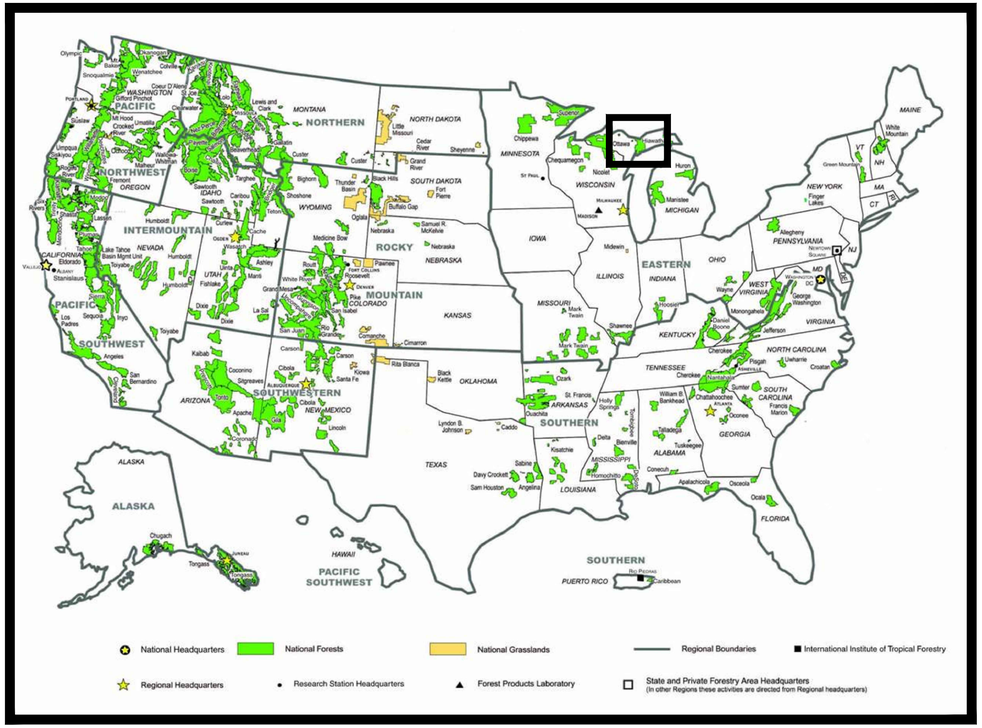
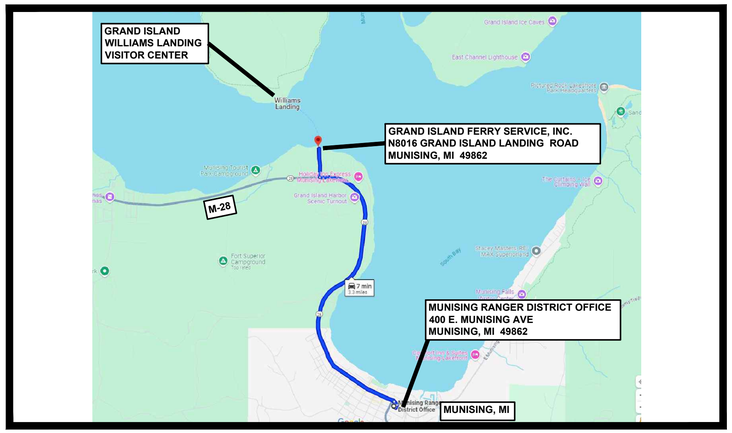
United States Department of Agriculture
Forest Service

MICHIGAN
ALGER COUNTY
R9 EASTERN REGION
HIAWATHA NATIONAL FOREST
MUNISING RANGER DISTRICT

GRAND ISLAND NATIONAL RECREATION AREA
WATER SYSTEMS IMPROVEMENTS



FOREST LOCATION MAP



PROJECT LOCATION MAP

TRAVEL DIRECTIONS:

FROM THE US FOREST SERVICE RANGER STATION IN MUNISING, MI:

TAKE M-28 WEST APPROXIMATELY 3 MILES TO THE GRAND ISLAND FERRY SERVICE FACILITY.
TAKE A BOAT ACROSS LAKE SUPERIOR TO THE ISLAND. WILLIAMS LANDING IS ON THE SOUTH SIDE OF THE ISLAND. FROM WILLIAMS LANDING, PROJECT SITES CAN BE ACCESSED BY ISLAND ROADS AND TRAILS.

SEE WWW.GRANDISLANDUP.COM FOR INFORMATION ABOUT THE FERRY SERVICE.

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RECOMMENDED BY:

GREGORY GARDNER — Digitally signed by GREGORY GARDNER Date: 2026.02.10 16:00:22 -05'00'
FOREST ENGINEER — DATE

CHRISTOPHER WILLIAMS — Digitally signed by CHRISTOPHER WILLIAMS Date: 2026.02.12 12:58:14 -05'00'
DISTRICT RANGER — DATE

SHANNON RISCHE — Digitally signed by SHANNON RISCHE Date: 2026.02.23 10:24:35 -05'00'
FOREST SUPERVISOR — DATE

JUAN RIOS — Digitally signed by JUAN RIOS Date: 2026.02.24 14:52:18 -06'00'
RO FACILITIES PROGRAM MANAGER — DATE

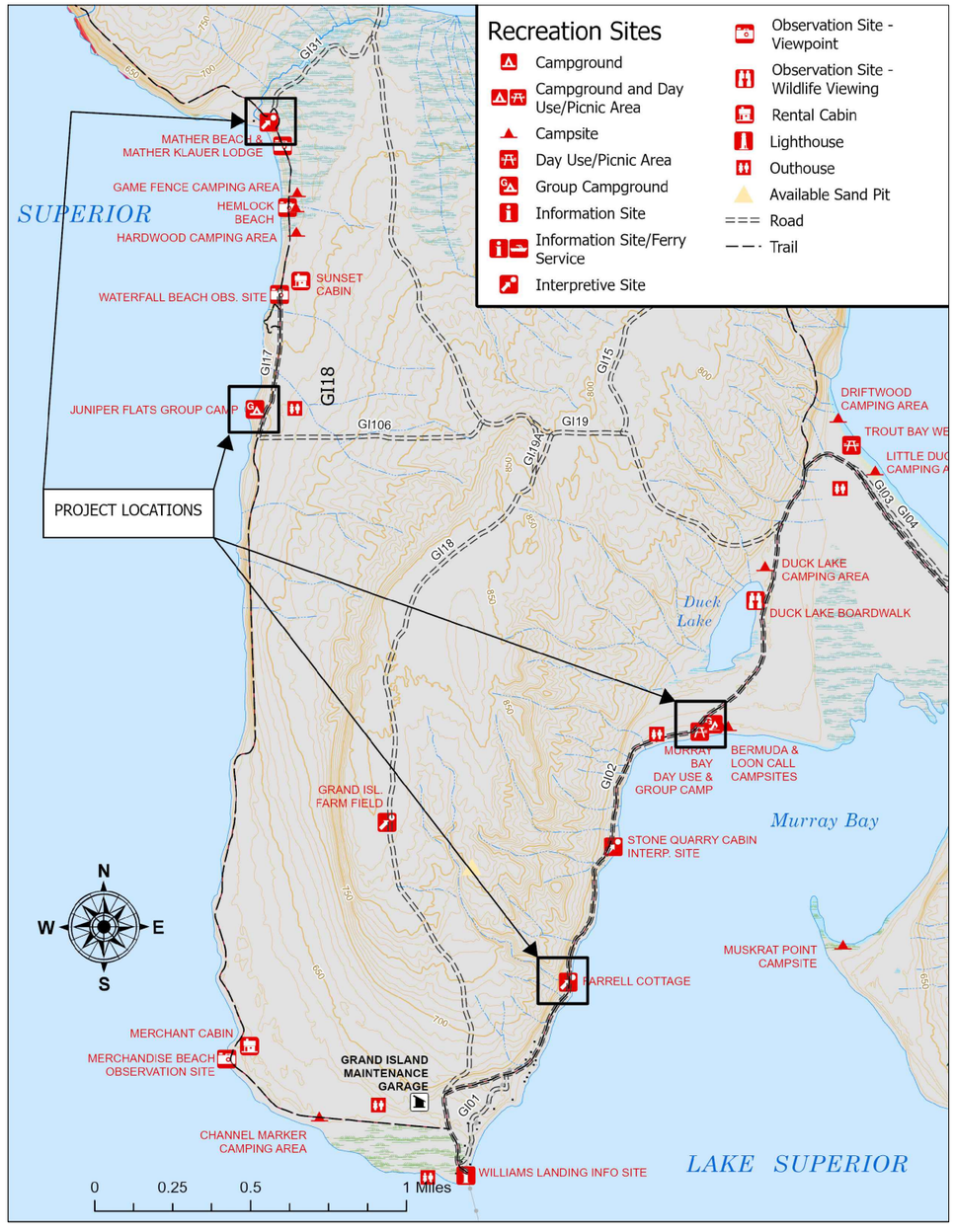
APPROVED:

JONATHAN HEYL — Digitally signed by JONATHAN HEYL Date: 2026.02.26 07:43:10 -06'00'
DIRECTOR OF ENGINEERING — DATE

ORIGINAL ISSUE DATE: 01/26/2026 **SHEET G-01 01 OF 13**

ARCHIVE NUMBER:

1/26/26 14:51 C:\MERONEDWARDS C:\USERS\CAMERONEDWARDS\BOX\SHARE-GRANDISLAND-WATERIMPROVEMENTS\DRAFTS_GRANDISLAND-2024-WTRIMP-SITE-NSRS2011_MI-SP-N-FT.DWG;



3 INDEX MAP - WATER SYSTEM IMPROVEMENT SITES
1" = 1,000 FT

GENERAL NOTES

1. THE INTENT OF THIS CONTRACT IS TO MODIFY THE EXISTING WATER SYSTEMS TO PROVIDE MORE RELIABLE SERVICE AND MAKE THE SYSTEMS EASIER TO OPERATE AND MAINTAIN.
2. THE EXISTING WATER SYSTEMS INVOLVED WITH THIS CONTRACT ARE DESIGNED TO BE OPERATED SEASONALLY. THE CONTRACTOR SHALL DELIVER COMPLETE WATER SYSTEMS THAT ARE ABLE TO BE DRAINED / WINTERIZED / SHUT DOWN AS REQUIRED TO PREVENT DAMAGE FROM FREEZING CONDITIONS DURING THE OFF-SEASON.

REQUIREMENTS

3. FIELD VERIFY ALL CONDITIONS. NOTIFY COR AS SOON AS POSSIBLE IF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THESE PLANS ARE DISCOVERED.
   3.1. TOPOGRAPHIC CONTOURS SHOWN ON THESE DRAWINGS ARE DEVELOPED FROM LIDAR INFORMATION AND ARE CONSIDERED APPROXIMATE. FIELD VERIFY.
4. SUBMIT PROPOSED PRODUCT INFORMATION, SHOP DRAWINGS, AND ANY SUGGESTIONS FOR MODIFICATIONS TO THESE PLANS TO THE COR FOR REVIEW AT LEAST 14 DAYS BEFORE MOBILIZING TO THE SITE. MATERIALS AND PLANS MUST BE APPROVED BEFORE BEGINNING WORK ON SITE.

HERITAGE

5. SOME AREAS IN OR NEAR THE IMPROVEMENT SITES HAVE POTENTIAL FOR ARCHEOLOGICAL/ HERITAGE CONCERNS. THE CONTRACTOR SHALL ASSURE THAT ALL WORKERS ARE AWARE OF THIS CONDITION.
6. THE CONTRACTOR SHALL COORDINATE WORK SCHEDULES FOR EACH SITE WITH THE COR AT LEAST 7 DAYS PRIOR TO ANY GROUND-DISTURBING ACTIVITIES. THE COR WILL COORDINATE WITH THE PROPER FS STAFF TO DETERMINE IF ANY HERITAGE MONITORING OR OTHER RESTRICTIONS ARE REQUIRED FOR THAT AREA WHILE THE WORK IS PERFORMED.
7. IF ANY SUSPECTED ARCHEOLOGICAL/ HERITAGE ITEMS ARE ENCOUNTERED, FOLLOW ATTACHED INADVERTENT DISCOVERY PLAN. THE CONTRACTOR SHALL STOP WORK IN THE AREA IMMEDIATELY AND REPORT THE DISCOVERY TO THE COR. THE COR WILL COORDINATE WITH PROPER FS STAFF AND ADVISE THE CONTRACTOR ON THE ACCEPTABLE COURSE OF ACTION IN THAT AREA.

