



Table with 3 columns: I/R, DATE, DESCRIPTION. Contains one row with empty cells.

60662775

Table with 2 columns: Field, Value. Fields include 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

GENERAL

Table with 2 columns: SHEET NO., TITLE. Lists sheets 00 G-001 to 00 G-005.

CIVIL - 42" RAW WATER REHAB

Table with 2 columns: SHEET NO., TITLE. Lists sheets 00 C-001 to 99 C-513.

ANNOTATED RECORD DRAWINGS SHOWING NEW PIPE & JOINT REPAIRS

Table with 2 columns: SHEET NO., TITLE. Lists sheets 99 C-514 to 99 C-522.

SHEET NO. TITLE

CIVIL - EDV CHAMBER

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INSTRUMENTATION - EDV CHAMBER

Table with 2 columns: SHEET NO., TITLE. Lists sheets 00 DI-001 to 99 DI-601.

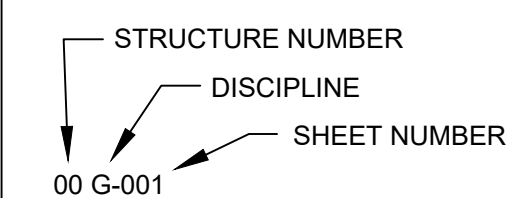
ELECTRICAL - EDV CHAMBER

Table with 2 columns: SHEET NO., TITLE. Lists sheets 00 E-001 to 99 E-002.

STRUCTURE NUMBER LEGEND

Table with 2 columns: Structure Number, Description. Lists 00, 10, 99.

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
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

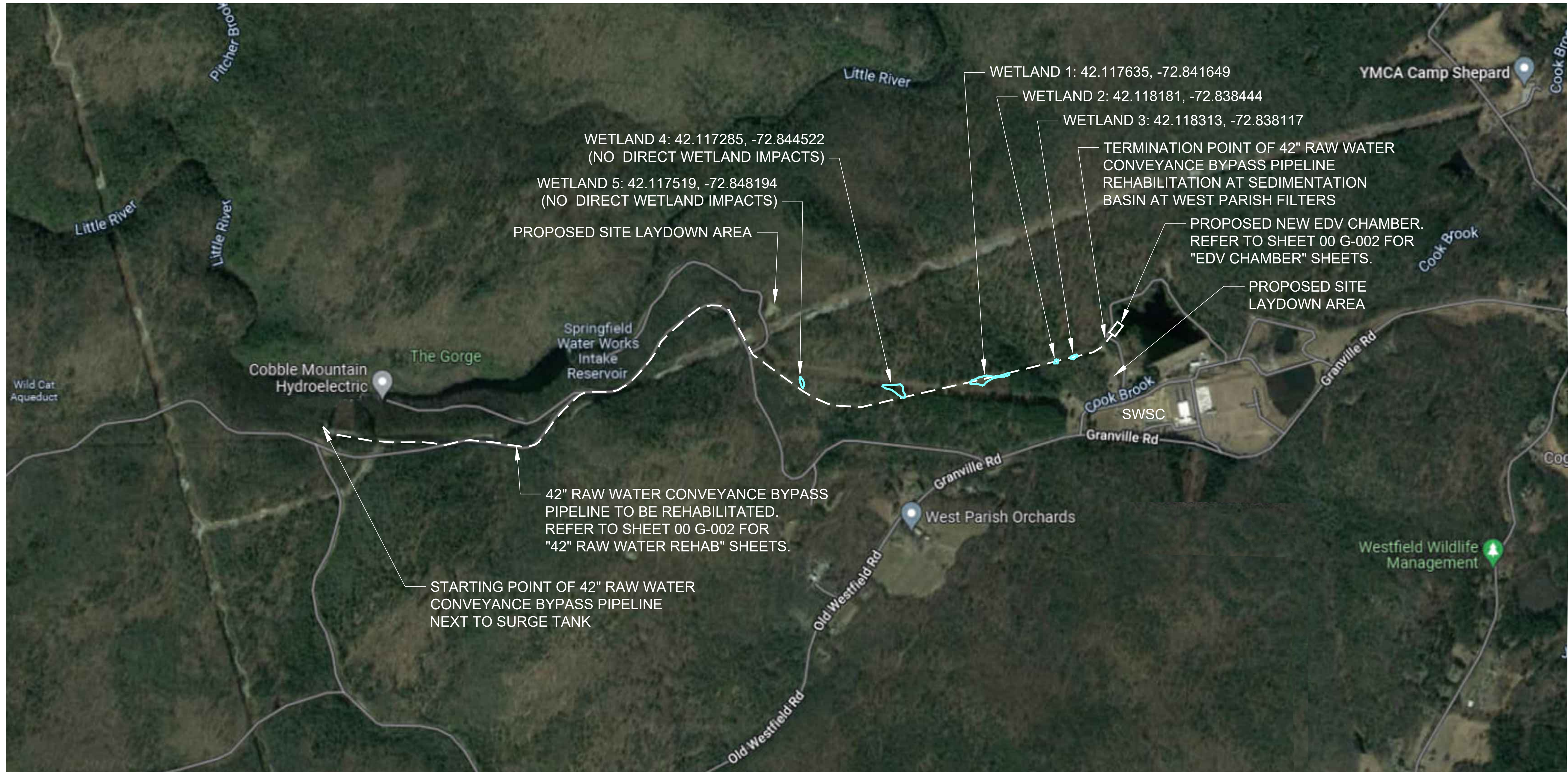
GENERAL

SHEET TITLE

OVERALL PROJECT LOCATION AND SITE PLAN

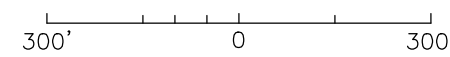
SHEET NUMBER

00 G-003



SITE MAP

SCALE IN FEET



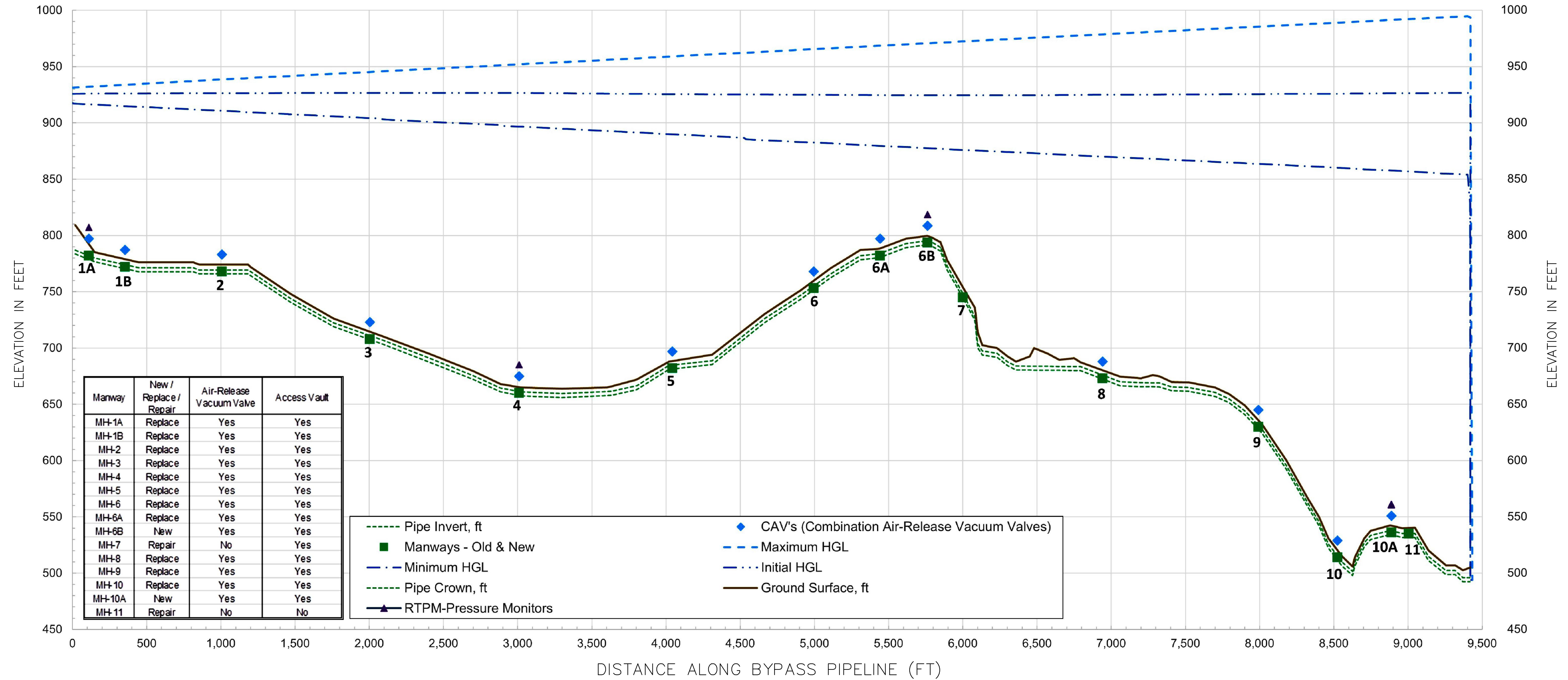
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 LAST UPDATE: Wednesday, January 17, 2024 8:56:03 AM
 PLOT DATE: Tuesday, February 6, 2024 4:38:10 PM



I/R	DATE	DESCRIPTION

60662775

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



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)

PATH: \\L:\DCS\PROJECTS\176062775_S\NSC_WF_HYDRO_ELECT_PDR\000_CAD_GS\010_CAD\20-SHEETS\00 G-004.DWG
 LAST UPDATE: Tuesday, January 23, 2024 4:35:55 PM
 PLOT DATE: Tuesday, February 6, 2024 4:31:31 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



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

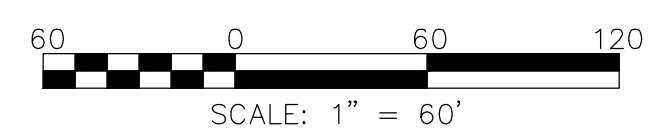
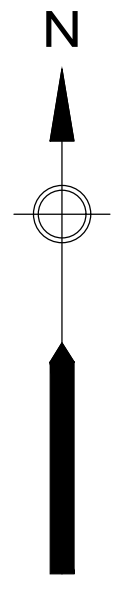
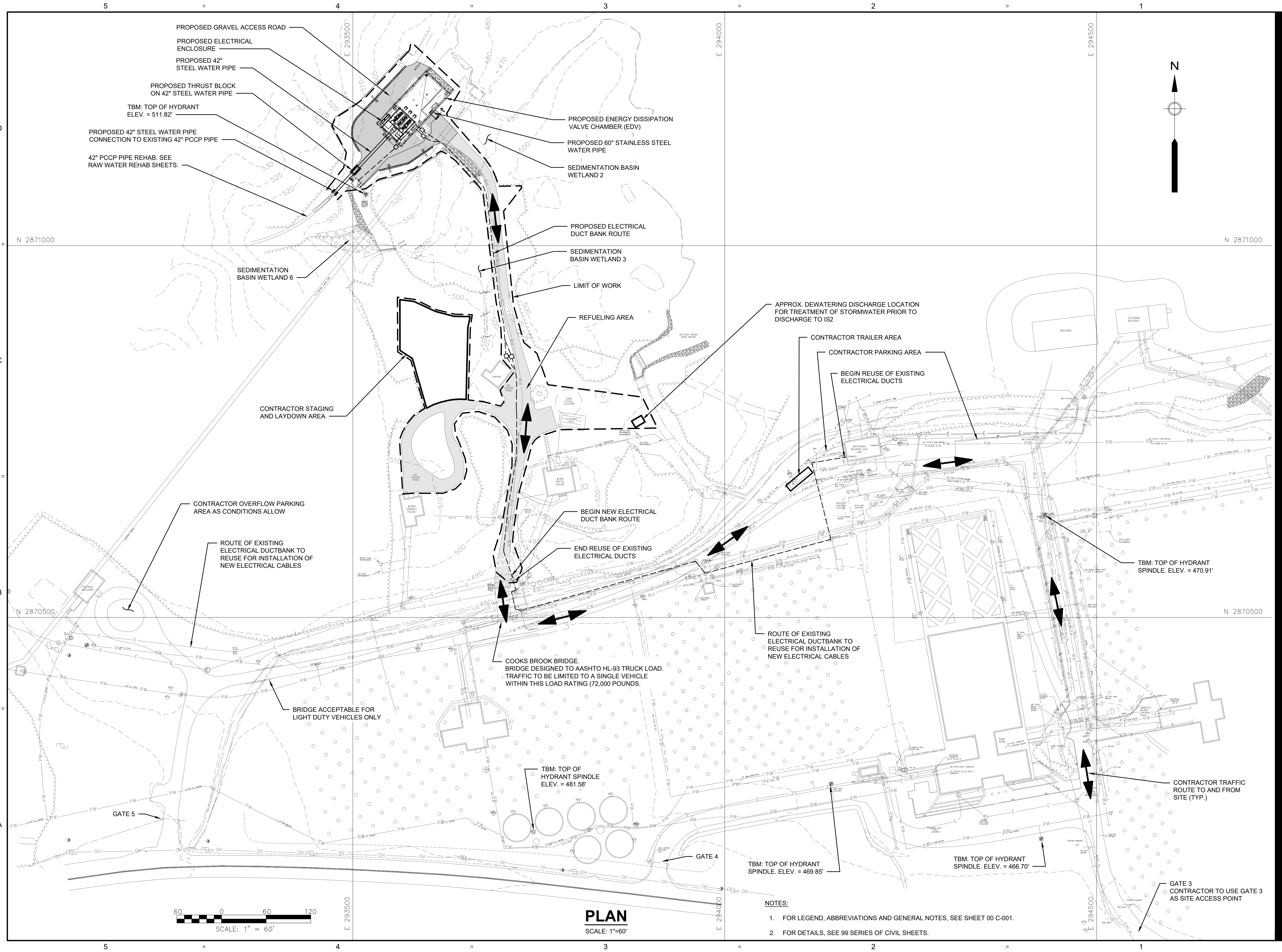
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GENERAL SHEET TITLE

OVERALL SITE PLAN - WEST PARISH FILTERS

SHEET NUMBER

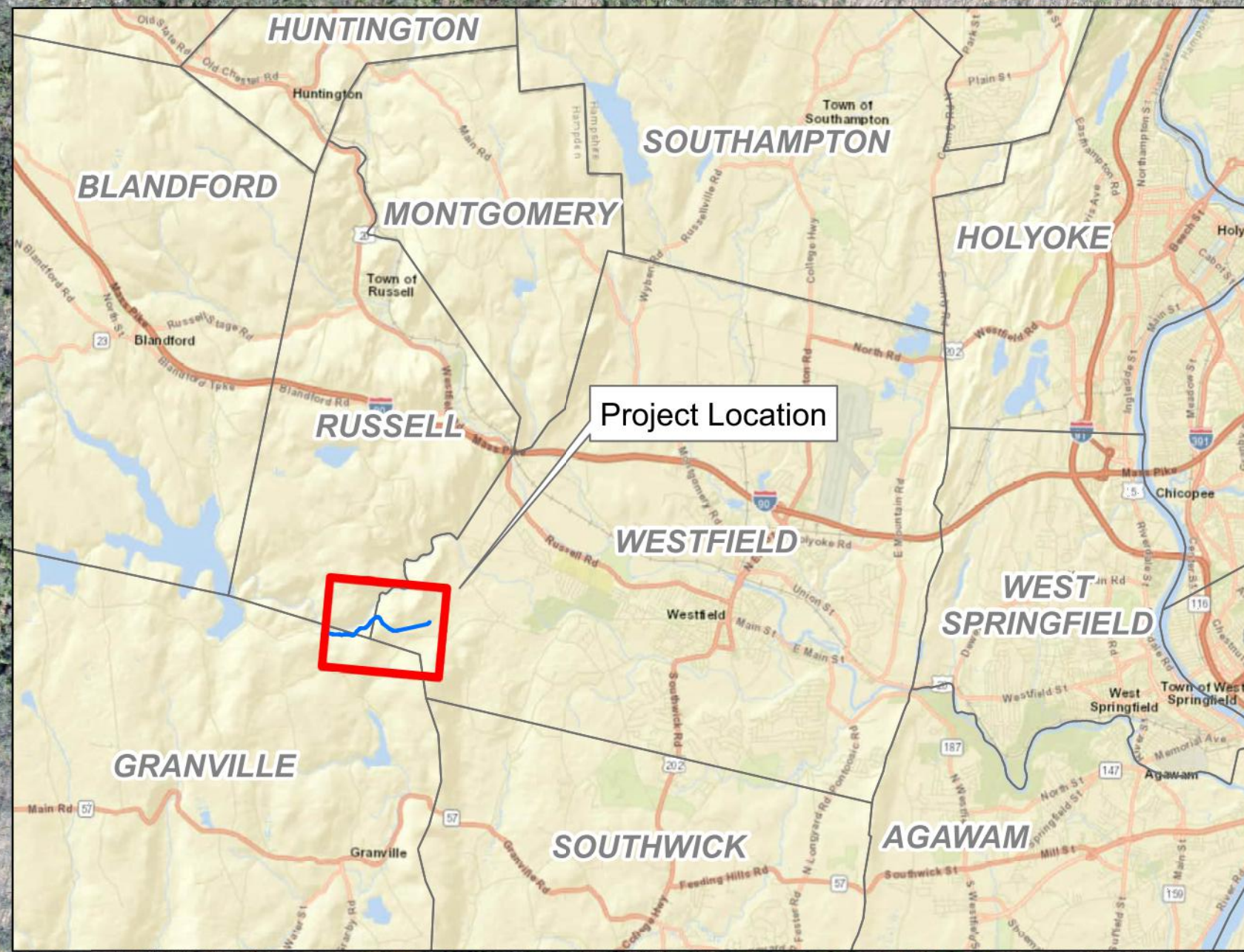
00 G-005



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\WY16R662775_SWSC_WF_HYDRO_ELECT_PRR1800_CAD_GIS910_CAD\20-SHEETS\G00-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
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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

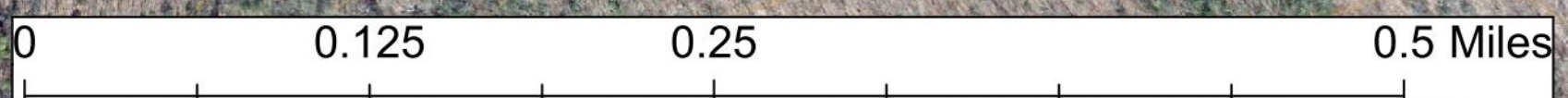
WETLAND 2: 42.118181, -72.838444

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



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

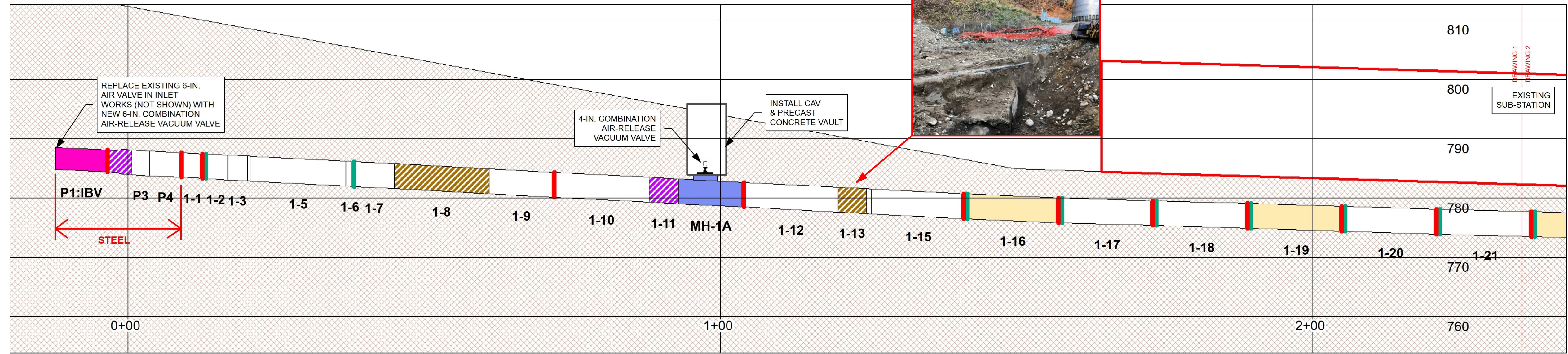
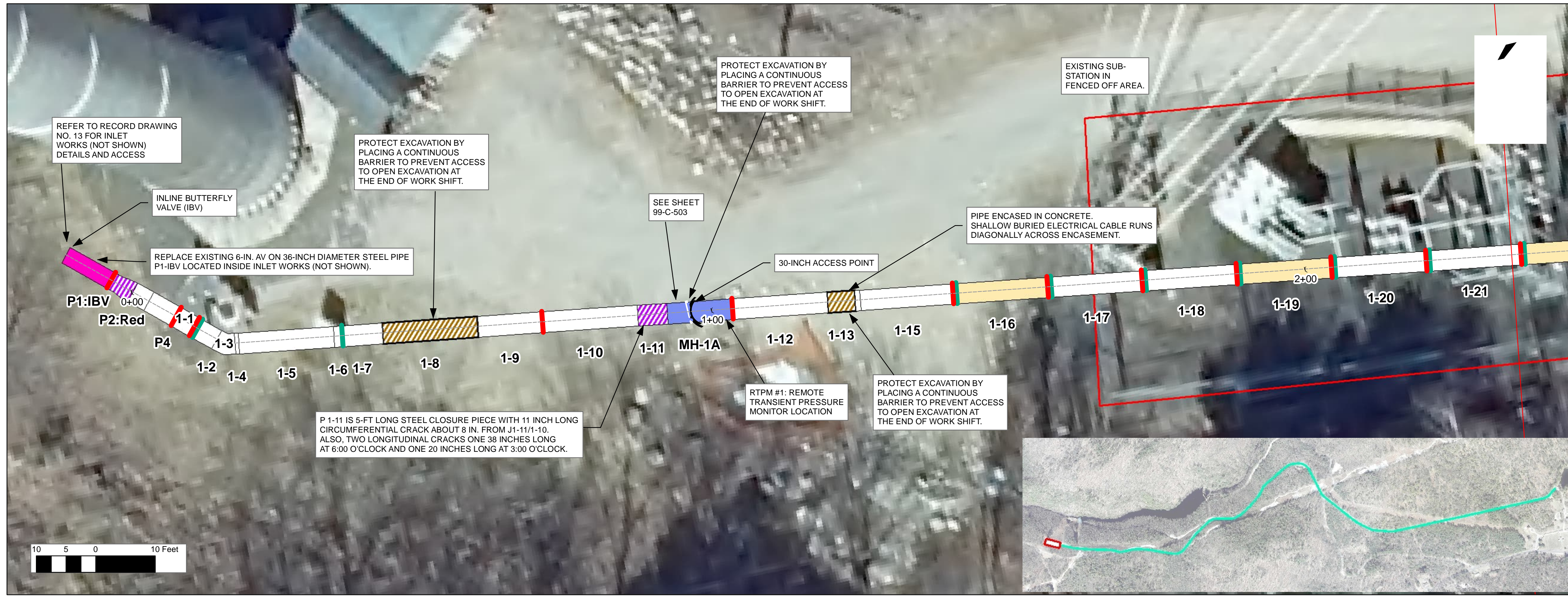
SHEET TITLE

KEY PLAN AND SHEET LAYOUT

SHEET NUMBER

00 C-002

PATH: L:\DCS\PROJECTS\WTR\60662775_SWIS\WPF_HYDRO_ELECT_PDR\60662775_SWIS_CAD\20-SHEETS\C002_C-002.DWG
 LAST UPDATE: Monday, February 5, 2024 2:09:59 PM
 PLOT DATE: Friday, February 9, 2024 6:54:49 AM



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. 0+00 TO 2+35.21

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

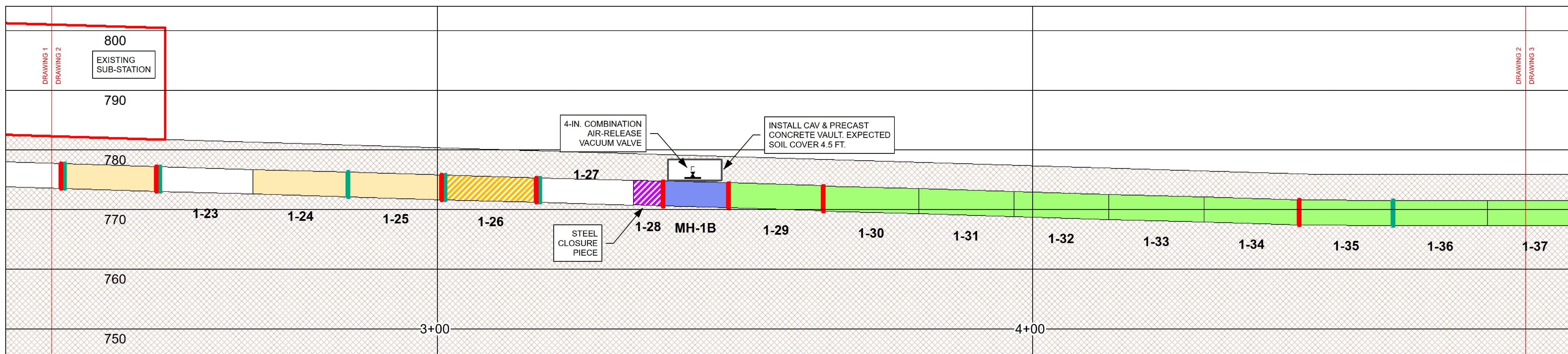
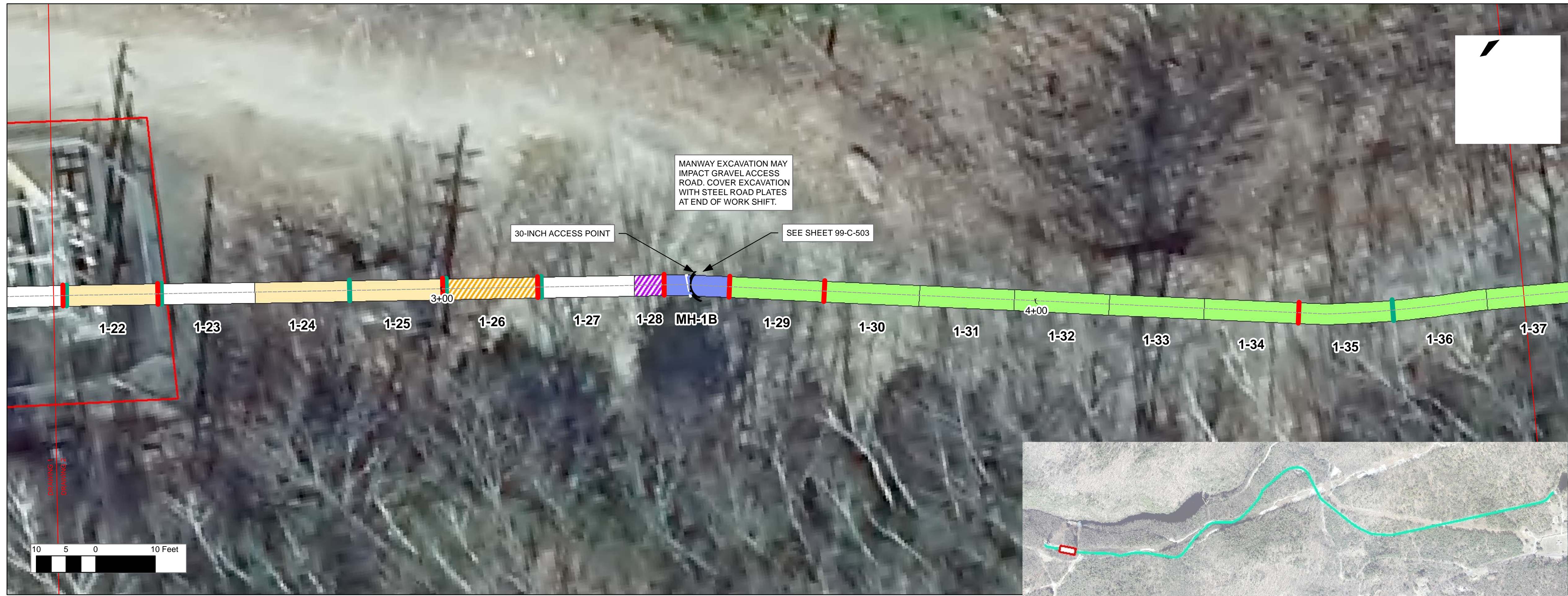
MANWAY TREATMENTS

- 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



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



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DISCIPLINE
CIVIL

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

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

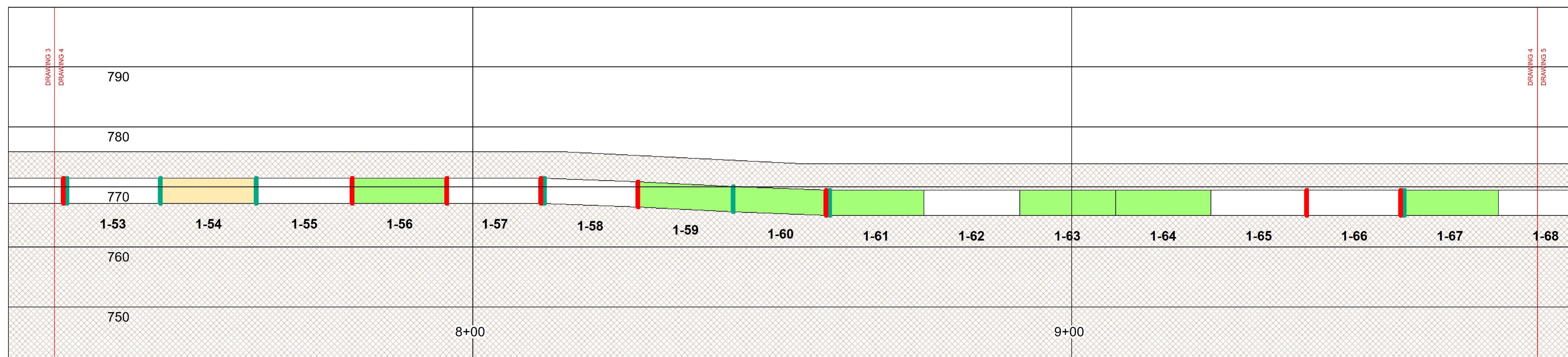
SPRINGFIELD WATER AND SEWER COMMISSION

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

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



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IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

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

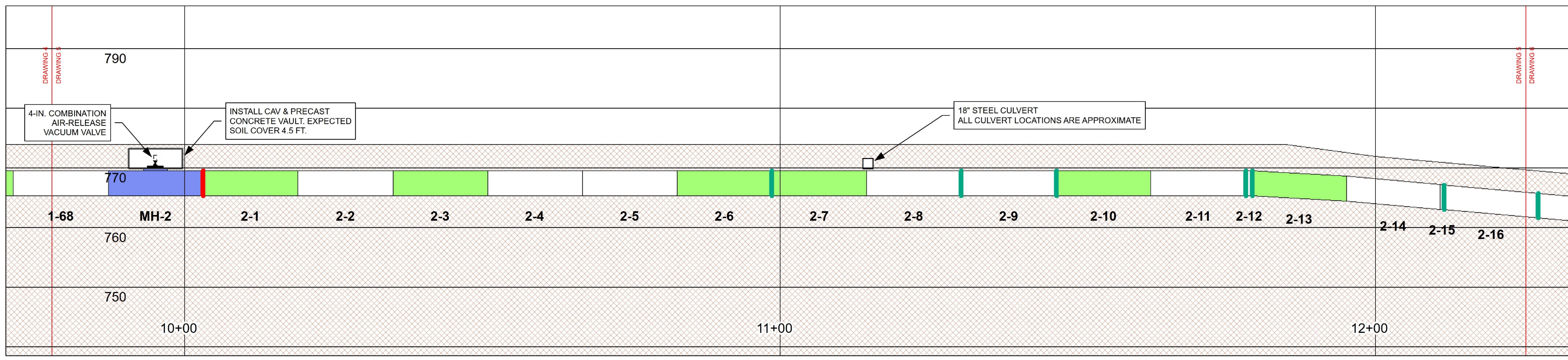
DISCIPLINE

CIVIL

SHEET TITLE

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

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

IR	DATE	DESCRIPTION

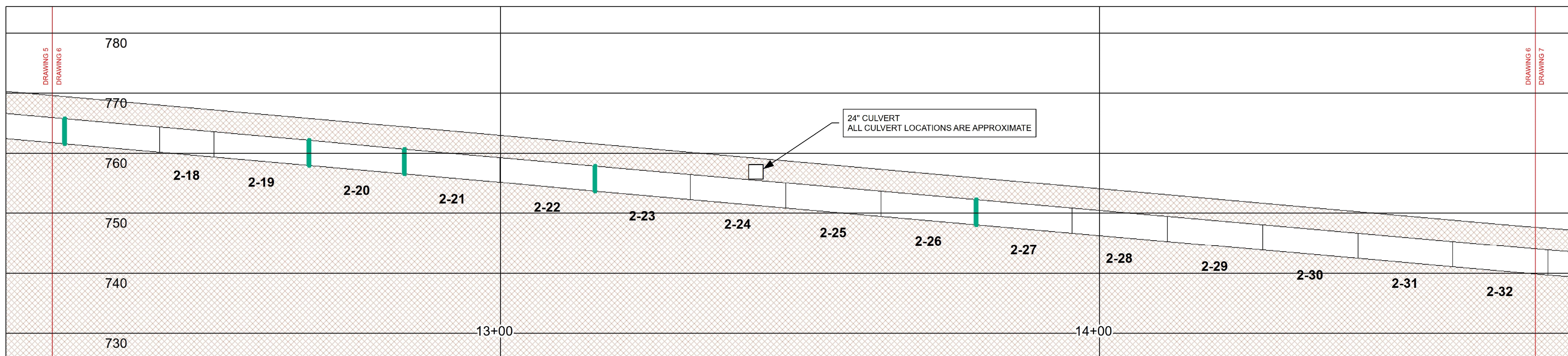
PROJECT NUMBER
60662775

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



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

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Scale:	1 inch = 10 feet

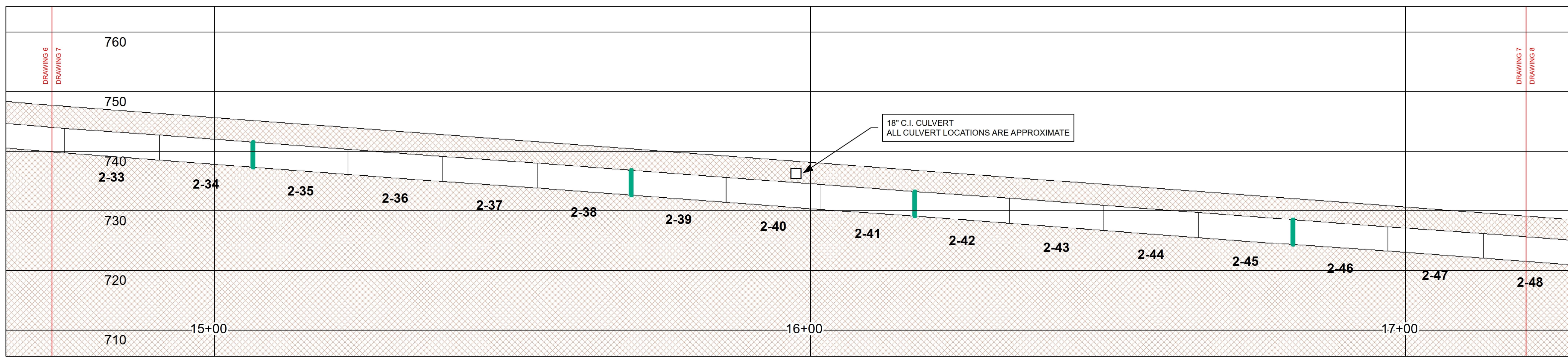
DISCIPLINE

CIVIL

SHEET TITLE

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

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

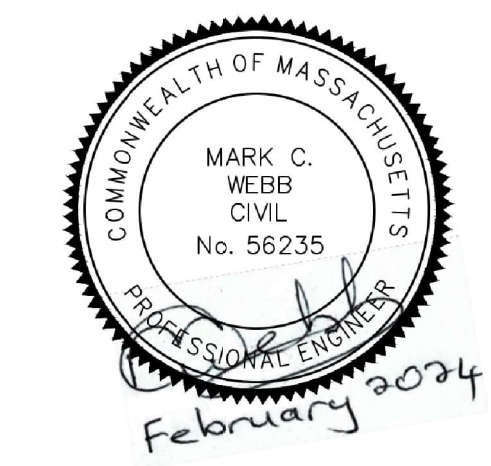
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

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



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PROJECT NUMBER
60662775

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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. 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

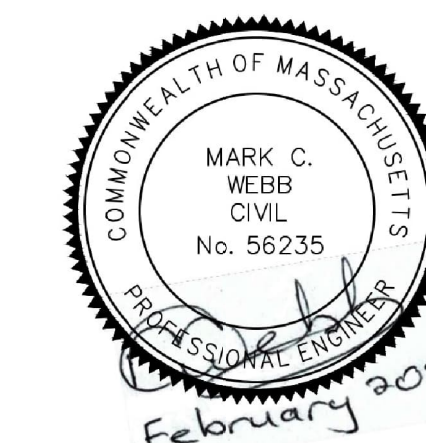
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
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CONSULTANTS

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PROJECT NUMBER

60662775

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Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

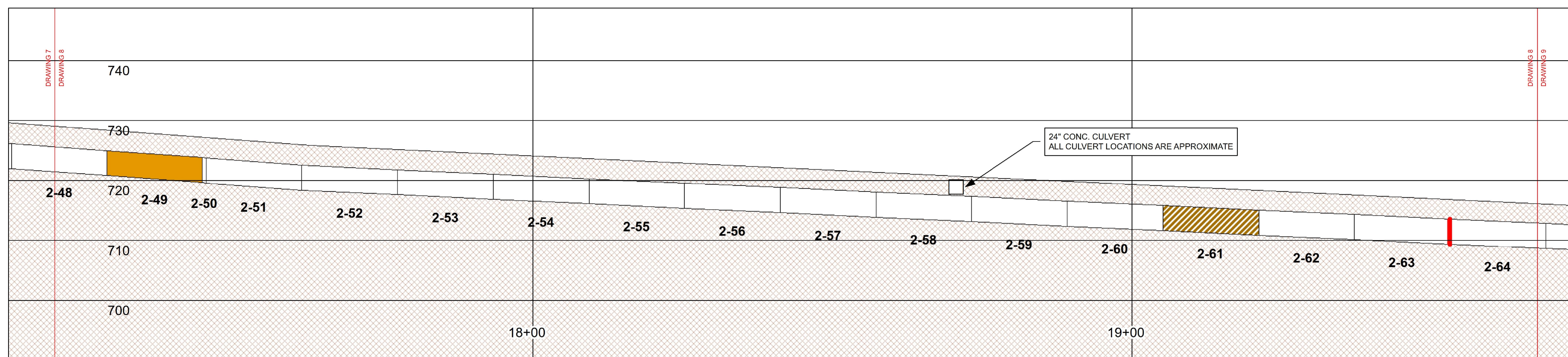
SHEET TITLE

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

SHEET NUMBER

00 C-108

8 OF 38



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

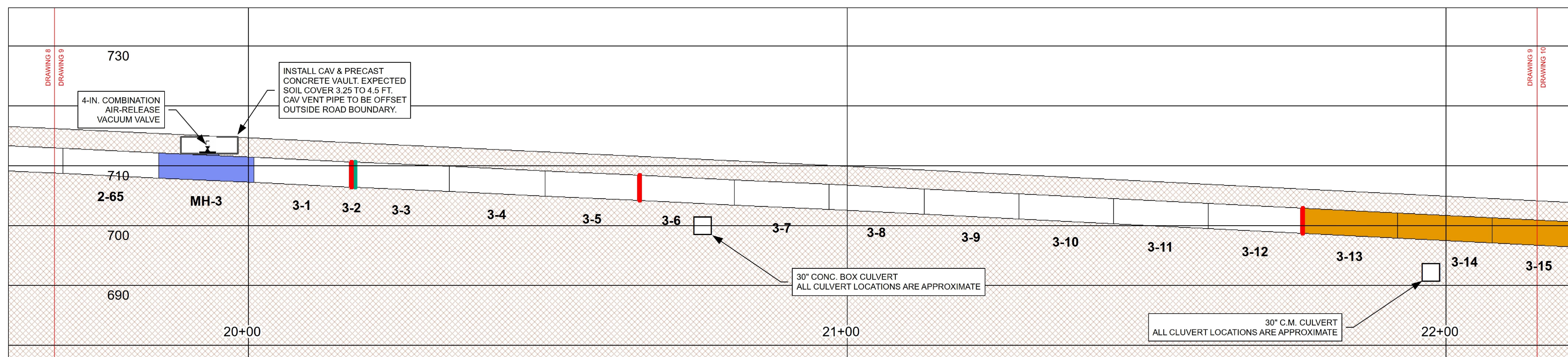
MANWAY TREATMENTS

- 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



LEGEND

JOINT TREATMENTS	
	MORTAR
	JOINT SEAL
	MORTAR AND JOINT SEAL

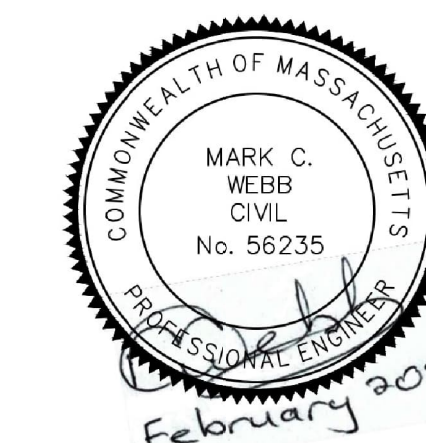
PIPE BARREL TREATMENTS			
	REPLACE		CFRP LINER
	CRACK REPAIR		GFRP LINER
	SEAL		MULTIPLE REPAIRS
	CORE REPAIR LOCAL		CORE REPAIR FULL LENGTH
	CORE REPAIR FULL LENGTH AT INVERT		

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

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DISCIPLINE

CIVIL

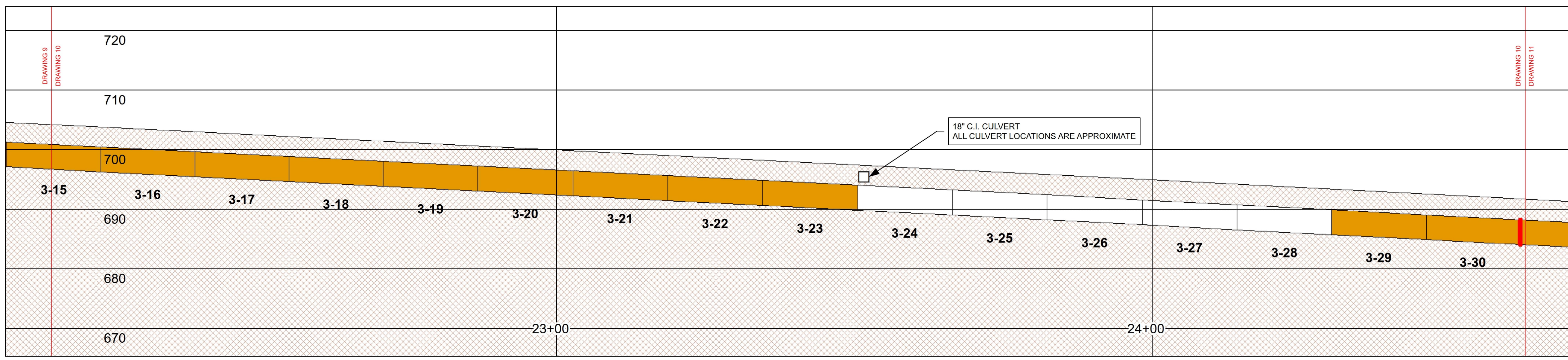
SHEET TITLE

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

IR	DATE	DESCRIPTION

PROJECT NUMBER

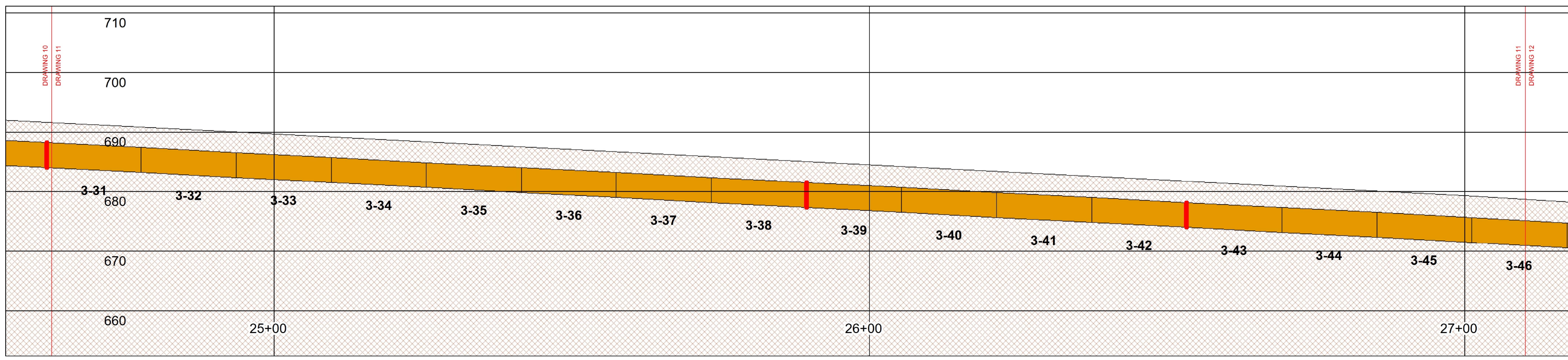
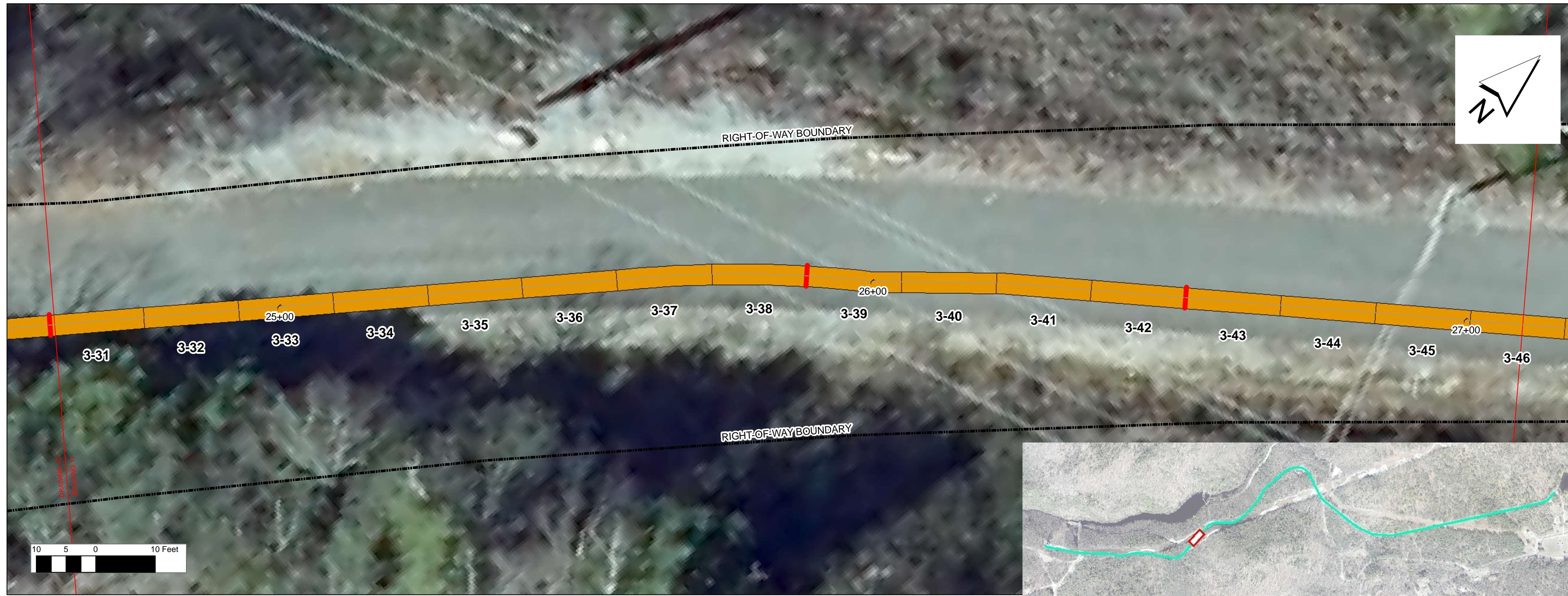
60662775

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. 22+15.09 TO 24+62.57

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

IR	DATE	DESCRIPTION

PROJECT NUMBER
60662775

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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. 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

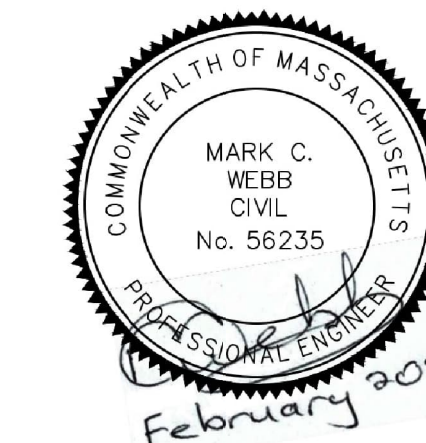
250 M STREET EXTENSION
AGAWAM, MA 01001

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

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Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

CIVIL

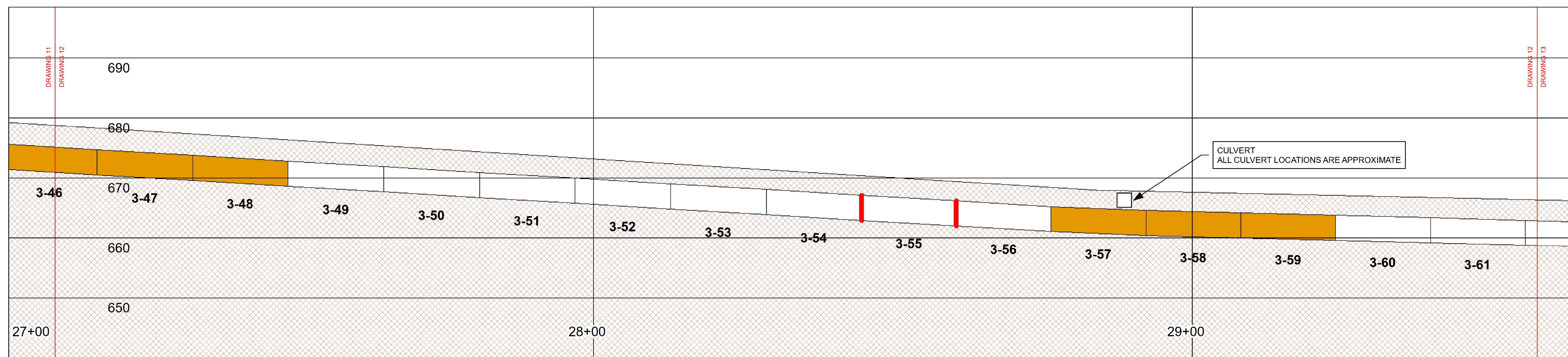
SHEET TITLE

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

SHEET NUMBER

00 C-112

12 OF 38



LEGEND

JOINT TREATMENTS

	MORTAR
	JOINT SEAL
	MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

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

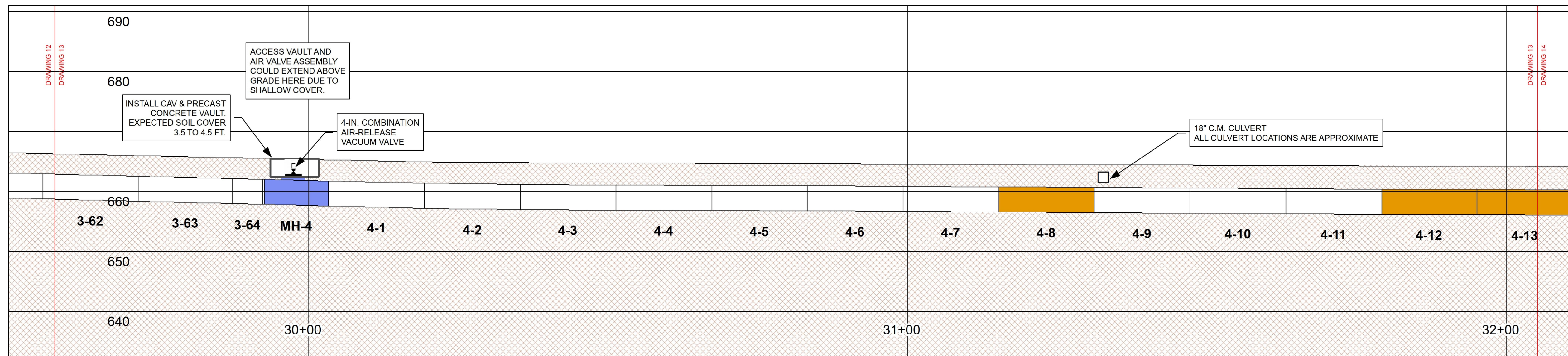
MANWAY TREATMENTS

	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



LEGEND

JOINT TREATMENTS	
	MORTAR
	JOINT SEAL
	MORTAR AND JOINT SEAL

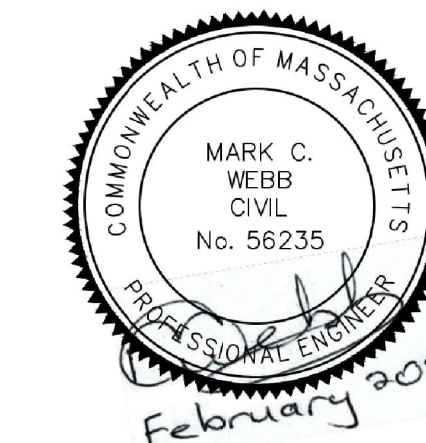
PIPE BARREL TREATMENTS			
	REPLACE		CFRP LINER
	CRACK REPAIR		GFRP LINER
	SEAL		MULTIPLE REPAIRS
	CORE REPAIR LOCAL		CORE REPAIR FULL LENGTH AT INVERT
	CORE REPAIR FULL LENGTH		

MANWAY TREATMENTS	
	NEW MANWAY
	REPLACE MANWAY
	PAINT MANWAY

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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DISCIPLINE

CIVIL

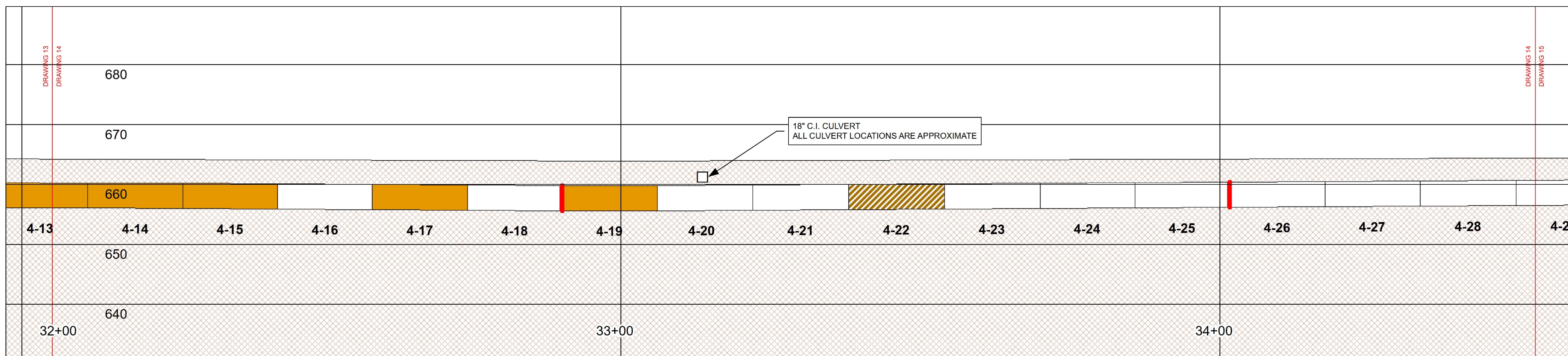
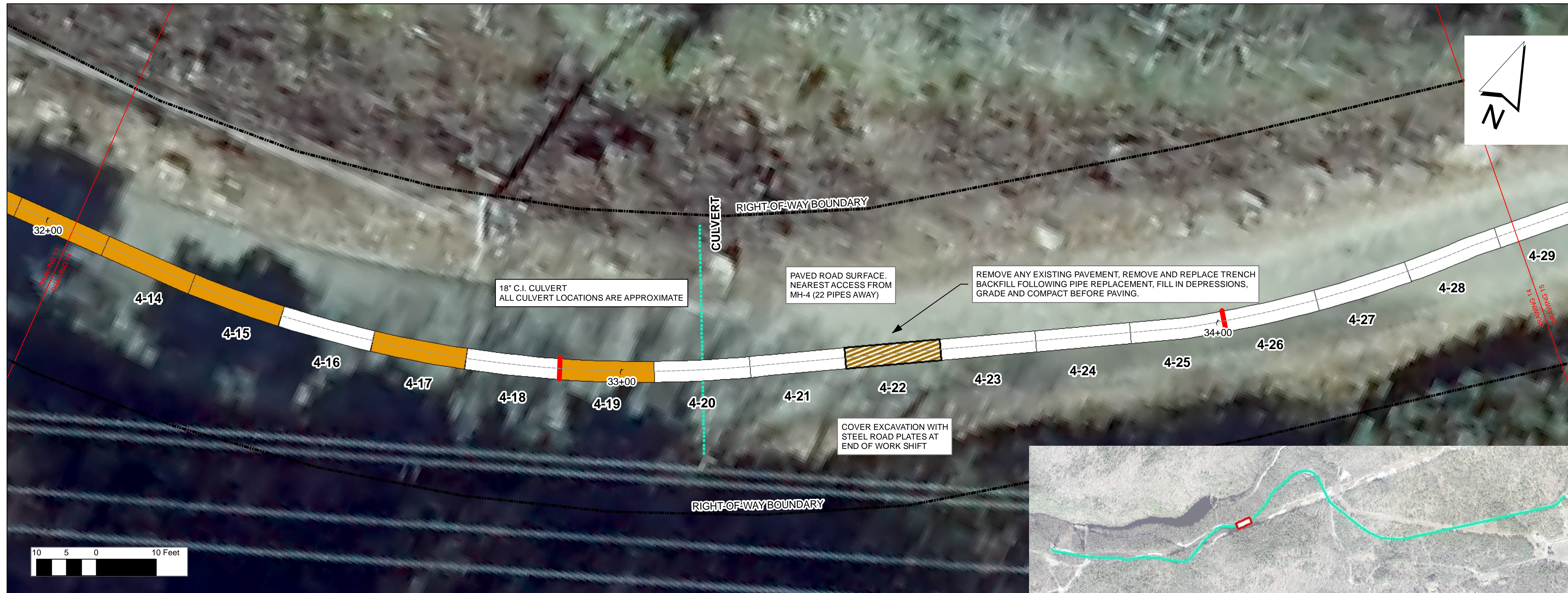
SHEET TITLE

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

SHEET NUMBER

00 C-113

13 OF 38



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
- 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

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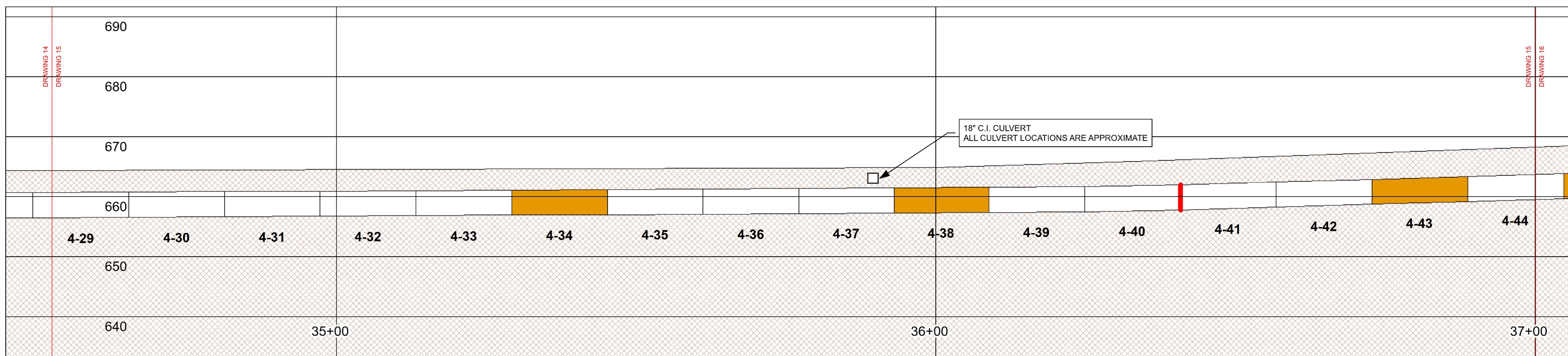
DISCIPLINE

CIVIL

SHEET TITLE

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

SHEET NUMBER



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
- 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



ISSUE/REVISION

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Scale:	1 inch = 10 feet

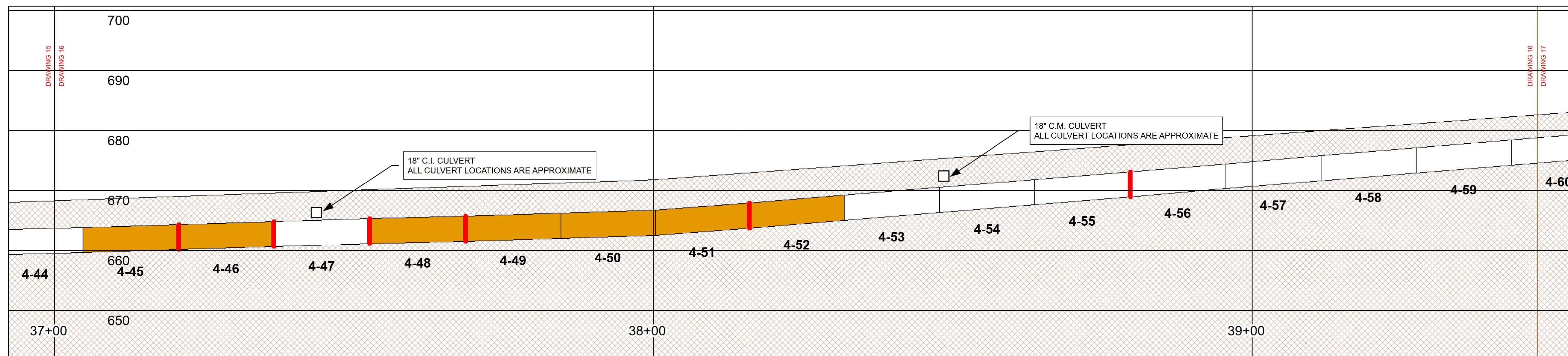
DISCIPLINE

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	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

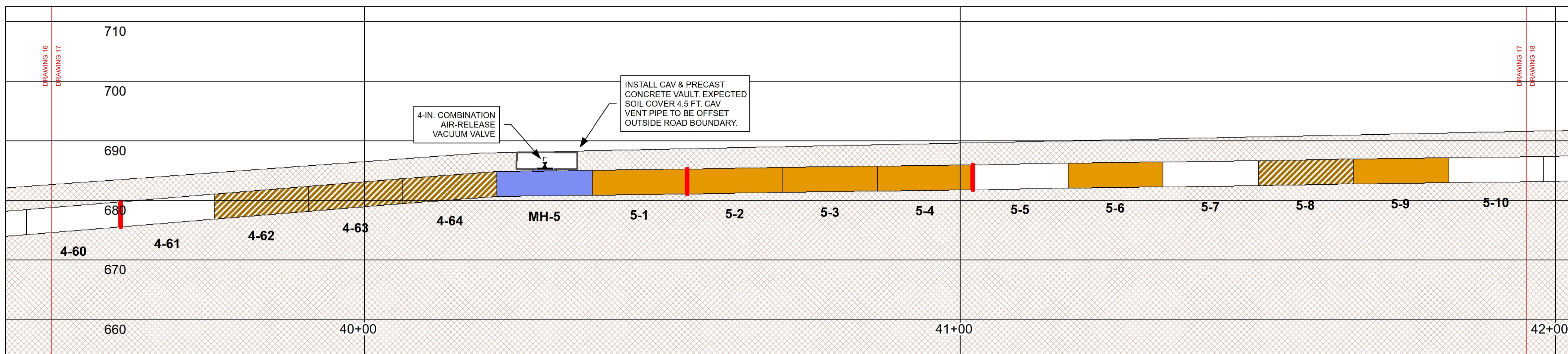
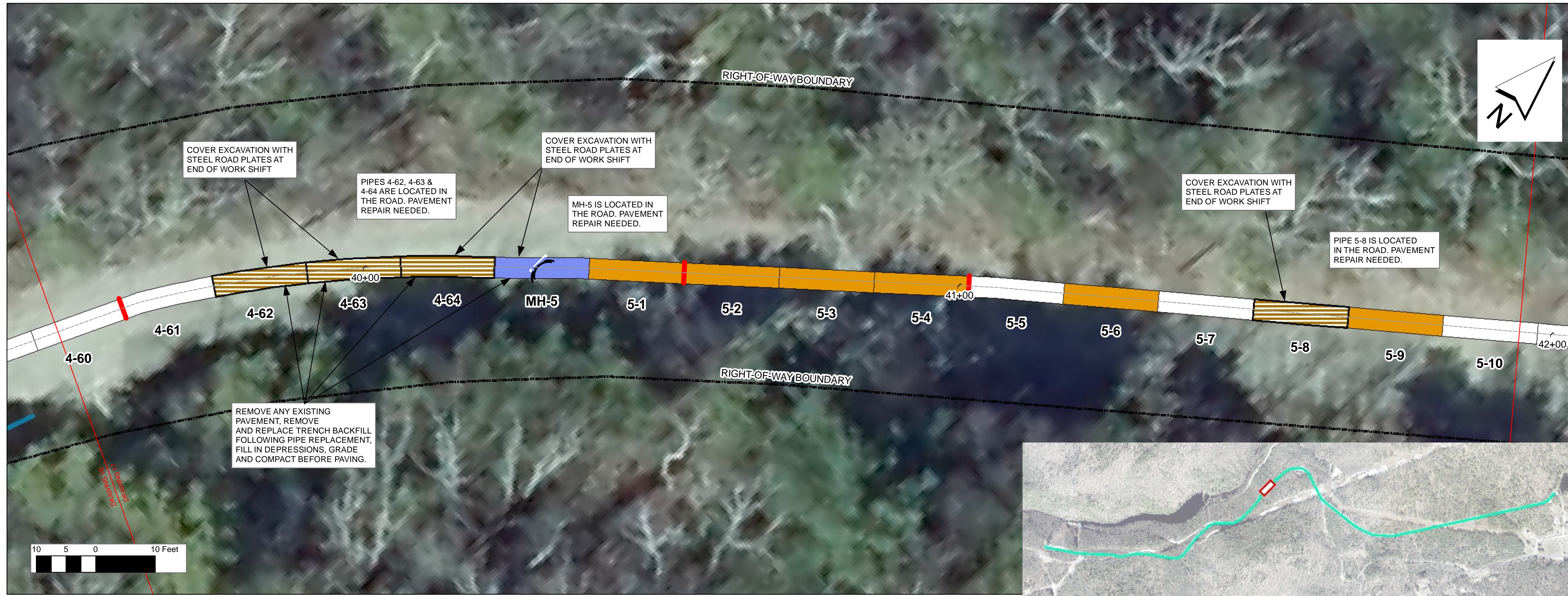
DISCIPLINE

CIVIL

SHEET TITLE

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

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

MANWAY TREATMENTS

- 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. 39+47.48 TO 41+94.97

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

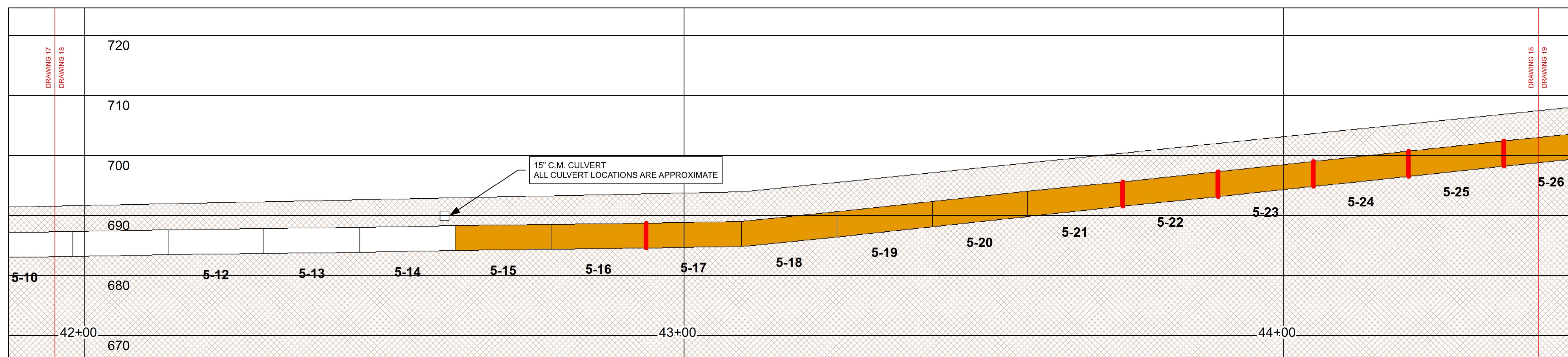
SPRINGFIELD WATER AND SEWER COMMISSION

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

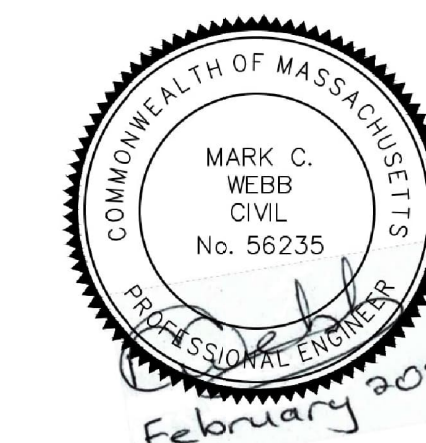
CONSULTANTS



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

IR	DATE	DESCRIPTION

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

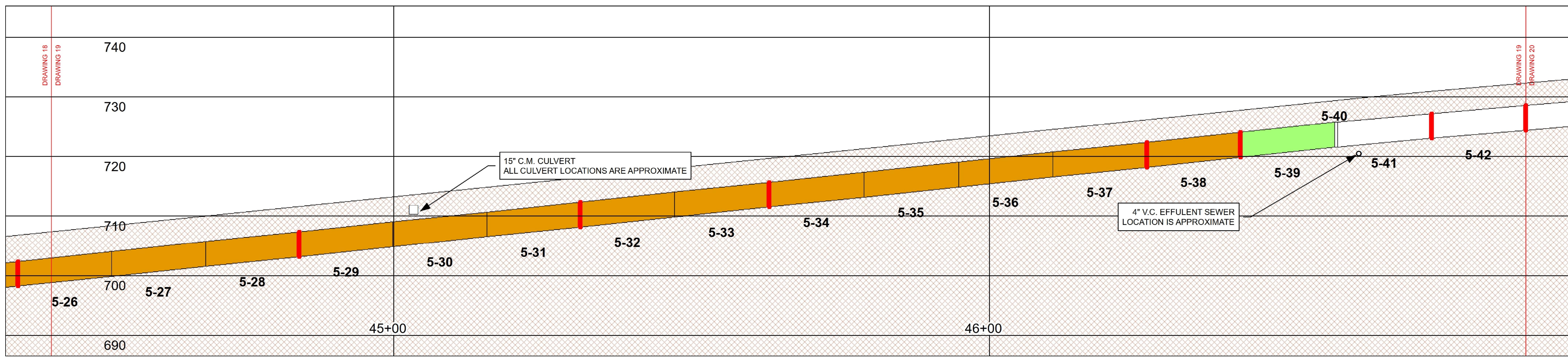
DISCIPLINE

CIVIL

SHEET TITLE

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

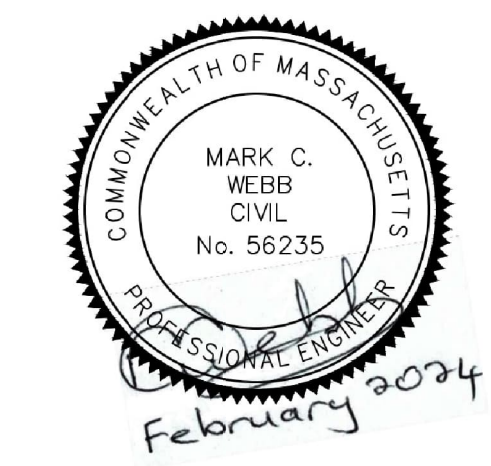
SHEET NUMBER



LEGEND

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

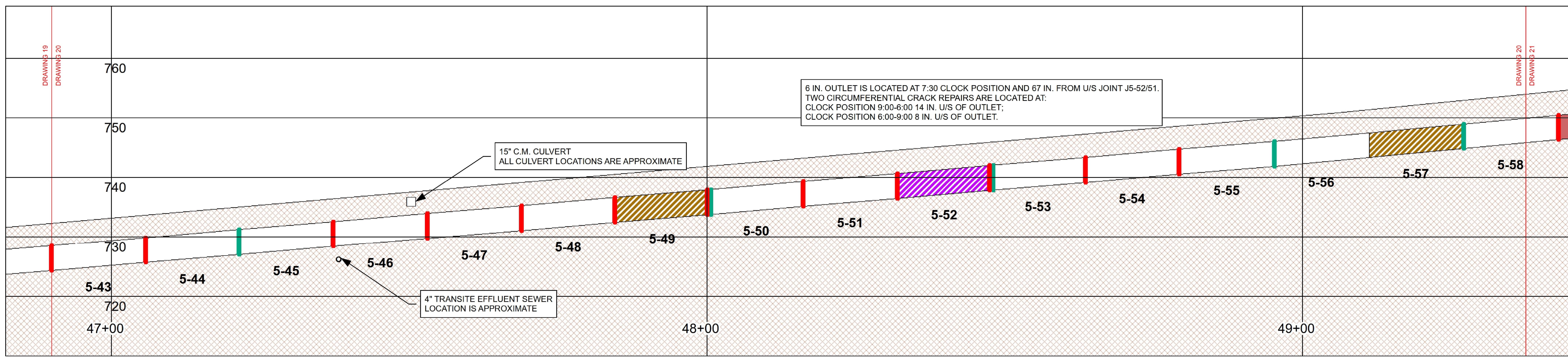
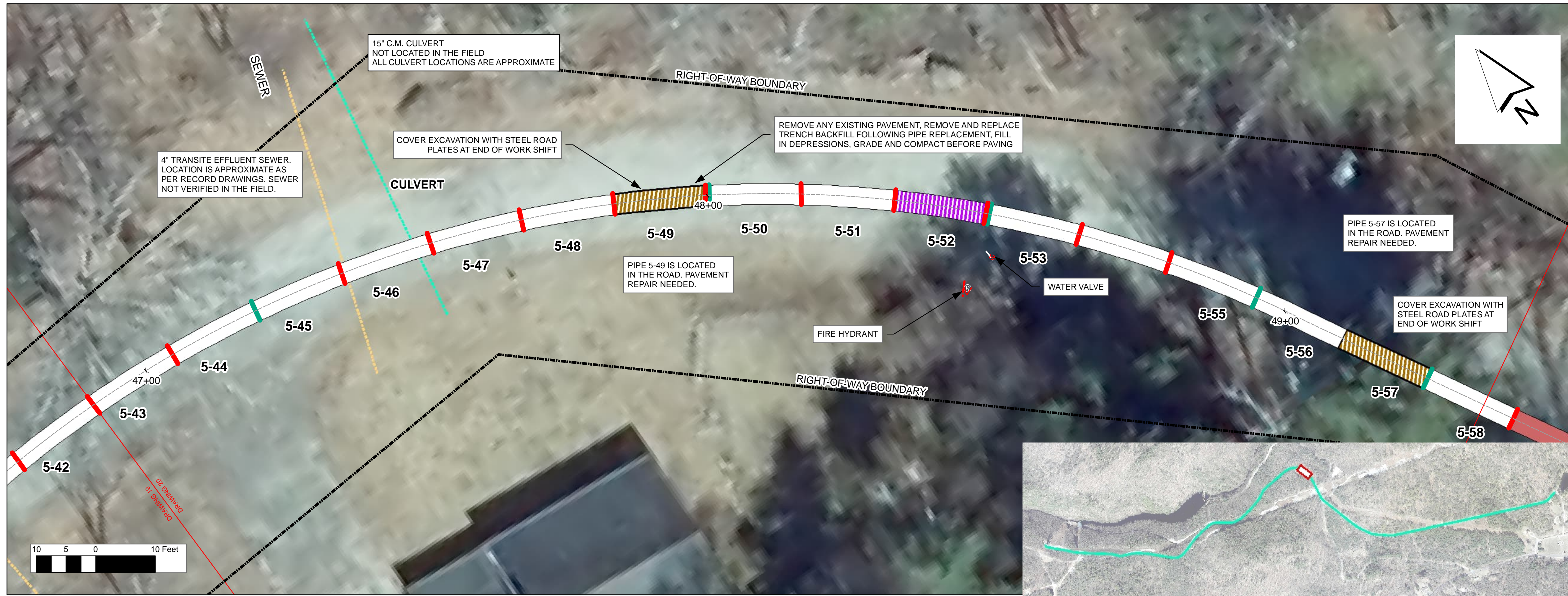
PROJECT NUMBER
60662775

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. 44+42.46 TO 46+89.94

SHEET NUMBER



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

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

PIPE BARREL TREATMENTS

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

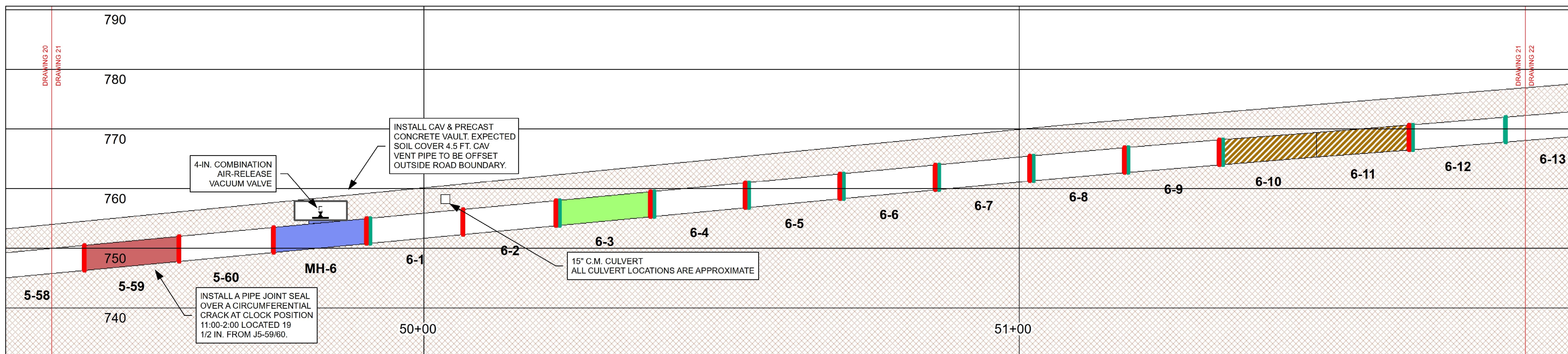
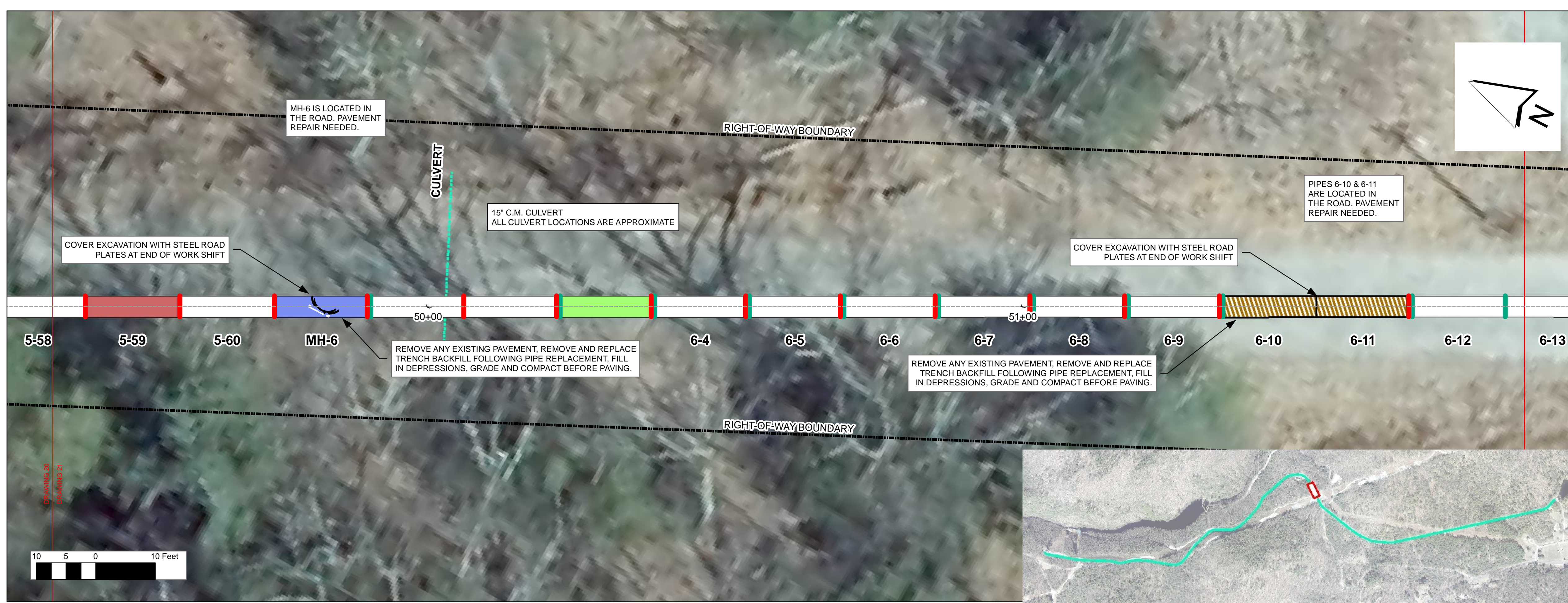
MANWAY TREATMENTS

- 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



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

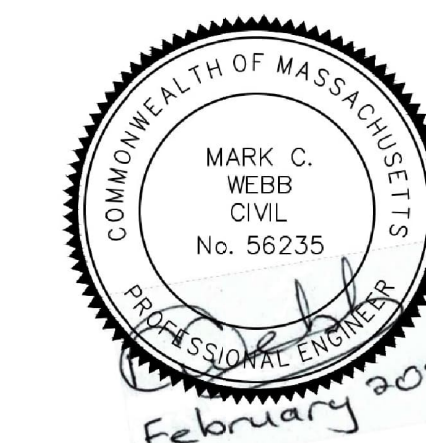
PROJECT NUMBER
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Date:	FEBRUARY 2024
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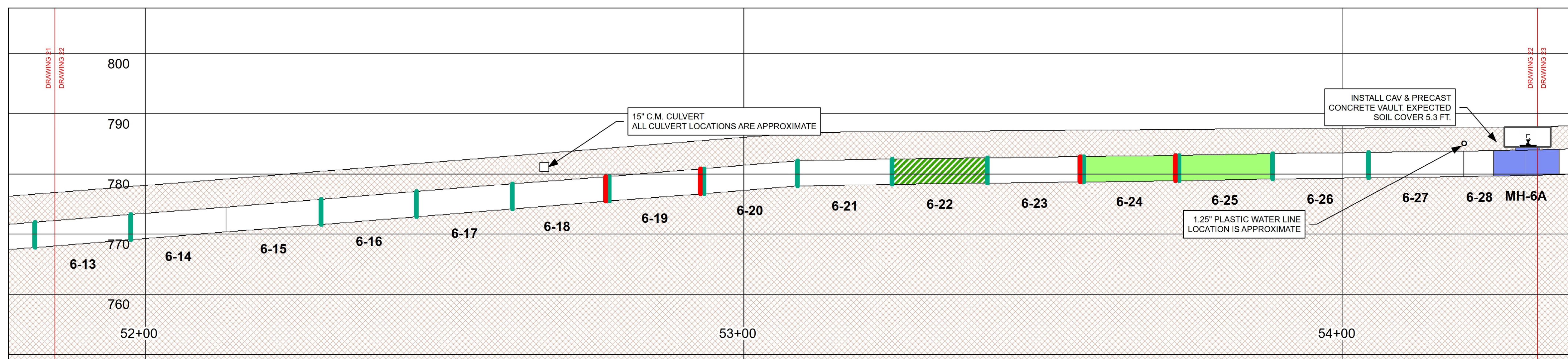
DISCIPLINE
CIVIL

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

SHEET NUMBER



IR	DATE	DESCRIPTION



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

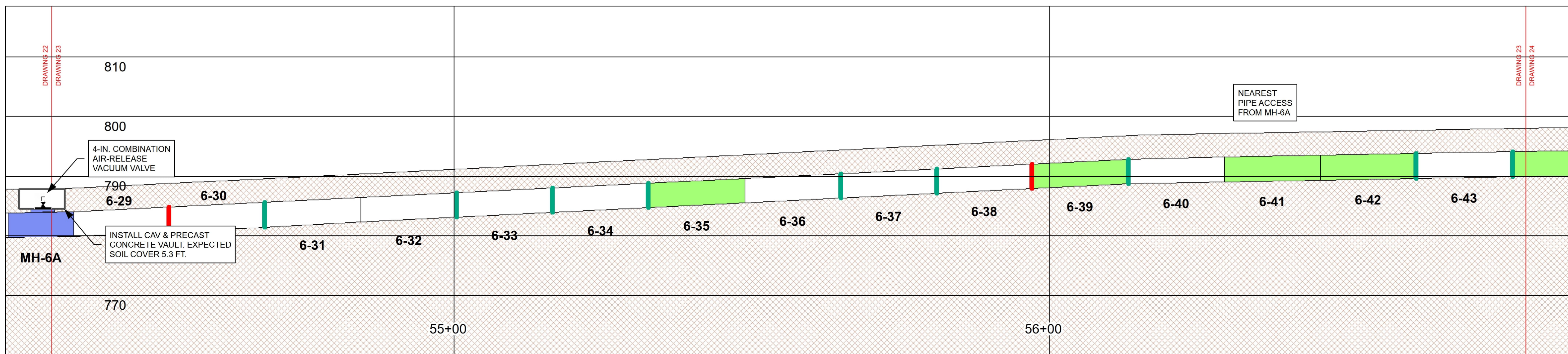
MANWAY TREATMENTS

- 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
- 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

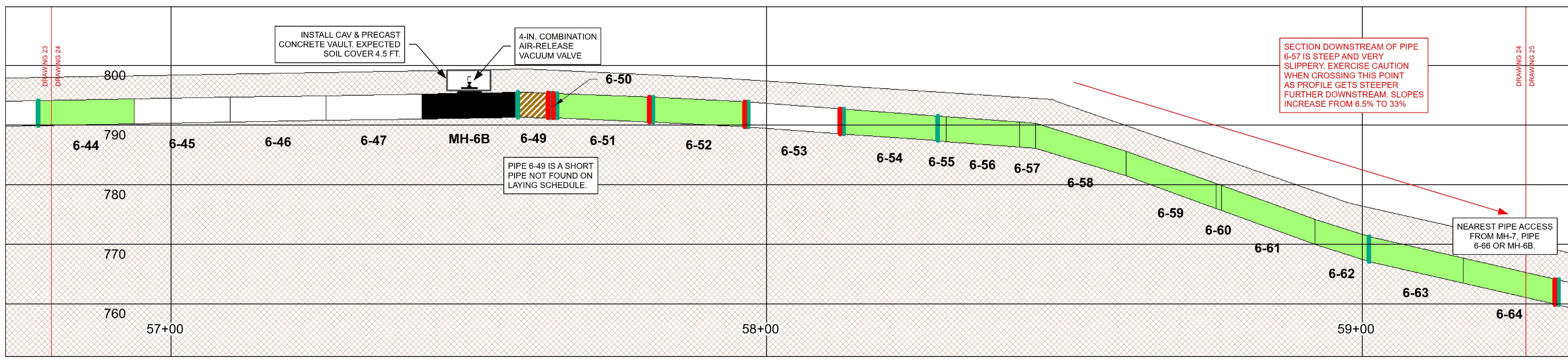
PROJECT NUMBER
60662775

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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. 54+32.40 TO 56+79.88

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

IR	DATE	DESCRIPTION

PROJECT NUMBER
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Dept Check:	
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Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

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

SHEET NUMBER



ISSUE/REVISION

IR	DATE	DESCRIPTION

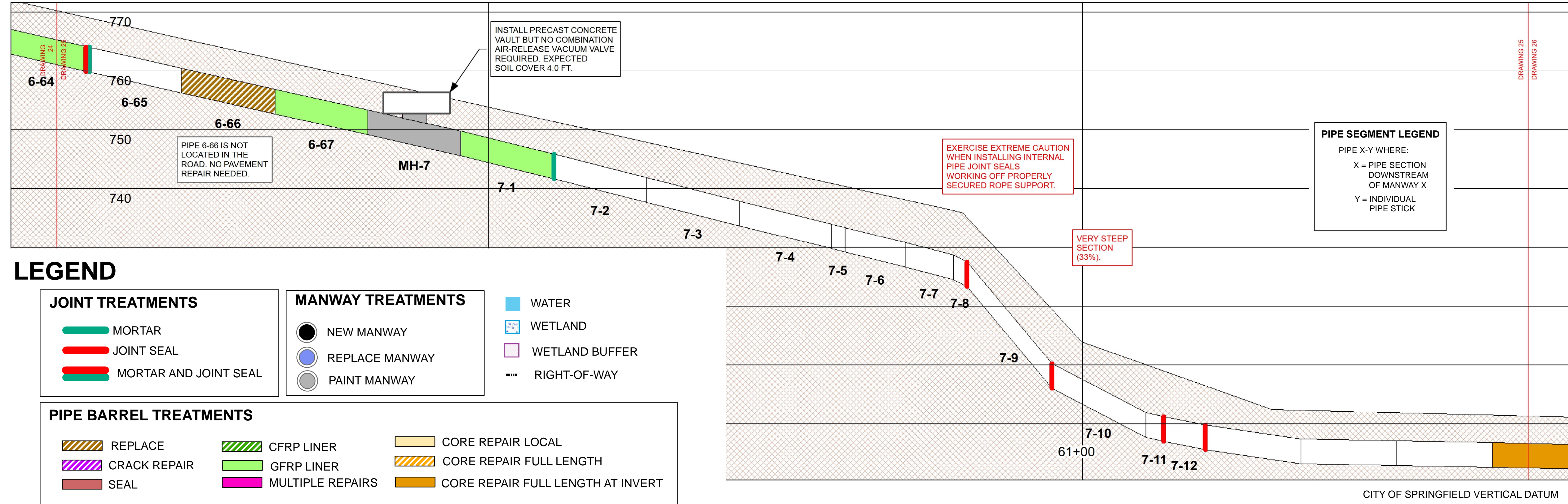
PROJECT NUMBER
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Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE
CIVIL

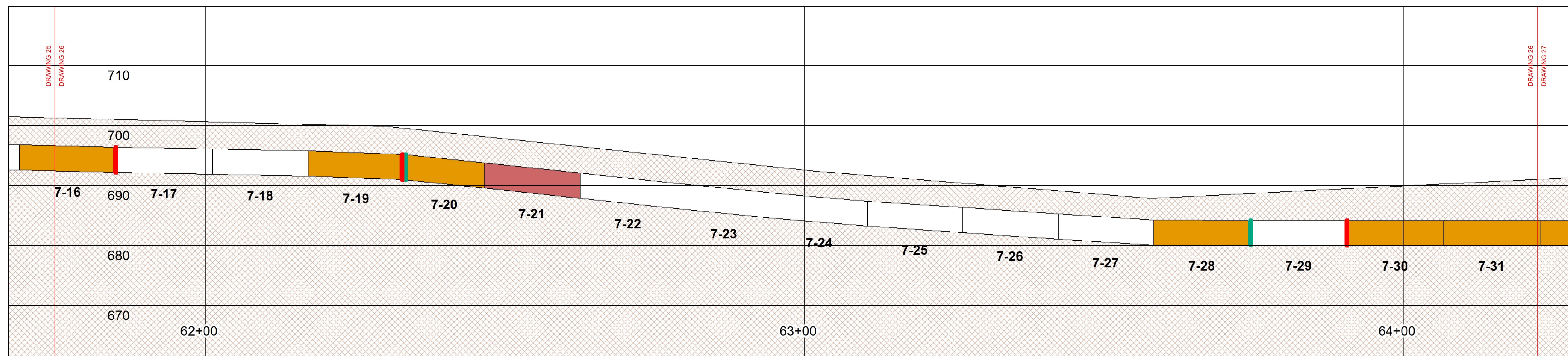
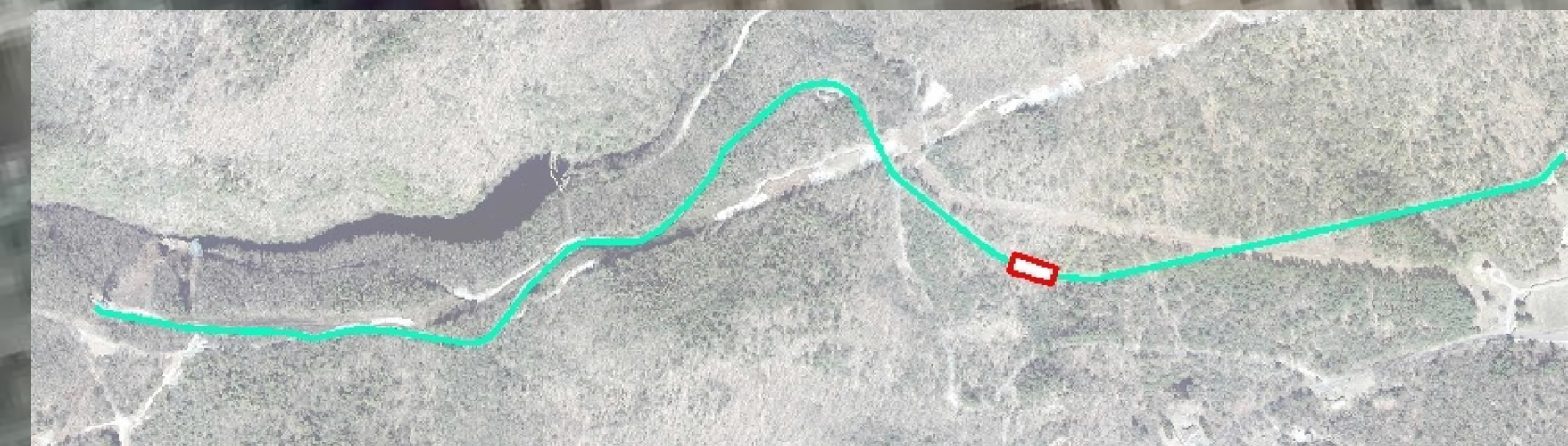
SHEET TITLE
PLAN AND PROFILE REHAB DRAWING
STA. 59+27.37 TO 61+74.85

SHEET NUMBER



LEGEND

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



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

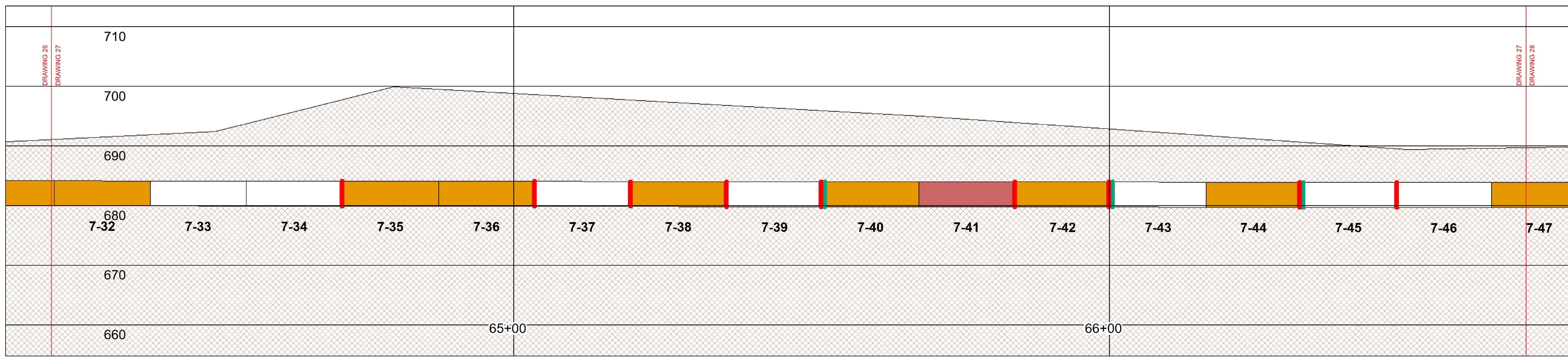
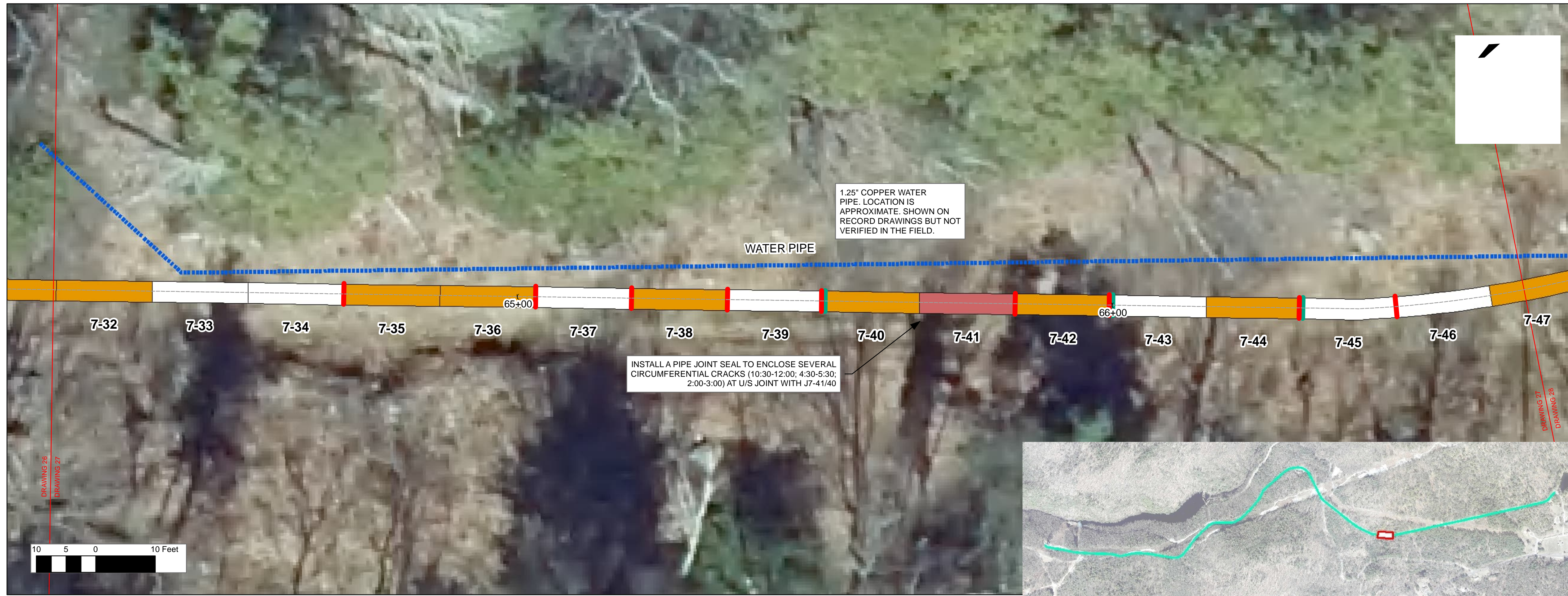
DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE REHAB DRAWING
 STA. 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

IR	DATE	DESCRIPTION

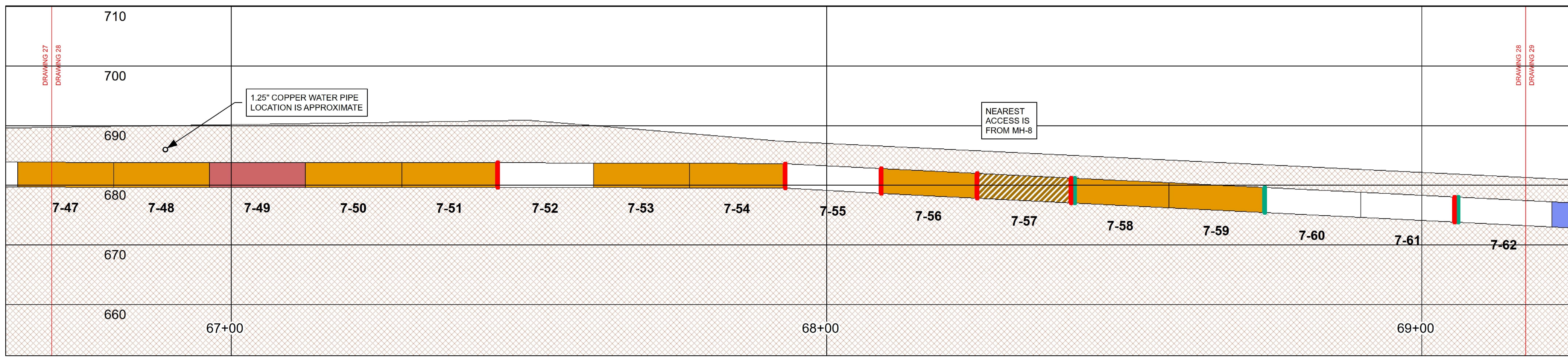
PROJECT NUMBER
60662775

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. 64+22.34 TO 66+69.82

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

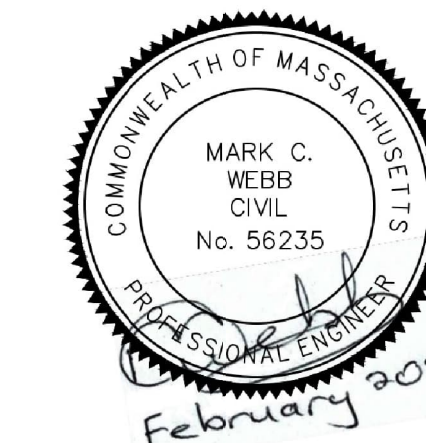
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Designed By:	M. C. WEBB, PE
Drawn By:	J. DAVIDSON
Dept Check:	
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1 inch = 10 feet

DISCIPLINE

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

SHEET NUMBER



IR	DATE	DESCRIPTION

60662775

Designed By: M. C. WEBB, PE

Drawn By: J. DAVIDSON

Dept Check:

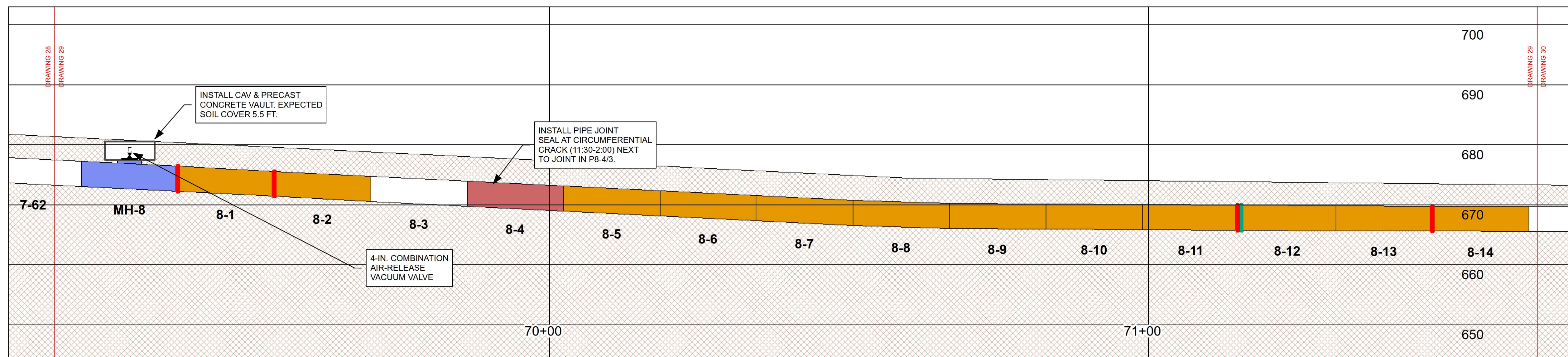
Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1 inch = 10 feet

CIVIL

PLAN AND PROFILE REHAB DRAWING
 STA. 69+17.31 TO 71+64.79



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

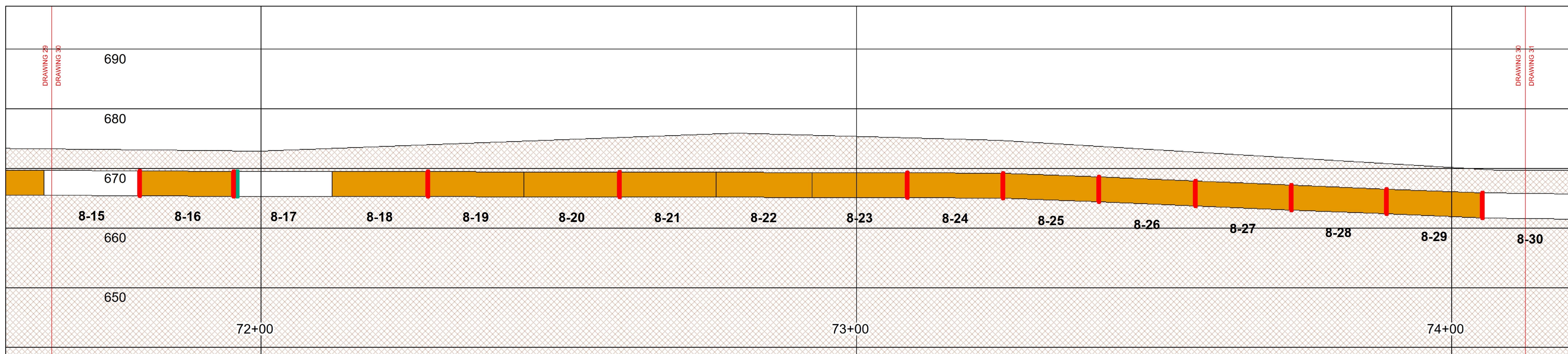
MANWAY TREATMENTS

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

MANWAY TREATMENTS

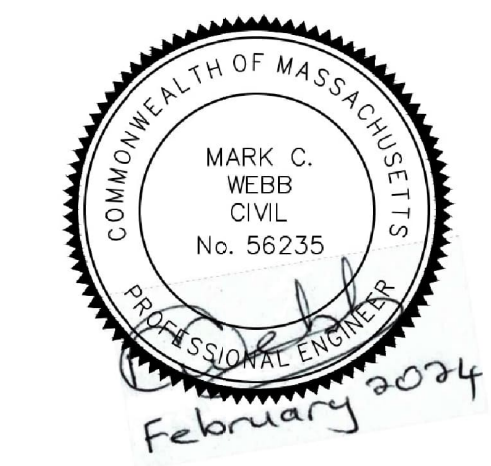
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

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

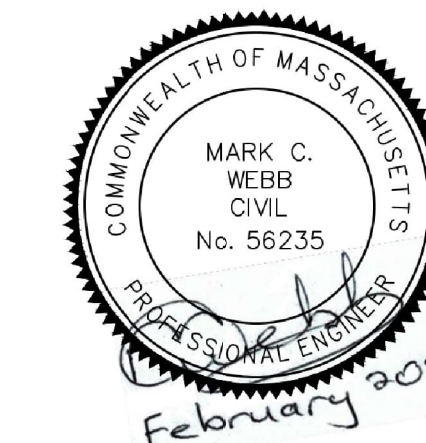
PROJECT NUMBER
60662775

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. 71+64.79 TO 74+12.28

SHEET NUMBER



IR	DATE	DESCRIPTION

60662775

Designed By: M. C. WEBB, PE

Drawn By: J. DAVIDSON

Dept Check:

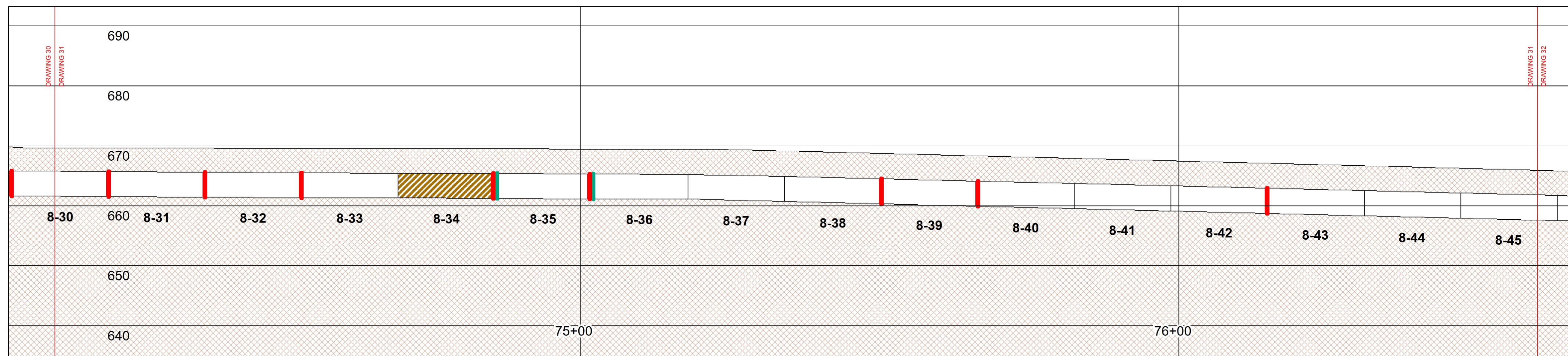
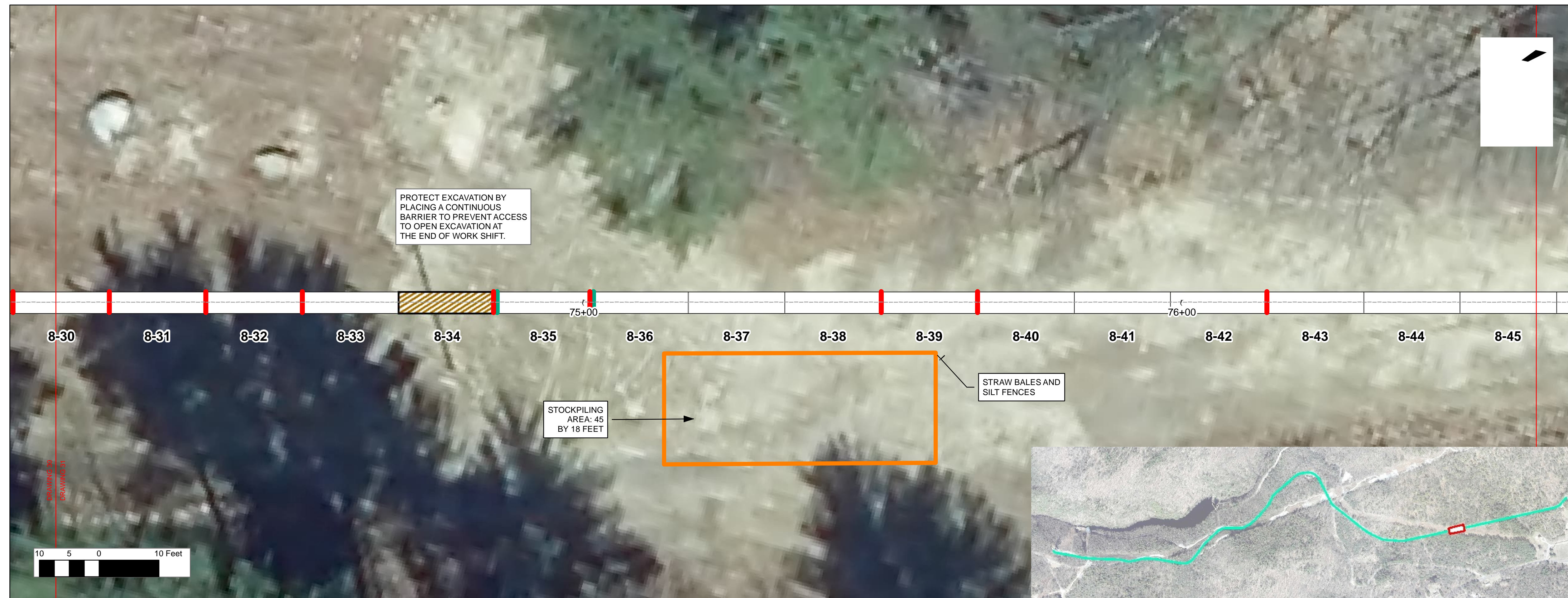
Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1 inch = 10 feet

CIVIL

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



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

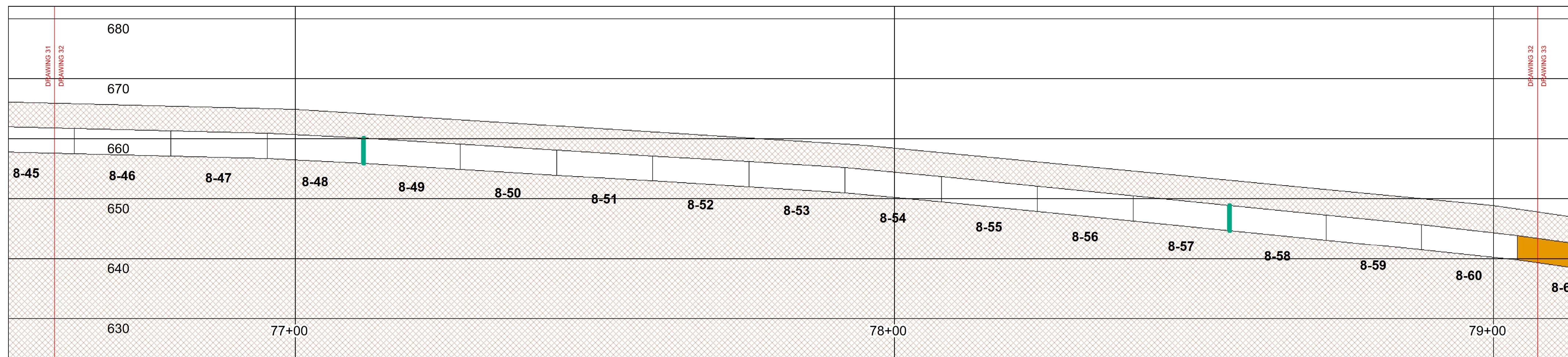
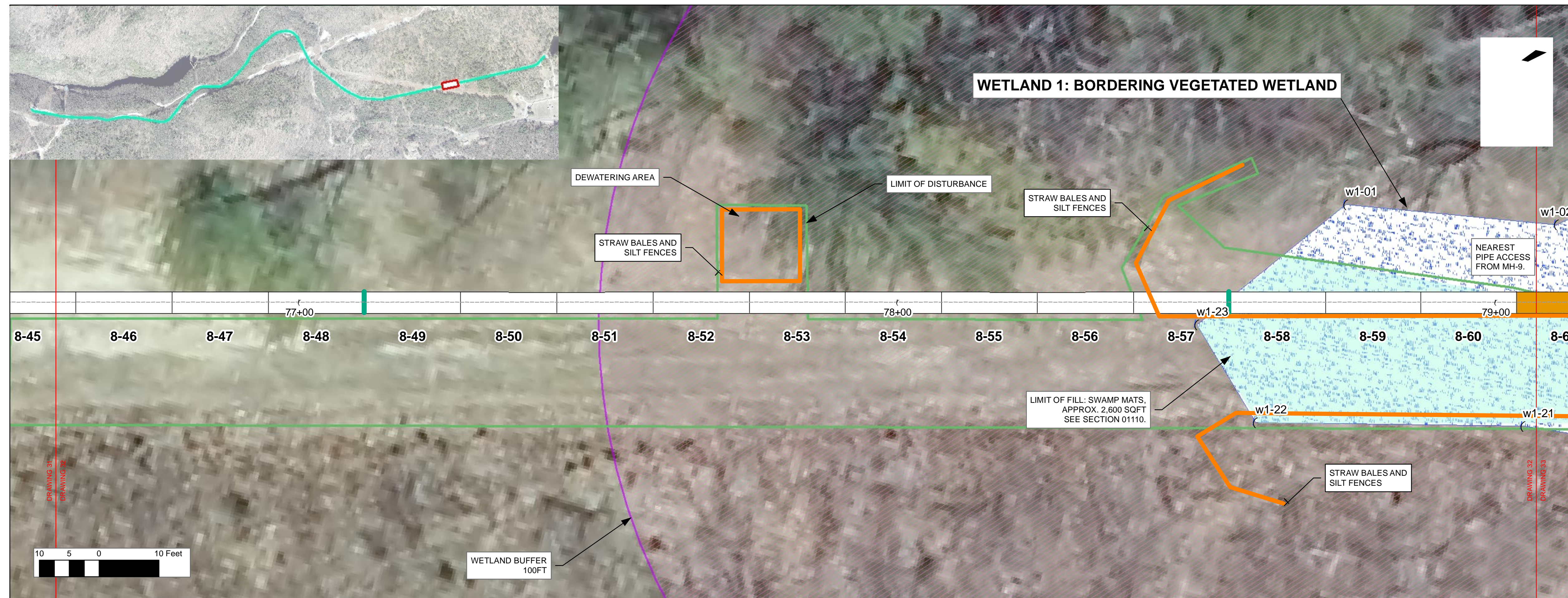
- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

- 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

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
- 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

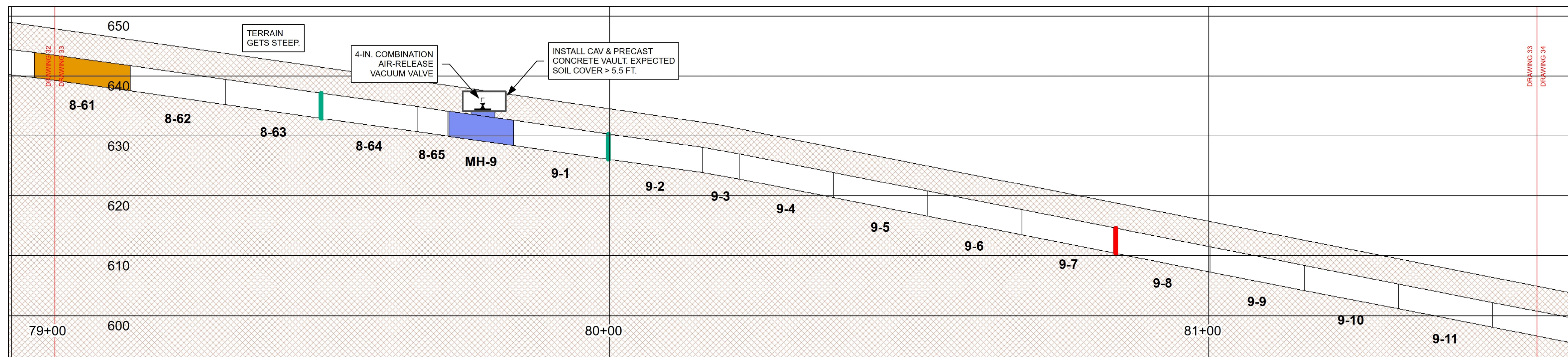
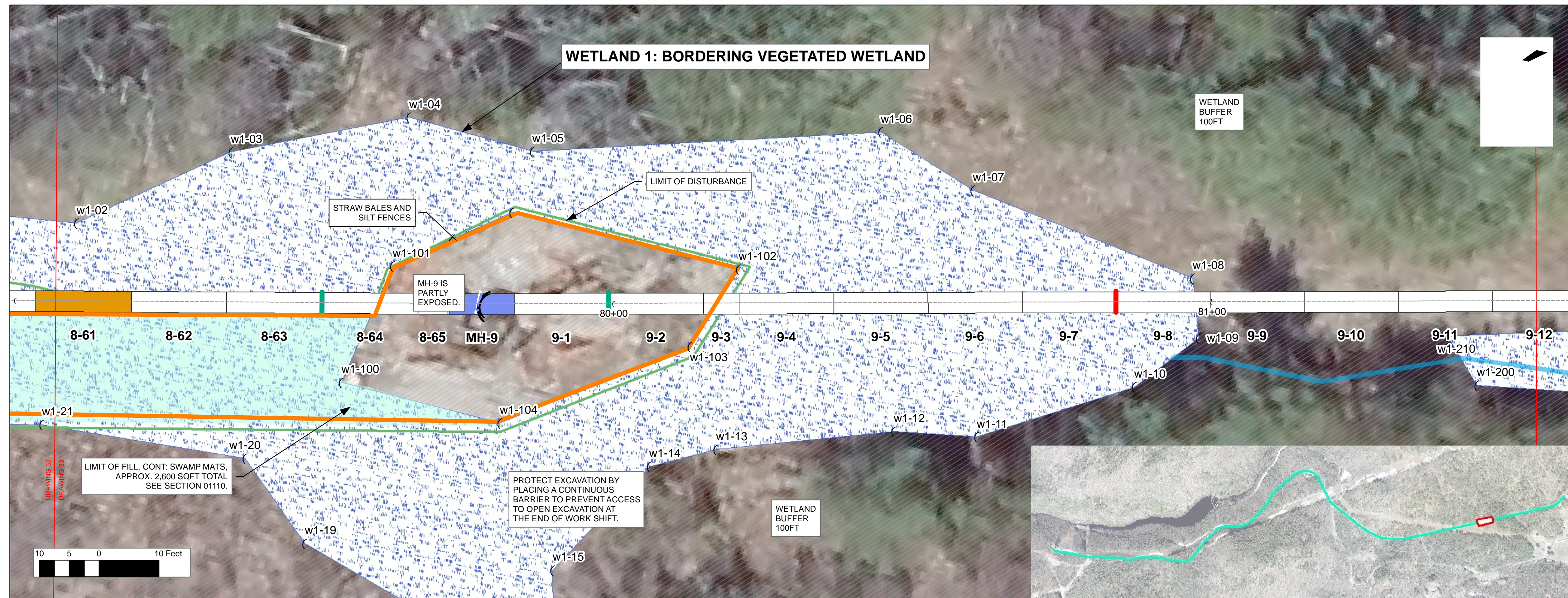
DISCIPLINE

CIVIL

SHEET TITLE

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

SHEET NUMBER



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	SEAL	PAINT MANWAY	WETLAND BUFFER
	CFRP LINER		RIGHT-OF-WAY
	GFRP LINER		
	MULTIPLE REPAIRS		
	CORE REPAIR LOCAL		
	CORE REPAIR FULL LENGTH		
	CORE REPAIR FULL LENGTH AT INVERT		

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

PROJECT

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

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

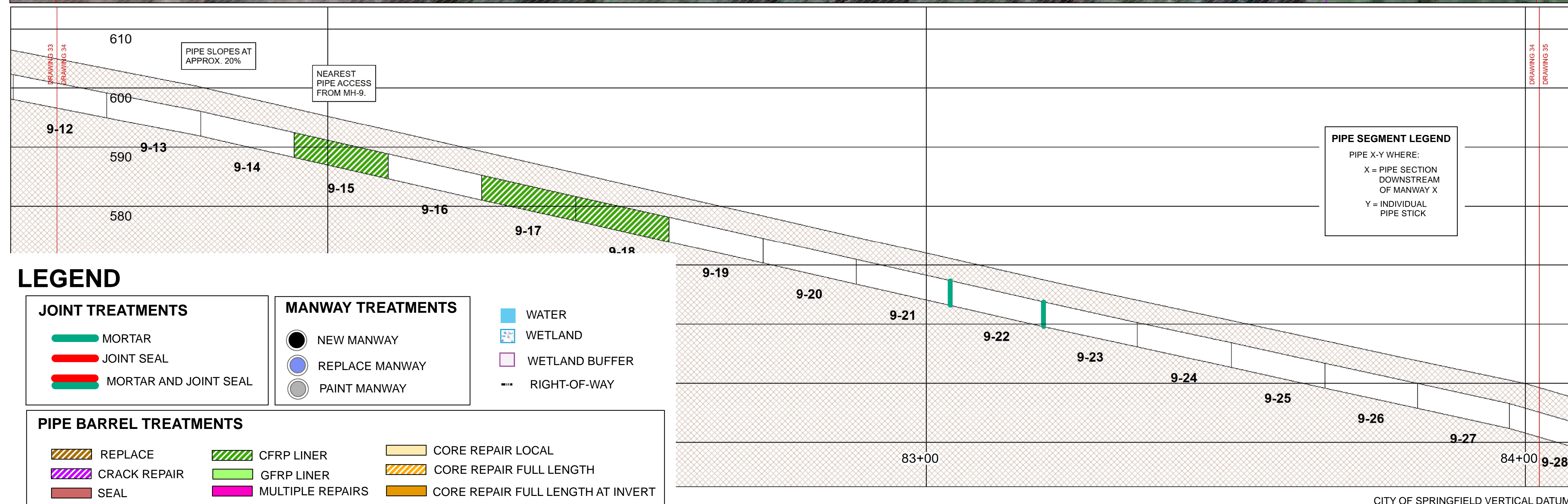
SPRINGFIELD WATER AND SEWER COMMISSION

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

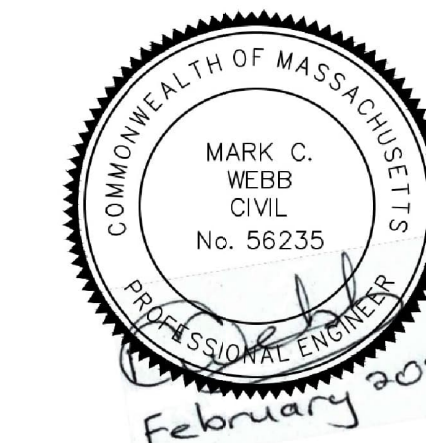
CIVIL

SHEET TITLE

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

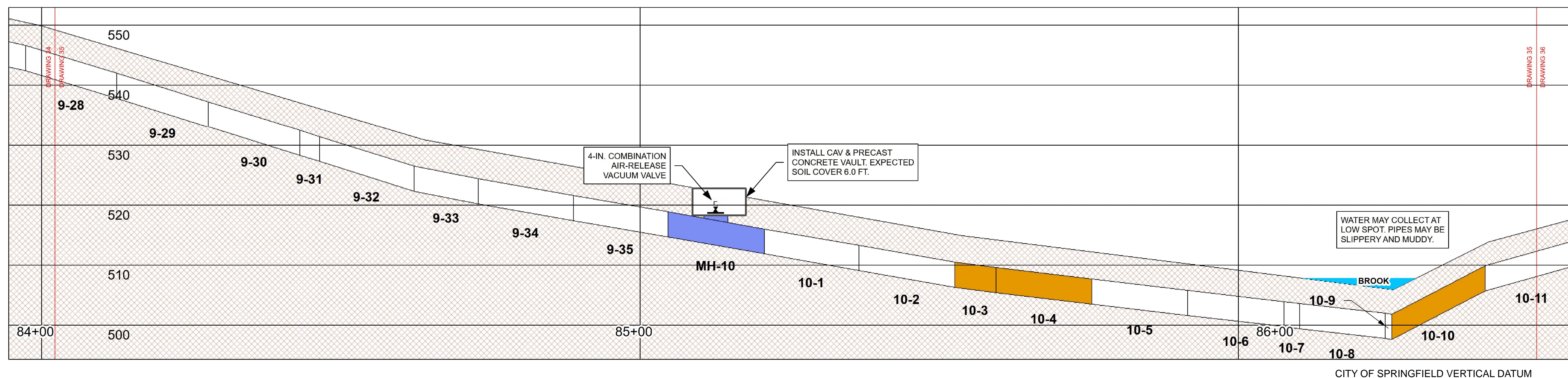
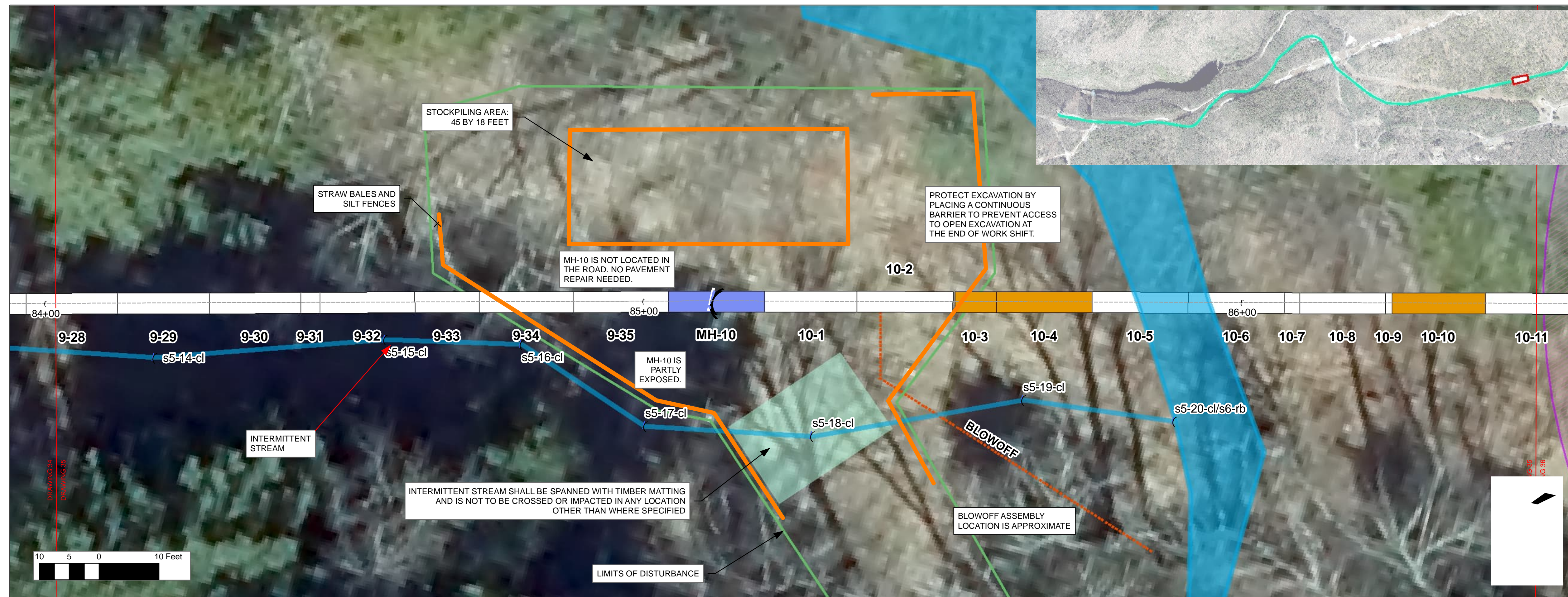
SHEET NUMBER

00 C-134 34 OF 38



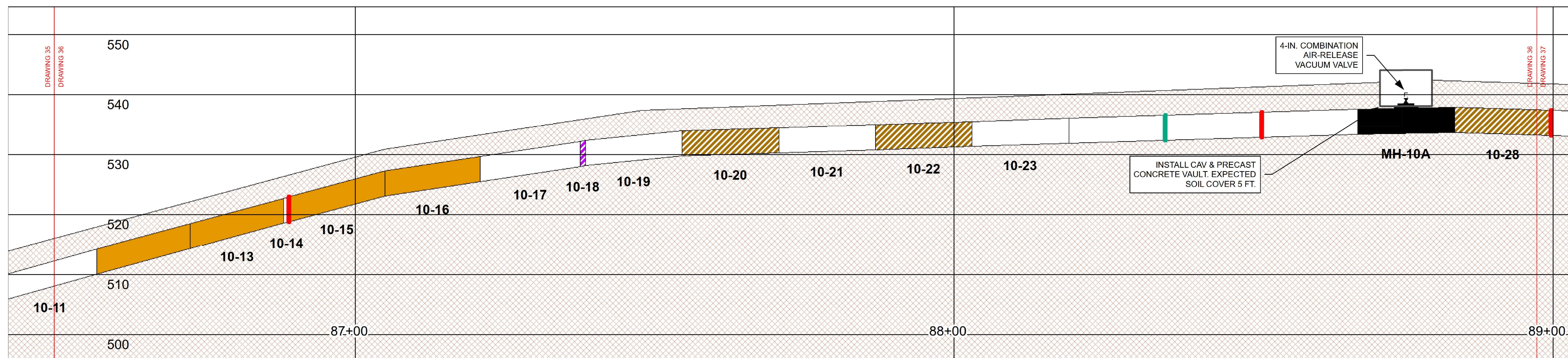
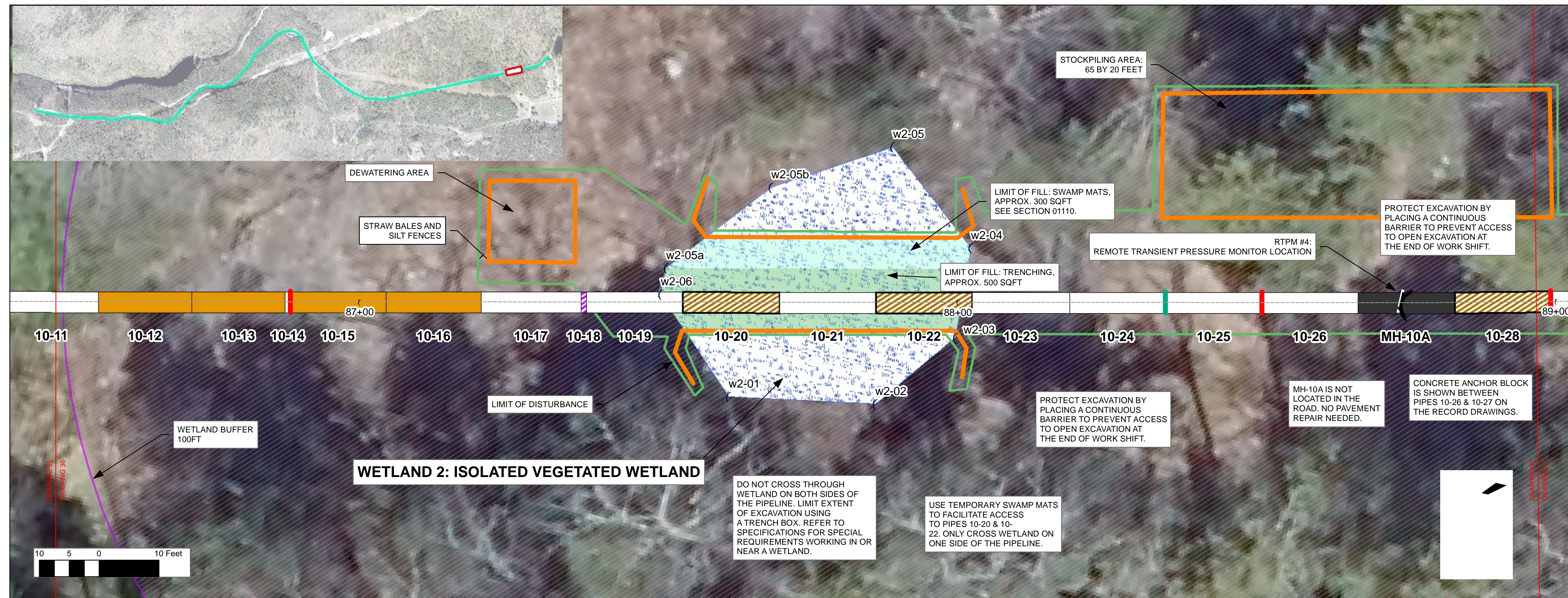
IR	DATE	DESCRIPTION

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



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	SEAL	PAINT MANWAY	WETLAND BUFFER
	CFRP LINER		RIGHT-OF-WAY
	GFRP LINER	CORE REPAIR LOCAL	PIPE X-Y WHERE: X = PIPE SECTION DOWNSTREAM OF MANWAY X Y = INDIVIDUAL PIPE STICK
	MULTIPLE REPAIRS	CORE REPAIR FULL LENGTH	
		CORE REPAIR FULL LENGTH AT INVERT	



LEGEND

JOINT TREATMENTS	
	MORTAR
	JOINT SEAL
	MORTAR AND JOINT SEAL

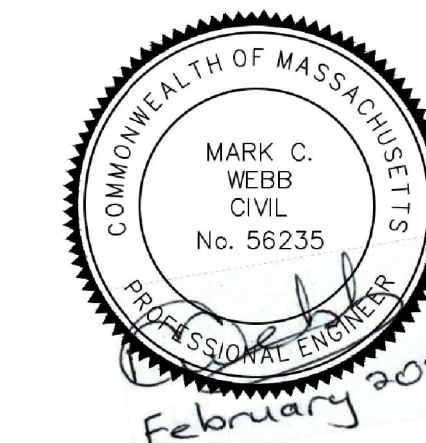
PIPE BARREL TREATMENTS			
	REPLACE		CFRP LINER
	CRACK REPAIR		GFRP LINER
	SEAL		MULTIPLE REPAIRS
	CORE REPAIR LOCAL		CORE REPAIR FULL LENGTH
	CORE REPAIR FULL LENGTH AT INVERT		

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. 86+49.71 TO 88+97.19

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

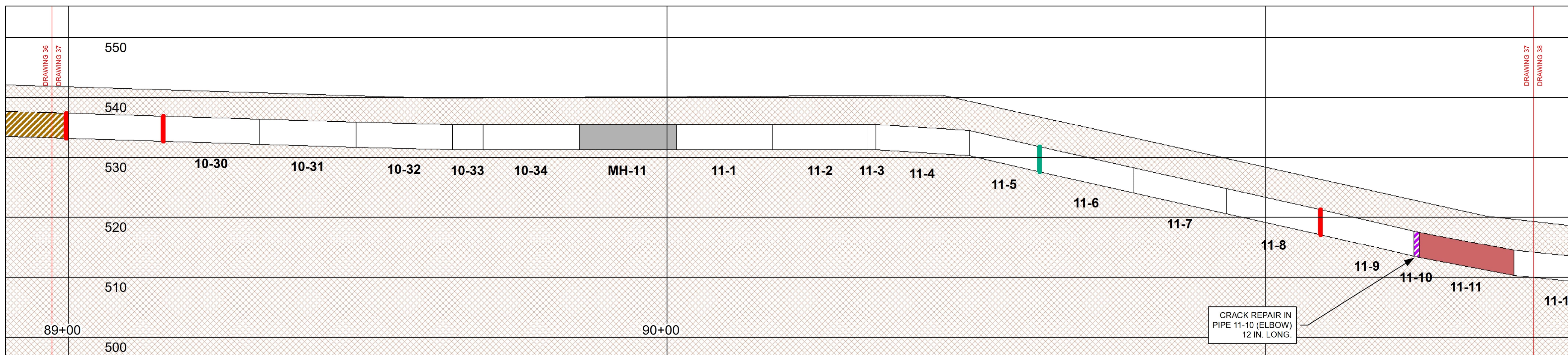
SPRINGFIELD WATER AND SEWER COMMISSION

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 CFRP LINER GFRP LINER MULTIPLE REPAIRS SEAL 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

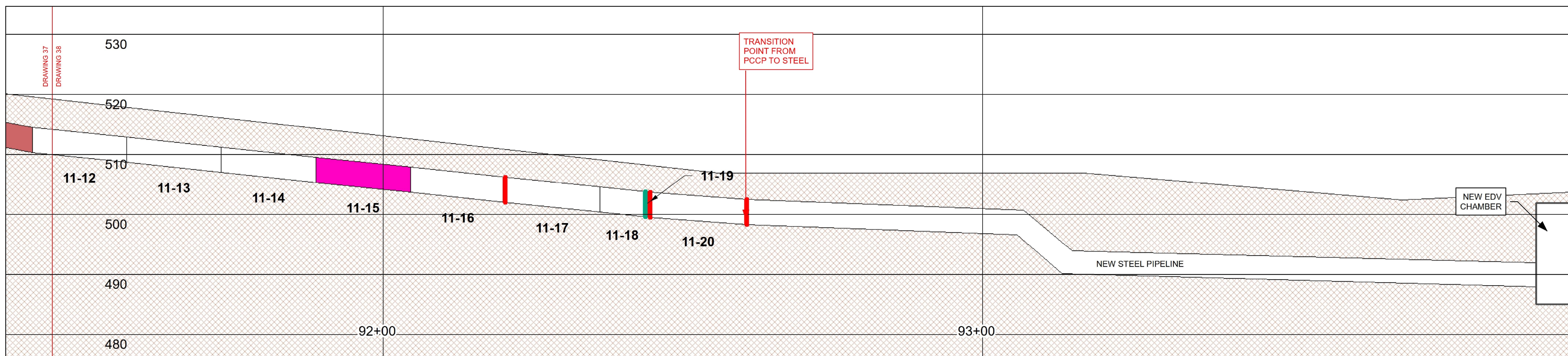
DISCIPLINE

CIVIL

SHEET TITLE

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

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. 91+44.68 TO END

SHEET NUMBER



PROJECT

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

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

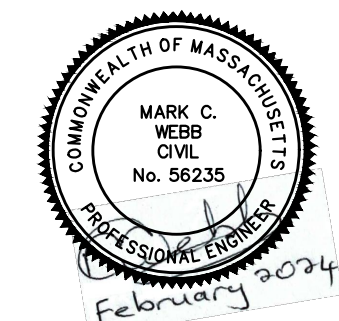
250 M STREET EXTENSION AGAWAM, MA 01001

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. Contains one row with I/R 9-1, DATE February 9, 2024, and DESCRIPTION Old joint, good. Little sloppy and starting to erode.

