PINE STREET WATERLINE REPLACEMENT

BRISTOL, VERMONT

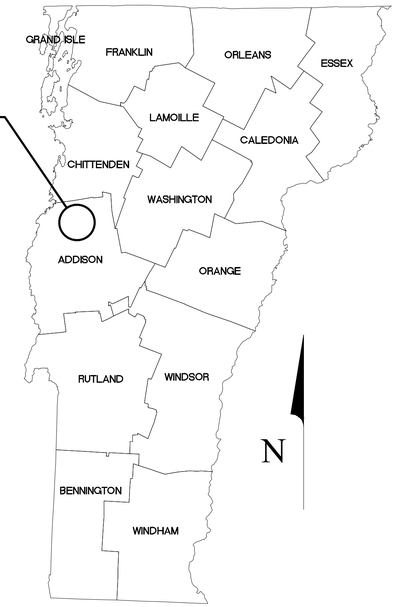
DWSRF LOAN NUMBER:
RF-XXX
VTM JOB NO. 22-1.1

JULY, 2022

INDEX OF SHEETS

SITE:

LOCATION MAP - BRISTOL, VERMONT
1" = ±500'



90% DESIGN PLANS

VTM ENGINEERING, PLC
2941 SHELBURNE FALLS ROAD
HINESBURG, VT 05461
(802) 233-7531

REV.	DATE	DESCRIPTION	BY

90% DESIGN PLANS
NOT FOR CONSTRUCTION

DRAWING TITLE: COVER SHEET & LOCATION MAP
PROJECT: PINE STREET WATERLINE REPLACEMENT
CLIENT: TOWN OF BRISTOL, VERMONT

DESIGNED: SP	PLOT DATE: --
DRAWN: PM	SCALE: --
CHECKED: SP	DATE: JULY, 2022

PROJECT NO. 22-1.1
DRAWING NO. C1
SHEET 01 OF 07

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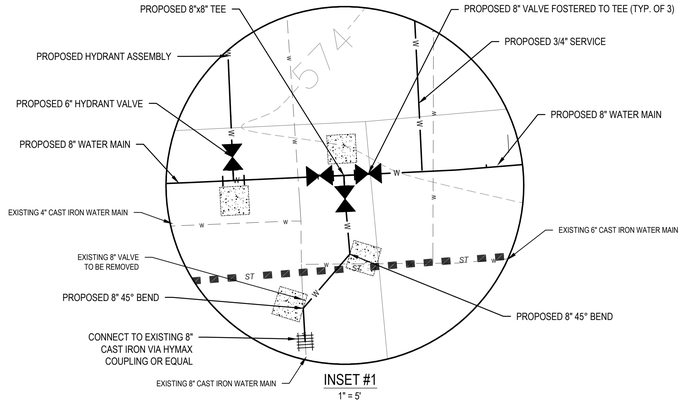
LEGEND

- EXISTING CONTOUR
- EXISTING WATERLINE
- EXISTING OVERHEAD UTILITIES
- EXISTING FENCE
- PROPOSED WATERLINE
- FUTURE STORMLINE
- FUTURE CATCH BASIN
- PROPOSED THRUST BLOCK
- HYDRANT
- WATER VALVE
- WATER CURB STOP
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING TREE



INSET #1
1" = 5'

NOTES:
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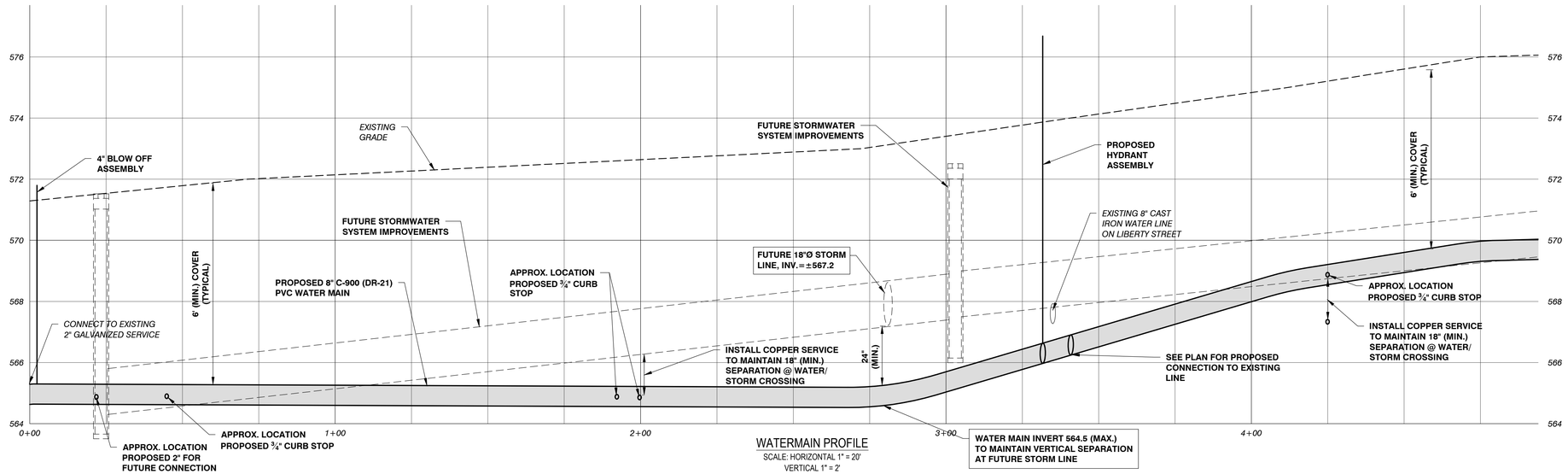
2. EXISTING WATER SERVICE LINE LOCATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

GRAPHIC SCALE
20 0 10 20 40 80

WATER REPLACEMENT PLAN
SCALE: 1"=20'



WATERMAIN PROFILE
SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 2'

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PROJECT: PINE STREET WATERLINE REPLACEMENT
CLIENT: TOWN OF BRISTOL, VERMONT

