

Arcadia™ Hydrodynamic Separator

Installation Guide

Concrete Manhole Installation

This installation guide is a reference for installing the Arcadia Water Quality unit into a precast concrete structure.

These directions assume the manhole base and riser have been assembled, and that the top slab has not been set.

NOTE: Do not insert the inlet or outlet pipes until after the Arcadia internals have been installed, all pipes should sit flush inside the manhole. If pipes must be inserted in advance, the pipes should not protrude into the structure as they can interfere with installation of the Arcadia Internals.

Content:

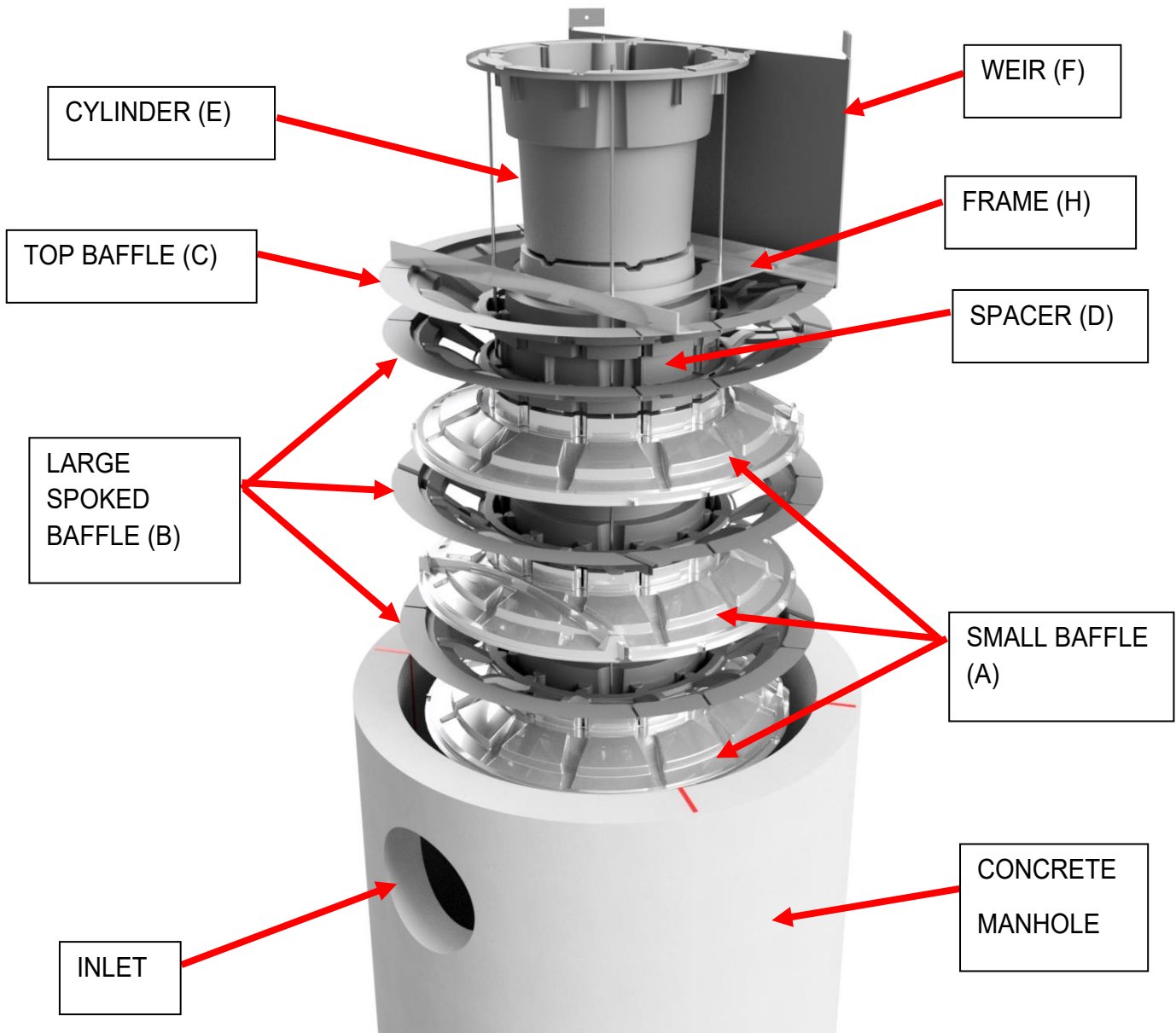
Section 1: Internal Components, Hardware & Tools

Section 2: Assembling Internal Components

Section 3: Mounting Brackets within Concrete Manhole Riser

Section 4: Transporting Assembled Arcadia Internals

Section 5: Installing Arcadia Internals into the Manhole – FOR CONTRACTOR / JOBSITE



Section 1: Internal Components, Hardware & Tools.

- Internal Components:



SMALL BAFFLE (A)

Qty: 3



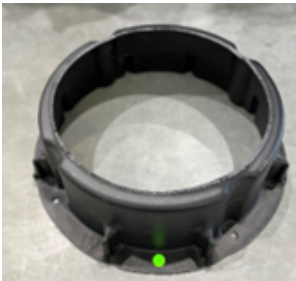
LARGE SPOKED BAFFLE (B)

Qty: 3



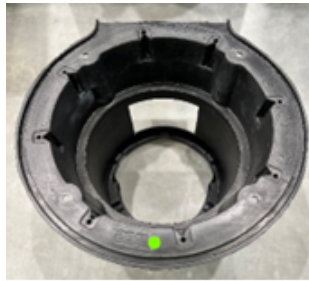
TOP BAFFLE (C)

Qty: 1



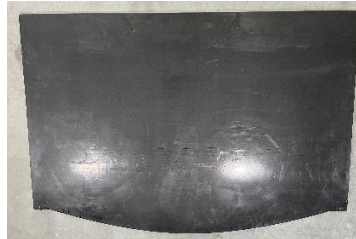
SPACER (D)

Qty: 1



CYLINDER (E)

Qty: 1



WEIR (F)

Qty: 1



FRAME (H)

Qty: 1

NOTE: To separate baffles in shipping stack, pull from center of each baffle.

