LEELANAU PINES BOAT WASH STATION

Once completed, our overall boat wash design will meet any applicable EGLE guidelines. We will provide the following:

- Signage (AIS boat back card, boat launch signs, boat decontamination station sign)
- (1) Pressure washer
- (1) Drain plug wrench
- (1) Boot brush
- (1) Plant grabber

In addition to the items listed above, it will be mandatory that all boats launched using the Leelanau Pines campground boat launch are cleaned by the boat owner prior to launch. As part of our day to day business, a log will also be kept to document and track which boats have been cleaned. This will help staff monitor boat traffic within our campground.

We will engage MSU/EGLE, as needed, for guidance and training for our staff to help us be efficient and effective with the battle of AIS(Aquatic Invasive Species). We will consider any input the LLLA may have through our design process.

New Michigan Boating Law

Effective 2019

New requirements to stop the introduction and spread of ***Aquatic Invasive Species!***

It's the law:

- **DO NOT** launch or transport watercraft or trailers unless they are free of aquatic organisms, including plants.

- **DO NOT** transport a watercraft without removing all drain plugs and draining all water from bilges, ballast tanks, and live wells.
- **DO NOT** release bait into the water.

Violation of the law is a state civil infraction. Violators may be subject to fines.

Follow these steps:

1. **CLEAN** boats, trailers and equipment.
2. **DRAIN** live wells, bilges, ballast tanks, and all water by pulling drain plugs.
3. **DRY** boats and equipment.
4. **DISPOSE** of unwanted bait in the trash.

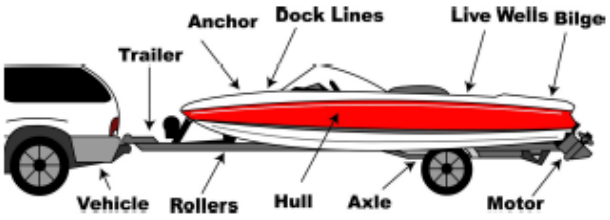
EGLE

Michigan Department of Agriculture & Rural Development

Michigan.gov/invasives

Prevent the spread of ecologically and economically harmful aquatic invasive species such as zebra mussels and Eurasian watermilfoil with the following simple steps:

- **CLEAN** boats, trailers and equipment and remove all mud, debris and aquatic plant material from trailers and watercraft before launching or retrieving a watercraft.
- **DRAIN** live wells, bilges, ballast tanks, and all water from boats before leaving the access site. Disinfect live wells and bilges with a bleach solution (1/2 cup bleach to 5 gallons of water) when possible.
- **DRY** all boats and equipment thoroughly before leaving an access area and prior to relaunching in a new waterbody.
- **DISPOSE** of bait in the trash. Do not release bait into the water.
- **DO NOT TRANSFER FISH** to water bodies other than where they were caught.

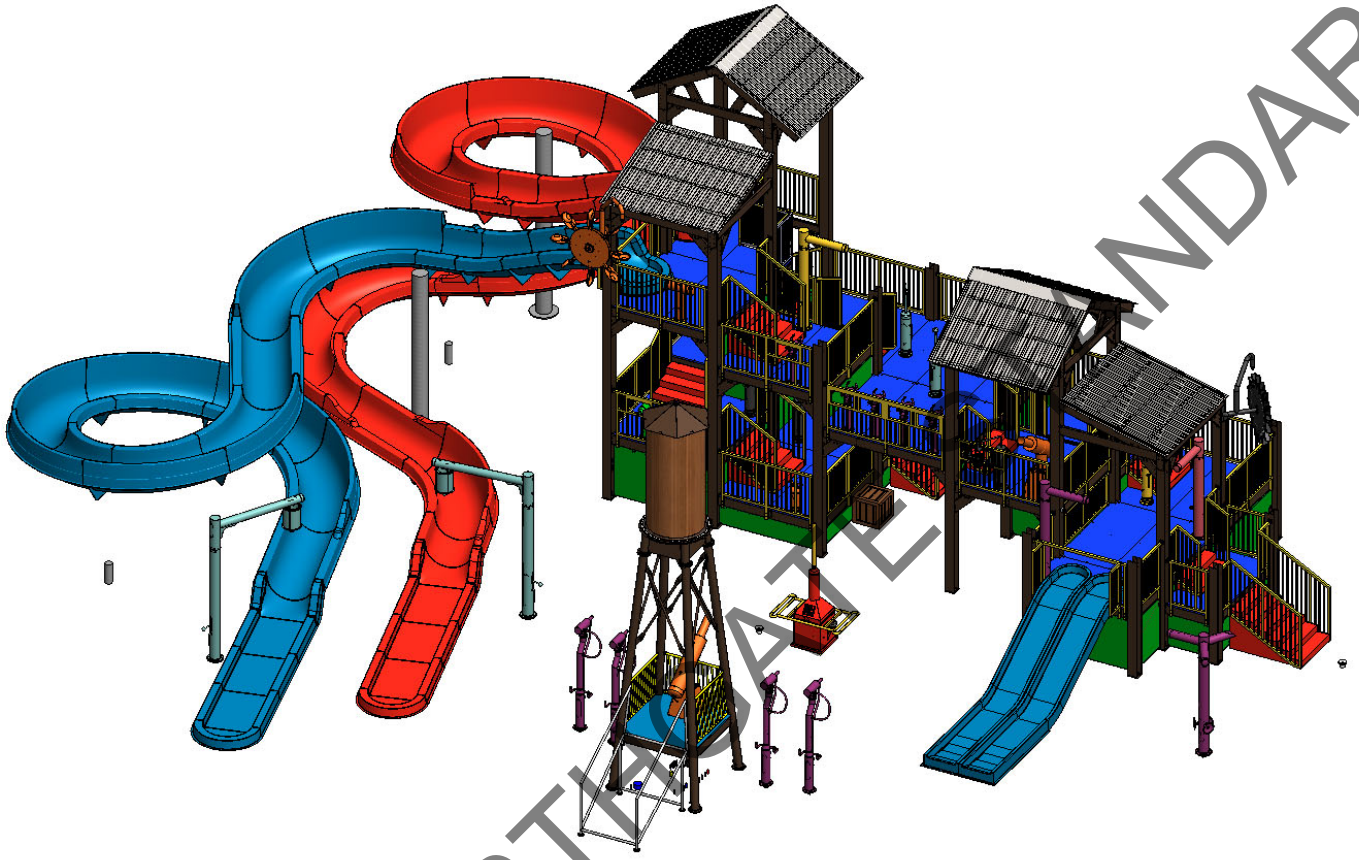


Inspection points on boats, trailers, and vehicles for aquatic invasive species decontamination.

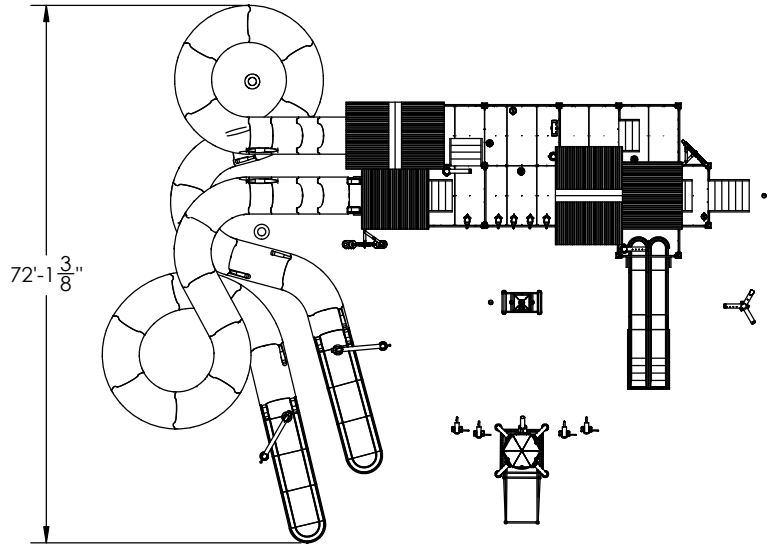
Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Environmental Assistance Center: 800-662-9278

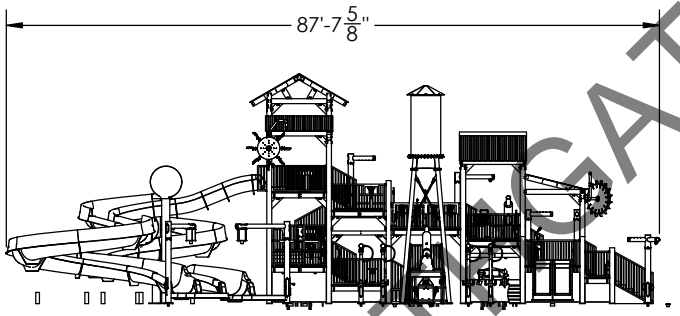
Rev. 02/2021

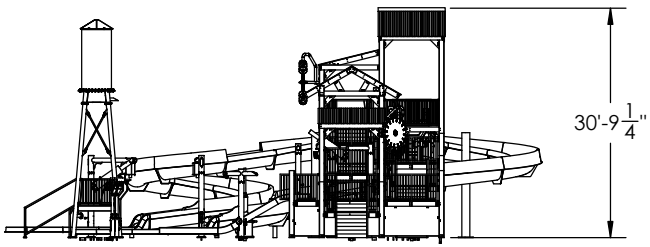
NOTE: COLORS ARE REPRESENTATIVE AND
DO NOT REFLECT ACTUAL FINAL PLAY STRUCTURE COLORS.



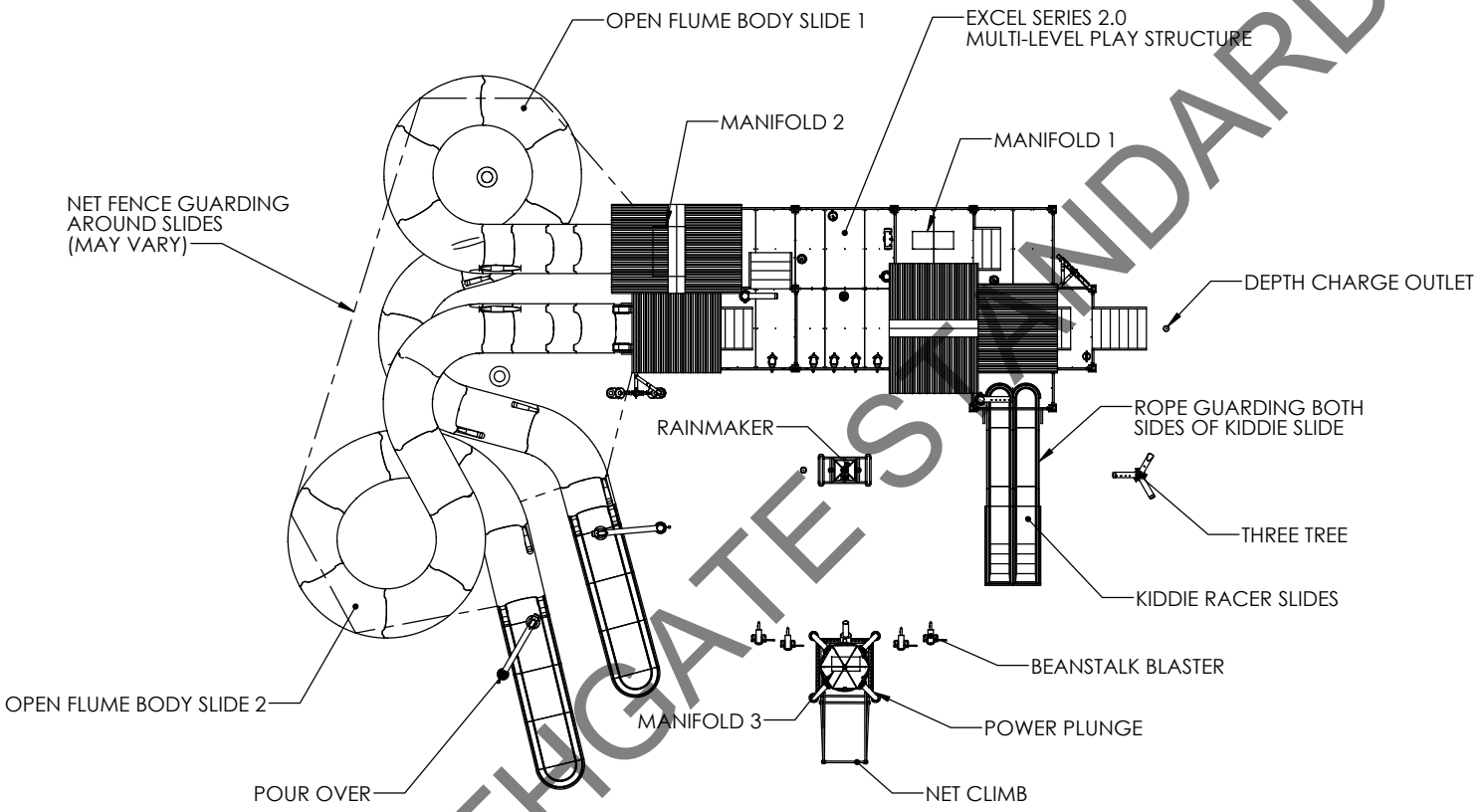
UNLESS OTHERWISE SPECIFIED:		NAME	DATE	INTERACTIVEPLAY	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	CD	3/8/2022	TITLE:	
	CHECKED	---	---		
	ENG APPR.	---	---		
	MFG APPR.	---	---		
INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.	---	---		
MATERIAL: -	COMMENTS:			SIZE B	DWG. NO. CTST-1000
FINISH: -				SCALE:	WEIGHT:
NEXT ASSY / USED ON				REV -	SHEET 1 OF 12
APPLICATION	DO NOT SCALE DRAWING				







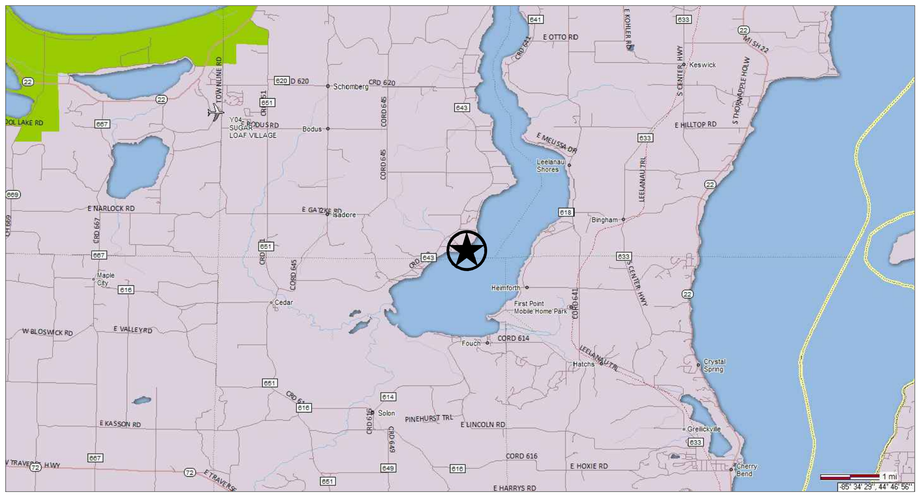
		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	INTERACTIVEPLAY
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	CD	3/8/2022	TITLE: OVERALL DIMENSIONS
			CHECKED	---	---	
			ENG APPR.	---	---	
			MFG APPR.	---	---	
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.	---	---	
		MATERIAL: -	COMMENTS:			SIZE B / DWG. NO. CTST-1000 / REV -
NEXT ASSY	USED ON	FINISH: -				SCALE: / WEIGHT: / SHEET 3 OF 12
APPLICATION		DO NOT SCALE DRAWING				



UNLESS OTHERWISE SPECIFIED:		NAME	DATE	INTERACTIVEPLAY	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	CD	3/8/2022	TITLE: GENERAL INFO	
	CHECKED	---	---		
	ENG APPR.	---	---		
	MFG APPR.	---	---		
INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.	---	---		
MATERIAL: -	COMMENTS:			SIZE B / DWG. NO. CTST-1000 / REV -	
FINISH: -				SCALE: / WEIGHT: / SHEET 4 OF 12	
NEXT ASSY / USED ON					
APPLICATION	DO NOT SCALE DRAWING				

NOTE: COLORS SHOWN ARE REPRESENTATIVE OF NORTHGATE'S TYPICAL PLAY STRUCTURE COLOR PALETTE, FINAL COLORS MAY VARY.

AQUATICS
CONSTRUCTION PLANS
FOR
LEELANAU PINES CAMPGROUNDS
CEDAR, MI



VICINITY MAP

LOCATION MAP

6500 E. LEELANAU PINES DR.,
CEDAR, MI 49621
LEENAU COUNTY

PREPARED BY:

MI C.A. # 60369F
4337 PABLO OAKS CT., SUITE #101
JACKSONVILLE, FL 32224
PH 904-223-9773 FX 866-832-9236
www.wetengineering.net

HEATHER W. BAXTER, P.E.
MI LICENSE # 50814
REGISTERED ENGINEER

IAAPA MEMBER

NO.	REVISION/ISSUE	DATE

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
COVER SHEET

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: CV1.0

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

ADJUSTABLE	ADJ.	HIGH DENSITY POLYETHYLENE	HDPE
APPROXIMATE	APPROX.	INSIDE DIAMETER	I.D.
AVENUE	AVE.	INVERT	INV.
BASE LINE	B	IRON PIPE	I.P.
BOX & COVER	B & C	IRON PIPE SIZE	I.P.S.
BOULEVARD	BLVD.	JOINT	JT.
BUTTERFLY VALVE	B.V.	LEFT	LT.
BENCH MARK	B.M.	MANUFACTURER	MANUF.
CAST IRON	C.I.	MAXIMUM	MAX.
CONTROL JOINT	C.J.	MECHANICAL	MECH.
CENTERLINE	C	MITERED END SECTION	M.E.S.
CLEARANCE	CLR.	MANHOLE	M.H.
CLEANOUT	C.O.	MINIMUM	MIN.
CONCENTRIC	CON.	MALE IRON PIPE	M.I.P.
CONCRETE	CONC.	MECHANICAL JOINT	M.J.
CONSTRUCT/ CONSTRUCTION	CONST.	MALE PIPE THREAD	M.P.T.
CHECK VALVE	C.V.	NOT IN CONTRACT	N.I.C.
CENTERED	CTRD.	NUMBER	NO.
DIAMETER	DIA.	NOT TO SCALE	N.T.S.
DUCTILE IRON	D.I.	NORMAL WATER LEVEL	N.W.L.
DRIVEWAY	D / W	ON CENTER	O.C.
EXPANSION JOINT	E.J.	OUTSIDE DIAMETER	O.D.
ELEVATION	EL. / ELEV.	PROPERTY LINE	℄
EASEMENT	ESMT.	PLUG VALVE	P.V.
EACH WAY	E.W.	POLYVINYL CHLORIDE	PVC
FIGURE	FIG.	REINFORCED CONCRETE PIPE	RCP
FLANGE / FLANGED	FLG.	REDUCER	RED.
FORCE MAIN	F.M.	RECEIVED	REC'D.
FEMALE PIPE THREAD	F.P.T.	REQUIRED	REQ'D.
FEET	FT.	RIGHT	RT.
GALVANIZED	GALV.	RIGHT-OF-WAY	R / W
GALLONS PER MINUTE	GPM	STANDARD DIMENSIONAL RATIO	SDR
GATE VALVE	G.V.	STAINLESS STEEL	S.S.
HOSE BIBB	HB	STORM SEWER	ST.
		STATION	STA.
		STEEL	STL.
		SIDE WALK	S/W
		STATIC WATER LEVEL	S.W.L.
		TOTAL DYNAMIC HEAD	T.D.H.
		TYPICAL	TYP.
		UNLESS OTHERWISE NOTED	U.O.N.
		WITH	W/
		WATER LEVEL	W.L.
		WATER METER	W.M.

ABBREVIATIONS

- ACCELERATOR PIPE
- AIR PIPE
- BACKWASH PIPE
- DRAIN PIPE
- EQUALIZER PIPE
- FEATURE PIPE
- GUTTER PIPE
- RETURN PIPE
- RETURN THERAPY PIPE
- SANITARY SEWER PIPE
- SKIMMER PIPE
- STORM SEWER PIPE
- SUCTION PIPE
- THERAPY AIR PIPE
- UNDERDRAIN PIPE
- VACUUM PIPE
- WATER PIPE (W)
- REDUCER
- EROSION CONTROL
- FENCE LINE

EXISTING CONCRETE OR WOOD POWER POLE

+20.0 EXISTING SPOT ELEVATION

20.0 NEW SPOT ELEVATION

3'0" ELEVATION REFERENCE

KEY GEOMETRY POINT

SECTION OR DETAIL VIEW

1 / S1.0 — DENOTES SECTION LETTER OR DETAIL NUMBER; DENOTES PAGE NUMBER WHERE SECTION OR DETAIL IS REFERENCED FROM

PLAN VIEW

1 / S1.0 — DENOTES DETAIL NUMBER; DENOTES PAGE NUMBER WHERE DETAIL APPEARS

1 / S1.1 — DENOTES SECTION NUMBER; DENOTES PAGE NUMBER WHERE SECTION APPEARS

LEGEND

POOL SHELL IS TO BE CONSTRUCTED AS SHOWN ON THE STRUCTURAL DETAILS. FOR PAVER DECKS, TOP OF BEAM MUST BE CONSTRUCTED SUCH THAT THE COPING MANUFACTURER'S RECOMMENDED SETTING MORTAR THICKNESS IS NOT EXCEEDED. **IN NO INSTANCE SHALL THE BEAM BE BUILT UP WITH MORTAR TO ACHIEVE THE NECESSARY DECK ELEVATION.** IF BUILD-UP OF THE SHELL IS REQUIRED FOLLOWING INITIAL CONCRETE POUR/SHOOT, THE ENGINEER SHALL BE CONTACTED IMMEDIATELY TO COORDINATE A PROPER INSTALLATION.

CONSULT THE HARDSCAPE ARCHITECT'S PLANS AND SPECIFICATIONS FOR INSTALLATION OF COPING AND PAVERS AND EXPANSION JOINT MATERIAL AND LOCATIONS.

IMPORTANT CONSTRUCTION NOTE

1. DEPTH MARKINGS SHALL BE IN ACCORDANCE WITH MICHIGAN ADMINISTRATIVE RULES R325.2132 AND SHALL BE LOCATED AS FOLLOWS: ON INSIDE VERTICAL WALL AT OR ABOVE THE WATER LEVEL AND ON EDGE OF DECK WITHIN TWO FEET OF THE POOL WATER (MAXIMUM PERIMETER DISTANCE BETWEEN MARKINGS SHALL BE 25 FEET). CONTRACTOR SHALL VERIFY EXACT DEPTH PRIOR TO PLACING DEPTH MARKINGS. ALL DEPTH MARKINGS SHALL BE TILE. ALL MARKINGS INSTALLED ON HORIZONTAL SURFACES SHALL HAVE SLIP-RESISTANT FINISH. DEPTH MARKERS SHALL BE ACCURATE TO WITHIN THREE INCHES AT NORMAL OPERATING WATER LEVEL WHEN MEASURED THREE FEET FROM THE POOL WALL. DEPTH MARKINGS SHALL HAVE "FEET" AND "INCHES" OR "FT" AND "IN" AFTER THE NUMBER. MARKINGS SHALL BE 4 INCHES HIGH (MIN.).
2. "NO DIVING" MARKINGS SHALL BE LOCATED ON DECK WITHIN 2 FEET OF WATER AT LOCATIONS SHOWN. MAXIMUM PERIMETER DISTANCE BETWEEN MARKINGS SHALL BE 25 FEET. ALL MARKINGS INSTALLED ON HORIZONTAL SURFACES SHALL HAVE SLIP-RESISTANT FINISH. MARKINGS SHALL BE TILE AND SHALL HAVE 4 INCH LETTERS. A 6-INCH TILE WITH A 4-INCH OR LARGER RED, INTERNATIONAL "NO DIVING" SYMBOL MAY BE SUBSTITUTED FOR THE "NO DIVING" MARKINGS.
3. PIPING RECOMMENDATION: SCH 80 PVC IS RECOMMENDED FOR PREVENTION OF CRACKING DUE TO SETTLING. OWNER MAY ELECT TO SUBSTITUTE SCH 40 PVC IF DESIRED, EXCEPT ALL PIPING UNDER SLAB SHALL REMAIN SCH 80 PVC. ALL PIPING SHALL BE NSF-pw APPROVED. ANY PIPING EXPOSED TO SUNLIGHT SHALL BE COATED FOR UV PROTECTION. ALL EQUIPMENT COMING INTO CONTACT WITH POOL WATER TO BE CERTIFIED BY NSF OR BY THE MANUFACTURER TO BE LEAD-FREE.
4. POOL WASTE WATER SHALL BE DISCHARGED THROUGH AN AIR GAP. DISPOSAL FROM D.E. TYPE FILTERS SHALL BE ACCOMPLISHED THROUGH SEPARATION TANKS WITH DISPOSAL TO SANITARY SEWERS, STORM SEWERS, DRAINFIELDS, OR OTHER MEANS, IN ACCORDANCE WITH LOCAL REQUIREMENTS INCLUDING OBTAINING ALL LOCAL PERMITS.
5. POOL DECKS SHALL HAVE AN UNOBSTRUCTED AREA WITH A MINIMUM WIDTH OF 4 FEET AROUND THE PERIMETER OF THE POOL. DECKS SHALL BE CONSTRUCTED OF CONCRETE OR OTHER NON-ABSORBENT MATERIAL HAVING A SMOOTH SLIP RESISTANT FINISH AND SHALL BE UNIFORMLY SLOPED AT A MINIMUM OF TWO PERCENT TO A MAXIMUM OF FOUR PERCENT AWAY FROM THE POOL OR TO DECK DRAINS TO PREVENT STANDING WATER. WHEN A CURB IS PROVIDED, THE DECK SHALL NOT BE MORE THAN 10" BELOW THE TOP OF THE CURB. TEXTURED DECK FINISHES THAT PROVIDE PITTING AND CREVICES OF MORE THAN 3/16" DEEP THAT ACCUMULATE SOIL ARE PROHIBITED.
6. ELECTRICAL EQUIPMENT WIRING AND INSTALLATION INCLUDING GROUNDING OF POOL COMPONENTS SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE-LATEST.
7. CHEMICALS SHALL BE STORED IN A COOL, DRY, AND WELL-VENTILATED AREA UNDER A ROOF OR OTHER ENCLOSURE AND SHALL BE INACCESSIBLE TO THE PUBLIC.
8. GROUND HANDRAILS AND LADDERS WITH #8 COPPER GROUND WIRE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
9. FLOORS AND WALLS SHALL BE WHITE OR LIGHT PASTEL IN COLOR. WRITTEN APPROVAL MUST BE OBTAINED FROM THE HEALTH DEPARTMENT PRIOR TO INSTALLATION OF ANY DESIGN OR LOGO ON POOL FLOOR OR WALLS.
10. INLETS SHALL BE DIRECTIONALLY ADJUSTABLE AND SHALL NOT PROTRUDE INTO THE POOL. MAXIMUM WALL INLET SPACING IS 20 FEET. WALL INLETS SHALL BE INSTALLED A MINIMUM OF 12 INCHES BELOW THE NORMAL OPERATING WATER LEVEL UNLESS PRECLUDED BY THE POOL DEPTH OR INTENDED FOR A SPECIFIC ACCEPTABLE PURPOSE.
11. MAIN DRAIN GRATES SHALL BE COMPLIANT WITH THE VIRGINIA GRAEME BAKER ACT AND IN ACCORDANCE WITH ASME A112.19.8-2007. MAIN DRAIN OUTLETS SHALL BE COVERED WITH A SECURED GRATING WHICH REQUIRES THE USE OF A TOOL TO REMOVE. DEPTH AT MAIN DRAIN SHALL NOT BE MORE THAN 3 INCHES GREATER THAN THE DEPTH SHOWN ON ADJACENT DEPTH MARKERS.
12. PRESSURE GAUGES SHALL HAVE 2" MIN. DIA. FACE WITH 0-60 PSI RANGE.
13. THERE SHALL BE NO PROVISION FOR DRINK OR FOOD SERVICE FACILITIES WITHIN 12' OF THE WATER'S EDGE.
14. EACH MAIN DRAIN SHALL INCLUDE INSTALLATION OF A HYDROSTATIC VALVE.
15. COLLECTOR TANKS SHALL BE SIZED TO PROVIDE TWO MINUTE OF RESIDENCE TIME AT DESIGN FLOW, TO INCLUDE FEATURE / SLIDE FLOW.
16. MINIMUM VERTICAL CLEARANCE ABOVE POOL AND DECK IS 7 FEET. MINIMUM HEIGHT OF BRIDGE OR OBSTRUCTION OVER POOL SHALL BE EIGHT FEET FROM BOTTOM OF POOL AND AT LEAST FOUR FEET ABOVE THE SURFACE OF THE POOL.
17. TO EMPTY THE POOL FOR ANY REASON, THE HYDROSTATIC UPLIFT PRESSURE MUST BE ELIMINATED. THE OWNER MUST CONSULT A CONTRACTOR EXPERIENCED IN ELIMINATING UPLIFT PRESSURE. CONTRACTOR SHOULD CONSIDER INSTALLATION OF A GRAVEL BED WITH UNDERDRAIN PIPING SYSTEM IN AREAS WHERE GROUNDWATER COULD RESULT IN UPLIFT PRESSURES THAT COULD FLOAT POOL OUT OF THE GROUND.
18. CONTRACTOR IS RESPONSIBLE FOR ALL PIPE SUPPORTS AND HANGERS AS REQUIRED.
19. ALL POOL CHEMICALS TO BE NSF-60 CERTIFIED.
20. POOL DESIGN IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY DRINKING WATER AND ENVIRONMENTAL HEALTH "PUBLIC SWIMMING POOLS".
21. EMERGENCY TELEPHONE TO BE PLACED WITHIN POOL ENCLOSURES. A SIGN WITH PHONE NUMBERS FOR EMERGENCY RESPONSE AGENCIES AND THE NAME AND ADDRESS OF THE SWIMMING POOL TO ASSIST EMERGENCY PERSONNEL IN LOCATING THE FACILITY MUST BE POSTED WITH PHONE.