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PROJECT NO.
22-1.1

DRAWING NO.
C1.1

SHEET 02 OF 07

FILE: C:\ACAD CAD SERVICES\VTM\22-1.1\DWG\BRISTOL PINE STREET.DWG

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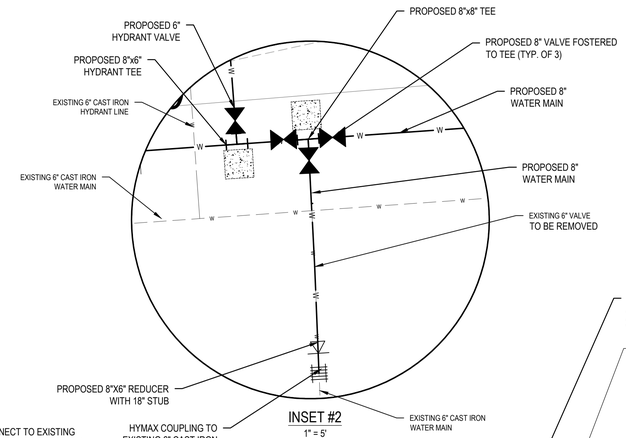
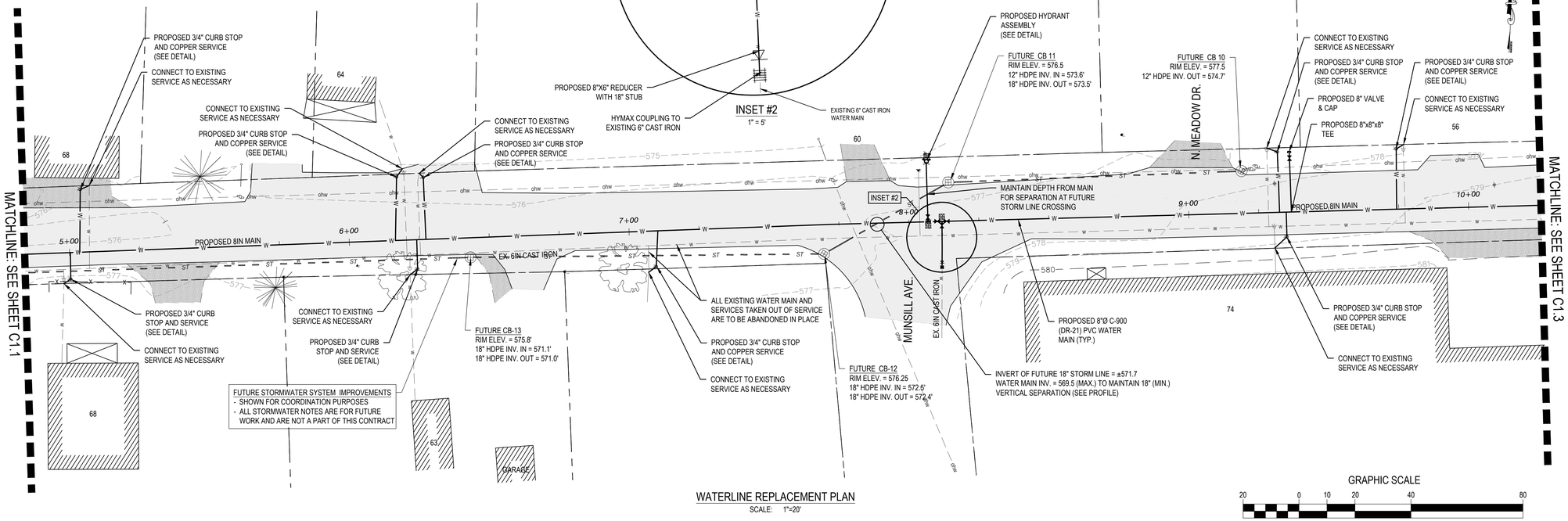


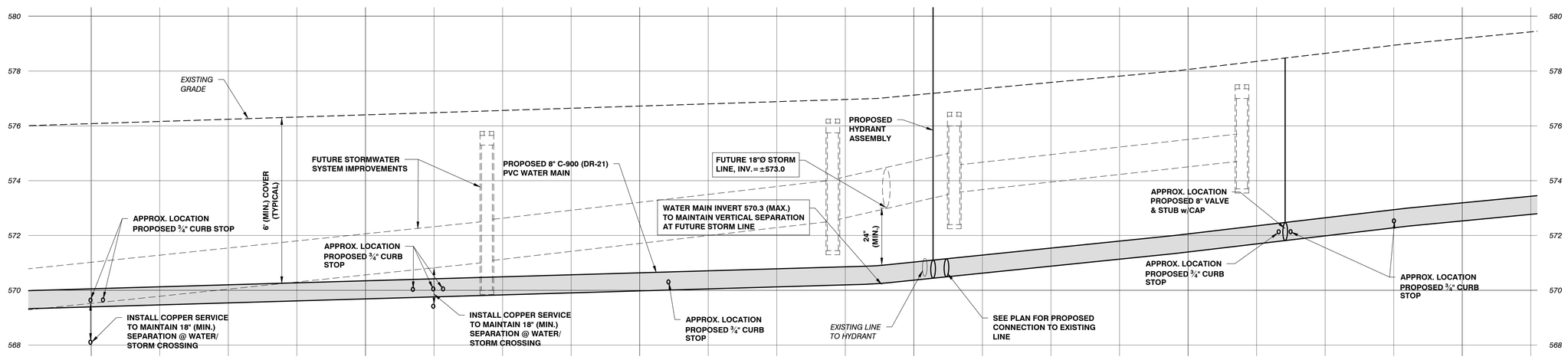


WATERLINE REPLACEMENT PLAN

SCALE: 1"=20'

GRAPHIC SCALE

20 0 10 20 40 80



WATER MAIN PROFILE

SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 2'

BY	DESCRIPTION	DATE	REV.

