



I/R	DATE	DESCRIPTION

60662775

Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

00 G-002

INDEX OF DRAWINGS

SHEET NO. TITLE

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SHEET NO. TITLE

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SHEET NO. TITLE

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99 DI-601	MISCELLANEOUS SIGNALS

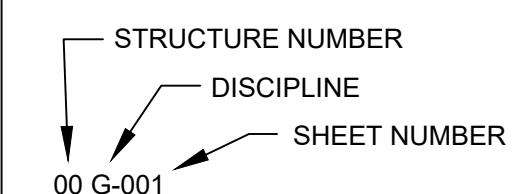
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STRUCTURE NUMBER LEGEND

00	GENERAL, LEGENDS, NOTES, SITE WIDE DRAWINGS
10	EDV CHAMBER
99	STANDARD DETAILS

SHEET DESIGNATION LEGEND



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
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CONSULTANTS

REGISTRATION



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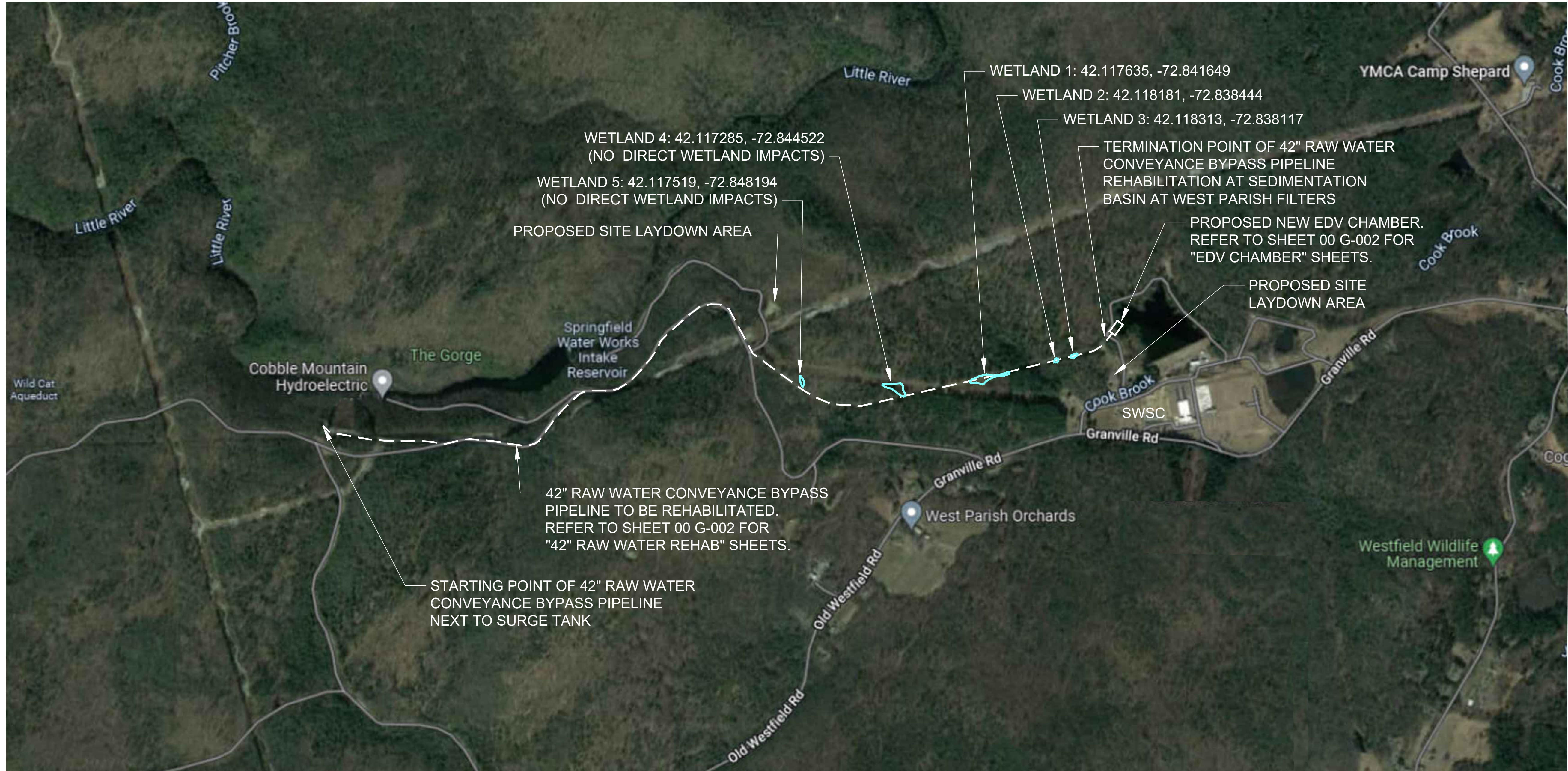
DISCIPLINE

GENERAL SHEET TITLE

OVERALL PROJECT LOCATION AND SITE PLAN

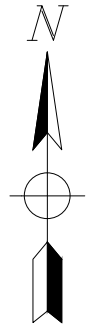
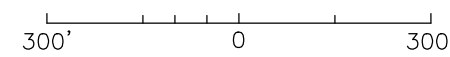
SHEET NUMBER

00 G-003



SITE MAP

SCALE IN FEET



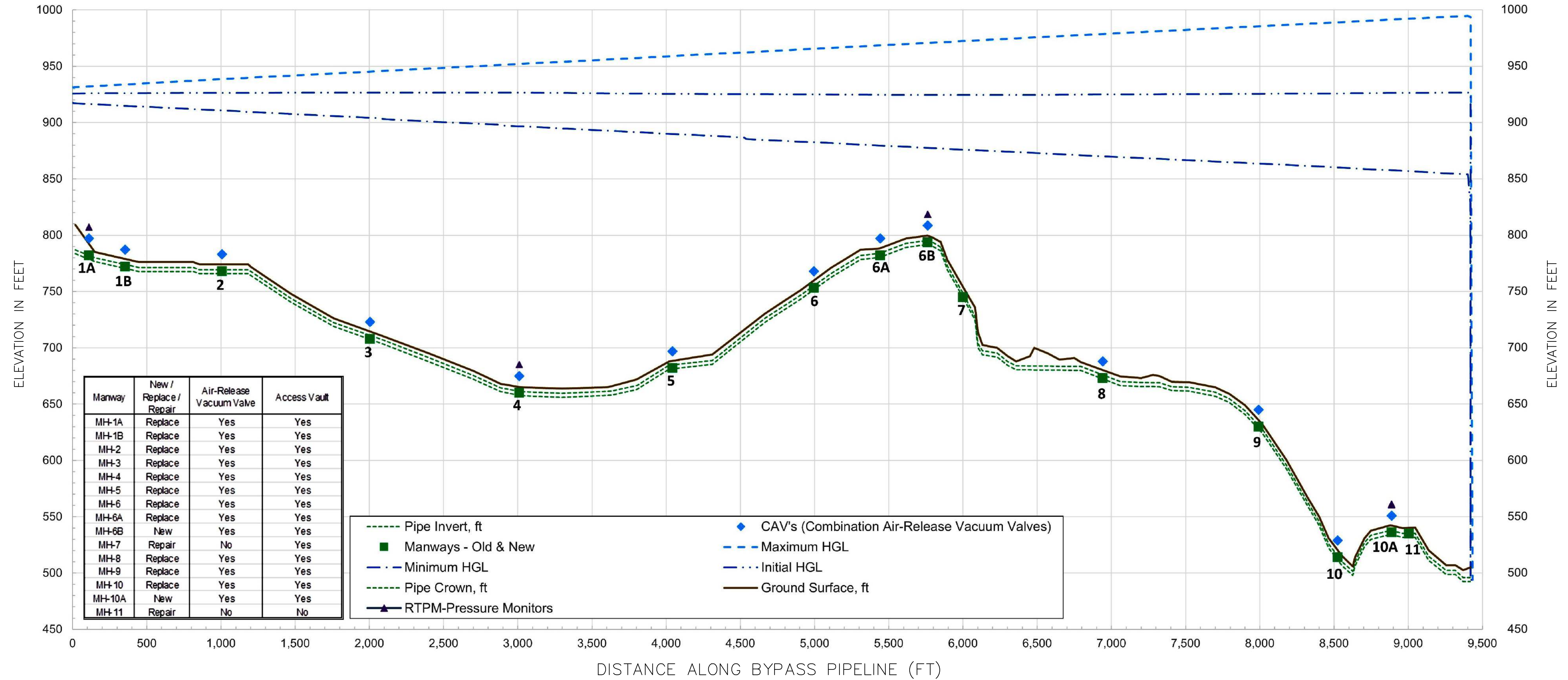
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 LAST UPDATE: Wednesday, January 17, 2024 8:56:03 AM
 PLOT DATE: Tuesday, February 6, 2024 4:38:10 PM



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Designed By:	MCW
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HYDRAULIC PROFILE OF 42" RAW WATER BYPASS CONVEYANCE PIPELINE FOR MAXIMUM DESIGN FLOW OF 63 MGD

SHOWING EXISTING/NEW ACCESS MANWAYS AND NEW COMBINED AIR-RELEASE VACUUM VALVES (CAV's)

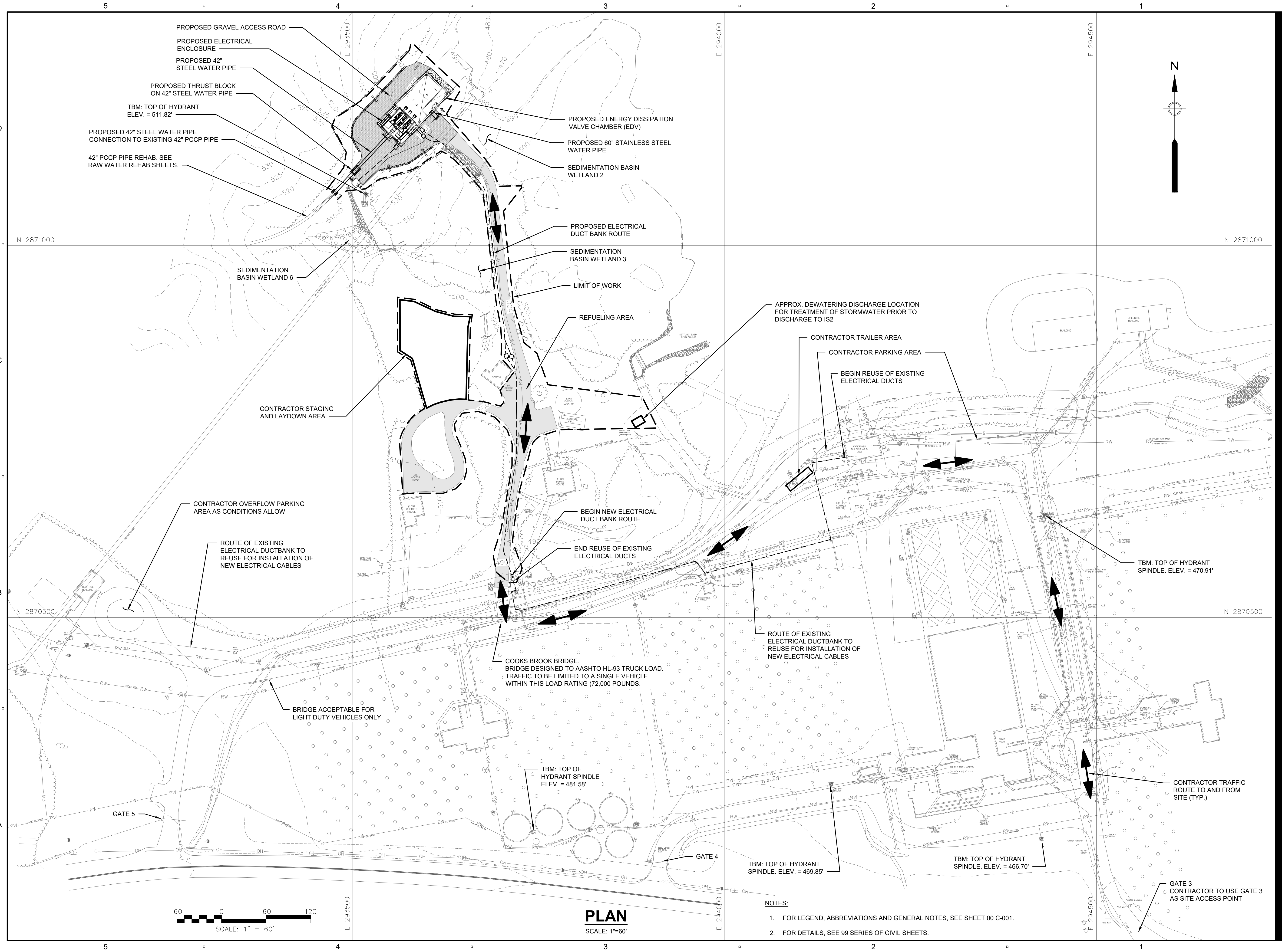
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 LAST UPDATE: Tuesday, January 23, 2024 4:35:55 PM
 PLOT DATE: Tuesday, February 6, 2024 4:31:31 PM



I/R	DATE	DESCRIPTION

60662775

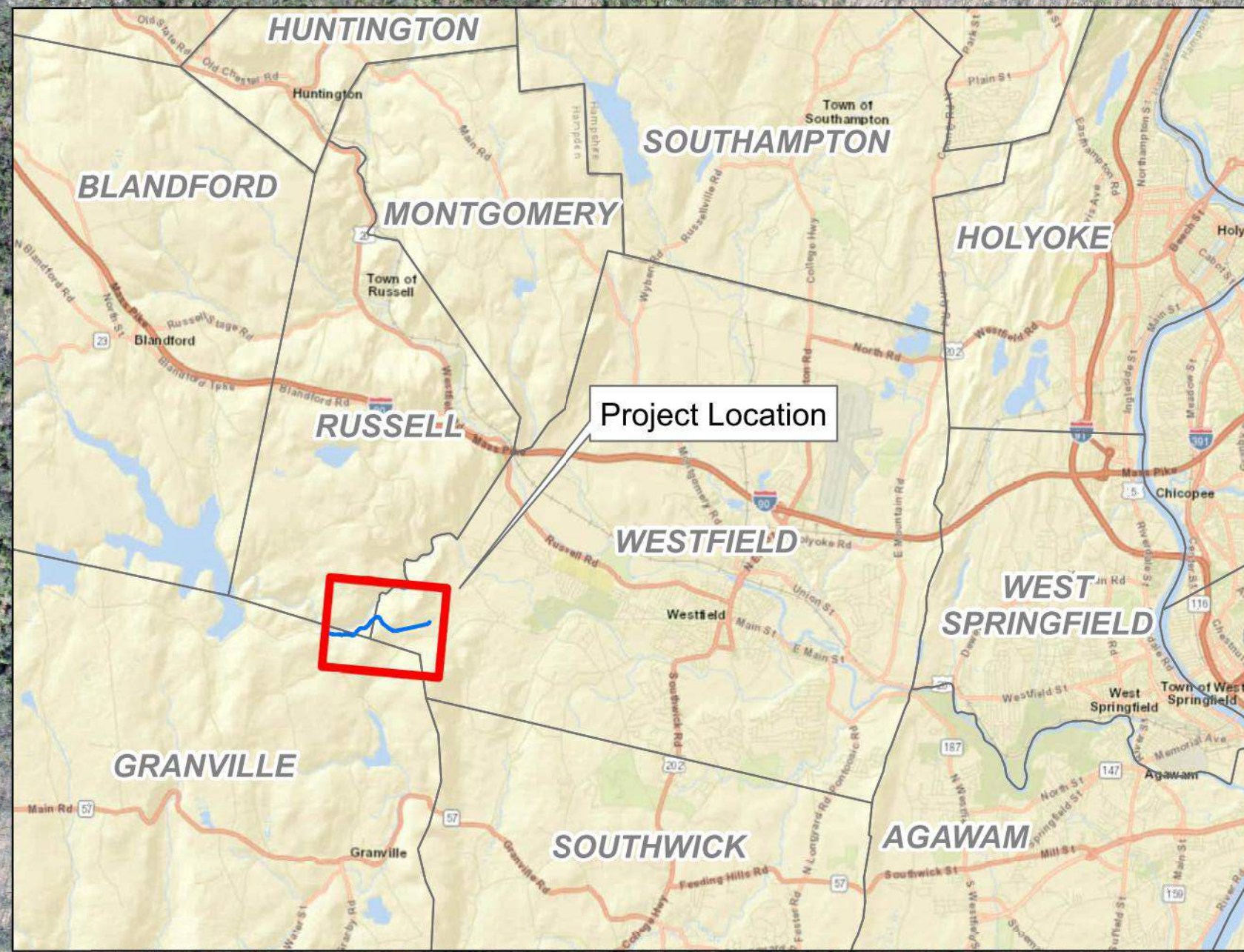
Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
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PLAN
 SCALE: 1" = 60'

- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
 - FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.

PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PRR\00_G-005.DWG
 LAST UPDATE: Tuesday, February 6, 2024 4:17:16 PM
 PLOT DATE: Friday, February 9, 2024 3:42:38 PM



Legend

- PLAN PROFILE SHEET NUMBER
- MANWAYS
- MAINLINE
- ROADS
- RIGHT OF WAY
- WETLAND 100 FT BUFFER
- CONTOUR 30 FT
- WETLAND BOUNDARY

AECOM

PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
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 PHONE: (978) 905-2100
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CONSULTANTS

APPROX. LOCATION OF SLOPE INSTABILITY AND RESTRICTED ROAD ACCESS TO UPSTREAM PIPING STARTING AROUND PIPE 2-36 AND CONTINUING TO THE INLET WORKS VAULT. NO CONSTRUCTION OR OTHER VEHICLES WILL BE ALLOWED TO ACCESS THE SERVICE ROAD UNTIL THE SLOPE REPAIRS ARE COMPLETED, ESTIMATED TO BE BEFORE JANUARY 1, 2025.

PIPE 11-20 INDICATES THE END OF THE PCCP AND PCCP/STEEL TRANSITION (NOT A MANWAY)

LAY DOWN AREA

WETLAND 3: 42.118313, -72.838117

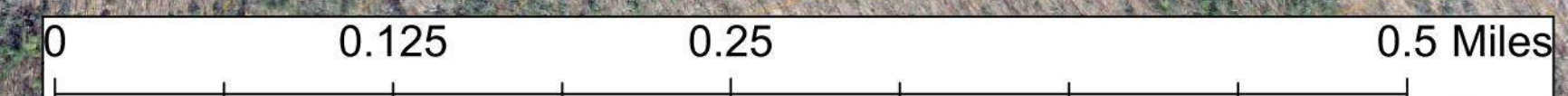
WETLAND 2: 42.118181, -72.838444

WETLAND 1: 42.117635, -72.841649

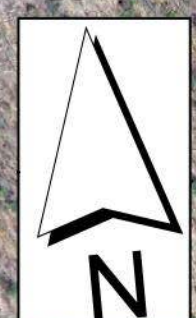
WETLAND 5: 42.117519, -72.848194 (NO DIRECT WETLAND IMPACTS)

WETLAND 4: 42.117285, -72.844522 (NO DIRECT WETLAND IMPACTS)

- SITE ACCESS NOTES:**
1. BYPASS PIPELINE IS GENERALLY ACCESSIBLE BETWEEN MH-1A AND 6A WHERE IT RUNS ALONGSIDE AND/OR INSIDE THE PAVED/GRAVEL SERVICE ROAD AS SHOWN.
 2. FROM MH-6A TO JUST UPSTREAM OF MH-7 THE PIPELINE IS REACHABLE VIA A DIRT ROAD ACCESSED NEAR MH-6A THAT RUNS ALONG IT.
 3. THE SECTION DOWNSTREAM OF MH-7 TO MH-9 CAN BE REACHED VIA A DIRT ROAD ALTHOUGH MH-7 ITSELF CANNOT BE REACHED.
 4. MH-9 IS LOCATED IN A WETLAND AND TEMPORARY SWAMP MATS WILL BE NEEDED (REFER TO SHEET 32 OF 38).
 5. THE SECTION BETWEEN MH-9 AND UPSTREAM OF MH-10 IS TOO STEEP TO REACH BY VEHICLE.
 6. MH-10 CAN BE REACHED VIA THE ACCESS ROAD BUT IT CROSSES THROUGH A WETLAND AND REQUIRES TEMPORARY SWAMP MATS. A SMALL BROOK CROSSES OVER THE PIPELINE JUST DOWNSTREAM OF MH-10 PREVENTING ACCESS TO DOWNSTREAM PIPING FROM THIS LOCATION.
 7. THE SECTION BETWEEN THE DOWNSTREAM END (EDV BUILDING) AND THE PIPES UPSTREAM OF MH-11 CAN BE REACHED FROM THE OUTLET WORKS/WEST PARISH FILTERS SIDE. TEMPORARY SWAMP MATS WILL BE NEEDED TO CROSS THROUGH WETLANDS.



1 inch = 340 feet



REGISTRATION



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DISCIPLINE

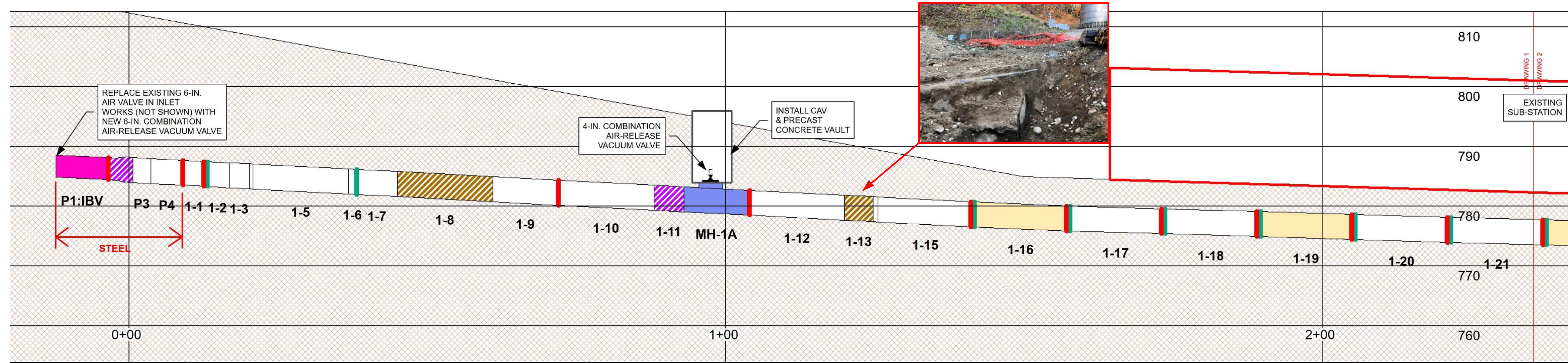
CIVIL

KEY PLAN AND SHEET LAYOUT

SHEET NUMBER

00 C-002

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 LAST UPDATE: Monday, February 5, 2024 2:09:59 PM
 PLOT DATE: Friday, February 9, 2024 6:54:49 AM



LEGEND

JOINT TREATMENTS	
	MORTAR
	JOINT SEAL
	MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS	
	REPLACE
	CRACK REPAIR
	SEAL
	CFRP LINER
	GFRP LINER
	MULTIPLE REPAIRS

MANWAY TREATMENTS	
	NEW MANWAY
	REPLACE MANWAY
	PAINT MANWAY
	CORE REPAIR LOCAL
	CORE REPAIR FULL LENGTH
	CORE REPAIR FULL LENGTH AT INVERT

PIPE SEGMENT LEGEND	
	WATER
	WETLAND
	WETLAND BUFFER
	RIGHT-OF-WAY

PIPE X-Y WHERE:
X = PIPE SECTION DOWNSTREAM OF MANWAY X
Y = INDIVIDUAL PIPE STICK

REGISTRATION



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PROJECT NUMBER

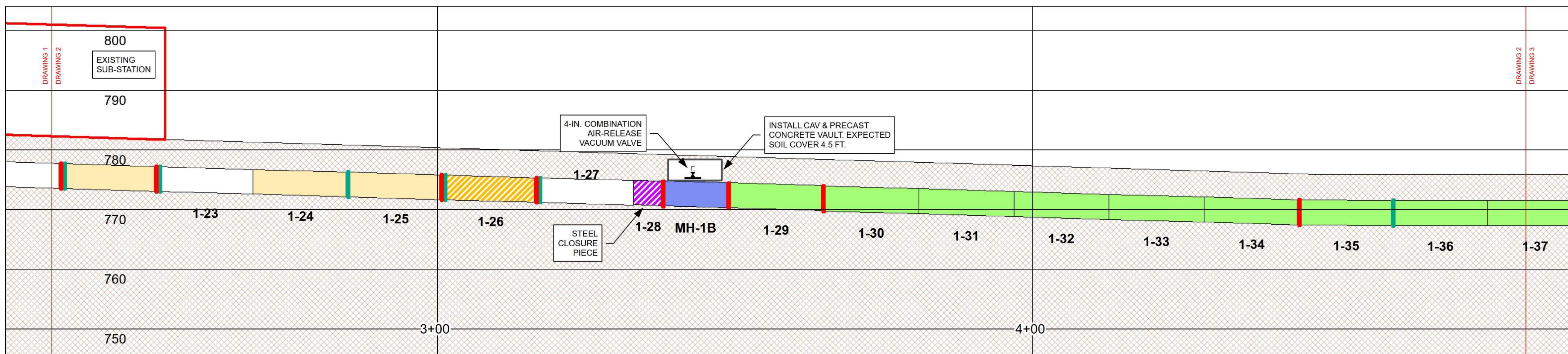
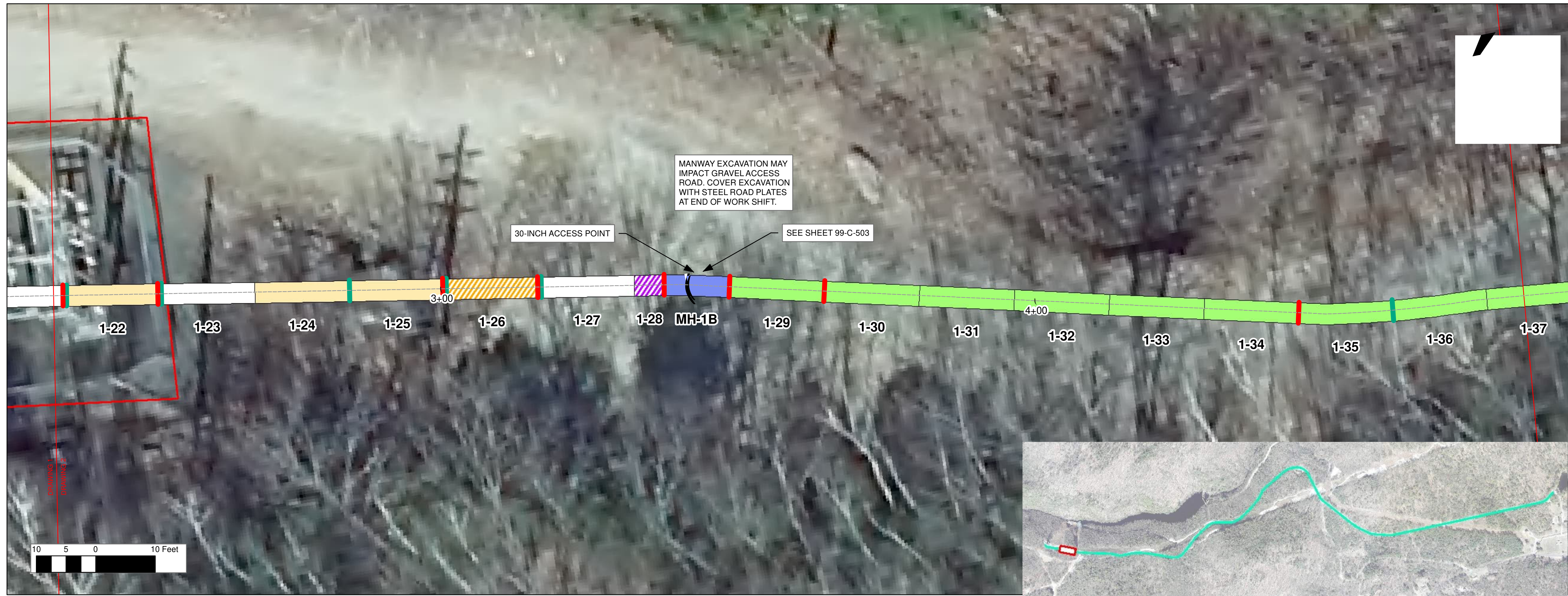
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Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
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Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL
SHEET TITLE
PLAN AND PROFILE REHAB DRAWING
STA. 0+00 TO 2+35.21

SHEET NUMBER



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



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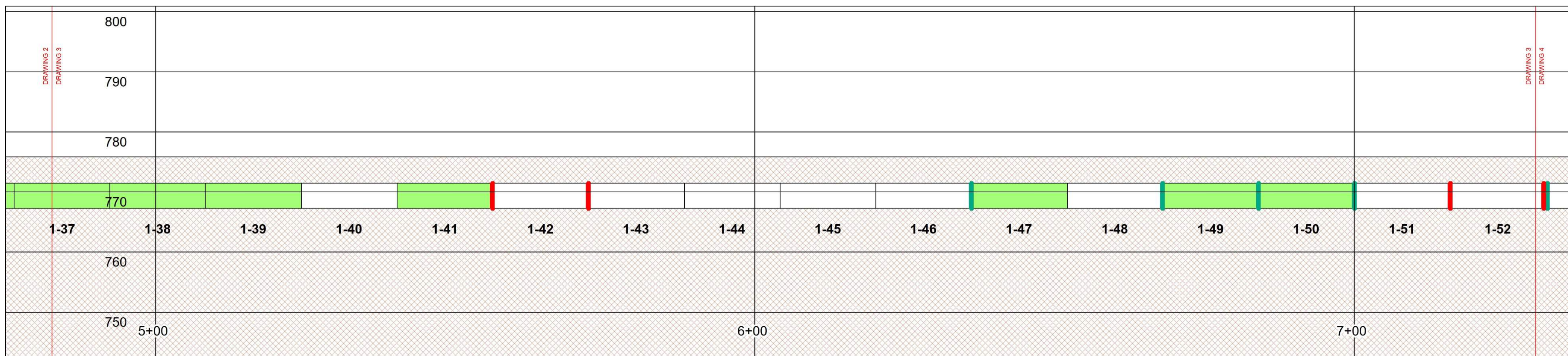
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DISCIPLINE

CIVIL
SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 2+35.21 TO 4+82.69

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- SEAL
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

REGISTRATION



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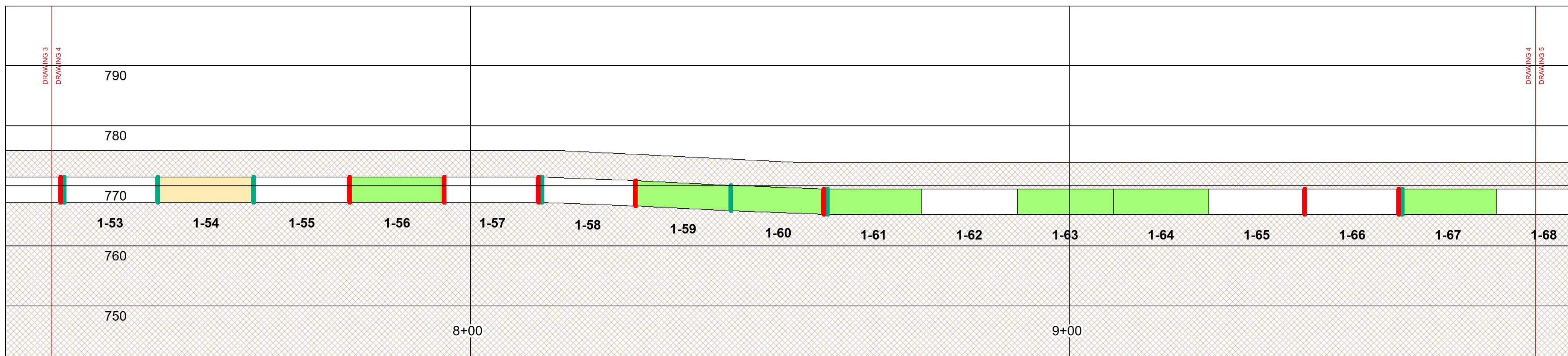
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CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 4+82.69 TO 7+30.18

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

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CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 7+30.18 TO 9+77.66

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

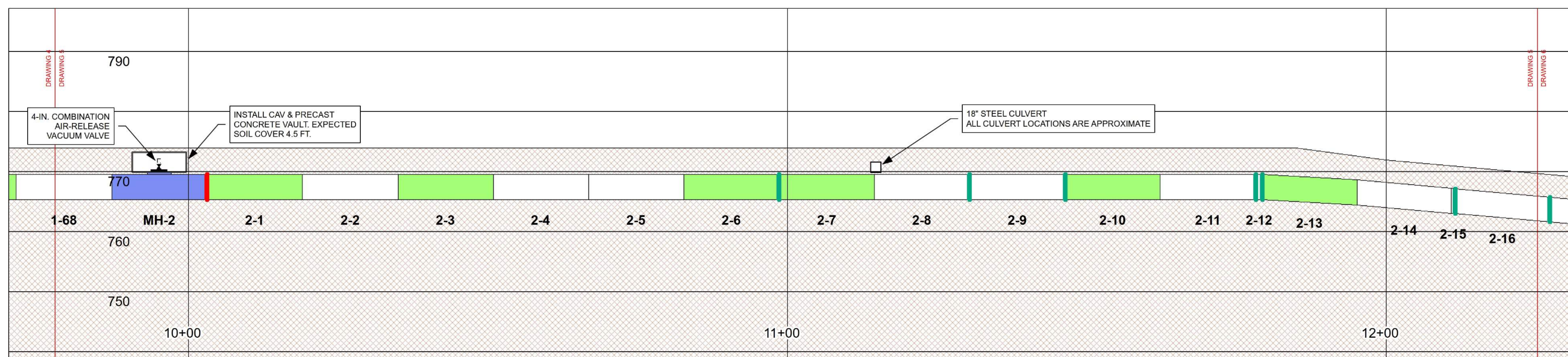
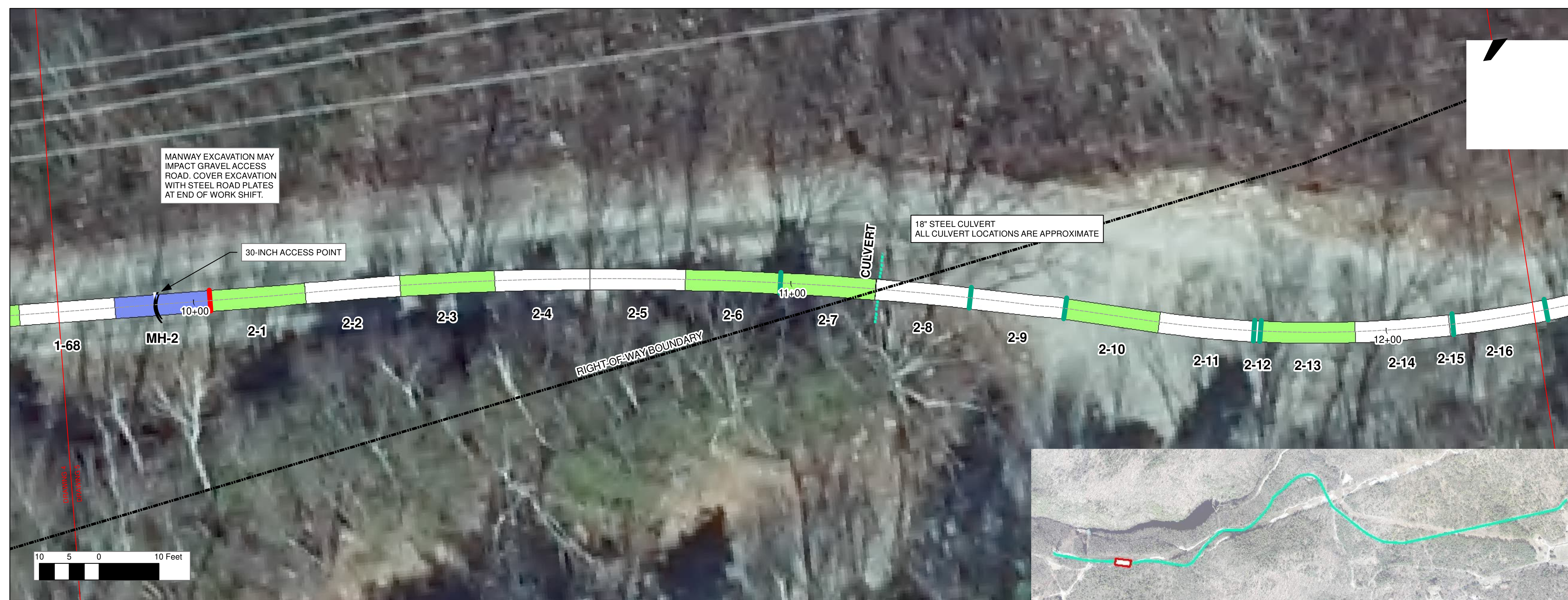
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

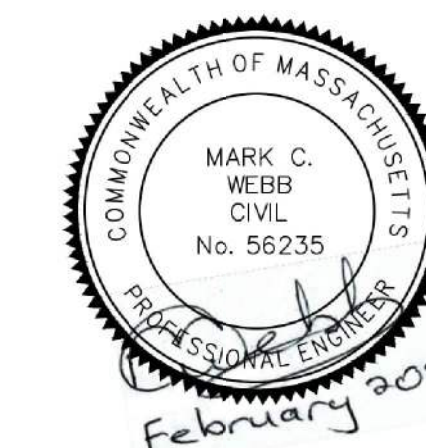
CONSULTANTS



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY
--	---	--	--	--

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

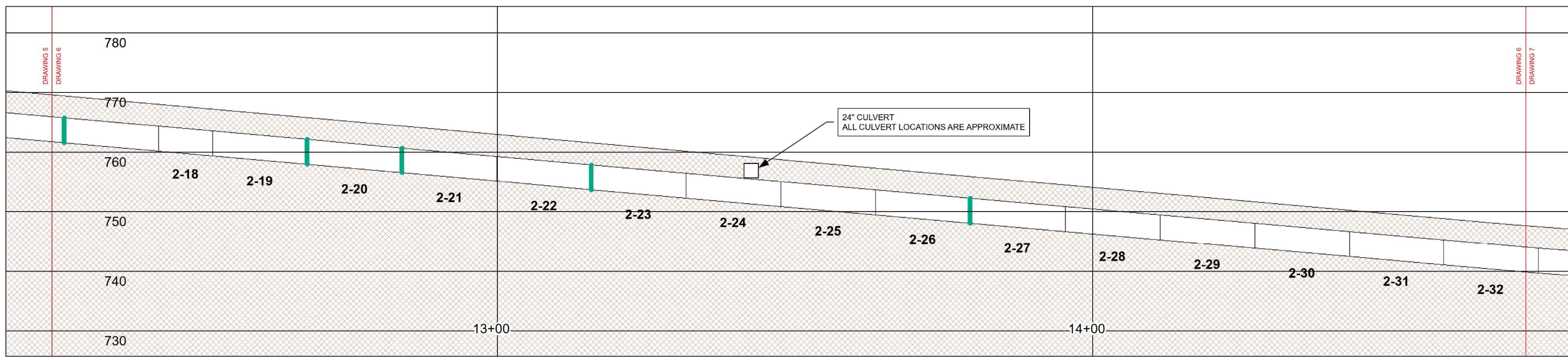
SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 9+77.66 TO 12+25.15

SHEET NUMBER

00 C-105

5 OF 38



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- SEAL
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

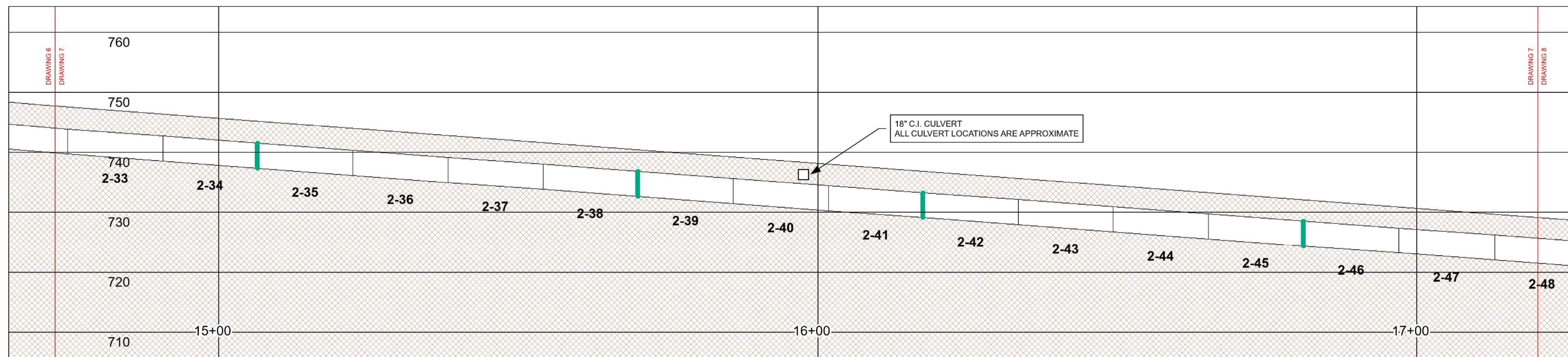
PROJECT NUMBER
 60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
 CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 12+25.15 TO 14+72.63

SHEET NUMBER



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS MORTAR JOINT SEAL MORTAR AND JOINT SEAL	PIPE BARREL TREATMENTS REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS	CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT	MANWAY TREATMENTS NEW MANWAY REPLACE MANWAY PAINT MANWAY	WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY	PIPE SEGMENT LEGEND PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK
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REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
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Dept Check:	
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Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 14+72.63 TO 17+20.12

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
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Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

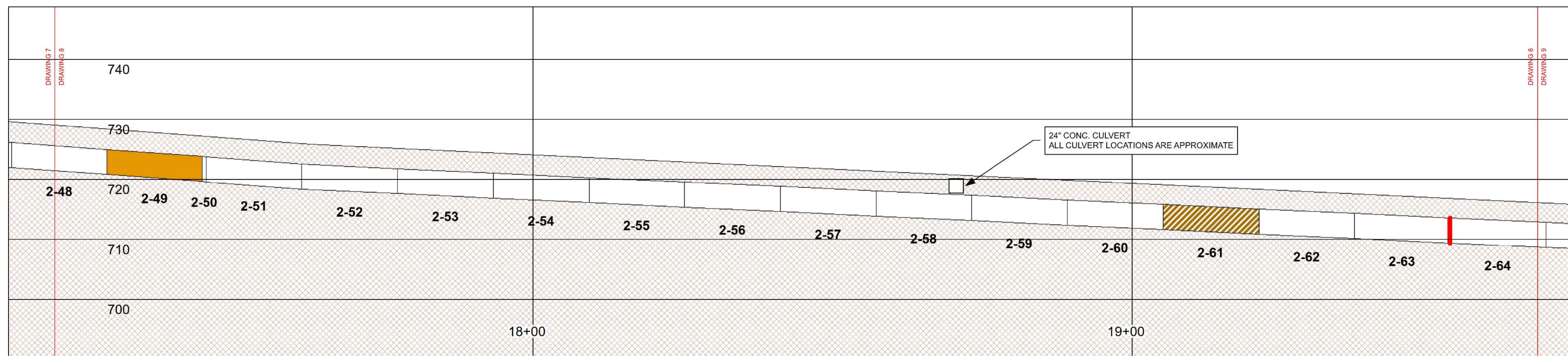
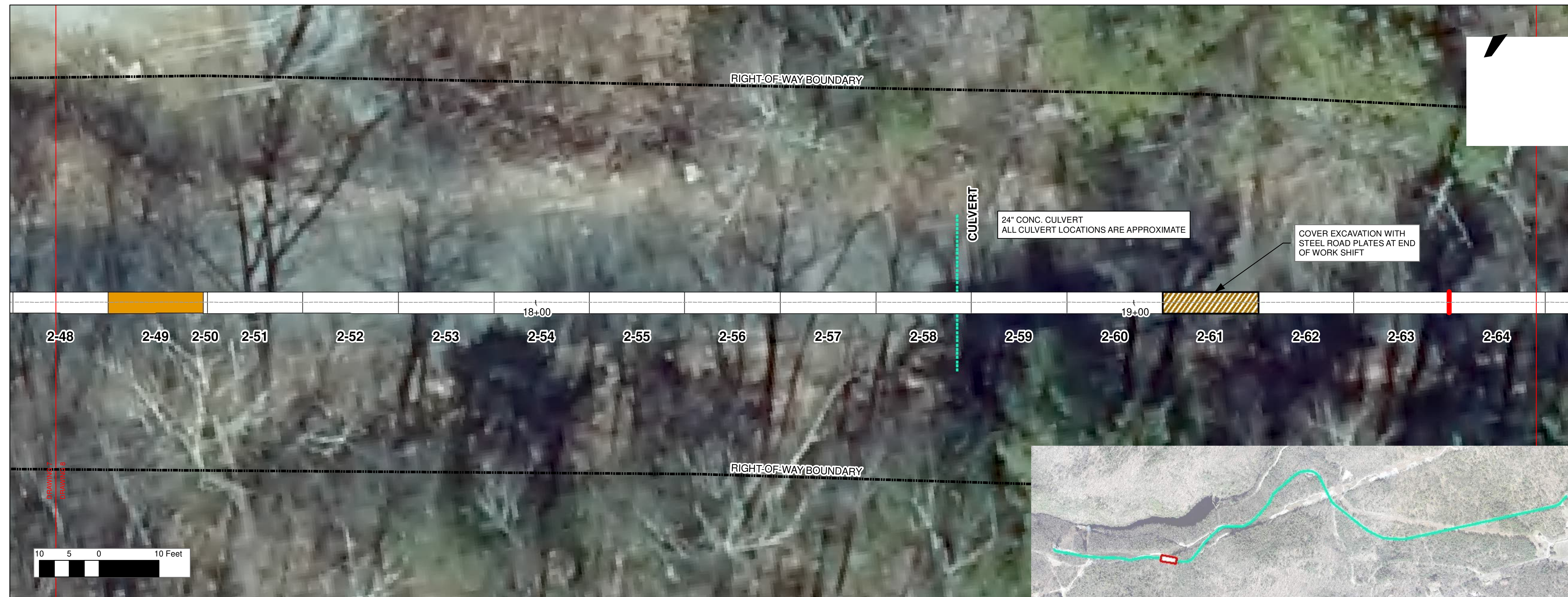
SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 17+20.12 TO 19+67.60

SHEET NUMBER

00 C-108

8 OF 38



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

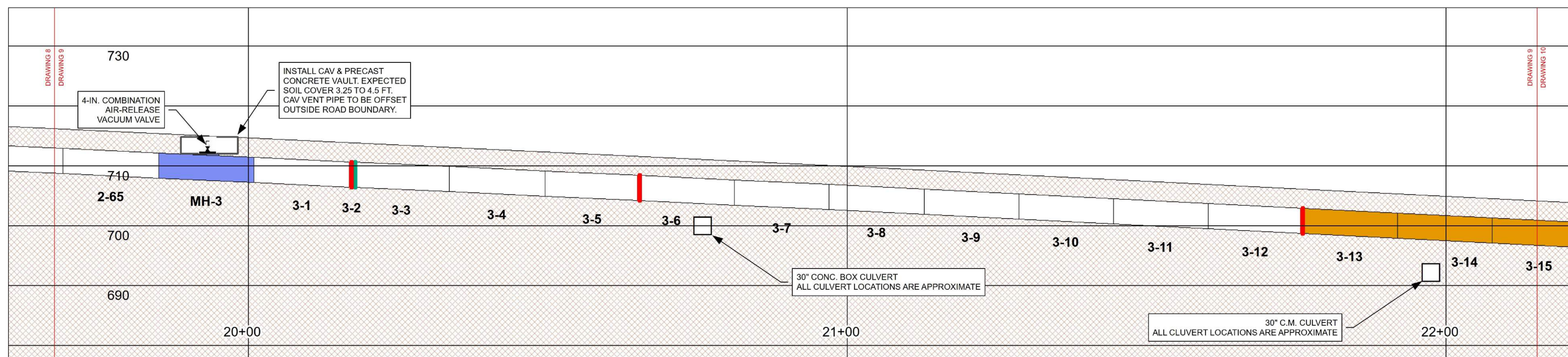
MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
X = PIPE SECTION DOWNSTREAM OF MANWAY X
Y = INDIVIDUAL PIPE STICK



LEGEND

JOINT TREATMENTS	PIPE BARREL TREATMENTS	MANWAY TREATMENTS	PIPE SEGMENT LEGEND
MORTAR	REPLACE	NEW MANWAY	WATER
JOINT SEAL	CRACK REPAIR	REPLACE MANWAY	WETLAND
MORTAR AND JOINT SEAL	CFRP LINER	PAINT MANWAY	WETLAND BUFFER
	GFRP LINER		RIGHT-OF-WAY
	MULTIPLE REPAIRS		
	CORE REPAIR LOCAL		
	CORE REPAIR FULL LENGTH		
	CORE REPAIR FULL LENGTH AT INVERT		

PIPE X-Y WHERE:
X = PIPE SECTION DOWNSTREAM OF MANWAY X
Y = INDIVIDUAL PIPE STICK

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER

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Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
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Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

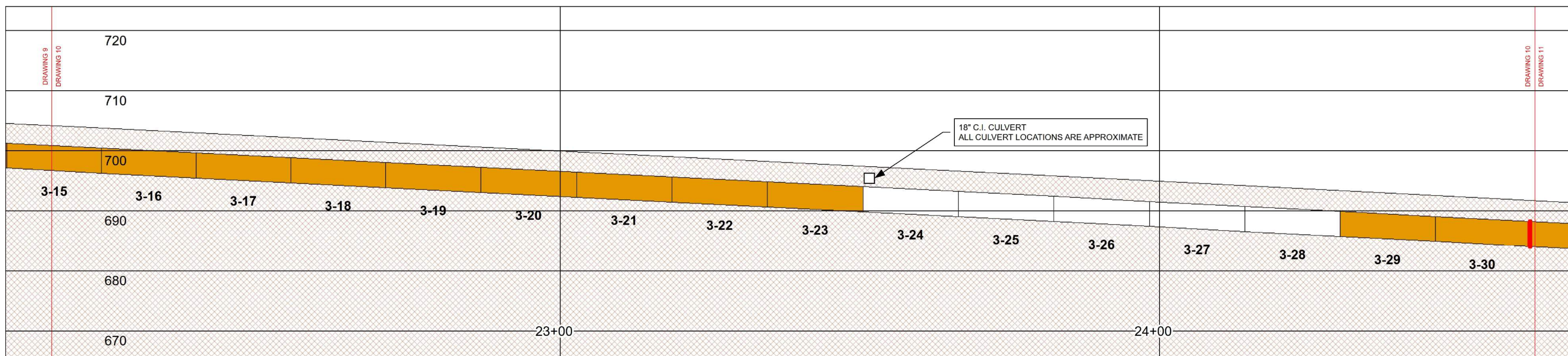
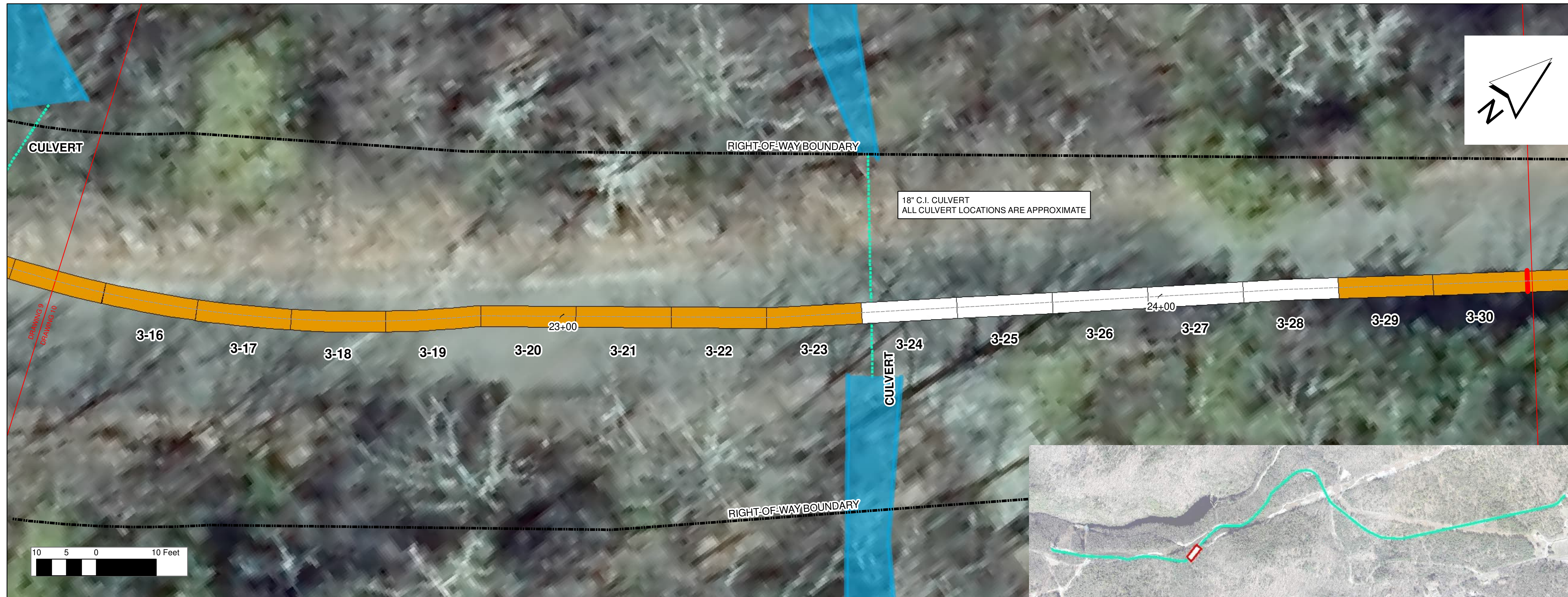
SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 19+67.60 TO 22+15.09

SHEET NUMBER

00 C-109

9 OF 38



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

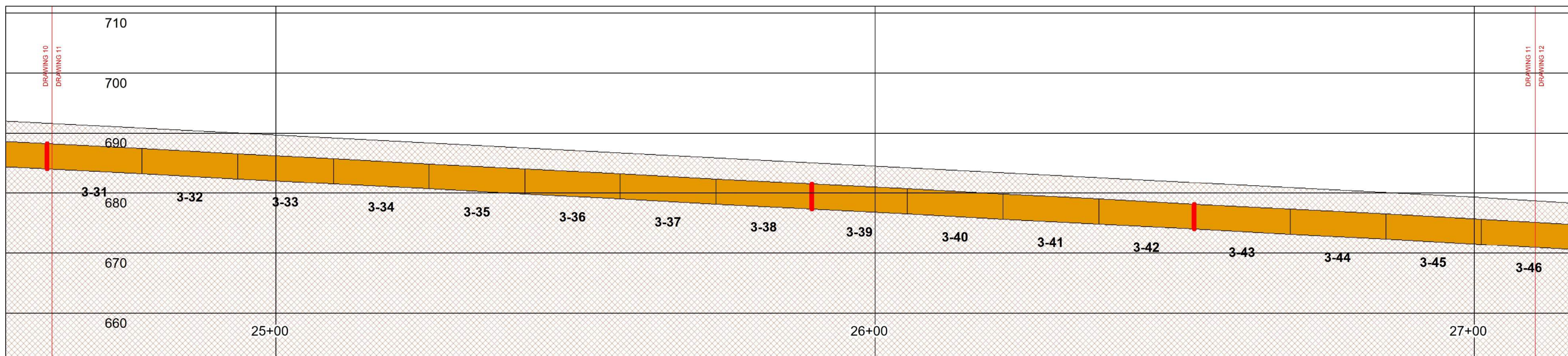
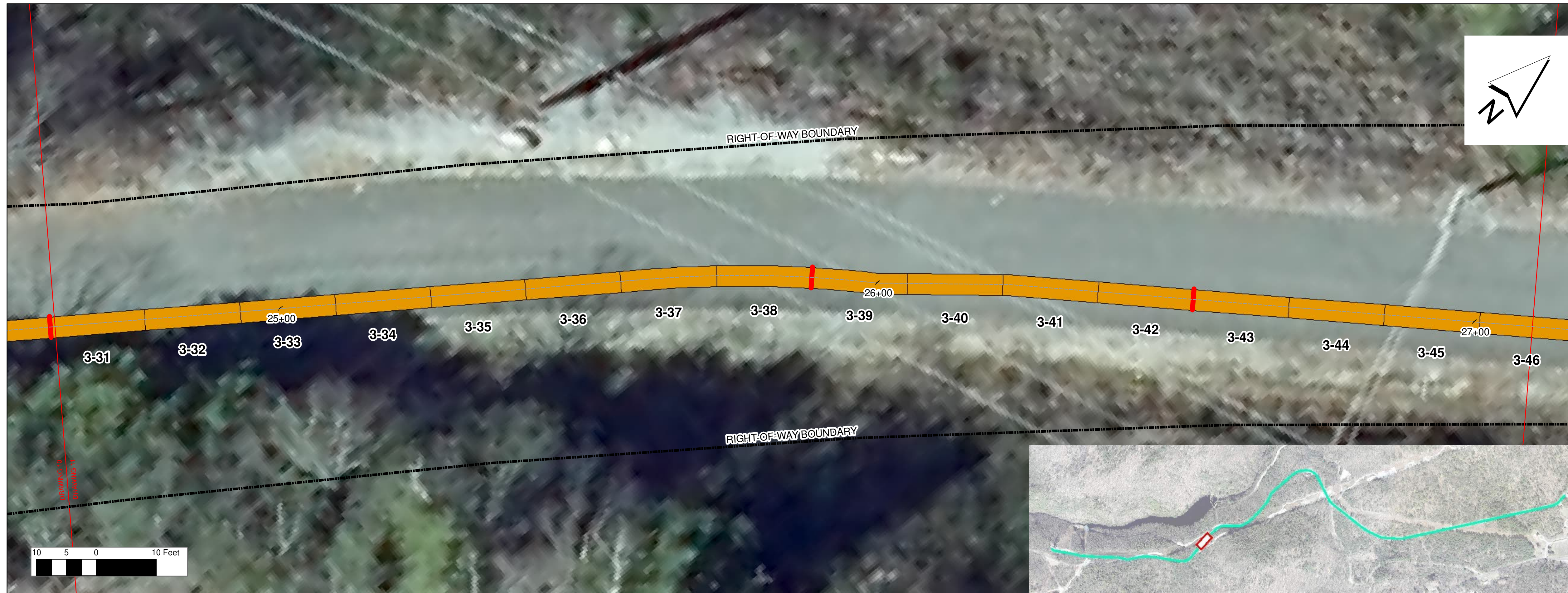
PROJECT NUMBER
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 22+15.09 TO 24+62.57

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- SEAL
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 24+62.57 TO 27+10.06

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

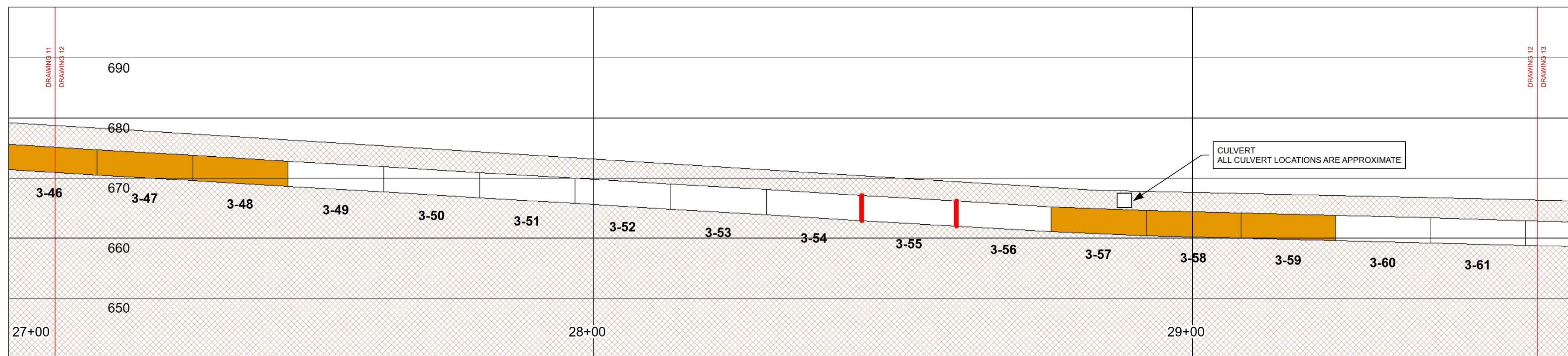
CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 27+10.06 TO 29+57.54

SHEET NUMBER

00 C-112 12 OF 38



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>
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PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

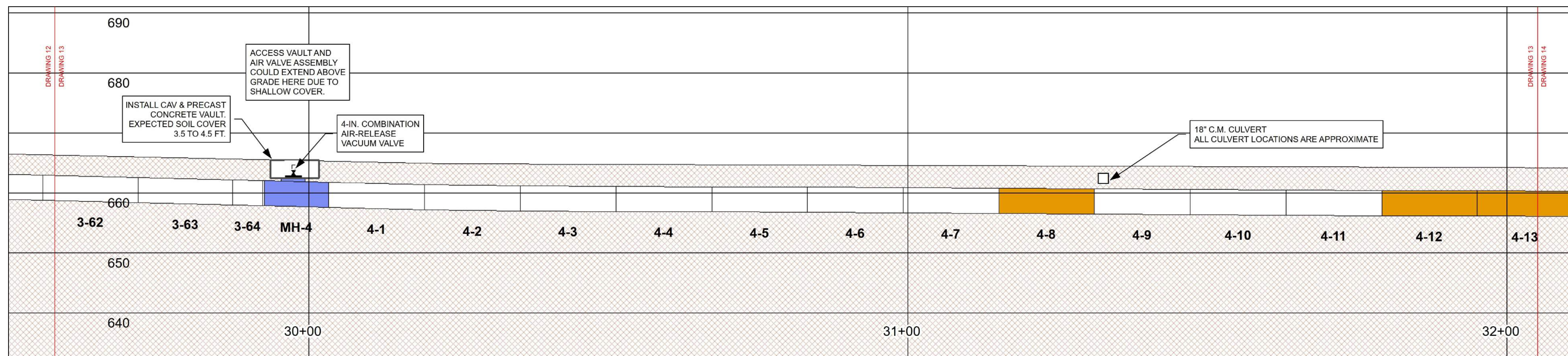
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS



LEGEND

JOINT TREATMENTS MORTAR JOINT SEAL MORTAR AND JOINT SEAL	PIPE BARREL TREATMENTS REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT	MANWAY TREATMENTS NEW MANWAY REPLACE MANWAY PAINT MANWAY WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY	PIPE SEGMENT LEGEND PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK
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REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 29+57.54 TO 32+5.03

SHEET NUMBER

00 C-113

13 OF 38

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

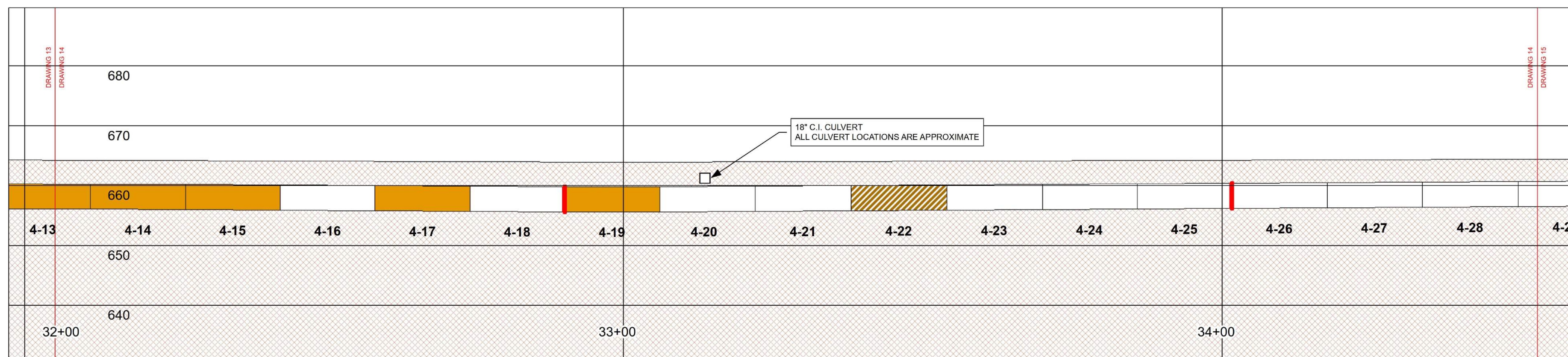
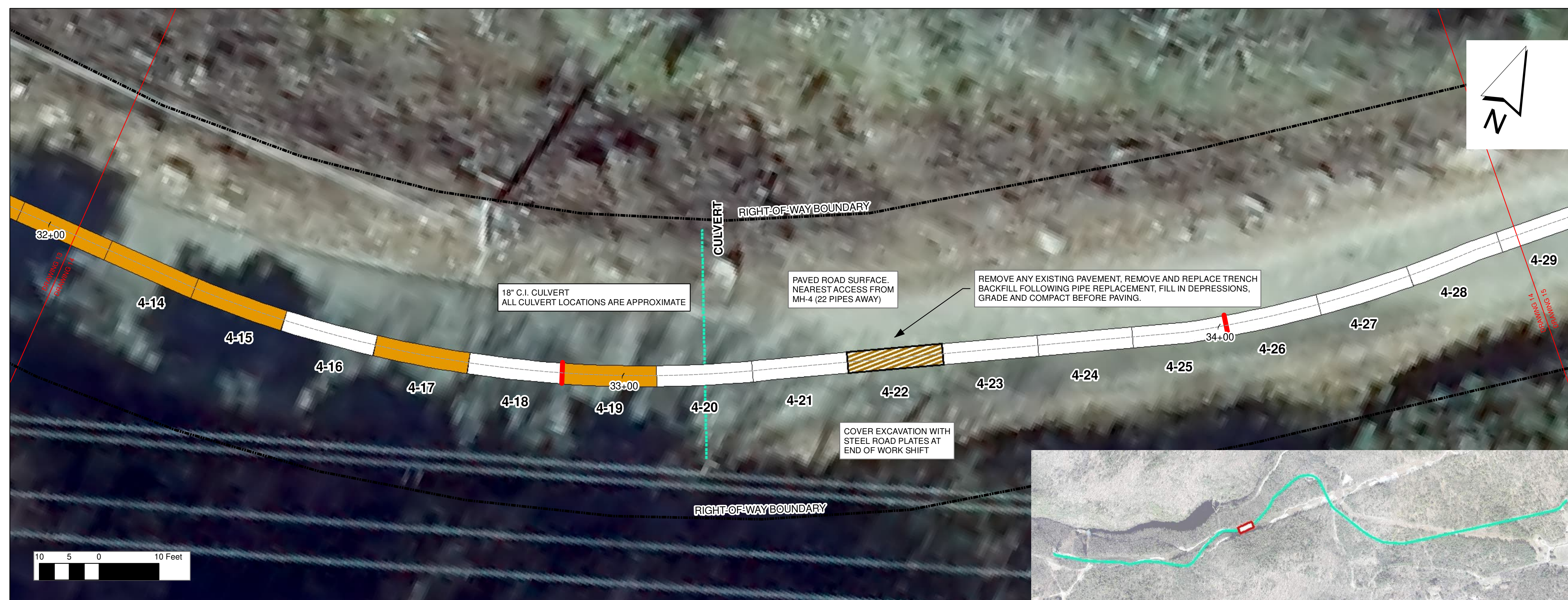
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>
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REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

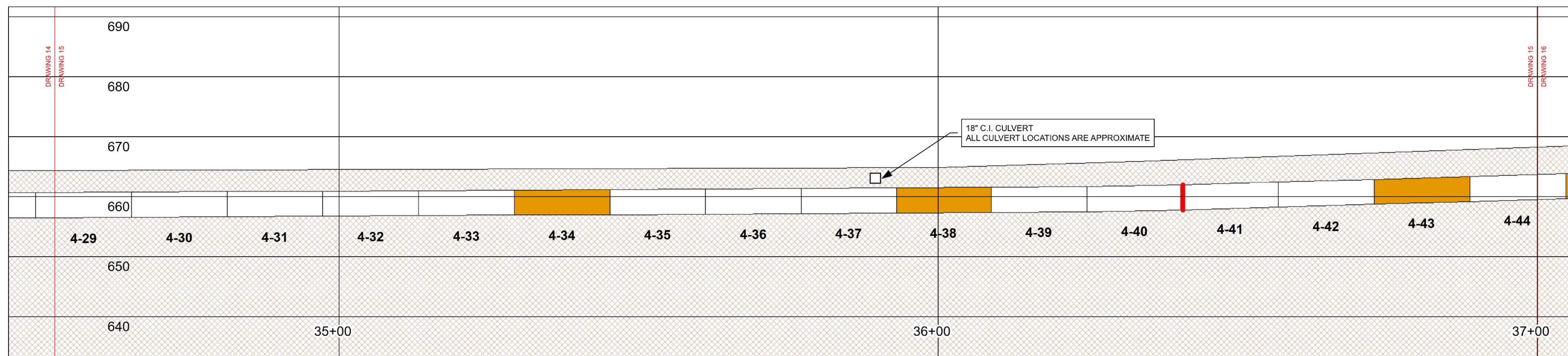
SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 32+5.03 TO 34+52.51

SHEET NUMBER

00 C-114

14 OF 38



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>
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REGISTRATION



ISSUE/REVISION

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PROJECT NUMBER

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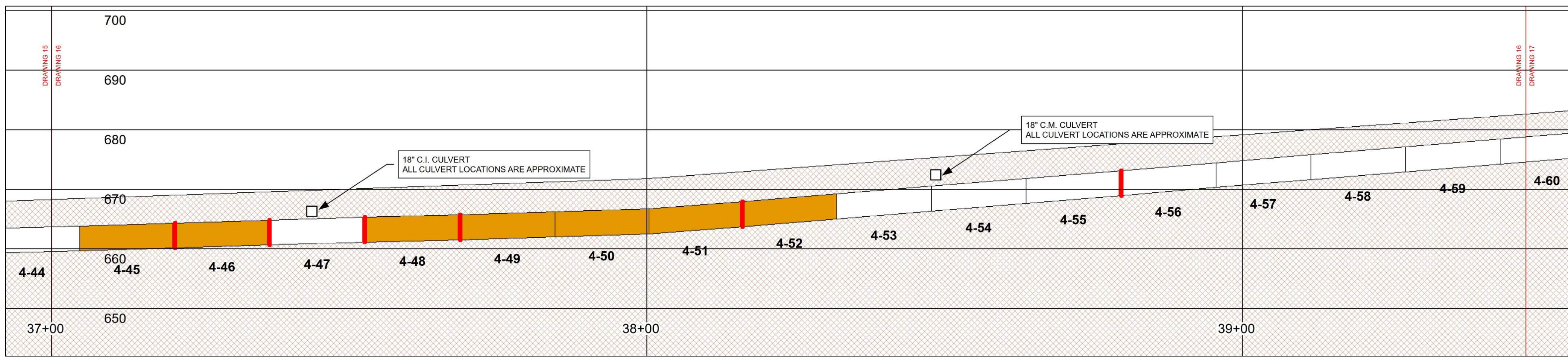
DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 34+52.51 TO 37+00

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 37+00 TO 39+47.48

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

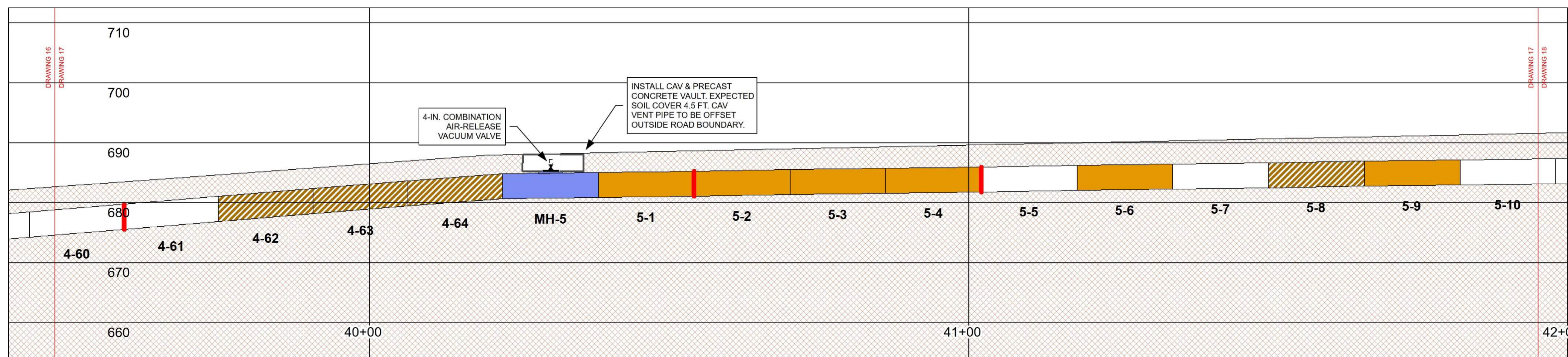
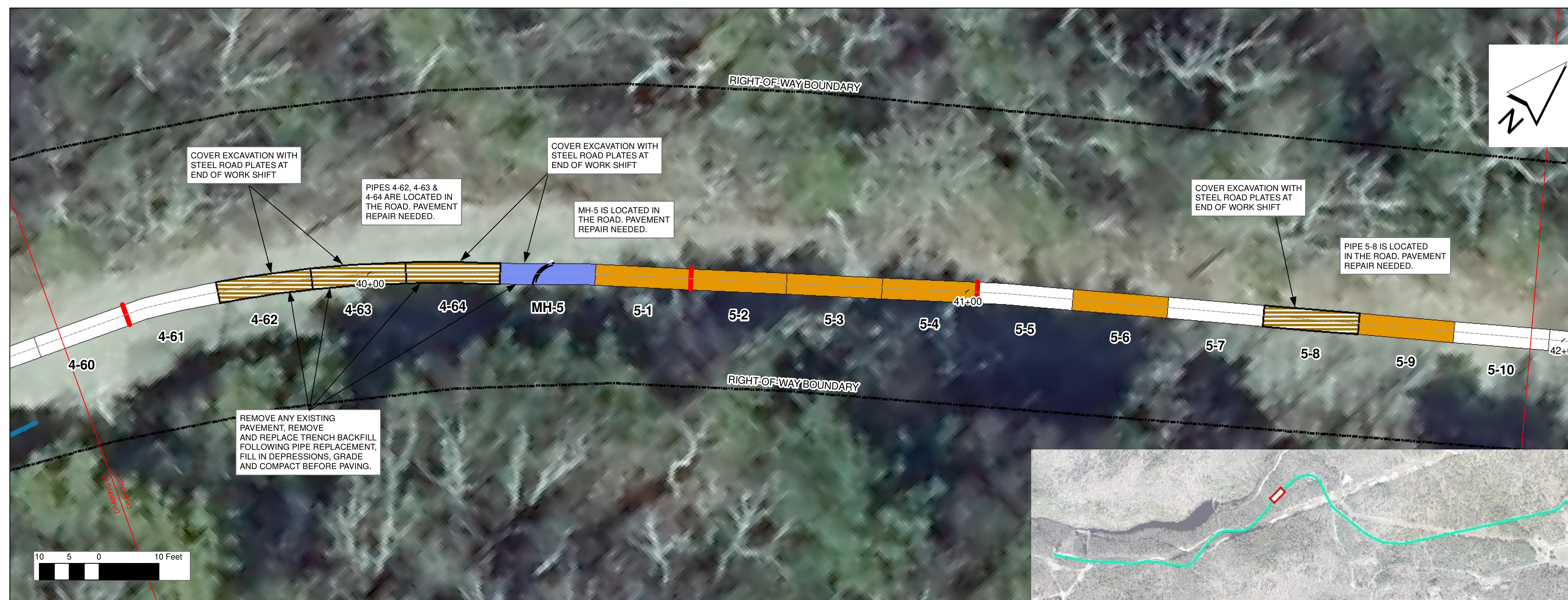
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>
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REGISTRATION



ISSUE/REVISION

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DISCIPLINE

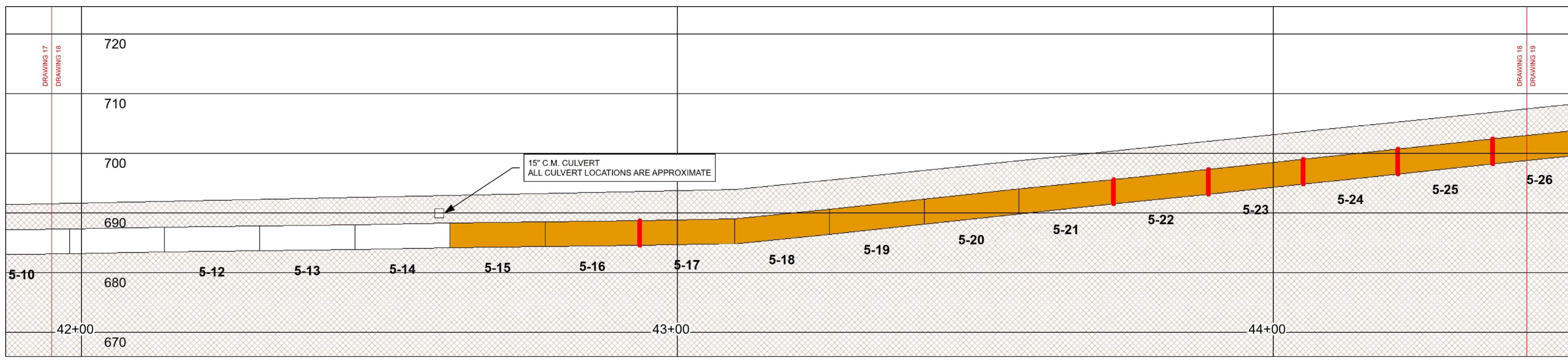
CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 39+47.48 TO 41+94.97

SHEET NUMBER

00 C-117



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

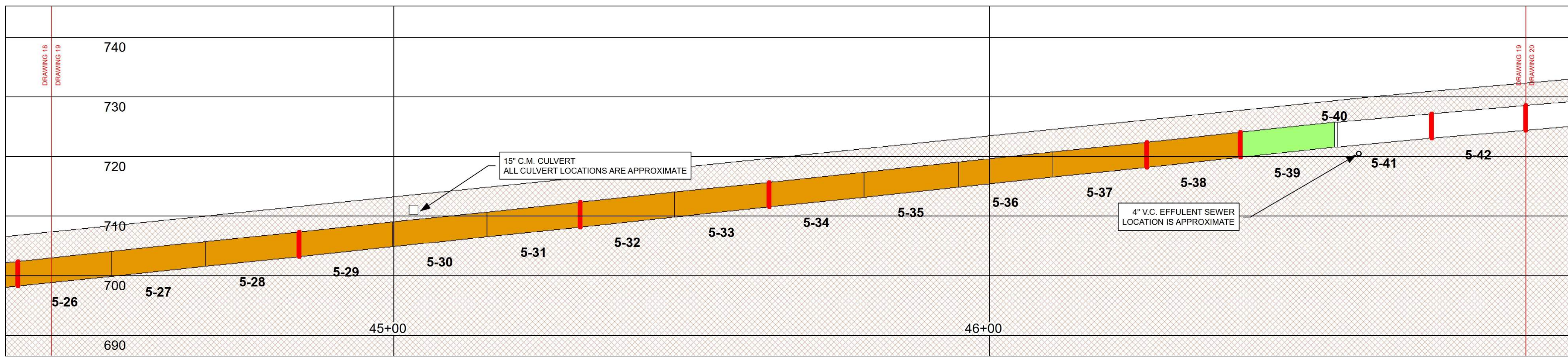
DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 41+94.97 TO 44+42.46

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

MANWAY TREATMENTS

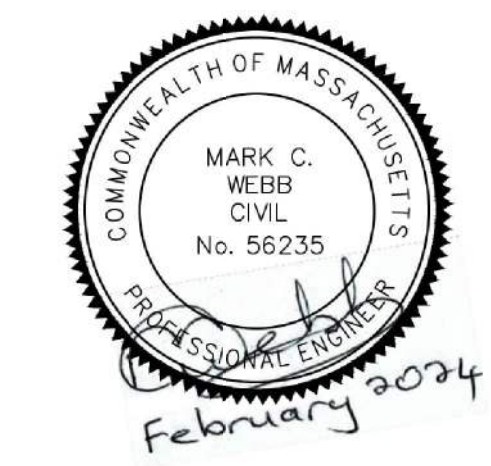
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

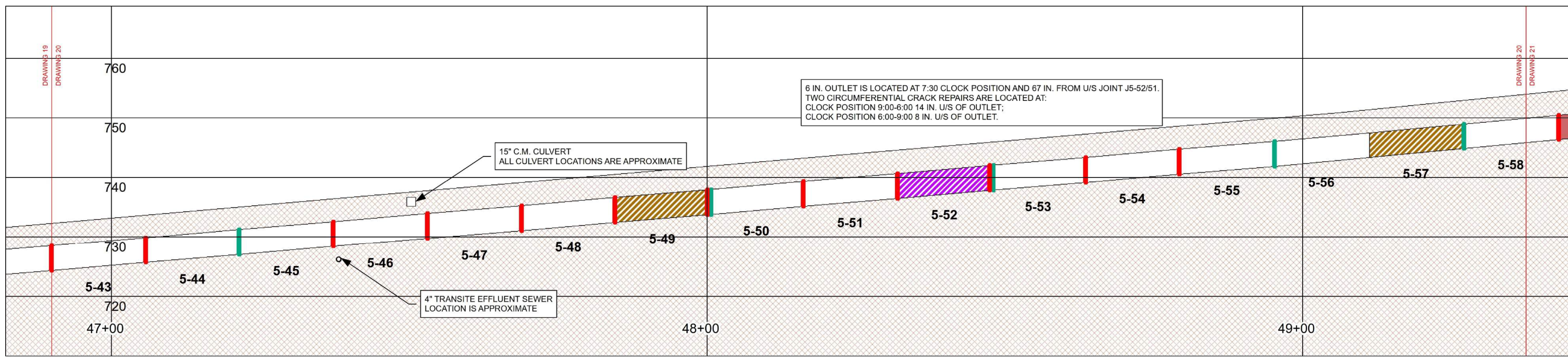
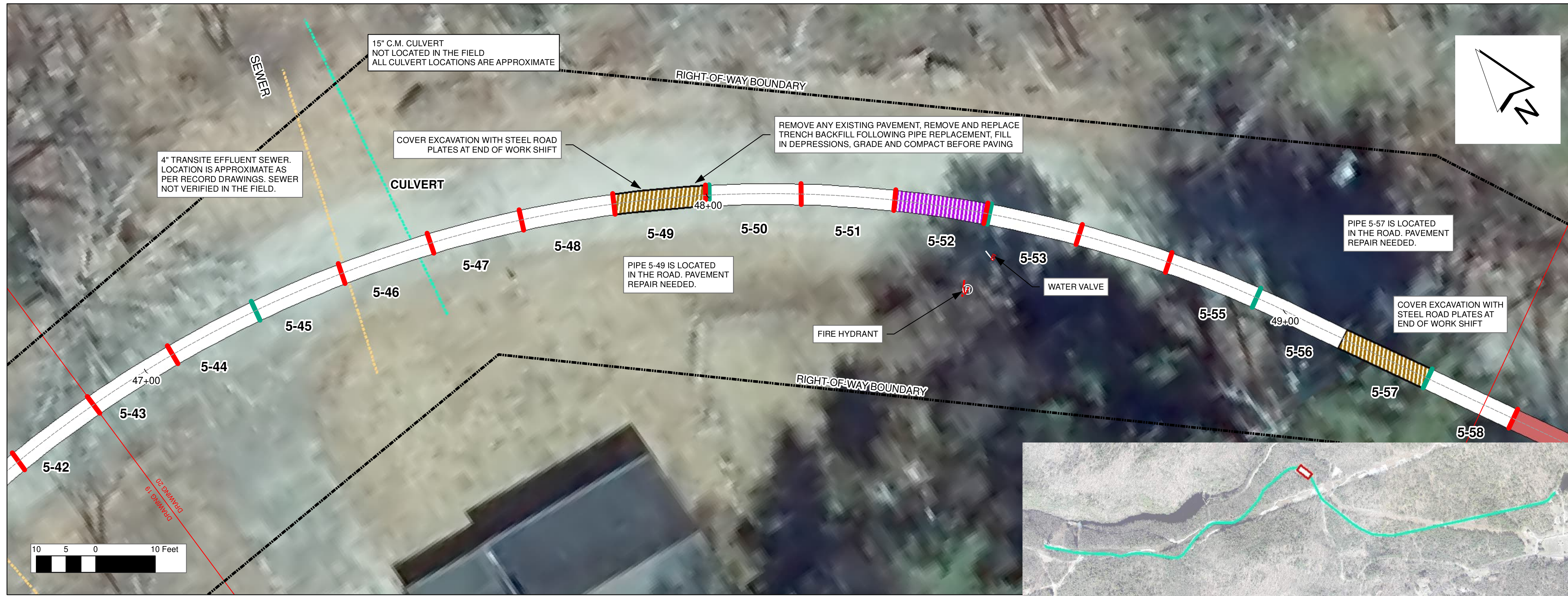
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL
SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 44+42.46 TO 46+89.94

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

MANWAY TREATMENTS

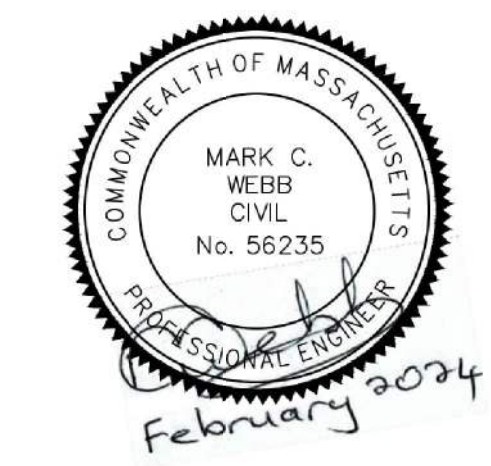
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

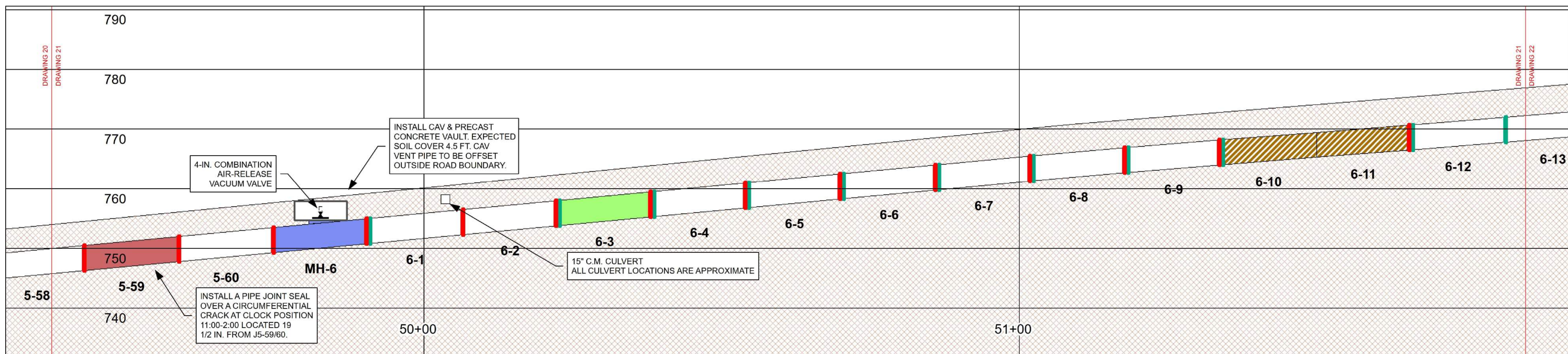
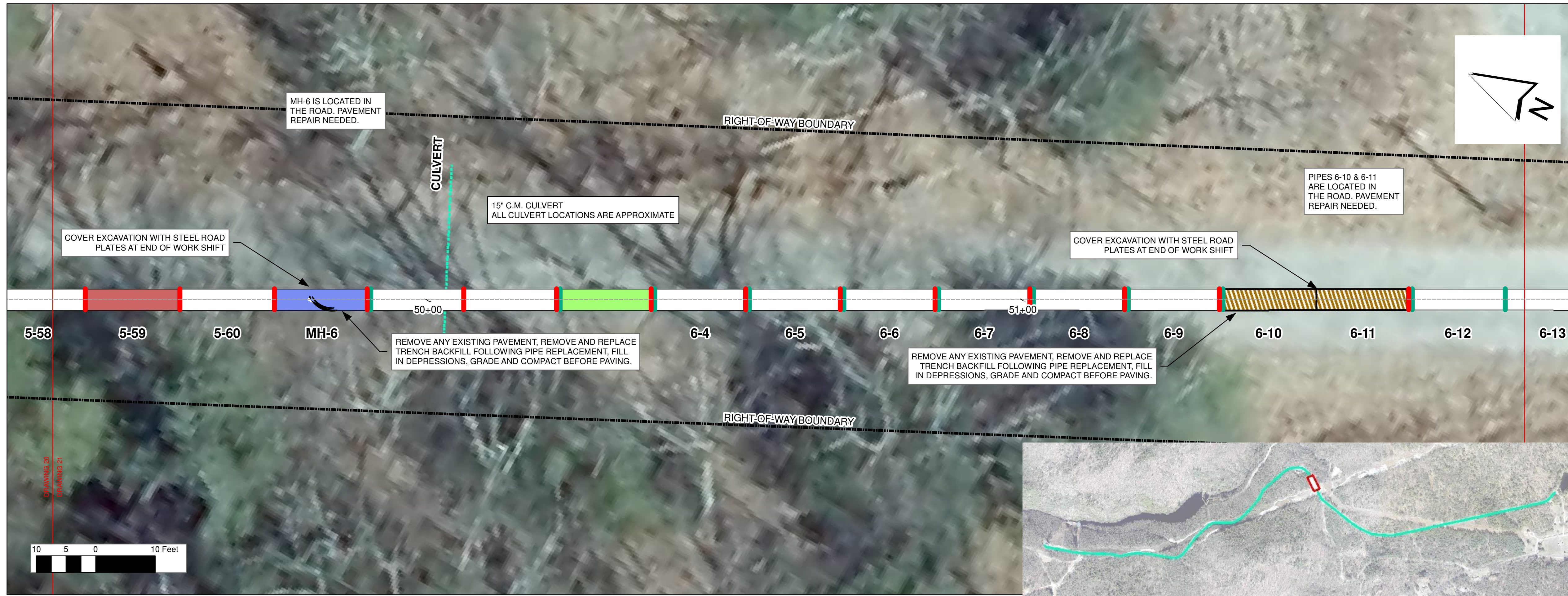
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL
SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 46+89.94 TO 49+37.43

SHEET NUMBER



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

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PROJECT NUMBER

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Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 49+37.43 TO 51+84.91

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
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Dept Check:	
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Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

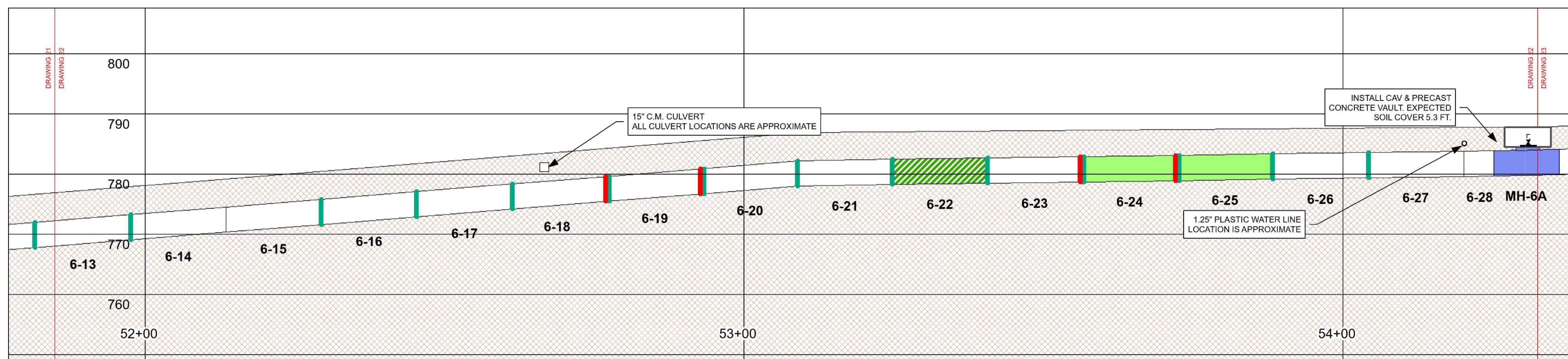
CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 51+84.91 TO 54+32.40

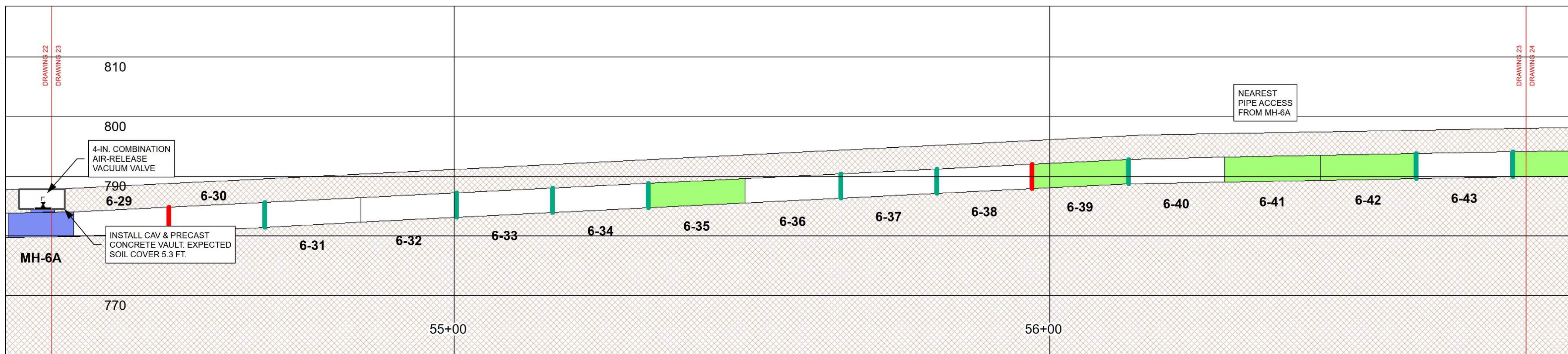
SHEET NUMBER

00 C-122 22 OF 38



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>
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LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 54+32.40 TO 56+79.88

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

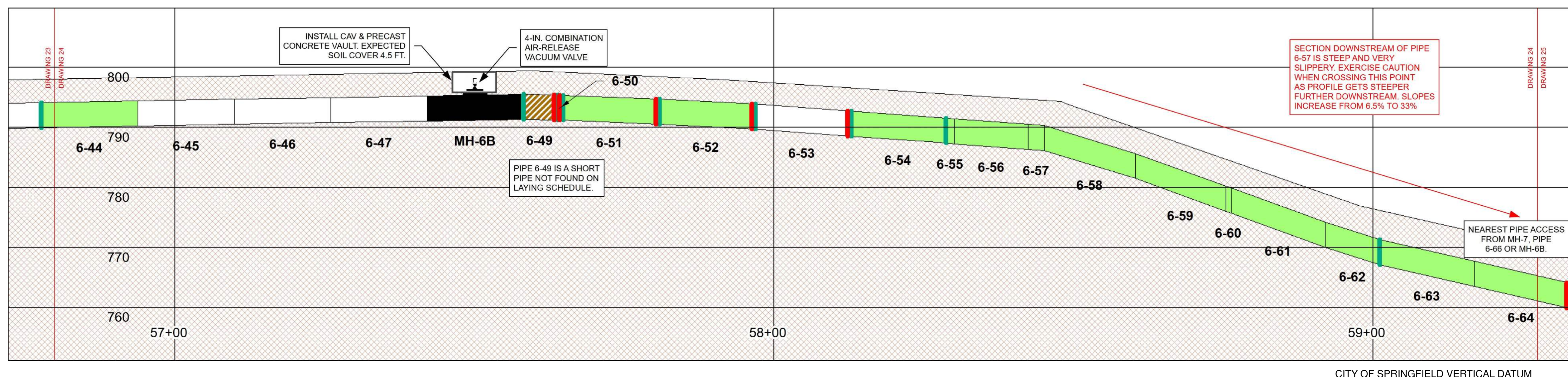
CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 56+79.88 TO 59+27.37

SHEET NUMBER

00 C-124 24 OF 38



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p> <ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY
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PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: M. C. WEBB, PE

Drawn By: J. DAVIDSON

Dept Check: TAL/MCW

Proj Check: FEBRUARY 2024

Scale: 1 inch = 10 feet

DISCIPLINE

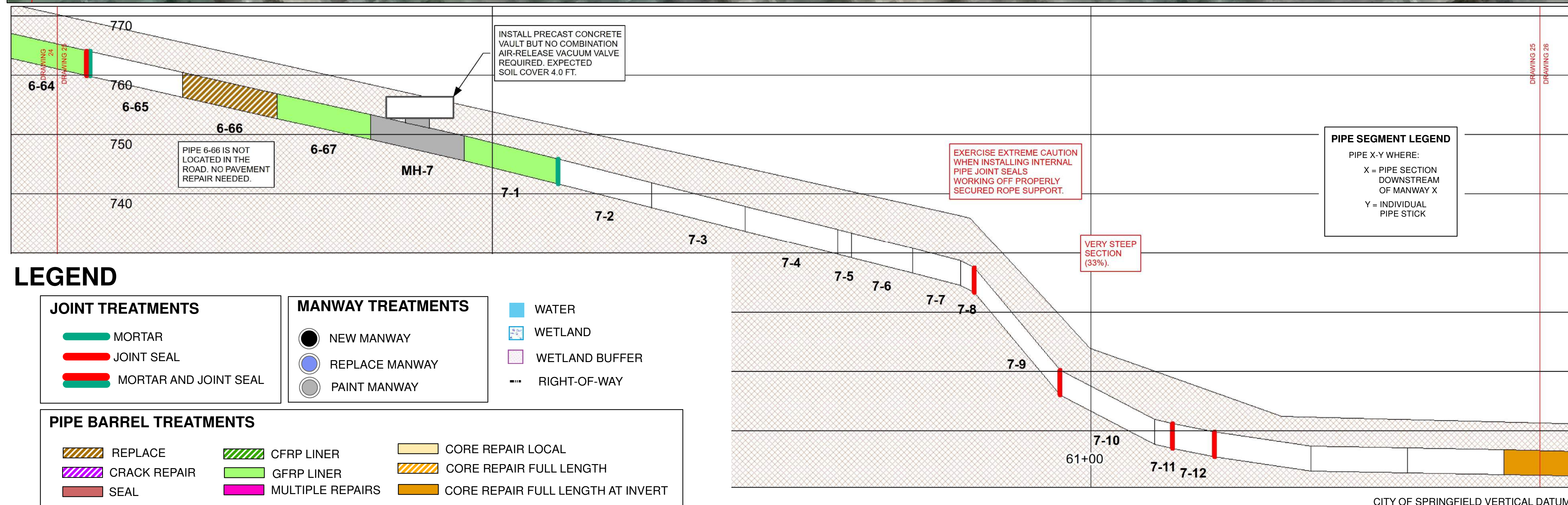
CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 59+27.37 TO 61+74.85

SHEET NUMBER

00 C-125 25 OF 38



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

MANWAY TREATMENTS

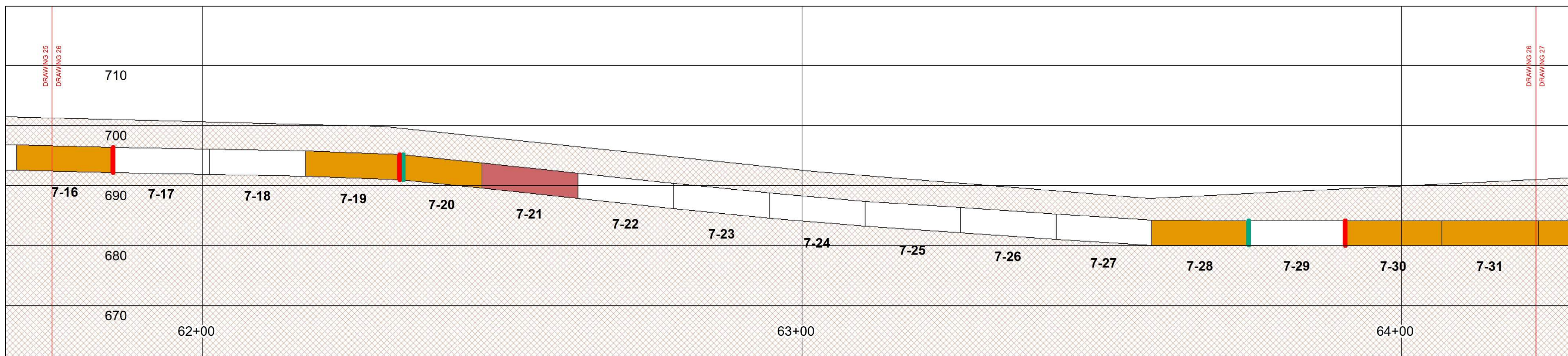
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE BARREL TREATMENTS

- REPLACE
- CFRP LINER
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CRACK REPAIR
- GFRP LINER
- CORE REPAIR FULL LENGTH AT INVERT
- SEAL
- MULTIPLE REPAIRS

CITY OF SPRINGFIELD VERTICAL DATUM



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

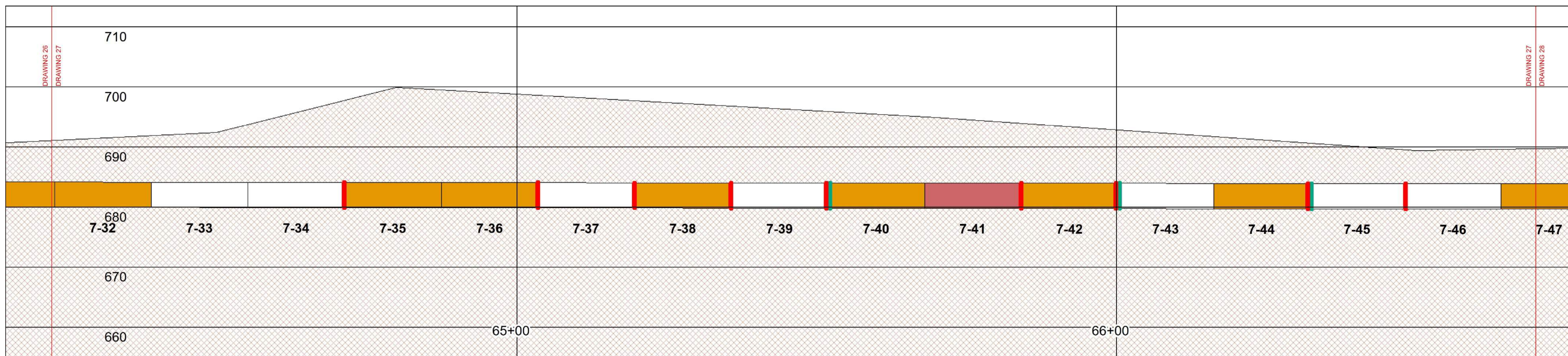
DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 61+74.85 TO 64+22.34

SHEET NUMBER



LEGEND

JOINT TREATMENTS MORTAR JOINT SEAL MORTAR AND JOINT SEAL	PIPE BARREL TREATMENTS REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT	MANWAY TREATMENTS NEW MANWAY REPLACE MANWAY PAINT MANWAY	WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY	PIPE SEGMENT LEGEND PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK
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REGISTRATION



ISSUE/REVISION

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PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 64+22.34 TO 66+69.82

SHEET NUMBER

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

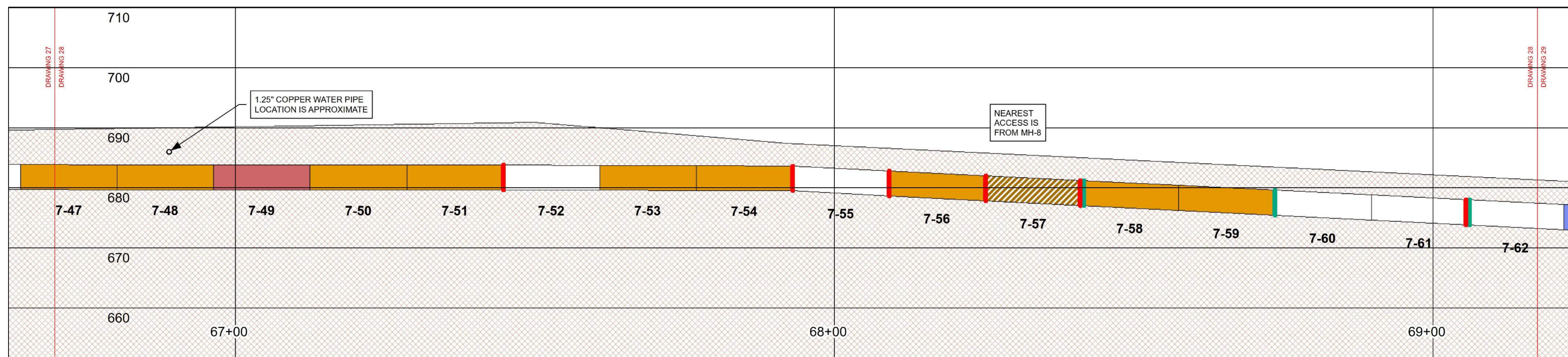
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p>	<ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY
--	---	--	--	--

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

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Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 66+69.82 TO 69+17.31

SHEET NUMBER

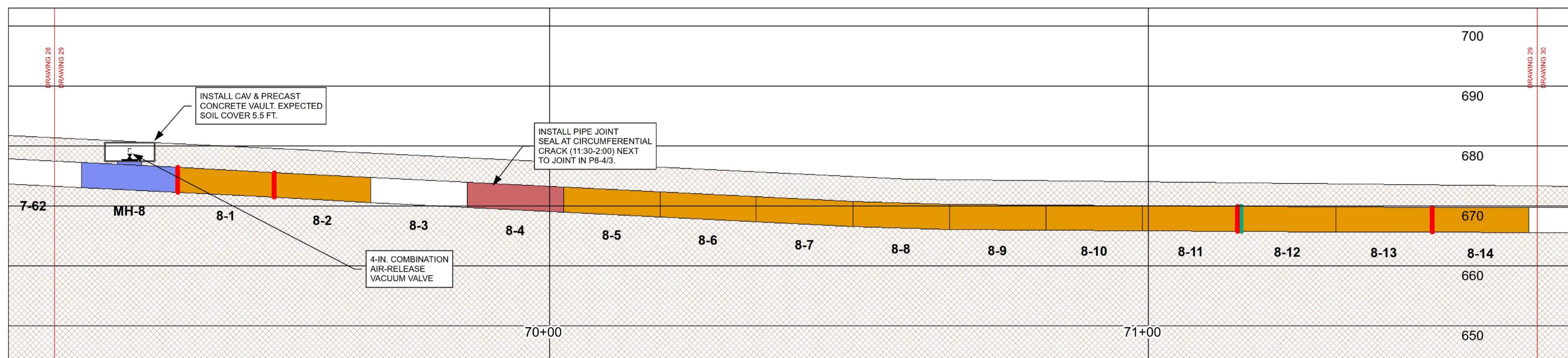
00 C-128

28 OF 38



IR	DATE	DESCRIPTION

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet



CITY OF SPRINGFIELD VERTICAL DATUM

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

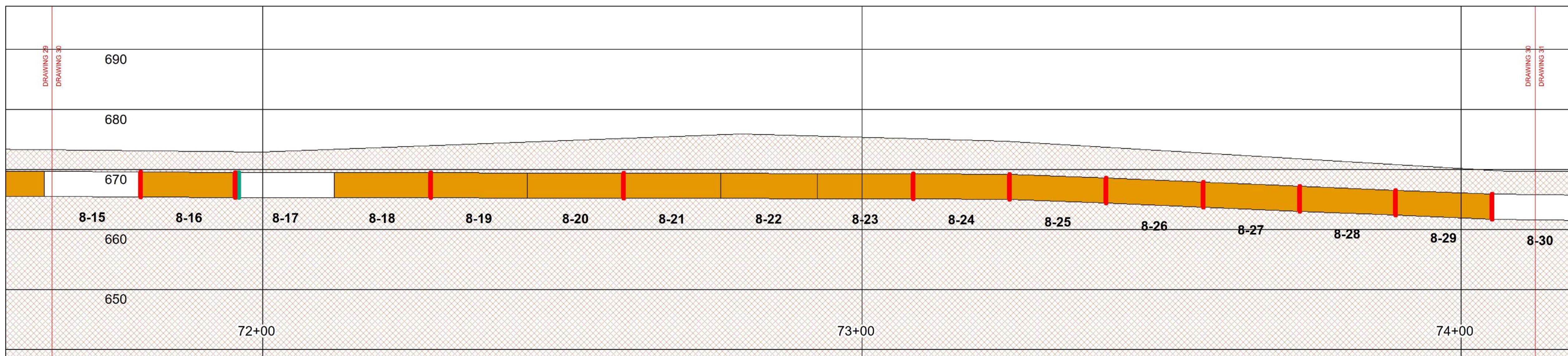
MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
X = PIPE SECTION DOWNSTREAM OF MANWAY X
Y = INDIVIDUAL PIPE STICK



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- SEAL
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
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 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

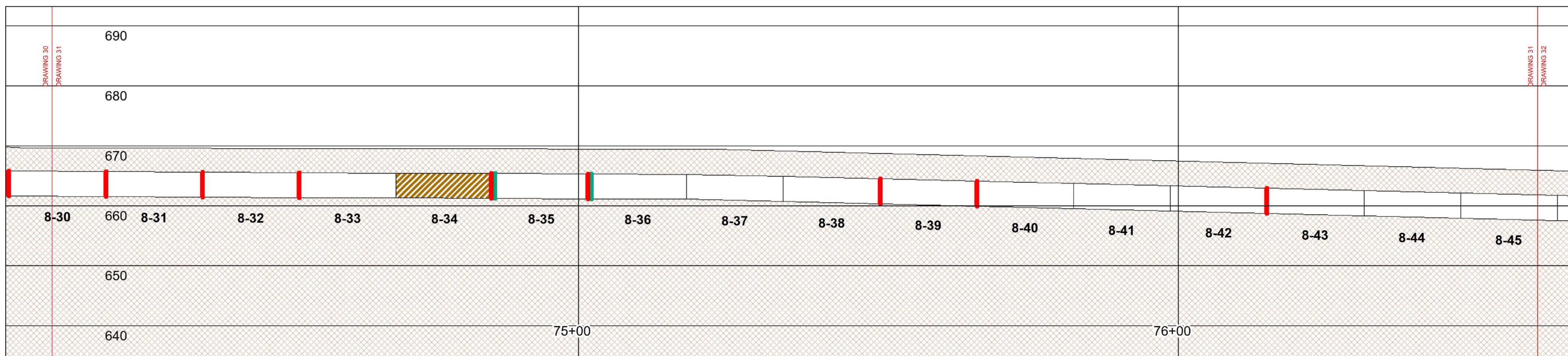
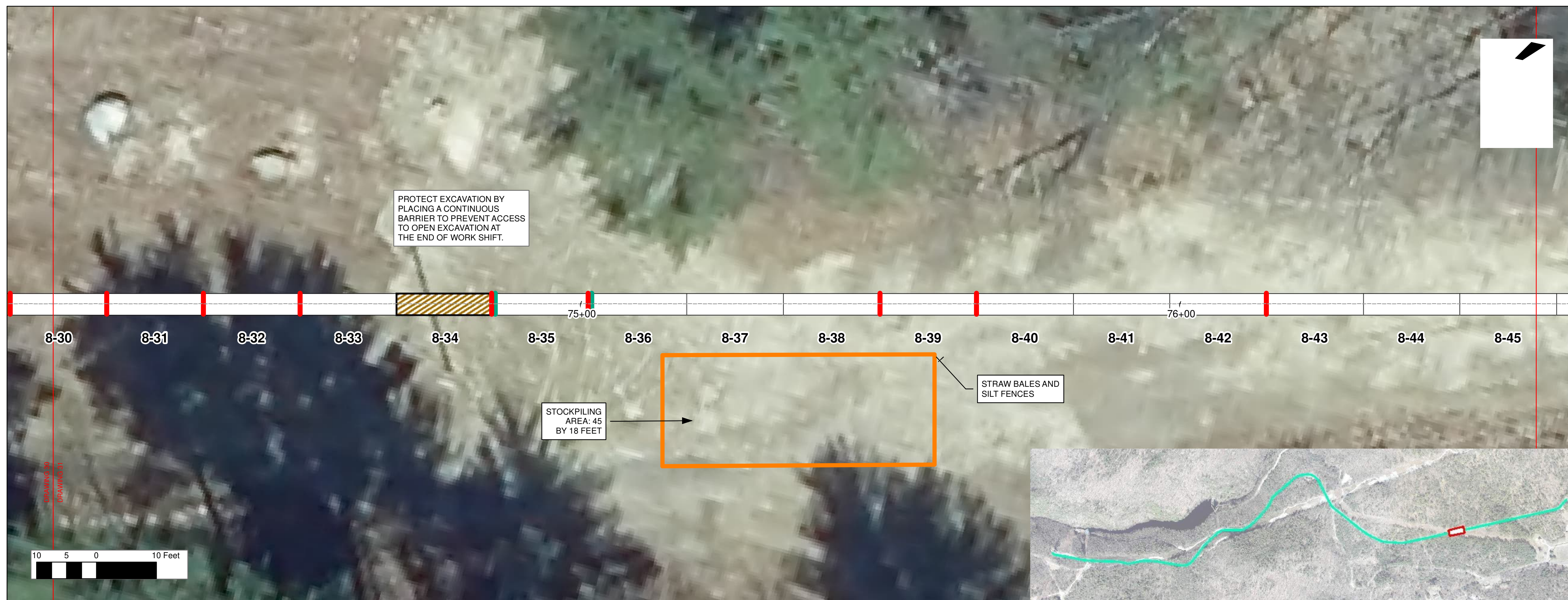
PROJECT NUMBER
60662775

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Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 71+64.79 TO 74+12.28

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
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REGISTRATION



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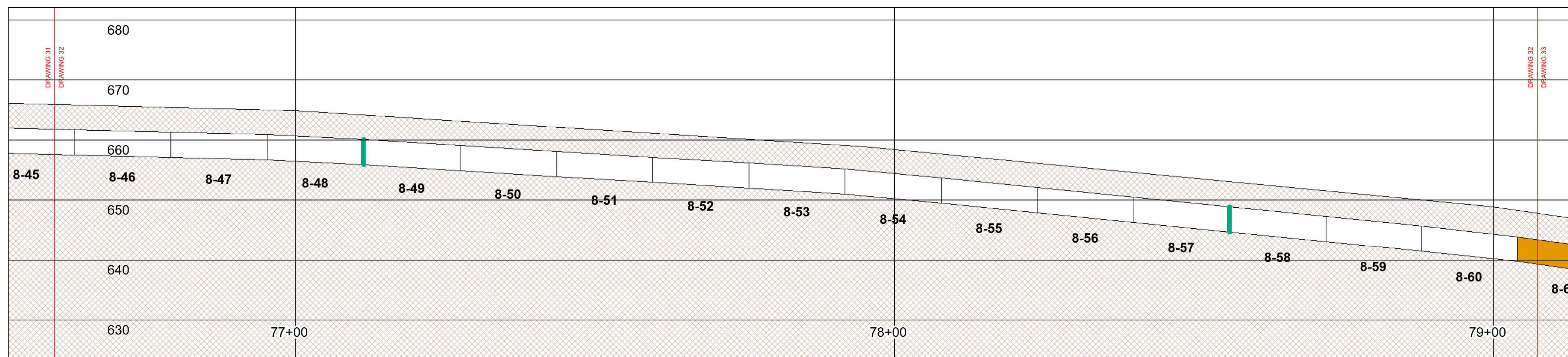
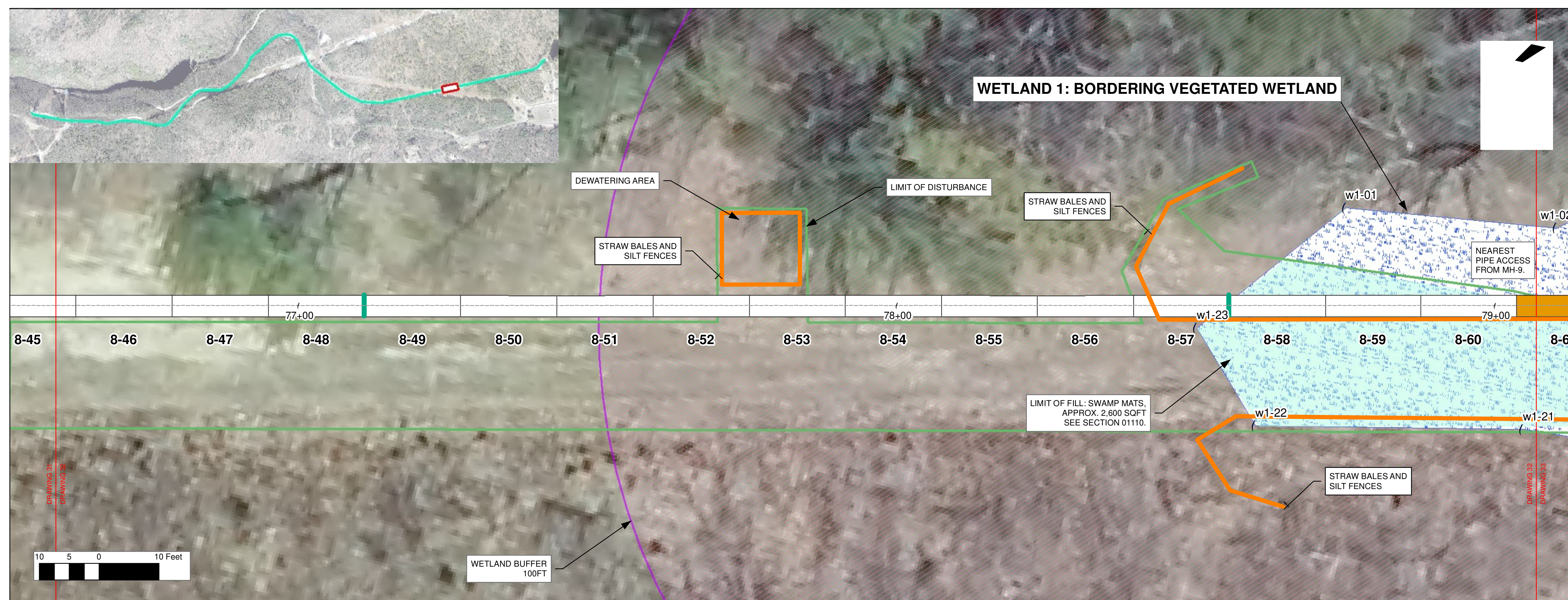
DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 74+12.28 TO 76+59.76

SHEET NUMBER



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
X = PIPE SECTION DOWNSTREAM OF MANWAY X
Y = INDIVIDUAL PIPE STICK

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: M. C. WEBB, PE

Drawn By: J. DAVIDSON

Dept Check:

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1 inch = 10 feet

DISCIPLINE

CIVIL

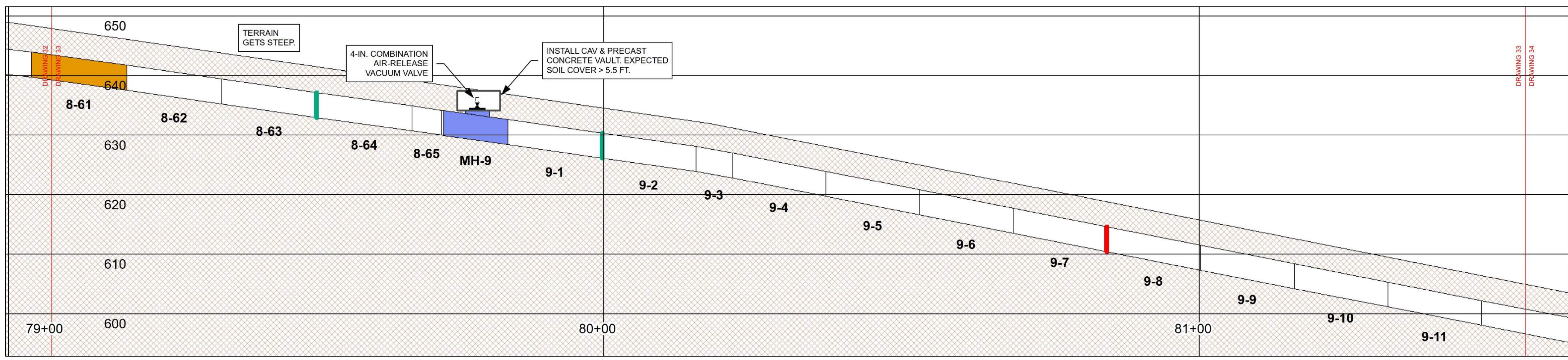
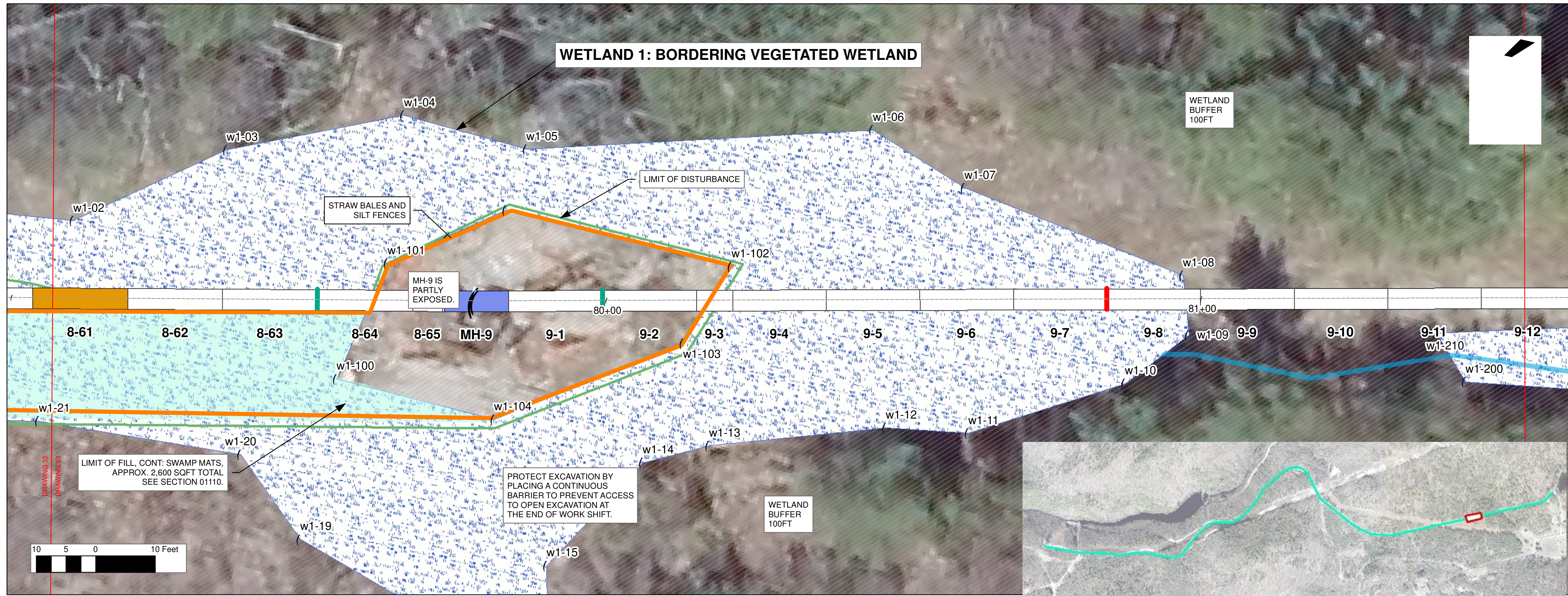
SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 76+59.76 TO 79+7.25

SHEET NUMBER

00 C-132

32 OF 38



LEGEND

JOINT TREATMENTS MORTAR JOINT SEAL MORTAR AND JOINT SEAL	PIPE BARREL TREATMENTS REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT	MANWAY TREATMENTS NEW MANWAY REPLACE MANWAY PAINT MANWAY	WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY	PIPE SEGMENT LEGEND PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK
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REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

