FISHKILL AVENUE SEWER AND WATER MAIN REPLACEMENT

BEACON BID NO. 2025-007

CITY OF BEACON

DUTCHESS COUNTY, NEW YORK

FEBRUARY 18, 2025

REVISED: APRIL 17, 2025

RECOMMENDED FOR APPROVAL

William Jay Lanc

DUTCHESS COUNTY DEPARTMENT OF HEALTH
APPROVED

DATE 5/5/2025

PROJECT c/o Beacon - Fishkill Ave. Water & Sewer Main Replacement

P.E.
SUPERVISING PUBLIC HEALTH ENGINEER

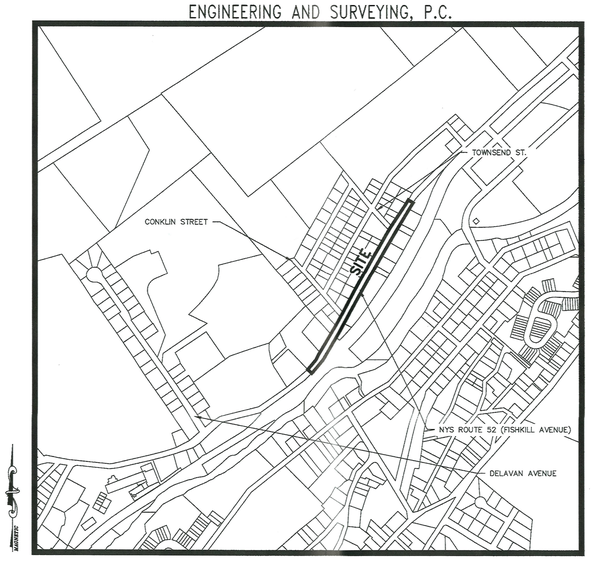
UTILITY LOCATION NOTES:

1. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM UTILITY MARKOUT BY RESPECTIVE UTILITY COMPANIES, ALONG WITH VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO THEIR SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZE. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS.
2. **CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF WATER AND SEWER SERVICES TO EACH BUILDING PRIOR TO CONSTRUCTION.**
3. CONTRACTOR SHALL PROVIDE TEMPORARY BYPASS CONNECTIONS FOR ACTIVE SEWER SERVICE LATERALS DURING INSTALLATION OF SEWER MAIN.
4. **CONTRACTOR SHALL GPS LOCATE THE NEW WATER AND SEWER MAIN (HORIZONTALLY AND VERTICALLY) AT THE END OF EACH LENGTH OF PIPE INSTALLED. CONTRACTOR SHALL ALSO GPS LOCATE ALL FITTINGS, VALVES, BENDS, STRUCTURES, AND SERVICE LINES/LATERALS INSTALLED ALONG THE NEW WATER MAIN AND NEW SEWER MAIN, AS WELL AS LOCATING ALL UTILITY CROSSINGS UNCOVERED DURING THE INSTALLATION OF THE NEW WATER AND SEWER MAINS. GPS DATA SHALL BE PROVIDED TO PROJECT ENGINEER UPON COMPLETION TO ALLOW FOR THE DEVELOPMENT OF AS-BUILT DRAWINGS. GPS SHALL BE DONE IN NYS PLANE/GRID NORTH, WITH VERTICAL CONTROL IN NAVD 88. ACCURACY OF GPS UNIT SHALL NOT BE GREATER THAN 3 INCHES HORIZONTAL AND 1 INCH VERTICAL.**

DRAWING INDEX

LANC & TULLY

ENGINEERING AND SURVEYING, P.C.



LOCATION PLAN

SCALE: 1"=500'

DUTCHESS COUNTY STANDARD NOTES:

1. THE DESIGN, CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THIS PLAN AND GENERALLY ACCEPTED STANDARDS IN EFFECT AT THE TIME OF CONSTRUCTION WHICH INCLUDE:

   "NEW YORK STATE DESIGN STANDARDS FOR INTERMEDIATE SIZED WASTEWATER TREATMENT SYSTEMS", NYSDEC
   "RECOMMENDED STANDARDS FOR SEWAGE TREATMENT WORKS, (TEN STATES)."
   "RECOMMENDED STANDARDS FOR WATER WORKS, (TEN STATES)."
   "NEW YORK STATE DEPARTMENT OF HEALTH AND DUTCHESS COUNTY ENVIRONMENTAL HEALTH SERVICES DIVISION POLICIES, PROCEDURES AND STANDARDS."
   "DUTCHESS COUNTY AND NEW YORK STATE SANITARY CODES."
   "DUTCHESS COUNTY ENVIRONMENTAL HEALTH SERVICES DIVISION CERTIFICATE OF APPROVAL LETTER."
2. THIS PLAN IS APPROVED AS MEETING THE APPROPRIATE AND APPLIED TECHNICAL STANDARDS, GUIDELINES, POLICIES AND PROCEDURES FOR ARRANGEMENT OF SEWAGE DISPOSAL AND WATER SUPPLY FACILITIES.
3. UPON COMPLETION OF THE FACILITIES, THE FINISHED WORKS SHALL BE INSPECTED, TESTED, AND CERTIFIED COMPLETE TO THE DC EHSD BY THE NEW YORK STATE REGISTERED DESIGN PROFESSIONAL SUPERVISING CONSTRUCTION. NO PART OF THE FACILITIES SHALL BE PLACED INTO SERVICE UNTIL ACCEPTED BY THE DC EHSD. NEWLY INSTALLED WATER MAINS SHALL BE TESTED IN ACCORDANCE WITH NYSDOH AND TEN STATES STANDARDS AS FOUND IN SECTION 02675 (DISINFECTION OF WATER DISTRIBUTION SYSTEMS) AND SECTION 02709 (TESTING AND INSPECTING WATER LINES) OF THE TECHNICAL SPECIFICATIONS FOR THIS PROJECT.
4. APPROVAL OF ANY PLAN(S) OR AMENDMENT THERETO SHALL BE VALID FOR A PERIOD OF FIVE (5) YEARS FROM THE DATE OF APPROVAL. FOLLOWING THE EXPIRATION OF SAID APPROVAL, THE PLAN(S) SHALL BE RE-SUBMITTED TO THE COMMISSIONER OF HEALTH FOR CONSIDERATION FOR RE-APPROVAL. RE-SUBMISSION OR REVISED SUBMISSION OF PLANS AND/OR ASSOCIATED DOCUMENTS SHALL BE SUBJECT TO COMPLIANCE WITH THE TECHNICAL STANDARDS, GUIDELINES, POLICIES AND PROCEDURES IN EFFECT AT THE TIME OF THE RE-SUBMISSION.
5. NO CELLAR, FOOTING, FLOOR, GARAGE, COOLER OR ROOF DRAINS SHALL BE DISCHARGED INTO THE SEWAGE COLLECTION SYSTEM.
6. ALL BUILDINGS SHALL BE CONSTRUCTED AT AN ELEVATION HIGH ENOUGH TO ENSURE GRAVITY FLOW TO THE SEWAGE COLLECTION SYSTEM.
7. ALL SERVICE LINES ON THIS PLAN ARE ACCESSIBLE FOR INSTALLATION AND REPLACEMENT.
8. ALL SERVICE LINES ARE THE RESPONSIBILITY OF THE OWNER UP TO THE PROPERTY LINE. THE WATER COMPANY SHALL BE RESPONSIBLE FOR ALL VALVES AND PIPES WHICH ARE NOT ON THE OWNER'S PROPERTY.
9. ALL REQUIRED EROSION & SEDIMENT CONTROL AND STORMWATER POLLUTION PREVENTION WATER QUALITY & QUANTITY CONTROL STRUCTURES, PERMANENT AND TEMPORARY, ARE SHOWN ON THE PLANS.
10. THE DC EHSD SHALL BE NOTIFIED SIXTY DAYS PRIOR TO ANY CHANGE IN USE; USE CHANGES MAY REQUIRE REAPPROVAL BY THE DC EHSD.
11. NO BUILDINGS ARE TO BE OCCUPIED AND THE NEW WASTEWATER COLLECTION SYSTEM SHALL NOT BE PLACED INTO SERVICE UNTIL A "CERTIFICATE OF CONSTRUCTION COMPLIANCE" IS ISSUED UNDER SECTION 19.7 OF ARTICLE 19 OF THE DUTCHESS COUNTY SANITARY CODE.
12. NO BUILDINGS ARE TO BE OCCUPIED AND THE NEW WATER SYSTEM SHALL NOT BE PLACED INTO SERVICE, UNTIL A "COMPLETED WORKS APPROVAL" IS ISSUED UNDER SECTION 5-1.22(d) OF PART 5 OF THE NEW YORK STATE SANITARY CODE (10NYCRRS).

   4-21-2025
   AUTHORIZED REPRESENTATIVE OF THE CITY OF BEACON
13. DC DBCH MUST RECEIVE A SIGNED AND SEALED ENGINEER'S CERTIFICATION PRIOR TO THE NEW WATER MAINS BEING PLACED INTO SERVICE.

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5. **ALL WATER AND SEWER MAINS NOT BEING REMOVED SHALL BE ABANDONED IN PLACE AND FILLED WITH LOW DENSITY CELLULAR CONCRETE (LDCC).**

MAGNETIC

SEWER MANHOLE RIM=165.18' A) 8" CLAY IN=155.98' B) 8" CLAY IN=160.28' C) 8" CLAY OUT=155.98'

SEWER MANHOLE RIM=168.87' A) 8" CLAY OUT=162.27'

CONC. WALK

DALLIS PLACE

APPROXIMATE LOCATION OF WATER CONNECTION TO CURB STOP

8" SEWER MAIN

6" SEWER MAIN

GUY ANCHOR

EXISTING CURB STOPS

SIGN (TYP.)

TELEPHONE MANHOLE RIM=165.40'

APPROXIMATE LOCATION OF WATER CONNECTION TO CURB STOP

8" SEWER MAIN

HYDRANT

10" WATER MAIN

CONC. WALK

AIR RELEASE CHAMBER

16" WATER MAIN

CATCH BASIN GRATE=164.86' 2'X2'BOX CULVERT=159.85'

SEWER MANHOLE RIM=165.60' A) 8" CLAY IN=156.95' B) 8" CLAY OUT= 156.85'

CONC. CURB

CONC. WALK

GUIDE POLE

PAVEMENT EDGE

6" GAS MAIN TRENCH

GUY ANCHOR 2'X2' BOX CULVERT=158.77'

CONC. HEAD WALL

GUIDE POLE

GUY ANCHOR

10" WATER MAIN

SEWER MANHOLE RIM=166.82' A) 8" CLAY IN=158.27' B) 8" CLAY OUT= 158.17'

CURB STOP

SEWER MANHOLE RIM=170.35' A) 8" CLAY IN=160.45' B) 8" CLAY OUT= 160.35'

SEWER LATERAL (APPROXIMATE LOCATION. CONTRACTOR TO VERIFY LOCATION, SIZE, AND DIRECTION)

CONC. WALK

8" SEWER MAIN

FISHKILL AVE.

16" WATER MAIN

GUIDE POLE

GUY ANCHOR

GAS MARKER

PAVEMENT EDGE

PAVED PARKING LOT

GUIDE POLE

GUY ANCHOR

MATCH LINE

1" GAS SERVICE

MATCH LINE

SEWER LATERAL (APPROXIMATE LOCATION CONTRACTOR TO VERIFY LOCATION, SIZE, AND DIRECTION)

CATCH BASIN GRATE=177.62' A)15" CMP IN=173.80' B)15" CMP OUT=173.73' (SLEEVED INTO BOX CULVERT)

1 STORY DWELLING

HYDRANT

CONC. CURBS

CONC. DRIVE

BLOCK WALL

CURB BLOCK STOP WALL

CONC. WALK

CONC. CURB

PAVED DRIVE

SEWER LATERAL (APPROXIMATE LOCATION)

CATCH BASIN GRATE=178.07' A)15" CMP IN=174.10' B)15" CMP OUT=173.98'

1 STORY BUILDING

CURB STOP

CONC. CURB

CONC. CURB PAVEMENT EDGE

10" WATER MAIN

SEWER LATERAL (APPROXIMATE LOCATION)

6" GAS MAIN TRENCH

CATCH BASIN GRATE=177.82' A)15" CMP=174.88' B)10" PVC=174.68'

4" GAS MAIN

CONKLIN STREET

CATCH BASIN GRATE=178.39' A)12" HDPE IN=176.38' B)10" PVC OUT=176.35'

14" WATER MAIN

HYDRANT

TELEPHONE MANHOLE RIM=179.04'

PAVED PARKING LOT

CONC. CURB

PAVEMENT EDGE

8" SEWER MAIN

FISHKILL AVE.

EXISTING 14" D.I.P.

4" GAS MAIN

2" GAS MAINS

EXISTING 18"X16" REDUCER

GAS VALVE

WATER MAIN CURB STOP

1 STORY GARAGE

GUY ANCHOR

CATCH BASIN GRATE=178.03' 10"CMP=176.65'

SEWER MANHOLE RIM=178.44' A)8" CLAY IN=167.60' B)8" CLAY IN=167.46' C)8" CLAY OUT=167.54'

CATCH BASIN GRATE=177.62' A)12" HDPE IN=175.15' B)BOX CULVERT IN=175.11 C)12" HDPE OUT=172.75'

CATCH BASIN GRATE=177.78' A)10" CMP IN=176.05' B)12" HDPE OUT=176.05'

SEWER LATERAL (APPROXIMATE LOCATION)

CURB STOP

SEWER MANHOLE RIM=180.83' A)8" CLAY IN=169.23' B)8" CLAY OUT=169.23'

PAVED PARKING LOT

EXISTING WATER SERVICE LINE

CONC. WALK

CONC. CURB

PAVEMENT EDGE

CONC. CURB

CATCH BASIN GRATE=179.39' A)12"HDPE IN=17 B)12"HDPE OUT=1

CURB STOP

EXISTING WATER SERVICE LINE

CONC. CURB

MATCH LINE

1/2" GAS SERVICE

MATCH LINE

18" WATER MAIN

PAVED PARKING LOT

BOLLARD

BOLLARD

HYDRANT

SEWER LATERAL (APPROXIMATE LOCATION)

SEWER LATERAL (APPROXIMATE LOCATION)

1 STORY BUILDING

ROOF OVERHANG

EXISTING GAS SERVICE TO GAS MEETER (APPROX. LOCATION)

EXITING WATER SERVICE VALVE (APPROX. LOCATION)

1 STORY BUILDING

MATCH LINE

MATCH LINE

DRAINAGE MANHOLE RIM=178.50' A)30" CMP IN=173.76' B)12" CMP IN=173.32' C)10" CMP IN= 173.46' D)12" CMP IN=174.48' E)36" CMP OUT=173.53'

CATCH BASIN GRATE=178.06' A)36" CMP IN=173.11' B)36" CMP OUT=171.58'

SEWER LATERAL (APPROXIMATE LOCATION)

CATCH BASIN GRATE=178.46' A)12" HDPE IN=175.85' B)12" HDPE OUT=175.53'

PAVED PARKING LOT

UNKNOWN MANHOLE (PAVED OVER) RIM=178.42'

UNKNOWN MANHOLE (PAVED OVER) RIM=179.20'

UNKNOWN MANHOLE (PAVED OVER) RIM=178.42'

HYDRANT

CONC. CURB

CONC. PADS

PAVED DRIVE

CONC. WALK

PAVEMENT EDGE

CONC. CURB

10" WATER MAIN

FISHKILL AVE.

6" GAS MAIN

CATCH BASIN GRATE=177.83' A)4" PVC IN=176.58' B)6" PVC IN=176.02' C)10" CMP OUT=175.47'

CATCH BASIN GRATE=178.93' A)30" CMP IN=174.60' B)30" CMP OUT=174.29'

6" WATER MAIN

TOWNSEND AVENUE

2" GAS MAINS

CATCH BASIN GRATE=179.38' A)24" CMP IN=175.23' B)30" CMP OUT=175.16'

PAVED PARKING LOT

TELEPHONE MANHOLE RIM=179.99'

SIGNS

CONC. WALK

CONC. CURB

EXISTING LID AS FOUND IN FIELD

CONC. PAD

SIGN POST (TYP.)