PROJECT NUMBER

60662775

Table with 2 columns: Field, Value. Includes fields for Designed By (MCW), Drawn By (JES), Dept Check (CPB), Proj Check (TAL/MCW), Date (FEBRUARY 2024), and Scale (AS NOTED).

DISCIPLINE

CIVIL SHEET TITLE

CIVIL DETAILS II JOINT REPAIR TABLE

SHEET NUMBER

99 C-502

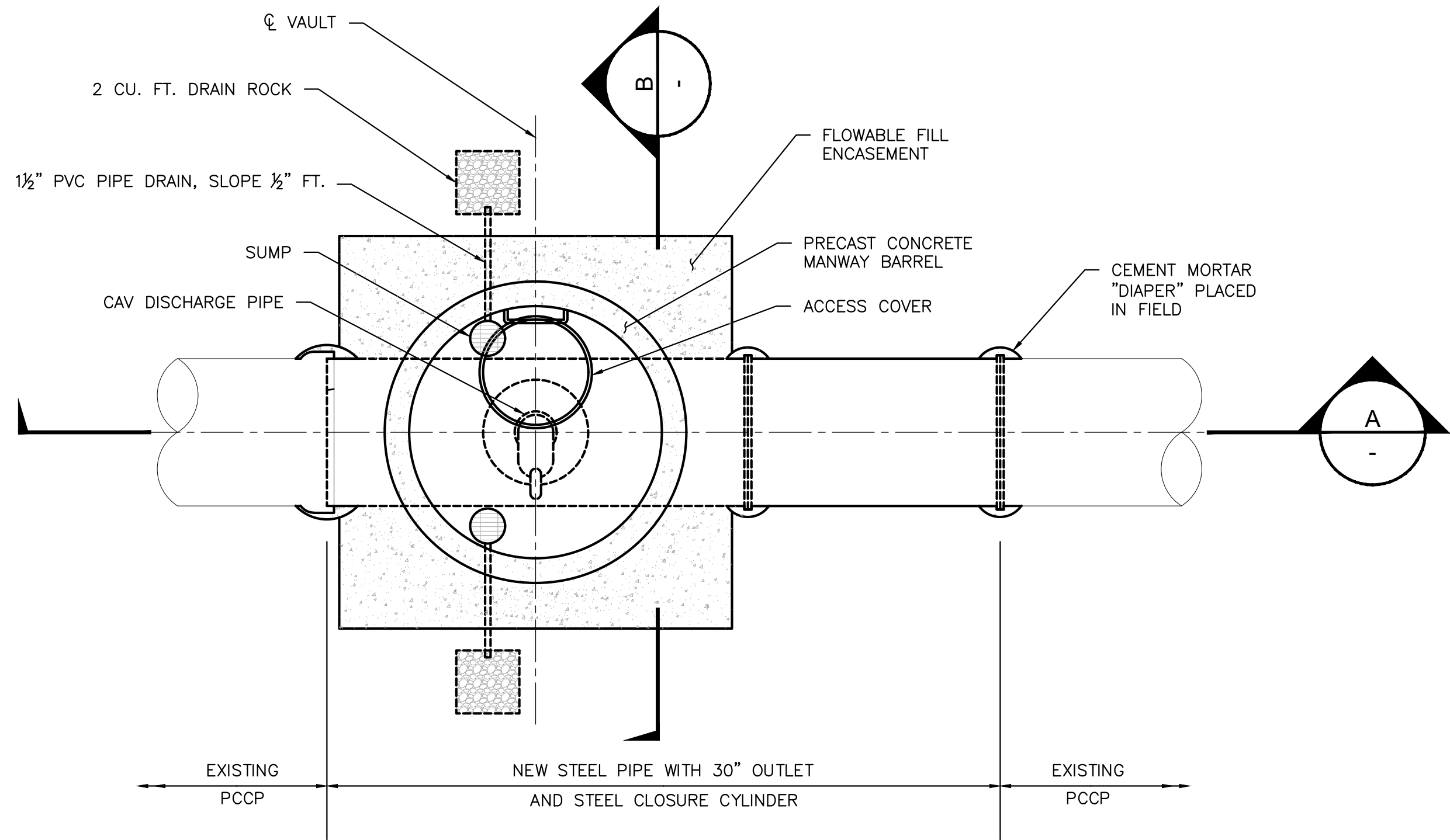
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Table with 6 columns: Joint ID, Inspection Direction, Field Inspection Notes, Missing Joint Mortar Inspection Notes, Joint Treatment, Missing Mortar Area (in.²). Contains 64 rows of joint inspection data.

Table with 6 columns: Joint ID, Inspection Direction, Field Inspection Notes, Missing Joint Mortar Inspection Notes, Joint Treatment, Missing Mortar Area (in.²). Contains 55 rows of joint inspection data.

JOINT TREATMENT TABLES

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LAST UPDATE: Wednesday, January 17, 2024 12:31:11 PM
PLOT DATE: Friday, February 9, 2024 12:18:15 PM



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

NOTES:

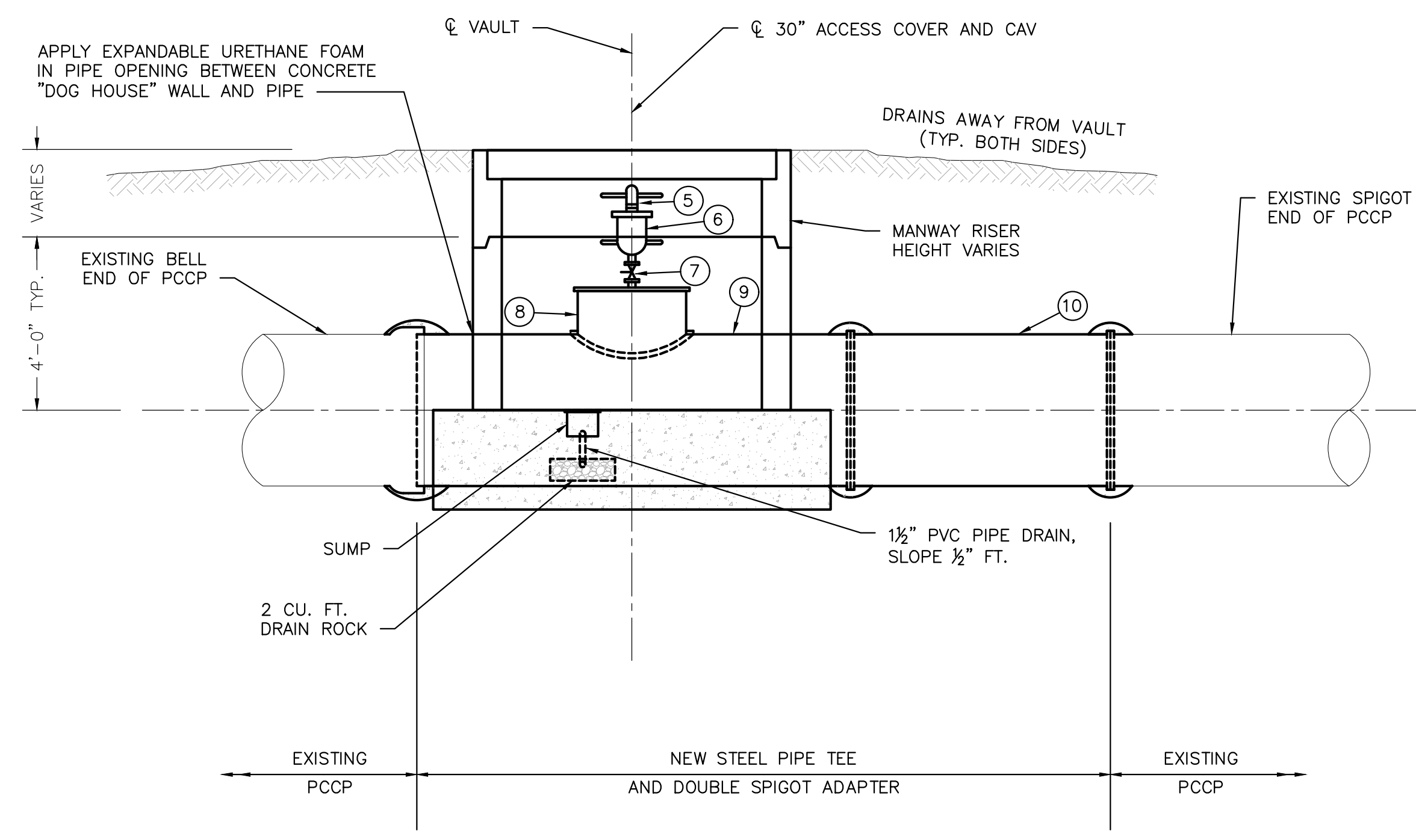
1. VAULT FLOOR SHALL SLOPE 2% TO SUMP.
2. WATERPROOF EXTERIOR SIDE & TOP SURFACES OF VAULT WITH CRYSTALLINE WATERPROOFING PER SPECS.
3. PROVIDE THREADED JOINTS FOR PIPE ENDS 2" AND SMALLER UNLESS OTHERWISE INDICATED.
4. COAT & LINE STEEL PIPING TO BE INSTALLED IN VAULT AND BELOW GRADE WITH FUSION BONDED 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

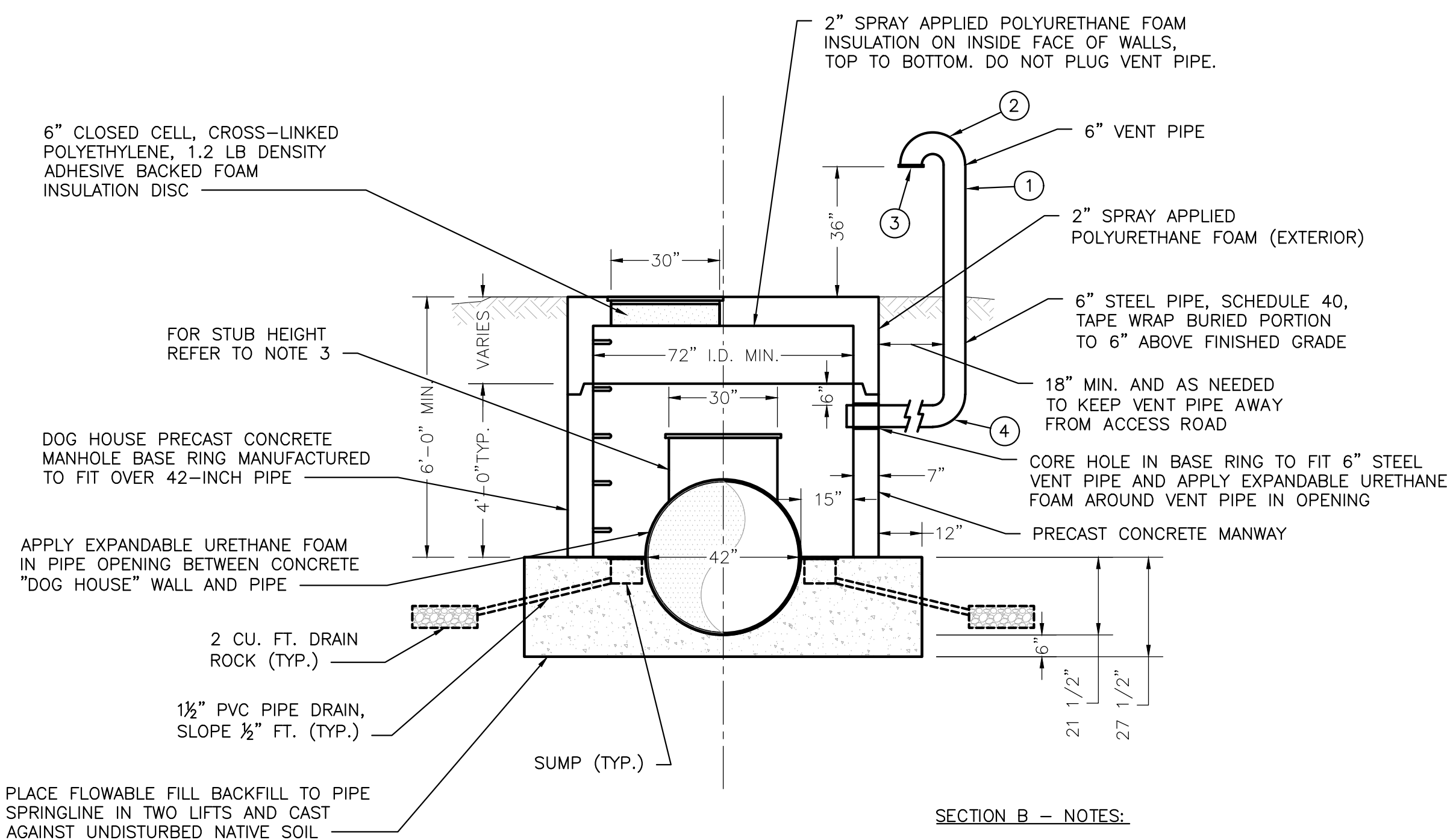
1. 6" STEEL PIPE, SCHEDULE 40, TAPE WRAP BURIED PORTION TO 6" ABOVE FINISH GRADE PER NOTES.
2. 6" STEEL 90° LONG-RADIUS ELBOW, SCHEDULE 40 (TYP).
3. 6" STEEL FLANGES (MIN 1/4" THICK), SECURING NO. 16 STAINLESS STEEL WIRE SCREEN WITH A MINIMUM OF 4 STAINLESS STEEL BOLTS, NUTS & WASHERS.
4. 6" STEEL 90° 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).

PIPELINE AND MANHOLE VAULT NOTES

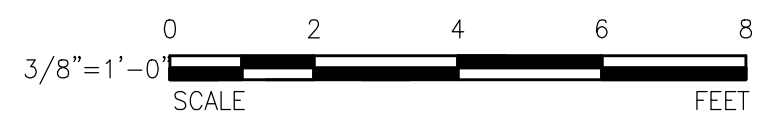
1. PIPE TYPE AND MATERIAL SHALL BE AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
2. ALL PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS SHOWN UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER.
3. PIPE DEFLECTION SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION.
4. MINIMUM PIPE 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.



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



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



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 III
MANWAY DETAILS I

SHEET NUMBER

99 C-503

PATH: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PRR\9900_CAD_GIS\910_CAD\20-SHEETS\C99-C-503.DWG
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 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

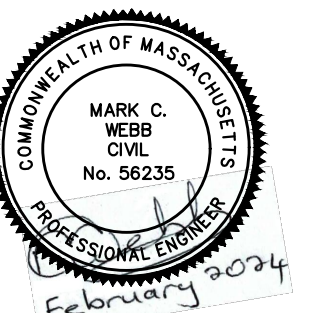
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
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CHELMSFORD, MA 01824
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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

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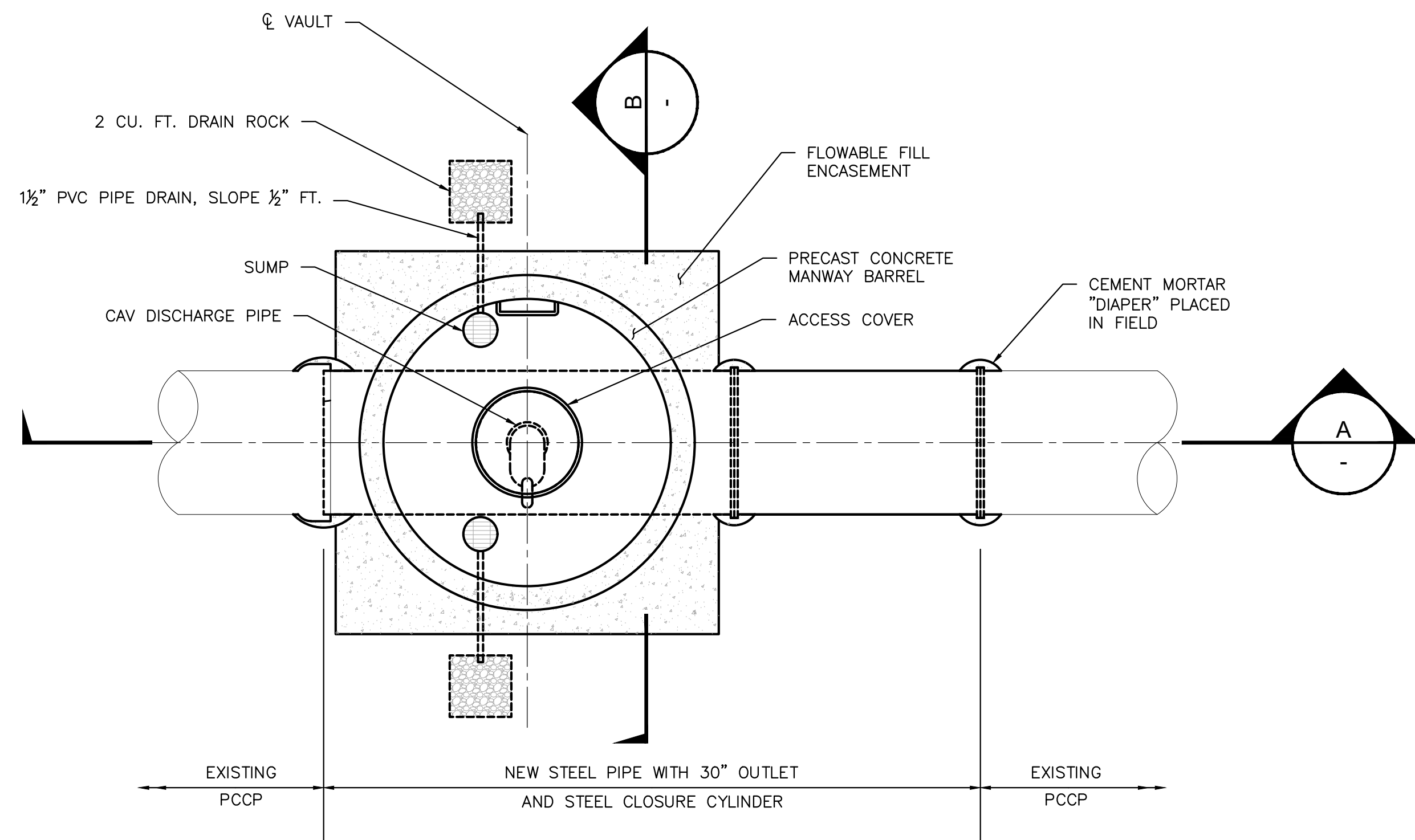
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Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

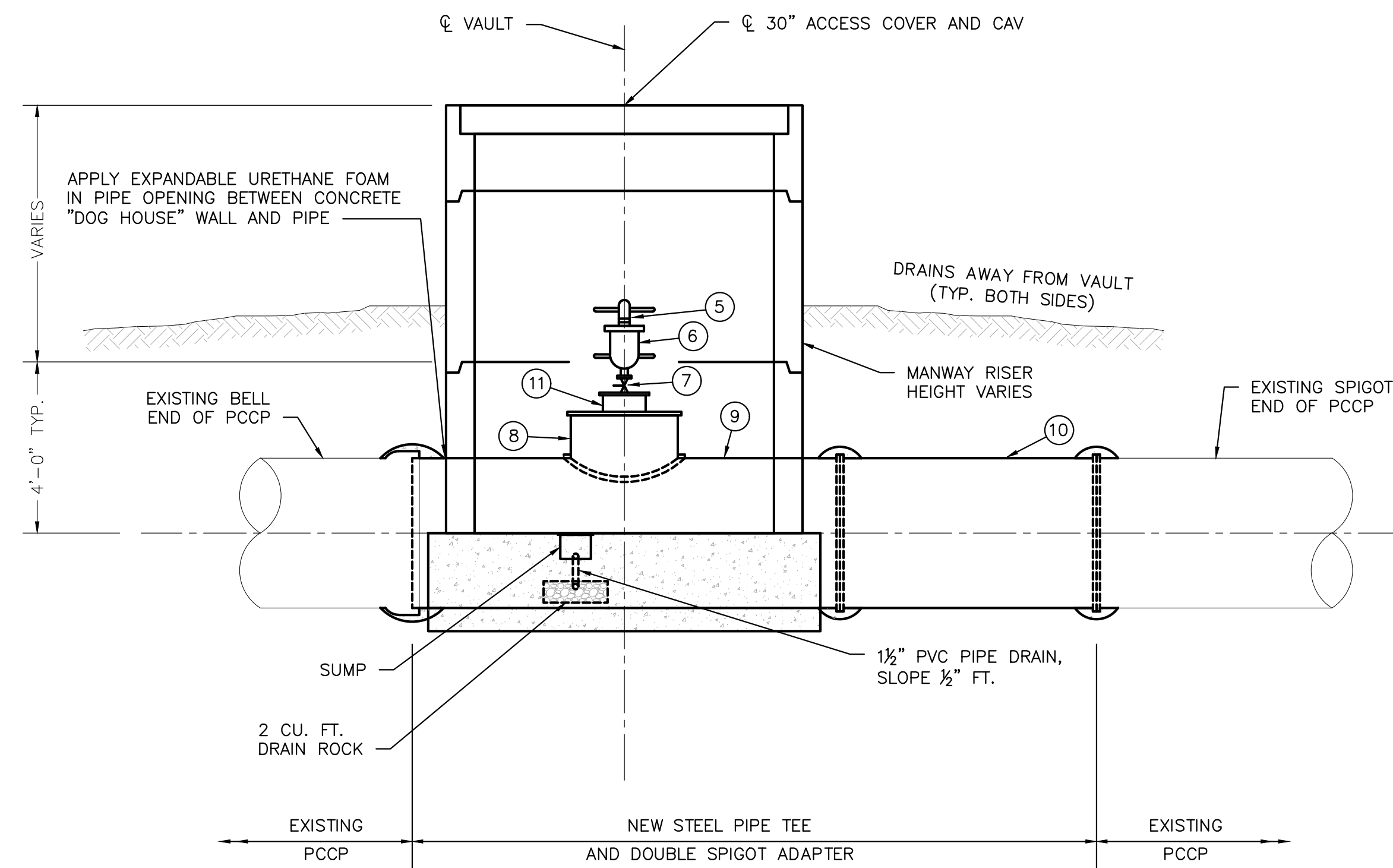
CIVIL SHEET TITLE

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

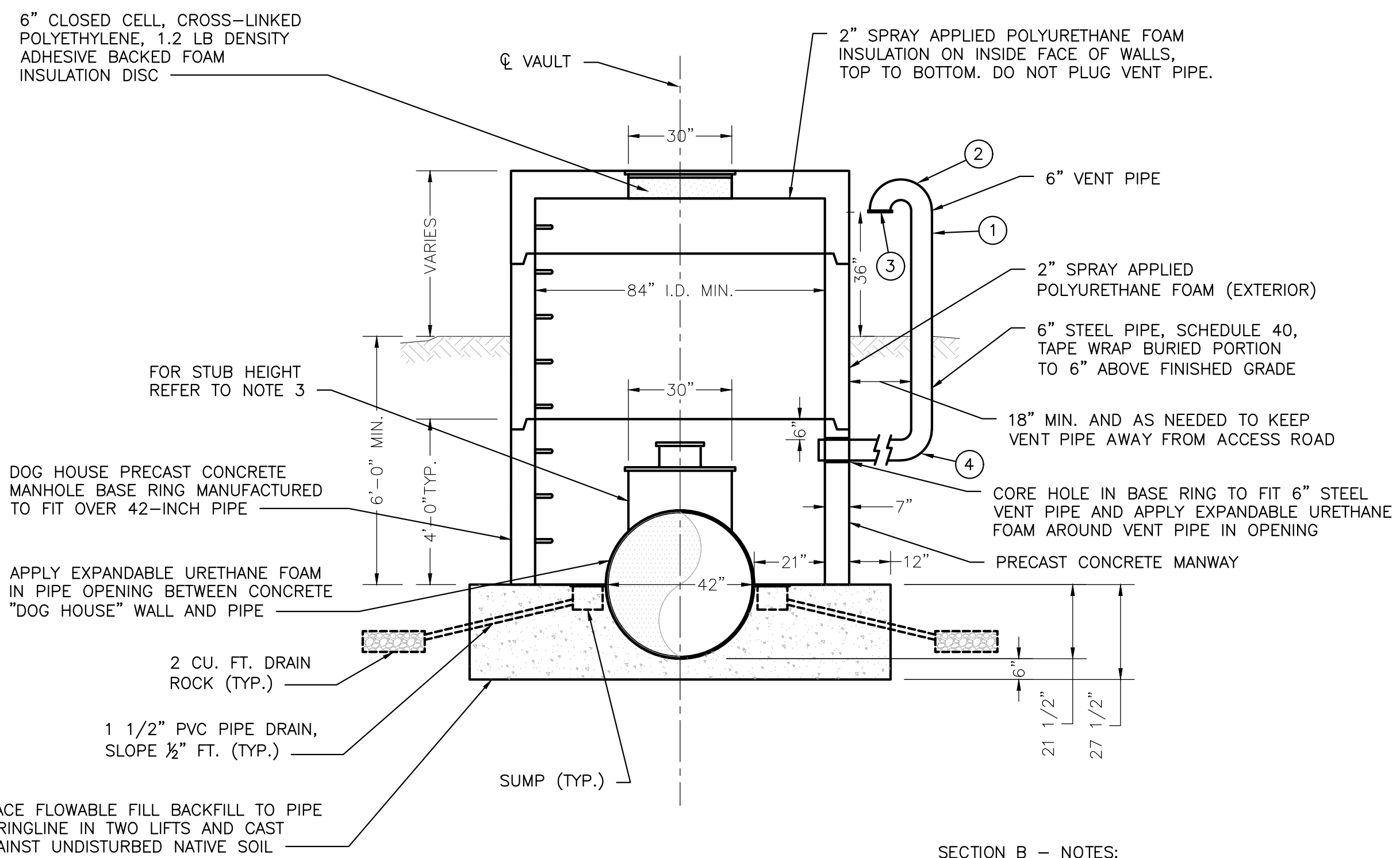
99 C-504



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



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



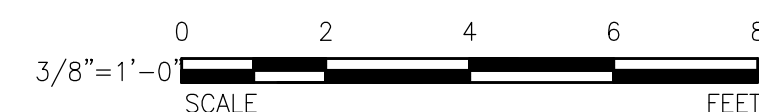
SECTION B
SCALE: 3/8" = 1'-0"

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).



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 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

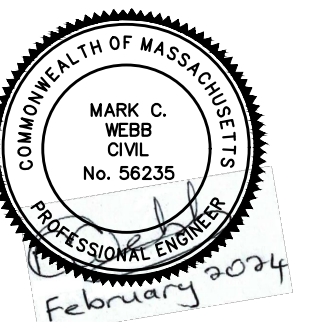
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
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 V
MANWAY DETAILS III
MH-7
SHEET NUMBER**

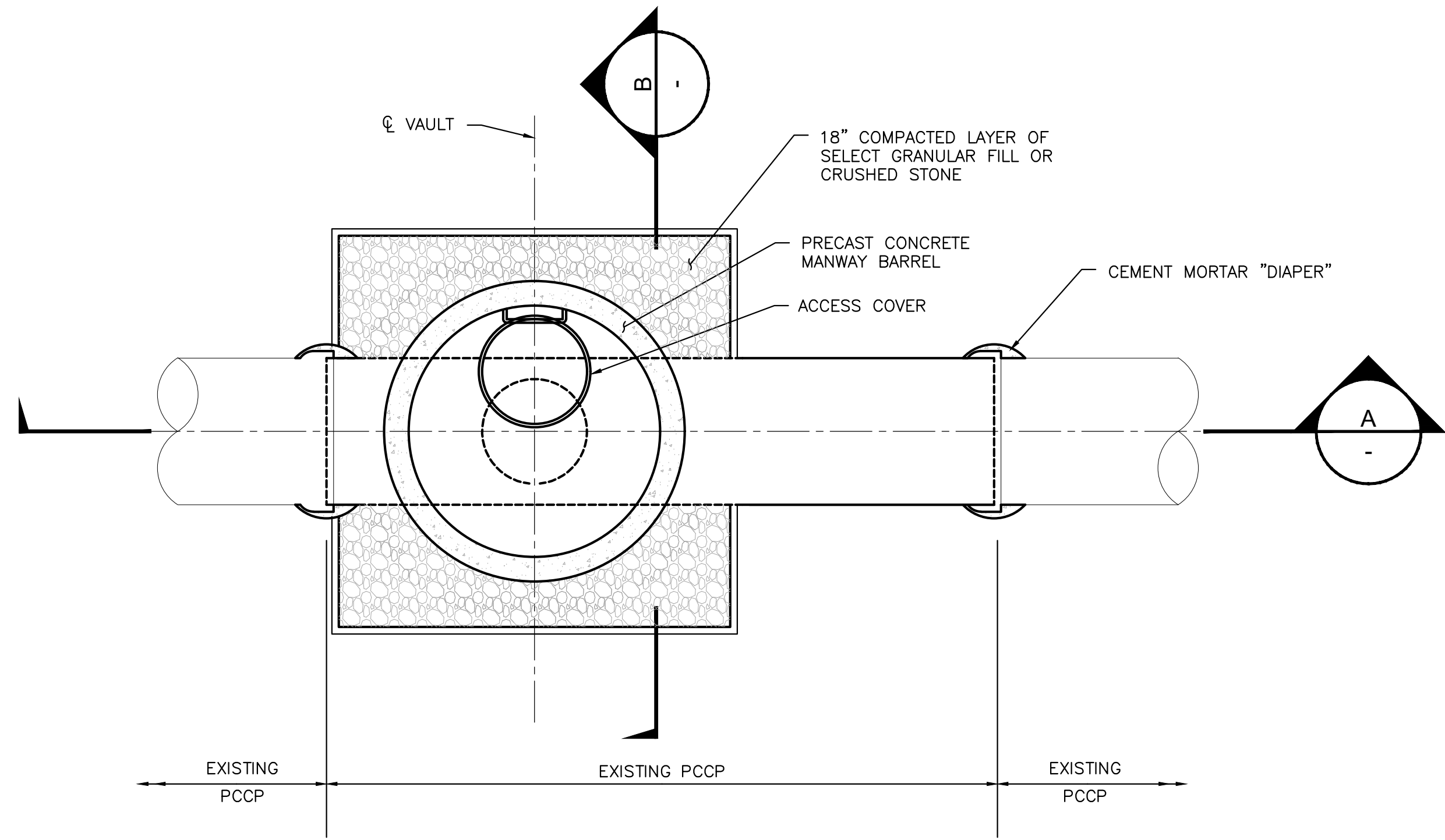
99 C-505

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.

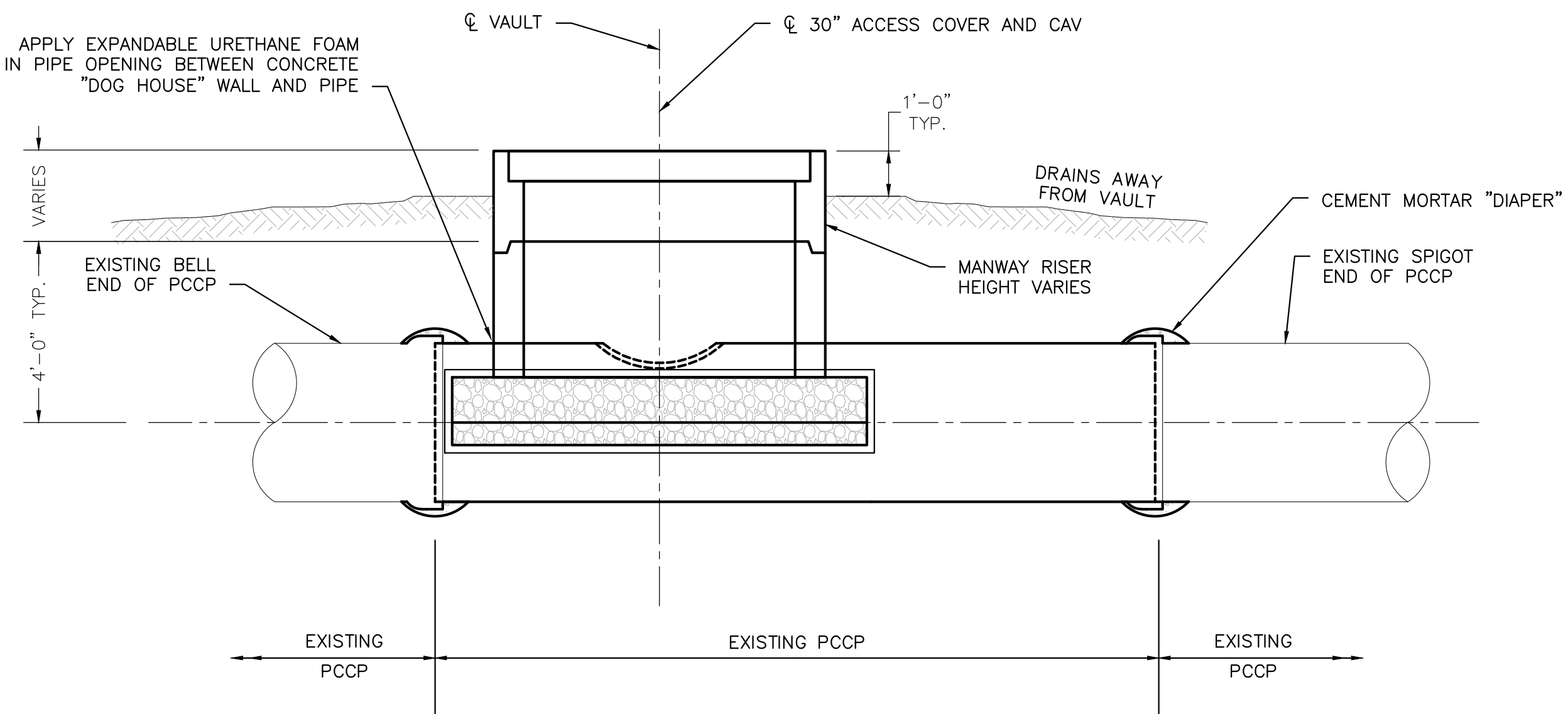
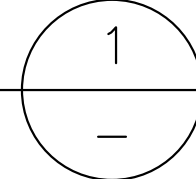
NOTES:

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.



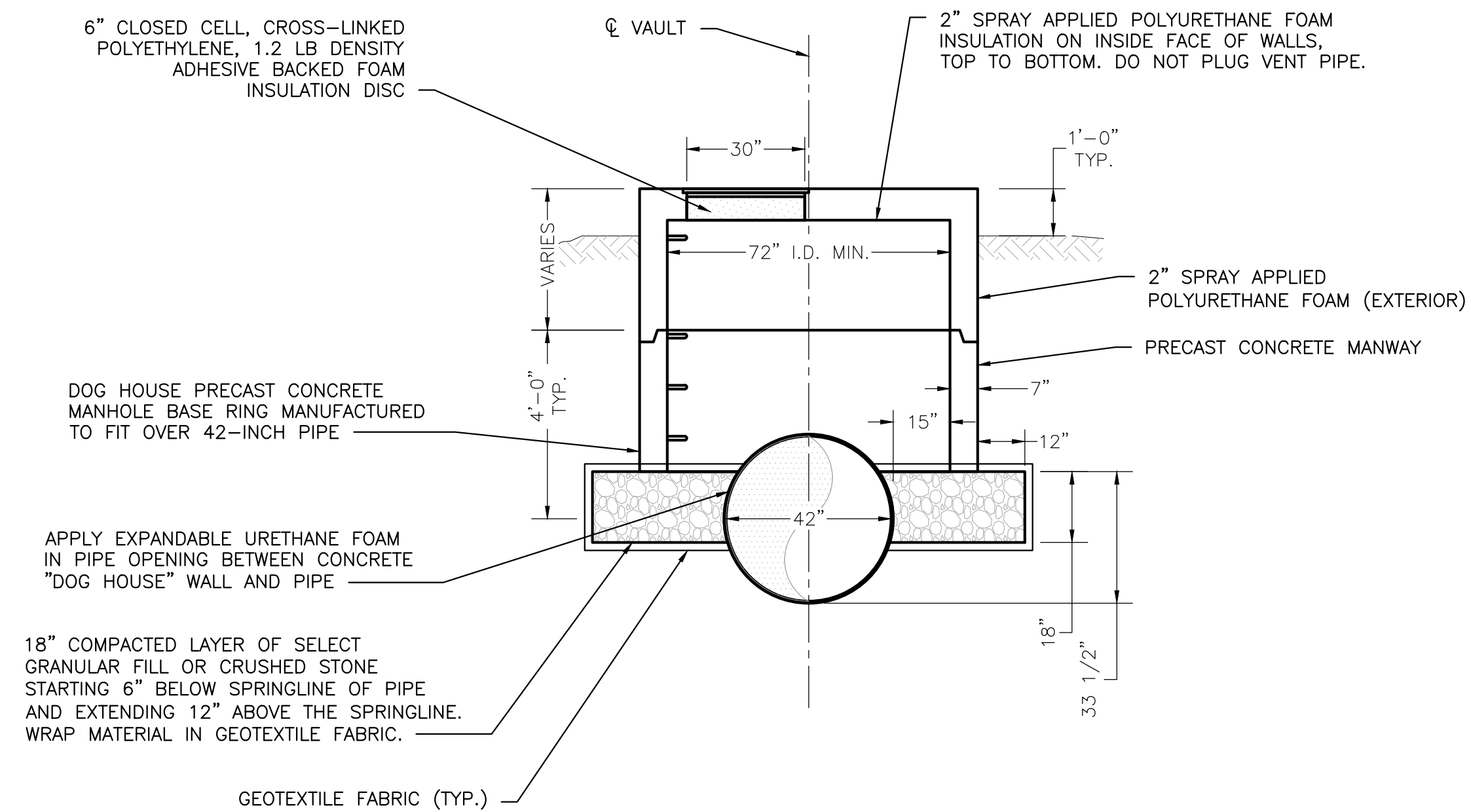
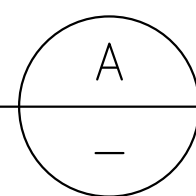
PLAN VIEW OF ACCESS MANWAY MH-7

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



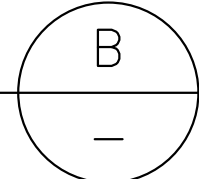
SECTION A

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



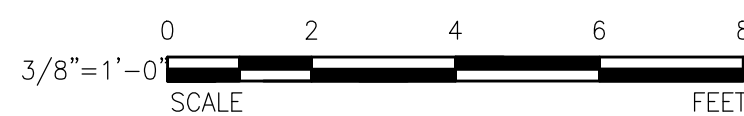
SECTION B

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

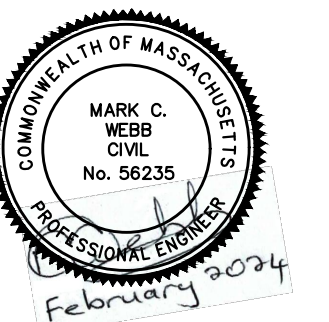


SECTION B - NOTES:

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.



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 LAST UPDATE: Monday, February 5, 2024 2:06:03 PM
 PLOT DATE: Friday, February 9, 2024 12:35:14 PM



I/R	DATE	DESCRIPTION

60662775

Designed By: **MCW**

Drawn By: **JES**

Dept Check: **CPB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

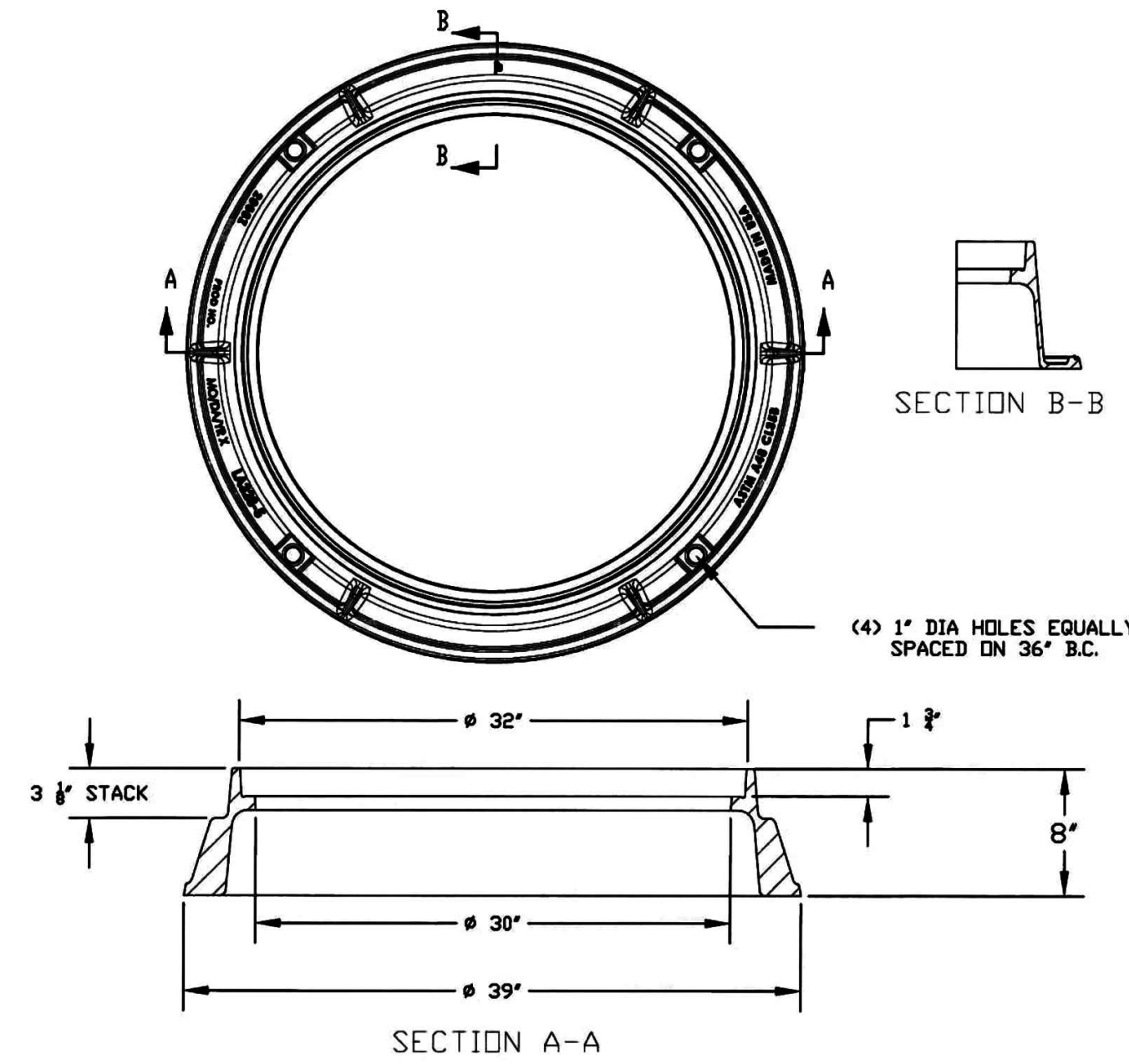
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CIVIL

SHEET TITLE

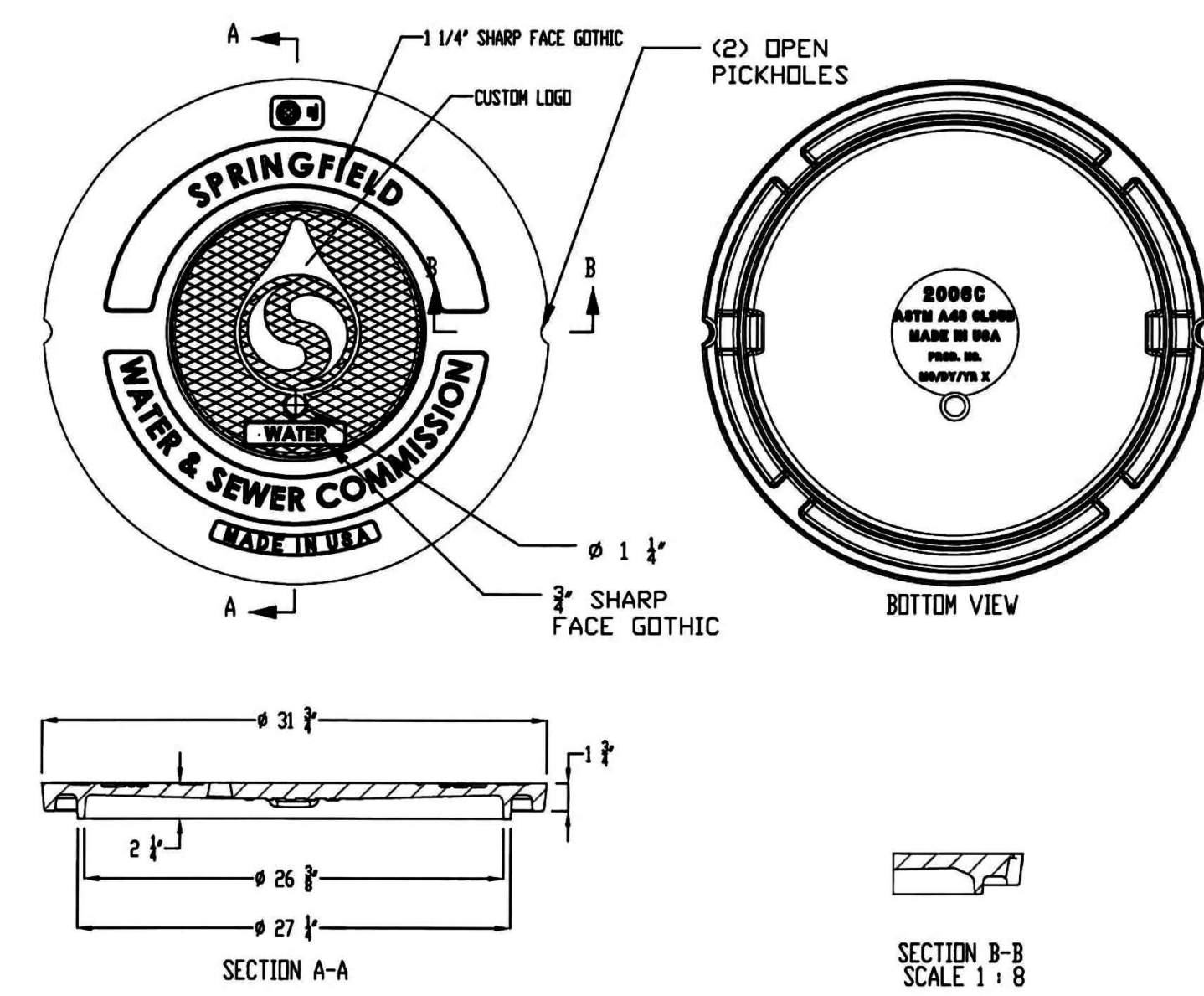
**CIVIL DETAILS VI
 MANWAY DETAILS IV**

99 C-506



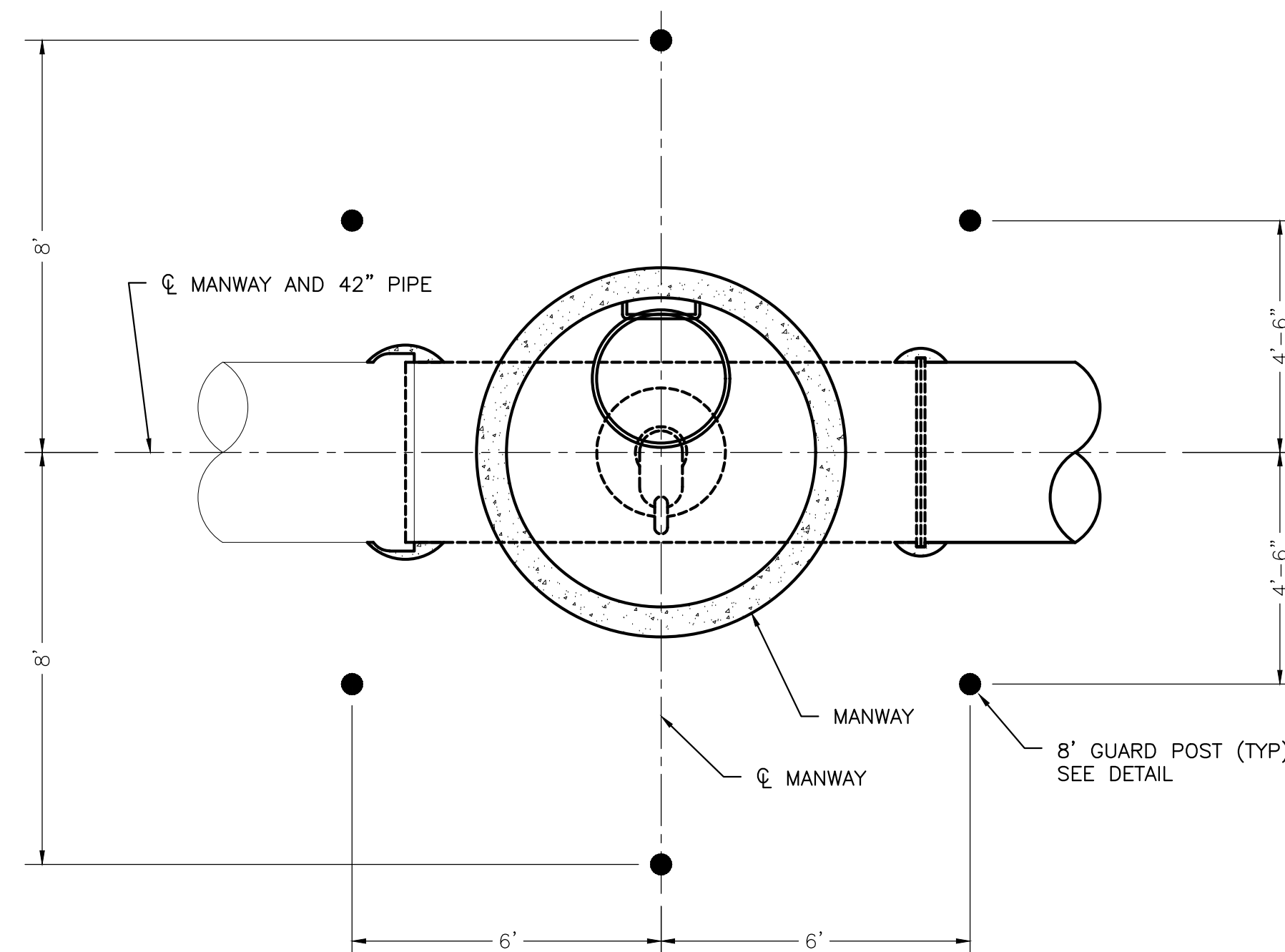
- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SWSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.
 3. DIMENSIONS ARE IN INCHES-FRACTIONAL +/- 1/16" ON ALL DIMENSIONS UP TO 12" AND AN ADDITIONAL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

32-INCH BY 8-INCH FRAME ONLY
 NTS



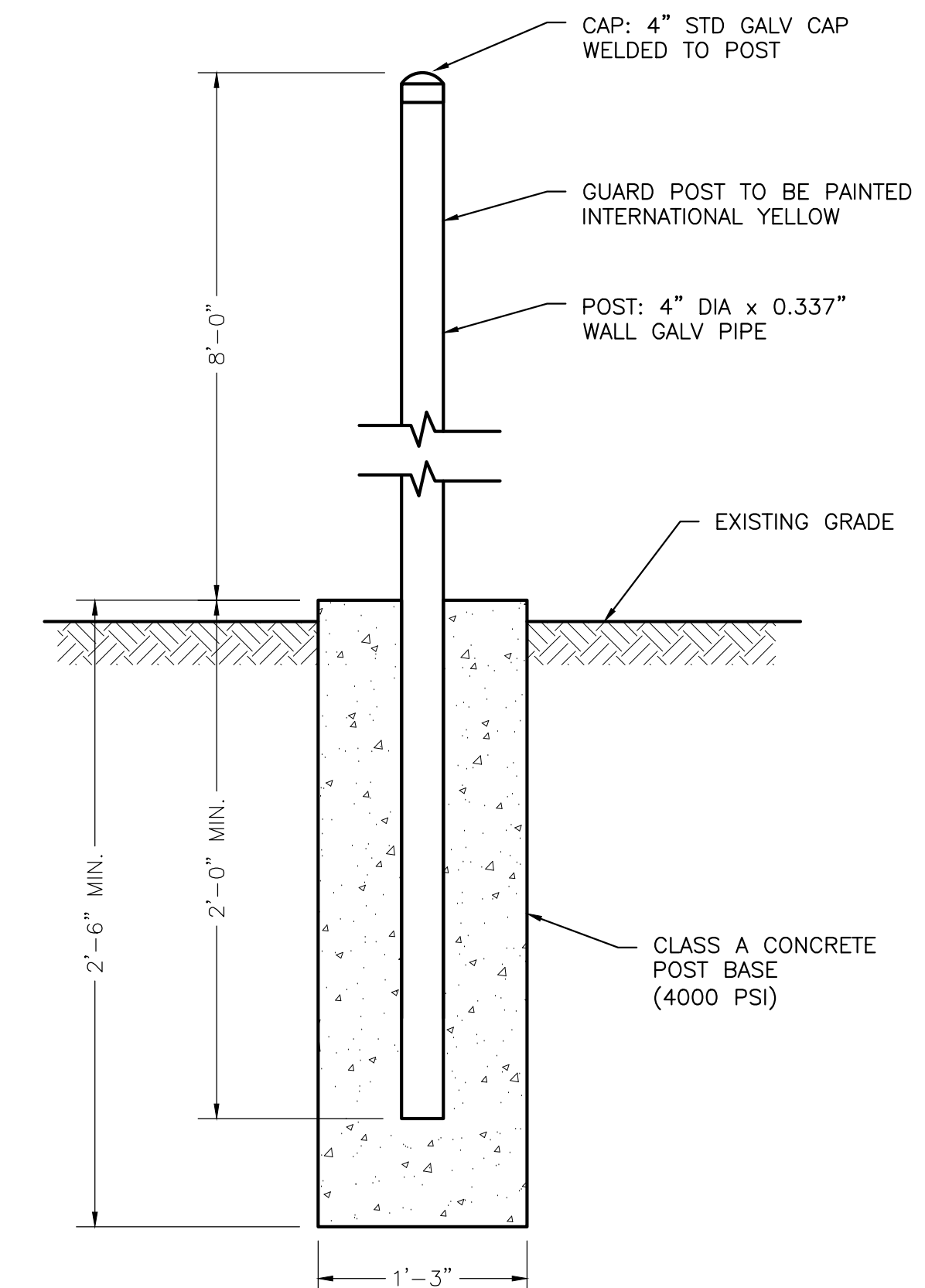
- NOTES:**
1. ALL MATERIALS WILL CONFORM TO SWSC SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO SWSC GUIDELINES AND POLICIES.
 2. FRAME & COVER SHALL BE MADE FROM ASTM A48 CLASS 35B GRAY CAST IRON.
 3. DIMENSIONS ARE IN INCHES-FRACTIONAL +/- 1/16" ON ALL DIMENSIONS UP TO 12" AND AN ADDITIONAL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

32-INCH STANDARD WATER COVER
 NTS

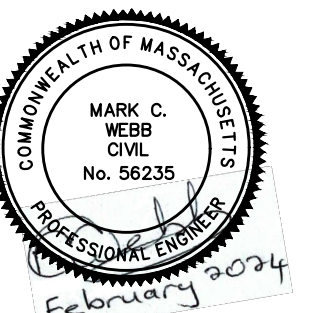


- NOTES:**
1. LOCATE SIX (6) POSTS AS SHOWN.
 2. MANWAYS LOCATED IN ROAD - ONE (1) 8' GUARD POST REQUIRED NEXT TO VENT PIPE AND OUTSIDE THE ROAD BOUNDARY.

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



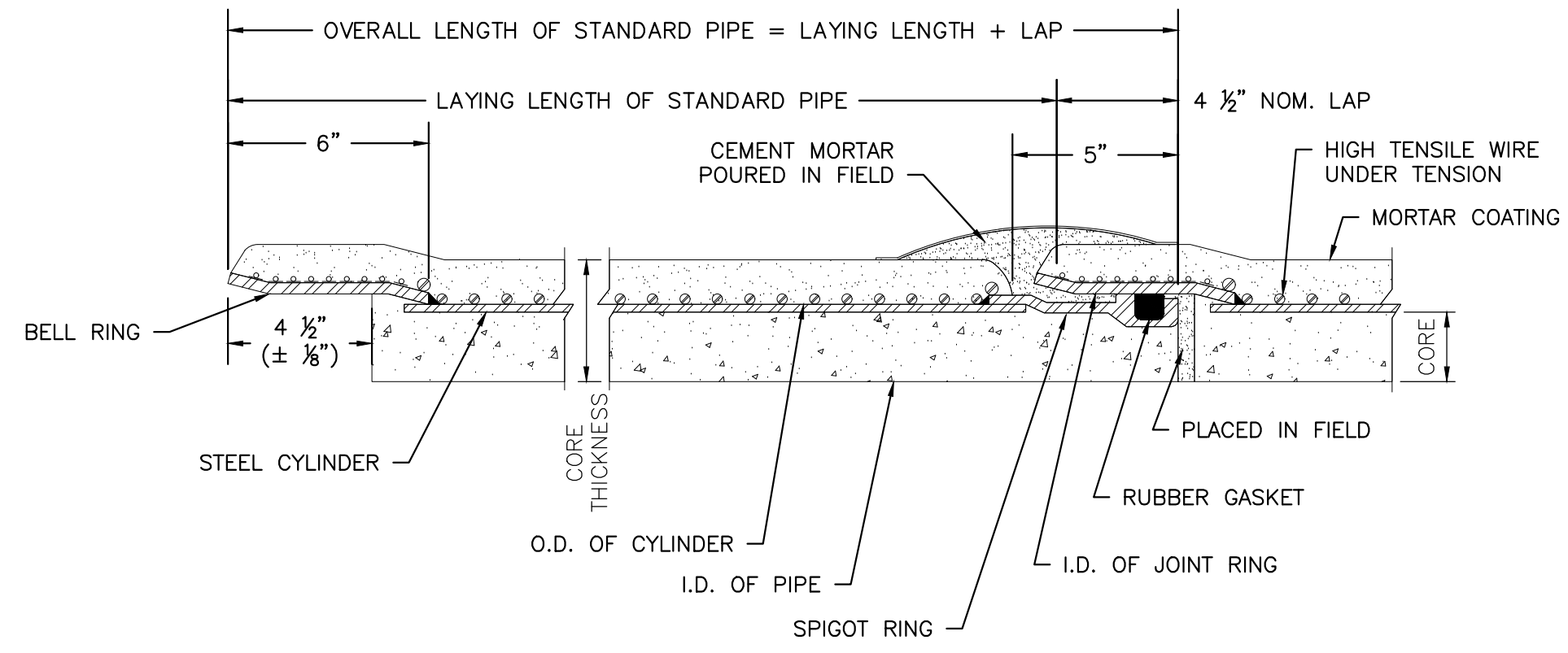
4" GUARD POST DETAIL
 NTS



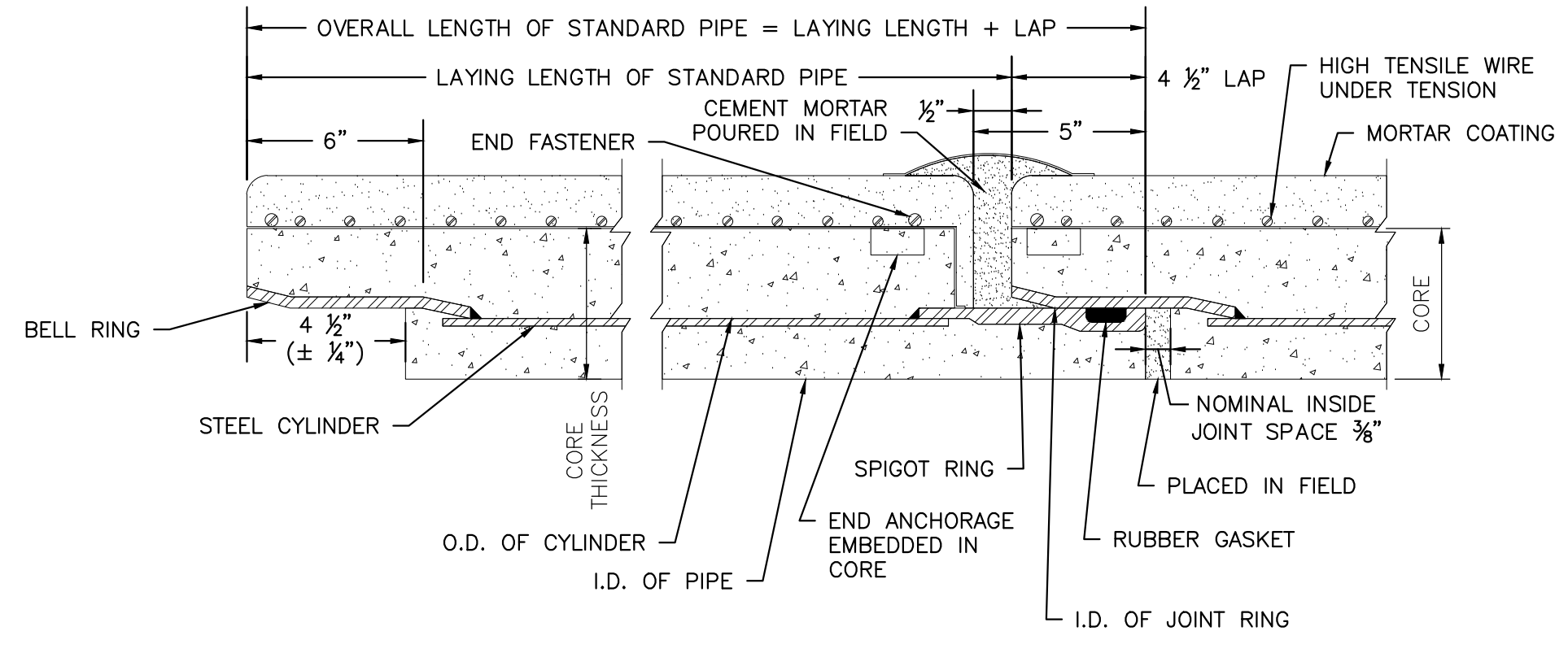
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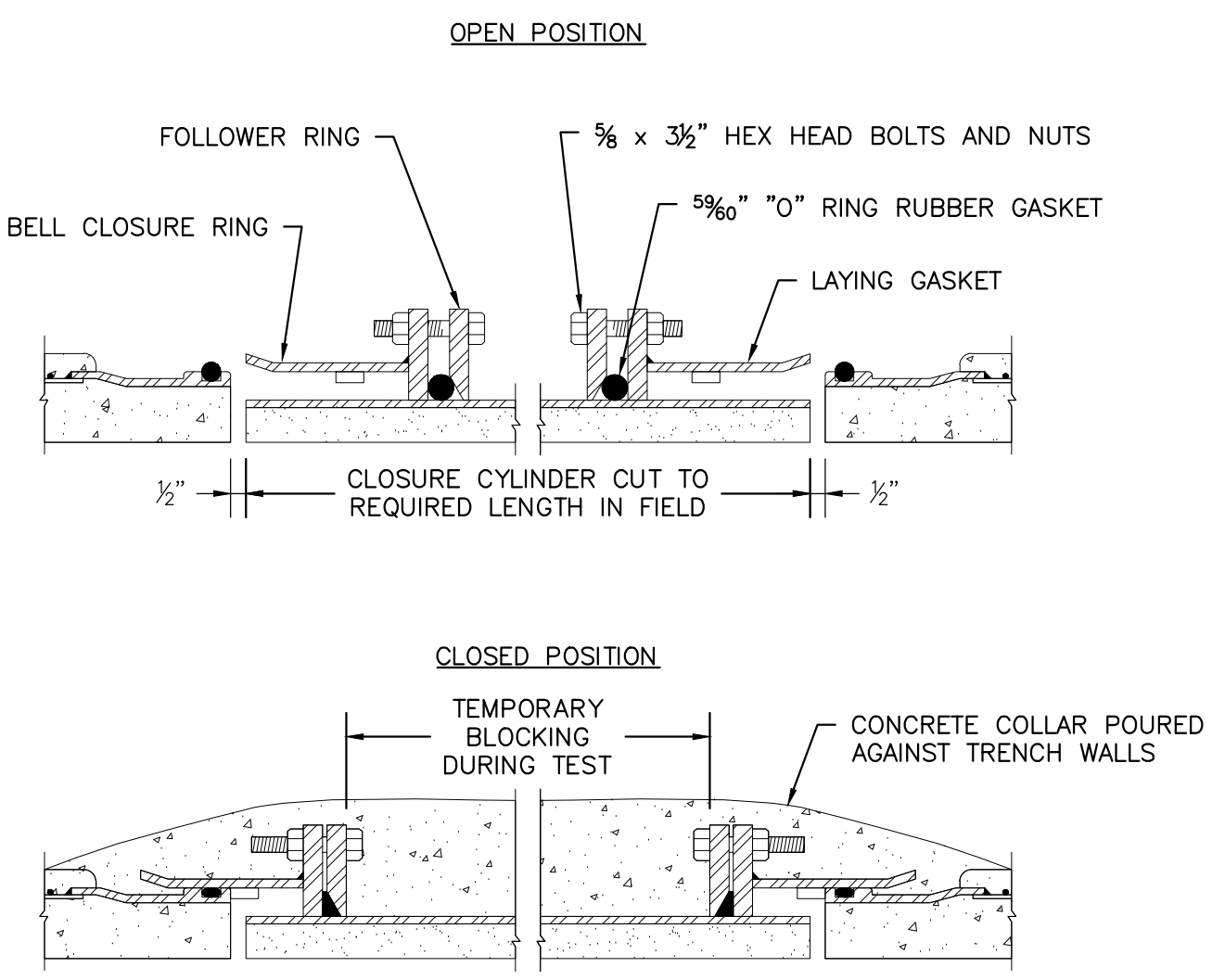
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED



TYPICAL PRESTRESSED CONCRETE LINED CYLINDER PIPE (LCP)
 NTS

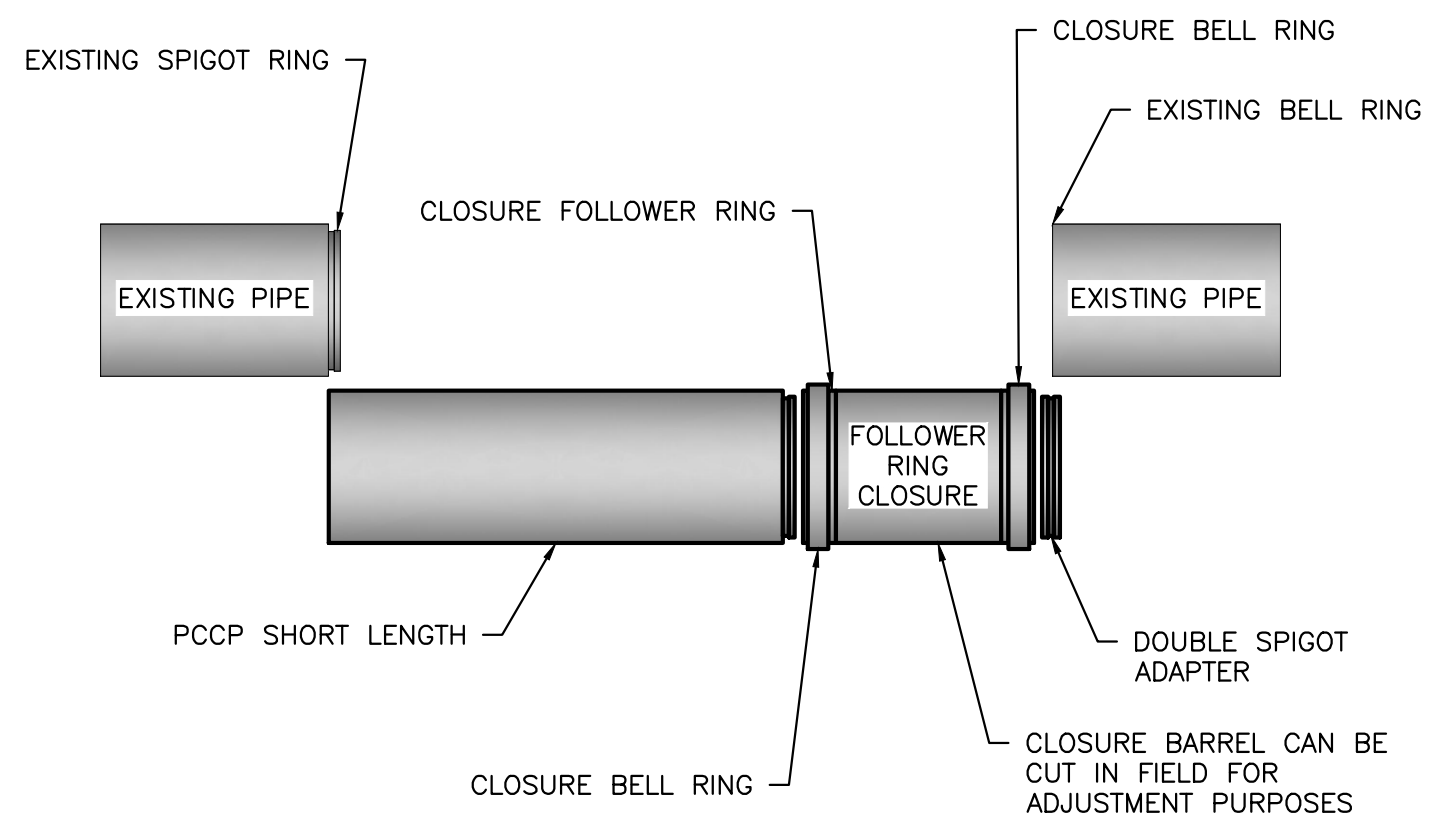


TYPICAL PRESTRESSED CONCRETE EMBEDDED CYLINDER PIPE (ECP)
 NTS

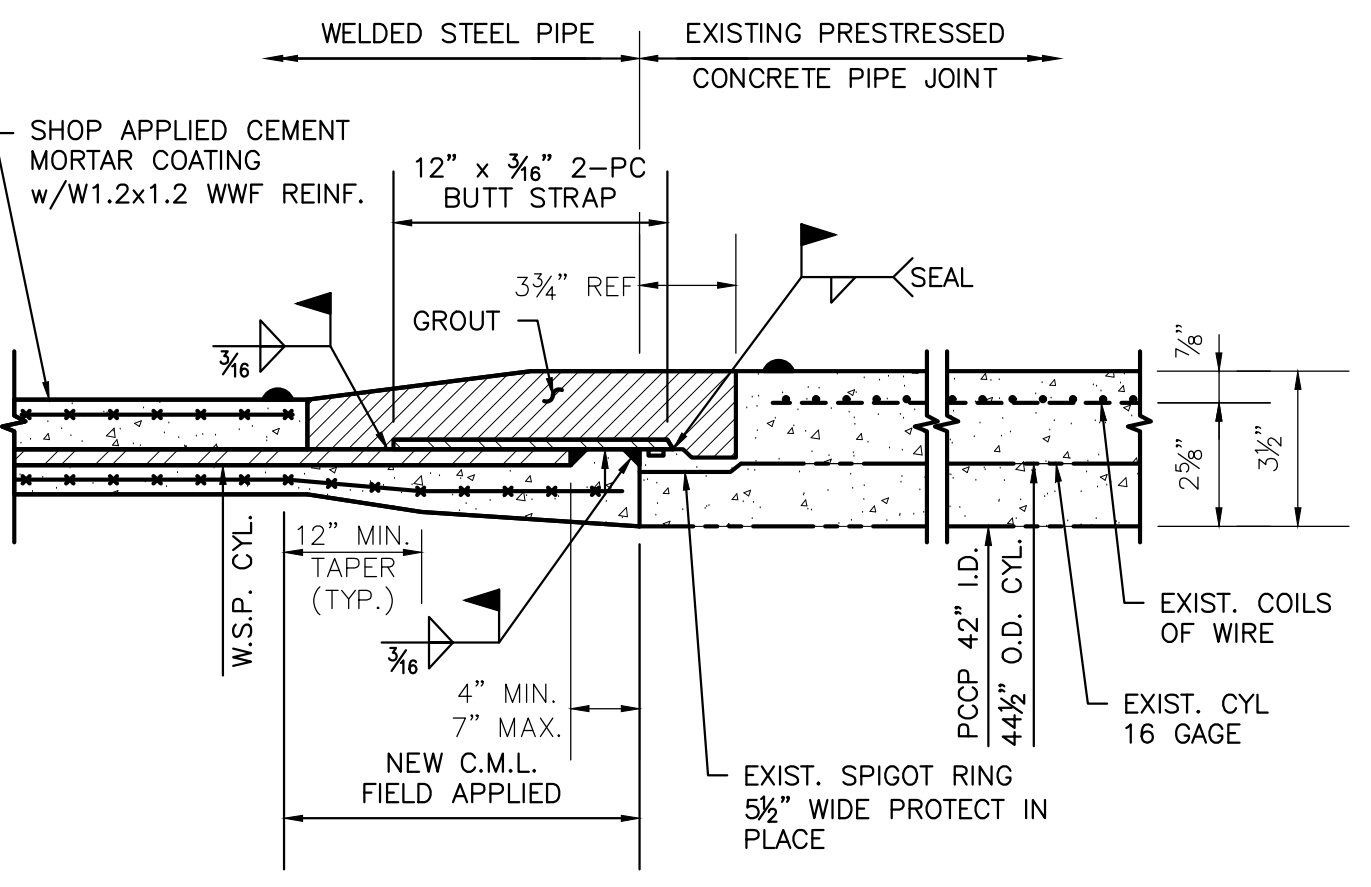


- NOTES:**
1. WELD THICKNESS "T" AS SPECIFIED ON LAYING SCHEDULE.
 2. CLOSURE INSTALLATION MUST BE PRESSURE TESTED BEFORE CONCRETE COLLAR IS CAST.
 3. CLOSURE CYLINDER THICKNESS MUST BE EQUAL TO OR GREATER THAN FITTING PLATE THICKNESS LISTED ON DESIGN SHEET.

FOLLOWER RING CLOSURE INSTALLATION
 NTS

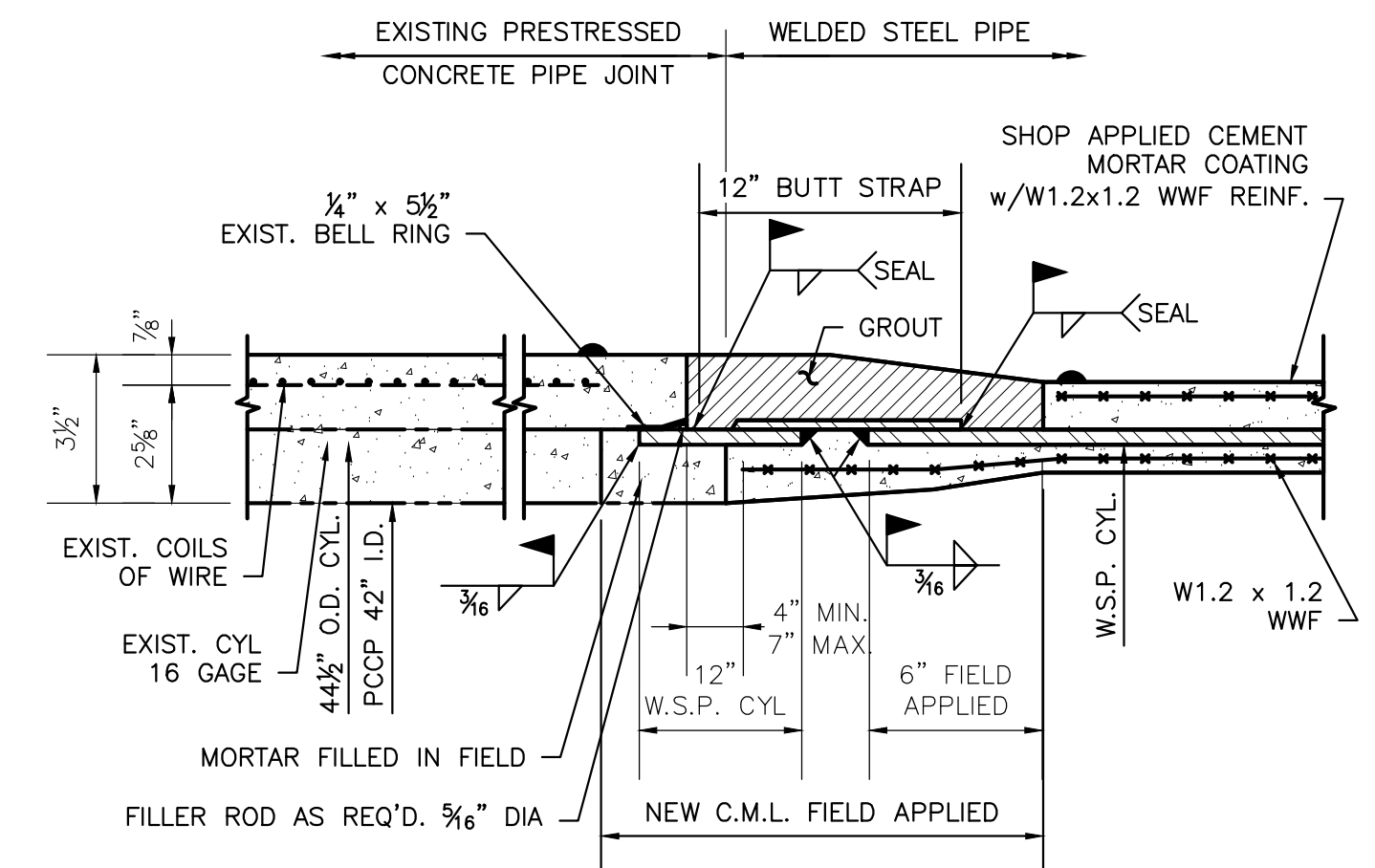


TYPICAL PCCP PIPE LENGTH ("STICK") REPLACEMENT DETAILS
 NTS



- NOTES:**
1. REMOVE ZINC COATING FROM SPIGOT RING BEFORE WELDING.
 2. BEVELS & PIPE WITH EXISTING OUTLETS HAVE 3/2 inch CORE, SHORTS HAVE 4 1/2 inch 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 inch CORE, SHORTS HAVE 4 1/2 inch 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\C899-C-507.DWG
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 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

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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**

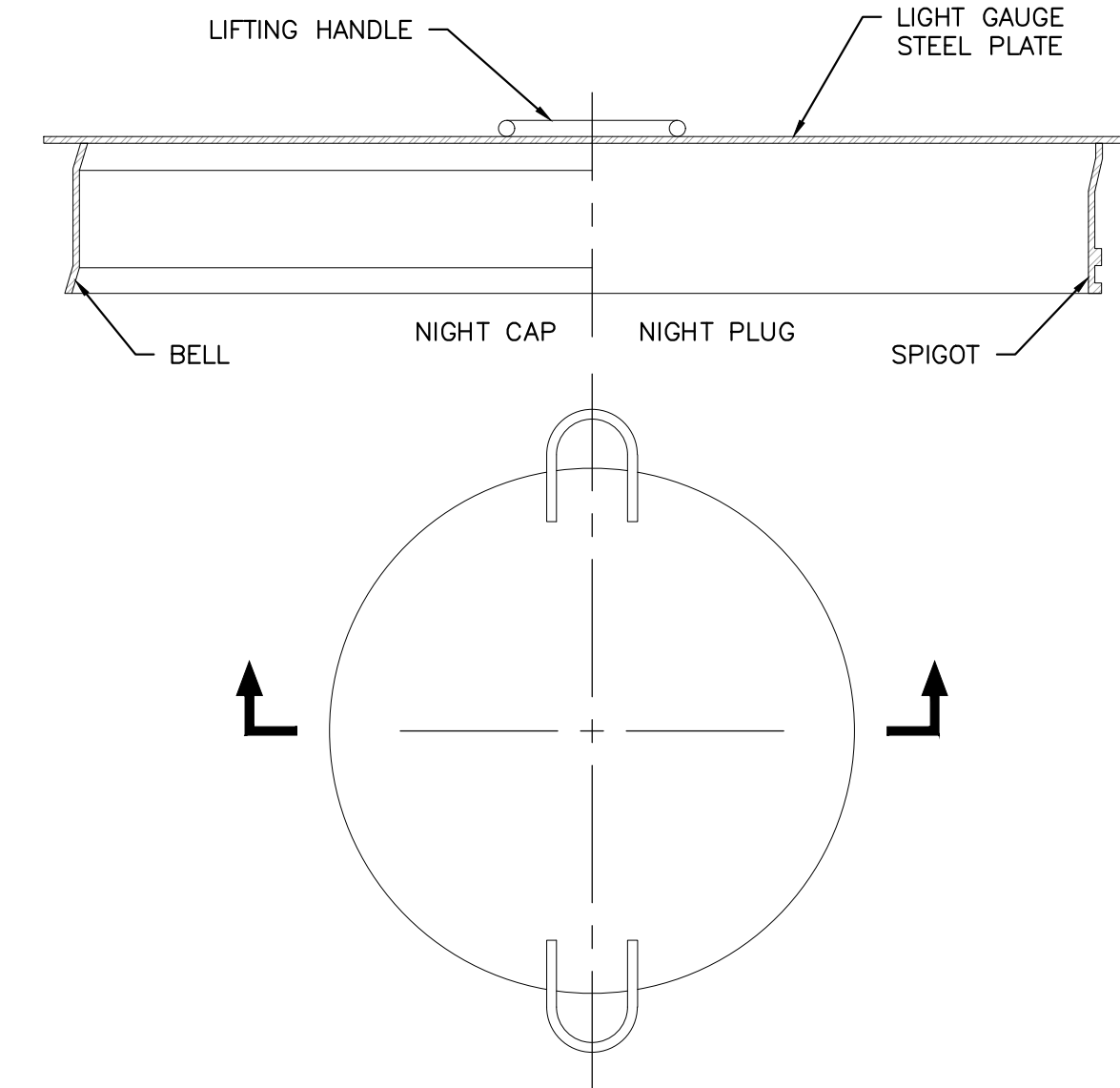
DISCIPLINE

CIVIL

SHEET TITLE

CIVIL DETAILS VIII
PCCP REPLACEMENT
PIPE DETAILS II
SHEET NUMBER

99 C-508

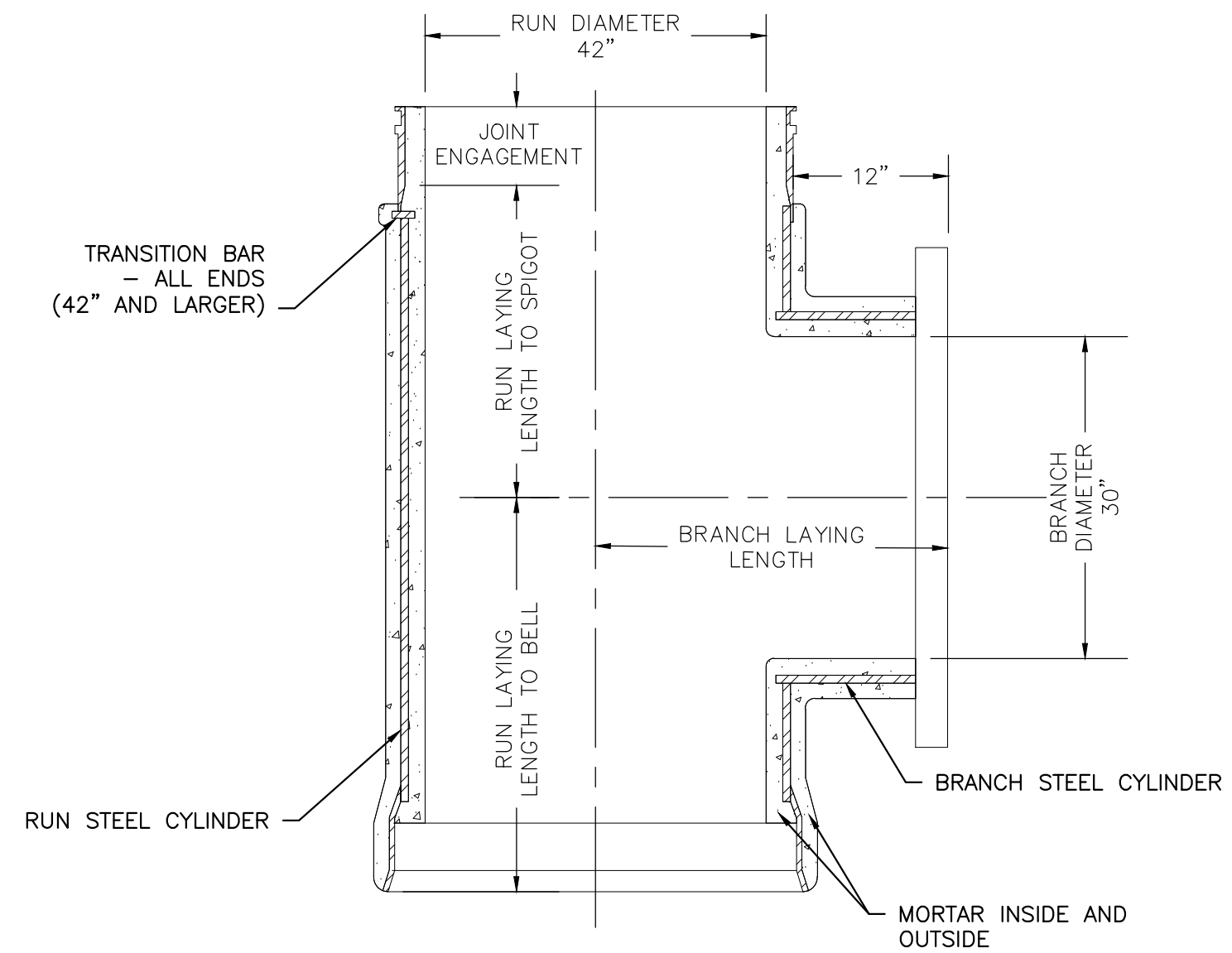


NOTES:

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

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**

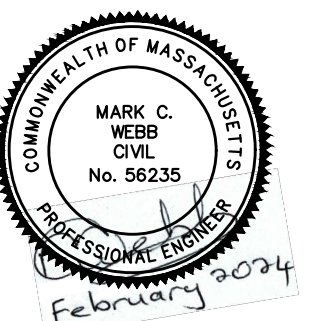
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

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

REGISTRATION



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 IX
PCCP PIPE & MANWAY
REMOVAL DETAILS
SHEET NUMBER**

99 C-509

REMOVAL SEQUENCE – EXISTING PCCP

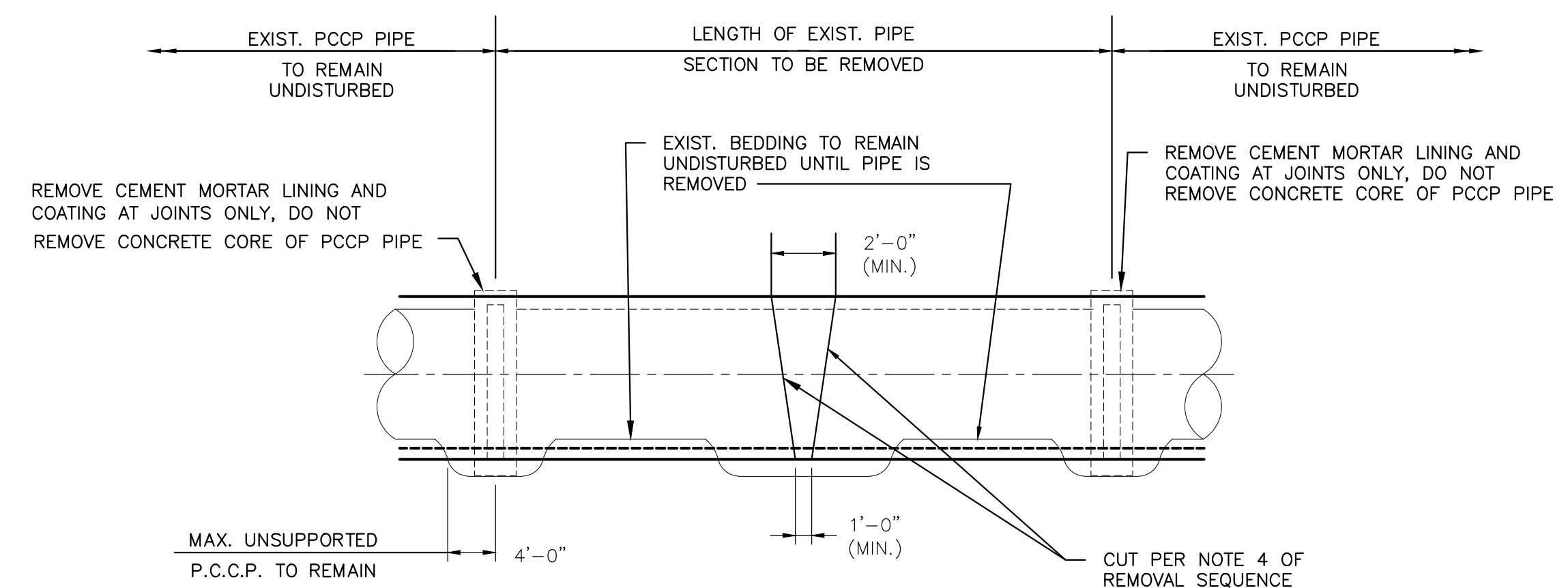
1. Locate the existing Prestressed Concrete Cylinder Pipe (PCCP) manway and pipe sections to be removed.
2. The information shown is based on potholing and record information obtained for design and estimating purposes. Verify this information prior to fabrication and rehabilitation of the pipeline. 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

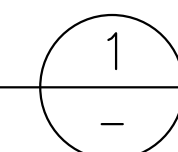
1. Prepare bedding material to support the new pipe leaving a gap in the bedding at the joints to accept the new grout band (diaper).
2. Clean existing joint rings by wire brushing or sandblasting to prepare surfaces for field welding.
3. Check surface to be welded with the liquid penetrant test. Remove 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

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

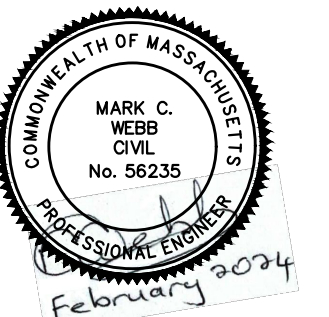
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Scale: **AS NOTED**

DISCIPLINE

CIVIL

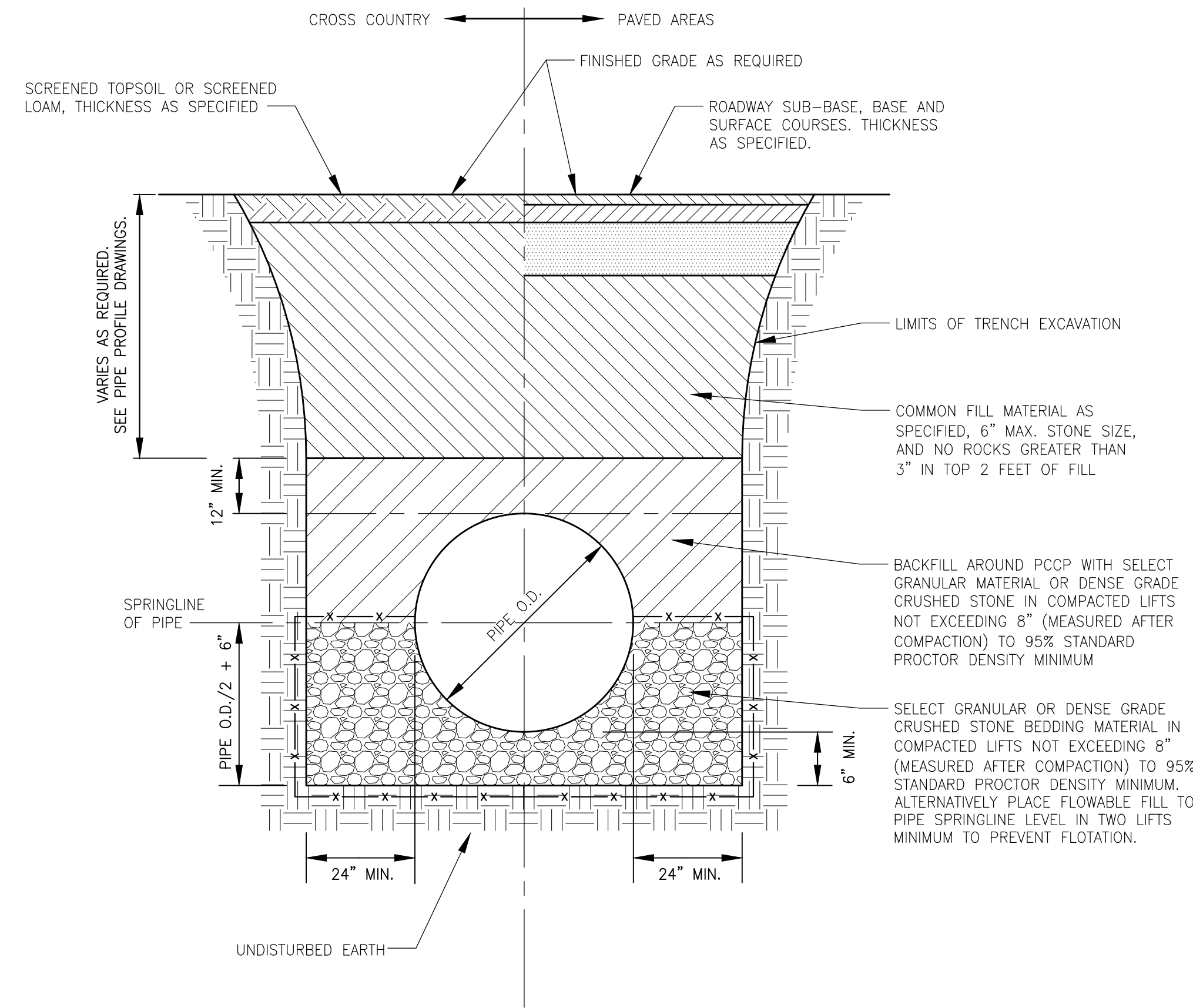
SHEET TITLE

CIVIL DETAILS X

TRENCH DETAILS

SHEET NUMBER

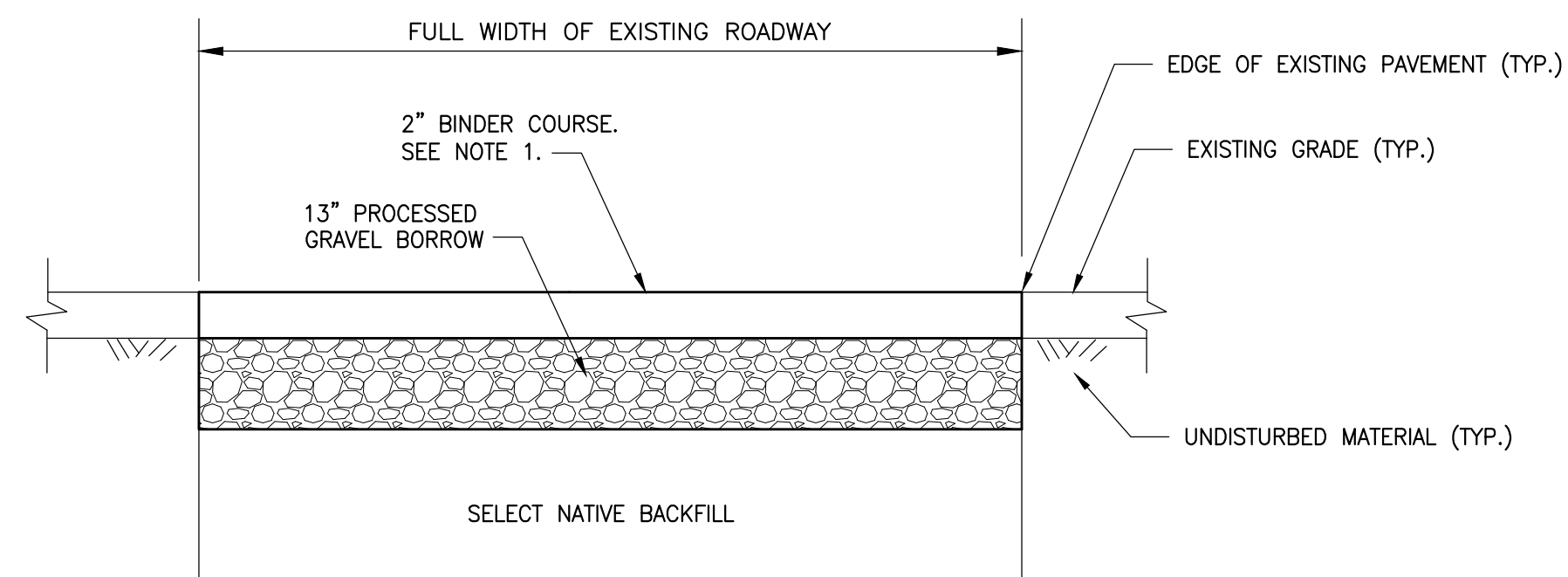
99 C-510



TRENCH SECTION FOR PCCP PIPE
NTS

NOTES:

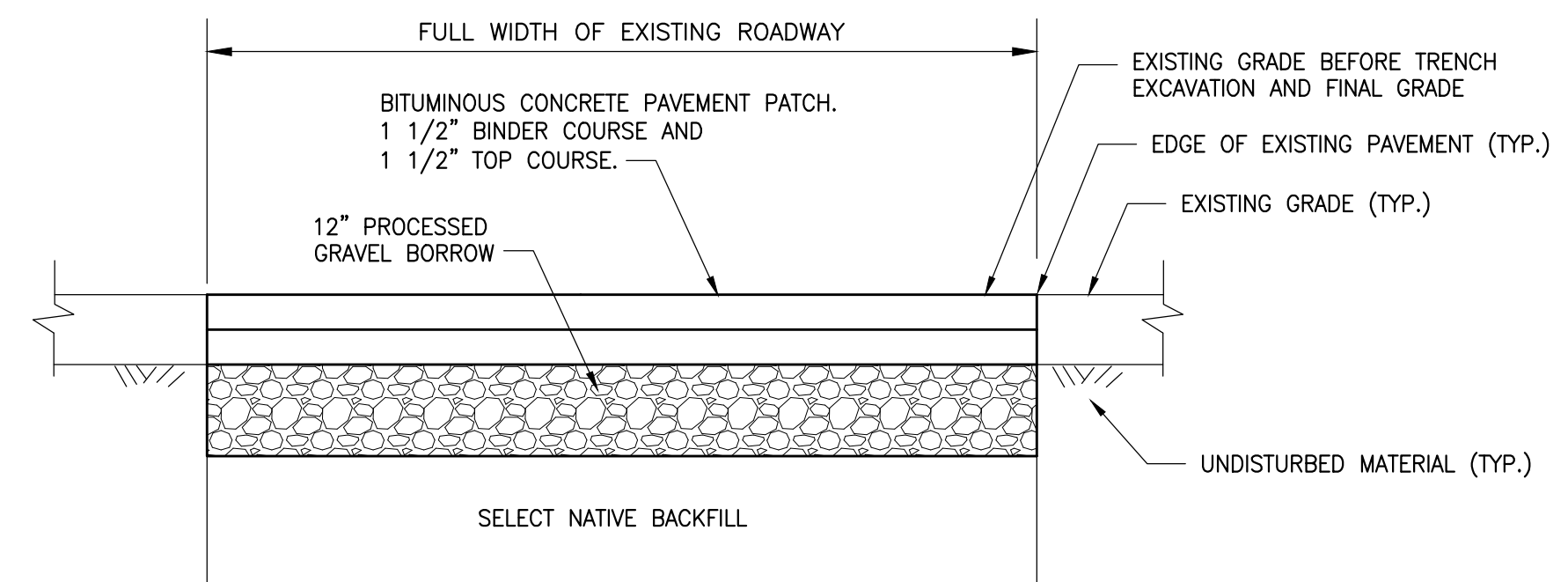
- IN WET AND UNSTABLE SOIL CONDITIONS PROVIDE FILTER FABRIC AROUND THE PIPE TRENCH TO 12-INCHES ABOVE THE PIPE.
- IN VERY POOR AND UNSTABLE SOIL CONDITIONS, OVER-EXCAVATE TRENCH BOTTOM BY 18-INCHES MINIMUM AND PLACE SELECT GRANULAR OR CRUSHED STONE MATERIAL AS THE PIPE BASE. ADDITIONALLY, A FILTER FABRIC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

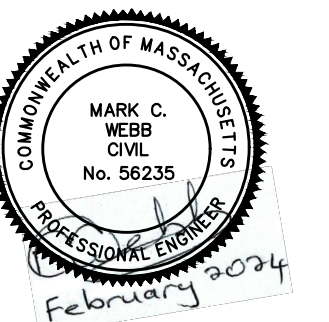
PERMANENT TRENCH REPAIR SECTION
NTS

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:

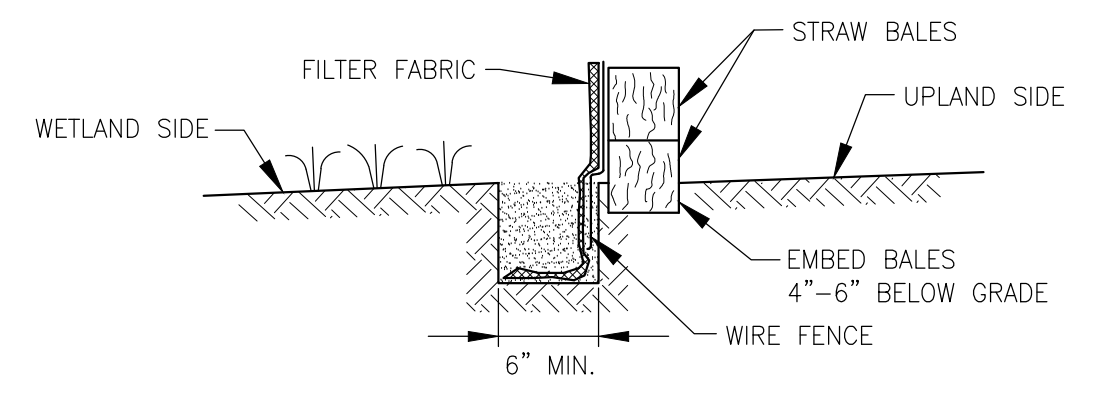
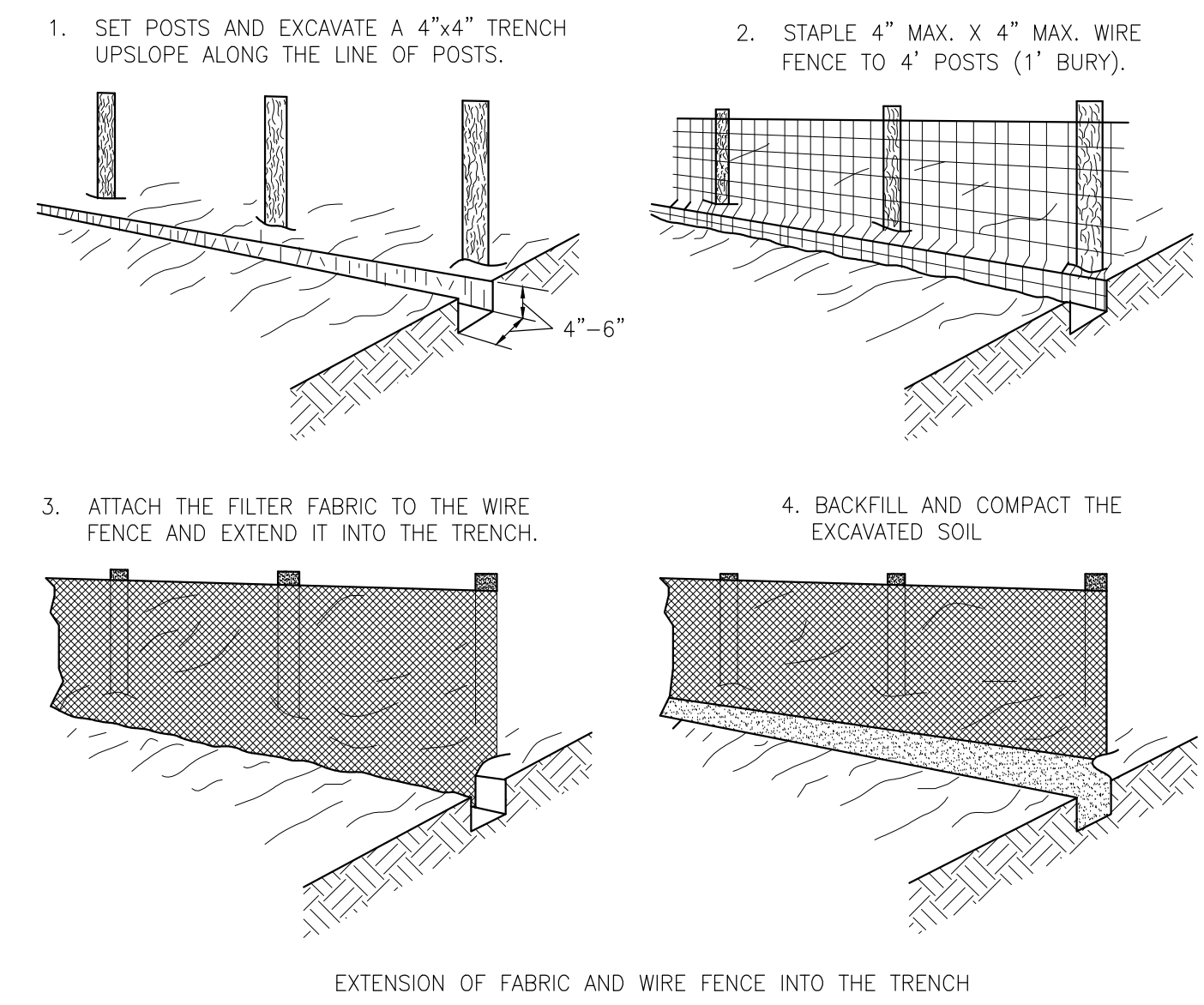
A. WET AND UNSTABLE BASE UP TO THE PIPE INVERT - REPLACE PIPE BASE MATERIAL IN ITS ENTIRETY.
B. WET AND UNSTABLE BASE AND GROUNDWATER PRESENT UP TO HAUNCHES OF PIPE. REPLACE PIPE BASE MATERIAL IN ITS ENTIRETY AND THE PORTION OF THE PIPE ZONE MATERIAL UP TO THE PIPELINE'S SPRINGLINE.
C. WET AND UNSTABLE BASE AND GROUNDWATER PRESENT ABOVE PIPE SPRINGLINE. REPLACE PIPE BASE AND PIPE ZONE IN ITS ENTIRETY.
D. 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.



