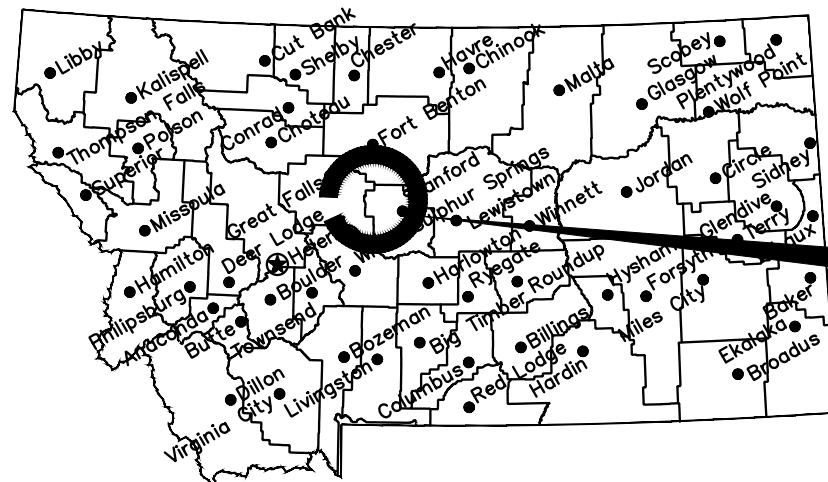


MONTANA FISH, WILDLIFE & PARKS SMITH RIVER STATE PARK

HUMAN WASTE DISPOSAL IMPROVEMENTS EDEN BRIDGE

CONSTRUCTION BID SET

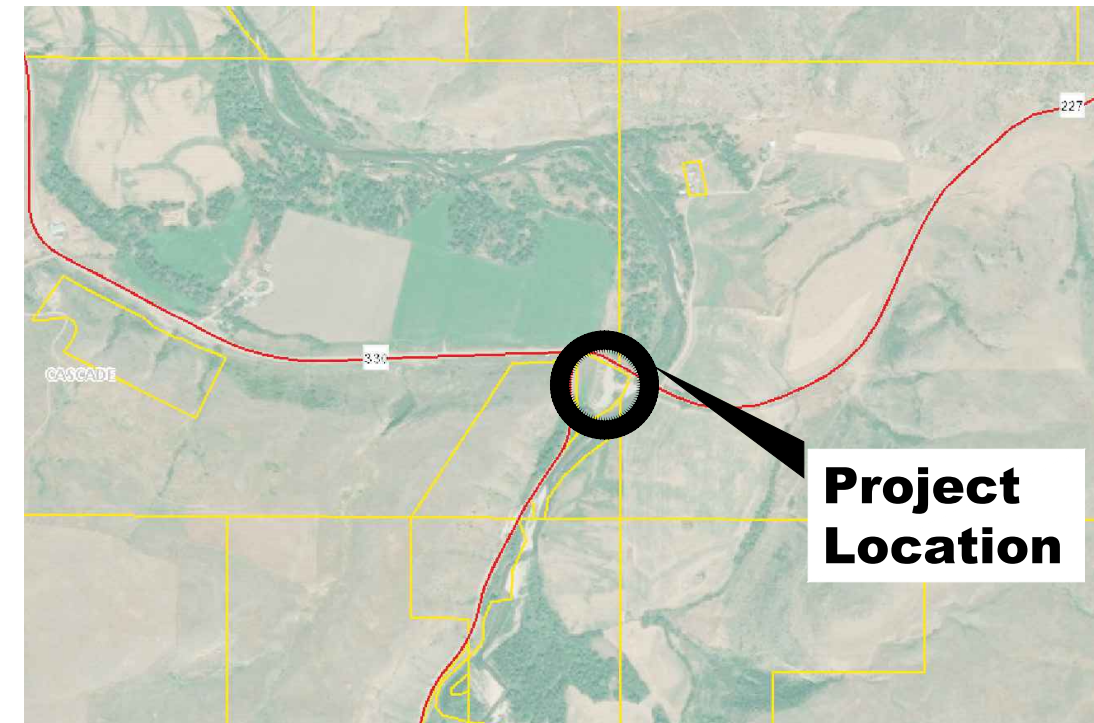
FWP PROJECT # 7216700



Project Location

Location Map

No Scale



Project Location

Vicinity Map

No Scale

North

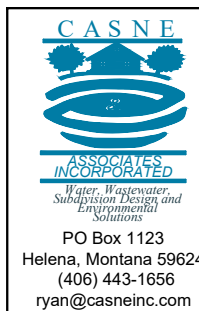


CONSTRUCTION BID SET

MONTANA FISH, WILDLIFE AND PARKS
DESIGN AND CONSTRUCTION

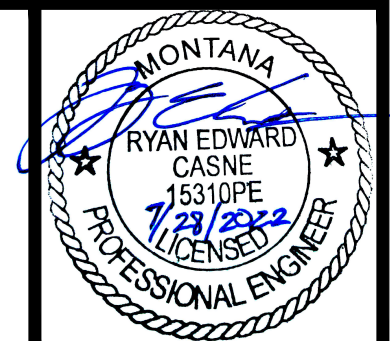
MAILING ADDRESS: PO BOX 200701
HELENA, MT 59620-0701
TEL 406.841.4000
FAX 406.841.4004
<https://fwp.mt.gov/aboutfwp/design-and-construction>

PHYSICAL ADDRESS: 1522 9th AVENUE
HELENA, MT 59601



DRAWING INDEX

- 0 COVER SHEET
- 1 EXISTING SITE PLAN & IMPROVEMENTS
- 2 HUMAN WASTE DISPOSAL IMPROVEMENTS
- 3 HUMAN WASTE DISPOSAL BUILDING - PLUMBING
- 4 HUMAN WASTE DISPOSAL BUILDING - FLOOR BLOCKOUTS
- 5 HUMAN WASTE DISPOSAL BUILDING - DETAILS
- 6 SCAT MACHINE CONNECTIONS
- 7 WATER & SEWER DETAILS
- 8 FENCING DETAILS
- 9 DETAILS
- 10 FENCING & SIGNAGE EXHIBIT
- M-1 HVAC & PLUMBING VENTING
- E1 ELECTRICAL PLAN & DETAILS
- E2 ELECTRICAL PLAN & DETAILS



SSK	7/28/2022	APPROVED BY:	DATE:	APPROVED BY:	DATE:
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**MONTANA FISH,
WILDLIFE & PARKS**

141

SW $\frac{1}{4}$, S7, T17N, R03E, P.M.M.
CASCADE COUNTY, MONTANA

SHEET: 0 of 10

GENERAL NOTES:

CONTRACTOR MAY USE EXISTING SANITARY FACILITIES AND MAY CAMP AT THE SITE. COORDINATE WITH THE PARK MANAGER. HOURS OF WORK MAY BE FROM 7AM-7PM, 7 DAYS A WEEK. CONTRACTOR TO BE COGNIZANT OF TRAFFIC MOVEMENT AND PARKING. THE SITE MUST REMAIN OPEN AT ALL TIMES. NO SMOKING OUTSIDE A VEHICLE. CONTRACTOR RESPONSIBLE FOR THEIR OWN SECURITY, FENCING OF CONSTRUCTION AREA ALLOWED.

GENERAL WORK REQUIREMENTS:

CONTRACTOR SHALL PRACTICE JOBSITE GOOD HOUSEKEEPING. ALL WASTE AND TRASH SHALL BE PICKED UP AND PROPERLY STORED DAILY. IF ODORS ARISE, TRASH SHALL BE REMOVED IMMEDIATELY.





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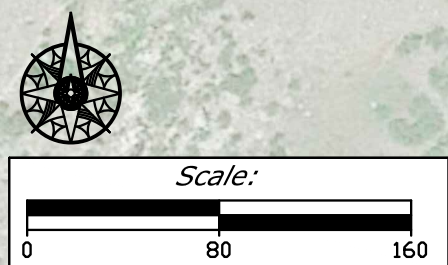
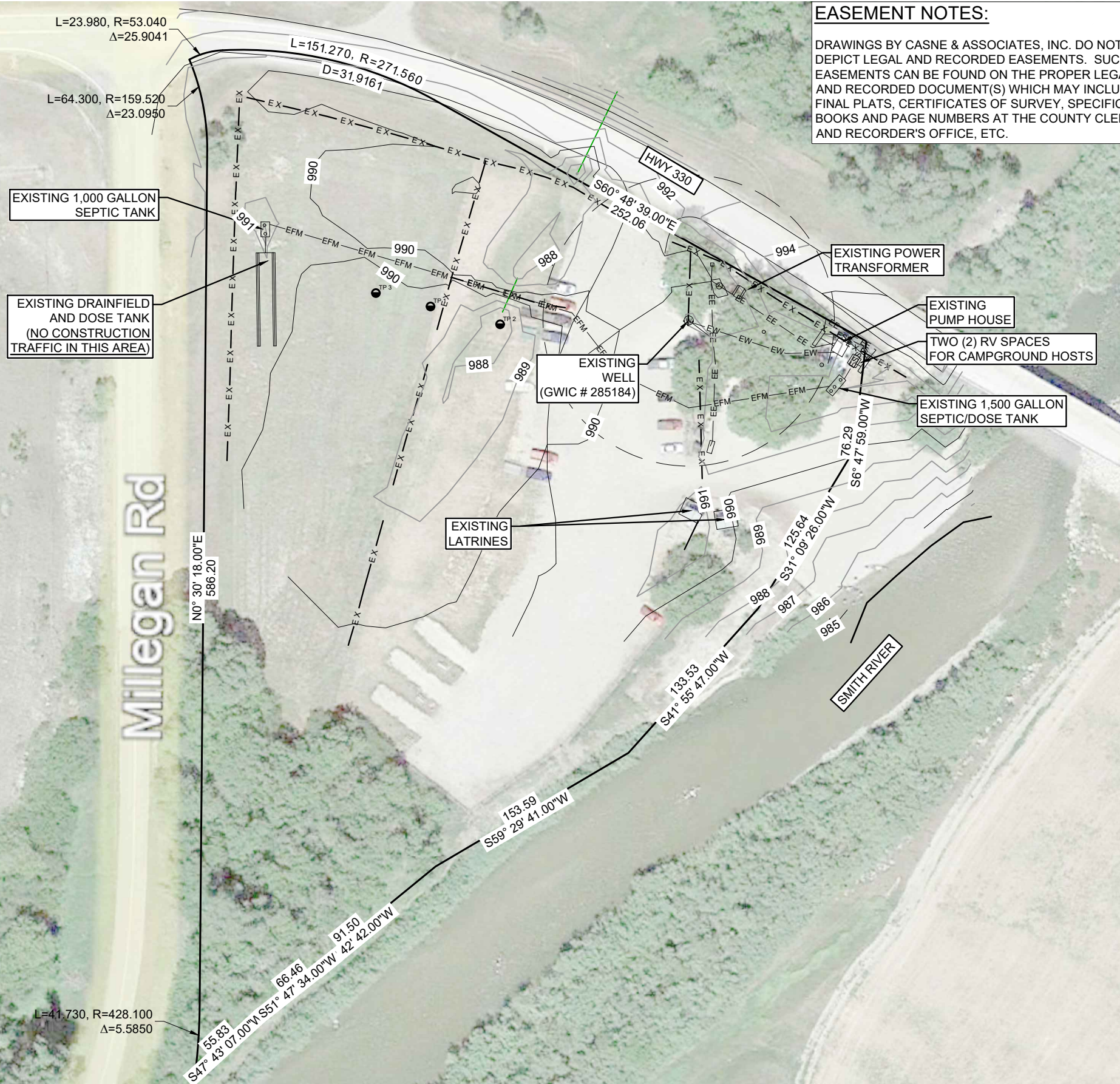
DRAWINGS BY CASNE & ASSOCIATES, INC. DO NOT DEPICT LEGAL AND RECORDED EASEMENTS. SUCH EASEMENTS CAN BE FOUND ON THE PROPER LEGAL AND RECORDED DOCUMENT(S) WHICH MAY INCLUDE FINAL PLATS, CERTIFICATES OF SURVEY, SPECIFIC BOOKS AND PAGE NUMBERS AT THE COUNTY CLERK AND RECORDER'S OFFICE, ETC.

UTILITY NOTES:

UNDERGROUND UTILITIES ARE SHOWN AS LOCATED BY THE SURVEYOR, UTILITY COMPANY REPRESENTATIVES, VARIOUS RECORDS, AND/OR SURFACE MARKINGS PLACED BY THE UTILITY COMPANY REPRESENTATIVES, NOT ACTUAL PHYSICAL LOCATIONS. ACTUAL UTILITY DEPTHS VARY AND ARE UNKNOWN. UNDERGROUND AND OVERHEAD UTILITIES SHOWN ARE APPROXIMATE ONLY AND MUST NOT BE USED TO DETERMINE THEIR PHYSICAL LOCATION ON THE GROUND. THE SHOWING OF UTILITY LOCATIONS ON THIS DRAWING DOES NOT RELIEVE ANY PERSON OR COMPANY OF THEIR RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION BY CALLING THE UTILITY NOTIFICATION CENTER AT 1-800-424-5555 (OR 811). IT MAY BE NECESSARY TO CALL A LOCATION SPECIFIC UTILITY LOCATOR. IT'S POSSIBLE THAT OTHER UNDERGROUND UTILITIES EXIST AND WERE NOT MARKED BY ANY UTILITY COMPANY REPRESENTATIVE.