PAVED DRIVE

1 STORY BUILDING

CONC. PAD

WOOD GUIDRAIL

WOOD TIE WALL

BLOCK PATIO

PAVED DRIVE

EXISTING WATER SERVICE LINE (APPROXIMATE LOCATION) (CONTRACTOR TO VERIFY)

2 STORY BUILDING

BLOCK PATIO

PAVED DRIVE

2 STORY BUILDING

BRICK WALL

WATER VALVES

CONC. PAD

SEWER MANHOLE RIM=182.97' A)8" CLAY IN=173.55' B)6"CLAY OUT=173.37'

HYDRANT

CATCH BASIN (FLOODED) GRATE=183.78' BOTTOM OF STRUCTURE=180.96'

BOLLARD

WATER VALVE

CONC. CURB

12" WATER MAIN

CONC. WALK

PAVEMENT EDGE

PAVEMENT EDGE

SEWER MANHOLE RIM=181.98' A)9" PVC OUT=174.56' B) INVERT TO TOP OF PIPE ELBOW = 174.66'

GUY ANCHOR

8" SEWER MAIN

EXISTING 18"X10" TEE

BURIED WATER VALVE (APPROXIMATE LOCATION)

EXISTING 18"X16" REDUCER

AIR RELEASE CHAMBER

6" GAS MAIN TRENCH

WATER VALVES

HYDRANT

SIGN (TYP.)

EXISTING 10"X10"X10" WET TAP

PAVED PARKING LOT

BRICK BAY

EXISTING 18" TEE

SEWER MANHOLE RIM=182.29' A)4" PVC IN=178.35' B)4" PVC TO TOP OF ELBOW = 178.54'

EXISTING 18" WATER MAIN

CATCH BASIN GRATE=181.01' A)8" HDPE IN=180.07'

EXISTING 10" WATER MAIN

CONC. WALK

CONC. CURB

9" GAS MAIN TRENCH

STONE MASONRY WALL

STONE MASONRY WALL

STONE MASONRY WALL

WOOD TIE WALL

SIGN POST (TYP.)

EXISTING WATER SERVICE LINE (APPROXIMATE LOCATION) (CONTRACTOR TO VERIFY)

CONC. WALK

PAVED PARKING LOT

BLOCK PATIO

1 STORY BUILDING

GUY ANCHOR

CATCH BASIN GRATE=178.18' 10" CMP=175.16'

EXISTING WATER SERVICE LINE

DRAINAGE MANHOLE RIM=178.51' A)36" CMP IN=172.16' B)36" CMP OUT=172.11'

CATCH BASIN GRATE=178.18' A)10" CMP IN=174.81' B)36" CMP IN=172.50' C)INV OUT N/A

SEWER MANHOLE RIM=179.33' A)8" CLAY IN=171.92' B)8" CLAY IN=171.92' C)8" CLAY OUT=171.90'

SEWER MANHOLE RIM=179.35' A)8" CLAY IN=172.10' B)8" CLAY IN=172.22' C)8" CLAY OUT=172.03'

PAVED PARKING LOT

1 STORY BUILDING

MATCH LINE

1 STORY BUILDING

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

UDIG • NY SAFE DIGGING STARTS HERE

LANC & TULLY Engineering and Surveying, P.C.
P.O. Box 687, Rt. 207
Goshen, N.Y. 10924
(845) 294-3700

EXISTING CONDITIONS PLAN PREPARED FOR

FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

STATE OF NEW YORK — PATRICK A. PELLEGRINO — 080009 — LICENSED PROFESSIONAL ENGINEER

Date:	FEBRUARY 18, 2025
Revisions:	
CAD File:	26642-EX. CONDITINON
Layout:	EX. CONDITIONS
Sheet No.:	2 OF 9
Drawing No.:	C3D A- 23 - 6642 - 01
Drawn By:	PDLS
Checked By:	
Scale:	1" = 20'
Tax Map No.:	N/A

LEGEND:

- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- DRAINAGE
- EXISTING DOUBLE YELLOW/WHITE LINES
- UTILITY LINES
- EXISTING GAS
- EXISTING GAS TRENCH
- EXISTING CONCRETE WALKS/DRIVEWAYS
- OUTER SAWCUT LIMITS

MAGNETIC

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MATCH LINE

MATCH LINE

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UDIG • NY
SAFE DIGGING STARTS HERE

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20 0 10 20 40 80
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DEMOLITION PLAN
PREPARED FOR

FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

STATE OF NEW YORK — MATTHEW J. LANC — 090009 — LICENSED PROFESSIONAL ENGINEER

Date: FEBRUARY 18, 2025
Revisions: APRIL 17, 2025
CAD File: 236642-DEMO PLAN
Layout: DEMOLITION PLAN
Sheet No.: 3 OF 9
Drawing No.: C.3.0
Drawn By: PDLS | Checked By: | Scale: 1" = 20' | Tax Map No.: N/A
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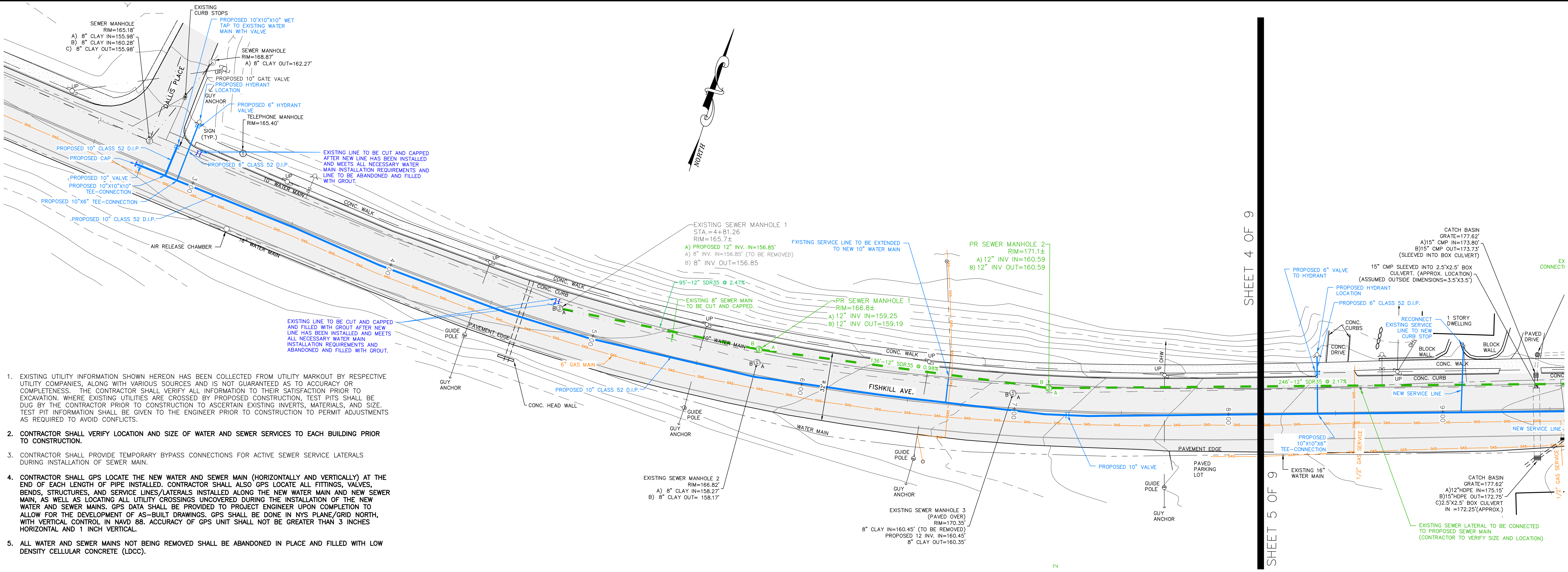

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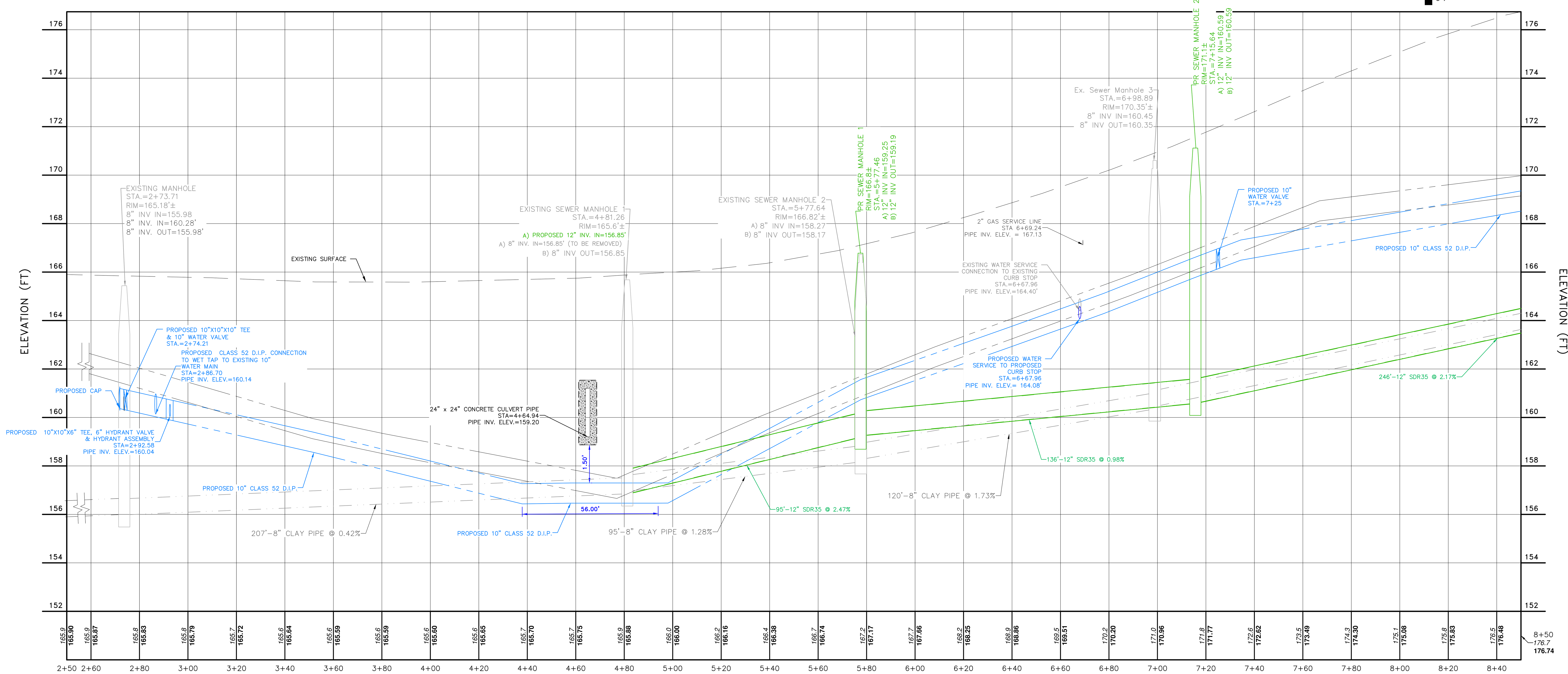

LEGEND:

- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- DRAINAGE
- EXISTING DOUBLE YELLOW/WHITE LINES
- UTILITY LINES
- EXISTING GAS
- EXISTING CONCRETE WALKS/DRIVEWAYS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED SANITARY SEWER
- PROPOSED WATER MAIN

PROPOSED WATER AND SEWER REPLACEMENT
ST 2+50 THRU ST 8+50
SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=2'

GRAPHIC SCALE
(IN FEET)
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SEWER AND WATER REPLACEMENT PLAN
PREPARED FOR

FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

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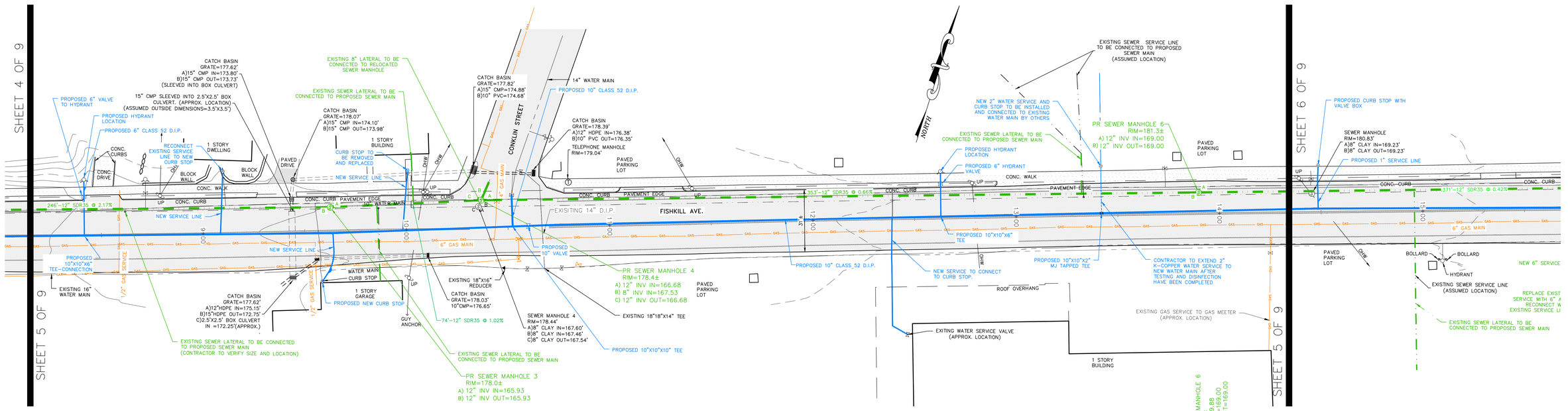
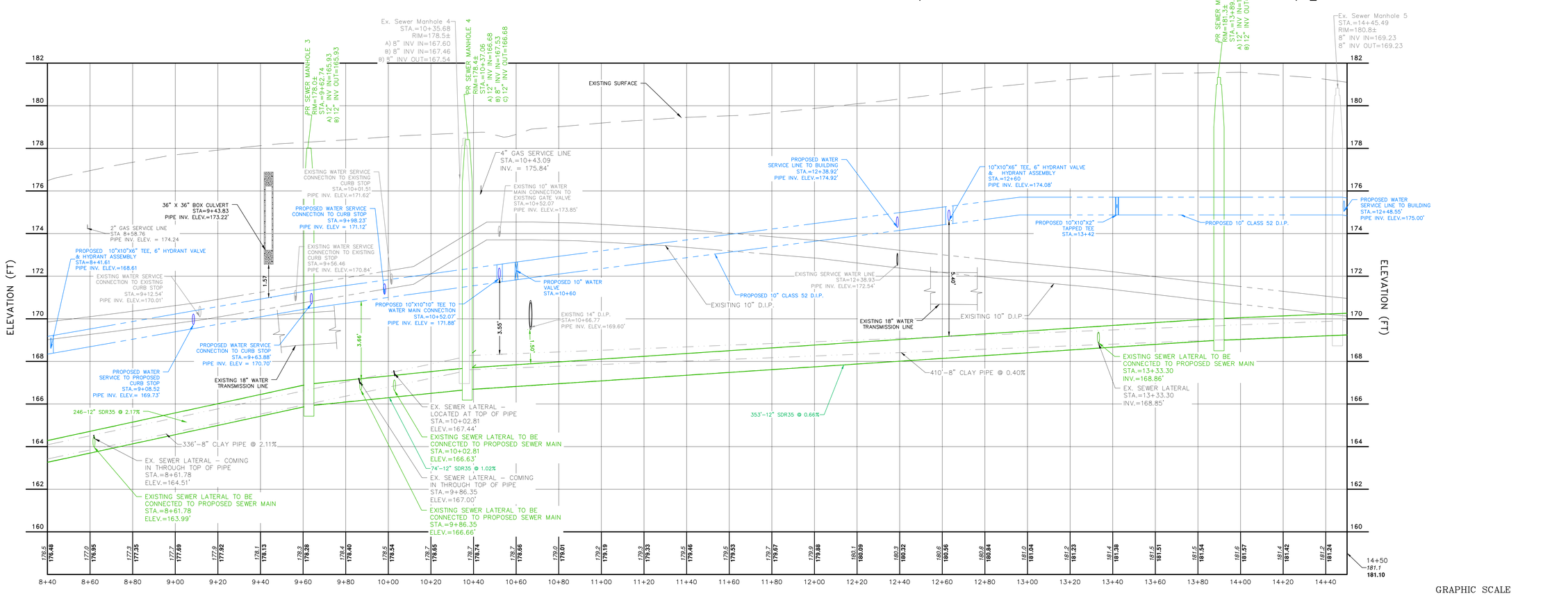
FEBRUARY 18, 2025	APRIL 17, 2025	236642-LAYOUT BASE	PLAN-PROFILE-1	4 OF 9

Drawn By:	Checked By:	Scale:	Tax Map No.:	Drawing No.:
PDLS		1" = 20'	N/A	C30 A- 23 - 6642 - 01





