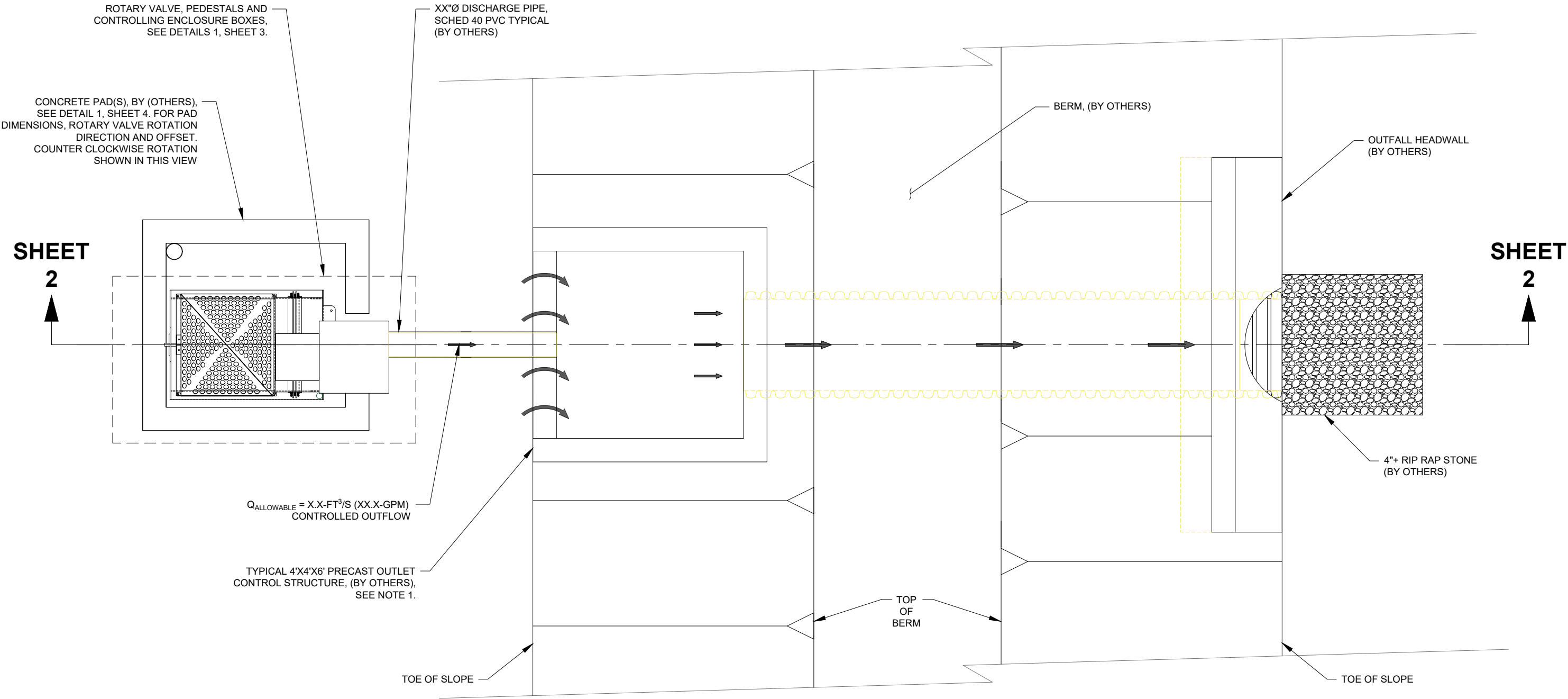


smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION

PLAN VIEW - ROTARY WEIR VALVE, OUTLET LAYOUT



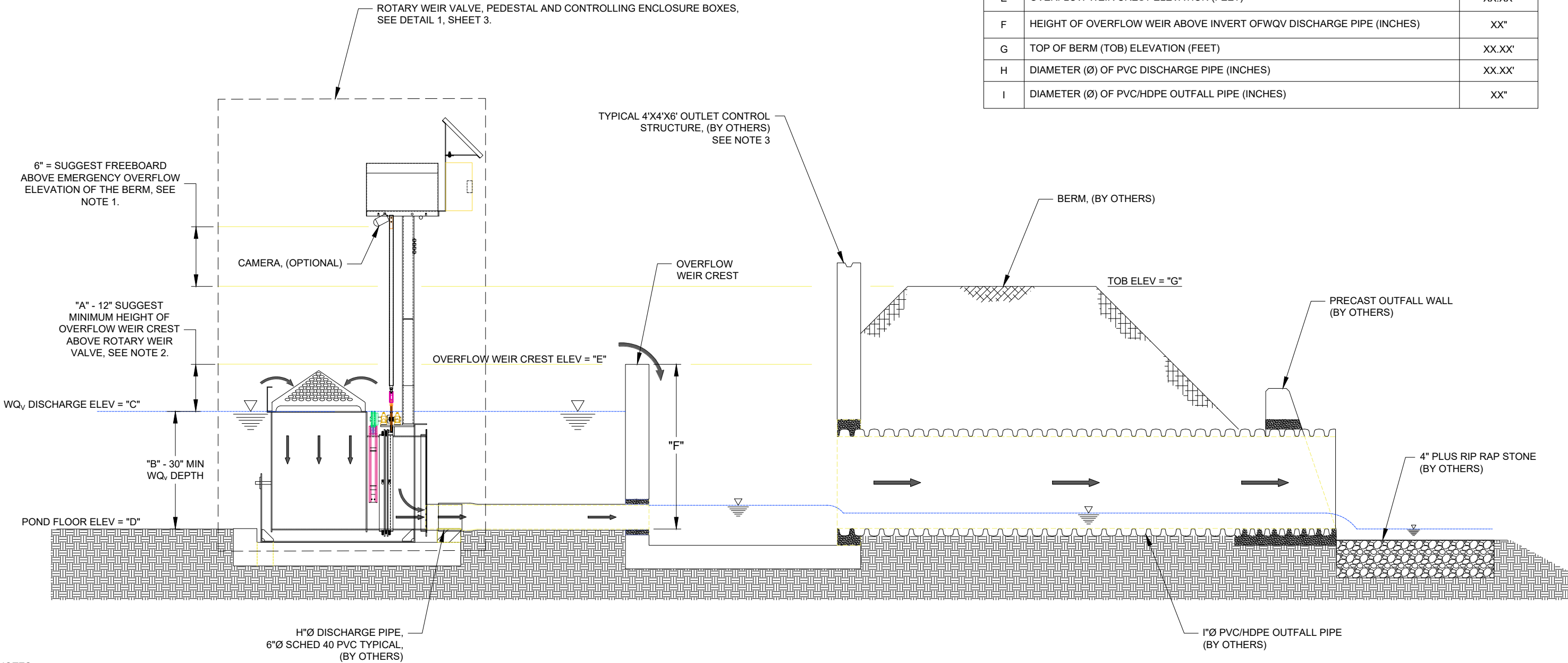
ROTARY VALVE DISCHARGE RATE AND WATER QUALITY & DETENTION VOLUME SETTINGS	
ALLOWABLE DISCHARGE RATE ($Q_{ALLOWABLE}$)	X.XX-FT ³ /S (XX.X-GPM)
WATER QUALITY BATCH DEPTH (WQ_v)	XX.XX-FT
REQUIRED DETENTION VOLUME	X.XX-FT ³
DETENTION VOLUME PROVIDED	X.XX-FT ³
REQUIRED WATER QUALITY BATCH DETENTION TIME	XX-HOURS

- NOTES:
1. THIS OUTLET STRUCTURE IS TYPICALLY A STACKED PRECAST VAULT STRUCTURE HAVING A SUFFICIENTLY LONG WEIR SET AT THE CORRECT ELEVATION HEIGHT TO ENSURE IT BYPASSES THE STORMS LARGER THAN THE POND'S DESIGN VOLUME. A BLOCKOUT IS IN THE PRECAST PRODUCES A BROAD CRESTED BYPASS WEIR.