EXISTING UTILITY LEGEND:

EXISTING SS LINE	— ESS — ESS —
EXISTING FORCEMAIN	— EFM — EFM —
EXISTING FENCE	— EX — EX —
EXISTING UNDERGROUND ELECTRIC	— EE — EE —
EXISTING WATER LINE	— EW — EW —
EXISTING PICNIC TABLE	
EXISTING FIRE RING	
EXISTING RV HOOKUP	
EXISTING TEST PIT	



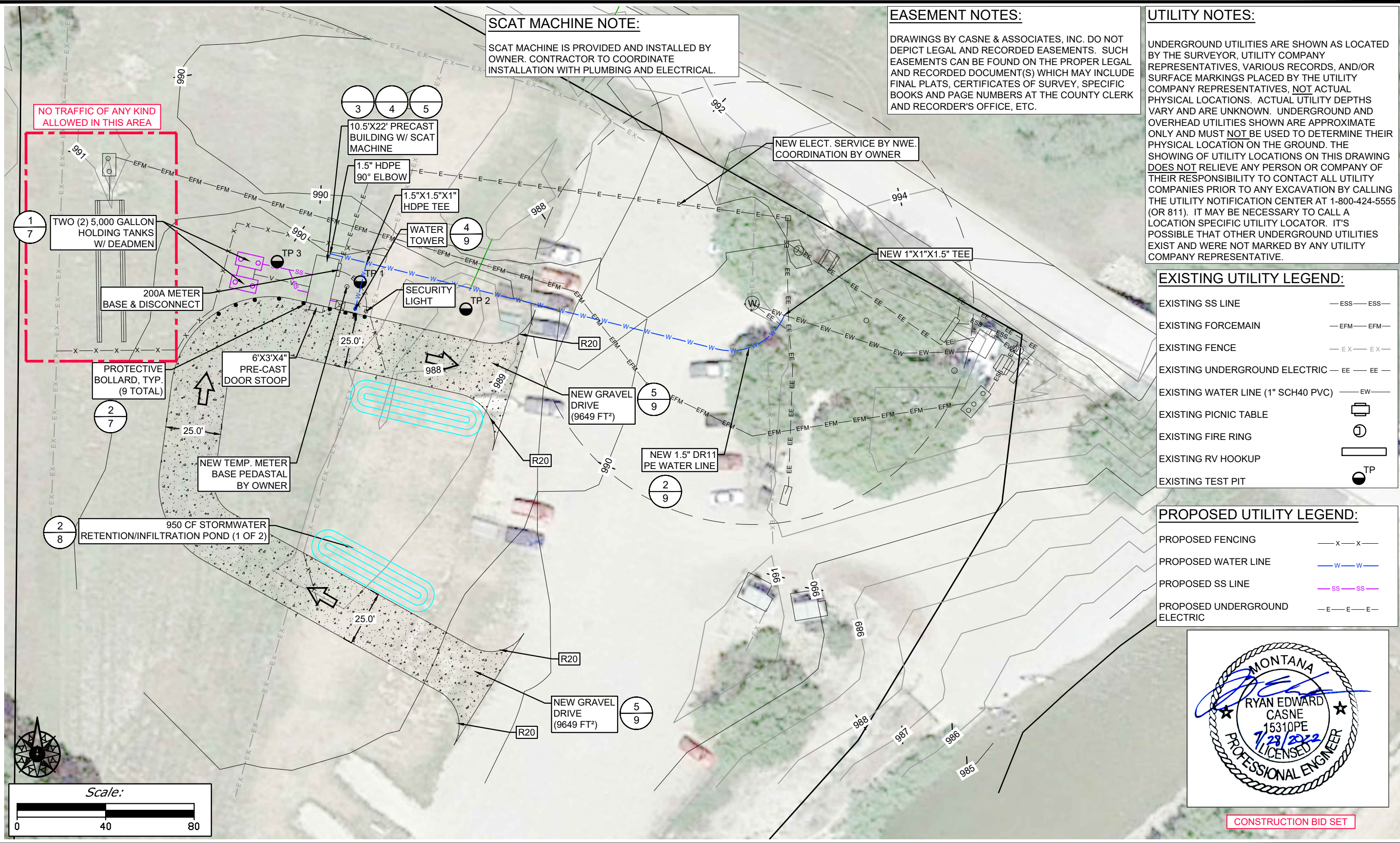
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CASNE & ASSOCIATES	7/28/2022				
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EXISTING SITE PLAN & IMPROVEMENTS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: 1 of 10



SCAT MACHINE NOTE:
 SCAT MACHINE IS PROVIDED AND INSTALLED BY OWNER. CONTRACTOR TO COORDINATE INSTALLATION WITH PLUMBING AND ELECTRICAL.

EASEMENT NOTES:
 DRAWINGS BY CASNE & ASSOCIATES, INC. DO NOT DEPICT LEGAL AND RECORDED EASEMENTS. SUCH EASEMENTS CAN BE FOUND ON THE PROPER LEGAL AND RECORDED DOCUMENT(S) WHICH MAY INCLUDE FINAL PLATS, CERTIFICATES OF SURVEY, SPECIFIC BOOKS AND PAGE NUMBERS AT THE COUNTY CLERK AND RECORDER'S OFFICE, ETC.

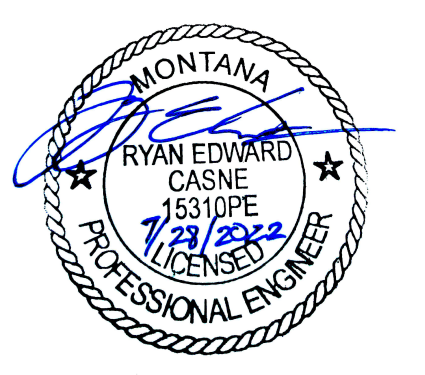
UTILITY NOTES:
 UNDERGROUND UTILITIES ARE SHOWN AS LOCATED BY THE SURVEYOR, UTILITY COMPANY REPRESENTATIVES, VARIOUS RECORDS, AND/OR SURFACE MARKINGS PLACED BY THE UTILITY COMPANY REPRESENTATIVES, NOT ACTUAL PHYSICAL LOCATIONS. ACTUAL UTILITY DEPTHS VARY AND ARE UNKNOWN. UNDERGROUND AND OVERHEAD UTILITIES SHOWN ARE APPROXIMATE ONLY AND MUST NOT BE USED TO DETERMINE THEIR PHYSICAL LOCATION ON THE GROUND. THE SHOWING OF UTILITY LOCATIONS ON THIS DRAWING DOES NOT RELIEVE ANY PERSON OR COMPANY OF THEIR RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION BY CALLING THE UTILITY NOTIFICATION CENTER AT 1-800-424-5555 (OR 811). IT MAY BE NECESSARY TO CALL A LOCATION SPECIFIC UTILITY LOCATOR. IT'S POSSIBLE THAT OTHER UNDERGROUND UTILITIES EXIST AND WERE NOT MARKED BY ANY UTILITY COMPANY REPRESENTATIVE.

EXISTING UTILITY LEGEND:

EXISTING SS LINE	—ESS—ESS—
EXISTING FORCEMAIN	—EFM—EFM—
EXISTING FENCE	—EX—EX—
EXISTING UNDERGROUND ELECTRIC	—EE—EE—
EXISTING WATER LINE (1" SCH40 PVC)	—EW—
EXISTING PICNIC TABLE	
EXISTING FIRE RING	
EXISTING RV HOOKUP	
EXISTING TEST PIT	● TP

PROPOSED UTILITY LEGEND:

PROPOSED FENCING	—x—x—
PROPOSED WATER LINE	—w—w—
PROPOSED SS LINE	—ss—ss—
PROPOSED UNDERGROUND ELECTRIC	—E—E—E—



CONSTRUCTION BID SET

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HUMAN WASTE DISPOSAL IMPROVEMENTS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: 2 of 10

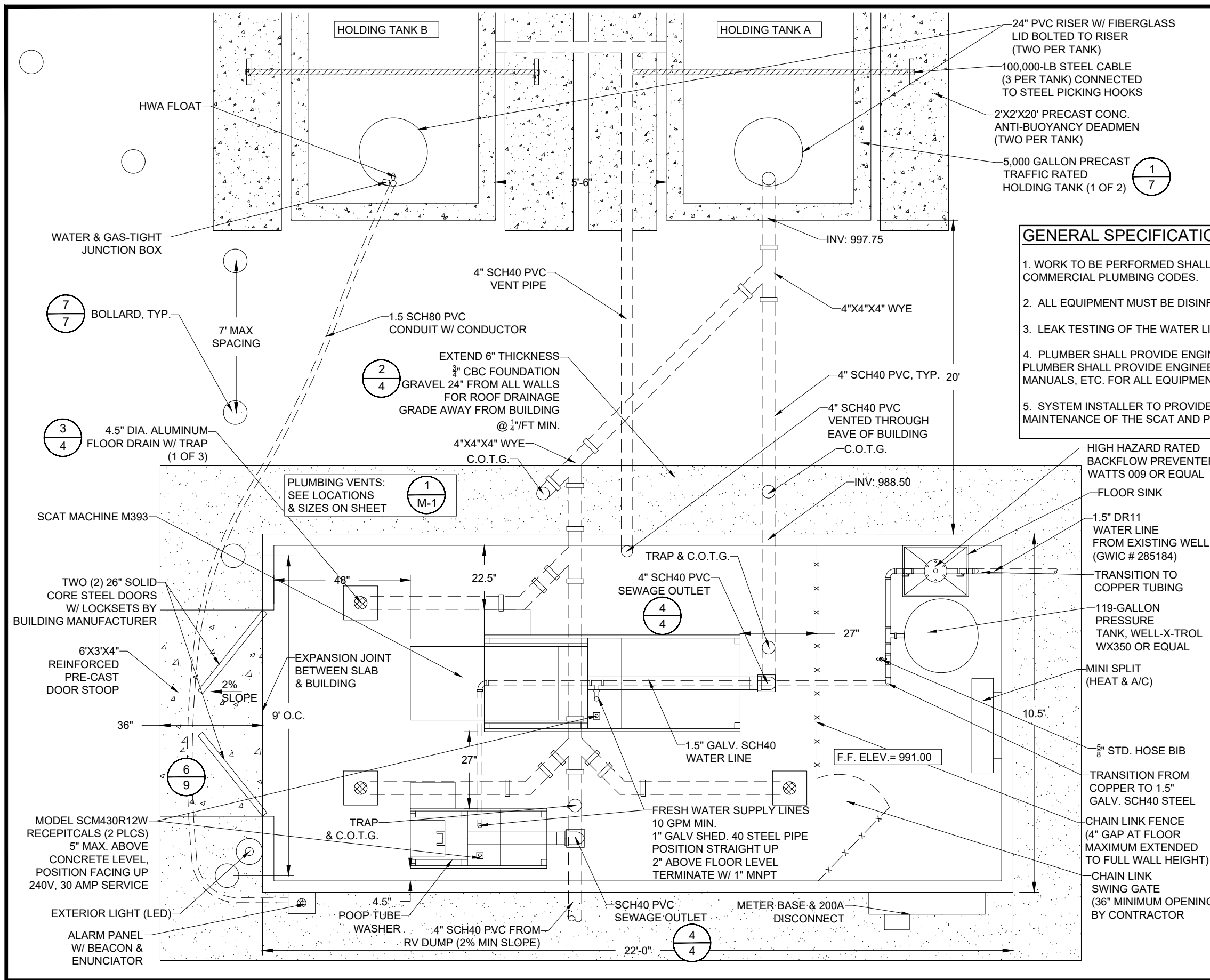


CONSTRUCTION BID SET

- GENERAL SPECIFICATIONS & CONSTRUCTION NOTES:**
1. WORK TO BE PERFORMED SHALL BE IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL AND COMMERCIAL PLUMBING CODES.
 2. ALL EQUIPMENT MUST BE DISINFECTED IN ACCORDANCE WITH CURRENT AWWA AND UPC PROCEDURES.
 3. LEAK TESTING OF THE WATER LINE PIPING SHALL BE PERFORMED PER AWWA AND UPC PROCEDURES.
 4. PLUMBER SHALL PROVIDE ENGINEER WITH AS-BUILT DRAWINGS UPON COMPLETION OF INSTALLATION. PLUMBER SHALL PROVIDE ENGINEER WITH MANUFACTURER'S DATA SHEETS, WARRANTY SLIPS, OWNER'S MANUALS, ETC. FOR ALL EQUIPMENT INSTALLED EXCEPT FOR THE SCAT AND PT MACHINES.
 5. SYSTEM INSTALLER TO PROVIDE OWNER INSTRUCTIONS & TRAINING ON PROPER OPERATION AND MAINTENANCE OF THE SCAT AND PT SYSTEM.

- OWNER SUPPLIED:**
1. SCAT MACHINE & POOP TUBE WASHER SUPPLIED BY OWNER, INSTALLED COMPLETE BY CONTRACTOR.
 2. NEW ELECTRICAL SERVICE (METER BASE) SUPPLIED BY OWNER, INSTALLED BY CONTRACTOR.

- NOTES:**
1. ALL PIPE SHALL BE SUPPORTED TO PREVENT VIBRATION CAUSED BY WATER SURGE, AND THE PIPE SHALL BE INSTALLED 18" ABOVE THE FLOOR. FACILITY PIPING SHALL BE COPPER FOR USE WITH POTABLE WATER UNLESS NOTED OTHERWISE.
 2. CONTRACTOR TO VERIFY DIMENSIONS OF FITTINGS, VALVES, METERS AND APPURTENANCES PRIOR TO DETERMINING PIPE THROUGH FLOOR LOCATIONS.
 3. ALL FLOOR PERFORATIONS SHALL BE FILLED WITH EXPANSION JOINT MATERIAL CONTINUOUS AROUND PIPE THROUGH FLOOR.
 4. CONTRACTOR TO SUBMIT PRODUCT LITERATURE AND BUILDING SHOP DRAWINGS TO ENGINEER PRIOR TO PROCUREMENT & CONSTRUCTION.
 5. THE FACILITY SHALL BE GRADED AROUND THE BUILDING IN A MANNER TO PREVENT FLOODING.
 6. INSTALL A KIDDIE 4 LB ABC PROLINE MULTIPURPOSE FIRE EXTINGUISHER INSIDE A FIRE EXTINGUISHER CABINET INSIDE THE BUILDING AT A LOCATION THAT IS EASILY ACCESSIBLE.
 7. THE MAXIMUM WORKING PRESSURE SHALL BE CLEARLY INDICATED ON EACH PRESSURE TANK
 8. PIPING MUST BE PRESSURE AND LEAK TESTED IN ACCORDANCE WITH AWWA STANDARDS.
 9. ELECTRICAL SERVICE APPLICATION & COORDINATION BY CONTRACTOR & OWNER