• **Hardware provided by ADS:**



Threaded Rod
(4 long & 4 short)



Washers
Qty: 12

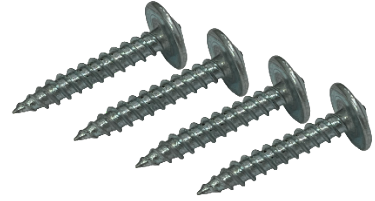
Qty: 8



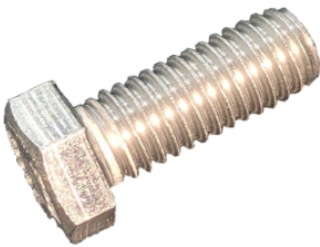
Nuts
Qty: 12



Threaded Coupling
Qty: 4



Self-Drilling Screws
Qty: 4



Short bolts for Frame assembly

NOTE: Please set aside the following items that will later be delivered to the jobsite along with the assembled Arcadia unit.

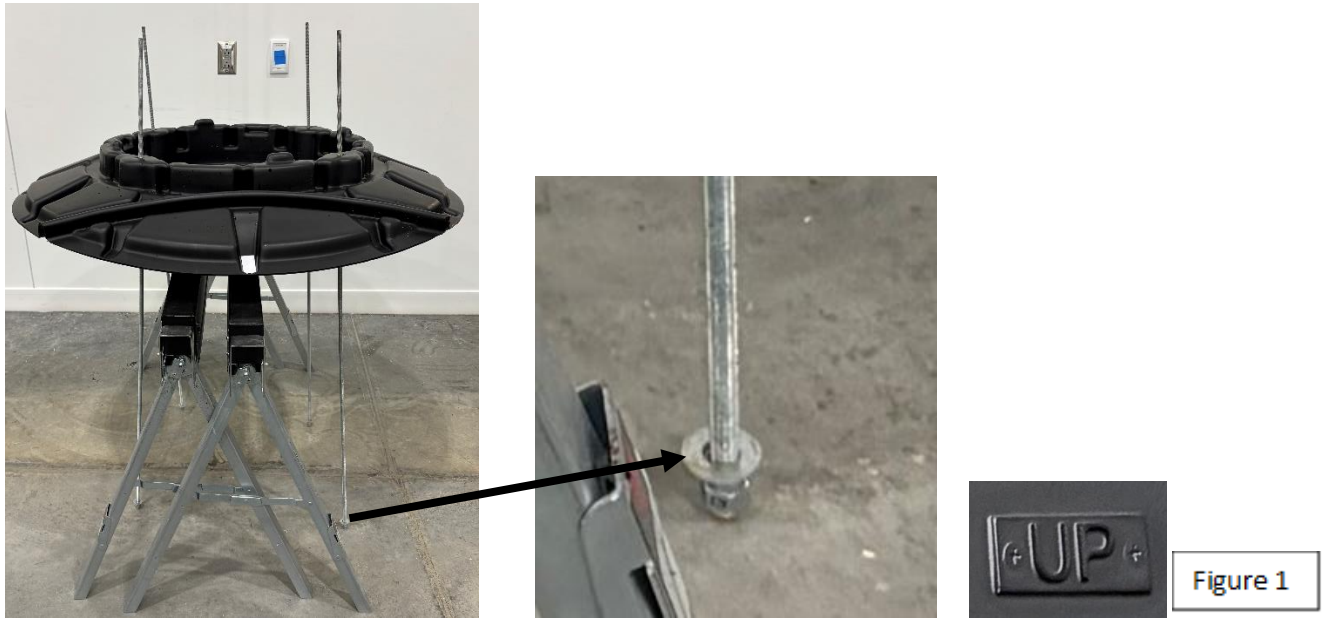
- Small hardware package marked "Arcadia Installation, For Jobsite Contractor (NOT FOR PRECASTER)"
- Conesal roll(s)
- Copy of the Installation Guide

- **Other Tools needed:**
 - 9/16" or 3/4" hand wrench, depending on model size
 - Phillips screwdriver or screw gun with Phillips bit
 - Four (4) small hand clamps
 - Platform (preferably adjustable height) or set of sawhorses

Section 2: Assembling Internal Components:

Note: These steps can be done with one person, except for Step 11: Placement of **FRAME (H)**, which requires two people.

1. Suggested procedure to facilitate assembly: Utilize a platform (preferably adjustable height), or a set of sawhorses. Place one **SMALL BAFFLE (A)** on the platform with the molded word "UP", readable and facing upward. One by one, feed the 4 long threaded rods into the holes of **SMALL BAFFLE (A)** from underneath. The ends of the threaded rods with the washers should rest on the floor, as shown in **Figure 1**.