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CLIENT: TOWN OF BRISTOL, VERMONT

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PROJECT NO.
22-1.1

DRAWING NO.
C1.2

SHEET 03 OF 07

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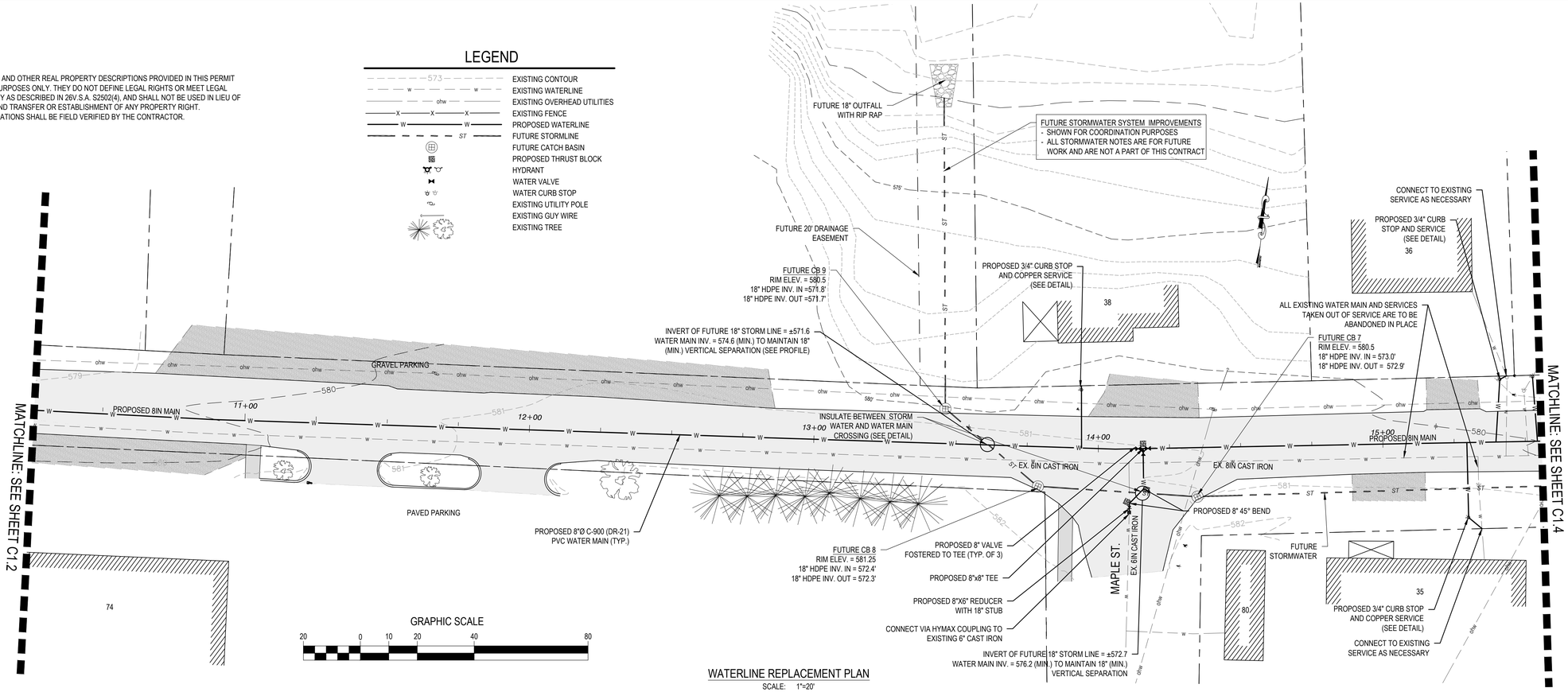

GRAPHIC SCALE

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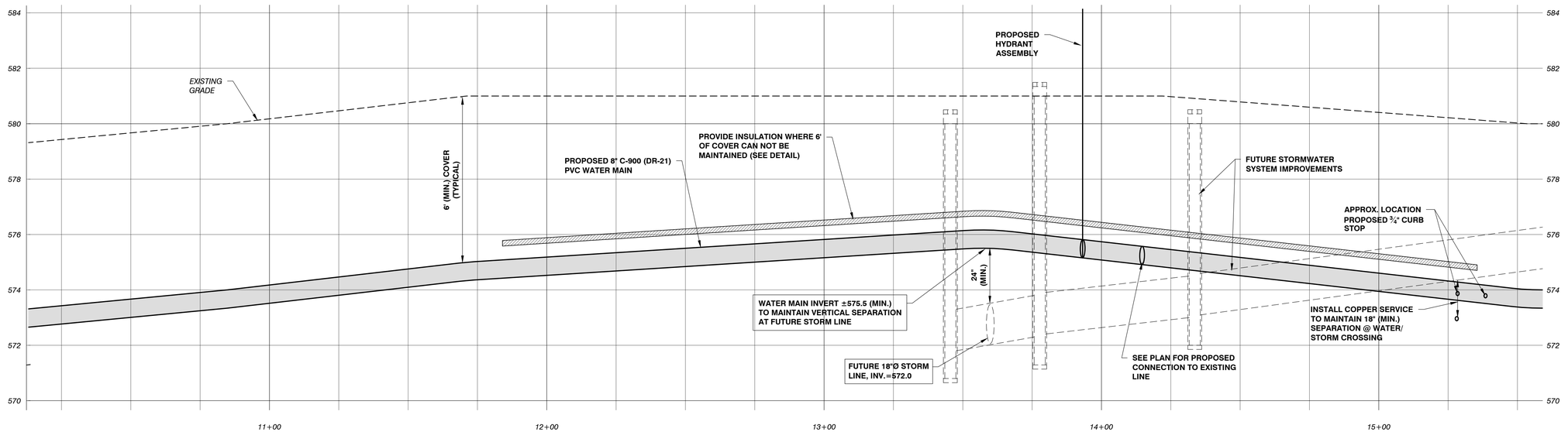
WATERLINE REPLACEMENT PLAN

SCALE: 1"=20'