POOL NOTES

1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS.
2. IN ACCORDANCE WITH THE GENERAL CONDITIONS, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND AVOID ALL UTILITIES, STRUCTURES AND OBSTRUCTIONS BOTH ABOVE AND BELOW THE GROUND SURFACE. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
3. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE GRASSED AND MULCHED ACCORDING TO THE SPECIFICATIONS, AS NECESSARY.
4. SHOULD THE SURFACE OR SUBSURFACE CONDITIONS VARY FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
5. CONTRACTOR IS RESPONSIBLE FOR THE CONTROL OF SEDIMENT-LADEN RUNOFF RESULTING FROM STORM EVENTS DURING THE CONSTRUCTION PHASE. EROSION CONTROL FACILITIES SHOULD BE INSTALLED EARLY DURING THE CONSTRUCTION PERIOD SO AS TO PREVENT THE TRANSPORT OF SEDIMENT INTO SURFACE WATERS. RE-VEGETATION AND STABILIZATION OF DISTURBED AREAS SHOULD BE ACCOMPLISHED AS SOON AS POSSIBLE TO REDUCE THE POTENTIAL FOR FURTHER SOIL EROSION.
6. PIPE JOINT DEFLECTION, WHERE REQUIRED, SHALL NOT EXCEED 50% OF THE MAXIMUM RECOMMENDED BY THE PIPE MANUFACTURER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT ALL PERMITS FOR CONSTRUCTION HAVE BEEN OBTAINED. THESE PERMITS SHALL INCLUDE, BUT NOT BE LIMITED TO, LOCAL BUILDING DEPT. & MICHIGAN DEPT. OF ENVIRONMENTAL QUALITY WATER BUREAU.
8. A HORIZONTAL SEPARATION OF 10-FEET (MIN.) SHALL BE MAINTAINED BETWEEN PARALLEL WATER AND SEWER LINES, WHERE WATER AND SEWER LINES CROSS, 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED. WHERE WATER AND SEWER LINES CROSS AND 12" CAN NOT BE MAINTAINED, A 20 L.F. SECTION OF DUCTILE IRON OR PVC PIPE SHALL BE CENTERED AT THE POINT OF CROSSING. THIS SITUATION MAY OR MAY-NOT BE NOTED ON THE DESIGN DRAWINGS IN EACH CASE. ANY DEVIATIONS FROM THESE MINIMUMS MUST BE APPROVED IN WRITING BY THE ENGINEER.
9. WATER SUPPLY FACILITIES AND PIPES SHALL BE INSTALLED, CLEANED, DISINFECTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE IN ACCORDANCE WITH THE LATEST APPLICABLE AWWA STANDARDS AND FDEP RULES.
10. ALL UNDERGROUND UTILITY COMPANIES SHALL BE CONTACTED AT LEAST 48- HOURS PRIOR TO COMMENCING CONSTRUCTION.
11. PIPING SHALL BE PRESSURE TESTED PRIOR TO COVER. RETURN PIPING SHALL BE TESTED AT 50 PSI FOR TWO HOURS. MAIN DRAIN, SKIMMER, AND GUTTER PIPING SHALL BE TESTED AT 5 PSI FOR TWO HOURS. CONTRACTOR TO USE WATER TESTING ONLY.

GENERAL NOTES

POOL CONTRACTOR SHALL CONSULT THE GEOTECHNICAL INVESTIGATION PERFORMED FOR THE SITE, IF AVAILABLE. CONTRACTOR SHALL BE FAMILIAR WITH THE RECOMMENDATIONS INCLUDED WITH THE REPORT AND INCORPORATE THE RECOMMENDATIONS INTO CONSTRUCTION OF THE POOL(S) AS NECESSARY.

GEOTECHNICAL NOTES

1. CONCRETE ADMIXTURE (OPTIONAL RECOMMENDED ADDITIVE): POOL SHELL STRUCTURE SHALL BE OF SHOTCRETE CAST-IN-PLACE CONSTRUCTION. ALL CONCRETE MIX USED ON THE JOB SHALL INCLUDE XYPEX C-SERIES ADMIX. CONTRACTOR SHALL CONSULT WITH THE LOCAL XYPEX TECHNICAL REPRESENTATIVE FOR ASSISTANCE IN DETERMINING THE MOST APPROPRIATE ADMIX PRODUCT FOR THE JOB. WEATHER CONDITIONS, CONCRETE SPECIFICATIONS, ETC. MAY AFFECT THE ADMIX SPECIFICATION. PREPARE PRODUCT AND APPLY IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
2. COLD JOINTS: ALL COLD JOINTS SHALL BE TREATED WITH A SLURRY COAT OF XYPEX CONCENTRATE PRIOR TO THE SUCCESSIVE CONCRETE APPLICATION. PREPARE PRODUCT AND APPLY IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. CONTACT THE LOCAL XYPEX REPRESENTATIVE FOR COORDINATION.
3. GROUT SEALER: SEALER SHALL BE APPLIED TO ALL GROUT LINES. SEALER PRODUCT INFORMATION SHALL BE SUBMITTED BY CONTRACTOR TO ARCHITECT AND ENGINEER FOR APPROVAL.
4. NOTE: CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL WATERPROOFING MATERIALS USED ON THE PROJECT.

WATERPROOFING NOTES

INDEX TO DRAWINGS

DWG #	DESCRIPTION
CV1.0	COVER SHEET
I1.0	INDEX, GENERAL NOTES, & ABBREVIATIONS
I1.1	EQUIPMENT LISTS
C1.0	OVERALL SITE PLAN
C1.1	YARD PIPING PLAN
C1.2	DECK GRADING PLAN
M1.0	INFINITY POOL GEOMETRY PLAN
M1.1	INFINITY POOL SECTIONS
M1.2	INFINITY POOL MECHANICAL PLAN
M1.3	INFINITY POOL EQUIP. BLDG. MECH. PLAN
M1.4	INFINITY POOL RECIRC. SYSTEM SCHEMATIC
M2.0	SWIMMING POOL GEOMETRY PLAN
M2.1	SWIMMING POOL SECTIONS
M2.2	SWIMMING POOL MECHANICAL PLAN
M2.3	SWIMMING POOL EQUIP. BLDG. MECH. PLAN
M2.4	SWIMMING POOL RECIRC. SYSTEM SCHEMATIC
M3.0	MECHANICAL DETAILS
M3.1	MECHANICAL DETAILS
M3.2	MECHANICAL DETAILS
M3.3	MECHANICAL DETAILS
S1.0	STRUCTURAL PLANS & NOTES
S1.1	STRUCTURAL DETAILS
E1.0	INFINITY POOL ELECTRICAL PLAN, NOTES & DETAILS
E1.1	SWIMMING POOL ELECTRICAL PLAN

INDEX TO DRAWINGS

HEATHER W. BAXTER, P.E.
MI LICENSE # 50814
REGISTERED ENGINEER

IAAPA MEMBER

NO.	REVISION/ISSUE	DATE

wet engineering
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JACKSONVILLE, FL 32224
PH 904-223-9773 FX 866-832-9236
www.wetengineering.net
MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
INDEX, GENERAL NOTES, & ABBREVIATIONS

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: I1.0

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

INFINITY POOL EQUIPMENT LIST

NO.	QUAN.	ITEM	MANUFACTURER	CATALOG NO.	DESCRIPTION
1	1	RECIRCULATION PUMP (P-1)	PENTAIR	340020	EQK-500; 225 GPM @ 65' TDH; 5 HP, 230V; 3PH; ODP
2	1	STRAINER (P-1)	PENTAIR	340013	EQ 6X6 STRAINER
3	1	VARIABLE FREQUENCY DRIVE (P-1)	PENTAIR	AD050X-2301-N4X	5 HP; NEMA 4X ENCL.; FOR PHASE CONVERSION TO 3Ø
4	1	FEATURE PUMP (P-2)	PENTAIR	340035	EQK-1500; 550 GPM @ 65 FT TDH; 15 HP; 230V, 3PH; ODP; W/ INTEGRATED STRAINER
5	1	VARIABLE FREQUENCY DRIVE (P-2)	PENTAIR	AD150X-2301-N4X	15 HP; NEMA 4X ENCL.; FOR PHASE CONVERSION TO 3Ø
6	1	DEFENDER ASSERO FILTER	NEPTUNE BENSON	SP-29-36-450	263 SF; 132-368 GPM FLOW RANGE; 6" INFLUENT/EFFLUENT W/ 4" REDUCING BUSHING; PERLITE; MANUAL BUMP
7	3	CARTRIDGE FILTERS (P-2)	PENTAIR	CCP520	520 SF FILTRATION AREA
8	1	BACKWASH SCREEN FOR ABOVE	NEPTUNE BENSON	--	2'0" X 2'6" HEIGHT; MOUNT IN ADJACENT WASTE SUMP
9	1	ACID DRUM PALLET	EAGLE MFG.	1635	4-DRUM; 60 GAL CAPACITY (SHARED W/ MLPS POOL)
10	1	RAMP FOR ABOVE	EAGLE MFG.	1689	
11	1	HYPOCHLORITE STORAGE TANK	SNYDER	5990502N_01	250 GAL CAPACITY; DOUBLE-WALL CONTAINMENT (SHARED W/ REC. POOL)
12	1	ORP CONTROLLER SYSTEM	PROMINENT	DCM3	PROBES, WET CELL; FLOW SWITCH; ORP/pH; WIFI ENABLED
13	1	HYPOCHLORITE FEED PUMP	STENNER	85MJL5	4.3 TO 85.0 GPD @ 25 PSI
14	1	ACID FEED PUMP	STENNER	45MJL5	2.5 TO 50.0 GPD @ 25 PSI
15	13	FLOOR RETURN INLET	PENTAIR	08417-0000	2" SLIP W/ 1.5" SLIP BUSHING; WHITE
16	10	HIGH FLOW FLOOR RETURN (EDGE FEATURE)	AQUASTAR	4D1XXX	2" X 1 $\frac{1}{2}$"; 80 GPM MAX
17	2	WALL RETURNS	HAYWARD	SP1022S	1.5" SKT X 2" MIP
18	2	EYEBALLS FOR ABOVE	HAYWARD	SP1019D	1.5" SKT X $\frac{3}{4}$" OPENING
19	6	SKIMMER	HAYWARD	SP1082	W/ NSF APPROVED COVER; 2" CONN.
20	2	MAIN DRAIN SUMP	DALDORADO	24X24X12X3	24" X 24"; 6" OUTLET; 408 GPM FLOOR; 62% OPEN AREA; SOFA & VGB APPROVED
21	2	COLLECTOR TUBE FOR DRAIN SUMP	HAYWARD	SP1055	
22	2	HYDROSTATIC RELIEF VALVE FOR DRAIN SUMP	HAYWARD	SP1056	1.5"
23	2	WATER LEVEL CONTROLLER	AQUATIC CONTROL	ELC800R	WETWELL CONFIGURATION; W/ TRANSMITTER AND SOLENOID VALVE
24	1	WATER LEVEL CONTROLLER	AQUATIC CONTROL	ELC800R	SURGE TANK CONFIGURATION; W/ TRANSMITTER AND SOLENOID VALVE
25	1	FLOW SENSOR	+GF+	2536-P4	4" PIPE; WET TAP; PADDLEWHEEL
26	1	WET TAP VALVE (FOR ABOVE)	+GF+	3519	
27	1	FLOW TRANSMITTER	+GF+	9900	WALL MOUNTED
28	--	BUTTERFLY VALVES	ASAHI/AMERICA	POOL-PRO TYPE SP	SIZE & QUANTITY PER PLANS
29	--	CHECK VALVES	ASAHI/AMERICA	--	THERMOPLASTIC BODY; EPDM SEAT & SEAL
30	2	GAS HEATER	PENTAIR	MASTERTEMP	400 KBTUH; CONFIRM GAS REQUIREMENTS
31	1	THERMOMETER	TRERICE	B822Y 0203	2" FACE
32	1	EDGE BASIN GRATE	STRONGWELL	DURAGRATE	1.5" THK; SUPPORT SYSTEM BY MFR.
33	4	CATCH BASIN SUCTION SUCTION OUTLET SUMP	AQUASTAR	10AVR1010D	SUMP & COVER; 4" SKT
34	2	SUMPS FOR HYDROSTATIC RELIEF	ASA	FBS-50-809-3	9" X 9"; NO OUTLET (FOR HYDROSTATIC RELIEF ONLY)
35	2	HYDROSTATIC RELIEF VALVE (FOR ABOVE)	HAYWARD	SP1026	1.5"
36	2	COLLECTOR TUBE FOR BASIN SUMP	HAYWARD	SP1055	

DECK EQUIPMENT LIST

NO.	QUAN.	ITEM	MANUFACTURER	CATALOG NO.	DESCRIPTION
1	4	HANDRAIL	SR SMITH	ART-1002	0.065" THK; 1.90" O.D.; 6 FT SPAN; 3'0" DEPTH
2	3	HANDRAIL	SR SMITH	ART-1001	0.065" THK; 1.90" O.D.; 3 FT SPAN; 6" DEPTH
3	2 SETS	RECESSED STEP SETS	SR SMITH	62-209-4001	17.5" X 7"; WHITE
4	18	ANCHOR FOR ABOVE	SR SMITH	AS-100B	4"; 1.90" O.D.
5	18	ESCUTCHEONS FOR ABOVE	SR SMITH	EP-100F	FOR 1.90" O.D. TUBING; SS
6	1	ADA LIFT	AQUA CREEK	SCOUT EXCEL	BATTERY-POWERED; PROVIDE WITH ANCHOR

SAFETY EQUIPMENT LIST

NO.	QUAN.	ITEM	MANUFACTURER	CATALOG NO.	DESCRIPTION
1	1	POOL RULES SIGN	-	-	PER CODE; SEE NOTES
2	-	DEPTH MARKERS	-	-	AS SHOWN ON PLANS; NON-SLIP
3	-	NO DIVING MARKERS	-	-	AS SHOWN ON PLANS; NON-SLIP
4	6	UNDERWATER LED LIGHT	JANDY	HYDROCOOL	205 WATT EQUIV; NICHLESS; WHITE
5	4	TRANSFORMER FOR ABOVE	INTERMATIC	PX300S	120V, 3A, 12-13-14V STEPDOWN; SS FINISH
6	1	SHEPHERD'S HOOK & POLE	LINCOLN AQUATICS	42-065	ALUMINUM; 16' POLE
7	1	LIFE RING BUOY	LINCOLN AQUATICS	44-075	24" RING
8	1	HEAVING LINE FOR ABOVE	LINCOLN AQUATICS	44-095	$\frac{1}{4}$" ROPE W/ 60' LENGTH; MOUNTING HOOK
9	1	SPINEBOARD	RECREONICS	CJ RESECUE 6	4 TIES; W/ HEAD IMMOBLIZER
10	1	FIRST AID KIT	RECREONICS	12-013	24 ITEM KIT
11	1	SHUT-OFF CONTROL SYSTEM	PENTAIR	LX820	POWER CENTER + SHUTOFF SWITCH W/ ALARM; CONFIRM RELAY SIZE; PROVIDE DOUBLE-GANG ELECTRICAL BOX RATED FOR OUTDOOR USE

* EQUIPMENT INCLUDED IN THIS LIST MAY BE SUBSTITUTED WITH EQUIPMENT CONSIDERED EQUIVALENT BY THE ENGINEER, UNLESS OTHERWISE NOTED.
ALL EQUIPMENT SHALL CARRY AN NSF APPROVAL OR UL LISTING.

INFINITY POOL EQUIPMENT LIST

SWIMMING POOL EQUIPMENT LIST

NO.	QUAN.	ITEM	MANUFACTURER	CATALOG NO.	DESCRIPTION
1	1	RECIRCULATION PUMP (P-3)	PENTAIR	340020	EQK-500; 225 GPM @ 65' TDH; 5 HP, 230V; 3PH; ODP
2	1	STRAINER (P-3)	PENTAIR	340013	EQ 6X6 STRAINER
3	1	VARIABLE FREQUENCY DRIVE (P-3)	PENTAIR	AD050X-2301-N4X	5 HP; NEMA 4X ENCL.; FOR PHASE CONVERSION TO 3Ø
4	1	DEFENDER ASSERO FILTER	NEPTUNE BENSON	SP-29-36-450	263 SF; 132-368 GPM FLOW RANGE; 6" INFLUENT/EFFLUENT W/ 4" REDUCING BUSHING; PERLITE; MANUAL BUMP
5	1	BACKWASH SCREEN FOR ABOVE (SHARED)	NEPTUNE BENSON	--	2'0" X 2'6" HEIGHT; MOUNT IN ADJACENT WASTE SUMP
8	1	ACID DRUM PALLET (SHARED)	EAGLE MFG.	1635	4-DRUM; 60 GAL CAPACITY (SHARED W/ MLPS POOL)
9	1	RAMP FOR ABOVE (SHARED)	EAGLE MFG.	1689	
10	1	HYPOCHLORITE STORAGE TANK (SHARED)	SNYDER	5990502N_01	250 GAL CAPACITY; DOUBLE-WALL CONTAINMENT (SHARED W/ REC. POOL)
11	1	ORP CONTROLLER SYSTEM	PROMINENT	DCM3	PROBES, WET CELL; FLOW SWITCH; ORP/pH; WIFI ENABLED
12	1	HYPOCHLORITE FEED PUMP	STENNER	85MJL5	4.3 TO 85.0 GPD @ 25 PSI
13	1	ACID FEED PUMP	STENNER	45MJL5	2.5 TO 50.0 GPD @ 25 PSI
14	14	FLOOR RETURN INLET	PENTAIR	08417-0000	2" SLIP W/ 1.5" SLIP BUSHING; WHITE
15	6	SKIMMER	HAYWARD	SP1082	W/ NSF APPROVED COVER; 2" CONN.
16	2	MAIN DRAIN SUMP	DALDORADO	24X24X12X3	24" X 24"; 3" OUTLET; 408 GPM FLOOR; 62% OPEN AREA; SOFA & VGB APPROVED
17	2	COLLECTOR TUBE FOR DRAIN SUMP	HAYWARD	SP1055	
18	2	HYDROSTATIC RELIEF VALVE FOR DRAIN SUMP	HAYWARD	SP1056	1.5"
19	1	WATER LEVEL CONTROLLER	AQUATIC CONTROL	ELC800R	WETWELL CONFIGURATION; W/ TRANSMITTER AND SOLENOID VALVE
20	1	FLOW SENSOR	+GF+	2536-P4	4" PIPE; WET TAP; PADDLEWHEEL
21	1	WET TAP VALVE (FOR ABOVE)	+GF+	3519	
22	1	FLOW TRANSMITTER	+GF+	9900	WALL MOUNTED
23	--	BUTTERFLY VALVES	ASAHI/AMERICA	POOL-PRO TYPE SP	SIZE & QUANTITY PER PLANS
24	--	CHECK VALVES	ASAHI/AMERICA	--	THERMOPLASTIC BODY; EPDM SEAT & SEAL
25	2	GAS HEATER	PENTAIR	MASTERTEMP	400 KBTUH; CONFIRM GAS REQUIREMENTS
26	1	THERMOMETER	TRERICE	B822Y 0203	2" FACE

DECK EQUIPMENT LIST

NO.	QUAN.	ITEM	MANUFACTURER	CATALOG NO.	DESCRIPTION
1	2	HANDRAIL	SR SMITH	3HR-X-065	3-BEND; 0.065" THK; 1.90" O.D.; 8 FT SPAN; 3'0" DEPTH
2	1	LADDER	SR SMITH	10136	0.065" THK; 1.90" O.D.; CROSS BRACED
2	6	ANCHOR FOR ABOVE	SR SMITH	AS-100B	4"; 1.90" O.D.
3	6	ESCUTCHEONS FOR ABOVE	SR SMITH	EP-100F	FOR 1.90" O.D. TUBING;SS
6	1	ADA LIFT	AQUA CREEK	SCOUT EXCEL	BATTERY-POWERED; PROVIDE WITH ANCHOR

SAFETY EQUIPMENT LIST

NO.	QUAN.	ITEM	MANUFACTURER	CATALOG NO.	DESCRIPTION
1	1	POOL RULES SIGN	-	-	PER CODE; SEE NOTES
2	-	DEPTH MARKERS	-	-	AS SHOWN ON PLANS; NON-SLIP
3	-	NO DIVING MARKERS	-	-	AS SHOWN ON PLANS; NON-SLIP
4	5	UNDERWATER LED LIGHT	JANDY	HYDROCOOL	205 WATT EQUIV; NICHLESS; WHITE
5	4	TRANSFORMER FOR ABOVE	INTERMATIC	PX300S	120V, 3A, 12-13-14V STEPDOWN; SS FINISH
6	1	SHEPHERD'S HOOK & POLE	LINCOLN AQUATICS	42-065	ALUMINUM; 16' POLE
7	1	LIFE RING BUOY	LINCOLN AQUATICS	44-075	24" RING
8	1	HEAVING LINE FOR ABOVE	LINCOLN AQUATICS	44-095	$\frac{1}{4}$" ROPE W/ 60' LENGTH; MOUNTING HOOK
9	1	SPINEBOARD	RECREONICS	CJ RESECUE 6	4 TIES; W/ HEAD IMMOBLIZER
10	1	FIRST AID KIT	RECREONICS	12-013	24 ITEM KIT
11	1	SHUT-OFF CONTROL SYSTEM	PENTAIR	LX820	POWER CENTER + SHUTOFF SWITCH W/ ALARM; CONFIRM RELAY SIZE; PROVIDE DOUBLE-GANG ELECTRICAL BOX RATED FOR OUTDOOR USE

* EQUIPMENT INCLUDED IN THIS LIST MAY BE SUBSTITUTED WITH EQUIPMENT CONSIDERED EQUIVALENT BY THE ENGINEER, UNLESS OTHERWISE NOTED.
ALL EQUIPMENT SHALL CARRY AN NSF APPROVAL OR UL LISTING.

SPA NOTES

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MI LICENSE # 50814
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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
EQUIPMENT LISTS

DESIGNED BY
HWB

DRAWN BY
NCT

CHECKED BY
HWB

PROJECT
22030

DATE
10/2/23

SCALE
AS NOTED

SHEET
I1.1

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS5200D800\projects\2023 Projects\23030 Air Tech Leelanau\Plans\02-03-I1.0-I1.1.dwg SAVED: 10/2/2023 3:34:21 PM PLOTTED: 10/2/2023 4:32:35 PM BY: Heather Baxter

NOTE:
REFER TO HARDSCAPE PLANS FOR POOL LOCATION INFORMATION

EXISTING FIXTURE TABLE	
MEN'S - REQUIRED	MEN'S - PROVIDED
WC.....4	WC.....2*
U.....1	U.....3
LAV.....3	LAV.....3
SHOWER.....4	SHOWER.....0*
WOMEN'S - REQUIRED	WOMEN'S - PROVIDED
WC.....5	WC.....3*
LAV.....3	LAV.....3
SHOWER.....4	SHOWER.....0*
FAMILY RESTROOMS (1)	
WC.....1	LAV.....1
SHOWER.....1	

PER 325.2174(B), A 50% REDUCTION IN SOME FIXTURES IS BEING APPLIED. THE POOLS SERVE ONLY THE CAMPGROUND RESORT RESIDENTS AND THE LIVING UNITS ARE READILY ACCESSIBLE TO THE PATRONS. A FAMILY RESTROOM HAS BEEN PROVIDED AND INCLUDES ONE SHOWER. THE REMAINING SHOWERS FACILITIES INCLUDE TWO DECK SHOWERS.

NORTH

SCALE: 1" = 16'-0"

0 8' 16' 32' 48'

POOL EQUIPMENT BUILDING

CAMP STORE

PROPOSED RESTROOM FACILITIES (SEE CHART AND NOTE THIS DRAWING)

CABANA (TYP. 5)

POOL SAFETY EQUIPMENT

EMERGENCY PHONE W/ SIGN

GATE

POOL RULES SIGN

SWIMMING POOL
1,810 S.F.

4'-0" WET DECK (TYP.)

GATE

DECK LIMITS

DECK LIMITS

POOL RULES SIGN

POOL SAFETY EQUIPMENT

CABANA (TYP. 12)

4'-0" WET DECK (TYP.)

SUNSHELF

INFINITY POOL
2,337 S.F. (SWIM AREA)
302 S.F. (CATCH BASIN)

PERIMETER FENCE (TYP.)

