LANDING ON THE COWLITZ STORMWATER OUTFALL



VICINITY MAP

LEGEND						
	— PERIMETER OF SITE					
	— CENTERLINE OF ROAD					
	FACE OF CURB					
	LOT LINE					
	EASEMENT LINE					
STM	STORM SEWER LINE					
STM	EXIST STORM SEWER					
SAN	SANITARY SEWER LINE					
SAN	EXIST SANITARY SEWER					
W	WATER SERVICE LINE					
w	EXIST WATER LINE					
123	GRADED CONTOUR LINE					
123	EXIST CONTOUR LINE					
	WATER SERVICE METER					
\otimes WATER VALVE AND BOX						
\bigcirc FIRE HYDRANT ASSEMBLY	GAS RISER					
⊖ CLEAN OUT						
CATCH BASIN						
A THRUST BLOCK						
	SIGN POST					

NW QTR, SECTION 14 TOWNSHIP T9N, RANGE R2W W.M.

PROJECT PARCEL # 6143802 # CR-BLA-24-01, PARCEL 3

OWNER

CT6, LLC SHANE TAPANI

PO BOX 1419 PO BOX 1419 BATTLE GROUND ,WA 98604 PHONE: 360-687-1148

DEVELOPER TAPANI, INC.

1705 SE 9TH AVE BATTLE GROUND, WA 98604 JEROME SARKINEN PHONE: 360-907-7615

PROJECT ENGINEER MacKay Sposito

18405 SE MILL PLAIN BLVD, SUITE 100 VANCOUVER, WA 98683 C (714)732-8563 O (360)823-1244 www.mackaysposito.com ENGINEER: TAYLOR WILSON, PE TWILSON@MACKAYSPOSITO.COM

VERTICAL DATUM

THE ELEVATIONS SHOWN ON THIS MAP ARE BASED ON AN OPUS SOLUTION AT CP 1 WITH A DERIVED NAVD88 ORTHOMETRIC ELEVATION OF 46.26 FEET.

HORIZONTAL DATUM

WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011)(EPOCH: 2010.0000), US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES. TO CONVERT TO GRID MULTIPLY BY THE COMBINED SCALE FACTOR OF 0.9999321353 ABOUT CP1



Sheet Titl COVER SHE NOTES EXISTING CONE EXISTING CONE EXISTING CONE GRADING AND EROSION STORMWATER LAY 48-INCH STORMWATER C 30-INCH STORMWATER C OUTFALL ENLAR DETAILS DETAILS

SITE MAP 1" = 100'

Sheet List Table

	Sheet				
	Number				
EET	C1.0				
	C1.1				
DITIONS	C2.0				
DITIONS	C2.1				
N CONTROL PLAN	C3.0				
YOUT PLAN	C4.0				
OUTFALL PROFILE	C5.0				
OUTFALL PROFILE	C5.1				
RGEMENT	C6.0				
S	C7.0				
S	C7.1				
S	C7.2				







2/12/2025

LANDING ON THE COWLITZ CASTLE ROCK, WASHINGTON

COVER SHEET STORMWATER OUTF

REVISIONS:	
JOB NO.:	1859
DATE:	2/12/202
SCALE: H: N/A	V: N/
DESIGNED BY:	PJN
DRAWN BY:	PJN
CHECKED BY:	TAV

FINAL

C1.0

GENERAL NOTES:

- 1. ALL WORK SHALL FOLLOW THE CITY OF CASTLE ROCK DEVELOPMENT POLICIES AND PUBLIC WORKS STANDARDS, AND CONDUCTED USING CURRENT WISHA/OSHA REGULATIONS.
- 2. ALL WORK WITHIN THE CITY ROW SHALL COMPLY WITH CITY REQUIREMENTS AS OUTLINED IN THE CITY OF CASTLE ROCK ENGINEERING STANDARDS, DEVELOPMENT POLICIES AND PUBLIC WORKS STANDARDS. THE PUBLIC WORKS DIRECTORS OFFICE MUST BE CONTACTED 24 HOURS BEFORE BACKFILLING TRENCHES OR REPAIRING PAVEMENT AT 360-274-7478.
- 3. TRENCH BACKFILL AND PAVEMENT RESTORATION SHALL BE PER CHAPTER 4, SECTION 4.17 TABLE 4.3

