



STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**

**WETLANDS &
WATERWAYS
SECTION**

DIVISION OF WATER
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE
(302) 739-9943

SUBAQUEOUS LANDS PERMIT

PERMIT NUMBER: SP-029/26

EFFECTIVE DATE: *6/12/2026*

CONSTRUCTION EXPIRATION DATE: *6/12/2029*

PERMITEE: TOWN OF BOWERS
CARE OF: MAYOR ADA PUZZO

ASSOCIATED AUTHORIZATIONS: WE-029/26

TAX PARCEL NO.: 8-01-11513-01-0704-0001, 8-01-11513-01-0701-0001, 8-01-11513-01-0705-0001, 8-01-11513-01-0300-00001 OR 8-01-11513-01-0301-00001, 8-01-11513-01-0302-00001

LOCATED IN: UNNAMED TRIBUTARY TO ST. JONES RIVER

SITE ADDRESS: ALONG NORTH BAYSHORE DRIVE TO NORTH FLACK AVENUE,
FREDERICA, KENT COUNTY, DE 19946

MAILING ADDRESS: 3357 MAIN STREET FREDERICA, DE 19946

Project Summary

The Department of Natural Resources and Environmental Control, Division of Water, Wetlands and Waterways Section (“the Department”) hereby authorizes the Permittee (“Permittee”) to conduct the above-referenced project pursuant to the provisions of 7 Del. C. §7205, Department’s Regulations Governing the Use of Subaqueous Lands, and in accordance with the special and general conditions described below, the attached Plan(s) approved by the Department, and incorporated herein and described below:

TO CONSTRUCT:

- A 12 inch diameter by 536 linear feet of storm drain network consisting of open and closed conveyances to intercept runoff from North Bayshore Drive and convey it to a pump station on the east side of North Flack Avenue which will then pump the intercepted stormwater to the marsh on the west side of North Flack Avenue.
- Permanent impacts of 57.16 square feet of driveway removal, 48.68 square feet of gravel placement and 44.3 square feet of grass access over the pipe network along North Bayshore Drive for residential access
- Temporary impacts of 411.46 square feet for grading/sloping

Furthermore, pursuant to the provisions of 7 Del. C. §7203, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

By Matthew Jones, Section Manager
Division of Water, Wetlands and Waterways Section

By [Signature], Environmental Scientist
Division of Water, Wetlands and Waterways Section

Attachments:

- ☒ Permit General Conditions
- ☒ Permit Special Conditions
- ☒ Approved Plans
- ☐ SPGP-18 (If Applicable)
- ☐ SPGP-20 (If Applicable)
- ☒ Post Construction Completion Report

GENERAL CONDITIONS

1. This approval is in accordance with the plans and application submitted to the Department of Natural Resources and Environmental Control, a copy of which is attached hereto and made a part hereof.
2. The permittee and contractor shall at all times comply with all applicable laws and regulations of the Department of Natural Resources and Environmental Control.
3. A copy of this Permit and the stamped approved plans shall be available on-site during all phases of construction activity.
4. The conditions contained herein shall be incorporated into any and all construction contracts associated with the construction authorized herein. The permittee and contractor are responsible to ensure that the workers executing the activities authorized by this Permit have full knowledge of, and abide by, the terms and conditions of this Permit.
5. No portion of the structure shall be constructed using creosote treated lumber.
6. No portion of the structure(s) authorized by this Permit shall exceed the dimensions for that structure identified on Page Two of this Permit.
7. The issuance of this Permit does not constitute approval for any activities that may be required by any other local, state or federal government agency.
8. The issuance of this Permit does not imply approval of any other part, phase, or portion of any overall project the permittee may be contemplating.
9. This Permit authorizes only the activities described herein. Modifications to the project may require a supplemental approval from this office prior to the initiation of construction. A determination of the need for a supplemental approval will be made by this office pursuant to the permittee submitting written notification and revised plans indicating project changes. Failure to contact the Department prior to executing changes to the project shall constitute reason for this Permit being revoked.
10. The Contractors Completion Report shall be filled out and returned within 10 days of completion of the authorized work.
11. Representatives of the Department of Natural Resources and Environmental Control shall be allowed to access the property to inspect all work during any phase of the construction and may conduct pre and post-construction inspections, collect any samples or conduct any tests that are deemed necessary.
12. All construction materials, waste or debris associated with this activity shall be properly disposed of and contained at all times to prevent its entry into waters or wetlands. Construction materials shall not be stockpiled in subaqueous lands or wetlands.
13. The permittee and contractor shall employ measures during construction to prevent spills of fuels, lubricants or other hazardous substances. In the event of a spill, the permittee and contractor shall make every effort to stop the leak and contain the spill and shall immediately contact the Hazardous Spill Response Team (HAZMAT) at 1-800-662-8802

and this office at (302) 739-9943. The permittee and contractor are responsible to comply with all directives to contain and clean up the spilled material(s) as stipulated by the HAZMAT team, and to restore the site as may be required by this office.

14. No construction shall occur after the construction expiration date identified on Page One of this Permit. The permittee may file a construction expiration date extension request of up to one (1) year if necessary to complete the authorized work. Such requests must be received by the Department at least thirty (30) days prior to the construction expiration date.
15. Disturbance of subaqueous lands or wetlands adjacent to the authorized structures or activities is prohibited unless specifically addressed in the special conditions of this Permit. Disturbance of subaqueous lands or wetlands in the path of construction activities shall be minimized. Any temporarily impacted subaqueous lands or wetlands shall be returned to pre-disturbance elevations and conditions.
16. This Permit is associated with the above referenced tax parcel number and is conveyed to subsequent owners of said parcel.
17. Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook, so as to minimize entry and dispersal of sediment and other contaminants in surface waters.
18. No portion of the structure shall be installed within ten (10) feet of the adjacent property lines without a letter of no objection.
19. No portion of the structure shall exceed 20% of the width of the water body as measured at mean low water.
20. The structures authorized by this Permit shall be constructed and maintained in a manner so as to assure water access to adjacent properties.
21. This Permit does not authorize any future repairs below the water line, or any additions or modifications to the structures authorized herein. Such activities require separate written authorization from the Department of Natural Resources and Environmental Control.
22. Failure to comply with any of the terms or conditions of this Permit may result in enforcement action which could include the revocation of this Permit and subsequent restoration of the site to preconstruction conditions.

SPECIAL CONDITIONS

1. The Division of Fish and Wildlife has determined the following Time of Year Restrictions, shown in gray in the table below, during which no construction shall take place for the approved construction activities under this permit. The Division of Fish and Wildlife waived the time of year restriction for marsh nesting birds.

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Migratory shorebirds				1st		7th						

2. This Permit is granted for the purpose of improving drainage infrastructure and reducing nuisance flooding in North Bowers, as indicated on the approved plans. Any other use without prior approval shall constitute reason for this Permit being revoked.
3. The work authorized by this Permit is subject to the terms and conditions of the appropriate Department of the Army Permit.



**DELAWARE DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF WATER
WETLANDS AND WATERWAYS SECTION**

**SUBAQUEOUS LANDS PERMIT
POST-CONSTRUCTION
CONTRACTOR'S COMPLETION REPORT**

Subaqueous Lands Permit Number: SP-029/26

Name: TOWN OF BOWERS

**Address: ALONG NORTH BAYSHORE DRIVE TO NORTH FLACK AVENUE,
FREDERICA, KENT COUNTY, DE 19946**

Parcel #: 8-01-11513-01-0704-0001, 8-01-11513-01-0701-0001, 8-01-11513-01-0705-0001, 8-01-11513-01-0300-00001 OR 8-01-11513-01-0301-00001, 8-01-11513-01-0302-00001

Instructions:

Use the QR code below to access and complete the Post Construction Completion Report.
Submit the form within **ten** days after construction concludes



[Submit Report Here](#)

L:\Town of Bowers\2020\01-15-2024\Town of Bowers Drainage\Bifield\Delaware\CAUD FILES\SheetConstructionPlanC100 - Title.dwg, 2/3/2026, 2:22 PM

LEGEND	EXISTING	PROPOSED
PROPERTY LINE	---	N/A
SURVEYED CONTOUR	--- 40 ---	--- 40 ---
LIMITS OF DISTURBANCE (LOD)	N/A	--- LOD --- LOD ---
PERMANENT EASEMENT	--- PE --- PE ---	N/A
SILT FENCE	N/A	--- SF --- SF ---
SENSITIVE AREA PROTECTION	N/A	--- SAP ---
STABILIZED CONSTRUCTION ENTRANCE	N/A	--- SCE ---
STABILIZATION MATING SLOPE	N/A	--- (SM-S) ---
RIPRAP OUTLET PROTECTION	N/A	--- (ROP) ---
RIPRAP STILLING BASIN	N/A	--- (RSB) ---
SWALE	--- oo --- oo ---	--- X< --- X< ---
STORMDRAIN PIPE	---	---
NEW/REDEVELOPED PAVEMENT	N/A	---
GRASS ACCESS	N/A	---
GRAVEL	N/A	---
DRIVEWAY REMOVAL	N/A	---
FORCE MAIN	--- FM --- FM ---	N/A
UNDERGROUND GAS	--- UG-G ---	N/A
UNDERGROUND FIBER	--- UG-F ---	N/A
UNDERGROUND ELECTRIC	--- UG-E ---	N/A
OVERHEAD UTILITY	--- OH ---	N/A
FENCE LINE	--- o ---	---
BUILDING	---	N/A
LANDSCAPING	---	N/A
SIGN	---	N/A
LAMP	---	N/A
MAILBOX	---	N/A
FIRE HYDRANT	---	N/A
POST	---	N/A
WATER VALVE	---	N/A
CONCRETE MONUMENT	---	N/A
ELECTRIC TRANSFORMER	---	N/A
UTILITY BOX - FIBER	---	N/A
LIGHT	---	N/A
ELECTRIC OUTLET	---	N/A
UTILITY POLE	---	N/A
MANHOLE	---	N/A
WATER LINE	---	N/A
SANITARY SEWER	---	N/A
FIRE DEPARTMENT CONNECTION	---	N/A
WOODSLINE	---	N/A
WETLANDS	---	N/A

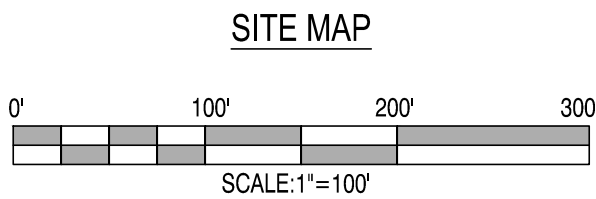
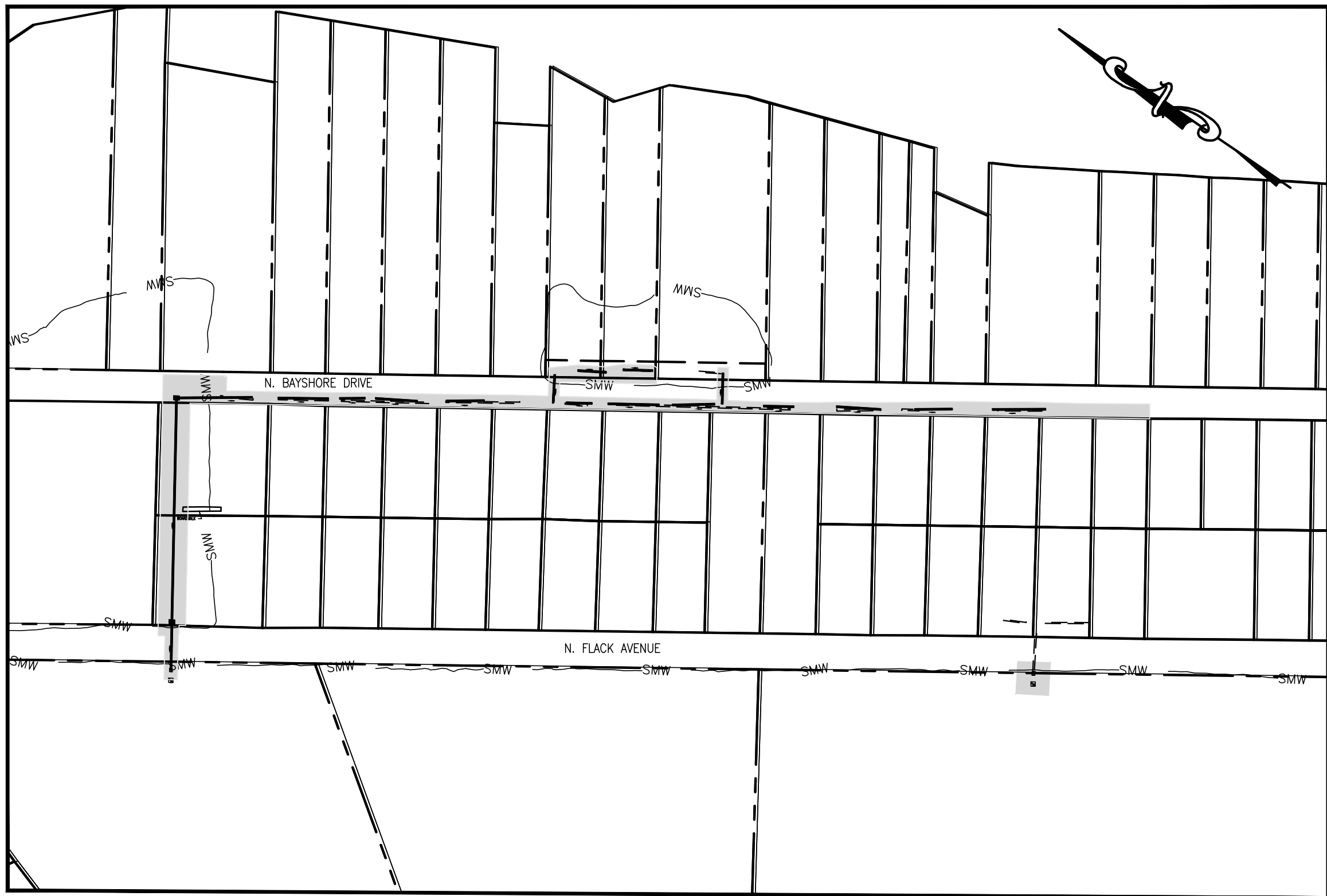
SHEET NO.:	TITLE
C100	TITLE SHEET
C101	SITE PLAN
C102	PIPE PROFILES
C103	OUTFALL SECTIONS
C104	TYPICAL SECTIONS
C105	CONSTRUCTION DETAILS
C106	CONSTRUCTION DETAILS
C107	CONSTRUCTION DETAILS
C108	CONSTRUCTION DETAILS
C109	CONSTRUCTION DETAILS
C110	ENVIRONMENTAL IMPACT TABLE
C111	ENVIRONMENTAL COMPLIANCE FOR DNREC WSLs