ELEVATION VIEW - ROTARY WEIR VALVE FOR BATCH DETENTION OUTLET LAYOUT

WATER DEPTHS AND WEIR ELEVATIONS

A	FREEBOARD WEIR CREST TO WQV DISCHARGE ELEVATION (INCHES)	XX"
B	WATER QUALITY VOLUME (WQ _v) DETPH (INCHES)	XX.XX"
C	WQ _v ELEVATION (FEET)	XX.XX'
D	POND FLOOR ELEVATION (FEET)	XX.XX'
E	OVERFLOW WEIR CREST ELEVATION (FEET)	XX.XX'
F	HEIGHT OF OVERFLOW WEIR ABOVE INVERT OFWQV DISCHARGE PIPE (INCHES)	XX"
G	TOP OF BERM (TOB) ELEVATION (FEET)	XX.XX'
H	DIAMETER (Ø) OF PVC DISCHARGE PIPE (INCHES)	XX.XX'
I	DIAMETER (Ø) OF PVC/HDPE OUTFALL PIPE (INCHES)	XX"



NOTES:

1. IT IS A DESIGN SUGGESTION THAT THE BOTTOM OF THE CONTROLLING ENCLOSURE BOXES BE SET A MINIMUM OF 20-INCHES ABOVE THE EMERGENCY 100-YEAR OVERFLOW, BERM OR SPILLWAY ELEVATION. TYPICALLY, THIS IS THE THE TOP OF BERM (TOB), ELEVATION.
2. IT IS A DESIGN SUGGESTION THAT THE CREST ELEVATION OF THE 24"X24" ROTARY VALVE FOR THE DISCHARGE OF THE WATER QUALITY VOLUME (WQ_v) DISCHARGE, SHALL BE NO LESS THEN 12-INCHES BELOW THE CREST ELEVATION OF THE DESIGN OVERFLOW WEIR ELEVATION.
3. THIS OUTLET STRUCTURE IS TYPICALLY A STACKED PRECAST VAULT STRUCTURE HAVING A SUFFICIENTLY LONG WEIR SET AT THE CORRECT ELEVATION HEIGHT TO ENSURE IT BYPASSES THE STORMS LARGER THAN THE POND'S DESIGN VOLUME. A BLOCKOUT IS IN THE PRECAST PRODUCES A BROAD CRESTED BYPASS WEIR.

PROJECT:

PROJECT NAME
CITY, STATE

MODEL:

ROTARY WEIR VALVE
FOR BATCH DETENTION



smartPOND
Automated Stormwater Control.

FOR ADDITIONAL INFORMATION CONTACT:
CONVERGENT WATER
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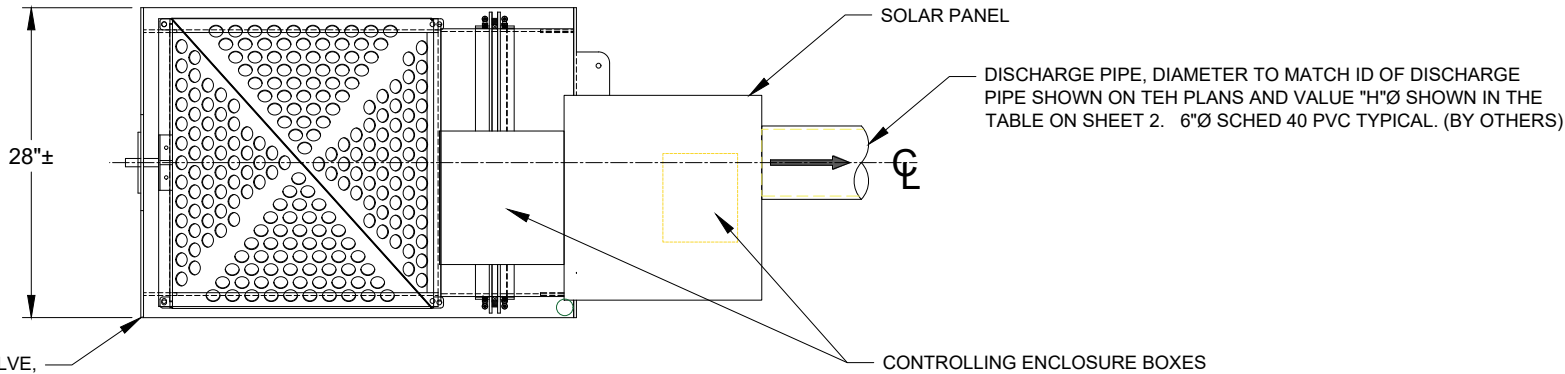
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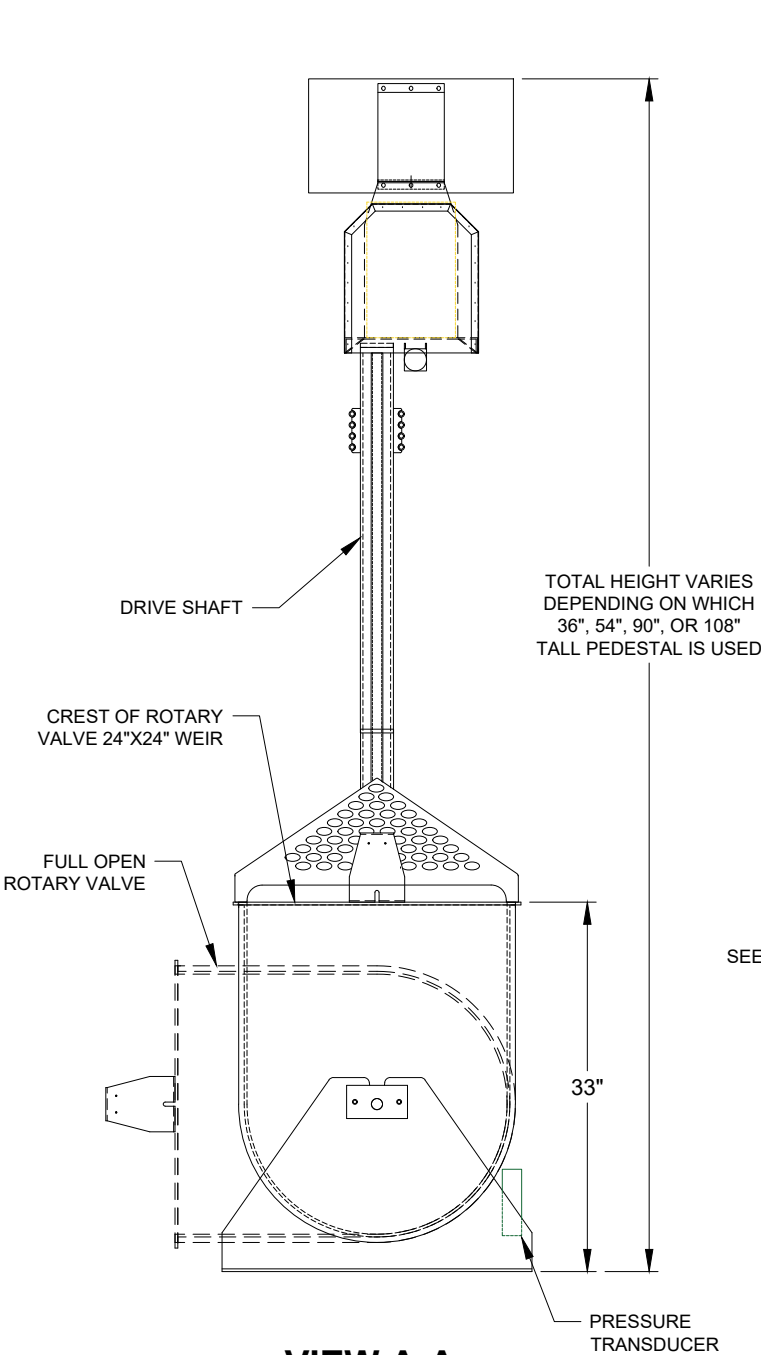
DETAIL 1 - ROTARY WEIR VALVE, PEDESTAL AND CONTROLLING ENCLOSURE BOXES

SCHEDULE 40 STEEL PIPE STUBS PROVIDED WITH ROTARY WEIR VALVE	
STUB PIPE DIAMETER (Ø) (INCHES)	STUB PIPE LENGTH (INCHES)
≤ 8-IN Ø	9-IN LONG
> 8-IN Ø	16-IN LONG



