Stockton East Water District

PROVIDING SERVICE SINCE 1948

CIVIL STANDARD DETAILS INDEX

Detail No.	Description
CSD-01.0	Trench Details Standard Notes
CSD-01.1	Trench Details for Reinforced Concrete and Steel Cylinder Pipe
CSD-01.2	Trench Details for PVC and Steel Pipe
CSD-02.0	Thrust Block Details Standard Notes
CSD-02.1	Thrust Block for Horizontal and Vertical Upward Bends – Peters Pipeline Upstream of Mormon Slough
CSD-02.2	Thrust Block for Horizontal and Vertical Upward Bends – Peters Pipeline Downstream of Mormon Slough
CSD-02.3	Thrust Block for Horizontal and Vertical Upward Bends – Bellota Pipeline
CSD-02.4	Thrust Block for Vertical Downward Bends – Peters Pipeline Upstream of Mormon Slough
CSD-02.5	Thrust Block for Vertical Downward Bends – Peters Pipeline Downstream of Mormon Slough
CSD-02.6	Thrust Block for Vertical Downward Bends – Bellota Pipeline
CSD-03.0	ARV Sizing Chart, Details, and Standard Notes
CSD-03.1	PVC Pipeline Air Vent and ARV Assemblies
CSD-03.2	Concrete Pipeline Air Vent and ARV Assemblies
CSD-04.0	Manhole Details and Notes
CSD-04.1	Manhole Type 1
CSD-04.2	Manhole Type 2
CSD-04.3	Manhole Type 3
CSD-04.4	Manhole Type 4
CSD-05.0	Standard Turnout Notes and Stub-out Detail
CSD-05.1	Pipeline Turnout Type 1
CSD-05.2	Pipeline Turnout Type 2
CSD-05.3	Canal Turnout
CSD-05.4	River Pump Turnout Type 1
CSD-05.5	River Pump Turnout Type 2
CSD-05.6	River Pump Turnout Type 3
CSD-06.0	Valve Riser
CSD-07.0	Meter Installation
CSD-08.0	Canal Gate Installation
CSD-09.0	Concrete Connection Block
CSD-10.0	Utility Crossing Under District Canal
CSD-10.1	Utility Crossing Under District Pipeline
CSD-10.2	Utility Crossing Over District Pipeline
CSD-11.0	General Fencing Details and Notes
CSD-11.1	Typical Fence Elevation

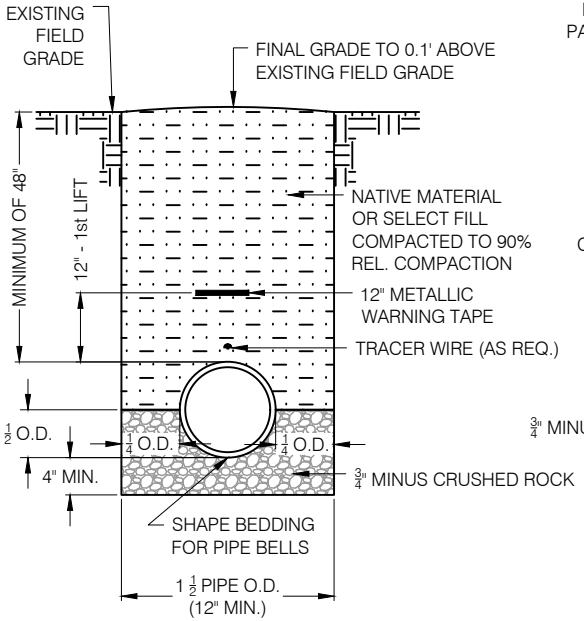
Detail No.	Description
CSD-11.2	Intermediate Fence Post Detail
CSD-11.3	Double Swing Vehicle Gate
CSD-11.4	Typical Fence Elevation – Water Treatment Plant
CSD-11.5	Intermediate Fence Post Detail – Water Treatment Plant
CSD-11.6	Double Swing Vehicle Gate – Water Treatment Plant
CSD-12.0	
CSD-13.0	

NOTES:

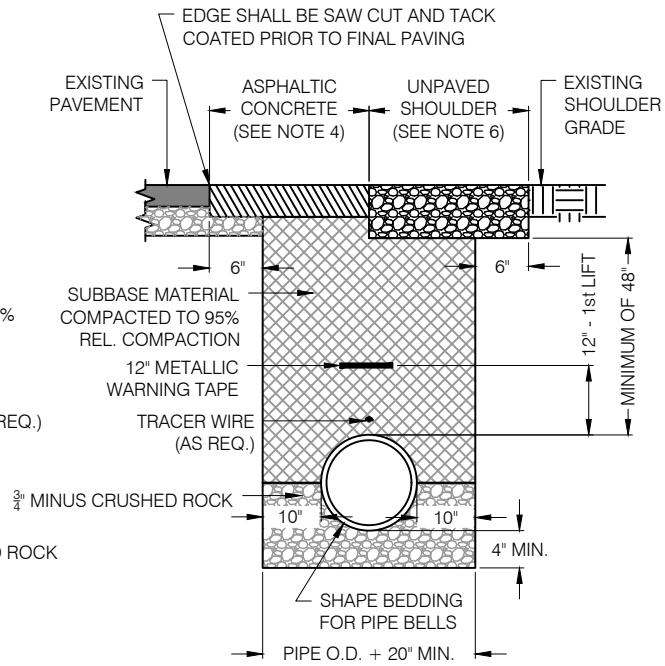
1. THE DISTRICT'S STANDARD DETAILS ARE A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
3. THE TEMPORARY ASPHALTIC CONCRETE SHALL HAVE A MINIMUM THICKNESS OF TWO (2) INCHES AND SHALL BE PLACED IMMEDIATELY AFTER BACKFILL AND MAINTAINED TO ¼" OF FINAL GRADE BY THE CONTRACTOR FOR THE 30 DAY PERIOD UNTIL PERMANENT SURFACING IS INSTALLED OR AS REQUIRED BY THE DIRECTING AGENCY.
4. THE PERMANENT ASPHALTIC CONCRETE SHALL BE 1 INCH THICKER THAN THE EXISTING PAVEMENT, WITH A MINIMUM THICKNESS OF 3 INCHES.
5. THE ASPHALTIC CONCRETE SHALL MEET THE REQUIREMENTS OF CALTRANS STANDARD SPECIFICATIONS WITH METHOD OF PLACEMENT AS REQUIRED BY LOCAL AGENCY.
6. THE SHOULDER MATERIAL SHALL BE ¾" CLASS 2 AGGREGATE BASE AND BE 1 INCH THICKER THAN EXISTING MATERIAL, WITH A MINIMUM THICKNESS OF 6".
7. THE SUBBASE MATERIAL SHALL BE CLASS 2 AGGREGATE BASE PER SECTION 26 OF CALTRANS STANDARD SPECIFICATIONS.
8. RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557 FOR COHESIVE MATERIALS. RELATIVE DENSITY IN ACCORDANCE WITH ASTM D-4253 FOR NON-COHESIVE MATERIALS.
9. THE ¾" MINUS CRUSHED ROCK SHALL A GRADATION OF:
   - 9.1. PASSING NO. 200 SIEVE - 5% OR LESS
   - 9.2. PASSING NO. 50 SIEVE - 25% OR LESS
   - 9.3. PASSING 3/4-INCH SIEVE - 100%
9. SAND SHALL BE WELL GRADED WITH LESS THAN 5% FINES SMALLER THAN SIEVE NO. 200.
10. EXISTING ASPHALTIC CONCRETE REMOVED AS A RESULT OF THE WORK SHALL BE HAULED OFF OF THE JOB SITE.
11. COMPACTION SHALL BE TESTED BY AN OUTSIDE AGENCY AND THE RESULTS SUBMITTED TO THE ENGINEER FOR APPROVAL.
12. JETTING OF TRENCH BACKFILL IS NOT PERMITTED.
13. REFER TO THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
14. DIMENSIONS SHOWN ARE REQUIRED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

SCALE: NTS

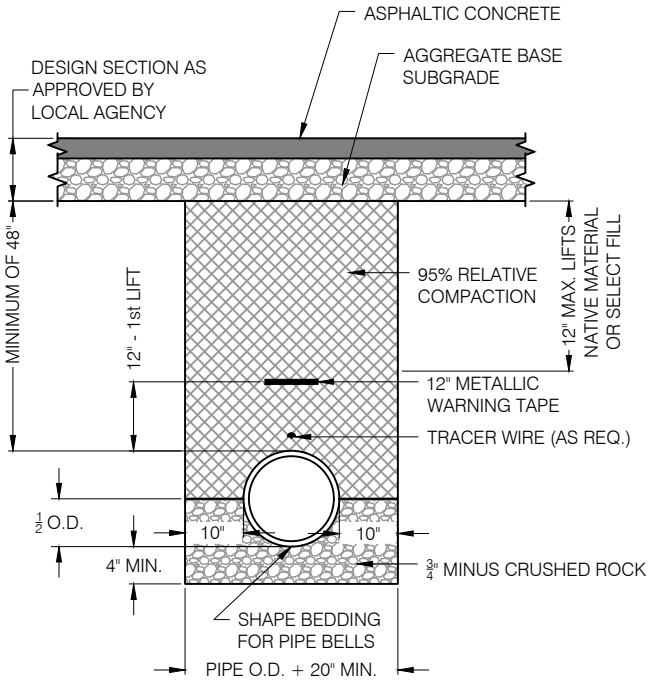
	STANDARD DETAILS	DRAWN BY: JH	DATE: 12-16-2019
	TRENCH DETAILS STANDARD NOTES	DESIGNED BY: JH	FIG. NO.: CSD-01.0
		APPROVED BY: _	



TRENCH IN OPEN AREAS



TRENCH IN EXISTING PAVED PORTIONS AND/OR UNPAVED SHOULDERS



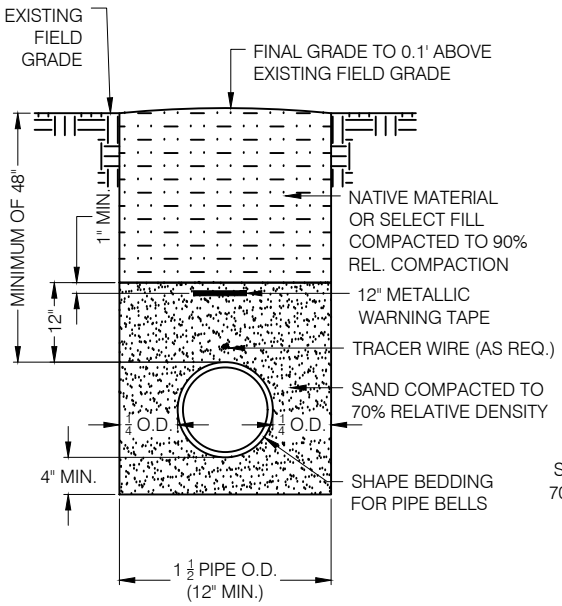
TRENCH IN PROPOSED PAVED PORTIONS

SCALE: NTS

STANDARD DETAILS

TRENCH DETAILS FOR REINFORCED CONCRETE AND RIGID CONCRETE CYLINDER PIPE

DRAWN BY: JH	DATE: 12-16-2019
DESIGNED BY: JH	FIG. NO.: CSD-01.1
APPROVED BY: _	



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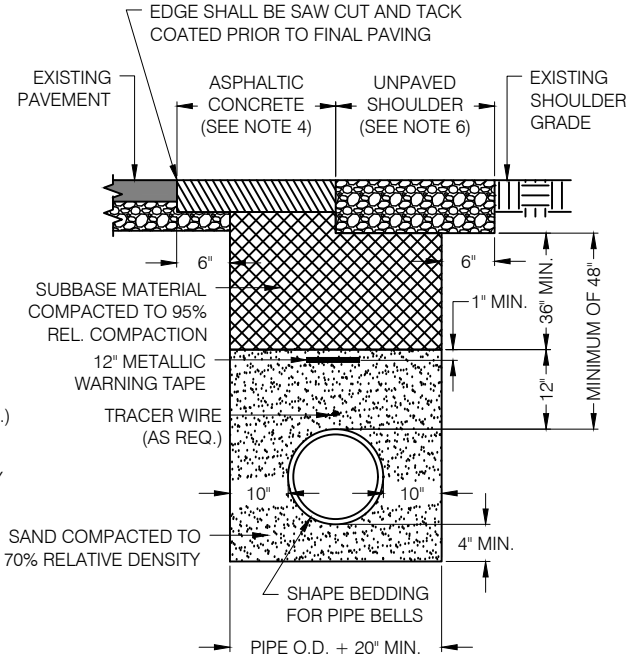
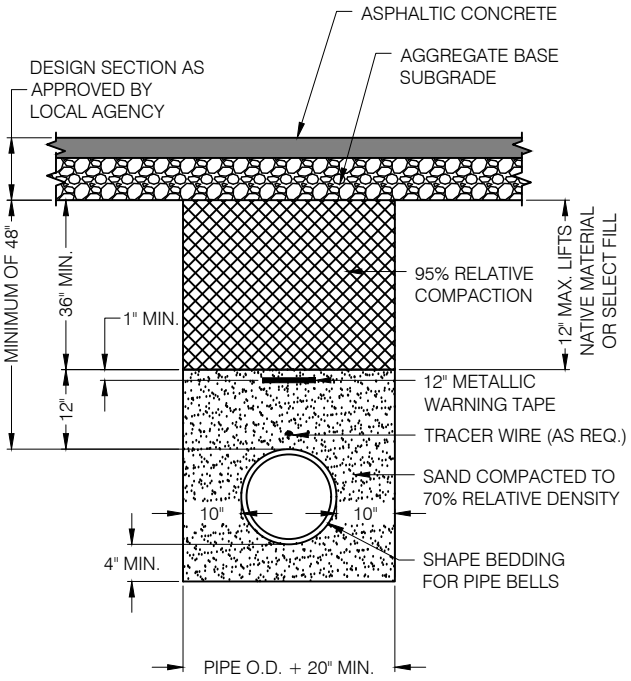


TRENCH IN EXISTING PAVED PORTIONS AND/OR UNPAVED SHOULDERS



TRENCH IN PROPOSED PAVED PORTIONS

SCALE: NTS

STANDARD DETAILS

TRENCH DETAILS FOR PVC AND STEEL PIPE

DRAWN BY: JH	DATE: 12-16-2019
DESIGNED BY: JH	FIG. NO.: CSD-01.2
APPROVED BY: _	

HORIZONTAL AND VERTICAL UPWARD THRUST BLOCK NOTES

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
3. ALL THRUST BLOCKS SHALL BE CAST AGAINST UNDISTURBED NATIVE MATERIAL OR APPROVED BACKFILL MECHANICALLY COMPACTED TO 95% RELATIVE COMPACTION. COMPACTION SHALL BE TESTED BY AN OUTSIDE AGENCY AND THE RESULTS SUBMITTED TO THE ENGINEER FOR APPROVAL.
4. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
5. THE VALUES GIVEN ARE MINIMUM VALUES
6. DETAIL CSD-02.1
   - 6.1. DIMENSION CALCS BASED ON 25 FEET OF HEAD PRESSURE, 1,000 PSF SOIL BEARING CAPACITY AND 1.5 SAFETY FACTOR. H=HEIGHT; L=LENGTH; D=DEPTH; BSA=BEARING SURFACE AREA
   - 6.2. FOR DESIGN PRESSURES GREATER THAN 25 FEET OF HEAD, SEE STANDARD DETAIL CSD-02.2.
7. DETAIL CSD-02.2
   - 7.1. DIMENSION CALCS BASED ON 50 FEET OF HEAD PRESSURE, 1,000 PSF SOIL BEARING CAPACITY AND 1.5 SAFETY FACTOR. H=HEIGHT; L=LENGTH; D=DEPTH; BSA=BEARING SURFACE AREA
   - 7.2. FOR DESIGN PRESSURES GREATER THAN 50 FEET OF HEAD, SEE STANDARD DETAIL CSD-02.3.
8. DETAIL CSD-02.3
   - 8.1. DIMENSION CALCS BASED ON 90 FEET OF HEAD PRESSURE, 1,000 PSF SOIL BEARING CAPACITY AND 1.5 SAFETY FACTOR. H=HEIGHT; L=LENGTH; D=DEPTH; BSA=BEARING SURFACE AREA
   - 8.2. FOR DESIGN PRESSURES GREATER THAN 90 FEET OF HEAD, THRUST BLOCK DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

VERTICAL DOWNWARD THRUST BLOCK NOTES

NOTES:

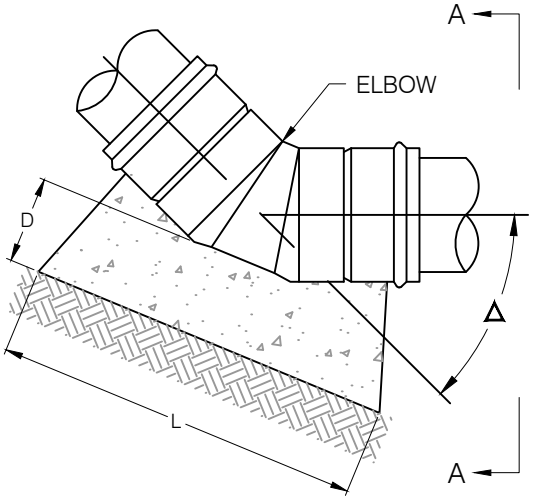
1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
3. ALL THRUST BLOCKS SHALL BE CAST AGAINST UNDISTURBED NATIVE MATERIAL OR APPROVED BACKFILL MECHANICALLY COMPACTED TO 95% RELATIVE COMPACTION. COMPACTION SHALL BE TESTED BY AN OUTSIDE AGENCY AND THE RESULTS SUBMITTED TO THE ENGINEER FOR APPROVAL.
4. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
5. THE VALUES GIVEN ARE MINIMUM VALUES.
6. DETAIL CSD-02.4
   - 6.1.1.
   - 6.2. DIMENSION CALCS BASED ON 25 FEET OF HEAD PRESSURE, 1,000 PSF SOIL CAPACITY, 90 PCF SOIL DENSITY, 4 FEET OF COVER, AND 1.5 SAFETY FACTOR.
   - 6.3. FOR DESIGN PRESSURES GREATER THAN 25 FEET OF HEAD, SEE STANDARD DETAIL CSD-02.5.
7. DETAIL CSD-02.5
   - 7.1. DIMENSION CALCS BASED ON 50 FEET OF HEAD PRESSURE, 1,000 PSF SOIL CAPACITY, 90 PCF SOIL DENSITY, 4 FEET OF COVER, AND 1.5 SAFETY FACTOR.
   - 7.2. STANDARD SS304 ROUND ROD SIZE IS 5/8".
   - 7.3. 1/2"Ø SS304 ROUND ROD MAY BE USED FOR THE FOLLOWING PIPE SIZES:
     - 7.3.1. 22.5° ANGLE - 4" TO 60"
     - 7.3.2. 45° ANGLE - 4" TO 42"
     - 7.3.3. 90° ANGLE - 4" TO 30"
   - 7.4. FOR DESIGN PRESSURES GREATER THAN 50 FEET OF HEAD, SEE STANDARD DETAIL CSD-02.6
8. DETAIL CSD-02.6
   - 8.1. DIMENSION CALCS BASED ON 90 FEET OF HEAD PRESSURE, 1,000 PSF SOIL CAPACITY, 90 PCF SOIL DENSITY, 4 FEET OF COVER, AND 1.5 SAFETY FACTOR.
   - 8.2. STANDARD SS304 ROUND ROD SIZE IS 3/4".
   - 8.3. 1/2"Ø SS304 ROUND ROD MAY BE USED FOR THE FOLLOWING PIPE SIZES:
     - 8.3.1. 11.25° ANGLE - ALL SIZES
     - 8.3.2. 22.5° ANGLE - 4" TO 42"
     - 8.3.3. 45° ANGLE - 4" TO 30"
     - 8.3.4. 90° ANGLE - 4" TO 18"
   - 8.4. FOR DESIGN PRESSURES GREATER THAN 90 FEET OF HEAD, THRUST BLOCK DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

SCALE: NTS

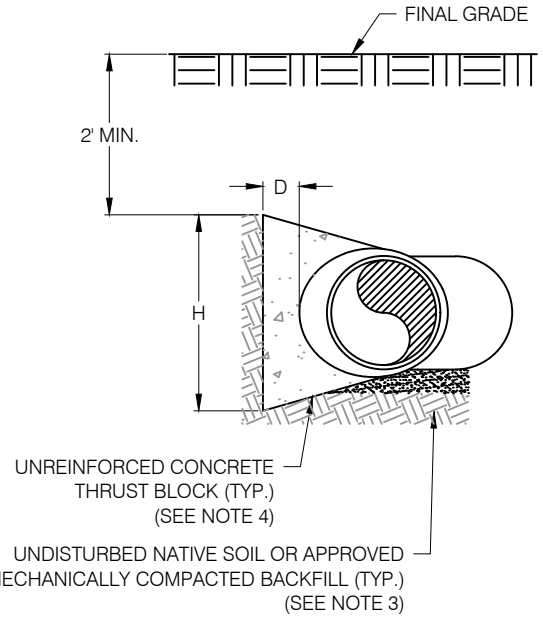
STANDARD DETAILS

THRUST BLOCK DETAILS STANDARD NOTES

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	12-16-2019
FIG. NO.:	CSD-02.0



PLAN VIEW



SECTION A-A

Pipe	22.5°				45°				90°			
Size (in)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)
8	0	0	0	N/A	0	0	0	N/A	1	2	0.7	2.0
10	0	0	0	N/A	1	1	0.5	1.0	1	2	0.7	2.0
12	1	1	0.5	1.0	1	2	0.7	2.0	1.5	2	0.7	3.0
18	1.5	1	0.5	1.5	1.5	2.7	1	4.0	2	3	1.1	6.0
24	2	2	0.7	4.0	2	3	1.1	6.0	2.5	4.4	1.5	11.0
30	2.5	2.5	1	6.3	2.5	3.6	1.3	9.0	3	5.7	2	17.0
36	3	3	1	9.0	3	4.4	1.5	13.0	4	6	2.1	24.0
42	3.5	3.5	1.3	12.3	3.5	5.2	1.8	18.0	4.5	7.2	2.5	32.0
48	4	4	1.5	16.0	4	5.8	2	23.0	5.5	7.7	2.6	42.0
54	4.5	4.5	1.7	20.3	4.5	6.5	2.2	29.0	6	8.9	3	53.0
60	5	5	2	25.0	5	7.2	2.5	36.0	6.5	10	3.4	65.0

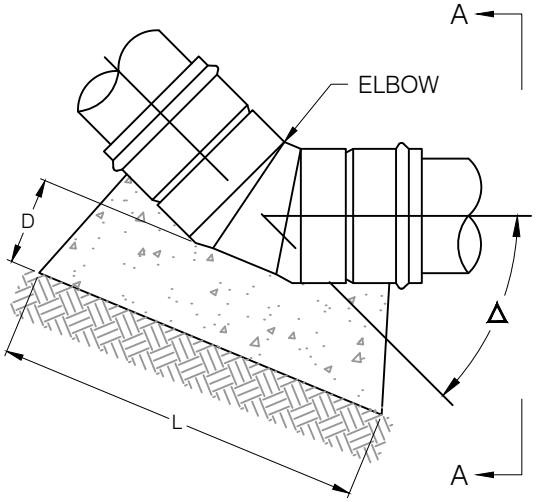
SCALE: NTS

DATE: 12-16-2019
FIG. NO.: CSD-02.1

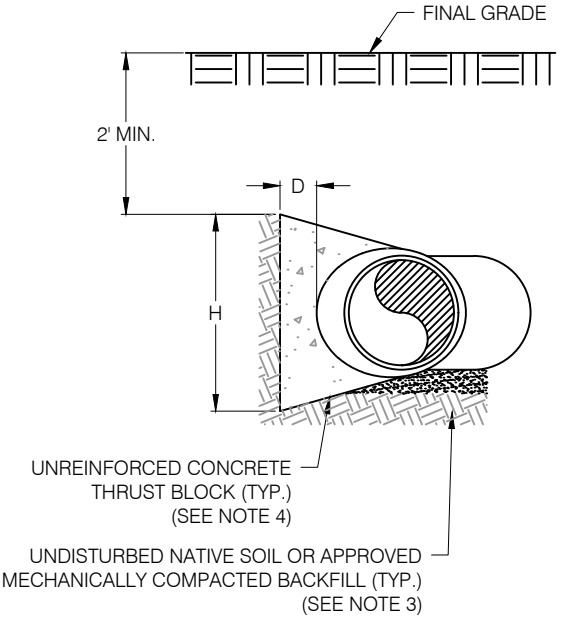
DRAWN BY: JH
DESIGNED BY: JH
APPROVED BY: –

STANDARD DETAILS

THRUST BLOCK FOR HORIZONTAL AND VERTICAL UPWARD BENDS PETERS PIPELINE UPSTREAM OF MORMON SLOUGH



PLAN VIEW



SECTION A-A

Pipe	11.25°				22.5°				45°				90°			
Size (in)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)
6	0	0	0	N/A	0	0	0	N/A	1	1	0.5	1.0	1	2	0.7	2.0
8	0	0	0	N/A	0	0	0	N/A	1	2	0.7	2.0	1.5	2	0.7	3.0
10	0	0	0	N/A	1	1	0.5	1.0	1	2	0.7	2.0	2	2	0.7	4.0
12	1	1	0.5	1.0	1	2	0.7	2.0	1.5	2	0.7	3.0	2	3	1.1	6.0
18	1.5	1.5	0.7	2.3	1.5	2.7	1	4.0	2	3.5	1.2	7.0	3	4	1.4	12.0
24	2	2	1	4.0	2	3	1.1	6.0	3	4	1.4	12.0	4	5.3	1.8	21.0
30	2.5	2.5	1.5	6.3	2.5	3.6	1.3	9.0	4	4.5	1.6	18.0	5	6.6	2.3	33.0
36	3	3	1.5	9.0	3	4.4	1.5	13.0	4	6.5	2.2	26.0	6.5	7.3	2.5	47.0
42	3.5	3.5	2	12.3	3.5	5.2	1.8	18.0	5	7	2.4	35.0	7	9.2	3.1	64.0
48	4	4	2	16.0	4	5.8	2	23.0	6	7.5	2.6	45.0	8.5	9.9	3.4	84.0
54	4.5	4.5	2	20.3	4.5	6.7	2.3	30.0	6.5	8.8	3	57.0	9	11.8	4	106.0
60	5	5	2.5	25.0	5	7.2	2.5	36.0	7	10.2	3.5	71.0	10.5	12.4	4.2	130.0
66	5.5	5.5	2.5	30.3	5.5	8	2.7	44.0	8	10.8	3.7	86.0	12	13.2	4.5	158.0
72	6	6	3	36.0	6	8.7	3	52.0	8.5	12	4.1	102.0	13	14.4	4.9	187.0
78	6.5	6.5	3	42.3	6.5	9.4	3.2	61.0	9.5	12.6	4.3	119.0	13	17	5.7	220.0

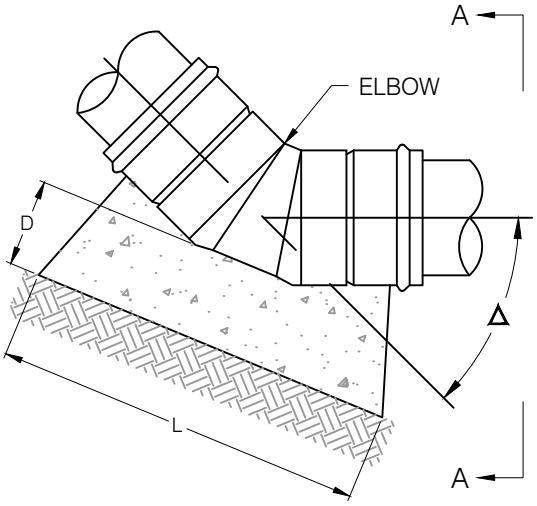
SCALE: NTS

DATE: 12-16-2019
FIG. NO.: CSD-02.2

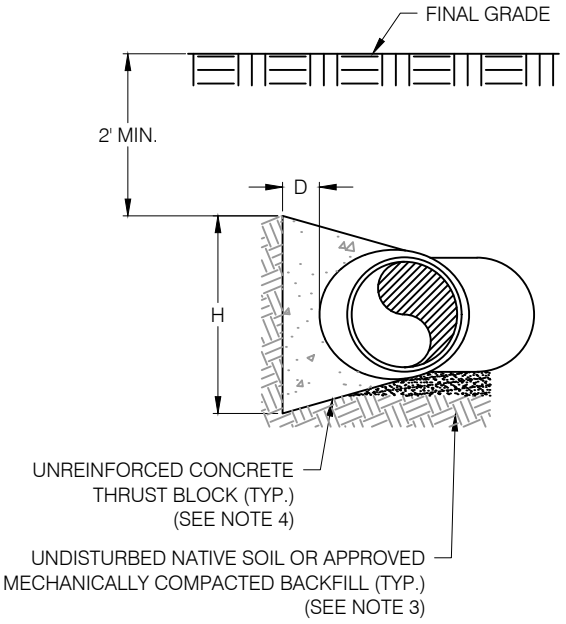
DRAWN BY: JH
DESIGNED BY: JH
APPROVED BY: –

STANDARD DETAILS

HORIZONTAL AND VERTICAL UPWARD BENDS THRUST BLOCK FOR PETERS PIPELINE DOWNSTREAM OF MORMON SLOUGH



PLAN VIEW



SECTION A-A

Pipe	11.25°				22.5°				45°				90°			
Size (in)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)	H (ft)	L (ft)	D (ft)	BSA (ft^2)
6	0	0	0	N/A	1	1	0.5	1.0	1	2	0.7	2.0	1.5	2	0.7	3.0
8	0	0	0	N/A	1	2	0.7	2.0	1.5	2	0.7	3.0	2	2.5	0.9	5.0
10	1	1	0.5	1.0	1	2	0.7	2.0	2	2	0.7	4.0	2	3.5	1.2	7.0
12	1	2	0.7	2.0	1.5	2	0.7	3.0	2	3	1.1	6.0	2.5	4	1.4	10.0
18	1.5	2	0.7	3.0	2	3	1.1	6.0	3	4	1.4	12.0	4	5.5	1.9	22.0
24	2	3	1.1	6.0	2.5	4.4	1.5	11.0	3.5	6	2.1	21.0	5	7.6	2.6	38.0
30	2.5	3.6	1.3	9.0	3.5	4.9	1.7	17.0	4.5	7.2	2.5	32.0	6	9.9	3.4	59.0
36	3	4	1.4	12.0	4	6	2.1	24.0	5.5	8.4	2.9	46.0	8	10.7	3.6	85.0
42	3.5	4.6	1.6	16.0	4.5	7.2	2.5	32.0	6.5	9.6	3.3	62.0	9	12.8	4.3	115.0
48	4	5.3	1.8	21.0	5	8.4	2.9	42.0	7.5	10.8	3.7	81.0	10	15	5.1	150.0
54	4.5	6	2.1	27.0	6	8.9	3	53.0	9	11.5	3.9	103.0	12	15.9	5.4	190.0

