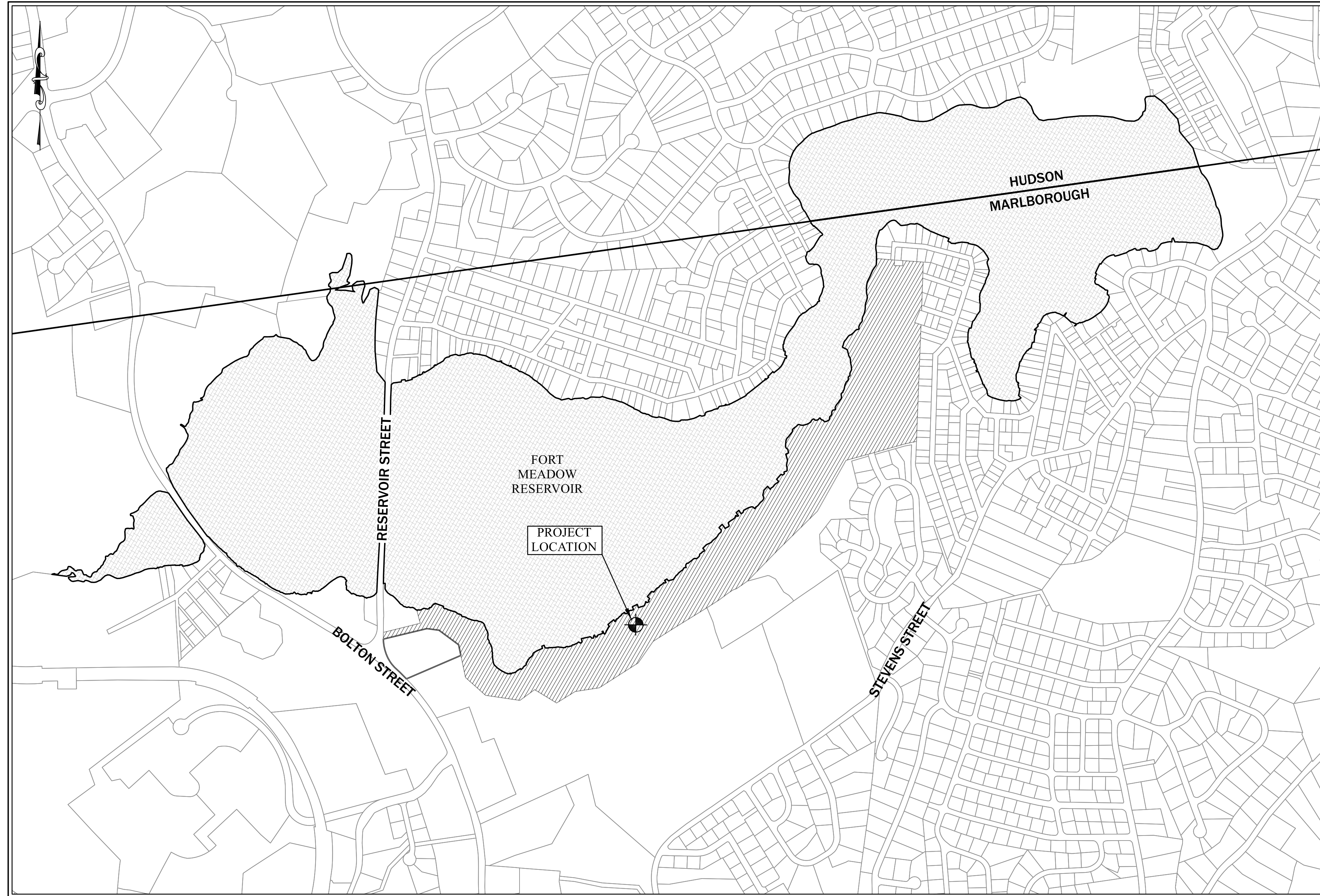


SEWER FORCE MAIN CONSTRUCTION PLAN

RED SPRING ROAD HOMEOWNERS ASSOCIATION

RED SPRING ROAD
MARLBOROUGH, MA 01752



SITE LOCUS
1" = 500'

DRAWING INDEX

- 1 COVER SHEET
- 2 KEY PLAN AND GENERAL NOTES
- 3-7 EXISTING CONDITIONS PLANS
- 8-12 SEWER CONSTRUCTION PLANS
- 13-14 CONSTRUCTION DETAILS

NOTES:

- 1). APPLICANT/ OWNER OF RECORD:
RED SPRING ROAD HOMEOWNERS ASSOCIATION, INC.
39 RED SPRING ROAD
MARLBOROUGH, MA
DEED BOOK 79450 DEED 365
 - 2). SURVEYOR OF RECORD:
CHAPPELL ENGINEERING ASSOCIATES, INC.
201 BOSTON POST ROAD WEST - SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
 - 3). THE PURPOSE OF THIS PLAN IS TO DEPICT THE PROPOSED SEWER FORCE MAIN CONSTRUCTION ALONG RED SPRING ROAD, MARLBOROUGH, MA.
 - 4). PROPERTY IS LOCATED WITHIN THE RESIDENCE A2 ZONING DISTRICT.
 - 5). PROPERTY LIES WITHIN THE SPECIAL FLOOD HAZARD AREA PER THE NATIONAL FLOOD INSURANCE PROGRAM RATE MAP NO. 25017C0481F EFFECTIVE JULY 7, 2014. NO WORK IS PROPOSED WITHIN THE SPECIAL FLOOD HAZARD ZONE.
 - 6). THIS PLAN IS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ANY MATTERS THAT SUCH A REPORT MAY DISCLOSE.
 - 7). CONDITIONS AS SHOWN ARE FROM A COLLABORATION OF FIELD SURVEY, AERIAL SURVEY, AND LIDAR TOOGRAPHY.
 - 8). WETLANDS WERE DELINEATED BY DAVID CROSSMAN OF B&C ASSOCIATES IN APRIL 2022. TOP OF BANK ALONG FORT MEADOW RESERVOIR AS SHOWN WAS FIELD LOCATED BY CHAPPELL ENGINEERING ASSOCIATES, INC.
- DIG-SAFE NOTE (1-888-344-7233):**
- 1) CONTRACTOR SHALL NOTIFY "DIG-SAFE" PRIOR TO ANY EXCAVATION @ 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO THE START OF ANY ON-SITE CONSTRUCTION ACTIVITIES.
 - 2) ALL EXISTING SUBSURFACE UTILITIES (LOCATION & ELEVATION TO BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. CONTRACTOR IS TO VERIFY EXISTING INVERTS AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

PROJECT ENGINEER:

McCLURE
ENGINEERING, INC

119 Worcester Road
Charlton, MA 01507
Tel: (508) 248-2005
Fax: (508) 248-4887
Email: pengle@mcclureengineers.com

PERMIT SET - NOT FOR CONSTRUCTION

LEGEND

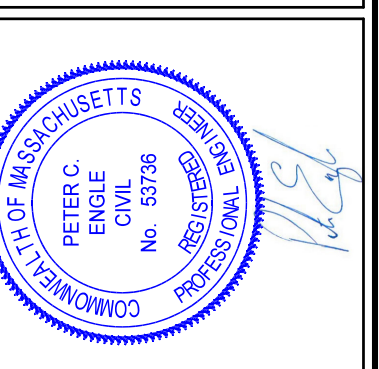
| | |
|-------|----------------------|
| N/F | NOW OR FORMERLY |
| BIT. | BITUMINOUS |
| CONC. | CONCRETE |
| O.P. | IRON PIPE |
| EOP | EDGE OF PAVEMENT |
| ⊙ | SEWER MANHOLE |
| ⊙ | DRAIN MANHOLE |
| □ CB | DRAIN CATCH BASIN |
| D | DRAIN LINE |
| S | SEWER LINE |
| FM | FORCE MAIN |
| W | WATER LINE |
| G | GAS LINE |
| ○ u/p | UTILITY POLE |
| — OHW | OVERHEAD WIRES |
| — UGE | UNDERGROUND ELECTRIC |
| WG | WATER GATE |
| TYP | TYPICAL |
| — 100 | EXISTING CONTOURS |
| — 100 | PROPOSED CONTOURS |
| 100x0 | SPOT GRADE |
| ~~~~~ | TREELINE |

EXISTING UTILITY LINES SHOWN ON THIS DRAWING ARE FROM AVAILABLE INFORMATION AND ARE APPROXIMATE LOCATIONS. THERE MAY BE EXISTING LINES OTHER THAN THOSE INDICATED. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER PUBLIC UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED.

DIG-SAFE (1-888-344-7233) NOTE:
CONTRACTOR REQUIRED TO NOTIFY "DIG SAFE" 72 HOURS PRIOR TO ANY ON-SITE EXCAVATION OR CONSTRUCTION AT 1-888-344-7233. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER AND SEWER DEPARTMENTS TO MARK OUT THEIR UTILITIES.

| REV | DATE | DESCRIPTION | MADE | APVD |
|-----|------|-------------|------|------|
| | | | | |
| | | | | |

PETER C. ENGLE, P.E.
PROFESSIONAL ENGINEER
MA LIC. NO. 53736



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SEWER FORCE MAIN CONSTRUCTION PLAN
LOCATED AT:
RED SPRING ROAD
MARLBOROUGH, MA 01752
PREPARED FOR:
RED SPRING ROAD HOMEOWNERS ASSOCIATION

DRAWN BY: PE
DATE: 8/3/22
CHK BY: PE
SCALE: AS NOTED
PROJ. NO. 170-2650-N

COVER SHEET
SHEET 1 OF 14

CONSTRUCTION SCHEDULE AND
EROSION & SEDIMENTATION CONTROL CHECKLIST

WORK DESCRIPTION

SEQUENCE OF CONSTRUCTION
THE FOLLOWING NARRATIVE DESCRIBES THE PLANNED CONSTRUCTION SEQUENCE WITH AN EMPHASIS ON THE TIMING AND SEQUENCE OF EROSION/SEDIMENTATION CONTROL MEASURES:

THE FOLLOWING CONSTRUCTION SEQUENCE WILL BE REQUIRED TO ENSURE THE EFFECTIVENESS OF THE EROSION/SEDIMENT CONTROL MEASURES ARE OPTIMIZED.

1. INSTALL DEP SIGN.
2. INSTALL EROSION CONTROL BARRIERS ON THE SITE (SOME EROSION CONTROL BARRIERS MAY BE ABLE TO BE MOVED AND REUSED).
3. EROSION CONTROL INSPECTION WILL BE CONDUCTED AFTER INSTALLATION OF EROSION CONTROL BARRIERS.
4. PREPARE TEMPORARY STORAGE AREAS.
5. BEGIN EXCAVATION AND INSTALLATION OF SEWER LINE AND LATERALS. WORK SHALL BEGIN AT FAR END OF RED SPRING ROAD AND WORK TOWARDS RESERVOIR STREET.
6. EXCAVATE AND INSTALL CULVERT REPLACEMENTS WHEN THEY ARE REACHED.
7. INSTALL DRAINAGE IMPROVEMENTS WHEN THE AREA OF IMPROVEMENTS IS REACHED.
8. TEMPORARILY SEED, THROUGHOUT CONSTRUCTION, DENUDED AREAS. PERMANENTLY STABILIZE AREAS WHERE WORK IS COMPLETED.
9. INSPECT AND CORRECT AREAS WHERE EROSION IS OBSERVED. COORDINATE WITH ENGINEER IF EROSION CONTINUES.

FINAL PHASE

1. PERMANENTLY STABILIZE ANY REMAINING EXPOSED AREAS.
2. AREAS OF SEDIMENTATION SHALL BE CLEANED UP AND STABILIZED.
3. ONCE ENTIRE SITE IS STABILIZED, CALL FOR FINAL INSPECTION FROM SITE MONITOR.

NOTES:

1. ONCE CONSTRUCTION IS COMPLETED, ALL DISTURBED AREAS ARE TO BE STABILIZED WITH LOAM AND SEED UNLESS OTHERWISE SPECIFIED.
2. INSPECTIONS WILL BE CONDUCTED WEEKLY AND AFTER 0.25 INCH RAIN EVENTS. COPIES OF WEEKLY REPORTS AND RAIN EVENT REPORTS SHALL BE KEPT ON RECORD AND PROVIDED TO THE TOWN AND ENGINEER AT THEIR REQUEST.
3. EXTRA EROSION CONTROL MATERIALS (WATTLES, STAKES, EROSION CONTROL BLANKETS) SHALL BE KEPT ON SITE FOR EMERGENCY REPAIRS. THESE MATERIALS SHALL BE KEPT COVERED.

NOTE: APPLICANT AND/OR LANDOWNER SHALL NOTIFY THE CITY OF MARLBOROUGH IN WRITING AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO COMMENCING ANY WORK.

DESCRIPTION AND MAINTENANCE OF EROSION CONTROL MEASURES

TEMPORARY STABILIZATION MEASURES

EROSION CONTROL BARRIERS:
INSTALL EROSION CONTROL BARRIERS AT VARIOUS LOCATIONS AS SHOWN ON THE PLANS AND DETAILS. FIRMLY ANCHOR IT AS SHOWN IN THE DETAILS. REMOVE SEDIMENT ONCE LEVELS HAVE REACHED 1/4 OF THE EFFECTIVE HEIGHT. REPAIR AND/OR REPLACE THE BARRIER IMMEDIATELY IF DAMAGED OR DETERIORATED.

STOCKPILING OR STORAGE OF EXCAVATED MATERIALS:
COMPLETELY SURROUND TEMPORARY MATERIAL STOCKPILES WITH STRAW WATTLES TO PREVENT TRANSPORTATION OF SEDIMENT. NO STOCKPILES SHOULD BE KEPT WITHIN 100' OF WETLANDS BOUNDARIES IF POSSIBLE.

DEWATERING:
IF DEWATERING IS REQUIRED, WATER SHOULD BE DISCHARGED TO DEWATERING BAGS OR OTHER SEDIMENT REMOVAL DEVICES PRIOR TO DISCHARGE TO RESOURCE AREAS. WATER MAY ALSO BE USED FOR DUST CONTROL AND/OR VEGETATION WATERING.

PERMANENT STABILIZATION MEASURES

DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASE SHALL BE STABILIZED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LANDSCAPED AREAS. IF TOPSOIL, SEED, AND/OR MULCH IS WASHED AWAY BY RAINFALL, THE CONTRACTOR SHALL RESTORE THE AREA.

MAINTENANCE.

ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RE-SEEDED AS NEEDED.
3. EROSION CONTROL BARRIERS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED, SEDIMENT SHALL BE REMOVED FROM WHEN IT REACHES 1/4 THE HEIGHT OF THE BARRIER. EXTRA EROSION CONTROL BARRIERS SHOULD BE KEPT ON SITE DURING CONSTRUCTION.
4. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO A PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCE AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREAS SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

DIG-SAFE (1-888-344-7233) NOTE:
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RESPONSIBILITIES OF OWNER/PERMITEE

THE OWNER/PERMITEE SHALL:
A. PROVIDE THE CONTRACTOR WITH COPIES OF LAND-USE PERMITS THAT OWNER HAS ACQUIRED.
B. INFORM ALL PARTIES INVOLVED WITH THE PROPOSED SITE WORK OF THIS PLAN'S OBJECTIVES AND REQUIREMENTS.

RESPONSIBILITIES OF CONTRACTOR

THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING EROSION OF THE SITE AND FOR PROTECTING ADJACENT STORM SEWERS AND WATERWAYS FROM SEDIMENTATION.
THE CONTRACTOR SHALL:
A. INSTALL, MONITOR, AND MAINTAIN OF THE SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THIS PLAN.
B. COMPLY WITH ALL PERMIT REQUIREMENTS.

PRE-CONSTRUCTION CONFERENCE

PRIOR TO CONSTRUCTION, FOLLOWING INSTALLATION OF EROSION CONTROL, THE PERMITEE, OWNER-OF-RECORD, CONTRACTOR, ENGINEER, AND TOWN REPRESENTATIVE (CONSERVATION COMMISSION) SHALL HOLD A "PRE-CONSTRUCTION" CONFERENCE AT THE SITE TO REVIEW THE INSTALLATION OF THE PROPOSED SOIL EROSION AND SEDIMENT CONTROL MEASURES.

GENERAL CONTROLS

CLEANING OF STORMWATER STRUCTURES:
CLEAN ALL STORMWATER STRUCTURES INCLUDING, BUT NOT LIMITED TO, PIPES, SWALES, SUBSURFACE RETENTION BASINS, SEDIMENT TRAPS, AND RIPRAP APRONS OF SEDIMENT UPON COMPLETION OF THE PROJECT.

PAVEMENT MAINTENANCE:

THE CONTRACTOR SHALL SWEEP PAVED ROADWAYS ADJACENT TO THE SITE ON A ROUTINE BASIS TO PREVENT TRACKING OF MUD ONTO PUBLIC ROADWAYS AND WASHING OF MUD INTO WATERWAYS. IF THE CONTRACTOR'S SCHEDULE FOR CLEANING THE PAVEMENT IS FOUND TO BE INADEQUATE BY THE OWNER, OWNER'S REPRESENTATIVE, OR TOWN, THE CONTRACTOR SHALL INCREASE THE FREQUENCY AT NO ADDITIONAL COST TO THE OWNER.

WASTE DISPOSAL:

THE CONTRACTOR SHALL PROVIDE AN ADEQUATE NUMBER OF COVERED WASTE CONTAINERS TO ENSURE THAT NO LITTER, DEBRIS, BUILDING MATERIALS, OR SIMILAR MATERIALS ARE DISCHARGED TO WETLANDS OR WATERCOURSES. THE CONTRACTOR SHALL INSTRUCT SUBCONTRACTORS TO USE THE CONTAINERS FOR WASTE MATERIAL. THE CONTAINERS SHALL BE PROMPTLY EMPTIED WHEN FULL.

TEMPORARY STABILIZATION MEASURES

EROSION CONTROL BARRIER: INSTALL BARRIER AT VARIOUS LOCATIONS AS SHOWN ON THE PLANS AND DETAILS. REMOVE SEDIMENT ONCE LEVELS HAVE REACHED 1/4 OF THE EFFECTIVE FENCE-HEIGHT. REPAIR AND/OR REPLACE SILT FENCE IMMEDIATELY IF DAMAGED OR DETERIORATED.
STOCKPILES OR STORAGE OF EXCAVATED MATERIALS: COMPLETELY SURROUND TEMPORARY MATERIAL STOCKPILES WITH SILT FENCE TO PREVENT TRANSPORTATION OF SEDIMENT.

DUST CONTROL: TAKE PRECAUTIONS TO PREVENT DUST FROM BECOMING A NUISANCE TO ADJACENT PROPERTY OWNERS. BROOM OFF PAVEMENTS ADJOINING THE EXCAVATION ON A DAILY BASIS. COVER AND/OR KEEP MOIST ALL EARTH STOCKPILES AT ALL TIMES. USE CALCIUM CHLORIDE TO CONTROL DUST OVER CERTAIN AREAS OF THE SITE, AS DIRECTED BY THE ENGINEER OR SHOWN ON THE PLANS. CALCIUM CHLORIDE SHALL CONFORM TO ASTM D-98, TYPE I. THE CONTRACTOR SHALL MAINTAIN AND INSPECT, ON A DAILY BASIS, THE ADEQUACY OF DUST CONTROL MEASURES AND CORRECT ANY DEFICIENCIES IMMEDIATELY.

TEMPORARY STABILIZATION: TOP SOIL STOCKPILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY CEASES FOR AT LEAST 14 DAYS WILL BE STABILIZED WITH TEMPORARY SEED AND MULCH NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA. AREAS OF THE SITE WHICH ARE TO BE PAVED WILL BE TEMPORARILY STABILIZED BY APPLYING GEOTEXTILE AND STONE SUB-BASE UNTIL BITUMINOUS PAVEMENT CAN BE APPLIED.

PERMANENT STABILIZATION MEASURES

DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASE SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LANDSCAPED AREAS. IF TOPSOIL, SEED, AND/OR MULCH IS WASHED AWAY BY RAINFALL, THE CONTRACTOR SHALL RESTORE THE AREA.

GENERAL CONDITIONS

IF EROSION CONTROL MEASURES ARE DAMAGED BY CONSTRUCTION VEHICLES, ACTS OF VANDALISM, OR SEVERE WEATHER CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY REMOVE SEDIMENT IN THE VICINITY OF THE EROSION CONTROL MEASURES AND REPAIR THESE MEASURES TO A FUNCTIONAL CONDITION.

IF, DURING OR AFTER CONSTRUCTION, IT BECOMES APPARENT THAT EXISTING EROSION CONTROL MEASURES ARE INCAPABLE OF CONTROLLING EROSION, THE ENGINEER OR THE TOWN MAY REQUIRE ADDITIONAL CONTROL MEASURES, INCLUDING BUT NOT LIMITED TO: ADDITIONAL STRAW WATTLES, HAYBALES, SILT FENCE, SEDIMENT BASINS, MECHANICALLY ANCHORED MULCH, OR ENHANCED DEWATERING FILTRATION.