NOTE: Throughout this procedure, as you stack up the baffles, make sure to align the molded word UP for each layer. For each baffle, UP should be readable and aligned with previous layers. As a preview, the alignment will appear as shown in Figure 1A below:

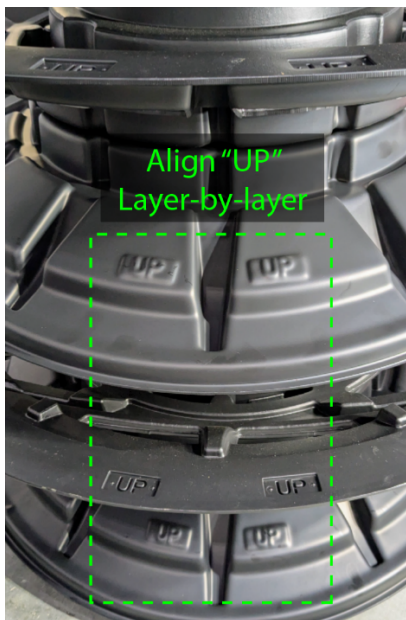


Figure 1A

2. Rotate the baffle as needed to ensure the word UP is aligned with that of the previous baffle, then slide one **LARGE SPOKED BAFFLE (B)** down the threaded rods until it rests on the previous part, as shown in **Figure 2**. *Each part mates with the previous part in only one orientation.*

NOTE: As the stack builds, each baffle will have the molded word "UP" facing upward and aligned with the word "UP" on the previous baffle.



Figure 2

3. Place another **SMALL BAFFLE (A)** on top of the previous part, as shown in **Figure 3**. Each part mates with the previous part in only one orientation. As the stack builds, each baffle will have the molded word "UP" readable, facing upward, aligned with the word "UP" on the previous baffle. There should now be a total of three (3) baffles in place (two **SMALL BAFFLES (A)** and one **LARGE SPOKED BAFFLE (B)**).

NOTE: The long-threaded rods will not reach up to the third baffle yet.



Figure 3

4. One at a time, grasp each of the long-threaded rods and feed / pull up through the three baffles until the washer end is tight against the underside of the bottom baffle. Place a hand clamp on each long-threaded rod against the top-most baffle to hold it in position, as shown in **Figures 4 and 5**.



Figure 4



Figure 5

5. Carefully lower the entire assembly to floor level. If picking up by hand, this is most easily done by grasping two of the long-threaded rods in between baffles.
6. Once on the floor, remove all 4 clamps and allow long-threaded rods to rest on the floor.
7. Repeat steps 2 & 3 once, then step 2 once more, such that two more **LARGE SPOKED BAFFLE (B)** and one more **SMALL BAFFLE (A)** have been added, for a total of **SIX (6)** baffles, as shown in **Figure 6**.



Figure 6

8. If **SPACER (D)** is supplied, slide it down the long-threaded rods until it rests on the previous part. The **SPACER (D)** flange should be oriented down, as shown in **Figure 7**.



Figure 7

NOTE: there is no **SPACER (D)** provided for the 3' diameter unit (AR3) and the 6' diameter unit (AR6). For these two sizes, skip this step.

- Slide **TOP BAFFLE (C)** down the long-threaded rods until it rests on the previous part, as shown in **Figure 8**. *Each part mates with the previous part in only one orientation. Check that the molded word UP, on the outer edge is readable, facing upward, and aligned with the word UP on the previous part before sliding down the rods into position.*



Figure 8

- Grasping each long-threaded rod between baffles, push each rod up until the washer is once again snug at the bottom of the stack, as shown in **Figure 9**. Hand snug a washer and nut to each long-threaded rod with a wrench.

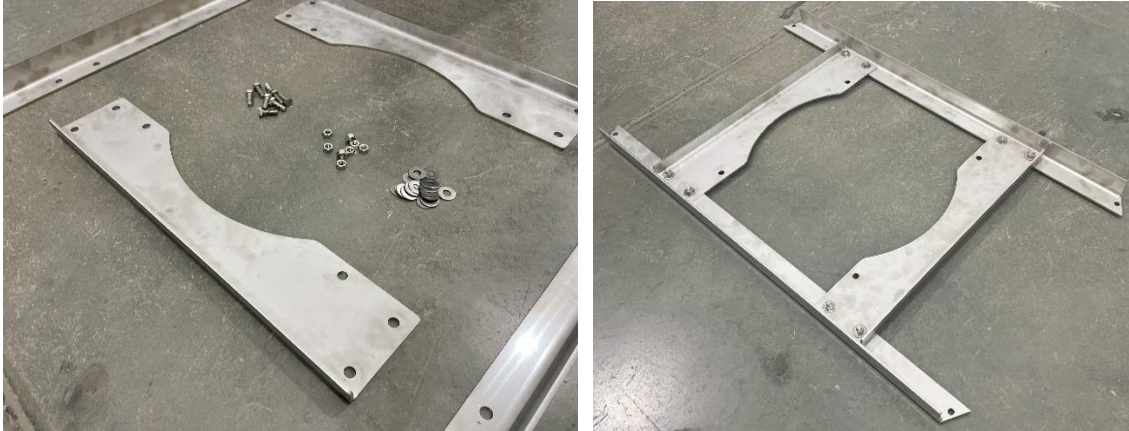
NOTE: Recommended to hold the nut with the wrench and turn the threaded rod to snug.



Figure 9

NOTE: TWO-PEOPLE NEEDED FOR THIS STEP.

11. Assemble **FRAME (H)** by bolting the four (4) metal pieces with provided short bolts, nuts & washers. As shown below:



NOTE: Sizes AR5, AR6, AR8, and AR10 will require additional steps to bolt together the long bars from a series of shorter segments.

12. Slide **FRAME (H)** onto the threaded rods until it rests flat on **TOP BAFFLE (C)**. Orient **FRAME (H)** so that it aligns parallel to the flat portion of **TOP BAFFLE (C)**, as shown in **Figure 10**.