GENERAL STORMWATER NOTES:

- 1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT).
- 2. TEMPORARY EROSION/WATER POLLUTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH SECTION 1-07.15 OF THE STANDARD SPECIFICATIONS. JULY 2020 STORM DRAINAGE STANDARDS 5-3
- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL OTHER PERMITS AND OTHER REQUIREMENTS BY THE CITY OR OTHER GOVERNING AUTHORITY OR AGENCY AS MAY BE APPLICABLE.
- 4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE CITY PRIOR TO THE START OF CONSTRUCTION.
- 5. ALL STORM MAINS AND RETENTION/DETENTION AREAS SHALL BE STAKED FOR GRADE AND ALIGNMENT BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK, AND CURRENTLY LICENSED IN THE STATE OF WASHINGTON TO DO SO.
- 6. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN(S) AS REQUIRED IN ACCORDANCE WITH MUTCD. 7. CALL UNDERGROUND LOCATE LINE AT 811 A MINIMUM OF 72 HOURS PRIOR TO ANY
- EXCAVATIONS. 8. WHERE CONNECTIONS REQUIRE "FIELD VERIFICATIONS," CONNECTION POINTS WILL BE
- EXPOSED BY CONTRACTOR AND FITTINGS VERIFIED 48 HOURS PRIOR TO DISTRIBUTING SHUT-DOWN NOTICES.
- 9. PROPOSED CPP STORM DRAIN PIPE SHALL CONFORM WITH WSDOT STANDARDS FOR CORRUGATED POLYETHYLENE PIPE (PER CITY OF CASTLE ROCK ENGINEERING STANDARDS).

EROSION CONTROL NOTES:

- 1. THE CONTRACTOR SHALL ENSURE THAT ALL EROSION CONTROL MEASURES ARE INTACT AND IN WORKING CONDITION PRIOR TO COMMENCEMENT OF DRAINAGE FACILITY CONSTRUCTION.
- 2. A HIGH-VISIBILITY FENCE SHALL BE INSTALLED AND COMPOSED OF A HIGH-DENSITY POLYETHYLENE MATERIAL AND SHALL BE AT LEAST FOUR FEET IN HEIGHT. POSTS FOR THE FENCING SHALL BE STEEL OR WOOD AND PLACED EVERY 6 FEET ON CENTER (MAXIMUM) OR AS NEEDED TO ENSURE RIGIDITY. THE FENCING SHALL BE FASTENED TO THE POST EVERY SIX INCHES WITH A POLYETHYLENE TIE. ON LONG CONTINUOUS LENGTHS OF FENCING, A TENSION WIRE OR ROPE SHALL BE USED AS A TOP STRINGER TO PREVENT SAGGING BETWEEN POSTS. THE FENCE COLOR SHALL BE HIGH-VISIBILITY ORANGE. THE FENCE TENSILE STRENGTH SHALL BE 360 LBS/FT USING THE ASTM D4595 TESTING METHOD. IF APPROPRIATE INSTALL FABRIC SILT FENCE IN ACCORDANCE WITH BMP C233: SILT FENCE TO ACT AS HIGH-VISIBILITY FENCE. SILT FENCE SHALL BE AT LEAST 3 FEET HIGH AND MUST BE HIGHLY VISIBLE TO MEET THE REQUIREMENTS OF THIS BMP. METAL FENCES SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. METAL FENCES SHALL BE AT LEAST 3 FEET HIGH AND MUST BE HIGHLY VISIBLE. FENCES SHALL NOT BE WIRED OR STAPLED TO
- TREES. IF THE FENCE HAS BEEN DAMAGED OR VISIBILITY REDUCED, IT SHALL BE REPAIRED OR REPLACED IMMEDIATELY AND VISIBILITY RESTORED. 3. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE
- AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES). 4. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE,
- REPLACEMENT, AND UPGRADING OF THESE ESC BMPS IS THE RESPONSIBILITY OF THE APPLICANT UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
- 5. CLEARLY FLAG THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT FOR THE DURATION OF CONSTRUCTION.
- 6. CONSTRUCT THE ESC BMPS SHOWN ON THIS PLAN IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAIN-AGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
- 7. THE ESC BMPS SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE ESC BMPS AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
- 8. THE APPLICANT SHALL INSPECT THE ESC BMPS DAILY AND MAINTAIN THEM AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. INSPECT AND MAINTAIN THE ESC BMPS ON INACTIVE SITES A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT (I.E. A 24-HOUR STORM EVENT WITH A 10-YR OR GREATER RECURRENCE INTERVAL).
- 9. AT NO TIME SHALL THE SEDIMENT EXCEED 60-PERCENT OF THE SUMP DEPTH OR HAVE LESS THAN 6-INCHES OF CLEARANCE FROM THE SEDIMENT SURFACE TO THE INVERT OF THE LOWEST PIPE. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- 10. INSTALL STABILIZED CONSTRUCTION ENTRANCES AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