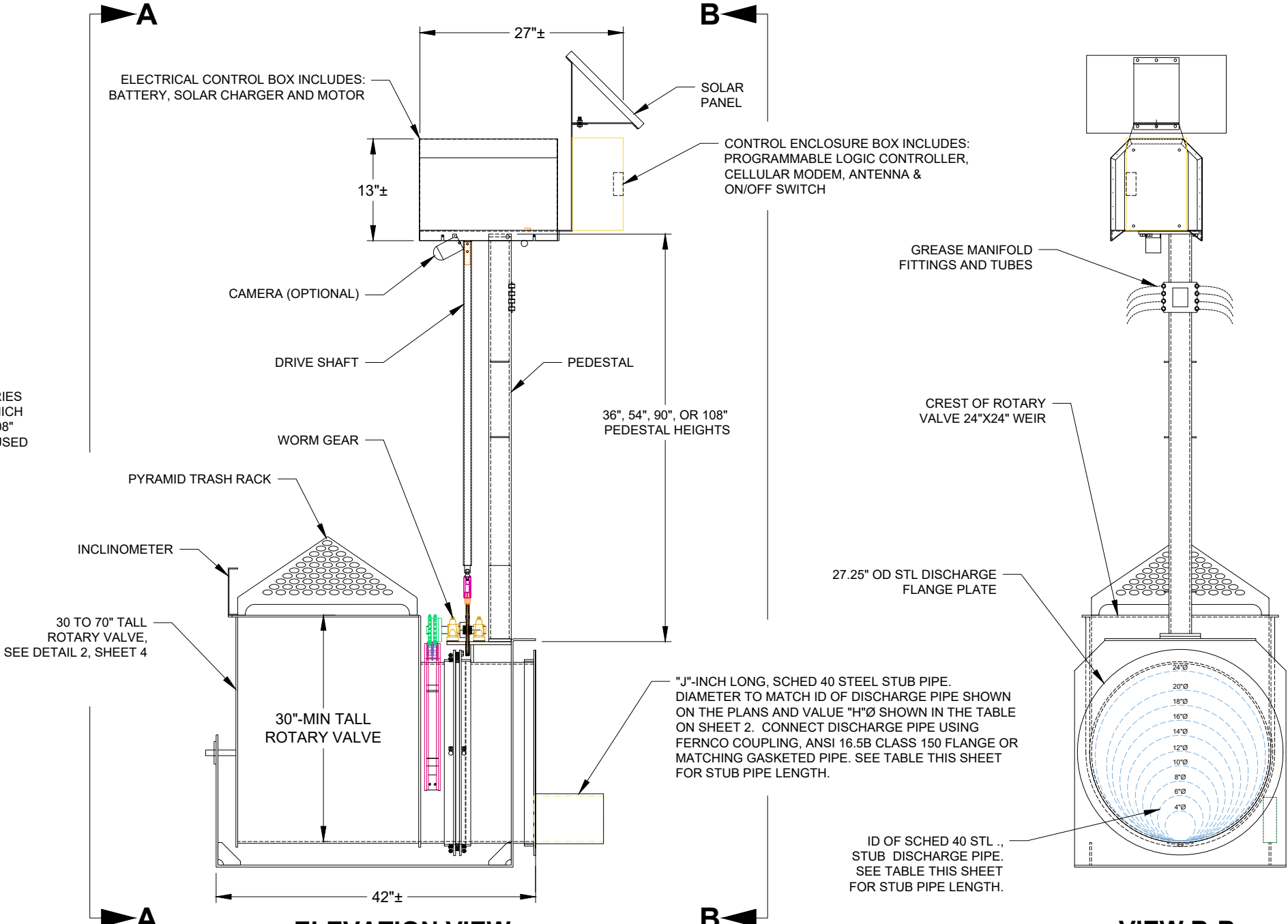
PYRAMID TRASH RACK ON TOP OF ROTARY VALVE, SEE DETAIL 2, SHEET 4

PLAN VIEW



VIEW A-A

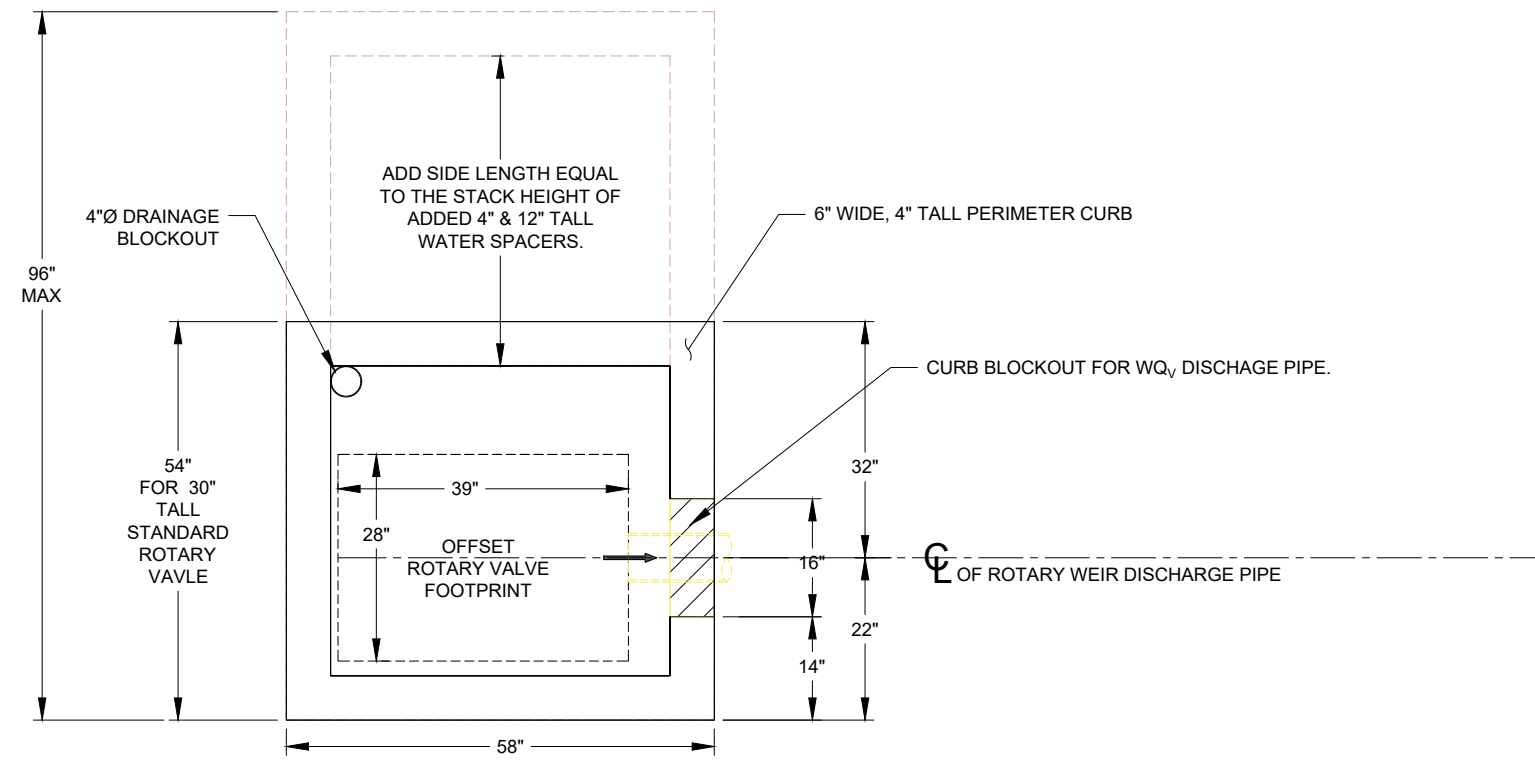
DISCHARGE PIPE NOT SHOWN THIS VIEW FOR CLARITY