CLEARING & SITE PREP

8. CONTRACTOR IS RESPONSIBLE FOR ANY CLEARING & SITE PREP THAT IS REQUIRED TO ACCOMPLISH THE WORK.
9. AREAS OF DISTURBANCE SHALL BE KEPT TO THE MINIMUM PRACTICABLE. THE ROUTE OF BURIED ELECTRICAL AND PLUMBING LINES MAY NEED TO BE ADJUSTED TO AVOID PREVENTABLE VEGETATION DAMAGE OR OTHER DISTURBANCE.
10. THE CONTRACTOR SHALL MARK AREAS OF PROPOSED DISTURBANCE FOR REVIEW AND APPROVAL BY THE COR BEFORE STARTING WORK AT EACH SITE. TREES OVER 3" DBH PROPOSED FOR REMOVAL SHALL BE MARKED AND WILL BE CONSIDERED INDIVIDUALLY.

WATER LINES AND PLUMBING

11. ALL WATER & PLUMBING TASKS SHALL BE PERFORMED BY INDIVIDUALS HOLDING CURRENT CERTIFICATION FROM THE STATE OF MICHIGAN TO PERFORM THAT SPECIFIC TASK.
12. ALL WATER-RELATED MATERIALS SHALL CONFORM TO NSF-61, APPLICABLE AWWA STANDARDS, AND SHALL BE INTENDED FOR POTABLE WATER USE.
13. PROVIDE ALL FITTINGS AND TRANSITIONAL ADAPTERS AS REQUIRED TO CONNECT PLUMBING PROPERLY.
14. WELL LOGS ARE PROVIDED AS ATTACHMENT TO VERIFY WELL DESCRIPTIONS.
15. ALL PLASTIC PIPING SHALL BE INSTALLED IN CONTINUOUS RUNS BETWEEN REQUIRED FITTINGS. NO SPLICES OR COUPLERS ARE ALLOWED MID-RUN.
16. PROVIDE THRUST BLOCKS, SUPPORTS, MOUNTING HARDWARE AS REQUIRED TO DELIVER A STABLE WATER PIPE NETWORK.
17. HDPE PIPE: 1-1/4" IPS; SDR11; PE4710; BLACK; FUSIBLE; POTABLE WATER PIPE.
18. PRESSURE TANKS: AMTROL WELL-X-TROL MODEL WX-202 PRECHARGED TO 48 PSI FOR MURRAY BAY AND JUNIPER FLATS LOCATIONS.
19. DC WATER PUMPS: CAPABLE OF 2 GALLONS PER MINUTE MINIMUM FOR THE CONDITIONS AT THE PARTICULAR INSTALLATION

ELECTRICAL

20. ALL ELECTRICAL TASKS SHALL BE PERFORMED BY INDIVIDUALS HOLDING CURRENT CERTIFICATION FROM THE STATE OF MICHIGAN TO PERFORM THAT SPECIFIC TASK.
21. ALL WIRING IN PUMPHOUSE BUILDINGS SHALL BE IN CONDUIT. ALL CONNECTIONS SHALL BE IN BOXES OR ENCLOSURES.
22. TRACER WIRE SHALL BE INSTALLED ON TOP OF ALL NEW UNDERGROUND UTILITIES. TERMINATIONS OF TRACER WIRE AT EACH END SHALL BE AFFIXED TO A PERMANENT STRUCTURE OR POST. TRACER WIRE SHALL BE TRACE- SAFE WATER BLOCKING TRACER WIRE OR APPROVED EQUAL HAVING THE FOLLOWING PHYSICAL CHARACTERISTICS:
23. SIZE CONDUCTOR CABLES TO PROVIDE A MAXIMUM VOLTAGE DROP OF 2% AT 26V SUPPLY.

CARPENTRY

24. WORK SHALL CONFORM TO THE REQUIREMENTS OF THE IBC, LATEST EDITION.
    24.1. DESIGN LOADS: GROUND SNOW = 70 PSF; WIND = 120 MPH 3-SEC GUST

ABBREVIATION	MEANING
~	APPROXIMATE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
BH	BOREHOLE
BH	BUNKHOUSE
BLDG	BUILDING
BM	BENCHMARK (LAND SURVEY)
C.O.	CLEANOUT
CG	CAMPGROUND
CI	CAST IRON (PIPE)
CIP	CAST IN PLACE CONCRETE
CO	CONTRACTING OFFICER
CONT	CONTINUOUS
COORD	COORDINATE OR COORDINATION
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CP	CONTROL POINT (LAND SURVEY)
D	DEPTH OR THICKNESS
DEMO	DEMOLISH / REMOVE / ABANDON PER REQS
DIAM	DIAMETER
EX OR EXIST	EXISTING
FFE	FINISHED FLOOR ELEVATION
FS	FOREST SERVICE
FT	FOOT
FTG	FOOTING
G.S.	GUARD STATION
GI	GALVANIZED IRON (PIPE)
GIP	GALVANIZED IRON PIPE
GOV	GOVERNMENT (OWNER OF PROJECT)
HDPE	HIGH DENSITY POLYETHYLENE (PIPE)
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
IMC	INTERNATIONAL MECHANICAL CODE
IN	INCH
IPC	INTERNATIONAL PLUMBING CODE
L	LENGTH
L.S.	LUMP SUM
LF	LINEAR FOOT
LS	LIFT STATION
LS	LUMP SUM
MAX	MAXIMUM
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
NEC	NATIONAL ELECTRIC CODE
O.C.	ON CENTER
OH	OVERHEAD
PE	POLYETHYLENE
PERF	PERFORATED
PROP	PROPOSED
PVC	POLY VINYL CHLORIDE
REQD	REQUIRED
REQS	REQUIREMENTS
SIM	SIMILAR
SLOPE RATIO:	HORIZONTAL : VERTICAL
TFE	TOP OF FOOTING ELEVATION
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UG	UNDERGROUND
W	WIDTH
W/	WITH
XPS	EXTRUDED POLYSTYRENE INSULATION
ALT	ALTERNATE

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EASTERN REGION

STAMPS, LOGOS, AND SEALS

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PROJECT NAME

GRAND ISLAND WATER SYSTEMS RENOVATION

HIAWATHA NF

MUNISING RANGER DISTRICT

DRAWING TITLE

INDEX MAP & NOTES

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. G-02
DRAWN J.SMREKAR	
CHECKED C.EDWARDS	
PROJECT NO.	SHEET 02 OF 13

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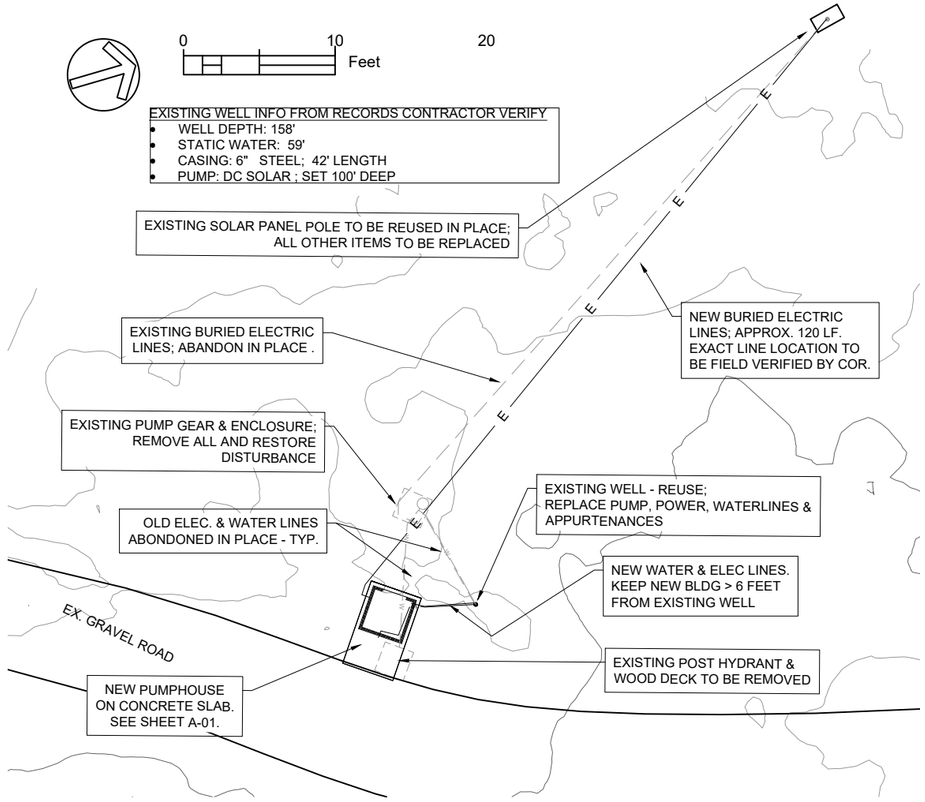
1 SITE PLAN - JUNIPER - GENERAL AREA
SCALE 1" = 20'



2 SITE PLAN - JUNIPER - WATER SYSTEM
SCALE: 1' = 10"

3 DETAIL - JUNIPER - EXISTING CONDITION
NO SCALE

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GRAND ISLAND WATER SYSTEMS RENOVATION

HIAWATHA NF

MUNISING RANGER DISTRICT

DRAWING TITLE

JUNIPER FLATS SITE PLAN & EXISTING CONDITIONS

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. C-01
DRAWN J.SMREKAR	
CHECKED C.EDWARDS	
PROJECT NO.	SHEET 03 OF 13

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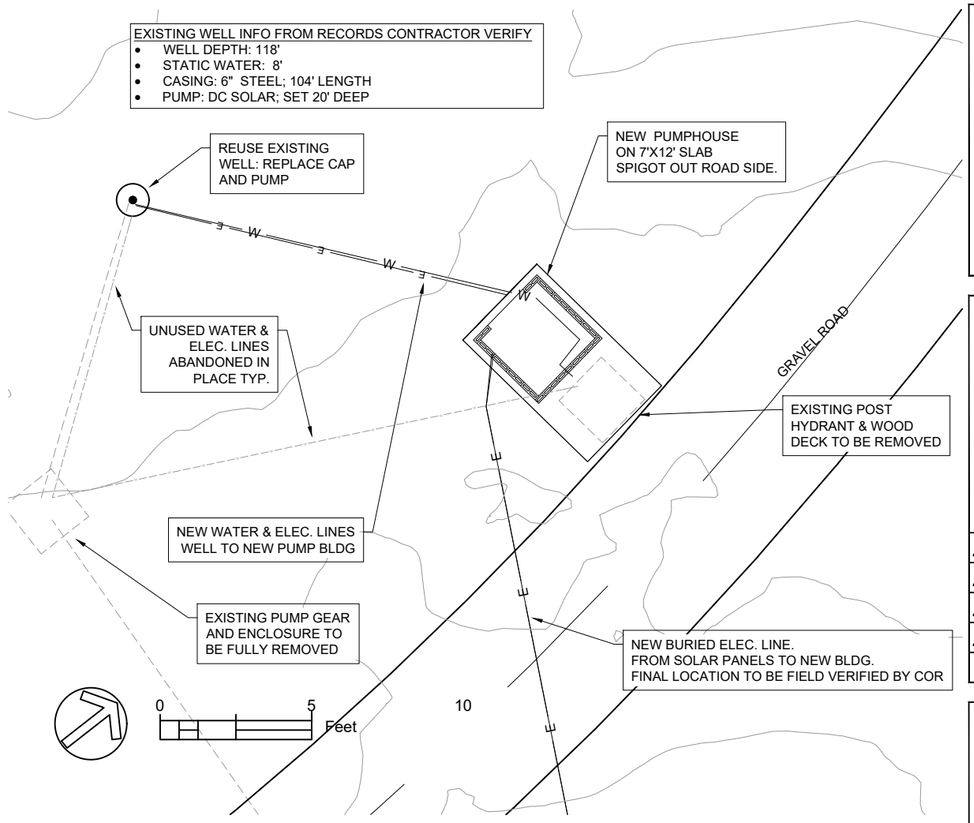
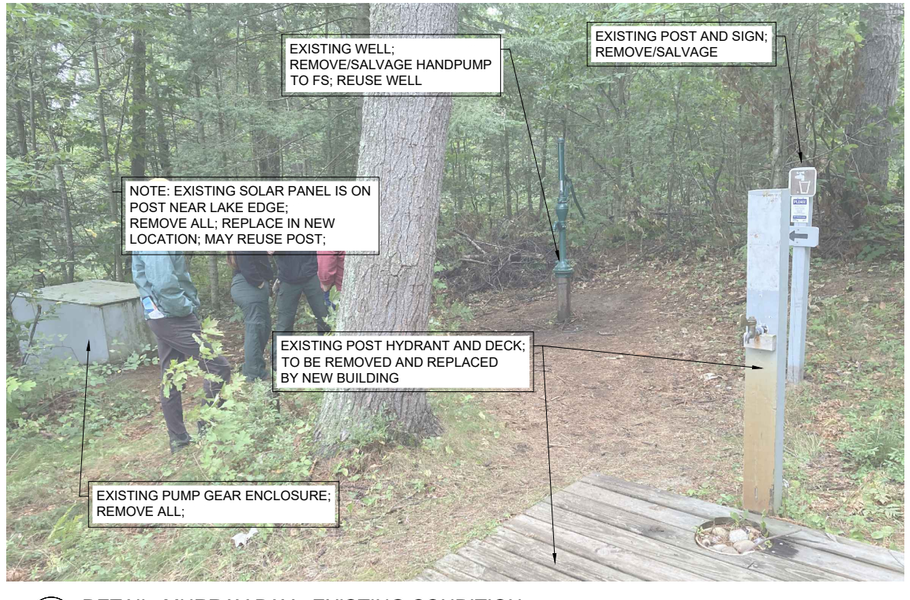
SCALE 1" = 20'