SCALE: NTS

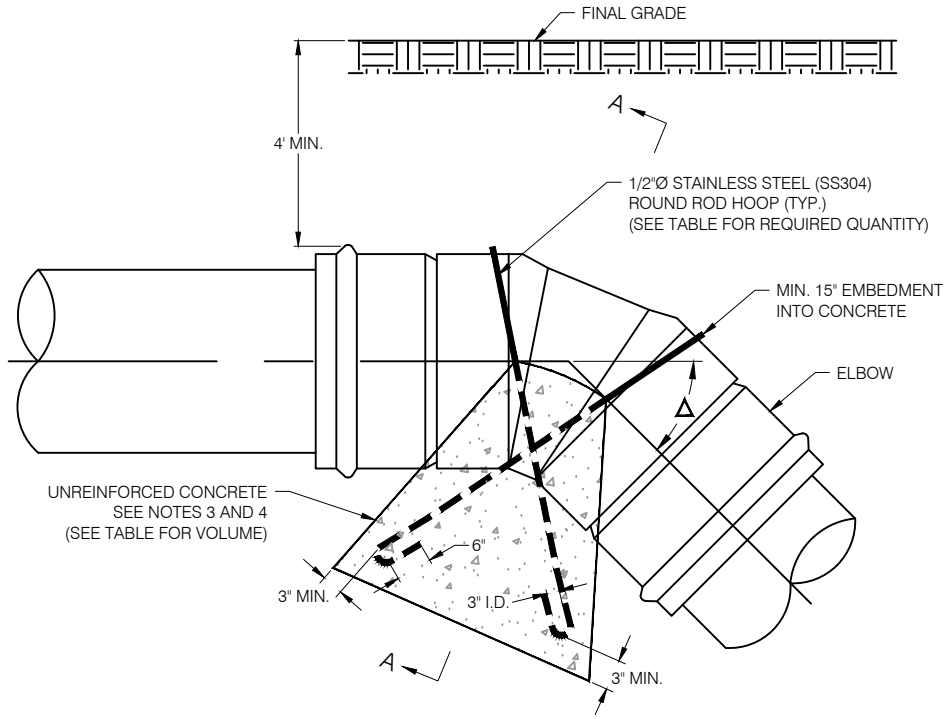
DATE: 12-16-2019
FIG. NO.: CSD-02.3

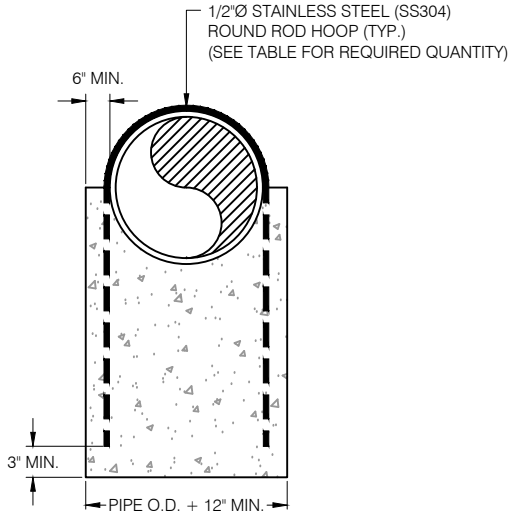
DRAWN BY: JH
DESIGNED BY: JH
APPROVED BY: –

STANDARD DETAILS

THRUST BLOCK FOR HORIZONTAL AND VERTICAL UPWARD BENDS

BELLOTA PIPELINE





SECTION A-A

Pipe	22.5°		45°		90°	
Size (in)	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS
4	0.0	0.0	0.5	2.0	0.5	2.0
6	0.0	0.0	0.5	2.0	0.5	2.0
8	0.0	0.0	0.5	2.0	0.5	2.0
10	0.0	0.0	0.5	2.0	0.5	2.0
12	0.0	0.0	0.5	2.0	0.5	2.0
18	0.5	2.0	1.0	2.0	1.0	2.0
24	0.5	2.0	1.0	2.0	2.0	2.0
30	1.0	2.0	2.0	2.0	3.0	2.0
36	1.5	2.0	3.0	2.0	4.0	2.0
42	2.0	2.0	3.0	2.0	6.0	2.0
48	2.5	2.0	4.0	2.0	7.0	3.0
54	3.0	2.0	5.0	2.0	9.0	3.0
60	3.5	2.0	6.0	2.0	11.0	4.0

SCALE: NTS

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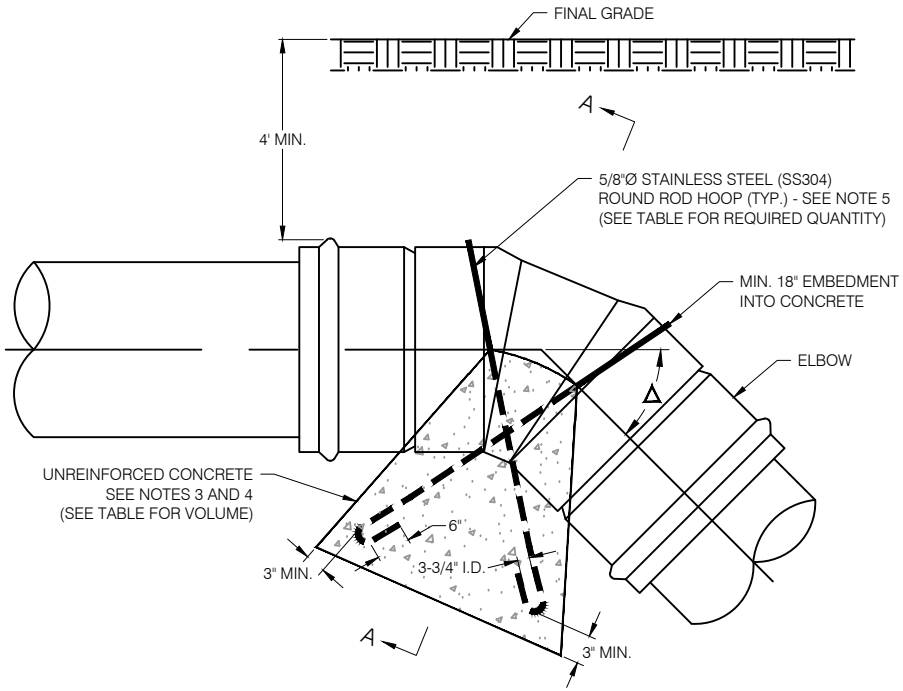
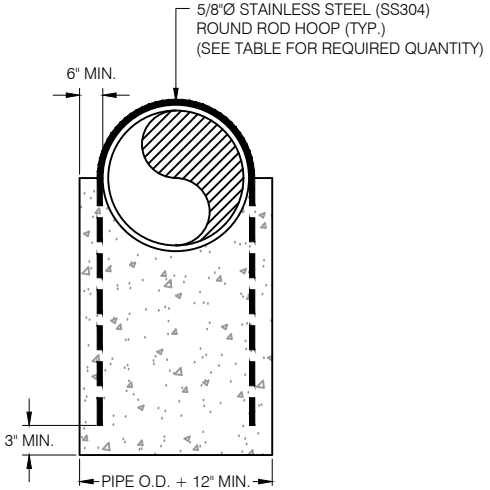
STANDARD DETAILS

THRUST BLOCK FOR VERTICAL DOWNWARD BENDS PETERS PIPELINE UPSTREAM OF MORMON SLOUGH

DRAWN BY: JH	DATE: 12-16-2019
DESIGNED BY: JH	FIG. NO.: CSD-02.4
APPROVED BY: _	





SECTION A-A

Pipe	22.5°		45°		90°	
Size (in)	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS
4	0.5	2.0	0.5	2.0	0.5	2.0
6	0.5	2.0	0.5	2.0	0.5	2.0
8	0.5	2.0	0.5	2.0	0.5	2.0
10	0.5	2.0	0.5	2.0	1.0	2.0
12	0.5	2.0	0.5	2.0	1.0	2.0
18	1.0	2.0	2.0	2.0	2.0	2.0
24	1.0	2.0	2.0	2.0	4.0	2.0
30	2.0	2.0	3.0	2.0	6.0	2.0
36	3.0	2.0	5.0	2.0	8.0	2.0
42	3.0	2.0	6.0	2.0	11.0	3.0
48	4.0	2.0	8.0	2.0	14.0	3.0
54	5.0	2.0	10.0	2.0	18.0	4.0
60	6.0	2.0	12.0	3.0	22.0	5.0
66	8.0	2.0	14.0	3.0	26.0	6.0
72	9.0	2.0	17.0	4.0	31.0	7.0
78	10.0	3.0	20.0	5.0	37.0	8.0

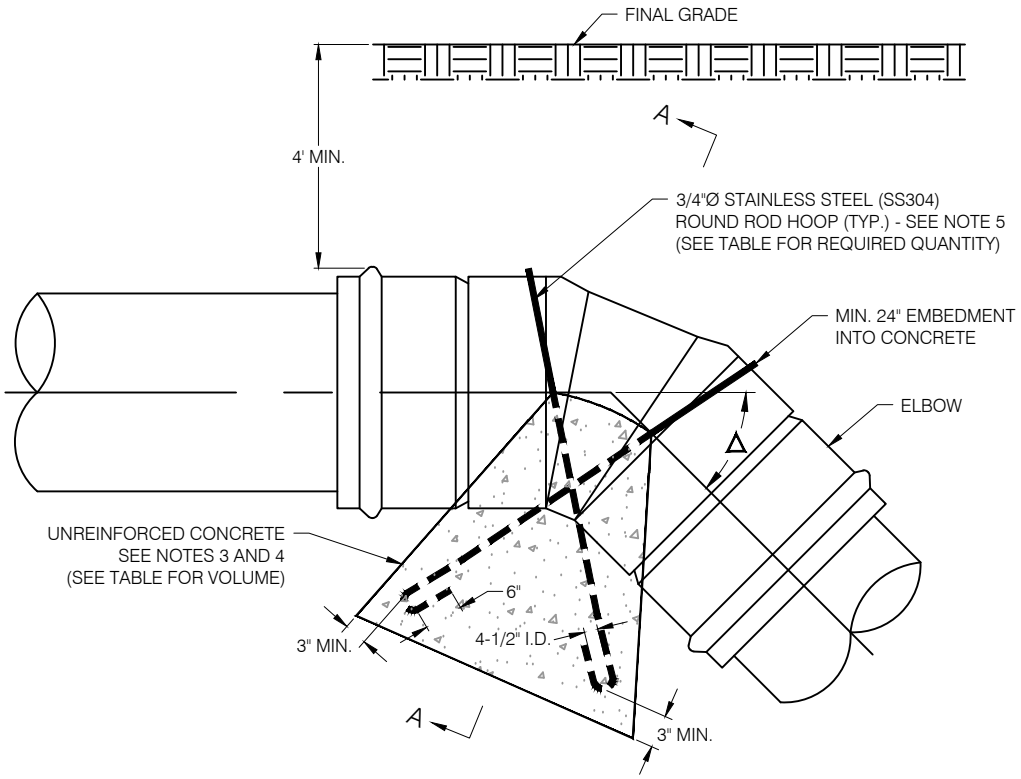
SCALE: NTS

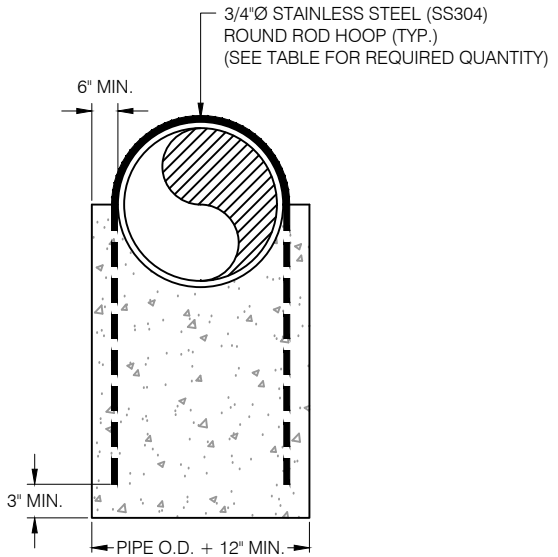
R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:09 AM

STANDARD DETAILS

THRUST BLOCK FOR VERTICAL DOWNWARD BENDS PETERS PIPELINE DOWNSTREAM OF MORMON SLOUGH

DRAWN BY: JH	DATE: 12-16-2019
DESIGNED BY: JH	FIG. NO.: CSD-02.5
APPROVED BY: _	





SECTION A-A

Pipe	11.25°		22.5°		45°		90°	
Size (in)	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS	VOL (CY)	# HOOPS
4	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
6	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	0.5	2.0	0.5	2.0	0.5	2.0	1.0	2.0
10	0.5	2.0	0.5	2.0	1.0	2.0	2.0	2.0
12	0.5	2.0	0.5	2.0	1.0	2.0	2.0	2.0
18	0.5	2.0	1.0	2.0	2.0	2.0	4.0	2.0
24	1.0	2.0	2.0	2.0	4.0	2.0	7.0	2.0
30	2.0	2.0	3.0	2.0	6.0	2.0	10.0	2.0
36	2.0	2.0	4.0	2.0	8.0	2.0	14.0	3.0
42	3.0	2.0	6.0	2.0	11.0	2.0	19.0	3.0
48	4.0	2.0	7.0	2.0	14.0	2.0	25.0	4.0
54	5.0	2.0	9.0	2.0	17.0	3.0	32.0	5.0

SCALE: NTS

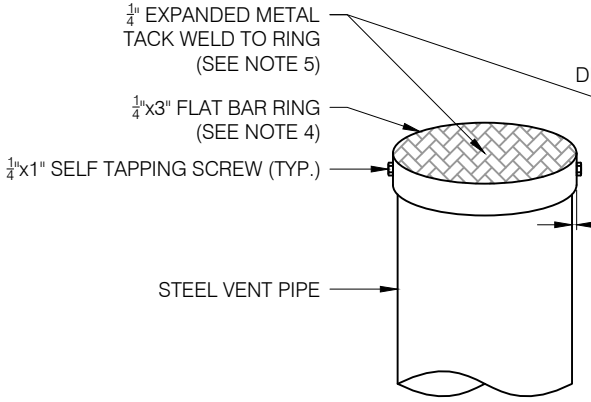
STANDARD DETAILS

THRUST BLOCK FOR VERTICAL DOWNWARD BENDS BELLOTA PIPELINE

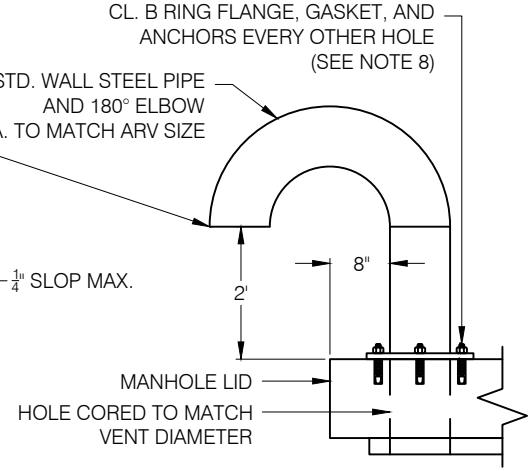
DRAWN BY: JH	DATE: 12-16-2019
DESIGNED BY: JH	FIG. NO.: CSD-02.6
APPROVED BY: _	

AIR RELIEF VALVE SIZING TABLE		
PIPE DIA. (IN.)	AIR/VACCUM RELIEF (IN.)	CONTINUOUS RELIEF (IN.)
4"	1"	1"
6"	1"	1"
8"	2"	1"
10"	2"	1"
12"	2"	1"
14"	2"	1"
15"	2"	1"
16"	3"	1"
18"	3"	1"
20"	3"	1"
21	3"	1"
24"	3"	1"
30"	4"	1"
36"	4"	2"
42"	6"	2"
48"	6"	2"
54"	8"	2"
60"	8"	2"

NOTES:
1. SIZING BASED ON 10' OF HEAD.



SAFETY SCREEN DETAIL



MANHOLE VENT DETAIL

NOTES:
1. THE DISTRICT'S STANDARD DETAILS ARE A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
3. AIR & VACUUM VALVES OR VENTS THAT ARE LOCATED IN PASTURES OR CORRALS SHALL BE SURROUNDED BY FOUR (4) 4"x4" (MIN.) POSTS AND STANDARD LIVESTOCK FENCING MATERIAL. POSTS SHALL BE PRESSURE TREATED WOODEN 4"x4"x8' OR STEEL EQUIVALENT, SET IN CONCRETE AT A DEPTH OF 3' IN THE GROUND. THE TOP OF EACH POST SHALL BE BRACED WITH A 2x4 PRESSURE TREATED WOODEN BRACE OR THE STEEL EQUIVALENT. LIVESTOCK FENCING SHALL CONSIST OF 4" HOGWIRE AND 2 STRANDS OF 4 PT. BARBED WIRE (MIN.) OR THE EQUIVALENT.
4. VENT DIAMETER SHALL BE ¼ OF THE PIPELINE DIAMETER ROUNDED UP TO THE NEAREST IRON PIPE SIZE AND BE A MINIMUM OF 4".
5. ALL STEEL TO BE COATED WITH MULTI-PURPOSE EPOXY COLOR WHITE.
6. ALL BOLTS, NUTS, AND WASHERS SHALL CONFORM TO AWWA C-207 AND BE GALVANIZED PER ASTM A-153.
7. SEE MANHOLE INSTALLATION DETAIL CSD-04 SERIES FOR MANHOLE INSTALLATIONS.
8. CONCRETE ANCHORS SHALL BE SIMPSON WEDGE-ALL; SIZED AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS; OR APPROVED EQUAL.

SCALE: NTS

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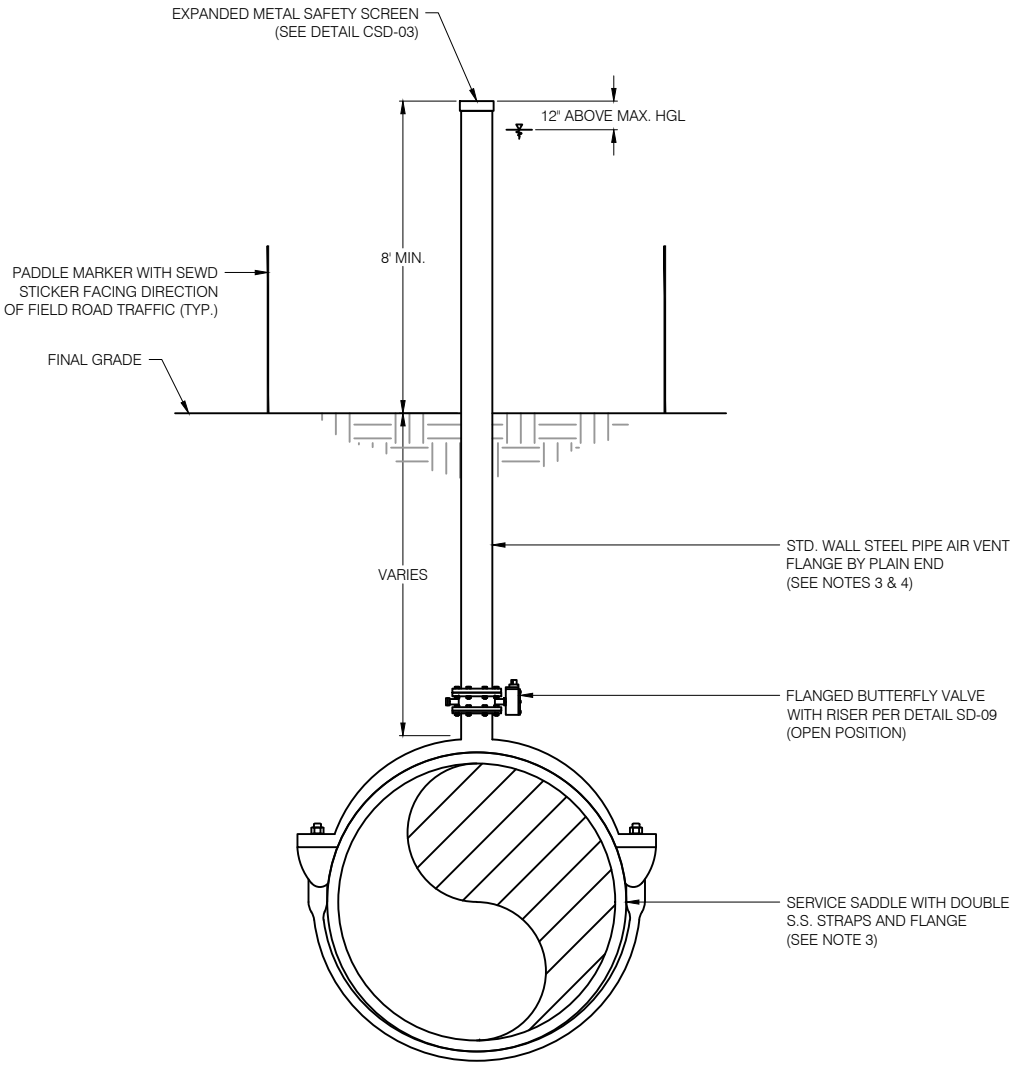
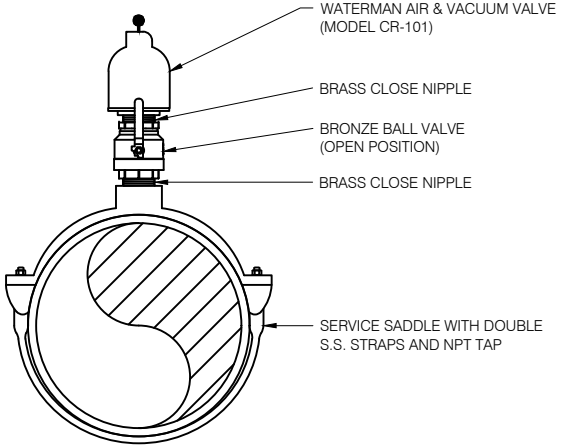
STANDARD DETAILS

ARV SIZING CHART, DETAILS, AND STANDARD NOTES

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	06-18-2019
FIG. NO.:	CSD-03.0

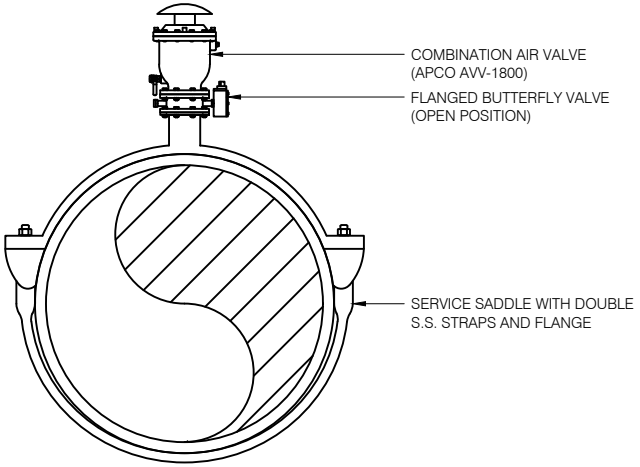


AIR VENT INSTALLATION



1" - 4" ARV ASSEMBLY

(PIPELINE WITH MIN. HEAD PRESSURE GREATER THAN 5')



6" - 8" ARV ASSEMBLY

(PIPELINE WITH MIN. HEAD PRESSURE GREATER THAN 10')

SCALE: NTS

STANDARD DETAILS

PVC PIPELINE AIR VENT AND ARV ASSEMBILES

DRAWN BY: JH	DATE: 12-02-2019
DESIGNED BY: JH	FIG. NO.: CSD-03.1
APPROVED BY: _	

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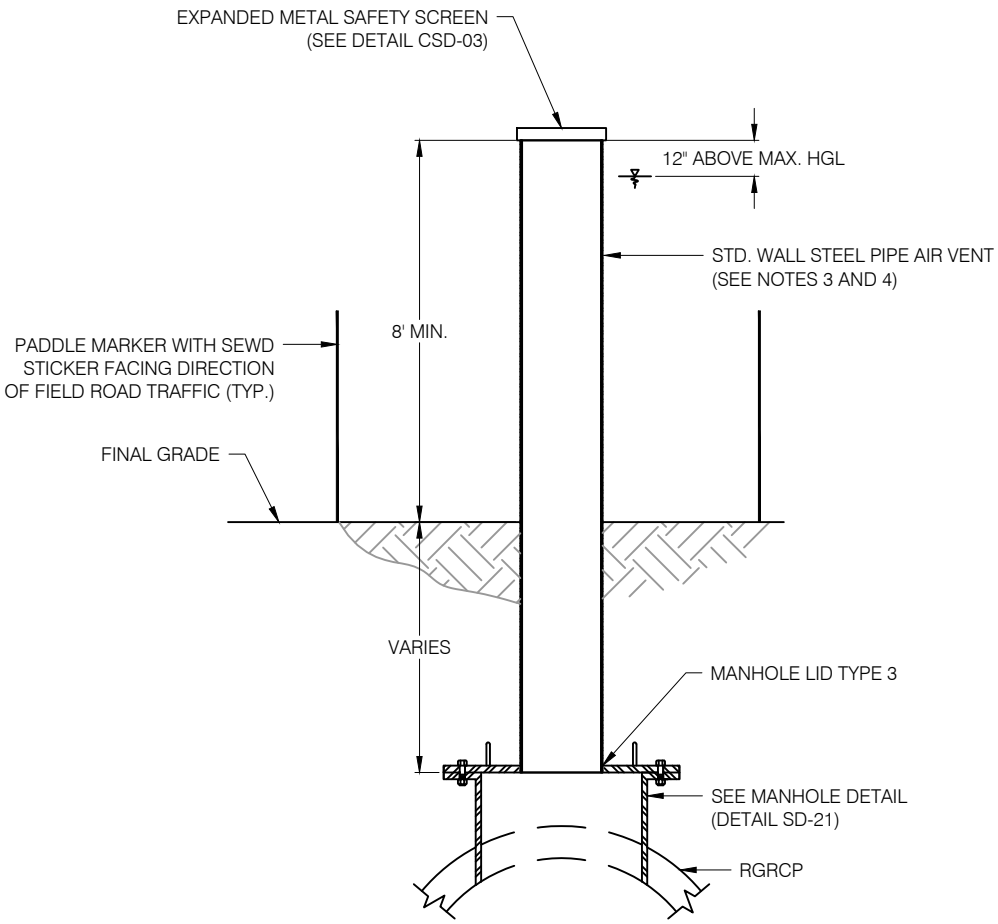
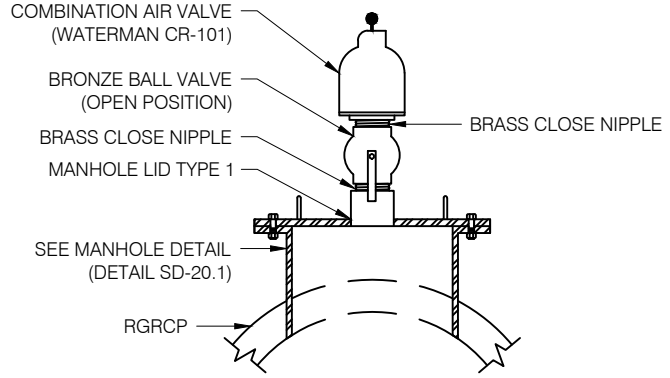


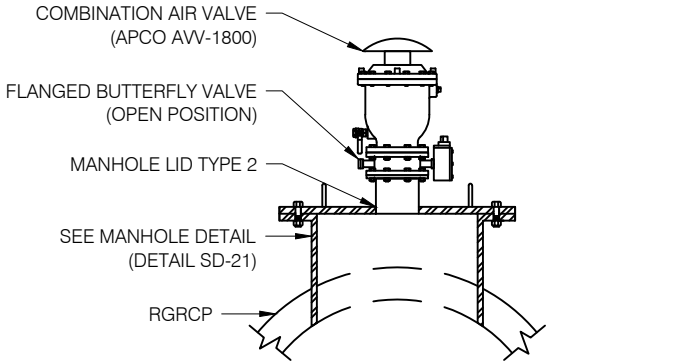
VENT ASSEMBLY

(PIPELINE WITH MIN. HEAD PRESSURE 5' OR LESS)



1" - 4" ARV ASSEMBLY

(PIPELINE WITH MIN. HEAD PRESSURE GREATER THAN 5')



6"- 8" ARV ASSEMBLY

(PIPELINE WITH MIN. HEAD PRESSURE GREATER THAN 10')

SCALE: NTS

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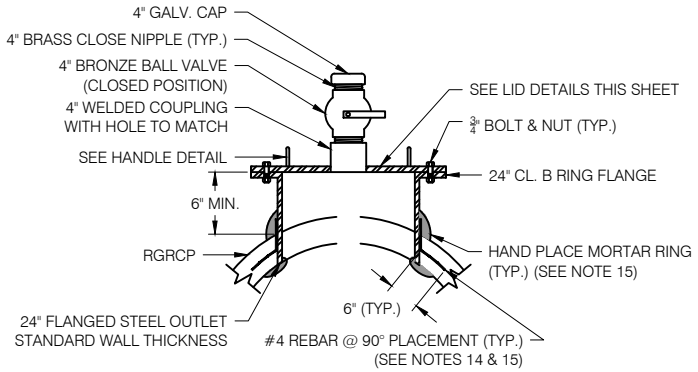
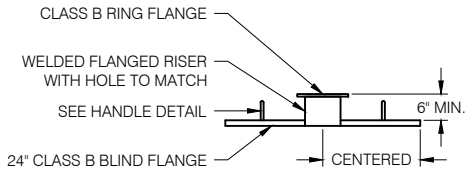
STANDARD DETAILS

CONCRETE PIPELINE AIR VENT AND ARV ASSEMBLIES

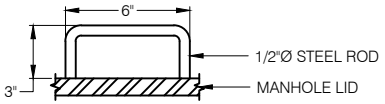
DRAWN BY: JH	DATE: 12-02-2019
DESIGNED BY: JH	FIG. NO.: CSD-03.2
APPROVED BY: _	



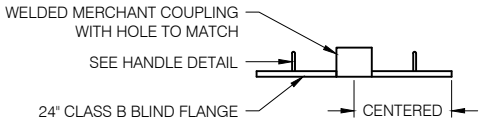
MANHOLE DETAIL



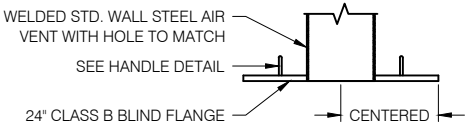
MANHOLE LID TYPE 1



HANDLE DETAIL



MANHOLE LID TYPE 2



MANHOLE LID TYPE 3

NOTES:

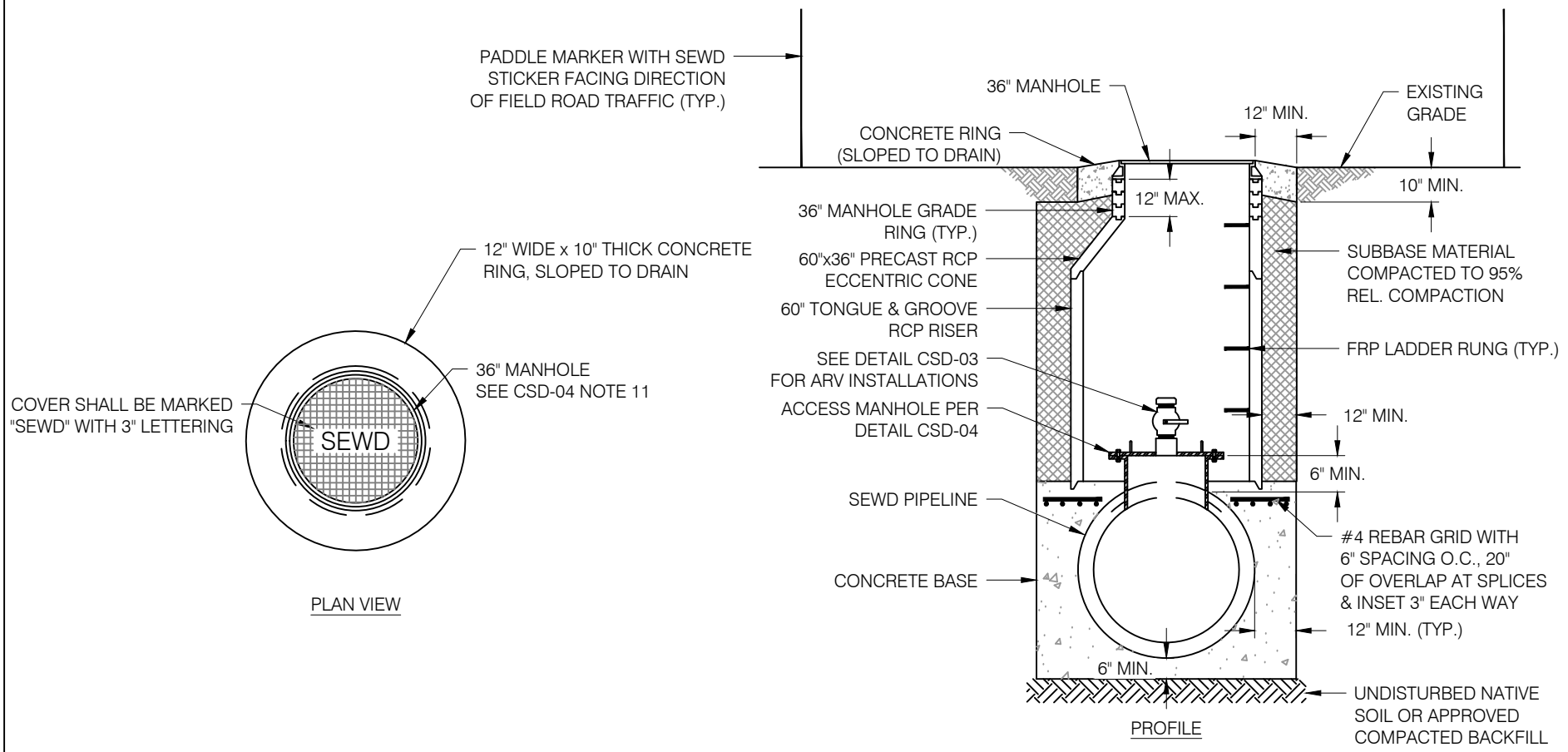
1. THE DISTRICT'S STANDARD DETAILS ARE A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
3. THE TEMPORARY ASPHALTIC CONCRETE SHALL HAVE A MINIMUM THICKNESS OF TWO (2) INCHES AND SHALL BE PLACED IMMEDIATELY AFTER BACKFILL AND MAINTAINED TO ¼" OF FINAL GRADE BY THE CONTRACTOR FOR THE 30 DAY PERIOD UNTIL PERMANENT SURFACING IS INSTALLED OR AS REQUIRED BY THE DIRECTING AGENCY.
4. THE PERMANENT ASPHALTIC CONCRETE SHALL BE 1 INCH THICKER THAN THE EXISTING PAVEMENT, WITH A MINIMUM THICKNESS OF 3 INCHES.
5. THE ASPHALTIC CONCRETE SHALL MEET THE REQUIREMENTS OF CALTRANS STANDARD SPECIFICATIONS WITH METHOD OF PLACEMENT AS REQUIRED BY LOCAL AGENCY.
6. EXISTING ASPHALTIC CONCRETE SHALL BE REMOVED FROM THE JOB SITE, NOT PLACED IN THE BACKFILL.
7. THE SUBBASE MATERIAL SHALL BE CLASS 2 AGGREGATE BASEROCK AND SHALL CONFORM TO SECTION 26 OF CALTRANS STANDARD SPECIFICATIONS.
8. COMPACTION SHALL BE TESTED BY AN OUTSIDE AGENCY AND THE RESULTS SUBMITTED TO THE ENGINEER FOR APPROVAL.
9. ALL PIPE AND FITTINGS SHALL BE STANDARD WALL AND BE EPOXY LINED AND COATED.
10. ALL BOLTS, NUTS, AND WASHERS SHALL CONFORM TO AWWA C-207 AND BE GALVANIZED PER ASTM A-153.
11. ALL PRECAST RCP MANHOLE FLAT LIDS, BARREL SECTIONS, GRADE RINGS AND CONCENTRIC CONES SHALL MEET H-20 LOADING REQUIREMENTS.
12. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
13. ALL MISCELLANEOUS METAL SHALL BE GALVANIZED OR COAL TAR EPOXY LINED AND COATED (20 MILS MINIMUM).
14. REBAR SHALL BE EPOXIED INTO WALL OF THE CONCRETE PIPE PER EPOXY MANUFACTURER'S SPECIFICATIONS AND WELDED TO THE OUTLET.
15. REBAR DOWELS AND HAND PLACED MORTAR ONLY APPLICABLE TO RETROFIT MANHOLES. NEW CONSTRUCTION MANHOLES SHALL BE CAST AS AN INTEGRAL PIECE OF THE REINFORCED CONCRETE PIPE, AS DESIGNED BY THE MANUFACTURER.

SCALE: NTS

STANDARD DETAILS

MANHOLE DETAILS AND NOTES

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	10-25-2019
FIG. NO.:	CSD-04.0



SCALE: NTS

STANDARD DETAILS

MANHOLE TYPE 1

DRAWN BY: JH	DATE: 12-31-2019
DESIGNED BY: JH	FIG. NO.: CSD-04.1
APPROVED BY: _	

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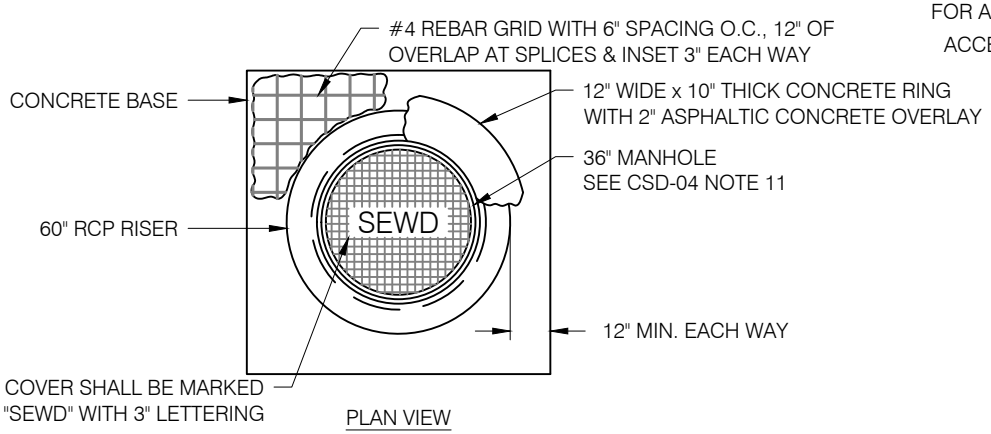
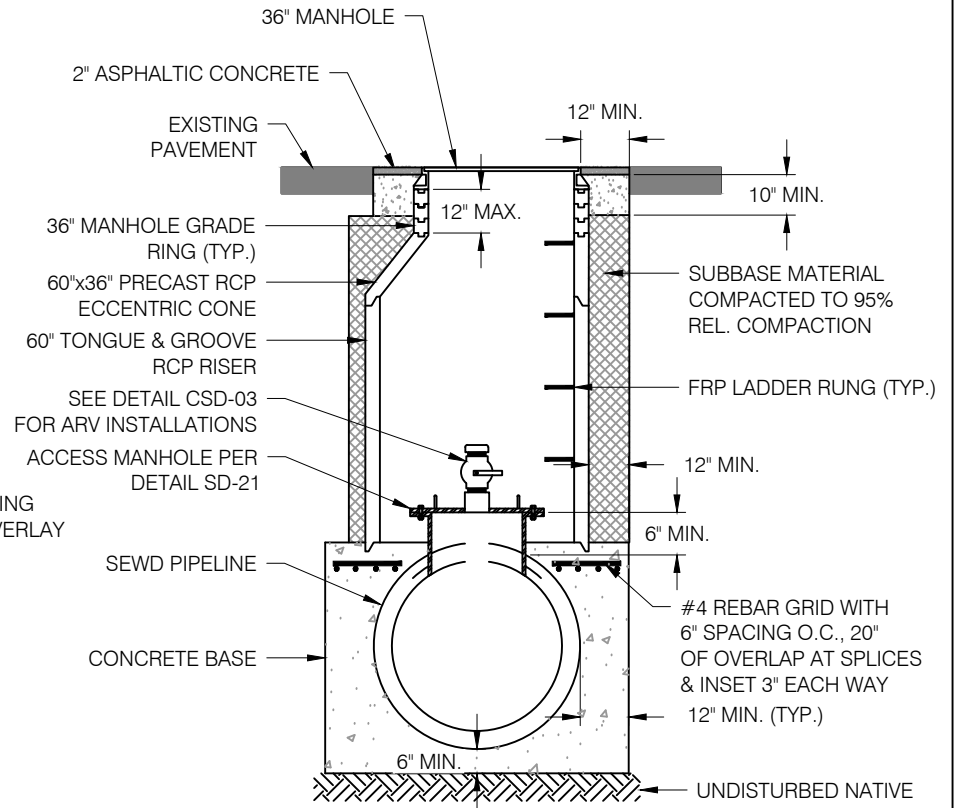


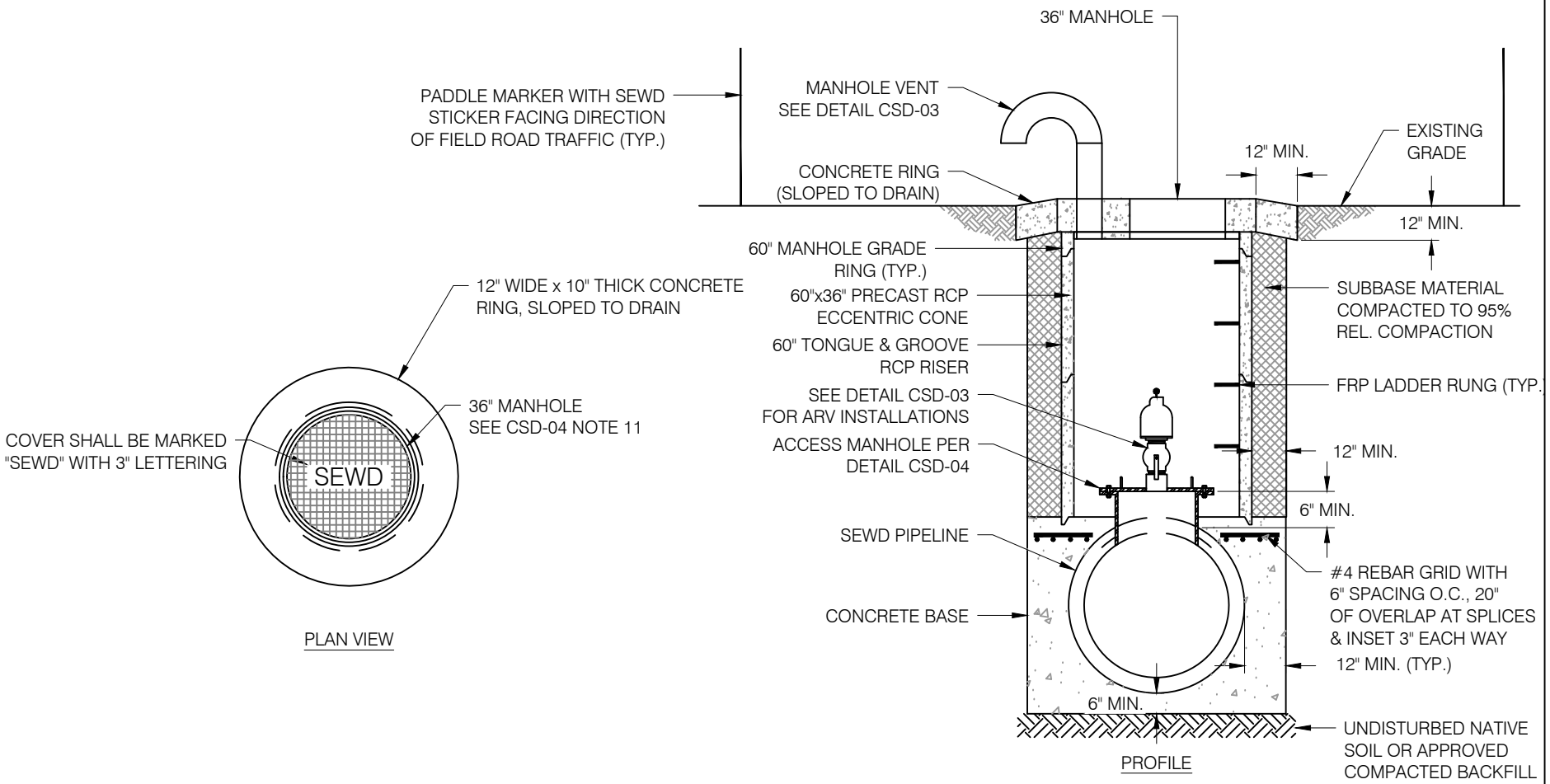
PLAN VIEW



PROFILE

SCALE: NTS

	STANDARD DETAILS	DRAWN BY: JH	DATE: 12-02-2019
	MANHOLE TYPE 2	DESIGNED BY: JH	FIG. NO.: CSD-04.2
		APPROVED BY: _	



SCALE: NTS

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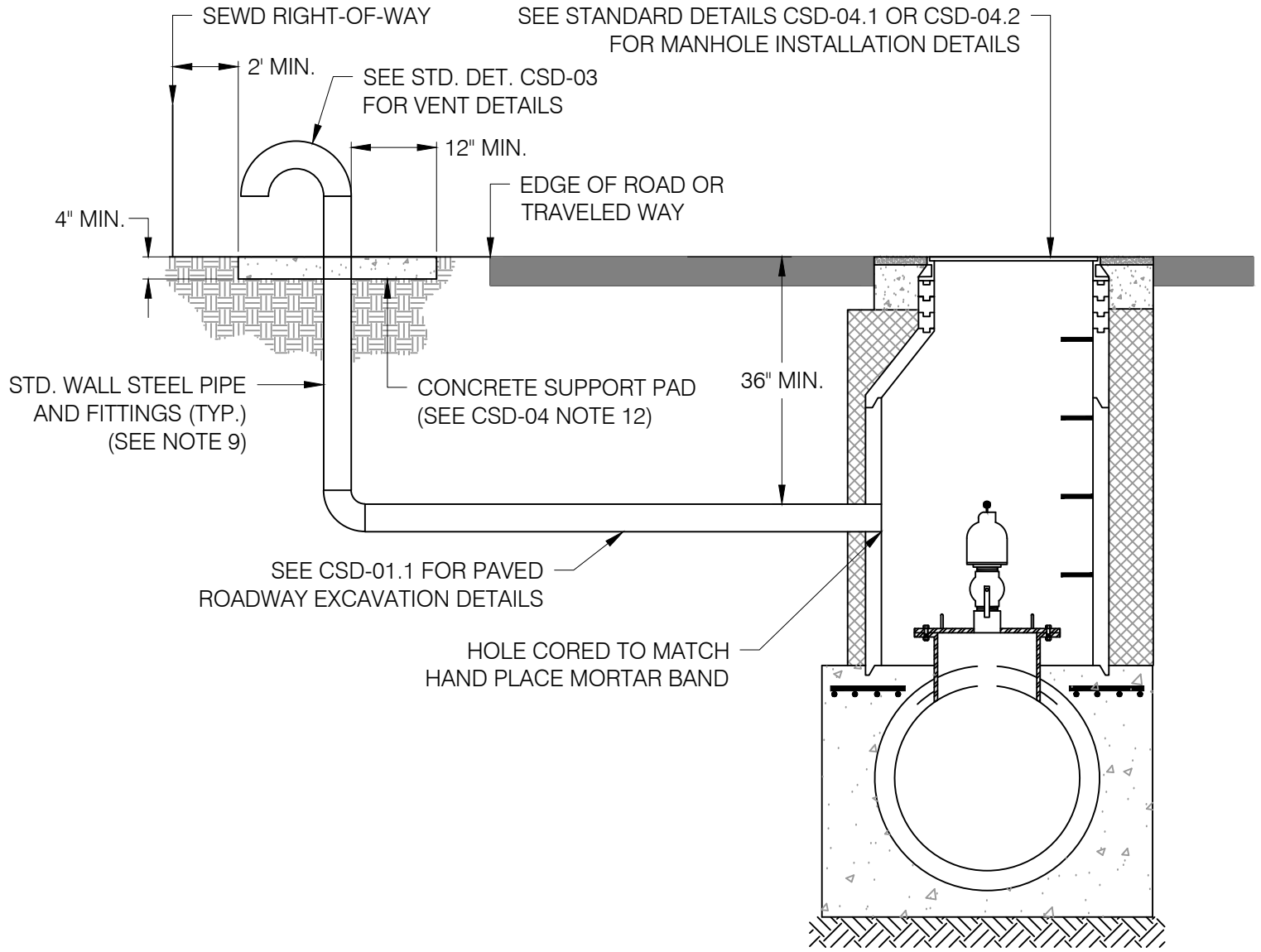
STANDARD DETAILS	DRAWN BY: JH	DATE: 12-05-2019
MANHOLE TYPE 3	DESIGNED BY: JH	FIG. NO.: CSD-04.3
	APPROVED BY: _	



SCALE: NTS

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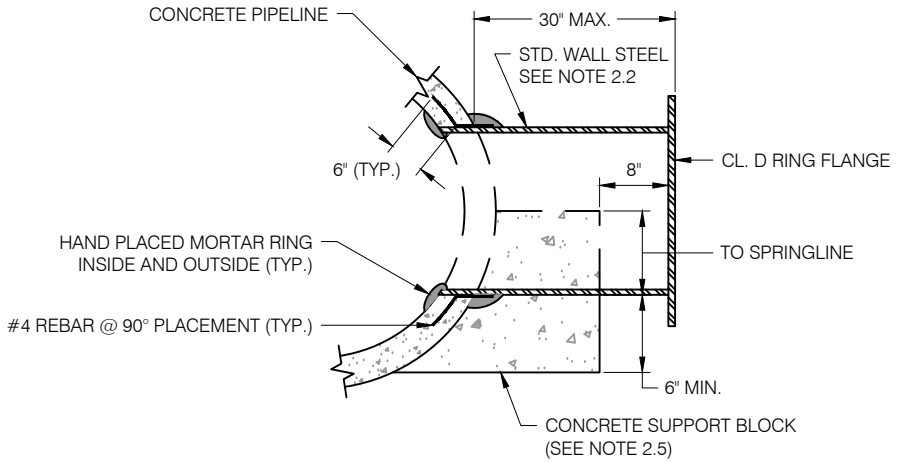
STANDARD DETAILS

MANHOLE TYPE 4

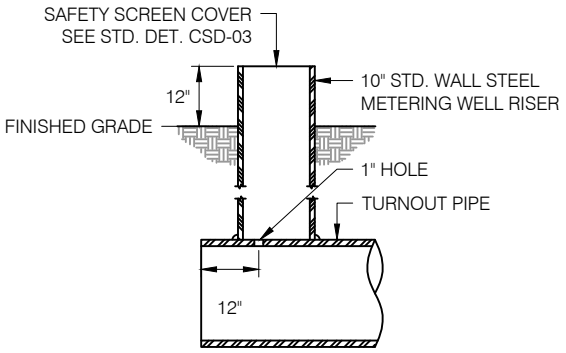
DRAWN BY: JH	DATE: 12-05-2019
DESIGNED BY: JH	FIG. NO.: CSD-04.4
APPROVED BY: _	

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. FOR TURNOUTS FROM DISTRICT FACILITIES
   - 2.1. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
   - 2.2. THE PIPING SHALL BE FABRICATED FROM STD. WALL STEEL PIPE AND BE EPOXY LINED AND COATED.
   - 2.3. ANY UNRESTRAINED ANGLE POINTS SHALL REQUIRE THE CONSTRUCTION OF A THRUST BLOCK PER STANDARD DETAIL SERIES CSD-02.
   - 2.4. ALL TURNOUTS SHALL INCLUDE THE INSTALLATION OF A DISTRICT APPROVED FLOW MEASUREMENT DEVICE.
     - 2.4.1. TURNOUT SIZES BETWEEN 4" AND 12" SHALL BE EQUIPPED WITH A McCROMETER McMAG3000 WITH SENSUS OUTPUT, OR APPROVED EQUAL.
     - 2.4.2. TURNOUT SIZES GREATER THAN 12" SHALL BE EQUIPPED WITH A McCROMETER ULTRAMAG WITH SENSUS OUTPUT, OR APPROVED EQUAL.
     - 2.4.3. A RUBICON FLUMEMETER MAY BE USED FOR CANAL TURNOUTS 18" AND GREATER.
   - 2.5. ALL CONCRETE MIX SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI, AND BE CAST AGAINST UNDISTURBED NATIVE MATERIAL OR FILL COMPACTED TO 95% RELATIVE DENSITY.
   - 2.6. PIPE SUPPORT STAND TO BE MANUFACTURED BY PLACER WATERWORKS OR APPROVED EQUAL.
   - 2.7. ALL MANUFACTURED EQUIPMENT IS TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES, UNLESS OTHERWISE INDICATED.
   - 2.8. BURIED FASTENERS ARE TO BE WRAPPED WITH A MINIMUM OF 20 MIL PLASTIC SHEETING AND/OR PIPE WRAP TAPE.
   - 2.9. THE LANDOWNER'S POINT OF CONNECTION MAY BE PHYSICALLY SIGNIFIED BY A FLANGED CONNECTION OR IS OTHERWISE UNDERSTOOD TO BE AT THE LIMIT OF THE DISTRICT'S RIGHT-OF-WAY BOUNDARY.
   - 2.10. AFTER EXCAVATION BACKFILLING IS COMPLETE, THE DISTRICT'S OPERATING ROAD SURFACE IMPROVEMENTS SHALL BE REPLACED WITH EITHER 3/4" CL. II AGGREGATE BASE OR 1 1/2" MINUS CRUSHED ROCK.
   - 2.11. THE DISTRICT SHALL BE PROVIDED AS-BUILT AUTOCAD FILES OF THE NEW TURNOUT UPON COMPLETION.
3. FOR TURNOUTS FROM NATURAL WATERWAYS:
   - 3.1. TURNOUT TO BE DESIGNED BY CUSTOMER'S CONSULTANT, REVIEWED BY THE DISTRICT, AND APPROVED BY THE NECESSARY REGULATORY AGENCIES.
   - 3.2. THE DISTRICT WILL OWN, MAINTAIN, AND/OR REPLACE THE FLOW METER AFTER INITIAL INSTALLATION. THE OWNER IS RESPONSIBLE FOR OPERATING, MAINTAINING, REPAIRING, AND/OR REPLACING ALL OTHER IMPROVEMENTS.
   - 3.3. A FISH SCREEN IS REQUIRED FOR ALL DIVERSIONS LOCATED ON THE CALAVERAS RIVER AND MORMON SLOUGH. THE FISH SCREEN SHALL BE APPROVED BY THE NATIONAL MARINE FISHERIES SERVICE.



TURNOUT STUB DETAIL

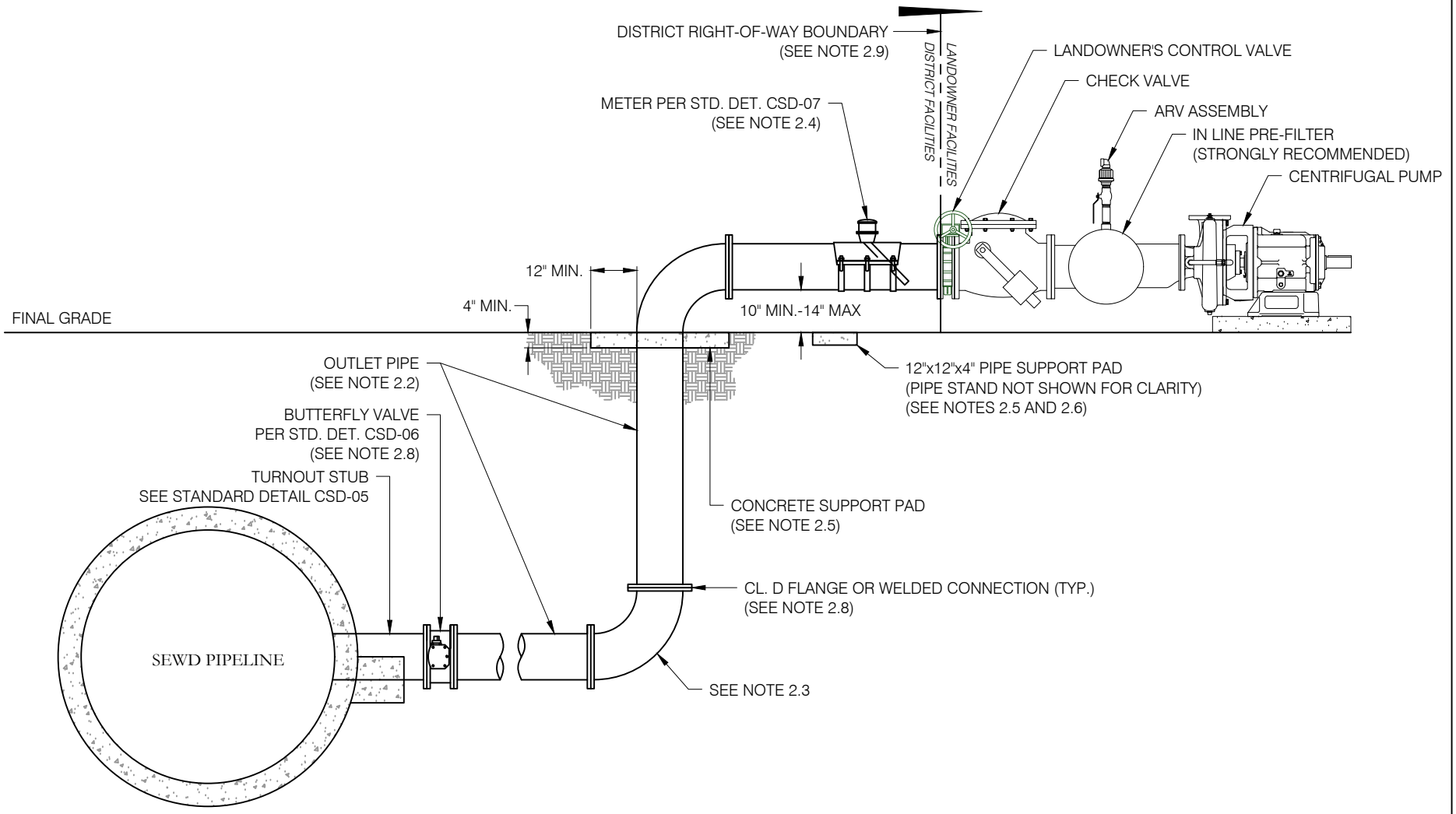


METERING WELL DETAIL

SCALE: NTS

	STANDARD DETAILS STANDARD TURNOUT NOTES AND STUB-OUT DETAIL	DRAWN BY: JH DESIGNED BY: JH APPROVED BY: _	DATE: 12-05-2019 FIG. NO.: CSD-05.0