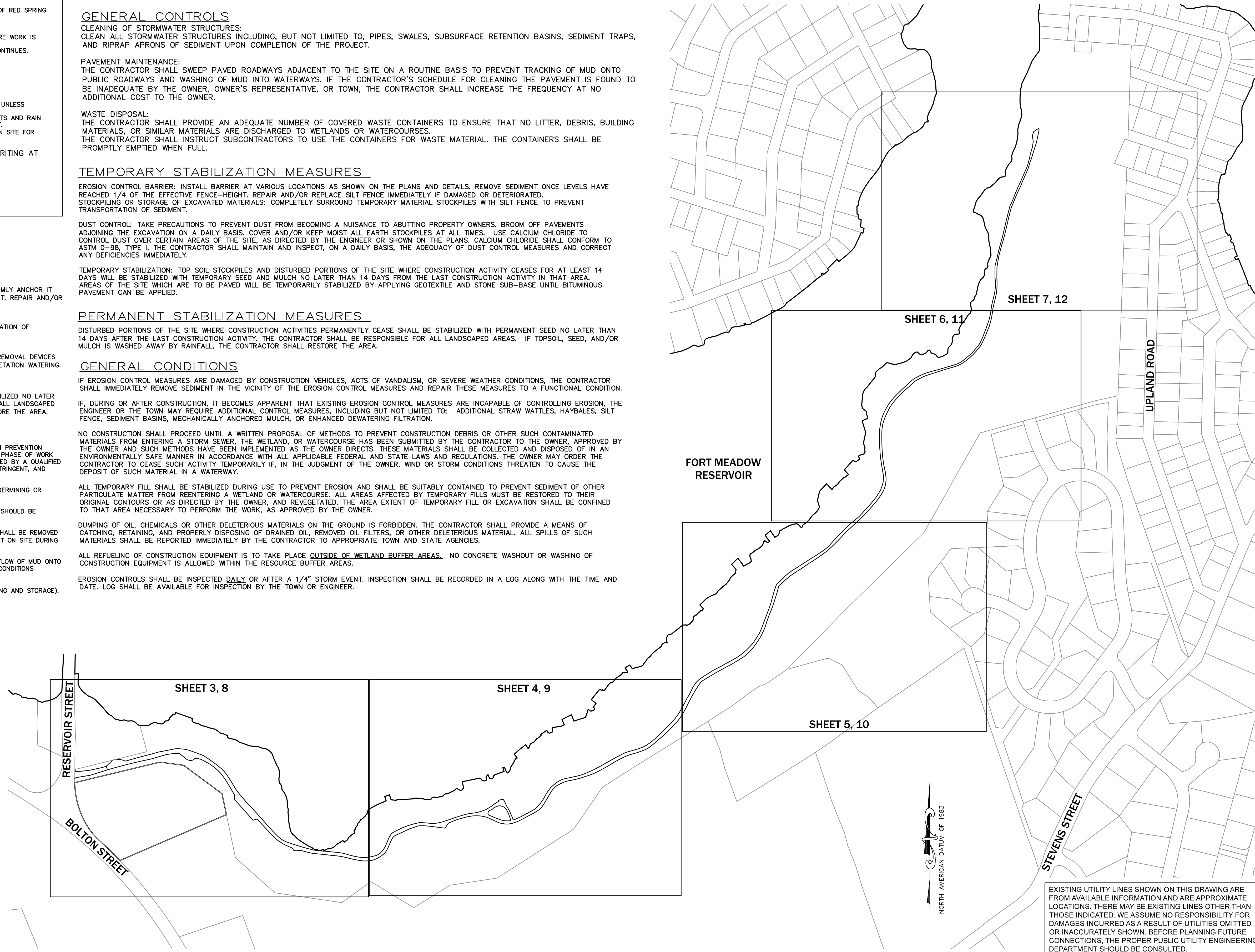
NO CONSTRUCTION SHALL PROCEED UNTIL A WRITTEN PROPOSAL OF METHODS TO PREVENT CONSTRUCTION DEBRIS OR OTHER SUCH CONTAMINATED MATERIALS FROM ENTERING A STORM SEWER, THE WETLAND, OR WATERCOURSE HAS BEEN SUBMITTED BY THE CONTRACTOR TO THE OWNER, APPROVED BY THE OWNER AND SUCH METHODS HAVE BEEN IMPLEMENTED AS THE OWNER DIRECTS. THESE MATERIALS SHALL BE COLLECTED AND DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER IN ACCORDANCE WITH ALL APPLICABLE FEDERAL AND STATE LAWS AND REGULATIONS. THE OWNER MAY ORDER THE CONTRACTOR TO CEASE SUCH ACTIVITY TEMPORARILY IF, IN THE JUDGMENT OF THE OWNER, WIND OR STORM CONDITIONS THREATEN TO CAUSE THE DEPOSIT OF SUCH MATERIAL IN A WATERWAY.

ALL TEMPORARY FILL SHALL BE STABILIZED DURING USE TO PREVENT EROSION AND SHALL BE SUITABLY CONTAINED TO PREVENT SEDIMENT OF OTHER PARTICULATE MATTER FROM REENTERING A WETLAND OR WATERCOURSE. ALL AREAS AFFECTED BY TEMPORARY FILLS MUST BE RESTORED TO THEIR ORIGINAL CONTOURS OR AS DIRECTED BY THE OWNER, AND REVEGETATED. THE AREA EXCEPT OF TEMPORARY FILL OR EXCAVATION SHALL BE CONFINED TO THAT AREA NECESSARY TO PERFORM THE WORK, AS APPROVED BY THE OWNER.

DUMPING OF OIL, CHEMICALS OR OTHER DELETERIOUS MATERIALS ON THE GROUND IS FORBIDDEN. THE CONTRACTOR SHALL PROVIDE A MEANS OF CATCHING, RETAINING, AND PROPERLY DISPOSING OF DRAINED OIL REMOVED OIL FILTERS, OR OTHER DELETERIOUS MATERIAL. ALL SPILLS OF SUCH MATERIALS SHALL BE REPORTED IMMEDIATELY BY THE CONTRACTOR TO APPROPRIATE TOWN AND STATE AGENCIES.

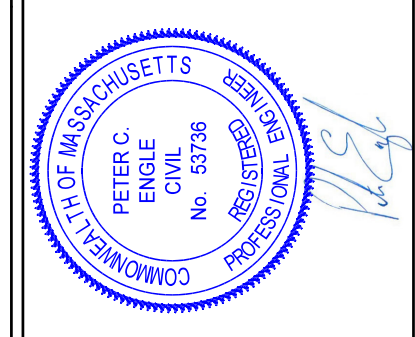
ALL REFUELING OF CONSTRUCTION EQUIPMENT IS TO TAKE PLACE OUTSIDE OF WETLAND BUFFER AREAS. NO CONCRETE WASHOUT OR WASHING OF CONSTRUCTION EQUIPMENT IS ALLOWED WITHIN THE RESOURCE BUFFER AREAS.

EROSION CONTROLS SHALL BE INSPECTED DAILY OR AFTER A 1/4" STORM EVENT. INSPECTION SHALL BE RECORDED IN A LOG ALONG WITH THE TIME AND DATE. LOG SHALL BE AVAILABLE FOR INSPECTION BY THE TOWN OR ENGINEER.



| | | | |
|----------------------------|-----|-----------|-------------|
| HOR. SCALE IN FEET: 1"=40' | | REVISIONS | |
| 0 | 40 | DATE | DESCRIPTION |
| 80 | 120 | REV | MADE (APVD) |

PETER C. ENGLE, P.E.
PROFESSIONAL ENGINEER
MA LIC. NO. 53736



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Email: peng@mcclureengineers.com

SEWER FORCE MAIN CONSTRUCTION PLAN
LOCATED AT:
RED SPRING ROAD
MARLBOROUGH, MA 01752
PREPARED FOR:
RED SPRING ROAD HOMEOWNERS ASSOCIATION

| | |
|------------|------------|
| DRAWN BY: | PE |
| DATE: | 8/3/22 |
| CHK BY: | PE |
| SCALE: | E1 |
| PROJ. NO.: | 170-2650-N |

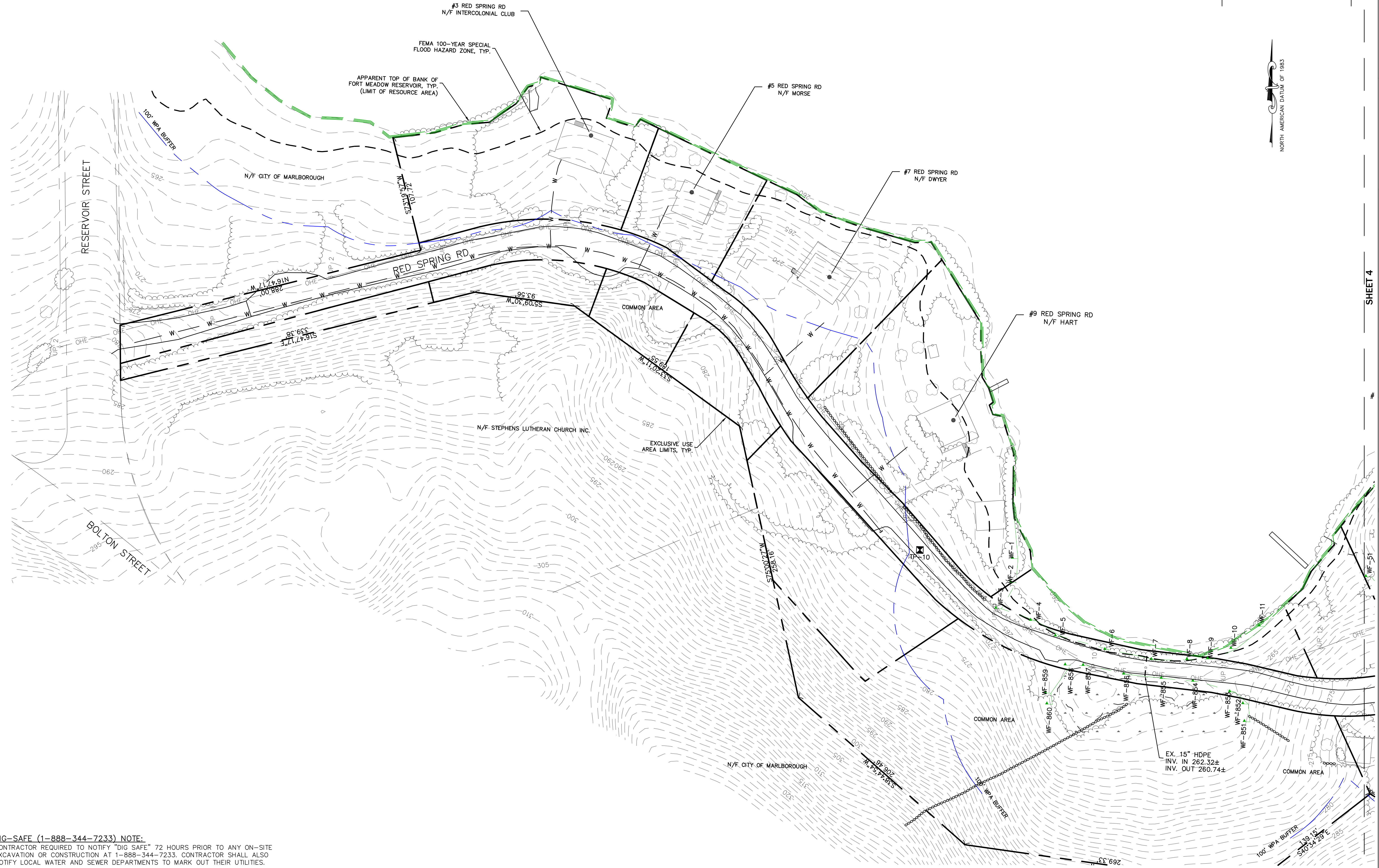
KEY PLAN AND GENERAL NOTES

EXISTING UTILITY LINES SHOWN ON THIS DRAWING ARE FROM AVAILABLE INFORMATION AND ARE APPROXIMATE LOCATIONS. THERE MAY BE EXISTING LINES OTHER THAN THOSE INDICATED. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER PUBLIC UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED.

FORT MEADOW RESERVOIR
 WATER ELEV. (OCTOBER 2021)= 260.5±
 FEMA SFHZ 100 YR= 262.00 (ZONE AE)

TEST PIT 10

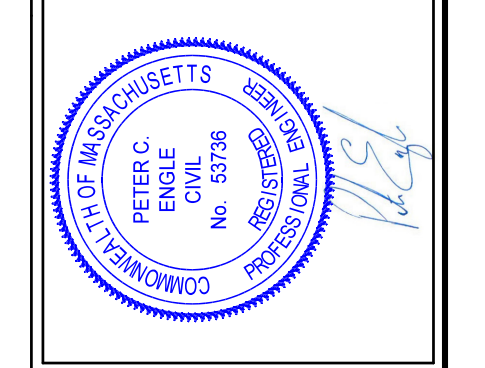
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|---------------------------------|----------------------------|---------------|
| SOIL EVALUATOR: PETER ENGLE, PE | CONTRACTOR: NG VIGANT CORP | DATE: 4/22/22 |
| DEPTH | HORIZON | TEXTURE |
| 0" - 18" | ROAD/FILL | C GS |
| 18" - 84" | C | GS |
| REDOX/ESHGW 60" | | |



HOR. SCALE IN FEET: 1"=40'

| REV | DATE | DESCRIPTION | MADE (APVD) |
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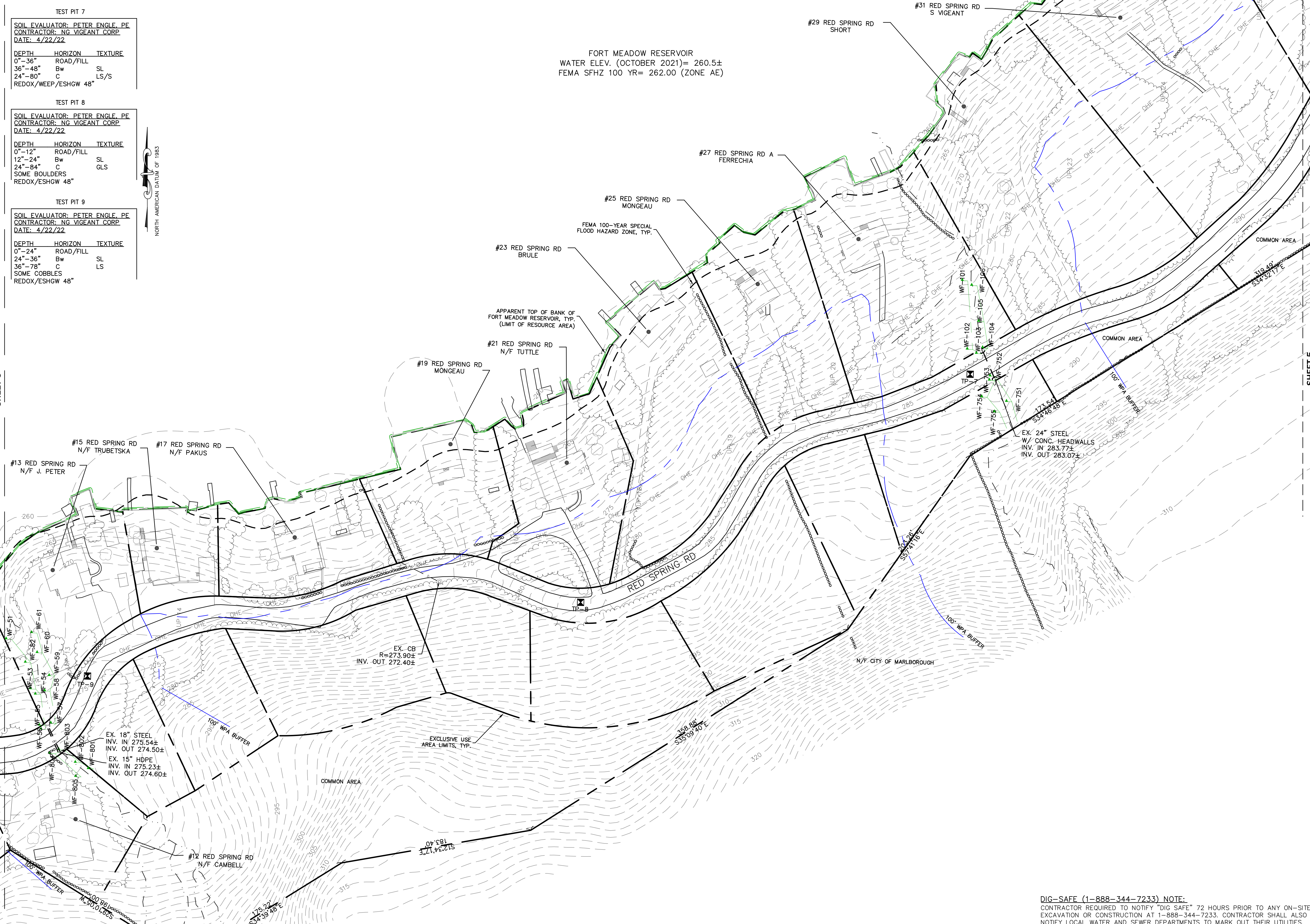
SEWER FORCE MAIN CONSTRUCTION PLAN
 LOCATED AT:
 RED SPRING ROAD
 MARLBOROUGH, MA 01752
 PREPARED FOR:
 RED SPRING ROAD HOMEOWNERS ASSOCIATION

DRAWN BY: PE
 DATE: 8/3/22
 CHK BY: PE
 SCALE: E1
 PROJ. NO. 170-2650-N

EXISTING CONDITIONS

SHEET **3** OF **14**

DIG-SAFE (1-888-344-7233) NOTE:
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TEST PIT 7

SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP
 DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|----------------------|-----------|---------|
| 0"-36" | ROAD/FILL | |
| 36"-48" | Bw | SL |
| 24"-80" | C | LS/S |
| REDOX/WEEP/ESHGW 48" | | |

TEST PIT 8

SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP
 DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|-----------------|-----------|---------|
| 0"-12" | ROAD/FILL | |
| 12"-24" | Bw | SL |
| 24"-84" | C | GLS |
| SOME BOULDERS | | |
| REDOX/ESHGW 48" | | |

TEST PIT 9

SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP
 DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|-----------------|-----------|---------|
| 0"-24" | ROAD/FILL | |
| 24"-36" | Bw | SL |
| 36"-78" | C | LS |
| SOME COBBLES | | |
| REDOX/ESHGW 48" | | |

SHEET 3

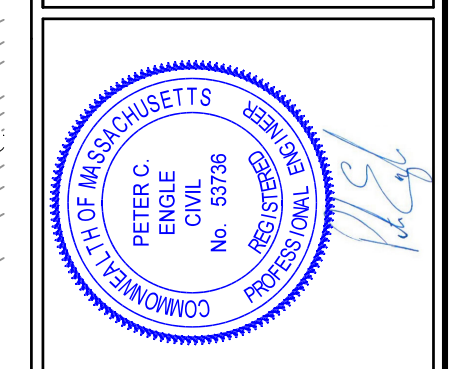
SHEET 5

FORT MEADOW RESERVOIR
 WATER ELEV. (OCTOBER 2021)= 260.5±
 FEMA SFHZ 100 YR= 262.00 (ZONE AE)

HOR. SCALE IN FEET: 1"=40'

| REV | DATE | REVISIONS | DESCRIPTION | MADE (APVD) |
|-----|------|-----------|-------------|-------------|
| | | | | |

PETER C. ENGLE, P.E.
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 MA LIC. NO. 53736



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SEWER FORCE MAIN CONSTRUCTION PLAN
 LOCATED AT:
 RED SPRING ROAD
 MARLBOROUGH, MA 01752
 PREPARED FOR:
 RED SPRING ROAD HOMEOWNERS ASSOCIATION

| | |
|-----------|------------|
| DRAWN BY: | PE |
| DATE: | 8/3/22 |
| CHK BY: | PE |
| SCALE: | 1"=40' |
| PROJ. NO. | 170-2650-N |

EXISTING
 CONDITIONS

SHEET **4** OF **14**

DIG-SAFE (1-888-344-7233) NOTE:
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 EXCAVATION OR CONSTRUCTION AT 1-888-344-7233. CONTRACTOR SHALL ALSO
 NOTIFY LOCAL WATER AND SEWER DEPARTMENTS TO MARK OUT THEIR UTILITIES.

TEST PIT 5
 SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP.
 DATE: 4/22/22

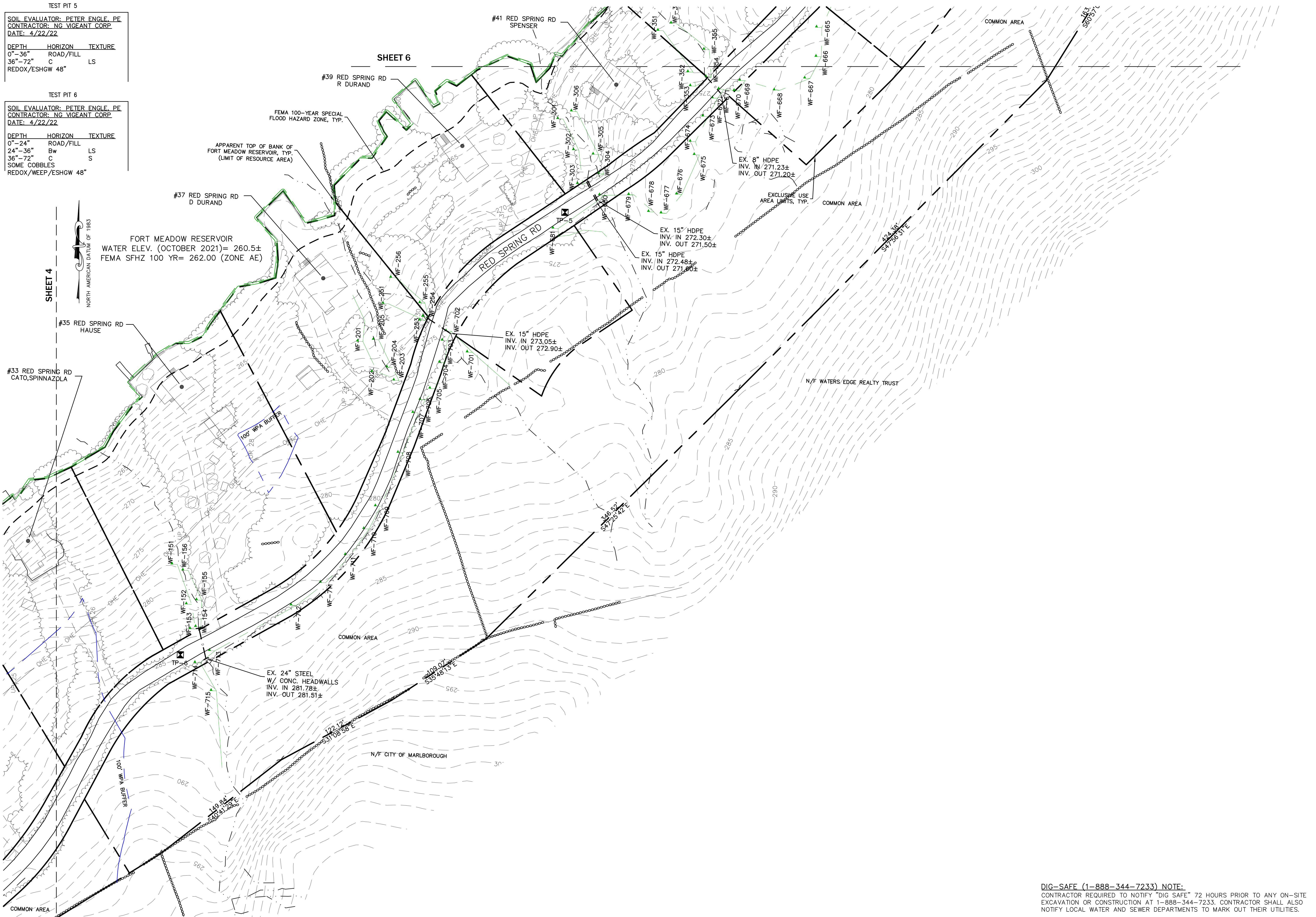
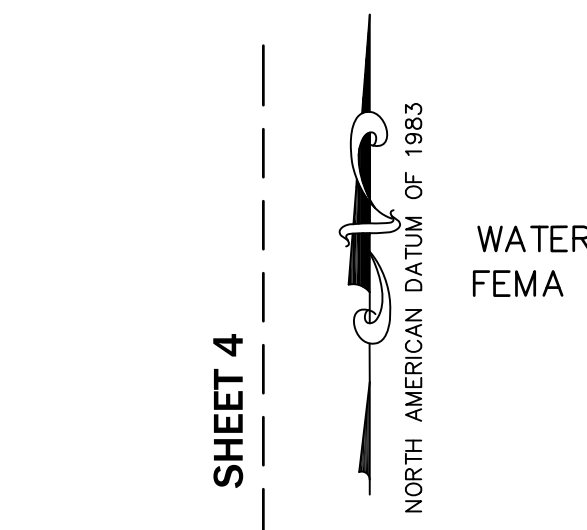
| DEPTH | HORIZON | TEXTURE |
|---------|-----------|---------|
| 0"-36" | ROAD/FILL | LS |
| 36"-72" | C | LS |

REDOX/ESHGW 48"

TEST PIT 6
 SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP.
 DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|---------|-----------|---------|
| 0"-24" | ROAD/FILL | LS |
| 24"-36" | Bw | LS |
| 36"-72" | S | S |

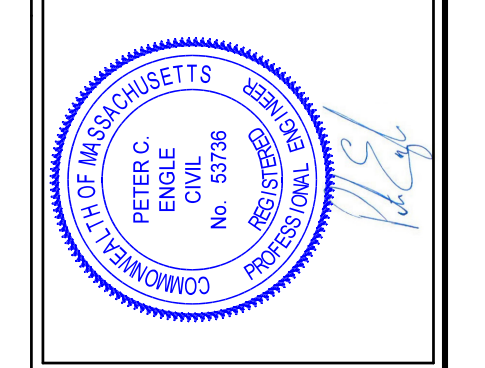
SOME COBBLES
 REDOX/WEEP/ESHGW 48"



HOR. SCALE IN FEET: 1"=40'

| REV | DATE | REVISIONS | DESCRIPTION | MADE | APVD |
|-----|------|-----------|-------------|------|------|
| | | | | | |

PETER C. ENGLE, PE
 PROFESSIONAL ENGINEER
 MA LIC. NO. 53736



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 119 Worcester Road
 Charlton, MA 01507
 Tel: (508) 248-2005
 Fax: (508) 248-4887
 Email: pengle@mcclureengineers.com

SEWER FORCE MAIN CONSTRUCTION PLAN
 LOCATED AT:
 RED SPRING ROAD
 MARLBOROUGH, MA 01752
 PREPARED FOR:
 RED SPRING ROAD HOMEOWNERS ASSOCIATION

| | |
|-----------|------------|
| DRAWN BY: | PE |
| DATE: | 8/3/22 |
| CHK BY: | PE |
| SCALE: | 1"=40' |
| PROJ. NO. | 170-2650-N |

EXISTING
 CONDITIONS

SHEET **5** OF **14**

DIG-SAFE (1-888-344-7233) NOTE:
 CONTRACTOR REQUIRED TO NOTIFY "DIG SAFE" 72 HOURS PRIOR TO ANY ON-SITE EXCAVATION OR CONSTRUCTION AT 1-888-344-7233. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER AND SEWER DEPARTMENTS TO MARK OUT THEIR UTILITIES.