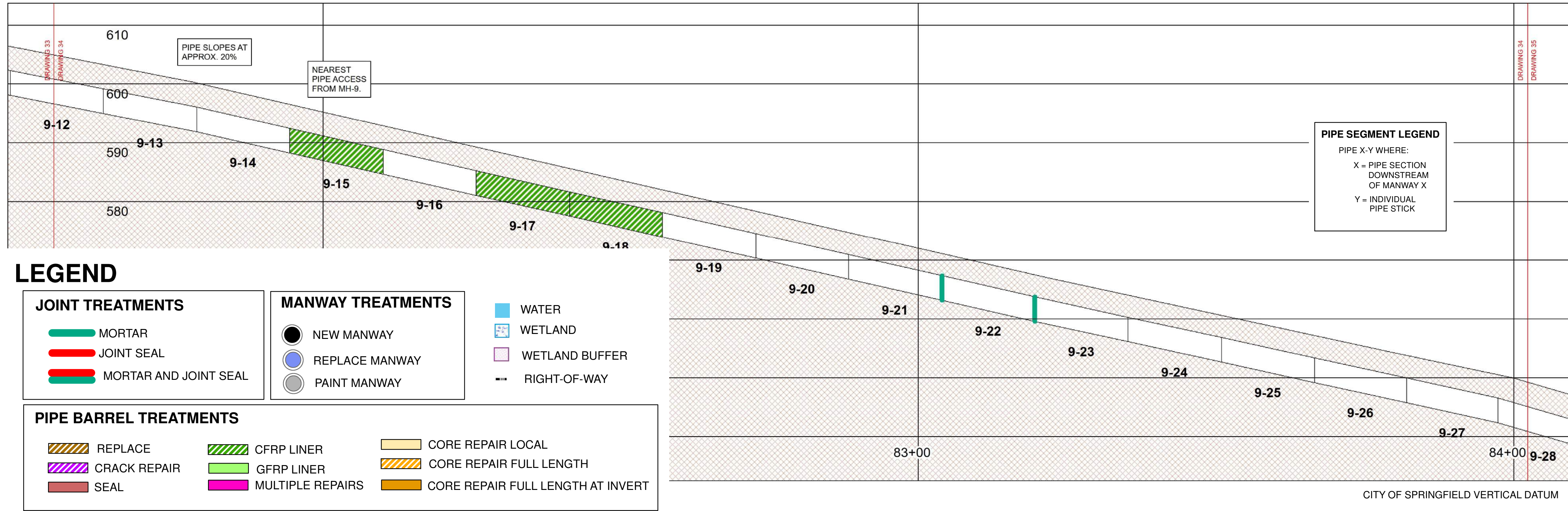
PROJECT NUMBER
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 79+7.25 TO 81+54.74

SHEET NUMBER



LEGEND

JOINT TREATMENTS		MANWAY TREATMENTS		PIPE BARREL TREATMENTS	
	MORTAR		NEW MANWAY		CORE REPAIR LOCAL
	JOINT SEAL		REPLACE MANWAY		CORE REPAIR FULL LENGTH
	MORTAR AND JOINT SEAL		PAINT MANWAY		CORE REPAIR FULL LENGTH AT INVERT
	CFRP LINER		WATER		WETLAND
	CRACK REPAIR		WETLAND BUFFER		RIGHT-OF-WAY
	SEAL		MULTIPLE REPAIRS		

PIPE SEGMENT LEGEND
 PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

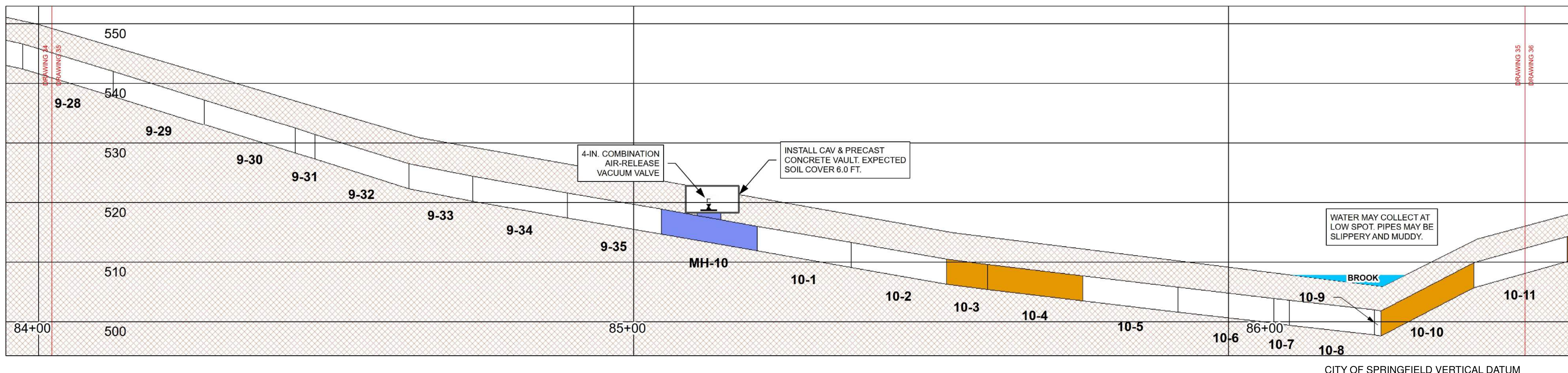
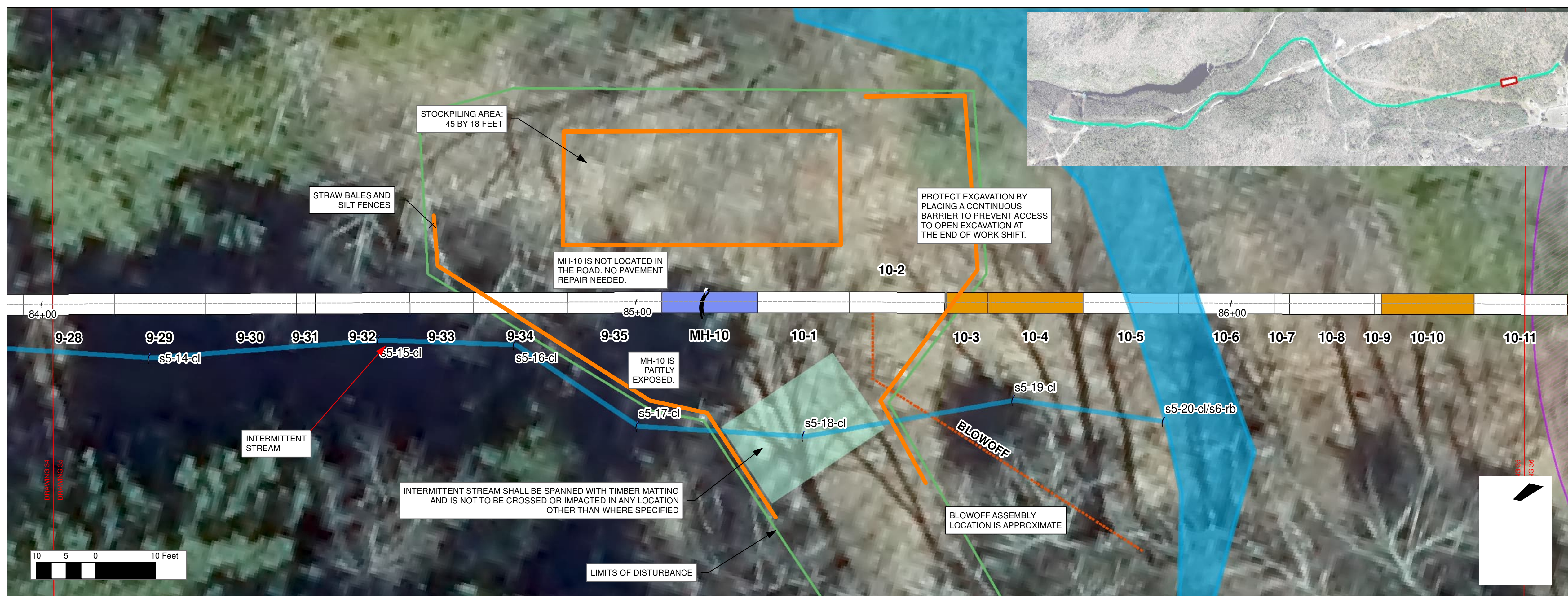
SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 81+54.74 TO 84+2.22

SHEET NUMBER



IR	DATE	DESCRIPTION

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PIPE SEGMENT LEGEND

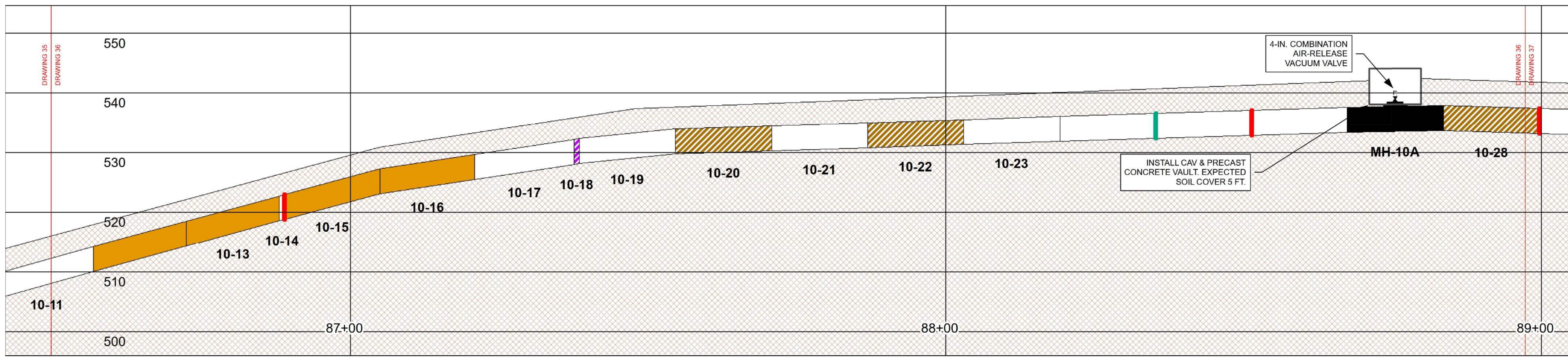
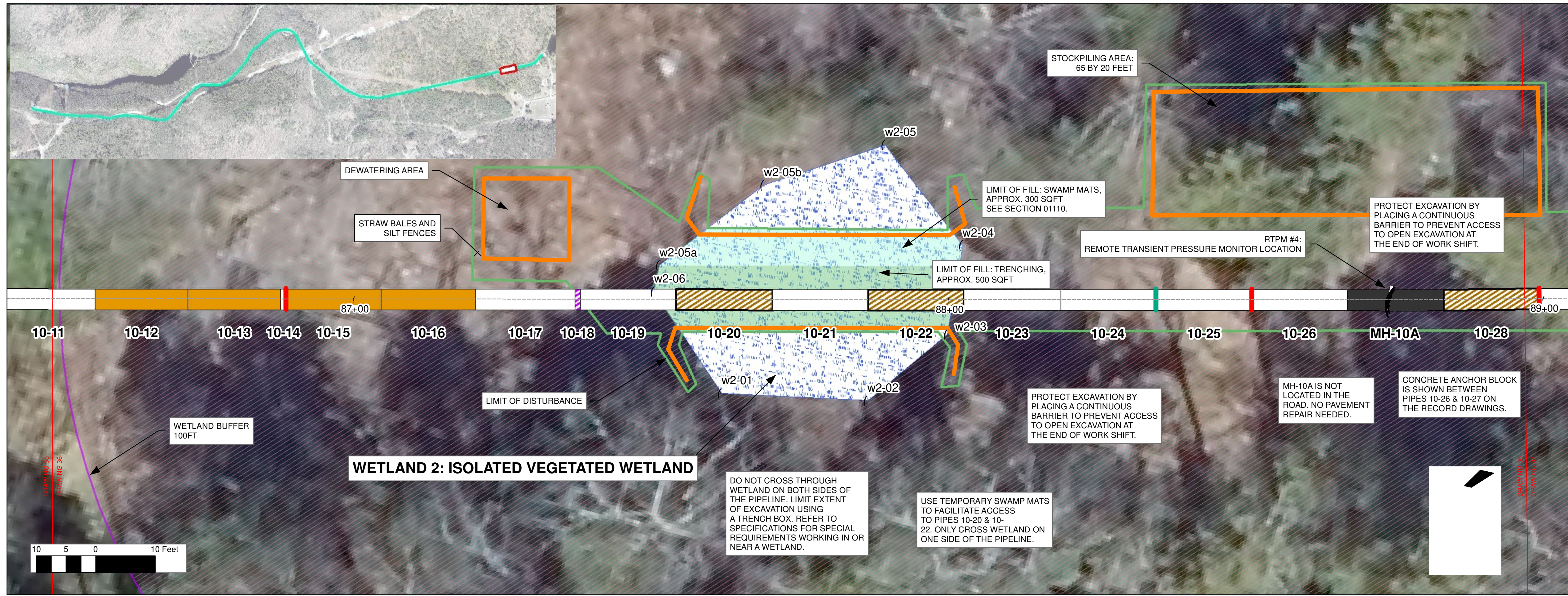
PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY



IR	DATE	DESCRIPTION

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet



LEGEND

<p>JOINT TREATMENTS</p> <ul style="list-style-type: none"> MORTAR JOINT SEAL MORTAR AND JOINT SEAL 	<p>PIPE BARREL TREATMENTS</p> <ul style="list-style-type: none"> REPLACE CRACK REPAIR SEAL CFRP LINER GFRP LINER MULTIPLE REPAIRS 	<p>MANWAY TREATMENTS</p> <ul style="list-style-type: none"> NEW MANWAY REPLACE MANWAY PAINT MANWAY CORE REPAIR LOCAL CORE REPAIR FULL LENGTH CORE REPAIR FULL LENGTH AT INVERT 	<p>PIPE SEGMENT LEGEND</p> <p>PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK</p> <ul style="list-style-type: none"> WATER WETLAND WETLAND BUFFER RIGHT-OF-WAY
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PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

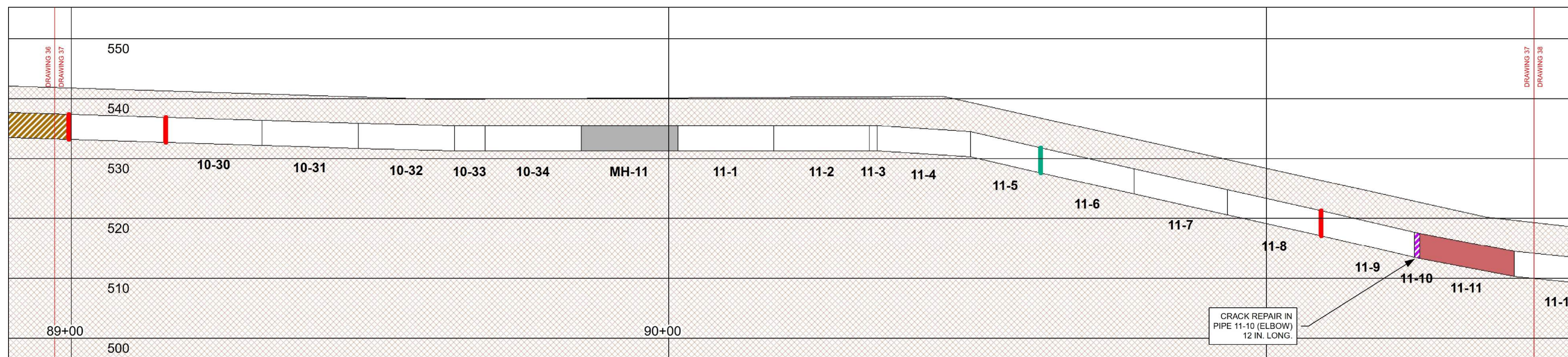
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS



LEGEND

JOINT TREATMENTS	
	MORTAR
	JOINT SEAL
	MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS			
	REPLACE		CFRP LINER
	CRACK REPAIR		GFRP LINER
	SEAL		MULTIPLE REPAIRS
	CORE REPAIR LOCAL		CORE REPAIR FULL LENGTH
	CORE REPAIR FULL LENGTH AT INVERT		

MANWAY TREATMENTS	
	NEW MANWAY
	REPLACE MANWAY
	PAINT MANWAY

	WATER
	WETLAND
	WETLAND BUFFER
	RIGHT-OF-WAY

PIPE SEGMENT LEGEND	
PIPE X-Y WHERE:	
X	= PIPE SECTION DOWNSTREAM OF MANWAY X
Y	= INDIVIDUAL PIPE STICK

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

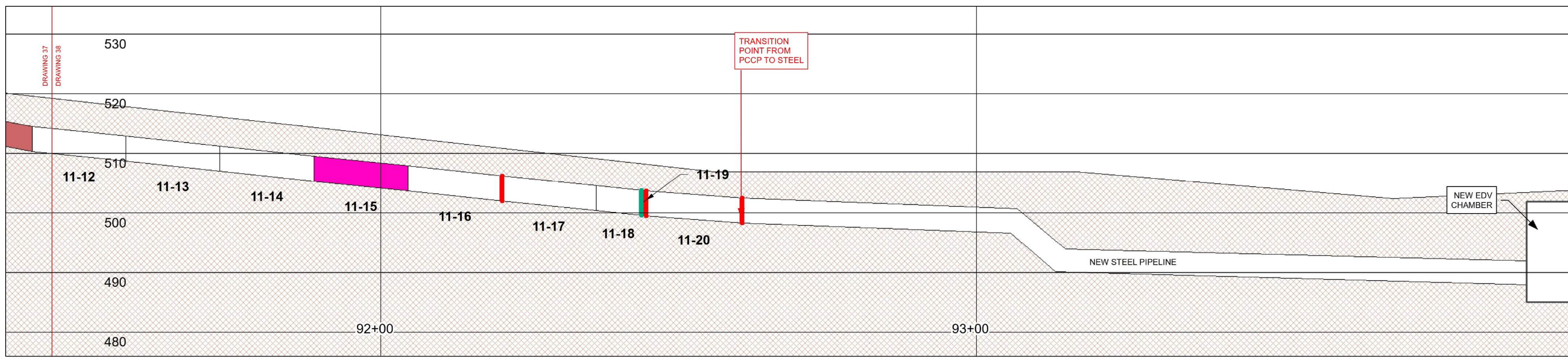
SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
STA. 88+97.19 TO 91+44.68

SHEET NUMBER

00 C-137

37 OF 38



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

PIPE SEGMENT LEGEND

PIPE X-Y WHERE:
 X = PIPE SECTION DOWNSTREAM OF MANWAY X
 Y = INDIVIDUAL PIPE STICK

- WATER
- WETLAND
- WETLAND BUFFER
- RIGHT-OF-WAY

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER
 60662775

Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
 CIVIL

SHEET TITLE
 PLAN AND PROFILE REHAB DRAWING
 STA. 91+44.68 TO END

SHEET NUMBER

Pipe ID	Pipe Description	Pipe Type & Class	U/S Joint	D/S Joint	Laying Length (ft)	Pipe Treatment
P1: IBV	36" Steel pipe	Steel	IBV Valve	P1: IBV	8.75	P-MULT (N-AV; P-Crack)
P2: Red	42" x 36" Eccentric Reducer	Steel	P1: IBV	P2: Red	4.09	P-Crack
1-8	2 of 7 Straight	LCP150	1-7	1-8	16.01	P-REP
1-11	Steel Closure Piece CS2	Steel Closure	1-10	1-11	4.99	P-Crack
1-11A / MH-1A	Short w/ 30" MH	LCP 116-12	1-11	MH-1A	11.03	P-MREP
1-13	Not found on LS	LCP150	1-12	1-13	4.73	P-REP
1-16	7 of 7 Straight	LCP150	1-15	1-16	15.95	P-CoreLocal
1-19	2 of 17 Straight	LCP150	1-18	1-19	15.97	P-CoreLocal
1-22	5 of 17 Straight	LCP150	1-21	1-22	15.97	P-CoreLocal
1-24	7 of 17 Straight	LCP150	1-23	1-24	15.97	P-CoreLocal
1-25	8 of 17 Straight	LCP150	1-24	1-25	15.97	P-CoreLocal
1-26	9 of 17 Straight	LCP150	1-25	1-26	15.97	P-CoreFull
1-28	Steel Short 4 ft long	Steel Closure Piece CS4	1-27	1-28	4.98	P-Crack
1-28A / MH-1B	Short w/ 30" MH	LCP 116-12	1-28	MH-1B	10.99	P-MREP
1-29	12 of 17 Straight	LCP150	MH-1B	1-29	15.97	P-GFRP
1-30	13 of 17 Straight	LCP150	1-29	1-30	15.97	P-GFRP
1-31	14 of 17 Straight	LCP150	1-30	1-31	15.97	P-GFRP
1-32	15 of 17 Straight	LCP150	1-31	1-32	15.97	P-GFRP
1-33	16 of 17 Straight	LCP150	1-32	1-33	15.97	P-GFRP
1-34	17 of 17 Straight	LCP150	1-33	1-34	15.97	P-GFRP
1-35	Bevel Right & Up	LCP150	1-34	1-35	15.85	P-GFRP
1-36	Bevel Right & Up	LCP150	1-35	1-36	15.82	P-GFRP
1-37	1 of 19 Straight	LCP150	1-36	1-37	15.97	P-GFRP
1-38	2 of 19 Straight	LCP150	1-37	1-38	15.97	P-GFRP
1-39	3 of 19 Straight	LCP150	1-38	1-39	15.97	P-GFRP
1-41	5 of 19 Straight	LCP150	1-40	1-41	15.97	P-GFRP
1-47	11 of 19 Straight	LCP150	1-46	1-47	15.97	P-GFRP
1-49	13 of 19 Straight	LCP150	1-48	1-49	15.97	P-GFRP
1-50	14 of 19 Straight	LCP150	1-49	1-50	15.97	P-GFRP
1-54	18 of 19 Straight	LCP150	1-53	1-54	15.97	P-CoreLocal
1-56	Bevel Right	LCP150	1-55	1-56	15.85	P-GFRP
1-59	Straight	LCP150	1-58	1-59	15.94	P-GFRP
1-60	Bevel Up	LCP150	1-59	1-60	15.82	P-GFRP
1-61	1 of 9 Straight	LCP150	1-60	1-61	15.97	P-GFRP
1-63	3 of 9 Straight	LCP150	1-62	1-63	15.97	P-GFRP
1-64	4 of 9 Straight	LCP150	1-63	1-64	15.97	P-GFRP
1-67	7 of 9 Straight	LCP150	1-66	1-67	15.97	P-GFRP
MH-2	Straight w/ 16"x18" MH	LCP150	1-68	MH-2	15.97	P-MREP
2-1	1 of 8 Bevel Left	LCP150	MH-2	2-1	15.91	P-GFRP
2-3	3 of 8 Bevel Left	LCP150	2-2	2-3	15.91	P-GFRP
2-6	6 of 8 Bevel Left	LCP150	2-5	2-6	15.91	P-GFRP
2-7	7 of 8 Bevel Left	LCP150	2-6	2-7	15.91	P-GFRP
2-10	Bevel Right	LCP150	2-9	2-10	15.83	P-GFRP
2-13	1 of 4 Bevel Right	LCP150	2-12	2-13	15.77	P-GFRP
2-19	Straight	LCP150	2-48	2-19	15.94	P-CoreFull
2-61	10 of 14 Straight	ECP175	2-60	2-61	15.97	P-REP
MH-3	Straight w/ 16"x18" MH	ECP175	2-65	MH-3	15.97	P-MREP
3-13	6 of 11 Bevels Right	ECP175	3-12	3-13	15.80	P-CoreFull
3-14	7 of 11 Bevels Right	ECP175	3-13	3-14	15.80	P-CoreFull
3-15	8 of 11 Bevels Right	ECP175	3-14	3-15	15.80	P-CoreFull
3-16	9 of 11 Bevels Right	ECP175	3-15	3-16	15.80	P-CoreFull
3-17	10 of 11 Bevels Right	ECP175	3-16	3-17	15.80	P-CoreFull
3-18	11 of 11 Bevels Right	ECP175	3-17	3-18	15.80	P-CoreFull
3-19	1 of 10 Straight	ECP175	3-18	3-19	15.93	P-CoreFull
3-20	2 of 10 Straight	ECP175	3-19	3-20	15.93	P-CoreFull
3-21	3 of 10 Straight	ECP175	3-20	3-21	15.93	P-CoreFull
3-22	4 of 10 Straight	ECP175	3-21	3-22	15.93	P-CoreFull
3-23	5 of 10 Straight	ECP175	3-22	3-23	15.93	P-CoreFull
3-29	1 of 3 Bevel Left	ECP175	3-28	3-29	15.82	P-CoreFull
3-30	2 of 3 Bevel Left	ECP175	3-29	3-30	15.82	P-CoreFull
3-31	3 of 3 Bevel Left	ECP175	3-30	3-31	15.82	P-CoreFull
3-32	1 of 12 Straight	ECP175	3-31	3-32	15.96	P-CoreFull
3-33	2 of 12 Straight	ECP175	3-32	3-33	15.96	P-CoreFull
3-34	3 of 12 Straight	ECP175	3-33	3-34	15.96	P-CoreFull
3-35	4 of 12 Straight	ECP175	3-34	3-35	15.96	P-CoreFull
3-36	5 of 12 Straight	ECP175	3-35	3-36	15.96	P-CoreFull
3-37	6 of 12 Straight	ECP175	3-36	3-37	15.96	P-CoreFull
3-38	7 of 12 Straight	ECP175	3-37	3-38	15.96	P-CoreFull
3-39	8 of 12 Straight	ECP175	3-38	3-39	15.96	P-CoreFull
3-40	9 of 12 Straight	ECP175	3-39	3-40	15.96	P-CoreFull
3-41	10 of 12 Straight	ECP175	3-40	3-41	15.96	P-CoreFull
3-42	11 of 12 Straight	ECP175	3-41	3-42	15.96	P-CoreFull
3-43	12 of 12 Straight	ECP175	3-42	3-43	15.96	P-CoreFull
3-44	Straight	ECP175	3-43	3-44	15.96	P-CoreFull
3-45	1 of 9 Straight	ECP175	3-44	3-45	15.97	P-CoreFull
3-46	2 of 9 Straight	ECP175	3-45	3-46	15.97	P-CoreFull
3-47	3 of 9 Straight	ECP175	3-46	3-47	15.97	P-CoreFull
3-48	4 of 9 Straight	ECP175	3-47	3-48	15.97	P-CoreFull
3-57	1 of 7 Bevel Left	ECP200	3-56	3-57	15.83	P-CoreFull
3-58	2 of 7 Bevel Left	ECP200	3-57	3-58	15.83	P-CoreFull
3-59	3 of 7 Bevel Left	ECP200	3-58	3-59	15.83	P-CoreFull
3-64B / MH-4	Short w/ 30" MH	ECP 197-8	3-64A	MH-4	10.78	P-MREP
4-8	7 of 12 Straight	ECP200	4-7	4-8	15.97	P-CoreFull
4-12	11 of 12 Straight	ECP200	4-11	4-12	15.97	P-CoreFull
4-13	12 of 12 Straight	ECP200	4-12	4-13	15.97	P-CoreFull
4-14	1 of 3 Bevel Right	ECP200	4-13	4-14	15.83	P-CoreFull
4-15	2 of 3 Bevel Right	ECP200	4-14	4-15	15.83	P-CoreFull
4-17	Bevel Right & Up	ECP200	4-16	4-17	15.84	P-CoreFull
4-19	Bevel Right	ECP200	4-18	4-19	15.83	P-CoreFull
4-22	3 of 4 Straight	ECP200	4-21	4-22	15.97	P-REP

Pipe ID	Pipe Description	Pipe Type & Class	U/S Joint	D/S Joint	Laying Length (ft)	Pipe Treatment
4-34	8 of 10 Straight	ECP200	4-33	4-34	15.97	P-CoreFull
4-38	Bevel Right & Up	ECP200	4-37	4-38	15.83	P-CoreFull
4-43	4 of 9 Straight	ECP200	4-42	4-43	15.98	P-CoreFull
4-45	6 of 9 Straight	ECP200	4-44	4-45	15.98	P-CoreFull
4-46	7 of 9 Straight	ECP200	4-45	4-46	15.98	P-CoreFull
4-48	9 of 9 Straight	ECP200	4-47	4-48	15.98	P-CoreFull
4-49	Bevel Up	ECP200	4-48	4-49	15.91	P-CoreFull
4-50	1 of 3 Bevel Right	ECP175	4-49	4-50	15.77	P-CoreFull
4-51	2 of 3 Bevel Right	ECP175	4-50	4-51	15.77	P-CoreFull
4-52	3 of 3 Bevel Right	ECP175	4-51	4-52	15.77	P-CoreFull
4-62	3 of 3 Bevel Left	ECP175	4-61	4-62	15.78	P-REP
4-63	Bevel Down and Left	ECP175	4-62	4-63	15.79	P-REP
4-64	Bevel Left	ECP175	4-63	4-64	15.82	P-REP
MH-5	Straight w/ 16"x18" MH	ECP175	4-64	MH-5	15.97	P-MREP
5-1	1 of 15 Straight	ECP175	MH-5	5-1	15.97	P-CoreFull
5-2	2 of 15 Straight	ECP175	5-1	5-2	15.97	P-CoreFull
5-3	3 of 15 Straight	ECP175	5-2	5-3	15.97	P-CoreFull
5-4	4 of 15 Straight	ECP175	5-3	5-4	15.97	P-CoreFull
5-6	6 of 15 Straight	ECP175	5-5	5-6	15.97	P-CoreFull
5-8	8 of 15 Straight	ECP175	5-7	5-8	15.97	P-REP
5-9	9 of 15 Straight	ECP175	5-8	5-9	15.97	P-CoreFull
5-15	15 of 15 Straight	ECP175	5-14	5-15	15.97	P-CoreFull
5-16	Bevel Up	ECP175	5-15	5-16	15.85	P-CoreFull
5-17	1 of 9 Straight	ECP175	5-16	5-17	15.91	P-CoreFull
5-18	2 of 9 Straight	ECP175	5-17	5-18	15.91	P-CoreFull
5-19	3 of 9 Straight	ECP175	5-18	5-19	15.91	P-CoreFull
5-20	4 of 9 Straight	ECP175	5-19	5-20	15.91	P-CoreFull
5-21	5 of 9 Straight	ECP175	5-20	5-21	15.91	P-CoreFull
5-22	6 of 9 Straight	ECP175	5-21	5-22	15.91	P-CoreFull
5-23	7 of 9 Straight	ECP175	5-22	5-23	15.91	P-CoreFull
5-24	8 of 9 Straight	ECP175	5-23	5-24	15.91	P-CoreFull
5-25	9 of 9 Straight	ECP175	5-24	5-25	15.91	P-CoreFull
5-26	1 of 7 Bevel Left	ECP175	5-25	5-26	15.75	P-CoreFull
5-27	2 of 7 Bevel Left	ECP175	5-26	5-27	15.75	P-CoreFull
5-28	3 of 7 Bevel Left	ECP175	5-27	5-28	15.75	P-CoreFull
5-29	4 of 7 Bevel Left	ECP175	5-28	5-29	15.75	P-CoreFull
5-30	5 of 7 Bevel Left	ECP175	5-29	5-30	15.75	P-CoreFull
5-31	6 of 7 Bevel Left	ECP175	5-30	5-31	15.75	P-CoreFull
5-32	7 of 7 Bevel Left	ECP175	5-31	5-32	15.75	P-CoreFull
5-33	1 of 4 Straight	ECP175	5-32	5-33	15.89	P-CoreFull
5-34	2 of 4 Straight	ECP175	5-33	5-34	15.89	P-CoreFull
5-35	3 of 4 Straight	ECP175	5-34	5-35	15.89	P-CoreFull
5-36	4 of 4 Straight	ECP175	5-35	5-36	15.89	P-CoreFull
5-37	Bevel Left	ECP175	5-36	5-37	15.74	P-CoreFull
5-38	Bevel Left and Down	ECP175	5-37	5-38	15.76	P-CoreFull
5-39	Bevel Left and Down	ECP175	5-38	5-39	15.76	P-GFRP
5-49	4 of 8 Bevel Left	LCP150	5-48	5-49	15.78	P-REP
5-52	7 of 8 Bevel Left, Provide 6" Blow Off at 47+30	LCP150	5-51	5-52	15.78	P-Crack
5-57	2 of 5 Straight	LCP150	5-56	5-57	15.90	P-REP
5-59	4 of 5 Straight	LCP150	5-58	5-59	15.90	P-SEAL
MH-6	Straight w/ 16"x18" MH	LCP150	5-60	MH-6	15.90	P-MREP
6-3	3 of 5 Straight	LCP150	6-2	6-3	15.90	P-GFRP
6-10	3 of 11 Straight	LCP150	6-9	6-10	15.92	P-REP
6-11	4 of 11 Straight	LCP150	6-10	6-11	15.92	P-REP
6-22	3 of 5 Bevel Right	LCP150	6-21	6-22	15.85	P-CFRP
6-24	5 of 5 Bevel Right	LCP150	6-23	6-24	15.85	P-GFRP
6-25	Bevel Right	LCP150	6-24	6-25	15.91	P-GFRP
6-28 / MH-6A	Short w/ 30" MH	LCP 116-12	6-28	MH-6A	10.96	P-MREP
6-35	8 of 10 Straight	LCP150	6-34	6-35	16.11	P-GFRP
6-39	1 of 8 Straight	LCP150	6-38	6-39	16.12	P-GFRP
6-41	3 of 8 Straight	LCP150	6-40	6-41	16.12	P-GFRP
6-42	4 of 8 Straight	LCP150	6-41	6-42	16.12	P-GFRP
6-44	6 of 8 Straight	LCP150	6-43	6-44	1	



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC. 250 APOLLO DRIVE CHELMSFORD, MA 01824 PHONE: (978) 905-2100 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

Table with 3 columns: I/R, DATE, DESCRIPTION

PROJECT NUMBER

60662775

Table with 2 columns: Field, Value. Includes fields like Designed By (MCW), Drawn By (JES), Date (FEBRUARY 2024), Scale (AS NOTED).

DISCIPLINE

CIVIL SHEET TITLE

CIVIL DETAILS II JOINT REPAIR TABLE

SHEET NUMBER

99 C-502

Table with 6 columns: Joint ID, Inspection Direction, Field Inspection Notes, Missing Joint Mortar Inspection Notes, Joint Treatment, Missing Mortar Area (in.²). Rows 7-1 to 11-20.

Table with 6 columns: Joint ID, Inspection Direction, Field Inspection Notes, Missing Joint Mortar Inspection Notes, Joint Treatment, Missing Mortar Area (in.²). Rows 4-60 to 6-64.

Table with 6 columns: Joint ID, Inspection Direction, Field Inspection Notes, Missing Joint Mortar Inspection Notes, Joint Treatment, Missing Mortar Area (in.²). Rows P1:IBV P4 to 4-55.

JOINT TREATMENT TABLES

PATH: L:\DCS\PROJECTS\WTR6062775_SWS\WTR6062775_SWS\WTR6062775_SWS\HYDRO_ELECT_PDR\00_CAD\020-SHEETS\C099-C-502.DWG
LAST UPDATE: Wednesday, January 17, 2024 12:31:11 PM
PLOT DATE: Friday, February 9, 2024 12:18:15 PM



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

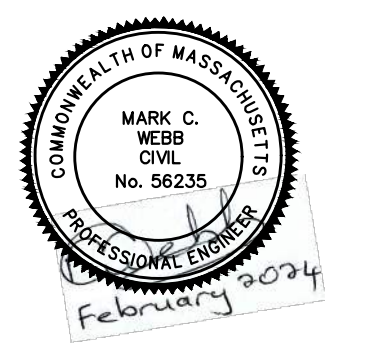
250 M STREET EXTENSION AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC. 250 APOLLO DRIVE CHELMSFORD, MA 01824 PHONE: (978) 905-2100 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

Table with 3 columns: I/R, DATE, DESCRIPTION

PROJECT NUMBER

60662775

Table with 2 columns: Field, Value. Includes fields for Designed By, Drawn By, Dept Check, Proj Check, Date, Scale.

DISCIPLINE

CIVIL SHEET TITLE

CIVIL DETAILS III MANWAY DETAILS I

SHEET NUMBER

99 C-503

PIPELINE AND MANHOLE VAULT NOTES

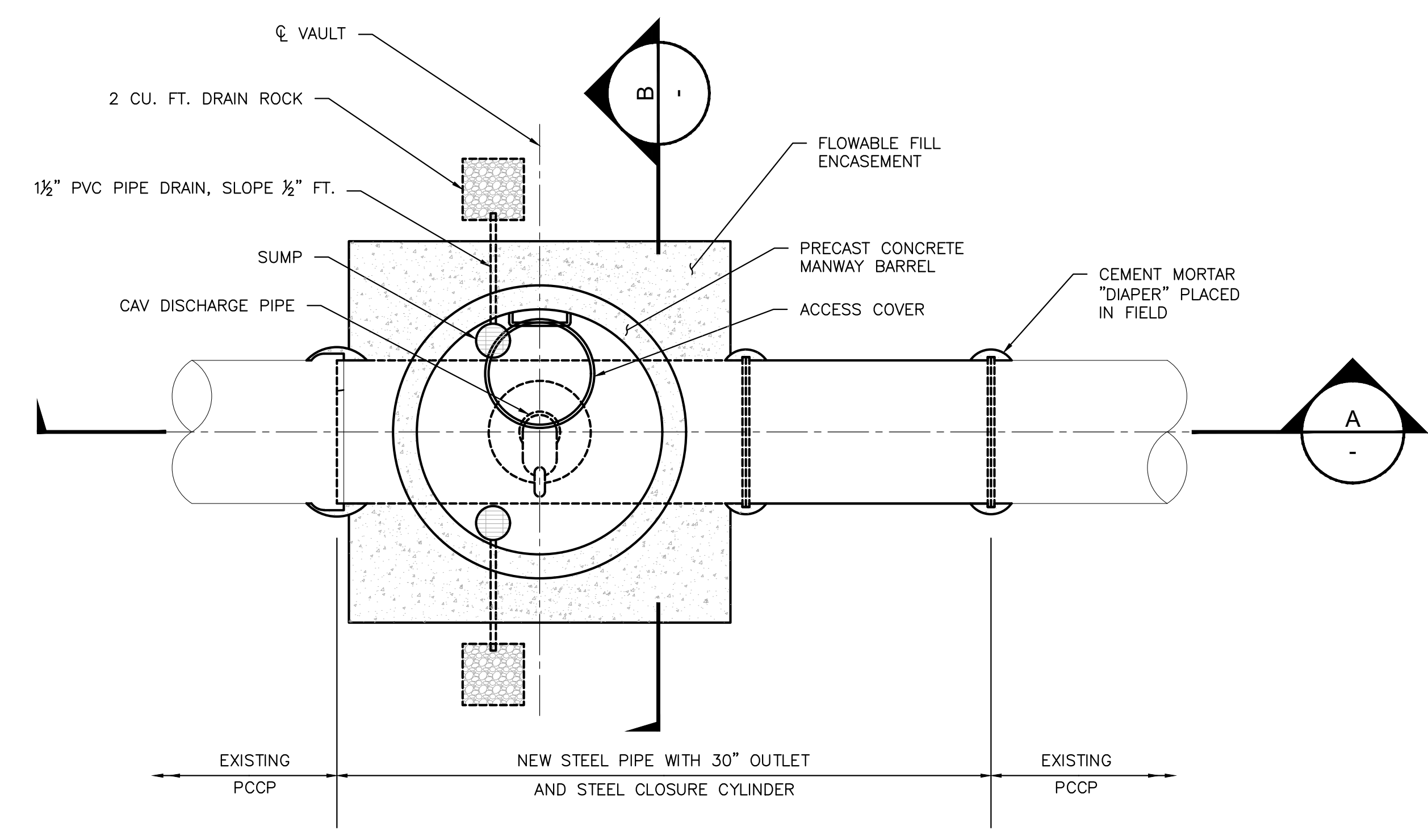
- 1. PIPE TYPE AND MATERIAL SHALL BE AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS. 2. ALL PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS SHOWN UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER. 3. PIPE DEFLECTION SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. 4. MINIMUM PIPE COVER WILL BE 5'-0" UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS. COVER IS TO BE MEASURED FROM TOP OF ROAD, OR GROUND SURFACE TO TOP OF PIPE. 5. PRECAST VAULT SECTIONS SHALL BE AS PER ASTM C478. LENGTHS AND NUMBER OF RINGS MAY BE VARIED TO OBTAIN DESIRED DEPTH. 6. VAULT STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101. 7. ALL MANHOLE VAULT FRAMES SHALL BE SWSC PATTERN NUMBER AND SIZE NOTED IN THE PROJECT SPECIFICATIONS. 8. MANHOLE VAULT FRAME SHALL BE ANCHORED IN PLACE AT THE TOP OF THE PRECAST VAULT WITH TWO (2) 3/4" S.S. ANCHOR BOLTS AND NUTS. LEVELING OF CASTING SHALL BE SET TO FINISHED GRADE FOR VAULTS LOCATED IN THE ROAD (MH-3, MH-4 AND MH-5). 9. FRAMES AND COVERS SHALL BE 32" DIAMETER UNLESS OTHERWISE NOTED. 10. LOCATIONS OF EXISTING PIPING ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL MAKE TEST PITS AS REQUIRED IN ORDER TO DETERMINE THE EXACT LOCATION OF EXISTING PIPES. CONTRACTOR SHALL ALSO MAKE ALL REQUIRED FIELD MEASUREMENTS TO VERIFY EXISTING AND CONTRACT INTERFACE DIMENSIONS, LOCATIONS, AND OTHER CONDITIONS. FINAL LOCATIONS OF PIPES WILL BE DETERMINED IN THE FIELD. ANY CHANGES SHALL BE APPROVED BY THE ENGINEER/OWNER.

NOTES:

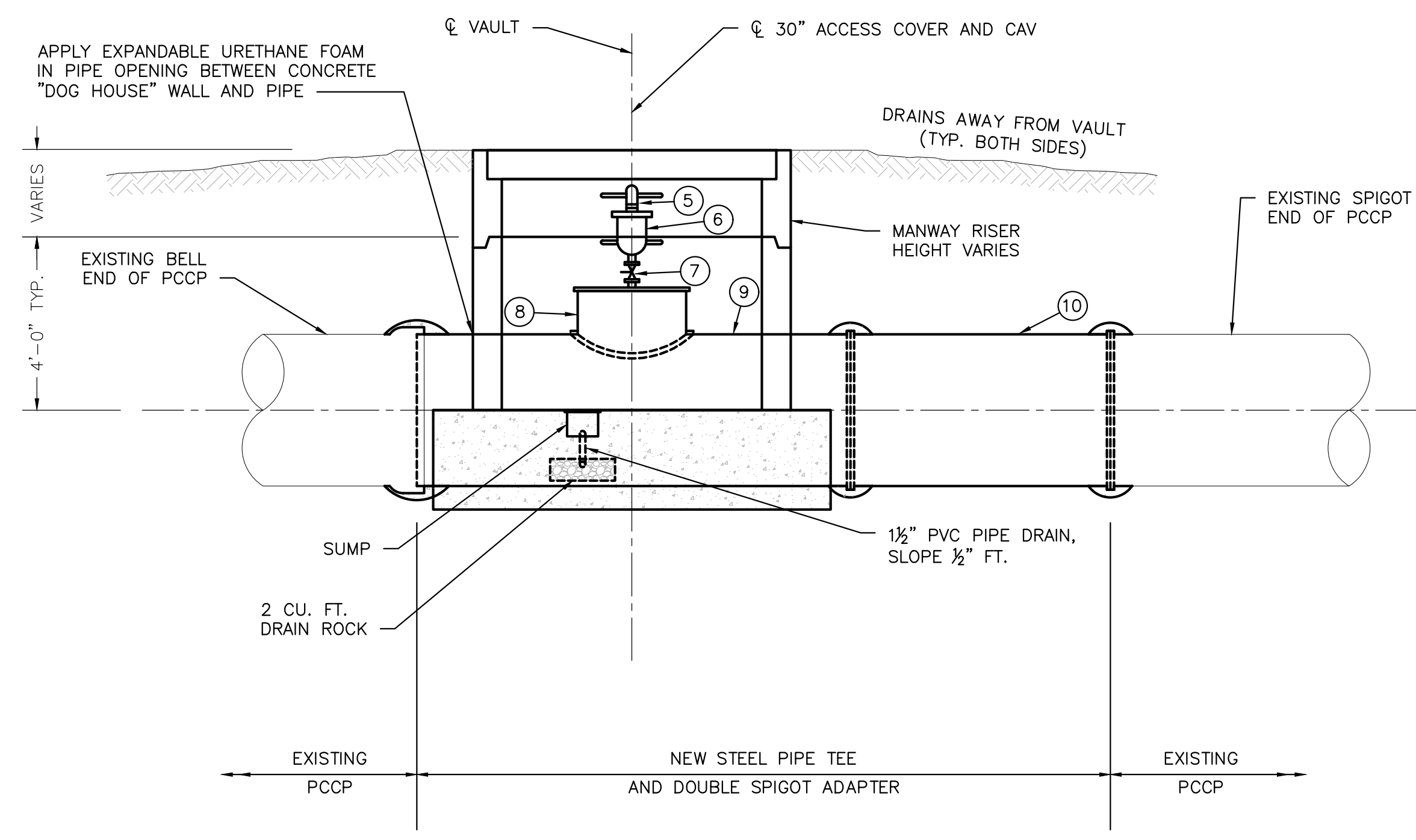
- 1. VAULT FLOOR SHALL SLOPE 2% TO SUMP. 2. WATERPROOF EXTERIOR SIDE & TOP SURFACES OF VAULT WITH CRYSTALLINE WATERPROOFING PER SPECS. 3. PROVIDE THREADED JOINTS FOR PIPE ENDS 2" AND SMALLER UNLESS OTHERWISE INDICATED. 4. COAT & LINE STEEL PIPING TO BE INSTALLED IN VAULT AND BELOW GRADE WITH FUSION BONDED EPOXY PER SPECS. 5. BACKFILL AROUND VAULT WITH SELECT GRANULAR MATERIAL OR DENSE GRADE CRUSHED STONE IN COMPACTED LIFTS NOT EXCEEDING 8 INCHES (MEASURED AFTER COMPACTION) TO 95% STANDARD PROCTOR DENSITY MINIMUM. 6. STEEL CLOSURE CYLINDER MAY BE UNCOATED EXTERNALLY TO FACILITATE INSTALLATION OF BELL FOLLOWER RINGS AND GASKETS. UPON SUCCESSFUL HYDROSTATIC PRESSURE TESTING OR INTERNAL JOINT PRESSURE TESTING, POUR CONCRETE BACKFILL AROUND THE ENTIRE CLOSURE ASSEMBLY TO PREVENT CORROSION. COVER ALL EXPOSED STEEL SURFACES WITH 3-INCHES CONCRETE MINIMUM.

EQUIPMENT SCHEDULE

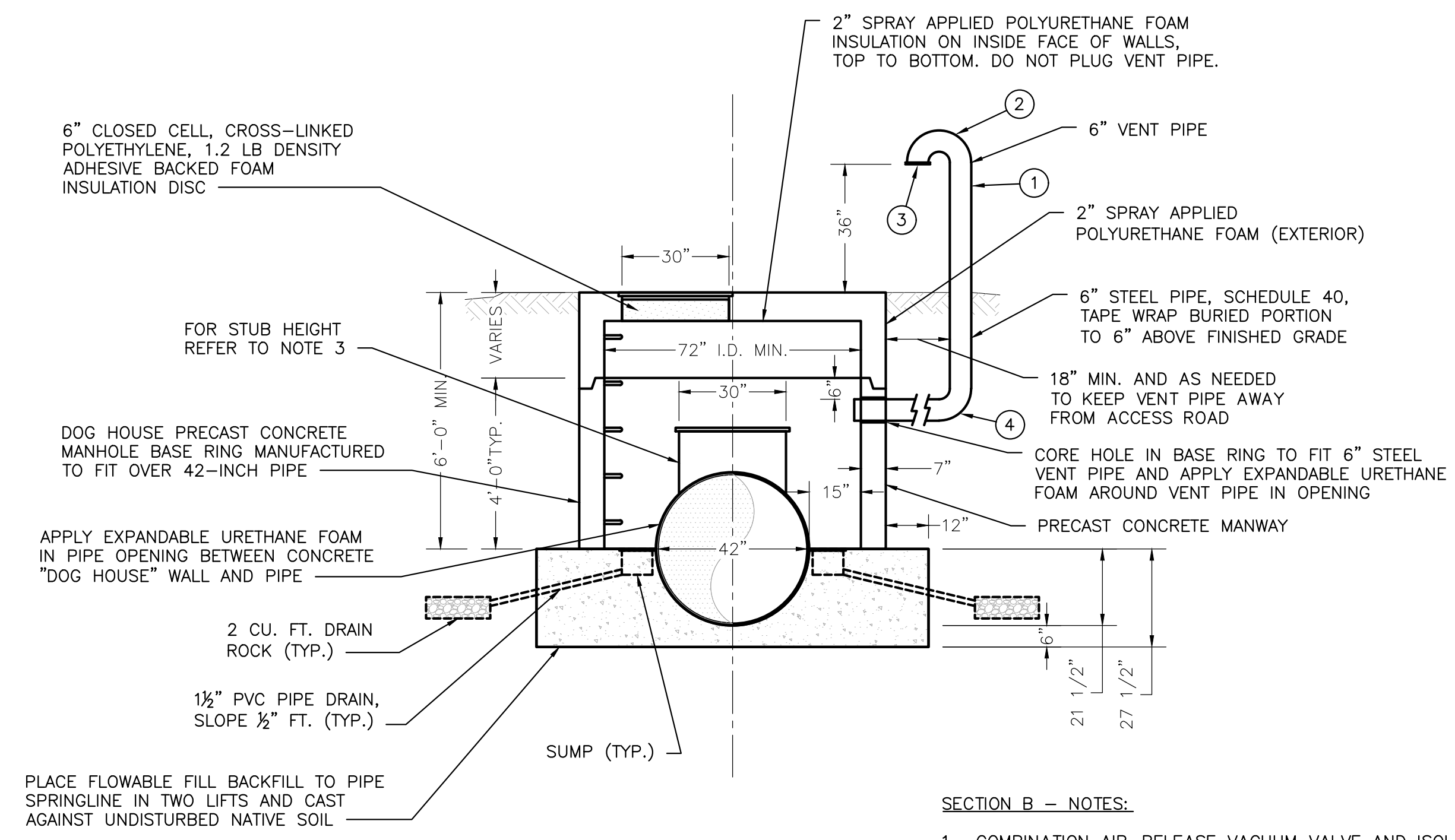
- 1. 6" STEEL PIPE, SCHEDULE 40, TAPE WRAP BURIED PORTION TO 6" ABOVE FINISH GRADE PER NOTES. 2. 6" STEEL 90° LONG-RADIUS ELBOW, SCHEDULE 40 (TYP). 3. 6" STEEL FLANGES (MIN 1/4" THICK), SECURING NO. 16 STAINLESS STEEL WIRE SCREEN WITH A MINIMUM OF 4 STAINLESS STEEL BOLTS, NUTS & WASHERS. 4. 6" STEEL 90° ELBOW, SCHEDULE 40. 5. CAV DISCHARGE PIPE INCL. STEEL THREADED PIPE & ELBOW x 2, SCHEDULE 40, SIZE TO MATCH AIR VALVE. 6. 4" COMBINATION AIR-RELEASE VACUUM VALVE (CAV). 7. ISOLATION VALVE, SIZE TO MATCH COMBINATION AIR-RELEASE VACUUM VALVE. 8. 30" DIA FLANGED STEEL MANHOLE OUTLET, WITH BLIND FLANGE AND OUTLET TO MATCH ISOLATION VALVE (7). 9. 42" DIA STEEL TEE WITH 30" DIA FLANGED OUTLET, CEMENT-MORTAR LINED AND COATED. SEE TYPICAL DETAIL ON SHEET 99 C-506. 10. 42" DIA STEEL CLOSURE CYLINDER CEMENT-MORTAR LINED AND CUT ON SITE TO FIT (IF NECESSARY).



PLAN VIEW OF TYPICAL ACCESS MANWAY 1 SCALE: 3/8" = 1'-0"



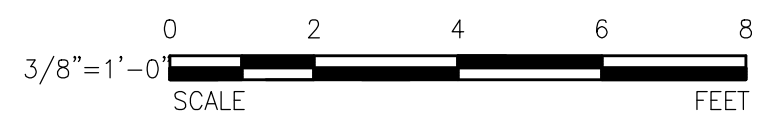
SECTION A SCALE: 3/8" = 1'-0"



SECTION B SCALE: 3/8" = 1'-0"

SECTION B - NOTES:

- 1. COMBINATION AIR-RELEASE VACUUM VALVE AND ISOLATION VALVE NOT SHOWN FOR CLARITY. 2. CONTRACTOR TO CONFIRM SOIL COVER ON SITE PRIOR TO ORDERING PRECAST CONCRETE RINGS. 3. MANWAYS LOCATED IN THE ROADWAY (MH-3, MH-5 & MH-6) MAY REQUIRE A REDUCED STUB HEIGHT OF 6 INCHES TO FIT MANWAY VAULT.



PATH: L:\DCS\PROJECTS\WYR\6062775_SWSC_WF_HYDRO_ELECT_PRR\9900_CAD_GIS\910_CAD\20-SHEETS\C99-C-503.DWG LAST UPDATE: Monday, February 5, 2024 2:11:11 PM PLOT DATE: Friday, February 9, 2024 12:16:02 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

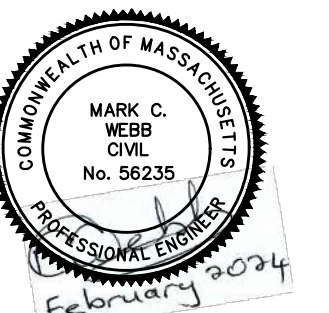
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

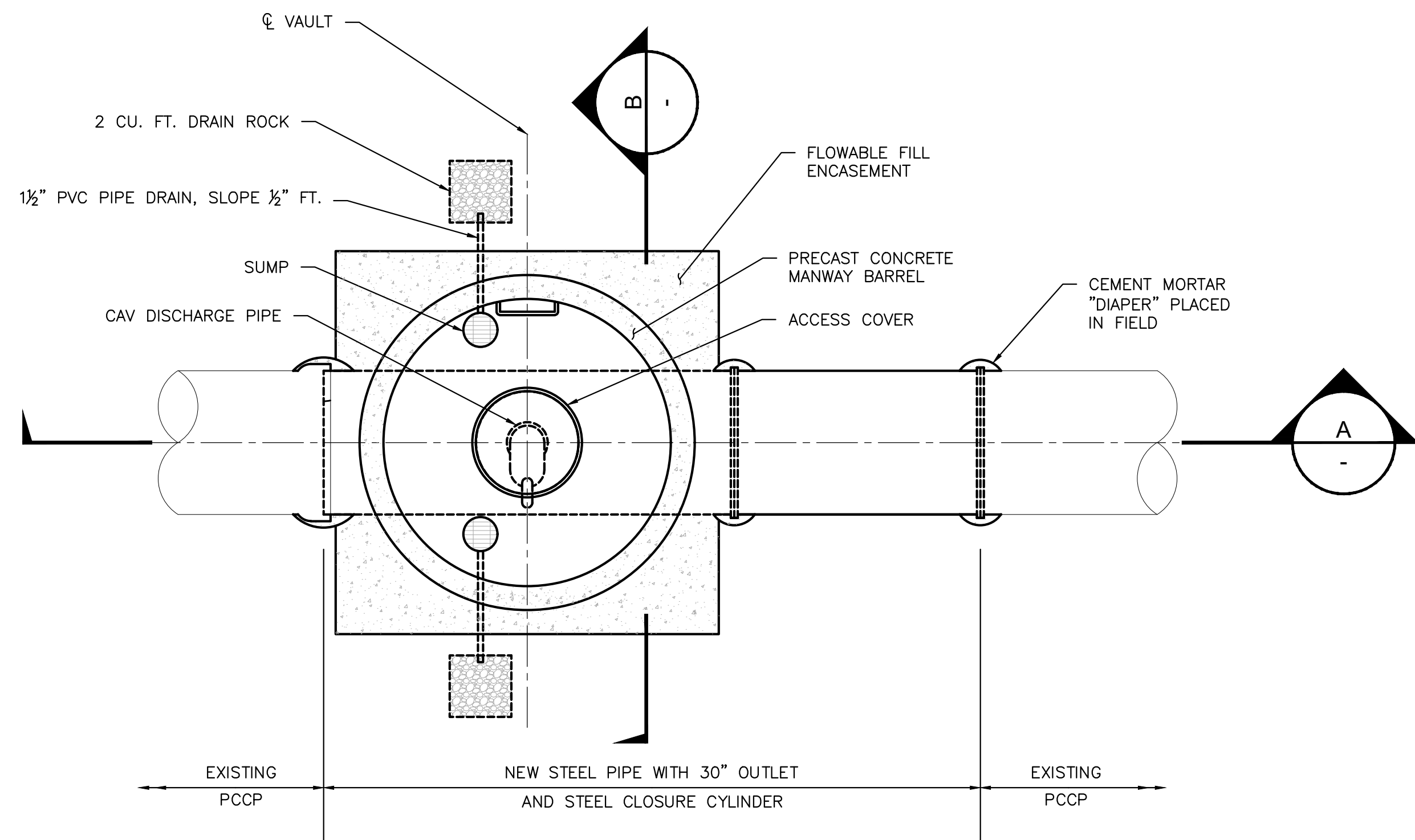
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

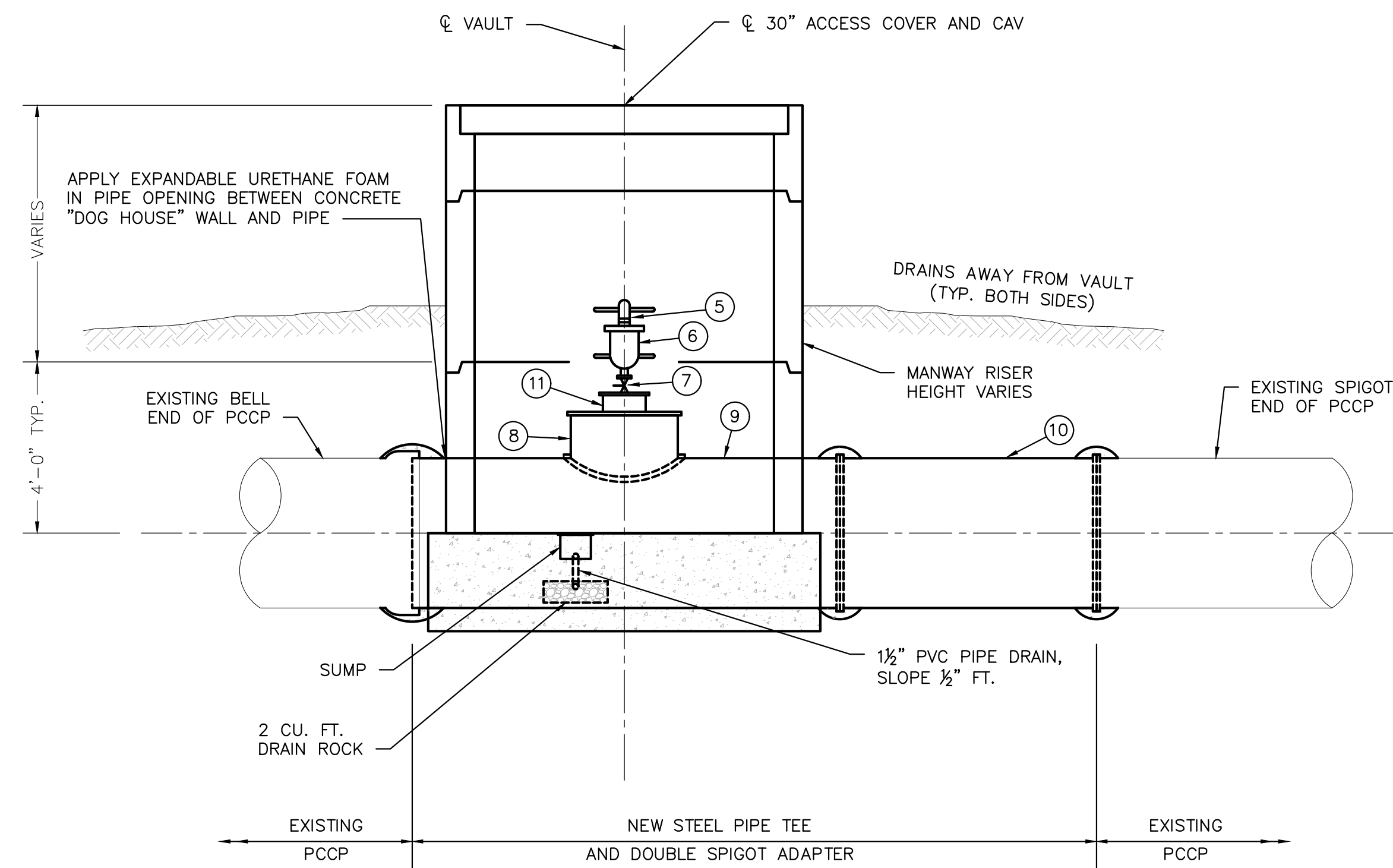
CIVIL SHEET TITLE

**CIVIL DETAILS IV
MANWAY DETAILS II
MH-1A & MH-10A
SHEET NUMBER**

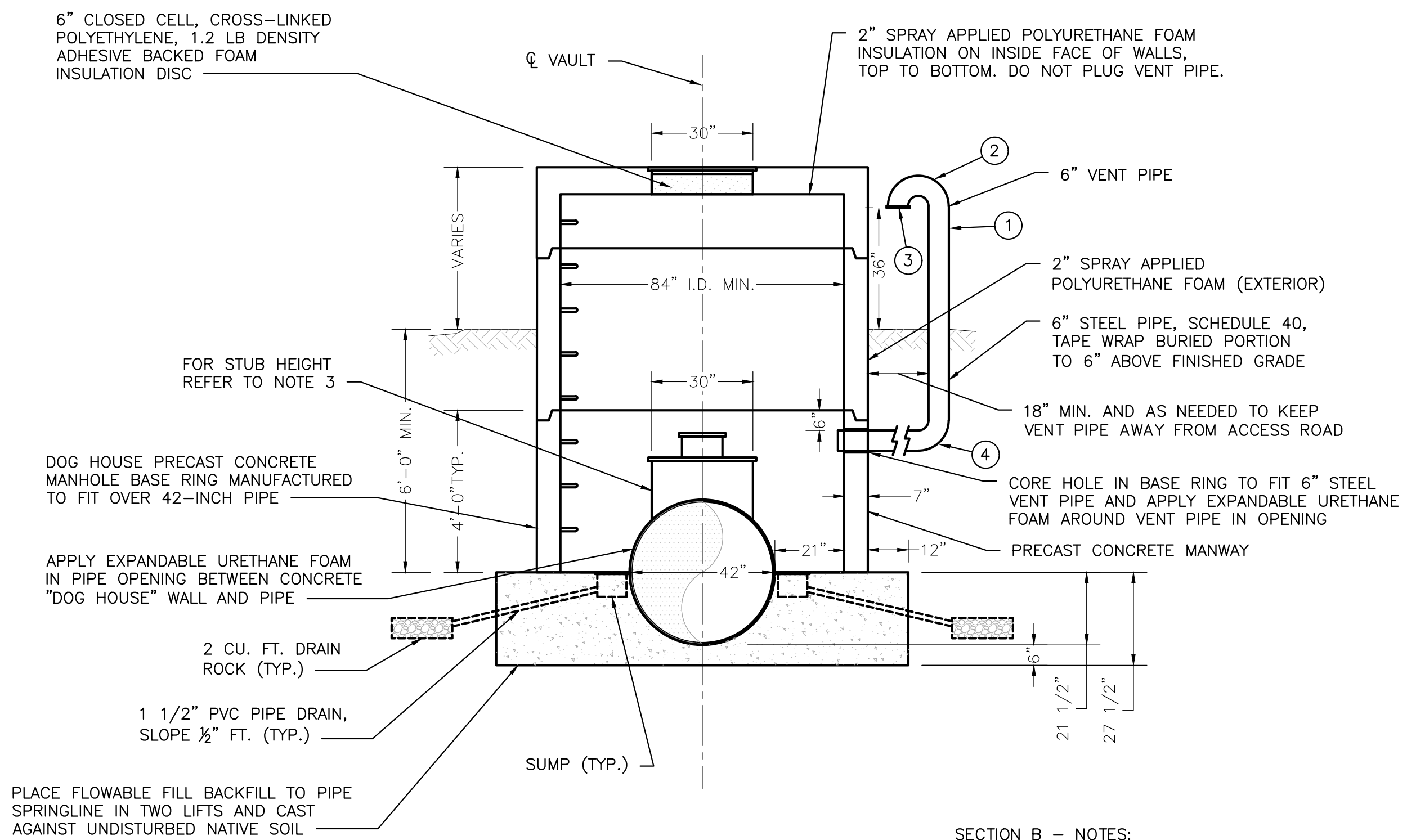
99 C-504



PLAN VIEW OF ACCESS MANWAY 1A & 10A
SCALE: 3/8" = 1'-0"



SECTION A
SCALE: 3/8" = 1'-0"



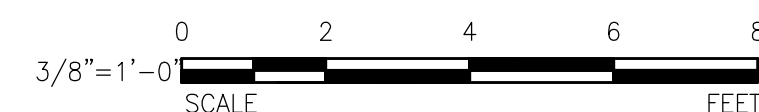
SECTION B
SCALE: 3/8" = 1'-0"

NOTES:

1. FOR MANWAY TYPICAL NOTES, SEE SHEET 99 C-503.

EQUIPMENT SCHEDULE

- 6" STEEL PIPE, SCHEDULE 40, TAPE WRAP BURIED PORTION TO 6" ABOVE FINISH GRADE PER NOTES.
- 6" STEEL 90° LONG-RADIUS ELBOW, SCHEDULE 40 (TYP).
- 6" STEEL FLANGES (MIN 1/4" THICK), SECURING NO. 16 STAINLESS STEEL WIRE SCREEN WITH A MINIMUM OF 4 STAINLESS STEEL BOLTS, NUTS & WASHERS.
- 6" STEEL 90° ELBOW, SCHEDULE 40.
- CAV DISCHARGE PIPE INCL. STEEL THREADED PIPE & ELBOW x 2, SCHEDULE 40, SIZE TO MATCH AIR VALVE.
- 4" COMBINATION AIR-RELEASE VACUUM VALVE (CAV).
- 12" ISOLATION VALVE.
- 30" DIA FLANGED STEEL MANHOLE OUTLET, WITH BLIND FLANGE TAPPED FOR 1/2" CORPORATION FITTED WITH FLANGED 12" OUTLET TO MATCH 12" ISOLATION VALVE (7) FOR IN-LINE INSPECTION TOOL DEPLOYMENT/RETRIEVAL.
- 42" DIA STEEL TEE WITH 30" DIA FLANGED OUTLET, CEMENT-MORTAR LINED AND COATED. SEE TYPICAL DETAIL ON SHEET 99 C-506.
- 42" DIA STEEL CLOSURE CYLINDER CEMENT-MORTAR LINED AND CUT ON SITE TO FIT (IF NECESSARY).
- 12" DIA FLANGED STEEL OUTLET WELDED TO 30" DIA FLANGED STEEL MANHOLE OUTLET (ITEM 8).



PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PDR\9900_CAD_GIS\910_CAD\20-SHEETS\C99-C-504.DWG
 LAST UPDATE: Monday, February 5, 2024 2:07:06 PM
 PLOT DATE: Friday, February 9, 2024 12:24:03 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

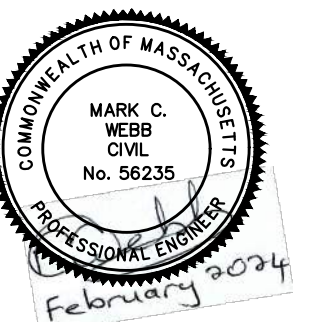
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
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www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL SHEET TITLE

**CIVIL DETAILS V
MANWAY DETAILS III
MH-7
SHEET NUMBER**

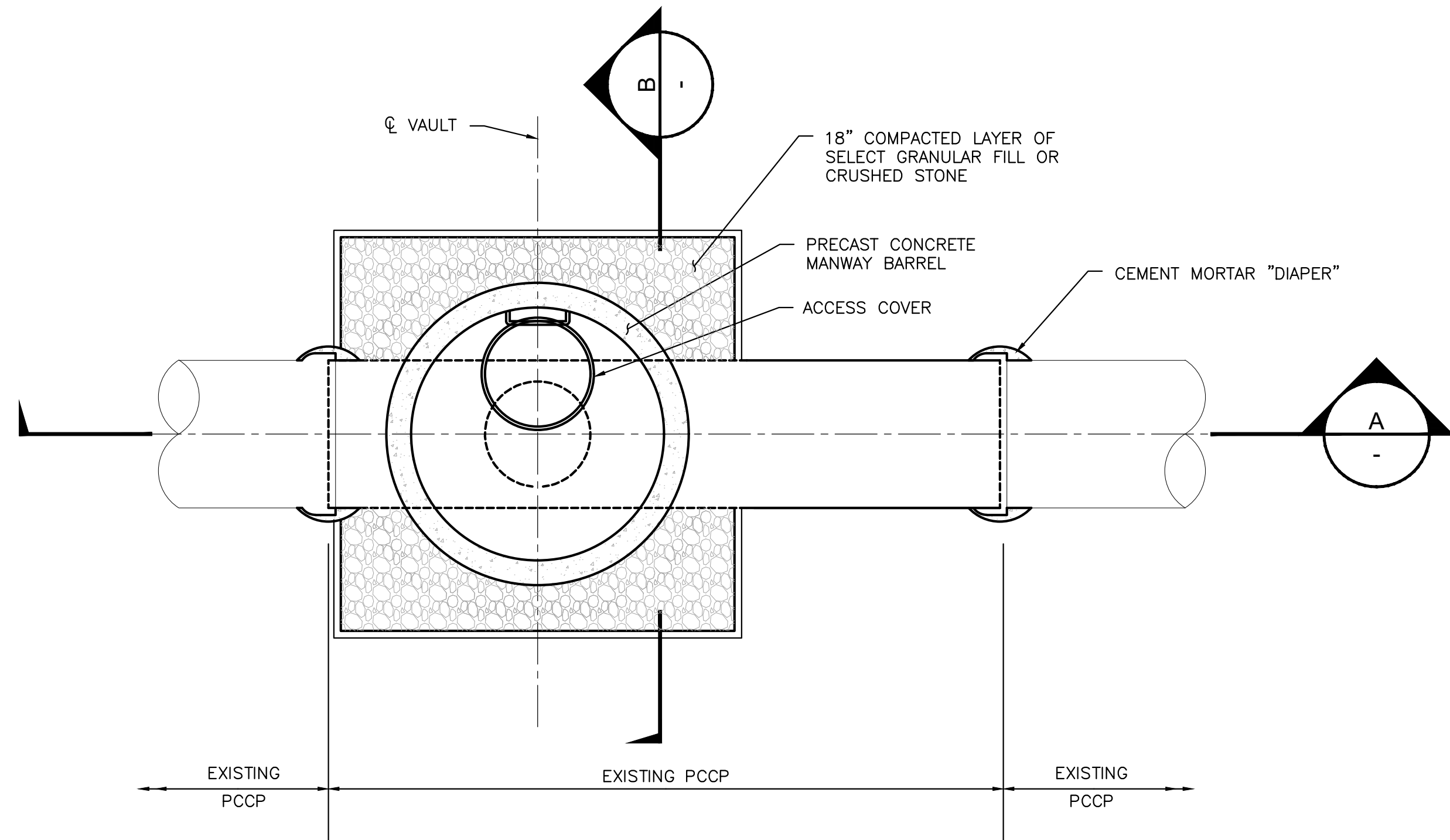
99 C-505

PIPELINE AND MANHOLE VAULT NOTES

1. PRECAST VAULT SECTIONS SHALL BE AS PER ASTM C478. LENGTHS AND NUMBER OF RINGS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. VAULT STEPS: No. 4 BAR GRADE 60 DEFORMED STEEL BAR, ASTM A615; COATED WITH POLYPROPYLENE PLASTIC, ASTM D4101.
3. ALL MANHOLE VAULT FRAMES SHALL BE SWSC PATTERN NUMBER AND SIZE NOTED IN THE PROJECT SPECIFICATIONS.
4. MANHOLE VAULT FRAME SHALL BE ANCHORED IN PLACE AT THE TOP OF THE PRECAST VAULT WITH TWO (2) 3/4" S.S. ANCHOR BOLTS AND NUTS. LEVELING OF CASTING SHALL BE SET TO FINISHED GRADE FOR VAULTS LOCATED IN THE ROAD (MH-3, MH-4 AND MH-5).
5. FRAMES AND COVERS SHALL BE 32" DIAMETER UNLESS OTHERWISE NOTED.
6. LOCATIONS OF EXISTING PIPING ARE FROM THE BEST INFORMATION AVAILABLE. EXACT LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL MAKE TEST PITS AS REQUIRED IN ORDER TO DETERMINE THE EXACT LOCATION OF EXISTING PIPES. CONTRACTOR SHALL ALSO MAKE ALL REQUIRED FIELD MEASUREMENTS TO VERIFY EXISTING AND CONTRACT INTERFACE DIMENSIONS, LOCATIONS, AND OTHER CONDITIONS. FINAL LOCATIONS OF PIPES WILL BE DETERMINED IN THE FIELD. ANY CHANGES SHALL BE APPROVED BY THE ENGINEER.

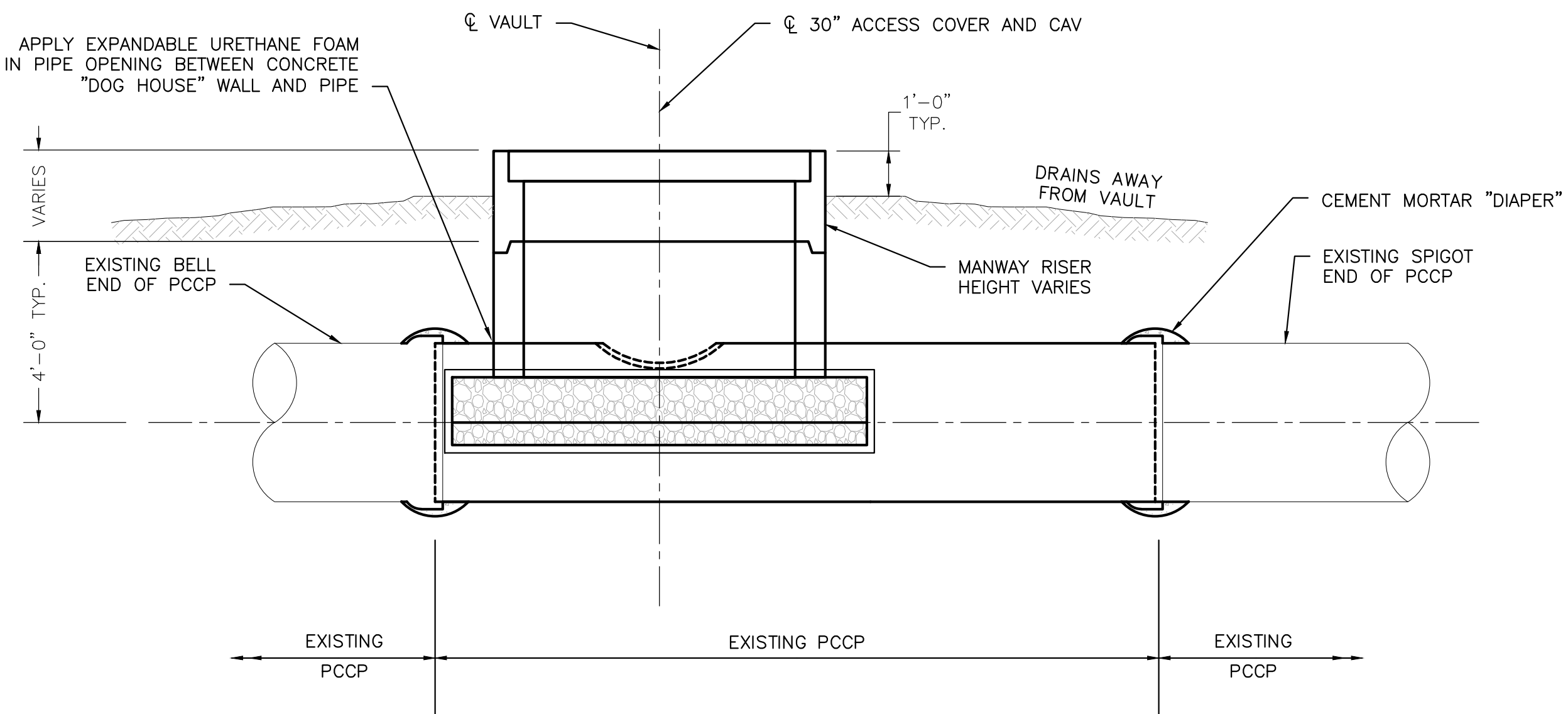
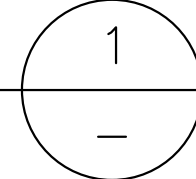
NOTES:

1. WATERPROOF EXTERIOR SIDE & TOP SURFACES OF VAULT WITH CRYSTALLINE WATERPROOFING PER SPECS.
2. BACKFILL AROUND VAULT WITH SELECT GRANULAR MATERIAL OR DENSE GRADE CRUSHED STONE IN COMPACTED LIFTS NOT EXCEEDING 8 INCHES (MEASURED AFTER COMPACTION) TO 95% STANDARD PROCTOR DENSITY MINIMUM.



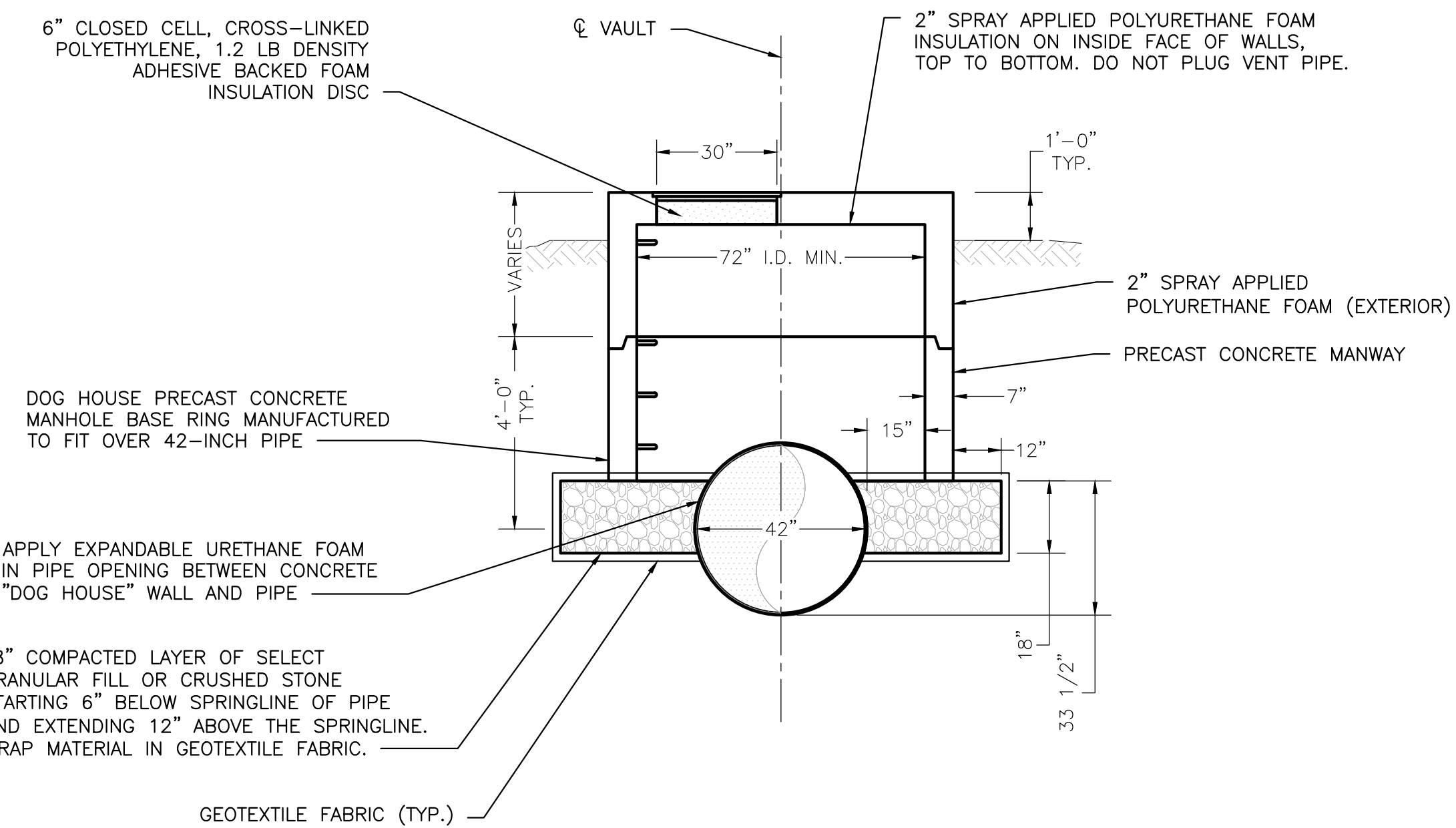
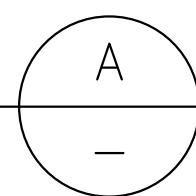
PLAN VIEW OF ACCESS MANWAY MH-7

SCALE: 3/8" = 1'-0"



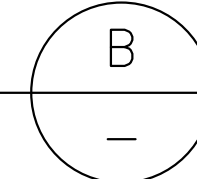
SECTION A

SCALE: 3/8" = 1'-0"



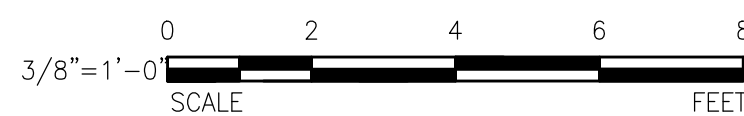
SECTION B

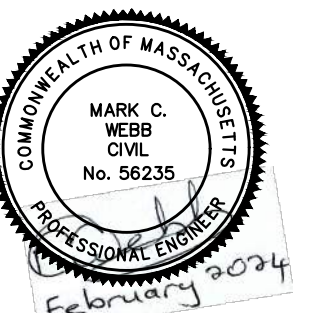
SCALE: 3/8" = 1'-0"



SECTION B - NOTES:

1. CONTRACTOR TO CONFIRM SOIL COVER ON SITE PRIOR TO ORDERING PRECAST CONCRETE RINGS.
2. CAREFULLY EXPOSE AND EXCAVATE EXISTING PIPE WITH ACCESS OPENING (MH-7) TO 6" BELOW THE PIPE SPRINGLINE USING HAND EXCAVATION NEXT TO THE PIPE.
3. PLACE GEOTEXTILE FILTER FABRIC ON BOTH SIDES OF EXPOSED PIPE STICK LINING THE EXCAVATED SECTION OF TRENCH.
4. PLACE AND COMPACT 18" LAYER OF SELECT GRANULAR FILL OR CRUSHED STONE MATERIAL IN TWO 9" LIFTS COMPACTED TO 95% MODIFIED PROCTOR DENSITY MINIMUM.
5. PLACE 72" DIAMETER PRECAST CONCRETE MANWAY ON TOP OF COMPACTED MATERIAL.
6. TOP OF MANWAY CAN EXTEND ABOVE GROUND SURFACE.





I/R	DATE	DESCRIPTION

60662775

Designed By: **MCW**

Drawn By: **JES**

Dept Check: **CPB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

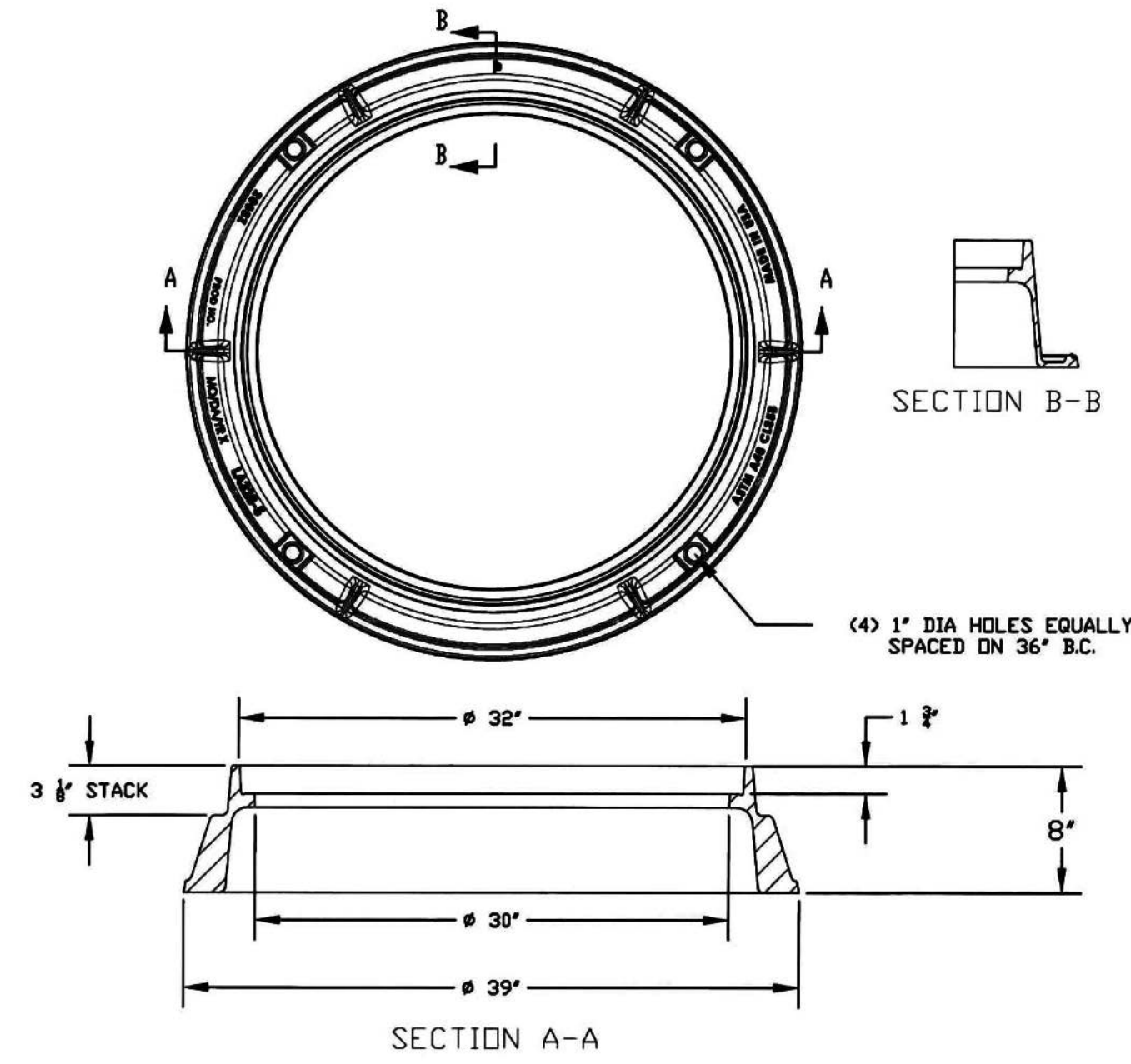
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CIVIL

SHEET TITLE

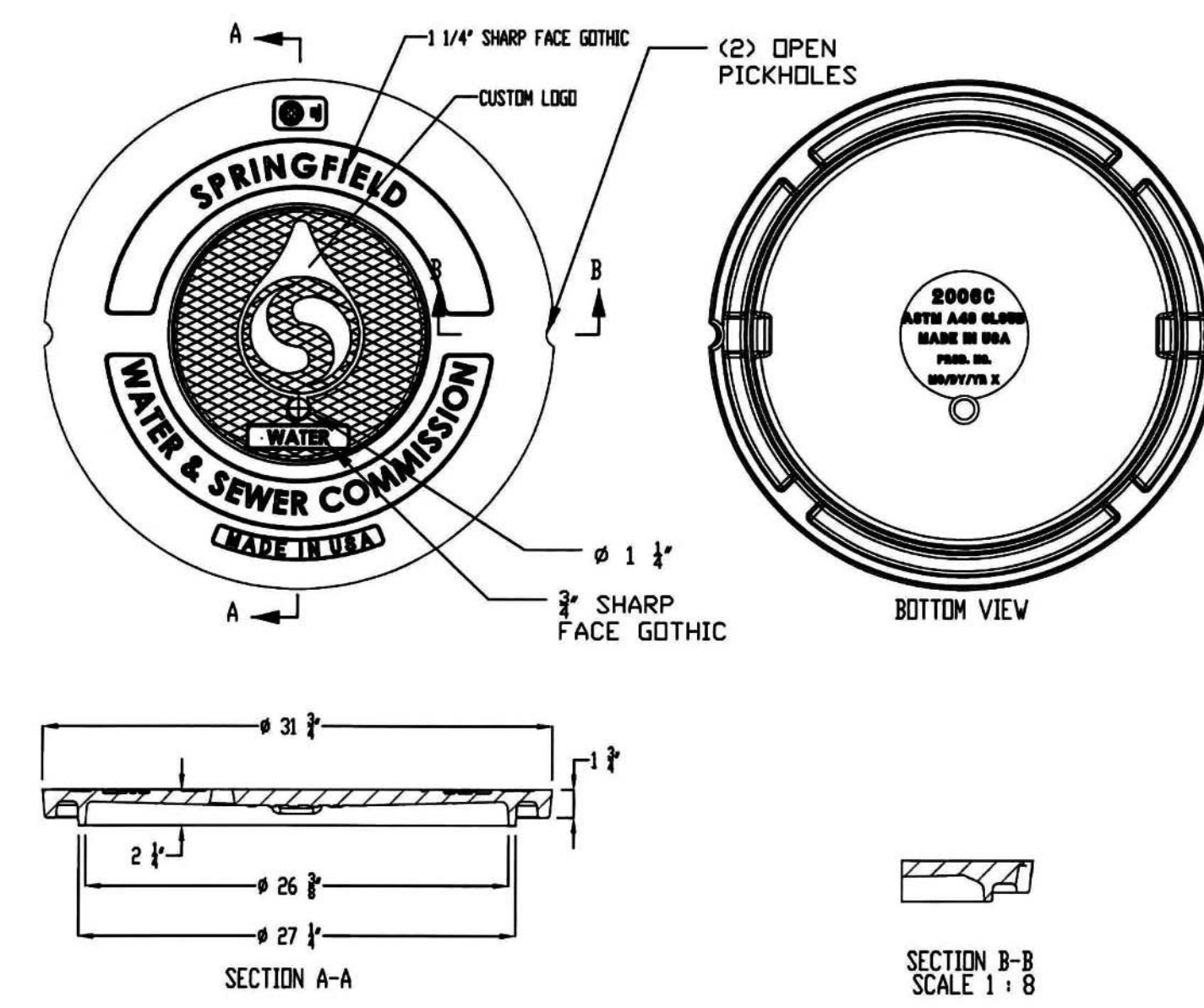
**CIVIL DETAILS VI
 MANWAY DETAILS IV**

99 C-506



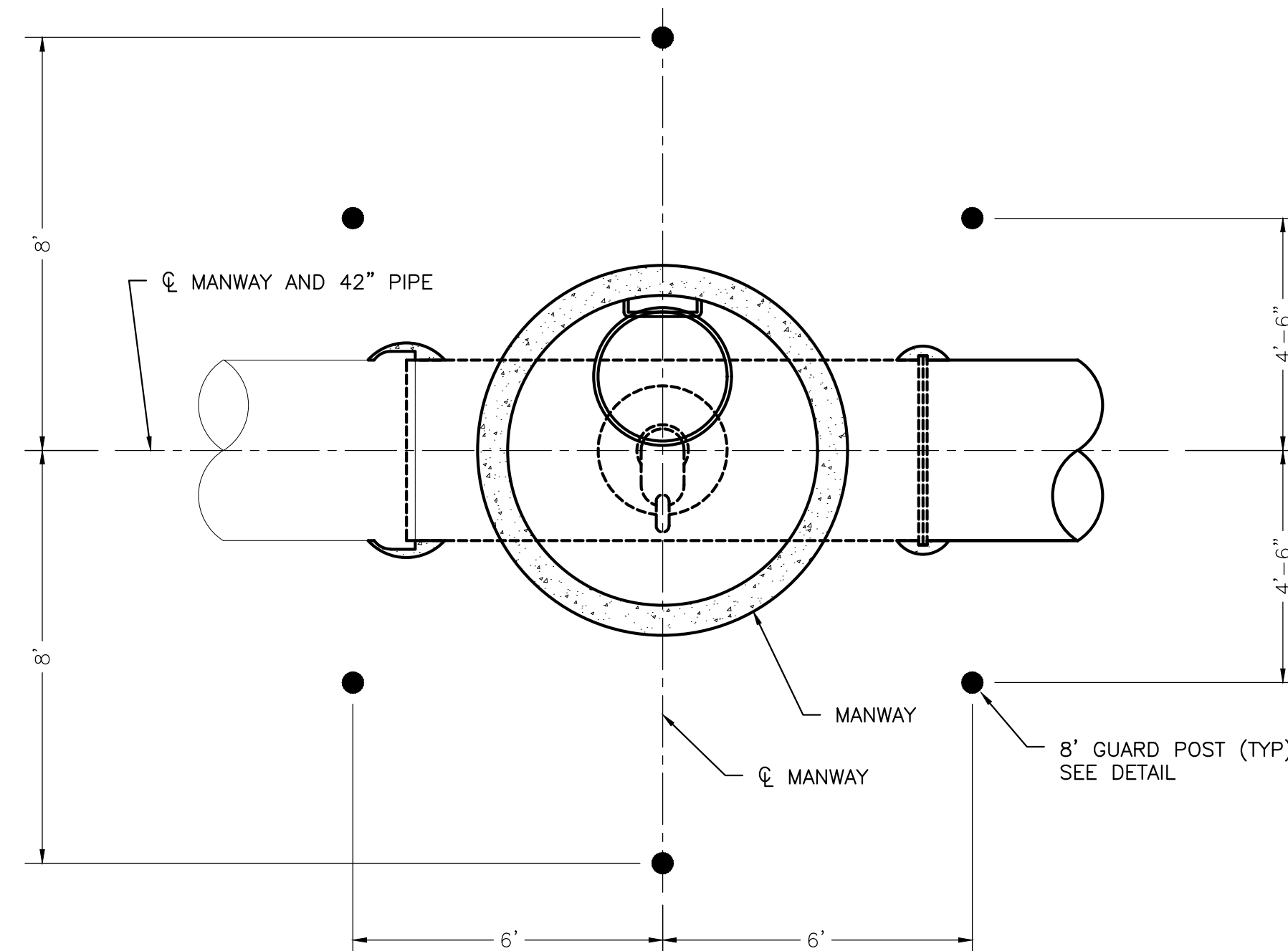
- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SVSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SVSC GUIDELINES AND POLICIES.
 2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.
 3. DIMENSIONS ARE IN INCHES-FRACTIONAL +/- 1/16" ON ALL DIMENSIONS UP TO 12" AND AN ADDITIONAL +/- 1/8" PER FOOT

32-INCH BY 8-INCH FRAME ONLY
 NTS



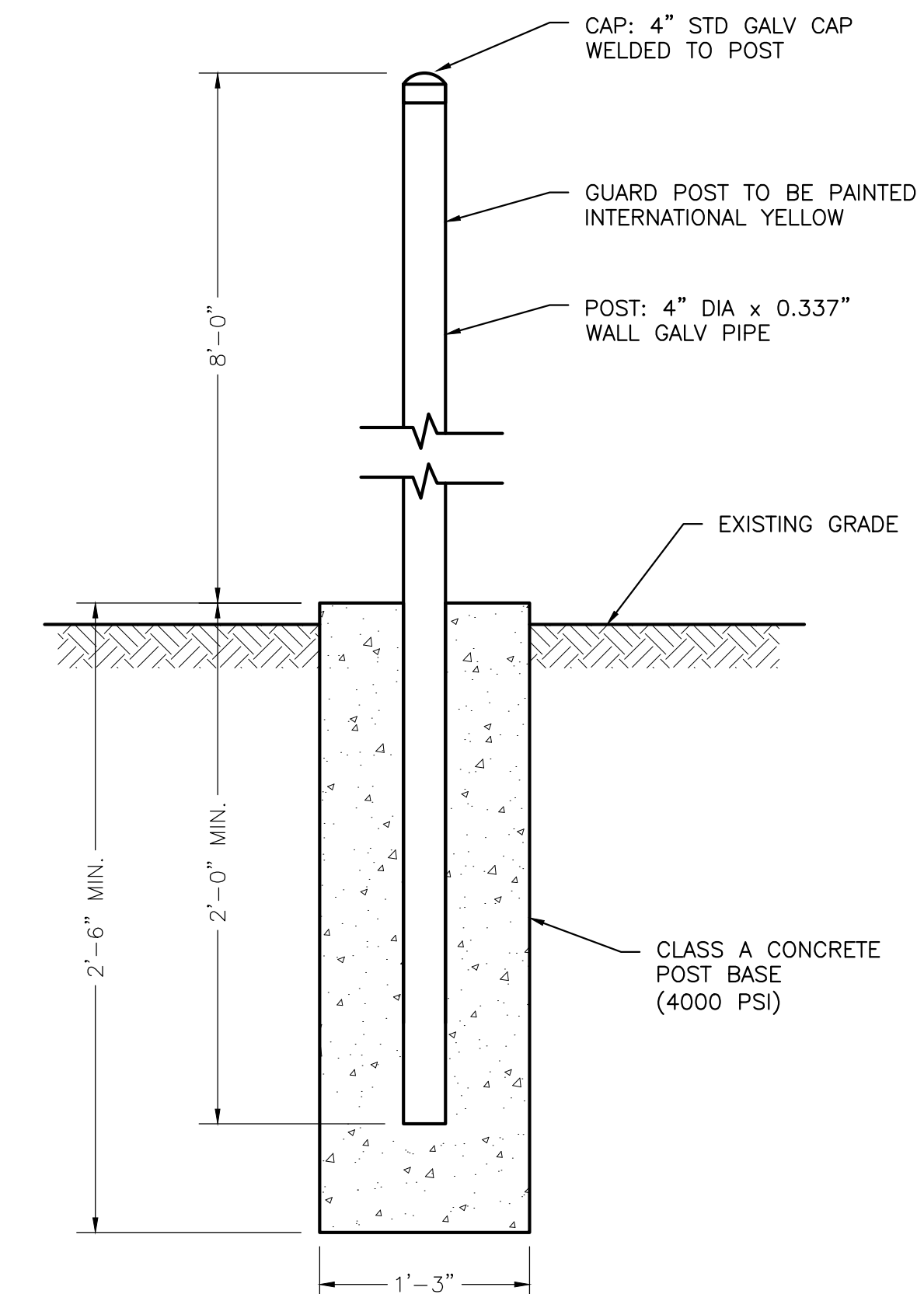
- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SVSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SVSC GUIDELINES AND POLICIES.
 2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.
 3. DIMENSIONS ARE IN INCHES-FRACTIONAL +/- 1/16" ON ALL DIMENSIONS UP TO 12" AND AN ADDITIONAL +/- 1/8" PER FOOT

32-INCH STANDARD WATER COVER
 NTS

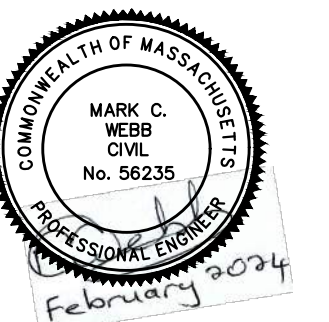


- NOTES:**
1. LOCATE SIX (6) POSTS AS SHOWN.
 2. MANWAYS LOCATED IN ROAD - ONE (1) 8' GUARD POST REQUIRED NEXT TO VENT PIPE AND OUTSIDE THE ROAD BOUNDARY.

GUARD POST LAYOUT DETAIL
 SCALE: 3/8" = 1'-0"



4" GUARD POST DETAIL
 NTS



I/R	DATE	DESCRIPTION

60662775

Designed By: **MCW**

Drawn By: **JES**

Dept Check: **CPB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

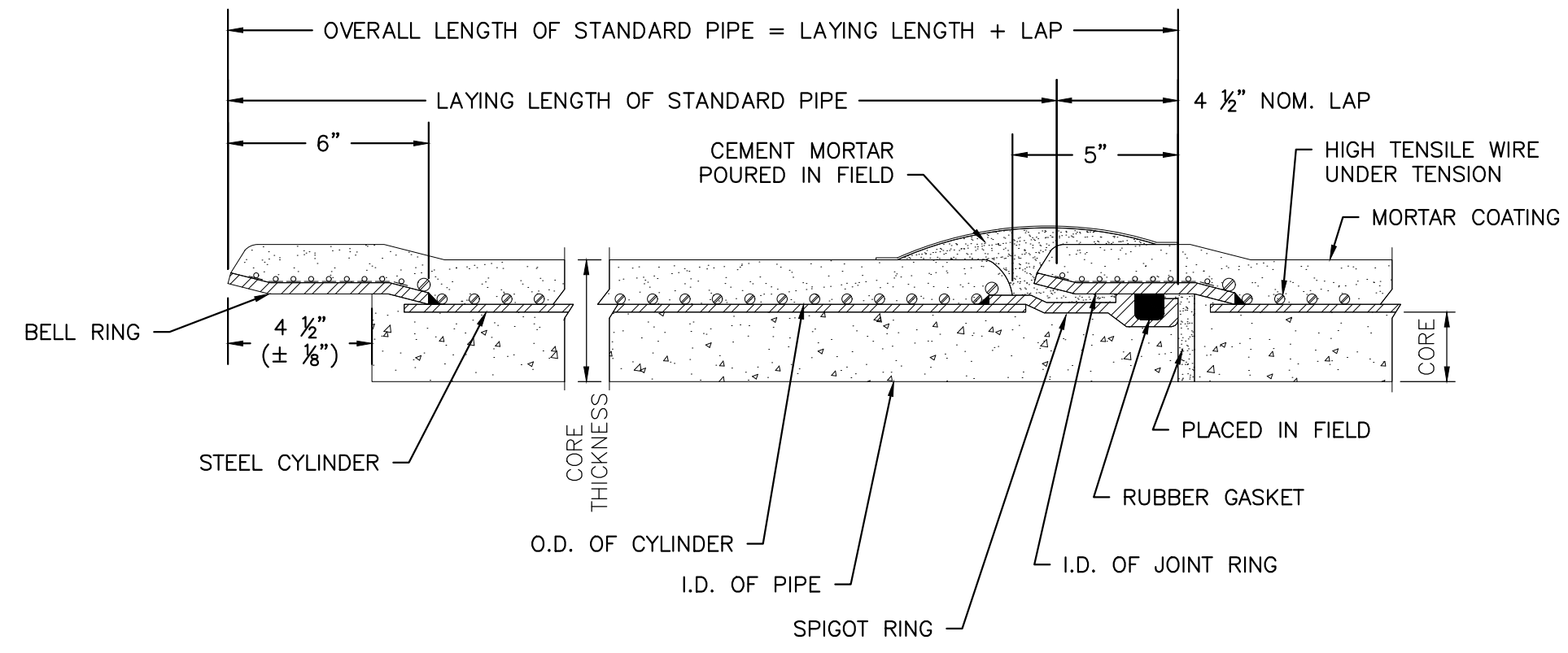
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CIVIL

SHEET TITLE

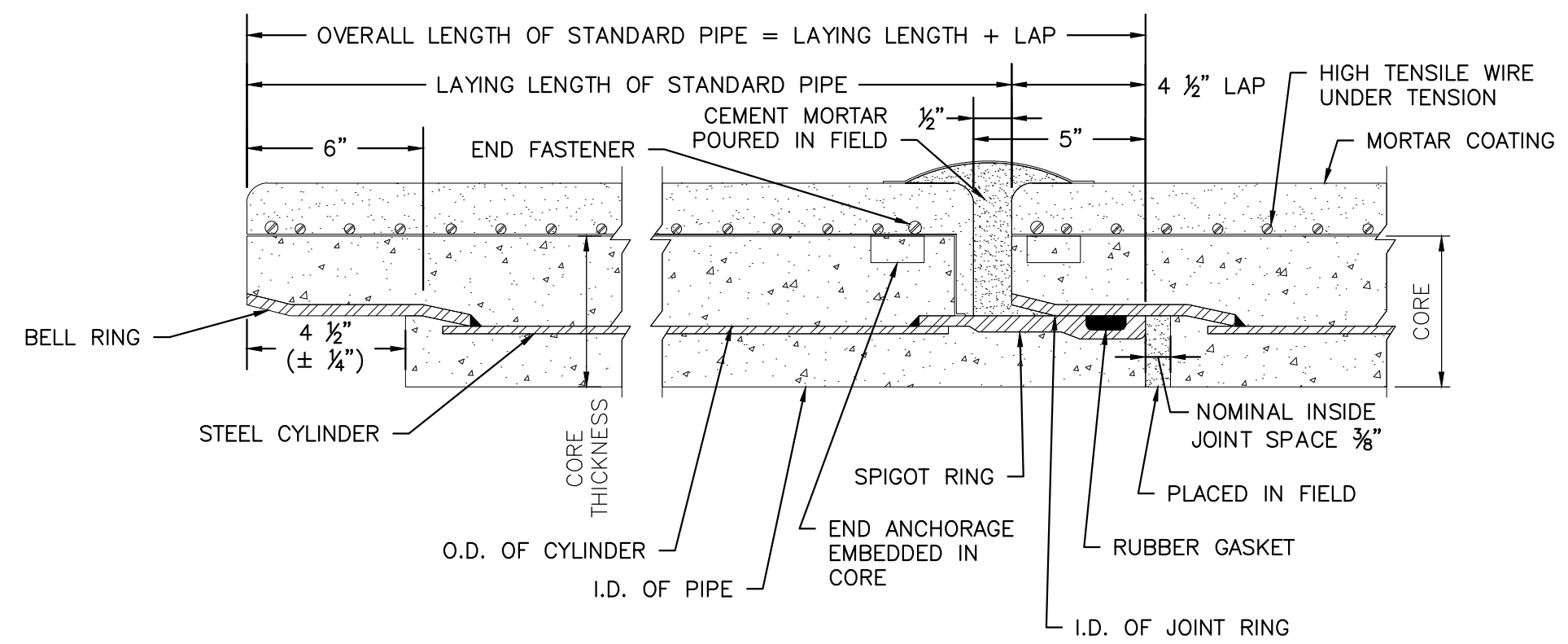
**CIVIL DETAILS VII
 PCCP REPLACEMENT
 PIPE DETAILS I
 SHEET NUMBER**

99 C-507



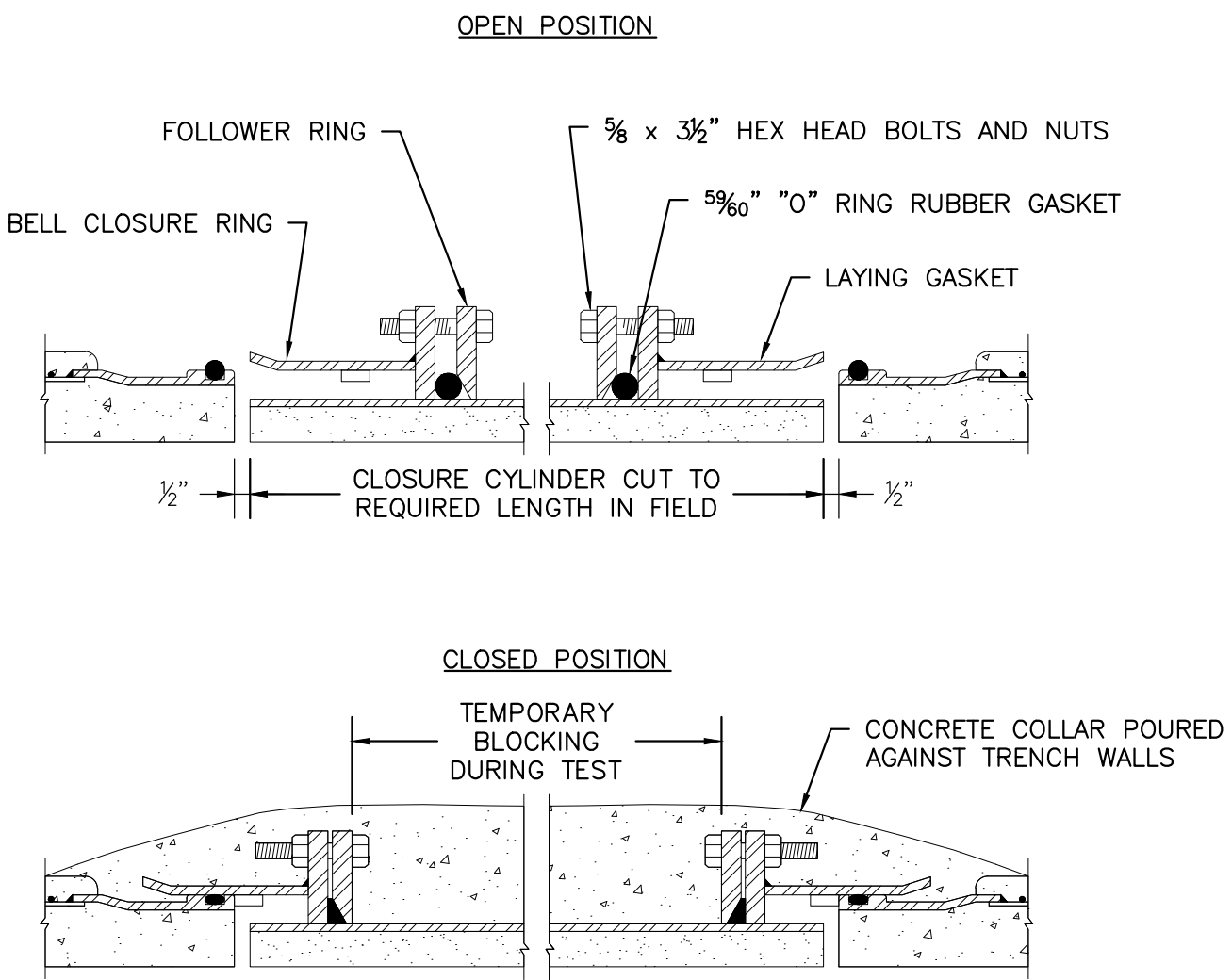
TYPICAL PRESTRESSED CONCRETE LINED CYLINDER PIPE (LCP)

NTS



TYPICAL PRESTRESSED CONCRETE EMBEDDED CYLINDER PIPE (ECP)

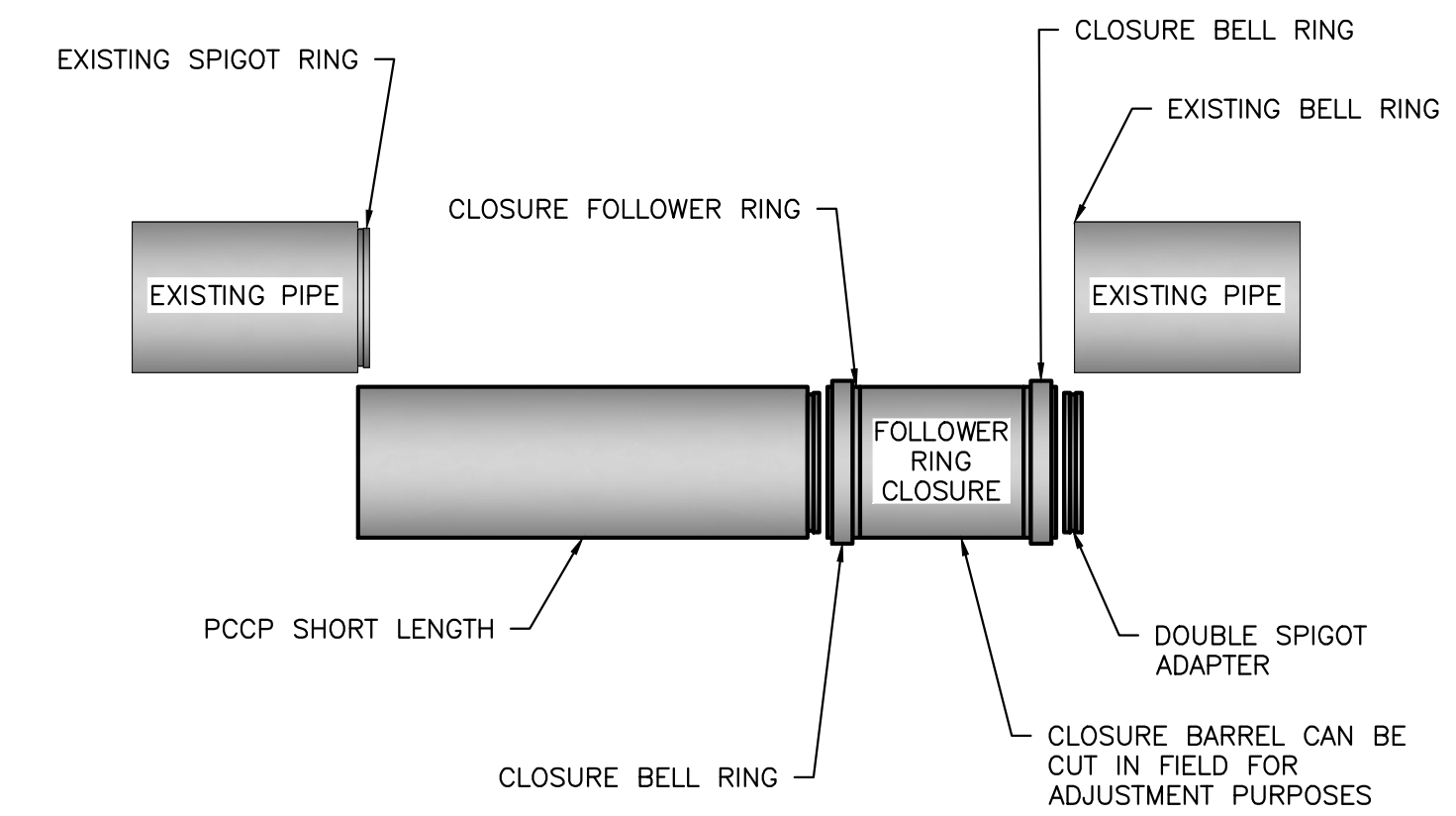
NTS



- NOTES:**
1. WELD THICKNESS "T" AS SPECIFIED ON LAYING SCHEDULE.
 2. CLOSURE INSTALLATION MUST BE PRESSURE TESTED BEFORE CONCRETE COLLAR IS CAST.
 3. CLOSURE CYLINDER THICKNESS MUST BE EQUAL TO OR GREATER THAN FITTING PLATE THICKNESS LISTED ON DESIGN SHEET.

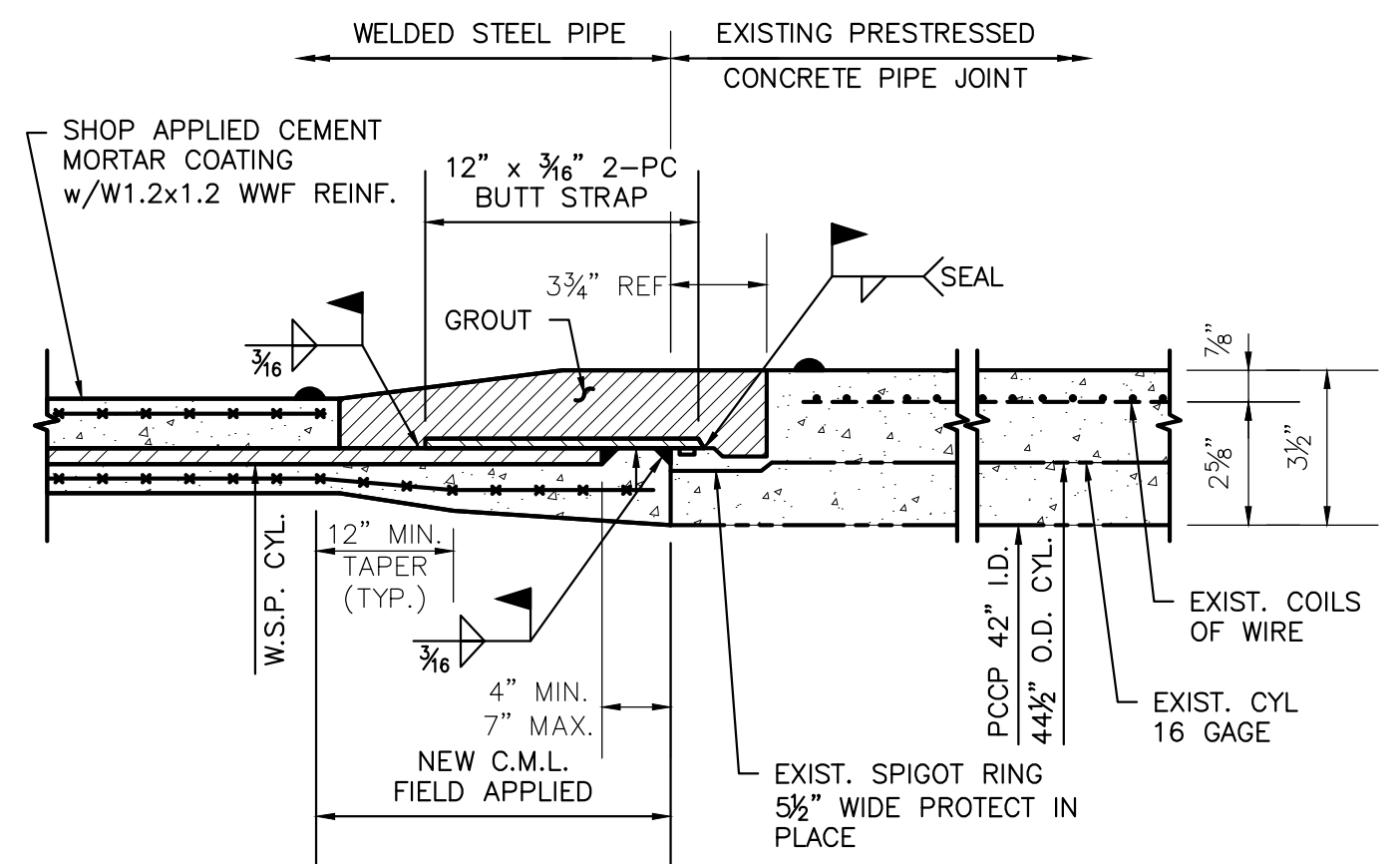
FOLLOWER RING CLOSURE INSTALLATION

NTS



TYPICAL PCCP PIPE LENGTH ("STICK") REPLACEMENT DETAILS

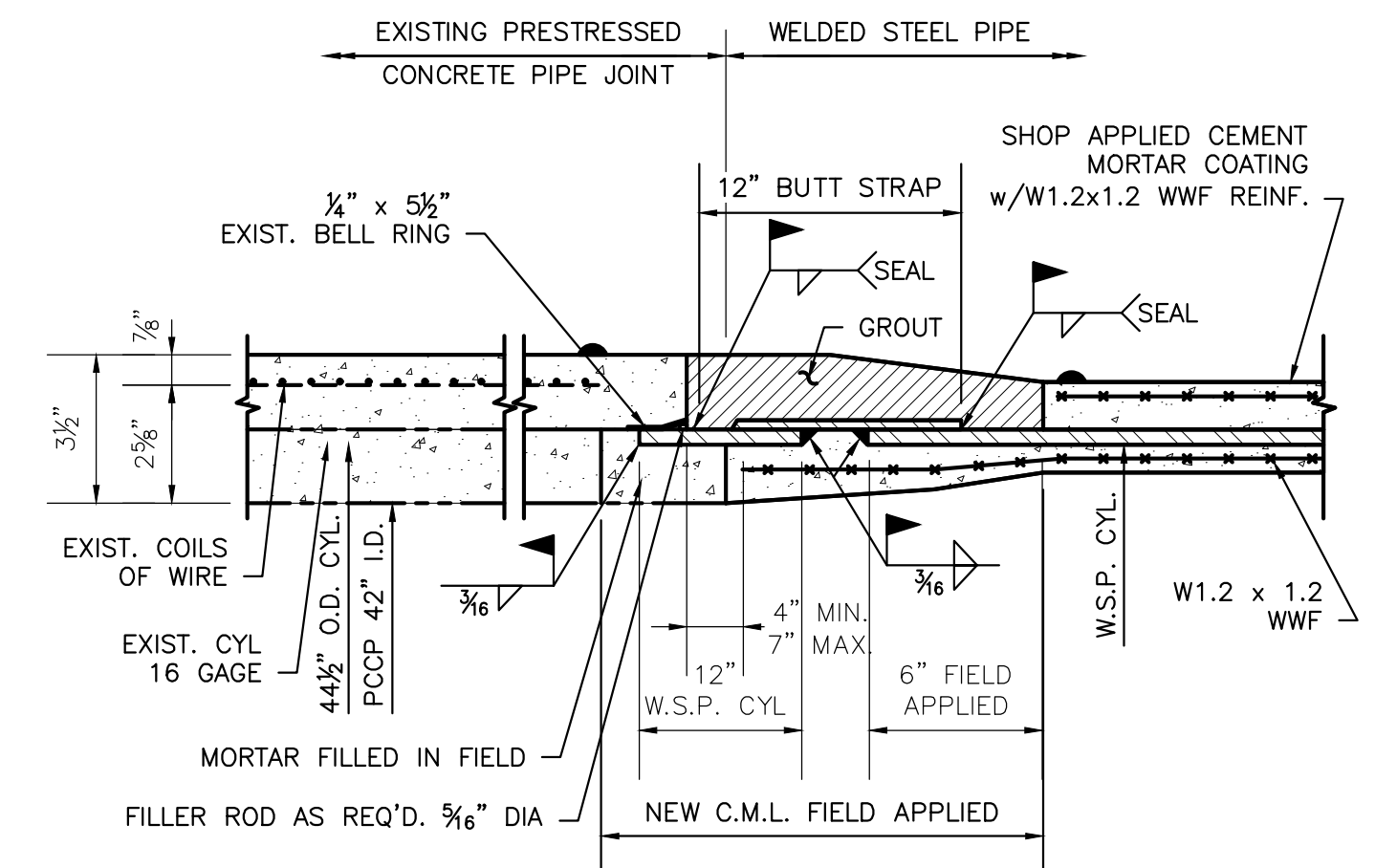
NTS



- NOTES:**
1. REMOVE ZINC COATING FROM SPIGOT RING BEFORE WELDING.
 2. BEVELS & PIPE WITH EXISTING OUTLETS HAVE 3/2" CORE, SHORTS HAVE 4 1/2" CORE.
 3. CONFIRM PCCP DIMENSIONS IN THE FIELD AND ON LAYING SCHEDULES BEFORE ORDERING STEEL AS PIPE OD'S AND WALL THICKNESSES VARY BASED ON PIPE TYPE (LCP OR ECP) AND PRESSURE CLASS.

ALTERNATIVE CONNECTION DETAILS TO EXISTING PCCP SPIGOT

NTS



- NOTES:**
1. REMOVE ZINC COATING FROM BELL RING BEFORE WELDING.
 2. BEVELS & PIPE WITH EXISTING OUTLETS HAVE 3/2" CORE, SHORTS HAVE 4 1/2" CORE.
 3. CONFIRM PCCP DIMENSIONS IN THE FIELD AND ON LAYING SCHEDULES BEFORE ORDERING STEEL AS PIPE OD'S AND WALL THICKNESSES VARY BASED ON PIPE TYPE (LCP OR ECP) AND PRESSURE CLASS.