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PROJECT NO.
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DRAWING NO.
C1.3

SHEET 04 OF 07

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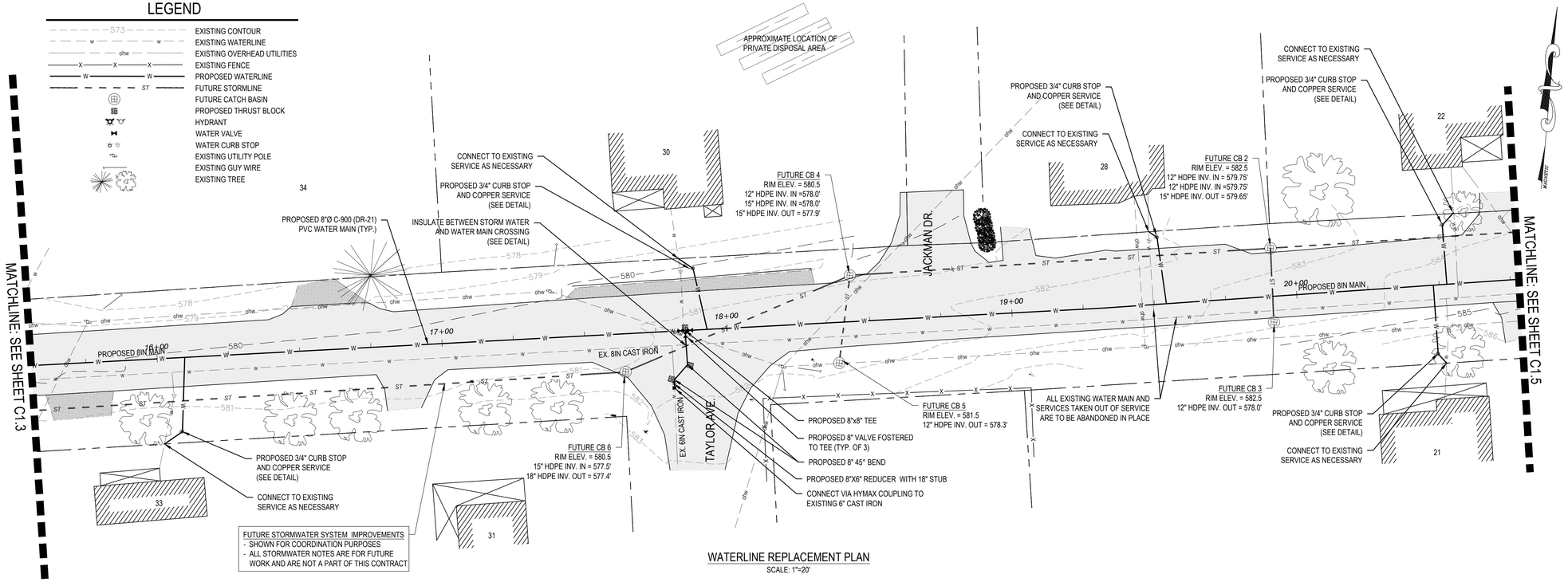
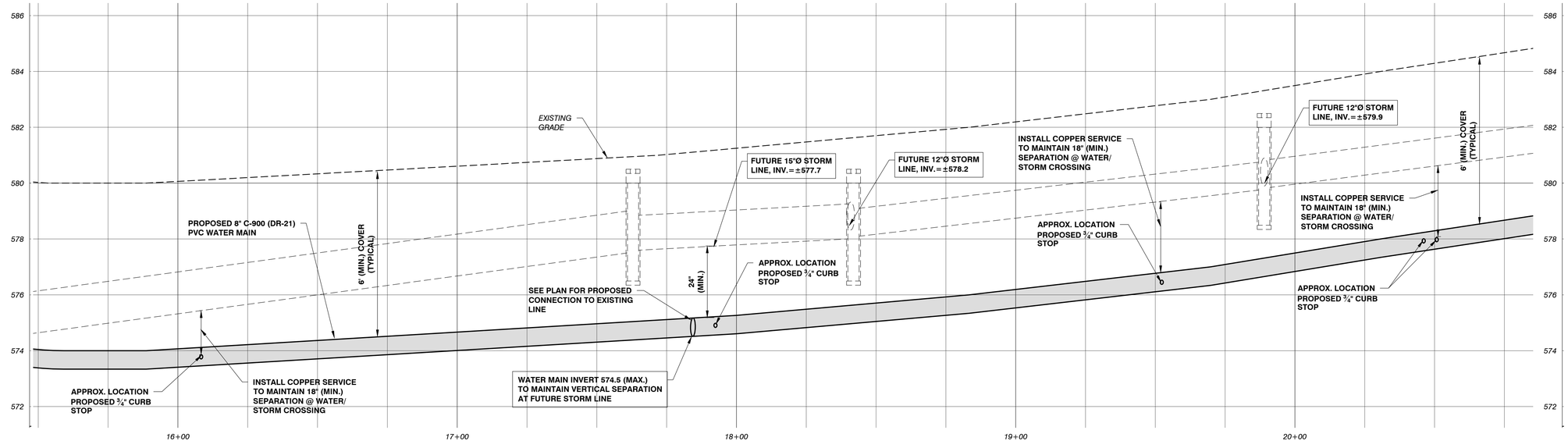


WATERLINE REPLACEMENT PLAN
SCALE: 1"=20'



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PROJECT NO.
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DRAWING NO.
C1.4