PROPOSED WATER AND SEWER REPLACEMENT (1)
ST 8+40 THRU ST 14+50
SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=2'

LEGEND:

- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- DRAINAGE
- EXISTING DOUBLE YELLOW/WHITE LINES
- UTILITY LINES
- EXISTING GAS (GAS)
- EXISTING CONCRETE WALKS/DRIVEWAYS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED SANITARY SEWER
- PROPOSED WATER MAIN

1. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM UTILITY MARKOUT BY RESPECTIVE UTILITY COMPANIES, ALONG WITH VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO THEIR SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZE. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS.
2. **CONTRACTOR SHALL VERIFY LOCATION AND SIZE OF WATER AND SEWER SERVICES TO EACH BUILDING PRIOR TO CONSTRUCTION.**
3. CONTRACTOR SHALL PROVIDE TEMPORARY BYPASS CONNECTIONS FOR ACTIVE SEWER SERVICE LATERALS DURING INSTALLATION OF SEWER MAIN.
4. **CONTRACTOR SHALL GPS LOCATE THE NEW WATER AND SEWER MAIN (HORIZONTALLY AND VERTICALLY) AT THE END OF EACH LENGTH OF PIPE INSTALLED. CONTRACTOR SHALL ALSO GPS LOCATE ALL FITTINGS, VALVES, BENDS, STRUCTURES, AND SERVICE LINES/LATERALS INSTALLED ALONG THE NEW WATER MAIN AND NEW SEWER MAIN, AS WELL AS LOCATING ALL UTILITY CROSSINGS UNCOVERED DURING THE INSTALLATION OF THE NEW WATER AND SEWER MAINS. GPS DATA SHALL BE PROVIDED TO PROJECT ENGINEER UPON COMPLETION TO ALLOW FOR THE DEVELOPMENT OF AS-BUILT DRAWINGS. GPS SHALL BE DONE IN NYS PLANE/GRID NORTH, WITH VERTICAL CONTROL IN NAVD 88. ACCURACY OF GPS UNIT SHALL NOT BE GREATER THAN 3 INCHES HORIZONTAL AND 1 INCH VERTICAL.**
5. **ALL WATER AND SEWER MAINS NOT BEING REMOVED SHALL BE ABANDONED IN PLACE AND FILLED WITH LOW DENSITY CELLULAR CONCRETE (LDCC).**

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

LANC & TULLY
Engineering and Surveying, P.C.
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Goshen, N.Y. 10924
(845) 294-3700

SEWER AND WATER REPLACEMENT PLAN PREPARED FOR

FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

STATE OF NEW YORK — ANTHONY J. TULLY — 080009 — LICENSED PROFESSIONAL ENGINEER

Date:	FEBRUARY 18, 2025
Revisions:	APRIL 17, 2025
CAD File:	C:\6642-LAYOUT BASE
Layout:	PLAN-PROFILE-2
Sheet No.:	5 OF 9
Drawn By:	PDLS
Checked By:	
Scale:	1" = 20'
Tax Map No.:	N/A
Drawing No.:	C.3.0 A- 23 - 6642 - 01

SHEET 6 OF 9

SHEET 5 OF 9

NORTH

PROPOSED CURB STOP WITH VALVE BOX

SEWER MANHOLE
RIM=180.83
A)8" CLAY IN=169.23'
B)8" CLAY OUT=169.23'

PROPOSED 1" SERVICE LINE

PROPOSED 10"X10"X4" TEE CONNECTION VALVE

PROPOSED 10" VALVE

EXISTING CURB STOP TO BE REMOVED AND REPLACED

EXISTING SEWER LATERAL TO BE CONNECTED TO PROPOSED SEWER MAIN

CATCH BASIN
GRATE=179.39'
A)12"HDPE IN=176.40'
B)12"HDPE OUT=176.32'

CATCH BASIN
GRATE=178.46'
A)12" HDPE IN=175.85'
B)12" HDPE OUT=175.53'

DRAINAGE MANHOLE
RIM=178.50'
A)30" CMP IN=173.76'
B)12" CMP IN=173.32'
C)10" CMP IN= 173.46'
D)12" CMP IN=174.48'
E)36" CMP OUT=173.53'

CATCH BASIN
GRATE=178.06'
A)36"CMP IN=173.11'
(B)36"CMP OUT=172.83'

PR SEWER MANHOLE 7
RIM=178.4±
A) 12" INV IN=170.64
B) 12" INV OUT=170.54

UNKNOWN MANHOLE
(PAVED OVER)
RIM=178.42'

CATCH BASIN
GRATE=177.83'
A)4" PVC IN=176.58'
B)6" PVC IN=176.02'
C)10" CMP OUT=175.47'

UNKNOWN MANHOLE
(PAVED OVER)
RIM=178.42'

UNKNOWN MANHOLE
(PAVED OVER)
RIM=179.20'

6" WATER MAIN

CATCH BASIN
GRATE=178.93'
A)30" CMP IN=174.60'?
B)30" CMP OUT=174.29'

SEWER MANHOLE 5
(TO BE REMOVED)
STA.=18+52.97
RIM=179.3±
A) 8" INV IN=171.92
B) 8" INV IN=171.92
C) 8" INV OUT=171.90

PROPOSED CAP

CATCH BASIN
GRATE=179.38'
A)24" CMP IN=175.23'
B)30" CMP OUT=175.16'

EXISTING WATER MAIN TO BE ABANDONED AND FILLED WITH GROUT

EXISTING LID AS FOUND IN FIELD

TELEPHONE MANHOLE
RIM=179.99'

SIGNS

SIGN POST (TYP.)

WOOD GUIDRAIL

1 STORY BUILDING

CONC. PAD

PAVED DRIVE

PROPOSED CURB STOP. EXISTING WATER SERVICE TO BE CONNECTED.

WOOD TIE WALL

BLOCK PATIO

2 STORY BUILDING

BRICK WALL

WATER VALVES

EXISTING SEWER MANHOLE 7
STA.=22+04.59
RIM=182.9±
8" INV IN=173.55
8" INV OUT=173.37

HYDRANT

12" WATER MAIN

PROPOSED 10"X10"X10" WET TAP CONNECTION WITH 10" VALVE

BURIED WATER VALVE (APPROXIMATE LOCATION)

EXISTING 18"X16" REDUCER

EXISTING 18" TEE

BRICK BAY

EXISTING 18" MAIN

EXISTING 10" MAIN

EXISTING 10"X10"X10" WET TAP

EXISTING 10" PIPE

CATCH BASIN
GRATE=181.01'
A)8" HDPE IN=180.07'

EXISTING LINE TO BE CUT AND CAPPED AFTER NEW LINE HAS BEEN INSTALLED AND MEETS ALL NECESSARY WATER MAIN REQUIREMENTS AND LINE TO BE ABANDONED AND FILLED WITH GROUT

PROPOSED 10" CLASS 52 D.I.P.

NEW WATER SERVICE TO CURB STOP

PROPOSED CURB STOP. EXISTING WATER SERVICE TO BE CONNECTED.

PROPOSED 8"X8"X6" TEE

PROPOSED 6"X6"X6" WET TAP

PROPOSED 6" VALVE

PROPOSED 8" VALVE

PROPOSED 10"X10"X8" TEE

PROPOSED 8" CLASS 52 D.I.P.

PR EX. SEWER MANHOLE 6
RIM=179.4±
8" INV IN=172.22
8" INV IN=172.10
c) PROPOSED 12" INV. OUT=172.03'
c) 8" INV. OUT=172.03' (TO BE REMOVED AND AND REPLACED BY 12 PIPE)

EXISTING LINE TO BE CUT AND CAPPED AFTER NEW LINE HAS BEEN INSTALLED AND MEETS ALL NECESSARY WATER MAIN INSTALLATION REQUIREMENTS AND LINE TO BE ABANDONED AND FILLED WITH GROUT.

PROPOSED 10" CLASS 52 D.I.P.

PROPOSED 4" WATER SERVICE LINE TO PROPOSED CAP

PROPOSED 4" VALVE

4" WATER SERVICE CAP

NEW 6" SERVICE LINE

REPLACE EXISTING SERVICE WITH 6" AND RECONNECT WITH EXISTING SERVICE LINE.

EXISTING SEWER SERVICE LINE (ASSUMED LOCATION)

EXISTING SEWER LATERAL TO BE CONNECTED TO PROPOSED SEWER MAIN

EXISTING CLEANOUT (APPROXIMATE LOCATION)

FISHKILL AVE.

TOWNSEND AVENUE

PAVEMENT EDGE

CONC. CURB

CONC. WALK

10" WATER MAIN

18" WATER MAIN

2" GAS MAIN

6" GAS MAIN

371'-12" SDR35 @ 0.42%

107'-12" SDR35 @ 1.29%

1 STORY BUILDING

PAVED PARKING LOT

BOLLARD

HYDRANT

GUY ANCHOR

STONE MASONRY WALL

CONC. PADS

DRAINAGE MANHOLE
RIM=178.51'
A)36" CMP IN=172.16'
B)36" CMP OUT=172.11'

CATCH BASIN
GRATE=178.18'
10" CMP=175.16'

CATCH BASIN
GRATE=178.18'
A)10"CMP IN=174.81'
B)36"CMP IN=172.50'
C)36"CMP OUT=172.40'

SEWER MANHOLE 5
STA.=18+52.97
RIM=179.3±
A) 8" INV IN=171.92
B) 8" INV IN=171.92
C) PROPOSED 12" INV. OUT=171.90'
C) 8" INV. OUT=171.90' (TO BE REMOVED AND COVERED)

EX. SEWER MANHOLE 6
STA.=18+68.08
RIM=179.4±
8" INV IN=172.22
8" INV IN=172.10
12" INV OUT=172.03
8" INV OUT=172.03

EXISTING SEWER MANHOLE 7
STA.=22+04.59
RIM=182.9±
8" INV IN=173.55
8" INV OUT=173.37

EXISTING SURFACE

PROPOSED WATER SERVICE TO EXISTING CURB STOP
STA.=16+23.00
PIPE INVERT ELEV.=172.28'

PROPOSED 10"X10"X4" TEE TO PROPOSED CAP
STA.=16+25.06
PIPE INVERT ELEV.=172.25'

PROPOSED 10" WATER VALVE
STA.=16+00

PROPOSED 10" CLASS 52 D.I.P.

EX. SEWER LATERAL
STA.=15+88.45
INV.=170.84'

EXISTING SEWER LATERAL TO BE CONNECTED TO PROPOSED SEWER MAIN
STA.=15+88.45
INV.=170.72'

EX. SEWER LATERAL (ASSUMED LOCATION)
STA.=14+85.88
INV.=170.31'

EXISTING SEWER LATERAL TO BE CONNECTED TO PROPOSED SEWER MAIN (ASSUMED LOCATION)
STA.=16+34.54
INV.=170.23'

EXISTING WATER SERVICE CONNECTION TO EXISTING CURB STOP
STA.=16+20.10
INV.=168.80'

EXISITING 10" D.I.P.

EXISTING 18" WATER TRANSMISSION LINE

36" CORRUGATED METAL PIPE
STA=17+46.51
PIPE INV. ELEV.=172.64

EX. SEWER LATERAL
STA.=16+34.54
INV.=171.12'

EXISTING SEWER LATERAL TO BE CONNECTED TO PROPOSED SEWER MAIN
STA.=16+34.54
INV.=170.92'

408'-8" CLAY PIPE @ 0.66%

107'-12" SDR35 @ 1.29%

EXISTING WATER VALVE

PROPOSED 10"X10"X8" TEE, & 8" VALVE TO CONNECT TO 6" WATER MAIN VIA WET TAP CONNECTION
STA.=18+52.83
PIPE INV. ELEV.=174.35'

EXISTING WATER SERVICE CONNECTION TO EXISTING WATER VALVE
STA.=18+50.22
PIPE INV. ELEV.=173.63'

2" GAS SERVICE LINE
STA 18+70.98
PIPE INV. ELEV. = 176.96

PROPOSED WATER SERVICE TO PROPOSED CURB STOP
STA.=20+82.69
PIPE INVERT ELEV.=176.18'

PROPOSED WATER SERVICE TO PROPOSED CURB STOP
STA.=20+33.86
PIPE INVERT ELEV.=175.79'

PROPOSED 10" WATER VALVE
STA.=21+57.34

10" DUCTILE IRON PIPE
STA=21+58.08
PIPE INV. ELEV.=176.61'

EXISTING CAP ON 12" WATER MAIN

PROPOSED 10"X10"X10" WET TAP

PROPOSED 10" CLASS 52 D.I.P.

EXISIITING 10" D.I.P.

EXISITING 12" D.I.P.

338'-8" CLAY PIPE @ 0.38%

EXISTING 18" WATER TRANSMISSION LINE

ELEVATION (FT)

182 180 178 176 174 172 170 168 166

14+50 181.1 181.10
14+60 180.97 180.69 180.40 180.13 179.89 179.66 179.45 179.24 179.06 178.90 178.79 178.70 178.65 178.64 178.67 178.74 178.86 178.99 179.13 179.31 179.52 179.51 179.87 180.21 180.40 180.57 180.78 180.98 181.16 181.35 181.55 181.79 181.97 182.14 182.20 182.28 182.42 182.54
14+80 15+00 15+20 15+40 15+60 15+80 16+00 16+20 16+40 16+60 16+80 17+00 17+20 17+40 17+60 17+80 18+00 18+20 18+40 18+60 18+80 19+00 19+20 19+40 19+60 19+80 20+00 20+20 20+40 20+60 20+80 21+00 21+20 21+40 21+60 21+80 22+00
22+10 182.6 182.58

LEGEND:

- EXISTING WATER MAIN
- EXISTING SANITARY SEWER
- DRAINAGE
- EXISTING DOUBLE YELLOW/WHITE LINES
- UTILITY LINES
- EXISTING GAS
- EXISTING CONCRETE WALKS/DRIVEWAYS
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED SANITARY SEWER
- PROPOSED WATER MAIN

PROPOSED WATER AND SEWER REPLACEMENT (2)
ST 14+50 THRU ST 22+10
SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=2'

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

UDIG • NY
SAFE DIGGING STARTS HERE

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5. **ALL WATER AND SEWER MAINS NOT BEING REMOVED SHALL BE ABANDONED IN PLACE AND FILLED WITH LOW DENSITY CELLULAR CONCRETE (LDCC).**

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SEWER AND WATER REPLACEMENT PLAN
PREPARED FOR

FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

STATE OF NEW YORK · ANDREW J. TULLY · 080009 · LICENSED PROFESSIONAL ENGINEER

Date:	FEBRUARY 18, 2025
Revisions:	APRIL 17, 2025
CAD File:	C30642-LAYOUT BASE
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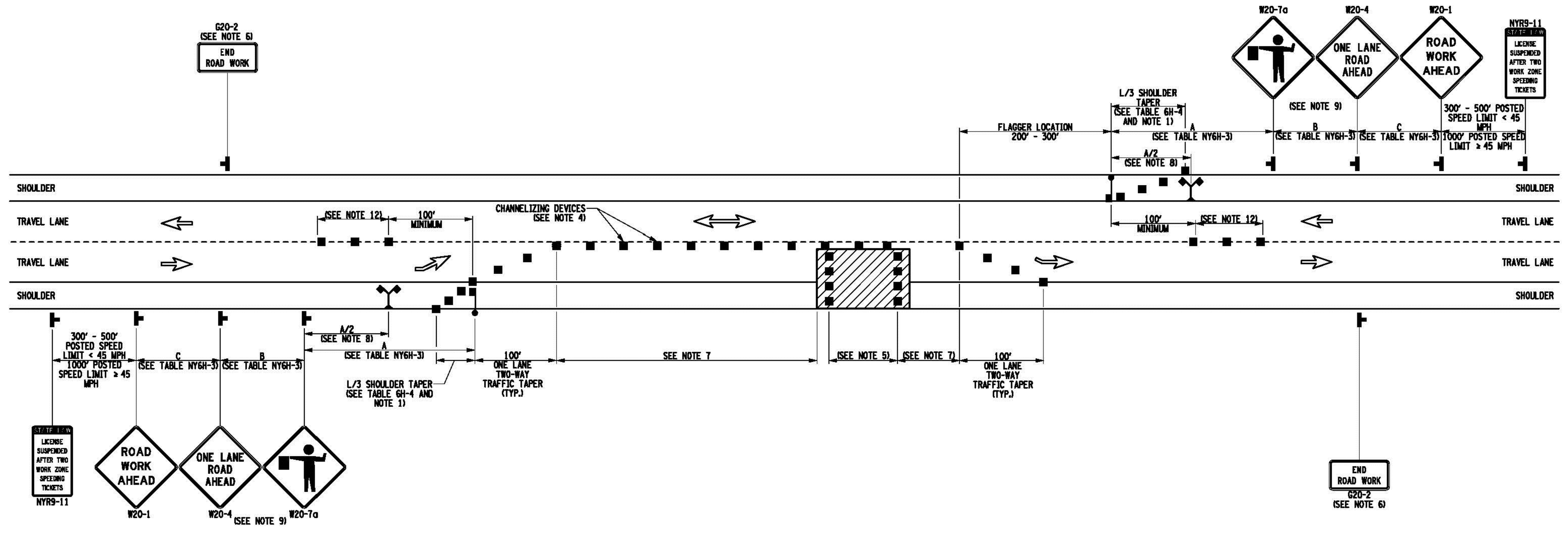


