROPOSED

- SAN 6" — SANITARY SEWER
- ST 12" — STORM SEWER
- E — ELECTRIC LINE
- W 2" — WATER MAIN
- MANHOLE/CLEANOUT
- HYDRANT
- VALVE



CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

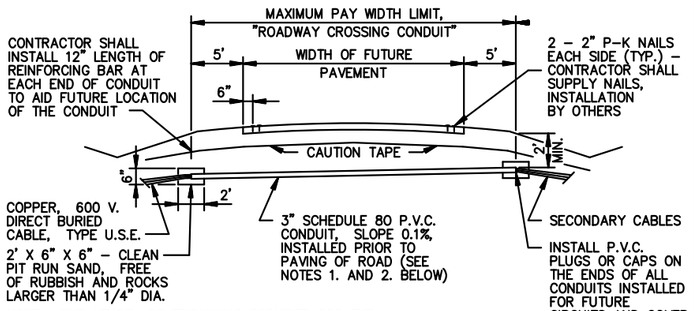
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN CIRCUIT #17

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY	DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 63



NOTE: THE LENGTH OF TRENCHING REQUIRED FOR THE PLACEMENT OF CONDUIT SHALL BE PAID FOR UNDER "TRENCH, SINGLE" ITEM

ROADWAY CROSSING CONDUIT BENEATH FUTURE PAVEMENT

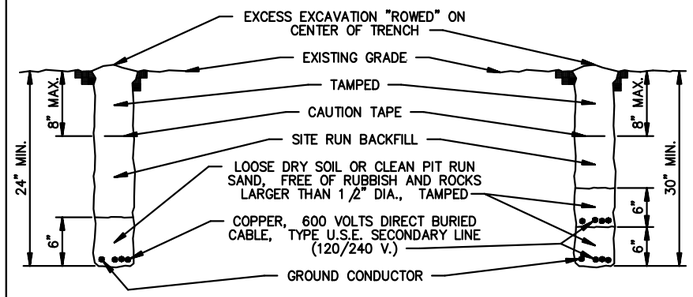
NOTES:

1. FOR ROADWAY CROSSING CONDUIT BENEATH FUTURE PAVEMENT, PLACE CONDUIT IN TRENCH THAT IS GRADED TRUE AND IS FREE FROM STONES OR SOFT SPOTS. IN ROCKY SOIL, PLACE SELECTED BACKFILL IN BOTTOM OF TRENCH AND AROUND CONDUIT.
2. TRENCH BACKFILL, PLACED AROUND ROADWAY CROSSING CONDUIT BENEATH FUTURE PAVEMENT, SHALL BE FREE FROM STONES AND BE FIRMLY TAMPED AROUND THE SIDES (NOT THE TOP) OF THE CONDUIT, TO DEVELOP MAXIMUM SUPPORTING STRENGTH. COMPACTION OF TOP 12" OF BACKFILL BENEATH FUTURE PAVEMENT WILL BE CONSIDERED SUITABLE IF THE RESULTING DENSITY WITH ADEQUATE MOISTURE, IS REASONABLY UNIFORM THROUGHOUT EACH COMPACTED LIFT AND IS AT LEAST 95 PERCENT OF MAXIMUM DENSITY, DETERMINED IN ACCORDANCE WITH STANDARD PROCTOR DENSITY TEST.

CAMPGROUND ELECTRICAL SYSTEM
STANDARD DRAWING NO. RC–1

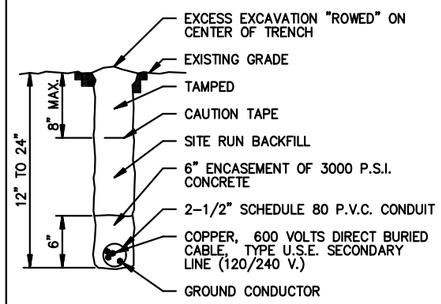
DETAILS OF ROADWAY CROSSING CONDUITS FOR SECONDARY CIRCUITS

REVISION DATE 1/25/95



SINGLE TRENCH

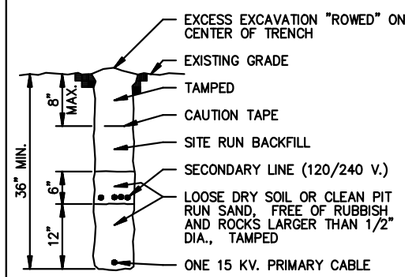
DOUBLE TRENCH



SINGLE TRENCH WITH LESS THAN MINIMUM BURIAL DEPTH

NOTES:

1. AFTER INSTALLATION OF THE ELECTRICAL CONDUCTORS, AND AT LOCATIONS WHERE THE TRENCHING OPERATIONS CROSS THE CAMPSITE VEHICLE PARKING PADS, THE CONTRACTOR SHALL PLACE AND COMPACT A MINIMUM OF 4" OF GRANULAR SURFACING ABOVE THE COMPACTED TRENCH BACKFILL.
2. THE CONTRACTOR SHALL SEED AREAS DISTURBED BY TRENCHING ACTIVITY WITH AN "URBAN" OR "RURAL" SEED MIXTURE, AS SPECIFIED ON THE PLAN DRAWINGS. THE COST OF SEEDING SHALL BE CONSIDERED AS INCIDENTAL TO OTHER ITEMS OF WORK.
3. TRENCHING AND BACKFILL SHALL CONFORM TO SUDAS.