TEST PIT 3
 SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP
 DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|---------|-----------|---------|
| 0"-12" | ROAD/FILL | |
| 12"-24" | Bw | LS |
| 24"-80" | C | GS |

REDOX/WEEP/ESHGW 42"

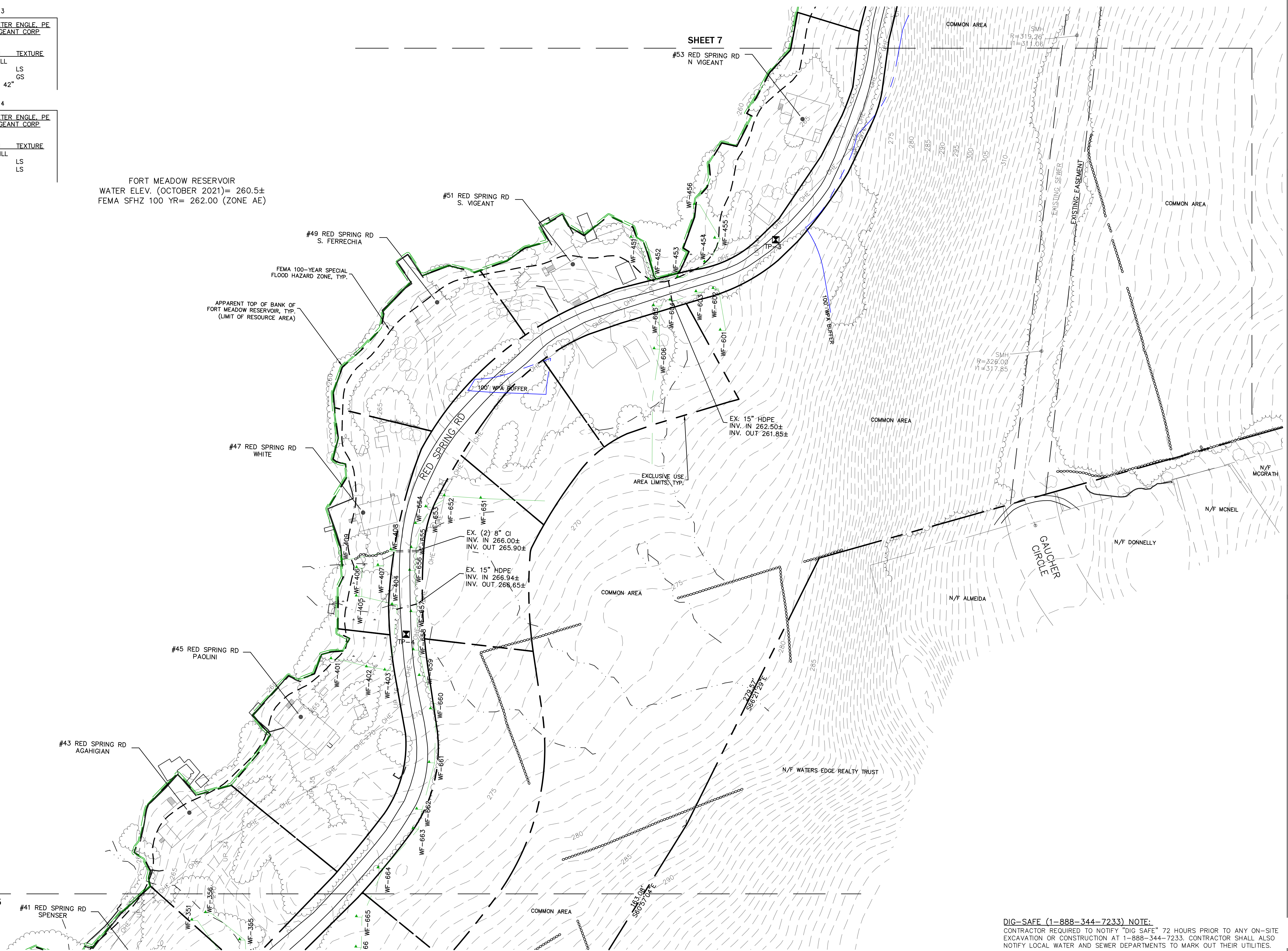
TEST PIT 4
 SOIL EVALUATOR: PETER ENGLE, PE
 CONTRACTOR: NG VIGEANT CORP
 DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|---------|-----------|---------|
| 0"-24" | ROAD/FILL | |
| 24"-36" | Bw | LS |
| 36"-84" | C | LS |

REDOX/ESHGW 48"
 WEEPING 60"

SHEET 7

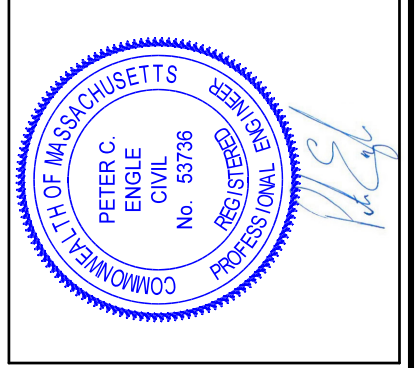
FORT MEADOW RESERVOIR
 WATER ELEV. (OCTOBER 2021)= 260.5±
 FEMA SFHZ 100 YR= 262.00 (ZONE AE)



HOR. SCALE IN FEET: 1"=40'

| REV | DATE | DESCRIPTION | MADE (APVD) |
|-----|------|-------------|-------------|
| | | | |

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 MARLBOROUGH, MA 01752
 PREPARED FOR:
 RED SPRING ROAD HOMEOWNERS ASSOCIATION

DRAWN BY: PE
 DATE: 8/3/22
 CHK BY: PE
 SCALE: EA
 PROJ. NO. 170-2650-N

EXISTING CONDITIONS

DIG-SAFE (1-888-344-7233) NOTE:
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TEST PIT 1

SOIL EVALUATOR: PETER ENGLE, PE
CONTRACTOR: NG VIGEANT CORP
DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|---------|-----------|---------|
| 0"-12" | ROAD/FILL | |
| 12"-24" | Bw | SL |
| 24"-80" | C | LS |

SOME COBBLES
REDOX/ESHGW 48"

TEST PIT 2

SOIL EVALUATOR: PETER ENGLE, PE
CONTRACTOR: NG VIGEANT CORP
DATE: 4/22/22

| DEPTH | HORIZON | TEXTURE |
|---------|-----------|---------|
| 0"-12" | ROAD/FILL | |
| 12"-24" | Bw | SL |
| 24"-72" | C | LS/S |

SOME COBBLES
REDOX/ESHGW 48"
WEEPING 60"



FORT MEADOW RESERVOIR
WATER ELEV. (OCTOBER 2021)= 260.5±
FEMA SFHZ 100 YR= 262.00 (ZONE AE)



HOR. SCALE IN FEET: 1"=40'

| REV | DATE | REVISIONS | DESCRIPTION | MADE | APVD |
|-----|------|-----------|-------------|------|------|
| | | | | | |

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| | |
|-----------|------------|
| DRAWN BY: | PE |
| DATE: | 8/3/22 |
| CHK BY: | PE |
| SCALE: | 1"=40' |
| PROJ. NO. | 170-2650-N |

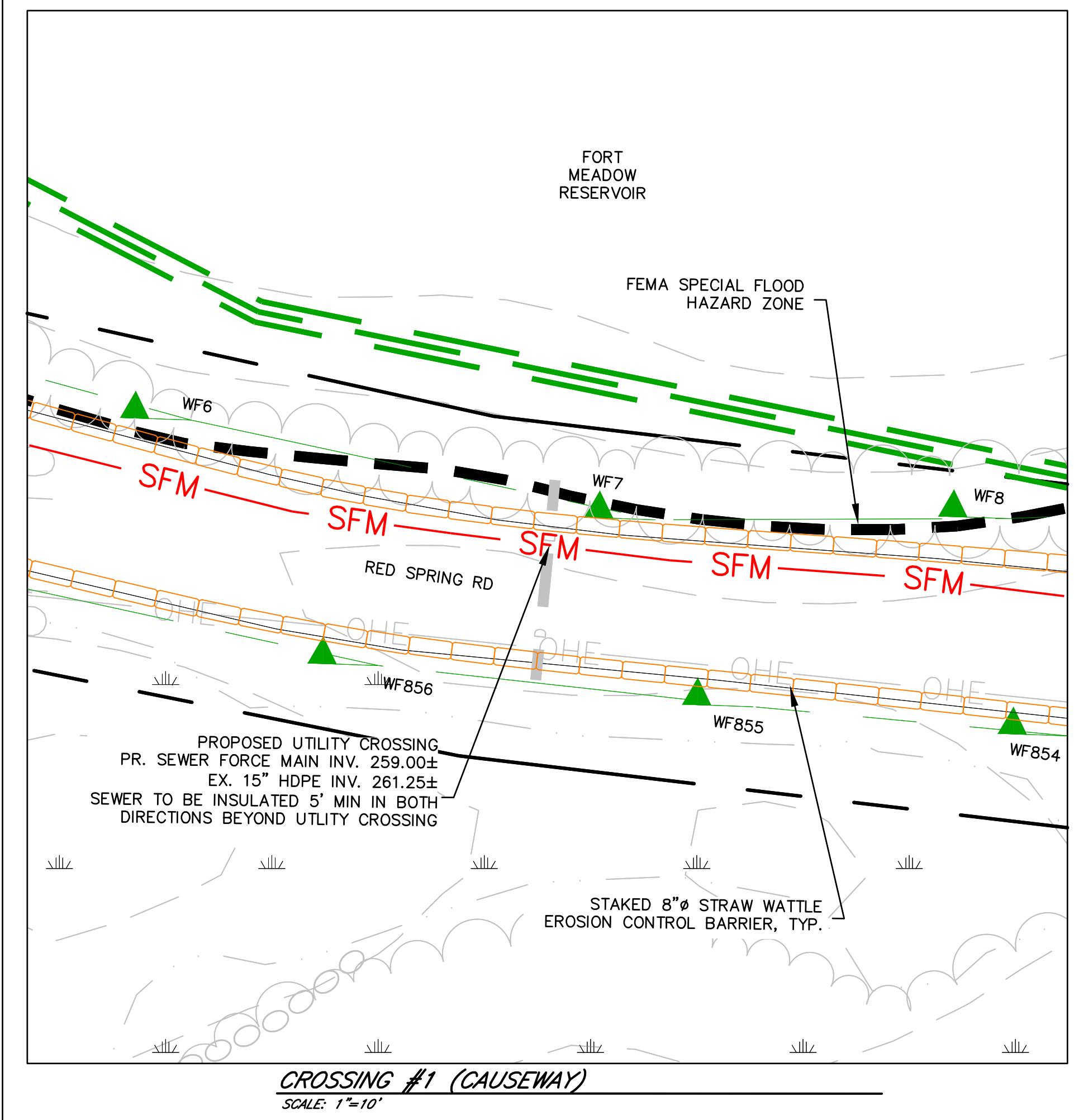
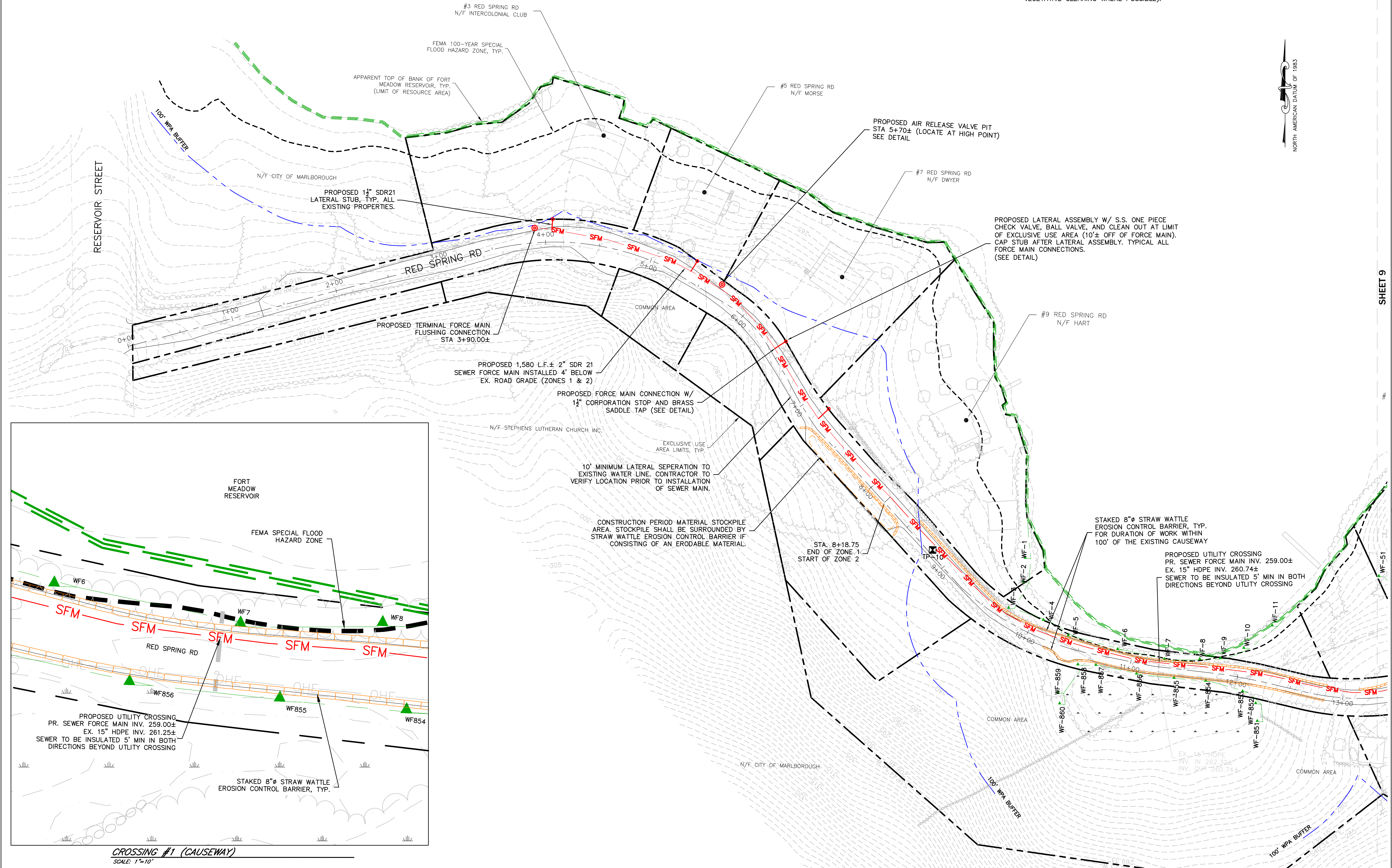
EXISTING
CONDITIONS

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FORT MEADOW RESERVOIR
 WATER ELEV. (OCTOBER 2021)= 260.5±
 FEMA SFHZ 100 YR= 262.00 (ZONE AE)

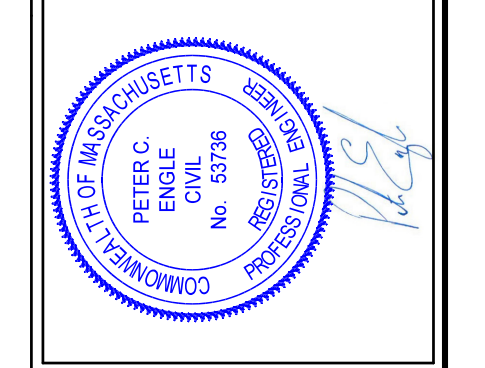
NOTE: CONTRACTOR TO FIELD ADJUST LATERAL STUBS AND LATERAL ASSEMBLY LOCATIONS DEPENDENT ON LOCATION OF EXISTING BUILDING SEWERS, WELLS, WATER LINES, AND DRIVEWAYS (AVOID UTILITY CROSSINGS AND VEGETATIVE CLEARING WHERE POSSIBLE).



HOR. SCALE IN FEET: 1"=40'

| REV | DATE | DESCRIPTION | MADE (APVD) |
|-----|------|-------------|-------------|
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| | | | |

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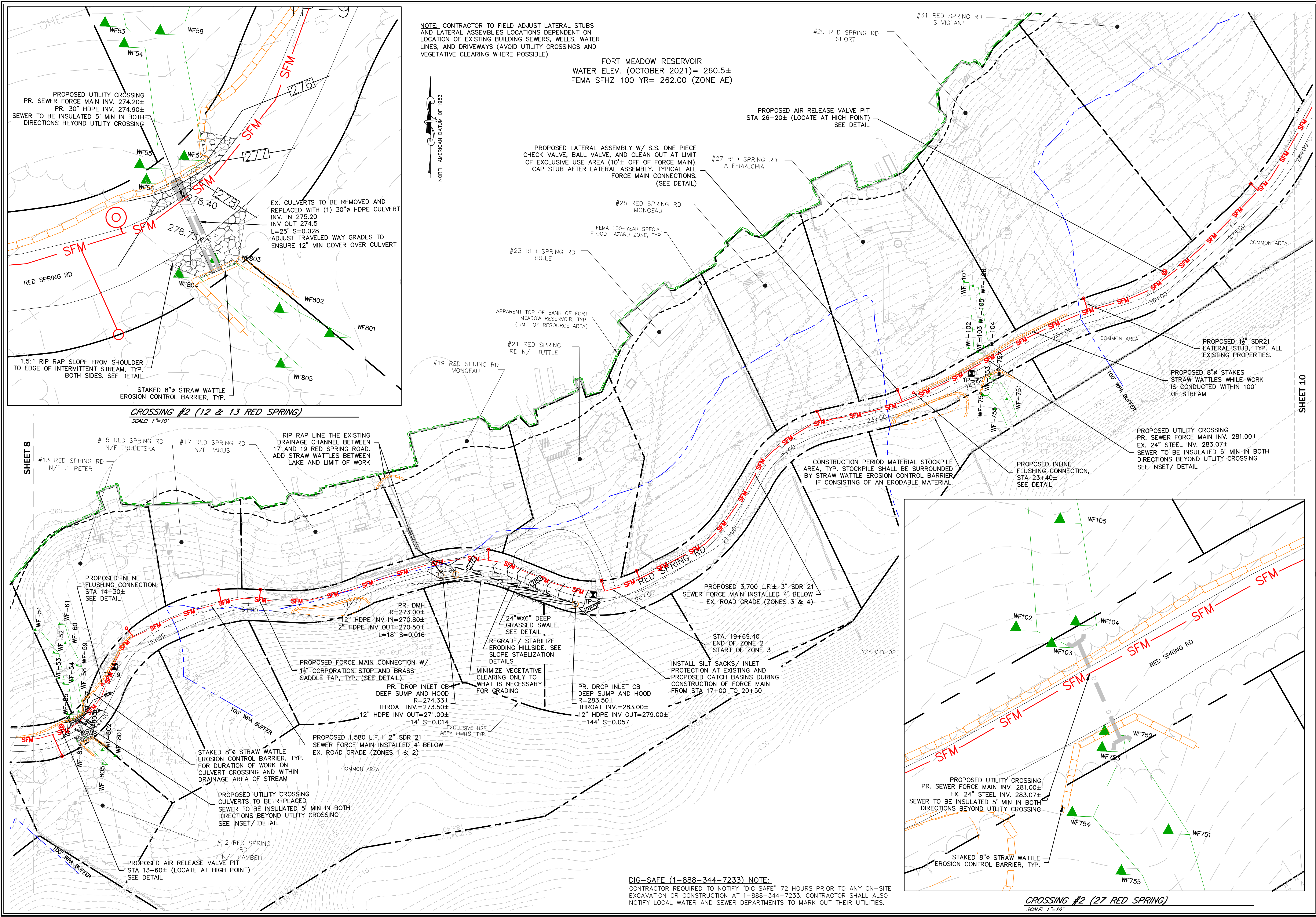
McCLURE ENGINEERING, INC.
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DRAWN BY: _____ PE
 DATE: 8/3/22
 CHK BY: _____ PE
 SCALE: 1"=40'
 PROJ. NO. 170-2650-N