ALTERNATIVE CONNECTION DETAILS TO EXISTING PCCP BELL

NTS

PATH: L:\DCS\PROJECTS\WTR\60662775_SWIS\WPF_HYDRO_ELECT_PRR\9900_CAD_GIS\910_CAD\20-SHEETS\C389-C-507.DWG
 LAST UPDATE: Wednesday, January 17, 2024 12:52:59 PM
 PLOT DATE: Friday, February 9, 2024 12:31:49 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

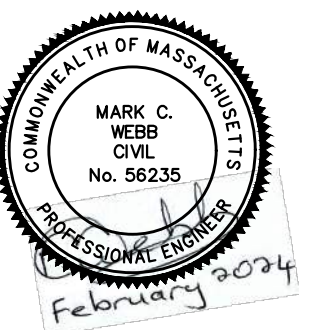
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

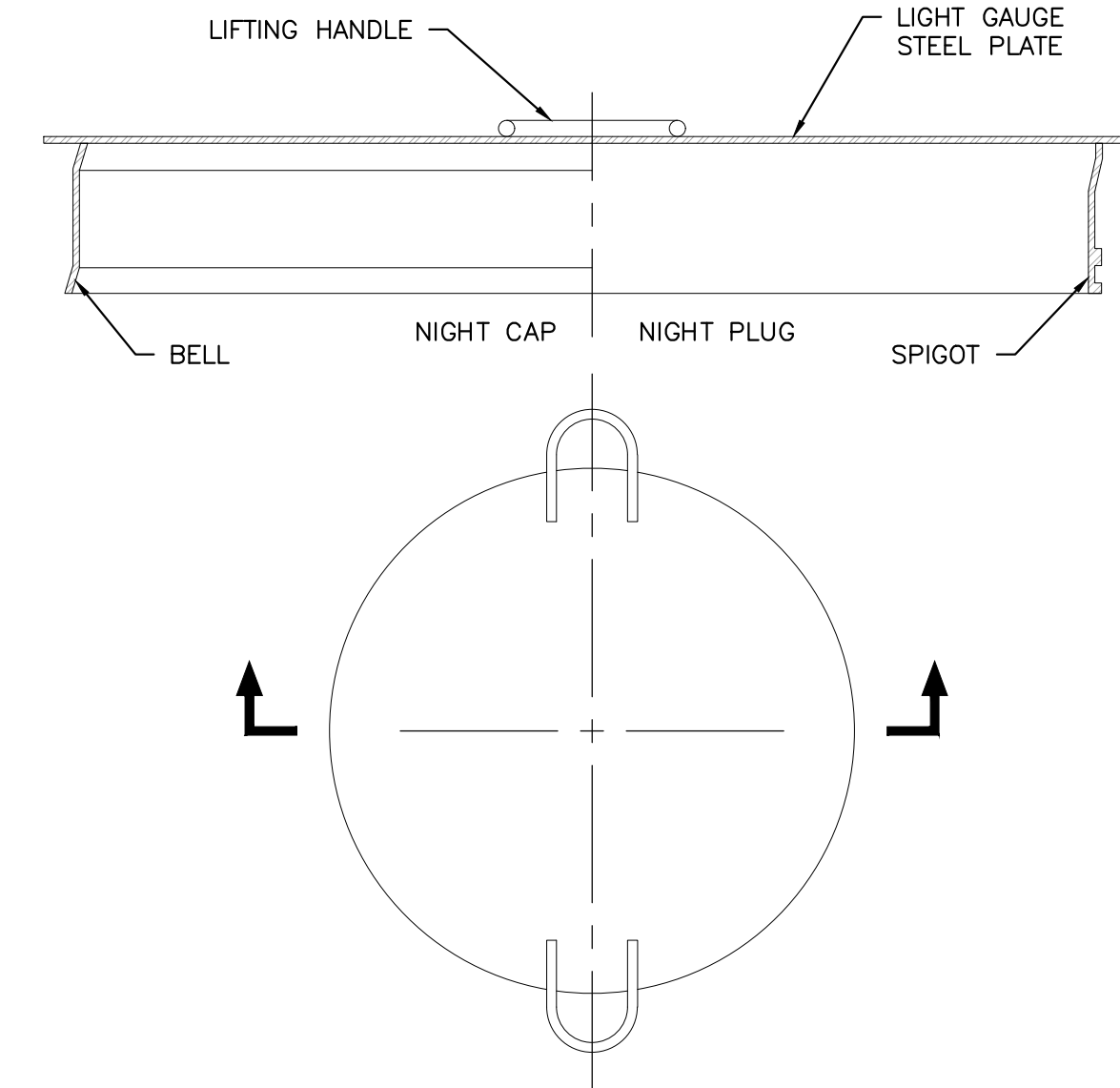
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL SHEET TITLE

**CIVIL DETAILS VIII
PCCP REPLACEMENT
PIPE DETAILS II
SHEET NUMBER**

99 C-508

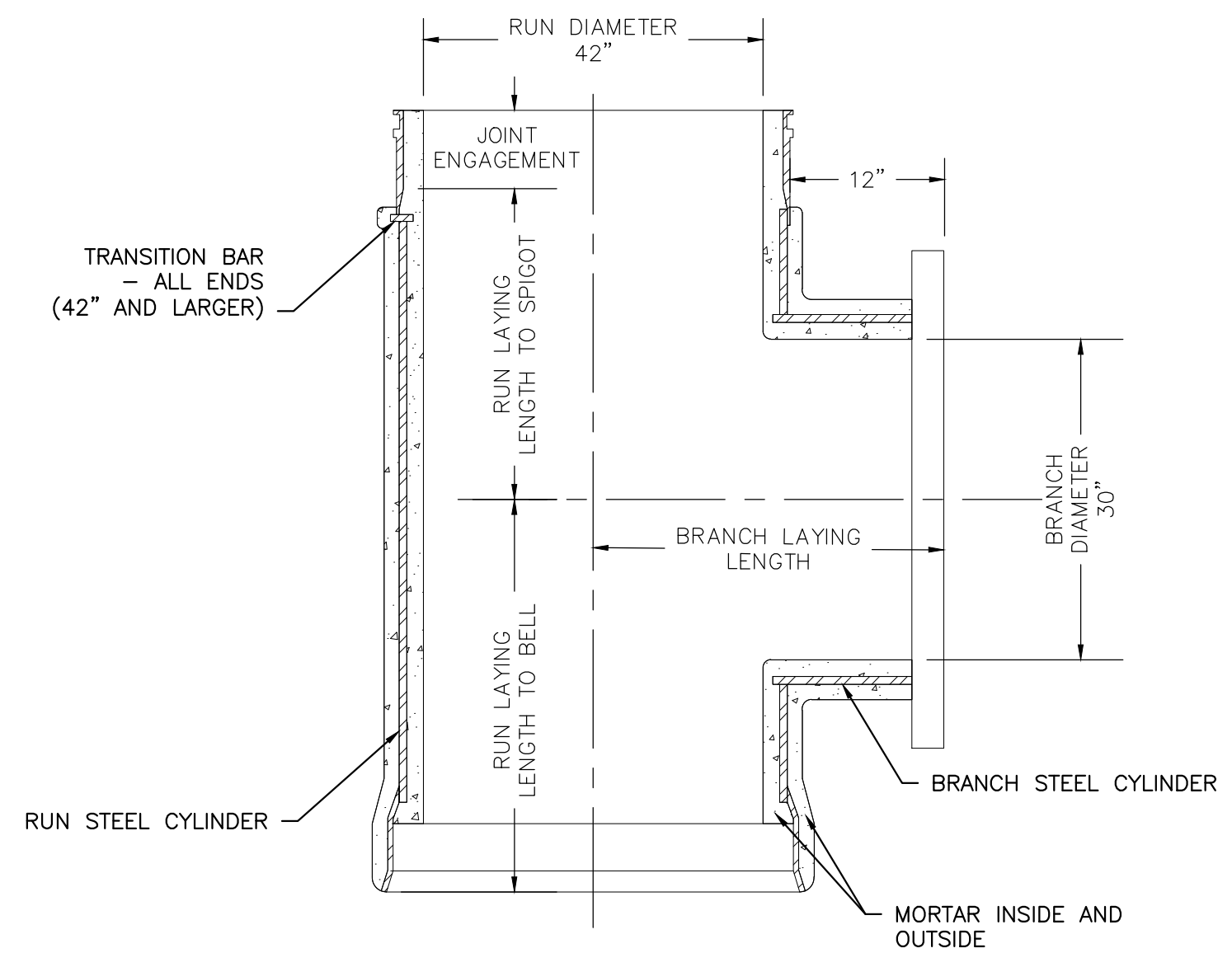


NOTES:

1. ALL NIGHT CAPS AND PLUGS ARE TEMPORARY AND CAN BE USED FOR CONTRACTOR'S CONVENIENCE DURING CONSTRUCTION TO PREVENT DEBRIS FROM ENTERING THE PIPELINE.
2. NIGHT CAPS AND PLUGS TO BE PROVIDED BY THE PIPE MANUFACTURER.
3. NIGHT CAPS AND PLUGS ARE NOT INTENDED FOR PERMANENT INSTALLATION OR TESTING PURPOSES UNDER ANY CIRCUMSTANCES.

TYPICAL NIGHT CAP/PLUG

NTS



TYPICAL 42-INCH DIA. STEEL PIPE WITH 30-INCH OUTLET

NTS

PATH: L:\DCS\PROJECTS\WTR6062775_SWGS_WPF_HYDRD_ELECT_PDR\60_CAD_GS\910_CAD\20-SHEETS\99 C-508.DWG
 LAST UPDATE: Wednesday, January 17, 2024 12:51:57 PM
 PLOT DATE: Friday, February 9, 2024 12:35:48 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

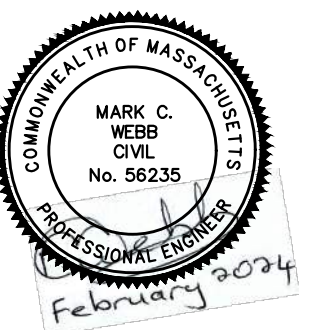
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
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CONSULTANTS

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Date: **FEBRUARY 2024**

Scale: **AS NOTED**

DISCIPLINE

CIVIL

SHEET TITLE

**CIVIL DETAILS IX
PCCP PIPE & MANWAY
REMOVAL DETAILS
SHEET NUMBER**

99 C-509

REMOVAL SEQUENCE – EXISTING PCCP

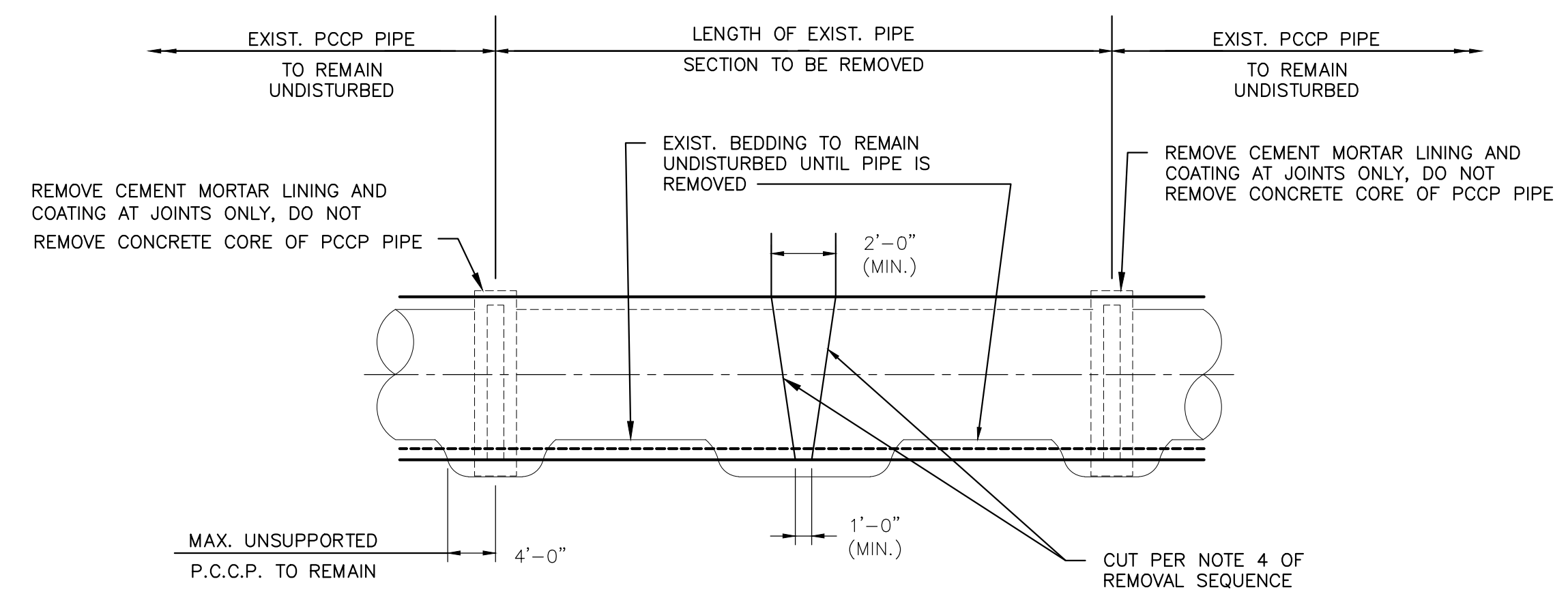
1. Locate the existing Prestressed Concrete Cylinder Pipe (PCCP) manway and pipe sections to be removed.
2. The information shown is based on potholing and record information obtained for design and estimating purposes. Verify this information prior to fabrication and rehabilitation of the pipeline. See specifications.
3. Coordinate depressurizing of pipeline with the owner prior to excavation. Excavation of PCCP may begin before dewatering is complete, but the pipeline shall be completely depressurized (zero psi at connection points) prior to excavation. Coordinate dewatering of pipeline with the owner.
4. Once the pipeline is dewatered remove pipe length as shown on the drawings by cutting and not hammering, see detail.
5. Remove joint mortar, sever joint bonds if present.
6. The existing PCCP joints may be restrained. Remove any welds by grinding or air-arc.
7. Remove pipe by pulling the pipe out of the joints longitudinally. Do not wrench or pry sections out of joints. If pipe indicated to remain is disturbed in any way, remove it and replace at no additional cost to the owner with cement mortar lined and coated steel pipe matching steel special with outlet.

INSTALLATION SEQUENCE – NEW CEMENT MORTAR LINED & COATED (CML & CMC) PIPE WITH BRANCH OUTLET

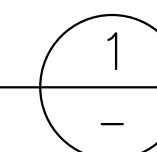
1. Prepare bedding material to support the new pipe leaving a gap in the bedding at the joints to accept the new grout band (diaper).
2. Clean existing joint rings by wire brushing or sandblasting to prepare surfaces for field welding.
3. Check surface to be welded with the liquid penetrant test. Remove defects by grinding.
4. Install inside buttstrap ring at inside of PCCP bell, and outside of PCCP spigot as shown on the details. Alternatively, install special PCCP bell and spigot short pipe and closure cylinder (cut to required length in field) with follower rings and/or adapters in lieu of welding buttstraps to existing pipes.
5. Install CML & CMC spool section(s) with outlet and join with minimum 15-inch wide buttstraps.
6. Test welds at the joints by the liquid penetrant method test and the buttstrap welds by the air/soap method. See specifications.
7. Line and coat the joints and closure with cement mortar per the specifications.
8. Backfill the pipeline in accordance with plans and specifications.

INSTALLATION SEQUENCE – NEW PCCP SHORT REPLACEMENT PIPE WITH CLOSURE CYLINDER AND FOLLOWER RINGS OR ADAPTERS

1. Prepare bedding material to support the new pipe leaving a gap in the bedding at the joints to accept the new grout band (diaper).
2. Clean existing joint rings using a wire brush or sandpaper to loosen hard material. Wipe clean with rags and carefully inspect the joint rings for any damage or corrosion.
3. Remove any remaining or loose joint grout from the inside shoulder of the bell ring and the outside shoulder of the spigot ring.
4. Install PCCP bell and spigot short pipe and closure cylinder (cut to required length in field) with follower rings and/or adapters.
5. Line and coat the joints and steel closure cylinder with cement mortar per the specifications.
6. Backfill the pipeline in accordance with plans and specifications.



EXISTING. PIPE REMOVAL
NTS



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 LAST UPDATE: Wednesday, January 17, 2024 1:04:17 PM
 PLOT DATE: Friday, February 9, 2024 12:46:01 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

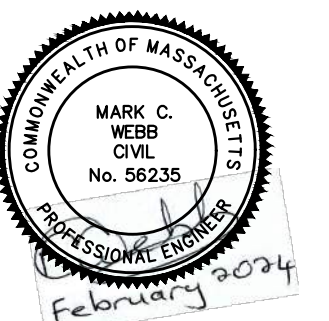
250 M STREET EXTENSION
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PROJECT NUMBER

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Designed By: **MCW**

Drawn By: **JES**

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Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

Scale: **AS NOTED**

DISCIPLINE

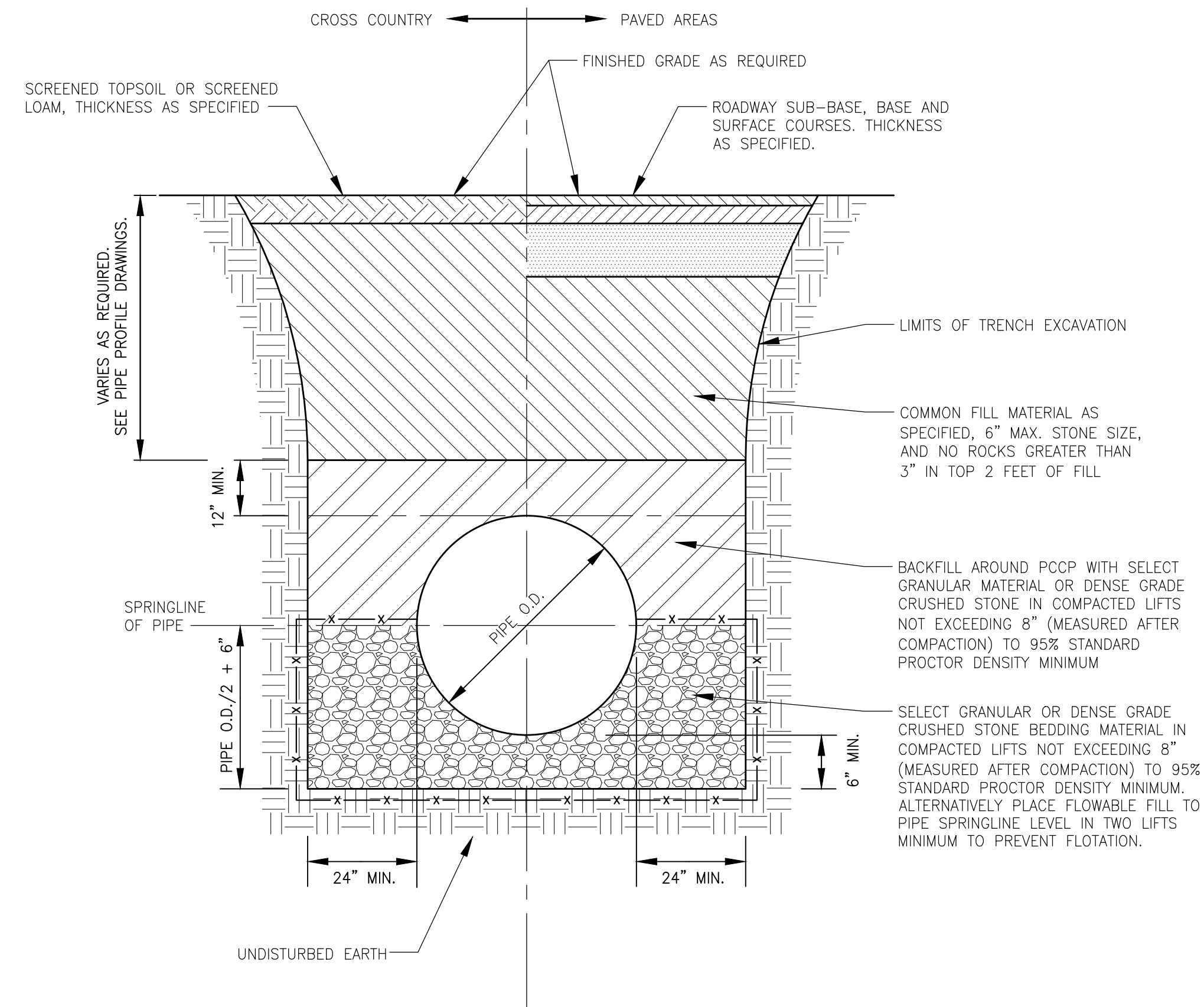
CIVIL

SHEET TITLE

**CIVIL DETAILS X
TRENCH DETAILS**

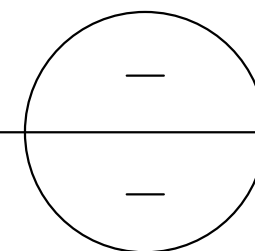
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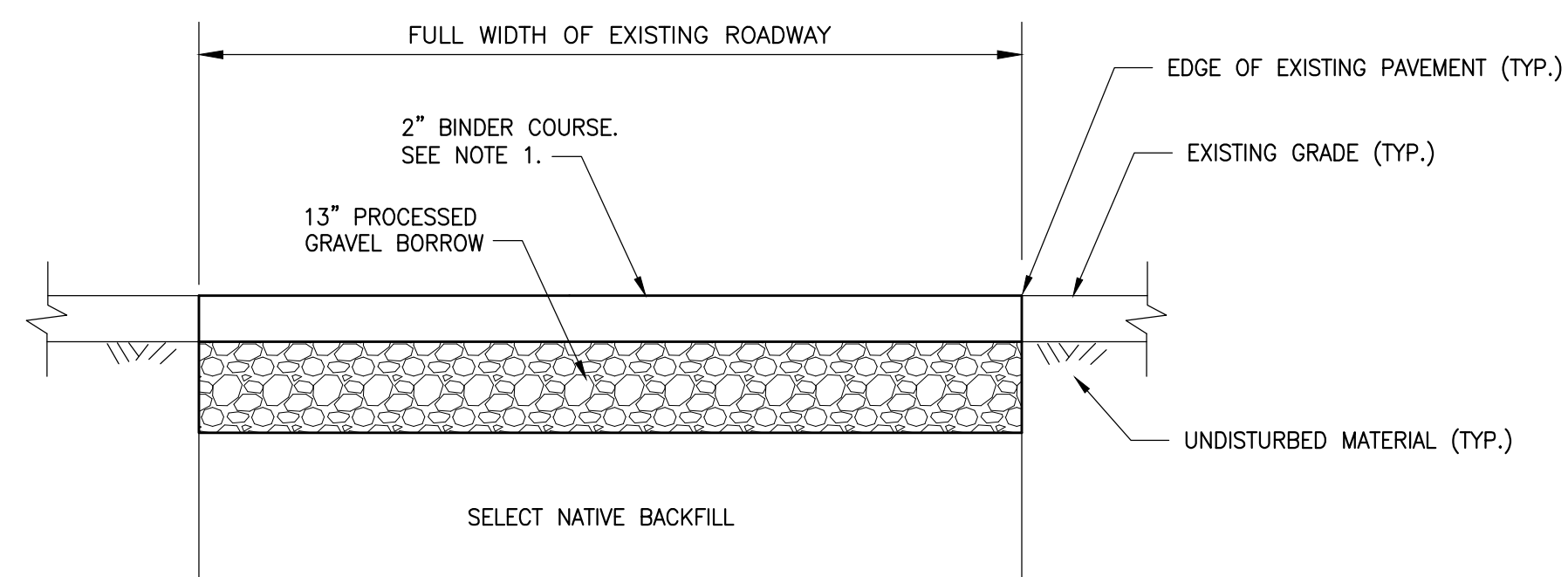
TRENCH SECTION FOR PCCP PIPE

NTS



NOTES:

- IN WET AND UNSTABLE SOIL CONDITIONS PROVIDE FILTER FABRIC AROUND THE PIPE TRENCH TO 12-INCHES ABOVE THE PIPE.
- IN VERY POOR AND UNSTABLE SOIL CONDITIONS, OVER-EXCAVATE TRENCH BOTTOM BY 18-INCHES MINIMUM AND PLACE SELECT GRANULAR OR CRUSHED STONE MATERIAL AS THE PIPE BASE. ADDITIONALLY, A FILTER FABRIC SHALL BE PLACED BETWEEN THE SELECT GRANULAR BACKFILL AND CRUSHED STONE MATERIAL.

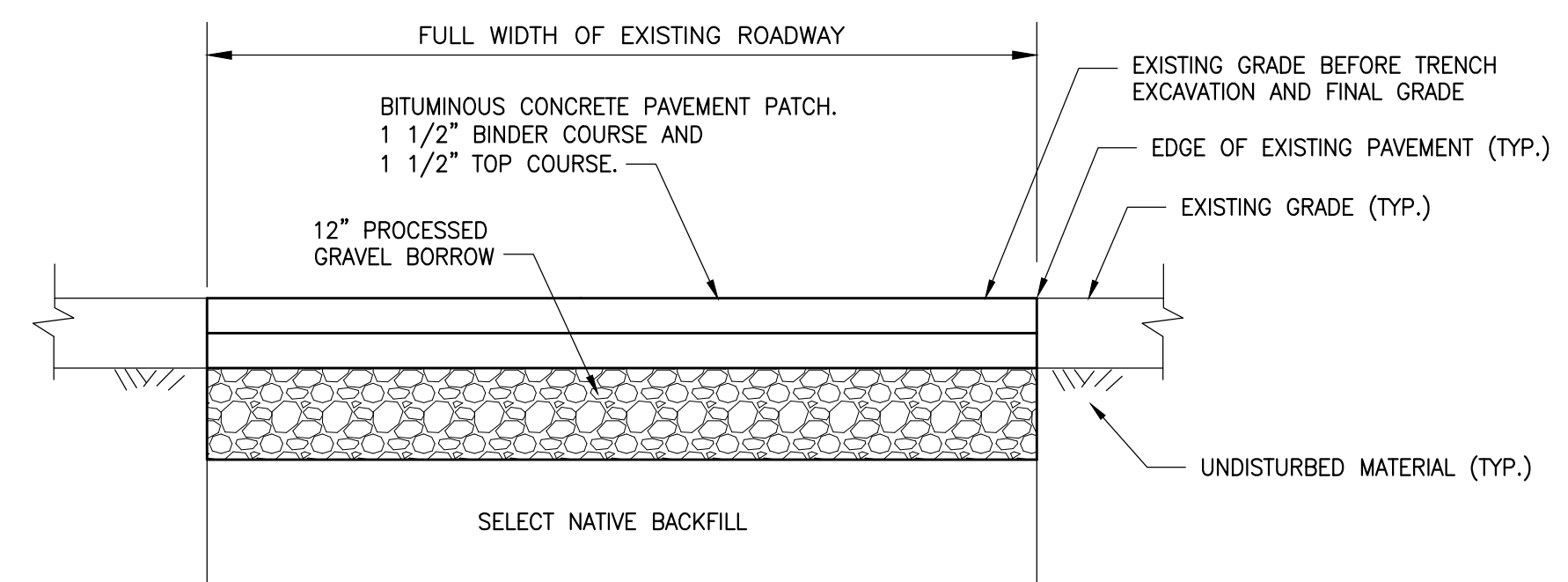
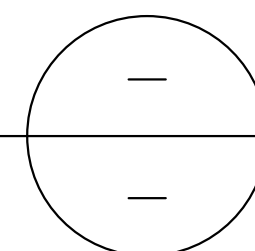


NOTES:

- 2" TO BE REMOVED AS PART OF PERMANENT PATCH OPERATION PRIOR TO 1 1/2" BINDER COURSE AND 1 1/2" TOP COURSE PLACEMENT.

TEMPORARY TRENCH REPAIR SECTION

NTS

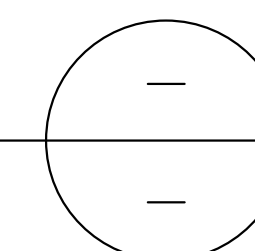


NOTES:

- SAWCUT AND REMOVE TEMPORARY PAVEMENT PATCH. INSTALL 1 1/2" BITUMINOUS CONCRETE BINDER COURSE AND 1 1/2" TOP COURSE.

PERMANENT TRENCH REPAIR SECTION

NTS



GENERAL NOTES:

- SEE SPECIFICATIONS FOR MATERIAL AND COMPACTION REQUIREMENTS.
- IN OPEN AREAS, DISTRIBUTE ANY EXCESS TRENCH ZONE MATERIAL EVENLY ACROSS DISTURBED AREA TO AVOID MOUNDING, UNLESS IN STREETS, WATERWAYS OR AS PERMITS INDICATE OTHERWISE.
- IN ROADWAY AREAS, ROAD RIGHT-OF-WAYS, IMPROVED AREAS, WATERWAYS, OR FLOOD IRRIGATION AREAS, NO MOUNDING OF TRENCH ZONE MATERIAL IS ALLOWED. REMOVE AND DISPOSE OF ALL EXCESS TRENCH ZONE MATERIAL FROM THE CONSTRUCTION SITE AT NO ADDITIONAL COST TO THE OWNER. IN FLOOD IRRIGATION AREAS AND WATERWAYS, COMPACT THE TRENCH ZONE MATERIAL TO A MINIMUM OF 95% RELATIVE COMPACTION.
- IN WET AND UNSTABLE SOIL CONDITIONS, REPLACE PIPE BASE AND/OR PIPE ZONE MATERIAL WITH "SELECT GRANULAR BACKFILL", AS AUTHORIZED BY THE OWNER'S REPRESENTATIVE. PAYMENT FOR THIS WORK, WHEN AUTHORIZED BY THE OWNER'S REPRESENTATIVE, SHALL BE MADE AT THE RATES SPECIFIED IN SECTION 01151.

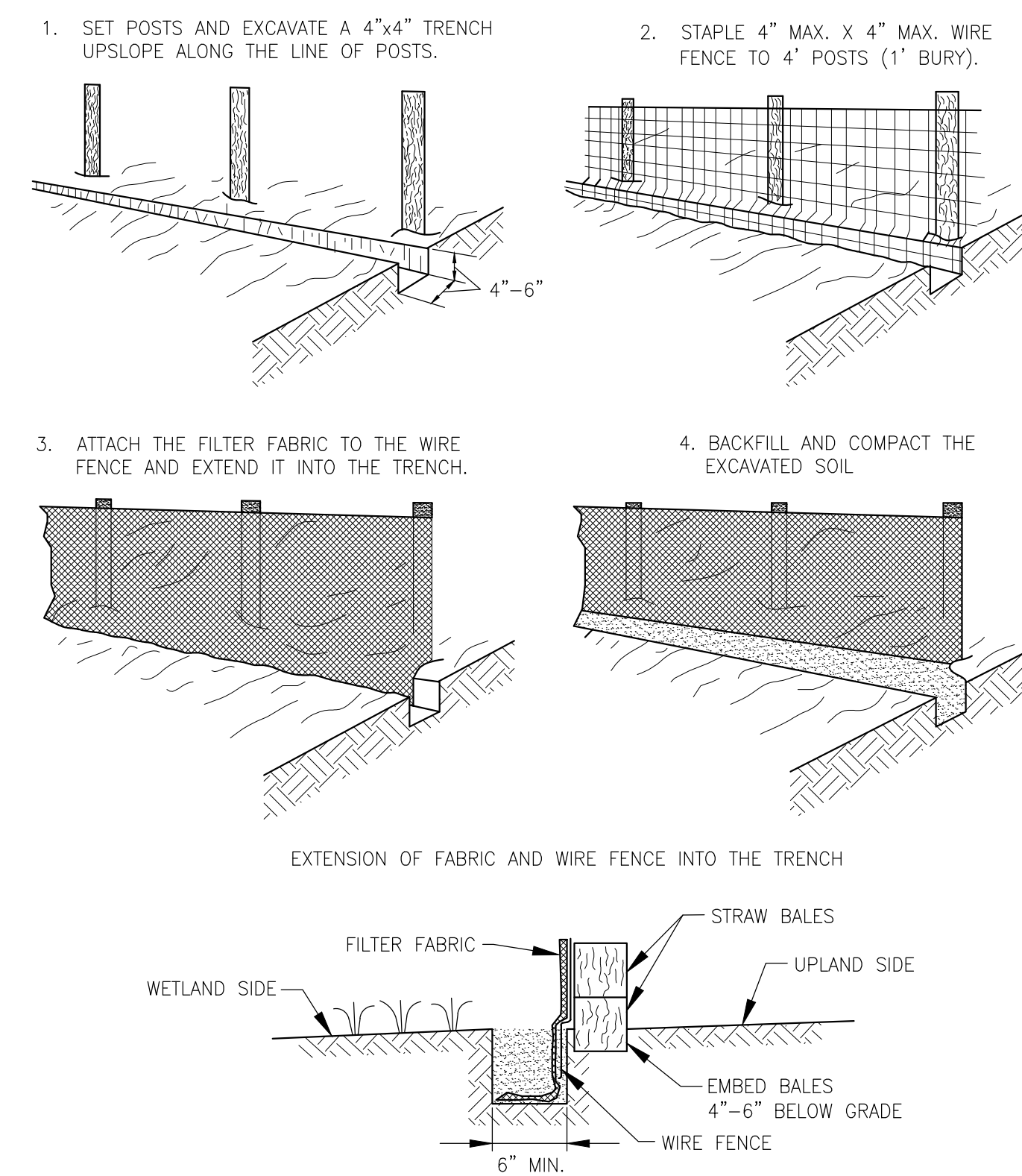
REPLACEMENT OF THE PIPE BASE/PIPE ZONE MATERIAL, WITH SELECT GRANULAR BACKFILL, MUST BE AUTHORIZED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT AND SHALL BE AS FOLLOWS:
 - WET AND UNSTABLE BASE UP TO THE PIPE INVERT - REPLACE PIPE BASE MATERIAL IN ITS ENTIRETY.
 - WET AND UNSTABLE BASE AND GROUNDWATER PRESENT UP TO HAUNCHES OF PIPE. REPLACE PIPE BASE MATERIAL IN ITS ENTIRETY AND THE PORTION OF THE PIPE ZONE MATERIAL UP TO THE PIPELINE'S SPRINGLINE.
 - WET AND UNSTABLE BASE AND GROUNDWATER PRESENT ABOVE PIPE SPRINGLINE. REPLACE PIPE BASE AND PIPE ZONE IN ITS ENTIRETY.
 - THE OWNER'S REPRESENTATIVE MAY, AT HIS DISCRETION, REQUIRE THE USE OF THE CLSM IN PLACE OF SELECT GRANULAR BACKFILL. PAYMENT FOR THE USE OF CLSM WILL BE MADE AT THE RATE SPECIFIED IN SECTION 01151.
- IN VERY POOR AND UNSTABLE SOIL CONDITIONS, OVER EXCAVATE BELOW PIPE BASE AND REPLACE WITH A MINIMUM OF 18" OF CRUSHED STONE MATERIAL, OR TO THE DEPTH NEEDED TO SECURE A STABLE BASE, IF DEEPER THAN 18", WHEN AUTHORIZED BY THE OWNER'S REPRESENTATIVE. PAYMENT FOR THIS WORK SHALL BE MADE AT THE RATE SPECIFIED IN SECTION 01151.
- PLACE CRUSHED STONE MATERIAL TO RESIST PIPE BUOYANCY IN HIGH GROUNDWATER CONDITIONS WHEN SPECIFICALLY AUTHORIZED BY THE OWNER'S REPRESENTATIVE. PAYMENT FOR THIS WORK SHALL BE MADE AT THE UNIT PRICE STATED IN THE BID SCHEDULE.
- PAYMENT FOR CLASS A MATERIAL EXCAVATION, WHEN AUTHORIZED BY THE OWNER'S REPRESENTATIVE, SHALL BE FOR THE QUANTITY REMOVED FROM THE TRENCH CROSS-SECTION SHOWN IN DETAIL 2. PAYMENT FOR THIS WORK SHALL BE MADE AT THE RATE SPECIFIED IN SECTION 01151.
- NO JETTING SHALL BE ALLOWED.
- STRIP ALL TOPSOIL UP TO A DEPTH OF 12 INCHES (OR TO THE DEPTH STIPULATED IN THE EASEMENT DOCUMENTS IF GREATER) ACROSS THE ENTIRE CONSTRUCTION ZONE INCLUDING ALL EXCAVATION, FILL, TEMPORARY FILL, ACCESS AREAS, LAYDOWN AREAS, AND SOIL STORAGE AREAS. TOPSOIL SHALL BE STORED, PROTECTED AGAINST WEEDS, PROCESSED TO REMOVE ROCKS GREATER THAN 3 INCHES AND THEN REPLACED IN KIND AFTER EXCAVATION, BACKFILL AND FILL ACTIVITIES HAVE BEEN COMPLETED.
- NO ROCKS GREATER THAN 6 INCHES SHALL BE RETURNED AS BACKFILL IN THE BEDDING ZONE, PIPE ZONE, OR TRENCH ZONE. DISPOSE OF ROCKS GREATER THAN 6 INCHES IN GREATEST DIMENSION OFF-SITE.

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 PLOT DATE: Friday, February 9, 2024 12:41:13 PM



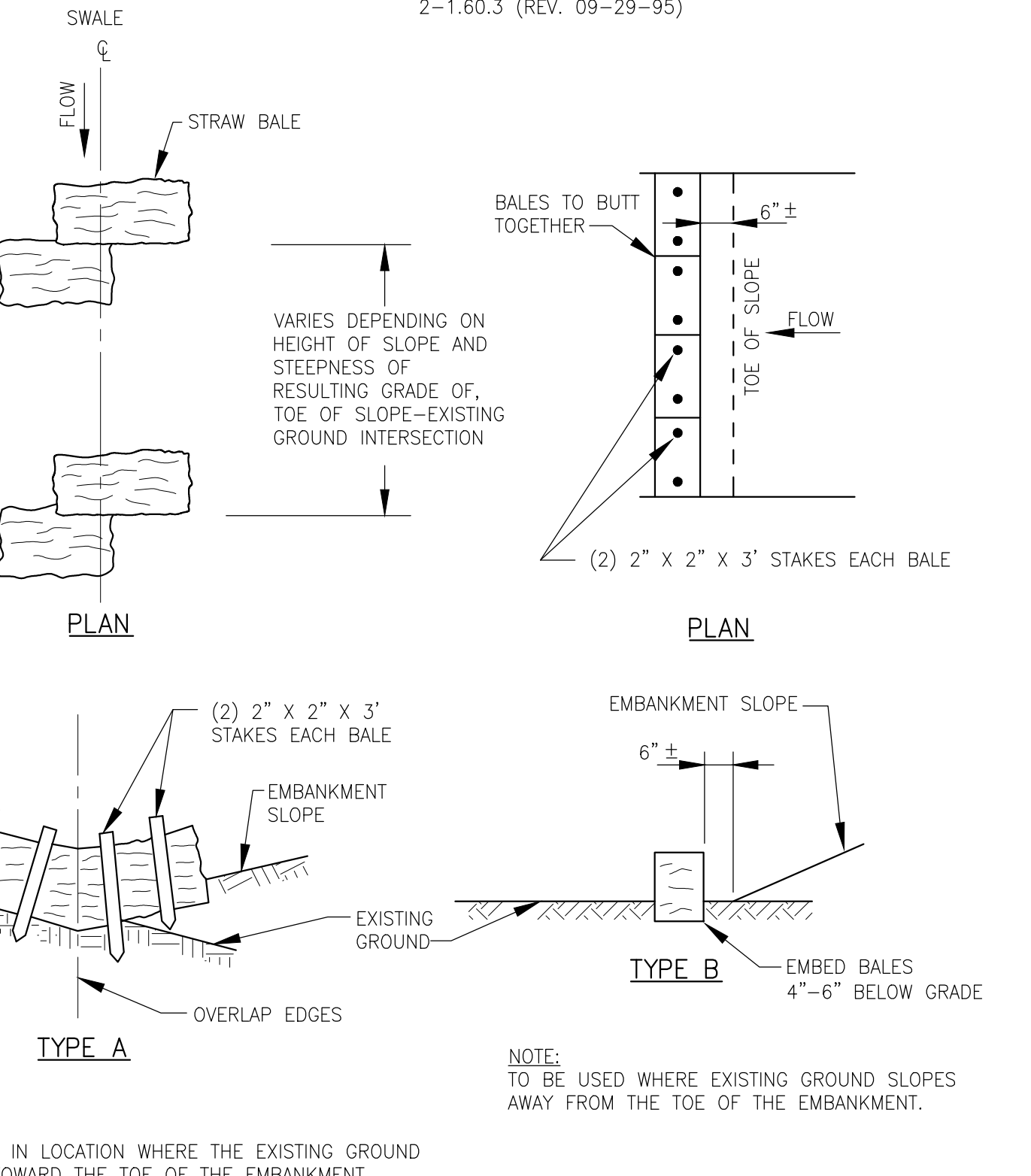
I/R	DATE	DESCRIPTION

60662775



SILT FENCE

NTS
 2-1.60.3 (REV. 09-29-95)

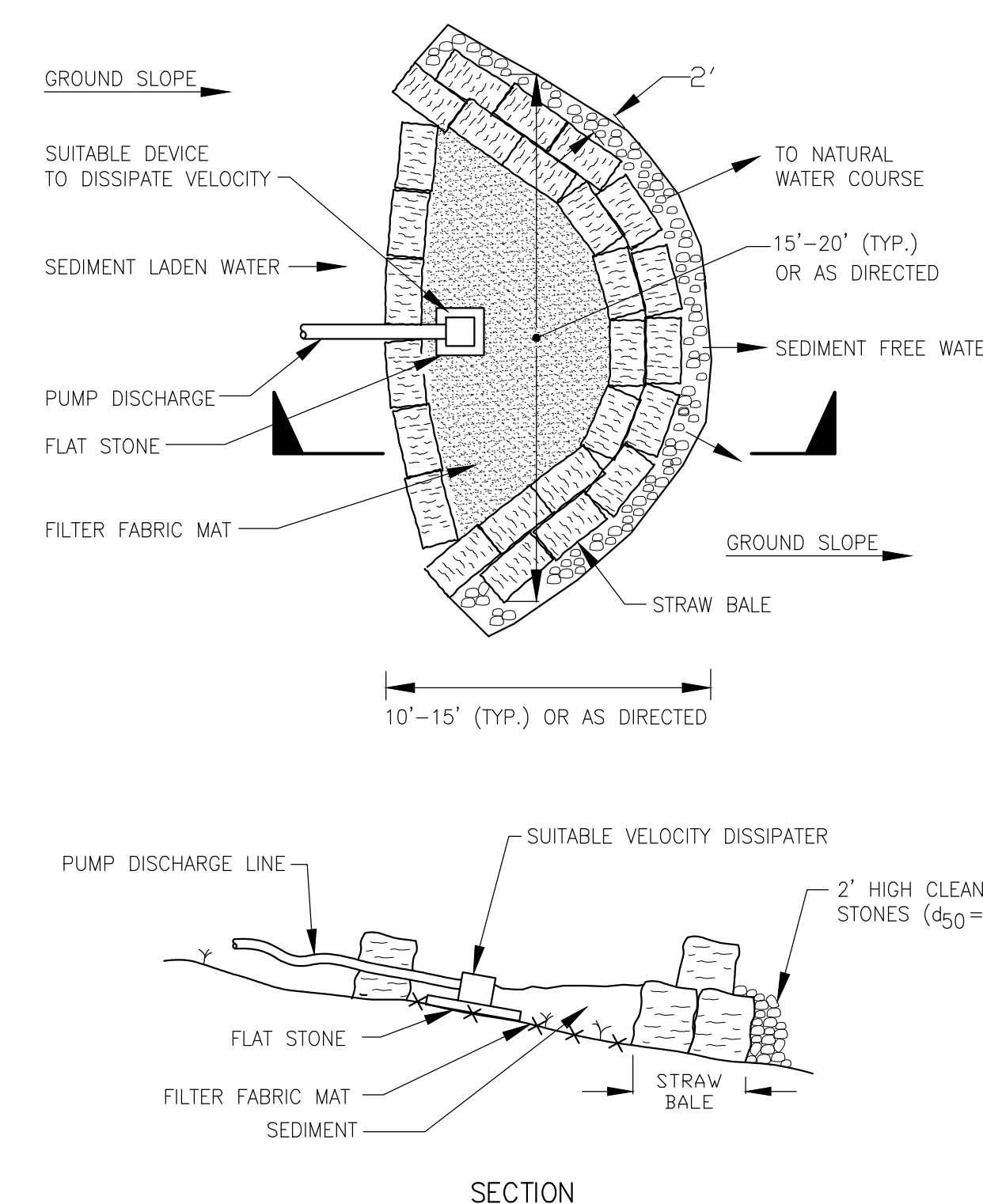


STRAW BALE EROSION CONTROL

NTS
 2-1.60.4 (REV. 09-29-95)

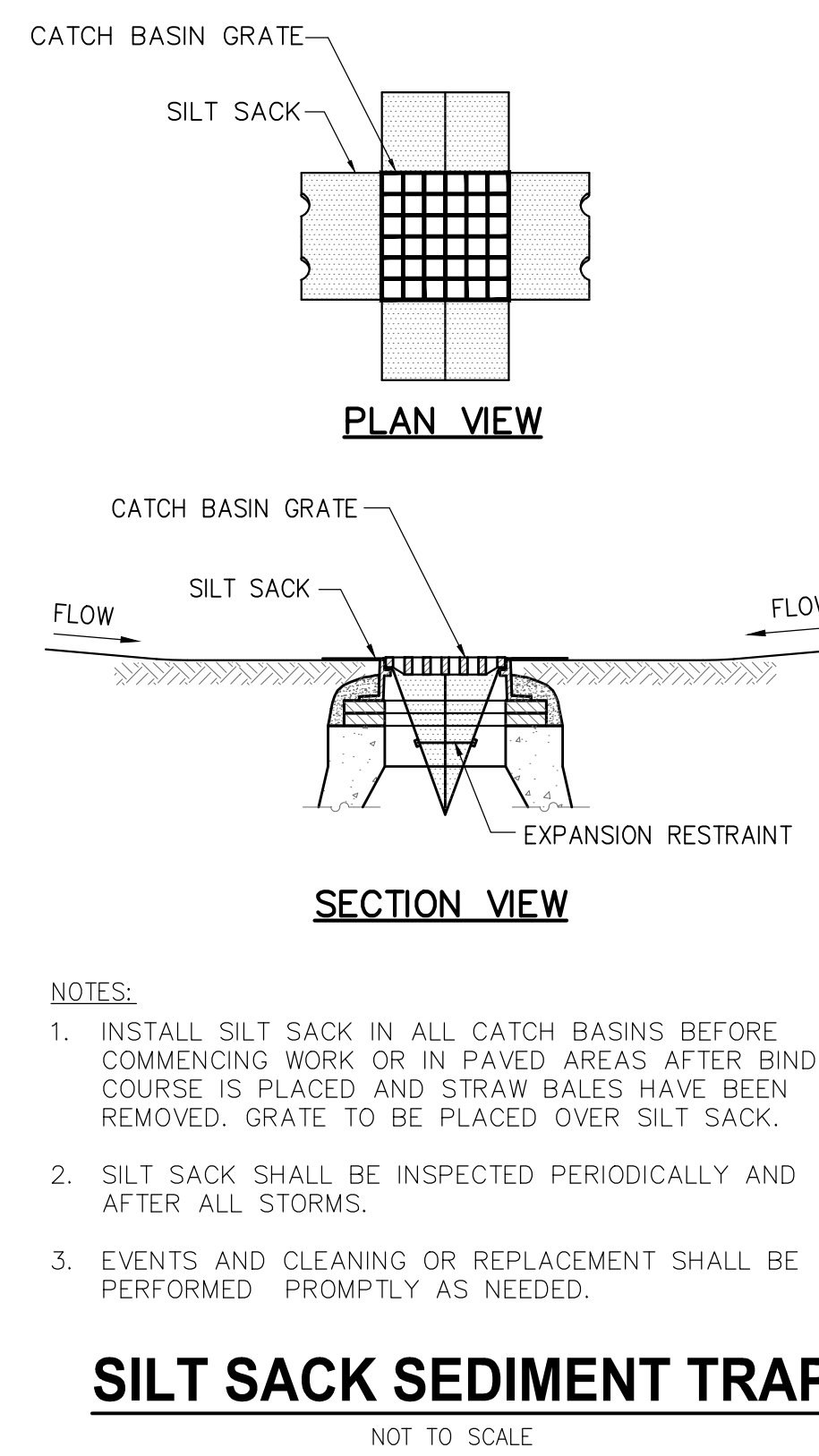
GENERAL NOTES FOR THIS SHEET:

- REFER TO SPECIFICATION SECTION 01110 – ENVIRONMENTAL PROTECTION PROCEDURES.
- REFER TO SPECIFICATION SECTION 01568 – EROSION CONTROL, SEDIMENTATION AND CONTAINMENT OF CONSTRUCTION MATERIALS.
- REFER TO SPECIFICATION SECTION 02140 – DEWATERING.



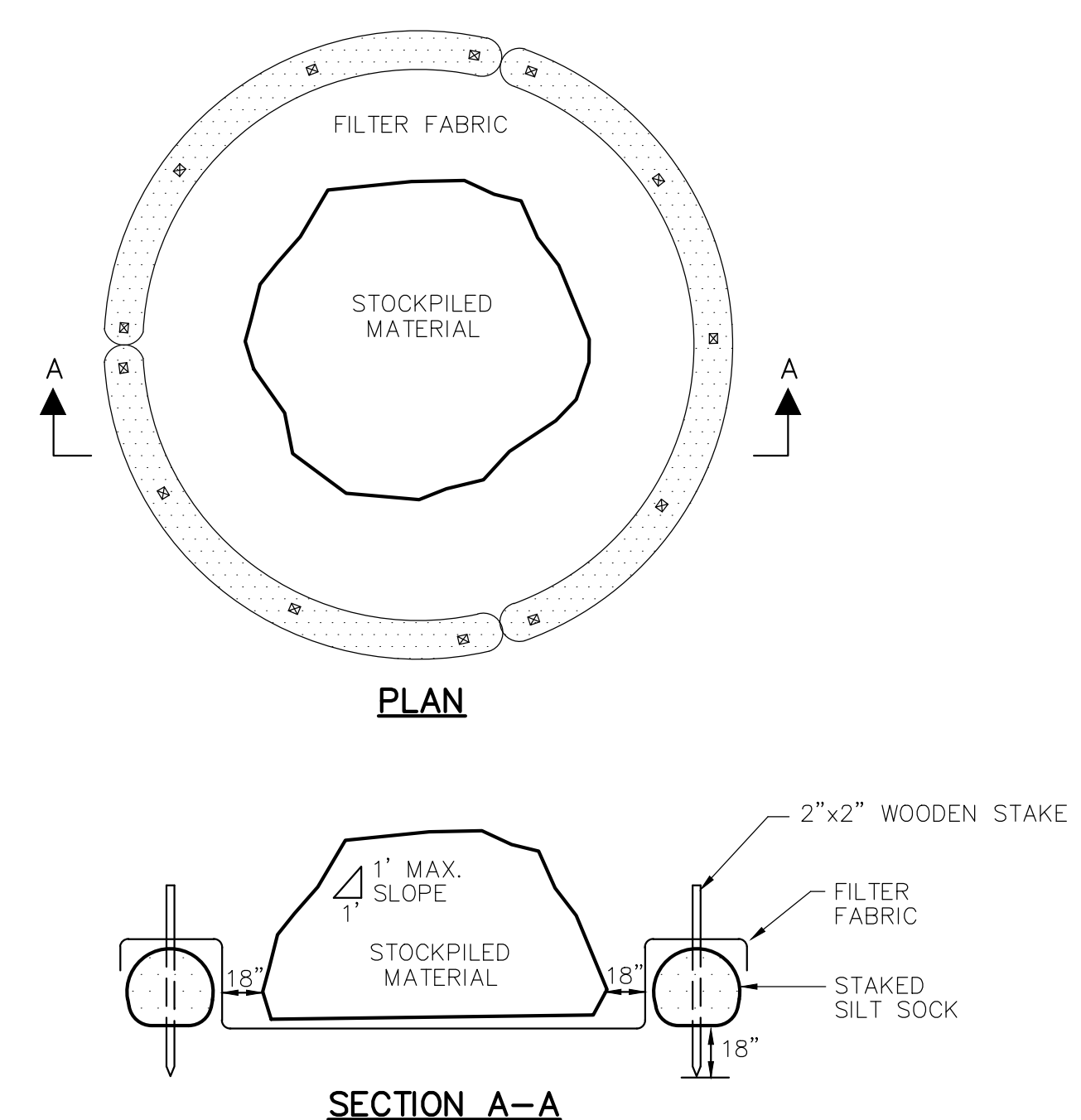
SEDIMENT TRAP

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 2-1.60.2 (REV. 09-29-95)



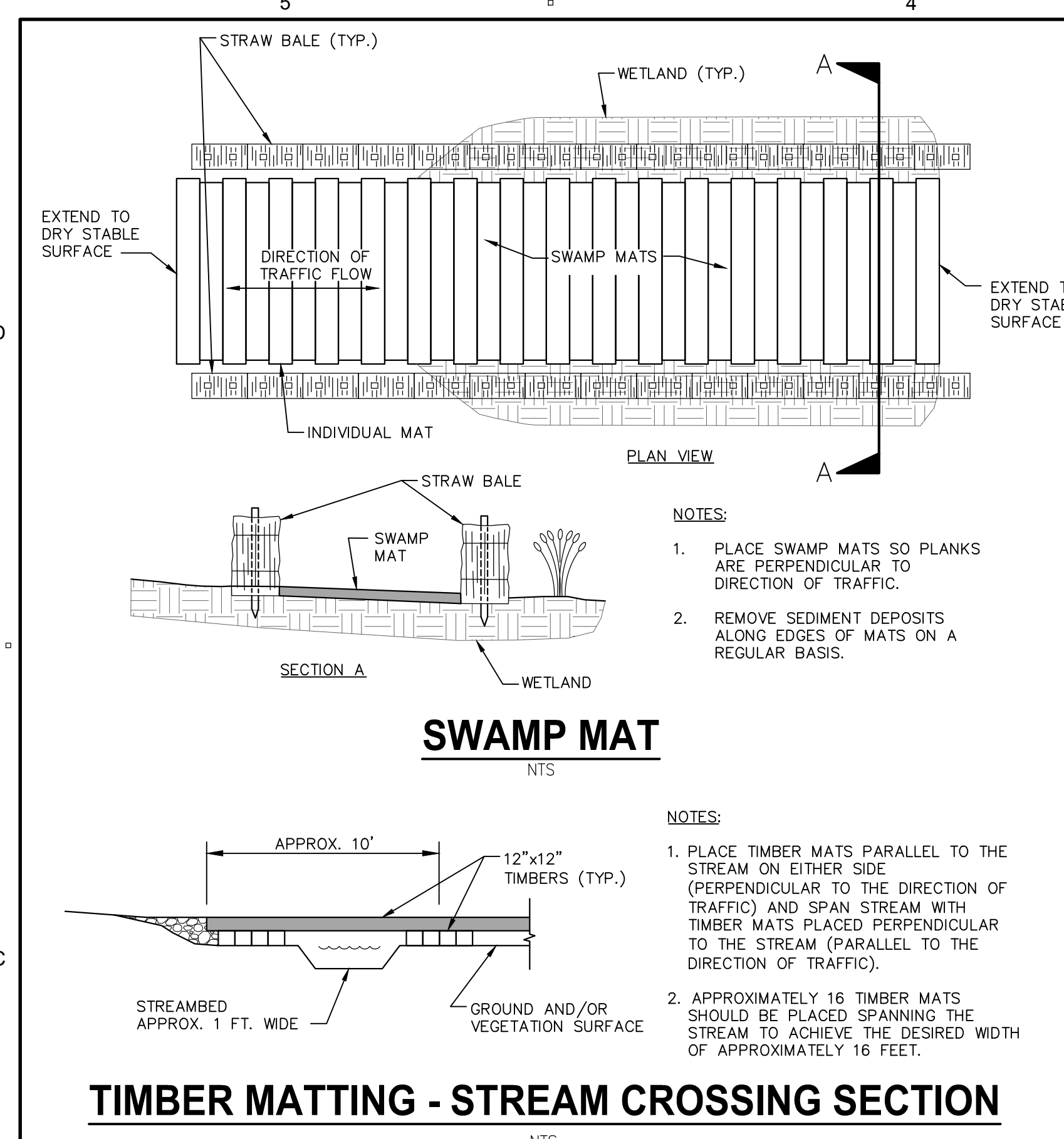
SILT SACK SEDIMENT TRAP

NOT TO SCALE



PLAN OF TEMPORARY STOCKPILE AREA

NOT TO SCALE



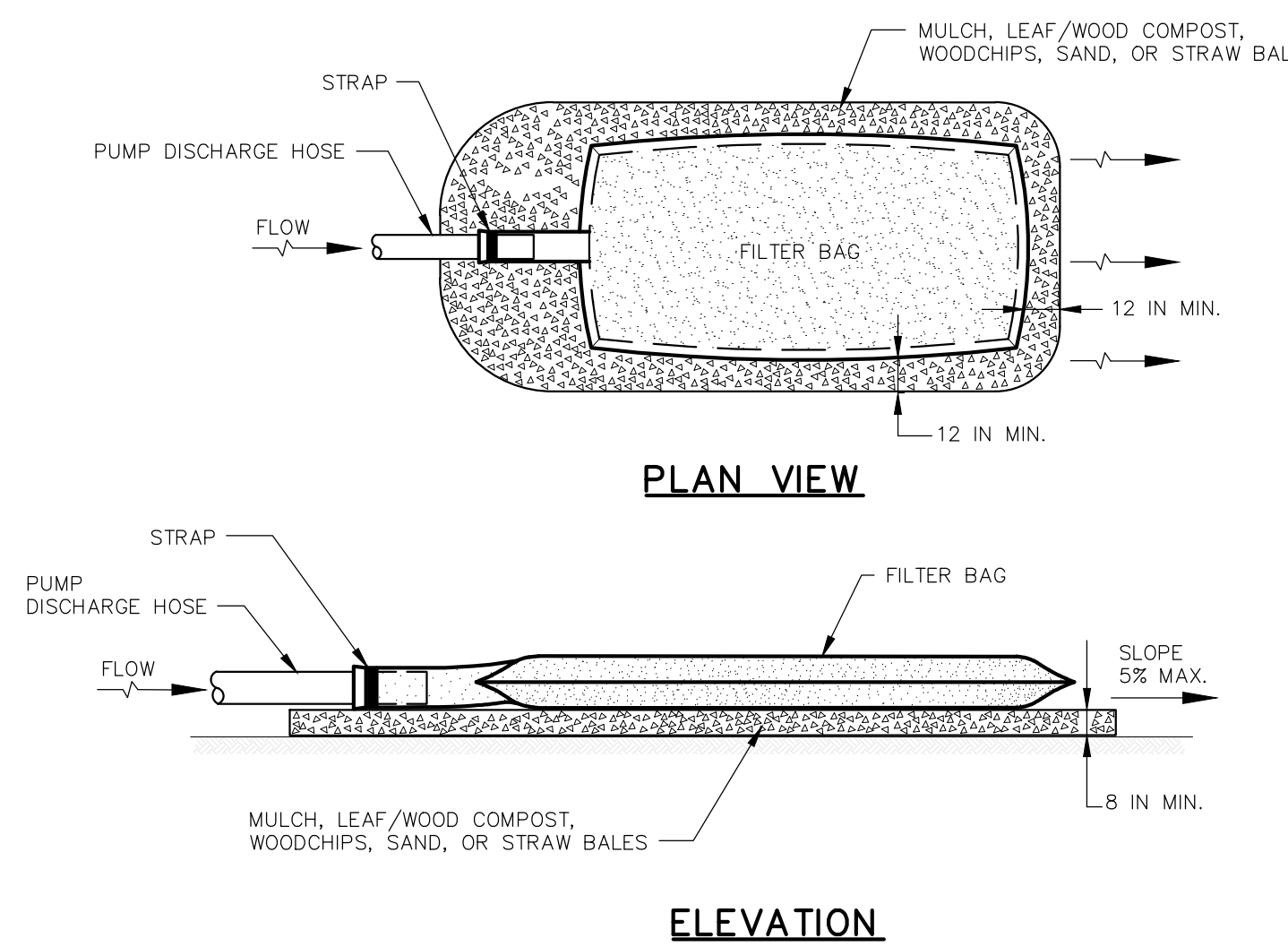
SWAMP MAT

NTS



TIMBER MATTING - STREAM CROSSING SECTION

NTS



SEDIMENTATION FILTER BAG

NOT TO SCALE

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 LAST UPDATE: Wednesday, January 17, 2024 1:05:00 PM
 PLOT DATE: Friday, February 9, 2024 1:05:47 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
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CONSULTANTS

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Designed By: **MCW**

Drawn By: **JES**

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Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

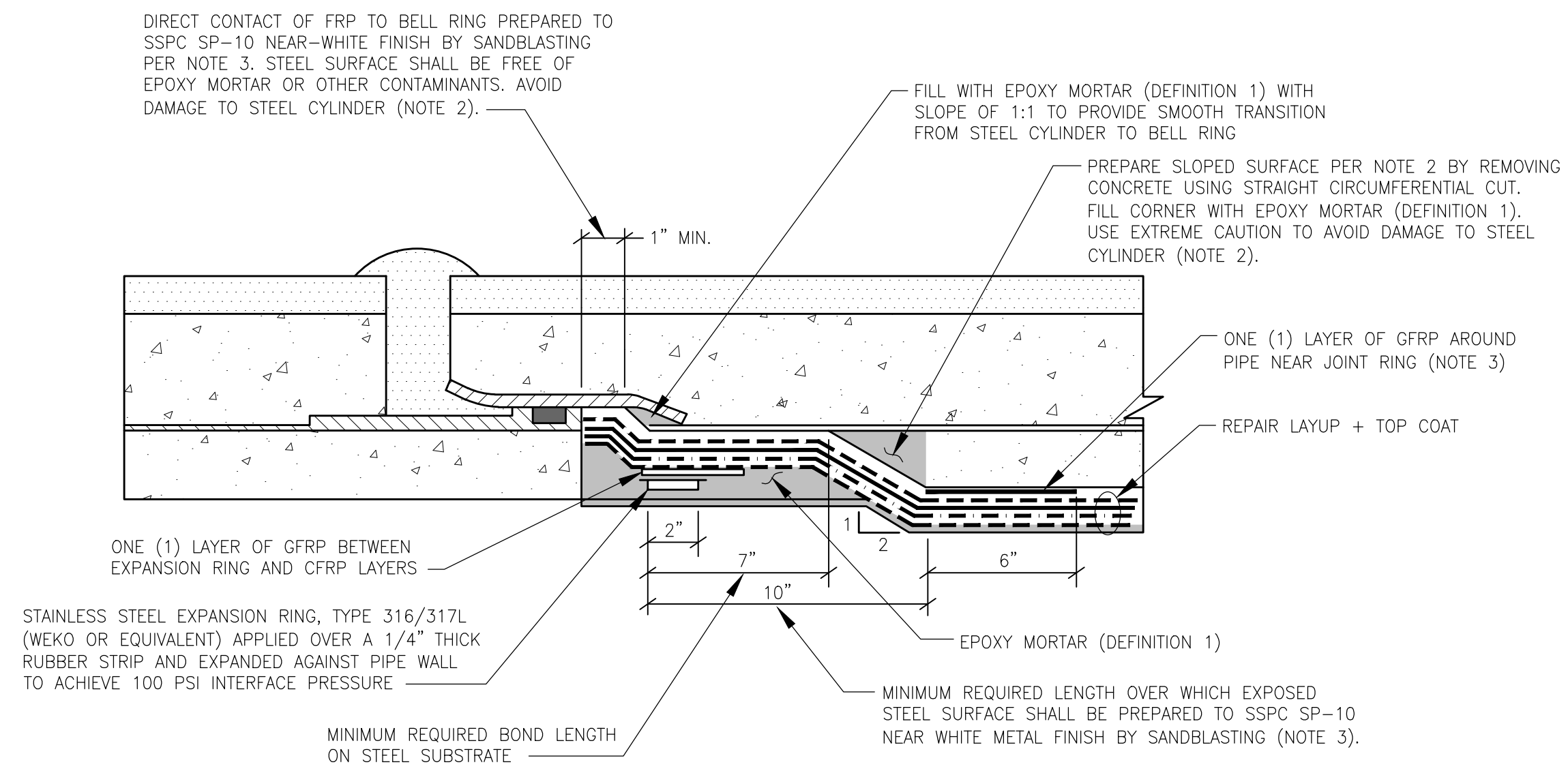
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DISCIPLINE

CIVIL SHEET TITLE

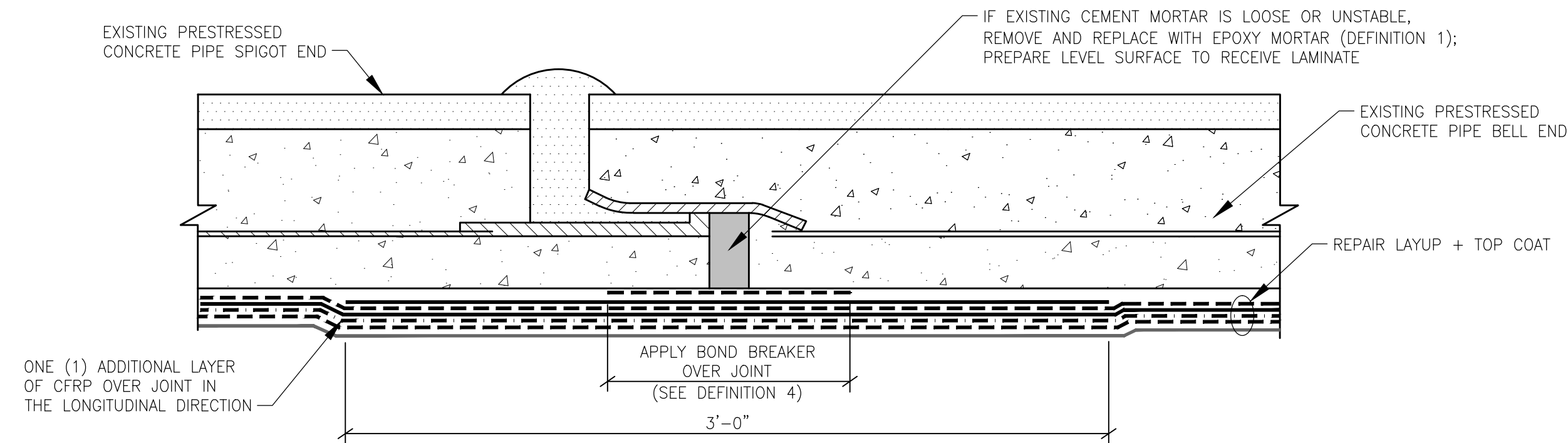
**CIVIL DETAILS XIII
 AWWA TYPE IV STRUCT.
 LINER DETAILS II
 SHEET NUMBER**

99 C-513



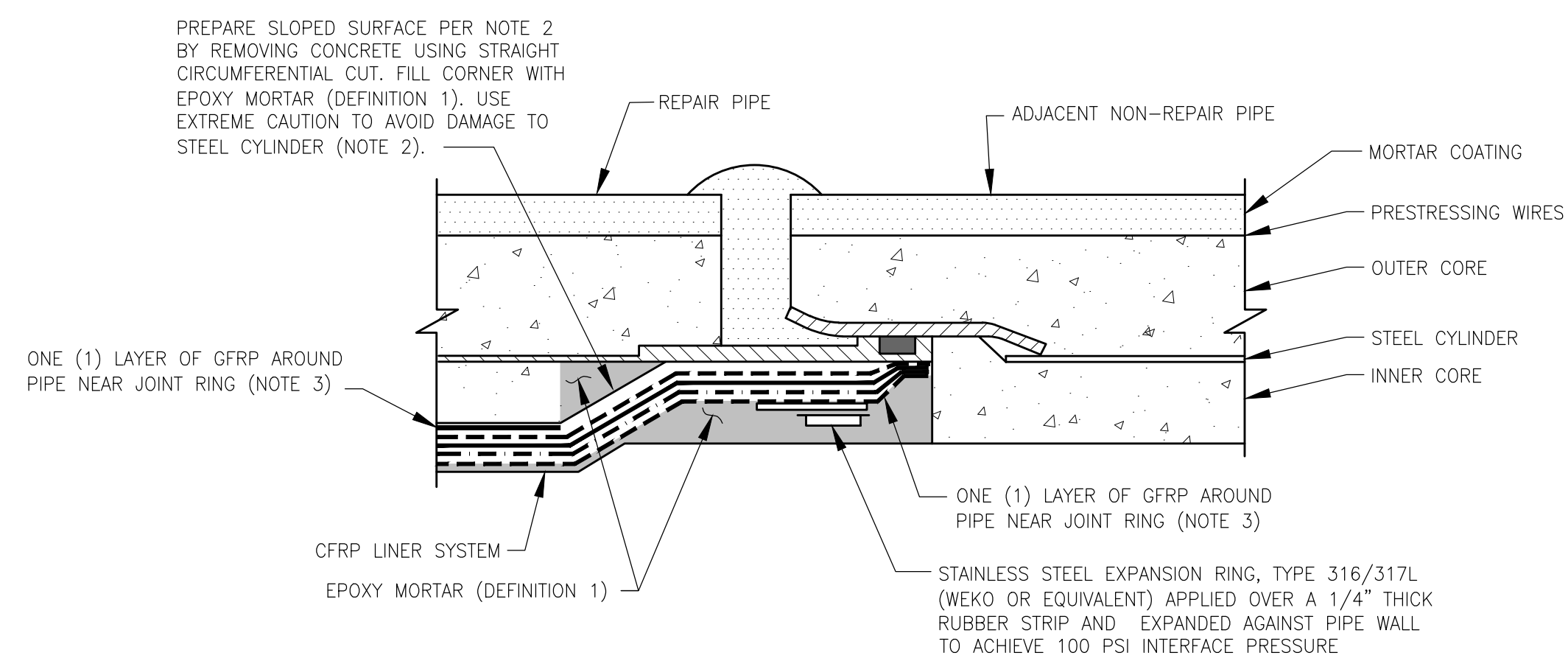
REPAIR DETAIL AT BELL END ADJACENT TO PCCP (C)

NTS



REPAIR DETAIL AT INTERMEDIATE JOINTS (D)

NTS



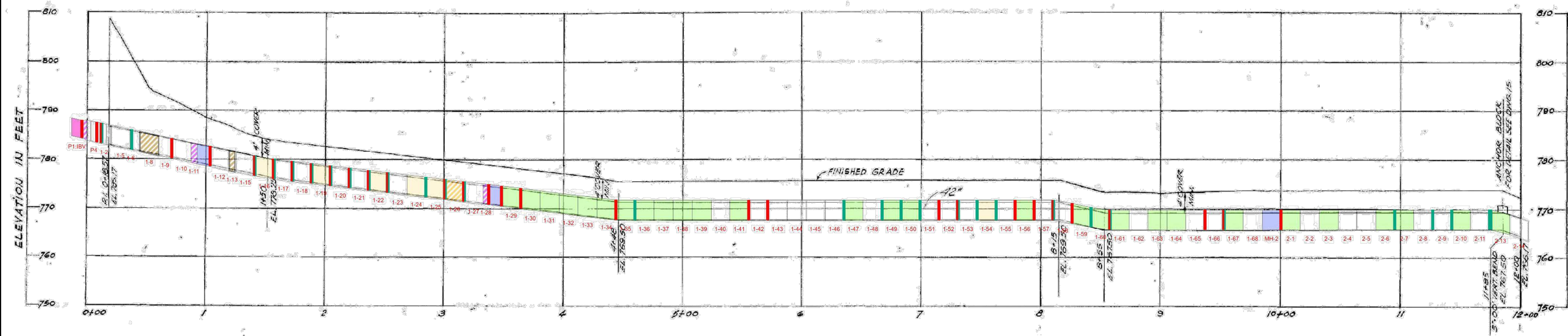
REPAIR DETAIL AT SPIGOT END ADJACENT TO PCCP (E)

NTS

NOTES:

- FOR AWWA TYPE IV STRUCTURAL LINER (CFRP) NOTES, SEE SHEET 99 C-512.

PATH: L:\DCS\PROJECTS\WTR6062775_SWGS_WF_HYDRO_ELECT_PDR\99_CAD_GS\910_CAD\20-SHEETS\99 C-513.DWG
 LAST UPDATE: Wednesday, January 17, 2024 2:24:32 PM
 PLOT DATE: Friday, February 9, 2024 1:01:36 PM



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

- REPLACE
- CRACK REPAIR
- SEAL
- CFRP LINER
- CFRP LINER
- MULTIPLE REPAIRS
- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

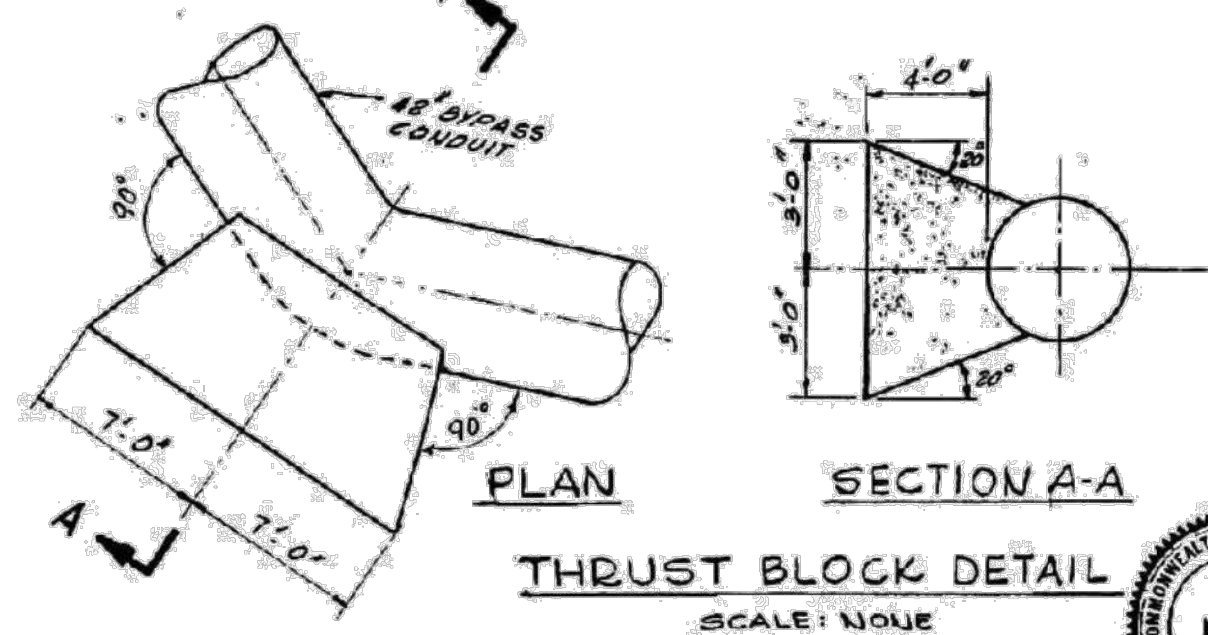
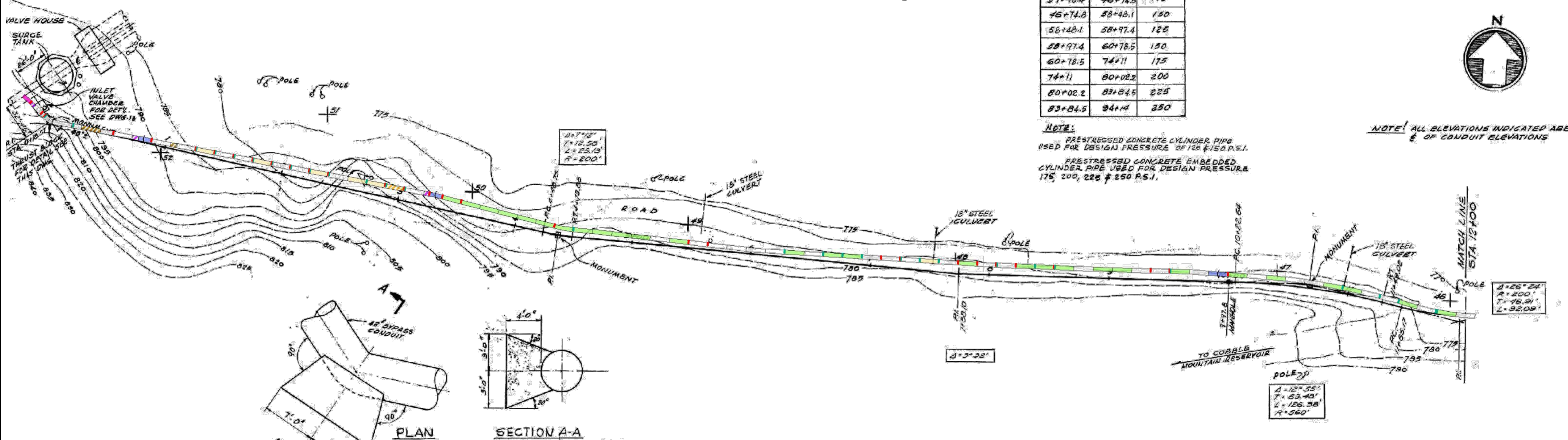
MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

PRESSURE CLASSES		
FROM STA.	TO STA.	DESIGN PRESS. P.S.I.
0+03.2	17+52.2	150
17+52.2	28+07.2	175
28+07.2	37+98.4	200
37+98.4	46+74.8	175
46+74.8	58+48.1	150
58+48.1	58+97.4	125
58+97.4	60+78.5	150
60+78.5	74+11	175
74+11	80+02.2	200
80+02.2	83+84.5	225
83+84.5	94+14	250

NOTE:
 PRESTRESSED CONCRETE CYLINDER PIPE USED FOR DESIGN PRESSURE OF 125 & 150 P.S.I.
 PRESTRESSED CONCRETE EMBEDDED CYLINDER PIPE USED FOR DESIGN PRESSURE 175, 200, 225 & 250 P.S.I.

NOTE! ALL ELEVATIONS INDICATED ARE OF CONDUIT ELEVATIONS



REGISTRATION



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Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL

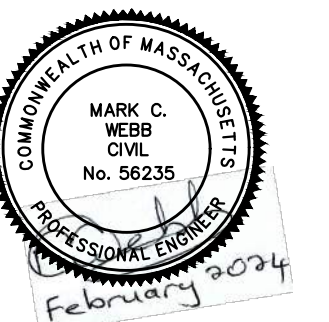
SHEET TITLE

CONTRACT 44: RECORD
 DRAWING No. 5 - 42" BYPASS
 CONDUIT - PLAN & PROFILE
 STA. 0+18.57 TO 12+00
 SHEET NUMBER

99 C-514

ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

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ISSUE/REVISION

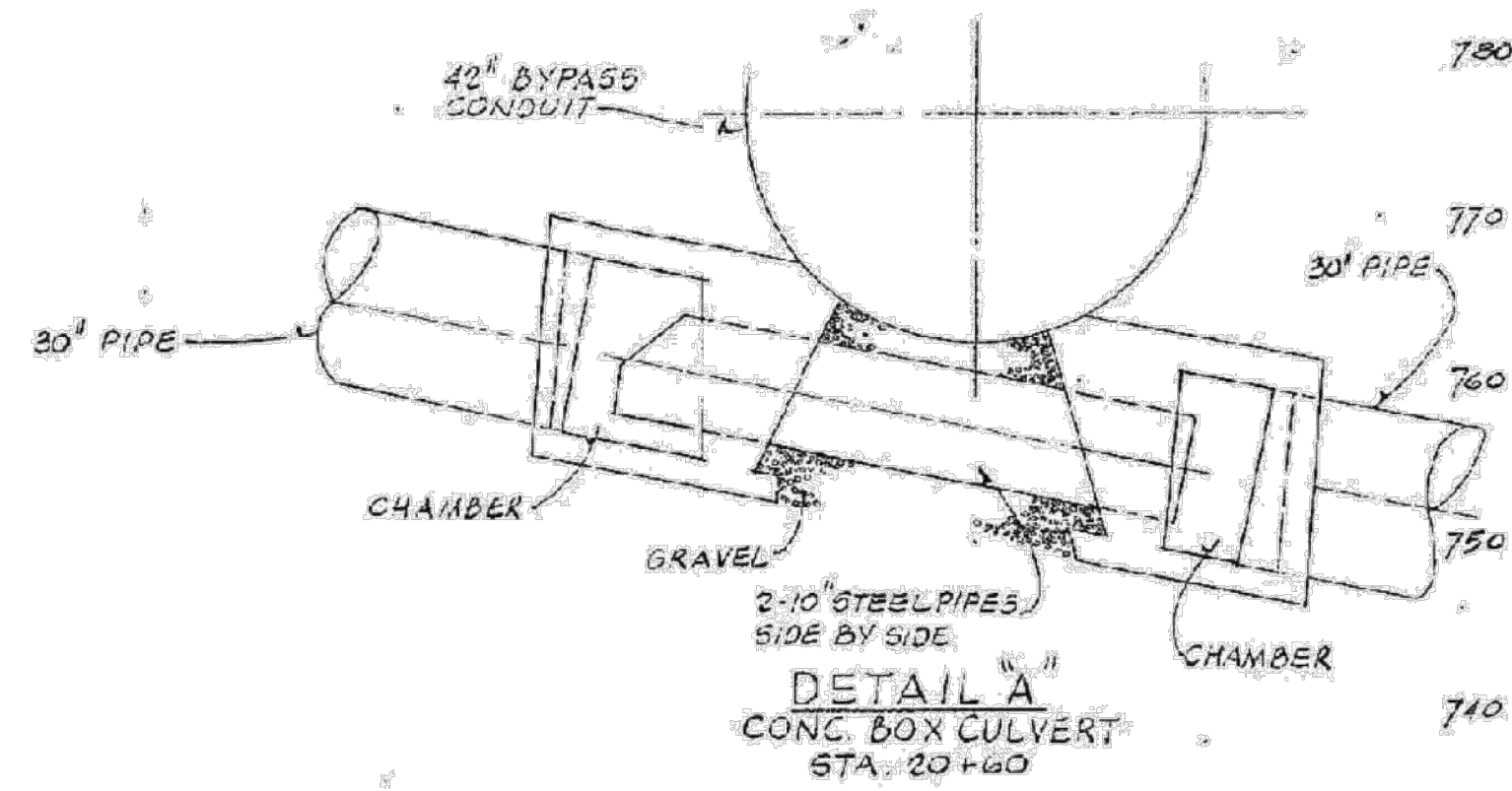
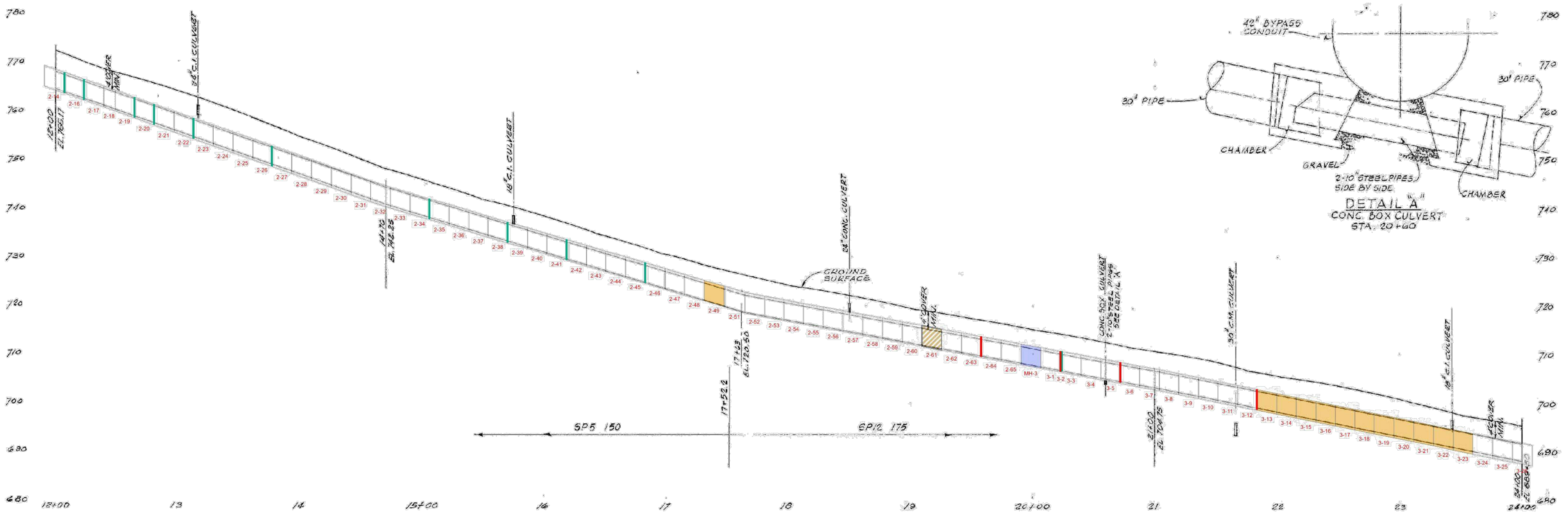
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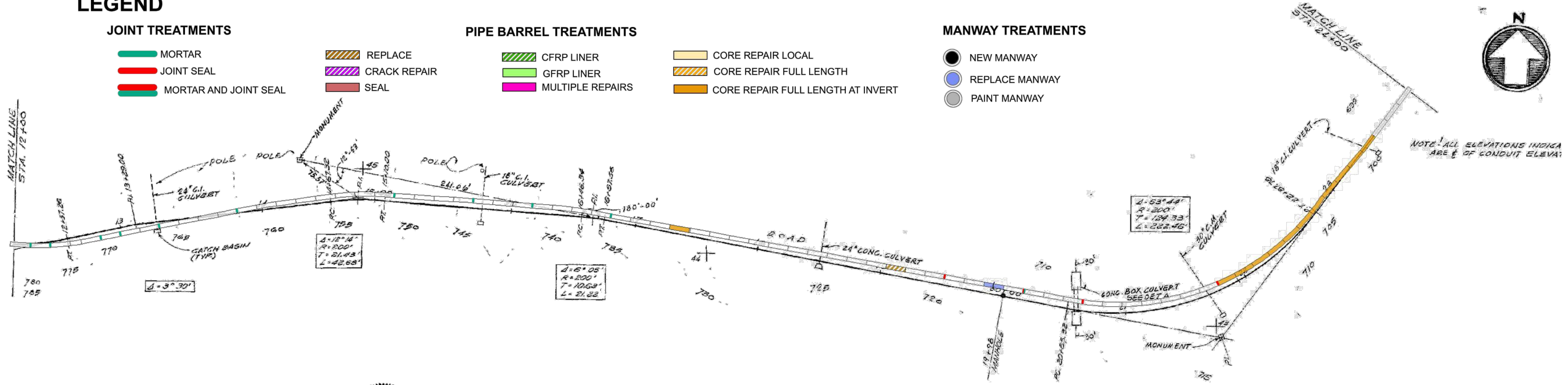
DISCIPLINE
 CIVIL

SHEET TITLE
 CONTRACT 44: RECORD DRAWING No. 6 - 42" BYPASS CONDUIT - PLAN & PROFILE STA. 12+00 TO 24+00
SHEET NUMBER
 99 C-515



LEGEND

- | | | |
|-------------------------|-----------------------------------|--------------------------|
| JOINT TREATMENTS | PIPE BARREL TREATMENTS | MANWAY TREATMENTS |
| MORTAR | REPLACE | NEW MANWAY |
| JOINT SEAL | CRACK REPAIR | REPLACE MANWAY |
| MORTAR AND JOINT SEAL | SEAL | PAINT MANWAY |
| | CFRP LINER | |
| | GFRP LINER | |
| | MULTIPLE REPAIRS | |
| | CORE REPAIR LOCAL | |
| | CORE REPAIR FULL LENGTH | |
| | CORE REPAIR FULL LENGTH AT INVERT | |



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

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 LAST UPDATE: Wednesday, January 17, 2024 1:31:17 PM
 PLOT DATE: Friday, February 9, 2024 12:56:42 PM

PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
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CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

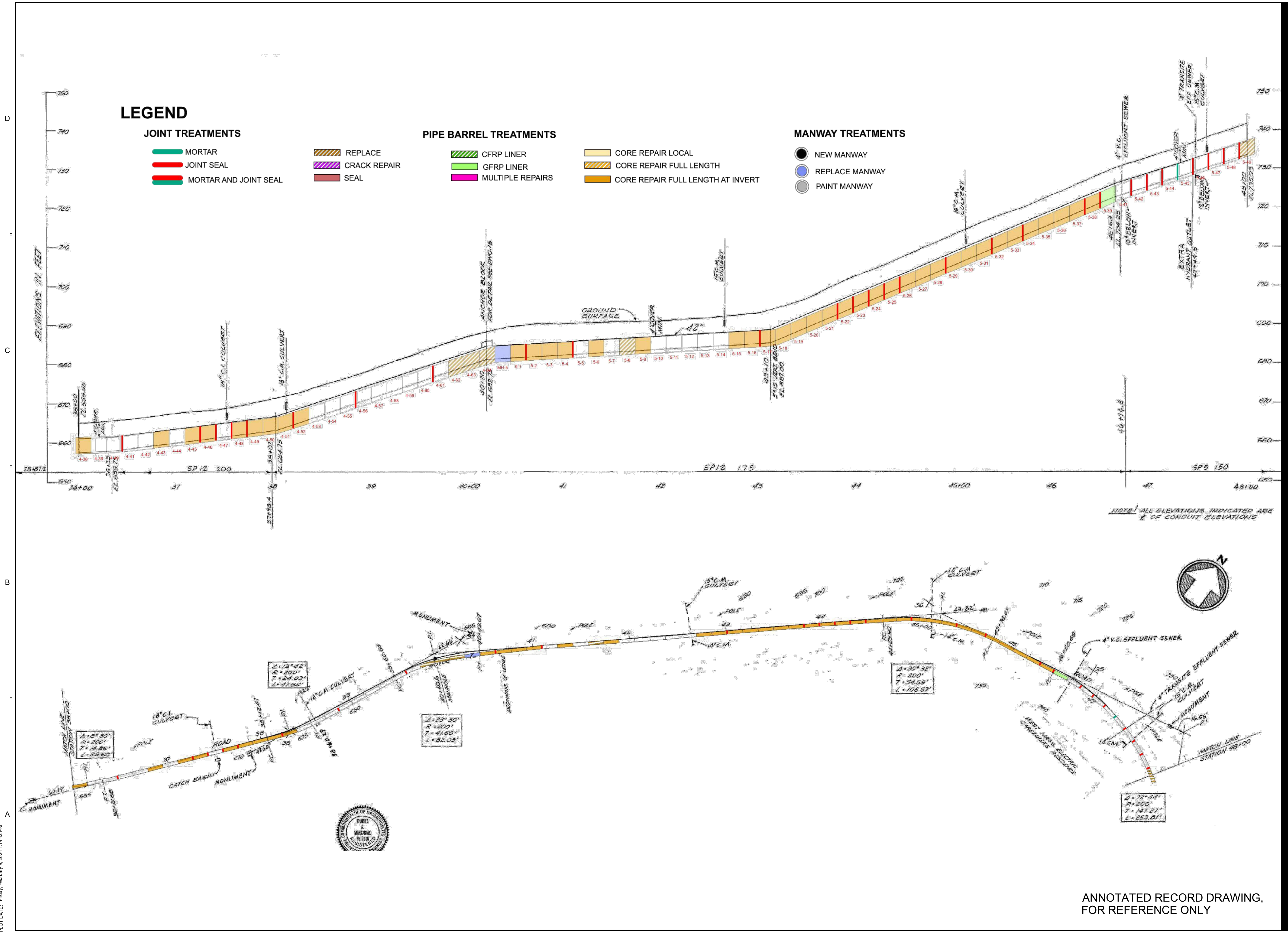
PROJECT NUMBER

60662775
 Designed By: **MCW**
 Drawn By: **JES**
 Dept Check: **CPB**
 Proj Check: **TAL/MCW**
 Date: **FEBRUARY 2024**
 Scale: **AS NOTED**

DISCIPLINE

CIVIL
SHEET TITLE
 CONTRACT 44: RECORD DRAWING No. 8 - 42" BYPASS CONDUIT - PLAN & PROFILE STA. 36+00 TO 48+00
 SHEET NUMBER

99 C-517



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

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 PLOT DATE: Friday, February 9, 2024, 11:42:42 AM

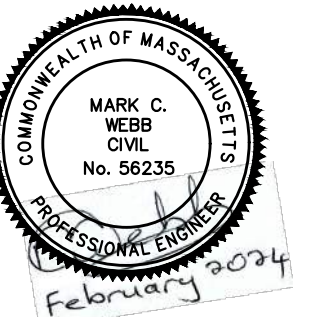
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
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CONSULTANTS

REGISTRATION



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PROJECT NUMBER

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Designed By: **MCW**

Drawn By: **JES**

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Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

Scale: **AS NOTED**

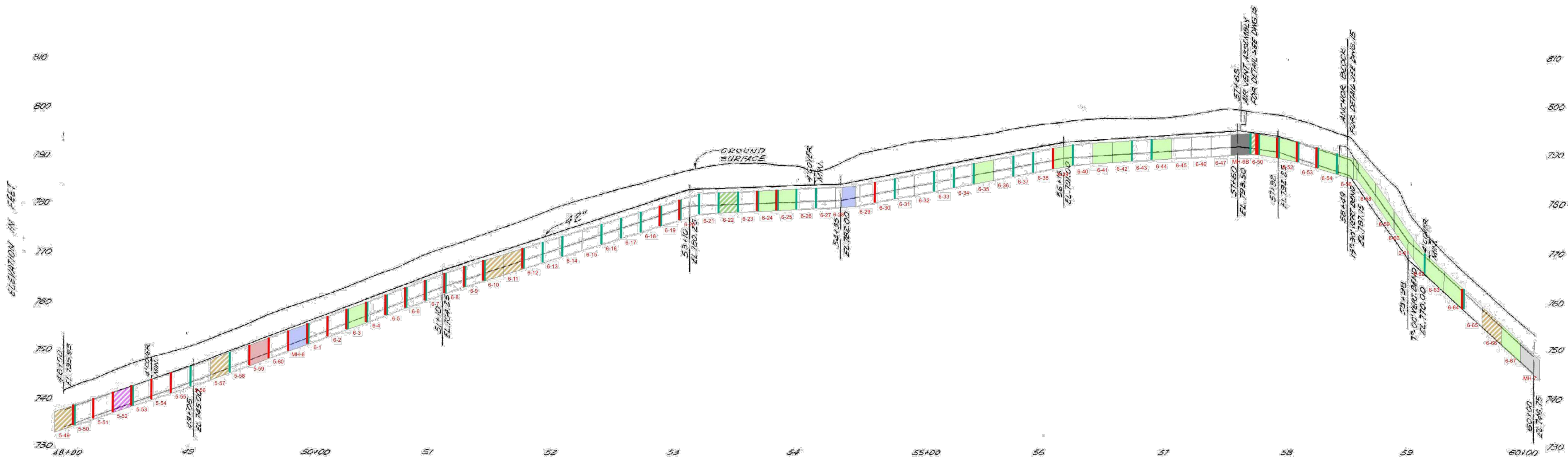
DISCIPLINE

CIVIL

SHEET TITLE

**CONTRACT 44: RECORD
 DRAWING No. 9 - 42" BYPASS
 CONDUIT - PLAN & PROFILE
 STA. 48+00 TO 60+00
 SHEET NUMBER**

99 C-518



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

- REPLACE
- CRACK REPAIR
- SEAL

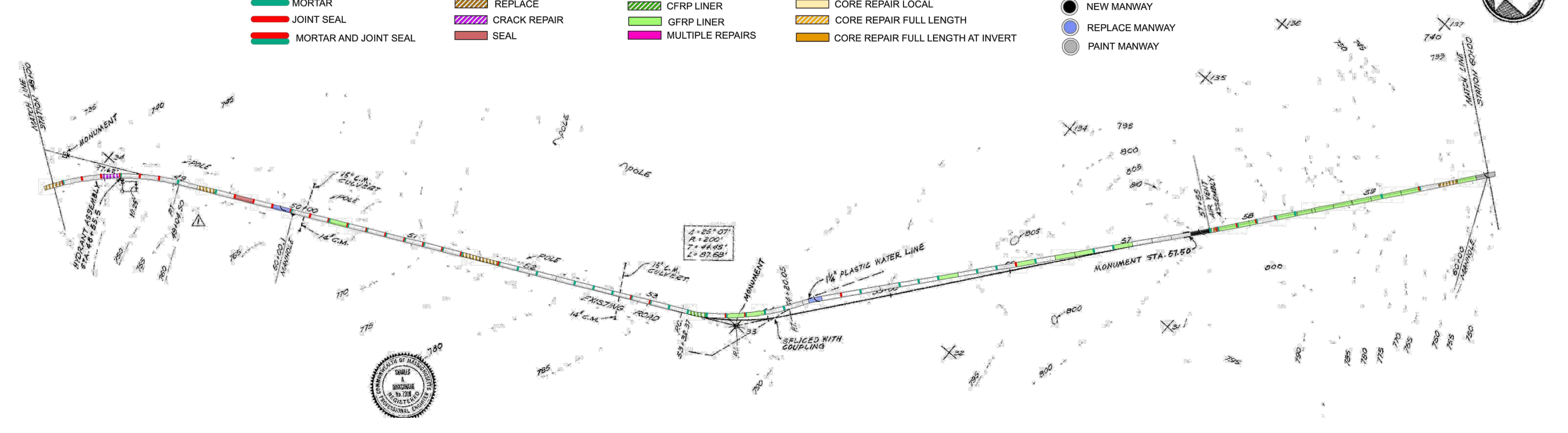
PIPE BARREL TREATMENTS

- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

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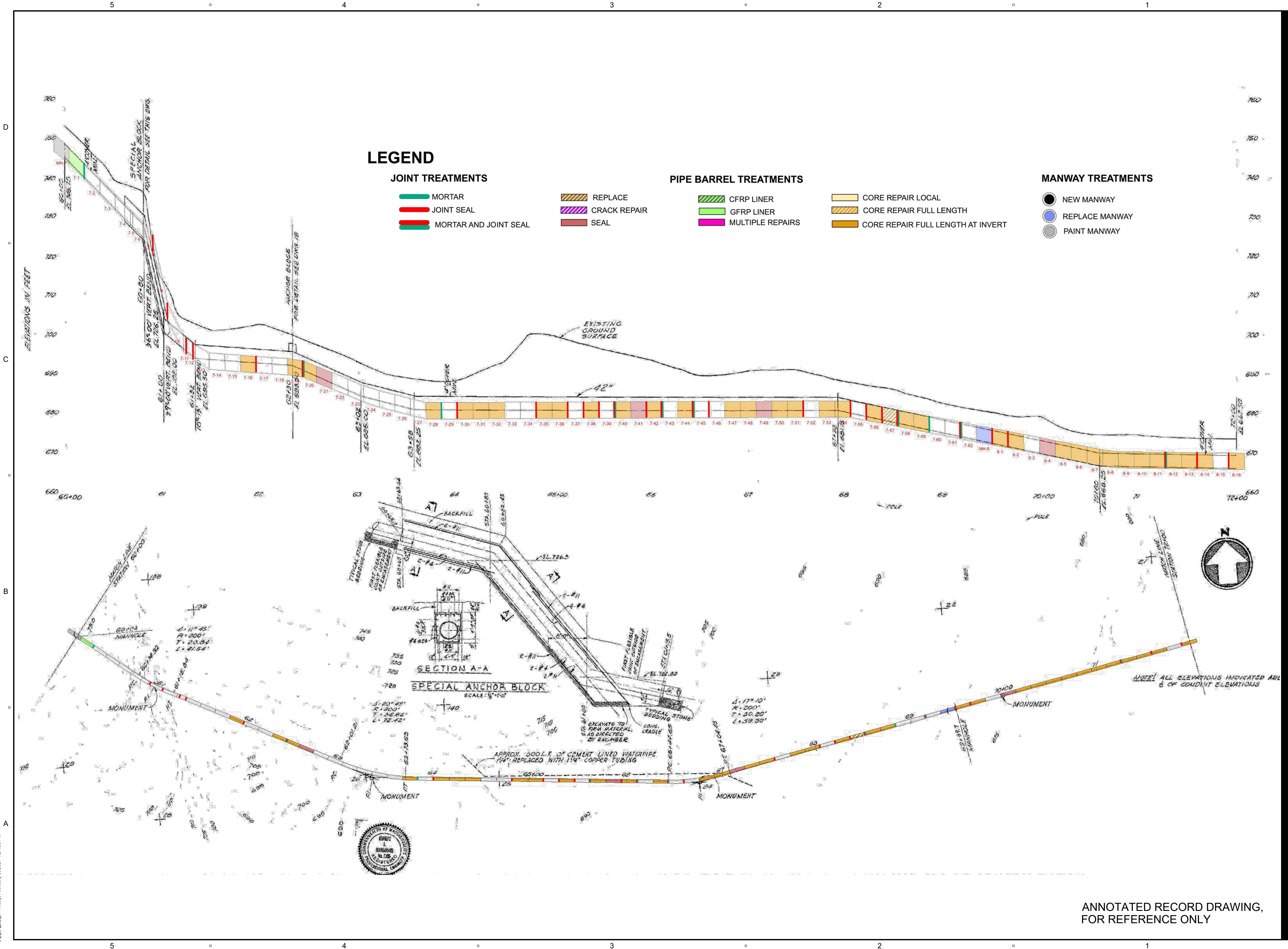
ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE
 CIVIL
SHEET TITLE
 CONTRACT 44: RECORD DRAWING No. 10 - 42" BYPASS CONDUIT - PLAN & PROFILE STA. 60+00 TO 72+00
SHEET NUMBER
 99 C-519



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

- REPLACE
- CRACK REPAIR
- SEAL

PIPE BARREL TREATMENTS

- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

ANNOTATED RECORD DRAWING,
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 LAST UPDATE: Wednesday, January 17, 2024 1:43:38 PM
 PLOT DATE: Friday, February 9, 2024 1:21:08 PM

PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
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CONSULTANTS

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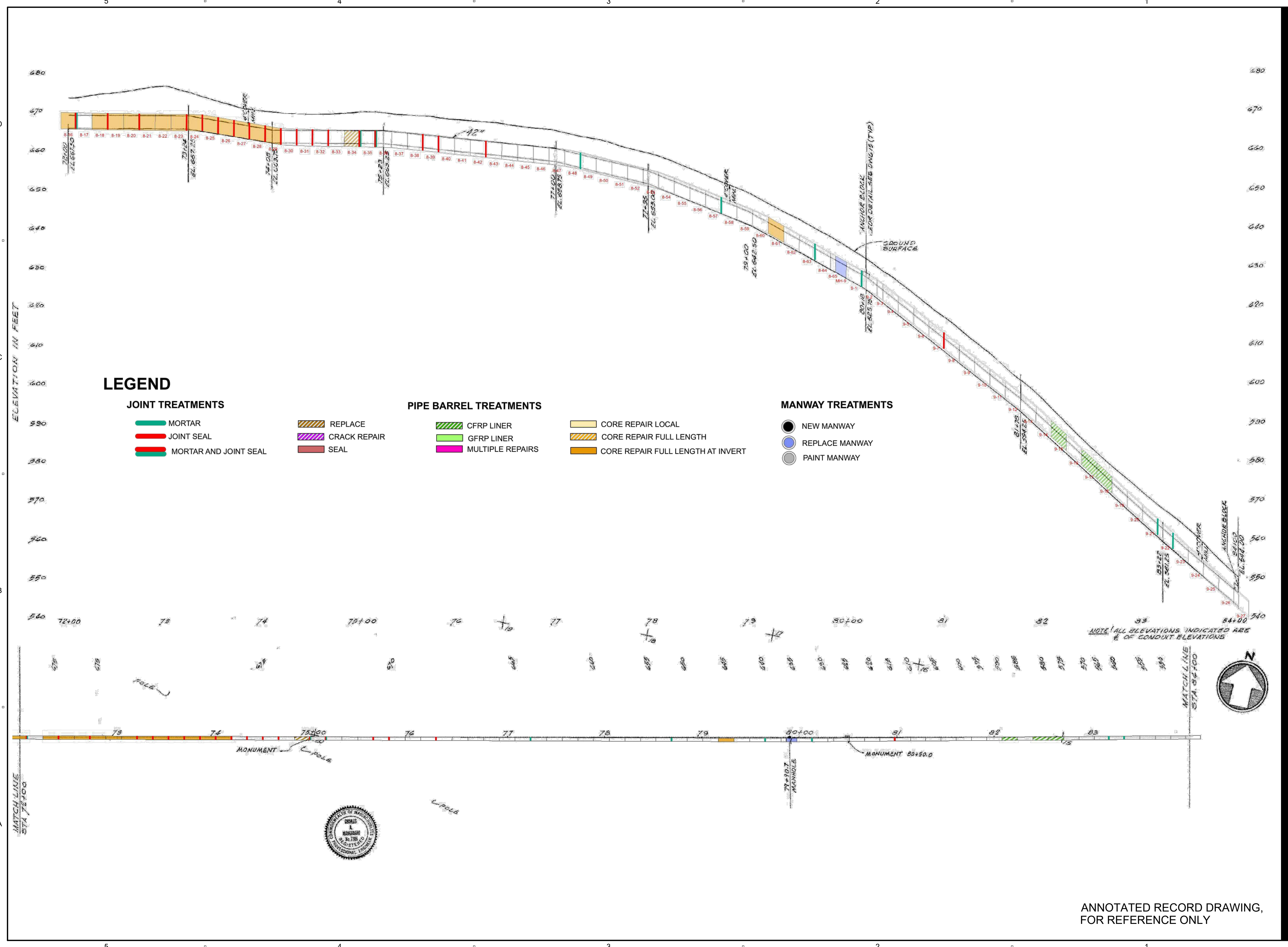
DISCIPLINE

CIVIL

SHEET TITLE

CONTRACT 44: RECORD DRAWING No. 11 - 42" BYPASS CONDUIT - PLAN & PROFILE STA. 72+00 TO 84+00
 SHEET NUMBER

99 C-520



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

PATH: L:\DCS\PROJECTS\WTR60662775_SWCS_WF_HYDRO_ELECT_PDR\60_CAD\020-SHEETS\099 C-520.DWG
 LAST UPDATE: Wednesday, January 17, 2024 1:49:54 PM
 PLOT DATE: Friday, February 9, 2024 12:53:22 PM

PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

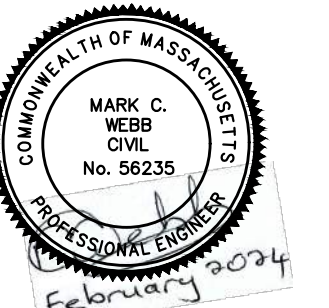
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Designed By: **MCW**

Drawn By: **JES**

Dept Check: **CPB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

Scale: **AS NOTED**

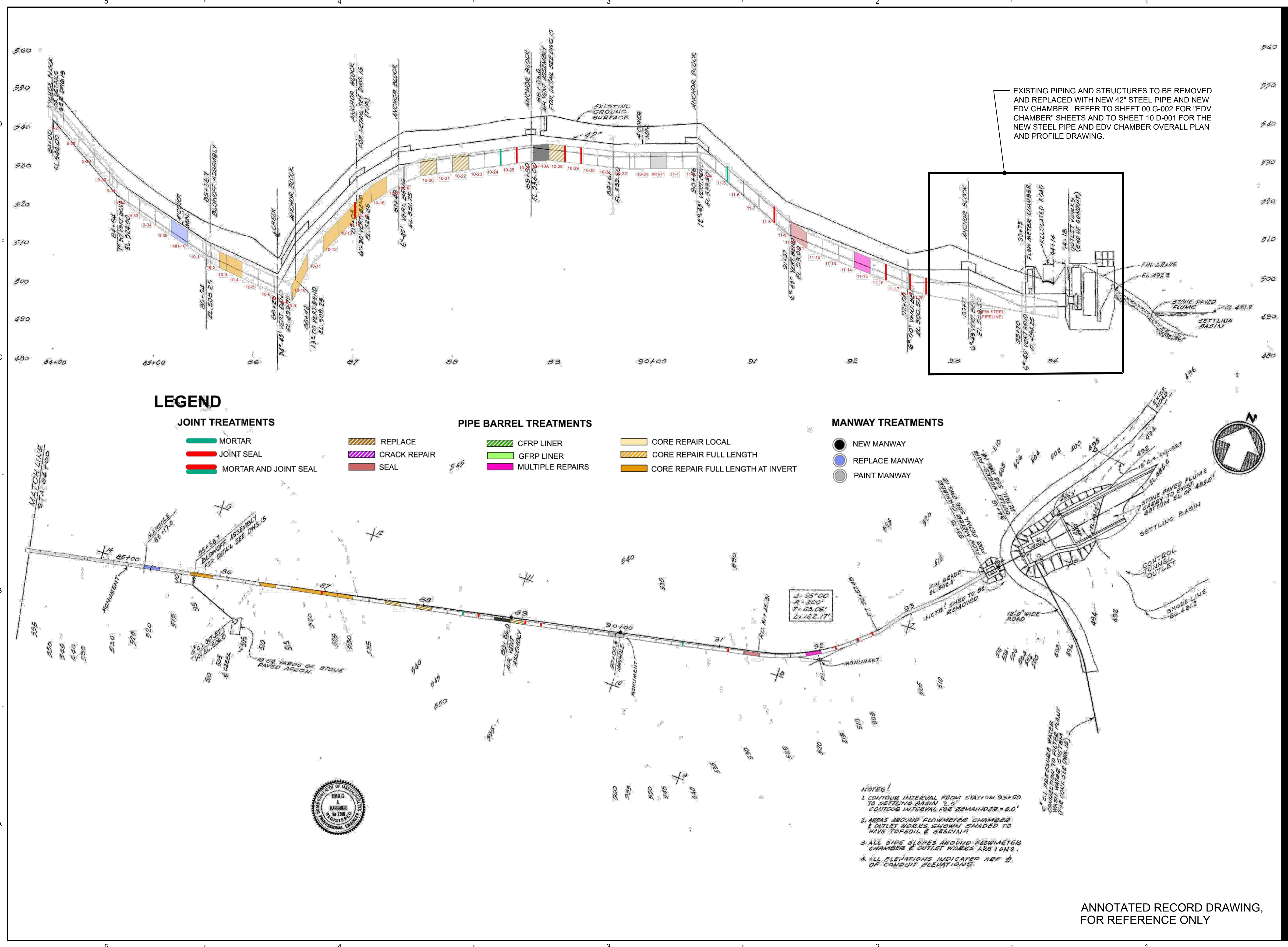
DISCIPLINE

CIVIL

SHEET TITLE

CONTRACT 44: RECORD DRAWING No. 12 - 42" BYPASS CONDUIT - PLAN & PROFILE STA. 84+00 TO 94+18 SHEET NUMBER

99 C-521



EXISTING PIPING AND STRUCTURES TO BE REMOVED AND REPLACED WITH NEW 42" STEEL PIPE AND NEW EDV CHAMBER. REFER TO SHEET 00 G-002 FOR "EDV CHAMBER" SHEETS AND TO SHEET 10 D-001 FOR THE NEW STEEL PIPE AND EDV CHAMBER OVERALL PLAN AND PROFILE DRAWING.

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

- REPLACE
- CRACK REPAIR
- SEAL

PIPE BARREL TREATMENTS

- CFRP LINER
- GFRP LINER
- MULTIPLE REPAIRS

- CORE REPAIR LOCAL
- CORE REPAIR FULL LENGTH
- CORE REPAIR FULL LENGTH AT INVERT

MANWAY TREATMENTS

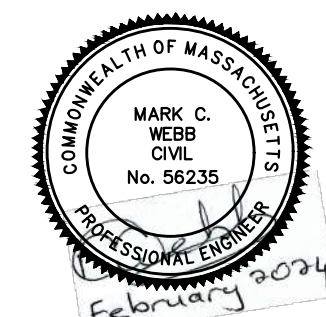
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

NOTES!

1. CONTOUR INTERVAL FROM STATION 93+50 TO SETTLING BASIN 2.0' CONTOUR INTERVAL FOR REMAINDER = 5.0'
2. AREAS AROUND FLOWMETER CHAMBER & OUTLET NOZZLES SHOWN SHADDED TO HAVE TOPSOIL & SEEDING.
3. ALL SIDE SLOPES AROUND FLOWMETER CHAMBER & OUTLET NOZZLES ARE 1 ON 1.
4. ALL ELEVATIONS INDICATED ARE @ OF CONDUIT ELEVATIONS.

ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

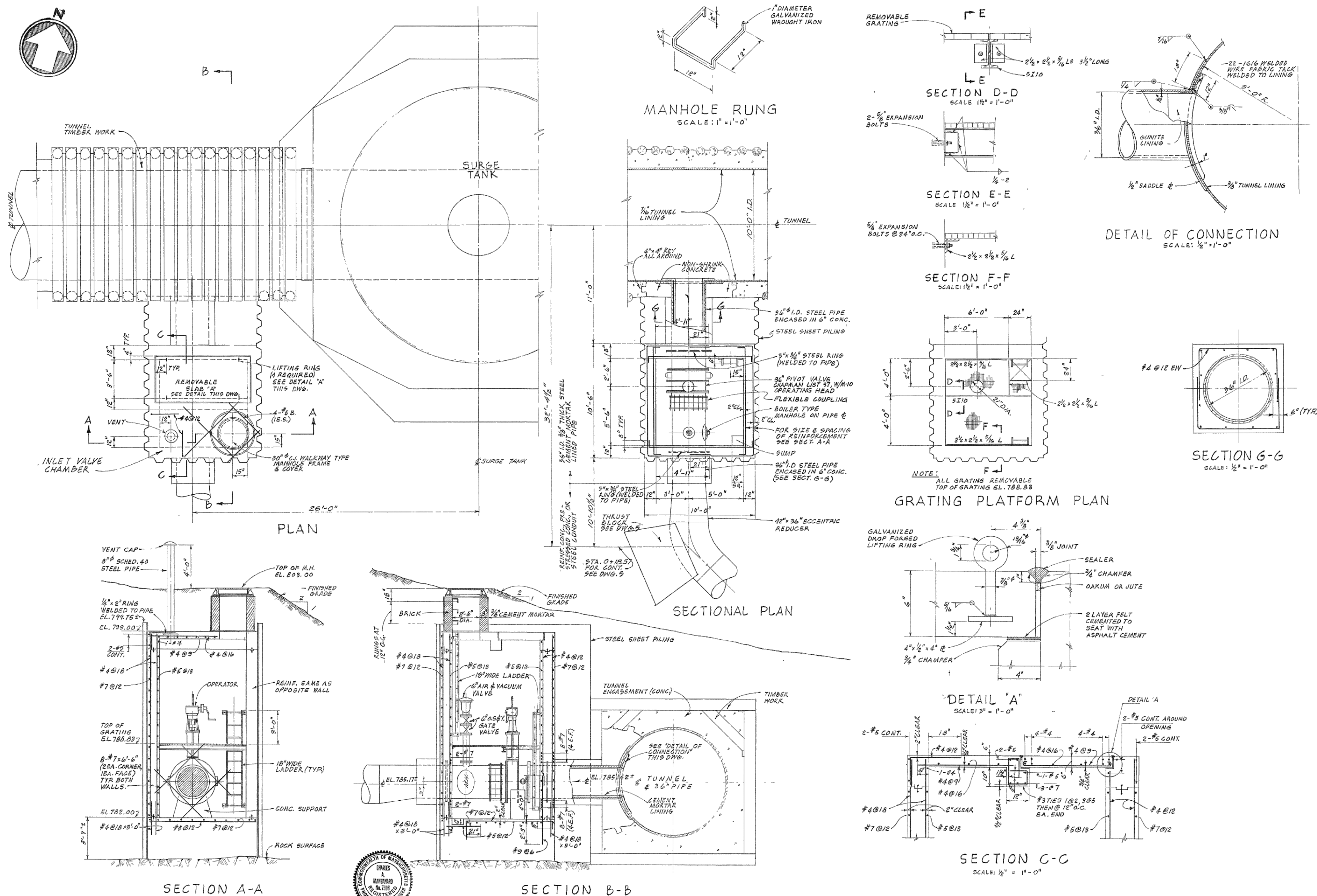
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 PLOT DATE: Friday, February 9, 2024 11:07:07 AM



I/R	DATE	DESCRIPTION

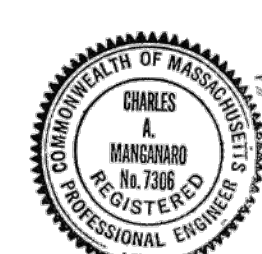
60662775

Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

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 LAST UPDATE: Wednesday, January 17, 2024 1:53:07 PM
 PLOT DATE: Friday, February 9, 2024 1:34:47 PM



GENERAL NOTES

- IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PRESCRIBE A COMPLETE WORK OR IMPROVEMENT. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND ANY REQUIREMENTS INDICATED IN ONE OF THE DOCUMENTS IS AS BINDING AS HAVING BEEN INDICATED IN ALL.
- HORIZONTAL DATUM IS NAD83, MASSACHUSETTS COORDINATE SYSTEM.
- ELEVATIONS ARE BASED ON CITY OF SPRINGFIELD DATUM AND BENCHMARKS OBTAINED FROM RECORD DRAWINGS FROM CONTRACT NO. 70 PREPARED BY CAMP, DRESSER AND MCKEE CONSULTING ENGINEERS - WEST PARISH FILTERS PLOT PLAN, DATED JANUARY 1972.
- EXISTING CONDITION TOPOGRAPHIC INFORMATION SHOWN IS THE RESULT OF A SURVEY MADE BETWEEN DECEMBER 2019 AND APRIL 2020 BY HILL-ENGINEERS, ARCHITECTS AND PLANNERS, INC., 44 SPRING STREET, ADAMS MA. 01220. WETLAND RESOURCE AREA DELINEATION WAS PERFORMED BY AECOM ON NOVEMBER 25, 2019 AND LOCATED BY HILL-ENGINEERS, ARCHITECTS AND PLANNERS, INC. AT THE TIME OF THE SURVEY. ADDITIONAL DELINEATION WAS PERFORMED BY AECOM IN AUGUST 2021 AND LOCATED BY HILL-ENGINEERS AT THE TIME OF THE SURVEY. THE SURVEY HAS BEEN SUPPLEMENTED WITH INFORMATION BASED ON RECORD DRAWING C-5, TITLED "OUTLET WORKS YARD PIPING ENLARGEMENT PLAN", BY CDM SMITH, 75 STATE STREET, BOSTON, MA 02109, DATED SEPTEMBER 2017.
- THE UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND ALL UTILITIES MAY NOT BE SHOWN. VISIBLE UTILITIES OR MARKINGS WERE FIELD LOCATED AT THE TIME OF THE SURVEY. UNDERGROUND UTILITIES INCLUDING SANITARY SEWER, STORM DRAIN, ELECTRIC, WATER TRANSMISSION PIPING ARE BASED UPON DRAWING PROVIDED BY AECOM INCLUDING "RECORD DRAWINGS" CONTRACT NO. 70 PREPARED BY CAMP DRESSER & MCKEE CONSULTING ENGINEERS - WEST PARRISH FILTERS ALL DATED JANUARY 1972 AND AN UNNAMED COMPILED GIS DENOTING UNDERGROUND UTILITIES. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "DIG-SAFE" AND HAVE ALL UNDERGROUND UTILITIES MARKED ON THE GROUND.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE, INCLUDING CONFIRMING THE PRESENCE OF EXISTING UTILITIES. EXISTING UTILITIES SHOWN ARE BASED ON AVAILABLE INFORMATION AND AECOM ASSUMES NO RESPONSIBILITY FOR ERRORS IN THAT SOURCED INFORMATION.
- THE CONTRACTOR SHALL ERECT EROSION CONTROL MEASURES PRIOR TO COMMENCING ANY CLEARING, EXCAVATION OR STORAGE OF BACKFILL MATERIAL ON-SITE. REFER TO SPECIFICATIONS AND DETAILS.
- THE ENGINEER MAY DIRECT THE CONTRACTOR TO VARY THE PROPOSED WORK DURING CONSTRUCTION TO MEET EXISTING CONDITIONS.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AND SHALL PROVIDE ALL NECESSARY CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE AND STRENGTH TO PREVENT ACCESS TO ALL OPEN EXCAVATIONS AT THE COMPLETION OF EACH DAYS WORK. THE CONTRACTOR SHALL COVER ANY OPEN EXCAVATIONS IN PAVEMENT WITH STEEL PLATE(S) AT THE COMPLETION OF EACH DAYS WORK. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PIPE SHALL BE AS INDICATED IN THE PIPING SCHEDULE AND SPECIFICATIONS. PROVIDE RESTRAINED MECHANICAL JOINT FITTINGS FOR ALL PRESSURE PIPE FITTINGS.
- PIPING WHICH IS EXPOSED DURING EXCAVATION, INCLUDING TEE'S, VALVES, AND FITTINGS, AND IS NOT TO BE DEMOLISHED, SHALL BE SUPPORTED, BRACED OR OTHERWISE PROTECTED DURING CONSTRUCTION ACTIVITIES.
- ALL WATER PIPING SHALL BE CONSTRUCTED WITH A MINIMUM OF 6 FEET OF COVER.
- ALL PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS SHOWN UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER. NO SAGS OR CRESTS IN PIPING WILL BE PERMITTED.
- WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE WHICH MAY NOT BE SHOWN IN DETAILS (REQUIRED AS A RESULT OF CUTTING THE EXISTING PIPE BACK) IN ORDER TO COMPLETE THE CONNECTION AS REQUIRED.
- ALL LAYOUT DIMENSIONS REFER TO OUTSIDE EDGE OF WALL AT GRADE LINE, UNLESS OTHERWISE INDICATED.
- LOCATION COORDINATES TO PROPOSED STRUCTURES ARE TO EXTERIOR WALLS AND CENTER OF TANKS.
- ALL SIGNAGE, HEADWALLS, GUARD RAILS, GUARD POSTS, FENCES, CURBS, ROADWAYS, SIDEWALKS AND ANY OTHER OBJECTS DISTURBED BY CONTRACTOR ACTIVITIES SHALL BE RETURNED TO PRE-CONSTRUCTION CONDITION OR BETTER AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- ALL UTILITY BOXES, FRAMES, GRATES, ETC. DISTURBED BY CONTRACTOR AND NOT TO BE ABANDONED SHALL BE RESET TO THE PROPER GRADE AT NO ADDITIONAL COST TO THE OWNER.
- UNPAVED AREAS DISTURBED BY THE CONTRACTOR SHALL BE CLEARED AND GRUBBED IF REQUIRED, AND RESTORED WITH LOAM AND HYDROSEED, AS SPECIFIED.
- ALL EXISTING PIPES TO BE ABANDONED SHALL BE PLUGGED AT OPEN ENDS. SEE PIPE PLUGGING DETAIL ON SHEET 99 C-525.

GEOTECHNICAL NOTES

- FOR EARTH EXCAVATION, BACKFILL, FILL AND GRADING, SEE SPECIFICATIONS.
- FOR DEWATERING SEE SPECIFICATIONS.
- FOR EXCAVATION SUPPORT SYSTEM SEE SPECIFICATIONS.
- BORING LOCATIONS ARE SHOWN ON THE DRAWINGS AND BORING LOGS ARE BOUND IN THE SPECIFICATIONS.
- BORINGS WERE TAKEN FOR PURPOSES OF DESIGN AND INDICATE SUBSURFACE CONDITIONS AT BORING LOCATION ONLY. SUBSURFACE CONDITIONS MAY VARY FROM THOSE SHOWN IN BORING LOGS.
- IN ALL AREAS WHERE DEWATERING IS NECESSARY, MEASURES SHALL BE TAKEN TO ENSURE THE PRESERVATION OF WATERCOURSES AND COMPLIANCE WITH ALL REGULATIONS AND LAWS. ALL DEWATERING MUST BE DISCHARGED INTO SEDIMENT TRAPS AS INDICATED IN THE DETAILS AND AS SPECIFIED IN THE SPECIFICATIONS.
- FOR ROCK EXCAVATION AND DISPOSAL, SEE SPECIFICATIONS.