N. BAYSHORE DRAINAGE IMPROVEMENTS

FOR TOWN OF BOWERS

08-01-115.13-01-04.00-00001

MURDERKILL HUNDRED KENT COUNTY, DELAWARE



W.W.S
APPROVED PLANS
PERMIT #: SP-029/26
DATE: 06/12/2026
BY: Julie Molina
(SEE PERMIT CONDITIONS)

CERTIFICATION OF PLAN ACCURACY

I, ALAN K. MARTENEY, HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

Alan K. Marteney

ALAN K. MARTENEY, P.E., DE NO. 7535
CENTURY ENGINEERING, LLC
550 BAY ROAD
DOVER, DELAWARE 19901
PHONE: (302) 734-9188 / FAX: (302) 734-4589

2/03/2026

DATE

ADA CARTER PUZZO
MAYOR, TOWN OF BOWERS
3308 MAIN STREET
FREDERICA, DE 19946

2/03/2026

DATE



LOCATION MAP

SCALE: 1" = 500'

DATA COLUMN

- PROJECT TAX MAP: 08-01-115.13-01-04.00-00001
- TITLE SOURCE: D.B. 9520-297
- SITE ADDRESS: NORTH BAYSHORE DRIVE
FREDERICA, DE 19946
- ZONING: (SFR) SINGLE FAMILY RESIDENTIAL
- EXISTING SITE AREA: 4.67± ACRES
- PROPOSED SITE AREA: 4.67± ACRES
- PROPOSED CONDITION: N/A - NO NEW BUILDING STRUCTURES
- PROPOSED DISCHARGE: EXISTING WETLANDS ALONG NORTH FLACK AVENUE
- PROPOSED TOTAL LOD: 0.46 ACRES
- DATUM: VERTICAL - NAVD88
HORIZONTAL - NAD83
- BENCHMARK: TRAVERSE POINT 2
NEAR WEST PROPERTY CORNER AT 228 N. FLACK AVENUE
NORTHING: 387585.5629
EASTING: 660633.5823
ELEVATION: 3.98'
- GROWTH ZONE: SUBJECT PARCEL DOES NOT LIE WITHIN THE DESIGNATED GROWTH ZONE.
- FLOODPLAIN: PER FEMA MAP NO. 10001C0258J, DATED JULY 7, 2014, THE SUBJECT PARCEL IS LOCATED WITHIN A FLOOD ZONE.
- WETLANDS: A WETLANDS DELINEATION WAS PERFORMED BY CENTURY ENGINEERING ON JUNE 2, 2022 AND WETLANDS ARE FOUND IN THE VICINITY OF THIS PROJECT.
- OWNER/DEVELOPER: ADA CARTER PUZZO, MAYOR
TOWN OF BOWERS
3308 MAIN STREET
FREDERICA, DE 19946
PHONE: (302) 572-9000
- CIVIL ENGINEER: ALAN K. MARTENEY, P.E.
CENTURY ENGINEERING, A KLEINFELDER COMPANY
550 BAY ROAD
DOVER, DE 19901
PHONE: (302) 734-9188

OWNER/DEVELOPER CERTIFICATION

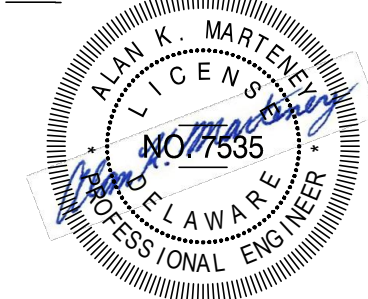
I, ADA CARTER PUZZO, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E. BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVERSHEET.

REVISIONS:
DATE: _____
DESCRIPTION: _____
BY: _____

N. BAYSHORE DRIVE
DRAINAGE IMPROVEMENTS

COVER
SHEET

SEAL:



FEBRUARY 03, 2026

CIVIL ENGINEER:

CENTURY ENGINEERING
A Kleinfelder Company

CEI CONTRACT NO.: 215015.00



DESIGNED BY:
EAM

DRAWN BY:
EAM

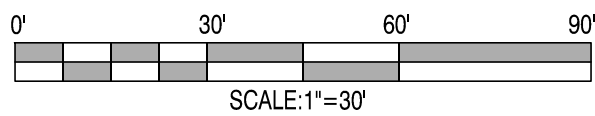
CHECKED BY:
AKM

DATE:
FEBRUARY 03, 2026

SCALE:
AS NOTED

SHEET NO.:
C100

CONTRACT NO.:
215015.00



NOTE: MAINTAIN 0.0010 FT/FT DITCH SLOPE BETWEEN PROPOSED DRAINAGE PIPES.

*SEE CONSTRUCTION DETAILS

NOTE: PROPERTY OWNER INFORMATION LISTED FOR PROPERTIES ADJACENT TO LOD

PIPE COORDINATES (CONT.)			
PIPE ID	INVERT	NORTHING	EASTING
110	START	387440.43	661038.54
	END	387427.43	661017.34
111	START	387479.86	660982.87
	END	387507.97	660963.23
112	START	387529.80	660948.08
	END	387562.32	660928.83
113	START	387570.43	660923.58
	END	387589.34	660910.33
114	START	387597.72	660904.44
	END	387635.53	660879.19
115	START	387655.46	660866.34
	END	387710.34	660828.11
116	START	387711.33	660825.96
	END	387601.13	660657.88
117	START	387599.76	660655.79
	END	387576.58	660620.38

CONTRACT/PROJECT NOTES

1. THE TOWN OF BOWERS SHALL OBTAIN PERMISSION FROM PROPERTY OWNERS FOR ALL WORK OUTSIDE OF THE RIGHT-OF-WAY.
2. THE PROPERTY OWNERS OF ANY IMPACTED PROPERTY SHALL BE NOTIFIED IN WRITING 5 DAYS PRIOR TO COMMENCING WITH CONSTRUCTION.
3. ACCESS COORDINATION SHALL BE BY TOWN OF BOWERS.
4. CONTRACTOR IS RESPONSIBLE FOR ENSURING COMPLIANCE WITH ALL ELEMENTS OF DELAWARE MANUAL FOR URBAN TRAFFIC CONTROL DEVICES (MUTCD), ALL TEMPORARY TRAFFIC IMPACTS SHALL FOLLOW THE DELAWARE MUTCD. CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS FOR EACH LOCATION TO THE ENGINEER FOR APPROVAL PRIOR TO MOBILIZATION.
5. ALL WORK UNDER CONTRACT SHALL FOLLOW STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
6. THE CONTRACTOR SHALL PROVIDE NECESSARY FACILITIES, INCLUDING, BUT NOT LIMITED TO, RESTROOMS DURING CONSTRUCTION. TOWN FACILITIES SHALL NOT BE USED. EQUIPMENT PARKING AND MATERIAL STAGING SHALL BE LIMITED TO DESIGNATED STAGING AND STOCKPILE AREAS. THE CONTRACTOR SHALL IDENTIFY STOCKPILE AND STAGING AREAS AND SUBMIT TO THE ENGINEER FOR APPROVAL.
7. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN SCALED AND THE FIGURED DIMENSIONS SHOWN ON THE PLANS, THE FIGURED DIMENSIONS SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRINGING ANY DIMENSIONAL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING OFF-SITE SPOIL AREAS FOR LEGAL DISPOSAL OF ANY EXCESS MATERIAL NOT ACCEPTED BY THE TOWN AND/OR UNSUITABLE MATERIALS AS NECESSARY IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. ALL COST FOR RECYCLING, TRANSPORTING TO, AND PROCURING AND UTILIZING THE OFF-SITE SPOIL AREAS ARE TO BE INCIDENTAL TO THE CONTRACT.
9. IN CASE OF CONFLICT BETWEEN THE "MANUFACTURER'S RECOMMENDATIONS" FOR APPROVED MATERIAL AND THE GOVERNING "CONTRACT SPECIFICATIONS" FOR THE MATERIAL, THE MORE RESTRICTIVE OF THE TWO SHALL PREVAIL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
10. THESE DRAWINGS DO NOT INCLUDE NECESSARY RESTRICTIONS OF CONSTRUCTION SAFETY. ALL CONSTRUCTION, INCLUDING EXCAVATION, MUST BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONS SAFETY AND HEALTH ACT, CFR 1926.625(b)(2), AND ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY.
11. NO DERIS SHALL BE BURIED OR BURNED ON THE SITES UNLESS SPECIFICALLY NOTED WITHIN THESE PLANS OR SPECIFICATIONS.
12. THE CONTRACTOR SHALL MAINTAIN A CLEAN SET OF AS-BUILT PLANS THAT SHALL ACCURATELY ILLUSTRATE ALL FIELD CHANGES NEATLY DRAWN AND LABELED IN RED INK. TWO SETS OF AS-BUILT PLANS SHALL BE DATED AND SIGNED BY THE CONTRACTOR AND SUBMITTED TO THE OWNER AT THE END OF THE PROJECT FOR RECORDATION.
13. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE IN ADVANCE FOR ANY UTILITY DISRUPTION FOR APPROVAL BY THE ENGINEER.
14. PARCEL AND BOUNDARY LINES REFERENCED FROM GIS INFORMATION. NO BOUNDARY SURVEY WAS REQUESTED OR PERFORMED FOR THIS PROJECT.
15. EXISTING UTILITIES SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME THIS PLAN WAS DEVELOPED. COMPLETENESS OR CORRECTNESS OF THE UTILITIES SHOWN THEREOF IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR EMPLOYING AN UNDERGROUND UTILITY LOCATOR TO LOCATE AND MARK EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO BEGINNING CONSTRUCTION. ALL EXISTING UTILITIES SHALL BE PROTECTED AND PROPERLY SUPPORTED OR RELOCATED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE PERTINENT OWNER/UTILITY COMPANY REQUIREMENTS. ANY UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE PROMPTLY AND FULLY RESTORED TO THE SATISFACTION OF THE OWNER.
16. FEATURES NOT SPECIFICALLY DESIGNATED FOR DEMOLITION OR REMOVAL THAT ARE DAMAGED BY THE CONTRACTOR OR THE CONTRACTOR'S SUBCONTRACTORS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN.
17. IN ANY LOCATION WHERE STRIPING IS REMOVED OR DAMAGED AS A RESULT OF CONSTRUCTION SHALL BE REPLACED IN KIND.

DRAINAGE IMPROVEMENTS SITE PLAN

SEAL:



CIVIL ENGINEER



EAM

DRAWN BY:

FAM

CHECKED BY:

AKM

DATE:

FEBRUARY 03, 2026

SCALE:

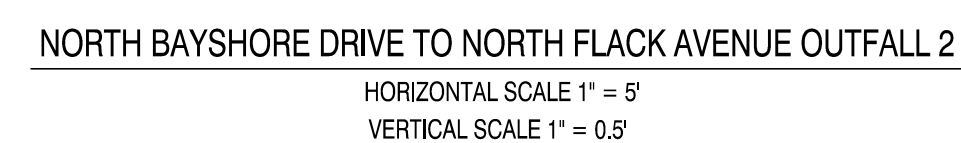
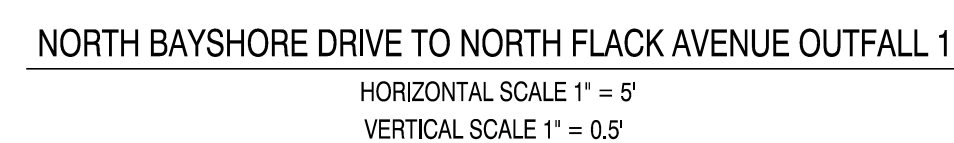
 $1'' = 30$

SHEET NO.