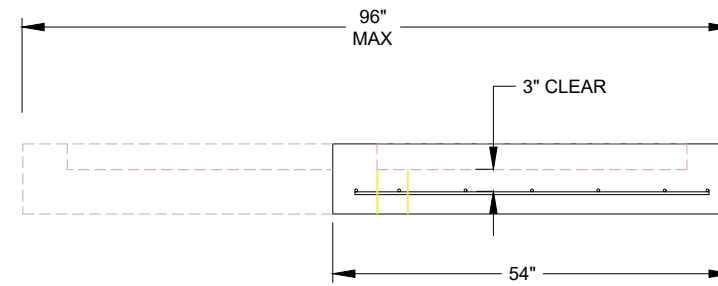
ELEVATION VIEW

VIEW B-B

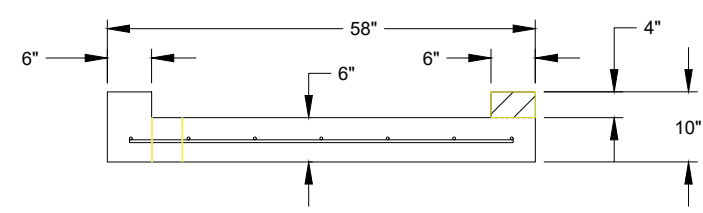
DISCHARGE PIPE NOT SHOWN THIS VIEW FOR CLARITY



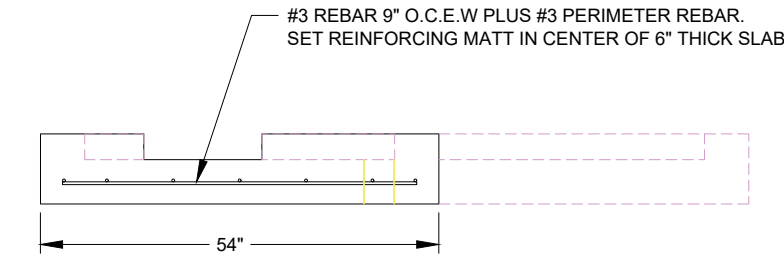
DETAIL 1 - CONCRETE PAD(s) PLAN VIEW



FACE VIEW

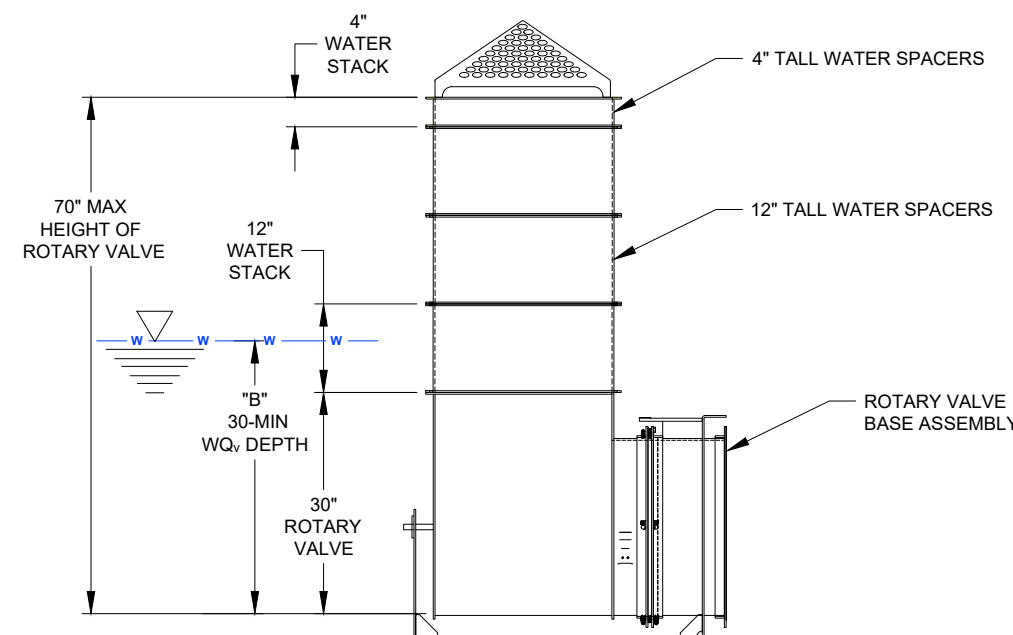


ELEVATION VIEW



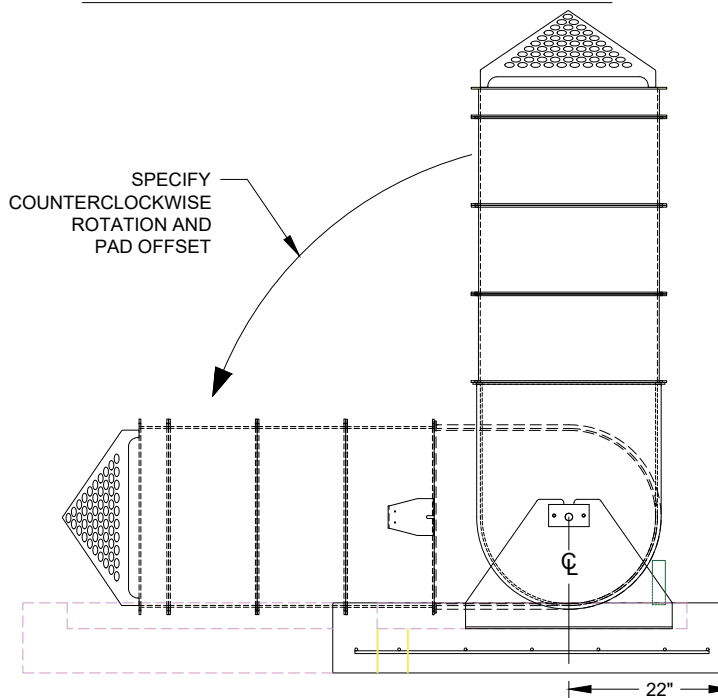
BACK VIEW

DETAIL 2 - ROTARY VALVE HEIGHT WITH WATER SPACERS

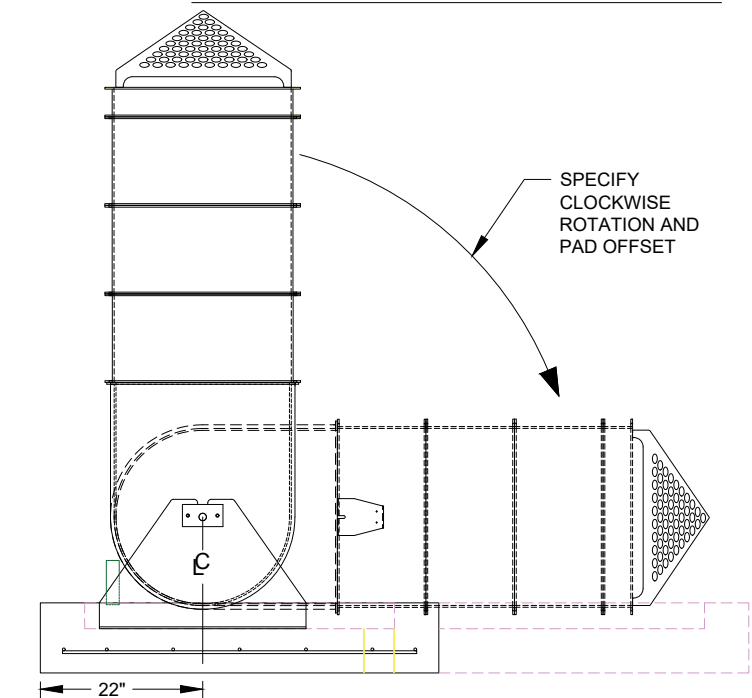


NOTE: STACK & BOLT TOGETHER 4" & 12" WATER SPACERS ON TOP OF ROTARY VALVE AS NECESSARY TO ESTABLISH POND WATER QUALITY VOLUME (WQV), "B" VALUE "B" LISTED IN THE TABLE ON SHEET 2 AND AS SHOWN ON THE PROJECT PLANS.