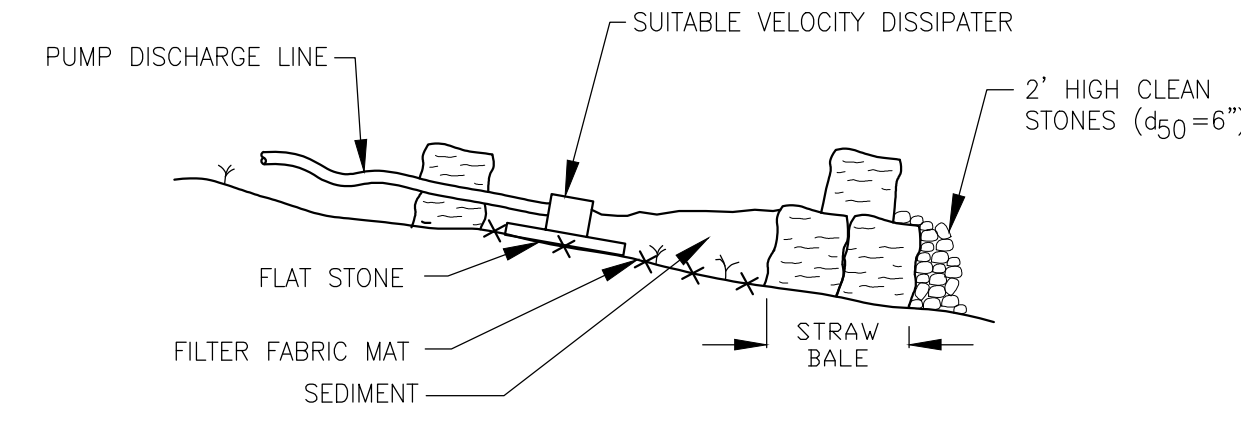
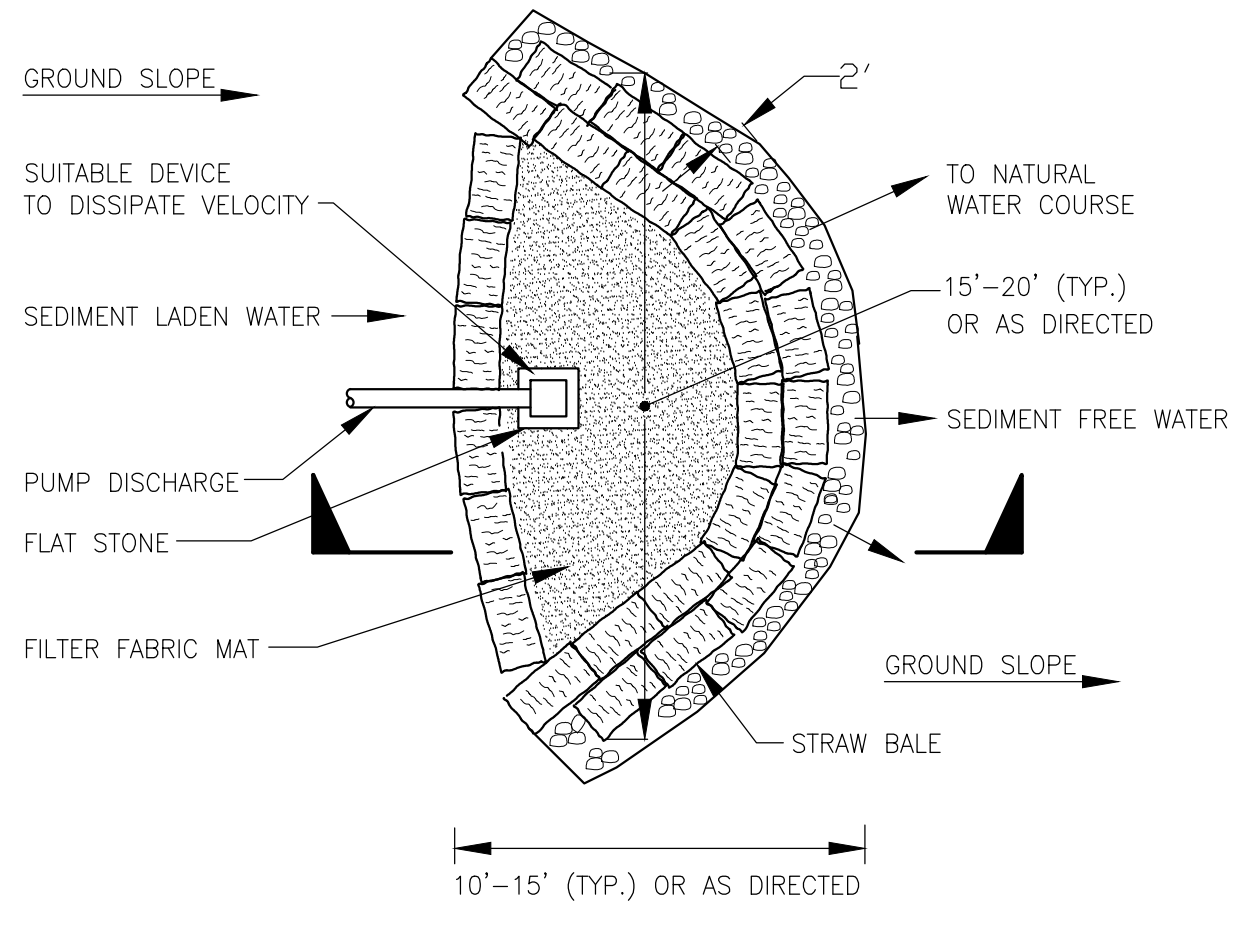
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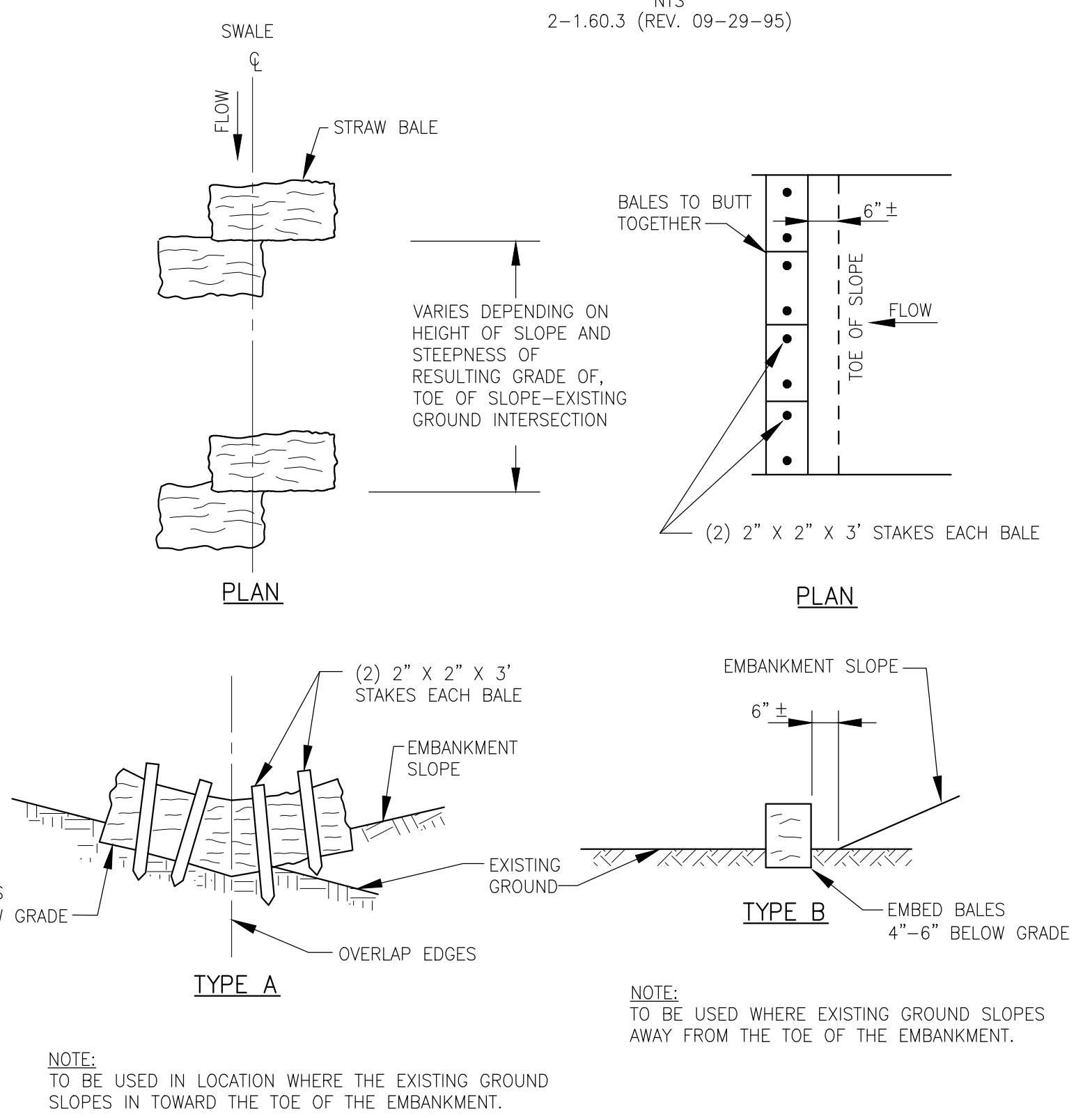
Designed By:	MCW
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Scale:	AS NOTED



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



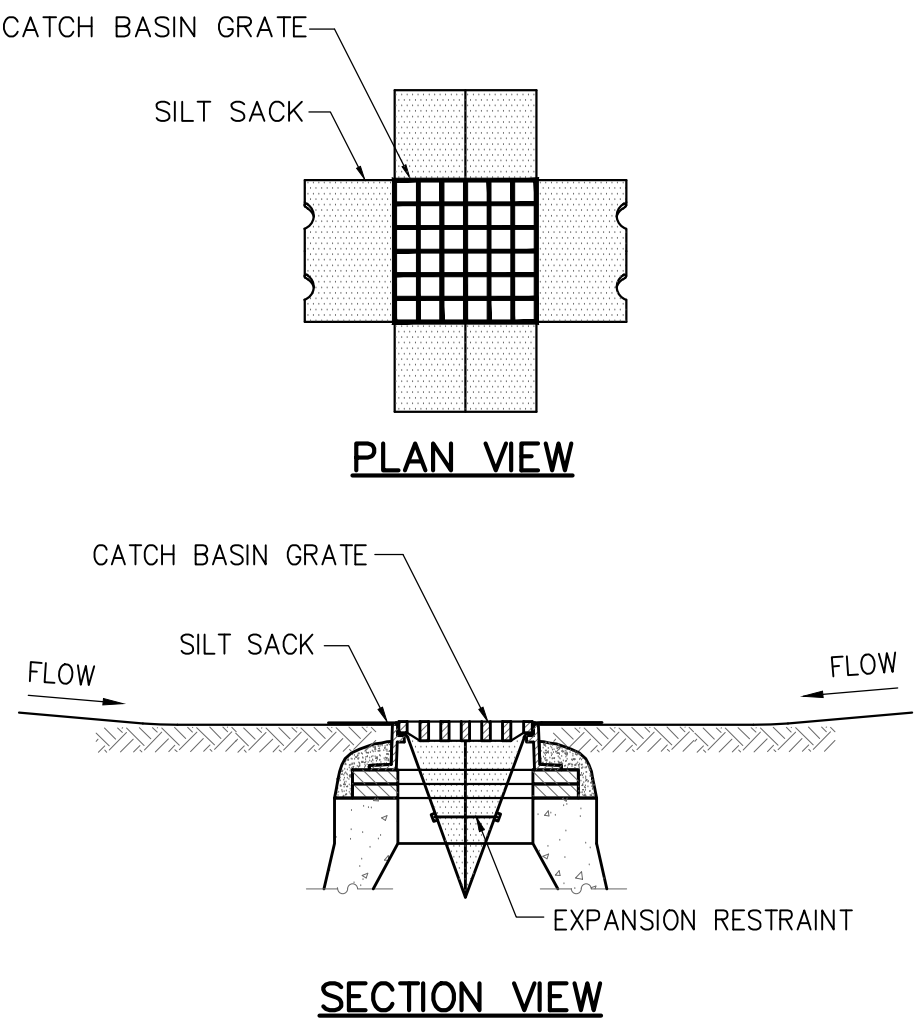
SEDIMENT TRAP
 NTS
 2-1.60.2 (REV. 09-29-95)



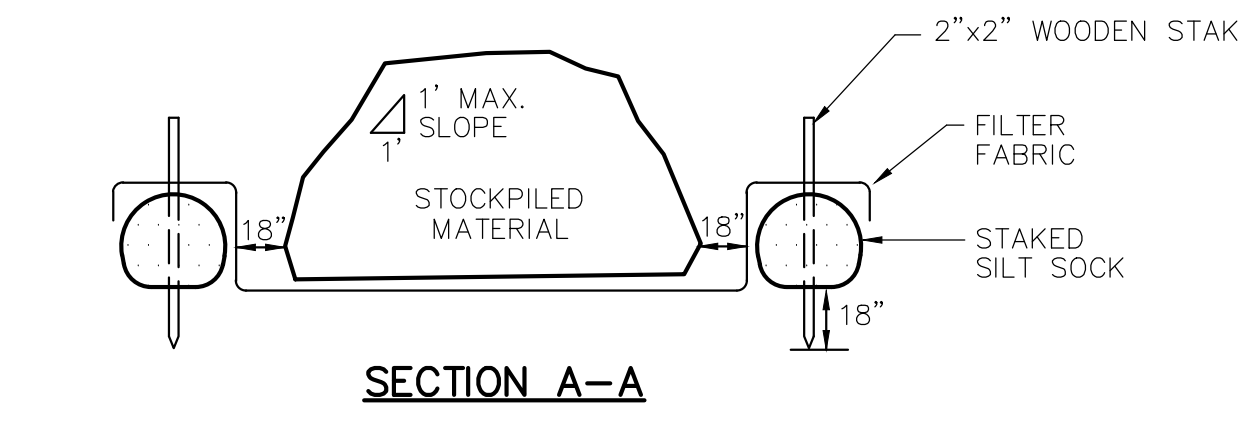
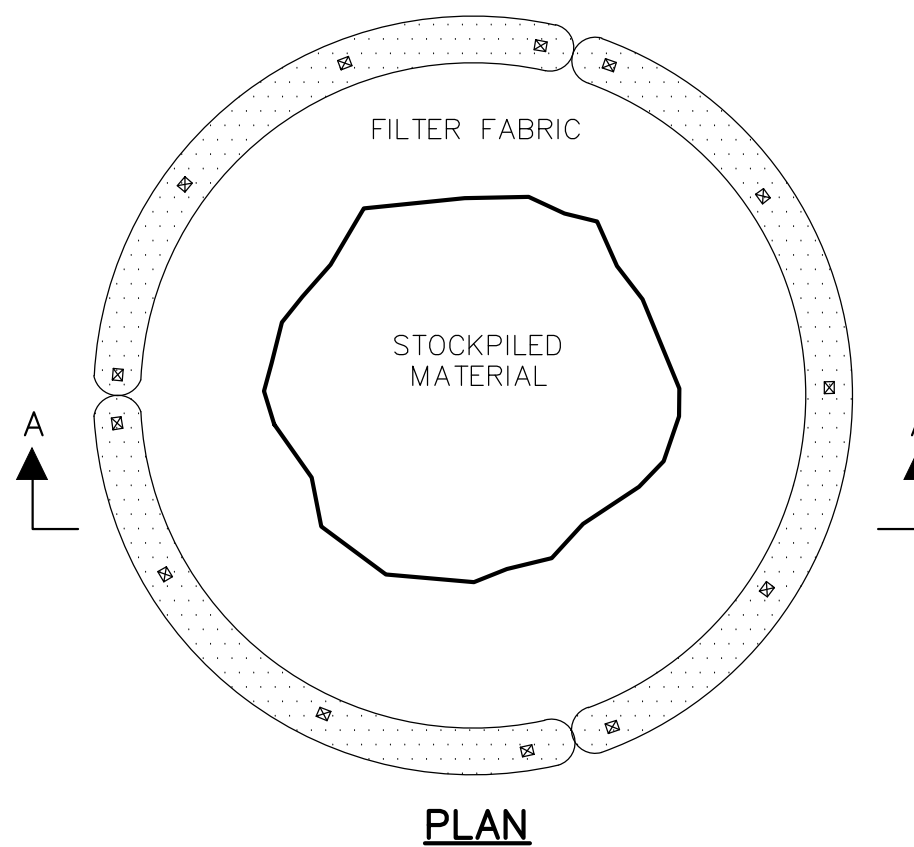
STRAW BALE EROSION CONTROL
 NTS
 2-1.60.4 (REV. 09-29-95)

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.

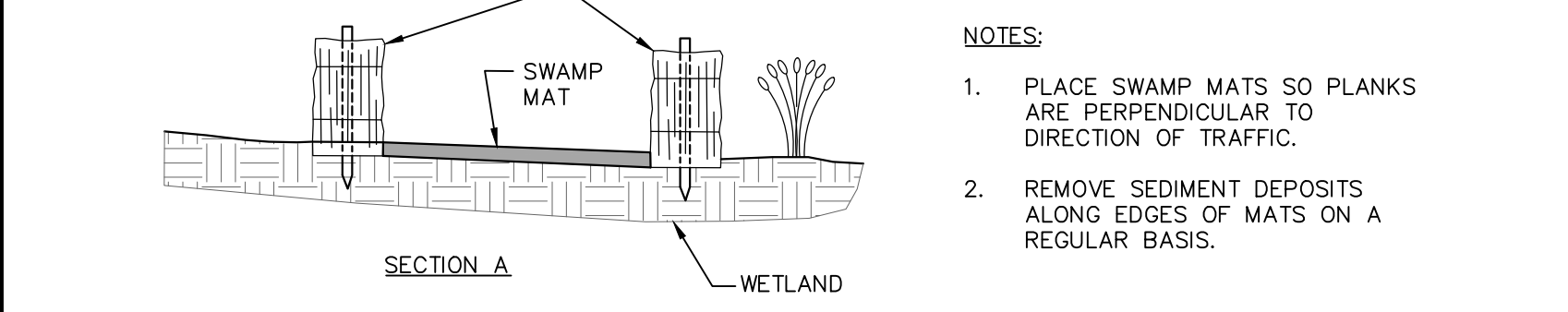
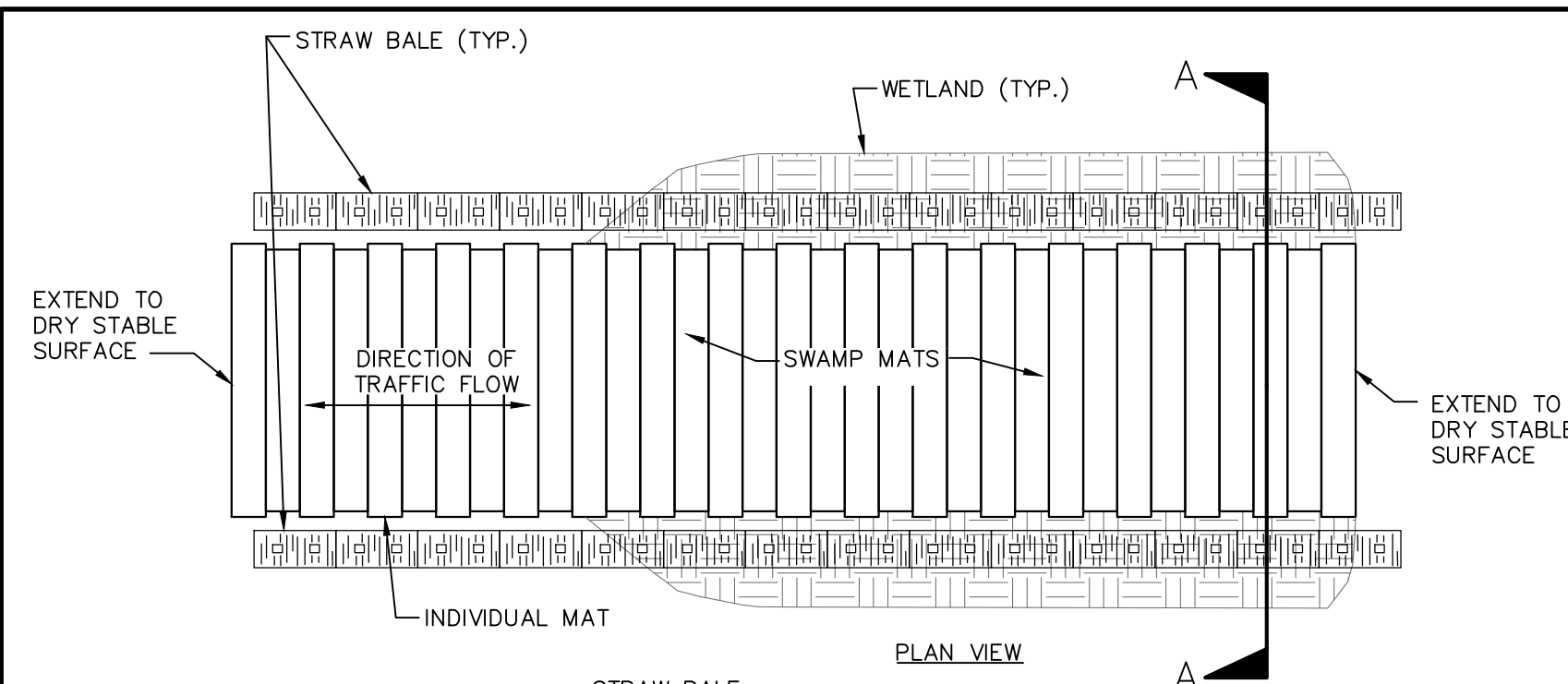


SILT SACK SEDIMENT TRAP
 NOT TO SCALE



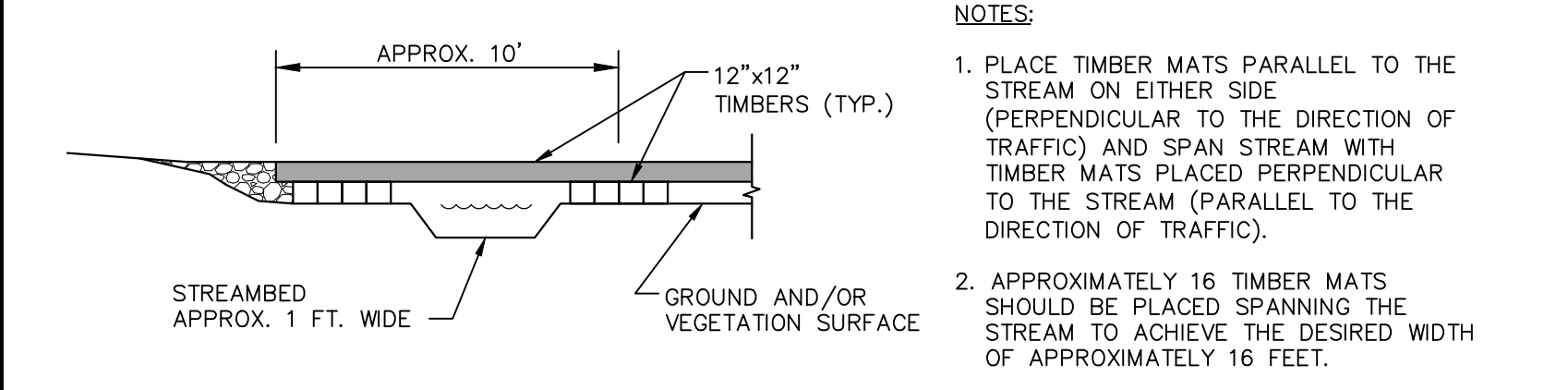
PLAN OF TEMPORARY STOCKPILE AREA
 NOT TO SCALE

NOTE:
 DIMENSIONS OF STOCKPILE AREA MAY VARY DEPENDING ON QUANTITY OF EXCAVATION. AVOID OVERTOPPING OR SLOPES IN EXCESS OF 1:1



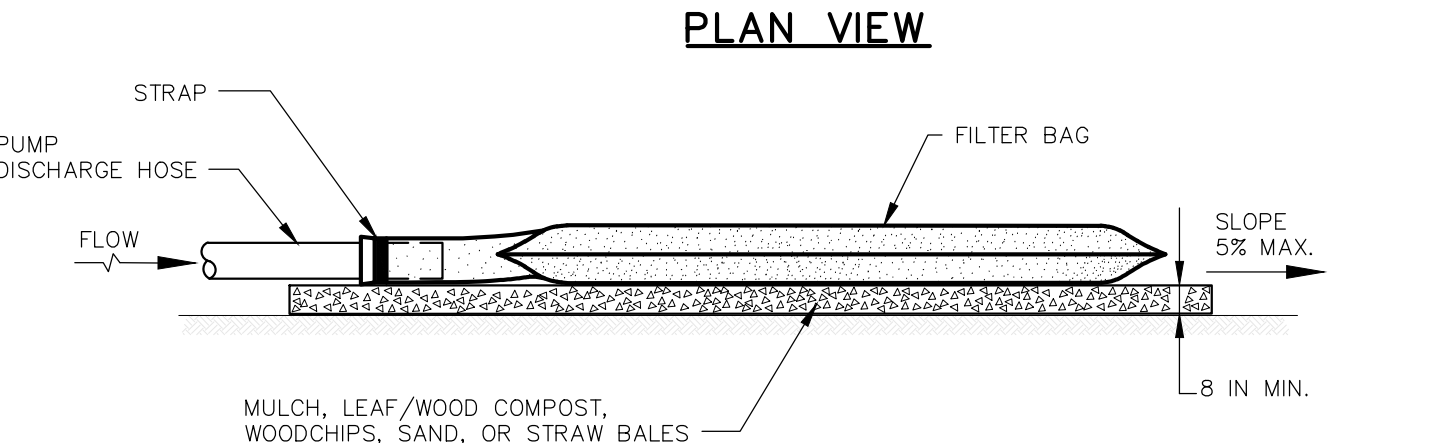
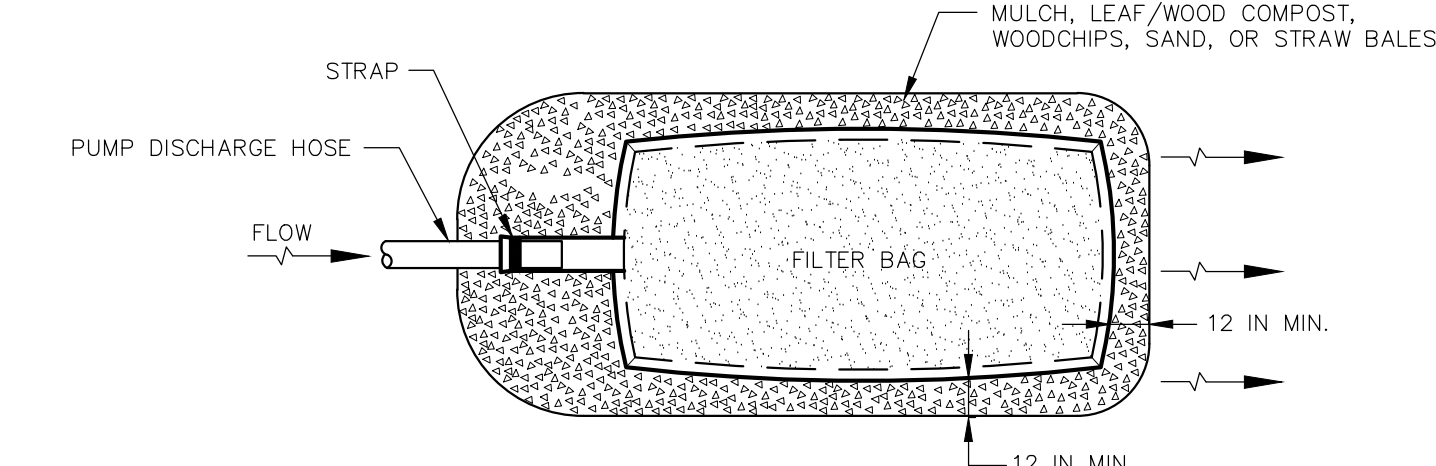
SWAMP MAT
 NTS

- NOTES:**
- PLACE SWAMP MATS SO PLANKS ARE PERPENDICULAR TO DIRECTION OF TRAFFIC.
 - REMOVE SEDIMENT DEPOSITS ALONG EDGES OF MATS ON A REGULAR BASIS.



TIMBER MATTING - STREAM CROSSING SECTION
 NTS

- NOTES:**
- PLACE TIMBER MATS PARALLEL TO THE STREAM ON EITHER SIDE (PERPENDICULAR TO THE DIRECTION OF TRAFFIC) AND SPAN STREAM WITH TIMBER MATS PLACED PERPENDICULAR TO THE STREAM (PARALLEL TO THE DIRECTION OF TRAFFIC).
 - APPROXIMATELY 16 TIMBER MATS SHOULD BE PLACED SPANNING THE STREAM TO ACHIEVE THE DESIRED WIDTH OF APPROXIMATELY 16 FEET.



ELEVATION

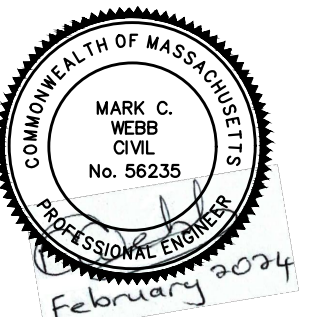
CONSTRUCTION SPECIFICATIONS

- TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
- PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
- CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
- REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
- USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT ²	ASTM D-4491
PERMITTIVITY (SEC ⁻¹)	1.2 SEC ⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632
- REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

SEDIMENTATION FILTER BAG
 NOT TO SCALE

PATHFILENAME: L:\DCSPROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PDR\60662775_SWSC_CAD\20-SHEETS\C99-C-511.DWG
 LAST UPDATE: Wednesday, January 17, 2024 1:05:00 PM
 PLOT DATE: Friday, February 9, 2024 1:05:47 PM



NO.	DATE	DESCRIPTION

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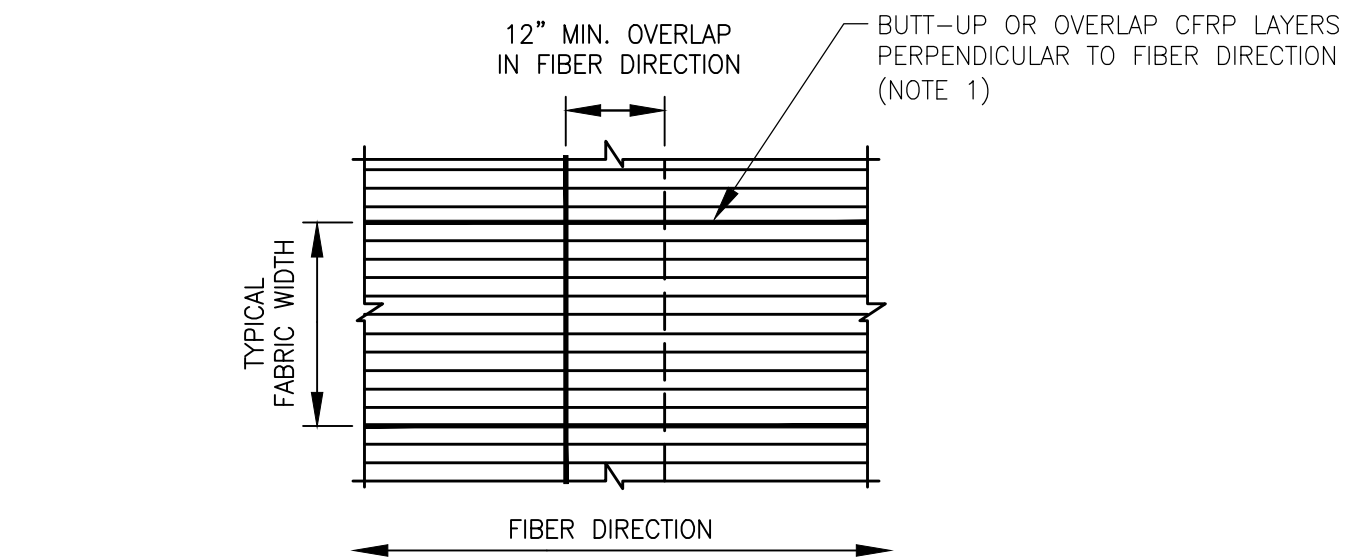
Designed By:	MCW
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AWWA TYPE IV STRUCTURAL LINER (CFRP) NOTES

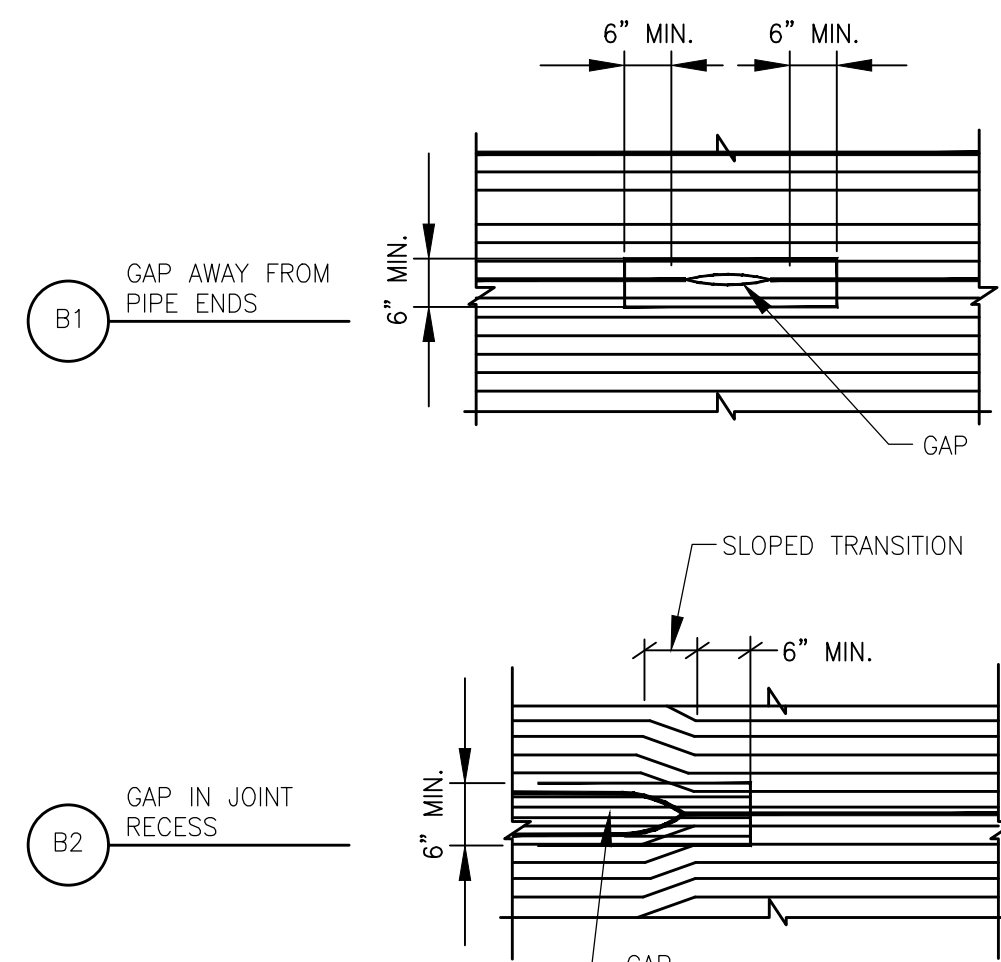
- CONCRETE SURFACE PREPARATION:** REMOVE ALL LOOSE CONCRETE. PROFILE THE CONCRETE SURFACE TO A MINIMUM ICRI CSP 3 (REFER TO ICRI GUIDELINE NO. 310.2R) USING HYDROBLASTING OR SANDBLASTING. ALL DUST, DIRT, SCALING, SURFACE LUBRICANTS, ETC. SHALL BE REMOVED. REPAIR SURFACE VOIDS GREATER THAN 0.50 INCHES IN DEPTH WITH REPAIR MORTAR SELECTED PER ICRI GUIDELINE NO. 320.2R. LOCALIZED OUT-OF-PLANE VARIATIONS MORE THAN 1/4" SHALL BE SMOOTHED OVER WITH THICKENED EPOXY. BUG HOLES AND VOIDS SHALL BE FILLED WITH THICKENED EPOXY. ALL CONCRETE SURFACES TO RECEIVE CFRP SHALL BE DRY, PRIMED, AND COVERED WITH THICKENED EPOXY AS RECOMMENDED BY THE MANUFACTURER.
- JOINT PREPARATION:** PREPARE JOINTS BY REMOVING THE CONCRETE INNER CORE AROUND THE ENTIRE CIRCUMFERENCE OVER A LENGTH THAT SATISFIES THE MINIMUM BOND LENGTH TO STEEL SUBSTRATE AS SHOWN IN DETAILS C/C-511 THROUGH D/C-511. USE EXTREME CAUTION TO AVOID DAMAGE TO EXPOSED STEEL CYLINDER. IF STEEL CYLINDER IS PUNCTURED, REPAIR BY WELDING USING QUALIFIED WELDERS AND HAVE REPAIR INSPECTED BY A CERTIFIED WELDING INSPECTOR. PREPARE THE SLOPED TRANSITION AT JOINT TERMINATIONS USING EPOXY MORTAR (SEE DEFINITION 1) AS SHOWN IN DETAILS C/C-511 THROUGH D/C-511.
- STEEL SURFACE PREPARATION:** PREPARE ALL EXPOSED STEEL SUBSTRATES IN REPAIR SCOPE (I.E., JOINT RINGS AND STEEL CYLINDER) TO SSPC SP-10 NEAR-WHITE METAL FINISH USING SANDBLASTING, AND APPLY ONE LAYER OF GFRP ON THE PREPARED STEEL SURFACE. SLIT GFRP AS NEEDED TO CONFORM TO SLOPED SURFACE IN JOINT RECESS AND USE ADDITIONAL PIECES TO COVER ALL STEEL SURFACES.
- MOCKUP TESTS:** PREPARE AT LEAST ONE 2 FT x 2 FT MOCKUP AREA IN EACH PIPELINE ON REPAIR PIPES OR ON ADJACENT NON-REPAIR PIPES PRIOR TO COMMENCEMENT OF CFRP INSTALLATION. APPLY TWO LAYERS OF CFRP TO THE SURFACE OF THE CONCRETE PIPE USING THE SAME SURFACE PREPARATION AND INSTALLATION METHODS USED FOR THE REPAIR OF PCCP. PERFORM AT LEAST THREE PULL-OFF TEST IN EACH MOCKUP AREA ACCORDING TO ASTM D7234. PROCEED WITH REPAIR OF THE PIPES ONLY IF THE MOCKUP AREAS AREA APPROVED BY THE INSPECTOR. FOR ACCEPTANCE, A MINIMUM BOND STRENGTH OF 300 PSI WITH A COHESIVE FAILURE IN CONCRETE IS REQUIRED. SUBMIT RESULTS TO ENGINEER FOR REVIEW AND APPROVAL.
- FRP APPLICATION:**
 - APPLY PRIMER AND THICKENED EPOXY TO CONCRETE SURFACE FOLLOWED BY APPLICATION OF ALL CFRP AND GFRP LAYERS WITHIN THE DURATION TIME PERIOD RECOMMENDED BY THE MANUFACTURER IN WRITING.
 - INSTALL ADJACENT CFRP LAYERS WITH MINIMUM OVERLAPS PERPENDICULAR TO THE FIBER DIRECTION AND IN THE FIBER DIRECTION PER DETAIL A/C-511. STAGGER THE OVERLAP IN THE HOOP DIRECTION IN SUBSEQUENT LAYERS (SEE C-511).
 - SLIT LONGITUDINAL CFRP LAYERS IN THE FIBER DIRECTION AS NEEDED TO CONFORM TO SLOPED SURFACE IN JOINT RECESS. COVER ALL GAPS BETWEEN ADJACENT FABRIC ROLLS WITH ADDITIONAL PIECES IN THE SAME DIRECTION (SEE NOTE 1/C-511 AND DETAIL B/C-511). PLACE HOOP CFRP LAYERS IN NARROW WIDTHS AS NEEDED TO CONFORM TO SLOPED SURFACE IN JOINT RECESS. STAGGER THE SEAMS OF THE NARROW HOOP LAYERS IN SUBSEQUENT LAYERS.
 - APPLY APPROVED TOP COAT (SEE DEFINITION 3) OVER INSTALLED CFRP WITH SUFFICIENT THICKNESS TO COVER ALL EXPOSED CARBON FIBERS WITHIN THE DURATION ALLOWED BY THE MANUFACTURER.
 - INSTALL EXPANSION RINGS AND APPLY EPOXY MORTAR (SEE DEFINITION 1) IN THE JOINT RECESSES AS PER DETAILS C/C-511 THROUGH D/C-511.
- WITNESS PANELS:** PREPARE AT LEAST TWO 12 IN X 14 IN MINIMUM CFRP WITNESS PANEL (TEST PANEL) PER DAY PER WORK SHIFT DURING THE REPAIR OF PIPES USING ONE LAYER OF CFRP AND THE SAME MATERIAL PREPARATION AND APPLICATION TECHNIQUES USED FOR CFRP REPAIR OF THE PIPES. STORE THE PANELS ON A LEVEL SURFACE IN THE PIPELINE OR IN AN AREA THAT IS REPRESENTATIVE OF THE PIPE INTERNAL ENVIRONMENT APPROVED BY THE INSPECTOR UNTIL SENT FOR TENSION TESTING.
- POST-INSTALLATION INSPECTION:** INSPECT ALL SURFACES FOR VOIDS, DELAMINATIONS, WRINKLES, AND RAISED FABRIC EDGES AFTER THE INSTALLED CFRP LINERS HAVE BECOME TACK-FREE. DOCUMENT AND PERFORM CORRECTIVE ACTIONS AS SPECIFIED BY THE ENGINEER.
- CURE:** REFILL PIPELINE AFTER CFRP COMPLETES AT LEAST 85% CURE BASED ON APPROVED TIME-TEMPERATURE-CURE RELATIONSHIPS PROVIDED BY THE MANUFACTURER OR DIFFERENTIAL SCANNING CALORIMETRY PERFORMED ON SMALL EPOXY SAMPLES TAKEN FROM INSTALLED CFRP LINERS ACCORDING TO ASTM E2160.

DEFINITIONS:

- EPOXY MORTAR:** SHALL CONSIST OF FIVE PARTS THICKENED EPOXY (DEFINITION 2) MIXED WITH ONE PART SAND, OR EQUIVALENT, DEMONSTRATED TO HAVE THE ABILITY TO BOND TO CONCRETE, STEEL, AND CFRP IN OVERHEAD AND ALL OTHER POSITIONS.
- THICKENED EPOXY:** SHALL BE EPOXY THICKENED WITH CAB-O-SIL TS-720 TREATED FUMED SILICA TO PROVIDE A SMOOTH BASE FOR APPLYING SATURATED CFRP AND GFRP LAYERS. THE AMOUNT OF CAB-O-SIL IS TYPICALLY ABOUT 1% TO 6.5% BY WEIGHT OF EPOXY, AND IS FIELD-ADJUSTED BASE ON APPLICATION AND TEMPERATURE.
- TOP COAT:** SHALL BE THICKENED EPOXY (DEFINITION 2) APPLIED WITHIN THE TIME WINDOW RECOMMENDED BY THE MANUFACTURER.
- BOND BREAKER:** PARAFFIN WAX (OR EQUIVALENT) APPLIED CENTERED ON THE INTERMEDIATE JOINT OF ADJACENT REPAIR PIPES (DETAIL D) AROUND ENTIRE CIRCUMFERENCE.



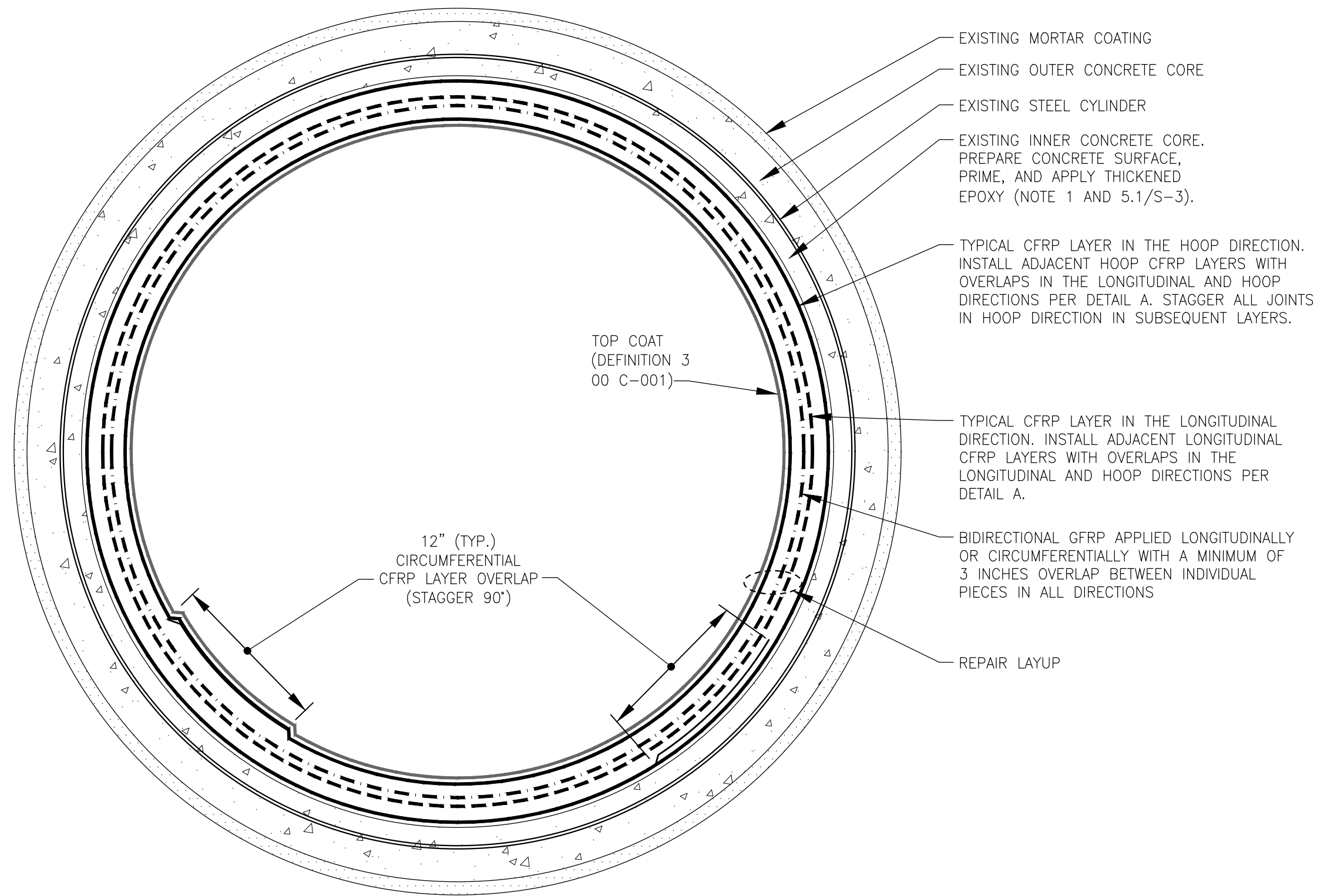
CFRP REINFORCEMENT OVERLAP
NTS



PATCH DETAILS FOR GAPS IN CFRP
NTS

NOTES:

- PROVIDE A MINIMUM 6 INCHES WIDE CFRP STRIP CENTERED OVER EACH GAP TO COVER LENGTH OF GAP PLUS MINIMUM 6 INCHES BEYOND THE GAP ON BOTH SIDES (SEE DETAIL B).



AWWA TYPE IV STRUCTURAL LINER (CFRP)
NTS

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

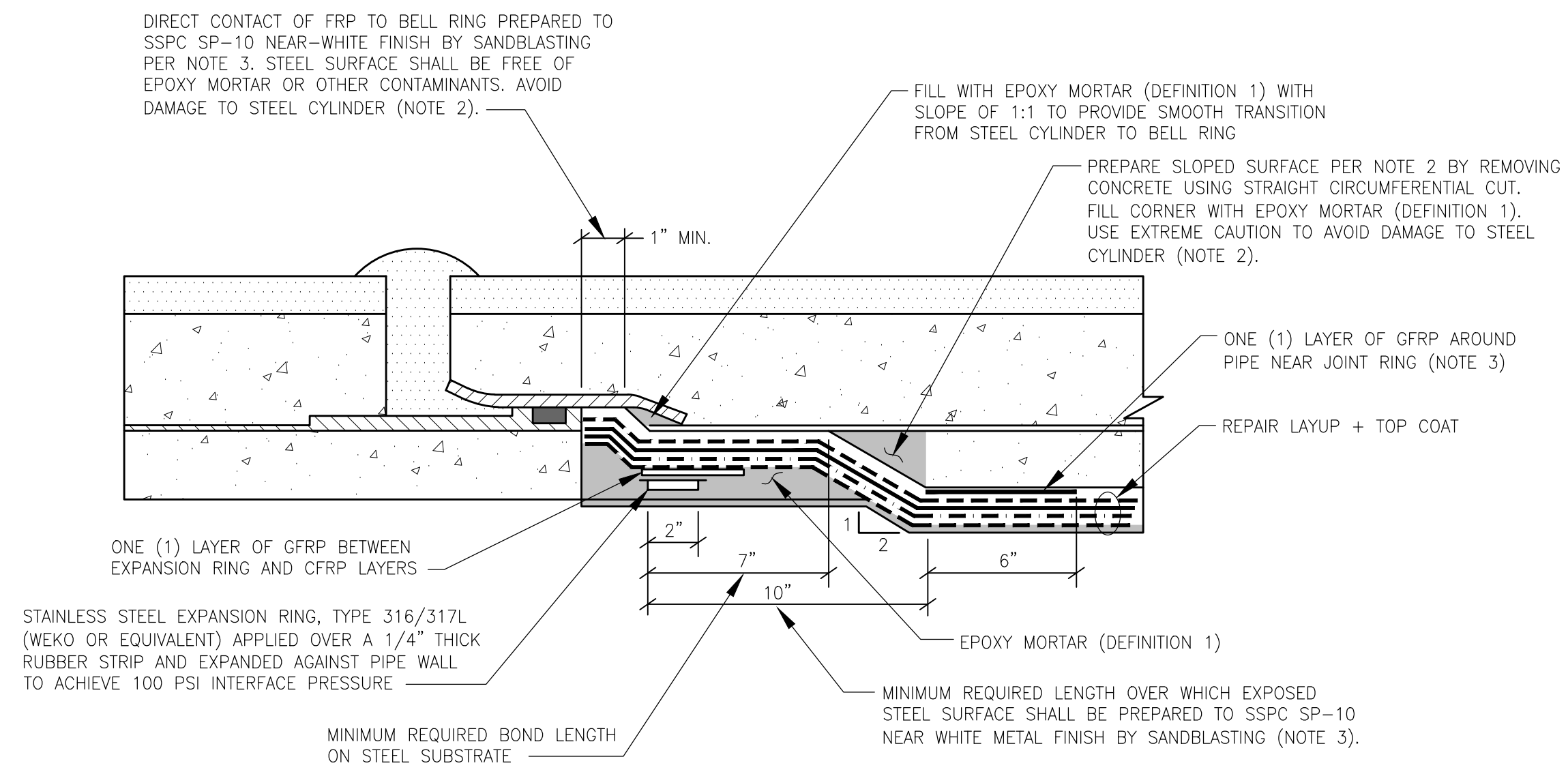
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

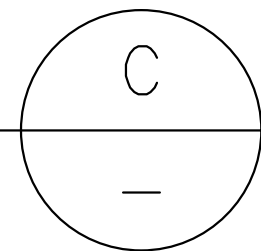
CIVIL
SHEET TITLE

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

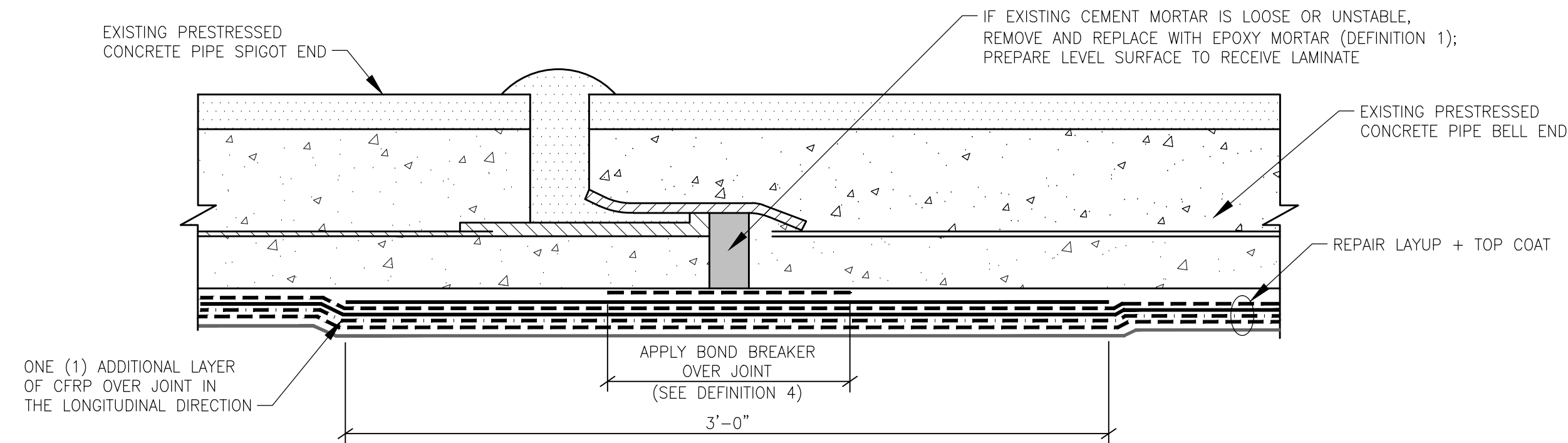
99 C-513



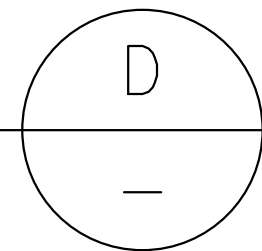
REPAIR DETAIL AT BELL END ADJACENT TO PCCP



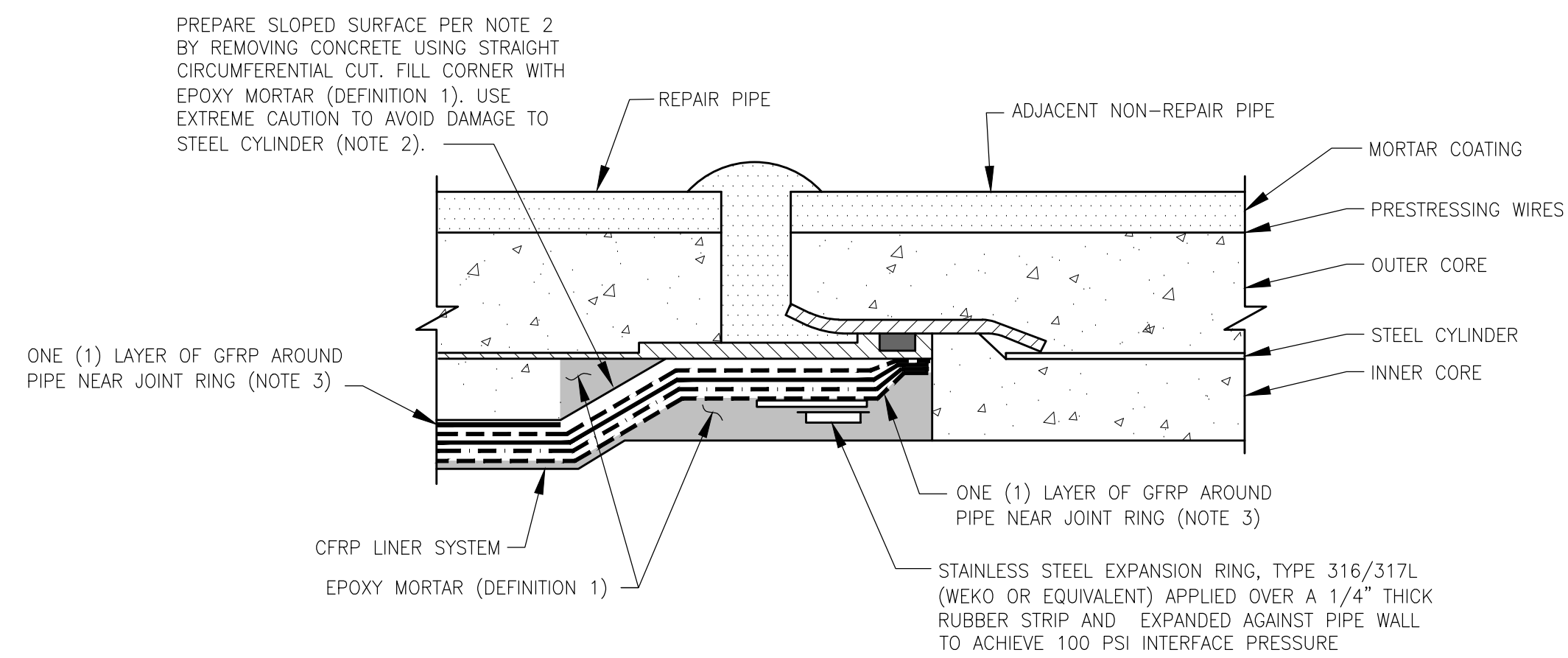
NTS



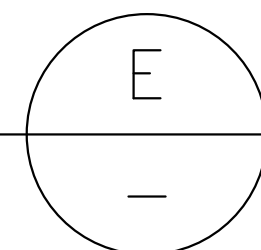
REPAIR DETAIL AT INTERMEDIATE JOINTS



NTS



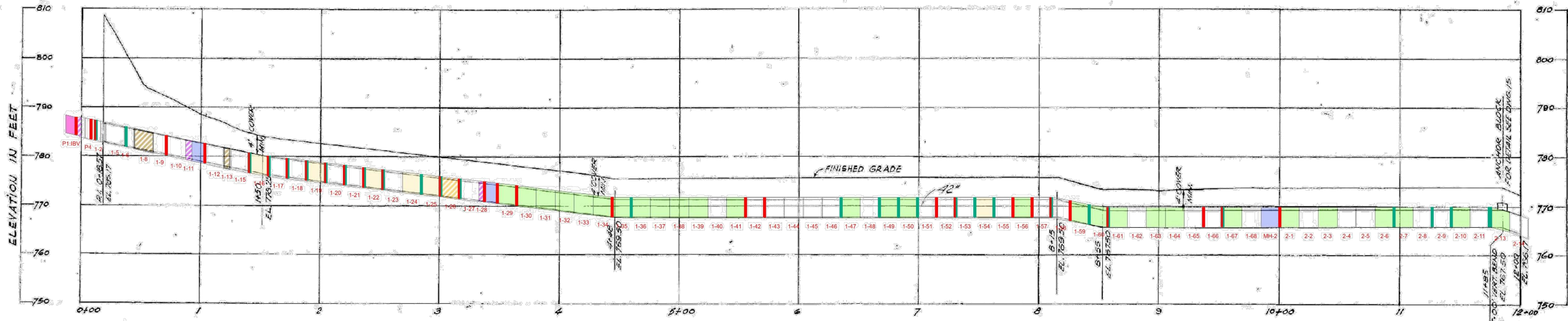
REPAIR DETAIL AT SPIGOT END ADJACENT TO PCCP



NTS

NOTES:

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



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

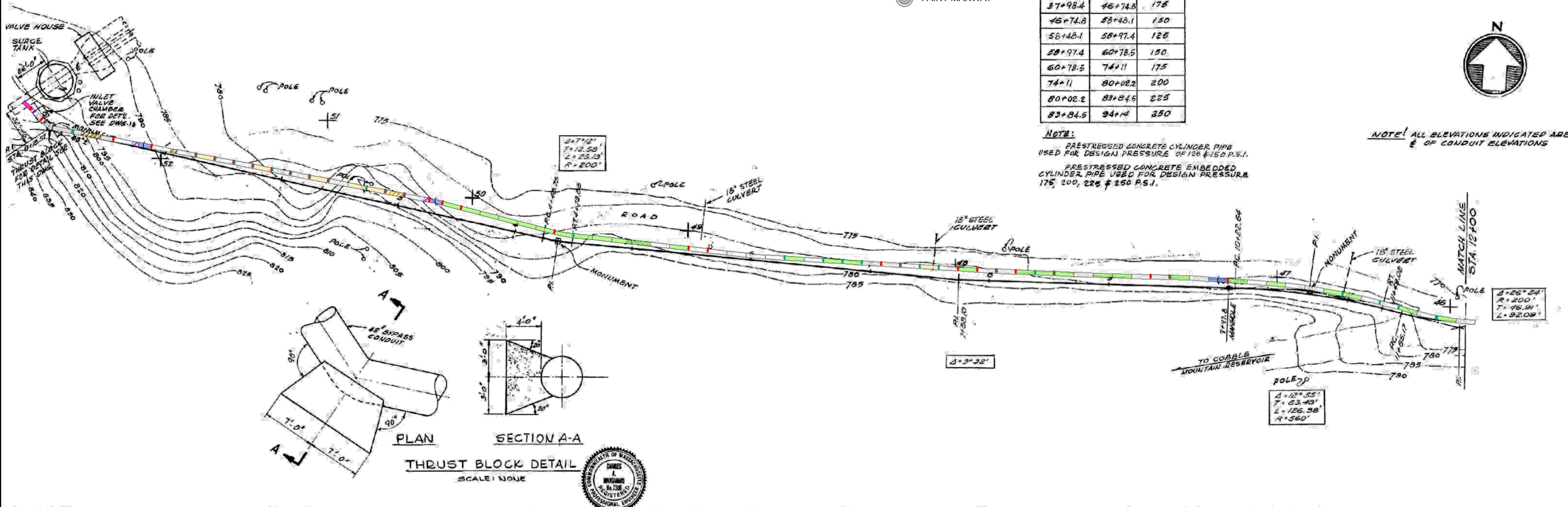
MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

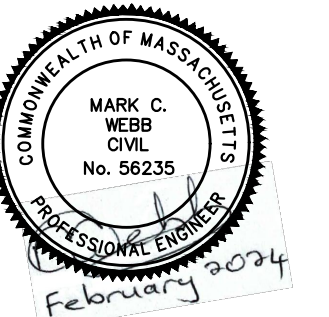
PRESSURE CLASSES		
FROM STA.	TO STA.	DESIGN PRESS. P.S.I.
0+03.2	17+52.2	150
17+52.2	28+37.2	175
28+37.2	37+98.4	200
37+98.4	46+74.8	175
46+74.8	58+48.1	150
58+48.1	58+97.4	125
58+97.4	60+78.5	150
60+78.5	74+11	175
74+11	80+02.2	200
80+02.2	83+84.5	225
83+84.5	94+14	250

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



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

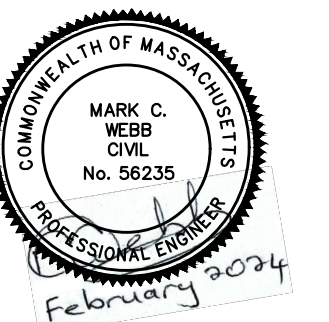
CIVIL SHEET TITLE

CONTRACT 44: RECORD DRAWING No. 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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 PLOT DATE: Friday, February 9, 2024 12:58:45 PM



ISSUE/REVISION

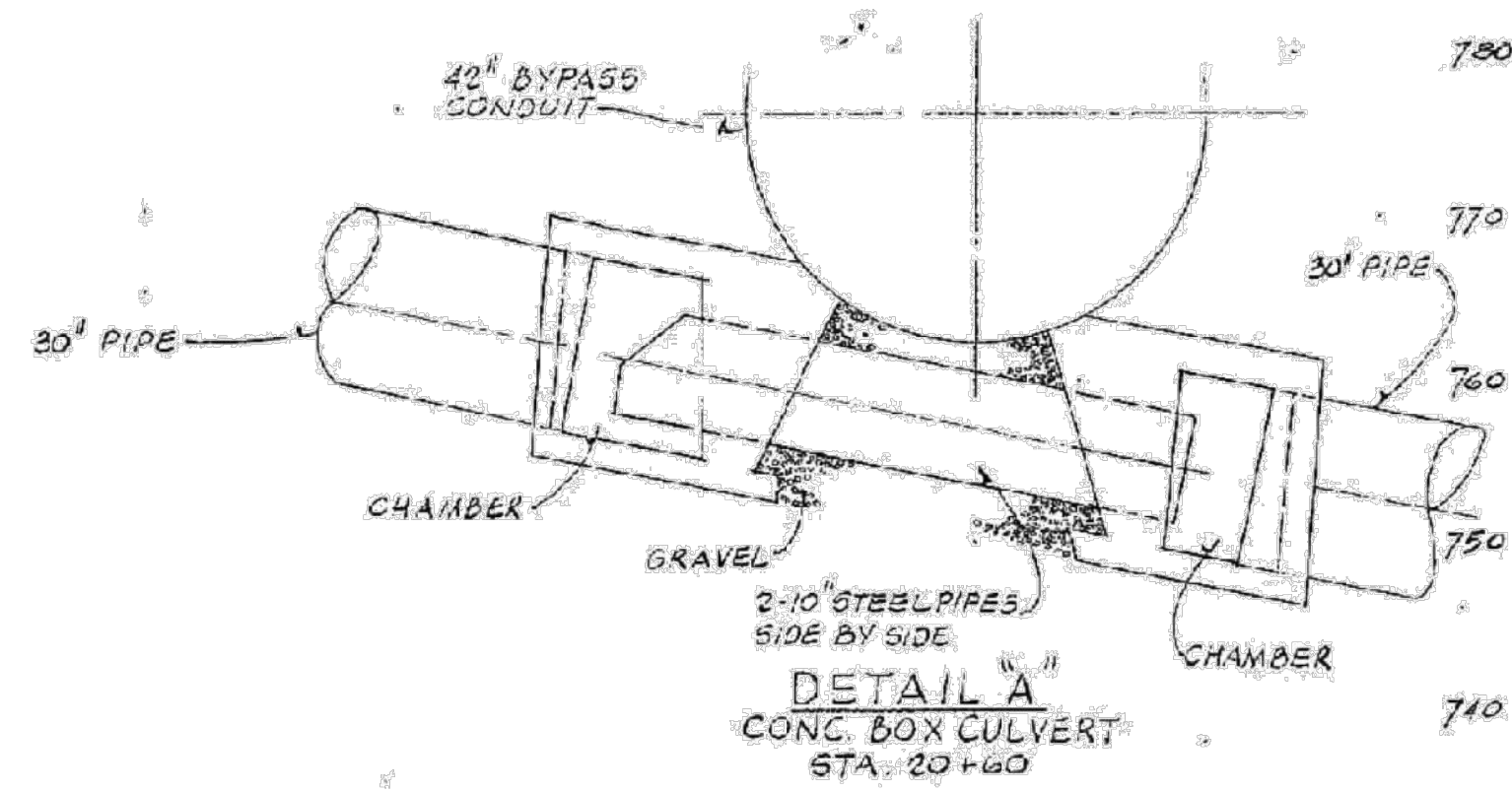
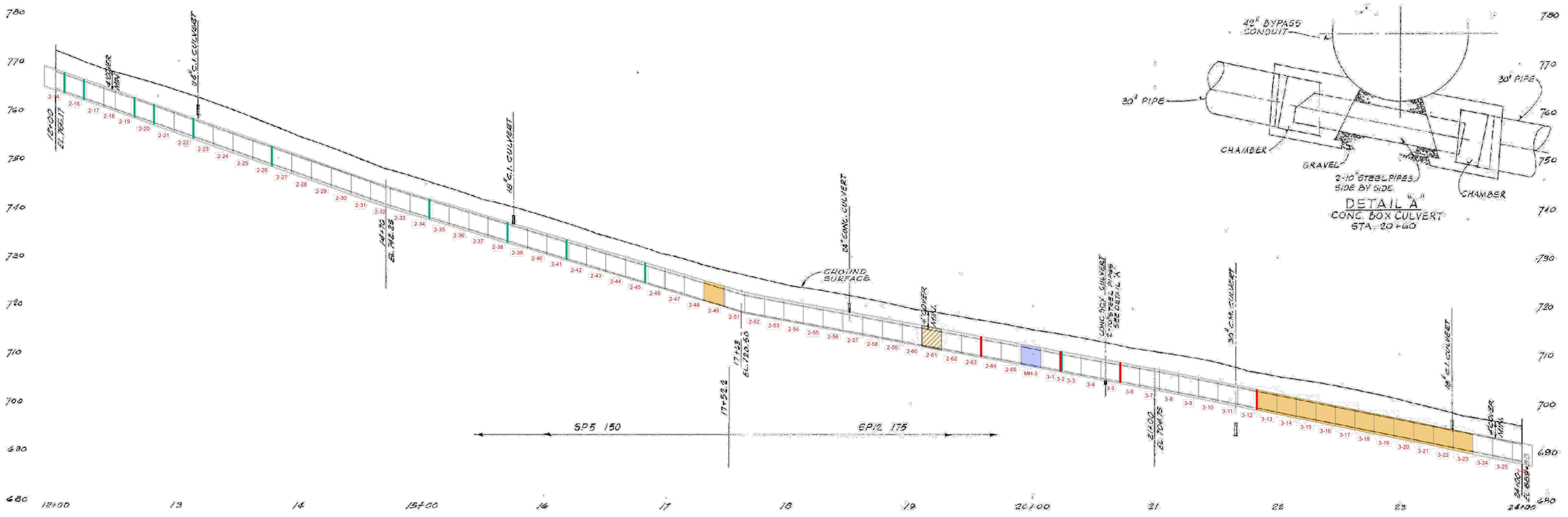
NO.	DATE	DESCRIPTION

PROJECT NUMBER
60662775

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

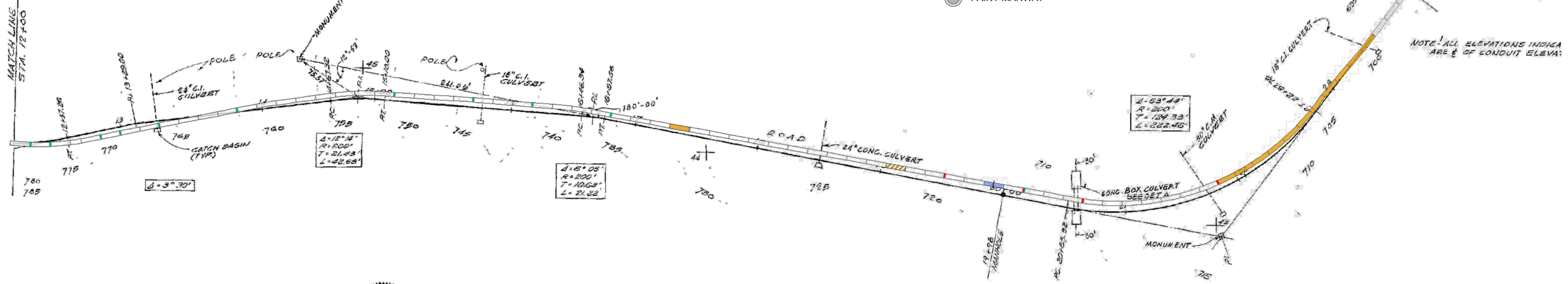
DISCIPLINE
 CIVIL

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



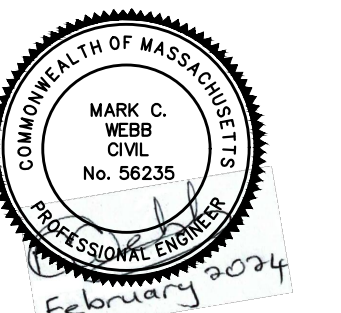
LEGEND

- | | | |
|-------------------------|-----------------------------------|--------------------------|
| 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



IR	DATE	DESCRIPTION

60662775

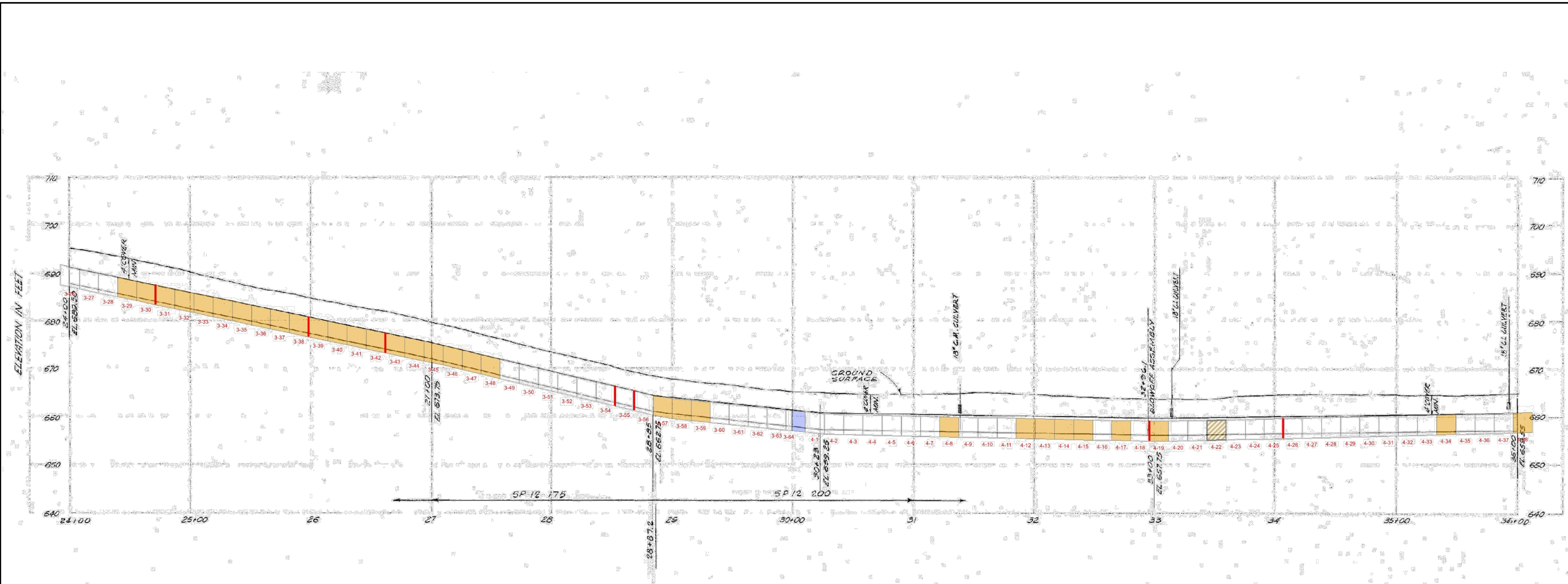
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

CIVIL

SHEET TITLE

CONTRACT 44: RECORD DRAWING No. 7 - 42" BYPASS CONDUIT - PLAN & PROFILE STA. 24+00 TO 36+00 SHEET NUMBER

99 C-516



LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

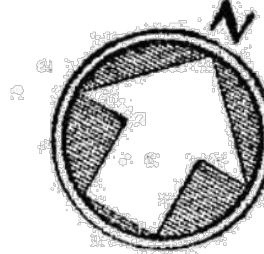
PIPE BARREL TREATMENTS

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

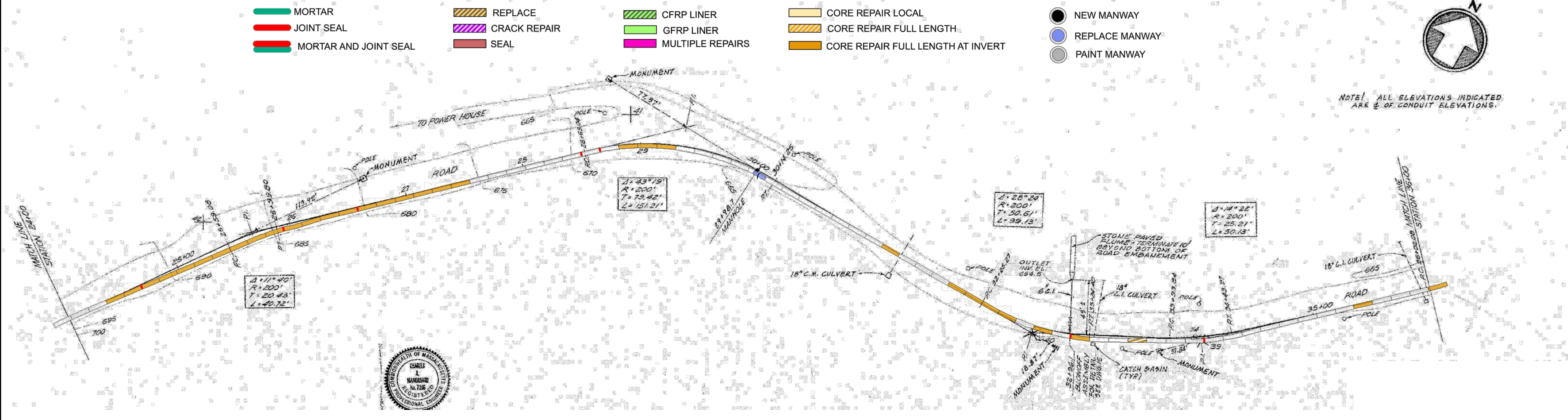
MANWAY TREATMENTS

- NEW MANWAY
- REPLACE MANWAY
- PAINT MANWAY

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



NOTE: ALL ELEVATIONS INDICATED ARE ± OF CONDUIT ELEVATIONS.



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

PATH: I:\PROJECTS\WTR6062775_SWCS_WF_HYDRO_ELECT_PDR\6062775_SWCS_WF_HYDRO_ELECT_PDR\6062775_SWCS_WF_HYDRO_ELECT_PDR\CAD\2024\SHEETS\99 C-516.DWG
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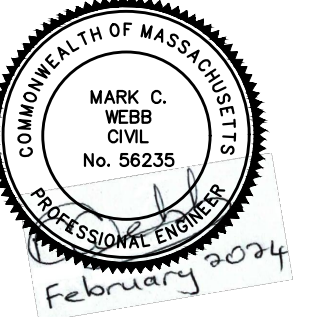
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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

NO.	DATE	DESCRIPTION

PROJECT NUMBER

60662775

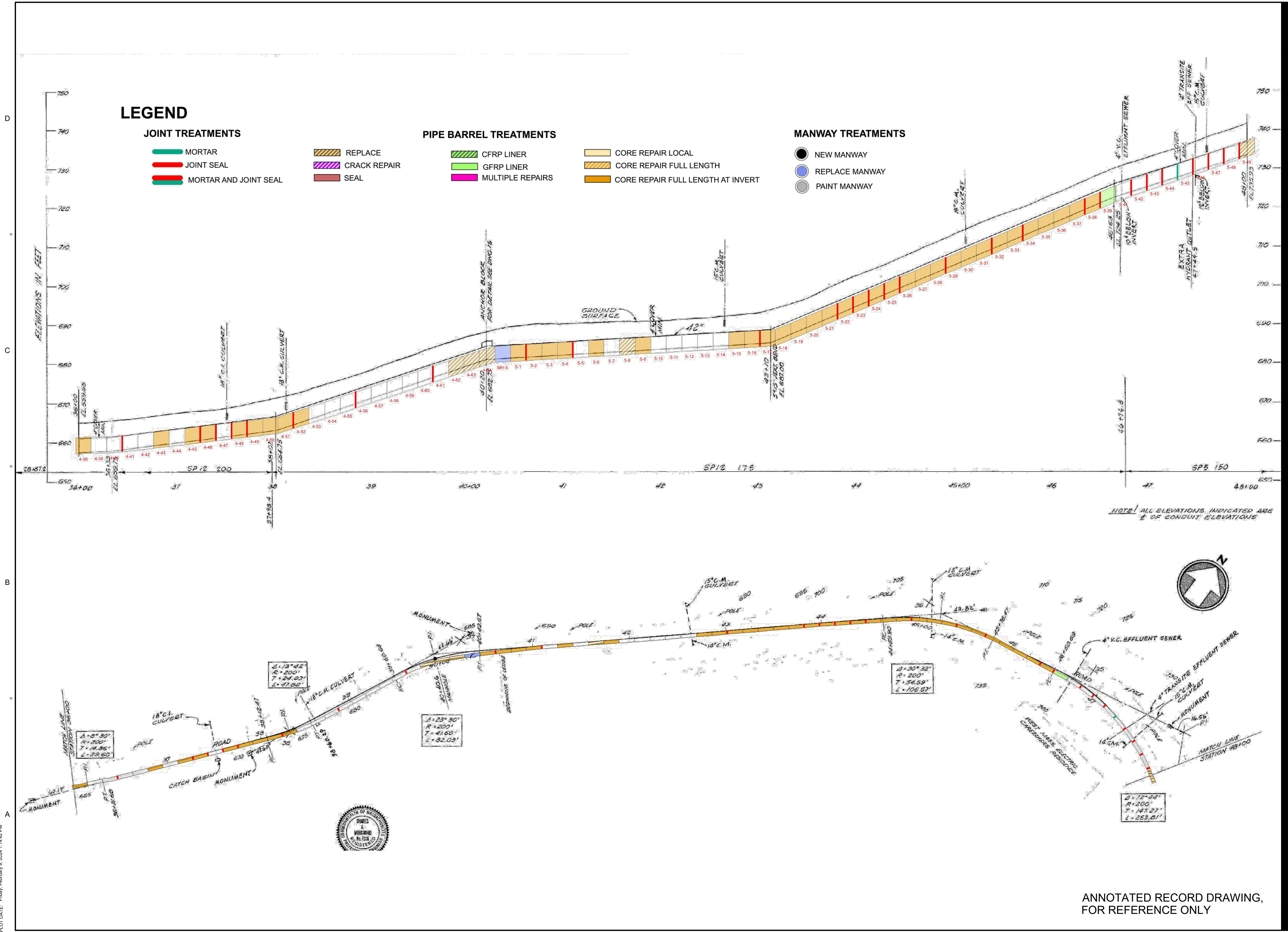
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL SHEET TITLE

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

99 C-517



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

PATH: L:\DCS\PROJECTS\WTR6062775_SWCS_MF_HYDRD_ELECT_PDR6062775_CAD\020_SHEETS\089_C-517.DWG
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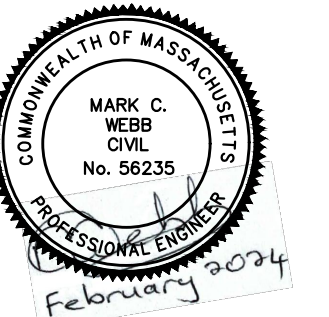
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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

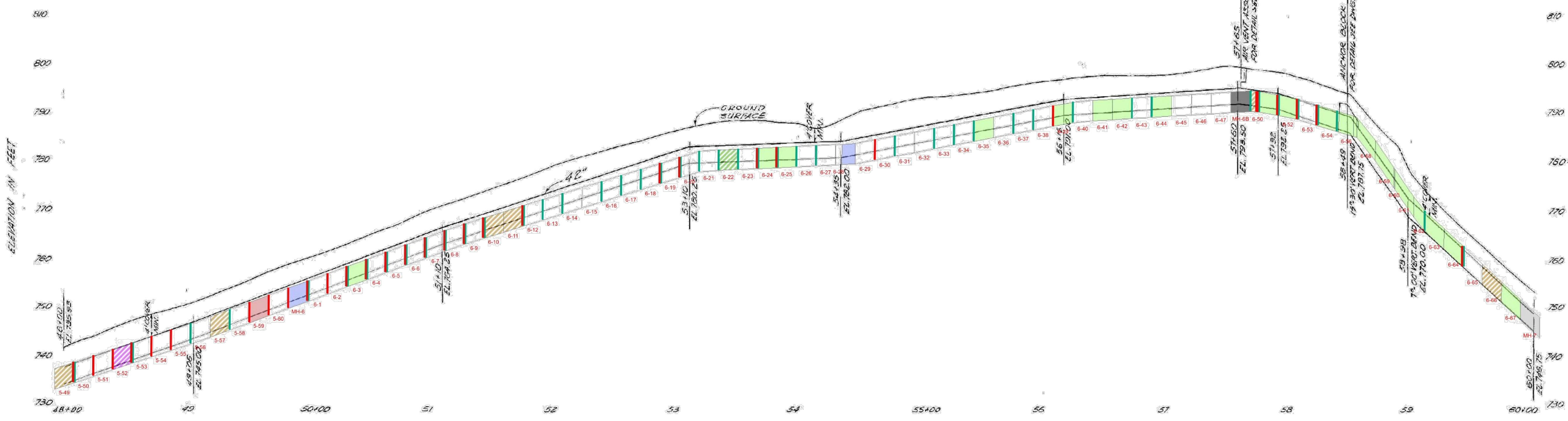
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL
 SHEET TITLE

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

99 C-518



NOTE: ALL ELEVATIONS INDICATED ARE OF CONDUIT ELEVATIONS

LEGEND

JOINT TREATMENTS

- MORTAR
- JOINT SEAL
- MORTAR AND JOINT SEAL

- REPLACE
- CRACK REPAIR
- SEAL

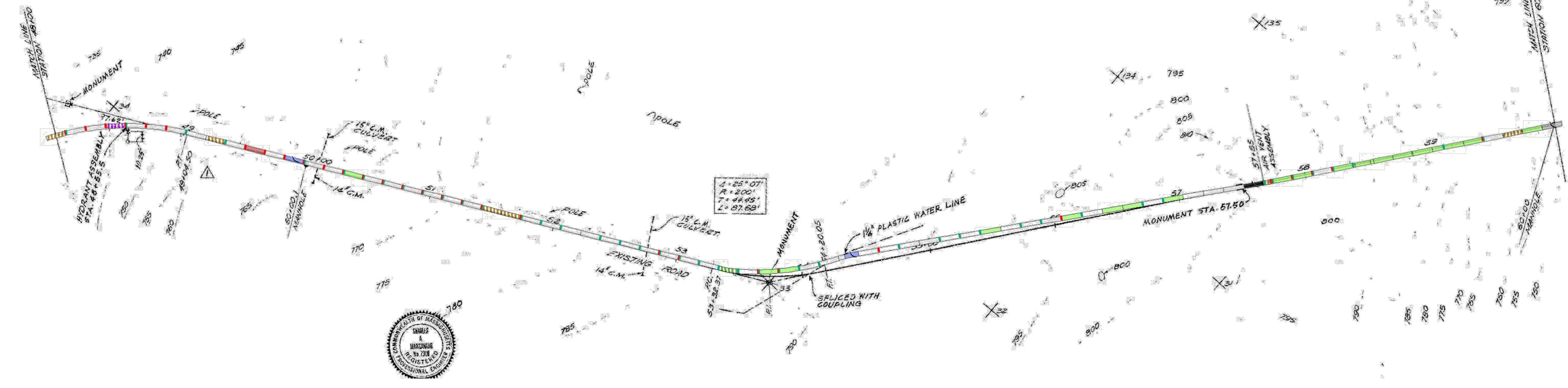
PIPE BARREL TREATMENTS

- 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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 LAST UPDATE: Wednesday, January 17, 2024, 1:46:03 PM
 PLOT DATE: Friday, February 9, 2024, 11:15:15 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

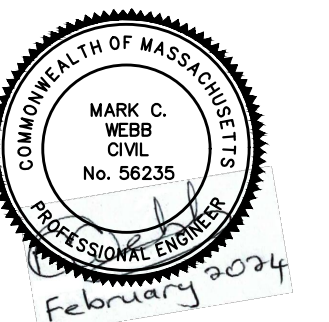
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

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

CONSULTANTS

REGISTRATION



ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

60662775

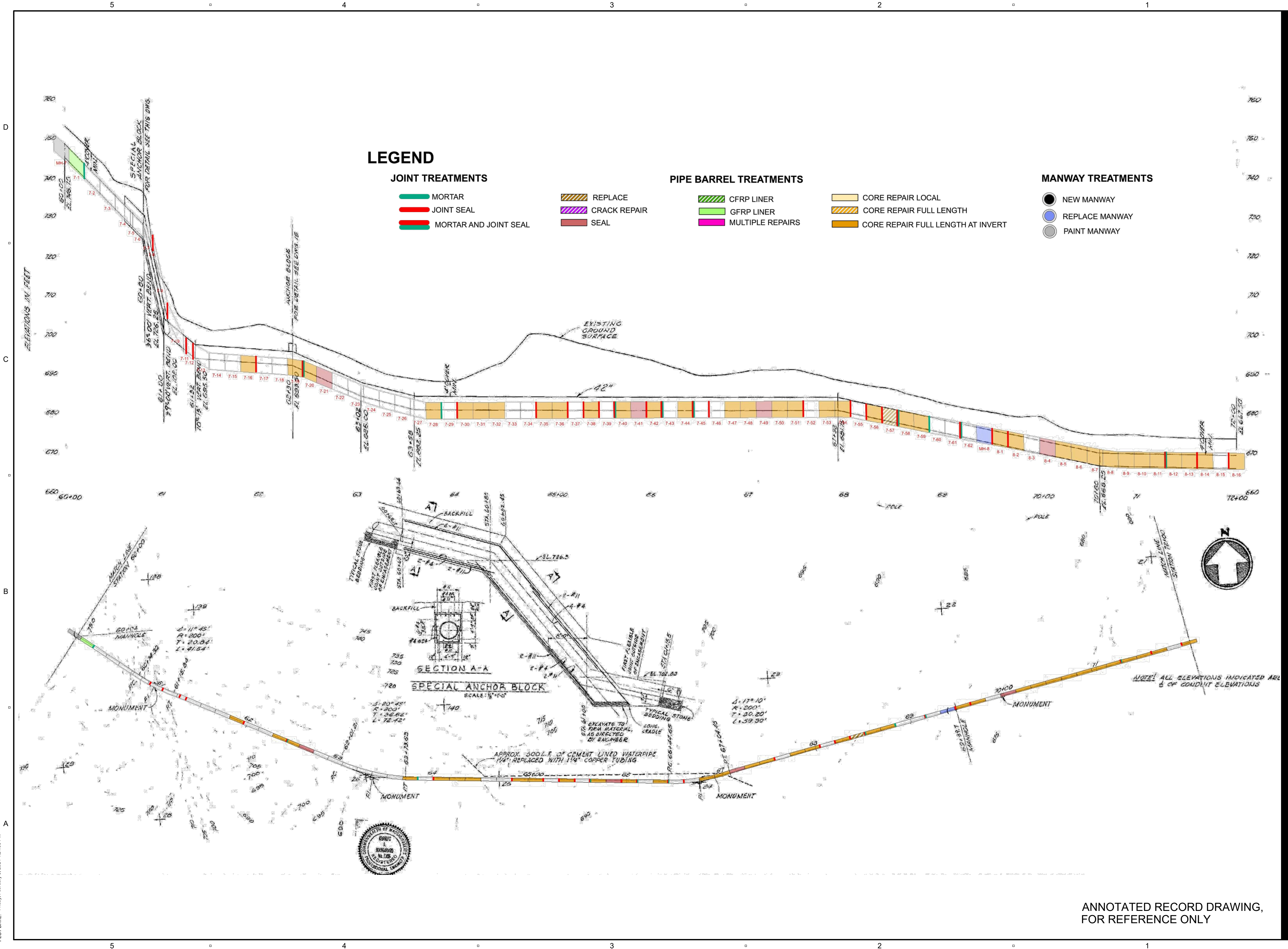
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL
 SHEET TITLE

CONTRACT 44: RECORD
 DRAWING No. 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,
 FOR REFERENCE ONLY

PATH: L:\DCS\PROJECTS\WTR6062775_SWNS_MF_HYDRO_ELECT_PDR\60_CAD\2020-SHEETS\C99-C-519.DWG
 LAST UPDATE: Wednesday, January 17, 2024 1:43:38 PM
 PLOT DATE: Friday, February 9, 2024 11:21:08 PM

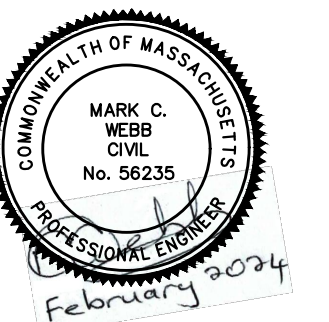
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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

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

CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

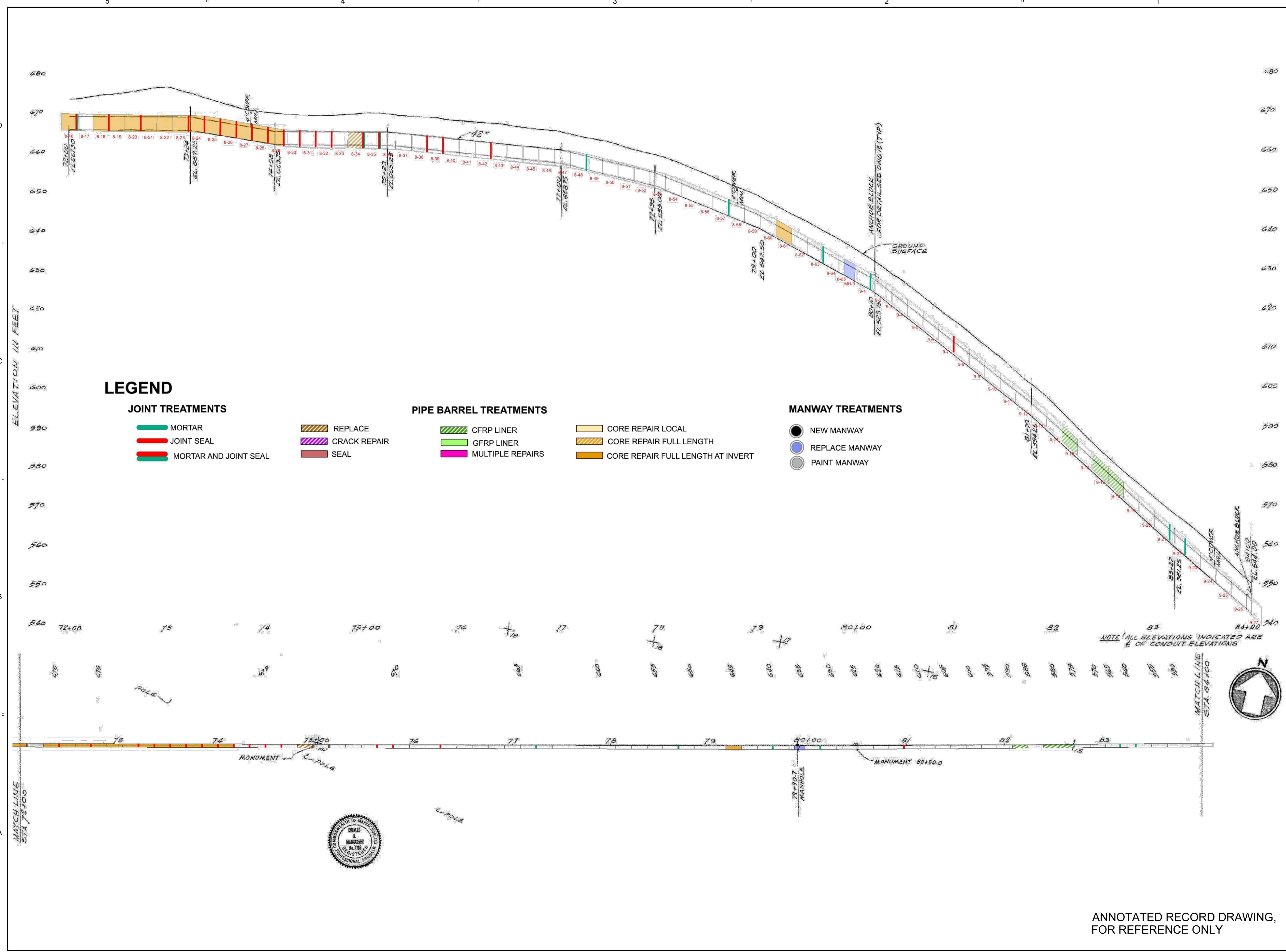
PROJECT NUMBER

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

DISCIPLINE

CIVIL
SHEET TITLE
 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\WTR6062775_SWCS_WF_HYDRO_ELECT_PDR\60_CAD_GIS\910_CAD\20-SHEETS\99 C-520.DWG
 LAST UPDATE: Wednesday, January 17, 2024 1:49:54 PM
 PLOT DATE: Friday, February 9, 2024 12:53:23 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

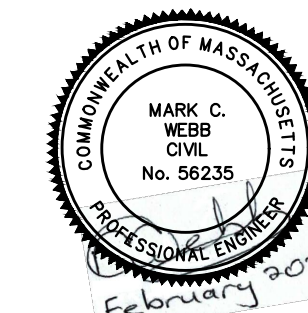
250 M STREET EXTENSION
 AGAWAM, MA 01001

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

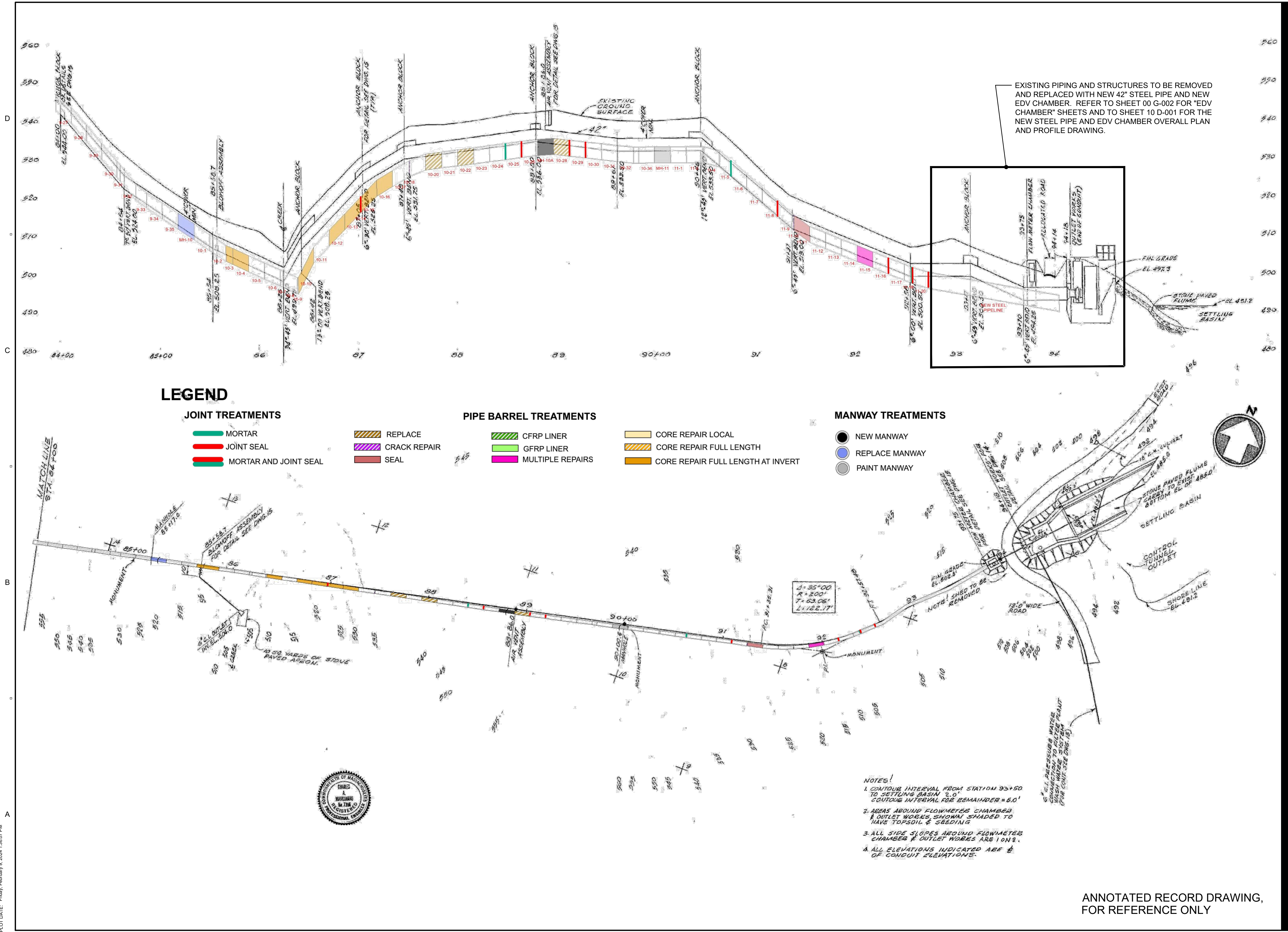
Designed By:	MCW
Drawn By:	JES
Dept Check:	CPB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL
 SHEET TITLE

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

99 C-521



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

$\Delta = 35^{\circ}00'$
 $R = 200'$
 $T = 63.06'$
 $L = 122.17'$

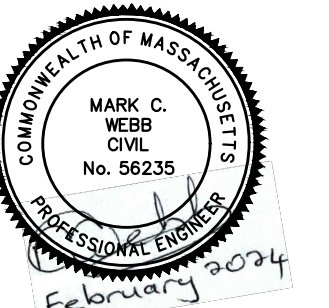
NOTES!

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

ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

PATH: I:\PROJECTS\WTR6062775_SINCS_WF_HYDRO_ELECT_PDR\890_CAD\890_SHEETS\890_C-521.DWG
 LAST UPDATE: Tuesday, January 23, 2024 12:38:14 PM
 PLOT DATE: Friday, February 9, 2024 11:07:07 AM





IR	DATE	DESCRIPTION

60662775

Designed By: **MCW**

Drawn By: **JES**

Dept Check: **CPB**

Proj Check: **TAL/MCW**

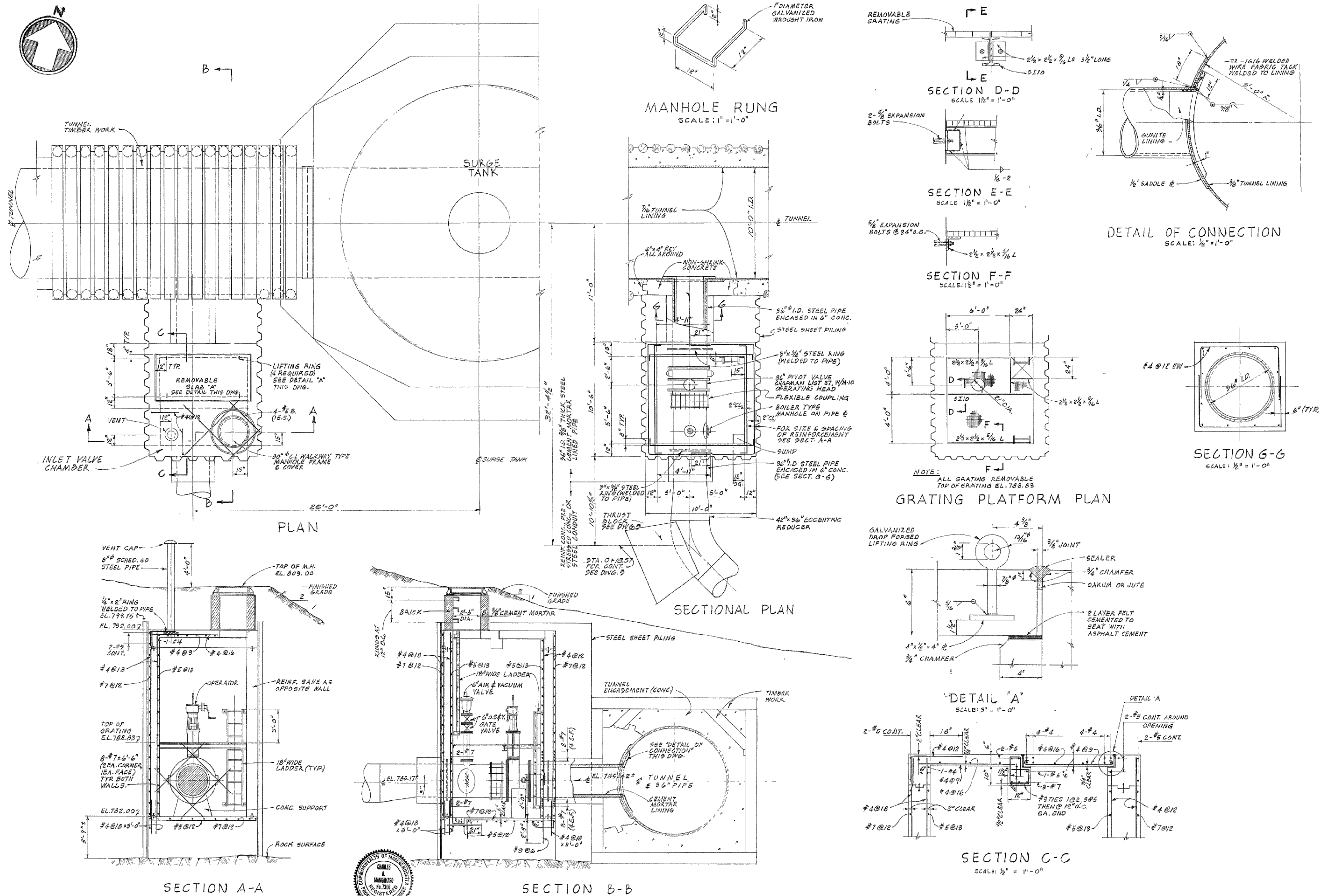
Date: **FEBRUARY 2024**

Scale: **AS NOTED**

CIVIL

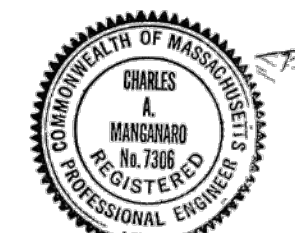
**CONTRACT 44:
 RECORD DRAWING No. 13 -
 42" BYPASS CONDUIT - INLET WORKS**

99 C-522



ANNOTATED RECORD DRAWING,
 FOR REFERENCE ONLY

PATH: L:\DCS\PROJECTS\WTR6062775_SWS\WTR6062775_SWS\99_C-522.DWG
 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

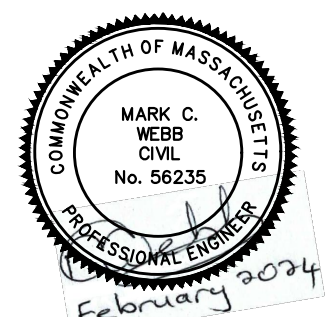
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

AECOM TECHNICAL SERVICES, INC.
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PHONE: (978) 905-2100
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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

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT

SPRINGFIELD WATER AND SEWER COMMISSION

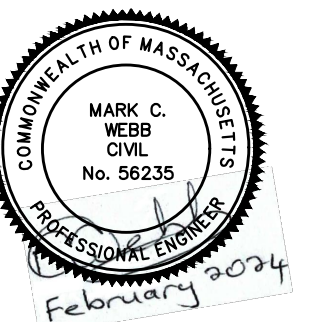
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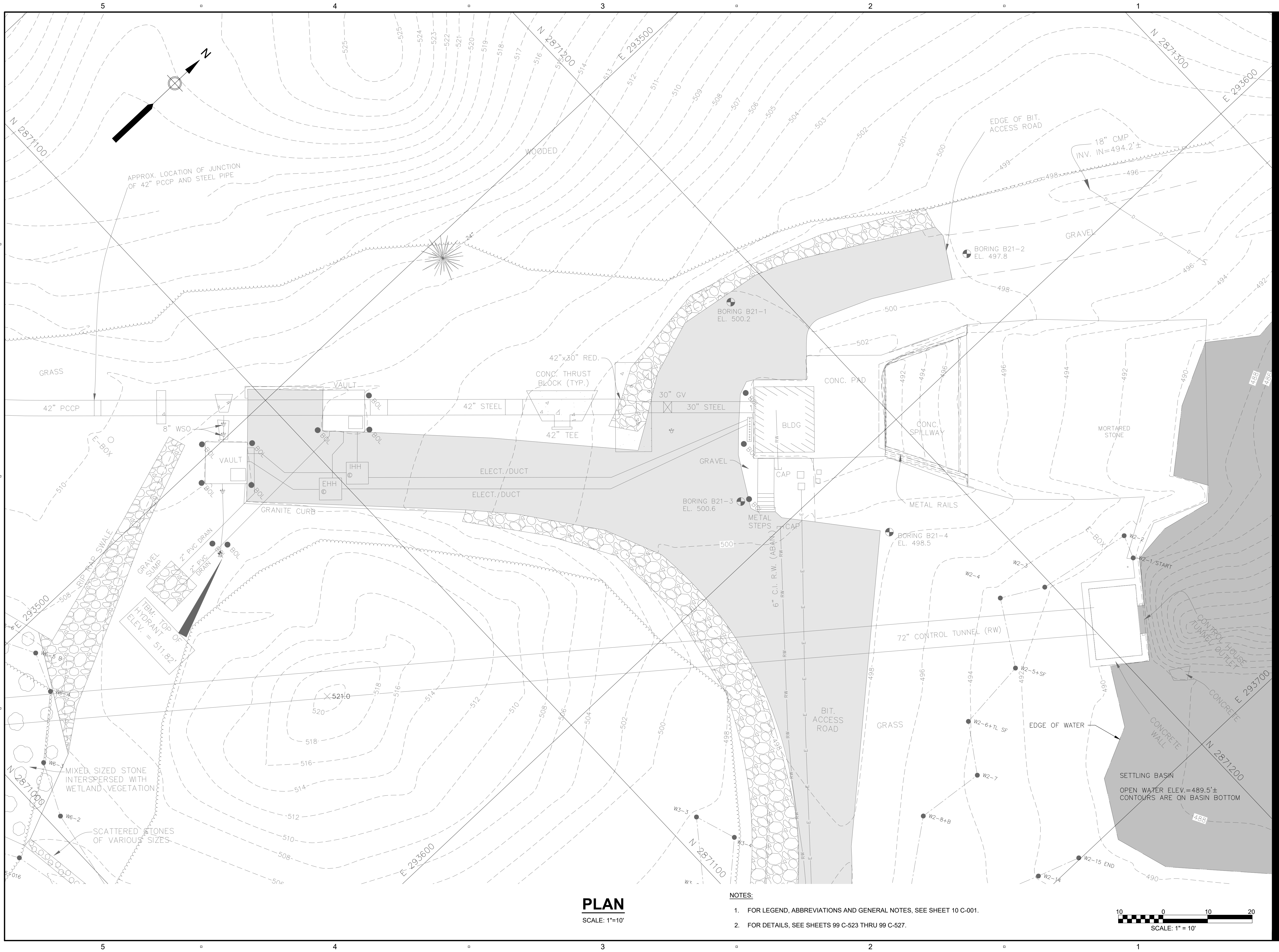
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SHEET TITLE

EXISTING CONDITIONS AND BORING LOCATION PLAN

SHEET NUMBER

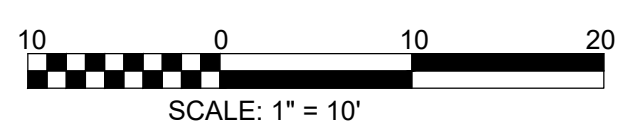
10 C-101



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.



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 PLOT DATE: Friday, February 9, 2024 10:25:02 AM

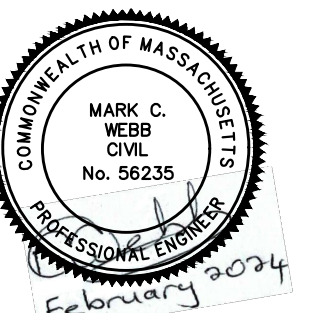
PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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Scale:	AS NOTED

DISCIPLINE

CIVIL

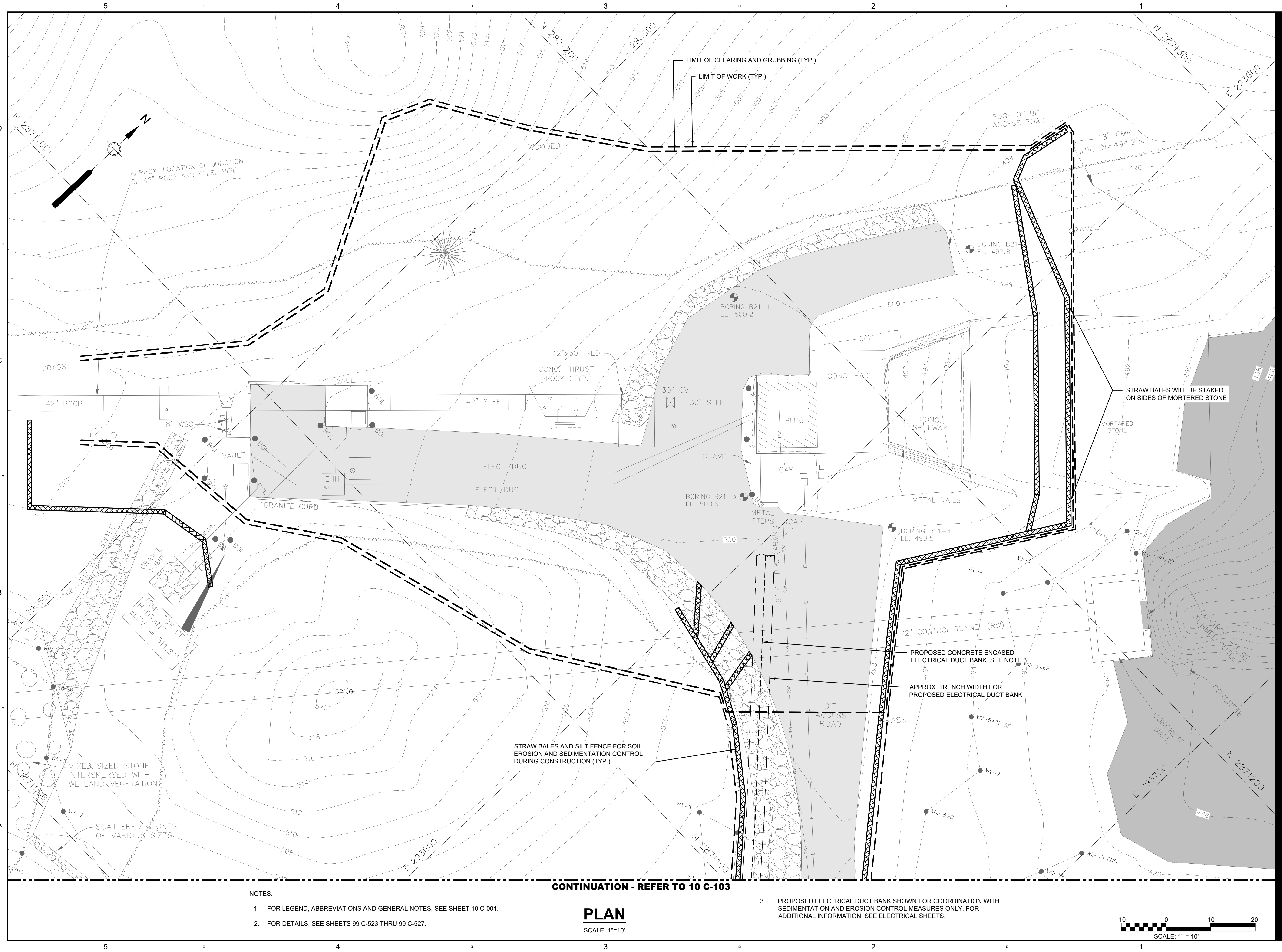
SHEET TITLE

SOIL EROSION AND SEDIMENT CONTROL

PLAN I

SHEET NUMBER

10 C-102



NOTES:

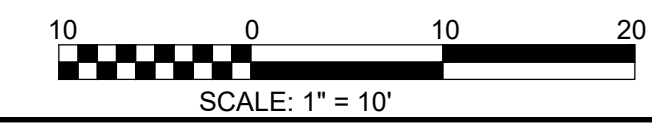
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.

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.



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 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

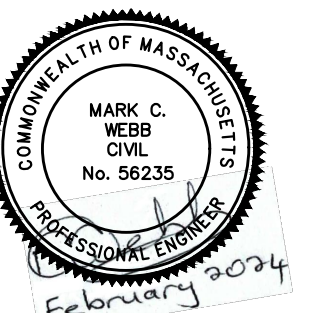
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Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

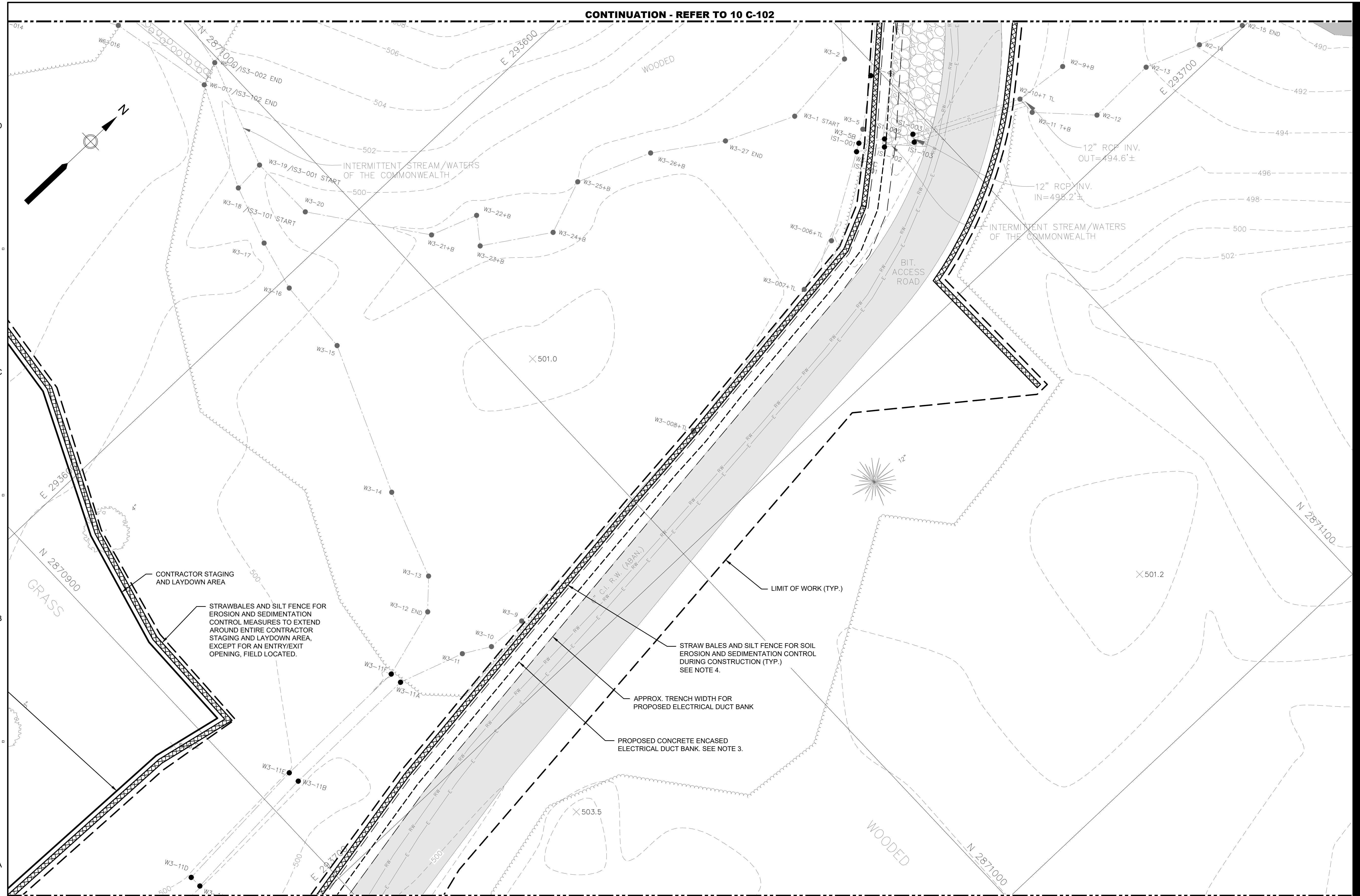
SOIL EROSION AND SEDIMENT CONTROL PLAN II

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')

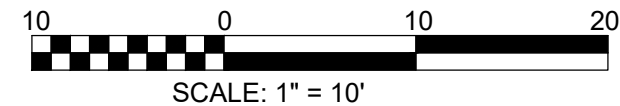


PLAN

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.



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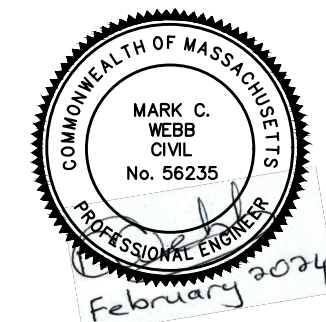
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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 SPRINGFIELD WATER AND SEWER COMMISSION
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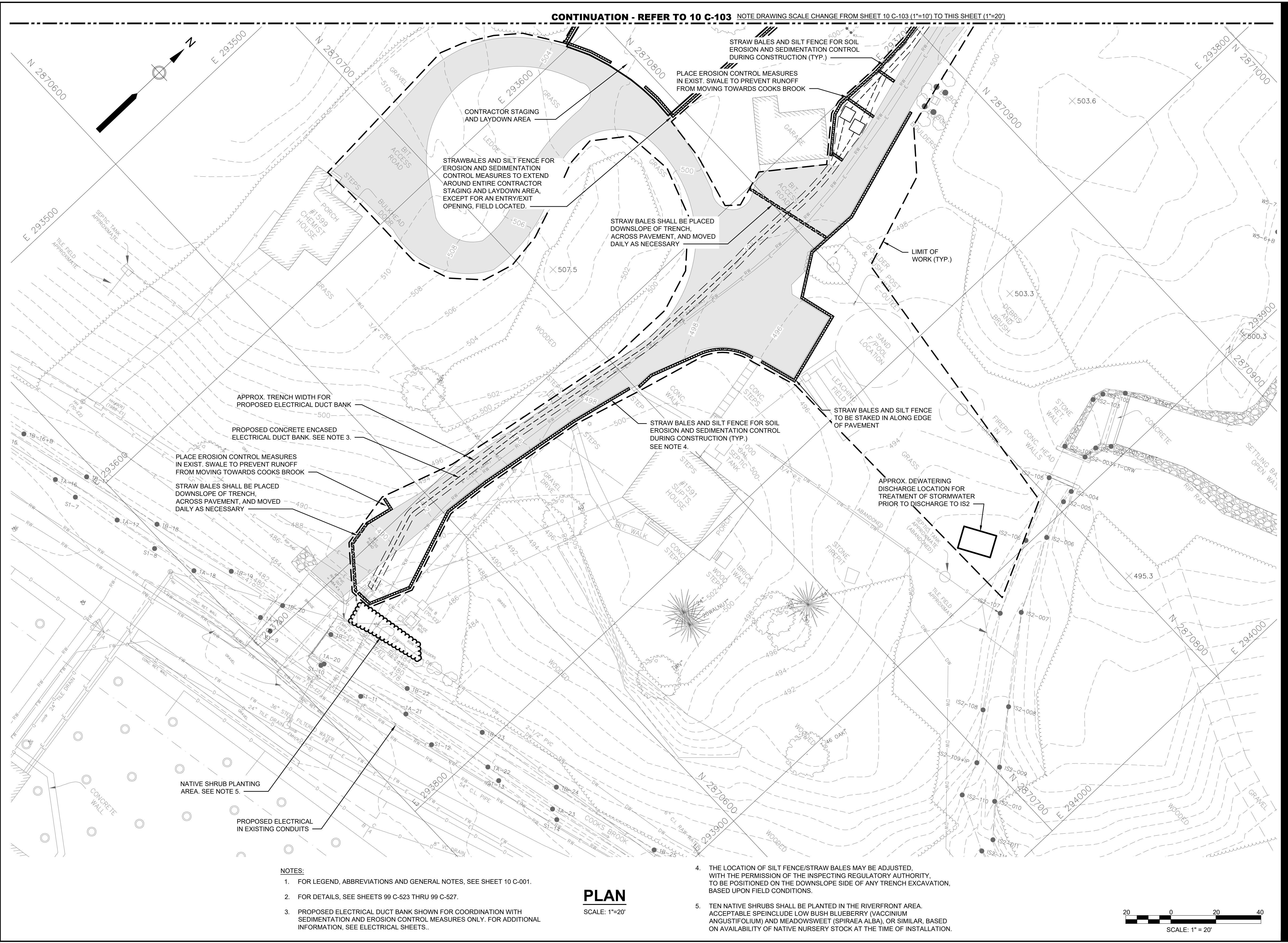
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PROJECT NUMBER

60662775

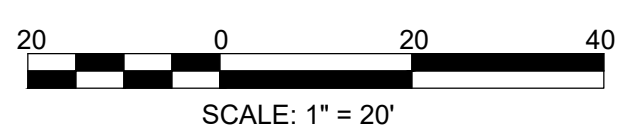
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Drawn By:	RAA
Dept Check:	CB
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

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.
 - 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.

PLAN
 SCALE: 1"=20'



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 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

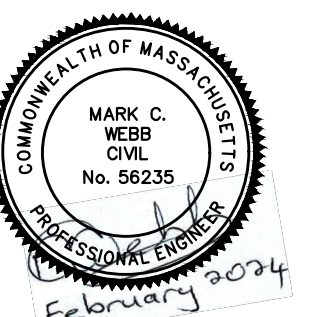
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NO.	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By: **TL**

Drawn By: **RAA**

Dept Check: **CB**

Proj Check: **TAL/MCW**

Date: **FEBRUARY 2024**

Scale: **AS NOTED**

DISCIPLINE

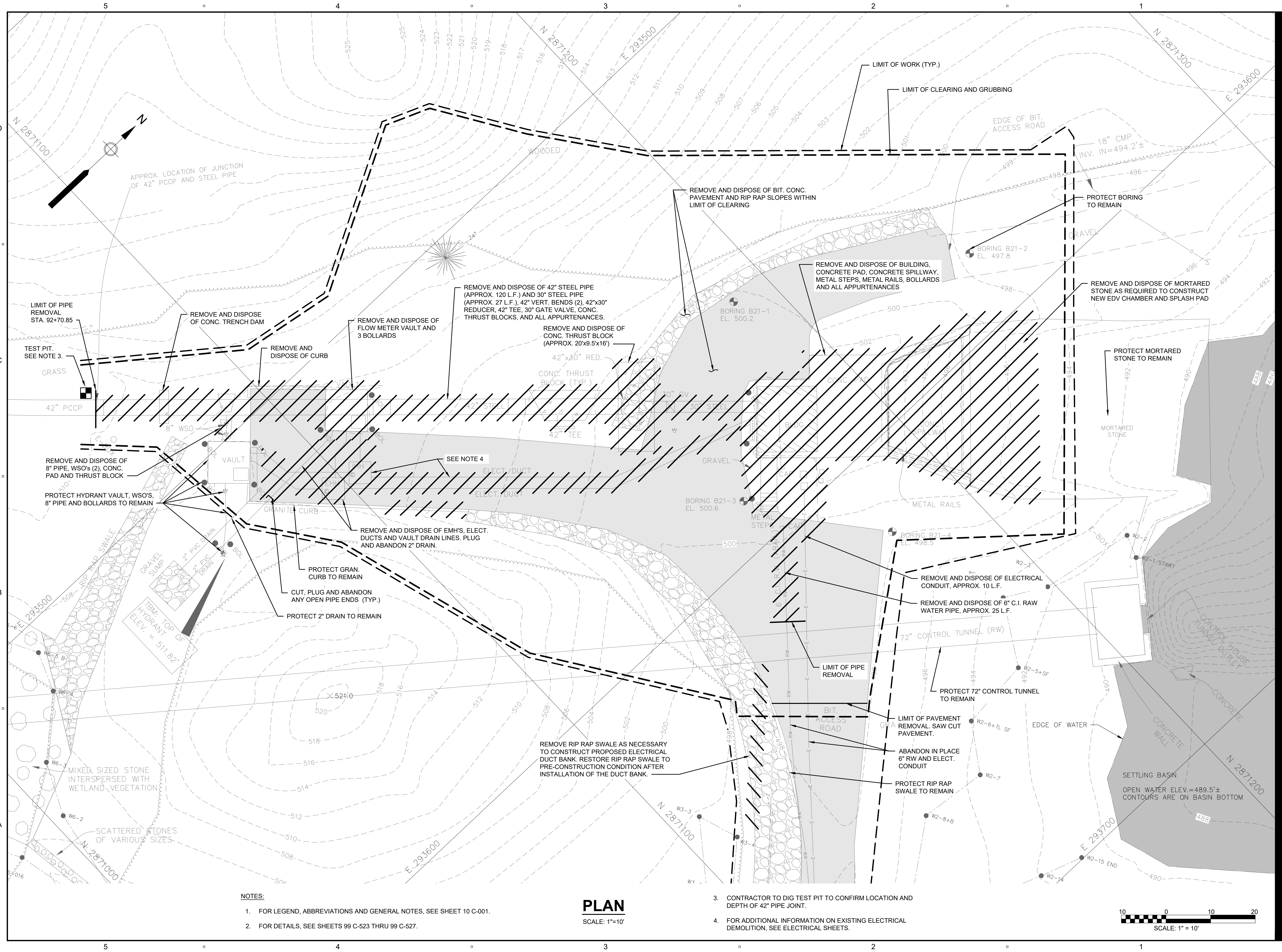
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SHEET TITLE

DEMOLITION PLAN

SHEET NUMBER

10 C-105



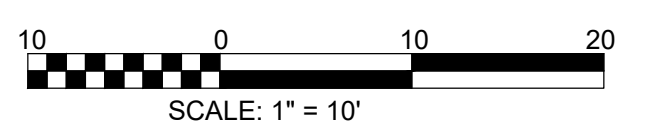
NOTES:

- 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: L:\DCS\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PRR1800_CAD_GIS\10_CAD\20-SHEETS\C10 C-105.DWG
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 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
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CONSULTANTS

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

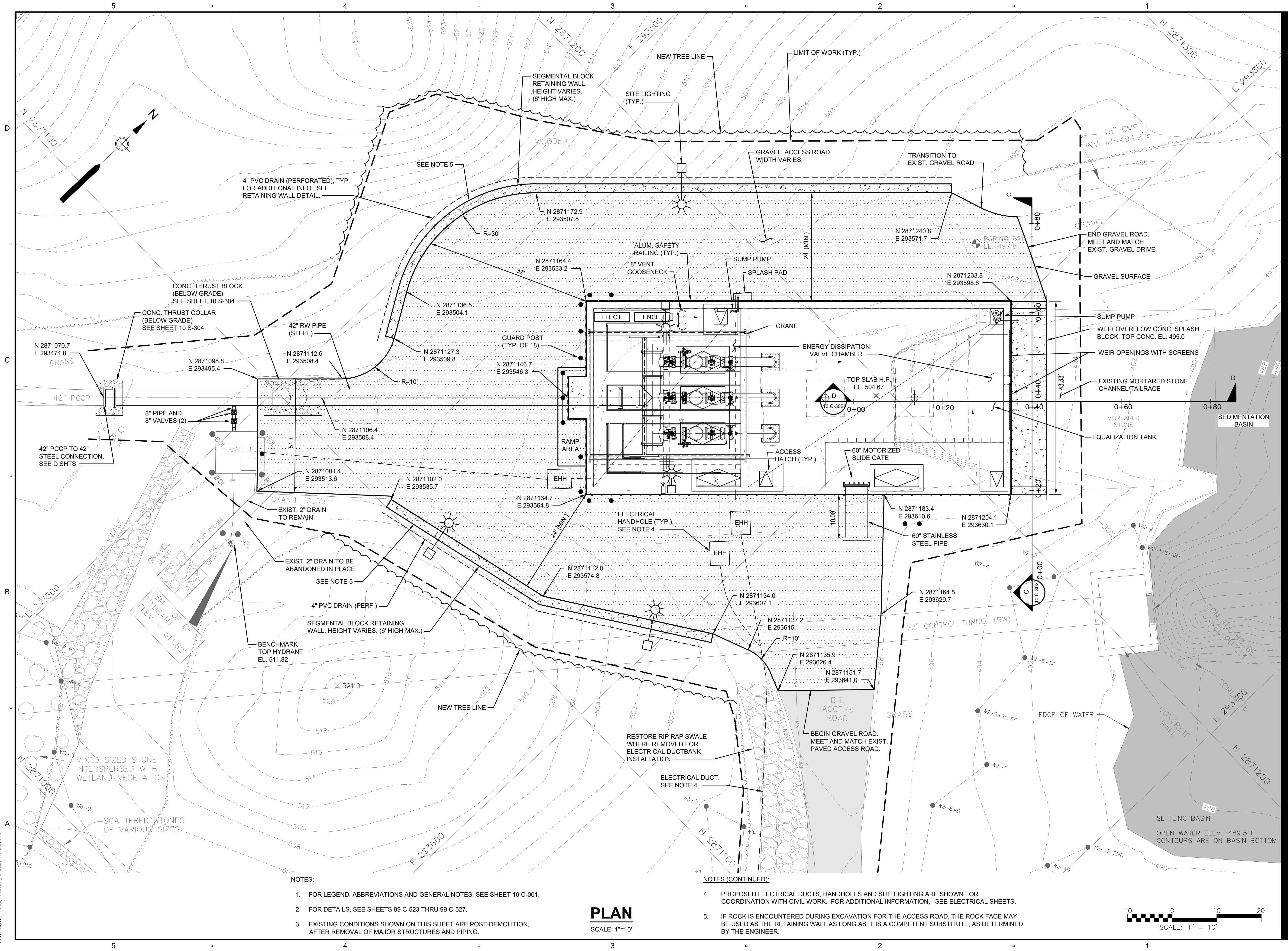
PROJECT NUMBER

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

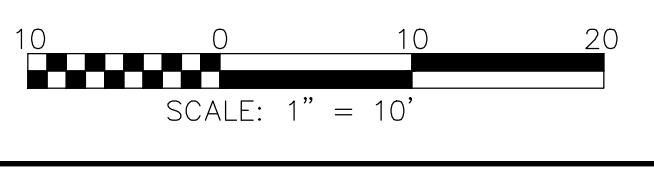
SHEET NUMBER
 10 C-106



- 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

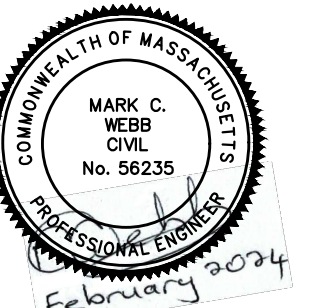
250 M STREET EXTENSION
AGAWAM, MA 01001

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

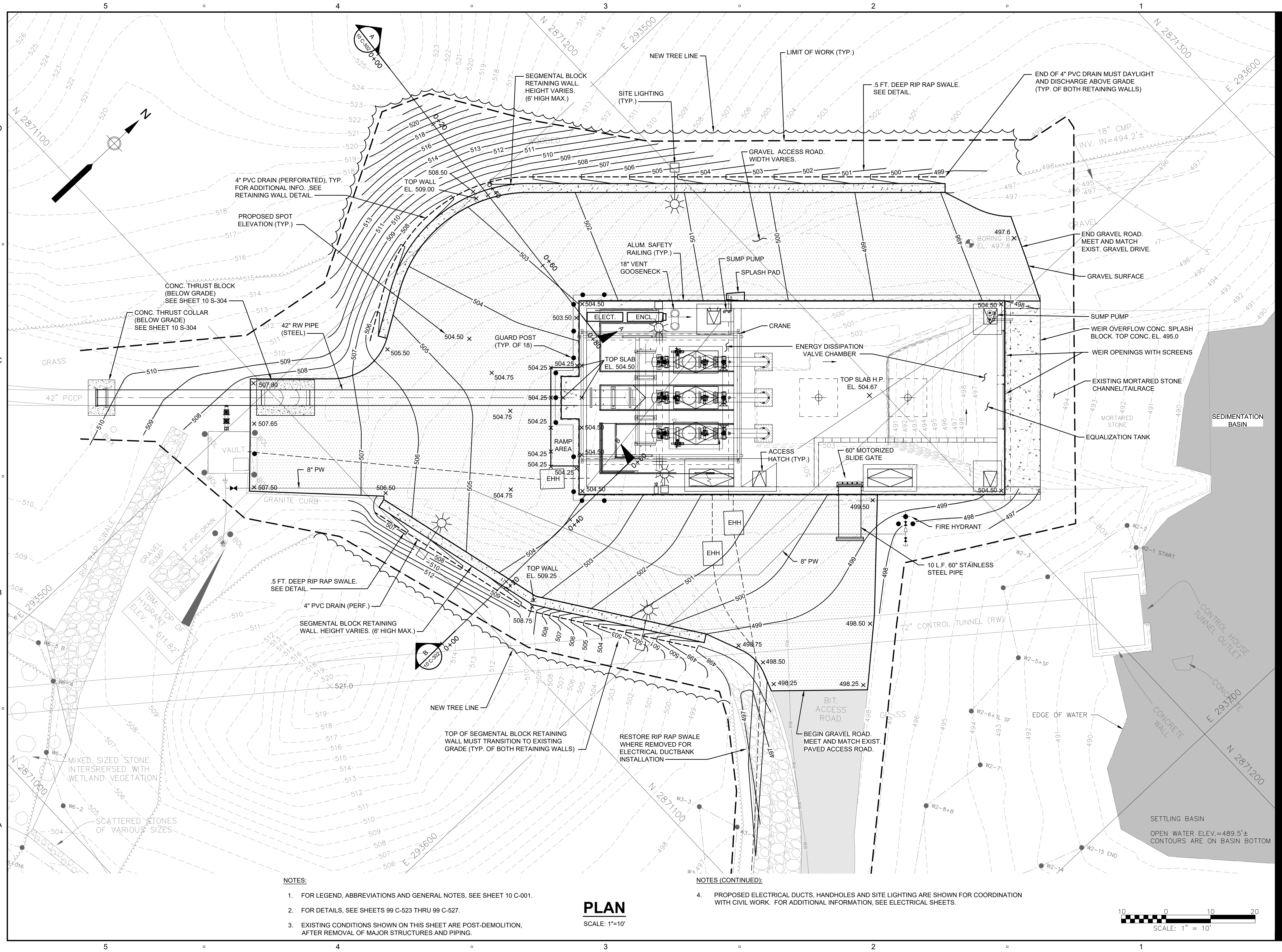
CIVIL

SHEET TITLE

GRADING PLAN

SHEET NUMBER

10 C-107



NOTES:

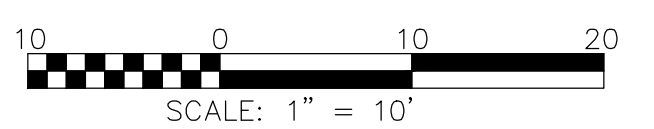
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.
- EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF MAJOR STRUCTURES AND PIPING.