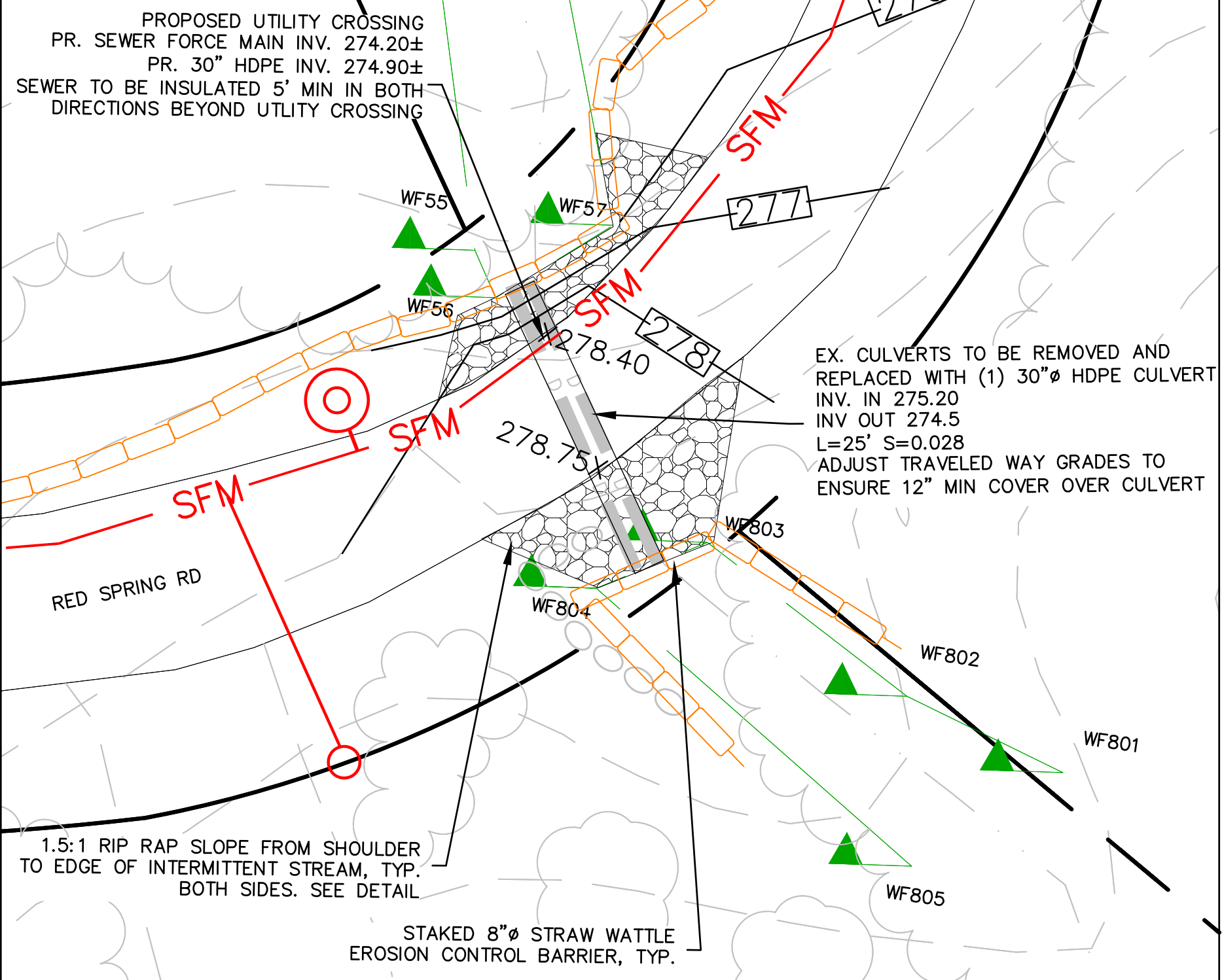
CONSTRUCTION PLAN

SHEET **8** OF **14**

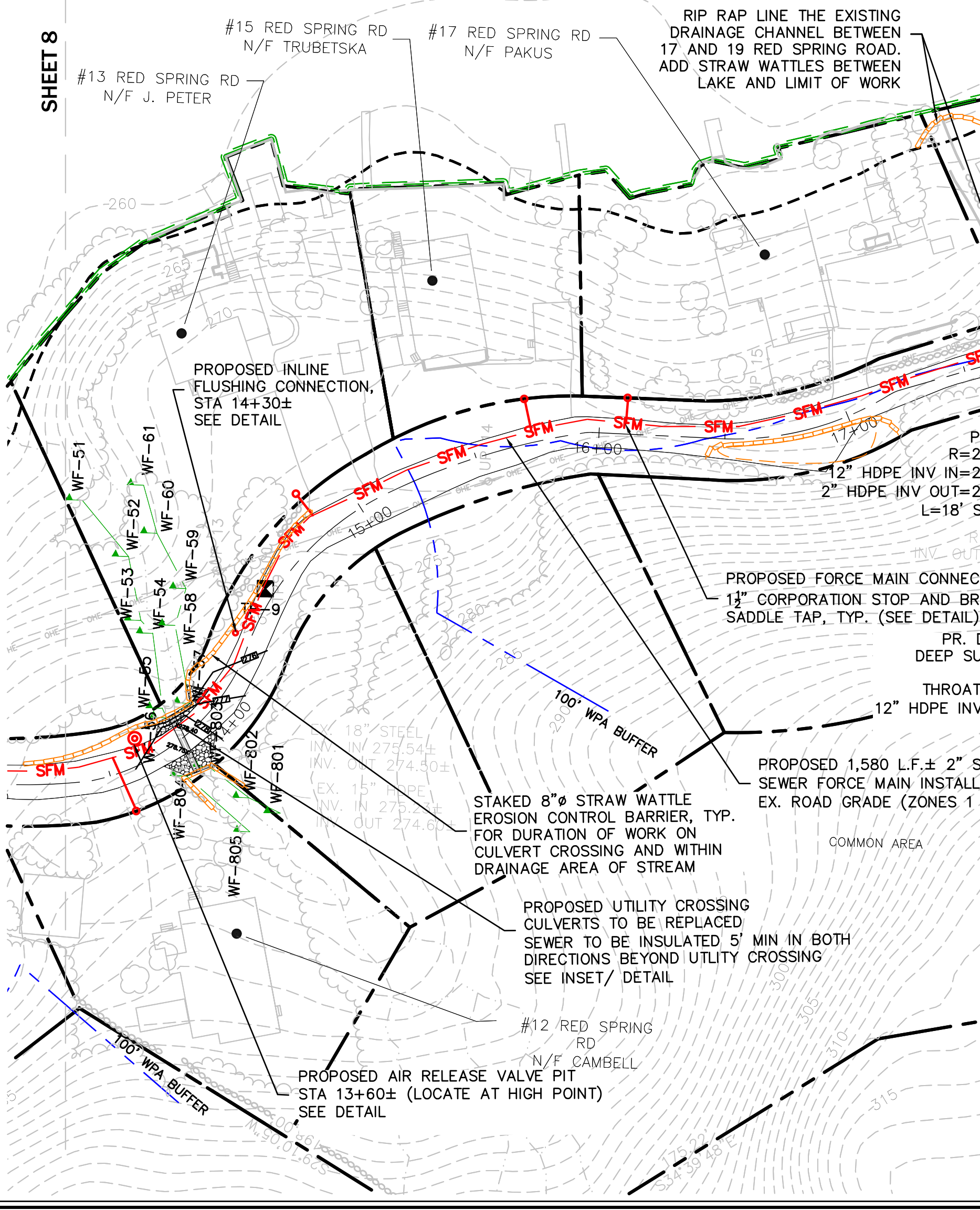


NOTE: CONTRACTOR TO FIELD ADJUST LATERAL STUBS AND LATERAL ASSEMBLY LOCATIONS DEPENDENT ON LOCATION OF EXISTING BUILDING SEWERS, WELLS, WATER LINES, AND DRIVEWAYS (AVOID UTILITY CROSSINGS AND VEGETATIVE CLEARING WHERE POSSIBLE).

FORT MEADOW RESERVOIR
 WATER ELEV. (OCTOBER 2021)= 260.5±
 FEMA SFHZ 100 YR= 262.00 (ZONE AE)



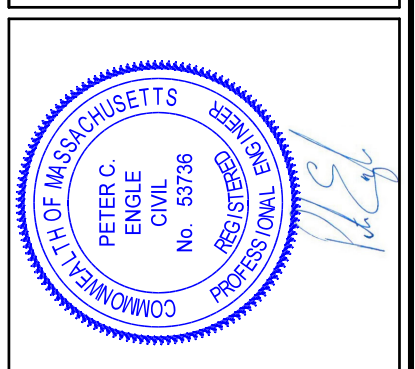
CROSSING #2 (12 & 13 RED SPRING)
 SCALE: 1"=10'



CROSSING #2 (27 RED SPRING)
 SCALE: 1"=10'

| | | |
|-----|------|-------------|
| REV | DATE | DESCRIPTION |
| | | |
| | | |

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DRAWN BY: PE
 DATE: 8/3/22
 CHK BY: PE
 SCALE: 1"=40'
 PROJ. NO. 170-2650-N

CONSTRUCTION PLAN

SHEET 9 OF 14

NORTH AMERICAN DATUM OF 1983

NOTE: CONTRACTOR TO FIELD ADJUST LATERAL STUBS AND LATERAL ASSEMBLIES LOCATIONS DEPENDENT ON LOCATION OF EXISTING BUILDING SEWERS, WELLS, WATER LINES, AND DRIVEWAYS (AVOID UTILITY CROSSINGS AND VEGETATIVE CLEARING WHERE POSSIBLE).

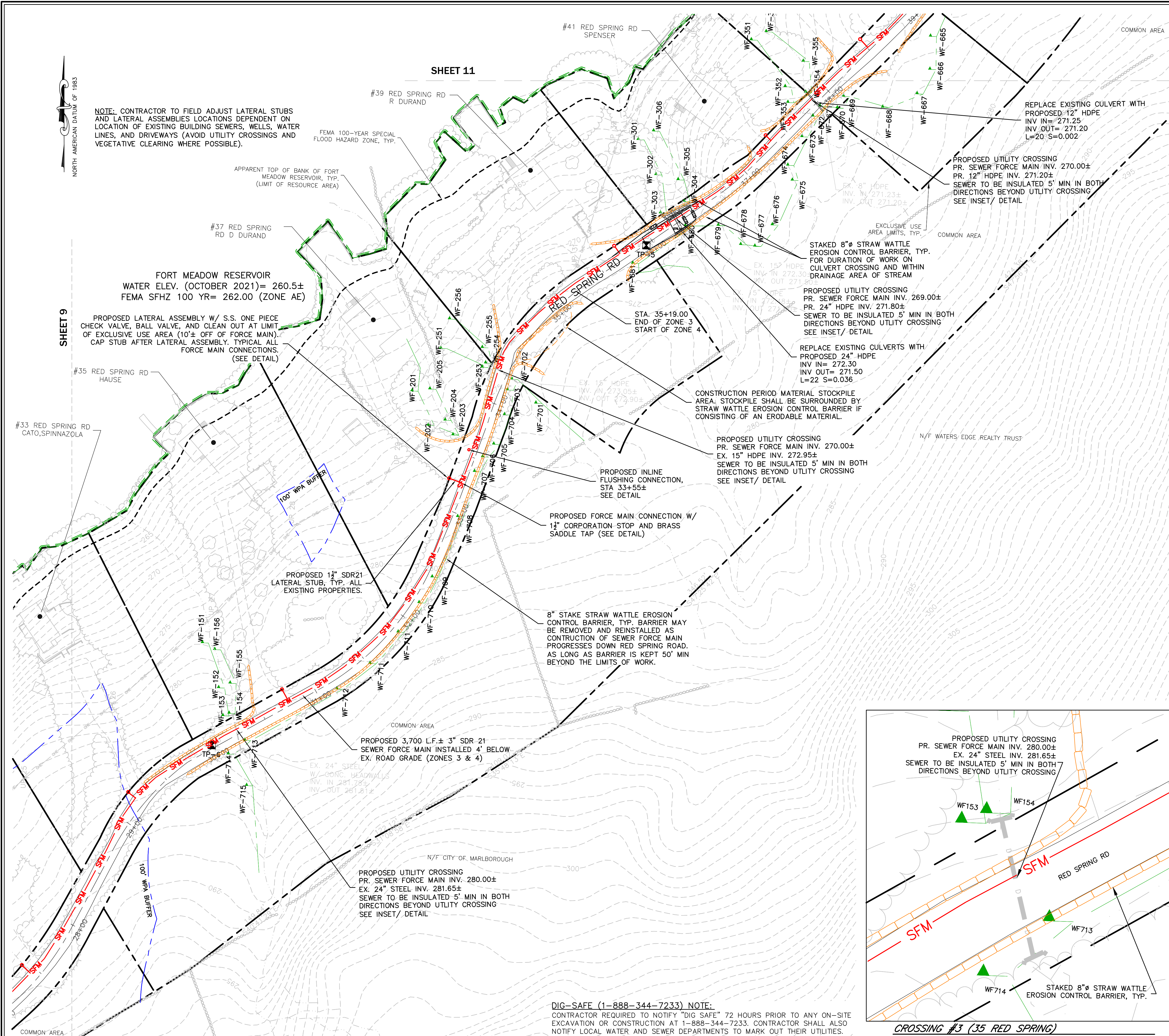
FEMA 100-YEAR SPECIAL FLOOD HAZARD ZONE, TYP.

APPARENT TOP OF BANK OF FORT MEADOW RESERVOIR, TYP. (LIMIT OF RESOURCE AREA)

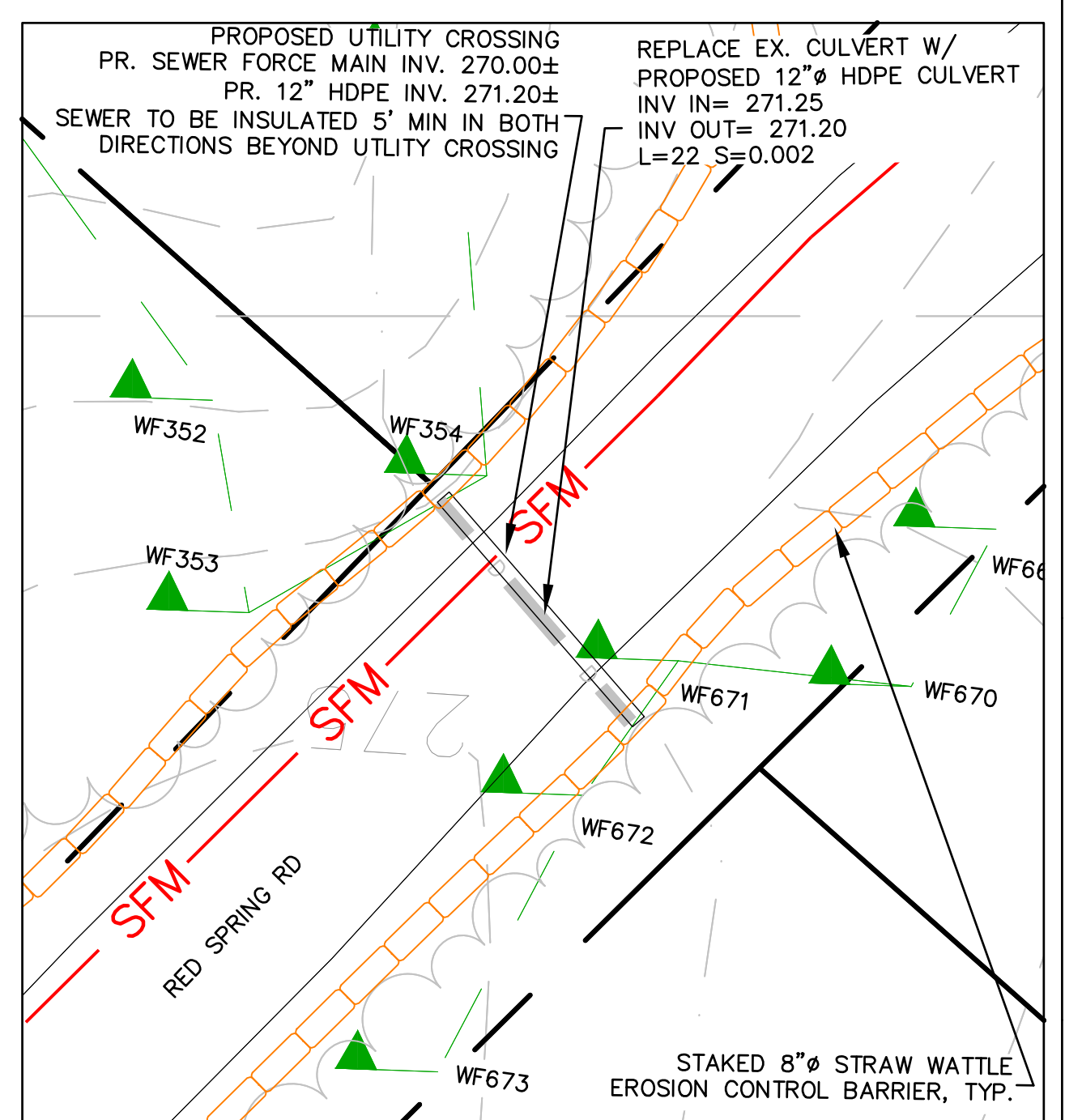
FORT MEADOW RESERVOIR
WATER ELEV. (OCTOBER 2021) = 260.5±
FEMA SFHZ 100 YR = 262.00 (ZONE AE)

PROPOSED LATERAL ASSEMBLY W/ S.S. ONE PIECE CHECK VALVE, BALL VALVE, AND CLEAN OUT AT LIMIT OF EXCLUSIVE USE AREA (10'± OFF OF FORCE MAIN). CAP STUB AFTER LATERAL ASSEMBLY, TYPICAL ALL FORCE MAIN CONNECTIONS. (SEE DETAIL)