2 SITE PLAN - MURRAY BAY - WATER SYSTEM
SCALE: 1' = 5"



3 DETAIL MURRAY BAY - EXISTING CONDITION
NO SCALE

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GRAND ISLAND WATER SYSTEMS RENOVATION

HIAWATHA NF

MUNISING RANGER DISTRICT

DRAWING TITLE

MURRAY BAY SITE PLANS & EXISTING CONDITION

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. C-02
DRAWN J.SMREKAR	
CHECKED C.EDWARDS	
PROJECT NO.	SHEET 04 OF 13

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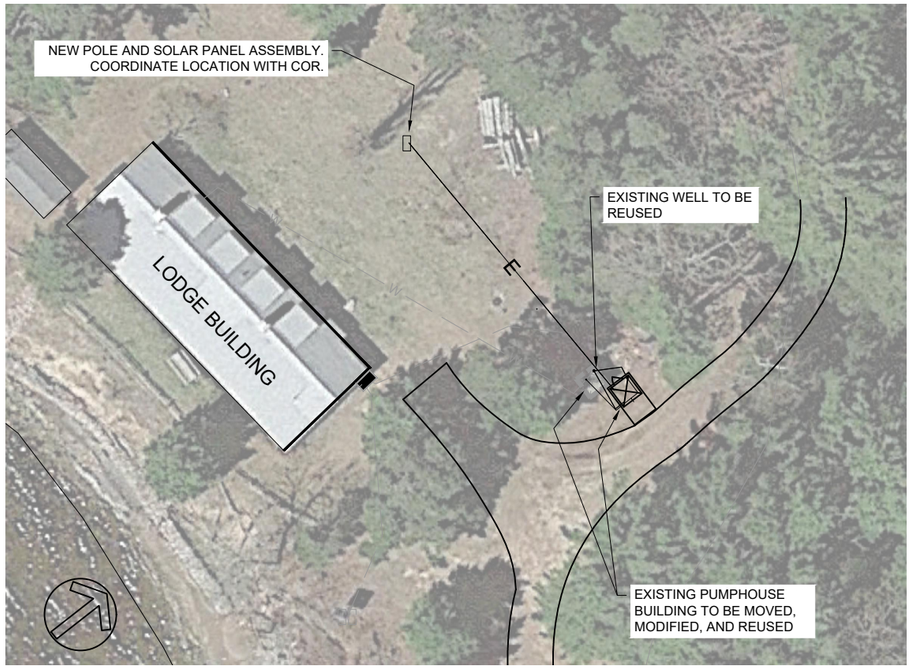
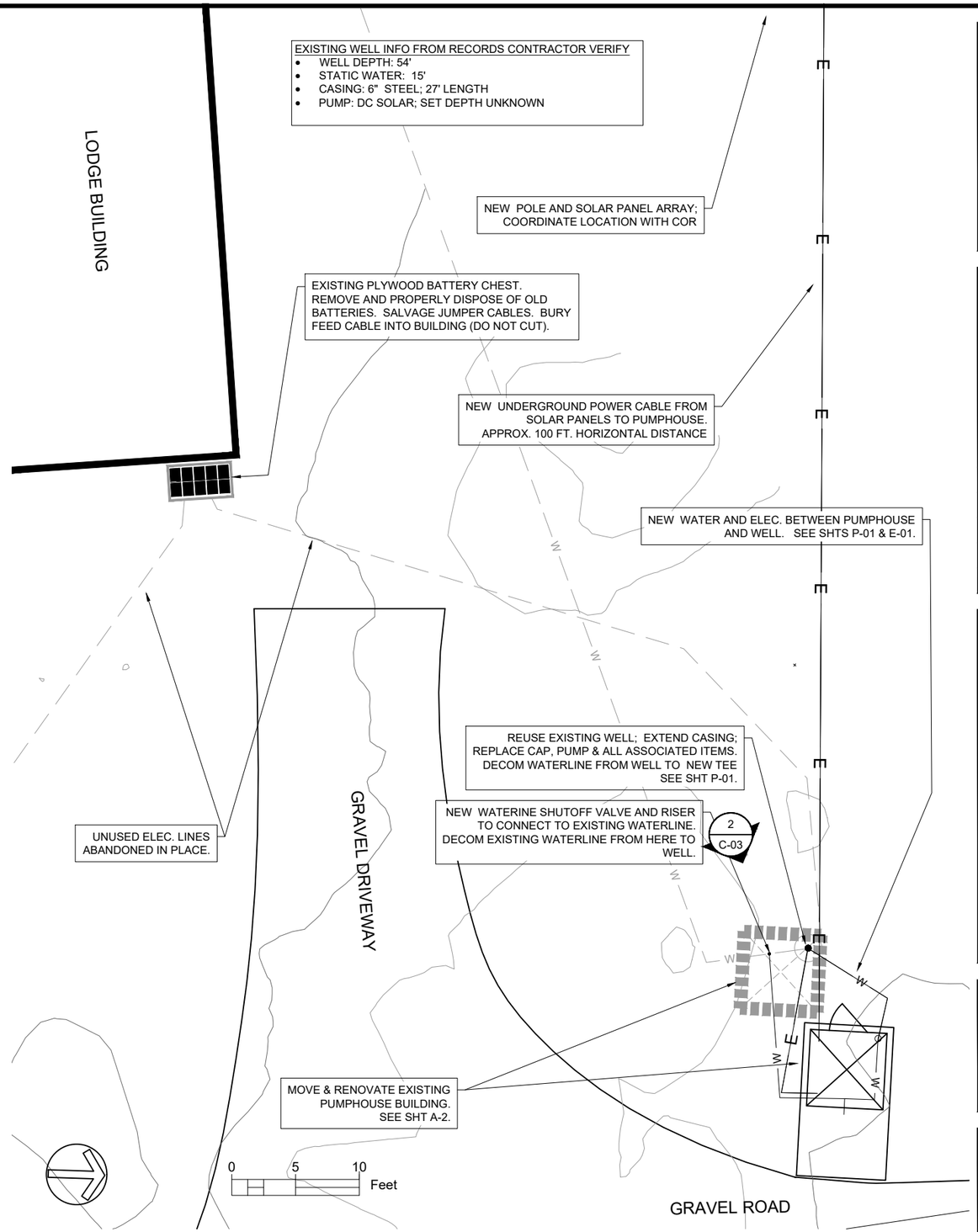


1 SITE PLAN - MATHER LODGE - GENERAL AREA
SCALE 1" = 20'

2 DETAIL MATHER LODGE - EXISTING PUMPHOUSE PHOTO
NO SCALE



3 SITE PLAN - MATHER LODGE - WATER SYSTEM
SCALE: 1' = 5"

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MUNISING RANGER DISTRICT

DRAWING TITLE

MATHER LODGE SITE PLANS & EXISTING CONDITION

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. C-03
DRAWN J.SMREKAR	
CHECKED C.EDWARDS	
PROJECT NO.	SHEET 05 OF 13

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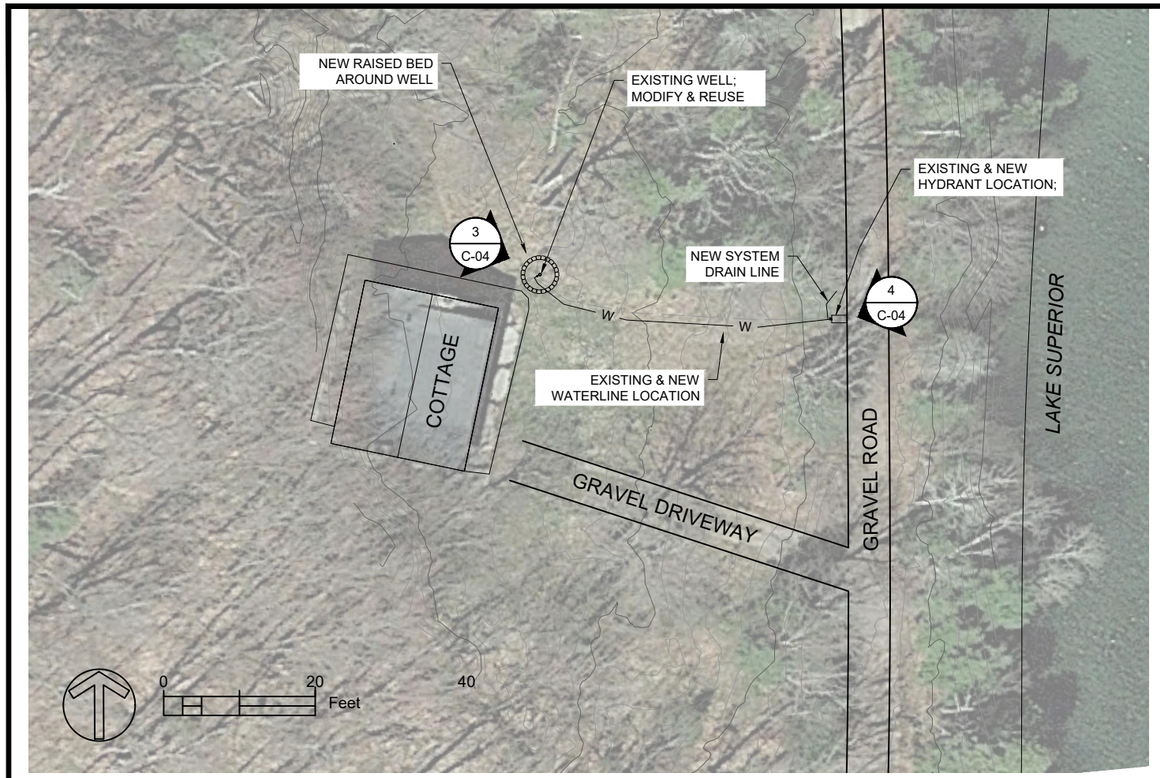
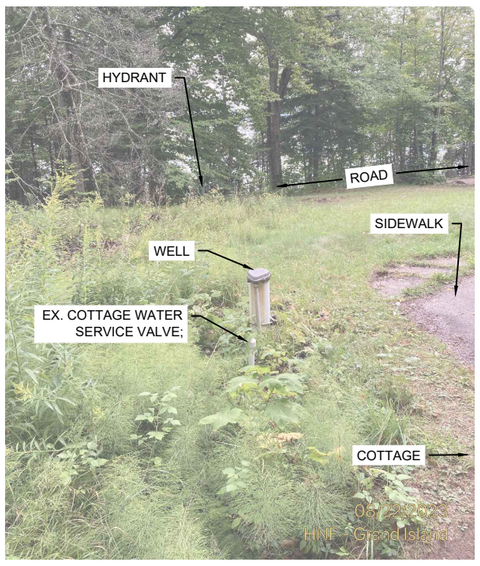
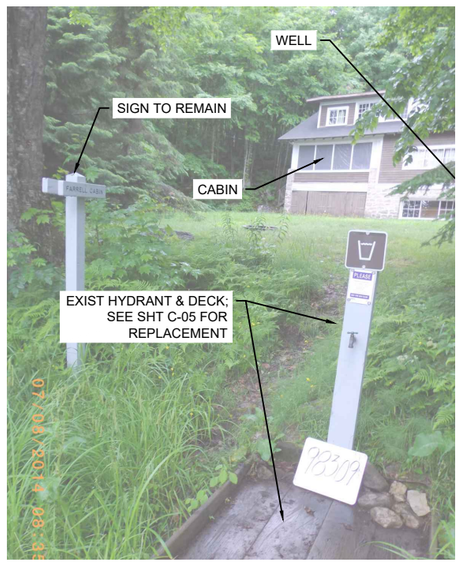