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:09 AM

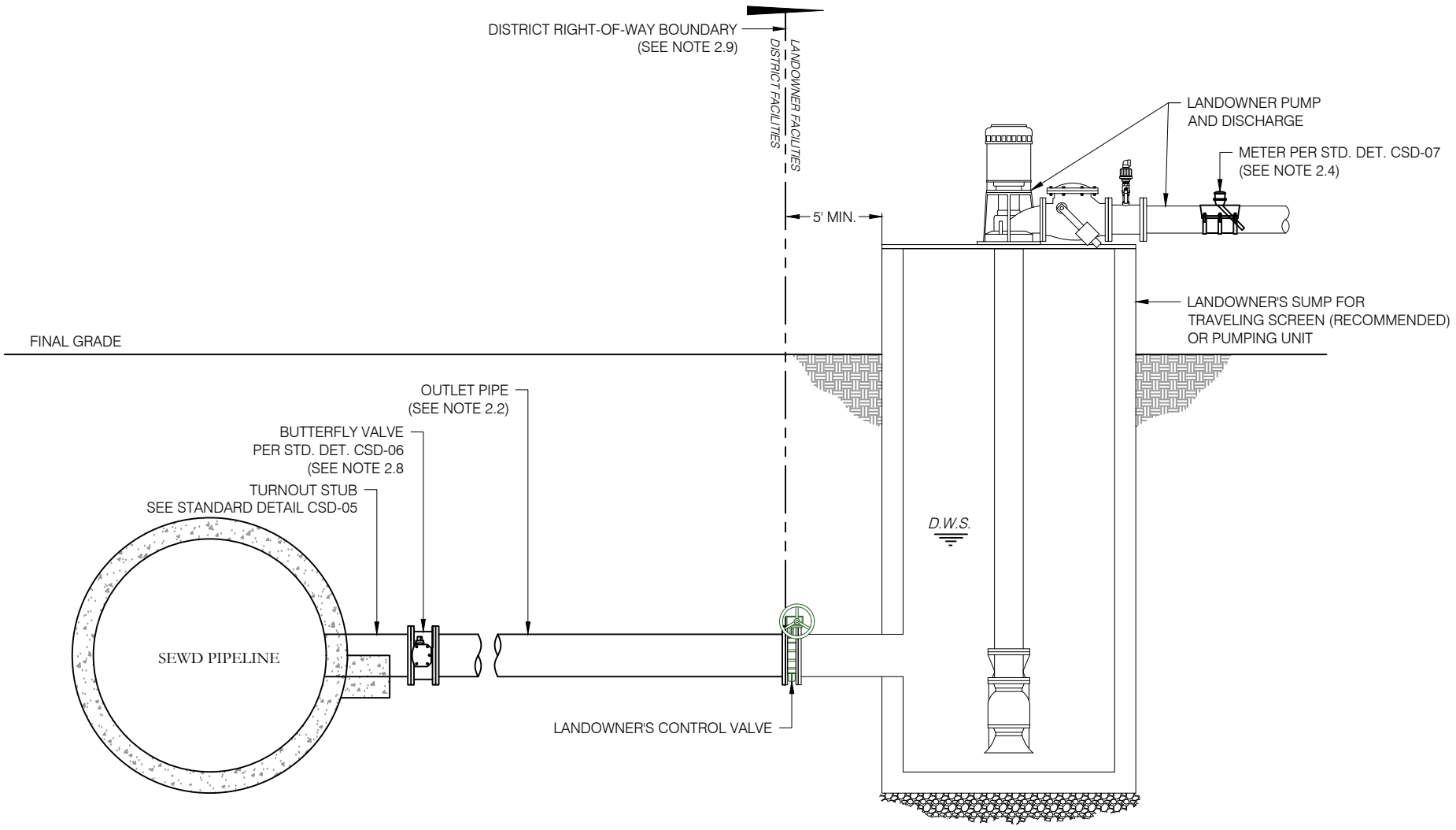


SCALE: NTS

STANDARD DETAILS

PIPELINE TURNOUT TYPE 1

DRAWN BY: JH	DATE: 12-05-2019
DESIGNED BY: JH	FIG. NO.: CSD-05.1
APPROVED BY: _	



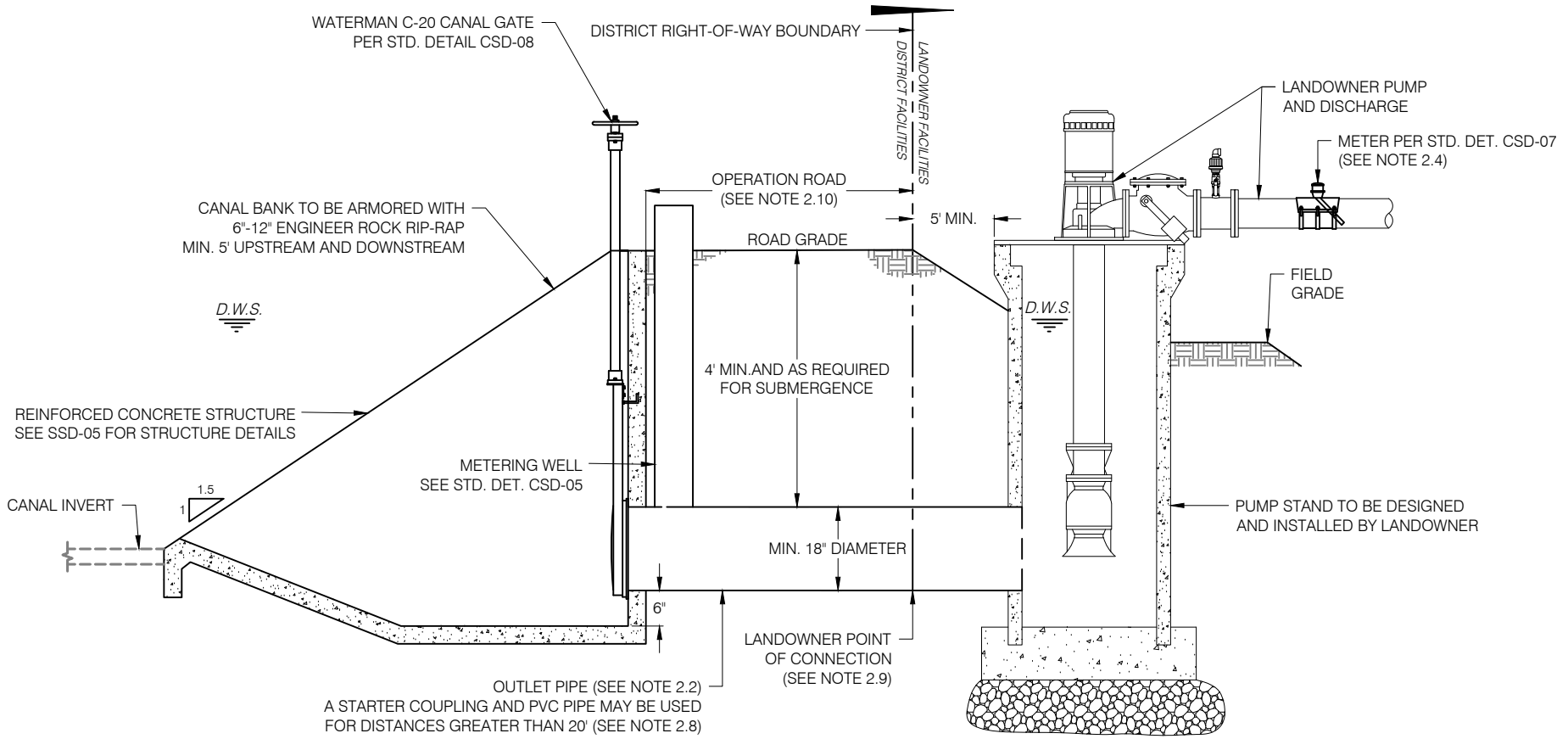
SCALE: NTS

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

PIPELINE TURNOUT TYPE 2

DRAWN BY: JH	DATE: 12-05-2019
DESIGNED BY: JH	FIG. NO.: CSD-05.2
APPROVED BY: _	

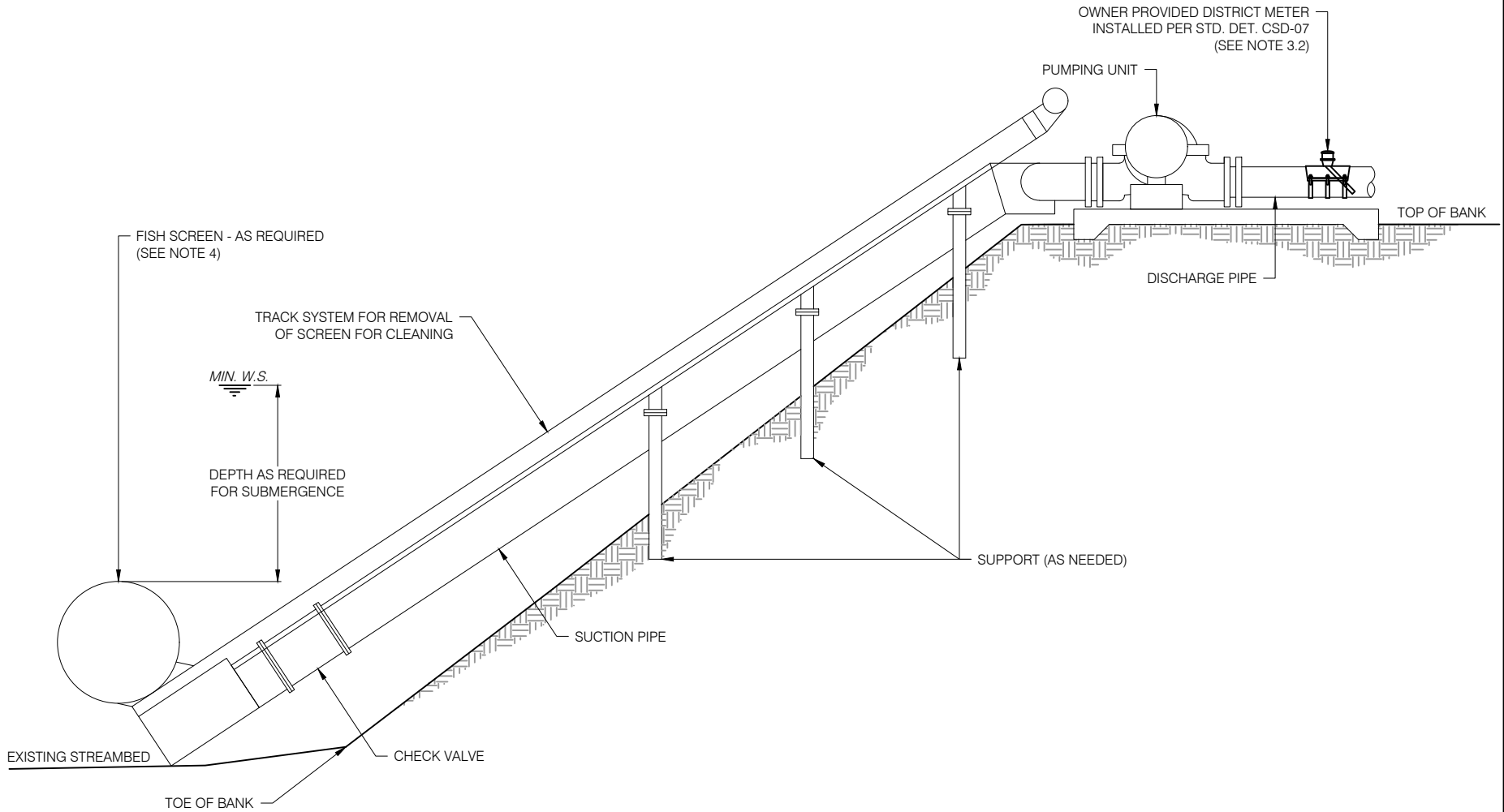


SCALE: NTS

STANDARD DETAILS

CANAL TURNOUT

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-05.3
APPROVED BY: _	

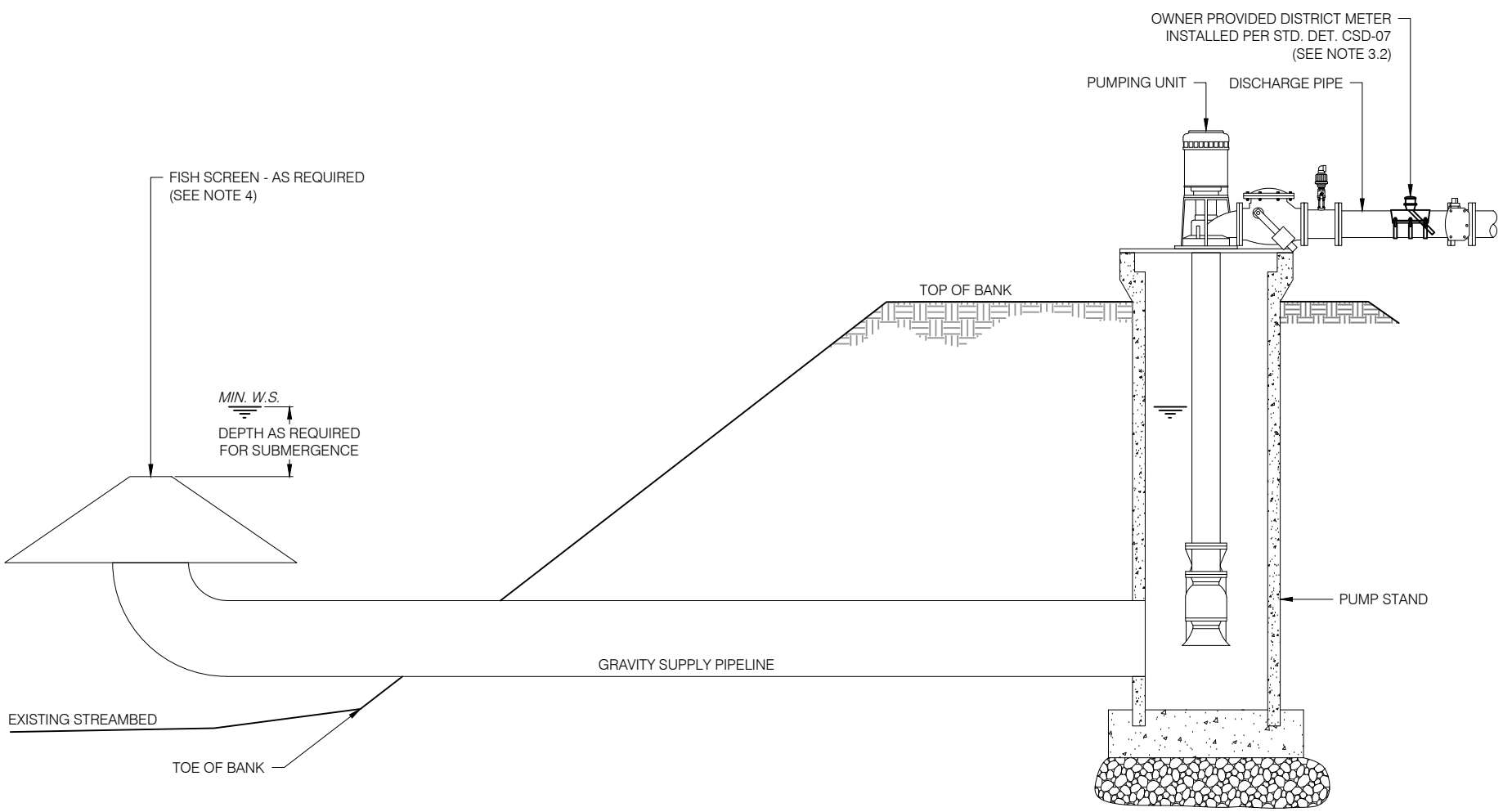


SCALE: NTS

STANDARD DETAILS

RIVER PUMP TURNOUT TYPE 1

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-05.4
APPROVED BY: _	



SCALE: NTS

STANDARD DETAILS

RIVER PUMP TURNOUT TYPE 2

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-05.5
APPROVED BY: _	

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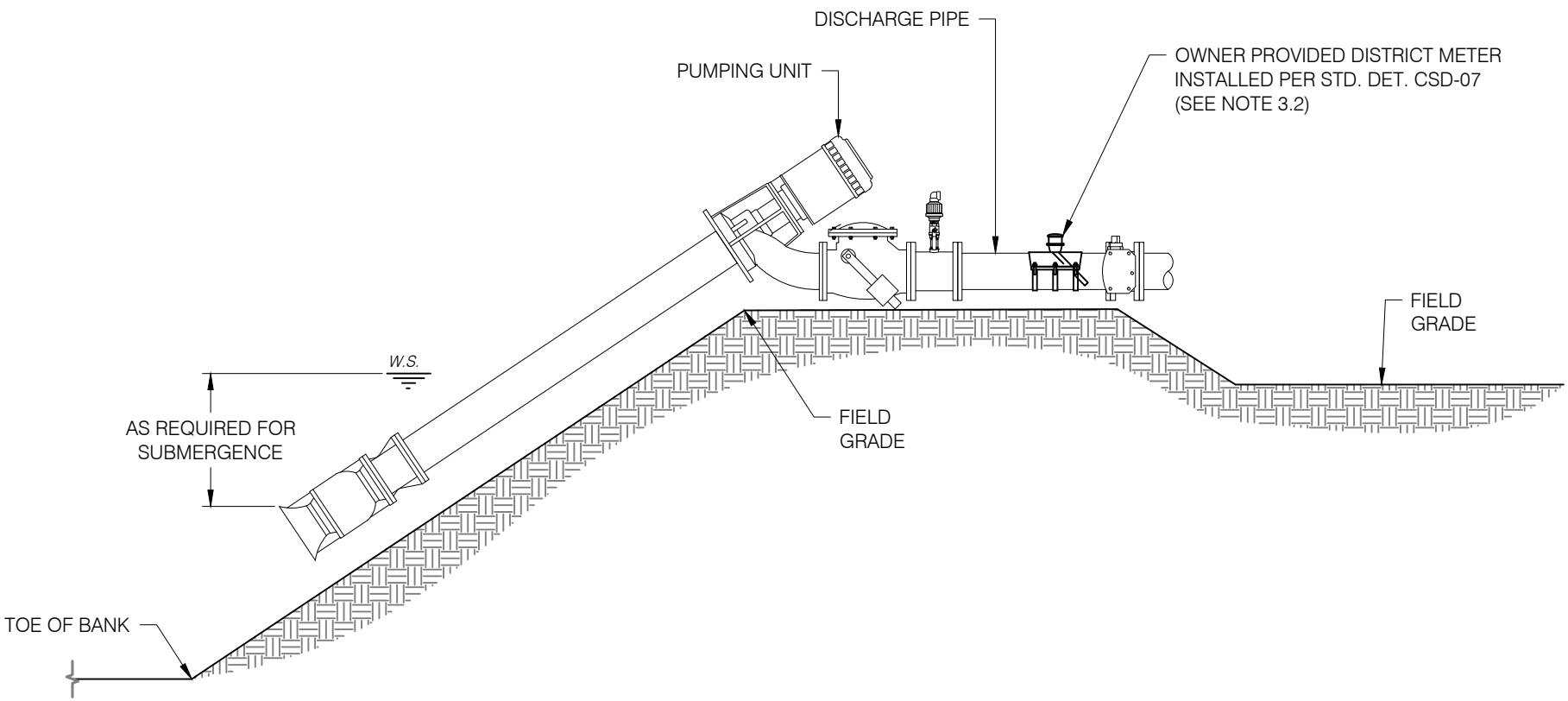
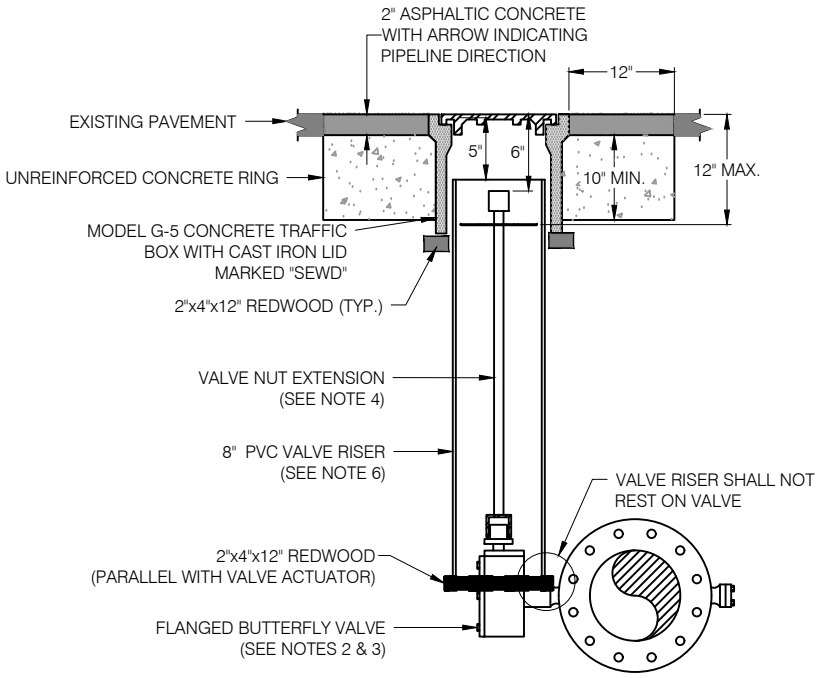


SCALE: NTS

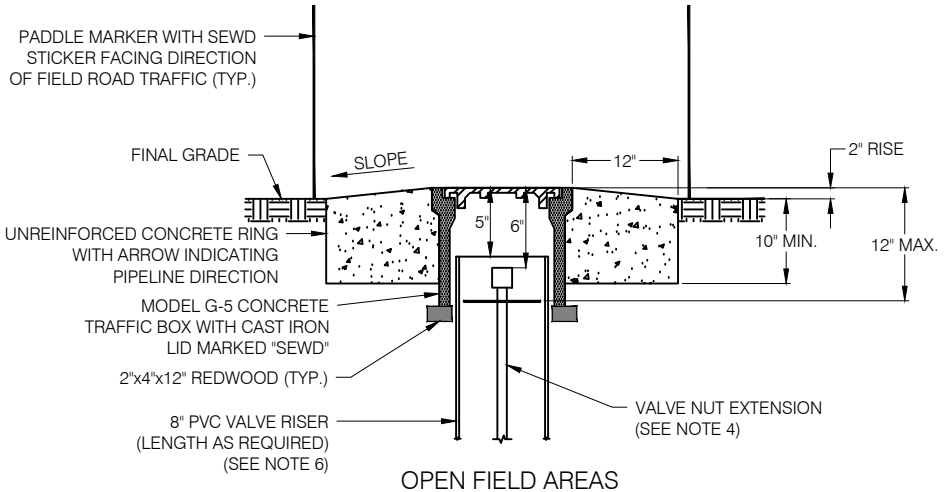
STANDARD DETAILS

RIVER PUMP TURNOUT TYPE 3

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-05.6
APPROVED BY: _	



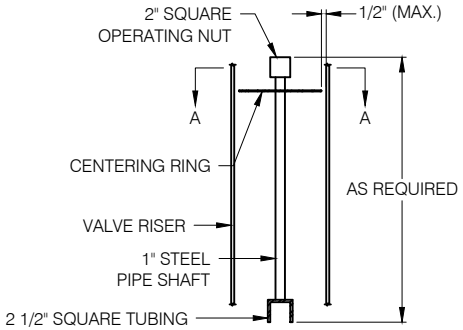
PAVED AREAS



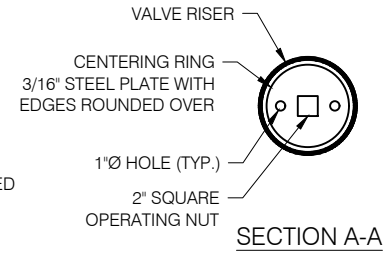
OPEN FIELD AREAS

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ANY PROPOSED CHANGE TO THE MATERIAL(S), REQUIREMENTS SHOWN OR ANY OTHER CONDITION OUTLINED IN THE STANDARD SPECIFICATIONS RELEVANT TO THIS DETAIL, MUST BE APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO THEIR PURCHASE OR THEIR INSTALLATION, NO EXCEPTIONS.
3. ALL BUTTERFLY VALVES SHALL BE PRATT GROUNDHOG OR APPROVED EQUAL, FLANGED SHORT BODY, NOT WAFER TYPE, AND CONFORM TO AWWA C-504. BUTTERFLY VALVES SHALL BE FURNISHED WITH 2" SQUARE OPERATING NUT, CLOCKWISE TO CLOSE. EXTERIOR SURFACES SHALL BE COAL TAR COATED AS PER AWWA C-203 AND THE INTERIOR SHALL BE LINED WITH KEYSITE EPOXY #740, SCOTCHKOTE EPOXY #306 OR APPROVED EQUAL.
4. A VALVE NUT EXTENSION SHALL BE REQUIRED ON ALL SUBSURFACE VALVE INSTALLATIONS. VALVE STEM EXTENSION WITH CENTERING RING FROM *PLACER WATERWORKS* OR APPROVED EQUAL MAY BE USED, WITH ENGINEER'S APPROVAL.
5. ALL BELOW GROUND NUTS, BOLTS AND MISCELLANEOUS STEEL SHALL BE POLYETHYLENE ENCASED AS PER AWWA C-105 OR TAPE WRAPPED AS PER AWWA C-209, 20 MILS MINIMUM IN BOTH CASES.
6. VALVE RISER MAY BE NOTCHED AROUND VALVE SHAFT WITH ENGINEER'S APPROVAL. VALVE RISER SHALL NOT REST ON VALVE.
7. ALL CONCRETE MIX SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI, AND BE CAST AGAINST UNDISTURBED NATIVE MATERIAL OR FILL COMPACTED TO 95% RELATIVE DENSITY.



VALVE NUT EXTENSION



SECTION A-A

SCALE: NTS

STANDARD DETAILS

VALVE RISER

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	CSD-06.0

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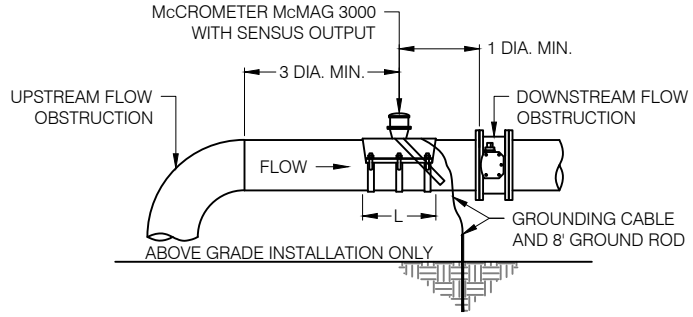
McCROMETER McMAG 3000		
SIZE	FLOW RANGE	LAY LENGTH (L)
4"	40 - 600 gpm	8"
6"	90 - 1,350 gpm	12"
8"	150 - 2,350 gpm	12"
10"	240 - 3,700 gpm	12"
12"	350 - 5,300 gpm	12"

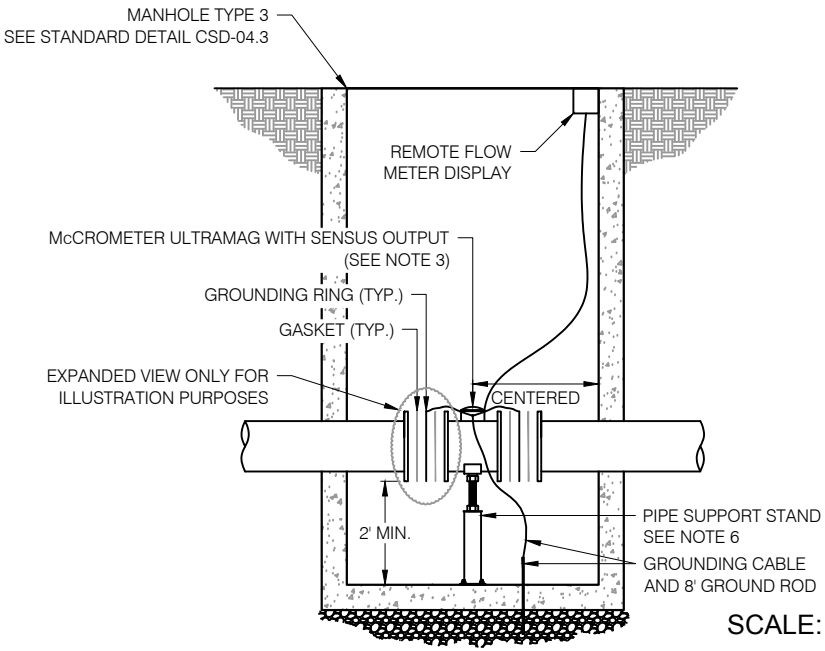
NOTES:
METER SHALL BE EQUIPPED WITH SENSUS OUTPUT.
PIPE MUST FLOW FULL FOR ACCURATE MEASUREMENT.

McCROMETER ULTRAMAG		
SIZE	FLOW RANGE	LAY LENGTH (L)
4"	8 - 1,140 gpm	13.40"
6"	19 - 2,660 gpm	14.60"
8"	33 - 4,870 gpm	16.10"
10"	52 - 7,670 gpm	18.50"
12"	74 - 11,180 gpm	19.70"
14"	90 - 16,070 gpm	21.70"
16"	118 - 20,900 gpm	23.60"
18"	150 - 26,480 gpm	23.60"
20"	185 - 32,720 gpm	25.60"
24"	270 - 47,180 gpm	30.70"

NOTES:
METER SHALL BE EQUIPPED WITH SENSUS OUTPUT.
PIPE MUST FLOW FULL FOR ACCURATE MEASUREMENT.



NOTES:
1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. PIPE SUPPORT STAND TO BE MANUFACTURED BY PLACER WATERWORKS OR APPROVED EQUAL.
3. MINIMUM OF ONE (1) PIPE DIAMETER OF STRAIGHT RUN UPSTREAM OF METER.
4. FINAL METER TYPE, CONFIGURATION AND LOCATION SHALL BE APPROVED BY THE DISTRICT'S OPERATIONS DEPARTMENT AND THE DISTRICT ENGINEER.
5. USEFUL INFORMATION: gpm = GALLONS PER MINUTE; cfs = CUBIC FEET PER SECOND; AF = ACRE FEET; 1 cfs = 450 gpm = 1 AF IN 12 HOURS; 1 cfs for 24 HOURS = 2 AF; 1 AF = 43,560 CUBIC FEET OF WATER = 325,851 GALLONS; 1 CUBIC FOOT = 7.48 GALLONS.



SCALE: NTS

STANDARD DETAILS

METER INSTALLATIONS

DRAWN BY: JH
DESIGNED BY: JH
APPROVED BY: _

DATE: 02-25-2020
FIG. NO.: CSD-07.0

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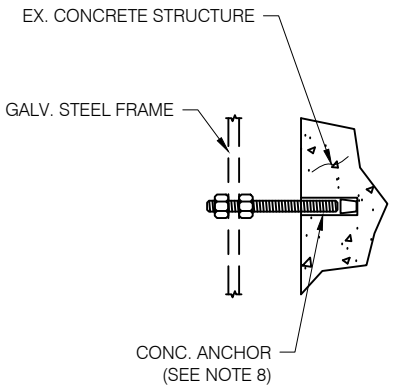
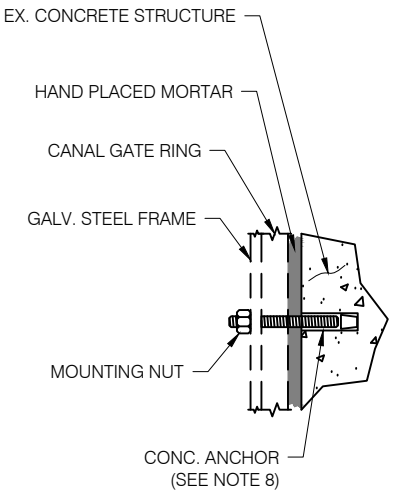
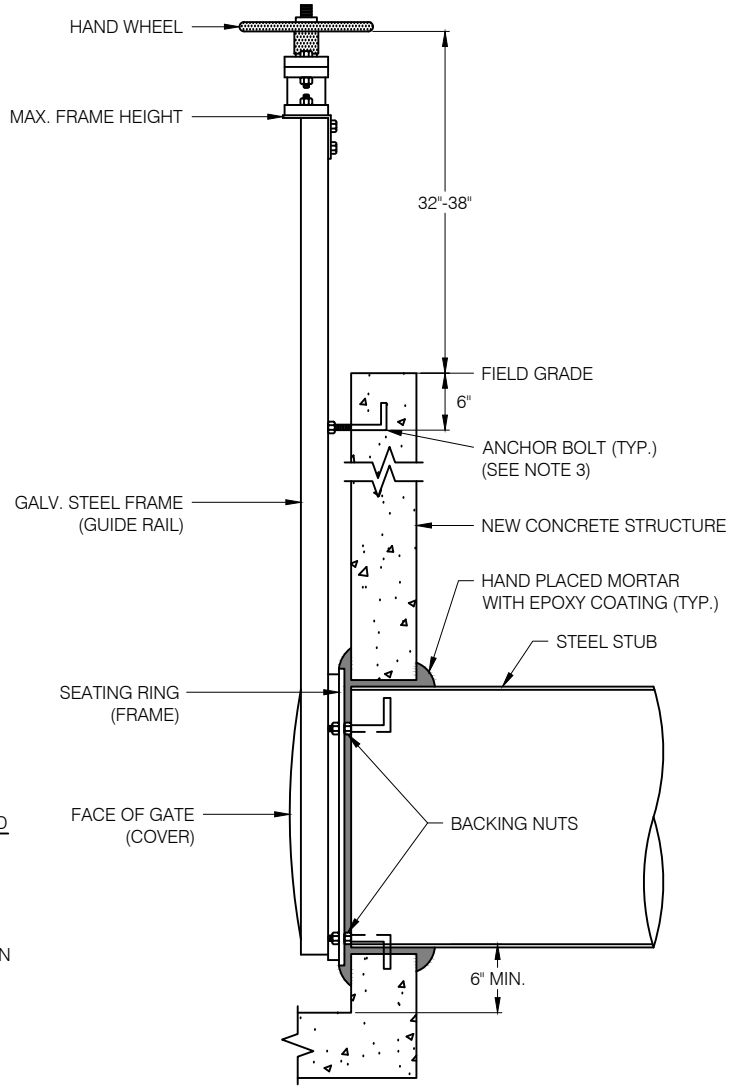


DETAIL A



DETAIL B



PROFILE VIEW

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. GATES SHALL BE WATERMAN C-20 FLATBACK CANAL GATES, UNLESS OTHERWISE APPROVED BY THE DISTRICT ENGINEER.
3. CANAL GATE SHALL NOT BE DISASSEMBLED FOR INSTALLATION.
4. MOUNTING BOLTS SHALL BE CAREFULLY CHECKED FOR SIZE, PROJECTION, PERPENDICULAR AND HORIZONTAL ALIGNMENTS PRIOR TO INSTALLATION. CANAL GATE SHALL NOT BE FORCED ONTO MISALIGNED BOLTS.
5. INSTALLATIONS ON EXISTING CONCRETE STRUCTURES OR INSTALLING NEW MOUNTING BOLTS, CONTRACTOR WILL USE DETAILS A & B OR APPROVED EQUAL.
6. BEFORE THE MORTAR IS PLACED, THE CLEARANCE BETWEEN THE SEATING SURFACES SHALL BE CHECKED WITH A FEELER GAUGE AND SHALL NOT EXCEED 0.003".
7. IF SEATING SURFACES EXCEED 0.003", THE GATE SHALL BE REMOVED, THE BACKING NUTS VERIFIED TO BE IN THE SAME VERTICAL PLANE, THE GATE WILL BE REINSTALLED AND SEATING SURFACE CLEARANCE RECHECKED. IF AFTER RECHECKING THE SEATING SURFACE STILL EXCEEDS 0.003",
8. CONCRETE ANCHORS SHALL BE SIMPSON WEDGE-ALL; SIZED AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS; OR APPROVED EQUAL.