1" Ø POTABLE WATER, REFER TO MECH. PLANS

CATCH BASIN

GATE

3" Ø TO WASTE, REFER TO CIVIL PLANS

PAVILION

LAKE LEELANAU

079 065 050 080 064 051 081 063 052 082 062 053 061 054 060 056 057 058 059 055

COTTONWOOD WAY

R WAY

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www.wetengineering.net
MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

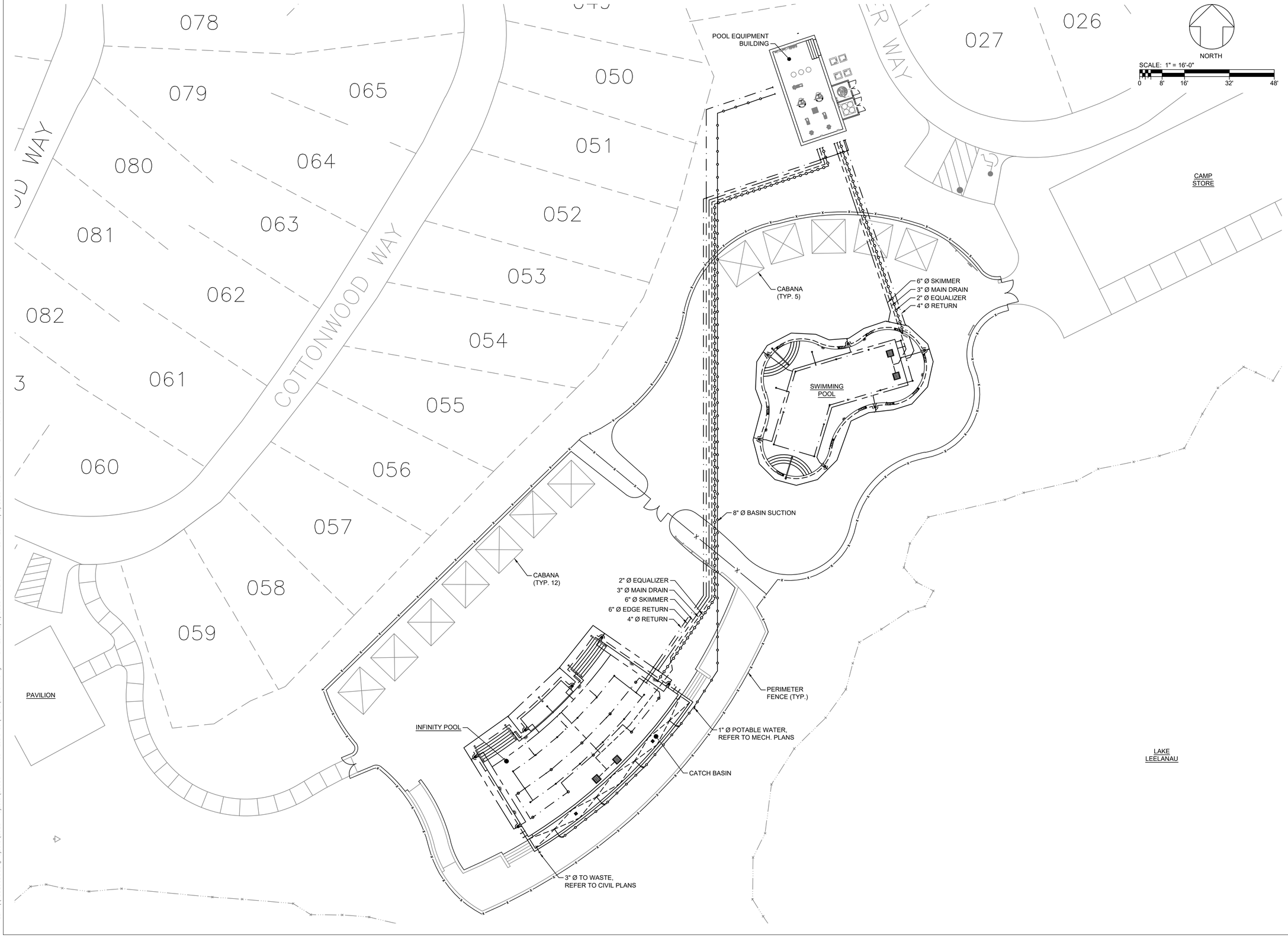
SHEET TITLE
OVERALL SITE PLAN

DESIGNED BY HWB
DRAWN BY NCT
CHECKED BY HWB

PROJECT 22030
DATE 10/2/23
SCALE AS NOTED
SHEET C1.0

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS5200DB001\projects\2023 Projects\23030 Air Tech Leelanau\Plans\04-C1.0.dwg SAVED: 10/2/2023 4:01:07 PM PLOTTED: 10/2/2023 4:33:01 PM BY: Heather Baxter



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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
YARD PIPING PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: C1.1

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS5200DB00\projects\2023 Projects\23030 Air Tech Leelanau\Plans\05-C1.1.dwg SAVED: 10/2/2023 4:02:06 PM PLOTTED: 10/2/2023 4:32:44 PM BY: Heather Baxter

078
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059
050
051
052
053
054
055
027
026
COTTONWOOD WAY
R WAY
POOL EQUIPMENT BUILDING
NORTH
SCALE: 1" = 16'-0"
0 8' 16' 32' 48'
CAMP STORE
6" SDR 35 (1% SLOPE MIN.)
CABANA (TYP. 5)
6" SDR 35 (1% SLOPE MIN.)
SWIMMING POOL
SLOPE TO DRAIN (TYP.)
6" SDR 35 (1% SLOPE MIN.)
9" X 9" DECK DRAIN (TYP OF 30)
DECK LIMITS
18" CMP (0.52% MIN SLOPE)
6" SDR 35 (1% SLOPE MIN.
SLOPE TO DRAIN
CONCRETE SAWCUT 10 FT INTERVALS (TYP.)
6" SDR 35 (1% SLOPE MIN.)
DECK LIMITS
9" x 9" DECK DRAIN (TYP. OF 30)
INFINITY POOL
PAVILION
LAKE LEELANAU

WORLD WATERPARK ASSOCIATION

HEATHER W. BAXTER, P.E.
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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

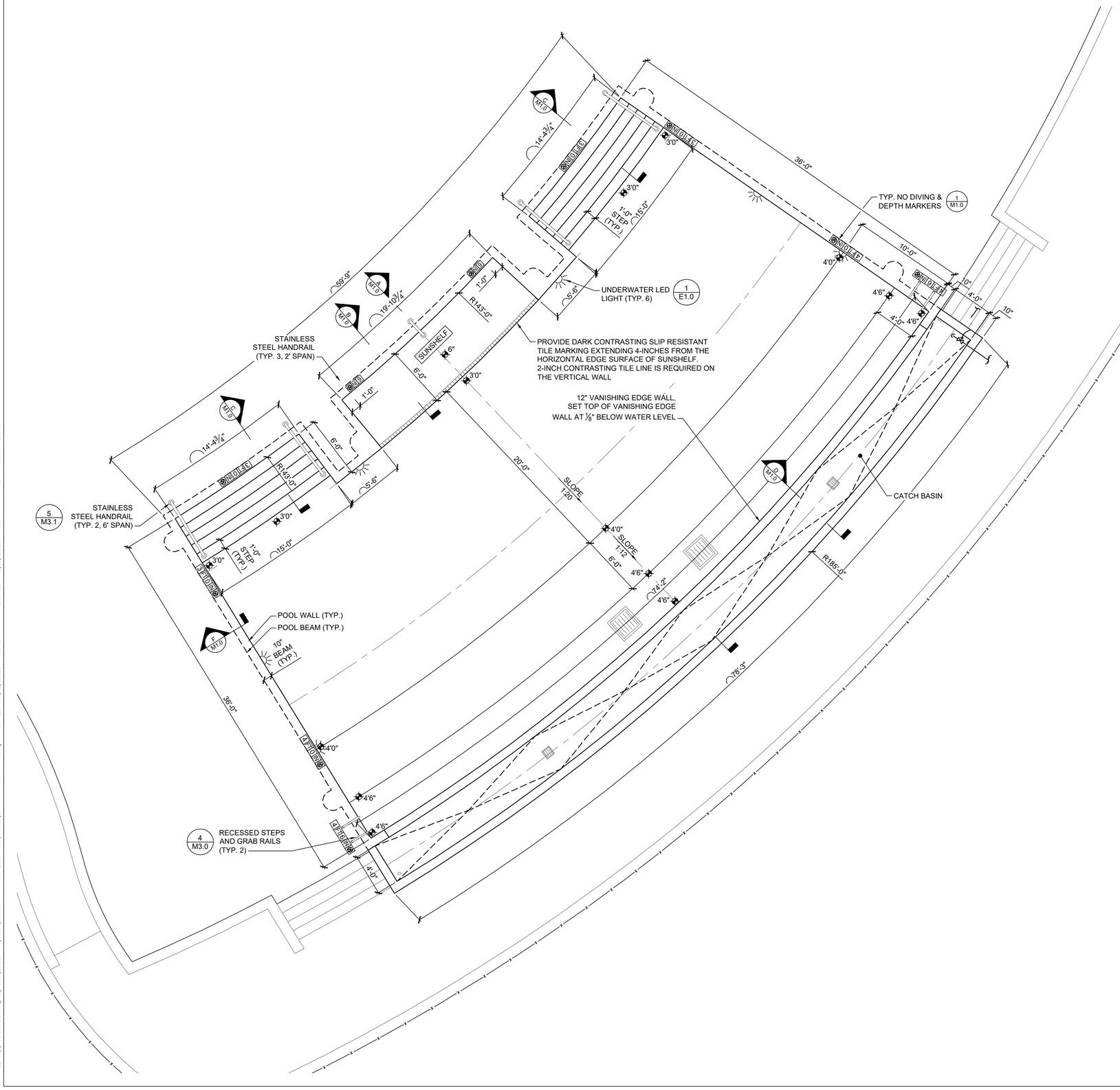
SHEET TITLE
DECK GRADING PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: C1.2

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS52000800\projects\2023 Projects\23030 Air Tech Leelanau\Plans\05-C1.2.dwg SAVED: 10/2/2023 4:03:33 PM PLOTTED: 10/2/2023 4:32:57 PM BY: Heather Baxter



TYPICAL DEPTH AND NO DIVING MARKER DETAIL
1 M1.0 SCALE: N.T.S.

NORTH

SCALE: 1" = 6'-0"
0 3' 6' 12' 18'

3 FT 6 IN

1. --- DEPTH MARKING AND RED NO DIVING MARKING TO BE PROVIDED AT THESE LOCATIONS. MAXIMUM SPACING IS 25'-0". ALL LETTERING TO BE MINIMUM 4" HIGH. MARKINGS TO BE PROVIDED ON DECK WITHIN 2'-0" OF WATER EDGE AND ON INSIDE VERTICAL WALL ABOVE WATER LEVEL ("NO DIVING" MARKERS NOT REQUIRED ON VERTICAL WALL). WHERE OPEN GUTTER DESIGNS ARE UTILIZED, DEPTH MARKERS SHALL BE LOCATED ON THE BACK OF THE GUTTER WALL. MARKINGS ON DECK SHALL BE NON SKID. MARKING COLOR SHALL CONTRAST WITH BACKGROUND.
2. CONTRACTOR TO VERIFY WATER DEPTH AT MARKING LOCATIONS SHOWN PRIOR TO INSTALLING MARKING. DEPTH TO BE MEASURED 3'-0" PERPENDICULAR FROM POOL WALL.

NOTES:
1. PERIMETER FENCE SHALL BE INSTALLED PRIOR TO MARCITE APPLICATION AND SHALL BE SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR.
2. POOL WET DECK SHALL HAVE A MIN. UNOBSTRUCTED WIDTH OF 4 FT. AROUND THE PERIMETER OF POOL, LADDERS, AND HANDRAILS.
3. WET DECK SHALL HAVE A MINIMUM $\frac{1}{4}$" PER FOOT SLOPE AWAY FROM POOL TO PREVENT STANDING WATER.
4. THE CORNER INTERSECTIONS OF WALLS WHICH PROTRUDE OR ANGLE INTO THE POOL WATER AREA SHALL BE ROUNDED WITH A MIN. RADIUS OF 2 IN.
5. POOL FENCE AND GATES TO BE NOT LESS THAN FOUR FEET HIGH AS MEASURED ON THE OUTSIDE, DOES NOT PROVIDE READY FOOTING FOR CLIMBING. AND IS DESIGNED TO PREVENT PASSAGE THROUGH OR UNDER THE ENCLOSURE.
6. ACCESS GATES SHALL BE SELF-CLOSING, SELF LATCHING, AND OF 48 INCH MIN. HEIGHT WITH THE LATCH LOCATED A MIN. OF 54 INCHES FROM THE BOTTOM OF THE GATE OR AT LEAST 3 INCHES BELOW THE TOP OF THE GATE ON THE POOL SIDE.
7. DEPTH MARKINGS AND NO DIVING MARKINGS SHALL BE INSTALLED AS SHOWN WITH A MAXIMUM PERIMETER DISTANCE OF 25 FEET UNLESS OTHERWISE NOTED.
8. CONTRACTOR TO VERIFY WATER DEPTH AT MARKING LOCATIONS SHOWN PRIOR TO INSTALLING MARKING. DEPTH TO BE MEASURED 3'-0" PERPENDICULAR DISTANCE FROM POOL WALL.
9. ◆ DENOTES WATER DEPTH AT THAT LOCATION.

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

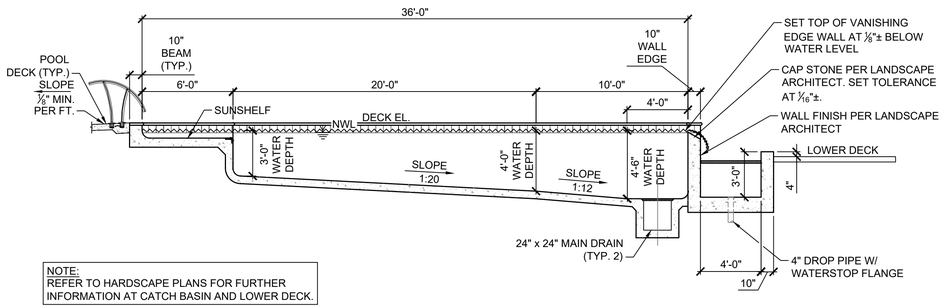
SHEET TITLE
INFINITY POOL GEOMETRY PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M1.0

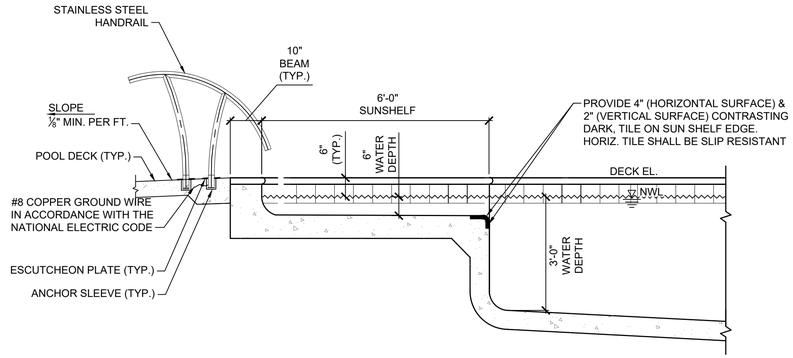
DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS52000B00\projects\2023 Projects\23030 Air Tech Leelanau\Plans\06-07-M1.0-M1.1.dwg SAVED: 10/2/2023 4:08:21 PM PLOTTED: 10/2/2023 4:33:41 PM BY: Heather Baxter

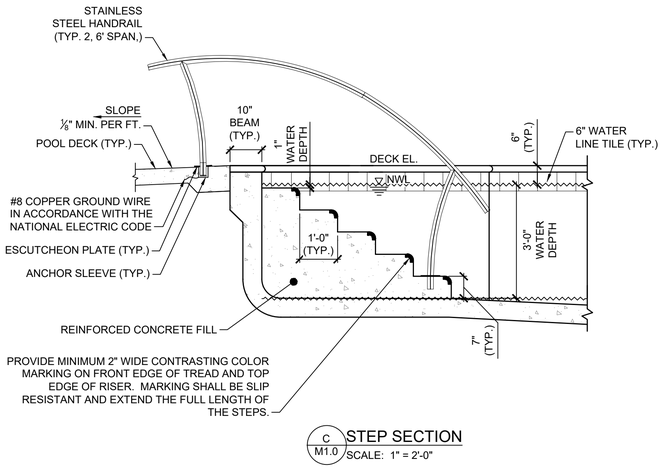


NOTE:
REFER TO HARDSCAPE PLANS FOR FURTHER INFORMATION AT CATCH BASIN AND LOWER DECK.

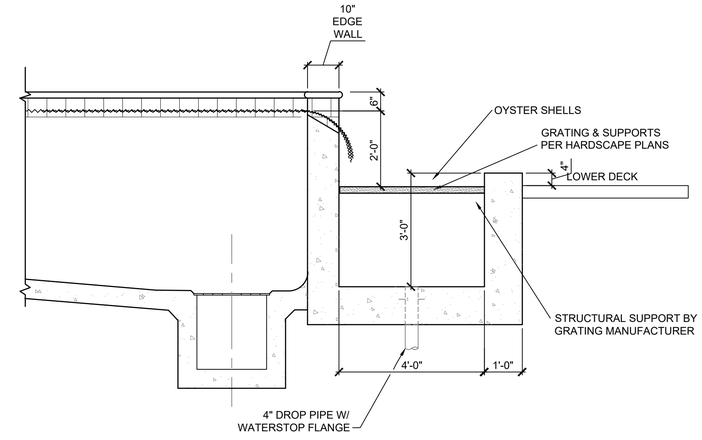
A M1.0 SECTION
SCALE: 1" = 5'-0"



B M1.0 SUNSHELF SECTION
SCALE: 1" = 2'-0"

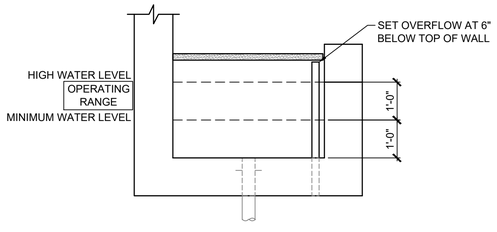


C M1.0 STEP SECTION
SCALE: 1" = 2'-0"

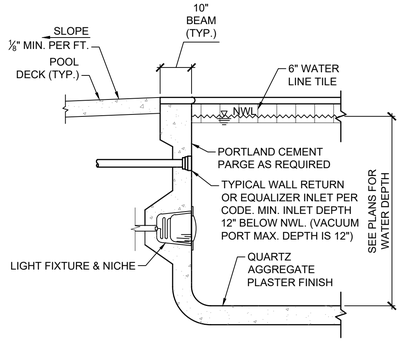


NOTES:
1. REFER TO WATERPROOFING NOTES ON SHEET I1.0 FOR CATCH BASIN WATERPROOFING SPECIFICATION.

D M1.0 CATCH BASIN SECTION
SCALE: 1" = 2'-0"



E M1.0 CATCH BASIN OPERATING LEVELS
SCALE: 1" = 2'-0"



NOTES:
1. SWIMMING POOL WALL TO BE VERTICAL, SLOPES UNIFORMLY DOWN TO THE POINT OF CURVATURE AT NOT MORE THAN 1 HORIZONTAL IN 5 VERTICAL, OR FALLS WITHIN A PLANE SLOPED 1 HORIZONTAL IN 5 VERTICAL FROM THE WATERLINE OWN TO THE POINT OF CURVATURE WHERE THE WALL CANNOT UNIFORMLY DUE TO THE NECESSARY STRUCTURAL SUPPORT OF THE UPPER WALL.
2. POOL WALL AND FLOOR TO BE COVED WITH A RADIUS OF NOT LESS THAN 1/2 OF AN INCH, NOT MORE THAN 8 INCHES WHERE WATER DEPTH IS 6 FEET OR LESS, OR NOT MORE THAN 75 INCHES WHERE THE WATER DEPTH IS MORE THAN 6 FEET.

F M1.0 TYPICAL WALL SECTION
SCALE: N.T.S.

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
INFINITY POOL SECTIONS

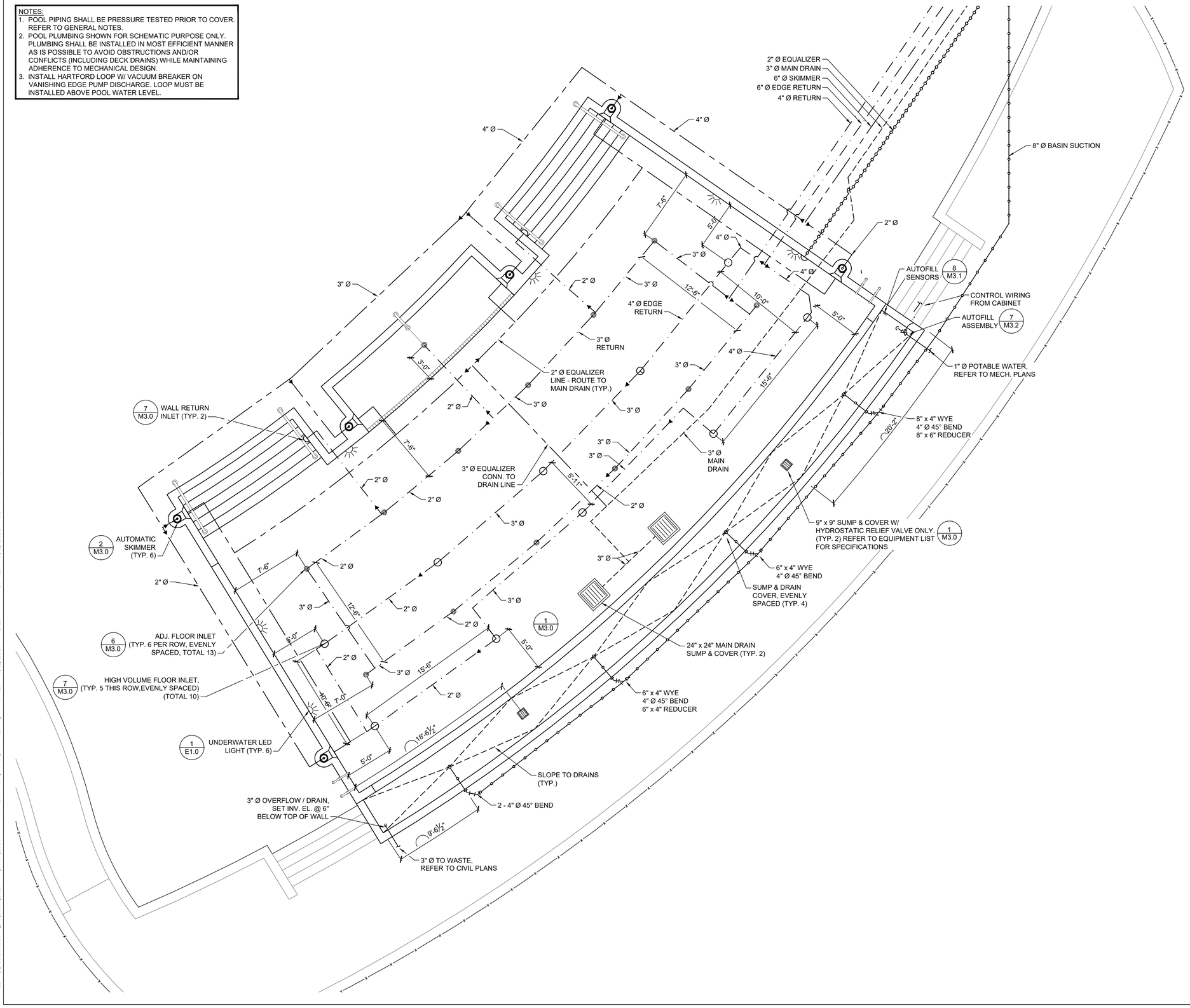
DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M1.1

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS5200DB00\projects\2023 Projects\23030 Air Tech Leelanau\Plans\06-07-M1.0-M1.1.dwg SAVED: 10/2/2023 4:08:21 PM BY: Heather Baxter PLOTTED: 10/2/2023 4:33:52 PM

NOTES:
1. POOL PIPING SHALL BE PRESSURE TESTED PRIOR TO COVER. REFER TO GENERAL NOTES.
2. POOL PLUMBING SHOWN FOR SCHEMATIC PURPOSE ONLY. PLUMBING SHALL BE INSTALLED IN MOST EFFICIENT MANNER AS IS POSSIBLE TO AVOID OBSTRUCTIONS AND/OR CONFLICTS (INCLUDING DECK DRAINS) WHILE MAINTAINING ADHERENCE TO MECHANICAL DESIGN.
3. INSTALL HARTFORD LOOP W/ VACUUM BREAKER ON VANISHING EDGE PUMP DISCHARGE. LOOP MUST BE INSTALLED ABOVE POOL WATER LEVEL.



NORTH

SCALE: 1" = 6'-0"
0 3' 6' 12' 18'

LEGEND
- BACKWASH PIPE
- DRAIN PIPE
- EQUALIZER PIPE
- FEATURE PIPE
- GUTTER PIPE
- RETURN PIPE
- SUCTION PIPE
- VACUUM PIPE
- WATER PIPE
- REDUCER

POOL DATA
SURFACE AREA.....2,337 FT.²
PERIMETER.....230 FT.
POOL VOLUME.....59,629 GAL.
BASIN VOLUME.....5,642 GAL.
TURNOVER RATE.....225 GPM
TURNOVER TIME .....4.8 HRS.
VAN. EDGE FLOW.....550 GPM
BATHING LOAD....163 PERSONS

WORLD WATERPARK ASSOCIATION

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
INFINITY POOL MECHANICAL PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M1.2

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

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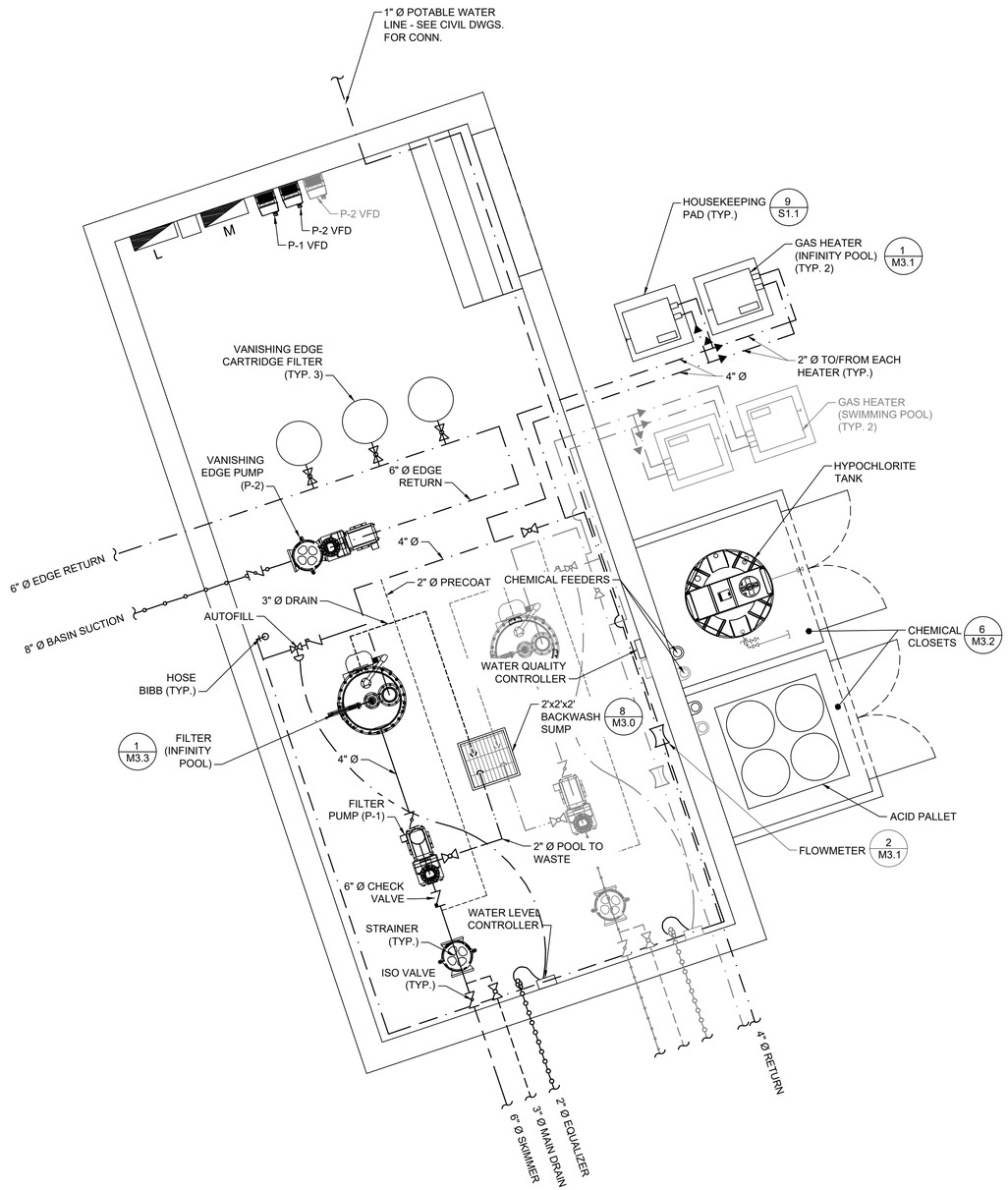

NORTH

SCALE: 1" = 3'-0"

0 1'6" 3' 6' 9'

LEGEND

- BACKWASH PIPE
- DRAIN PIPE
- EQUALIZER PIPE
- FEATURE PIPE
- GUTTER PIPE
- RETURN PIPE
- SUCTION PIPE
- VACUUM PIPE
- WATER PIPE
- REDUCER

WORLD WATERPARK ASSOCIATION

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DRAWINGS SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
INFINITY POOL EQUIPMENT
BLDG. MECHANICAL PLAN