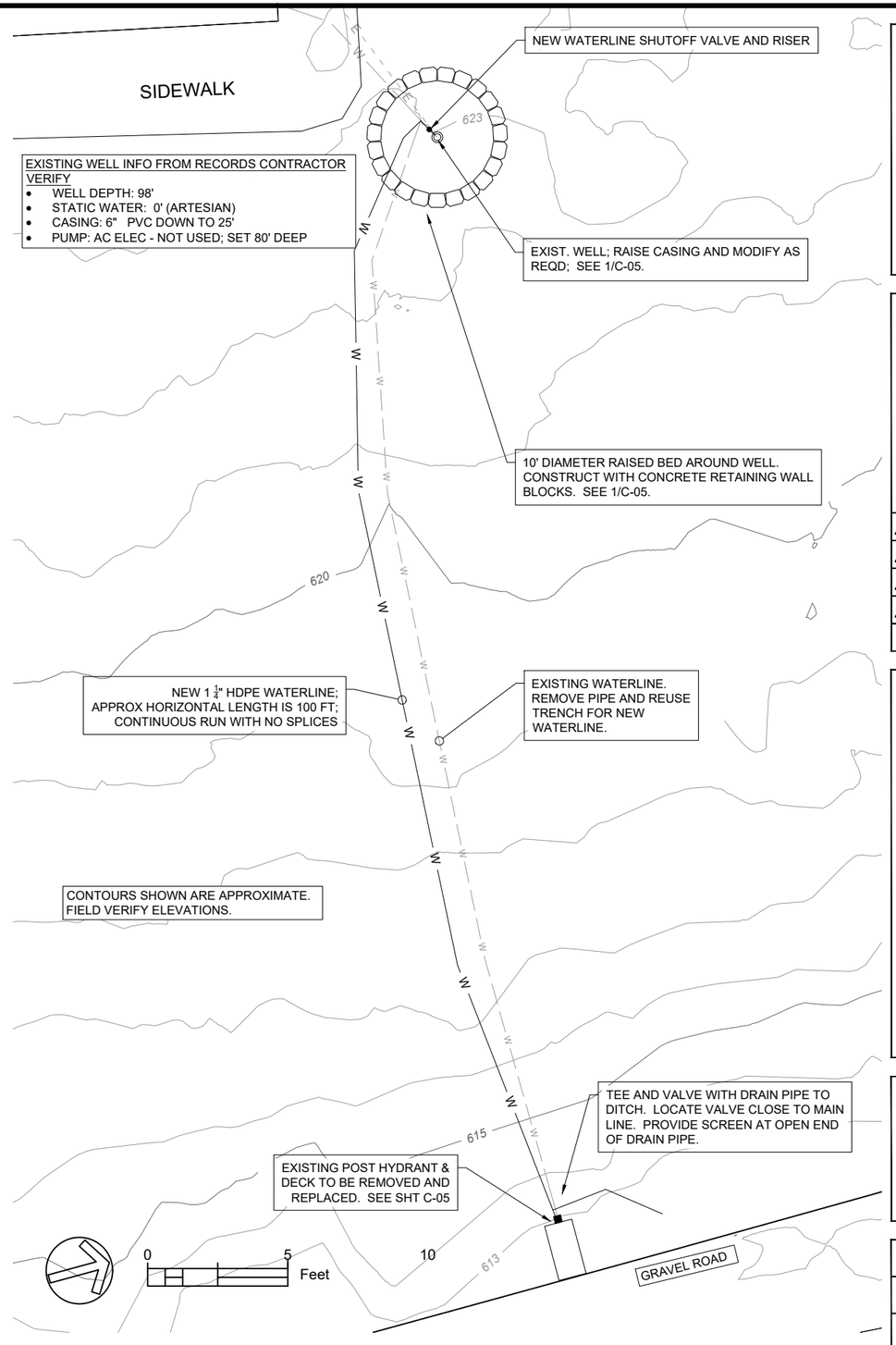
1 SITE PLAN - FARREL COTTAGE - GENERAL AREA
SCALE 1" = 20'



3 PHOTO - FROM WELL TOWARDS HYDRANT
NO SCALE



4 PHOTO - FROM HYDRANT TOWARDS COTTAGE
NO SCALE



2 SITE PLAN - FARREL COTTAGE - WATER SYSTEM
SCALE: 1" = 5"

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PROJECT NAME

GRAND ISLAND WATER SYSTEMS RENOVATION

HIAWATHA NF

MUNISING RANGER DISTRICT

DRAWING TITLE

FARRELL CABIN SITE PLAN & EXISTING CONDITION

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. C-04
DRAWN J.SMREKAR	
CHECKED C.EDWARDS	
PROJECT NO.	SHEET 06 OF 13

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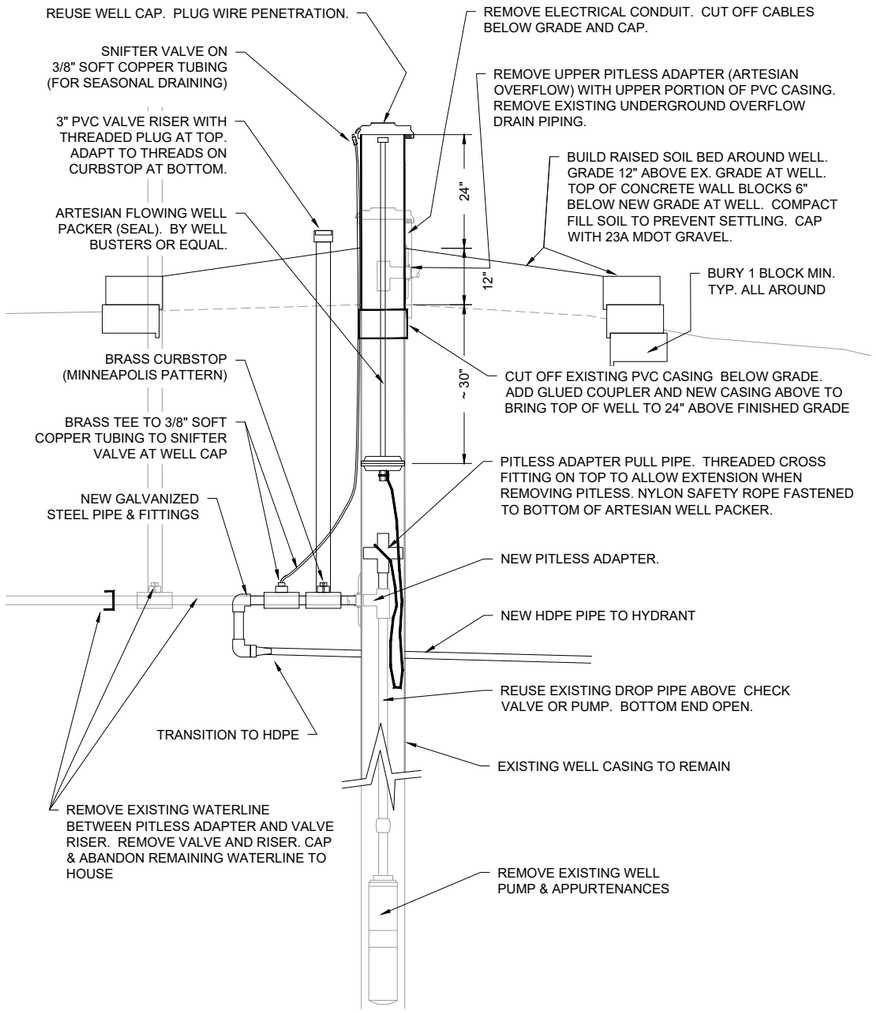
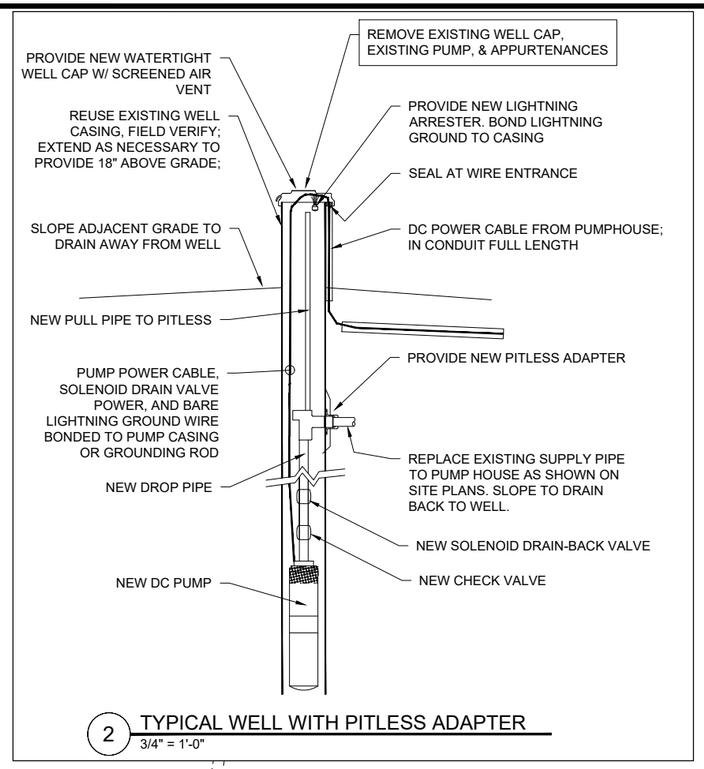
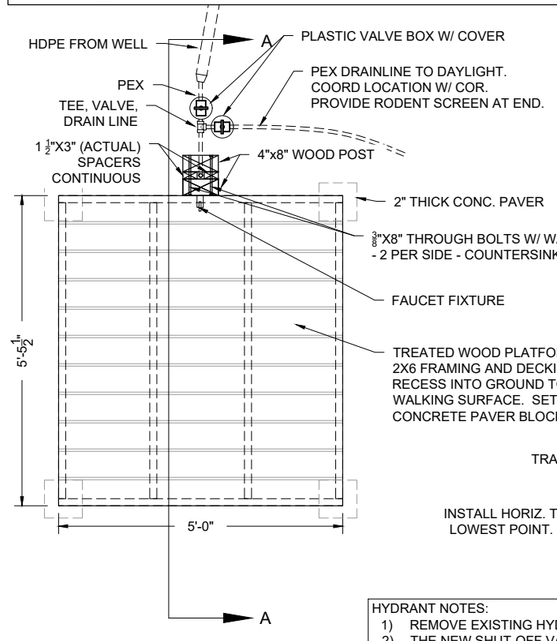


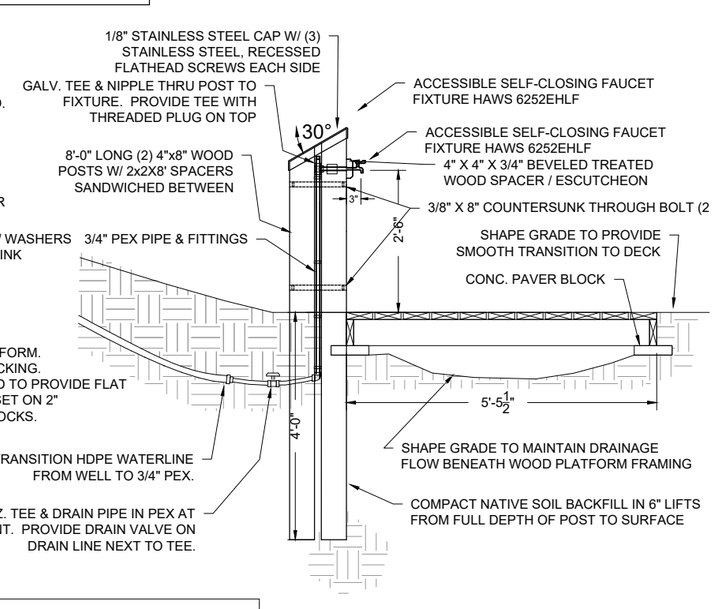
1 SECTION - WELL AT FARRELL CABIN
3/8" = 1'-0"



2 TYPICAL WELL WITH PITLESS ADAPTER
3/4" = 1'-0"



WATER SPIGOT & PAD
PLAN VIEW



WATER SPIGOT & PAD
SECTION A-A

HYDRANT NOTES:
1) REMOVE EXISTING HYDRANT AND APPURTENANCES.
2) THE NEW SHUT-OFF VALVE IS NEAR WELL HEAD.
3) INSTALL TEE & DRAIN VALVE NEAR HYDRANT RISER. ROUTE DRAIN PIPE TO FREE-DRAINING AREA (DITCH).
4) ALL WOOD FOR HYDRANTS SHALL BE TREATED UC4B.
5) ALL FASTENERS SHALL BE STAINLESS STEEL.