C101

CONTRACT NO.:

215015.00



N. BAYSHORE DRIVE DRAINAGE IMPROVEMENTS
OUTFALL SECTIONS

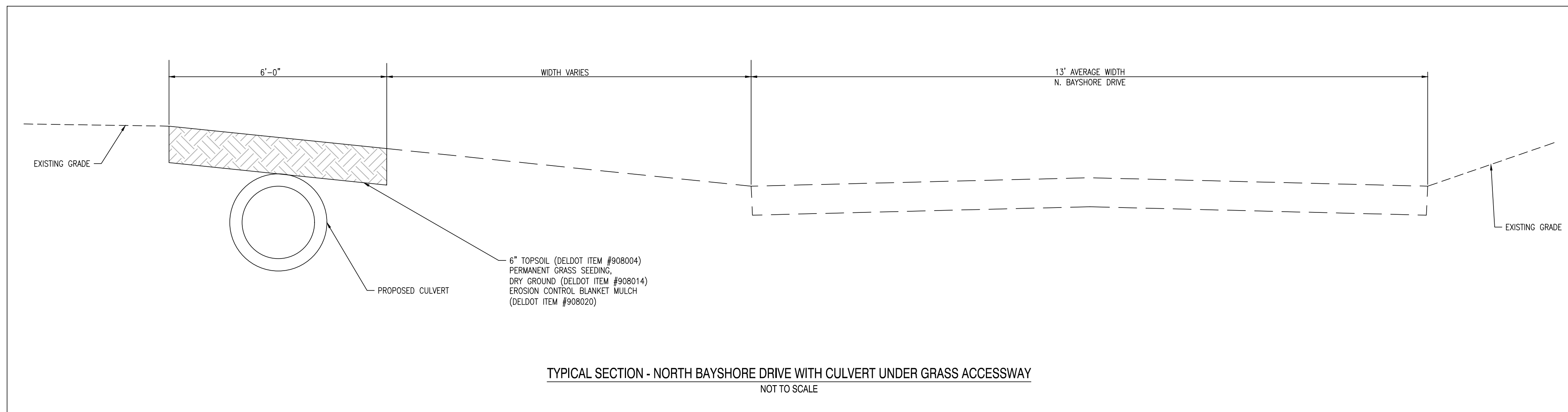
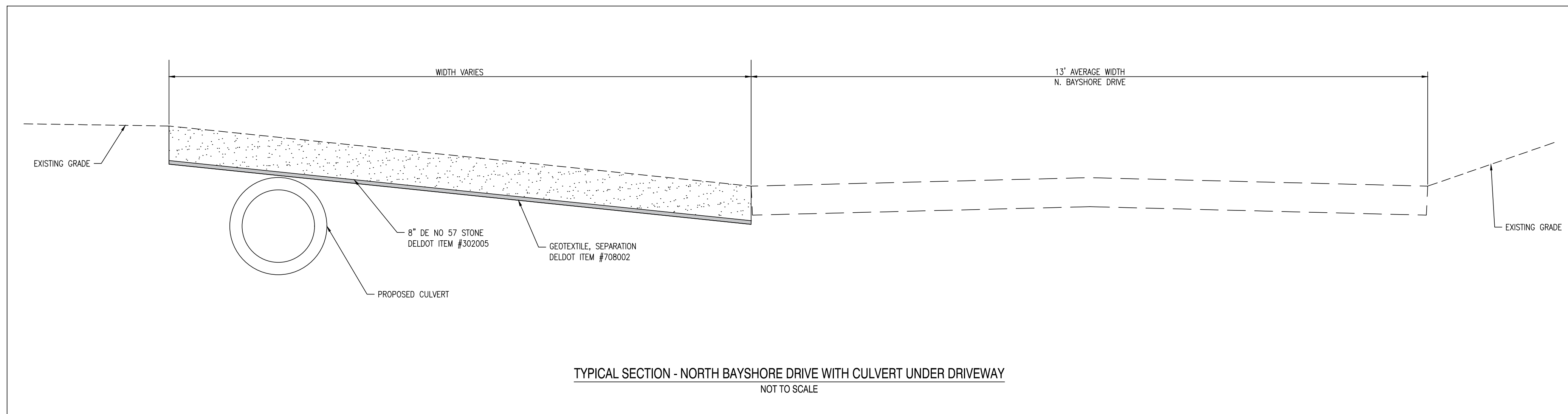
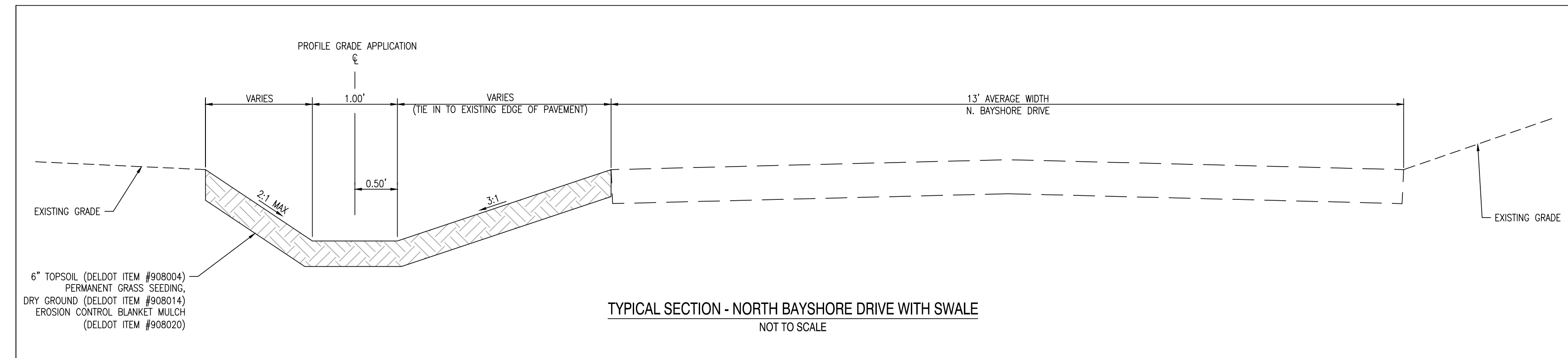
CIVIL ENGINEER:

CENTURY
ENGINEERING

A Kleinfelder Company



CONTRACT NO.: 215015.00



W.W.S
APPROVED PLANS

PERMIT #: SP-029/26

DATE: 06/12/2026

BY: Julie Molina

(SEE PERMIT CONDITIONS)

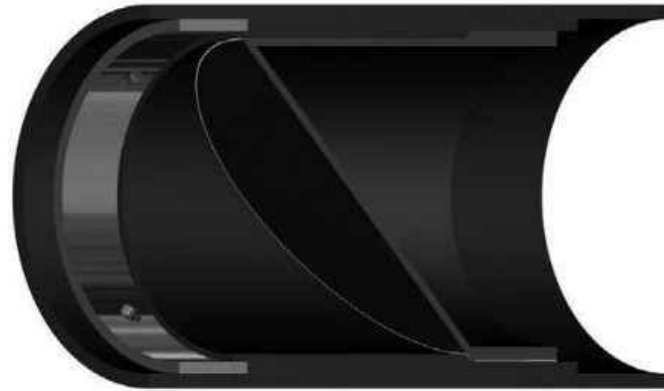
N. BAYSHORE DRIVE DRAINAGE IMPROVEMENTS	
TYPICAL SECTIONS	
SEAL: 	
FEBRUARY 03, 2026	
CIVIL ENGINEER:	
 CENTURY ENGINEERING A Kleinfelder Company	
CEI CONTRACT NO.: 215015.00	
	
DESIGNED BY:	EAM
DRAWN BY:	EAM
CHECKED BY:	AKM
DATE:	FEBRUARY 03, 2026
SCALE:	N.T.S.
SHEET NO.:	C104
CONTRACT NO.:	215015.00

Tideflex
Technologies
A Division of Red Valve, Inc.

CHECKMATE®

INLINE CHECK VALVES

INSTALLATION, OPERATION AND MAINTENANCE MANUAL



The revolutionary design of the CheckMate® Inline Check Valve provides superior backflow prevention and odor mitigation in stormwater, CSO and SSO outfalls. The CheckMate's® custom-engineered, all-rubber unibody design eliminates costly back-flow from oceans, rivers and interceptors. The valve's unique elastomer fabric and wire reinforced design provides a proven record of maintenance-free performance, cost savings and results that no other inline check valve can match. The CheckMate® is built to suit all your site-specific and flow needs.

The CheckMate® has a 100% fabric and elastomer construction that eliminates corrosion problems. Because the CheckMate® is made with a unibody construction, there are no mechanical components that trap debris, corrode or fail.

The CheckMate® Valve's inherent flexibility virtually eliminates seating problems. The CheckMate® remains in the closed position until forward differential pressure opens it. The fabric-reinforced elastomer CheckMate® Valve seals around silt and small debris, preventing unwanted backflow.

The major advantage of the CheckMate® Valve is its extremely low headloss. The CheckMate® can open to a near full pipe diameter. This maximizes flow capacity of the outfall, which is particularly beneficial in low-lying areas where limited driving head is available.

Tideflex® Technologies recommends pinning all CheckMate® Valves for added security and stability. CheckMate's® effectively have a zero face-to-face dimension because they fit completely inside of the pipe. No modification of piping is required provided adequate pipe length exists.

IMPORTANT

Please take a moment to review this manual. The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Tideflex® Technologies can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service department at (412) 279-0044. We appreciate your comments. Thank you for choosing Tideflex® Technologies.

11. Pallet Push for Larger CheckMate® Valves

Larger CheckMate® valves can be pushed into the pipe utilizing the shipping pallet. The pallet should be placed perpendicular to the valve being inserted into the pipe. Then, with assistance from an excavator, push with consistent even force against the shipping pallet to insert the CheckMate® valve into the pipe.

See the image to the right for the suggested positioning and usage of the excavator's shovel assistance for larger-sized CheckMate® valves. Clamps must be installed to prevent damage to cuff.



Pallet Push method for installing CheckMate® Valve

CheckMates® can be made for any pipe I.D.
Built to fit in sizes from 3" to 78".

Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

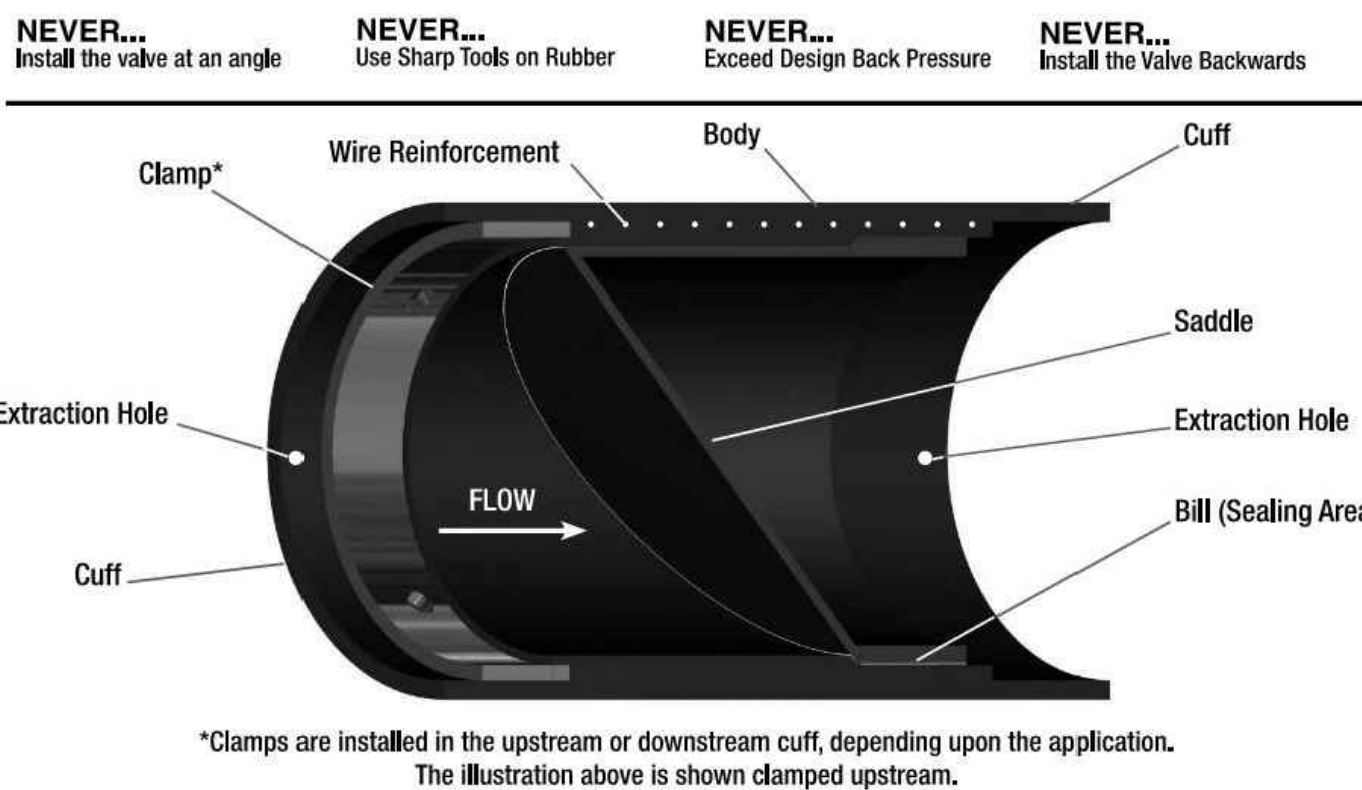
CHECKMATE® VALVE											
	NOMINAL PIPE SIZE I.D.		OVERALL LENGTH*		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING**		WEIGHT	
	Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters		lbs
Low Pressure	3	75	5.1	130	1	1.5	38	5	1.5	1.5	0.7
	4	100	7.9	201	1	1.5	38	5	1.5	1.5	0.7
	3	75	5.1	130	1	1.5	38	85	26.0	3	1.4
	4	100	7.9	201	1	1.5	38	85	26.0	3	1.5
Standard Pressure	5	125	8.5	216	1	1.5	38	83	25.3	4	2
	6	150	11.0	279	1	2.0	51	83	25.3	9	4
	7	175	12.8	325	1	2.0	51	79	24.1	11	5
	8	200	15.2	386	1	2.0	51	79	24.1	13	6
	9	225	15.4	391	1	2.0	51	75	22.9	17	8
	10	250	16.1	409	1	2.0	51	71	21.6	20	10
	12	300	19.8	503	1	2.0	51	68	20.1	37	17
	14	350	25.8	655	1	4.0	102	64	20.0	110	50
	16	400	28.6	726	1	4.0	102	60	18.3	133	52
	18	450	31.0	787	1	4.0	102	56	17.1	143	65
	20	500	42.1	1069	2	8.0	203	53	16.2	223	102
	24	600	47.5	1207	2	8.0	203	45	13.7	304	137
	30	750	54.9	1395	2	8.0	203	38	11.6	500	227
	36	900	62.3	1582	2	8.0	203	30	9.1	828	376
	42	1050	70.6	1793	2	8.0	203	26	7.9	1423	646
	48	1200	79.0	2007	2	8.0	203	22	7.0	1891	871
	54	1350	86.4	2195	2	8.0	203	17	5.2	2700	1225
	60	1500	96.8	2459	2	9.0	229	15	4.6	3315	1504
	72	1800	119.0	3023	3	12.0	305	13	4.0	6100	2767
	78	1950	119.0	3023	3	12.0	305	13	4.0	7000	3176

*Shorter lengths available.