DESIGNED BY
HWB

DRAWN BY
NCT

CHECKED BY
HWB

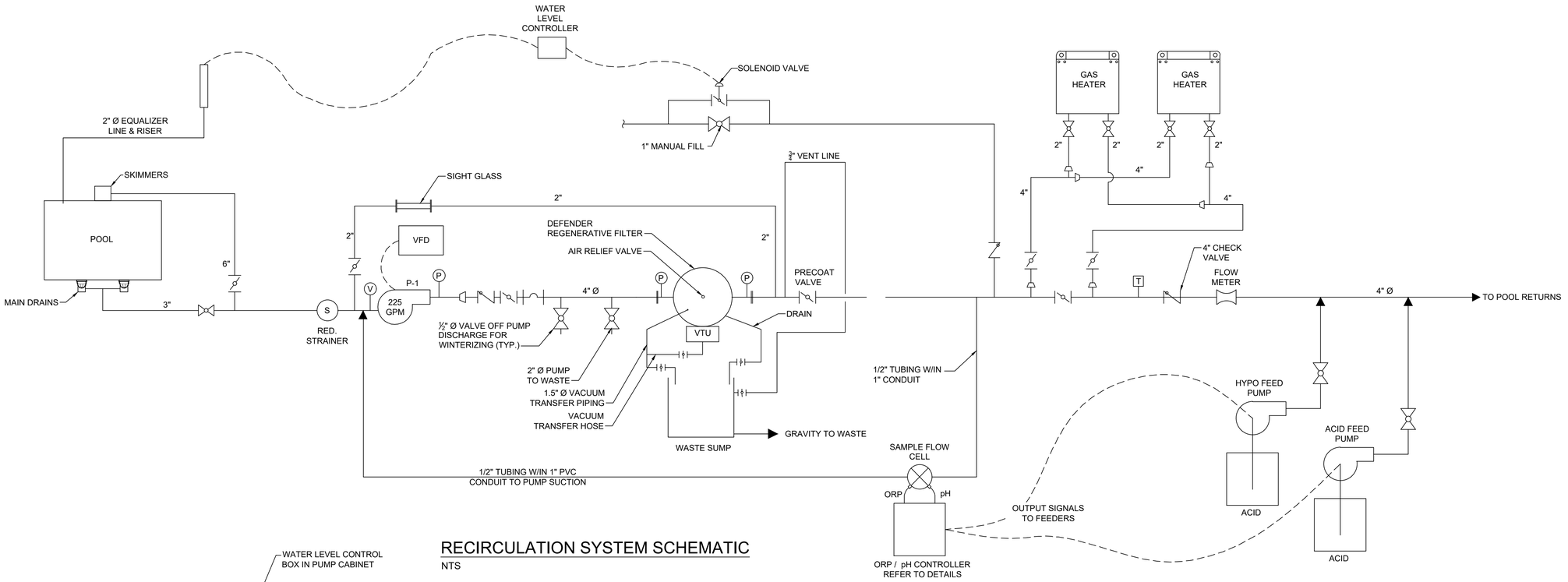
PROJECT
22030

DATE
10/2/23

SCALE
AS NOTED

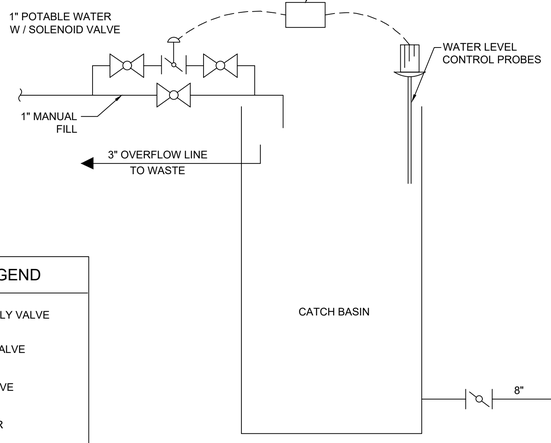
SHEET
M1.3

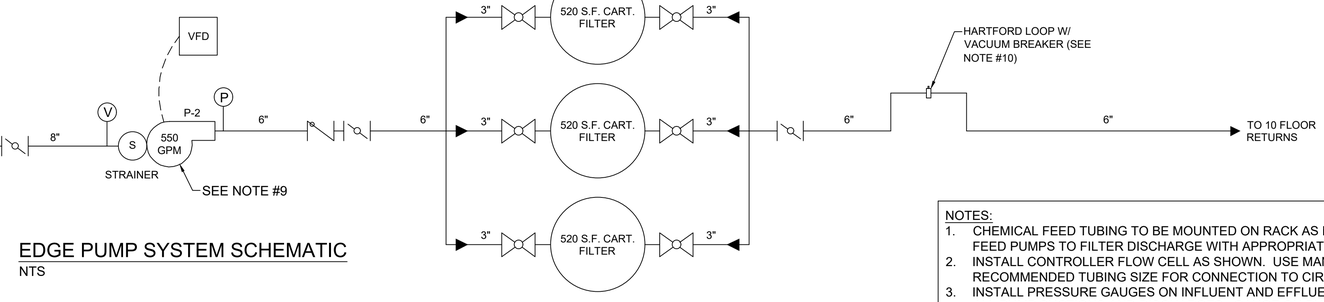
FILE: \\TS520DBGO\projects\2023 Projects\23030 Air Tech Leelanau\Plans\09-M1.3.dwg SAVED: 10/2/2023 4:19:53 PM PLOTTED: 10/2/2023 4:33:20 PM BY: Heather Baxter



RECIRCULATION SYSTEM SCHEMATIC

NTS





EDGE PUMP SYSTEM SCHEMATIC

NTS

VALVE LEGEND

- BUTTERFLY VALVE
- CHECK VALVE
- BALL VALVE
- REDUCER
- FLOW METER
- PUMP
- SOLENOID VALVE
- SAMPLE FLOW CELL
- MULTIPORT VALVE
- PRESSURE GAUGE
- VACUUM GAUGE
- THERMOMETER
- STRAINER

POOL DATA

SURFACE AREA	2,337 FT.²
PERIMETER	230 FT.
POOL VOLUME	59,629 GAL.
BASIN VOLUME	5,642 GAL.
TURNOVER RATE	225 GPM
TURNOVER TIME	4.8 HRS.
VAN. EDGE FLOW	550 GPM
BATHING LOAD	163 PERSONS

NOTES:

1. CHEMICAL FEED TUBING TO BE MOUNTED ON RACK AS NEEDED AND RUN FROM FEED PUMPS TO FILTER DISCHARGE WITH APPROPRIATE FITTINGS.
2. INSTALL CONTROLLER FLOW CELL AS SHOWN. USE MANUFACTURER'S RECOMMENDED TUBING SIZE FOR CONNECTION TO CIRCULATION PUMP DISCHARGE.
3. INSTALL PRESSURE GAUGES ON INFLUENT AND EFFLUENT SIDES OF FILTER AND ON ALL PUMP SUCTIONS AND DISCHARGES. GAUGE ON PUMP SUCTION TO BE COMPOUND-TYPE.
4. INSTALL FLOW METER WITH STRAIGHT RUNS OF 10x PIPE DIAMETER ON THE UPSTREAM SIDE AND 5x PIPE DIAMETER ON THE DOWNSTREAM SIDE.
5. LAYOUT SHOWN IS INTENDED FOR SCHEMATIC PURPOSES ONLY. ACTUAL EQUIPMENT ARRANGEMENT MAY VARY.
6. FILTERS TO BE SUPPLIED WITH PRESSURE RELIEF VALVES, DIFFERENTIAL PRESSURE GAUGES AND BACKWASH SIGHT GLASSES (SAND FILTERS ONLY).
7. ALL EQUIPMENT COMING IN CONTACT WITH POOL WATER TO BE CERTIFIED BY NSF OR CERTIFIED BY THE MANUFACTURER TO BE LEAD FREE.
8. INTERNALS OF CAST IRON PUMPS TO BE EPOXY COATED.
9. 550 GPM IS DESIGN VANISHING EDGE FLOWRATE. ACTUAL FLOWRATE MAY VARY BASED ON DESIRED EFFECT OF WATER OVER VANISHING EDGE WALL.
10. INSTALL HARTFORD LOOP W/ VACUUM BREAKER ON VANISHING EDGE PUMP DISCHARGE. LOOP MUST BE INSTALLED ABOVE POOL WATER LEVEL.

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

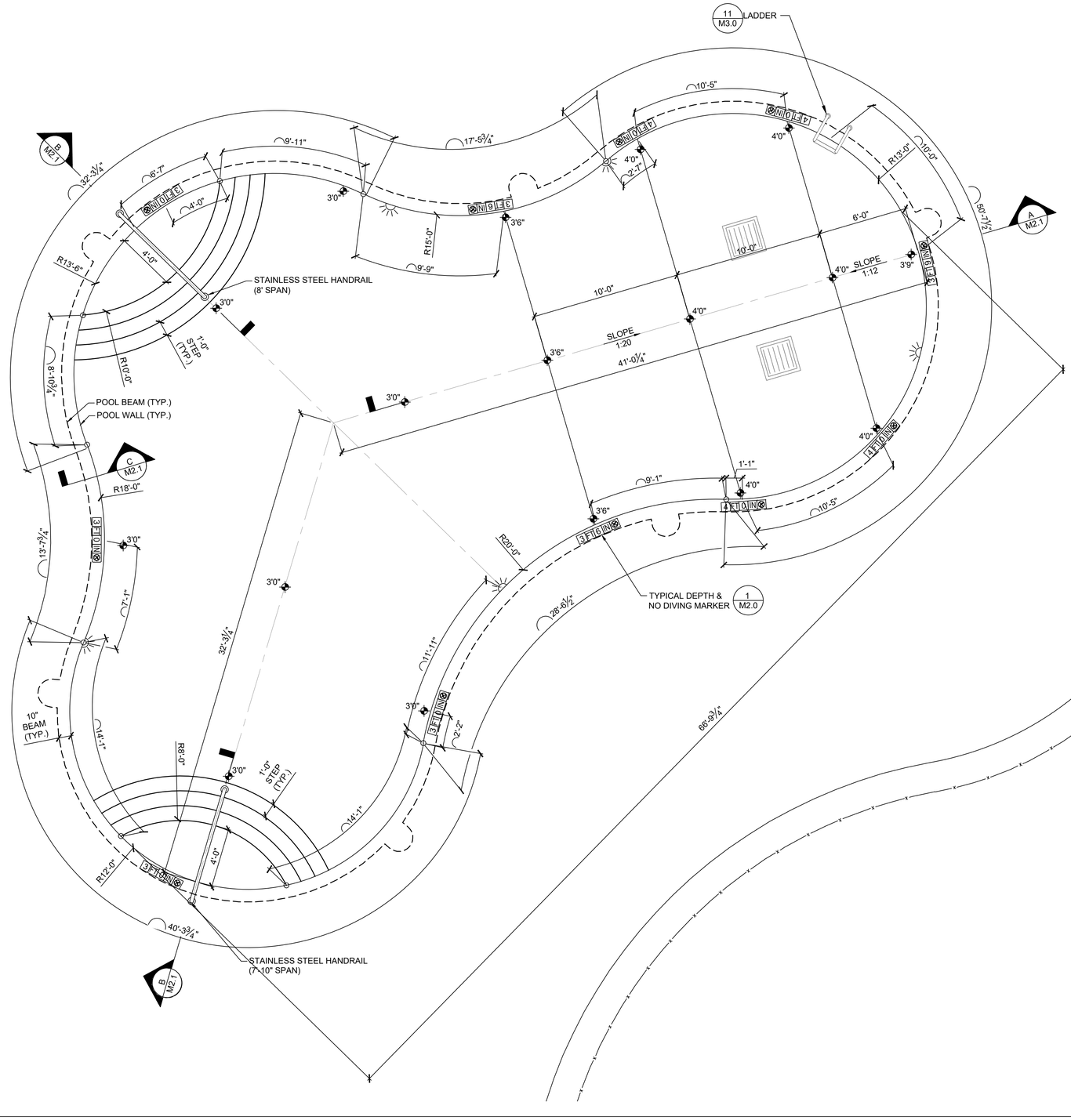
SHEET TITLE
INFINITY POOL RECIRCULATION SYSTEM SCHEMATIC

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M1.4

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS520DGBG0\projects\2023 Projects\23030 Air Tech Leelanau\Plans\10-M1.4.dwg SAVED: 10/2/2023 4:27:01 PM PLOTTED: 10/2/2023 4:33:22 PM BY: Heather Baxter

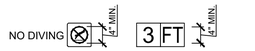


SCALE: 1" = 4'-0"

0 2' 4' 8' 12'

3 FT 6 IN

1. --- DEPTH MARKING AND RED NO DIVING MARKING TO BE PROVIDED AT THESE LOCATIONS. MAXIMUM SPACING IS 25'-0". ALL LETTERING TO BE MINIMUM 4" HIGH. MARKINGS TO BE PROVIDED ON DECK WITHIN 2'-0" OF WATER EDGE AND ON INSIDE VERTICAL WALL ABOVE WATER LEVEL ("NO DIVING" MARKERS NOT REQUIRED ON VERTICAL WALL). WHERE OPEN GUTTER DESIGNS ARE UTILIZED, DEPTH MARKERS SHALL BE LOCATED ON THE BACK OF THE GUTTER WALL. MARKINGS ON DECK SHALL BE NON SKID. MARKING COLOR SHALL CONTRAST WITH BACKGROUND.
2. CONTRACTOR TO VERIFY WATER DEPTH AT MARKING LOCATIONS SHOWN PRIOR TO INSTALLING MARKING. DEPTH TO BE MEASURED 3'-0" PERPENDICULAR FROM POOL WALL.



1 M1.0 TYPICAL DEPTH AND NO DIVING MARKER DETAIL

SCALE: N.T.S.

NOTES:
1. PERIMETER FENCE SHALL BE INSTALLED PRIOR TO MARCITE APPLICATION AND SHALL BE SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR.
2. POOL WET DECK SHALL HAVE A MIN. UNOBSTRUCTED WIDTH OF 4 FT. AROUND THE PERIMETER OF POOL, LADDERS, AND HANDRAILS.
3. WET DECK SHALL HAVE A MINIMUM ¼" PER FOOT SLOPE AWAY FROM POOL TO PREVENT STANDING WATER.
4. THE CORNER INTERSECTIONS OF WALLS WHICH PROTRUDE OR ANGLE INTO THE POOL WATER AREA SHALL BE ROUNDED WITH A MIN. RADIUS OF 2 IN.
5. POOL FENCE AND GATES TO BE NOT LESS THAN FOUR FEET HIGH AS MEASURED ON THE OUTSIDE, DOES NOT PROVIDE READY FOOTING FOR CLIMBING, AND IS DESIGNED TO PREVENT PASSAGE THROUGH OR UNDER THE ENCLOSURE.
6. ACCESS GATES SHALL BE SELF-CLOSING, SELF LATCHING, AND OF 48 INCH MIN. HEIGHT WITH THE LATCH LOCATED A MIN. OF 54 INCHES FROM THE BOTTOM OF THE GATE OR AT LEAST 3 INCHES BELOW THE TOP OF THE GATE ON THE POOL SIDE.
7. DEPTH MARKINGS AND NO DIVING MARKINGS SHALL BE INSTALLED AS SHOWN WITH A MAXIMUM PERIMETER DISTANCE OF 25 FEET UNLESS OTHERWISE NOTED.
8. CONTRACTOR TO VERIFY WATER DEPTH AT MARKING LOCATIONS SHOWN PRIOR TO INSTALLING MARKING. DEPTH TO BE MEASURED 3'-0" PERPENDICULAR DISTANCE FROM POOL WALL.
9. ◆ DENOTES WATER DEPTH AT THAT LOCATION.

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

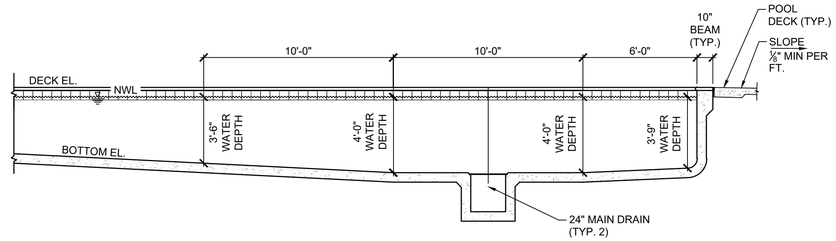
SHEET TITLE
SWIMMING POOL
GEOMETRY PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

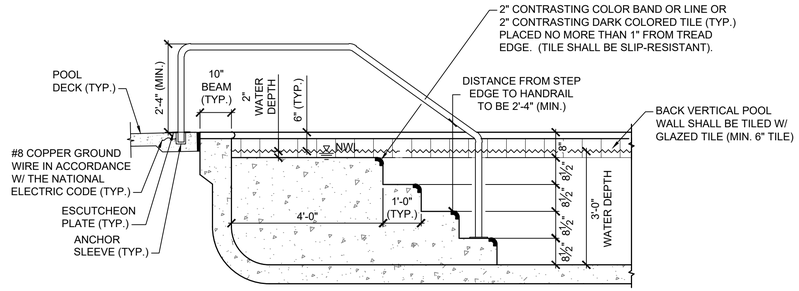
PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M2.0

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

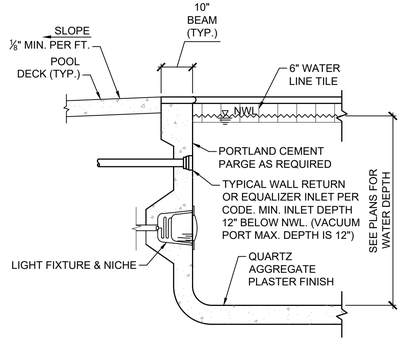
FILE: \\TS5200DB90\projects\2023 Projects\23030 Air Tech Leelanau\Plans\11-12-M2.0-M2.1.dwg SAVED: 10/2/2023 4:20:32 PM PLOTTED: 10/2/2023 BY: Heather Baxter



A M2.0 POOL SECTION
SCALE: 1" = 4'-0"



B M2.0 STEP SECTION
SCALE: 1" = 2'-0"



C M2.0 TYPICAL WALL SECTION
SCALE: N.T.S.

NOTES:
1. SWIMMING POOL WALL TO BE VERTICAL, SLOPES UNIFORMLY DOWN TO THE POINT OF CURVATURE AT NOT MORE THAN 1 HORIZONTAL IN 5 VERTICAL, OR FALLS WITHIN A PLANE SLOPED 1 HORIZONTAL IN 5 VERTICAL FROM THE WATERLINE OWN TO THE POINT OF CURVATURE WHERE THE WALL CANNOT UNIFORMLY DUE TO THE NECESSARY STRUCTURAL SUPPORT OF THE UPPER WALL.
2. POOL WALL AND FLOOR TO BE COVED WITH A RADIUS OF NOT LESS THAN $\frac{1}{2}$ OF AN INCH, NOT MORE THAN 8 INCHES WHERE WATER DEPTH IS 6 FEET OR LESS, OR NOT MORE THAN 75 INCHES WHERE THE WATER DEPTH IS MORE THAN 6 FEET.

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www.wetengineering.net
MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
SWIMMING POOL SECTIONS

DESIGNED BY HWB
DRAWN BY NCT
CHECKED BY HWB

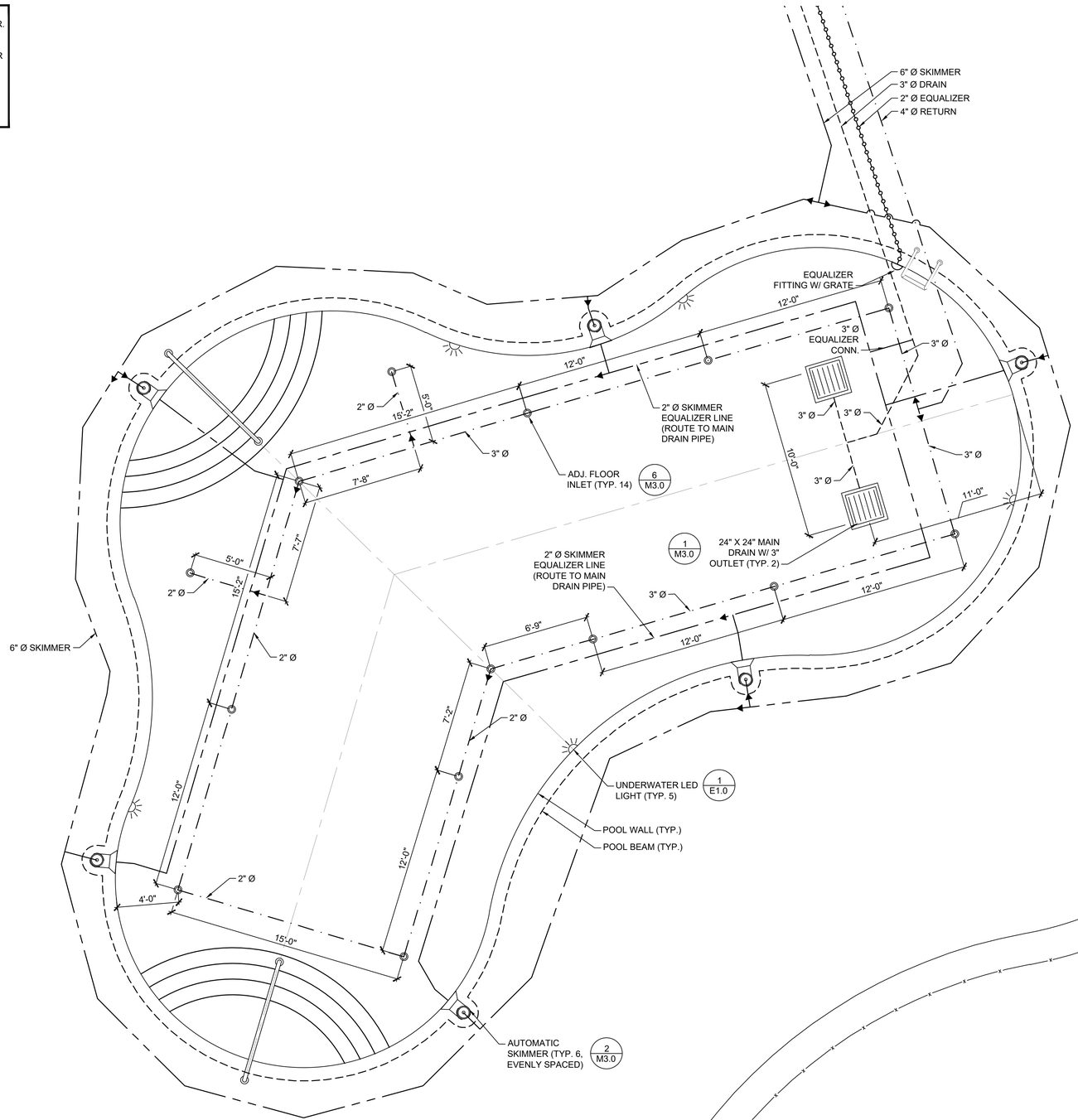
PROJECT 22030
DATE 10/2/23
SCALE AS NOTED

SHEET M2.1

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS52003B00\projects\2023 Projects\23030 Air Tech Leelanau\Plans\11-12-M2.0-M2.1.dwg SAVED: 10/2/2023 4:20:32 PM BY: Heather Baxter PLOTTED: 10/2/2023 4:33:34 PM

NOTES:
1. POOL PIPING SHALL BE PRESSURE TESTED PRIOR TO COVER. REFER TO GENERAL NOTES.
2. POOL PLUMBING SHOWN FOR SCHEMATIC PURPOSE ONLY. PLUMBING SHALL BE INSTALLED IN MOST EFFICIENT MANNER AS IS POSSIBLE TO AVOID OBSTRUCTIONS AND/OR CONFLICTS (INCLUDING DECK DRAINS) WHILE MAINTAINING ADHERENCE TO MECHANICAL DESIGN.
3. INSTALL HARTFORD LOOP W/ VACUUM BREAKER ON VANISHING EDGE PUMP DISCHARGE. LOOP MUST BE INSTALLED ABOVE POOL WATER LEVEL.



NORTH

SCALE: 1" = 4'-0"

0 2' 4' 8' 12'

LEGEND

- BACKWASH PIPE
- DRAIN PIPE
- EQUALIZER PIPE
- FEATURE PIPE
- GUTTER PIPE
- RETURN PIPE
- SUCTION PIPE
- VACUUM PIPE
- WATER PIPE
- REDUCER

SWIMMING POOL DATA

SURFACE AREA	1,810 FT.²
PERIMETER	183 FT.
VOLUME	46,232 GAL.
TURNOVER RATE	225 GPM
TURNOVER TIME	3.4 HOURS
BATHING LOAD	126 PERSONS

HEATHER W. BAXTER, P.E.
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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

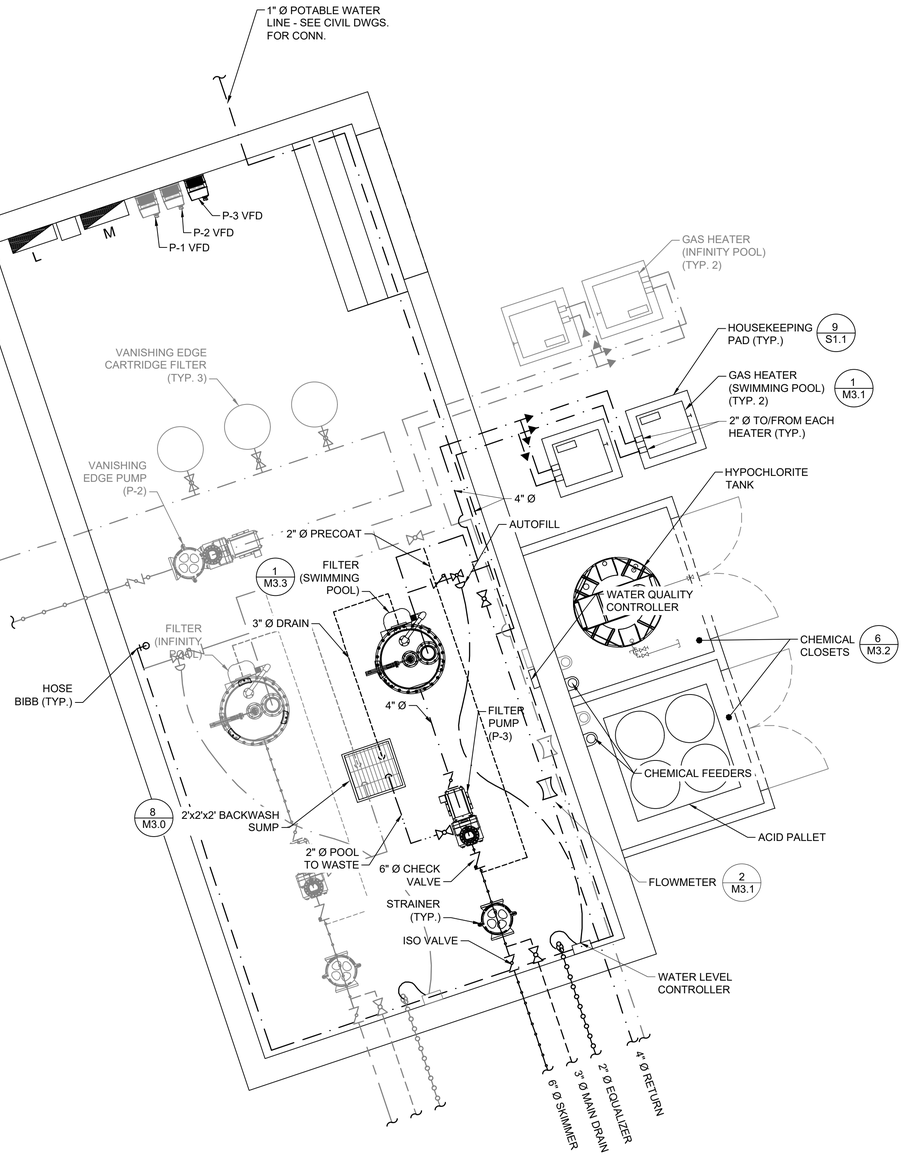
SHEET TITLE
SWIMMING POOL MECHANICAL PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M2.2

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS52000800\projects\2023 Projects\23030 Air Tech Leelanau\Plans\13-M2.2.dwg SAVED: 10/2/2023 4:23:06 PM PLOTTED: 10/2/2023 4:33:19 PM BY: Heather Baxter



NORTH

SCALE: 1" = 3'-0"

0 1'6" 3' 6' 9'

LEGEND

- BACKWASH PIPE
- DRAIN PIPE
- EQUALIZER PIPE
- FEATURE PIPE
- GUTTER PIPE
- RETURN PIPE
- SUCTION PIPE
- VACUUM PIPE
- WATER PIPE
- REDUCER

HEATHER W. BAXTER, P.E.
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MI Certificate of Authority No. 60369F

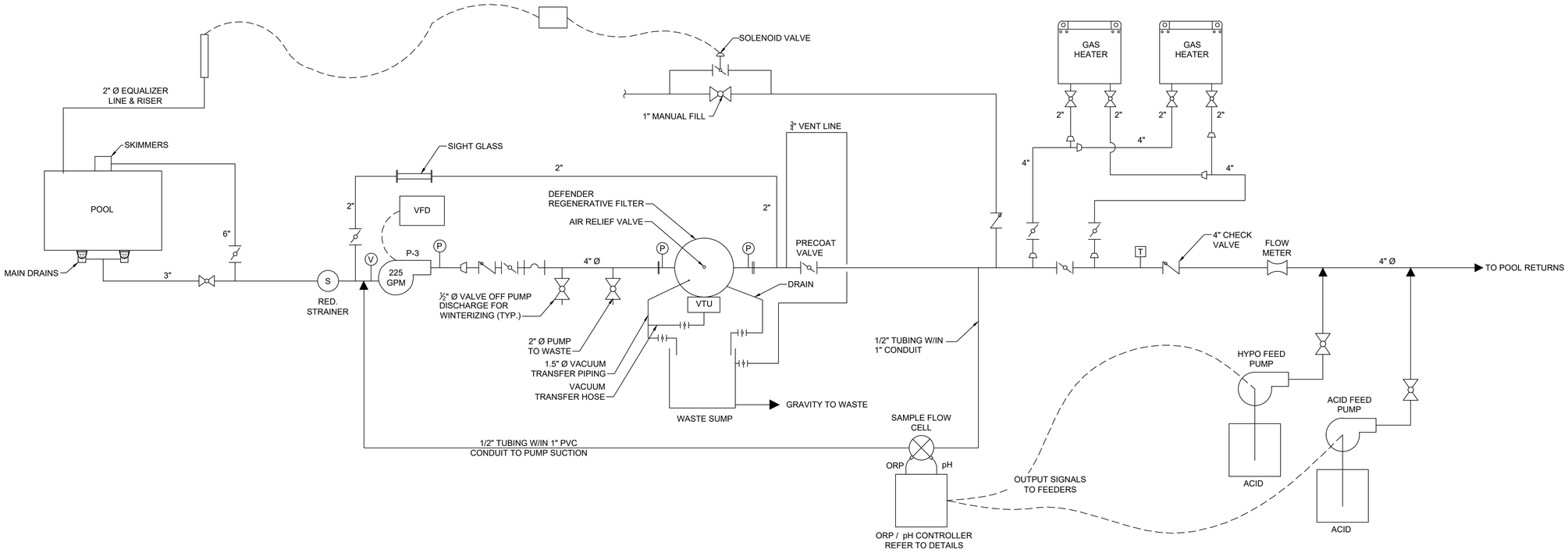
PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
SWIMMING POOL EQUIP.
BLDG MECHANICAL PLAN

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M2.3

DRAWING'S SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)



RECIRCULATION SYSTEM SCHEMATIC

NTS

SWIMMING POOL DATA
SURFACE AREA.....1,810 FT.²
PERIMETER.....183 FT.
VOLUME.....46,232 GAL.
TURNOVER RATE.....225 GPM
TURNOVER TIME.....3.4 HOURS
BATHING LOAD....126 PERSONS

NOTES:
1. CHEMICAL FEED TUBING TO BE MOUNTED ON WALL AND RUN FROM FEED PUMPS TO FILTER DISCHARGE WITH APPROPRIATE FITTINGS.
2. INSTALL CONTROLLER FLOW CELL AS SHOWN. USE MANUFACTURER'S RECOMMENDED TUBING SIZE FOR CONNECTION TO CIRCULATION PUMP DISCHARGE.
3. INSTALL PRESSURE GAUGES ON INFLUENT AND EFFLUENT SIDES OF FILTER AND ON ALL PUMP SUCTIONS AND DISCHARGES. GAUGE ON PUMP SUCTION TO BE COMPOUND-TYPE.
4. INSTALL FLOW METER WITH STRAIGHT RUNS OF 10x PIPE DIAMETER ON THE UPSTREAM SIDE AND 5x PIPE DIAMETER ON THE DOWNSTREAM SIDE.
5. LAYOUT SHOWN IS INTENDED FOR SCHEMATIC PURPOSES ONLY. ACTUAL EQUIPMENT ARRANGEMENT MAY VARY.
6. FILTERS TO BE SUPPLIED WITH PRESSURE RELIEF VALVES, DIFFERENTIAL PRESSURE GAUGES AND SIGHT GLASSES.
7. ALL EQUIPMENT COMING IN CONTACT WITH POOL WATER TO BE CERTIFIED BY NSF OR CERTIFIED BY THE MANUFACTURER TO BE LEAD FREE.
8. INTERNALS OF CAST IRON PUMPS TO BE EPOXY COATED.