SPECIFICATION TT-CMUF-SL

PART 1: GENERAL

1.01 SUBMITTALS

A. SUBMIT PRODUCT LITERATURE THAT INCLUDES INFORMATION ON THE PERFORMANCE AND OPERATION OF THE VALVE, MATERIALS OF CONSTRUCTION, DIMENSIONS AND WEIGHTS, ELASTOMER CHARACTERISTICS, HEADLOSS, FLOW DATA AND PRESSURE RATINGS.

B. UPON REQUEST, PROVIDE SHOP DRAWINGS THAT CLEARLY IDENTIFY THE VALVE MATERIALS OF CONSTRUCTION AND DIMENSIONS.

1.02 QUALITY ASSURANCE

A. SUPPLIER SHALL HAVE AT LEAST TWELVE (12) YEARS EXPERIENCE IN THE DESIGN AND MANUFACTURE OF "CHECKMATE™" STYLE ELASTOMERIC CHECK VALVES.

B. MANUFACTURER SHALL HAVE DESIGNED, FABRICATED AND HAVE AT LEAST FIVE (5) CURRENT INSTALLATION OF A "CHECKMATE" STYLE ELASTOMERIC CHECK VALVES IN THE 72" (1800MM) SIZE. MANUFACTURER MUST PROVIDE DOCUMENTATION, INCLUDING PROJECT NAME, LOCATION, AND REFERENCES.

C. MANUFACTURER SHALL HAVE CONDUCTED INDEPENDENT HYDRAULIC TESTING TO DETERMINE HEADLOSS, JET VELOCITY AND VERTICAL OPENING HEIGHT CHARACTERISTICS ON A MINIMUM OF THREE (3) SIZES OF CHECKMATE VALVES RANGING FROM 6" (150MM) THROUGH 24" (600MM). THE TESTING MUST HAVE BEEN CONDUCTED FOR FREE DISCHARGE (PRESSURIZED AND OPEN CHANNEL FLOW DISCHARGING TO ATMOSPHERE) AND SUBMERGED CONDITIONS.

PART 2: PRODUCTS

- FACE OF THE STRUCTURE OR END OF THE PIPE.
- REDUCE HEADLOSS.
- THE BILL.