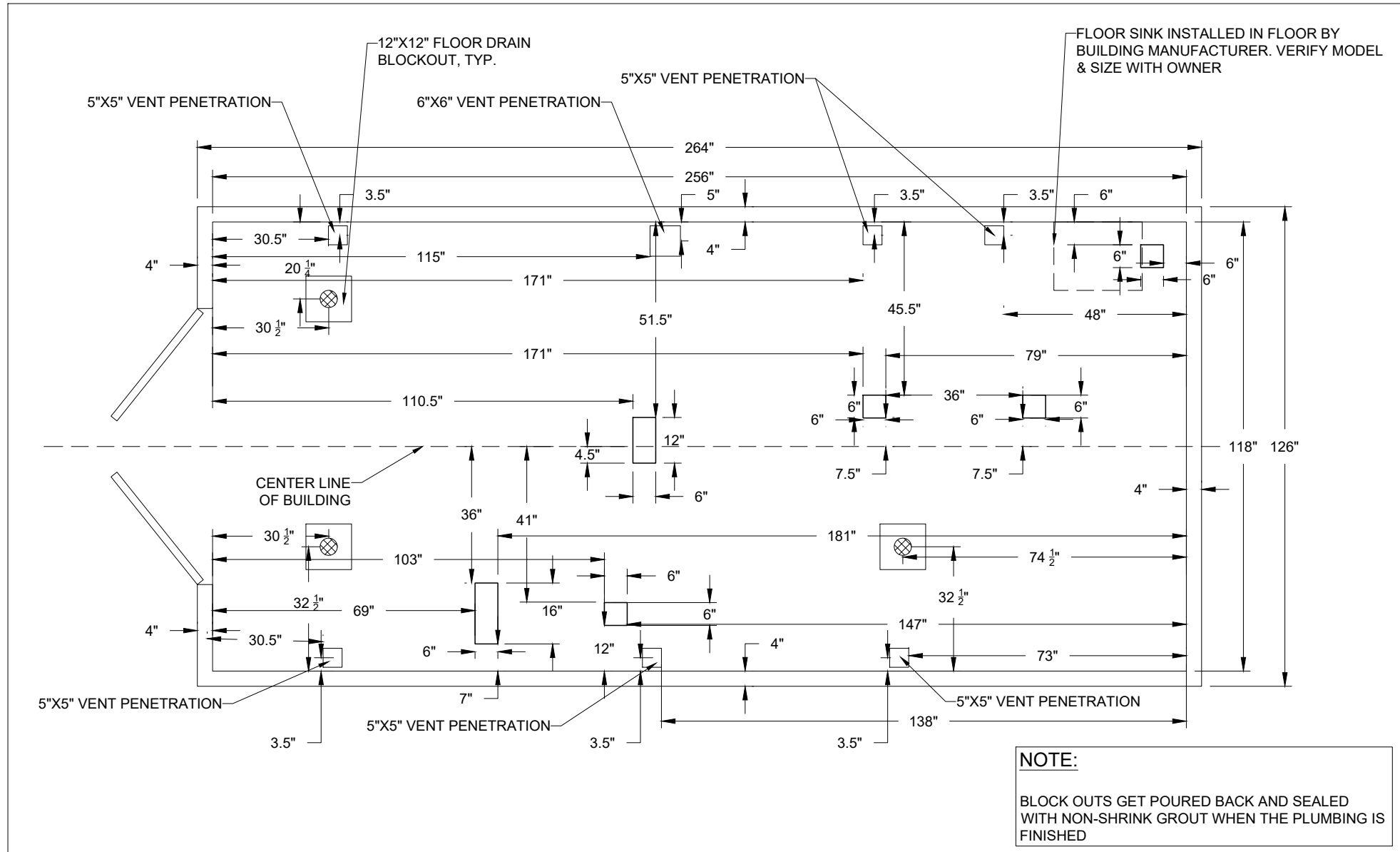


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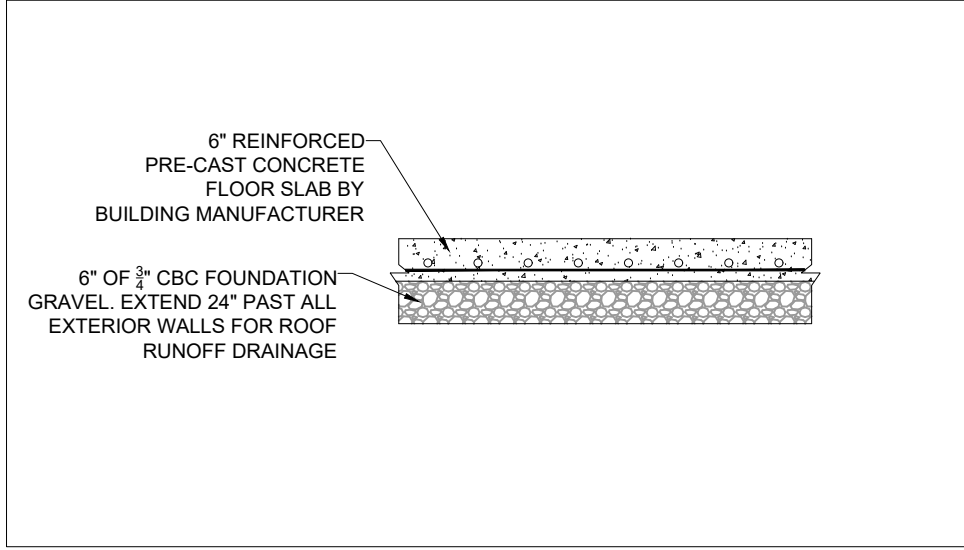
HUMAN WASTE DISPOSAL BUILDING - PLUMBING
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: 3 of 10

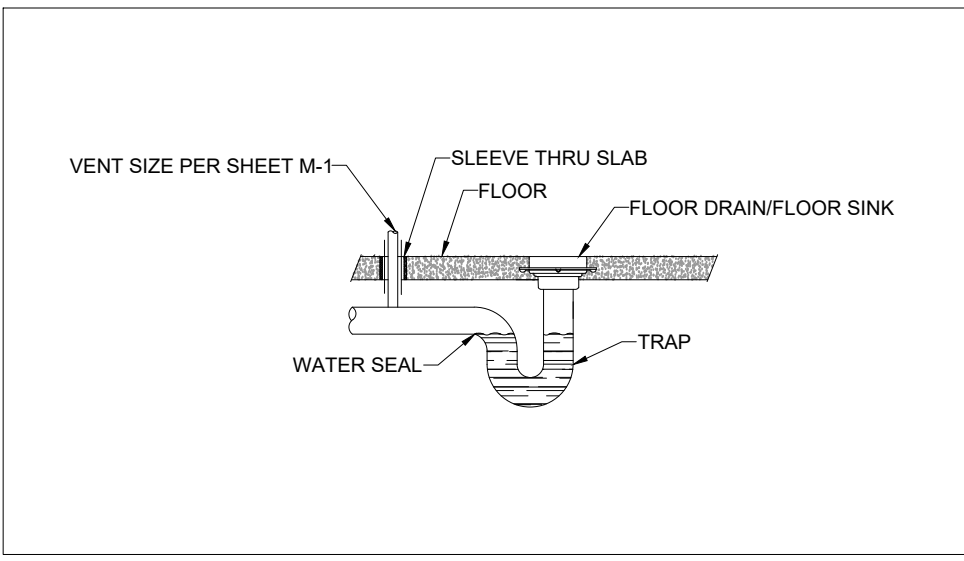


1 FLOOR PENETRATIONS BY MANUFACTURER
4 PLAN VIEW, NOT TO SCALE

NOTE:
BLOCK OUTS GET POURED BACK AND SEALED WITH NON-SHRINK GROUT WHEN THE PLUMBING IS FINISHED



2 FOUNDATION DETAIL
4 CROSS SECTION, NOT TO SCALE



3 TRAP DETAIL
4 CROSS SECTION, NOT TO SCALE



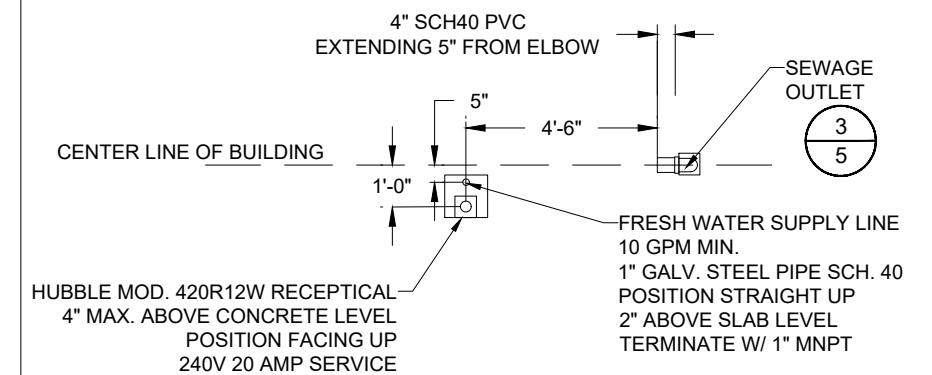
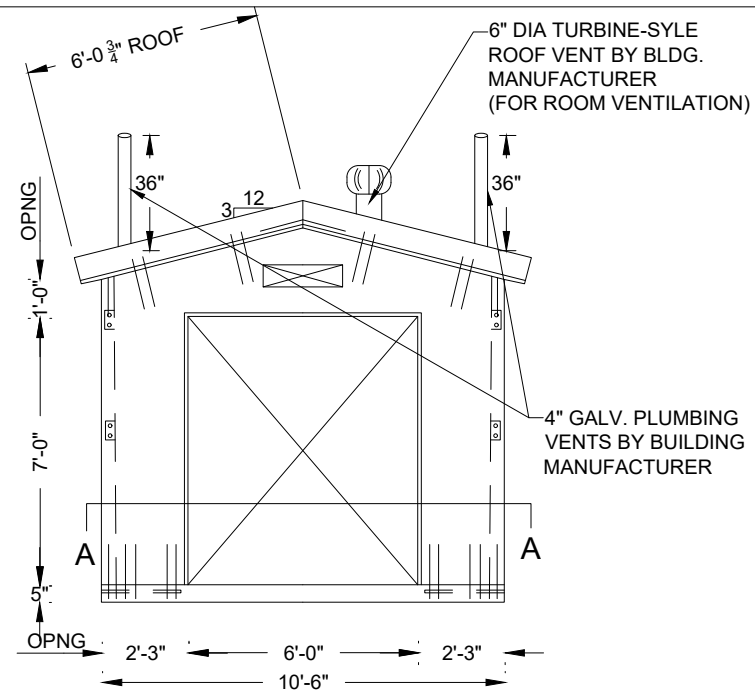
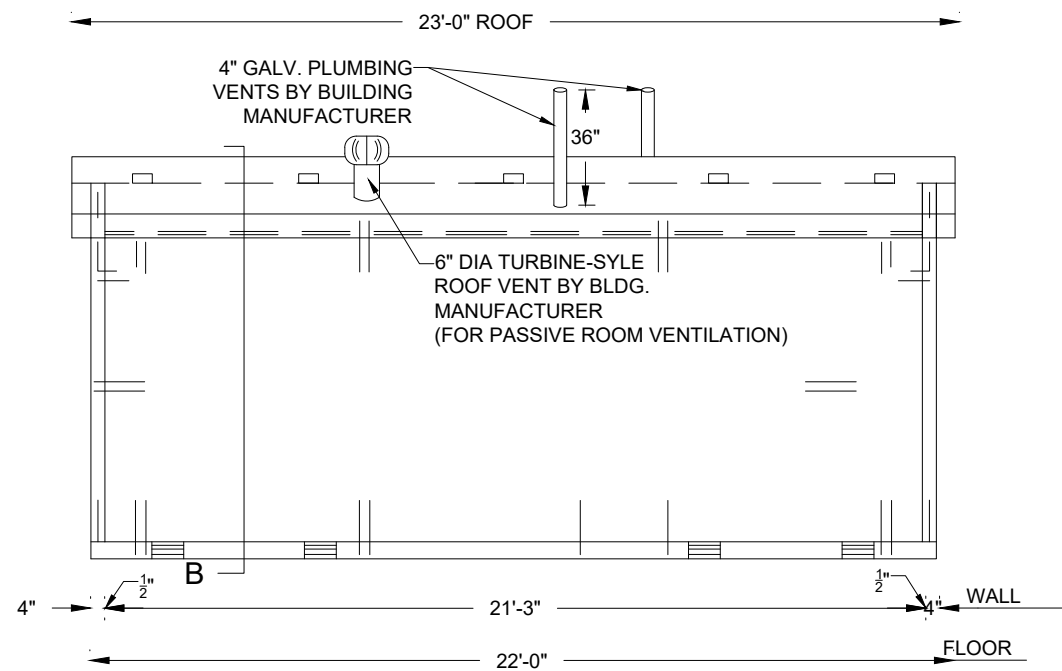
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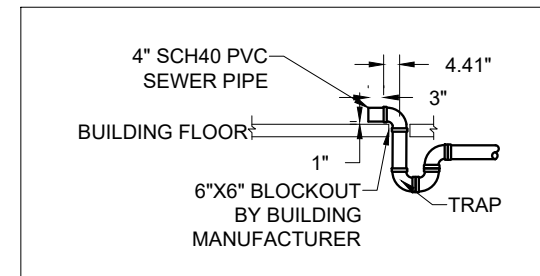
HUMAN WASTE DISPOSAL BUILDING - FLOOR BLOCKOUTS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: 4 of 10

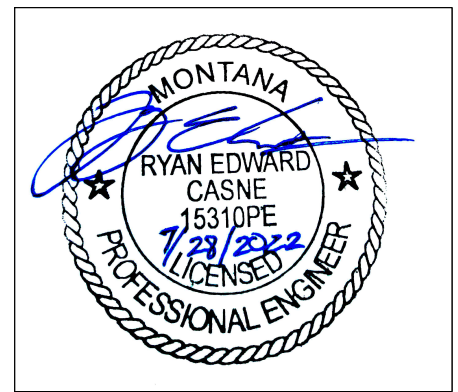
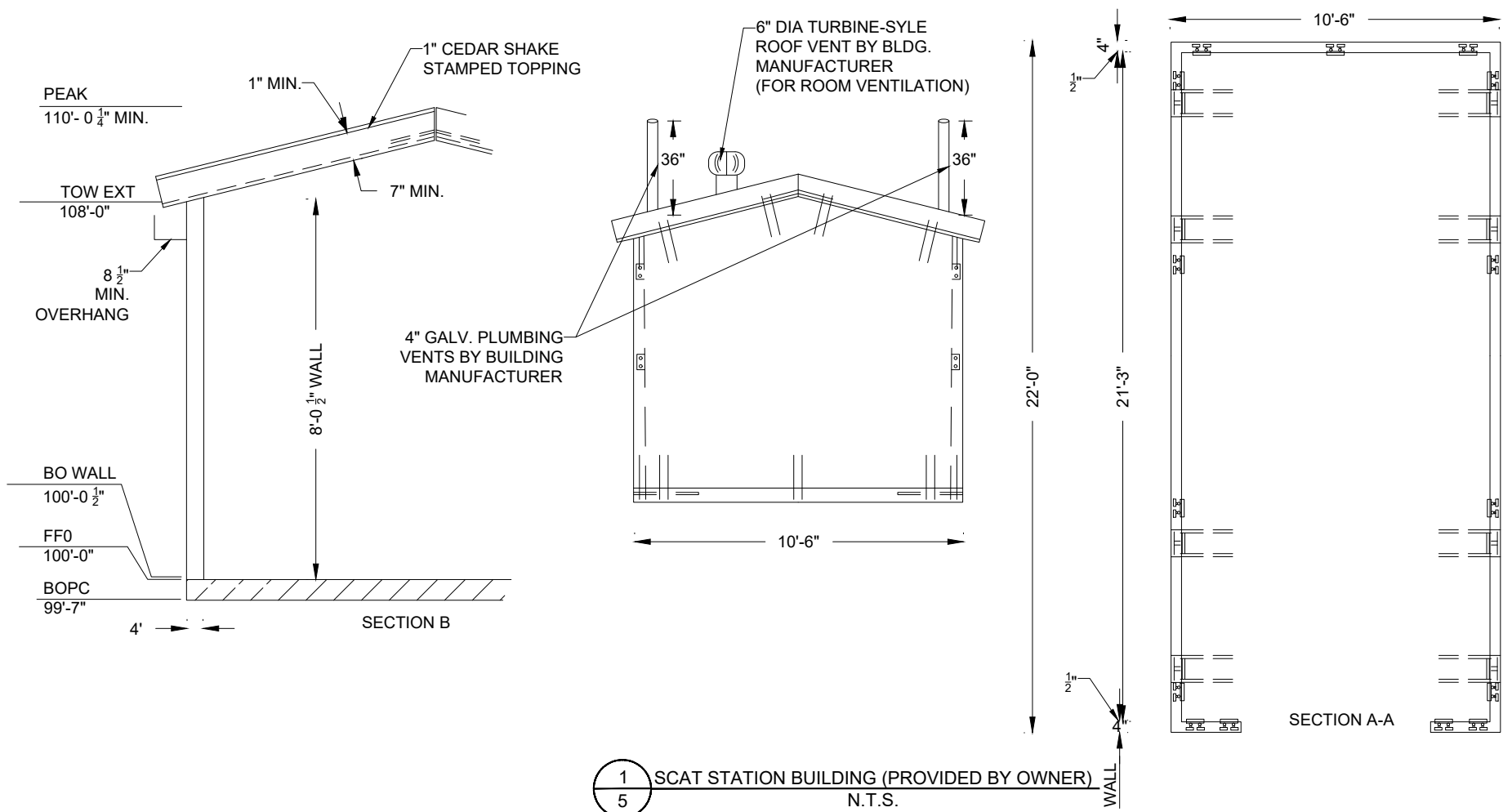