ABBREVIATIONS

ALUM.	ALUMINUM	RCP	REINFORCED CONCRETE PIPE
APPROX.	APPROXIMATE	RED.	REDUCER
B&B	BALL AND BURLAP	RET.	RETAIN OR RETAINING
BLDG.	BUILDING	RW	RAW WATER
BW	BACKWASH OR BARBED WIRE	SAM	SAMPLE
CB	CATCH BASIN	SAN	SANITARY DRAIN
CONC.	CONCRETE	SB	SPENT BACKWASH
C.I.	CAST IRON	SD	STORM DRAIN
CLF	CHAIN LINK FENCE	SPD	SUMP PUMP DISCHARGE
C.O. OR CO	CLEANOUT	SR	SUPERNATANT RETURN
D	DRAIN	TBM	TEMPORARY BENCHMARK
DI	DUCTILE IRON	TP	TEST PIT
DIA.	DIAMETER	TS&V	TAPPING SLEEVE AND VALVE
DIM.	DIMENSION	TRANS	TRANSFORMER
DMH	DRAIN MANHOLE	TYP.	TYPICAL
DWGS	DRAWINGS	U	PERF. UNDERDRAIN
E	ELECTRICAL	UE	UNDERGROUND ELECTRIC
ECC.	ECCENTRIC	V	VENT
EL. OR ELEV.	ELEVATION	VA	VALVE ANCHORING
EMH	ELECTRIC MANHOLE	VERT.	VERTICAL
EOP	EDGE OF PAVEMENT	WW	WASH WATER
EXIST.	EXISTING	WSO	WATER SHUT OFF
FD	FLOOR DRAIN		
FE	FILTER TO EFFLUENT		
FES	FLARED END SECTION		
FF OR F.F.E.	FINISH FLOOR ELEVATION		
FIN	FINISHED WATER		
FM	FORCE MAIN		
FTW	FILTER TO WASTE		
FW	FIRE WATER		
GAL.	GALLON		
GC	GENERAL CONTRACTOR		
GP	GUARD POST		
GV	GATE VALVE		
HP	HIGH POINT		
INV.	INVERT		
LF	LINEAR FOOT		
L.O.W.	LIMIT OF WORK		
LPG	LIQUEFIED PETROLEUM GAS (PROPANE)		
MECH.	MECHANICAL		
MH	MANHOLE		
MJ	MECHANICAL JOINT		
N.C.	NORMALLY CLOSED		
OF OR OV	OVERFLOW		
OSW	OVERHEAD SERVICE WIRE		
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE		
PD	PLANT DRAIN		
PERF.	PERFORATED		
PVC	POLYVINYL CHLORIDE		
PW	PLANT WATER		

EXISTING

	PROPERTY LINE
	BENCHMARK
	UTILITY POLE & GUY WIRE
	LIGHT
	SIGN
	POST
	WOODEN POST
	WATER MAIN
	FIRE HYDRANT
	WATER METER
	WATER GATE VALVE
	VENT PIPE
	WATER SHUTOFF VALVE
	CLEANOUT
	ELECTRIC BOX
	CATCH BASIN (ROUND)
	CATCH BASIN
	DRAIN MANHOLE
	ELECTRIC MANHOLE
	CHEMICAL MANHOLE
	WATER MANHOLE
	SEWER MANHOLE
	JURISDICTIONAL WETLAND SYMBOL
	STONE WALL
	CONIFEROUS TREE
	DECIDUOUS TREE
	CONCRETE
	BOULDER
	LANDSCAPED AREA
	GRAVEL
	BITUMINOUS CONCRETE PAVEMENT
	BOLLARD
	DRAINAGE FLOW DIRECTION ARROW
	CHAINLINK FENCE
	OVERHEAD WIRES
	DRAIN LINE
	TREE LINE
	GATE VALVE
	GUARDRAIL
	CONTOUR LINE
	SPOT ELEVATION
	WETLAND FLAG
	LIMIT OF WETLAND
	50-FT NO DISTURB ZONE
	100-FT BUFFER ZONE
	SEDIMENTATION BASIN
	BORING
	MONITORING WELL
	TEST PIT

TREE LEGEND

A	ASH
B	BIRCH
BE	BEECH
CR	CHERRY
HE	HEMLOCK
M	MAPLE
O	OAK
P	PINE
S	SPRUCE
SU	SUMAC
MU	MULTI
TR	TRIPLE
TW	TWIN

LEGEND

PROPOSED

	LIMIT OF WORK
	LIMIT OF CLEARING AND GRUBBING
	EROSION AND SEDIMENTATION CONTROL BARRIER
	PIPE PLUG OR CAP
	DEMOLITION
	STRUCTURE
	RETAINING WALL
	CONCRETE
	GRAVEL ROAD
	SAFETY RAILING
	ACCESS HATCH
	CONTOUR
	SWALE CONTOUR
	SPOT ELEVATION
	GUARD POST OR BOLLARD
	LIGHT POLE AND BASE
	SECURITY CAMERA
	GOOSENECK VENT
	CONC. SPLASH BLOCK (AT SUMP PUMP DISCHARGE PIPE)
	TREE LINE
	PIPE - 8" DIAM AND SMALLER
	PIPE - GREATER THAN 8" DIAM
	CENTERLINE
	THRUST BLOCK
	FIRE HYDRANT
	GATE VALVE
	REDUCER
	PERF. DRAIN PIPE
	ELECTRICAL DUCT



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

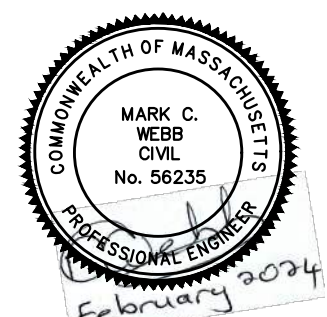
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
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www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL SHEET TITLE

LEGEND, ABBREVIATIONS AND GENERAL NOTES

SHEET NUMBER

10 C-001

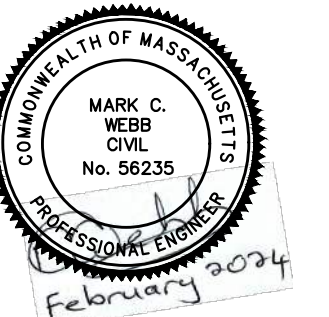
PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
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SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
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PROJECT NUMBER

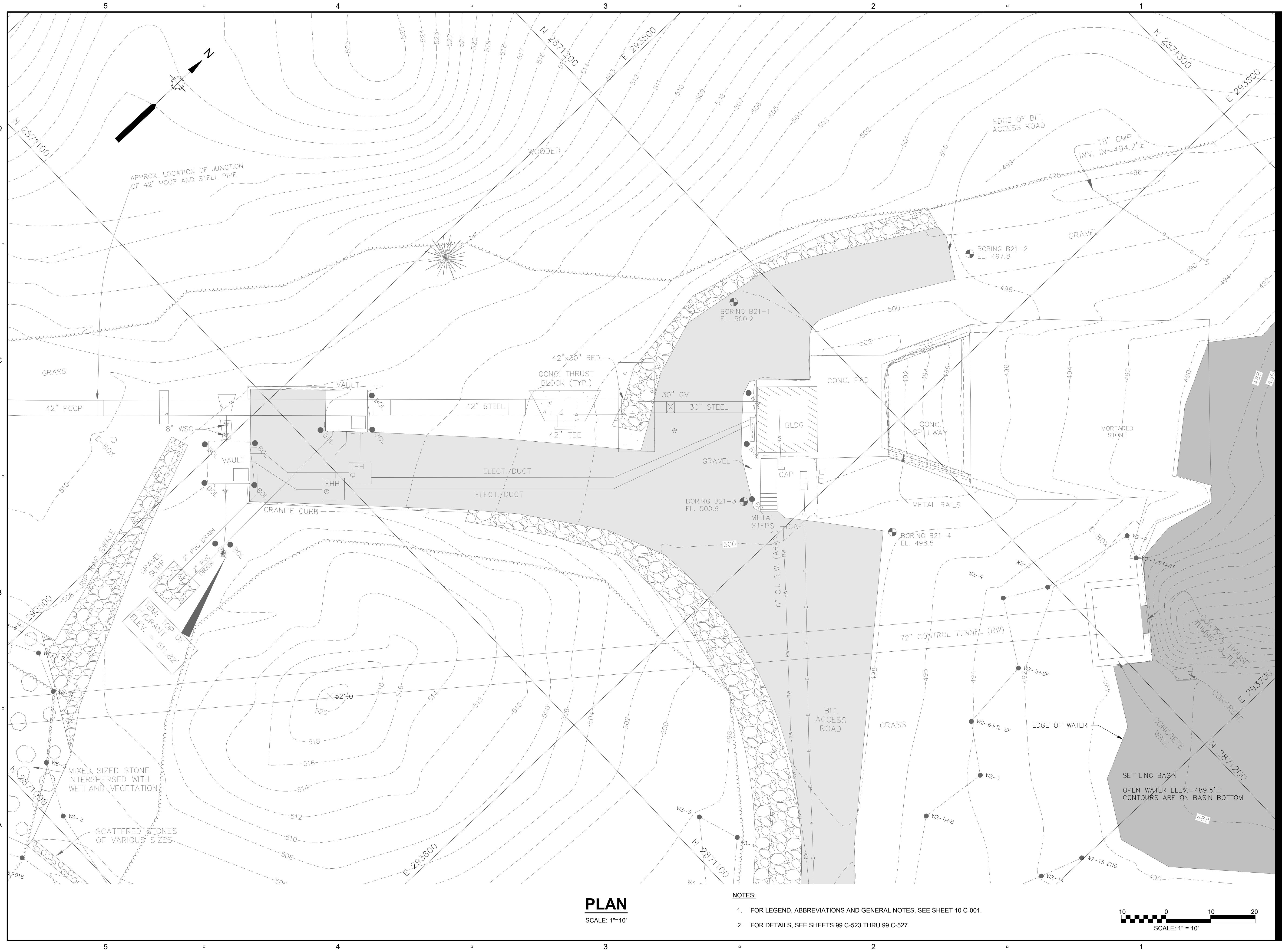
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Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE
 CIVIL
SHEET TITLE

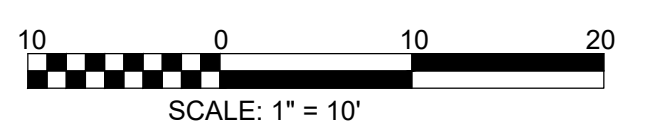
EXISTING CONDITIONS AND BORING LOCATION PLAN
SHEET NUMBER

10 C-101

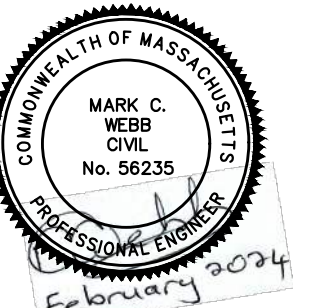


PLAN
 SCALE: 1"=10'

- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
 - FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.



PATH: L:\DCS\PROJECTS\WTR\16662775_SWIS\WPF_HYDRO_ELECT_PDR\100_CAD\20-SHEETS\C10 C-101.DWG
 LAST UPDATE: Wednesday, January 24, 2024 10:51:17 AM
 PLOT DATE: Friday, February 9, 2024 10:25:02 AM



NO.	DATE	DESCRIPTION

60662775

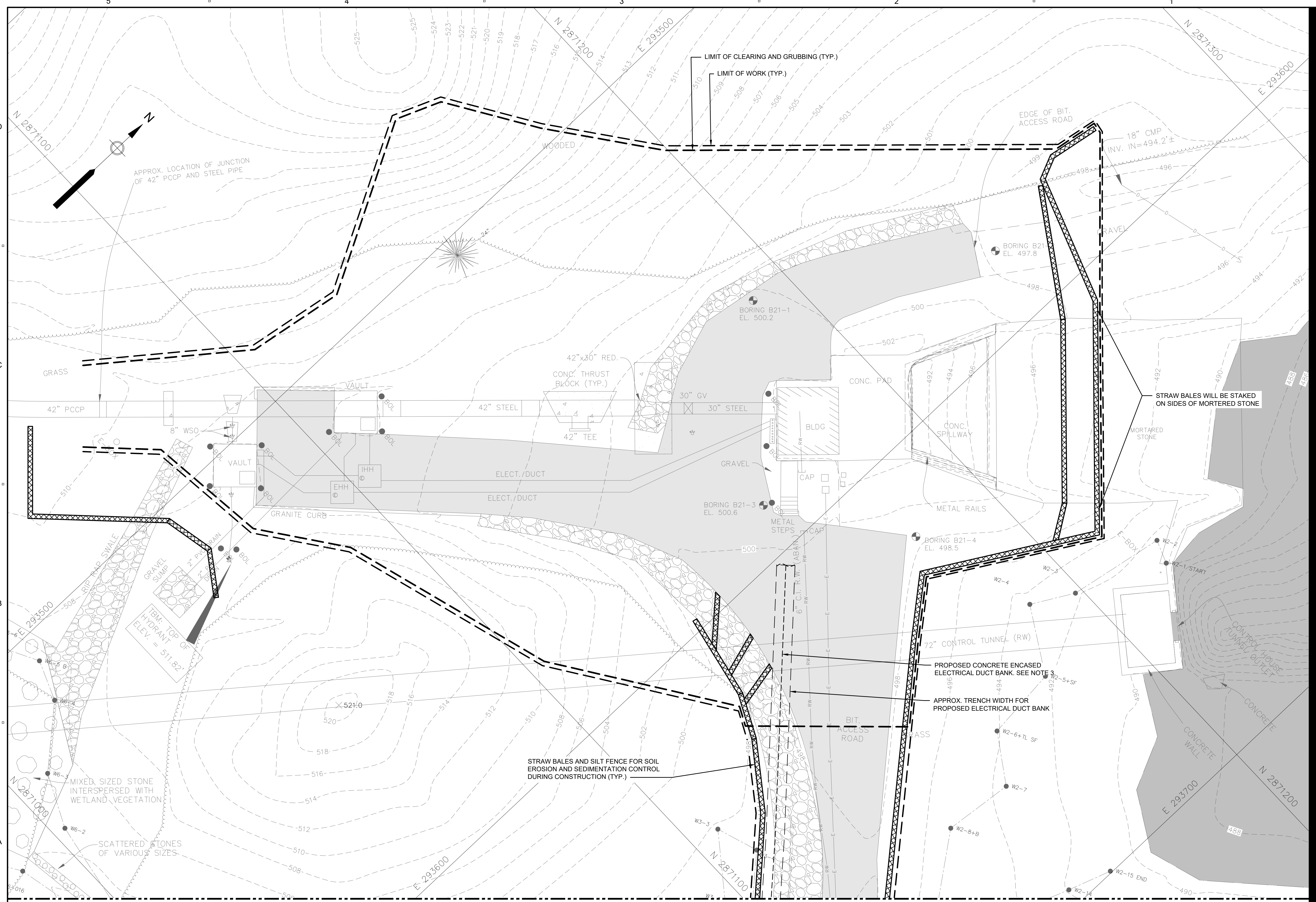
Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

CIVIL

SOIL EROSION AND SEDIMENT CONTROL PLAN I

SHEET NUMBER

10 C-102



NOTES:

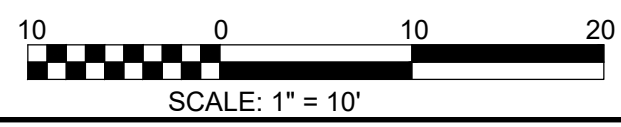
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.

CONTINUATION - REFER TO 10 C-103

PLAN

SCALE: 1"=10'

- PROPOSED ELECTRICAL DUCT BANK SHOWN FOR COORDINATION WITH SEDIMENTATION AND EROSION CONTROL MEASURES ONLY. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL SHEETS.



PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PRR\100_CAD_GIS\10_CAD\20-SHEETS\C10 C-102.DWG
 LAST UPDATE: Wednesday, January 24, 2024 11:18:30 AM
 PLOT DATE: Friday, February 9, 2024 10:46:44 AM

PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

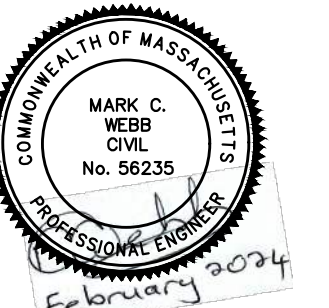
CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

SOIL EROSION AND SEDIMENT CONTROL

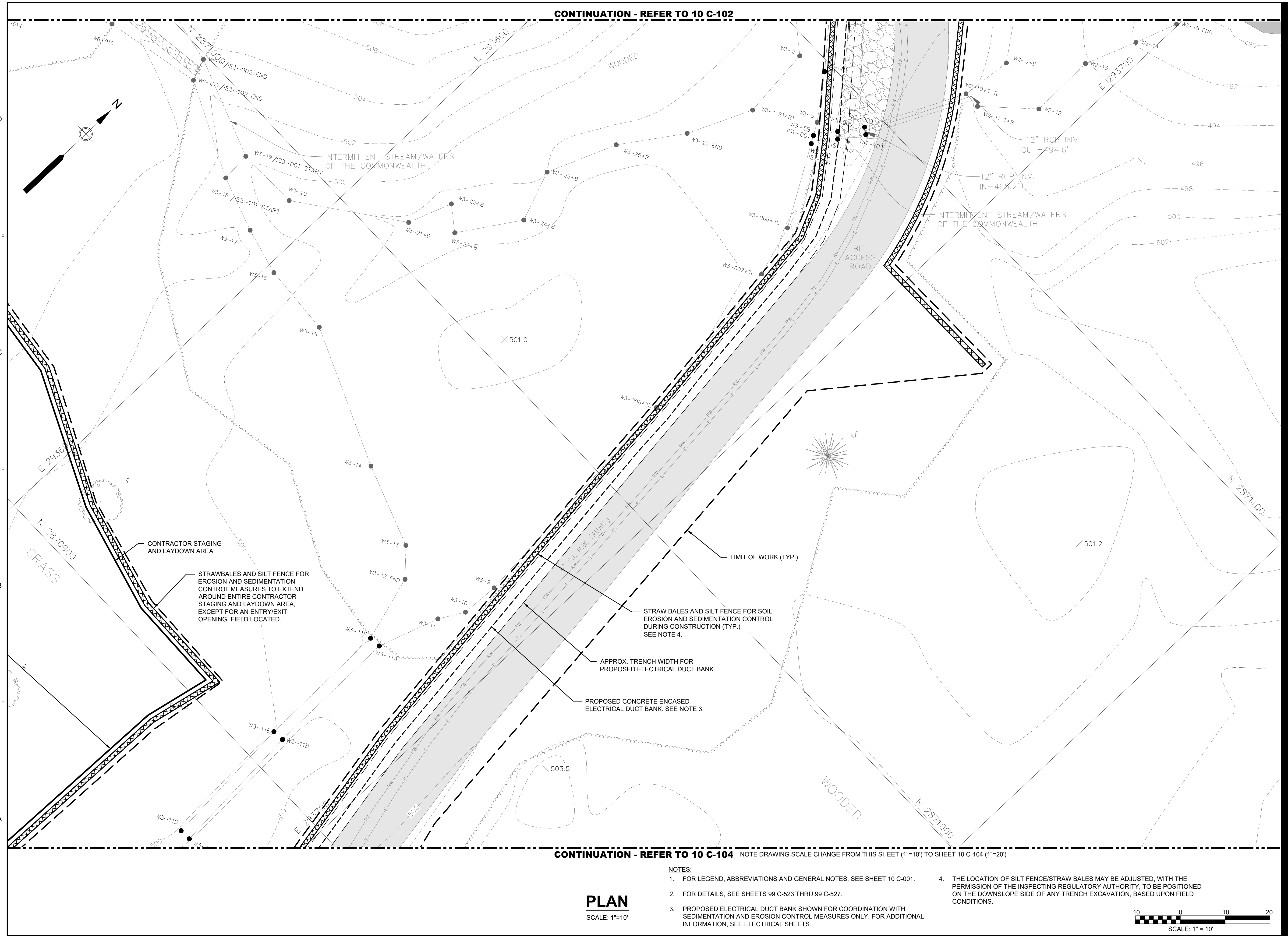
PLAN II

SHEET NUMBER

10 C-103

CONTINUATION - REFER TO 10 C-102

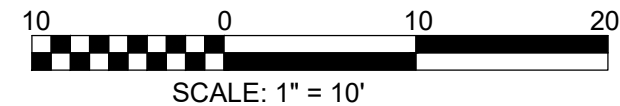
CONTINUATION - REFER TO 10 C-104 NOTE DRAWING SCALE CHANGE FROM THIS SHEET (1"=10') TO SHEET 10 C-104 (1"=20')



PLAN

SCALE: 1"=10'

- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
 - FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.
 - PROPOSED ELECTRICAL DUCT BANK SHOWN FOR COORDINATION WITH SEDIMENTATION AND EROSION CONTROL MEASURES ONLY. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL SHEETS.
 - THE LOCATION OF SILT FENCE/STRAW BALES MAY BE ADJUSTED, WITH THE PERMISSION OF THE INSPECTING REGULATORY AUTHORITY, TO BE POSITIONED ON THE DOWNSLOPE SIDE OF ANY TRENCH EXCAVATION, BASED UPON FIELD CONDITIONS.



PATH: L:\DCS\PROJECTS\WYR16062775_SWSC_WF_HYDRO_ELECT_PDR16062775_CAD\20-SHEETS\C10 C-103.DWG
 LAST UPDATE: Wednesday, January 17, 2024 11:18:55 AM
 PLOT DATE: Friday, February 9, 2024 10:39:28 AM

PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

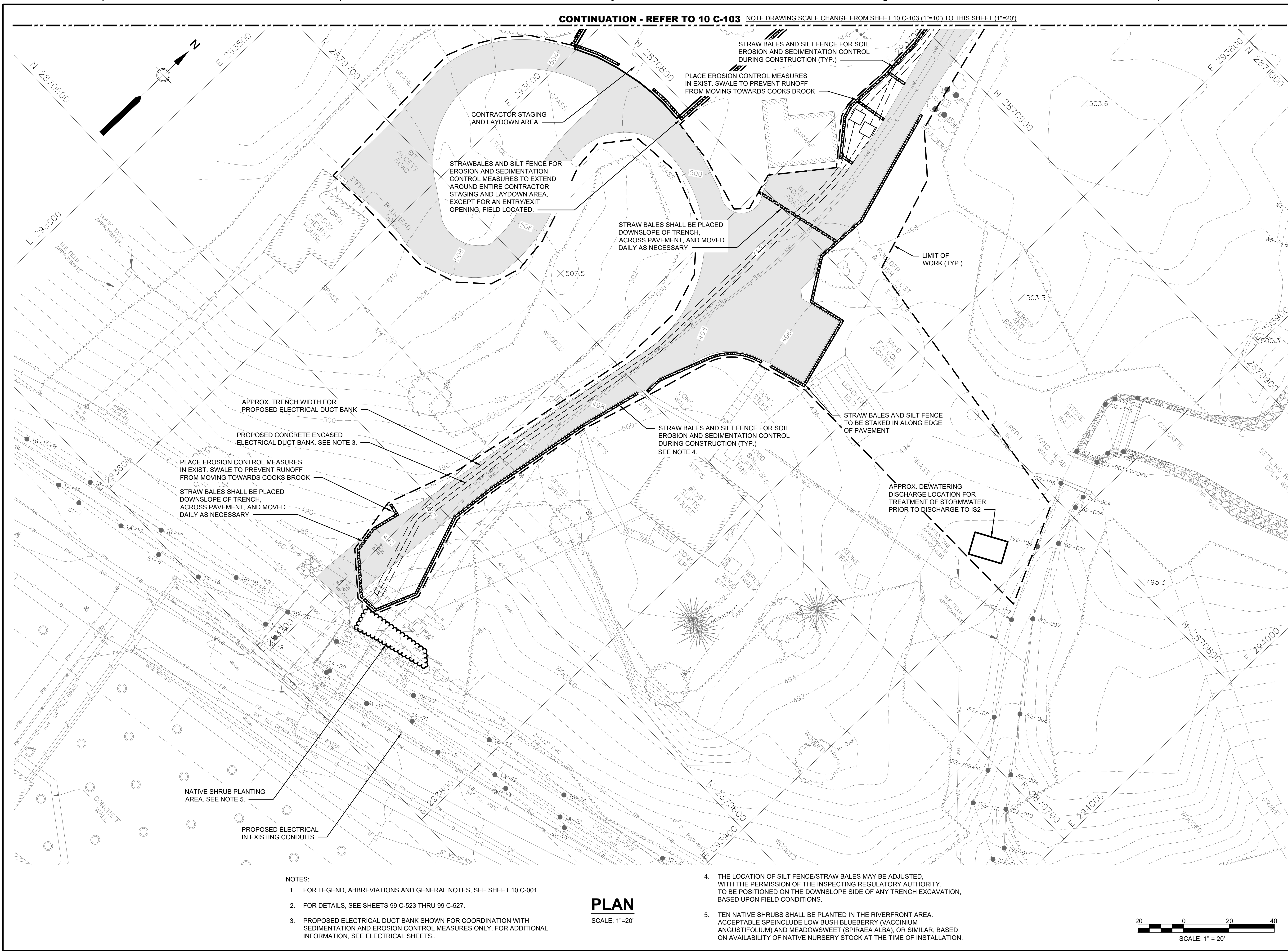
Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL
 SHEET TITLE

SOIL EROSION AND SEDIMENT CONTROL PLAN III
 SHEET NUMBER

10 C-104



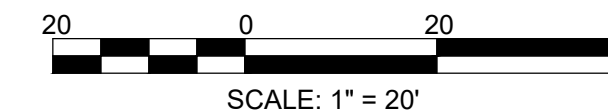
NOTES:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.
- PROPOSED ELECTRICAL DUCT BANK SHOWN FOR COORDINATION WITH SEDIMENTATION AND EROSION CONTROL MEASURES ONLY. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL SHEETS.

PLAN

SCALE: 1"=20'

- THE LOCATION OF SILT FENCE/STRAW BALES MAY BE ADJUSTED, WITH THE PERMISSION OF THE INSPECTING REGULATORY AUTHORITY, TO BE POSITIONED ON THE DOWNSLOPE SIDE OF ANY TRENCH EXCAVATION, BASED UPON FIELD CONDITIONS.
- TEN NATIVE SHRUBS SHALL BE PLANTED IN THE RIVERFRONT AREA. ACCEPTABLE SPECIES INCLUDE LOW BUSH BLUEBERRY (VACCINIUM ANGUSTIFOLIUM) AND MEADOWSWEET (SPIRAEA ALBA), OR SIMILAR, BASED ON AVAILABILITY OF NATIVE NURSERY STOCK AT THE TIME OF INSTALLATION.



PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PRR1800_CAD_GIS810_CAD2020_SHEETS\C10 C-104.DWG
 LAST UPDATE: Wednesday, January 17, 2024 1:06:41 PM
 PLOT DATE: Friday, February 9, 2024 10:46:53 AM

PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

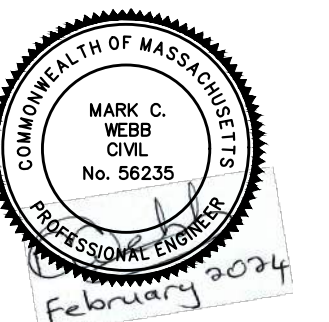
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

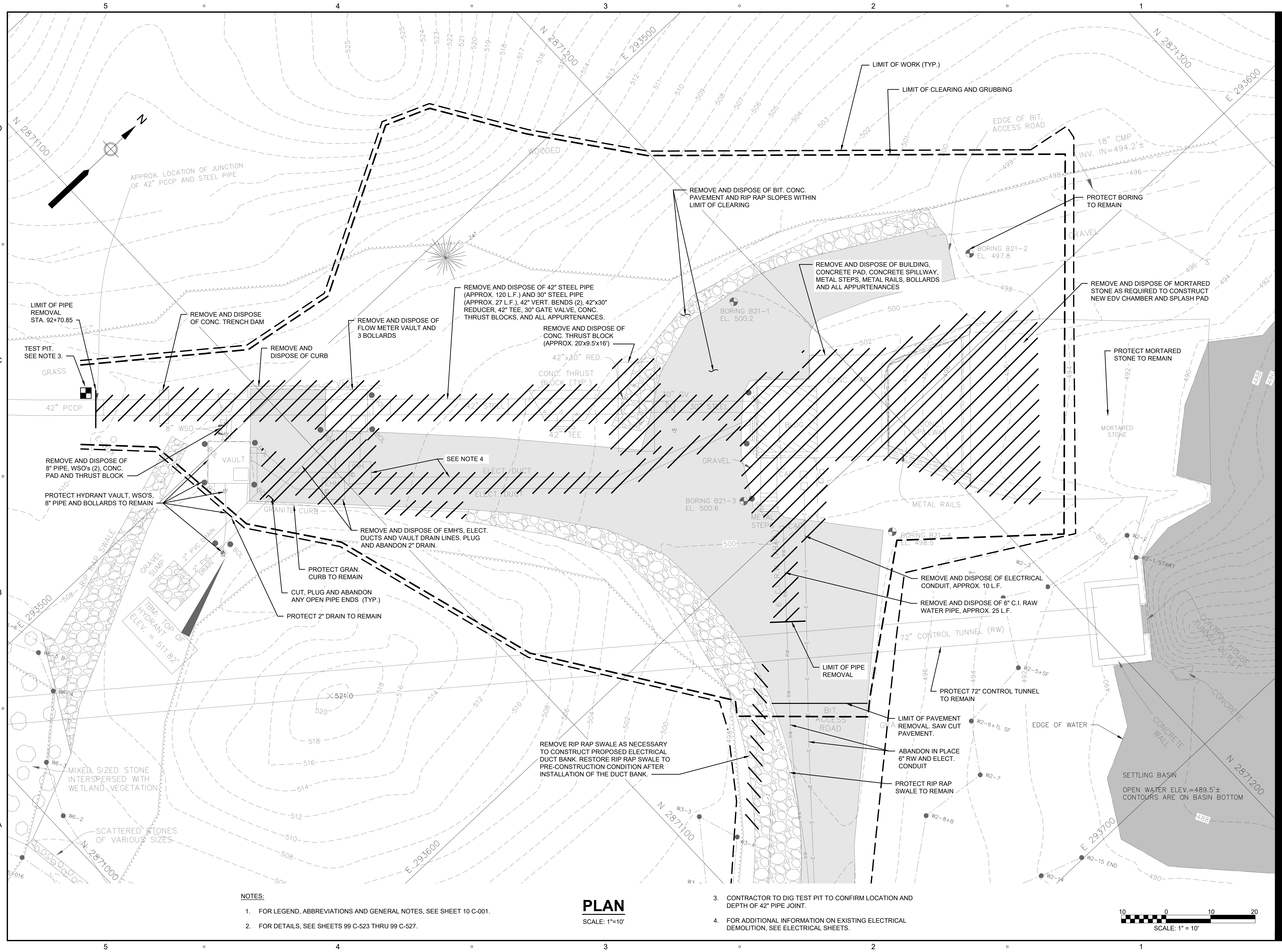
CIVIL

SHEET TITLE

DEMOLITION PLAN

SHEET NUMBER

10 C-105



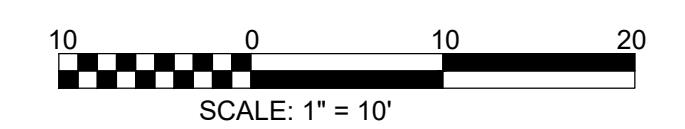
NOTES:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.

PLAN

SCALE: 1"=10'

- CONTRACTOR TO DIG TEST PIT TO CONFIRM LOCATION AND DEPTH OF 42" PIPE JOINT.
- FOR ADDITIONAL INFORMATION ON EXISTING ELECTRICAL DEMOLITION, SEE ELECTRICAL SHEETS.



PATH: I:\PROJECTS\WATER\60662775_SWSC_WF_HYDRO_ELECT_PRR1800_CAD_GIS\910_CAD\20-SHEETS\C10 C-105.DWG
 LAST UPDATE: Tuesday, January 23, 2024 3:12:39 PM
 PLOT DATE: Friday, February 9, 2024 11:32:16 AM

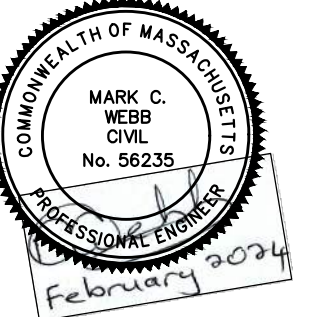
PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

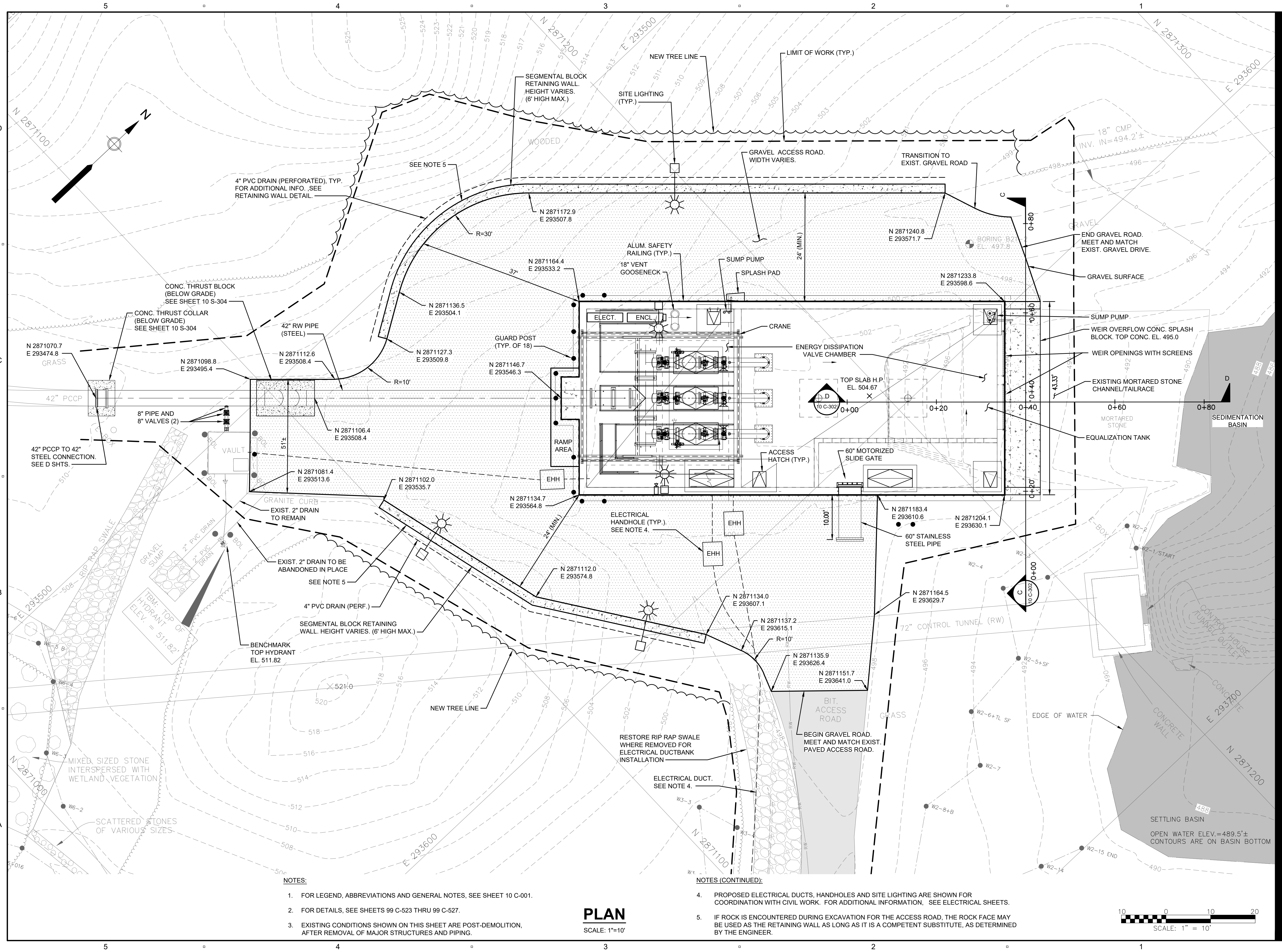
PROJECT NUMBER

60662775

Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE
 CIVIL
SHEET TITLE
 SITE LAYOUT PLAN

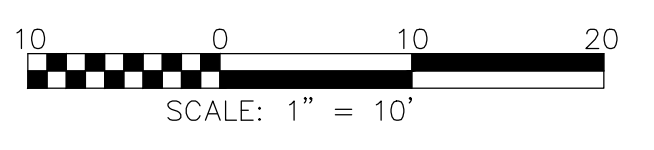
SHEET NUMBER
 10 C-106



- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
 - FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.
 - EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF MAJOR STRUCTURES AND PIPING.

- NOTES (CONTINUED):**
- PROPOSED ELECTRICAL DUCTS, HANDHOLES AND SITE LIGHTING ARE SHOWN FOR COORDINATION WITH CIVIL WORK. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL SHEETS.
 - IF ROCK IS ENCOUNTERED DURING EXCAVATION FOR THE ACCESS ROAD, THE ROCK FACE MAY BE USED AS THE RETAINING WALL AS LONG AS IT IS A COMPETENT SUBSTITUTE, AS DETERMINED BY THE ENGINEER.

PLAN
 SCALE: 1"=10'



PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PDR\100_CAD\20-SHEETS\C10 C-106.DWG
 LAST UPDATE: Wednesday, January 17, 2024 11:35:35 AM
 PLOT DATE: Friday, February 9, 2024 11:46:05 AM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

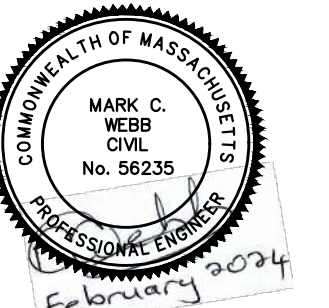
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

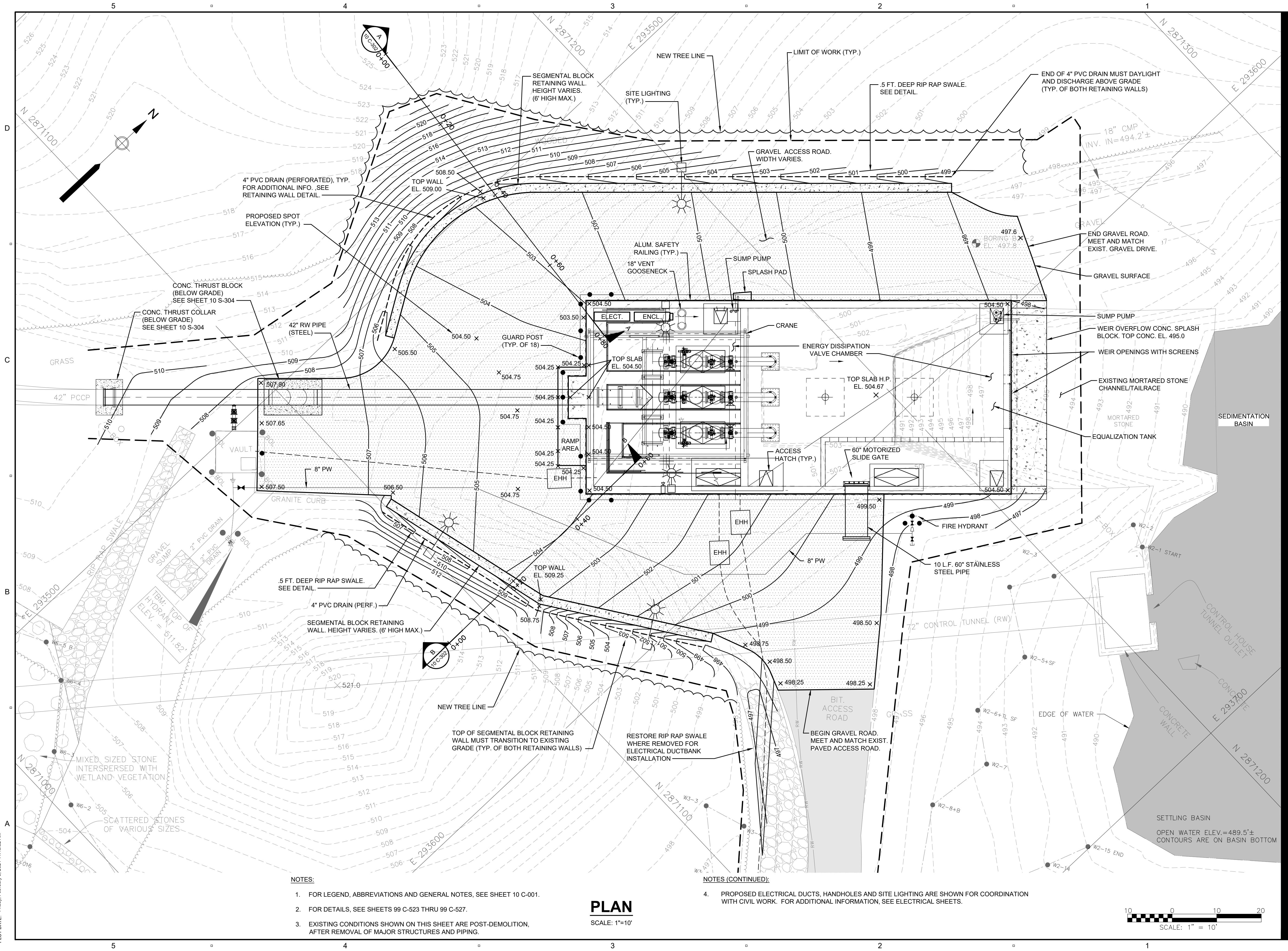
CIVIL

SHEET TITLE

GRADING PLAN

SHEET NUMBER

10 C-107



NOTES:

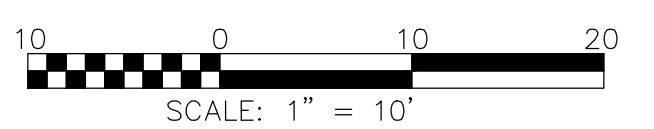
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.
- EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF MAJOR STRUCTURES AND PIPING.

NOTES (CONTINUED):

- PROPOSED ELECTRICAL DUCTS, HANDHOLES AND SITE LIGHTING ARE SHOWN FOR COORDINATION WITH CIVIL WORK. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL SHEETS.

PLAN

SCALE: 1"=10'



PATHFILENAME: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PRR1800_CAD_GIS910_CAD\20-SHEETS\C10 C-107.DWG
 LAST UPDATE: Monday, February 5, 2024 9:55:48 AM
 PLOT DATE: Friday, February 9, 2024 11:46:52 AM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

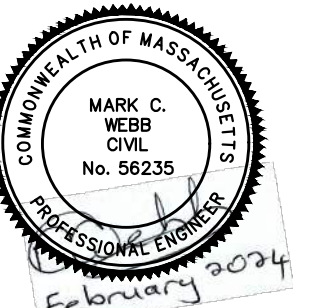
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

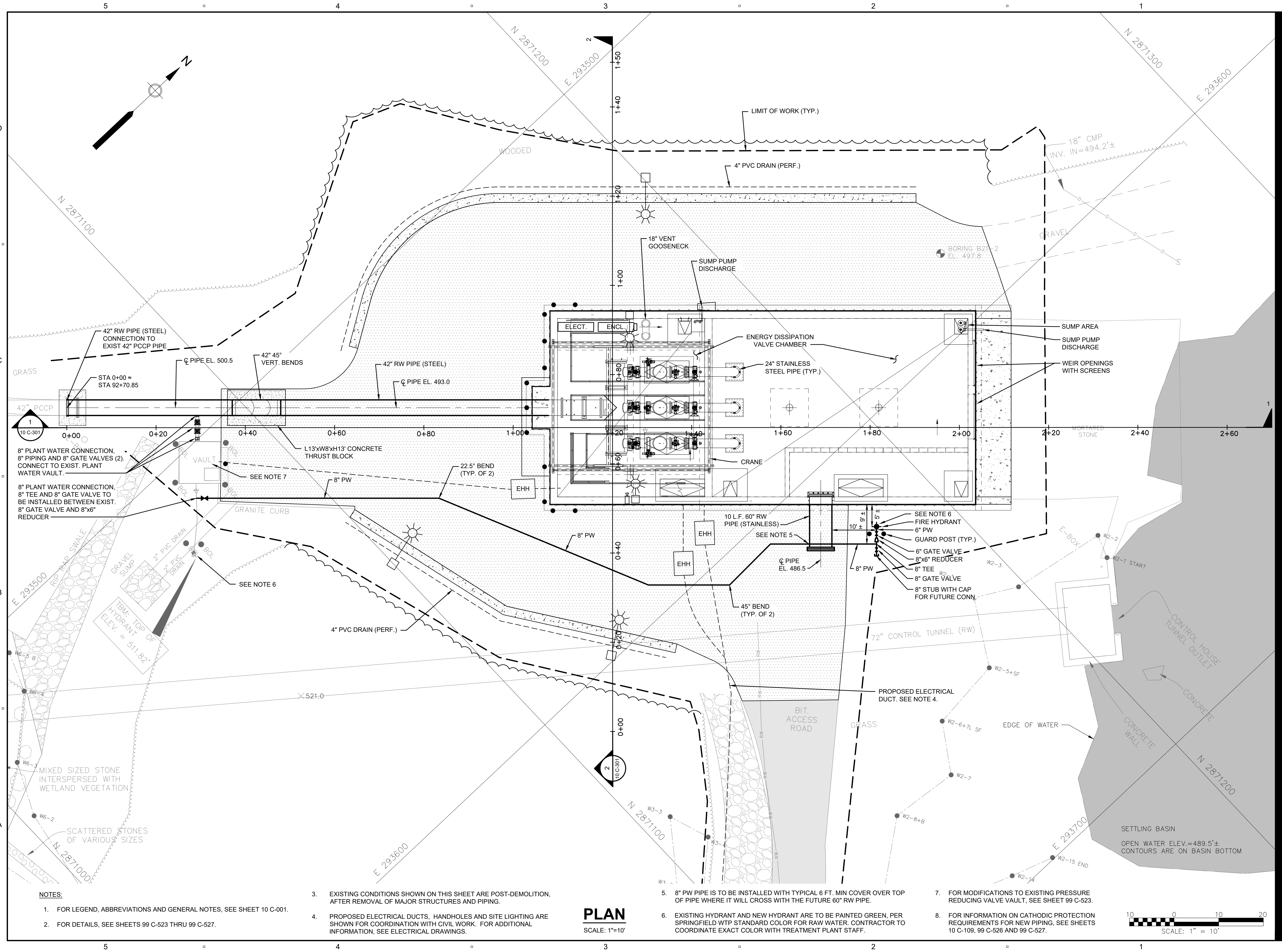
CIVIL

SHEET TITLE

YARD PIPING PLAN

SHEET NUMBER

10 C-108



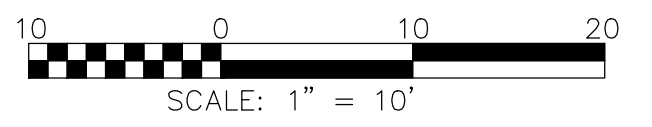
- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
 - FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.

- EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF MAJOR STRUCTURES AND PIPING.
- PROPOSED ELECTRICAL DUCTS, HANDHOLES AND SITE LIGHTING ARE SHOWN FOR COORDINATION WITH CIVIL WORK. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL DRAWINGS.

PLAN
 SCALE: 1" = 10'

- 8" PW PIPE IS TO BE INSTALLED WITH TYPICAL 6 FT. MIN COVER OVER TOP OF PIPE WHERE IT WILL CROSS WITH THE FUTURE 60" RW PIPE.
- EXISTING HYDRANT AND NEW HYDRANT ARE TO BE PAINTED GREEN, PER SPRINGFIELD WTP STANDARD COLOR FOR RAW WATER. CONTRACTOR TO COORDINATE EXACT COLOR WITH TREATMENT PLANT STAFF.

- FOR MODIFICATIONS TO EXISTING PRESSURE REDUCING VALVE VAULT, SEE SHEET 99 C-523.
- FOR INFORMATION ON CATHODIC PROTECTION REQUIREMENTS FOR NEW PIPING, SEE SHEETS 10 C-109, 99 C-526 AND 99 C-527.



PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PDR\100_CAD\20-SHEETS\C10 C-108.DWG
 LAST UPDATE: Monday, February 5, 2024 9:42:13 AM
 PLOT DATE: Friday, February 9, 2024 11:57:00 AM

PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS



REGISTRATION



KEVIN R. KRAWIEC
 STRUCTURAL
 32771
 REGISTERED
 PROFESSIONAL ENGINEER
 FEBRUARY 2024

ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: **CP**

Drawn By: **RAA**

Dept Check: **CB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

Scale: **AS NOTED**

DISCIPLINE

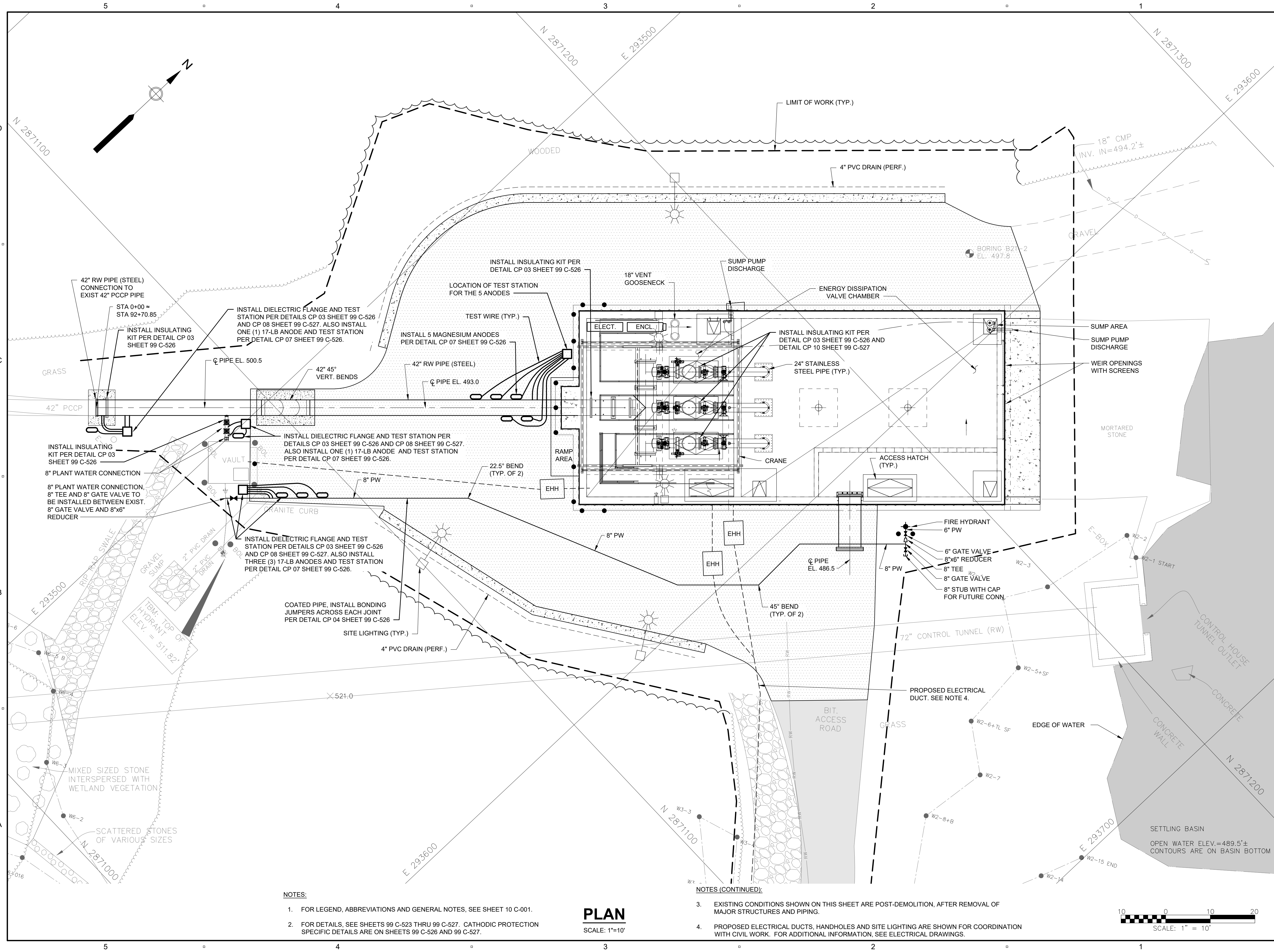
CIVIL

SHEET TITLE

CATHODIC PROTECTION PLAN

SHEET NUMBER

10 C-109



NOTES:

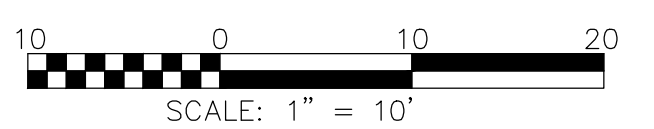
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527. CATHODIC PROTECTION SPECIFIC DETAILS ARE ON SHEETS 99 C-526 AND 99 C-527.

PLAN

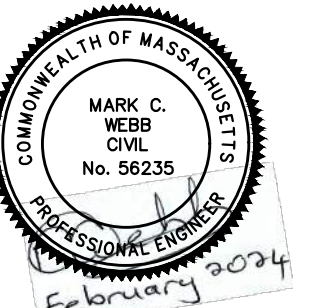
SCALE: 1"=10'

NOTES (CONTINUED):

- EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF MAJOR STRUCTURES AND PIPING.
- PROPOSED ELECTRICAL DUCTS, HANDHOLES AND SITE LIGHTING ARE SHOWN FOR COORDINATION WITH CIVIL WORK. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL DRAWINGS.



PATHFILENAME: L:\DCS\PROJECTS\WYR\60662775_SWSC_WF_HYDRO_ELECT_PDR\100_CAD\20-SHEETS\C10 C-109.DWG
 LAST UPDATE: Tuesday, February 6, 2024 2:36:36 PM
 PLOT DATE: Thursday, February 15, 2024 10:18:47 AM



I/R	DATE	DESCRIPTION

60662775

Designed By: **TL**

Drawn By: **RAA**

Dept Check: **CB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

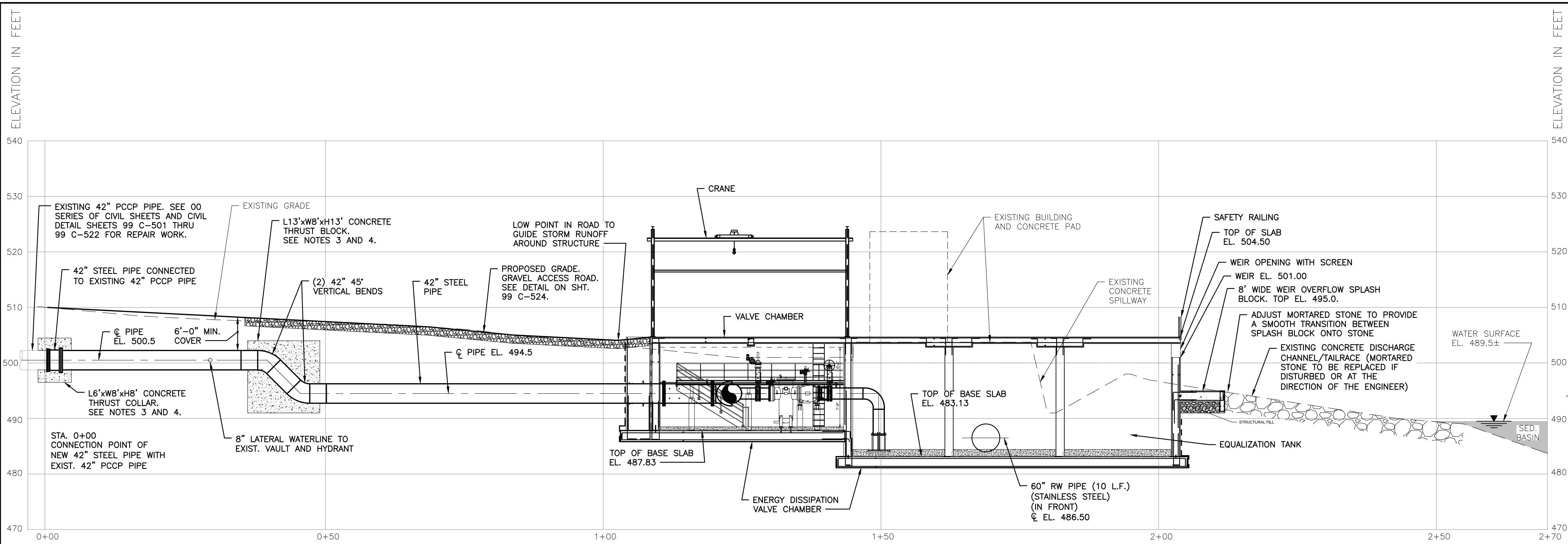
Scale: **AS NOTED**

CIVIL

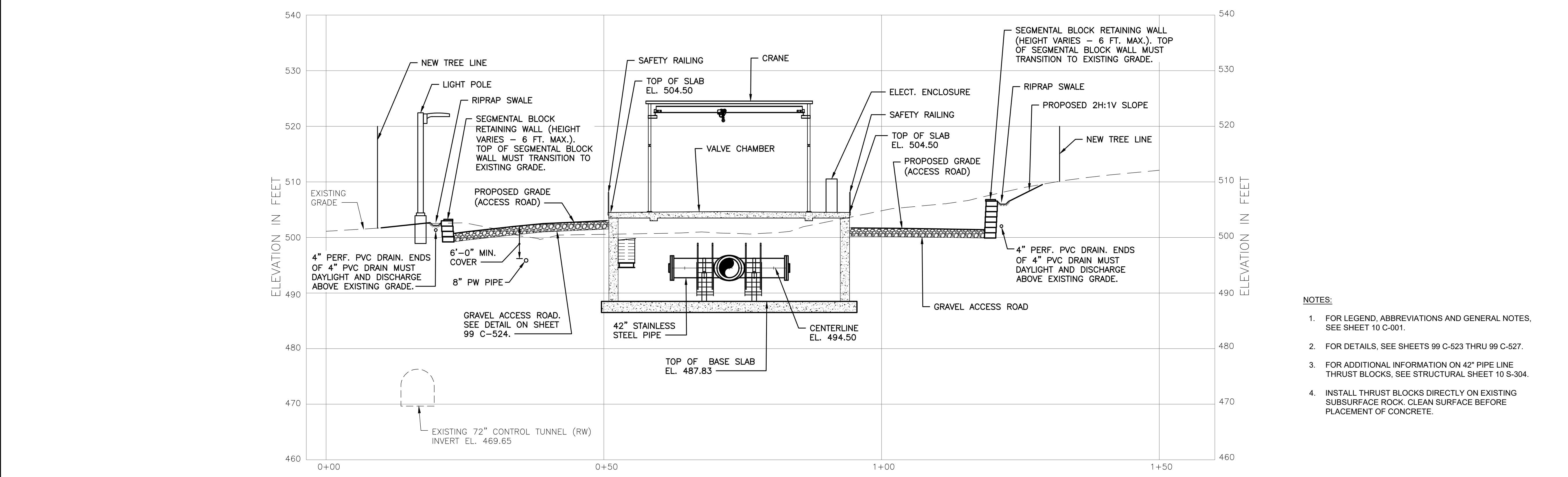
SHEET TITLE

CIVIL SECTIONS I

10 C-301

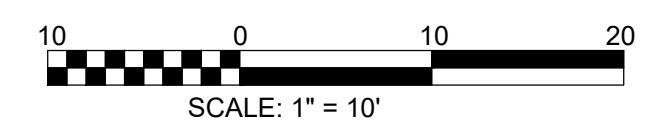


SECTION 1
 1" = 10'-0" 10 C-108

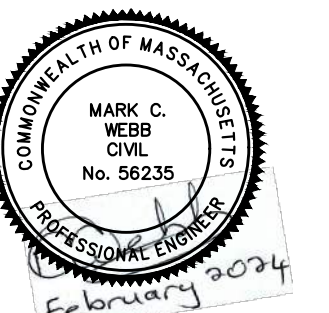


SECTION 2
 1" = 10'-0" 10 C-108

- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
 - FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.
 - FOR ADDITIONAL INFORMATION ON 42" PIPE LINE THRUST BLOCKS, SEE STRUCTURAL SHEET 10 S-304.
 - INSTALL THRUST BLOCKS DIRECTLY ON EXISTING SUBSURFACE ROCK. CLEAN SURFACE BEFORE PLACEMENT OF CONCRETE.



PATH: L:\DCS\PROJECTS\WY16\60662775_SWSC_WF_HYDRO_ELECT_PRR1800_CAD_GIS\10_CAD\20-SHEETS\C10 C-301.DWG
 LAST UPDATE: Wednesday, February 7, 2024 6:56:49 AM
 PLOT DATE: Friday, February 9, 2024 12:05:35 PM



I/R	DATE	DESCRIPTION

60662775

Designed By: **TL**

Drawn By: **ZB**

Dept Check: **CB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

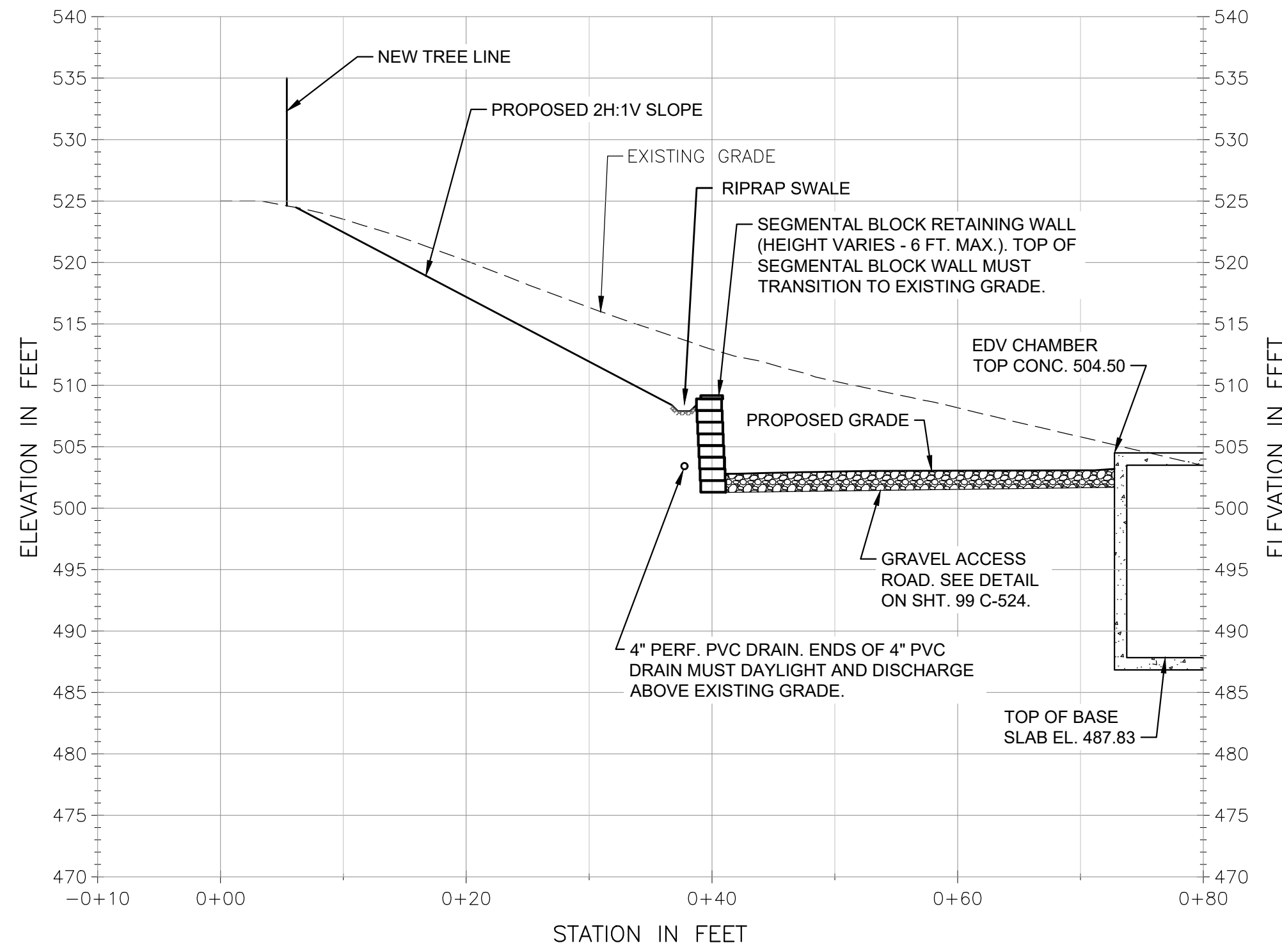
Scale: **AS NOTED**

CIVIL

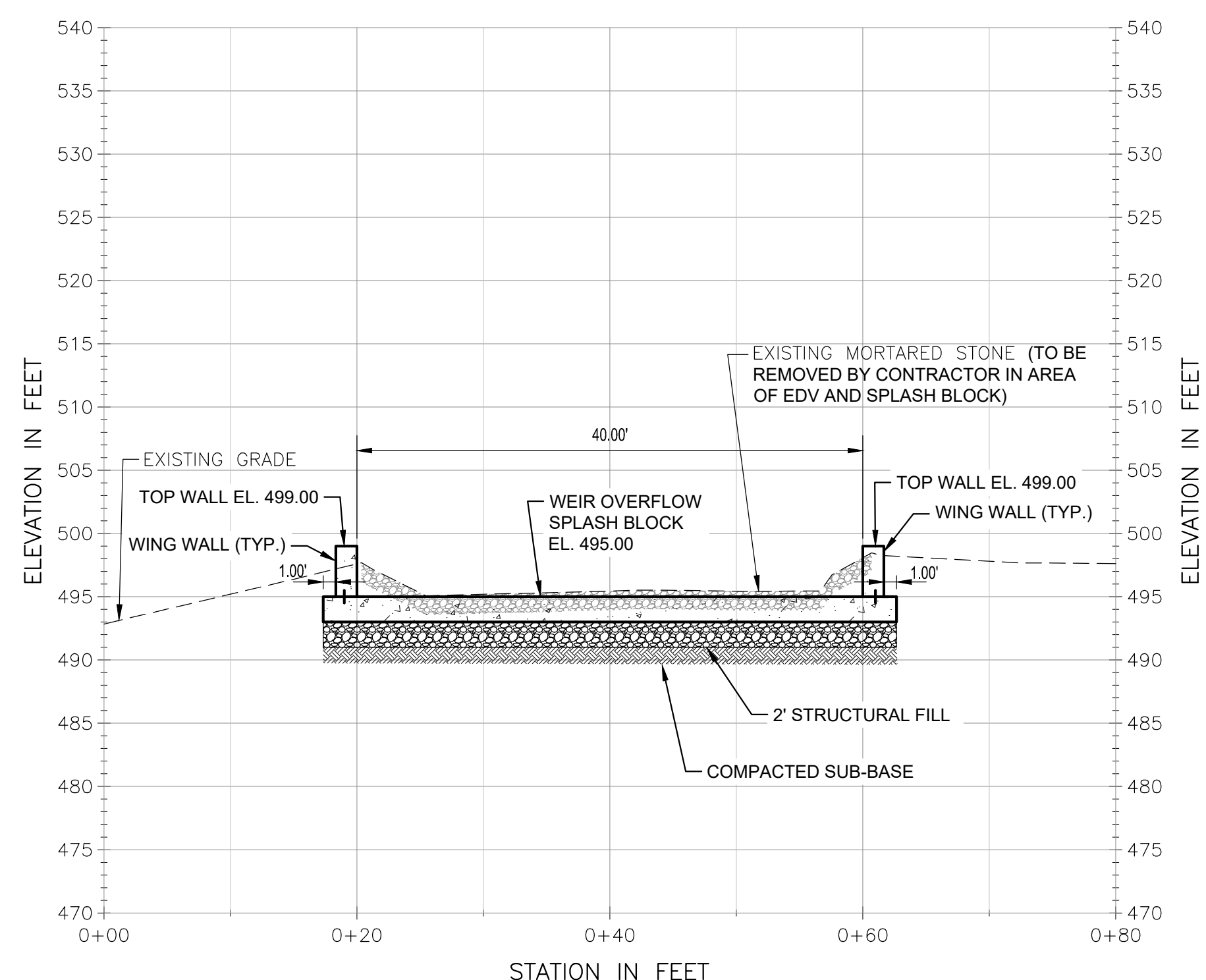
SHEET TITLE

CIVIL SECTIONS II

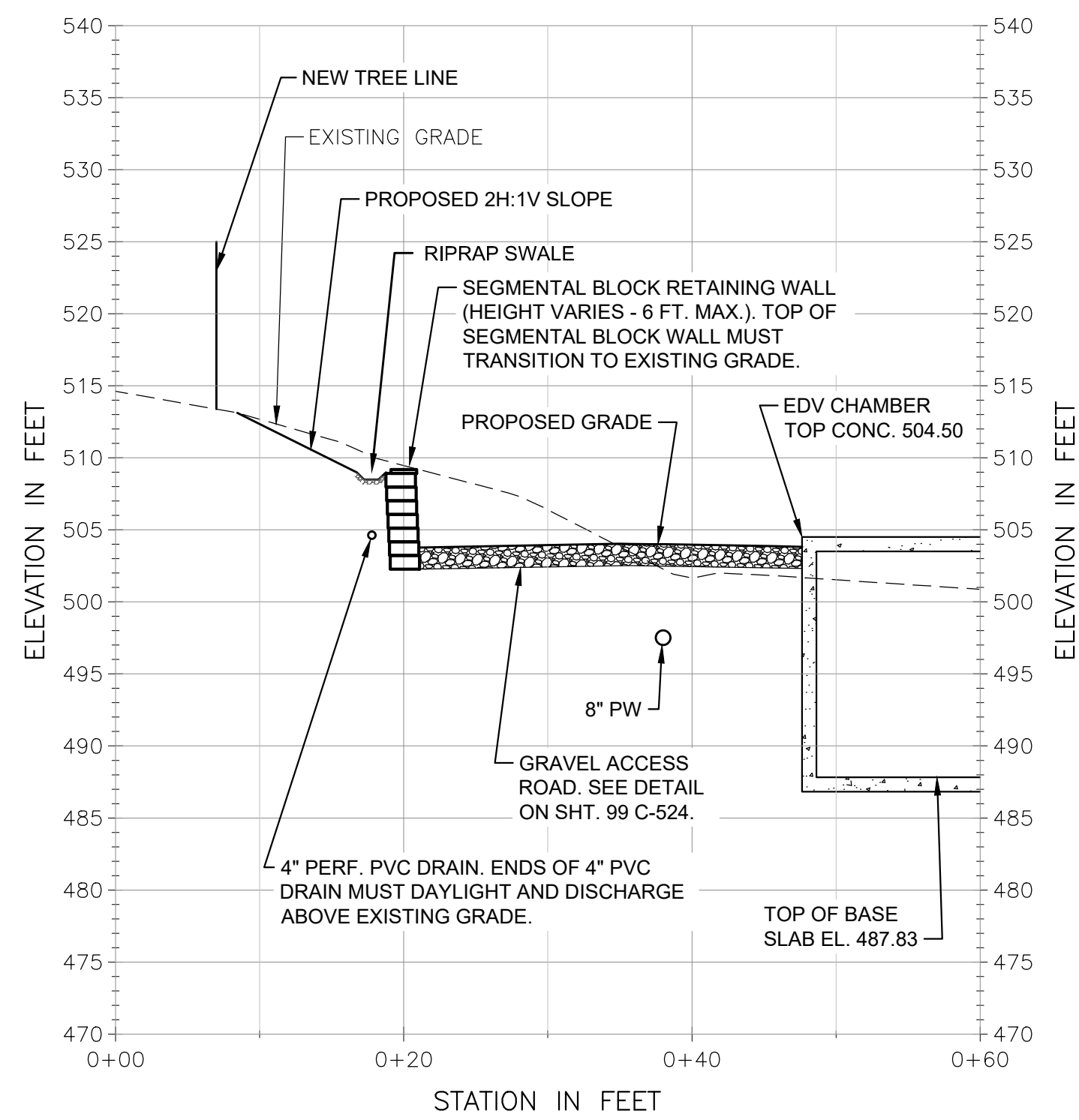
10 C-302



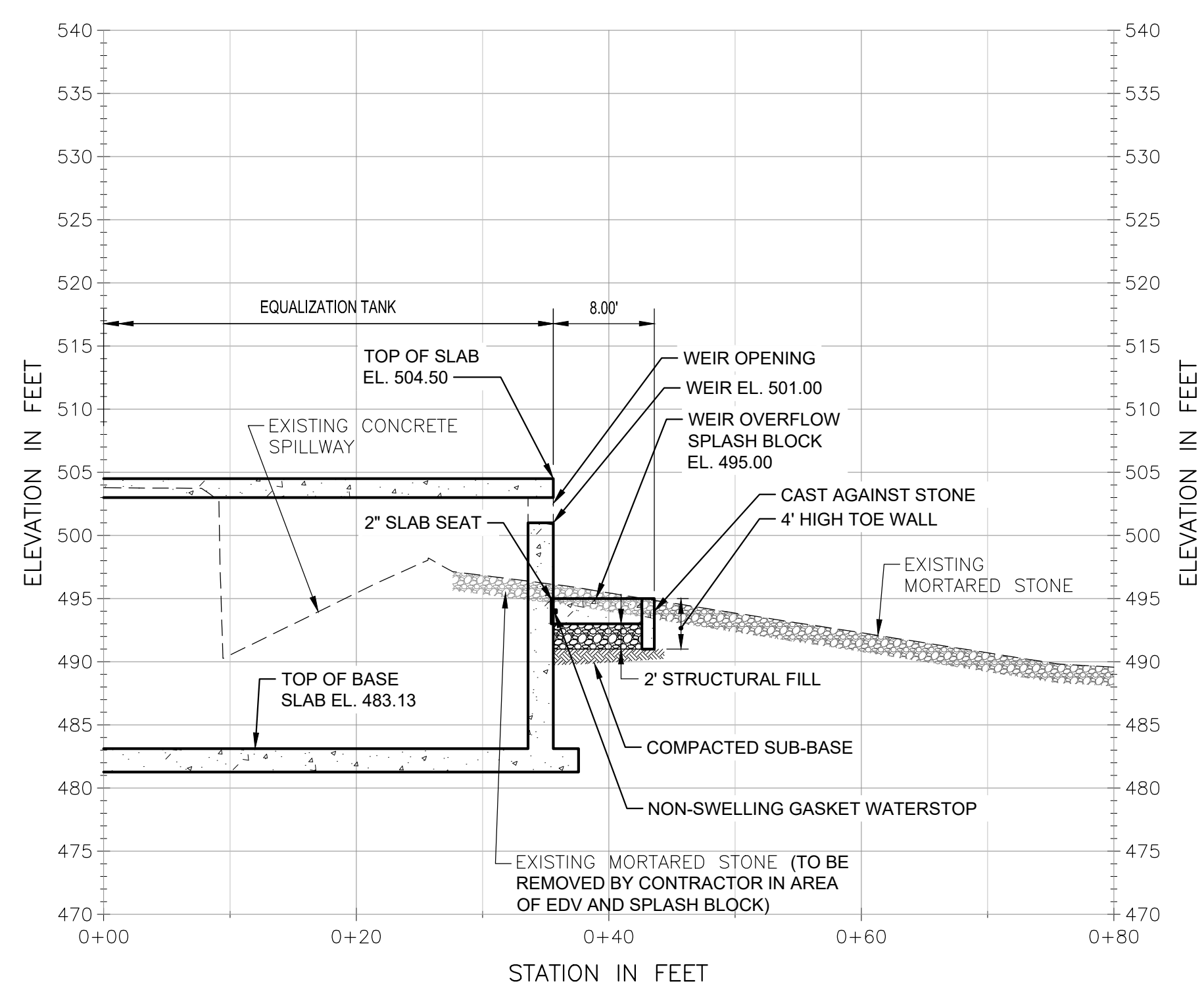
SECTION A
 1" = 10'-0" 10 C-107



SECTION C
 1" = 10'-0" 10 C-106



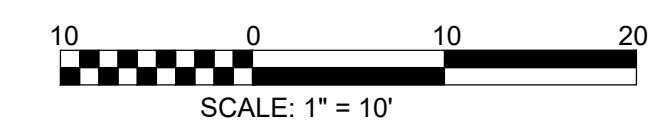
SECTION B
 1" = 10'-0" 10 C-107



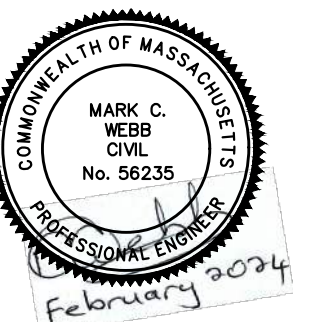
SECTION D
 1" = 10'-0" 10 C-106

NOTES:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.



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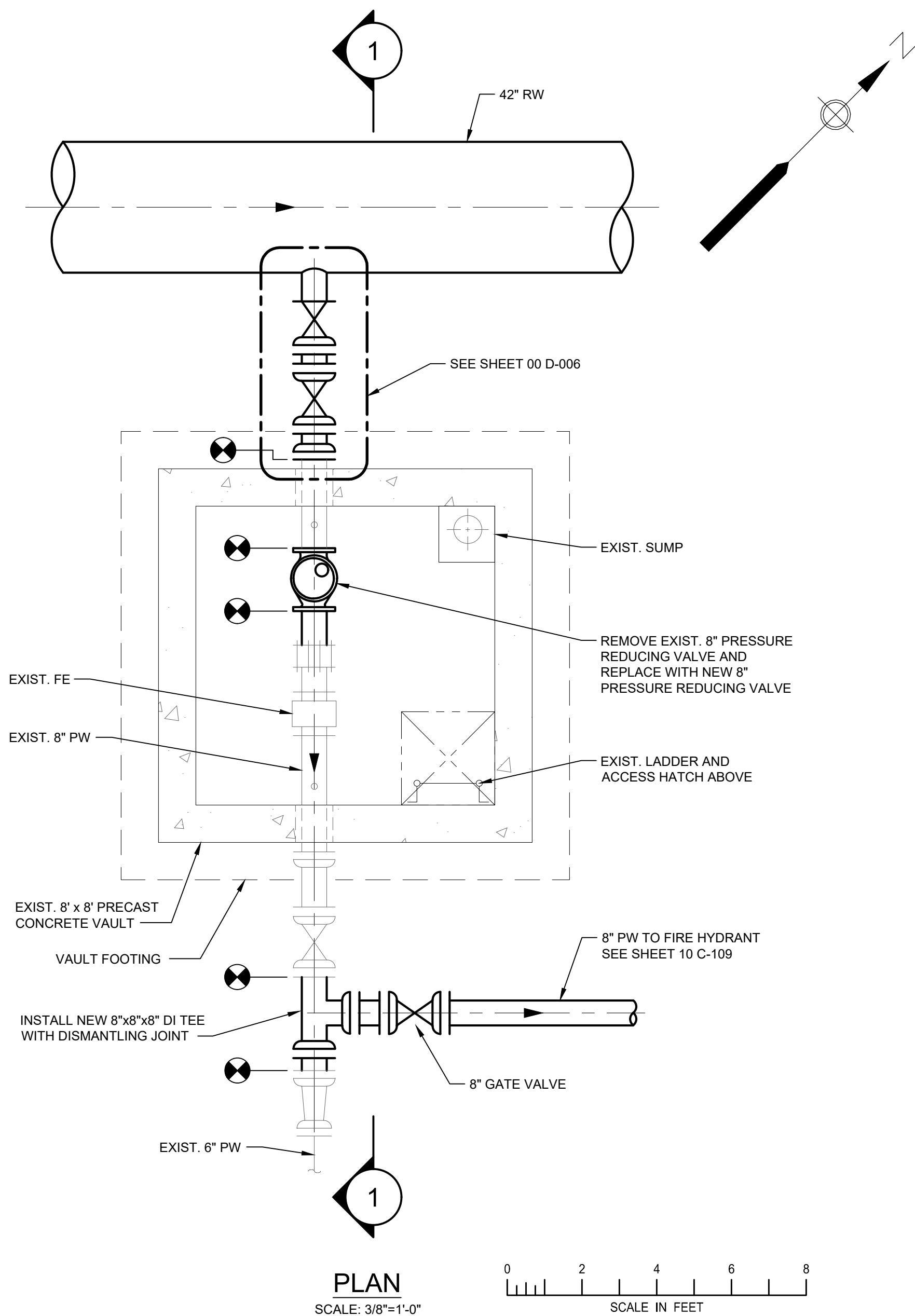
60662775

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Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

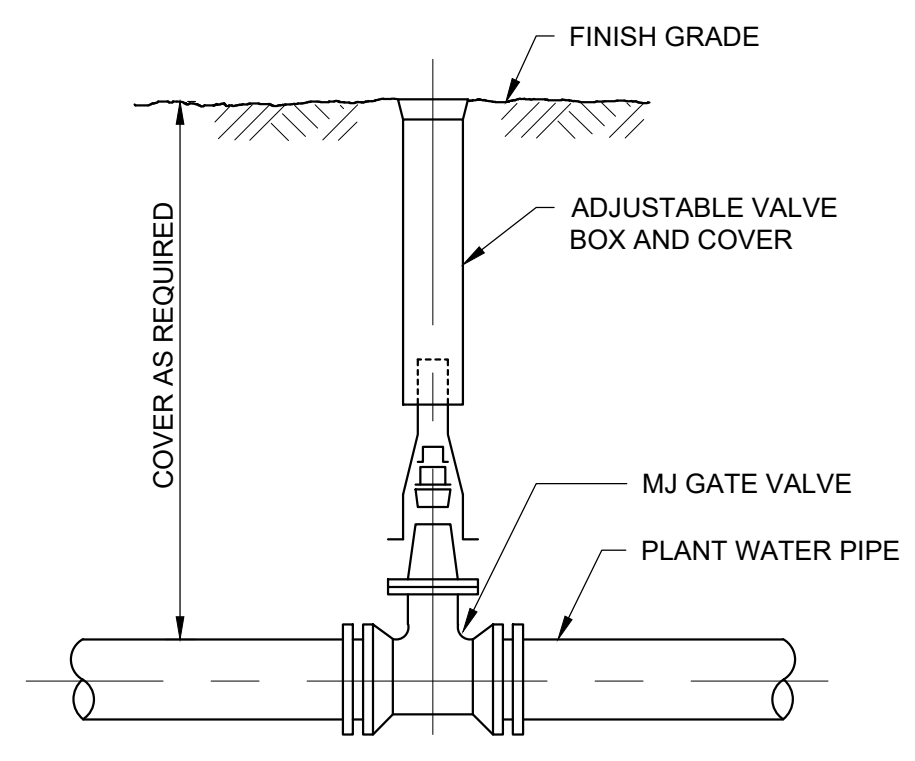
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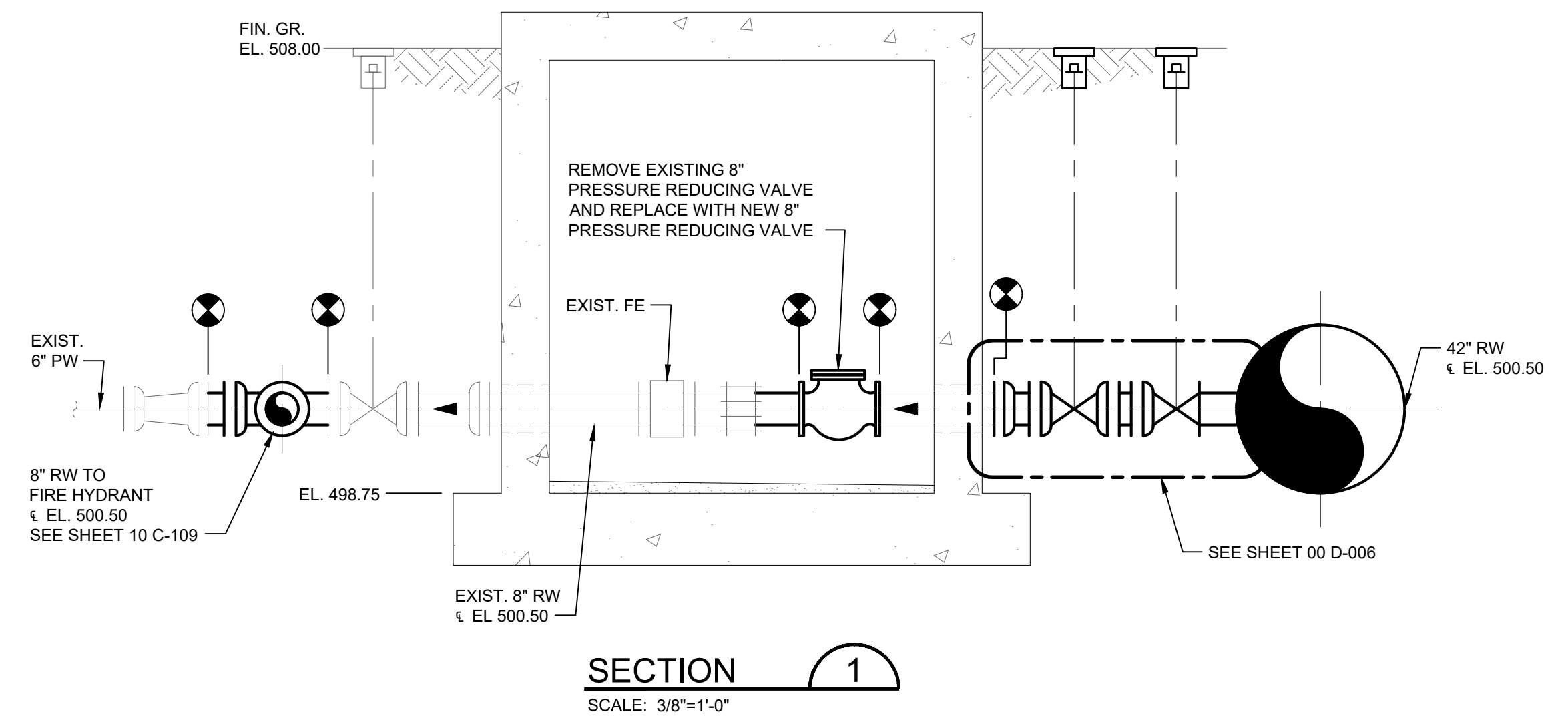
99 C-523



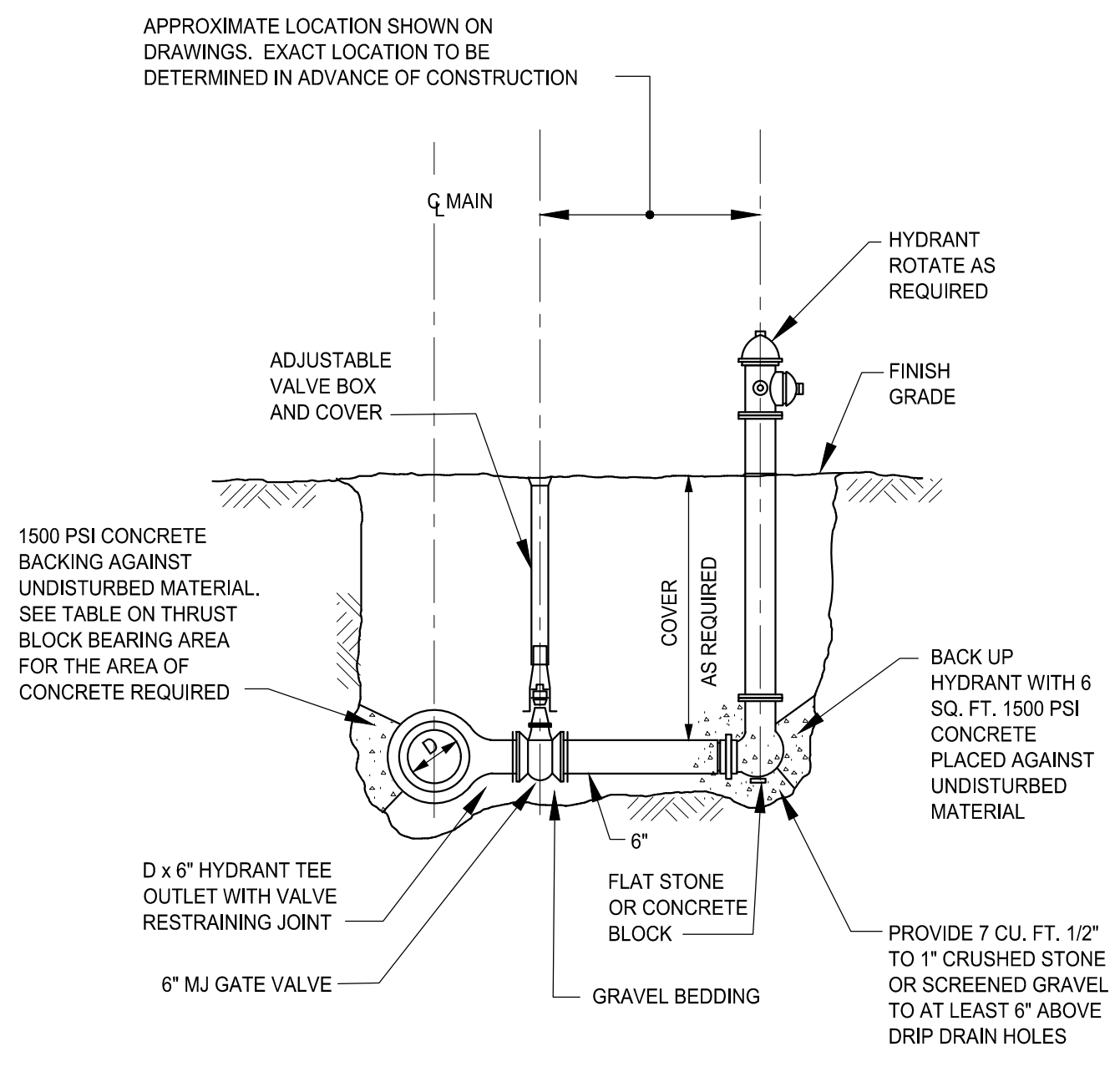
MODIFICATIONS TO EXISTING PRESSURE REDUCING VALVE VAULT
 SCALE AS NOTED



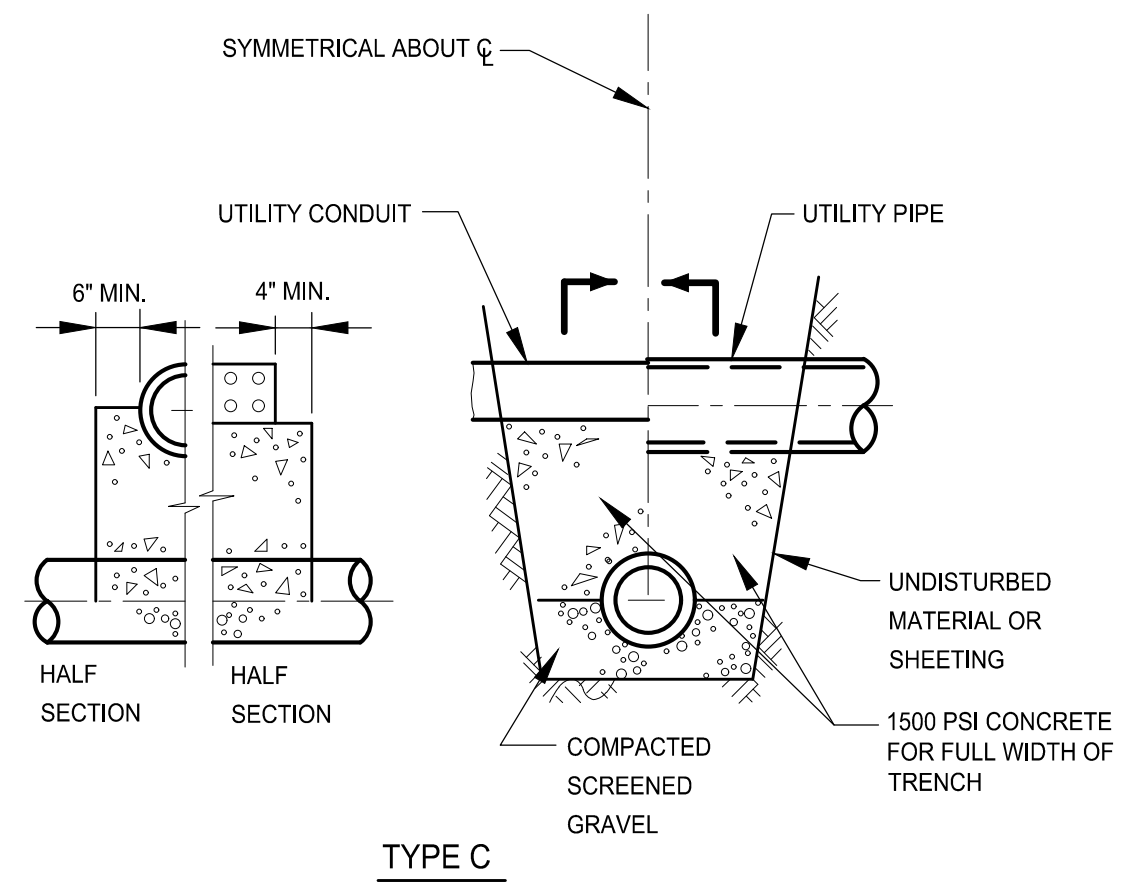
BURIED GATE VALVE
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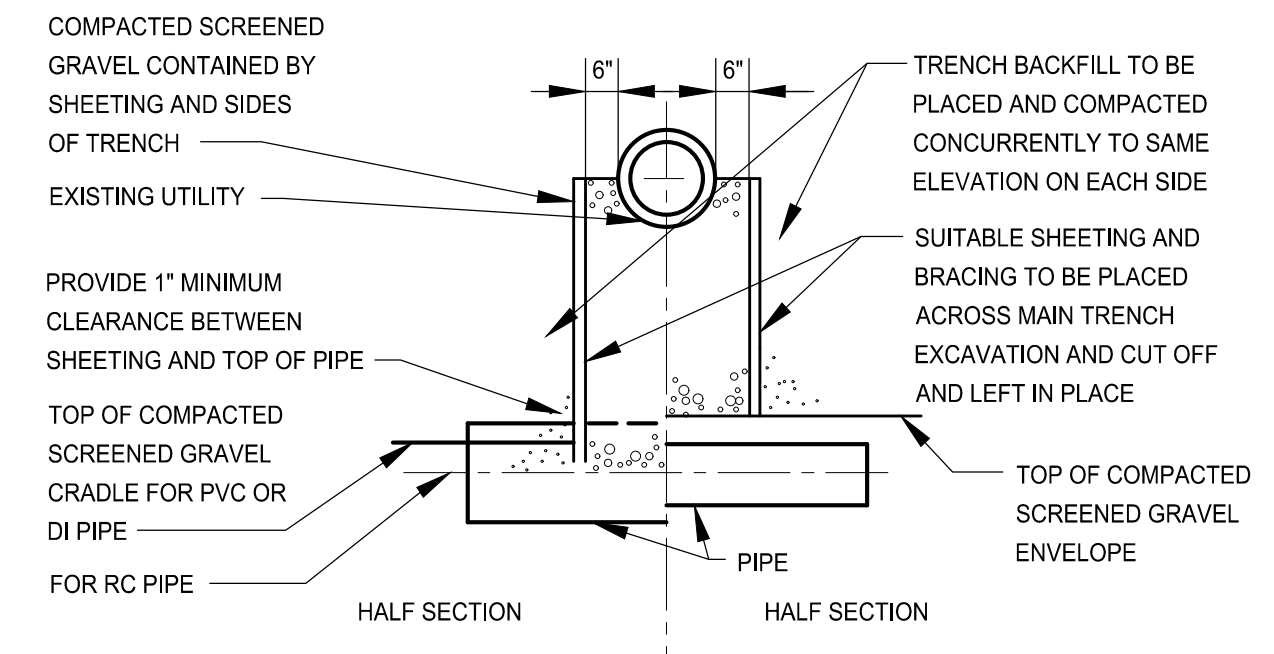
SECTION 1
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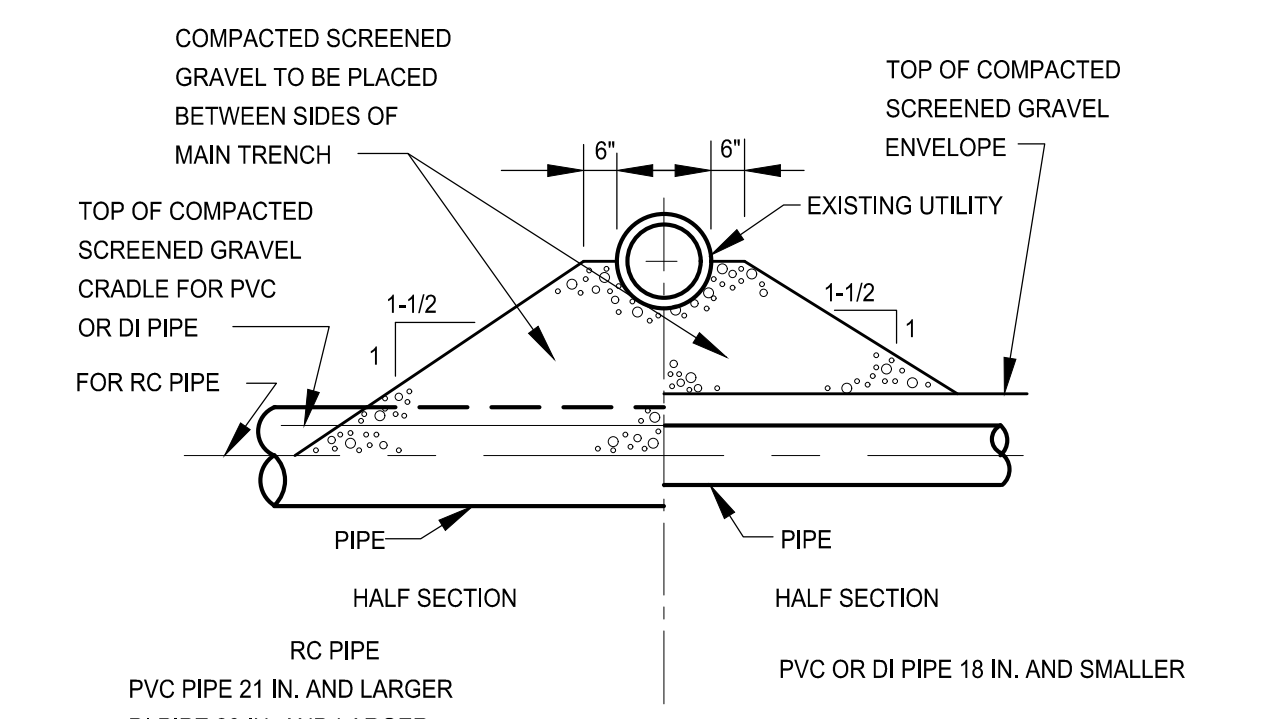
TYPICAL HYDRANT ASSEMBLY WITH DRAIN
 NTS
 2-1.21 (REV. 12-15-94)



TYPE C



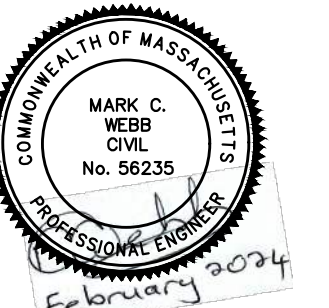
TYPE B



TYPE A

TYPICAL SUPPORT FOR UTILITIES
 NOT TO SCALE

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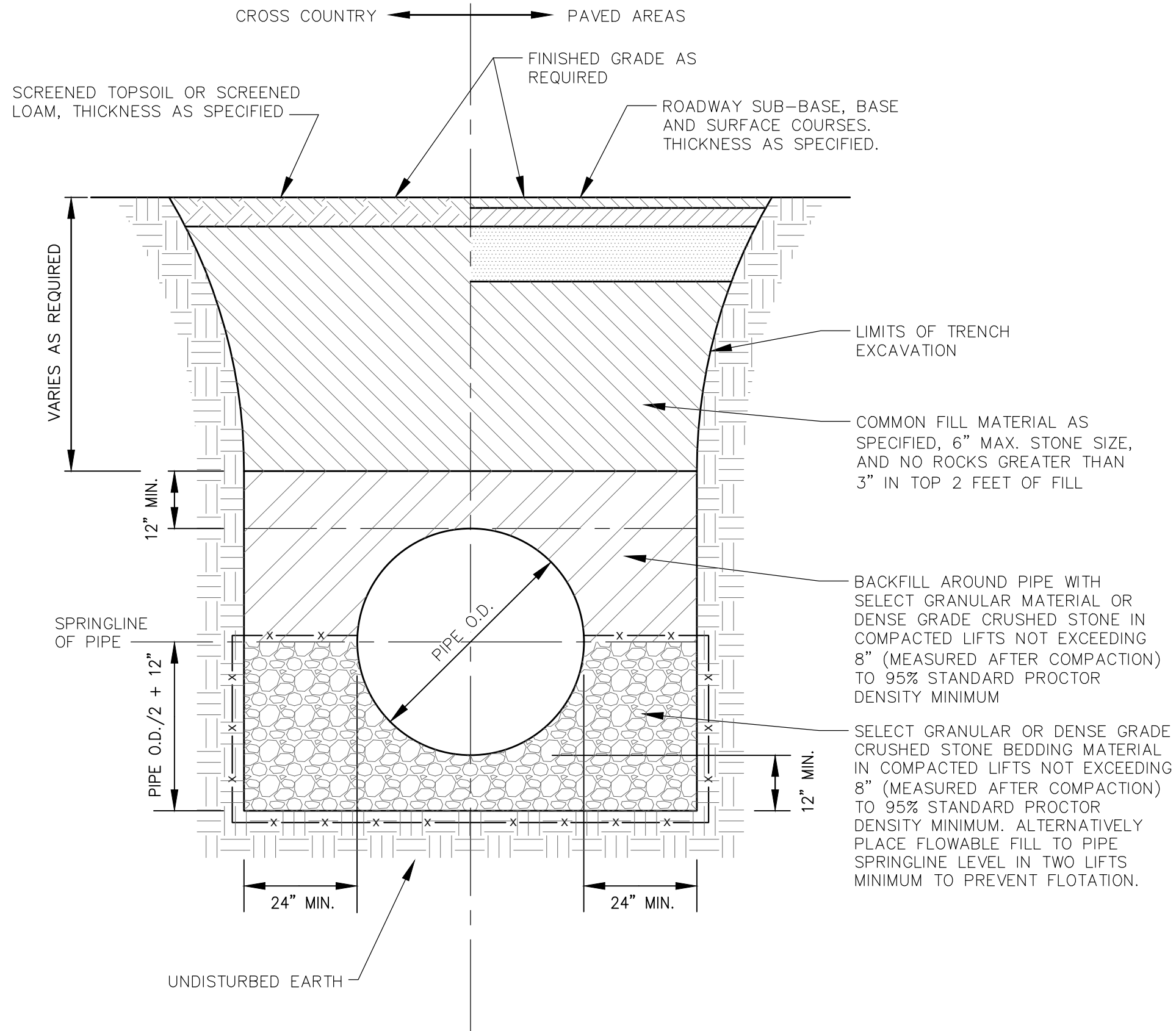


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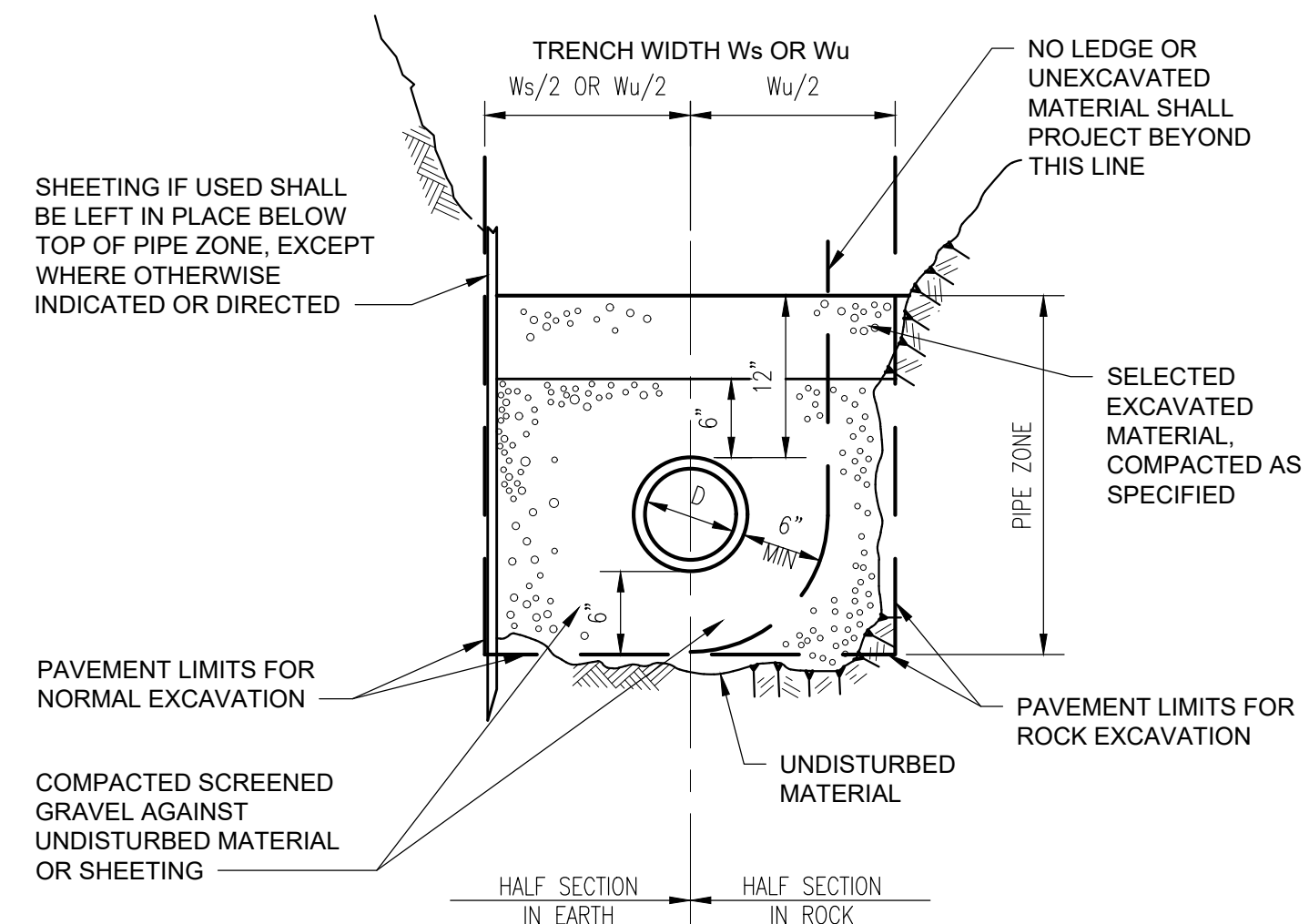
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Designed By:	TL
Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

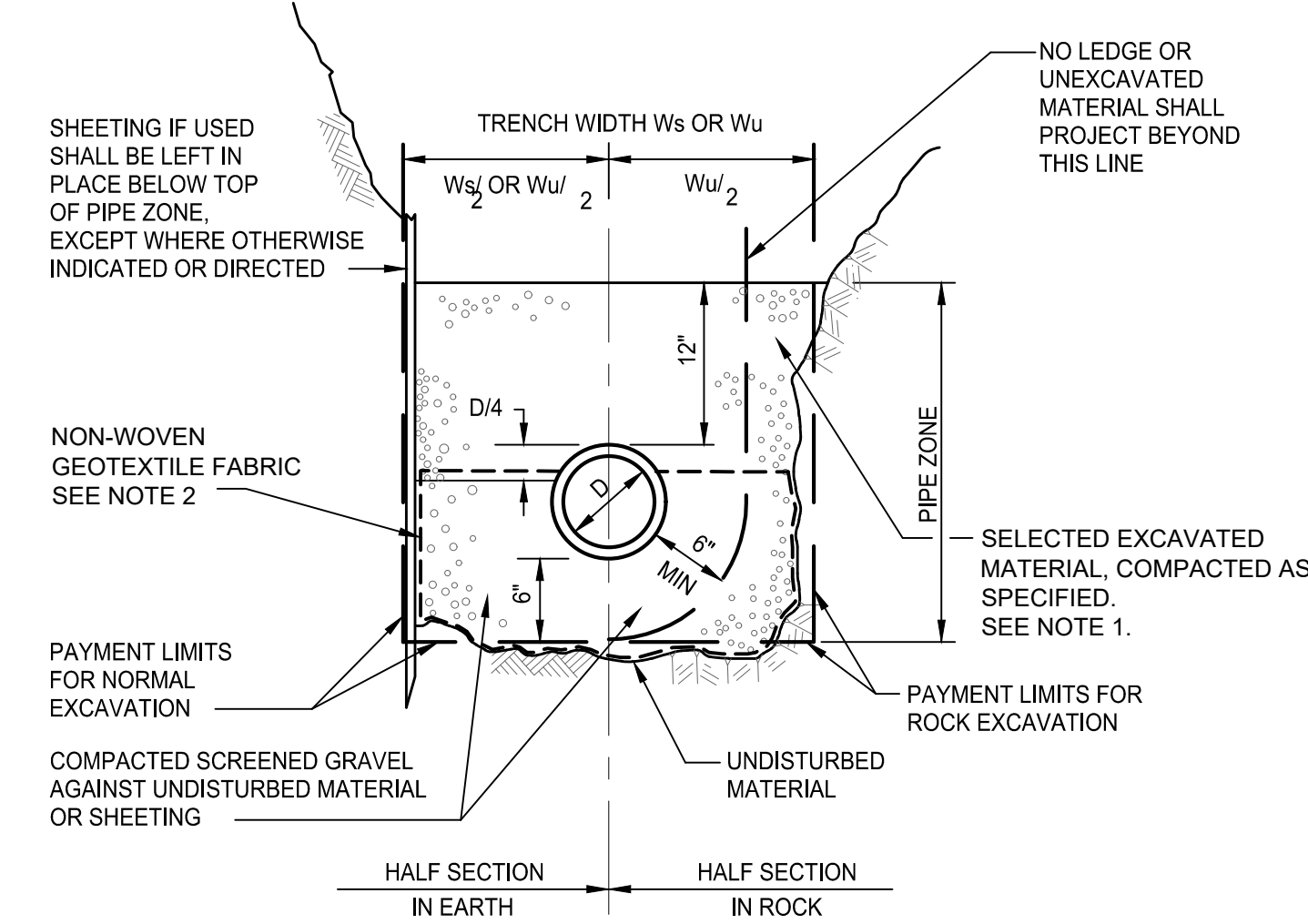
99 C-524



TRENCH SECTION FOR 60" STAINLESS STEEL PIPE
 NOT TO SCALE

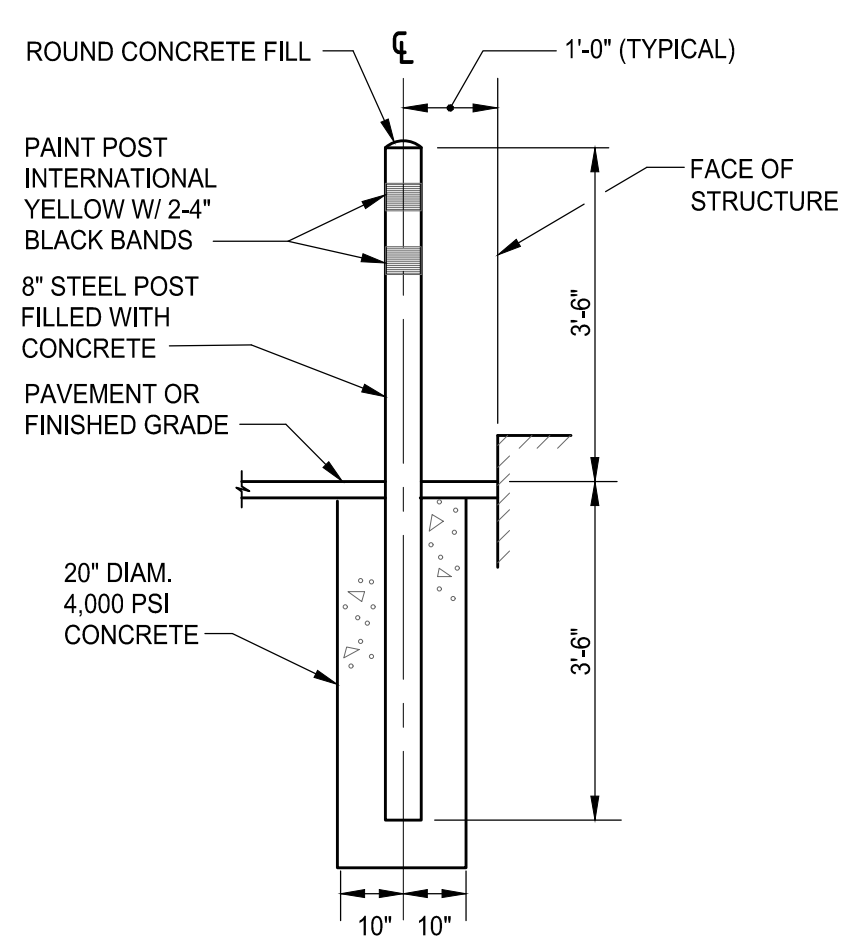


TRENCH SECTION FOR DI OR PVC PIPE 18 INCH DIAMETER AND SMALLER
 NOT TO SCALE

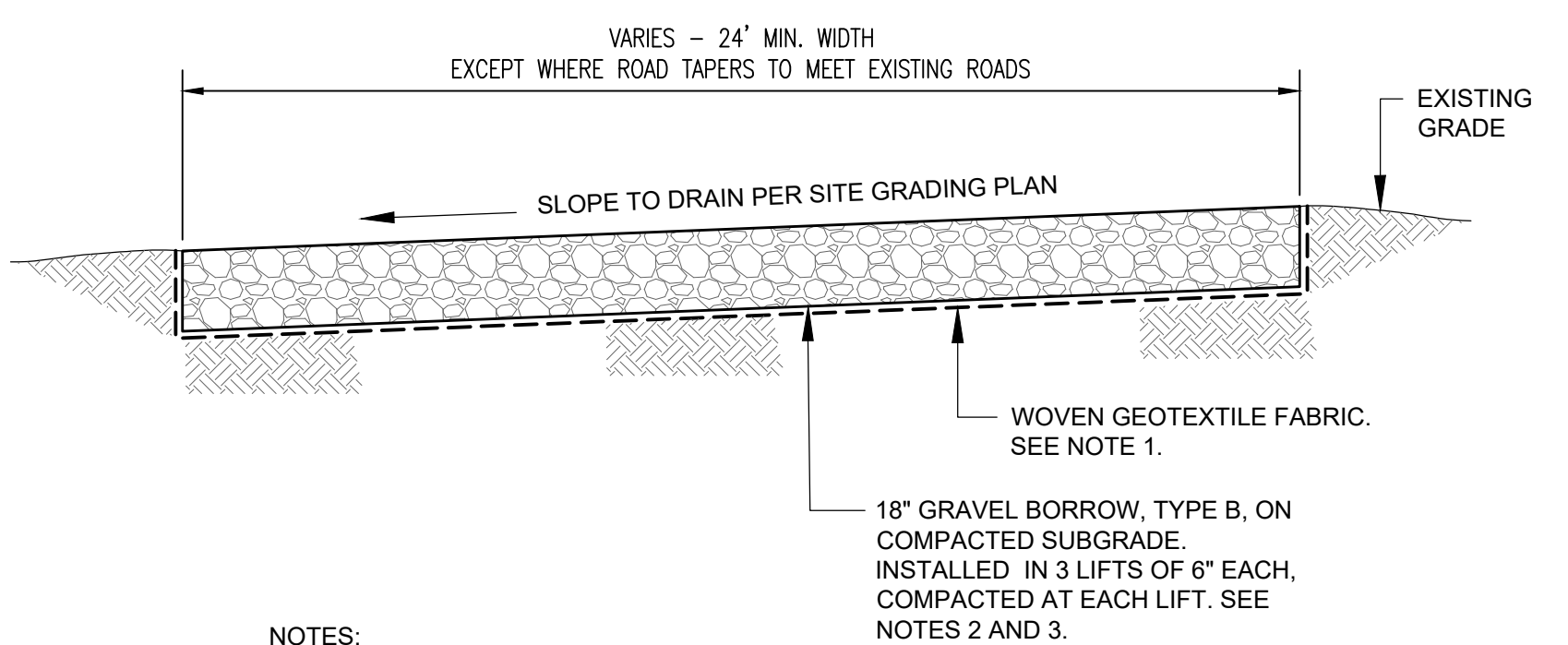


TRENCH SECTION FOR STEEL PIPE 20 INCH DIAMETER AND LARGER
 NOT TO SCALE

- NOTES:**
1. SELECTED EXCAVATED MATERIAL SHALL CONSIST OF ACCEPTABLE MATERIAL PER SECTION 02210 BUT WITH MAXIMUM PARTICLE SIZE NO LARGER THAN 3 INCHES.
 2. WRAP SCREENED GRAVEL IN NON-WOVEN GEOTEXTILE FABRIC TO PREVENT MIGRATION OF FINES FROM NATIVE SOIL INTO THE GRAVEL.

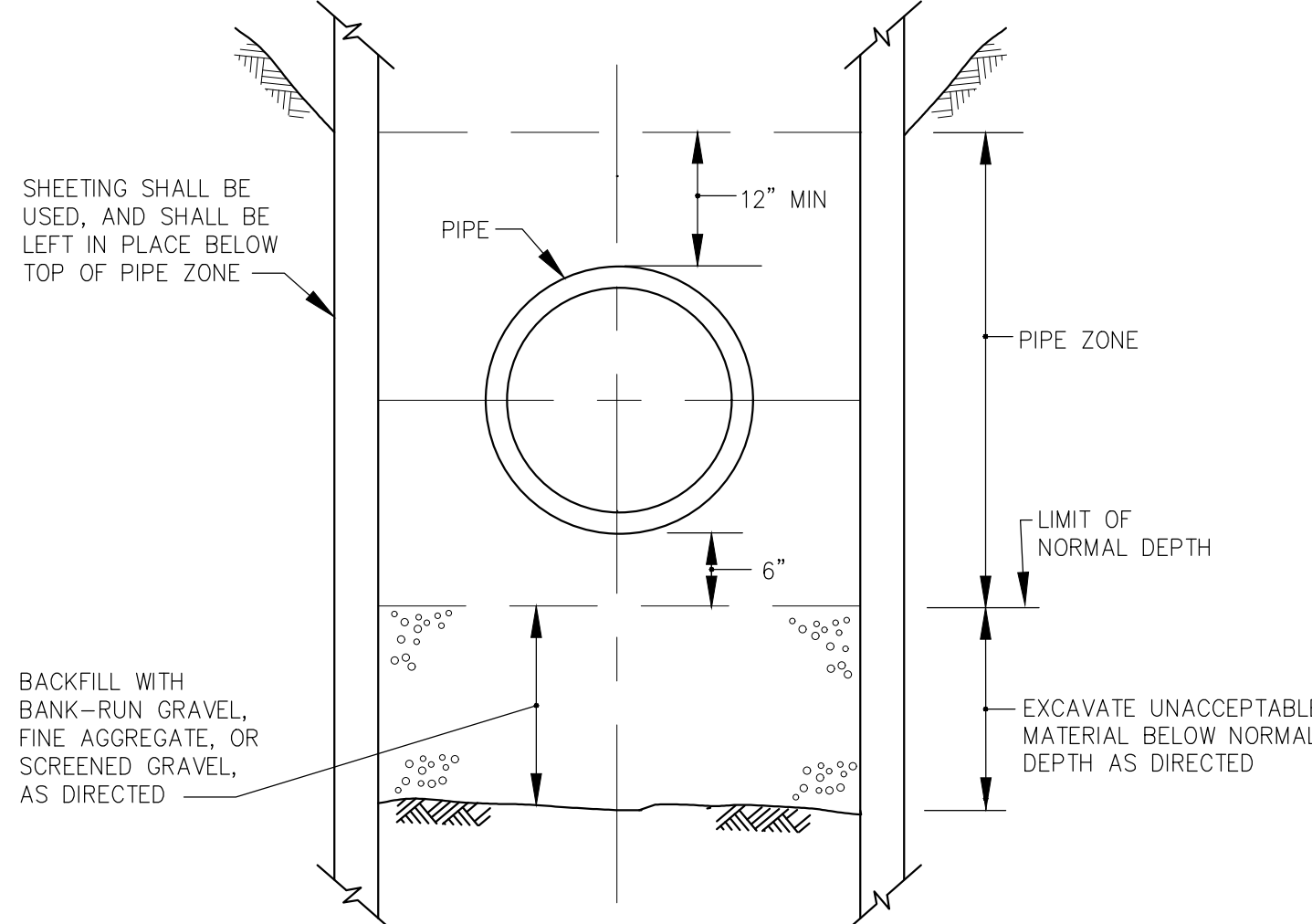


8" DIA. GUARD POST
 NOT TO SCALE



- NOTES:**
1. UNDERLAY AGGREGATE WITH WOVEN GEOTEXTILE FABRIC TO PREVENT MIGRATION OF FINES FROM NATIVE SOIL INTO THE AGGREGATE. GEOTEXTILE SHALL BE THE TYPE FOR SEPARATION AND STABILIZATION.
 2. BOTTOM 6" OF GRAVEL SHALL BE GRAVEL BORROW, TYPE B. RECLAIMED GRAVEL BORROW IS AN ACCEPTABLE SUBSTITUTE MATERIAL.
 3. TOP 12" OF GRAVEL SHALL BE DENSE GRADED CRUSHED STONE, IN TWO LIFTS.

GRAVEL ROAD SECTION
 NOT TO SCALE



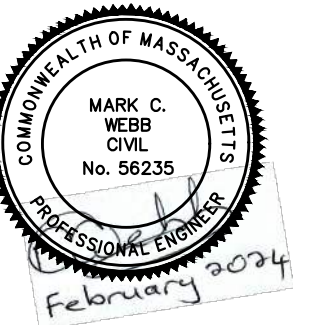
TRENCH SECTION IN UNACCEPTABLE MATERIAL
 NOT TO SCALE

1. PIPE TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH W_s (SHEETED) OR W_u (UNSHEETED) ABOVE THE TOP OF PIPE ZONE.
2. TRENCHES SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH W_u BELOW THE TOP OF PIPE ZONE.
3. SHEETING MUST BE USED IF EXCAVATION AND BACKFILL, BELOW NORMAL DEPTH, IS REQUIRED. SHEETING SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF PIPE AND 5'-0" BELOW GRADE.
4. ALL ROCK WITHIN 3'-0" HORIZONTALLY OF THE ENDS OF BUILDING CONNECTIONS, BRANCHES OR STUBS AND DOWN TO A HORIZONTAL PLANE 6" BELOW THE BOTTOMS OF SUCH CONNECTIONS, BRANCHES OR STUBS, SHALL BE EXCAVATED.
5. CONTROL DENSITY FILL TO BE USED AS BACKFILL WHERE UTILITIES OR ROAD ARE UNDERMINED OR AS DIRECTED BY THE ENGINEER.
6. ALL WATERMAIN PIPELINES AND APPURTENANCES SHALL BE INSTALLED WITH 6 FT. COVER OR GREATER BELOW FINISH GRADE.

NOMINAL PIPE DIAMETER D	TRENCH WIDTH W_s OR W_u (WITH/WITHOUT LEDGE EXCAVATION)	
	DEPTH OF PIPE INVERT BELOW GROUND SURFACE 0 TO 12'	12' TO 20'
24" AND SMALLER	5'-0"	7'-0"
OVER 24"	D + 3'-0"	D + 5'-0"

GENERAL NOTES FOR PIPE TRENCHES
 NOT TO SCALE

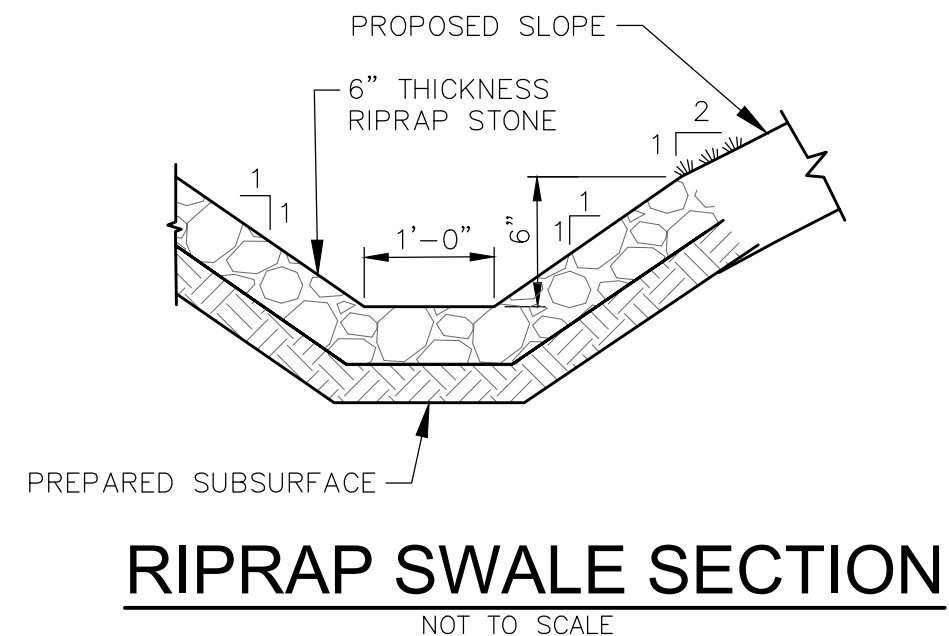
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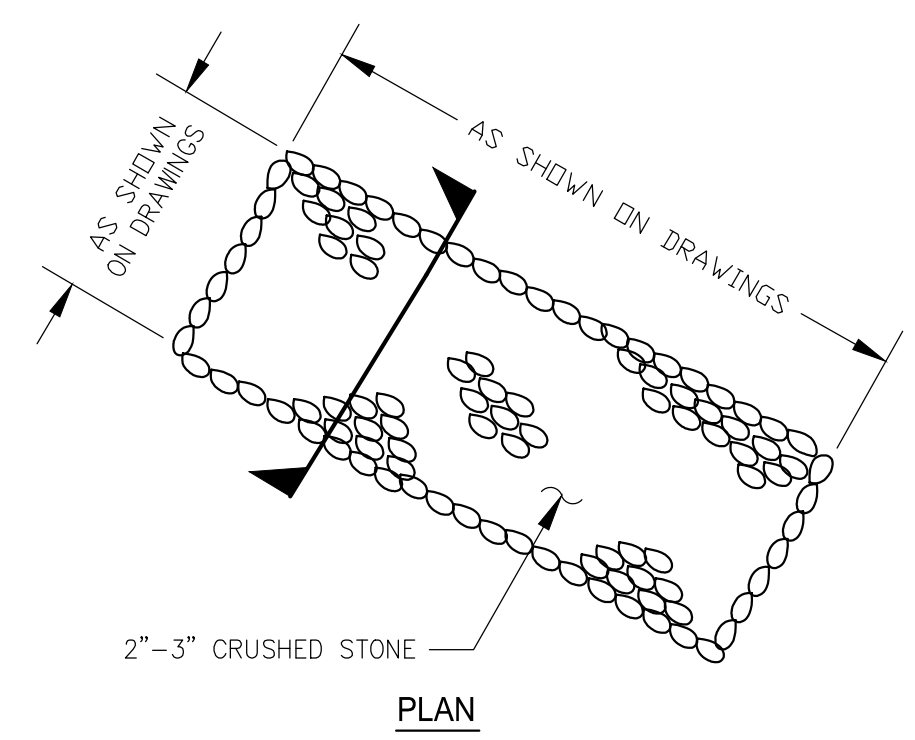
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60662775

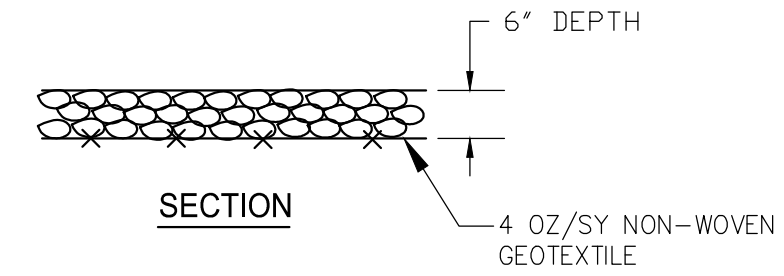
Designed By:	TL
Drawn By:	ZB
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED



RIPRAP SWALE SECTION
 NOT TO SCALE



PLAN



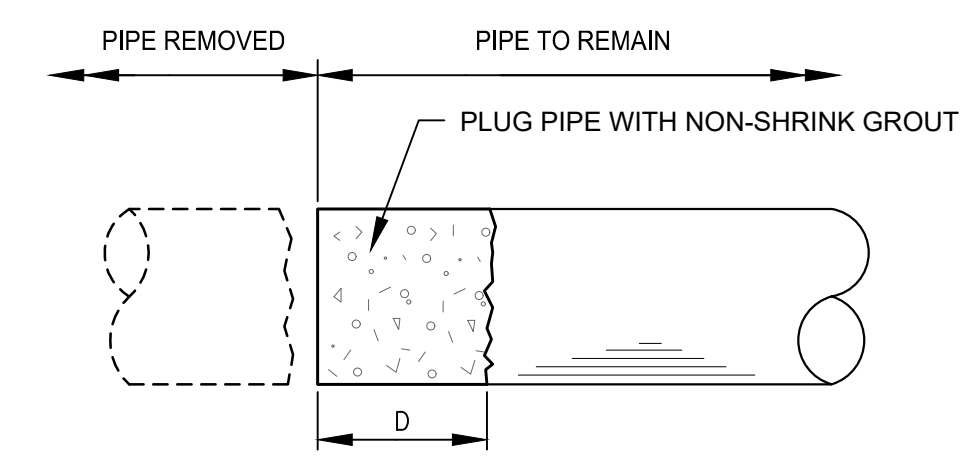
SECTION

STABILIZED CONSTRUCTION AREA NOTES:

1. FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACING OF STONE.
2. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WILL BE PERMITTED.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY.
4. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.
5. REMOVE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO DEMOBILIZATION.