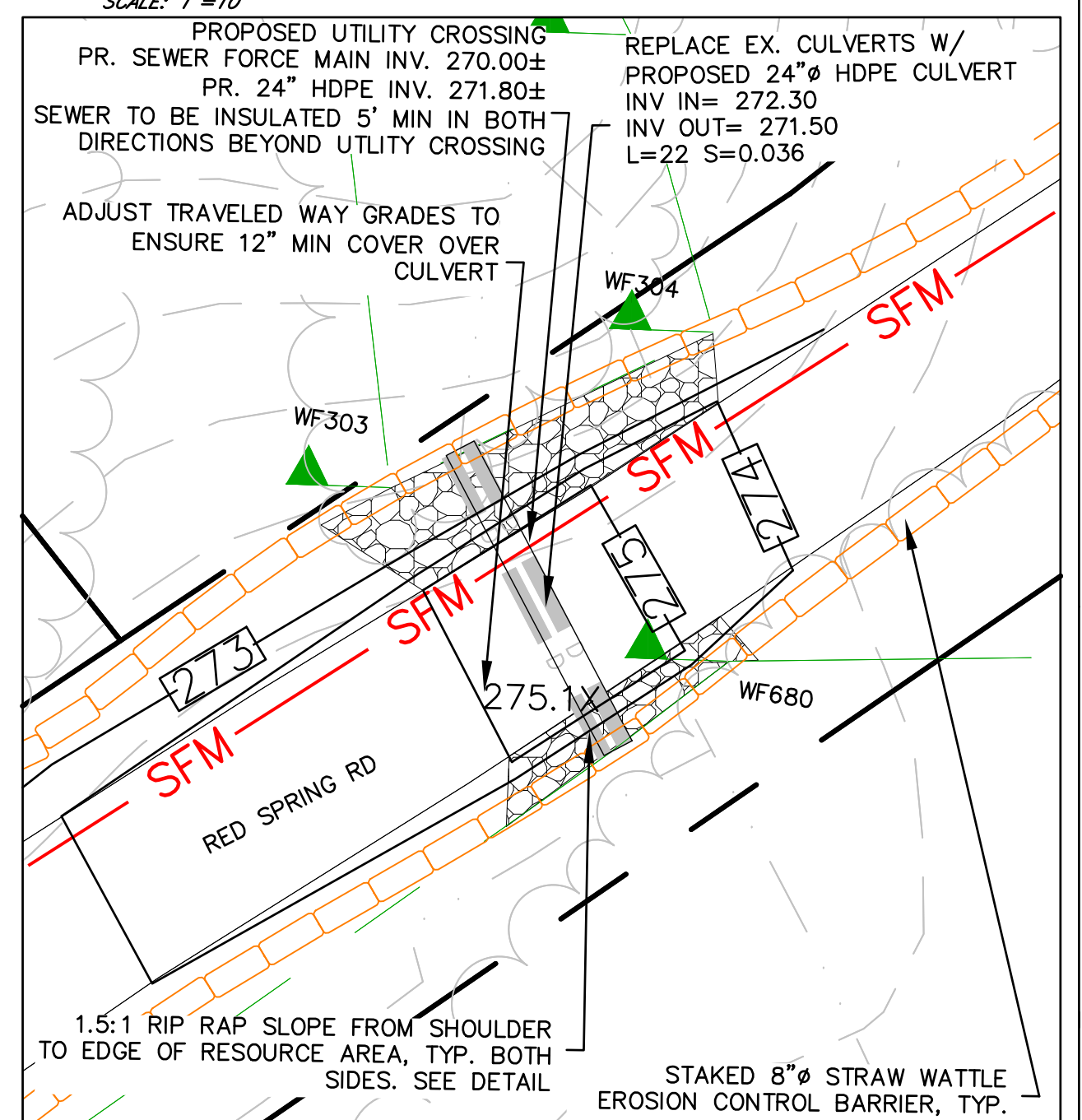
SHEET 11



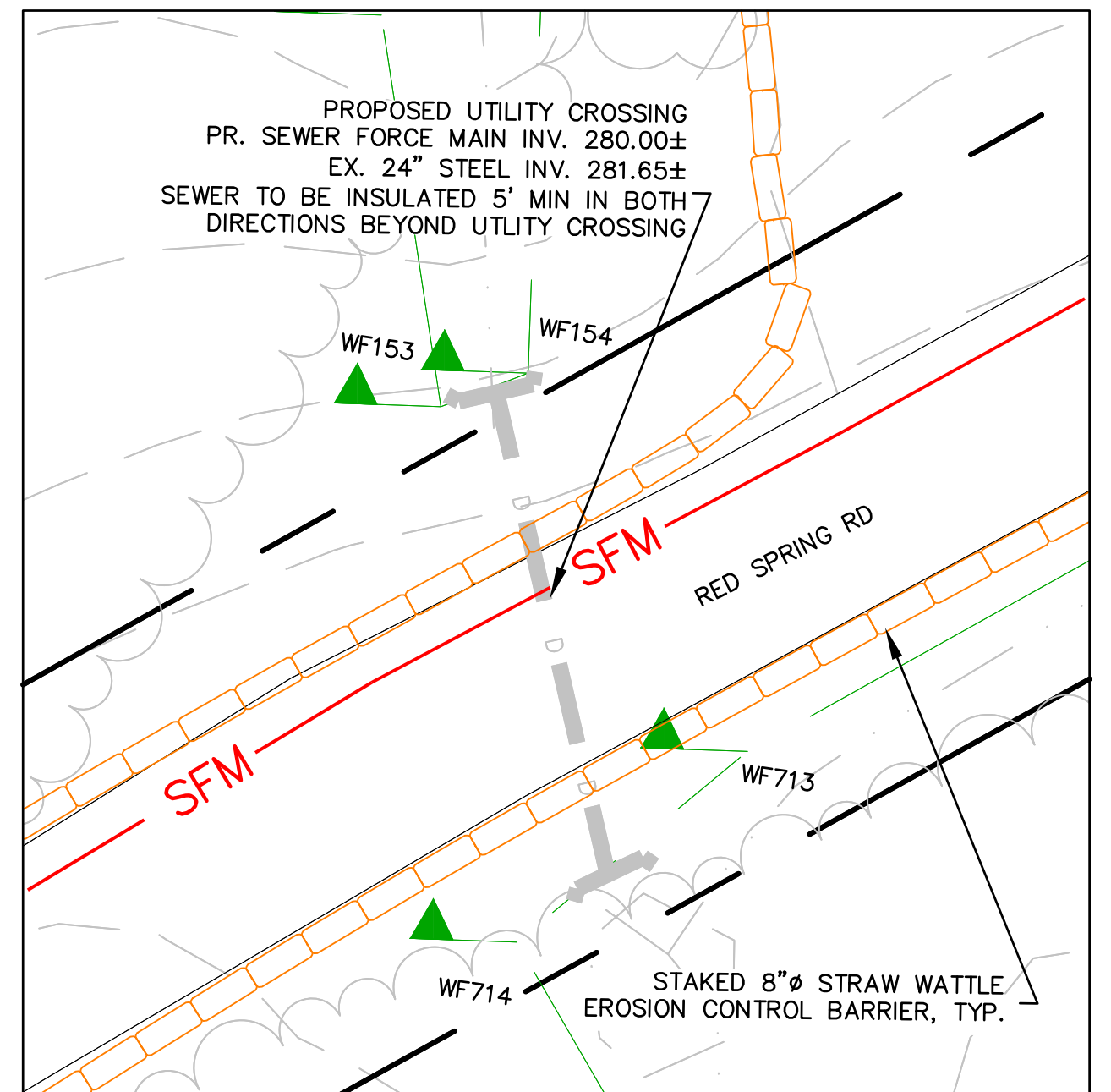
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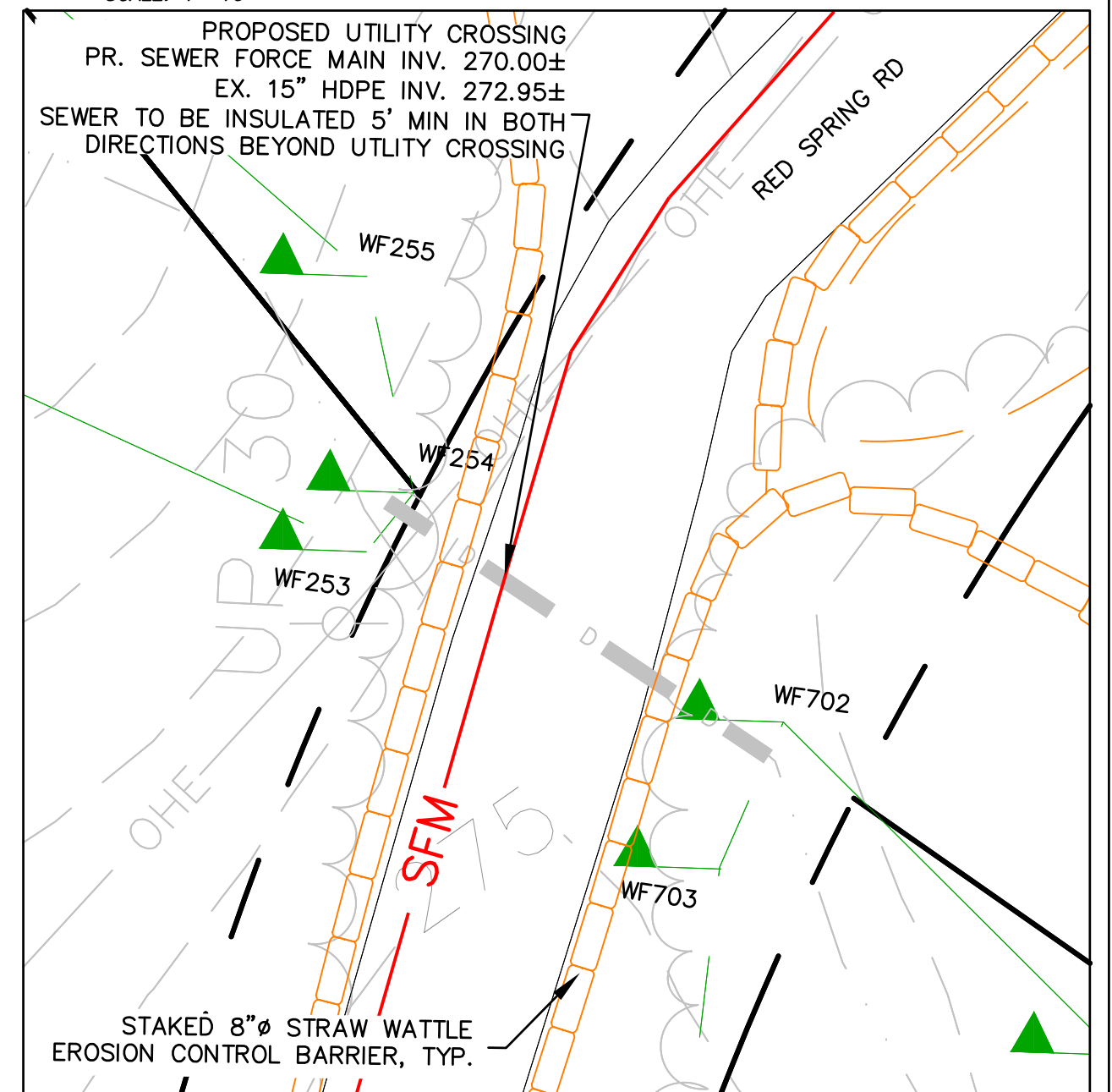
CROSSING #6 (41 & 43 RED SPRING)



CROSSING #5 (41 RED SPRING)



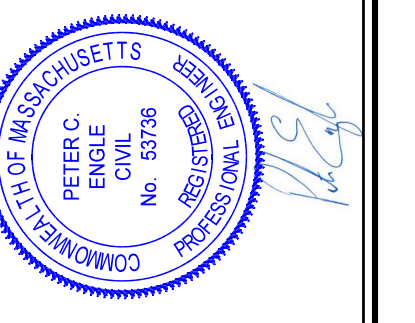
CROSSING #3 (35 RED SPRING)



CROSSING #4 (37 & 39 RED SPRING)

| | | | | |
|----------------------------|-------------|-----------|-------------|---|
| HOR. SCALE IN FEET: 1"=40' | 120 | 80 | 40 | 0 |
| REV. DATE | DESCRIPTION | REVISIONS | MADE (APVD) | |

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| PROJ. NO.: | 170-2650-N |

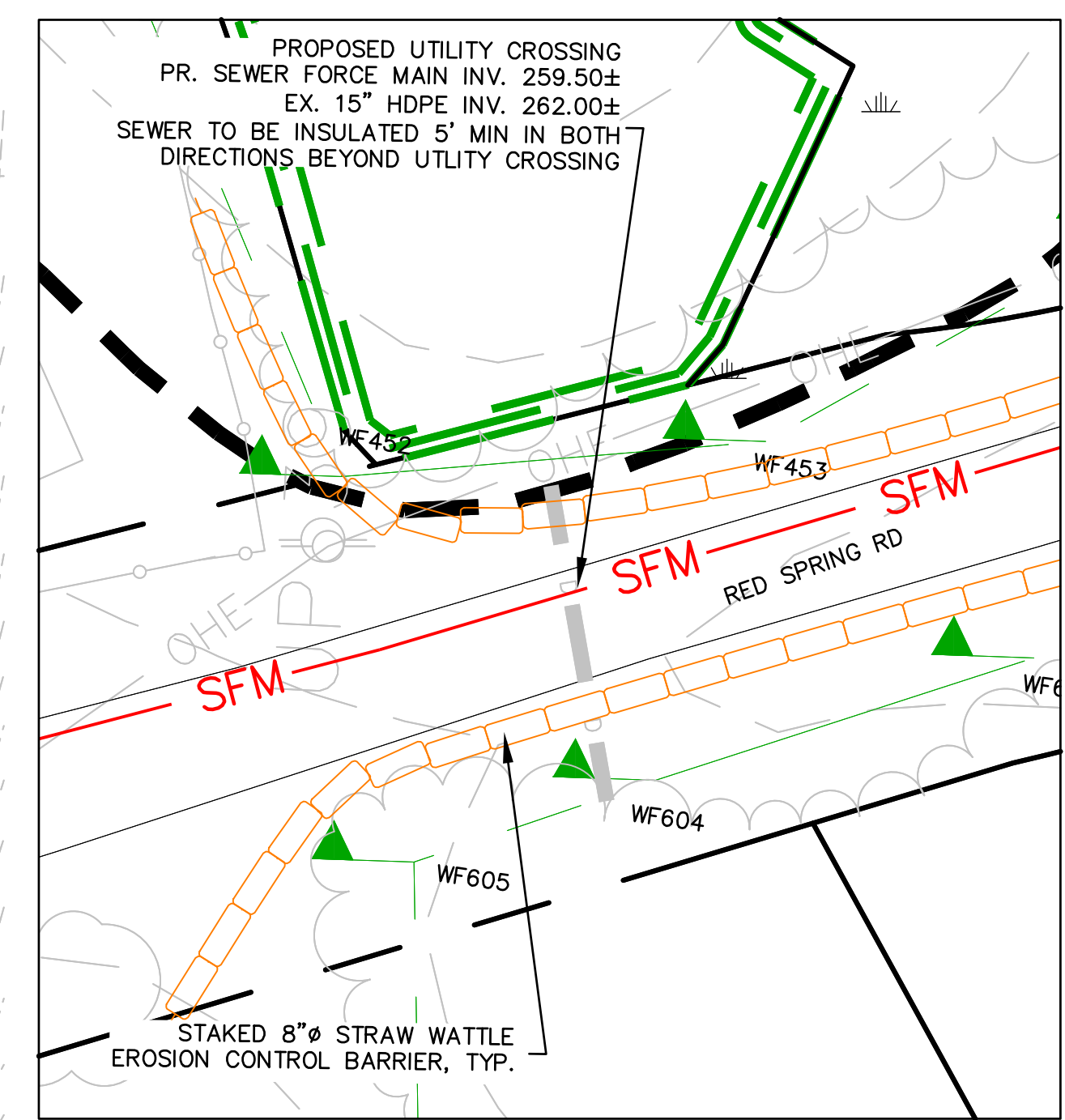
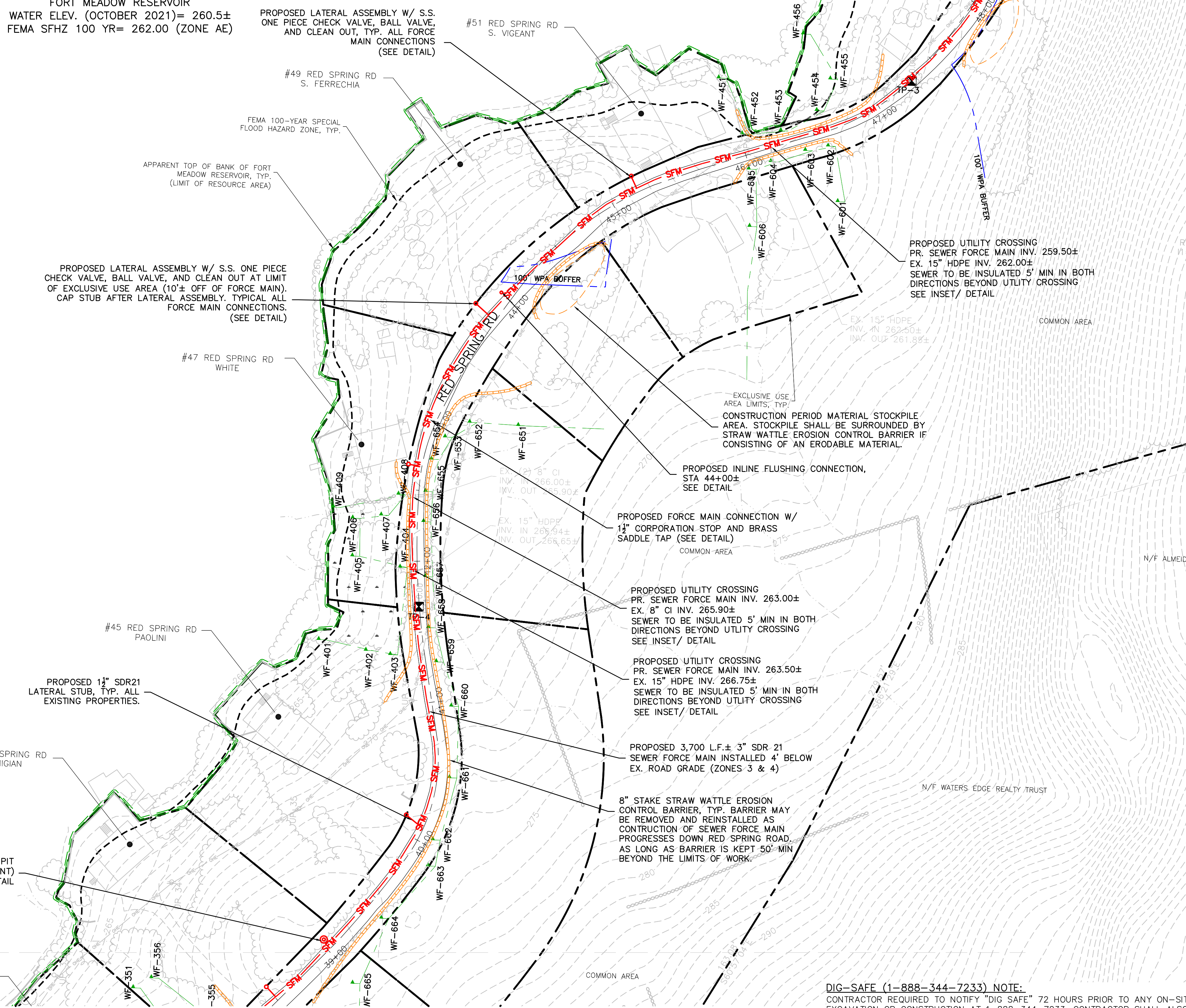
CONSTRUCTION PLAN

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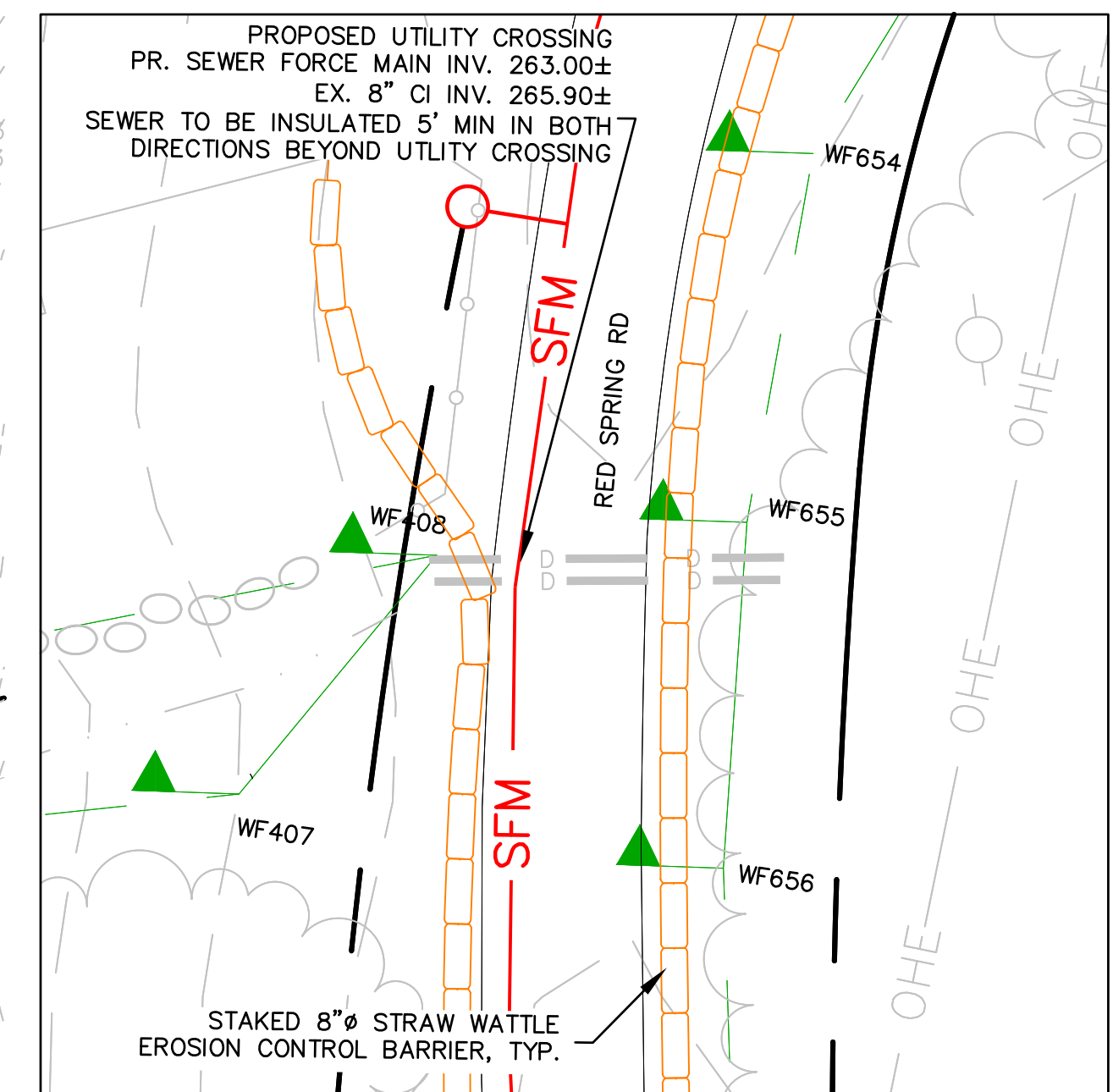
NOTE: CONTRACTOR TO FIELD ADJUST LATERAL STUBS AND LATERAL ASSEMBLIES LOCATIONS DEPENDENT ON LOCATION OF EXISTING BUILDING SEWERS, WELLS, WATER LINES, AND DRIVEWAYS (AVOID UTILITY CROSSINGS AND VEGETATIVE CLEARING WHERE POSSIBLE).

PROPOSED AIR RELEASE VALVE PIT
STA 49+60± (LOCATE AT HIGH POINT)
SEE DETAIL

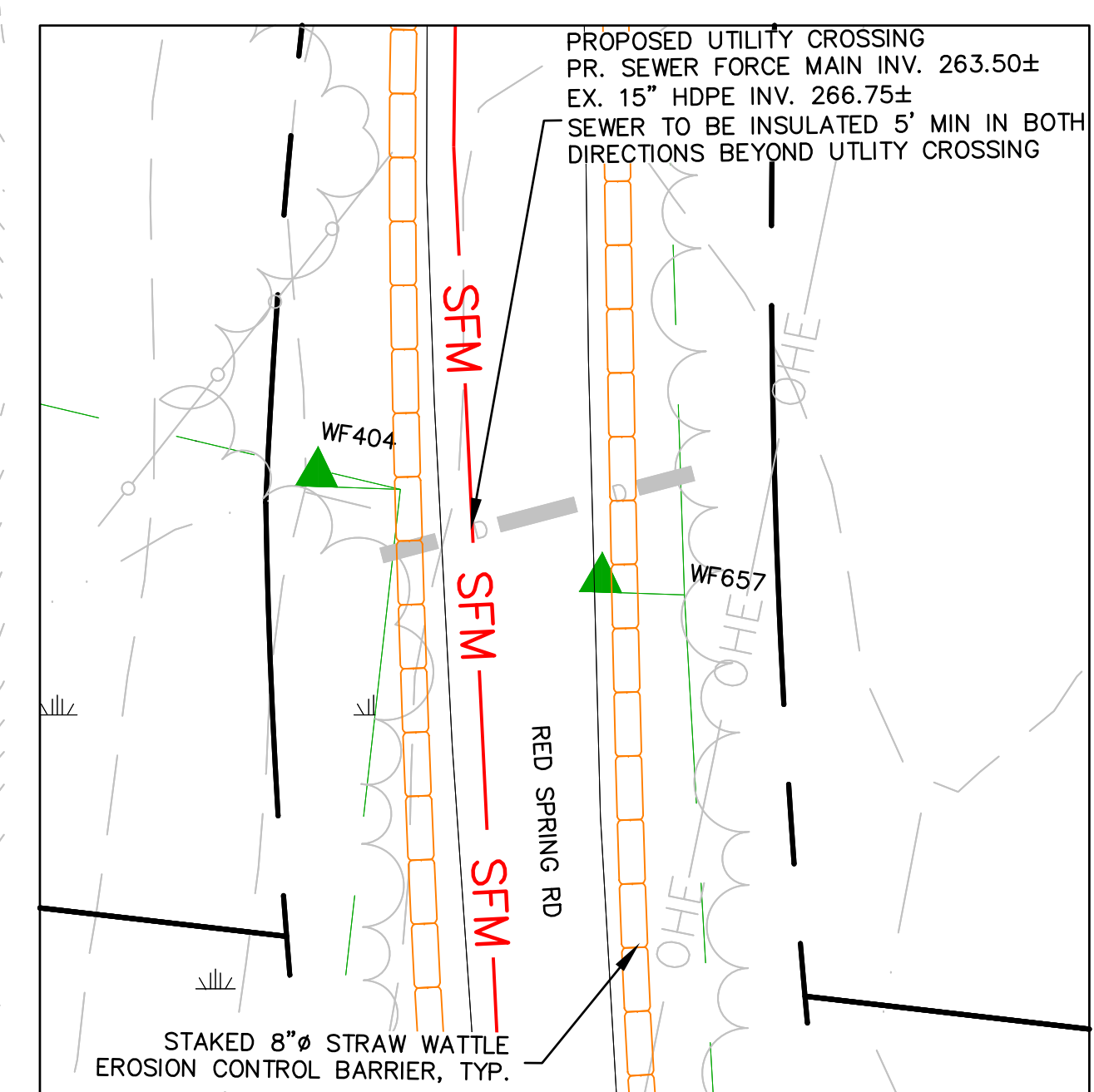
SHEET 12



CROSSING #9 (51 RED SPRING)
SCALE: 1"=10'



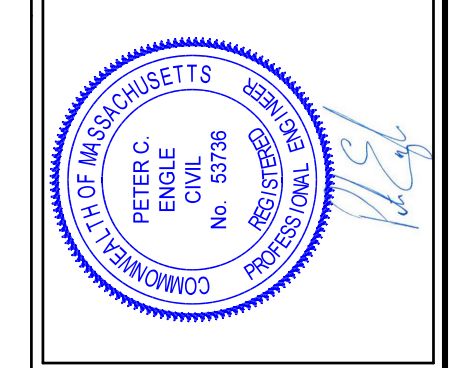
CROSSING #8 (47 RED SPRING)
SCALE: 1"=10'



CROSSING #7 (47 RED SPRING)
SCALE: 1"=10'

| | | | | |
|-----|------|-------------|---------|------|
| REV | DATE | DESCRIPTION | MADE BY | APVD |
| | | | | |

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PREPARED FOR:
RED SPRING ROAD ASSOCIATION

| | |
|------------|------------|
| DRAWN BY: | PE |
| DATE: | 8/3/22 |
| CHK BY: | PE |
| SCALE: | 1"=40' |
| PROJ. NO.: | 170-2650-N |

CONSTRUCTION PLAN

DIG-SAFE (1-888-344-7233) NOTE:
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FORT MEADOW RESERVOIR
WATER ELEV. (OCTOBER 2021)= 260.5±
FEMA SFHZ 100 YR= 262.00 (ZONE AE)

8" STAKE STRAW WATTLE EROSION CONTROL BARRIER, TYP. BARRIER MAY BE REMOVED AND REINSTALLED AS CONSTRUCTION OF SEWER FORCE MAIN PROGRESSES DOWN RED SPRING ROAD. AS LONG AS BARRIER IS KEPT 50' MIN BEYOND THE LIMITS OF WORK.