SHEET 05 OF 07

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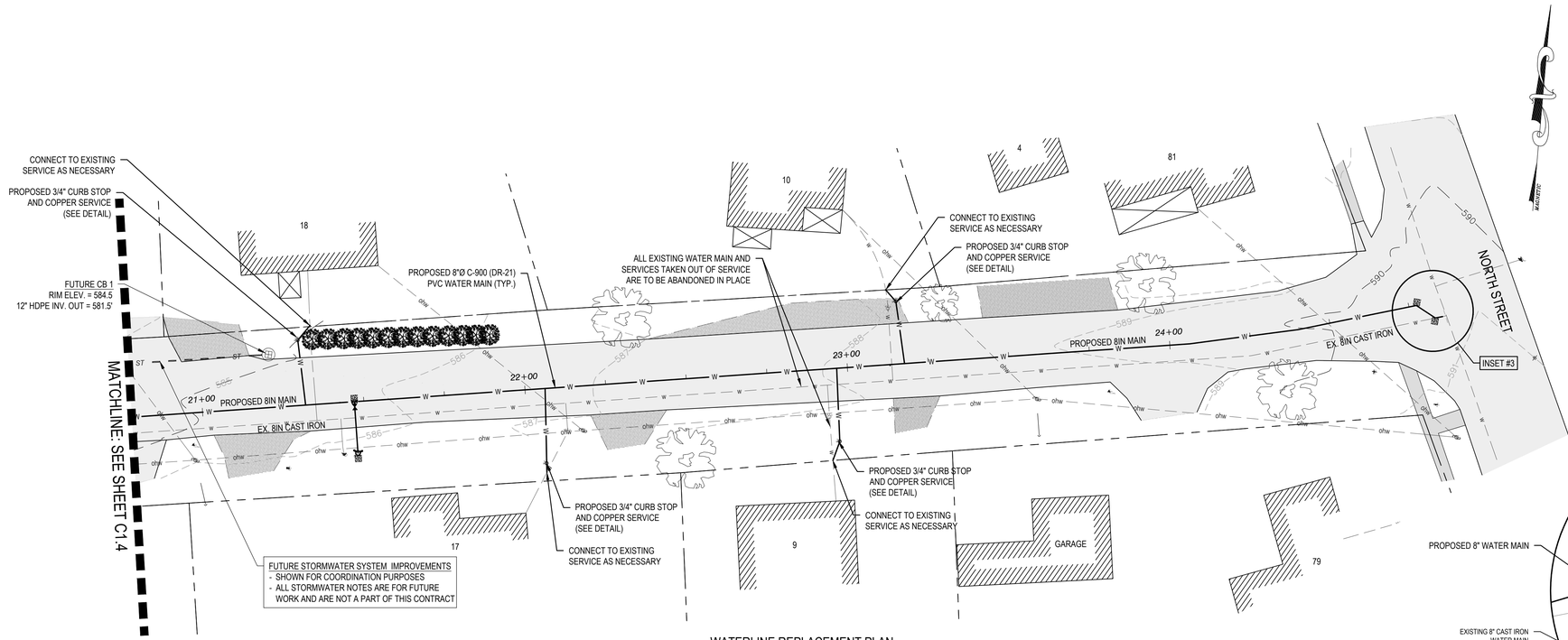
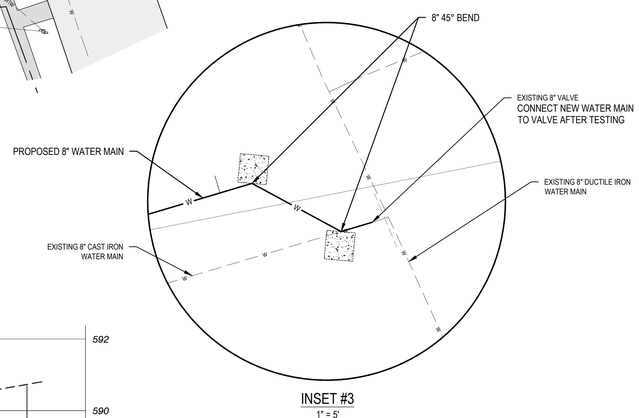
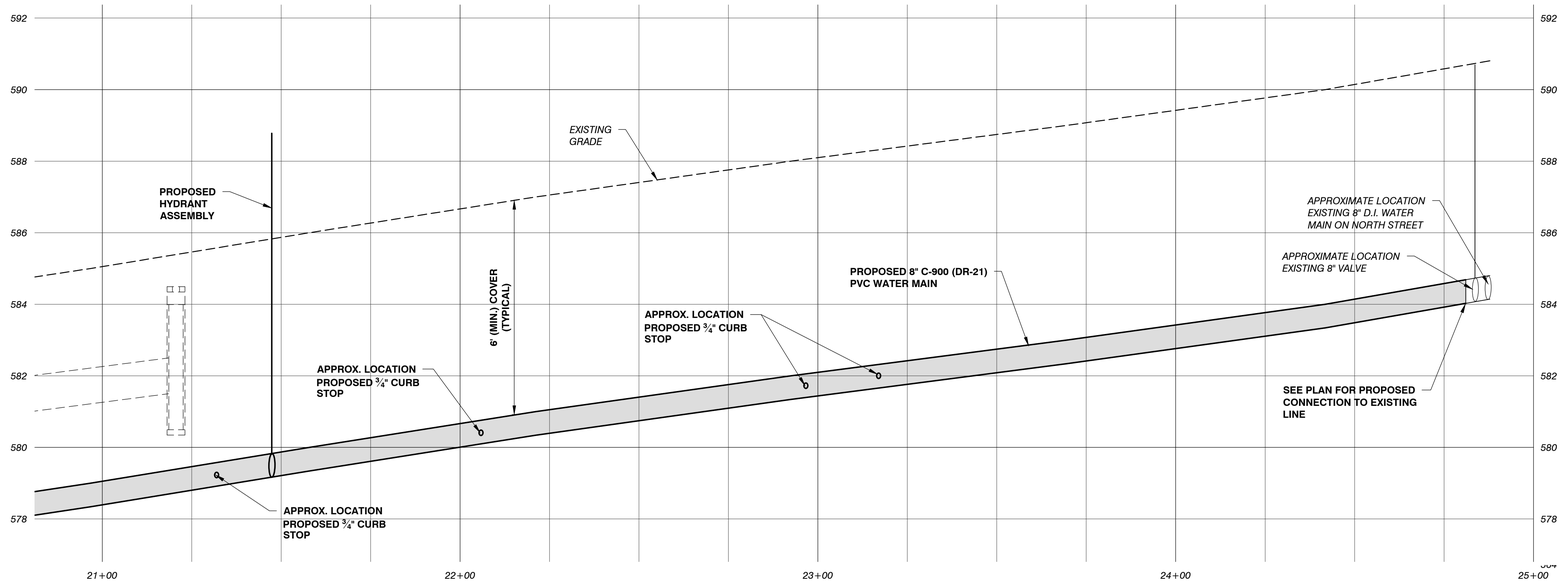