2 SCAT MACHINE CONNECTION SCHEMATIC
5 N.T.S.

WORK NOTE:
PRE-CAST BUILDING IS PART OF THIS CONTRACT AND PLAN SET. ALL PROCUREMENT, INSTALLATION, FABRICATION, AND BUILDING MODIFICATIONS BY CONTRACTOR



3 SCAT MACHINE WASTE PLUMBING DETAIL
5 N.T.S.



CONSTRUCTION BID SET

CASNE & ASSOCIATES	7/28/2022				
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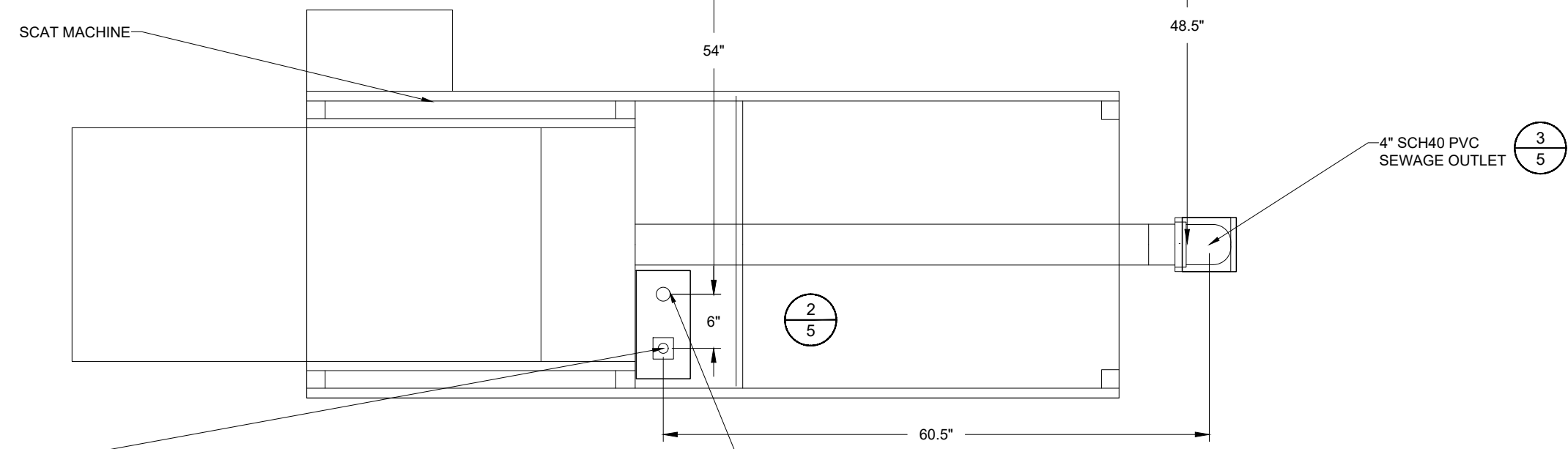


HUMAN WASTE DISPOSAL BUILDING - DETAILS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

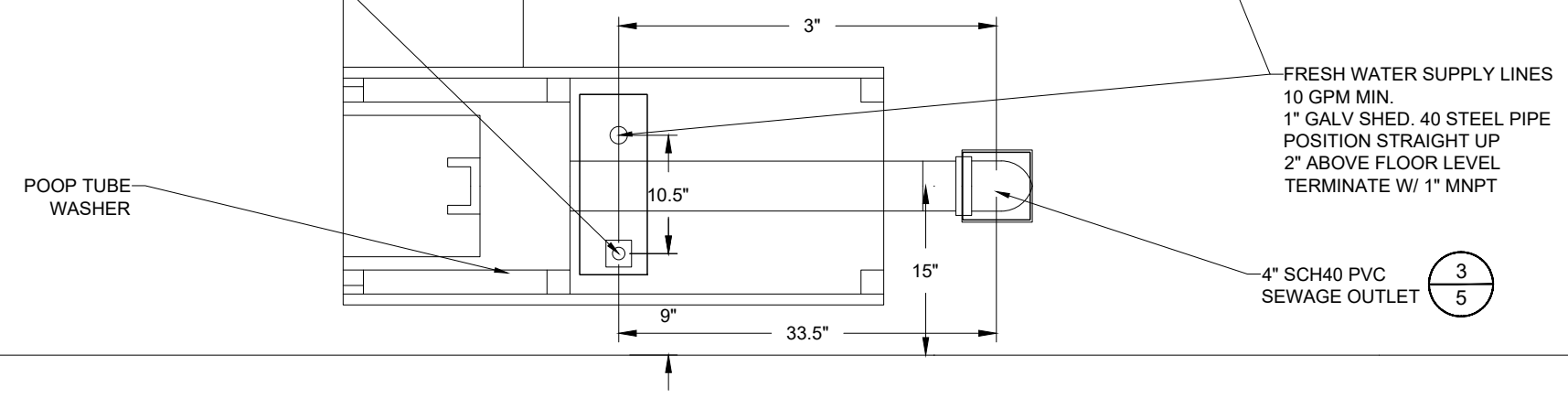
SHEET: 5 of 10



CONSTRUCTION BID SET



MODEL SCM430R12W
RECEPICALS (2 PLCS)
5" MAX. ABOVE
CONCRETE LEVEL,
POSITION FACING UP
240V, 30 AMP SERVICE



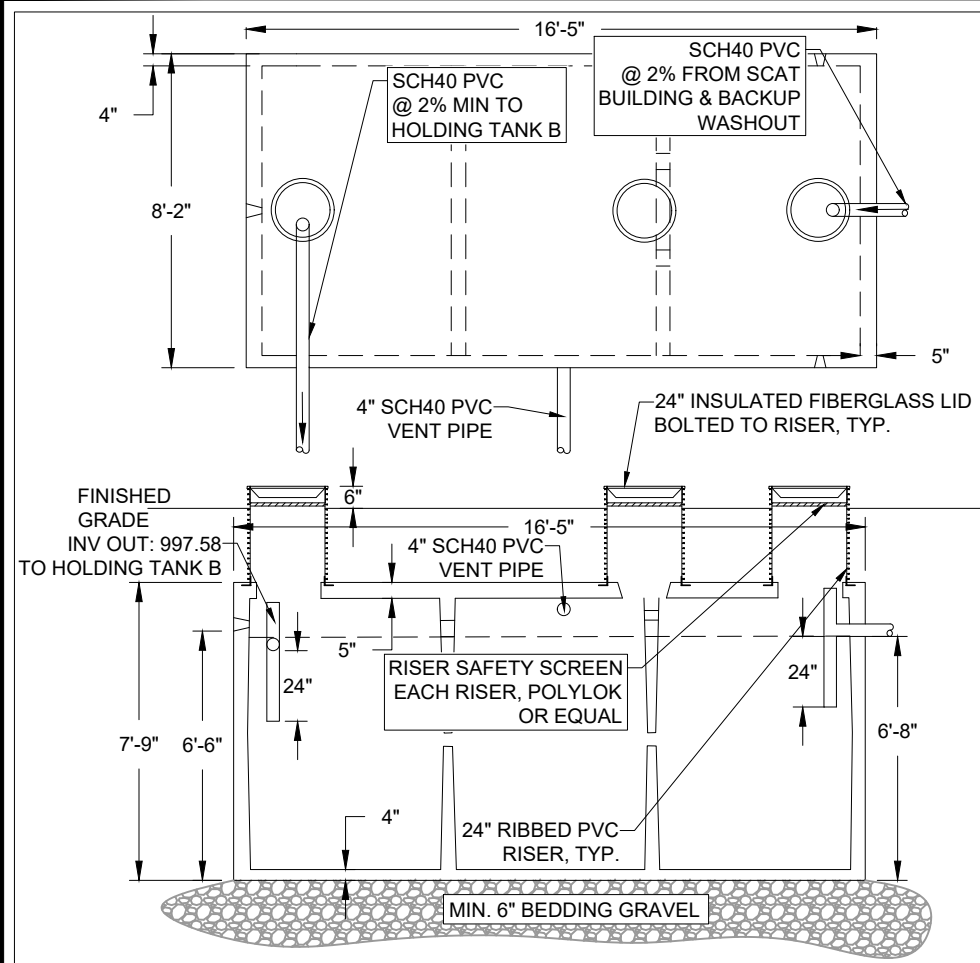
FRESH WATER SUPPLY LINES
10 GPM MIN.
1" GALV SHED. 40 STEEL PIPE
POSITION STRAIGHT UP
2" ABOVE FLOOR LEVEL
TERMINATE W/ 1" MNPT

CASNE & ASSOCIATES	7/28/2022				
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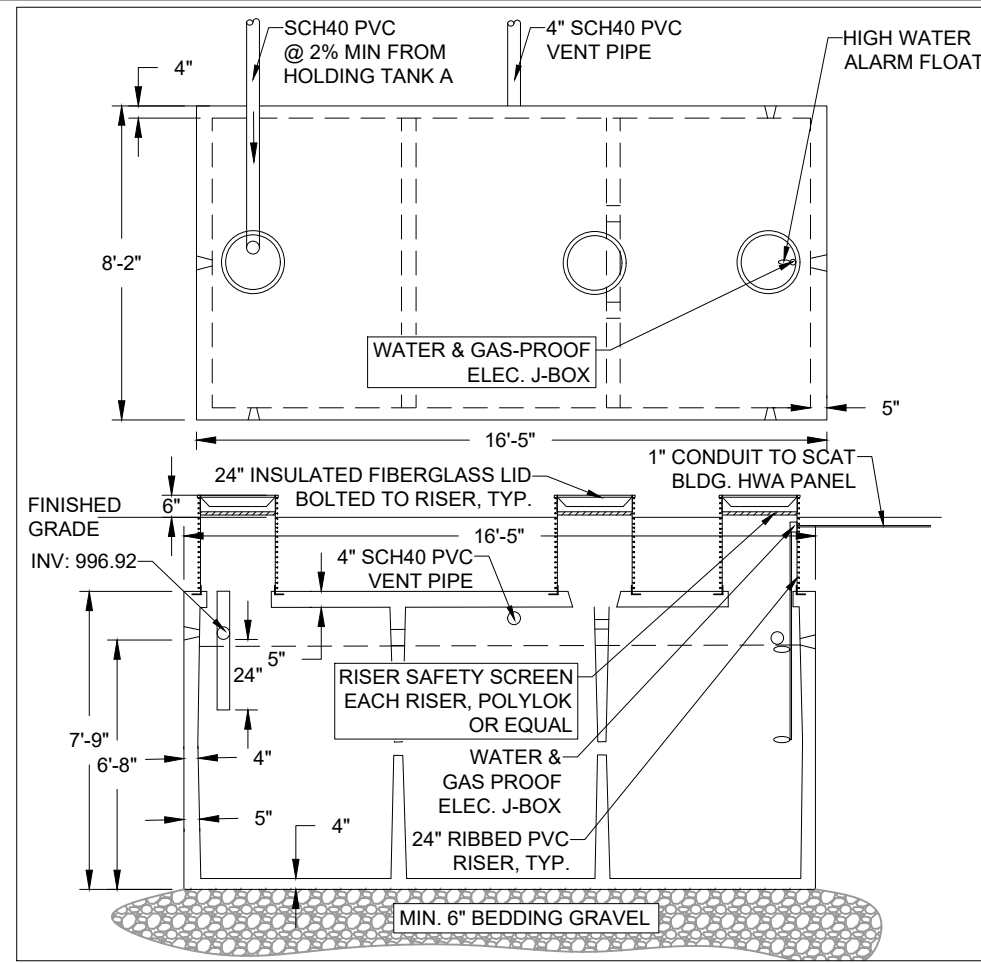


SCAT MACHINE CONNECTIONS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

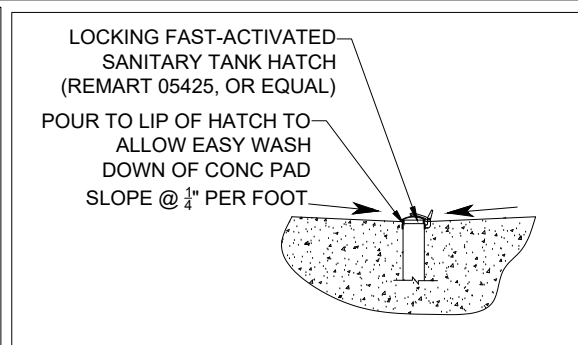
SHEET: 6 of 10



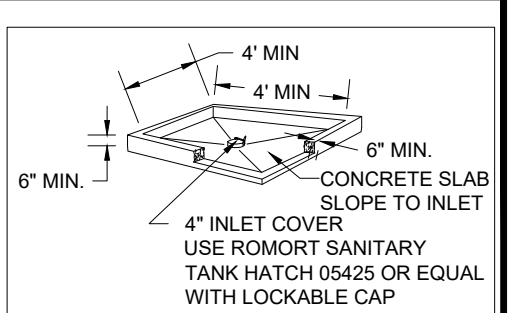
1 5,000 GALLON HOLDING TANK A
MONOLITHIC, N.T.S.