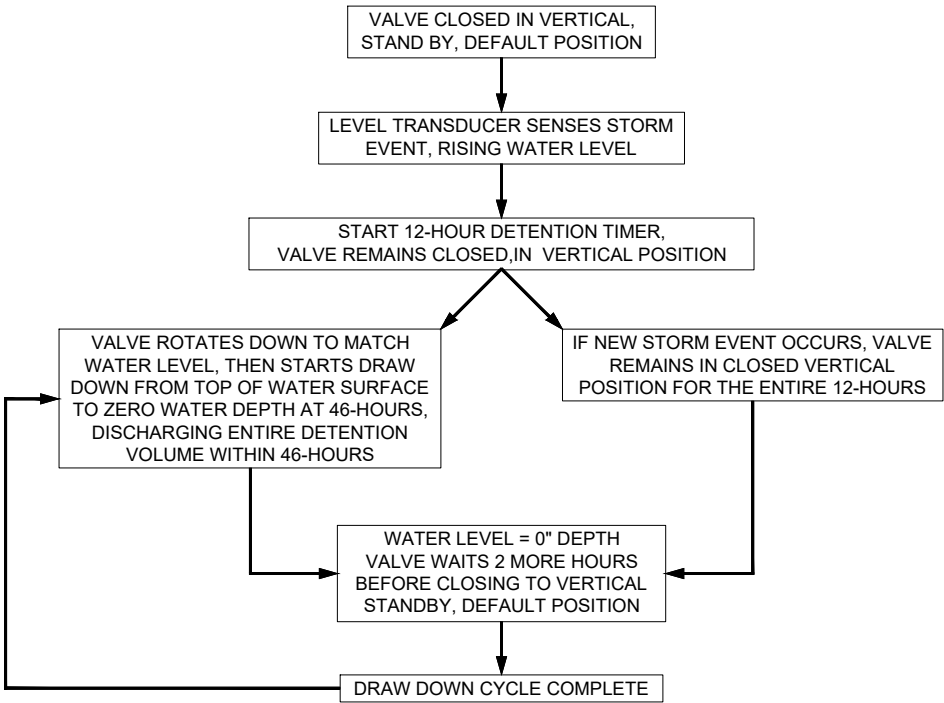
COUNTER CLOCKWISE ROTATION AND PAD OFFSET



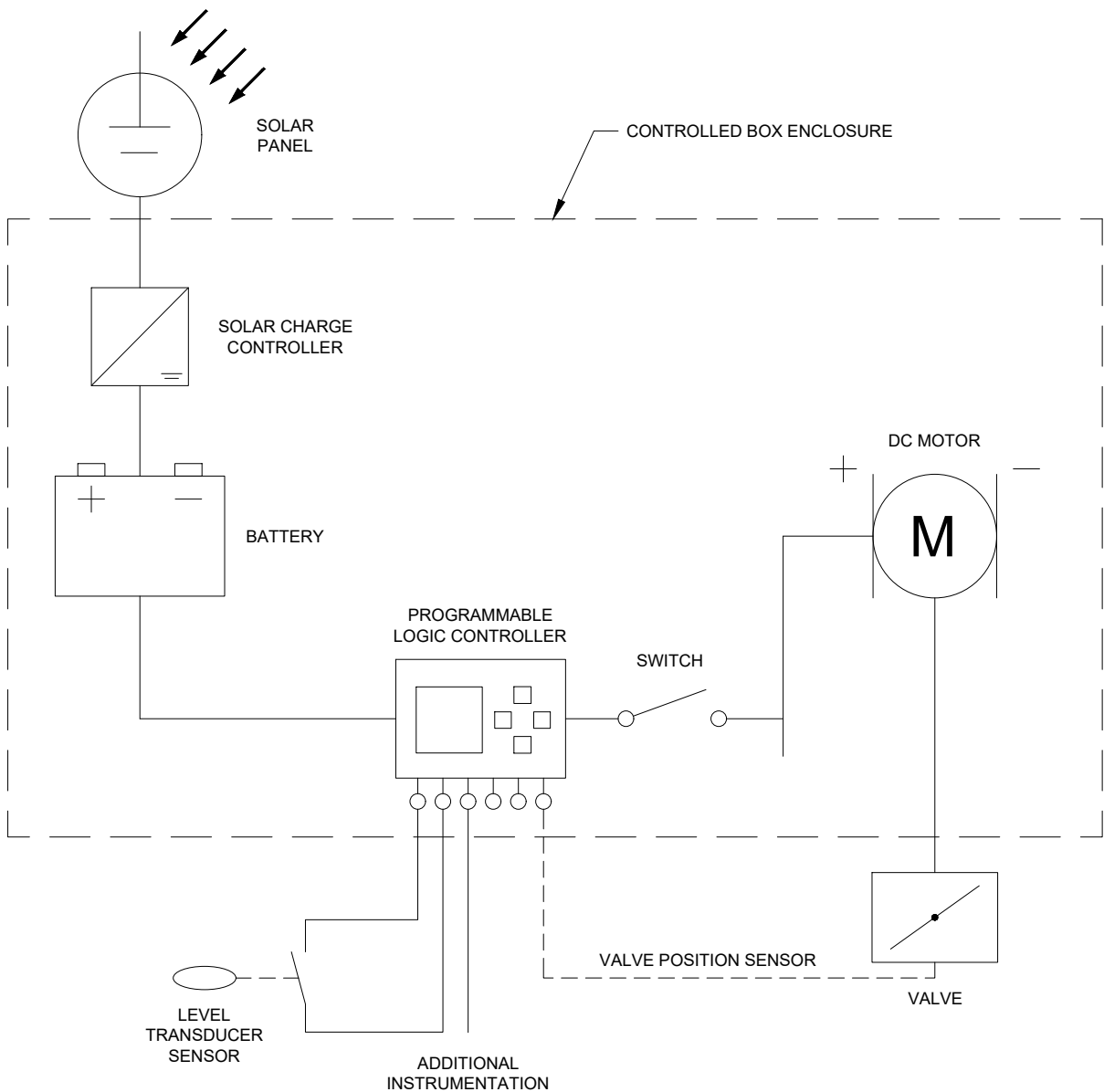
CLOCKWISE ROTATION AND PAD OFFSET



DETAIL 2 - PROGRAMMABLE LOGIC CONTROL FLOW CHART, VALVE OPERATION FOR WATER QUALITY BATCH DETENTION



PROCESS & INSTRUMENTATION DIAGRAM (P&ID)



smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION SPECIFICATIONS

AUTOMATED ROTARY BATCH DETENTION SYSTEM (ARBDS), WITH PROGRAM LOGIC CONTROL (PLC)

1. **AUTOMATED ROTARY BATCH DETENTION SYSTEM (ARBDS):** THE ARBDS, SHOWN ON THE PLANS SHALL BE smartPOND™ BATCH DETENTION ROTARY WEIR VALVE PROVIDED BY:

CONVERGENT WATER TECHNOLOGIES (CWT), INC.
(800) 711-5428
WWW.CONVERGENTWATER.COM

SEE THE CWT'S WEBSITE AT WWW.CONVERGENTWATER.COM FOR THE CONTACT INFORMATION OF THE AUTHORIZED VALUE-ADDED RESELLER (VAR), IN THIS PROJECT'S STATE.

2. **SCOPE:**

THIS AUTOMATED BATCH DETENTION SYSTEM (ARBDS), SHALL DEPLOY THE smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION FOR ACTIVE STORMWATER VOLUME MANAGEMENT.

THE ARBDS SHALL BE CAPABLE OF ENABLING REAL-TIME DIRECT CONTROL AS WELL AS FULLY AUTOMATED OPERATING MODES. THE ARBDS SHALL BE CONNECTED TO THE INTERNET. THE CONTROL AND OPERATION OF THE ARBDS SHALL BE SOLAR POWERED. IT SHALL PROVIDE AN OPTIONAL CAMERA FEED AS WELL WHEN SPECIFIED. IT SHALL ALSO BE CAPABLE OF ADDING AND REPORTING DATA FROM ADDITIONAL SENSORS TO ENHANCED OPERATIONAL AND INFORMATIONAL CAPABILITIES.

THE ROTARY WEIR VALVE OF THIS smartPOND™ FOR BATCH DETENTION SYSTEM SHALL ONLY RELEASE WATER FROM THE SURFACE OF THE DETENTION POND. THIS OPERATIONAL MODE OF DEWATERING THE POND EXACTLY REPLICATES EFFICIENT SETTLING POND CHARACTERISTICS IN THE DETENTION SYSTEM. THIS CONTROLLED DELAYED SURFACE RELEASE PROVIDES FOR SEDIMENTATION OF SUSPENDED SOLIDS AND THEIR ASSOCIATED CONTAMINANTS PROVIDING A WATER QUALITY TREATMENT SYSTEM IN ADDITION TO ITS ACTIVE VOLUME CONTROL.