FLAGGING OPERATION
SHORT OR INTERMEDIATE TERM STATIONARY
LANE CLOSURE ON 2-LANE 2-WAY ROADWAY
(NOT TO SCALE)

NOTES:

1. WHEN PAVED SHOULDERS HAVING A WIDTH OF 8' OR MORE ARE CLOSED, CHANNELIZING DEVICES SHALL BE USED TO CLOSE THE SHOULDER IN ADVANCE TO DELINEATE THE BEGINNING OF THE WORK AREA AND DIRECT VEHICULAR TRAFFIC TO REMAIN IN THE TRAVEL WAY.
2. WHEN A SIDE ROAD OR DRIVEWAY INTERSECTS THE ROADWAY WITHIN A WORK ZONE TRAFFIC CONTROL AREA, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES AND/OR FLAGGERS SHALL BE PLACED AS NEEDED. ADDITIONAL FLAGGERS SHALL BE LOCATED AT ALL INTERSECTIONS AND COMMERCIAL DRIVEWAYS LOCATED WITHIN OR NEAR THE ACTIVE WORK SPACE.
3. NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.
4. CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 40' IN THE ACTIVE WORK SPACE.
5. TRANSVERSE DEVICES SHALL BE REQUIRED (AS PER 619 STANDARD SPECIFICATIONS) WHEN A PAVED SHOULDER HAVING A WIDTH OF 8' OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 1500'.
6. THE END ROAD WORK SIGN (G20-2) SHALL BE PLACED A MAXIMUM OF 500' PAST THE END OF THE WORK SPACE.
7. WHERE DIRECTED BY THE ENGINEER, A BUFFER SPACE SHALL BE PROVIDED IN ORDER TO LOCATE THE ONE-LANE, TWO-WAY TRAFFIC TAPER PRIOR TO ANY HORIZONTAL OR VERTICAL CURVE, IN ORDER TO PROVIDE ADEQUATE SIGHT DISTANCE FOR THE FLAGGERS AND/OR A QUEUE OF STOPPED VEHICLES.
8. THE FLAG TREE SHALL BE LOCATED ON THE SHOULDER, AT APPROXIMATELY ½ THE DISTANCE BETWEEN THE FLAGGER SIGN (W20-7a) AND THE FLAGGER.
9. FLAGGER SIGN (W20-7a) AND ONE LANE ROAD AHEAD SIGN (W20-4) SHALL BE REMOVED, COVERED OR TURNED AWAY FROM ROAD USERS WHEN FLAGGING OPERATIONS ARE NOT OCCURRING.
10. FLAGGER AND FLAG TREE SHALL BE ILLUMINATED TO LEVEL II ILLUMINATION DURING NIGHT TIME OPERATIONS.
11. ALL FLAGGERS SHALL USE 24" (MIN.) OCTAGON SHAPED STOP/SLOW PADDLES HAVING 6' STAFF.
12. CENTERLINE CHANNELIZING DEVICES ARE OPTIONAL AND MAY BE ELIMINATED WHERE SPACE CONSTRAINTS EXIST.

NOTE: SEE STANDARD SHEET TITLED "WORK ZONE TRAFFIC CONTROL LEGENDS AND NOTES" FOR LEGEND OF SYMBOLS AND/OR LETTER CODES USED IN THIS DRAWING.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
U.S. CUSTOMARY STANDARD SHEET
FLAGGING OPERATION
2-LANE 2-WAY ROADWAY
APPROVED SEPTEMBER 15, 2009 — ISSUED UNDER EB 09-025
/S/ DAVID J. CLEMENTS, P.E.
DIRECTOR, OFFICE OF TRAFFIC SAFETY AND MOBILITY
619-60
EFFECTIVE DATE: 01/07/10

FILE NAME = 619-60_010710.dgn
DATE/TIME = 09-OCT-2009 10:46
USER = jturley

TABLE 6H-4 FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S) (MPH)	TAPER LENGTH (L) (FT.)
(40 MPH) OR LESS	L = $WS^2/60$
(45 MPH) OR MORE	L = WS

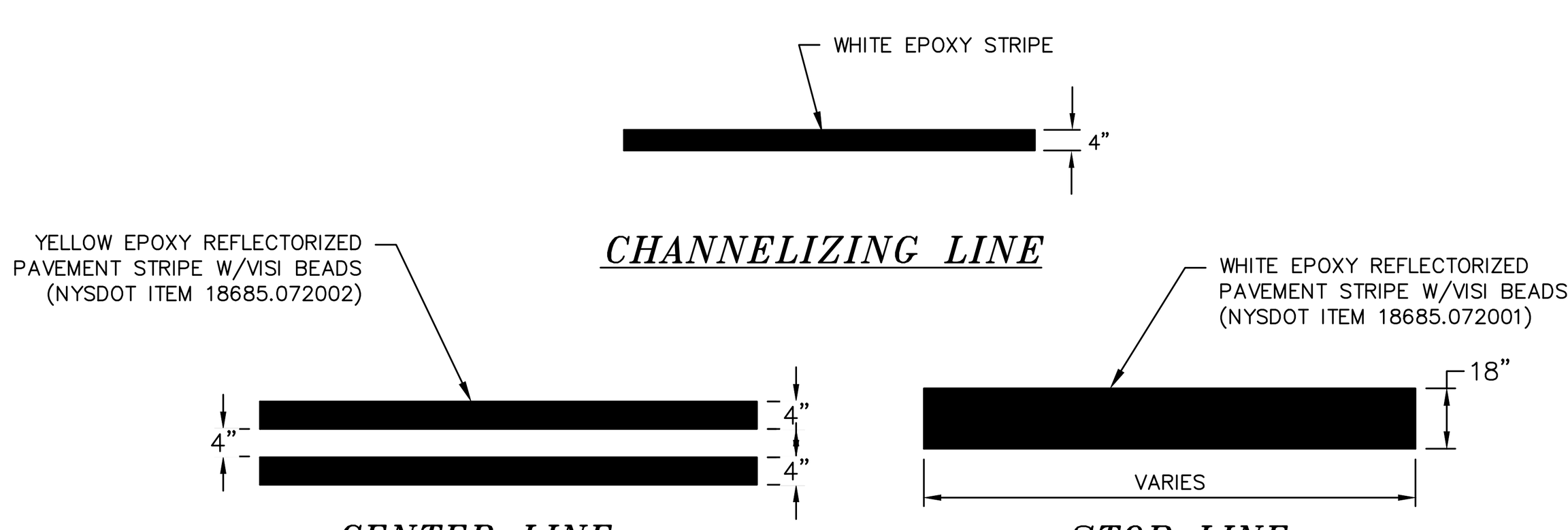
L = TAPER LENGTH
W = WIDTH OF OFFSET (FT.)
S = PRECONSTRUCTION POSTED SPEED LIMIT (MPH)

STANDARD TAPER LENGTHS

LATERAL SHIFT OF TRAFFIC FLOW PATH	TEMPORARY TRAFFIC CONTROL ZONE POSTED SPEED LIMIT (25 MPH)	(30 MPH)	(35 MPH)	(40 MPH)	(45 MPH)	(50 MPH)	(55 MPH)	(60 MPH)	(65 MPH)	(70 MPH)
4	45	60	85	110	180	200	220	240	260	280
5	55	75	105	135	225	250	275	300	325	350
6	65	90	125	160	270	300	330	360	390	420
7	75	105	145	190	315	350	385	420	455	490
8	85	120	165	215	360	400	440	480	520	560
9	95	135	185	240	405	450	495	540	585	630
10	105	150	205	270	450	500	550	600	650	700
11	115	165	225	295	495	550	605	660	715	770
12	125	180	245	320	540	600	660	720	780	840

TABLE NY6H-3 ADVANCE WARNING SIGN SPACING

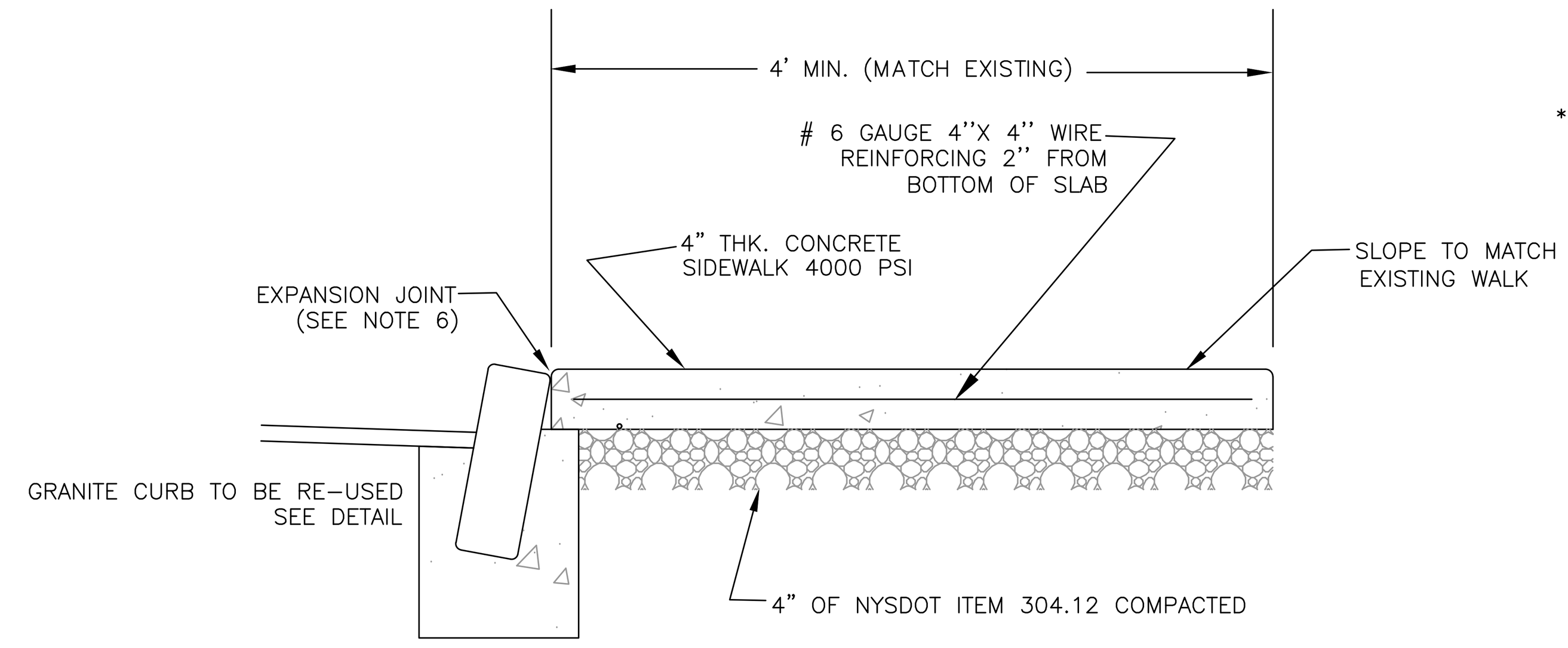
ROAD TYPE	DISTANCE BETWEEN SIGNS A (FT.)	B (FT.)	C (FT.)	SIGN LEGEND XX	YY
URBAN (≤ 30 MPH•)	100	100	100	AHEAD	AHEAD
URBAN (35-40 MPH•)	200	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH•)	350	350	350	1000 FT.	AHEAD
RURAL	500	500	500	1500 FT.	1000 FT.
EXPRESSWAY / FREEWAY	1000	1500	2640	1 MILE	½ MILE



STRIPING DETAILS – FISHKILL AVENUE

NOT TO SCALE

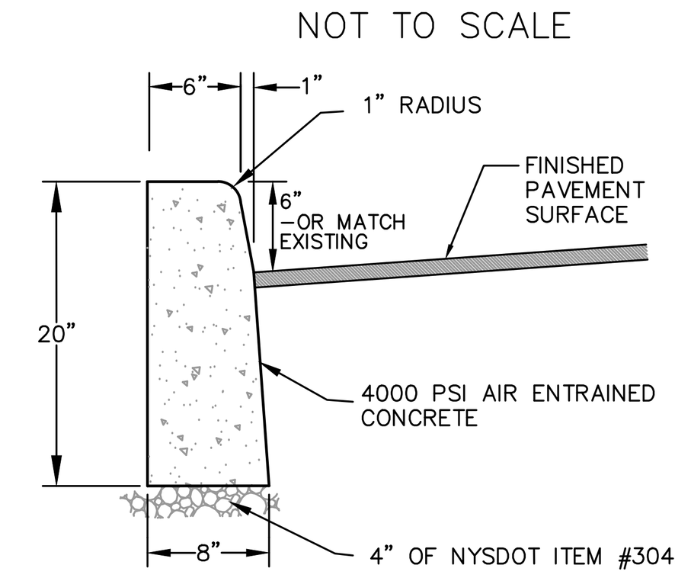
NOTE:
ALL STRIPING AND LETTERING WITHIN NYSDOT ROW TO MEET NYSDOT STANDARDS. REFER TO NYSDOT STANDARD SHEETS M685 FOR SIZING AND LAYOUT



NOTES:
1. EXPANSION JOINTS OF 3/16" CELLULOSE OR SIMILAR APPROVED MATERIAL SHALL BE PLACED AT 15' INTERVALS
2. CONTRACTION JOINTS 1" DEEP HAVING 1/4" RADIUS EDGES SHALL BE PLACED AT 5'-0" INTERVALS IN SIDEWALK.
3. EDGES SHALL HAVE 1/2" RADIUS.
4. USE 4000 PSI CONCRETE.
5. BROOM FINISH TOP SURFACE.
6. EXPANSION JOINT MATERIAL TO BE PLACED BETWEEN EXISTING AND NEW WALK.
7. REBAR TIES TO BE DRIVEN UNDER EXISTING WALK AT LEAST 6", AND CONCRETE FOR NEW WALK TO BE POURED OVER TIES.
8. SURFACE TO BE FLUSH WHERE NEW AND EXISTING SIDEWALKS MEET.

SIDEWALK REPLACEMENT DETAIL

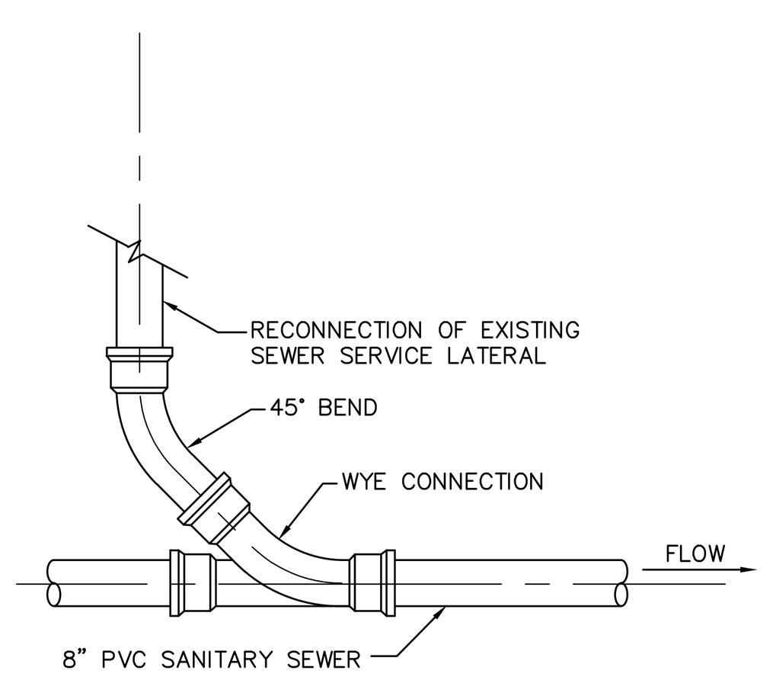
NOT TO SCALE



NOTE: CONTRACTOR TO PROVIDE 1/2" PREFORMED BITUMINOUS – IMPREGNATED FIBER JOINT FILLER EVERY 10'. JOINT FILLER TO COMPLY WITH A.A.S.H.O. SPEC. M-213. FILLER TO BE RECESSED IN FROM FRONT FACE AND TOP OF CURB 1/4".

