

TOWN OF YORKTOWN, NEW YORK

CLEANING AND CEMENT MORTAR LINING OF WATER MAIN ALONG STRAWBERRY ROAD (2021 CONSTRUCTION) HANOVER STREET (2022 CONSTRUCTION) FRONT STREET (2022 BID ALTERNATE) UNDERHILL AVENUE (2022 BID ALTERNATE)

WATER SUPERINTENDENT
KEN RUNDLE

ASSISTANT SUPERINTENDENT
PAUL VASILLO

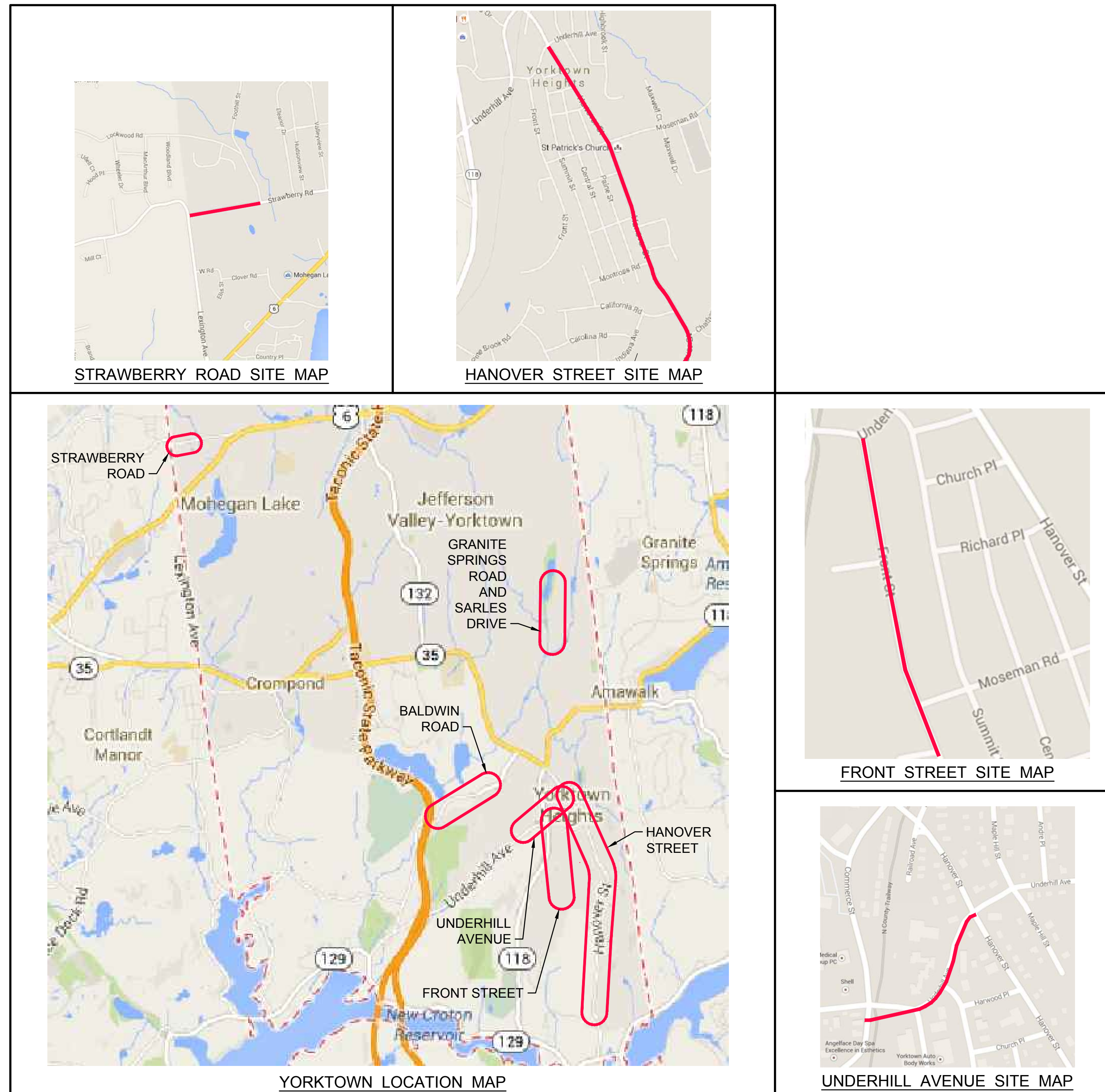
SEPTEMBER 2021



Weston & Sampson Engineers, PE, LS, LA, PC
100 South Bedford Road, Suite 340
Mount Kisco, NY 10549
914.200.1077 800.SAMPSON
www.westonandsampson.com



BID SET # _____



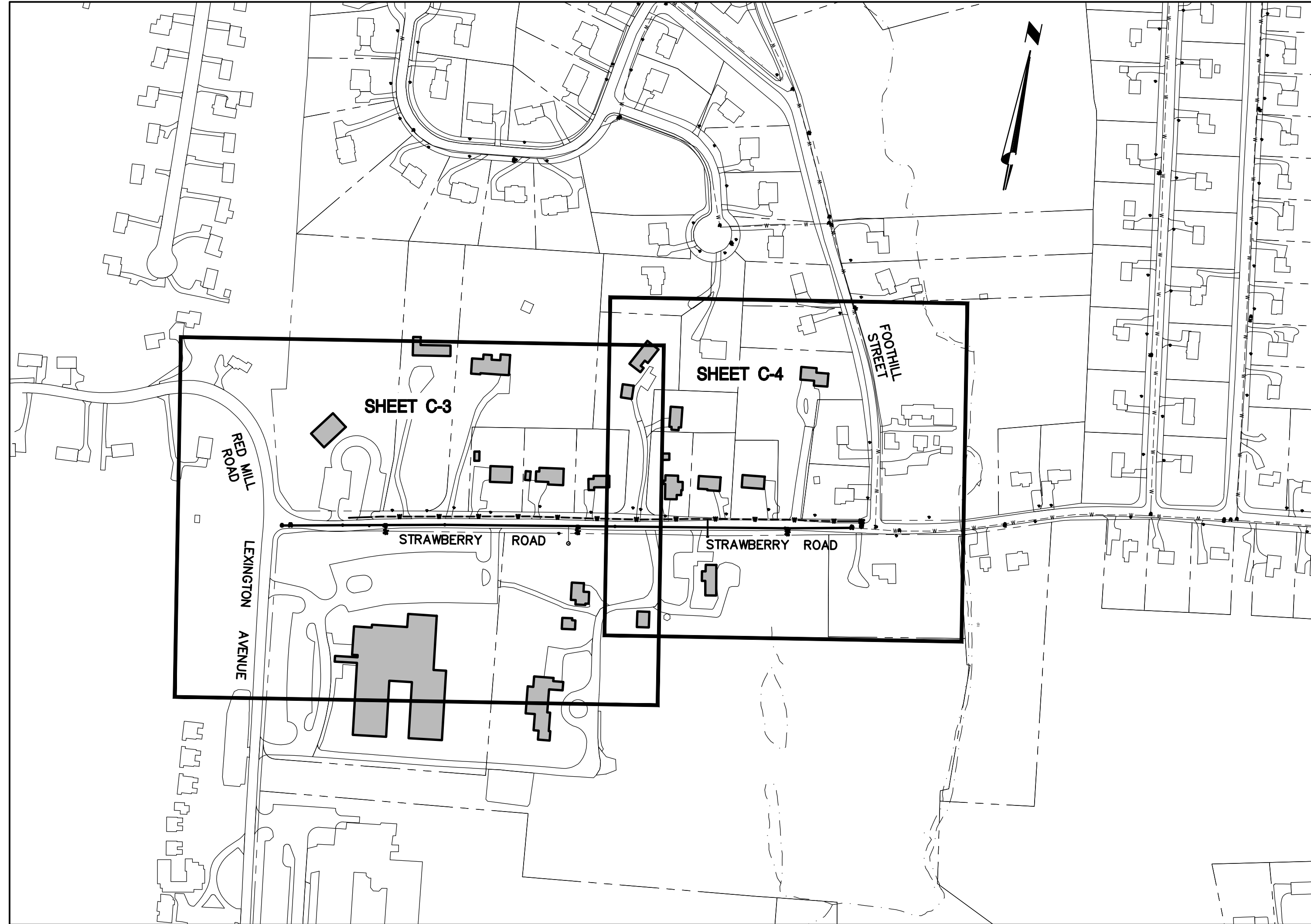
LOCATION MAPS
N.T.S.

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\\weston\local\WSE\Projects\NY\Yorktown, NY\2246006 Cement Lining of Water Main\CAD\WAS\C-1 OVERALL LOCATION MAP - 2021 WORK.dwg

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STRAWBERRY ROAD - 2021 CONSTRUCTION



NOTE:
THE PROJECT AREAS SHOWN ON THIS SHEET ARE TO BE CONSTRUCTED IN 2021.

C-1

SHEET 3 OF 22

TOWN OF YORKTOWN, NEW YORK
CLEANING AND CEMENT MORTAR LINING OF WATER MAIN
OVERALL LOCATION MAP - 2021 WORK
STRAWBERRY ROAD AREA

CADD NO. C-1 AS NOTED
SCALE: AS NOTED
CONTRACT: ENG21-0417
JOB NO. ENG21-0417
DR. BY: JMZ
DSN. BY: JMZ
CHK. BY: CWS
APP. BY: JFB



No.	Date	Dr. By	App. By	Description
1	7/22/15	JMZ	JMZ	WCDOH REVISIONS
2	2/16	VLB	JFB	ADDED GRANITE SPRINGS ROAD TO SET

WESTON & SAMPSON
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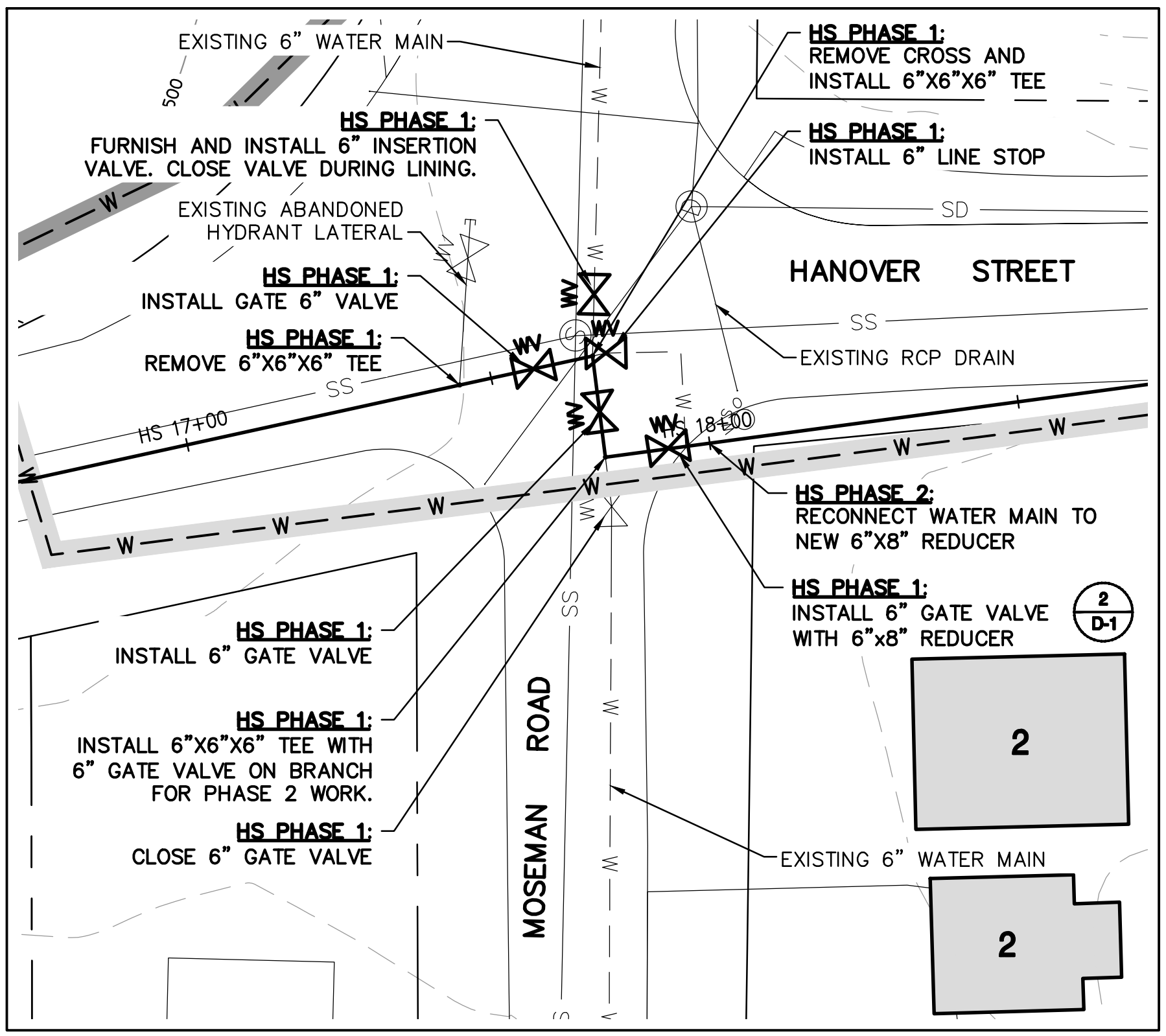
- 1 STRUCTURE IMPACTED BY PROPOSED PHASE 1
- 2 STRUCTURE IMPACTED BY PROPOSED PHASE 2
- 3 STRUCTURE IMPACTED BY PROPOSED PHASE 3
- PHASE 1 TEMPORARY WATER SERVICE MAIN
- PHASE 2 TEMPORARY WATER SERVICE MAIN
- PHASE 3 TEMPORARY WATER SERVICE MAIN