STABILIZED CONSTRUCTION ENTRANCE AT CONTRACTOR STAGING AREA

NOT TO SCALE



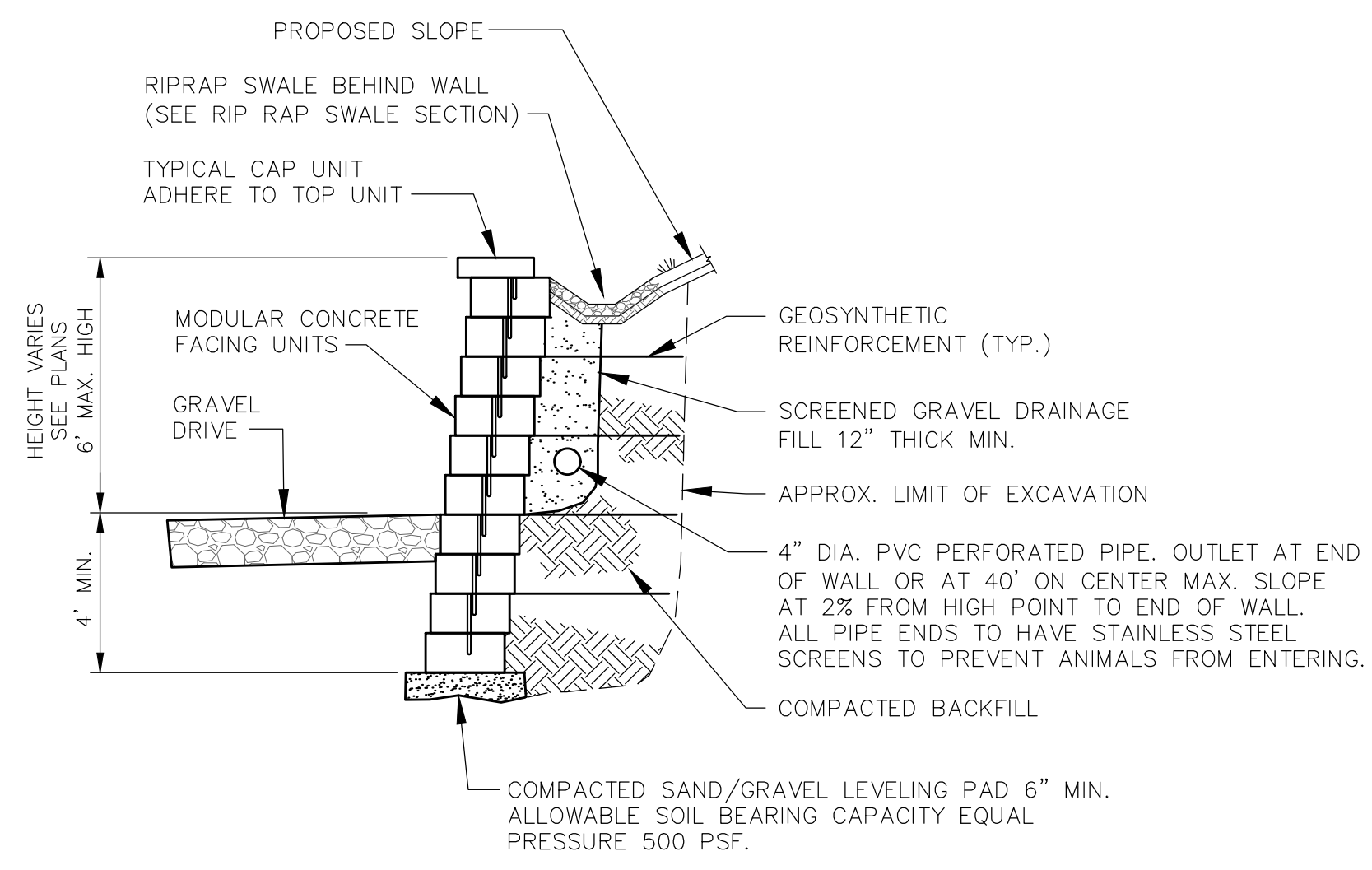
NOTES:

1. PLUG ALL ABANDONED PIPES AT THEIR TERMINATIONS.
2. DEPTH OF PLUG (D) SHALL BE EQUAL TO DIAMETER OF PIPE (12" MIN.).

TYPICAL PIPE PLUGGING DETAIL

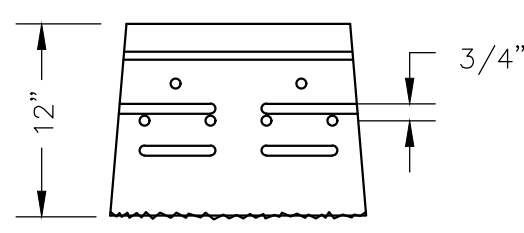
NOT TO SCALE

NOTE:
 FOR EROSION CONTROL DETAILS, SEE SHEET 99 C-511.



RETAINING WALL SECTION

NOT TO SCALE

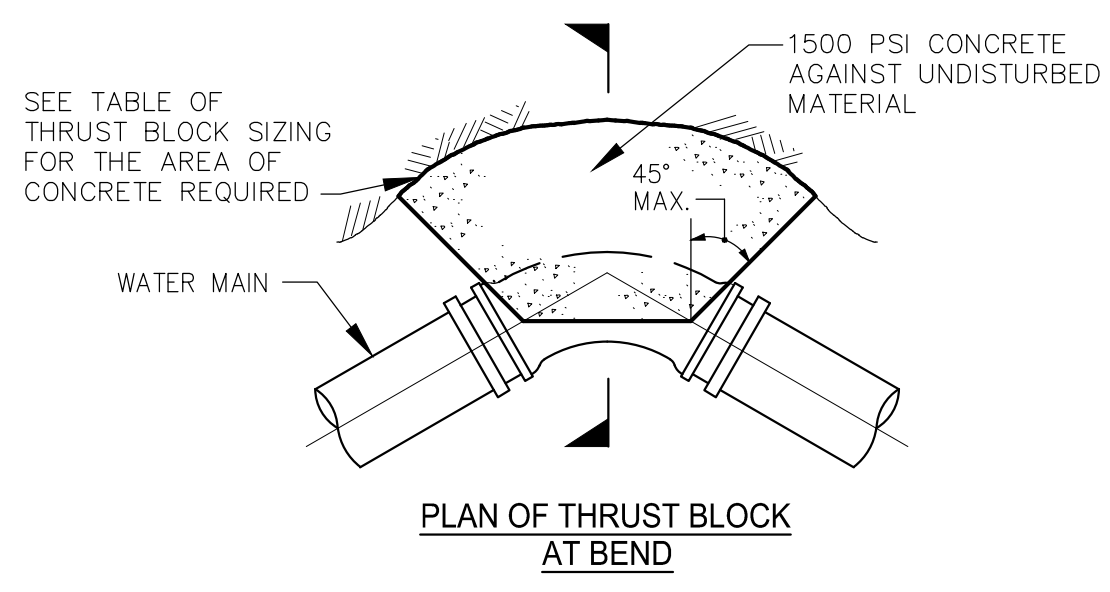


TYPICAL UNIT

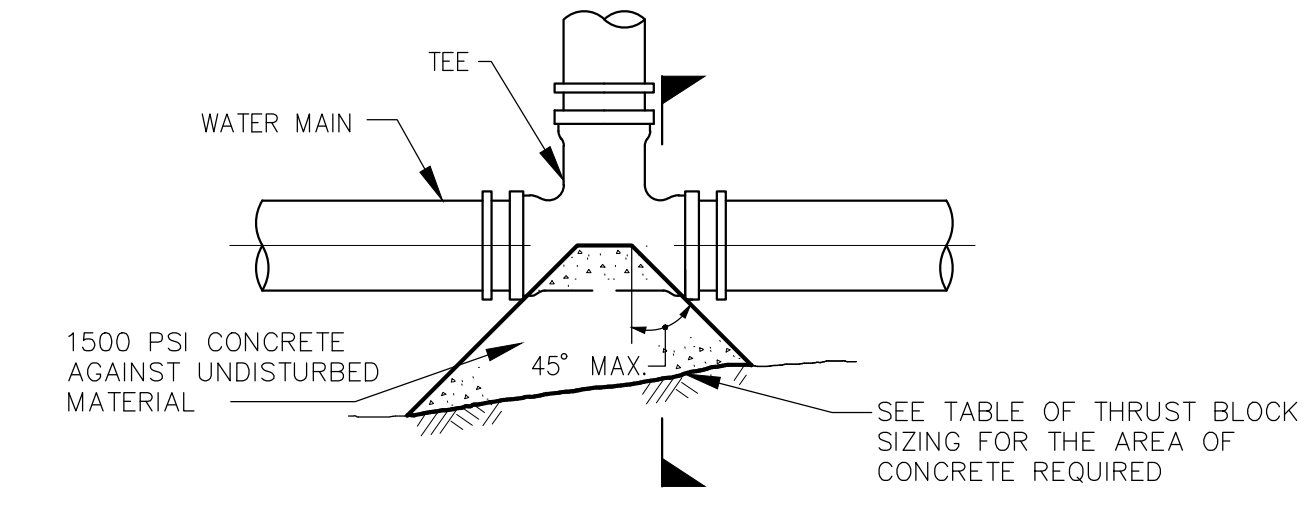
UNIT DIMENSIONS

RETAINING WALL NOTES:

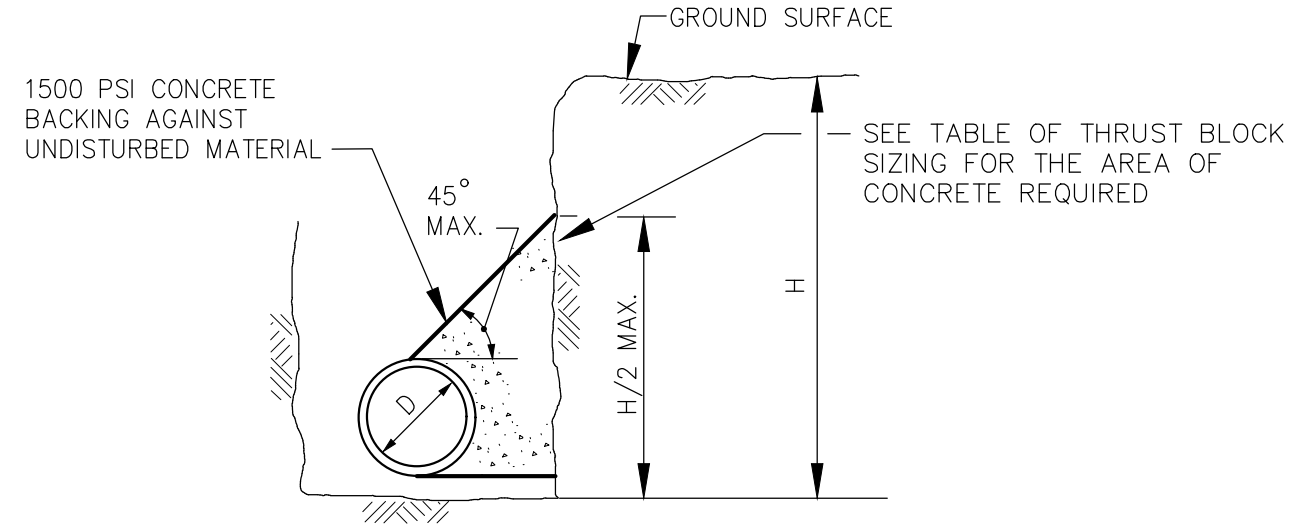
1. ALL WALLS SHALL BE DESIGNED FOR A 2H:1V SLOPING BACKFIELD. STRIP ALL VEGETATION AND ORGANIC SOIL FROM THE WALL AND GRID ALIGNMENT.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED BY THE WALL DESIGN ENGINEER TO REMOVE UNACCEPTABLE SOIL.
4. WALL DESIGN ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT.
5. BASE SHALL CONSIST OF 95% COMPACTED SANDS AND GRAVEL, MINIMUM 6" THICK.
6. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND SPECIFICATIONS.
7. BACKFILL AND COMPACT IN FRONT OF THE WALL AS WALL IS INSTALLED.
8. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED.
9. BACKFILL COMPACTION SHALL BE TO 95% OF MAXIMUM PROCTOR DENSITY.
10. PROVIDE LATERAL DRAINAGE SWALES TO DIRECT FLOWS AROUND THE ENDS OF THE WALL.
11. ESTABLISH TURF AS SOON AS THE WALL IS COMPLETED.
12. FINAL WALL ALIGNMENT SHALL BE LOCATED IN THE FIELD.
13. CAPS SHALL BE PLACED AS REQUIRED BY CONTRACT.
14. CAPS SHALL BE ADHERED TO WALL USING CONCRETE ADHESIVE.
15. WHEN CUTTING CAP UNIT FOR WALL END DO NOT USE A CAP SECTION LESS THAN 6" WIDE.
16. CAPS MAY BE PLACED FLUSH OR WITH A 1/2" TO 3/4" OVERHANG ON TOP OF WALL.



PLAN OF THRUST BLOCK AT BEND



PLAN OF THRUST BLOCK AT TEE



THRUST BLOCK SECTION

CONCRETE THRUST BLOCKS

NTS
 2-1.25 (REV. 12-15-94)

PIPE SIZE		PRESSURE 150 PSI						
PIPE SIZE	BEND	TYPE OF SOIL CONDITION						
		A	B	C	D	E	F	G
8"	TEES & PLUGS	15.5	8	5.5	4	3	2	1.5
	90	21.5	11	7.5	5.5	4	3	2.5
	45	12	6	4	3	2	1.5	1.5
	22 1/2	6	3	2	1.5	1	1	1
12"	TEES & PLUGS	34	17	11.5	8.5	6	4.5	3.5
	90	48	24	16	12	8	6	5
	45	26	13	9	6.5	4.5	3.5	3
	22 1/2	13.5	7	4.5	3.5	2.5	2	1.5

TYPE OF SOIL CONDITION	LATERAL BEARING PRESSURE (LBS PER SQ. FT.)
A - SOFT CLAY; FINE LOOSE SAND	500
B - SAND & CLAY; MIXED OR IN LAYERS; FINE CONFINED SAND	1000
C - HARD DRY CLAY	1500
D - COARSE SAND	2000
E - GRAVEL	3000
F - SOFT ROCK	4000
G - HARD PAN	5000

NOTES:

1. FOR FITTINGS WITH LESS THAN 22 1/2° DEFLECTION USE BEARING AREAS FOR 22 1/2° BEND.
2. JOINTS SHALL NOT BE ENCASED IN CONCRETE. BEARING AREAS MAY BE DISREGARDED FOR TRENCHES IN ROCK WHERE THE TOP OF THE ROCK FACE IS AT OR ABOVE THE CROWN OF THE PIPE. HOWEVER, CONCRETE BACKING SHALL BE PLACED BETWEEN THE PIPE AND ROCK FACE.
3. THE CONTRACTOR SHALL SUBMIT, 2-WEEKS IN ADVANCE OF PLACEMENT, WORKING DRAWINGS FOR EACH THRUST BLOCK, TO THE ENGINEER, FOR APPROVAL PRIOR TO INSTALLATION.
4. BEARING AREAS FOR THRUST BLOCKS FOR PIPE LARGER THAN 24 IN. SHALL BE DESIGNED BASED ON SOIL BORING DATA.
5. ACTUAL FIELD CONDITIONS SHALL BE VERIFIED DURING INSTALLATION.

TABLE OF THRUST BLOCK SIZING FOR BURIED PIPE RESTRAINT

NTS

PATHFILENAME: L:\DCS\PROJECTS\WTR\6062775_SWSC_WF_HYDRO_ELECT_PDR\900_CAD_GIS\910_CAD\20-SHEETS\C509-C-525.DWG
 LAST UPDATE: Monday, February 5, 2024 9:50:13 AM
 PLOT DATE: Friday, February 9, 2024 1:44:35 PM



Kevin R. Krawiec
 FEBRUARY 2024

I/R	DATE	DESCRIPTION

60662775

Designed By: **CP**

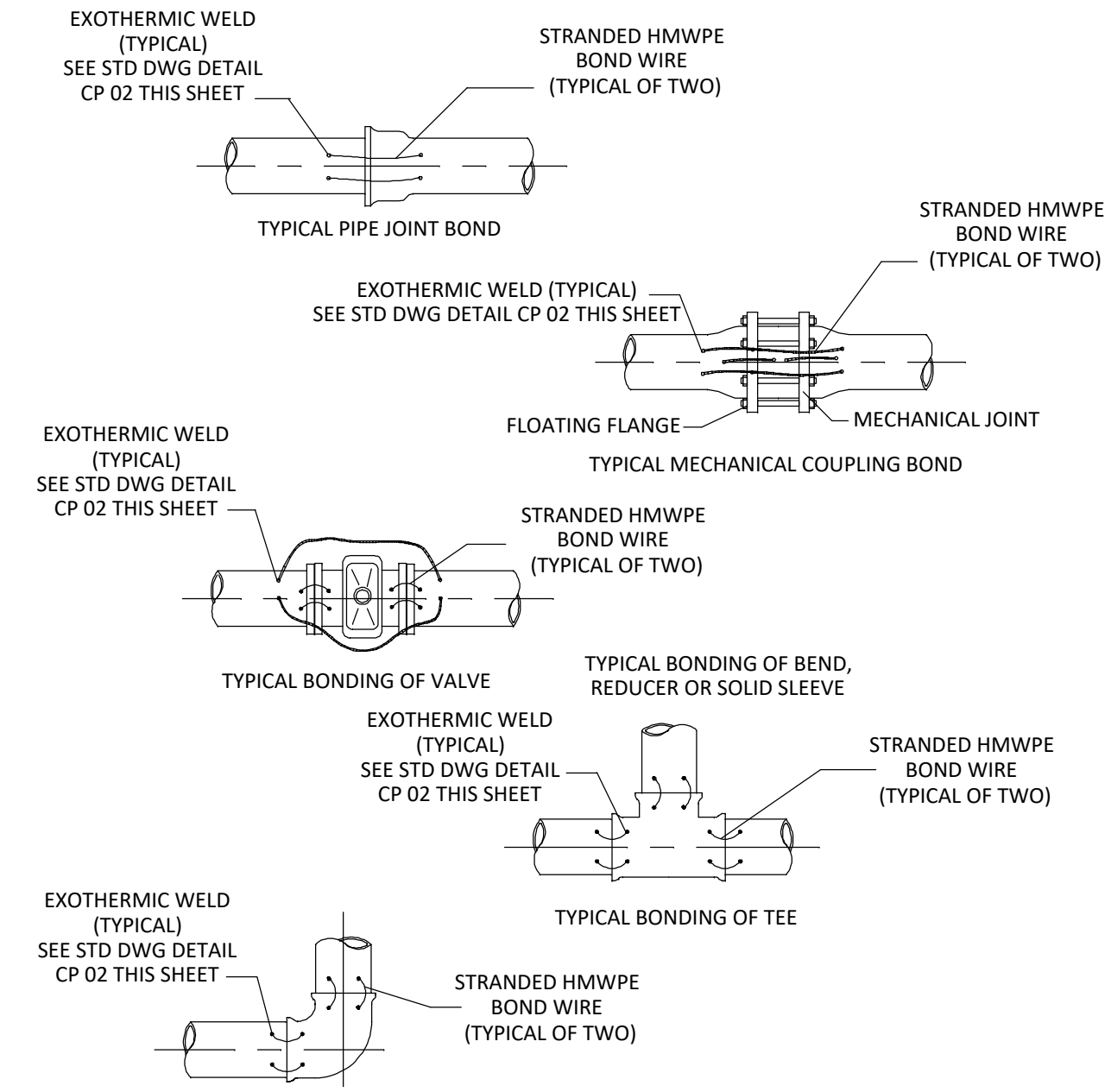
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Dept Check: **CB**

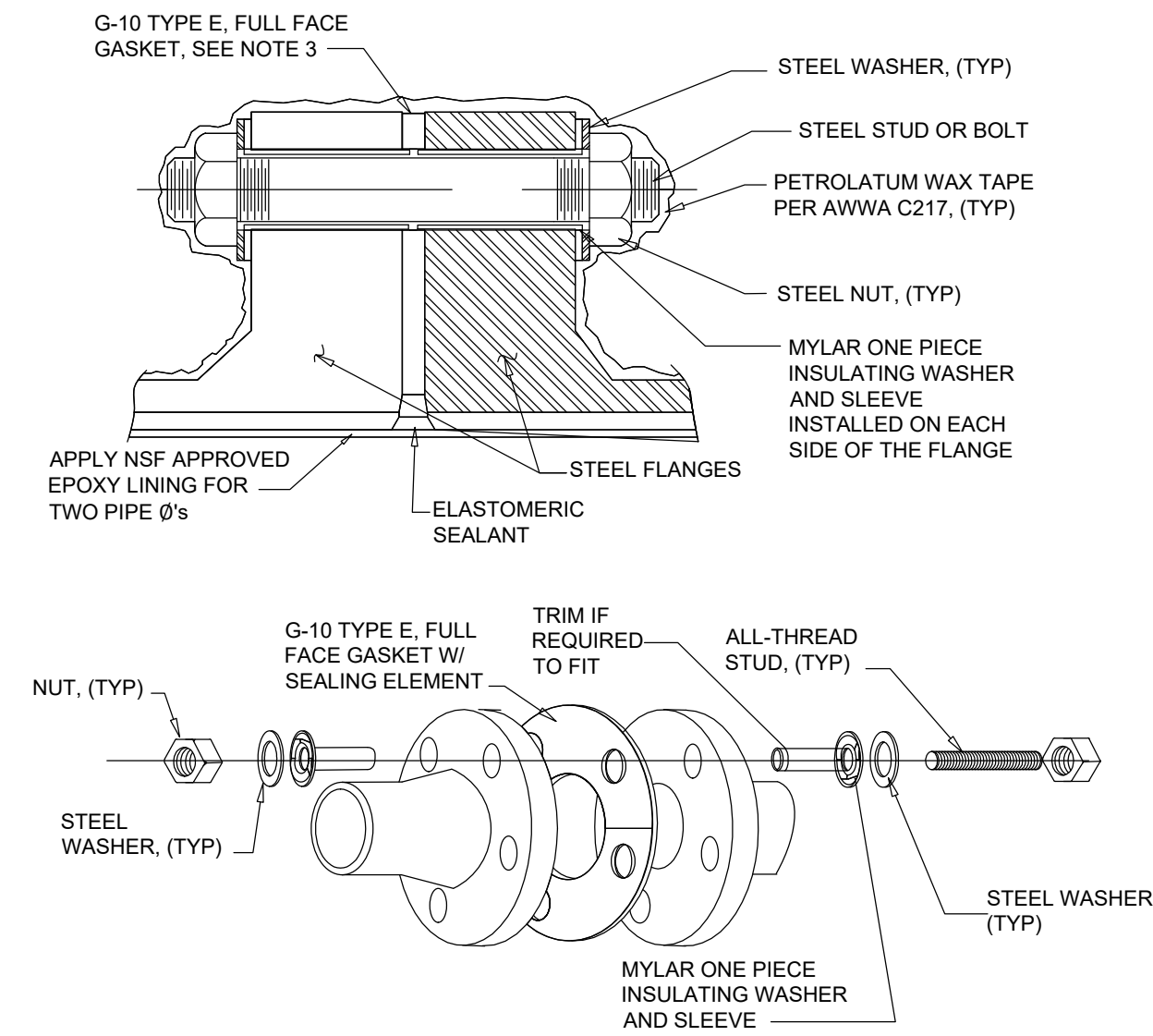
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Date: **FEBRUARY 2024**

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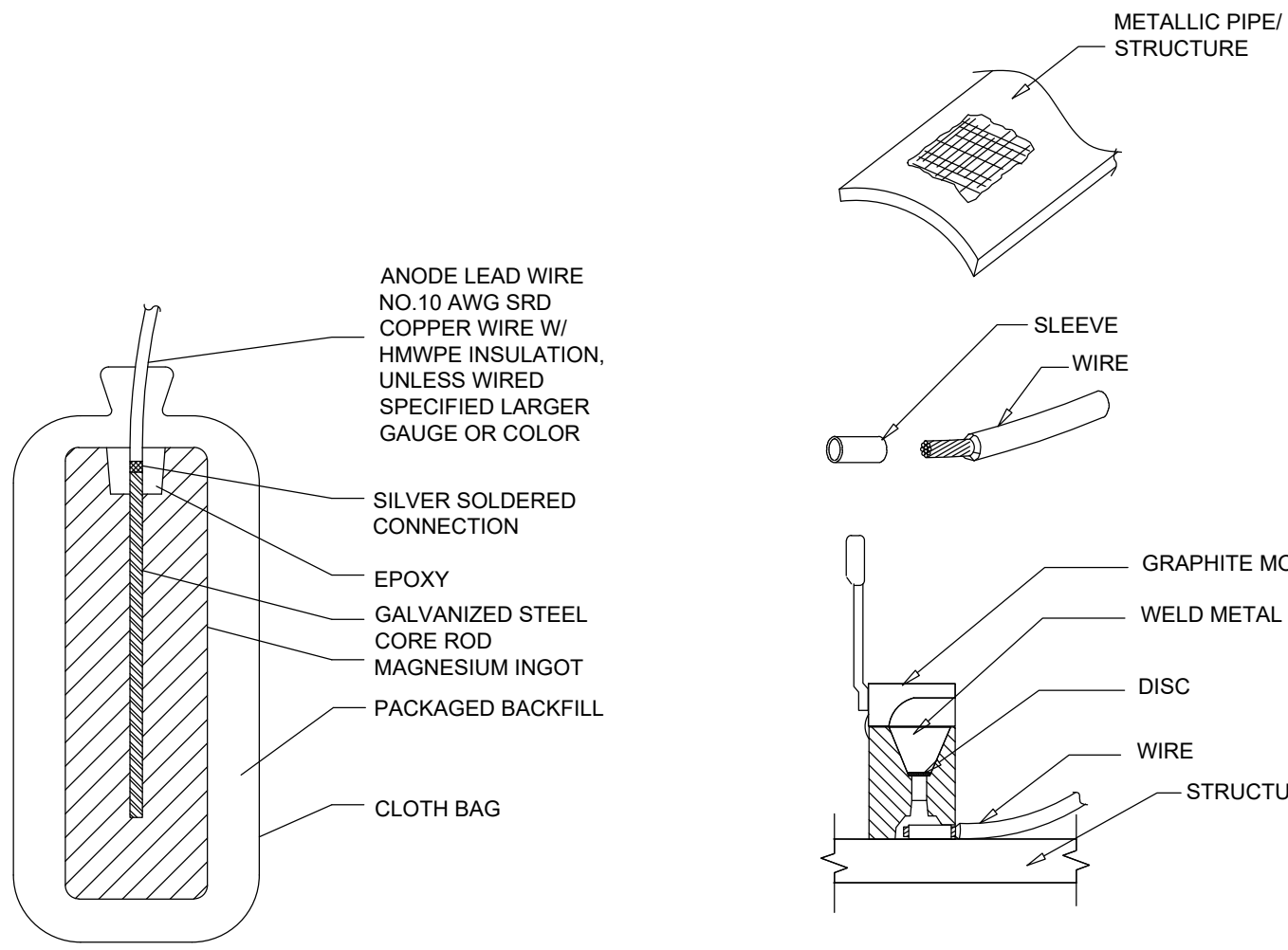
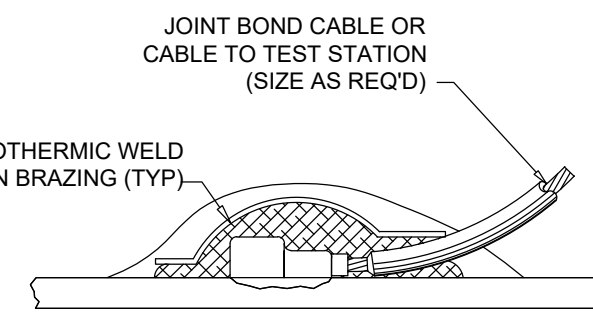


- NOTES:**
- BOND ALL NON-WELD PIPE JOINTS, INCLUDING THOSE ON PIPE, FITTINGS, VALVES, EXCEPT THOSE SPECIFIED TO BE INSULATED.
 - EXOTHERMIC WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS, SEE STD DETAIL.
 - BONDING WIRE SIZE AS PER SPECIFICATIONS.



- NOTES:**
- TEST INSULATING FLANGE BEFORE APPLYING WAX TAPE AND BURIAL.
 - EXTEND WAX TAPE 12" BEYOND FLANGE FACE OR 12" ONTO PIPE COATING, WHICHEVER IS GREATER.
 - EXTEND FULL FACE GASKET 1/8" BEYOND STEEL CAN ID. FILL REMAINING ANNULUS BETWEEN LINING W/ NSF APPROVED ELASTOMERIC SEALANT COMPATIBLE W/ LINING MATERIAL.
 - THE ENDS OF THE INSULATING SLEEVES MAY NEED TO BE TRIMMED IN ORDER TO FIT PROPERLY.
 - INSTALL A SINGLE MYLAR INSULATING SLEEVE WITH G-10 INSULATING WASHERS AND STEEL WASHER ON BOTH SIDES OF THE FLANGE.

- NOTES:**
- GRIND PIPE/STRUCTURE TO BARE METAL AND CLEAN SURFACE.
 - STRIP INSULATION FROM WIRE AND ATTACH SLEEVE.
 - HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR. IGNITE WITH FLINT GUN, REMOVE SLAG FROM CONNECTION WITH CHIPPING HAMMER. TEST WELD WITH 22 OZ HAMMER W/ GLANCING BLOW. IF WELD FAILS, POSITION WIRE ATTACHMENT A MINIMUM 3" AWAY REPEATING THE ABOVE STEPS. ATTACH LEAD WIRES A MINIMUM 6" APART.
 - COVER CONNECTION WITH BITUMASTIC COATING OVER ALL EXPOSED METAL, PLACE WELD CAP OVER CONNECTION. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH MFG RECOMMENDATIONS.
 - ALLOW COATING TO CURE BEFORE BURIAL.
 - ILLUSTRATION DEPICTS HORIZONTAL WELDER. FOR OTHER ORIENTATION USE MOLD RECOMMENDED BY MANUFACTURER.



HIGH POTENTIAL ANODE INGOT CHEMICAL COMPOSITION ELEMENT AMOUNT BY WT

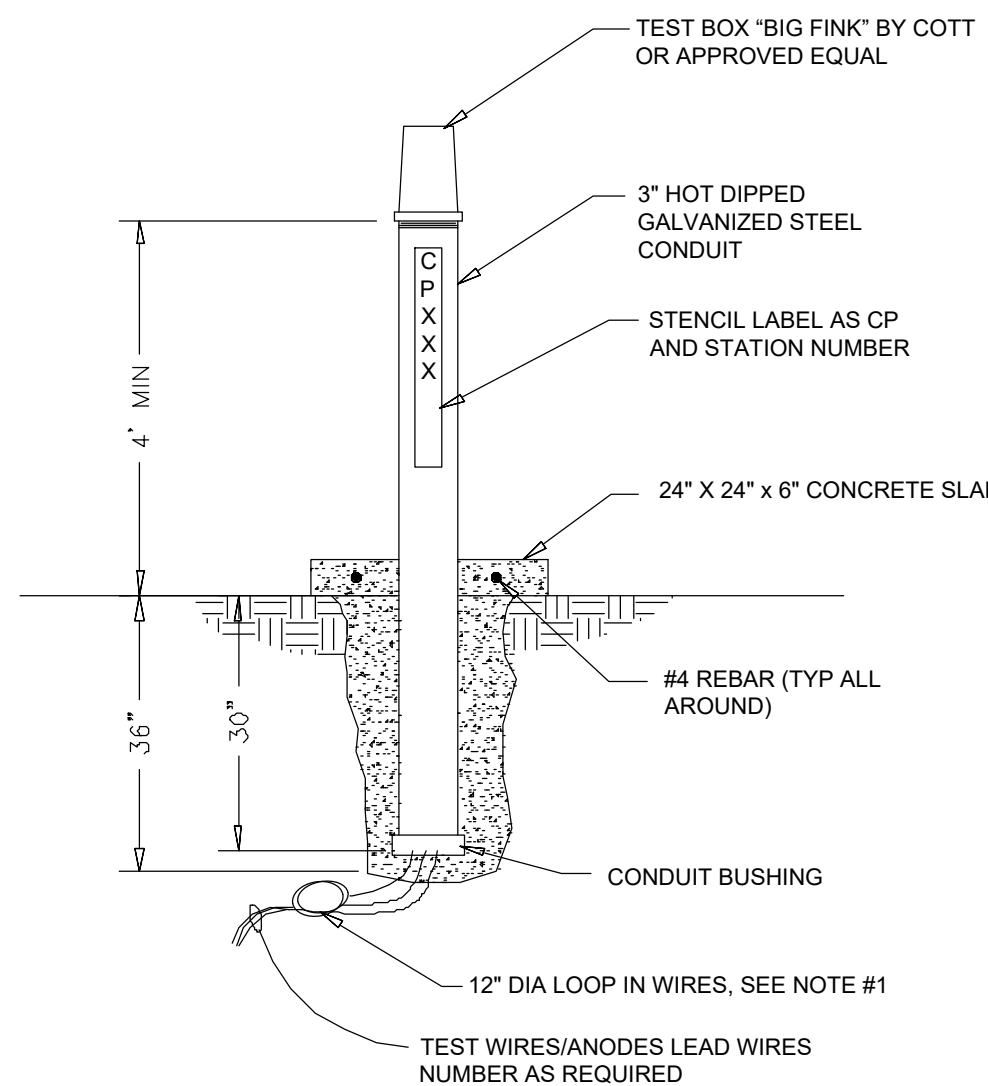
AL	0.010%
Mn	0.50-1.30%
Cu	0.02% Max
Ni	0.001% Max
Fe	0.03% Max
OTHER	0.30% Max
REMAINDER	Mg

ANODE MODEL 17D3
INGOT WEIGHT: 17-LB
PACKAGED WEIGHT: 45-LB
ANODE DIMENSIONS: 3.50" X 3.75" X 25.75"

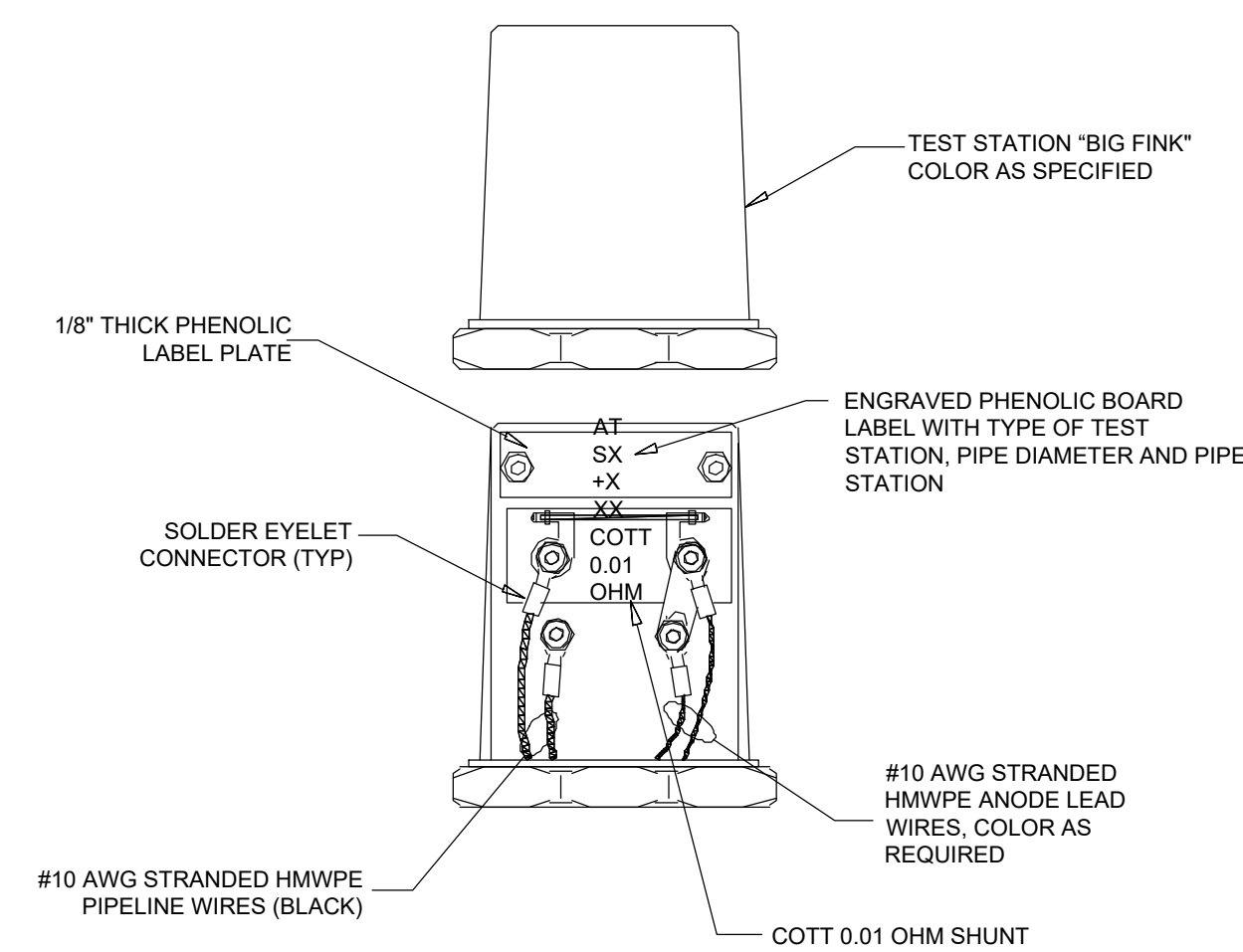
BACKFILL COMPOSITION

GYPSUM	75%
BENTONITE	20%
SODIUM SULPHATE	5%

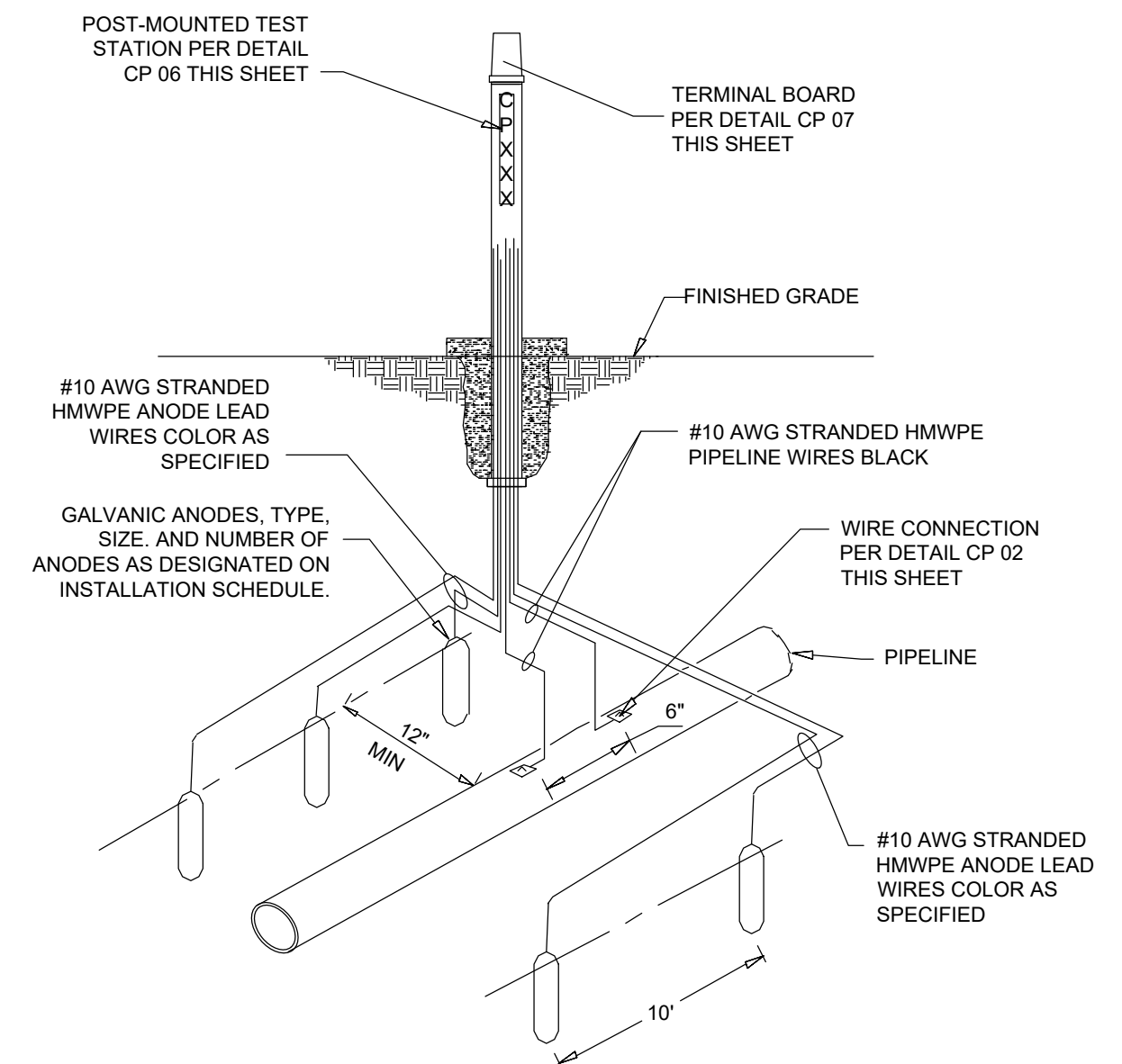
- NOTES:**
- MAGNESIUM INGOT SHALL BE CENTERED IN BACKFILL MATERIAL. IF REQUIRED ROLL PACKAGED ANODE AFTER SHIPPING TO REPOSITION INGOT IN CENTER OF BACKFILL.
 - REMOVE PLASTIC SHIPPING MATERIAL PRIOR TO INSTALLATION.
 - MEASURE AND RECORD ANODE OPEN CIRCUIT POTENTIAL PRIOR TO INSTALLATION. INCLUDE TEST DATA IN TESTING SUBMITTALS.
 - DO NOT SUSPEND ANODE WEIGHT FROM COPPER WIRE. USE A ROPE SLING TO HOIST AND LOWER ANODE DURING INSTALLATION.



- NOTES:**
- LOOP WIRE AT BASE OF POST TO MINIMIZE WIRE STRESS.
 - COAT THREADS WITH INORGANIC ZINC PRIMER OR COLD GALVANIZING REPAIR COATING.
 - FOR ANODE TEST STATION, USE ANODE JUNCTION BOX IF NUMBER OF ANODES IS MORE THAN 4.



- NOTE:**
- TERMINALS SHALL BE 1/4" STAINLESS STEEL WITH LOCKING WASHER, TWO FLAT WASHERS, AND DOUBLE NUTS
 - FOR SIMPLICITY ONLY TWO ANODES SHOWN, SIZE AND NUMBER OF ANODES PER THE SPECIFICATIONS.



- NOTES:**
- PLACE PLASTIC WARNING TAPE 12" ABOVE WIRE RUNS.
 - HORIZONTAL RUNS TO BE 36" BELOW GRADE.
 - AS LOOKING UPSTREAM, THE RIGHT-SIDE ANODE LEADS SHALL BE ORANGE COLOR CODED AND THE LEFT-HANDED ANODE LEADS SHALL BE BLACK COLOR CODED.
 - BOTTOM OF ANODES SHALL BE INSTALLED AT AN ELEVATION EQUAL TO THE BOTTOM OF THE PIPE.

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS



REGISTRATION



Kevin R. Krawiec
FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CP
Drawn By:	ZB
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

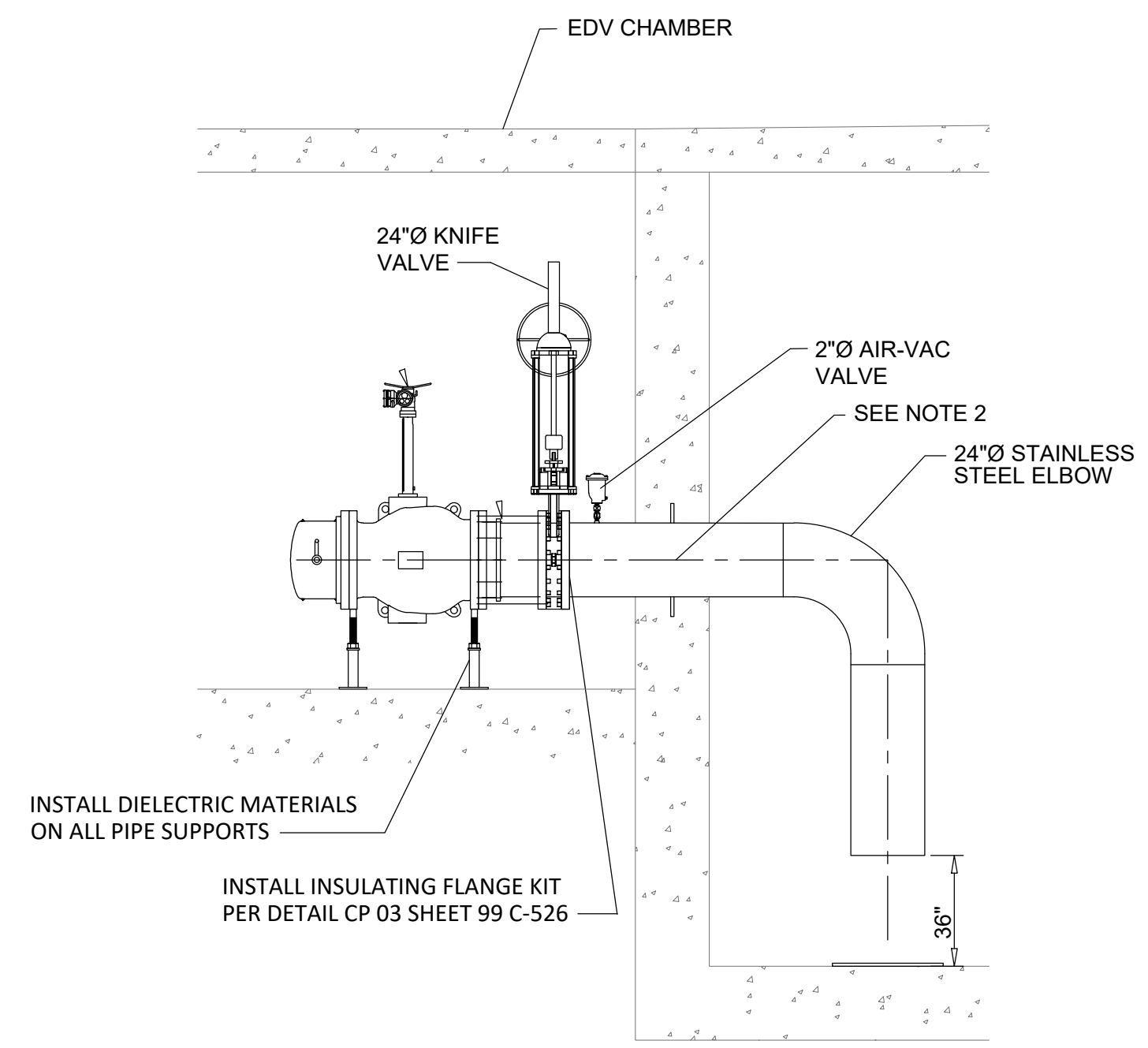
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CIVIL SHEET TITLE

CIVIL DETAILS V - CATHODIC PROTECTION II

SHEET NUMBER

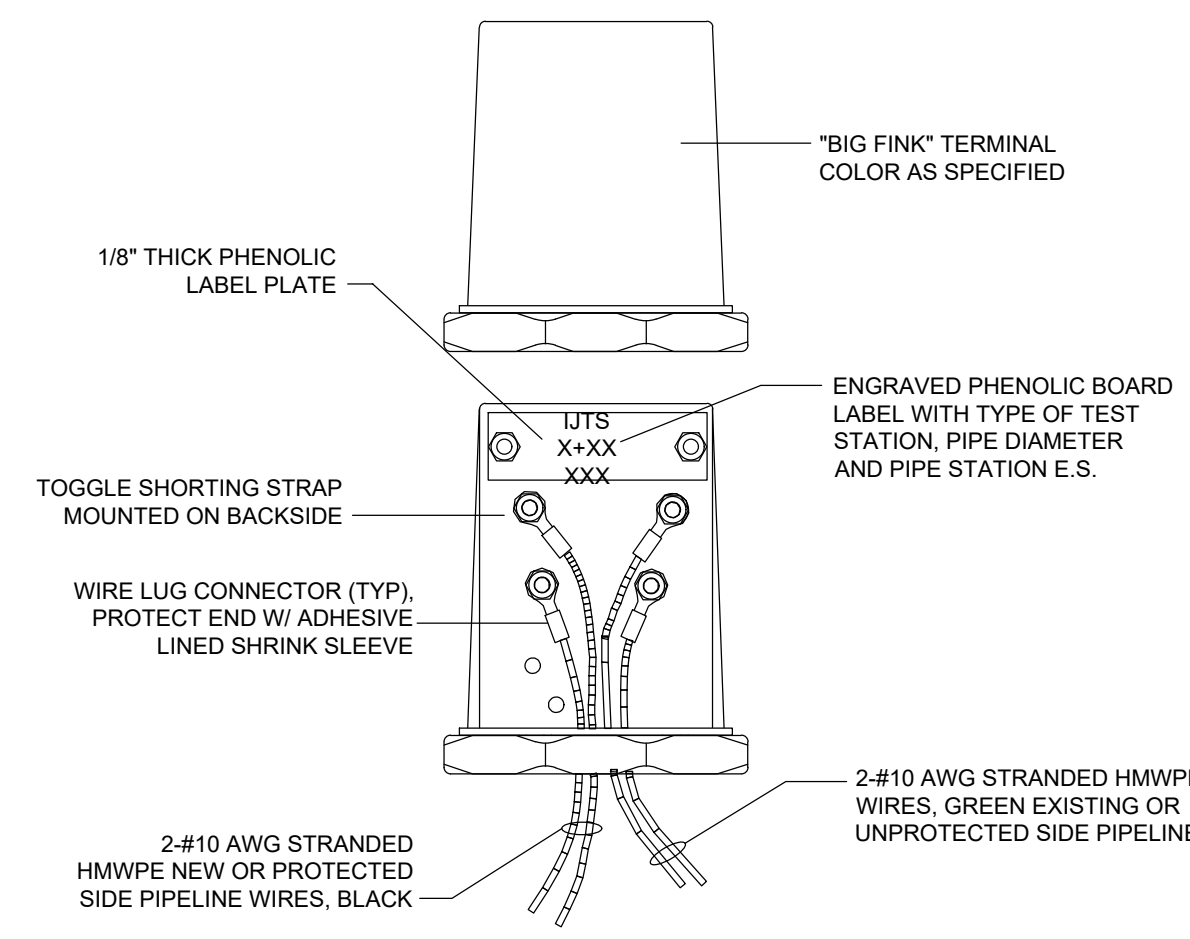
99 C-527



- NOTES:
1. INSTALL THE DIELECTRIC FLANGE ON THE ELBOW SIDE OF THE VALVE.
 2. WHERE THE PIPELINE IS EMBEDDED IN CONCRETE APPLY ADDITIONAL COATING.

PIPE SUPPORT AND INSULATING FLANGE KIT INSTALLATION
24-INCH PIPING

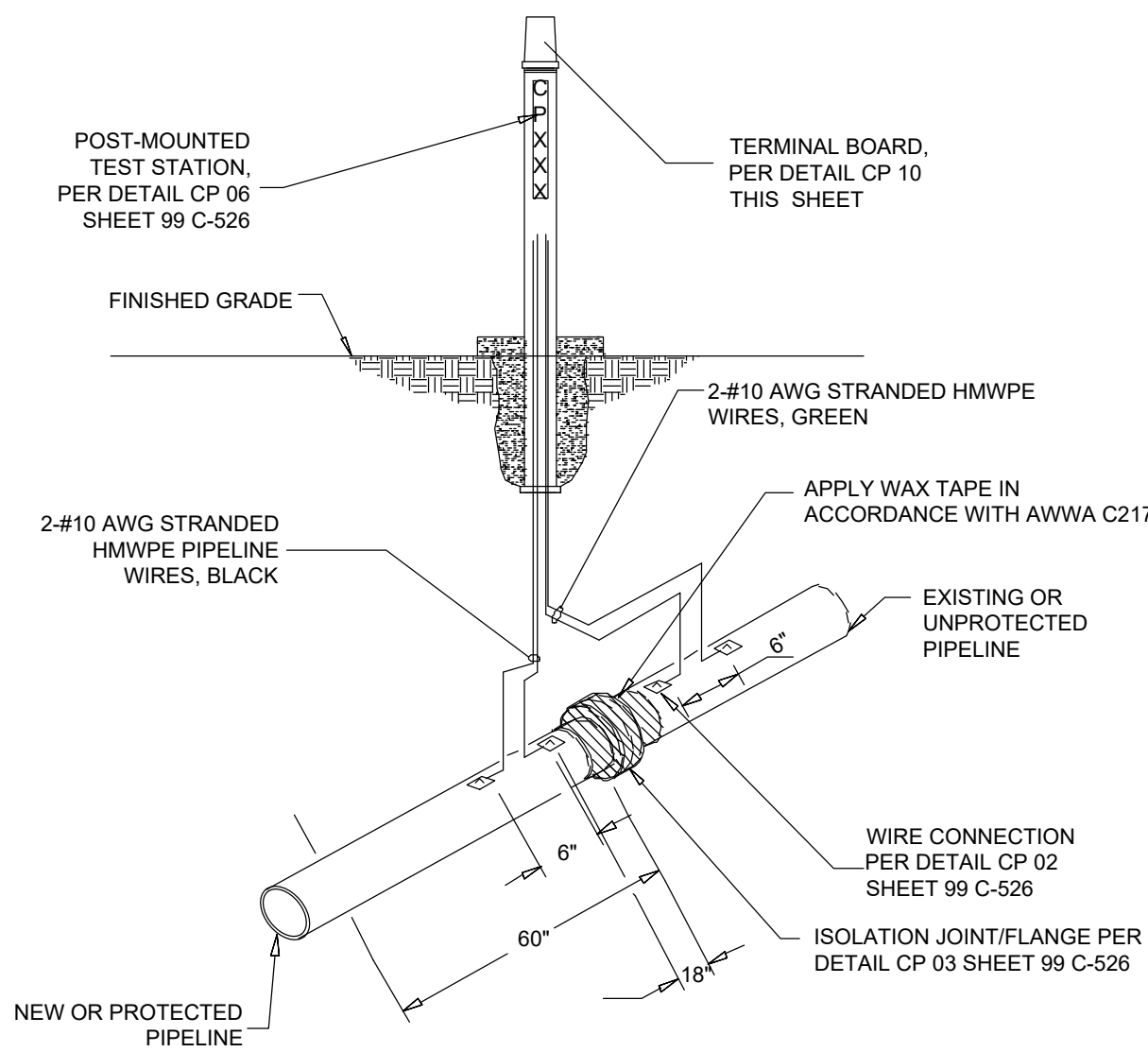
DETAIL CP 10
NTS



- NOTES:
1. TERMINALS SHALL BE 1/4\"/>
 - 2. SOLDER ALL LUGS TO WIRES.

INSULATED FLANGE TERMINAL BOARD

DETAIL CP 09
NTS



- NOTES:
1. PLACE PLASTIC WARNING TAPE 12\"/>
 - 2. HORIZONTAL RUNS TO BE 36\"/>
 - 3. DO NOT MAKE WIRE CONNECTIONS WITHIN 18\"/>

INSULATED FLANGE TEST STATION

DETAIL CP 08
NTS

PATH: I:\NA_AECOM\COM\FILES\AMERCH\ELMSFORD\USCAL\TDCS\PROJECTS\WTR\666275_SNSC_WF_HYDRO_SELECT_PDR\900_CAD_016\900_CAD_016\900_CAD_020-SHEETS\00 S-001.DWG
LAST UPDATE: Tuesday, February 13, 2024 10:51:14 AM
PLOT DATE: Wednesday, February 14, 2024 1:42:21 PM

D
C
B
A

GENERAL

1. ALL WORK SHALL CONFORM TO 780 CMR 9TH EDITION, THE MASSACHUSETTS STATE BUILDING CODE, THE INTERNATIONAL BUILDING CODE AND TO OTHER CODES AND REFERENCES INDICATED OR SPECIFIED. IN CASE OF CONFLICT, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

2. DESIGN LOADS:
A. FLOOR LIVE LOAD: INDICATED ON PLANS
B. ROOF LIVE LOAD: INDICATED ON PLANS
C. SNOW LOAD

GROUND SNOW LOAD (PG): 40 PSF
FLAT ROOF SNOW LOAD (PF): 37 PSF
SNOW EXPOSURE FACTOR (CE): 1.00
SNOW LOAD IMPORTANCE FACTOR (IS): 1.10
SNOW THERMAL FACTOR (CT): 1.20

D. WIND LOAD:

ULTIMATE DESIGN WIND SPEED (V_{ULT}): 125 MPH
SERVICE LEVEL DESIGN WIND SPEED (V_{ASD}): 97 MPH
RISK CATEGORY: III
BASIC BUILDING SYSTEM: ENCLOSED BUILDING
EXPOSURE CATEGORY: C
INTERNAL PRESSURE COEFFICIENT: ±0.18
COMPONENTS AND CLADDING DESIGN WIND PRESSURE: SEE DIAGRAM

E. SEISMIC LOAD:

SEISMIC IMPORTANCE FACTOR (IE): 1.25
RISK CATEGORY: III
MAPPED SPECTRAL RESPONSE COEFFICIENTS
S(S): 0.172 S(1): 0.065
SPECTRAL RESPONSE COEFFICIENTS
S(S): 0.18 S(D1): 0.10
SITE CLASS: CLASS D
SEISMIC DESIGN CATEGORY: B
EDV STRUCTURE
BASIC FORCE RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEAR WALLS
DESIGN BASE SHEAR: 610 KIP
SEISMIC RESPONSE COEFFICIENT, C(S): 0.06
RESPONSE MODIFICATION FACTOR, R: 4.0
ANALYSIS PROCEDURE: DYNAMIC FORCE PROCEDURE IN ACCORDANCE WITH ACI305.3-20.

3. PROTECT ALL STRUCTURES AGAINST HYDRAULIC UPLIFT UNTIL STRUCTURES ARE COMPLETED AND BACKFILLED. MAXIMUM FLOOD GROUNDWATER AT THE SITE IS ELEVATION 498.00 FEET

4. FROST DEPTH AT THE SITE IS 4'-0" BELOW FINISHED GRADE.

5. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONAL INFORMATION. MISSING OR CONFLICTING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

6. DIMENSIONS AND ELEVATIONS INDICATED ON EXISTING STRUCTURES HAVE BEEN OBTAINED FROM DRAWINGS OR FIELD SURVEYS. VERIFY ALL DIMENSIONS AND ELEVATIONS THAT ARE REQUIRED FOR FABRICATION AND INSTALLATION OF ADDITIONS TO EXISTING STRUCTURES WITH FIELD MEASUREMENTS.

7. REFER TO CIVIL, ARCHITECTURAL, PROCESS, MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR LOCATIONS AND DIMENSIONS OF CHASES, SLOTS, INSERTS, CURBS, OPENINGS, SLEEVES, ANCHOR BOLTS, FLOOR PITCHES, ANGLE FRAMES, GATE FRAMES, AND OTHER PROJECT REQUIREMENTS NOT INDICATED ON STRUCTURAL DRAWINGS.

8. COORDINATE DIMENSIONS AND VERIFY LOCATION OF STRUCTURAL ELEMENTS WITH PURCHASED EQUIPMENT. ANCHOR BOLTS SHALL BE SIZED AND FURNISHED BY THE EQUIPMENT SUPPLIER UNLESS OTHERWISE INDICATED.

9. PROVIDE OPENINGS REQUIRED FOR PURCHASED EQUIPMENT. PROVIDE ANCHOR BOLTS, NUTS, NON-SHRINK NON-METALLIC GROUT, CONCRETE PADS AND REINFORCING STEEL REQUIRED FOR THE INSTALLATION OF EQUIPMENT.

10. STANDARD DETAILS AS SHOWN ON THE STRUCTURAL STANDARD DETAIL SHEETS ARE APPLICABLE TO ALL STRUCTURAL WORK EXCEPT WHERE A SPECIFIC SECTION OR DETAIL IS SHOWN OTHERWISE

FOUNDATION

1. FOUNDATION DESIGNS ARE BASED UPON THE ALLOWABLE SOIL BEARING CAPACITIES INDICATED ON THE FOUNDATION PLANS.

2. PERCENT COMPACTION IS DEFINED AS THE RATIO OF THE FIELD DRY DENSITY, DETERMINED BY ASTM D-1556, TO THE MAXIMUM DRY DENSITY, DETERMINED BY ASTM-D 1557 (MODIFIED PROCTOR).

3. COMPACT BACKFILL UNDER FOUNDATION MATS, BASE SLABS, FOOTINGS, AND SLABS ON GRADE TO A MINIMUM OF 95 PERCENT. COMPACT EMBANKMENTS AND BACKFILL NOT SUPPORTING STRUCTURES TO A MINIMUM OF 90 PERCENT. PLACE AND COMPACT ALL BACKFILL IN 8-INCH MAXIMUM LAYERS.

4. COMPACT THE BOTTOM SURFACE OF EXPOSED EXCAVATIONS WITH A VIBRATORY STEEL DRUM ROLLER OR VIBRATORY PLATE TO ACHIEVE A NEAR SURFACE DENSITY OF AT LEAST 95 PERCENT.

5. PROVIDE FOUNDATION PREPARATION AS INDICATED ON THE STANDARD DETAIL UNDER ALL FOUNDATION SLABS, MATS AND FOOTINGS.

6. DO NOT PLACE FOUNDATION CONCRETE IN WATER OR ON FROZEN OR DISTURBED GROUND.

7. A UNIT WEIGHT OF SOIL OF 120 PCF WAS USED IN THE DESIGN.

8. FOUNDATION WALLS HAVE BEEN DESIGNED FOR AN EQUIVALENT FLUID LATERAL EARTH PRESSURE OF 65 PCF ABOVE THE MAXIMUM GROUNDWATER ELEVATION AND AN EQUIVALENT FLUID LATERAL EARTH PRESSURE OF 95 PCF BELOW THE MAXIMUM GROUNDWATER ELEVATION PLUS A UNIFORM LATERAL PRESSURE OF 150 PSF TO ACCOUNT FOR A 300 PSF SURFACE SURCHARGE ADJACENT TO THE STRUCTURES.

9. DO NOT BACKFILL AGAINST CONCRETE WALLS UNTIL WALLS AND ALL SLABS AT AND BELOW THE FIRST FLOOR LEVEL HAVE REACHED THE SPECIFIED DESIGN STRENGTH. THE FIRST FLOOR LEVEL IS DEFINED AS THE LEVEL AT FINISHED GRADE OR THE FIRST LEVEL ABOVE FINISHED GRADE.

10. DO NOT LEAK TEST TANKS OR CHANNELS UNTIL WALLS AND ALL TOP SLABS HAVE REACHED THE SPECIFIED DESIGN STRENGTH.

11. PLACE EXTERIOR SLABS, PLATFORMS AND WALKS ON 8-INCH LAYERS OF NON-FROST SUSCEPTIBLE MATERIAL (SELECT BORROW, SCREENED GRAVEL OR CRUSHED STONE BACKFILL HAVING NOT MORE THAN 5 PERCENT BY WEIGHT PASSING A NO. 200 SIEVE). THE LIMITS OF BACKFILL ARE DEFINED BY AN OUTWARD SLOPE OF 1:1 FROM THE PERIMETER OF THE SLAB TO A DEPTH OF FOUR FEET BELOW FINISH GRADE UNLESS OTHERWISE INDICATED OR SPECIFIED. PLACE MATERIAL IN 8-INCH LIFTS. COMPACT SELECT BORROW TO 95 PERCENT. COMPACT SCREENED GRAVEL OR CRUSHED STONE USING A SELF-PROPELLED VIBRATORY STEEL DRUM ROLLER OR RUBBER TIRE ROLLERS WITH A MINIMUM OF FOUR PASSES IN DIRECTIONS PERPENDICULAR TO ONE ANOTHER IN OPEN AREAS. IN SMALL AREAS, USE MANUALLY OPERATED VIBRATORY PLATE COMPACTORS WITH A MINIMUM OF FOUR PASSES.

CONCRETE

1. CONCRETE WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) AND THE CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350).

2. USE NORMAL WEIGHT CAST-IN-PLACE CONCRETE WITH ASTM C 150, TYPE II CEMENT FOR ALL CONCRETE WORK.

3. CONCRETE FOR LIQUID CONTAINING STRUCTURES SHALL HAVE
A. A 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI;
B. A MAXIMUM WATER-CEMENT RATIO OF 0.40;
C. A 21-DAY DRYING SHRINKAGE OF 0.028 PERCENT OR LESS AND A 28-DAY DRYING SHRINKAGE OF 0.032 PERCENT OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C 157 AS MODIFIED BY THE PROJECT SPECIFICATIONS.

5. PROVIDE FIBER REINFORCED CONCRETE HAVING A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI FOR ALL CONCRETE FILLS AND TOPPING.

6. PROVIDE CONCRETE UNDER FOUNDATIONS HAVING A 28-DAY COMPRESSIVE STRENGTH OF 1,500 PSI WHEN INDICATED OR REQUIRED.

7. AIR-ENTRAIN ALL CONCRETE.

8. REINFORCING BARS SHALL CONFORM TO ASTM A 615, GRADE-60.

9. WELDING REINFORCING BARS IS PROHIBITED EXCEPT WHERE SPECIFICALLY INDICATED ON THE DRAWINGS. REINFORCING BARS INDICATED TO BE WELDED SHALL CONFORM TO ASTM A 706, GRADE-60.

10. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 1064. PROVIDE WELDED WIRE FABRIC IN FLAT SHEETS. STAGGER SPLICES AND LAP AT LEAST TWO FULL MESHES.

11. REINFORCE CONCRETE FILL AND TOPPING SLABS THAT ARE TWO INCHES OR MORE IN THICKNESS WITH WELDED WIRE FABRIC SIZED IN CONFORMANCE WITH THE STANDARD DETAIL UNLESS OTHERWISE INDICATED OR SPECIFIED. PROVIDE ADEQUATE SUPPORT TO MAINTAIN FABRIC IN POSITION DURING CONCRETE PLACEMENT AND FINISHING OPERATIONS.

12. LAP CONTINUOUS BOTTOM REINFORCEMENT AT SUPPORTS AND CONTINUOUS TOP REINFORCEMENT AT THE CENTER OF A SPAN IN ELEVATED SLABS AND BEAMS, UNLESS OTHERWISE INDICATED.

13. LAP CONTINUOUS BOTTOM REINFORCEMENT AT THE CENTER OF A SPAN AND CONTINUOUS TOP REINFORCEMENT AT SUPPORTS IN FOUNDATION MATS AND BASE SLABS, UNLESS OTHERWISE INDICATED.

14. PROVIDE REINFORCING BAR SUPPORTS, SPACERS, AND ACCESSORIES AS RECOMMENDED IN ACI 315. PROVIDE PLASTIC BOOTED ACCESSORIES IN CONTACT WITH EXPOSED SURFACES. PROVIDE MINIMUM #5 SUPPORT BARS.

15. CAST FOUNDATION MATS, BASE SLABS, SLABS ON GRADE, WALLS AND ELEVATED SLABS IN ALTERNATE CONCRETE PLACEMENTS. WAIT A MINIMUM OF 72 HOURS BEFORE PLACING ADJACENT CONCRETE SECTIONS.

16. DO NOT PLACE CONCRETE IN BEAMS, GIRDERS OR SLABS UNTIL THE CONCRETE IN THE SUPPORTING COLUMNS AND WALLS HAVE OBTAINED INITIAL SET.

17. PLACE SLABS AND BEAMS MONOLITHICALLY UNLESS OTHERWISE INDICATED.

18. FLOOR AND ROOF SLOPES SHALL BE AN INTEGRAL PART OF FRAMED SLABS. SEPARATE CONCRETE FILL OR TOPPING SLABS ARE NOT PERMITTED UNLESS SPECIFICALLY INDICATED.

19. BEAM SOFFITS SHALL BE AT CONSTANT ELEVATION. SCHEDULED BEAM DEPTHS ARE MEASURED FROM THE SLAB LOW POINT. ACTUAL BEAM DEPTH VARIES WITH SLAB SURFACE SLOPES.

20. PROVIDE CONTINUOUS #5 HORIZONTAL BARS AT 12 INCH MAXIMUM SPACING ON EACH SIDE OF CONCRETE BEAMS AND GIRDERS.

21. SET AND MAINTAIN REINFORCEMENT AT THE CLEAR DISTANCES FROM THE SURFACE OF CONCRETE AS SHOWN IN THE STANDARD DETAIL UNLESS OTHERWISE INDICATED.

22. PROVIDE EMBEDMENT AND SPLICES OF REINFORCEMENT AS SHOWN IN THE STANDARD DETAILS UNLESS OTHERWISE INDICATED.

23. PROVIDE ADDITIONAL REINFORCEMENT ALONG EACH SIDE OF OPENINGS AS INDICATED IN THE STANDARD DETAILS UNLESS OTHERWISE INDICATED.

24. PROVIDE CONSTRUCTION AND EXPANSION JOINTS WHERE INDICATED. DO NOT OMIT OR ADD JOINTS.

25. INTENTIONALLY ROUGHEN SURFACE OF HORIZONTAL CONSTRUCTION JOINTS IN WALLS AND AT BASE OF WALL TO 1/4" AMPLITUDE.

26. PROVIDE CONSTRUCTION AND EXPANSION JOINTS IN CONCRETE FILL AND TOPPING SLABS AT THE SAME LOCATION AS THE CONSTRUCTION AND EXPANSION JOINTS IN THE SUPPORTING CONCRETE.

27. PROVIDE 3/4-INCH CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE ELEMENTS.

28. STEEL TROWEL FINISH THE TOP OF ALL TANK WALLS, FLOORS, ROOFS, CONCRETE FILL AND TOPPING SLABS UNLESS OTHERWISE INDICATED OR SPECIFIED. BROOM FINISH EXTERIOR CONCRETE PLATFORMS, STAIRS AND LOADING DOCKS UNLESS OTHERWISE INDICATED OR SPECIFIED.

29. FILL POCKETS IN CONCRETE FOR GATE FRAMES WITH CONCRETE AFTER GATE INSTALLATION.

EMBEDDED PIPES AND CONDUIT:

1. CONDUITS, PIPES, AND SLEEVES OF ANY MATERIAL NOT HARMFUL TO CONCRETE AND WITHIN THE LIMITATIONS SPECIFIED MAY BE PERMITTED TO BE EMBEDDED IN CONCRETE ONLY WITH THE SPECIFIC APPROVAL OF THE ENGINEER.

2. SUBMIT PLAN OF EMBEDMENTS TO THE ENGINEER FOR REVIEW AND APPROVAL.

3. CONDUITS, PIPES AND SLEEVES OF ALUMINUM SHALL NOT BE EMBEDDED IN CONCRETE.

4. PIPES PASSING THROUGH WALLS OF A LIQUID-CONTAINING STRUCTURE SHALL INCLUDE AN INTEGRAL WATERSTOP.

5. CONDUITS, PIPES, AND SLEEVES PASSING THROUGH A SLAB, WALL, OR BEAM SHALL NOT IMPAIR SIGNIFICANTLY THE STRENGTH OF THE CONSTRUCTION.

6. CONDUITS AND PIPES, WITH THEIR FITTINGS, EMBEDDED WITHIN A COLUMN SHALL NOT DISPLACE MORE THAN 4 PERCENT OF THE AREA OF CROSS SECTION.

7. EXCEPT WHEN DRAWINGS FOR CONDUITS AND PIPES ARE APPROVED BY THE STRUCTURAL ENGINEER, CONDUITS AND PIPES EMBEDDED WITHIN A SLAB, WALL, OR BEAM (OTHER THAN THOSE MERELY PASSING THROUGH) SHALL SATISFY THE FOLLOWING:
A. CONDUITS AND PIPES SHALL NOT BE LARGER IN OUTSIDE DIMENSION THAN 1/3 THE OVERALL THICKNESS OF THE SLAB, WALL, OR BEAM IN WHICH THEY ARE EMBEDDED.
B. CONDUITS AND PIPES SHALL NOT BE SPACED CLOSER THAN 3 TIMES THE OUTSIDE DIAMETERS OF THE CONDUIT OR PIPE ON CENTER.
C. CONDUITS AND PIPES SHALL BE PLACED WITHIN THE MIDDLE THIRD OF THE ELEMENT AND BETWEEN REINFORCEMENT LAYERS. DO NOT INSTALL RUNS OF PIPING OR CONDUIT BETWEEN FORMWORK AND REINFORCEMENT.
D. DO NOT CROSS PIPES AND CONDUIT IN CONCRETE.

8. PIPES AND FITTINGS SHALL BE DESIGNED TO RESIST THE EFFECTS OF THE MATERIAL, PRESSURE, AND TEMPERATURE TO WHICH THEY WILL BE SUBJECTED.

9. NO LIQUID, GAS, OR VAPOR, EXCEPT WATER NOT EXCEEDING 90 DEGREES F OR 50 PSI PRESSURE, SHALL BE PLACED IN THE PIPES UNTIL THE CONCRETE HAS ATTAINED ITS DESIGN STRENGTH.

10. ADDITIONAL REINFORCEMENT WITH AN AREA NOT LESS THAN 0.002 TIMES AREA OF CONCRETE SECTION SHALL BE PROVIDED PERPENDICULAR TO PIPING OR CONDUIT AT A MAXIMUM SPACING OF 12 INCHES.

11. PIPING AND CONDUIT SHALL BE SO FABRICATED AND INSTALLED THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED.

12. CLOSE ENDS OF CONDUITS, PIPING AND SLEEVES EMBEDDED IN CONCRETE WITH CAPS OR PLUGS PRIOR TO CONCRETE PLACEMENT.

ALUMINUM RAILINGS AND GUARDRAILS

1. PROVIDE ALUMINUM RAILING WHERE INDICATED.

2. PROVIDE MOUNTINGS FOR REMOVABLE ALUMINUM RAILING AROUND OPENINGS WHERE INDICATED, COMPLETE WITH CAPS.

3. DESIGN CRITERIA
A. RAILINGS AND GUARDRAILS SHALL BE DESIGNED FOR A LINE LOAD OF 100 PLF VERTICAL PLUS 50 PLF HORIZONTAL APPLIED CONCURRENTLY OR A CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE RAIL, WHICHEVER PRODUCES THE MOST EXTREME CONDITION.
B. INTERMEDIATE RAILS, BALUSTERS AND PANELS OR FILLERS SHALL BE DESIGNED FOR A UNIFORM LOAD OF 25 PSF OVER THE GROSS AREA OF THE GUARD OF WHICH THEY ARE A PART. THIS LOADING NEED NOT BE ADDED TO THE LOADING OF THE MAIN MEMBERS PRESCRIBED ABOVE.
C. HANDRAILS SHALL BE DESIGNED FOR A LINE LOAD OF 50 PLF APPLIED IN ANY DIRECTION OR A CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE HANDRAIL, WHICHEVER PRODUCES THE MOST EXTREME CONDITION.

4. ALUMINUM RAILING AND GUARDRAILS SHALL CONFORM TO ALLOY 6061-T6.

5. WELDING SHALL CONFORM TO THE STRUCTURAL WELDING CODE, AWS D1.2.

6. WELDING SHALL BE BY THE METAL INERT GAS (MIG) OR THE TUNGSTEN INERT GAS (TIG) PROCESS USING 5356 FILLER ALLOY.

7. FIELD WELDING OF ALUMINUM RAILING AND GUARDRAILS IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED.

8. PROVIDE ASTM F 593 TYPE 316 STAINLESS STEEL BOLTS FOR BOLTED CONNECTIONS. PROVIDE DRILLED HOLES 1/16" LARGER THAN THE BOLT DIAMETER UNLESS OTHERWISE INDICATED. PROVIDE ASTM F 594 STAINLESS STEEL NUTS WITH STAINLESS STEEL WASHERS.

9. PAINT ALUMINUM IN CONTACT WITH CONCRETE WITH ASPHALTIC PAINT OR PROVIDE SHEET NEOPRENE BARRIER.

10. PROVIDE DISSIMILAR METAL PROTECTION AT LOCATIONS WHERE DISSIMILAR METALS ARE IN CONTACT. PROTECT WITH A MINIMUM 4-MIL DRY THICKNESS COAT OF ZINC CHROMATE PRIMER ON THE ALUMINUM SURFACES AND A MINIMUM 2-MIL DRY THICKNESS COAT OF ALL-METAL PRIMER FOLLOWED BY ONE COAT OF MINIMUM 3-MIL DRY THICKNESS ALUMINUM PAINT TO THE DISSIMILAR METAL.

11. USE NON-SHRINK, NON-METALLIC GROUT UNDER BASE PLATES.

DEMOLITION

1. TAKE MEASURES TO PREVENT DAMAGE TO EXISTING STRUCTURES TO REMAIN DURING DEMOLITION. DAMAGE THAT DOES OCCUR SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

2. SHORE EXISTING STRUCTURES TO UNLOAD MEMBERS BEFORE REMOVING STRUCTURAL ELEMENTS.

3. DO NOT OVER CUT CORNERS WHEN USING A ROTARY SAW. CORE HOLES AT CORNERS PRIOR TO SAW CUTTING AND CHIP FLUSH AS INDICATED IN THE STANDARD DETAIL.

4. DO NOT CUT EXISTING REINFORCING BARS AT INTERFACES WITH NEW WORK. INCORPORATE EXISTING BARS INTO NEW WORK INSOFAR AS PRACTICABLE. REMOVE THOSE REINFORCING BARS WHICH CANNOT BE BENT INTO AREAS OF NEW CONCRETE WORK.

5. INSURE ADJACENT CONCRETE WILL NOT BE FRACTURED WHEN THE CONCRETE TO BE REMOVED IS BROKEN OUT. REMOVE CONCRETE ANCHORS USED TO SECURE CORING EQUIPMENT, AND FILL HOLES WITH NON-SHRINK, NON-METALLIC GROUT.

6. DAMAGE DUE TO DEMOLITION OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. FRACTURED CONCRETE AND MASONRY SHALL BE REPAIRED WITH A PRESSURE INJECTED EPOXY SYSTEM APPROVED BY THE ENGINEER.

7. PATCH AND FINISH EXPOSED SURFACES TO MATCH THE ADJACENT AREA UNLESS OTHERWISE INDICATED OR SPECIFIED.

WATERSTOPS

1. PROVIDE WATERSTOPS IN ALL JOINTS BETWEEN DRY AREAS AND SOURCES OF LIQUID, BETWEEN DRY AREAS AND THE GROUND, AND BETWEEN SOURCES OF LIQUID AND THE GROUND. WATERSTOPS SHALL ALSO BE PROVIDED BETWEEN ADJACENT SOURCES OF LIQUID IN WATER TREATMENT FACILITIES.

2. WATERSTOPS SHALL FORM A CONTINUOUS WATERTIGHT DIAPHRAGM TO PREVENT LEAKAGE.

3. TERMINATE VERTICAL WATERSTOPS THREE INCHES BELOW TOP OF CONCRETE WALLS IN OPEN TANKS, AT THE UNDERSIDE OF ELEVATED FRAMED SLABS THAT ARE ABOVE MAXIMUM PROCESS LIQUID LEVELS AND ABOVE FINISH GRADE IN EXTERIOR FOUNDATION WALLS.

4. PROVIDE 9" BULBED WATERSTOPS IN CONTRACTION AND EXPANSION JOINTS AND 6" RIBBED WATERSTOPS IN CONSTRUCTION JOINTS. PROVIDE 4" RIBBED WATERSTOPS BETWEEN CONTAINMENT CURBS AND SUPPORTING SLABS.

5. USE FACTORY MADE CROSSES, TEES AND ELLS AT ALL CORNERS AND INTERSECTIONS.

6. INSTALL WATERSTOPS IN CONTINUOUS LENGTHS TO MINIMIZE FIELD SPLICES.

7. PROVIDE 1-INCH MINIMUM CLEARANCE BETWEEN WATERSTOPS AND REINFORCING STEEL OR OTHER EMBEDDED ITEMS.

8. SECURE WATERSTOPS IN POSITION WITH TIE WIRE FROM LOOPS OR GROMMETS TO ADJACENT REINFORCEMENT ON BOTH SIDES AT 12 INCHES MAXIMUM SPACING ALONG EACH EDGE.

9. PROTECT EXPOSED WATERSTOP FROM DAMAGE.

10. PROVIDE HYDROPHILIC WATERSTOPS ONLY WHERE INDICATED ON THE DRAWINGS.

11. PROTECT HYDROPHILIC WATERSTOPS FROM BECOMING WET PRIOR TO CONCRETE PLACEMENT. HYDROPHILIC WATERSTOPS THAT HAVE BECOME WET PRIOR TO CONCRETE PLACEMENT SHALL BE REMOVED AND DISCARDED.

CONCRETE ANCHORS

1. THE USE OF EXPANSION TYPE, SLEEVE, OR DROP IN ANCHORS IS PROHIBITED. ALL POST-INSTALLED CONCRETE ANCHORS SHALL BE ADHESIVE TYPE ANCHORS.

2. ADHESIVE TYPE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM E 488, "STANDARD TEST METHODS FOR STRENGTH OF ANCHORS IN CONCRETE AND MASONRY ELEMENTS"; ASTM 1512, "STANDARD TEST METHODS FOR TESTING BOND PERFORMANCE OF ADHESIVE-BONDED ANCHORS"; ICBO ES AC-308, "ACCEPTANCE CRITERIA FOR POST-INSTALLED ADHESIVE ANCHORS" AND ACI 355.4 "QUALIFICATION OF POST-INSTALLED ANCHORS IN CONCRETE".

3. PROVIDE SIZE, TYPE AND EMBEDMENT OF ANCHOR INDICATED INSTALLED TO DEVELOP THE MAXIMUM CAPACITY FOR THE EMBEDMENT, TYPE AND ANCHOR SIZE WITH A MINIMUM SAFETY FACTOR OF FOUR.

4. ANCHORS SHALL HAVE STANDARD UNC THREADS, UNLESS OTHERWISE INDICATED.

5. ANCHOR INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S CURRENT PRINTED INSTRUCTIONS.

6. REMOVE DUST AND DEBRIS FROM DRILLED HOLES USING COMPRESSED AIR OR VACUUM AT BOTTOM OF HOLE. IMMEDIATELY REMOVE STANDING WATER AND THOROUGHLY DRY HOLES TO RECEIVE ADHESIVE ANCHORS.

7. DO NOT HAMMER IN ANCHORS. INSTALL ANCHORS USING A ROTARY HAMMER DRILL AS RECOMMENDED BY ANCHOR MANUFACTURER. THE USE OF HAMMER IN TYPE ADHESIVE CAPSULES IS PROHIBITED.

8. PROVIDE ADHESIVE TYPE ANCHORS CONSISTING INJECTABLE ADHESIVE CARTRIDGES AND THREADED ANCHOR BOLTS SUPPLIED AS A SYSTEM BY ONE MANUFACTURER. PROVIDE EACH ANCHOR WITH NUT AND WASHER. AFTER INSTALLATION, DO NOT DISTURB OR LOAD ANCHORS BEFORE THE SPECIFIED CURING TIME ELAPSES (MAY VARY WITH TEMPERATURE). ADHESIVE ANCHORING SYSTEM SHALL BE:
A. HILTI: HIT HY 500-SD;
B. ITW REDHEAD/RAMSET: EPCON G5;
C. DEWALT: PE1000+;
D. SIMPSON: STRONG-TIE SET-XP;
E. OR APPROVED EQUAL.

ABBREVIATIONS:

AB	ANCHOR BOLT
ADDL	ADDITIONAL
ALT	ALTERNATE
ALUM	ALUMINUM
ARCH	ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	ASTM INTERNATIONAL
BM	BEAM
BOT, B	BOTTOM
CJ	CONSTRUCTION JOINT
CL	CLEAR
CL, CLR	CENTERLINE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
DEG	DEGREE
DET	DETAIL
DIA, Ø	DIAMETER
DIR	DIRECTION
DN	DOWN
DWG	DRAWING
DWL	DOWEL
EACH	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
EW	EACH WAY
EXIST	EXISTING
FD	FLOOR DRAIN
FF	FAR FACE
FIN	FINISH
FLOOR	FLOOR
FTG	FOOTING
GALV	GALVANIZE (HOT-DIP)
HORIZ, H	HORIZONTAL
HP	HIGH POINT
IF	INSIDE FACE
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
NTS	NOT TO SCALE
OC	ON CENTER
OF	OUTSIDE FACE
OPNG	OPENING
PC	PIECE
PCF	POUNDS PER CUBIC FEET
PJF	PREMOLDED JOINT FILLER
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FEET
PSI	POUNDS PER SQUARE INCH
SECT	SECTION
SPECS	SPECIFICATIONS
SQ	SQUARE
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
T	TOP
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TR	TREADS
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT, V	VERTICAL
WS	WATERSTOP, WATER SURFACE
WWF	WELDED WIRE FABRIC
←	DIRECTION IN WHICH BARS EXTEND

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION


250 M STREET EXTENSION AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
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CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	-

DISCIPLINE

STRUCTURAL SHEET TITLE

STRUCTURAL NOTES AND ABBREVIATIONS

SHEET NUMBER

00 S-001



PROJECT

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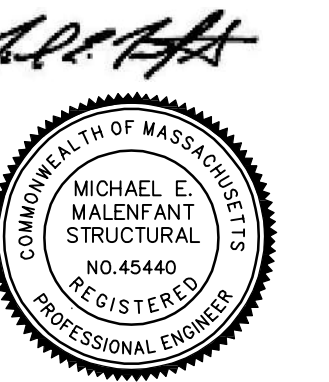
250 M STREET EXTENSION
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Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	3/16" = 1'-0"

DISCIPLINE

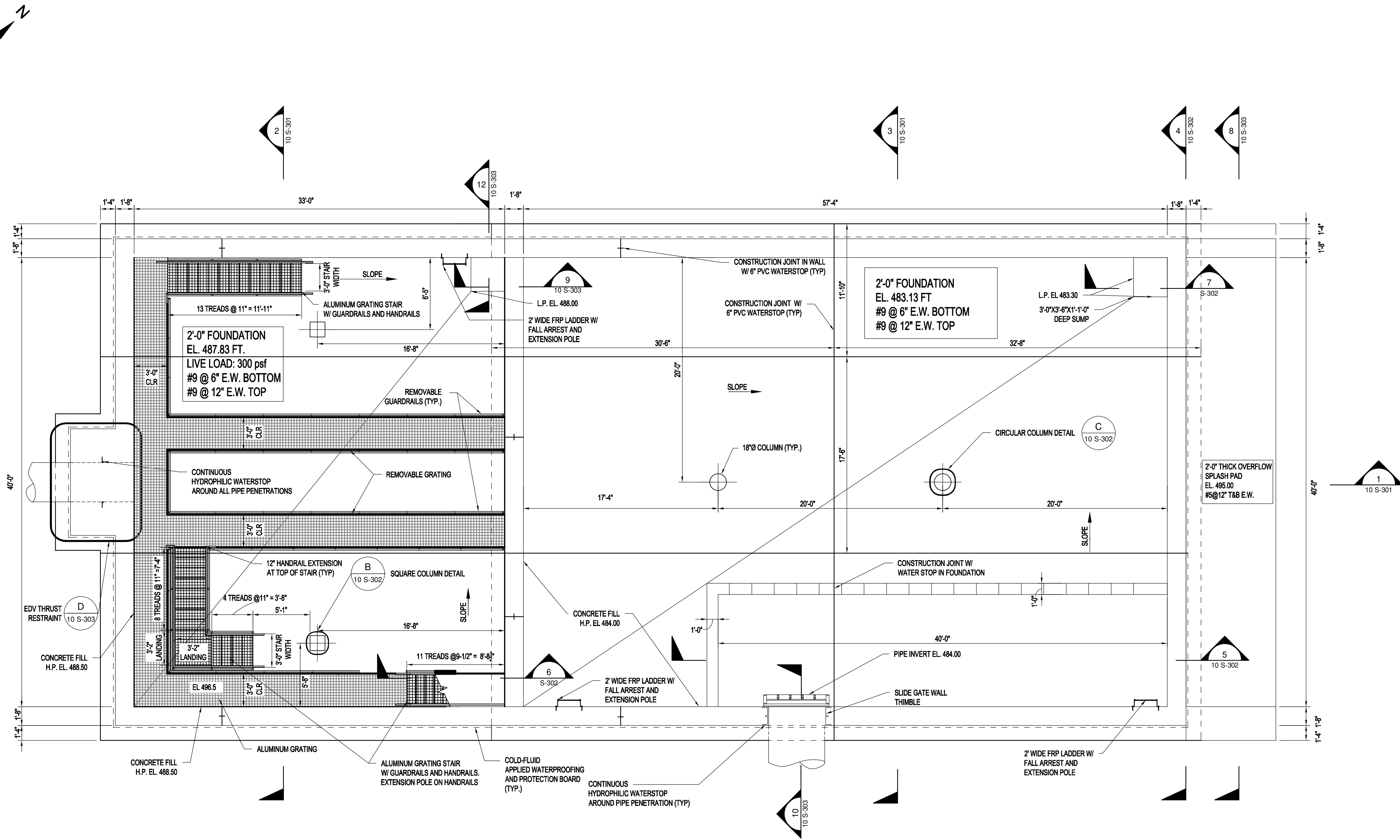
STRUCTURAL

SHEET TITLE

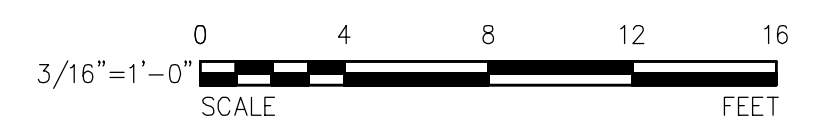
EDV FOUNDATION PLAN

SHEET NUMBER

10 S-101



FOUNDATION PLAN
SCALE: 3/16" = 1'-0"
BASED ON A ALLOWABLE GROSS SOIL PRESSURE OF 10 KSF



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 LAST UPDATE: Tuesday, February 13, 2024 10:50:26 AM
 PLOT DATE: Wednesday, February 14, 2024 1:42:50 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

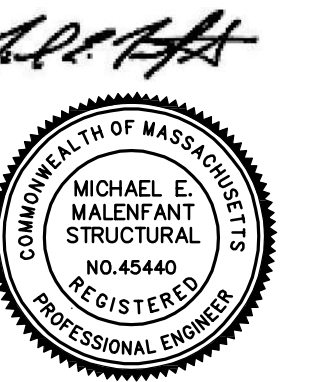
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	3/16" = 1'-0"

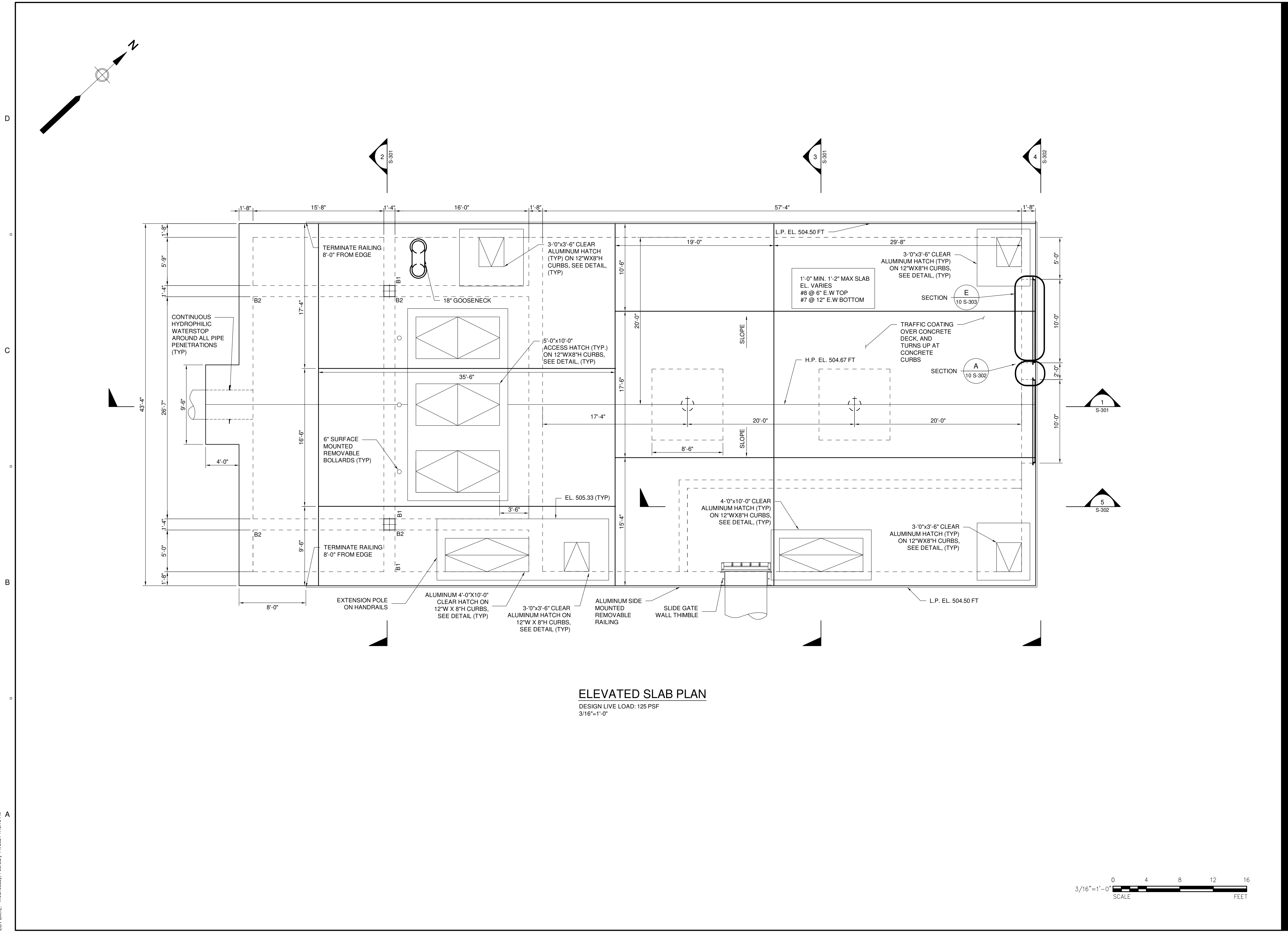
DISCIPLINE

STRUCTURAL
SHEET TITLE

EDV TOP SLAB PLAN

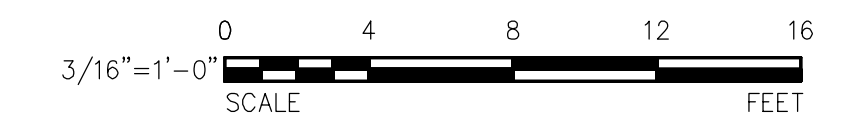
SHEET NUMBER

10 S-102



ELEVATED SLAB PLAN

DESIGN LIVE LOAD: 125 PSF
3/16"=1'-0"



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 PLOT DATE: Wednesday, February 14, 2024 1:43:15 PM

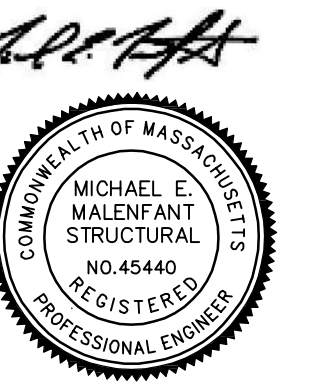
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
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CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: CS

Drawn By: CS

Dept Check: MM

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 3/16" = 1'-0"

DISCIPLINE

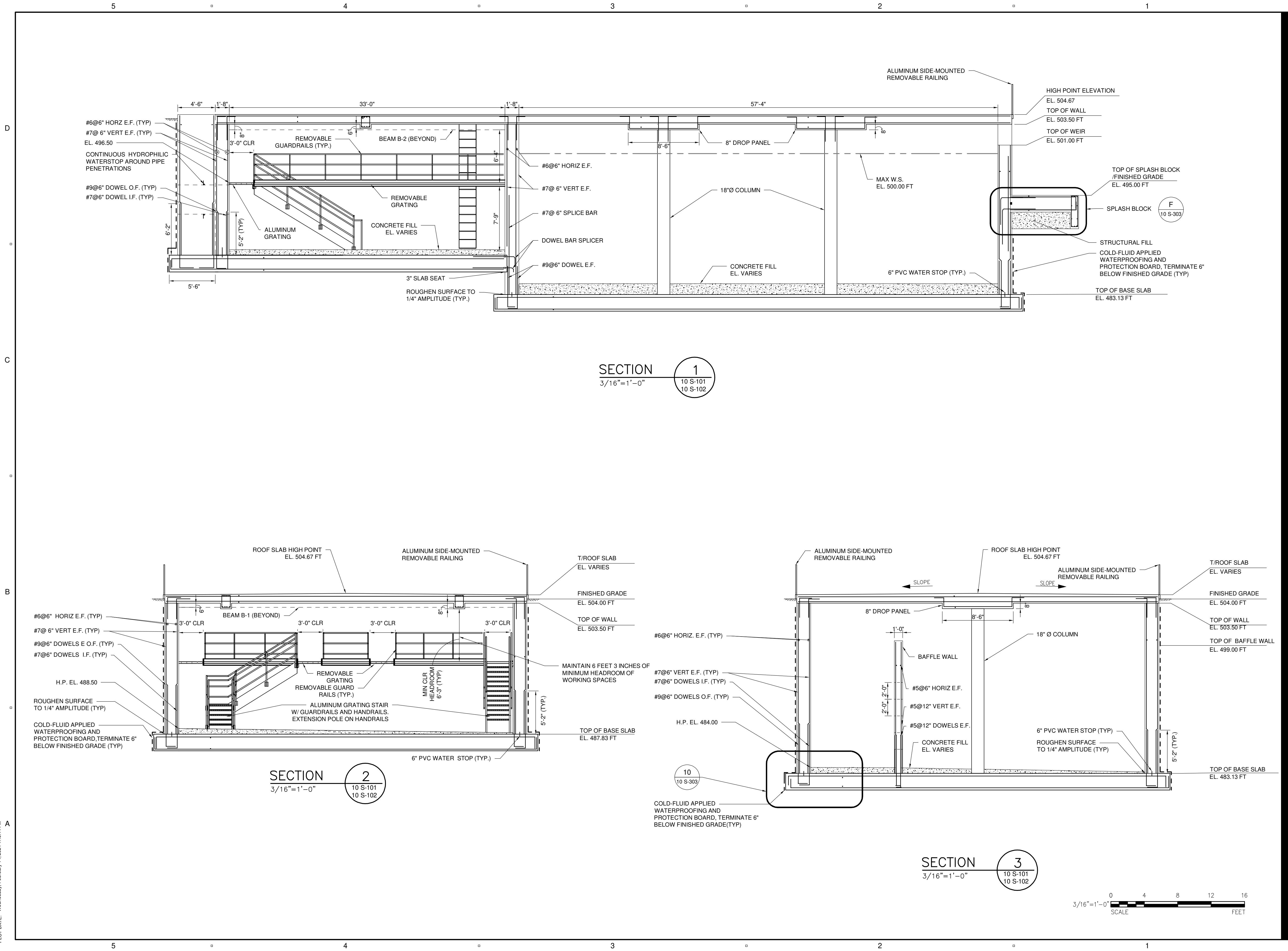
STRUCTURAL

SHEET TITLE

EDV SECTIONS I

SHEET NUMBER

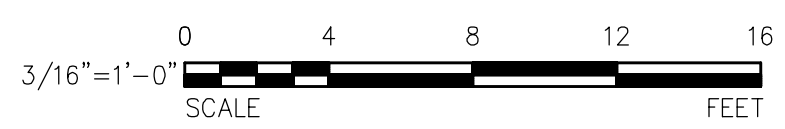
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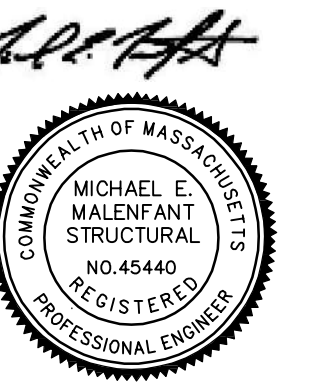
SECTION 1
 3/16" = 1'-0"
 10 S-101
 10 S-102

SECTION 2
 3/16" = 1'-0"
 10 S-101
 10 S-102

SECTION 3
 3/16" = 1'-0"
 10 S-101
 10 S-102



PATH: I:\AECOM\NET\COM\FILES\AMER\CHLMSFORD\USCHL\10CS\PROJECTS\WTR\6662775_SNVC_WPF_HYDRO_ELECT_PDR\900_CAD_CAD20_SHEETS\10 S-301.DWG
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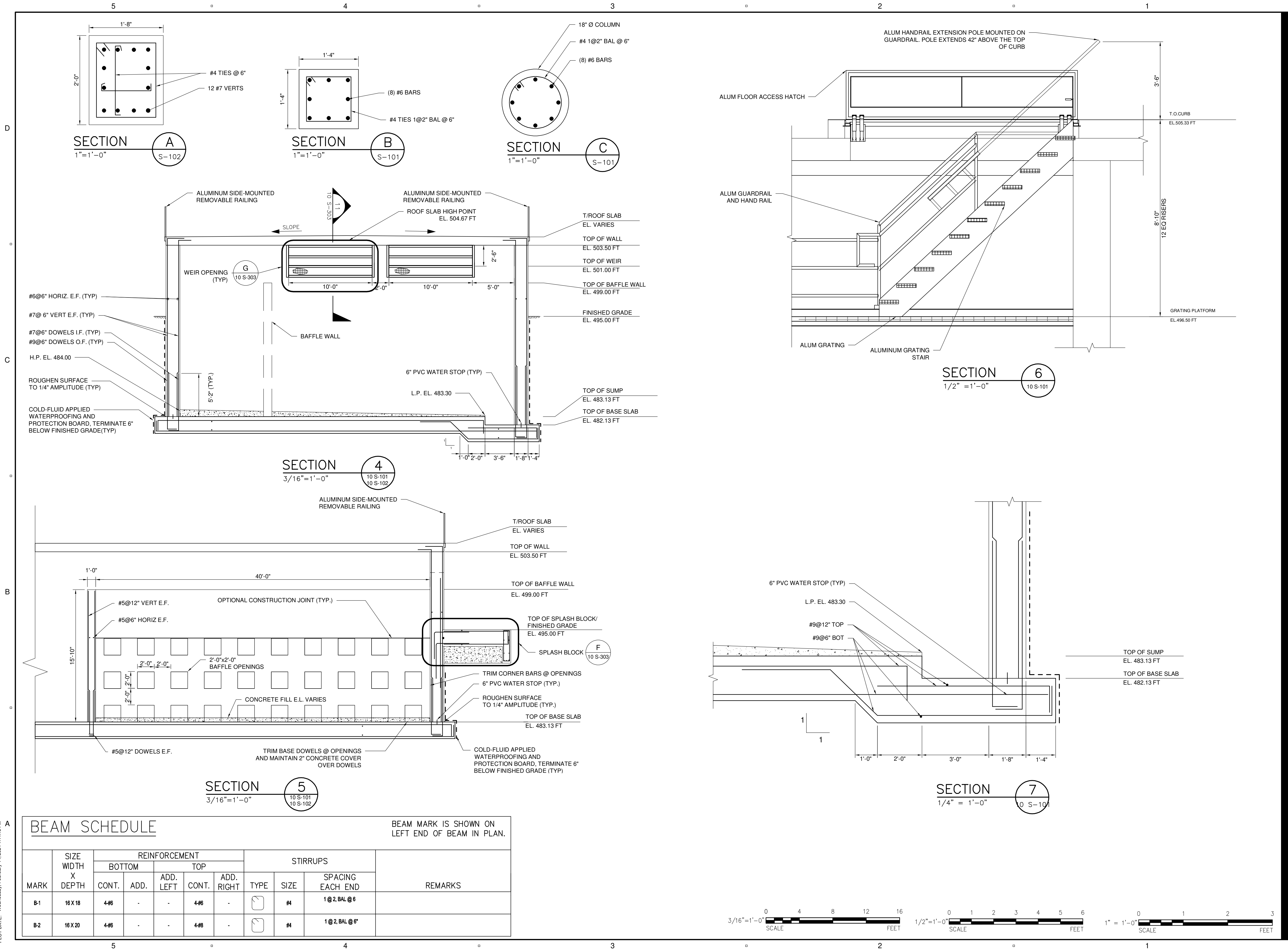
13 FEBRUARY 2024

I/R	DATE	DESCRIPTION

60662775

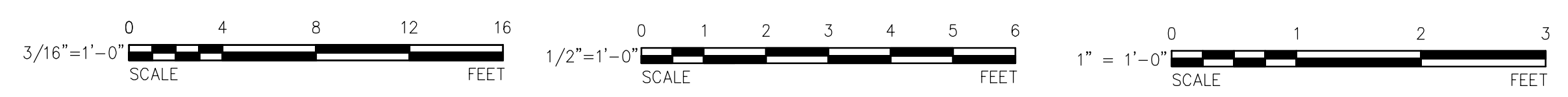
Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

10 S-302

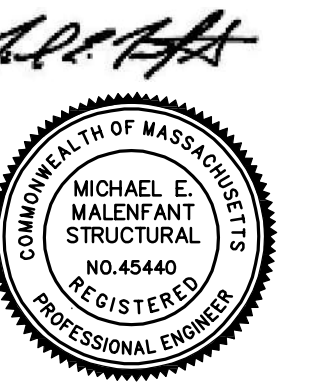


BEAM SCHEDULE BEAM MARK IS SHOWN ON LEFT END OF BEAM IN PLAN.

MARK	SIZE WIDTH X DEPTH	REINFORCEMENT					STIRRUPS			REMARKS
		BOTTOM		TOP			TYPE	SIZE	SPACING EACH END	
CONT.	ADD.	ADD. LEFT	CONT.	ADD. RIGHT						
B-1	16 X 18	4#6	-	-	4#6	-	□	#4	1 @ 2, BAL @ 6"	
B-2	16 X 20	4#6	-	-	4#6	-	□	#4	1 @ 2, BAL @ 6"	



PATH: I:\AECOM\NET\COM\FILES\AMER\CHLMSF\EDV\USCHL\TDCS\PROJECTS\WTR\60662775_SNVC_WPF_HYDRO_ELECT_PDR\900_CAD_036910_CAD20\SHEETS\10 S-302.DWG
 LAST UPDATE: Tuesday, February 13, 2024 11:27:22 AM
 PLOT DATE: Wednesday, February 14, 2024 1:44:18 PM



13 FEBRUARY 2024

I/R	DATE	DESCRIPTION

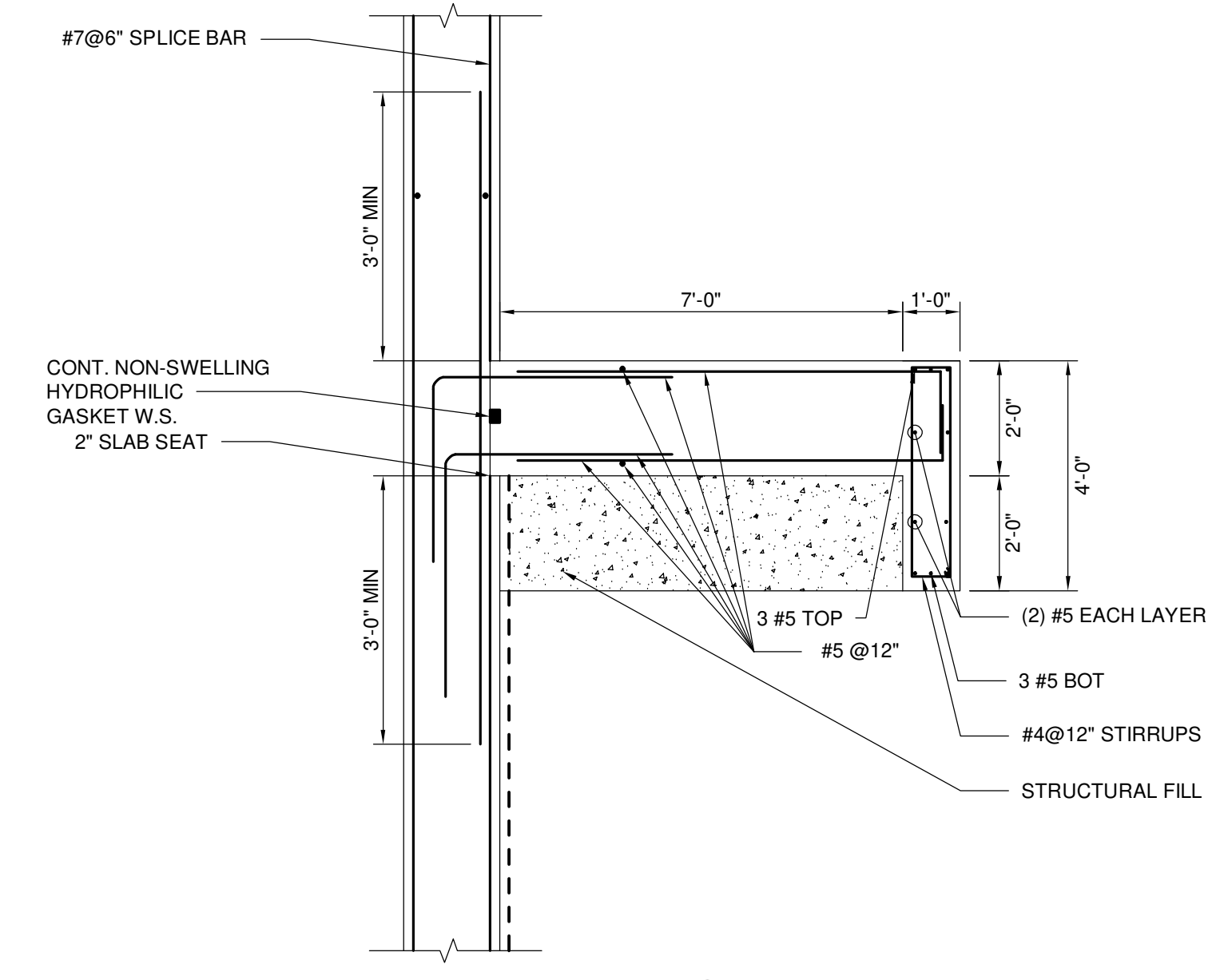
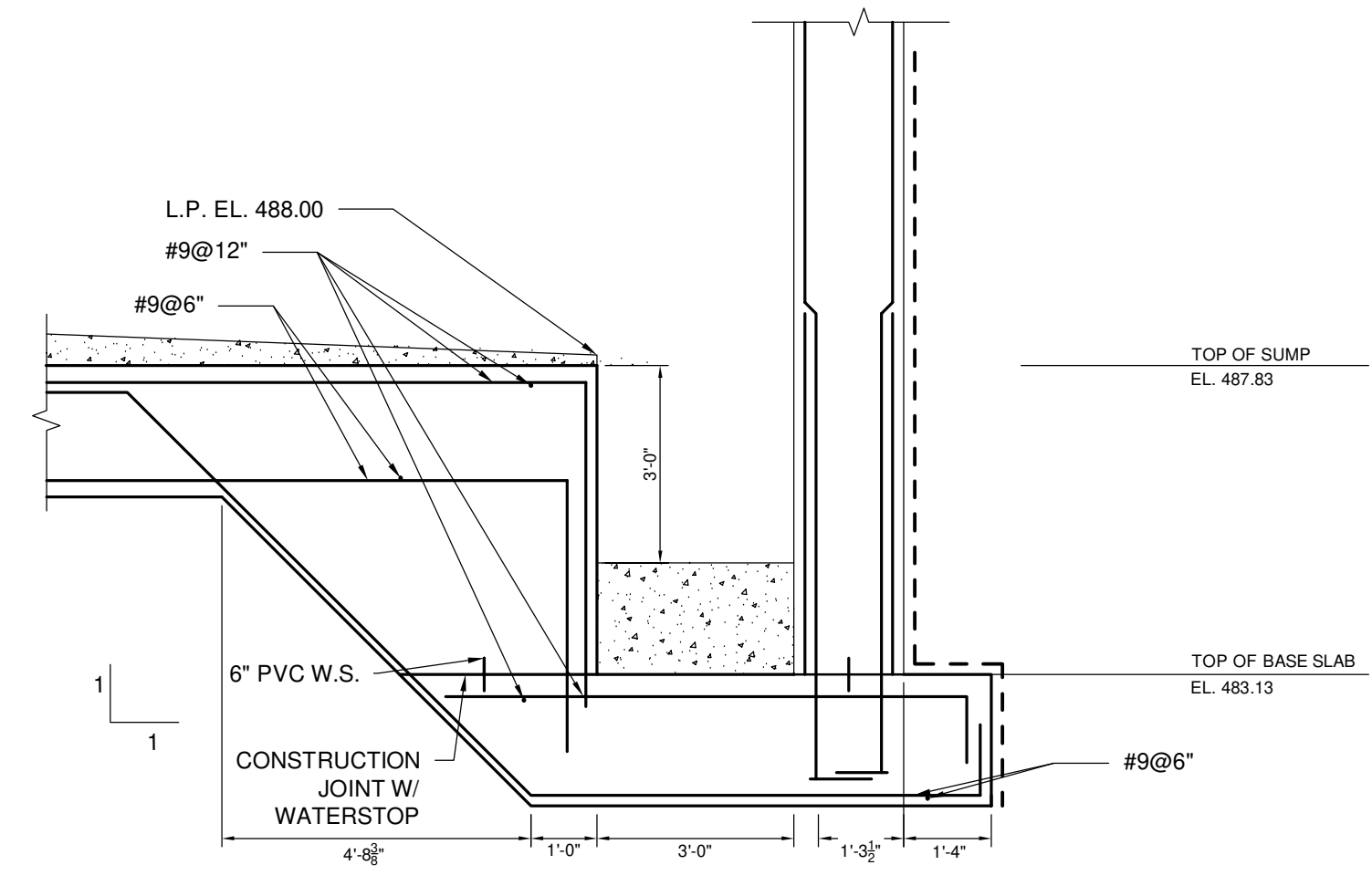
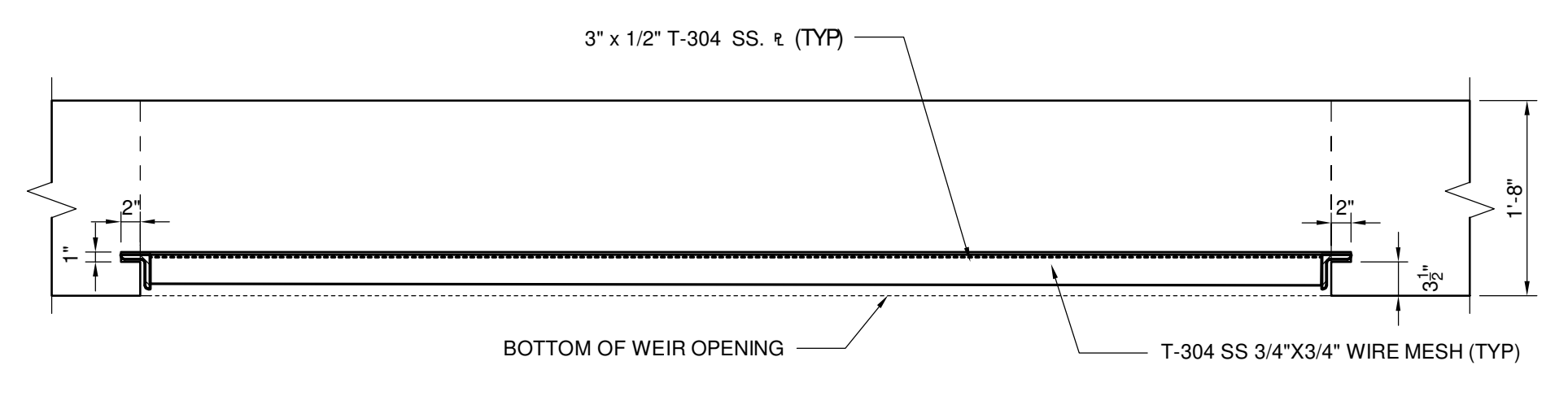
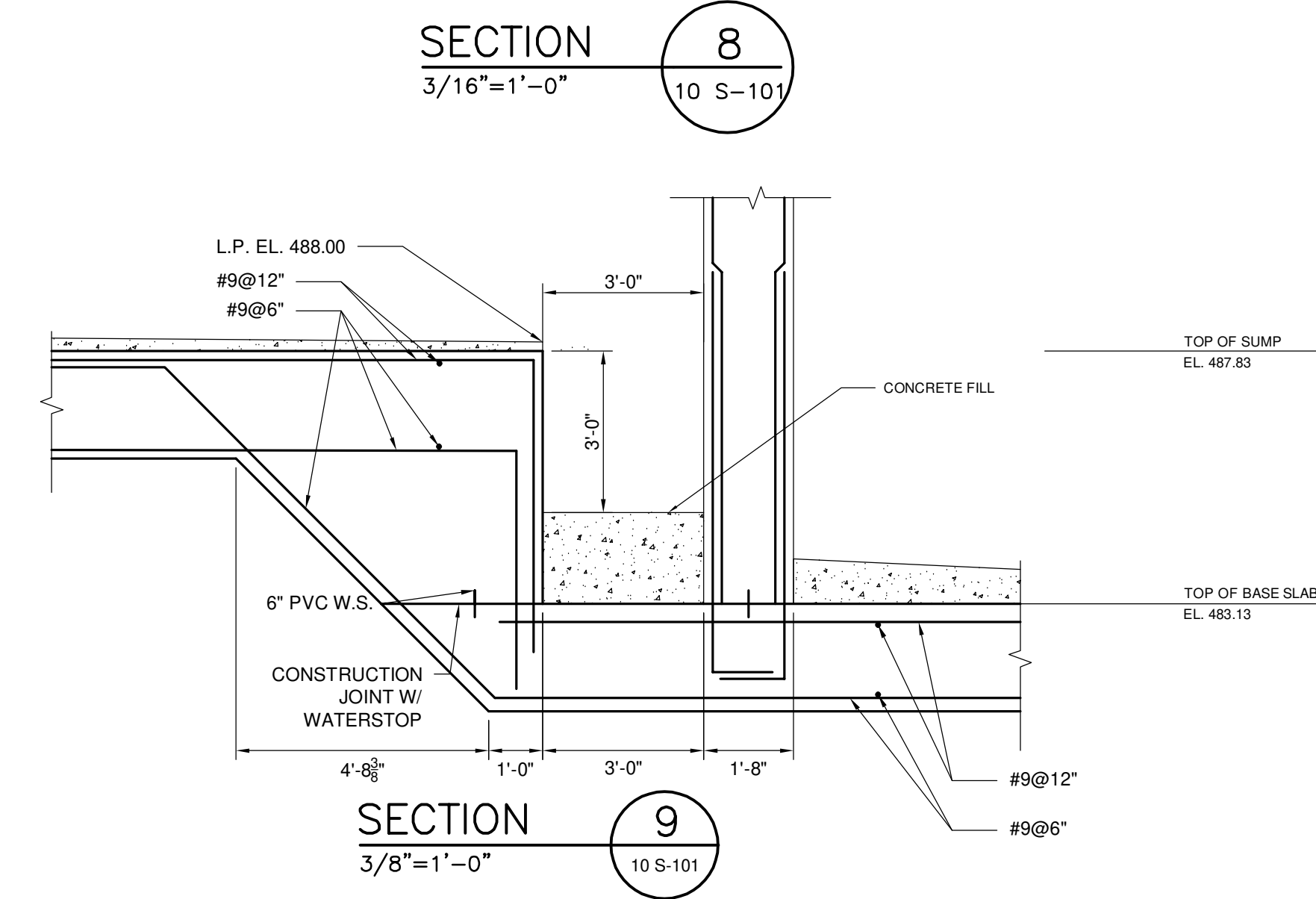
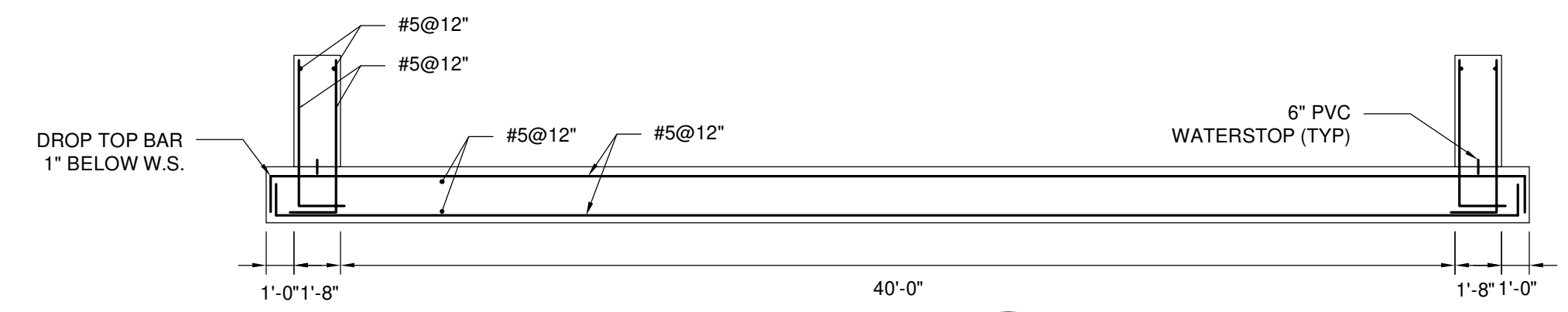
60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