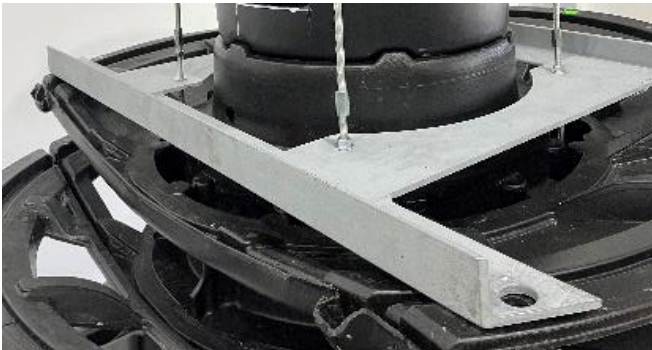


Figure 10

NOTE: Make sure the frame is installed upright, with the angled bends pointing upward, as shown in Figures 10 & 13.

13. Add another washer and nut to each of the long-threaded rods above **FRAME (H)**. Do not screw the nut all the way down. Then, attach a threaded coupling at the top end of each long-threaded rod. Screw it down until the top of the coupling is flush with the top of the threaded rod. Leave the nut just below the coupling, as shown in **Figure 11**. (This is to facilitate Step 17.)



Figure 11

14. Place a washer and nut onto the end of the four short-threaded rods, screwing about 3 inches down. Orient **CYLINDER (E)** with the flange facing up, feed the rods from the top through the holes in the **CYLINDER (E)** until the nuts rest on top of the cylinder, as shown in **Figure 12**.



Figure 12

15. Place **CYLINDER (E)** assembly on top of **TOP BAFFLE (C)**. Each part mates with the previous part in only one orientation. Check that flat side of the flange of **CYLINDER (E)** is aligned with the flat side of the **TOP BAFFLE (C)** as shown in **Figure 13**. Attach the bottom end of the 4 short-threaded rods to each threaded coupling at the top of the 4 long-threaded rods. Hand tighten snug by twisting the long and short threaded rods in opposite directions.
16. Secure **CYLINDER (E)** onto each of the 4 short-threaded rods with a washer and nut at the top, as shown in **Figure 13**. Hand snug with wrench.



Figure 13

17. Slide **WEIR (F)** into top slot with the curved edge down. Ensure **WEIR (F)** is centered in the slot. To easily insert **WEIR (F)**, push one end home and secure lower corner of **WEIR (F)** to **TOP BAFFLE (C)** with a screw, as shown in **Figures 14 and 15**; then push the other end home and secure with screw.



Figure 14



Figure 15

18. Screw down and hand snug the nuts to the steel **FRAME (H)** with a wrench. Also hand snug the nuts to the top of the **CYLINDER (E)**.
19. Secure the top of **WEIR (F)** with two screws into **CYLINDER (E)**, as shown in **Figure 16**.



Figure 16

20. The finished assembly should appear as shown in **Figure 17**.



Figure 17

Section 3: Mounting Brackets within Concrete Manhole Riser

- **Materials Provided by ADS:**
 - Qty 1: Mounting Template
 - Qty 4: Brackets
 - Qty 4: 1/4" Dia.-20 thread size, 3/4" Wedge Anchors
- **Other Tools Needed:**
 - Drill
 - 1/4" masonry drill bit
 - Hammer
 - 7/16" socket or wrench
 - Masking tape
 - Rigging

Use one of the three methods below to locate and mark the elevation & center line for each of the 4 brackets.

a) Using the MOUNTING TEMPLATE method:

1. Position top of template to match the outlet pipe invert elevation.
2. Align centerline of template with the center of the outlet pipe hole.
3. Spread template along inner circumference of the manhole wall, maintaining level. Affix with tape as you proceed. Check level as you proceed.
4. Mark bracket elevations and centerlines at bottom of template.
5. Remove template.

-OR-

b) Using direct measurements with ANGULAR dimensions method:

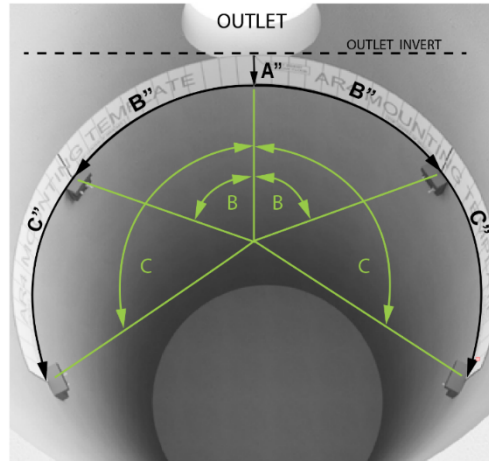
From the outlet invert, measure depth A (found in the Angular Measurement table below) and around B° and C° in each direction to locate the top of each bracket. Mark top of bracket.

-OR-

c) **Using direct measurements with LINEAR dimensions method:**

From the outlet invert, measure depth A (found in the Linear Measurement table below) and around the inside arc B" and C" in each direction to locate the top of each bracket. Mark top of bracket.

NOTE: Crosscheck outlet invert elevations from approved job-specific drawings.



ANGULAR MEASUREMENTS

Arcadia Model, Diameter	A, Depth from Outlet Invert	B, Angle from Outlet Center	C, Angle from Outlet Center
AR3, 3'	4 - 1/2"	65°	115°
AR4, 4'	5-1/2"	60°	120°
AR5, 5'	6"	65°	115°
AR6, 6'	6-1/2"	60°	120°
AR8, 8'	8"	60°	120°

-OR-

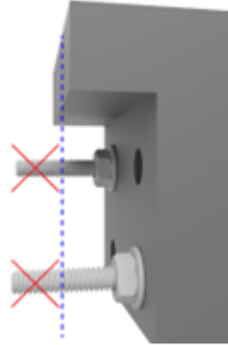
LINEAR MEASUREMENTS

Arcadia Model, Diameter	A, Depth from Outlet Invert	B, Measurement from Outlet Center	C, Measurement from Outlet Center
AR3, 3'	4 - 1/2"	20-3/8"	36-1/4"
AR4, 4'	5-1/2"	25-1/8"	50-1/4"
AR5, 5'	6"	34"	60-1/4"
AR6, 6'	6-1/2"	37-3/4"	75-3/8"
AR8, 8'	8"	50-1/4"	100-1/2"