NOTES:

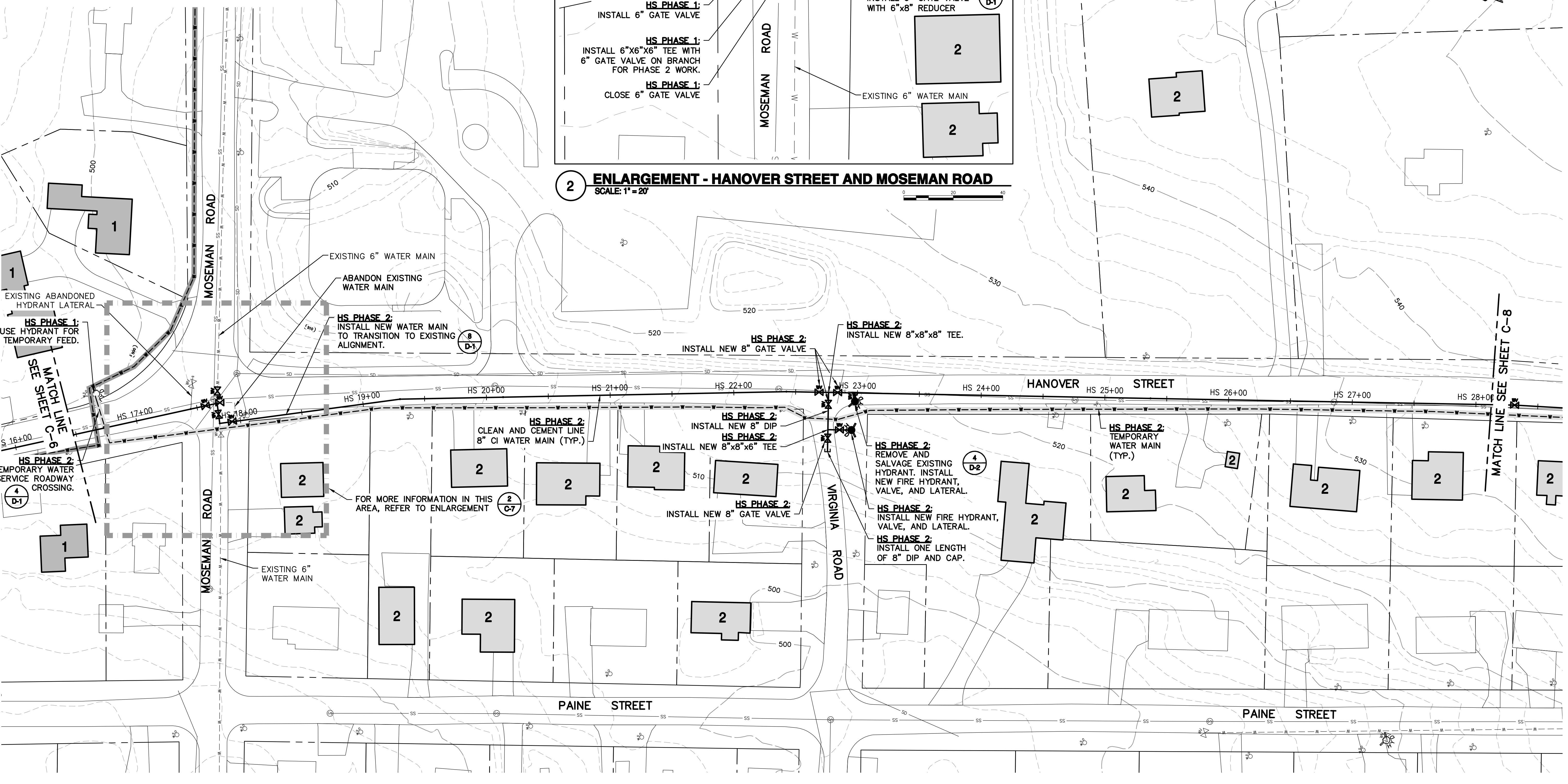
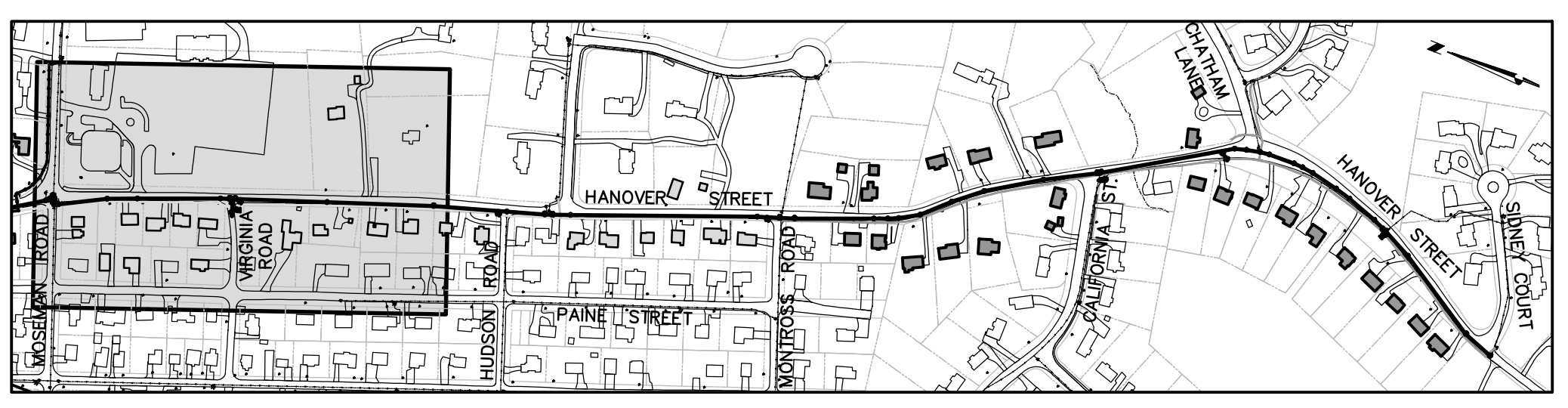
- BASED ON AVAILABLE RECORDS, BUILDINGS SHOWN WITH GRAY HATCH ARE BELIEVED TO BE CONNECTED TO A WATER MAIN THAT IS TO BE CLEANED AND CEMENT LINED. THE CONTRACTOR IS TO VERIFY ALL BUILDINGS THAT ARE CONNECTED TO WATER MAIN THAT IS TO BE CLEANED AND RELINED AND IS RESPONSIBLE FOR PROVIDING TEMPORARY WATER SERVICE TO ALL AFFECTED BUILDINGS FOR THE ENTIRE DURATION OF THE WORK.
- TEMPORARY WATER SERVICE MAIN CONNECTION LOCATIONS SHOWN ON THE DRAWINGS IN A PHASED APPROACH. CONTRACTOR TO PROVIDE A DETAILED PLAN PROPOSED STREET CROSSINGS AND CONNECTIONS BETWEEN CONNECTION LOCATIONS FOR APPROVAL OF THE ENGINEER. TEMPORARY SERVICE ROUTING SHOWN IS SCHEMATIC ONLY. ACTUAL LAYOUT SHALL BE REFLECTED IN CONTRACTOR'S DETAILED PLAN.

TEMPORARY WATER SERVICE LEGEND

- NOTES:**
- NORMAL WATER MAIN OPERATING PRESSURE RANGES FROM 70 PSI TO 105 PSI.
 - INSERTION GATE VALVE TO BE RESTRAINED.
 - ALL FITTINGS ALONG WATER MAIN TO BE CLEANED AND RELINED SHALL BE REMOVED AND REPLACED UPON COMPLETION OF WORK.
 - ALL FITTINGS AND VALVES TO BE REMOVED AT MECHANICAL JOINTS WHENEVER POSSIBLE. IF FITTING OR VALVE NEEDS TO BE REMOVED BY CUTTING, SEE APPROPRIATE DETAILS ON SHEET D-1 AND SHEET D-2.
 - PROPOSED HS PHASE 1: STA. HS 0+00 TO STA. HS 17+83. PROPOSED HS PHASE 2: STA. HS 17+83 TO STA. HS 37+87.



2 ENLARGEMENT - HANOVER STREET AND MOSEMAN ROAD
SCALE: 1" = 20'



1 HANOVER STREET - STA. HS 16+48 TO STA. HS 28+12 (2022 CONSTRUCTION)
SCALE: 1" = 40'

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2022 CONSTRUCTION

NO.	DATE	BY	APP. BY	DESCRIPTION
1	7/22/15	JMZ	JFB	WCD08 REVISIONS
2	2/16	VLB	JFB	ADDED GRANITE SPRINGS ROAD TO SET



NOTES:

1. NORMAL WATER MAIN OPERATING PRESSURE RANGES FROM 70 PSI TO 105 PSI.
2. ALL FITTINGS ALONG WATER MAIN TO BE CLEANED AND RELINED SHALL BE REMOVED AND REPLACED UPON COMPLETION OF WORK.
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4. PROPOSED HS PHASE 3: STA. HS 37+87 TO STA. HS 59+98.



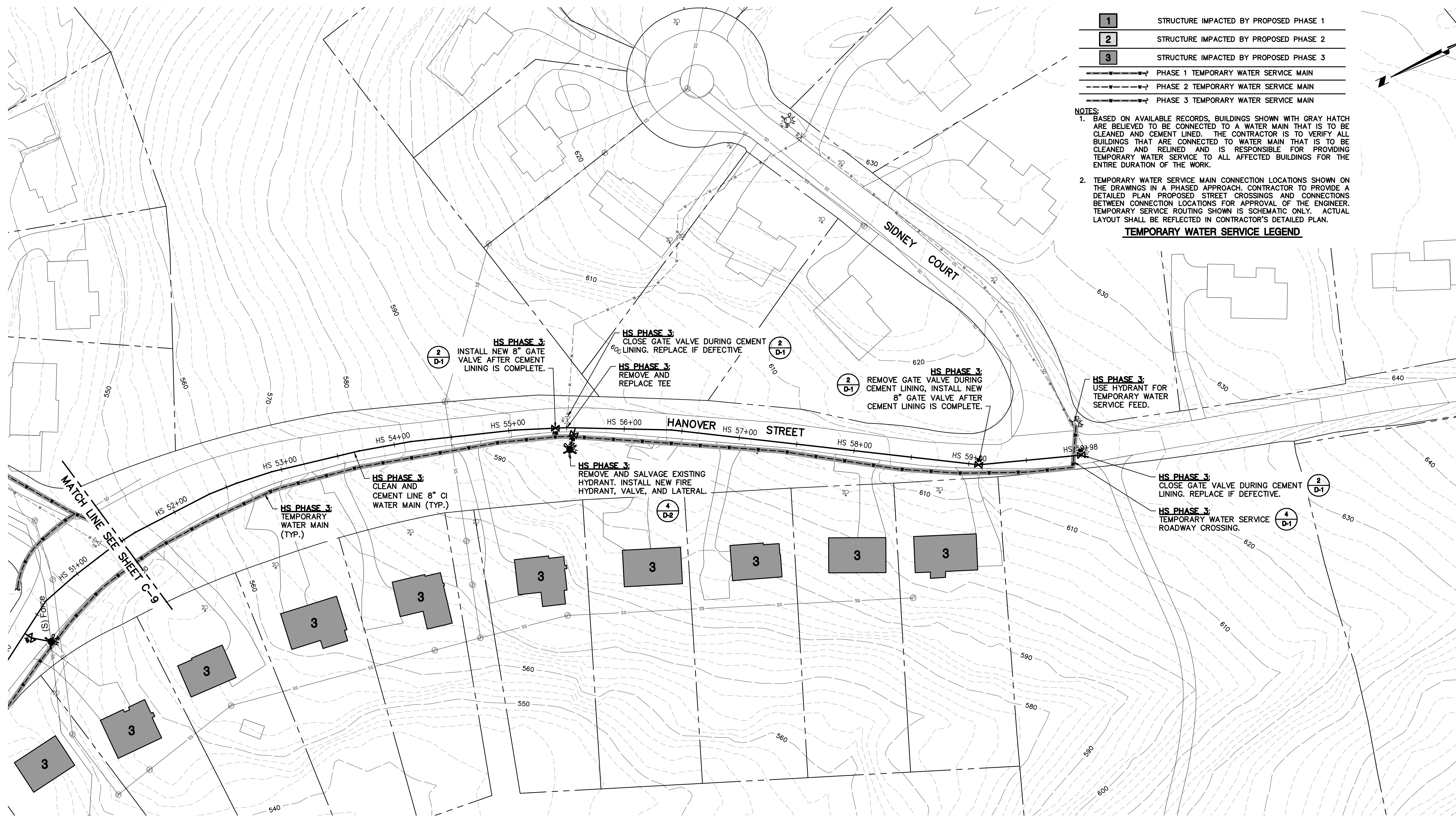
KEY PLAN - HANOVER STREET

- | | |
|-----|--|
| 1 | STRUCTURE IMPACTED BY PROPOSED PHASE 1 |
| 2 | STRUCTURE IMPACTED BY PROPOSED PHASE 2 |
| 3 | STRUCTURE IMPACTED BY PROPOSED PHASE 3 |
| --- | PHASE 1 TEMPORARY WATER SERVICE MAIN |
| --- | PHASE 2 TEMPORARY WATER SERVICE MAIN |
| --- | PHASE 3 TEMPORARY WATER SERVICE MAIN |