- - 2.02 FUNCTION

2.03 MANUFACTURER

- PART 3: EXECUTION
- 3.01 INSTALLATION
- 3.02 MANUFACTURER'S CUSTOMER SERVICE

CHECKMATE ULTRAFLEX SLIP-IN INLINE CHECK VALVES

2.01 CHECKMATE ULTRAFLEX ELASTOMERIC CHECK VALVES

A. CHECK VALVES ARE TO BE ALL RUBBER AND THE FLOW OPERATED CHECK TYPE WITH SLIP-IN CUFF CONNECTION. THE ENTIRE CHECKMATE ULTRAFLEX VALVE SHALL BE PLY REINFORCED THROUGHOUT THE BODY, SADDLE AND BILL, WHICH IS CURED AND VULCANIZED INTO A ONE-PIECE UNIBODY CONSTRUCTION. A SEPARATE VALVE BODY OR PIPE USED AS THE HOUSING IS NOT ACCEPTABLE. THE VALVE SHALL BE MANUFACTURED WITH NO METAL, MECHANICAL HINGES OR FASTENERS, WHICH WOULD BE USED TO SECURE ANY COMPONENT OF THE VALVE TO A VALVE HOUSING. THE PORT AREA OF THE SADDLE SHALL CONTOUR INTO A CIRCUMFERENTIAL SEALING AREA (THE "BILL") THAT IS CONCENTRIC WITH THE PIPE WHICH SHALL ALLOW PASSAGE OF FLOW IN ONE DIRECTION WHILE PREVENTING REVERSE FLOW. THE ENTIRE VALVE SHALL FIT WITHIN THE PIPE INSIDE DIAMETER. THE SADDLE AREA OF THE VALVE MUST BE FLAT, NOT CONICAL, AND INTEGRAL WITH THE RUBBER BODY ABOVE CENTERLINE IN ORDER TO NOT PRODUCE ANY AREAS OR VOIDS THAT CAN COLLECT OR TRAP DEBRIS. THE VALVE MUST BE EASILY INSTALLED IN PIPES WITH POOR END CONDITION WITHOUT THE NEED TO MODIFY OR UTILIZE THE HEADWALL OR STRUCTURE TO SEAL AND ANCHOR THE VALVE. ONCE INSTALLED, THE CHECKMATE ULTRAFLEX VALVE SHALL NOT PROTRUDE BEYOND THE

B. THE CHECKMATE ULTRAFLEX VALVE SHALL INCORPORATE MULTIPLE CONCAVE GROOVES MOLDED INTEGRALLY INTO THE FLAT SADDLE WALL THICKNESS EXTENDING LONGITUDINALLY A MINIMUM OF 80% OF THE LENGTH OF THE SADDLE TO REDUCE OPENING RESISTANCE AND

C. THE CHECKMATE ULTRAFLEX VALVE SHALL INCORPORATE A CUSTOM SHAPED NOTCH IN THE END OF THE BILL TO REDUCE CRACKING PRESSURE. THE NOTCH SHALL BE AT THE INVERT/BOTTOM OF THE BILL AND SYMMETRICAL ABOUT THE VALVE CENTERLINE. THE LONGITUDINAL LENGTH OF THE NOTCH SHALL BE NO GREATER THAN HALF THE LENGTH OF

D. THE OUTSIDE DIAMETER OF THE UPSTREAM AND DOWNSTREAM SECTIONS OF THE VALVE MUST BE CIRCUMFERENTIALLY IN CONTACT WITH THE INSIDE DIAMETER OF THE PIPE.

E. SLIP-IN STYLE CHECKMATE ULTRAFLEX VALVES WILL BE FURNISHED WITH A SET OF STAINLESS STEEL EXPANSION CLAMPS. THE CLAMPS, WHICH WILL SECURE THE VALVE IN PLACE, SHALL BE INSTALLED IN THE UPSTREAM OR DOWNSTREAM CUFF OF THE VALVE, DEPENDING ON INSTALLATION ORIENTATION, AND SHALL EXPAND OUTWARDS BY MEANS OF A TURNBUCKLE. EACH BAND SHALL BE PRE-DRILLED ALLOWING FOR THE VALVE TO BE PINNED AND SECURED INTO POSITION IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

F. MANUFACTURER MUST HAVE FLOW TEST DATA FROM AN ACCREDITED HYDRAULICS LABORATORY TO CONFIRM PRESSURE DROP AND HYDRAULIC DATA.

E. COMPANY NAME, PLANT LOCATION, VALVE SIZE PATENT NUMBER, AND SERIAL NUMBER SHALL BE BONDED TO THE CHECK VALVE.

A. WHEN LINE PRESSURE EXCEEDS THE BACKPRESSURE, THE LINE PRESSURE FORCES THE BILL AND SADDLE OF THE VALVE OPEN, ALLOWING FLOW TO PASS. WHEN THE BACKPRESSURE EXCEEDS THE LINE PRESSURE, OR IN THE ABSENCE OF ANY UPSTREAM OR DOWNSTREAM PRESSURE, THE BILL AND SADDLE OF THE VALVE IS FORCED CLOSED, PREVENTING BACKFLOW.