1. Hold bracket in position in manhole at locations indicated. Mark anchor holes for each bracket.

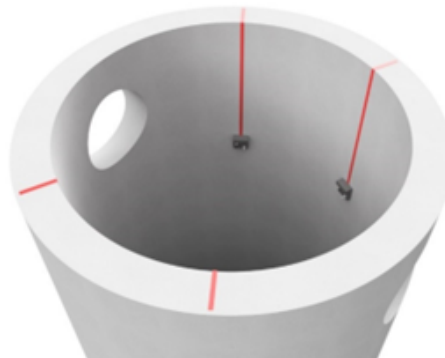


2. Drill two 1/4" holes per bracket, 2 1/2" deep. Diagonal holes are recommended. Extra holes provided if needed.



3. Attach 4 brackets to manhole at positions marked, aligned with top of bracket. Lightly hammer the anchors in place. Tighten the locking nuts to firmly secure brackets to the concrete. Trim any excess anchor that extends beyond the bracket edge.
4. Extend centerlines up the manhole wall to the top. Also extend lines across top edge. These centerlines will be used by installers at the jobsite to align the unit during installation.

NOTE: These centerlines are part of the bracket installation and should be made with a suitable marking device that can be easily seen, such as a level and marker, or chalk line.



Section 4: Transporting Assembled Arcadia Internals.

Placing assembled Arcadia inside concrete manhole riser section – Most Common

1. Choosing a segment of precast concrete manhole riser or base.

- For transport, choose a riser section that does not contain the mounting brackets, with the following minimum riser depths. This riser section will serve as shipping containment for the internals.

Minimum Depth Transport Riser Section	Arcadia Model
3'	AR3
4'	AR4, AR5, AR6
5'	AR8
6'	AR10

- The Arcadia internals will be permanently installed onto the mounting brackets at the jobsite. See Section 5.

2. Rigging Arcadia internals for lifting.

- Use the stainless-steel frame arms as pick points for straps, chains or other qualified rigging. It is recommended to attach at diagonally opposite arms.
- Appropriate rigging examples:



- Place Arcadia internals within the riser segment using hoisting equipment.
- Secure with strapping.

Transporting without a concrete riser: Contact ADS for guidance.

Arcadia Separator Internals Weight (lbs) Once Assembled.

Arcadia Model	AR3	AR4	AR5	AR6	AR8	AR10
Weight (lbs)	82	165	252	356	882	1306

NOTE: Please deliver the following additional items to the jobsite along with the assembled Arcadia unit.

- Small hardware package marked "Arcadia Installation, For Jobsite Contractor (NOT FOR PRECASTER)"
- Conseal roll(s)

- Copy of the Install Guide

Section 5: Installing Arcadia Internals into the Manhole.

These directions assume the manhole base and riser have been assembled, and that the top slab has not been set.

NOTE: Do not insert the inlet or outlet pipes until after the Arcadia internals have been installed. If pipes must be inserted in advance, the pipes should not protrude into the structure as they can interfere with installation of the Arcadia Internals.

- **Materials Provided by ADS:**

- Qty 1: Arcadia Internals
- Qty 2: 1/4" Dia.-20 thread size, 3 1/4" wedge anchors
- Qty 4: 5/16" Dia.-1 1/4" hex head lag screws
- Conseal Roll(s)

- **Other Tools Needed:**

- Drill
- 1/4" Masonry Drill Bit
- 3/16" multi-purpose drill bit
- Hammer
- 7/16" Socket or Wrench
- Rigging

1. Locate the concrete riser section with Arcadia Mounting Brackets installed.
2. Check for bracket centerline markings inside and on top edge of the manhole. If no markings are present, find and extend the centerlines of each bracket along the inside of the riser all the way to the riser top edge as shown. These centerlines will be used to align the unit during installation.



3. Rig Arcadia internals for overhead lifting. Use the stainless-steel frame arms as pick points for straps, chains or other qualified rigging. It is recommended to attach diagonally to opposite arms.

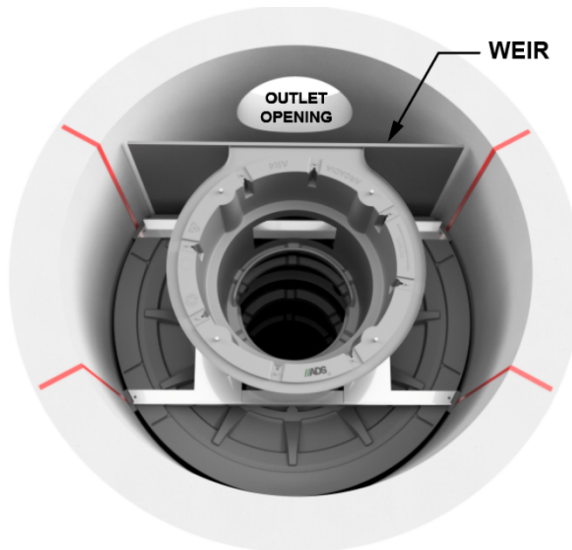
Appropriate rigging examples:



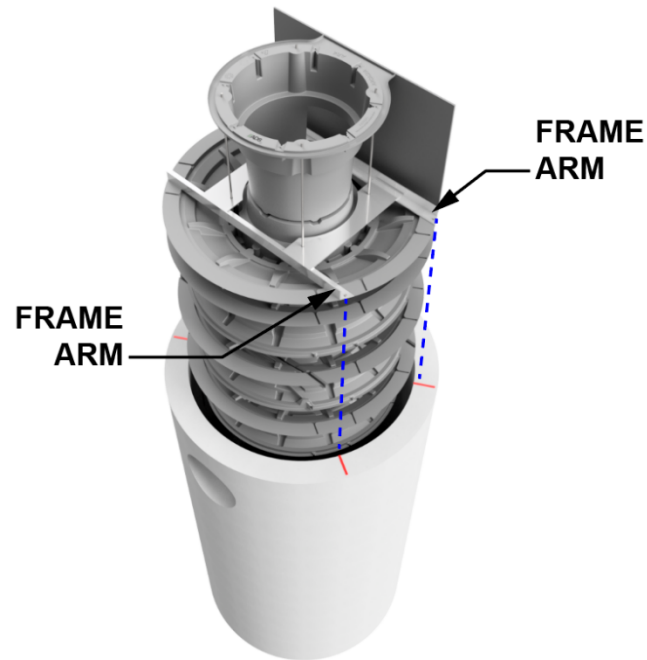
Arcadia Separator Internals Weight (lbs) Once Assembled.

Arcadia Model	AR3	AR4	AR5	AR6	AR8	AR10
Weight (lbs)	82	165	252	356	882	1306

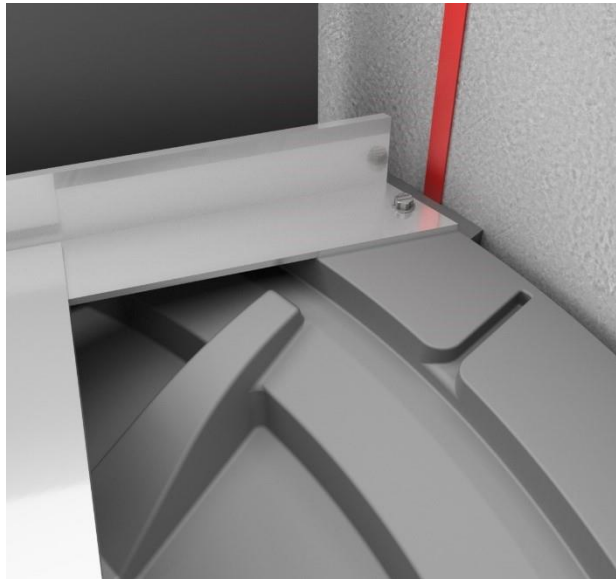
4. Lift Arcadia internals at slow speed. Before lowering the unit into the manhole, check for proper alignment with the mounting brackets inside the manhole. Orientation is important throughout the entire installation process.
 - a. Keep the **WEIR (F)** centered above the outlet pipe opening.



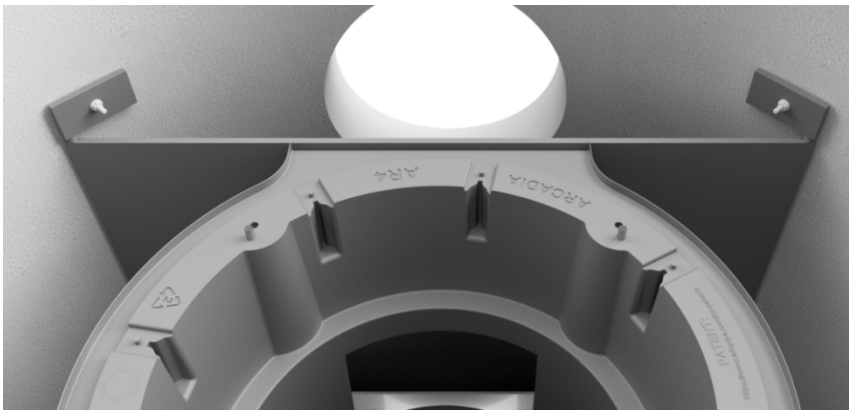
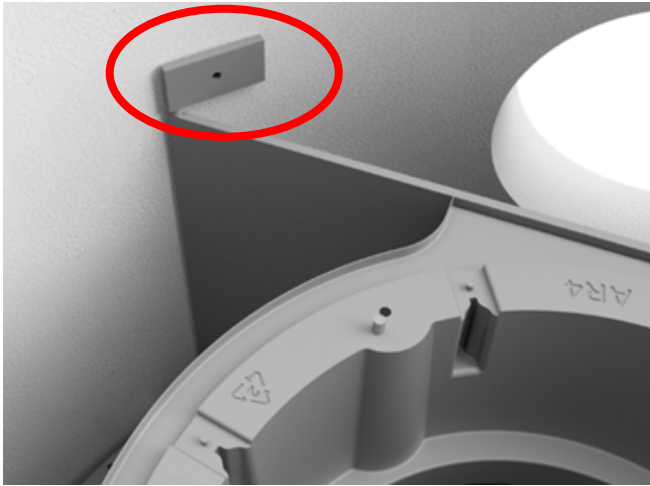
- b. **KEEP FRAME ARMS ALIGNED WITH BRACKET CENTERLINES, DURING THE ENTIRE LOWERING PROCESS.** Failure to maintain alignment could result in damage to the unit.