PROPOSED INLINE FLUSHING CONNECTION, STA 54+30± SEE DETAIL

FEMA 100-YEAR SPECIAL FLOOD HAZARD ZONE, TYP.

APPARENT TOP OF BANK OF FORT MEADOW RESERVOIR, TYP. (LIMIT OF RESOURCE AREA)

PROPOSED LATERAL ASSEMBLY W/ S.S. ONE PIECE CHECK VALVE, BALL VALVE, AND CLEAN OUT AT LIMIT OF EXCLUSIVE USE AREA (10'± OFF OF FORCE MAIN). TYPICAL ALL FORCE MAIN CONNECTIONS. (SEE DETAIL)

PROPOSED 1 1/2" SDR21 LATERAL STUB, TYP. ALL EXISTING PROPERTIES.

TIE INTO EXISTING GRAVITY SEWER MANHOLE STA 55+97.18 R 101.3± INV = 284.50± PROVIDE INTERIOR DROP/ TEE (SEE DETAIL) COORD. W/ CITY DPW AND SEWER DEPT.

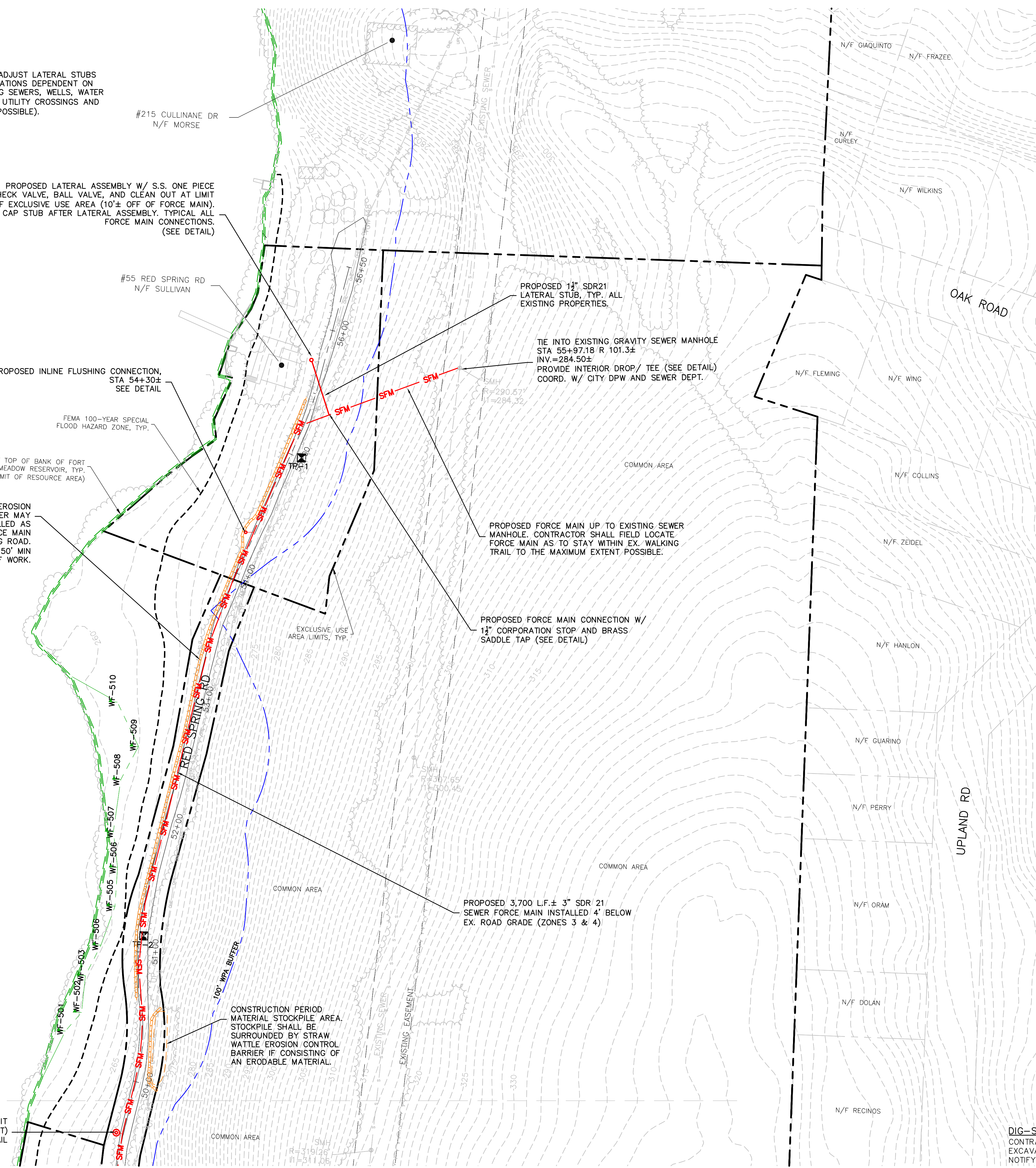
PROPOSED FORCE MAIN UP TO EXISTING SEWER MANHOLE. CONTRACTOR SHALL FIELD LOCATE FORCE MAIN AS TO STAY WITHIN EX. WALKING TRAIL TO THE MAXIMUM EXTENT POSSIBLE.

PROPOSED FORCE MAIN CONNECTION W/ 1 1/2" CORPORATION STOP AND BRASS SADDLE TAP (SEE DETAIL)

PROPOSED 3,700 L.F.± 3" SDR 21 SEWER FORCE MAIN INSTALLED 4' BELOW EX. ROAD GRADE (ZONES 3 & 4)

CONSTRUCTION PERIOD MATERIAL STOCKPILE AREA. STOCKPILE SHALL BE SURROUNDED BY STRAW WATTLE EROSION CONTROL BARRIER IF CONSISTING OF AN ERODABLE MATERIAL.

PROPOSED AIR RELEASE VALVE PIT STA 49+60± (LOCATE AT HIGH POINT) SEE DETAIL

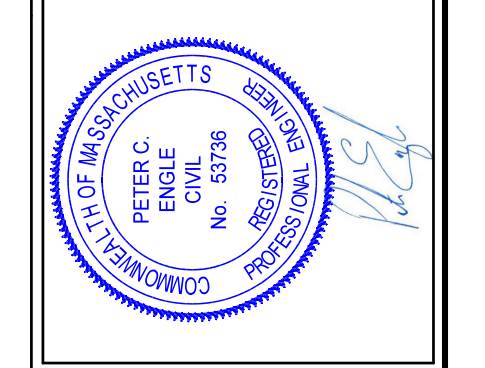


SHEET 11

HOR. SCALE IN FEET: 1"=40'

| REV | DATE | DESCRIPTION | MADE | APVD |
|-----|------|-------------|------|------|
| | | | | |
| | | | | |
| | | | | |

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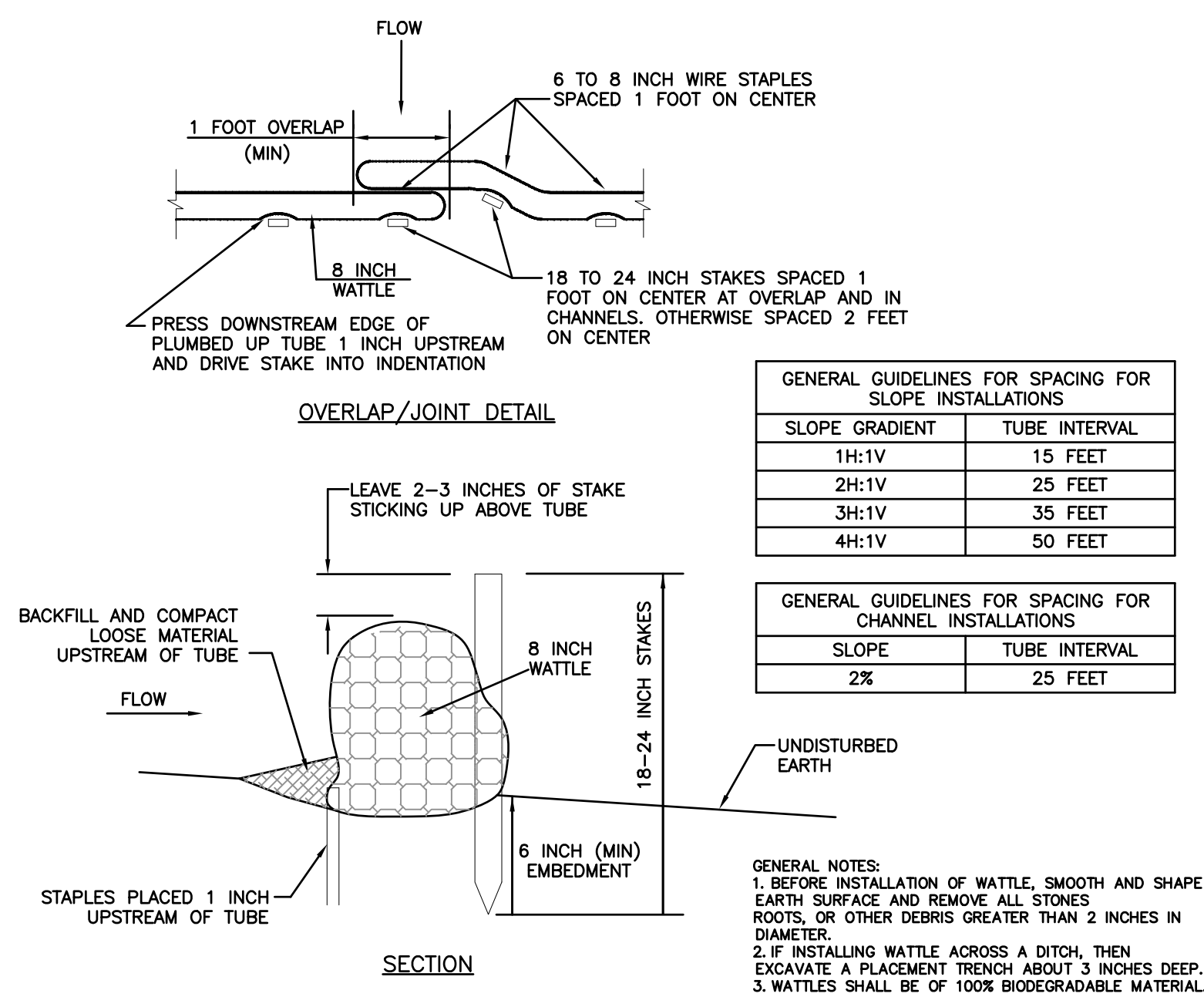
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MARLBOROUGH, MA 01752
PREPARED FOR:
RED SPRING ROAD ASSOCIATION

DRAWN BY: PE
DATE: 8/3/22
CHK BY: PE
SCALE: 1"=40'
PROJ. NO. 170-2650-N

CONSTRUCTION PLAN

SHEET 12 OF 14

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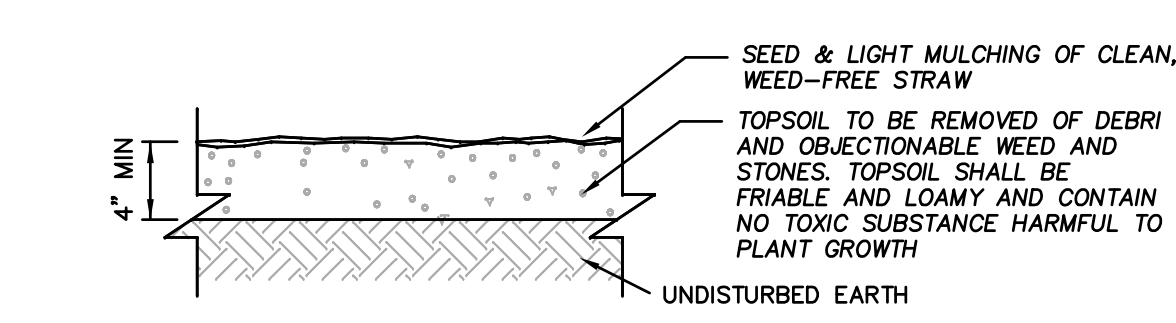
STRAW WATTLE BARRIER DETAIL
NOT TO SCALE

GENERAL GUIDELINES FOR SPACING FOR SLOPE INSTALLATIONS

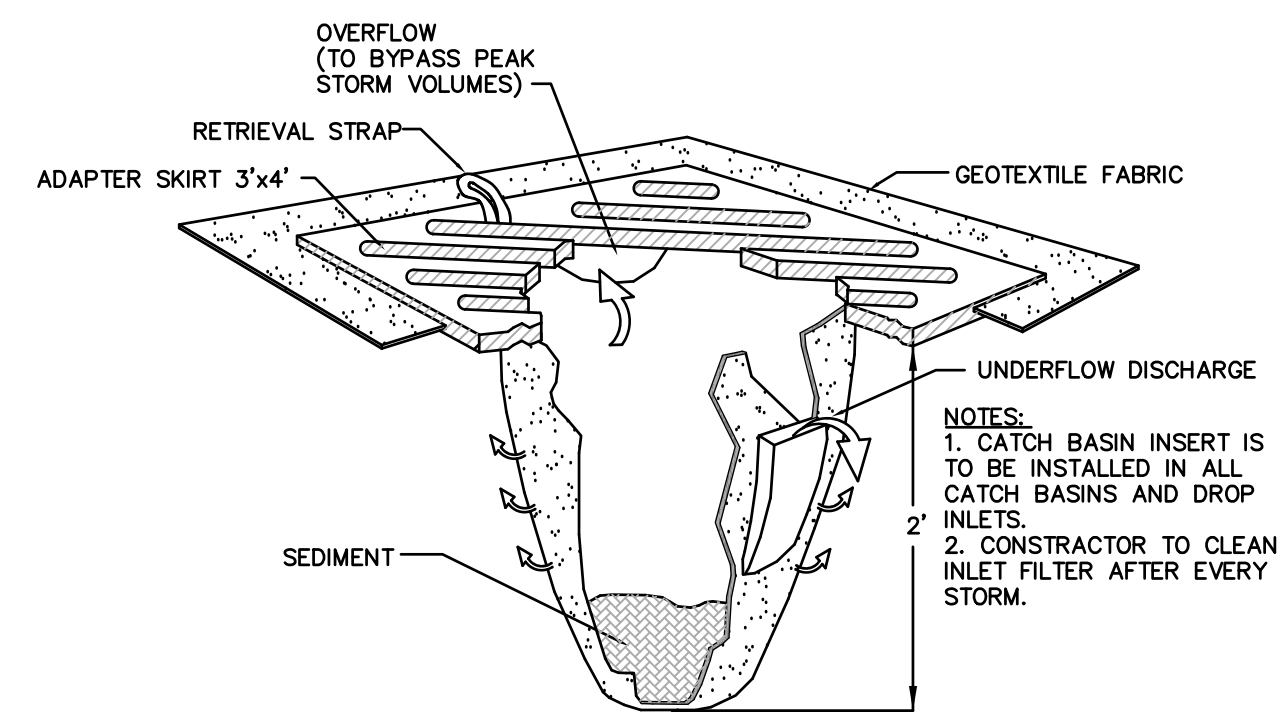
| SLOPE GRADIENT | TUBE INTERVAL |
|----------------|---------------|
| 1H:1V | 15 FEET |
| 2H:1V | 25 FEET |
| 3H:1V | 35 FEET |
| 4H:1V | 50 FEET |

GENERAL GUIDELINES FOR SPACING FOR CHANNEL INSTALLATIONS

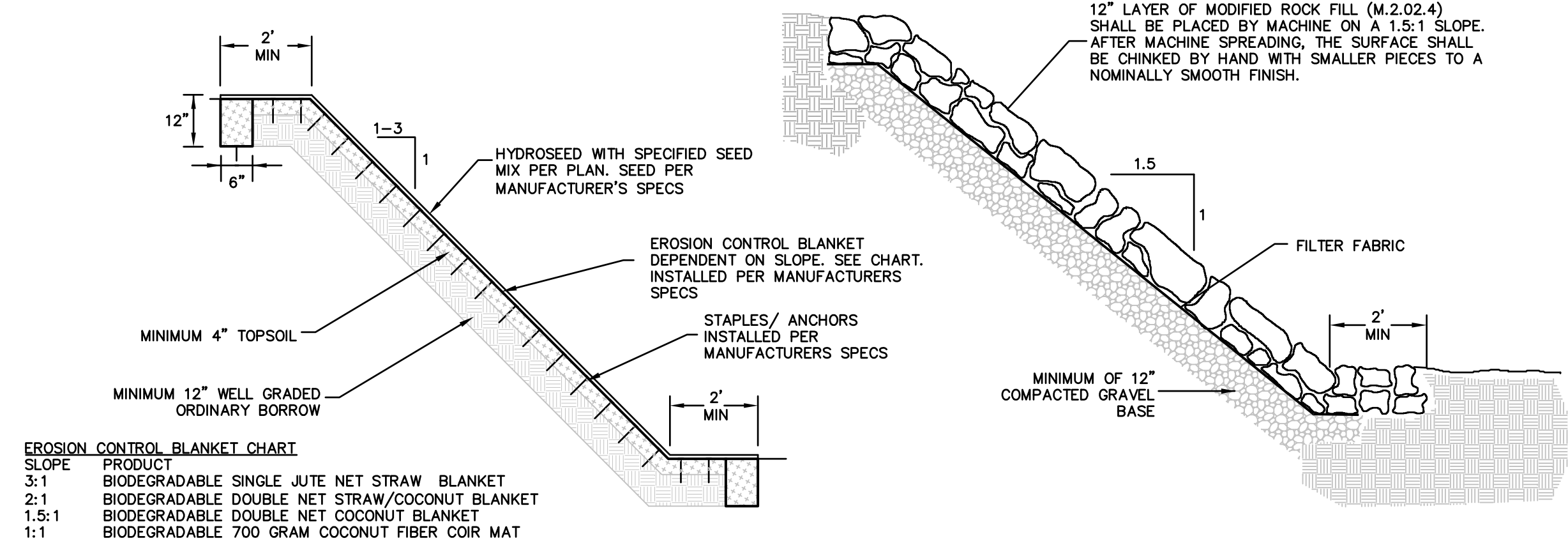
| SLOPE | TUBE INTERVAL |
|-------|---------------|
| 2% | 25 FEET |