A. ALL VALVES SHALL BE SERIES CMUF-SL SLIP-IN CHECKMATE ULTRAFLEX VALVES AS MANUFACTURED BY TIDEFLEX TECHNOLOGIES, A DIVISION OF RED VALVE COMPANY, CARNEGIE, PA 15106. ALL VALVES SHALL BE MANUFACTURED IN THE U.S.A.

A. VALVE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTALLATION AND OPERATION MANUAL AND APPROVED SUBMITTALS.

A. MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL BE AVAILABLE FOR CUSTOMER SERVICE DURING INSTALLATION AND START-UP, AND TO TRAIN PERSONNEL IN THE OPERATION, MAINTENANCE AND TROUBLESHOOTING OF THE VALVE.

B. IF SPECIFIED, THE MANUFACTURER SHALL ALSO MAKE CUSTOMER SERVICE AVAILABLE DIRECTLY FROM THE FACTORY IN ADDITION TO AUTHORIZED REPRESENTATIVES FOR ASSISTANCE DURING INSTALLATION AND START-UP, AND TO TRAIN PERSONNEL IN THE PERATION, MAINTENANCE AND TROUBLESHOOTING OF THE VALVE.



FINAL



_	100	200
	SCALE: 1" = 100'	

SURVEY NOTES:

- 1. THE BOUNDARY AND THE SUBSEQUENT MATHEMATICAL SOLUTIONS USED IN THE ADJUSTED LEGAL DESCRIPTIONS HEREON ARE BASED ON BOUNDARY LINE ADJUSTMENT SURVEY RECORDED UNDER AUDITOR'S FILE NUMBER 3597924 IN CONJUNCTION WITH RECORD OF SURVEY BY MACKAY SPOSITIO, RECORDED UNDER AUDITOR'S FILE NUMBER 3732400.
- EXISTING CONTOURS SHOWN ARE BASED ON FINAL PROPOSED CONDITIONS OF REVISED MASS GRADING PLANS. MASS GRADING WORK SHALL BE COMPLETED PRIOR TO CONSTRUCTION KICKOFF OF ROADWAY.

G ON THE COWLITZ ROCK, WASHINGTON

LANDIN(CASTLE

6

2/12/2025

ING CONDITIONS **EXISTIN** STORMV

REVISIONS: JOB NO.: 18591 DATE: 2/12/2025 SCALE: H: 1"= 100' V: N/A

FINAL

PJM

PJM

TAW

DESIGNED BY:

DRAWN BY:

CHECKED BY:





HORIZONTAL DATUM

WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011)(EPOCH: 2010.0), US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES. TO CONVERT DISTANCES TO GRID, MULTIPLY BY COMBINED SCALE FACTOR OF 1.00006786 AS SHOWN ON (SR2) ROS V44 P35-36.

VERTICAL DATUM

THE ELEVATIONS SHOWN ON THIS MAP ARE BASED ON AN OPUS SOLUTION AT CP 1 WITH A DERIVED NAVD88 ORTHOMETRIC ELEVATION OF 46.26 FEET.

BASIS OF BEARINGS

BEARINGS ARE BASED ON THE CENTERLINE OF HUNTINGTON AVENUE SOUTH, BEING SOUTH 51°49'47" EAST AS SHOWN ON (SR2) ROS V44 P35-36.

SURVEY NOTES:

- 1. THE BOUNDARY AND THE SUBSEQUENT MATHEMATICAL SOLUTIONS USED IN THE ADJUSTED LEGAL DESCRIPTIONS HEREON ARE BASED ON BOUNDARY LINE ADJUSTMENT SURVEY RECORDED UNDER AUDITOR'S FILE NUMBER 3597924 IN CONJUNCTION WITH RECORD OF SURVEY BY MACKAY SPOSITIO, RECORDED UNDER AUDITOR'S FILE NUMBER 3732400.
- 2. EXISTING CONTOURS SHOWN ARE BASED ON FINAL PROPOSED CONDITIONS OF REVISED MASS GRADING PLANS. MASS GRADING WORK SHALL BE COMPLETED PRIOR TO CONSTRUCTION KICKOFF OF ROADWAY.