VALVE LEGEND

- BUTTERFLY VALVE
- CHECK VALVE
- BALL VALVE
- MODULATING FLOAT VALVE
- REDUCER
- FLOW METER
- PUMP
- SOLENOID VALVE CONTROLLED BY ORP
- SAMPLE FLOW CELL
- MULTIPORT VALVE
- PRESSURE GAUGE
- VACUUM GAUGE
- THERMOMETER
- STRAINER

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PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

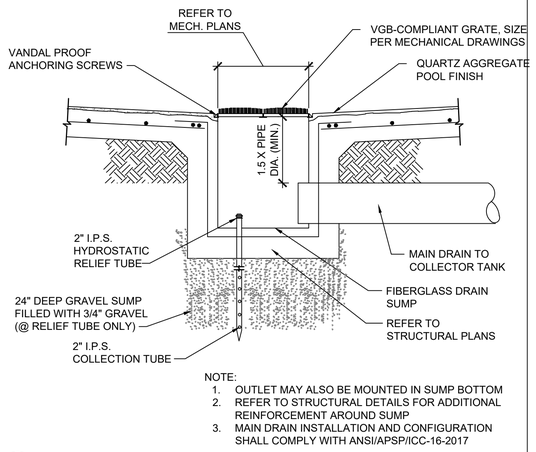
SHEET TITLE
SWIMMING POOL RECIRC. SYSTEM SCHEMATIC

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: M2.4

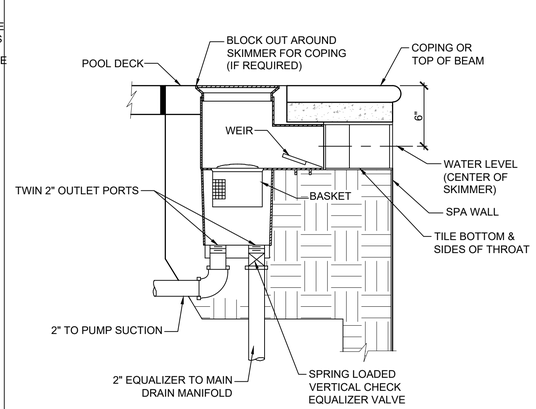
DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS5200BG0\projects\2023 Projects\23030 Air Tech Leelanau\Plans\15-M2.4.dwg SAVED: 10/2/2023 4:28:10 PM PLOTTED: 10/2/2023 4:33:04 PM BY: Heather Baxter

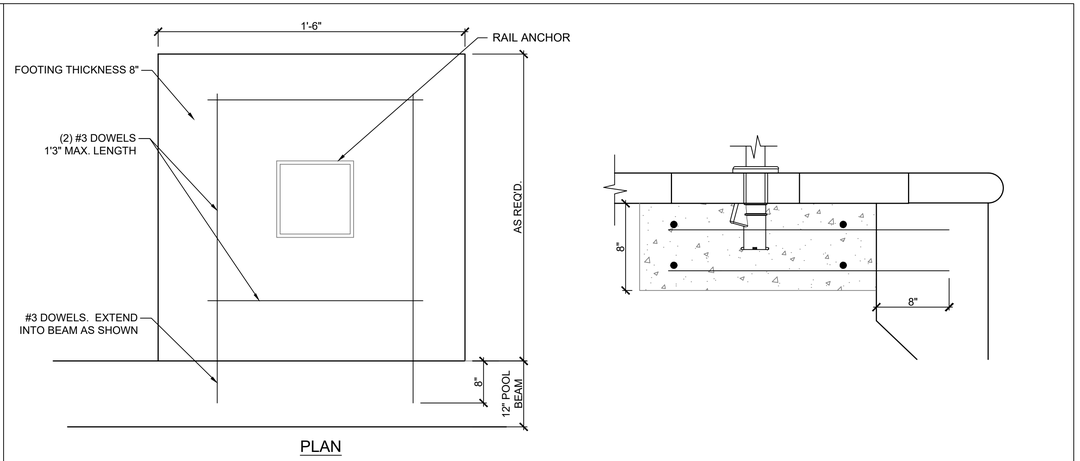


NOTE:
1. OUTLET MAY ALSO BE MOUNTED IN SUMP BOTTOM
2. REFER TO STRUCTURAL DETAILS FOR ADDITIONAL REINFORCEMENT AROUND SUMP
3. MAIN DRAIN INSTALLATION AND CONFIGURATION SHALL COMPLY WITH ANSI/APSP/ICC-16-2017

1 M3.0 TYPICAL POOL MAIN DRAIN DETAIL
SCALE: ¾" = 1'-0"

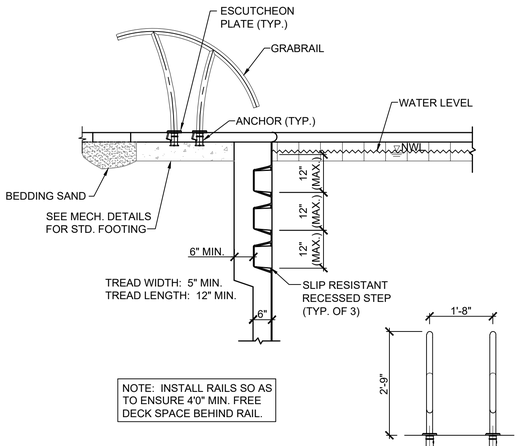


2 M3.0 STANDARD SKIMMER DETAIL
SCALE: N.T.S.



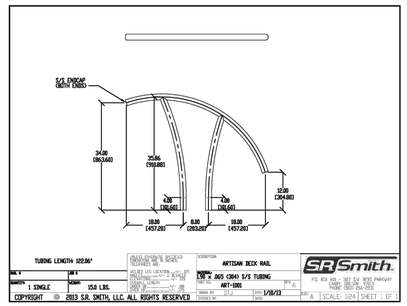
PLAN

3 M3.0 STANDARD RAIL ANCHOR FOOTING DETAIL
SCALE: N.T.S.



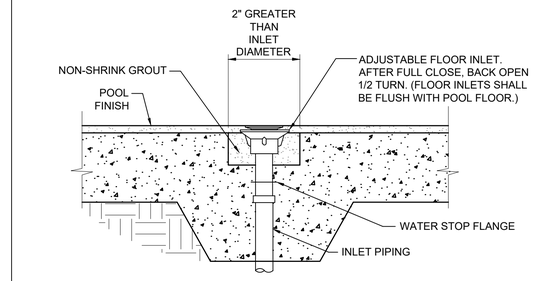
NOTE: INSTALL RAILS SO AS TO ENSURE 4'0" MIN. FREE DECK SPACE BEHIND RAIL.

4 M3.0 RECESSED STEPS AND GRAB RAIL DETAIL (INFINITY POOL)
SCALE: N.T.S.



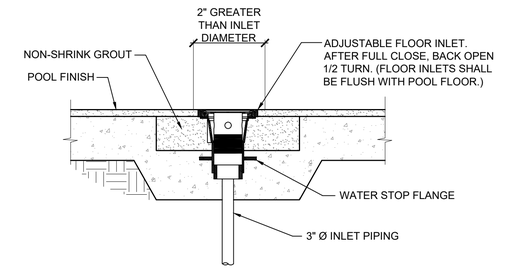
NOTE:
DIMENSIONS SHOWN ARE GENERIC. CONTRACTOR TO COORDINATE SITE SPECIFIC REQUIREMENTS WITH RAIL MANUFACTURER.

5 M3.0 GRAB RAIL DETAIL
SCALE: N.T.S.



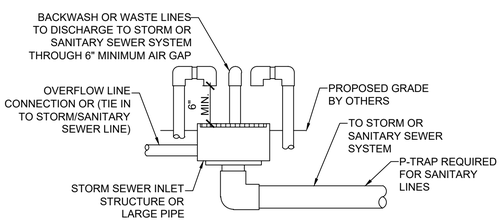
NOTE:
SEE STRUC. DRAWINGS FOR CONDITION OF SHELL AT INLET.

6 M3.0 POOL FLOOR INLET DETAIL
SCALE: N.T.S.

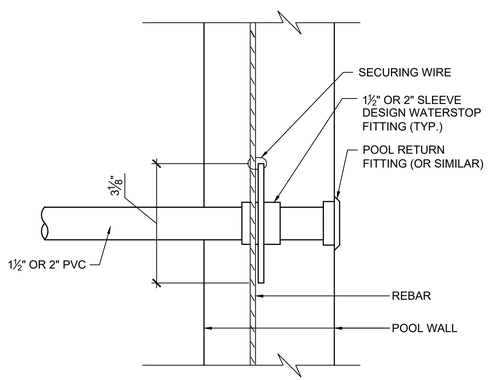


NOTE:
SEE STRUC. DRAWINGS FOR CONDITION OF SHELL AT INLET.

7 M3.0 HIGH VOLUME FLOOR INLET DETAIL
SCALE: N.T.S.

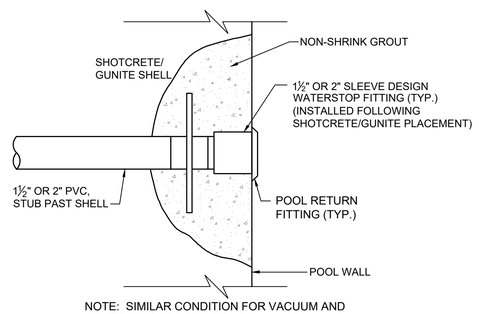


8 M3.0 TYPICAL AIR GAP DETAIL
SCALE: N.T.S.



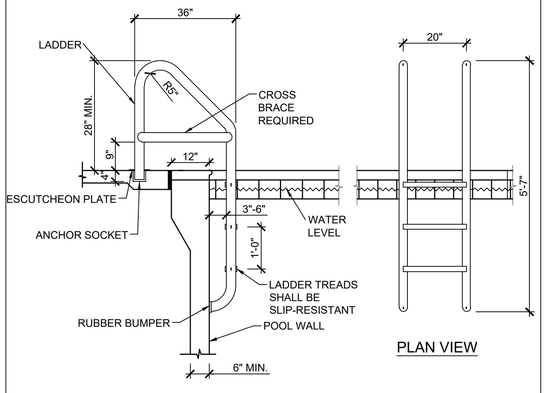
NOTES:
1. PROVIDE AT ALL PENETRATIONS - REFER TO STRUC. FOR LARGER PENETRATIONS

9 M3.0 TYPICAL WATER STOP FITTING
SCALE: 3" = 1'-0"



NOTE: SIMILAR CONDITION FOR VACUUM AND STATIC LINE PENETRATIONS

10 M3.0 TYPICAL WATER STOP FITTING (SHOTCRETE/GUNITE CONST.)
SCALE: 3" = 1'-0"



SIDE VIEW

PLAN VIEW

11 M3.0 LADDER DETAIL
SCALE: N.T.S.

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MECHANICAL DETAILS

DESIGNED BY HWB
DRAWN BY NCT
CHECKED BY HWB

PROJECT 22030
DATE 10/2/23
SCALE AS NOTED
SHEET M3.0

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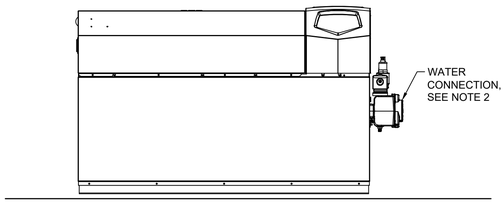
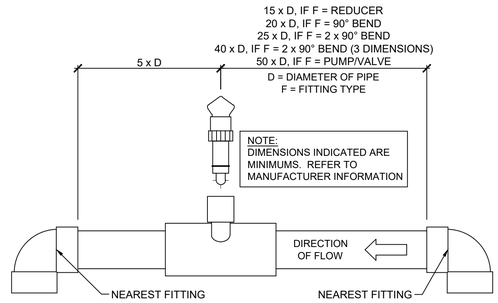
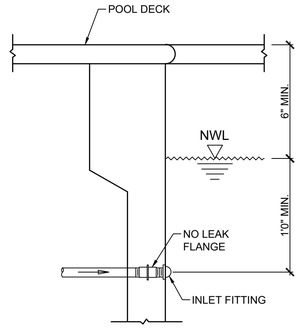


NOTES:
1. REFER TO MECHANICAL PLANS FOR GAS CONNECTION INFORMATION.
2. DUE TO THE DESIRED HIGH WATER TEMPERATURE, A METALLIC OR CPVC HEAT SINK IS REQUIRED AT THE HEATER CONNECTION. HEAT SINKS SHOULD BE 2'-0" MIN. IN LENGTH.
3. PROVIDE VENT CAP FOR OUTDOOR USE.
4. MAINTAIN MIN. CLEARANCE OF 3" TO COMBUSTIBLE SURFACES AND MIN. 36" CLEARANCE TO AIR INLET. MAINTAIN 48" CLEARANCE BETWEEN EACH VENT CAP.
5. CONFIRM INLET GAS PRESSURE W/ MFR INFORMATION.
6. PROVIDE CPVC OR COPPER PIPING PER MFR. SPECS.
7. OUTDOOR KIT STANDARD FOR THE MODEL SPECIFIED.

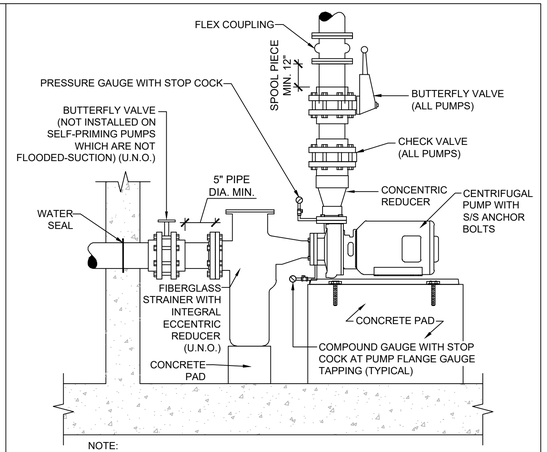
1 M3.1 TYPICAL GAS HEATER DETAIL
N. T. S.



2 M3.1 FLOWMETER DETAIL
SCALE: N.T.S.



3 M3.1 TYPICAL WALL INLET FITTING DETAIL
SCALE: N.T.S.

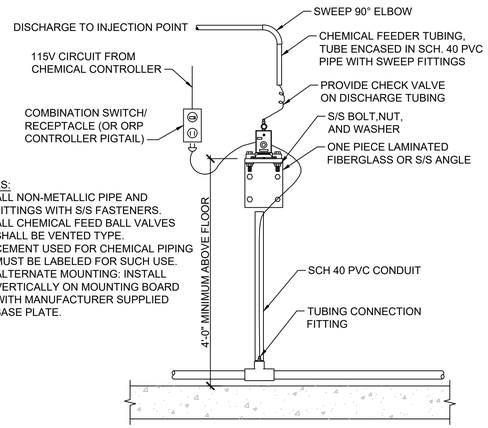


NOTE:
1. IF REDUCER IS INSTALLED ON PUMP SUCTION, USE ECCENTRIC REDUCER.

4 M3.1 TYPICAL PUMP DETAIL
SCALE: N.T.S.

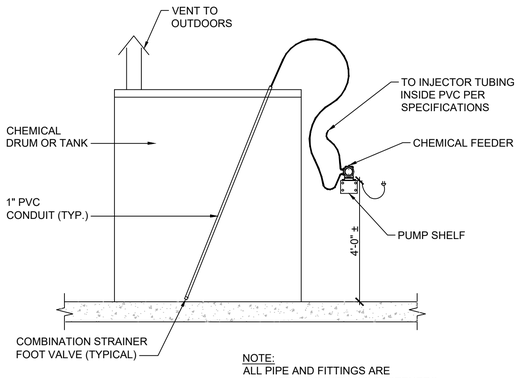
NOTE:
DIMENSIONS SHOWN ARE GENERIC. CONTRACTOR TO COORDINATE SITE SPECIFIC REQUIREMENTS WITH RAIL MANUFACTURER.

5 M3.1 HANDRAIL DETAIL (INFINITY POOL)
SCALE: N.T.S.



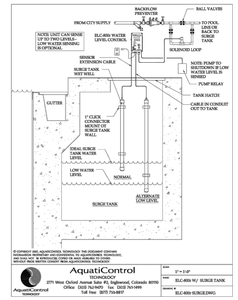
NOTES:
1. ALL NON-METALLIC PIPE AND FITTINGS WITH S/S FASTENERS.
2. ALL CHEMICAL FEED BALL VALVES SHALL BE VENTED TYPE.
3. CEMENT USED FOR CHEMICAL PIPING MUST BE LABELED FOR SUCH USE.
4. ALTERNATE MOUNTING: INSTALL VERTICALLY ON MOUNTING BOARD WITH MANUFACTURER SUPPLIED BASE PLATE.

6 M3.1 TYPICAL CHEMICAL PUMP DETAIL
SCALE: N.T.S.

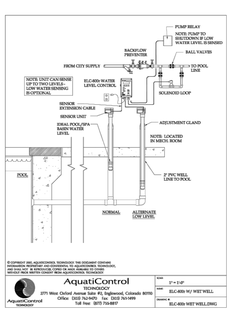


NOTE:
ALL PIPE AND FITTINGS ARE NON-METALLIC WITH S/S FASTENERS

7 M3.1 TYPICAL CHEMICAL STORAGE DRUM OR TANK
SCALE: N.T.S.



8 M3.1 WATER LEVEL CONTROLLER INSTALLATION (EDGE BASIN)
SCALE: N.T.S.



9 M3.1 WATER LEVEL CONTROLLER INSTALLATION (EQUIPMENT ROOM)
SCALE: N.T.S.

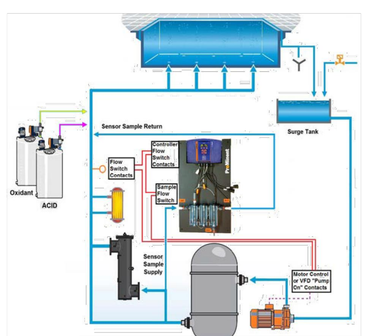
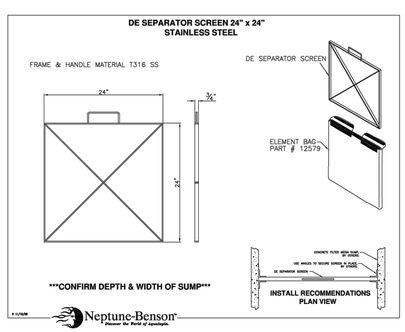
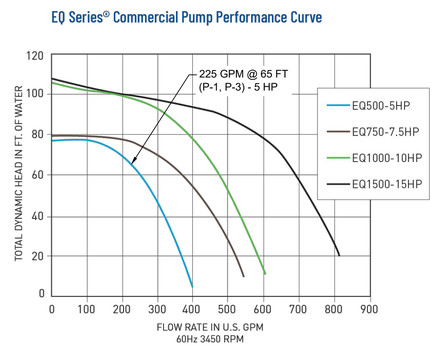


Figure 8A. Recommended Pressure Filter Sample and Return

10 M3.1 TYP. CHEM. CONTROLLER DETAIL
SCALE: N.T.S.



11 M3.1 PERLITE SEPARATOR SCREEN
SCALE: N.T.S.



12 M3.1 FILTER PUMP CURVE
SCALE: N.T.S.

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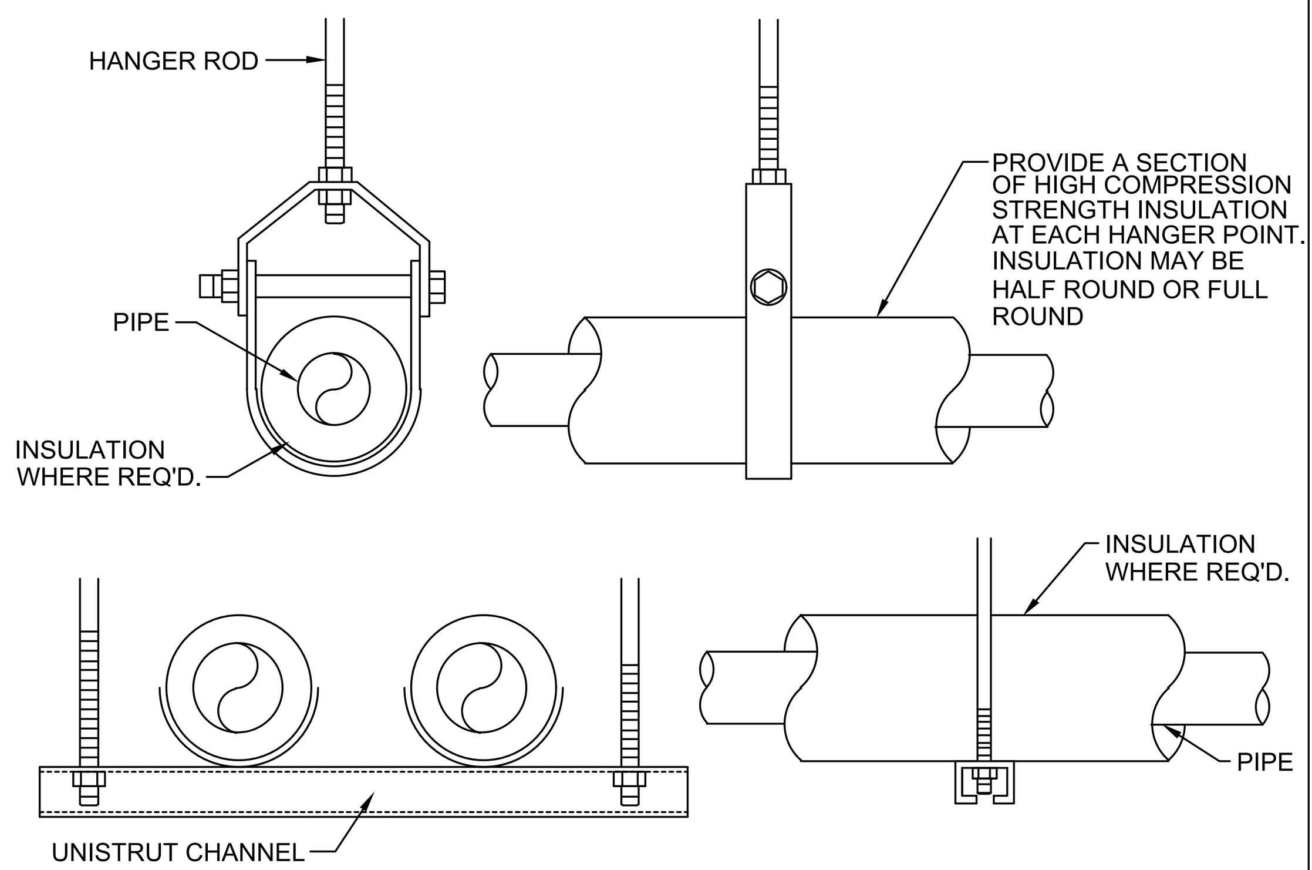
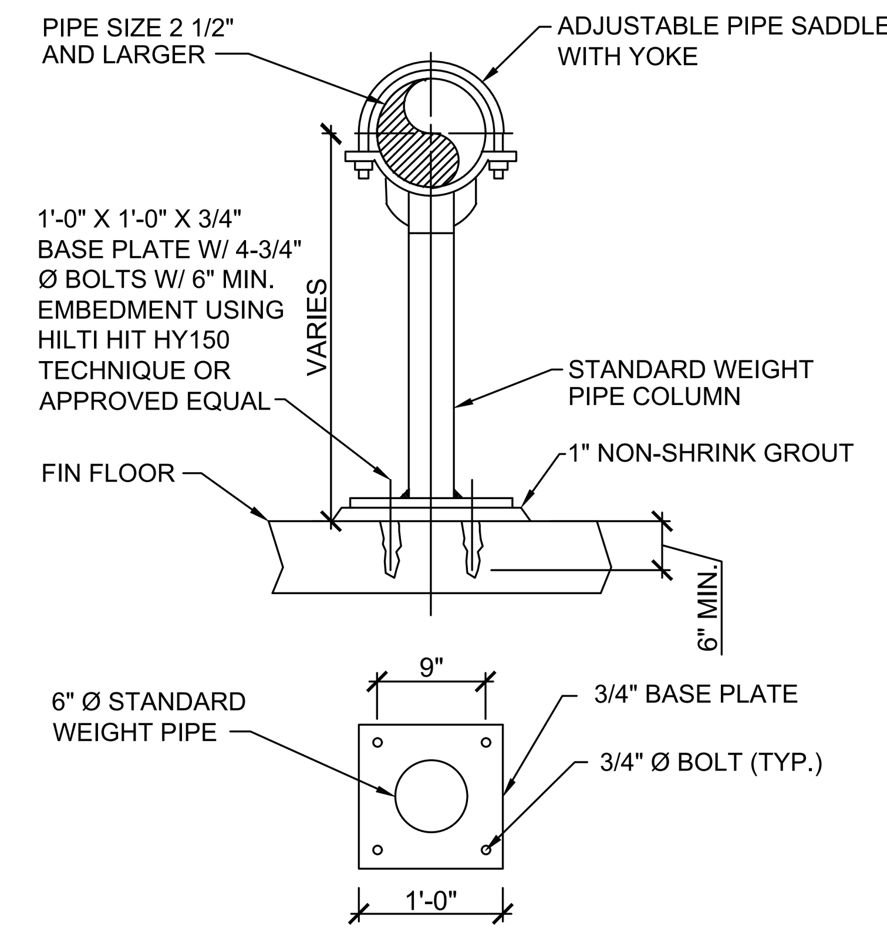


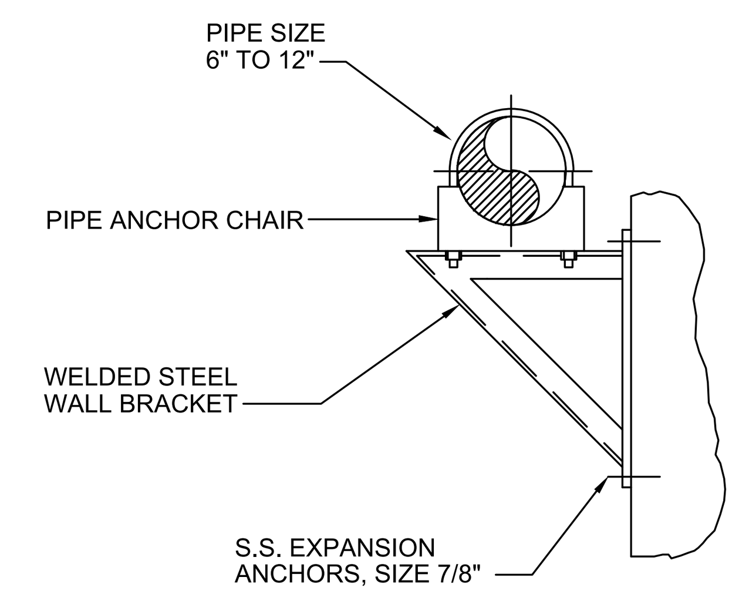
NOTE:

1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.