WATERLINE REPLACEMENT PLAN
SCALE: 1" = 20'



INSET #3
1" = 5'



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PROJECT NO.
22-1.1

DRAWING NO.
C1.5
SHEET 06 OF 07

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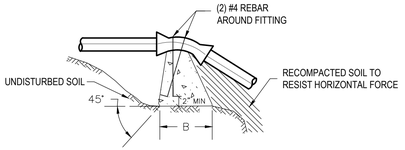
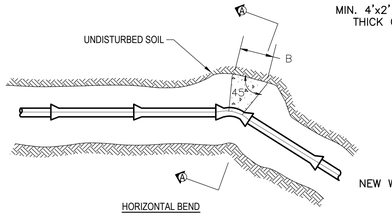
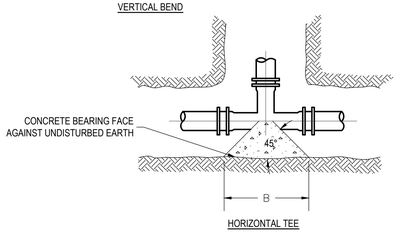


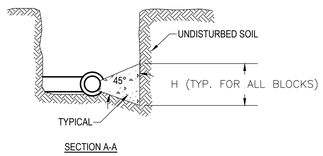
VERTICAL BEND



HORIZONTAL BEND



HORIZONTAL TEE



SECTION A-A

TYPICAL BEARING THRUST BLOCK DETAILS AND SECTION

SCALE: NONE

NOTES:
1. ALL THRUST BLOCKS SHALL BE CLASS "B" CONCRETE, SEE SPEC. SECTION 03300
2. CONCRETE SHALL BE PLACED SO AS NOT TO HAMPER THE FUTURE REMOVAL OF A FITTING.
3. WRAP FITTINGS IN (2) LAYERS POLYETHYLENE PLASTIC SHEET PRIOR TO FORMING AND POURING THRUST BLOCK.

MINIMUM BEARING FACE "HEIGHTS AND WIDTHS"
FOR CONCRETE THRUST BLOCKS (TEST PRESSURE = 250 PSI)

BEARING FACE MATERIALS [2]	PIPELINE SIZE	HEIGHT (H) AND WIDTH (B) OF BEARING FACE FOR FITTING TO BE RESTRAINED [3]											
		11-1/4° BEND		22-1/2° BEND		45° BEND		90° BEND		TEES & PLUGS		WYES	
		H	B	H	B	H	B	H	B	H	B	H	B
WELL GRADED SANDS AND GRAVEL	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	1.95	1.65	2.60	1.30	2.30	1.30	1.95
	8"ø	1.30	1.30	1.30	1.30	1.65	2.60	1.95	3.55	1.95	2.60	1.65	2.60
	10"ø	1.30	1.30	1.65	1.95	1.95	3.25	2.60	4.20	2.60	2.90	1.95	3.25
	12"ø	1.30	1.95	1.65	2.60	2.60	3.25	2.90	5.20	2.90	3.90	2.60	3.25
	16"ø	1.95	1.95	1.95	2.90	2.60	4.20	3.90	5.20	3.25	4.55	2.60	4.20
SILT	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	2.30	1.65	3.25	1.95	1.95	1.30	2.30
	8"ø	1.30	1.30	1.30	1.95	1.95	2.60	2.30	4.20	2.30	2.90	1.95	2.60
	10"ø	1.30	1.65	1.65	2.60	2.30	3.55	3.25	4.55	2.30	4.55	2.30	3.55
	12"ø	1.30	2.30	2.30	2.60	2.30	5.20	3.25	6.45	3.25	4.55	2.30	5.20
	16"ø	1.95	1.95	2.30	3.55	2.90	5.20	4.20	6.45	3.55	5.50	2.65	5.20
COHESIVE GRANULAR	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	2.60	1.95	3.25	1.95	2.30	1.30	2.60
	8"ø	1.30	1.30	1.30	2.30	1.95	2.90	2.60	4.20	1.95	3.90	1.95	2.90
	10"ø	1.30	1.95	1.65	2.90	2.60	3.55	3.25	5.20	2.60	4.55	2.60	3.55
	12"ø	1.30	2.60	2.30	2.90	2.60	5.20	3.90	6.15	3.25	5.20	2.60	5.20
	16"ø	1.95	2.30	2.30	3.90	3.25	5.50	4.55	7.10	3.90	5.85	3.25	5.50
CLAY	4"ø & 6"ø	1.30	1.30	1.30	1.30	1.30	2.60	2.30	2.60	1.65	2.60	1.30	2.60
	8"ø	1.30	1.30	1.30	2.30	1.95	2.90	2.30	4.55	1.95	3.90	1.95	2.90
	10"ø	1.30	1.95	1.60	2.90	2.30	3.90	2.90	5.50	2.90	3.90	2.30	3.90
	12"ø	1.30	2.60	1.95	3.25	2.60	4.85	3.55	6.45	2.90	5.50	2.60	4.85
	16"ø	1.95	2.30	2.30	3.90	3.25	5.20	4.20	7.45	3.90	5.85	3.25	5.20

1. HYDROSTATIC AND LEAKAGE TEST PRESSURE PER SPECIFICATIONS.
2. UNDISTURBED EARTH: SIDE OF TRENCH OR OTHER EXCAVATION.
3. SEE DIAGRAM FOR H AND B LOCATION REFERENCE. MEASURED IN FEET.