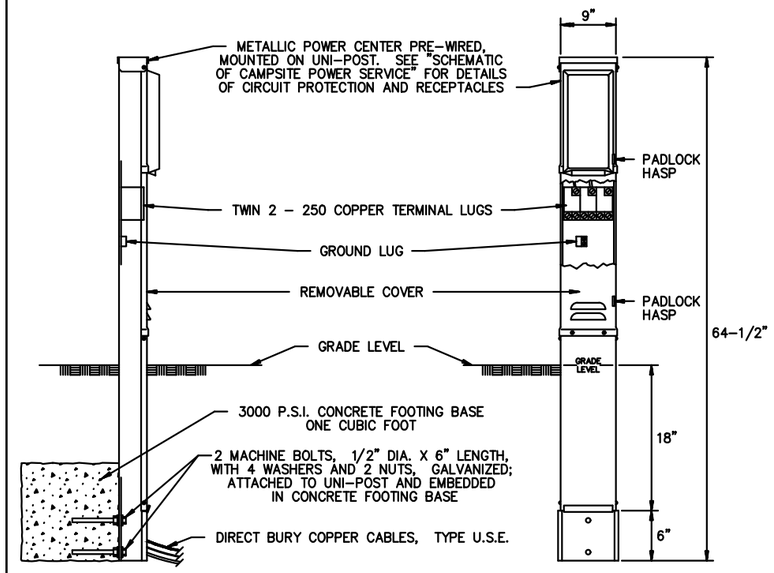


COMBINED PRIMARY AND SECONDARY TRENCH

CAMPGROUND ELECTRICAL SYSTEM
STANDARD DRAWING NO TS–1

DETAILS OF TRENCHES FOR SECONDARY CIRCUITS

REVISION DATE 1/21/97

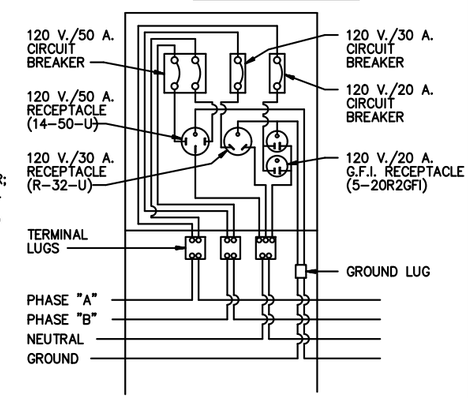


SIDE VIEW

NOTES:

1. A "SINGLE CAMPSITE OUTLET POST–50 AMP" SHALL HAVE THE FOLLOWING CONFIGURATION: AN UNMETERED, POST MOUNTED CABINET WITH A 5–20R2GFI 20 AMP DUPLEX RECEPTACLE, A R32U 30 AMP RECEPTACLE, A 14–50R 50 AMP RECEPTACLE, A SINGLE POLE 20 AMP CIRCUIT BREAKER, A SINGLE POLE 30 AMP CIRCUIT BREAKER, AND A DOUBLE POLE 50 AMP CIRCUIT BREAKER; MIDWEST MODEL U075CP6010 OR MODEL U075CP6039 FOR 350 MCM LUGS, MILLBANK U5200-XL-75, OR APPROVED EQUAL, SHALL BE USED FOR SINGLE CAMPSITE OUTLET POST WITH METALLIC POWER CENTER.
2. SEE TRENCH DETAILS, STANDARD DRAWING NO. TS–1, FOR DETAILS OF INSTALLATION OF DIRECT BURY COPPER CABLES TO CAMPSITE OUTLET POST.
3. THE CONDUCTOR SIZES AND THE PLAN ARRANGEMENT OF THE LOADS ON EACH CIRCUIT SHALL BE SELECTED TO LIMIT THE MAXIMUM CIRCUIT VOLTAGE DROP, FROM THE TRANSFORMER TO THE FURTHEST CAMPSITE OUTLET ON THE CIRCUIT, TO 3% (3.6 VOLTS ON EACH 120 V. PHASE). ADJUST CONDUCTOR SIZE BASED ON ACTUAL ROUTING WITH NO ADDITIONAL COMPENSATION.
4. PROVIDE TWO EXTRA COMPLETE OUTLET POSTS AND TURN OVER TO OWNER.