NOTES (CONTINUED):

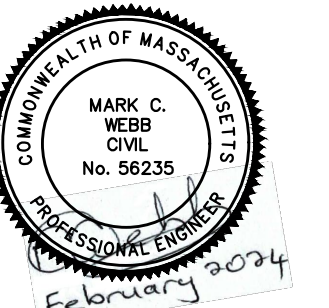
- PROPOSED ELECTRICAL DUCTS, HANDHOLES AND SITE LIGHTING ARE SHOWN FOR COORDINATION WITH CIVIL WORK. FOR ADDITIONAL INFORMATION, SEE ELECTRICAL SHEETS.

PLAN

SCALE: 1"=10'



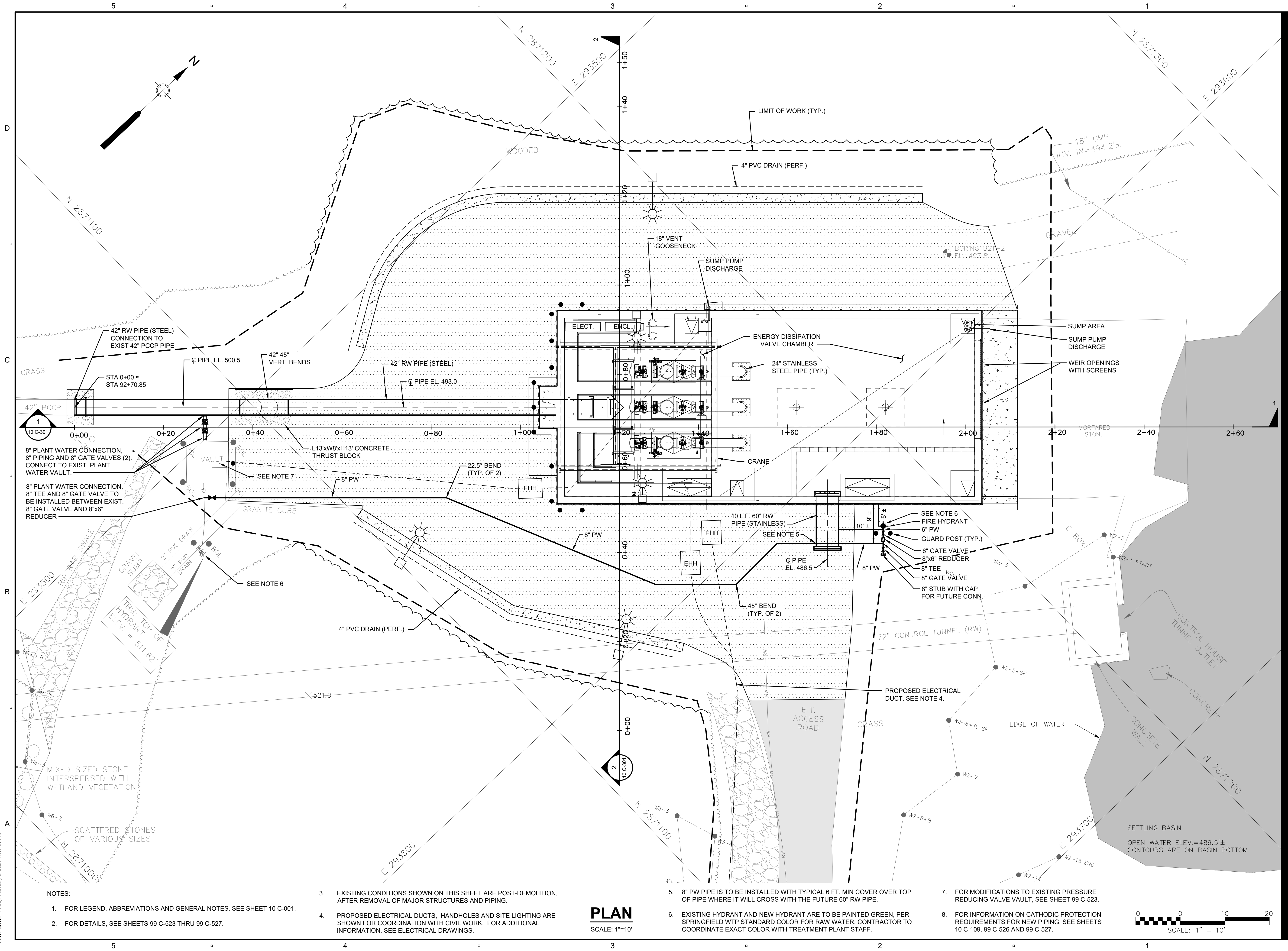
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 LAST UPDATE: Monday, February 5, 2024 9:55:48 AM
 PLOT DATE: Friday, February 9, 2024 11:46:52 AM



I/R	DATE	DESCRIPTION

60662775

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



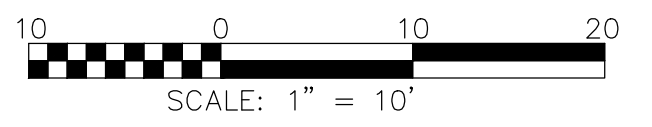
- NOTES:**
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
 - FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527.

- 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
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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

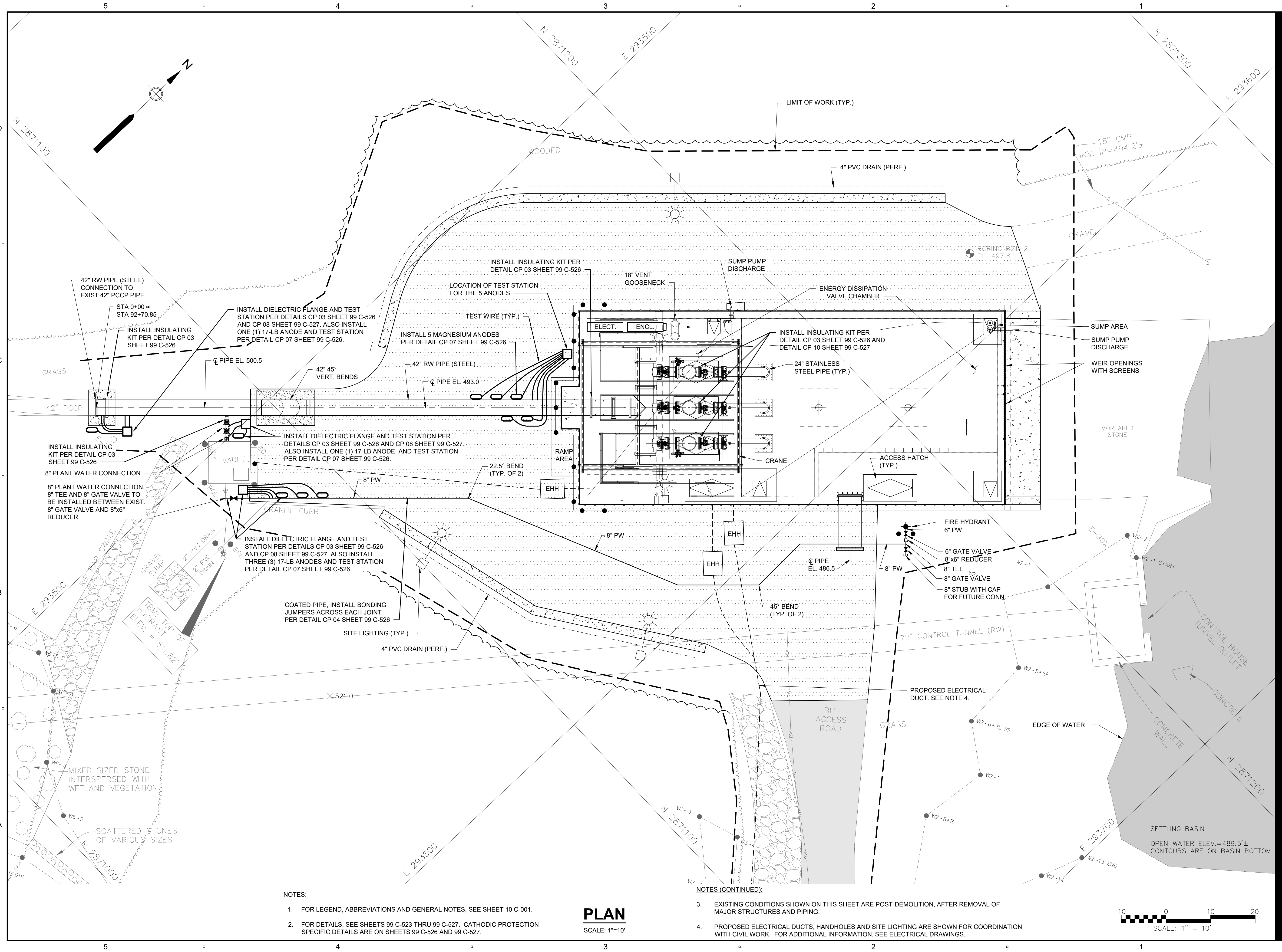
CIVIL

SHEET TITLE

CATHODIC PROTECTION PLAN

SHEET NUMBER

10 C-109



NOTES:

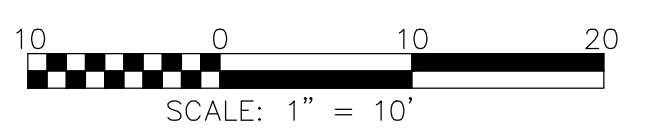
- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 10 C-001.
- FOR DETAILS, SEE SHEETS 99 C-523 THRU 99 C-527. CATHODIC PROTECTION SPECIFIC DETAILS ARE ON SHEETS 99 C-526 AND 99 C-527.

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.



PATH: L:\DCS\PROJECTS\WYR\60662775_SWISC_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

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

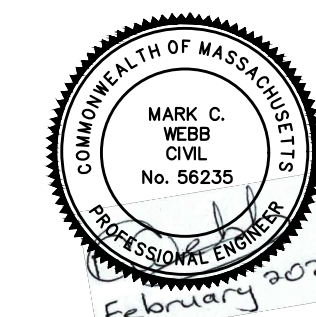
250 M STREET EXTENSION
 AGAWAM, MA 01001

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

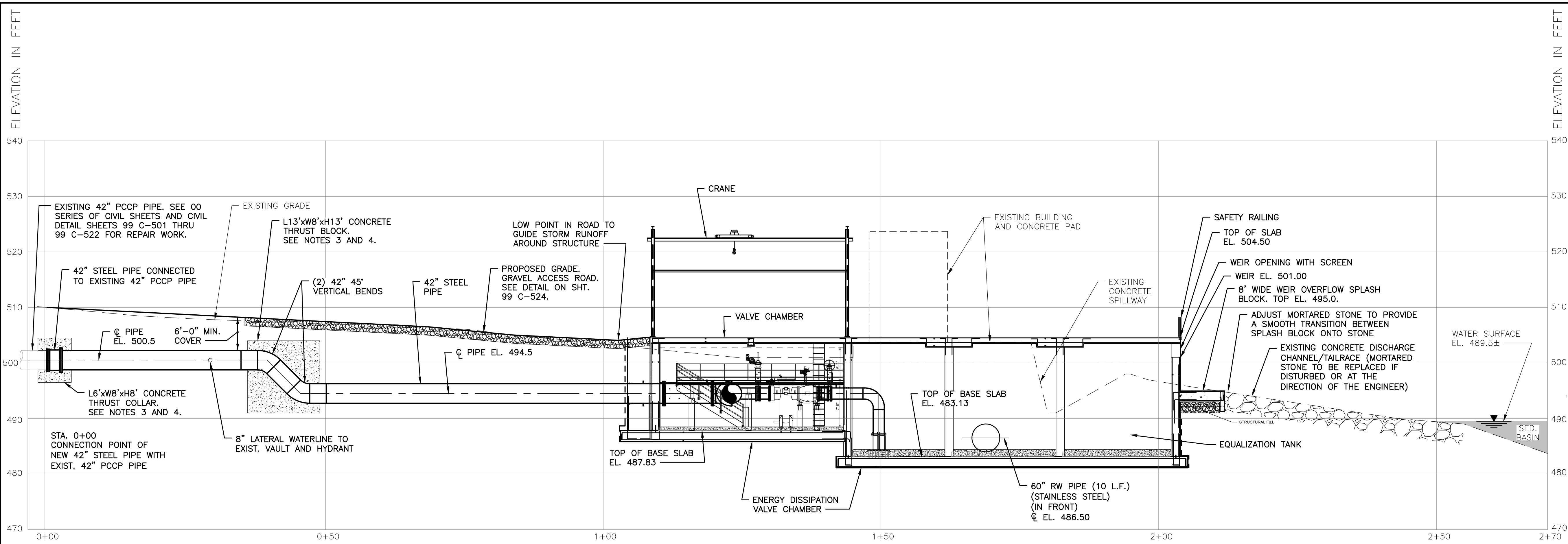
CIVIL

SHEET TITLE

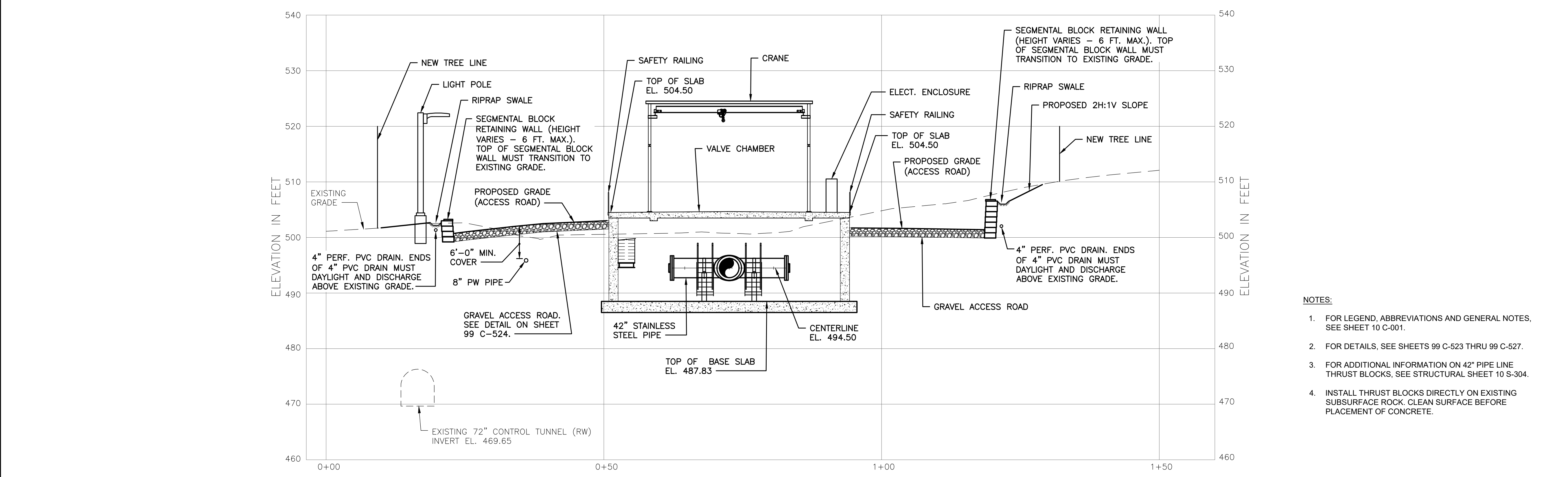
CIVIL SECTIONS I

SHEET NUMBER

10 C-301

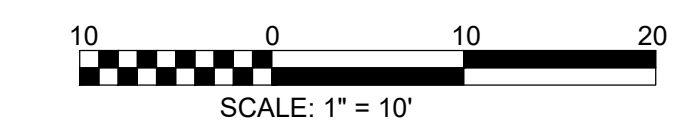


SECTION 1
 1" = 10'-0" 10 C-108

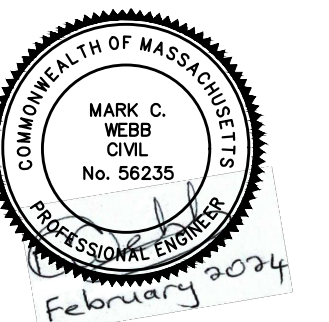


SECTION 2
 1" = 10'-0" 10 C-108

- 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\WY16R662775_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**

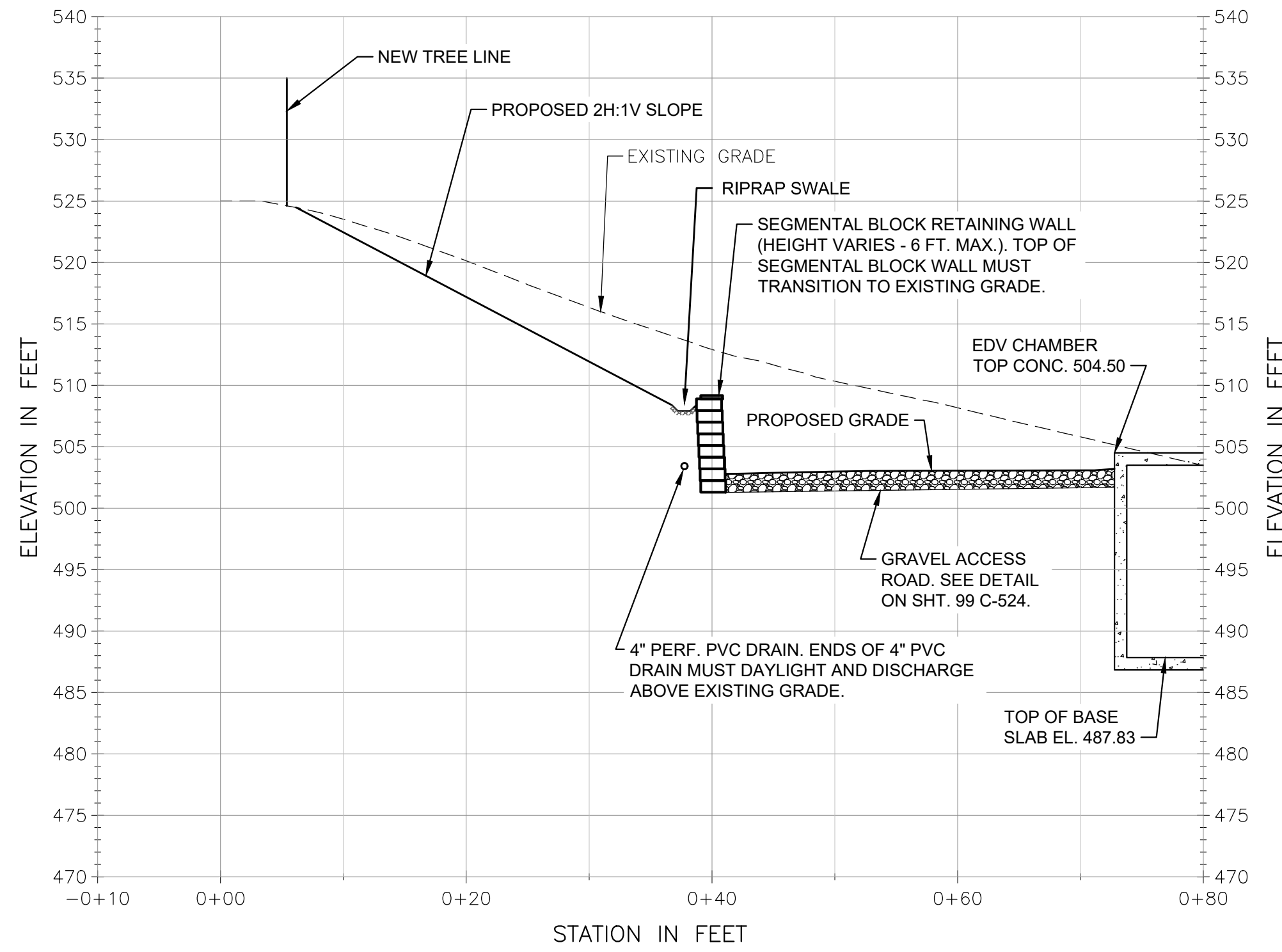
Dept Check: **CB**

Proj Check: **TAL/MCW**

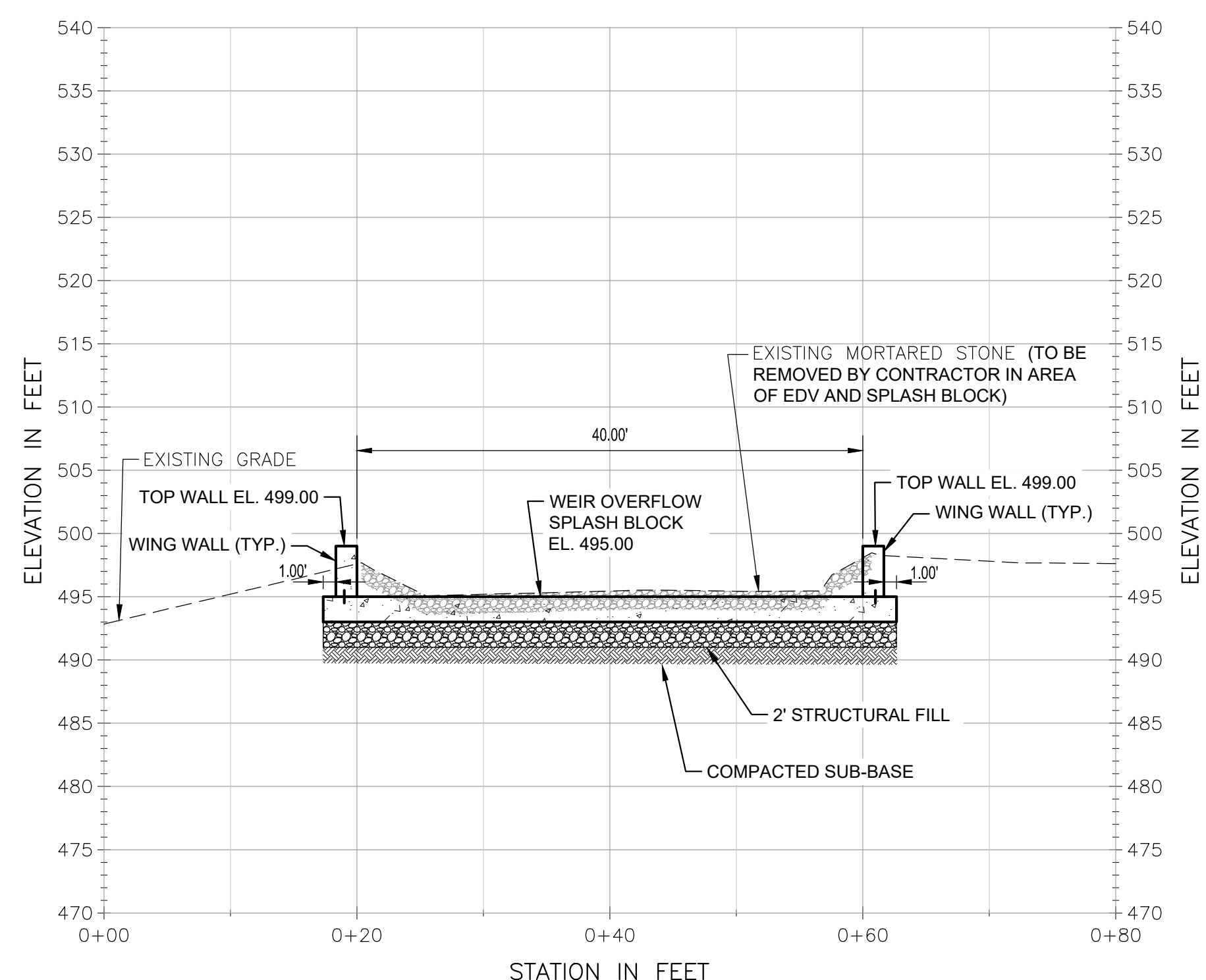
Date: **FEBRUARY 2024**

Scale: **AS NOTED**

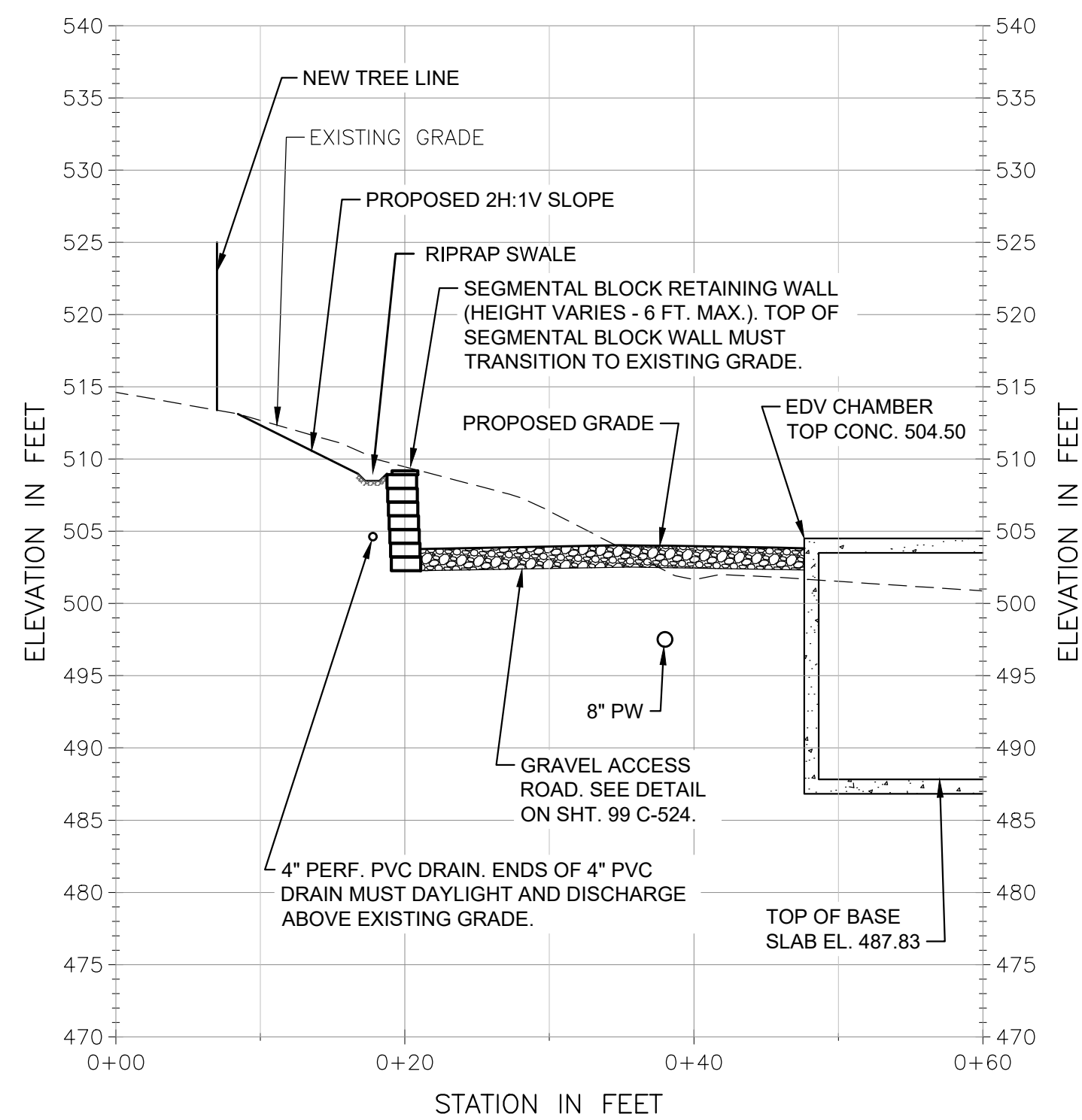
CIVIL



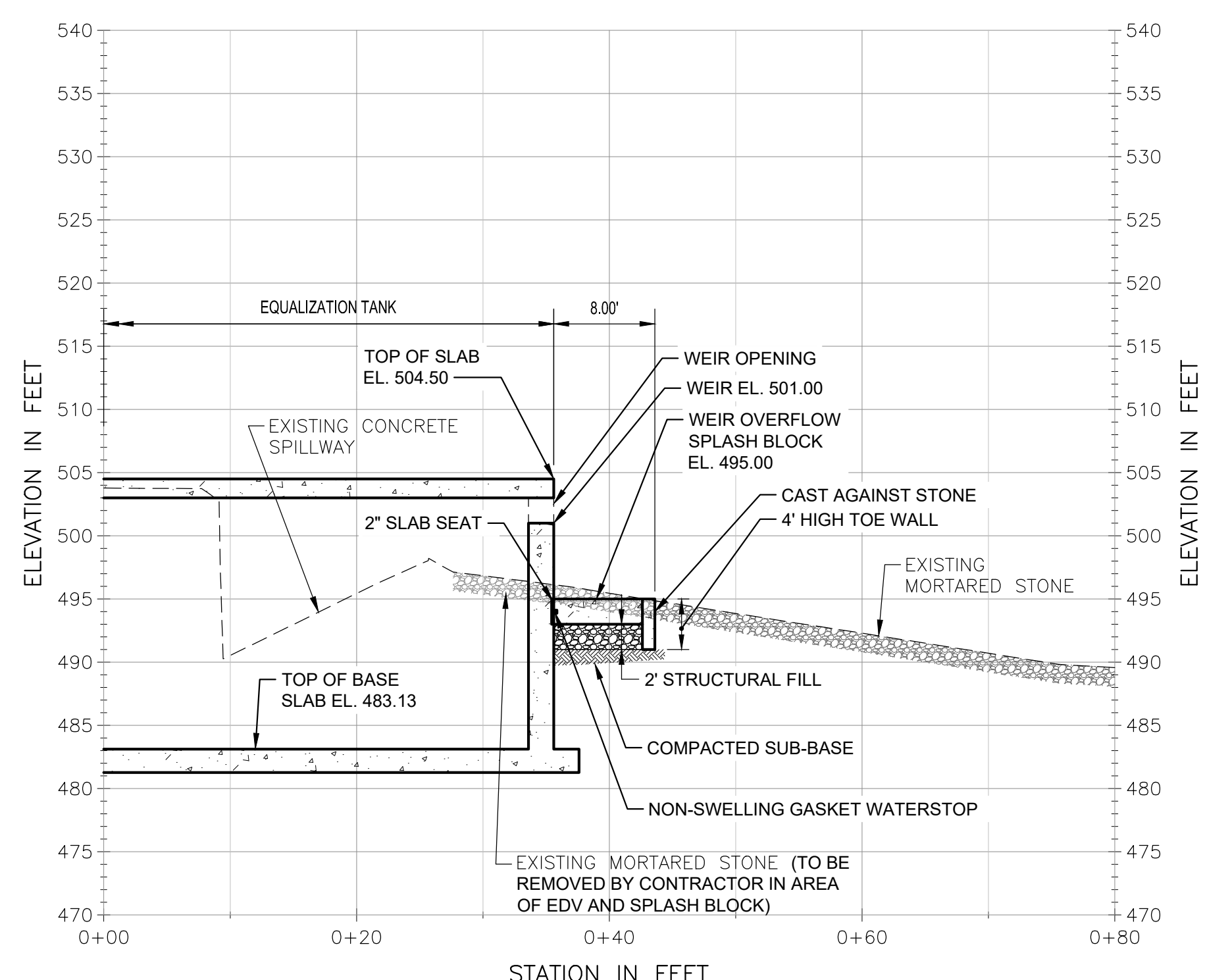
SECTION A
 1" = 10'-0" 10 C-107



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



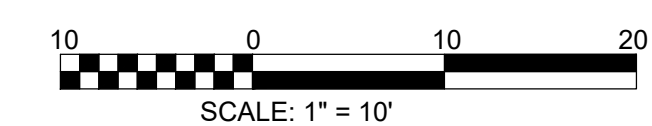
SECTION B
 1" = 10'-0" 10 C-107



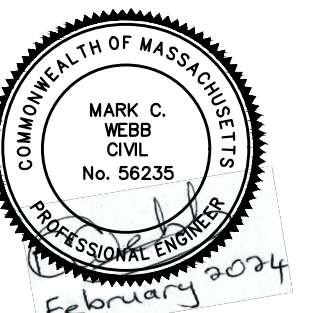
SECTION D
 1" = 10'-0" 10 C-106

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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 PLOT DATE: Friday, February 9, 2024 12:04:50 PM



I/R	DATE	DESCRIPTION

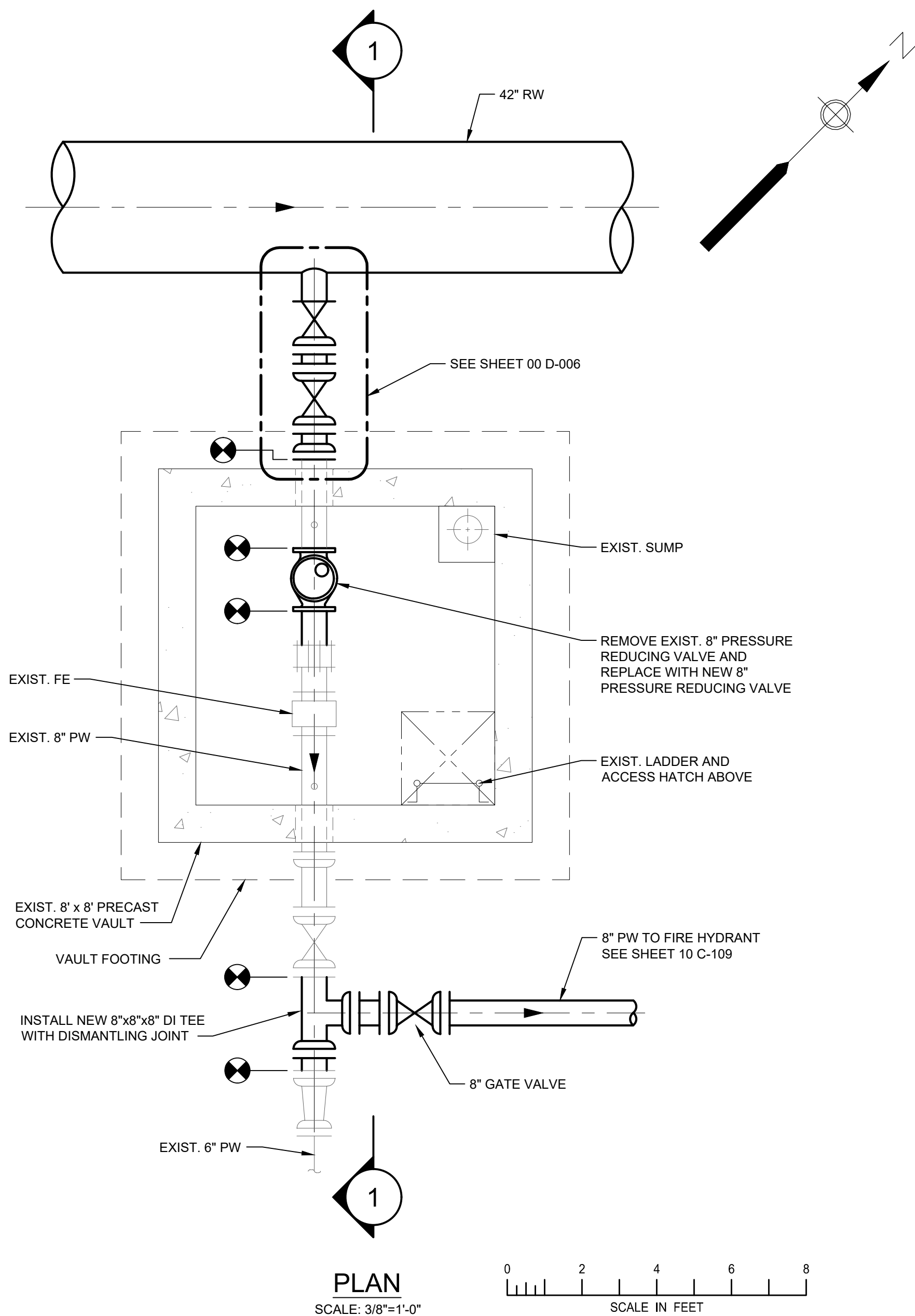
60662775

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

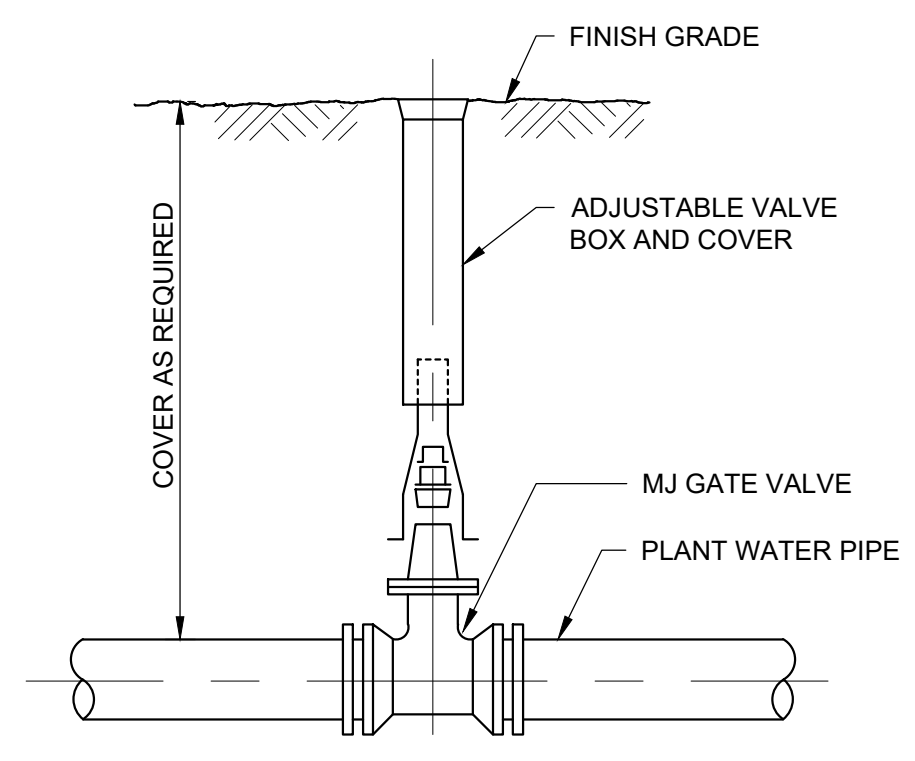
CIVIL

CIVIL DETAILS I

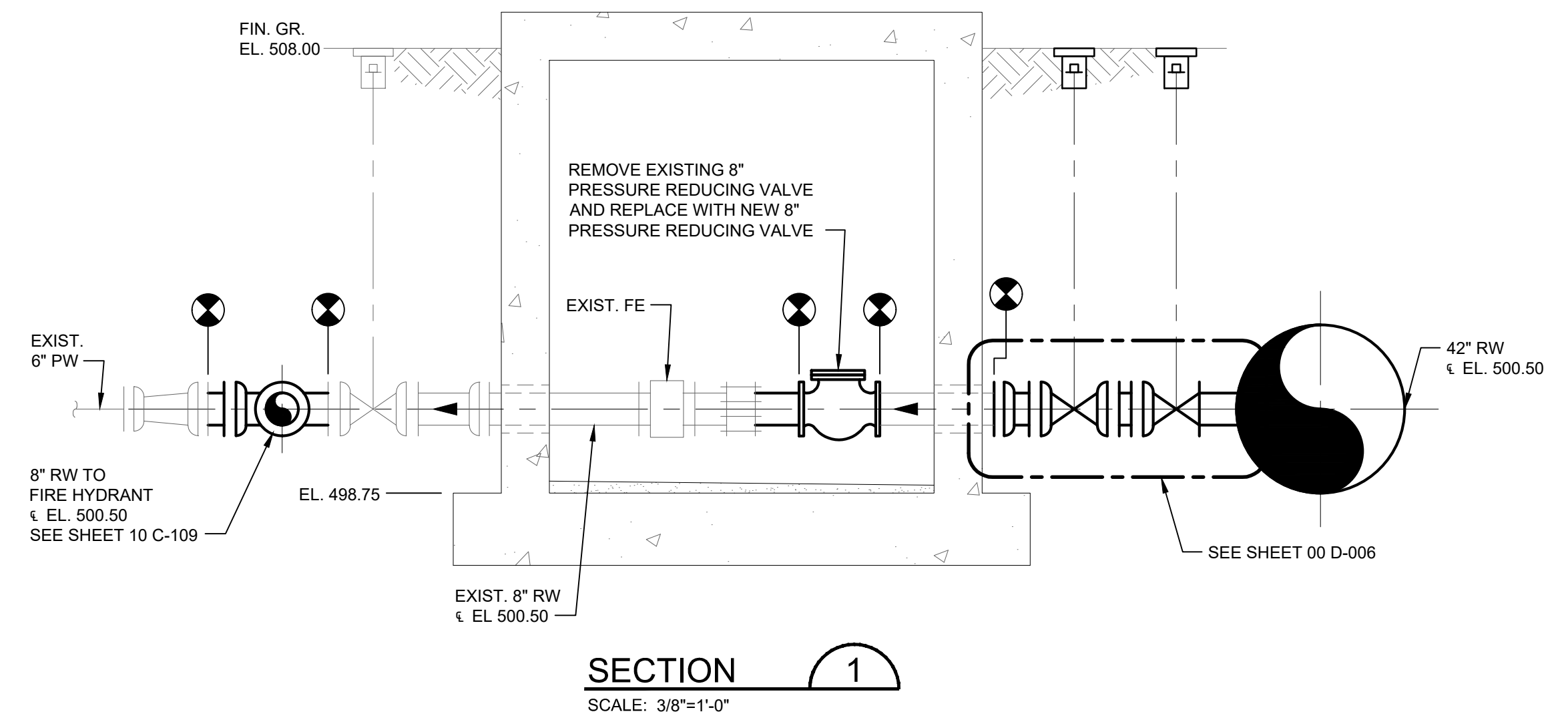
99 C-523



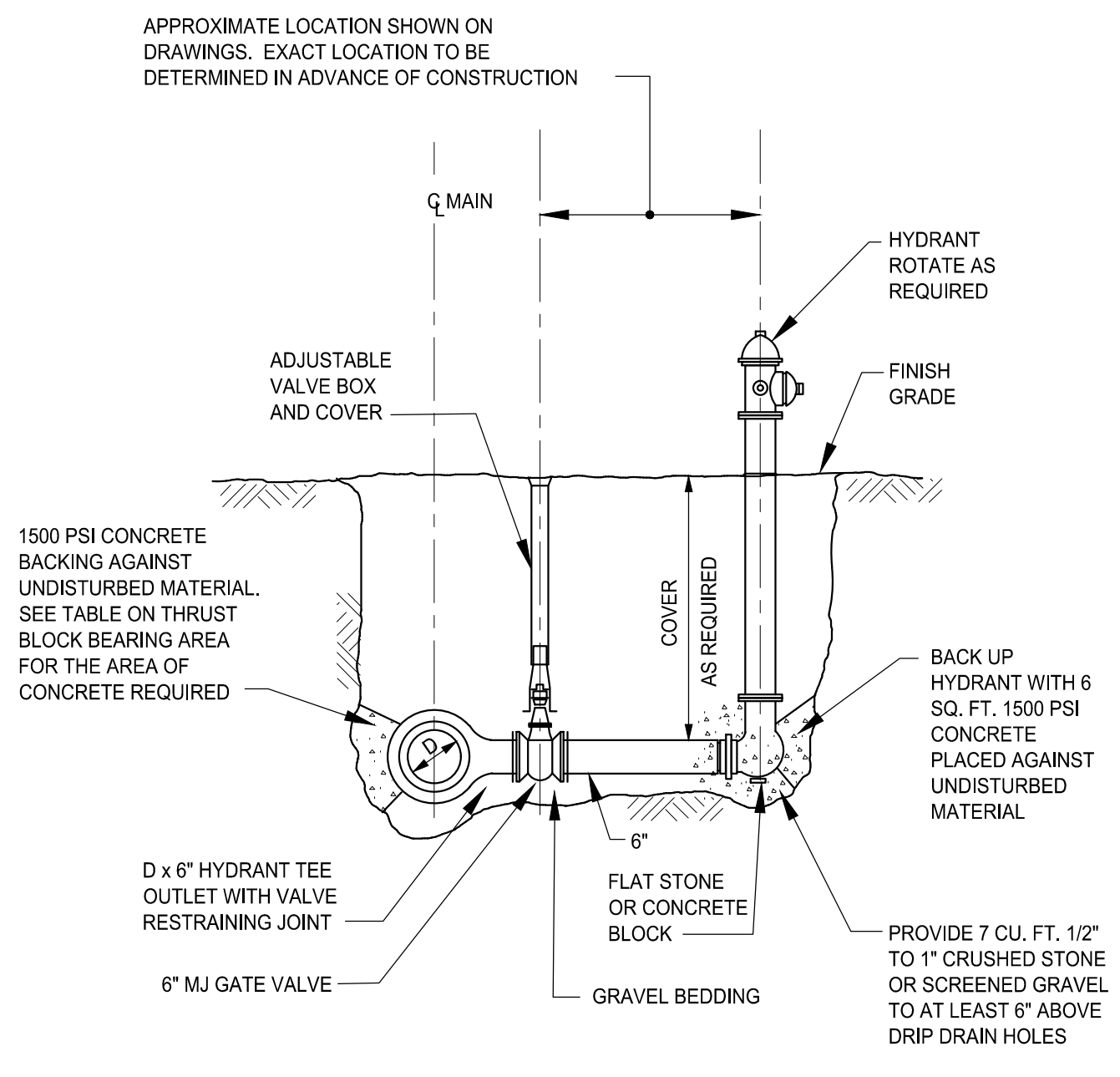
MODIFICATIONS TO EXISTING PRESSURE REDUCING VALVE VAULT
 SCALE AS NOTED



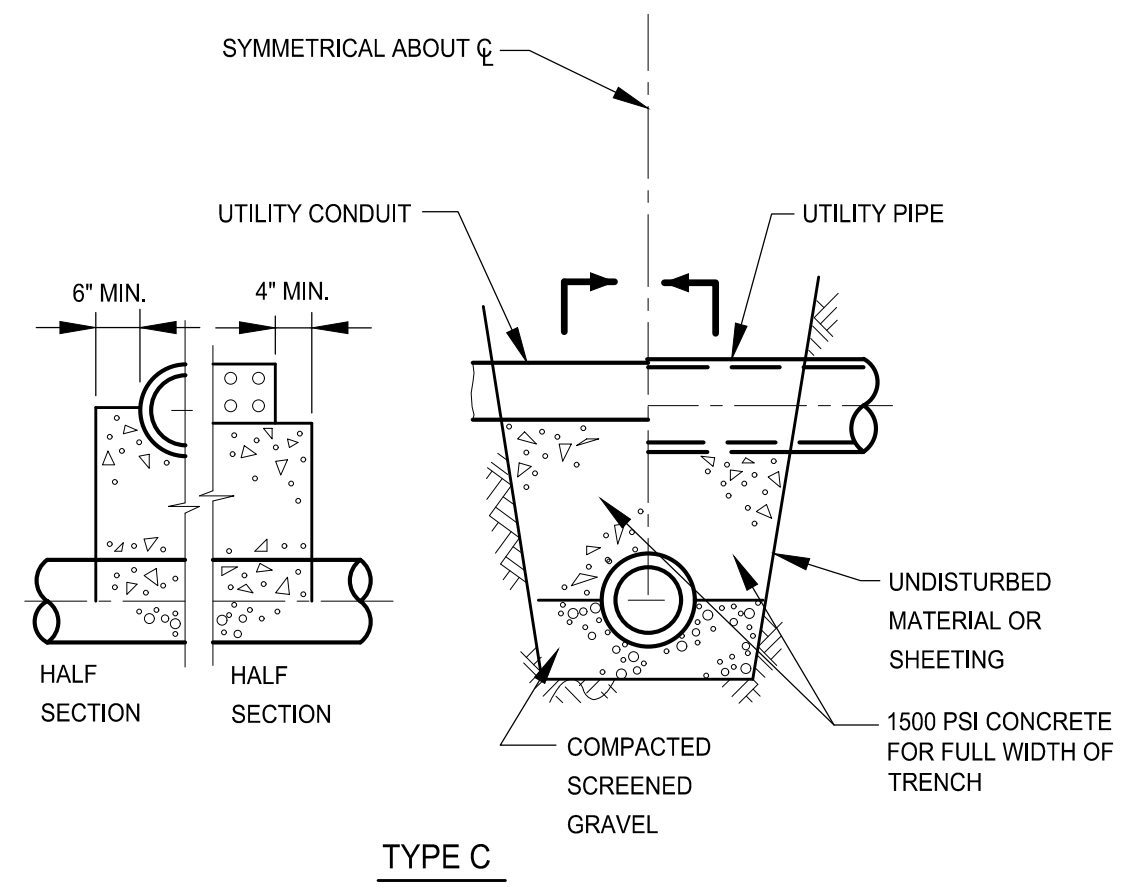
BURIED GATE VALVE
 NOT TO SCALE



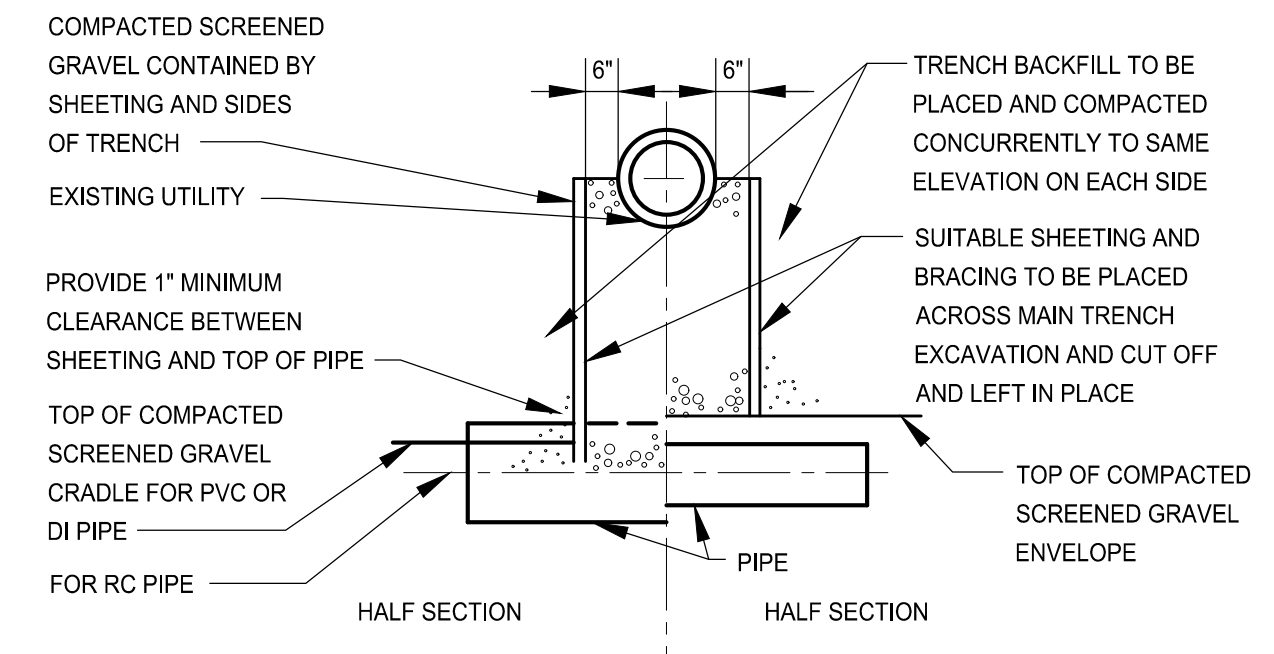
SECTION 1
 SCALE: 3/8"=1'-0"



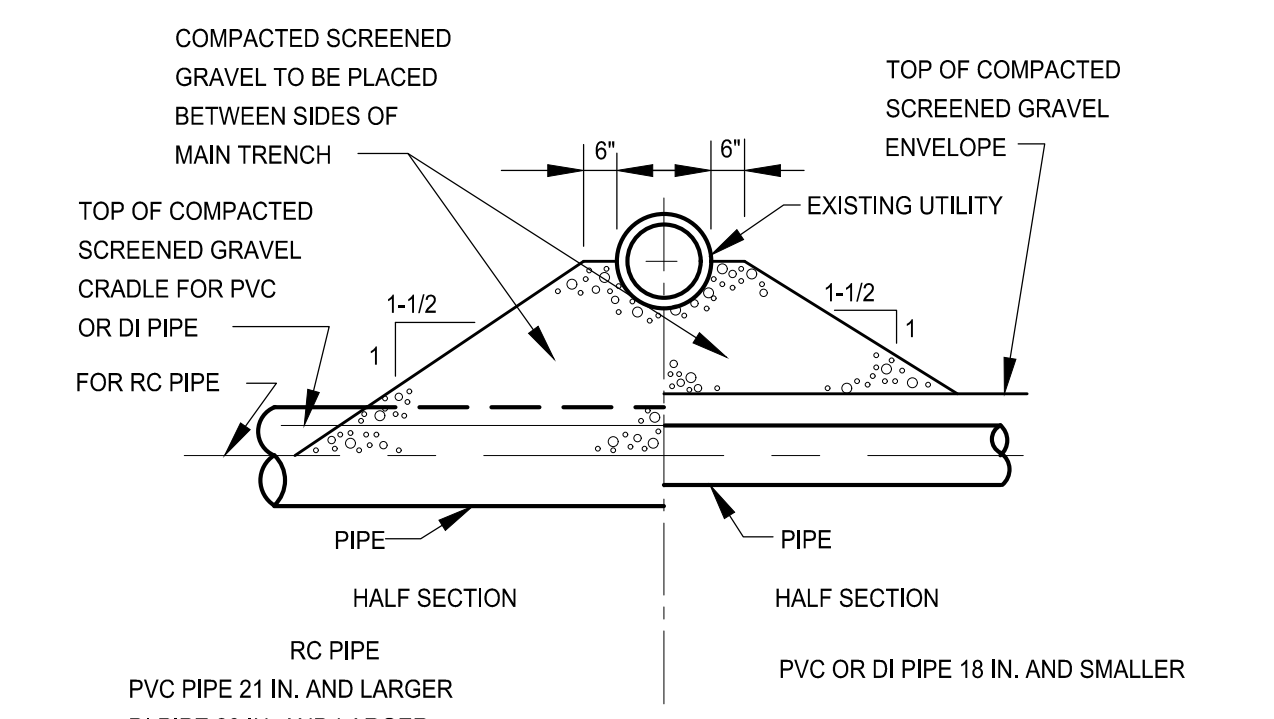
TYPICAL HYDRANT ASSEMBLY WITH DRAIN
 NTS
 2-1/21 (REV. 12-15-94)



TYPE C



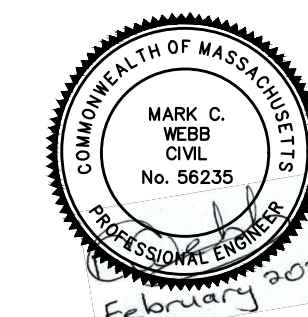
TYPE B



TYPE A

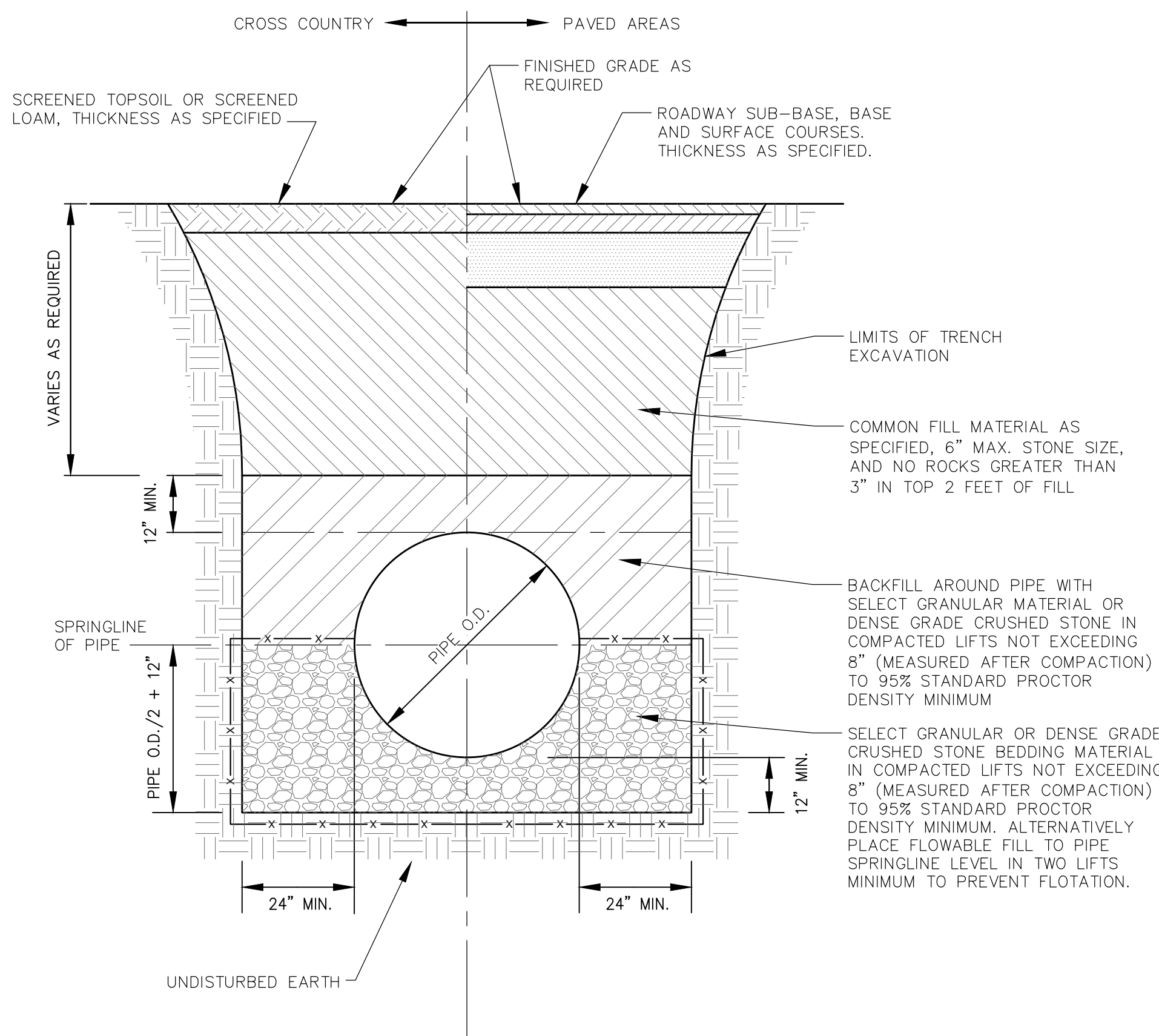
TYPICAL SUPPORT FOR UTILITIES
 NOT TO SCALE

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 LAST UPDATE: Wednesday, January 17, 2024 2:00:05 PM
 PLOT DATE: Friday, February 9, 2024 1:51:53 PM

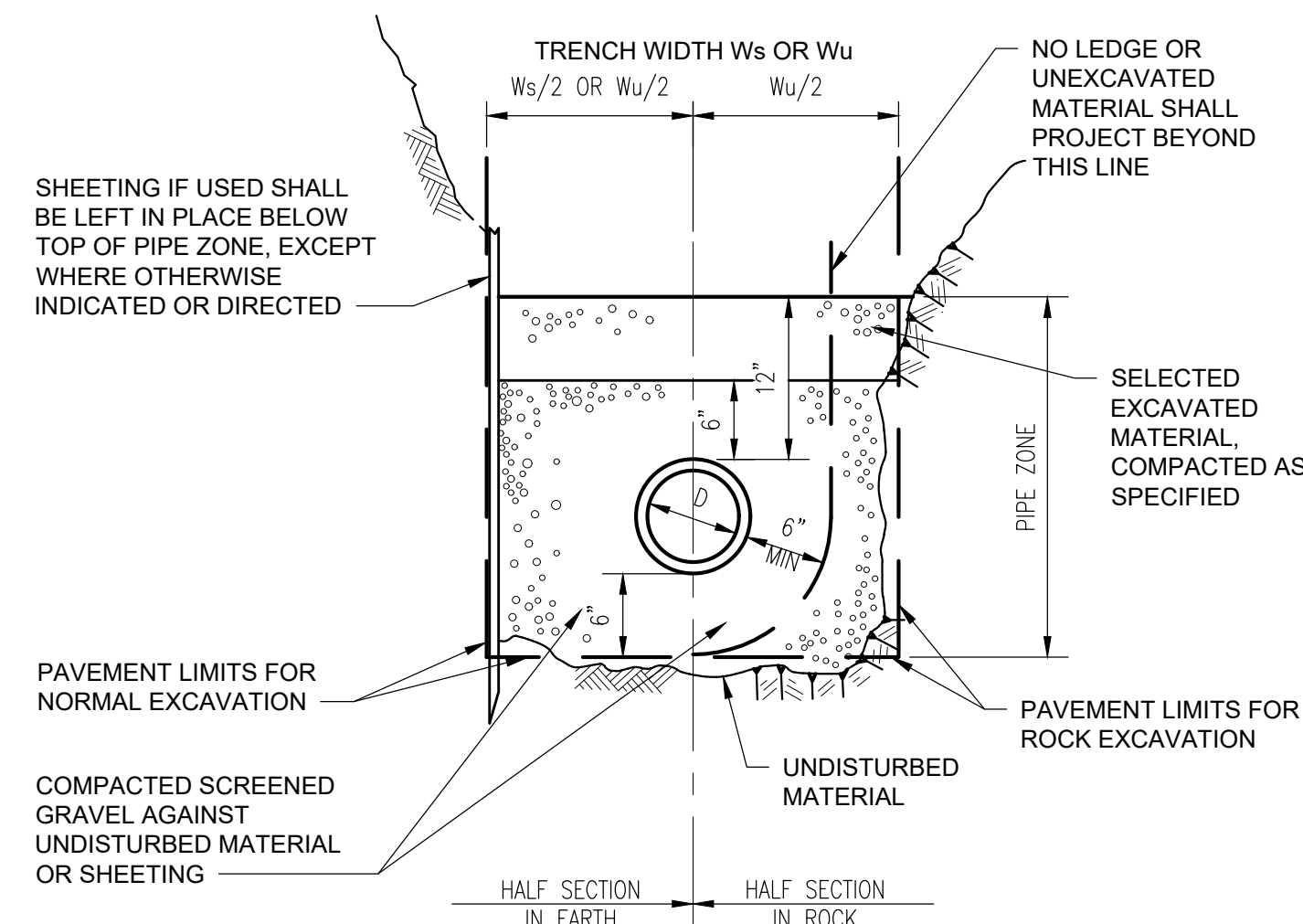


I/R	DATE	DESCRIPTION

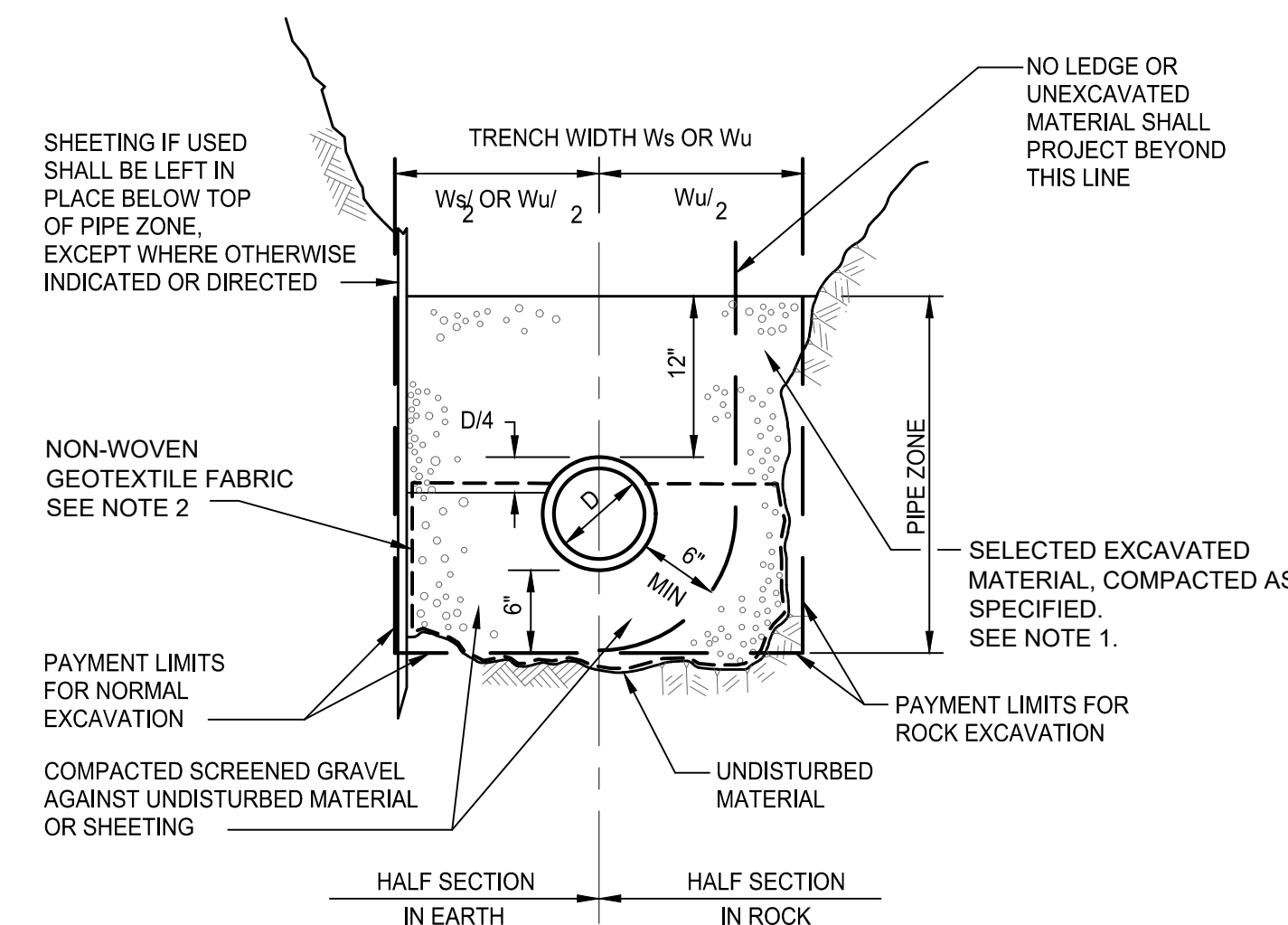
60662775



TRENCH SECTION FOR 60" STAINLESS STEEL PIPE
 NOT TO SCALE



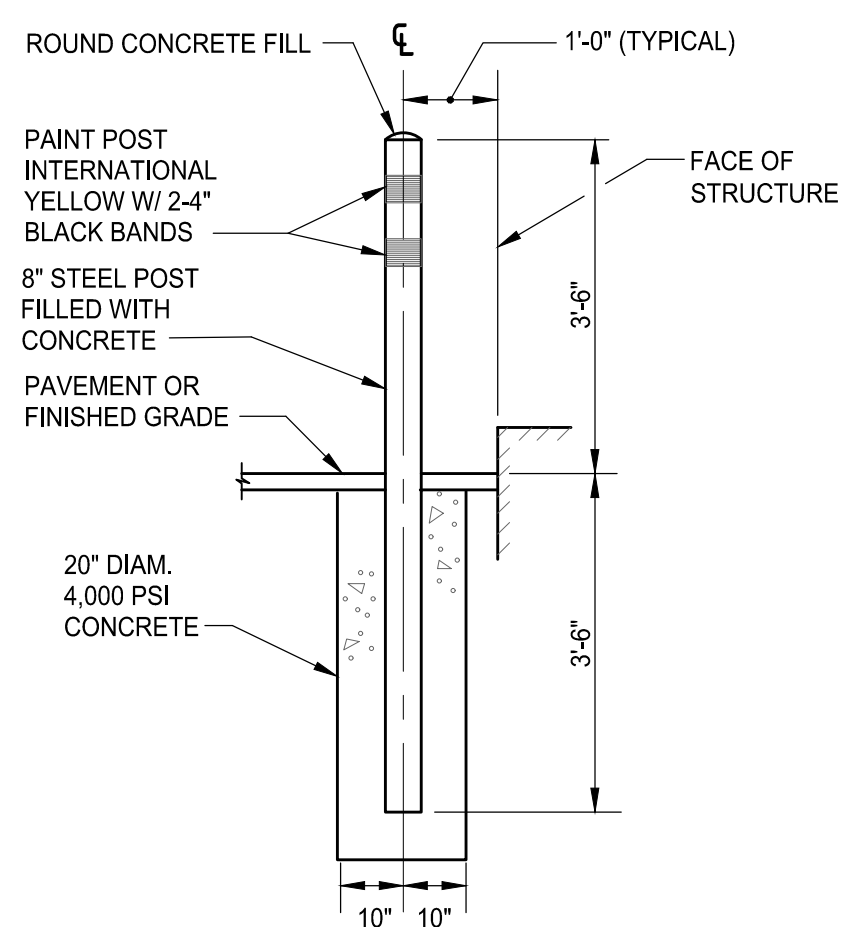
TRENCH SECTION FOR DI OR PVC PIPE 18 INCH DIAMETER AND SMALLER
 NOT TO SCALE



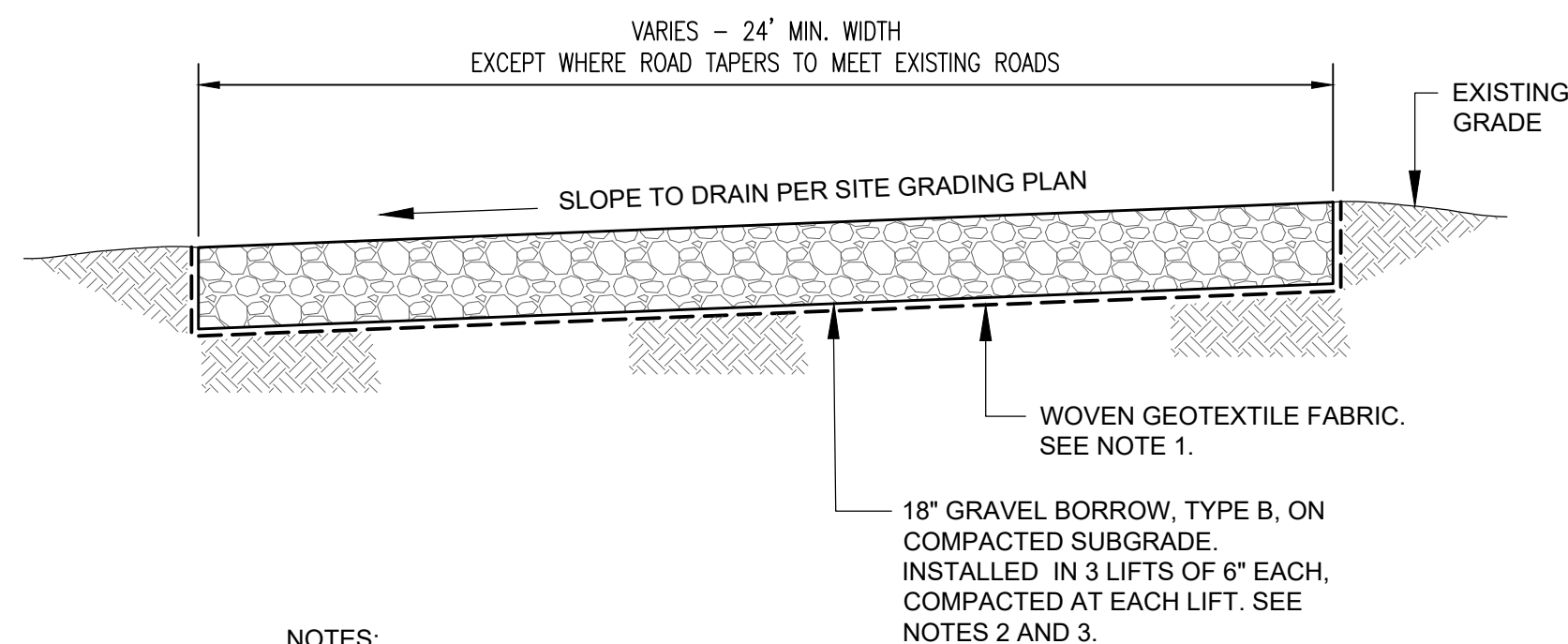
TRENCH SECTION FOR STEEL PIPE 20 INCH DIAMETER AND LARGER
 NOT TO SCALE

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.



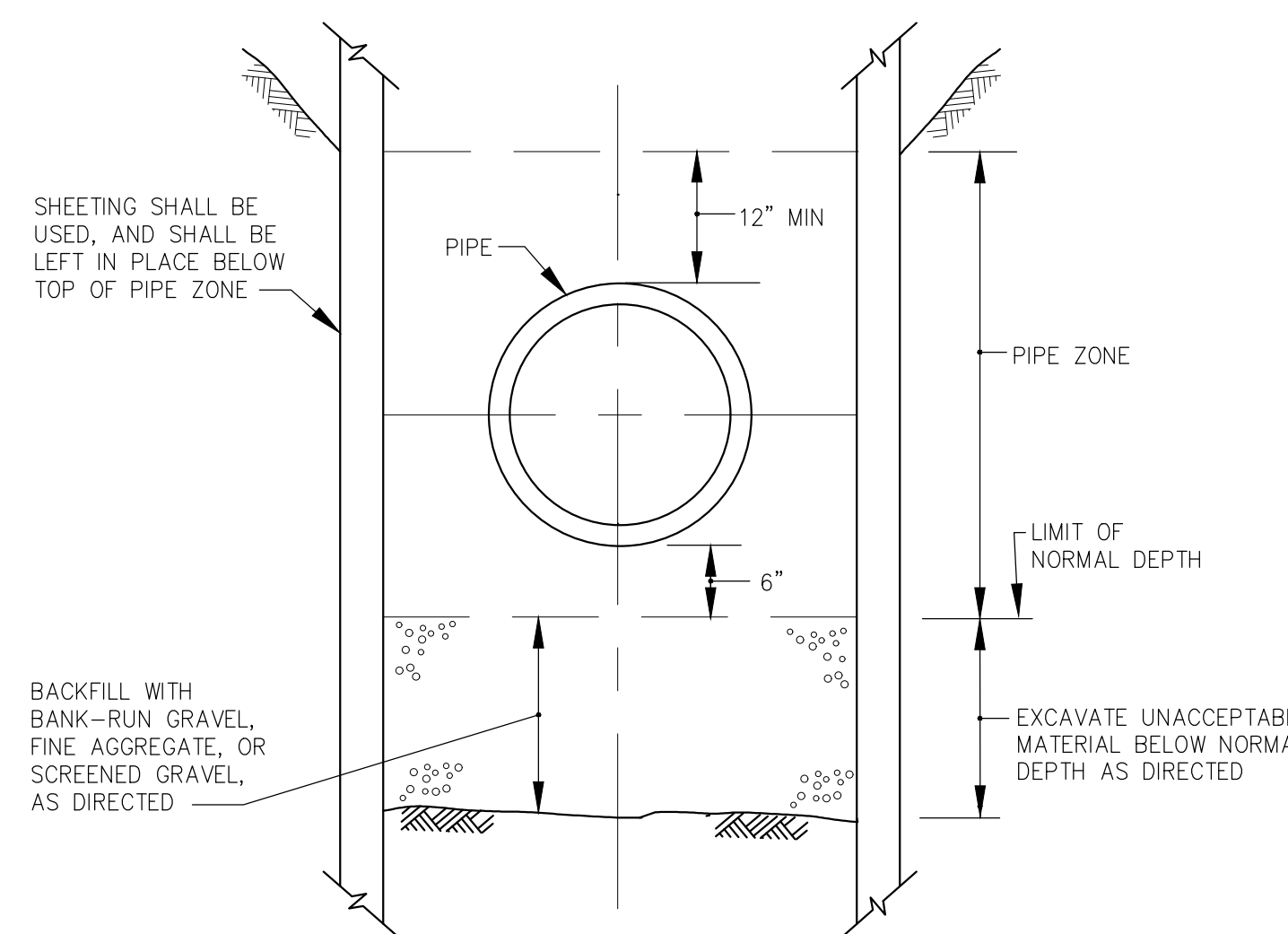
8" DIA. GUARD POST
 NOT TO SCALE



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

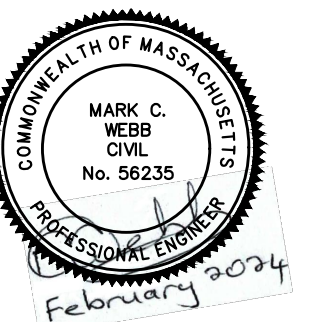


TRENCH SECTION IN UNACCEPTABLE MATERIAL
 NOT TO SCALE

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.

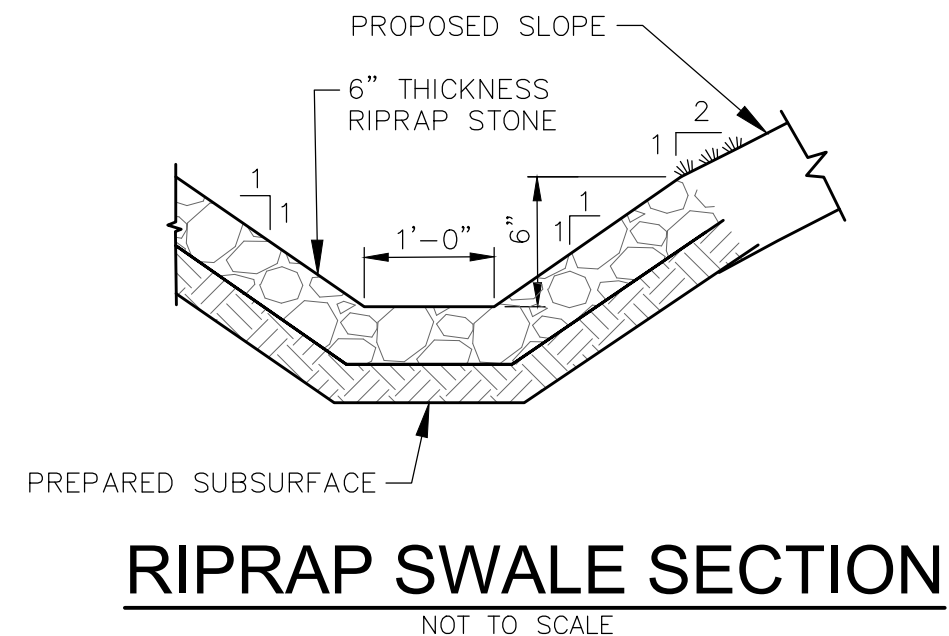
TRENCH WIDTH W_s OR W_u (WITH/WITHOUT LEDGE EXCAVATION)		
NOMINAL PIPE DIAMETER D	DEPTH OF PIPE INVERT BELOW GROUND SURFACE	
	0 TO 12'	12' TO 20'
24" AND SMALLER	5'-0"	7'-0"
OVER 24"	D + 3'-0"	D + 5'-0"

GENERAL NOTES FOR PIPE TRENCHES
 NOT TO SCALE

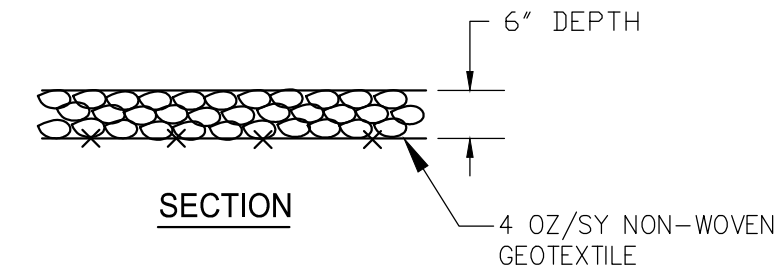
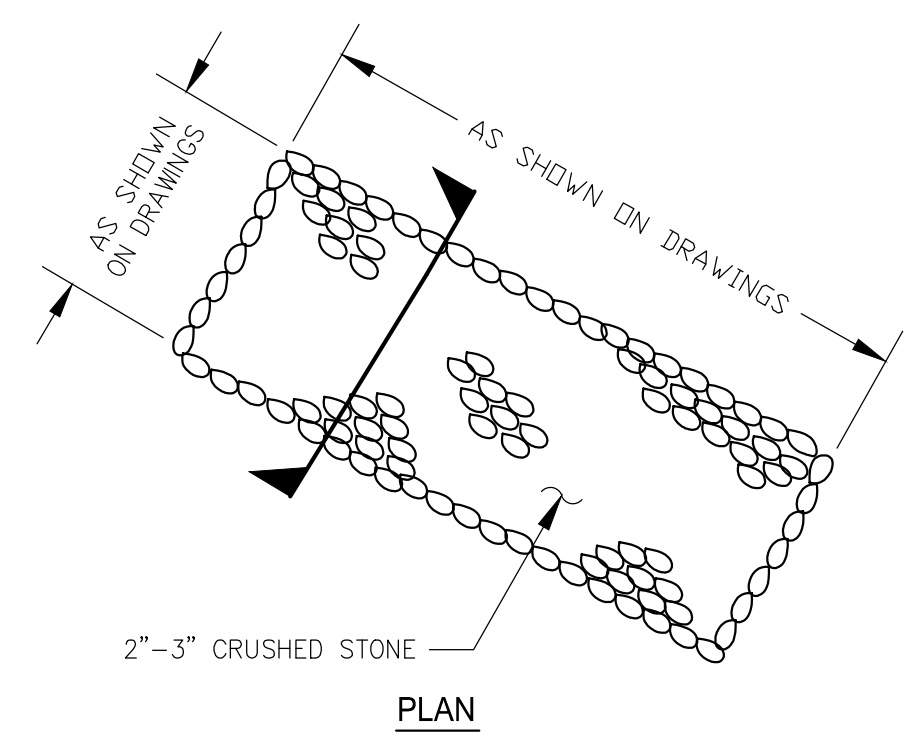


I/R	DATE	DESCRIPTION

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



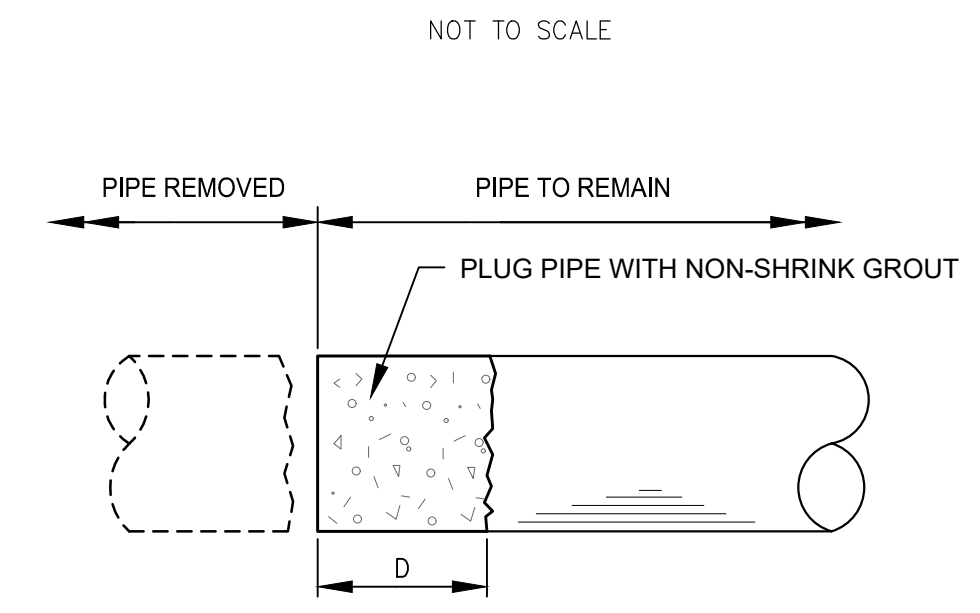
RIPRAP SWALE SECTION
 NOT TO SCALE



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.

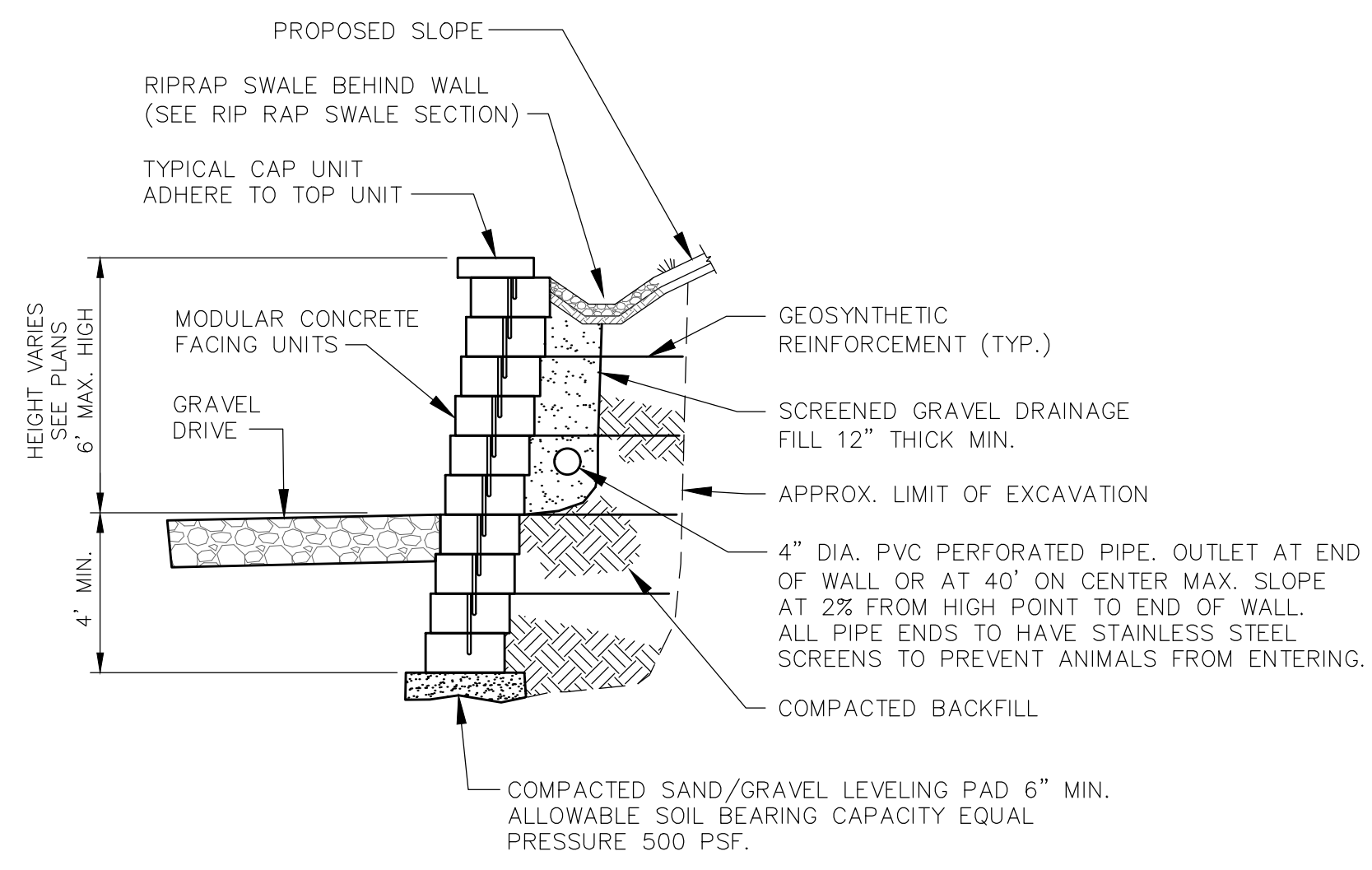
STABILIZED CONSTRUCTION ENTRANCE AT CONTRACTOR STAGING AREA



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

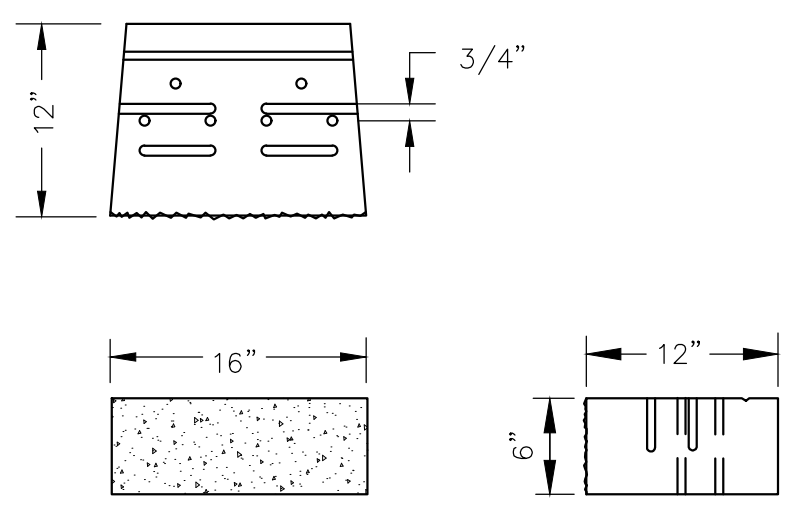
TYPICAL PIPE PLUGGING DETAIL

NOT TO SCALE



RETAINING WALL SECTION

NOT TO SCALE

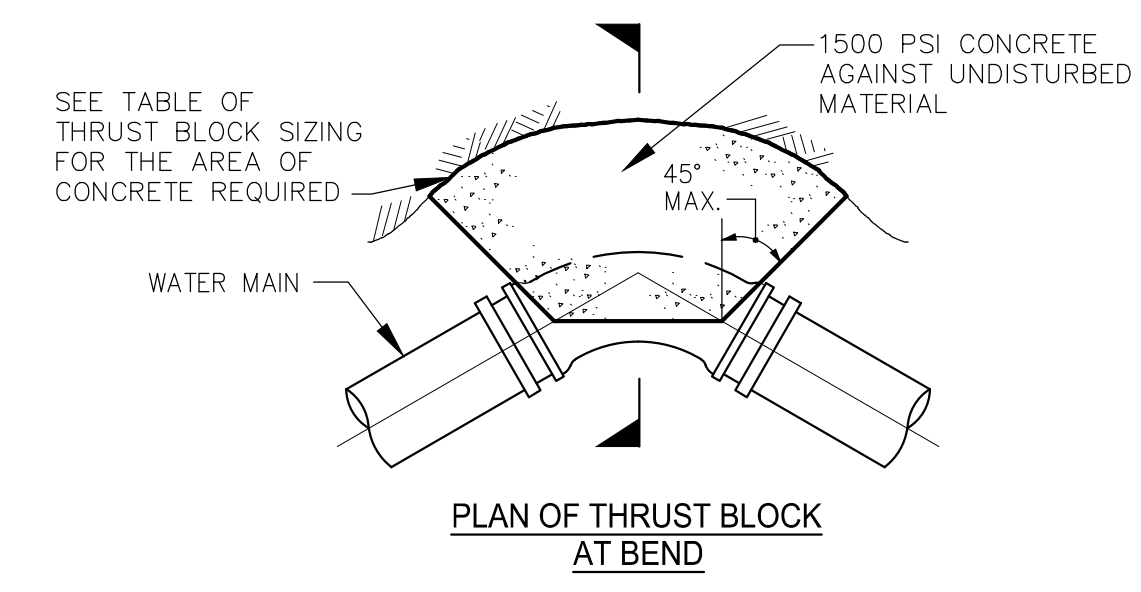


TYPICAL UNIT

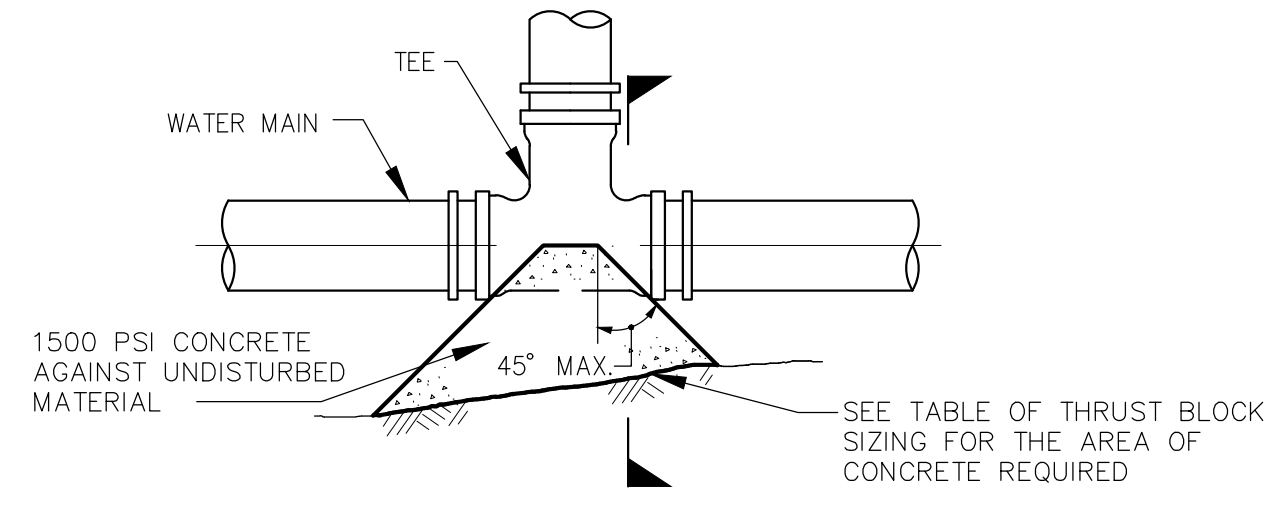
UNIT DIMENSIONS

RETAINING WALL NOTES:

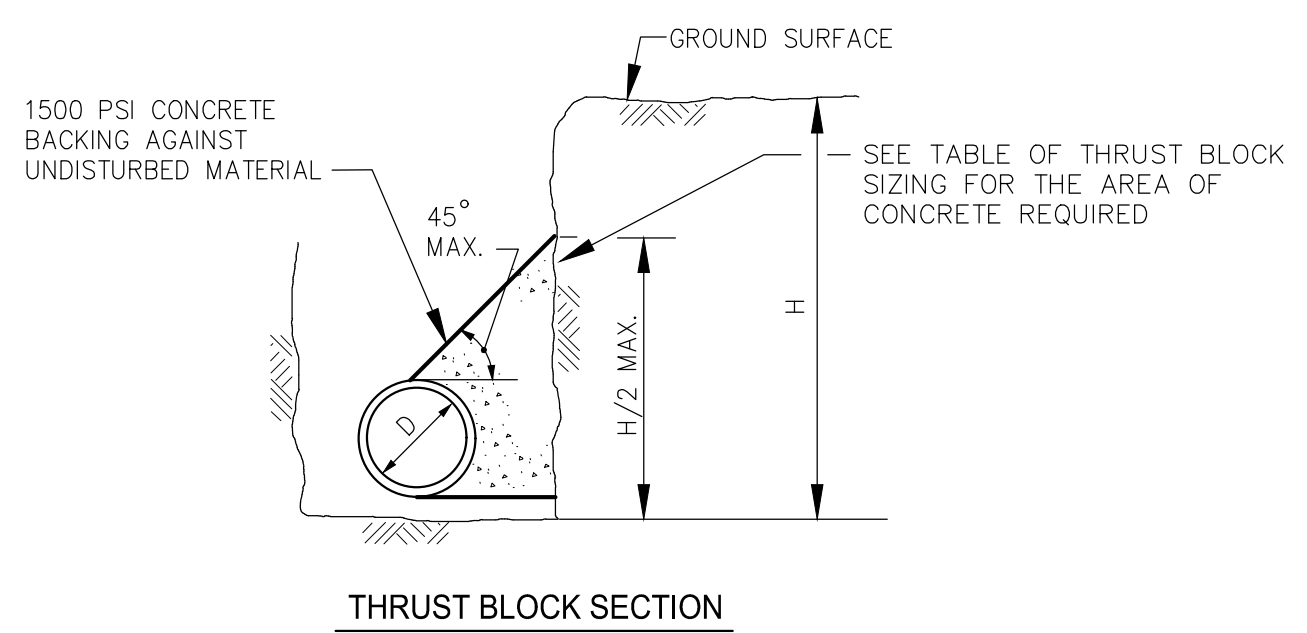
1. ALL WALLS SHALL BE DESIGNED FOR A 2H:1V SLOPING BACKFIELD. STRIP ALL VEGETATION AND ORGANIC SOIL FROM THE WALL AND GRID ALIGNMENT.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED BY THE WALL DESIGN ENGINEER TO REMOVE UNACCEPTABLE SOIL.
4. WALL DESIGN ENGINEER SHALL VERIFY 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	BEND	PRESSURE 150 PSI						
		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

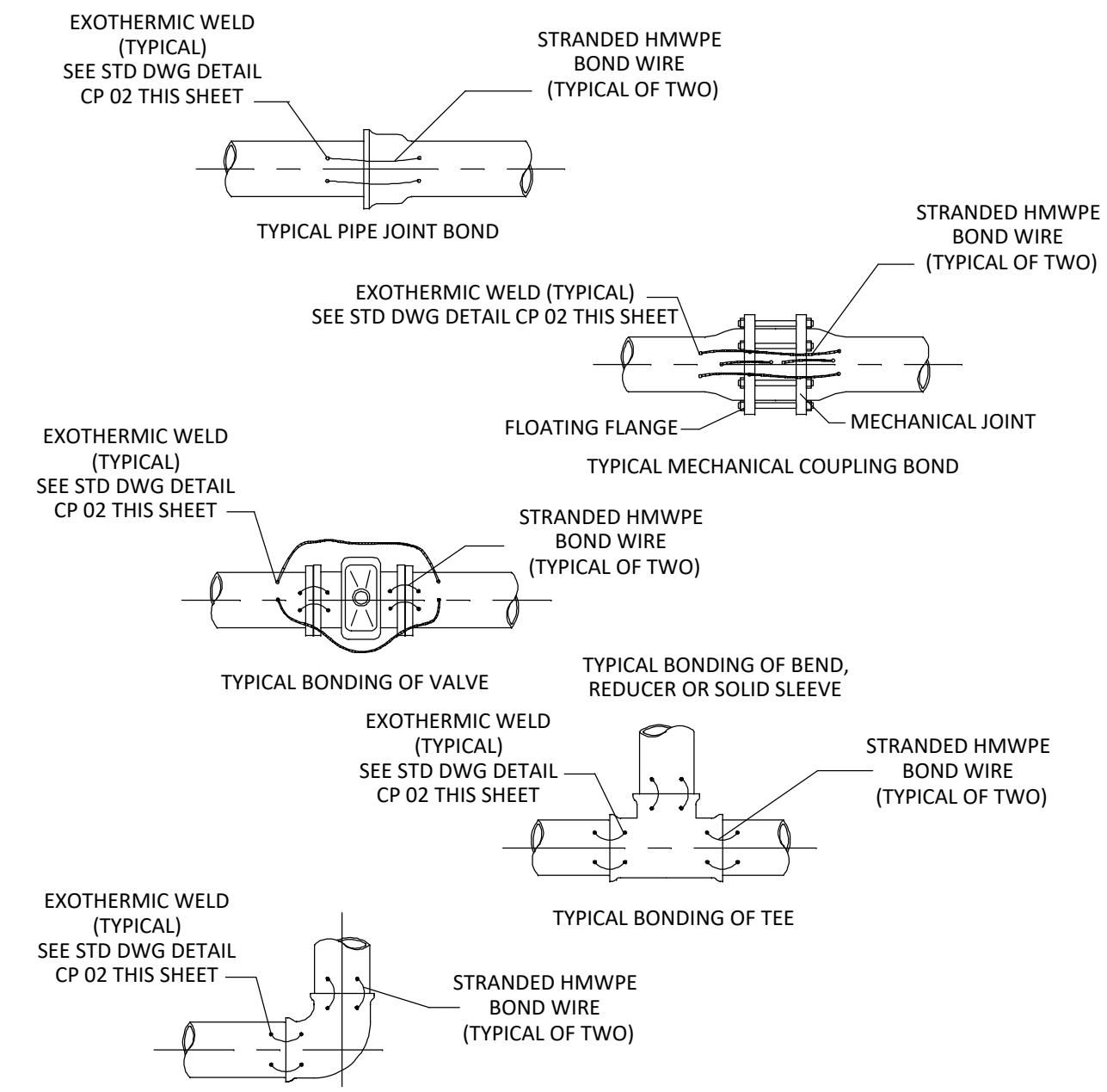
NOTE:
 FOR EROSION CONTROL DETAILS, SEE SHEET 99 C-511.



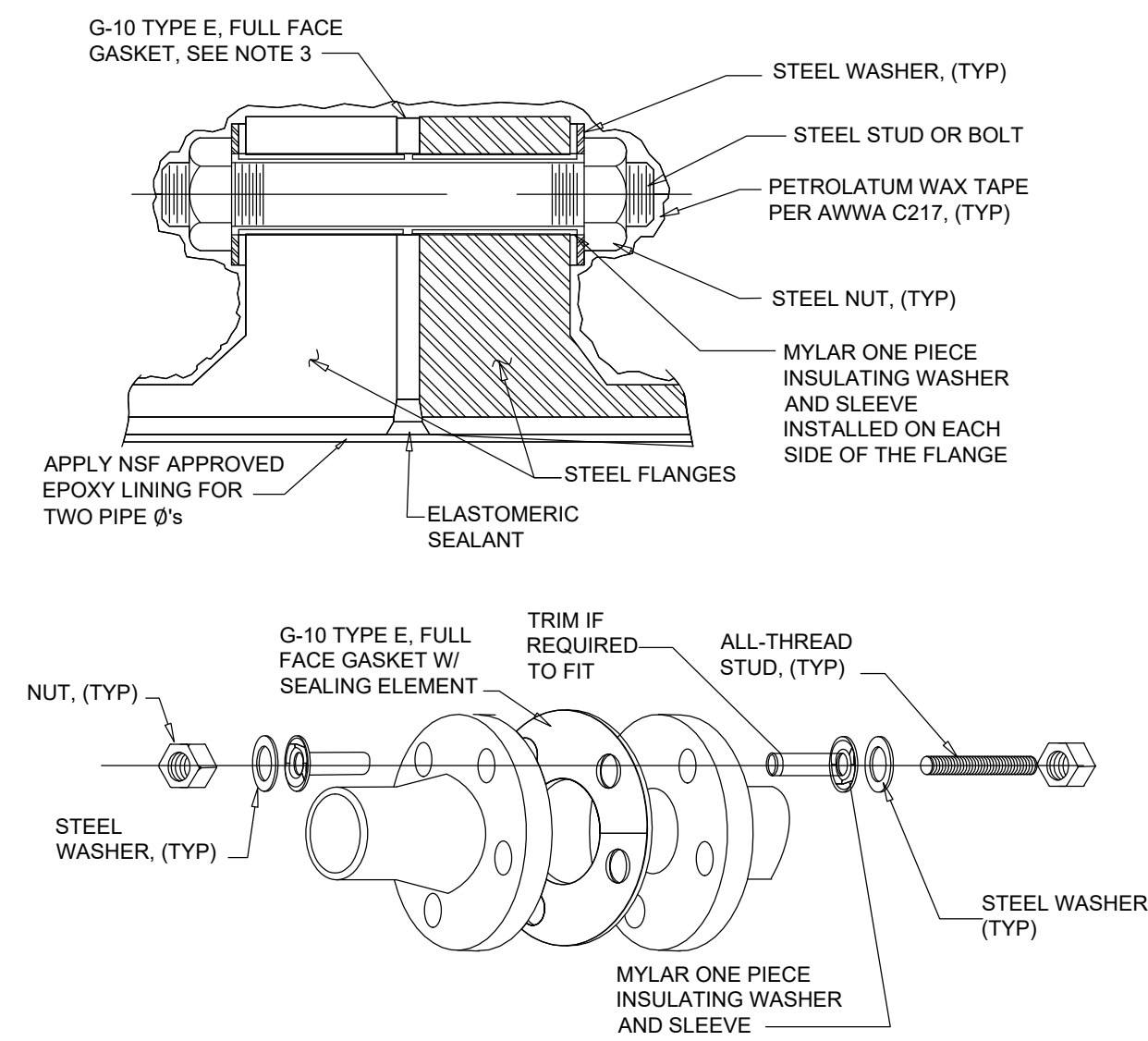
Kevin R. Krawiec
 FEBRUARY 2024

I/R	DATE	DESCRIPTION

60662775

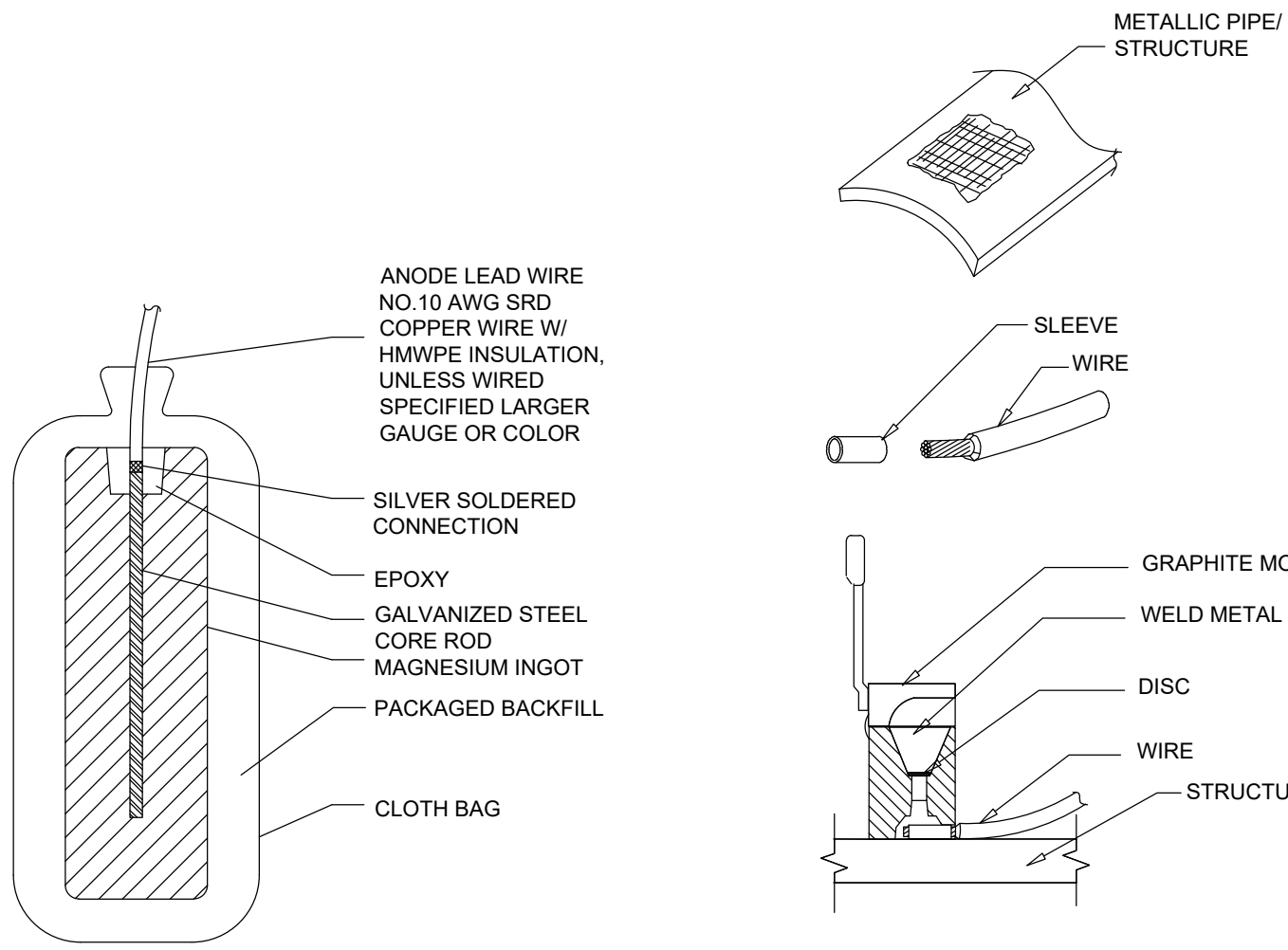
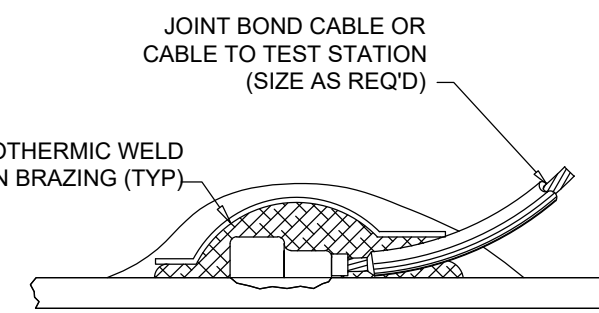


- NOTES:**
- BOND ALL NON-WELD PIPE JOINTS, INCLUDING THOSE ON PIPE, FITTINGS, VALVES, EXCEPT THOSE SPECIFIED TO BE INSULATED.
 - EXOTHERMIC WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS, SEE STD DETAIL.
 - BONDING WIRE SIZE AS PER SPECIFICATIONS.



- 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

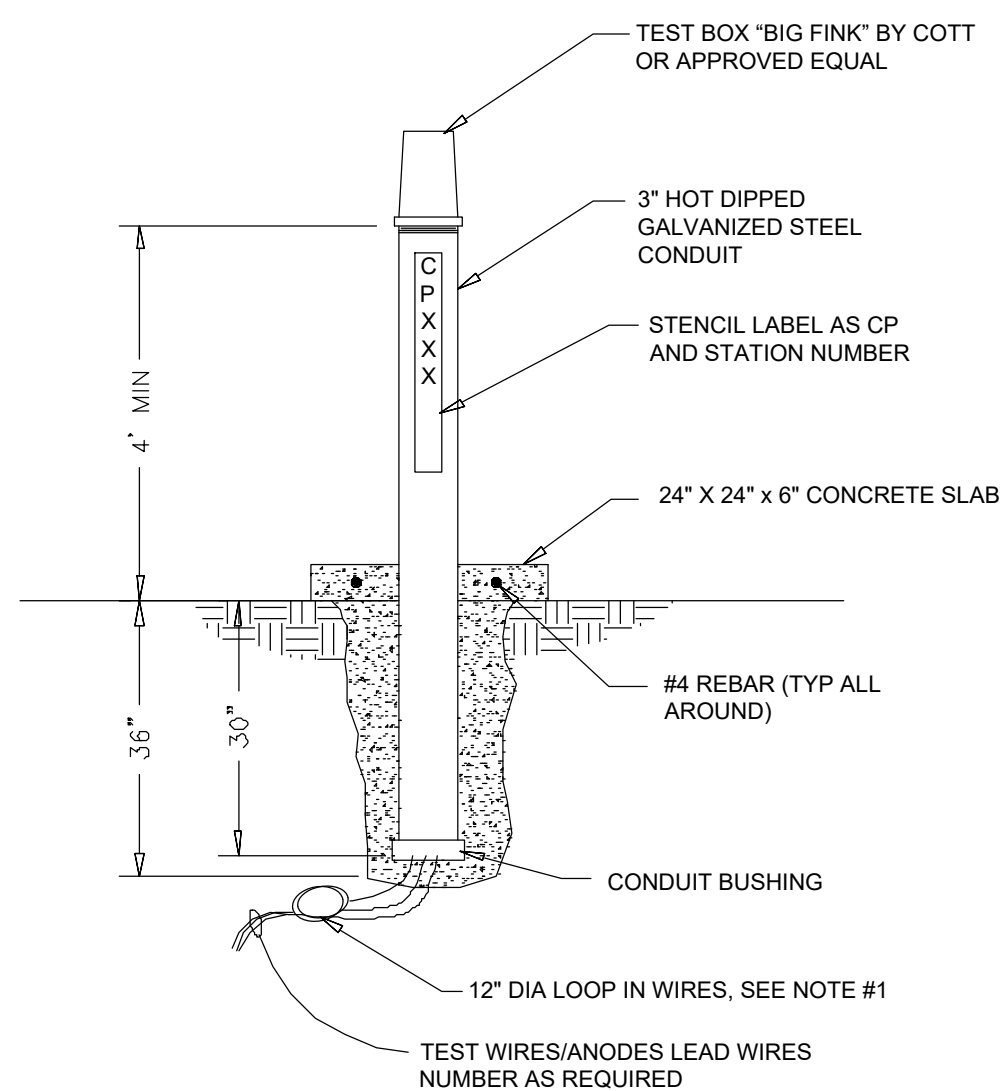
AL	0.010%
Mn	0.50-1.30%
Cu	0.02% Max
Ni	0.001% Max
Fe	0.03% Max
OTHER	0.30% Max
REMAINDER	Mg

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

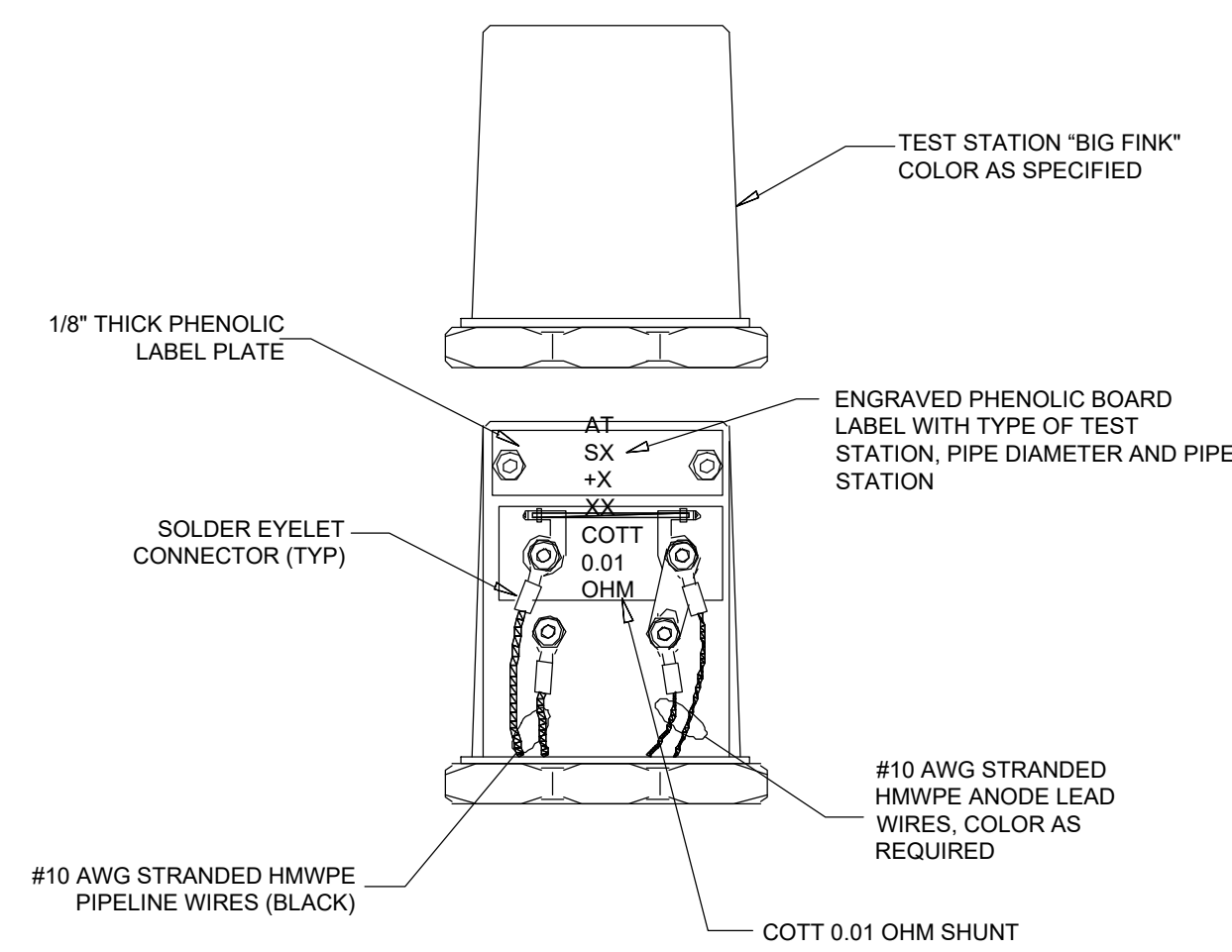
BACKFILL COMPOSITION

GYPSUM	75%
BENTONITE	20%
SODIUM SULPHATE	5%

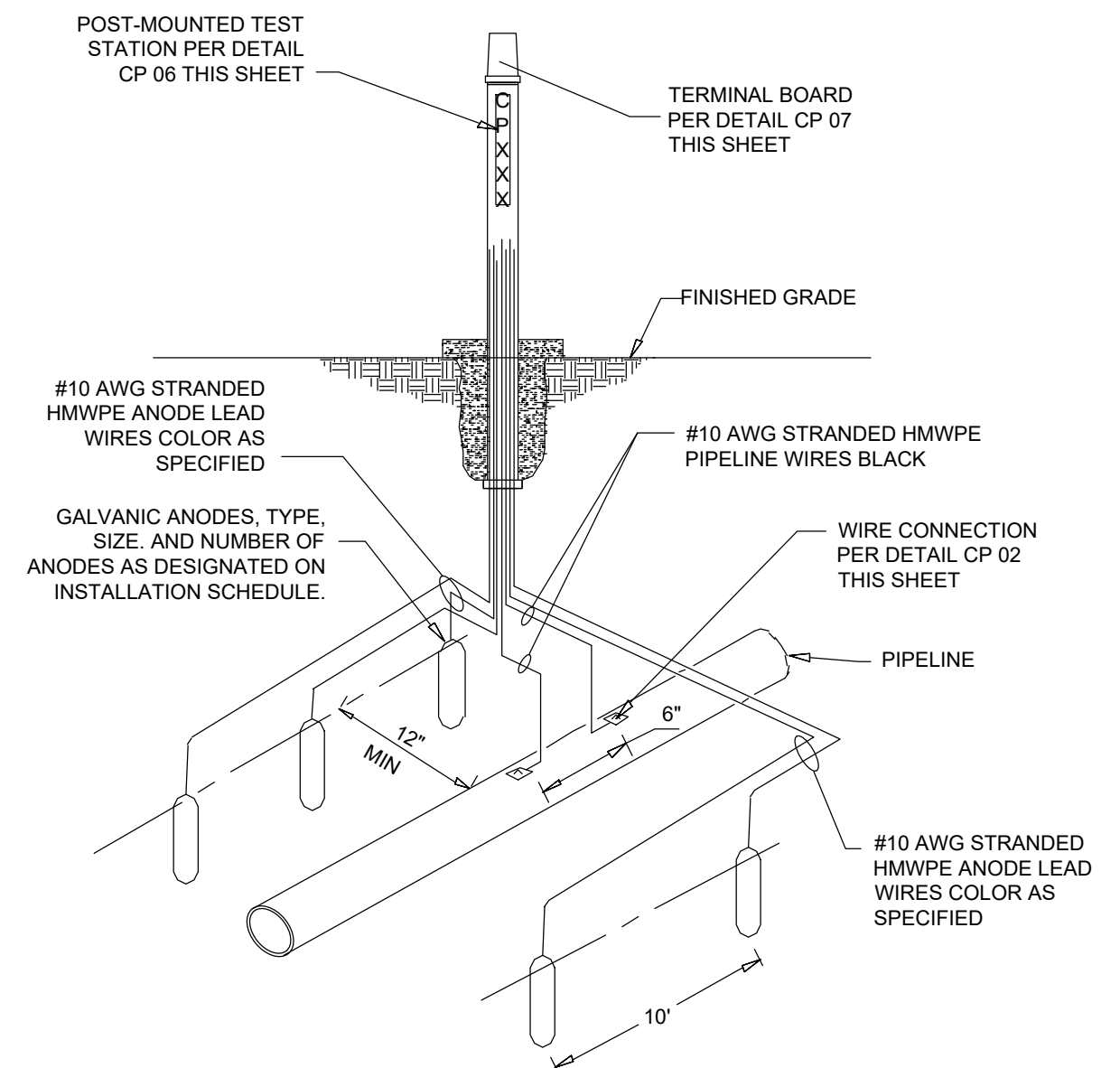
- NOTES:**
- MAGNESIUM INGOT SHALL BE CENTERED IN BACKFILL MATERIAL. IF REQUIRED ROLL PACKAGED ANODE AFTER SHIPPING TO REPOSITION INGOT IN CENTER OF BACKFILL.
 - REMOVE PLASTIC SHIPPING MATERIAL PRIOR TO INSTALLATION.
 - MEASURE AND RECORD ANODE OPEN CIRCUIT POTENTIAL PRIOR TO INSTALLATION. INCLUDE TEST 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

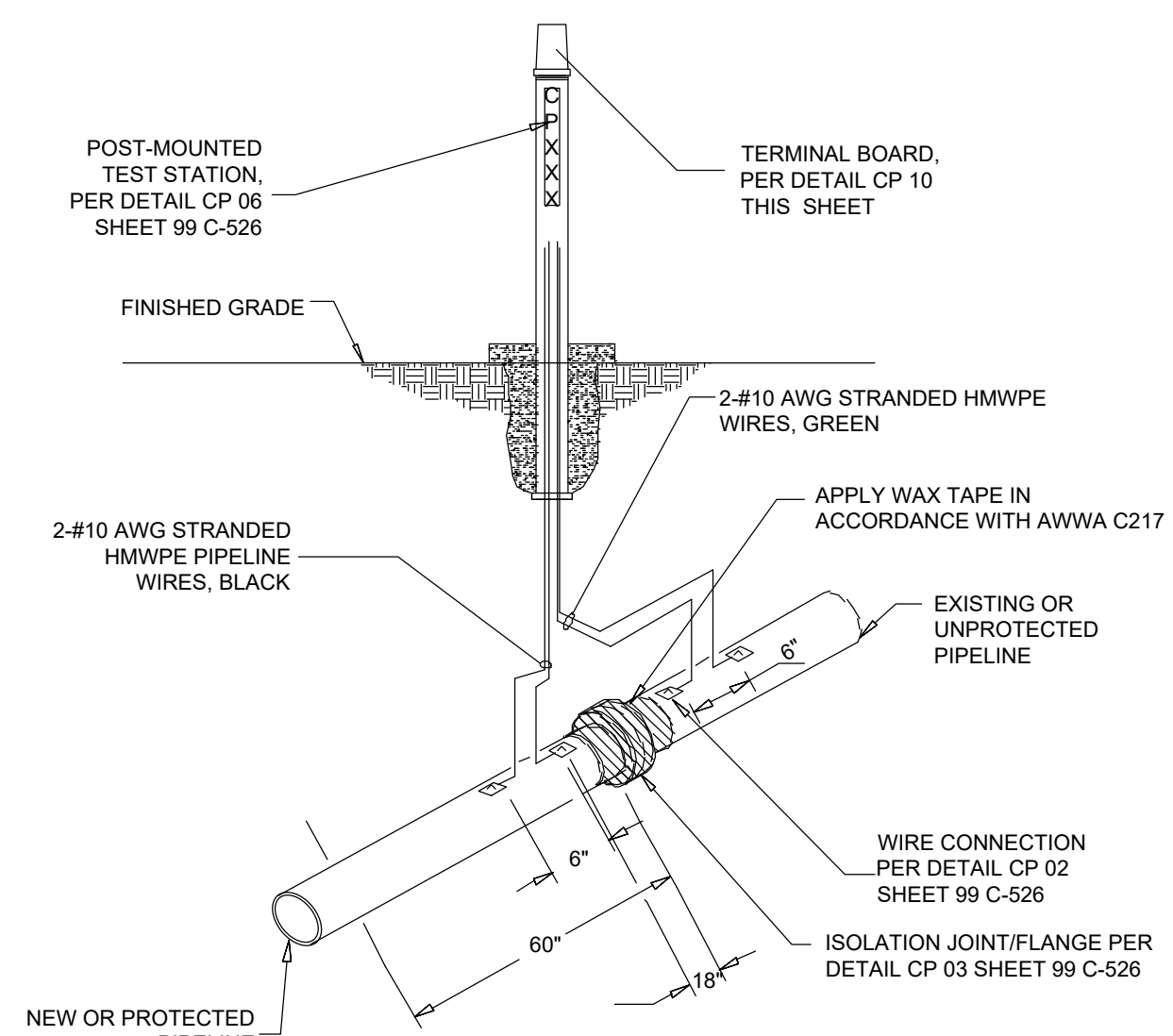
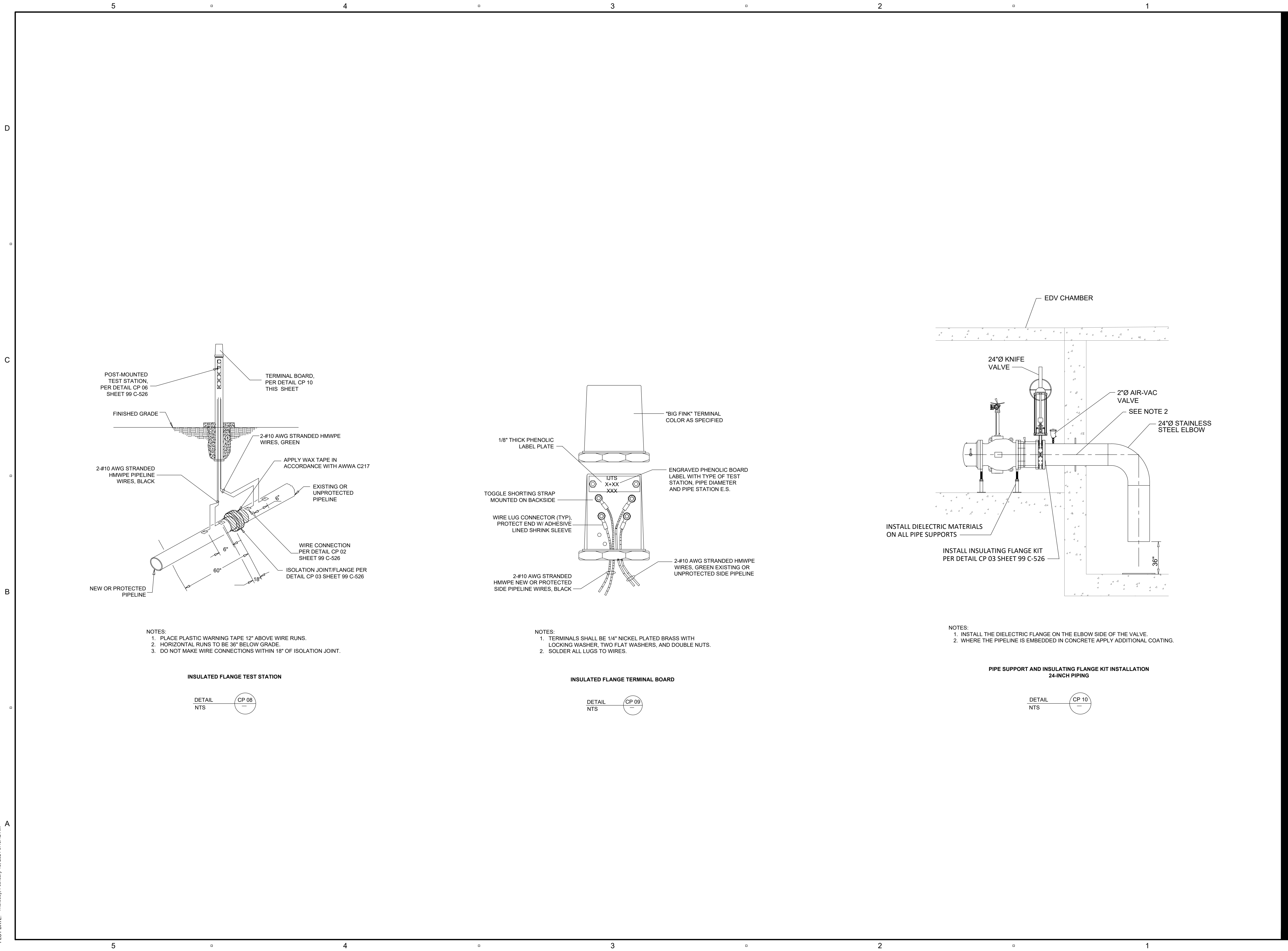
DISCIPLINE

CIVIL
SHEET TITLE

**CIVIL DETAILS V -
CATHODIC PROTECTION II**

SHEET NUMBER

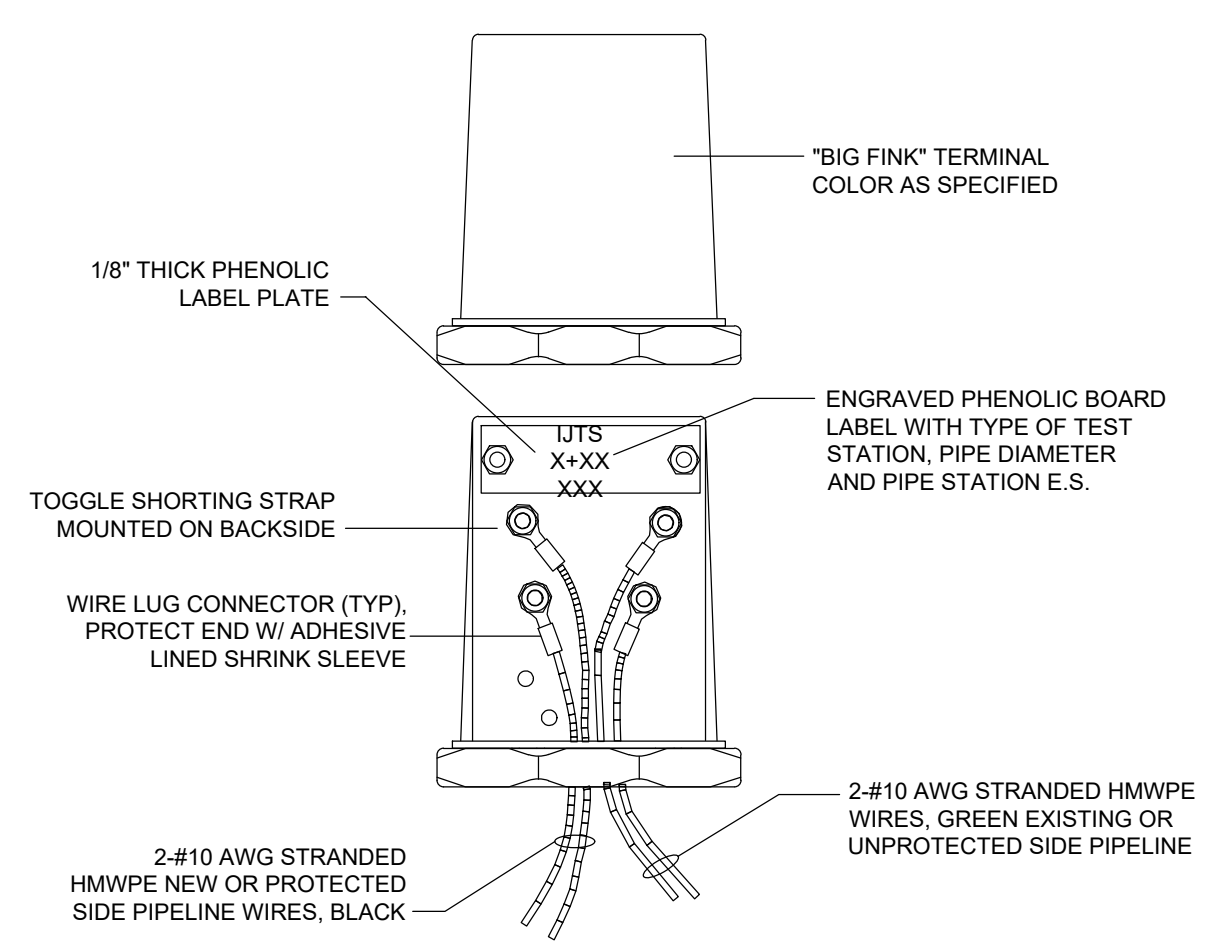
99 C-527



- NOTES:
1. PLACE PLASTIC WARNING TAPE 12" ABOVE WIRE RUNS.
 2. HORIZONTAL RUNS TO BE 36" BELOW GRADE.
 3. DO NOT MAKE WIRE CONNECTIONS WITHIN 18" OF ISOLATION JOINT.