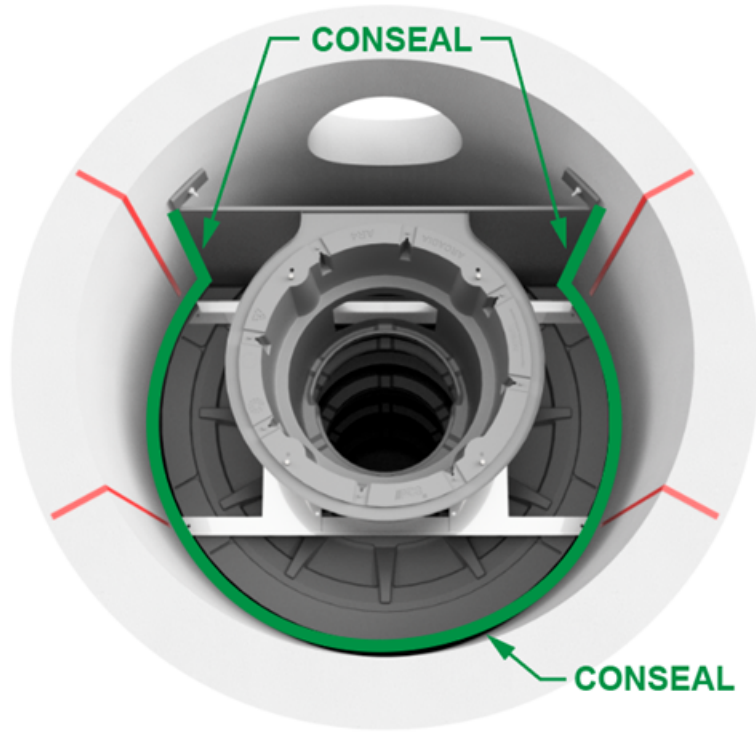
5. Once aligned, slowly lower Arcadia internals into manhole. **KEEP FRAME ARMS ALIGNED WITH BRACKET CENTERLINES, DURING THE ENTIRE LOWERING PROCESS.** Utilize a spotter to guide the alignment of the unit with tagline. Proceed until the stainless-steel frame arms are resting on the pre-installed mounting brackets within the manhole.



6. Affix Arcadia internals with provided lag screws and washers through the holes in the ends of the stainless-steel frame arms, through the top plastic of the unit and into the plastic brackets beneath. First pre-drill each with a 3/16" drill bit. Use 7/16" socket to drive in lag screws until snug.
7. Affix **WEIR (F)** edges to manhole walls using concrete anchors.
 - a. Bend **WEIR (F)** installation tabs to the manhole wall.
 - b. Mark holes for anchors, one hole per tab.
 - c. Drill a 1/4" hole 2 1/2" deep at each marked hole.
 - d. Bend WEIR installation tabs to manhole wall.
 - e. Insert anchors and lightly hammer in place to secure **WEIR (F)** to manhole wall.
 - f. Tighten the locking nuts to firmly secure brackets to the manhole wall.



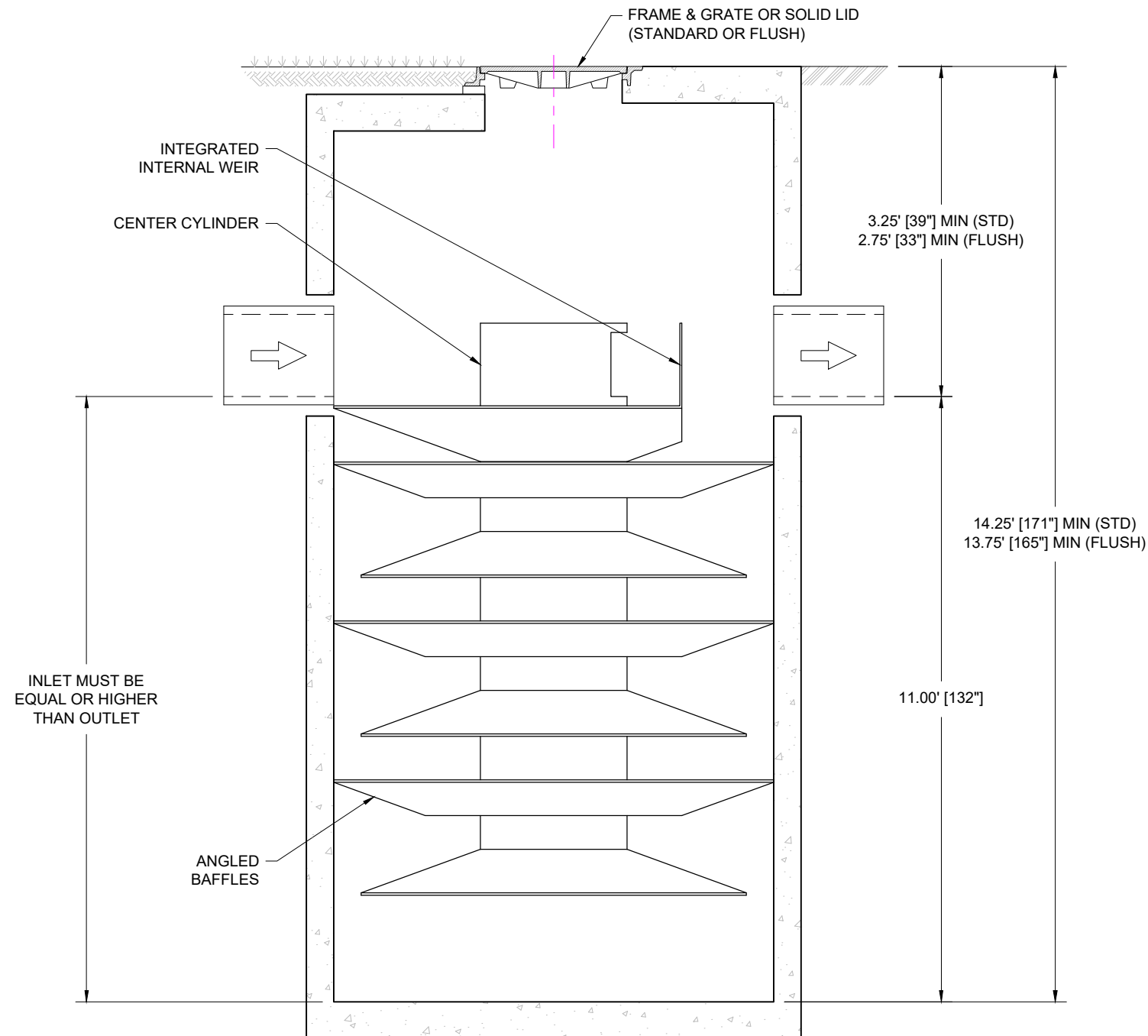
8. Finally, seal **WEIR (F)** & **TOP BAFFLE (C)** edges to manhole wall using CONSEAL to fill any gaps.