NOTES:

1. BASED ON AVAILABLE RECORDS, BUILDINGS SHOWN WITH GRAY HATCH ARE BELIEVED TO BE CONNECTED TO A WATER MAIN THAT IS TO BE CLEANED AND CEMENT LINED. THE CONTRACTOR IS TO VERIFY ALL BUILDINGS THAT ARE CONNECTED TO WATER MAIN THAT IS TO BE CLEANED AND RELINED AND IS RESPONSIBLE FOR PROVIDING TEMPORARY WATER SERVICE TO ALL AFFECTED BUILDINGS FOR THE ENTIRE DURATION OF THE WORK.
2. TEMPORARY WATER SERVICE MAIN CONNECTION LOCATIONS SHOWN ON THE DRAWINGS IN A PHASED APPROACH. CONTRACTOR TO PROVIDE A DETAILED PLAN PROPOSED STREET CROSSINGS AND CONNECTIONS BETWEEN CONNECTION LOCATIONS FOR APPROVAL OF THE ENGINEER. TEMPORARY SERVICE ROUTING SHOWN IS SCHEMATIC ONLY. ACTUAL LAYOUT SHALL BE REFLECTED IN CONTRACTOR'S DETAILED PLAN.

TEMPORARY WATER SERVICE LEGEND

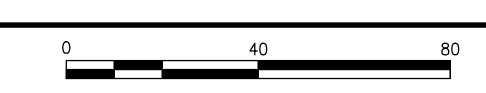


1 HANOVER STREET - STA. HS 51+48 TO STA. HS 59+98 (2022 CONSTRUCTION)
SCALE: 1" = 40'

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2022 CONSTRUCTION



No.	Date	Dr. By	Ch. By	App. By	Description
1	7/22/15	JMZ	VLB		
2	2/16	JMZ	JZ/CS	JFB	ADDED GRANITE SPRINGS ROAD TO SET



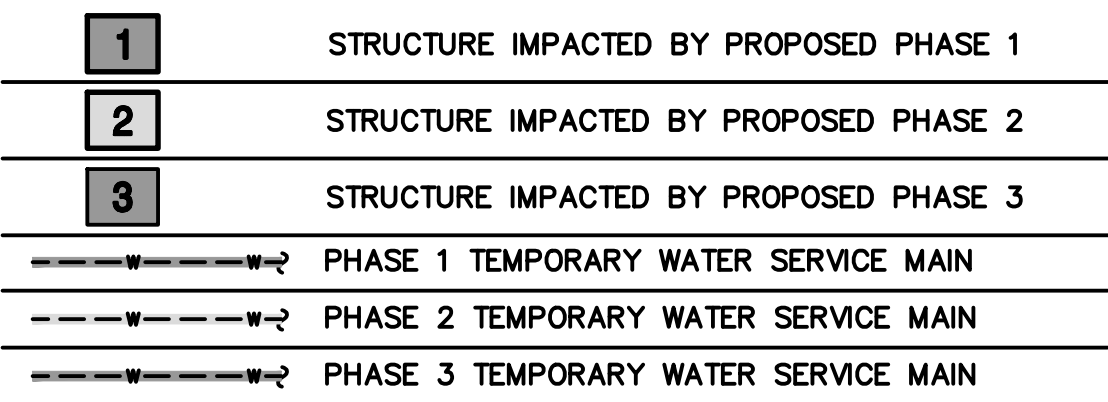
TOWN OF YORKTOWN, NEW YORK
CLEANING AND CEMENT MORTAR LINING OF WATER MAIN
HANOVER STREET - STA. HS 51+48 TO STA. HS 59+98
(2022 CONSTRUCTION)

CADD NO. C-10 AS NOTED
SCALE: AS NOTED
CONTRACT: ENG21-0417
JOB NO. ENG21-0417
DR. BY: JZM
CHK. BY: JZM
APP. BY: JFB

REGISTERED PROFESSIONAL ENGINEER
DATE

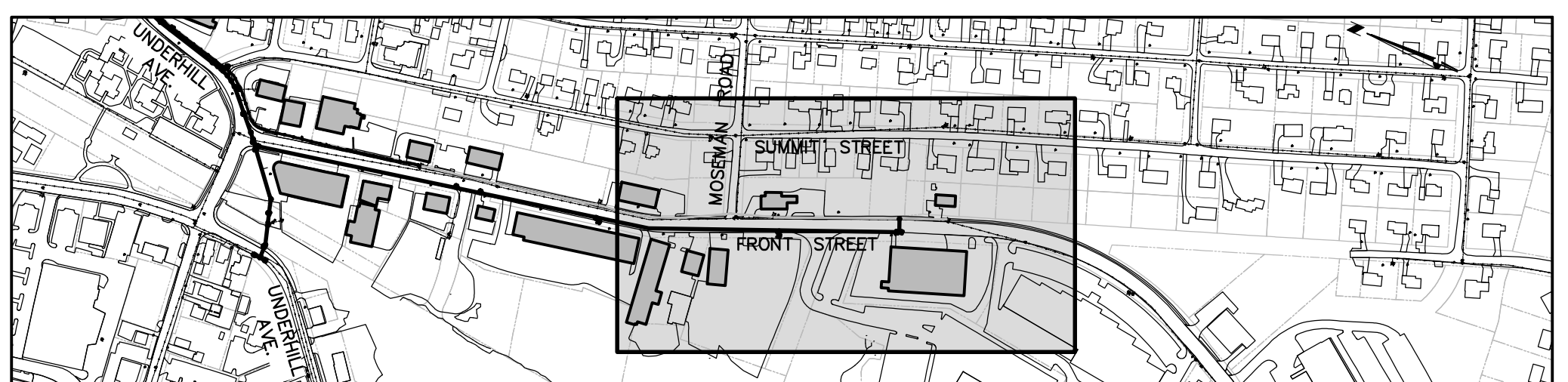
NOTES:

1. NORMAL WATER MAIN OPERATING PRESSURE RANGES FROM 120 PSI TO 135 PSI.
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4. PROPOSED COMBINED FS AND UA PHASE 1: STA. FS 0+00 TO STA. FS 18+07 AND STA. UA 0+00 TO STA. UA 9+64.

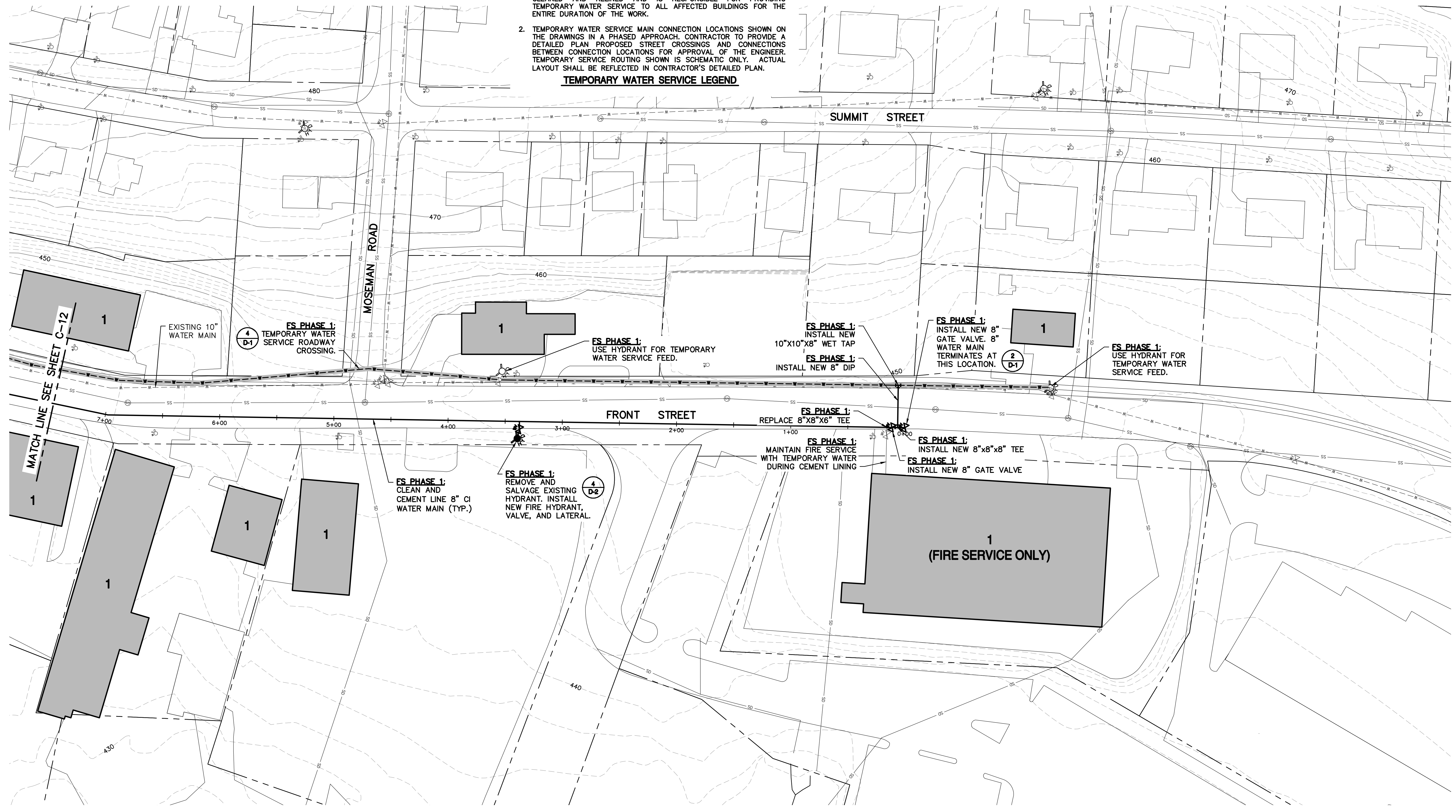


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TEMPORARY WATER SERVICE LEGEND



KEY PLAN - FRONT STREET



1 FRONT STREET - STA. FS 0+00 TO STA. FS 7+46 (2022 CONSTRUCTION - BID ALTERNATE)
SCALE: 1" = 40'

\s\cadd\local\WSE\Projects\NY\Yorktown, NY\2246006 Cement Lining of Water Mains\CAD\WAS\C-11 FRONT STREET - STA. FS 0+00 TO STA. FS 7+46.dwg
 17/22/15 2/16
 JMZ VLB JMZ JZ/CS JFB
 WOODH REVISIONS
 ADDED GRANITE SPRINGS ROAD TO SET
 No. Date Dr. By App. By Description
 1 7/22/15 JMZ VLB JMZ JZ/CS JFB
 2 2/16 A P P R O V E D
 REGISTERED PROFESSIONAL ENGINEER DATE

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2022 CONSTRUCTION - BID ALTERNATE