INSULATED FLANGE TEST STATION

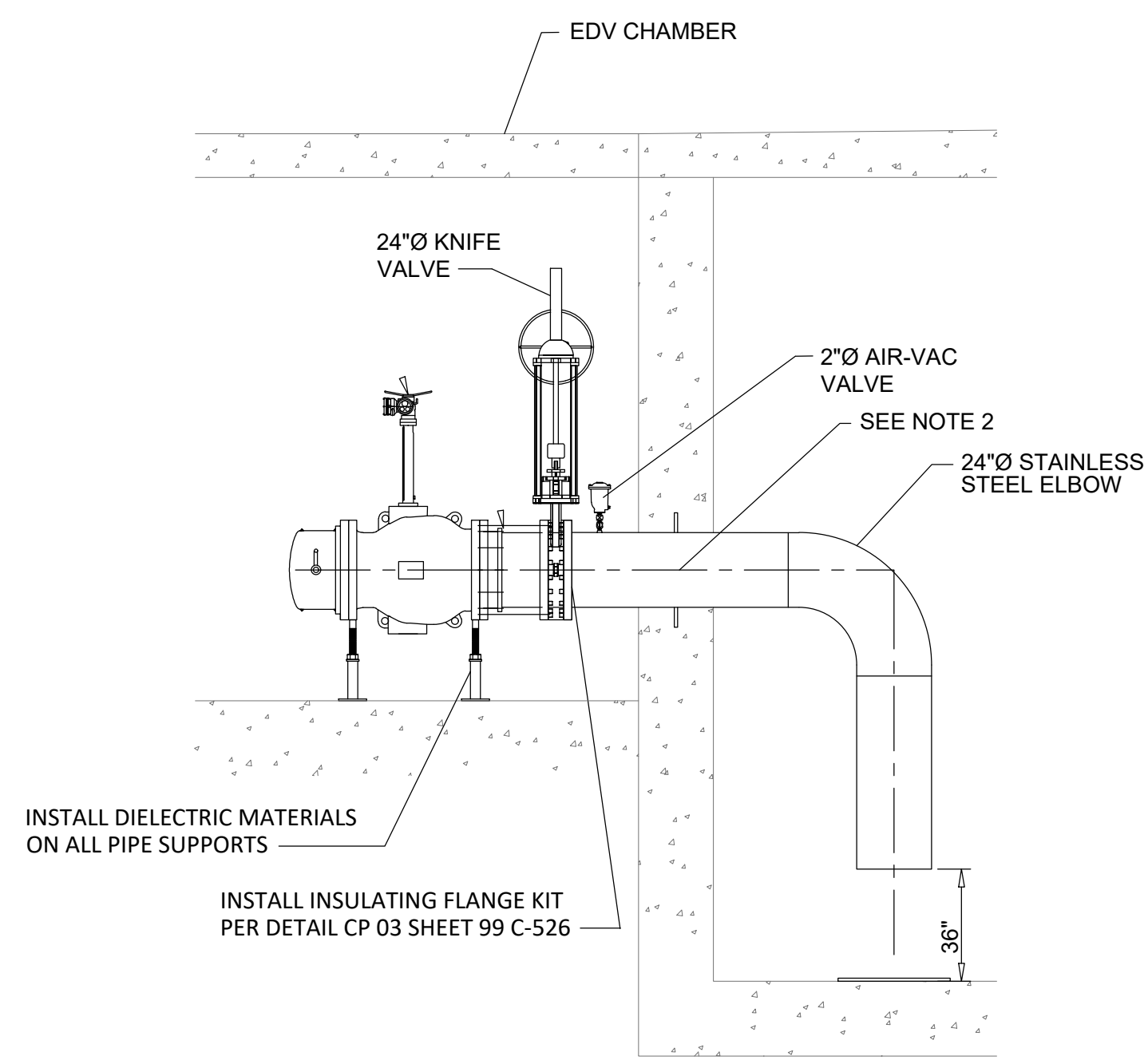
DETAIL NTS CP 08



- NOTES:
1. TERMINALS SHALL BE 1/4" NICKEL PLATED BRASS WITH LOCKING WASHER, TWO FLAT WASHERS, AND DOUBLE NUTS.
 2. SOLDER ALL LUGS TO WIRES.

INSULATED FLANGE TERMINAL BOARD

DETAIL NTS CP 09



- 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 NTS CP 10

PATH: L:\DCS\PROJECTS\WY161662775_SWISCS_WF_HYDRO_ELECT_PDR1800_CAD_GIS810_CAD\20-SHEET\99 C-527 DWG
LAST UPDATE: Wednesday, February 14, 2024 11:04:11 AM
PLOT DATE: Thursday, February 15, 2024 9:48:42 AM

5	GENERAL	CONCRETE	EMBEDDED PIPES AND CONDUIT:	DEMOLITION	ABBREVIATIONS:
<p>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.</p> <p>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</p> <p>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</p> <p>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(DS): 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 ACI350.3-20.</p> <p>3. PROTECT ALL STRUCTURES AGAINST HYDRAULIC UPLIFT UNTIL STRUCTURES ARE COMPLETED AND BACKFILLED. MAXIMUM FLOOD GROUNDWATER AT THE SITE IS ELEVATION 498.00 FEET</p> <p>4. FROST DEPTH AT THE SITE IS 4'-0" BELOW FINISHED GRADE.</p> <p>5. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONAL INFORMATION. MISSING OR CONFLICTING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p> <p>FOUNDATION</p> <p>1. FOUNDATION DESIGNS ARE BASED UPON THE ALLOWABLE SOIL BEARING CAPACITIES INDICATED ON THE FOUNDATION PLANS.</p> <p>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).</p> <p>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.</p> <p>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.</p> <p>5. PROVIDE FOUNDATION PREPARATION AS INDICATED ON THE STANDARD DETAIL UNDER ALL FOUNDATION SLABS, MATS AND FOOTINGS.</p> <p>6. DO NOT PLACE FOUNDATION CONCRETE IN WATER OR ON FROZEN OR DISTURBED GROUND.</p> <p>7. A UNIT WEIGHT OF SOIL OF 120 PCF WAS USED IN THE DESIGN.</p> <p>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.</p> <p>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.</p> <p>10. DO NOT LEAK TEST TANKS OR CHANNELS UNTIL WALLS AND ALL TOP SLABS HAVE REACHED THE SPECIFIED DESIGN STRENGTH.</p> <p>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 AND 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.</p>	<p>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).</p> <p>2. USE NORMAL WEIGHT CAST-IN-PLACE CONCRETE WITH ASTM C 150, TYPE II CEMENT FOR ALL CONCRETE WORK.</p> <p>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.</p> <p>5. PROVIDE FIBER REINFORCED CONCRETE HAVING A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI FOR ALL CONCRETE FILLS AND TOPPING.</p> <p>6. PROVIDE CONCRETE UNDER FOUNDATIONS HAVING A 28-DAY COMPRESSIVE STRENGTH OF 1,500 PSI WHEN INDICATED OR REQUIRED.</p> <p>7. AIR-ENTRAIN ALL CONCRETE.</p> <p>8. REINFORCING BARS SHALL CONFORM TO ASTM A 615, GRADE-60.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>16. DO NOT PLACE CONCRETE IN BEAMS, GIRDERS OR SLABS UNTIL THE CONCRETE IN THE SUPPORTING COLUMNS AND WALLS HAVE OBTAINED INITIAL SET.</p> <p>17. PLACE SLABS AND BEAMS MONOLITHICALLY UNLESS OTHERWISE INDICATED.</p> <p>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.</p> <p>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.</p> <p>20. PROVIDE CONTINUOUS #5 HORIZONTAL BARS AT 12 INCH MAXIMUM SPACING ON EACH SIDE OF CONCRETE BEAMS AND GIRDERS.</p> <p>21. SET AND MAINTAIN REINFORCEMENT AT THE CLEAR DISTANCES FROM THE SURFACE OF CONCRETE AS SHOWN IN THE STANDARD DETAIL UNLESS OTHERWISE INDICATED.</p> <p>22. PROVIDE EMBEDMENT AND SPLICES OF REINFORCEMENT AS SHOWN IN THE STANDARD DETAILS UNLESS OTHERWISE INDICATED.</p> <p>23. PROVIDE ADDITIONAL REINFORCEMENT ALONG EACH SIDE OF OPENINGS AS INDICATED IN THE STANDARD DETAILS UNLESS OTHERWISE INDICATED.</p> <p>24. PROVIDE CONSTRUCTION AND EXPANSION JOINTS WHERE INDICATED. DO NOT OMIT OR ADD JOINTS.</p> <p>25. INTENTIONALLY ROUGHEN SURFACE OF HORIZONTAL CONSTRUCTION JOINTS IN WALLS AND AT BASE OF WALL TO 1/4" AMPLITUDE.</p> <p>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.</p> <p>27. PROVIDE 3/4-INCH CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE ELEMENTS.</p> <p>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.</p> <p>29. FILL POCKETS IN CONCRETE FOR GATE FRAMES WITH CONCRETE AFTER GATE INSTALLATION.</p>	<p>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.</p> <p>2. SUBMIT PLAN OF EMBEDMENTS TO THE ENGINEER FOR REVIEW AND APPROVAL.</p> <p>3. CONDUITS, PIPES AND SLEEVES OF ALUMINUM SHALL NOT BE EMBEDDED IN CONCRETE.</p> <p>4. PIPES PASSING THROUGH WALLS OF A LIQUID-CONTAINING STRUCTURE SHALL INCLUDE AN INTEGRAL WATERSTOP.</p> <p>5. CONDUITS, PIPES, AND SLEEVES PASSING THROUGH A SLAB, WALL, OR BEAM SHALL NOT IMPAIR SIGNIFICANTLY THE STRENGTH OF THE CONSTRUCTION.</p> <p>6. CONDUITS AND PIPES, WITH THEIR FITTINGS, EMBEDDED WITHIN A COLUMN SHALL NOT DISPLACE MORE THAN 4 PERCENT OF THE AREA OF CROSS SECTION.</p> <p>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.</p> <p>8. PIPES AND FITTINGS SHALL BE DESIGNED TO RESIST THE EFFECTS OF THE MATERIAL, PRESSURE, AND TEMPERATURE TO WHICH THEY WILL BE SUBJECTED.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>12. CLOSE ENDS OF CONDUITS, PIPING AND SLEEVES EMBEDDED IN CONCRETE WITH CAPS OR PLUGS PRIOR TO CONCRETE PLACEMENT.</p> <p>ALUMINUM RAILINGS AND GUARDRAILS</p> <p>1. PROVIDE ALUMINUM RAILING WHERE INDICATED.</p> <p>2. PROVIDE MOUNTINGS FOR REMOVABLE ALUMINUM RAILING AROUND OPENINGS WHERE INDICATED, COMPLETE WITH CAPS.</p> <p>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.</p> <p>4. ALUMINUM RAILING AND GUARDRAILS SHALL CONFORM TO ALLOY 6061-T6.</p> <p>5. WELDING SHALL CONFORM TO THE STRUCTURAL WELDING CODE, AWS D1.2.</p> <p>6. WELDING SHALL BE BY THE METAL INERT GAS (MIG) OR THE TUNGSTEN INERT GAS (TIG) PROCESS USING 5356 FILLER ALLOY.</p> <p>7. FIELD WELDING OF ALUMINUM RAILING AND GUARDRAILS IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED.</p> <p>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.</p> <p>9. PAINT ALUMINUM IN CONTACT WITH CONCRETE WITH ASPHALTIC PAINT OR PROVIDE SHEET NEOPRENE BARRIER.</p> <p>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.</p> <p>11. USE NON-SHRINK, NON-METALLIC GROUT UNDER BASE PLATES.</p>	<p>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.</p> <p>2. SHORE EXISTING STRUCTURES TO UNLOAD MEMBERS BEFORE REMOVING STRUCTURAL ELEMENTS.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>7. PATCH AND FINISH EXPOSED SURFACES TO MATCH THE ADJACENT AREA UNLESS OTHERWISE INDICATED OR SPECIFIED.</p>	<p>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 CLR CL, 1 CENTERLINE COL COLUMN CONC CONCRETE CONC CONTINUOUS CONT DEGREE DEG DETAIL DET DIAMETER DIA, Ø DIRECTION DIR DOWN DN DRAWING DWL DOWEL EA EACH EF EACH FACE EJ EXPANSION JOINT EL ELEVATION EW EACH WAY EXIST EXISTING FD FLOOR DRAIN FF FAR FACE FIN FINISH FL 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 PUF 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 TRENDS TYP TYPICAL UNO UNLESS NOTED OTHERWISE VERT, V VERTICAL WS WATERSTOP, WATER SURFACE WWF WELDED WIRE FABRIC ← DIRECTION IN WHICH BARS EXTEND</p>	
4	GENERAL	CONCRETE	EMBEDDED PIPES AND CONDUIT:	DEMOLITION	ABBREVIATIONS:
3	GENERAL	CONCRETE	EMBEDDED PIPES AND CONDUIT:	DEMOLITION	ABBREVIATIONS:
2	GENERAL	CONCRETE	EMBEDDED PIPES AND CONDUIT:	DEMOLITION	ABBREVIATIONS:
1	GENERAL	CONCRETE	EMBEDDED PIPES AND CONDUIT:	DEMOLITION	ABBREVIATIONS:



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

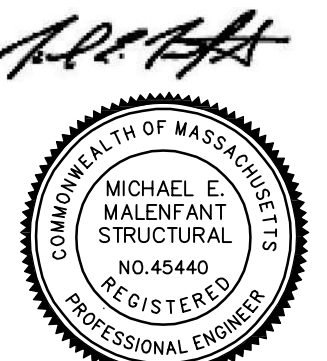
250 M STREET EXTENSION
 AGAWAM, MA 01001

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

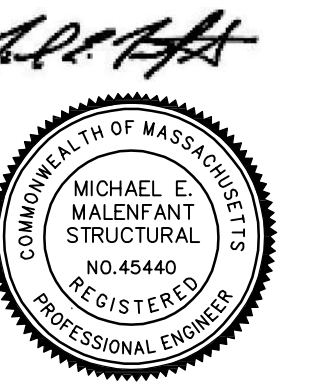
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DISCIPLINE

STRUCTURAL
 SHEET TITLE
STRUCTURAL NOTES AND ABBREVIATIONS

SHEET NUMBER

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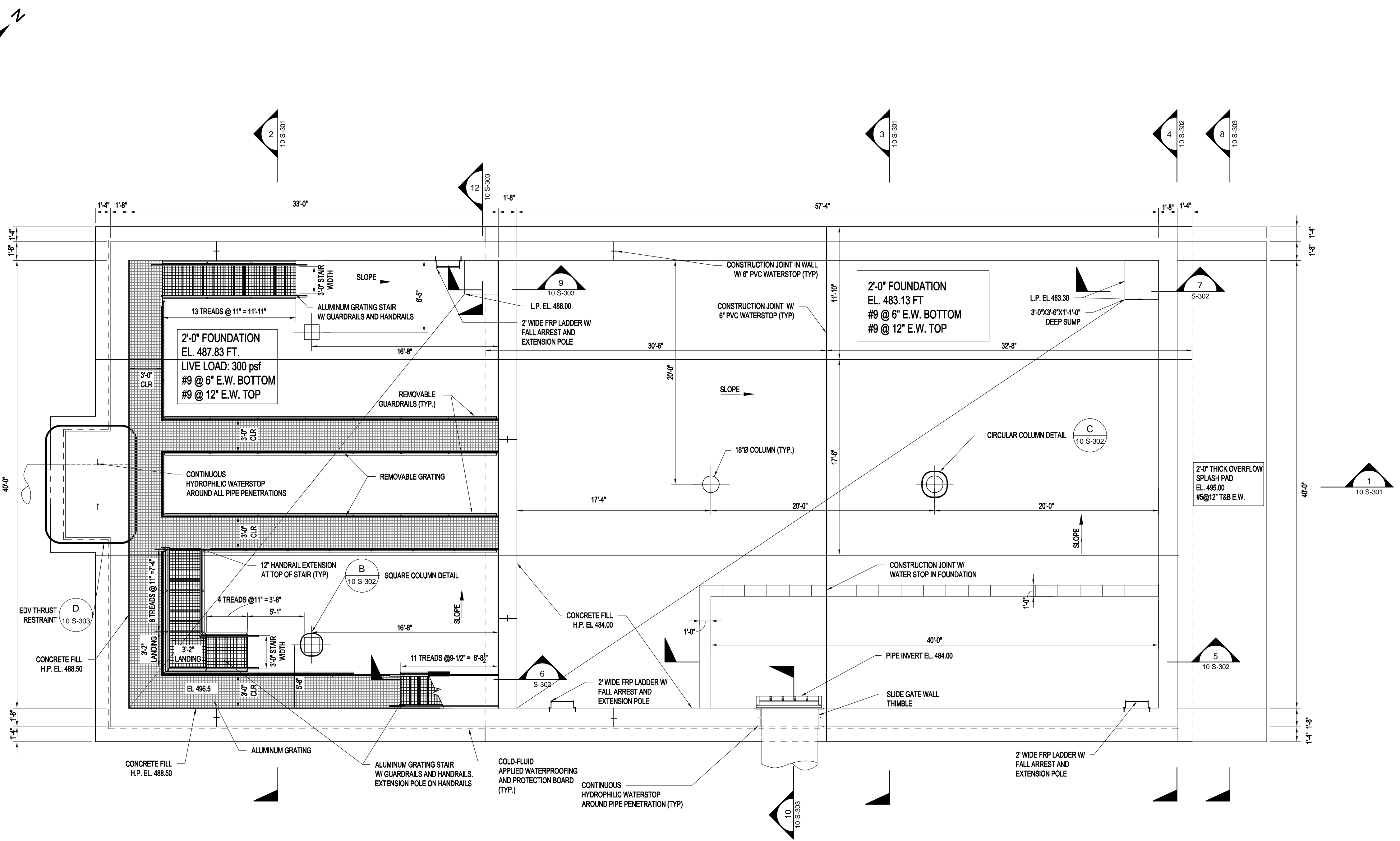


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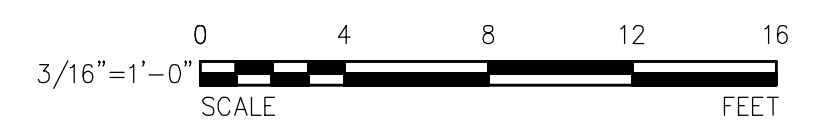
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60662775

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



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



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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

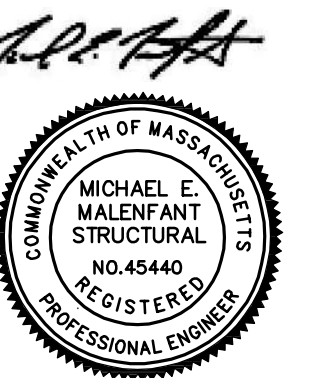
250 M STREET EXTENSION
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ENGINEER

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Designed By: CS

Drawn By: CS

Dept Check: MM

Proj Check: TAL/MCW

Date: FEBRUARY 2024

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

DISCIPLINE

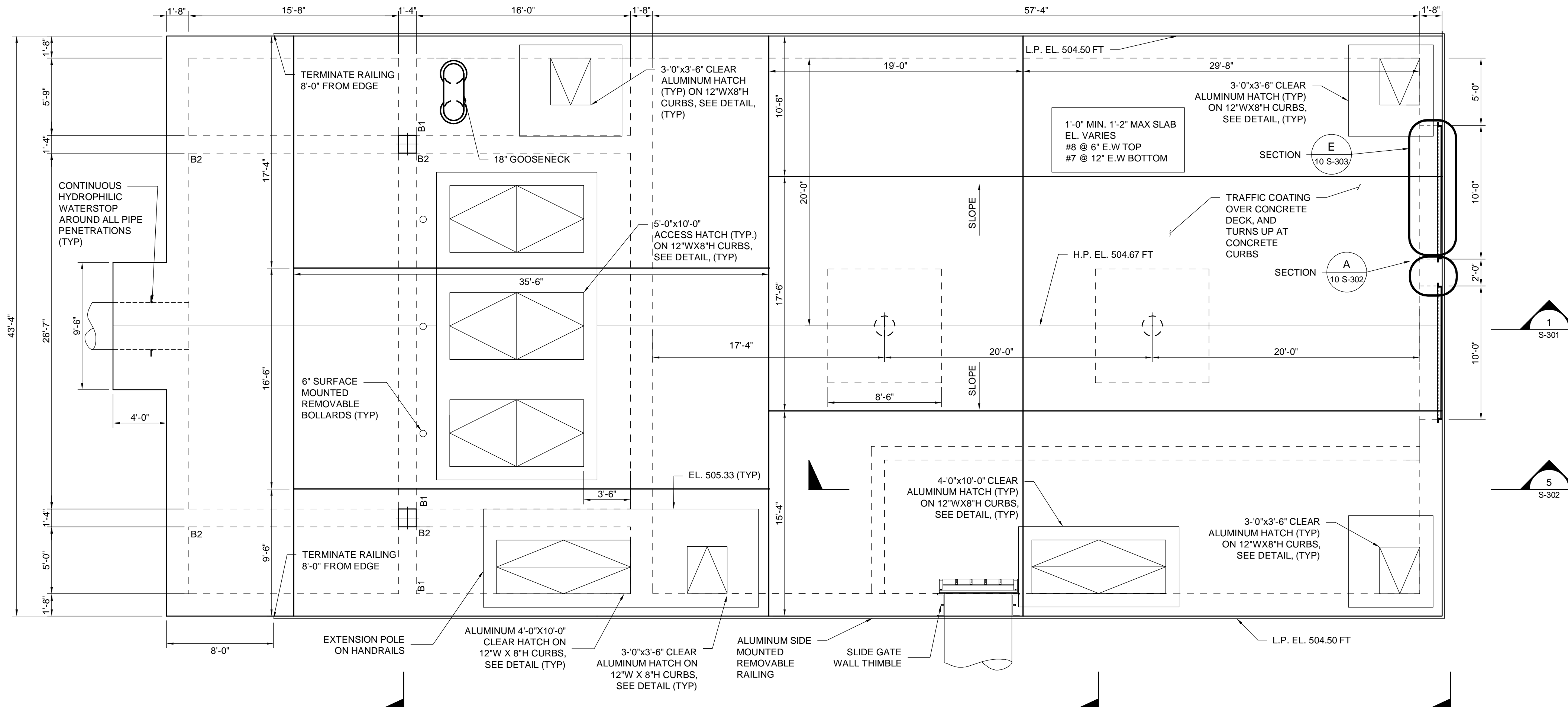
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SHEET TITLE

EDV TOP SLAB PLAN

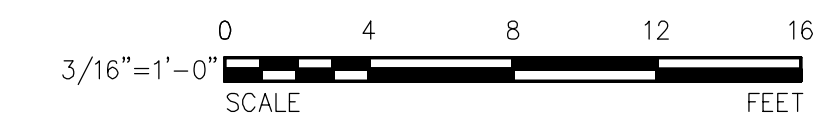
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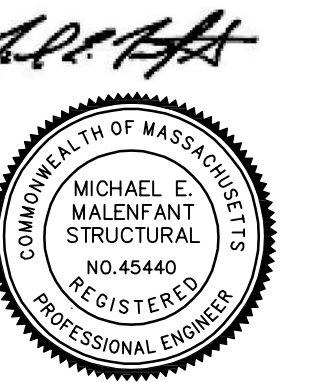
10 S-102



ELEVATED SLAB PLAN

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





13 FEBRUARY 2024

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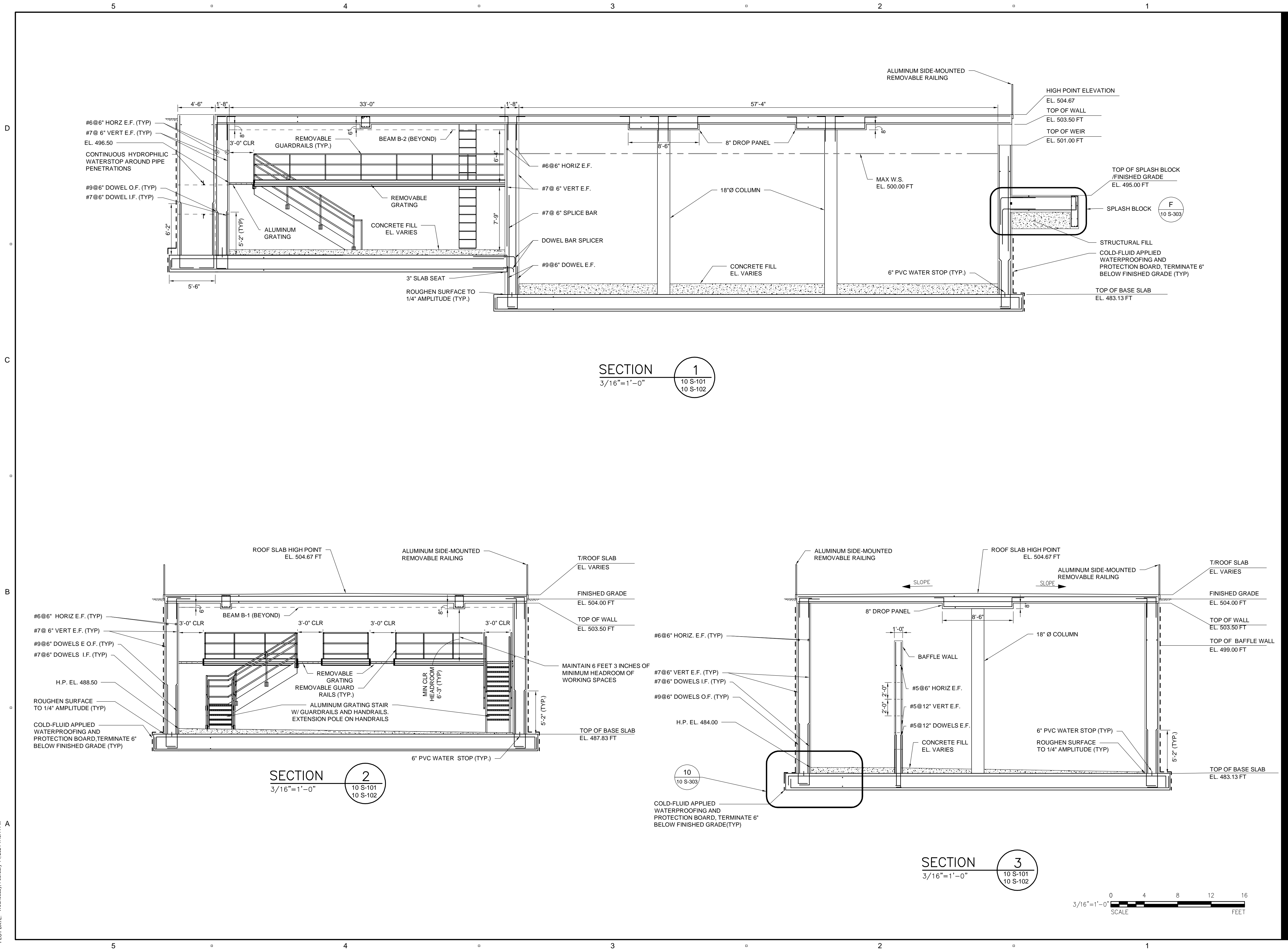
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STRUCTURAL

EDV SECTIONS I

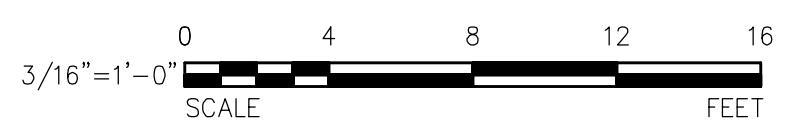
10 S-301



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



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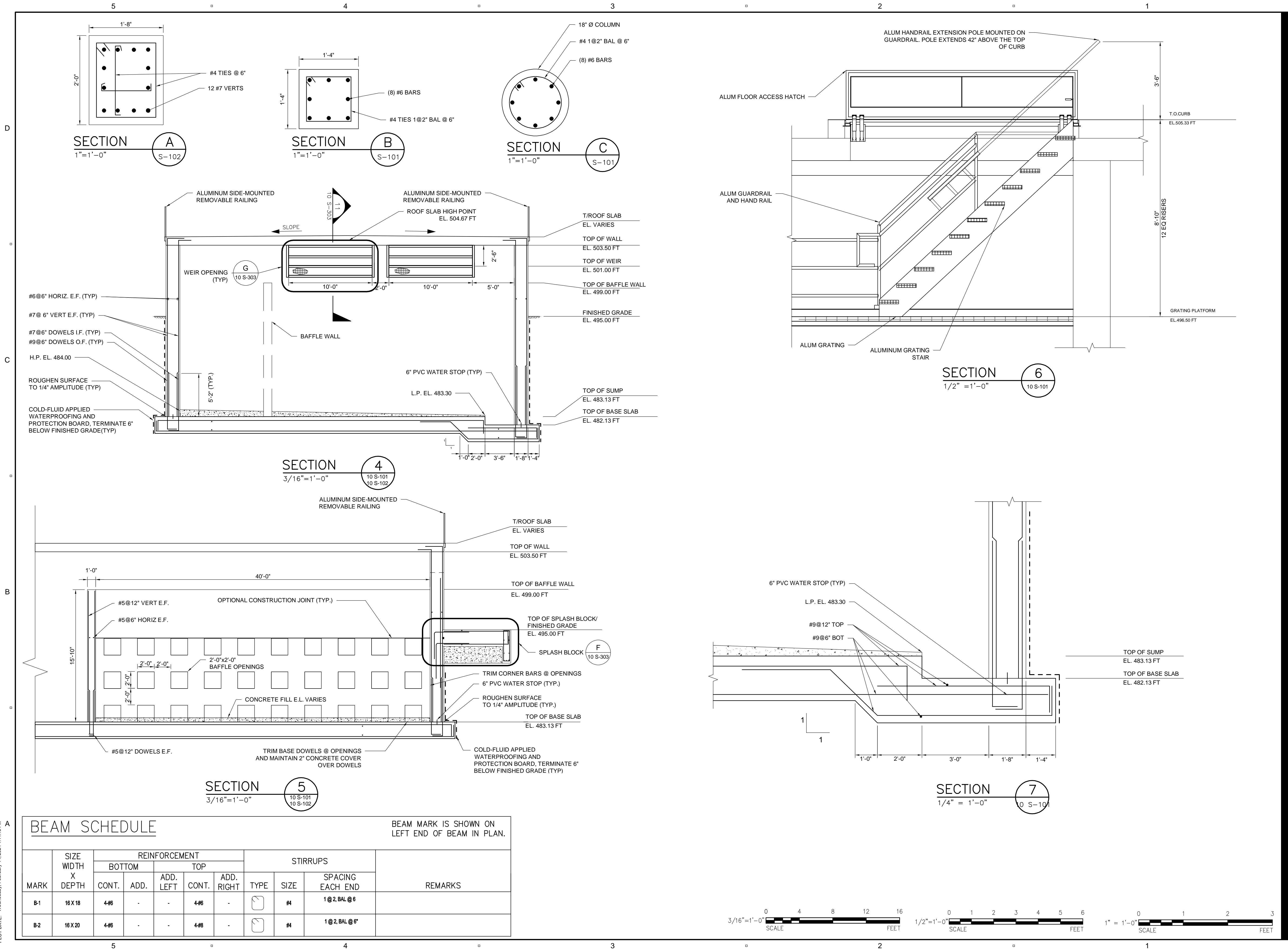
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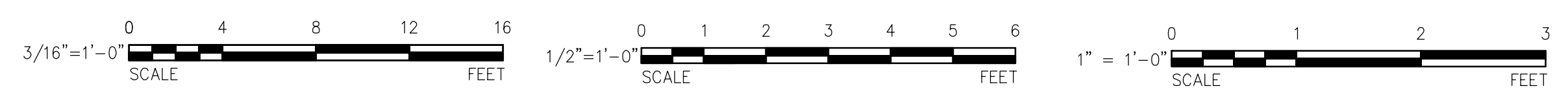
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Date:	FEBRUARY 2024
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10 S-302

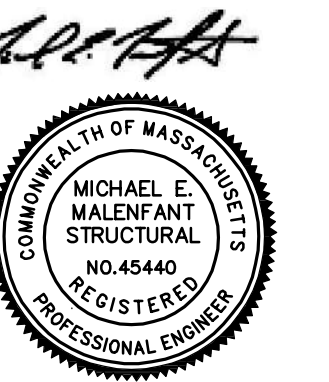


BEAM SCHEDULE BEAM MARK IS SHOWN ON LEFT END OF BEAM IN PLAN.

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"	



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13 FEBRUARY 2024

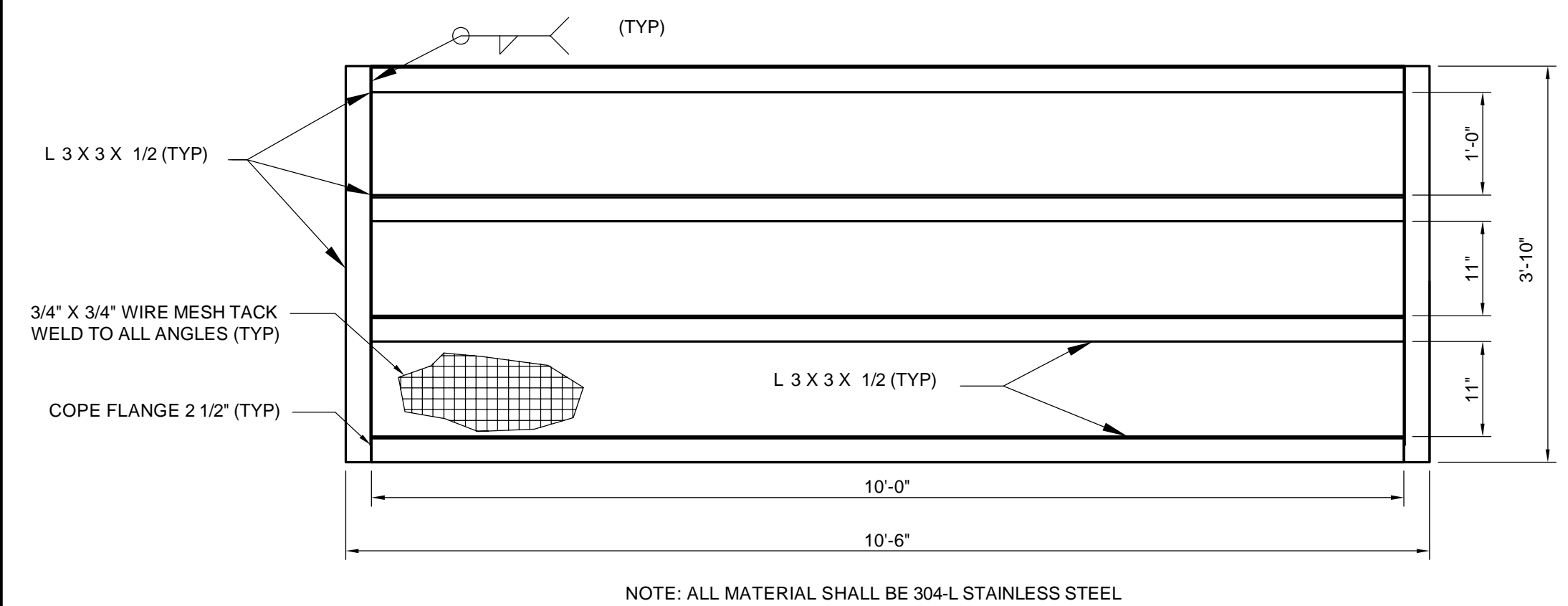
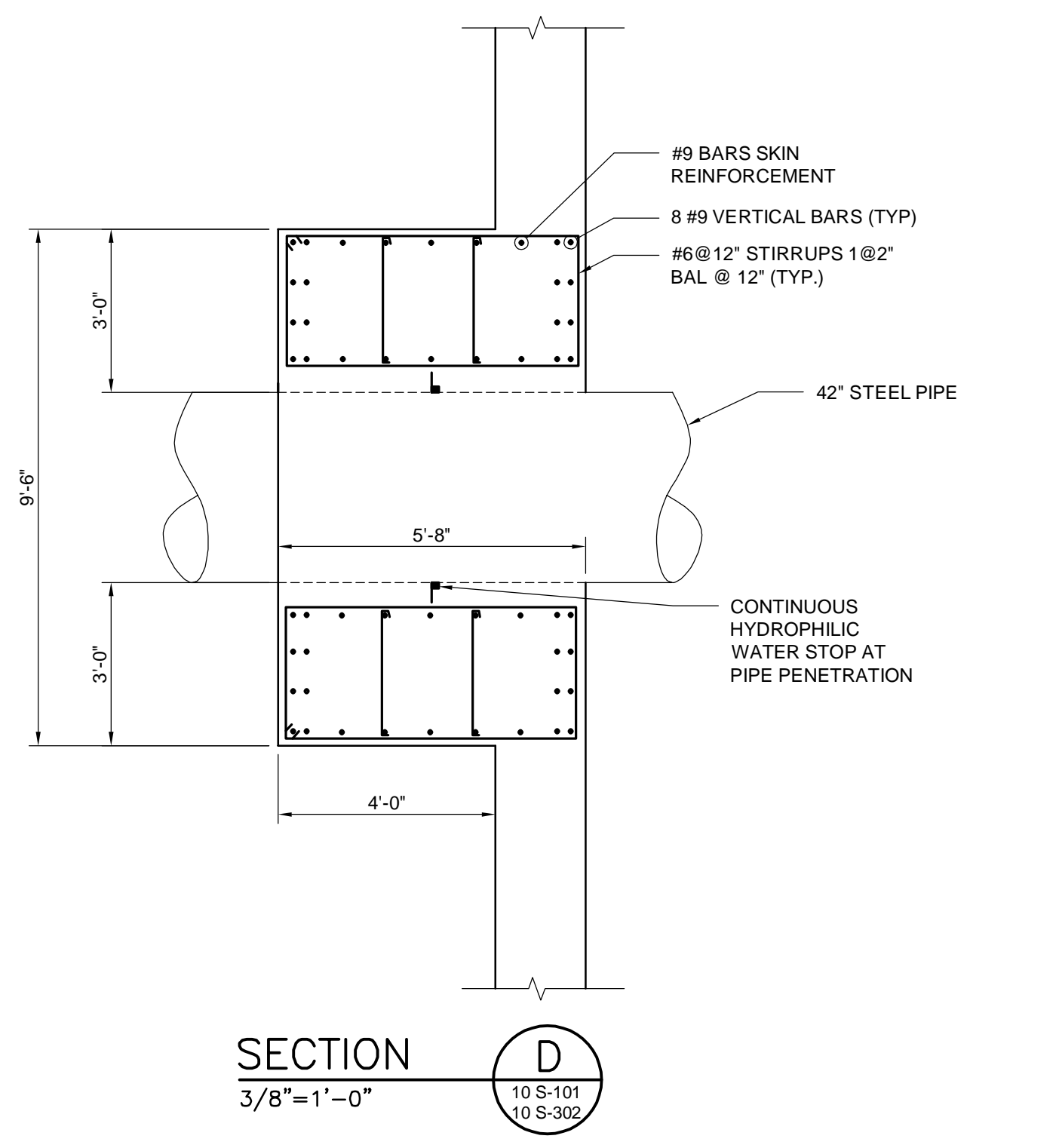
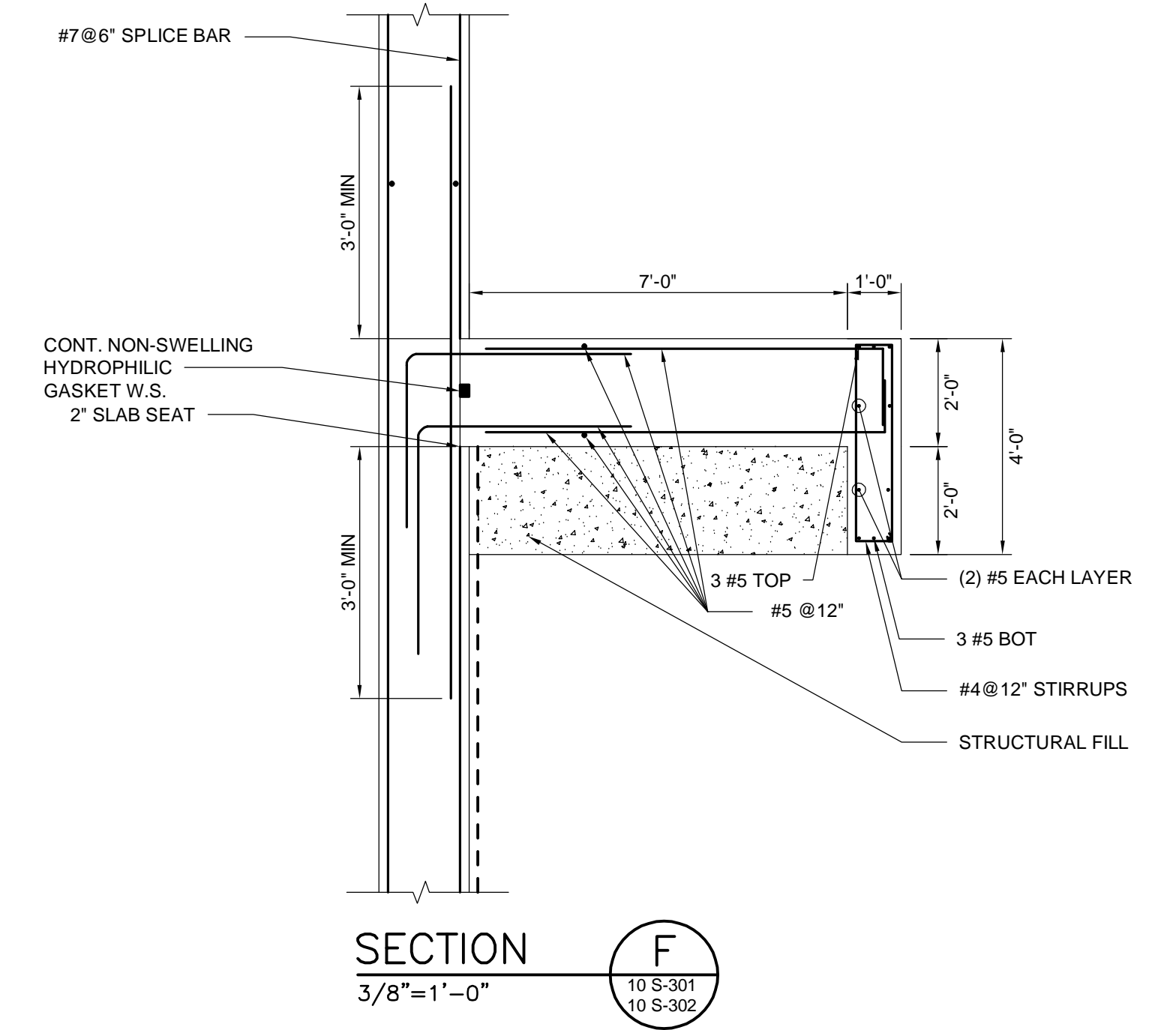
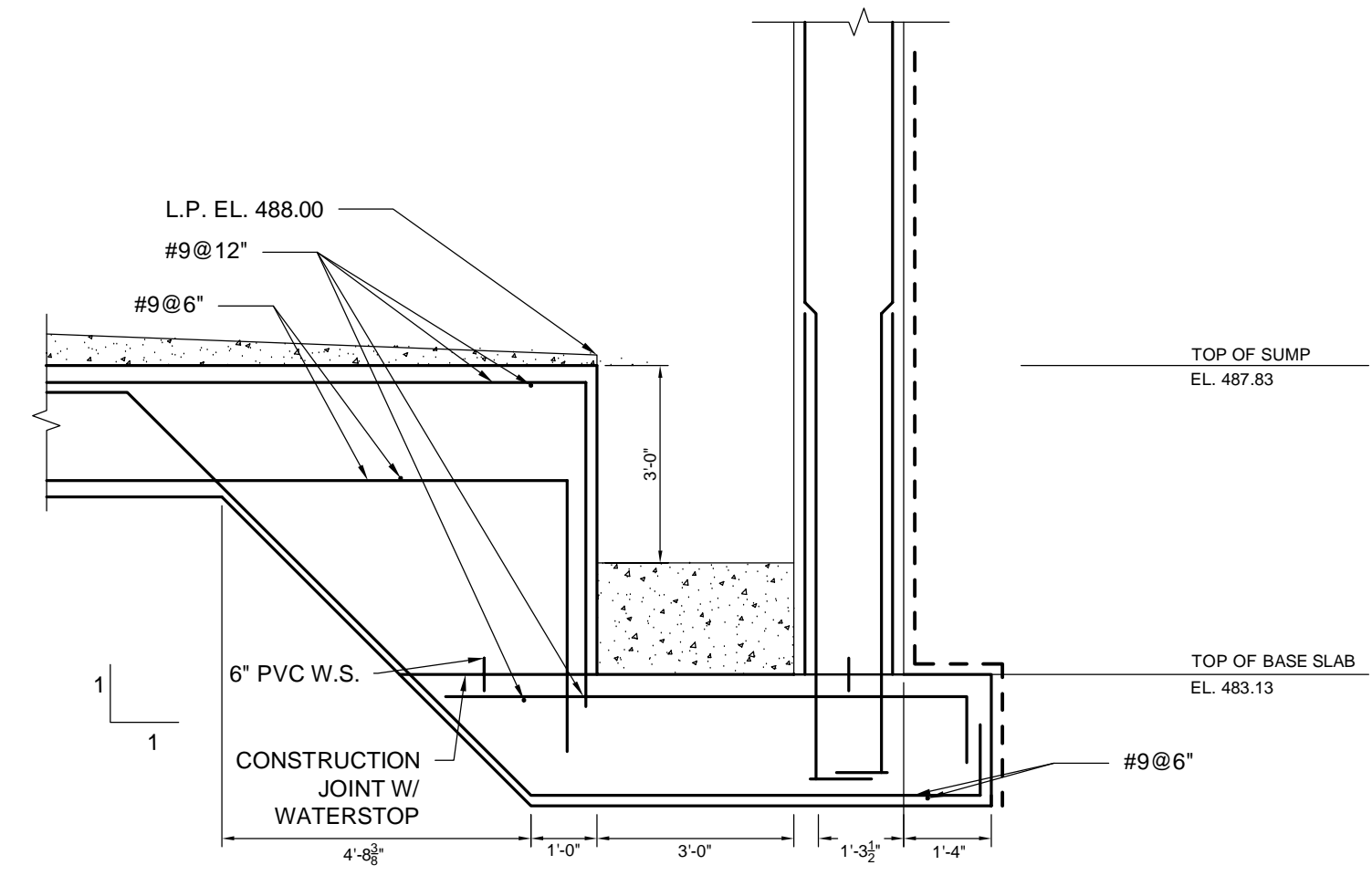
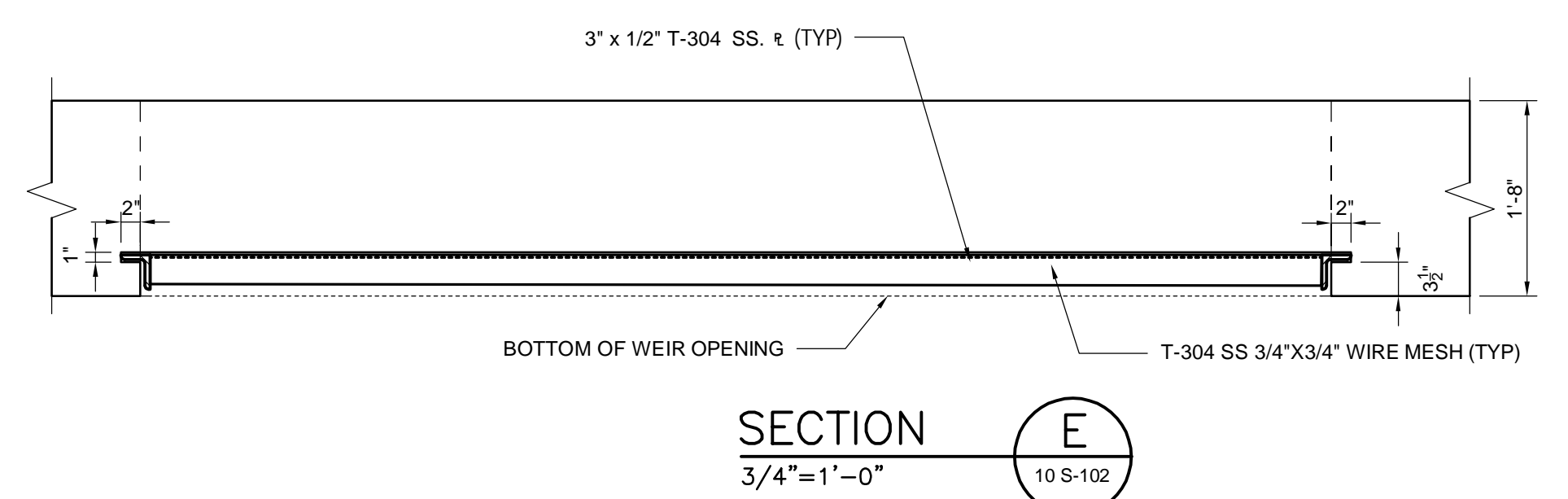
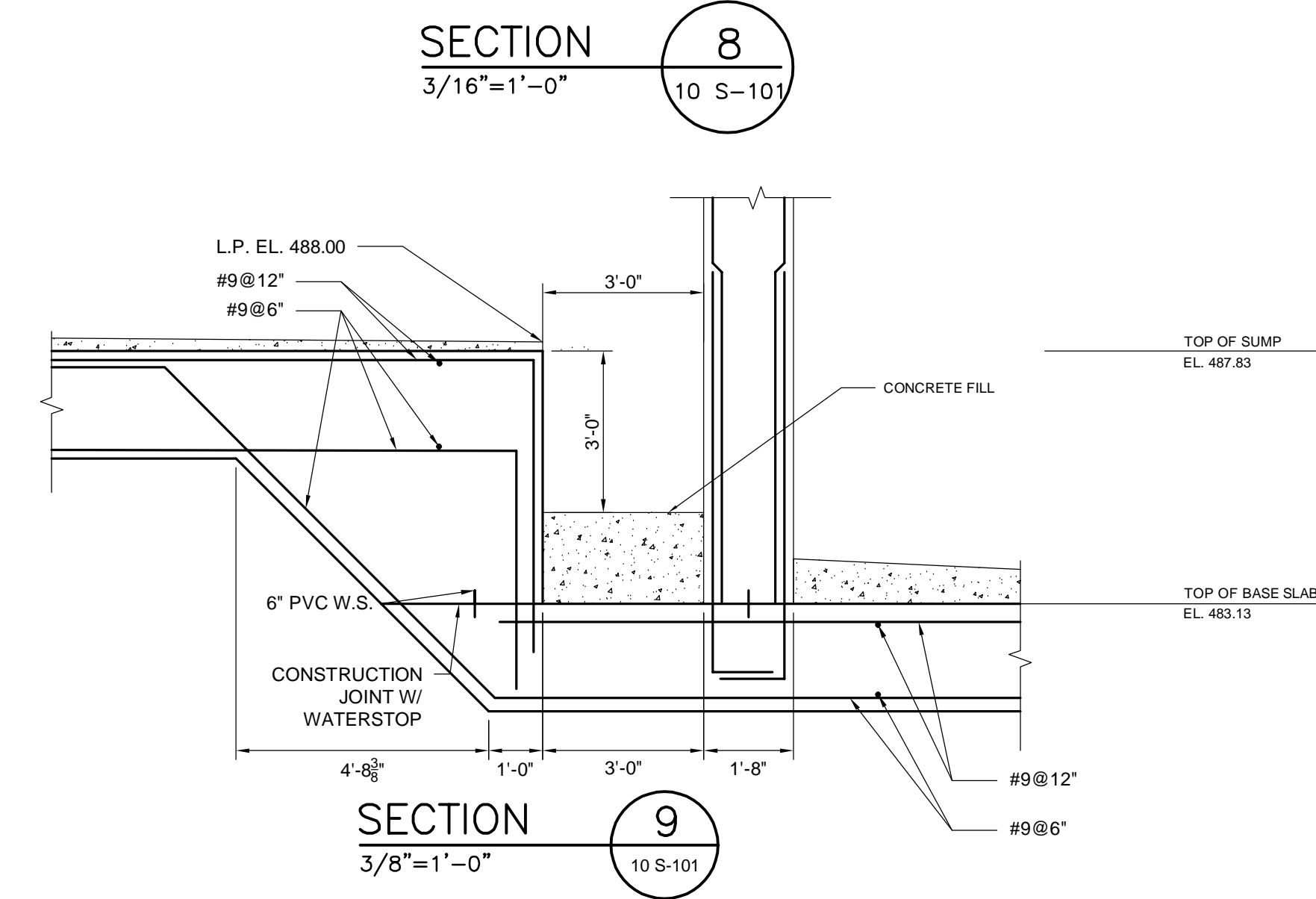
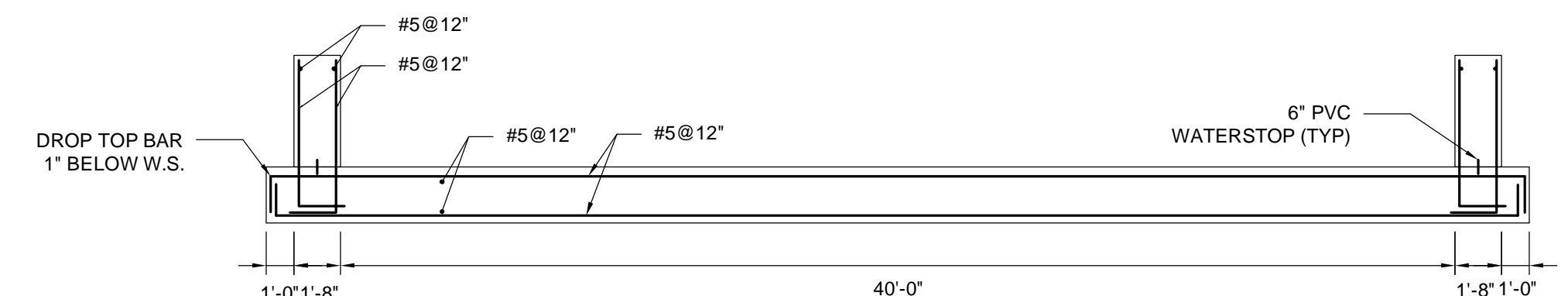
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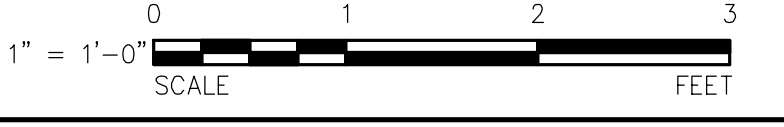
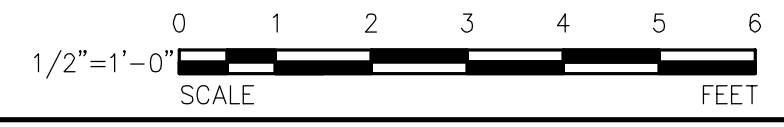
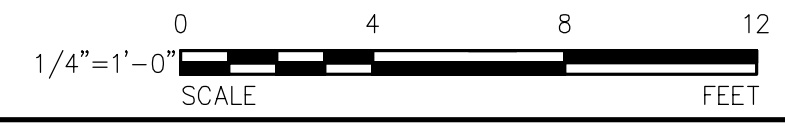
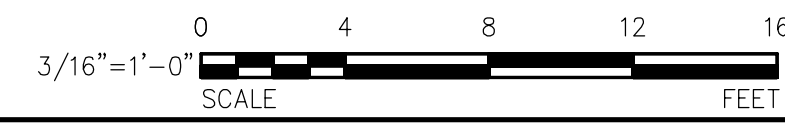
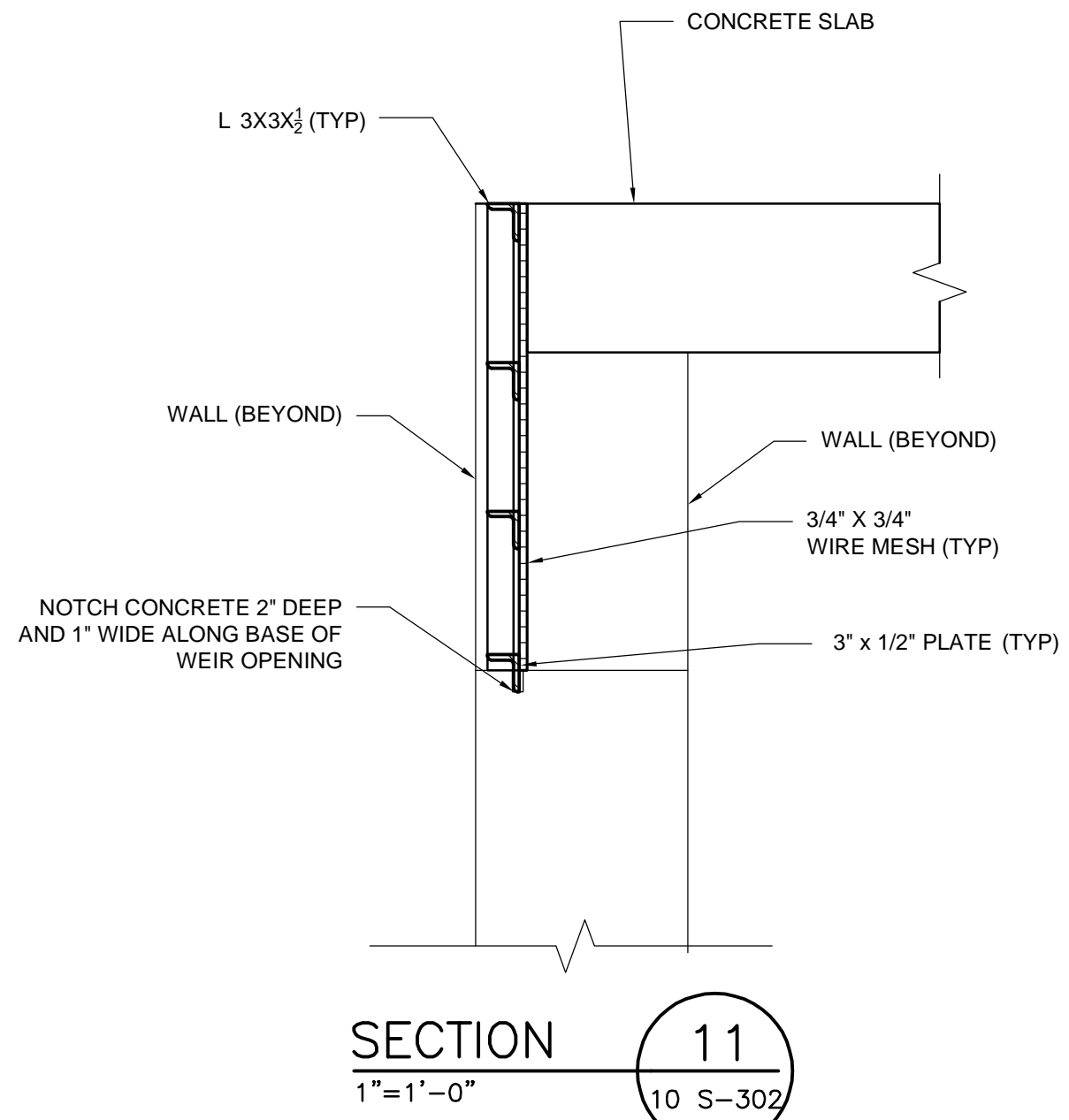
Designed By:	CS
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Dept Check:	MM
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

STRUCTURAL
 SHEET TITLE

10 S-303



NOTE: ALL MATERIAL SHALL BE 304-L STAINLESS STEEL



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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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 250 APOLLO DRIVE
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CONSULTANTS

REGISTRATION



13 FEBRUARY 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

Designed By:	CS
Drawn By:	CS
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Date:	FEBRUARY 2024
Scale:	1/2" = 1'-0"

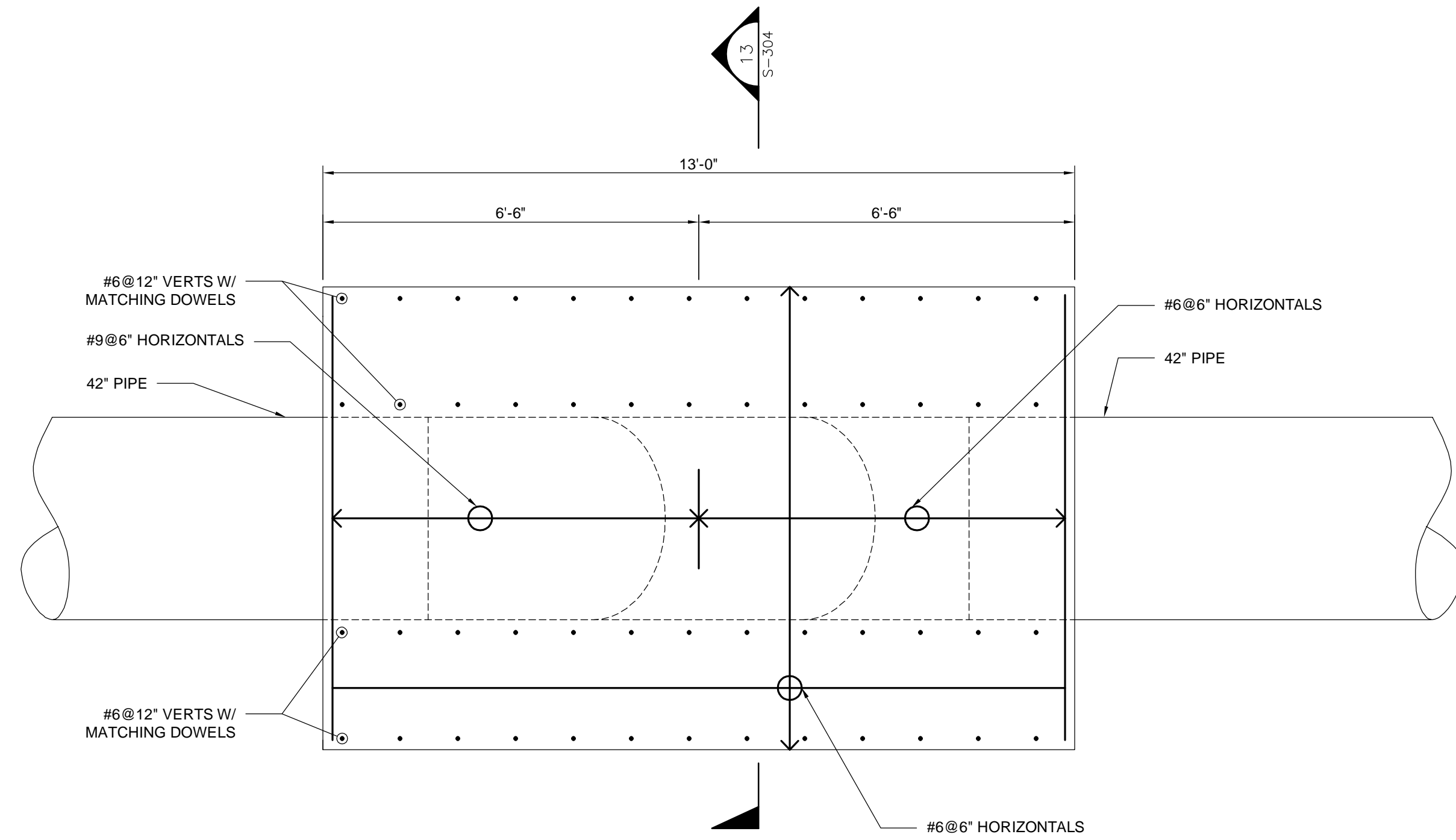
DISCIPLINE

STRUCTURAL
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EDV THRUST BLOCK

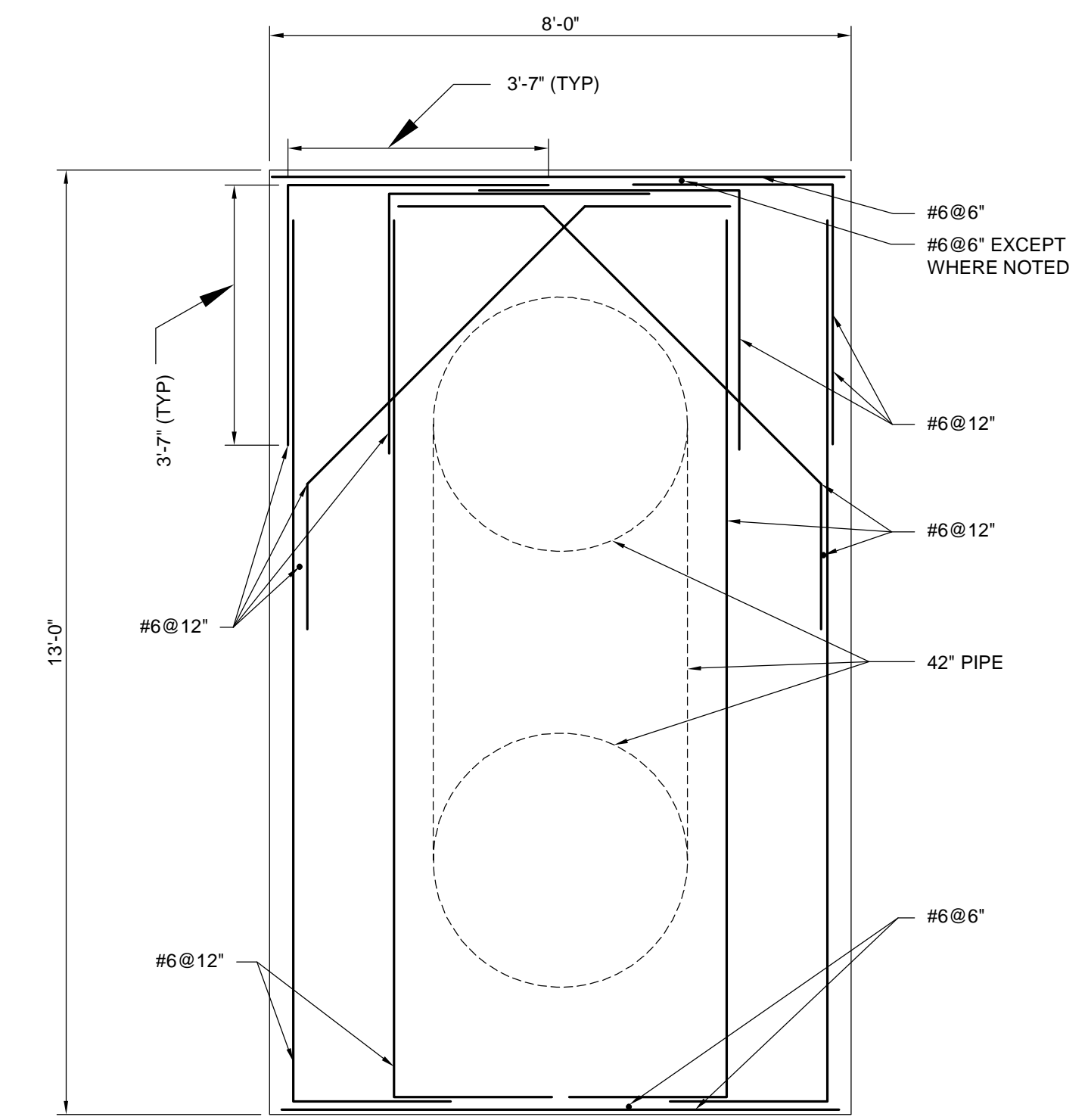
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10 S-304



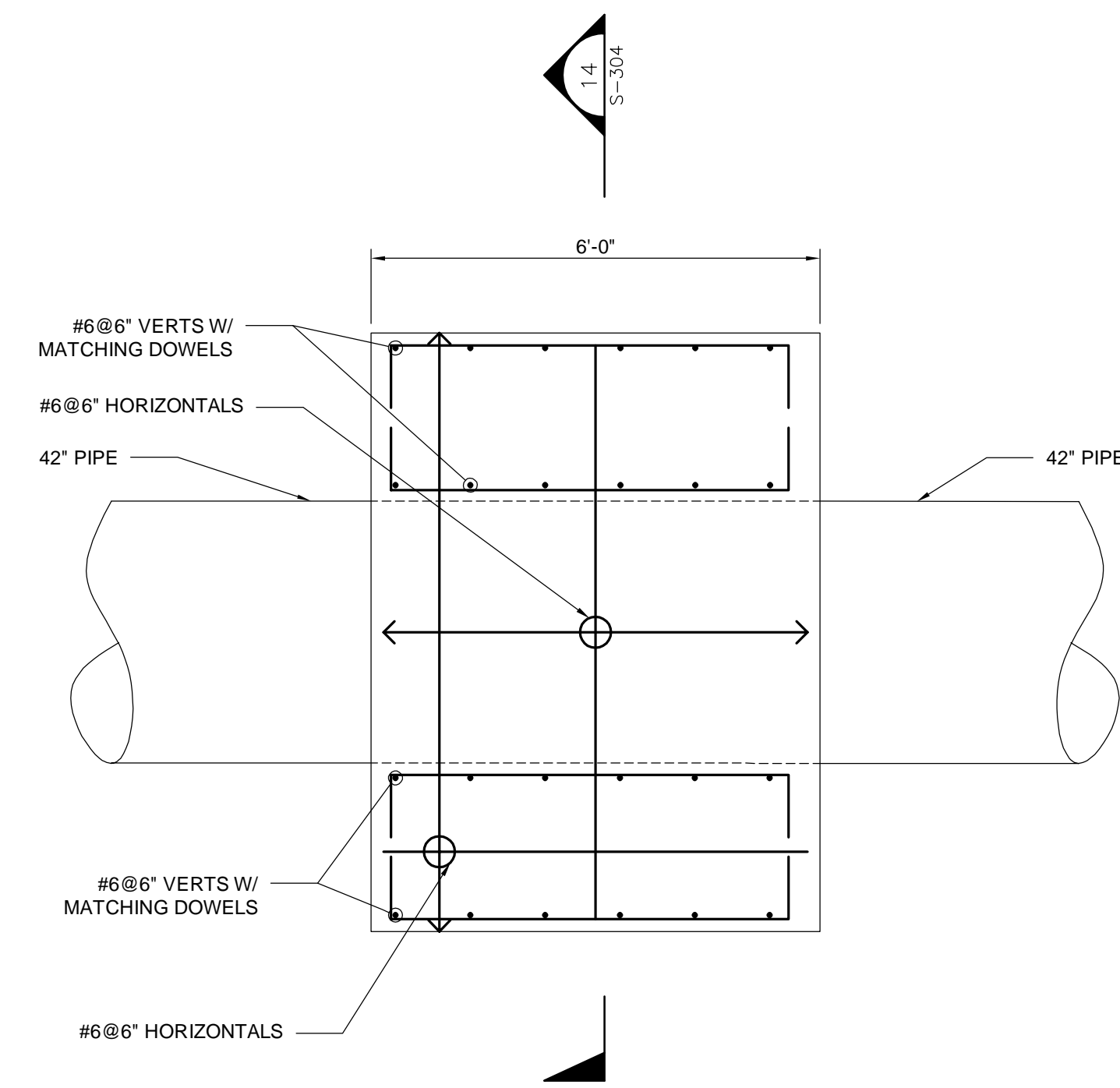
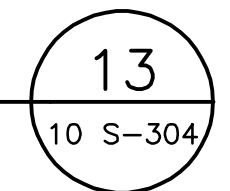
UPSTREAM THRUST BLOCK PLAN

1/2"=1'-0"



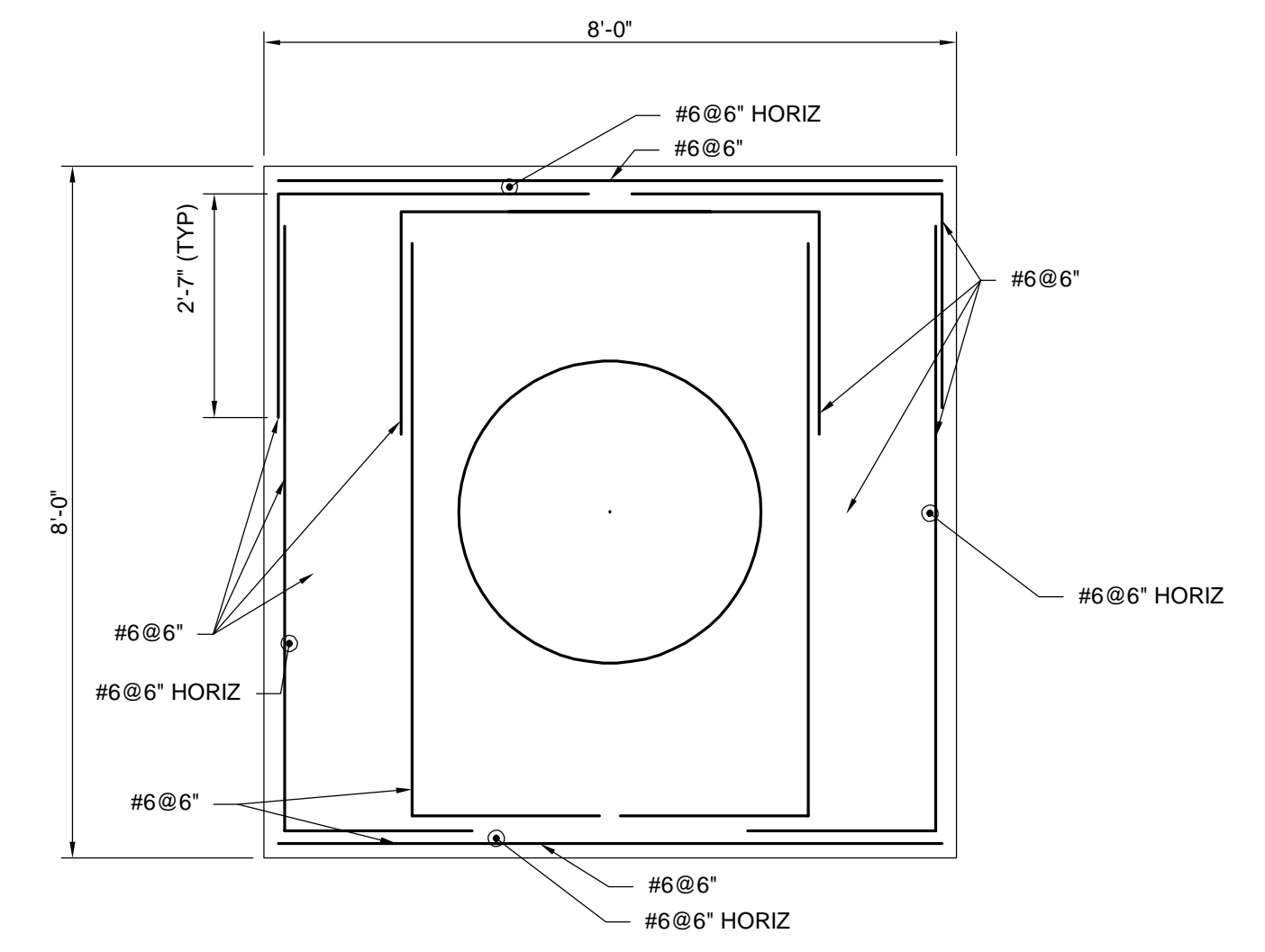
SECTION 13

1/2"=1'-0"



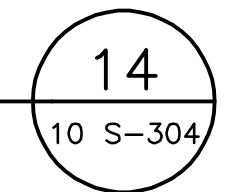
UPSTREAM CONCRETE THRUST COLLAR

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 1:45:37 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"

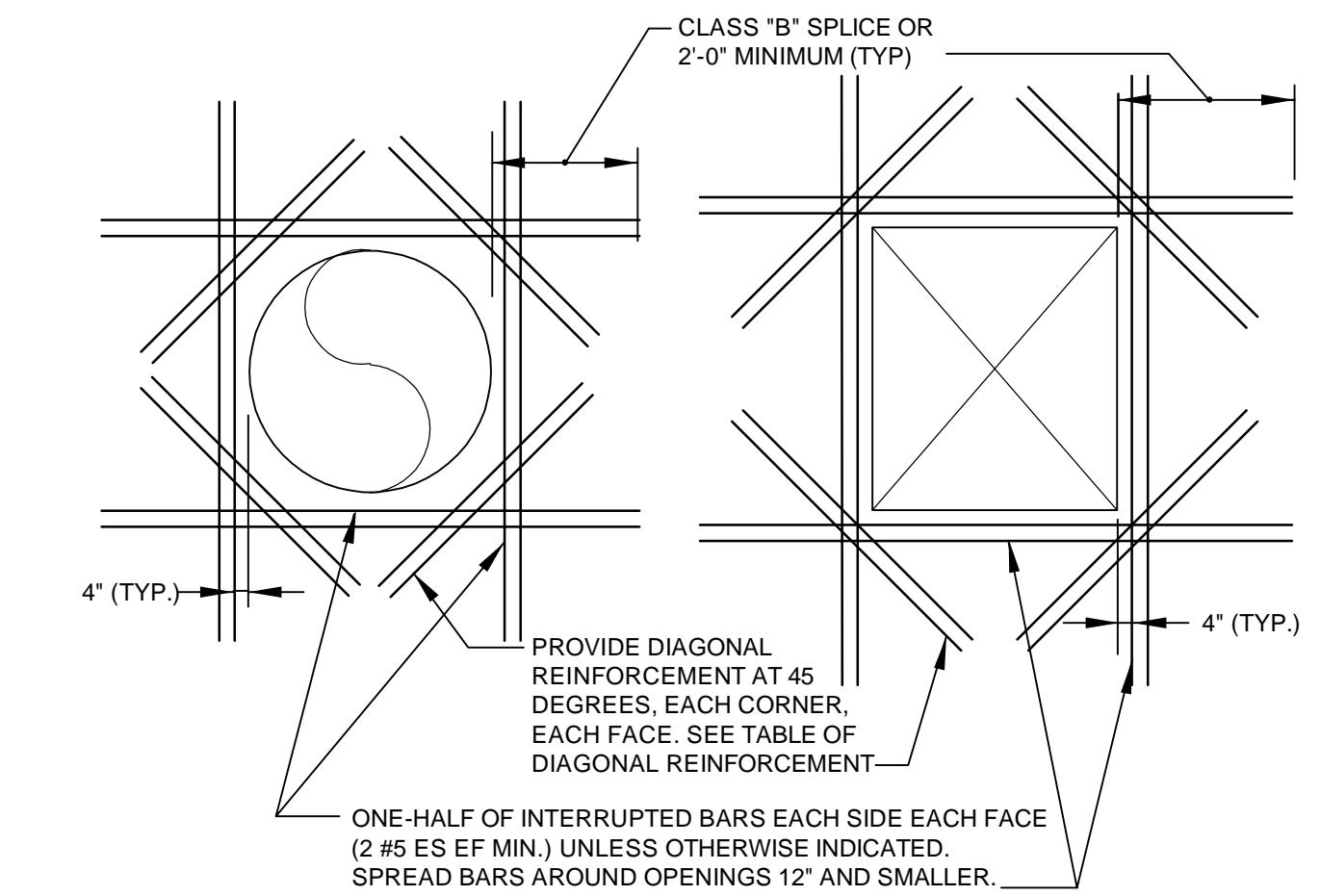
TABULATED VALUES ARE FOR NORMAL WEIGHT CONCRETE AND UNCOATED BARS THAT HAVE AT LEAST 1 1/2" OF CLEAR CONCRETE COVER AND ARE SPACED AT LEAST 3" ON CENTER.

TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS PLACED BELOW THE BAR.

REINFORCING BAR SPLICES

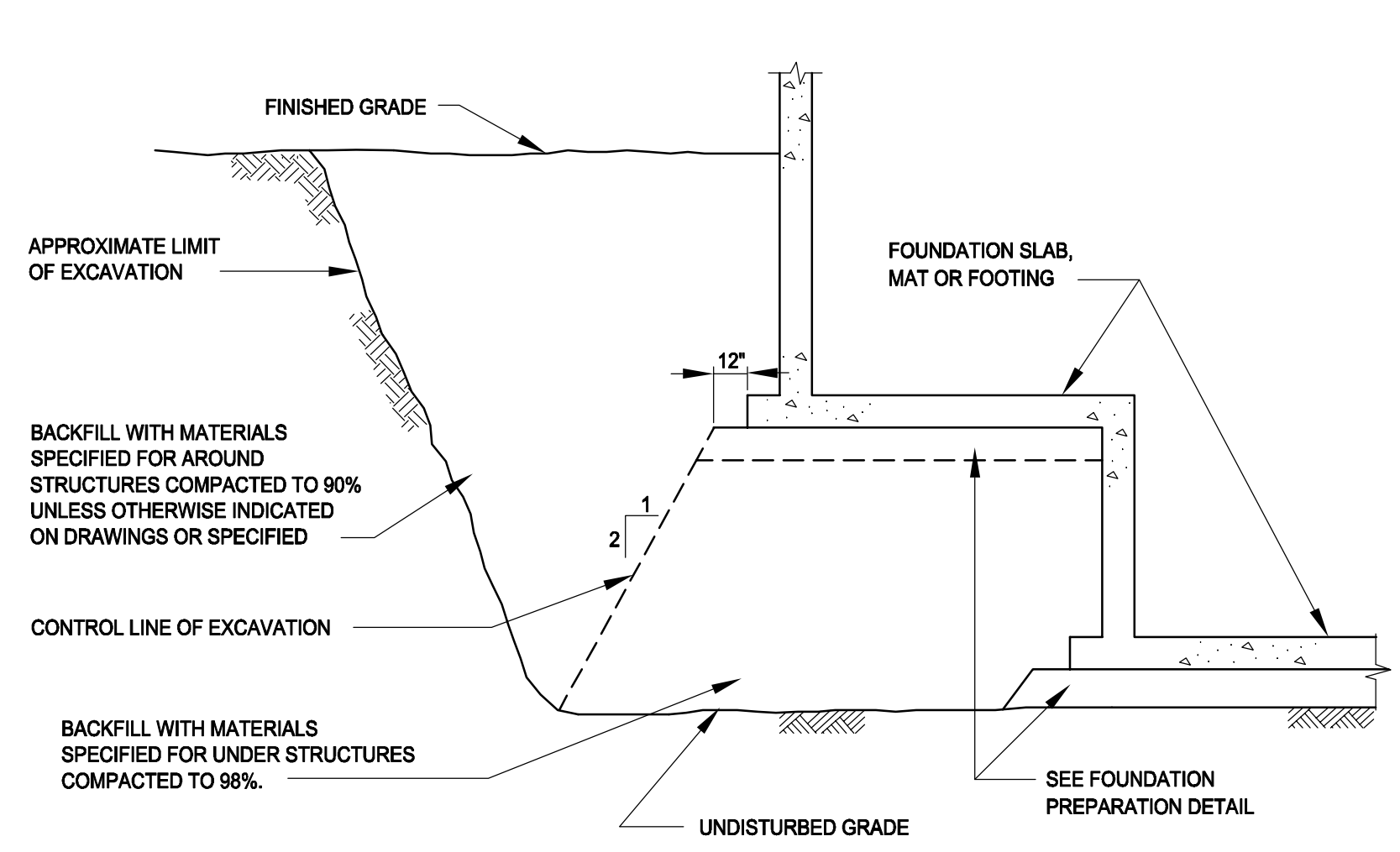
NTS (REV. 07-18-12)

TABLE OF DIAGONAL REINFORCEMENT					
MEMBER THICKNESS IN INCHES	OPENING SIZE IN INCHES	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

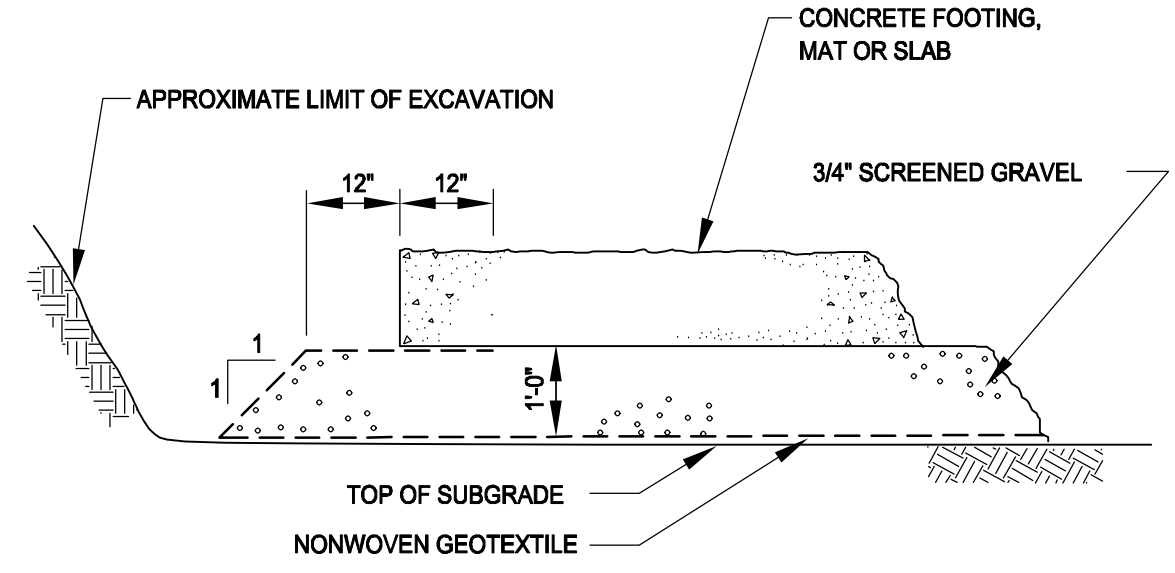
NTS



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)

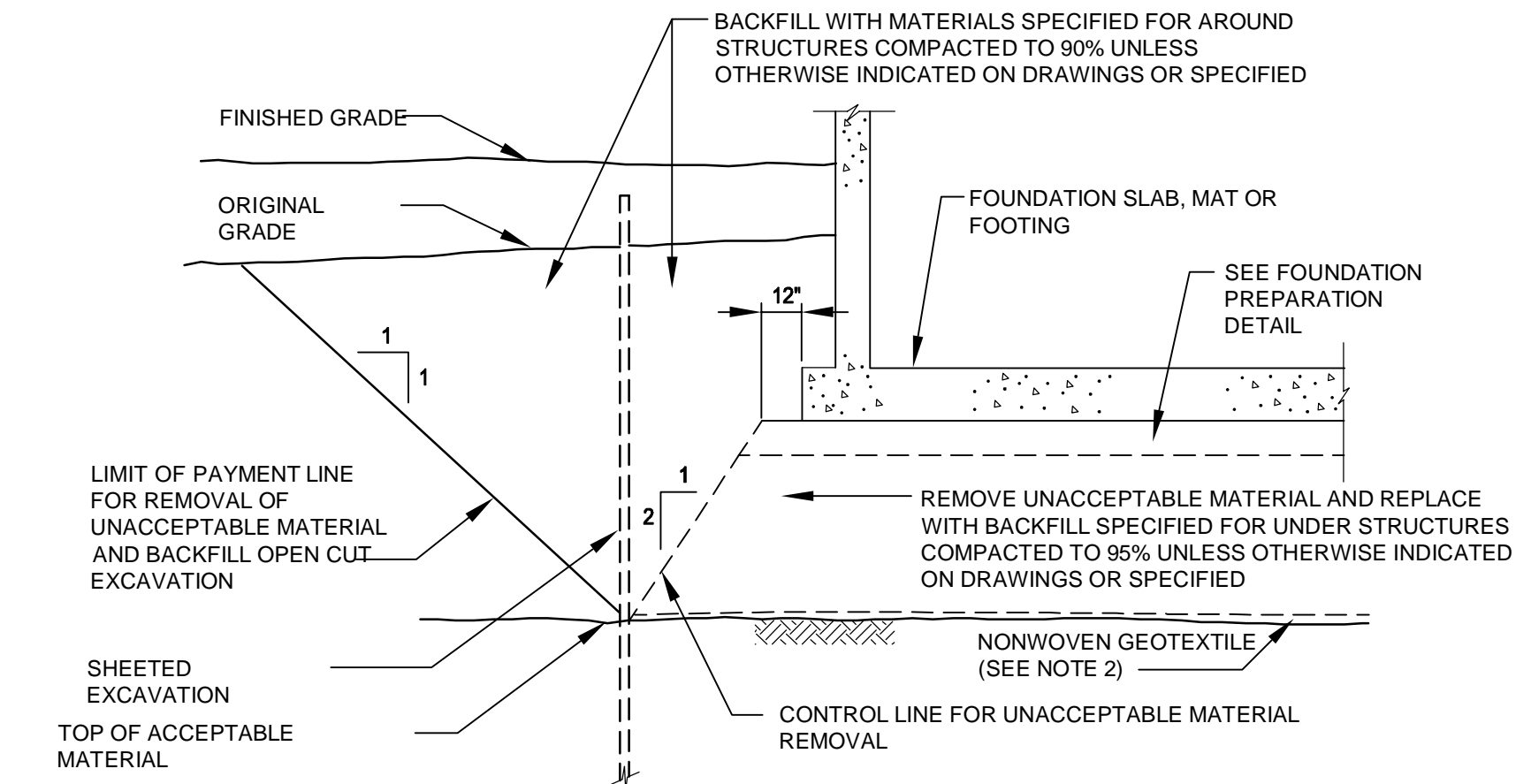


GRADATION REQUIREMENTS	
SIEVE SIZE	PERCENTAGE BY WEIGHT PASSING
3/4"	100
3/8"	90 - 100
#4	20 - 55
#8	0 - 10
#16	0 - 5

NOTE: CONFORM TO GEOTEXTILE SPECIFICATIONS.

FOUNDATION PREPARATION WITH GEOTEXTILE

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

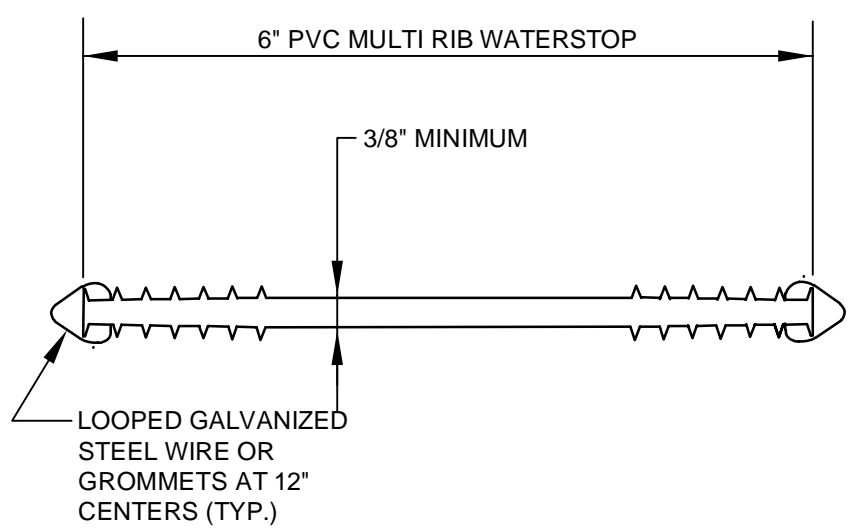


NOTES:

- 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

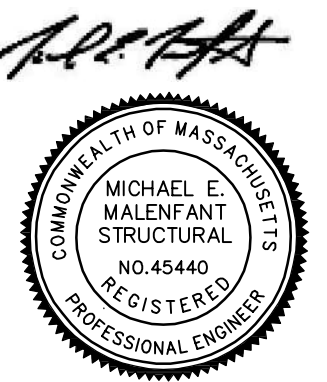
CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION

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

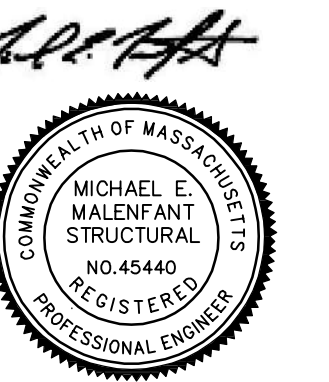
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STRUCTURAL STANDARD DETAILS

SHEET NUMBER

99 S-501

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13 FEBRUARY 2024

I/R	DATE	DESCRIPTION

60662775

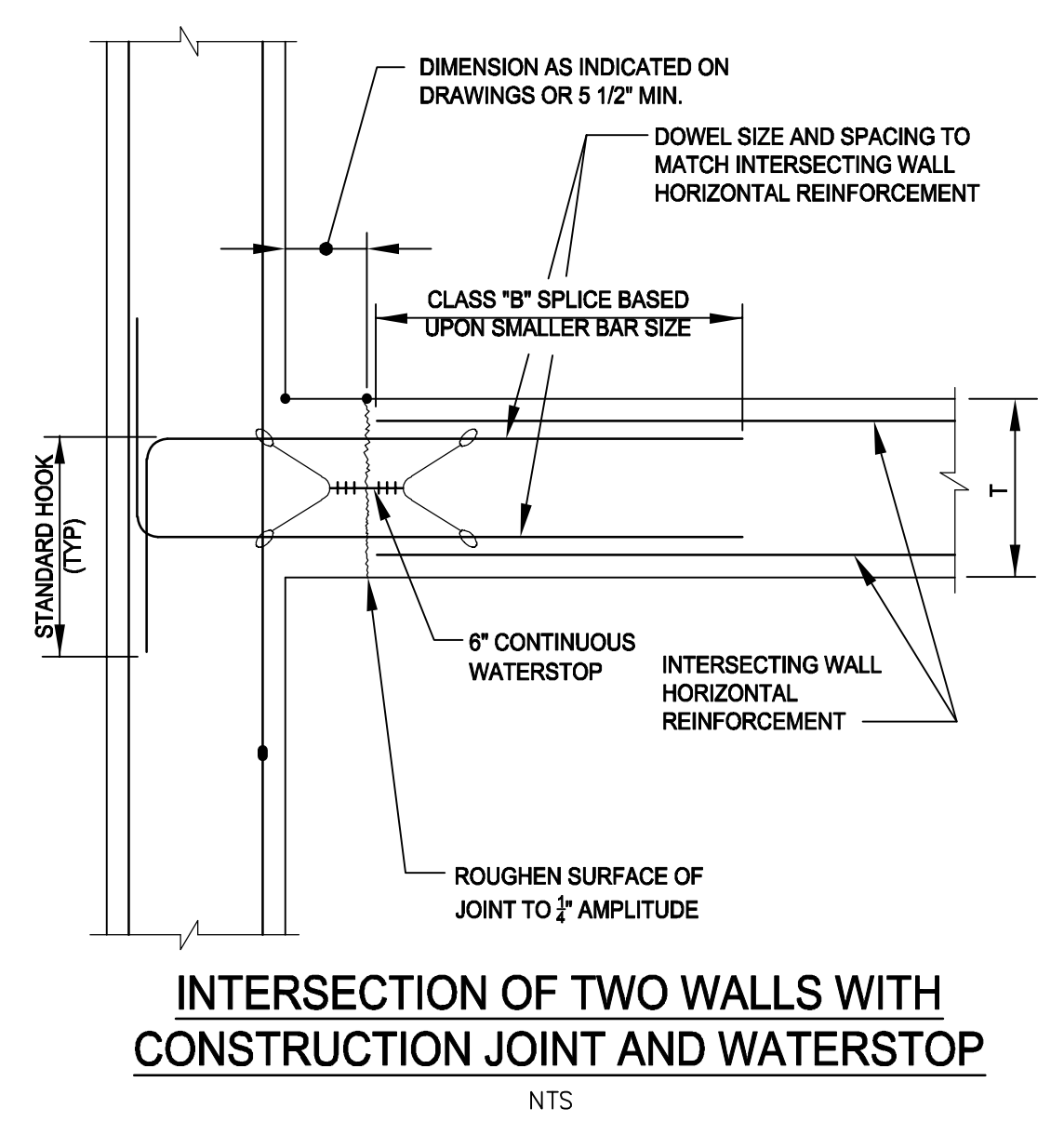
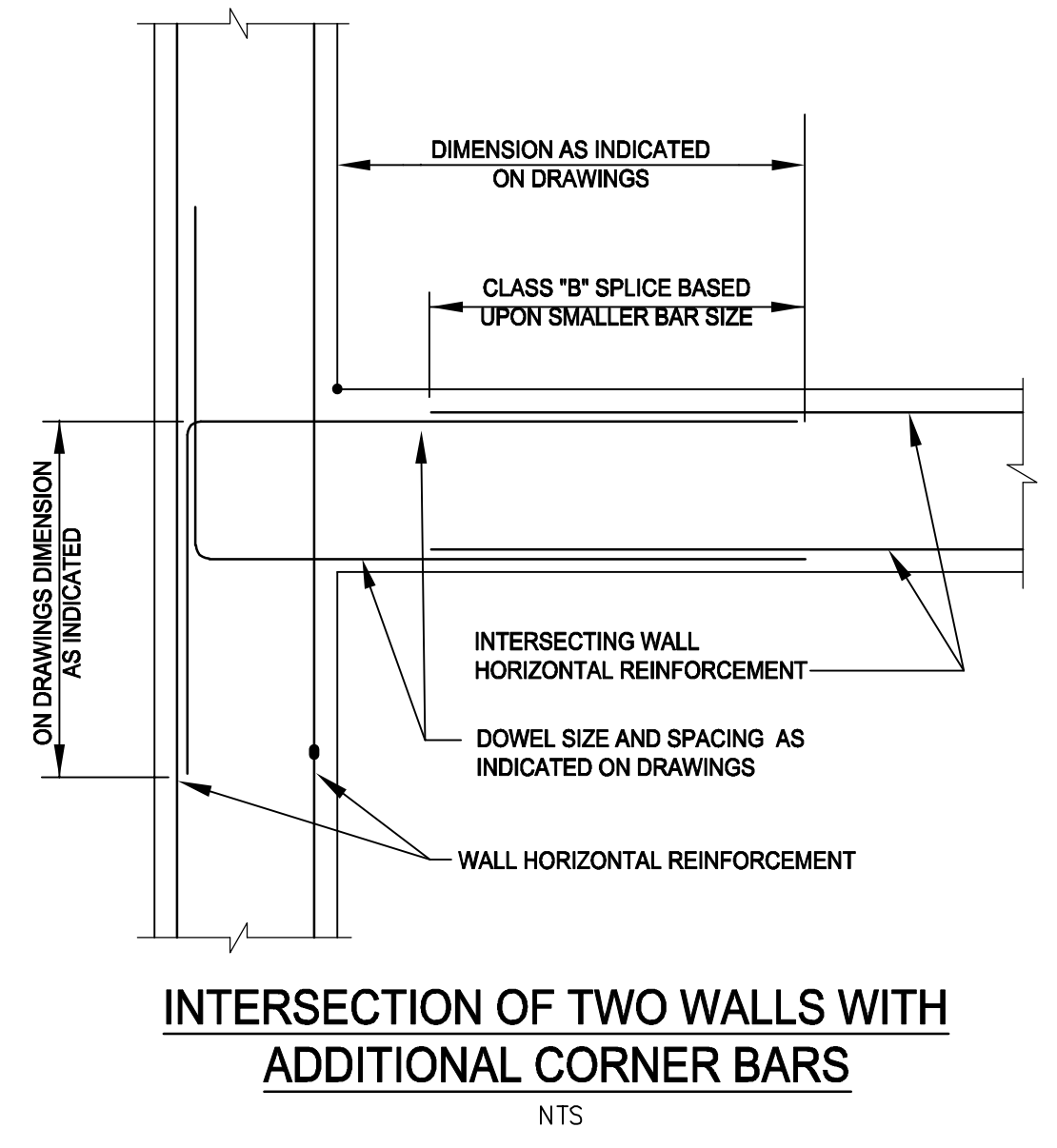
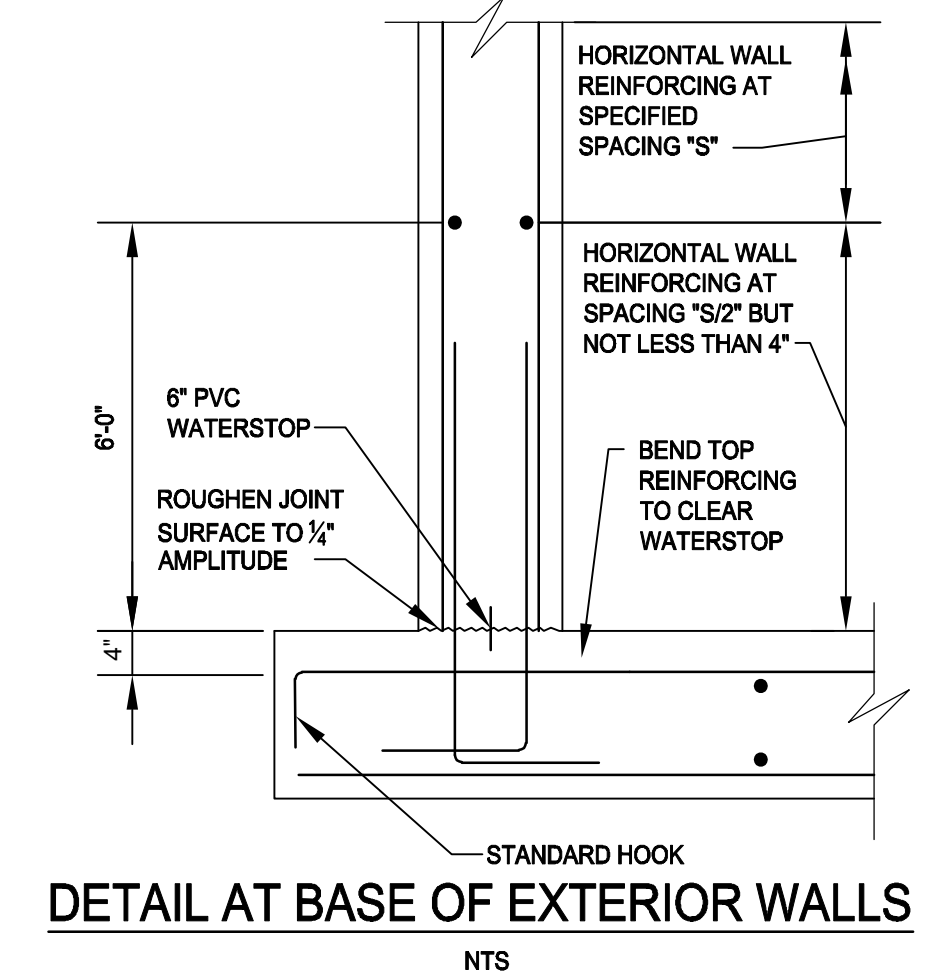
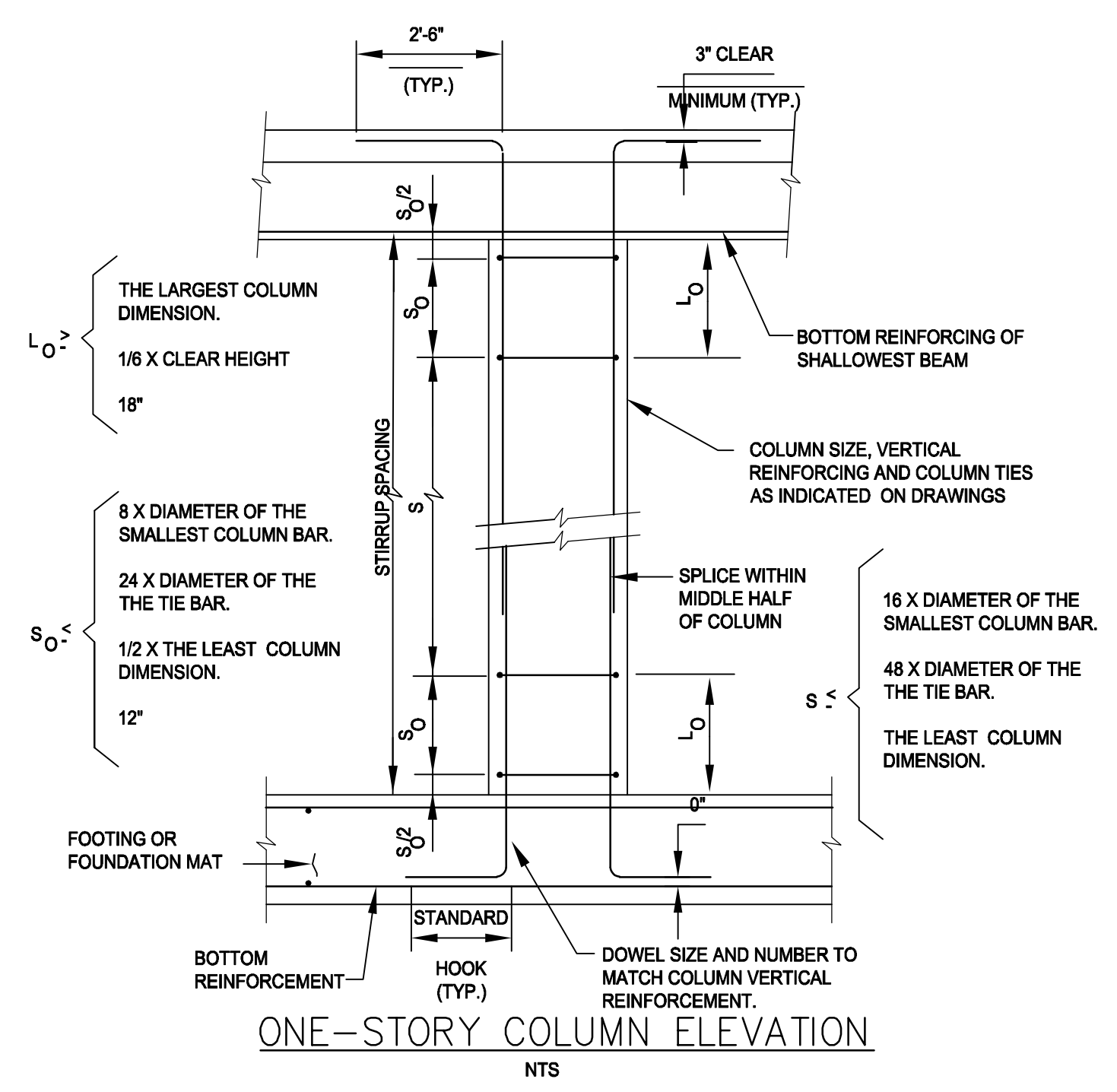
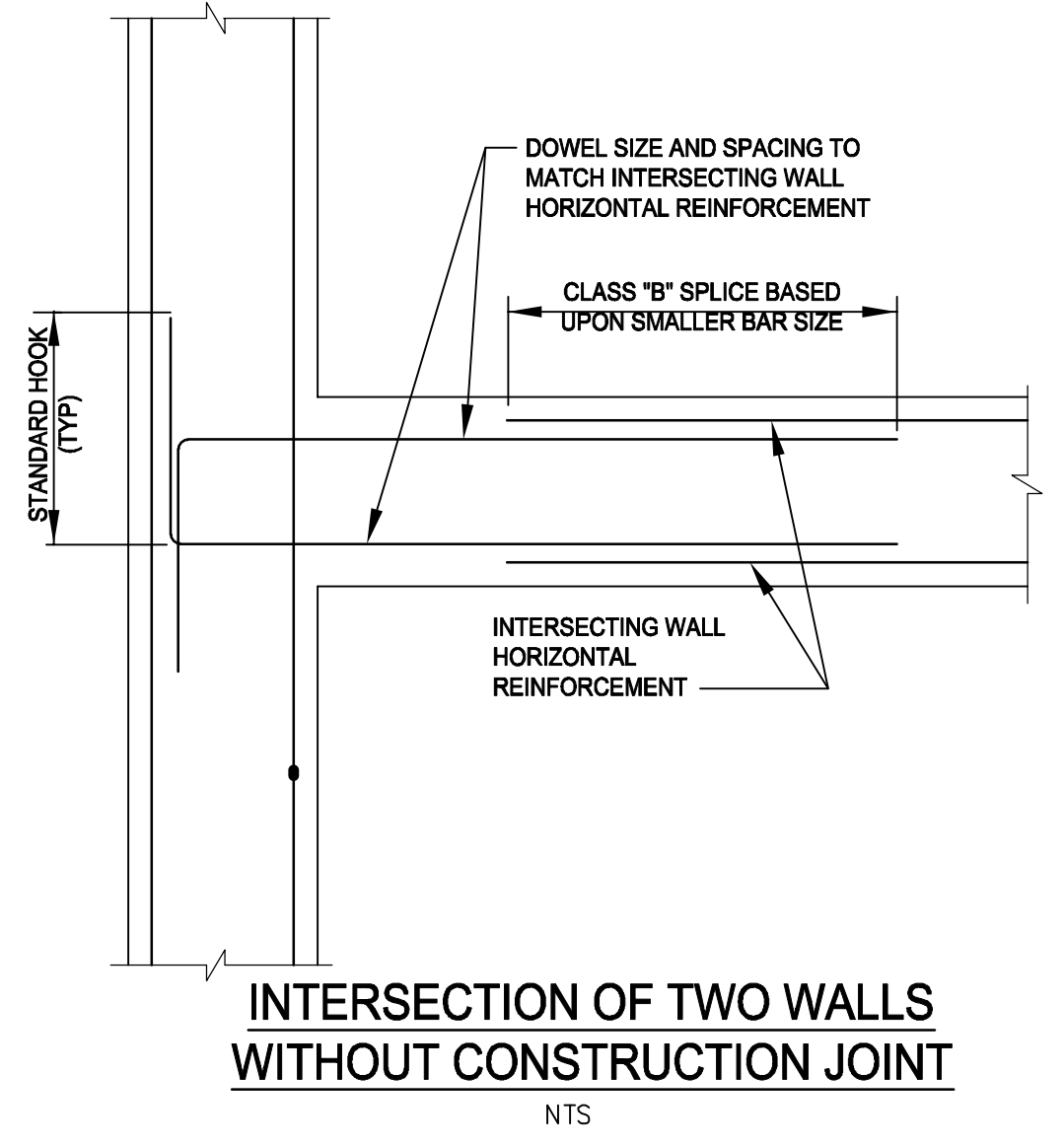
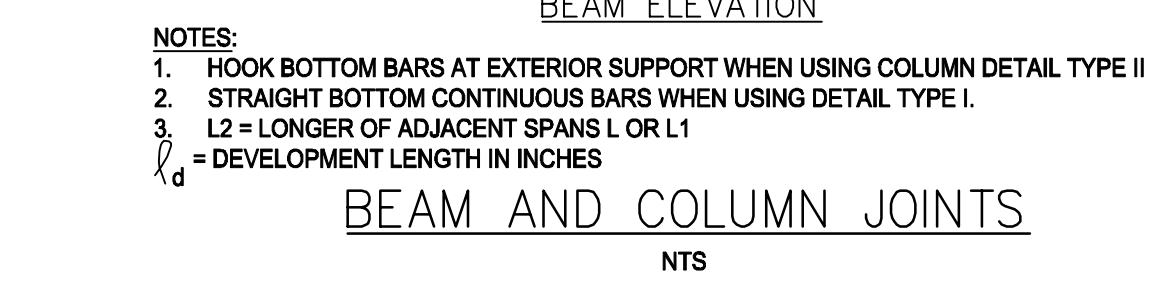
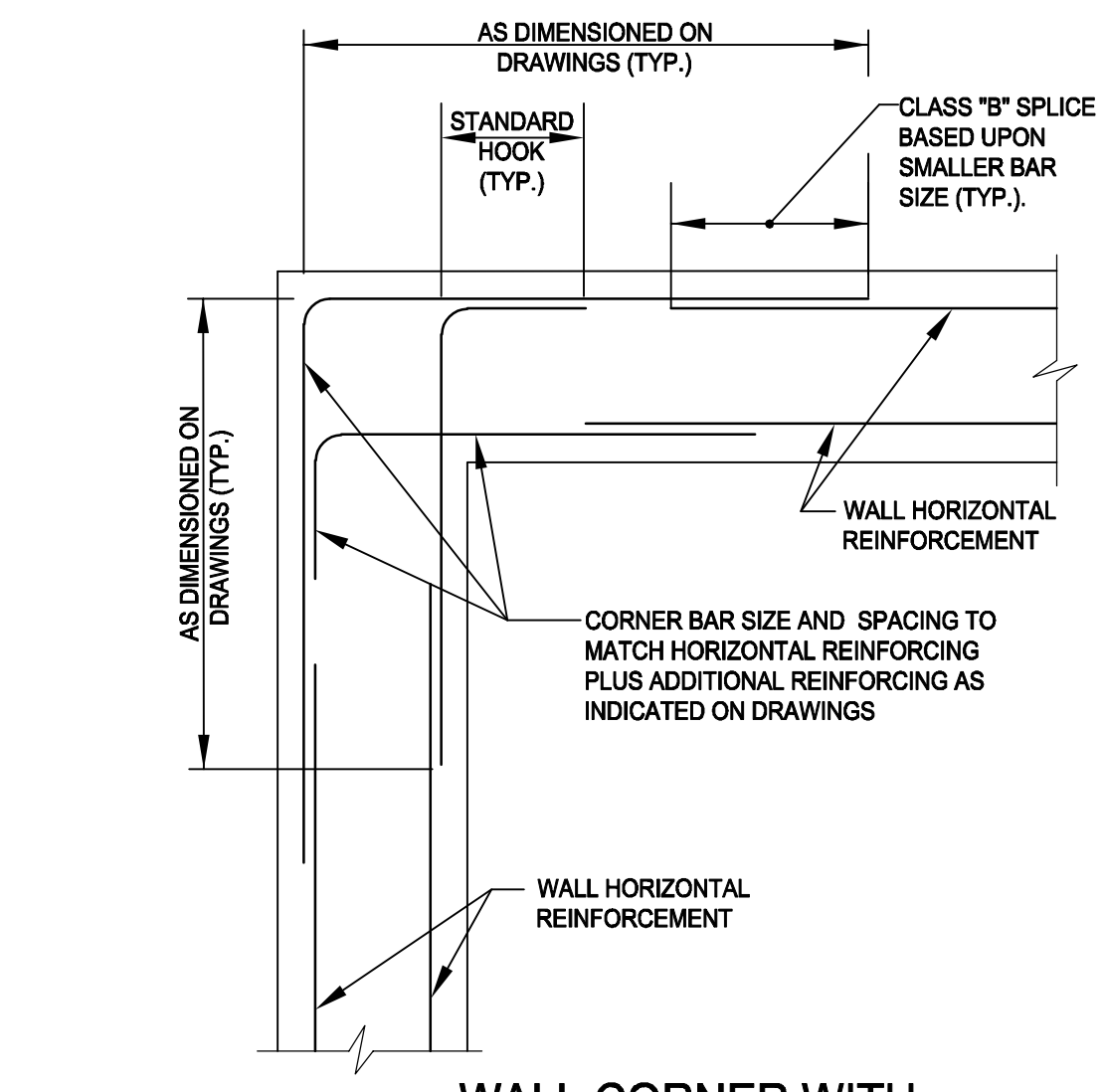
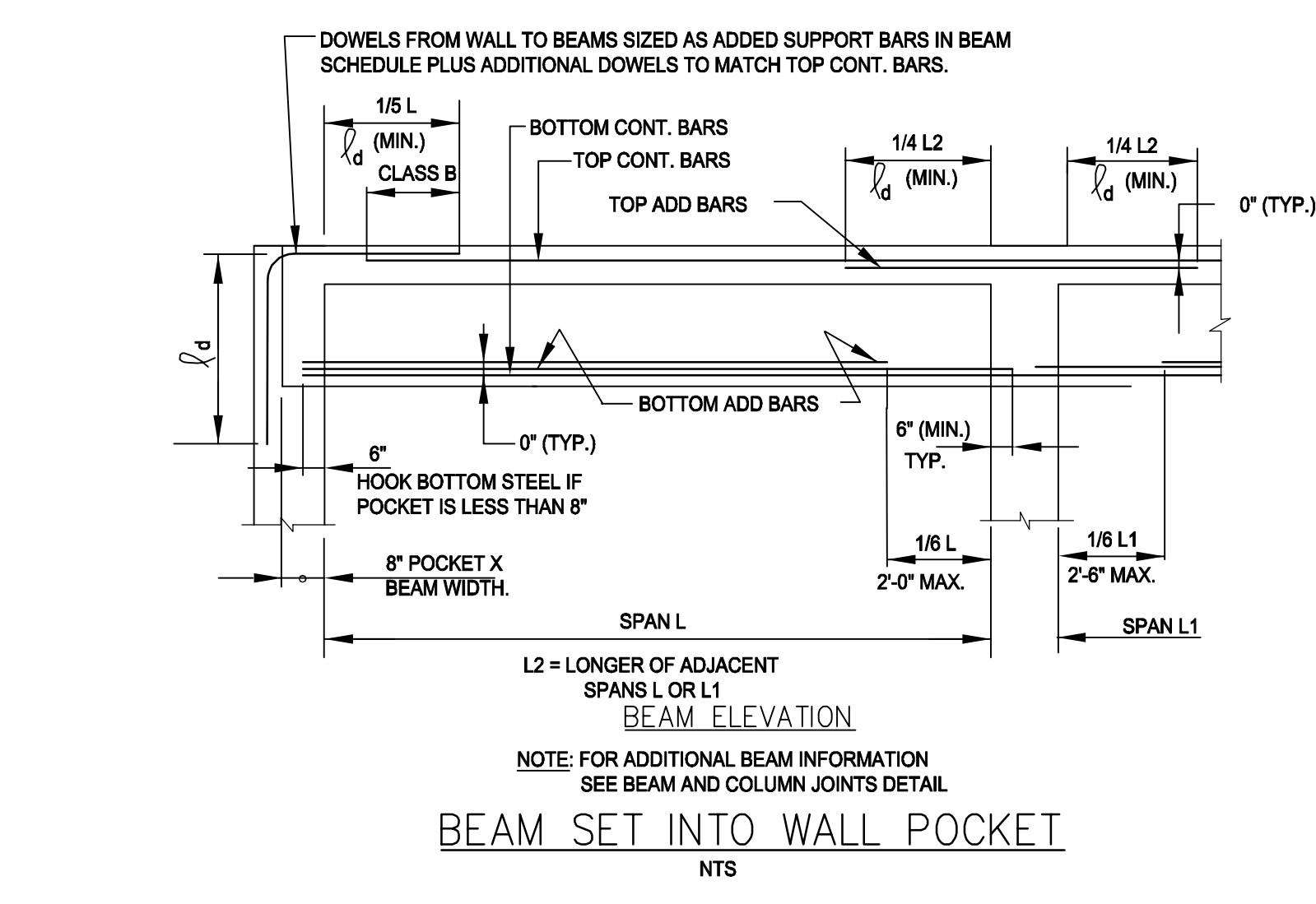
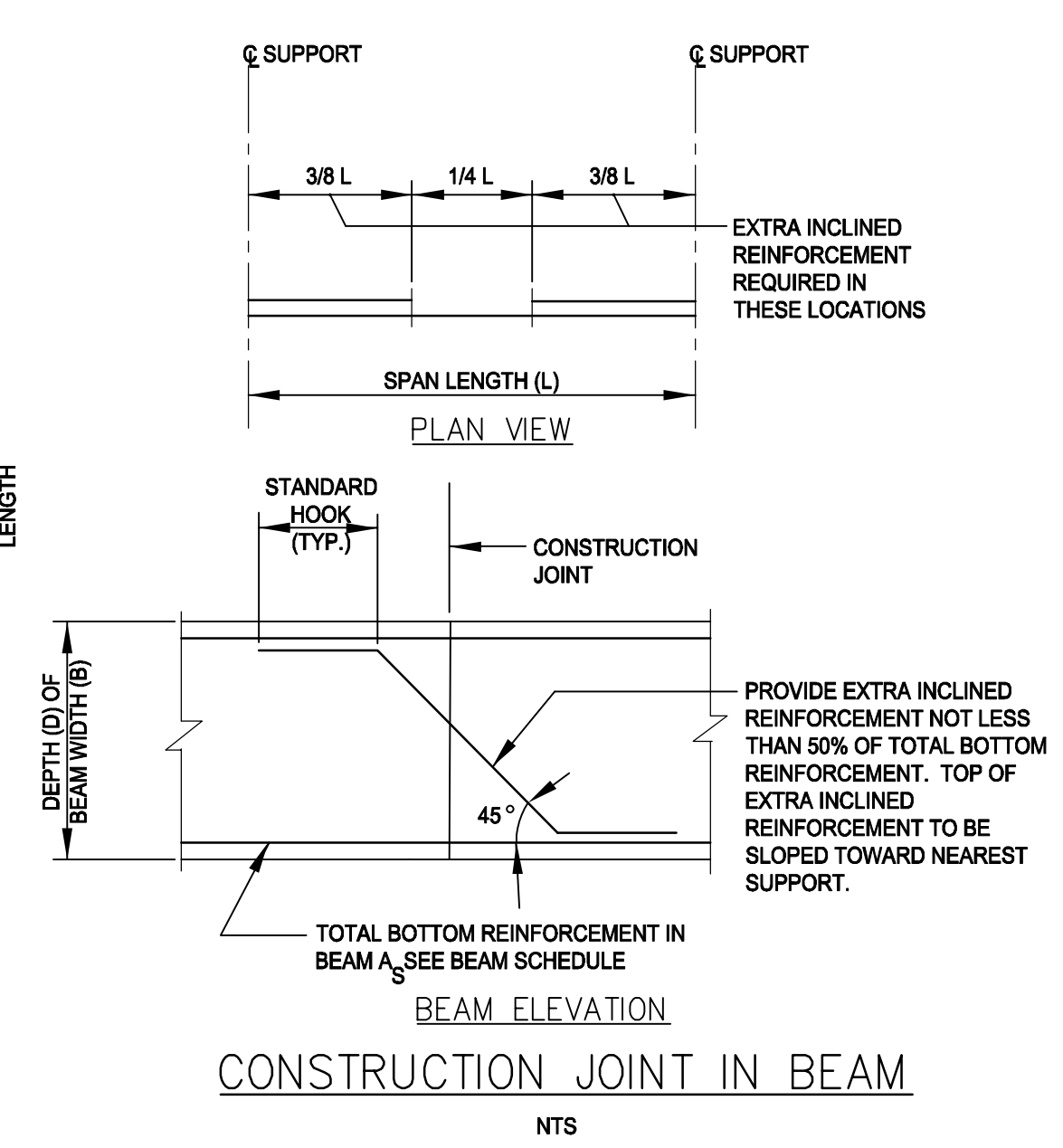
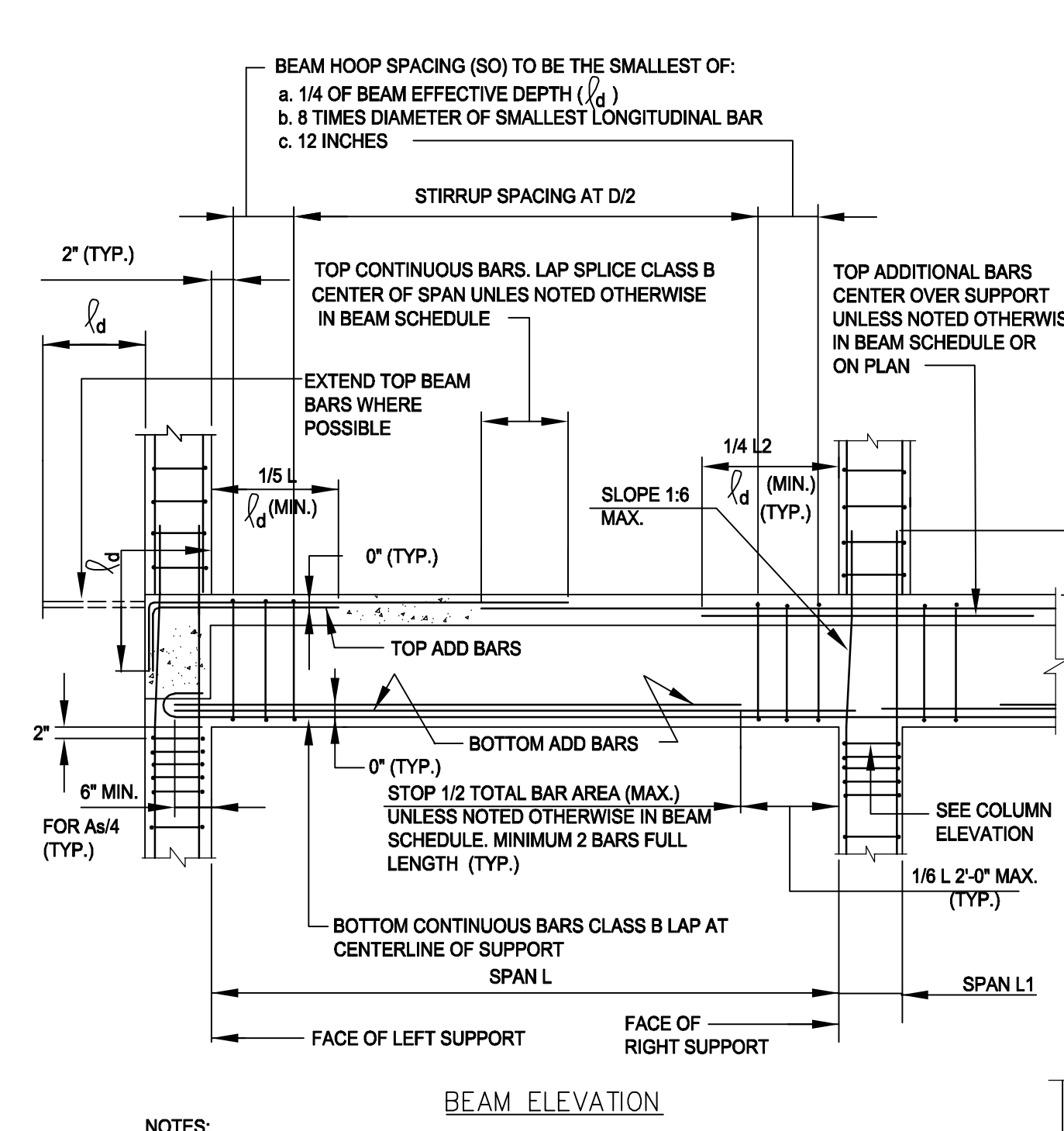
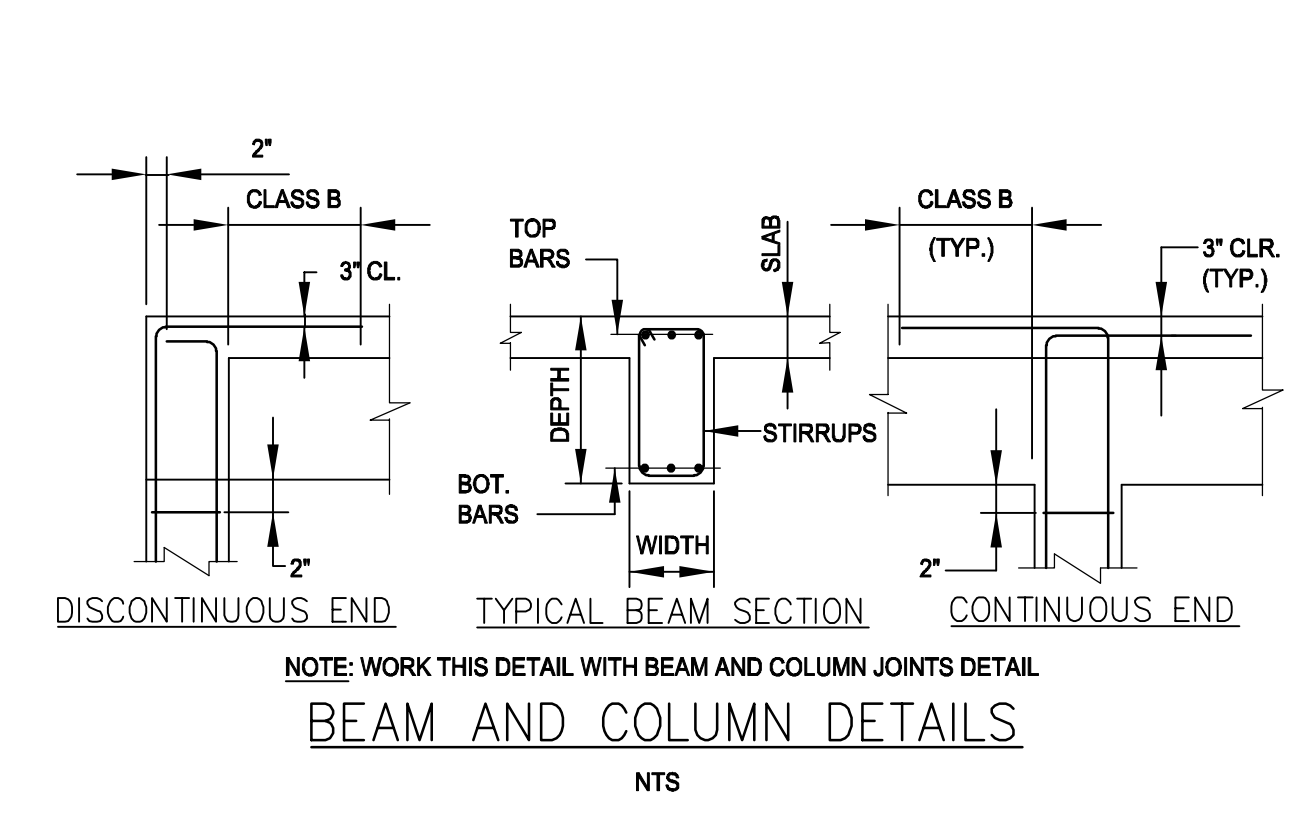
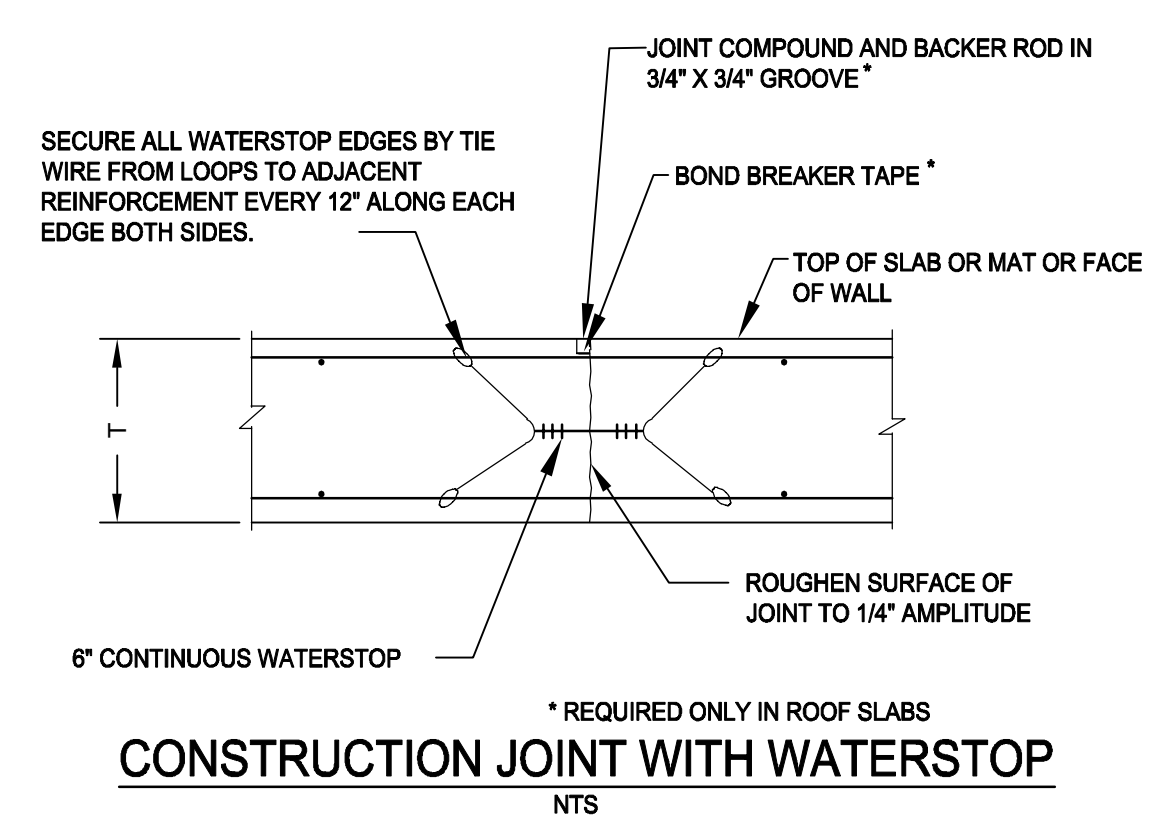
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Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NTS