3. **PERFORMANCE:**

THE smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION SHALL FUNCTION AS AN ELECTRONICALLY CONTROLLED, SOLAR POWERED STORMWATER MANAGEMENT DEVICE, PROVIDING PRECISION STORMWATER VOLUME CONTROL AND WATER QUALITY TREATMENT THROUGH PRE-PROGRAMMED AUTOMATION AS WELL AS RE TIME REMOTE INTERNET-BASED CONTROLS. THE smartPOND ROTARY WEIR VALVE FOR BATCH DETENTION PRECISELY DETAINS A SPECIFIED VOLUME OF STORMWATER FOR THE SPECIFIED TIME PERIOD AND THEN RELEASES THE IMPOUNDED WATERS FROM THE TOP SURFACE OF THE POND.

RELEASED WATERS SHALL ONLY BE DRAWN OFF THE SURFACE OF THE POND TO ENSURE MAXIMUM SEDIMENTATION TO ACHIEVE WATER QUALITY GOALS.

BATCH DETENTION FUNCTION FOR STORMWATER QUALITY. THE smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION MAY BE PRE-PROGRAMMED TO PROVIDE BATCH DETENTION TO ACHIEVE STORMWATER EFFLUENT GOAL OF 80% OR MORE REMOVAL OF TOTAL SUSPENDED SOLIDS (TSS), BY HOLDING THE WATER QUALITY VOLUME (WQ_v), FOR SEDIMENTATION TREATMENT, FOR A REQUIRED PERIOD OF TIME. HOLDING TIMES FOR BATCH DETENTION ARE SET FORTH IN REGIONAL STORMWATER MANAGEMENT REGULATIONS AND IS TYPICALLY 12-HOURS BEFORE STARTING THE RELEASE.

OTHER CONTROL SYSTEMS THAT DO NOT PROVIDE FOR THIS SOLAR POWERED FULLY PRE-PROGRAMMED AUTOMATION AND REAL TIME CONTROLLED DETENTION AND DELAYED RELEASE ONLY FROM THE SURFACE OF THE POND SHALL NOT BE ACCEPTABLE.

4. **SITE DESIGN:**

IT IS A DESIGN SUGGESTION THE OVERFLOW WEIR CREST FOR THE 100-YEAR EVENT BE SET 12-INCHES ("), ABOVE THE DISCHARGE WEIR CREST OF THE ROTARY WEIR VALVE WHEN IT IS IN THE FULLY CLOSED POSITION.

IT IS A DESIGN SUGGESTION THAT THE BOTTOM OF THE CONTROLLING ENCLOSURE BOXES BE SET 6" ABOVE THE TOP OF THE POND BERM, LEVEE . EMBANKMENT OR INVERT OF THE EMERGENCY SPILLWAY IN CASE OF EXTREME FLOOD OR STORM SURGE EVENTS. THIS IS TYPICALLY THE 100-YEAR EVENT WATER SURFACE ELEVATION.

THE smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION CAN BE DEPLOYED WITHIN THE POND OR BELOW GROUND IN MANHOLE OR VAULT STRUCTURE AT POND INVERT ELEVATION.

5. **CONFIGURATION:**

ALL smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION CAN BE ORDERED PRE-CONFIGURED TO MATCH SITE REQUIREMENTS AND WILL ARRIVE COMPLETE AND INSTALLATION-READY.

THE STANDARD smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION FEATURES A 24" SQUARE-TOP ROTARY WEIR VALVE.

A PYRAMID SHAPED TRASH GUARD IS BOLTED ON TOP OF THE VALVE TO PROTECT AGAINST LARGE DEBRIS CLOGGING THE VALVE OR THE OUTLET PIPE. THIS ROTARY VALVE IS CONNECTED TO THE BASE OF THE STATIONARY METAL PEDESTAL VIA A ROTARY UNION DRIVEN BY A WORM GEAR BETWEEN THE ROTARY WEIR VALVE AND THE STATIONARY PEDESTAL FRAME. A 24-IN DIAMETER (Ø) FLANGE FOR CONNECTION TO THE OUTFALL PIPE IS CONFIGURED ON THE OPPOSITE SIDE OF THE STATIONARY PEDESTAL FRAME FROM THE ROTARY UNION AND VALVE DRUM. THE PEDESTAL SUPPORTS BOTH A DRIVE SHAFT AND CONTROLLING ENCLOSURE BOXES. A SOLAR PANEL AND ANTENNA ARE SET ABOVE THE CONTROLLING ENCLOSURE BOXES.

THE CONTROLLING ENCLOSURE BOXES MOUNTED ON TOP OF THE PEDESTAL INCLUDES: A PROGRAMMABLE LOGIC CONTROLLER (PLC), A CELLULAR MODEM AND ANTENNA, MOTOR, BATTERY, SOLAR PANEL, SOLAR CHARGE CONTROLLER, OVER-CURRENT RELAY AND AMP MONITOR, TEMPERATURE SENSOR, CAMERA, VOLTmeter AND A DRIVE SHAFT THAT EXTENDS DOWN FROM THE MOTOR TO THE WORM-GEAR ASSEMBLY REFERENCED ABOVE.

THE SWIVELING ROTARY WEIR VALVE COMPONENT OF THE smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION SYSTEM CONSISTS OF THE ROTARY UNION AND ITS WORM GEAR BETWEEN THE ROTARY VALVE DRUM AND THE STATIONARY PEDESTAL FRAME SHALL BE A WATERTIGHT JOINT AND CONFIGURED WITH GREASE TUBES LEADING UP TO THE REMOTE GREASE TERMINALS MOUNTED ON THE PEDESTAL.

THE 24" Ø FLANGE ON THE DISCHARGE SIDE OF THE PEDESTAL PROVIDES THAT CONNECTION TO THE OUTFALL PIPE. THIS 24" Ø FLANGE CAN ACCOMMODATE DISCHARGE PIPES FROM 4" AND 16" IN DIAMETER USING CLASS 150 ANSI 16.5B FLANGES.

5.1 **HEIGHTS - ROTARY WEIR VALVE, PEDESTAL & CONTROLLING ENCLOSURE BOXES:**

THE smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION: ROTARY WEIR VALVE RANGES IN HEIGHT FROM 30" TO A MAXIMUM HEIGHT OF 60". 4"& 12" TALL WATER SPACERS ARE INSTALLED ON THE TOP OF THE ROTARY WEIR VALVE TO INCREASE ITS CREST HEIGHT.

CONTROLLING ENCLOSURE BOXES: THESE BOXES SHALL BE MOUNTED ON TOP OF THE PEDESTAL. PEDESTALS COME IN HEIGHT OF 36", 54" 90" & 108". IT IS A DESIGN GOAL FOR THESE BOXES SHOULD BE MOUNTED ABOVE THE 100-YEAR WATER SURFACE LEVEL OR THE 100-YEAR EMERGENCY OVERFLOW SPILLWAY WATER SURFACE ELEVATION.