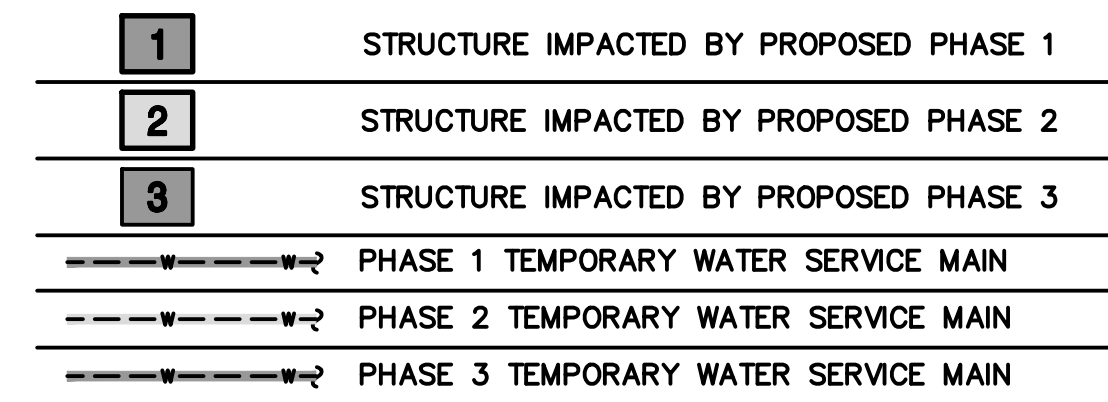
1	7/22/15	JMZ	VLB	JMZ	JZ/CS	JFB	WOODH REVISIONS
2	2/16	A	P	P	R	O	ADDED GRANITE SPRINGS ROAD TO SET
No.	Date	Dr. By	App. By	App. By	App. By	App. By	Description



TOWN OF YORKTOWN, NEW YORK
 CLEANING AND CEMENT MORTAR LINING OF WATER MAIN
 FRONT STREET - STA. FS 0+00 TO STA. FS 7+46
 (2022 - BID ALTERNATE)
 CADD NO. C-11 AS NOTED
 CONTRACT: ENG21-0417
 SCALE: AS NOTED
 JOB NO. ENG21-0417
 DR. BY: JMZ
 DSN. BY: JMZ
 CHK. BY: CWS
 APP. BY: JFB
 FILE NO. C-11
 SHEET 13 OF 22

NOTES:

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TEMPORARY WATER SERVICE LEGEND



KEY PLAN - FRONT STREET



1 FRONT STREET - STA. FS 7+46 TO STA. FS 18+07 (2022 CONSTRUCTION - BID ALTERNATE)
SCALE: 1" = 40'

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2022 CONSTRUCTION - BID ALTERNATE

NO.	DATE	DESCRIPTION	APP. BY	REGISTERED PROFESSIONAL ENGINEER	DATE
1	7/22/15	ADDED GRANITE SPRINGS ROAD TO SET	JFB		
2	2/16		JFB		

TOWN OF YORKTOWN, NEW YORK
CLEANING AND CEMENT MORTAR LINING OF WATER MAIN
FRONT STREET - STA. FS 7+46 TO STA. FS 18+07
(2022 - BID ALTERNATE)

SCALE: AS NOTED
C-12

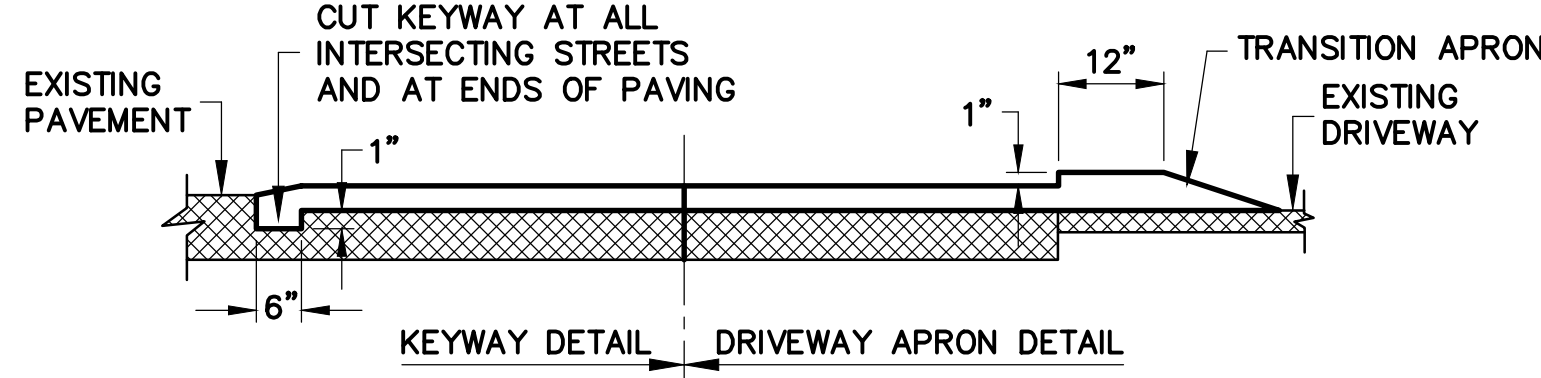
FILE NO.: ENG21-0417
CONTRACT: ENG21-0417

DR. BY: JMZ
CHK. BY: JFB
APP. BY: JFB

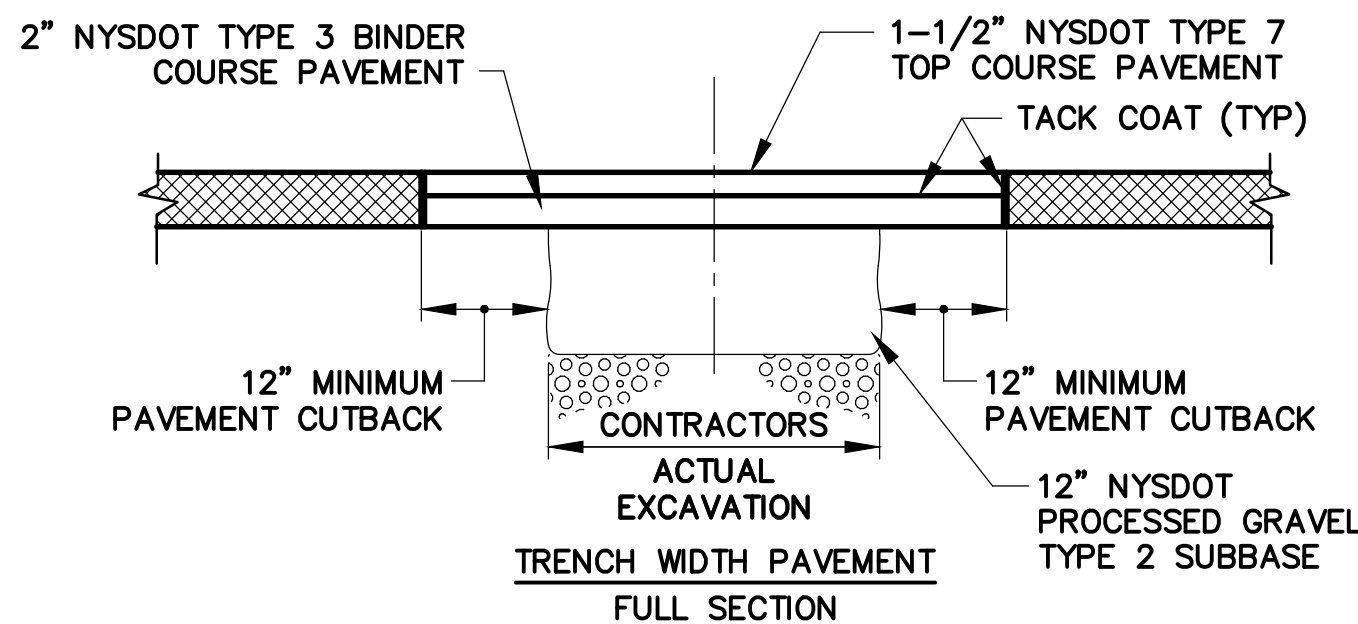
CADD NO.: C-12

C-12

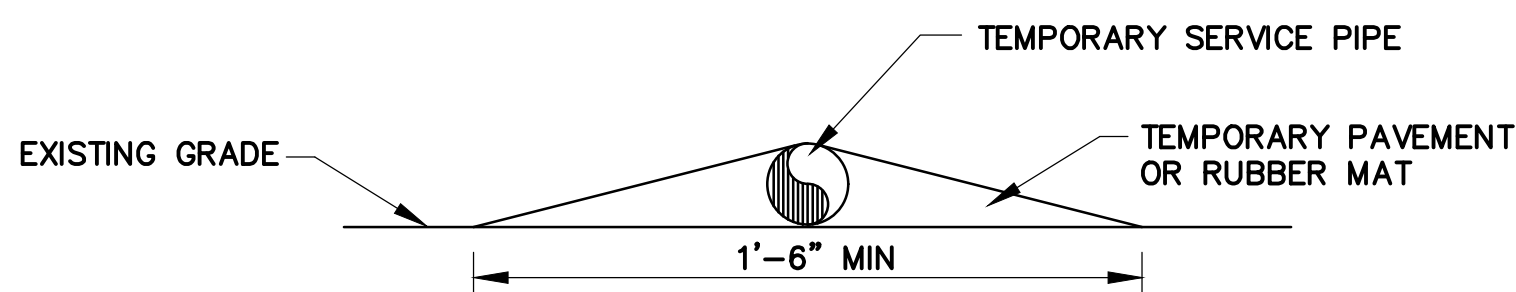
SHEET 14 OF 22



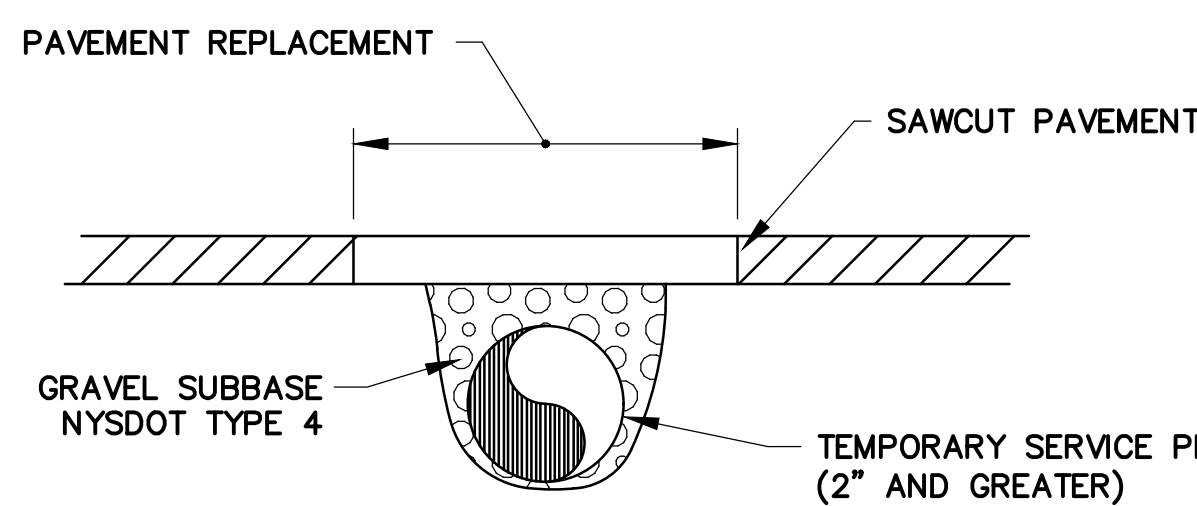
1 PAVEMENT REPLACEMENT DETAILS
SCALE: N.T.S.