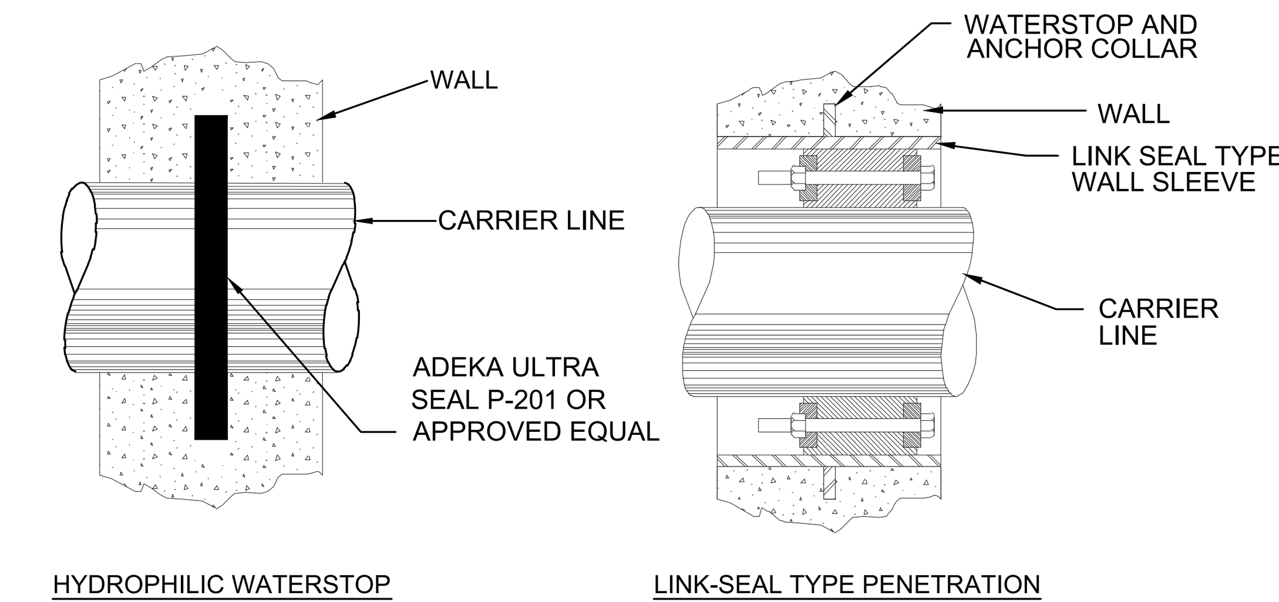
1 M3.2 PIPE HANGER DETAILS
SCALE: N.T.S.



2 M3.2 PIPE SUPPORT SECTION / BASE DETAIL
SCALE: N.T.S.

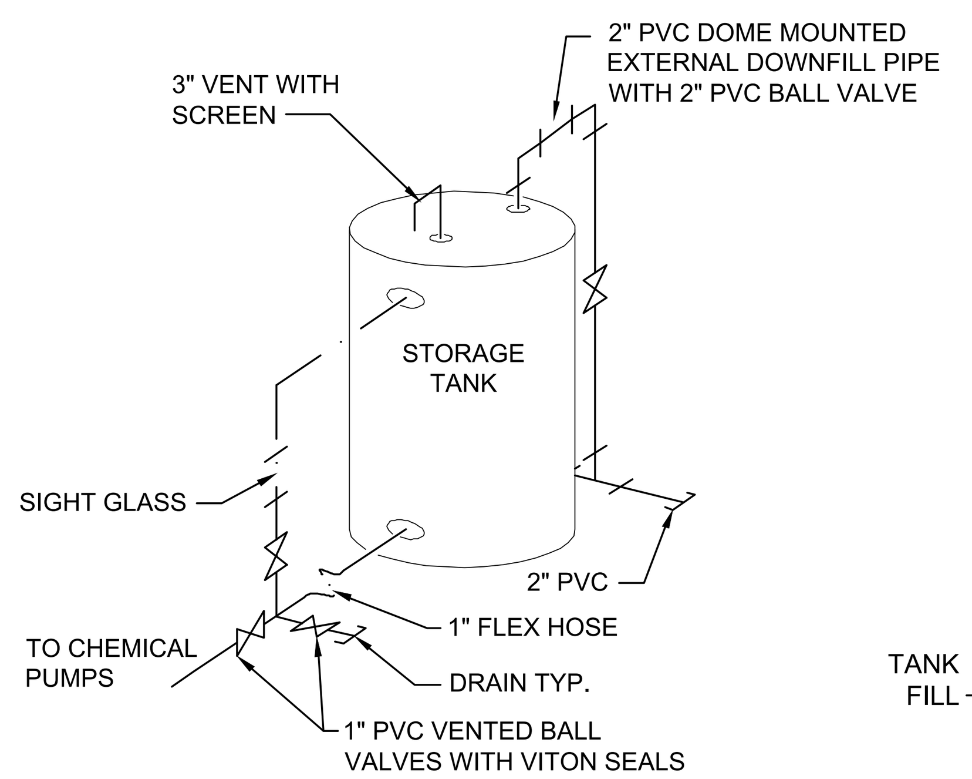


3 M3.2 PIPE SUPPORT DETAIL
SCALE: N.T.S.



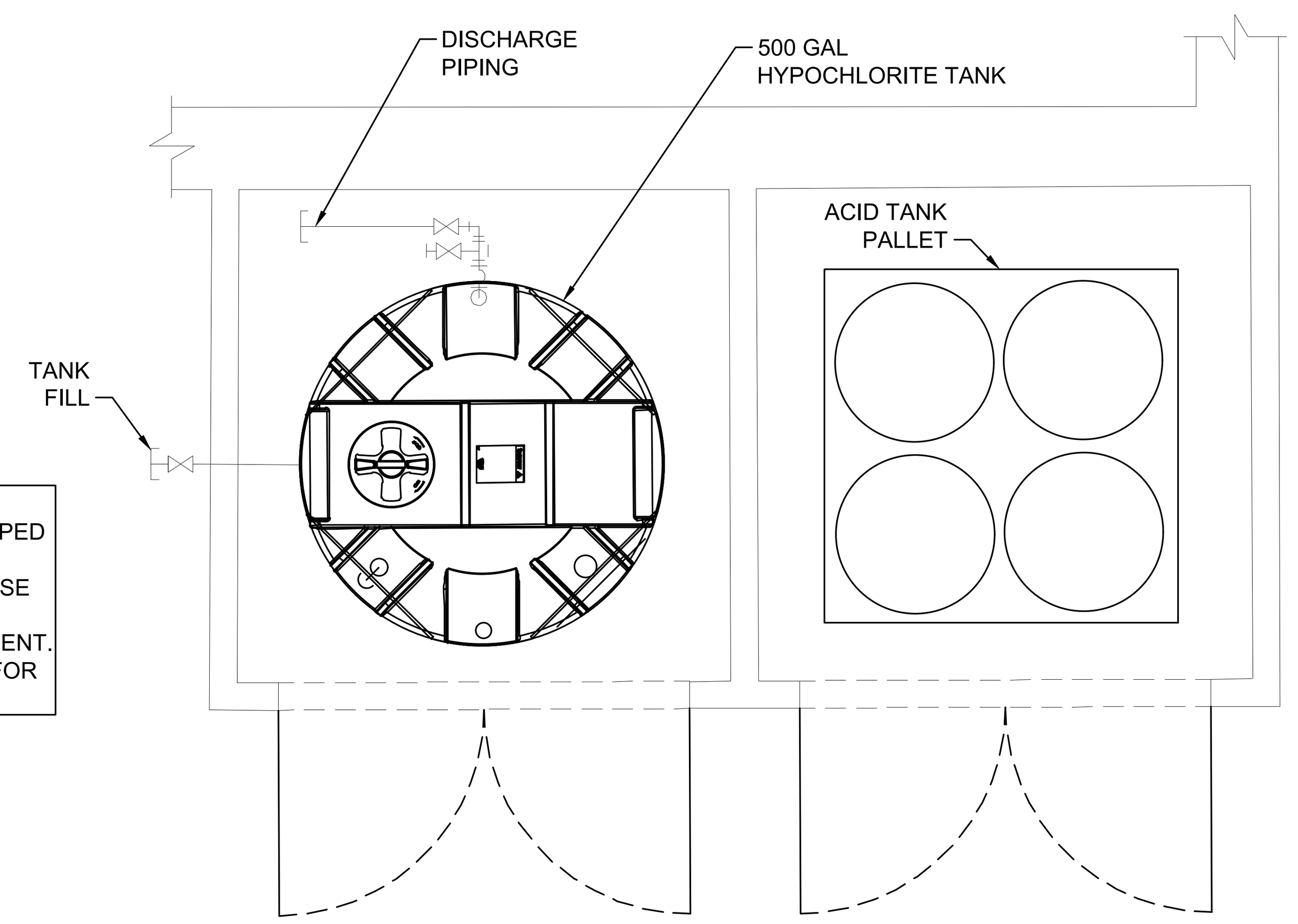
NOTE: REFER TO MANUFACTURERS INSTRUCTIONS IF USING SLEEVED PENETRATION

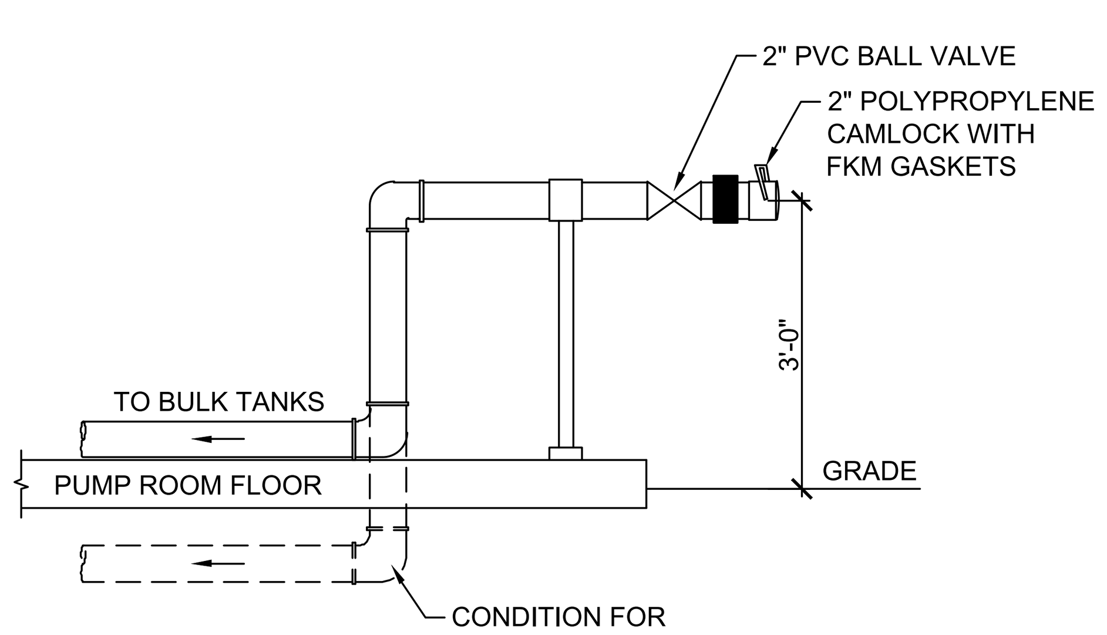
4 M3.2 TYPICAL PIPING PENETRATION DETAIL
SCALE: N.T.S.



NOTES:
1. ALL BALL VALVES ON HYPOCHLORITE SYSTEM TO BE EQUIPPED WITH VITON SEALS.
2. FLEX HOSE TO BE FLEXIBLE PVC WITH IPS SIZED O.D. FOR USE W/ SOLVENT WELDED RIGID PVC.
3. .USE IPS WELD-ON TYPE 724 SOLVENT CEMENT OR EQUIVALENT.
4. CONTRACTOR TO USE DOUBLE STAINLESS STEEL CLAMPS FOR ALL TUBING CONNECTIONS REQUIRING CLAMPING.

TYPICAL STORAGE TANK SCHEMATIC
SCALE: N.T.S.





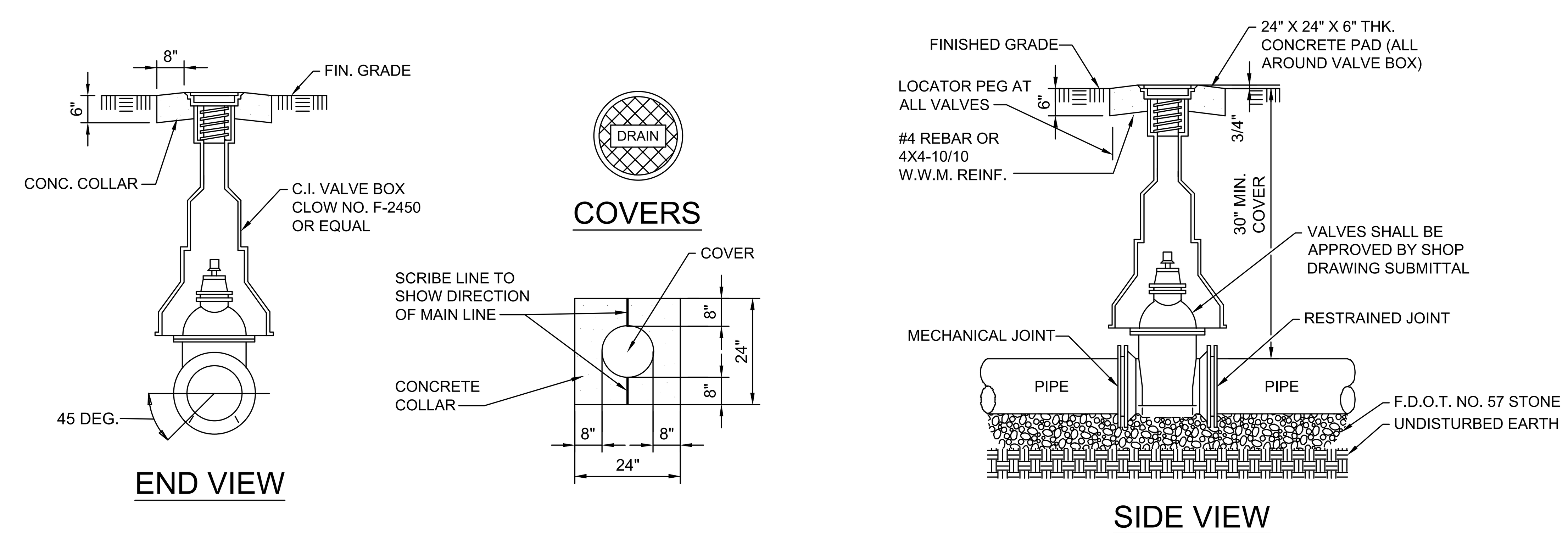
NOTE:
CONTRACTOR TO USE DOUBLE STAINLESS STEEL CLAMPS FOR ALL TUBING CONNECTIONS REQUIRING CLAMPING.

TANK FILL CONNECTION DETAIL
SCALE: N.T.S.

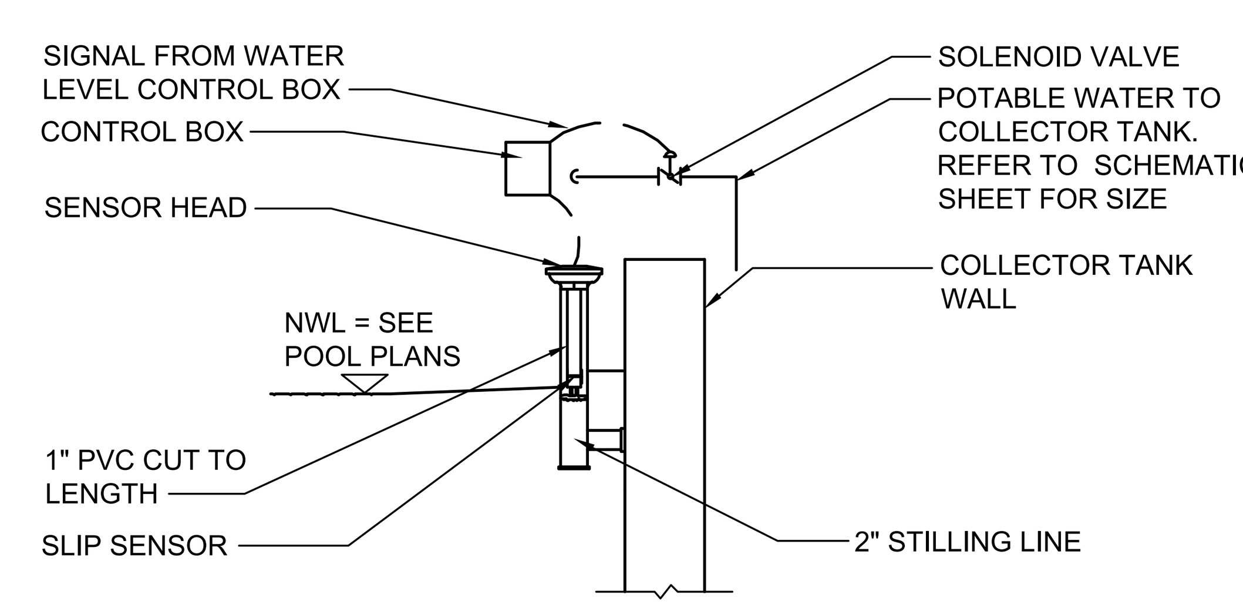
CHEMICAL STORAGE, PIPING, AND PUMPING NOTES:

1. CHEMICAL PUMPS SHALL BE OF POSITIVE DISPLACEMENT, PERISTALTIC TYPE WITH FLEXIBLE TUBING AND ATTACHED CONNECTION FITTINGS.
2. TO ENSURE PUMP PERFORMANCE AND ACCURACY, ONLY TUBING PROVIDED BY THE MANUFACTURER IS ACCEPTABLE. PUMP TUBE SHALL BE ASSEMBLED TO CONNECTION FITTINGS OF PVDF MATERIAL. TUBE SIZES AND CONNECTIONS SHALL BE MEASURED IN INCHES. TUBES SHALL BE NORPRENE OR SIZED AS REQUIRED.
3. CHEMICAL STORAGE TANK SHALL BE UPRIGHT, DOUBLE WALL, FLAT BOTTOM ASSEMBLY FOR STORAGE OF SODIUM HYPOCHLORITE AND MURIATIC ACID. TANK CONSISTS OF ONE CYLINDRICAL INNER PRIMARY TANK AND ONE OUTER SECONDARY TANK. CONTAINMENT TANK SHALL BE DESIGNED TO HOLD A MINIMUM OF 115% OF THE NORMAL FILL CAPACITY OF THE PRIMARY TANK.
4. TANK FITTINGS: THREADED BULKHEAD FITTINGS TO BE AVAILABLE FOR ABOVE LIQUID INSTALLATION DEPENDING ON TANK DIAMETER AND THE PLACEMENT OF THE FITTING IN THE TANK. BOLTED DOUBLE FLANGE FITTINGS TO BE AVAILABLE FOR BELOW LIQUID LEVEL. FITTINGS SHALL BE CONSTRUCTED OF PVC, PP, OR OTHER APPROVED MATERIAL. GASKETS SHALL BE A MINIMUM OF 1/4" THICKNESS AND CONSTRUCTED OF 60-70 DUROMETER VITON OR OTHER APPROVED MATERIAL.
5. EACH TANK MUST BE PROPERLY VENTED FOR ATMOSPHERIC PRESSURE AS WELL AS ANY PRESSURE CREATED BY FILLING AND EMPTYING THE TANK. ALL VENTS TO BE CONSTRUCTED OF PVC OR OTHER APPROVED MATERIALS.
6. FLANGE ADAPTORS, WHERE USED, SHALL UTILIZE SCH 80 COMPONENTS.
7. ALL TANK FITTING ATTACHMENTS SHALL BE EQUIPPED WITH FLEXIBLE COUPLERS OR OTHER APPROVED MOVEMENT PROVISIONS. COUPLERS SHALL BE DESIGNED TO ALLOW 4% DESIGN MOVEMENT. THE FLEXIBLE CONNECTION IS TO BE MANUFACTURED OF THE SAME MATERIAL AS THE TANK OR COMPATIBLE, APPROVED MATERIAL. FLEXIBLE CONNECTION IS TO BE DESIGNED WITH 150# FLANGE CONNECTIONS TO ALLOW FOR ATTACHMENT TO THE TANK AND THE PIPING SYSTEM.
8. TANKS SHALL BE MARKED TO IDENTIFY THE PRODUCT, DATE (MONTH AND YEAR) OF MANUFACTURE, CAPACITY, AND SERIAL NUMBER.
9. PLASTIC PIPE USED FOR CHEMICAL SOLUTION LINES SHALL BE SCHEDULE 80 PVC RIGID PIPE. FITTINGS AND FLANGES SHALL BE IN ACCORDANCE WITH ASTM D2464-LATEST. FLANGED BOLTS AND NUTS SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ASTM A123-LATEST. BOLTS SHALL BE OF A LENGTH SUCH THAT AFTER INSTALLATION THEY WILL PROJECT FROM 1 TO 1/4" BEYOND THE OUTER FACE OF THE NUT. FLANGED GASKETS SHALL BE FULL-FACED, 1/8" THICK ELASTOMER WITH A HARDNESS OF 50-70 DUROMETER. USE VITON FOR SODIUM HYPOCHLORITE SERVICE.
10. FOR PIPELINES 3" OR LESS IN DIAMETER, ALL PLASTIC-TO-PLASTIC PIPE JOINTS SHALL BE BY MEANS OF IPS #724 CPVC HEAVY BODY CEMENT. THIS CEMENT IS SPECIFICATION FORMULATED FOR CHEMICAL RESISTANCE TO HYPOCHLORITE AND SULFURIC ACID SOLUTIONS IN CPVC OR PVC PIPE SYSTEMS. PIPE AND FITTINGS SHALL BE OF THE SAME MATERIAL.
11. ALL PLASTIC-TO-METAL PIPE CONNECTIONS SHALL BE BY MEANS OF PVC ADAPTERS. PLASTIC ADAPTER FOR THREADED CONNECTIONS SHALL BE MALE. PIPE THREADS CUT ON THE END OF PVC PIPE SHALL NOT BE PERMITTED.
12. ALL PIPE, VALVES, AND FITTINGS SHALL BE FROM THE SAME MANUFACTURER, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.
13. EXPANSION JOINTS SHALL BE PFA AND SHALL BE PROVIDED AT ALL TANK CONNECTIONS AND ON PIPING IN BETWEEN TANKS.
14. ALL WETTED CONNECTIONS SHALL BE PVC FLANGES WITH VITON GASKETS.
15. CHEMICAL VALVES: BALL AND BALL CHECK VALVES FOR USE ON CHEMICAL LINES SHALL BE PVC WITH TRUE UNION DESIGN AND BE PROVIDED WITH (2) SETS OF END CONNECTORS (SOCKET AND THREADED). BALL VALVES SHALL HAVE TEFLON SEATS BACKED WITH VITON AND VITON SEALS. BALL CHECK VALVES SHALL HAVE VITON SEATS AND SEALS. BALL VALVES UP TO 2" SHALL BE RATED FOR 230 PSI, HAVE 2-WAY BLOCKING CAPABILITY AND FEATURE BLOWOUT-PROOF STEM DESIGN. VALVES SHALL BE AS MANUFACTURED BY ASAHI AMERICA, IPEX MODEL VKD, OR APPROVED EQUAL. PVC BALL VALVES FOR HYPOCHLORITE SERVICE SHALL HAVE FACTORY PRE-DRILLED 1/8" VENT HOLE IN BALL FOR GAS OFF AND CARRY A TWO YEAR GUARANTEE.
16. CAMLOCK - TYPE QUICK DISCONNECTS SHALL BE USED FOR BULK STORAGE TANK FILL LINES. DISCONNECTS SHALL BE OF POLYPROPYLENE CONSTRUCTION. MAXIMUM OPERATING PRESSURE OF DISCONNECTS SHALL BE 100 PSI. DISCONNECT SHALL BE CONSTRUCTED SUCH THAT IT CANNOT BE UNCOUPLED FROM OPPOSITE GENDER WITHOUT HANDLES IN THE "CLOSED" POSITION, AND CANNOT BE TURNED TO "OPEN" POSITION WHILE APART. DISCONNECTS FOR SODIUM HYPOCHLORITE AND MURIATIC ACID TANKS SHALL INCLUDE FKM (VITON TYPE) FACE SEALS.

6 M3.2 CHEMICAL CABINETS
SCALE: N.T.S.



5 M3.2 BURIED VALVE AND BOX DETAIL
SCALE: N.T.S.



NOTE:
SET CONTROLLER AT NORMAL WATER LEVEL, I.E. ALL PUMPS RUNNING

7 M3.2 AUTOFILL ASSEMBY (EDGE BASIN)
SCALE: N.T.S.

HEATHER W. BAXTER, P.E.
MI LICENSE # 50814
REGISTERED ENGINEER

IAAPA MEMBER

NO.	REVISION/ISSUE	DATE

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MI Certificate of Authority No. 6035??