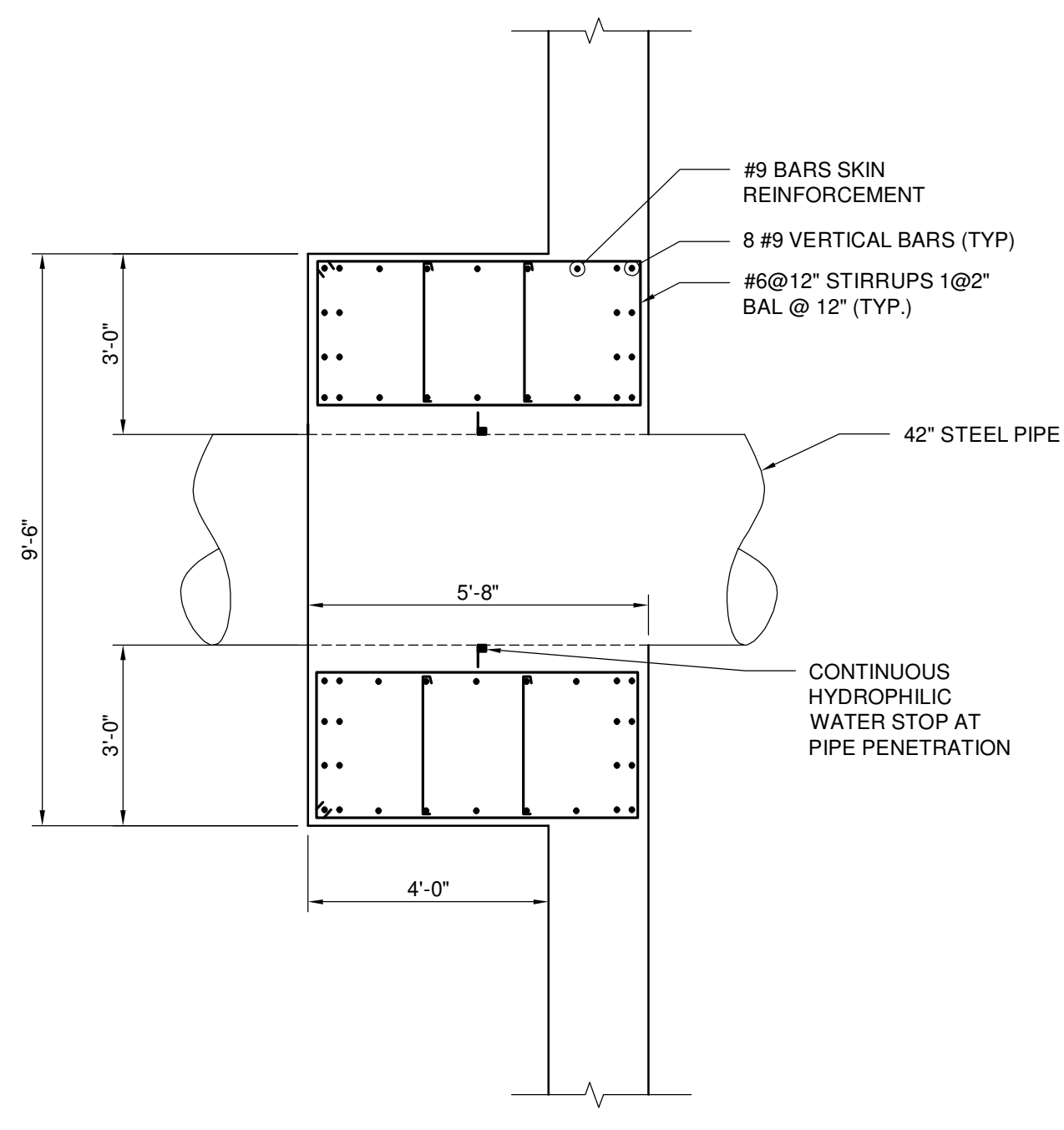
STRUCTURAL

EDV SECTIONS III

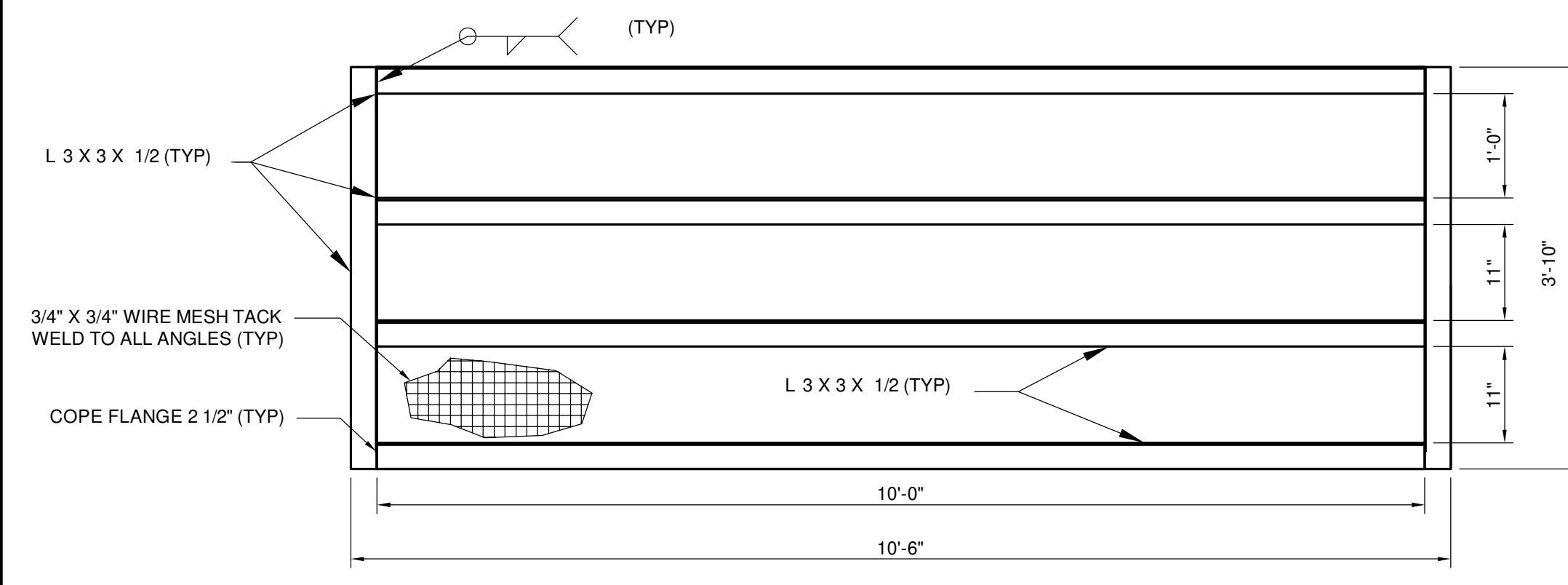
10 S-303



SECTION F
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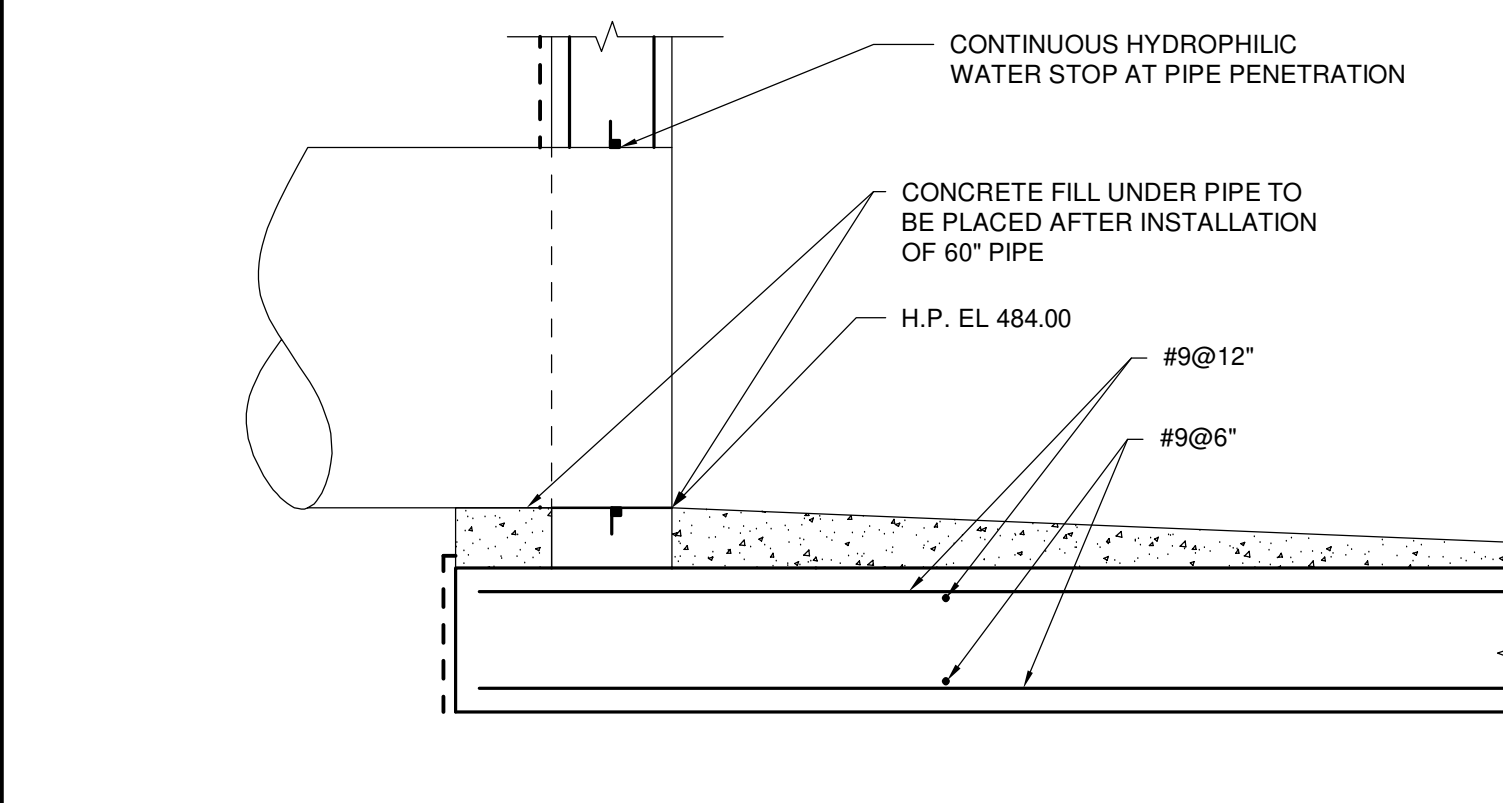


SECTION D
 3/8"=1'-0"

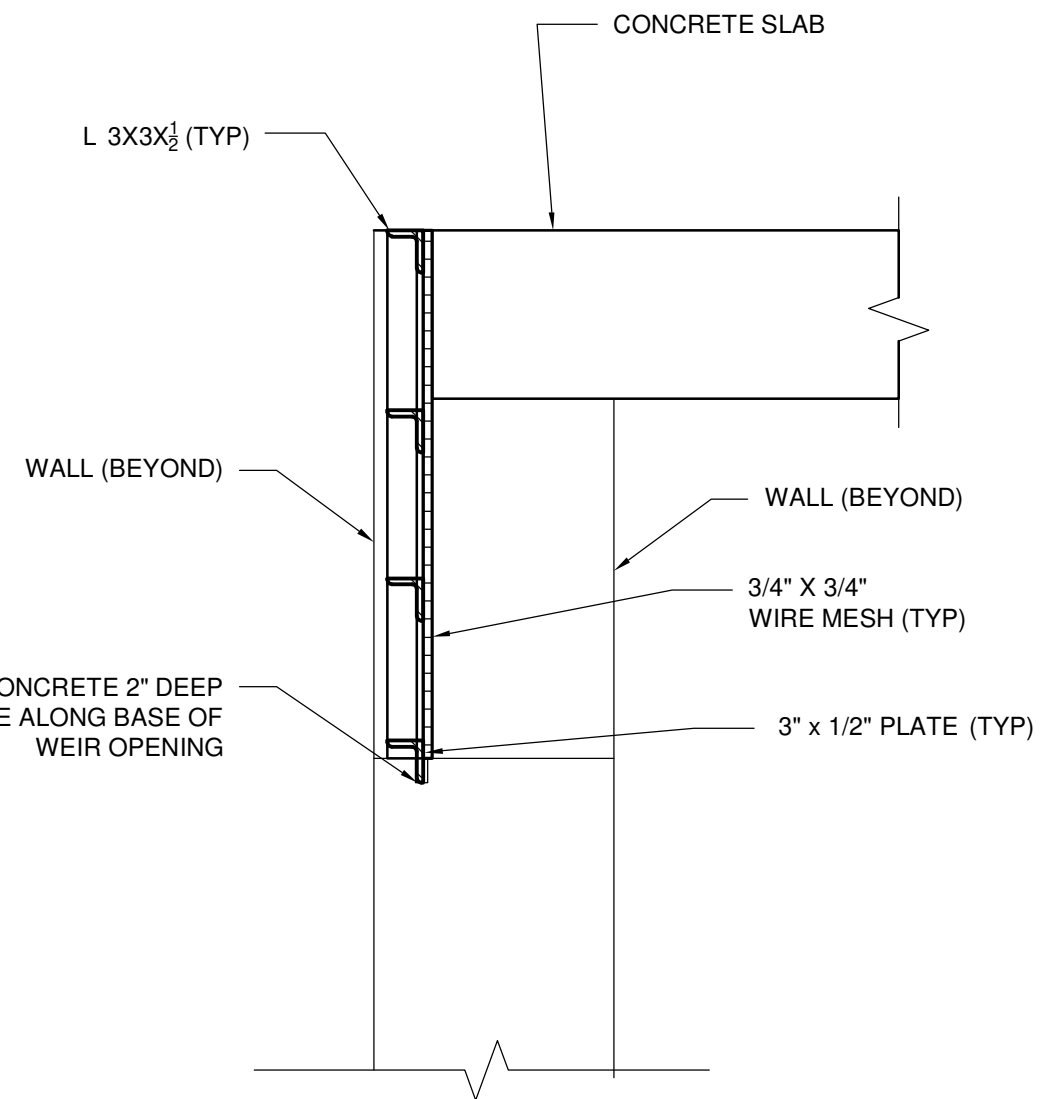


NOTE: ALL MATERIAL SHALL BE 304-L STAINLESS STEEL

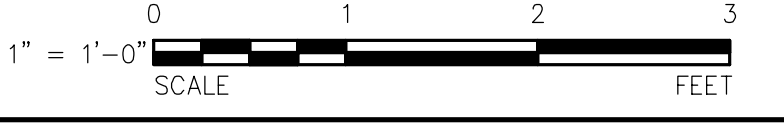
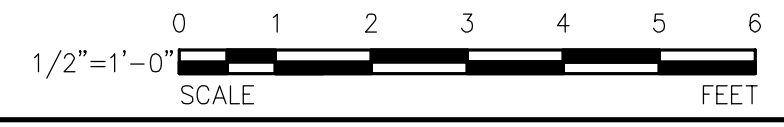
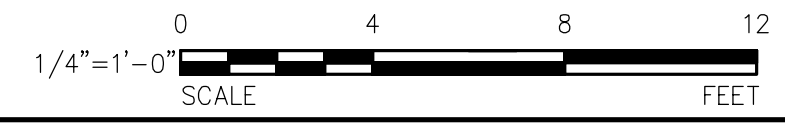
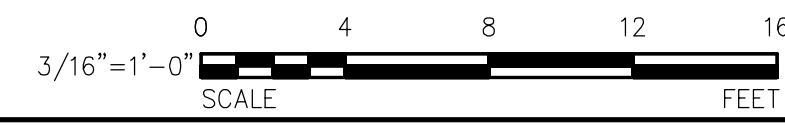
SECTION G
 1/2"=1'-0"



SECTION 10
 3/8"=1'-0"



SECTION 11
 1"=1'-0"



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 LAST UPDATE: Tuesday, February 13, 2024 11:28:32 AM
 PLOT DATE: Wednesday, February 14, 2024 1:45:05 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

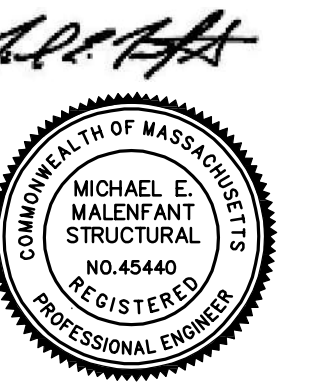
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
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CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1/2" = 1'-0"

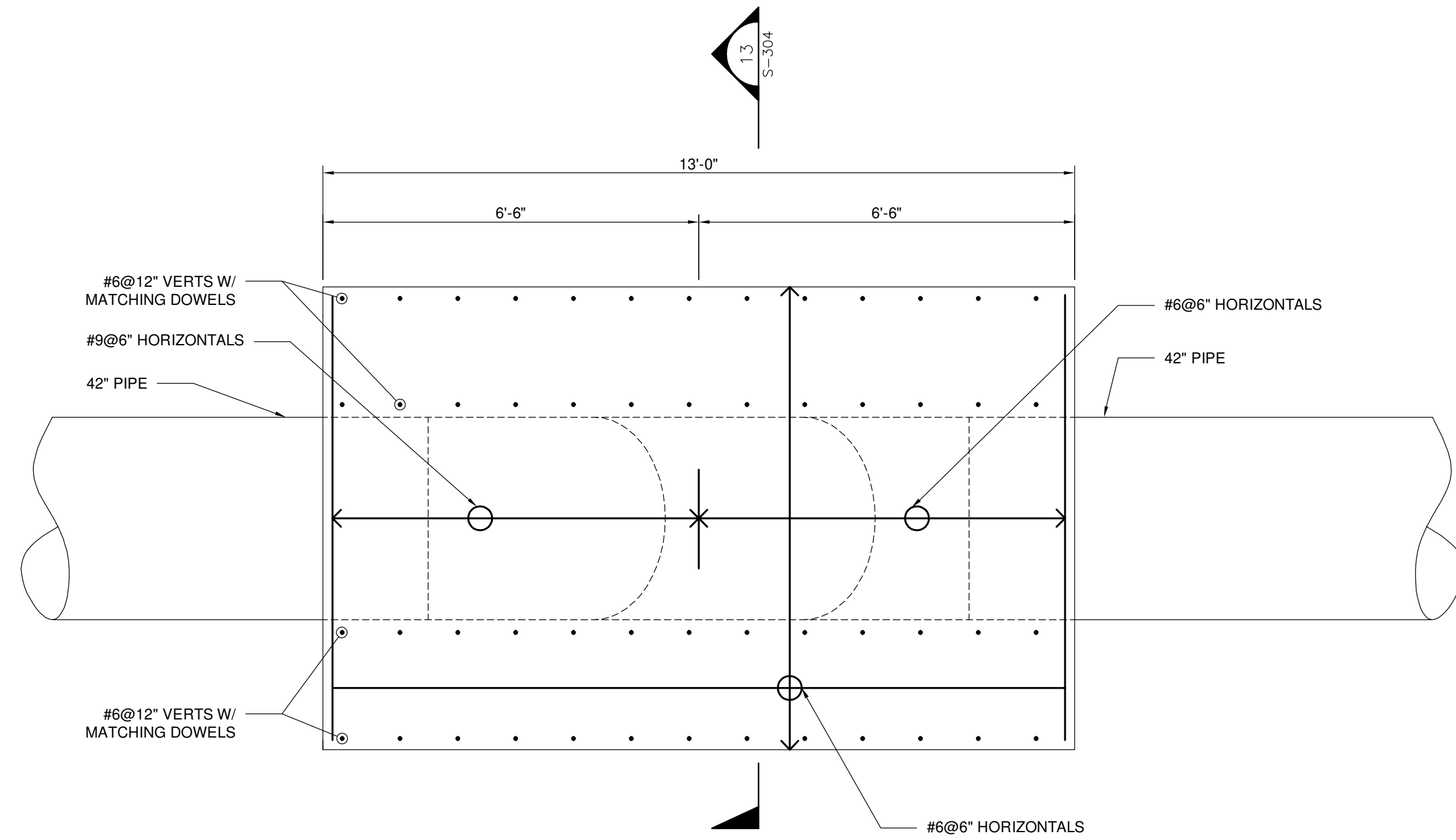
DISCIPLINE

STRUCTURAL
 SHEET TITLE

EDV THRUST BLOCK

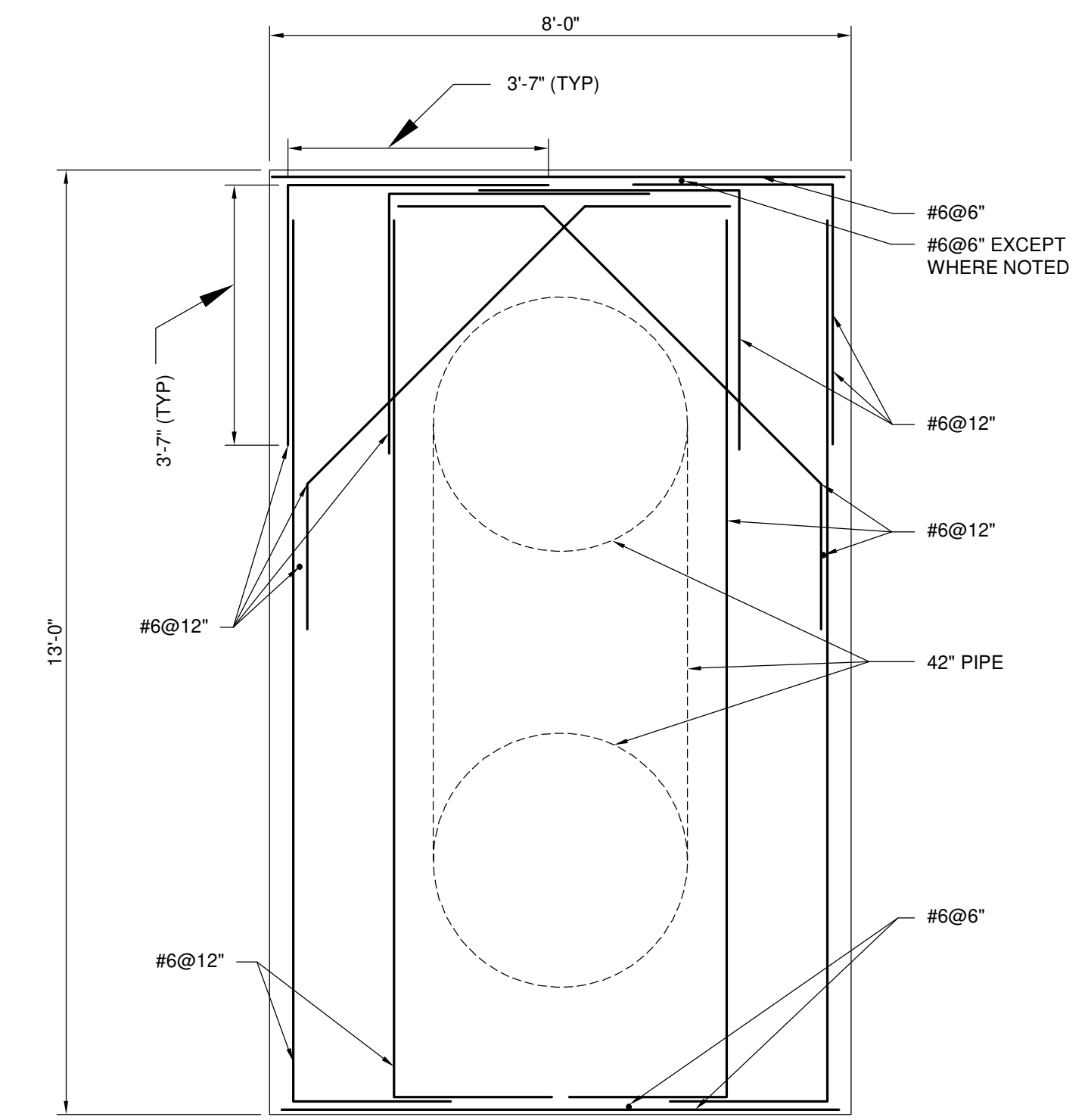
SHEET NUMBER

10 S-304



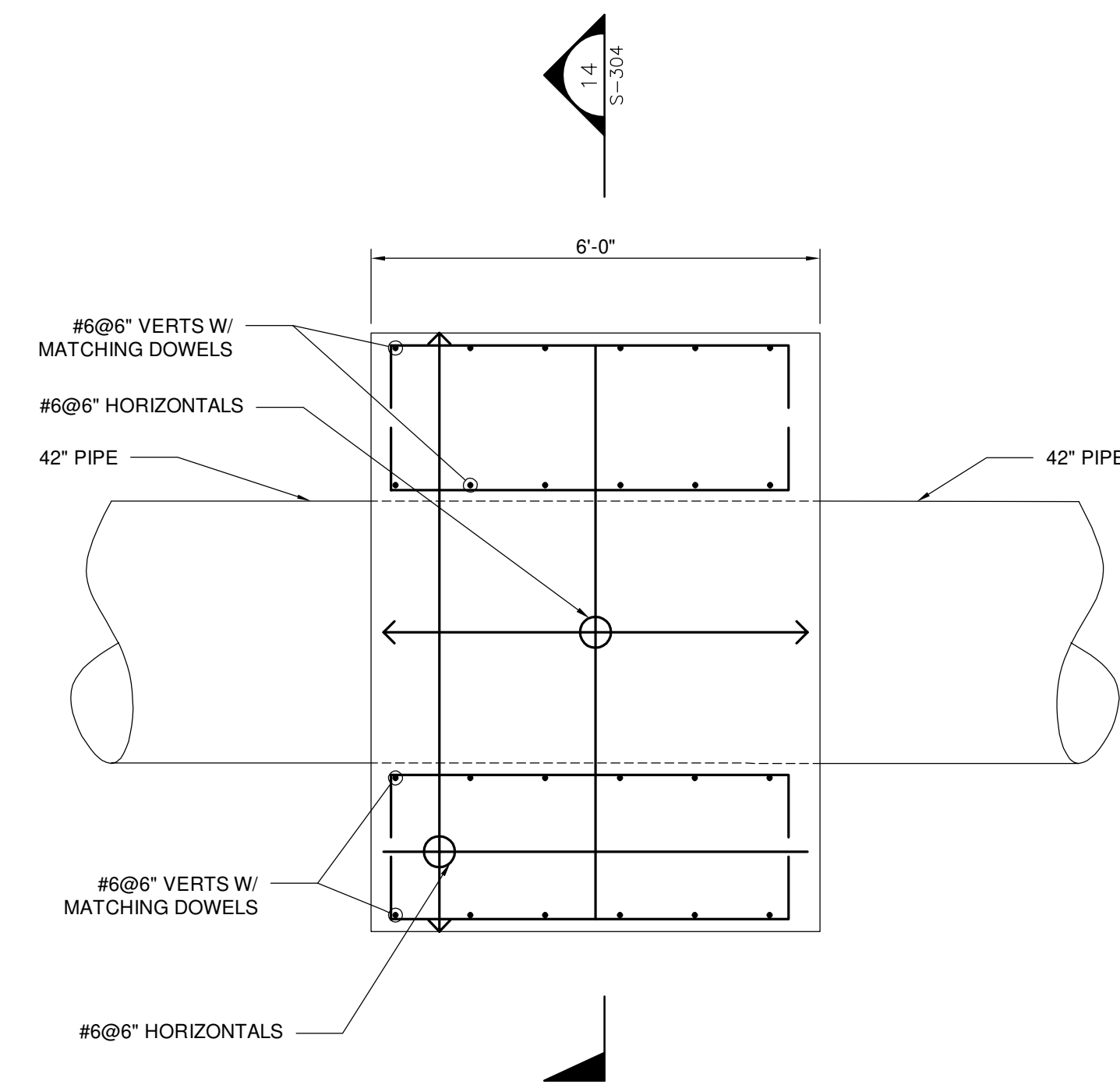
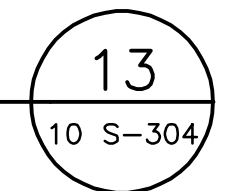
UPSTREAM THRUST BLOCK PLAN

1/2"=1'-0"



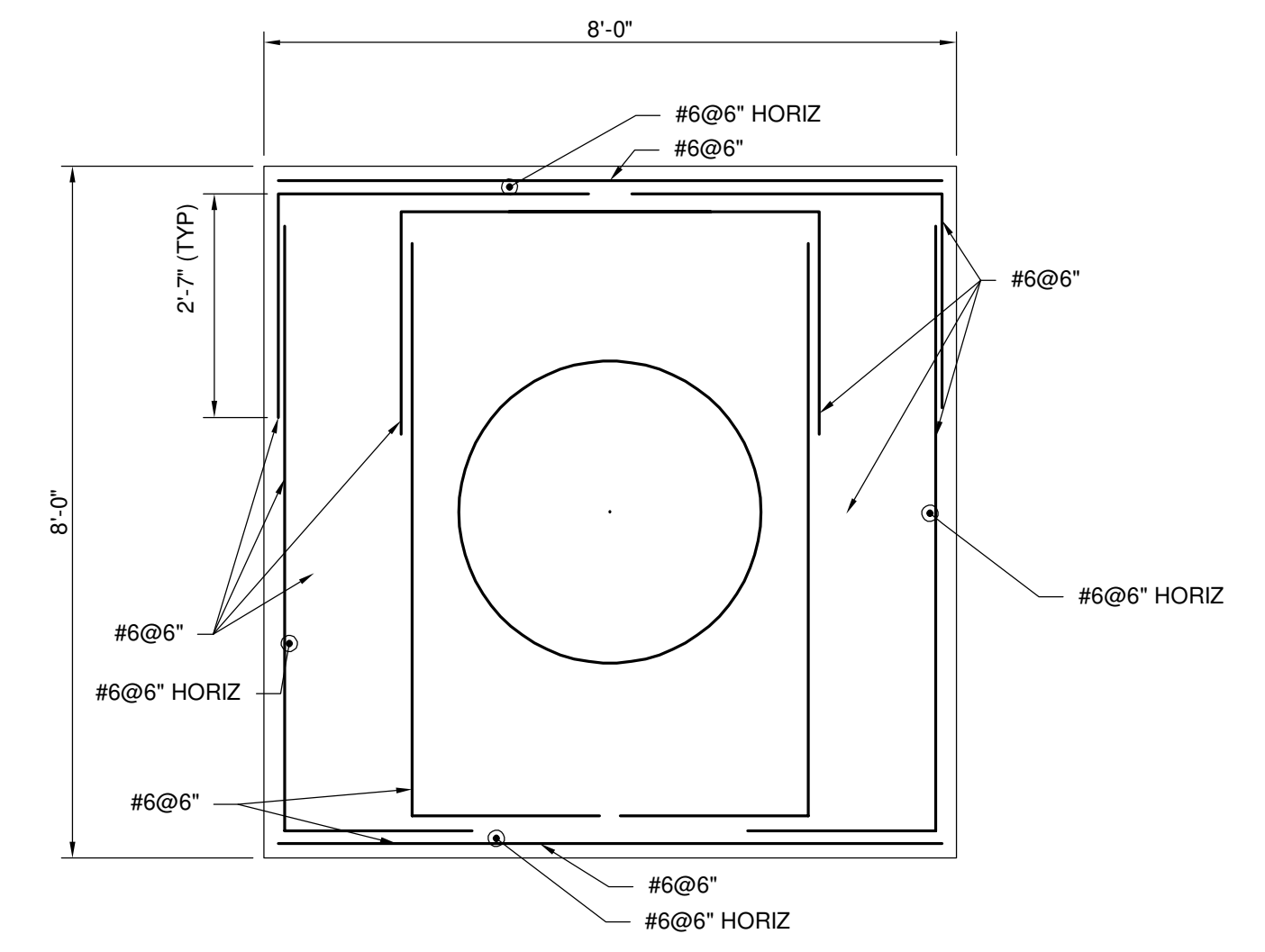
SECTION 13

1/2"=1'-0"



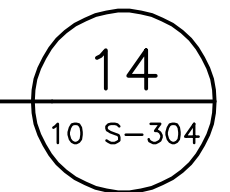
UPSTREAM CONCRETE THRUST COLLAR

1/2"=1'-0"



SECTION 14

1/2"=1'-0"



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 LAST UPDATE: Tuesday, February 13, 2024 11:25:43 AM
 PLOT DATE: Wednesday, February 14, 2024 1:45:27 PM

CLEAR CONCRETE COVER OVER REINFORCEMENT FOR CAST-IN-PLACE CONCRETE (INCHES)					
MEMBER	EXPOSURE CONDITIONS				
	AIR	WEATHER	AIR OVER LIQUID	EARTH OR STONE	LIQUIDS
FOOTINGS AND FOUNDATION MATS	2"	2"	-	4" * 3" •	2"
PILE CAPS ■	2"	2"	-	2" *	2"
WALLS	2"	2"	2"	2"	2"
JOISTS, BEAM STIRRUPS AND COLUMN TIES	1 1/2"	2"	2"	2" * 3" •	2"
FRAMED SLABS-EACH FACE	1"	2"	2"	2" ▲	2"
SLABS ON GROUND	1"	2"	-	2" ▲	2"

- * TOP FACE AND SIDES
- BOTTOM FACE
- ▲ WHEN PLACED ON SAND-GRAVEL, WELL DRAINED COMPACTED FILL
- BOTTOM COVER IS INDICATED ON DRAWINGS

CLEAR CONCRETE COVER OVER REINFORCEMENT FOR CAST-IN-PLACE CONCRETE

NTS

REINFORCING BAR DEVELOPMENT PER ACI 318				
BAR SIZE	f _c = 5,000 psi		f _y = 60,000 psi	
	BASIC TENSION DEVELOPMENT	TOP BAR DEVELOPMENT	COMPRESSION DEVELOPMENT	STANDARD HOOK DEVELOPMENT
# 3 (10)	1'-1"	1'-5"	8"	6"
# 4 (13)	1'-5"	1'-10"	9"	8"
# 5 (16)	1'-9"	2'-4"	11"	11"
# 6 (19)	2'-2"	2'-9"	1'-2"	1'-1"
# 7 (22)	3'-1"	4'-0"	1'-4"	1'-3"
# 8 (25)	3'-6"	4'-8"	1'-6"	1'-5"
# 9 (29)	4'-0"	5'-2"	1'-8"	1'-7"
# 10 (32)	4'-6"	5'-10"	1'-11"	1'-10"
# 11 (36)	5'-0"	6'-6"	2'-1"	2'-0"

TABULATED VALUES ARE FOR UNCOATED BARS AND NORMAL WEIGHT CONCRETE.
 TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS PLACED BELOW THE BAR.
 TABULATED VALUES ARE FOR BARS WHICH HAVE AT LEAST 1 1/2" OF CLEAR CONCRETE COVER AND ARE SPACED AT LEAST 3" ON CENTER. SPLICE LENGTHS FOR BARS NOT CONFORMING TO EITHER OF THESE CONDITIONS SHALL BE INCREASED 50%.

REINFORCING BAR DEVELOPMENT

NTS
(REV. 07-17-12)

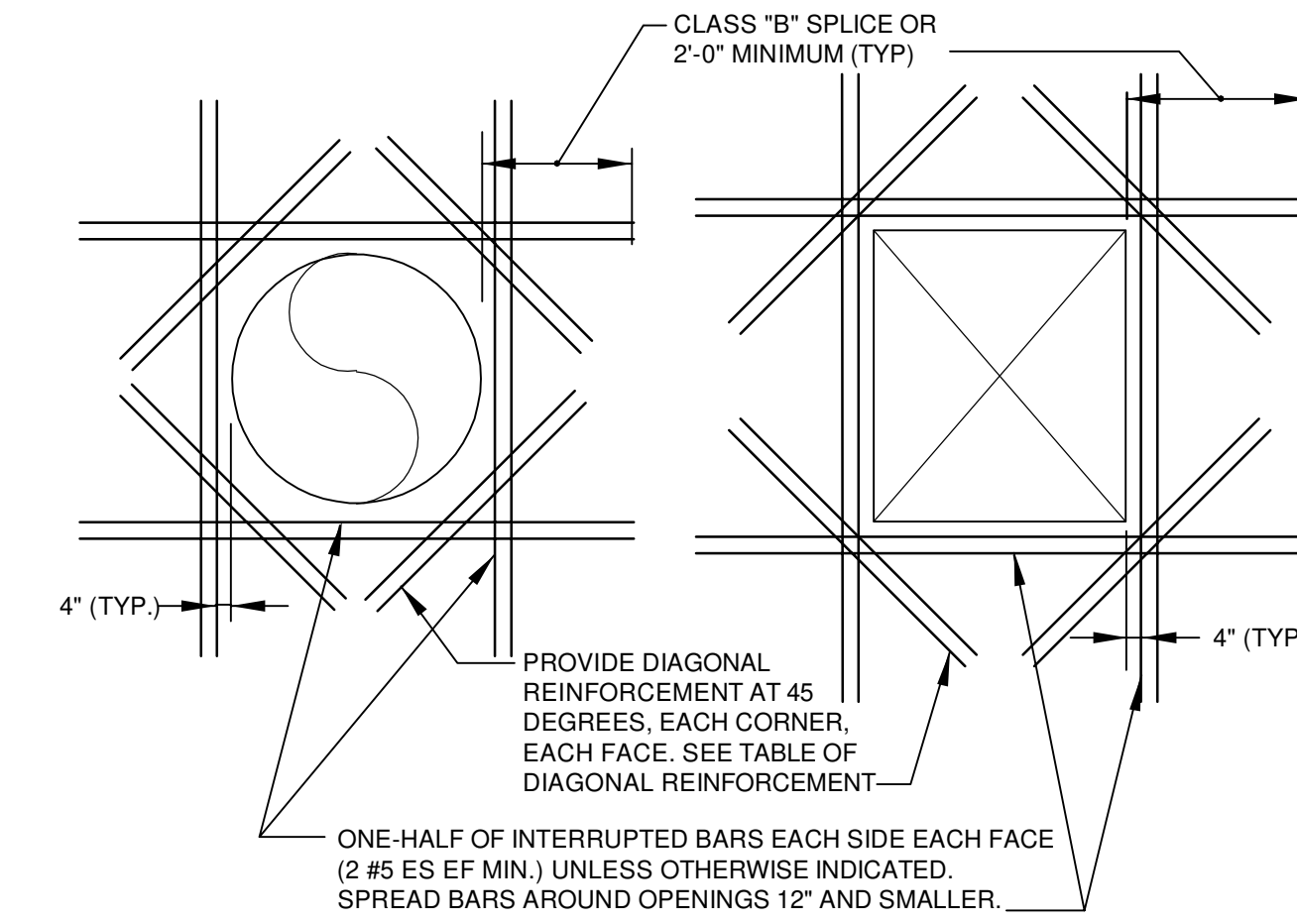
REINFORCING BAR SPLICES PER ACI 318			
BAR SIZE (METRIC)	f _c = 5,000 psi		f _y = 60,000 psi
	CLASS "B" SPLICE TOP BARS	OTHER BARS	COMPRESSION SPLICE
# 3 (10)	1'-9"	1'-5"	1'-0"
# 4 (13)	2'-5"	1'-10"	1'-3"
# 5 (16)	3'-0"	2'-4"	1'-7"
# 6 (19)	3'-7"	2'-9"	1'-11"
# 7 (22)	5'-3"	4'-0"	2'-2"
# 8 (25)	6'-0"	4'-8"	2'-6"
# 9 (29)	6'-9"	5'-2"	2'-10"
# 10 (32)	7'-7"	5'-10"	3'-2"
# 11 (36)	8'-5"	6'-6"	3'-6"

TABULATED VALUES ARE FOR NORMAL WEIGHT CONCRETE AND UNCOATED BARS THAT HAVE AT LEAST 1 1/2" OF CLEAR CONCRETE COVER AND ARE SPACED AT LEAST 3" ON CENTER.
 TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS PLACED BELOW THE BAR.

REINFORCING BAR SPLICES

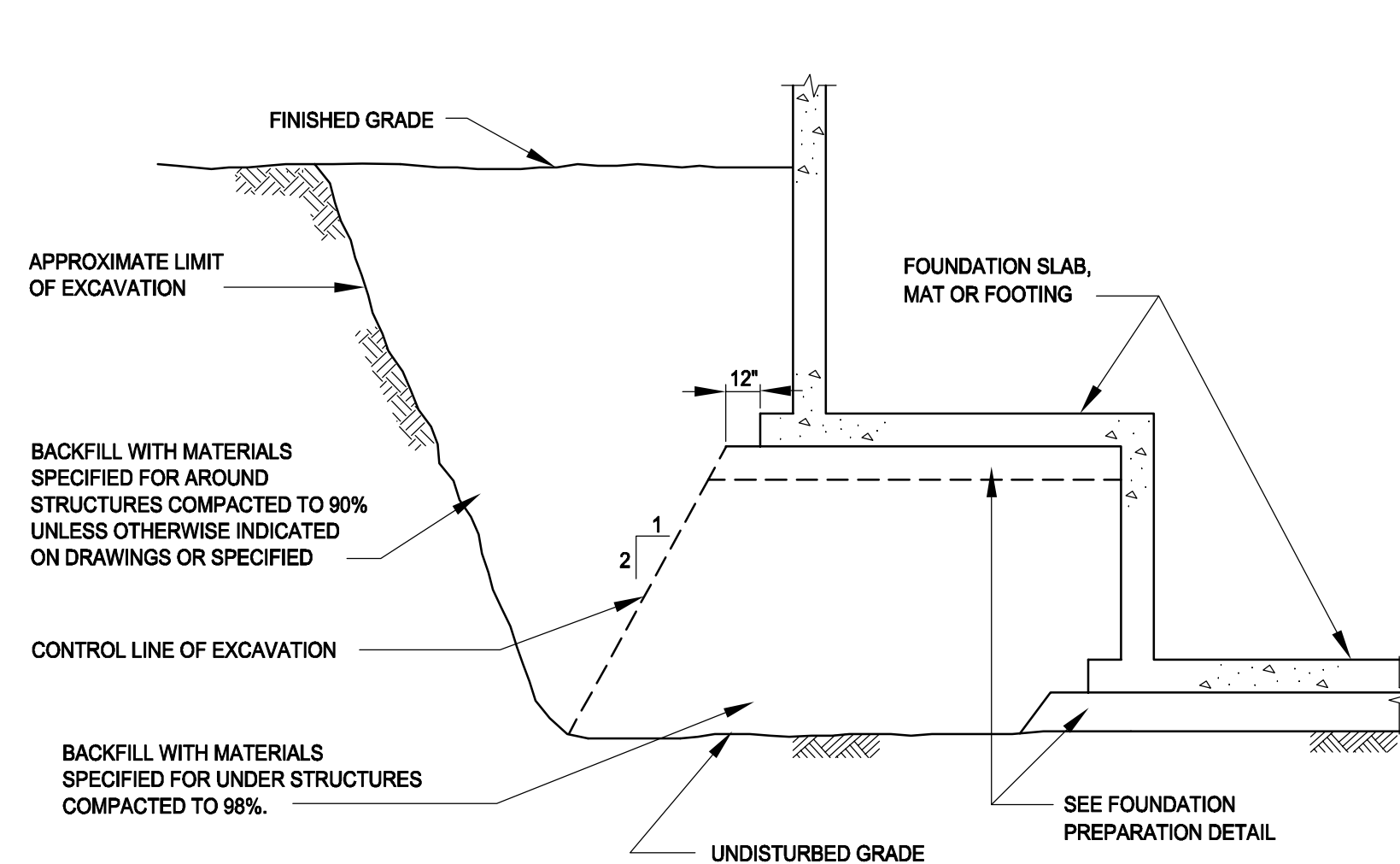
NTS
(REV. 07-18-12)

TABLE OF DIAGONAL REINFORCEMENT					
MEMBER THICKNESS IN INCHES	OPENING SIZE	LARGEST OPENING DIMENSION IN INCHES			
		LESS THAN 12	12 TO 36	36 TO 48	48 TO 60
LESS THAN 16	NONE	2-#5 X 4'-0"	2-#5 X 4'-0"	2-#6 X 4'-0"	2-#6 X 4'-0"
16 TO 32	NONE	2-#6 X 4'-0"	2-#6 X 4'-0"	2-#7 X 4'-6"	2-#7 X 4'-6"
32 TO 48	NONE	2-#6 X 4'-0"	2-#7 X 4'-6"	2-#7 X 4'-6"	2-#8 X 5'-0"
48 TO 60	NONE	2-#7 X 4'-6"	2-#7 X 4'-6"	2-#8 X 5'-0"	2-#8 X 5'-0"
60 AND LARGER	NONE	2-#7 X 4'-6"	2-#8 X 5'-0"	2-#8 X 5'-0"	2-#9 X 6'-0"



ADDITIONAL REINFORCEMENT FOR ROUND AND RECTANGULAR OPENINGS

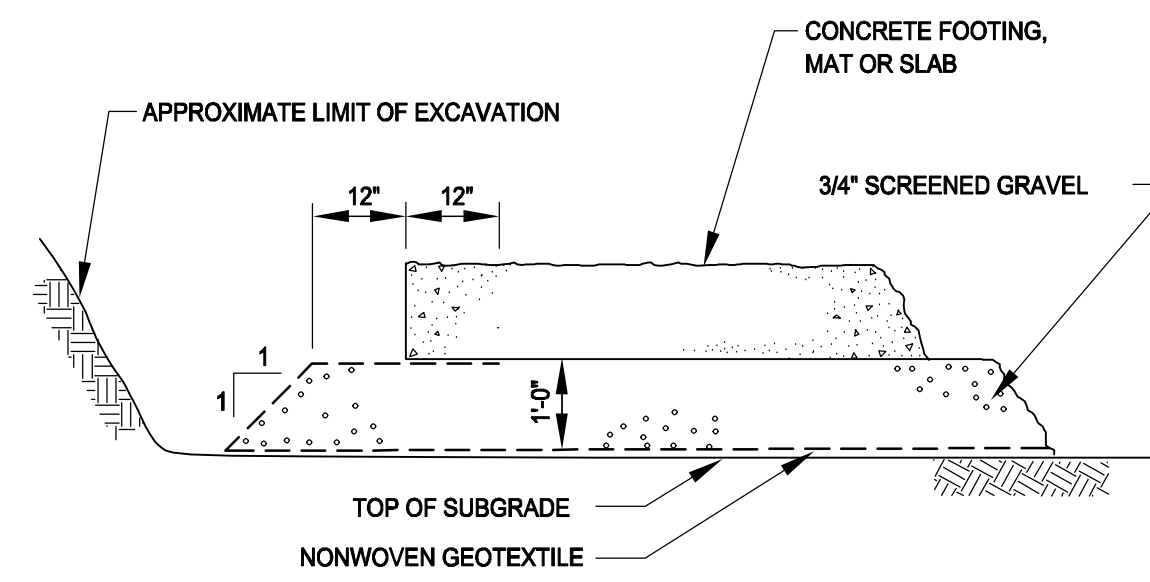
NTS



NOTE: PERCENT COMPACTION IS THE RATIO OF FIELD DRY DENSITY DETERMINED BY ASTM D-1556 TO MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557 MULTIPLIED BY 100.

BACKFILL AROUND AND BENEATH STRUCTURES

NOT TO SCALE
2-9.3.3 (REV. 7-18-06)



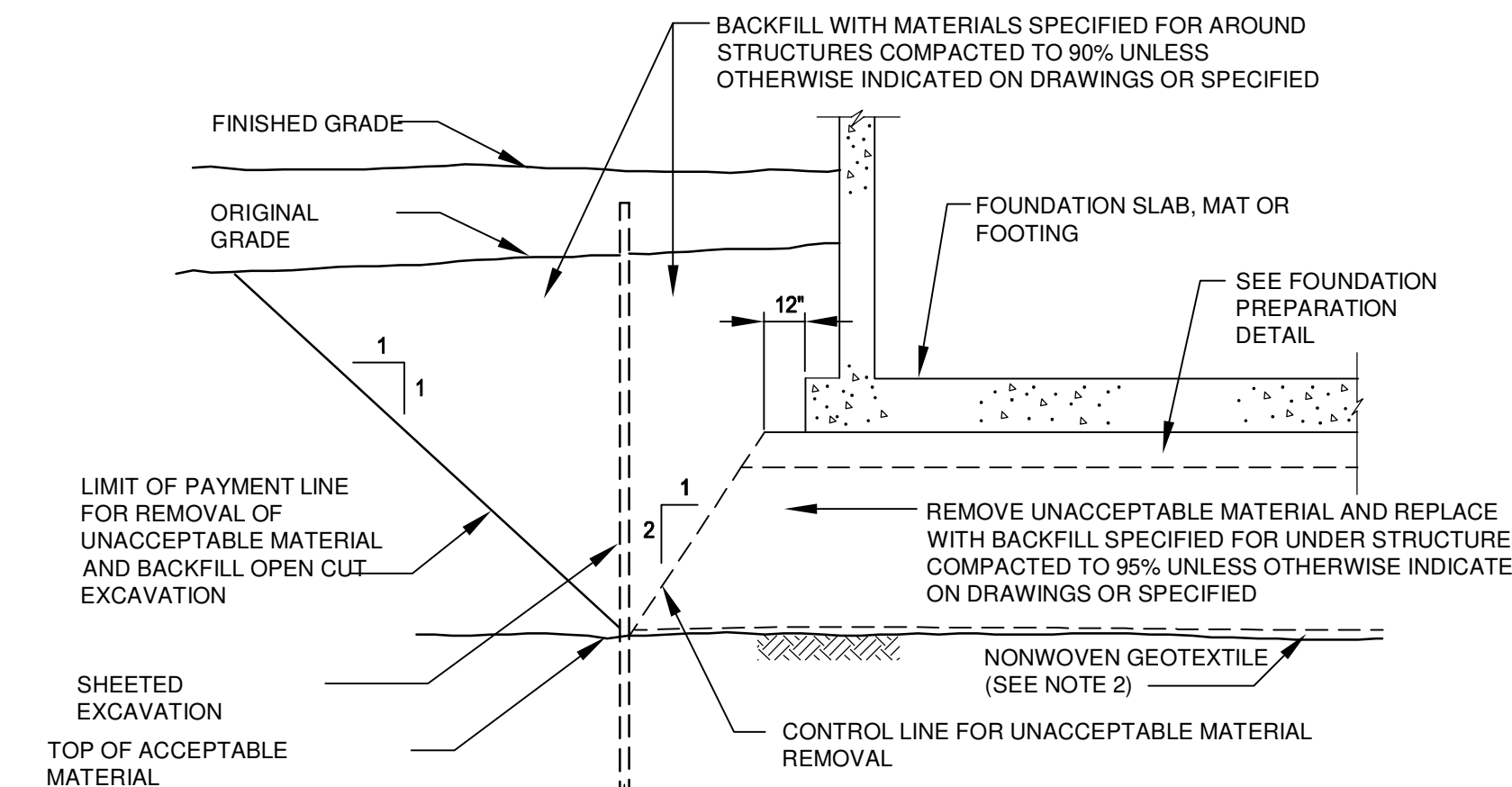
GRADATION REQUIREMENTS

SIEVE SIZE	PERCENTAGE BY WEIGHT PASSING
	3/4" SCREENED GRAVEL
1"	100
3/4"	90 - 100
3/8"	20 - 55
#4	0 - 10
#8	0 - 5

NOTE: CONFORM TO GEOTEXTILE SPECIFICATIONS.

FOUNDATION PREPARATION WITH GEOTEXTILE

NOT TO SCALE
2-9.1.3 (REV. 9-3-98)

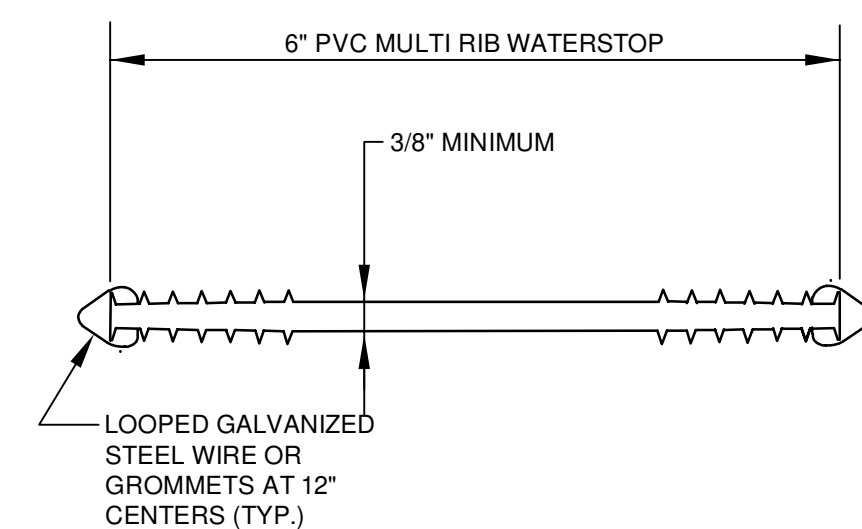


NOTES:

- PERCENT COMPACTION IS THE RATIO OF FIELD DRY DENSITY DETERMINED BY ASTM D-1556 TO MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557 MULTIPLIED BY 100.
- NONWOVEN GEOTEXTILE SHALL BE PLACED AT UNDISTURBED SUBGRADE WHEN SCREENED GRAVEL OR CRUSHED STONE IS USED AS BACKFILL BENEATH STRUCTURES.

REMOVAL OF UNACCEPTABLE MATERIAL FROM BENEATH STRUCTURES

NOT TO SCALE
(REV. 7-18-06)



SIX INCH WATERSTOP

NTS
(REV. 06-27-11)

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

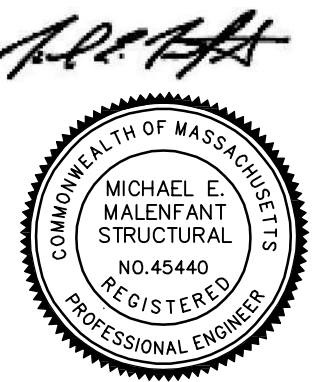
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NTS

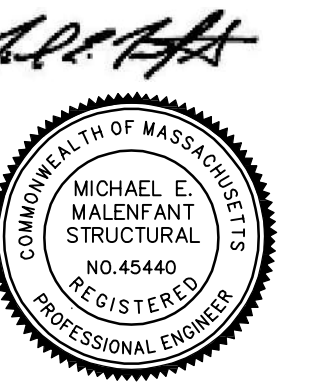
DISCIPLINE

STRUCTURAL
SHEET TITLE

STRUCTURAL STANDARD DETAILS

SHEET NUMBER

99 S-501

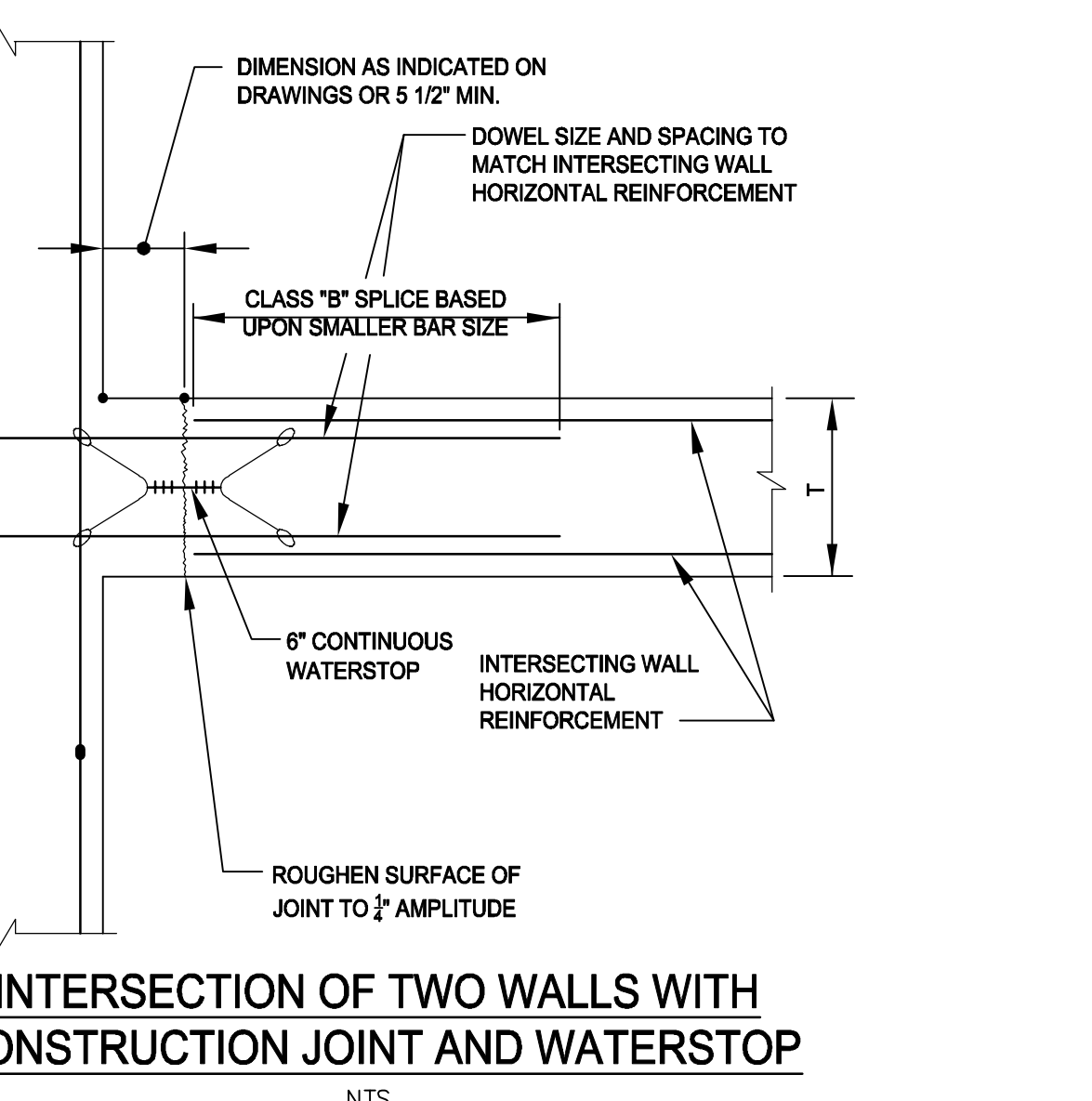
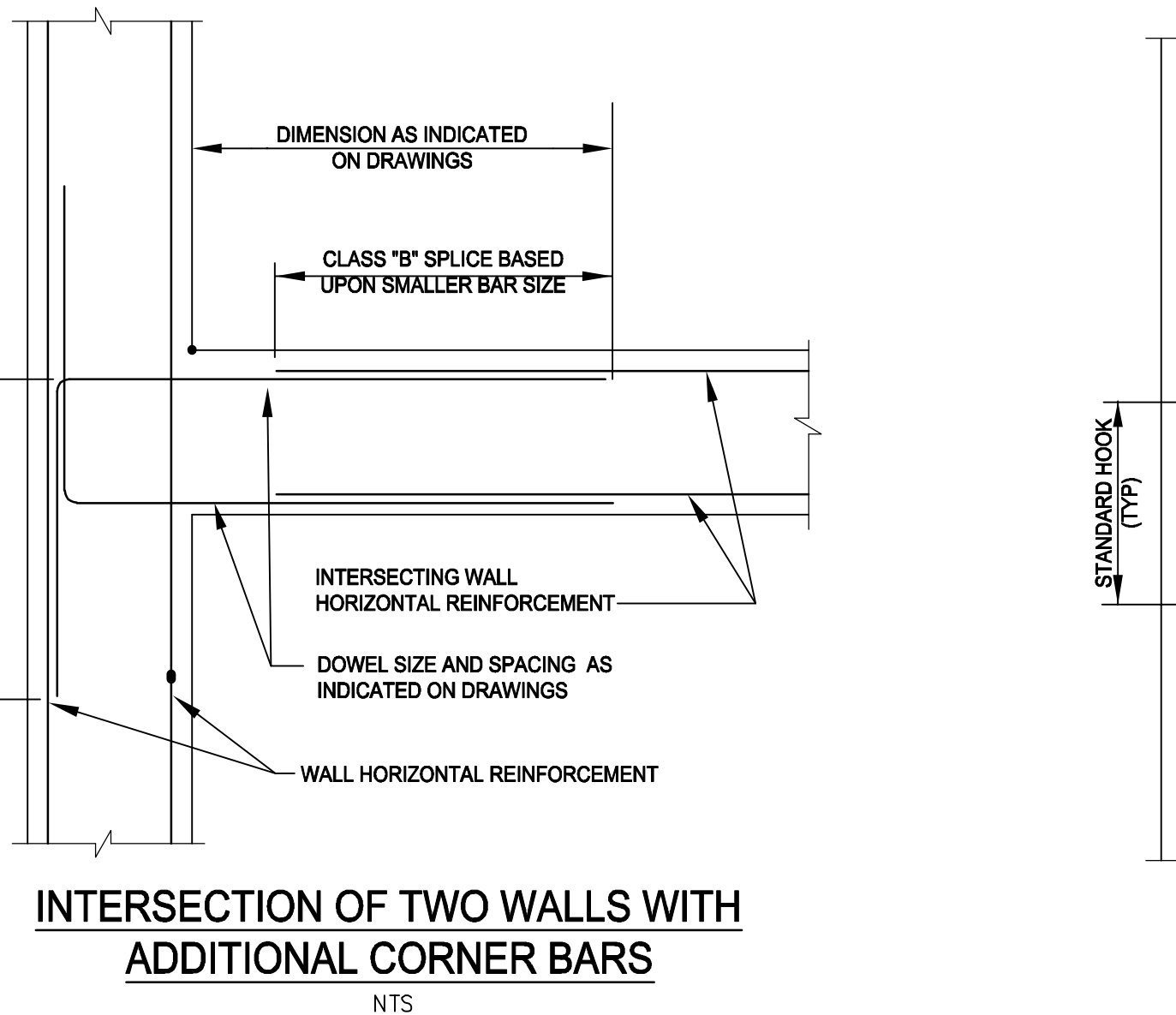
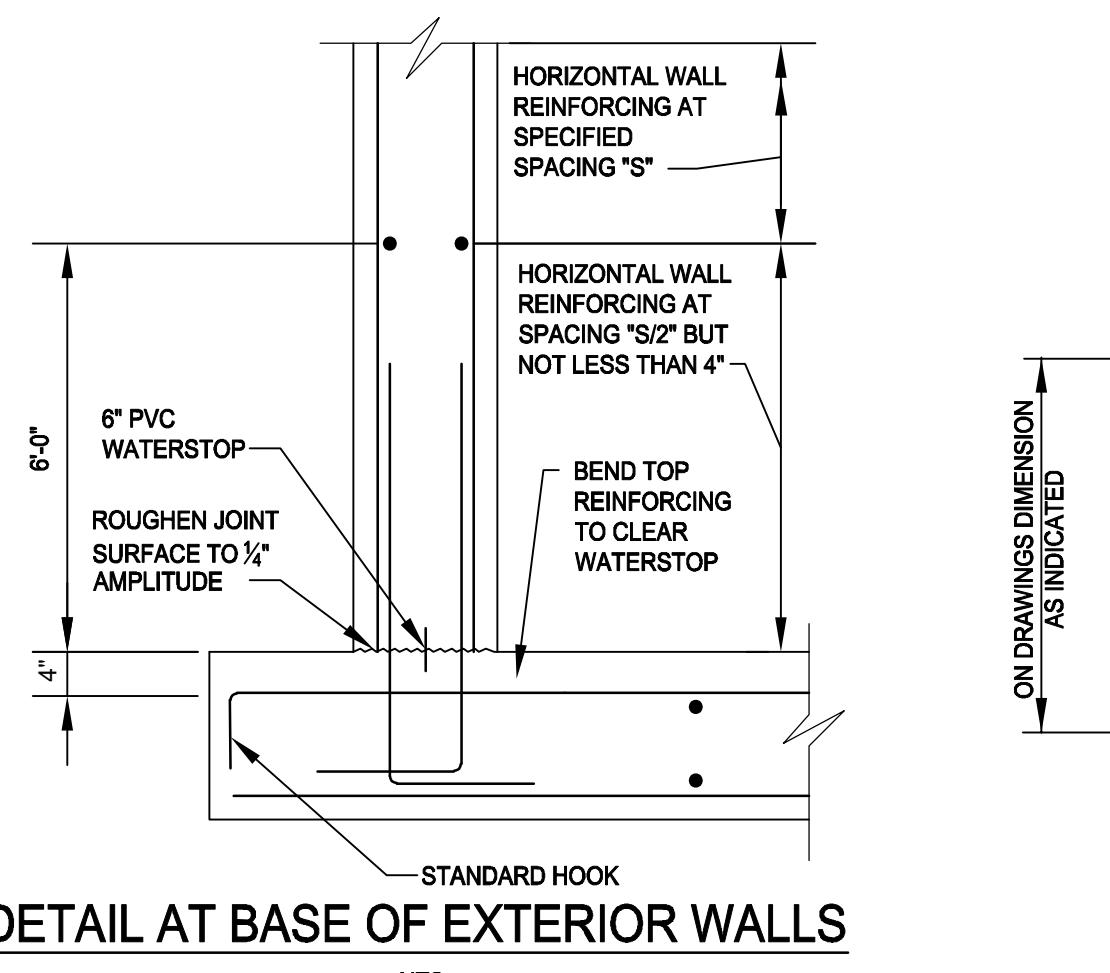
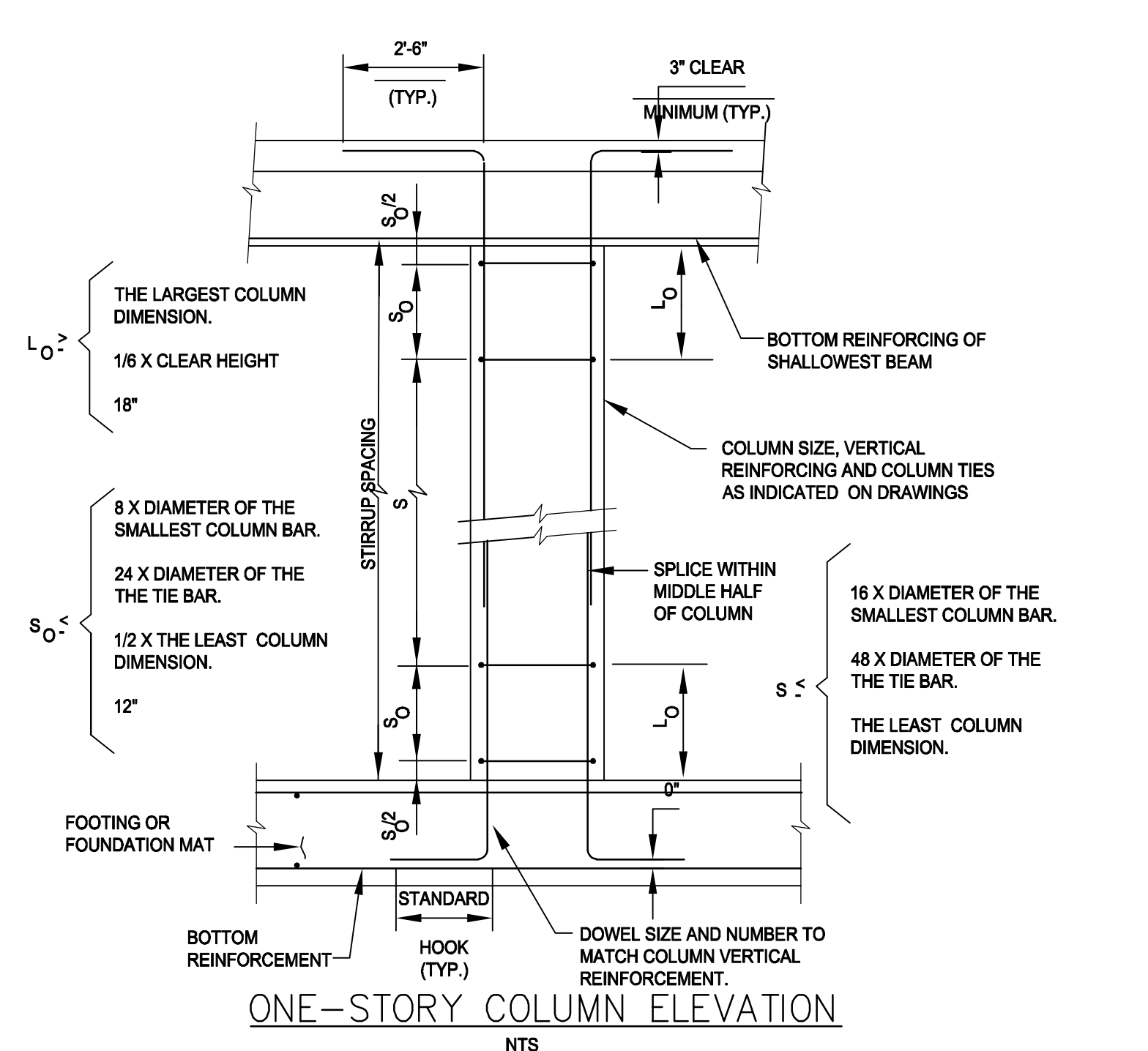
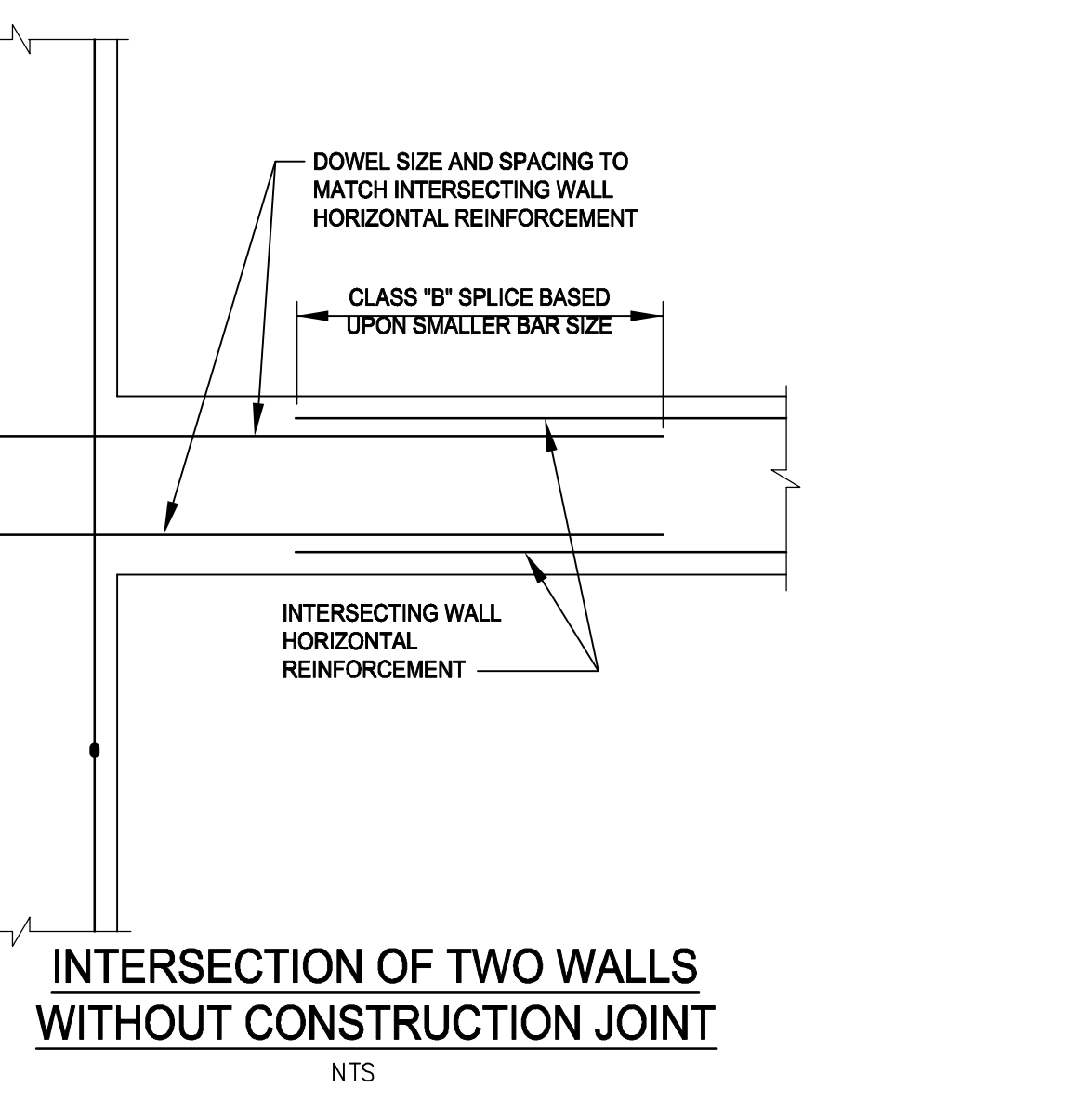
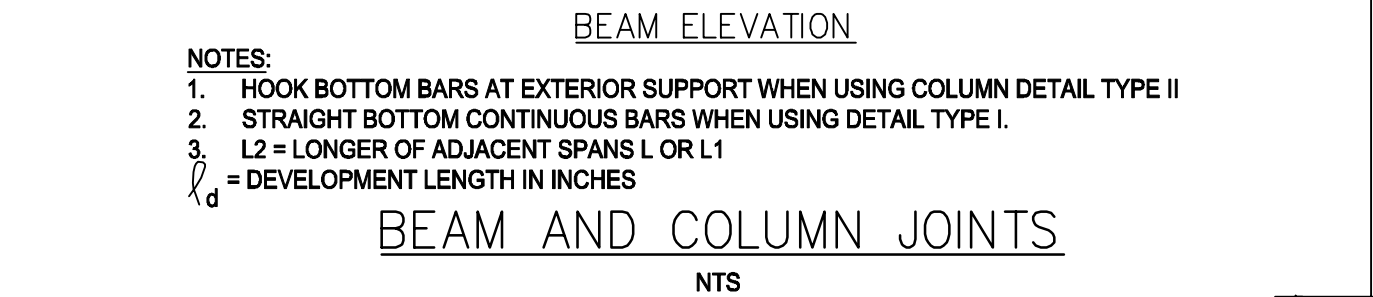
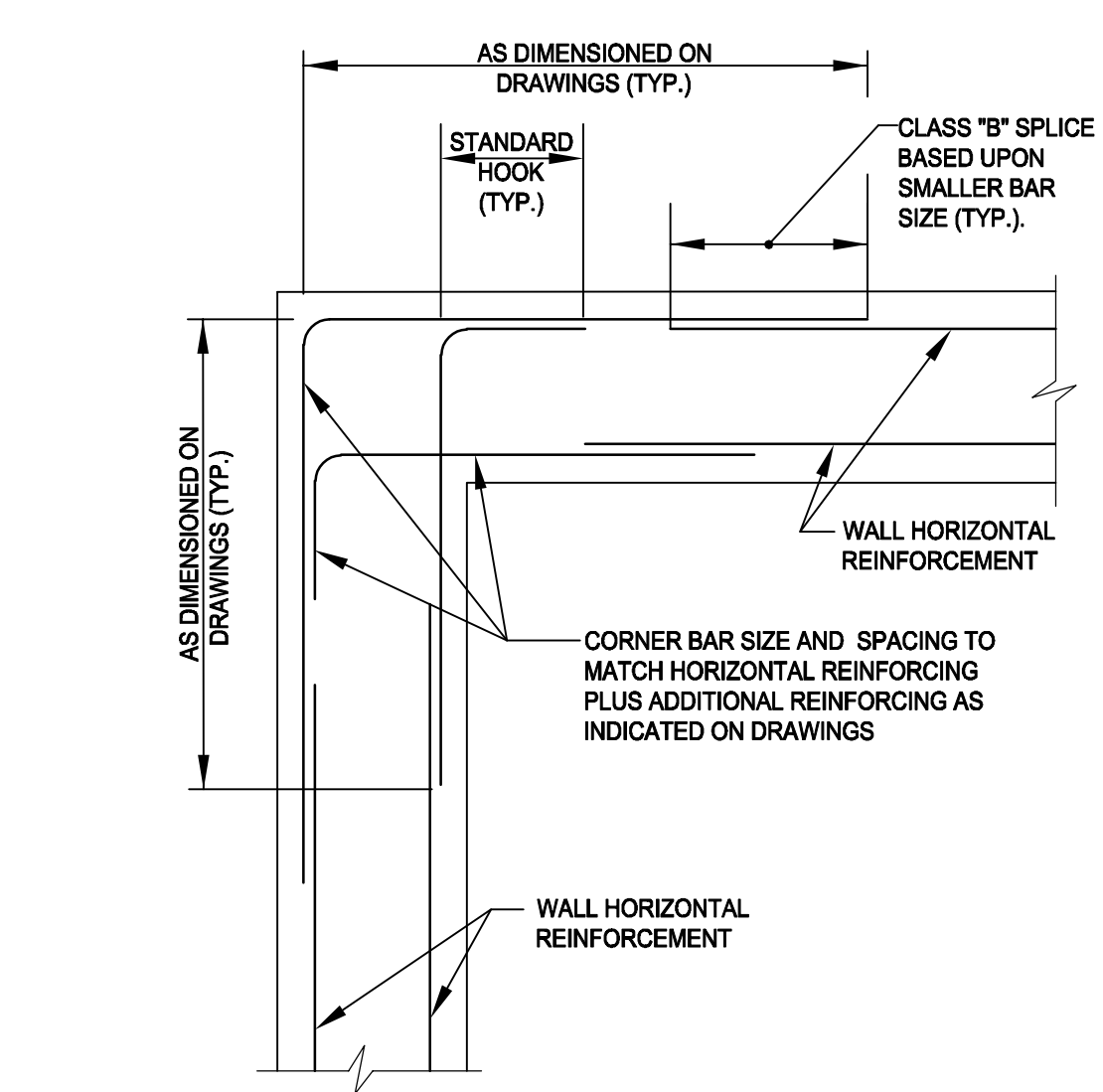
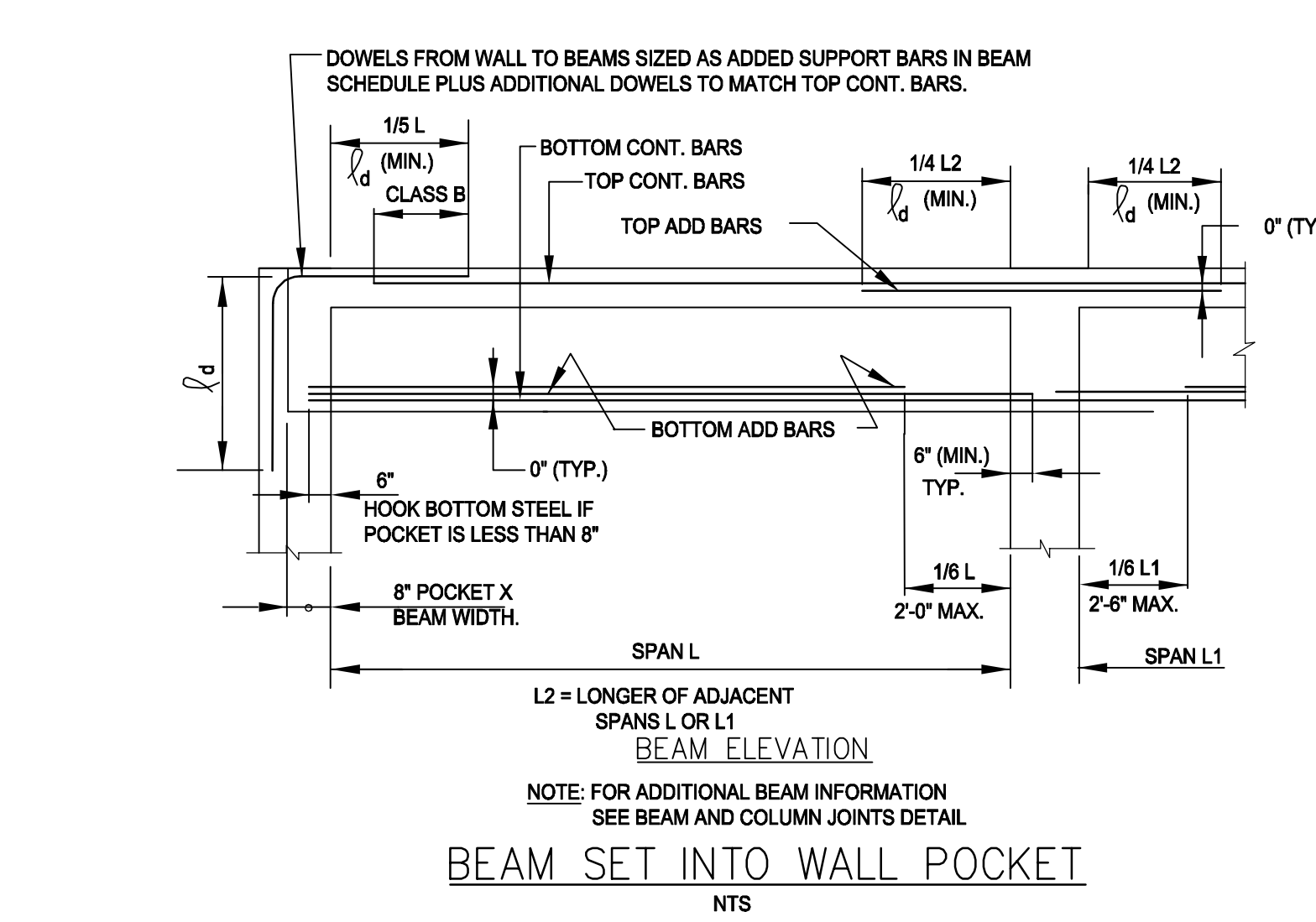
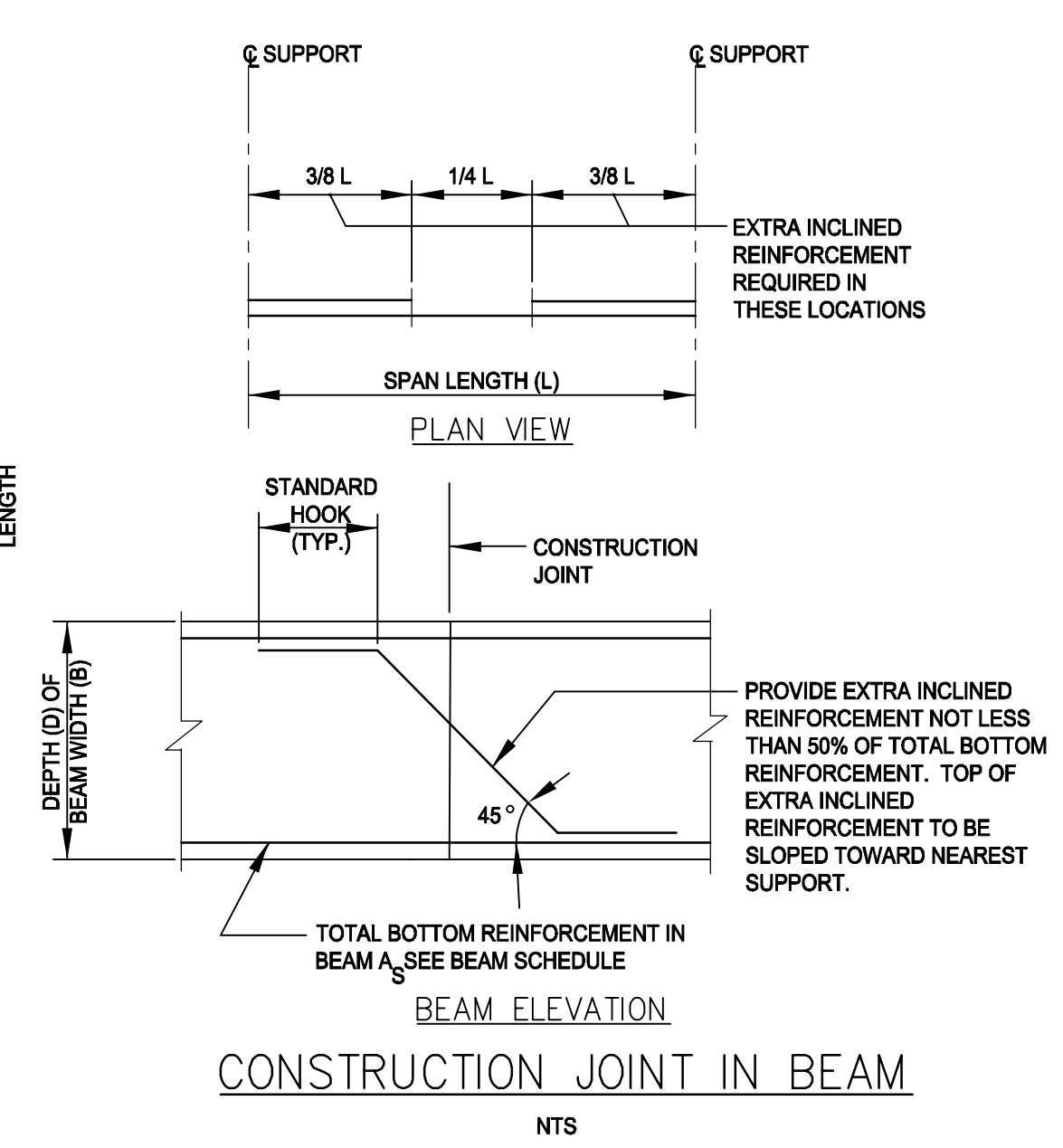
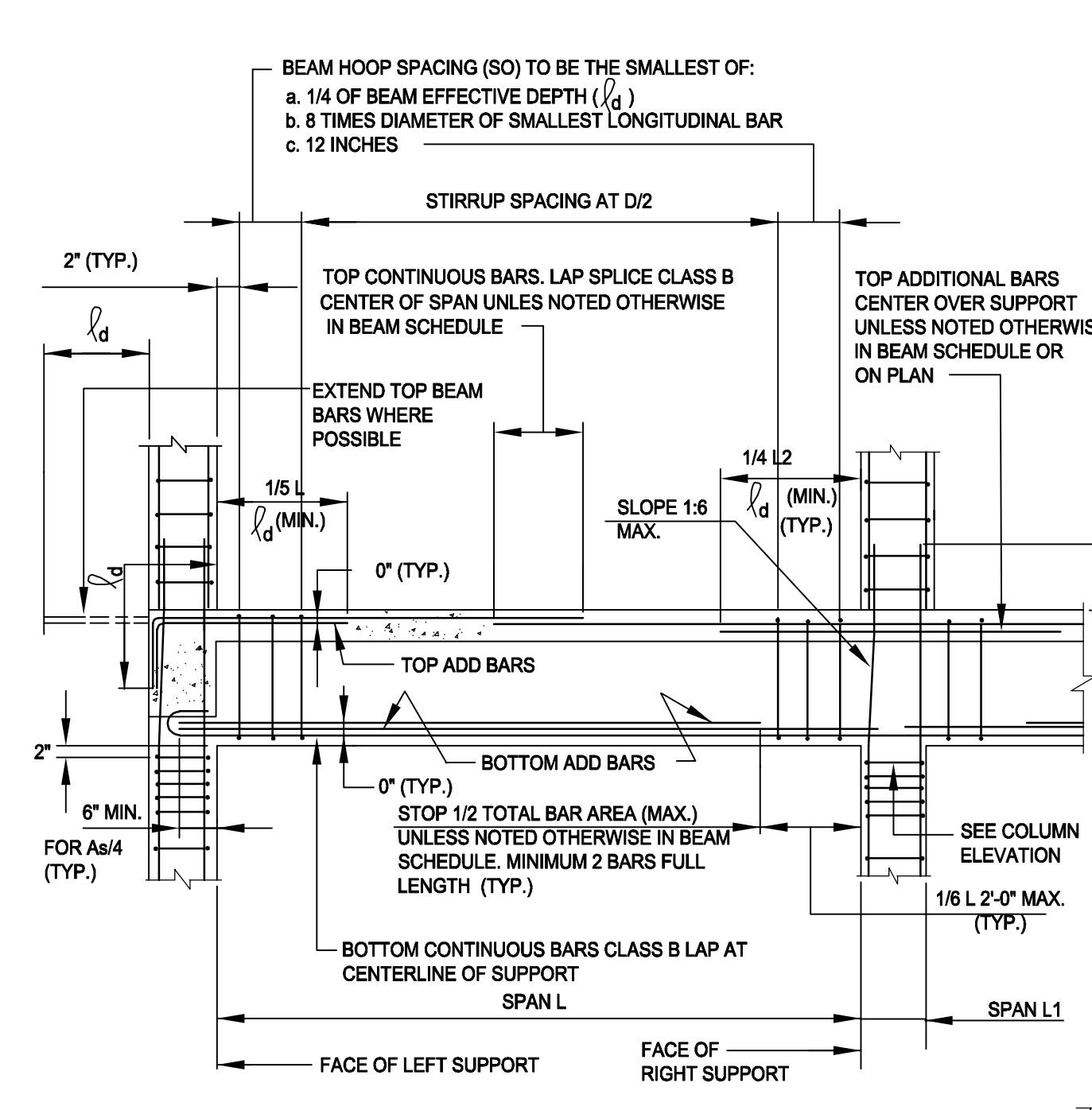
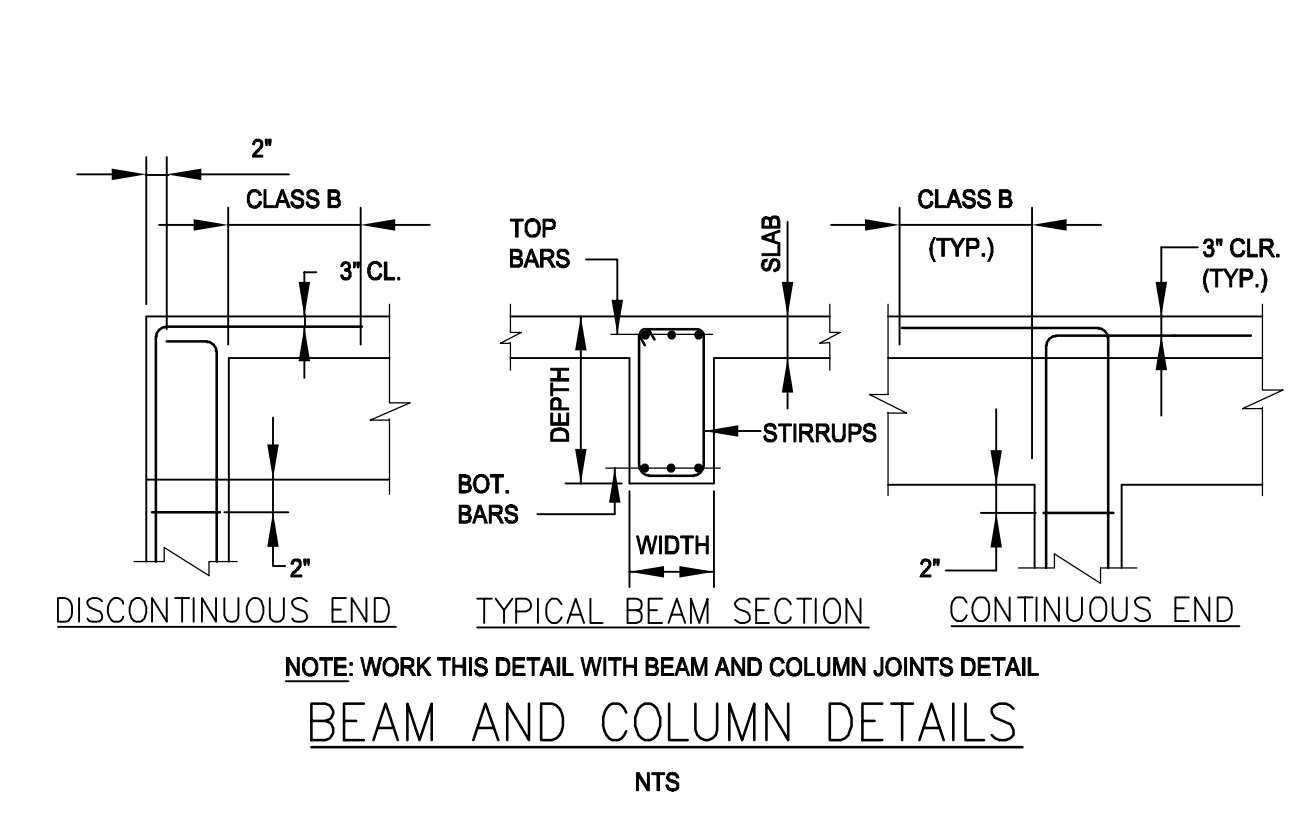
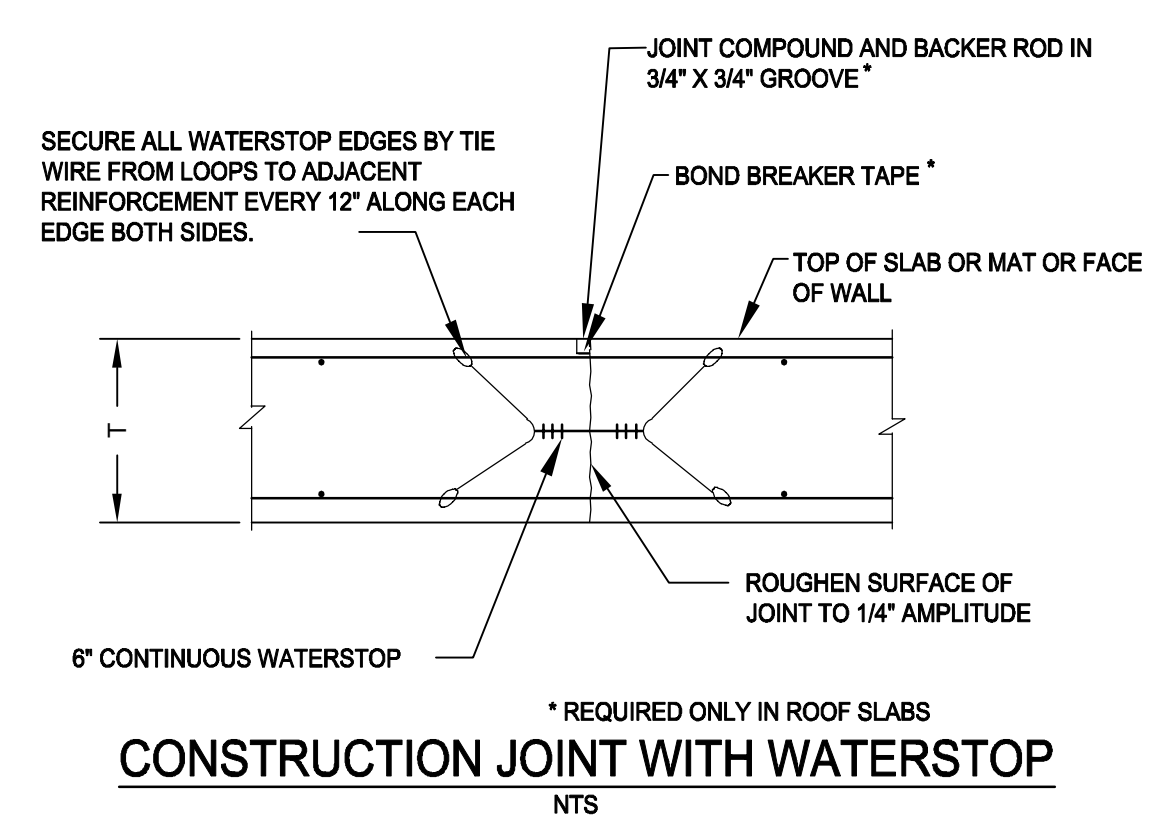


13 FEBRUARY 2024

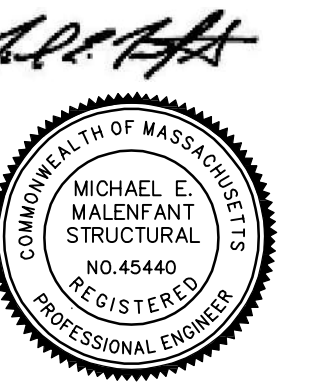
I/R	DATE	DESCRIPTION

60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NTS



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 LAST UPDATE: Tuesday, February 13, 2024 11:23:30 AM
 PLOT DATE: Wednesday, February 14, 2024 1:46:15 PM



13 FEBRUARY 2024

I/R	DATE	DESCRIPTION

60662775

Designed By: CS

Drawn By: CS

Dept Check: MM

Proj Check: TAL/MCW

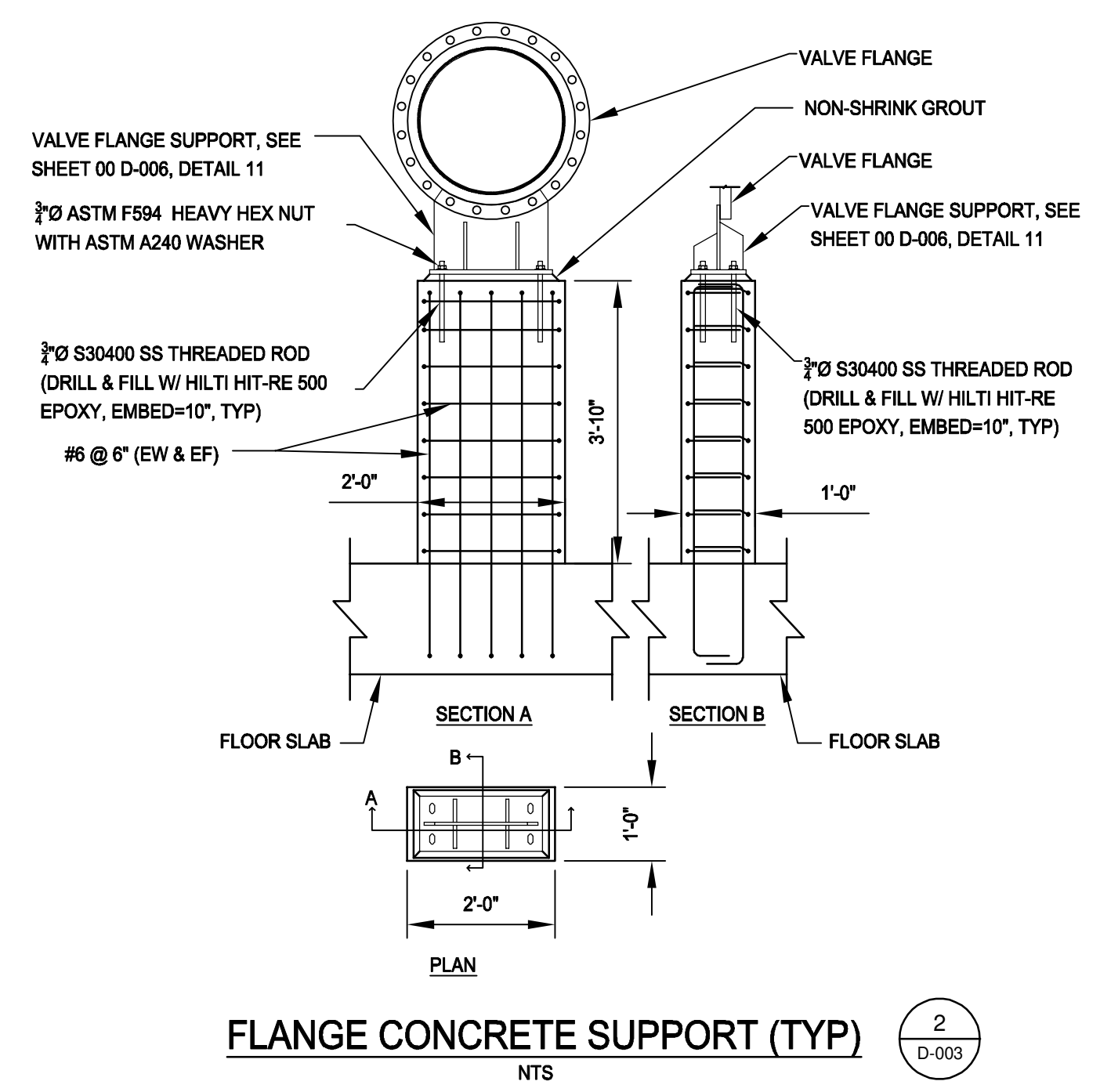
Date: FEBRUARY 2024

Scale: NTS

STRUCTURAL

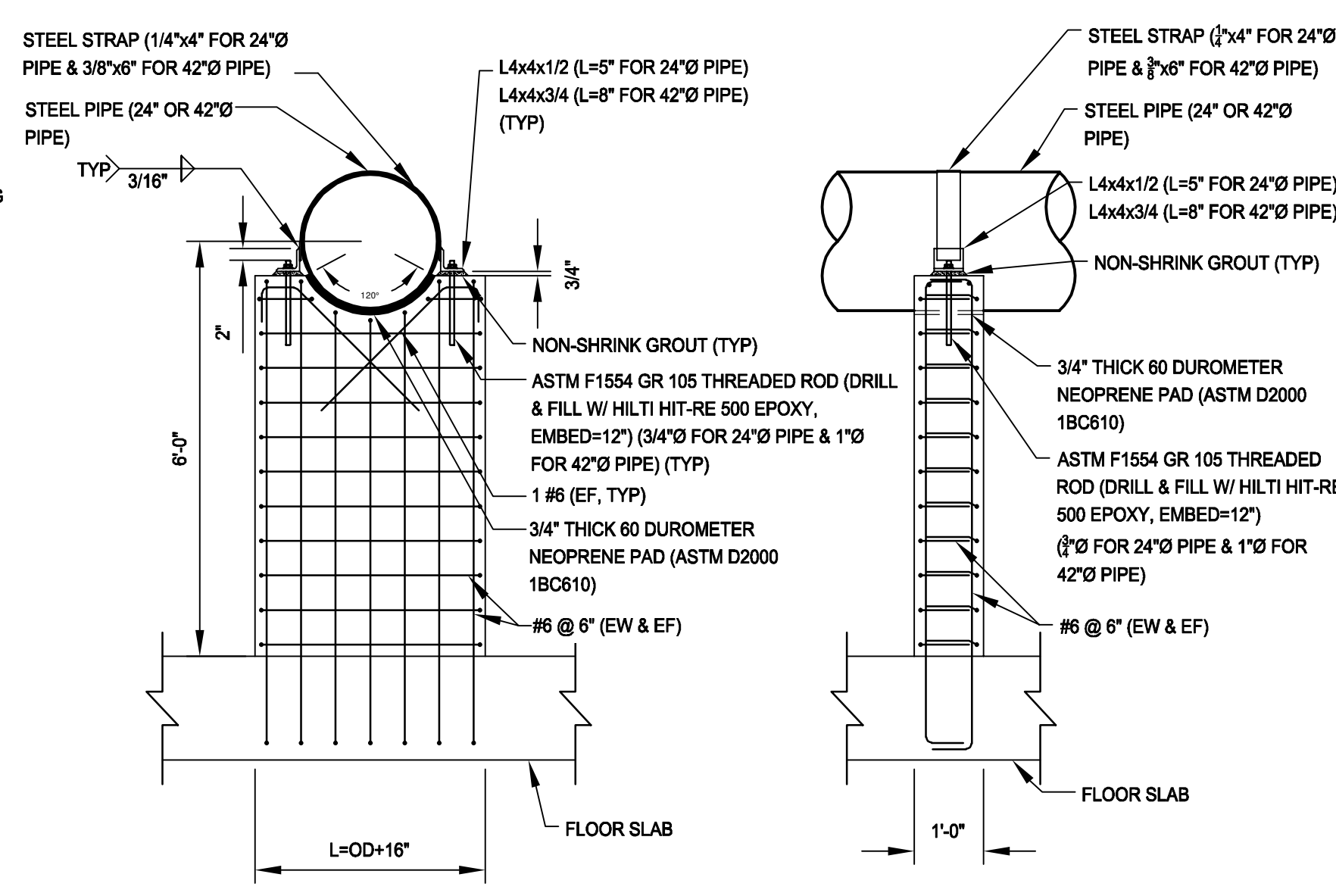
SHEET TITLE

99 S-503



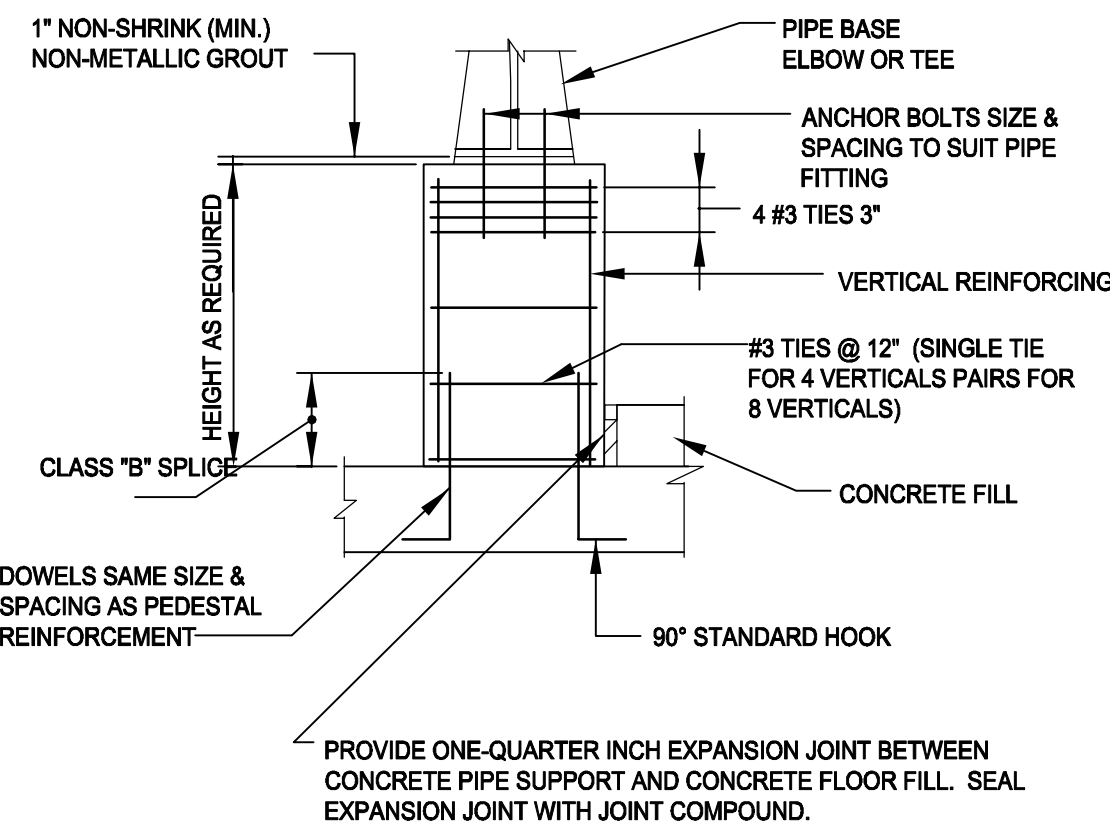
FLANGE CONCRETE SUPPORT (TYP)
 NTS

2
 D-003



PIPE SADDLE SUPPORT
 NTS

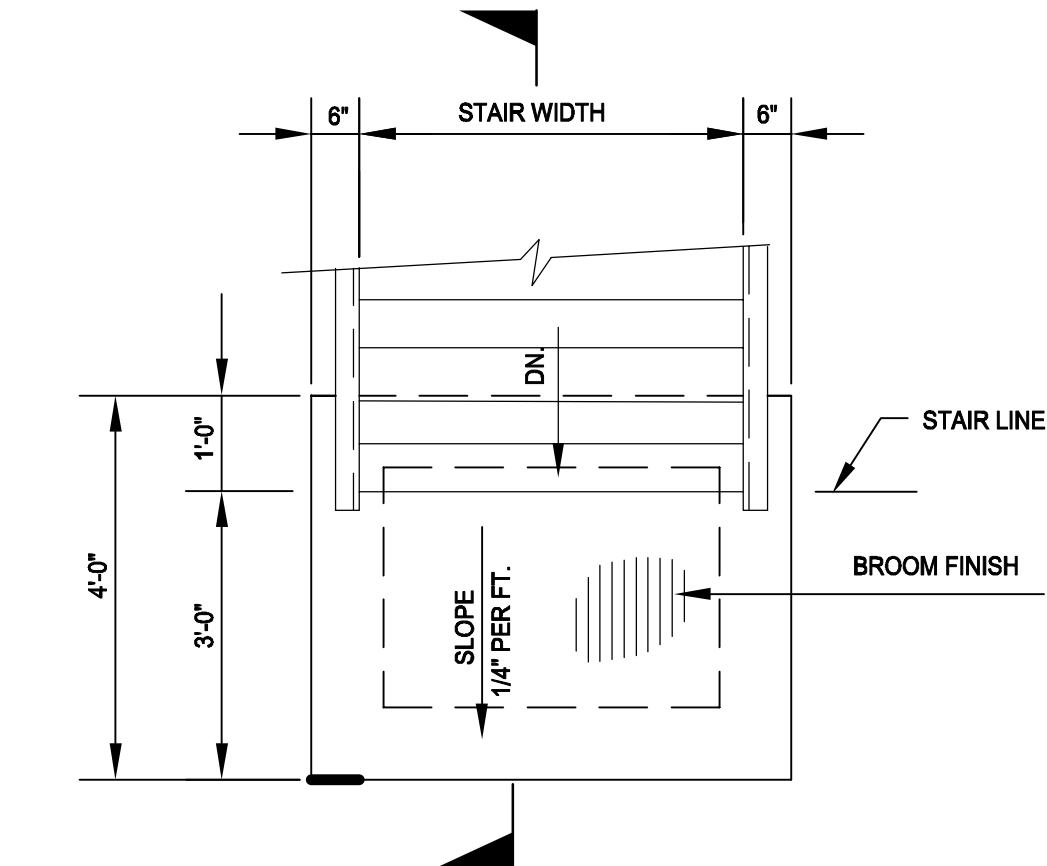
1
 D-003



SUPPORTED PIPE SIZE INCHES	ANCHOR BOLT CIRCLE INCHES	MINIMUM PEDESTAL SIZE INCHES	MINIMUM VERTICAL REINFORCEMENT
2	3.50	12X12	4#6
3	3.88	12X12	4#6
4	4.75	12X12	4#6
6	5.50	16X16	4#8
8	7.50	16X16	4#8
10	7.50	16X16	4#8
12	9.50	18X18	4#9
14	9.50	18X18	4#9
16	9.50	18X18	4#9
18	11.75	18X18	4#9
20	11.75	18X18	4#9
24	11.75	18X18	4#9
30	14.25	22X22	8#7
36	17.00	25X25	8#8
42	21.25	30X30	8#10
48	22.75	30X30	8#10

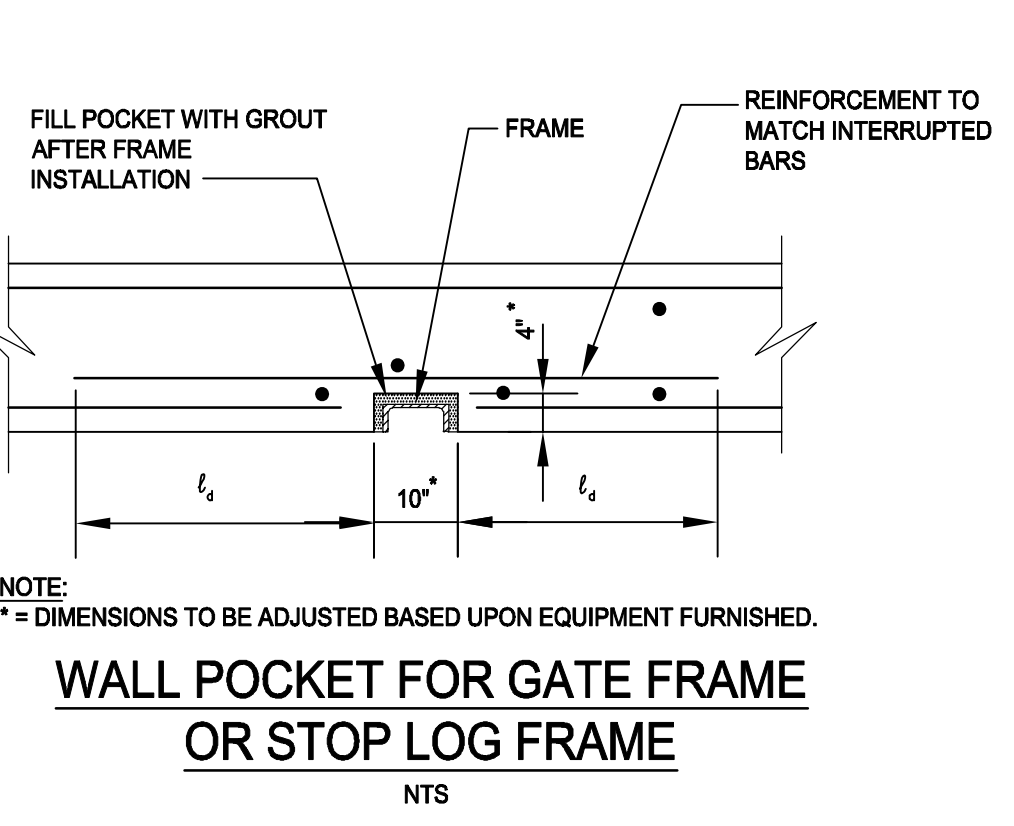
PEDESTAL SIZE BASED UPON TABULATED BOLT CIRCLE. PEDESTAL SIZE SHALL BE NOT LESS THAN 6 INCHES LARGER THAN THE ACTUAL BOLT CIRCLE.

CONCRETE PIPE BASE SUPPORT FOR NEW CONSTRUCTION
 NTS

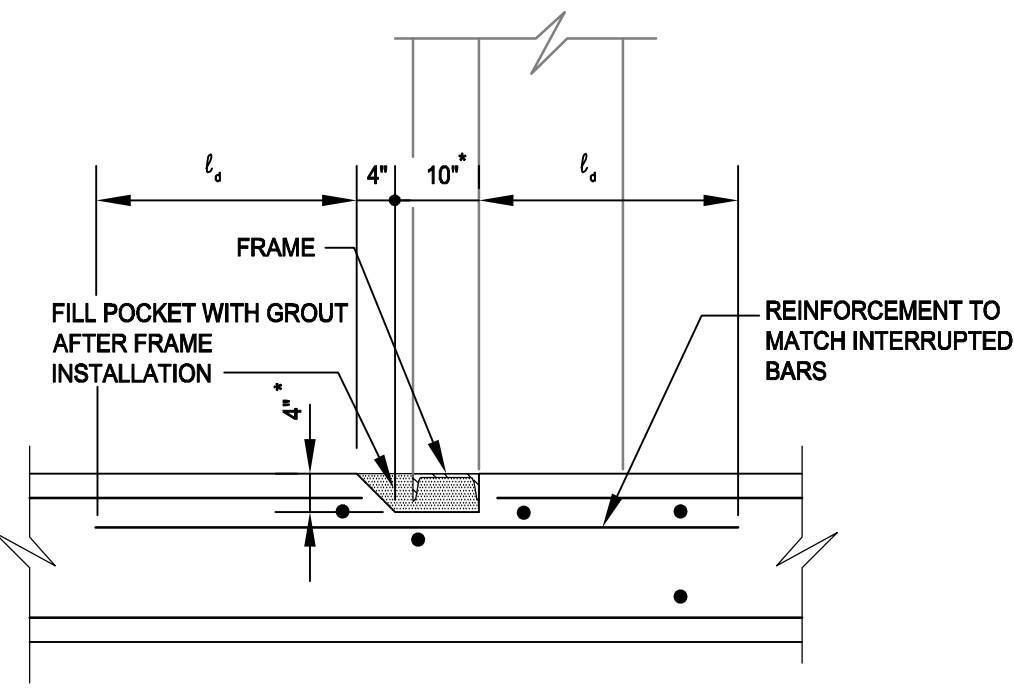


EXTERIOR STAIR LANDING
 NTS

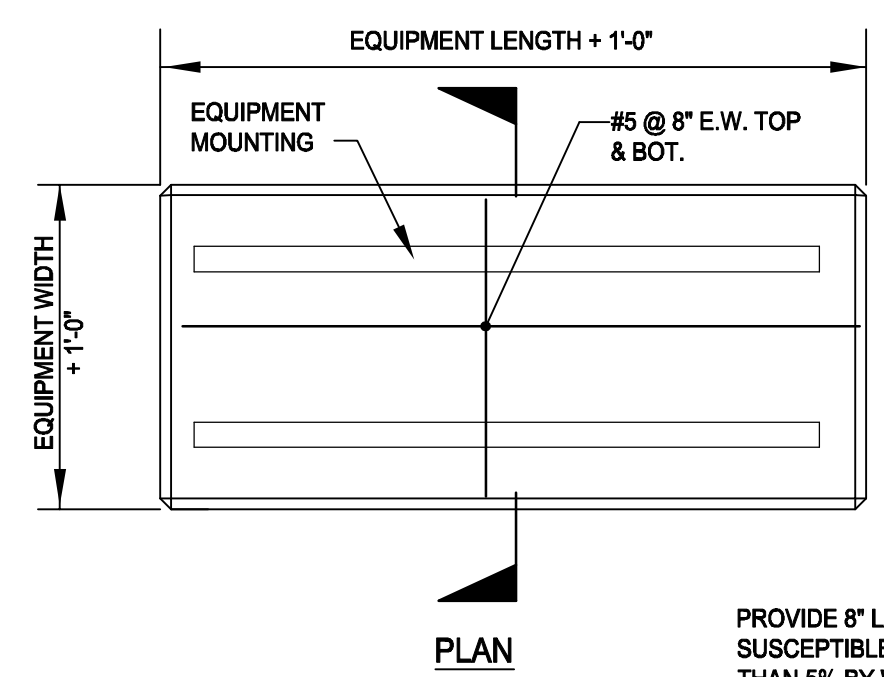
PROVIDE 4'-0" IN SIX 8" LAYERS OF FREE DRAINING, NON-FROST SUSCEPTIBLE GRAVEL BACKFILL HAVING NOT MORE THAN 5% BY WEIGHT PASSING NO. 200 SIEVE. COMPACT EACH LAYER TO 95% OF MAXIMUM DENSITY.



WALL POCKET FOR GATE FRAME OR STOP LOG FRAME
 NTS

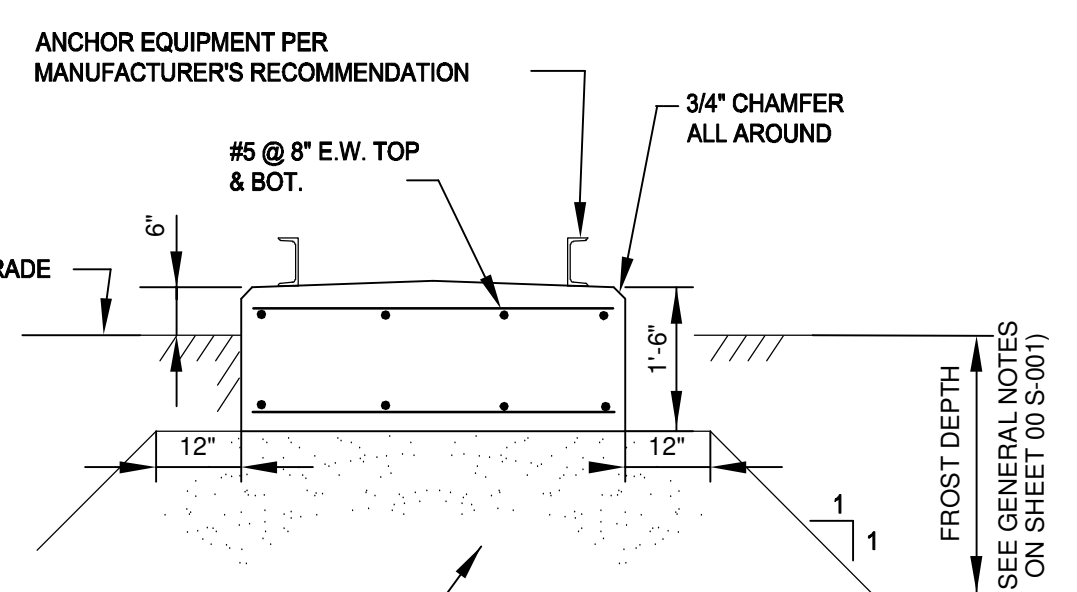


SLAB POCKET FOR GATE FRAME OR STOP LOG FRAME
 NTS



EXTERIOR EQUIPMENT PAD
 NTS

PROVIDE 8" LAYERS OF FREE DRAINING, NON-FROST SUSCEPTIBLE GRAVEL BACKFILL HAVING NOT MORE THAN 5% BY WEIGHT PASSING NO. 200 SIEVE TO A MINIMUM DEPTH OF THE SPECIFIED FROST DEPTH FOR THE SITE. COMPACT EACH LAYER TO 95% OF MAXIMUM DENSITY.