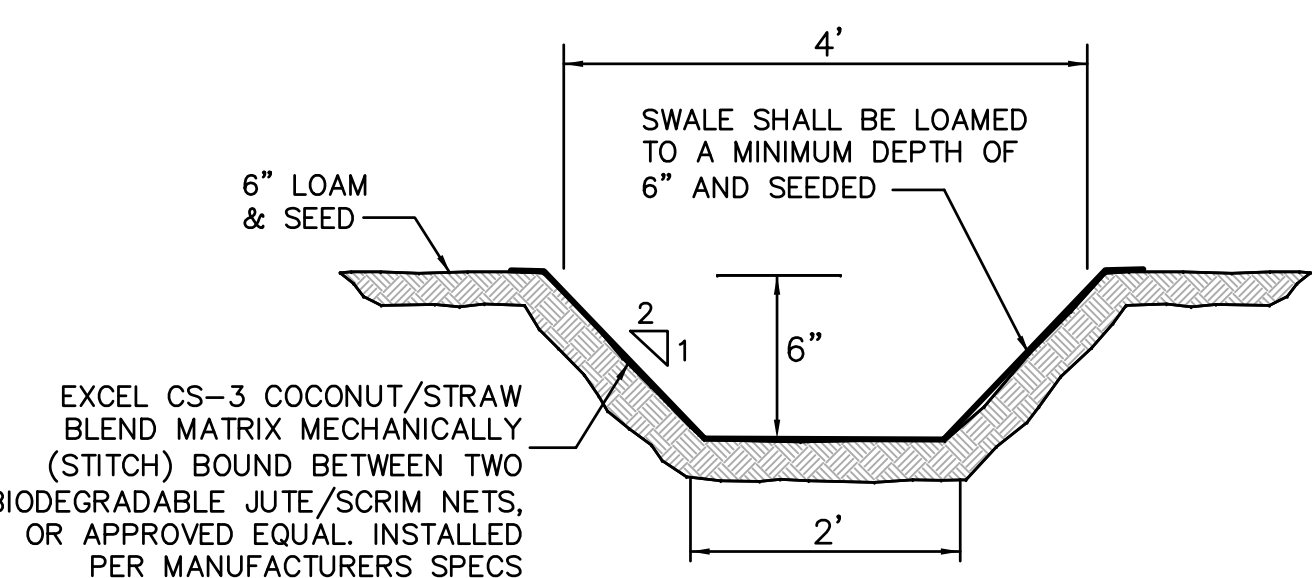
TOP SOIL & SEEDING DETAIL
NOT TO SCALE



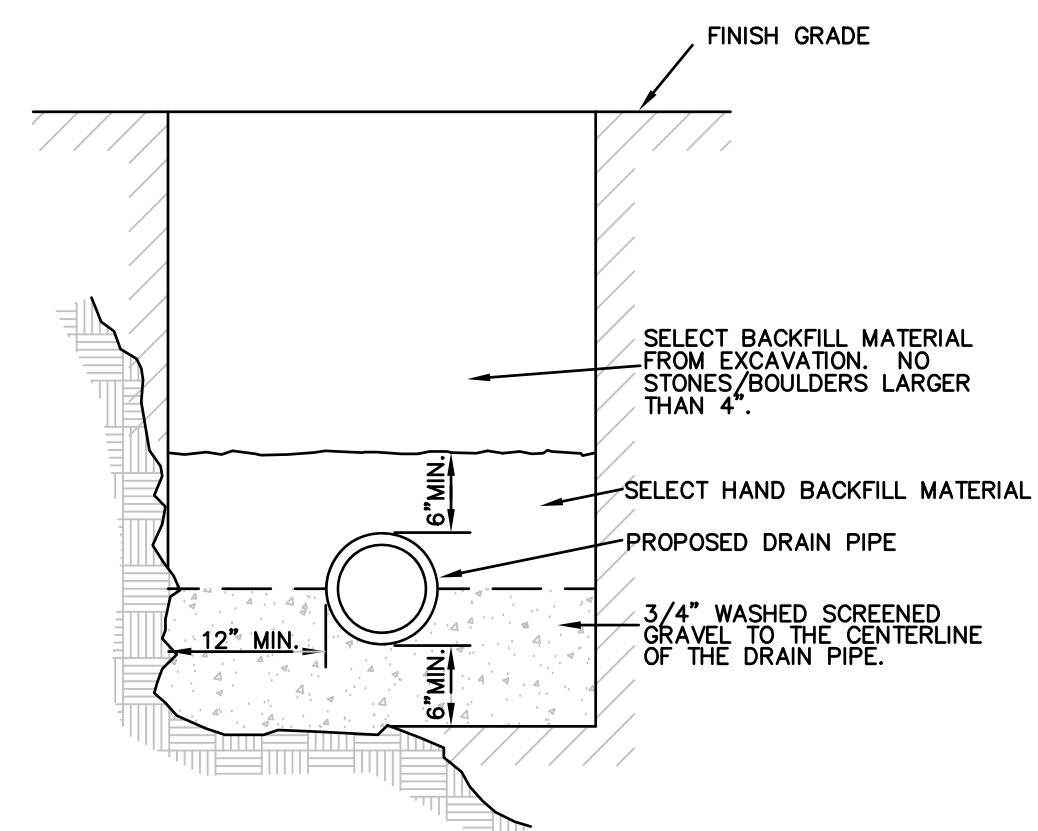
CATCH BASIN INLET FILTER "SILT SACK"
NOT TO SCALE



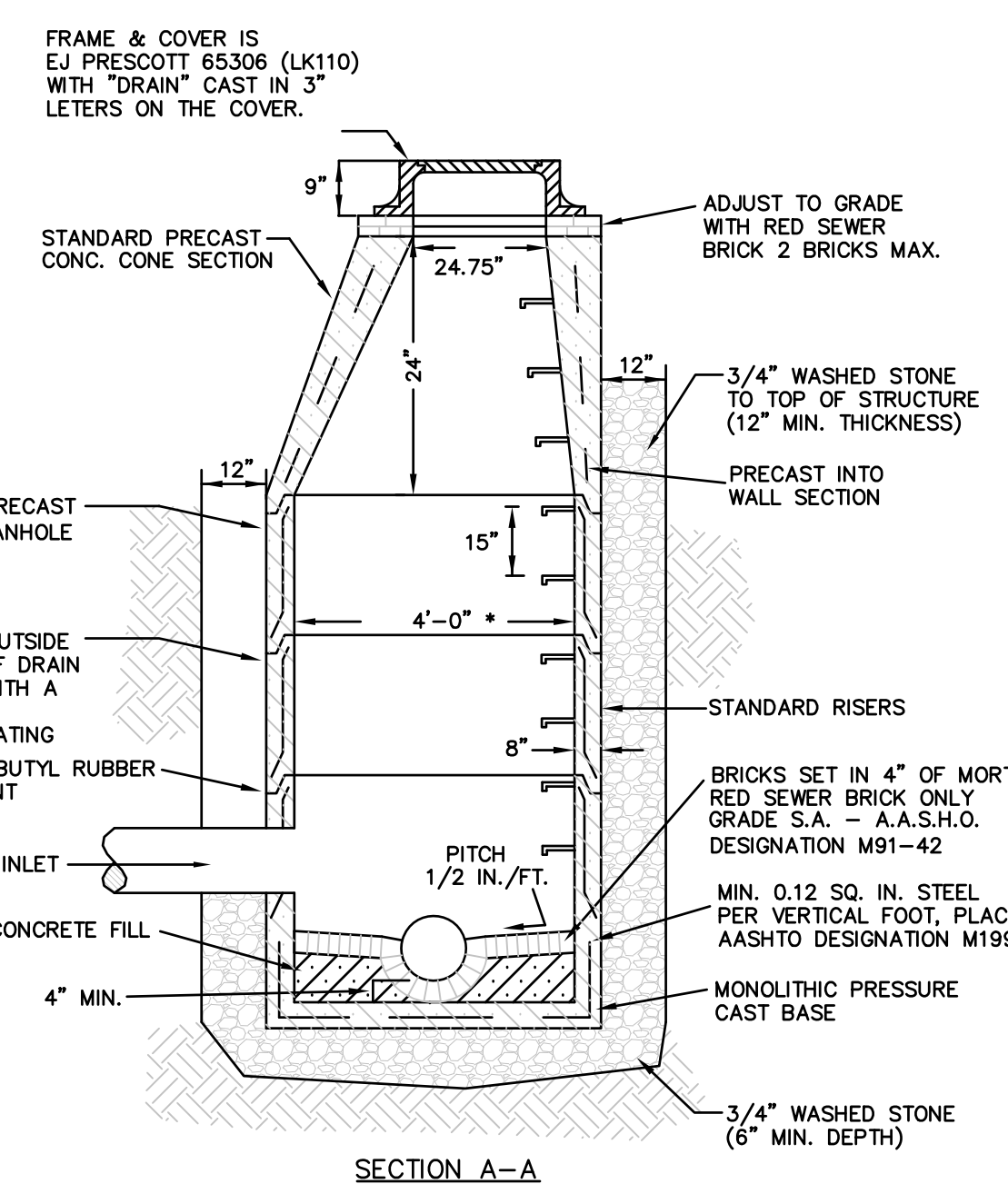
SLOPE STABILIZATION DETAILS
NOT TO SCALE



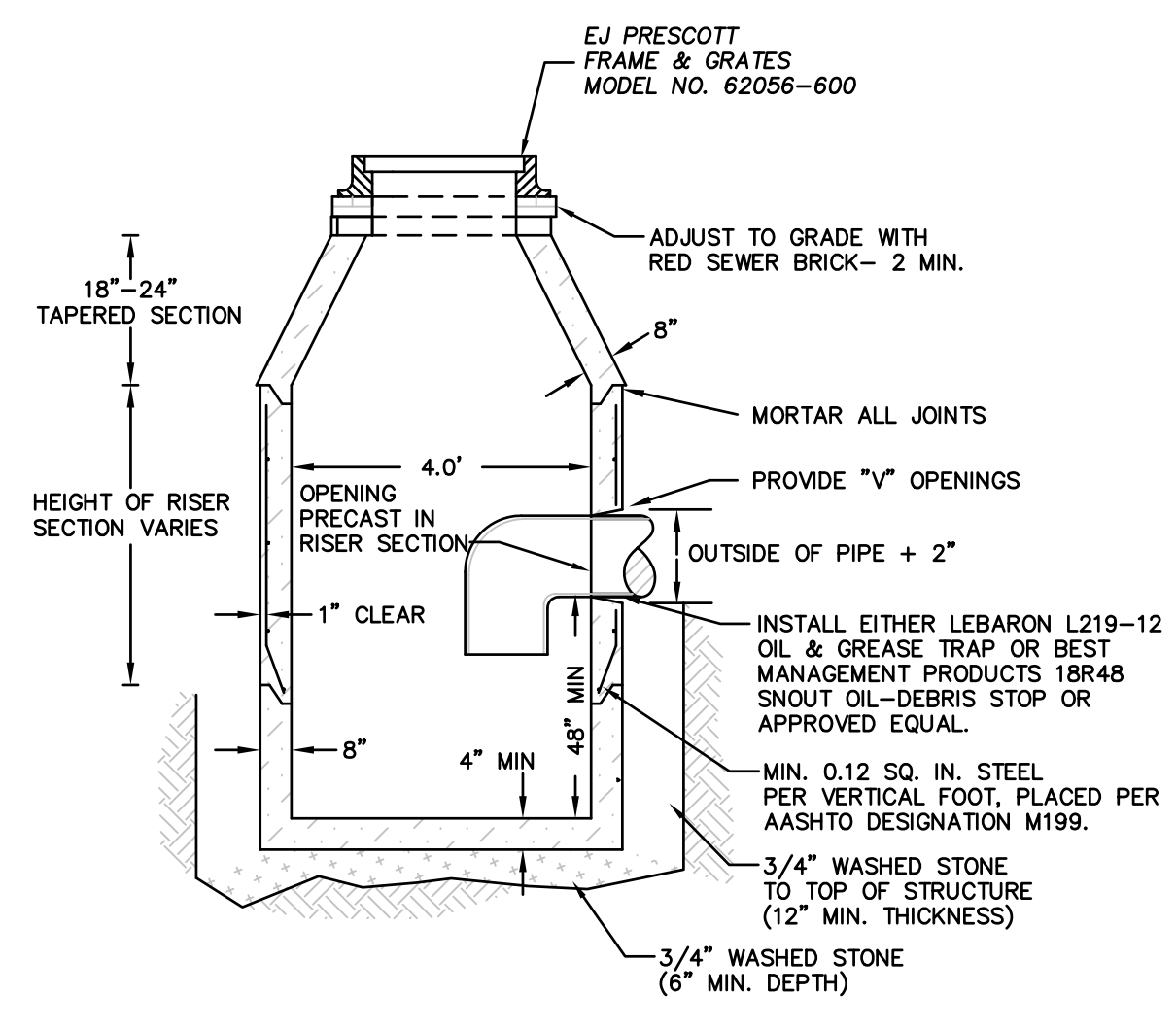
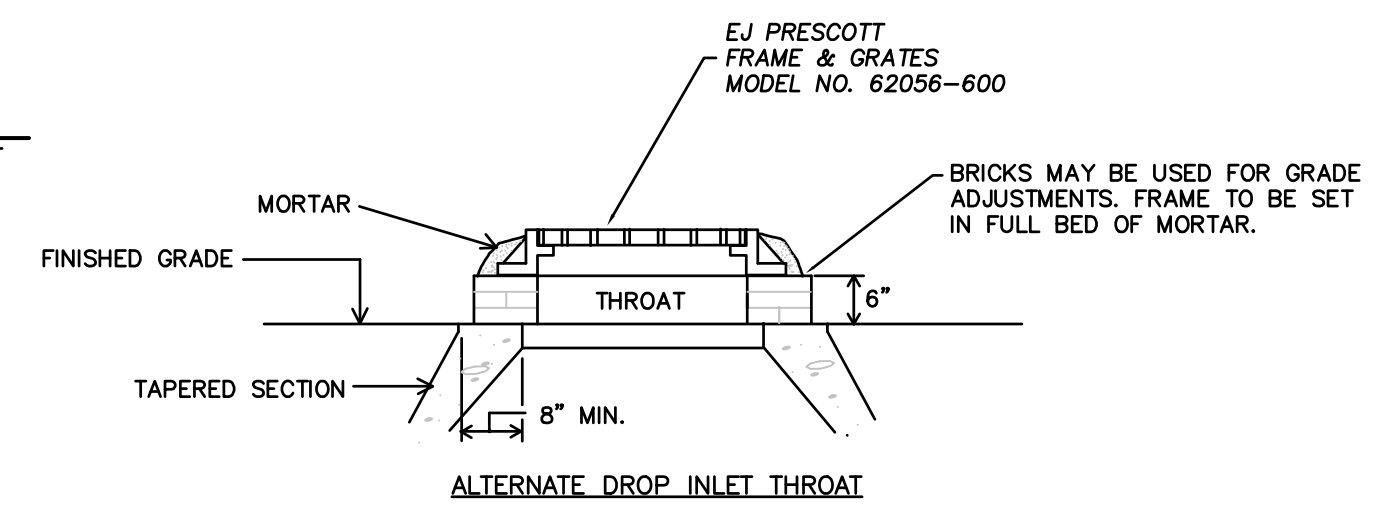
GRASS LINED SWALE DETAIL
NOT TO SCALE



TYP. STORM DRAIN TRENCH SECTION
NOT TO SCALE



TYPICAL PRE-CAST DRAIN MANHOLE
NOT TO SCALE



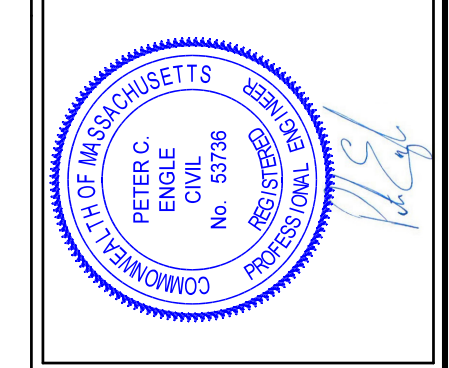
TYPICAL PRECAST CATCHBASIN
NOT TO SCALE

HOR. SCALE IN FEET: 1"=40'

REV. DATE DESCRIPTION

MADE (APVD)

PETER C. ENGLE, P.E.
PROFESSIONAL ENGINEER
MA LIC. NO. 53736



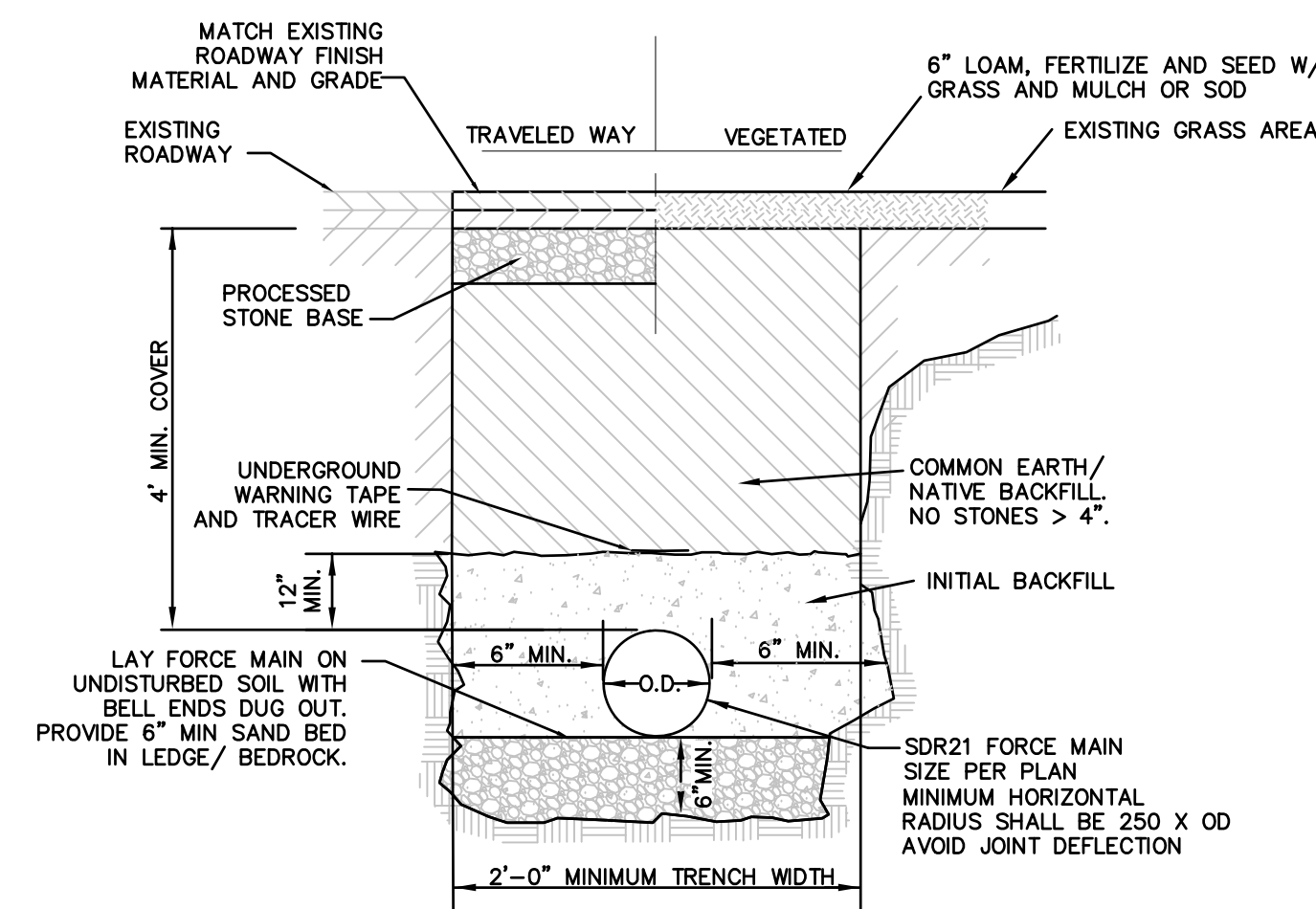
McCLURE
ENGINEERING, INC
119 Worcester Road
Charlton, MA 01507
Tel: (508) 248-2005
Fax: (508) 248-4887
Email: pengle@mcclureengineers.com

SEWER FORCE MAIN CONSTRUCTION PLAN
LOCATED AT:
RED SPRING ROAD
MARLBOROUGH, MA 01752
PREPARED FOR:
RED SPRING ROAD ASSOCIATION

DRAWN BY: PE
DATE: 8/3/22
CHK BY: PE
SCALE: 1"=40'
PROJ. NO. 170-2650-N

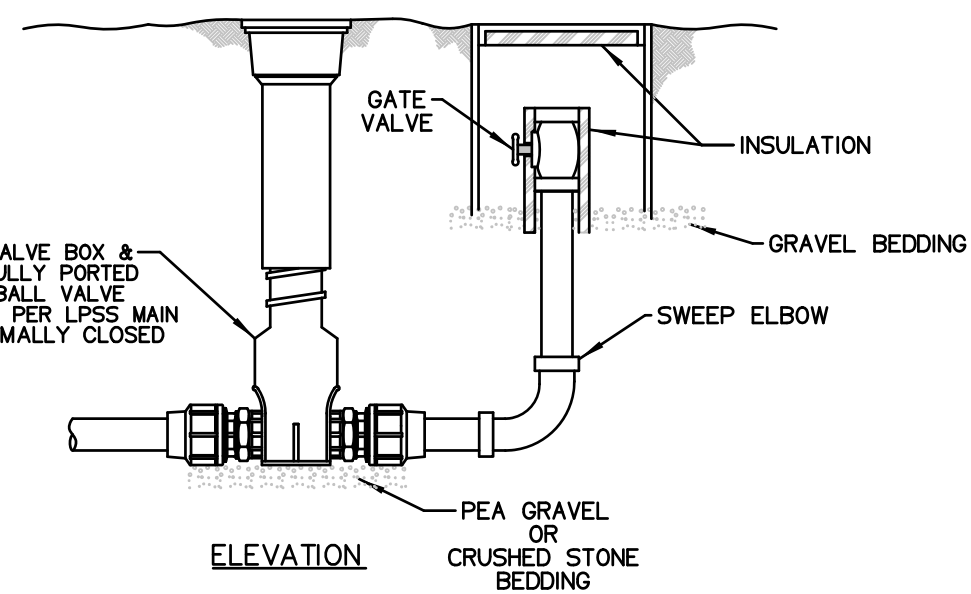
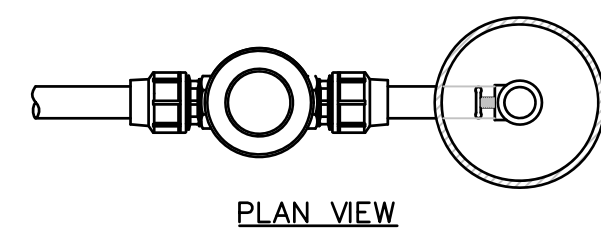
CONSTRUCTION DETAILS

DIG-SAFE (1-888-344-7233) NOTE:
CONTRACTOR REQUIRED TO NOTIFY "DIG SAFE" 72 HOURS PRIOR TO ANY ON-SITE EXCAVATION OR CONSTRUCTION AT 1-888-344-7233. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER AND SEWER DEPARTMENTS TO MARK OUT THEIR UTILITIES.

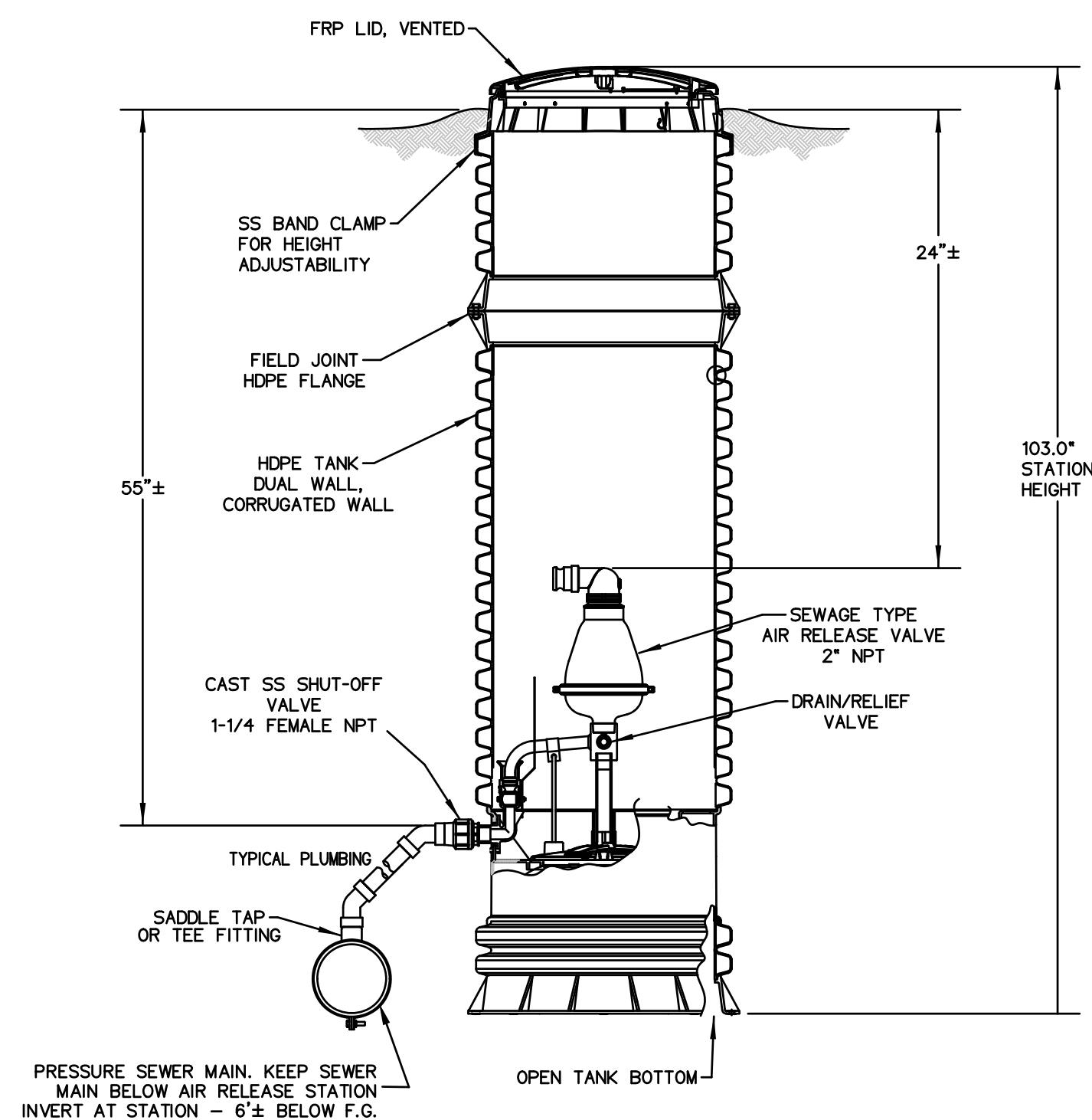


- NOTES:
1. MAINTAIN MIN. 18" HORIZONTAL SEPARATION BETWEEN FORCE MAIN AND EXISTING PARALLEL UTILITIES (OUTSIDE WALL TO OUTSIDE WALL).
 2. INITIAL BACKFILL SHALL BE NO.57 OR SMALLER STONE OR LOOSE NATIVE SOIL FREE FROM ROCKS, LIGHTLY CONSOLIDATED IN MAXIMUM 6" LIFTS, COMPACTED TO 95% MAXIMUM DENSITY.