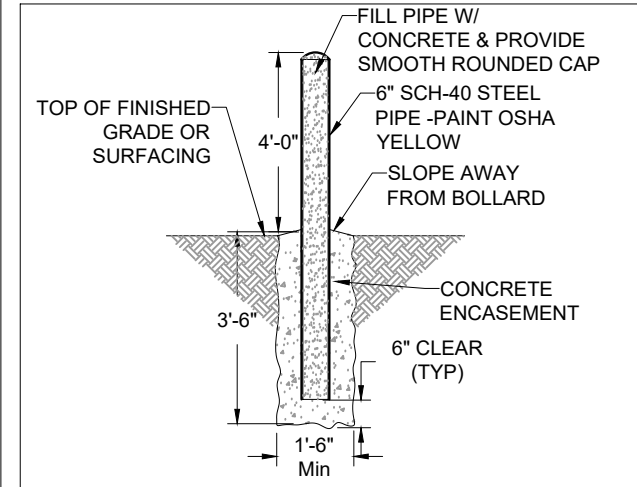
2 5,000 GALLON HOLDING TANK B
MONOLITHIC, N.T.S.



5 BACKUP WASHOUT SYSTEM
7 N.T.S.

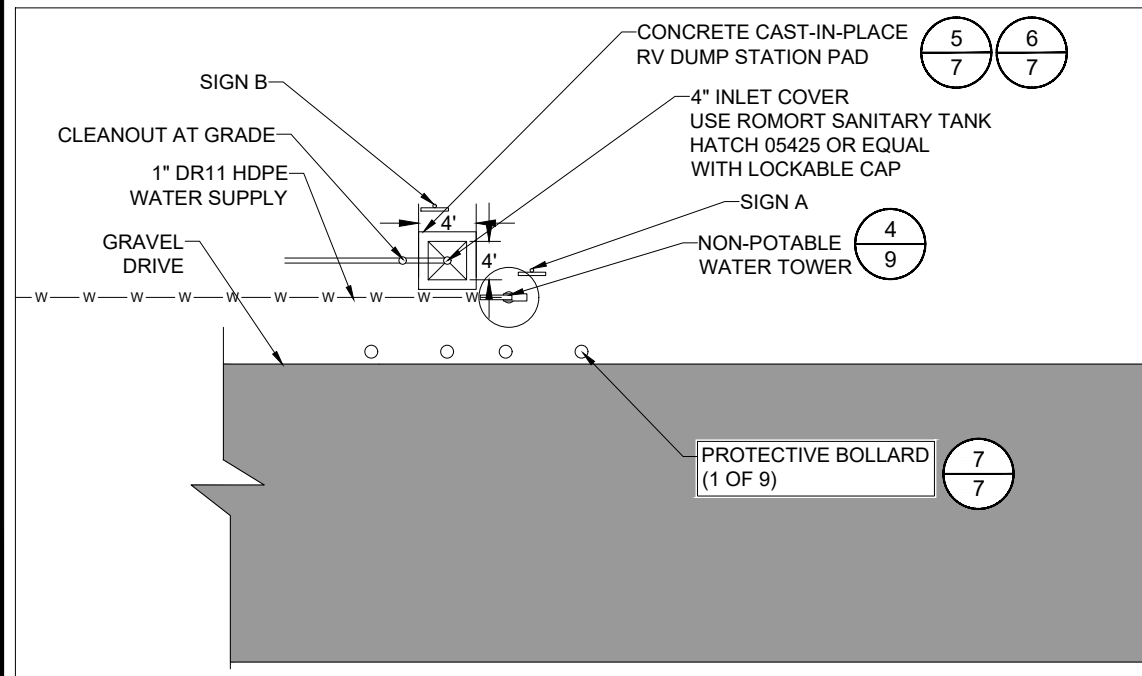


6 BACKUP WASHOUT SYSTEM
7 N.T.S.

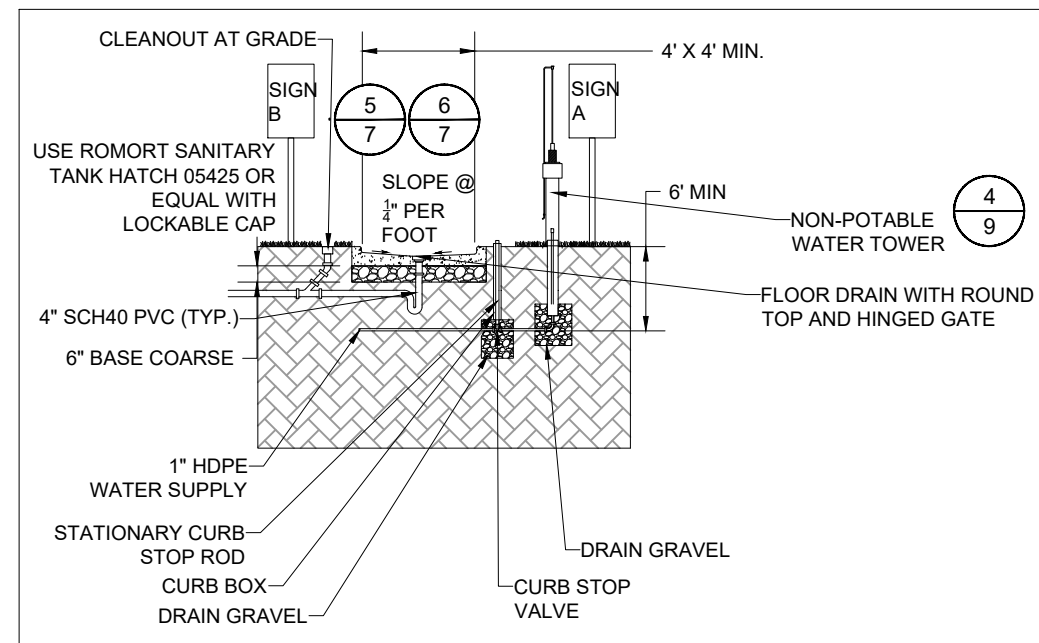


7 BOLLARD (1 OF 9)
7 N.T.S.

CONSTRUCTION BID SET



3 BACKUP WASHOUT SYSTEM
7 N.T.S.



4 BACKUP WASHOUT SYSTEM
7 N.T.S.



SIGN A:



SIGN FACES PROVIDED BY OWNER, INSTALL COMPLETE W/ POSTS BY CONTRACTOR

SIGN B:

NOT FOR RV OR CAMPER DUMPING. THIS IS A BACKUP HUMAN WASTE WASHOUT SYSTEM ONLY.

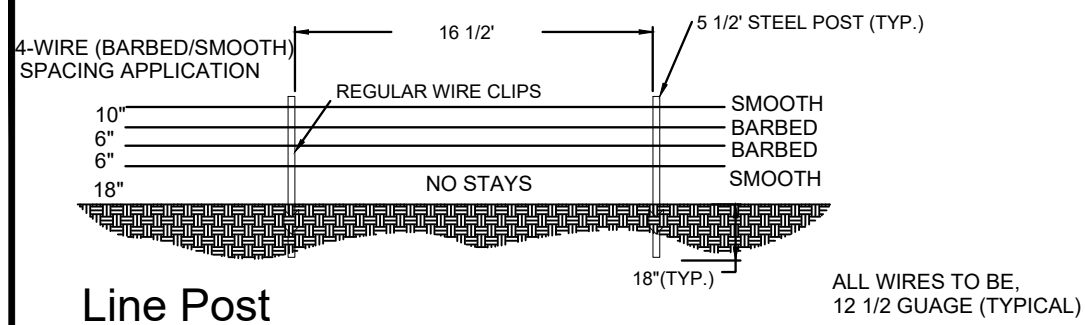
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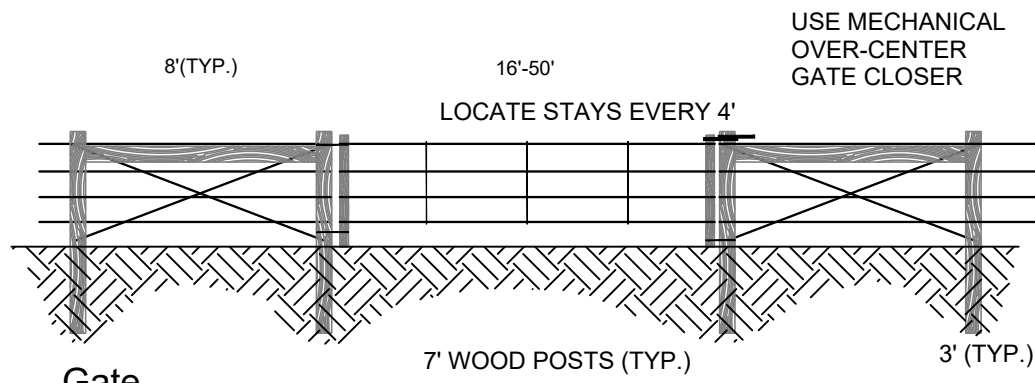
MONTANA FISH, WILDLIFE & PARKS

WATER & SEWER DETAILS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: 7 of 10



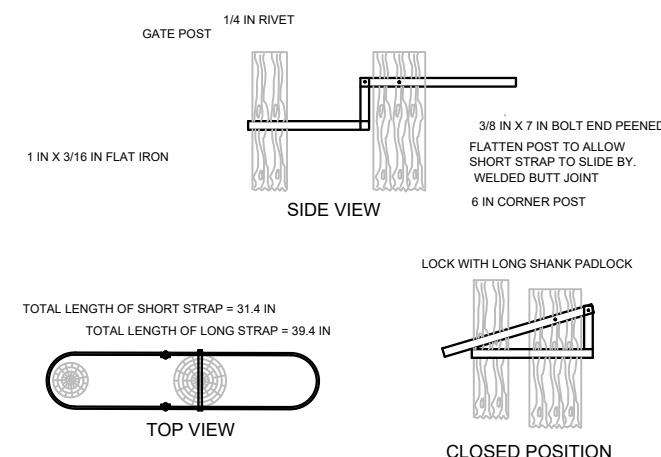
Line Post



Gate

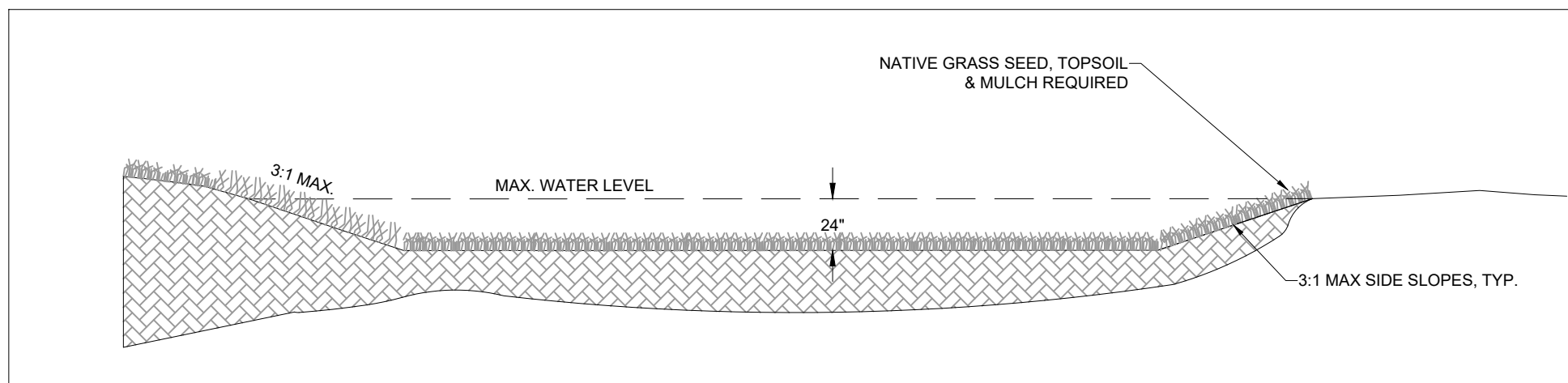
* ALL WIRE TO BE DOUBLE STRAND SMOOTH.
NOT TO SCALE

3
8 FENCING & GATE DETAILS
N.T.S.

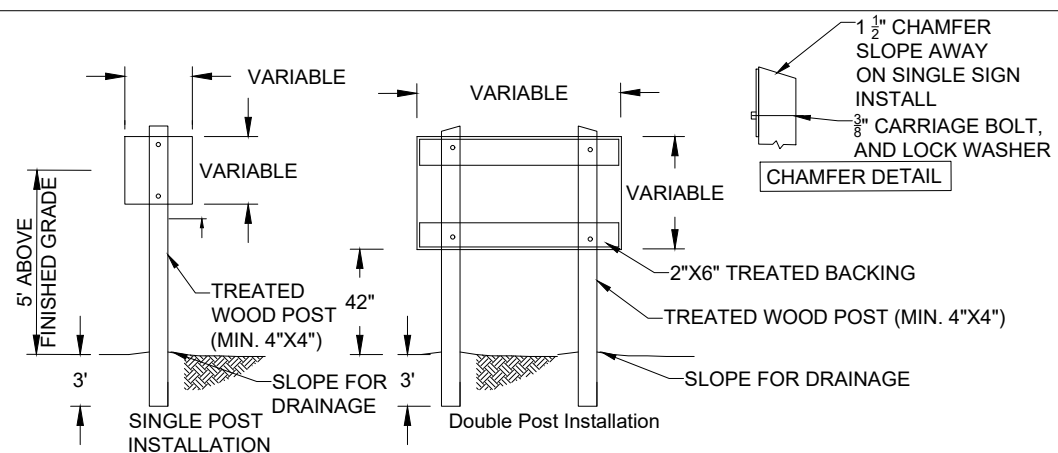


Gate Closure Detail

Not To Scale



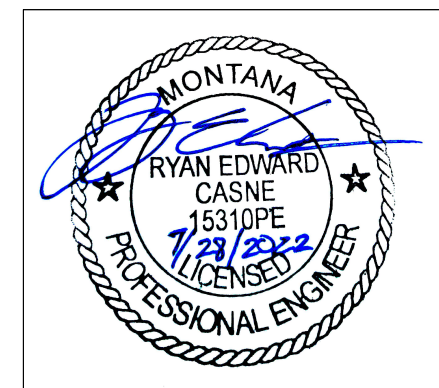
2
8 STORM RETENTION/ INFILTRATION POND
N.T.S.



NOTES:

- OWNER TO PROVIDE ALL SIGN FACES, CONTRACTOR TO INSTALL COMPLETE W/ POSTS & HARDWARE.
- USE PRESSURE TREATED TIMBERS FOR ALL SIGN POSTS. NEED BREAK-AWAY HOLES (OR DEVICE) FOR LARGER POSTS.
- COAT ALL POSTS WITH PRESERVATIVE FOR ALL DRILLED HOLES AND CUT SURFACES.
- USE CADMIUM PLATED OR GALVANIZED STEEL FOR ALL BOLTS, NUTS & WASHERS.
- PLACE BOLTS TO NOT INTERFERE WITH SIGN LETTERING. PAINT BOLT HEADS TO MATCH SIGN.
- CENTER SINGLE POST PANELS TO POST, OVERHANG PANELS 3\"/>

1
8 SIGN POST MOUNTING DETAIL
N.T.S.