ORDINARY HIGH WATER LINE PER ECOLOGICAL LAND SERVICES

MacKay Sposito



2/12/2025

LANDING ON THE COWLITZ CASTLE ROCK, WASHINGTON

EXISTING CONDITIONS STORMWATER OUTFALL

REVISIONS:	
_	
JOB NO.:	18591
DATE: 2	/12/2025
SCALE: H: 1"= 100'	V: N/A
DESIGNED BY:	PJM
DRAWN BY:	PJM
CHECKED BY:	TAW

FINAL

C2.1









STORM DRAINAGE CONSTRUCTION NOTES:

- 1. THE 30" OUTFALL PIPING SYSTEM IS DEDICATED TO OFFSITE FLOWS THAT ARE CURRENTLY CONTRIBUTING TO THE ONSITE DRAINAGE DITCH. FOR MORE INFORMATION ON THE OPERATING PROCEDURE DURING FLOOD CONDITIONS, SEE DETAIL 7 ON SHEET C7.0.
- 2. THE 48" OUTFALL PIPING SYSTEM IS DEDICATED TO ONSITE DEVELOPMENT FLOWS.
- ALL PIPING TO BE INSTALLED PER DETAIL 2, SHEET C7.1
 96" STORM MANHOLE TO BE CONSTRUCTED PER DETAILS
- 1 AND 2, SHEET C7.0.
 5. 48" STANDARD STORM MANHOLE TO BE CONSTRUCTED
- PER DETAILS 4, 5, AND 7, SHEET C7.0.60" SUMP STORM MANHOLE TO BE CONSTRUCTED PER
- DETAILS 3 AND 5, SHEET C7.0. 7. HEADWALL STRUCTURES TO BE CONSTRUCTED PER
- DETAIL 1, SHEET C7.1. 8. TIDEFLEX INLINE CHECK VALVES (SIZE PER PLAN) TO BE
- CONSTRUCTED PER DETAIL 2, SHEET C7.2.
 9. INSERTA TEE PIPE CONNECTION TO BE CONSTRUCTED PER DETAIL 6, SHEET C7.0.
- 10. SLUICE GATE IN MH 2 TO BE INSTALLED PER DETAIL 3 ON SHEET C7.0 AND DETAIL 1 ON SHEET C7.2



2/12/2025

LANDING ON THE COWLITZ CASTLE ROCK, WASHINGTON STORMWATER LAYOUT PLAN STORMWATER OUTFALL

REVISIONS:	
OB NO.:	18591
DATE:	2/12/2025
SCALE: H: 1"= 20'	V: N/A
DESIGNED BY:	PJM
DRAWN BY:	PJM
CHECKED BY:	TAW

FINAL

C4.0

W-18591 LOTC Phase 11500 Design[502 Drawings|Sheets|18591 - Outfall(C4.0 PLAN AND PROFILE dwg PLOTSTYLE: Cov



48-INCH STORMWATER OUTFALL PROFILE

LANDING ON THE COWLITZ CASTLE ROCK, WASHINGTON 48-INCH STORMWATER OUTFALL PROFILE STORMWATER OUTFALL

REVISIONS:	
JOB NO.:	18591
DATE:	2/12/2025
SCALE: H: N/A	V: N/A
DESIGNED BY:	PJN
DRAWN BY:	PJN
CHECKED BY:	TAW

FINAL

C5.0

W118591 LOTC Phase 11500 Design[502 Drawings|Sheets|18591 - Outfall(C4.0 PLAN AND PROFILE dwg PLOTSTYLE: Cov



30-INCH STORMWATER OUTFALL PROFILE



C5.1

Sposito

FINAL

C7.1

TIDEFLEX INLINE CHECK VALVE (continued) 2 NO SCALE

NOTE: SEE MANUFACTURER'S STANDARD SPECIFICAITONS ON SHEET C1.1.

Dressure Define

Pressure ka	ting
Gate Size:	
6"-24"	
30"-36"	
42"-48"	9
54"-60"	6

Installation

The Series 6600 Slide Gate is normally installed on corrugated steel pipe or bolted to a concrete head wall. When attaching to corrugated pipe, you may either bolt directly to the spigot back seat, or use a rod and harness assembly.