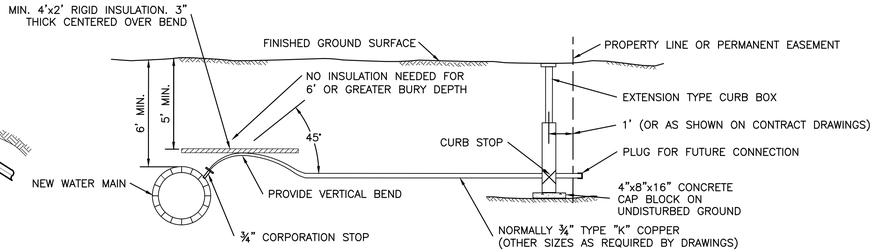
NOTE: CONTRACTOR MAY SUBMIT OPTIONAL THRUST RESTRAINT DEVICES, SUCH AS "GRIPPER RINGS" OR RETAINER GLANDS, FOR REVIEW BY ENGINEER IN LIEU OF, OR IN ADDITION TO, THE THRUST BLOCK DETAILS SHOWN ABOVE.

TYPICAL TRENCH DETAIL BURIED WATER PIPE

SCALE: NONE

TRENCH NOTES

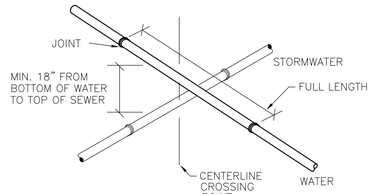
1. NO MECHANICAL TAMPERS SHALL BE USED DIRECTLY OVER PIPE TO INSURE THE PIPE IS NOT DAMAGED.
2. ROCK EXCAVATION PAY LIMITS: PIPE O.D. PLUS TWO FEET, MAX 3' WIDE AND PIPE O.D. PLUS 1' FOR DEPTH
3. EMBEDMENT MATERIALS IN AREAS OF UNSUITABLE NATIVE SOILS SHALL BE TESTED AND SHOWN BY THE CONTRACTOR TO MEET REQUIREMENTS OF SPEC. SECTION 02220. MATERIALS SHALL BE PLACED IN MAXIMUM 6in LAYERS AND COMPACTED TO ACHIEVE NOT LESS THAN 90% (95% IN ROADS) OF MAXIMUM DENSITY (STANDARD PROCTOR DENSITY).
4. FINAL BACKFILL (SUITABLE MATERIALS) SHALL NOT CONTAIN ANY STONES MORE THAN 6in IN LARGEST DIMENSION, BE GREATER THAN 50lbs, OR CONTAIN ANY FROZEN, WET, OR ORGANIC MATERIALS.
5. WIDTH OF TRENCH AT SURFACE SHALL BE KEPT AS NARROW AS PRACTICAL.
6. PAYMENT UNDER THE ITEMS OF WORK SPECIFIED IN THE CONTRACT DOCUMENTS IS TO THE LIMITS SHOWN.
7. TRENCHES SHALL BE COMPLETELY DEWATERED PRIOR TO PLACEMENT OF PIPE BEDDING MATERIAL AND BE KEPT DEWATERED DURING INSTALLATION OF PIPE, EMBEDMENT MATERIALS, AND INITIAL BACKFILL.
8. PERMANENT SHEETING SHALL BE INSTALLED ONLY IF REQUIRED BY JOB CONDITIONS. NOTIFY ENGINEER OF ANY PERMANENT SHEETING TO BE LEFT IN PLACE.
9. SEE SPECIFICATIONS SECTION 02220; EXCAVATION, BEDDING, BACKFILL AND FILL FOR MORE COMPLETE MATERIALS SPECIFICATION.



NOTES:
1. WHEN USING PVC WATERMAIN PROVIDE SERVICE CONNECTION SADDLES FOR SERVICE CONNECTION. SEE SPECIICATIONS
2. TEFLON THREAD SEALANT TAPE WILL BE USED ON ALL CORPORATION STOPS PRIOR TO INSERTION.
   a.) SPIRAL WRAP COMPLETELY COVERING THE THREAD AREA WITH TWO WRAPS.
   b.) PIPE DOPE OR OTHER LIQUID THREAD SEALANTS ARE NOT ACCEPTABLE.
   LEAVE ONE TO THREE THREADS SHOWING OUTSIDE OF PIPE.
3. CORPORATION STOPS SHALL NOT BE PLACED LESS THAN 1' APART ALONG PIPE.

TYPICAL HOUSE CONNECTION DETAIL (NEW)

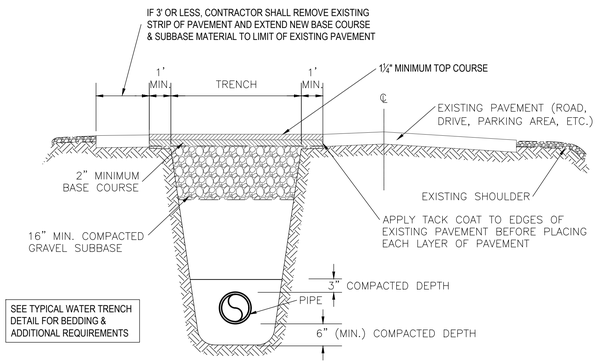
SCALE: NONE



NOTES:
1. NEW WATER MAINS SHALL BE LAID AT LEAST 10' FROM EXISTING SEWER LINES WHEN RUNNING PARALLEL AND AT SAME ELEVATION.
2. WHERE A NEW WATER MAIN CROSSES OVER AN EXISTING SEWER LINE THERE WILL BE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER AND THE OUTSIDE OF THE SEWER. AT CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO AS BOTH JOINTS ARE AS FAR FROM THE SEWER AS POSSIBLE.
3. WHERE A NEW WATER MAIN CROSSES UNDER AN EXISTING SEWER LINE THERE WILL BE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER AND THE OUTSIDE OF THE SEWER. AT CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO AS BOTH JOINTS ARE AS FAR FROM THE SEWER AS POSSIBLE. BOTH JOINTS OF THE CROSSING WATER LINE SECTION SHALL BE CONCRETE ENCASED AND THE SEWER PROPERLY SUPPORTED.