3 DETAIL - HYDRANT AT FARRELL CABIN
3/4" = 1'-0"

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PROJECT NAME
GRAND ISLAND WATER SYSTEMS RENOVATION
HIAWATHA NF
MUNISING RANGER DISTRICT

DRAWING TITLE
FARRELL CABIN WATER SYSTEM DETAILS & TYPICAL WELL DETAILS

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. C-05
DRAWN C.EDWARDS	
CHECKED	
PROJECT NO.	SHEET 07 OF 13

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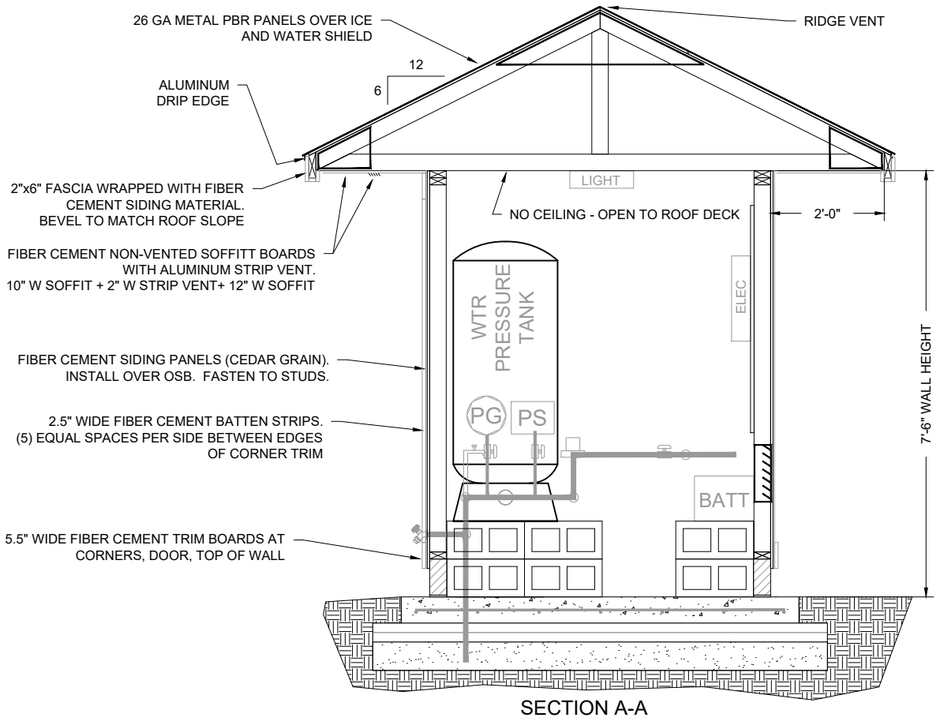
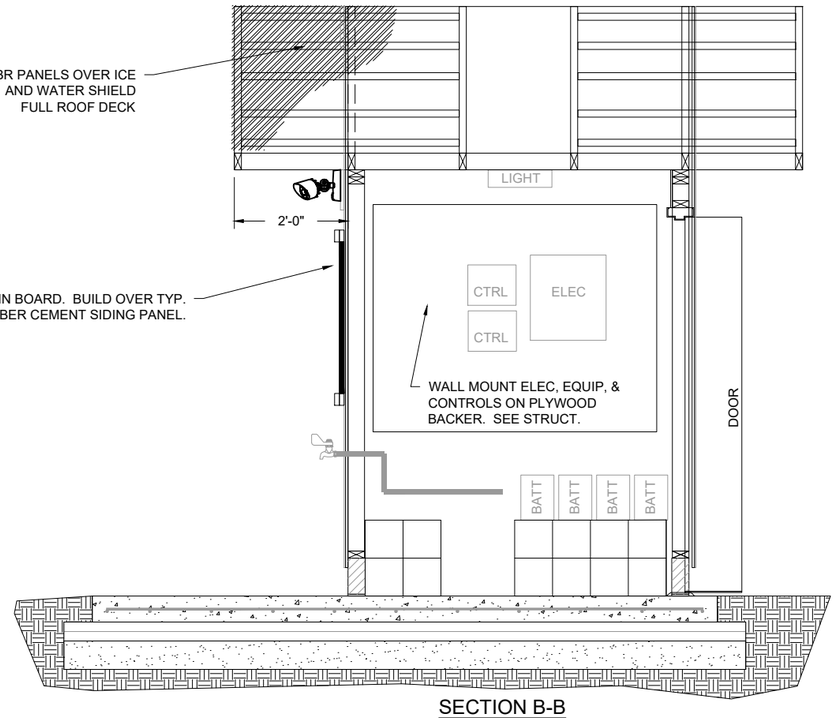
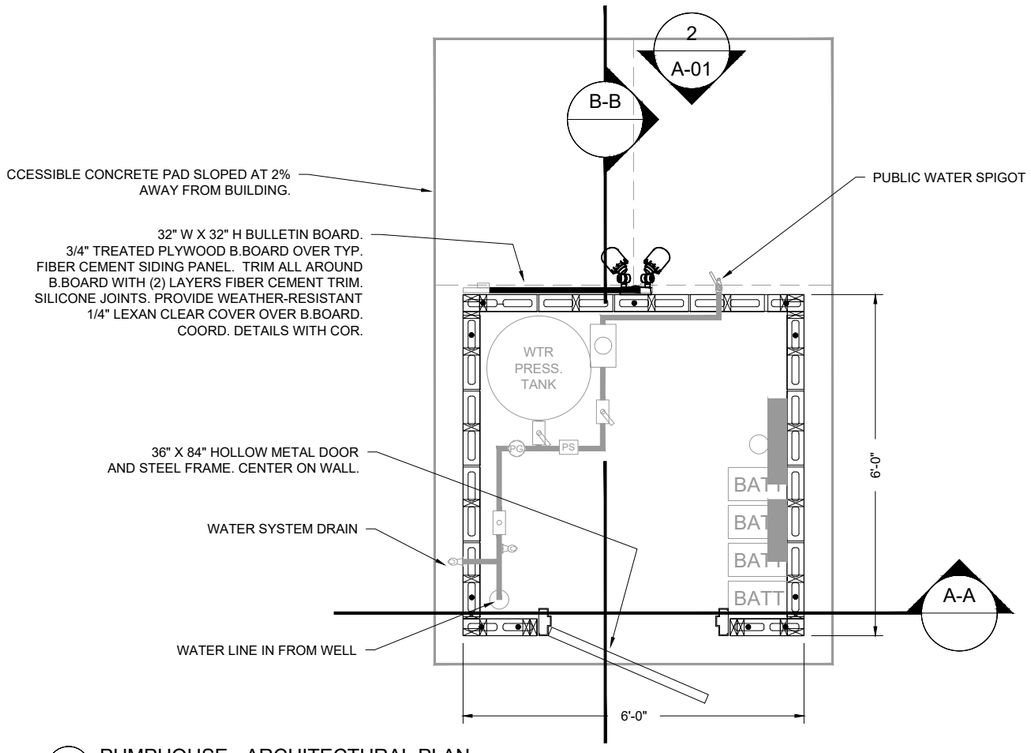


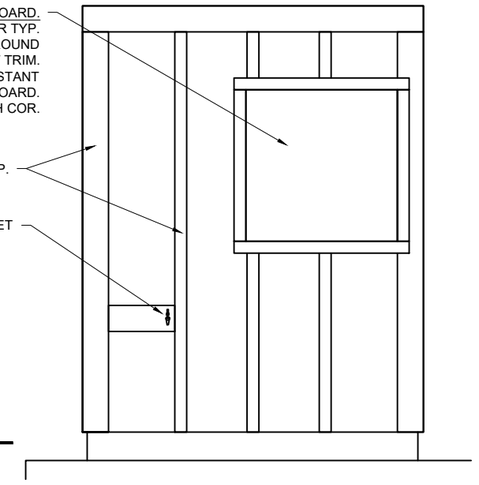
SECTION A-A



SECTION B-B



1 PUMPHOUSE - ARCHITECTURAL PLAN
3/4" = 1'-0"



2 PUMPHOUSE - TYP. ELEVATION
3/4" = 1'-0"

ARCHITECTURAL NOTES:

1. SUBMIT PRODUCT CUT SHEETS OF ALL ARCHITECTURAL COMPONENTS FOR REVIEW AND APPROVAL BEFORE BEGINNING WORK.
2. DOOR HARDWARE SHALL BE COMMERCIAL GRADE NON-LOCKING LEVER HANDLE WITH COMMERCIAL GRADE DEADBOLT. COORDINATE KEYING WITH COR.
3. COORDINATE PAINT AND SHINGLE COLOR WITH COR.
4. SEE STRUCTURAL SHEETS FOR ADDITIONAL INFORMATION.

BASIS OF DESIGN - PROVIDE PRODUCTS BELOW OR EQUAL

- BULDING WRAP: NON-WOVEN
- SIDING PANELS: FIBER CEMENT; CEDAR GRAIN PATTERN; PRE-PAINTED; JAMES HARDIE MODEL HARDI PANEL CEDARMILL
- TRIM: FIBER CEMENT;CEDAR GRAIN PATTERN; PRE-PAINTED; JAMES HARDIE MODEL HARDI TRIM ROUGHSAWN
- SOFFIT: FIBER CEMENT;CEDAR GRAIN PATTERN; PRE-PAINTED; JAMES HARDIE MODEL HARDI SOFFIT
- FASCIA: FIBER CEMENT;CEDAR GRAIN PATTERN; PRE-PAINTED; UNVENTED; JAMES HARDIE MODEL HARDI SOFFIT

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STAMPS, LOGOS, AND SEALS

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PROJECT NAME

GRAND ISLAND WATER SYSTEMS RENOVATION

HIAWATHA NF

MUNISING RANGER DISTRICT

DRAWING TITLE

TYPICAL PUMPHOUSE ARCHITECTURAL PLAN & DETAILS

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. A-01
DRAWN J.SMREKAR	
CHECKED C.EDWARDS	
PROJECT NO.	SHEET 08 OF 13

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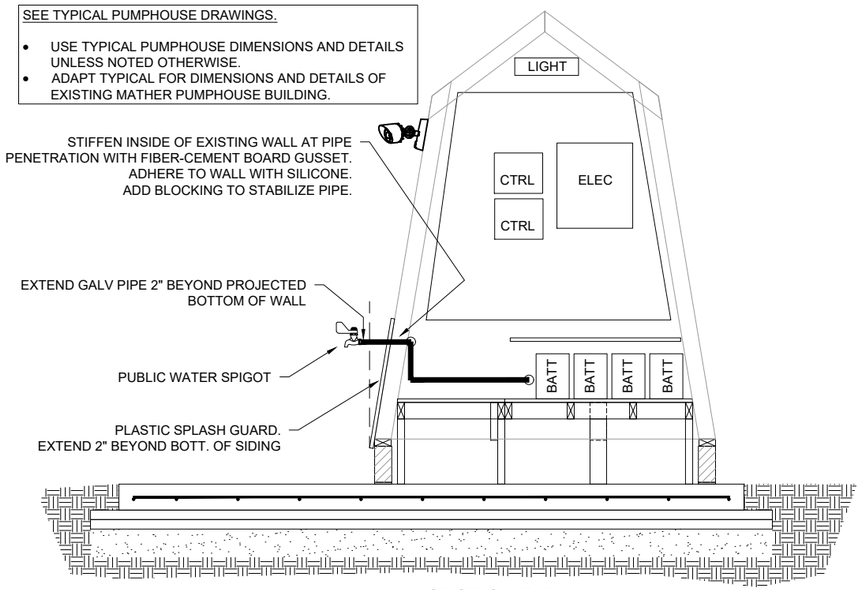
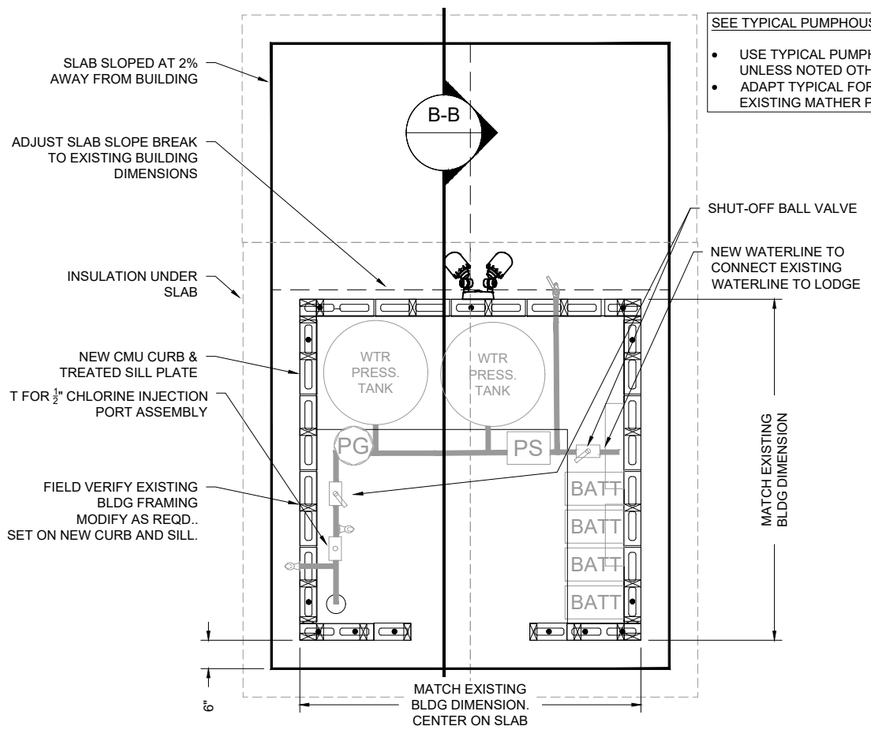
1 PUMPHOUSE - MATHER - PHOTO
3/4" = 1'-0"