6. **HARDWARE AND ELECTRONIC COMPONENTS**

- METAL ROTARY WEIR VALVE AND PEDESTAL SUPERSTRUCTURE:** THE ROTARY WEIR VALVE OF THIS smartPOND™ ARBDS AND ITS SUPERSTRUCTURE SHALL ALL BE CONSTRUCTED OF POWDER-COATED STEEL.
- MICROPROCESSOR & MAIN BOARD:** THESE CONTROLLER COMPONENTS SHALL BE MOUNTED INSIDE A SEALED, WATERPROOF UL-LISTED ENCLOSURE. THERE ARE NO USER SERVICEABLE PARTS IN THIS ENCLOSURE AND REMOVING THE CODED SEAL WILL VOID WARRANTIES AS WELL AS ANY MAINTENANCE OR SERVICE AGREEMENTS THAT MAY EXIST BETWEEN OWNER AND MANUFACTURER.
- MOTOR CONTROLLER RELAYS:** MOTOR RELAYS SHALL REGULATE THE CONNECTION BETWEEN THE BATTERY AND THE MOTOR, AND RECEIVE INPUTS FROM THE MAIN BOARD TO CONTROL MOTOR DIRECTION.
- INTERMITTENT SWITCHES:** TWO (2X) INTERMITTENT SWITCHES SHALL BE PROVIDED ADJACENT TO THE MOTOR CONTROL RELAYS TO ENABLE DIRECT CONTROL OF THE MOTOR. AN "A" SWITCH BUTTON MOVES THE ROTARY VALVE DRUM IN THE CLOSING DIRECTION AND A "B" SWITCH BUTTON MOVES THE VALVE IN THE OPENING DIRECTION.
- MOTOR:** THE MOTOR OPERATES ON 12-VOLTS AND IS MOUNTED ON A BRACKET AND CONNECTS TO THE DRIVESHAFT THAT EXTENDS DOWN TO THE WORM-GEAR ASSEMBLY AT THE PEDESTAL BASE.
- BATTERY:** THE BATTERY SHALL BE A 12-VOLT, 65-AMP/HOUR DEEP CYCLE BATTERY.
- CELL DATA MODEM:** THE CELL DATA MODEM MANAGES ALL CELLULAR COMMUNICATION AND DATA TRANSFER TO THE AUTOFLOW APP. THE CELL DATA BOARD PLUGS INTO THE MAIN CONTROLLER AND HAS A SINGLE WIRE CONNECTING TO THE EXTERNAL ANTENNA. A SIM CARD PLUGS INTO THE LEFT SIDE OF THE BOARD.
- SOLAR PANEL:** THE SOLAR PANEL OF THE ARBDS IS 12-VOLTS WITH 30 WATT CHARGING CAPABILITY. IT CONNECTS TO A SOLAR CHARGE CONTROLLER WHICH REGULATES THE VOLTAGE AND CURRENT BEFORE CONNECTING WITH TWO WIRES TO THE POSITIVE AND NEGATIVE BATTERY TERMINALS.
- ANTENNA:** THE ANTENNA CONNECTS TO THE CELLULAR DATA MODEM AND COMES MOUNTED TO THE TOP OF THE SOLAR PANEL AT THE HIGHEST POINT ON THE ARBDS DEVICE.
- CAMERA:** THE OPTIONAL CAMERA WOULD COME MOUNTED BENEATH THE CONTROL BOX AND COMMUNICATES VIA WIFI SIGNAL TO THE DEVICE CONTROLLER. THE VIEW ANGLE IS 90° AND THE ENCLOSURE IS FULLY WEATHERPROOF. THE CAMERA CONTAINS ITS OWN BATTERY AND SOLAR PANEL. UPON OPENING THE AUTOFLOW APP THE USER WILL SEE A LIVE VIDEO IMAGE. THE WIFI CONNECTION IS RELIABLE TO 40' DISTANCE SO THE CAMERA CAN BE MOUNTED AWAY FROM THE DEVICE IF DESIRED.

SENSORS:

- PRESSURE TRANSDUCER:** THE WATER LEVEL SENSOR IS A PRESSURE SENSOR CAPABLE OF STAYING SUBMERSED IN WATER INDEFINITELY. IT MOUNTS ON THE SIDE OF THE PEDESTAL'S LOWER FRAME.
- INCLINOMETER:** THE ROTARY VALVE DRUM POSITION SENSOR IS AN INCLINOMETER. THIS SENSOR MEASURES THE TILT OF THE ROTARY VALVE DRUM AND TRANSLATES THAT ANGLE TO VALVE HEIGHT.
- VOLTAGE METER:** THE VOLTAGE METER PROVIDES BATTERY CONDITION INFORMATION TO THE MICROPROCESSOR, WHICH THEN USES THIS INFORMATION TO GENERATE DISPLAYED INFORMATION, WARNINGS AND LOSS OF POWER SHUT DOWN SEQUENCING.
- AMP METER & OVERCURRENT RELAY:** THE AMP METER MONITORS CURRENT DRAW AND IS CAPABLE OF STOPPING VALVE OPERATION IN THE EVENT AN IMPEDIMENT TO VALVE MOVEMENT IS ENCOUNTERED. THE CONTROLLER MONITORS AMP USAGE AND IS PROGRAMMED TO ALERT THE ADMINISTRATOR VIA THE CELLULAR CONNECTION IF AMPS EXCEED A MAXIMUM LEVEL DETERMINED BY THE MANUFACTURER PRIOR TO INSTALLATION.

7. **OPERATION AND MAINTENANCE SUBMITTAL:** AN OPERATION AND MAINTENANCE GUIDELINE SHALL BE PROVIDED, REVIEWED AND APPROVED DURING THE CONSTRUCTION SUBMITTAL PROCESS AND SHALL INCLUDE AT A MINIMUM: A LIST OF THE COMPONENTS REQUIRING GREASING AND LUBRICATION AND THEIR FREQUENCY; INSPECTION AND MAINTENANCE OF THE SOLAR PANEL, BATTERY MAINTENANCE AND PROCEDURES FOR OPERATING THE ROTARY VALVE DRUM USING THE INTERMITTENT SWITCHES; AND PROCEDURES ON HOW TO MANUALLY OPERATE THE VALVE IN CASE OF TOTAL ELECTRONIC OR MOTOR FAILURE.



FOR ADDITIONAL INFORMATION CONTACT:
CONVERGENT WATER
TECHNOLOGIES
1-800-711-5428
www.convergentwater.com



SPECIFICATIONS - smartPOND
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CONTINUED - smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION SPECIFICATIONS

AUTOMATED ROTARY BATCH DETENTION SYSTEM (ARBDS), WITH PROGRAM LOGIC CONTROL (PLC)

8. **REAL-TIME MONITORING USER INTERFACE:** THE ARBDS SHALL HAVE REAL-TIME REMOTE MONITORING CAPACITIES THROUGH A SECURE WEB-BASED USER INTERFACE THAT SHALL ALSO ENABLE REMOTE OPERATIONS. THIS WEB-BASED USER INTERFACE SHALL PROVIDE REAL-TIME DIRECT CONTROL AS WELL AS FULLY AUTOMATED OPERATING MODES AND MONITORING. A COMPLETE SET OF USER INSTRUCTIONS FOR THIS WEB-BASED INTERFACE SHALL BE PROVIDED IN THE CONSTRUCTION SUBMITTALS AND A COPY OF THESE INSTRUCTIONS SHALL BE PLACED IN THE CONTROL ENCLOSURE BOX.

THE WEB-BASED INTERFACE SHALL PROVIDE LIVE AND HISTORICAL DATA AND PROVIDE THE ALERTS LISTED IN SECTION X. IT WILL ALSO ENABLE COMMANDS TO BE SENT TO THE ROTARY VALVE DRUM TO CHANGE POSITION TO CONTROL POND DEPTH AND DISCHARGE RATE.

- 8.1 **ALERTS:** THE AUTOFLOW APP WILL DISPLAY ALERT WARNINGS TO THE MANAGER IF ANY OF THE FOLLOWING CIRCUMSTANCES OCCUR:
- 8.1.1 **LEAK:** IF THE VALVE POSITION REMAINS CONSTANT AND A WATER LEVEL DECREASE OF MORE THAN 4" IN 24-HOURS OCCURS, THE ARBDS WILL DISPLAY A WARNING IN THE AUTOFLOW APP SIGNALING THAT THERE MAY BE A LEAK.
- 8.1.2 **BLOCKAGE:** IF THE WATER LEVEL REMAINS 4" HIGHER THAN THE VALVE POSITION FOR MORE THAN 24-HOURS, OR IF THE VALVE ATTEMPTS TO DRAIN THE WATER AND NO WATER LEVEL DECREASE IS RECORDED, THE ARBDS WILL DISPLAY A WARNING IN THE AUTOFLOW APP SIGNALING THAT A DRAIN BLOCKAGE MAY HAVE OCCURRED.
- 8.1.3 **LOW BATTERY:** IF BATTERY VOLTAGE FALLS BELOW 11.8-VOLTS THE ARBDS WILL DISPLAY A WARNING ON THE APP AND A LIGHT ON THE SIDE OF THE DEVICE WILL COME ON.