CONCRETE CURB

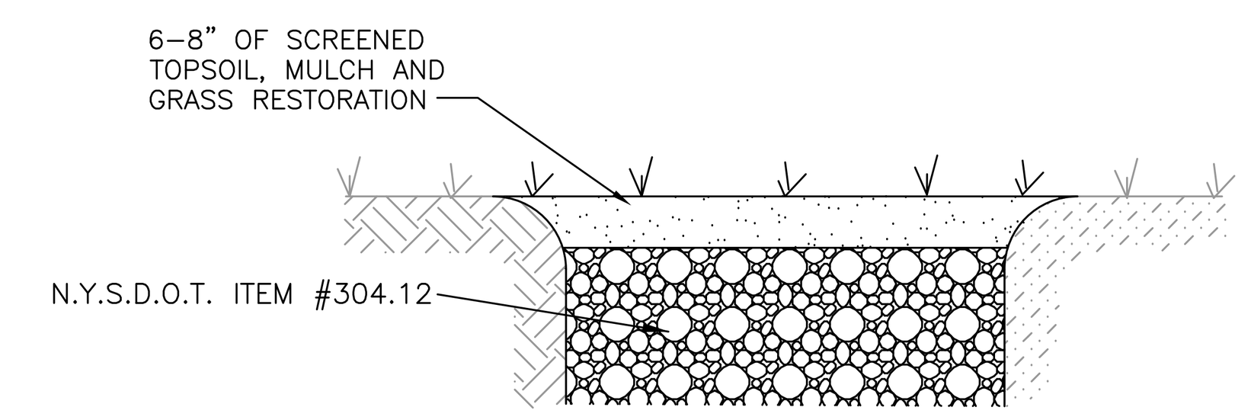
NOT TO SCALE



SEWER LATERAL DETAIL

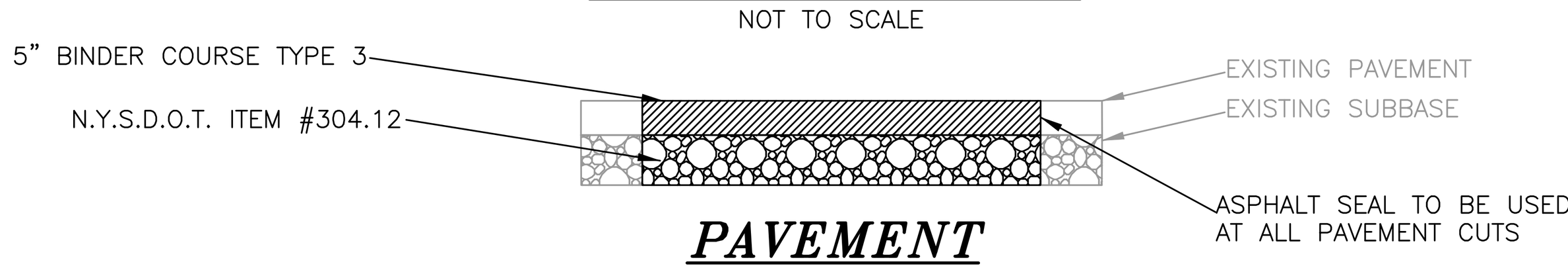
NOT TO SCALE

NOTES:
1. ANY REPAIRS TO THE DAMAGED PIPE SHALL BE BY DRESSER COUPLING.



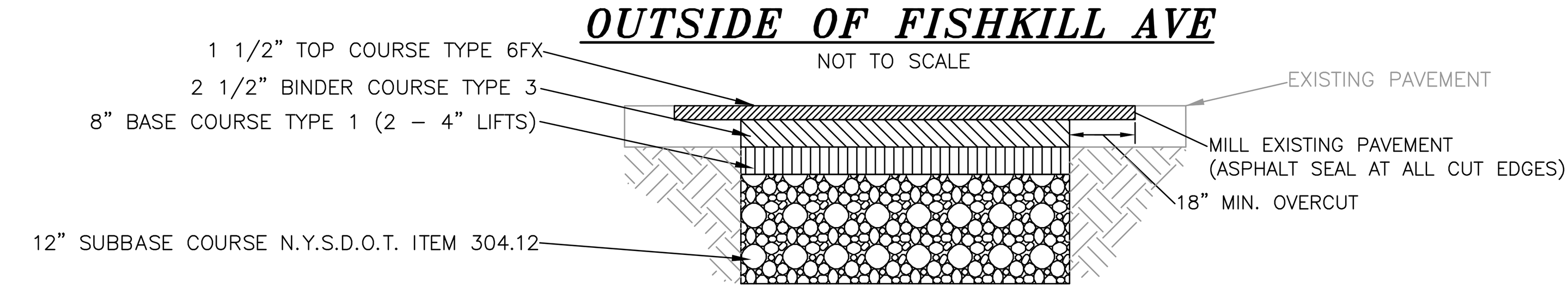
TRENCH SURFACE RESTORATION DETAIL -OFFROAD AREAS

NOT TO SCALE



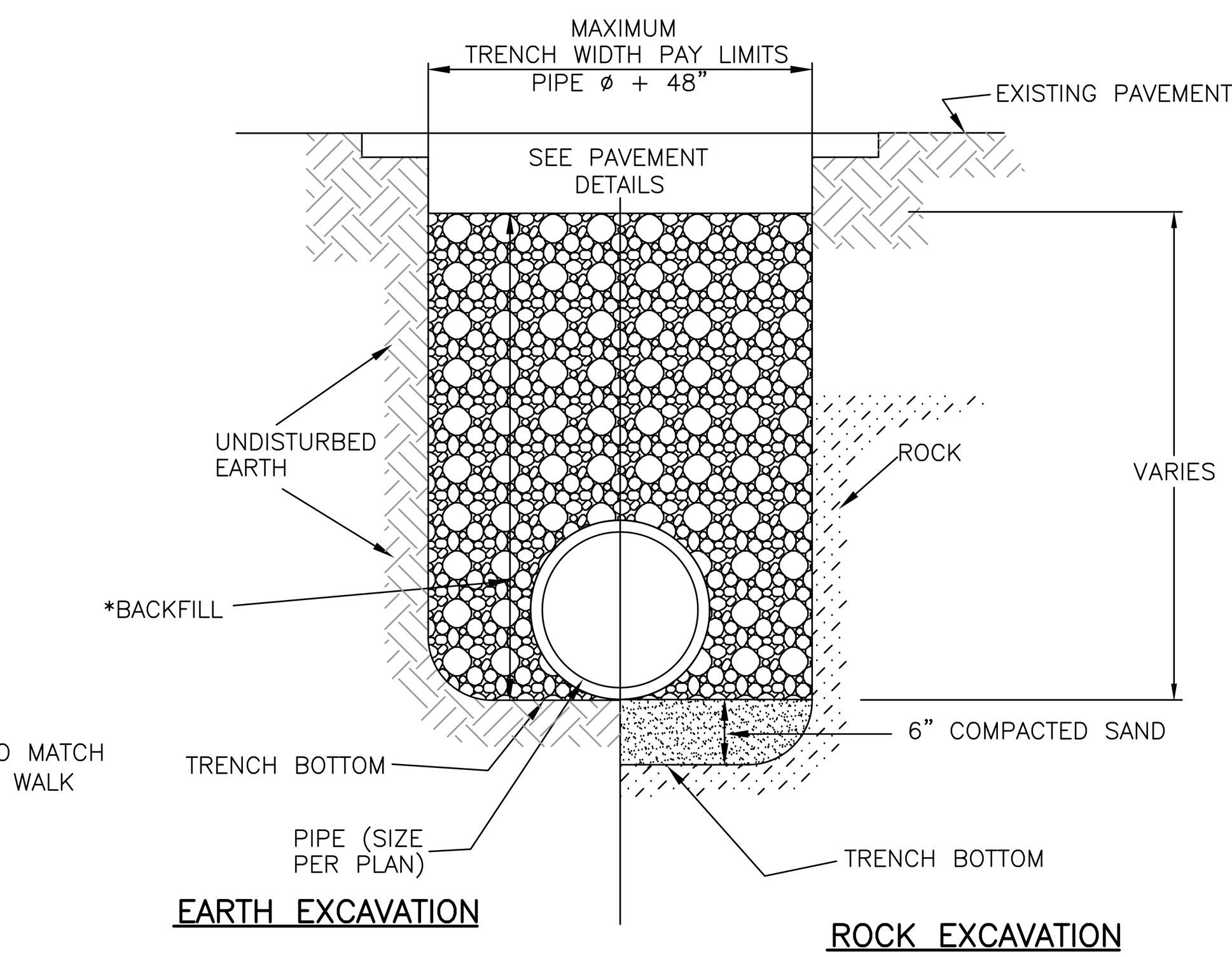
PAVEMENT RESTORATION DETAIL OUTSIDE OF FISHKILL AVE

NOT TO SCALE



PAVEMENT RESTORATION DETAIL FISHKILL AVENUE

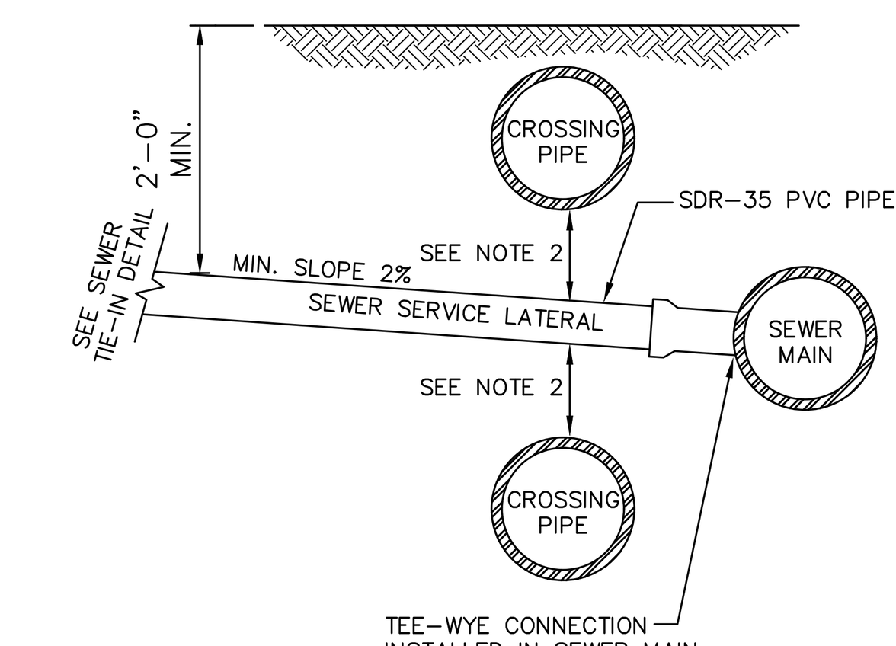
NOT TO SCALE



*BACKFILL–N.Y.S.D.O.T. ITEM# 304.12 COMPACTED IN MAX. 8" LIFTS ACHIEVING 95% COMPACTION.
*WIDTH–FOR DEPTHS 0'-10' USE 5' WIDE TRENCH AND MILL 10' OF PAVEMENT ON CENTER
FOR DEPTHS 10'-15' USE 6' WIDE TRENCH AND MILL 12' OF PAVEMENT ON CENTER

TRENCH CROSS SECTION

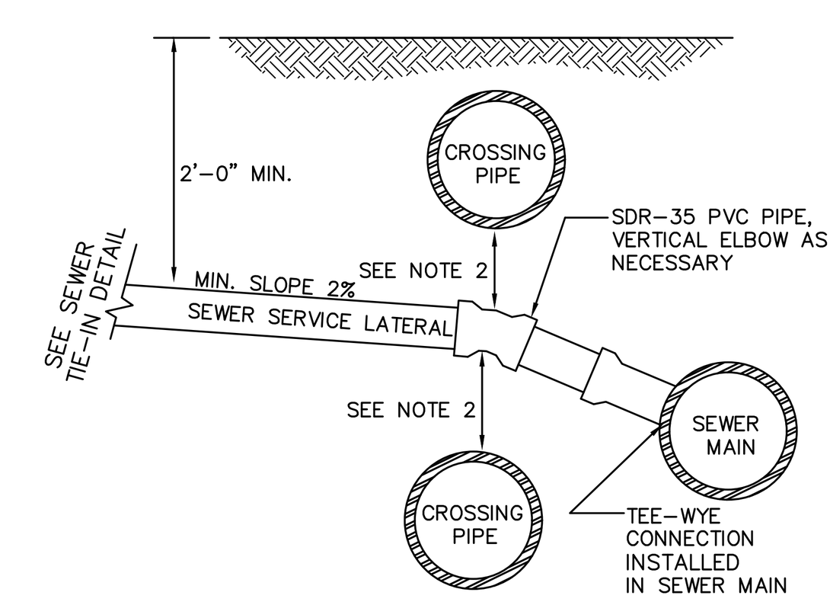
NOT TO SCALE



SEWER SERVICE DETAIL (A)

NOT TO SCALE

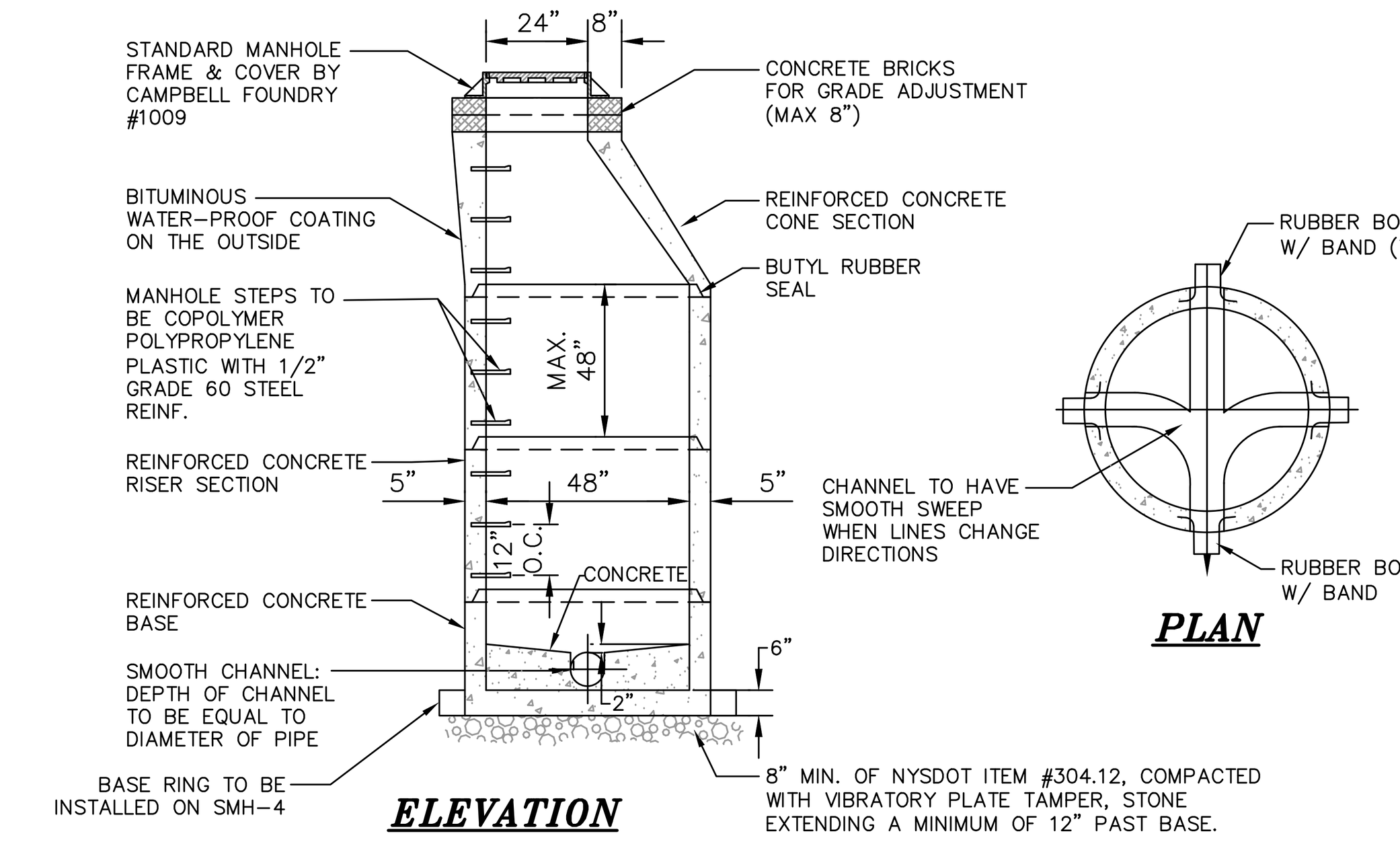
NOTES:
1. THIS DETAIL TO BE USED IF EXISTING SEWER SERVICE IS DAMAGED OR RELOCATED DURING CONSTRUCTION OF NEW SEWER MAIN.
2. SEPARATION TO BE 6" MIN. IF CROSSING PIPE IS DRAINAGE, 18" IF CROSSING PIPE IS WATER.