SCALE: NTS

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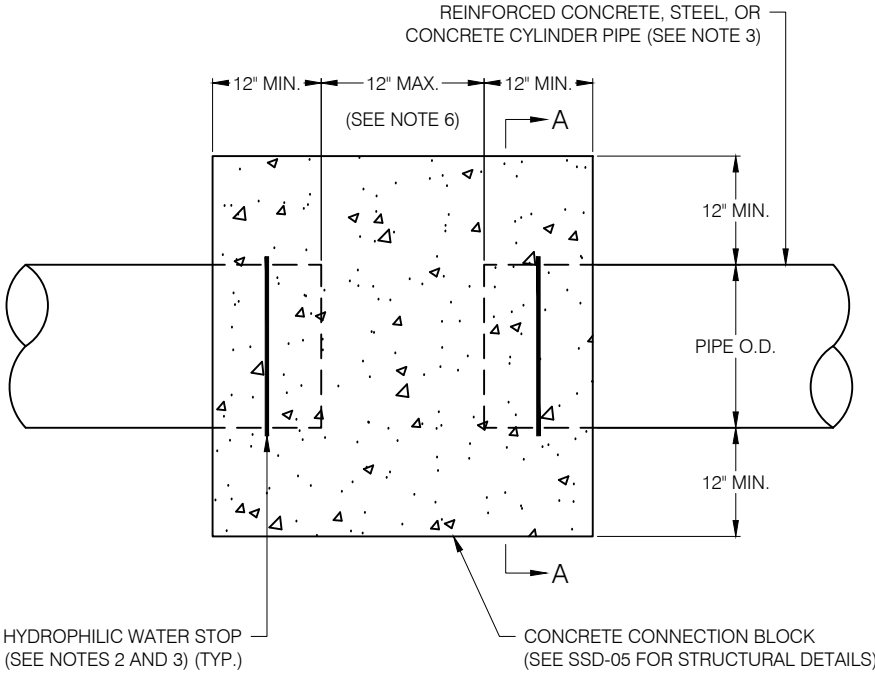
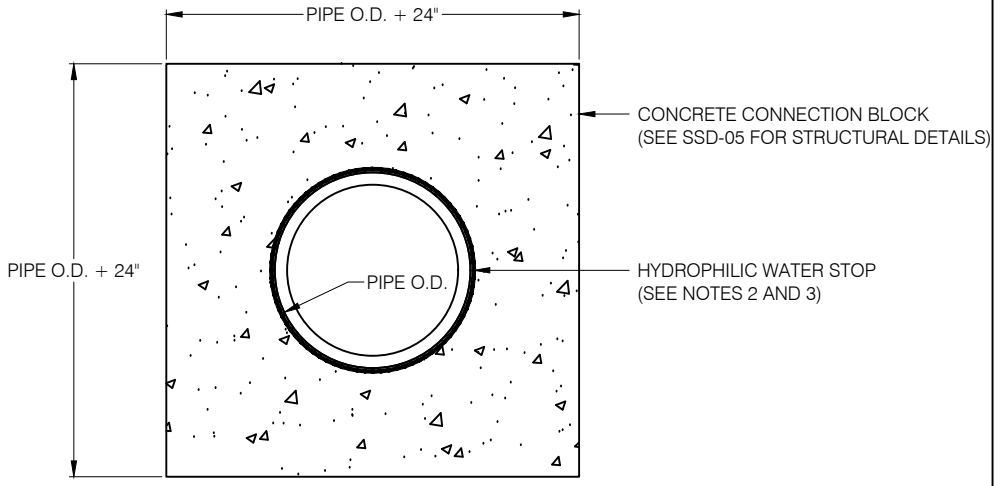
STANDARD DETAILS

CANAL GATE INSTALLATION

DRAWN BY: JH	DATE: 12-18-2019
DESIGNED BY: JH	FIG. NO.: CSD-08.0
APPROVED BY: _	



PLAN VIEW



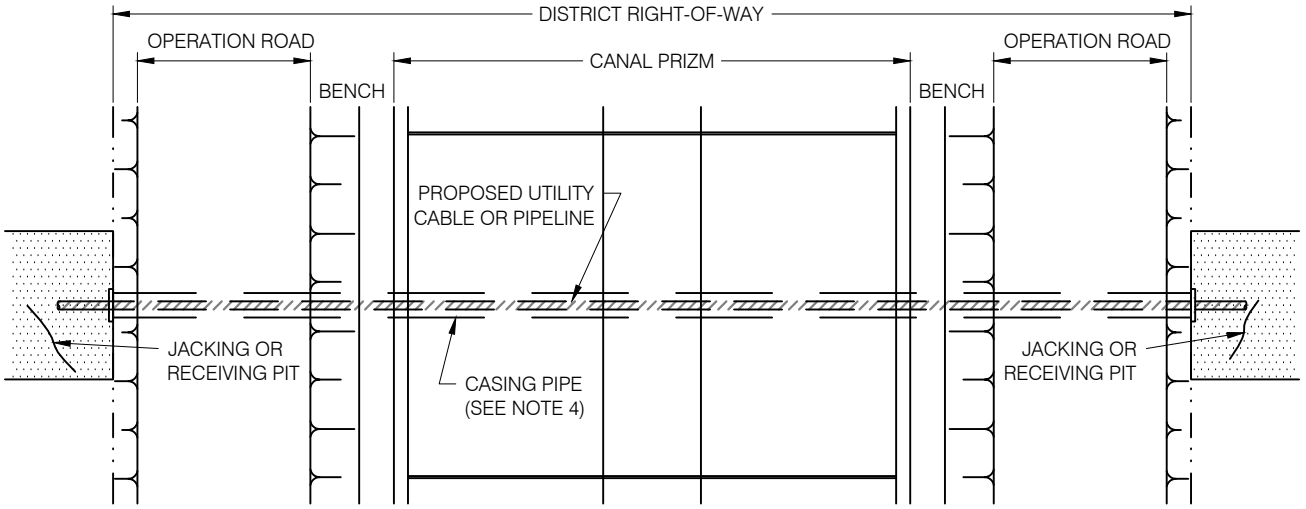
SECTION A-A

NOTES:

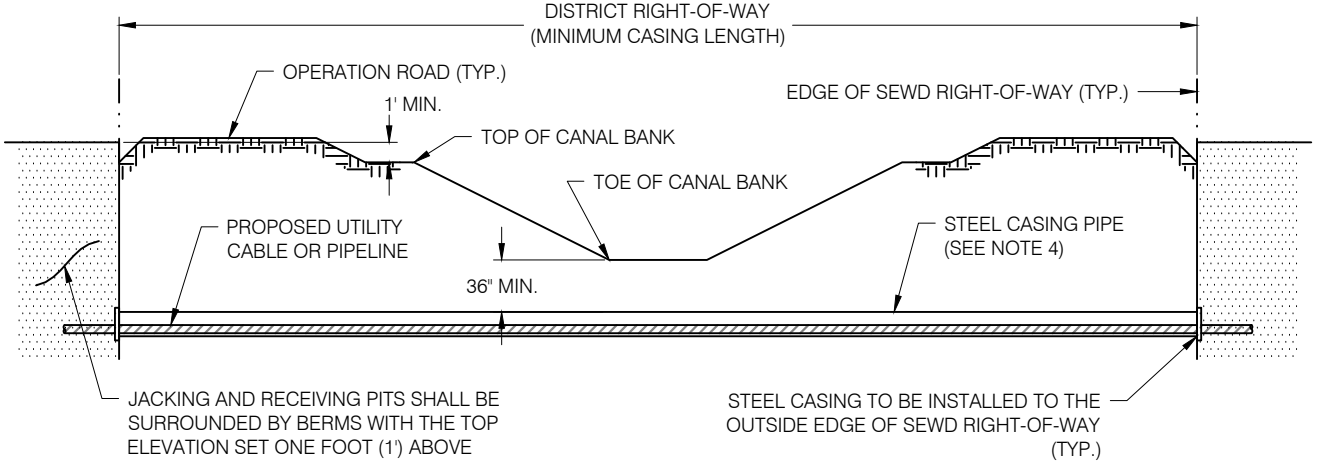
1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. THE HYDROPHILIC WATER STOP SHALL BE SIKA SWELLSTOP OR APPROVED EQUAL. THE HYDROPHILIC WATER STOP SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION GUIDELINES
3. PRIOR TO INSTALLING THE HYDROPHILIC WATER STOP ON CONCRETE CYLINDER PIPE, A SUFFICIENT LENGTH OF MORTAR COATING SHALL BE REMOVED TO ALLOW FOR PLACEMENT OF THE WATER STOP DIRECTLY ONTO STEEL.
4. BACKFILLING SHALL NOT COMMENCE BEFORE THE CONCRETE HAS REACHED 75% OF ITS COMPRESSIVE STRENGTH. BACKFILLING PRIOR TO THIS SHALL BE APPROVED BY THE DISTRICT ENGINEER.

SCALE: NTS

	STANDARD DETAILS	DRAWN BY: JH	DATE: 12-18-2019
	CONCRETE CONNECTION BLOCK	DESIGNED BY: JH	FIG. NO.: CSD-09.0
		APPROVED BY: _	



PLAN VIEW



PROFILE

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DISTRICT A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION WITHIN THE DISTRICT RIGHT-OF-WAYS.
3. ANY CONSTRUCTION WITHIN THE DISTRICT RIGHT-OF-WAYS SHALL NOT BE ALLOWED FROM APRIL 15 TO OCTOBER 15 WITHOUT WRITTEN APPROVAL FROM THE GENERAL MANAGER.
4. THE CASING SHALL BE STEEL PIPE (AWWA C-200) AND HAVE A STANDARD WALL THICKNESS.

SCALE: NTS

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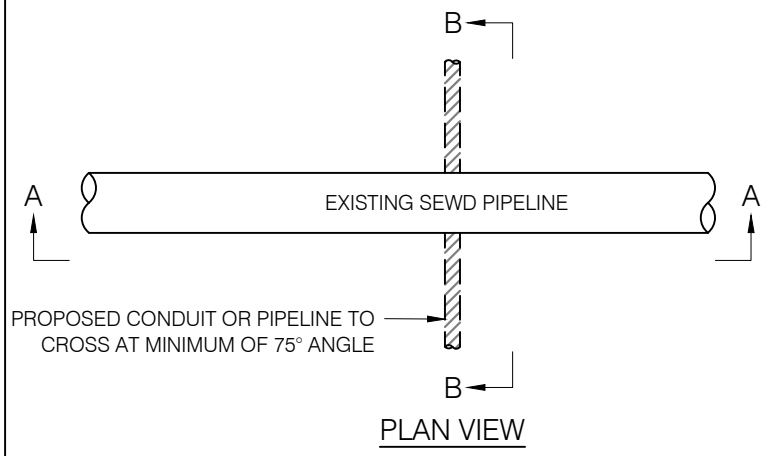
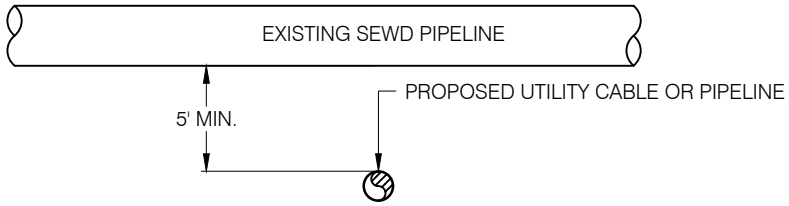
STANDARD DETAILS

UTILITY CROSSING UNDER DISTRICT CANAL

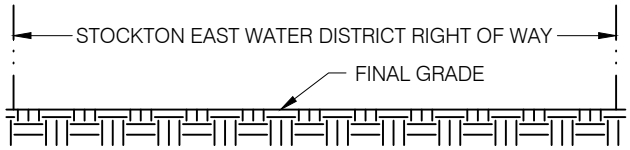
DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-10.0
APPROVED BY: _	

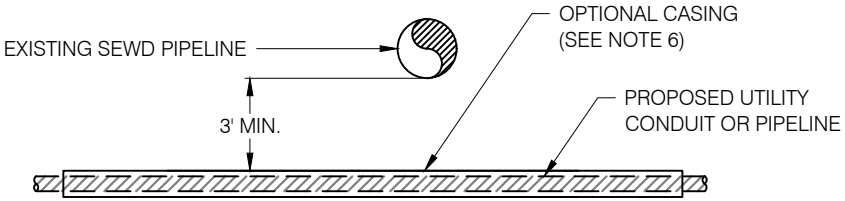


PLAN VIEW



SECTION A-A





SECTION B-B

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. THE OWNER AND/OR CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DISTRICT PRIOR TO COMMENCING CONSTRUCTION WITHIN THE DISTRICT RIGHT-OF-WAY.
3. THE PROPOSED UTILITY CONDUIT OR PIPELINE SHALL BE OF APPROPRIATE MATERIAL AND PROPERLY INSTALLED TO REQUIRE NO MAINTENANCE OR REPAIR.
4. THE PROPOSED UTILITY CROSSING SHALL BE BORED; OPEN CUTTING UNDER THE DISTRICT'S PIPELINE SHALL NOT BE PERMITTED.
5. DUE TO THE CRITICAL NATURE OF DISTRICT OPERATIONS, WORK AROUND DISTRICT FACILITIES AND WITHIN THE DISTRICT RIGHT-OF-WAY MAY NOT BE PERMITTED FOR LONG PERIODS OF TIME. THE DISTRICT ENCOURAGES, BUT DOES NOT REQUIRE, THE INSTALLATION OF A STEEL CASING TO FACILITATE UNFETTERED ACCESS.
6. THE CASING SHALL BE STEEL PIPE (AWWA C-200), HAVE A STANDARD WALL THICKNESS, AND PAINTED PER THE APWA UNIFORM COLOR CODE.
7. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE SEWD PIPELINE BY POTHOLING. HOLE SHALL REMAIN OPEN UNTIL THE UTILITY CASING HAS CROSSED THE SEWD PIPELINE.

SCALE: NTS

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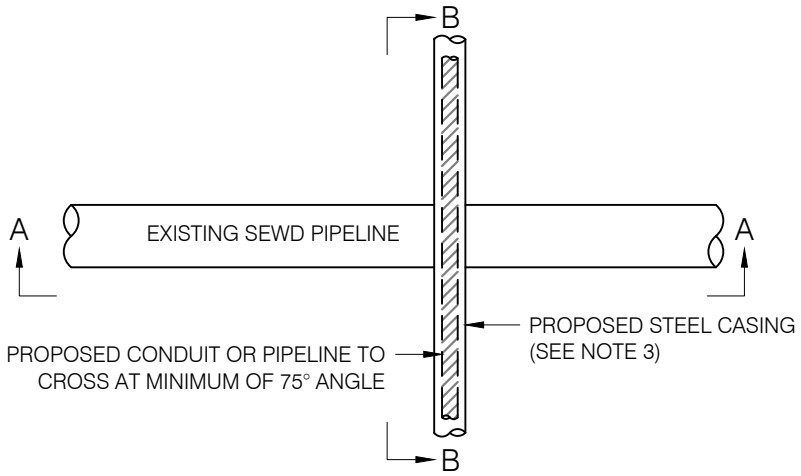
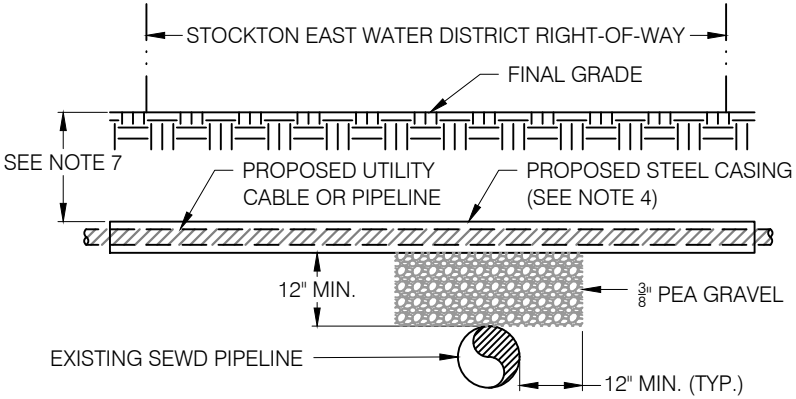
STANDARD DETAILS

UTILITY CROSSING UNDER DISTRICT PIPELINE

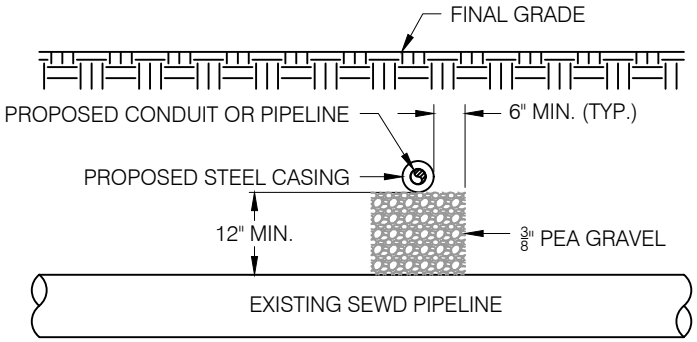
DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-10.1
APPROVED BY: _	



PLAN VIEW



SECTION B-B



SECTION A-A

NOTES:

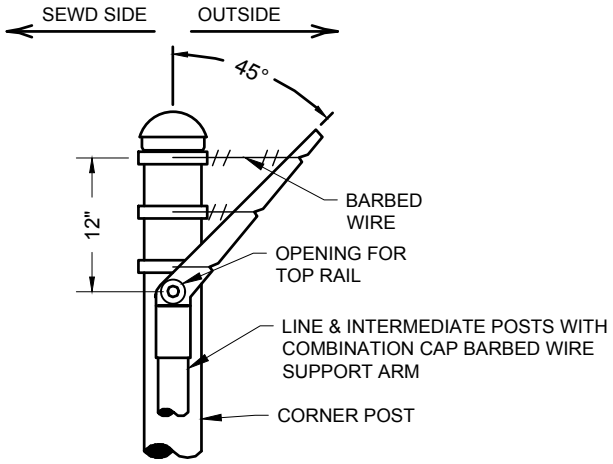
1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. THE OWNER AND/OR CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DISTRICT PRIOR TO COMMENCING CONSTRUCTION WITHIN THE DISTRICT RIGHT-OF-WAY.
3. THE PROPOSED UTILITY CONDUIT OR PIPELINE SHALL BE OF APPROPRIATE MATERIAL AND PROPERLY INSTALLED TO REQUIRE NO REGULAR MAINTENANCE OR REPAIR.
4. THE CASING SHALL BE STEEL PIPE (AWWA C-200), HAVE A STANDARD WALL THICKNESS, AND PAINTED PER THE APWA UNIFORM COLOR CODE.
5. JACKED OR BORED CASING PIPE SHALL BE A MINIMUM OF ONE FOOT (1') ABOVE THE EXISTING SEWD PIPELINE AND EXTENDED THROUGH THE SEWD RIGHT-OF-WAY.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE SEWD PIPELINE BY POTHOLING. HOLE SHALL REMAIN OPEN DURING BORING OPERATIONS UNTIL THE UTILITY CASING HAS CROSSED THE SEWD PIPELINE.
7. ENGINEER/CONTRACTOR RESPONSIBLE FOR MAINTAINING REQUIRED DEPTH.

SCALE: NTS

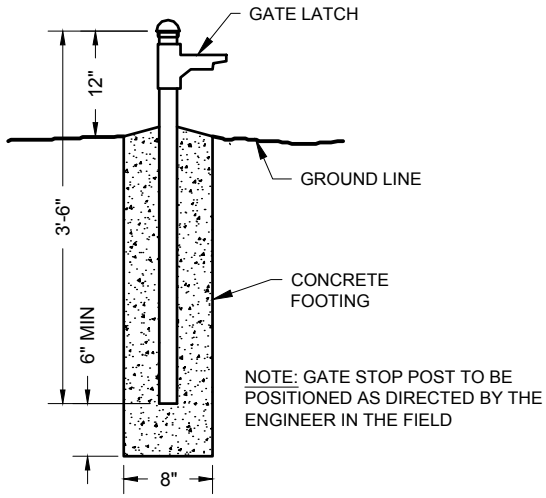
STANDARD DETAILS

UTILITY CROSSING OVER DISTRICT PIPELINE

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: CSD-10.2
APPROVED BY: _	



DETAIL OF BARBED WIRE SUPPORTING ARM



GATE STOP POST DETAIL
(2 REQUIRED)

GENERAL NOTES:

1. ALTERNATE MANUFACTURING DETAILS NOT COVERED ON THIS DRAWING MAY BE SUBMITTED BY CONTRACTOR FOR APPROVAL BY THE ENGINEER.
2. ADJUSTABLE TIGHTENERS SHALL BE TURNBUCKLE OR EQUIVALENT, HAVING A 6" MINIMUM TAKE-UP.
3. SECURE GALVANIZED CAP TO POST WITH 1/4" DIAMETER RIVET.
4. TYPICAL RAIL AND TRUSS WIRE PANELS SHALL BE USED AT ALL CORNERS, ANGLE POINTS, AND END POSTS .
5. ALL HARDWARE SHALL BE GALVANIZED.
6. ALL CONCRETE FOOTINGS TO BE CLASS "B" PORTLAND CEMENT CONCRETE (FIVE SACK MIX) AND THE TOP SURFACE OF EACH CONCRETE FOOTING SHALL BE SLOPED TO DRAIN.
7. BARBED WIRE SHALL BE 2 STRANDS OF GALVANIZED TWISTED 12t GAUGE CARBON STEEL WIRE. THE BARBS SHALL BE OF A FOUR POINT PATTERN, ON 4"± CENTERS.
8. CHAIN LINK FABRIC SHALL BE 84" HIGH 9 GAUGE CARBON STEEL WIRE, WOVEN IN A 2-1/2" MESH AND VINYL COATED BLACK.
9. MEASUREMENTS FOR PAYMENT FOR FURNISHING AND INSTALLING CHAINLINK FENCE WILL BE ON A LINEAR FOOT BASIS. PAYMENT WILL INCLUDE THE COST OF ALL LABOR, POSTS, FABRIC, AND ANY OTHER APPURTENANT ITEMS.
10. ALL MATERIALS BACK VINYL COATED.

POST & BRACE SCHEDULE	
TYPE	GALVANIZED MATERIAL
LINE POST & GATE STOP	2-3/8" O.D. SCHEDULE 40 PIPE
INTERMEDIATE POST	2-7/8" O.D. SCHEDULE 40 PIPE
TERMINAL POST	4" SCHEDULE 40 PIPE
CORNER POST	
VEHICLE GATE POST	6" SCHEDULE 40 PIPE
BRACES AND TOP RAILS	1-5/8" O.D. SCHEDULE 40 PIPE

SCALE: NTS

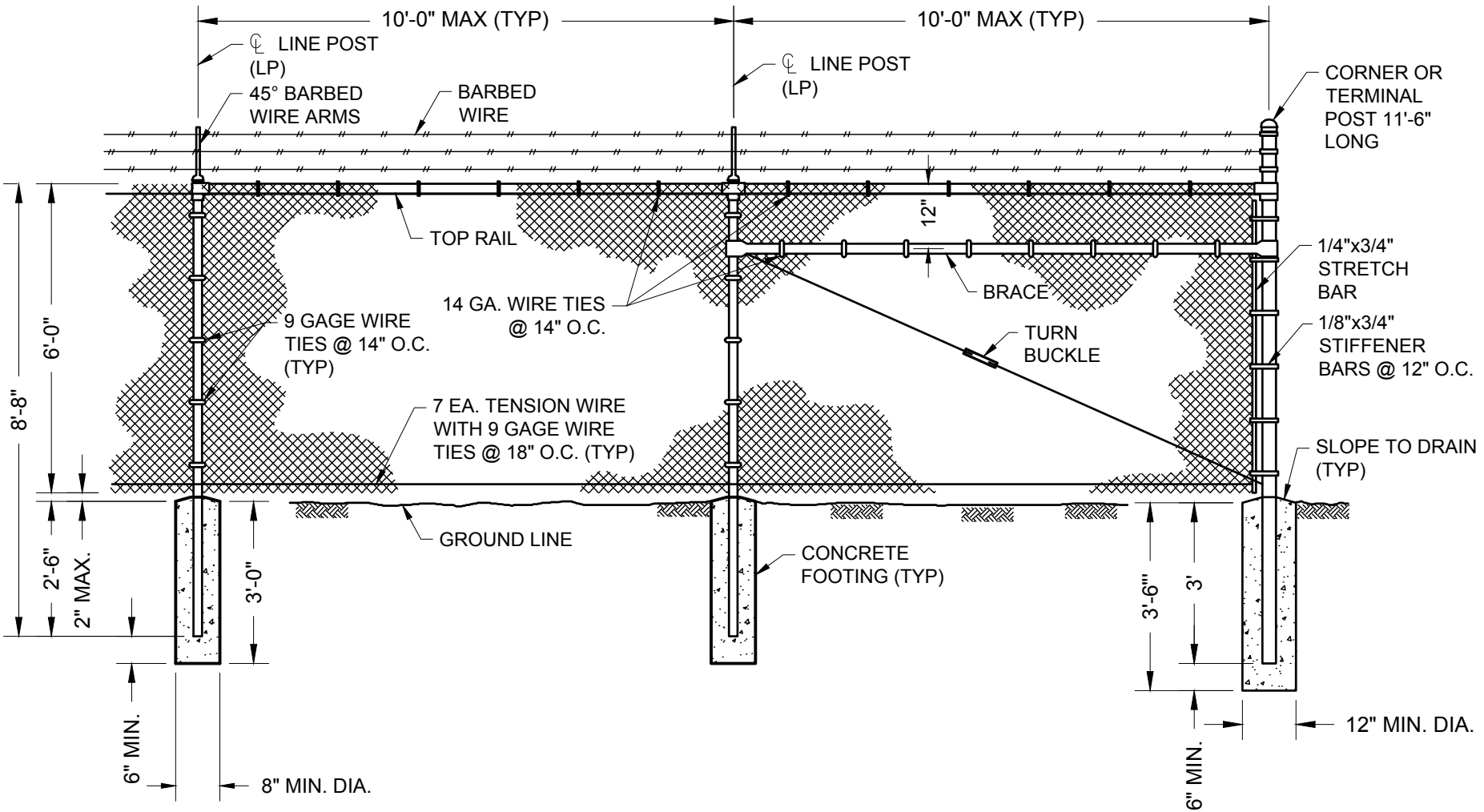
R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

GENERAL FENCING DETAILS AND NOTES

DRAWN BY: CCE
DESIGNED BY: JH
APPROVED BY: _

DATE: 06-24-2019
FIG. NO.: CSD-11.0



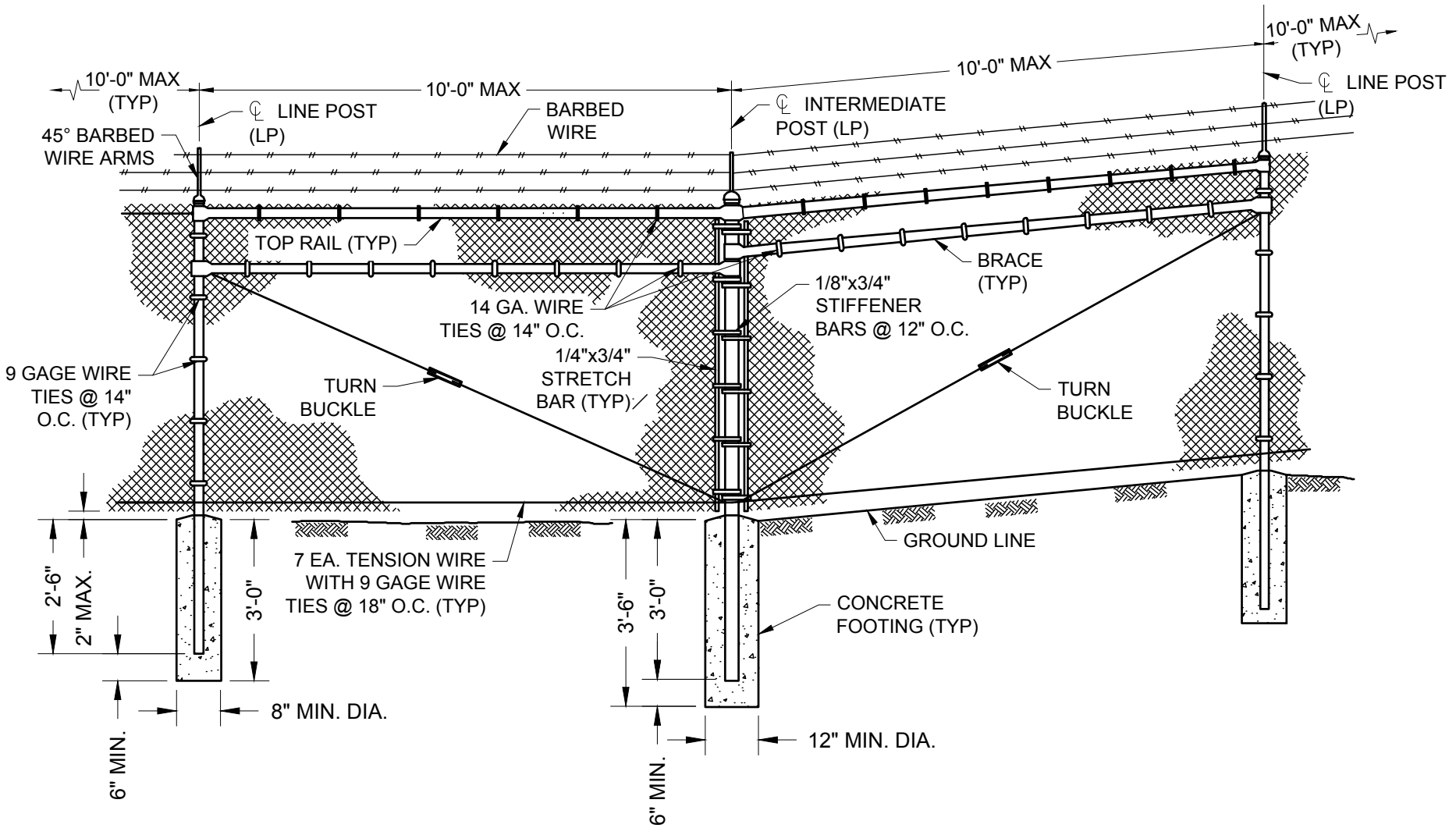
SCALE: NTS

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

TYPICAL FENCE ELEVATION

DRAWN BY:	CCE
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	06-18-2019
FIG. NO.:	CSD-11.1