STRUCTURAL

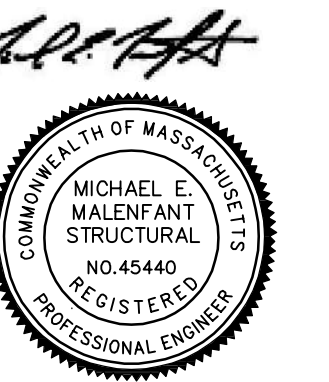
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STRUCTURAL STANDARD DETAILS II

99 S-502



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 PLOT DATE: Wednesday, February 14, 2024 1:46:15 PM



13 FEBRUARY 2024

I/R	DATE	DESCRIPTION

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Drawn By: CS

Dept Check: MM

Proj Check: TAL/MCW

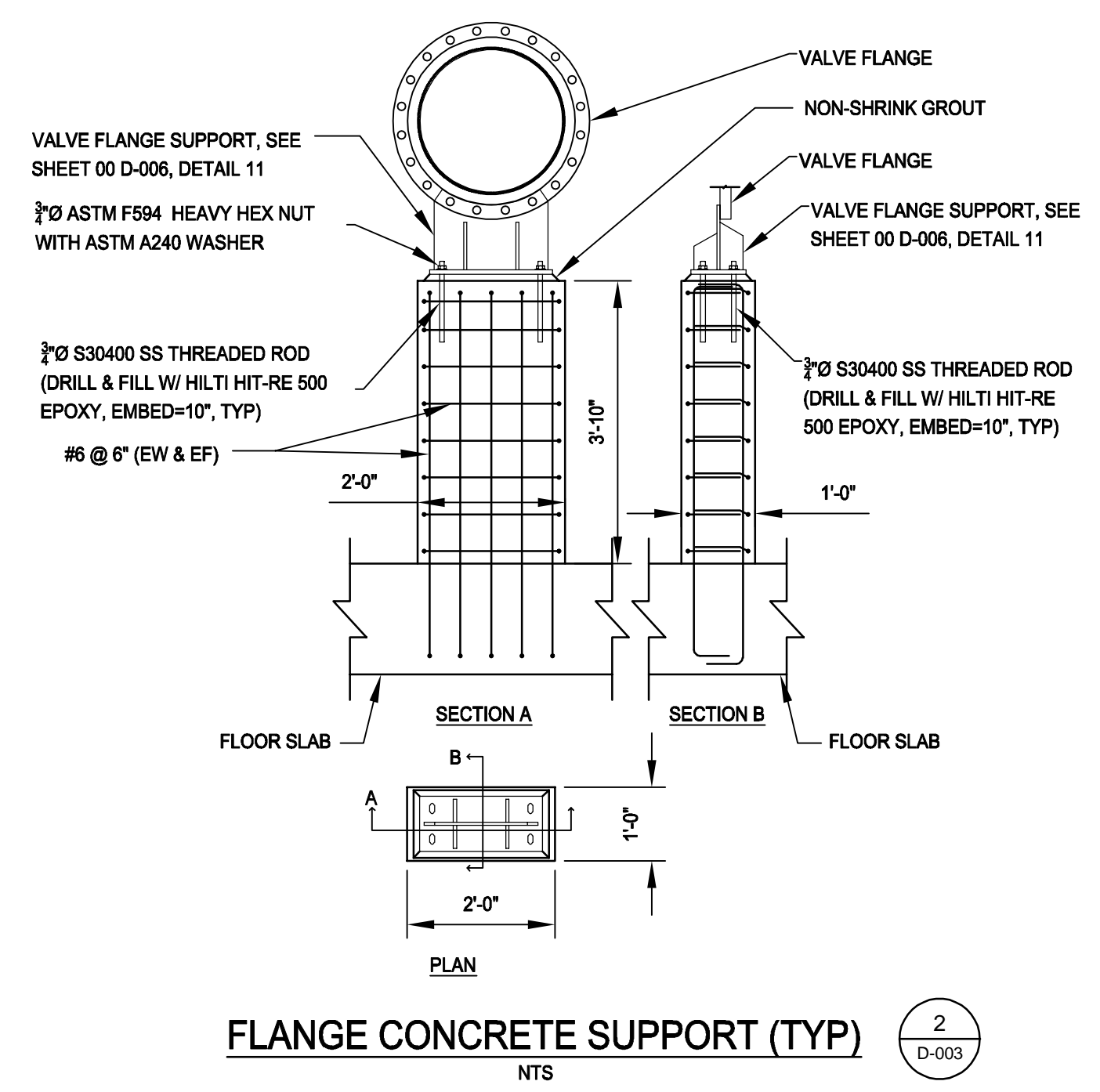
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STRUCTURAL

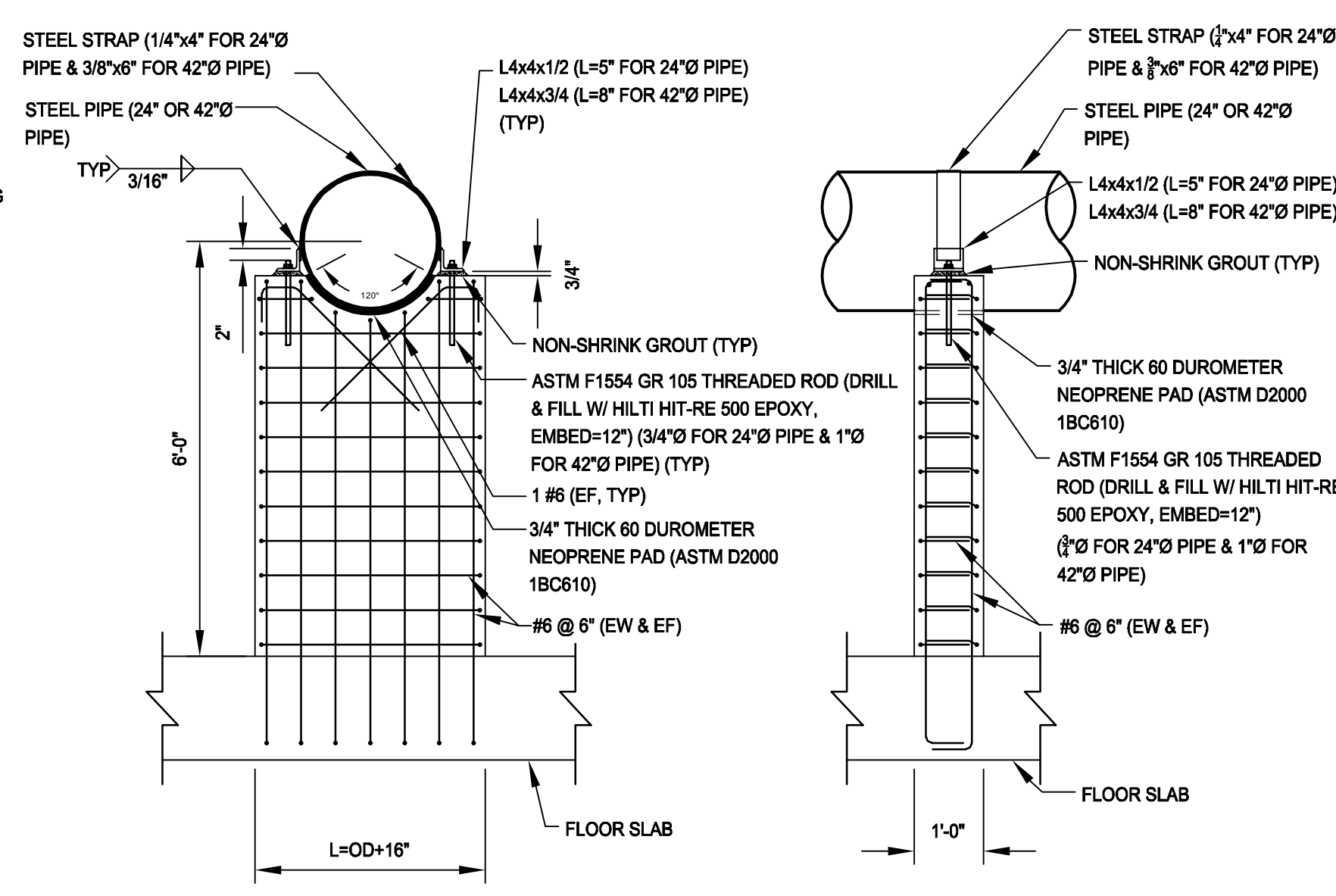
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99 S-503



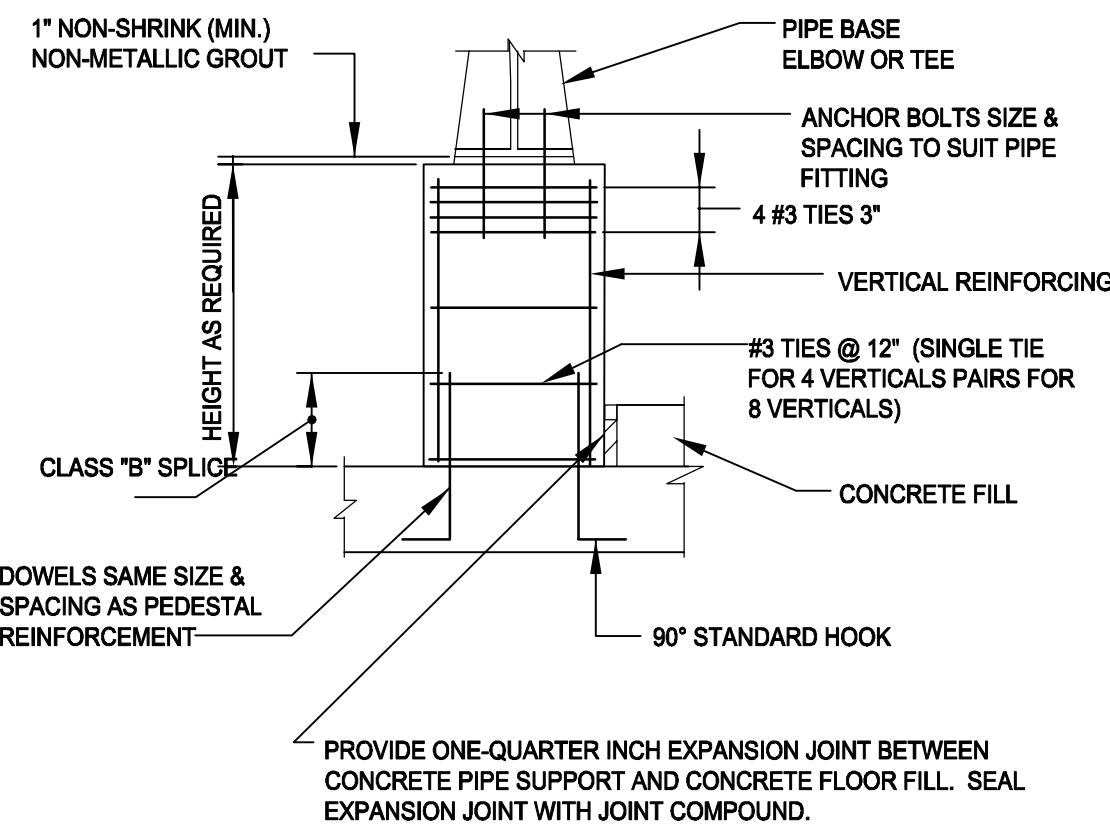
FLANGE CONCRETE SUPPORT (TYP)
 NTS

2
 D-003



PIPE SADDLE SUPPORT
 NTS

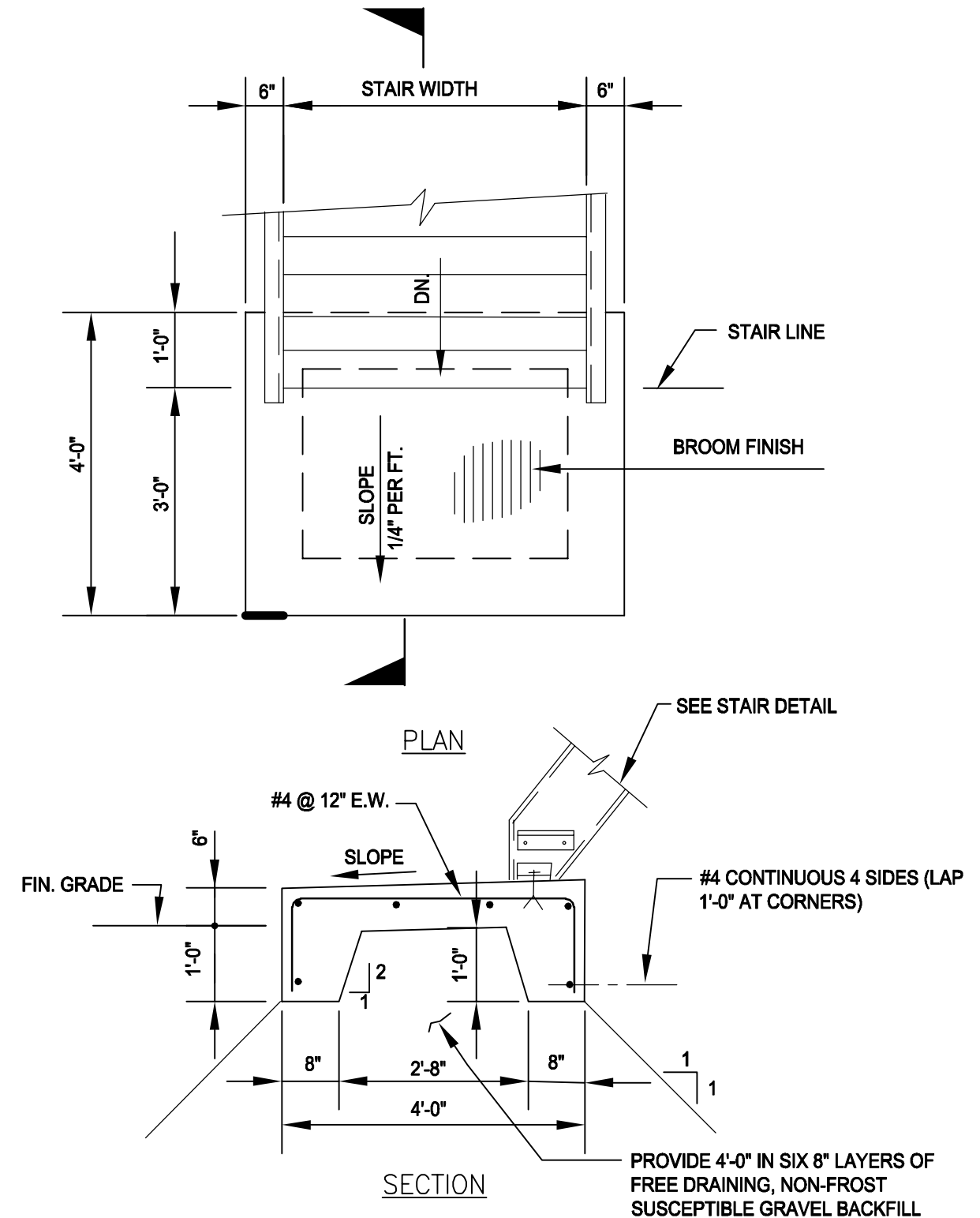
1
 D-003



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

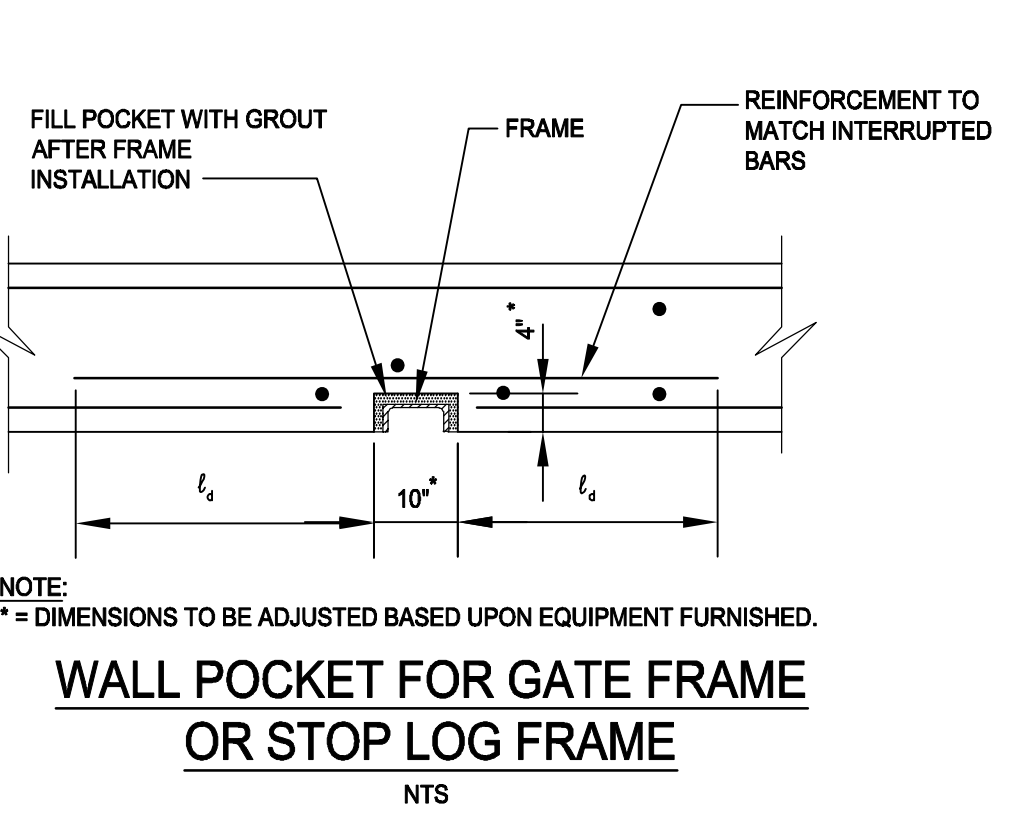
CONCRETE PIPE BASE SUPPORT FOR NEW CONSTRUCTION
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PEDESTAL SIZE BASED UPON TABULATED BOLT CIRCLE. PEDESTAL SIZE SHALL BE NOT LESS THAN 6 INCHES LARGER THAN THE ACTUAL BOLT CIRCLE.

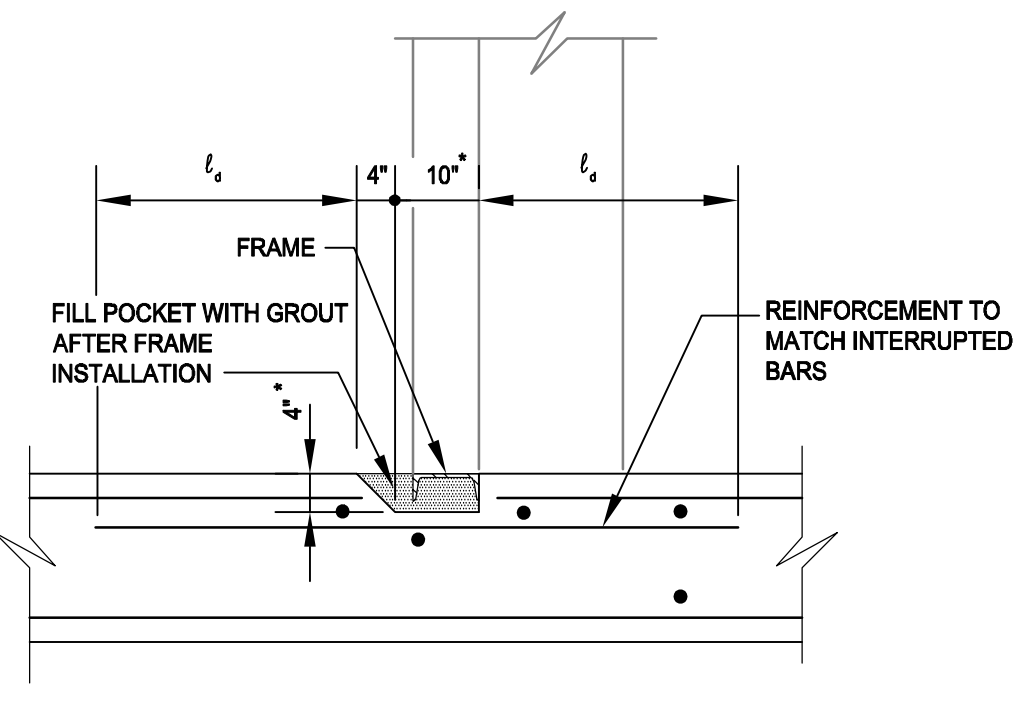


EXTERIOR STAIR LANDING
 NTS

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.

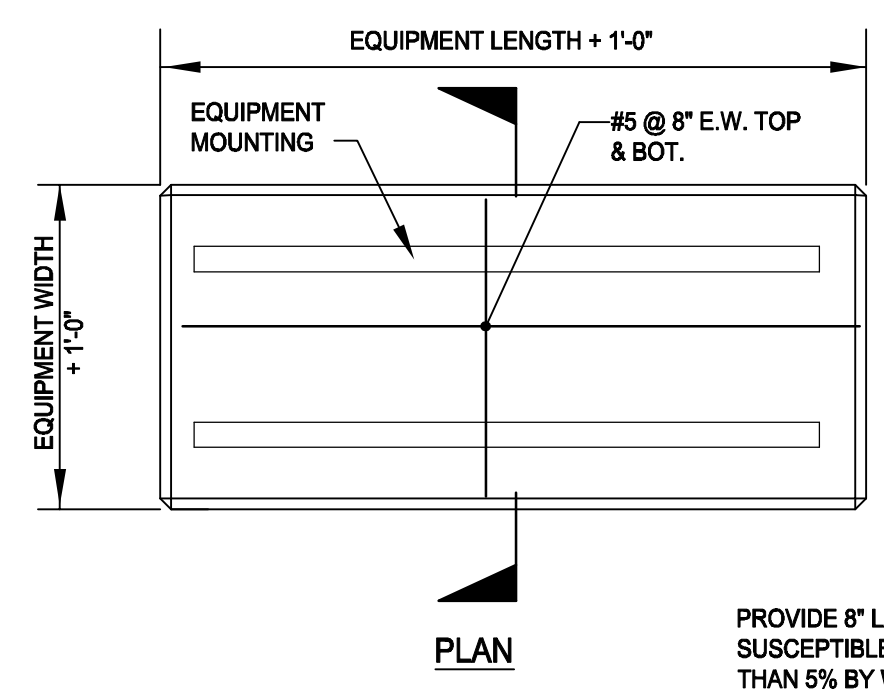


WALL POCKET FOR GATE FRAME OR STOP LOG FRAME
 NTS



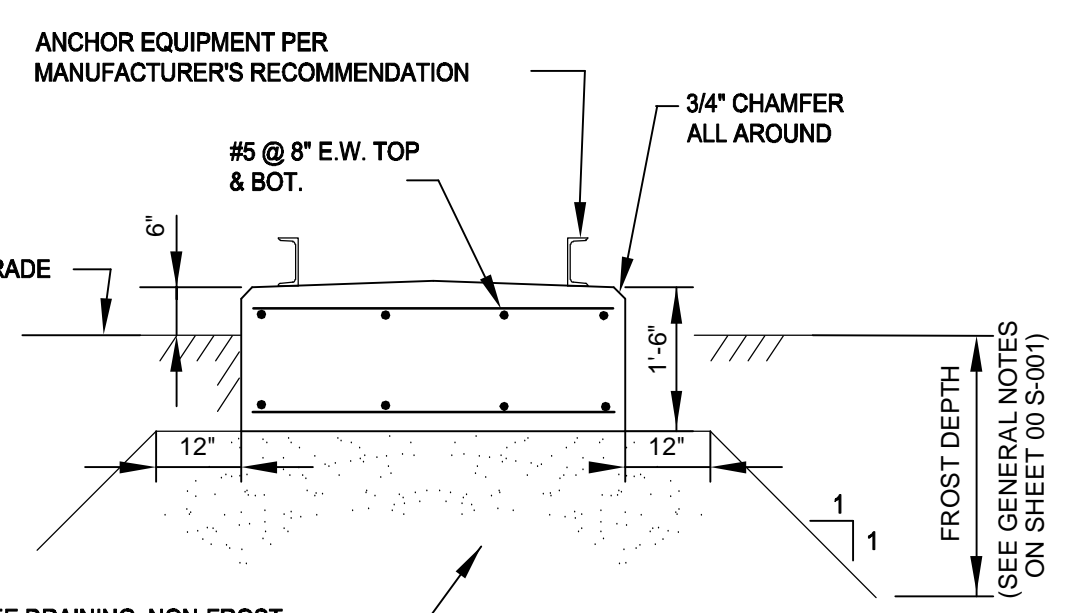
SLAB POCKET FOR GATE FRAME OR STOP LOG FRAME
 NTS

NOTE: * = DIMENSIONS TO BE ADJUSTED BASE UPON EQUIPMENT FURNISHED.



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

#5 @ 8" E.W. TOP & BOT.

3/4" CHAMFER ALL AROUND

FIN. GRADE

1'-6"

1'-6"

1'-6"

FROST DEPTH (SEE GENERAL NOTES ON SHEET 00 S-001)

PATH: I:\AECOM\NET\COM\FILES\AMERICAN\CHLMSFD\USCHL\TDCS\PROJECTS\WTR\60662775_SVSC_WPF_HYDRO_ELECT_PDR\000_CAD\20-SHEETS\SS99-S-503.DWG
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 PLOT DATE: Wednesday, February 14, 2024 1:46:36 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

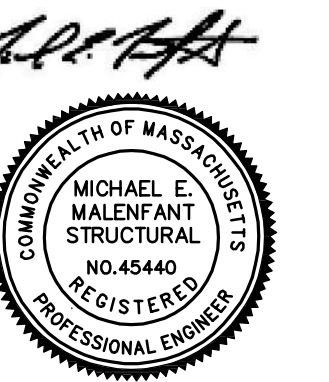
SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
 AGAWAM, MA 01001

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

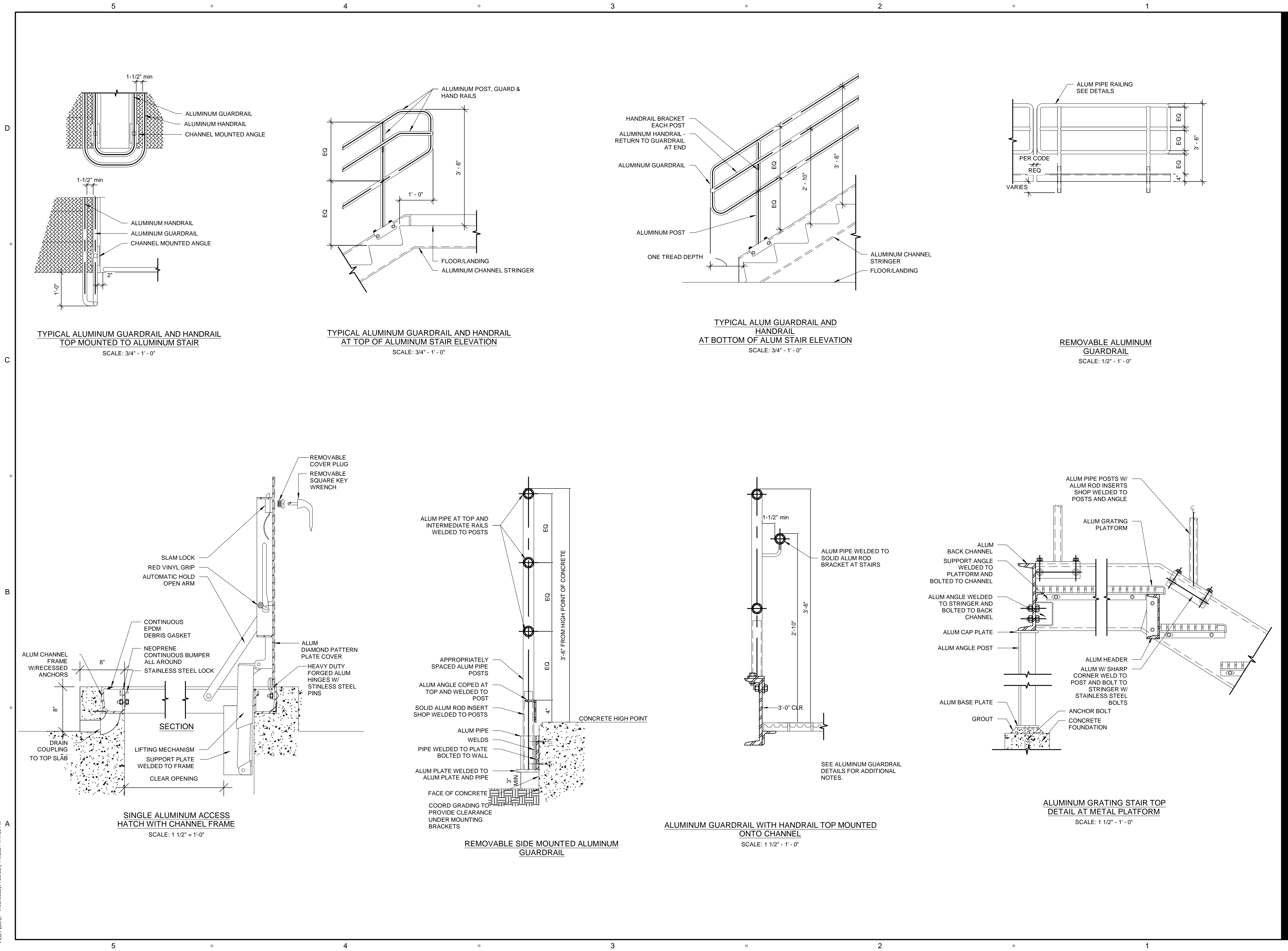
DISCIPLINE

STRUCTURAL
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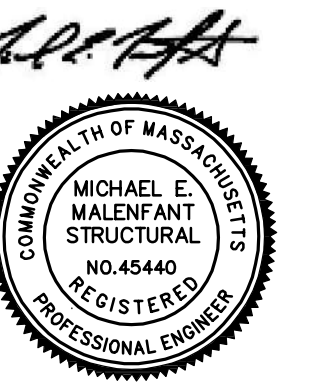
STRUCTURAL DETAILS IV

SHEET NUMBER

99 S-504



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13 FEBRUARY 2024

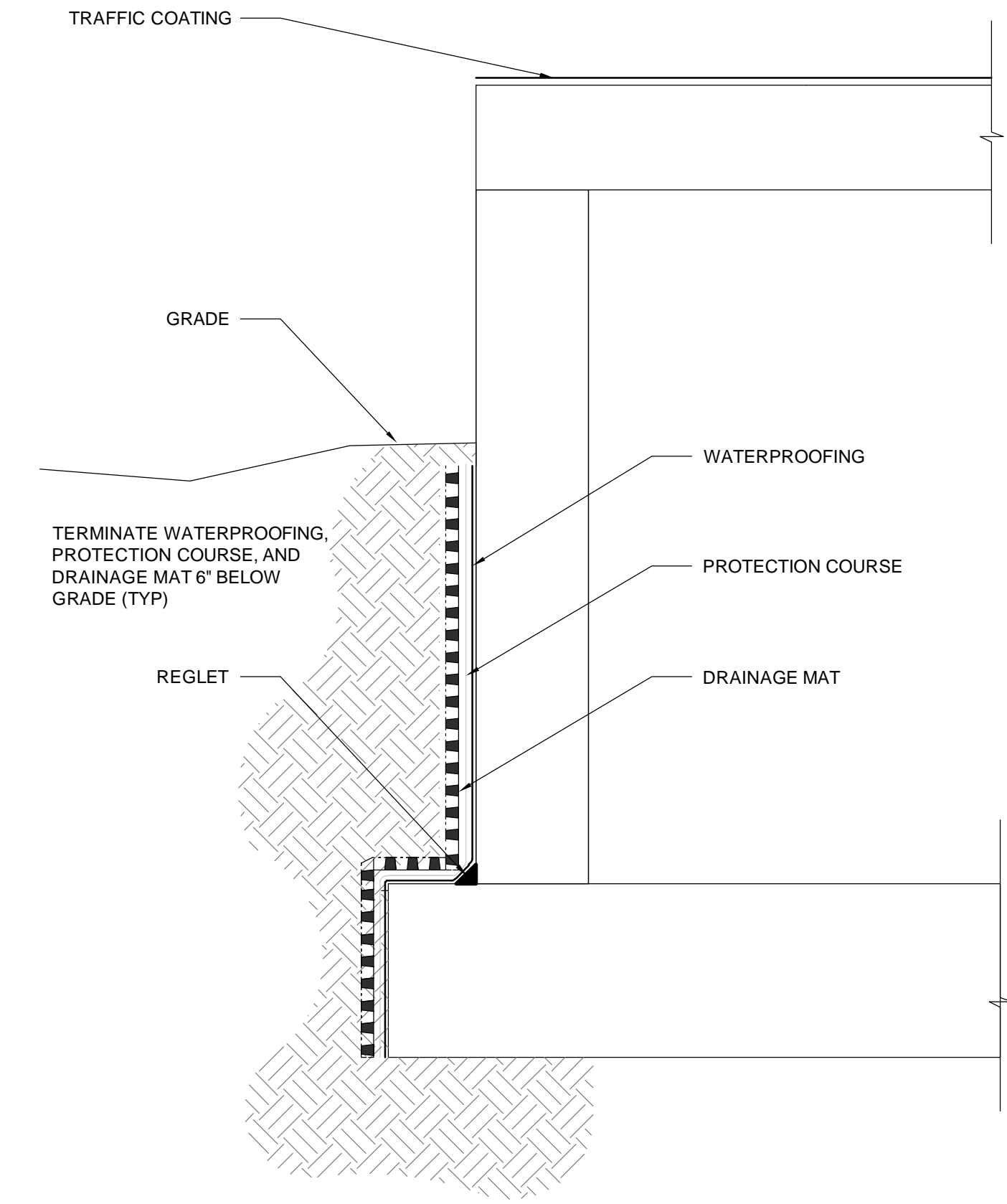
I/R	DATE	DESCRIPTION

60662775

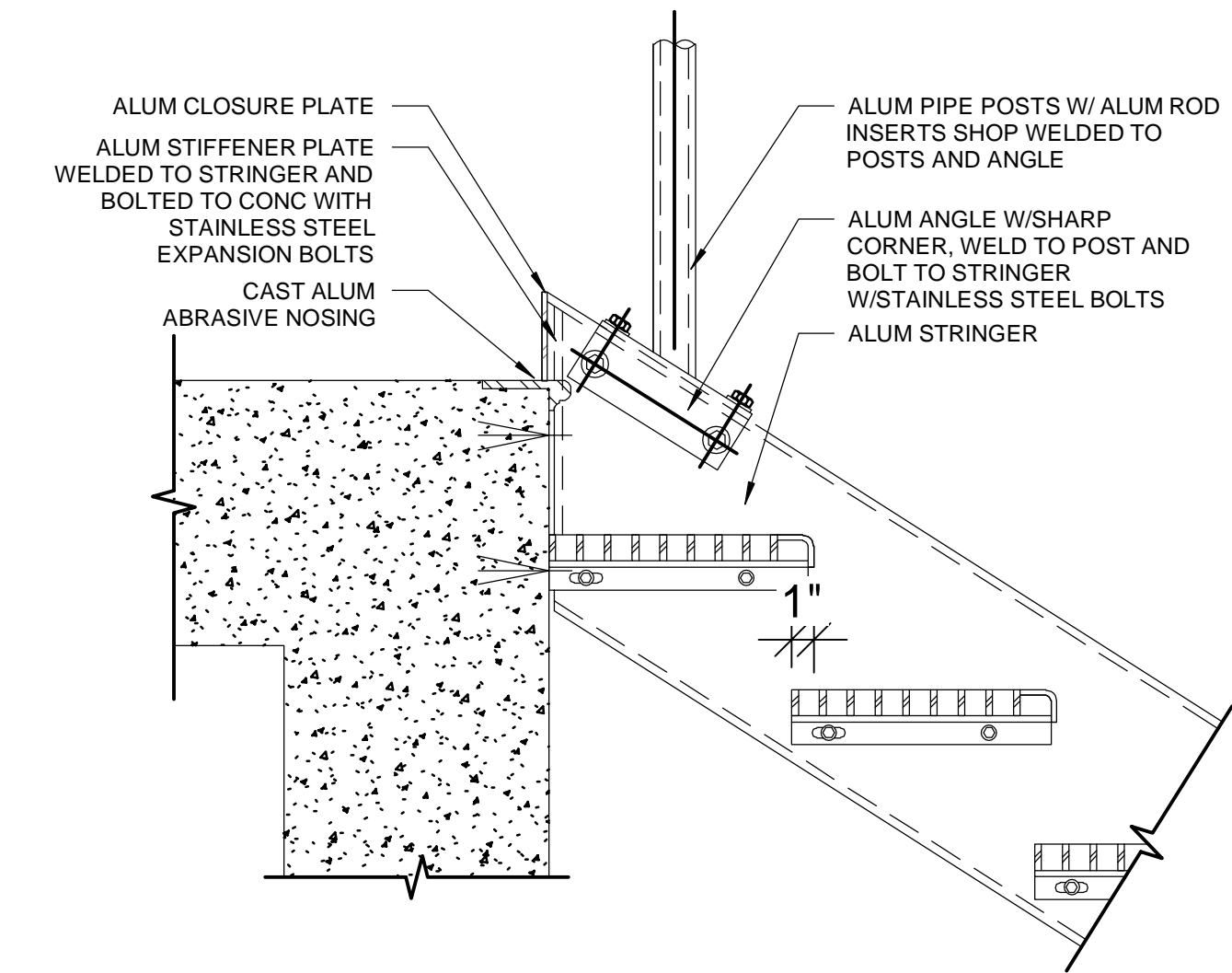
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Date:	FEBRUARY 2024
Scale:	NTS

STRUCTURAL SHEET TITLE

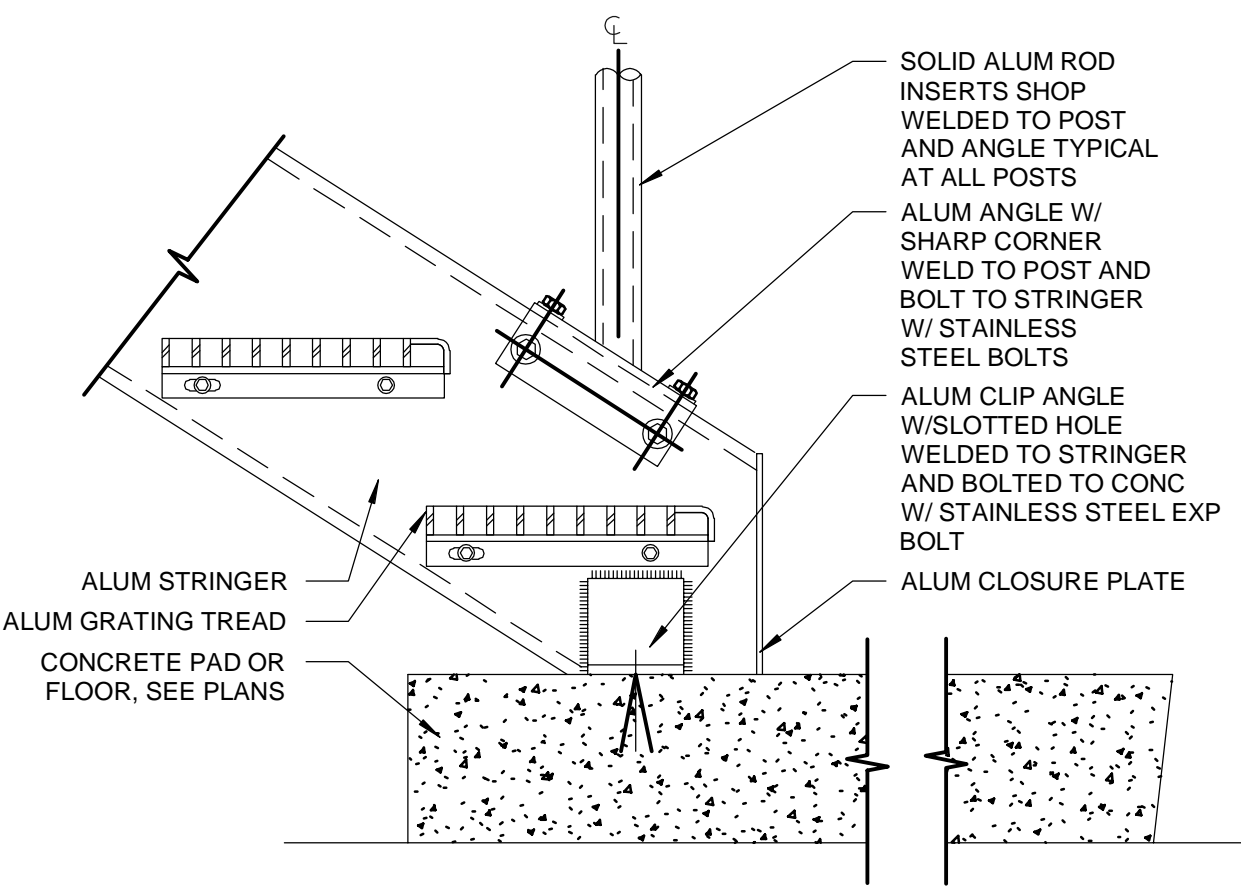
99 S-505



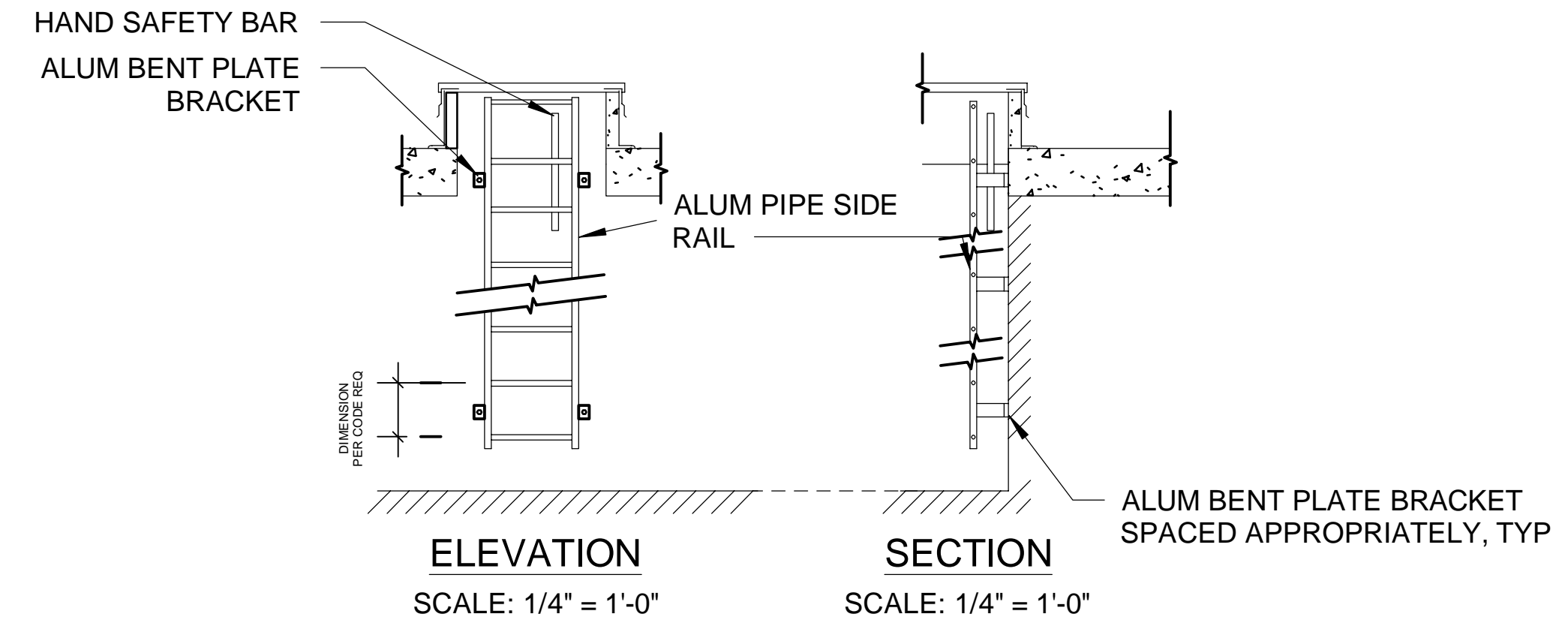
TRAFFIC COATING AND WATERPROOFING DETAIL



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



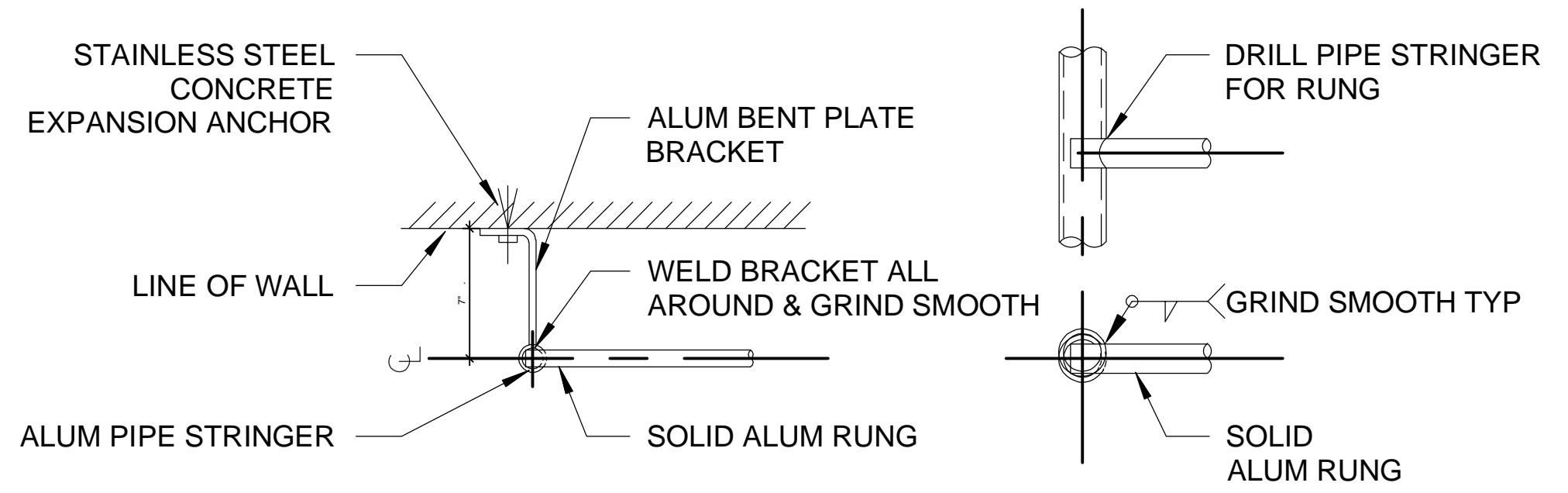
ALUMINUM GRATING STAIR BOTTOM DETAIL AT CONCRETE PAD
SCALE: 1 1/2" = 1'-0"



PLAN AT BRACKET
SCALE: 1" = 1'-0"

RUNG CONNECTION DETAILS
SCALE: 1 1/2" = 1'-0"

ALUMINUM LADDER AT HATCH DETAIL
SCALE: AS NOTED



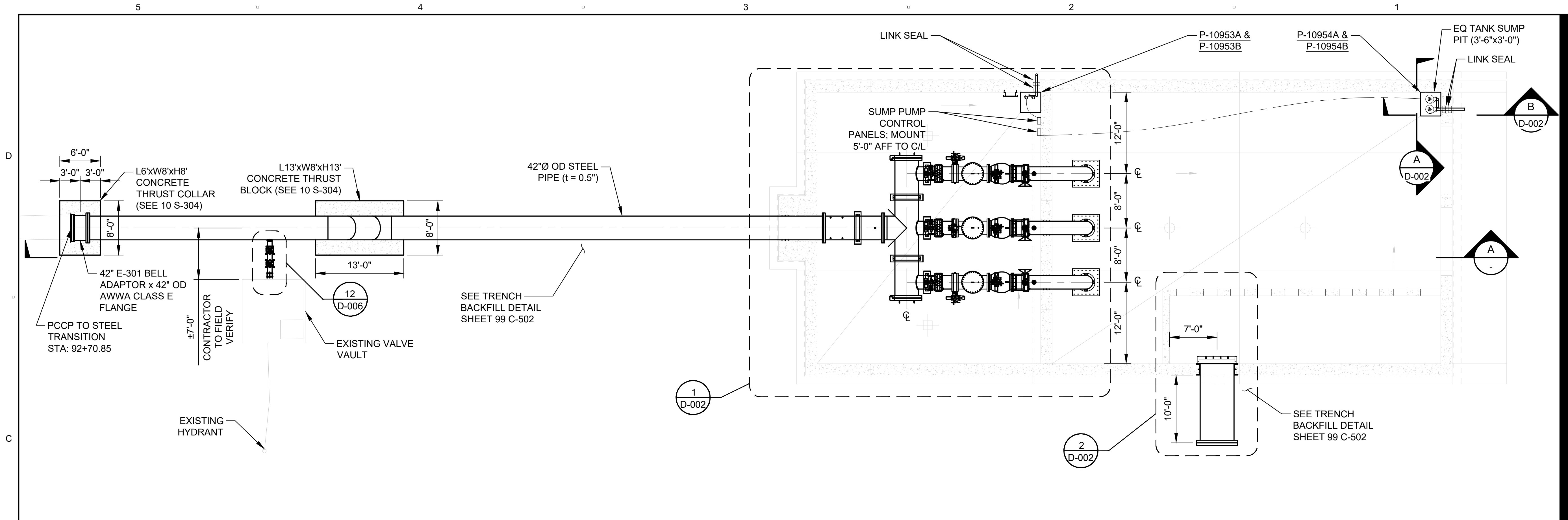
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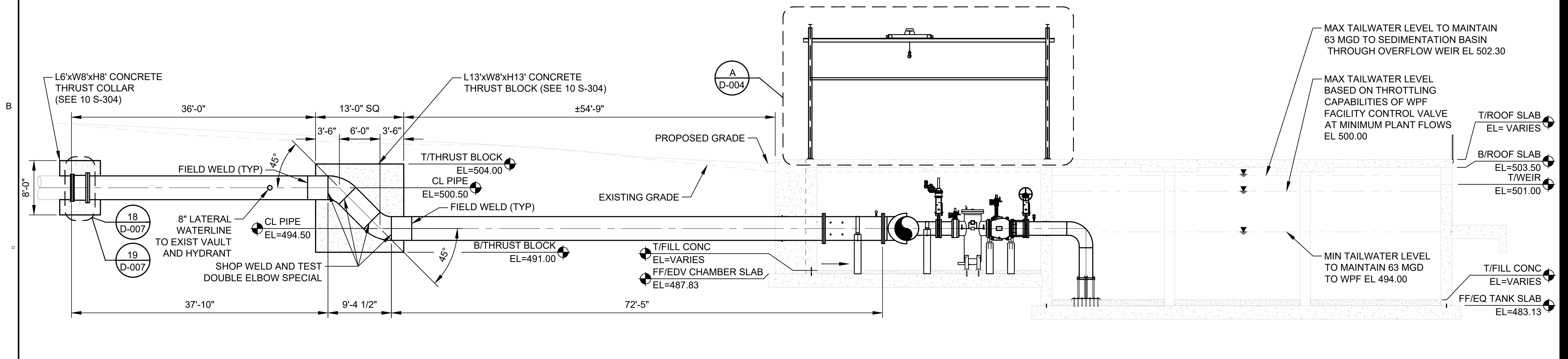
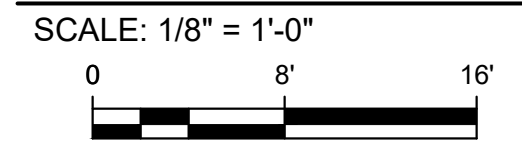
I/R	DATE	DESCRIPTION

60662775

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



OVERALL STEEL PIPE AND EDV CHAMBER PLAN

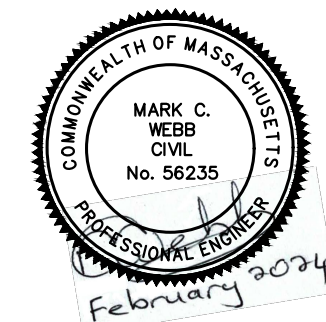


OVERALL STEEL PIPE AND EDV CHAMBER PROFILE



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

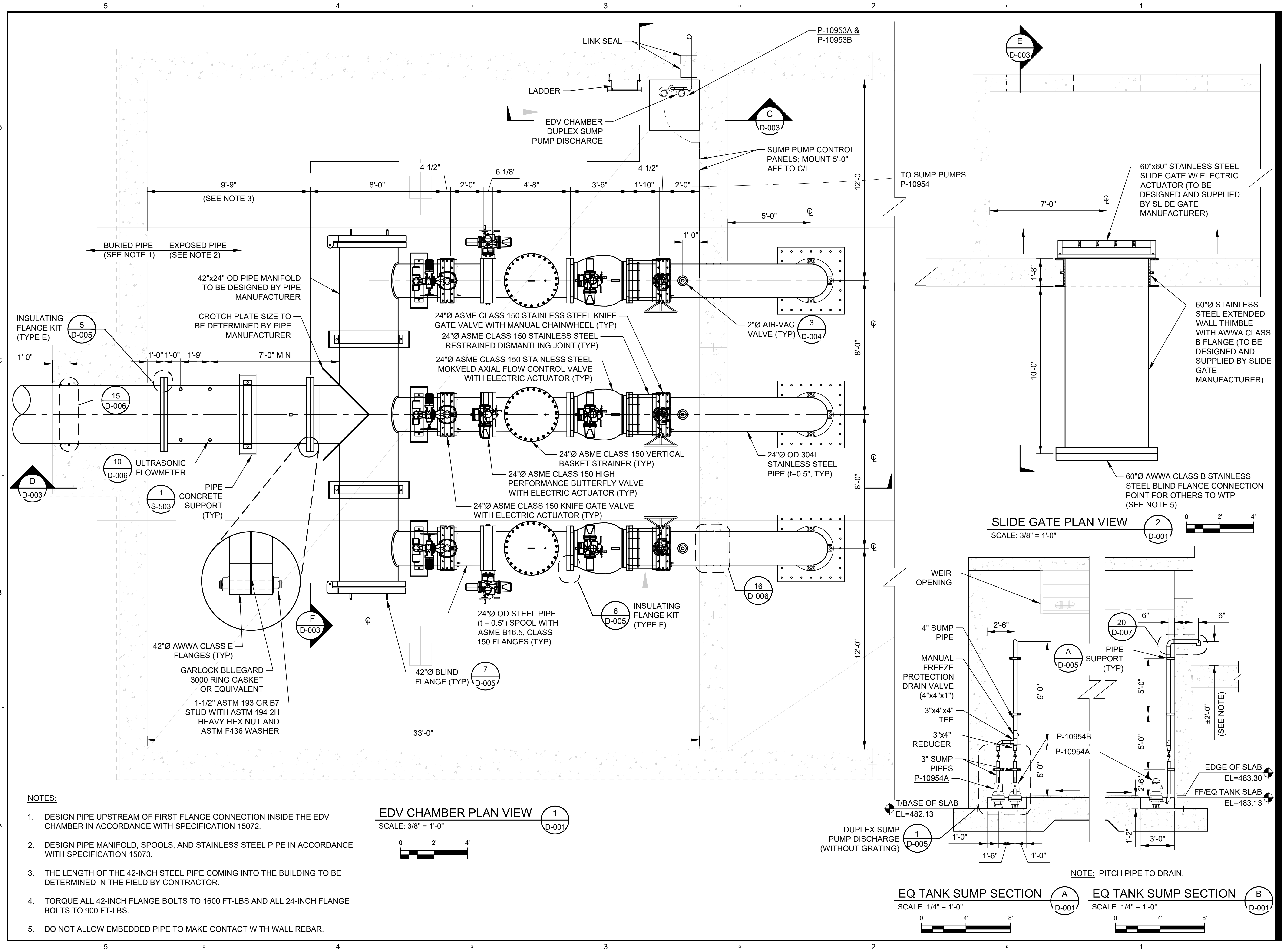
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 PLOT DATE: Thursday, February 15, 2024 11:48:16 AM



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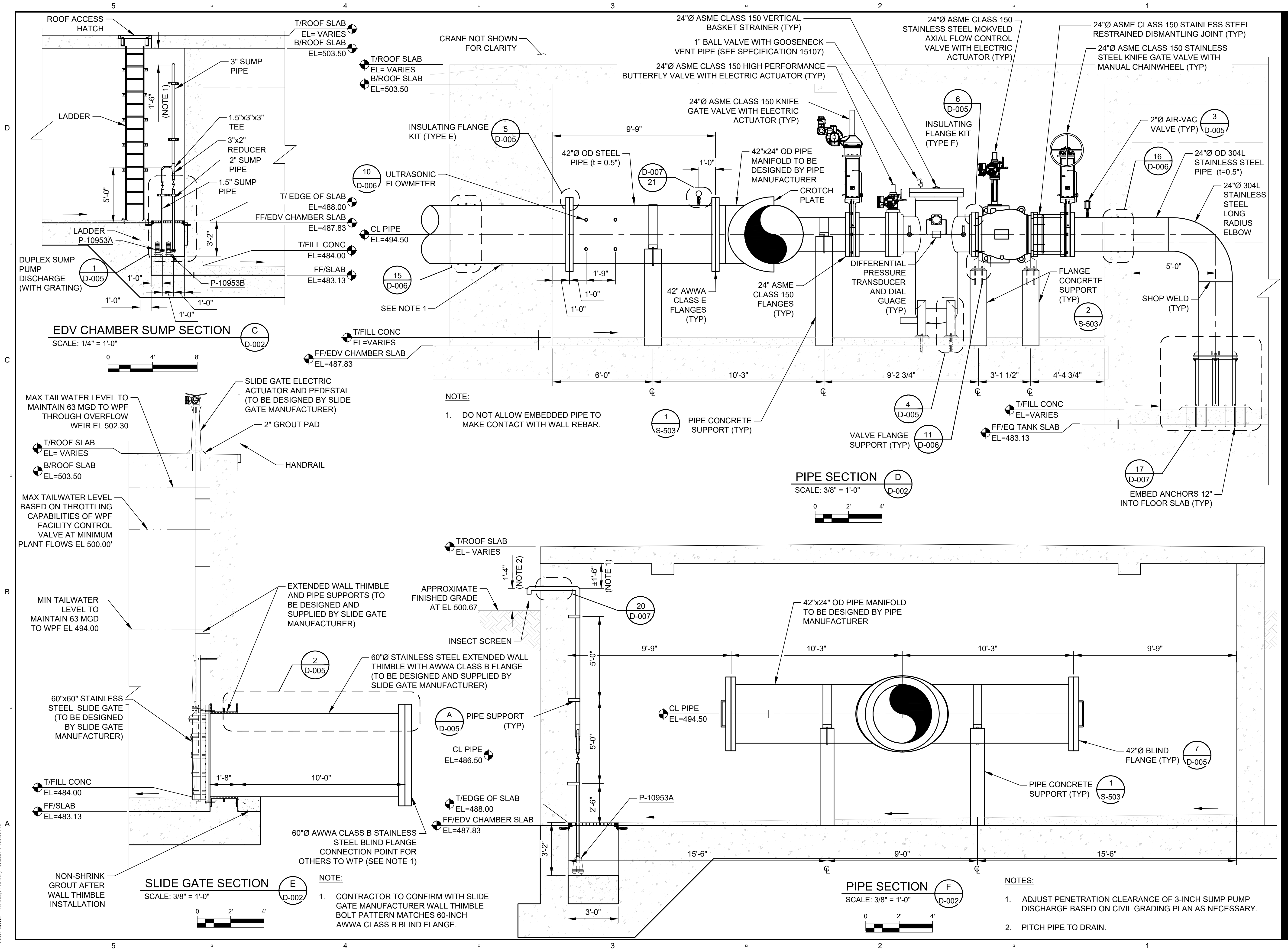
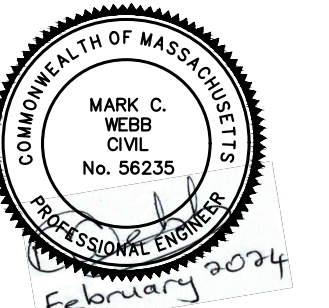
60662775

Designed By:	JK
Drawn By:	GH
Dept Check:	PW
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Date:	FEBRUARY 2024
Scale:	AS NOTED



- 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.

P:\PROJECTS\15\15062775_SVSC_WF_HYDRO_ELECT_PDR\000_CAD\20-SHEETS\00-D-XXX-PIPELINE.PP.DWG
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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

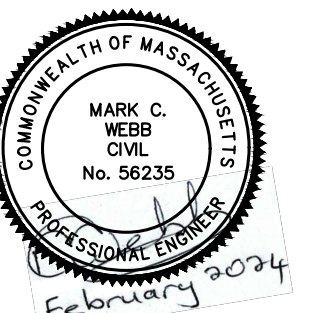
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

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

CONSULTANTS

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER

60662775

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

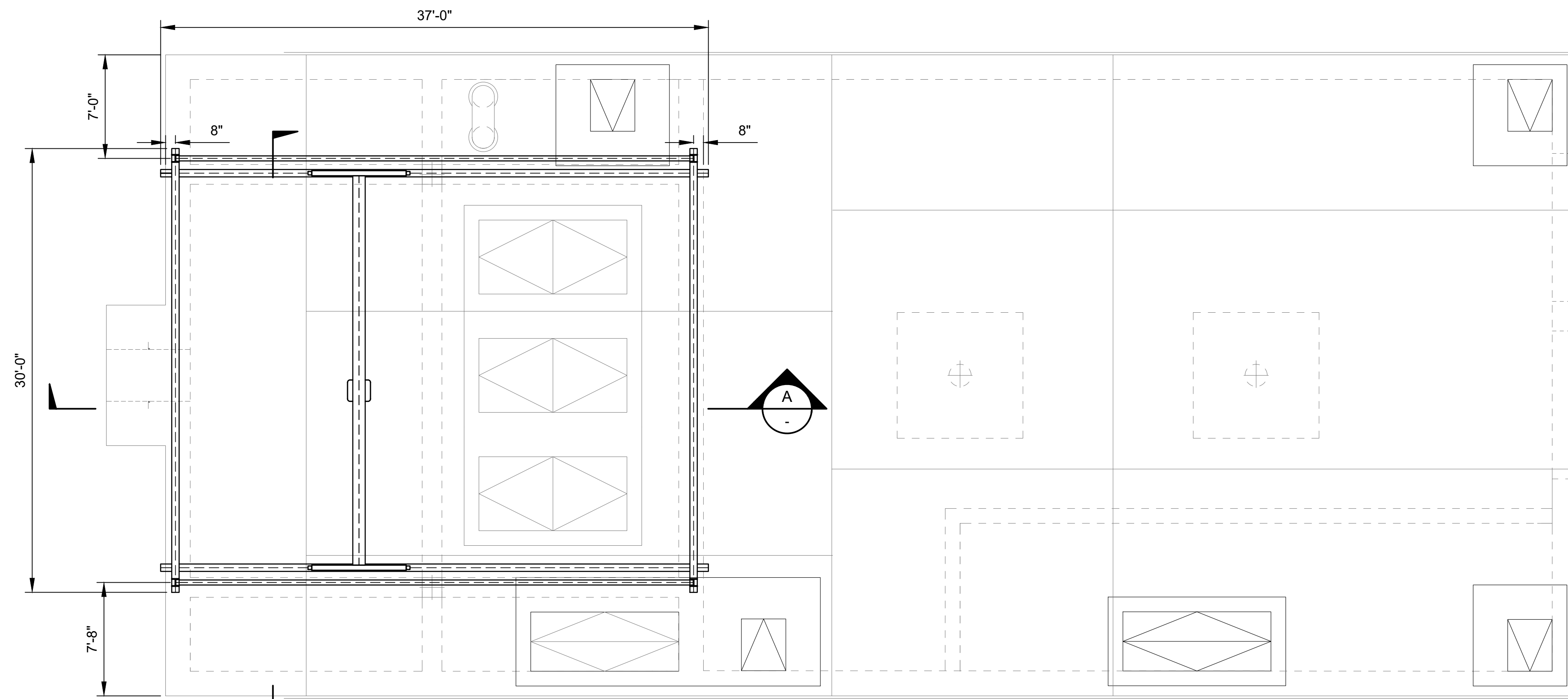
DISCIPLINE

PROCESS MECHANICAL

SHEET TITLE

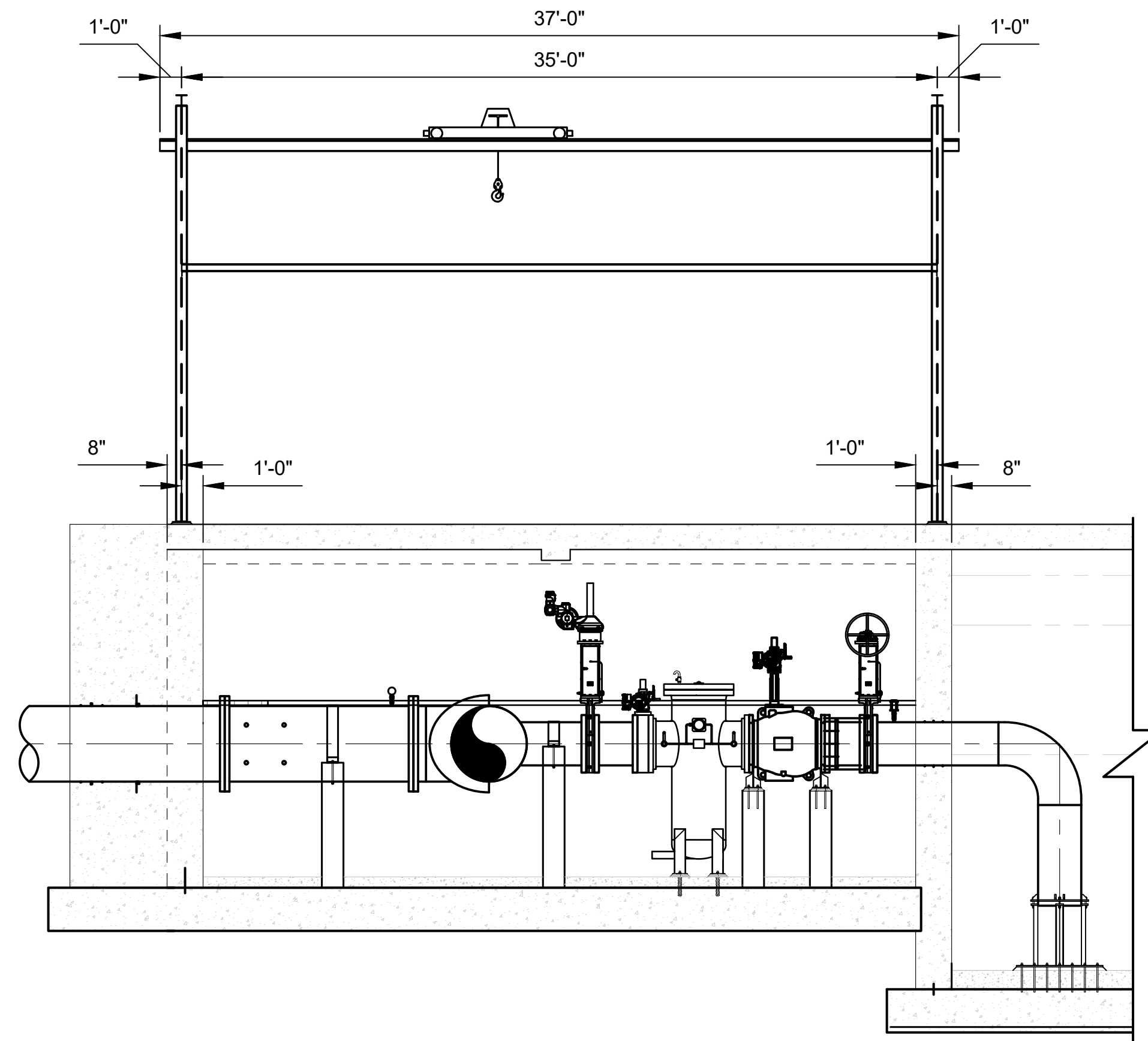
EDV CHAMBER
 FREESTANDING BRIDGE
 CRANE PLAN & SECTIONS
 SHEET NUMBER

00 D-004



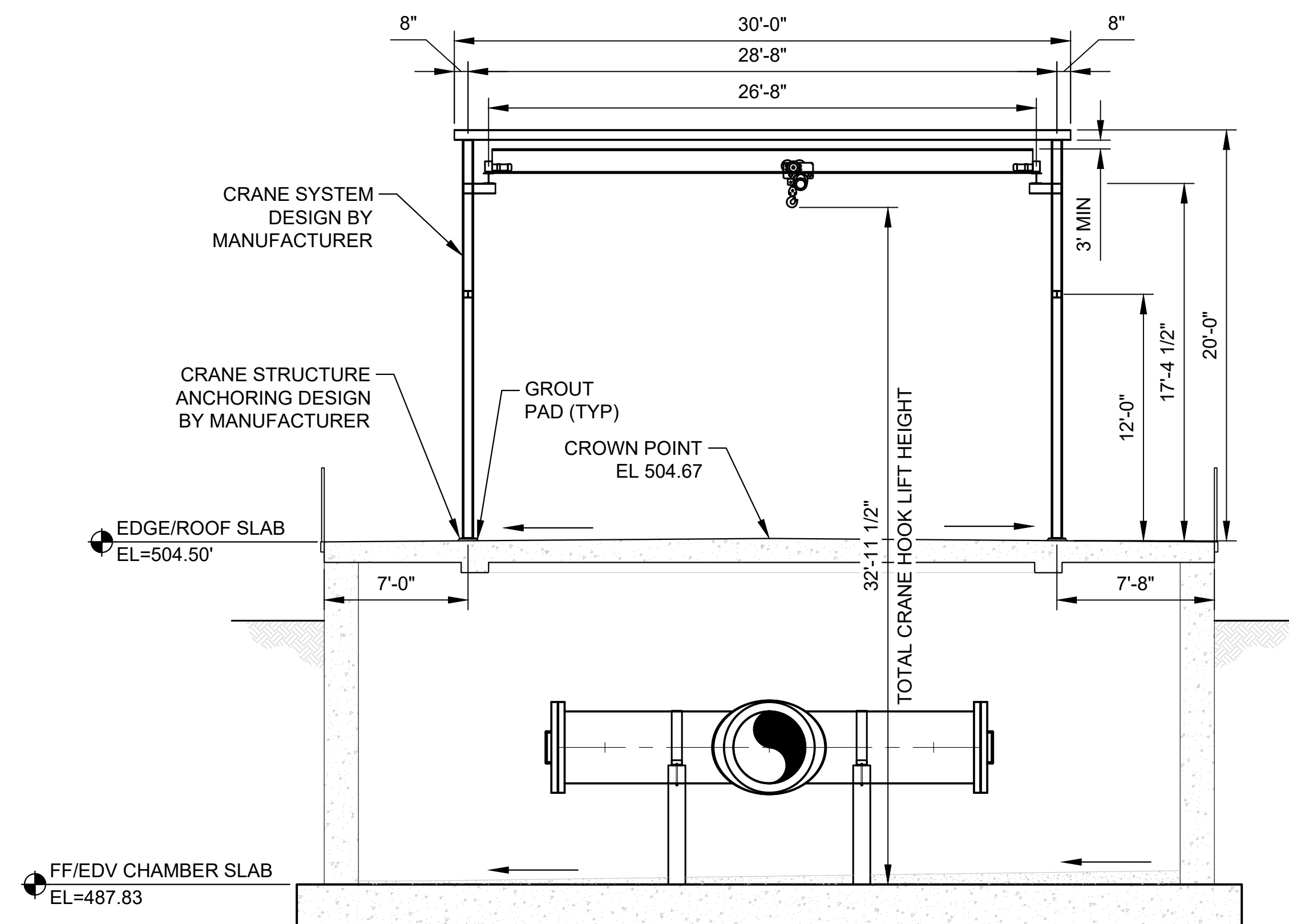
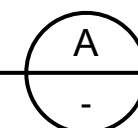
ROOF PLAN VIEW

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



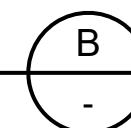
CRANE SECTION

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



CRANE SECTION

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



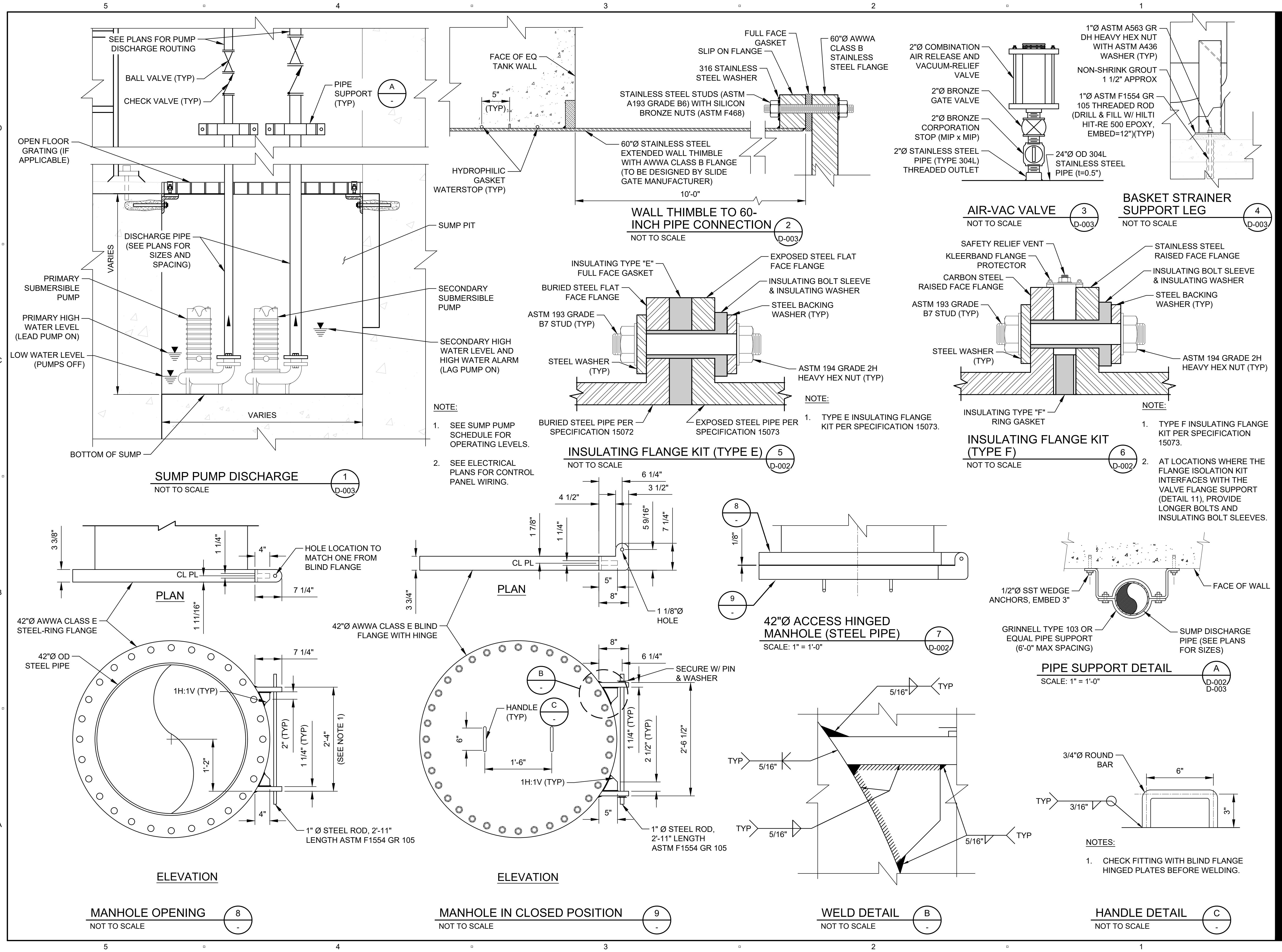
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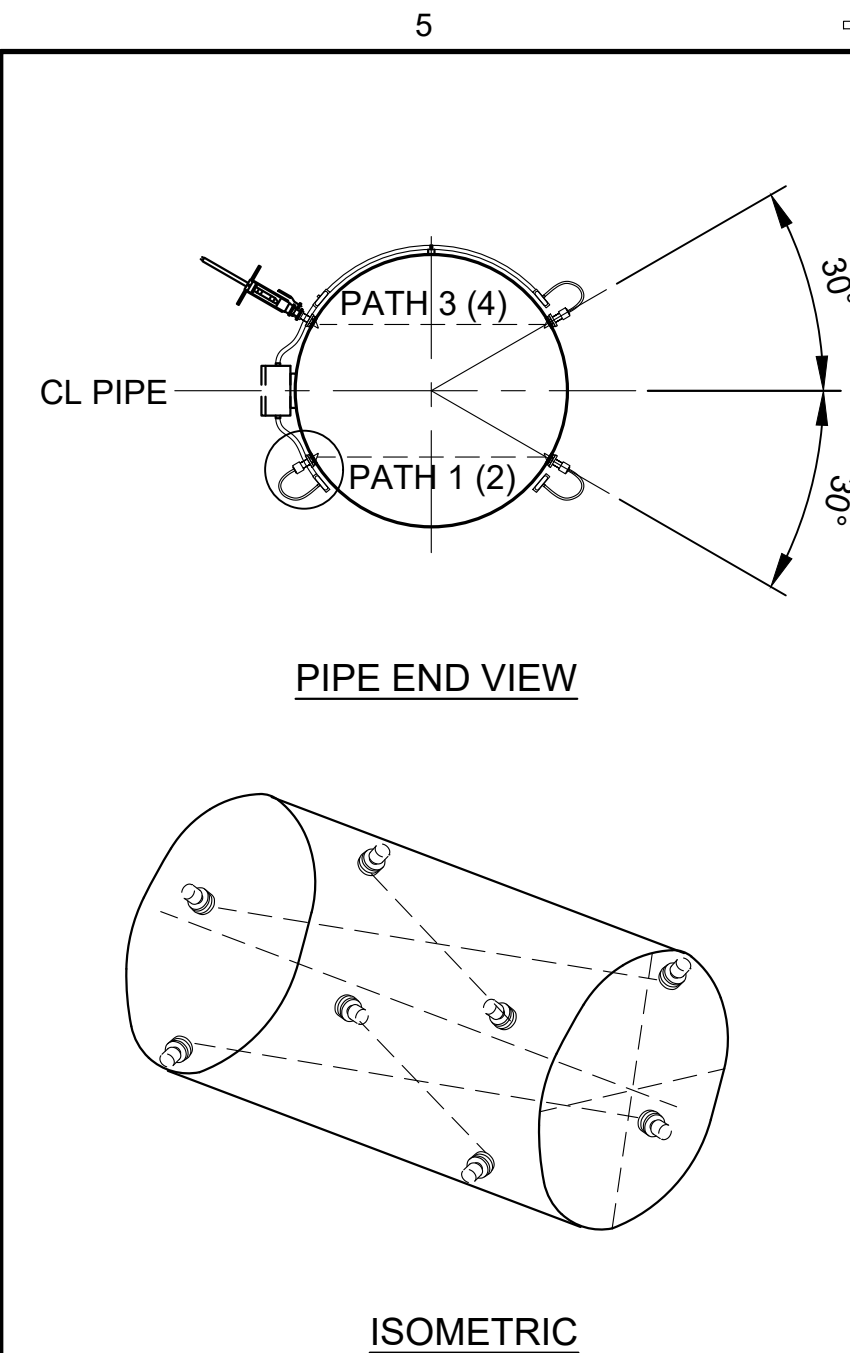
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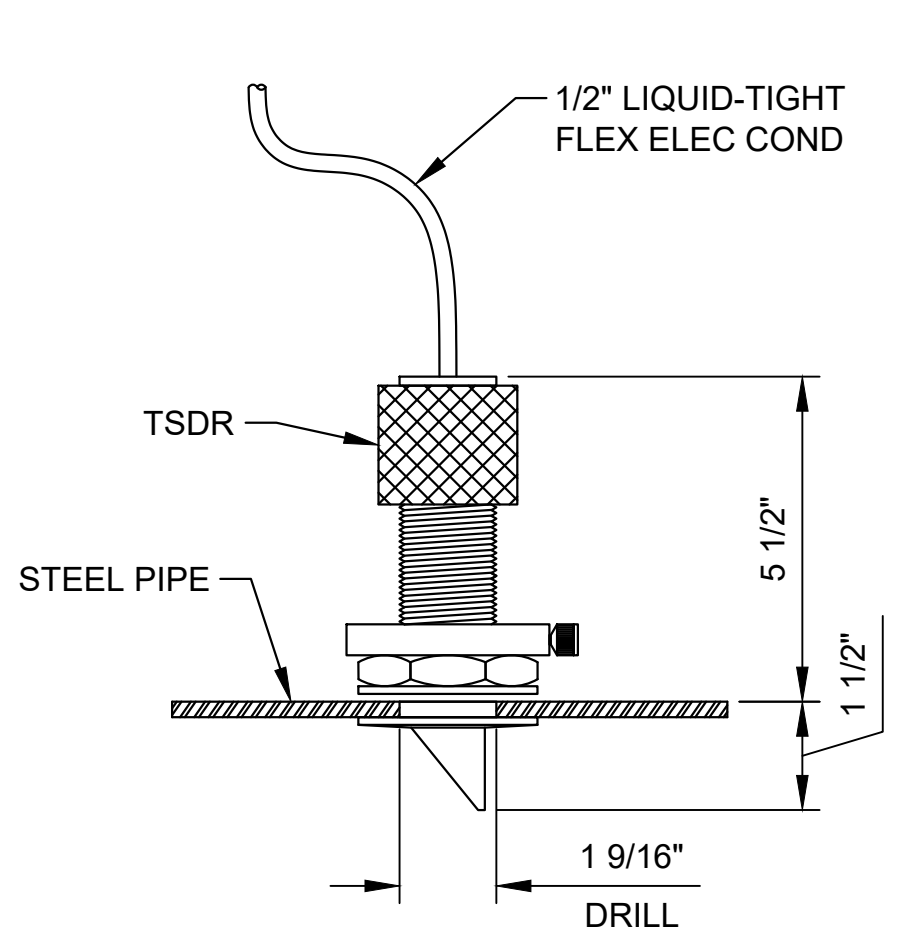
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Date:	FEBRUARY 2024
Scale:	AS NOTED



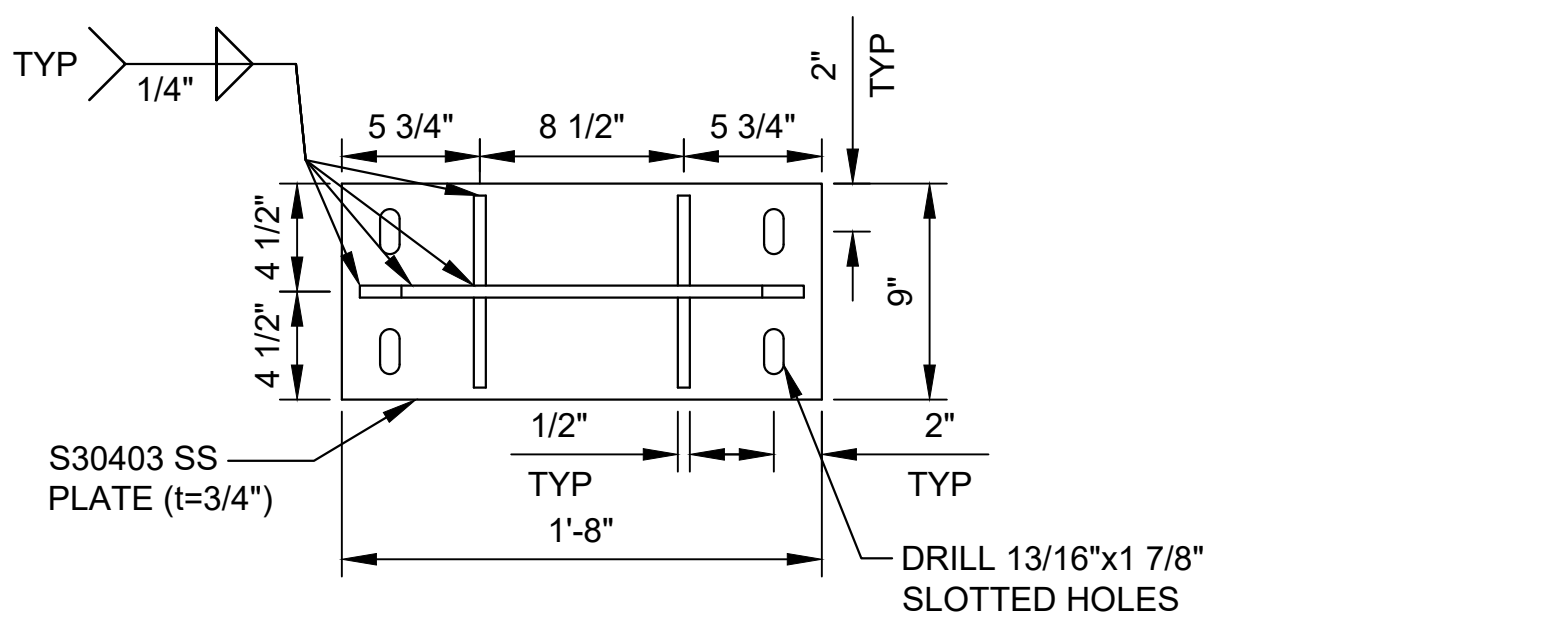
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 PLOT DATE: Thursday, February 15, 2024 11:52:28 AM



ULTRASONIC FLOWMETER TRANSDUCER
NOT TO SCALE

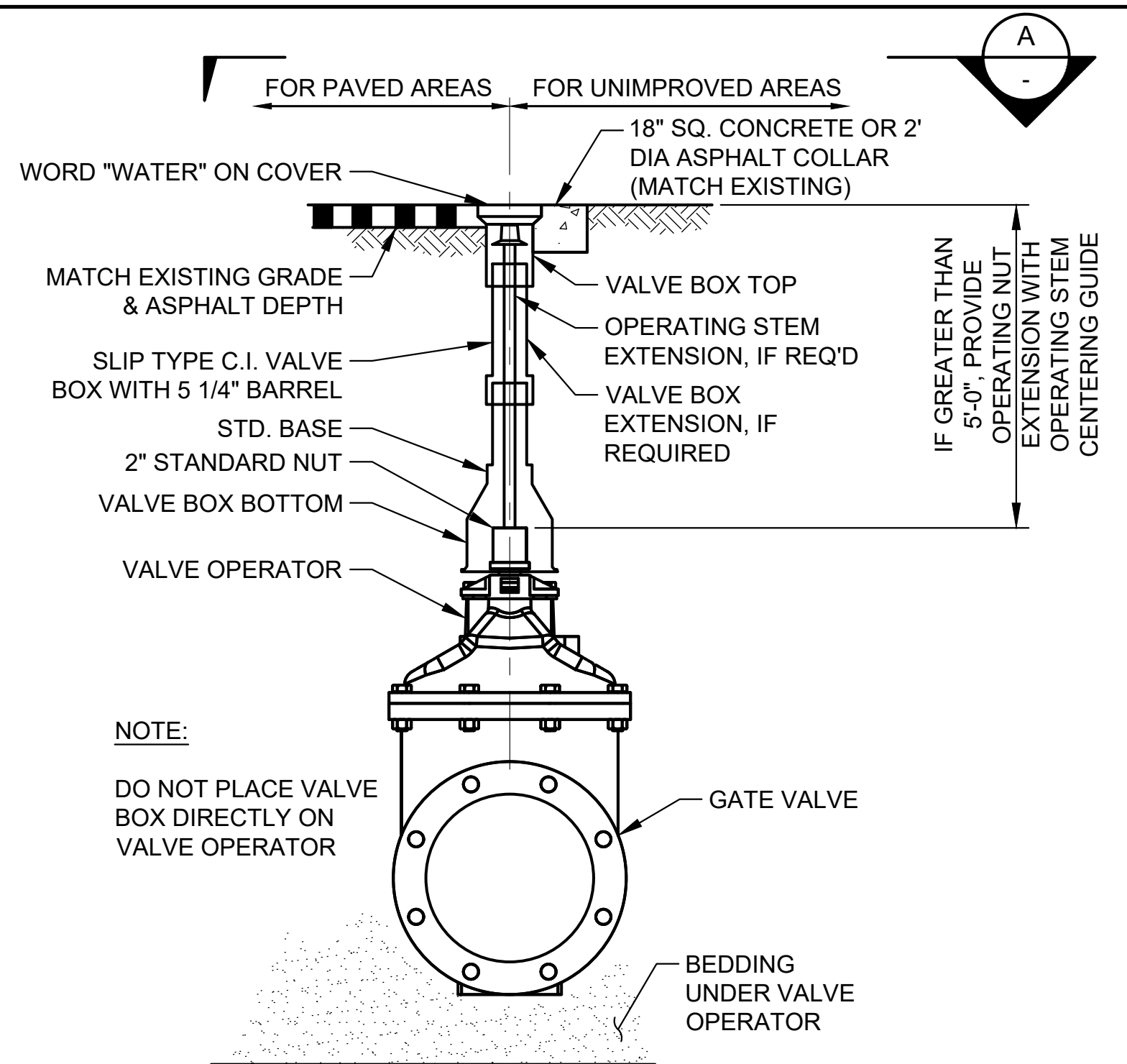


- NOTES:**
- THE TRANSDUCER SHALL BE INSTALLED IN A DEWATERED PIPE FROM THE INSIDE OUT. THE TRANSDUCER ASSEMBLY IS SEALED ON THE PIPE USING AN O-RING INNER SEAL AND AN OUTER PACKING.
 - REPAIR LINING AND COATING AFTER DRILLING HOLE AND WELDING.



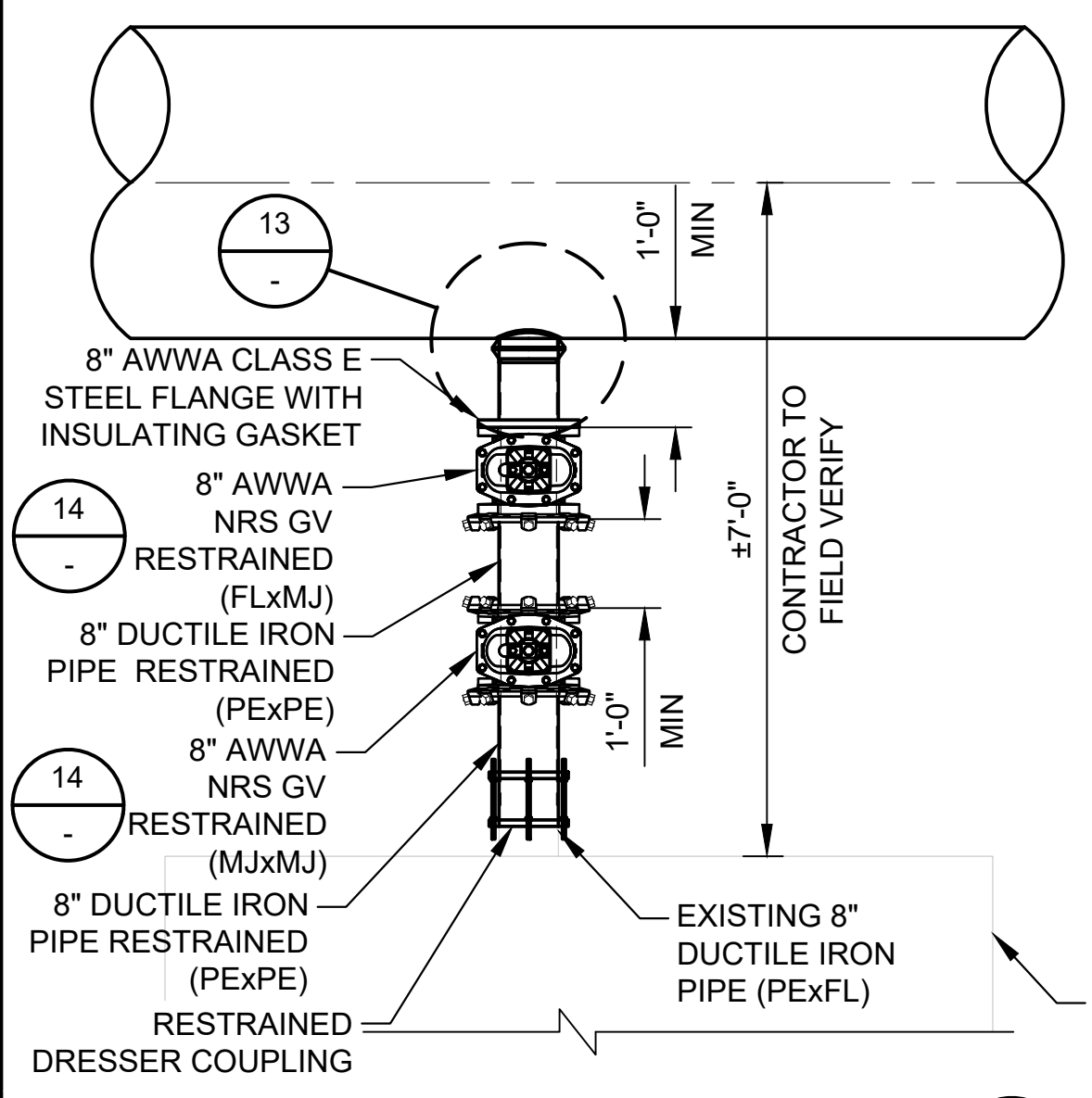
VALVE FLANGE SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"

- NOTES:**
- THE 4 BOLT HOLES TO MATCH THE DIAMETER OF THE FLANGE HOLES.

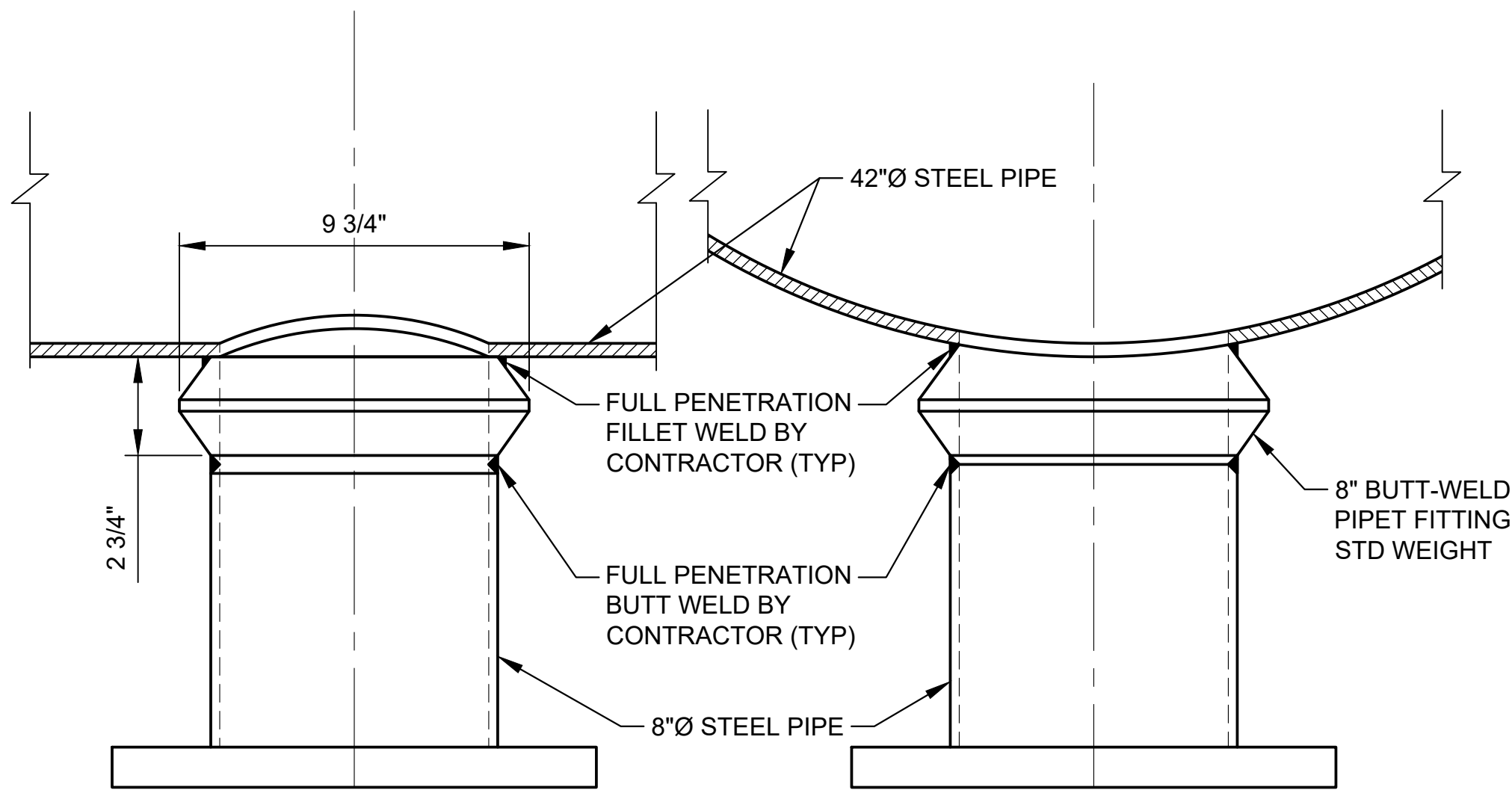


TYPICAL DIRECT BURY GATE VALVE
NOT TO SCALE

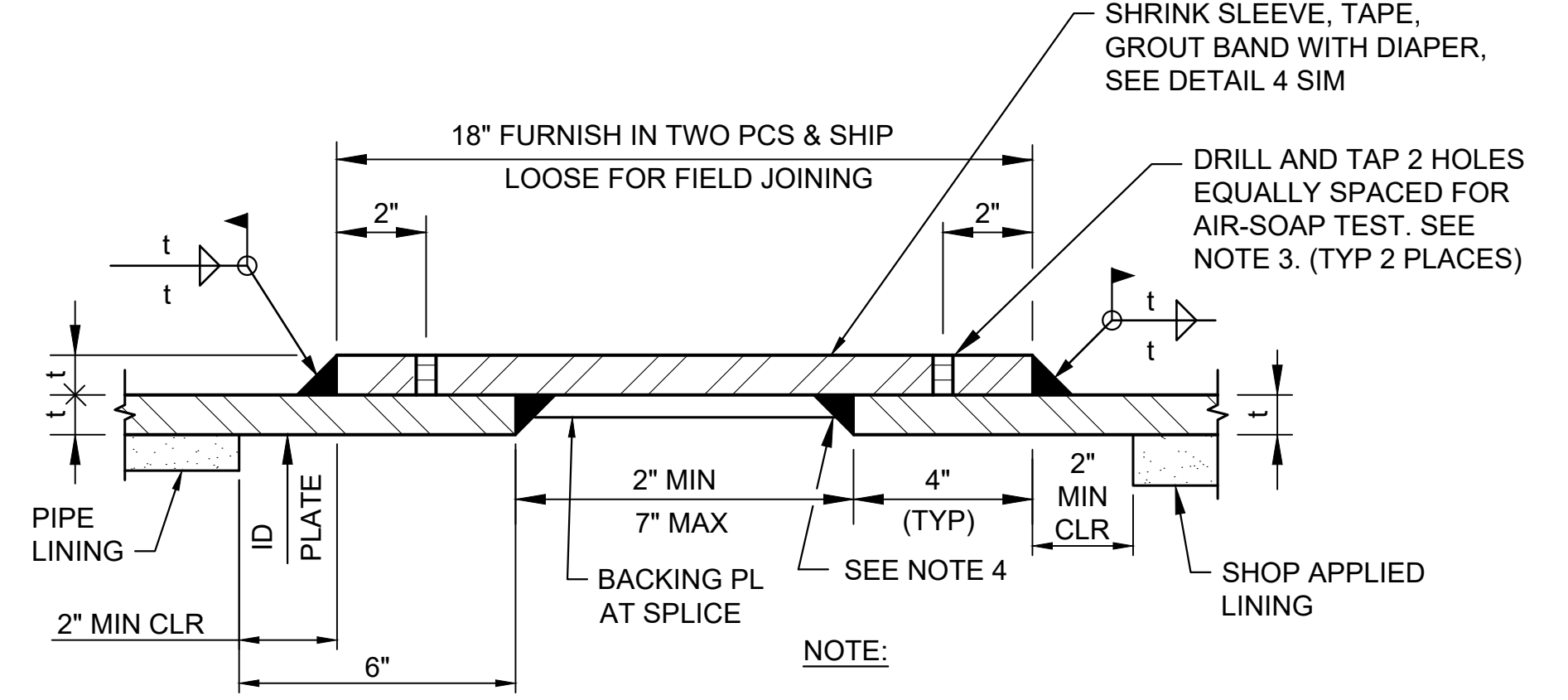
NOTE:
DO NOT PLACE VALVE BOX DIRECTLY ON VALVE OPERATOR



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

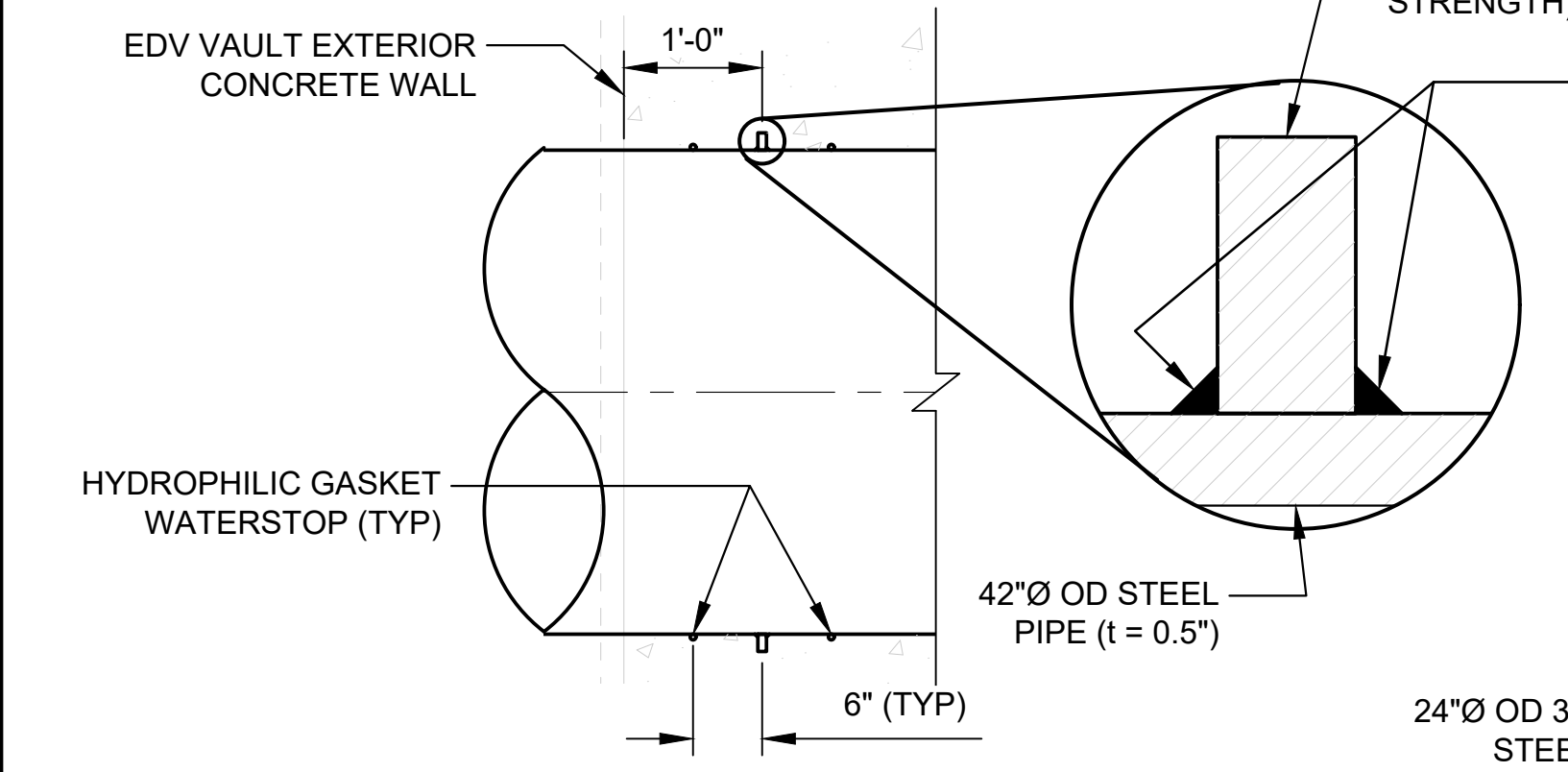


8-INCH PIPE TAP DETAIL
NOT TO SCALE

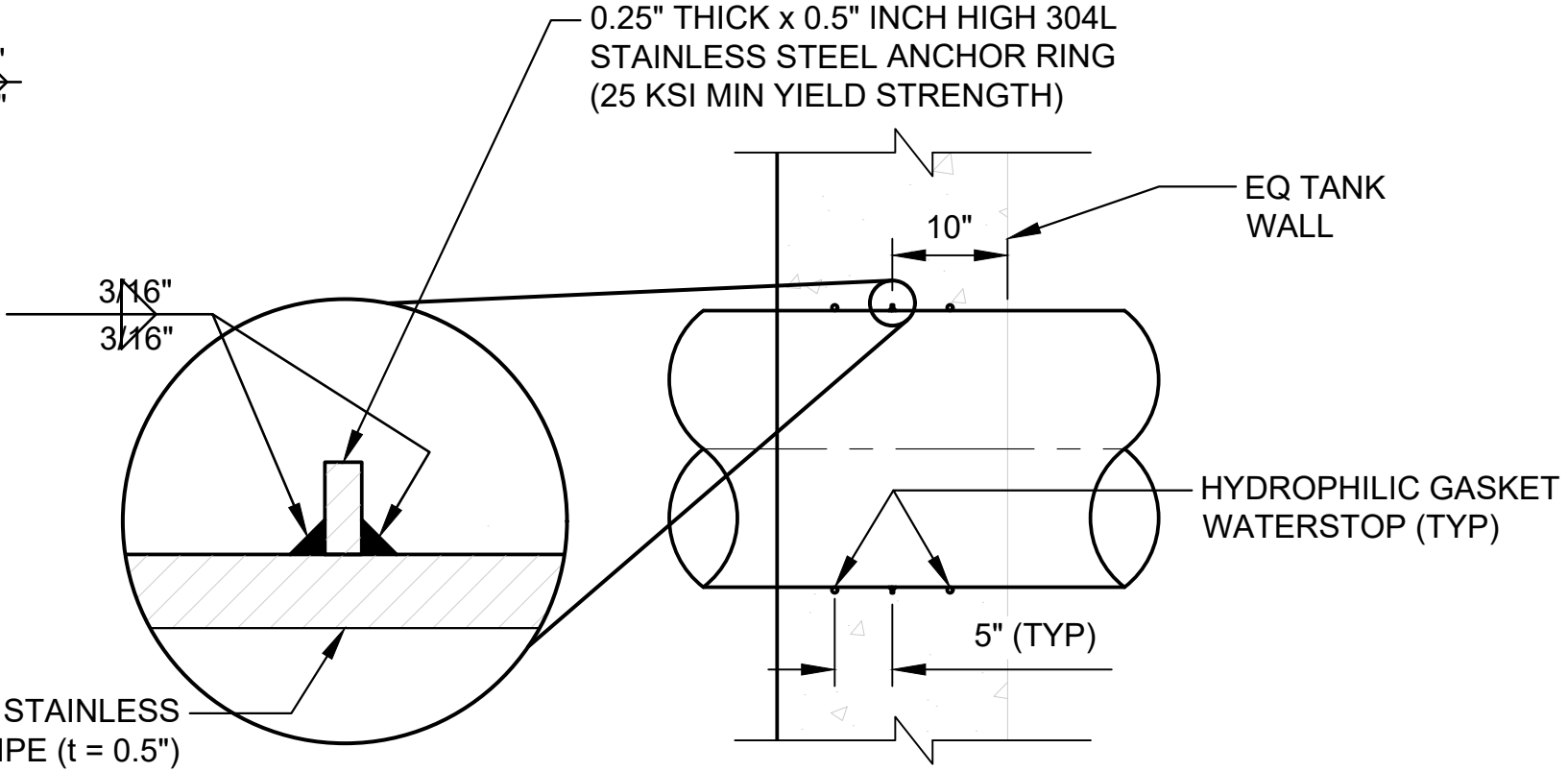


FIELD WELD BUTT STRAP JOINT DETAILS
NOT TO SCALE

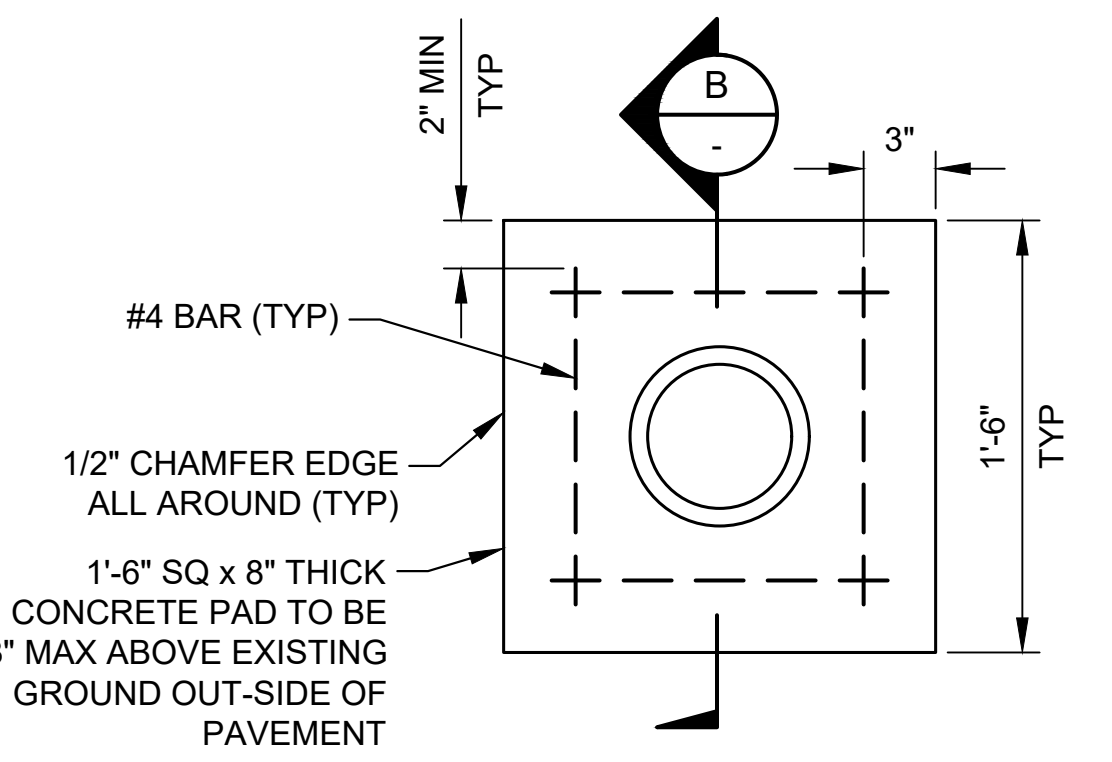
NOTE:
USE FIELD BUTT STRAPS AS NECESSARY FOR CONSTRUCTION. TO BE DETERMINED BY CONTRACTOR.