SECTION B-B



2 PUMPHOUSE - MATHER ARCHITECTURAL PLAN
3/4" = 1'-0"

MATHER PUMPHOUSE NOTES:

1. REFER TO JUNIIPER AND MURRAY PUMPHOUSE DRAWINGS. ADAPT TYPICAL ARCHITECTURAL LAYOUT, PLUMBING, AND ELECTRICAL DETAILS FOR USE WITH THE EXISTING MATHER PUMPHOUSE. DEVIATIONS FROM THOSE TYPICAL PLANS LISTED BELOW
9. PUMP: SUBMERSIBLE DIAPHRAGM TYPE: SUNPUMPS MODEL SDS-Q-135 (30V)
10. PRESSURE TANKS (2): PRE-CHARGED HYDRO-PNEUMATIC; AMTROL MODEL WX-350
11. REUSE EXISTING MATHER PUMPHOUSE BUILDING TO THE FULL EXTENT POSSIBLE. MAINTAIN/DUPLICATE EXISTING APPEARANCE.
12. PREPARE BUILDING FOR MOVE:
    - 12.1. REMOVE AND REPLACE ANY ROTTEN WOOD.
    - 12.2. DEMO ANY EXISTING ELEMENTS THAT ARE NOT TO BE REUSED IN THE NEW CONDITION (EX. OLD ELEC. WIRES AND ENCLOSURES)
    - 12.3. ADD FRAMING/BRACING TO STABILIZE AS REQUIRED.
13. AFTER STABILIZING, MOVE BUILDING AS SHOWN AND SET ON CMU CURB WITH TREATED WOOD SILL.
14. REPLACE EXISTING ASPHALT SHINGLES IN KIND. PROVIDE UNDERLAYMENT SIMILAR TO TYPICAL PUMPHOUSE DRAWINGS.
15. STAIN EXISTING WALL SHAKES WITH SIMILAR CEDAR COLOR STAIN; COORD. WITH COR. PROTECT NEW CONCRETE WHILE STAINING.
16. MODIFY EXISTING WELL: ADD PITLESS ADAPTER, RAISE CASING TO 24" ABOVE GRADE, INSTALL NEW WELL CAP
17. SALVAGE EXISTING DC PUMP AND CONTROLS FOR THE FS.

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MATHER PUMPHOUSE ARCHITECTURAL PLAN & DETAILS

DATE 01/26/26	ARCHIVE NO.
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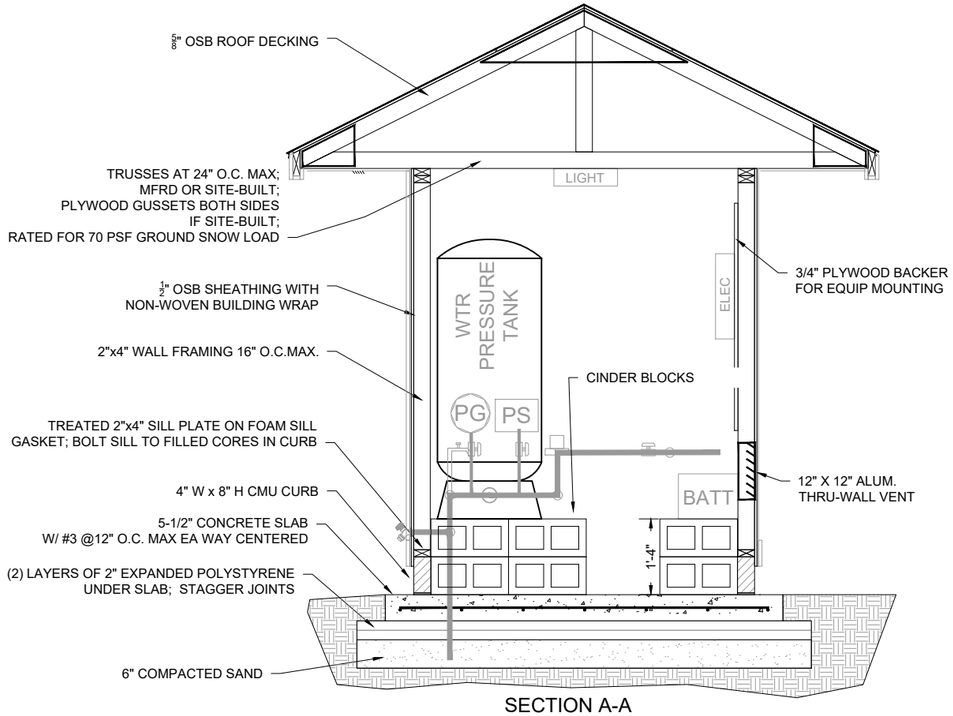
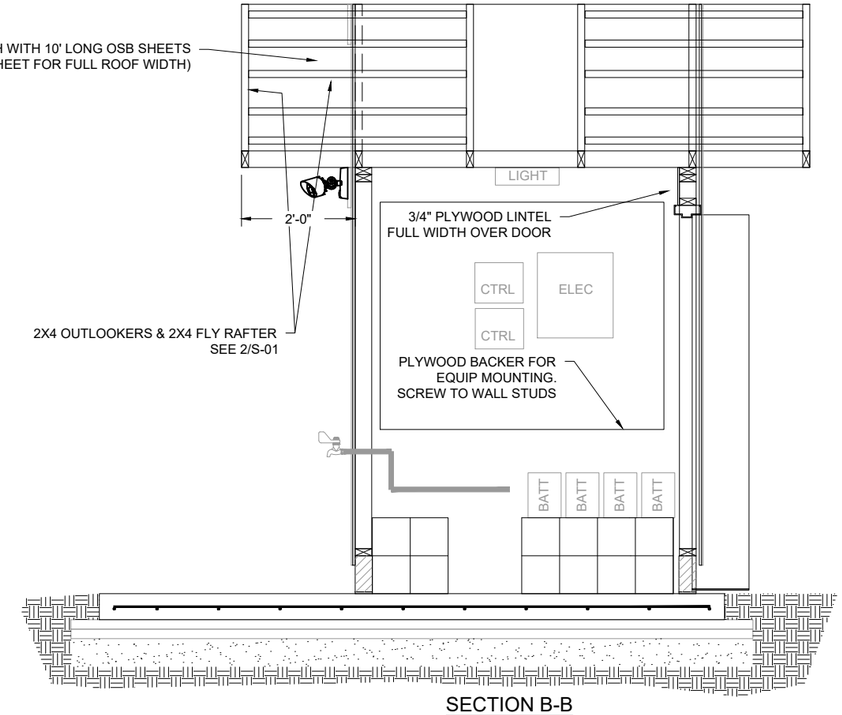
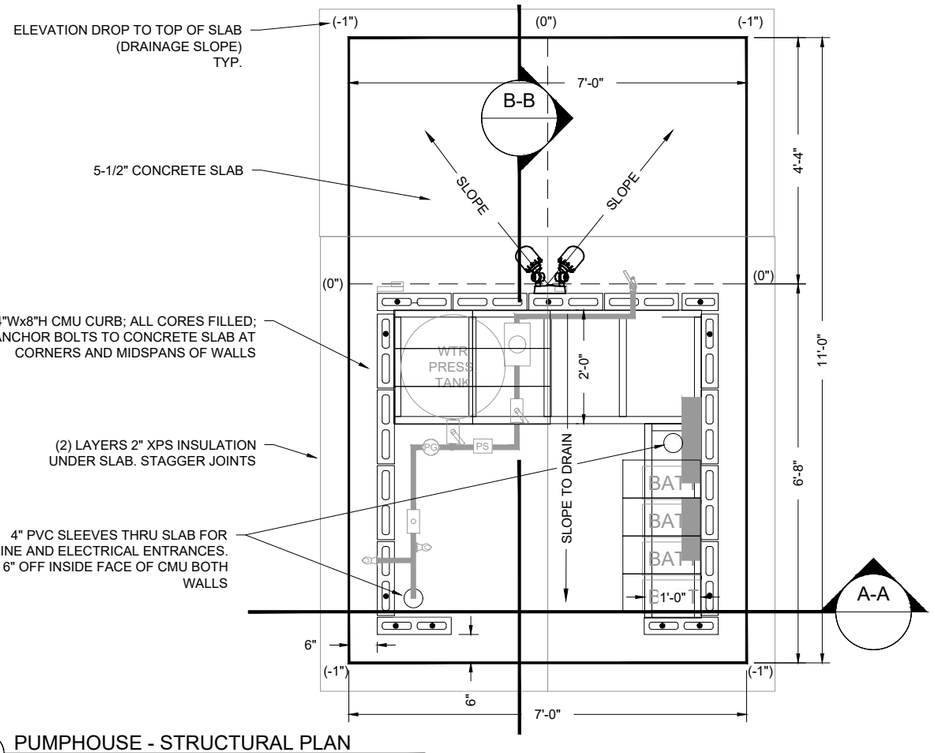


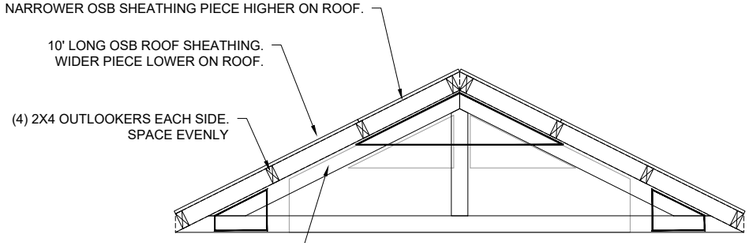
SECTION A-A



SECTION B-B



1 PUMPHOUSE - STRUCTURAL PLAN
3/4" = 1'-0"



2 PUMPHOUSE - DETAIL - GABLE TRUSS & OUTLOOKERS
3/4" = 1'-0"

STRUCTURAL NOTES:
1. SUBMIT PRODUCT CUT SHEETS AND PROPOSED LAYOUT OF ALL STRUCTURAL COMPONENTS FOR REVIEW AND APPROVAL BEFORE BEGINNING WORK.
2. CONCRETE SHALL BE f'c = 4,000 psi, AIR-ENTRAINED.
3. FRAMING SILL SHALL BE TREATED LUMBER SET ON A FOAM SILL GASKET

BASIS OF DESIGN - PROVIDE PRODUCTS BELOW OR EQUAL

AT POLE

- SOLAR PANEL POLE: CLASS 4, 30', SYP, PENTACHLOROPHENOL; BELL POLE & LUMBER
- SOLAR PANEL MOUNT: SUNWIZE MODEL 240045
- SOLAR PANEL(S): 180W MIN 24V SYSTEM; SLD TECH MODEL ST-180P-24
- COMBINER/FUSE BOXES: OUTBACK POWER SYSTEMS, FLEXWARE MODEL FWPV 8 COMBINER
- CONDUIT: PVC