9. **INSTALLATION:**

- 9.1 **LEVELING & SEALING:**

THE ENTIRE SQUARE WEIR EDGE OF THE 24"x24" smartPOND™ ROTARY WEIR VALVE FOR BATCH DETENTION MUST BE LEVEL WHEN ATTACHED TO THE OUTFALL PIPE. IF THE VALVE IS NOT LEVEL WHEN IN THE VERTICAL, UPRIGHT, CLOSED POSITION, THEN THE PRE-CALCULATED DISCHARGE RATE WILL NOT BE CORRECT WHEN IT BEGINS OPERATION. A PROPERLY INSTALLED DEVICE WILL HOLD WATER EVENLY ALONG ALL FOUR (4X) SIDES OF THE WEIR TOP WHEN AT FULL POOL, FULL UPRIGHT, CLOSED POSITION, ENSURING THAT THE FULL DESIGN STORAGE CAPACITY OF THE POND IS ACHIEVED.

IF 4" AND/OR 12" STACKABLE SPACERS ARE USED TO INCREASE THE HEIGHT OF THE WEIR AND DEPTH OF THE POND, USE SILICONE TO MAKE THE JOINTS BETWEEN THE SPACERS WATERTIGHT.
- 9.2 **CONTROL BOX HEIGHT:**

IF POSSIBLE, THE BOTTOM OF THE CONTROL ENCLOSURE BOX SHOULD BE SET ABOVE THE TOP OF THE LEVEE OR EMBANKMENT IN CASE OF EXTREME FLOOD OR STORM SURGE EVENTS.
- 9.3 **CONCRETE PAD:**

THE STANDARD FULLY ASSEMBLED ARBDS WEIGHT IS 660-LBS. THIS DOES NOT INCLUDE SPACERS, TRASH GUARDS OR OTHER OPTIONAL ITEMS.

THE ARBDS SHALL BE INSTALLED ON A CONCRETE PAD AS SHOWN ON THE DETAILS OR STEEL FRAME MUST BE INSTALLED BENEATH THE BASE OF THE DEVICE. USE 3,000-PSI CONCRETE AT 28-DAYS AND PLACE REINFORCING AS SHOWN ON THE DRAWINGS.

10. **SAFETY INFORMATION AND WARNINGS:**
- ALWAYS KEEP HANDS CLEAR OF THE ARBDS'S VALVE, SWIVEL, AND DRIVE SYSTEM WHEN UNIT IS IN OPERATION. IT MUST BE UNDERSTOOD THAT THE THAT THE UNIT MAY OPERATED REMOTELY OR BY ITS PROGRAMING AT ANY TIME.
 - TURN THE POWER SWITCH OFF WHEN DOING ANY MAINTENANCE OR OTHER WORK.
 - DO NOT ENTER THE WATER WHEN THE ARBDS IS ON OR ACTIVELY DRAINING WATER.
 - DO NOT STAND INSIDE OR ON TOP OF THE ARBDS'S VALVE.
 - ALWAYS WEAR GLOVES WHEN DOING ANY WORK ON THE CABLE DRIVE SYSTEM.
 - BEWARE OF INSECTS SUCH AS WASPS THAT MAY BUILD NESTS IN OR ON THE UNIT AS WELL AS OTHER BITING, STINGING OR POISONOUS INSECTS, REPTILES AND AGGRESSIVE OR STARTLED VERMON.
11. **PRODUCTS:** THE MANUFACTURER SHALL BE AN ESTABLISHED STORMWATER COMPANY THAT HAS AT LEAST FIVE (5X) INSTALLATIONS OF ARBDS DEVICES THAT HAVE BEEN IN USE AND FUNCTIONAL FOR FIVE (5X) OR MORE YEARS.
12. **QUALITY ASSURANCE AND PERFORMANCE:** THE QUALITY OF ALL SYSTEM COMPONENTS AND ALL OTHER APPURTENANCES AND THEIR ASSEMBLY PROCESS SHALL BE SUBJECT TO INSPECTION UPON DELIVERY OF THE SYSTEM TO THE WORK SITE. INSTALLATION IS TO BE PERFORMED ONLY BY SKILLED WORK PEOPLE WITH SATISFACTORY RECORD OF PERFORMANCE ON EARTHWORKS, PIPE, WELDING, CHAMBER, OR POND/LANDFILL CONSTRUCTION PROJECTS OF COMPARABLE SIZE AND QUALITY.

smartPOND

Automated Stormwater Control.



FOR ADDITIONAL INFORMATION CONTACT:
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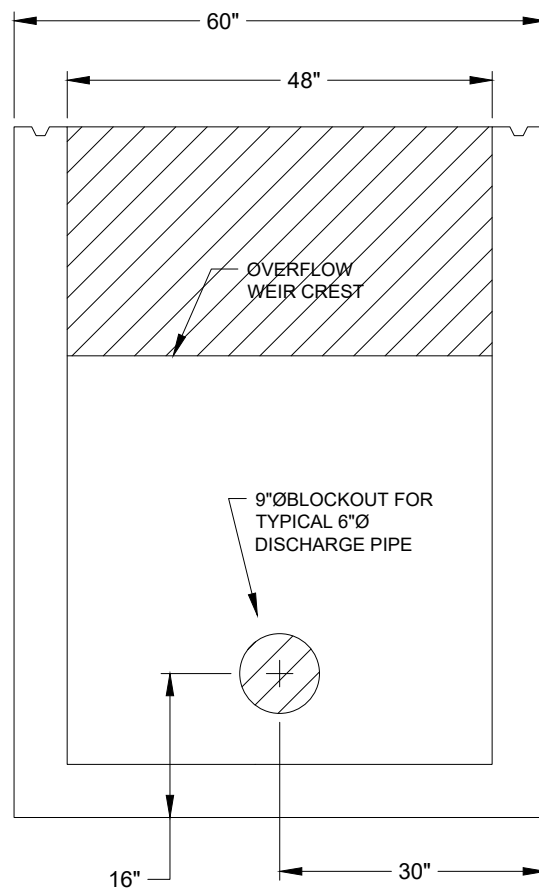
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The diagram shows a rectangular frame with an overall width of 60" and an overall height of 60". The frame is composed of four vertical members, each 6" thick. The top and bottom horizontal members are 6" thick. The left and right vertical members are 6" thick. The frame is divided into four quadrants by two vertical members, each 6" thick. The central area is 48" wide and 48" high. The left and right vertical members are filled with diagonal hatching. The top and bottom horizontal members are also filled with diagonal hatching. The frame is shown in a perspective view, with the front face and the top surface visible. The dimensions are indicated by arrows and text labels.

1. ALL DIMENSIONS ARE IN FEET OR DECIMAL INCHES
2. PRECAST MATERIALS AND MANUFACTURING METHODS SHALL CONFORM TO ASTM C-857.
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH $F'_c = 3,000$ -PSI AT 28-DAYS.
4. THE PORTLAND CEMENT USED IN THE PRECAST SECTION SHALL MEET THE REQUIREMENTS OF TYPE II/V HIGH SULFATE RESISTANT CEMENT IN ACCORDANCE WITH ASTM CLASS M C-150.
5. DESIGN LOAD: H-20 TRAFFIC FROM 1' TO 6' COVER PER ASTM C890 & C915 & AASHTO LOADING METHODS.

1. HEAVIEST PICK WEIGHT IS 10,500-LBS.



Technical drawing of a rectangular weir structure. The drawing shows a cross-section of the weir with various dimensions and labels.

Dimensions:

- Overall width: 60"
- Overall height: 78"
- Height of the weir crest: 26"
- Height of the weir body: 46"
- Height of the weir base: 9"
- Height of the weir base: 32"
- Height of the weir base: 6"
- Height of the weir base: 6"
- Height of the weir base: 6"

Labels:

- OVERFLOW BLOCKOUT
- OVERFLOW WEIR CREST

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Automated Stormwater Control.



FOR ADDITIONAL INFORMATION CONTACT:
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BATCH DETENTION

REVISION NO.

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DATE
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