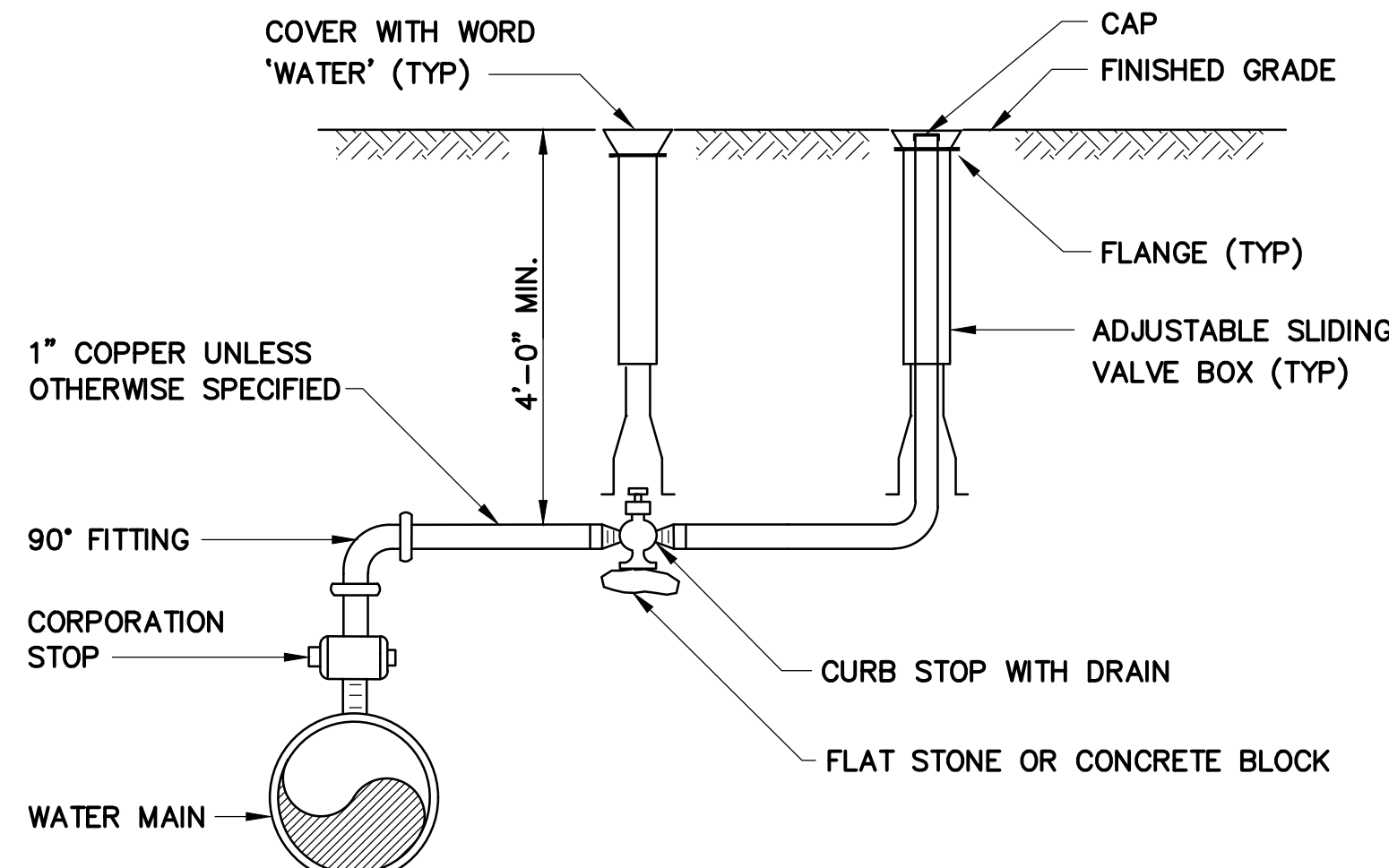
2 VALVE AND BOX DETAIL
SCALE: N.T.S.



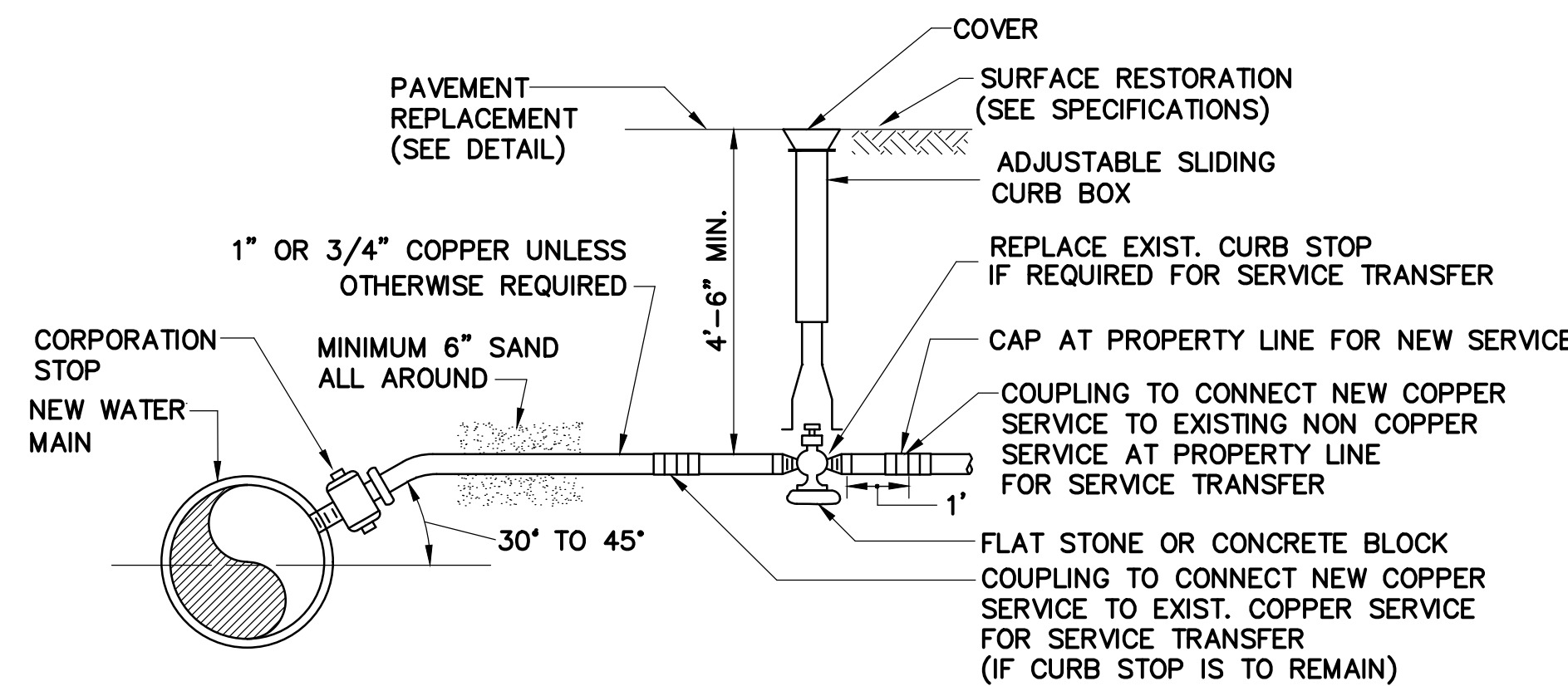
3 2 INCH TEMPORARY SERVICE PIPE DRIVEWAY CROSSING DETAIL
SCALE: N.T.S.