FRONT VIEW



SCHEMATIC OF CAMPSITE 50 AMP POWER SERVICE

CAMPGROUND ELECTRICAL SYSTEM
STANDARD DRAWING NO. SC–1

DETAILS OF CAMPSITE OUTLET POST

REVISION DATE 10/26/06

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN DETAILS

CONSTRUCTION PROJECT FOR:

LAKE AHQUABI CAMPGROUND UPGRADE PROJECT

WARREN COUNTY, IOWA

NO.	BY: DATE	REVISION

DRAWN BY:

PROJECT NUMBER: 22-05-91-01

CHK'D BY:

DATE: 12/29/2021

SHEET No: 64

CIRCUIT SCHEDULE

CIRCUIT OR CONDUCTOR	NO. OF CAMP SITES	FACILITY OR CAMPSITE NUMBERS SERVED	TRENCH LENGTH			LENGTH OF ROAD XING CONDUIT (FT.)	LENGTH OF WARNING TAPE (FT.)	C. B. OR FUSE SIZE (AMP)	SIZE (AWG) & LENGTH (FT.) OF GR. CONDUCTOR (TYPE THW OR USE)							SIZE (AWG) & LENGTH (FT.) OF CONDUCTOR										
																TYPE U.S.E.									TYPE T.H.W.	TYPE T.F.N.
			SGL.	DBL.	TRPL.				#8	#6	#4	#2	#1/0	#2/0	#3/0	#1	#1/0	#2/0	#3/0	#4/0	250 MCM	300 MCM	350 MCM	400 MCM	600 MCM	1500 MCM
MAIN CIRCUIT		EXISTING 600 AMP																								
		DISTRIBUTION PANEL A																								
		FROM EXIST. TRANSFORMER																								
1N/1GR			115			115 (2.5")	115	200/2–P																		
1A	0	FUTURE SHOWER BLDG																								
1B	(0)	(FUTURE SHOWER BLDG)																								
2N/2GR			384			25 (2")	359	200/2–P				473								473						
2A	6	7,8,4,3,2,1																		473						
2B	(6)	(7,8,4,3,2,1)																		473						
3N/3GR			410			25 (2")	385	200/2–P				475								475						
3A	6	6,5,9,10,11,12																		475						
3B	(6)	(6,5,9,10,11,12)																		475						
MAIN CIRCUIT		EXISTING 600 AMP																								
		DISTRIBUTION PANEL B																								
		FROM EXIST. TRANSFORMER																								
4N/4GR			475			27 (2.5")	417	175/2–P				432								264	168					
4A	5	13,16,17,20,21				31 (2")														264	168					
4B	(5)	(13,16,17,20,21)																		264	168					
5N/5GR			243			25 (1.5")	218	150/2–P		288							288									
5A	4	14,15,19,18															288									
5B	(4)	(14,15,19,18)															288									
		EXISTING SERVICE TO																								
		EXISTING SHOWER BLDG																								
MAIN CIRCUIT		EXISTING 600 AMP																								
		DISTRIBUTION PANEL C																								
		FROM EXIST. TRANSFORMER																								
6N/6GR			502			26 (2")	476	150/2–P			632							300	332							
6A	4	22,33,32,31 & LIGHT/KIOSK																300	332							
6B	(4)	(22,33,32,31 & LIGHT/KIOSK)																300	332							
7N/7GR			471			64 (2.5")	407	175/2–P				525								141	384					
7A	5	24,25,36,37,38																		141	384					
7B	(5)	(24,25,36,37,38)																		141	384					
8N/8GR			577			55 (2.5")	522	200/2–P				642									444	198				
8A	6	23,34,35,42,41,40																			444	198				
8B	(6)	(23,34,35,42,41,40)																			444	198				
MAIN CIRCUIT		EXISTING 600 AMP																								
		DISTRIBUTION PANEL D																								
		FROM EXIST. TRANSFORMER																								
9N/9GR			511			34 (2.5")	477	200/2–P				576								103	473					
9A	6	27,28,29,30,48,47																		103	473					
9B	(6)	(27,28,29,30,48,47)																		103	473					
10N/10GR			426			71 (2")	355	175/2–P			102	379							102	379						
10A	5	39,46,45,44,43																	102	379						
10B	(5)	(39,46,45,44,43)																	102	379						
11N/11GR			580			84 (3")	471	200/2–P				645								78	185	83	299			
11A	6	26,49,50,51,52,59				25 (2")														78	185	83	299			
11B	(6)	(26,49,50,51,52,59)																		78	185	83	299			
MAIN CIRCUIT		EXISTING 600 AMP																								
		DISTRIBUTION PANEL E																								
		FROM EXIST. TRANSFORMER																								
12N/12GR			494			56 (2.5")	438	200/2–P				570								84	486					
12A	7	54,53,60,61,69,68,67																		84	486					
12B	(7)	(54,53,60,61,69,68,67)																		84	486					
13N/13GR			485			67 (2.5")	393	200/2–P				559								217	156	186				
13A	7	55,56,57,58,65,64,63				25 (2")														217	156	186				
13B	(7)	(55,56,57,58,65,64,63)																		217	156	186				
14N/14GR			434			84 (2.5")	350	200/2–P			73	425							73	153	272					
14A	6	62,70,84,83,82,81																	73	153	272					
14B	(6)	(62,70,84,83,82,81)																	73	153	272					