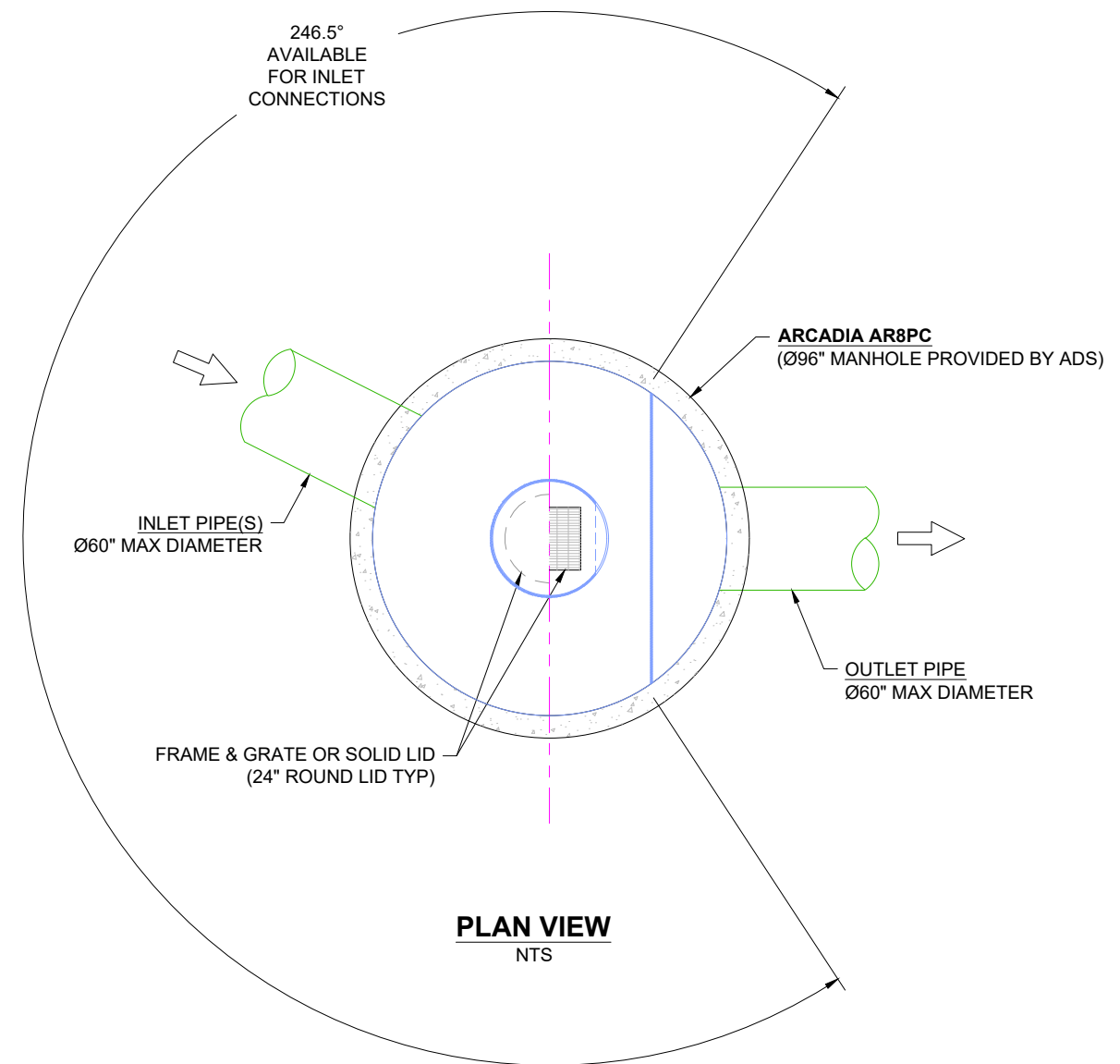
25-3113 ADS Project Smash WQU-1

PRODUCT SPECIFICATIONS

- THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW. IF PEAK FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.
- THE ARCADIA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS USING A MEDIA MIX WITH D50=75 MICRON AND 200 MG/L INFLUENT CONCENTRATION PER CURRENT NJDEP/NJCAT HDS PROTOCOL.



PROFILE VIEW
NTS



PLAN VIEW
NTS

NOTES:

- ENGINEER / CONTRACTOR TO CONFIRM PIPE MATERIALS AND APPLICABLE ADAPTERS.
- CONTRACTOR IS RESPONSIBLE FOR MATERIAL AND LABOR TO BRING CASTINGS TO FINISHED GRADE.
- CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.
- UNIT SHALL CONFORM TO HS20-44 LOAD RATINGS.

ARCADIA AR8PC
CONCRETE MANHOLE

DATE: 04/23/25 DRAWN: JLM CHECKED: CJD/JAT

DESCRIPTION

DATE DRWN CHKD

ARCADIA
Stormwater Separator

4640 TRUEMAN BLVD
HILLIARD, OH 43026



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