4 TEMPORARY SERVICE PIPE ROADWAY CROSSING DETAIL
SCALE: N.T.S.

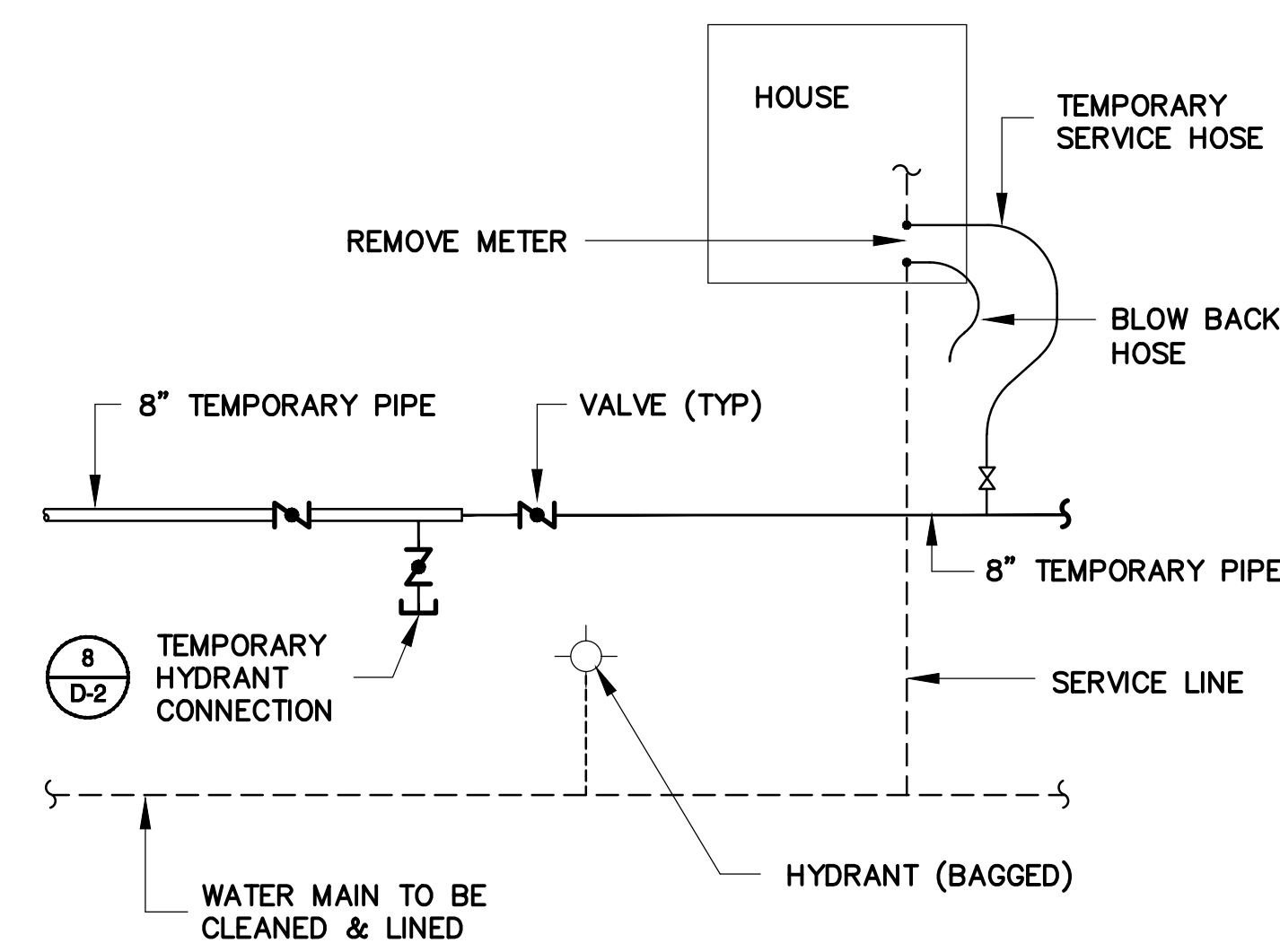


5 CURB STOP BLOW-OFF DETAIL
SCALE: N.T.S.

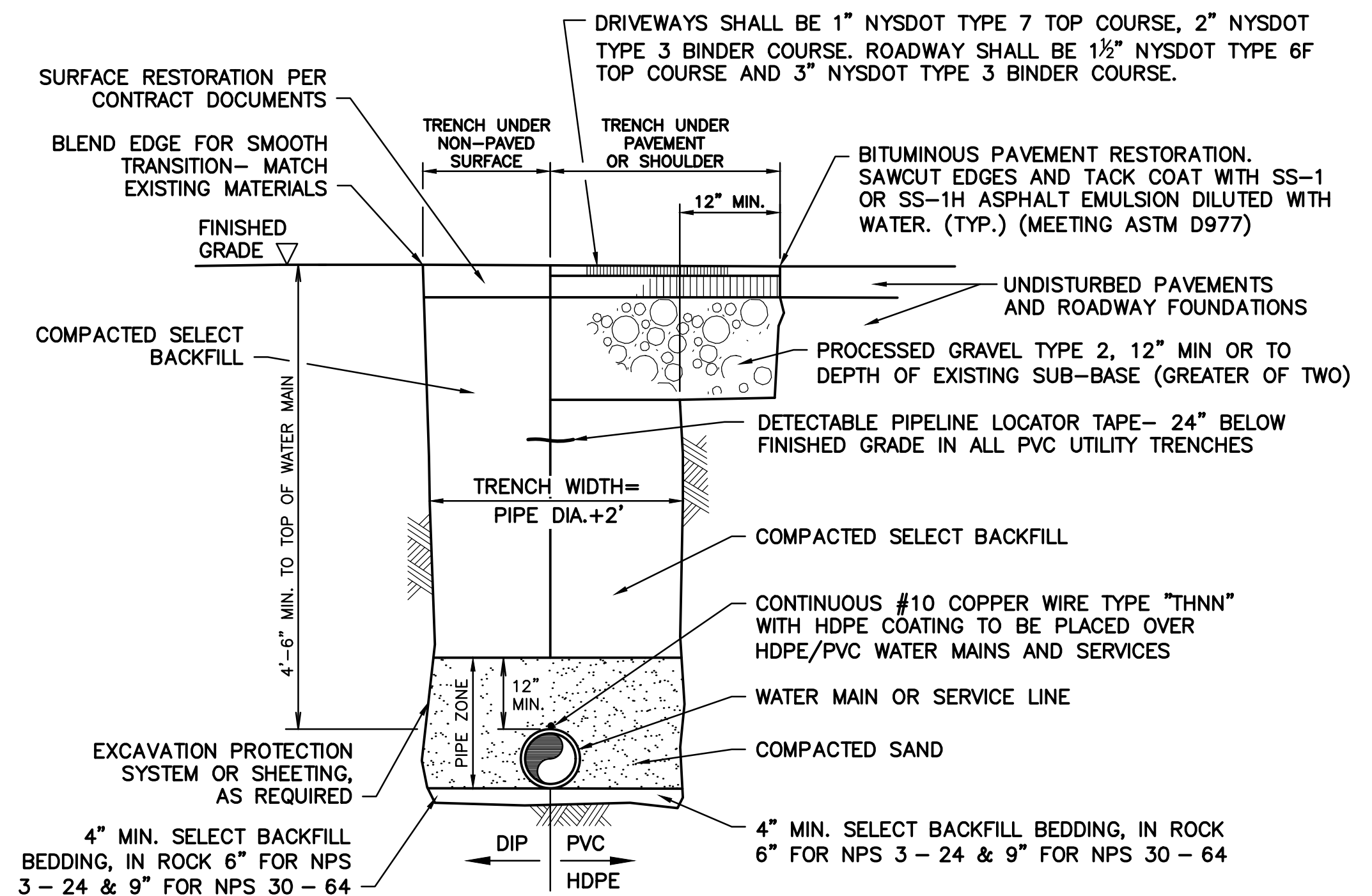


6 WATER SERVICE DETAIL
SCALE: N.T.S.

NOTE: PROVIDE SADDLE FOR ALL AC AND PVC MAINS AND ALL 2" OR LARGER STOPS



7 TEMPORARY SERVICE PIPE DETAIL
SCALE: N.T.S.



8 TYPICAL WATER MAIN TRENCH DETAIL
SCALE: N.T.S.

NOTE:
TRENCH/SIDE SLOPE STABILIZATION AND JOB SAFETY ARE THE RESPONSIBILITY OF THE CONTRACTOR. COMPLY WITH ALL APPLICABLE STATE AND FEDERAL REGULATIONS.

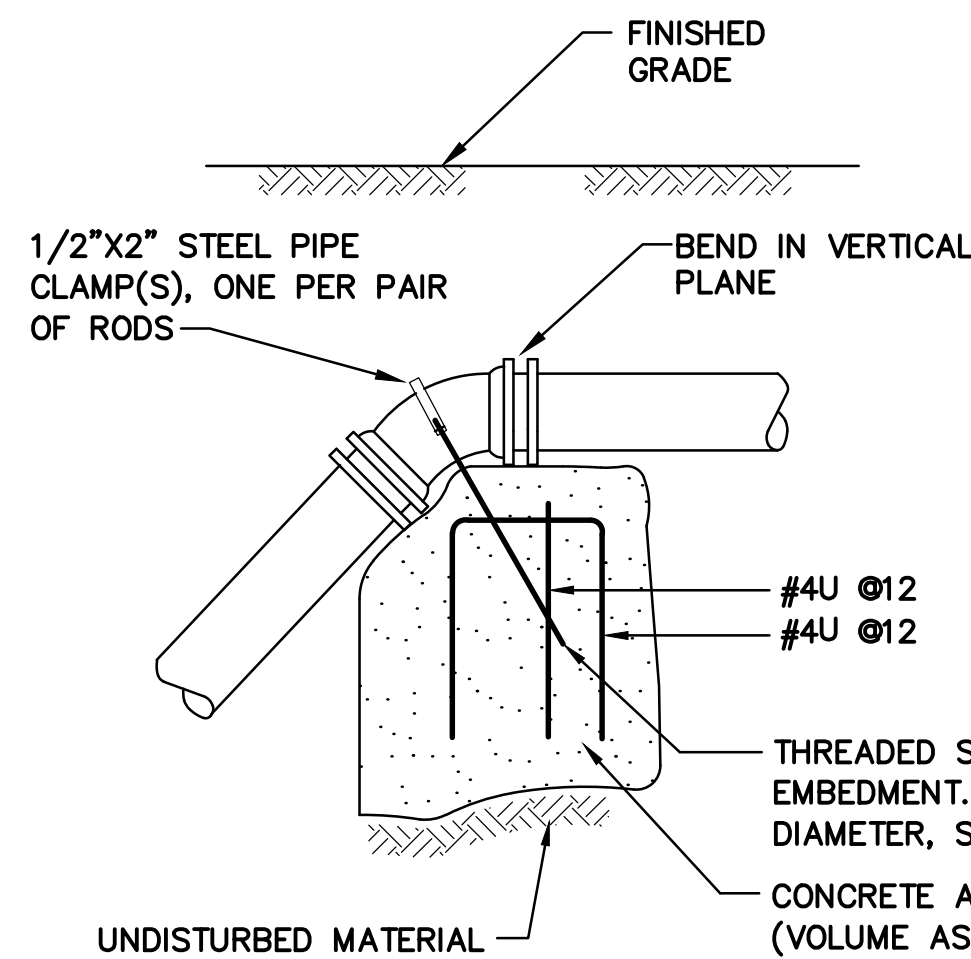


Table Of Dimensions For Anchor Blocks		NO. AND SIZE OF THREADED RODS	
BEND SIZE	Volume	NO.	DIAM.
6"-22.5"	0.6 C.Y.	2	1/2"
6"-45"	1.0 C.Y.	2	1/2"
8"-22.5"	1.0 C.Y.	2	1/2"
8"-45"	1.8 C.Y.	2	3/4"
12"-22.5"	2.5 C.Y.	2	3/4"
12" 45"	4.0 C.Y.	4	3/4"

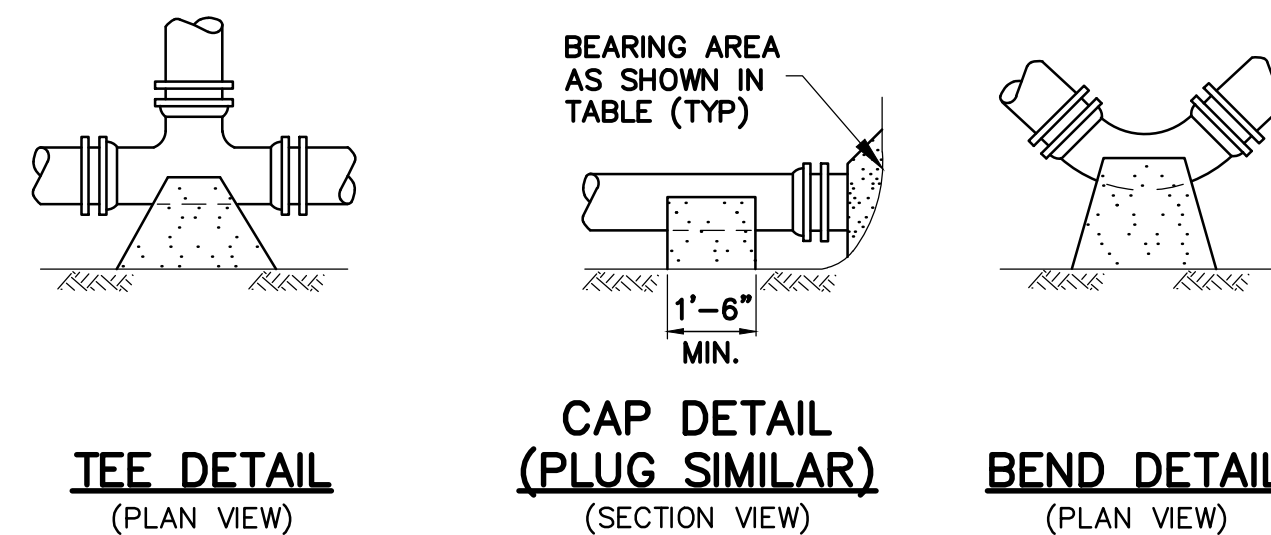


TABLE OF CONCRETE THRUST RESTRAINT MINIMUM BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS				
SIZE OF MAIN	90° BENDS, TEES, CAPS AND PLUGS	45° BENDS AND WYES	22-1/2° BENDS	11-1/4° BENDS
6", 8"	5	4	2	2
10", 12"	12	9	5	2

NOTE:
1. CONTRACTOR SHALL USE CARE TO AVOID PLACEMENT OF CONCRETE ON THE FITTING JOINTS

9 CONCRETE THRUST BLOCK DETAILS
SCALE: N.T.S.

\\weston\local\WES\Projects\NY\Yorktown, NY\2246006 - Cement Lining of Water Main\CAD\WAS\CD-1 - CONSTRUCTION DETAILS.dwg

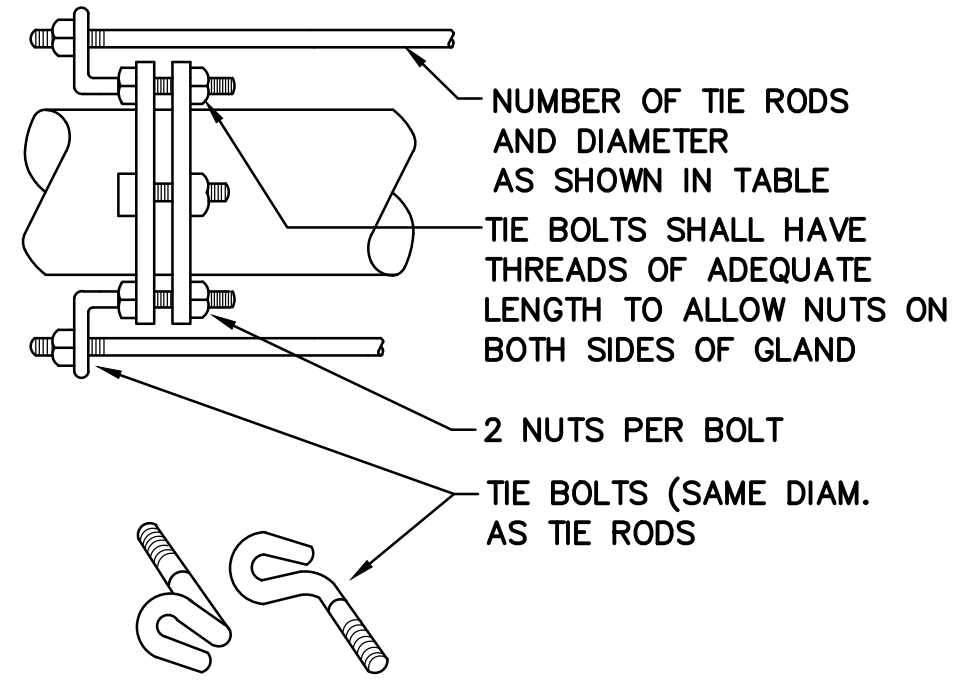
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NO.	DATE	DESCRIPTION	REGISTERED PROFESSIONAL ENGINEER	DATE
1	7/22/15	ADDED GRANITE SPRINGS ROAD TO SET		
2	2/16			



FILE NO.	CONTRACT	SCALE	AS NOTED	APP. BY	CHK. BY	DR. BY	DSN. BY	APP. BY
D-1	ENG21-0417	D-1	AS NOTED	JMB	CWS	JMB	JMB	JMB



PIPE SIZE	TIE ROD NO.	TIE ROD DIA.
6"	2	1/2"
8"	2	5/8"
10"	2	3/4"
12"	4	3/4"