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TYPICAL PUMPHOUSE STRUCTURAL PLAN & DETAILS

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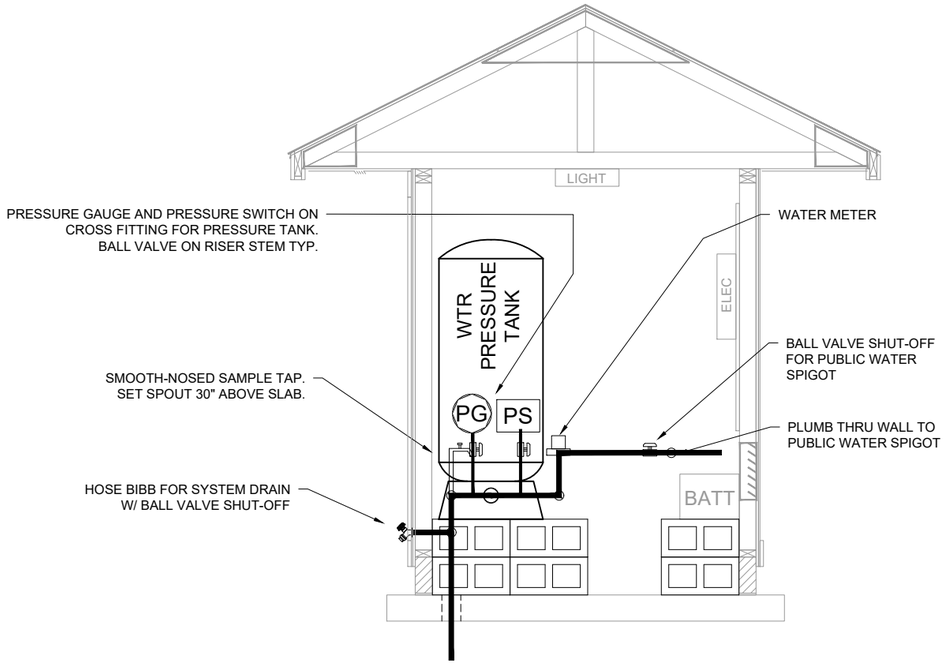
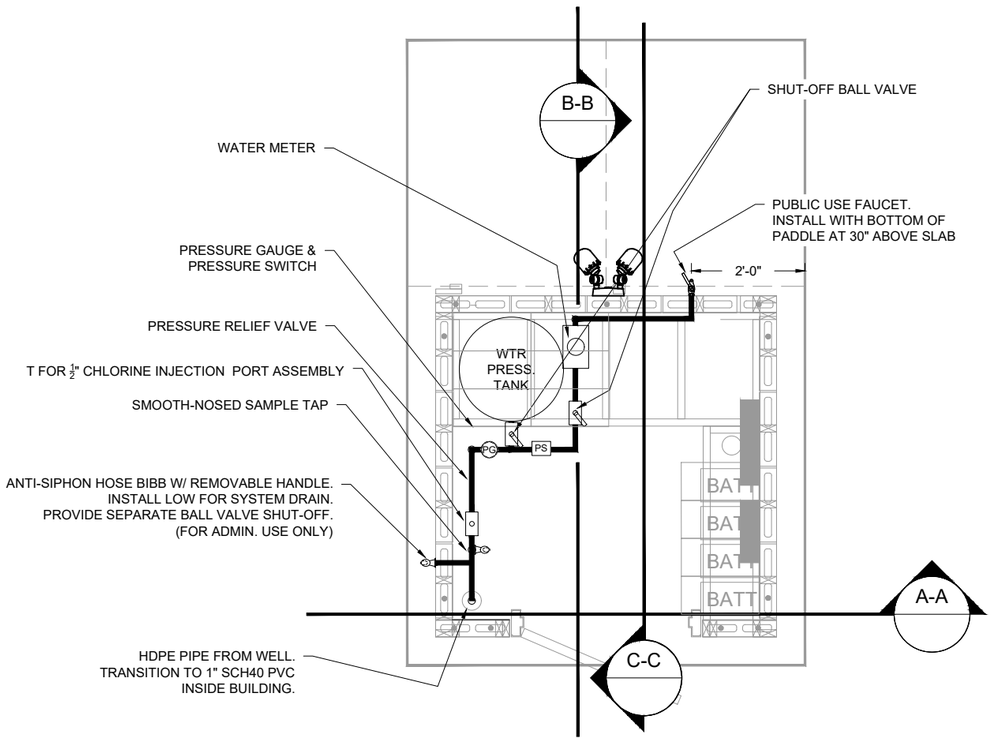
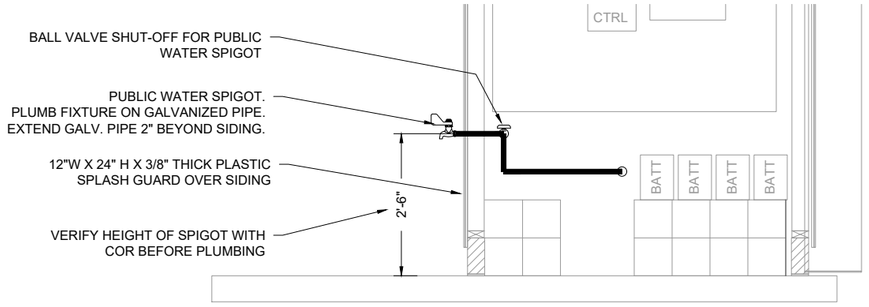


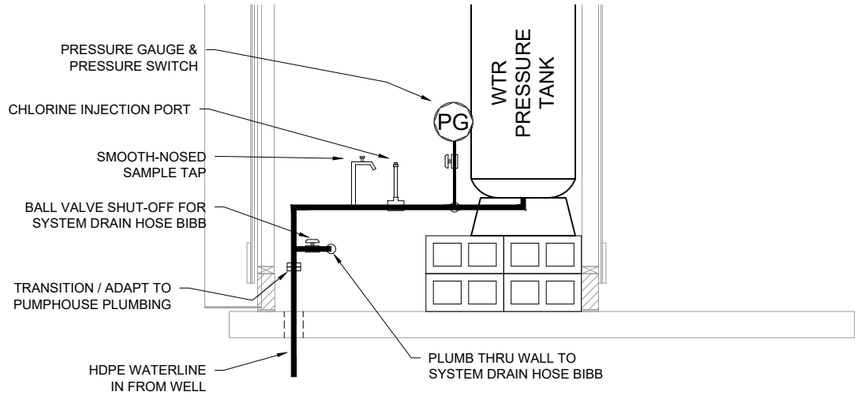
SECTION A-A



1 PUMPHOUSE - PLUMBING PLAN
3/4" = 1'-0"



SECTION B-B



SECTION C-C

PLUMBING NOTES:

1. ALL PLUMBING MATERIALS AND FULL SYSTEM INSTALLATION SHALL MEET NSF-61 & APPLICABLE AWWA REQUIREMENTS.
2. ALL WELL AND PLUMBING WORK SHALL BE PERFORMED BY PERSONS HOLDING CURRENT LICENSE FROM THE STATE OF MICHIGAN FOR THE WORK BEING PERFORMED.
3. SUBMIT PRODUCT CUT SHEETS AND PROPOSED LAYOUT OF ALL PLUMBING COMPONENTS FOR REVIEW AND APPROVAL BEFORE BEGINNING WORK.
4. INSTALL ALL PLUMBING TO FACILITATE COMPLETE DRAINING OF THE SYSTEM BY GRAVITY. (SLOPE PIPING TO DRAIN).
5. BRACE ALL PLUMBING AS REQUIRED TO PREVENT DAMAGE FROM NORMAL OPERATIONS.
6. COORDINATE WIRING AND POWER NEEDS WITH ELECTRICAL.

BASIS OF DESIGN - PROVIDE PRODUCTS BELOW OR EQUAL

AT WELL

- PUMP: SUBMERSIBLE DIAPRAGM TYPE; SUNPUMPS MODEL SDS-T-128 (30V)
- DESIGN TDH (FT): STATIC WATER DEPTH + 90 FEET
- PUMP SET DEPTH: 20 FT MIN BELOW STATIC WATER ELEVATION
- DROP PIPE: SIZE PER PUMP MFR. PROVIDE SEPARATE IN-LINE CHECK VALVE ABOVE PUMP. ADAPT AS REQD AT EXISTING PITLESS ADAPTER.
- SOLENOID DRAIN: ¼" NPT, 2 WAY, NC, 24VDC, EPDM SEAL, BRASS; GC MODEL S301GF16C8BE1
- PIPING TO BLDG: 1" HDPE; ADAPT AS REQD AT EXISTING PITLESS ADAPTER AND BUILDING PLUMBING

AT BUILDING:

- PIPING: ¾" SCHD 40 PVC
- VALVES: STAINLESS STEEL BALL VALVE; APOLLO MODEL 7610427A
- PRESSURE RELIEF: ¾" , PRESET AT 75PSI; AY MCDONALD MODEL 72049
- PRESSURE GAUGE: 2.5" DIAMETER, 0 100 PSI RANGE; ON PIPE NIPPLE WITH SHUT-OFF TO ALLOW LIVE REPLACEMENT. TRERICE MODEL 700B
- PRESSURE SWITCH: NOMINAL 20/40 PSI; ON PIPE NIPPLE W/ SHUT-OFF. SQUARE D MODEL PUMPTROL 9013FSW2J20; SET TO 25 PSI ON / 35 PSI OFF
- PRESSURE TANKS: PRE-CHARGED HYDRO-PNEUMATIC; AMTROL MODEL WX 202
- WATER METER: ¾" METER; NEPTUNE MODEL T 10
- PUMP CONTROLLER: FROM SAME MFR AS PUMP, INTEGRATED LOW WATER CUT-OFF; SUNPUMPS MODEL PCA-30M1D
- DRAIN FAUCET: ¾", CHROME, INTEGRATED BACKFLOW PREVENTER; (NOTE: PROVIDE SEPARATE BALL VALVE SHUT-OFF INSIDE BLDG)
- PUBLIC USE FAUCET: ADA ACCESSIBLE, BRASS, SELF-CLOSING; HAWS MODEL 6252EHLF
- SAMPLE FAUCET: HOSE BIBB, SMOOTH NOSED (NO THREAD), LEAD-FREE; MCDONALD MODEL 72002NT
- CHLORINE PORT: 1/2" SCH 40 PVC WITH 1/2" NIPPLE X 3" LONG WITH 1/2" THREADED BUSHING AND PLUG.

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PROJECT NAME

GRAND ISLAND WATER SYSTEMS RENOVATION

HIAWATHA NF

MUNISING RANGER DISTRICT

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TYPICAL PUMPHOUSE PLUMBING PLAN & DETAILS

DATE 01/26/26	ARCHIVE NO.
DESIGNER J.SMREKAR	DRAWING SHEET NO. P-01
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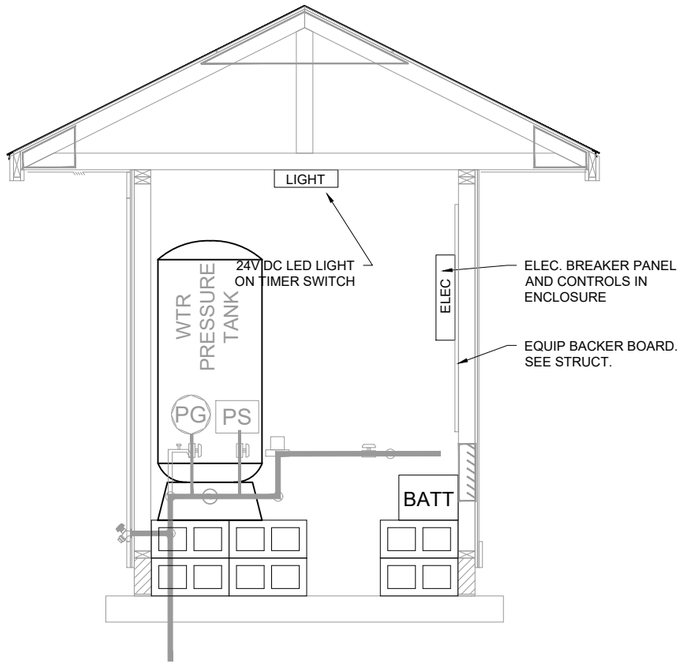
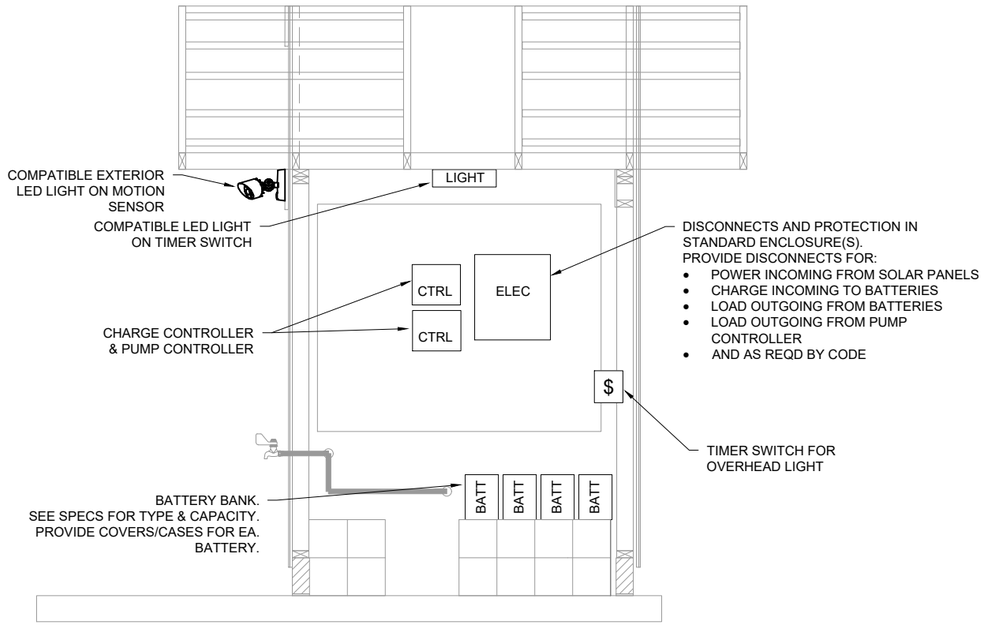