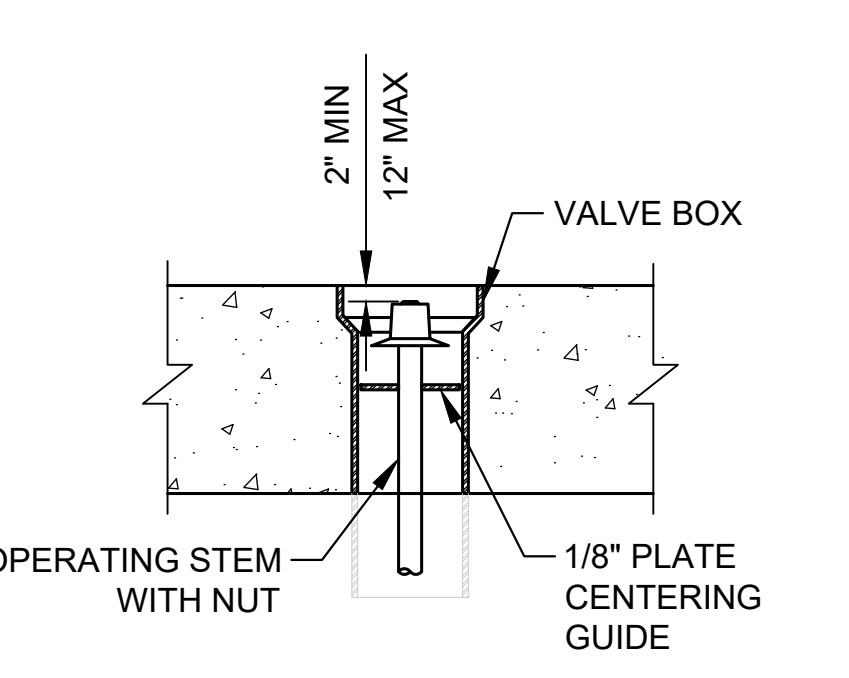
42-INCH PIPE THRUST RING
NOT TO SCALE



24-INCH PIPE THRUST RING
NOT TO SCALE



OPERATING STEM DETAIL
NOT TO SCALE



SECTION B
NOT TO SCALE



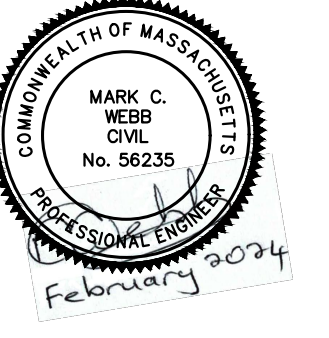
PROJECT
42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
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CONSULTANTS

REGISTRATION



ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

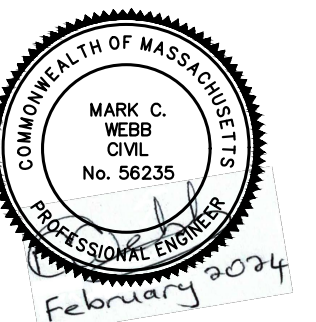
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Drawn By:	GH
Dept Check:	PW
Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	AS NOTED

DISCIPLINE
PROCESS MECHANICAL
SHEET TITLE

PROCESS MECHANICAL DETAILS
(2 OF 3)
SHEET NUMBER

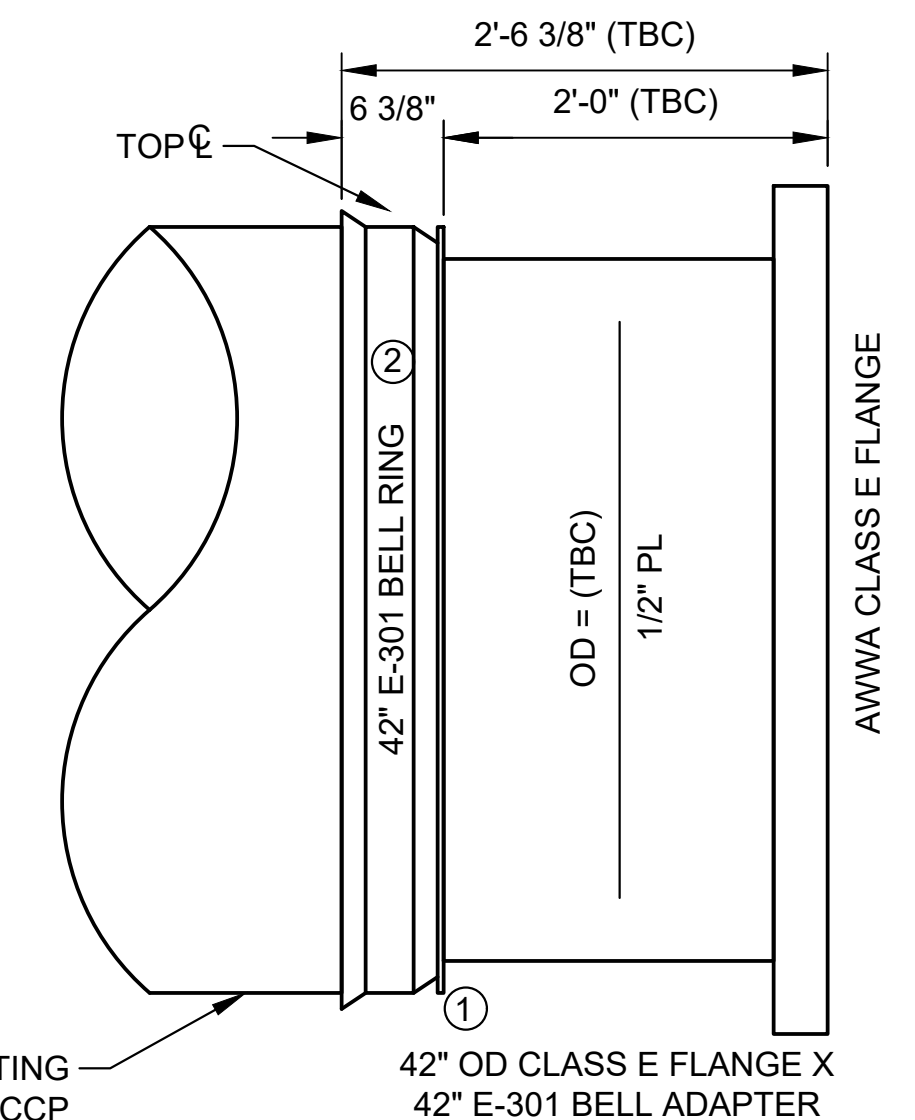
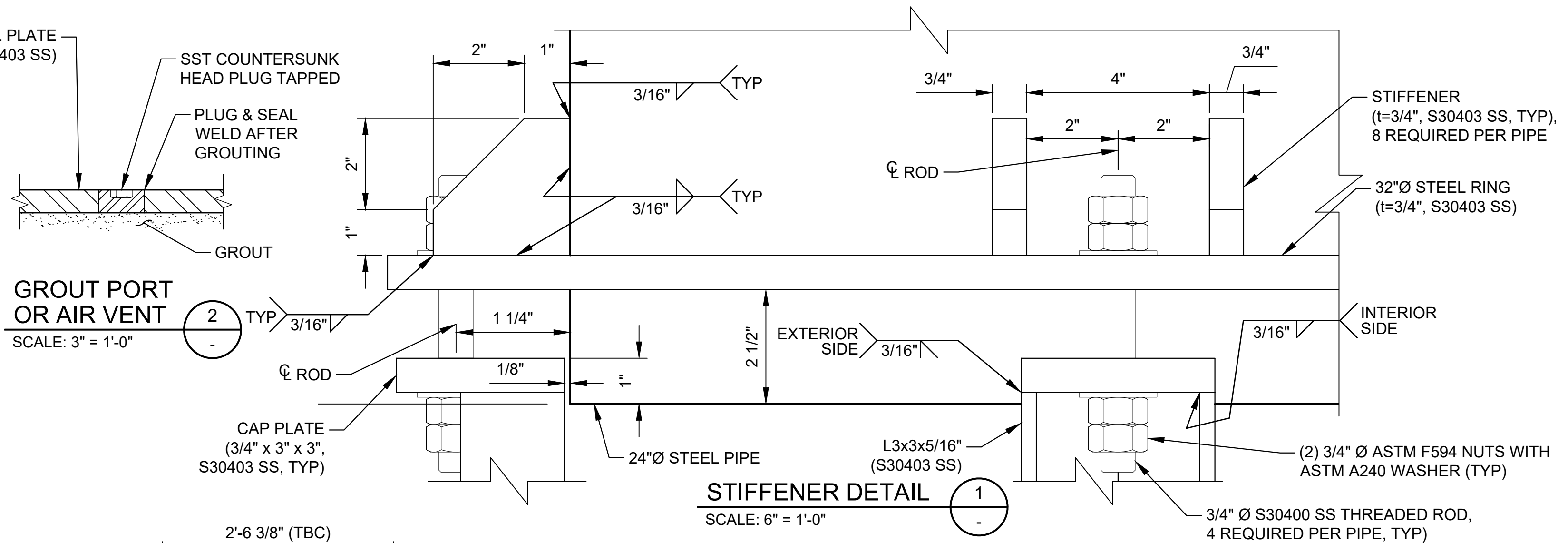
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 LAST UPDATE: Wednesday, February 14, 2024 12:39:58 PM
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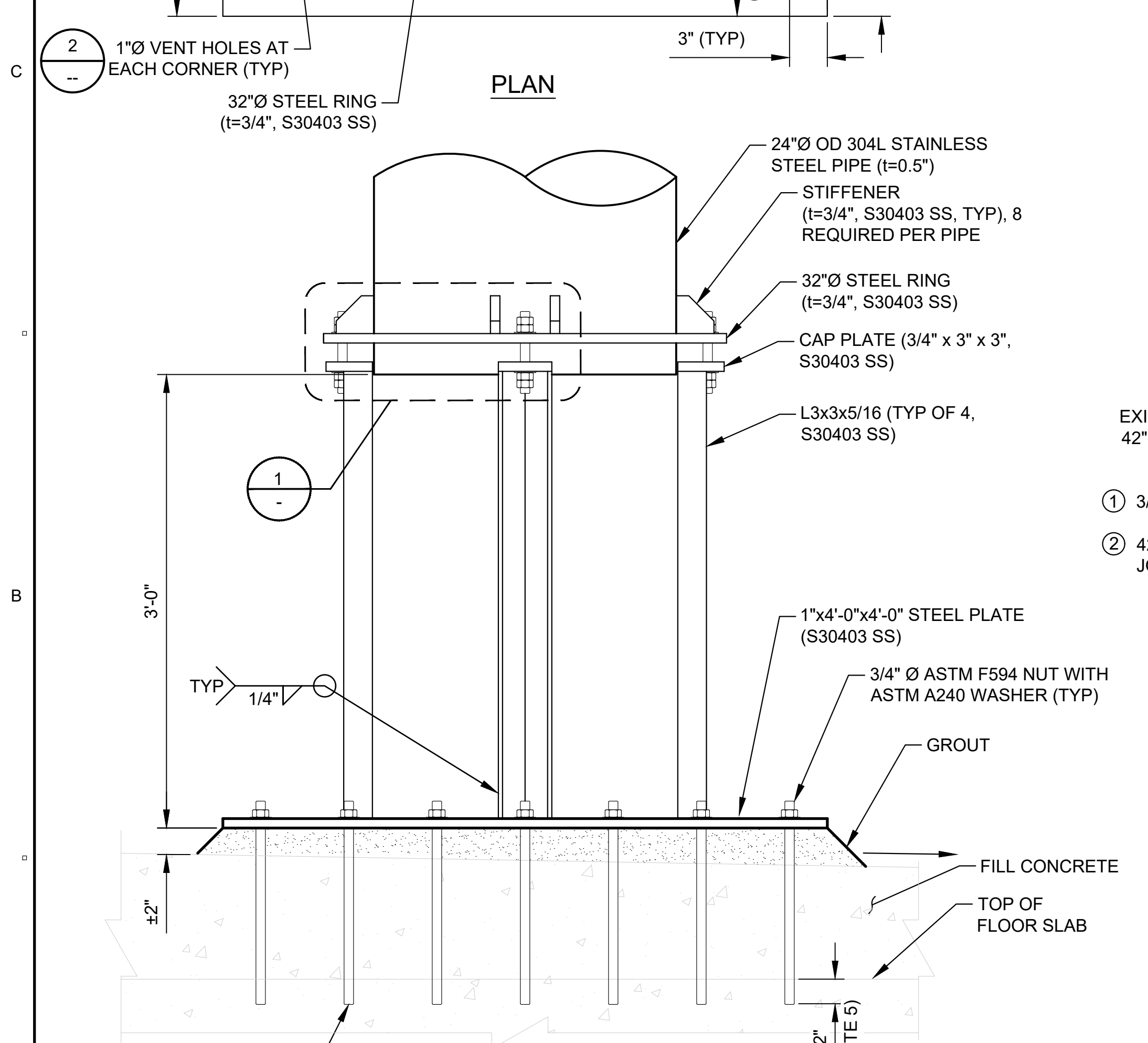
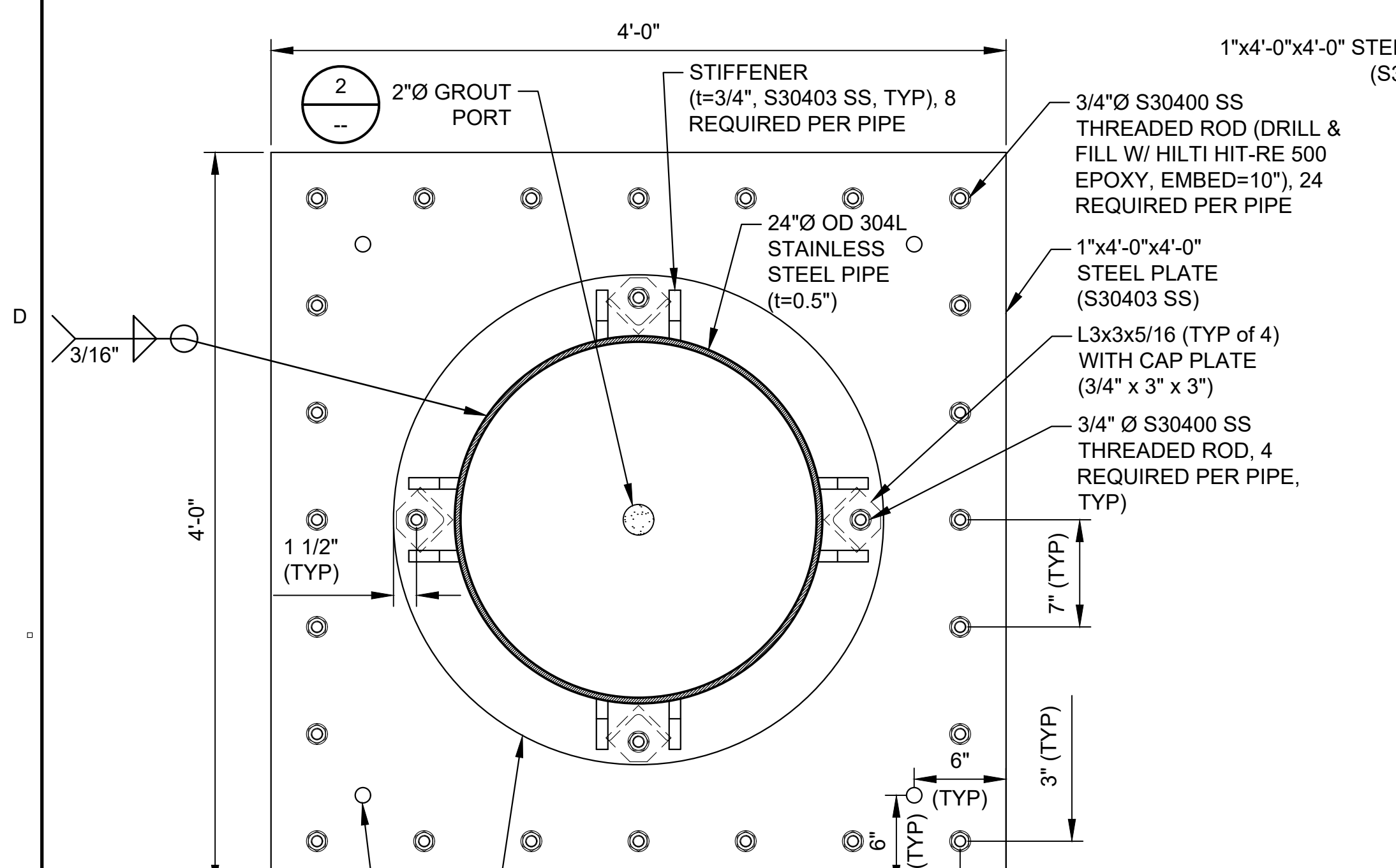
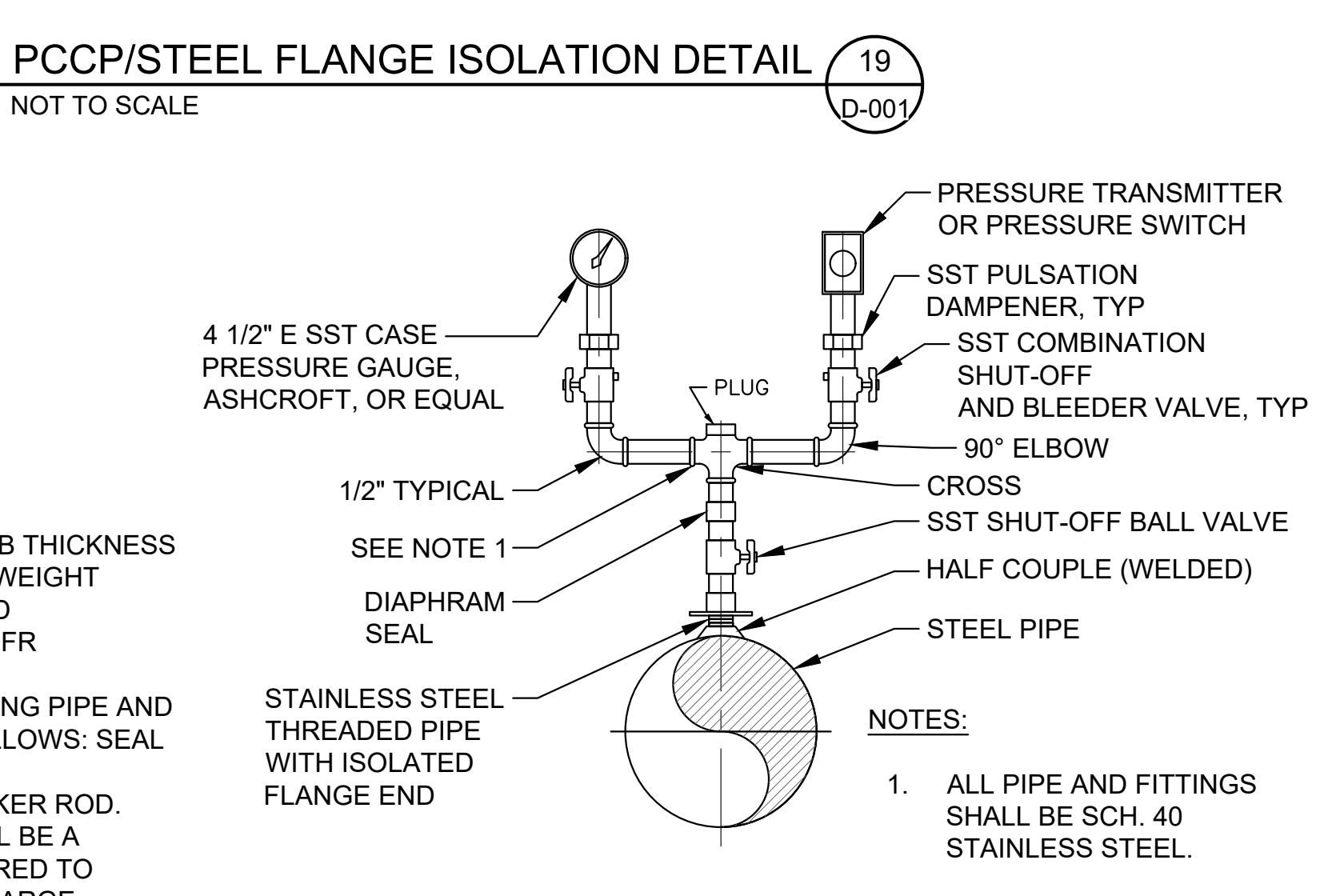
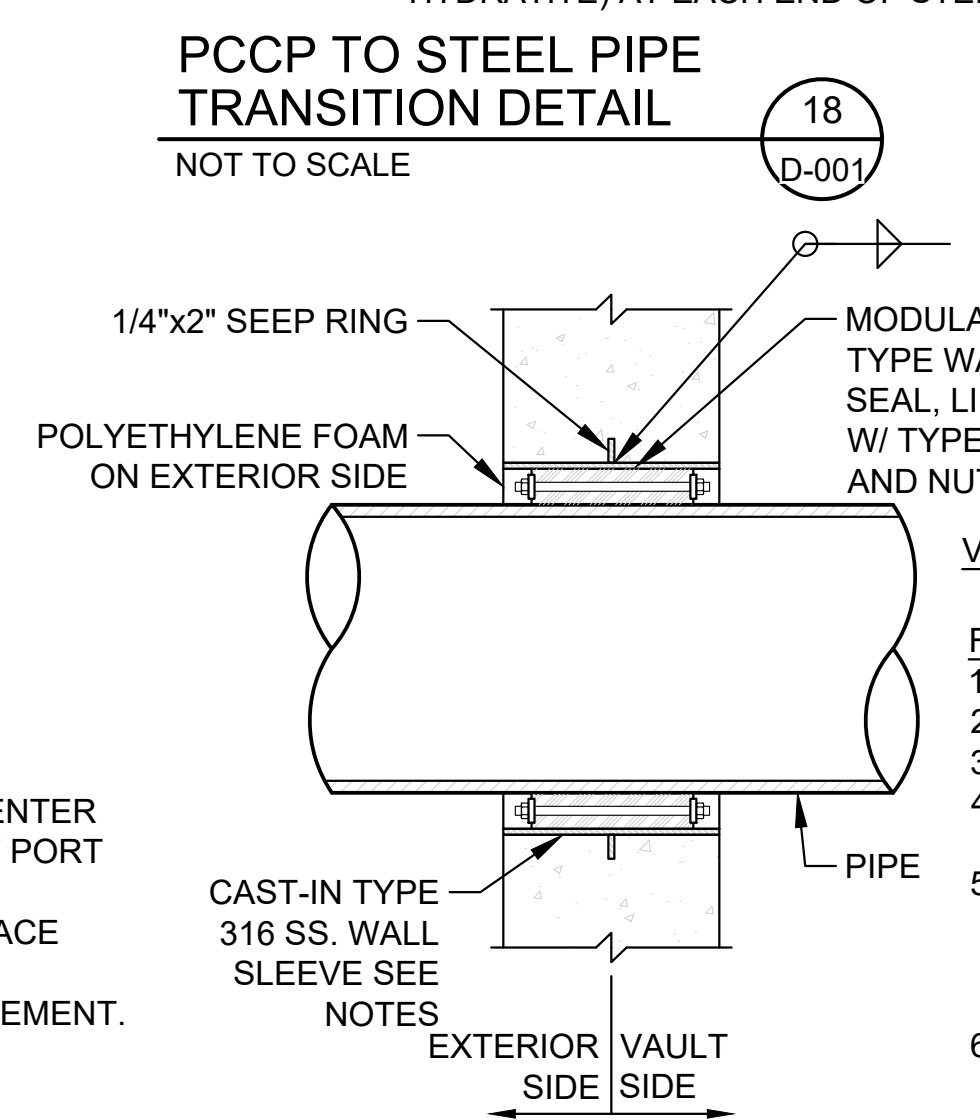


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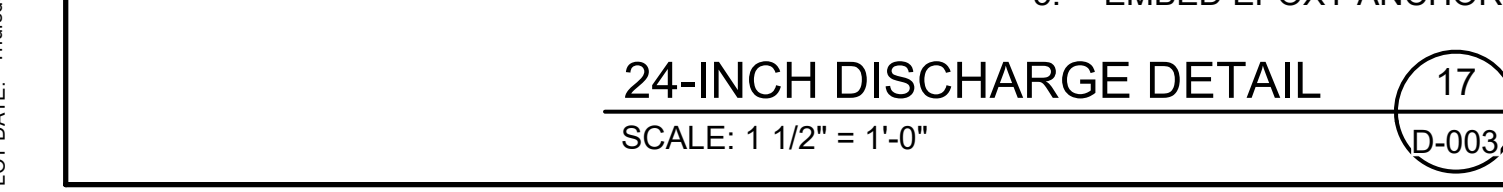
Designed By:	JK
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Date:	FEBRUARY 2024
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1. FLANGE ADAPTOR TO BE DESIGNED BY PIPE MANUFACTURER.
2. ALL DIMENSIONS ARE APPROXIMATE AND SHALL BE CONFIRMED BY PIPE MANUFACTURER.
3. ALL EXPOSED STEEL ON BELL TO BE PAINTED WITH JOINT RING PAINT.
4. ALL EXPOSED STEEL ON FLANGE TO BE PAINTED WITH WHITE EPOXY.
5. INSTALL INTERNAL COMPRESSION SEAL (I.E., WEKO OR HYDRATITE) AT EACH END OF STEEL ADAPTER.



- NOTES:**
1. PROVIDE BASE PLATE WITH A 2-INCH GROUT PORT HOLE IN THE CENTER OF THE PLATE. PROVIDE 2-INCH COUNTERSUNK PLUG (SEE GROUT PORT DETAIL 2).
 2. RAISE STEEL PLATE 2-INCHES ABOVE TOP OF FLOOR SLAB AND PLACE NONSHRINK GROUT THROUGH GROUT PORT HOLE.
 3. PROVIDE AIR VENT HOLES AT EACH CORNER DURING GROUT PLACEMENT. PLUG HOLES WITH 1-INCH COUNTERSUNK PLUGS AFTER GROUT PLACEMENT (SEE DETAIL 2).
 4. KEEP PLATE LEVELED ON SLOPING EQ TANK CONCRETE FLOOR SURFACE.
 5. EMBED EPOXY ANCHORS A MINIMUM 2-INCHES IN FLOOR SLAB.



PROCESS MECHANICAL EQUIPMENT SCHEDULE

Table with 9 columns: 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). Rows include MOV-10911, STR-10913, FCV-10914, etc.

SUMP PUMP SCHEDULE

Table with 14 columns: 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 (HP, V, PH), REMARKS. Rows include P-10953A, P-10953B, P-10954A/B/C.

* 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.

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

- 1. 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.
2. IF THE FLUID LEVEL CONTINUES TO RISE AFTER THE LEAD PUMP HAS BEEN ENERGIZED, THE "LAG" FLOAT WILL CLOSE. WHEN THE "LAG" FLOAT HAS 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.
3. 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.

BRIDGE CRANE SCHEDULE

Table with 12 columns: TAG NO., EQUIPMENT TYPE, CAPACITY, OVERALL WIDTH, OVERALL HEIGHT, RUNWAY LENGTH, SUPPORT CENTERS, NO. CELLS, RATED FOR, HEIGHT UNDER HOOK, POWER, SPEED (FPM). Row includes BC FREESTANDING MOTORIZED OVERHEAD BRIDGE CRANE W/ TOP RUNNING END TRUCKS.

PIPE SCHEDULE

Table with 8 columns: LOCATION, MATERIAL TYPE, SIZE (IN), WALL THICKNESS (IN), COATING, LINING, CATHODIC PROTECTION, REMARKS. Rows include BURIED STEEL, EDV STEEL, EDV STAINLESS STEEL, BURIED DUCTILE IRON.

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

- 1. WHEN THE EQ TANK NEEDS TO BE EMPTIED, THE OPERATOR WILL COMMAND EACH PUMP 'ON' VIA PUSH BUTTON START AT THE CONTROL PANEL.
2. 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).
3. 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

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SPRINGFIELD WATER AND SEWER COMMISSION

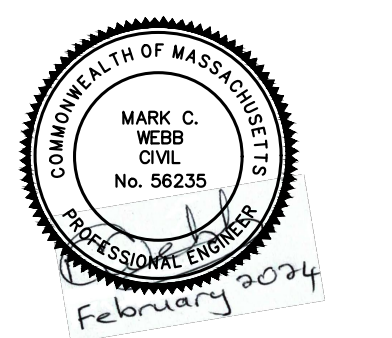
250 M STREET EXTENSION AGAWAM, MA 01001

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. Contains one row with I/R 1, DATE February 2024, DESCRIPTION AS NOTED.

PROJECT NUMBER

60662775

Table with 2 columns: Field, Value. Fields include Designed By (JK), Drawn By (GH), Dept Check (PW), Proj Check (TAL/MCW), Date (FEBRUARY 2024), Scale (AS NOTED).

DISCIPLINE

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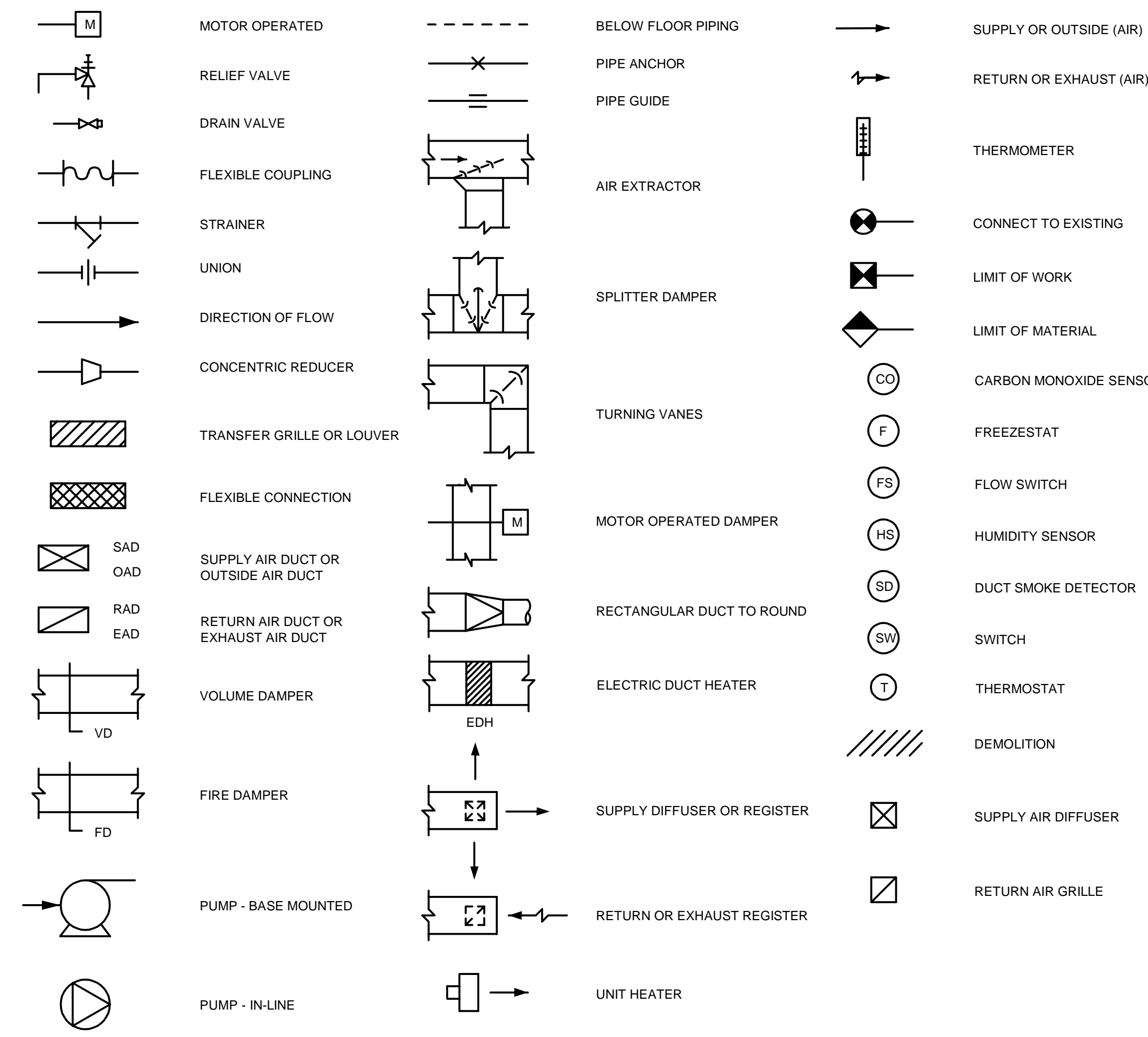
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PLOT DATE: Thursday, February 15, 2024 12:05:12 PM

LEGEND

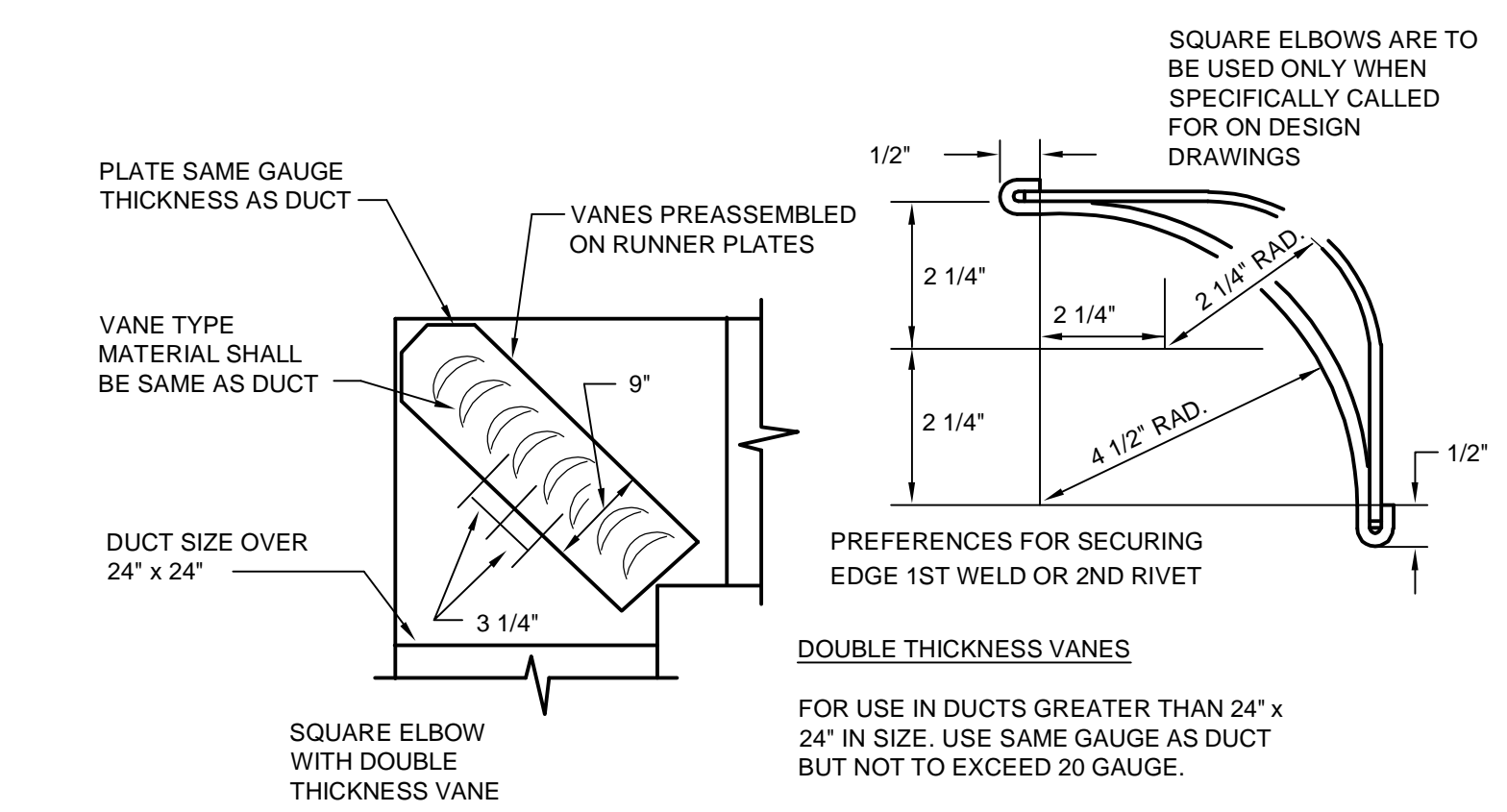
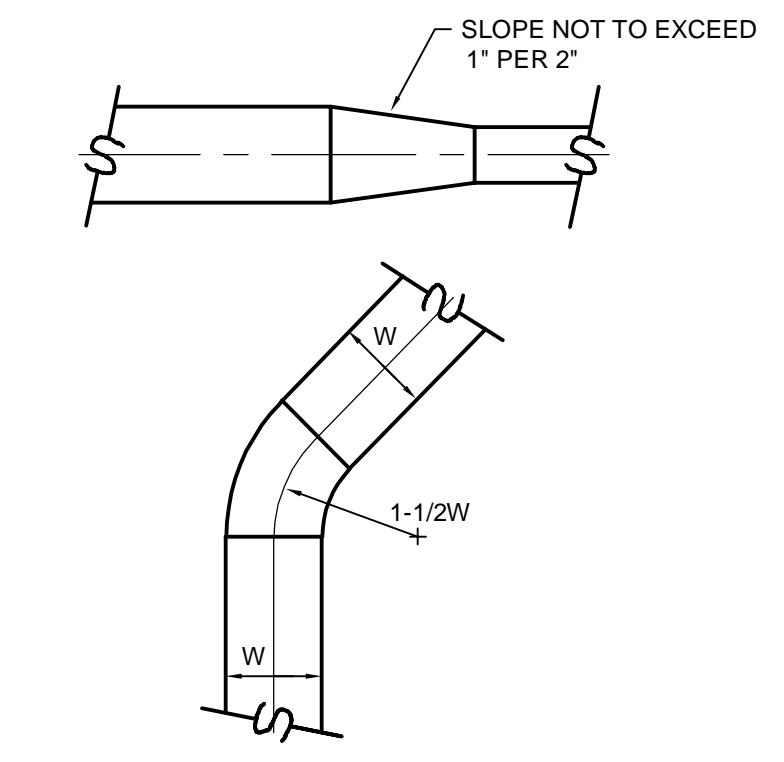


ABBREVIATIONS

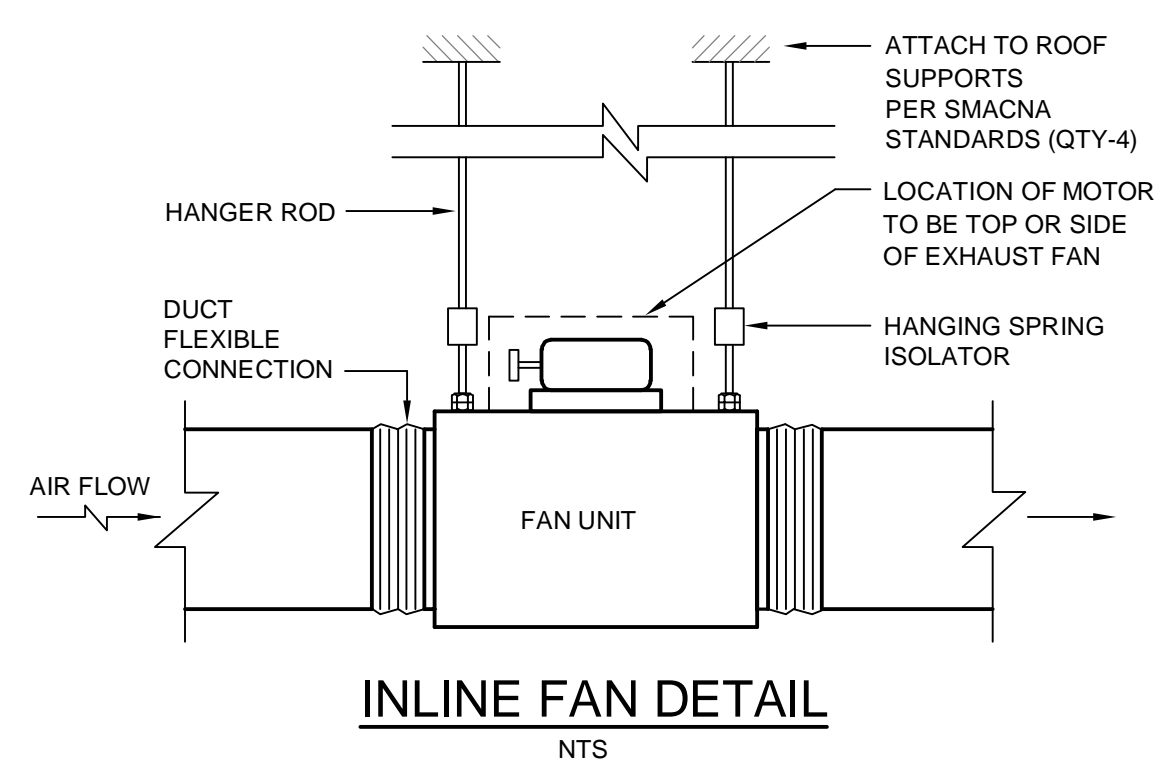
AC AIR CONDITIONER	EAT ENTERING AIR TEMPERATURE	GUH GAS FIRED UNIT HEATER	RAR RETURN AIR REGISTER
AD ACCESS DOOR	EBB ELECTRIC BASEBOARD	HC HEATING COIL	RG RETURN GRILLE
AF AIR FOIL FAN	ECH ELECTRIC CABINET HEATER	HD HOOD	RGL REFRIGERANT LIQUID LINE
AFF ABOVE FINISHED FLOOR	EF EXHAUST FAN	HP HORSEPOWER	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

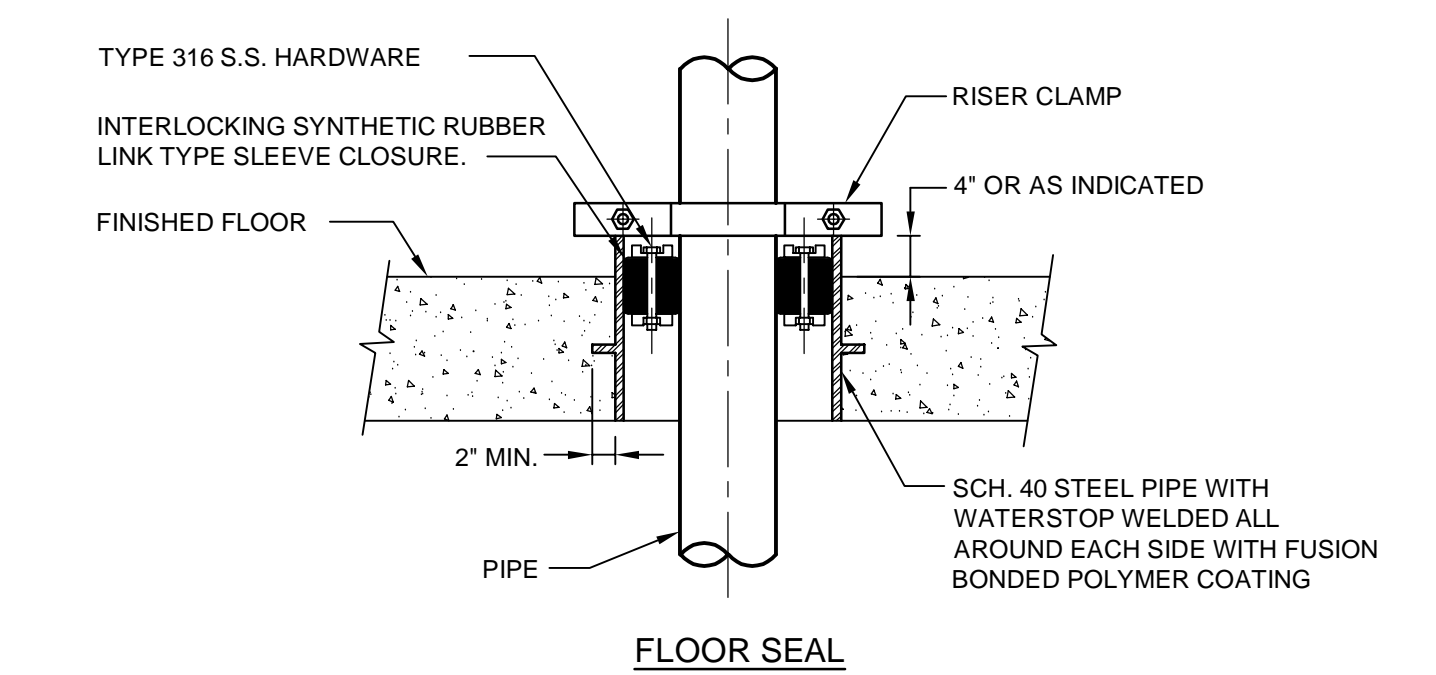
- INSTALL ALL WORK IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
- PROVIDE AIRTIGHT ACCESS DOORS TO ALLOW FOR INSPECTION OF FIRE DAMPERS, CONTROL DAMPERS, INSTRUMENTATION, DETECTORS, FILTERS AND COILS FOR DUCTWORK NOT LESS THAN 6 INCHES BY 6 INCHES.
- PROVIDE DAMPERS OF THE SAME 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.



TURNING VANE DETAIL NTS



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

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:	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

PATH: L:\60662775_SVSC_WPF_HVDRG_ELECT_PDR9001_CAD_GIS910_CAD2020_SHEETS\M001.MXD
 LAST UPDATE: Wednesday, February 14, 2024 7:40:00 AM
 PLOT DATE: Wednesday, February 14, 2024 11:44:31 AM

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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Scale:	NONE

DISCIPLINE

HVAC

SHEET TITLE

SCHEDULES AND SEQUENCES

SHEET NUMBER

00 M-002

DEHUMIDIFIER SCHEDULE

TAG NO.	SERVES	TYPE	AIR HANDLING DATA							DX COOLING COIL DATA					AUXILIARY ELECTRIC HEAT	ELECTRICAL					SELECTION BASED ON MFR/ MODEL			
			TOTAL CFM	DA CFM	SP (IN WG) ESP	FAN TYPE	DRIVE	MTR ENCL.	HP	COOLING (MBH)		EAT (°F)		MOISTURE REMOVAL		HEAT REJECTED	VOLTS	PH	MOPD AMPS	MCA AMPS		SCCR kA	REFRIG	WEIGHT LBS
										TOTAL	SENSIBLE	DB	WB											
DH-1	VAULT	REFRIGERANT TYPE	1,700	0	0	CENT.	BELT	TEFC	1	36	30.4	70	56.7	5.2 LB/HR	45 MBH	NDNE	208	1	50	34	65	R-407C	800	DESERT AIRE/ LW03ANGKAENNNL

- NOTES:
- PROVIDE FILTER SECTION.
 - MODEL CM 3540 REMOTE DISPLAY TERMINAL WITH BMS COMPATIBILITY- BACNET MSTP.
 - INCLUDE UNIT MOUNTED TEMPERATURE SENSOR & RH SENSOR.
 - INCLUDE MANUFACTURER'S FACTORY ASSSITED START UP SERVICES.
 - ELECTRO FIN COATING ON COILS.
 - HBT GAS REHEAT CONDENSER COIL.
 - RECEIVER WITH FLOODING VALVE.
 - EVAPDRATOR COIL DEFROST.
 - WARRANTY: COMPRESSOR 5 YEARS, AIR SIDE COIL 5 YEARS.

FAN SCHEDULE

TAG NO.	SERVES	TYPE	LOCATION	CFM	EXT STATIC (IN. W.G.)	RPM	DRIVE	MAX (dB)	ELECTRICAL DATA				SELECTION BASED ON MFR/ MODEL
									HP	MOTOR ENCLOSURE	VOLTS	PH	
EF-1	VAULT	CENTRIF SQUARE IN-LINE	IN-LINE	1,700	0.5	1169	BELT	64	3/4	TEFC	460	3	GREENHECK BSG-140

- NOTES:
- PROVIDE DAMPERS, TYPE AS INDICATED ON THE PLANS. MOTOR OPERATED DAMPERS SHALL BE 120 V.
 - COAT FAN WITH GREENHECK HI PRO POLYESTER.

ELECTRIC UNIT HEATER SCHEDULE

TAG NO.	LOCATION	TYPE	CAPACITY (KW)	TEMP. RISE	CFM	ELECTRICAL			MTG HT (FT)	SELECTION BASED ON MFR/ MODEL
						VOLT	PH	ENCL		
EUH-1	VAULT	HORIZONTAL	15	32	1050	480	3	TE	11	CHROMALOX/ HD3D-1500

- NOTES:
- UNIT HEATER SHALL INCLUDE 120V WALL MOUNTED CORROSION RESISTANT INDUSTRIAL GRADE, NEMA 4X THERMOSTAT SIMILAR TO CHROMALOX WCRT-100.
 - UNIT HEATER SHALL BE UL LISTED. PROVIDE SWIVEL MOUNTING BRACKETS.

SEQUENCES

A. DEHUMIDIFIER: (DH-1)

THE DEHUMIDIFIER SHALL OPERATE WITH ITS OWN FACTORY PROVIDED CONTROLS TO MAINTAIN SPACE HUMIDITY LEVEL. THE DEHUMIDIFIER'S WALL MOUNTED CONTROL PANEL SHALL CONTROL ALL UNIT FUNCTIONS AND IS STAND ALONE.

B. EXHAUST FAN (EF-1) CONTROLLED BY A SWITCH AT MAIN HATCH ENTRANCE:

- VENTILATION WILL BE PROVIDED ONLY WHEN THE VAULT IS ACCESSED. WHEN THE VAULT IS ENTERED THE FAN'S ON-OFF SWITCH BY ELECTRICAL SHALL BE TURNED "ON" AND THE FAN SHALL RUN. WHEN LEAVING THE VAULT, THE SWITCH SHALL BE TURNED "OFF", AND FAN EF-1 SHALL STOP. THE FAN IS ONLY INTENDED TO RUN WHEN THE VAULT IS OCCUPIED. A SIGN SHALL BE PLACED AT THE SWITCH "VENTILATION-OPERATE ONLY WHEN OCCUPIED, TURN OFF WHEN EXITING.

- THE DEHUMIDIFICATION AND HEATING SYSTEM ARE NOT SIZED WITH THE FAN RUNNING. INLET AIR FOR THE VAULT IS THROUGH THE OPEN HATCH WHEN THE VAULT IS ENTERED.

C. ELECTRIC UNIT HEATER: (EUH-1)

THE ELECTRIC UNIT HEATER SHALL BE CONTROLLED BY A WALL MOUNTED THERMOSTAT. ON A DROP IN SPACE TEMPERATURE BELOW THE THERMOSTAT SET POINT 40 DEGREES F (ADJUSTABLE), THE UNIT FAN SHALL START AND THE ELECTRIC HEATING COIL SHALL BE ENERGIZED. WHEN THE SPACE TEMPERATURE IS ABOVE THE THERMOSTAT SET POINT, THE FAN SHALL STOP AND THE HEATER SHALL BE DEACTIVATED.

PROJECT

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REGISTRATION



ISSUE/REVISION

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PROJECT NUMBER

60662775

Designed By:	AC
Drawn By:	BS
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Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	1/4" = 1'-0"

DISCIPLINE

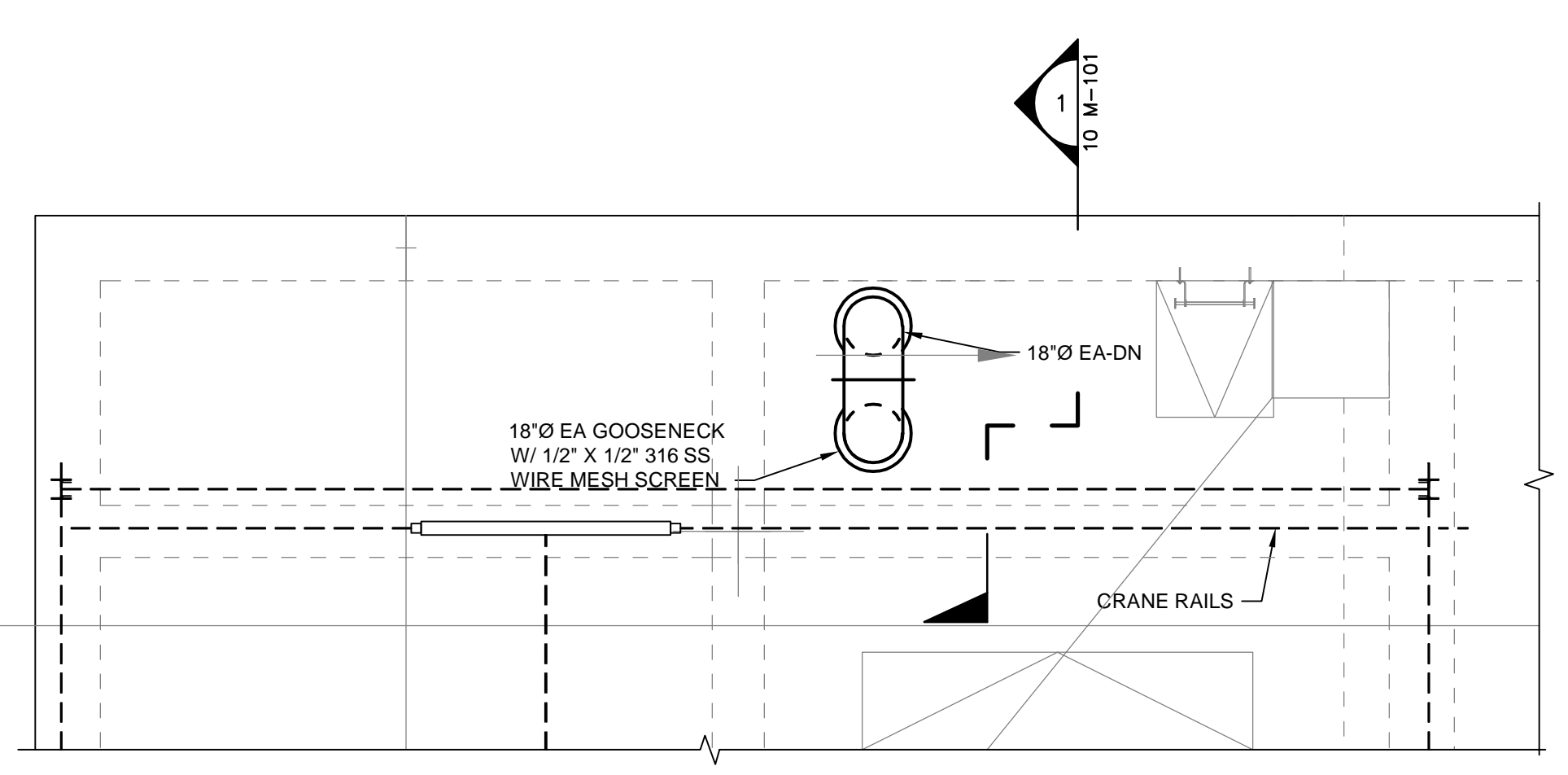
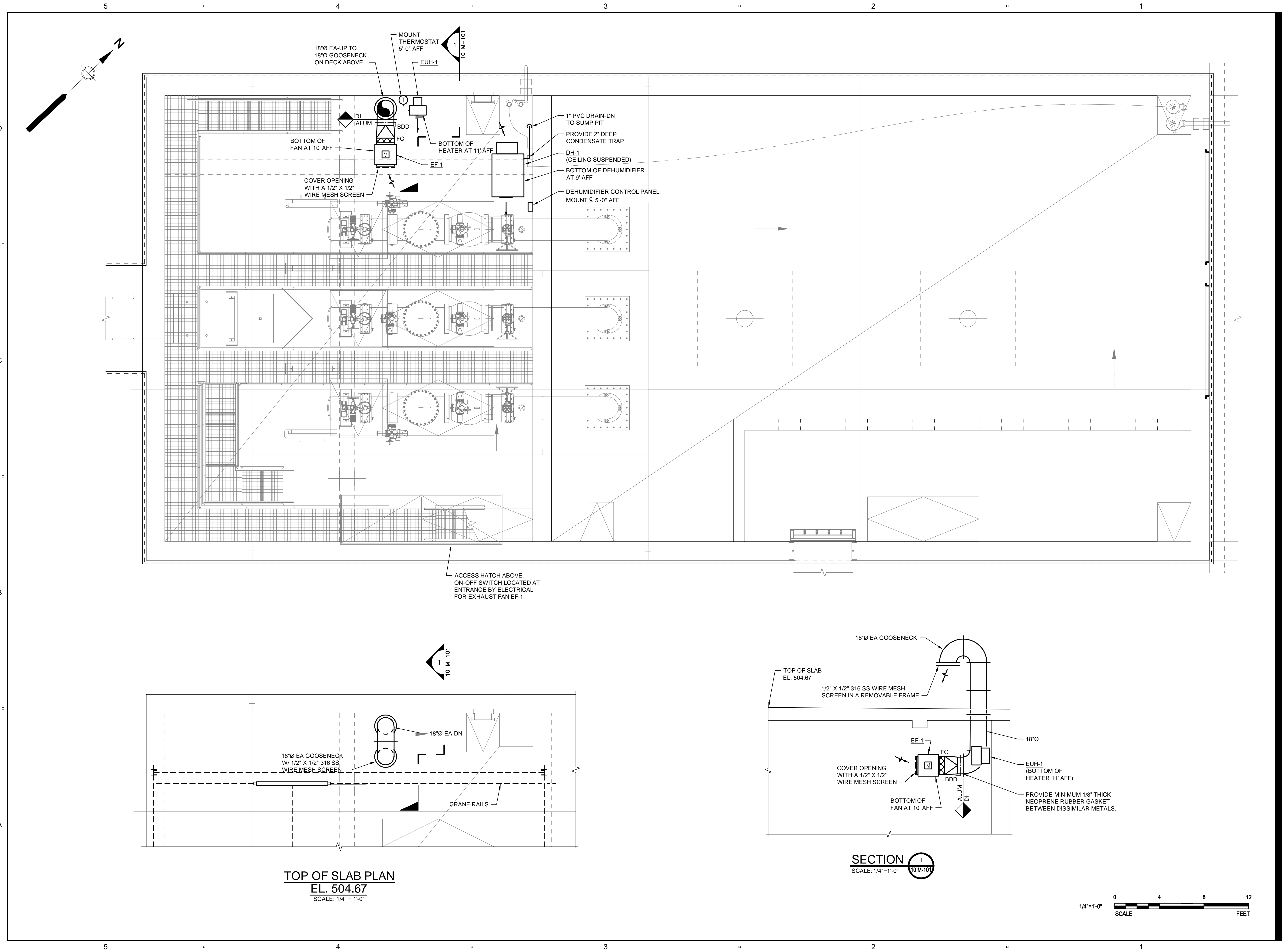
HVAC

SHEET TITLE

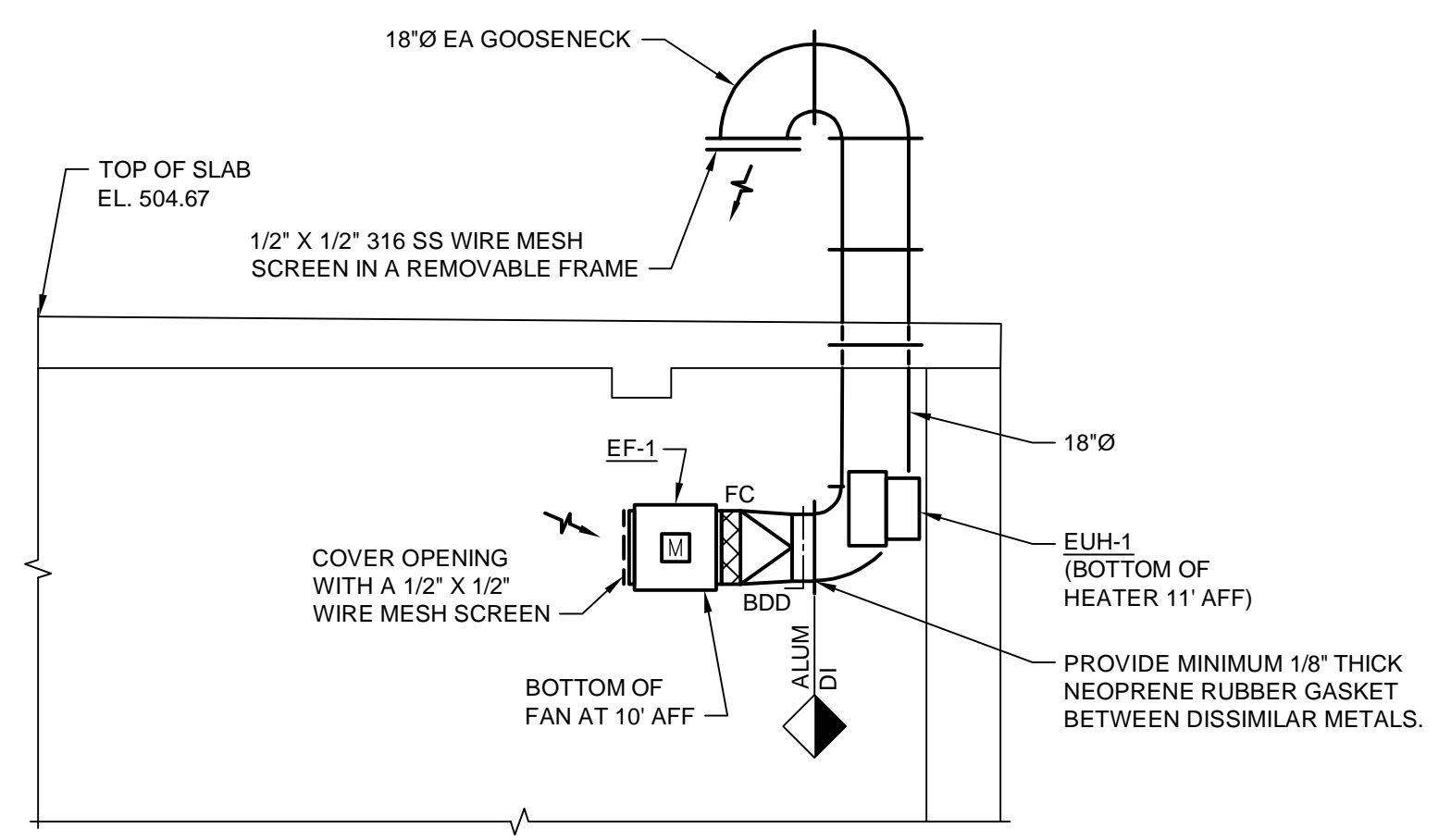
LOWER LEVEL PLANS AND SECTION

SHEET NUMBER

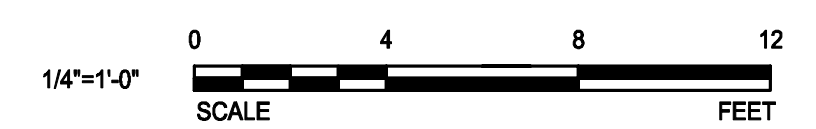
10 M-101



TOP OF SLAB PLAN
 EL. 504.67
 SCALE: 1/4" = 1'-0"



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



PATH: L:\60662775-SVSC-WPF-HVRO-ELECT-PDR900_CAD_GIS910_CAD\20-SHEETS\10 M-101.DWG
 LAST UPDATE: Wednesday, February 14, 2024 7:42:08 AM
 PLOT DATE: Wednesday, February 14, 2024 11:46:15 AM

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
- 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
- "V" NOTCH WEIR
- VERTICAL WET PIT PUMP
- FIBER MEDIA CONVERTER
- FIBER OPTIC PATCH PANEL
- INSERTION MASS FLOW METER

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

INSTRUMENT TYPE (SEE LEGEND TABLE)

LOOP IDENTIFICATION NUMBER

PROCESS AREA

MODIFIER OR HAND SWITCH POSITION SYMBOL

SUPPLIER

FRONT PANEL MOUNTED

PANEL INDICATION

REAR PANEL MOUNTED

FIELD MOUNTED

FIELD INDICATION

PLC CONFIGURABLE FUNCTION, CRT DISPLAY OF ALARMS & STATUS

PLC CONFIGURATION FUNCTION, CRT DISPLAY OF CONTROL & INDICATION

PLC CONFIGURABLE FUNCTION, NOT DISPLAYED ON CRT

INTERLOCK

SURGE PROTECTOR - SEE SPECIFICATION

REQUIRES 120 VAC POWER SUPPLY FROM PLC PANEL

SPECIFIC LOOP NUMBER

DUPLICATE LOOP IDENTIFICATION SYMBOL

REFERENCE LOOP NUMBER

SUPPLIERS

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

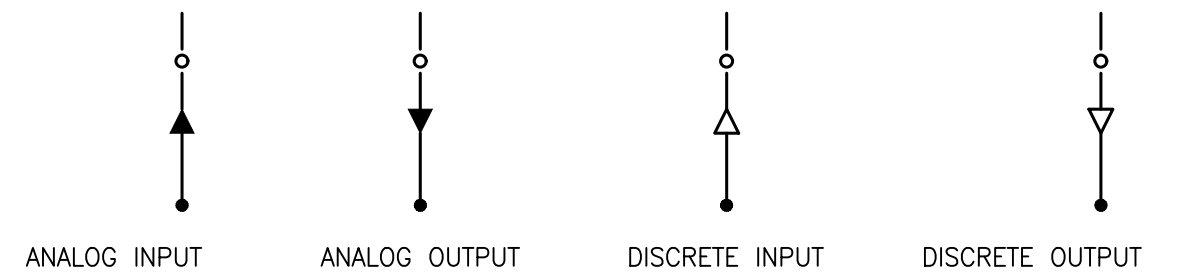
(E) SPECIFIED BY ELECTRICAL (X) EXISTING

(M) SPECIFIED BY MECHANICAL (H) SPECIFIED BY HVAC

(F) FURNISHED WITH EQUIPMENT (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

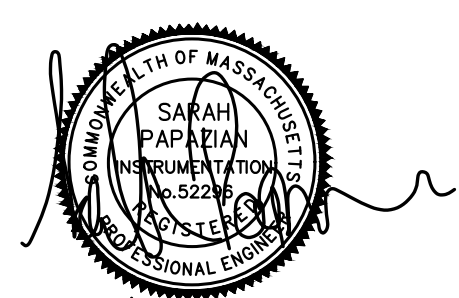
250 M STREET EXTENSION
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CONSULTANTS

REGISTRATION



2/14/24

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\000-DI-001.DWG
 LAST UPDATE: Wednesday, February 14, 2024 2:14:05 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
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Date:	FEBRUARY 2024
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DISCIPLINE

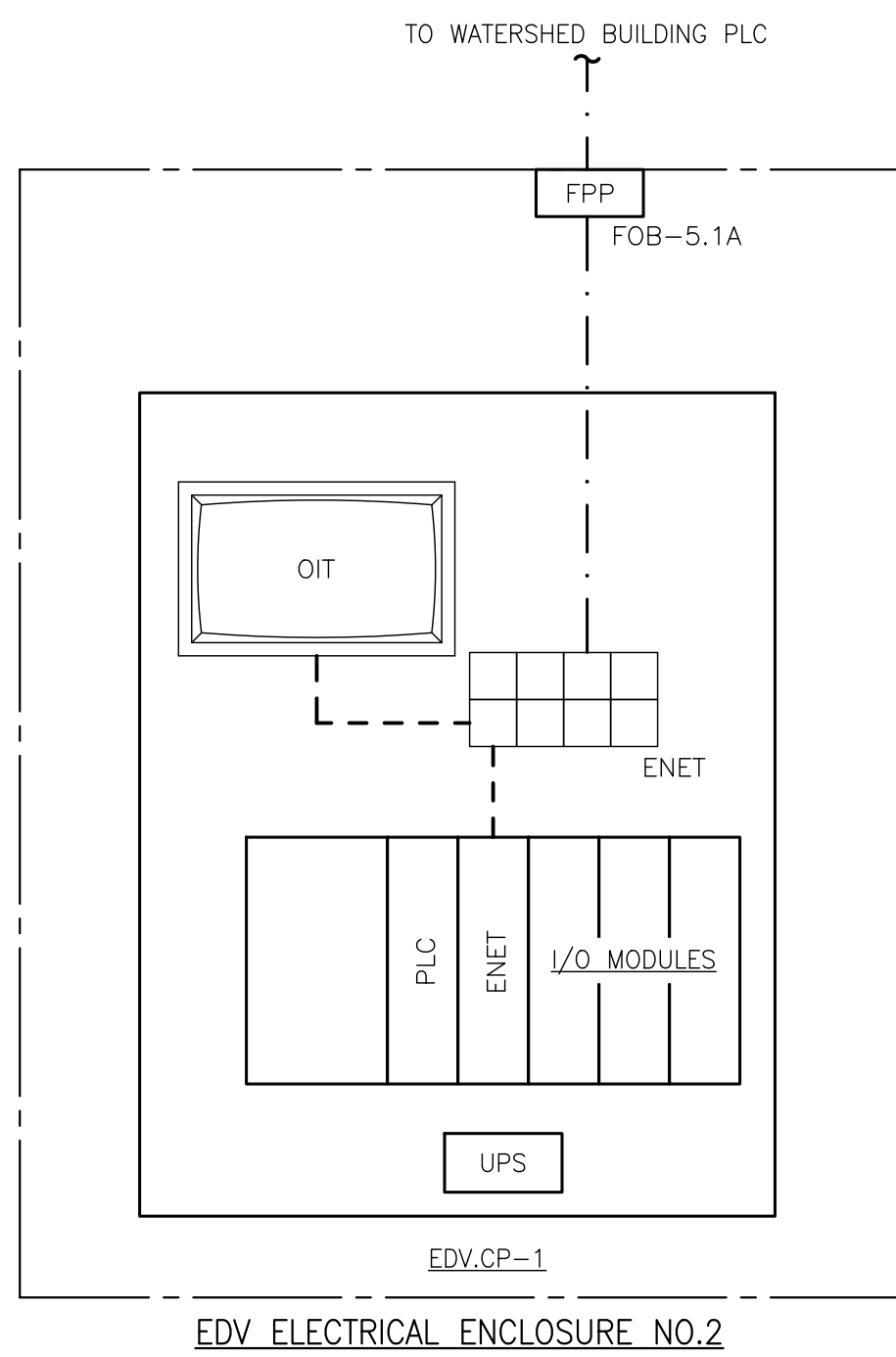
INSTRUMENTATION

SHEET TITLE

SYSTEM ARCHITECTURE

SHEET NUMBER

10 DI-601



LEGEND

- ETHERNET
- FIBER MEDIA
- MANAGED ETHERNET SWITCH
- FIBEROPTIC PATCH PANEL

PATH: L:\DCS\PROJECTS\WTR6662775_SWSC_WF_HYDRO_ELECT_FDR6662775_SWSC_CAD_GS610_CAD20-SHEETS\010.DWG
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2/11/24

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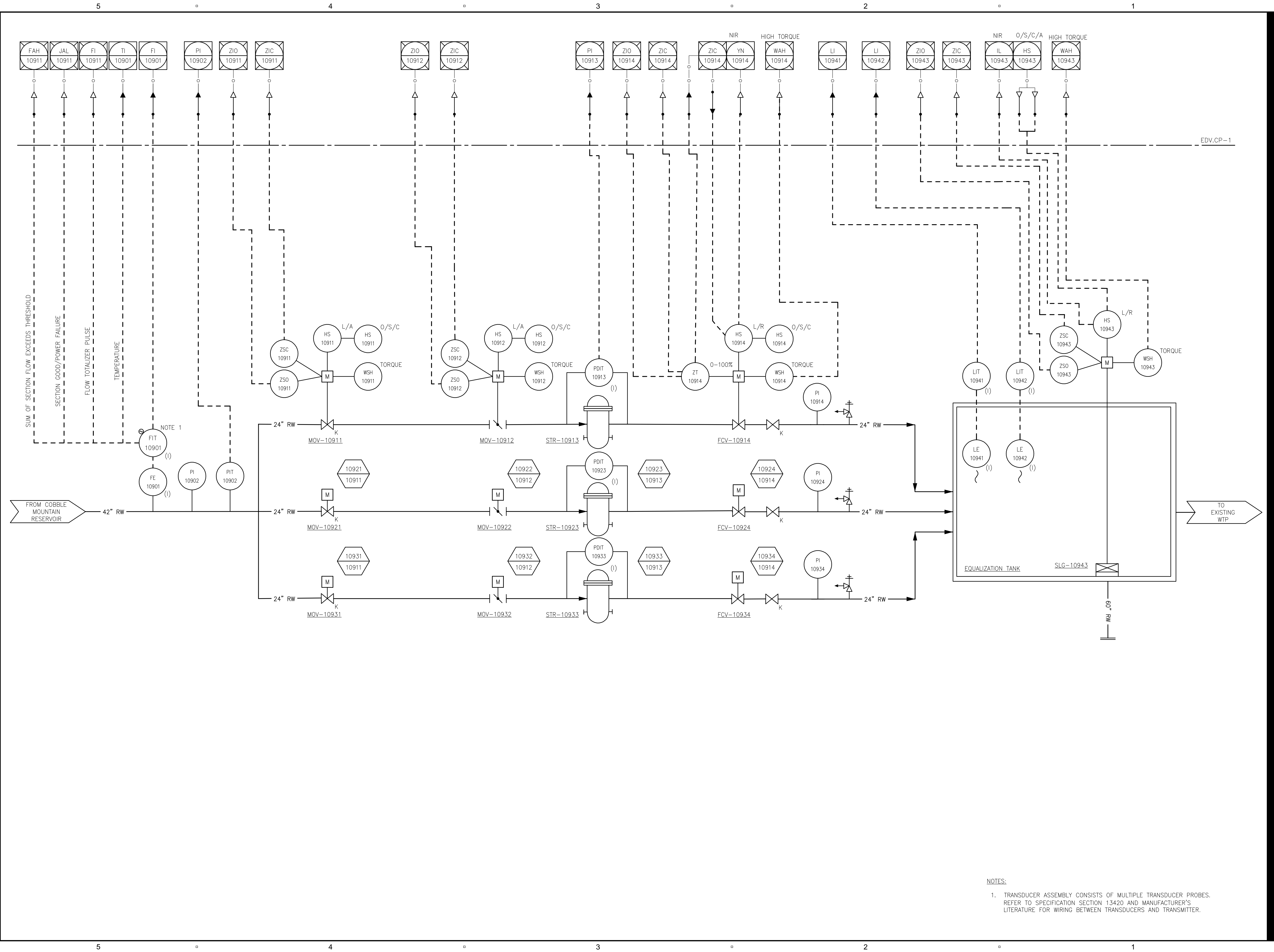
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Date:	FEBRUARY 2024
Scale:	AS NOTED

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\910_CAD\20-SHEETS\910 DI-602.DWG
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PROJECT

42-INCH RAW WATER
 BYPASS CONVEYANCE
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 AND ENERGY DISSIPATION
 VALVE CHAMBER
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 WATER AND SEWER
 COMMISSION

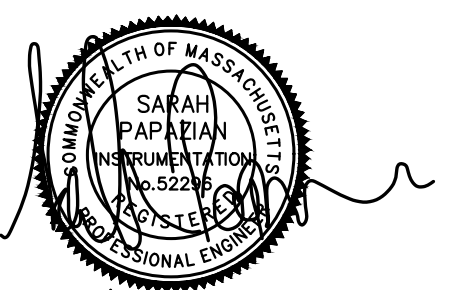
250 M STREET EXTENSION
 AGAWAM, MA 01001

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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

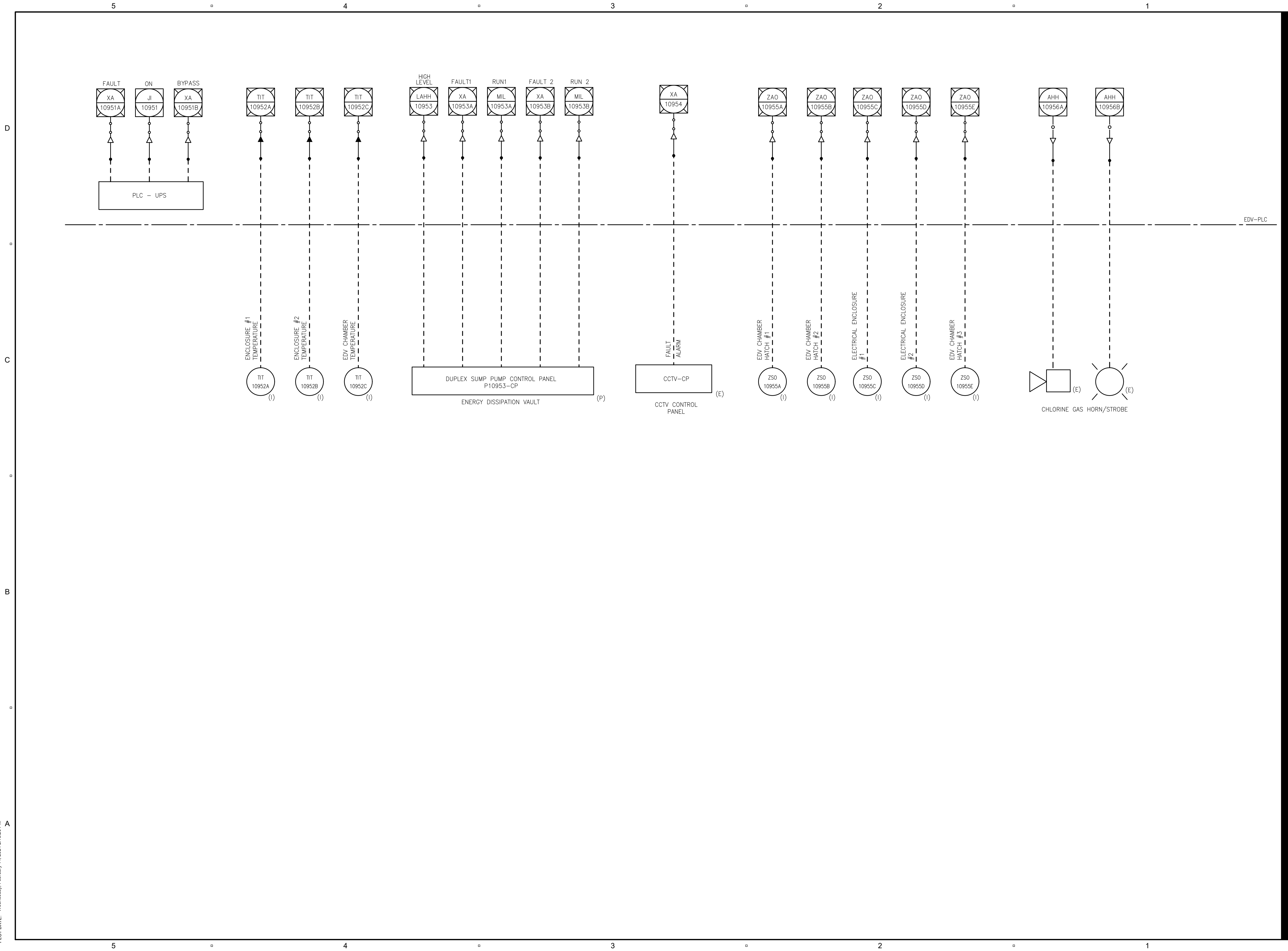
INSTRUMENTATION

SHEET TITLE

MISCELLANEOUS SIGNALS

SHEET NUMBER

99 DI-601



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 PLOT DATE: Wednesday, February 14, 2024 2:48:40 PM

PLANS

- DT3 1 SURFACE, RECESSED OR PENDANT MTD INCAND. OR HIGH INTENSITY DISCHARGE LUMINAIRE
- NL SURFACE, RECESSED OR PENDANT MOUNTED FLUORESCENT LUMINAIRE
- WALL MOUNTED LED OR HIGH INTENSITY DISCHARGE LUMINAIRE
- POLE OR POST-TOP MOUNTED LUMINAIRE
- ROADWAY LUMINAIRE
- FLOODLIGHT
- WALL MOUNTED EXIT LIGHT. ARROW (IF SHOWN) INDICATES DIRECTION OF EGRESS
- CEILING OR PENDANT MOUNTED EXIT LIGHT. ARROW (IF SHOWN) INDICATES DIRECTION OF EGRESS
- BATTERY OPERATED AUXILIARY LIGHTING UNIT. MOUNT 7'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED
- REMOTE MOUNTED AUXILIARY LIGHTING HEAD MOUNTED 7'-6" ABOVE FLOOR UNLESS OTHERWISE NOTED.
- DENOTES DEVICE OR EQUIPMENT - RECESSED/FLUSH MOUNTED
- DENOTES DEVICE OR EQUIPMENT - SURFACE MOUNTED
- S_{1a} SINGLE POLE SWITCH CONTROLS FIXTURES MARKED "a"
- S_{2b} DOUBLE POLE SWITCH CONTROLS FIXTURES MARKED "b"
- S_{3c} THREE-WAY SWITCH CONTROLS FIXTURES MARKED "c"
- S_{4d} FOUR-WAY SWITCH CONTROLS FIXTURES MARKED "d"
- S_{HOAe} HAND-OFF-AUTO SELECTOR SWITCH CONTROLS FIXTURES MARKED "e"
- DUPLX RECEPTACLE, FLOOR MOUNTED
- DUPLX RECEPTACLE (GROUND TYPE) GFCI DENOTES GROUND FAULT CIRCUIT INTERRUPTER
- DUPLX RECEPTACLE (GROUND TYPE) GFCI WITHIN WEATHERPROOF ENCLOSURE
- SIMPLEX RECEPTACLE (GROUND TYPE), "W" DENOTES WATERTIGHT EQUIPMENT, "WP" DENOTES WEATHERPROOF "XP" DENOTES EXPLOSION PROOF
- SPECIAL PURPOSE RECEPTACLE, TYPE AND AMPERE RATING AS INDICATED ON PLAN
- COMBINATION MANUAL MOTOR STARTER AND DISCONNECT SWITCH WITH HAND OFF AUTO SWITCH MANUAL MOTOR STARTER
- COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH
- TWO SPEED MOTOR STARTER
- REDUCED VOLTAGE MOTOR STARTER
- MAGNETIC CONTACTOR
- FUSED DISCONNECT SWITCH 600V, 3 POLE, 15A UNLESS OTHERWISE NOTED.
- UNFUSED DISCONNECT SWITCH 600V, 3 POLE UNLESS OTHERWISE NOTED. 30A - INDICATES SWITCH SIZE OR AS INDICATED ON ONE-LINE DIAGRAM
- PANELBOARD
- ENGINEERED ELECTRICAL DISTRIBUTION EQUIPMENT, SWITCHGEAR, MCC, ETC.
- TRANSFORMER
- MOTOR FURNISHED AND INSTALLED UNDER OTHER DIVISION, CONNECTED UNDER DIVISION 16.
- PACKAGED MOTOR WITH MOTOR STARTER AND CONTROL FURNISHED AND INSTALLED UNDER OTHER DIVISIONS, CONNECTED UNDER DIVISION 16.
- JUNCTION BOX
- GROUND ROD TEST WELL
- GROUND ROD: TYPE AND SIZE AS INDICATED ON PLAN OR IN SPECIFICATIONS.
- EXOTHERMIC CONNECTION
- GROUNDING CABLE
- CONDUIT RUNS CONCEALED IN FLOOR, WALL AND UNDERGROUND
- CONDUIT RUNS ABOVE SUSPENDED CEILING
- CONDUIT RUNS EXPOSED
- CONDUIT TURNING UP OR TOWARD OBSERVER
- CONDUIT TURNING DOWN OR AWAY FROM OBSERVER
- PIPE LINE HEAT TRACING. FOR RATING SEE SPECIFICATIONS AND PLANS
- CONCRETE ENCASED, DUCT BANK. SEE SPECIFICATIONS AND PLANS FOR TYPE AND SIZE
- THERMOSTAT
- OCCUPANCY SENSOR WALL MOUNTED
- OCCUPANCY SENSOR CEILING MOUNTED

"1" DENOTES PANELBOARD BRANCH CIRCUIT #1.
 "a" DENOTES CONTROLLED BY LOCAL SWITCH "a".
 "DT3" DENOTES FIXTURE TYPE.
 "NL" INDICATES NIGHT LIGHT

PLANS

- CONDUIT NUMBER, SEE CONDUIT AND WIRE SCHEDULE
- [PA] DENOTES SECTION LETTER OR DETAIL NUMBER
- [E-12] DENOTES ELECTRICAL SHEET NUMBER ON WHICH SECTION OR DETAIL IS SHOWN
- [XXX] SEE ABBREVIATION FOR ITEM TYPE
- HOMERUN WHERE MORE THAN THREE WIRES INCLUDING GROUND, DIAGONAL LINES INDICATE NUMBER OF WIRES IN CONDUIT.
- [R] GAS MONITORING SYSTEM HORN (RED)
- [G] GAS MONITORING SYSTEM STROBE (GREEN)
- [C] CONVEYOR SYSTEM HORN
- [C] CONVEYOR SYSTEM STROBE
- CIRCUIT BREAKER ENCLOSURE WITH 15A CIRCUIT BREAKER 120V, 10,000AIC. SEE CLASSIFICATION DRAWING FOR ENCLOSURE REQUIREMENTS.

DIAGRAMS

- 800A CIRCUIT BREAKER, 3-POLE UNLESS OTHERWISE NOTED, NUMBER INDICTS CIRCUIT BREAKER SIZE.
- MCP MOTOR CIRCUIT PROTECTOR MAGNETIC STARTER
- FVNR = FULL VOLTAGE, NON-REVERSING
 FVR = FULL VOLTAGE, REVERSING
 FVTS = FULL VOLTAGE, TWO SPEED
 RVNR = REDUCED VOLTAGE, NON-REVERSING,
 AUTO-TRANSFORMER TYPE
 PW = PART WINDING
 C = MAGNETIC CONTACTOR (WITHOUT OL.)
 RVSS = REDUCED VOLTAGE, SOLID STATE
- NUMBER INDICATES NEMA STARTER SIZE
- 30A UNFUSED DISCONNECT SWITCH. NUMBER DENOTES AMPERE RATING.
- 100/70 FUSED DISCONNECT SWITCH, 3-POLE UNLESS OTHERWISE NOTES. NUMBER INDICATES FUSE RATING.
- FUSE - LETTER DENOTES CLASS
- LOW VOLTAGE CIRCUIT BREAKER, DRAW OUT TYPE, MANUALLY OR ELECTRICALLY OPERATED WITH STATIC TRIP DEVICES AND GROUND SENSOR. UPPER NUMBER INDICATES FRAME SIZE, LOWER NUMBER INDICATES TRIP SETTING. "E" INDICATES ELECTRICALLY OPERATED.
- TRANSFORMER, SIZE AS NOTED, DELTA CONNECTION-PRIMARY, WYE CONNECTION GROUNDED-SECONDARY (LOW VOLTAGE).
- SQUIRREL CAGE INDUCTION MOTOR. NUMBER DENOTES HORSEPOWER OR KW
- PACKAGED MOTOR WITH MOTOR, STARTER AND CONTROLS. NUMBER INDICATES KILOWATT RATING OR HORSEPOWER.
- ELECTRIC UNIT HEATER 10KW INDICATES KILOWATT SIZE
- INDICATING LIGHTS: R=RED, B=BLUE, G=GREEN, A=AMBER, W=WHITE
- MECHANICALLY INTERLOCKED (KEY)
- ELECTRICALLY INTERLOCKED
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- SURGE PROTECTION DEVICE
- CONTROL SWITCH
- LONG TIME, SHORT TIME, INSTANTANEOUS, GROUND FAULT
- POWER MONITOR

COMMUNICATION

- CONDUIT FOR TELEPHONE WIRING
- RECESSED TELEPHONE OUTLET AND PHONE MOUNTED 48" A.F.F.
- SURFACE MOUNTED TELEPHONE OUTLET AND PHONE MOUNTED 48" A.F.F.
- RECESSED TELEPHONE DATA OUTLET AND PHONE MOUNTED 48" A.F.F. UNLESS OTHERWISE NOTED.
- SURFACE TELEPHONE DATA OUTLET AND PHONE MOUNTED 48" A.F.F. UNLESS OTHERWISE NOTED.

SECURITY

- DOOR CONTACT ALARM SWITCH
- DOOR ACCESS CARD STATION

ABBREVIATIONS

- AFF ABOVE FINISH FLOOR
- AHF ACTIVE HARMONIC FILTER
- AHU AIR HANDLING UNIT
- AL ALARM
- AN ANNUNCIATOR
- ATS AUTOMATIC TRANSFER SWITCH
- BTD BEARING TEMPERATURE DETECTOR
- BTS BEARING TEMPERATURE SWITCH
- CES CONVEYOR EMERGENCY STOP SWITCH
- CLF CURRENT LIMITING FUSE
- CLS CENTRIFUGAL LIMIT SWITCH
- CMS COMBINATION MOTOR STARTER
- CPT CONTROL MOTOR TRANSFORMER
- CR CONTROL RELAY
- CS CONTROL SWITCH
- DB DOORBELL
- EF EXHAUST FAN
- EHH ELECTRICAL HAND HOLE
- EL ELEVATION
- EMH ELECTRICAL MANHOLE
- EOV ELECTRICALLY OPERATED VALVE
- ES EMERGENCY STOP SWITCH (MAINTAINED CONTACT) (PROVIDE DEVICE THAT CAN BE LOCKED IN THE OFF POSITION)
- EUH ELECTRIC UNIT HEATER
- EWC ELECTRIC WATER COOLER
- FAA FIRE ALARM ANNUNCIATOR PANEL
- FACP FIRE ALARM CONTROL PANEL
- FOB FIBER OPTIC PATCH PANEL
- FC FLOW CONTROLLER
- FOH FAN-OFF-HEATER
- FSL FIRE ALARM STATUS LIGHT
- FIS IONIZATION SMOKE DETECTOR STATUS STATION
- FSR FORWARD-STOP-REVERSE
- GFP GROUND FAULT PROTECTION
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- GSC GROUNDED SERVICE CONDUCTOR
- GSCT GROUND SENSING CURRENT TRANSFORMER
- G GROUND
- HA HAND-AUTOMATIC
- HOA HAND-OFF-AUTOMATIC
- HH HAND HOLE
- HP HORSEPOWER
- HTR MOTOR HEATER
- HWT HIGH WATER TEMPERATURE SWITCH
- KP KEY PAD
- KS KEY SWITCH
- KW KILOWATT
- LOR LOCAL-OFF-REMOTE
- LR LOCAL-REMOTE
- LS LIMIT SWITCH
- MCC MOTOR CONTROL CENTER
- MCP MOTOR CIRCUIT PROTECTOR
- MH MANHOLE
- MHC MECHANICALLY HELD CONTACTOR
- MOV MOTOR OPERATED VALVE
- MSD MOISTURE SENSING DETECTOR
- NEUT NEUTRAL
- NIR NOT IN REMOTE
- NO NORMALLY OPEN
- NC NORMALLY CLOSED
- OC OPEN-CLOSE

ABBREVIATIONS

- OLS MOTOR OVERLOADS
- OO ON-OFF
- OSC OPEN-STOP-CLOSE
- POE POWER OVER ETHERNET
- RGS RIGID GALVANIZED STEEL CONDUIT
- ROR RUN-OFF-REMOTE
- SAA SECURITY ALARM ANNUNCIATOR PANEL
- SCP SECURITY CONTROL PANEL
- SCR SILICON CONTROL RECTIFIER
- SEL SELECTOR SWITCH
- SF SLOW-FAST
- SFS SLOW-FAST-STOP
- SH SPACE HEATER
- SOFA SLOW-OFF-FAST-AUTOMATIC
- SPF SHEAR PIN FAILURE CONTACT
- SQ SEQUENCE SELECTOR SWITCH
- SS START-STOP
- SV SOLENOID VALVE
- SW SWITCH
- T THERMOSTAT
- TC TIMED CLOSE
- T/C THERMOCOUPLE
- TD TIME DELAY RELAY
- TO TIMED OPEN
- TI TIMER
- TQ TORQUE ALARM SWITCH
- TR TRANSFORMER
- TS TEMPERATURE SENSOR
- TTC TELEPHONE TERMINAL CABINET
- TYP TYPICAL
- VFD VARIABLE FREQUENCY DRIVE
- VIS VIBRATION SWITCH
- VPS VACUUM PRESSURE SWITCH
- W DENOTES WATERTIGHT EQUIPMENT
- WP DENOTES WEATHERPROOF EQUIPMENT
- WPG WEATHERPROOF GFCI RECEPTACLE
- XFMR TRANSFORMER
- XP DENOTES EXPLOSION PROOF EQUIPMENT
- XST EXISTING
- ZSS ZERO SPEED SWITCH

LEGEND

- DEMOLITION WORK - COORDINATE DISCONNECTING AND REMOVAL OF ELECTRICAL EQUIPMENT INDICATED WITH DEMOLITION WORK PROVIDED BY OTHER DIVISIONS. REFER TO OTHER DISCIPLINE DRAWINGS FOR ADDITIONAL DEMOLITION DETAILS.
- NEW WORK
- EXISTING WORK

GENERAL NOTES

- CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
- SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. EXCEPT RECEPTACLES IN OFFICES OR AREAS WITH SUSPENDED CEILINGS SHALL BE MOUNTED 1'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- SURFACE MOUNTED PANELS AND PANEL BOARDS, SHALL BE MOUNTED TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
- FOR EXPLANATION OF INSTRUMENTATION SYMBOLS SHOWN ON ELECTRICAL DRAWINGS, SEE INSTRUMENTATION LEGEND AND NOTES ON SHEET 00-DI-001.
- CONDUIT AND WIRE (NOT SHOWN) FOR THE HVAC CONTROL EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE FURNISHED AND INSTALLED UNDER SECTION 15806 OF SPECIFICATIONS AND SHALL BE:
 - A. 3/4" (MIN.)
 - B. NO. 12 CU. WIRE (MIN.), NO. OF WIRES AS REQUIRED
 - C. CONDUIT AND WIRING TO BE IN ACCORDANCE WITH DIVISION 16.
- CONDUIT AND WIRE (NOT SHOWN) FOR LIGHTING FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED AND SHALL BE:
 - A. 3/4" (MIN.) CONDUIT
 - A1. EXPOSED IN UNFINISHED AREAS.
 - A2. CONCEALED ABOVE SUSPENDED CEILINGS AND IN WALLS IN FINISHED AREAS.
 - B. NO. 12 CU. WIRE (MIN.), NO. OF WIRES AS REQUIRED, INCLUDING GROUND.
- ITEMS SHALL BE PROVIDED WITH NEMA ENCLOSURE AS INDICATED ON THE EQUIPMENT ENCLOSURE SCHEDULE.
- DUCT BANK CONDUIT SIZES ARE GIVEN IN THE DUCT BANK CALLOUTS. WHERE THE SAME CONDUIT NUMBER IS USED BOTH IN THE DUCT BANK AND IN A BUILDING, THE CONDUIT SIZE GIVEN IN THE CONDUIT SCHEDULE APPLIES TO THE CONDUIT IN THE BUILDING ONLY.
- ALL SWITCHES, RECEPTACLES AND EQUIPMENT SHALL COMPLY WITH THE LATEST VERSION OF THE ADA (AMERICANS WITH DISABILITIES ACT).
- PROVIDE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) CONDUITS FOR POWER AND CONTROL CIRCUITS WITHIN CONCRETE ENCASED DUCT BANK SYSTEM. PROVIDE RIGID GALVANIZED STEEL CONDUITS FOR 50 VOLTS AND BELOW CIRCUITS. INSTRUMENTATION, COMMUNICATIONS IO, DATA HIGHWAY, FIRE ALARM AND COMMUNICATIONS NETWORKS WITHIN CONCRETE ENCASED DUCT BANK.
- GENERAL CONTRACTOR TO PROVIDE EARTH AND ROCK EXCAVATION, BACKFILL, CONCRETE, MASONRY AND CONCRETE REINFORCEMENT FOR ELECTRICAL DUCT BANKS. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT AND SPACERS. COORDINATE DUCT BANKS WITH THE GENERAL CONTRACTOR REFER TO SPECIFICATION SECTION 16050 AND 16402 FOR FURTHER DETAILS
- PROVIDE DISCONNECT SWITCHES AT ALL MOTORS, UNITS HEATERS, INSTRUMENTS, ETC. AS INDICATED ON RISER DIAGRAMS AND SINGLE LINE DIAGRAMS.
- SEE SPECIFICATION 01015 FOR SEQUENCE OF WORK LIMITATION.

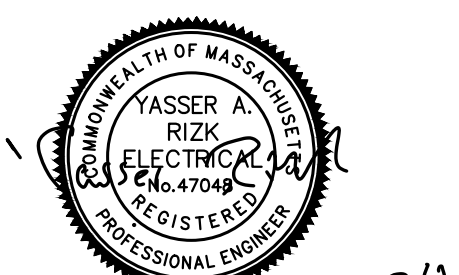


PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA
CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION AGAWAM, MA 01001
ENGINEER

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CONSULTANTS

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PROJECT NUMBER

60662775

Designed By:	AE
Drawn By:	HG
Dept Check:	YR
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Date:	FEBRUARY 2024
Scale:	NONE

DISCIPLINE
 ELECTRICAL
SHEET TITLE
 LEGEND, ABBREVIATIONS AND GENERAL NOTES
SHEET NUMBER

00 E-001

PROJECT

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

CLIENT

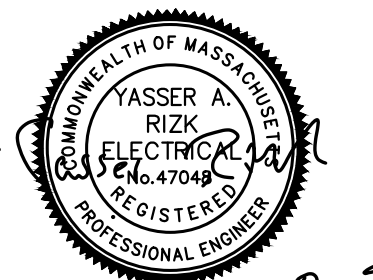
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 AGAWAM, MA 01001

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Date: FEBRUARY 2024

Scale: 1" = 60'-0"

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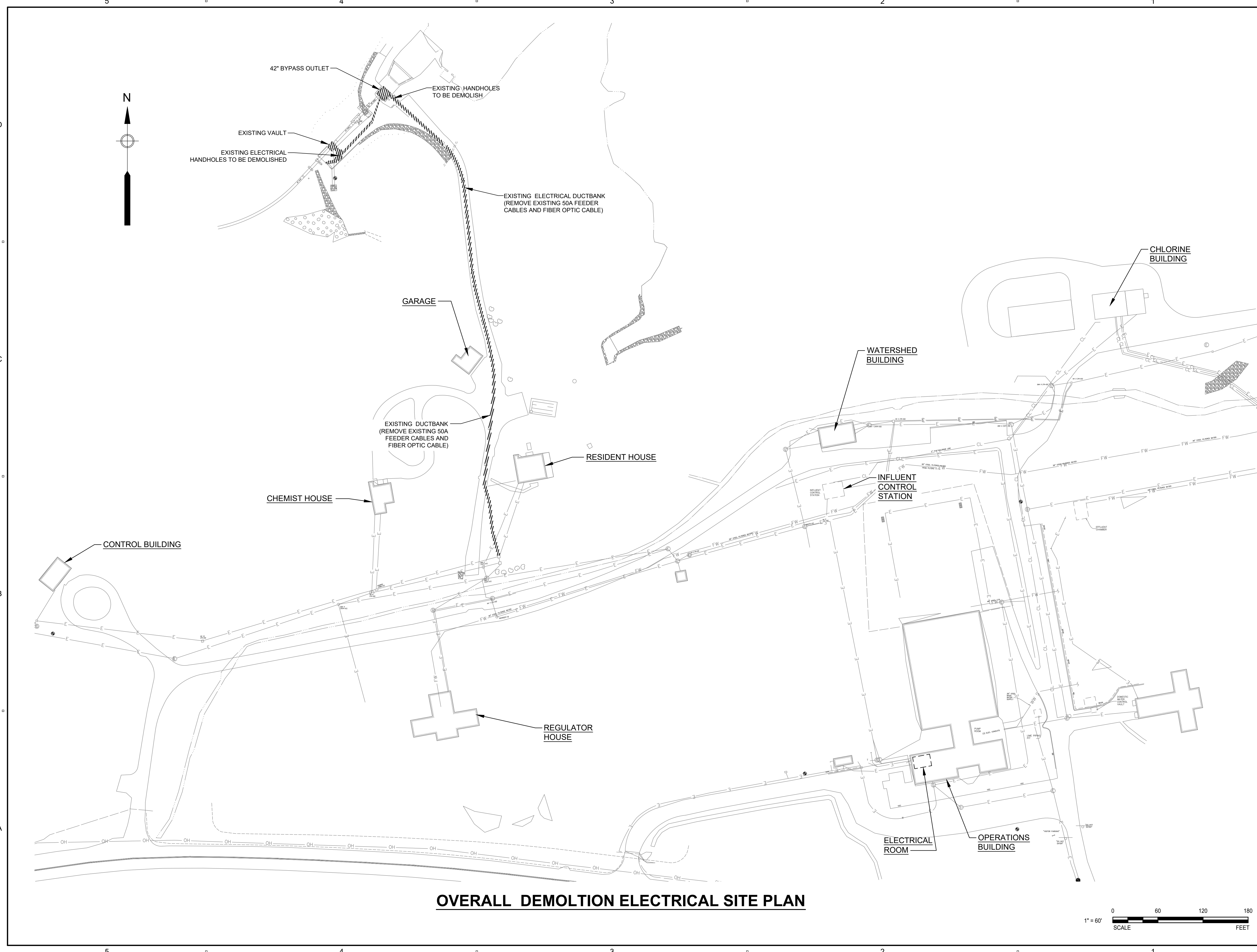
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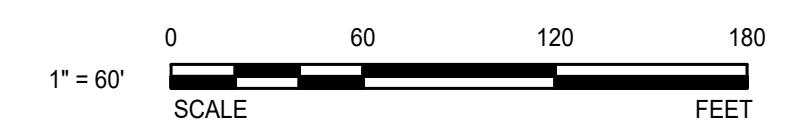
OVERALL DEMOLITION ELECTRICAL SITE PLAN

SHEET NUMBER

00 E-002



OVERALL DEMOLITION ELECTRICAL SITE PLAN



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 PLOT DATE: Wednesday, February 14, 2024 2:48:43 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

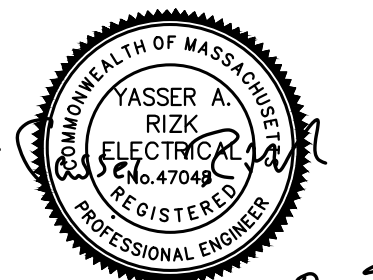
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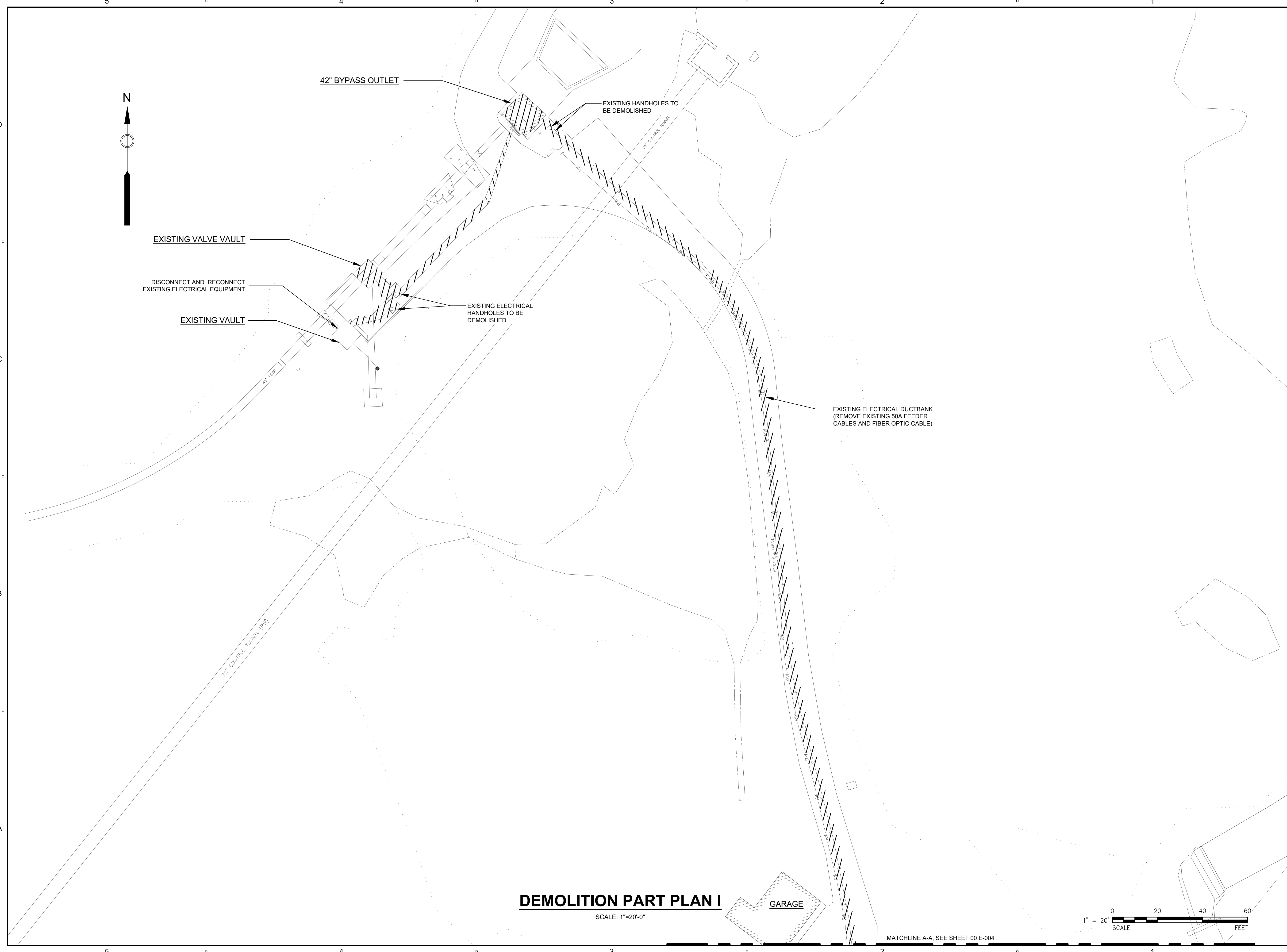
ELECTRICAL

SHEET TITLE

PART PLAN ELECTRICAL DEMOLITION SITE PLAN I

SHEET NUMBER

00 E-003



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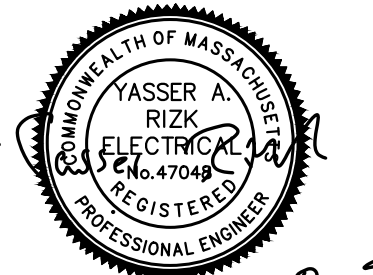
PROJECT
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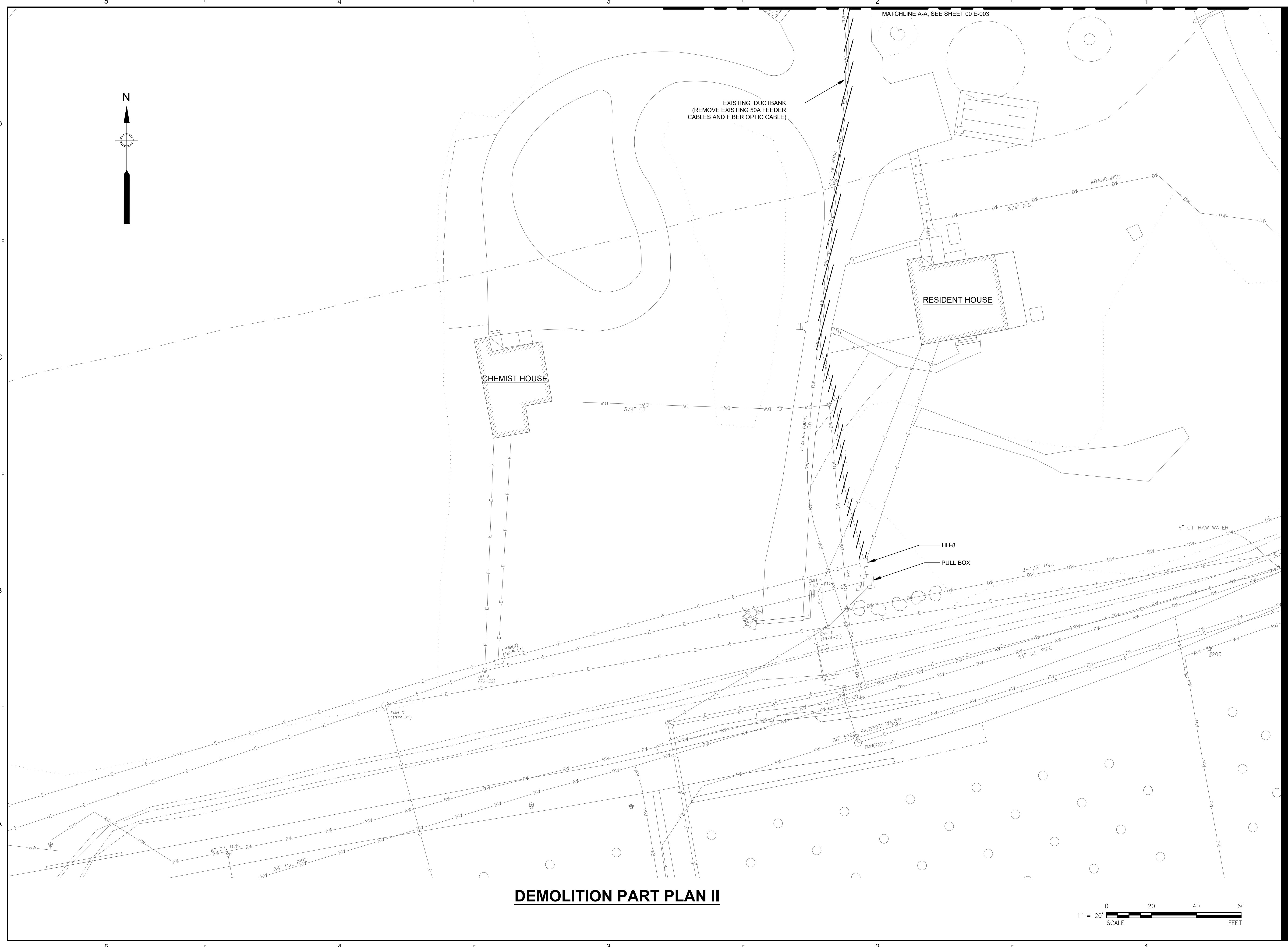
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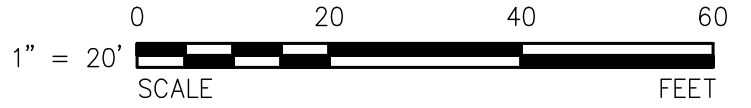
**PART PLAN ELECTRICAL
 DEMOLITION SITE PLAN II**

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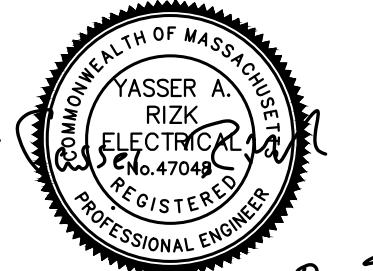
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DEMOLITION PART PLAN II



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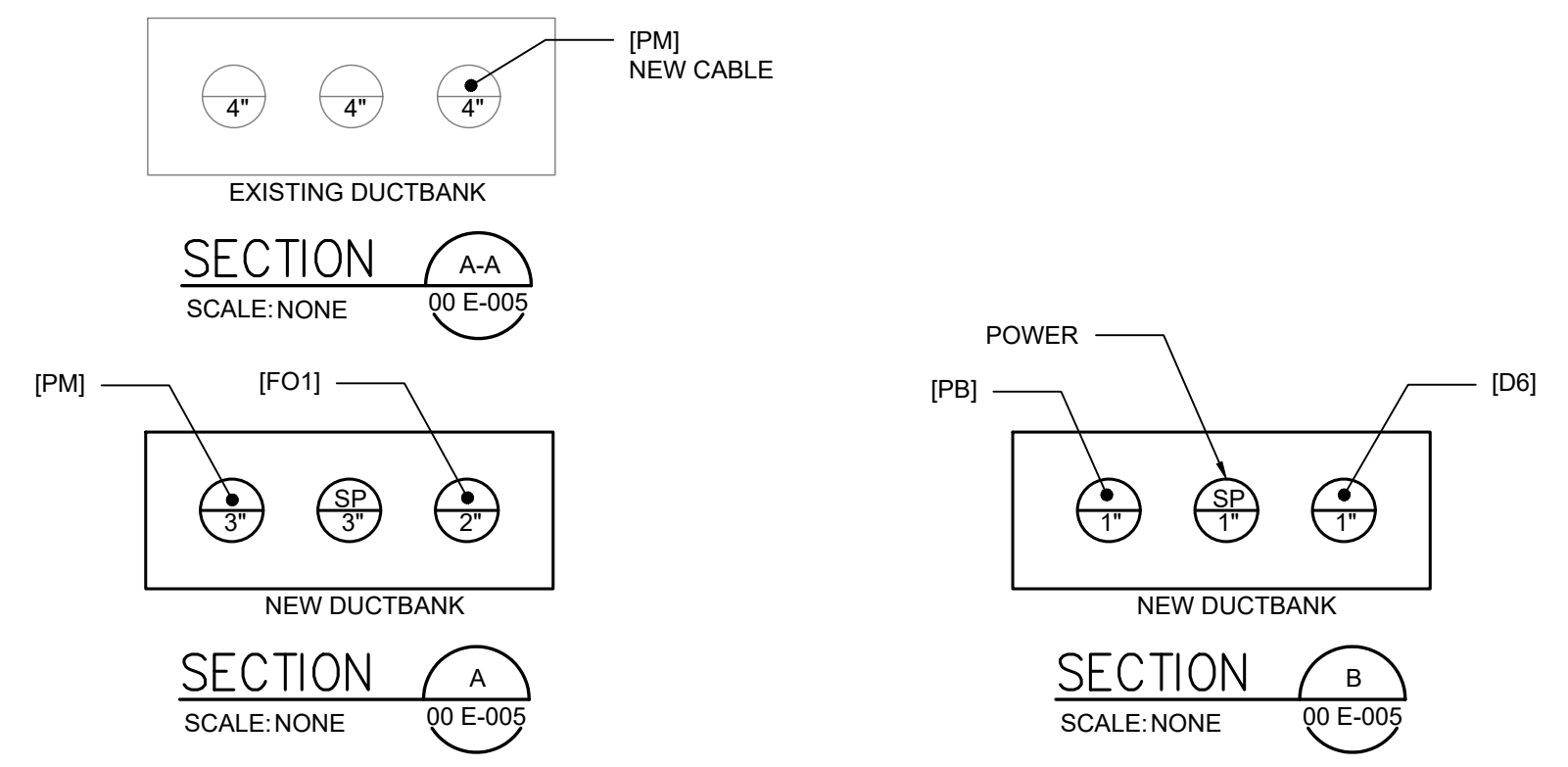
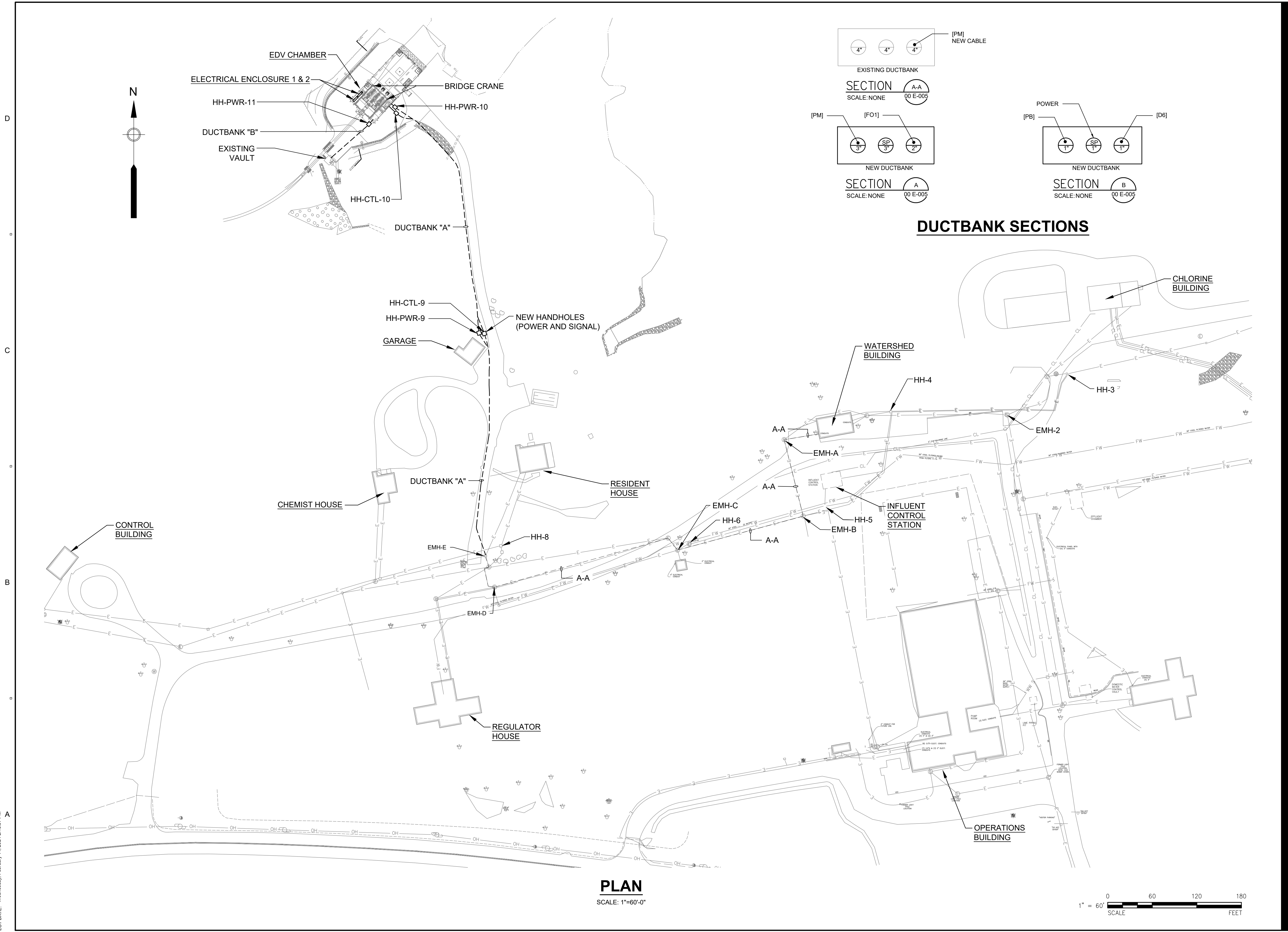
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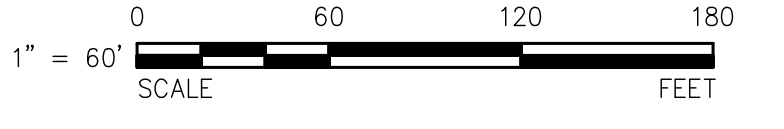
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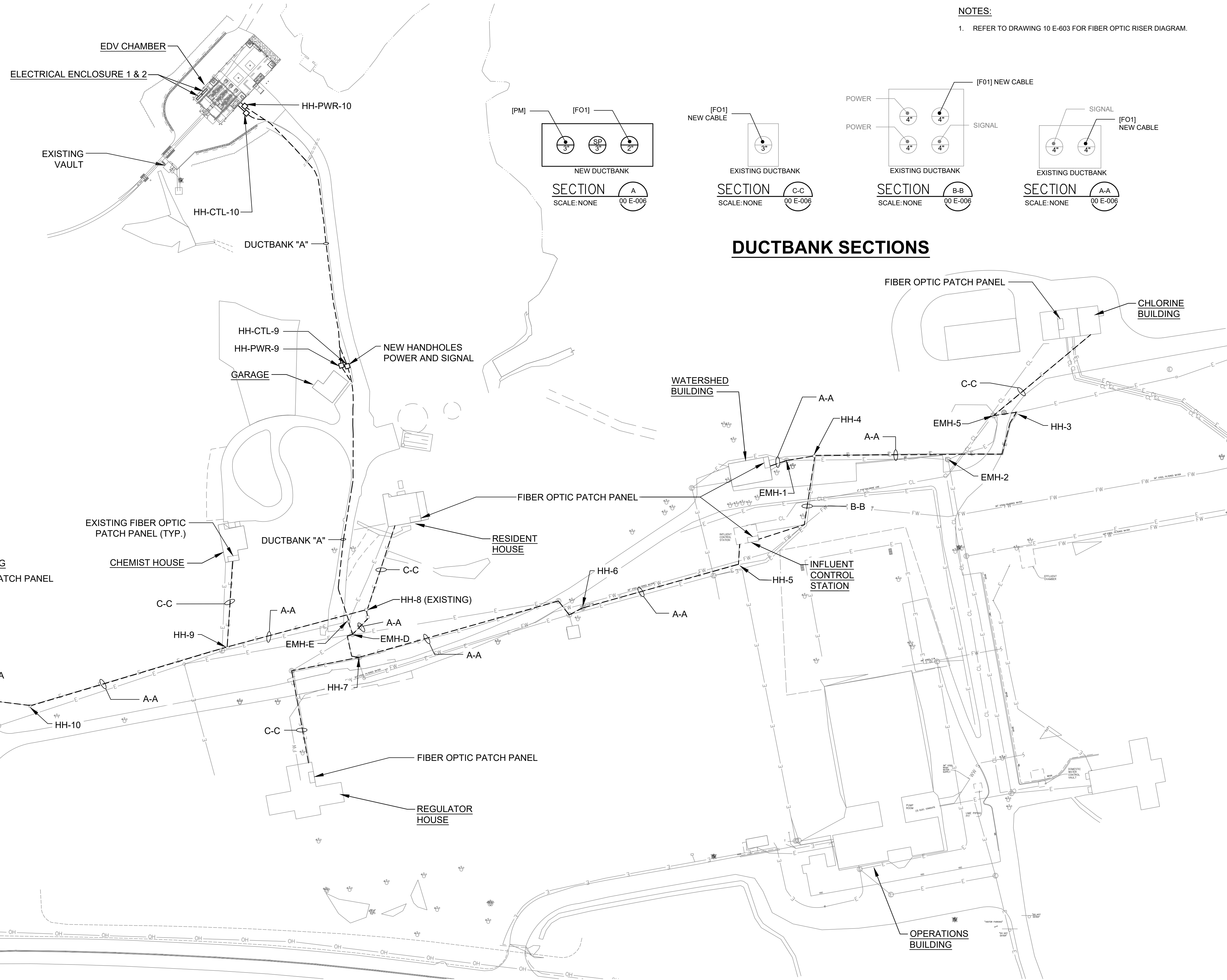
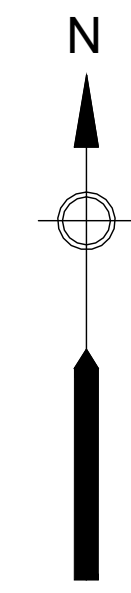


DUCTBANK SECTIONS

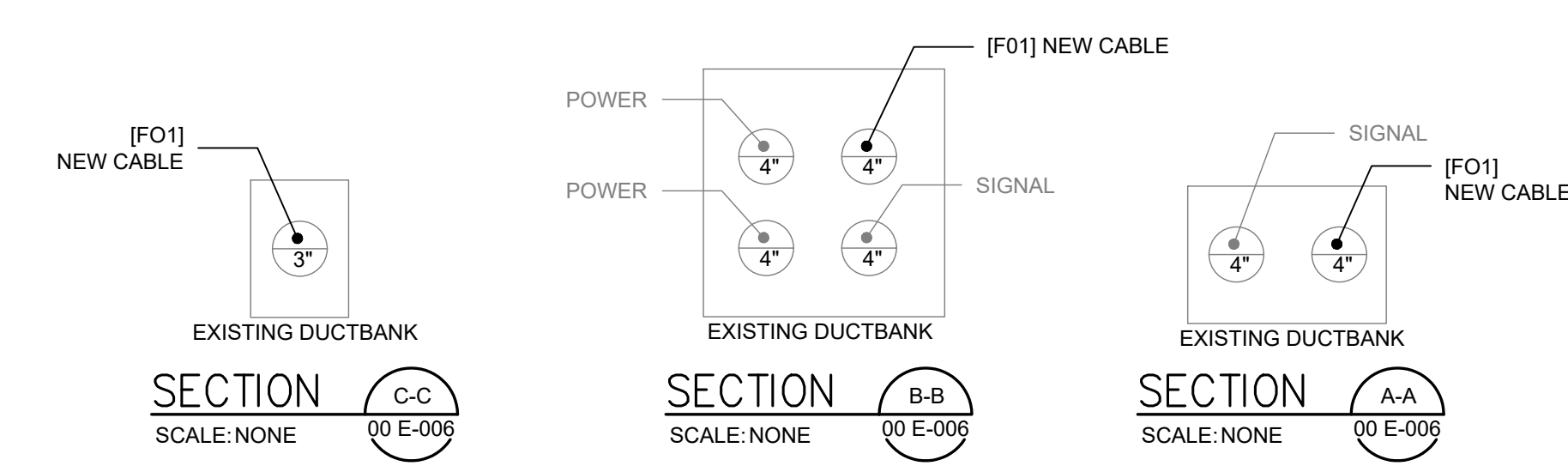
PLAN
 SCALE: 1"=60'-0"



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 LAST UPDATE: Wednesday, February 14, 2024 8:38:44 AM
 PLOT DATE: Wednesday, February 14, 2024 2:48:57 PM



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



DUCTBANK SECTIONS

FIBER OPTIC OVERALL SITE PLAN



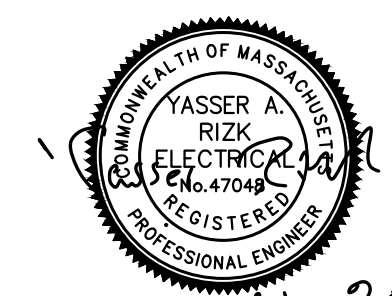
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 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:	1" = 60'-0"

DISCIPLINE
 ELECTRICAL
SHEET TITLE

FIBER OPTIC OVERALL SITE PLAN

SHEET NUMBER
 00 E-006

PATH: L:\DCS\PROJECTS\WYR16062775_SWSC_WF_HYDRO_ELECT_PDR16062775_CAD\20-SHEETS\00 E-006.DWG
 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

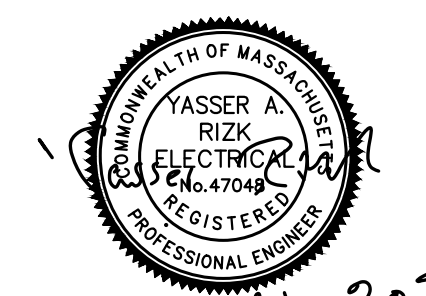
CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION

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 columns: 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

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:

- [PB] 3/4"C, 3-12 AWG, 1-12 AWG (G)
[PC-2] 3/4"C, 2-10 AWG, 1-10 AWG (G)
[PD-2] 3/4"C, 2-8 AWG, 1-10 AWG (G)
[PE] 3/4"C, 3-6 AWG, 1-10 AWG (G)
[PJ-4] 1 1/2"C, 4-1 AWG, 1-8 AWG (G)
[PM] 1 1/2"C, 3-2/0 AWG, 1-4 AWG (G)

ANALOG CONTROL WIRING:

- [C1] 3/4"C, 1-TSP 16 AWG
[C2] 1"C, 2-TSP 16 AWG
[C3] 1"C, 3-TSP 16 AWG
[C4] 1 1/2"C, 4-TSP 16 AWG

COMMUNICATIONS WIRING:

- [VSC] 1"C VENDOR SUPPLIED CABLE
[FO] 1"C, FIBER OPTIC CABLE PATCH CABLE
[FO1] 1"C, 24 STRAND FIBER OPTIC CABLE
[I1] 3/4"C, 1-CAT 6 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:

- [D2] 3/4"C, 2-14 AWG, 1-14 AWG (G)
[D3] 3/4"C, 3-14 AWG, 1-14 AWG (G)
[D4] 3/4"C, 4-14 AWG, 1-14 AWG (G)
[D5] 3/4"C, 5-14 AWG, 1-14 AWG (G)
[D6] 3/4"C, 6-14 AWG, 1-14 AWG (G)
[D7] 3/4"C, 7-14 AWG, 1-14 AWG (G)
[D8] 3/4"C, 8-14 AWG, 1-14 AWG (G)
[D9] 3/4"C, 9-14 AWG, 1-14 AWG (G)
[D10] 3/4"C, 10-14 AWG, 1-14 AWG (G)
[D11] 3/4"C, 11-14 AWG, 1-14 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

PROVIDE GROUNDING CONDUITS AND WIRES INDICATED FROM EQUIPMENT LISTED TO THE GROUNDING LOOP OR TO THE GROUNDING BUS BARS AS INDICATED AND IN ACCORDANCE WITH THE CONDUIT AND WIRE SCHEDULE. FOR GROUNDING OF PIPING AND OTHER MISCELLANEOUS ITEMS PROVIDE COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL REGULATIONS

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

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PLOT DATE: Wednesday, February 14, 2024 2:49:07 PM

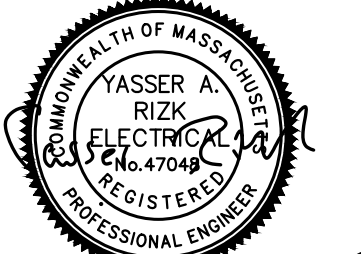
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

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

ENGINEER
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 250 APOLLO DRIVE
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 www.aecom.com