SEWER SERVICE DETAIL (B)

NOT TO SCALE

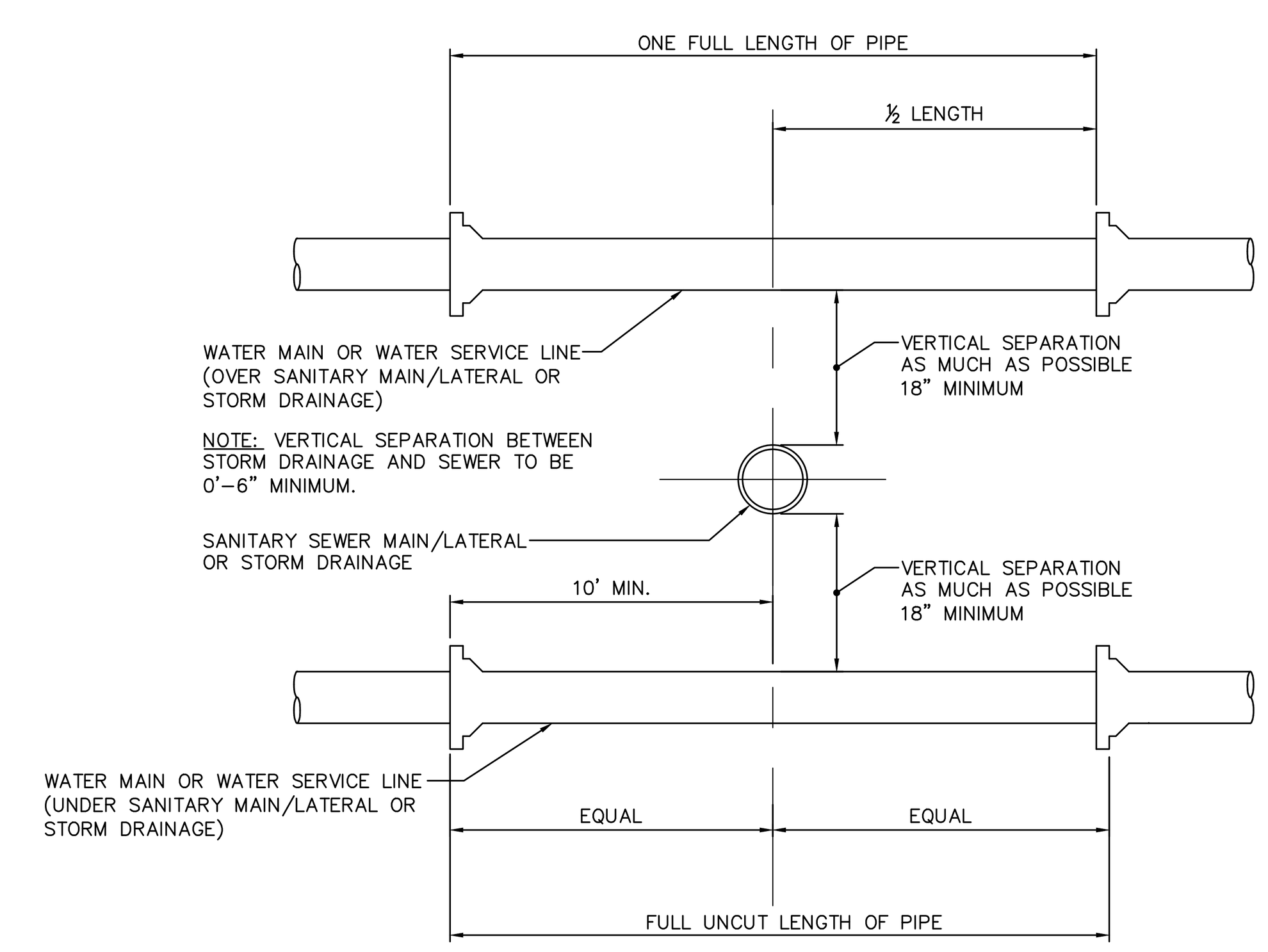
NOTES: 1. THIS DETAIL TO BE USED IF EXISTING SEWER SERVICE IS DAMAGED OR RELOCATED DURING CONSTRUCTION OF NEW SEWER MAIN.
2. SEPARATION TO BE 6" MIN. IF CROSSING PIPE IS DRAINAGE, 18" IF CROSSING PIPE IS WATER.



PRE-CAST SEWER MANHOLE

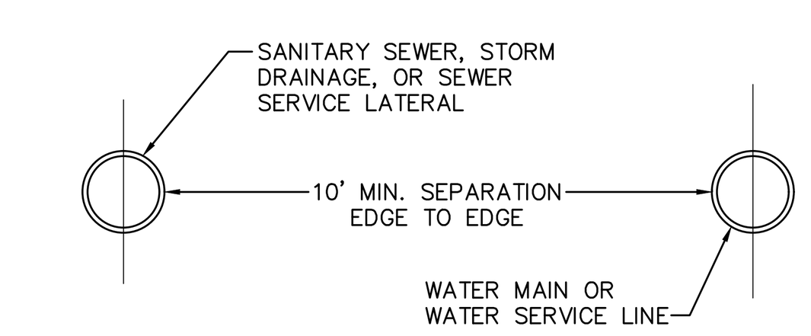
NOT TO SCALE

NOTES:
1. SMOOTH CHANNEL INVERT TO BE PAVED WITH CEMENT MORTAR.
2. PIPE JOINTS SHALL BE A MINIMUM OF 2' FROM OUTSIDE WALL OF MANHOLE.
3. SANITARY SEWER TO EXTEND INTO THE MANHOLE ONLY TO A POINT WHERE OUTSIDE OF SEWER MEETS INSIDE WALL OF MANHOLE.
4. OPENING FOR PIPE SHALL BE PRE-CAST. CONNECTIONS TO EXISTING MANHOLES SHALL BE MACHINE CORED.
5. MANHOLE COVERS TO BE STAMPED "SANITARY".
6. PRECAST REINFORCED CONCRETE MANHOLE SHALL BE DESIGNED FOR H20 LIVE LOAD.
7. OPENING TO BE ORIENTED AS SHOWN IN PLANS, AND IS TO LINE UP WITH STEPS.
8. BACKFILL TO BE NYSDOT ITEM #304.12, COMPACTED IN 6" MAX. LIFTS USING JUMPING JACK STYLE COMPACTOR, ACHIEVING 95% COMPACTION.



WATER & SEWER CROSSING DETAIL

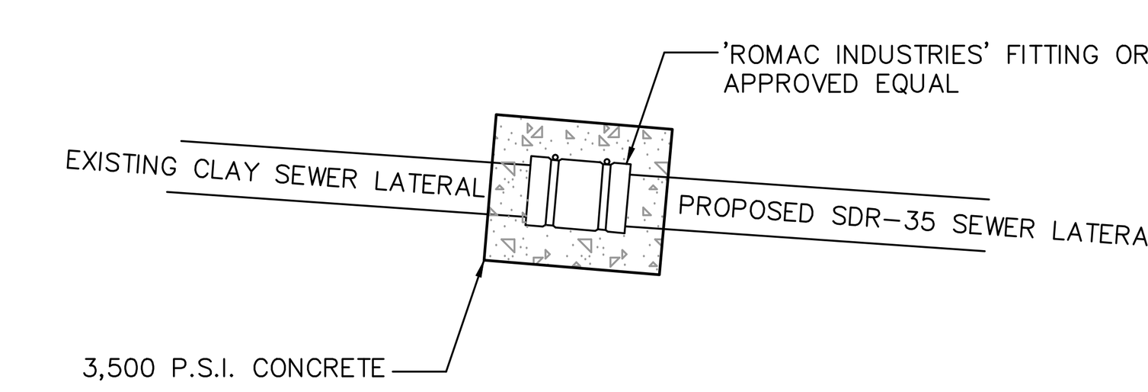
NOT TO SCALE



WATER & SEWER HORIZONTAL SEPARATION

NOT TO SCALE

NOTE:
THE SEPARATION REQUIREMENT SHALL CONFORM TO CURRENT DUTCHESS COUNTY DEPARTMENT OF HEALTH STATUTES, CODES, RULES, REGULATIONS AND LAWS AS THEY APPLY. ANY DEVIATION FROM THE ABOVE SEPARATION REQUIREMENTS SHALL REQUIRE WRITTEN APPROVAL FROM THE DUTCHESS COUNTY DEPARTMENT OF HEALTH.



SEWER TIE-IN DETAIL

NOT TO SCALE

NOTE: CONNECTION OF NEW SERVICE PIPE TO OLD SERVICE PIPE SHALL BE MADE BY CONNECTION OF BELL ON NEW PVC TO EXISTING PVC LINE OR BY USING A ROMAC INDUSTRIES STAINLESS STEEL STYLE LSS1 REPAIR CLAMP. IF EXISTING SANITARY LATERAL IS NOT PVC, RECONNECTION OF LINE TO NEW PVC EXTENSION SHALL BE MADE WITH A ROMAC INDUSTRIES STAINLESS STEEL STYLE SS1 TRANSITION CLAMP.

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CONSTRUCTION DETAILS SHEET 1

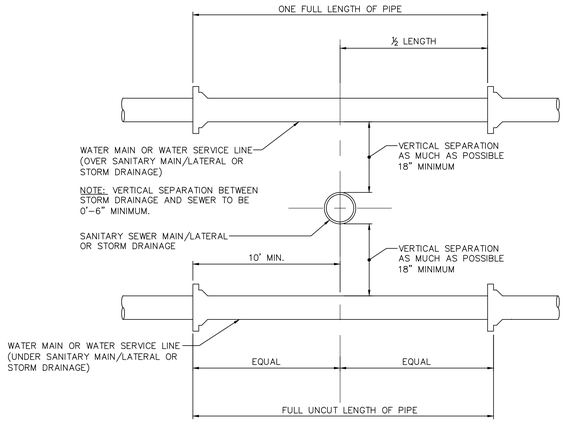
FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

STATE OF NEW YORK — JOHN DOMINICK RUSSO — 080009 — LICENSED PROFESSIONAL ENGINEER

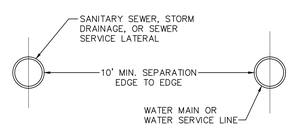
Date:	Revisions:	CAD File:	Layout:	Sheet No.:	Drawing No.:
FEBRUARY 18, 2025	APRIL 17, 2025	236642–CONST. DETAILS	CONSTRUCTION DETAILS	7 OF 9	C3D A– 23 – 6642 – 01

Drawn By:	Checked By:	Scale:	Tax Map No.:
PDLS		1" = 20'	N/A



WATER & SEWER CROSSING DETAIL

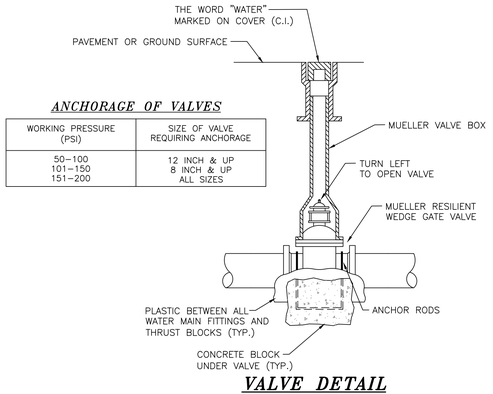
NOT TO SCALE



WATER & SEWER HORIZONTAL SEPARATION

NOT TO SCALE

NOTE:
THE SEPARATION REQUIREMENT SHALL CONFORM TO CURRENT DUTCHESS COUNTY DEPARTMENT OF HEALTH STATUTES, CODES, RULES, REGULATIONS AND LAWS AS THEY APPLY. ANY DEVIATION FROM THE ABOVE SEPARATION REQUIREMENTS SHALL REQUIRE WRITTEN APPROVAL FROM THE DUTCHESS COUNTY DEPARTMENT OF HEALTH.

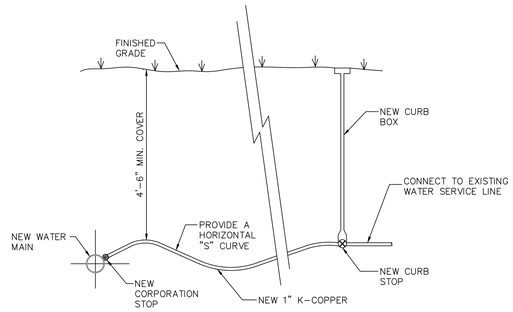


ANCHORAGE OF VALVES

WORKING PRESSURE (PSI)	SIZE OF VALVE REQUIRING ANCHORAGE
50–100 101–150 151–200	12 INCH & UP 8 INCH & UP ALL SIZES

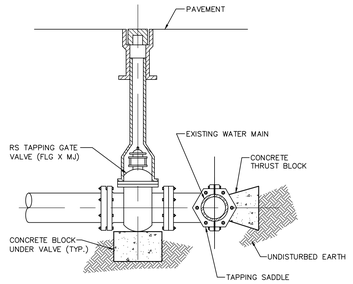
VALVE DETAIL

NOT TO SCALE



WATER SERVICE DETAIL

NOT TO SCALE

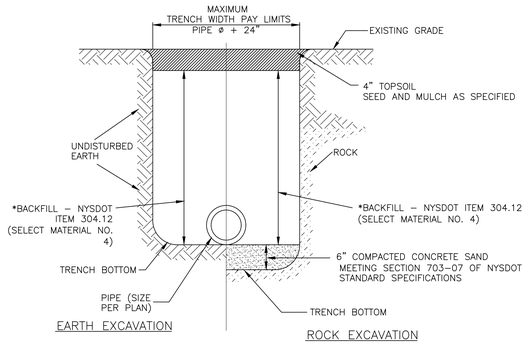


WET TAP DETAIL

NOT TO SCALE

MECHANICAL JOINT RESTRAINT DETAIL

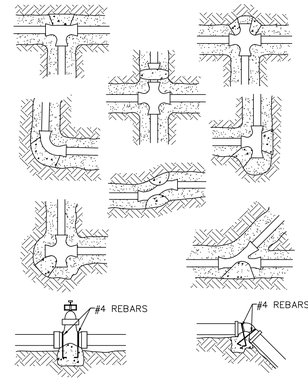
NOT TO SCALE



* BACKFILL TO BE COMPACTED IN 6" LIFTS.

WATER TRENCH CROSS SECTION

NOT TO SCALE



FOR VALVES 12" AND LARGER ANCHOR VALVE AS ABOVE

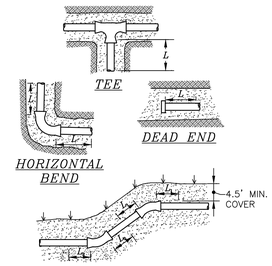
AT VERT. BENDS, ANCHOR TO RESIST OUTWARD THRUSTS

NOTES:
1. KEEP NUTS AND BOLTS FREE OF CONCRETE THROUGH THE USE OF PLASTIC COVERS.
2. ANCHORING OF VALVES AND VERTICAL BENDS SHALL BE DONE WITH #4 REBARS WITH A MINIMUM ENGAGEMENT DEPTH OF 3" INCHES AND 3 INCHES OF THE TERMINUS END OF THE REBAR BEING BENT AT 90° ORIENTATION AS SHOWN.