TO BE INSTALLED AT NOT MORE THAN 1,000' INTERVALS ALONG FENCE LINE AND AT GRADE CHANGES EXCEEDING 5%

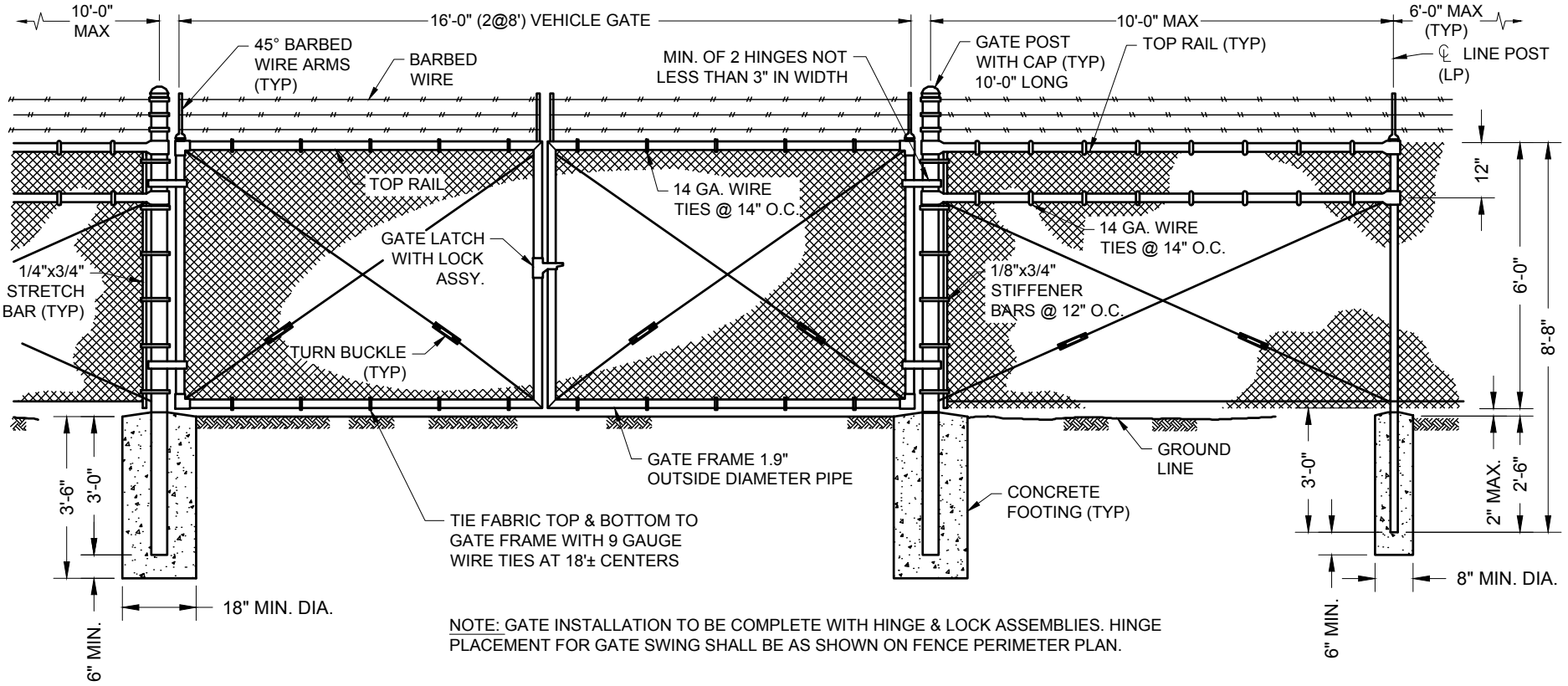
SCALE: NTS

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

INTERMEDIATE FENCE POST DETAIL

DRAWN BY: CCE	DATE: 06-18-2019
DESIGNED BY: JH	FIG. NO.: CSD-11.2
APPROVED BY: _	



NOTE: GATE INSTALLATION TO BE COMPLETE WITH HINGE & LOCK ASSEMBLIES. HINGE PLACEMENT FOR GATE SWING SHALL BE AS SHOWN ON FENCE PERIMETER PLAN.

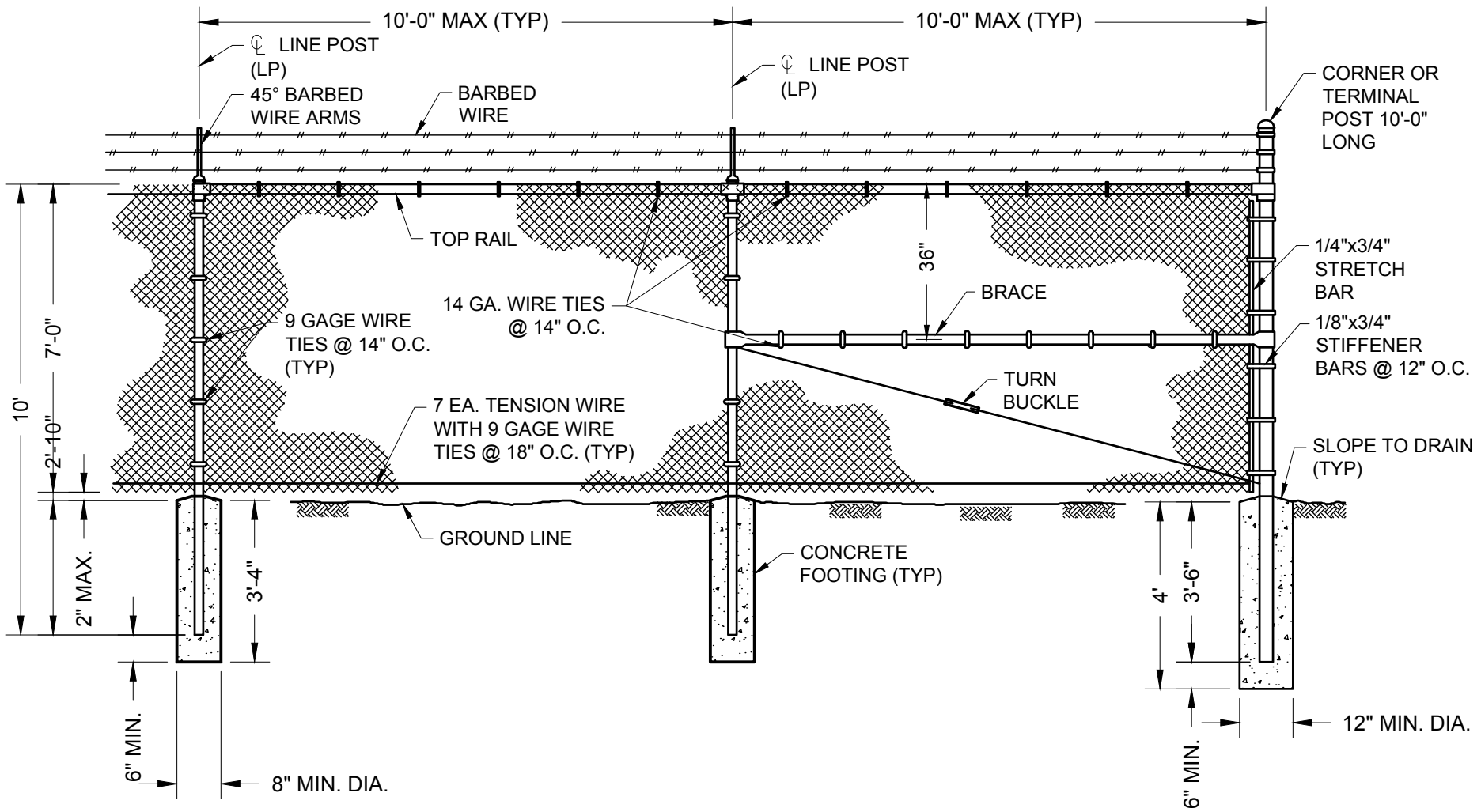
SCALE: NTS

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

DOUBLE SWING VEHICLE GATE DETAIL

DRAWN BY: CCE	DATE: 06-24-2019
DESIGNED BY: JH	FIG. NO.: CSD-11.3
APPROVED BY: _	



SCALE: NTS

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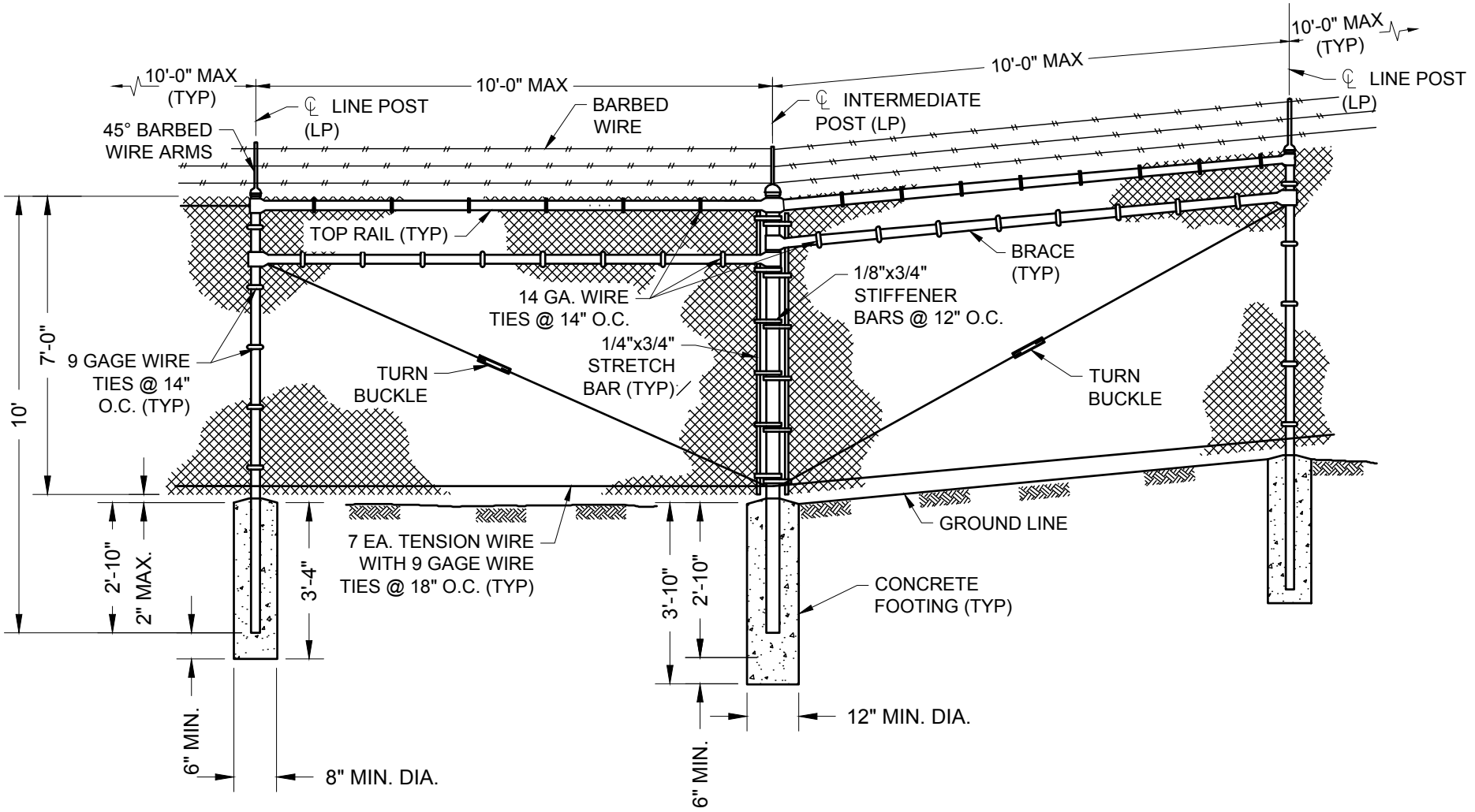
STANDARD DETAILS

TYPICAL FENCE ELEVATION
WATER TREATMENT PLANT

DRAWN BY:	CCE
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	08-18-2019
FIG. NO.:	CSD-11.4



TO BE INSTALLED AT NOT MORE THAN 1,000' INTERVALS ALONG FENCE LINE AND AT GRADE CHANGES EXCEEDING 5%

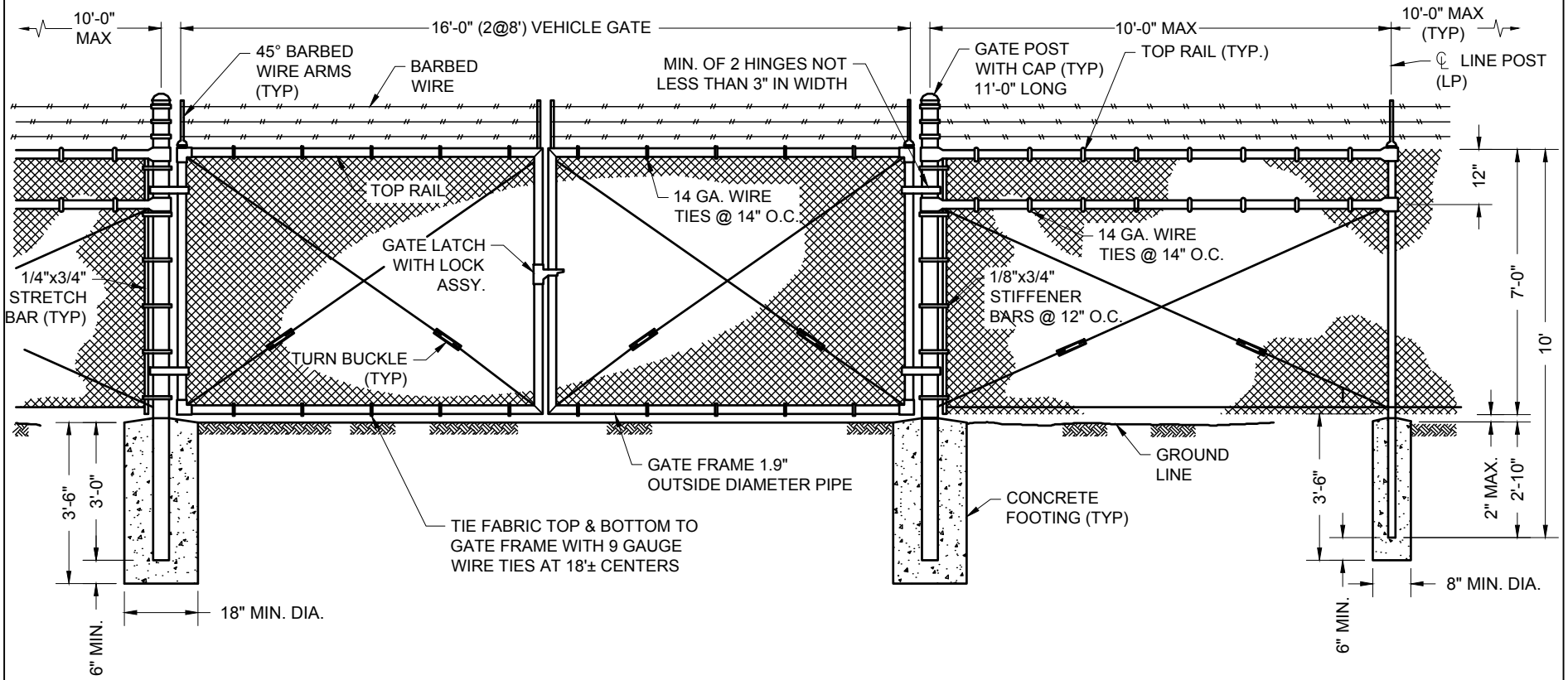
SCALE: NTS

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

INTERMEDIATE POST DETAIL
WATER TREATMENT PLANT

DRAWN BY: CCE	DATE: 08-18-2019
DESIGNED BY: JH	FIG. NO.: CSD-11.5
APPROVED BY: _	



NOTE: GATE INSTALLATION TO BE COMPLETE WITH HINGE & LOCK ASSEMBLIES. HINGE PLACEMENT FOR GATE SWING SHALL BE AS SHOWN ON FENCE PERIMETER PLAN.

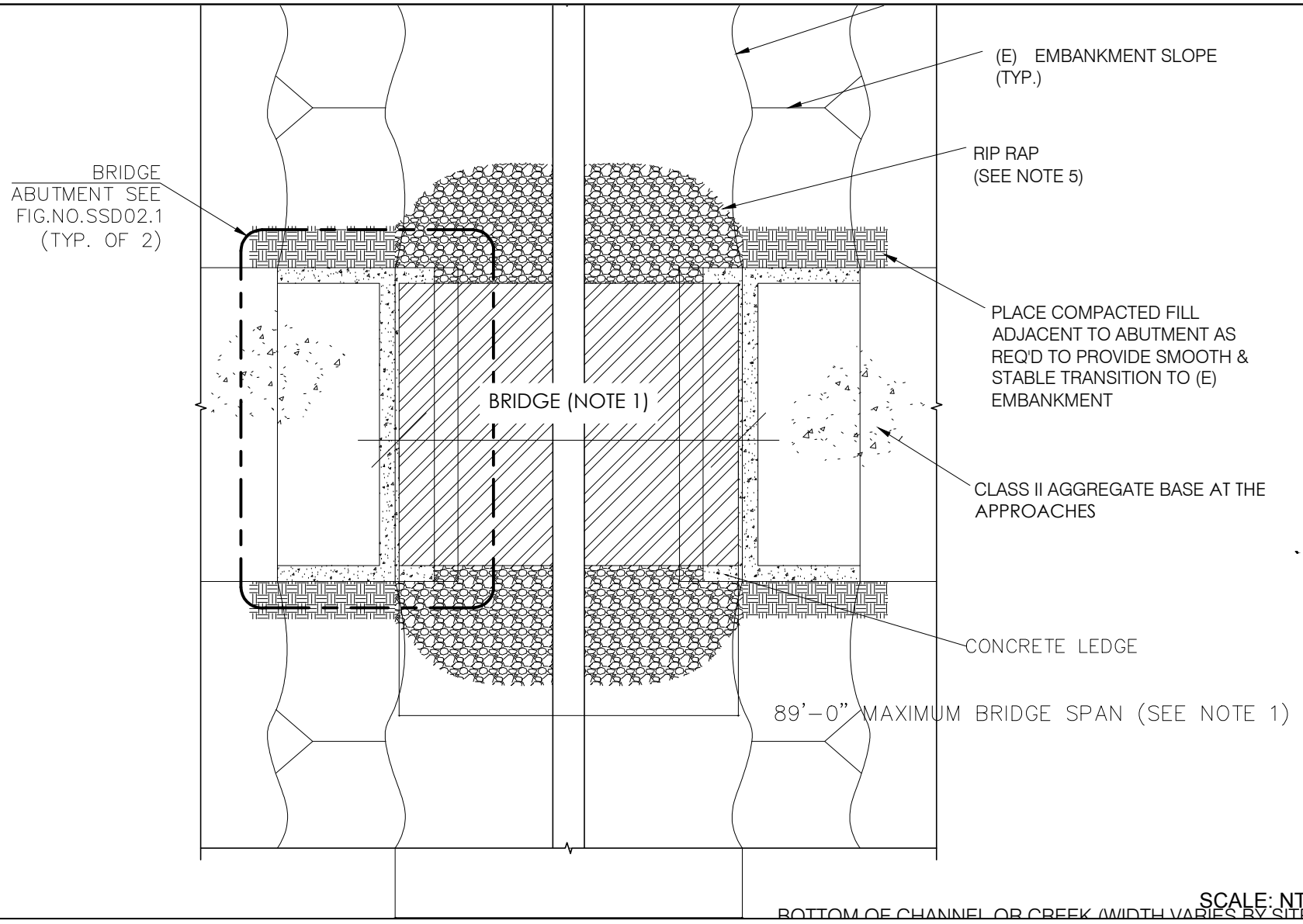
SCALE: NTS

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Civil.dwg PLOT DATE: 5/14/2020 10:10 AM

STANDARD DETAILS

DOUBLE SWING VEHICLE GATE
WATER TREATMENT PLANT

DRAWN BY: CCE	DATE: 08-18-2019
DESIGNED BY: JH	FIG. NO.: CSD-11.6
APPROVED BY: _	

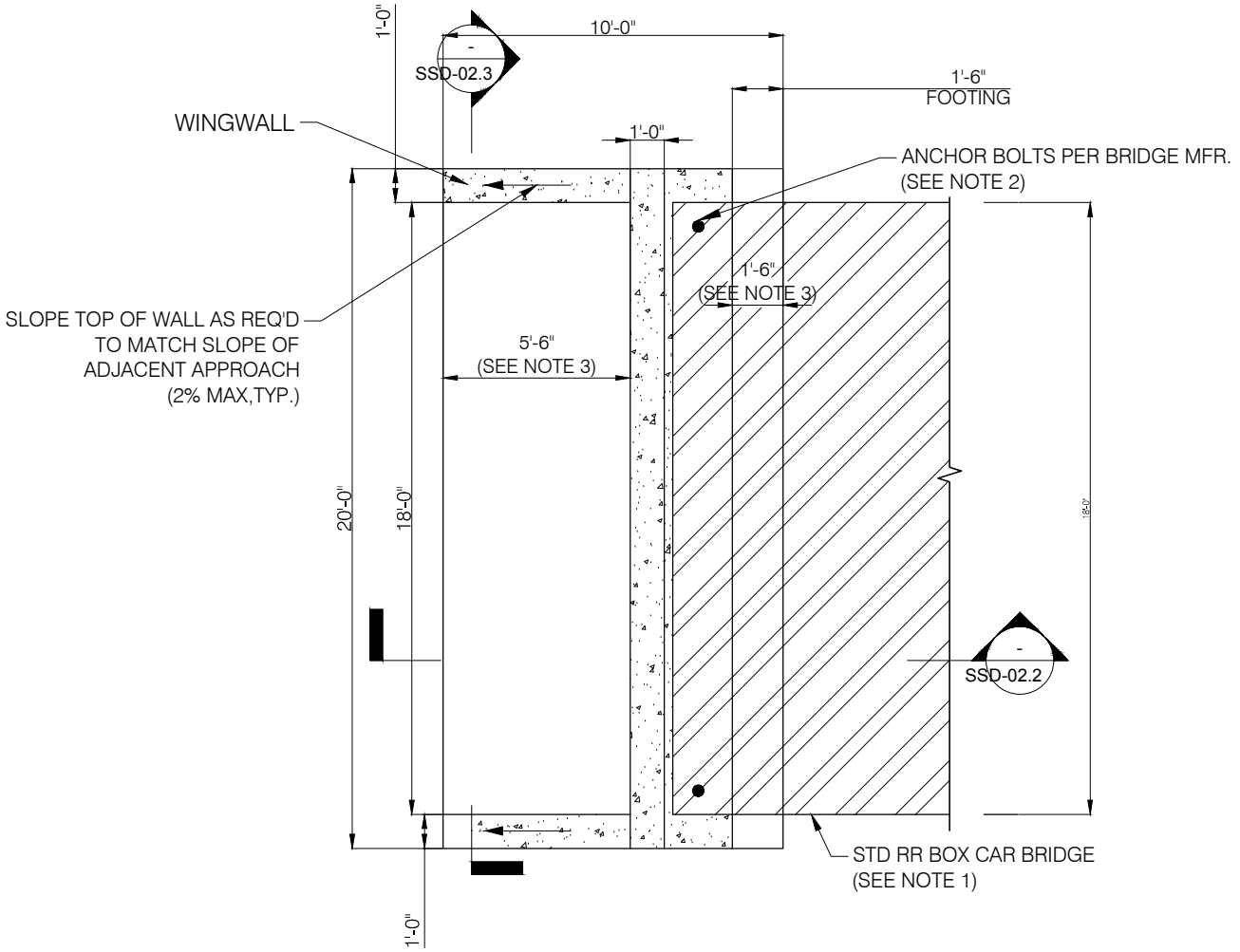


SCALE: NTS

STANDARD DETAILS

TYPICAL RAILCAR BRIDGE

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-02.0
APPROVED BY: _	



SCALE: NTS

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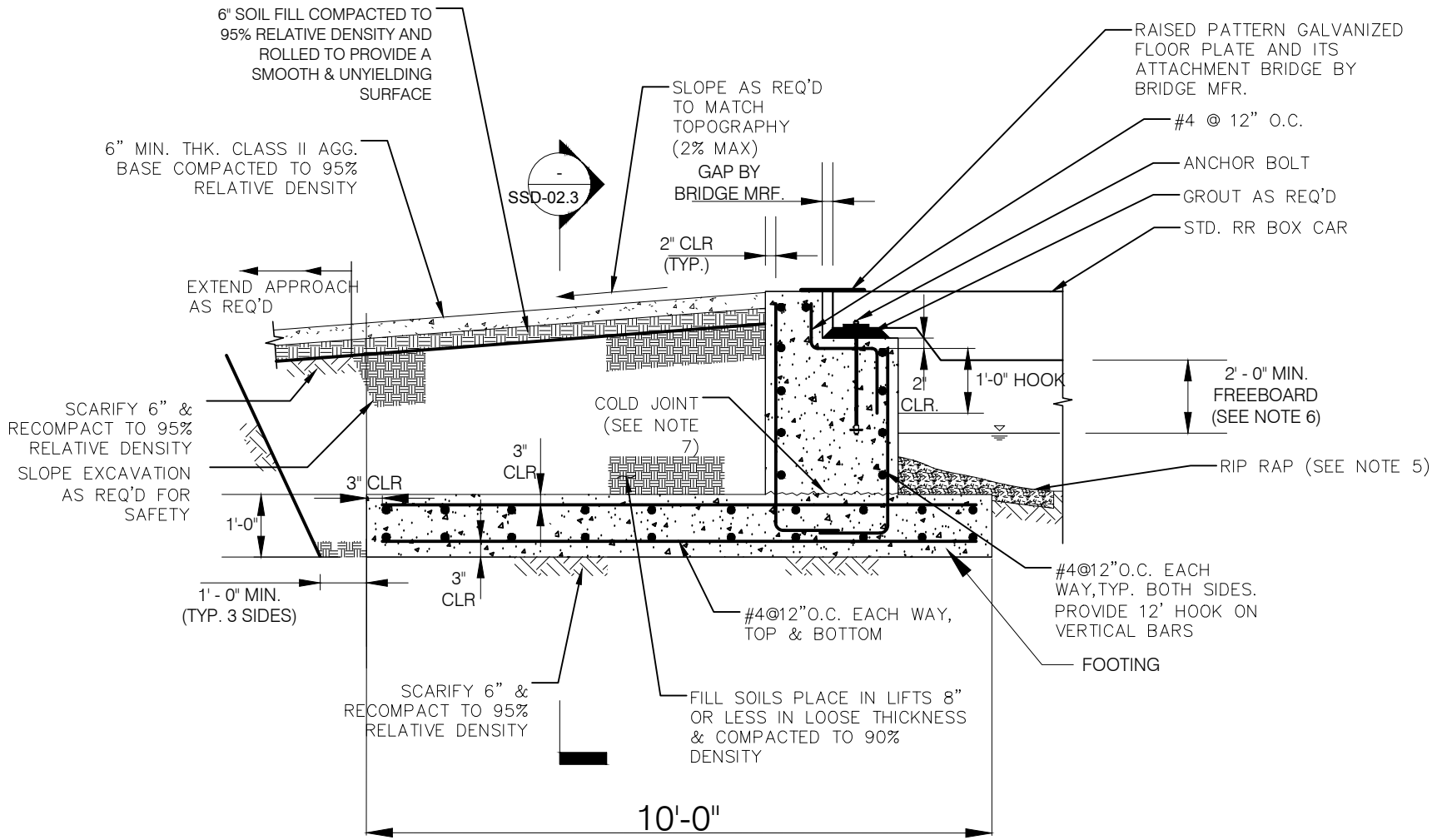
STANDARD DETAILS

TYPICAL RAILCAR BRIDGE CONCRETE ABUTMENT PLANT

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-02.1
APPROVED BY: _	



SCALE: NTS

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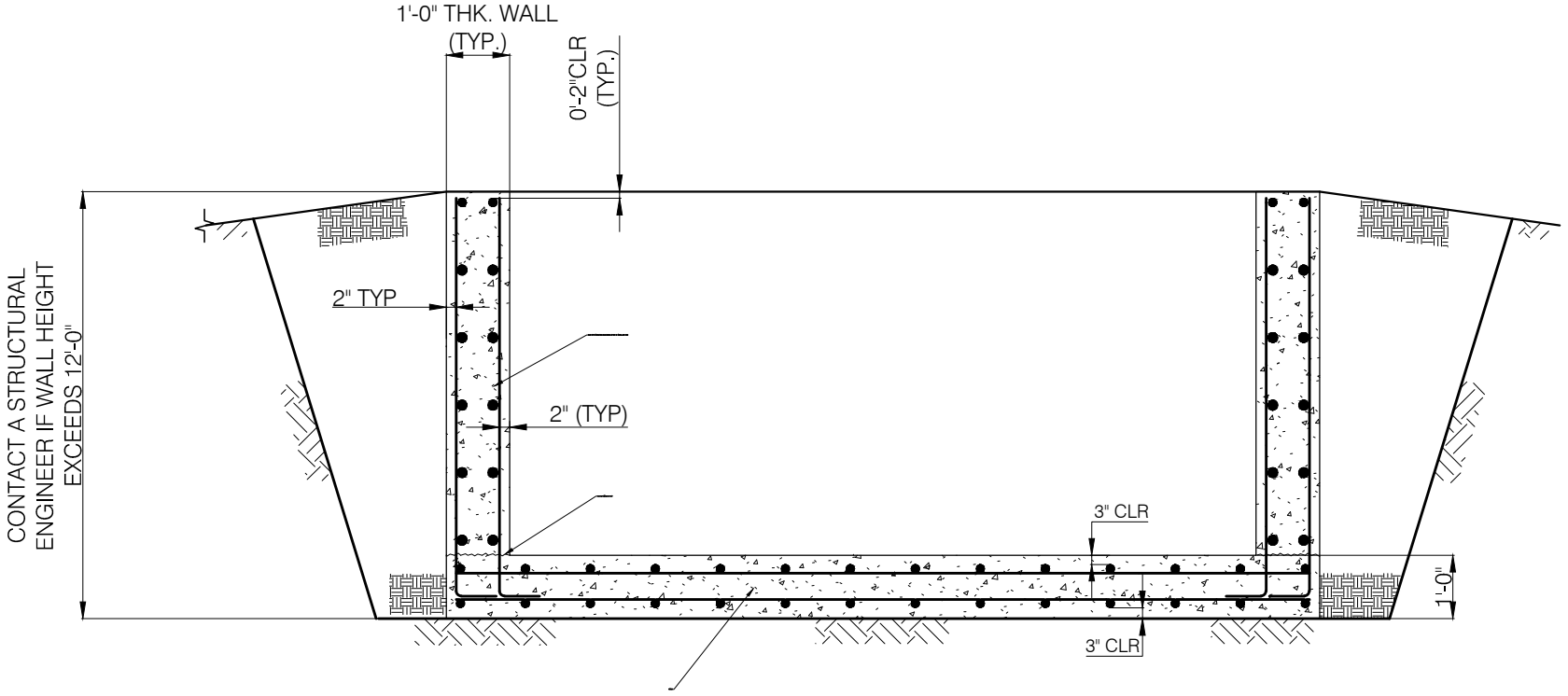
STANDARD DETAILS