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
MECHANICAL DETAILS

DESIGNED BY
HWB

DRAWN BY
NCT

CHECKED BY
HWB

PROJECT
22030

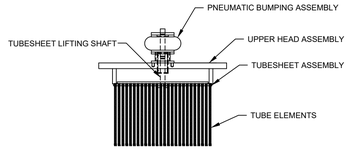
DATE
10/2/23

SCALE
AS NOTED

SHEET
M3.2

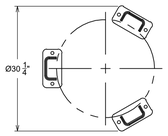
DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS52000B00\projects\2023 Projects\22030 Air Tech Leelanau\Plans\16-19-M3.0-M3.4.dwg SAVED: 10/2/2023 3:39:03 PM PLOTTED: 10/2/2023 4:33:49 PM BY: Heather Baxter

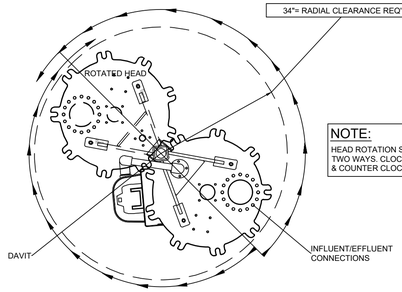


UPPER HEAD AND ELEMENT DETAIL

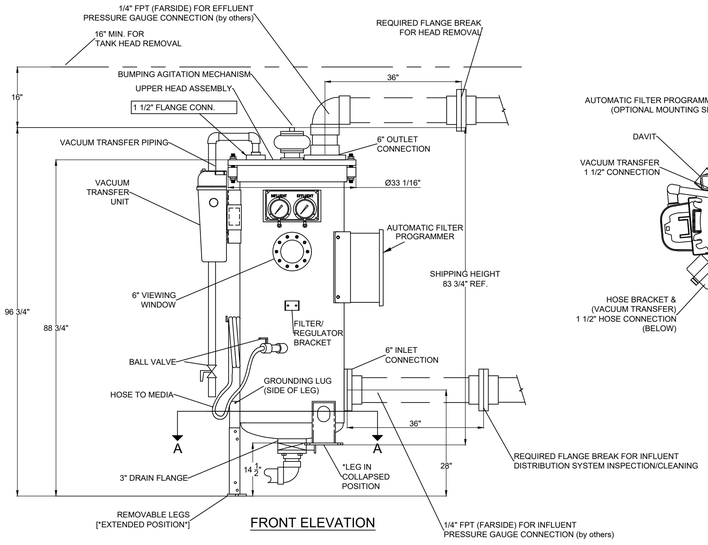
DIMENSIONS FOR REFERENCE ONLY, NOT FOR CONSTRUCTION UNLESS CERTIFIED BY NEPTUNE BENSON



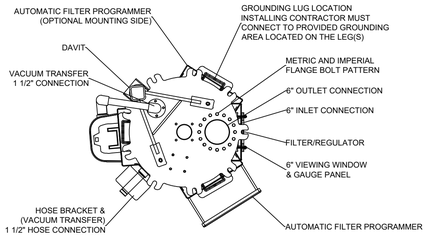
FOUNDATION FOOT PRINT



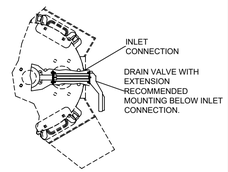
HEAD REMOVAL CLEARANCE REQUIREMENT



FRONT ELEVATION



PLAN VIEW



DRAIN VALVE ORIENTATION
PLAN VIEW - SECTION A:A

NOTES:
1. FILTER TANK IS TO BE CONSTRUCTED OF HIGH QUALITY A36 CARBON STEEL, UPPER HEAD THICKNESS = 1 1/2", LOWER HEAD THICKNESS = 1/4" & SHELL THICKNESS = 1/4". INTERIOR OF TANK IS LINED WITH FLEXSOL 3000. EXTERIOR IS COATED WITH 5-8 MILS OF HIGH SOLIDS ENAMEL. NO WELDING OR EXTREME HEAT IS TO BE APPLIED TO TANK AFTER LINING OR COATING PROCESS IS DONE.
2. ELECTRICAL REQUIREMENTS: 120VAC-1Ø-60Hz, 15 AMP CIRCUIT PROTECTION.
3. LOCATE ALL ELECTRICAL ITEMS IN A NON-HAZARDOUS LOCATION.
4. ELECTRICAL CONNECTIONS ARE THE RESPONSIBILITY OF THE CUSTOMER.
5. MEDIA QUANTITIES ARE INDICATED FOR INFORMATIONAL PURPOSES ONLY.
6. ALL PNEUMATIC TUBING BY POOL CONTRACTOR.
7. DRAIN VALVE MUST BE A BUTTERFLY VALVE AND INSTALLED DIRECTLY ON THE BOTTOM TANK HEAD.
8. DESIGN PRESSURE IS 50psi. HYDROSTATICALLY TESTED TO 75psi.

BILL OF MATERIAL				
MARK	NO. REQ.	DESCRIPTION	PART #	REMARKS
1	1	DEFENDER FILTER #SP-27-48-487	SP-27-48-487	
2	1	AUTOMATIC FILTER PROGRAMMER	MICRORMF	SHIP LOOSE
		MODEL RMF 120V		
3	1	120V VACUUM TRANSFER ASSEMBLY	13002	
4	1	MEDIA SUCTION ASSEMBLY	11141	SHIP LOOSE
		VACUUM HOSE, & BRACKET		
5	1	FILTER/REGULATOR	11518	NOT SHOWN SHIP LOOSE
		1/2"(1.27cm) NPT CONNECTION		
6	1	GAUGE PANEL KIT	GAUGEPNLKT	SHIP LOOSE
7	1	VACUUM TRANSFER PLUMBING KIT	12882	SHIP LOOSE
8	1	DEFENDER DRAIN VALVE 3" W/EXTEN.	12517	SHIP LOOSE

MATERIAL SHIPPED LOOSE

NOTES
IMPERIAL CONNECTIONS
FLANGES CONFORM TO ANSI B16.5, CLASS 150
TANKS ARE SHIPPED WITH LEGS IN THE COLLAPSED POSITION TO REDUCE OVERALL HEIGHT AND ASSIST TANK ACCESS. TANK MUST BE INSTALLED WITH LEGS IN EXTENDED POSITION.
INFLUENT, EFFLUENT & DRAIN CONNECTIONS ARE DRILLED FOR METRIC AND IMPERIAL FLANGE BOLT PATTERNS
SEE PLAN VIEW FOR TRUE ORIENTATION OF ALL FITTINGS
SPECIAL NOTES: NONE

FILTER DATA
FLOW RATE = 191-533 G.P.M. FILTRATION RATE = 0.5-1.4 GPM/SQ.FT. FILTER AREA = 381 SQ.FT.(35.60m²) NUMBER OF TUBES = 487
UNIT WEIGHT: 1,650 LBS. (DRY) UNIT CAPACITY: 159 GALS. OPERATING WEIGHT: 2,970 LBS. 3 LEGS PER TANK CONCRETE BEARING PRESSURE: 20 P.S.I.
MEDIA REQUIREMENTS
PERLITE: 30 LBS. (3.6 cu.ft.)

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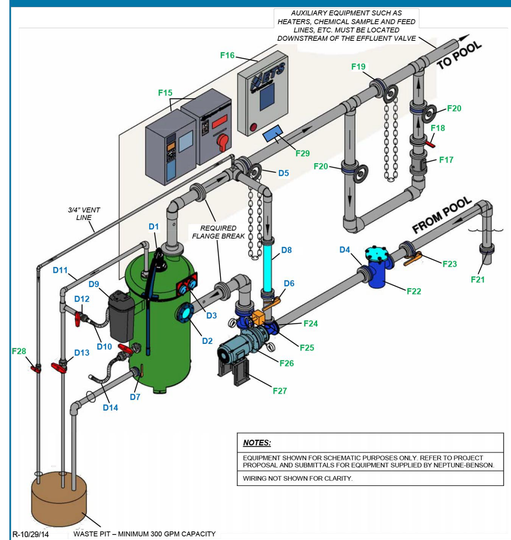
DEFENDER FILTER, MODEL #SP-27-48-487-A, REQUIRED AS SHOWN

1 M3.3 FILTER DETAILS
SCALE: N.T.S.

FILTERS — Defender Assero™ Schematic - Lever Bump



DEFENDER FILTER COMPONENTS - INCLUDED IN DEFENDER PACKAGE		
MARK	REFERENCE	NOTES
D1	MANUAL BUMPING ASSEMBLY	NONE
D2	VIEWING WINDOW	
D3	GAUGE PANEL	
D4	INFLUENT CHECK VALVE	
D5	EFFLUENT VALVE	GEAR OPERATED BUTTERFLY VALVE, NORMALLY OPEN. INSTALL EFFLUENT VALVE DIRECTLY ON PRECOAT TEE.
D6	PRECOAT VALVE (SYSTEM FILL)	LEVER OPERATED BUTTERFLY VALVE, NORMALLY CLOSED. INSTALL PRECOAT VALVE AS CLOSE AS POSSIBLE TO THE PUMP SUCTION PIPING. PRECOAT LINE 2 PIPE DIAMETERS SMALLER THAN EFFLUENT PIPE DIAMETER. (NO LESS THAN 2")
D7	DRAIN VALVE	MANUALLY OPERATED BUTTERFLY VALVE, NORMALLY CLOSED (MEDIA DUMP / RINSE). DRAIN LINE MUST BE PLUMBED INDEPENDENTLY TO WASTE.
D8	IN-LINE SIGHT GLASS	INSTALL IN-LINE SIGHT GLASS ON THE PRECOAT LINE SO THAT IT CAN BE VIEWED WHILE STANDING AT THE FILTER CONTROL PANEL.
D9	VACUUM TRANSFER UNIT	NONE
D10	VACUUM TRANSFER HOSE	
D11	VACUUM TRANSFER PIPING & FITTINGS	SCH80 PVC FITTINGS & PIPE 1.5"
D12	VACUUM TRANSFER VALVE	BALL VALVE 1.5" TRUE UNION, NORMALLY CLOSED.
D13	VACUUM VENT VALVE	BALL VALVE 1.5" TRUE UNION, NORMALLY CLOSED. VACUUM DRAIN LINE MUST BE PLUMBED INDEPENDENTLY TO WASTE.
D14	VACUUM HOSE VALVE WITH HOSE	BALL VALVE 1.5" TRUE UNION, NORMALLY CLOSED.

FILTER ACCESSORY COMPONENTS – AVAILABLE UPON REQUEST		
MARK	REFERENCE	NOTES
F15	GREEN DRIVE VFD	NONE.
F16	ETS UV TREATMENT SYSTEM CONTROLLER	THIS IS A PACKAGE
F17	ETS UV TREATMENT SYSTEM	
F18	ETS UV STRAINER	
F19	ETS UV BYPASS	GEAR OPERATED BUTTERFLY VALVE, NORMALLY CLOSED.
F20	ETS UV ISOLATION	GEAR OR LEVER OPERATED BUTTERFLY VALVE, NORMALLY OPEN. (2) REQUIRED.
F21	CHECK VALVE	FOR SELF PRIMING PUMPS, CHECK VALVE MUST BE INSTALLED ON SUCTION PIPE BELOW WATER LEVEL.
F22	GUARDIAN™ STRAINER	NONE
F23	STRAINER ISOLATION	LEVER OR GEAR OPERATED BUTTERFLY VALVE, NORMALLY OPEN.
F24	PRECOAT REDUCING TEE	NONE
F25	PUMP THROTTLE VALVE	GEAR OPERATED BUTTERFLY VALVE, NORMALLY OPEN.
F26	RECIRCULATING PUMP	NONE
F27	PUMP BASE	
F28	PRECOAT LINE VENT VALVE	NORMALLY CLOSED. PRECOAT LINE MUST BE PLUMBED INDEPENDENTLY TO WASTE.
F29	FLOW METER	NONE

NOTES:

EQUIPMENT SHOWN FOR SCHEMATIC PURPOSES ONLY. REFER TO PROJECT PROPOSAL AND SUBMITTALS FOR EQUIPMENT SUPPLIED BY NEPTUNE-BENSON.

WIRING NOT SHOWN FOR CLARITY.

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2 M3.3 FILTER SCHEMATIC
SCALE: N.T.S.

HEATHER W. BAXTER, P.E.
MI LICENSE # 50814
REGISTERED ENGINEER

IAAPA MEMBER

NO.	REVISION/ISSUE	DATE

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

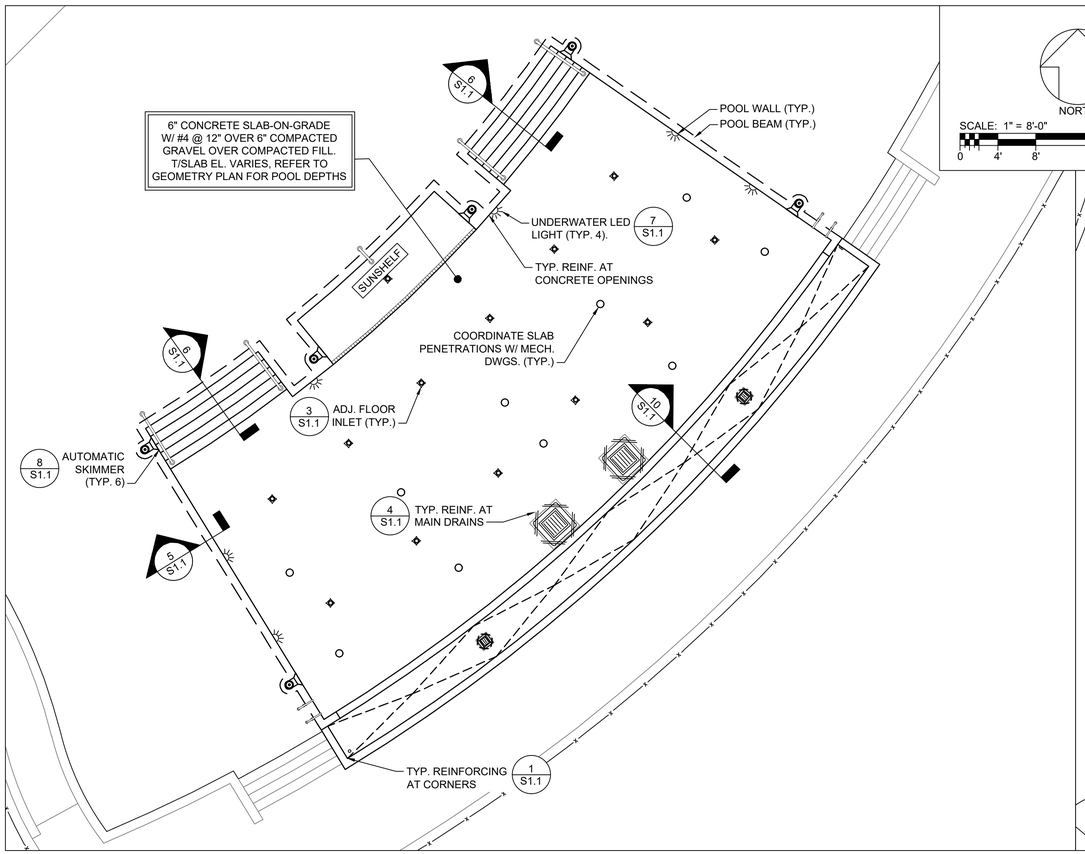
SHEET TITLE
MECHANICAL DETAILS

DESIGNED BY HWB
DRAWN BY NCT
CHECKED BY HWB

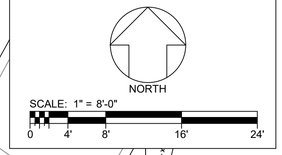
PROJECT 22030
DATE 10/2/23
SCALE AS NOTED
SHEET M3.3

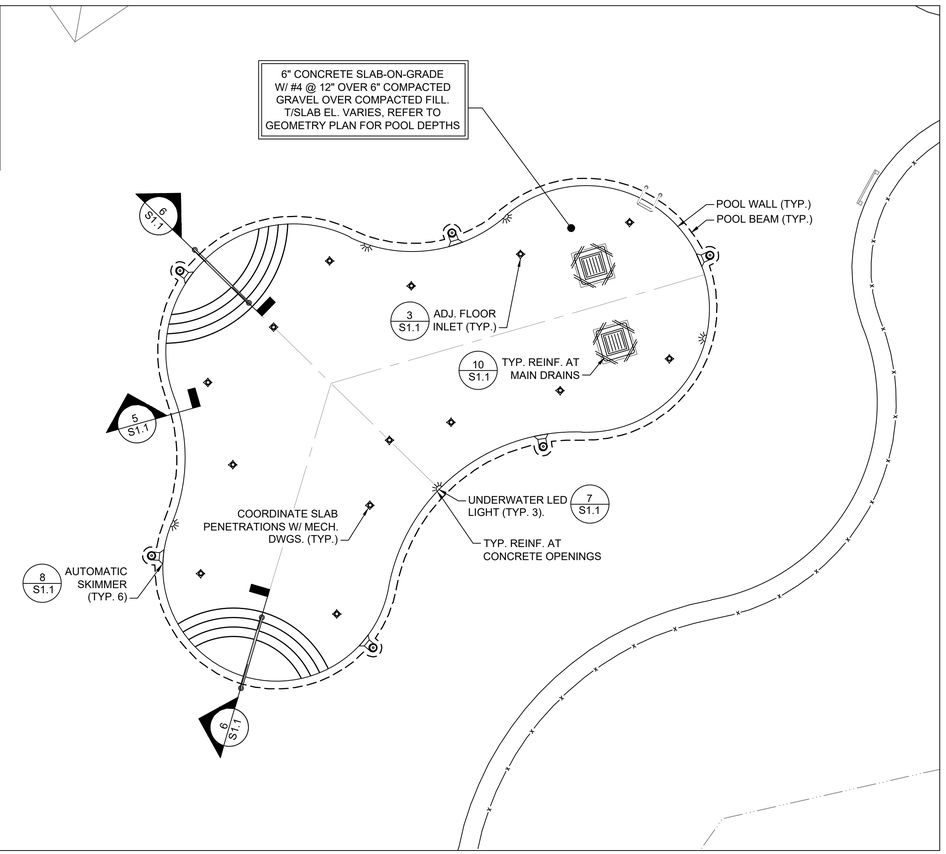
DRAWING SCALE FACTOR (REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS52008B00\projects\2023 Projects\23030 Air Tech Leelenau\Plans\16-19-M3.0-M3.4.dwg SAVED: 10/2/2023 3:39:03 PM BY: Heather Baxter PLOTTED: 10/2/2023 4:34:00 PM



INFINITY POOL PLAN VIEW





SWIMMING POOL PLAN VIEW

DESIGN CRITERIA

ALLOWABLE SOIL BEARING PRESSURE:.....2,000 PSF

SUPERIMPOSED LIVE LOADS:
WATER:.....62.4 PCF

CONCRETE

ALL CONCRETE PROPORTIONING, MIXING, TRANSPORTATION, PLACING, CURING, AND TESTING SHALL CONFORM TO ACI 301. ALL CONCRETE SHALL BE LABORATORY DESIGNED AND CONTROLLED TO MEET THE REQUIREMENTS OF ACI 318 AND THE PROJECTS DESIGN CODE.

FOR THE SLAB ON GRADE, THE DESIGN MIX SHALL BE ESTABLISHED WITH EMPHASIS ON AGGREGATE SELECTION AND PROPORTIONS TO PROVIDE A MIX REQUIRING MINIMUM AMOUNTS OF WATER AND CEMENT.

USE OF CALCIUM CHLORIDE, CHLORIDE IONS, OR OTHER SALTS IN CONCRETE IS PROHIBITED.

CONCRETE TO CONFORM TO THE FOLLOWING:
ALL .....FC = 4000 PSI @28 DAYS
TYPE AGGREGATE:.....NORMAL WEIGHT
WATER/CONCRETE RATIO (MAX.).....0.45

THE AIR CONTENT IN ALL CONCRETE EXPOSED TO WEATHER SHALL BE BETWEEN 1% AND 4%.

UNLESS OTHERWISE NOTED (UON) ON THE DRAWINGS, MINIMUM COVER FOR REINFORCING SHALL BE AS FOLLOWS:
CONCRETE CAST AGAINST EARTH.....3"
SLABS ON GRADE.....2" FROM TOP
SLABS AND WALLS (EXPOSED TO EARTH, LIQUID, OR WEATHER).....2"
SLABS AND WALLS (NOT EXPOSED TO EARTH, LIQUID, OR WEATHER).....2"

ALL HOOKS CALLED FOR IN STRUCTURAL DRAWINGS SHALL BE ACI STANDARD HOOKS, UNO.

REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60 UNO.

ALL WELDED WIRE MESH SHALL CONFORM TO ASTM A185. LAP TWO SQUARES AT SPLICES.

DO NOT WELD REINFORCING STEEL UNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

TIE ALL REINFORCING STEEL AND EMBEDS SECURELY IN PLACE PRIOR TO PLACING CONCRETE. ALL REINFORCING SHALL BE HELD SECURELY IN POSITION WITH STANDARD ACCESSORIES IN CONFORMANCE WITH CRSI MANUAL OF STANDARD PRACTICE AND ACI 315 DURING THE PLACING OF THE CONCRETE. THE CONTRACTOR SHALL PROVIDE SUPPORTS TO MAINTAIN THE REQUIRED REINFORCING POSITION. "WET STICKING" DOWELS INTO CONCRETE IS NOT PERMITTED.

REINFORCING BARS MAY BE SPLICED ONLY AS SHOWN ON THE DRAWINGS EXCEPT THAT REINFORCING NOTED AS CONTINUOUS MAY BE LAP SPLICED 40 BAR DIAMETERS. LAP SPLICES OF CONTINUOUS REINFORCING IN BEAMS AND TWO-WAY SLABS SHALL BE MADE OVER THE SUPPORT FOR BOTTOM BARS AND AT MID-SPAN FOR TOP BARS.

THE CONTRACTOR SHALL COMPARE THE STRUCTURAL PLANS AND DETAILS WITH THE ARCHITECTURAL PLANS AND DETAILS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT PRIOR TO THE COMMENCEMENT OF SHOP DRAWINGS.

THE CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF 1% OF TOTAL REINFORCING STEEL FOR THE PROJECT TO BE FABRICATED AND PLACED DURING CONSTRUCTION AT THE DIRECTION OF THE STRUCTURAL ENGINEER, IN ADDITION TO THE REINFORCING STEEL REQUIRED BY THE STRUCTURAL DRAWINGS. THE OWNER SHALL RECEIVE CREDIT FOR ANY UNUSED QUANTITY AT THE END OF THE PROJECT.

SHOTCRETE/GUNITE NOTES

SHOTCRETE/GUNITE APPLICATION, WHEN USED, SHALL ADHERE TO THE FOLLOWING:

SHOTCRETE/GUNITE (WET OR DRY) SHALL BE PROPORTIONED AND PLACED ACCORDING TO UBC SECTION 1922 AND ACI 506. CEMENT TO AGGREGATE, IN DRY WEIGHT, SHALL NOT BE LESS THAN FIVE TO ONE.

SHOTCRETE/GUNITE SHALL NOT BE APPLIED IF AMBIENT AIR TEMPERATURE IS LESS THAN 40F AND FALLING, OR IF TEMPERATURE IS GREATER THAN 100F. NEVER APPLY SHOTCRETE/GUNITE IN HEAVY RAIN.

SUBSTRATE SHOULD BE FOG-SPRAYED WITH WATER PRIOR TO SHOTCRETE/GUNITE APPLICATION TO ALLOW HYDRATION AND LIMIT RAPID DRYING OF CONCRETE, AND TO COOL REINFORCEMENT STEEL. IF FLOOR IS TO BE POURED AND WALLS CONSTRUCTED WITH SHOTCRETE/GUNITE, THE FLOOR SHALL BE POURED PRIOR TO CONSTRUCTION OF THE WALLS. FOR SHOTCRETE/GUNITE FLOORS, APPLICATION SHOULD COMMENCE IN CORNERS AND WORK TOWARDS THE CENTER OF THE POOL FOLLOWING WALL CONSTRUCTION.

IF EXPANSIVE SOILS (CLAYS) ARE ENCOUNTERED, THE SIDES AND BOTTOM OF THE POOL EXCAVATION MUST BE IN MOIST CONDITION IMMEDIATELY PRIOR TO PLACEMENT OF SHOTCRETE/GUNITE.

LAP SPLICES FOR REINFORCEMENT SHALL BE STACKED INLINE WITH SHOTCRETE/GUNITE SPRAY DIRECTION, NOT SIDE-BY-SIDE PERPENDICULAR TO SPRAY.

UP TO 2" DIAMETER PIPING MAY BE PLACED IN THE LOWER OUTSIDE CORNER OF THE BOND BEAM PROVIDED A MINIMUM OF 1.5 INCH CLEARANCE IS MAINTAINED BETWEEN THE PIPES AND ANY PARALLEL REINFORCEMENT.

SPECIFICATIONS

CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (LATEST EDITION) EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF AISC "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS", AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", AND AWS D1.1 "STRUCTURAL WELDING CODE", EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

SITE PREPARATION

FOOTING AND SLAB SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE GEOTECHNICAL REPORT FOR THE PROJECT PREPARED AND SHALL BE IN COMPLIANCE WITH APPLICABLE REQUIREMENTS OF GOVERNING AUTHORITIES HAVING JURISDICTION. SPECIAL ATTENTION SHALL BE GIVEN TO RECOMMENDED UNDERCUTTING OF MATERIAL CONTAINING ORGANIC MATERIAL.

STRUCTURE SHALL BEAR ONLY ON ROCK OR CLEAN SAND, WHICH SHALL BE COMPACTED TO PROVIDE A STRUCTURALLY SAFE BEARING CAPACITY. ANY UNSUITABLE MATERIAL ENCOUNTERED DURING IN EXCAVATION SHALL BE REMOVED IN ITS ENTIRETY AND THE AREA SHALL BE BACKFILLED WITH ACCEPTABLE MATERIAL AND PROPERLY COMPACTED. WHERE UNSUITABLE MATERIAL CANNOT BE REMOVED, THE POOL MUST BE REDESIGNED.

GEOTECHNICAL

A GEOTECHNICAL TESTING AND INSPECTION FIRM SHALL BE EMPLOYED TO PERFORM A SOIL SURVEY FOR SATISFACTORY SOIL MATERIALS, SAMPLING, AND TESTING FOR QUALITY CONTROL AS PER THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT FOR THIS PROJECT. ALL EARTHWORK OPERATIONS SHALL BE PERFORMED TO THE SATISFACTION OF THE GEOTECHNICAL FIRM.

FOUNDATIONS

A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT SHALL INSPECT AND ASSURE THE ADEQUACY OF ALL SUBGRADES, FILLS, AND BACKFILLS BEFORE PLACEMENT OF FOUNDATIONS, FOOTINGS, SLABS, ETC. WRITTEN ACCEPTANCE OF THE WORK INSPECTED SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER.

SUPPLEMENTARY NOTES

PROVIDE ALL TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION. THE STRUCTURE SHOULD NOT BE CONSIDERED STABLE UNTIL ALL STRUCTURAL ELEMENTS HAVE BEEN CONSTRUCTED.

THE CONTRACTOR MUST PROTECT EXISITNG STRUCTURES FROM FAILURE BY ACCEPTABLE METHODS. THE DESIGN ENGINEER ACCEPTS NO RESPONSIBILITY FOR THE SAFETY OF EXISTING STRUCTURES.

WET ENGINEERING INC. OR ANY OF ITS EMPLOYEES SHALL NOT HAVE CONTROL OR BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES OR SEQUENCES FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR OR ANY OTHER PERSONS PERFORMING THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

VERIFY ALL DIMENSIONS WITH THE MECHANICAL DRAWINGS.

SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR EMBEDS, OPENINGS, SLEEVES, ETC. NOT SHOWN ON THE STRUCTURAL DRAWINGS.

ALL STRUCTURAL OPENINGS AROUND OR AFFECTED BY MECHANICAL, ELECTRICAL, AND PLUMBING EQUIPMENT SHALL BE VERIFIED WITH EQUIPMENT PURCHASED BEFORE PROCEEDING WITH STRUCTURAL WORK AFFECTED.

EMBEDMENT FOR EXPANSION BOLTS SHALL BE 4" MINIMUM FOR ½" DIAMETER BOLTS IN CONCRETE. HILTI KWIK BOLT 3 OR EQUAL.

EPOXY GROUT SHALL BE POWER FAST CARTRIDGE SYSTEM BY RAWL, HY150 CARTRIDGE SYSTEM BY HILTI: (HILTI RE500, IF HOLE IS CORED INSTEAD OF DRILLED) OR APPROVED EQUAL, UON. EMBEDMENT SHALL BE 12 BAR DIAMETER MINIMUM, UON. HOLES SHALL BE ½" LARGER THAN REBAR SIZE & ⅜" LARGER THAN THREADED ROD SIZE. HOLE SHALL BE BRUSHED OUT WITH BOTTLE BRUSH AND THEN BLOWN OUT WITH AIR USING A COMPRESSOR WITH A FUNCTIONAL OIL TRAP. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS.

ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF MICHIGAN.

ALL ANGLES, BARS, ANCHORS, ANCHOR BOLTS, ETC. EMBEDDED IN CONCRETE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

SUPPLEMENTARY NOTES (CONT.)

ALL ANGLES, BARS, ANCHORS, ANCHOR BOLTS, ETC. EMBEDDED IN CONCRETE SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

GENERAL CONTRACTOR MUST REVIEW AND APPROVE SHOP DRAWINGS PRIOR TO SUBMITTAL TO ARCHITECT/ENGINEER. SUBMITTALS WHICH DO NOT CONTAIN THE CONTRACTORS SHOP DRAWING STAMP OR HAVE BEEN MERELY "RUBBER STAMPED" SHALL BE RETURNED WITHOUT REVIEW.