THRUST BLOCK DETAILS

NOT TO SCALE

NOTE:
LENGTH OF RESTRAINED JOINTS BASED UPON:
a. 4.5' MINIMUM COVER
b. TEST PRESSURE = 150 PSI
c. TYPE 5 TRENCH
d. 1.5 TO 1 SAFETY FACTOR



THRUST BLOCK SIZING TABLE

BEARING AREA OF THRUST BLOCK IN SQUARE FEET

FITTING	THRUST * (POUNDS)	HARD SHALE	SAND & GRAVEL	SAND	SOFT CLAY
TEES AND DEAD ENDS					
6"	5,700	1	2	3	6
8"	9,870	1	3.5	5	10
10"	16,125	2	5.5	8.5	16.5
12"	22,965	2.5	8	11.5	23
14"	31,155	3.5	10.5	16.0	31.5
16"	40,320	4.5	13.5	20.5	40.5
90° BEND					
6"	8,055	1	3	4	8
8"	13,950	1.5	5	9	14
10"	22,800	2.5	8 11	11.5	23
12"	32,460	3.5	15.0	16.5	32.5
14"	44,040	4.5	19.5	22.5	44.5
16"	57,015	6		29	57.5
45° BEND					
6"	4,365	1	1.5	2.5	4.5
8"	7,560	1	2.5	4	8
10"	12,360	1.5	4.5	6.5	12.5
12"	17,580	2	6	9	18
14"	23,865	2.5	8.0	12.0	24
16"	30,885	3.5	10.5	15.5	31
22½° BEND					
6"	2,205	1 1	1	1.5	2.5
8"	3,825	1 1	1.5	2	4
10"	6,255	1.5	2	3.5	6.5
12"	8,910	2	3	4.5	9
14"	12,090		4.5	6.5	12.5
16"	15,645		5.5	8	16

* THRUST AT 150 PSI OF WATER PRESSURE

RESTRAINED JOINT TABLE

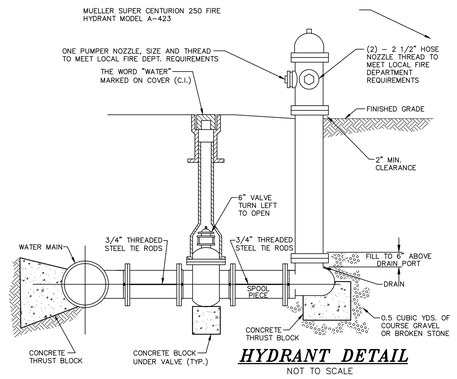
MINIMUM LENGTH REQUIRED IN L.F.

FITTING	LENGTH IN L.F. (L)	
TEES & DEAD ENDS		
6"	22	
8"	29	
10"	34	
12"	40	
14"	46	
16"	52	
90° BEND		
6"	10	
8"	12	
10"	15	
12"	17	
14"	20	
16"	22	
45° BEND		
6"	4	
8"	5	
10"	6	
12"	7	
14"	8	
16"	9	
22½° BEND		
6"	2	
8"	3	
10"	3	
12"	4	
14"	4	
16"	5	
VERTICAL BENDS	L_1	L_2
6"	9	4
8"	12	5
10"	14	6
12"	17	7
14"	19	8
16"	22	9

ALL REQUIRED JOINT RESTRAINT SHALL BE MEGALUG RETAINING GLANDS AS MANUFACTURED BY EBAA IRON, OR APPROVED EQUAL.

RESTRAINED JOINT DETAILS

NOT TO SCALE



HYDRANT DETAIL

NOT TO SCALE

BACKFILL TO BE NYSDOT ITEM #304.12, COMPACTED IN 8" MAX. LIFTS, USING JUMPING JACK STYLE COMPACTOR, ACHIEVING 95% COMPACTION.

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CONSTRUCTION DETAILS – 2

Date: FEBRUARY 18, 2025
Revisions: APRIL 17, 2025

FISHKILL AVENUE SEWER REPLACEMENT

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

CAD File: 6642-CONST DETAILS
Layout: CONSTRUCTION DETAILS
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Drawn By:	Checked By:	Scale:	Tax Map No.:	Drawing No.:
PDLS		1" = 20'	N/A	C3D A- 23 - 6642 - 01

EXECUTION FOR TESTING AND INSPECTION OF GRAVITY LINES

3.1. PREPARATION

3.1.1. THE PIPE SECTION BEING TESTED SHALL BE ENTIRELY FREE FROM ANY AND ALL DEBRIS, STONES, SAND AND ANY OTHER MATERIALS. WATER USED IN FLUSHING THE LINES SHALL NOT BE DISCHARGED INTO CLEAN SECTIONS OF PIPELINE OR ACTIVE SEWERS, BUT SHALL BE DISCHARGED AS SPECIFIED IN THE APPROPRIATE PARTS OF THE SECTION "DEWATERING," DIVISION 2. DISPOSAL OF DEBRIS AND ALL OTHER MATERIAL SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SECTION "WASTE MATERIALS DISPOSAL," DIVISION 1.

3.2. FIELD QUALITY CONTROL

3.2.1. THE FIRST SECTION OF PIPE (BETWEEN TWO MANHOLES) LAID BY EACH PIPE CREW WILL IMMEDIATELY BE TESTED UPON COMPLETION IN ORDER TO CHECK WORKMANSHIP.

3.2.2. LINES SHALL BE VISUALLY INSPECTED FROM MANHOLE TO MANHOLE BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH TWO MEN TO ASSIST THE ENGINEER IN MAKING THE INSPECTION. IT IS A CONDITION OF ACCEPTANCE THAT ALL MANHOLES BE COMPLETE, THE PIPE BE CLEANED, AND ALL LINES BE LAID STRAIGHT FROM MANHOLE TO MANHOLE UNLESS OTHERWISE SHOWN ON THE DRAWINGS. ALL DEFECTS NOTED DURING THIS INSPECTION SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. AFTER CORRECTION THE LINES SHALL BE REINSPECTED.

3.2.3. WHEN THE GRAVITY LINES HAVE BEEN SATISFACTORILY INSPECTED VISUALLY, AN INFILTRATION OR EXFILTRATION TEST SHALL BE PERFORMED.

3.2.4. INFILTRATION/EXFILTRATION RATES SHALL BE DETERMINED ON THE MAIN SEWER AND LATERALS AND SHALL BE WITHIN THE ALLOWABLE RATE AS SPECIFIED. ALL WYES, TEES AND OTHER FITTINGS IN THE MAIN SEWER LINE AND LATERALS SHALL BE ADEQUATELY CAPPED OR PLUGGED TO WITHSTAND THE MAXIMUM ANTICIPATED HEAD DURING EXFILTRATION TESTING AND TO PREVENT DEBRIS, GROUNDWATER, ETC., FROM ENTERING DURING INFILTRATION TESTING. ALL CAPS OR PLUGS WHICH "BLOW_OUT" OR LEAK SHALL BE REPLACED AS OFTEN AS NECESSARY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNTIL THE MAIN SEWER PASSES THE INFILTRATION/EXFILTRATION TEST. ALL SEWERS NOT IN COMPLIANCE WITH THESE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR UNTIL SUCH TIME AS THE RATE CAN BE MET. SUCH CORRECTIONS AS NECESSARY SHALL BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

3.2.5. WHEN PERFORMING AN INFILTRATION TEST, THE CONTRACTOR SHALL BLOCK OFF A SECTION OF THE SYSTEM NOT EXCEEDING 1000 LINEAR FEET, AND INSTALL A MEASURING DEVICE AT THE DOWNSTREAM END OF THE TEST SECTION. INFILTRATION SHALL NOT EXCEED THE ALLOWABLE AMOUNT SPECIFIED. IF THE ACTUAL INFILTRATION EXCEEDS THE ALLOWABLE INFILTRATION OR IF THERE ARE VISIBLE SIGNS OF INFILTRATION SUCH AS GUSHING OR SPURTING STREAMS, THE CONTRACTOR SHALL EFFECT ALL REPAIRS NECESSARY TO MAKE THE PIPE SUFFICIENTLY WATERTIGHT. THE SECTION SHALL BE RETESTED UNTIL THE RATE OF ALLOWABLE INFILTRATION IS MET.

3.2.7. AIR TESTING SHALL BE USED INSTEAD OF THE WATER EXFILTRATION TEST TO MEASURE EXFILTRATION. THE SECTION TO BE TESTED SHALL BE BETWEEN CONSECUTIVE MANHOLES. EACH END OF PIPE, ALL BRANCHES, LATERALS, AND WYES SHALL BE PLUGGED AND SECURELY BRACED. THE PLUG AT EACH END OF PIPE SHALL HAVE PROVISION TO CONNECT AN AIR HOSE. AIR SHALL BE SUPPLIED TO THE SECTION AND MONITORED SO AS NOT TO EXCEED 5.0 PSIG. AN INDEPENDENT AIR GAUGE AND LINE SHALL BE INSTALLED ON THE OPPOSITE PLUG TO THE AIR SUPPLY SUCH THAT THE GAUGE CAN BE READ AT THE GROUND SURFACE. THE AIR PRESSURE SHALL BE MAINTAINED BETWEEN 4.0 AND 3.5 PSIG FOR AT LEAST TWO MINUTES TO ALLOW AIR TEMPERATURE TO COME TO EQUILIBRIUM WITH PIPE WALLS. THE AIR SUPPLY SHALL THEN BE DISCONNECTED AND THE AIR PRESSURE ALLOWED TO DECREASE TO 3.5. PSIG. AT 3.5 PSIG, THE TIME SHALL BE MEASURED FOR THE PRESSURE TO DROP TO 2.5 PSIG. THE FOLLOWING TABLE SHOWS THE ALLOWABLE TIME FOR A LOSS OF 1.0 PSIG AT AN AVERAGE PRESSURE OF 3.0 PSIG.

Pipe Diam. inches	Min. Time, Min:Sec	Length For Min. Time, Ft.	Time for Longer Lengths, Sec.	Specification time for Length (L) Shown, min:sec							
				100ft	150ft	200ft	250ft	300ft	350ft	400ft	450ft
4	3:46	597	0.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	0.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

IF THE ACTUAL TIME FOR A LOSS 1.0 PSIG IS LESS THAN THE ALLOWABLE TIME SHOWN IN THE ABOVE TABLE, THE CONTRACTOR SHALL DETERMINE THE SOURCE OF LEAKAGE AND EFFECT ALL REPAIRS NECESSARY TO MAKE THE PIPE SUFFICIENTLY AIRTIGHT. THE SECTION SHALL BE RETESTED UNTIL THE ALLOWABLE TIME IS MET OR EXCEEDED.

3.2.8. PIPES INSTALLED AT SLOPES LESS THAN THOSE SHOWN ON THE DRAWINGS SHALL BE REINSTALLED TO THE SLOPES AS SHOWN OR THE CONTRACTOR SHALL PROVIDE A DESIGN REPORT PREPARED AND SEALED BY A PROFESSIONAL ENGINEER SHOWING THE THEORETICAL CAPACITY AND VELOCITY OF THE PIPE "AS INSTALLED" BASED ON TOTAL ENERGY HEAD AND THE PIPE MANUFACTURER'S "N" VALUE. THE THEORETICAL "AS INSTALLED" VELOCITIES AND CAPACITIES SHALL BE SUBMITTED TO THE ENGINEER FOR EVALUATION. IF THE "AS INSTALLED" THEORETICAL CAPACITY AND VELOCITY MEET THE DESIGN REQUIREMENTS THE LINE WILL BE ACCEPTABLE.

3.2.8.1. IF THE "AS INSTALLED" THEORETICAL CAPACITY AND VELOCITY DO NOT MEET THE DESIGN REQUIREMENTS, THE CONTRACTOR SHALL CONDUCT A FLOW TEST TO DETERMINE THE VELOCITY AND CAPACITY WITH THE PIPE FLOWING ONE_HALF FULL. IF THE ACTUAL VELOCITY AND CAPACITY MEET THE DESIGN REQUIREMENT, THE LINE IS ACCEPTABLE, OTHERWISE THE LINE SHALL BE RE-LAID TO THE SLOPE AS SHOWN ON THE DRAWINGS.

EXECUTION FOR TESTING AND INSPECTION OF WATER LINES

3.1. TESTING PROCEDURE

3.1.1. THE PIPE, FIRE HYDRANT ASSEMBLIES, AND APPURTENANCES BEING TESTED SHALL BE FLUSHED AND ENTIRELY FREE FROM ANY AND ALL DEBRIS, STONES, SAND AND ANY OTHER MATERIALS. WATER USED IN FLUSHING THE LINES SHALL NOT BE DISCHARGED INTO CLEAN SECTIONS OF PIPELINE OR ACTIVE MAINS, BUT SHALL BE DISPOSED OF AS SPECIFIED IN THE APPROPRIATE PARTS OF THE SECTION "DEWATERING," DIVISION 2. DISPOSAL OF WASTE MATERIALS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SECTION "WASTE MATERIALS DISPOSAL", DIVISION 1.

3.1.2. ALL AIR SHALL BE EXPELLED FROM THE SECTION TO BE TESTED BY APPROPRIATE METHODS INCLUDING THE USE OF CORPORATION STOPS AT HIGH POINTS. AFTER ALL THE AIR HAS BEEN EXPELLED, THE TEST PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP CONNECTED TO THE PIPE IN A MANNER SATISFACTORY TO THE ENGINEER. **THE PUMP, PIPE CONNECTIONS, AND ALL NECESSARY APPARATUS SHALL BE FURNISHED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.**

3.1.3. THE TEST PRESSURE SHALL BE AT LEAST ONE AND A HALF TIMES THE MAXIMUM WORKING PRESSURE, BASED ON THE ELEVATION OF THE LOWEST POINT OF THE LINE OR SECTION UNDER TEST AND CORRECTED TO THE ELEVATION OF THE TEST GAUGE. HOWEVER, IN NO CASE SHALL THE TEST PRESSURE BE LESS THAN 150 POUNDS PER SQUARE INCH. EACH HYDROSTATIC TEST SHALL BE HELD AT THE TEST PRESSURE FOR A DURATION OF AT LEAST TWO HOURS. ADDITIONAL WATER SHALL BE ADDED AS REQUIRED TO MAINTAIN THE TEST PRESSURE.

3.1.4. CONCURRENTLY WITH THE PRESSURE TEST, A LEAKAGE TEST SHALL BE CONDUCTED. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER THAT MUST BE ADDED TO THE PIPE TO MAINTAIN THE TEST PRESSURE. MAXIMUM ALLOWABLE LEAKAGE SHALL BE DETERMINED BY THE FOLLOWING FORMULA:

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

WHERE,
L = ALLOWABLE LEAKAGE, IN GALS/HOUR
S = LENGTH OF TEST SECTION, IN FEET
D = NOMINAL DIAMETER OF PIPE, IN INCHES
P = AVERAGE TEST PRESSURE DURING TEST, IN PSIG

3.1.5. TOLERANCE FOR TEST PRESSURE SHALL BE PLUS OR MINUS 5 PSI.

3.1.6. WHERE THE LEAKAGE FOR THE SECTION TESTED IS GREATER THAN THAT ALLOWED, THE CONTRACTOR SHALL LOCATE AND REPAIR THE CAUSE OF THE LEAK AND RETEST THE SECTION UNTIL THE LEAKAGE DOES NOT EXCEED THE ALLOWABLE.

EXECUTION OF DISINFECTION OF WATER DISTRIBUTION SYSTEMS

3.1. PREVENTATIVE MEASURES DURING CONSTRUCTION

3.1.1. CAUTION SHALL BE TAKEN TO PROTECT PIPE INTERIORS, FITTINGS AND VALVES AGAINST CONTAMINATION DURING CONSTRUCTION. PIPE DELIVERED FOR CONSTRUCTION SHALL BE STRUNG SO AS TO MINIMIZE ENTRANCE OF FOREIGN MATERIAL.

3.1.2. WHEN PIPE LAYING IS NOT IN PROGRESS AS, FOR EXAMPLE, AT THE END OF THE CLOSE OF THE DAYS WORK, ALL OPENINGS IN THE PIPELINE SHALL BE CLOSED BY WATER TIGHT PLUGS.

3.1.3. JOINTS OF ALL PIPE IN THE TRENCH SHALL BE COMPLETED BEFORE WORK IS STOPPED.

3.1.4. IF WATER ACCUMULATES IN THE TRENCH, PLUGS SHALL REMAIN IN PLACE UNTIL THE TRENCH IS DRY.

3.1.5. IF DIRT THAT, IN THE OPINION OF THE ENGINEER, WILL NOT BE REMOVED BY FLUSHING OPERATIONS ENTERS THE PIPE, THE INTERIOR OF THE PIPE SHALL BE CLEANED AND SWABBED AS NECESSARY WITH A 5% HYPOCHLORITE DISINFECTING SOLUTION.

3.2. DISINFECTION PROCEDURE

3.2.1. PRELIMINARY FLUSHING

3.2.1.1. THE MAIN SHALL BE FLUSHED PRIOR TO DISINFECTION. THE FLUSHING VELOCITY SHALL NOT BE LESS THAN 3 FEET PER SECOND.