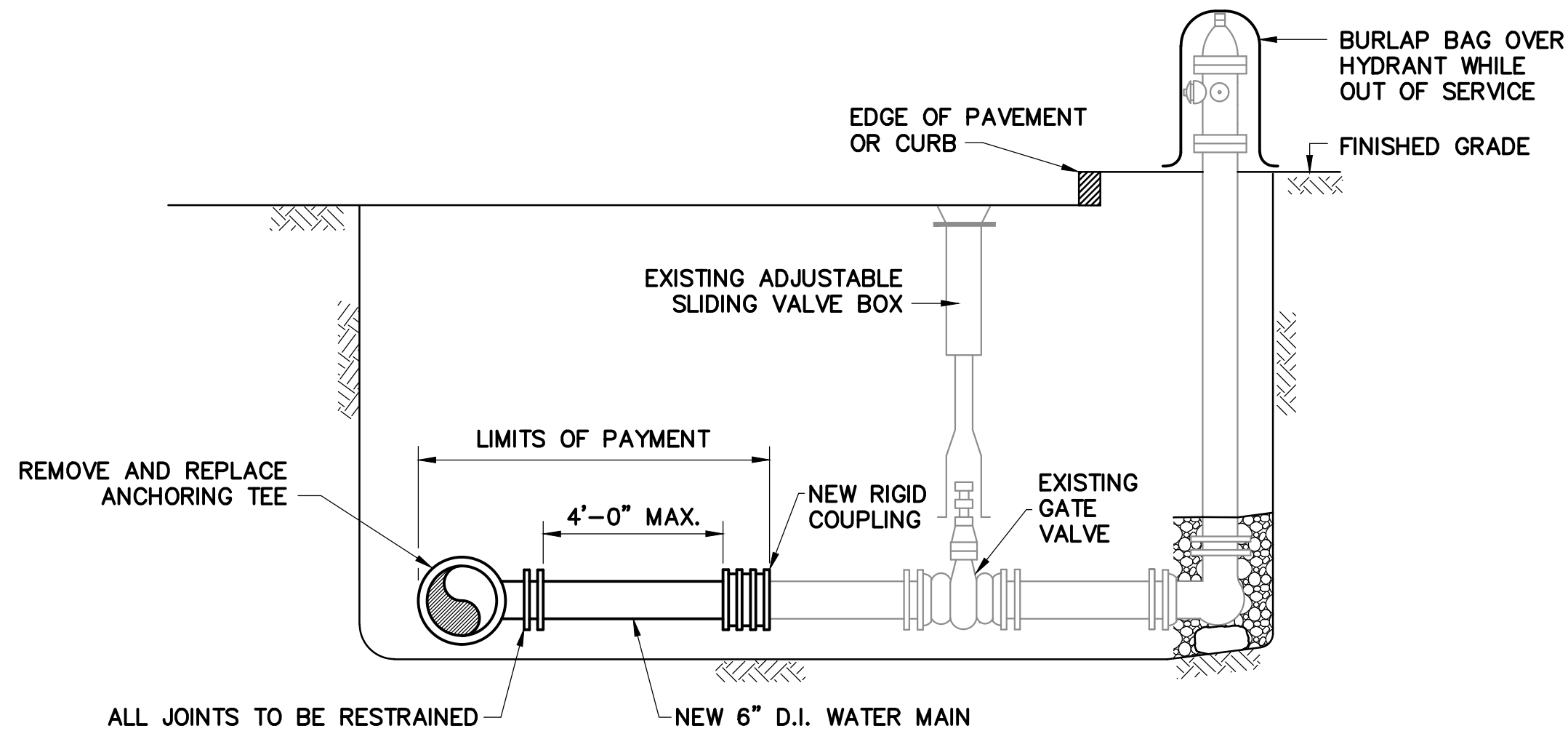
TABLE 1
REQUIRED LENGTH OF RESTRAINED JOINTS FROM FITTINGS (FEET)

PIPE SIZE	90° BEND	45° BEND OR WYE BRANCH	22 1/2° BEND	11 1/4° BEND	PLUG OR CAP	TEE (BRANCH)
6"	25 (30.5)	10.5 (12.5)	5 (6)	2.5 (3)	43 (64)	34 (51)
8"	33 (40)	13.5 (16.5)	6.5 (8)	3 (4)	55 (82)	47 (70)
10"	40 (48.5)	16.5 (20)	8 (9.5)	4 (5)	67 (100)	58 (87)
12"	47 (56.5)	19.5 (23.5)	9.5 (11.5)	4.5 (5.5)	79 (118)	70 (105)
16"	59.5 (72)	24.5 (30)	12 (14.5)	6 (7)	101 (152)	92 (139)
20"	72 (86.5)	30 (36)	14.5 (17)	7 (8.5)	123 (184)	114 (171)
24"	84 (100)	35 (41)	16.5 (20)	8 (10)	144 (216)	134 (202)
30"	100 (120)	41 (50)	20 (24)	10 (12)	174 (261)	165 (247)

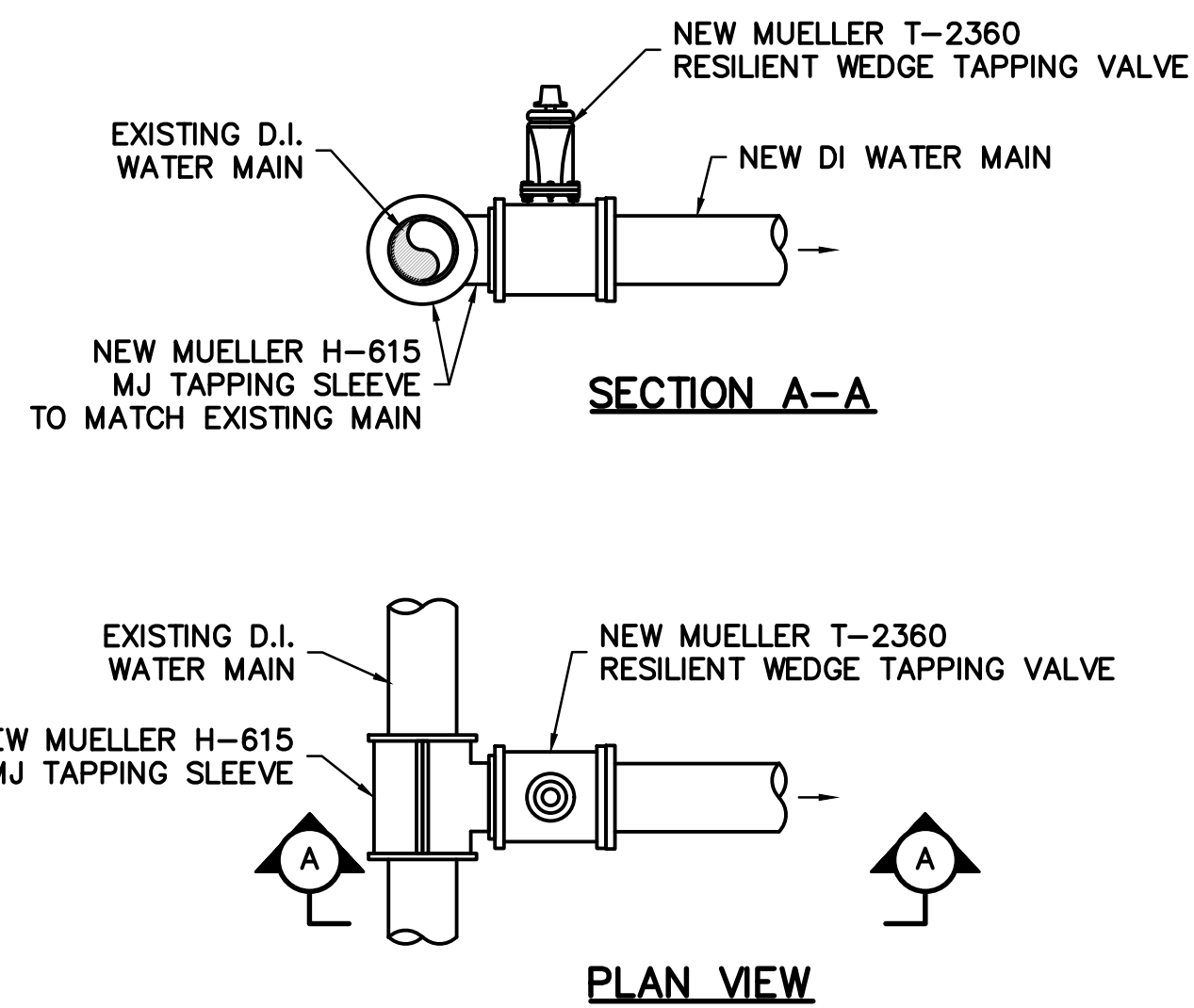
NOTES:
 1. RESTRAINED LENGTHS LISTED IN PARENTHESES ARE FOR PIPE WRAPPED IN POLYETHYLENE. THE OTHER ASSOCIATED LENGTHS ARE FOR PLAIN UNWRAPPED DUCTILE IRON PIPE.
 2. THE CONTRACTOR SHALL USE THIS TABLE IN CONJUNCTION WITH THE APPROPRIATE PIPE SPECIFICATION SECTION.

NOTE:
TIE ROD JOINT RESTRAINT SHALL ONLY BE USED WHERE OTHER MEANS OF RESTRAINT ARE NOT FEASIBLE.

1 JOINT RESTRAINT TIE RODS DETAIL
SCALE: N.T.S.



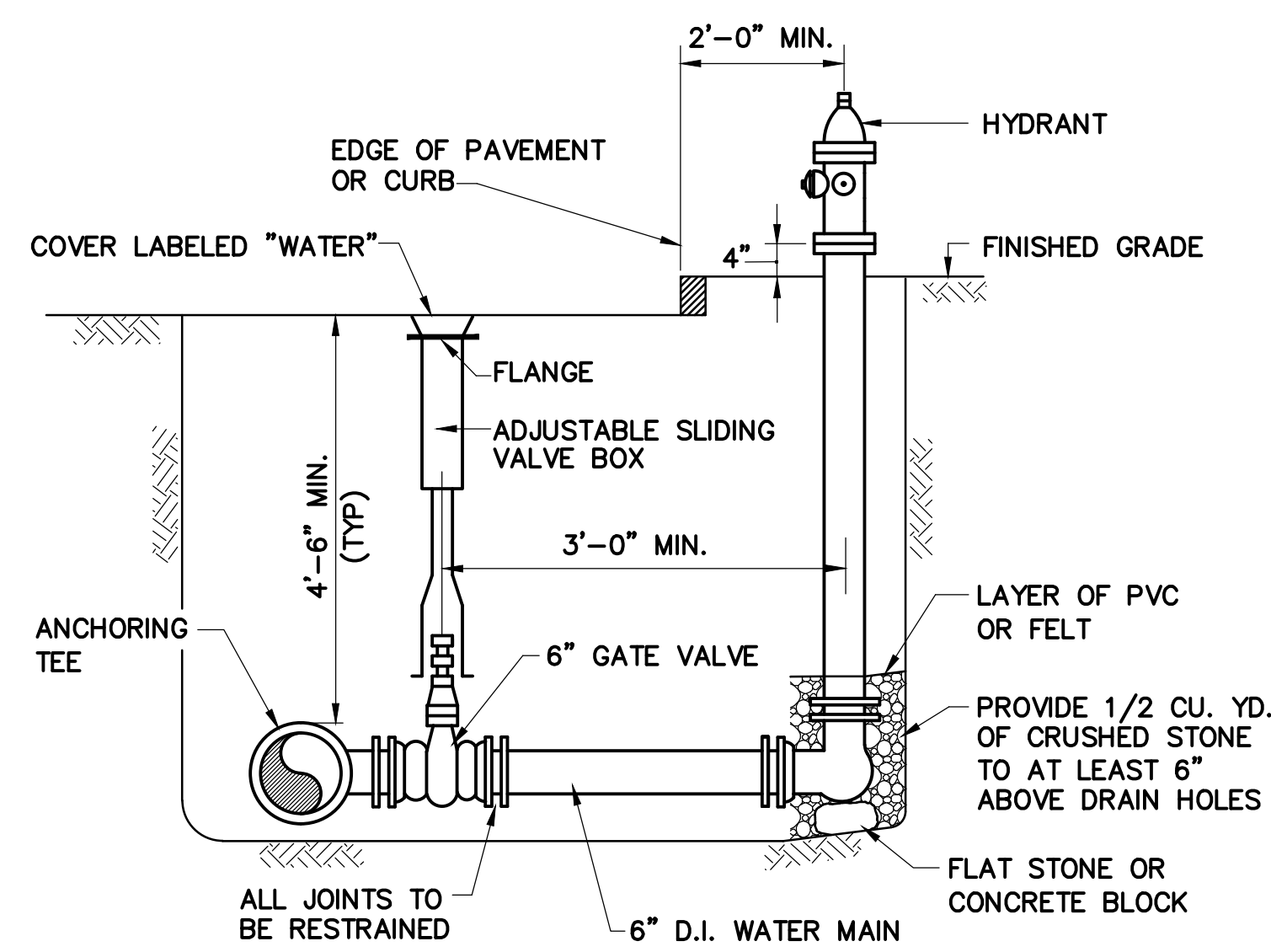
2 FIRE HYDRANT LATERAL RECONNECTION DETAIL
SCALE: N.T.S.