5

**Back pressure measured from pipe invert. Higher back pressure ratings available. Consult factory.

CheckMate® Installation Procedure



CHECKMATE® INSTALLATION

1. Product Shipping

Valve sizes 2" - 18" are furnished with one clamp. Valves 20" - 60" ship with two clamps. 72" valves ship with three clamps.

NOTE: A clamp is installed on each end of the valve to keep the valve's shape during transit and storage. Once the installation orientation is determined the CheckMate® valve will be clamped from either the upstream or downstream side. For valves with two or three clamps, they can be installed onto the same side of the valve and offset from each other, as illustrated in Figure 1.

2. Unpacking & Lifting

Do not use sharp tools when unpacking this product as it may damage the valve.

For larger CheckMate® valves, the valve should be lifted with either a sling or with supports around the O.D. at each side of the valve to ease the installation procedure. Do not place an object through the valve in order to lift.

CAUTION: Do not try to bend, collapse or fold the valve in order to facilitate the installation as this will cause permanent damage and will not allow the valve to return to a fully round shape.

2



Figure 1 – Clamps shown installed on the same side of valve

13. Flanged Valve Bolt Torques

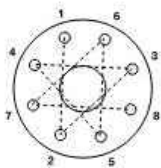
The valve end with the rubber flange shall be installed using the backup rings provided. The sleeve split should be installed facing downstream, with the split in the vertical position.

The installation bolt torque on the end flange bolts are listed in the table below.

Valve Size	Bolt Size	Torque (ft*lb.)
1"	1/2" - 13NC	20
1-1/2"	1/2" - 13NC	20
2"	5/8" - 11NC	30
2-1/2"	5/8" - 11NC	40
3"	5/8" - 11NC	40
4"	5/8" - 11NC	30
5"	3/4" - 10NC	40
6"	3/4" - 10NC	30
8"	3/4" - 10NC	40
10"	7/8" - 9NC	40
12"	7/8" - 9NC	50
14"	1" - 8NC	50
16"	1" - 8NC	50
18"	1-1/8" - 7NC	30
20"	1-1/8" - 7NC	30
24"	1-1/4" - 7NC	40
30"	1-1/4" - 7NC	30
36"	1-1/2" - 6NC	40
42"	1-1/2" - 6NC	50
48"	1-1/2" - 6NC	55
54"	1-3/4" - 5NC	60
60"	1-3/4" - 5NC	80
72"	1-3/4" - 5NC	100

Torque values are suggested minimum values.

Torque all flange bolts in a star pattern, first to 50% of tabulated values, then retorquing to 100% of tabulated values. If greater torque is required, continue retorquing in increments of 50% of tabulated values. Use of a high quality anti-seize compound on all bolt threads is recommended.



Always use a "star" pattern when bolting a check valve.

Variables such as the surface finish on bolt threads, type of anti-seize compound used, and surface finish of the mating flanges all have an effect on the minimum torque required to obtain a leak-tight flange seal.

During installation you may need to retorquing the flange bolts several times for a proper seal. This will overcome any leaks due to the cold flow of the rubber sleeve flange.

6

CheckMate® Rubber Adhesive Strip Build Up Procedure

5. Rubber Adhesive Strip Build up

When valve O.D. is smaller than the pipe I.D., one-sided rubber adhesive strip is used to build up the O.D. of both CheckMate® cuffs to the actual pipe I.D.



STEP A: Place the valve on a solid, flat surface with the clamped end hanging slightly over the edge of the surface.



STEP C: Repeat steps A and B on the opposite side of the valve to ensure uniformity of the CheckMate's® O.D. is consistent and matches the pipe I.D.



STEP E: Check O.D. of the valve to ensure it fits snugly into the I.D. of pipe. If loose, add another layer(s) of the rubber adhesive strip.

NOTICE: Clean and dry the exterior of the valve prior to beginning rubber adhesive strip build up procedure.



STEP B: Slowly rotate the valve while firmly pressing the rubber adhesive strip onto itself in concentric layers until valve O.D. is equal to or a fraction smaller than pipe I.D.



STEP D: Lubricate the valve and rubber adhesive strip surface. Slide valve into pipe. Ensure the area marked TOP is in the 12:00 position.



STEP F: Once in place, tighten the clamp to secure it against the pipe and compress the rubber adhesive strip.

3

CheckMate® Installation Notes

1. It is important that the CheckMate® is installed level within the pipe. The CheckMate® may "gap open" if installed improperly.

2. The sealing area of the CheckMate® must have room to expand outwards, while bottom of the sealing area rises. The area around the sealing area must be kept free of debris to allow the bill to close in order for the valve to seal properly.

3. The CheckMate® effectively reduces the inside diameter of the pipe in which it is installed, creating a restriction. It may also create a "ledge" inside the pipe, causing standing water.

4. Back pressure in excess of the back pressure rating may cause valve failure.

5. Should the conditions that the CheckMate® was designed for change, (line pressure, back pressure, chemical compatibility) the performance of the valve may suffer.

6. CheckMate® Valves must be installed in true round pipe which is concentric across the entire length. Out of round pipe may cause the sealing area of the valve to distort and gap, which will cause the valve to leak.

MAINTENANCE

Inspection
Valves should occasionally be inspected for damage, wear, and buildup of debris. The frequency of the inspections should be determined by the severity of the service and the environment in which it operates.

TIDEFLEX® TECHNOLOGIES WARRANTY

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Carnegie, PA 15106
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Web: www.tideflex.com

7

CheckMate® IOM 8/30/17

CheckMate® Installation Procedure

6. Preparation

The CheckMate® Valve uses expanding clamp(s) to exert pressure outwards on the walls of the valve to wedge it in place within the pipe. The walls of the pipe should be clean and free of debris prior to installation.

The valve should be inserted fully into the pipe so that no part of the cuff or bill extends outside the pipe. Ensure that the valve is not slanted at an angle with the bill pointing upwards or downwards. The valve centerline should be parallel to the pipe centerline.

Tideflex® Technologies recommends pinning the CheckMate® Valve on all installations. See below.

Four pre-drilled holes are provided in each expansion clamp. At least one clamp should be pinned. On exposed pipe, holes can be drilled through the valve and pipe, and a bolt run through secured with a nut. For buried pipe, silicon or similar sealant should be used to seal bolts.

7. Lubrication

The outside of the valve can be lubricated with a water-based lubricant prior to inserting the valve into the pipe. If the taping procedure has been used, the surface of the tape can be lubricate to aid insertion.

CAUTION: Do not use petroleum-based lubricants on this product or on the vulcanized rubber tape.

8. Plumb Lines and Arrows

The CheckMate® Valve arrives with a "top" arrow, "flow" arrow and plumb lines, marked in white, at the 12:00 and 6:00 position of the valve. Utilize this marking to orient the valve in the pipe, as well as to ensure the valve is oriented correctly in pipe section.

9. Valve Orientation

The CheckMate® Valve must be installed in a horizontal pipe. Valves 4" - 18" (nominal) are supplied with a single clamp. The clamp turnbuckle should be oriented at top dead center as delineated by the plumb line.

Valves 20" - 60" (nominal) are supplied with two clamps. The turnbuckles should be oriented 45° from the top center plumb line.

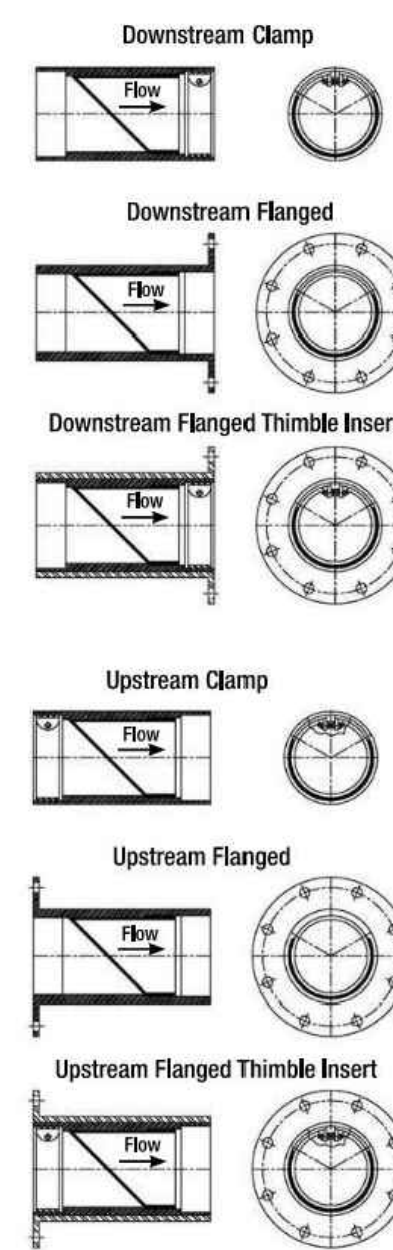
The 72" is supplied with three clamps. The turnbuckle for one clamp to be at top center. The other clamps to be 45° to each side of top center.

10. Insertion Into Pipe

Clamp to support the shape of the cuff should be hand tight and should be extended outward, but only tight enough to loosely keep the shape of the cuff during installation.

CAUTION: If you expand the clamp excessively at this step it will hinder or prevent the CheckMate® valve being fully inserted into the pipe.

CheckMate® Clamping Diagrams



4

REVISIONS:
DATE: DESCRIPTION:

N. BAYSHORE DRIVE
DRAINAGE IMPROVEMENTS

CONSTRUCTION DETAILS

SEAL:



FEBRUARY 03, 2026

CIVIL ENGINEER



CEI CONTRACT NO.: 215015.00



DESIGNED BY:

EAM

DRAWN BY:

EAM

CHECKED BY:

AKM

DATE:

FEBRUARY 03, 2026

SCALE:

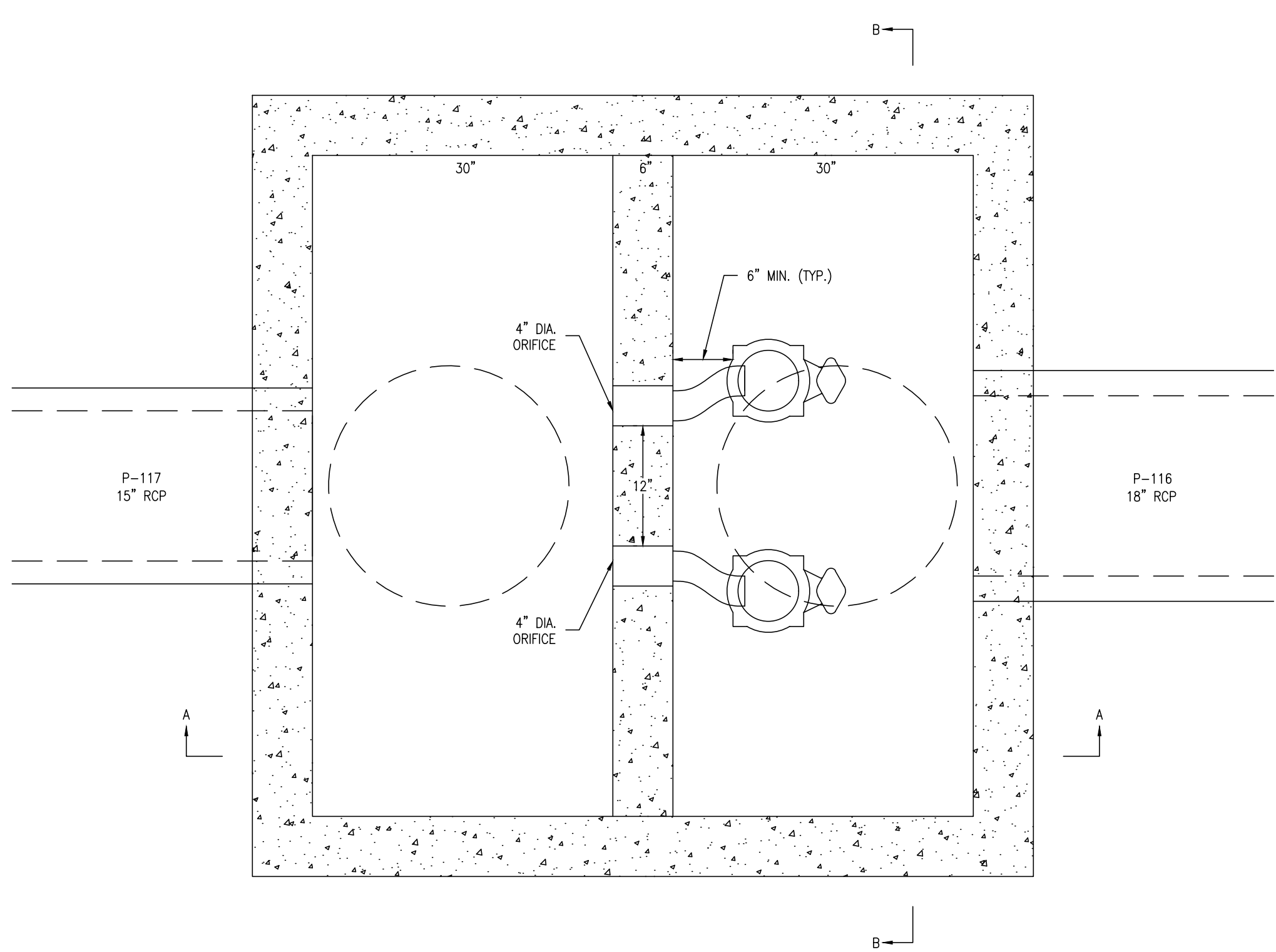
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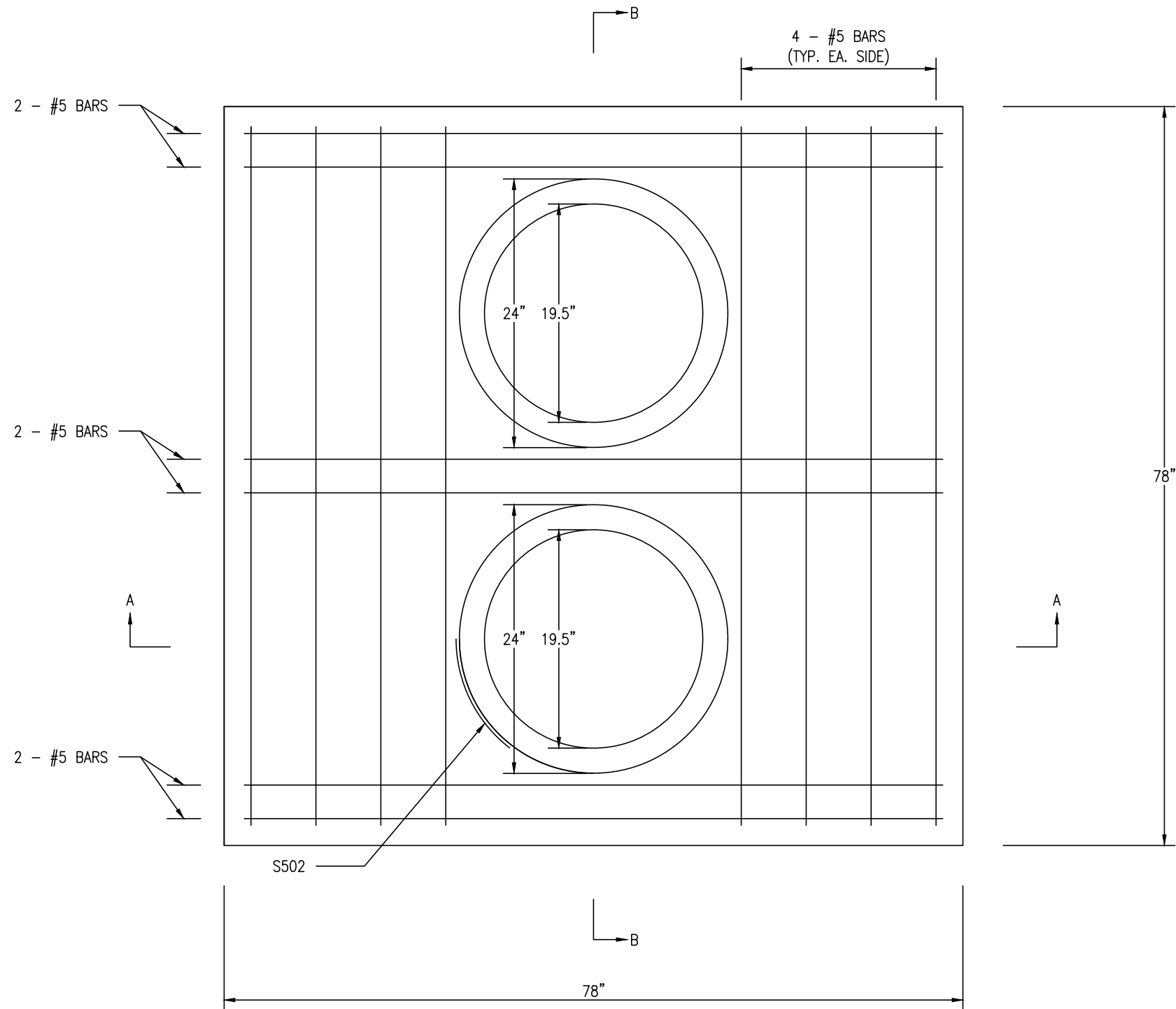
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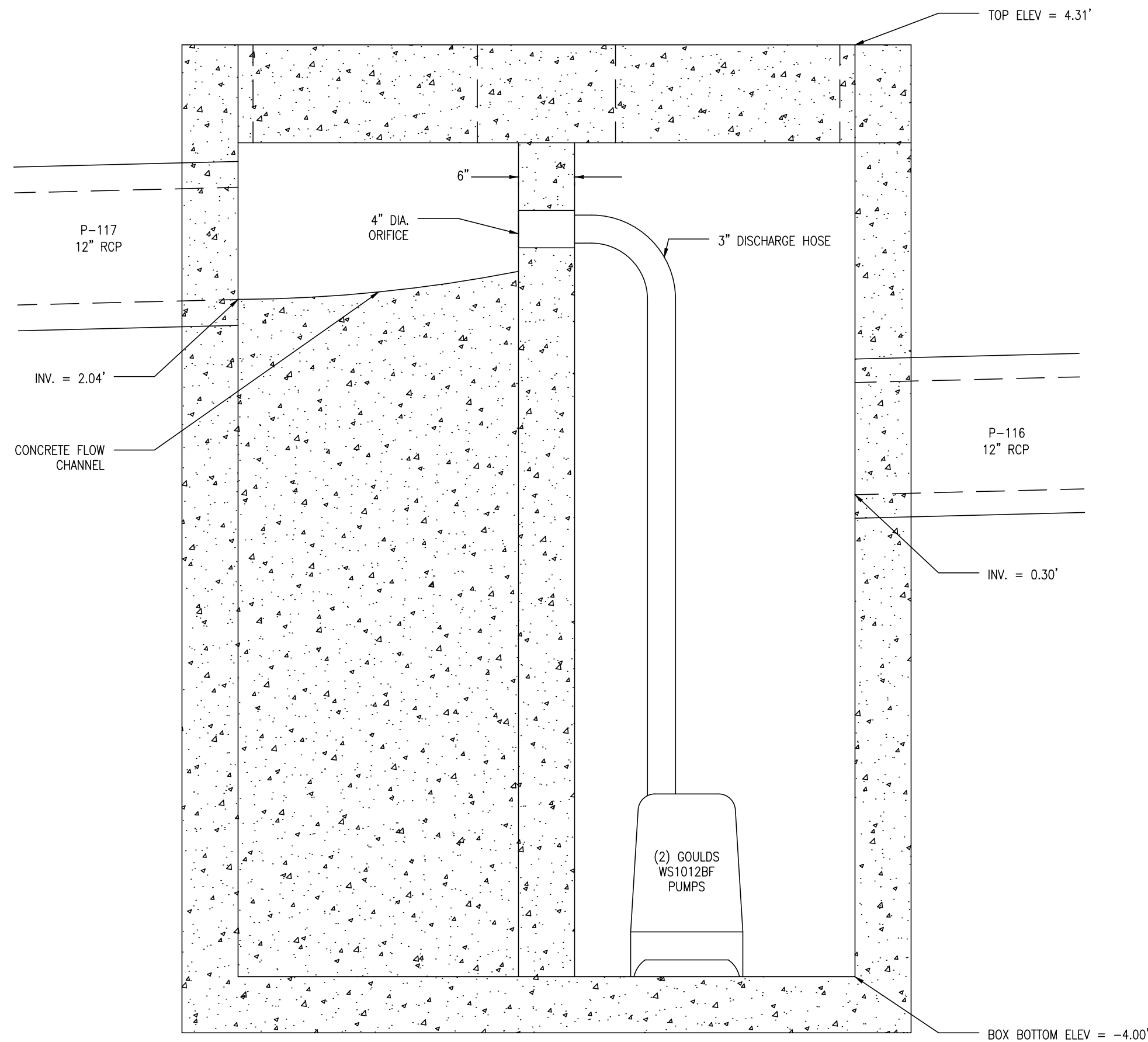
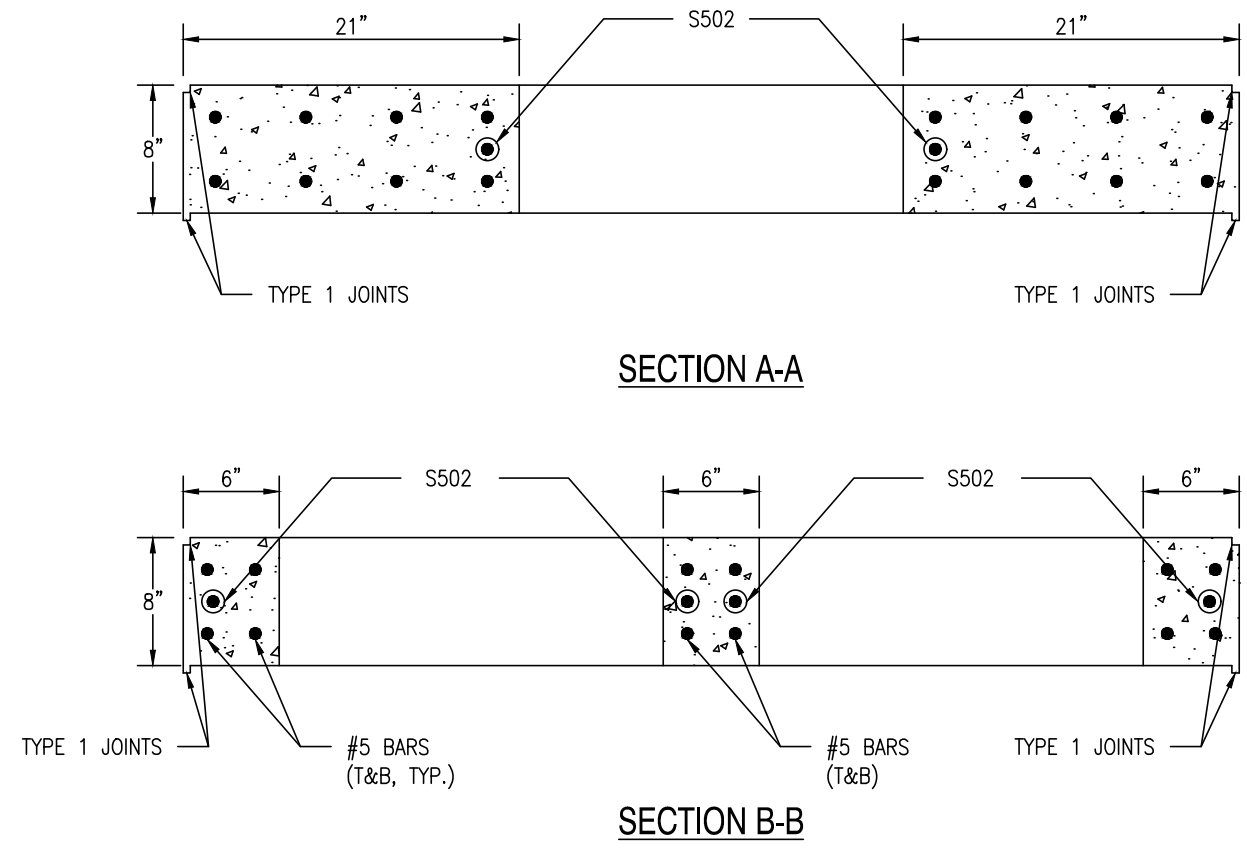
215015.00