CONSULTANTS

REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

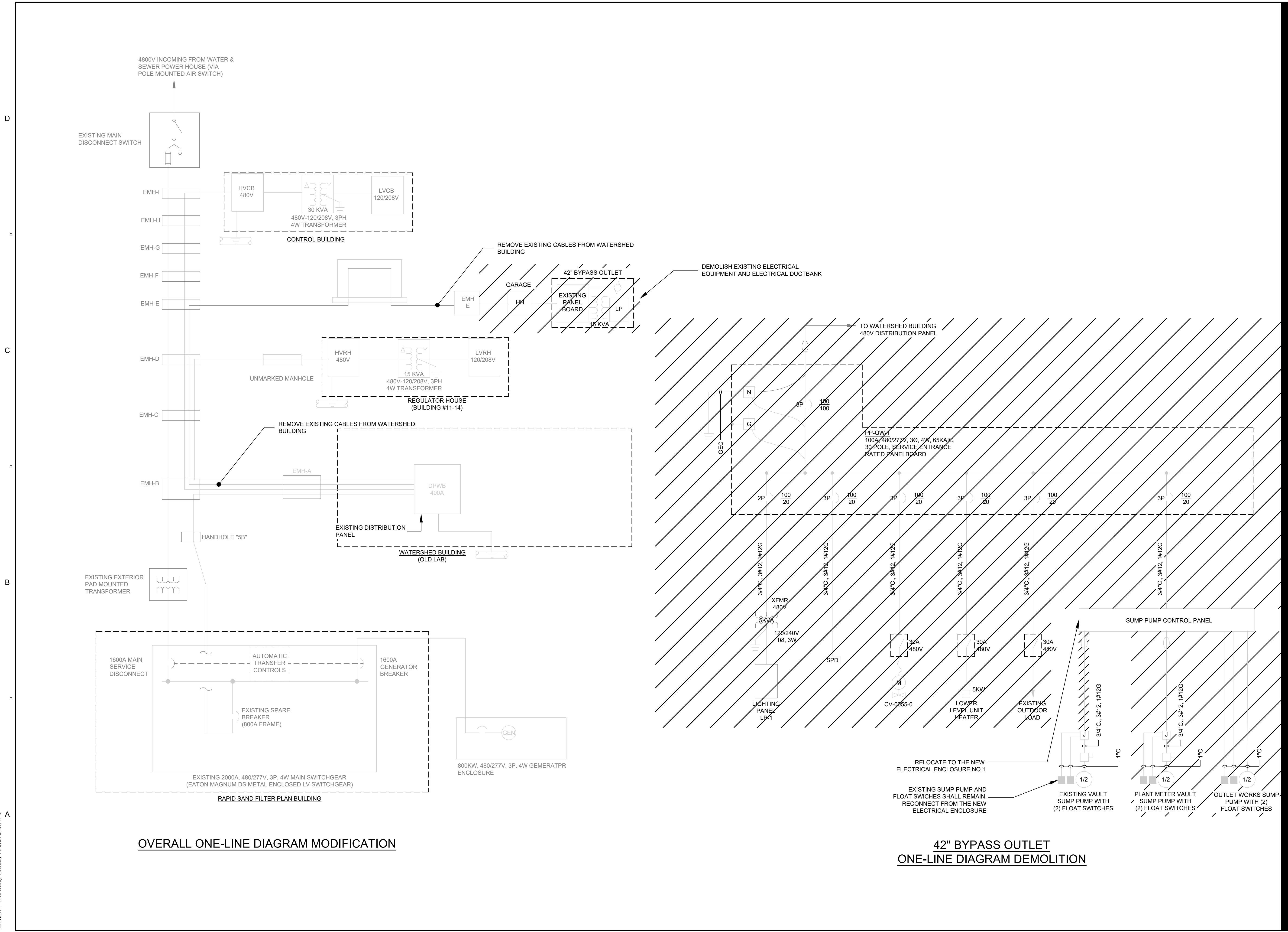
60662775

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

DISCIPLINE
 ELECTRICAL
SHEET TITLE

SWSC WPF TANK ONE LINE DIAGRAM EXISTING

SHEET NUMBER
00 E-008

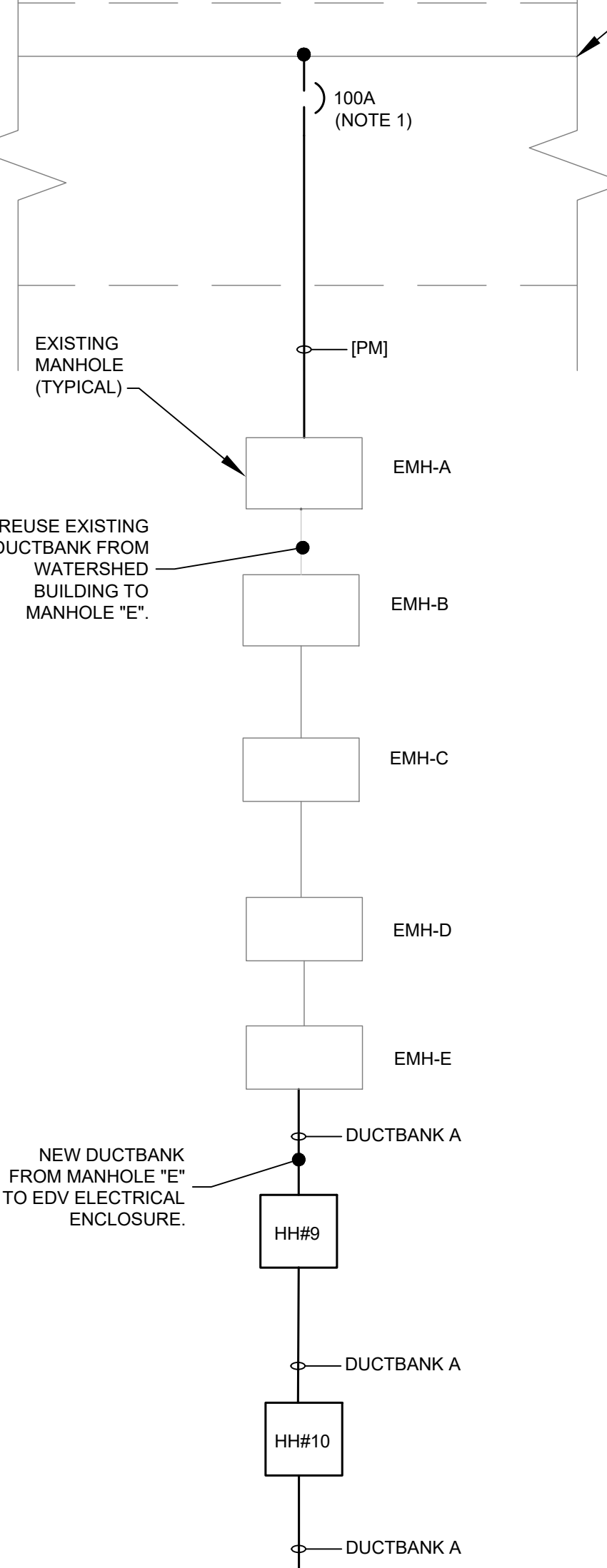


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 LAST UPDATE: Monday, February 12, 2024 2:27:34 PM
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POWER PANEL DPWB

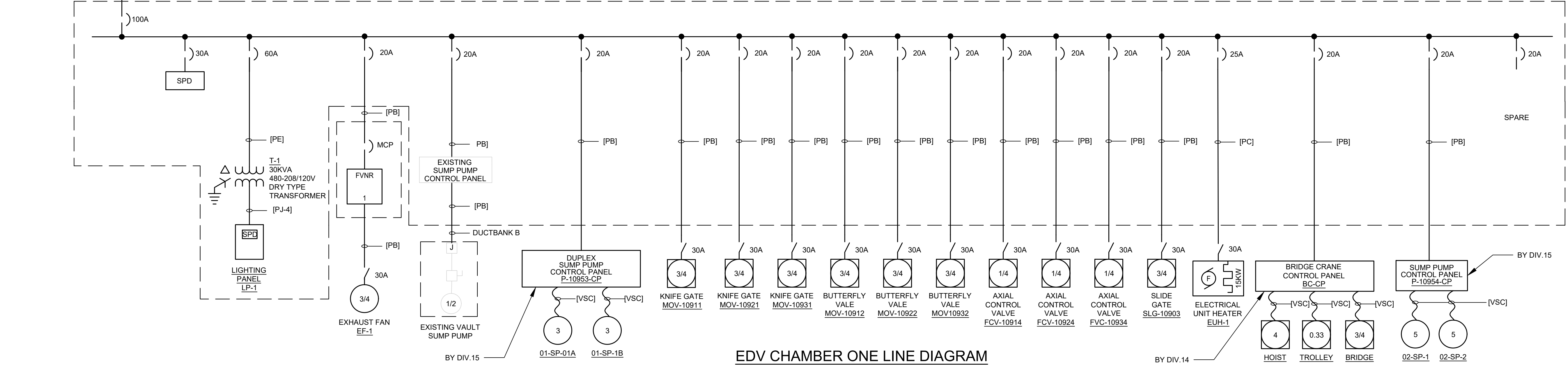
SQUARE D, I-LINE
400A, 480V, 3PH, 3W, 35KAIC
LOCATION: WATERSHED BUILDING - STORAGE ROOM

EXISTING DISTRIBUTION PANEL



POWER PANEL PP-1
100A, 480V, 3PH, 3W, 35KAIC, TINNED COPPER BUS
LOCATION: ELECTRICAL ENCLOSURE NO.1

EDV CHAMBER
ELECTRICAL ENCLOSURE



EDV CHAMBER ONE LINE DIAGRAM

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**

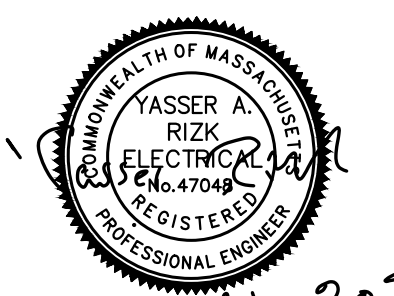
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

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PROJECT NUMBER

60662775

Designed By:	AE
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Proj Check:	TAL/MCW
Date:	FEBRUARY 2024
Scale:	NONE

DISCIPLINE

ELECTRICAL
SHEET TITLE

**EDV CHAMBER ONE LINE
DIAGRAM**

SHEET NUMBER

00 E-009

PATH: L:\PROJECTS\WTR\60662775_SWSC_WF_HYDRO_ELECT_PDR\000_CAD\20-SHEETS\00 E-009.DWG
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PLOT DATE: Wednesday, February 14, 2024 2:49:15 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

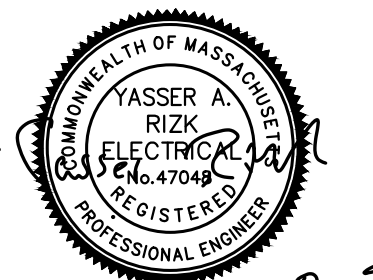
SPRINGFIELD WATER AND SEWER COMMISSION
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PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

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Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: 1" = 20'-0"

DISCIPLINE

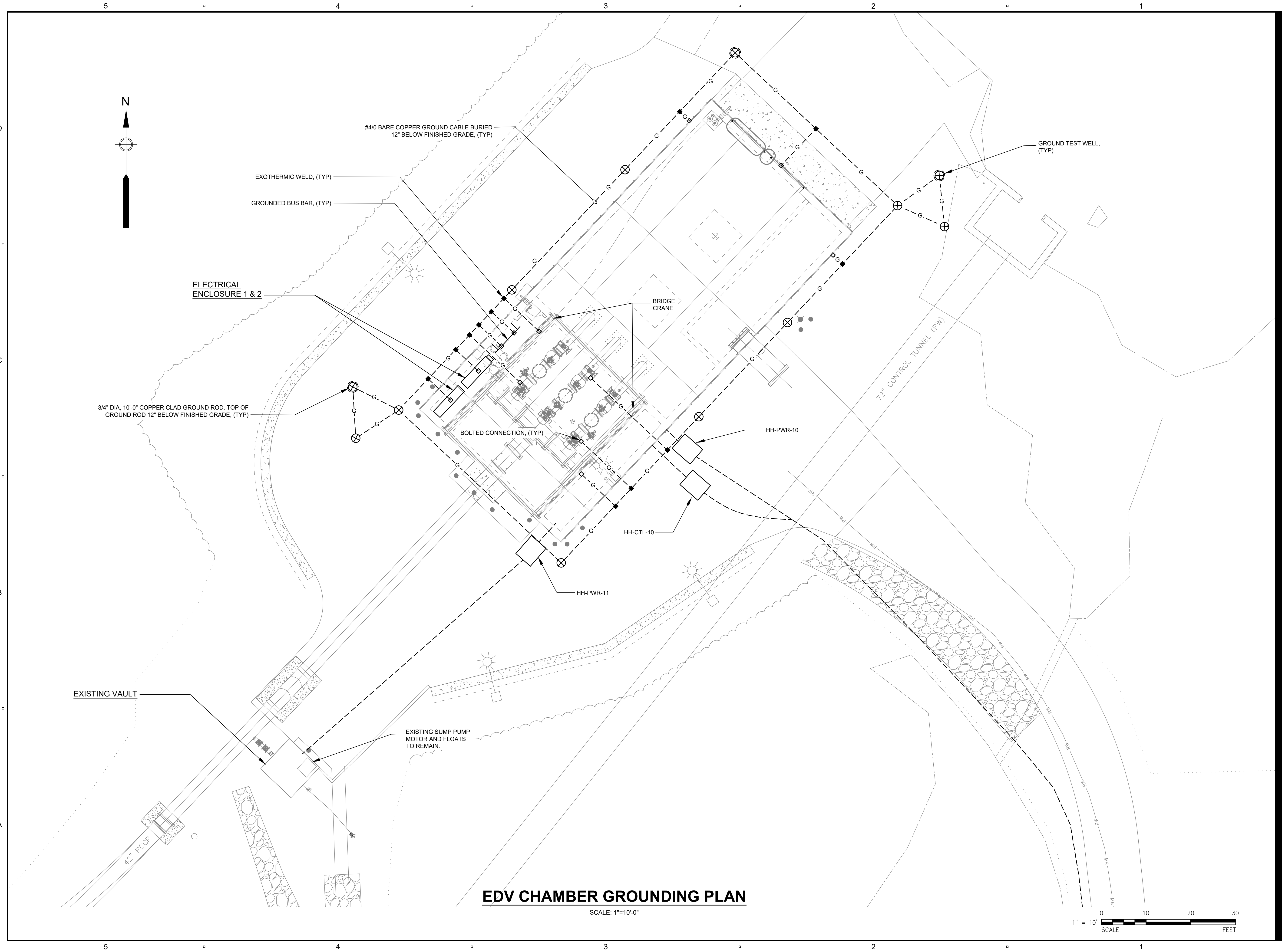
ELECTRICAL

SHEET TITLE

EDV CHAMBER GROUNDING PLAN

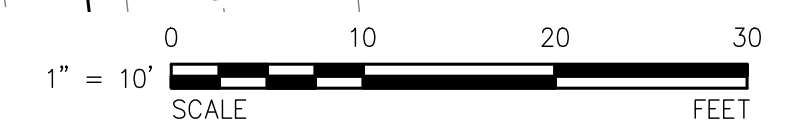
SHEET NUMBER

00 E-010



EDV CHAMBER GROUNDING PLAN

SCALE: 1"=10'-0"



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 LAST UPDATE: Monday, February 12, 2024 2:28:01 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:21 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

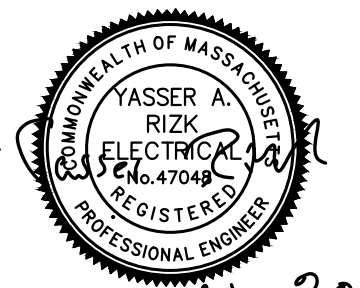
250 M STREET EXTENSION
 AGAWAM, MA 01001

ENGINEER

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CONSULTANTS

REGISTRATION



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PROJECT NUMBER

60662775

Designed By: AE

Drawn By: HG

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Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: NONE

DISCIPLINE

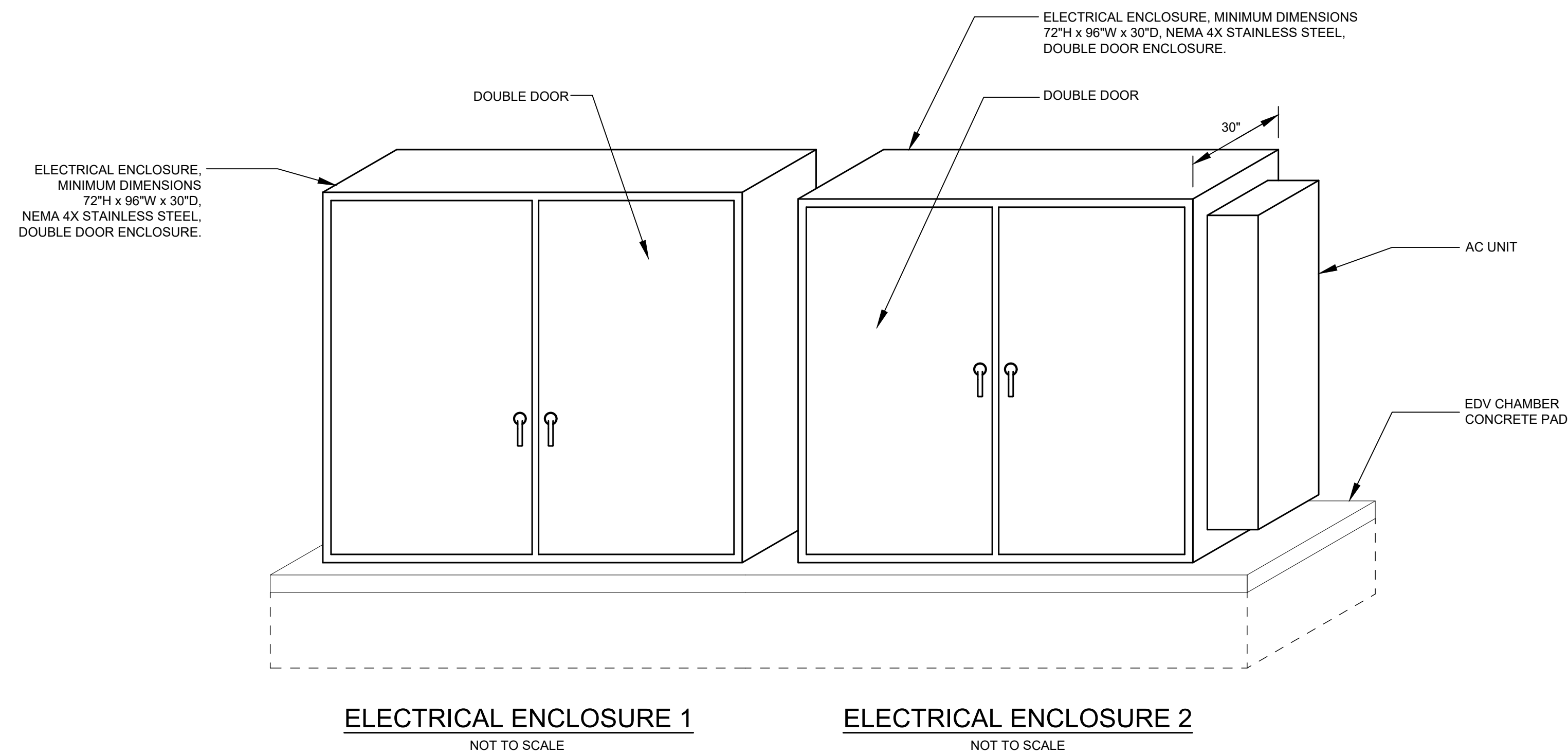
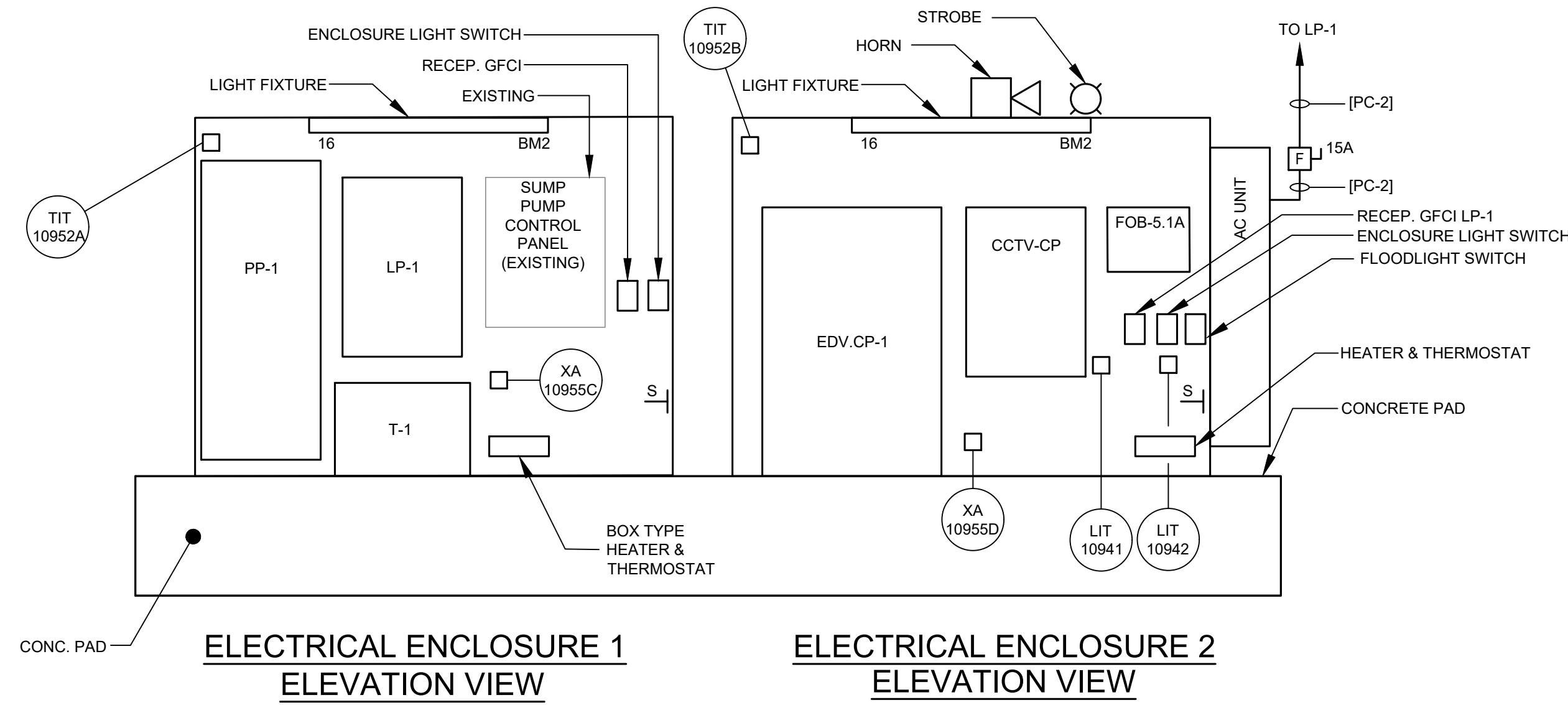
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SHEET TITLE

**ELECTRICAL
 ENCLOSURE ELEVATION
 DETAILS**

SHEET NUMBER

00 E-501



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 LAST UPDATE: Monday, February 12, 2024 2:30:06 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:30 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

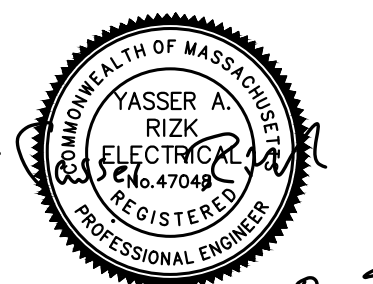
250 M STREET EXTENSION
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REGISTRATION



Feb 14, 2024

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60662775

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

DISCIPLINE

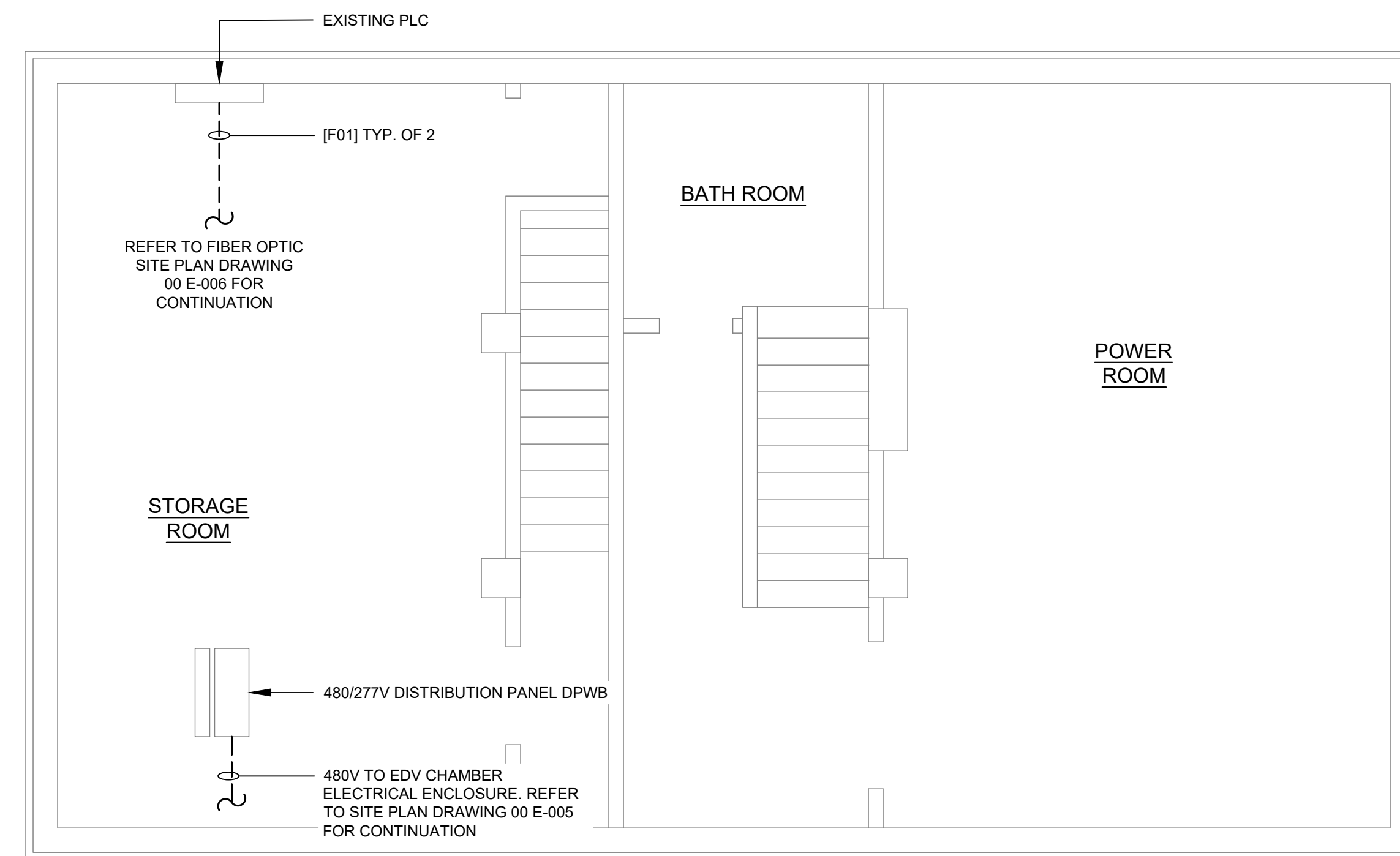
ELECTRICAL

SHEET TITLE

WATERSHED BUILDING POWER PLAN

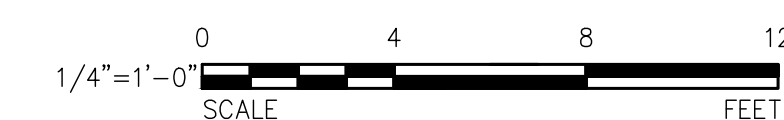
SHEET NUMBER

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

PLOT DATE: Wednesday, February 14, 2024 2:49:32 PM
 LAST UPDATE: Monday, February 12, 2024 2:30:36 PM
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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

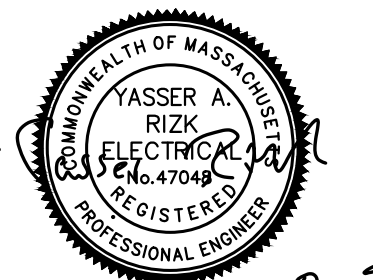
250 M STREET EXTENSION
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PROJECT NUMBER

60662775

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Drawn By: HG

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Proj Check: TAL/MCW

Date: FEBRUARY 2024

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DISCIPLINE

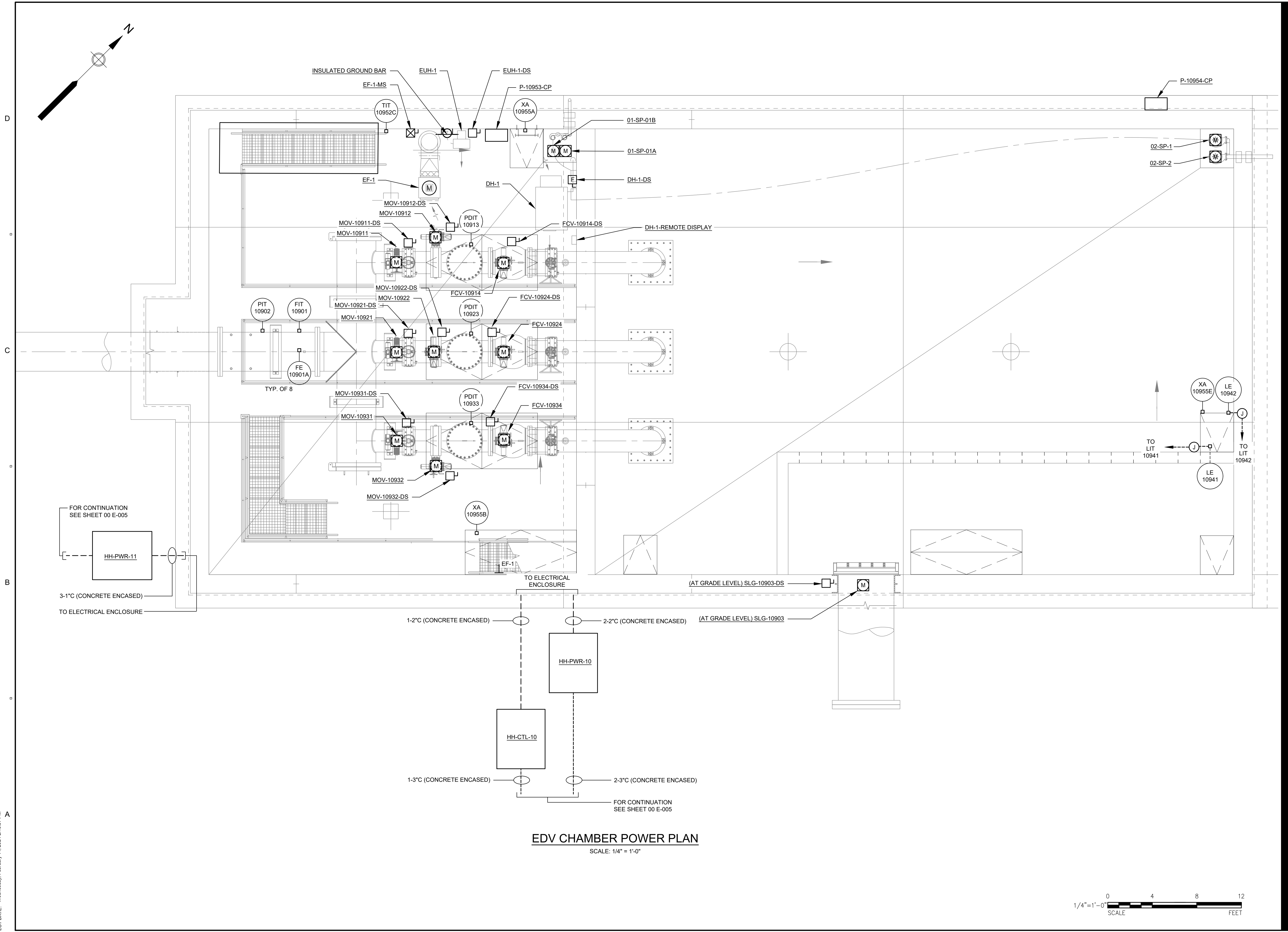
ELECTRICAL

SHEET TITLE

EDV CHAMBER POWER PLAN

SHEET NUMBER

10 E-102



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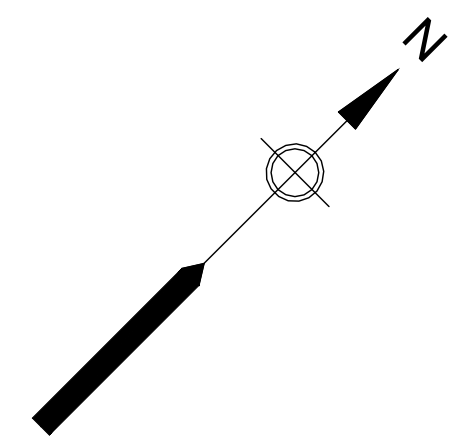
5

4

3

2

1



NOTES:

- 1. ALL LIGHTING CIRCUITS AND RECEPTACLES ARE BEING FED FROM PANELBOARD LP-1.



PROJECT

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

CLIENT

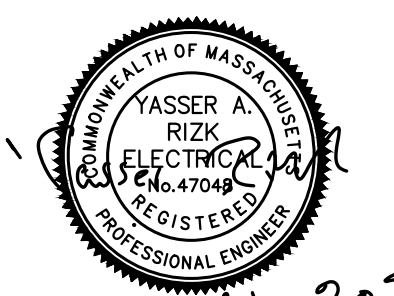
SPRINGFIELD WATER AND SEWER COMMISSION
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PROJECT NUMBER

60662775

Designed By:	AE
Drawn By:	HG
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Date:	FEBRUARY 2024
Scale:	1/4" = 1'-0"

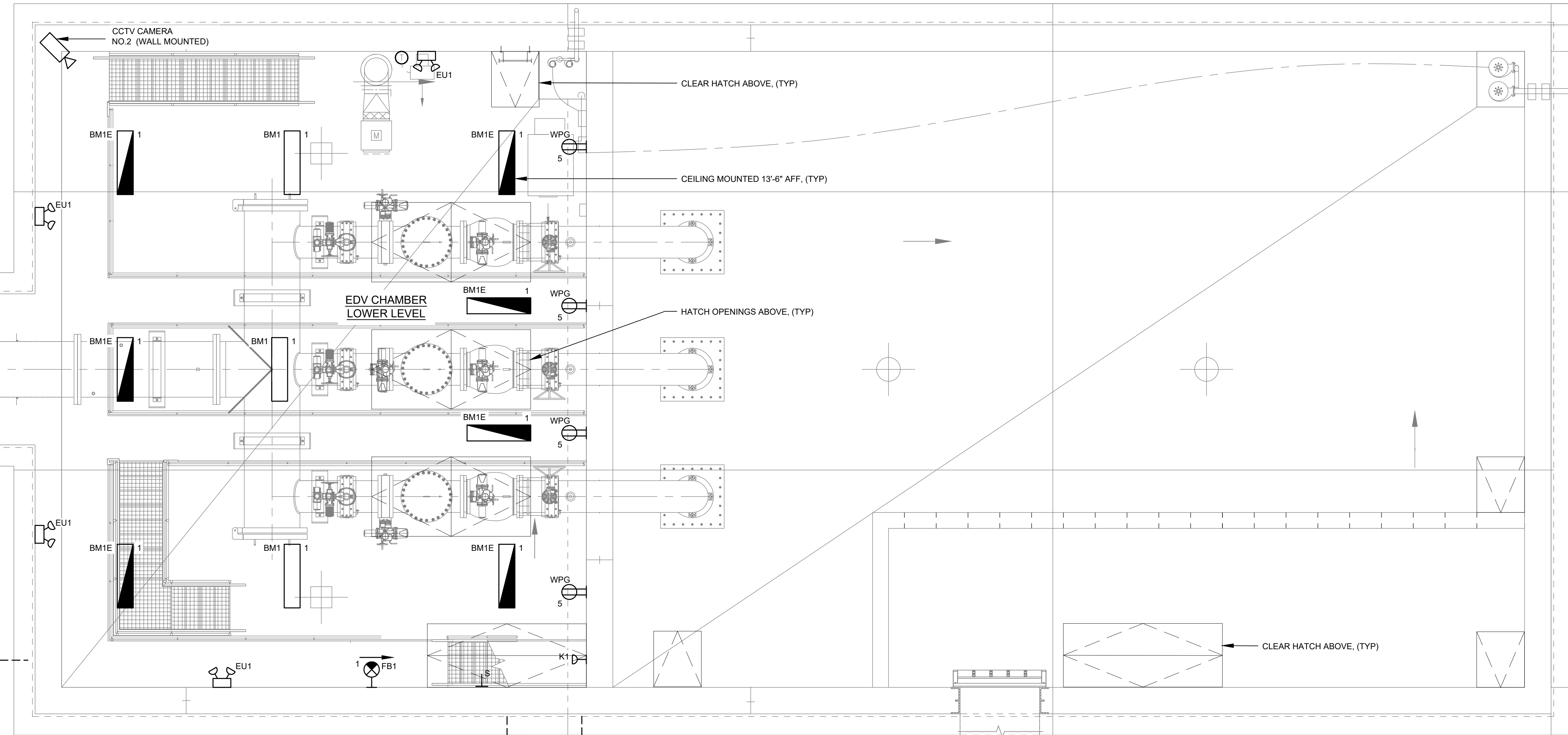
DISCIPLINE

ELECTRICAL

SHEET TITLE

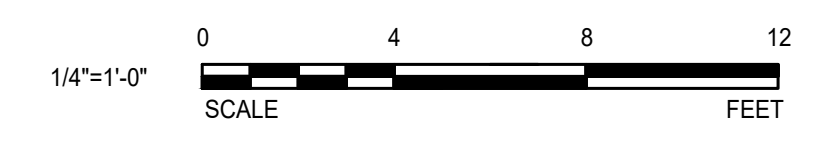
EDV CHAMBER SYSTEMS PLAN

SHEET NUMBER
10 E-103



EDV CHAMBER SYSTEMS PLAN

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



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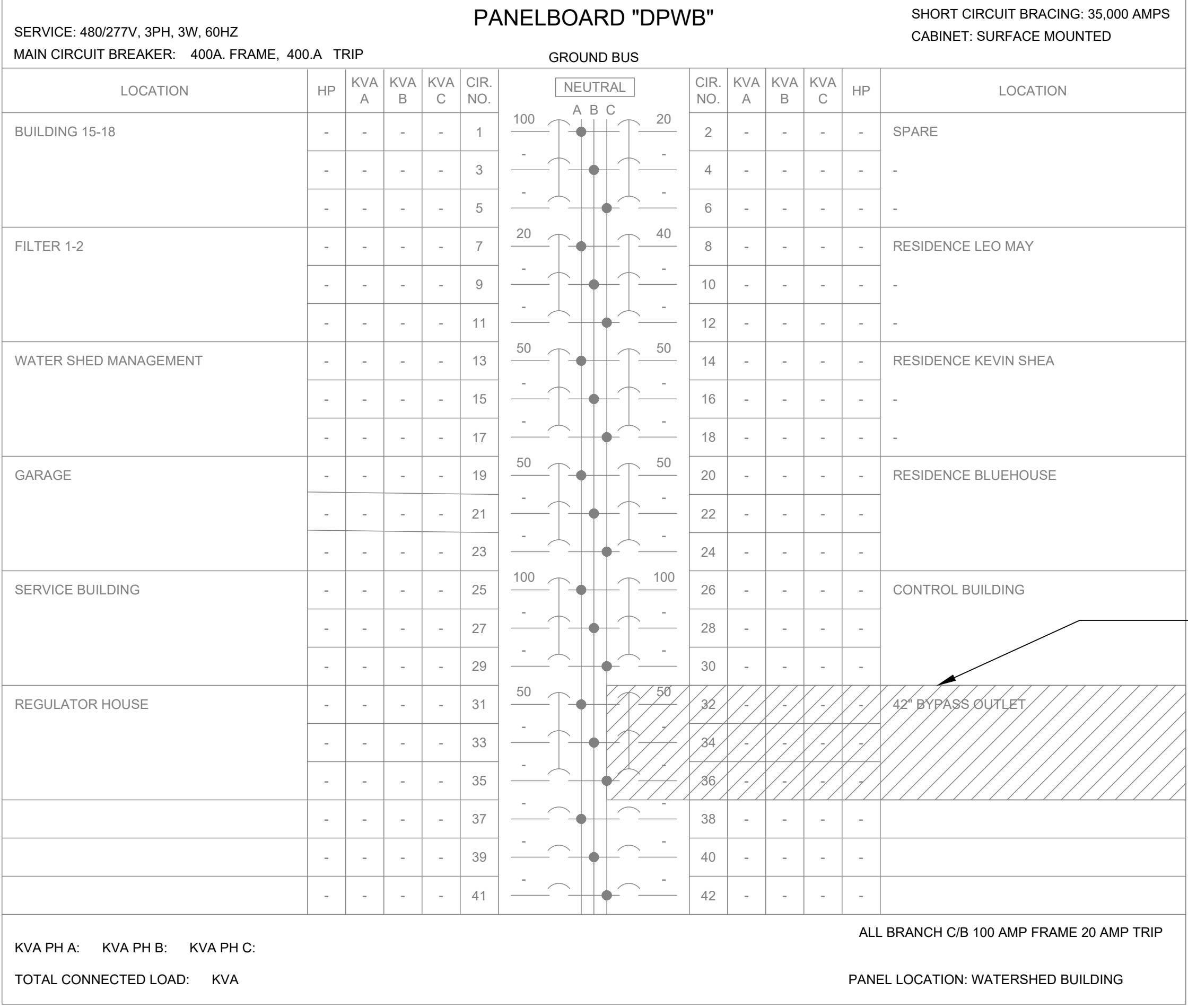
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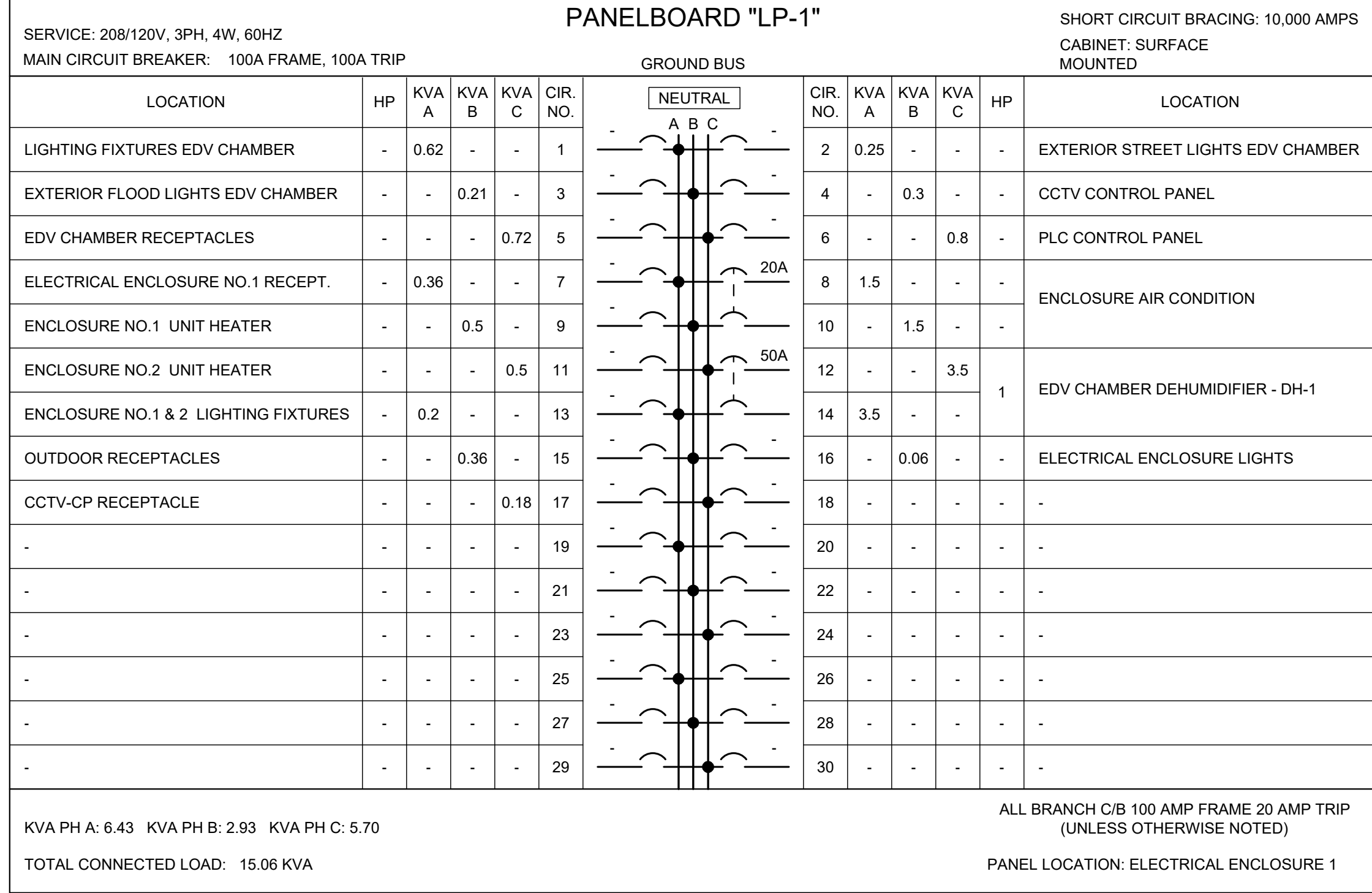
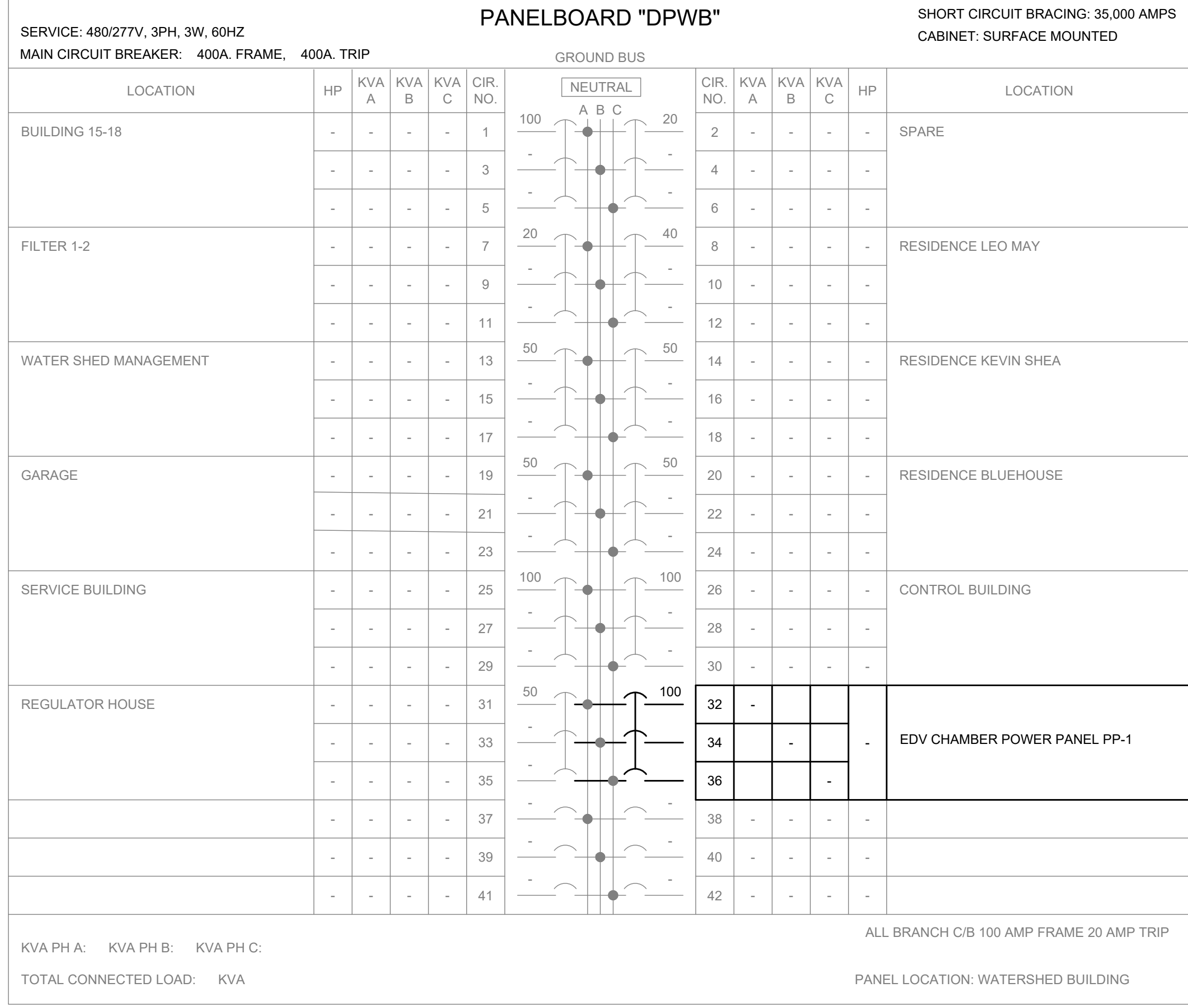
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2

1



REMOVE EXISTING 50A CIRCUIT BREAKER



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

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

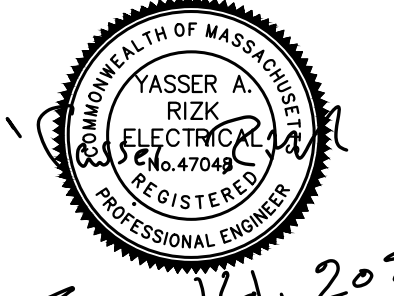
CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION

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

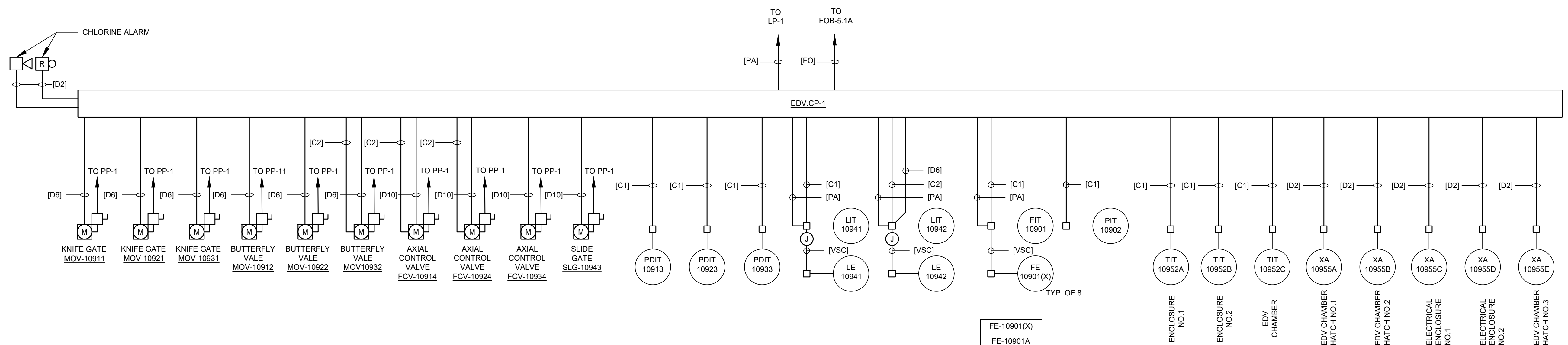
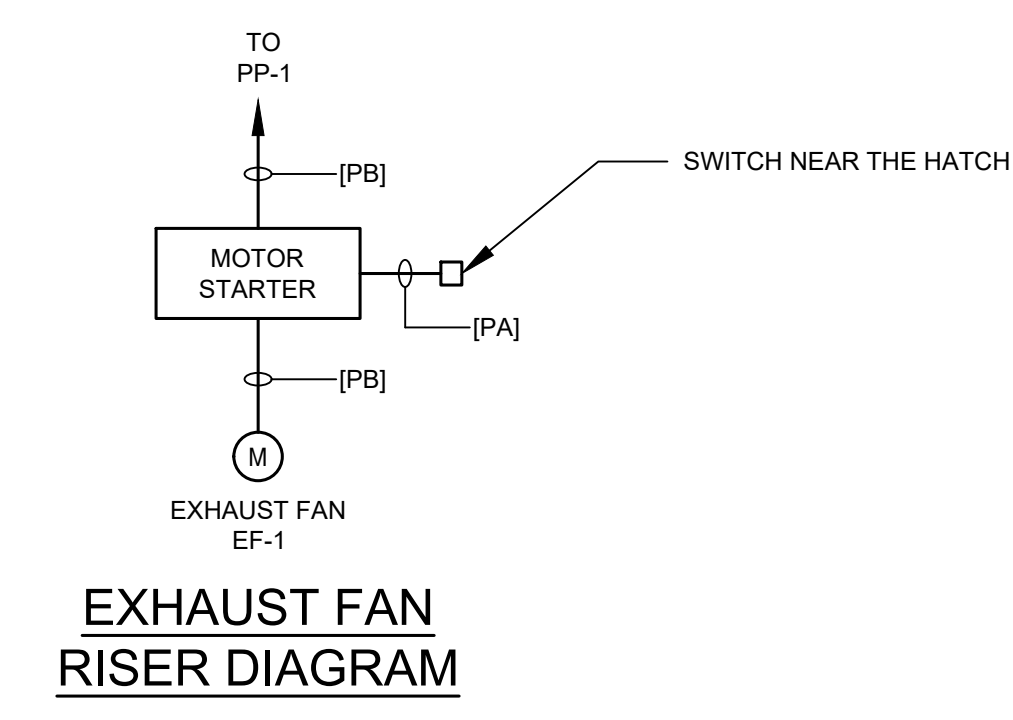
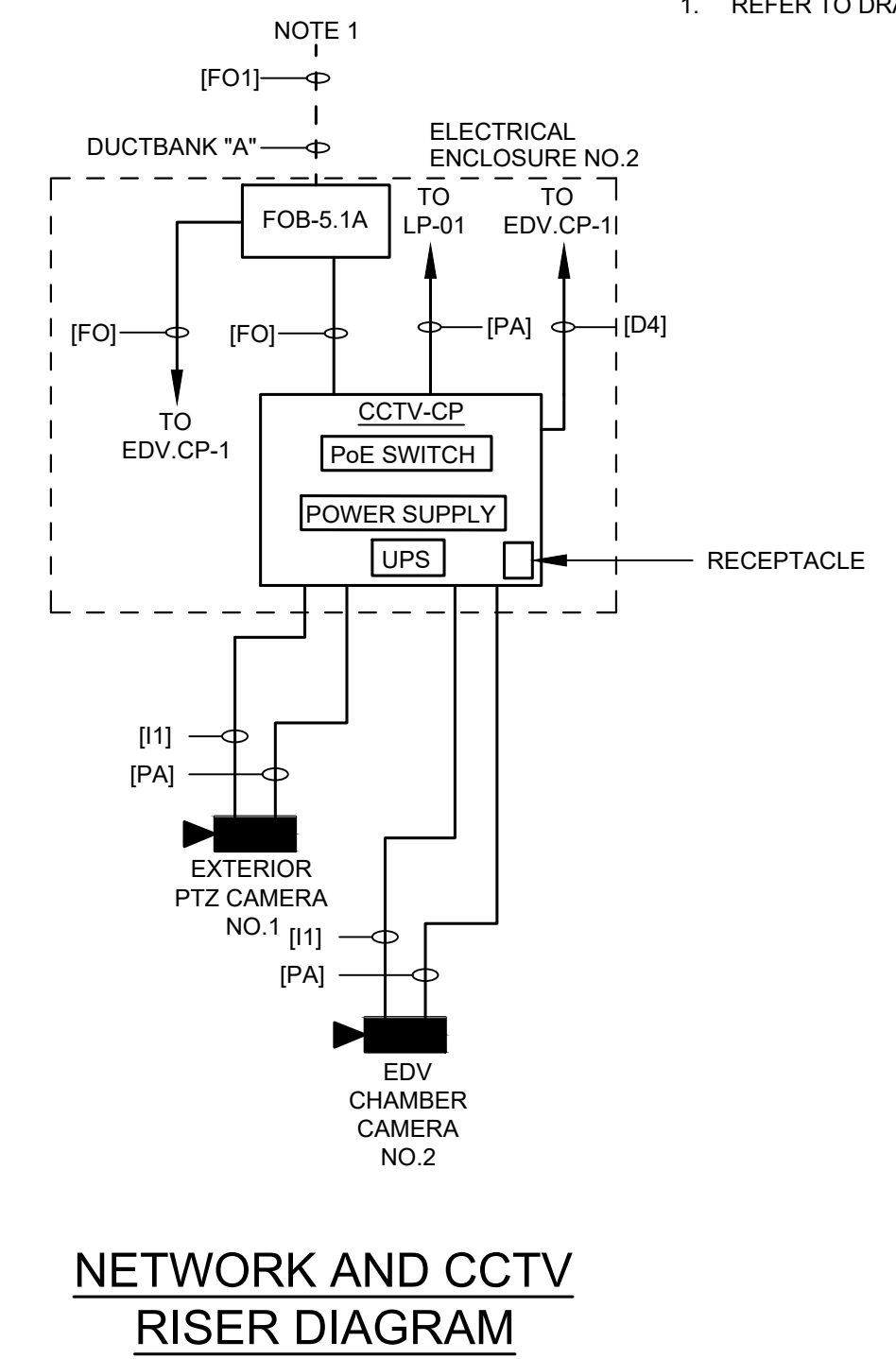
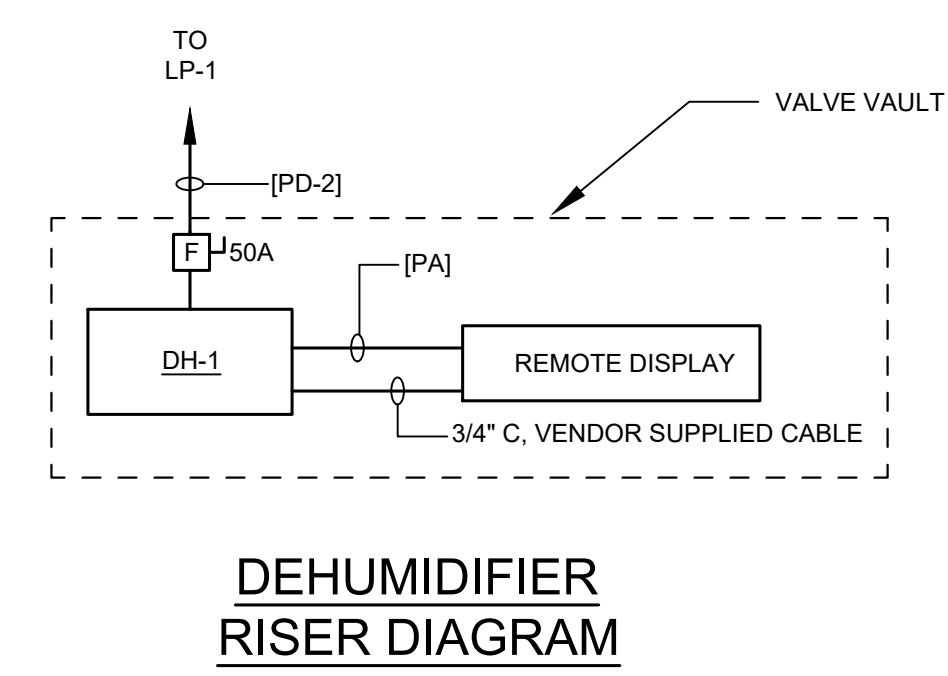
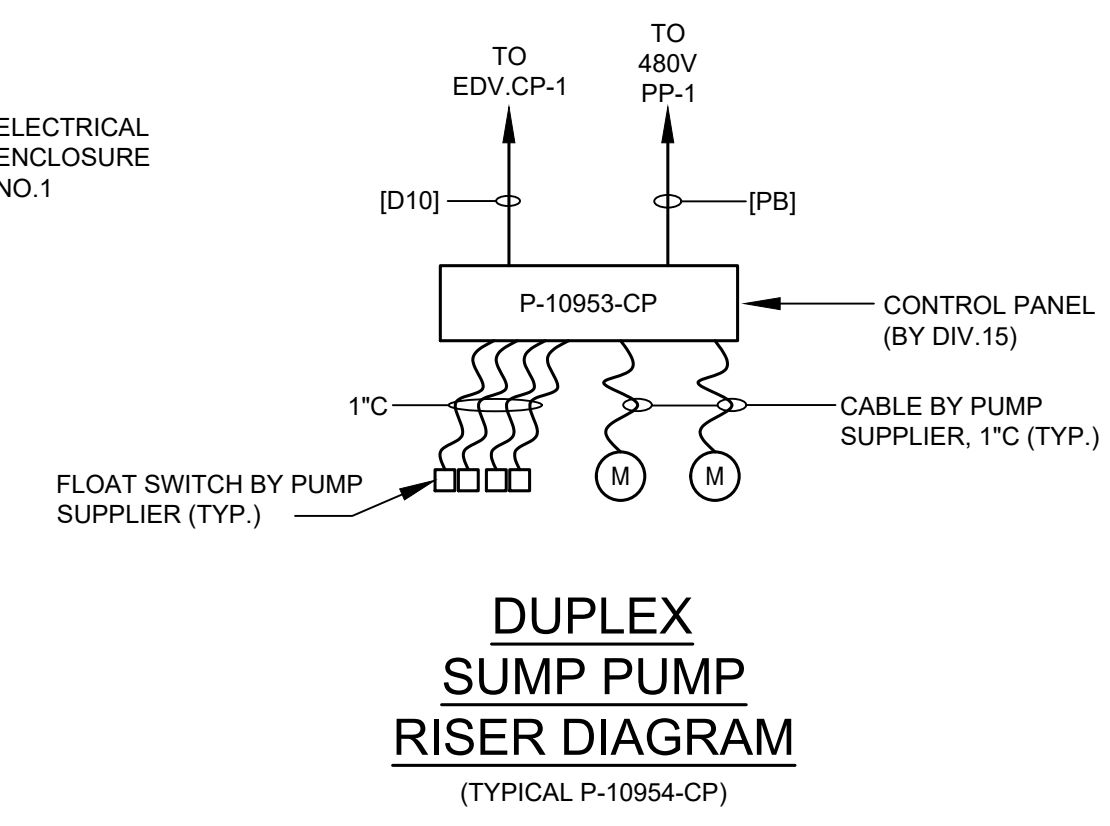
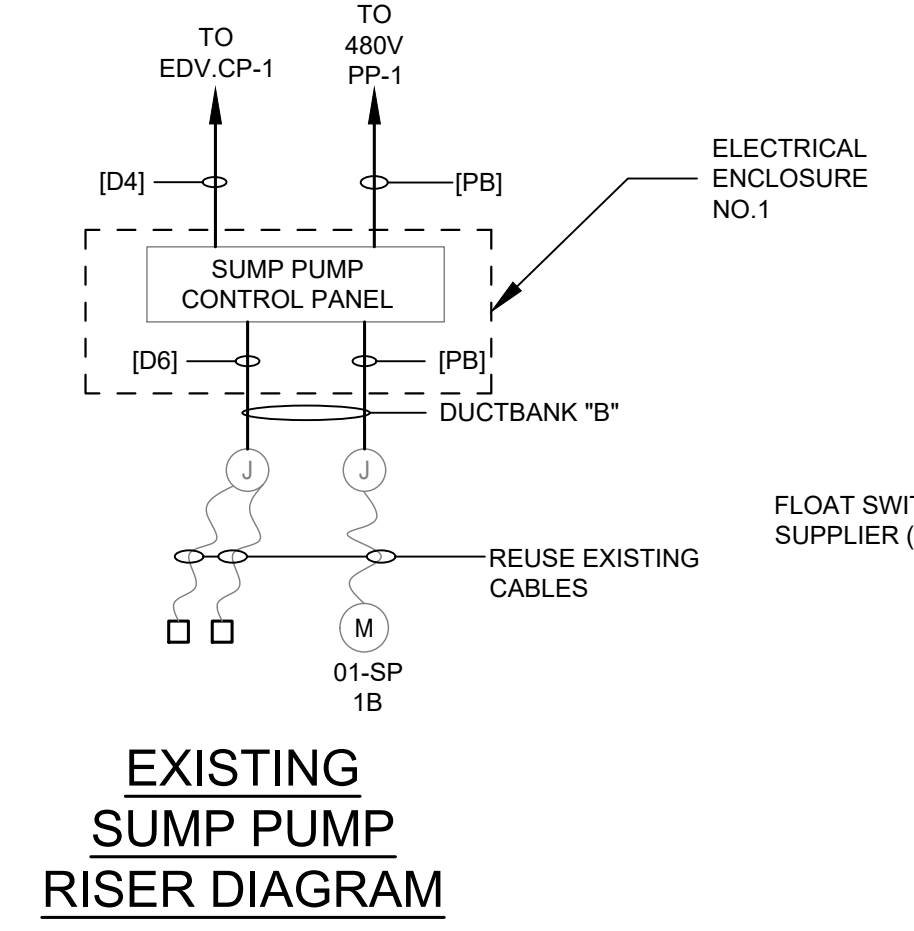
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PANELBOARD SCHEDULES I

SHEET NUMBER
10 E-601

BASED ON TIGHE & BOND
PROJECT NO: S2057-008
DECEMBER 2017
DWG E-002

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LAST UPDATE: Monday, February 12, 2024 2:32:04 PM
PLOT DATE: Wednesday, February 14, 2024 2:49:46 PM

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



FE-10901(X)
FE-10901A
FE-10902B
FE-10903C
FE-10904D
FE-10905E
FE-10906F
FE-10907G
FE-10908H



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

COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

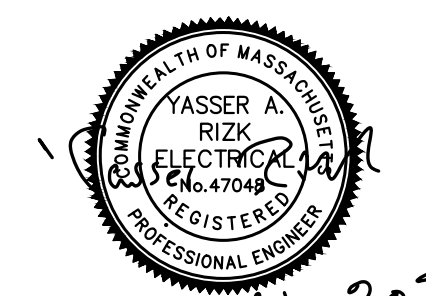
CLIENT
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AGAWAM, MA 01001

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

DISCIPLINE
ELECTRICAL
SHEET TITLE

RISER DIAGRAM I

SHEET NUMBER

10 E-602

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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

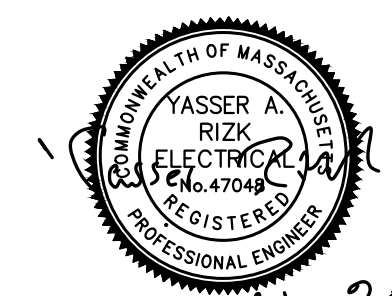
SPRINGFIELD WATER AND SEWER COMMISSION
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

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

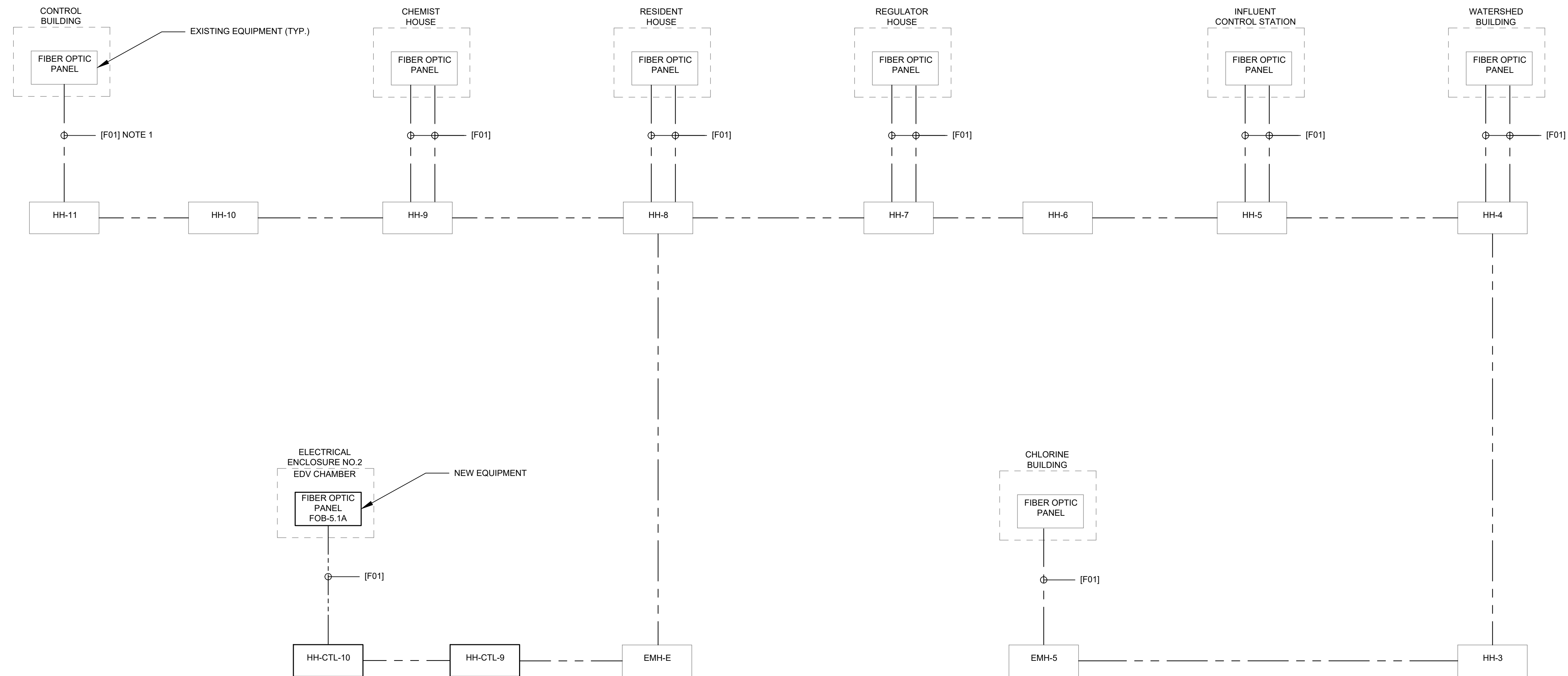
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ELECTRICAL
SHEET TITLE

RISER DIAGRAM II

SHEET NUMBER

10 E-603



FIBER OPTIC NETWORK RISER DIAGRAM

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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

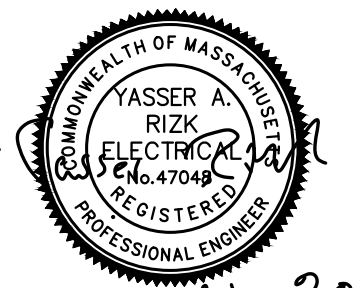
250 M STREET EXTENSION
AGAWAM, MA 01001

ENGINEER

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PROJECT NUMBER

60662775

Designed By: AE

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Proj Check: TAL/MCW

Date: FEBRUARY 2024

Scale: NONE

DISCIPLINE

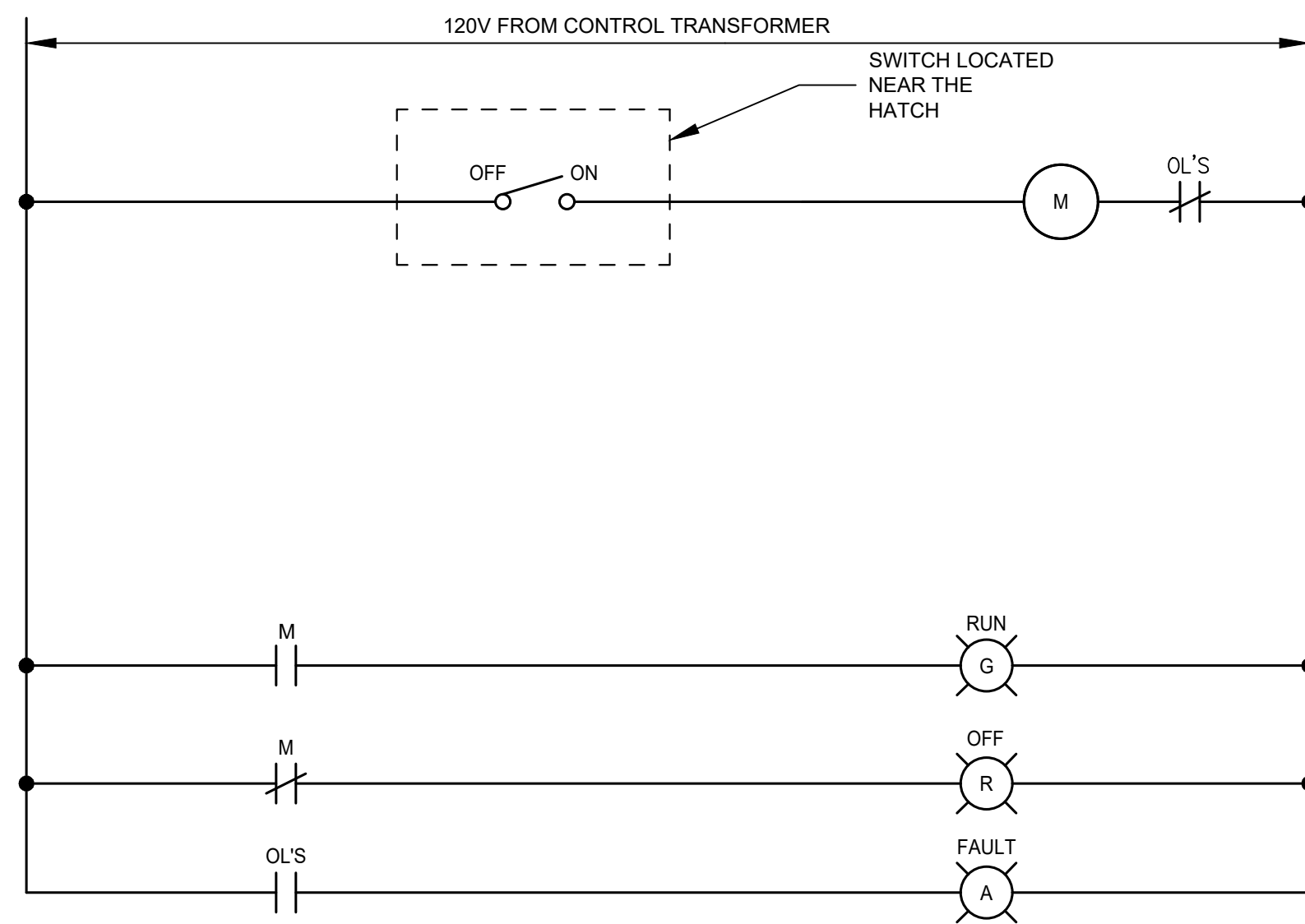
ELECTRICAL

SHEET TITLE

WIRING DIAGRAM

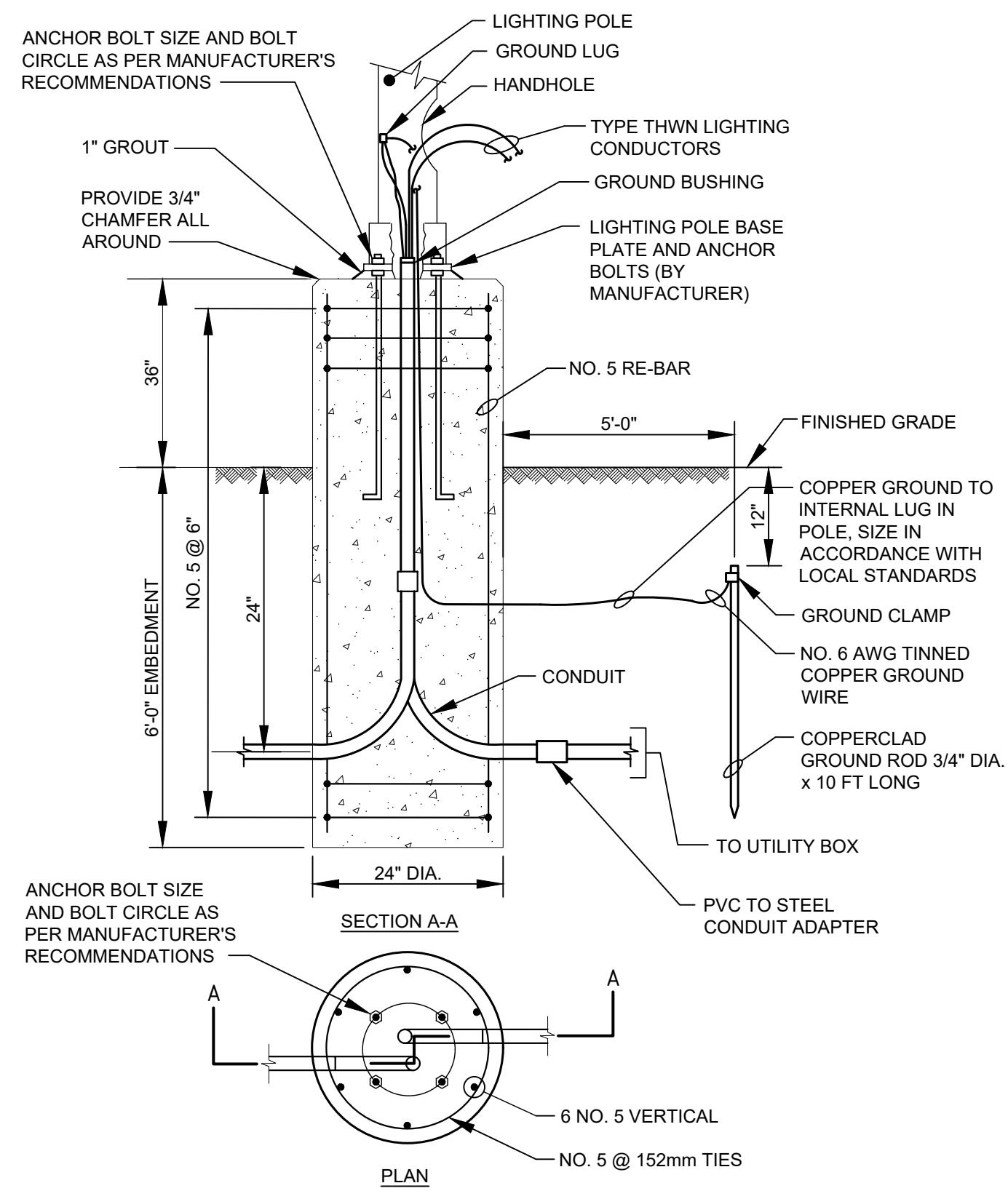
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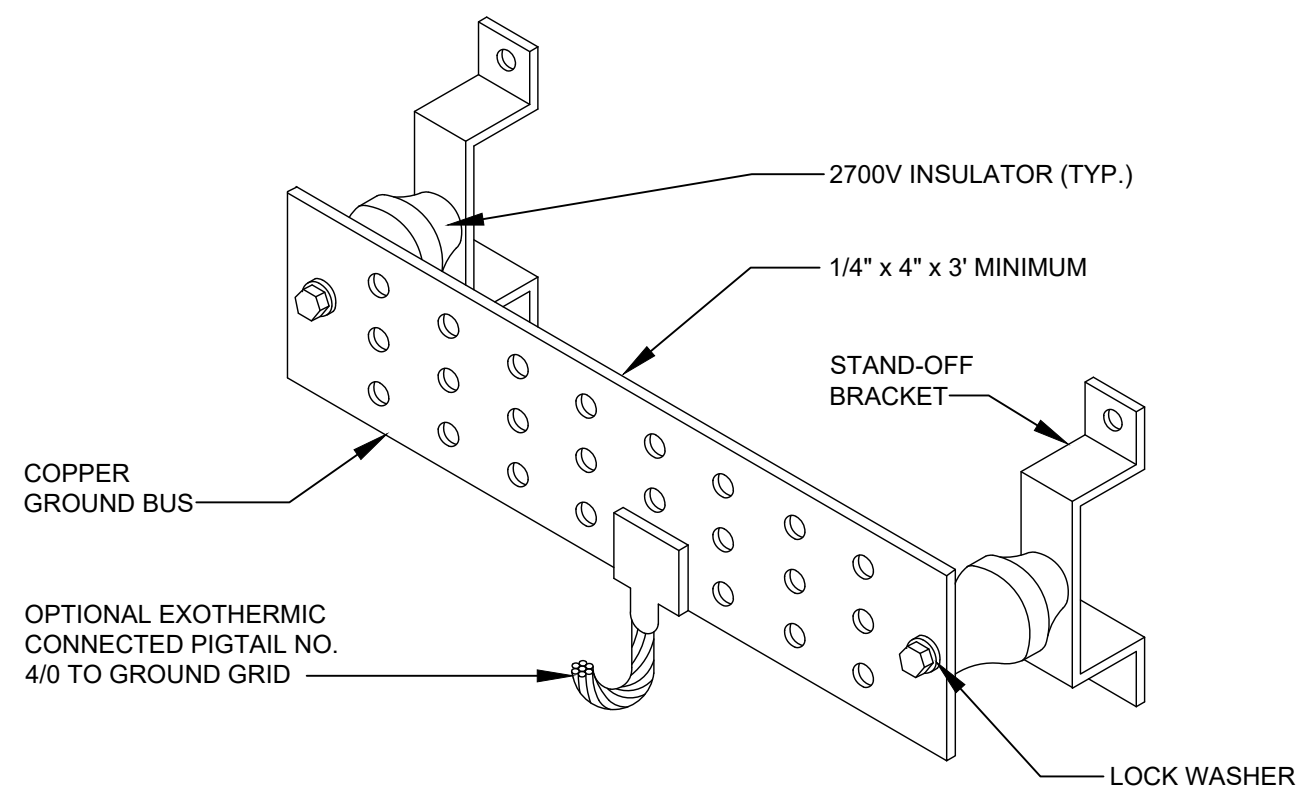
**EXHAUST FAN
EF-1
WIRING DIAGRAM**

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 PLOT DATE: Wednesday, February 14, 2024 2:49:54 PM



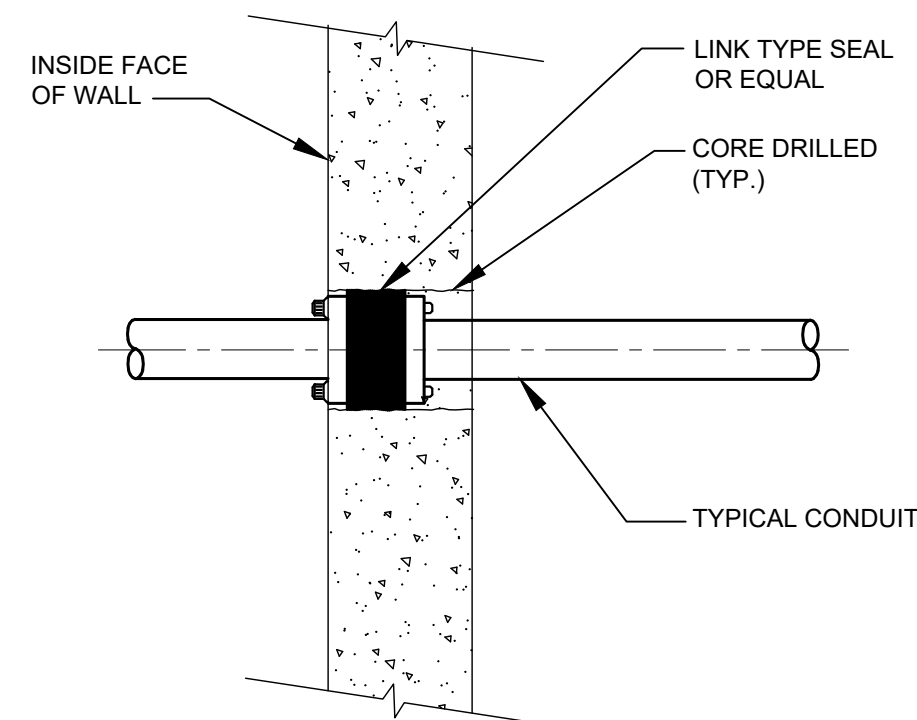
POLE FOUNDATION FOR LIGHTING

SCALE: NONE

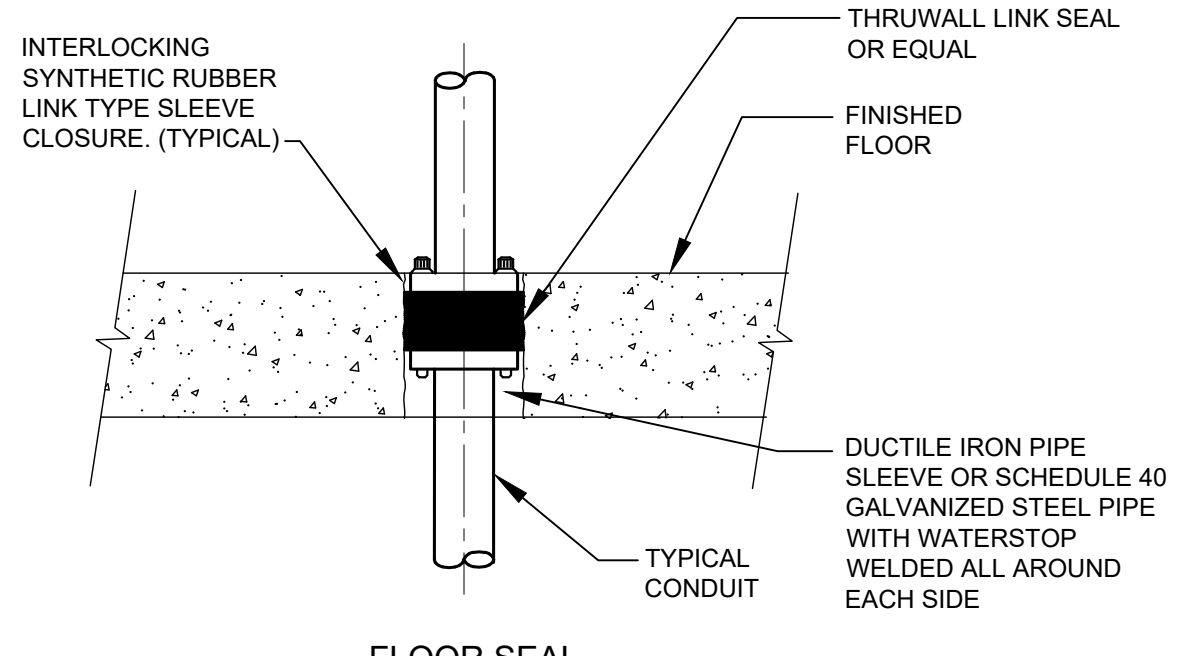


INSULATED GROUND BAR DETAIL

NTS



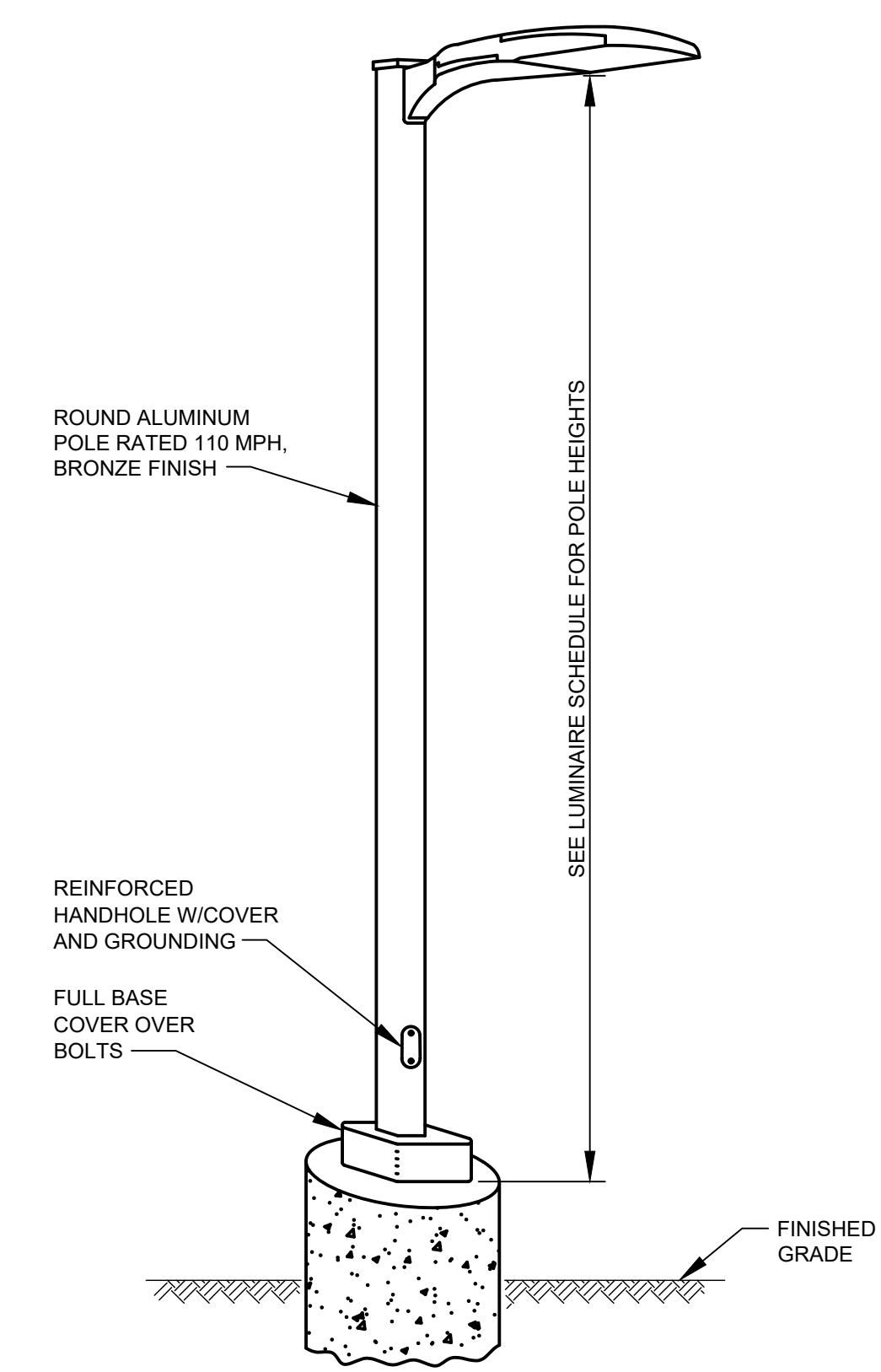
WALL SEAL



FLOOR SEAL

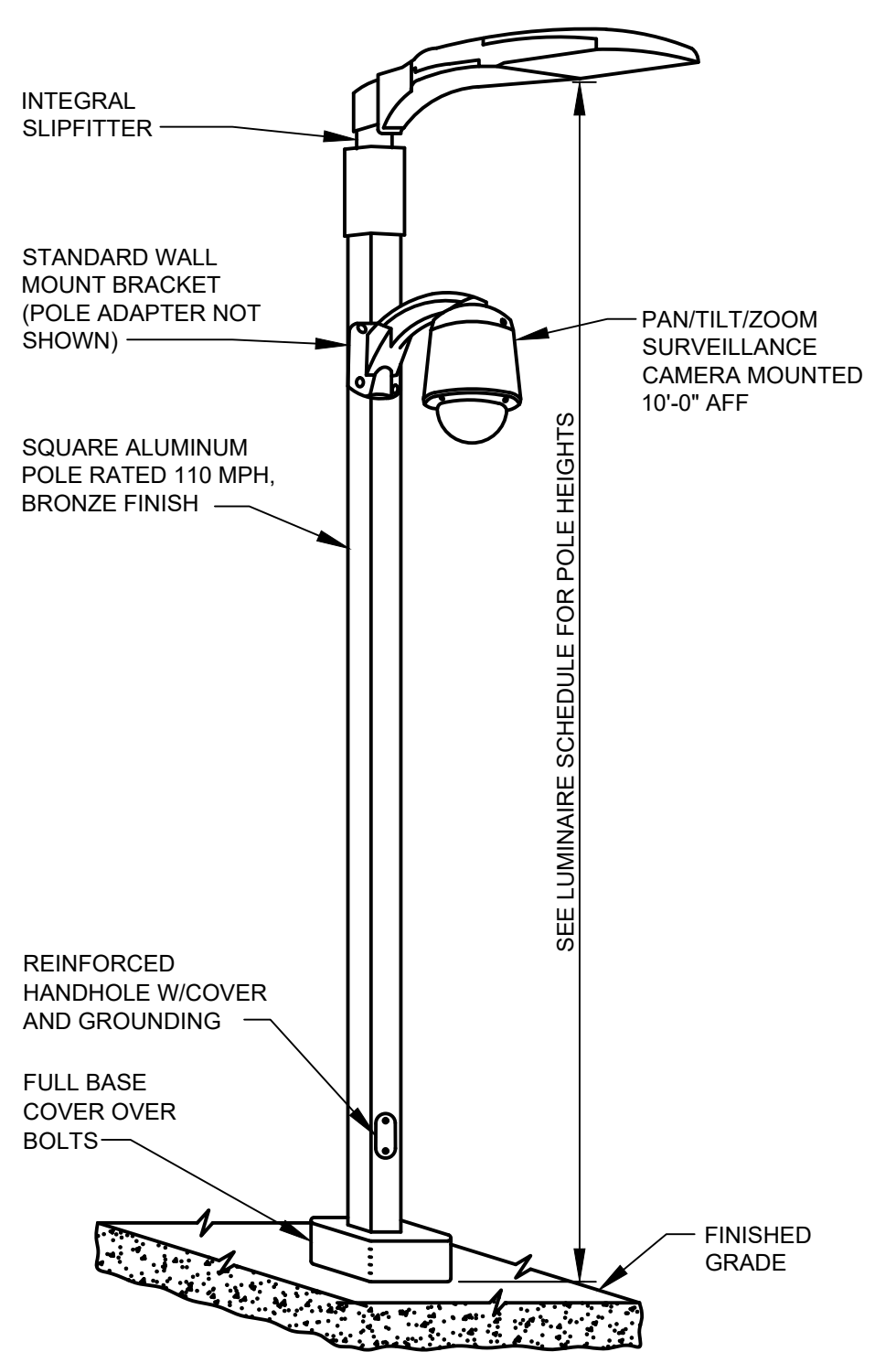
TYPICAL DETAIL FOR CONDUIT PASSING THROUGH NEW FLOOR SLABS OR NEW WALL

NTS



AREA LIGHTING POLE DETAIL

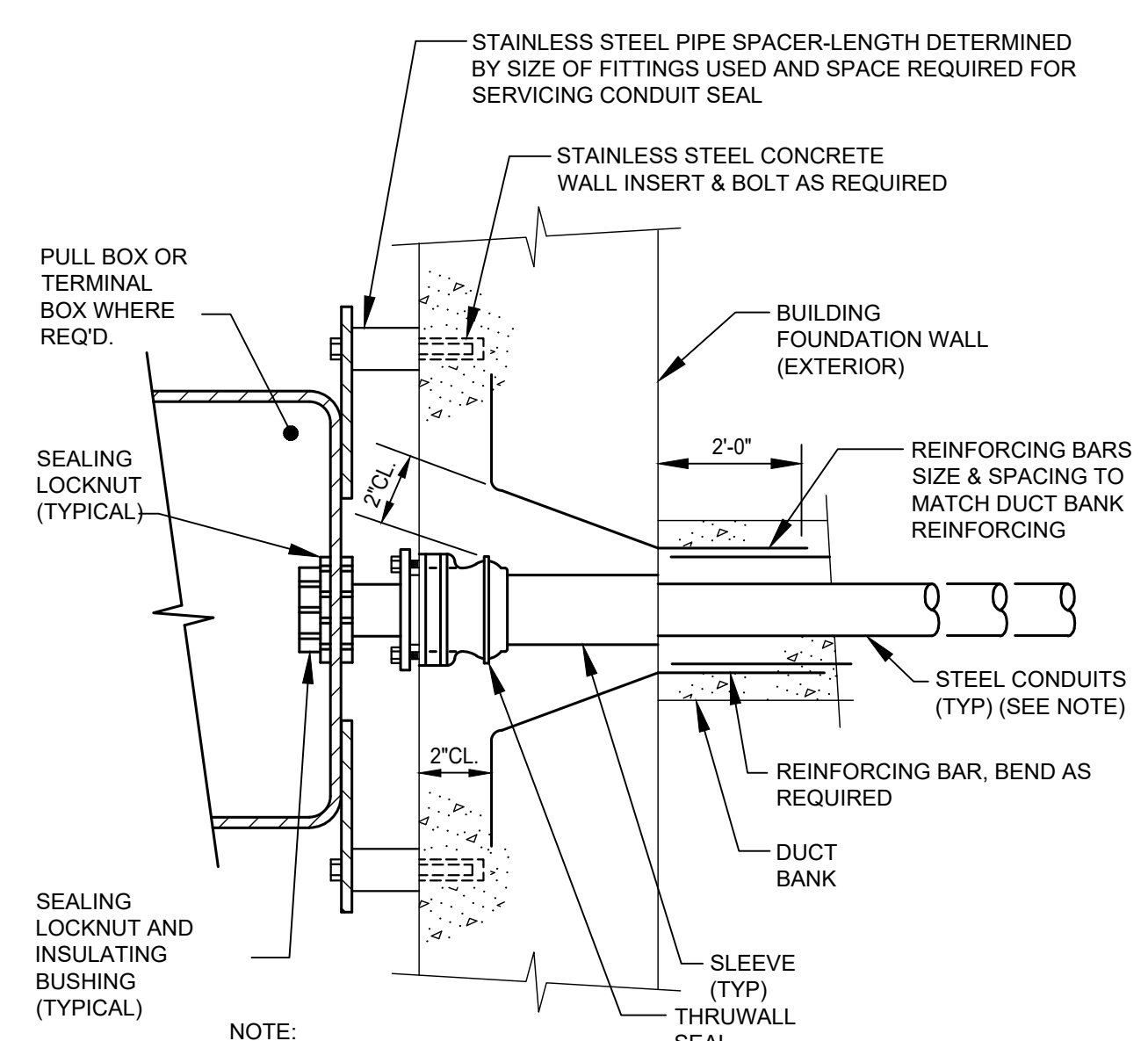
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FLOODLIGHT LIGHTING POLE WITH SURVEILLANCE CAMERA DETAIL

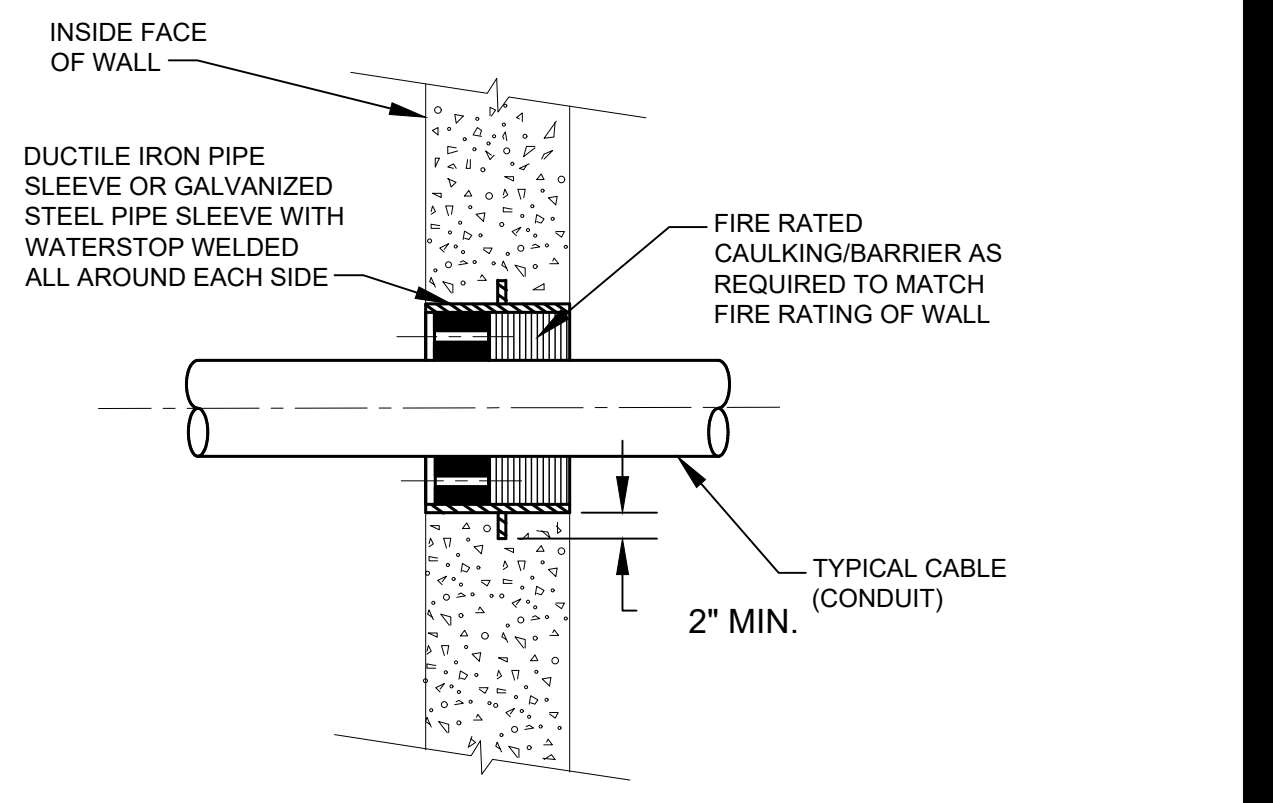
NOT TO SCALE

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

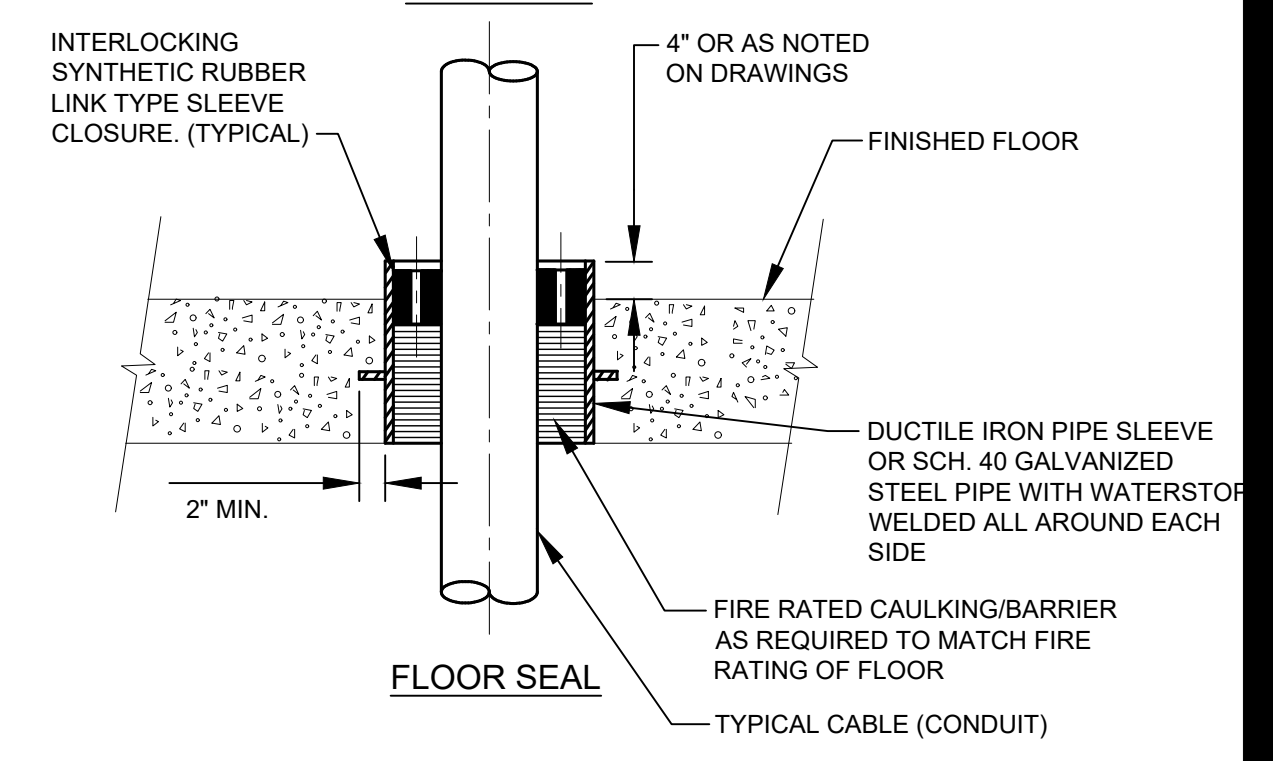


CONDUIT ENTRANCE AND SEAL IN NEW WALL WITH DUCT BANK

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



WALL SEAL



FLOOR SEAL

TYPICAL DETAIL FOR CONDUIT PASSING THROUGH FLOOR SLABS OR WALL

NTS

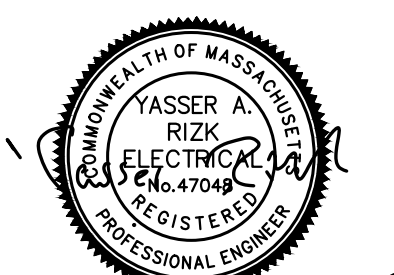
PROJECT
 42-INCH RAW WATER BYPASS CONVEYANCE PIPELINE REHABILITATION AND ENERGY DISSIPATION VALVE CHAMBER
 COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

CLIENT
 SPRINGFIELD WATER AND SEWER COMMISSION
 250 M STREET EXTENSION
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CONSULTANTS

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ISSUE/REVISION

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PROJECT NUMBER

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

DISCIPLINE
 ELECTRICAL
SHEET TITLE

ELECTRICAL DETAILS I

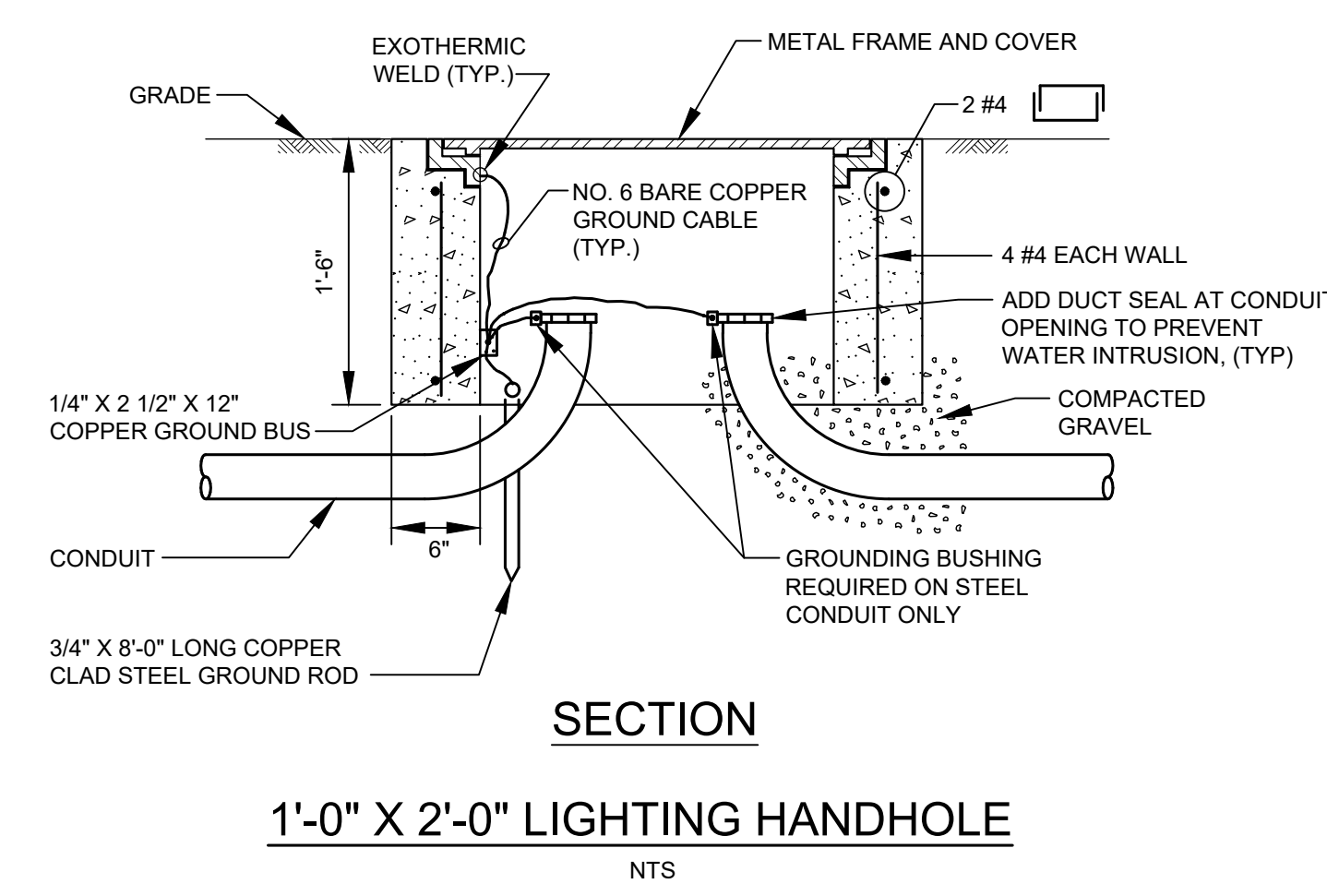
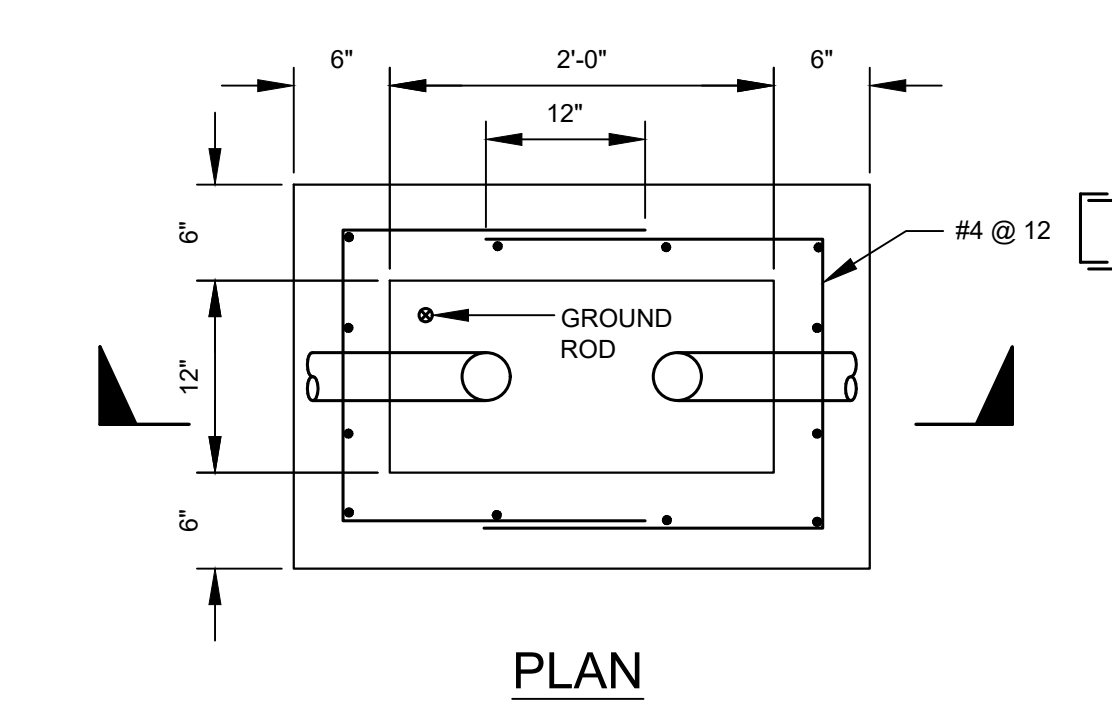
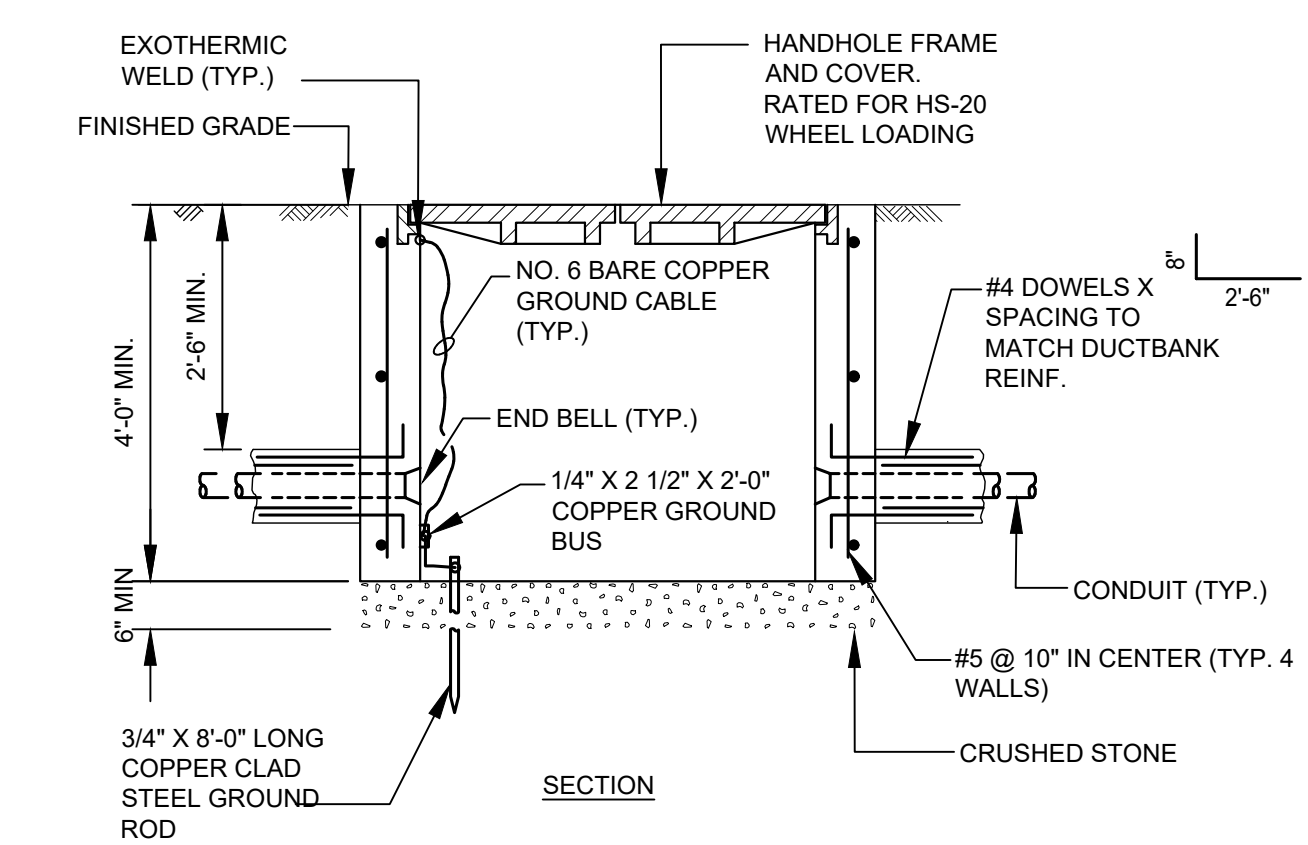
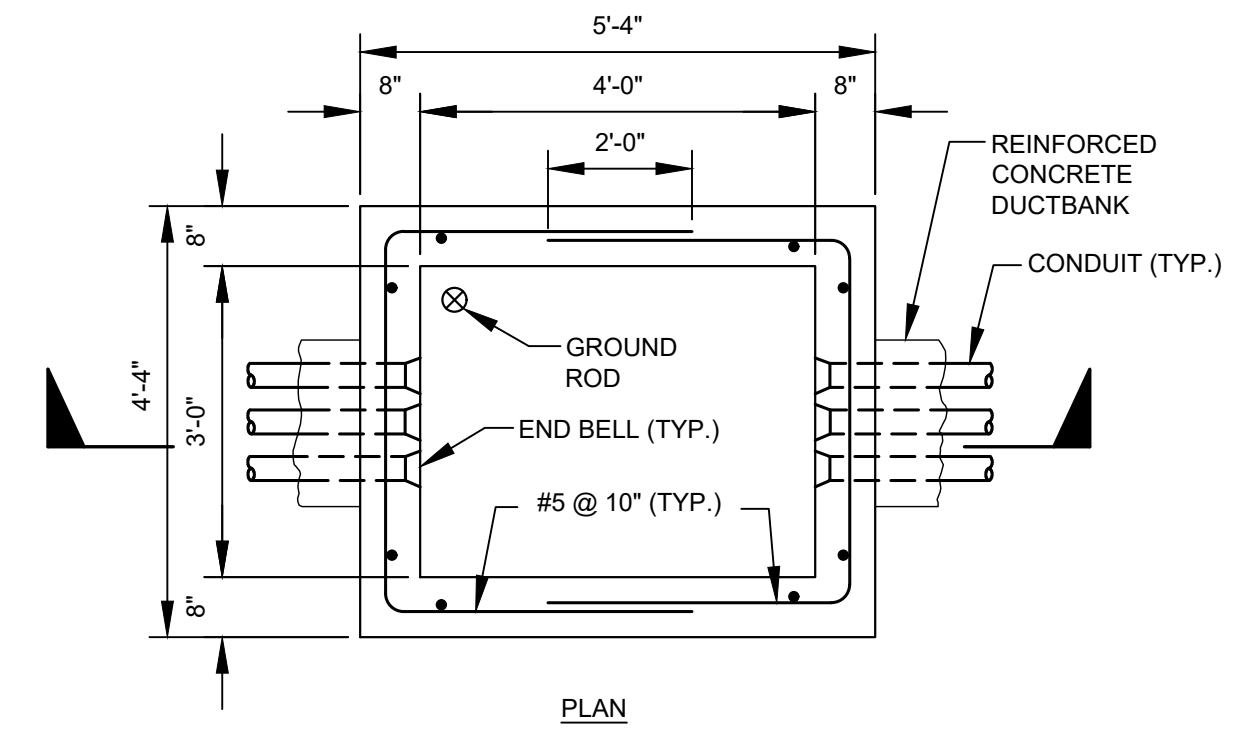
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99 E-001

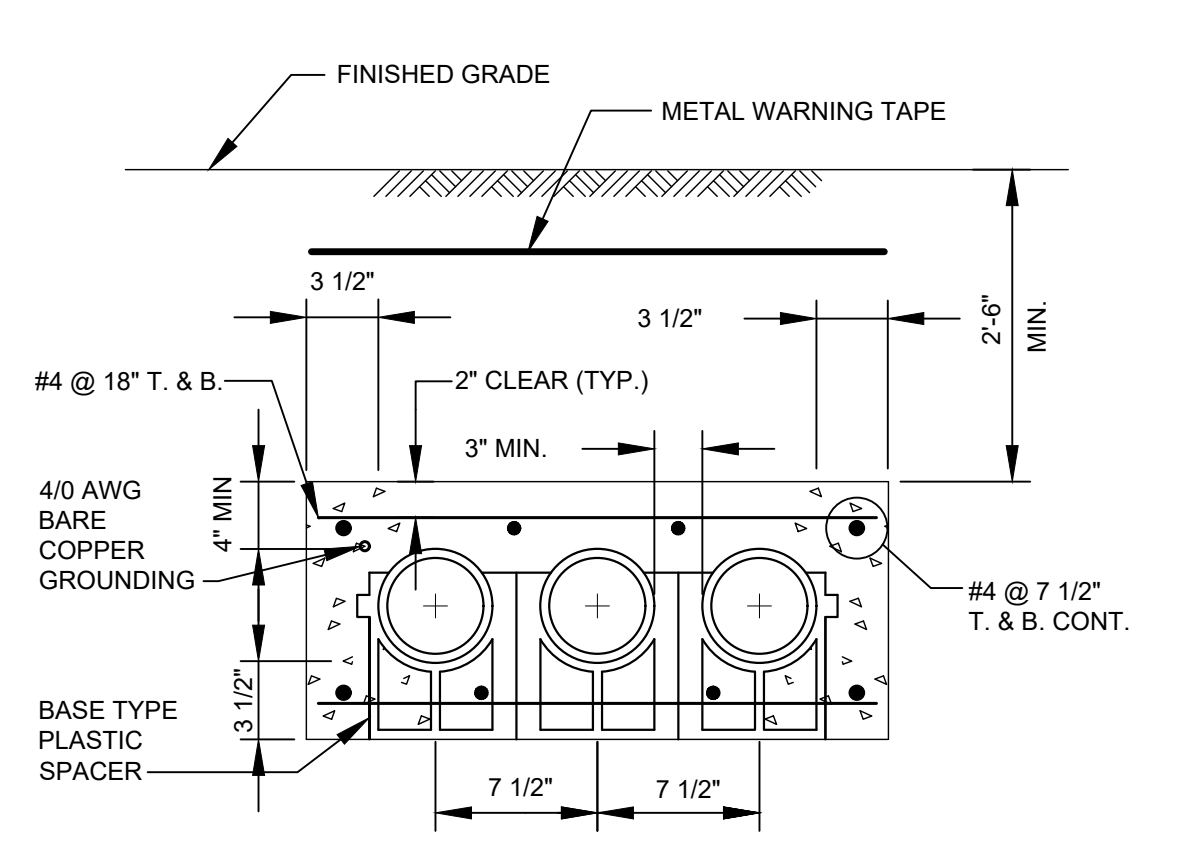
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 LAST UPDATE: Monday, February 12, 2024 2:34:21 PM
 PLOT DATE: Wednesday, February 14, 2024 2:49:56 PM

HANDHOLE AND DUCT BANK NOTES

- ALL CONCRETE INSERTS, FITTINGS AND ACCESSORIES ARE TO BE FABRICATED FROM HEAVY-DUTY STAINLESS STEEL.
- ALL CONCRETE FOR MANHOLES AND HANDHOLES AND DUCT RUNS TO BE CLASS "A" (4000 PSI) AS PER THE STRUCTURAL SPECIFICATIONS.
- ALL CONDUIT AND OTHER EQUIPMENT IN MANHOLES AND HANDHOLES SHALL BE BONDED WITH A NO. 4, STRANDED COPPER CABLE (MINIMUM).
- ALL 4" OR LARGER STEEL CONDUIT BENDS SHALL HAVE A 36" RADIUS (MINIMUM).
- ALL CABLES SHALL BE TAGGED WITH A PROTECTED PLASTIC TAG OF DISTINCTIVE COLOR AND MARKING FOR EACH VOLTAGE. THE TAGS WILL GIVE VOLTAGE AND CIRCUIT NUMBER ASSIGNED BY THE CONTRACT DRAWING CONDUIT AND WIRE SCHEDULE.
- CONTRACTOR TO SIZE THE CIRCULAR OPENINGS IN THE HANDHOLE ROOF FROM FRAMES ACTUALLY FURNISHED.
- PLASTIC DUCT SPACERS SHALL BE INSTALLED ON 4 FT. CENTERS. JOINTS ARE TO BE STAGGERED BETWEEN TIERS TO PROVIDE NOT LESS THAN 12 INCH LONGITUDINAL SEPARATION BETWEEN JOINTS SEPARATION BETWEEN JOINTS IN ANY TWO ADJOINING CONDUITS.
- THE SIZE OF WINDOW DEPENDS ON THE NUMBER OF CONDUITS IN THE INCOMING DUCTLINE. TO DETERMINE THE ACTUAL WINDOW SIZE AND LOCATION. SEE THE DUCT SECTION. THE WINDOW OPENING MUST ALSO BE A MINIMUM OF ONE FOOT ABOVE MANHOLE FLOOR AND / OR ONE FOOT BELOW HANDHOLE ROOF. EACH HANDHOLE WINDOW SHOULD BE OFFSET FROM THE CENTER OF THE WALL SO THAT ONE VERTICAL EDGE IS CLOSE TO THE INTERSECTION OF TWO WALLS.
- ALL STEEL CONDUIT SHALL BE TERMINATED IN HANDHOLES WITH CONDUIT GROUNDING BUSHINGS.
- HANDHOLE COVER SHALL HAVE THE WORD, "LOW VOLTAGE OR CONTROLS COMMUNICATIONS" CAST ON THE COVER.
- INSTALL TWO PULLING-IN IRONS OPPOSITE CENTER OF EACH ENTERING DUCT RUN. ONE 6" BELOW ROOF AND ONE 6" ABOVE FLOOR.
- ALL DUCTS SHALL DRAIN FROM HIGH POINT TO HANDHOLE WITH A SLOPE OF NOT LESS THAN 4" PER 100 FEET.
- WRAP CABLES IN MANHOLES AND HANDHOLES ON AN INDIVIDUAL BASES WITH FIREPROOF CABLE. TAPE TWO INCHES WIRE EXTEND FIRE PROOFING TAPE ONE INCH INTO ANY DUCT

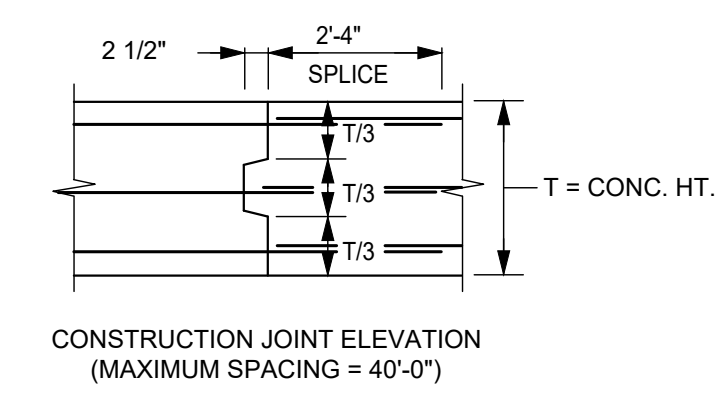


1'-0" X 2'-0" LIGHTING HANDHOLE
NTS

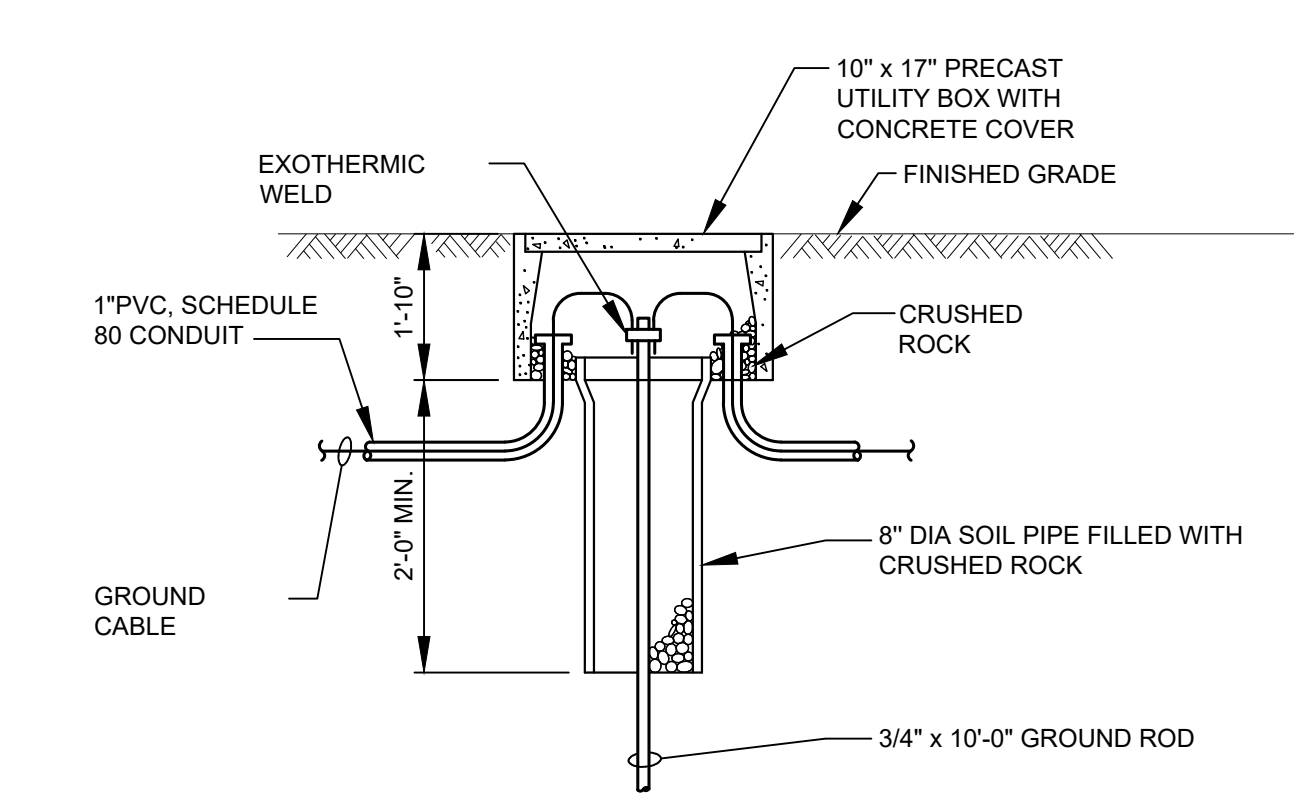


NOTE:
BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE YELLOW DUCT BANK MARKER TAPES, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.

SINGLE LATER DUCT BANK SECTION



DUCTBANK CONSTRUCTION JOINT
NTS



GROUND ROD AND TEST WELL



PROJECT
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COBBLE MOUNTAIN RESERVOIR AND WEST PARISH FILTERS, WESTFIELD, MA

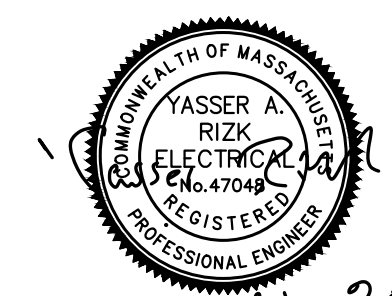
CLIENT
SPRINGFIELD WATER AND SEWER COMMISSION

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Date:	FEBRUARY 2024
Scale:	NONE

DISCIPLINE
ELECTRICAL
SHEET TITLE

ELECTRICAL DETAILS II

SHEET NUMBER
99 E-002

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