TYPICAL RAILCAR BRIDGE CONCRETE ABUTMENT SECTION

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-02.2



SCALE: NTS

STANDARD DETAILS

TYPICAL RAILCAR BRIDGE
SIDE WALL SECTION

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-02.3

NOTES:

1. BRIDGE DESIGN AND FABRICATION DETAILS ARE BY THE BRIDGE MANUFACTURER SELECTED BY THE OWNER. THIS STANDARD DRAWING SHALL BE SENT TO THE BRIDGE MANUFACTURER TO ENSURE COMPATIBILITY WITH THE SELECTED BRIDGE. ABUTMENT DESIGN IS BASED ON AASHTO HS20 LOADING. EIGHTY-NINE FEET IS THE MAXIMUM LENGTH OF STANDARD STEEL RAILCARS A TYPICAL BRIDGE TYPE USED FOR RURAL BRIDGES.
2. ANCHOR BOLT REQUIREMENTS VARY ACCORDING TO THE SELECTED BRIDGE. DETAILS SHALL BE PROVIDED BY THE BRIDGE MANUFACTURER. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIP GALVANIZED OR OTHERWISE RESISTANT TO CORROSION.
3. THE STANDARD BRIDGE ABUTMENT IS DESIGNED ASSUMING THE BRIDGE LOAD IS APPLIED TO THE SUPPORT LEDGE AT A DISTANCE NOT LESS THAN 1'-0" FROM THE EDGE OF THE SUPPORT LEDGE. OVERALL WIDTH OF THE ABUTMENT MAY BE INCREASED TO SUIT LOCAL CONDITIONS.
4. THE DEPTH OF THE FOUNDATION MAY BE REDUCED BASED ON THE ACTUAL CONDITIONS OF THE SITE. THIS DETERMINATION SHOULD BE MADE BY A QUALIFIED LICENSED ENGINEER.
5. THE SIZE AND EXTENT OF RIP RAP MUST BE DETERMINED ON A CASE BY CASE BASIS CONSIDERING SITE-SPECIFIC CONDITIONS INCLUDING, BUT NOT LIMITED TO, THE MAXIMUM VELOCITY OF CHANNEL FLOW, THE DISTANCE BETWEEN THE ABUTMENT AND THE WATER EDGE, AND THE PRESENCE OF LOCAL WATER TURBULENCE.
6. THE AMOUNT OF FREEBOARD (DISTANCE BETWEEN HIGH WATER ELEVATION AND BOTTOM OF THE BRIDGE) TO BE DETERMINED BY THE OWNER ON A CASE BY CASE BASIS.
7. COLD JOINTS SHALL BE CLEANED & ROUGHENED TO AN EXPOSED AGGREGATE SURFACE WITH AN AMPLITUDE OF 1/4".
8. GROUND SURFACES ADJACENT TO THE ABUTMENTS SHOULD SLOPE AWAY FROM THE ABUTMENTS IN A MANNER THAT PRODUCES SHEET FLOW RATHER THAN CONCENTRATED STREAMS. NO PONDING OF SURFACE WATER SHOULD BE ALLOWED.
9. EXCAVATION SHOULD BE PERFORMED WHILE THE WATER LEVEL IN THE CHANNEL IS AS LOW AS POSSIBLE, IF NOT EMPTY. THE CONTRACTOR SHOULD BE PREPARED TO PROVIDE DEWATERING AND SHORING EQUIPMENT TO MAINTAIN THE EXCAVATIONS OPEN AND FREE FROM STANDING WATER DURING CONSTRUCTION.
10. THIS STANDARD ABUTMENT WAS DESIGNED BASED ON THE 2019 CALIFORNIA BUILDING CODE TABLE 1806.2, CLASS 5 MATERIAL WITH AN ALLOWABLE NET BEARING PRESSURE OF 1,500 PSF. IF MUD, ORGANIC SILT, ORGANIC CLAYS, PEAT OR UNPREPARED FILL ARE FOUND AT THE LEVEL OF FOUNDATION BEARING THEN A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED OR EXCESSIVE SETTLEMENT OF THE FOUNDATION MAY OCCUR.
11. MATERIAL SPECIFICATIONS:

    CONCRETE:

    COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS (F'C).....4,000 PSI

    CEMENT.....ASTM C150 TYPE II/V

    WATER-CEMENT RATIO (W/C).....0.45

    SLUMP.....4" +/- 1"

    CONCRETE AGGREGATE.....ASTM C33 W/ 1-1/2" MAX. SIZE

    STEEL REINFORCEMENT (REBAR).....ASTM A615 GRADE 60

SCALE: NTS

STANDARD DETAILS

TYPICAL RAILCAR BRIDGE
ABUTMENT NOTES

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-02.4

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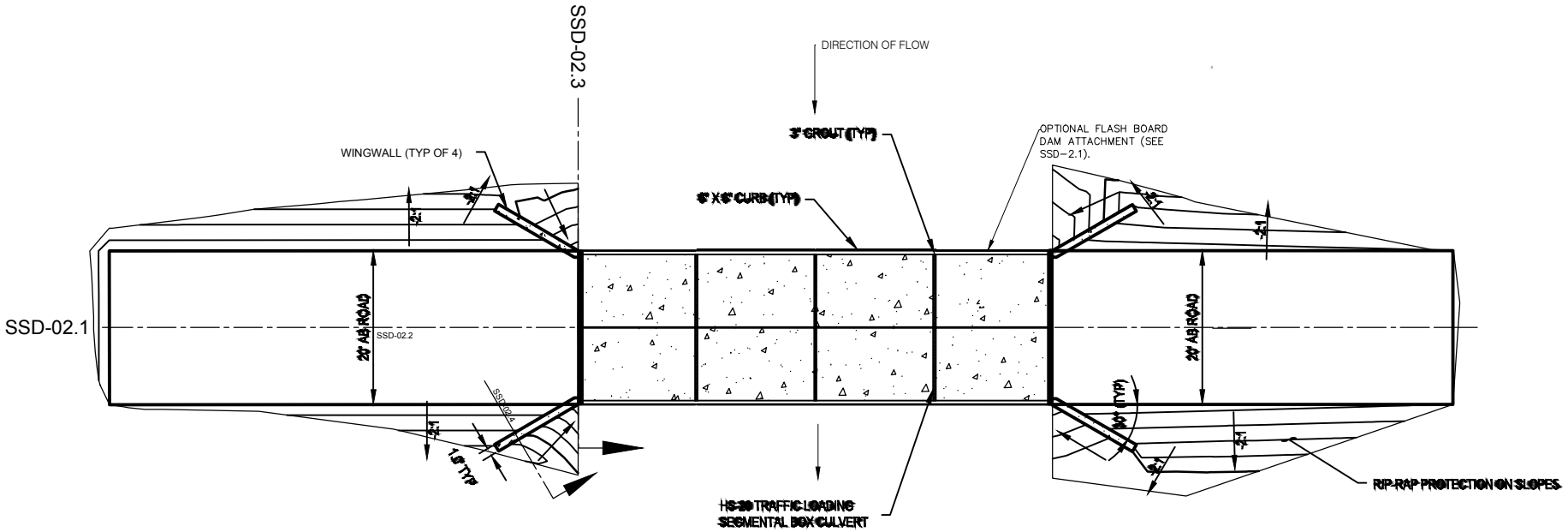
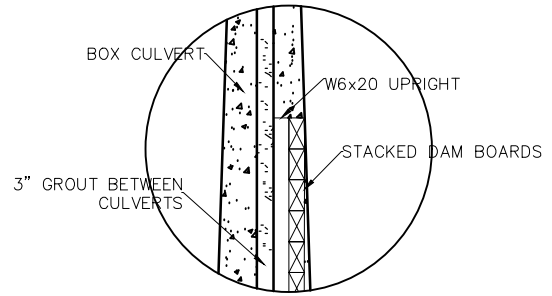


SCALE: NTS

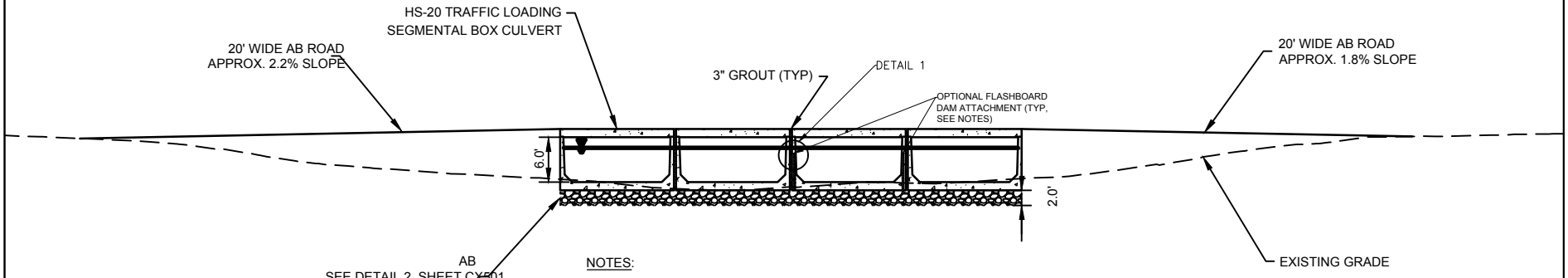
STANDARD DETAILS

BOX CULVERT LOW WATER CROSSING - PLAN VIEW

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-03.0
APPROVED BY: _	



DETAIL 1



NOTES:

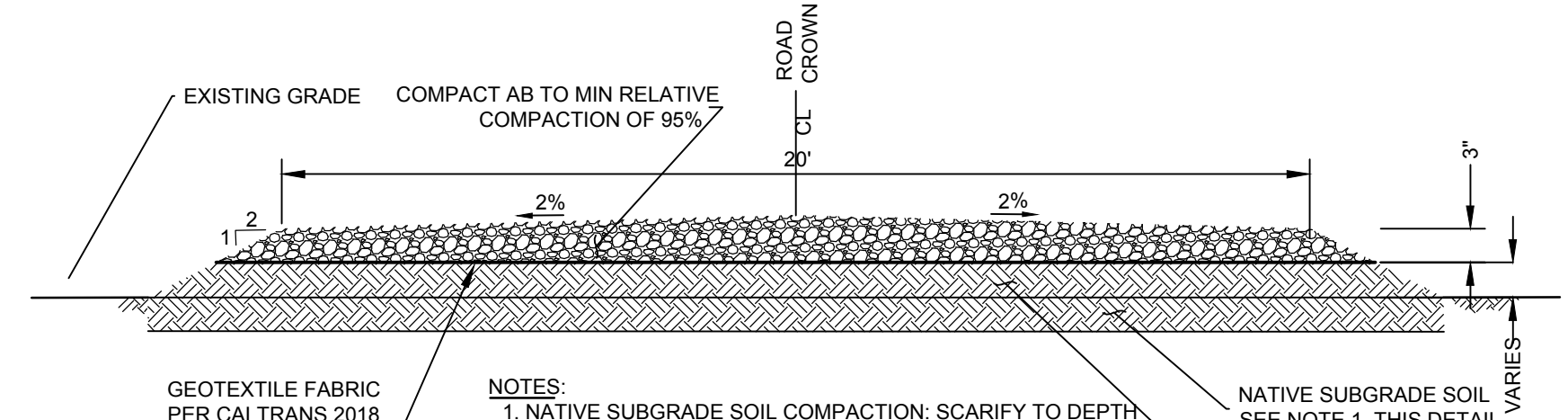
1. WINGWALLS AND FILL REFERENCE SSD-03.6-03.7
2. OPTIONAL FLASHBOARD DAM CONSISTS OF W 6x20 UPRIGHTS FASTENED TO UPSTREAM SIDE OF BOX CULVERTS AND STACKED DAM BOARDS. FOR MORE DETAILS SEE SSD 4.0.

SCALE: NTS

STANDARD DETAILS

BOX CULVERT LOW WATER CROSSING - PROFILE VIEW

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-03.1
APPROVED BY: _	



NOTES:

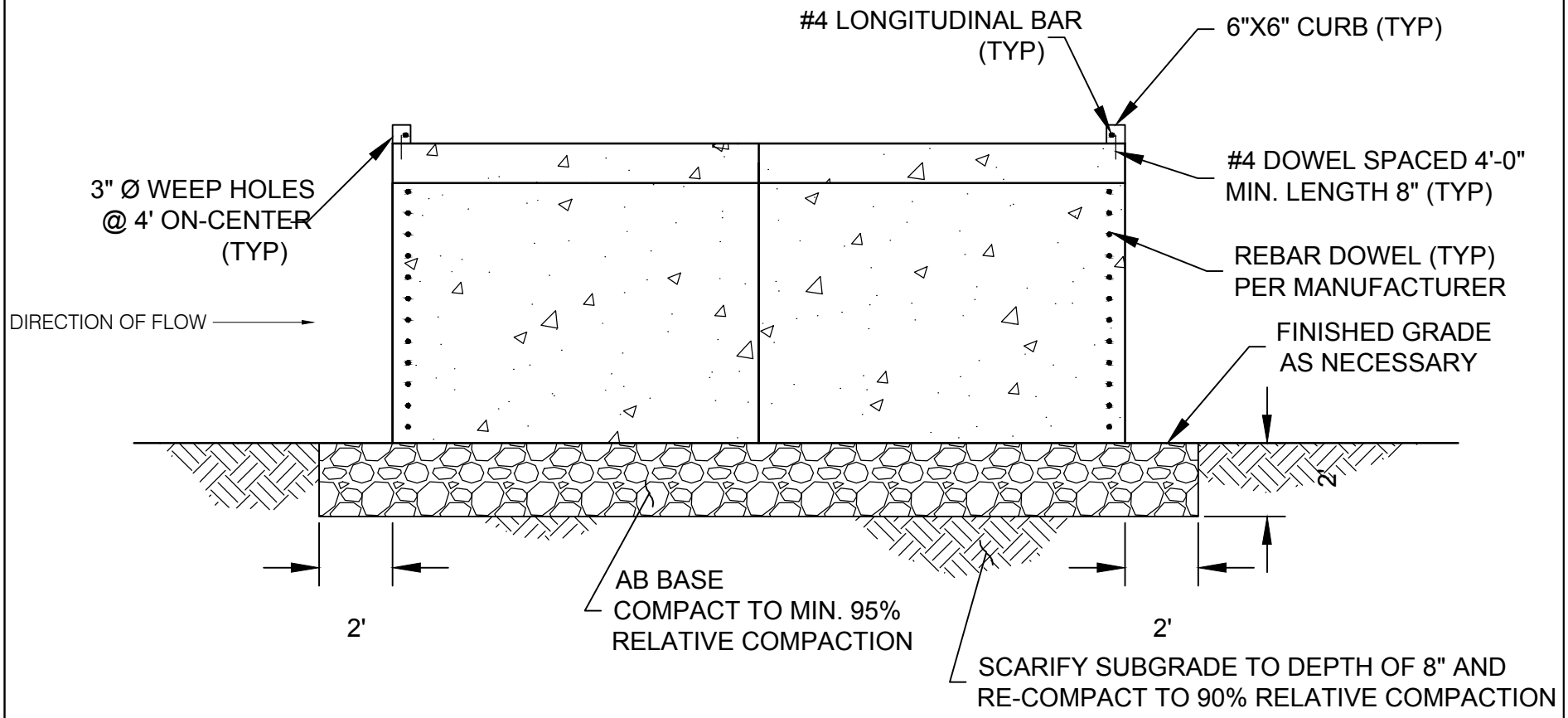
1. NATIVE SUBGRADE SOIL COMPACTION: SCARIFY TO DEPTH OF 8"; RE-COMPACT TO 90% MIN RELATIVE COMPACTION.
2. NATIVE SOIL FILL SHALL BE FREE OF ORGANICS AND OTHER DEBRIS, PLACED IN 8" LIFTS, MOISTURE CONDITIONED AND COMPACTED TO 90% RELATIVE COMPACTION.

SCALE: NTS

STANDARD DETAILS

BOX CULVERT LOW WATER CROSSING - AB ACCESS ROAD DETAIL

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-03.2
APPROVED BY: _	



NOTES:
1. WINGWALLS AND FILL NOT SHOWN IN THIS SECTION
2. BOX CULVERT SIZES WILL VARY

SCALE: NTS

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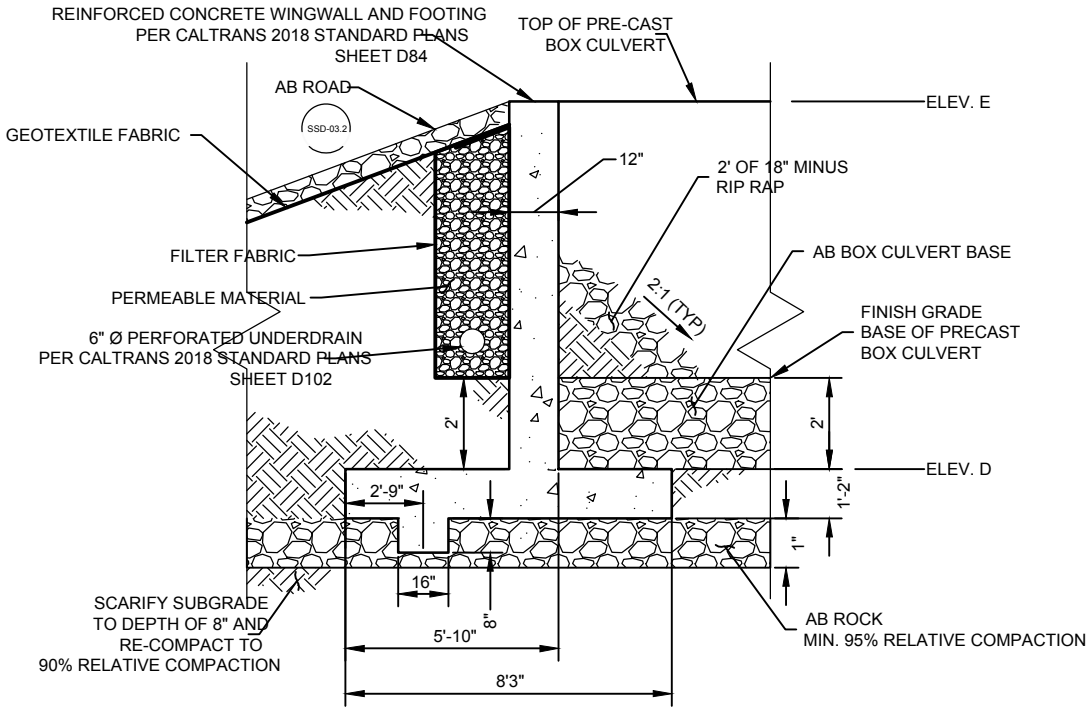
STANDARD DETAILS

BOX CULVERT LOW WATER CROSSING -
TYPICAL BOX CULVERT SECTION VIEW

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-03.3



NOTES:

1. REFER TO CALTRANS 2018 STANDARD PLANS SSD-02.6 FOR WINGWALL REBAR LAYOUT.
2. REFER TO CALTRANS 2018 STANDARD PLANS SSD-02.6 AND CALTRANS 2018 STANDARD SPECIFICATIONS SSD-02.7 FOR UNDERDRAIN DETAILS, INCLUDING PLACEMENT OF PERMEABLE MATERIAL AND FILTER FABRIC.

SCALE: NTS

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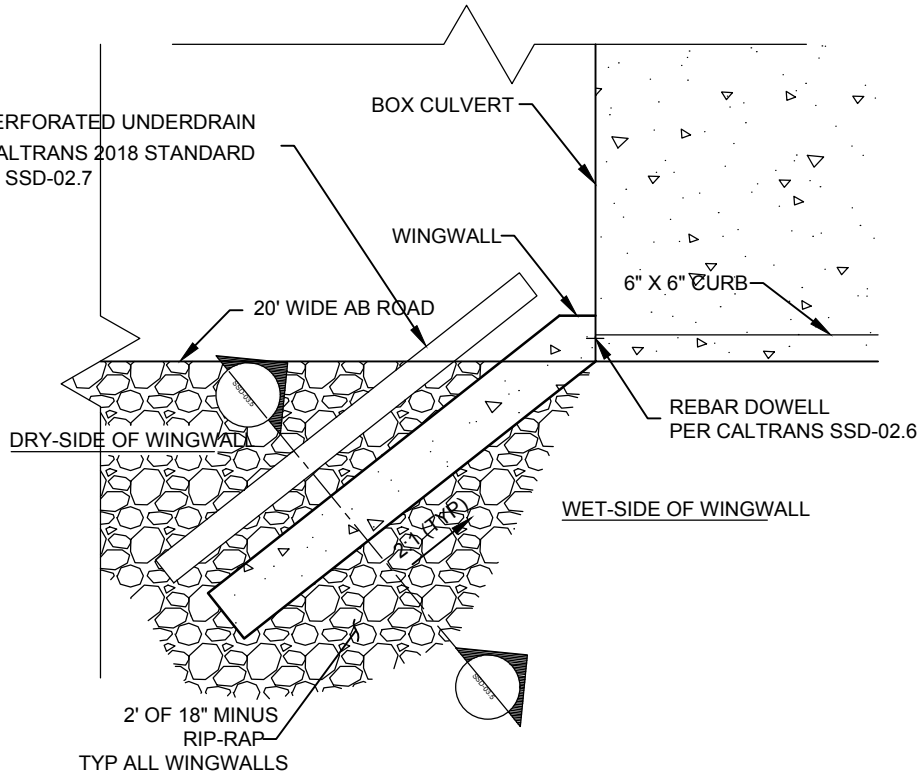
STANDARD DETAILS

BOX CULVERT LOW WATER CROSSING - WING WALL CROSS SECTION

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-03.4
APPROVED BY: _	



PLAN VIEW

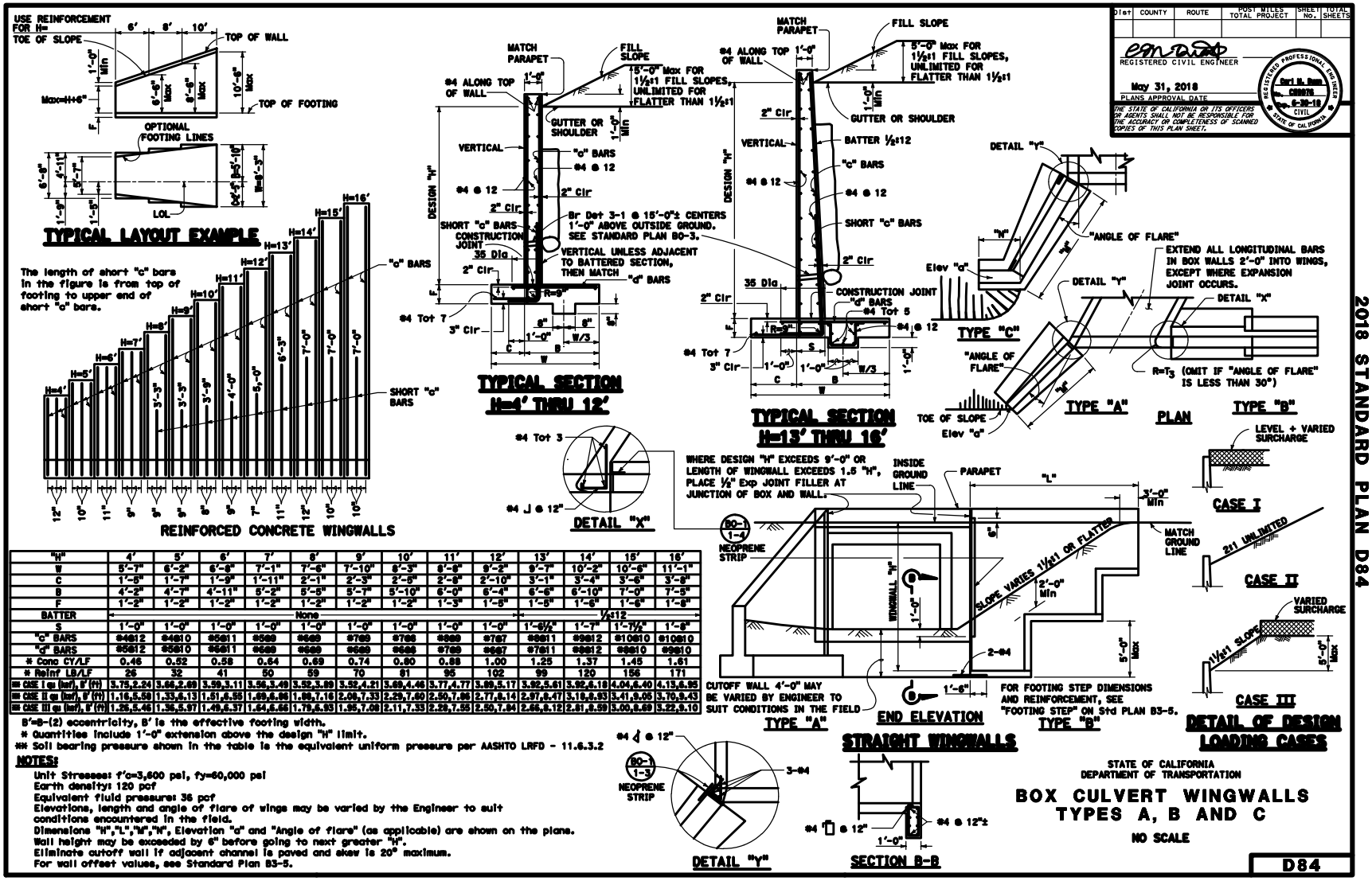
NOTE:
1. REFER TO SSD-02.5, THIS SHEET FOR LOCATION OF GEOTEXTILE FABRIC, FILTER FABRIC, SUBGRADE AND PERMEABLE MATERIAL.

SCALE: NTS

STANDARD DETAILS

BOX CULVERT LOW WATER CROSSING - WING WALL PLAN VIEW

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-03.5
APPROVED BY: _	



"H"	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
W	5'-7"	6'-2"	6'-8"	7'-1"	7'-6"	7'-10"	8'-3"	8'-8"	9'-2"	9'-7"	10'-2"	10'-6"	11'-1"
C	1'-6"	1'-7"	1'-9"	1'-11"	2'-1"	2'-3"	2'-5"	2'-8"	2'-10"	3'-1"	3'-4"	3'-6"	3'-8"
B	4'-2"	4'-7"	4'-11"	5'-2"	5'-5"	5'-7"	5'-10"	6'-0"	6'-4"	6'-6"	6'-10"	7'-0"	7'-5"
F	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-3"	1'-5"	1'-5"	1'-6"	1'-6"	1'-8"
BATTER	None								½:12				
S	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6½"	1'-7"	1'-7½"	1'-8"
"c" BARS	#4@12	#4@10	#5@11	#5@9	#5@8	#5@7	#5@6	#5@6	#5@5	#5@5	#5@5	#10@10	#10@10
"d" BARS	#5@12	#5@10	#5@11	#5@9	#5@8	#5@8	#5@7	#5@7	#5@6	#5@6	#5@6	#10@10	#10@10
* Conc CY/LF	0.46	0.52	0.58	0.64	0.69	0.74	0.80	0.85	1.00	1.25	1.37	1.45	1.61
* Reinf LB/LF	26	32	41	50	59	70	81	95	102	99	120	156	171
CASE I qa (ksf), B' (ft)	3.75,2.24	3.66,2.69	3.59,3.11	3.56,3.49	3.52,3.89	3.52,4.21	3.69,4.46	3.77,4.77	3.89,5.17	3.92,5.61	3.92,6.18	4.04,6.40	4.13,6.95
CASE II qa (ksf), B' (ft)	1.16,5.59	1.33,6.13	1.51,6.55	1.69,6.86	1.88,7.16	2.08,7.33	2.29,7.60	2.50,7.86	2.77,8.14	2.97,8.47	3.18,8.83	3.41,9.05	3.70,9.43
CASE III qa (ksf), B' (ft)	1.25,5.45	1.36,5.97	1.49,6.37	1.64,6.66	1.79,6.93	1.95,7.08	2.11,7.33	2.28,7.55	2.50,7.84	2.66,8.12	2.81,8.59	3.00,8.69	3.22,9.10

B'=B-(2) eccentricity, B' is the effective footing width.
* Quantities include 1'-0" extension above the design "H" limit.
** Soil bearing pressure shown in the table is the equivalent uniform pressure per AASHTO LRFD - 11.6.3.2

NOTES:

Unit Stresses: f'c=3,600 psi, fy=60,000 psi
Earth density: 120 pcf
Equivalent fluid pressure: 36 pcf
Elevations, length and angle of flare of wings may be varied by the Engineer to suit conditions encountered in the field.
Dimensions "H","L","W","W", Elevation "a" and "Angle of flare" (as applicable) are shown on the plans.
Wall height may be exceeded by 6" before going to next greater "H".
Eliminate cutoff wall if adjacent channel is paved and skew is 20° maximum.
For wall offset values, see Standard Plan B3-5.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
May 31, 2018
PLANS APPROVAL DATE
Geri N. Bass
No. C59078
6-30-19
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

BOX CULVERT WINGWALLS TYPES A, B AND C

NO SCALE

D84

226

2018 STANDARD PLAN D84

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SCALE: NTS

STANDARD DETAILS

CALTRANS WING WALLS AND BOX CULVERTS

DRAWN BY: JH
DESIGNED BY: JH
APPROVED BY: _

DATE: 02-25-2020
FIG. NO.: SSD-03.6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

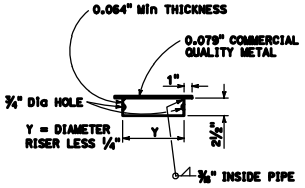
REGISTERED CIVIL ENGINEER

May 31, 2018

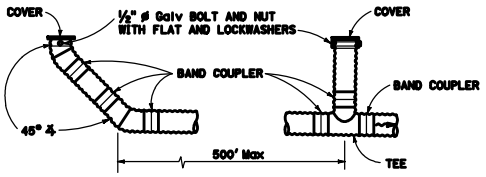
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER — Trina D. Sanger — C61287 — 6-30-19 — CIVIL — STATE OF CALIFORNIA

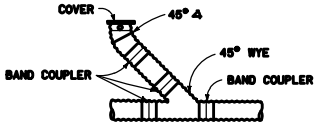


WELDED METAL COVER



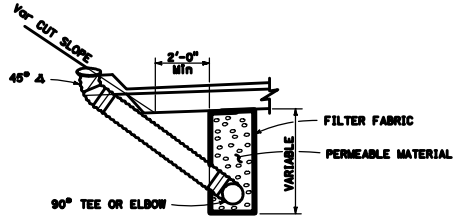
TERMINAL RISER **VERTICAL RISER**

Metal pipe risers and perforated metal pipe underdrain shown. Use type of pipe specified.