ANCHOR EQUIPMENT PER MANUFACTURER'S RECOMMENDATION

PATH: I:\NA\AECOM\NET\COM\FILES\AMER\CHLMSFORD\USCHL\TDCS\PROJECTS\WTR\60662775_SWSO_WF_HYDRO_ELECT_PDR\900_CAD\20_SHEETS\SS99_S-503.DWG
 LAST UPDATE: Tuesday, February 13, 2024 11:22:42 AM
 PLOT DATE: Wednesday, February 14, 2024 1:46:56 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

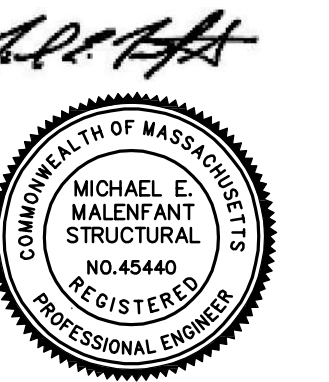
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NTS

DISCIPLINE

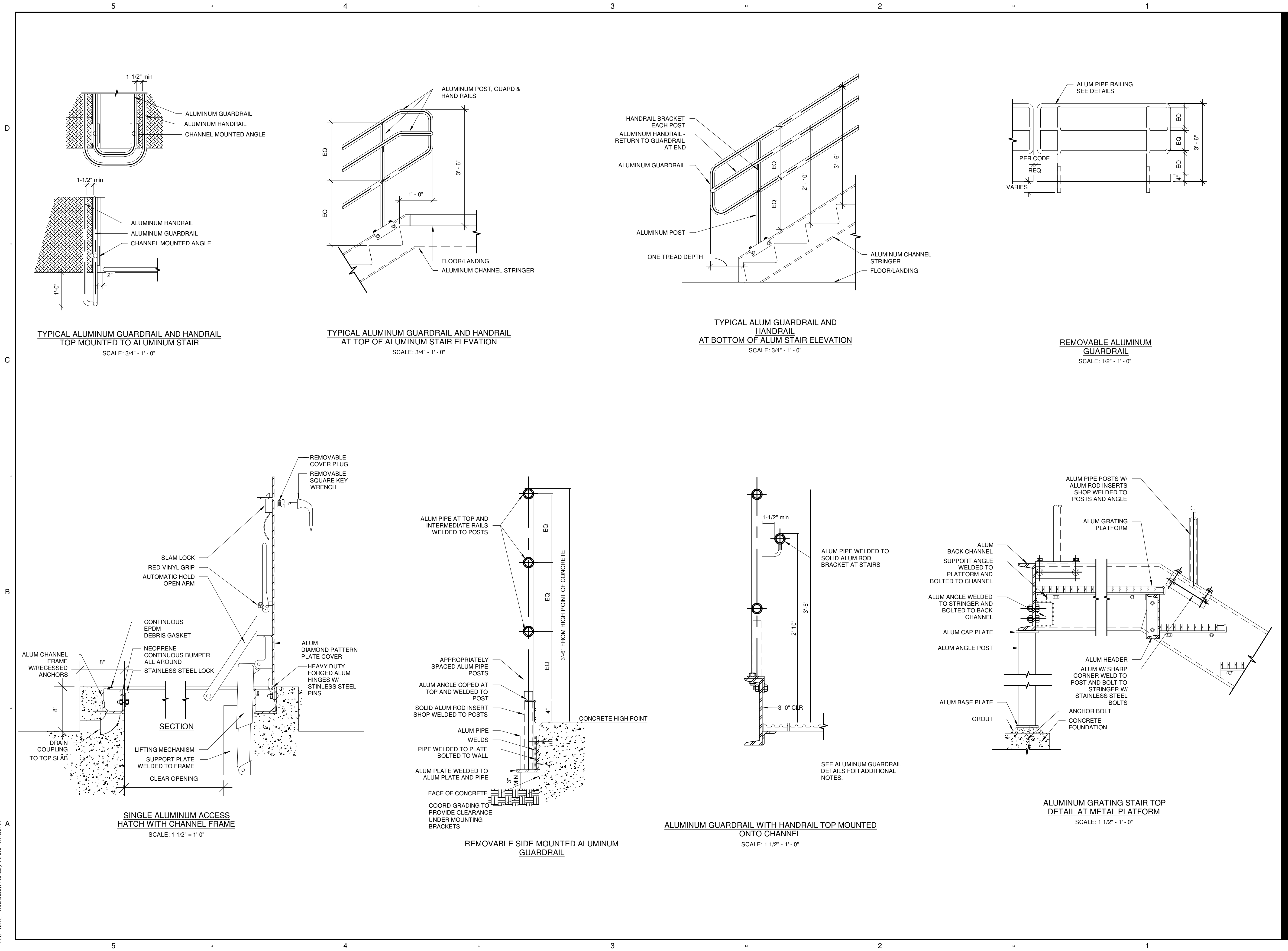
STRUCTURAL

SHEET TITLE

STRUCTURAL DETAILS IV

SHEET NUMBER

99 S-504



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 LAST UPDATE: Tuesday, February 13, 2024 11:21:43 AM
 PLOT DATE: Wednesday, February 14, 2024 1:47:06 PM

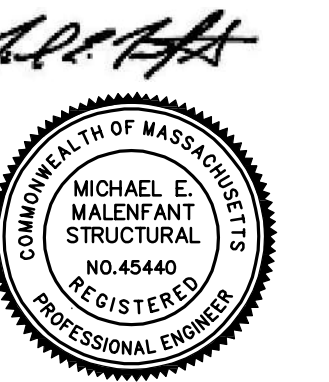
PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
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CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

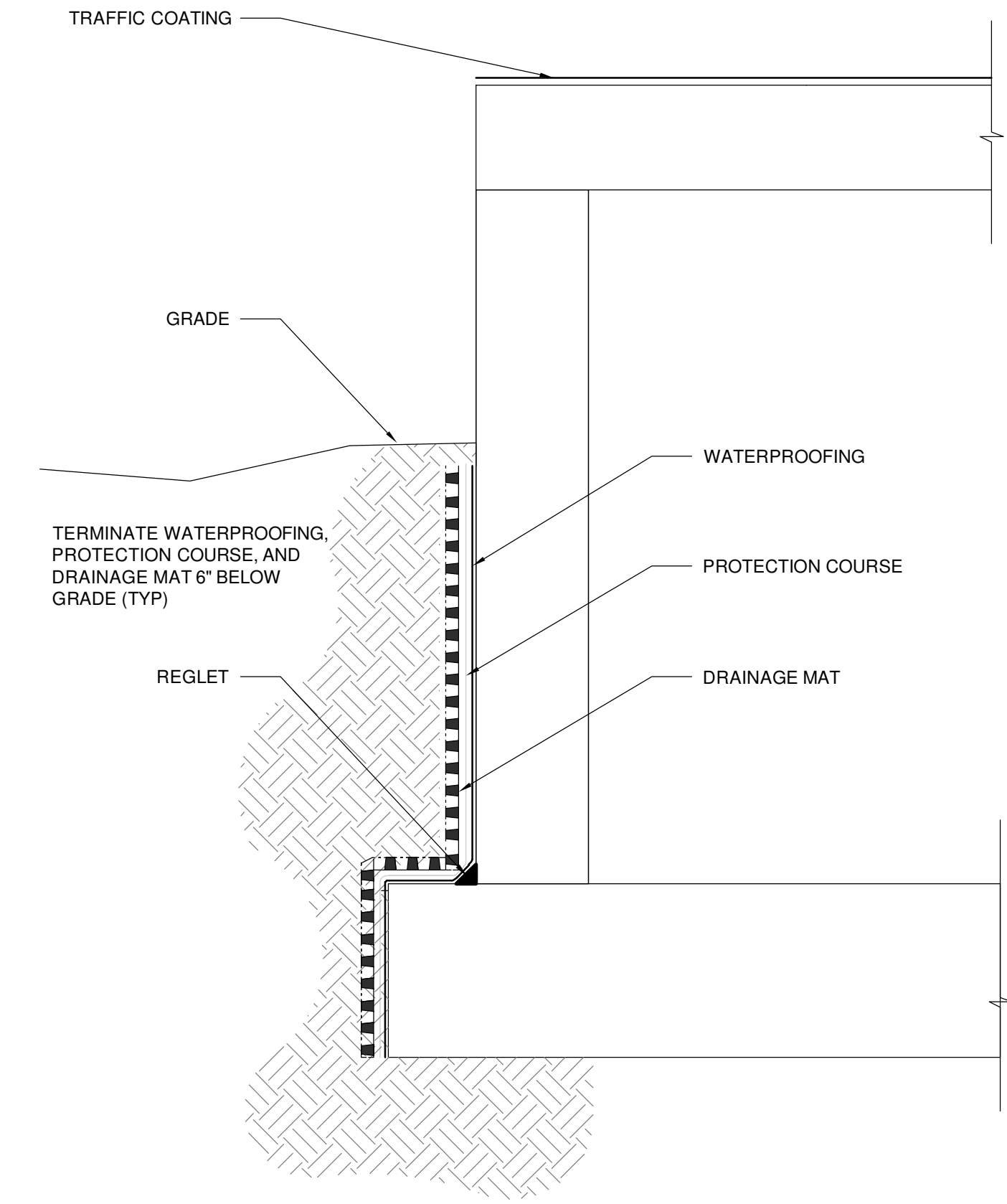
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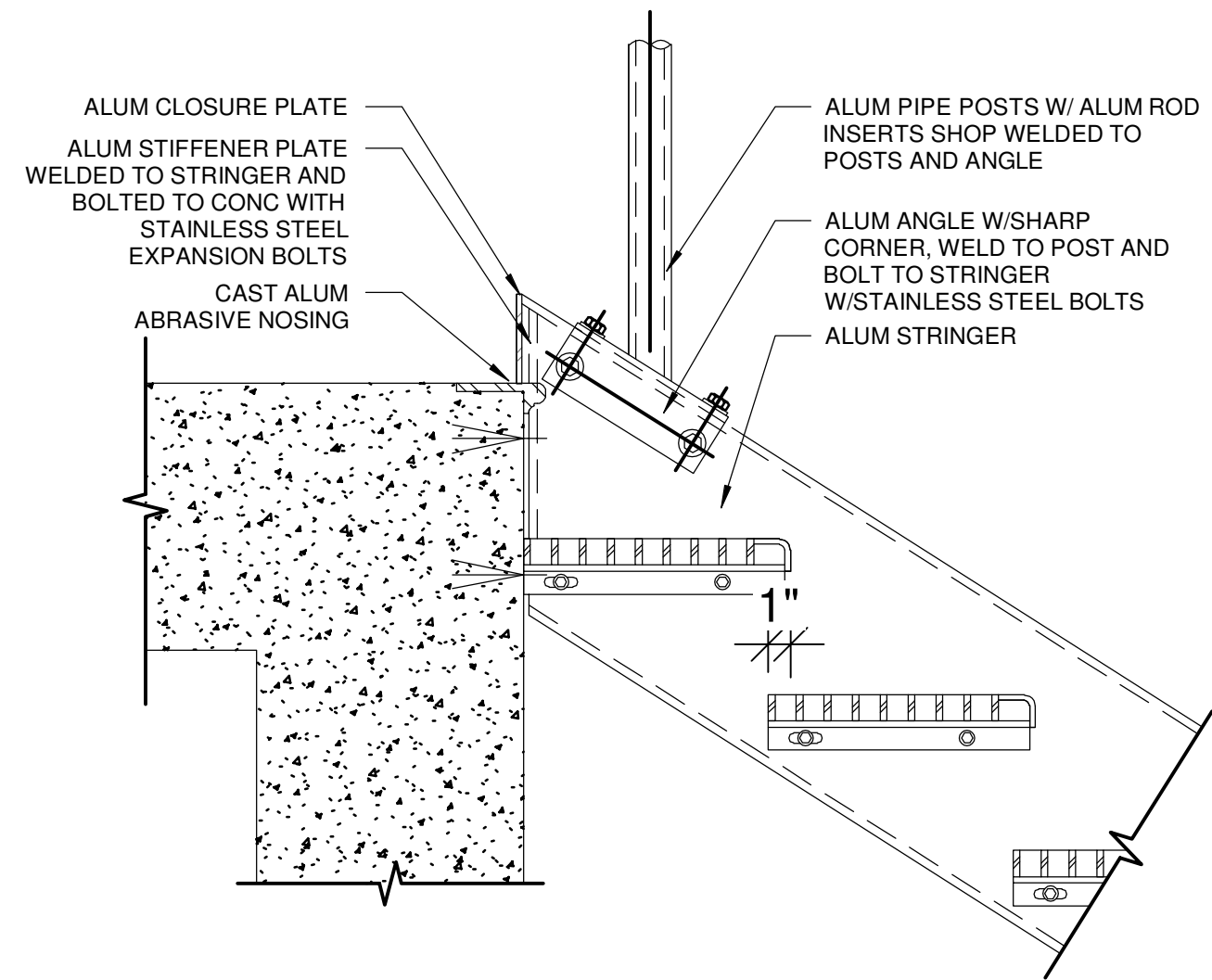
Designed By:	CS
Drawn By:	CS
Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NTS

DISCIPLINE
 STRUCTURAL
SHEET TITLE
STRUCTURAL DETAILS V

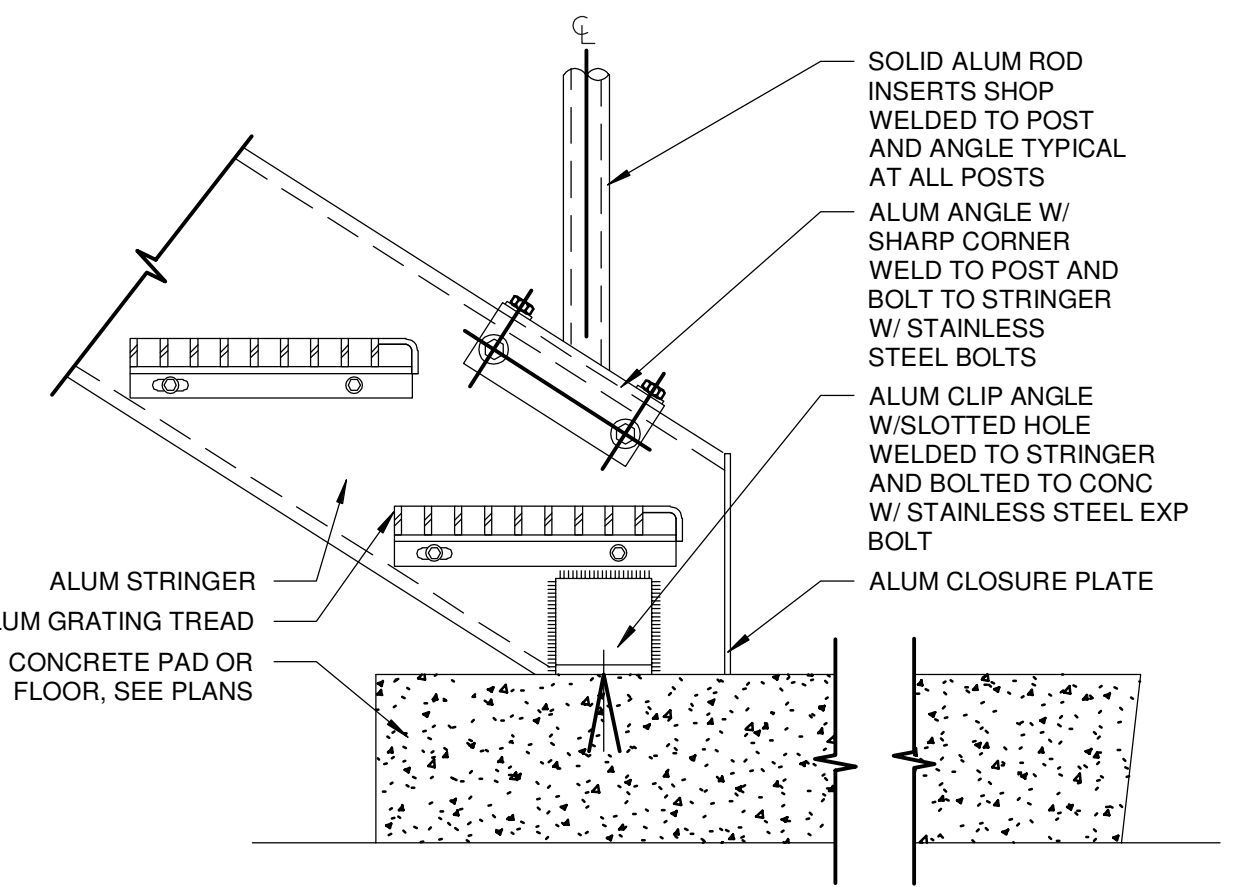
SHEET NUMBER
99 S-505



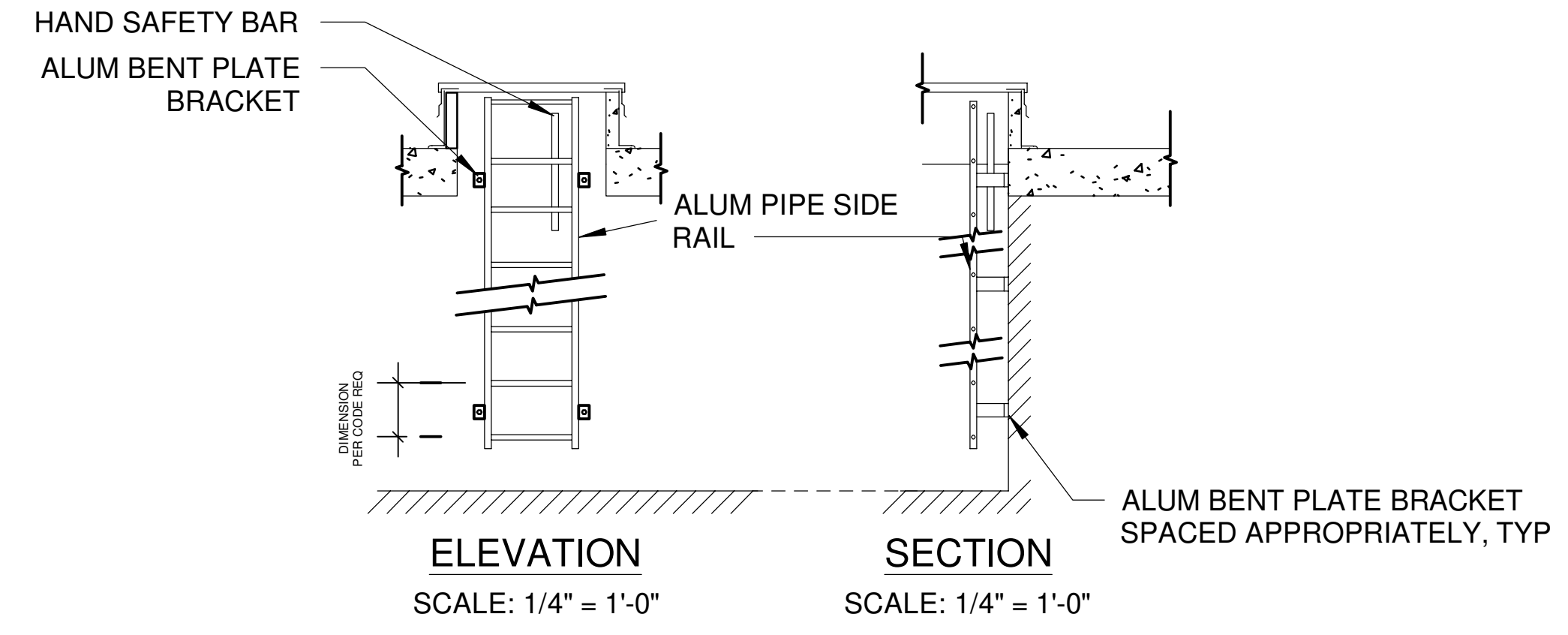
TRAFFIC COATING AND WATERPROOFING DETAIL



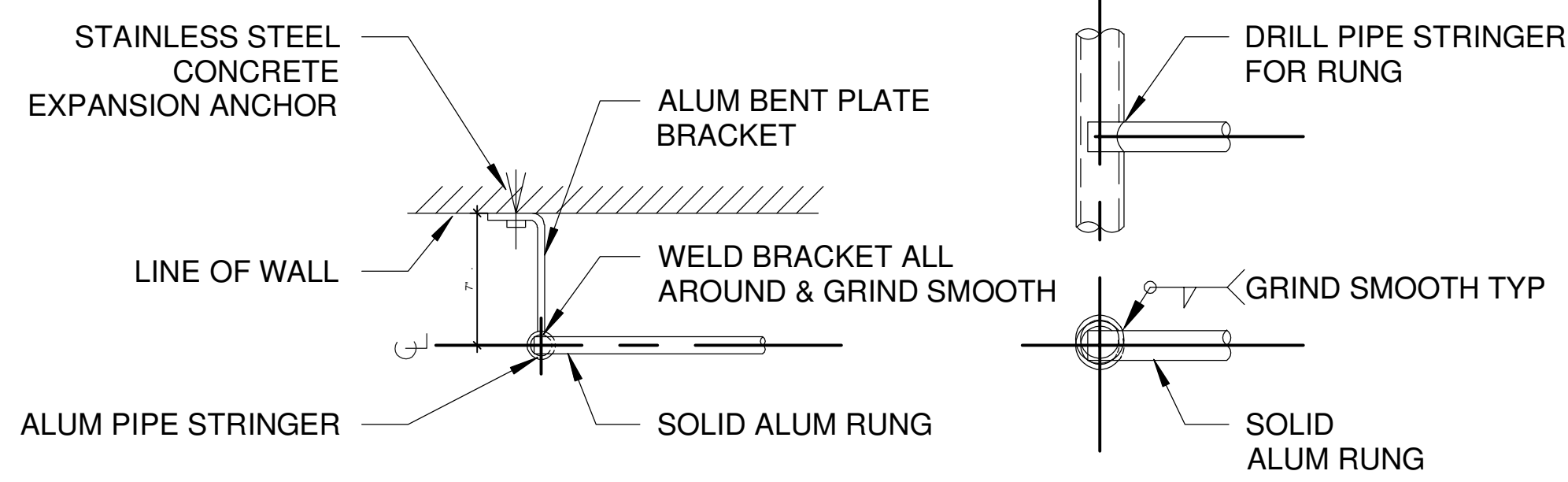
ALUMINUM GRATING STAIR TOP DETAIL AT CONCRETE LANDING
 SCALE: 1 1/2" = 1'-0"



ALUMINUM GRATING STAIR BOTTOM DETAIL AT CONCRETE PAD
 SCALE: 1 1/2" = 1'-0"



ALUMINUM LADDER AT HATCH DETAIL
 SCALE: AS NOTED



ALUMINUM LADDER AT HATCH DETAIL
 SCALE: AS NOTED

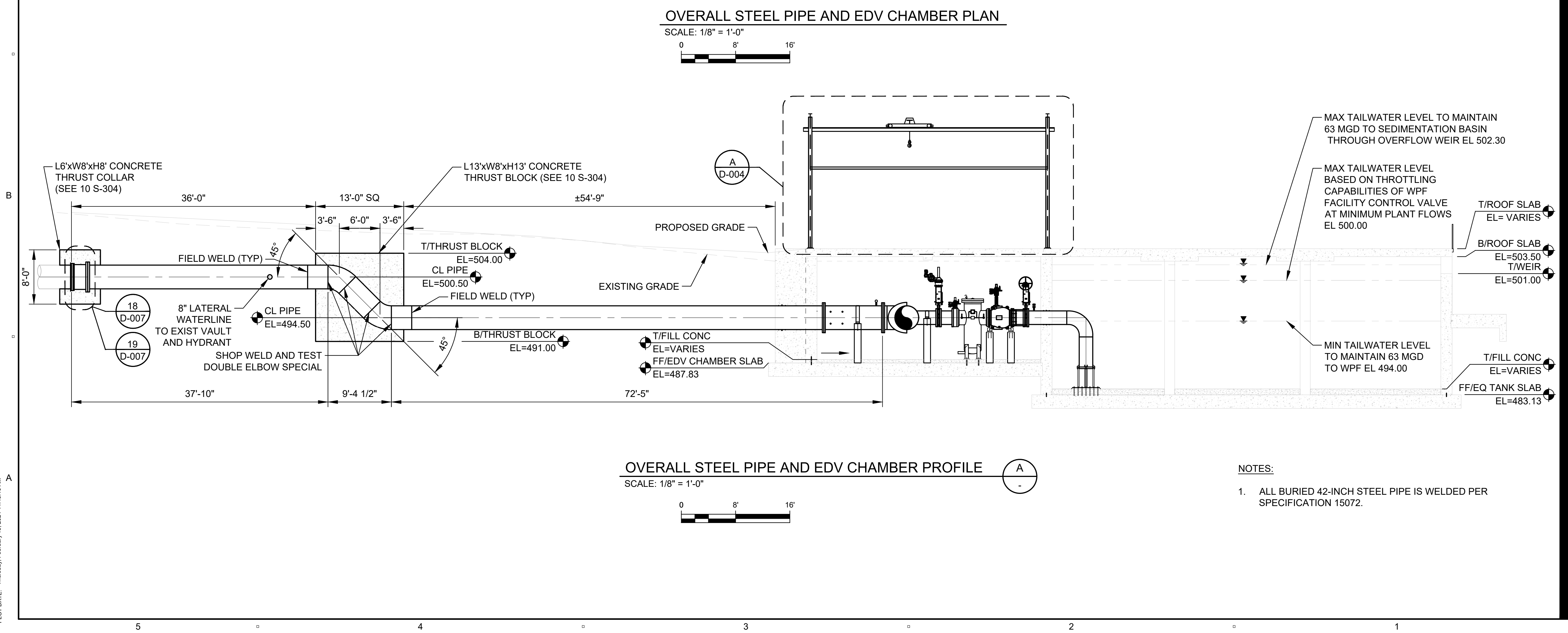
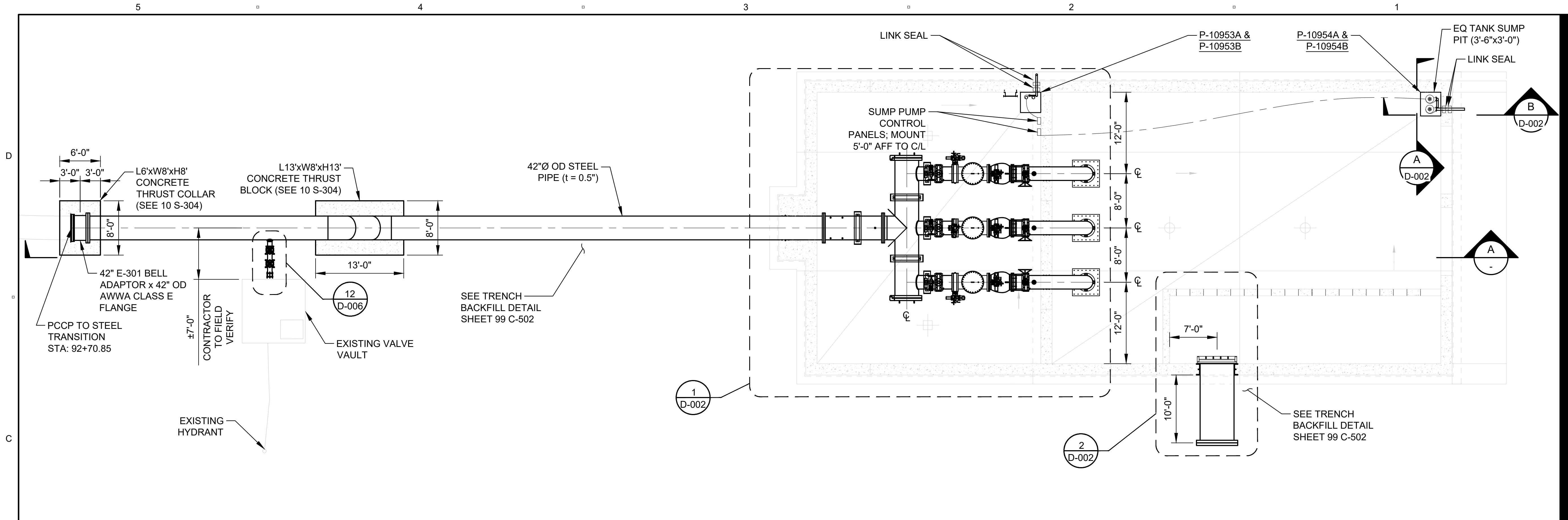
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 LAST UPDATE: Tuesday, February 13, 2024 11:19:59 AM
 PLOT DATE: Wednesday, February 14, 2024 1:47:25 PM



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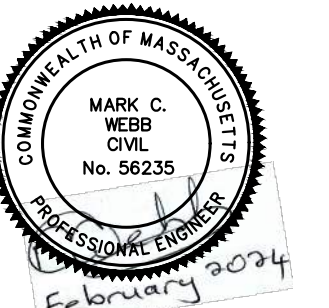
60662775

Designed By:	JK
Drawn By:	GH
Dept Check:	PW
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED



- NOTES:**
- ALL BURIED 42-INCH STEEL PIPE IS WELDED PER SPECIFICATION 15072.

PATH: I:\PROJECTS\WY16062775_SWISCS_WPF_HYDRO_ELECT_PDR\000_CAD\20-SHEETS\00-D-XXX-PIPELINE_PP.DWG
 LAST UPDATE: Wednesday, February 14, 2024 12:39:58 PM
 PLOT DATE: Thursday, February 15, 2024 11:48:16 AM



I/R	DATE	DESCRIPTION

60662775

Designed By: JK

Drawn By: GH

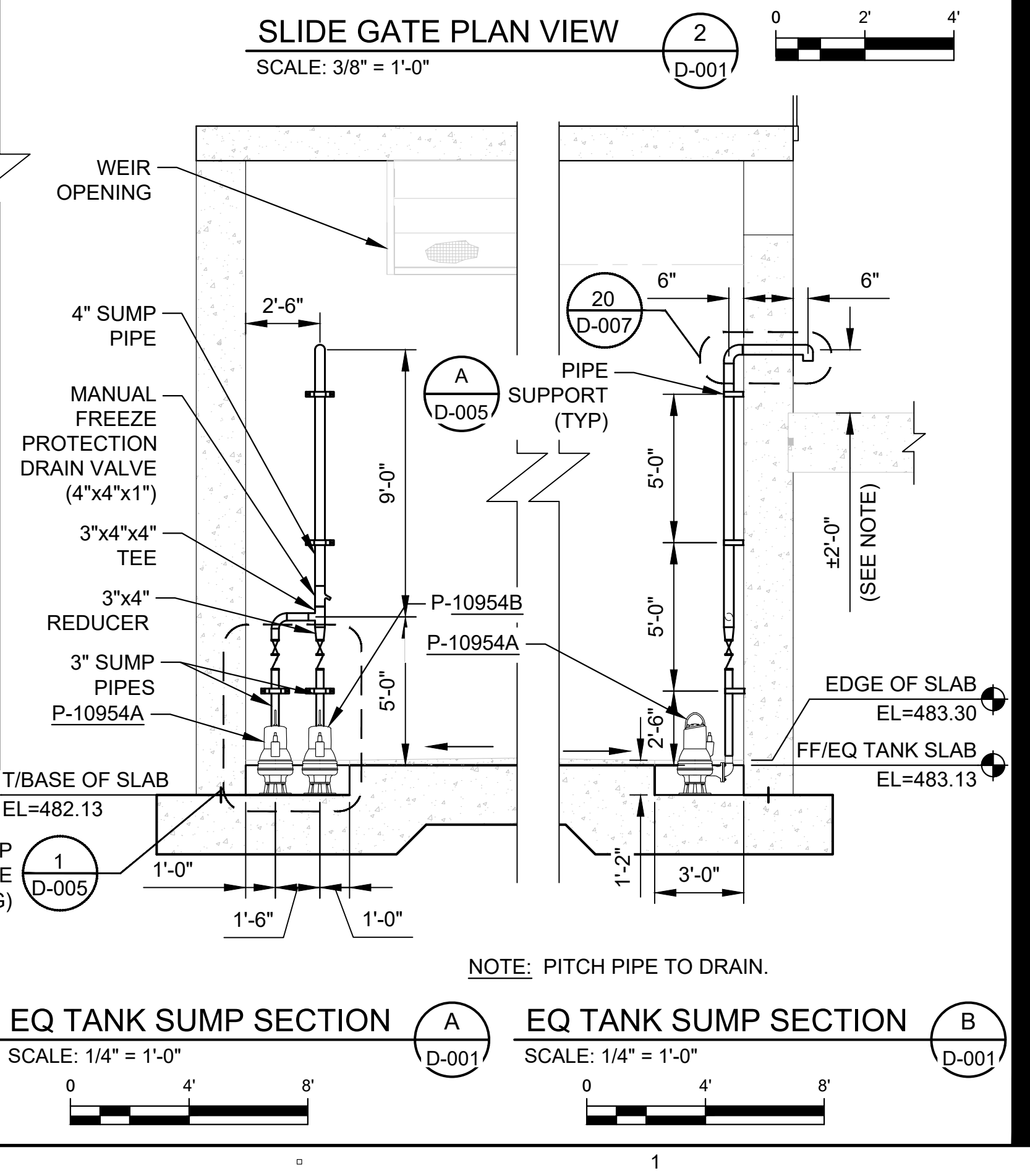
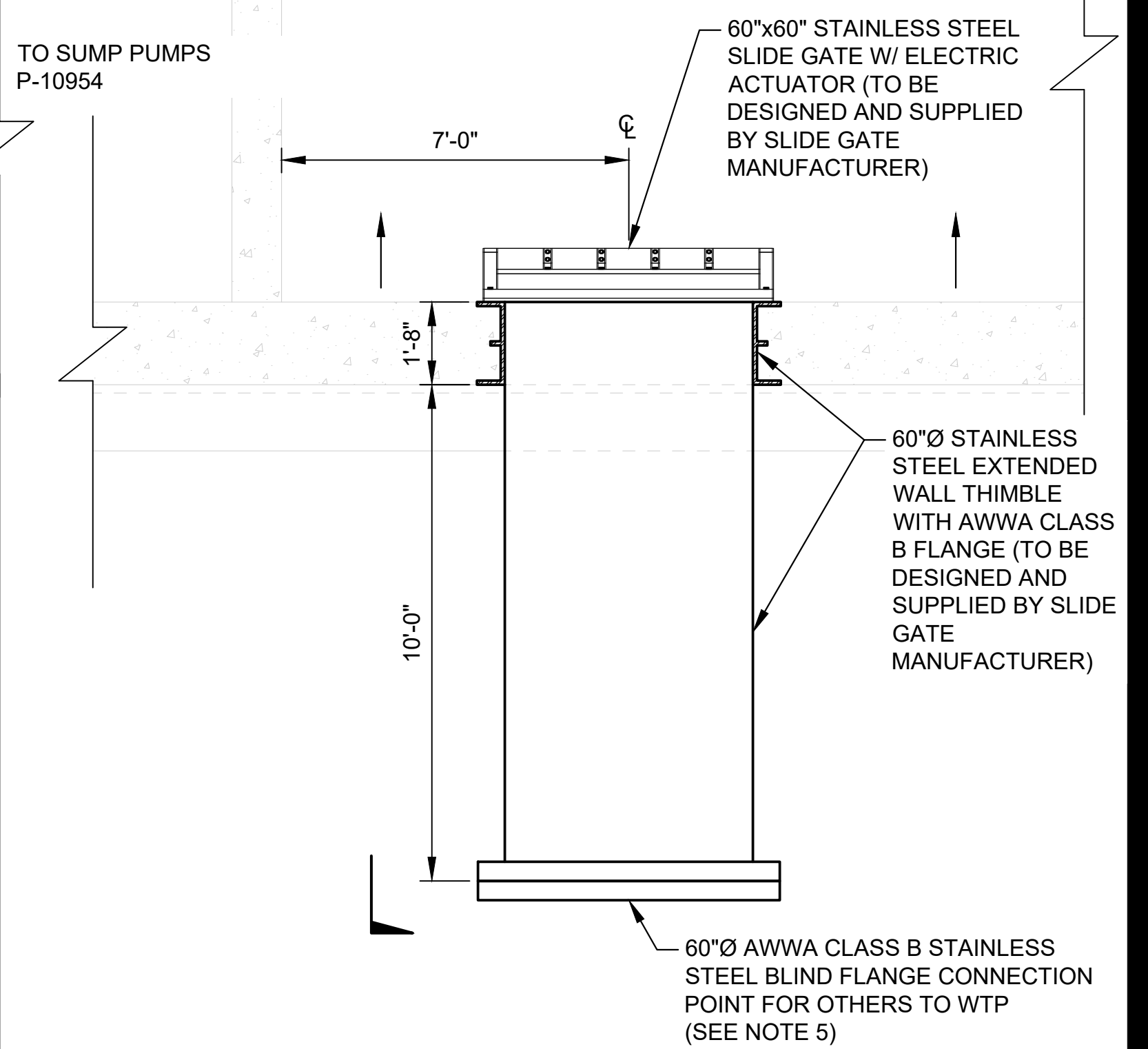
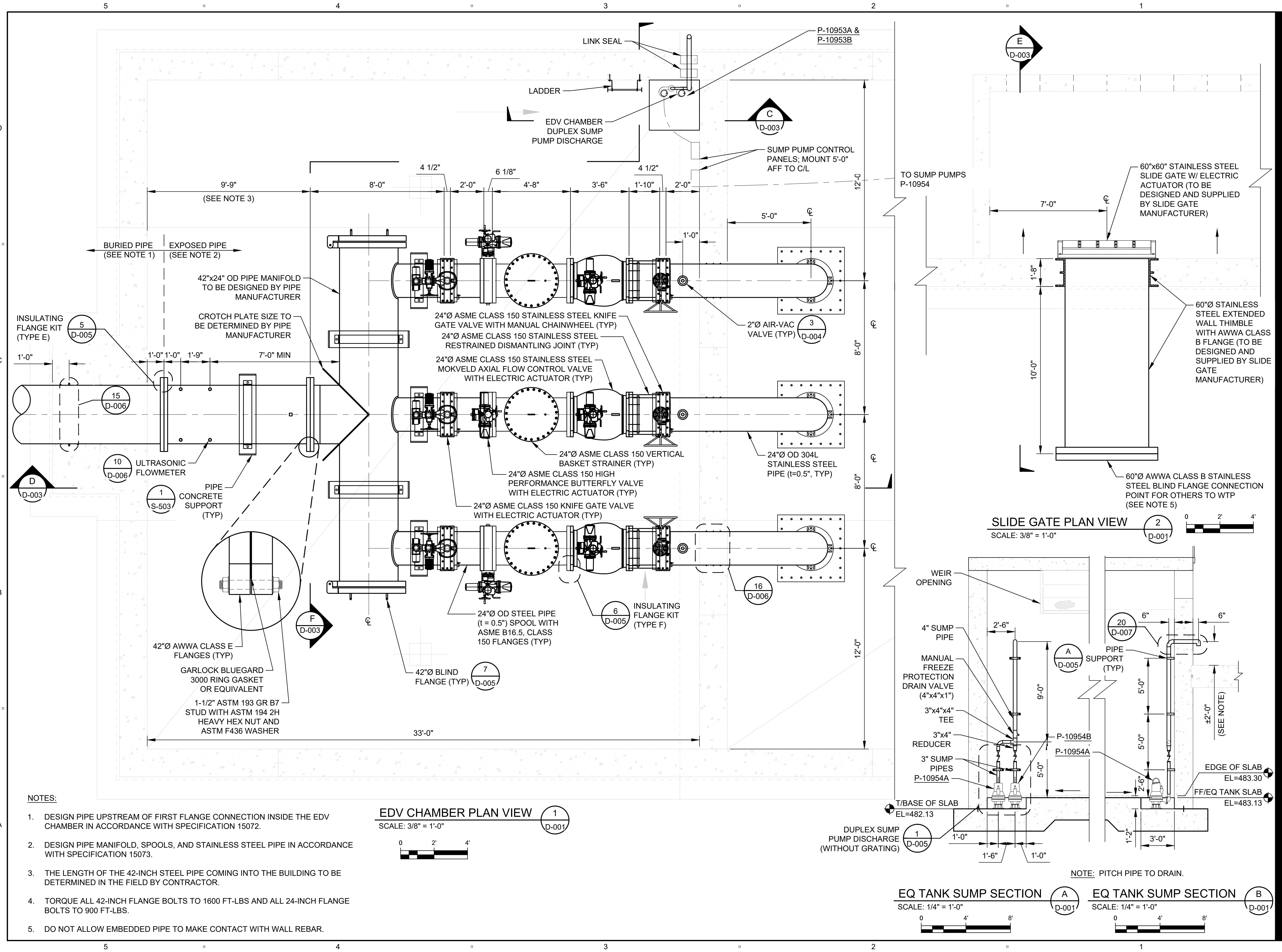
Dept Check: PW

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: AS NOTED

PROCESS MECHANICAL



- NOTES:**
- DESIGN PIPE UPSTREAM OF FIRST FLANGE CONNECTION INSIDE THE EDV CHAMBER IN ACCORDANCE WITH SPECIFICATION 15072.
 - DESIGN PIPE MANIFOLD, SPOOLS, AND STAINLESS STEEL PIPE IN ACCORDANCE WITH SPECIFICATION 15073.
 - THE LENGTH OF THE 42-INCH STEEL PIPE COMING INTO THE BUILDING TO BE DETERMINED IN THE FIELD BY CONTRACTOR.
 - TORQUE ALL 42-INCH FLANGE BOLTS TO 1600 FT-LBS AND ALL 24-INCH FLANGE BOLTS TO 900 FT-LBS.
 - DO NOT ALLOW EMBEDDED PIPE TO MAKE CONTACT WITH WALL REBAR.

EDV CHAMBER PLAN VIEW (1)
 SCALE: 3/8" = 1'-0"
 D-001

EQ TANK SUMP SECTION (A)
 SCALE: 1/4" = 1'-0"
 D-001

EQ TANK SUMP SECTION (B)
 SCALE: 1/4" = 1'-0"
 D-001

P:\PROJECTS\15062775_SVSC_WF_HYDRO_ELECT_PDR\000_CAD\20-SHEETS\00-D-XXX-PIPELINE.PP.DWG
 LAST UPDATE: Wednesday, February 14, 2024 12:39:58 PM
 PLOT DATE: Thursday, February 15, 2024 11:48:35 AM

PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

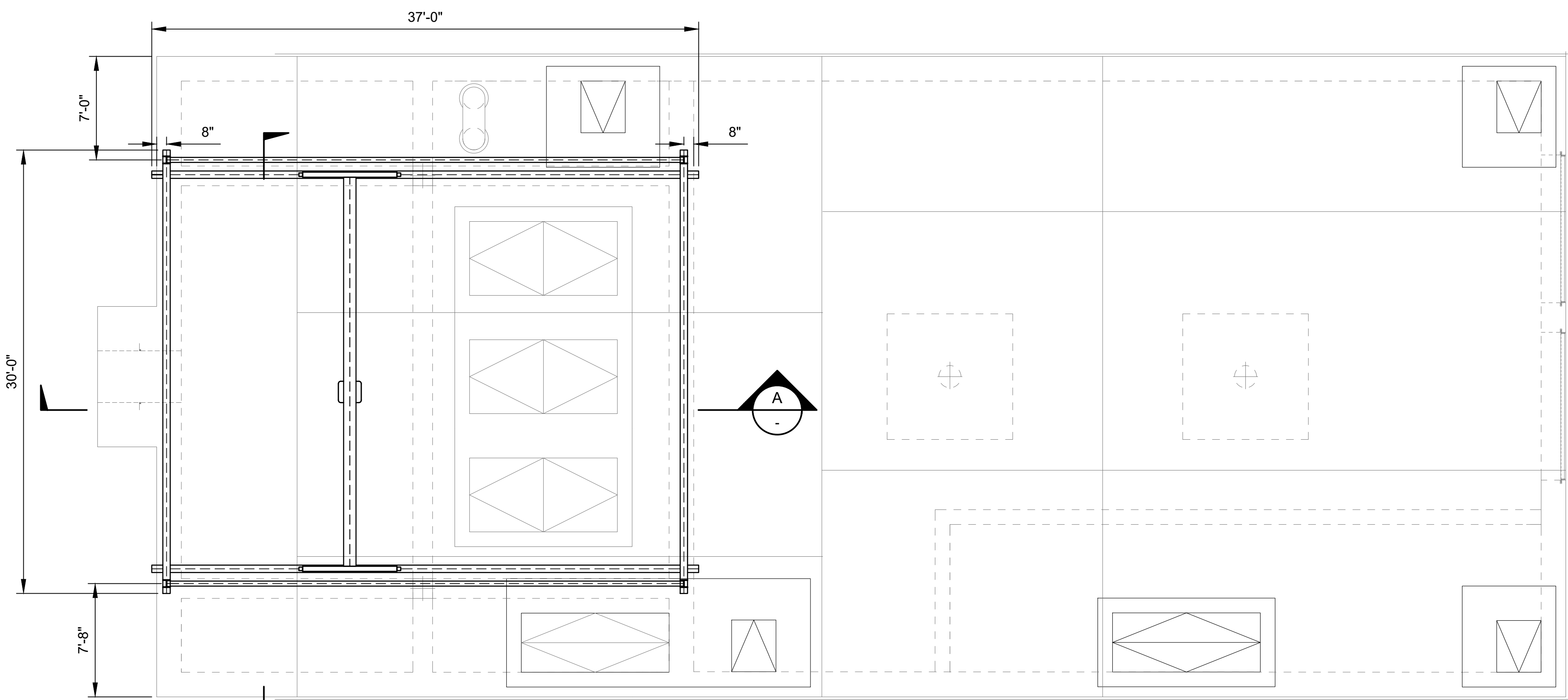
60662775

Designed By: JK
 Drawn By: GH
 Dept Check: PW
 Proj Check: TAL/MCW
 Date: FEBRUARY 2024
 Scale: AS NOTED

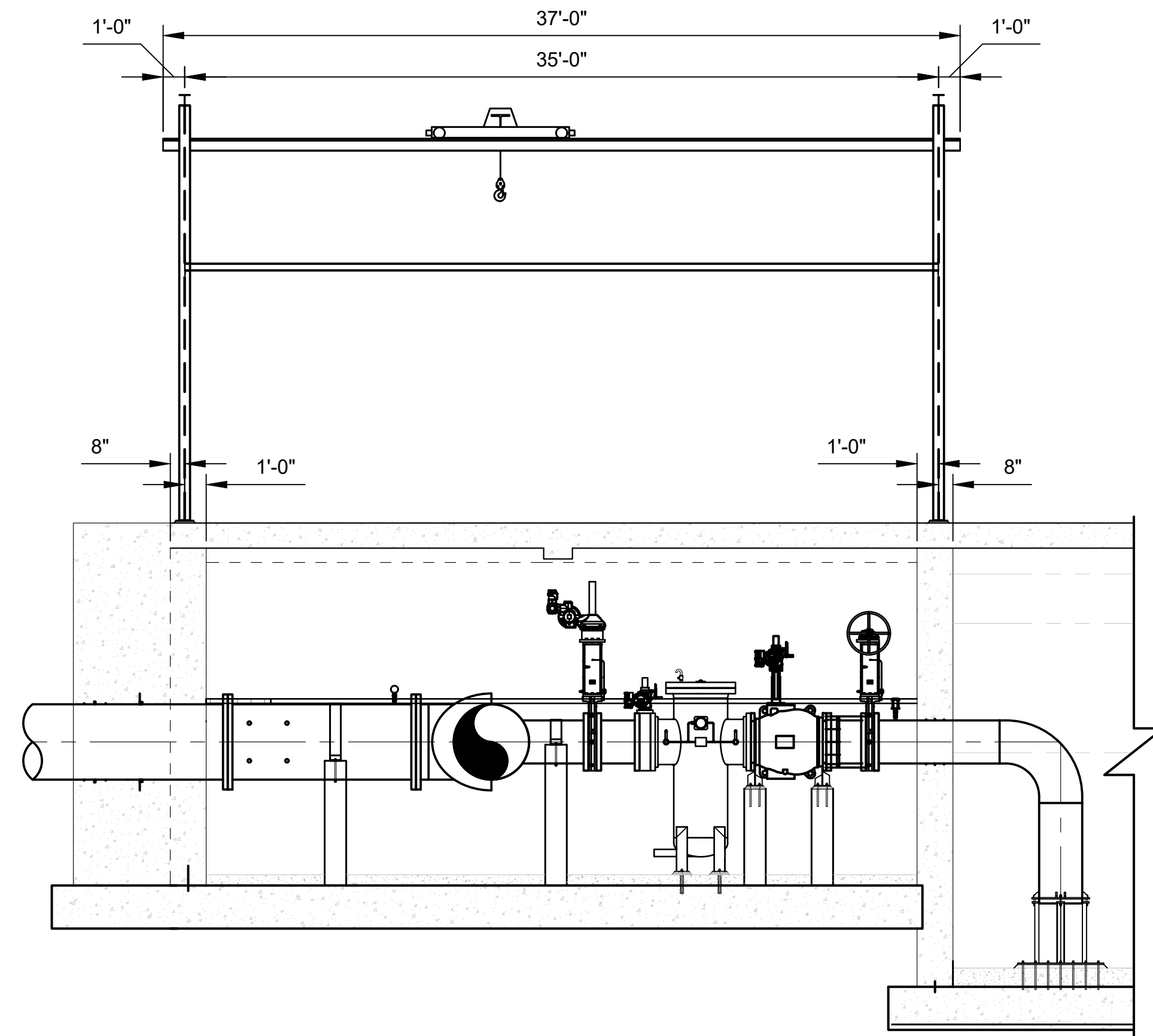
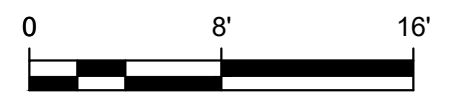
DISCIPLINE
 PROCESS MECHANICAL
SHEET TITLE

EDV CHAMBER
 FREESTANDING BRIDGE
 CRANE PLAN & SECTIONS
 SHEET NUMBER

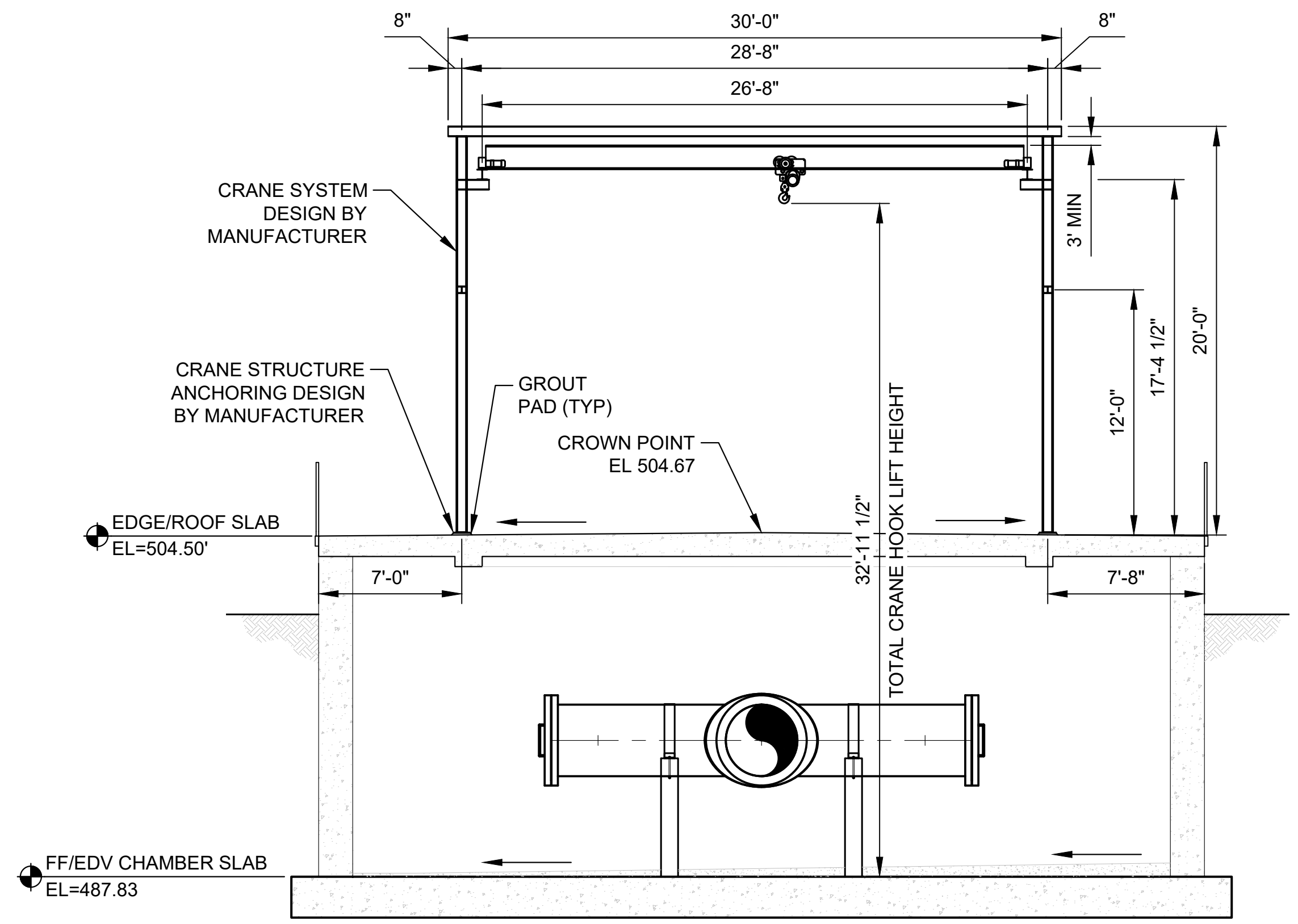
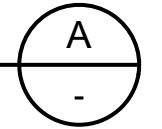
00 D-004



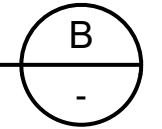
ROOF PLAN VIEW
 SCALE: 3/16" = 1'-0"



CRANE SECTION
 SCALE: 3/16" = 1'-0"



CRANE SECTION
 SCALE: 3/16" = 1'-0"



PATH: L:\DCS\PROJECTS\WYR\60662775_SWSC_WF_HYDRO_ELECT_PDR\800_CAD_GIS\810_CAD\20-SHEETS\00-D-004-PIPELINE ROOF PLAN.DWG
 LAST UPDATE: Wednesday, February 14, 2024 12:39:55 PM
 PLOT DATE: Thursday, February 15, 2024 12:06:11 PM



I/R	DATE	DESCRIPTION

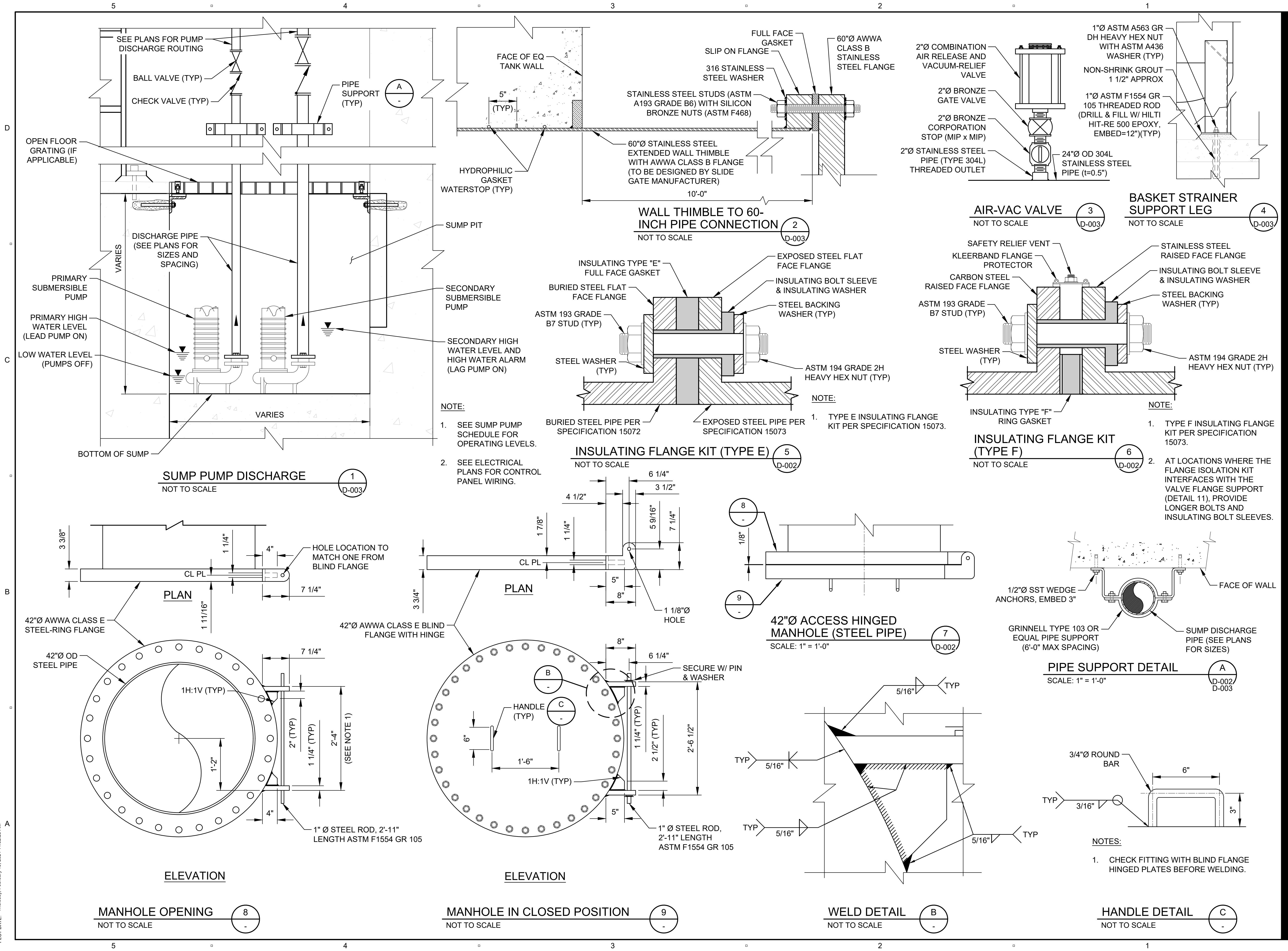
60662775

Designed By:	JK
Drawn By:	GH
Dept Check:	PW
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

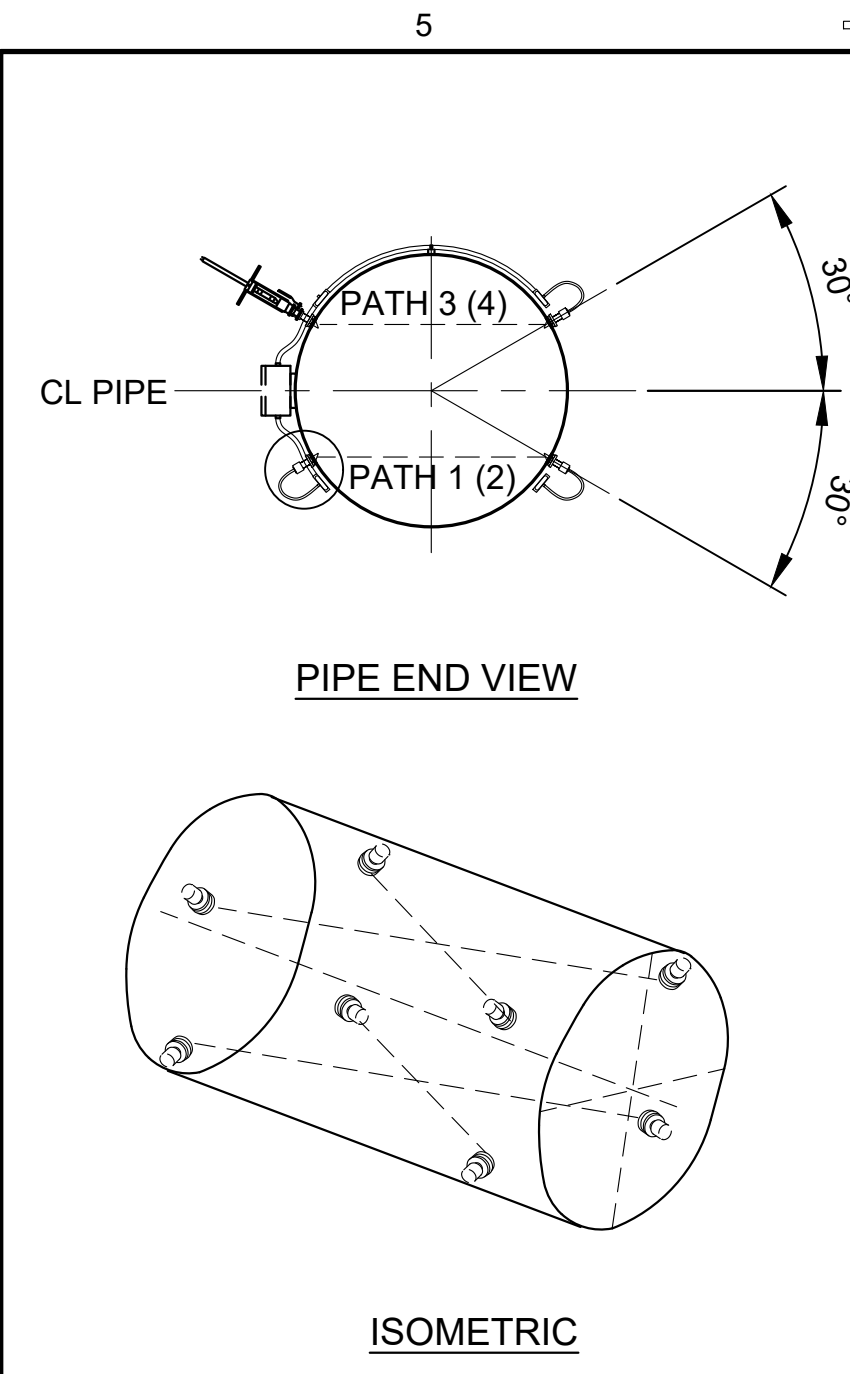
PROCESS MECHANICAL
SHEET TITLE

PROCESS MECHANICAL DETAILS
 (1 OF 3)
SHEET NUMBER

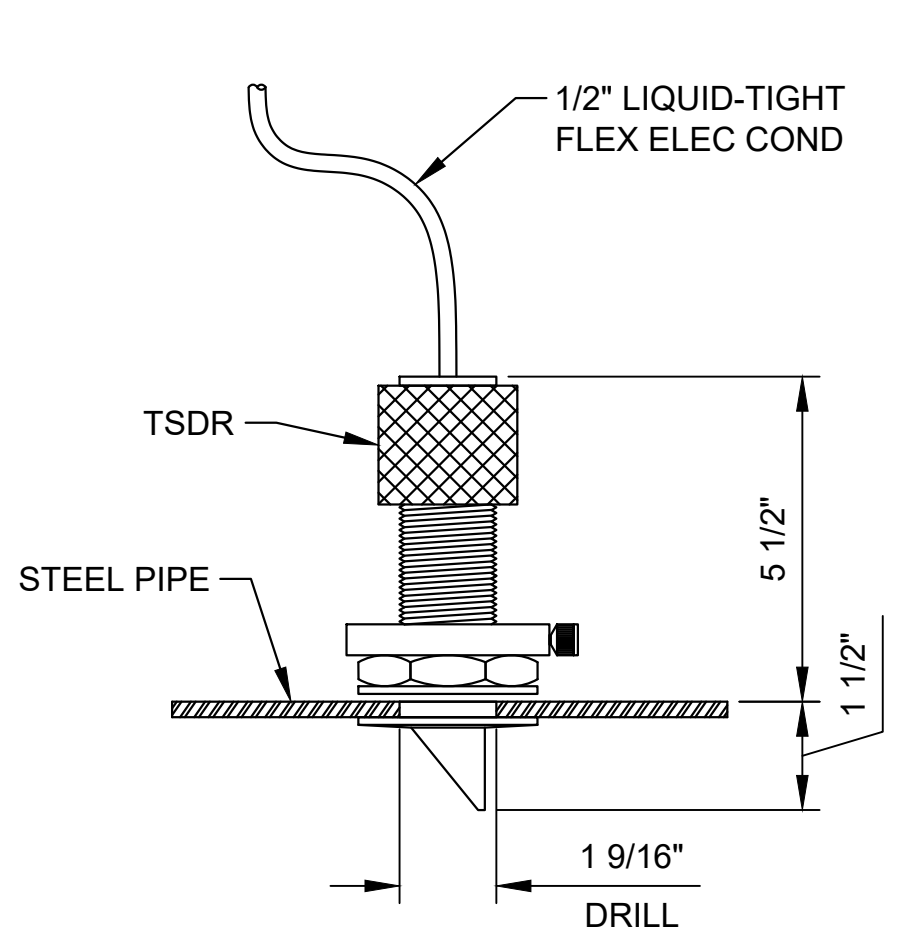
00 D-005



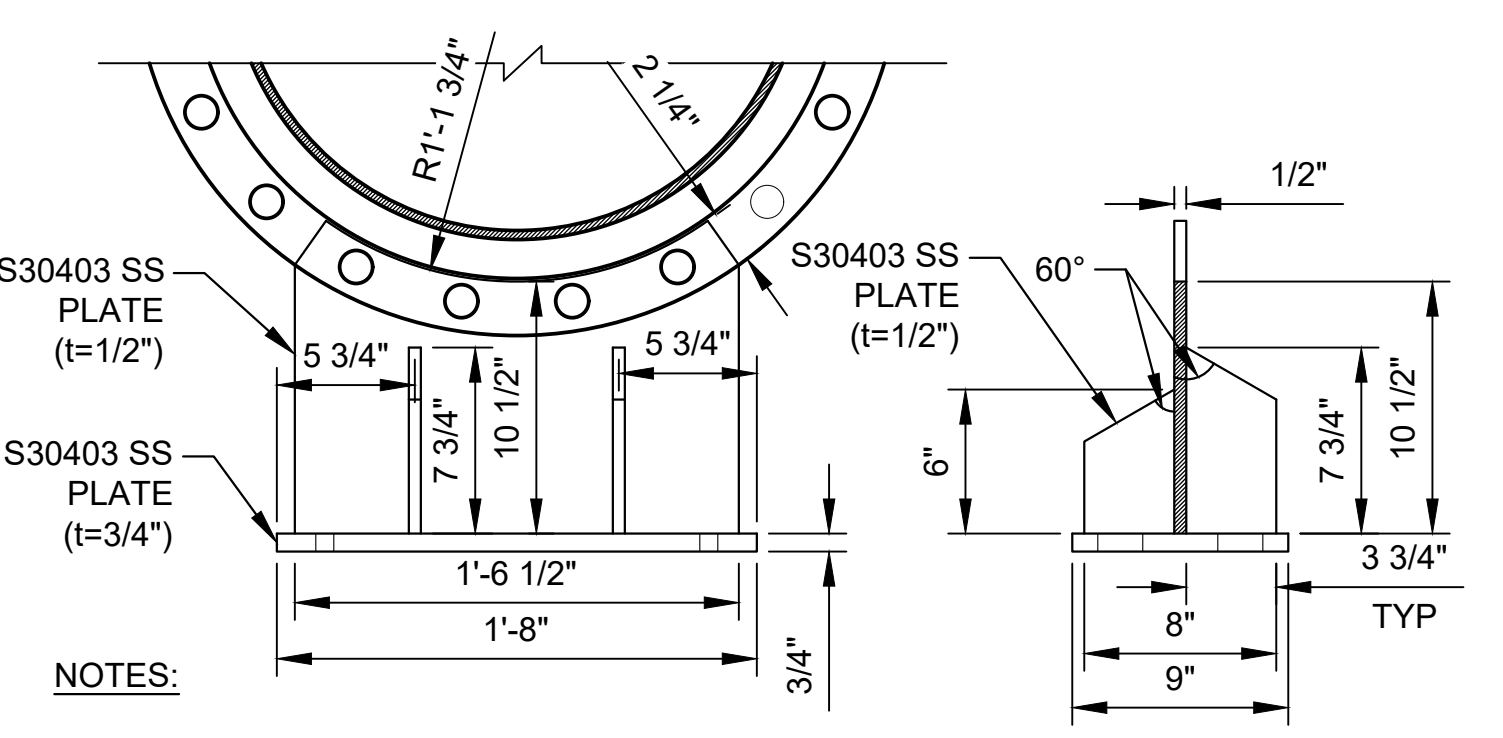
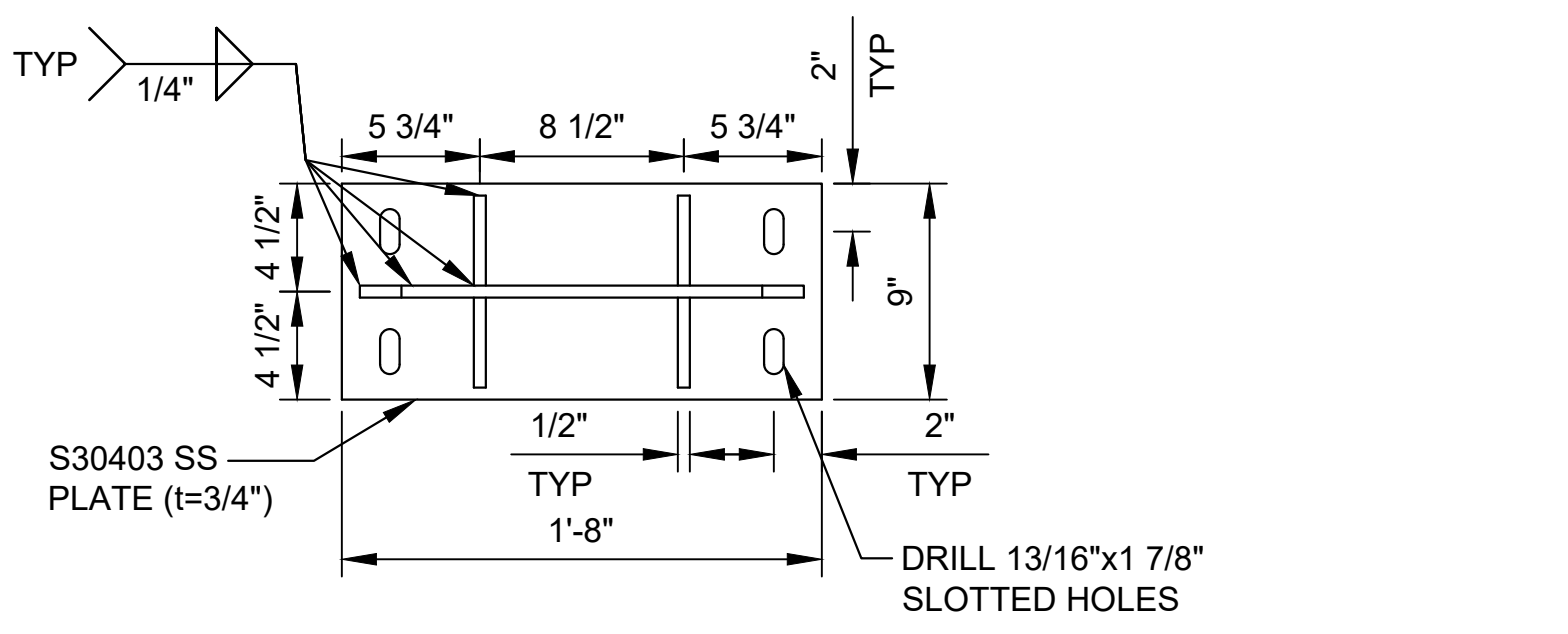
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 LAST UPDATE: Wednesday, February 14, 2024 12:39:58 PM
 PLOT DATE: Thursday, February 15, 2024 11:52:28 AM



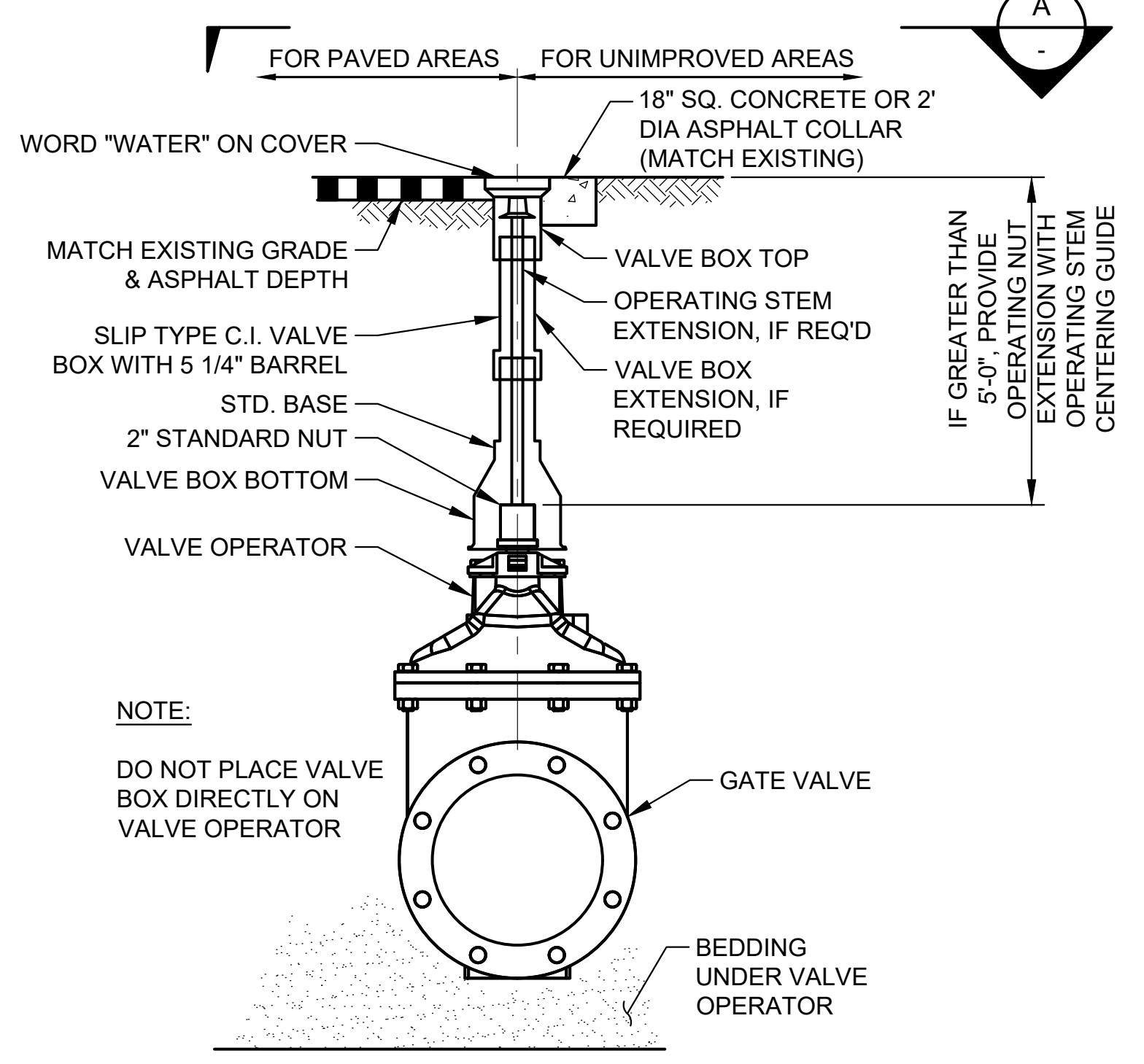
ULTRASONIC FLOWMETER TRANSDUCER
NOT TO SCALE



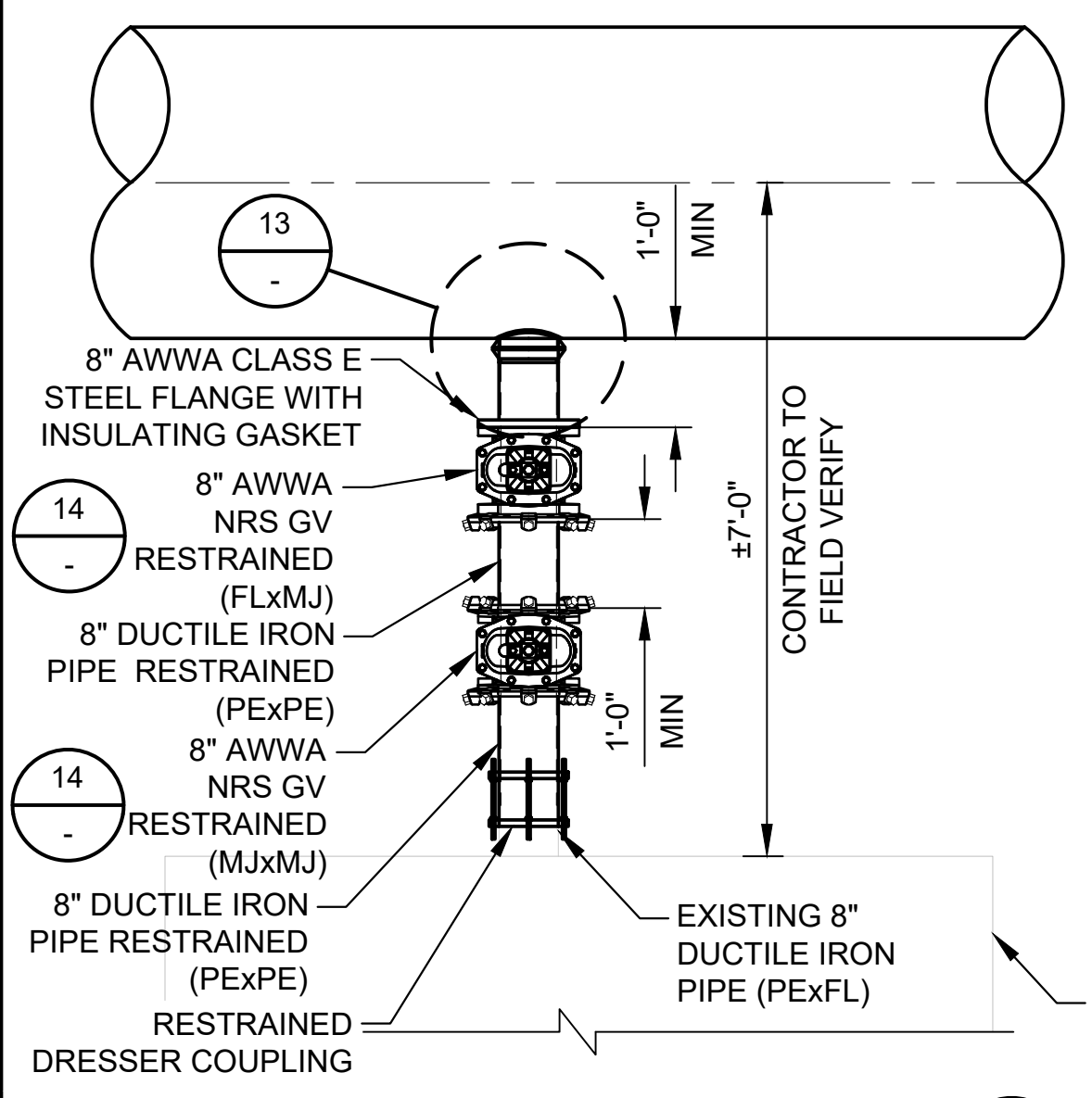
- NOTES:**
1. THE TRANSDUCER SHALL BE INSTALLED IN A DEWATERED PIPE FROM THE INSIDE OUT. THE TRANSDUCER ASSEMBLY IS SEALED ON THE PIPE USING AN O-RING INNER SEAL AND AN OUTER PACKING.
 2. REPAIR LINING AND COATING AFTER DRILLING HOLE AND WELDING.



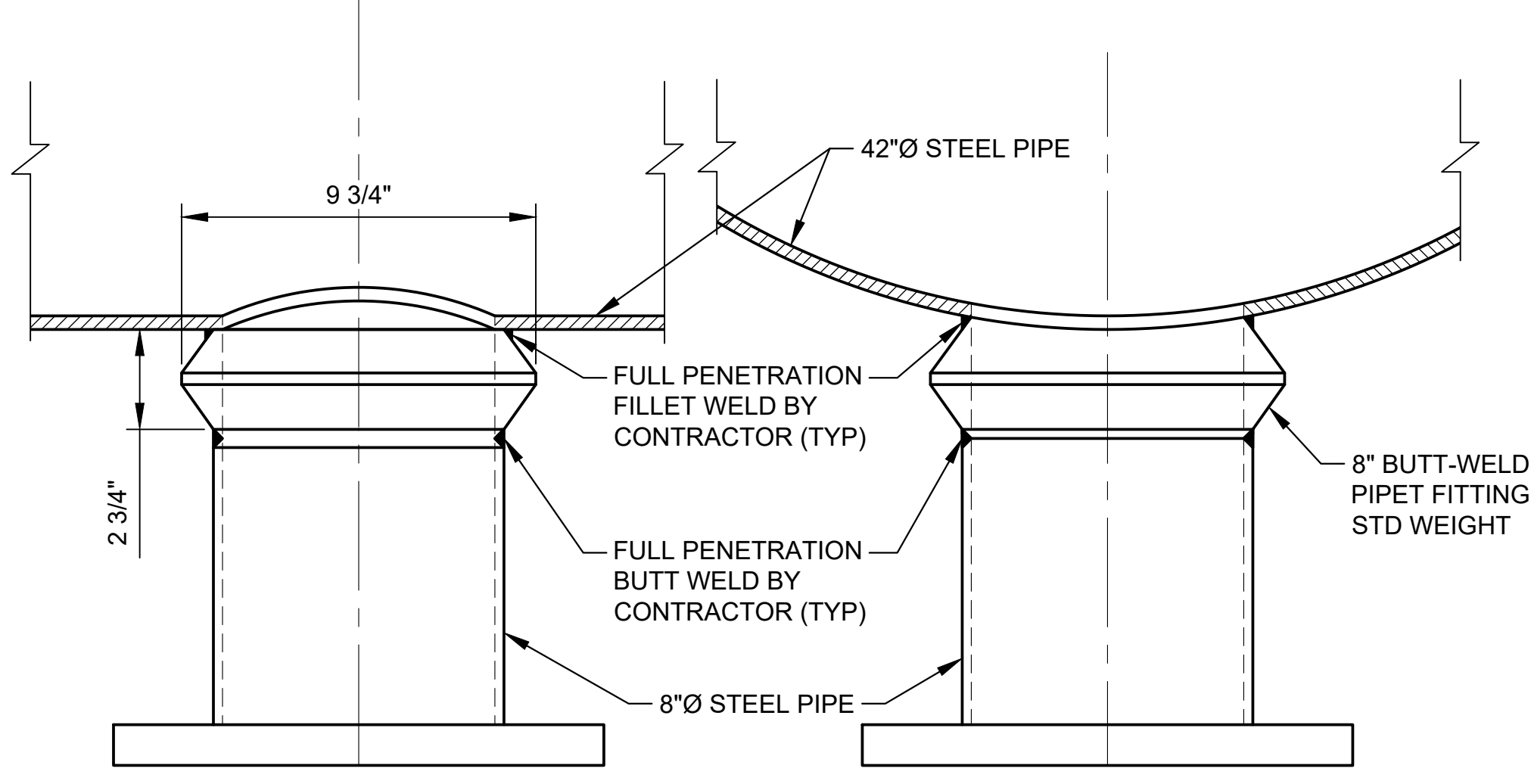
VALVE FLANGE SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"



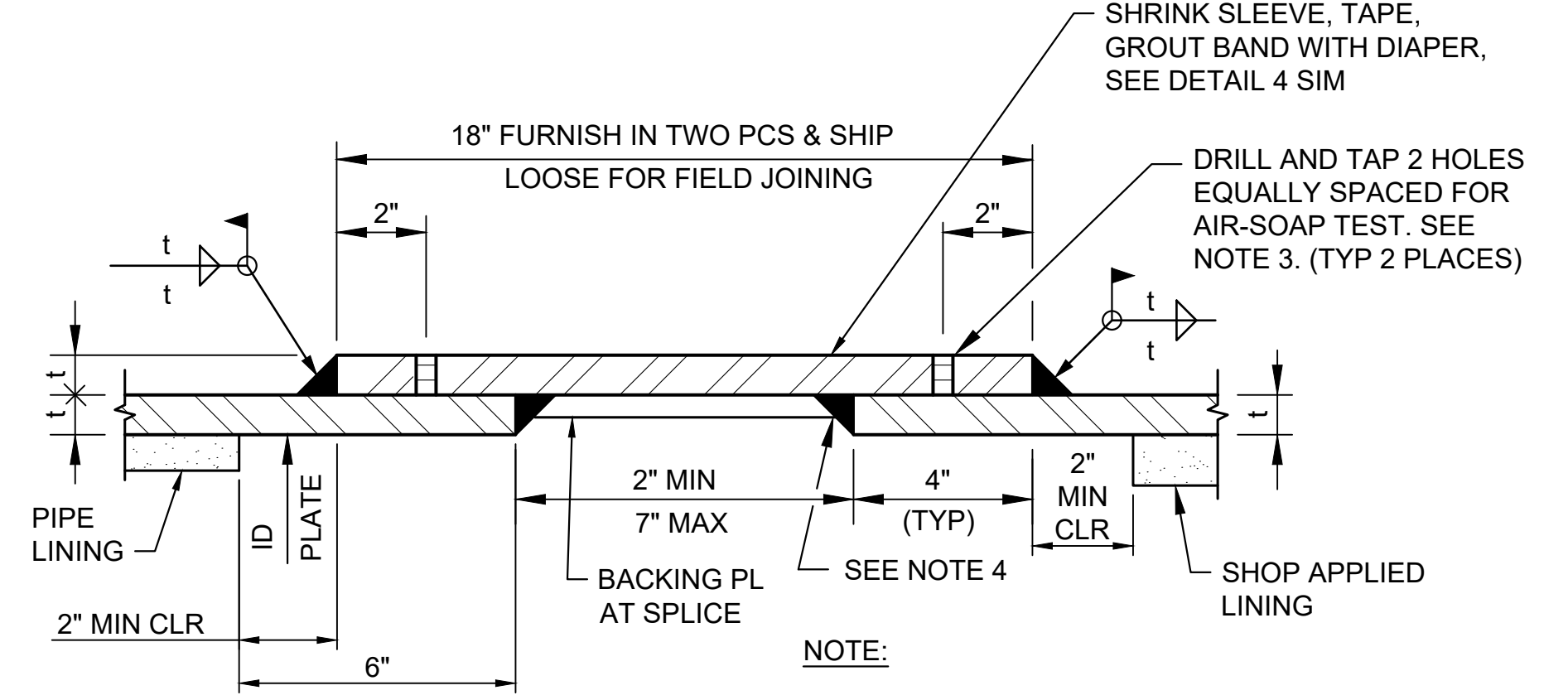
TYPICAL DIRECT BURY GATE VALVE
NOT TO SCALE



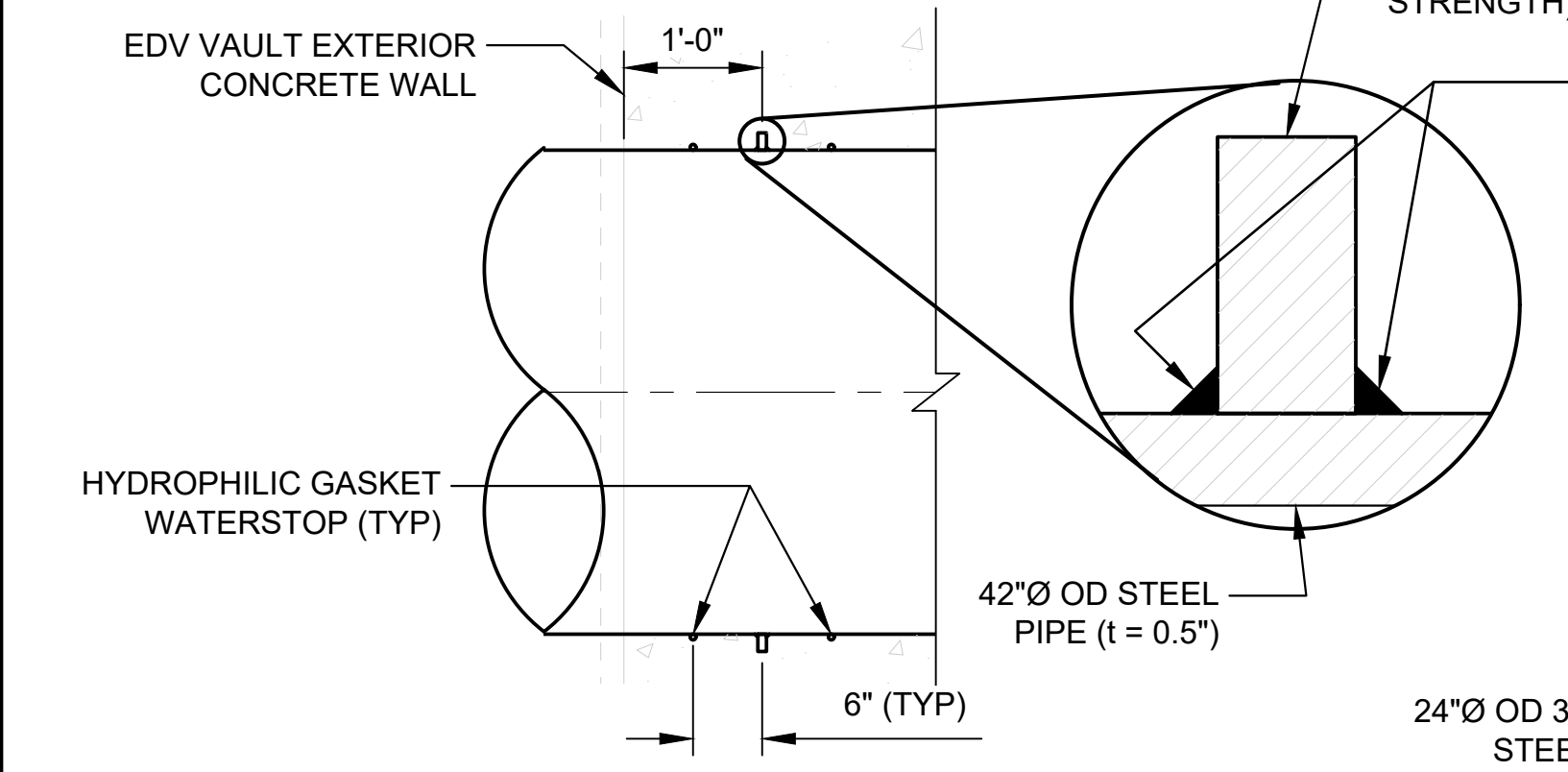
8-INCH FIRE HYDRANT TAP PLAN
SCALE: 1/2" = 1'-0"



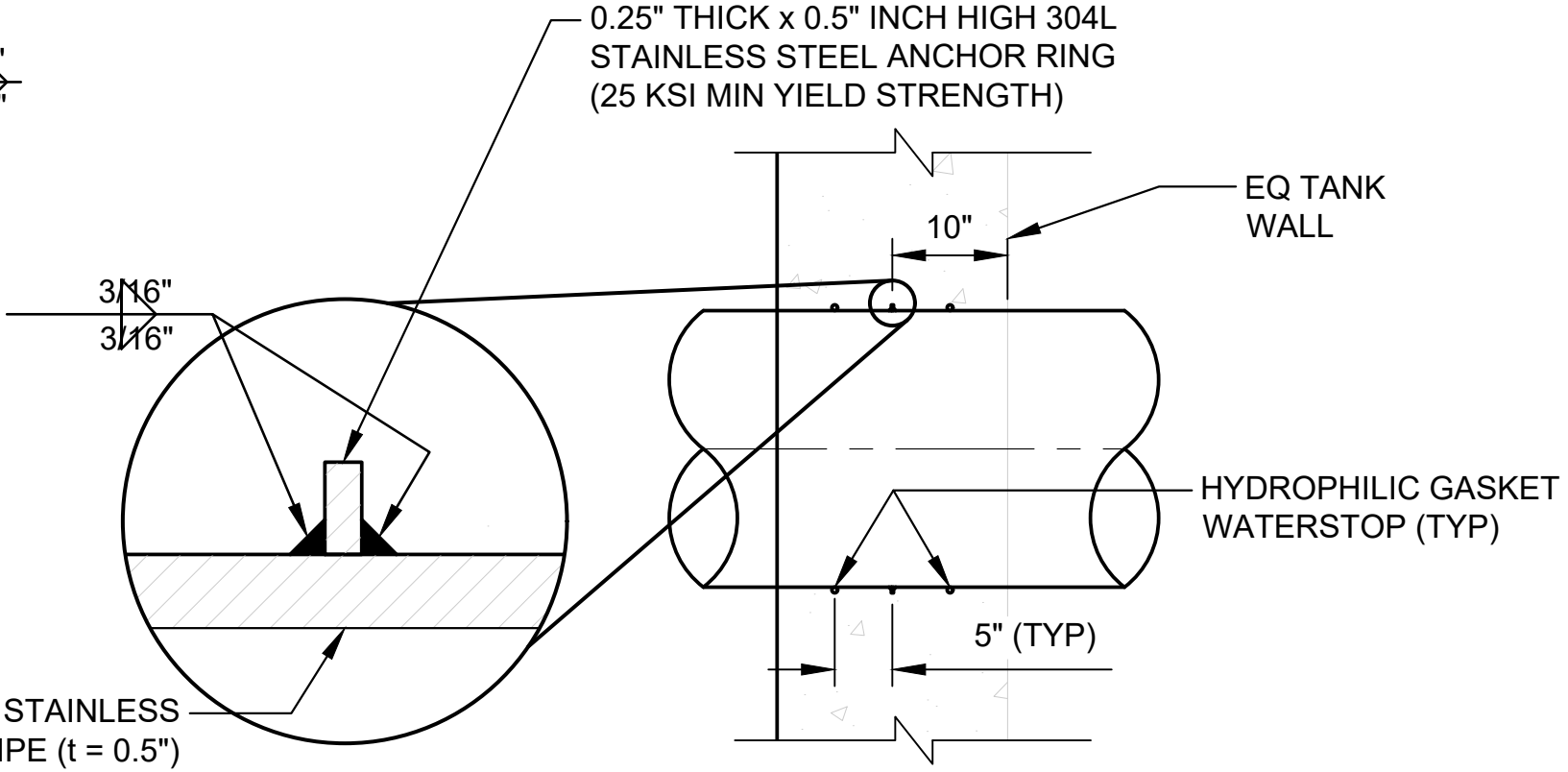
8-INCH PIPE TAP DETAIL
NOT TO SCALE



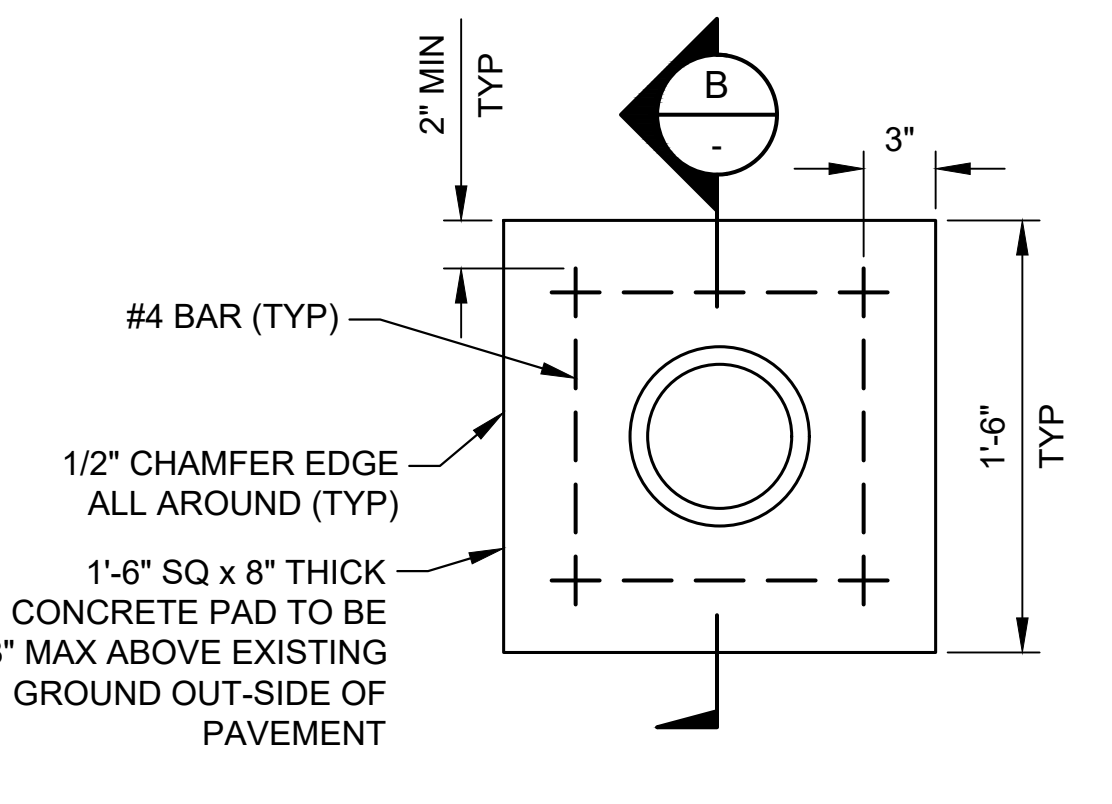
FIELD WELD BUTT STRAP JOINT DETAILS
NOT TO SCALE



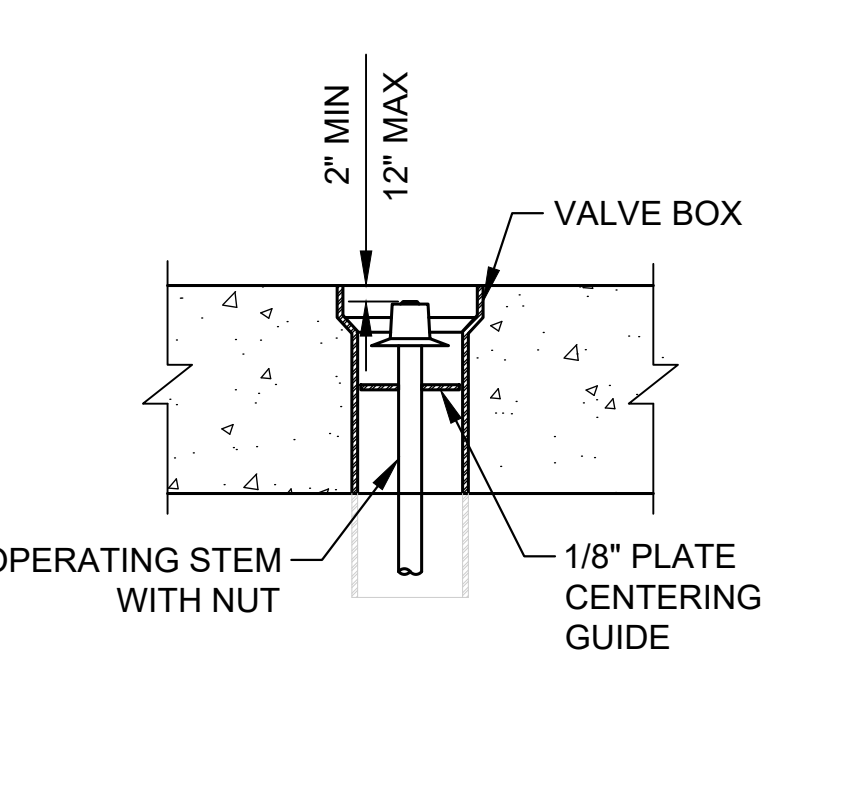
42-INCH PIPE THRUST RING
NOT TO SCALE



24-INCH PIPE THRUST RING
NOT TO SCALE



OPERATING STEM DETAIL
NOT TO SCALE



SECTION
NOT TO SCALE



PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

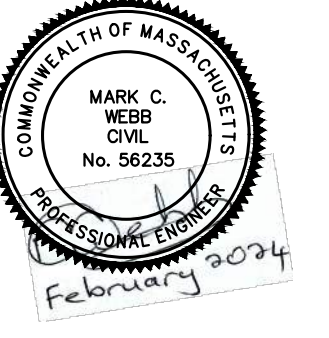
CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION
AGAWAM, MA 01001

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REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	JK
Drawn By:	GH
Dept Check:	PW
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE
PROCESS MECHANICAL
SHEET TITLE

PROCESS MECHANICAL DETAILS
(2 OF 3)
SHEET NUMBER

00 D-006

PATHFILENAME: L:\DCS\PROJECTS\WTR\60662775_SWS\WFP_HYDRO_ELECT_PDR\800_CAD_GIS\810_CAD\20-SHEETS\00-D-XXX-PIPELINE_PP.DWG
 LAST UPDATE: Wednesday, February 14, 2024 12:39:58 PM
 PLOT DATE: Thursday, February 15, 2024 11:54:27 AM

PROCESS MECHANICAL EQUIPMENT SCHEDULE

EQUIPMENT TAG	EQUIPMENT TYPE	EQUIPMENT RATING/ DESIGN STANDARD	MAX PRESSURE RATING	APPROXIMATE EQUIPMENT WEIGHT	SIZE	FLANGE DESIGN	ACTUATION TYPE	MOTOR SIZE (HP) (TBD BY MANUFACTURER)
MOV-10911	KNIFE GATE VALVE	ASME CLASS 150	285 PSI	1800 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	<1 HP
MOV-10921	KNIFE GATE VALVE	ASME CLASS 150	285 PSI	1800 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	<1 HP
MOV-10931	KNIFE GATE VALVE	ASME CLASS 150	285 PSI	1800 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	<1 HP
MOV-10912	HIGH-PERFORMANCE BUTTERFLY VALVE	ASME CLASS 150	285 PSI	450 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	<1 HP
MOV-10922	HIGH-PERFORMANCE BUTTERFLY VALVE	ASME CLASS 150	285 PSI	450 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	<1 HP
MOV-10932	HIGH-PERFORMANCE BUTTERFLY VALVE	ASME CLASS 150	285 PSI	450 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	<1 HP
STR-10913	BASKET STRAINER	ASME CLASS 150	285 PSI	3150 LBS	24-IN	ASME B16.5 CLASS 150	N/A	N/A
STR-10923	BASKET STRAINER	ASME CLASS 150	285 PSI	3150 LBS	24-IN	ASME B16.5 CLASS 150	N/A	N/A
STR-10933	BASKET STRAINER	ASME CLASS 150	285 PSI	3150 LBS	24-IN	ASME B16.5 CLASS 150	N/A	N/A
FCV-10914	AXIAL FLOW CONTROL VALVE	ASME CLASS 150	290 PSI	3600 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	0.25 HP
FCV-10924	AXIAL FLOW CONTROL VALVE	ASME CLASS 150	290 PSI	3600 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	0.25 HP
FCV-10934	AXIAL FLOW CONTROL VALVE	ASME CLASS 150	290 PSI	3600 LBS	24-IN	ASME B16.5 CLASS 150	ELECTRIC ACTUATOR	0.25 HP
DMJ-10910	DISMANTLING JOINT	ASME CLASS 150	250 PSI MIN	750 LBS	24-IN	ASME B16.5 CLASS 150	N/A	N/A
DMJ-10920	DISMANTLING JOINT	ASME CLASS 150	250 PSI MIN	750 LBS	24-IN	ASME B16.5 CLASS 150	N/A	N/A
DMJ-10930	DISMANTLING JOINT	ASME CLASS 150	250 PSI MIN	750 LBS	24-IN	ASME B16.5 CLASS 150	N/A	N/A
KGV-10910M	KNIFE GATE VALVE	ASME CLASS 150	285 PSI	1700 LBS	24-IN	ASME B16.5 CLASS 150	MANUAL HANDWHEEL	N/A
KGV-10920M	KNIFE GATE VALVE	ASME CLASS 150	285 PSI	1700 LBS	24-IN	ASME B16.5 CLASS 150	MANUAL HANDWHEEL	N/A
KGV-10930M	KNIFE GATE VALVE	ASME CLASS 150	285 PSI	1700 LBS	24-IN	ASME B16.5 CLASS 150	MANUAL HANDWHEEL	N/A
CAV-10910	COMBINATION AIR-VAC VALVE	ASME CLASS 150	145 PSI	40 LBS	2-IN	ASME B16.1 CLASS 150	N/A	N/A
CAV-10920	COMBINATION AIR-VAC VALVE	ASME CLASS 150	145 PSI	40 LBS	2-IN	ASME B16.1 CLASS 150	N/A	N/A
CAV-10930	COMBINATION AIR-VAC VALVE	ASME CLASS 150	145 PSI	40 LBS	2-IN	ASME B16.1 CLASS 150	N/A	N/A
SLG-10943	STAINLESS STEEL SLIDE GATE	AWWA C561	25 FEET	TBD	60-IN	N/A	ELECTRIC ACTUATOR	<1 HP
FE/FIT-10901	ULTRASONIC FLOWMETER	N/A	450 PSI	N/A	1.5-IN	N/A	N/A	N/A
N/A	DIRECT BURY GATE VALVE (FLGXMJ)	AWWA C515	250 PSI	200 LBS	8-IN	ASME B16.1 CLASS 125	MANUAL 2" SQ OPERATING NUT WITH STEM	N/A
N/A	DIRECT BURY GATE VALVE (MJxMJ)	AWWA C515	250 PSI	200 LBS	8-IN	N/A	MANUAL 2" SQ OPERATING NUT WITH STEM	N/A

SUMP PUMP SCHEDULE

TAG NO.	QTY	MANUFACTURER & MODEL NO.*	LOCATION	MIN. CAPACITY (GPM)	TOTAL HEAD (FT)	PUMP "ON" POINT (IN)**	PUMP "OFF" POINT (IN)**	HIGH LEVEL ALARM (IN)**	SIZE	FLANGE DESIGN	MOTOR DATA			REMARKS
											HP	V	PH	
P-10953A	1	GRUNDFOS SLV.25.A25	EDV CHAMBER	50	30	24	9	30	1 1/2 IN	ASME B16.1 CLASS 25	3.0	460	3	DUPLEX, AUTOMATIC OPERATION
P-10953B	1	GRUNDFOS SLV.25.A25	EDV CHAMBER	85	30	30	9	30	2 IN	ASME B16.1 CLASS 25	3.0	460	3	DUPLEX, AUTOMATIC OPERATION
P-10954A P-10954B P-10954C***	3	GRUNDFOS SLV.25.A30	EQ TANK	225	20	N/A	9	N/A	3 IN	ASME B16.1 CLASS 25	3.0	460	3	MANUAL OPERATION

* SELECTION BASED ON GRUNDFOS; GRUNDFOS, ZOELLER, GOULD OR HYDRAMATIC ARE ACCEPTABLE MANUFACTURERS ** OPERATING LEVELS ARE FROM FLOOR OF SUMP.

** MEASURED FROM THE BOTTOM OF THE SUMP.

*** TWO (2) PUMPS INSTALLED, ONE (1) PUMP PROVIDED TO THE OWNER.

BRIDGE CRANE SCHEDULE											
TAG NO.	EQUIPMENT TYPE	CAPACITY	OVERALL WIDTH	OVERALL HEIGHT	RUNWAY LENGTH	SUPPORT CENTERS	NO. CELLS	RATED FOR	HEIGHT UNDER HOOK	POWER	SPEED (FPM)
BC	FREESTANDING MOTORIZED OVERHEAD BRIDGE CRANE W/ TOP RUNNING END TRUCKS	3 TONS	30'	20'	37'	35'	1	OUTDOOR USE	16'-1.5"	460/3/60	HOIST: 16/2.6 (2-SPEED) TROLLEY: 65 VFD BRIDGE: 120 VFD

PIPE SCHEDULE							
LOCATION	MATERIAL TYPE	SIZE (IN)	WALL THICKNESS (IN)	COATING	LINING	CATHODIC PROTECTION	REMARKS
BURIED	STEEL	42	0.500	POLYURETHANE	POLYURETHANE	YES	SEE SPECIFICATIONS 09970 AND 15072
EDV	STEEL	24	0.500	POLYURETHANE	POLYURETHANE	NO	SEE SPECIFICATIONS 09970 AND 15073
EDV	STAINLESS STEEL	24	0.500	NONE	NONE	NO	SEE SPECIFICATION 15073
BURIED	DUCTILE IRON	8	TBD	BITUMINOUS	CEMENT MORTAR	YES	SEE SPECIFICATION 02513

SUMP PUMP CONTROL SEQUENCE: (P-10953A&B)

- WHEN THE PRIMARY PUMP FLOAT CLOSES, THE SELECTED LEAD PUMP SHALL ENERGIZE AND THE LEAD PUMP RUN LIGHT SHALL ILLUMINATE. LEAD PUMP SHALL RE-MAIN OPERATIONAL UNTIL THE SHARED PUMP "STOP" FLOAT OPENS.
- IF THE FLUID LEVEL CONTINUES TO RISE AFTER THE LEAD PUMP HAS BEEN ENERGIZED, THE "LAG" FLOAT WILL CLOSE. WHEN THE "LAG" FLOAT IS CLOSED, THE LAG PUMP SHALL ENERGIZE AND BOTH PUMPS WILL RUN SIMULTANEOUSLY. BOTH THE LEAD PUMP AND THE LAG PUMP WILL REMAIN OPERATIONAL UNTIL THE SHARED PUMP "STOP" FLOAT OPENS.
- THE ALARM FLOAT SHALL BE THE THIRD FLOAT CAUSING AN ALARM TO SOUND WHEN THE LEAD PUMP FAILS TO OPERATE OR THE RATE OF INFLOW INTO THE BASIN EXCEEDS THE CAPACITY OF ONE PUMP. WHEN THE ALARM FLOAT IS CLOSED THE FOLLOWING SHALL OCCUR:
 - THE EXTERNAL HIGH WATER LIGHT WILL ILLUMINATE
 - THE AUDIBLE HIGH WATER ALARM WILL SOUND
 - THE AUXILIARY DRY CONTACTS WILL CLOSE
 - THE AUDIBLE HIGH WATER HORN SHALL BE SILENCED BY PRESSING AN ALARM SILENCE BUTTON ON THE EXTERIOR OF THE CONTROL PANEL.
 - WHEN THE "ALARM" FLOAT OPENS THE EXTERNAL HIGH WATER LIGHT, AUDIBLE HIGH WATER HORN AND DRY CONTACTS SHALL BE RESET.
 - REFER TO THE SUMP PUMP SCHEDULE ON SHEET 00 D-008 FOR PUMP ON AND OFF POINTS.

SUMP PUMP CONTROL SEQUENCE: (P-10954A,B,&C)

- WHEN THE EQ TANK NEEDS TO BE EMPTIED, THE OPERATOR WILL COMMAND EACH PUMP 'ON' VIA PUSH BUTTON START AT THE CONTROL PANEL.
- THE SUMP PUMP(S) WILL OPERATE UNTIL COMMANDED OFF BY THE FLOAT; REFER TO THE SUMP PUMP SCHEDULE ON SHEET 00 D-008 FOR PUMP OFF POINT(S).
- AN ALARM LIGHT SHALL BE PROVIDED ON THE CONTROL PANEL AND SHALL ILLUMIATE IF A PUMP THAT IS COMMANDED TO BE ON FAILS TO RUN.



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

250 M STREET EXTENSION AGAWAM, MA 01001

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PROJECT NUMBER

60662775

Designed By:	JK
Drawn By:	GH
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Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

PROCESS MECHANICAL SHEET TITLE

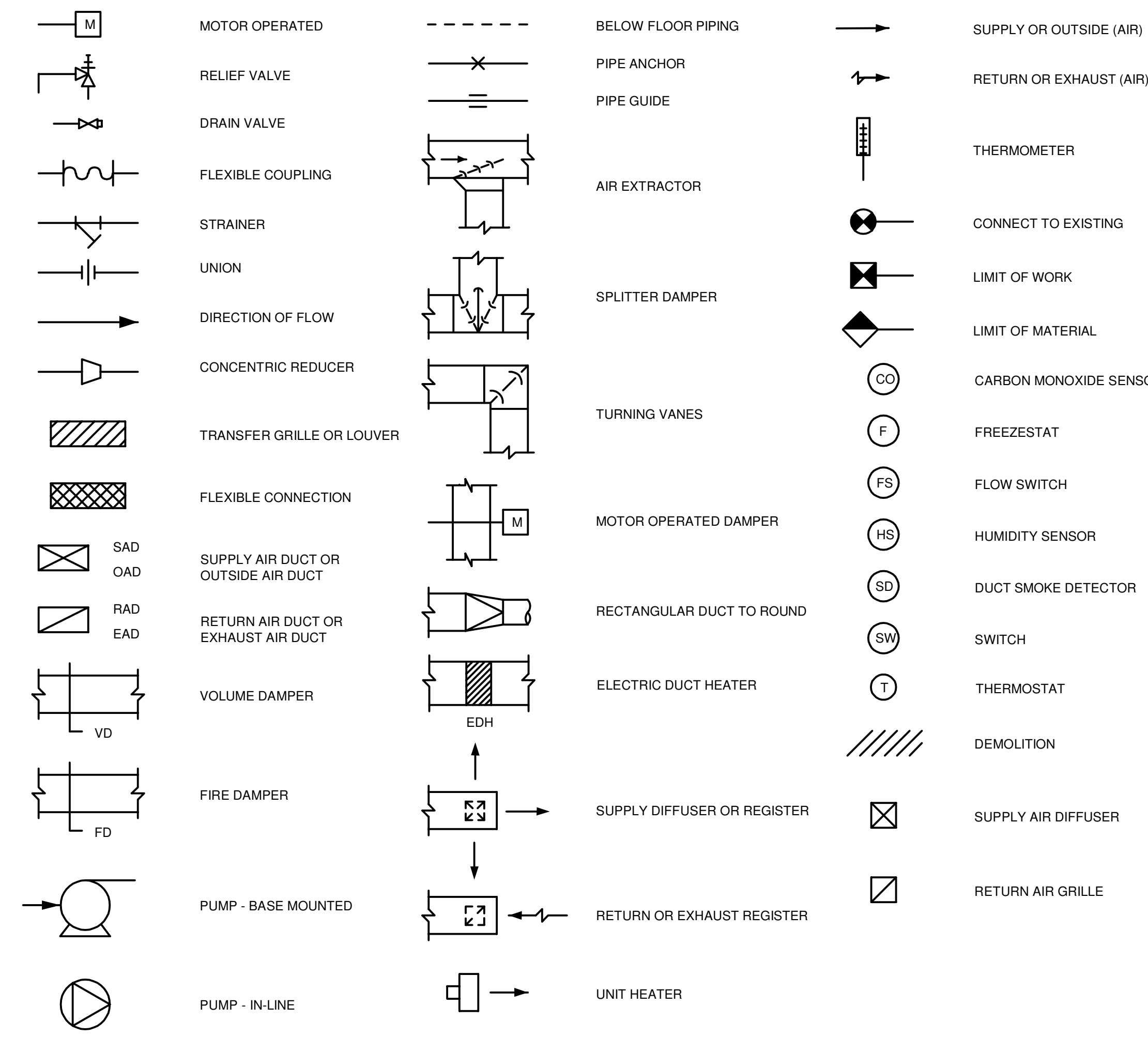
PROCESS MECHANICAL SCHEDULES

SHEET NUMBER

00 D-008

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LEGEND

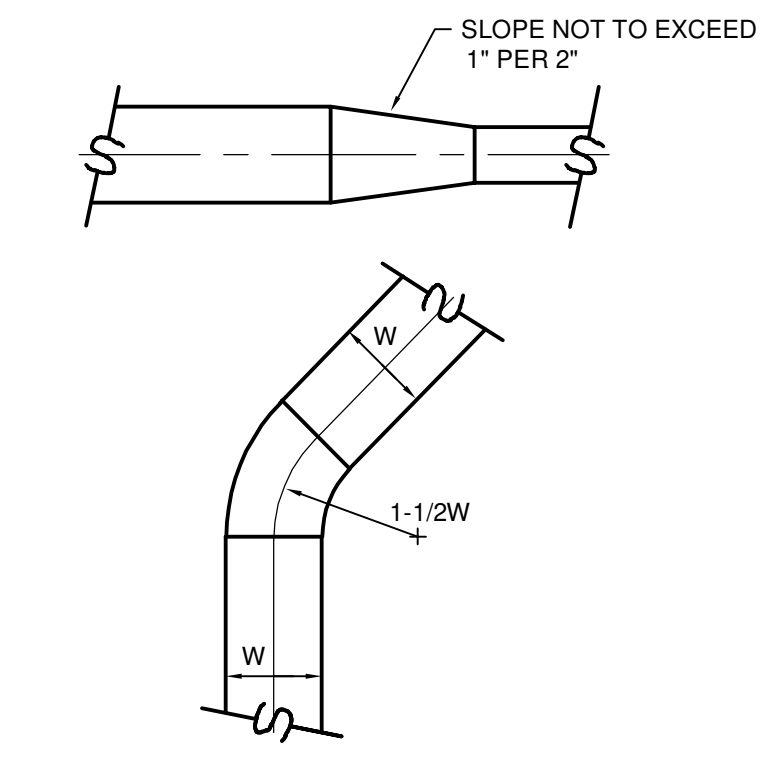


ABBREVIATIONS

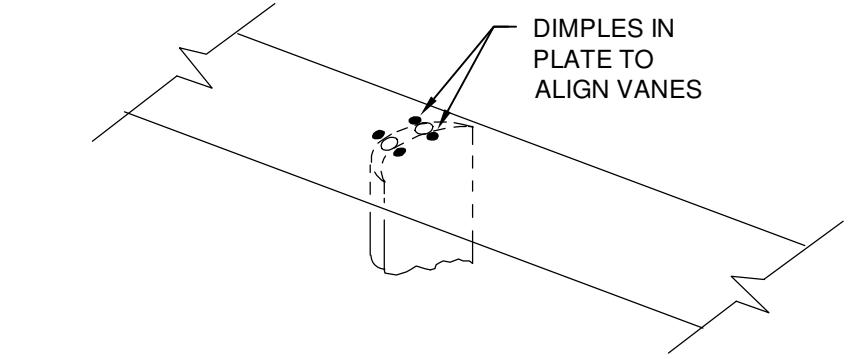
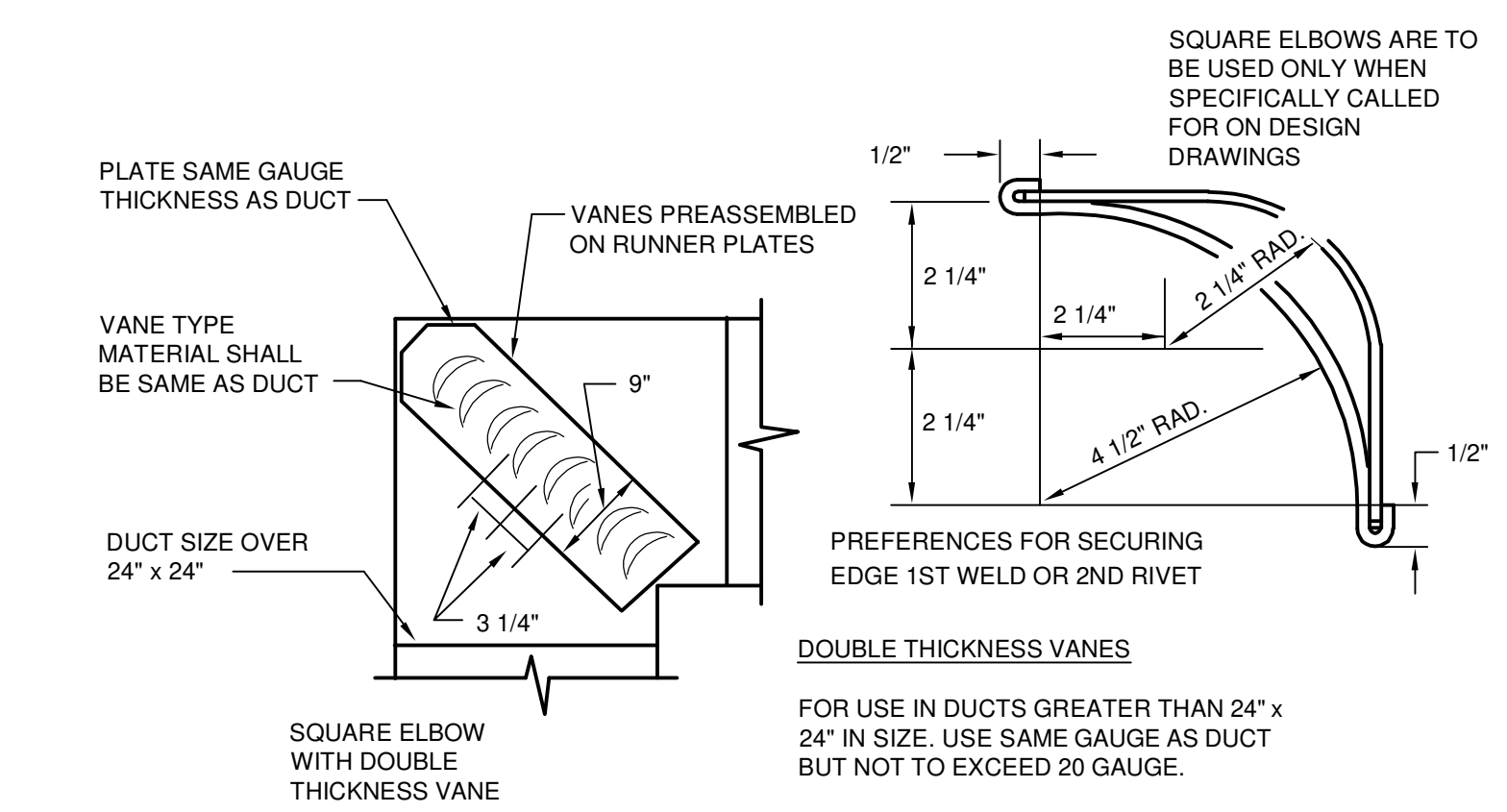
AC AIR CONDITIONER	EAT ENTERING AIR TEMPERATURE	GUH GAS FIRED UNIT HEATER	RAR RETURN AIR REGISTER
AD ACCESS DOOR	EBB ELECTRIC BASEBOARD	HC HEATING COIL	RG RETURN GRILLE
AF AIR FOIL FAN	ECH ELECTRIC CABINET HEATER	HD HOOD	RGL REFRIGERANT LIQUID LINE
AFF ABOVE FINISHED FLOOR	EF EXHAUST FAN	HP HORSEPOWER	RGS REFRIGERANT SUCTION LINE
AHU AIR HANDLING UNIT	EFF EFFICIENCY	HWR HEATING HOT WATER RETURN	RPM REVOLUTIONS PER MINUTE
ALUM ALUMINUM	EG EXHAUST GRILLE	HWS HEATING HOT WATER SUPPLY	SA SUPPLY AIR
BC BACKWARD CURVE FAN	ELE ELECTRIC	IN WG INCH WATER GAUGE	SAD SUPPLY AIR DIFFUSER
BDD BACK DRAFT DAMPER	ER EXHAUST REGISTER	IR INFRARED HEATER	SAG SUPPLY AIR GRILLE
BLR BOILER	ESP EXTERNAL STATIC PRESSURE	KW KILOWATT	SAR SUPPLY AIR REGISTER
BOD BOTTOM OF DUCT	ET EXPANSION TANK	L LOUVER	SD SUCTION DIFFUSER/ DUCT SMOKE DETECTOR
BTU BRITISH THERMAL UNIT	EUH ELECTRIC UNIT HEATER	LAT LEAVING AIR TEMPERATURE	SF SUPPLY FAN
BV BALANCING VALVE	EWT ENTERING WATER TEMPERATURE	LD LOUVERED DOOR / LEAK DETECTOR	SP STATIC PRESSURE
CC COOLING COIL	EXH EXHAUST	LLSV LIQUID LINE SOLENOID VALVE	SS STAINLESS STEEL
CFM CUBIC FEET PER MINUTE	EXP EXPLOSIONPROOF	LRA LOCKED ROTOR AMPS	SW WALL SWITCH
CL CENTER LINE	FAI FRESH AIR INTAKE	MBH THOUSAND BRITISH THERMAL UNIT	TE TOTALLY ENCLOSED
CP CIRCULATING PUMP	FC FLEXIBLE CONNECTION	MD MOTOR OPERATED DAMPER	TEFC TOTALLY ENCLOSED, FAN COOLED
CUH CABINET UNIT HEATER	FC FORWARD CURVE FAN	NC NORMALLY CLOSED	TG TRANSFER GRILLE
D DRAIN	FD FIRE DAMPER	NO NORMALLY OPEN	TOD TOP OF DUCT
DAC DUCTLESS AIR CONDITIONING UNIT	FF FINISHED FLOOR	NTS NOT TO SCALE	TSP TOTAL STATIC PRESSURE
DB DRY BULB	FLA FULL LOAD AMPS	OA OUTSIDE AIR	UH UNIT HEATER
DEG DEGREE	FOR FUEL OIL RETURN	ODP OPEN DRIP-PROOF	V VOLT
DF DESTRATIFICATION FAN	FOS FUEL OIL SUPPLY	OV FUEL OVERFLOW	VD VOLUME DAMPER
DH DEHUMIDIFIER	FOV FUEL OIL VENT	P PUMP	VTR VENT THRU ROOF
DHC DUCT HEATING COIL	FPM FEET PER MINUTE	PD PRESSURE DROP	W WATT
DI DUCTILE IRON	FS FLOW SWITCH	PH PHASE	WB WET BULB
DN DOWN	FTR FIN TUBE RADIATOR	RA RETURN AIR	WG WATER GAUGE
EA EXHAUST AIR	GPM GALLONS PER MINUTE	RAF RETURN AIR FAN	WMS WIRE MESH SCREEN

GENERAL NOTES

- INSTALL ALL WORK IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
- PROVIDE AIRTIGHT ACCESS DOORS TO ALLOW FOR INSPECTION OF FIRE DAMPERS, CONTROL DAMPERS, INSTRUMENTATION, DETECTORS, FILTERS AND COILS FOR DUCTWORK NOT LESS THAN 6 INCHES BY 6 INCHES.
- PROVIDE DAMPERS OF THE SAME MATERIALS AS THE DUCT SYSTEM WHERE THEY ARE INSTALLED. PROVIDE ALL DAMPERS WITH A POSITION INDICATOR THAT CAN BE EASILY SEEN FROM THE OPERATING LEVEL.
- COORDINATE WITH ARCHITECTURAL DRAWING FOR OUTSIDE AIR INTAKE AND EXHAUST LOUVER ELEVATION, ROOF AND WALL OPENINGS (SIZE & LOCATION).
- PROVIDE A SPARE SET OF BELTS AND FILTERS FOR ALL HVAC EQUIPMENT.
- ALL PIPES PENETRATING THROUGH FIRE RATED WALLS SHALL BE SEALED TO ENSURE THE FIRE RATING IS MAINTAINED.
- PROVIDE ALL COOLING COILS W/ CONDENSATE DRIP PANS AND PIPING. INSULATE PAN & PIPING AS SPECIFIED. CONDENSATE PIPE SIZES SHALL BE ONE INCH FOR UP TO 5 TONS OF COOLING, AND 1 1/4 INCH FOR 5 TO 30 TONS OF COOLING. TERMINATE CONDENSATE PIPE AT NEAREST DRAIN OR AS INDICATED.
- ALL ROTATING EQUIPMENT SHALL HAVE FLEXIBLE PIPE OR DUCT CONNECTIONS AND APPROVED VIBRATION ISOLATORS.
- PROVIDE ALL NECESSARY DUCTWORK, PIPING, EQUIPMENT AND SUPPORTS ETC. NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS, BUT NECESSARY TO PROVIDE COMPLETE AND WORKABLE SYSTEMS.
- PROVIDE COVERING TO ALL OPEN ENDS OF DUCTWORK TO PREVENT DUST, DIRT AND DEBRIS FROM ENTERING DURING CONSTRUCTION.
- ALL EQUIPMENT SHALL BE LOCATED TO PROVIDE PROPER ACCESS FOR INSPECTION, MAINTENANCE AND SERVICE.
- HVAC EQUIPMENT DIMENSIONS, LOCATIONS, DUCTWORK, AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO FURNISH EQUIPMENT THAT REQUIRES AN ARRANGEMENT OR SPACE DIFFERING FROM THAT INDICATED ON THE DRAWINGS OR SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL, DETAILED HVAC, ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, INSTRUMENTATION, AND ELECTRICAL DRAWINGS AND EQUIPMENT LISTS SHOWING ALL NECESSARY CHANGES AND EMBODYING ALL FEATURES OF THE EQUIPMENT HE PROPOSES TO FURNISH. THIS INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO PLANS, SECTIONS, DETAILS, AND SCHEMATICS OF ALL APPURTENANCES REQUIRED. SUCH CHANGES IF APPROVED BY THE ENGINEER SHALL BE AT NO EXTRA COST TO THE OWNER. THE CONTRACTOR SHALL ASSUME THE COST OF, AND THE RESPONSIBILITY FOR SATISFACTORILY ACCOMPLISHING ALL THE NECESSARY CHANGES CORRESPONDING TO THE DIMENSIONS AND CHARACTERISTICS OF THE EQUIPMENT SUBMITTED AND APPROVED BY THE ENGINEER. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
- PROVIDE ALL CONTROL CONDUIT AND WIRING BETWEEN HVAC EQUIPMENT AND CONTROL POINTS. POWER, CONDUIT AND WIRING TO MOTOR OPERATED DAMPERS SHALL BE PROVIDED BY HVAC SUBCONTRACTOR. ALL CONDUIT AND WIRING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION 16.

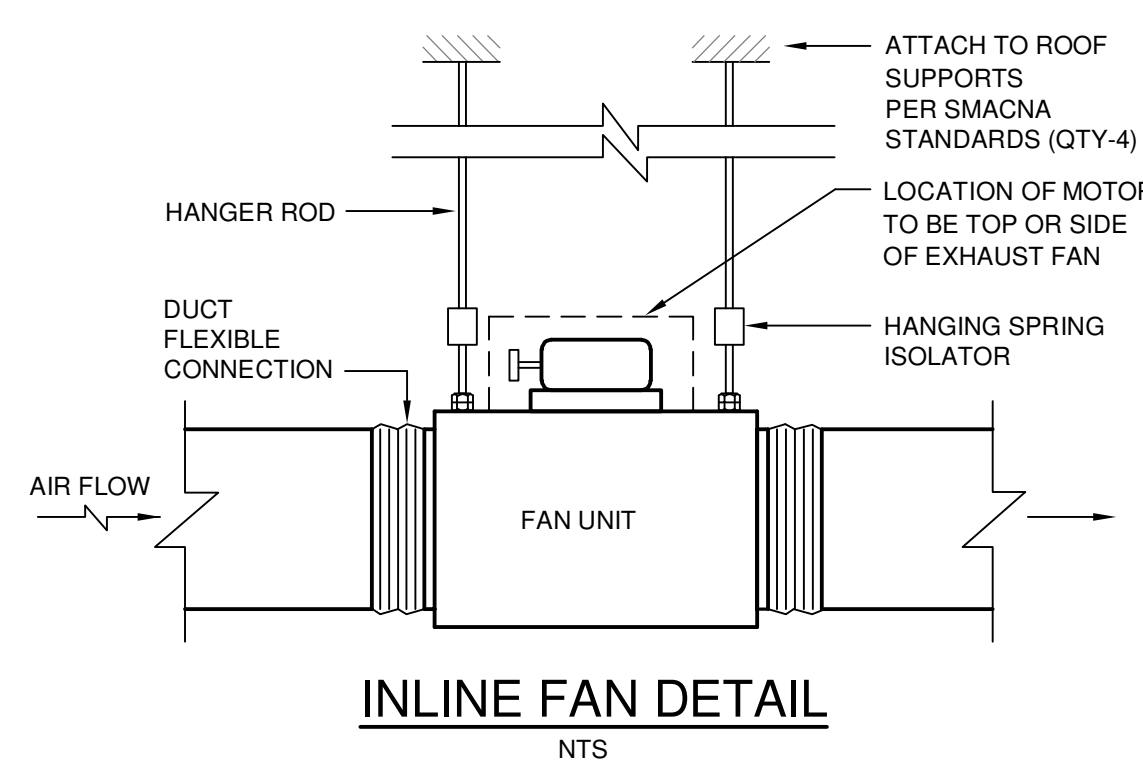


CONSTRUCTION OF TRANSITION AND 45° ELBOWS NTS

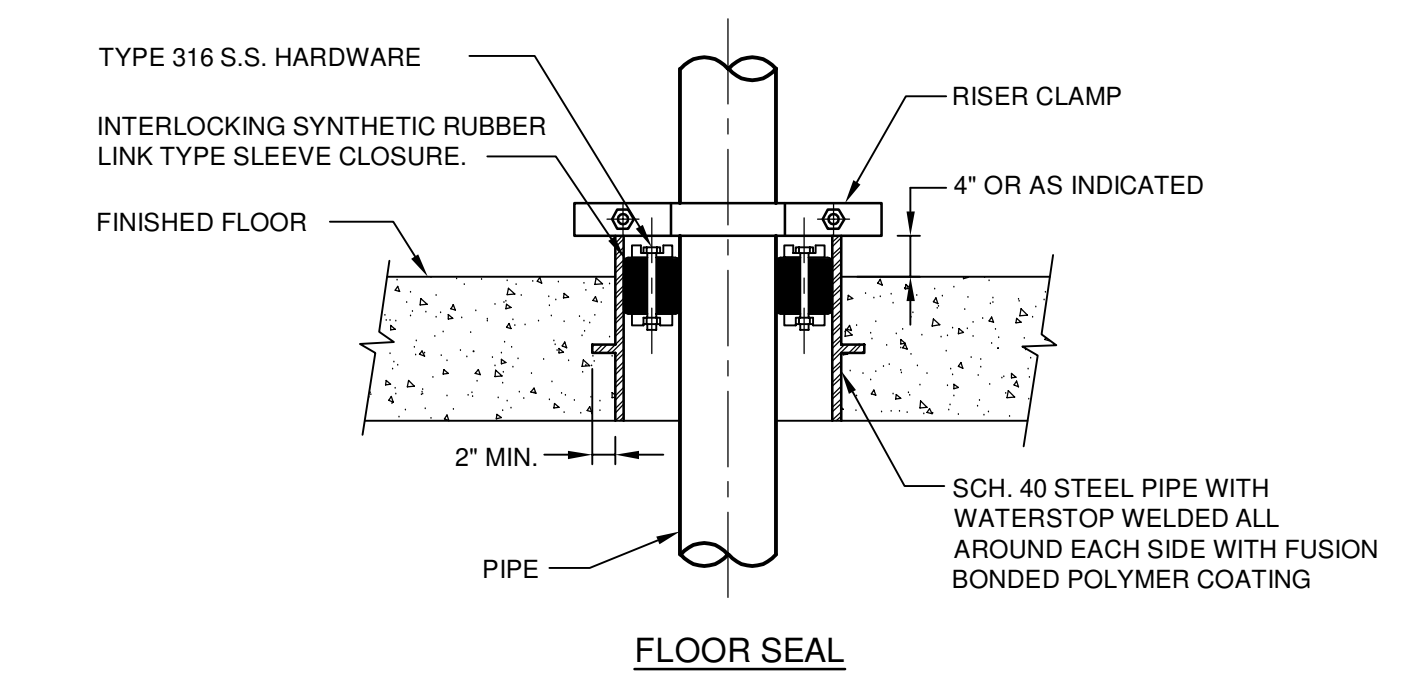


TURNING VANE DETAIL NTS

NOTES:
 PROVIDE 1 STAY FOR DUCTS 72" TO 120" WIDE & 2 STAYS AT 1/3 POINTS FOR 120" & ABOVE.