(MH-101) 66" x 66" DELDOT MANHOLE WITH PUMP STATION PLAN DETAIL
NOT TO SCALE

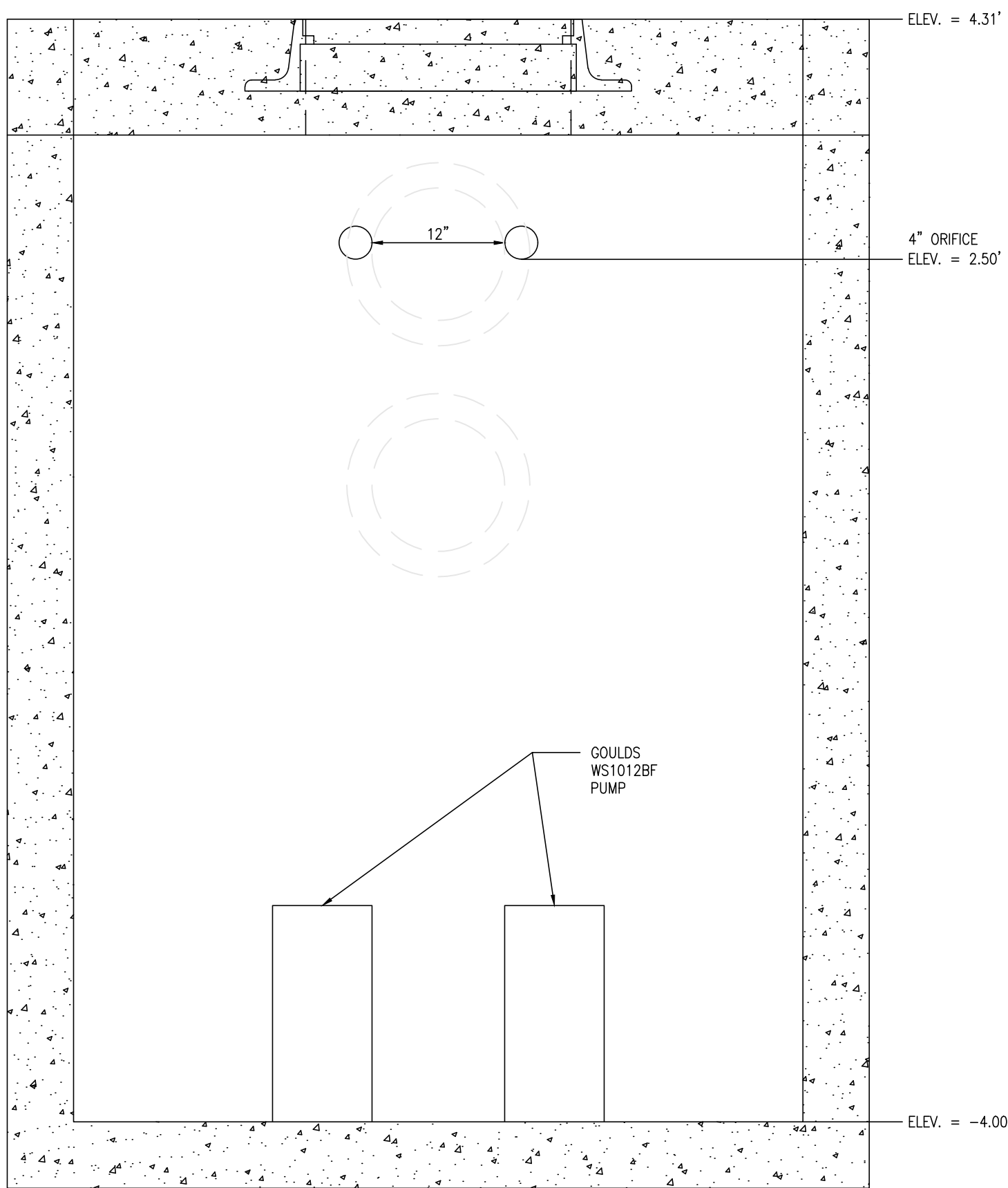


(MH-101) 66" x 66" DELDOT MANHOLE WITH PUMP STATION TOP UNIT DETAIL
NOT TO SCALE

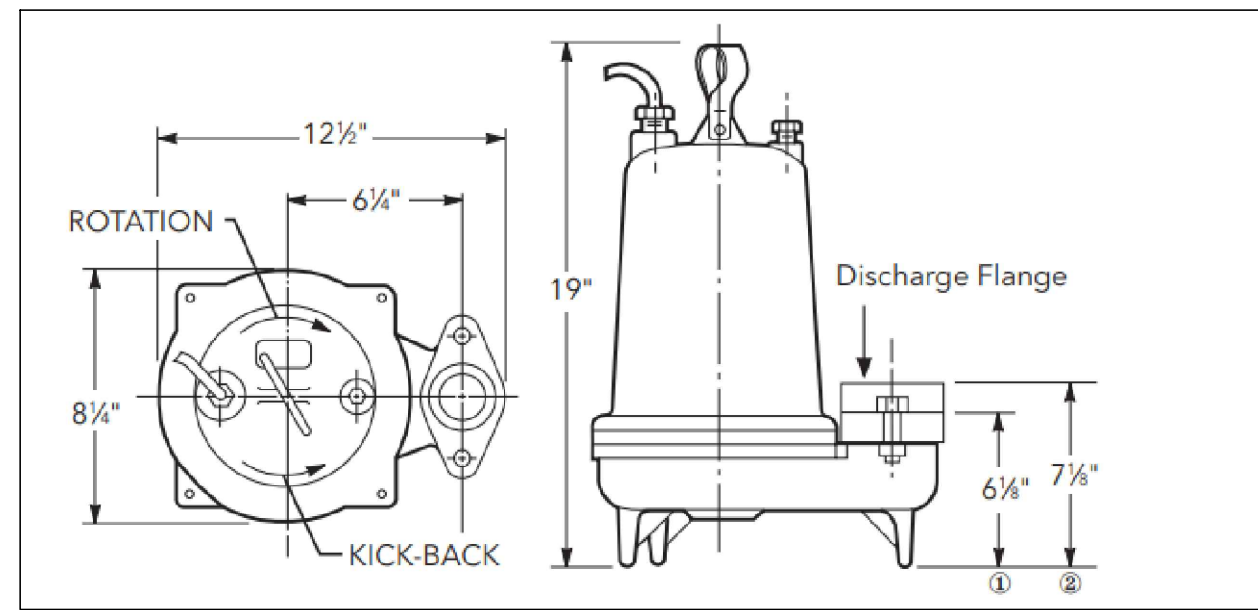


(MH-101) 66" x 66" DELDOT MANHOLE MODIFIED WITH PUMP STATION SECTION A-A DETAIL
NOT TO SCALE

NOTE: PLACE CONDUITS IN OUTER WALL OF MANHOLE FOR ELECTRIC SERVICE FEEDS TO PUMPS.



(MH-101) 66" x 66" DELDOT MANHOLE WITH PUMP STATION SECTION B-B DETAIL
NOT TO SCALE



DISCHARGE ELEV.:	2.50'
HIGH-HIGH ALARM ELEV.:	0.50'
LAG PUMP ON ELEV.:	0.00'
LEAD PUMP ON ELEV.:	-0.50'
PUMPS OFF ELEV.:	-2.50'
END SUCTION PIPE ELEV.:	-3.50'
BOTTOM ELEV.:	-4.00'

GOULD PUMP DETAIL
NOT TO SCALE

W.W.S
APPROVED PLANS
PERMIT #: SP-029/26
DATE: 06/12/2026
BY: Julie Molina
(SEE PERMIT CONDITIONS)

REVISIONS:	DATE:	DESCRIPTION:	BY:
N. BAYSHORE DRIVE DRAINAGE IMPROVEMENTS			
CONSTRUCTION DETAILS			
SEAL:			
			
FEBRUARY 03, 2026			
CIVIL ENGINEER:			
			
CEI CONTRACT NO.: 215015.00			
			
DESIGNED BY:			
EAM			
DRAWN BY:			
EAM			
CHECKED BY:			
AKM			
DATE:			
FEBRUARY 03, 2026			
SCALE:			
N.T.S			
SHEET NO.:			
C107			
CONTRACT NO.:			
215015.00			



TECHNICAL BROCHURE
BCPKSDPANELS



K Series Simplex/Duplex Wastewater Panels

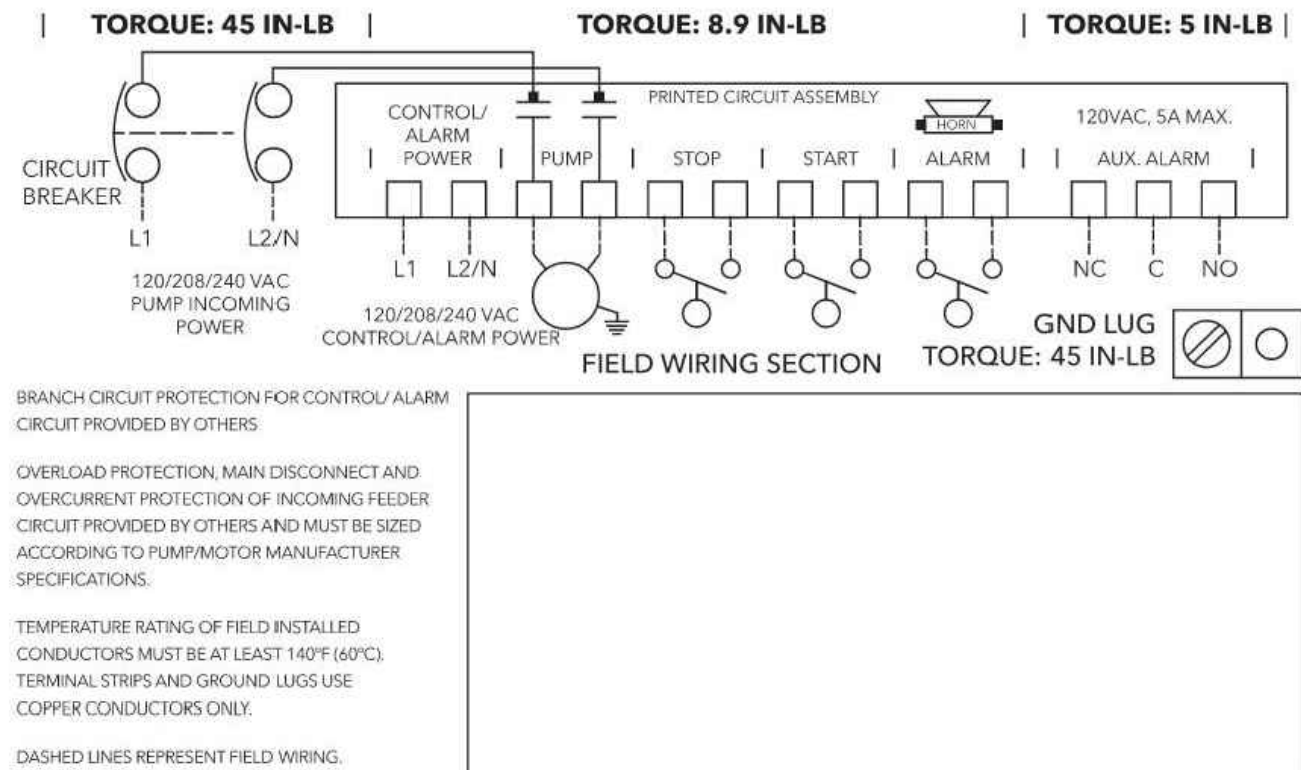


Wastewater

CentriPro

SIMPLEX SINGLE PHASE PANEL
KS19020WF

- Controls one single phase wastewater pump (20 amps maximum)
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 8" X 6" X 4" NEMA 4X Thermoplastic Enclosure
- Universal pump voltage and control/alarm power
- One panel handles 3 voltages (120/208/230V)
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device
- Integral mounting tabs
- Integral padlockable latch



PAGE 2

Wastewater

CentriPro

SIMPLEX SINGLE PHASE PANEL
KS19020WF



COMPONENTS

- NEMA 4X outdoor rated enclosure
 - Red LED alarm beacon
 - HOA selector switch
 - Auxiliary alarm contacts
 - Green control/alarm power indicator
 - Red float status indicators (stop/start)
 - Field wiring terminal block
 - Ground lug
 - Integral padlockable latch
 - Integral mounting tabs
 - Pump circuit breaker
 - Control/alarm fuses
 - Spare fuse
 - Green pump run indicator
- Not Shown: Alarm piezo horn and test/silence push button

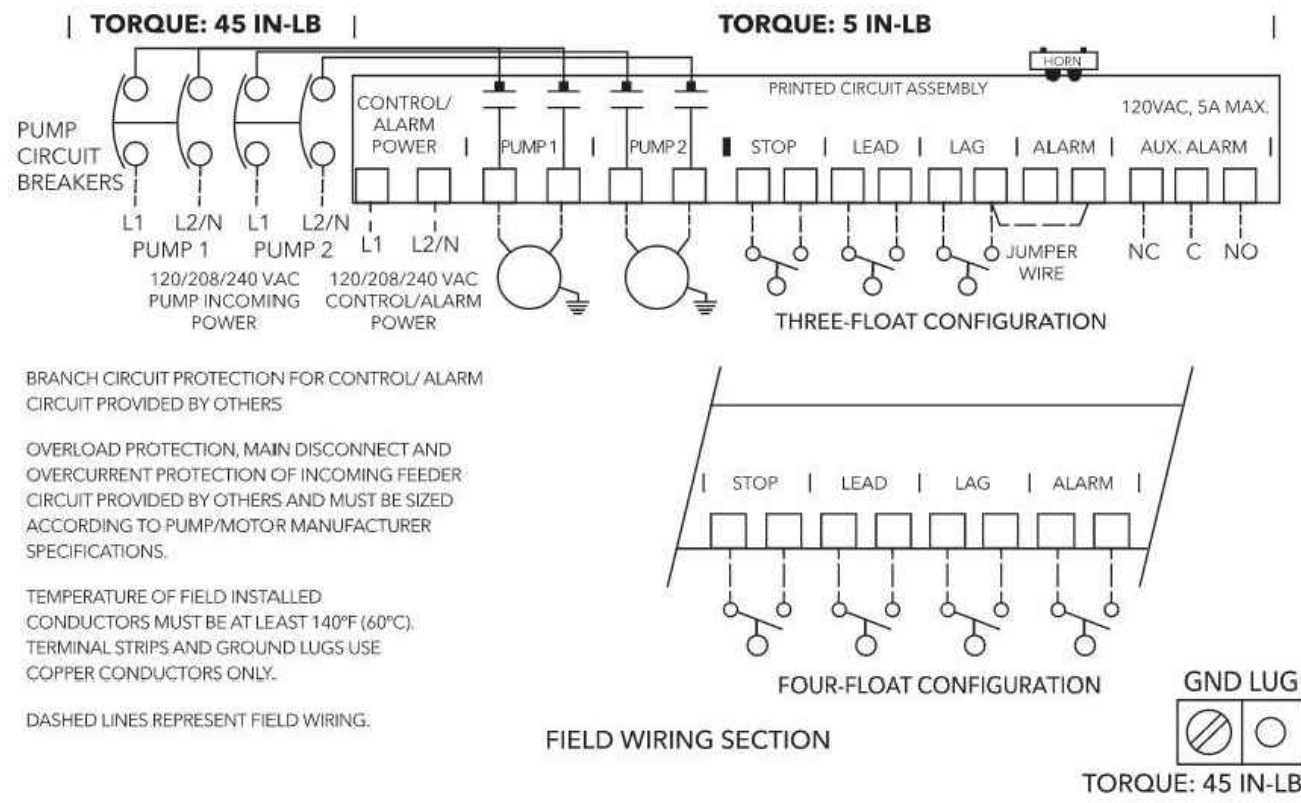
PAGE 3

Wastewater

CentriPro

DUPLEX SINGLE PHASE PANEL
KD19020WF

- Alternately controls two single phase wastewater pumps (20 amps maximum)
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 10" X 8" X 4" NEMA 4X Thermoplastic Enclosure
- Universal pump voltage and control/alarm power
- One panel handles 3 voltages (120/208/230V)
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device
- Integral mounting tabs
- Integral padlockable latch



PAGE 4

Wastewater

CentriPro

DUPLEX SINGLE PHASE PANEL
KD19020WF



COMPONENTS

- NEMA 4X outdoor rated enclosure
 - Red LED alarm beacon
 - HOA selector switch
 - Auxiliary alarm contacts
 - Green control/alarm power indicator
 - Red float status indicators (stop/lead/lag)
 - Field wiring terminal block
 - Ground lug
 - Integral padlockable latch
 - Integral mounting tabs
 - Pump circuit breakers
 - Control/alarm fuses
 - Spare fuse
 - Green pump run indicators
- Not Shown: Alarm piezo horn and test/silence push button