CHANGES TO THE CONTRACT DOCUMENTS SHALL BE CLOUDED ON SHOP DRAWINGS OR REQUESTED IN WRITING. THE CONTRACTOR IS LIABLE FOR ANY DEVIATIONS UNLESS REVIEWED AND ACKNOWLEDGED BY THE ENGINEER. SHOP DRAWING SUBMITTALS SHALL ONLY BE CHECKED FOR CONFORMANCE WITH THE DESIGN CONCEPT AND THE INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS.

REVIEW OF THE SUBMITTAL INFORMATION SHALL BE FOR GENERAL REQUIREMENTS OF THE PROJECT, AND SHALL NOT INCLUDE CHECKING OF DETAILED DIMENSIONS OR DETAILED QUANTITIES, NOR REVIEW OF THE CONTRACTOR'S SAFETY MEASURES ON OF OFF THE WORKSITE OR THE MEANS AND METHODS OF DOING ANY WORK.

THE CONTRACTOR SHALL NOT SCALE DRAWINGS. DIMENSIONS SHOWN ON ARCHITECTURAL AND STRUCTURAL PLANS AND DETAILS WILL CONTROL.

IMPORTANT CONSTRUCTION NOTES

POOL SHELL IS TO BE CONSTRUCTED AS SHOWN ON THE STRUCTURAL DETAILS. FOR PAVER DECKS, TOP OF BEAM MUST BE CONSTRUCTED SUCH THAT THE COPING MANUFACTURER'S RECOMMENDED SETTING MORTAR THICKNESS IS NOT EXCEEDED. **IN NO INSTANCE SHALL THE BEAM BE BUILT UP WITH MORTAR TO ACHIEVE THE NECESSARY DECK ELEVATION.** IF BUILD-UP OF THE SHELL IS REQUIRED FOLLOWING THE INITIAL CONCRETE POUR, THE ENGINEER SHALL BE CONTACTED IMMEDIATELY TO COORDINATE A PROPER INSTALLATION.

CONSULT THE HARDSCAPE ARCHITECT'S PLANS AND SPECIFICATIONS FOR INSTALLATION OF COPING AND PAVERS AND EXPANSION JOINT MATERIAL AND LOCATIONS.

NOTES:

1. STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE (2015).
2. SEE 1/S1.1 FOR TYP REINFORCING AT WALL CORNERS.
3. SEE 2/S1.1 FOR TYP REINFORCING AROUND WALL AND FLOOR OPENINGS. COORD OPENING LOCATIONS W/ MECH. DRAWINGS.
4. SEE MECH DRAWINGS FOR POOL DIMENSIONS & ELEVATIONS. COORD. POOL LOCATION W/ SITE PLAN.
5. ALL FINISHING ELEMENTS SHALL BE ATTACHED PER SUPPLIER'S INSTRUCTIONS (WHERE APPLICABLE).
6. SHOTCRETE / GUNITE / CONCRETE BATCH SAMPLING AND TESTING SHALL BE PERFORMED PER THE APPLICABLE CODE AT THE CONTRACTOR'S EXPENSE.

WORLD WATERPARK ASSOCIATION

HEATHER W. BAXTER, P.E.
MI LICENSE # 50814
REGISTERED ENGINEER

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
STRUCTURAL PLANS & NOTES

DESIGNED BY
HWB

DRAWN BY
NCT

CHECKED BY
HWB

PROJECT
22030

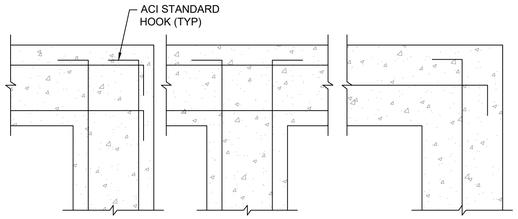
DATE
10/2/23

SCALE
AS NOTED

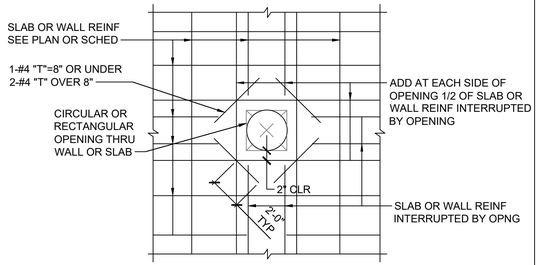
SHEET
S1.0

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (20X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

FILE: \\TS5200B00\projects\2023 Projects\22030 Air Tech Leelanau\Plans\20-22-S1.0-S1.2.dwg SAVED: 10/2/2023 4:28:40 PM PLOTTED: 10/2/2023 4:32:55 PM BY: Heather Baxter

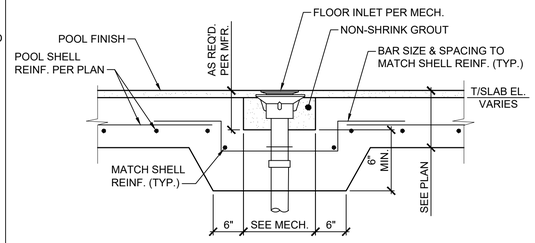


1 S1.1 TYP WALL CORNER DETAIL
N.T.S.

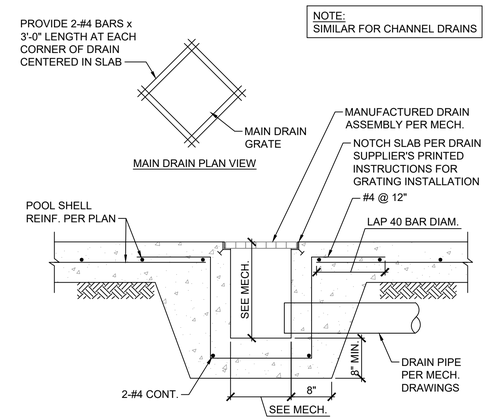


NOTES:
1. "T" = WALL OR SLAB THICKNESS
2. PROVIDE ADD'L BARS (NOT SHOWN) WHICH EQUAL THE AREA OF INTERRUPTED WALL & SLAB REINFORCING.
3. PLACE IN APPROX EQUAL AREAS EACH SIDE OF OPNG & PARALLEL TO THE CONT REINF ALONG THE PERIMETER OF THE OPNG.
4. BUNDLE BARS @ RESTRICTED AREAS.

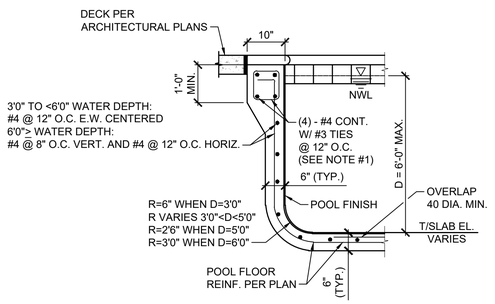
2 S1.1 TYP REINF @ CONCRETE OPENINGS
N.T.S.



3 S1.1 FLOOR INLET DETAIL
N.T.S.

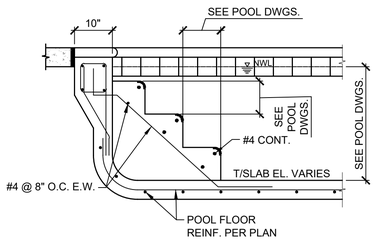


4 S1.1 TYP MAIN DRAIN SECTION
N.T.S.



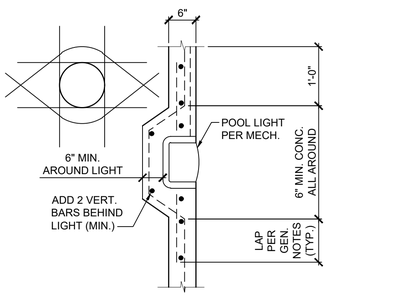
NOTES:
1. ALTERNATE: SINGLE PIECE OF REBAR MAY BE SUBSTITUTED TO MATCH SHAPE OF TIE.

5 S1.1 TYPICAL WALL SECTION
N.T.S.

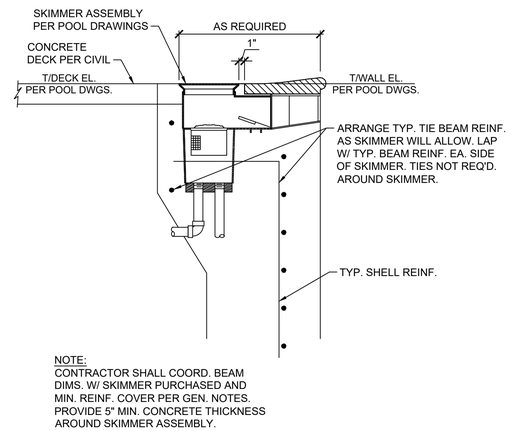


NOTES:
1. REFER TO TYPICAL WALL SECTION FOR FURTHER INFORMATION.
2. HANDRAIL NOT SHOWN FOR CLARITY.

6 S1.1 TYPICAL STEP SECTION
N.T.S.

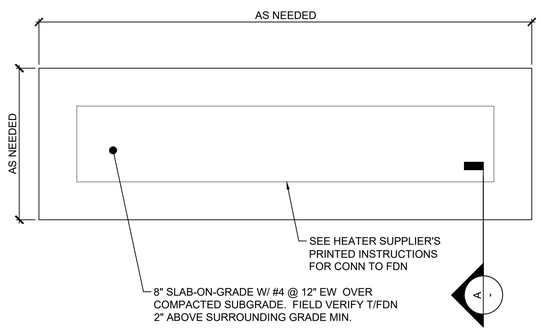


7 S1.1 LIGHT NICHE DETAIL
N.T.S.

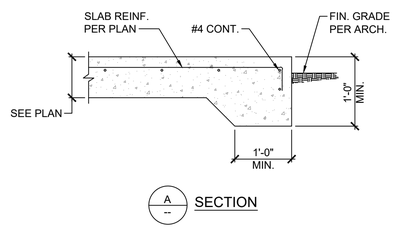


NOTE:
CONTRACTOR SHALL COORD. BEAM DIMS. W/ SKIMMER PURCHASED AND MIN. REINF. COVER PER GEN. NOTES. PROVIDE 5" MIN. CONCRETE THICKNESS AROUND SKIMMER ASSEMBLY.

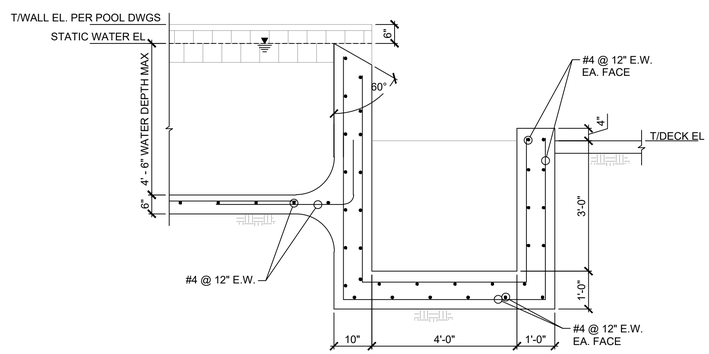
8 S1.1 TYP. REINF. @ SKIMMER
SCALE: N.T.S.



9 S1.1 TYP. HEATER FDN PLAN
SCALE: N.T.S.



A -- SECTION



10 S1.1 CATCH BASIN SECTION
N.T.S.

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MI Certificate of Authority No. 60369F

PROJECT NAME
AQUATICS CONSTRUCTION PLANS
FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
STRUCTURAL DETAILS

DESIGNED BY HWB
DRAWN BY NCT
CHECKED BY HWB

PROJECT 22030
DATE 10/2/23
SCALE AS NOTED
SHEET S1.1

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34) SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

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NOTES:

1. ELECTRICAL INFORMATION SHOWN APPLIES TO POOL EQUIPMENT ONLY. FOR INFORMATION ON OVERHEAD LIGHTING OR OTHER ELECTRICAL ITEMS, REFER TO ELECTRICAL ENGINEERING DRAWINGS. REFER TO ELECTRICAL ENGINEERING DRAWINGS FOR LIGHTING CIRCUIT INFORMATION.

2. GROUND AND BOND ALL POOLS AND RELATED EQUIPMENT IN ACCORDANCE WITH NEC ARTICLES 250 AND 680. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR TO ENSURE THAT ALL METALLIC PARTS OF THE POOL STRUCTURE, INCLUDING THE POOL SHELL AND DECK REINFORCING BARS AND ALL OTHER METAL PARTS ARE BONDED PER NEC ARTICLE 250 AND 680. BOND TOGETHER REINFORCING BARS USING STEEL TIE WIRES. BOND ALL METAL PARTS TO POOL REINFORCING BARS USING #8 AWG COPPER WIRES. THESE METAL PARTS INCLUDE, BUT ARE NOT LIMITED TO LADDERS, RAILINGS, PIPING, CONDUIT, METAL DOOR FRAMES AND METAL PARTS WITHIN 5' OF INSIDE WALL OF POOL. CONNECTION SHALL BE EXOTHERMIC WELD, LISTED PRESSURE CONNECTORS OR CLAMPS AS APPLICABLE. GROUND STEEL COLUMNS (I.E. FOR TOWERS OR SLIDES) PER NEC ARTICLE 250 AND 680 AND NFPA 780. IF REINFORCING BARS ARE ENCAPSULATED WITH A NONCONDUCTIVE COMPOUND, CONTACT ENGINEER BEFORE PROCEEDING.

3. THIS ELECTRICAL INSTALLATION SHALL MEET ALL REQUIREMENTS OF NEC ARTICLES 250 AND 680. IN ACCORDANCE WITH THIS, UNDERGROUND WIRING SHALL NOT BE PERMITTED UNDER THE POOL OR WITHIN 5' HORIZONTALLY FROM THE INSIDE WALL OF THE POOL UNLESS THIS WIRING IS NECESSARY TO SUPPLY POOL EQUIPMENT PERMITTED BY NEC ARTICLE 680. ALL UNDERWATER LIGHTING SHALL BE GFCI PROTECTED. MOUNTING HEIGHT FOR ANY LIGHT FIXTURES SUSPENDED OVER POOLS SHALL BE NOT LESS THAN 12' ABOVE MAXIMUM WATER LEVEL.

4. COORDINATE LENGTH OF LIGHT CORDS WITH DISTANCE TO TRANSFORMER AND/OR POWER SUPPLY. CORD LENGTH MAY REQUIRE ADJUSTMENT OF VOLTAGE AT STEP-DOWN TRANSFORMER TO AVOID EXCESSIVE VOLTAGE DROP. IF SO, PROVIDE TAPS FOR TRANSFORMER AS REQUIRED. JUNCTION BOXES NOT SHOWN, PROVIDE AS NEEDED.

5. RECIRCULATION PUMP SHALL BE ELECTRICALLY INTERLOCKED WITH CHEMICAL EQUIPMENT, IF APPLICABLE.

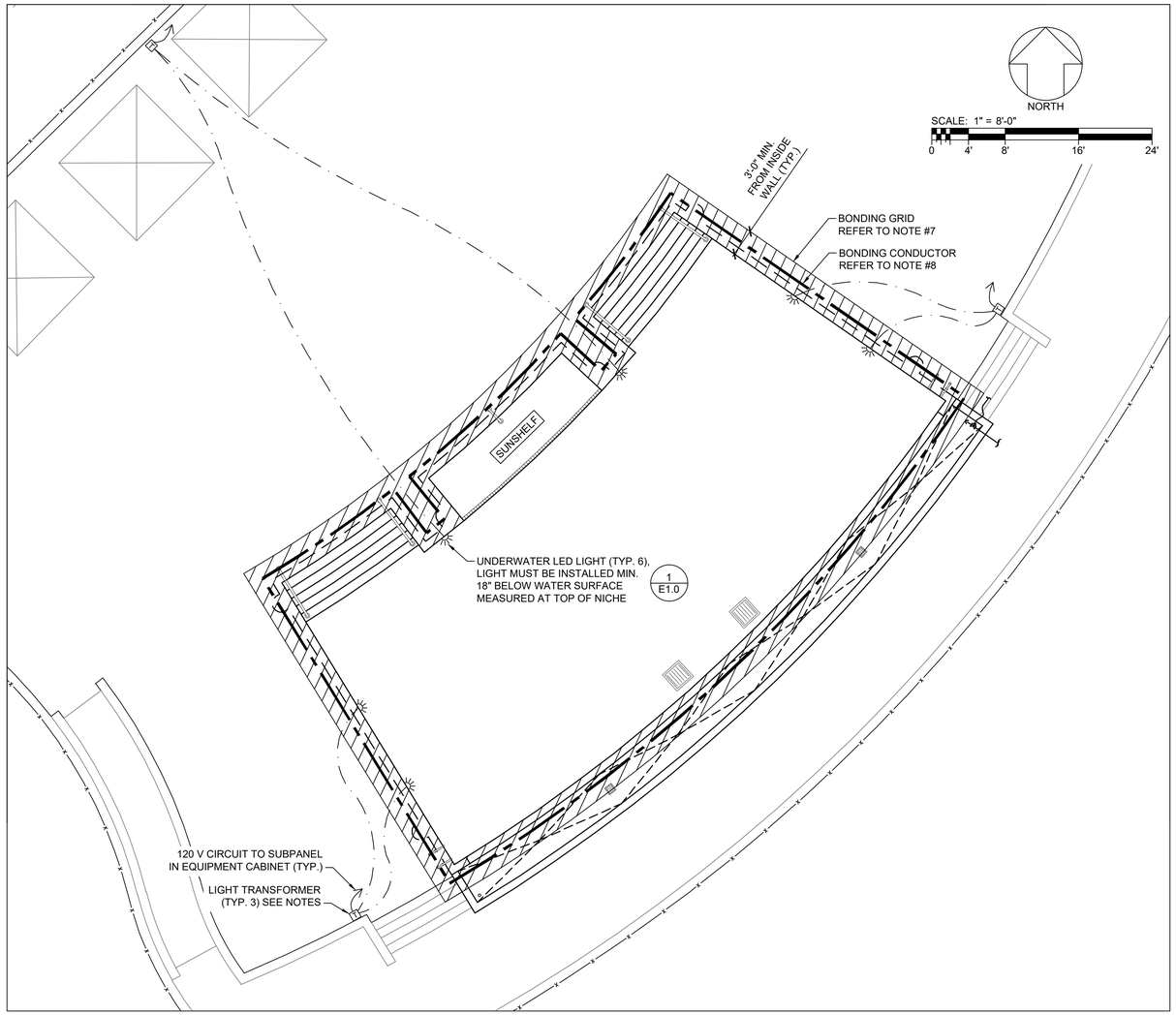
6. ELECTRICAL CONTRACTOR SHALL INSTALL NO FEWER THAN ONE 125-VOLT 15- OR 20-AMPERE RECEPTACLE ON A GENERAL PURPOSE BRANCH CIRCUIT. RECEPTACLE SHALL BE LOCATED NOT LESS THAN 6 FT. FROM AND NOT MORE THAN 20 FT. FROM THE INSIDE WALL OF THE POOL. THE RECEPTACLE SHALL BE LOCATED NOT MORE THAN 6 FT. 6 IN. ABOVE THE FLOOR, PLATFORM, OR GRADE LEVEL SERVING THE POOL (NOT APPLICABLE TO INDOOR POOLS WHERE COMPLIANT RECEPTACLES ARE AVAILABLE). ALL RECEPTACLES SHALL BE GFCI PROTECTED. REFER TO HARDSCAPE/ARCHITECTURAL PLANS FOR EXACT LOCATIONS.

7. AN EQUIPOTENTIAL COMMON BONDING GRID IS REQUIRED FOR ALL PAVED WALKING SURFACES WITHIN THREE FEET OF THE INSIDE WALLS OF THE POOL AND/OR SPA FOR THE ENTIRE POOL PERIMETER. THE BONDING GRID MAY BE COMPOSED OF STEEL REINFORCING RODS (REBAR), OR #8 BARE, SOLID COPPER CONDUCTORS. 6 x 6 x 10 WELDED WIRE FABRIC (MESH) IS ACCEPTABLE WHEN PROPERLY INSTALLED ON CHAIRS AND EACH SECTION IS CLAMPED WITH APPROPRIATE LISTED DEVICES AND/OR #8 SOLID COPPER JUMPERS. THE BONDING GRID MAY NOT BE INSTALLED DIRECTLY IN EARTH CONTACT OR WITHOUT PROPER COVER. THE INSTALLATION MUST BE IN ACCORDANCE WITH 680.26(C), NATIONAL ELECTRIC CODE (NEC).

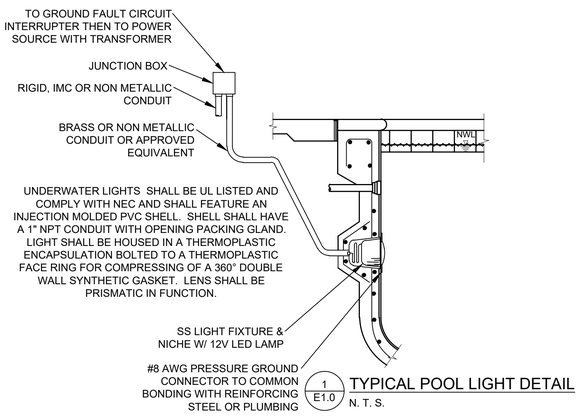
8. THE FOLLOWING IS AN ACCEPTABLE ALTERNATIVE TO THE BONDING GRID DEFINED IN NOTE #8, ABOVE: AN UNDERGROUND BONDING CONDUCTOR MADE OF A SINGLE #8 AWG BARE SOLID COPPER WIRE BURIED TO A MINIMUM DEPTH OF 4 INCHES TO 6 INCHES BELOW SUBGRADE AND 18 INCHES TO 24 INCHES FROM INSIDE WALL OF THE SWIMMING POOL OR SPA. THIS IS DEFINED A PERMISSIBLE ALTERNATIVE OR EQUIVALENT TO COMPLIANCE WITH S.680.26(C) OF THE NEC (2017), NFPA 20.

9. THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT SUPPLY VOLTAGE IS WITHIN 5% OF DESIGN VOLTAGE WHEN ALL EQUIPMENT IS IN OPERATION & SHALL RE-TAP TRANSFORMER, UP SIZE WIRE, OR SUPPLY A BUCK AND BOOST TRANSFORMER TO GET SUPPLY VOLTAGE TO NECESSARY LEVEL, IF NECESSARY.

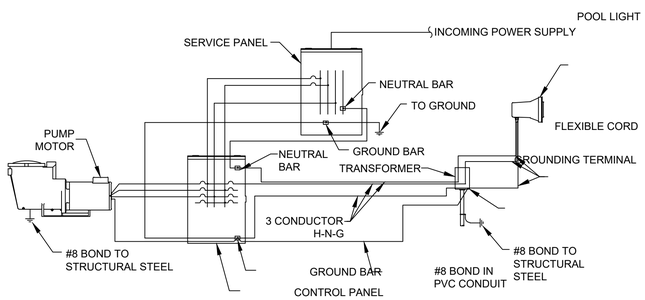
10. THE INSTALLING ELECTRICAL CONTRACTOR WILL VERIFY THAT ALL ELECTRICAL EQUIPMENT GROUNDS WILL HAVE THE SAME REFERENCE POTENTIAL AND WILL GIVE EVIDENCE OF SUCH TO WET ENGINEERING BEFORE ANY EQUIPMENT IS INITIALLY ENERGIZED.



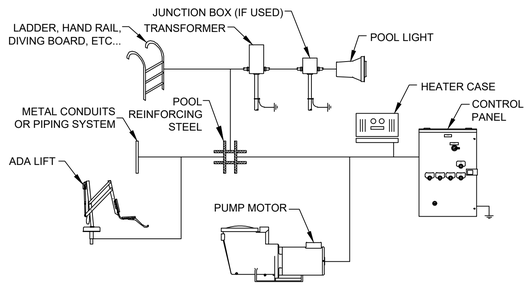
INFINITY POOL PLAN VIEW



1 / E1.0 TYPICAL POOL LIGHT DETAIL
N. T. S.



TYPICAL GROUNDING SCHEMATIC
N.T.S.



TYPICAL BONDING SCHEMATIC
N.T.S.

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PROJECT NAME
AQUATICS CONSTRUCTION PLANS FOR LEELANAU PINES CAMPGROUNDS

SHEET TITLE
INFINITY POOL ELECTRICAL PLAN, NOTES, & DETAILS

DESIGNED BY: HWB
DRAWN BY: NCT
CHECKED BY: HWB

PROJECT: 22030
DATE: 10/2/23
SCALE: AS NOTED
SHEET: E1.0

DRAWING SCALE FACTOR REFERENCES TO A FULL SIZE SHEET (22X34). SCALE FACTOR TO BE HALF NOTED VALUE WHEN PRINTED ON A HALF SIZE SHEET (11X17)

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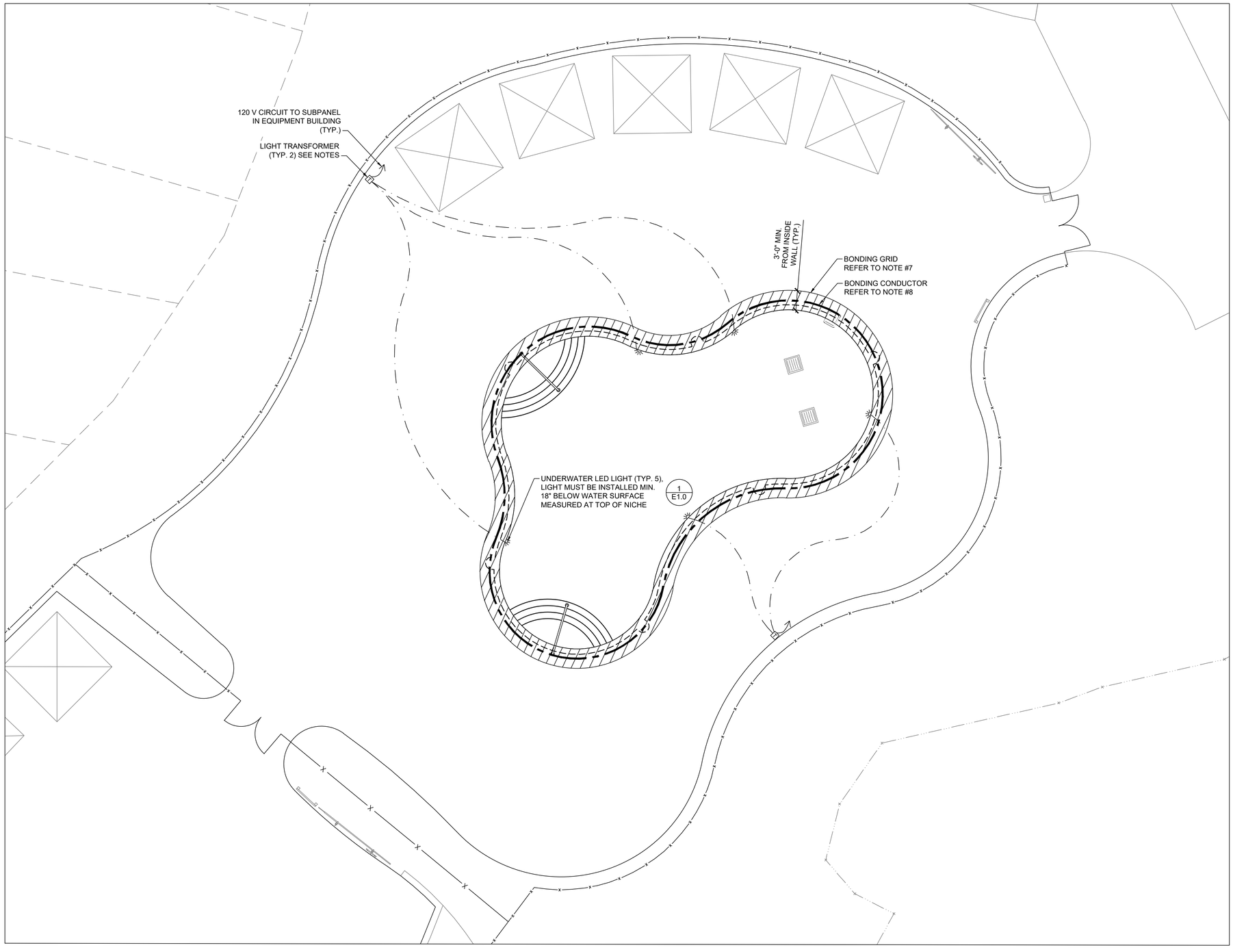

SWIMMING POOL PLAN VIEW

NORTH

SCALE: 1" = 8'-0"

0 4' 8' 16' 24'

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SHEET TITLE
SWIMMING POOL
ELECTRICAL PLAN

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