INLINE FAN DETAIL NTS



WALL AND FLOOR PENETRATION LINK TYPE SLEEVE CLOSURE NTS



PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

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CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	AC
Drawn By:	BS
Dept Check:	AG
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NONE

DISCIPLINE

HVAC SHEET TITLE

LEGEND, DETAILS, ABBREVIATIONS, AND GENERAL NOTES
 SHEET NUMBER

00 M-001

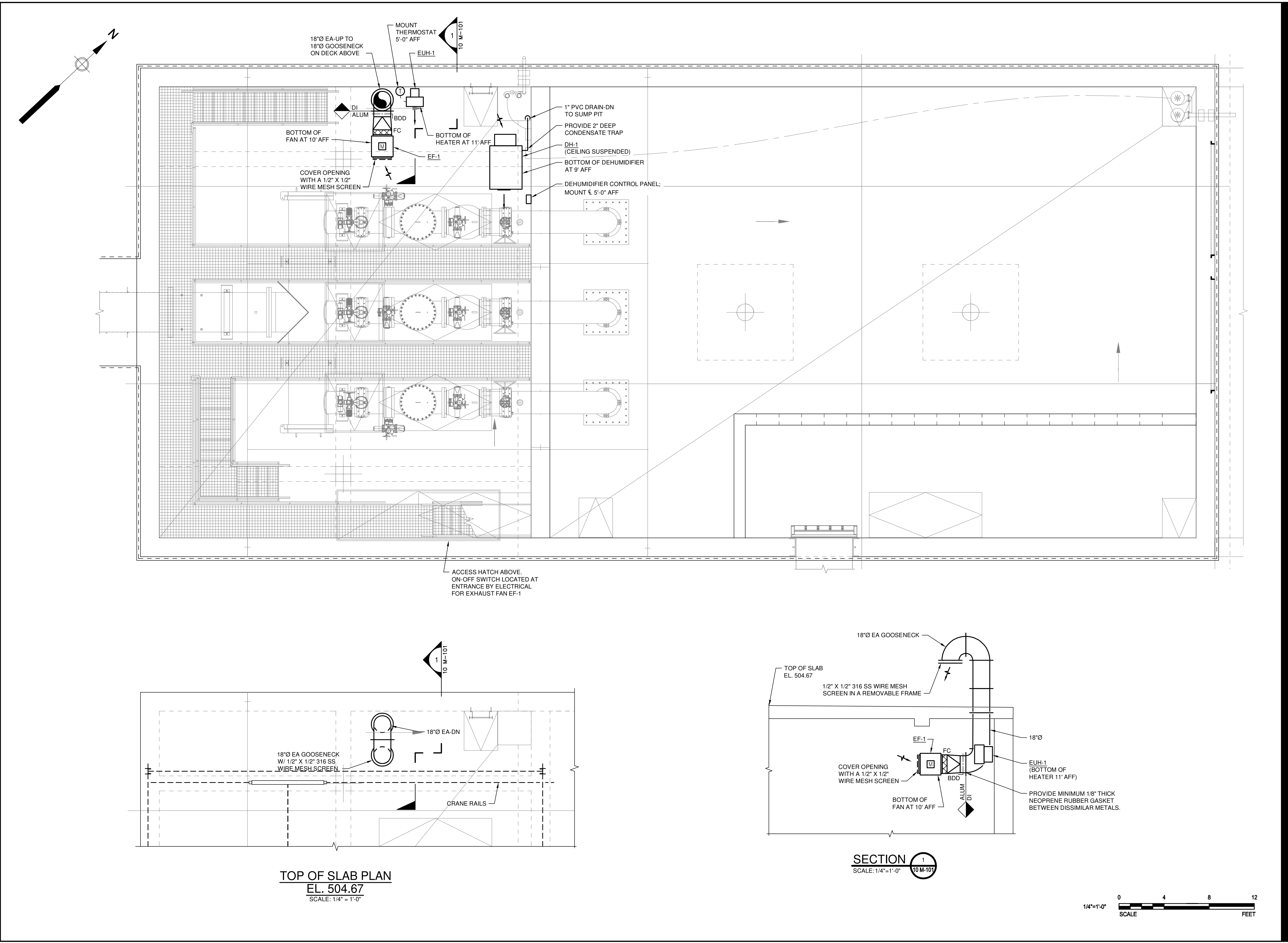
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60662775

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Scale:	1/4" = 1'-0"



PATH: L:\60662775_SVSC_WPF_HVRO_ELECT_PDR900_CAD_GIS910_CAD\20 SHEETS\10 M-101.DWG
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INSTRUMENT TYPE IDENTIFICATION LETTERS

THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS

FIRST LETTER	SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ANALOG	ALARM		
B	BURNER FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL OR DIGITAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE OR INPUT		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE (HUMIDITY) OR MOTOR				MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIOACTIVITY	RELIEF	RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY			SWITCH
T	TEMPERATURE				TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION				VALVE, DAMPER OR LOUVER
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	USER'S CHOICE				RELAY OR COMPUTE
Z	POSITION				DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT

MISCELLANEOUS ABBREVIATIONS

PLC PROGRAMMABLE LOGIC CONTROLLER	DO DISSOLVED OXYGEN
GBT GRAVITY BELT THICKENER	H2S HYDROGEN SULFIDE
LP LOCAL PANEL	O2 OXYGEN
VFD VARIABLE FREQUENCY DRIVE	pH HYDROGEN ION CONCENTRATION
I/O INPUT/OUTPUT	LEL LOWER EXPLOSIVE LIMIT
FMC FIBER MEDIA CONVERTER	SSL ZERO SPEED SWITCH
ES ETHERNET SWITCH	NIA NOT IN AUTO
FNP: FIBER CONNECTION PANEL	UPS: UNINTERRUPTIBLE POWER SUPPLY
MES: MAIN ETHERNET SWITCH	MOV: MOTOR OPERATED VALVE
OIT: THIN CLIENT OPERATOR INTERFACE	FCV: FLOW CONTROL VALVE
CP: CONTROL PANEL	WTP: WATER TREATMENT PLANT
ENET: ETHERNET	CCTV: CLOSED-CIRCUIT TELEVISION

SEE MECHANICAL LEGEND FOR ADDITIONAL ABBREVIATIONS AND PROCESS STREAM NAMES

SYMBOLS

- HYDRAULIC CONTROL LINES
- ELECTRIC/ETHERNET WIRING
- FIBEROPTIC CABLE
- PROCESS FLOW
- AIR
- INTERNAL LINK SIGNAL
- CONE CHECK VALVE
- BALL VALVE
- BALL CHECK VALVE
- SWING CHECK VALVE
- BUTTERFLY VALVE, DAMPER, OR LOUVER
- PLUG VALVE
- GATE VALVE
- DIAPHRAGM VALVE
- GLOBE VALVE
- IRIS VALVE
- HOSE GATE
- 3-WAY MIX VALVE
- 3-WAY DIVERTER VALVE
- 3-WAY SOLENOID VALVE
- SOLENOID VALVE
- SELF-OPERATING BACK PRESSURE REGULATOR VALVE
- SELF-OPERATING PRESSURE REGULATOR VALVE
- PRESSURE REDUCING REGULATOR VALVE W/EXTERNAL PRESSURE TAP
- AIR VACUUM VALVE
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- KNIFE GATE VALVE
- PINCH VALVE
- STOP LOG
- SLIDE GATE
- FLAP GATE
- PNEUMATIC ACTUATOR
- ELECTRO HYDRAULIC ACTUATOR
- ELECTRIC ACTUATOR
- SOLENOID ACTUATOR
- BAR SCREEN
- CALIBRATION STANDPIPE
- CHEMICAL SEAL
- IN LINE SEAL (NOTE 2)
- CONCENTRIC REDUCER
- DRAIN
- ECCENTRIC REDUCER
- FLEXIBLE HOSE
- GRINDER
- VERTICAL SHAFT MIXER
- PULSATION DAMPENERS
- QUICK DISCONNECT
- RADIO, ULTRASONIC, OR ACOUSTIC SIGNAL
- RADAR SIGNAL
- RUPTURE DISC (PRESSURE RELIEF)
- RUPTURE DISC (VACUUM RELIEF)
- STRAINER
- CONE CHECK VALVE
- DOUBLE DISC CHECK VALVE
- INTRINSICALLY SAFE BARRIER
- SUBMERSIBLE LEVEL TRANSDUCER
- UNINTERRUPTIBLE POWER SUPPLY
- MOTOR STARTER
- VARIABLE FREQUENCY DRIVE
- ETHERNET SWITCH
- THICK CLIENT WORKSTATION
- THIN CLIENT WORKSTATION

SYMBOLS

- WEIR GATE
- WEIR
- WEIR OVER SLIDE GATE
- BLOWER
- SUBMERSIBLE PUMP
- ROTODYNAMIC PUMP
- CENTRIFUGE AND SLUDGE CAKE PUMP
- DIAPHRAGM PUMP
- HOSE PUMP
- METERING PUMP
- POSITIVE DISPLACEMENT PUMP
- PLUNGER PUMP
- PRESSURE PUMP
- PROGRESSIVE CAVITY PUMP
- ROTARY LOBE PUMP
- GEAR PUMP
- LIMITS OF WORK (TRADE, CONTRACT, ETC.)
- POINT OF CONNECTION NEW WORK TO EXISTING WORK
- STRAINER
- STATIC MIXER
- TANK VENT
- UNION
- WEIR
- CYLINDER ACTUATOR
- DIAPHRAGM ACTUATOR WITH POSITIONER
- HAND OPERATOR
- HYDRAULIC OPERATOR
- MOTOR OPERATOR
- PNEUMATIC OPERATOR
- SOLENOID OPERATOR
- MAGNETIC FLOWMETER
- PARSHALL FLUME
- POSITIVE DISPLACEMENT METER
- ROTAMETER
- PROGRESSIVE CAVITY PUMP
- ROTARY LOBE PUMP
- GEAR PUMP
- LIMITS OF WORK (TRADE, CONTRACT, ETC.)
- POINT OF CONNECTION NEW WORK TO EXISTING WORK
- STRAINER

GENERAL NOTES

- SEE MECHANICAL PROCESS 99 DIVISION SHEETS FOR PRESSURE INSTRUMENTATION INSTALLATION DETAILS.
- IN THE EVENT OF DISCREPANCIES IN PIPE SIZES, VALVES, EQUIPMENT DESIGNATIONS, AND IN-LINE INSTRUMENT CONFIGURATION BETWEEN THE MECHANICAL PROCESS AND INSTRUMENTATION DRAWINGS, MECHANICAL PROCESS DRAWINGS SHALL PREVAIL.

INSTRUMENT SYMBOLS

SUPPLIERS

ALL INSTRUMENTS ARE SPECIFIED BY INSTRUMENTATION (I) UNLESS INDICATED BY:

- (E) SPECIFIED BY ELECTRICAL
- (M) SPECIFIED BY MECHANICAL
- (F) FURNISHED WITH EQUIPMENT
- (X) EXISTING
- (H) SPECIFIED BY HVAC
- (P) SPECIFIED BY PLUMBING

CONTRACTOR SHALL PROVIDE ALL INSTRUMENTS AS SPECIFIED ON DATA SHEETS ATTACHED TO SPECIFICATION SECTION 13300

PLC OR DCS INPUT/OUTPUT SYMBOLS

HAND SWITCH POSITION SYMBOLS
(UNLABELLED SWITCHES ARE TO BE ON-OFF)

A AUTOMATIC	SBY STANDBY
C CLOSE	F/R FORWARD/REVERSE
F FAST OR FORWARD	L/R LOCAL/REMOTE
H HAND	LOR LOCAL/OFF/REMOTE
J JOG	HOR HAND-OFF-REMOTE
L LOCAL	HOA HAND-OFF-AUTO
M MANUAL	OSC OPEN/STOP/CLOSE
O OPEN OR OFF	FSR FORWARD/STOP/REVERSE
R RUN OR REMOTE	TSM THRU/STOP/MIX
S/S START/STOP	OSF OFF/SLOW/FAST
E/S EMERGENCY STOP	OTC OPEN/TRAVEL/CLOSE
L/A LOCAL/AUTO	



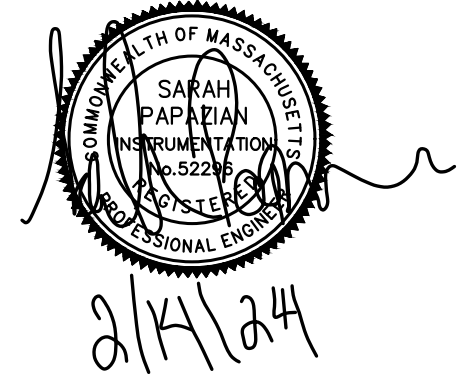
PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
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CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER
 60662775

Designed By: **AE**
 Drawn By: **AE**
 Dept Check: **YR**
 Proj Check: **TAL/MCW**
 Date: **FEBRUARY 2024**
 Scale: **AS NOTED**

DISCIPLINE
INSTRUMENTATION
SHEET TITLE

LEGEND, SYMBOLS & GENERAL NOTES

SHEET NUMBER
00 DI-001

PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PDR\900_CAD\20-SHEETS\0001-DI-001.DWG
 LAST UPDATE: Wednesday, February 14, 2024 2:14:09 PM
 PLOT DATE: Wednesday, February 14, 2024 2:15:19 PM

PROJECT

42-INCH RAW WATER
 BYPASS CONVEYANCE
 PIPELINE REHABILITATION
 AND ENERGY DISSIPATION
 VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND
 WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD
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REGISTRATION



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I/R	DATE	DESCRIPTION

PROJECT NUMBER

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Designed By: **AE**

Drawn By: **AE**

Dept Check: **YR**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

Scale: **AS NOTED**

DISCIPLINE

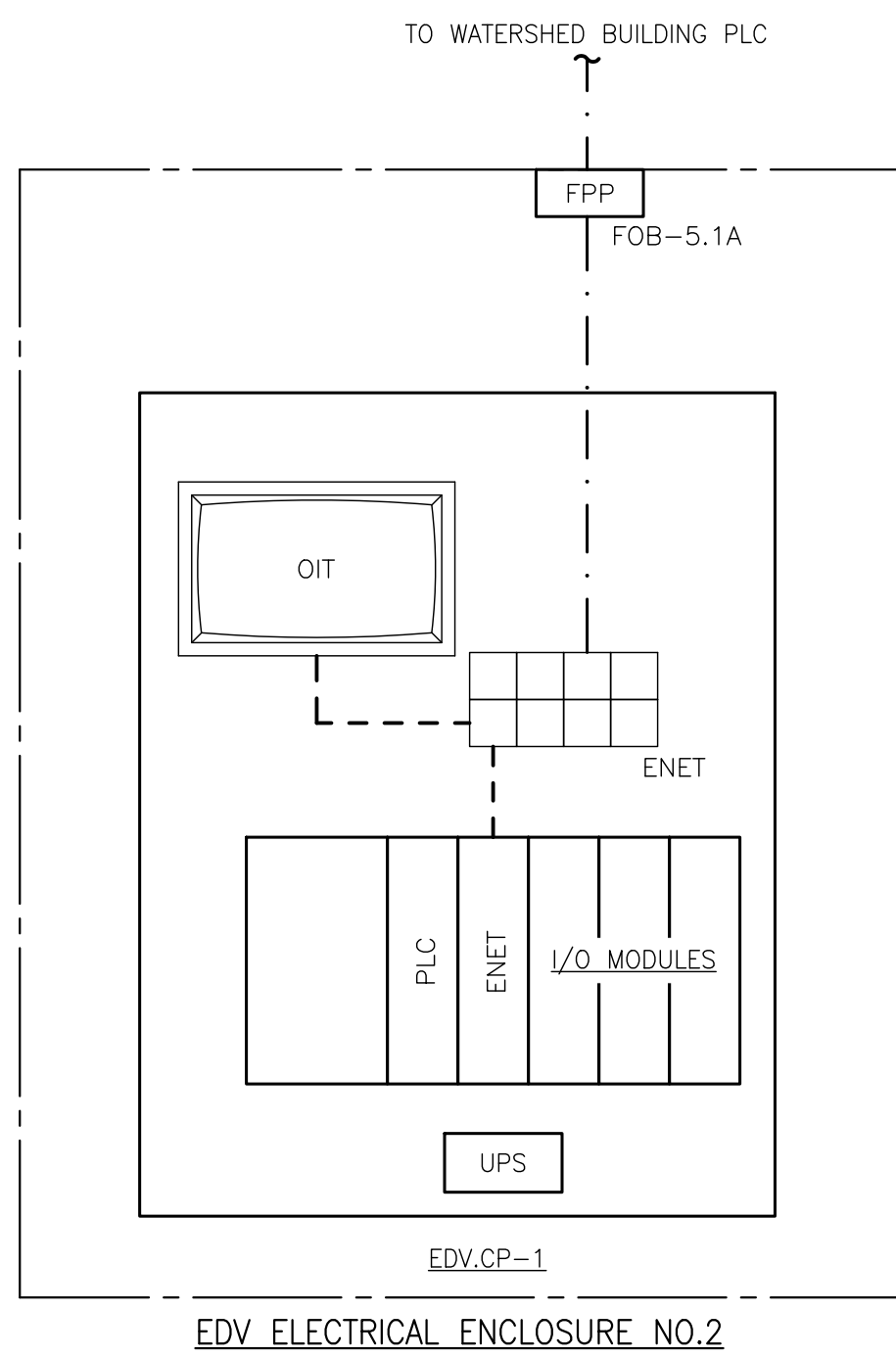
INSTRUMENTATION

SHEET TITLE

SYSTEM ARCHITECTURE

SHEET NUMBER

10 DI-601



LEGEND

- ETHERNET
- . - . FIBER MEDIA
- [Grid Symbol] MANAGED ETHERNET SWITCH
- [Box Symbol] FIBEROPTIC PATCH PANEL

PATH: L:\DCS\PROJECTS\WTR6062775_SWSC_WF_HYDRO_ELECT_PDR6062775_SWSC_CAD_GS810_CAD20-SHEETS\010.DWG
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ISSUE/REVISION

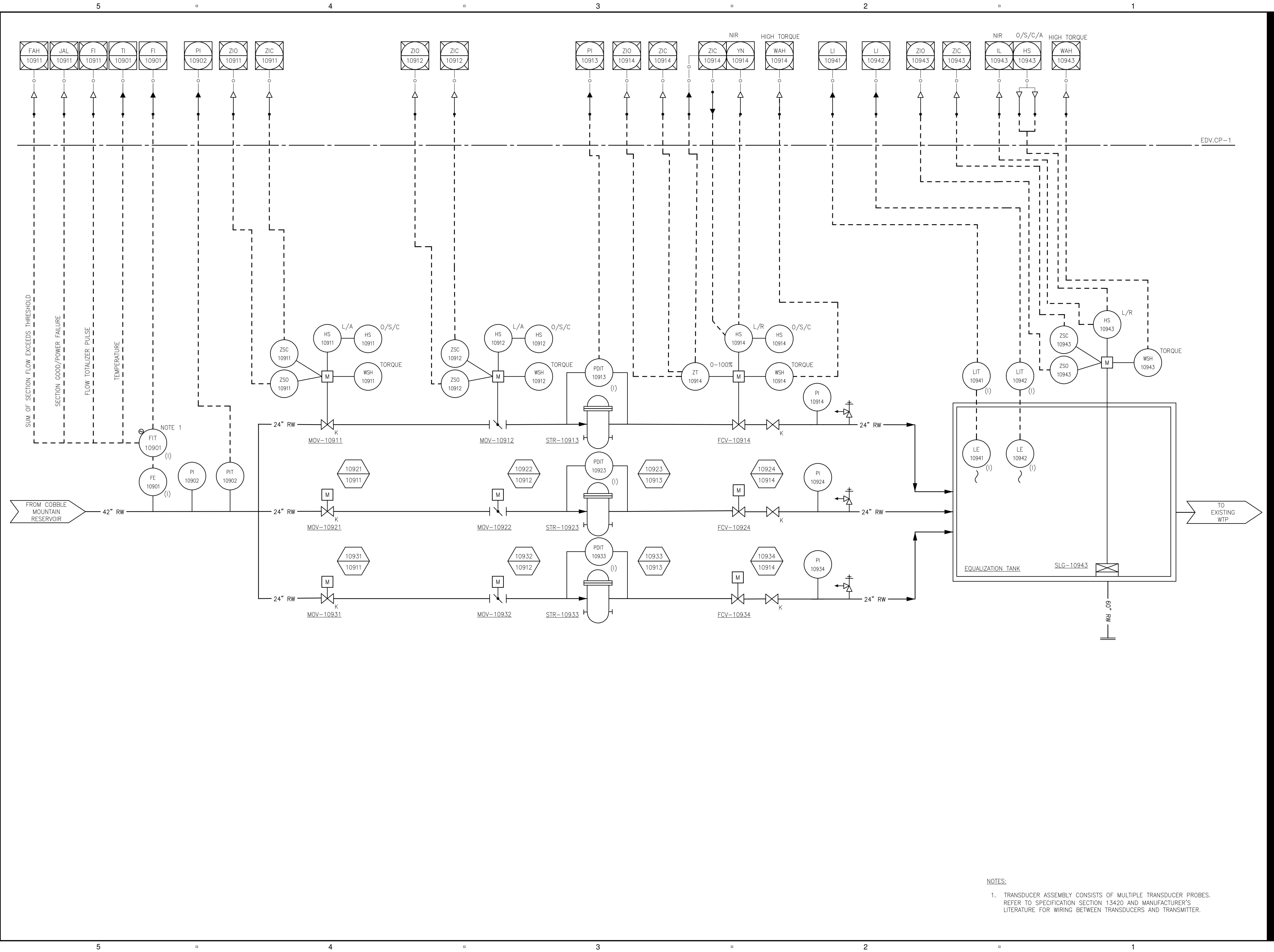
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	AE
Drawn By:	AE
Dept Check:	YR
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE
INSTRUMENTATION
SHEET TITLE
EDV P&ID

SHEET NUMBER
10 DI-602



NOTES:
 1. TRANSDUCER ASSEMBLY CONSISTS OF MULTIPLE TRANSDUCER PROBES. REFER TO SPECIFICATION SECTION 13420 AND MANUFACTURER'S LITERATURE FOR WIRING BETWEEN TRANSDUCERS AND TRANSMITTER.

PATH: L:\DCS\PROJECTS\WTF60662775_SWSC_WPF_HYDRO_ELECT_PDR\900_CAD_GIS\10_CAD\20-SHEETS\010-DI-602.DWG
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 PLOT DATE: Wednesday, February 14, 2024 3:21:50 PM

PROJECT

42-INCH RAW WATER
 BYPASS CONVEYANCE
 PIPELINE REHABILITATION
 AND ENERGY DISSIPATION
 VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND
 WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD
 WATER AND SEWER
 COMMISSION

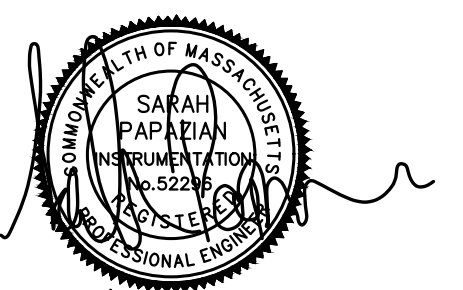
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
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CONSULTANTS

REGISTRATION



2/11/24

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: **AE**

Drawn By: **AE**

Dept Check: **YR**

Proj Check:

Date:

Scale: **AS NOTED**

DISCIPLINE

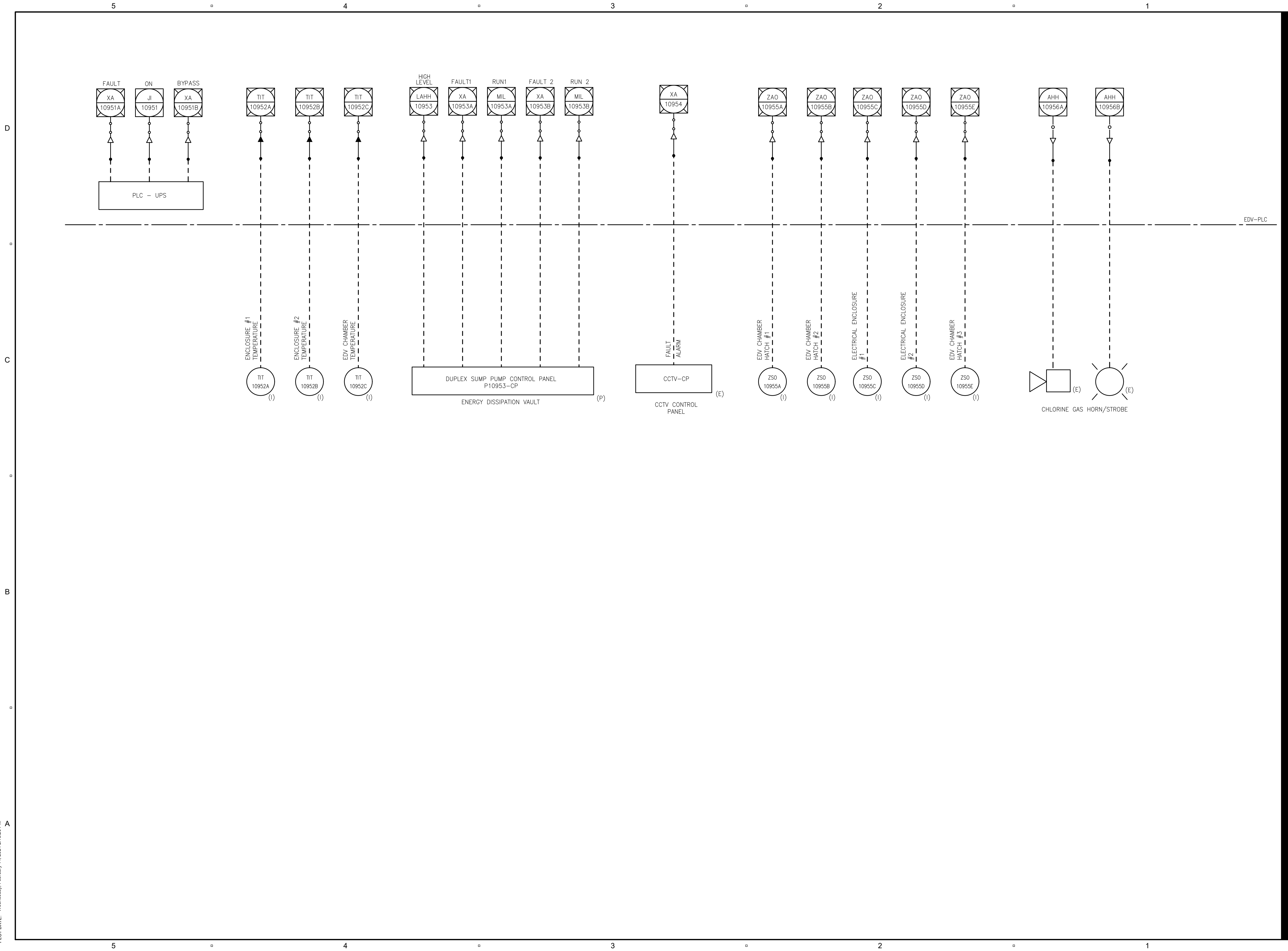
INSTRUMENTATION

SHEET TITLE

MISCELLANEOUS SIGNALS

SHEET NUMBER

99 DI-601



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PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

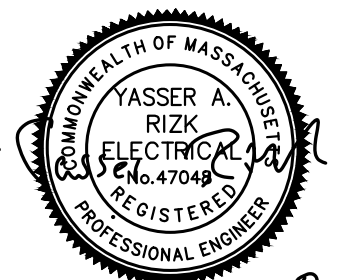
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

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CONSULTANTS

REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

Dept Check: YR

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1" = 60'-0"

DISCIPLINE

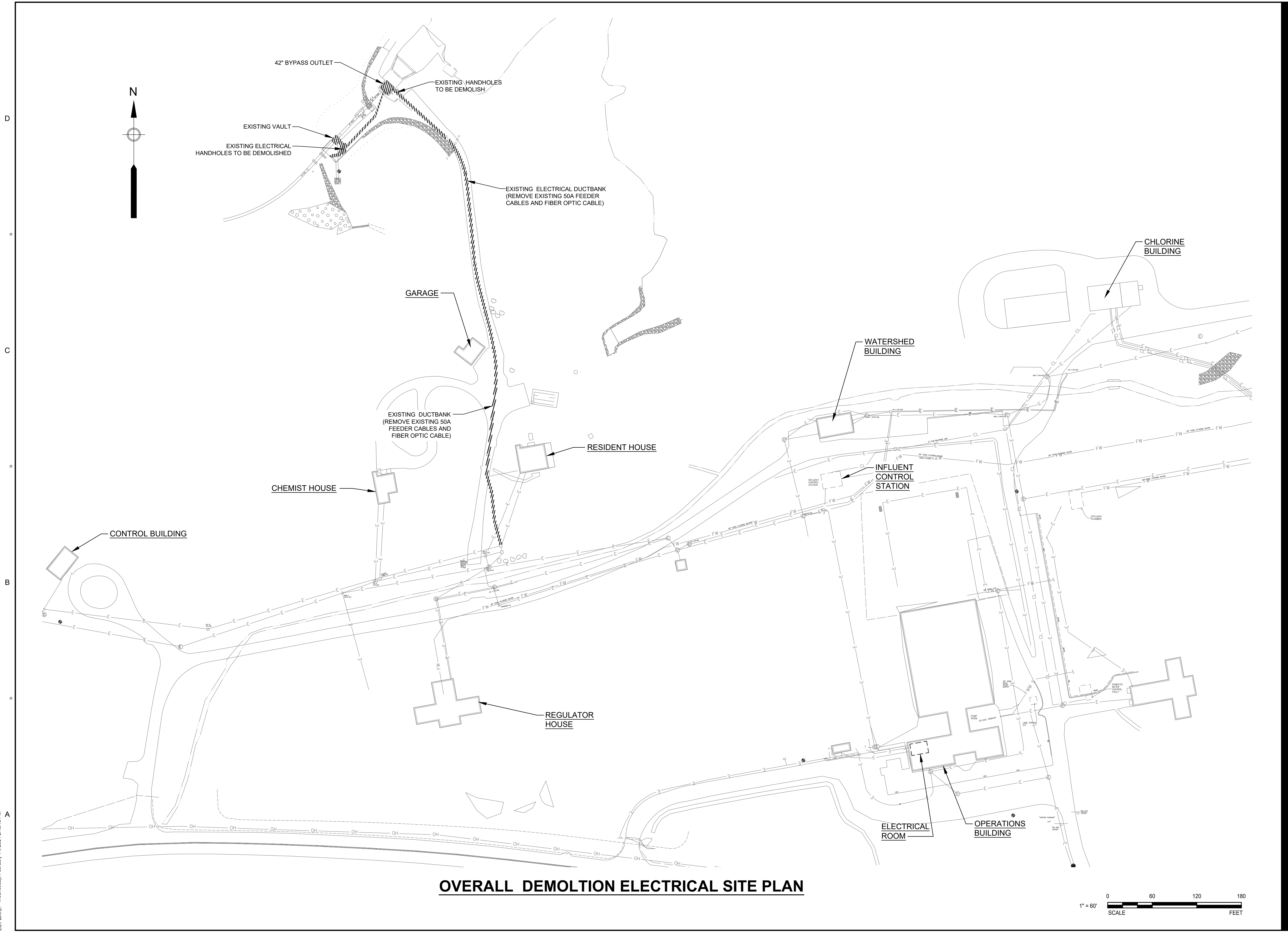
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SHEET TITLE

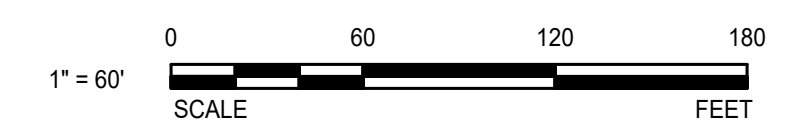
OVERALL DEMOLITION ELECTRICAL SITE PLAN

SHEET NUMBER

00 E-002



OVERALL DEMOLITION ELECTRICAL SITE PLAN



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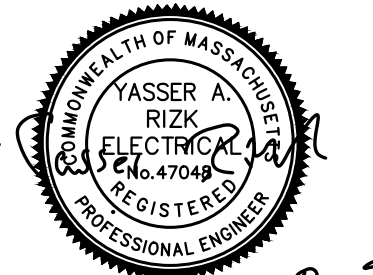
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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REGISTRATION



Feb 14, 2024

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I/R	DATE	DESCRIPTION

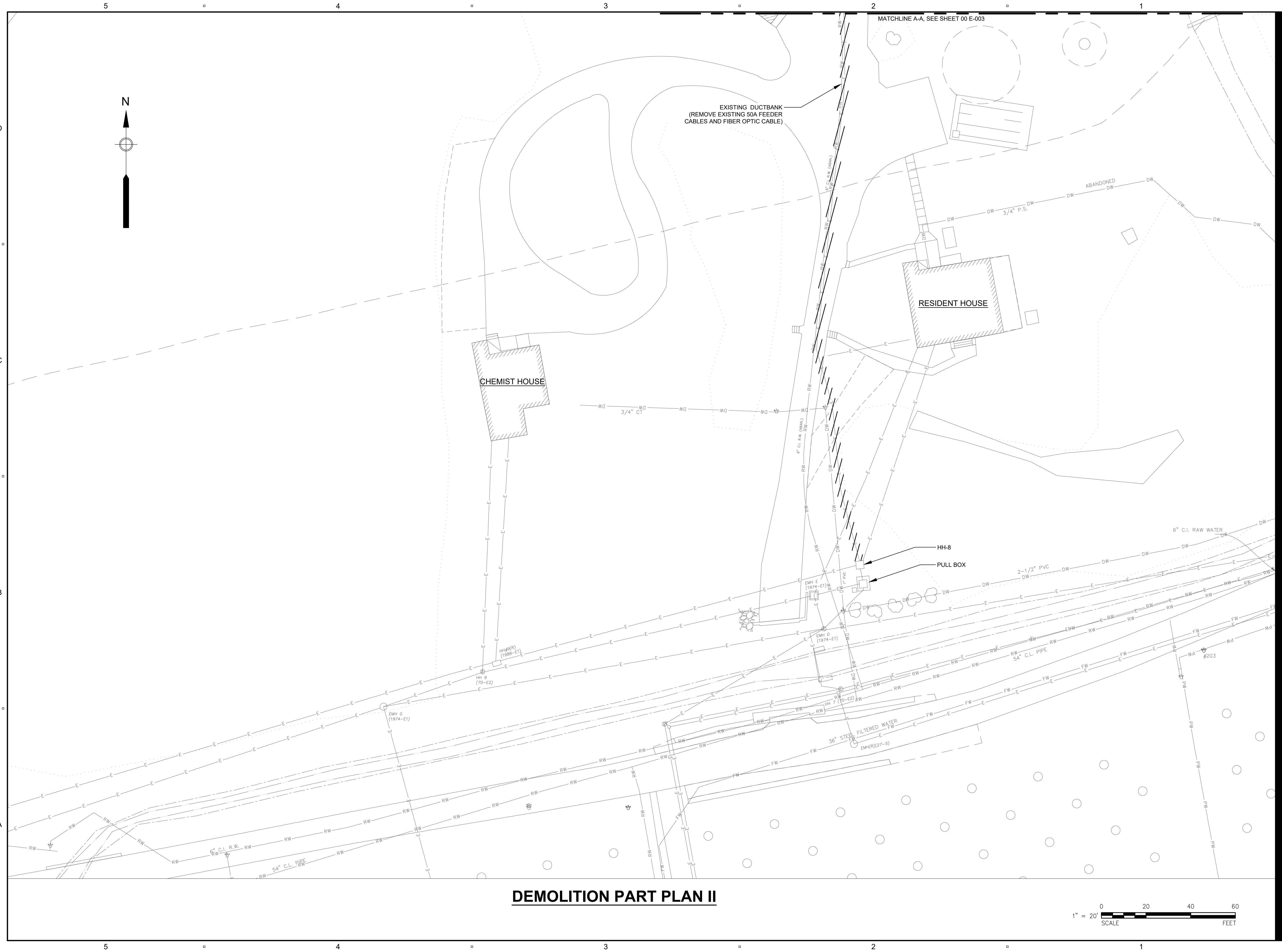
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60662775
Designed By: AE
Drawn By: HG
Dept Check: YR
Proj Check: TAL/MCW
Date: FEBRUARY 2024
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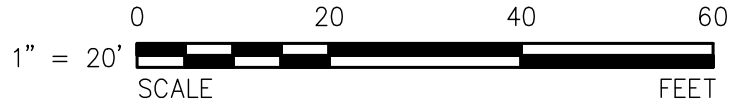
DISCIPLINE
 ELECTRICAL
SHEET TITLE

**PART PLAN ELECTRICAL
 DEMOLITION SITE PLAN II**

SHEET NUMBER
 00 E-004



DEMOLITION PART PLAN II



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PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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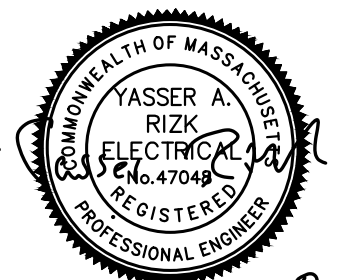
SPRINGFIELD WATER AND SEWER COMMISSION
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REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

Dept Check: YR

Proj Check: TAL/MCW

Date: FEBRUARY 2024

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DISCIPLINE

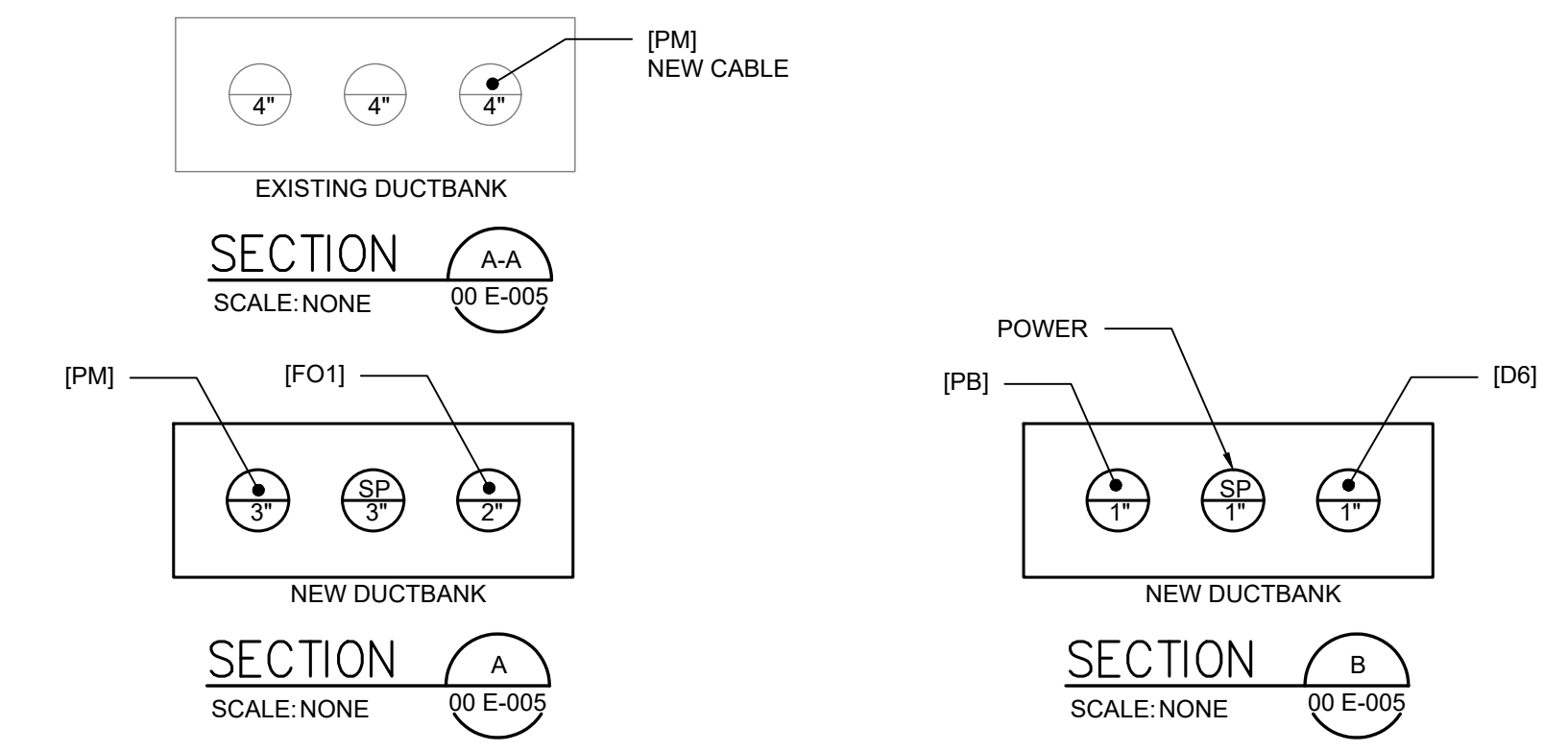
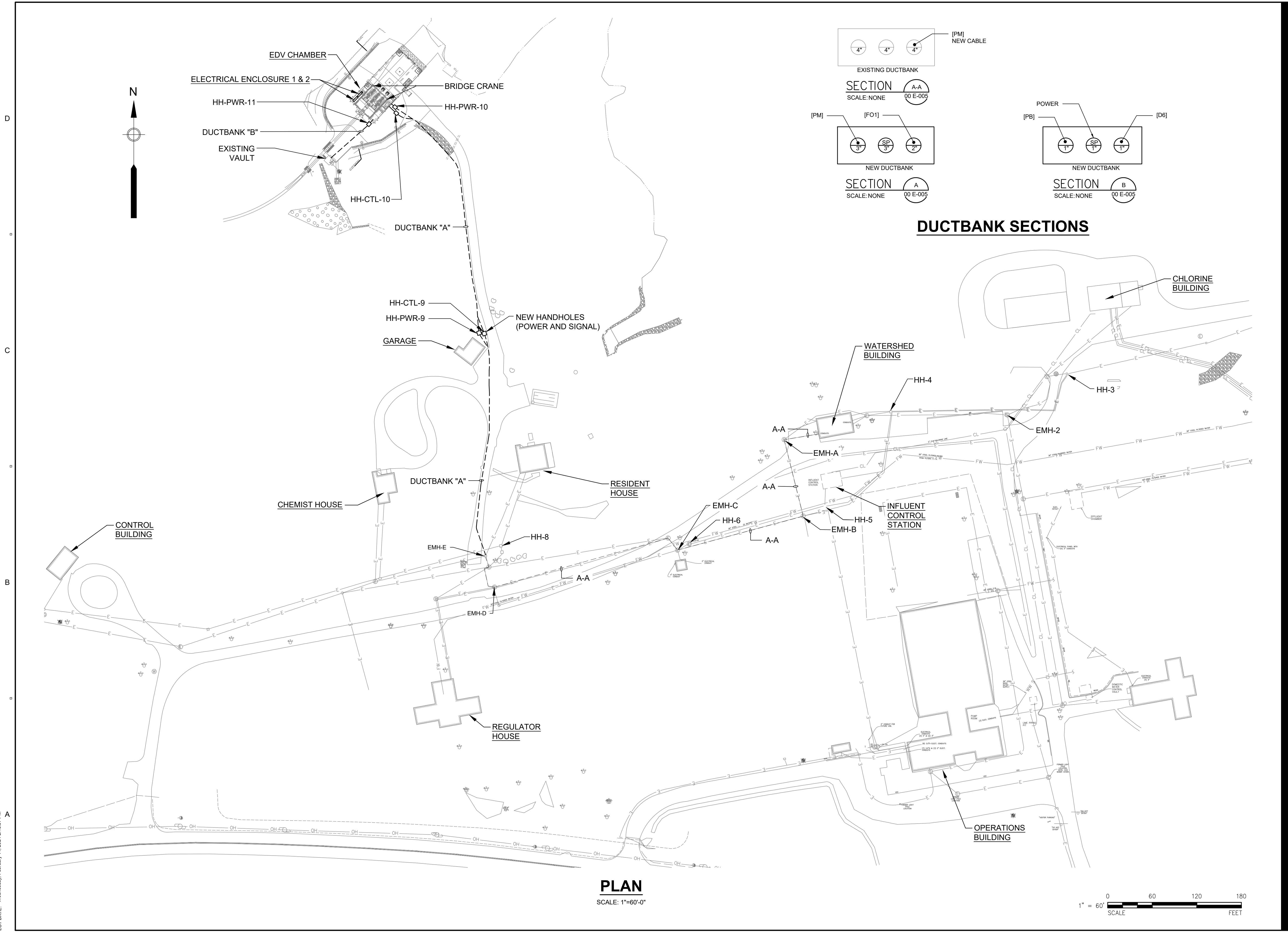
ELECTRICAL

SHEET TITLE

ELECTRICAL MODIFICATION SITE PLAN

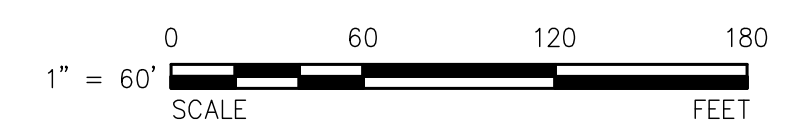
SHEET NUMBER

00 E-005

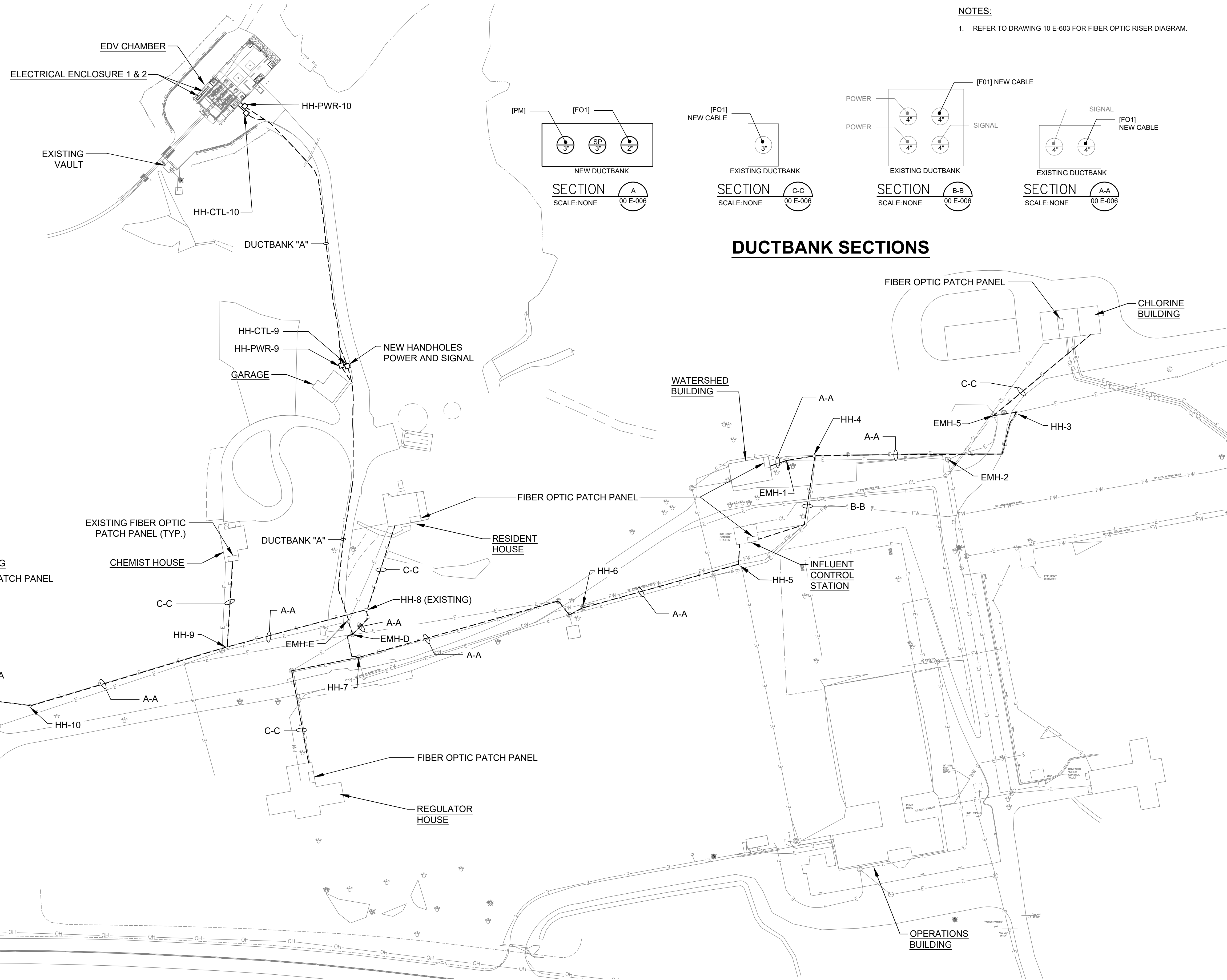
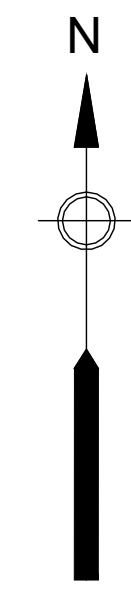


DUCTBANK SECTIONS

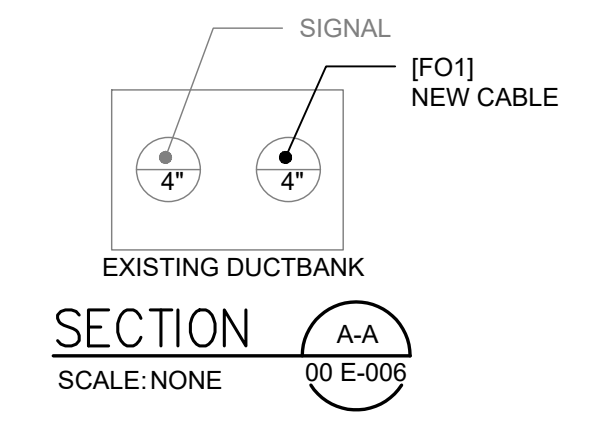
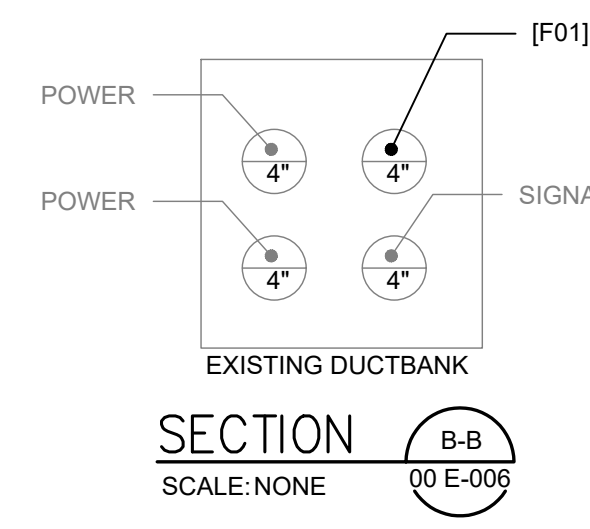
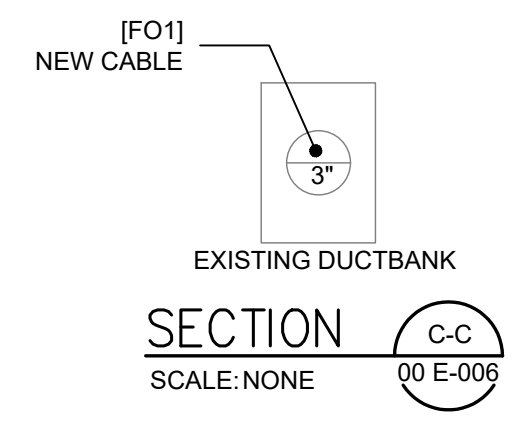
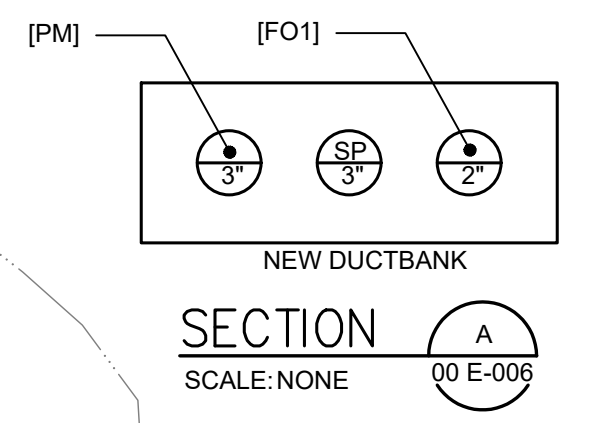
PLAN
 SCALE: 1"=60'-0"



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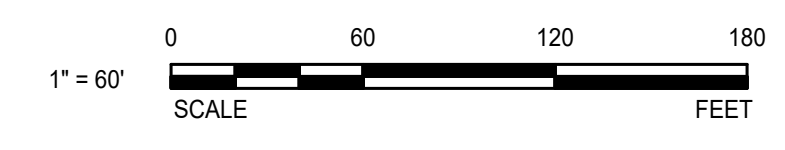


NOTES:
 1. REFER TO DRAWING 10 E-603 FOR FIBER OPTIC RISER DIAGRAM.



DUCTBANK SECTIONS

FIBER OPTIC OVERALL SITE PLAN



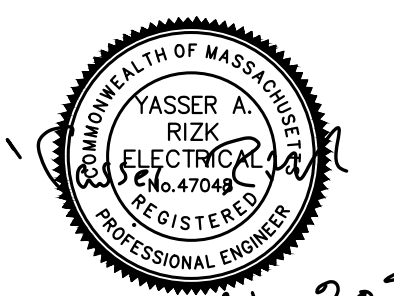
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
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CONSULTANTS

REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER
60662775

Designed By:	AE
Drawn By:	HG
Dept Check:	YR
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1" = 60'-0"

DISCIPLINE
 ELECTRICAL
SHEET TITLE

FIBER OPTIC OVERALL SITE PLAN

SHEET NUMBER
00 E-006

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 LAST UPDATE: Wednesday, February 14, 2024 8:39:38 AM
 PLOT DATE: Wednesday, February 14, 2024 2:49:04 PM



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

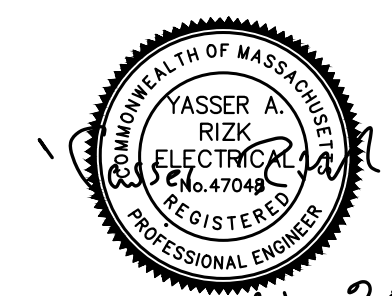
250 M STREET EXTENSION AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC. 250 APOLLO DRIVE CHELMSFORD, MA 01824 PHONE: (978) 905-2100 www.aecom.com

CONSULTANTS

REGISTRATION



Feb 14, 2024

ISSUE/REVISION

Table with 3 columns: I/R, DATE, DESCRIPTION

PROJECT NUMBER

60662775

Table with 2 columns: Field, Value. Fields include Designed By, Drawn By, Dept Check, Proj Check, Date, Scale.

DISCIPLINE

ELECTRICAL SHEET TITLE

RESPONSIBILITY SCHEDULE

SHEET NUMBER

00 E-007

LUMINAIRE SCHEDULE CONTINUED table with columns: LUMINAIRE, LAMP, VOLT, GUIDELINE MANUFACTURER, REMARKS AND OPTIONS

CONDUIT AND WIRING SCHEDULE

POWER WIRING:

Table listing power wiring specifications like [PB] 3/4"C, 3-12 AWG, 1-12 AWG (G)

ANALOG CONTROL WIRING:

Table listing analog control wiring specifications like [C1] 3/4"C, 1-TSP 16 AWG

COMMUNICATIONS WIRING:

Table listing communications wiring specifications like [VSC] 1"C VENDOR SUPPLIED CABLE

GROUND WIRING:

NOTE: ALL G SERIES WIRING SHALL BE CONNECTED TO GROUNDING BUS BAR LOCATED IN THE ELECTRICAL ROOM UNLESS OTHERWISE INDICATED. INSTALL IN PVC CONDUIT.

DISCRETE CONTROL WIRING:

Table listing discrete control wiring specifications like [D2] 3/4"C, 2-14 AWG, 1-14 AWG (G)

[G] 250KCM BARE, TINNED-COPPER

Table listing ground wiring specifications like [G1] 3/4"C, 1-12 AWG (G)

EMERG. FIXT.

NOTES:

- 1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, REFER TO SHEET E-001.

LIGHTING FIXTURE SCHEDULE NOTES:

- 1. FURNISH ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET THE JOB REQUIREMENTS. VERIFY CEILING AND GRID TYPE PRIOR TO ORDERING FIXTURES. USE THE LATEST ARCHITECTURAL DRAWINGS.
2. VERIFY FIXTURE MOUNTING, HEIGHTS AND LOCATION AGAINST PLANS, ELEVATIONS AND DETAILS DRAWINGS. EXACT LOCATIONS OF FIXTURES SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO ROUGHING IN.
3. SERIES FIXTURES SHALL SATISFY LENGTHS AS INDICATED ON THE DRAWINGS. FIELD VERIFY EXACT LENGTHS AND PROVIDE COMPONENTS AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION.
4. FIXTURE LETTERS SHOWN ONCE ON A CONTINUOUS ROW OF FIXTURES SHALL BE TYPICAL FOR THAT ROW UNLESS OTHERWISE INDICATED.
5. LINEAR ROWS OF RECESSED OR HUNG LED LUMINAIRES SHALL BE INSTALLED TO PROVIDE A LENGTH AS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED CONNECTORS AND END PIECES. SO THAT HOUSINGS ARE A COMPLETE ASSEMBLY WITH THE APPEARANCE OF A SINGLE UNIT. FIXTURES SHALL BE FACTORY PRE-WIRED FOR SWITCHING AND CIRCUITING AS INDICATED ON THE DRAWINGS. HANGER STYLE SHALL BE AS SELECTED BY THE ARCHITECT (AIRCRAFT CABLE WITH COILED CORD, STEM MOUNT, ETC.). PROVIDE CANOPIES FOR LOCATIONS WHERE HANGER MOUNTS TO UNFINISHED CEILING STRUCTURE (WHERE VISIBLE) AND WHERE PASSING THROUGH SUSPENDED CEILINGS, ASSEMBLY SHALL BE SUPPLIED BY ONE VENDOR. COORDINATE WITH FIXTURE VENDOR.
6. THE ELECTRICAL POWER CONNECTIONS TO EMERGENCY SECTIONS SHALL BE INDEPENDENT FROM NORMAL POWER SECTIONS (I.E. NORMAL POWERED FOUR FOOT SECTION SHALL NOT BE USED AS WIREWAY FOR EMERGENCY LIGHTING CIRCUITRY. OR THE EMERGENCY SECTIONS USED AS A WIREWAY FOR NORMAL LIGHTING CIRCUITRY. A SEPARATE CABLE WITH COILED CORD OR STEM MOUNT SHALL BE USED TO CARRY EMERGENCY LIGHTING CIRCUITRY TO HANG FIXTURES.)

TABLE OF RESPONSIBILITY - ELECTRICAL/GENERAL CONTRACTOR table with columns: ELEMENT, GENERAL CONTRACTOR, ELECTRICAL

NOTES: 1. THIS TABLE IDENTIFIES THE GENERAL INTENT OF THE DESIGN AND IS NOT COMPREHENSIVE. THE DRAWINGS AND SPECIFICATIONS PROVIDE COMPLETE CONTRACT INFORMATION.

GROUNDING SCHEDULE table with columns: EQUIPMENT, GROUNDING CONDUIT AND WIRE, QUANTITY, NOTES

NOTES: 1. THIS TABLE IDENTIFIES THE GENERAL INTENT OF THE DESIGN AND IS NOT COMPREHENSIVE. THE DRAWINGS AND SPECIFICATIONS PROVIDE COMPLETE CONTRACT INFORMATION.

TABLE OF RESPONSIBILITIES - ELECTRICAL, GENERAL AND SYSTEM INTERGRATOR table with columns: ELEMENT, GENERAL CONTRACTOR, SYSTEM INTEGRATOR, ELECTRICAL SUBCONTRACTOR

PATHFILENAME: L:\DCS\PROJECTS\WYR6062775_SWSC_WF_HYDRO_ELECT_PDR\000_CAD_GIS\010_CAD\20-SHEETS\00 E-007.DWG
LAST UPDATE: Monday, February 12, 2024 2:28:11 PM
PLOT DATE: Wednesday, February 14, 2024 2:49:07 PM

POWER PANEL DPWB

SQUARE D, I-LINE
400A, 480V, 3PH, 3W, 35KAIC
LOCATION: WATERSHED BUILDING - STORAGE ROOM

EXISTING DISTRIBUTION PANEL

NOTES:

1. PROVIDE CIRCUIT BREAKER WITH RATINGS TO MATCH EXISTING EQUIPMENT.



PROJECT

42-INCH RAW WATER
BYPASS CONVEYANCE
PIPELINE REHABILITATION
AND ENERGY DISSIPATION
VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND
WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD
WATER AND SEWER
COMMISSION

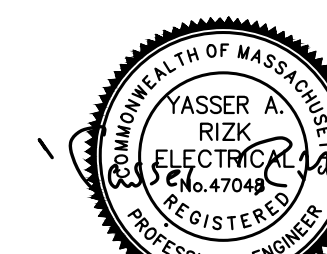
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	AE
Drawn By:	HG
Dept Check:	YR
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NONE

DISCIPLINE

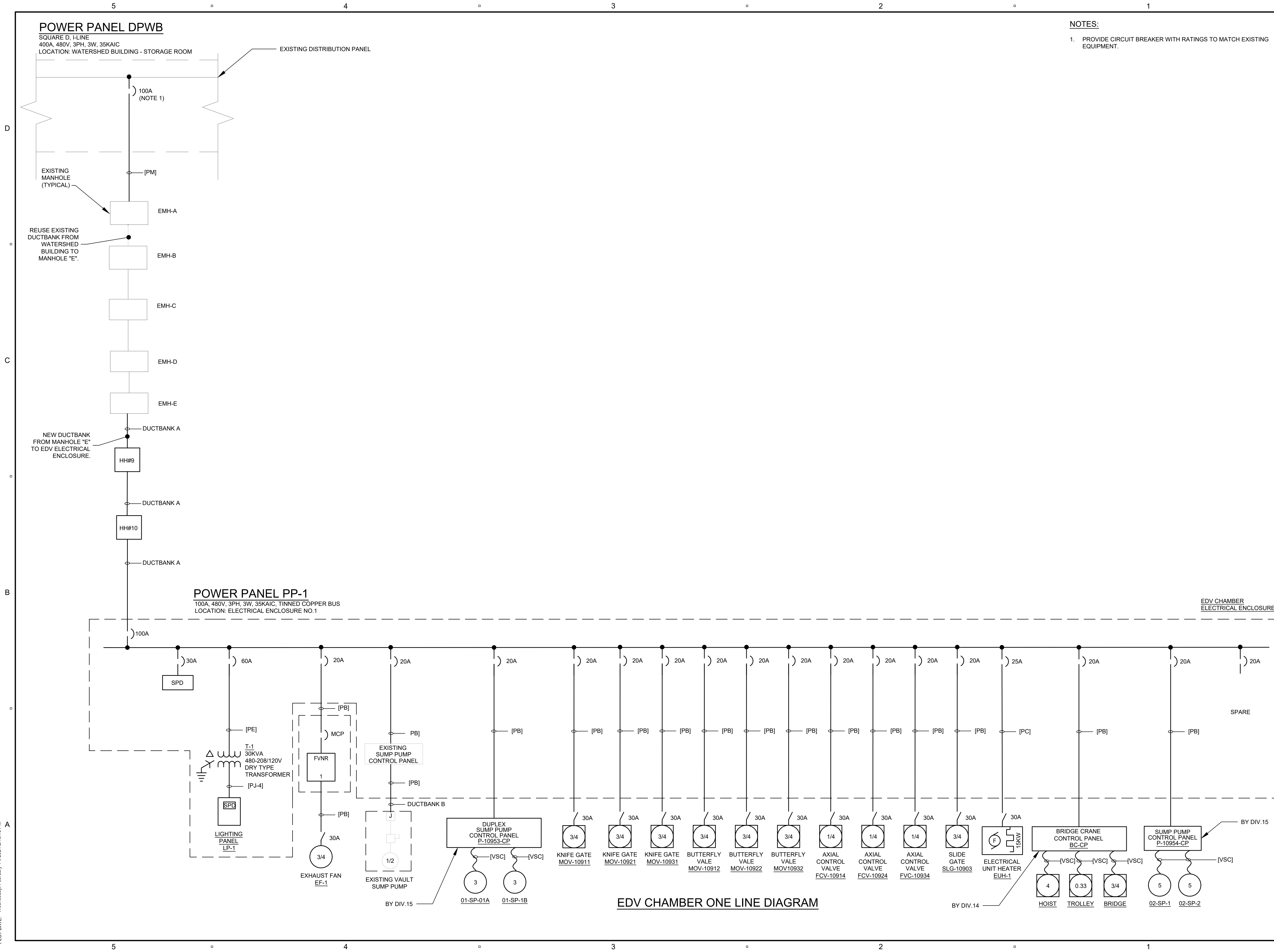
ELECTRICAL

SHEET TITLE

**EDV CHAMBER ONE LINE
DIAGRAM**

SHEET NUMBER

00 E-009



EDV CHAMBER ONE LINE DIAGRAM

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 LAST UPDATE: Wednesday, February 14, 2024 2:46:38 PM
 PLOT DATE: Wednesday, February 14, 2024 2:48:15 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

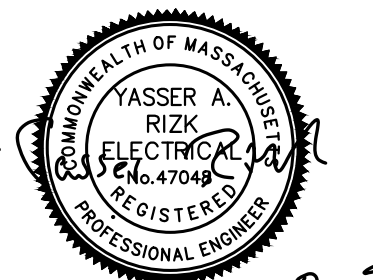
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
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PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

Dept Check: YR

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1" = 20'-0"

DISCIPLINE

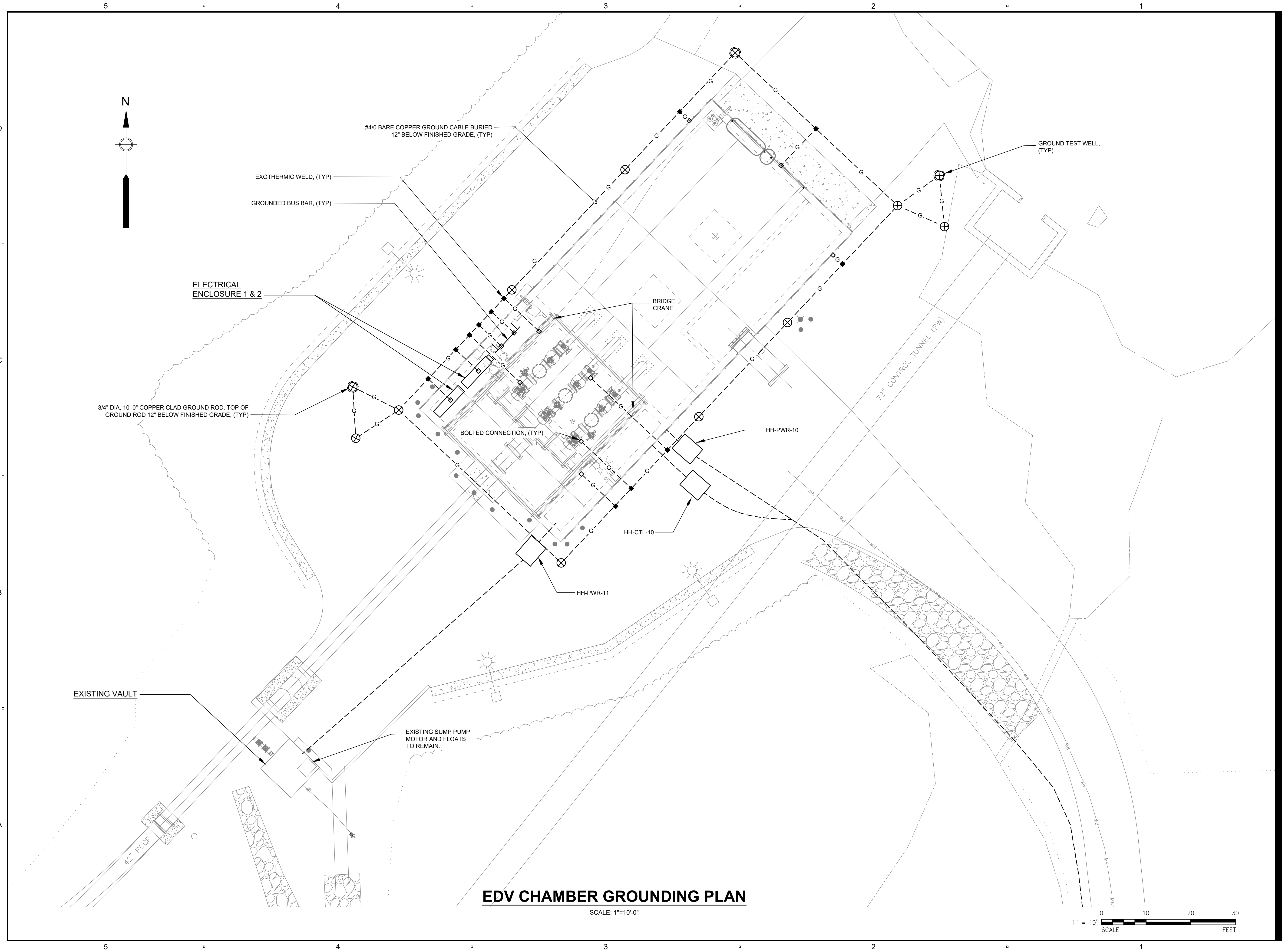
ELECTRICAL

SHEET TITLE

EDV CHAMBER GROUNDING PLAN

SHEET NUMBER

00 E-010

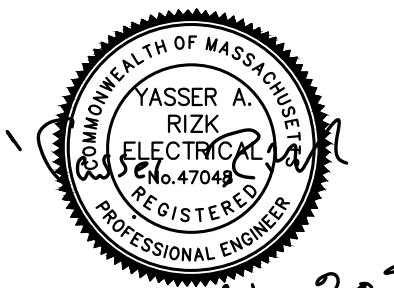


EDV CHAMBER GROUNDING PLAN

SCALE: 1"=10'-0"

1" = 10'
 SCALE
 FEET

PATH: L:\DCS\PROJECTS\WYR16062775_SWSC_WF_HYDRO_ELECT_PDR16062775_CAD\20-SHEETS\00 E-010.DWG
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 PLOT DATE: Wednesday, February 14, 2024 2:49:21 PM



Feb 14, 2024

I/R	DATE	DESCRIPTION

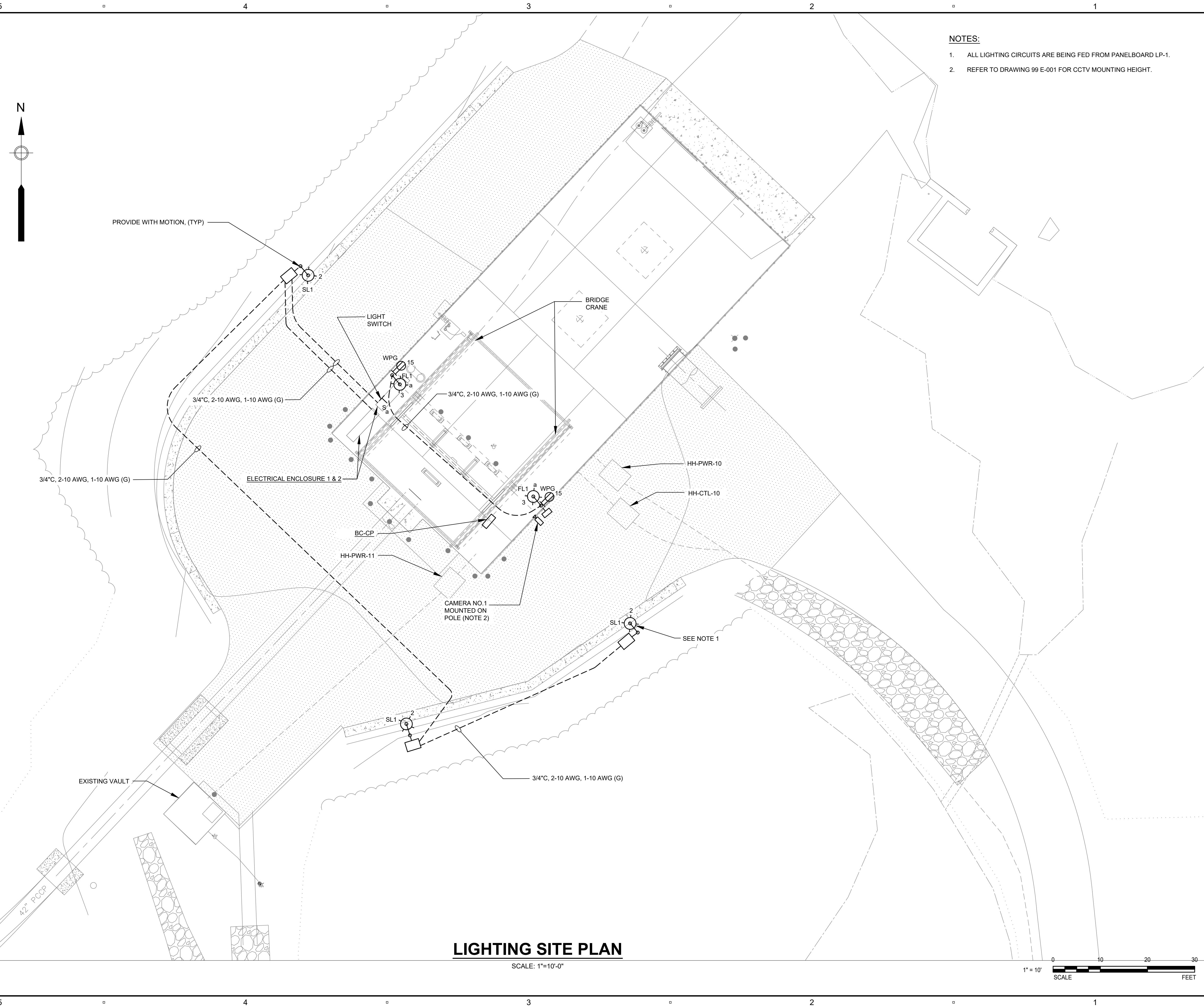
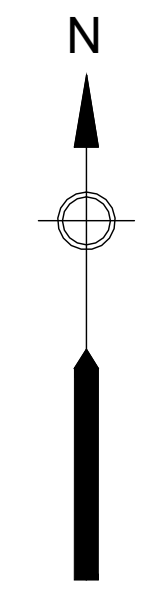
60662775

Designed By:	AE
Drawn By:	HG
Dept Check:	YR
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1" = 20'-0"

00 E-011

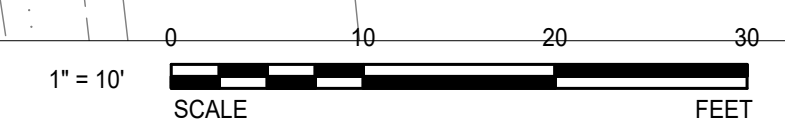
NOTES:

- ALL LIGHTING CIRCUITS ARE BEING FED FROM PANELBOARD LP-1.
- REFER TO DRAWING 99 E-001 FOR CCTV MOUNTING HEIGHT.



LIGHTING SITE PLAN

SCALE: 1"=10'-0"



PATH: L:\DCS\PROJECTS\WYR16062775_SWSC_WF_HYDRO_ELECT_PDR1600_CAD_GIS\10_CAD\20-SHEETS\00 E-011.DWG
 LAST UPDATE: Monday, February 12, 2024 2:29:40 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:27 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

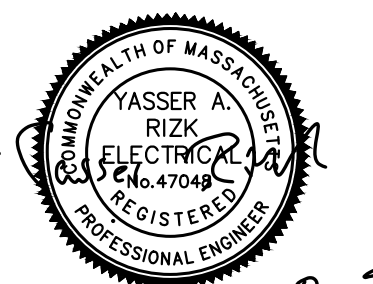
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
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CONSULTANTS

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PROJECT NUMBER

60662775

Designed By:	AE
Drawn By:	HG
Dept Check:	YR
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1/4" = 1'-0"

DISCIPLINE

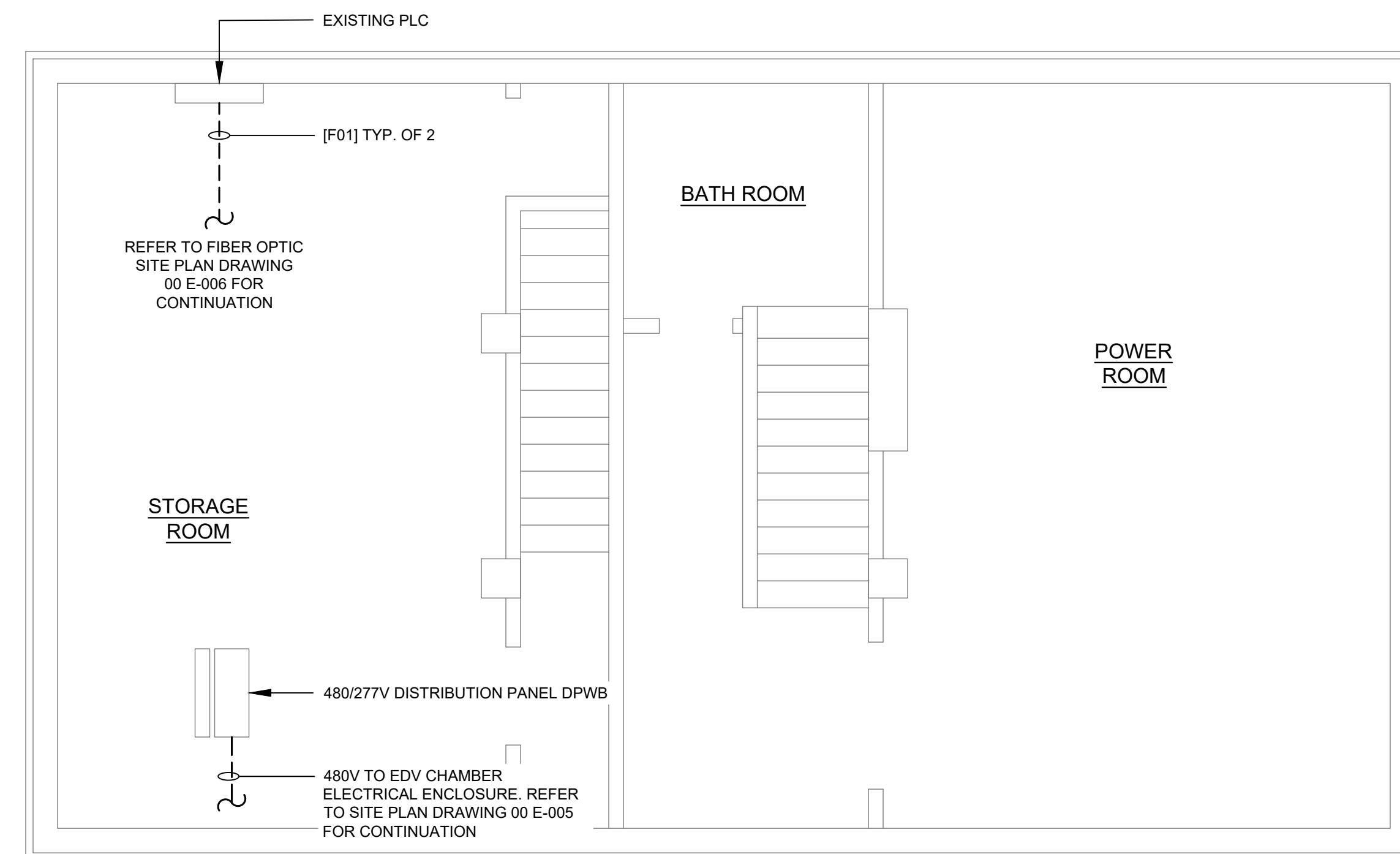
ELECTRICAL

SHEET TITLE

WATERSHED BUILDING POWER PLAN

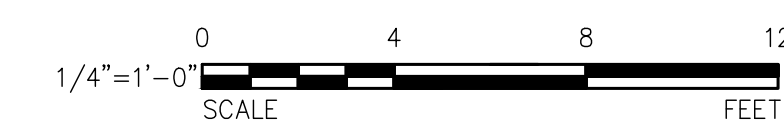
SHEET NUMBER

10 E-101



WATERSHED BUILDING POWER PLAN

SCALE: 1/4" = 1'-0"



BASED ON TIGHE & BOND
 PROJECT NO: S2057-008
 DECEMBER 2017
 DWG E-103

P:\PROJECTS\2024\02\04\0101\DWG\10 E-101.DWG
 LAST UPDATE: Monday, February 12, 2024 2:30:36 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:32 PM

PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

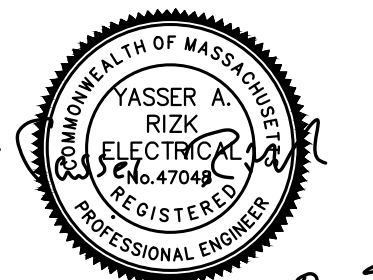
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
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CONSULTANTS

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PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

Dept Check: YR

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1:20

DISCIPLINE

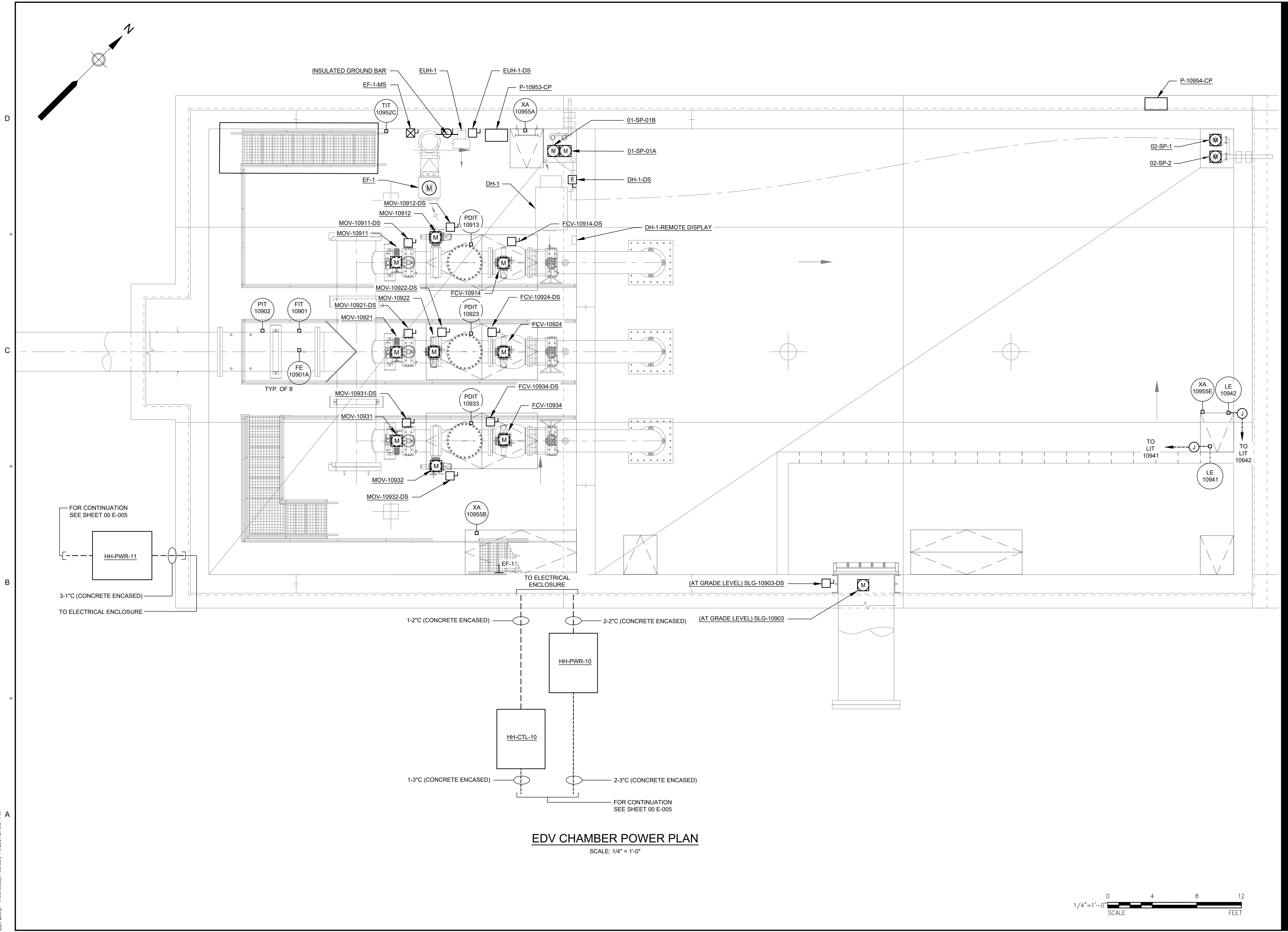
ELECTRICAL

SHEET TITLE

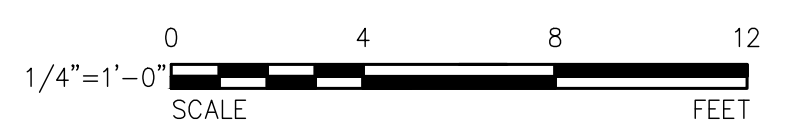
EDV CHAMBER POWER PLAN

SHEET NUMBER

10 E-102



EDV CHAMBER POWER PLAN
 SCALE: 1/4" = 1'-0"



PATH: L:\DCS\PROJECTS\WY16062775_SWISCS_WPF_HYDRO_ELECT_PDR\100_CAD\20-SHEETS\10 E-102.DWG
 LAST UPDATE: Wednesday, February 14, 2024 2:47:25 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:37 PM

NOTES:

1. [F01] 24 STRAND, 1°C, SINGLE MODE FIBER OPTIC CABLE



PROJECT

42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

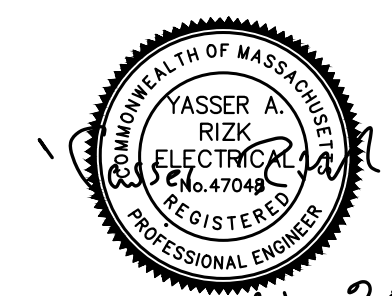
SPRINGFIELD WATER AND SEWER COMMISSION
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
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CONSULTANTS

REGISTRATION



Feb 14, 2024

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PROJECT NUMBER

60662775

Designed By:	AE
Drawn By:	HG
Dept Check:	YR
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NO SCALE

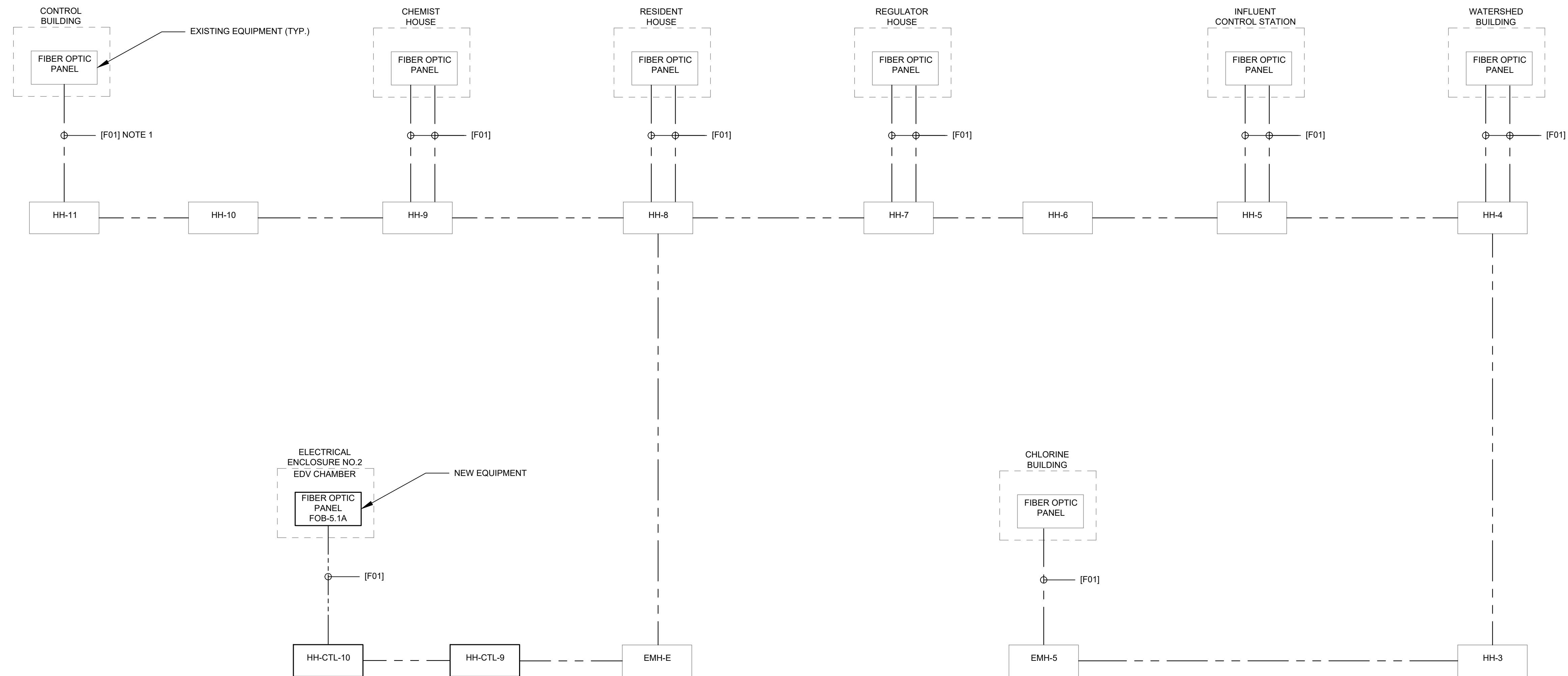
DISCIPLINE

ELECTRICAL
SHEET TITLE

RISER DIAGRAM II

SHEET NUMBER

10 E-603



FIBER OPTIC NETWORK RISER DIAGRAM

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LAST UPDATE: Monday, February 12, 2024 2:30:00 PM
PLOT DATE: Wednesday, February 14, 2024 2:49:51 PM

PROJECT

42-INCH RAW WATER
 BYPASS CONVEYANCE
 PIPELINE REHABILITATION
 AND ENERGY DISSIPATION
 VALVE CHAMBER

COBBLE MOUNTAIN RESERVOIR AND
 WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD
 WATER AND SEWER
 COMMISSION

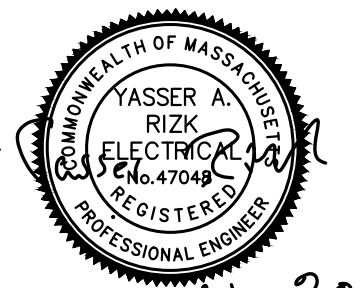
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
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 CHELMSFORD, MA 01824
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CONSULTANTS

REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

Dept Check: YR

Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: NONE

DISCIPLINE

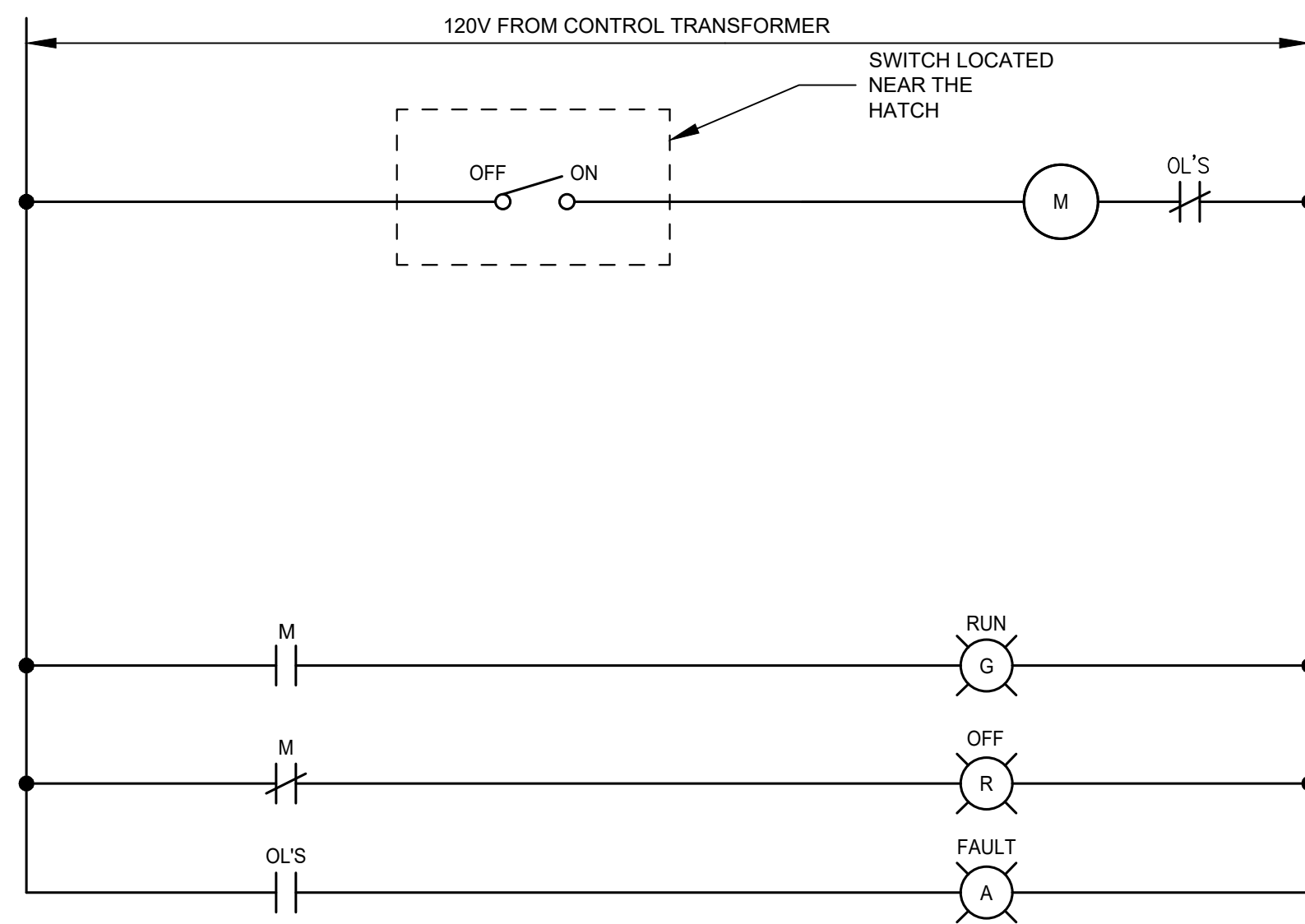
ELECTRICAL

SHEET TITLE

WIRING DIAGRAM

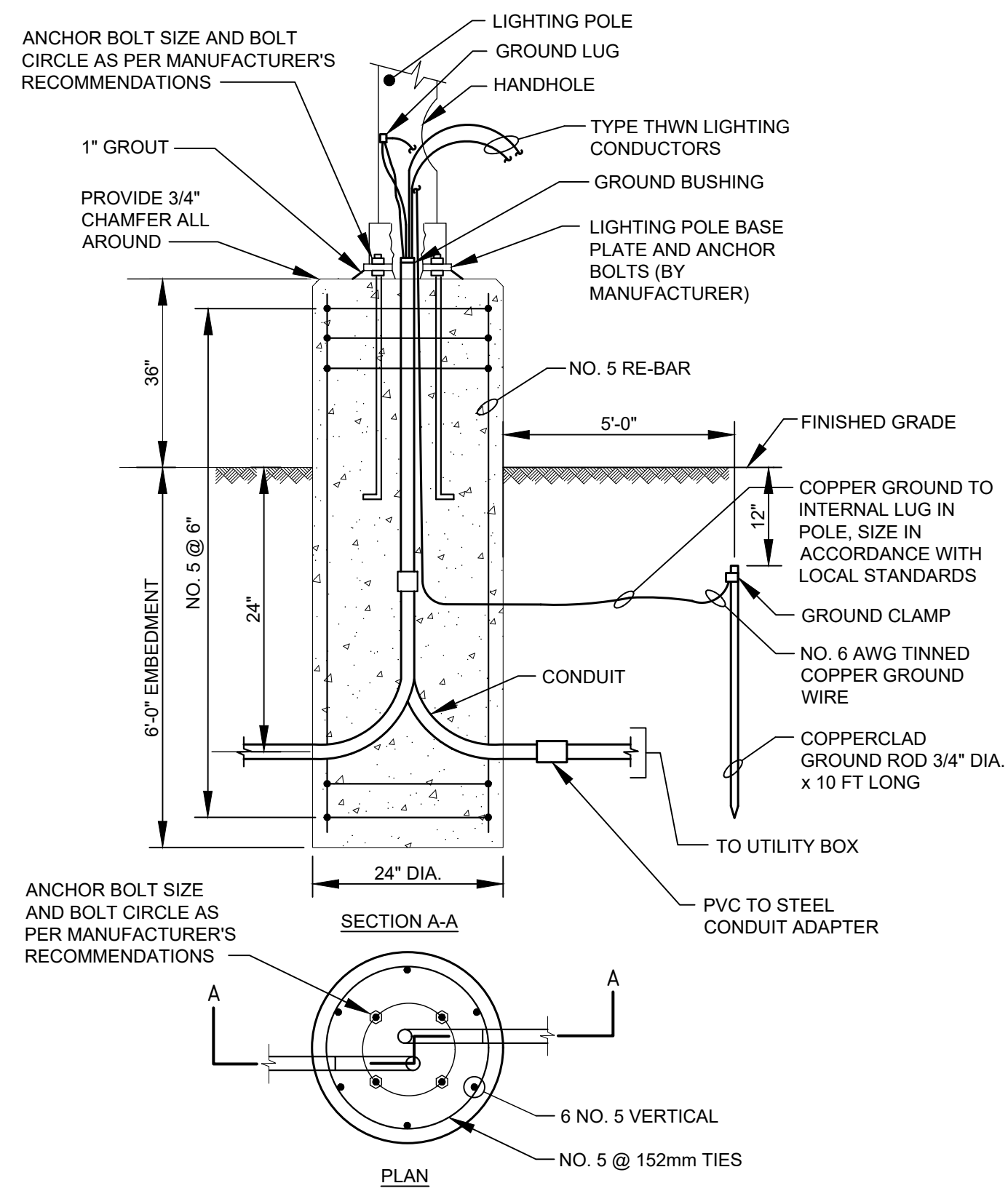
SHEET NUMBER

10 E-604



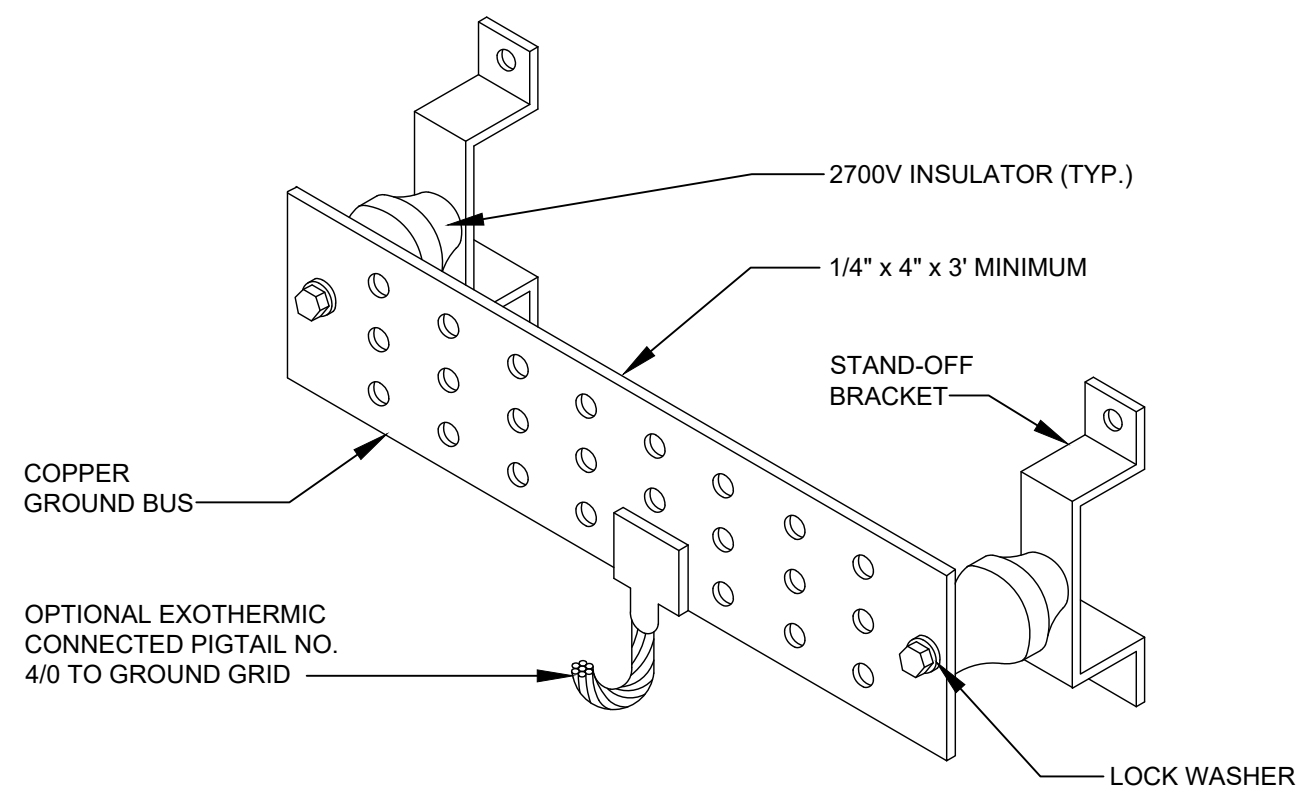
**EXHAUST FAN
 EF-1
 WIRING DIAGRAM**

PATH: L:\DCS\PROJECTS\WTR6662775_SWSC_WF_HYDRO_ELECT_PDR600_CAD_GIS910_CAD20-SHEETS\10 E-604.DWG
 LAST UPDATE: Monday, February 12, 2024 2:33:30 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:54 PM



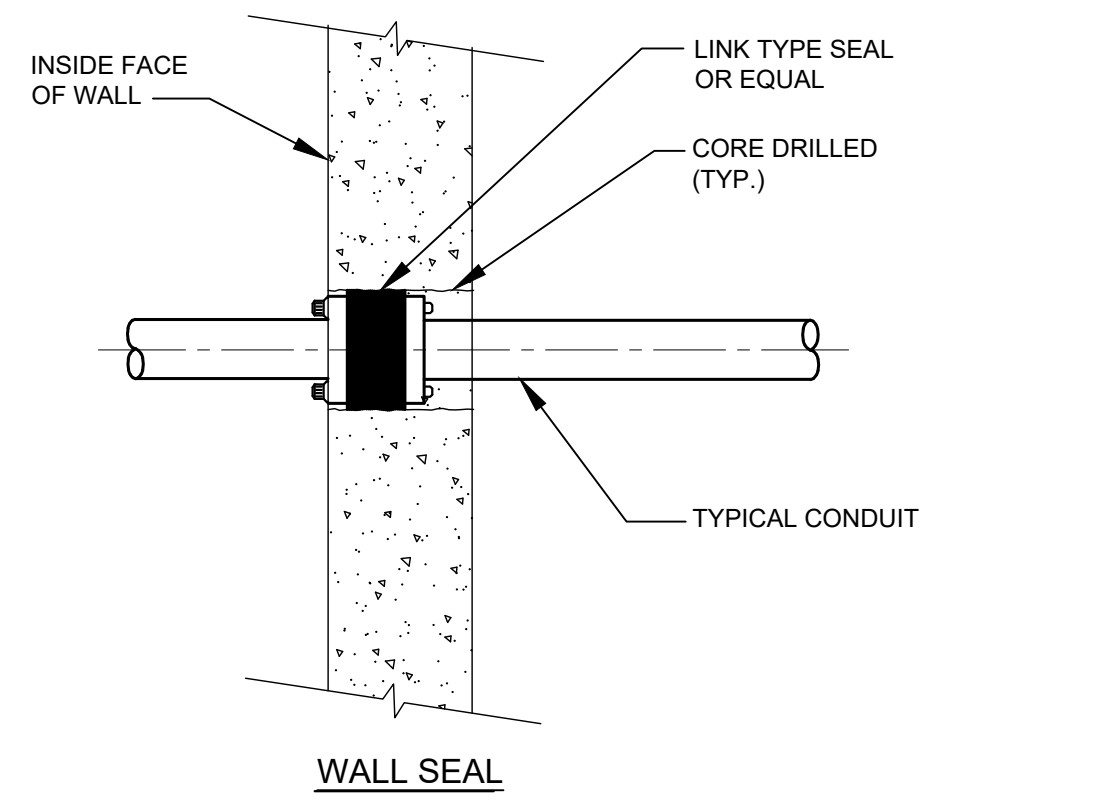
POLE FOUNDATION FOR LIGHTING

SCALE: NONE



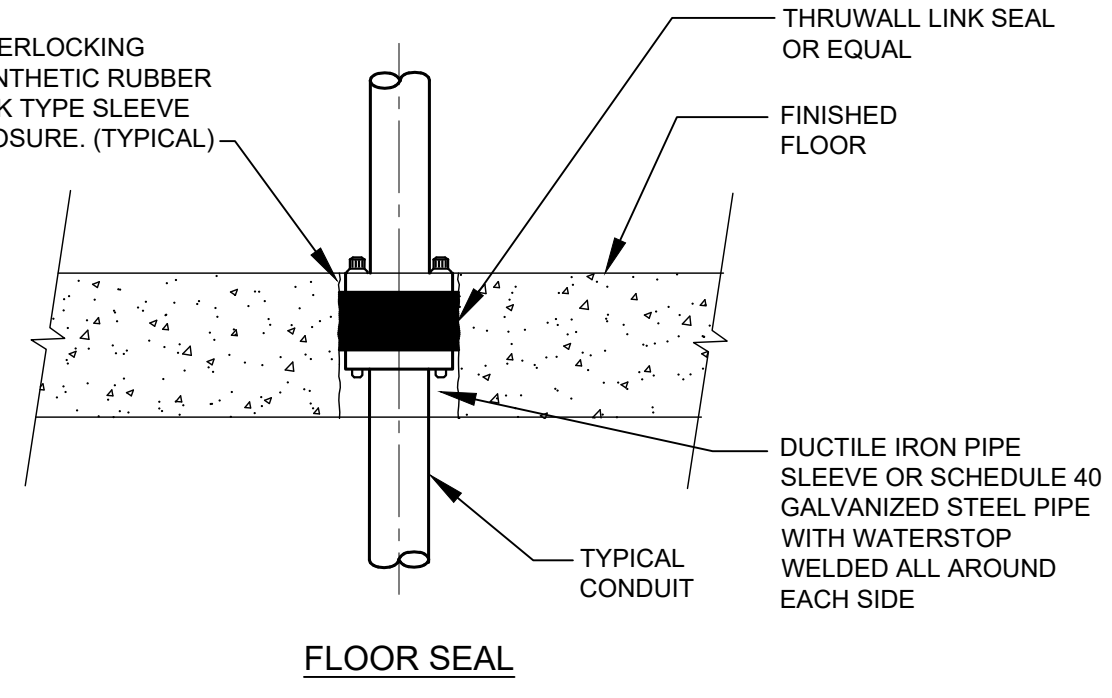
INSULATED GROUND BAR DETAIL

NTS



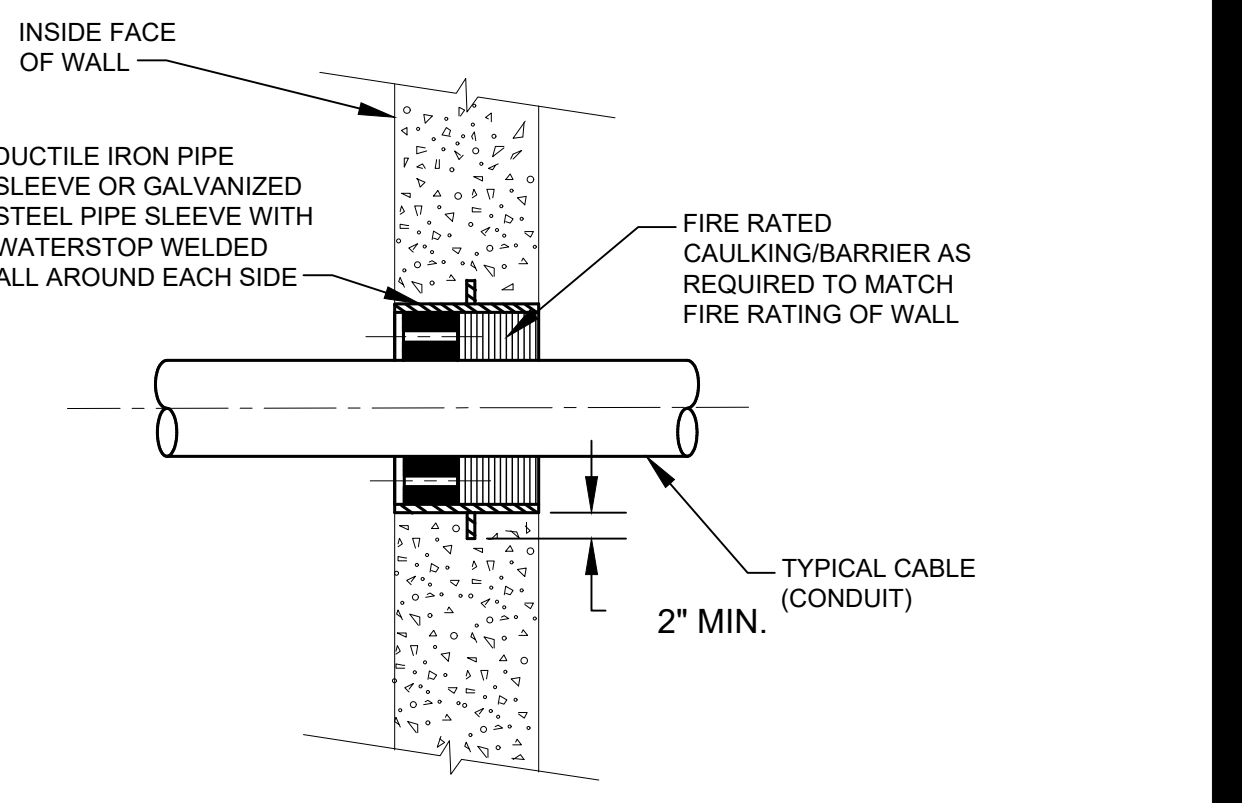
TYPICAL DETAIL FOR CONDUIT PASSING THROUGH NEW FLOOR SLABS OR NEW WALL

NTS



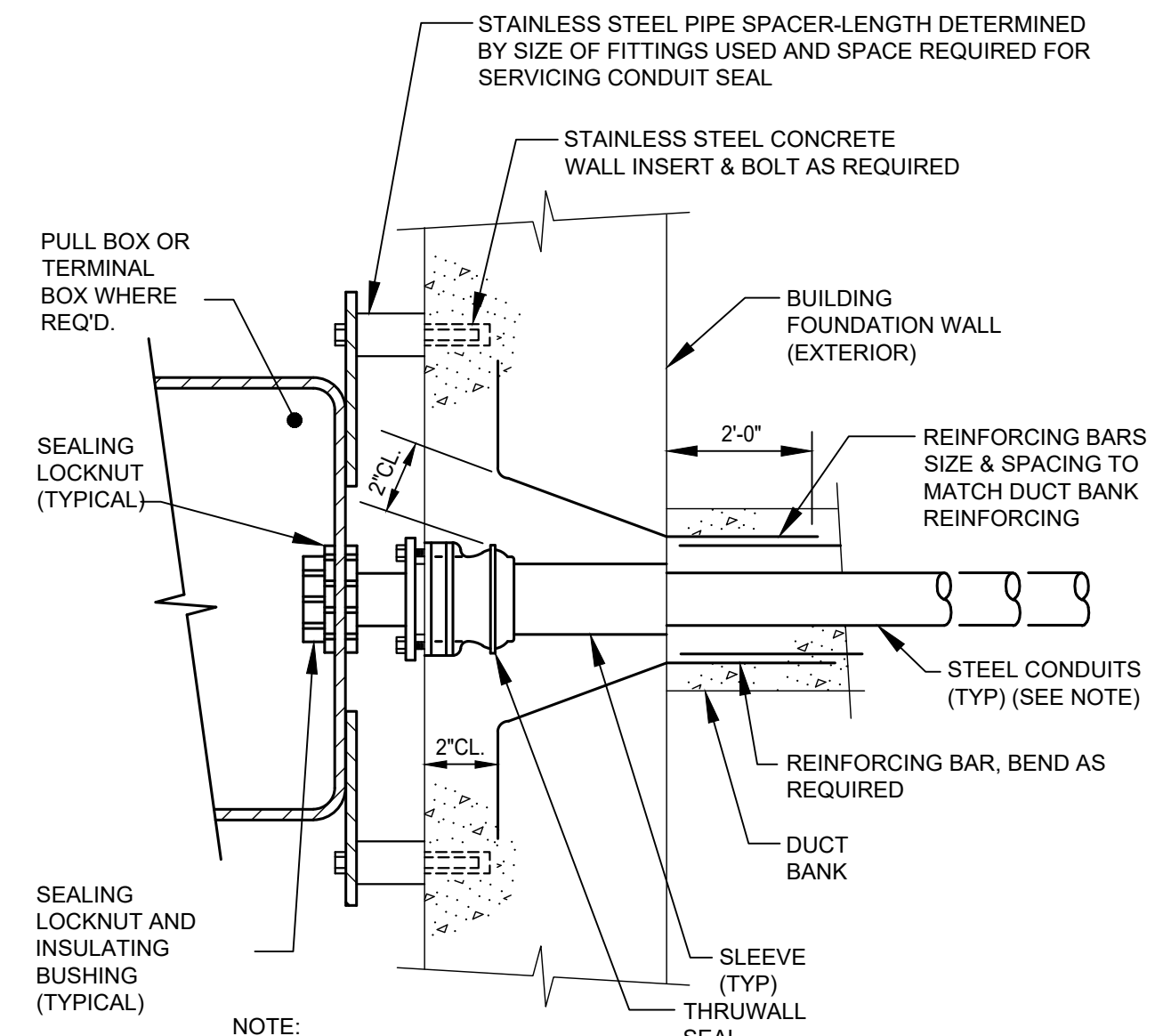
TYPICAL DETAIL FOR CONDUIT PASSING THROUGH FLOOR SLABS OR WALL

NTS



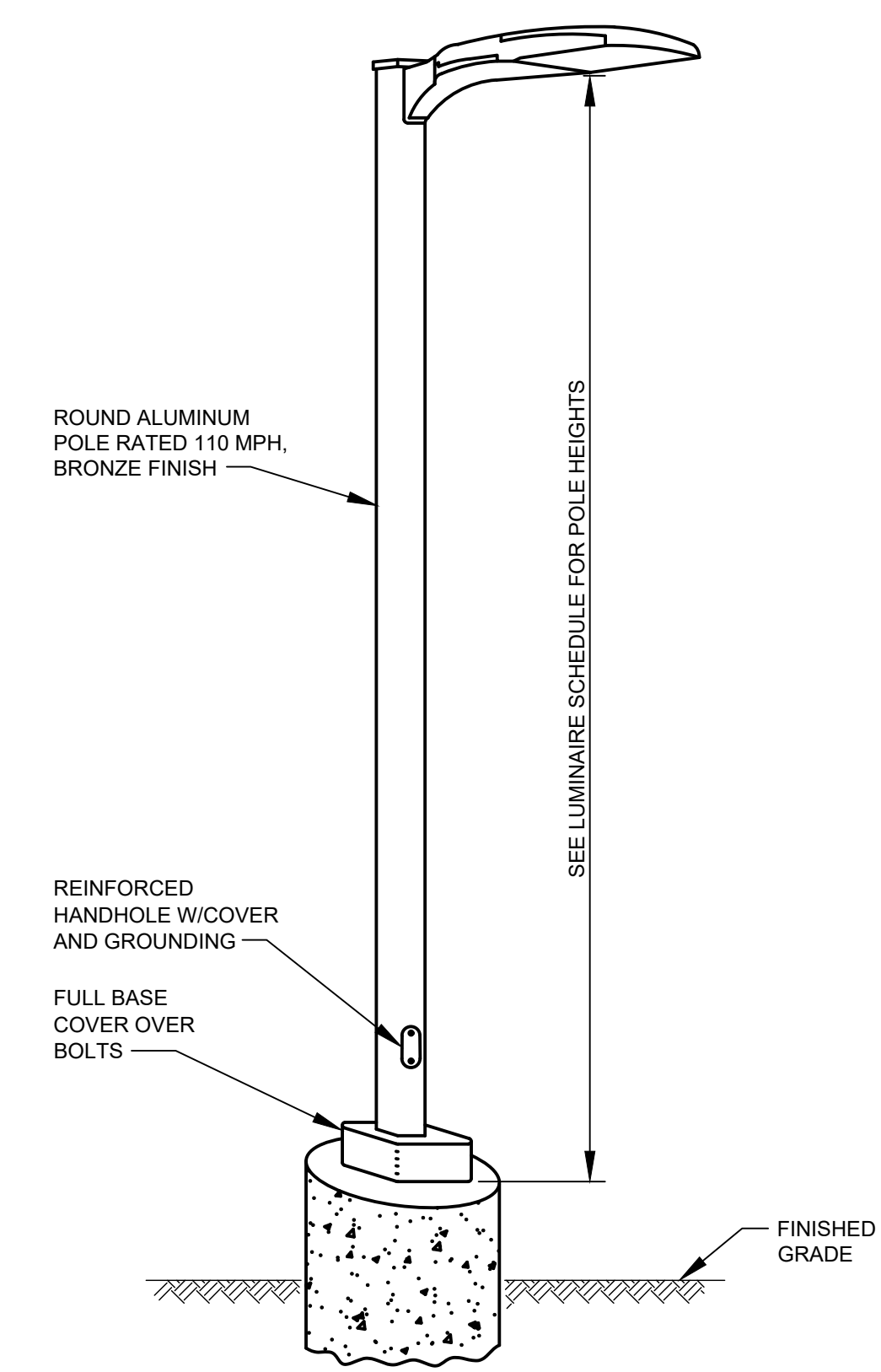
TYPICAL DETAIL FOR CONDUIT PASSING THROUGH FLOOR SLABS OR WALL

NTS



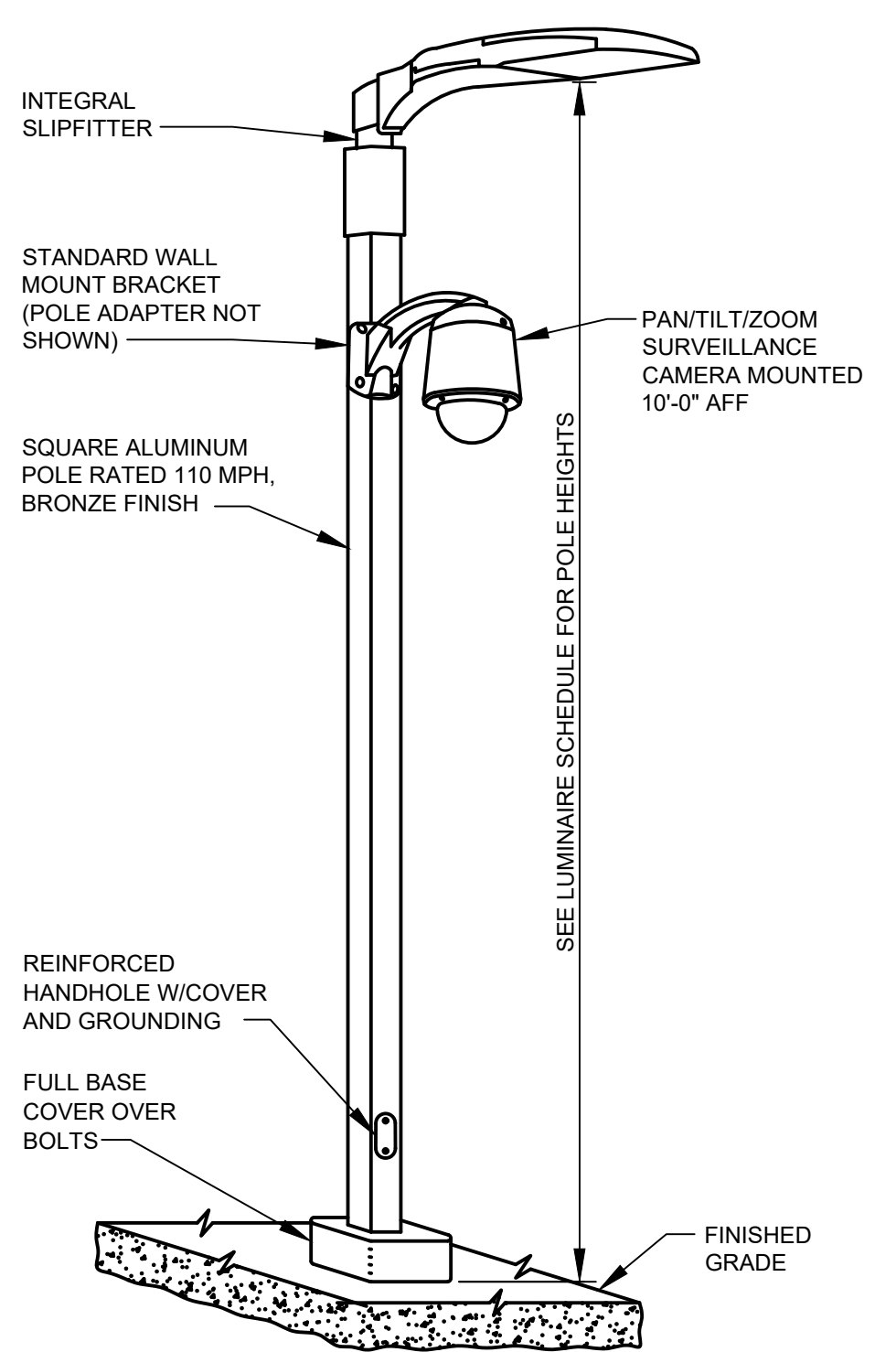
CONDUIT ENTRANCE AND SEAL IN NEW WALL WITH DUCT BANK

NOTE: WHERE PLASTIC DUCT IS USED IN DUCTLINE, CONVERT TO STEEL CONDUIT USING AN APPROPRIATE ADAPTER FITTING.



AREA LIGHTING POLE DETAIL

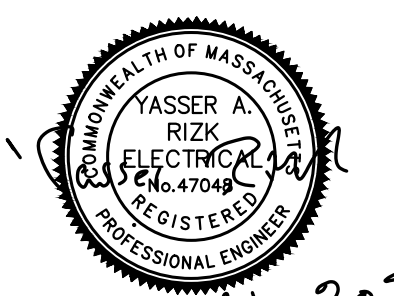
SCALE: NONE



FLOODLIGHT LIGHTING POLE WITH SURVEILLANCE CAMERA DETAIL

NOT TO SCALE

- NOTE:
- CIRCUIT GROUND CONDUCTOR, GROUND ROD AND GROUND CONDUCTOR TO BE BONDED TOGETHER AT POLE GROUND CLAMP.



Feb 14, 2024

I/R	DATE	DESCRIPTION

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Designed By:	AE
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Date:	FEBRUARY 2024
Scale:	NONE

PATH: L:\DCS\PROJECTS\WYR\60662775_SWSC_WF_HYDRO_ELECT_PDR\900_CAD_GIS\910_CAD\20-SHEETS\99 E-001.DWG
 LAST UPDATE: Monday, February 12, 2024 2:34:21 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:56 PM