CONSTRUCTION BID SET

CASNE & ASSOCIATES	7/28/2022
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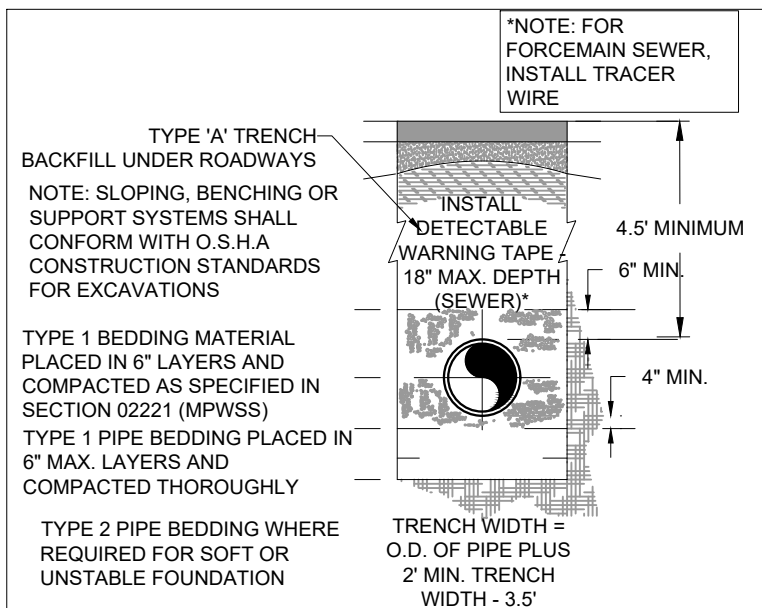
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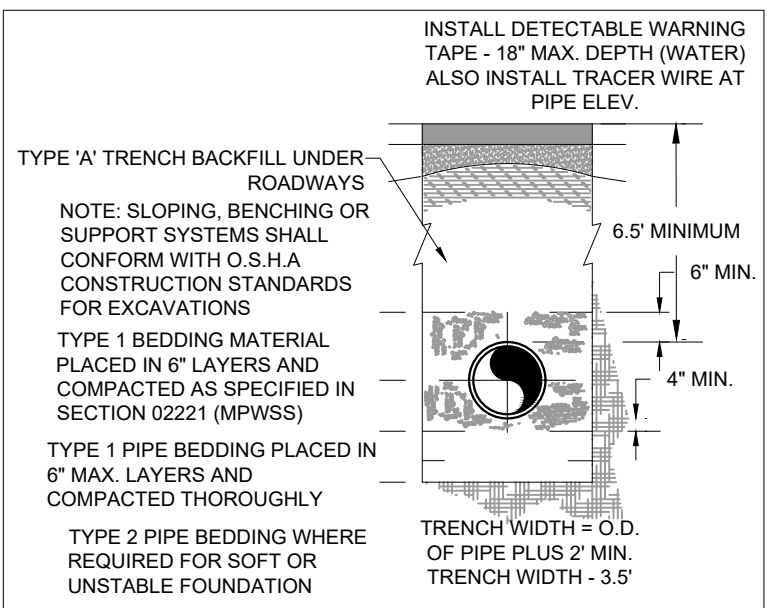
**MONTANA FISH,
WILDLIFE & PARKS**

FENCING & GATE DETAILS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: **8**
of
10



1 SEWER TRENCH
9 N.T.S.



2 WATER TRENCH
9 N.T.S.

CONSTRUCTION NOTES:

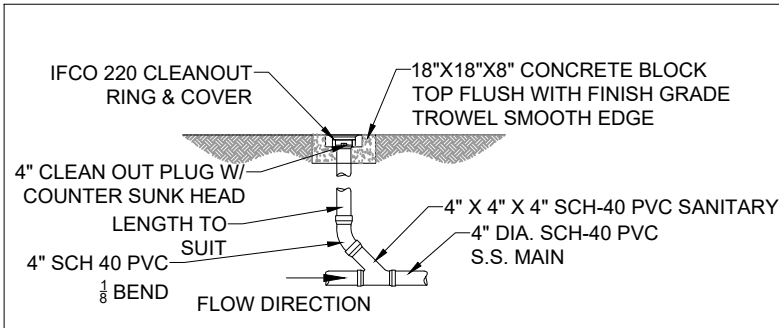
- ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH "MONTANA PUBLIC WORKS SPECIFICATIONS". SIXTH EDITION (MPW)
- BEFORE DIGGING, CALL 811 FOR LOCATION OF EXISTING UTILITIES. THE LOCATION OF UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND WERE DERIVED PRIMARILY FROM AS-BUILT DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF PRIVATE UTILITIES WITHIN THE PROJECT AREA, NOT LOCATED BY UTILITY COMPANIES.
- ALL DISTURBED AREAS AND AREAS DESIGNATED IN THE PLANS FOR SEEDING SHALL BE TOPSOILED, SEEDED, MULCHED, AND FERTILIZED (SEE MPW SEEDING SPECIFICATIONS). SALVAGED TOPSOIL SHALL BE SPREAD EVENLY OVER DISTURBED AREAS. SEED MIX SHALL BE AN APPROVED LAWN MIX OR NATIVE DRYLAND MIX AS APPROPRIATE TO RESTORE THE GRASS TO CURRENT CONDITION.
- GRAVITY SEWER PIPING SHALL BE 4" SCHEDULE 40 PVC.
- CRUSHED BASE COURSE SHALL BE 1" MINUS PER MPW SPECIFICATIONS.
- ALL REQUIRED COMPACTION TESTING SHALL BE PROVIDED BY AN INDEPENDENT TESTING FIRM AT THE EXPENSE OF THE CONTRACTOR, COMPACTION TESTING FREQUENCIES ARE AS FOLLOWS:

LOCATION/MATERIAL	# OF TESTS
SUBGRADE FOR GRAVEL SURFACING (3 LOCATIONS)	2
CRUSHED TOP SURFACING (3 LOCATIONS)	2

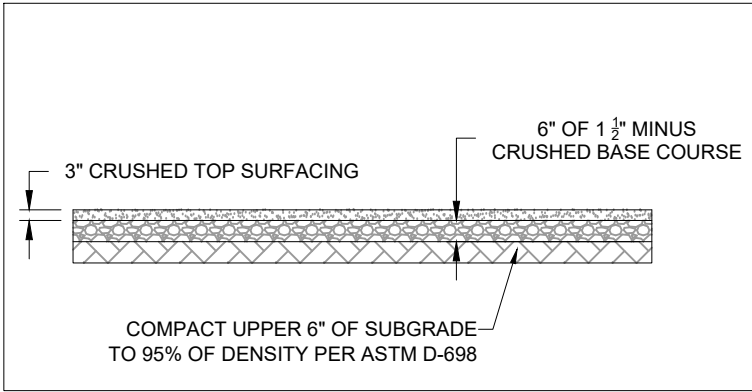
7. CRUSHED TOP SURFACING FOR GRAVEL SURFACING SHALL MEET THE FOLLOWING SPECIFICATIONS INCLUDING BINDER OR BLENDING MATERIAL:

SIEVE SIZE	% PASSING
3/4" SIEVE	100%
NO. 4 SIEVE	40-80%
NO. 10 SIEVE	25-60%
NO. 200 SIEVE	8-20%

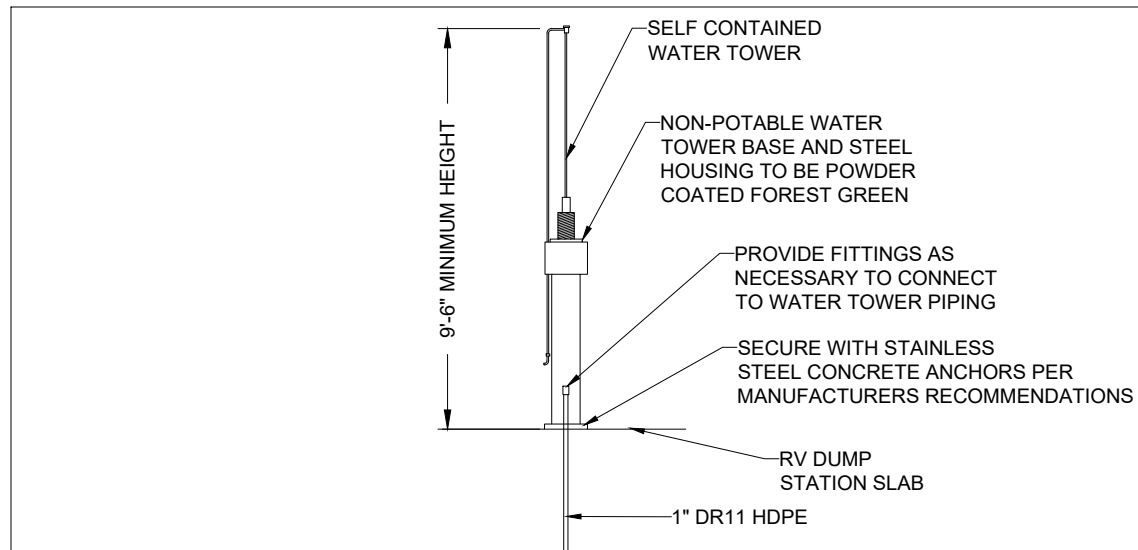
IN ADDITION, THE PORTION PASSING THE NO. 200 SIEVE CANNOT EXCEED 2/3 OF THE PORTION PASSING THE #40 SIEVE; THE MAXIMUM LIQUID LIMIT FOR THE MATERIAL PASSING THE NO. 40 SIEVE SHALL NOT EXCEED 35, WHILE THE PLASTICITY INDEX CAN VARY BETWEEN 3 AND 10; THE WEAR FACTOR SHALL NOT EXCEED 50% AT 500 REVOLUTIONS; AND AT LEAST 20% OF THE AGGREGATE RETAINED ON NO. 4 SIEVE SHALL HAVE A FRACTURED FACE.



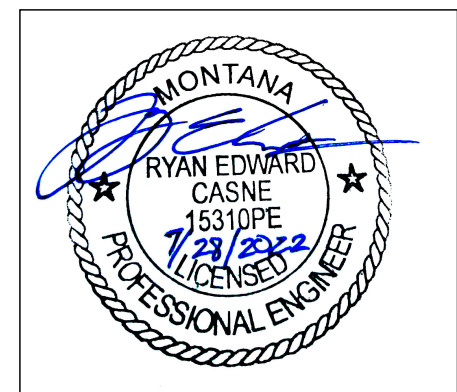
3 SEWER CLEANOUT TO GRADE (COTG)
9 N.T.S.



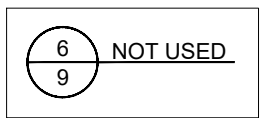
5 GRAVEL SURFACING
9 N.T.S.



4 WATER TOWER
9 N.T.S.



CONSTRUCTION BID SET



CASNE & ASSOCIATES	7/28/2022				
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RC	7/28/2022				
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DETAILS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA





EASEMENT NOTES:

DRAWINGS BY CASNE & ASSOCIATES, INC. DO NOT DEPICT LEGAL AND RECORDED EASEMENTS. SUCH EASEMENTS CAN BE FOUND ON THE PROPER LEGAL AND RECORDED DOCUMENT(S) WHICH MAY INCLUDE FINAL PLATS, CERTIFICATES OF SURVEY, SPECIFIC BOOKS AND PAGE NUMBERS AT THE COUNTY CLERK AND RECORDER'S OFFICE, ETC.

UTILITY NOTES:

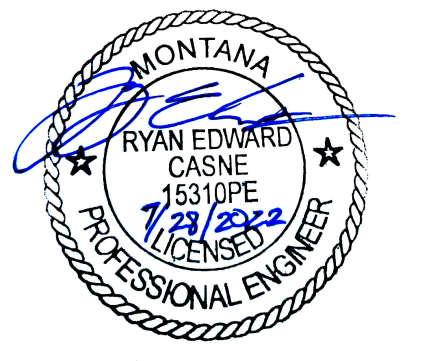
UNDERGROUND UTILITIES ARE SHOWN AS LOCATED BY THE SURVEYOR, UTILITY COMPANY REPRESENTATIVES, VARIOUS RECORDS, AND/OR SURFACE MARKINGS PLACED BY THE UTILITY COMPANY REPRESENTATIVES, NOT ACTUAL PHYSICAL LOCATIONS. ACTUAL UTILITY DEPTHS VARY AND ARE UNKNOWN. UNDERGROUND AND OVERHEAD UTILITIES SHOWN ARE APPROXIMATE ONLY AND MUST NOT BE USED TO DETERMINE THEIR PHYSICAL LOCATION ON THE GROUND. THE SHOWING OF UTILITY LOCATIONS ON THIS DRAWING DOES NOT RELIEVE ANY PERSON OR COMPANY OF THEIR RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION BY CALLING THE UTILITY NOTIFICATION CENTER AT 1-800-424-5555 (OR 811). IT MAY BE NECESSARY TO CALL A LOCATION SPECIFIC UTILITY LOCATOR. IT'S POSSIBLE THAT OTHER UNDERGROUND UTILITIES EXIST AND WERE NOT MARKED BY ANY UTILITY COMPANY REPRESENTATIVE.