SECTION A-A



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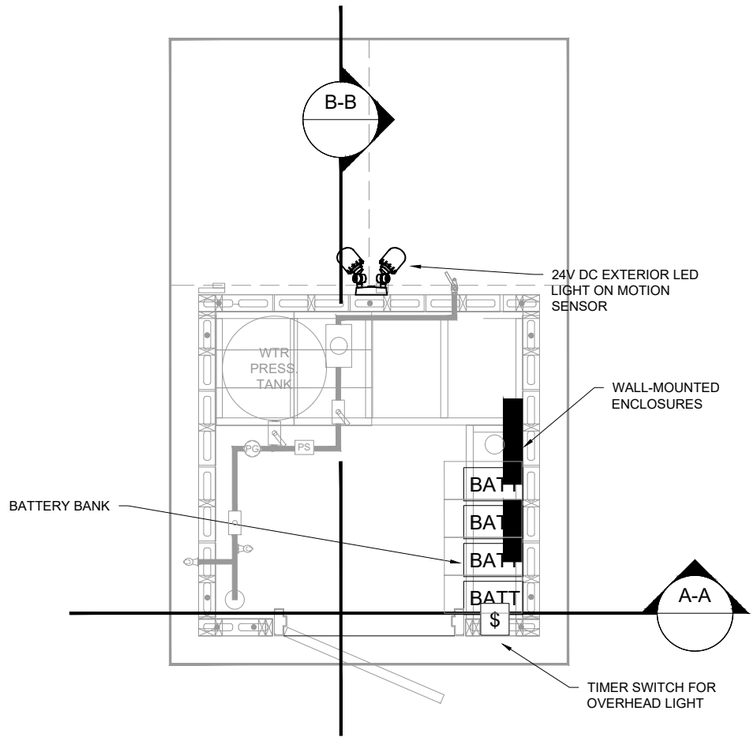

1 PUMPHOUSE - ELECTRICAL PLAN
3/4" = 1'-0"

ELECTRICAL NOTES:

1. SUBMIT PRODUCT CUT SHEETS AND PROPOSED LAYOUT OF ALL ELECTRICAL COMPONENTS FOR REVIEW AND APPROVAL BEFORE BEGINNING WORK.
2. ALL WIRING SHALL BE IN CONDUIT WHEN ABOVE GRADE, OR WHEN LESS THAN 12" BELOW GRADE, OR AS REQUIRED BY CODE.
3. ALL CONNECTIONS SHALL BE IN ENCLOSURES.
4. LABEL WIRES, LANDING POINTS, BREAKERS, EQUIPMENT, OPERABLE PARTS, ETC. WITH SUITABLE ADHESIVE PLASTIC LABELS.
5. CONDUCTOR RUN FROM BUILDING TO POLE MAY BE DIRECT BURY AS ALLOWED BY CODE. CONDUCTOR RUN FROM BUILDING TO WELL SHALL BE INSTALLED IN CONDUIT FULL LENGTH.
6. COORDINATE PUMP AND DRAIN EQUIPMENT ELECTRICAL REQUIREMENTS WITH PLUMBING.
7. COLOR OF WIRE INSULATION SHALL CORRESPOND TO THE ASSOCIATED DC POLARITY. (RED FOR DC POSITIVE; BLACK FOR DC NEGATIVE).

SEE SHEET E-02 FOR ADDITIONAL ELECTRICAL NOTES AND REQUIREMENTS.

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MUNISING RANGER DISTRICT

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TYPICAL PUMPHOUSE ELECTRICAL PLAN & DETAILS

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DESIGNER J.SMREKAR	DRAWING SHEET NO. E-01
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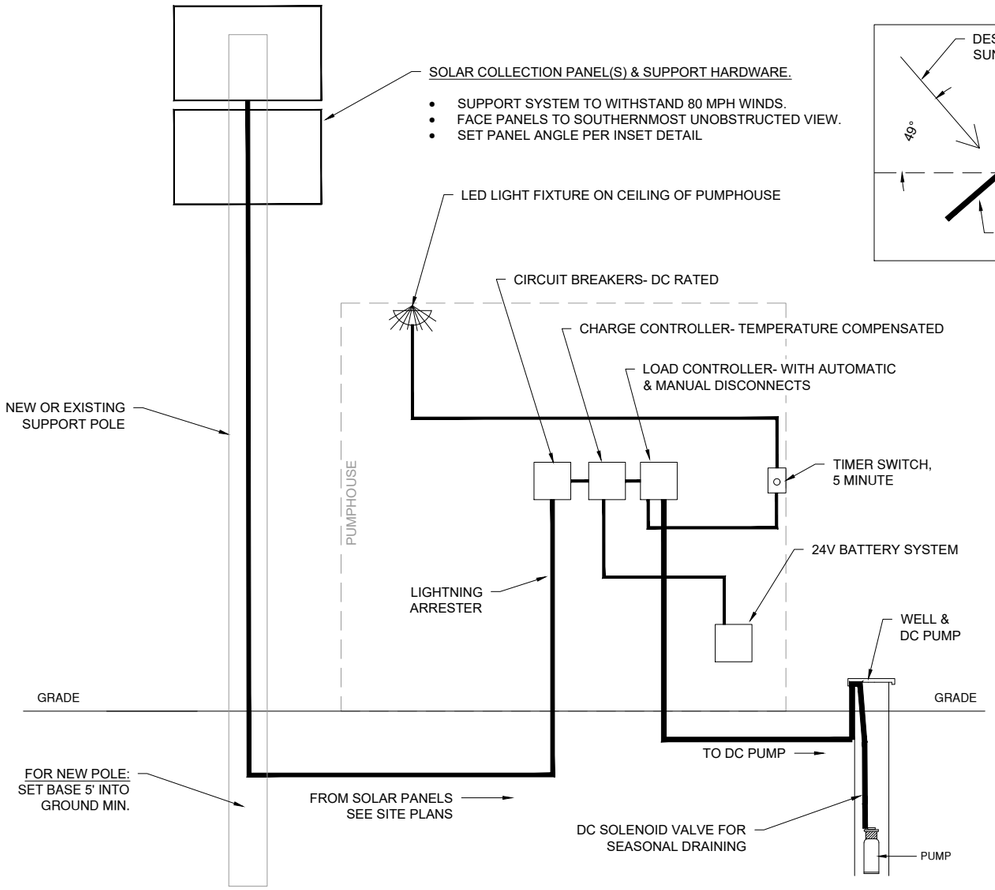

NOTES:
1. SEE SITE PLANS AND ARCH PLANS FOR LAYOUT DETAILS.
2. ALL WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE.
3. PROVIDE BATTERIES, PANELS, ETC. IN PUMPHOUSES
4. INCLUDE 4,000 JOULE SURGE ARRESTER.

1 TYPICAL SOLAR WATER SYSTEM ELECTRICAL SCHEMATIC

3/8" = 1'-0"

ELECTRICAL NOTES:

1. SUBMIT PRODUCT CUT SHEETS AND PROPOSED LAYOUT OF ALL ELECTRICAL COMPONENTS FOR REVIEW AND APPROVAL BEFORE BEGINNING WORK.
2. ALL WIRING SHALL BE IN CONDUIT WHEN ABOVE GRADE, OR WHEN LESS THAN 12" BELOW GRADE, OR AS REQUIRED BY CODE.
3. ALL CONNECTIONS SHALL BE IN ENCLOSURES.
4. LABEL WIRES, LANDING POINTS, BREAKERS, EQUIPMENT, OPERABLE PARTS, ETC. WITH SUITABLE ADHESIVE PLASTIC LABELS.
5. CONDUCTOR RUN FROM BUILDING TO POLE MAY BE DIRECT BURY AS ALLOWED BY CODE. CONDUCTOR RUN FROM BUILDING TO WELL SHALL BE INSTALLED IN CONDUIT FULL LENGTH.
6. COORDINATE PUMP AND DRAIN EQUIPMENT REQUIREMENTS WITH PLUMBING.
7. COLOR OF WIRE INSULATION SHALL CORRESPOND TO THE ASSOCIATED DC POLARITY. (RED FOR DC POSITIVE; BLACK FOR DC NEGATIVE).

BASIS OF DESIGN - PROVIDE PRODUCTS BELOW OR EQUAL

AT POLE

- SOLAR PANEL POLE: CLASS 4, 10" BASE X 30' LONG MIN., SOUTHERN YELLOW PINE, TREATED-PENTACHLOROPHENOL; BY BELL POLE & LUMBER
- SOLAR PANEL MOUNT: SUNWIZE MODEL 240045
- SOLAR PANEL(S): 180W MIN 24V SYSTEM; SLD TECH MODEL ST-180P-24
- COMBINER/FUSE BOXES: OUTBACK POWER SYSTEMS, FLEXWARE MODEL FWPV 8 COMBINER
- CONDUIT: PVC; SIZED FOR QTY AND SIZE OF CABLES; LONG SWEEPS
- OUTDOOR CONDUCTORS: COPPER; SUITABLE FOR INSTALLED LOCATION; 4 GA MIN.OR SIZED FOR MAXIMIMUM 3% VOLTAGE DROP FOR CONDITION INSTALLED.

AT BUILDING

- LIGHTNING ARRESTOR: 0-500VDC, MADE FOR PHOTOVOLTAIC SYSTEM; DELTA MODEL LA302DC,
- CONDUIT: PVC; SIZED FOR QTY AND SIZE OF CABLES; LONG SWEEP BENDS
- INDOOR CONDUCTORS: SUGGESTIONS. COPPER; SUITABLE FOR INSTALLED LOCATION; SIZED FOR MAXIMUM 3% VOLTAGE DROP MIN OR PER EQUIP MFR
- CONTROLLER J-BOX: SUNWIZE 230042 PR EXPRESS CONTROL PANELS, PS 30M
- COMBINER/FUSE BOX: OUTBACK POWER SYSTEMS, FLEXWARE FWPV 8 COMBINER
- BATTERIES: 8G27-DEKA 12 VDC UNITS PAIRED TO 24VDC; MIN. 85 AH @ 20HR RATE TO 1.75VDC; GROUP SIZE 27, NON-SPILLABLE; DEKA MODEL
- BATTERY CASES: TRANSPORT) PLASTIC; ACID-RESISTANT; LID; SIZED TO FIT THE BATTERIES PROVIDED (CASES ARE PROVIDED FOR SEASONAL
- LIGHT SWITCH (TIMER): AUTO-OFF SPRING-TYPE TIMER COMPATIBLE WITH DC; INTERMATIC MODEL FF15MC
- SOLENOID DRAIN VALVE: PLUMBING. PROVIDE CIRCUIT, CIRCUIT BREAKER, TIMER SWITCH FOR SEASONAL DRAINING OF WELL PIPING. COORD WITH
- LED MOTION FIXTURE: HARD WIRED 24V DC MOTION SENSOR LIGHTS CAPABLE OF 1600 LUMENS.
- LED INTERIOR FIXTURE: HARD WIRED 24V DC LED FIXTURE CAPABLE OF 1600 LUMENS.

AT WELL

- CONDUCTOR: COPPER; IN CONDUIT FULL LENGTH (NO DIRECT BURY), DOUBLE SHRINK SEAL AT SPLICE IN WELL SIZED TO DEVELOP FULL CAPACITY OF THE SPECIFIC PUMP INSTALLED IN THE SPECIFIC CONDITION INSTALLED

AS A MINIMUM
- CONDUIT: PVC; SIZED FOR QTY AND SIZE OF CABLES; LONG SWEEP BENDS; WEATHERTIGHT / STABLE CONNECTION TO WELL CAP.

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