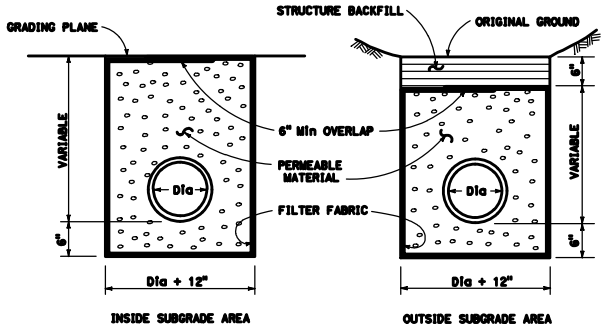


45° RISER

UNDERDRAIN RISERS



UNDERDRAIN LOCATION AND RISERS ANGLED TO CUT SLOPE



EXCAVATION AND BACKFILL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

UNDERDRAINS

NO SCALE

D102

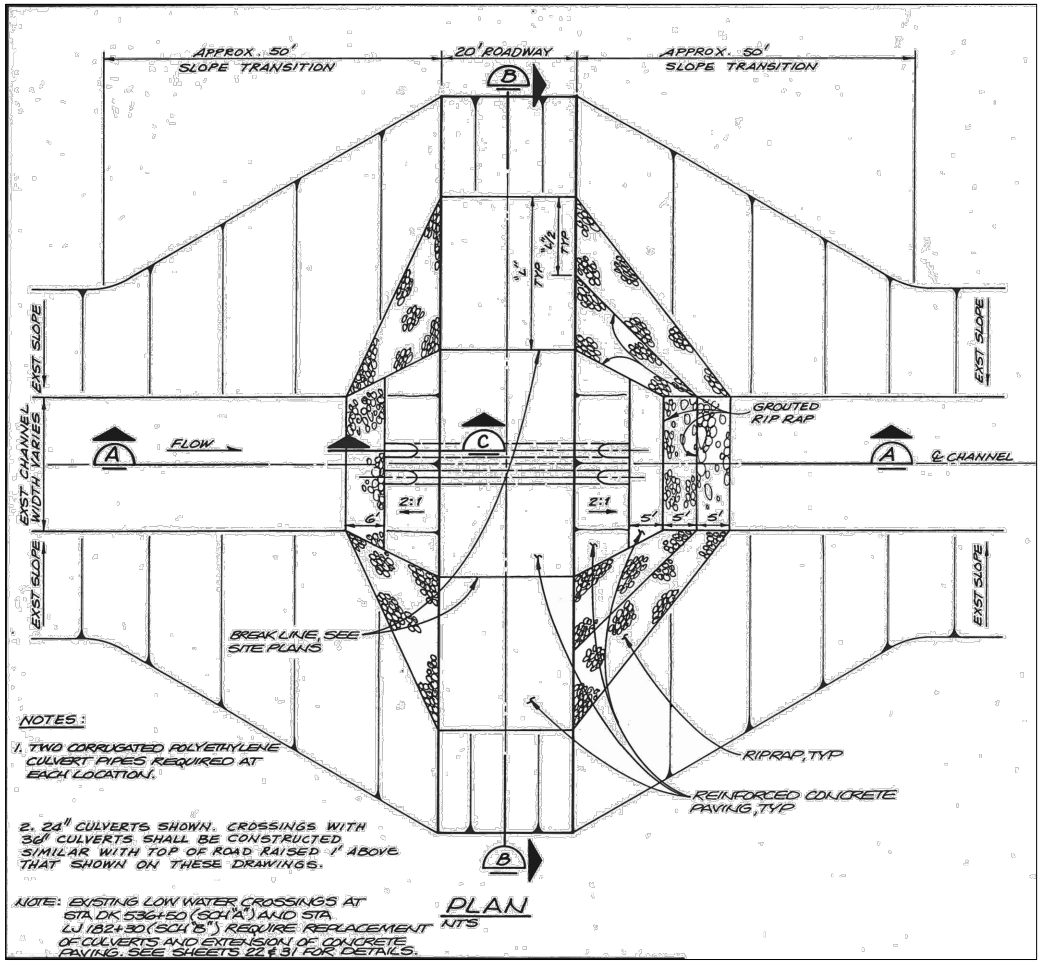
1-29-18

SCALE: NTS

STANDARD DETAILS

CALTRANS UNDERDRAINS

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-03.7



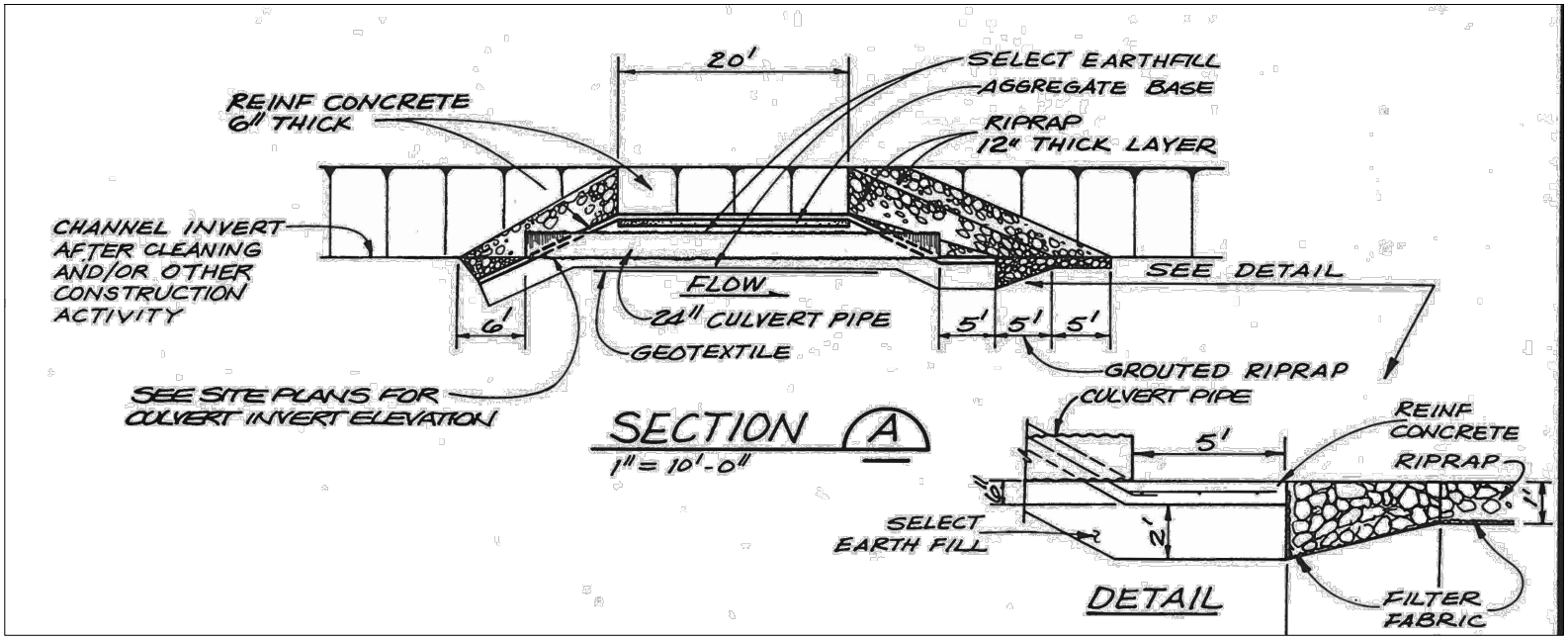
SCALE: NTS

STANDARD DETAILS

PIPE LOW WATER CROSSING PLAN

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-04.0

R:\Engineering\Standard Details FILENAME: SEWD Standard Details - Structural.dwg PLOT DATE: 8/27/2020 8:53AM



SCALE: NTS

STANDARD DETAILS

PIPE LOW WATER CROSSING DETAIL

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-04.1
APPROVED BY: _	

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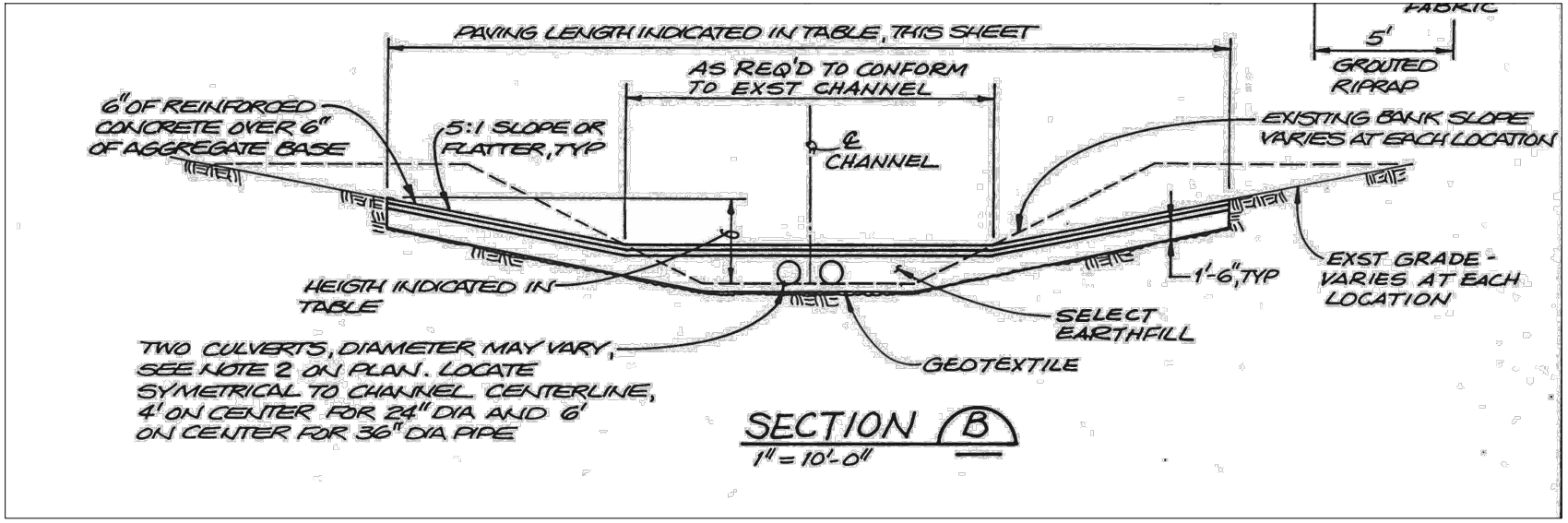
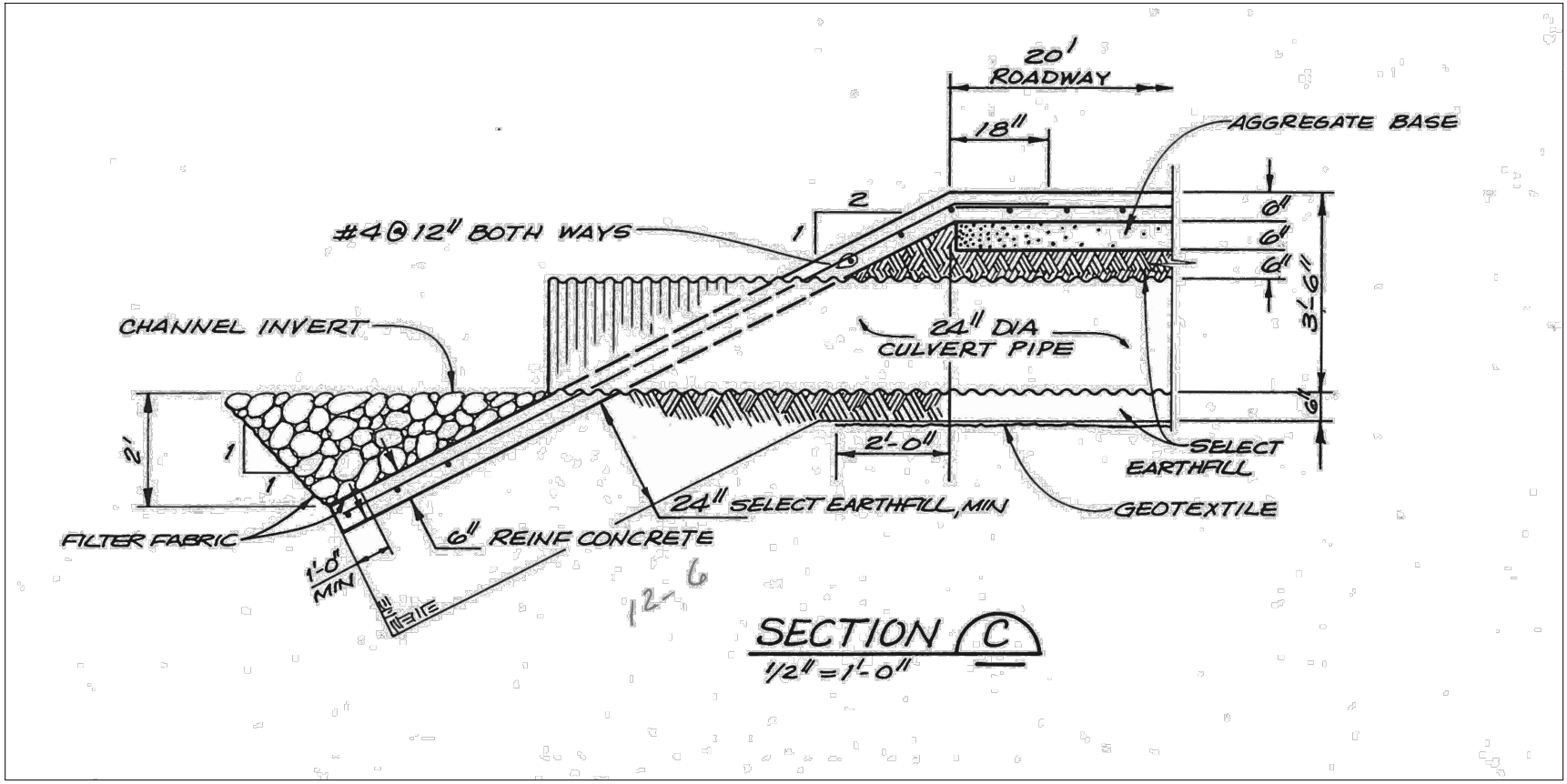


SCALE: NTS

STANDARD DETAILS

PIPE LOW WATER CROSSING SECTION

DRAWN BY: JH	DATE: 02-25-2020
DESIGNED BY: JH	FIG. NO.: SSD-04.2
APPROVED BY: _	



SCALE: NTS

STANDARD DETAILS

PIPE LOW WATER CROSSING ROADWAY
DETAIL

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	02-25-2020
FIG. NO.:	SSD-04.3

LOW WATER CROSSING STRUCTURE INFO

STRUCTURE NO.	STATION	PAVING HEIGHT ABOVE PIPE INVERT	DIA OF PIPE	PAVING LENGTH APPROXIMATE	SITE PLAN SHEET	SCHEDULE
D-4	DK 523+00	7.0'	24"	78'	22	A
D-9	DK 223+50	7.0'	24"	65'	20	A
D-11	DK 182+80	7.0'	24"	70'	20	A
R-1	LJ 44+50	7.0'	36"	185'	31	B
LJ-17	LJ 240+20	8.0'	36"	155'	32	B
LJ-16	LJ 275+30	8.5'	36"	147'	32	B
LJ-10	LJ 645+00	10.0'	24"	127'	33	B
LJ-9	LJ 657+50	12.0'	24"	132'	33	B
LJ-5	LJ 835+50	7.5'	24"	93'	35	B
NFLJ-9	NLJ 218+80	6.0'	24"	50'	42	C
NFLJ-4	NLJ 341+00	5.5'	24"	45'	44	C
CSJ-1	NLJ 380+20	5.5'	24"	45'	40	C

SCALE: NTS

STANDARD DETAILS

PIPE LOW WATER CROSSING
STRUCTURAL INFO

DRAWN BY: JH
DESIGNED BY: JH
APPROVED BY: _

DATE: 02-25-2020
FIG. NO.: SSD-04.4

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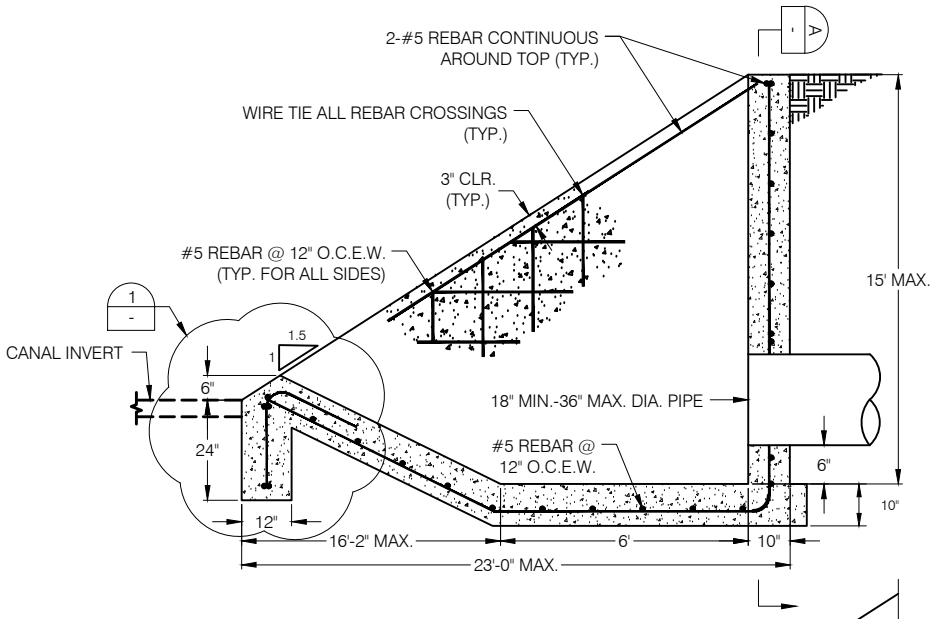

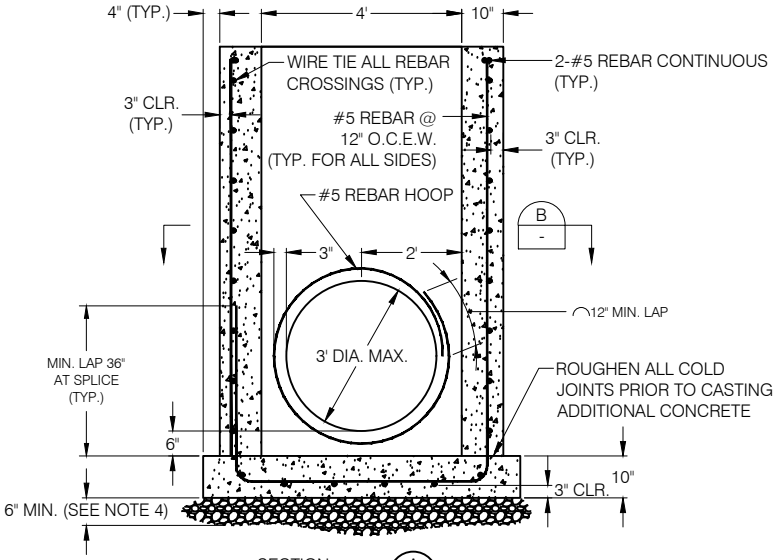

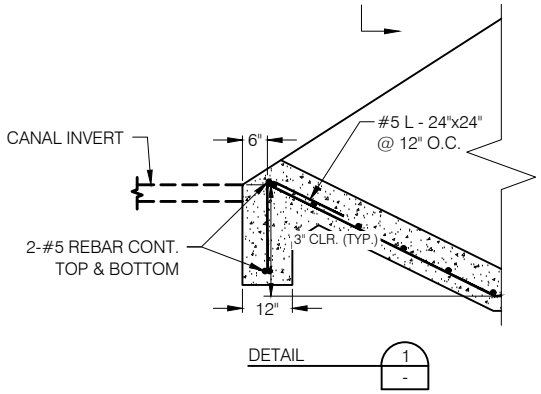

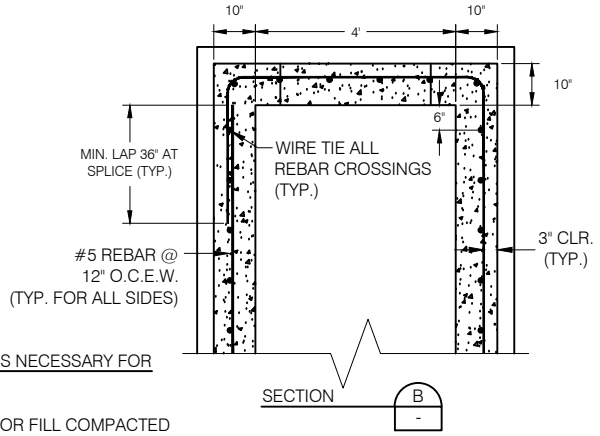

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. ALL CONCRETE MIX SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
3. ANY PORTION OF THE STRUCTURE NOT CAST IN CONCRETE FORMS SHALL BE CAST AGAINST UNDISTURBED NATIVE MATERIAL OR FILL COMPACTED TO 95% RELATIVE DENSITY.
4. A MINIMUM OF SIX INCHES (6") OF 1 $\frac{1}{2}$" MINUS CRUSHED ROCK BASE SHALL BE INSTALLED AS A BASE FOR THE STRUCTURE.
5. ALL BENDS AND HOOKS SHALL BE TYPICAL AS SPECIFIED BY ACI 318, CURRENT REVISION.

SCALE: NTS

STANDARD DETAILS

CANAL TURNOUT

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	05-12-2020
FIG. NO.:	SSD-05.0

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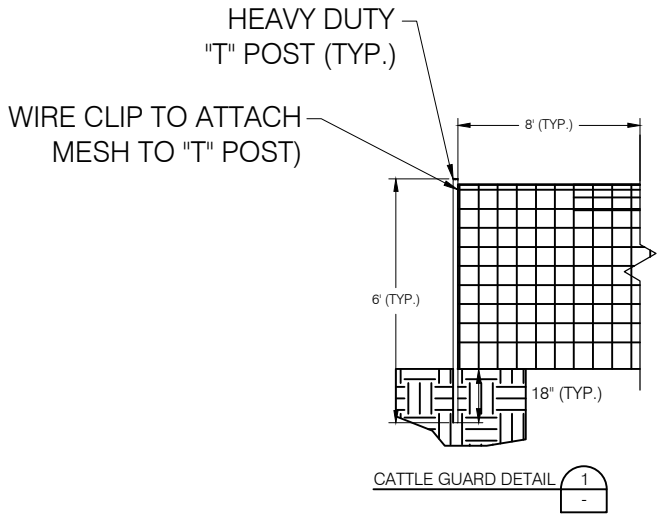

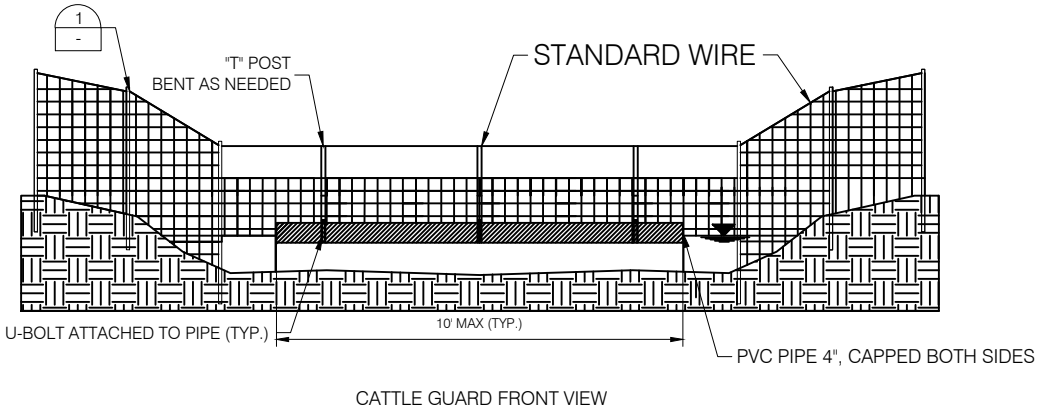

CATTLE GUARD FRONT VIEW

SCALE: NTS

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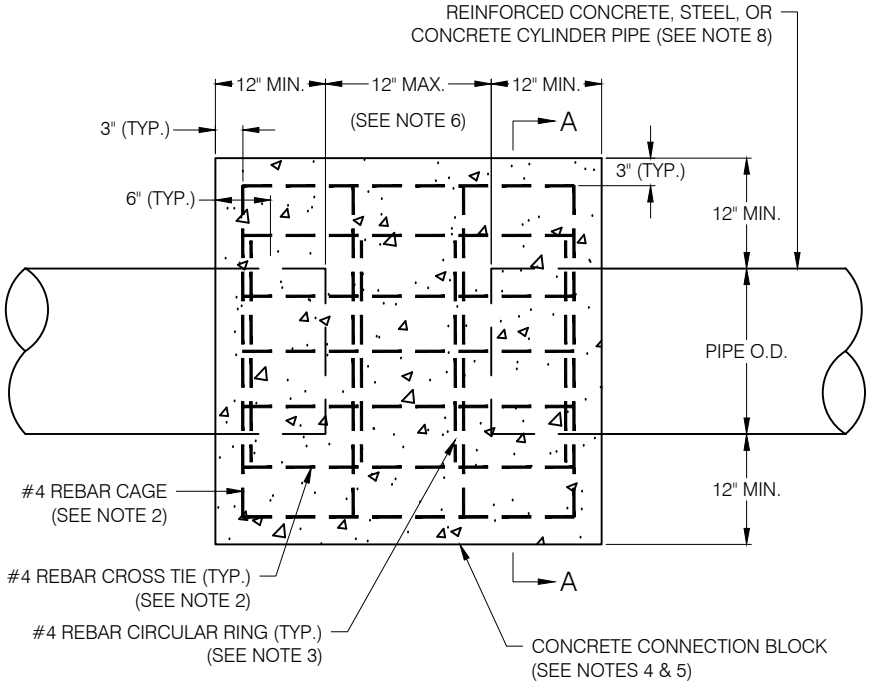
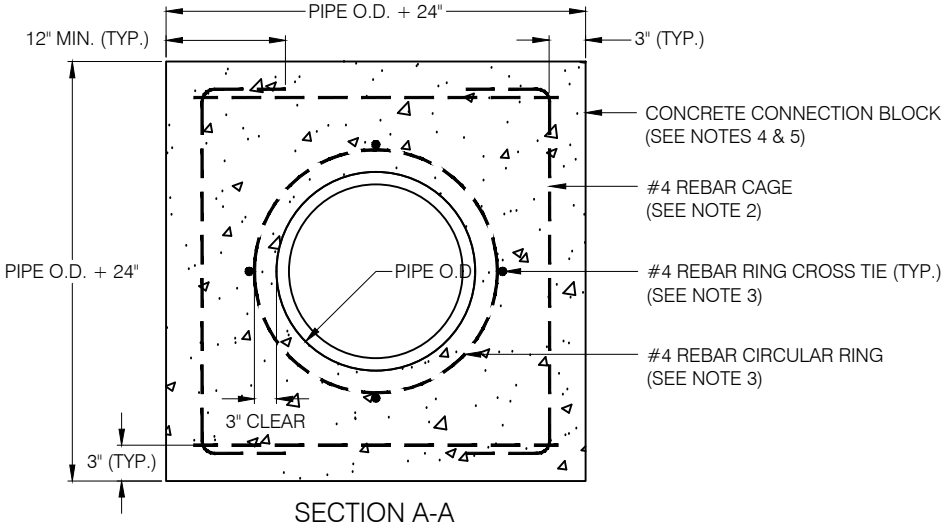
STANDARD DETAILS

CATTLE GUARD DETAIL

DRAWN BY: DV	DATE: 10-30-2020
DESIGNED BY: DV	FIG. NO.: SSD-06.0
APPROVED BY: _	



PLAN VIEW



SECTION A-A

NOTES:

1. THIS DETAIL IS A PICTORIAL REPRESENTATION OF THE REQUIRED INSTALLATION AND *DOES NOT* SHOW OR INCLUDE ALL THINGS NECESSARY FOR AN APPROVED/ACCEPTED INSTALLATION.
2. REBAR CAGE SHALL CONSIST OF A #4 REBAR GRID WITH 12" O.C. SPACING EACH WAY AND ALL SPLICES SHALL HAVE A MINIMUM OF 15" OF OVERLAP.
3. REBAR CIRCULAR CAGE SHALL INCLUDE #4 REBAR CIRCULAR RINGS WITH 15" MINIMUM OVERLAP AT 12" O.C. SPACING AND #4 REBAR CROSS TIE AT EACH QUADRANT (4 EACH).
4. ALL CONNECTION BLOCKS SHALL BE CAST AGAINST UNDISTURBED NATIVE MATERIAL OR APPROVED BACKFILL MECHANICALLY COMPACTED TO 95% RELATIVE COMPACTION. COMPACTION SHALL BE TESTED BY AN OUTSIDE AGENCY AND THE RESULTS SUBMITTED TO THE ENGINEER FOR APPROVAL.
5. THE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
6. CONTRACTOR SHALL PROVIDE SUITABLE MATERIAL AND BRACING TO SUPPORT THE NEW CONCRETE BETWEEN THE PIPES DURING CURING. THE SUPPORT MATERIAL AND BRACING SHALL REMAIN IN PLACE UNTIL THE CONCRETE HAS REACH 100% ITS COMPRESSIVE STRENGTH.
7. BACKFILLING SHALL NOT COMMENCE BEFORE THE CONCRETE HAS REACHED 75% OF ITS COMPRESSIVE STRENGTH. BACKFILLING PRIOR TO THIS SHALL BE APPROVED BY THE DISTRICT ENGINEER.

SCALE: NTS

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STANDARD DETAILS

CONCRETE CONNECTION BLOCK

DRAWN BY:	JH
DESIGNED BY:	JH
APPROVED BY:	_
DATE:	05-12-2020
FIG. NO.:	SSD-09.0