3.2.2. FORM OF CHLORINE FOR DISINFECTION

3.2.2.1. THE MOST COMMON FORMS OF CHLORINE USED IN DISINFECTING SOLUTIONS ARE LIQUID CHLORINE (GAS AT ATMOSPHERIC PRESSURE), CALCIUM HYPOCHLORITE GRANULES, AND SODIUM HYPOCHLORITE SOLUTION.

A. LIQUID CHLORINE SHALL BE USED ONLY WHEN SUITABLE EQUIPMENT IS AVAILABLE, AND ONLY UNDER THE DIRECT SUPERVISION OF A PERSON FAMILIAR WITH THE PHYSIOLOGICAL, CHEMICAL AND PHYSICAL PROPERTIES OF THIS ELEMENT, AND WHO IS PROPERLY TRAINED AND EQUIPPED TO HANDLE ANY EMERGENCY THAT MAY ARISE. THE INTRODUCTION OF CHLORINE GAS DIRECTLY FROM THE SUPPLY CYLINDER IS UNSAFE AND SHOULD NOT BE PERMITTED.

THE PREFERRED EQUIPMENT CONSISTS OF A SOLUTION FEED CHLORINATOR IN COMBINATION WITH A BOOSTER PUMP FOR INGESTING THE CHLORINE GAS/WATER MIXTURE INTO THE MAIN TO BE DISINFECTED. DIRECT FEED CONTAINER CHLORINATORS ARE NOT RECOMMENDED BECAUSE THEIR USE IS LIMITED IN SITUATIONS WHERE WATER PRESSURE IS LOWER THAN THE CHLORINE CYLINDER PRESSURE.

B. CALCIUM HYPOCHLORITE CONTAINS 70% AVAILABLE CHLORINE BY WEIGHT. IT IS EITHER GRANULAR OR TABULAR IN FORM. TABLETS, 6 AND 9 TO THE OUNCE, ARE DESIGNED TO DISSOLVE SLOWLY IN WATER. CHLORINE SOLUTION IS PREPARED BY DISSOLVING THE GRANULES IN WATER IN A PROPORTION REQUIRED FOR THE DESIRED CONCENTRATION.

C. SODIUM HYPOCHLORITE IS SUPPLIED IN STRENGTHS FROM 5.25 TO 16 PERCENT AVAILABLE CHLORINE. IT IS PACKAGED IN LIQUID FORM IN GLASS, RUBBER, OR PLASTIC CONTAINERS RANGING IN SIZE FROM ONE QUART BOTTLES TO FIVE GALLON CARBOYS. IT MAY ALSO BE PURCHASED IN BULK FOR DELIVERY BY TANK TRUCK.

THE CHLORINE_WATER SOLUTION IS PREPARED BY ADDING HYPOCHLORITE TO WATER. PRODUCT DETERIORATION MUST BE RECKONED WITH IN COMPUTING THE QUANTITY OF SODIUM HYPOCHLORITE REQUIRED FOR DESIRED CONCENTRATION.

3.1. APPLICATION

3.1.1. HYPOCHLORITE SOLUTIONS

3.1.1.1. THE HYPOCHLORITE SOLUTIONS SHALL BE APPLIED TO THE WATER MAIN WITH A GASOLINE OR ELECTRICALLY POWERED CHEMICAL FEED PUMP DESIGNED FOR FEEDING THE CHLORINE SOLUTIONS. FOR SMALL APPLICATIONS, THE SOLUTIONS MAY BE FED WITH A HAND PUMP, FOR EXAMPLE, A HYDRAULIC TEST PUMP.

3.1.1.2. FEED LINES SHALL BE OF SUCH MATERIAL AND STRENGTH AS TO WITHSTAND SAFELY THE MAXIMUM PRESSURES THAT MAY BE CREATED BY THE PUMPS. ALL CONNECTIONS SHALL BE CHECKED FOR TIGHTNESS BEFORE THE HYPOCHLORITE SOLUTION IS APPLIED TO THE MAIN.

3.1.2. METHODS OF CHLORINE APPLICATION

3.1.2.1. CONTINUOUS FEED METHOD
THIS METHOD IS SUITABLE FOR GENERAL APPLICATION. WATER FROM THE EXISTING DISTRIBUTION SYSTEM OR OTHER APPROVED SOURCES OF SUPPLY SHALL BE MADE TO FLOW AT A CONSTANT, MEASURED RATE INTO THE NEWLY_LAID PIPELINE. AT A POINT NOT MORE THAN 10 FEET DOWNSTREAM FROM THE BEGINNING OF THE NEW MAIN, THE WATER ENTERING THE NEW MAIN SHALL RECEIVE A DOSE OF CHLORINE, ALSO FED AT THE CONSTANT, MEASURED RATE. THE TWO RATES SHALL BE PROPORTIONED SO THAT THE CHLORINE CONCENTRATION IN THE WATER IN THE PIPE IS MAINTAINED AT A MINIMUM OF 25 MG/L AVAILABLE CHLORINE. TO ASSURE THAT THIS CONCENTRATION IS MAINTAINED, THE CHLORINE RESIDUAL SHOULD BE MEASURED AT REGULAR INTERVALS IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE CURRENT EDITION OF STANDARD METHODS OF AWWA M12 _ SIMPLIFIED FOR WATER EXAMINATION.

TABLE II GIVES THE AMOUNT OF CHLORINE RESIDUAL REQUIRED FOR EACH 100 FT. OF PIPE IN VARIOUS DIAMETERS. SOLUTIONS OF ONE PERCENT CHLORINE MAY BE PREPARED WITH SODIUM HYPOCHLORITE OR CALCIUM HYPOCHLORITE. THE LATTER SOLUTION REQUIRES APPROXIMATELY 1 LB. OF CALCIUM HYPOCHLORITE IN 8.6 GALLONS OF WATER. IF LIQUID LAUNDRY BLEACH WITH 5.25% CL IS USED, THEN 4.25 GALLONS OF WATER IS TO BE MIXED WITH 1 GALLON OF BLEACH TO OBTAIN 1 PERCENT SOLUTION.

TABLE II
Chlorine Required to Produce 25 mg/l
Concentration in 100 ft. of pipe

Pipe Size (inch)	Volume of 100-ft. length (gallons)	100 Percent Chlorine (lb.)	1 Percent Chlorine Solutions (gal.)
4	65.3	.013	0.16
6	146.5	.030	0.36
8	261.0	.054	0.65
10	408.0	.085	1.02
12	588.7	.120	1.44

NOTE: ALL LINES SMALLER THAN 4" SHALL BE DISINFECTED WITH THE SAME CONCENTRATION USED FOR 4" LINES PER THE NEW YORK STATE DEPARTMENT OF HEALTH.

DURING THE APPLICATION OF THE CHLORINE, VALVES SHALL BE MANIPULATED TO PREVENT THE TREATMENT DOSAGE FROM FLOWING BACK INTO THE LINE SUPPLYING THE WATER. CHLORINE APPLICATION SHALL NOT CEASE UNTIL THE ENTIRE MAIN IS FILLED WITH THE CHLORINE SOLUTION. THE CHLORINATED WATER SHALL BE RETAINED IN THE MAIN FOR AT LEAST 24 HOURS, DURING WHICH TIME ALL VALVES DISCHARGE HOSE CONNECTIONS IN THE SECTION SHALL BE OPERATED IN ORDER TO DISINFECT THE APPURTENANCES. AT THE END OF THIS 24 HOUR PERIOD, THE TREATED WATER SHALL CONTAIN NO LESS THAN 10 MG/L CHLORINE THROUGHOUT THE LENGTH OF THE MAIN.

3.0.0.1. SLUG METHOD
THIS METHOD IS SUITABLE FOR USE WITH MAINS OF LARGE DIAMETER FOR WHICH, BECAUSE OF THE VOLUMES OF WATER INVOLVED, THE CONTINUOUS FEED METHOD IS NOT PRACTICAL.

WATER FROM THE EXISTING DISTRIBUTION SYSTEM OR OTHER APPROVED SOURCE OF SUPPLY SHALL BE MADE TO FLOW AT A CONSTANT, MEASURE RATE INTO THE NEWLY LAID PIPELINE. THE WATER SHALL RECEIVE A DOSE OF CHLORINE, ALSO FED AT A CONSTANT MEASURED RATE. THE TWO RATES SHALL BE PROPORTIONED SO THAT THE CONCENTRATION IN THE WATER ENTERING THE PIPELINE IS MAINTAINED AT NO LESS THAN 100 MG/L. THE CHLORINE SHALL BE APPLIED CONTINUOUSLY AND FOR A SUFFICIENT PERIOD TO DEVELOP A SOLID COLUMN OR "SLUG" OF CHLORINATED WATER THAT WILL AS IT PASSES ALONG THE LINE, EXPOSE ALL INTERIOR SURFACES TO A CONCENTRATION OF AT LEAST 100 MG/L FOR AT LEAST 3 HOURS. THE APPLICATION SHALL BE CHECKED AT A TAP NEAR THE UPSTREAM END OF THE LINE BY CHLORINE RESIDUAL MEASUREMENTS MADE ACCORDING TO THE PROCEDURES DESCRIBED ABOVE.

AS THE CHLORINATED WATER FLOWS PAST TEES AND CROSSES, RELATED VALVES AND DISCHARGE HOSE CONNECTION SHALL BE OPERATED AS TO DISINFECT APPURTENANCES.

3.0.0.2. TABLET METHOD
THE "TABLET METHOD" AS CONTAINED IN AMERICAN WATER WORKS ASSOCIATION STANDARD C_651 IS NOT ACCEPTABLE TO THE NEW YORK STATE DEPARTMENT OF HEALTH AND SHALL NOT BE USED.

3.1. FINAL FLUSHING

3.1.1. AFTER THE APPLICABLE RETENTION PERIOD, THE HEAVILY CHLORINATED WATER SHALL BE FLUSHED FROM THE MAIN UNTIL THE CHLORINE CONCENTRATION IN THE WATER LEAVING THE MAIN IS NO HIGHER THAN THAT GENERALLY PREVAILING IN THE SYSTEM, OR LESS THAN 1 MG/L. CHLORINE RESIDUAL DETERMINATION SHALL BE MADE TO ASCERTAIN THAT THE HEAVILY CHLORINATED WATER HAS BEEN REMOVED FROM THE PIPELINE. HEAVILY CHLORINATED WATER SHALL BE DE-CHLORINATED PRIOR DURING FLUSHING, OR SHALL BE FLUSHED INTO A TANKER TRUCK FOR PROPER DISPOSAL. AT NO TIME SHALL HEAVILY CHLORINATED WATER BE DISCHARGED INTO THE STORM OR SANITARY SEWER SYSTEMS.

3.2. BACTERIOLOGICAL TESTS

3.2.1. AFTER FINAL FLUSHING AND BEFORE THE NEW WATER MAIN IS PLACED IN SERVICE, TWO CONSECUTIVE SETS OF ACCEPTABLE SAMPLES, TAKEN AT LEAST 24 HOURS APART, SHALL BE COLLECTED EVERY 1,200 FEET AND FROM THE END OF THE LINE, AND AT LEAST ONE SET FROM EACH BRANCH IN THE WATER MAIN. ALL SAMPLES SHALL BE TESTED FOR BACTERIOLOGICAL (CHEMICAL AND PHYSICAL) QUALITY IN ACCORDANCE WITH *"STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER"* AND SHALL SHOW THE ABSENCE OF COLIFORM ORGANISMS; AND, IF REQUIRED, THE PRESENCE OF A CHLORINE RESIDUAL.

3.2.2. SAMPLES FOR BACTERIOLOGICAL ANALYSIS SHALL BE COLLECTED IN STERILE BOTTLES TREATED WITH SODIUM THIOSULFATE AS REQUIRED BY *"STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER"*. NO HOSE OR HYDRANT SHALL BE USED IN COLLECTION OF SAMPLES. A SUGGESTED SAMPLING TAP CONSISTS OF A STANDARD CORPORATION COCK INSTALLED IN THE MAIN WITH A COPPER TUBE GOOSE-NECK ASSEMBLY. AFTER SAMPLES HAVE BEEN COLLECTED, THE GOOSE-NECK ASSEMBLY MAY BE REMOVED, AND RETAINED FOR FUTURE USE.

3.3. REPETITION OF PROCEDURE

3.3.1. IF THE INITIAL DISINFECTION FAILS TO PRODUCE SATISFACTORY SAMPLES, DISINFECTION SHALL BE REPEATED UNTIL SATISFACTORY SAMPLES HAVE BEEN OBTAINED. WHEN THE SAMPLES ARE SATISFACTORY, THE MAIN MAY BE PLACED IN SERVICE.

3.4. PROCEDURE AFTER CUTTING INTO OR REPAIRING EXISTING MAINS

3.4.1. THE PROCEDURES OUTLINED IN THIS SECTION APPLY PRIMARILY WHEN MAINS ARE WHOLLY OR PARTIALLY DEWATERED. LEAKS OR BREAKS THAT ARE REPAIRED WITH CLAMPING DEVICES WHILE THE MAINS REMAIN FULL OF WATER UNDER PRESSURE REQUIRE NO DISINFECTION.

3.4.2. TRENCH TREATMENT

3.4.2.1. WHEN AN OLD LINE IS OPENED, EITHER BY ACCIDENT OR BY DESIGN, THE EXCAVATION WILL LIKELY BE WET AND BADLY CONTAMINATED FROM NEARBY SEWERS. LIBERAL QUANTITIES OF HYPOCHLORITE APPLIED TO OPEN TRENCH AREAS WILL LESSEN THE DANGER FROM SUCH POLLUTION. TABLETS HAVE THE ADVANTAGE IN SUCH A SITUATION BECAUSE THEY DISSOLVE SLOWLY AND CONTINUE TO RELEASE HYPOCHLORITE AS WATER IS PUMPED FROM THE EXCAVATION.

3.4.3. MAIN DISINFECTION

3.4.3.1. SWABBING AND FLUSHING: THE FOLLOWING PROCEDURE IS CONSIDERED AS A MINIMUM THAT MAY BE USED.

A. SWABBING WITH HYPOCHLORITE SOLUTION: THE INTERIOR OF ALL PIPE AND FITTINGS USED IN MAKING THE REPAIR (PARTICULARLY COUPLINGS AND TAPPING SLEEVES) SHALL BE SWABBED WITH A 1 PERCENT HYPOCHLORITE SOLUTION BEFORE THEY ARE INSTALLED.

B. FLUSHING: THOROUGH FLUSHING IS THE MOST PRACTICAL MEANS OF REMOVING CONTAMINATION INTRODUCED DURING REPAIRS. IF VALVING AND HYDRANT LOCATIONS PERMIT, FLUSHING FROM BOTH DIRECTIONS IS RECOMMENDED. FLUSHING SHALL BE STARTED AS SOON AS THE REPAIRS ARE COMPLETED AND CONTINUED UNTIL DISCOLORED WATER IS ELIMINATED.

3.0.0.1. SLUG METHOD
WHERE PRACTICABLE, IN ADDITION TO THE PROCEDURES OF SWABBING AND FLUSHING, A SECTION OF MAIN IN WHICH THE BREAK IS LOCATED SHALL BE ISOLATED, ALL SERVICE CONNECTIONS SHUT OFF, AND THE SECTION FLUSHED AND CHLORINATED AS DESCRIBED, EXCEPT THAT THE DOSE MAY BE INCREASED TO AS MUCH AS 300 MG/L, AND THE CONTACT TIME REDUCED TO AS LITTLE AS HOURS. AFTER CHLORINATION, FLUSHING SHALL BE RESUMED AND CONTINUED UNTIL DISCOLORED WATER IS ELIMINATED.

3.7.4 SAMPLING

3.0.4.1. BACTERIOLOGICAL SAMPLES SHALL BE TAKEN AFTER REPAIRS TO PROVIDE A RECORD BY WHICH THE EFFECTIVENESS OF THE PROCEDURES USED CAN BE DETERMINED. IF THE DIRECTION OF FLOW IS UNKNOWN, SAMPLES SHALL BE TAKEN ON EACH SIDE OF THE MAIN BREAK.

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TESTING AND DISINFECTION NOTES – EXECUTION

Date: APRIL 17, 2025
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FISHKILL AVENUE SEWER REPLACEMENT
CITY OF BEACON
DUTCHESS COUNTY, NEW YORK

CAD File: C36642-CONST. DETAILS
Layout: DISINFECTION NOTES
Sheet No.: 9 OF 9

Drawn By:	Checked By:	Scale:	Tax Map No.:	Drawing No.:
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