Options

- Frame angles available painted, galvanized or Stainless Steel.
- Cast Iron or Bronze seating faces.
- Stainless Steel stem and fasteners.
- Flat back for headwall or flange mounting.
- Spigot back for mounting to corrugated pipe.
- Square bottom slide in select sizes.
- Rising stem and non-projecting stem extensions.
- Tapered setting collars for concrete pipe installations.

Dimensions (Inches)						And	chor Bolt L	Jata		Lift Data			
)	Е	F	G	Н	J	к	Qty.	Size	Qty.	Lift Type	H/Wheel Dia.	Stem Dia.	
88	3.88	2.25	6.75	1.50	4.00	2.50	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	3.88	2.25	8.75	1.50	5.00	4.00	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	3.88	2.25	10.75	1.50	6.00	4.00	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	3.88	2.25	13.25	1.50	7.00	4.00	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	3.88	2.25	15.25	1.50	8.00	4.00	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	3.88	2.25	16.25	1.50	8.50	4.00	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	3.88	2.25	17.25	1.50	9.00	4.00	4.0	1/2 x 12	4.00	H1	10.0	7/8	
88	4.88	2.88	19.25	1.50	10.50	7.00	4.0	5/8 x 12	4.50	H1	14.0	1-1/8	
88	4.88	2.88	21.25	1.50	11.50	7.00	4.0	5/8 x 12	4.50	H1	14.0	1-1/8	
88	4.88	2.88	22.25	1.50	12.00	7.00	4.0	5/8 x 12	4.50	H1	14.0	1-1/8	
88	4.88	2.88	25.25	1.50	13.50	7.00	4.0	5/8 x 12	4.50	H1	14.0	1-1/8	
88	5.88	3.75	31.25	2.00	16.88	12.00	4.0	3/4 x 12	5.25	H1	14.0	1-1/8	
50	6.50	3.75	37.25	2.00	19.88	12.00	4.0	3/4 x 12	5.25	H2	24.0	1-1/2	Ē
50	6.88	4.12	43.38	2.00	22.88	16.00	6.0	3/4 x 12	5.50	H2	24.0	1-1/2	
12	6.88	4.12	49.38	2.00	25.88	16.00	6.0	3/4 x 12	5.50	H2B	24.0	1-1/2	
12	7.75	4.62	55.38	2.00	29.25	18.00	6.0	1 x 12	5.50	H2B	30.0	2.00	
_													

Fresno Valves & Castings, Inc. 7736 East Springfield Avenue P.O. Box 40, Selma, CA 93662, U.S.A. (800) 333-1658 www.fresnovalves.com

CheckMate® Installation Procedure

*Clamps are installed in the upstream or downstream cuff, depending upon the application. The illustration above is shown clamped upstream.

CHECKMATE[®] INSTALLATION

1. Product Shipping

Valve sizes 3" - 18" are furnished with one clamp. Valves 20" - 60" ship Check the inside diameter (I.D.) of the pipe section for rough or damwith two clamps. 72" valves ship with three clamps.

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.

3. Inspection of Pipe I.D.

aged areas. The inside surface should be uniform and relatively smooth. Long gouges or cracks in the pipe may allow water to pass and should NOTE: A clamp is installed on each end of the valve to keep the valve's be filled prior to installation. Do not attempt to install a CheckMate® in a smaller pipe I.D.

4. Pipe I.D. Measurements

The pipe I.D. is to be checked in the field. It should be a consistent diameter for the length of valve and should not be out of round. When there is a +/- tolerance on the pipe I.D., the CheckMate® Valve should be ordered to the smallest pipe I.D.. Then, rubber adhesive strip can be applied to both CheckMate[®] cuffs to build the cuff O.D. up to the actual pipe I.D. See procudure in #5.

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

13. Flanged Valve Bolt Torques

TIDEFLEX INLINE CHECK VALVE

NOTE: SEE MANUFACTURER'S STANDARD SPECIFICAITONS ON SHEET C1.1.

For smooth wall pipe, it is recommended that the valve be pinned.