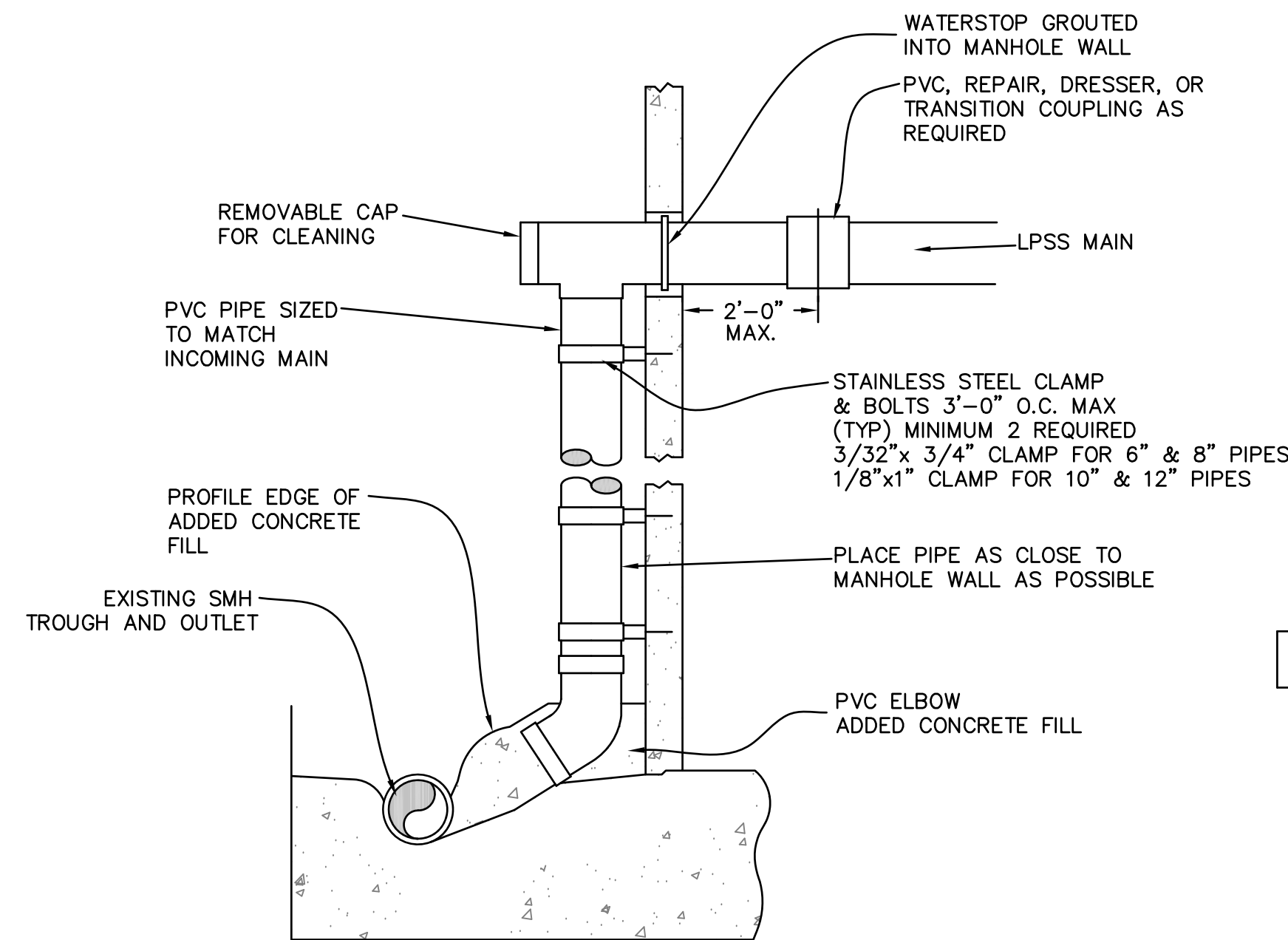
TYP. SEWER FORCE MAIN TRENCH SECTION
NOT TO SCALE



FORCE MAIN TYPICAL TERMINAL FLUSHING CONNECTION
NOT TO SCALE

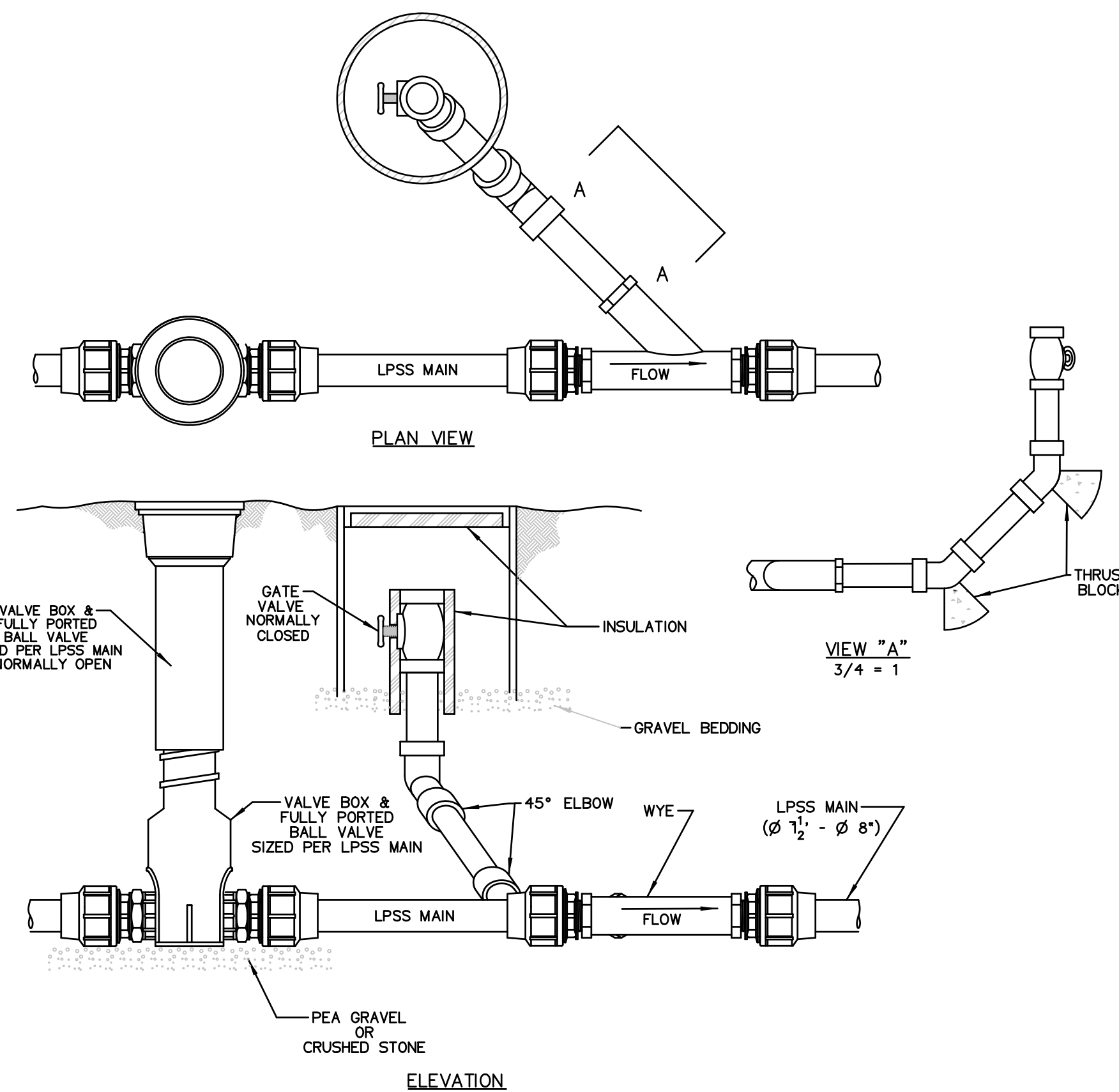


SEWER FORCE MAIN AIR RELEASE DETAIL
NOT TO SCALE

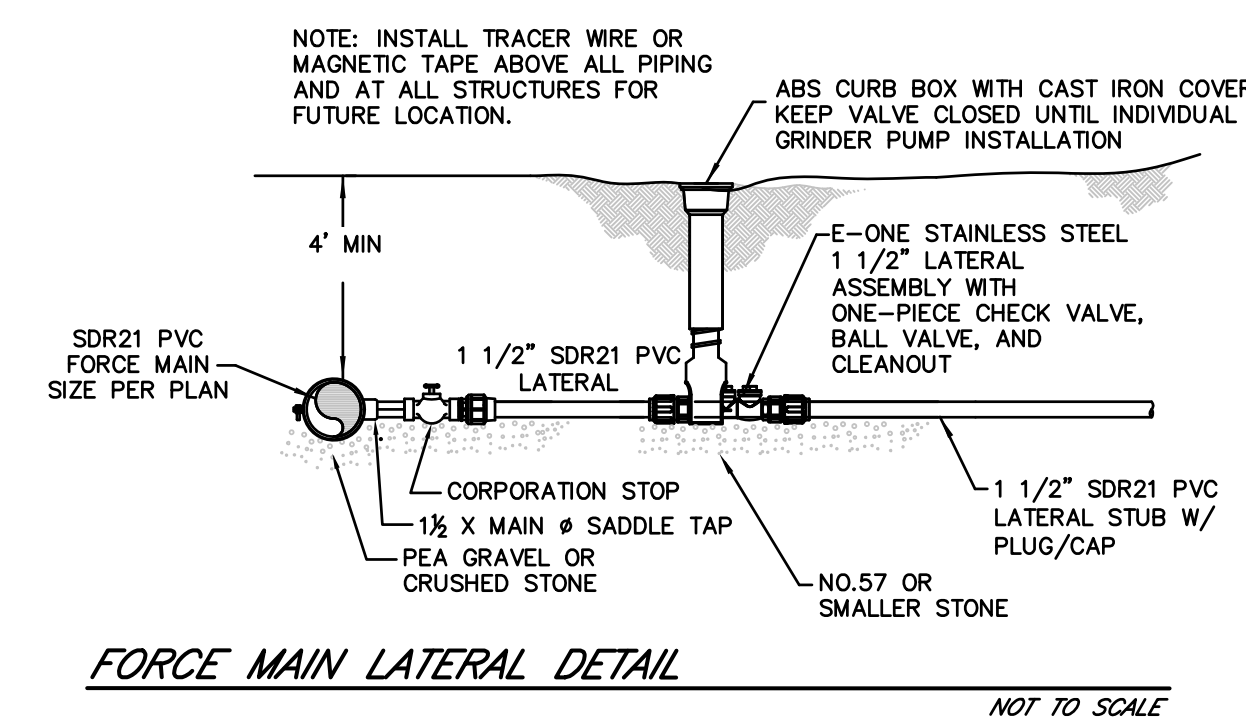


- NOTES:
1. ENCLOSE ELBOW IN CONCRETE, FORM SMOOTH CHANNEL TO MANHOLE FLOWLINE.
 2. INSTALL WATERSTOP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AS SHOWN. PVC PIPE AND FITTINGS TO BE SDR-35 SCHEDULE 40.

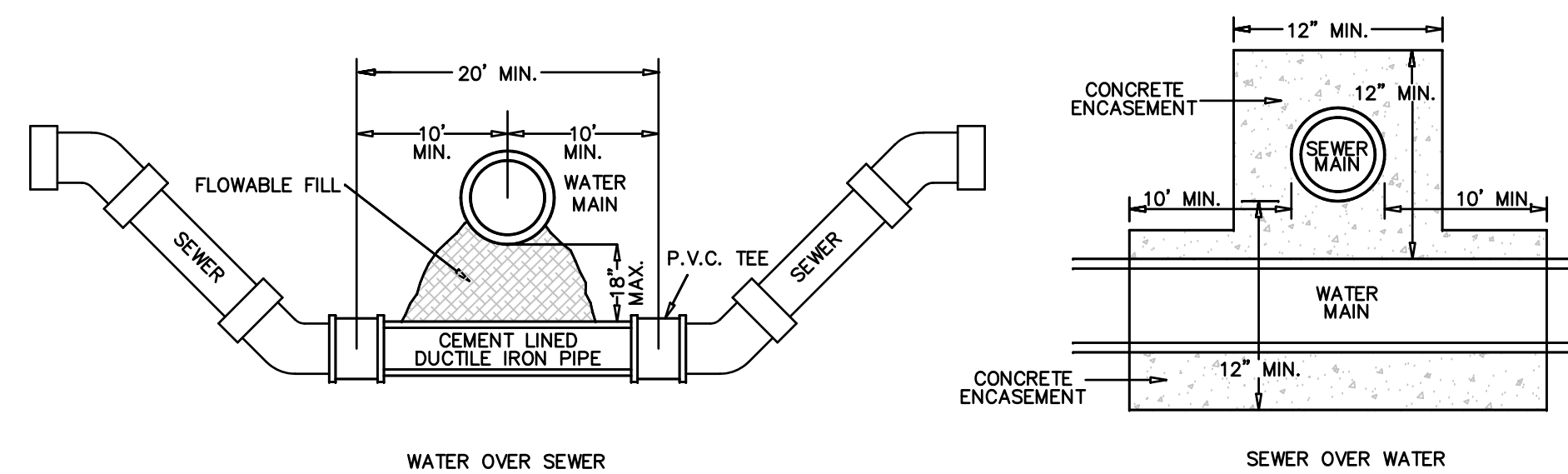
SEWER MANHOLE INTERIOR DROP INLET
NOT TO SCALE



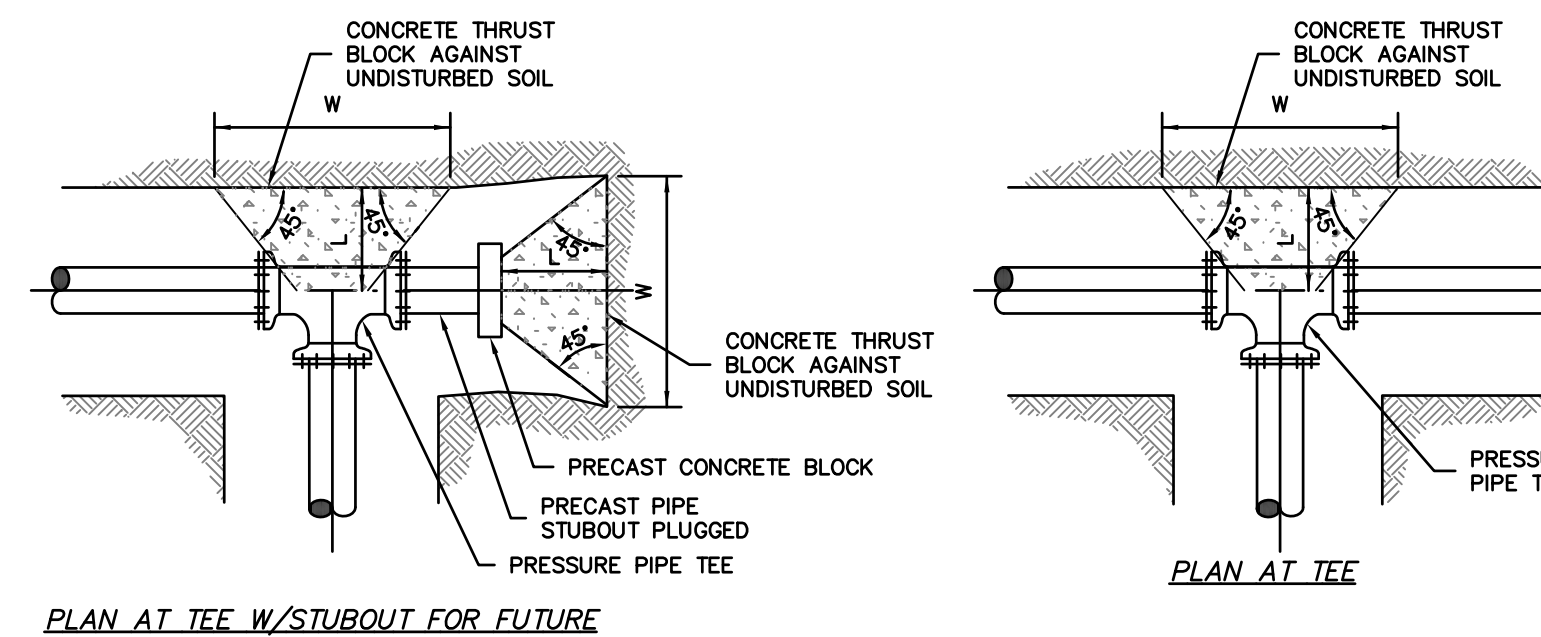
TYPICAL IN-LINE FLUSHING CONNECTION ON LPSS MAIN
NOT TO SCALE



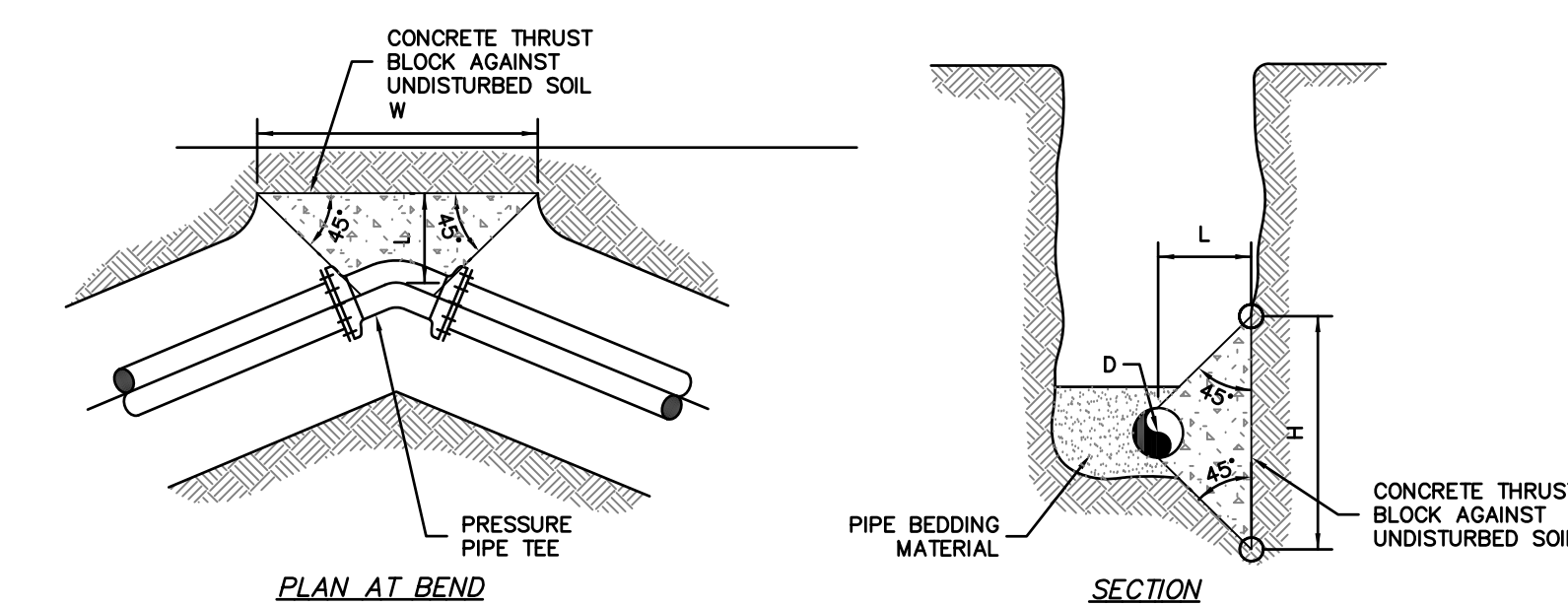
FORCE MAIN LATERAL DETAIL
NOT TO SCALE



WATER LINE CROSSING DETAIL
NOT TO SCALE



| D | 22 1/2" BEND | | | 45° BEND | | | 90° BEND | | | TEE / CAP | | | | | | |
|-----|---------------------|------|------|---------------------|------|------|---------------------|------|------|---------------------|------|------|------|------|------|------|
| | BEARING AREA (S.F.) | L" | W" | BEARING AREA (S.F.) | L" | W" | BEARING AREA (S.F.) | L" | W" | BEARING AREA (S.F.) | L" | W" | | | | |
| <8" | 7.5 | 0.5' | 1.0' | 1.5' | 3.0 | 1.0' | 1.5' | 2.5' | 5.5 | 1.0' | 2.0' | 3.0' | 3.9 | 1.0' | 2.0' | 2.5' |
| 12" | 3.5 | 1.0' | 1.5' | 2.5' | 6.5 | 1.0' | 2.0' | 3.5' | 12.0 | 1.5' | 3.0' | 4.5' | 8.5 | 1.5' | 2.5' | 4.0' |
| 16" | 6.0 | 1.0' | 2.0' | 3.0' | 11.0 | 1.5' | 3.0' | 4.0' | 20.5 | 2.0' | 4.0' | 5.5' | 14.5 | 2.0' | 3.5' | 5.0' |



- GENERAL NOTES:
1. DIMENSIONS SHOWN CALCULATED PER 120 PSI INTERNAL PIPE PRESSURE FOR SOIL BEARING LOADS OF 3,000 PSF.
 2. CONSTRUCT CONCRETE THRUST BLOCKS OF CONCRETE POURED AGAINST UNDISTURBED SOIL.
 3. DIMENSIONS L, W, & H MAY BE ADJUSTED TO MEET FIELD CONDITIONS PROVIDED THE BEARING AREA REMAINS UNCHANGED.
 4. THE HEIGHT OF THE BLOCK (H) SHALL BE LESS THAN OR EQUAL TO HALF THE TRENCH DEPTH.
 5. PLACE POLYETHYLENE SHEETING OVER MJ FITTINGS TO PREVENTS DIRECT CONTACT BETWEEN CONCRETE AND THE FITTING.
 6. THE CHARLTON WATER AND SEWER COMMISSION RESERVES THE RIGHT TO MODIFY STANDARDS AT THEIR DISCRETION.

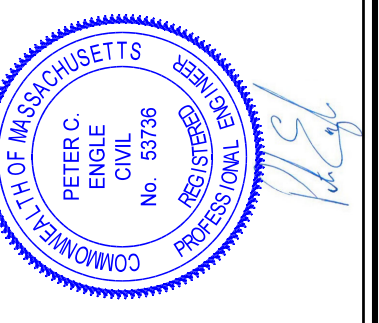
CONCRETE THRUST BLOCK FOR HORIZONTAL BENDS AND TEES
NOT TO SCALE

HOR. SCALE IN FEET: 1"=40'

REV. DATE DESCRIPTION

MADE (APVD)

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PROFESSIONAL ENGINEER
MA LIC. NO. 53736



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