PAGE 5

Wastewater

CentriPro

SIMPLEX THREE PHASE PANEL

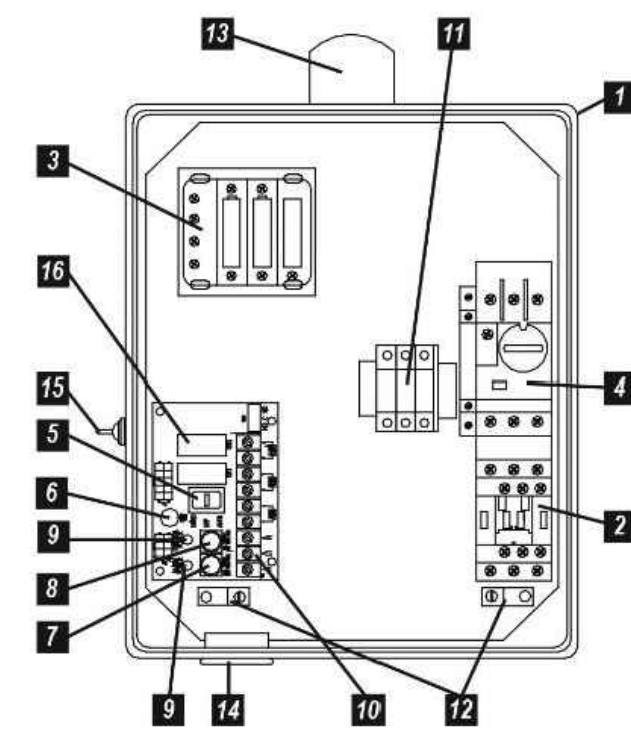
KS31255WF (1.25 – 5 AMPS) • KS34518WF (4.5 – 18 AMPS) • KS38032WF (8 – 32 AMPS)

- Controls one three phase wastewater pump
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 12" X 10" X 6" NEMA 4X Thermoplastic Enclosure with removable mounting feet
- Multi-Tap Transformer (208/230/460V primary) provides 120V control/alarm voltage
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device

PANEL COMPONENTS

- Enclosure measures 12 x 10 x 6 inches (30.48 x 25.40 x 15.24 cm). NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
- IEC Motor Contactor controls pump by switching electrical lines.
- Multi-Tap Transformer (208/240/480 VAC primary) provides 120V control/alarm voltage.
- Motor Protective Switch provides adjustable overload, branch circuit protection and pump disconnect.
- HOA Switch for manual pump control (mounted on circuit board)
- Green Pump Run Indicator Light mounted on circuit board
- Alarm Fuse (mounted on circuit board)
- Control Fuse (mounted on circuit board)
- Alarm and Control Power Indicators (mounted on circuit board)
- Float Switch Terminal Block (mounted on circuit board)
- Input Power Terminal Block
- Ground Lugs

NOTE: Schematic/Wiring Diagram is located inside the panel on enclosure cover.



STANDARD ALARM PACKAGE

- Red Alarm Beacon provides 360° visual check of alarm condition.
- Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating).
- Exterior Alarm Test/Normal/Silence Switch allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
- Horn Silence Relay (mounted on circuit board)

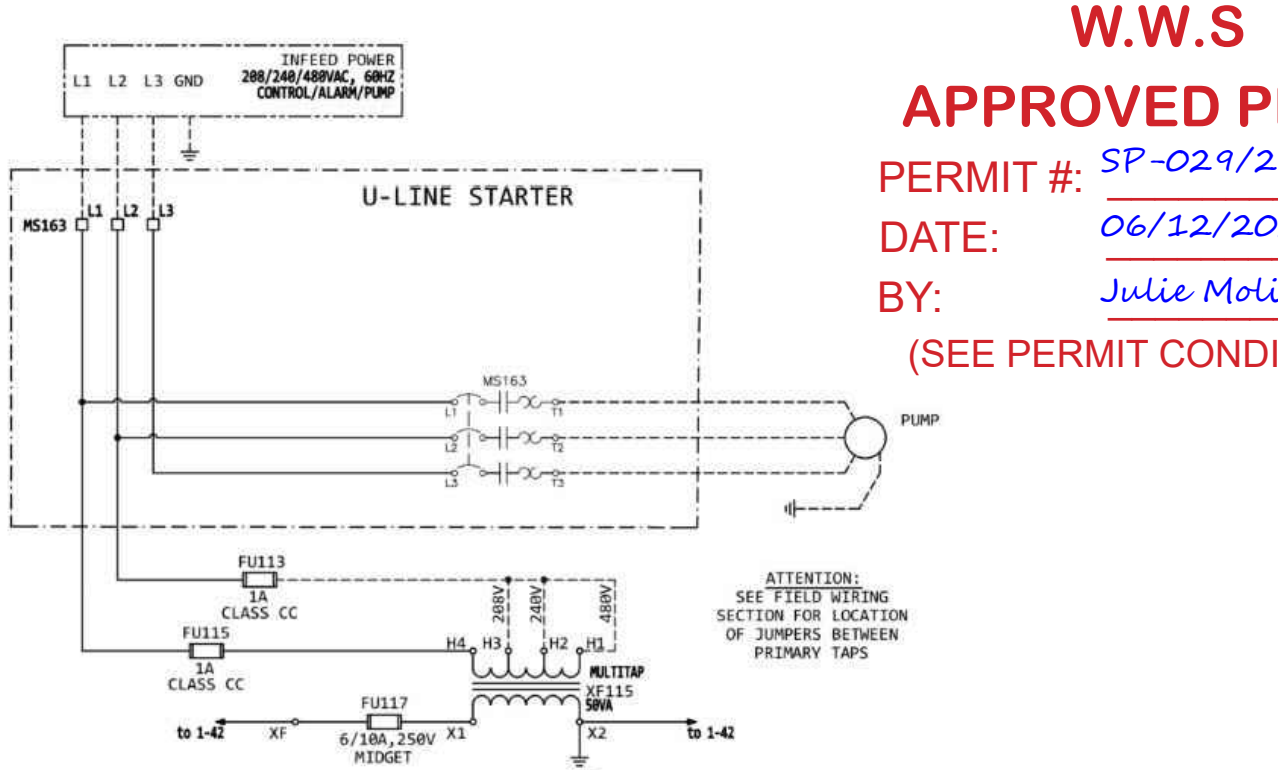
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Wastewater

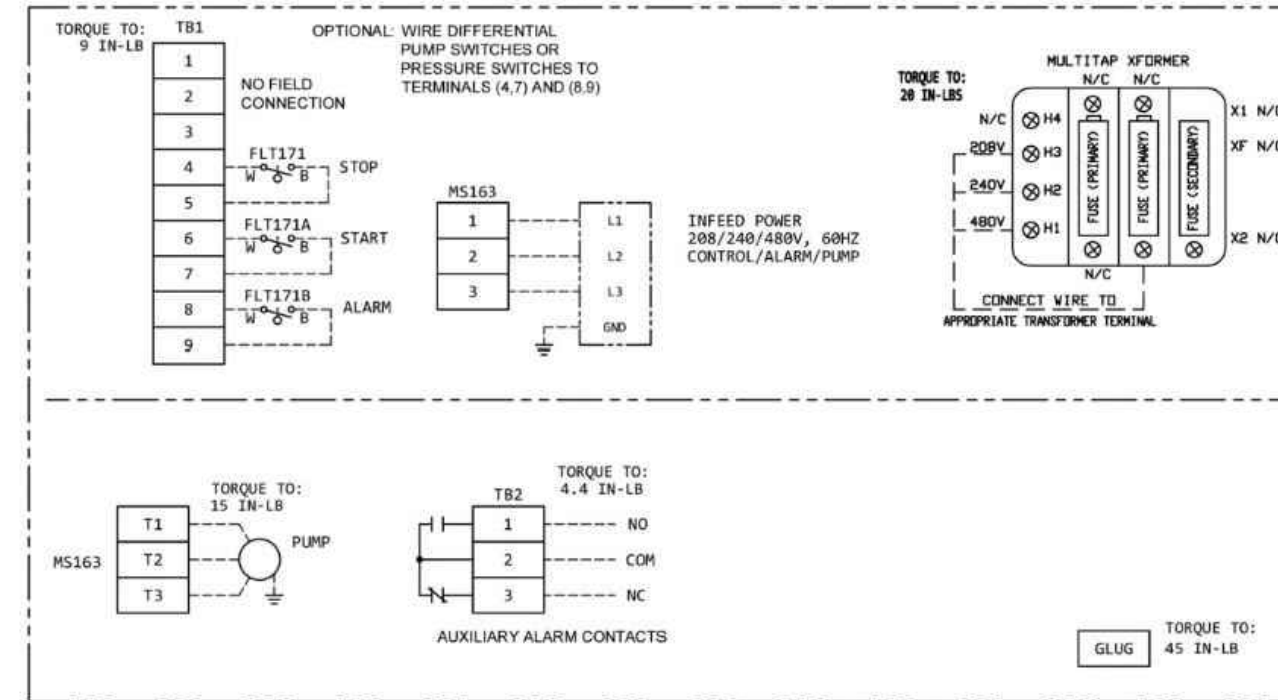
CentriPro

SIMPLEX THREE PHASE PANEL

KS31255WF (1.25 – 5 AMPS) • KS34518WF (4.5 – 18 AMPS) • KS38032WF (8 – 32 AMPS)



W.W.S
APPROVED PLANS
PERMIT #: SP-029/26
DATE: 06/12/2026
BY: Julie Molina
(SEE PERMIT CONDITIONS)



PAGE 7

Wastewater

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DUPLEX THREE PHASE PANEL

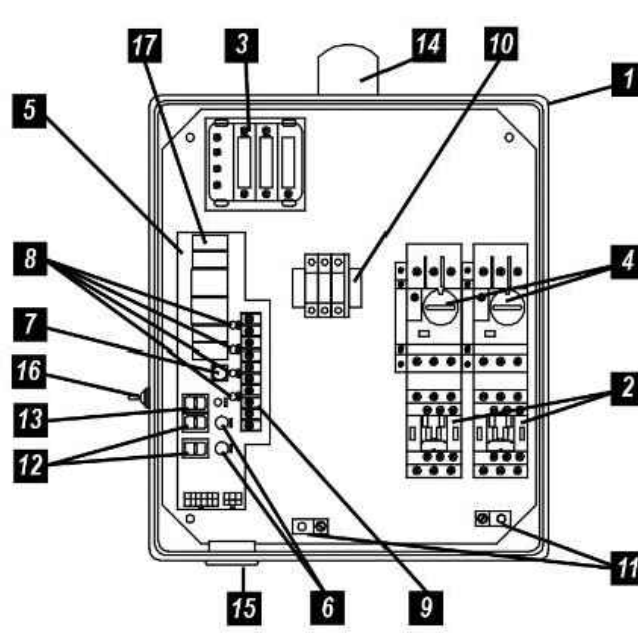
KD31255WF (1.25 – 5 AMPS) • KD34518WF (4.5 – 18 AMPS) • KD38032WF (8 – 32 AMPS)

- Alternately controls two (2), three phase wastewater pumps
- 3 Normally Open Floats Included (Off/On/High Level Alarm) 20' Cords
- 14" X 12" X 6" NEMA 4X Thermoplastic Enclosure with removable mounting feet
- Multi-Tap Transformer (208/230/460V primary) provides 120V control/alarm voltage
- Audible/visual high level alarm system with auxiliary alarm contacts, for signaling an external device

PANEL COMPONENTS

- Enclosure measures 14 x 12 x 6 inches (35.56 x 30.48 x 15.24 cm) NEMA 4X (ultraviolet stabilized thermoplastic with removable mounting feet for outdoor or indoor use).
- IEC Motor Contactor controls pumps by switching electrical lines.
- Multi-Tap Transformer (208/240/480 VAC primary) provides 120V control/alarm voltage.
- Motor Protective Switches provide adjustable overload, branch circuit protection and pump disconnect.
- Alternating Circuit Board provides pump control and alternation (U.S. Patent # 5,909,532).
- Green Pump Run Indicator Lights (mounted on circuit board)
- Alarm/Control Fuse (mounted on circuit board)
- Float Status Indicator Lights (mounted on circuit board)
- Float Switch Terminal Block (mounted on circuit board)
- Input Power Terminal Block
- Ground Lugs
- HOA Switches for manual pump control (mounted on circuit board)
- Control ON/OFF Switch (mounted on circuit board)

NOTE: Schematic/Wiring Diagram is located inside the panel on enclosure cover.