12. Corrugated Pipe and Smooth Wall (PVC, HDPE)

Pipe Installation

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

_				ISIONS								
	OVE	ERALL IGTH*	NUMBER OF	CUFF DEPTH		ER DEPTH		VUMBER CUFF BACK PRESSURE		RESSURE NG**	WEIGHT***	
3	Inches	Millimeters	CLAMPS	Inches	Millimeters	Feet	Meters	lbs	Kg			
	5.1 7.9	130 201	1 1	1.5 1.5	38 38	10 10	3.0 3.0	0.7 1.5	0.3 0.7			
	7.9 9.5 11.0 12.8 15.2 15.4 16.1 19.8 25.8 25.8 28.6 31.0 42.1 47.5 50.0	201 241 279 325 386 391 409 503 655 655 726 787 1069 1207 1270	1 1 1 1 1 1 1 2 2 2	1.5 1.5 2.0 2.0 2.0 2.0 2.0 4.0 4.0 4.0 4.0 8.0 8.0	38 38 51 51 51 51 51 102 102 102 203 203 203	85 83 79 79 75 71 68 64 62 60 56 53 45	26.0 25.3 24.1 22.9 21.6 20.1 20.0 18.9 18.3 17.1 16.2 13.7 12.8	3 4 9 11 13 17 20 37 110 120 133 143 223 304	1.5 2 4 5 6 8 10 17 50 55 52 65 102 137 168			
	50.0 52.0	1321	2	8.0	203	42	12.0	434	100			
4	54.9	1395	2	8.0	203	38	11.6	500	227			
ł	62.3	1582	2	8.0	203	30	9.1	828	3/6			
+	70.0	2007	2	<u>8.0</u>	203	28	0.5 7.0	1423	040 917			
	86.4	2107	2	8.0	203	20	1. 9 61	2700	1225			
	96.8	2459	2	9.0	203	18	5.5	3315	1504			
	119.0	3023	3	12.0	305	15	4.6	6100	2767			

Higher back pressure ratings available. Consult factory. ***Weights are approximate and do not include crating.

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.

RECOMMENDED MINIMUM BOLT TORQUE 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 retorque 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 retorque the flange bolts several times for a proper seal. This will overcome any leaks due to the cold flow of the rubber sleeve flange.

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 STEP D: Lubricate the valve and rubber adhesive strip surface. Slide ensure uniformity of the CheckMate's[®] O.D. is consistent and matches valve into pipe. Ensure the area marked TOP is in the 12:00 position. the pipe I.D.

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 E: Check O.D. of the valve to ensure it fits snugly into the I.D. of **STEP F:** Once in place, tighten the clamp to secure it against the pipe and compress the rubber ahesive strip.

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

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.

The clamps should be checked for proper tension, and be sure that the inside of the valve is free of debris. Soft marine growth is normal on valves in submerged applications. Because hard marine growth such as barnacles will not bond well to the CheckMate^{®,} they can be easily removed. Also insert pins to ensure they are tight.

STORAGE

If your CheckMate[®], is to be stored for a period of time prior to installation, the following storage guidelines will help to preserve the valve and assure a trouble-free installation:

- Store in a clean, cool, dry location. Avoid exposure to light, electric mo-
- tors, dirt, or chemicals.
- 2. Store valve vertically on floor or pallet. 3. Store valve to prevent other items from contacting check sleeve to
- prevent possible damage. Store this manual with the valve, so that it is readily available at time of installation.

TROUBLESHOOTING GUIDE

Sleeve Inverted or Distorted 1. Excessive back pressure, water surge, or water

- hammer
- Leaking Around Perimeter of Valve 1. Tighten clamp.
- 2. Check for cracks and holes in surface of pipe. 3. If taped, check tape to ensure the pipe I.D. has been fully sealed

Backflow 1. Debris lodged inside bill.

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N THE COWLITZ WASHINGTON OCK, ന് ട് LANDIN CASTLE

UTFA SO ETAIL: ATER $\Box \ge$ ORM ST

REVISIONS:	
JOB NO.:	18591
DATE:	2/12/2025
SCALE: H: N/A	V: N/A
DESIGNED BY:	PJM
DRAWN BY:	PJM
CHECKED BY:	TAW

FINAL