EXISTING UTILITY LEGEND:

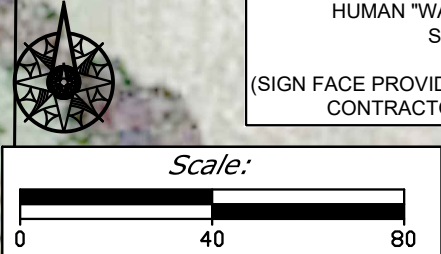
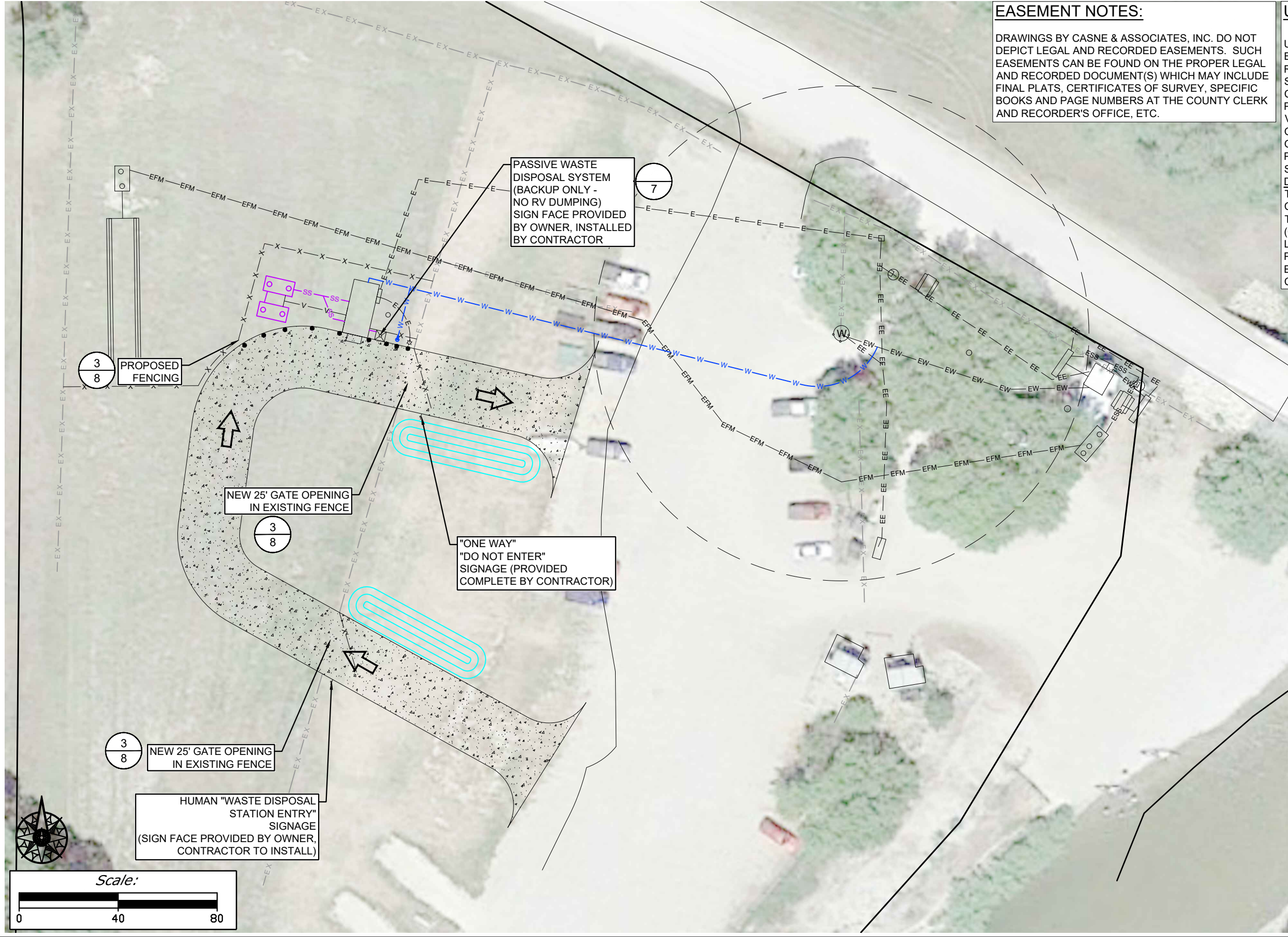
- EXISTING SS LINE —ESS—ESS—
- EXISTING FORCEMAIN —EFM—EFM—
- EXISTING FENCE —EX—EX—
- EXISTING UNDERGROUND ELECTRIC —EE—EE—
- EXISTING WATER LINE —EW—EW—
- EXISTING PICNIC TABLE 
- EXISTING FIRE RING 
- EXISTING RV HOOKUP 
- EXISTING TEST PIT 

PROPOSED UTILITY LEGEND:

- PROPOSED FENCING —x—x—
- PROPOSED WATER LINE —w—w—
- PROPOSED SS LINE —ss—ss—
- PROPOSED UNDERGROUND ELECTRIC —e—e—



CONSTRUCTION BID SET

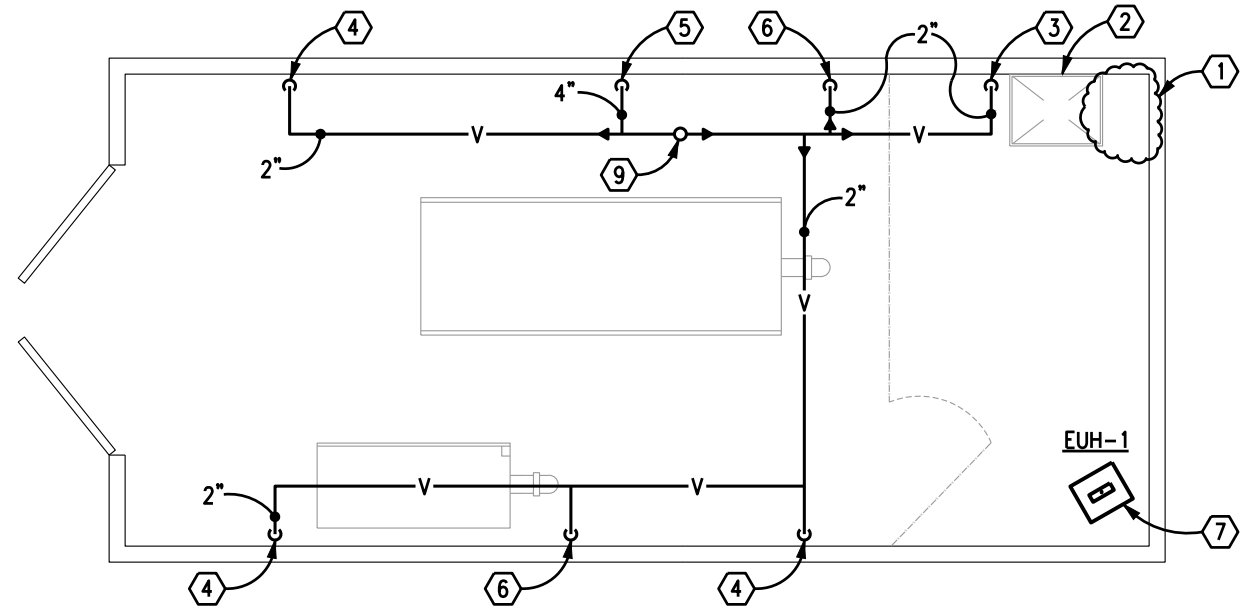


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RC	7/28/2022				
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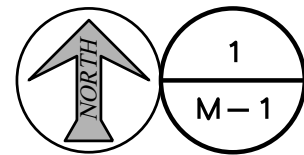
FENCING & SIGNAGE EXHIBIT
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: 10 of 10



WORK NOTES

- ① WATER ENTRANCE INTO BUILDING THIS LOCATION, SEE CIVIL PLANS FOR WATER PIPING SYSTEM DETAILS.
- ② FLOOR SINK INSTALLED IN CONCRETE FLOOR. VERIFY MAKE, MODEL AND SIZE WITH OWNER.
- ③ 2" VENT DOWN THROUGH SLAB TO FLOOR SINK TRAP BELOW. WRAP PIPE PENETRATION THROUGH SLAB WITH 1/2" FOAM SILL SEALER.
- ④ 2" VENT DOWN THROUGH SLAB TO FLOOR DRAIN TRAP BELOW. WRAP PIPE PENETRATION THROUGH SLAB WITH 1/2" FOAM SILL SEALER.
- ⑤ 4" VENT DOWN THROUGH SLAB TO SEPTIC TANKS. WRAP PIPE PENETRATION THROUGH SLAB WITH 1/2" FOAM SILL SEALER.
- ⑥ 2" VENT DOWN THROUGH SLAB TO EQUIPMENT TRAP BELOW. WRAP PIPE PENETRATION THROUGH SLAB WITH 1/2" FOAM SILL SEALER.
- ⑦ FURNISH & INSTALL EUH-1 MOUNTED HIGH ON WALL IN CORNER.
- ⑧ NOT USED.
- ⑨ 4" VENT THROUGH ROOF, PENETRATE ROOF DECK AND SEAL PENETRATION PER BUILDING MANUFACTURER'S RECOMMENDATIONS.



HVAC & PLUMBING VENT PLAN

NO SCALE



ELECTRIC UNIT HEATER SCHEDULE

MARK	MFGR	CATALOG NO.	CFM	BTU/HR	WATTS	VOLTS/PHASE	CONTROL	NOTES
EUH-1	OUELLET	OAE5000T	300	12795	3750	208/1	INTEGRAL THERMOSTAT	①

① WITH FACTORY INSTALLED SINGLE-POLE BI-METAL THERMOSTAT. DISCONNECT FURNISHED & INSTALLED BY E.C.

NOTE:
 ALL WORK SHALL BE IN STRICT COMPLIANCE WITH ALL APPLICABLE CODES & STANDARDS, INCLUDING, BUT NOT LIMITED TO, 2018 IMC, 2018 UPC, 2018 IBC, 2018 IFGC, 2018 IECC.
 ALL WATER PIPING SHALL BE INSULATED WITH 1" CONTINUOUS INSULATION.

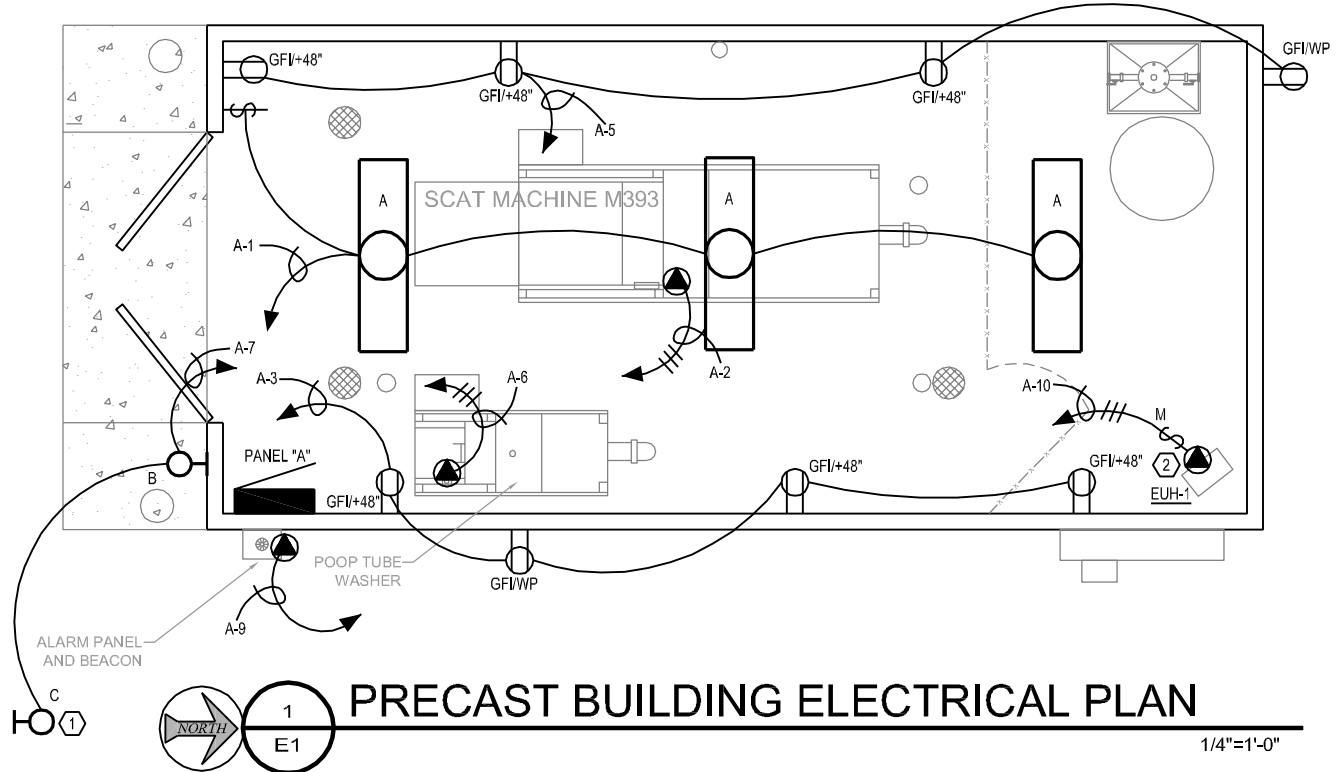
NOTE:
 COORDINATE INSTALLATION OF FLOOR FIXTURES, AND PIPE PENETRATIONS THROUGH FLOOR WITH BUILDING MANUFACTURER TO LOCATE ALL BLOCK OUTS IN PRECAST FLOOR SLAB.

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HVAC AND PLUMBING VENTING
 SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: **M-1** of **1**



CONSTRUCTION NOTES:

- NEW POLE LIGHT WITH 5" SQUARE POLE, 11GA SIDES, 20' TALL RATED FOR 100MPH. PROVIDE POLE BASE PER DETAIL. COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR BEFORE ROUTING CONDUIT.
- PROVIDE 2P MANUAL MOTOR STARTER FOR DISCONNECTING MEANS ON UNIT.
- EXISTING METER/MAN TO BE RELOCATED ONTO BUILDING. CONNECT TO NEW PANEL "A" AS SHOWN ON POWER RISER, SHEET E2.

ELECTRICAL LEGEND			
	PANEL OR LOAD CENTER		LIGHT FIXTURES, WALL MOUNTED
	HOME RUN TO PANEL, NO. OF ARROWS INDICATES NO. OF CIRCUITS.		SWITCH, SPST
	NO. OF HASH MARKS INDICATES NO. OF CONDUCTORS IN CONDUIT. NO HASH MARKS INDICATES TWO CONDUCTORS-GROUND CONDUCTORS ARE NOT INCLUDED IN WIRE COUNT.		OUTLET, DUPLEX
	MANUAL MOTOR STARTER, FRACTIONAL		OUTLET, GROUND FAULT INTERRUPTER
	LIGHT FIXTURE, CEILING MOUNT		SPECIAL CONNECTION
			MOTOR CONNECTION
			GROUND FAULT INTERRUPTER
			WEATHER PROOF

PRECAST BUILDING ELECTRICAL PLAN

1/4"=1'-0"

PANEL A	AMPS	200A	BUS	200A	MOUNT	SURFACE	NOTES
LOC. BLDG	L-L V	240	NEUT	200A	FEED	TOP	
MFGR SQUARE D	L-N V	120	M.C.B.	200A	WIDTH	20"	
TYPE NQOD	PHASE 1		TYPE		DEPTH	5.75"	
AIC 10K	WIRES 3		M.L.O.		NEMA	3R	

REMARKS : BOLT-ON BREAKERS ONLY, HACR BREAKERS WHERE REQUIRED BY HVAC UNIT MANUFACTURER
 *ALL CIRCUIT BREAKERS SHALL BE RATED 10,000 AIC AND LISTED FOR SERIES COMBINATION WITH THE CURRENT LIMITING MAIN FUSES OR CIRCUIT BREAKERS

CKT NO.	BREAKER AMP/POLE	T	WIRE	LOAD DESCRIPTION	USE					USE					LOAD DESCRIPTION	WIRE	BREAKER AMP/POLE	T	CKT NO.
					REC	LTS	HTR	MTR	MISC	L1	L2	REC	LTS	HTR					
1	20	1	#12	LIGHTS		1				100									
3	20	1	#12	RECEPTS	1								1						2
5	20	1	#12	RECEPTS	1					720									4
7	20	1	#12	EXTERIOR LTS		1				2000			1						6
9	20	1	#12	ALARM PANEL					1	200									8
11	20	1		SPARE						1875			1						10
13	20	1		SPARE						1875			1						12
15	20	1		SPARE															14
17	20	1		SPARE															16
19	20	1		SPARE															18
21				PROVISION															20
23				PROVISION															22
				PROVISION															24