SEE SHEET #66 FOR CONTINUATION
OF CIRCUIT SCHEDULE

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN DETAILS

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY	DATE	REVISION

DRAWN BY:
CHK'D BY:
PROJECT NUMBER: 22-05-91-01
DATE: 12/29/2021
SHEET No: 65

SEE SHEET #65 FOR CONTINUATION
OF CIRCUIT SCHEDULE

CIRCUIT SCHEDULE

CIRCUIT OR CONDUCTOR	NO. OF CAMP SITES	FACILITY OR CAMPSITE NUMBERS SERVED	TRENCH LENGTH			LENGTH OF ROAD XING CONDUIT (FT.)	LENGTH OF WARNING TAPE (FT.)	C. B. OR FUSE SIZE (AMP)	SIZE (AWG) & LENGTH (FT.) OF GR. CONDUCTOR (TYPE THW OR USE)							SIZE (AWG) & LENGTH (FT.) OF CONDUCTOR										
																TYPE U.S.E.									TYPE T.H.W.	TYPE T.F.N.
			SGL.	DBL.	TRPL.				#8	#6	#4	#2	#1/0	#2/0	#3/0	#1	#1/0	#2/0	#3/0	#4/0	250 MCM	300 MCM	350 MCM	400 MCM	600 MCM	1500 MCM
MAIN CIRCUIT		EXISTING 600 AMP																								
		DISTRIBUTION PANEL E																								
		FROM EXIST. TRANSFORMER																								
15N/15GR			659			91 (3")	568	200/2–P				734									90	344	300			
15A	7	66,75,76,74,79,78,77																			90	344	300			
15B	(7)	(66,75,76,74,79,78,77)																			90	344	300			
16N/16GR			575			27 (3.5")	471	200/2–P				551									296	255				
16A	7	72,71,85,86,87,80,73				77 (2.5")															296	255				
16B	(7)	(72,71,85,86,87,80,73)																			296	255				
17N/17GR			607			54 (3")	516	200/2–P				672									105	286	281			
17A	6	92,91,90,89,88,93				37 (2.5")															105	286	281			
17B	(6)	(92,91,90,89,88,93)																			105	286	281			
SUB–TOTAL	93	SECONDARY CIRCUITS	7948	–	–	1125	6938	–	–	288	807	7658	–	–	–	–	864	900	1521	7101	9177	4056	2640	–	–	–
SUB–TOTAL	–	MAIN CIRCUITS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL	93	FOR ALL CIRCUITS	7948	–	–	1125	6938	–	–	288	807	7658	–	–	–	–	864	900	1521	7101	9177	4056	2640	–	–	–

25 (1.5")
228 (2")
616 (2.5")
229 (3")
27 (3.5")

1. CONSISTENTLY THROUGHOUT THE PROJECT, THE PHASE "A" CONDUCTOR, THE PHASE "B" CONDUCTOR, AND THE NEUTRAL CONDUCTOR SHALL BE DISTINGUISHED FROM EACH OTHER BY COLOR CODING, OR BY SURFACE DEFORMATIONS OR OTHER MARKINGS IN THE CONDUCTOR INSULATION. THE GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION.
2. THE CONDUCTOR SIZES AND THE PLAN ARRANGEMENT OF THE LOADS ON EACH CIRCUIT WERE SELECTED TO LIMIT THE MAXIMUM CIRCUIT VOLTAGE DROP, FROM THE TRANSFORMER TO THE FURTHEST CAMPSITE OUTLET ON THE CIRCUIT, TO 3% (3.6 VOLTS ON EACH 120V PHASE).
3. ALL CONDUCTORS SHALL BE COPPER.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ELECTRICAL PLAN DETAILS

CONSTRUCTION PROJECT FOR:
LAKE AHQUABI CAMPGROUND UPGRADE PROJECT
WARREN COUNTY, IOWA

NO.	BY / DATE	REVISION

DRAWN BY:
PROJECT NUMBER: 22-05-91-01
CHK'D BY:
DATE: 12/29/2021
SHEET No: 66