STANDARD ALARM PACKAGE

- Red Alarm Beacon provides 360° visual check of alarm condition.
- Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating).
- Exterior Alarm Test/Normal/Silence Switch allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
- Horn Silence Relay (mounted on circuit board)

PAGE 8

REVISIONS:

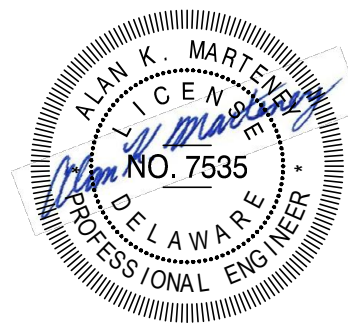
DATE: DESCRIPTION:

N. BAYSHORE DRIVE

DRAINAGE IMPROVEMENTS

CONSTRUCTION DETAILS

SEAL:



FEBRUARY 03, 2026

CIVIL ENGINEER



CEI CONTRACT NO.: 215015.00



DESIGNED BY:

EAM

DRAWN BY:

EAM

CHECKED BY:

AKM

DATE:

FEBRUARY 03, 2026

SCALE:

N.T.S

SHEET NO.:

C108

CONTRACT NO.:

215015.00

IMPACT ID (C101)	IMPACT ID (C111)	STATE JURISDICTION	IMPACT TYPE	ACTIVITY	IMPACT AREA LENGTH (FT)	IMPACT AREA WIDTH (FT)	IMPACT AREA DEPTH (FT)	IMPACT VOL (CU FT)	IMPACT AREA (SQ FT)	LOSS AREA (SQ FT)
EW1	1	WETLANDS	PERMANENT	STRUCTURE - ENDWALL OUTFALL	2.25	1.42	2.00	6.39	3.20	3.20
EW1	2	WETLANDS	TEMPORARY	PIPE INSTALLATION - TIMBER MATTING	13.45	12.03	-	-	161.80	-
P117	3	WETLANDS	PERMANENT	STRUCTURE - PIPE	5.00	1.00	1.00	5.00	5.00	5.00
P117	4	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	34.00	1.00	1.00	34.00	34.00	-
P115/MH100/P116/MH101/P117	5	WETLANDS	TEMPORARY	PIPE INSTALLATION - TIMBER MATTING	229.15	41.81	-	-	9580.76	-
P117	6	WETLANDS	PERMANENT	STRUCTURE - PIPE	4.00	1.00	1.00	4.00	4.00	4.00
MH101	7	WETLANDS	PERMANENT	MANHOLE	5.50	5.50	2.27	68.67	30.25	30.25
P116	8	WETLANDS	PERMANENT	STRUCTURE - PIPE	201.00	1.00	1.00	201.00	201.00	201.00
MH100	9	WETLANDS	PERMANENT	MANHOLE	2.50	4.00	8.31	83.10	10.00	10.00
P115	10	WETLANDS	PERMANENT	STRUCTURE - PIPE	210.75	1.00	1.00	210.75	210.75	210.75
P115	11	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	67.00	1.00	1.00	67.00	67.00	-
P115/P114	12	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	23.90	1.00	1.23	29.40	23.90	-
P114	13	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	46.00	1.00	1.00	46.00	46.00	-
P114/P113	14	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	10.34	1.00	1.27	13.13	10.34	-
P113	15	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	24.00	1.00	1.00	24.00	24.00	-
P113/P112	16	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	9.72	1.00	2.46	23.91	9.72	-
P112	17	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	38.00	1.00	1.00	38.00	38.00	-
P112/P111	18	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	26.51	1.00	1.57	41.62	26.51	-
P111	19	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	35.00	1.00	1.00	35.00	35.00	-
P111/P107	20	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	74.87	1.00	1.75	131.02	74.87	-
P107	21	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	23.00	1.00	1.00	23.00	23.00	-
P107/P106	22	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	14.65	1.00	1.26	18.46	14.65	-
P106	23	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	47.00	1.00	1.00	47.00	47.00	-
P106/P105	24	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	12.32	1.00	1.81	22.30	12.32	-
P105	25	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	39.00	1.00	1.00	39.00	39.00	-
P105/P104/P103	26	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	44.61	1.00	1.89	84.31	44.61	-
P103	27	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	28.00	1.00	1.00	28.00	28.00	-
P103/P102	28	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	38.93	1.00	1.64	63.85	38.93	-
P102	29	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	40.00	1.00	1.00	40.00	40.00	-
P102/P101	30	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	31.13	1.00	1.71	53.23	31.13	-
P101	31	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	34.00	1.00	1.00	34.00	34.00	-
P101/P100	32	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	36.69	1.00	1.63	59.80	36.69	-
P100	33	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	49.00	1.00	1.00	49.00	49.00	-
P100	34	SUBAQUEOUS	TEMPORARY	GRADING/SLOPING*	87.79	1.00	1.67	146.61	87.79	-
P113	35	SUBAQUEOUS	PERMANENT	GRASS ACCESS	11.00	1.00	0.50	5.50	11.00	-
P113/P112	36	SUBAQUEOUS	PERMANENT	DRIVEWAY REMOVAL	11.78	1.00	0.50	5.89	11.78	-
P112	37	SUBAQUEOUS	PERMANENT	GRAVEL	26.47	1.00	0.50	13.24	26.47	-
P112/P111	38	SUBAQUEOUS	PERMANENT	DRIVEWAY REMOVAL	13.94	1.00	0.50	6.97	13.94	-
P111	39	SUBAQUEOUS	PERMANENT	GRAVEL	22.21	1.00	0.50	11.11	22.21	-
P111/P110	40	SUBAQUEOUS	PERMANENT	DRIVEWAY REMOVAL	31.44	1.00	0.50	15.72	31.44	-
P107	41	SUBAQUEOUS	PERMANENT	GRASS ACCESS	11.24	1.00	0.50	5.62	11.24	-
P101	42	SUBAQUEOUS	PERMANENT	GRASS ACCESS	22.06	1.00	0.50	11.03	22.06	-
P110	43	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	17.00	1.00	1.00	17.00	17.00	-
P110	44	WETLANDS	PERMANENT	STRUCTURE - PIPE	8.00	1.00	1.00	8.00	8.00	8.00
P110/P109	45	WETLANDS	TEMPORARY	GRADING/SLOPING*	21.74	1.00	0.10	2.17	21.74	-
P109	46	WETLANDS	PERMANENT	STRUCTURE - PIPE	26.00	1.00	1.00	26.00	26.00	26.00
P109/P108	47	WETLANDS	TEMPORARY	GRADING/SLOPING*	15.70	1.00	0.55	8.64	15.70	-
P108	48	WETLANDS	PERMANENT	STRUCTURE - PIPE	27.00	1.00	1.00	27.00	27.00	27.00
P108	49	WETLANDS	TEMPORARY	GRADING/SLOPING*	38.84	1.00	0.10	3.88	38.84	-
P110/P109/P108	50	WETLANDS	TEMPORARY	PIPE INSTALLATION - TIMBER MATTING	144.55	18.66	-	-	2697.30	-
P104	51	SUBAQUEOUS	PERMANENT	STRUCTURE - PIPE	15.00	1.00	1.00	15.00	15.00	-
P104	52	WETLANDS	PERMANENT	STRUCTURE - PIPE	13.00	1.00	1.00	13.00	13.00	13.00
P104	53	WETLANDS	TEMPORARY	GRADING/SLOPING*	43.03	1.56	1.00	67.13	67.13	-
P104	54	WETLANDS	TEMPORARY	PIPE INSTALLATION - TIMBER MATTING	48.19	17.21	-	-	829.35	-
EW2	55	WETLANDS	PERMANENT	STRUCTURE - ENDWALL OUTFALL	2.50	1.83	2.23	10.20	4.58	4.58
EW2	56	WETLANDS	TEMPORARY	PIPE INSTALLATION - TIMBER MATTING	22.69	30.00	-	-	680.70	-
EW1	57	WETLANDS	PERMANENT	RIPRAP AT OUTFALL	4.00	4.00	1.17	18.72	16.00	16.0000
EW2	58	WETLANDS	PERMANENT	RIPRAP AT OUTFALL	4.00	4.00	1.17	18.72	16.00	16.0000
TOTAL PERMANENT WETLANDS IMPACTS (SQ FT)										574.77
TOTAL PERMANENT SUBAQUEOUS IMPACTS (SQ FT)										686.14
TOTAL TEMPORARY WETLANDS IMPACTS (SQ FT)										13949.92
TOTAL TEMPORARY SUBAQUEOUS IMPACTS (SQ FT)										411.46
TOTAL WETLANDS LOSS (SQ FT)										574.77

*GRADING/SLOPING BETWEEN PIPES, 1' WIDTH WITH 2:1/3:1 SIDE SLOPE; ALL MATERIAL INCORPORATED INTO SIDE SLOPES (SEE SHEET C104)

W.W.S
APPROVED PLANS
PERMIT #: SP-029/26
DATE: 06/12/2026
BY: Julie Molina
(SEE PERMIT CONDITIONS)

REVISIONS:

DATE: DESCRIPTION:

BY:

N. BAYSHORE DRIVE
DRAINAGE IMPROVEMENTS

ENVIRONMENTAL COMPLIANCE IMPACT TABLE

SEAL:



FEBRUARY 03, 2026

CIVIL ENGINEER:

CENTURY
ENGINEERING
A Kleinfelder Company

CEI CONTRACT NO.: 215015.00



DESIGNED BY:
EAM

DRAWN BY:
EAM

CHECKED BY:
AKM

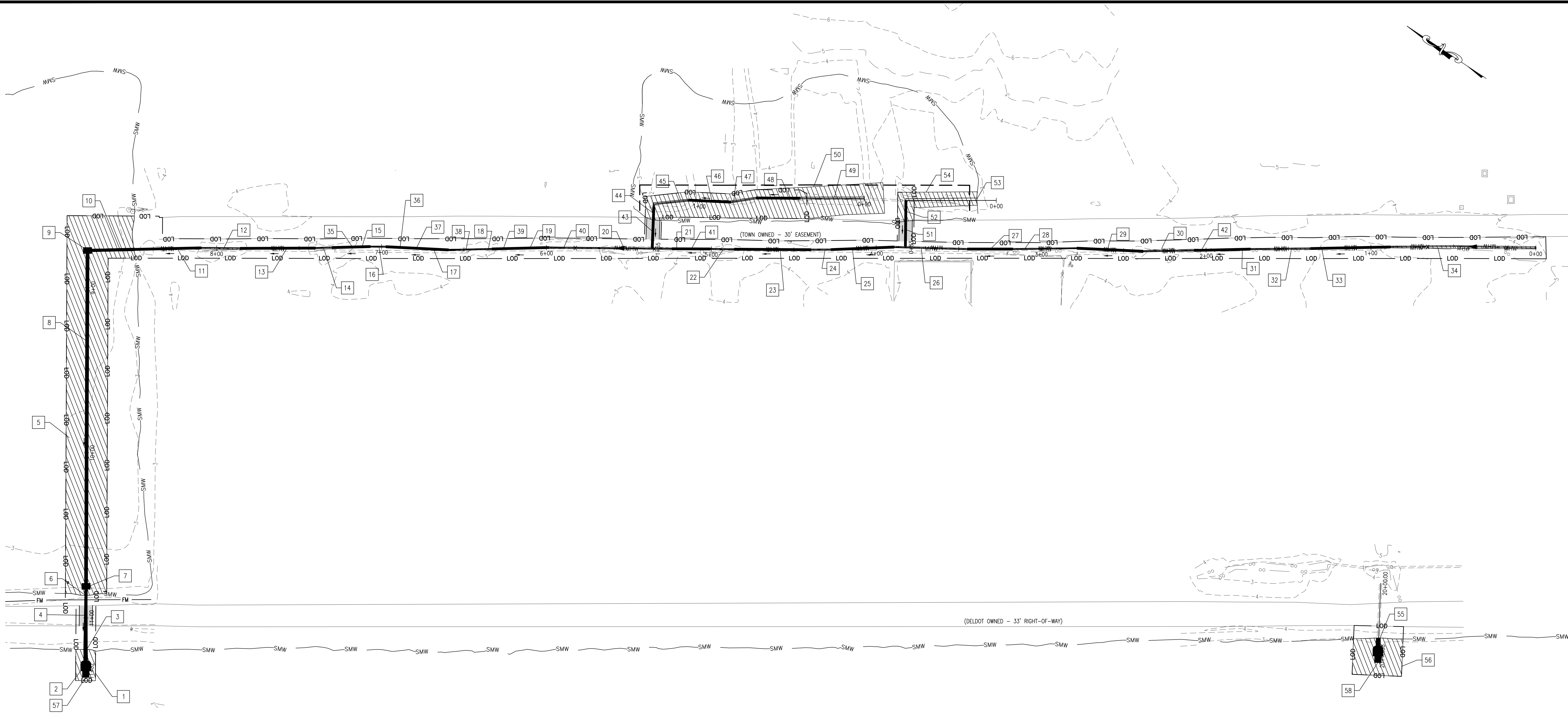
DATE:
FEBRUARY 03, 2026

SCALE:
N.T.S

SHEET NO.:
C110

CONTRACT NO.:
215015.00

U:\Team of Bowes\00215015.0004-Team of Bowes_Drainage_S\Final Delawarean\0200_RLES\Sheet\Construction Plans\0189_Environmental_Compliance_Plan.dwg, 2/2/2026 6:10 PM

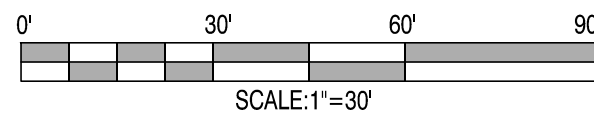


GENERAL NOTES:

1. TIME OF YEAR RESTRICTION FROM APRIL 1ST TO JULY 31ST FOR FEDERALLY AND STATE-LISTED SPECIES

LEGEND:

LIMIT OF DISTURBANCE	LOD	LOD
EXISTING SUBAQUEOUS, MEAN HIGH WATER (INSIGNIFICANT TIDAL INFLUENCE)	MHW	MHW
EXISTING STATE MAPPED WETLAND (INSIGNIFICANT TIDAL INFLUENCE, MHW = MLW)	SMW	
PERMANENT IMPACTS		
TEMPORARY IMPACTS		



W.W.S
APPROVED PLANS
PERMIT #: SP-029/26
DATE: 06/12/2026
BY: Julie Molina
(SEE PERMIT CONDITIONS)

REVISIONS:

DATE:	DESCRIPTION:	BY:

N. BAYSHORE DRIVE
DRAINAGE IMPROVEMENTS
ENVIRONMENTAL COMPLIANCE
FOR DNREC WSL

SEAL:



FEBRUARY 03, 2026

CIVIL ENGINEER:



CEI CONTRACT NO.: 215015.00



DESIGNED BY:

EAM

DRAWN BY:

EAM

CHECKED BY:

AKM

DATE:

FEBRUARY 03, 2026

SCALE:

1"=30'

SHEET NO.:

C111

CONTRACT NO.:

215015.00

SP-029.26

Final Audit Report

2026-06-12

Created:	2026-06-12
By:	Julie Molina (Julie.Molina@delaware.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAABGbTHuW5deFpXUBc2RjKrdcdpGrKdAu_

"SP-029.26" History

-  Document created by Julie Molina (Julie.Molina@delaware.gov)
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2026-06-12 - 3:31:13 PM GMT
-  Email viewed by Matthew Jones (Matthew.Jones@delaware.gov)
2026-06-12 - 3:34:52 PM GMT
-  Document e-signed by Matthew Jones (Matthew.Jones@delaware.gov)
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