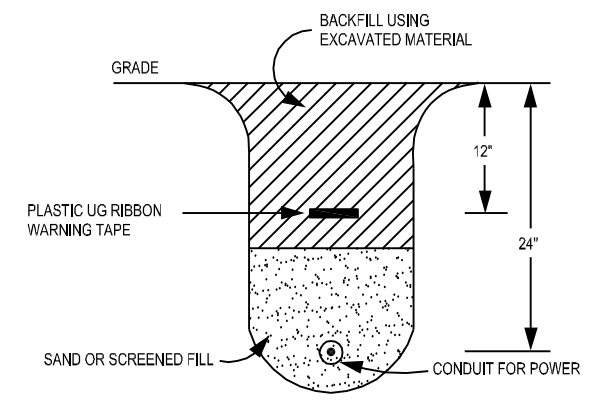
TOTAL CONNECTED LOAD	LOAD/PHASE	51% A	49% B	CONNECTED LOAD	DIV.	DEMAND
13640				REC 1ST 10KVA	1.4 KVA	100% 1.4 KVA
				REC REMAINING	0.0 KVA	50% 0.0 KVA
				LIGHTING	0.3 KVA	125% 0.3 KVA
				RES HEAT	3.8 KVA	125% 3.8 KVA
				MOTORS	8.0 KVA	100% 8.0 KVA
				MISCELLANEOUS	0.2 KVA	100% 0.2 KVA
				TOTAL DEMAND LOAD		13.6 KVA
				DEMAND AMPS		56.8 AMPS

BREAKER TYPES
 N = NORMAL
 S = SHUNT-TRIP
 G = GFCI

LIGHT FIXTURE SCHEDULE

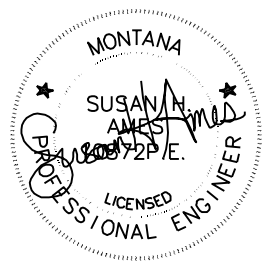
LTR.	SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NO.	LOCATION	MOUNTING	LAMPS CAT. NO.	NOTES
A		1'X4' SURFACE MTD. LENSED GASKETED FIXTURE LED LAMPING	LITHONIA	FEM-L48-4000LM LPACL-MD-40K	CEILING	SURFACE	23.8W LED	1 120V
B		SECURITY FLOOD LIGHT 2-HEADS WITH PHOTOCELL LED LAMPS	RAB	SMS BULLET 2X12NA	WALL	WALL 8" AFF	2-24W LED	2 120V
C		POLE MOUNTED AREA LIGHT, PHOTOCELL, MOTION SENSOR, LED LAMPS	LSI	SLM-LED-12L-SIL-FT 40-IMS	POLE	POLE 20'	93W LED	3 120V

NOTES:
 1 EQUIVALENT FIXTURES FROM THE FOLLOWING MANUFACTURERS ARE ACCEPTED AS EQUALS: ILP, LSI, HE WILLIAMS, METALUX
 2 EQUIVALENT FIXTURES FROM THE FOLLOWING MANUFACTURERS ARE ACCEPTED AS EQUALS: HUBBELL, MAXIMUS, WF HARRIS (LED ONLY), ALLPRO
 3 EQUIVALENT FIXTURES FROM THE FOLLOWING MANUFACTURERS ARE ACCEPTED AS EQUALS: LEOTEK



ELECTRICAL TRENCH DETAIL

NO SCALE

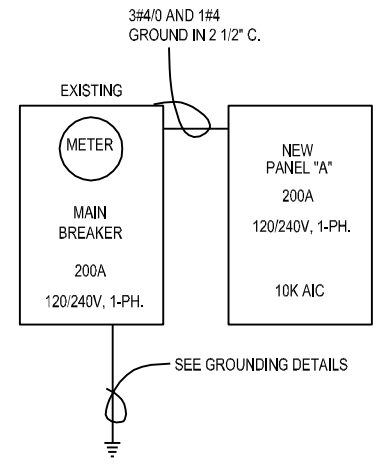


AMES ENGINEERING	7/29/2022				
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S. AMES	7/29/2022				
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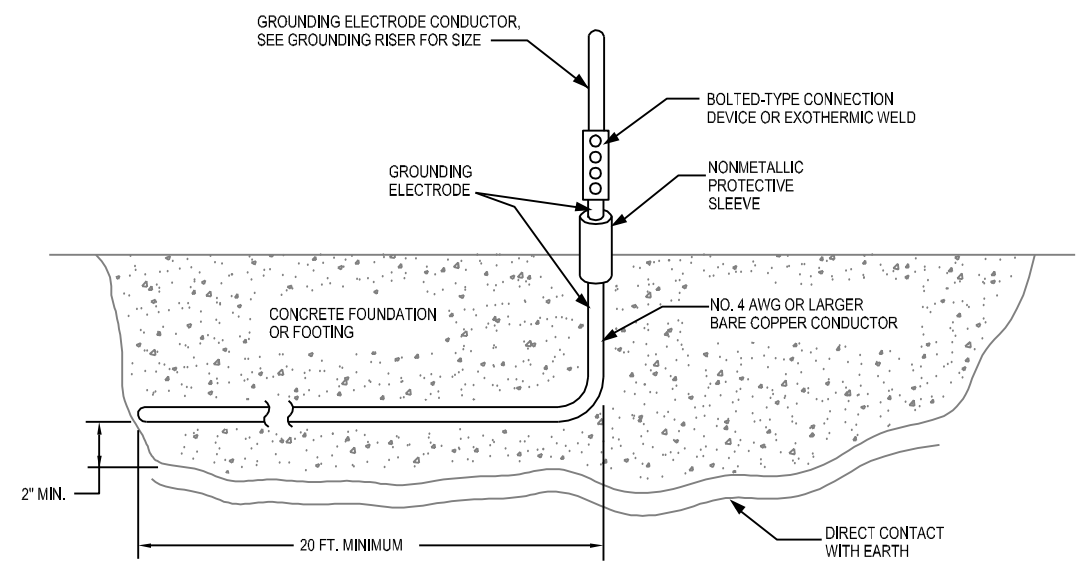


ELECTRICAL PLAN AND DETAILS
 SMITH RIVER STATE PARK, FWP, EDEN MONTANA

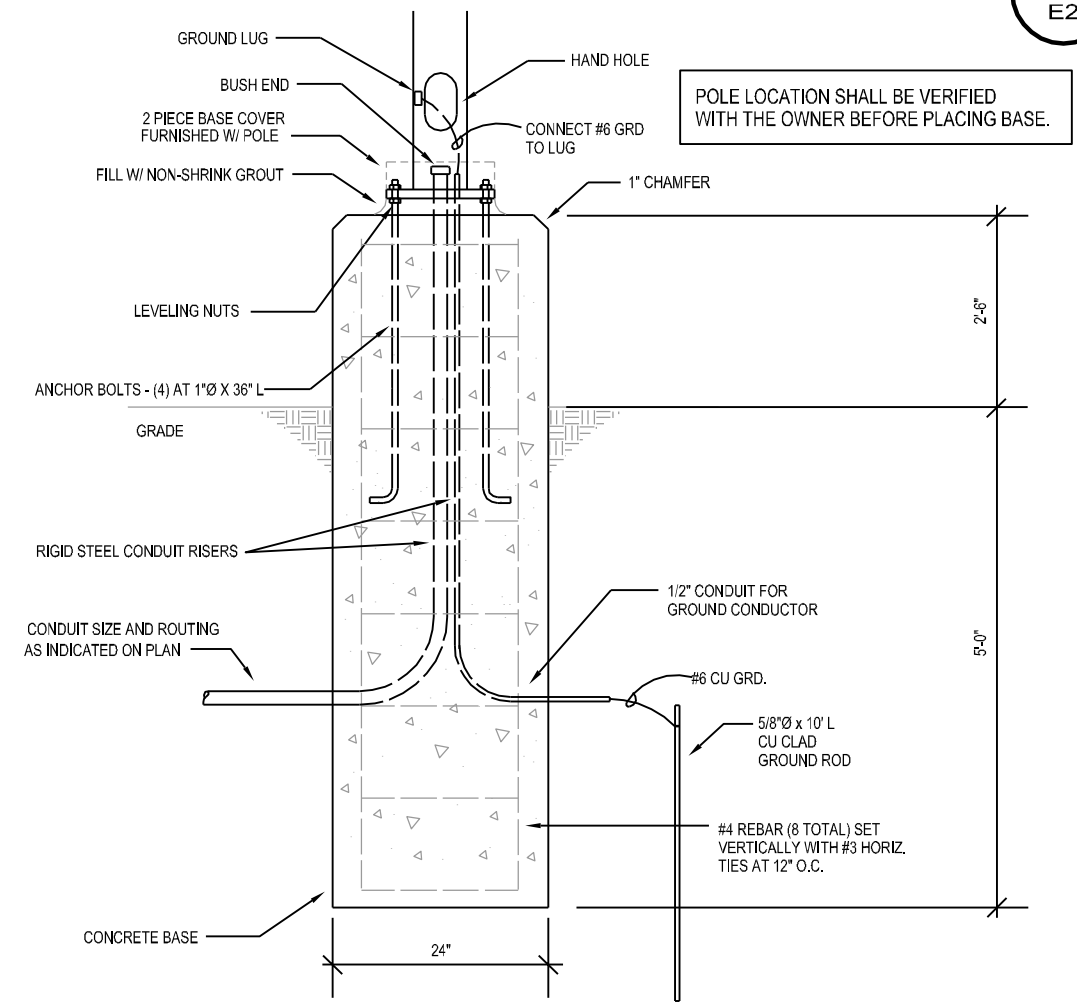
SHEET: E1



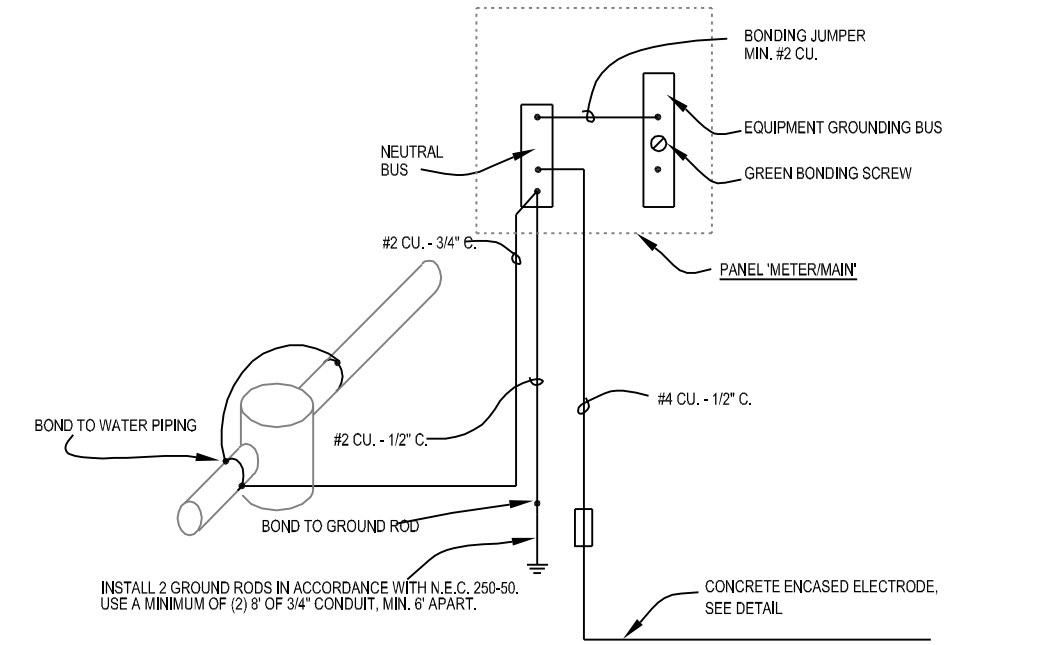
1
E2
POWER RISER DETAIL
NO SCALE



3
E2
GROUNDING ELECTRODE DETAIL
NO SCALE



2
E2
LIGHT POLE BASE DETAIL
NO SCALE



4
E2
GROUNDING DETAIL
NO SCALE

Electrical Specifications

Scope: All electrical work under this contract as shown on the plans and indicated in the specifications. Work shall be performed by a licensed and bonded contractor utilizing tradesmen skilled in the art and in accordance with acceptable practices. All work shall comply with local, state, and the National Electrical Code, latest edition.

Permits: The electrical contractor shall secure all permits in connection with his work.

Work Included: All lighting and power systems including fixtures, devices, boxes, conduit, disconnects, motor starters, etc. Provide and install all incidental items required for a complete and functioning system. Service equipment, motors, etc. to be located and installed as shown on the plan. Deviations shall be approved prior to installation by the architect and/or engineer.

Tests: Prior to tests or usage, all switches, panels, devices shall be in place. All branch circuits shall be free of faults or shorts. The complete installation and all components shall have a resistance between conductors and between conductors and ground as specified by the N.E.C.

Ground: There shall be continuity of ground throughout the system. System ground to comply with N.E.C. requirements.

Materials: All materials such as receptacles, switches, conduit, conductors, panelboards, devices, fixtures, etc. to be new and bear the U.L. label or to conform to applicable standards.

Manufacturers Directions, Procedures and Operating Instructions: Manufacturers materials, and equipment applied, installed, connected, erected, used, cleaned, and conditioned as per manufacturers directions or recommendations prior to installation.

Guarantee/Warranty: Contractor guarantees that all work and plant will be free from defects of materials and workmanship for a period of one (1) year from the date of final acceptance. Contractor further agrees that he will replace or repair all defective equipment and installation that become defective during the term of the warranty. This does not include excessive abuse or damage inflicted by the owner and/or others.

Installation: All equipment, circuitry, etc. shall be installed as follows or as specified otherwise. The electrical contractor shall verify all nameplate ratings of equipment to be connected and verify electrical compatibility and code compliance. Manufacturer's recommendations shall take precedence unless verified otherwise.

Current Characteristics: 120/240V, 1 phase, 3W

Conduits: PVC schedule 40 acceptable where routed underground. If PVC is used, provide ground wire. Compression couplings in wet locations and in concrete walls and floors. RGS for conduit above ground.

Wire and Cable: Type THHN or THWN for application or as noted otherwise. Color code in accord with the NEC.

Conductors and Cable: All conductors shall be copper with a weather resistant thermoplastic cover. No branch circuit conductors shall be smaller than #12 unless for low voltage wiring.

AMES ENGINEERING	7/29/2022				
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MONTANA FISH, WILDLIFE & PARKS

ELECTRICAL PLAN AND DETAILS
SMITH RIVER STATE PARK, FWP, EDEN MONTANA

SHEET: **E2**