WATER/STORMWATER SEPARATION DETAIL

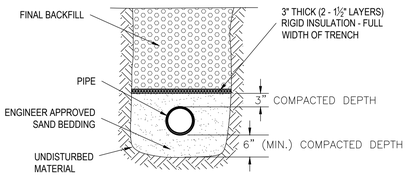
SCALE: NONE



TYPICAL TRENCH PAVEMENT REPAIR

SCALE: NONE

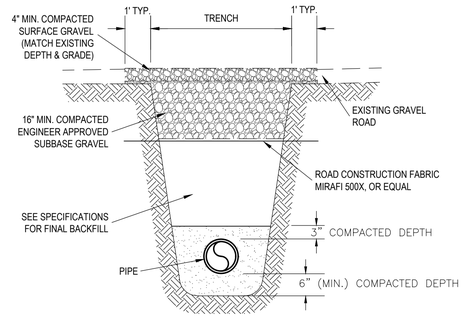
NOTES:
1. ALL PAVEMENT SHALL HAVE A MINIMUM COMPACTED THICKNESS AS SHOWN.
2. KEEP TRENCH SURFACE AS NARROW AS PRACTICAL.
3. THE EDGE OF EXISTING PAVEMENT SHALL BE TRIMMED STRAIGHT AND SQUARE PRIOR TO PLACING EACH LAYER OF PAVEMENT. A MINIMUM OF 1' SHALL BE TRIMMED BACK FROM THE TOP EDGE OF THE TRENCH.
4. SEE SPECIFICATION SECTION 02510 FOR FURTHER INFORMATION.
5. ALL EXISTING ROAD LINES SHALL BE RE-MARKED AS NECESSARY.
6. SHOULDER SHALL BE REPLACED IF NECESSARY TO AS IT EXISTED PRIOR TO CONSTRUCTION.



INSULATION DETAIL

SCALE: NONE

NOTES:
1. STAGGER INSULATION JOINTS SO THAT NO JOINTS OF THE TWO (2) LAYERS ARE ONE OVER THE OTHER
2. SEE SPECIFICATION 07240 FOR MORE INFORMATION

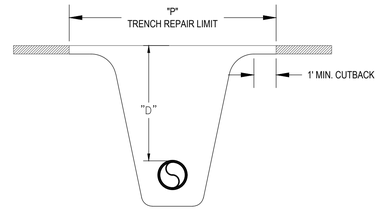


TRENCH GRAVEL ROAD OR DRIVE REPAIR

SCALE: NONE

SEE TYPICAL WATER TRENCH DETAIL FOR BEDDING & ADDITIONAL REQUIREMENTS

NOTES:
1. CONTRACTOR TO INSTALL ROAD CONSTRUCTION FABRIC TO MATCH EXISTING ROAD. OVERLAP CUT EDGES OF FABRIC BY 12" MIN.
2. KEEP TRENCH SURFACE AS NARROW AS PRACTICAL.
3. SEE SPECIFICATION SECTION 02510 FOR MORE INFORMATION

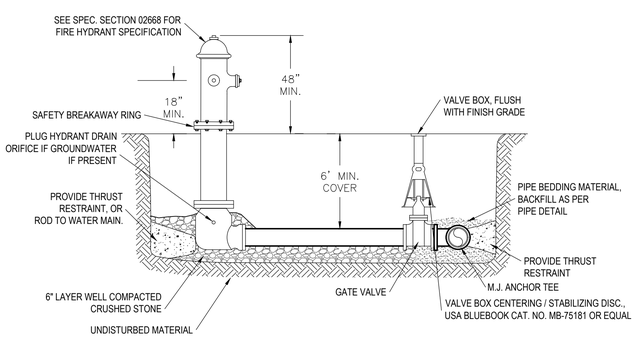


D = DEPTH OF PIPE	P = PAVEMENT PAYMENT LIMIT, TRENCH REPAIR
0 TO 10 FEET	7 FEET
> 10 FEET	9 FEET

NOTE: "P" INCLUDES 1' MIN. CUTBACK OF BROKEN PAVEMENT ON EACH SIDE OF TRENCH

PAVEMENT PAYMENT LIMITS DETAIL

SCALE: NONE



TYPICAL HYDRANT ASSEMBLY DETAIL

SCALE: NONE

NOTES:
1) HYDRANT SHALL BE FULLY EXPOSED, OPEN LEFT, AND HAVE (2) 2½" NTS HOSE CONNECTIONS AND (1) 4" PUMPER CONNECTION. HYDRANT SHALL BE 5¼" MAIN VALVE BY KENNEDY, OR EQUAL. GATE VALVE TO BE KENNEDY MODEL, KS-FW, OR EQUAL. SEE SPECIFICATIONS FOR ADDITIONAL INFO.
2) ALL BRANCH PIPING AND FITTINGS SHALL BE MECHANICAL JOINT.
3) HYDRANTS SHALL HAVE THE DRAIN PLUGGED IF GROUNDWATER IS FOUND TO BE PRESENT AT PROPOSED HYDRANT LOCATION.

BY	DESCRIPTION	DATE	REV.

VTM ENGINEERING, PLC
2941 SHELBURNE FALLS ROAD
HINESBURG, VT 05461
(802) 233-7531

90% DESIGN PLANS
NOT FOR CONSTRUCTION

DRAWING TITLE: WATER DETAILS
PROJECT: PINE STREET WATERLINE REPLACEMENT
CLIENT: TOWN OF BRISTOL, VERMONT

DESIGNED	PLOT DATE
SP	--
DRAWN	SCALE
PM	AS SHOWN
CHECKED	DATE
SP	OCT. 2021

PROJECT NO.
22-1.1

DRAWING NO.
C2.0
SHEET 07 OF 07

FILE: C:\READ CAD SERVICES\BY TASK 1 FOLDERS\BRISTOL PINE STREET.DWG