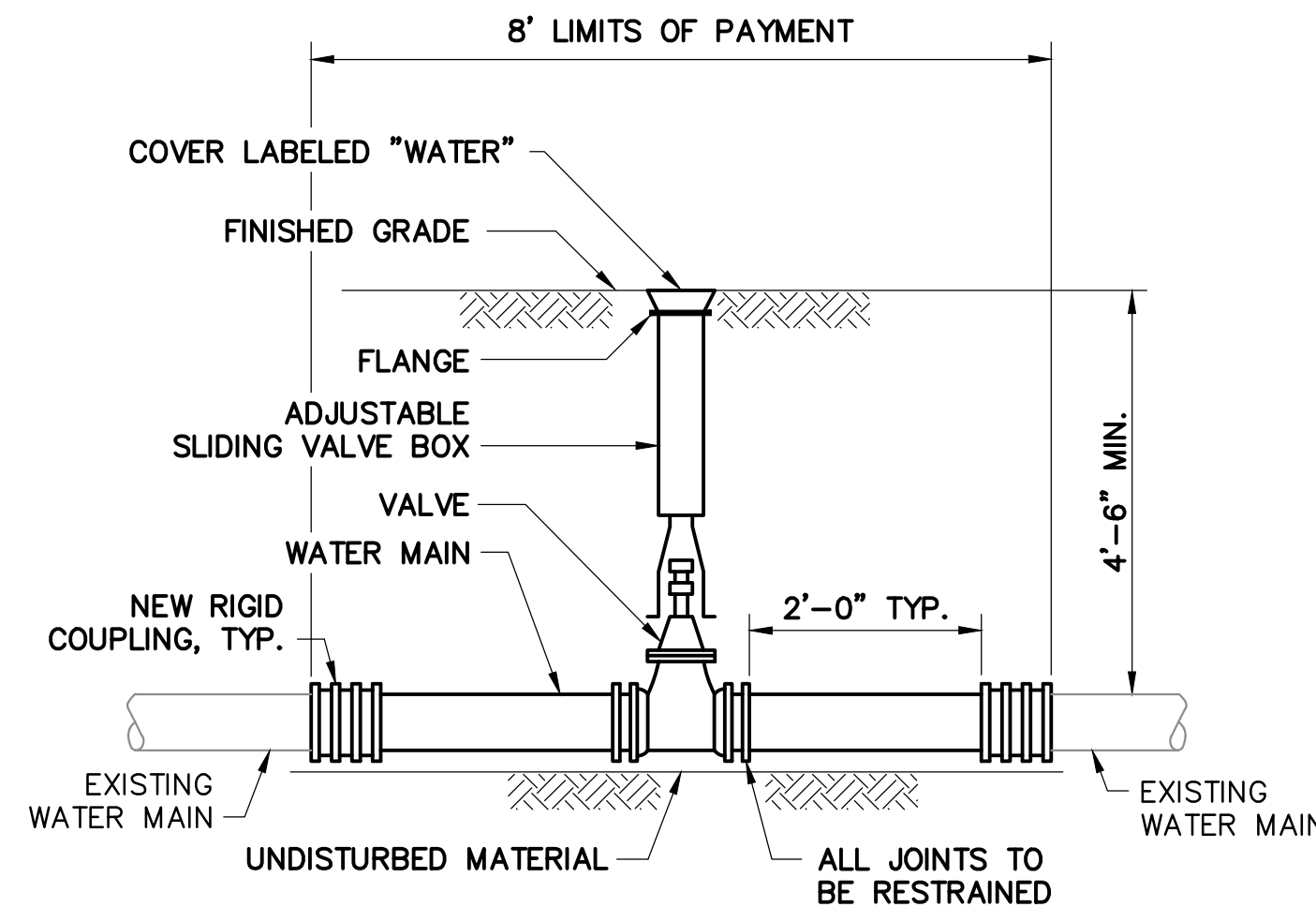
3 WET TAP DETAIL
SCALE: N.T.S.

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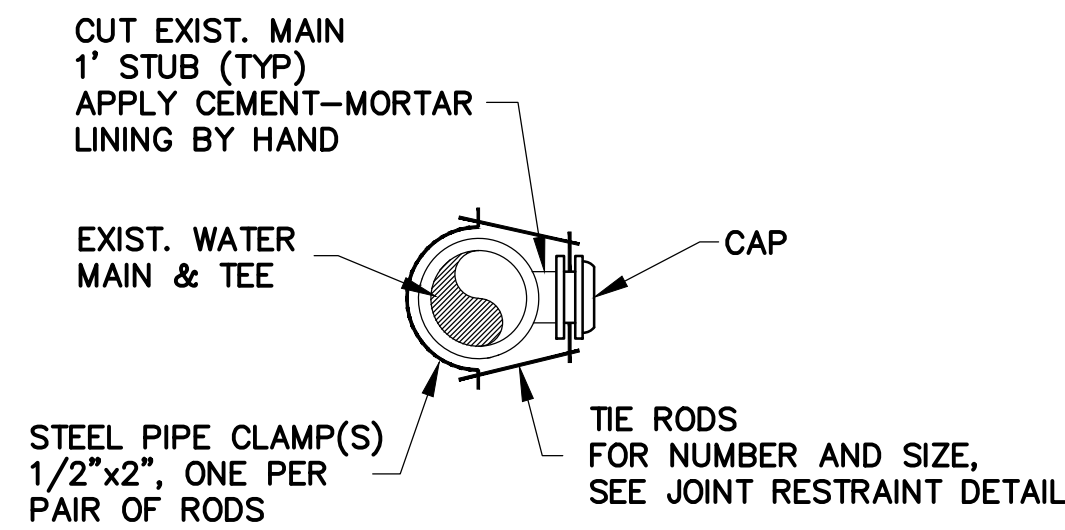
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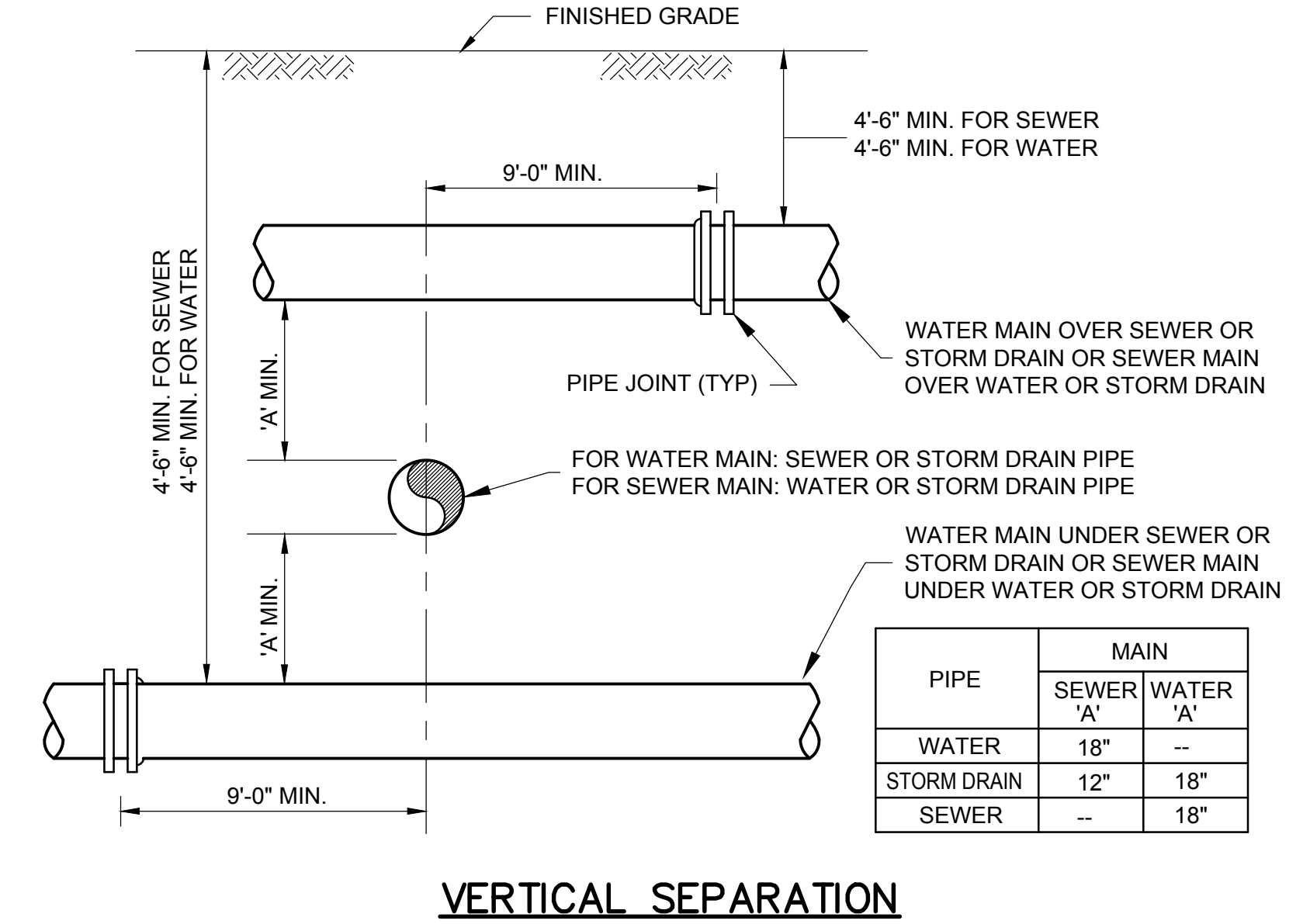
4 NEW FIRE HYDRANT AND LATERAL DETAIL
SCALE: N.T.S.



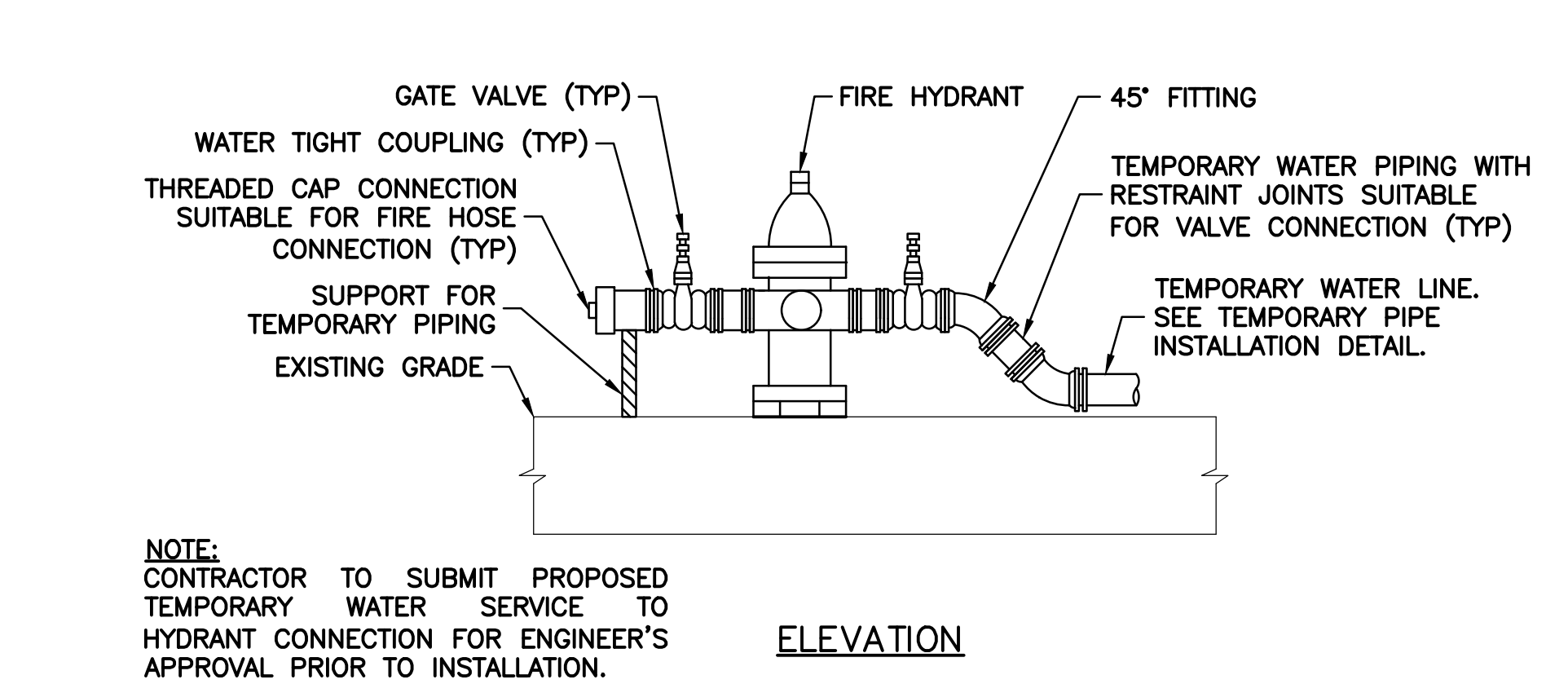
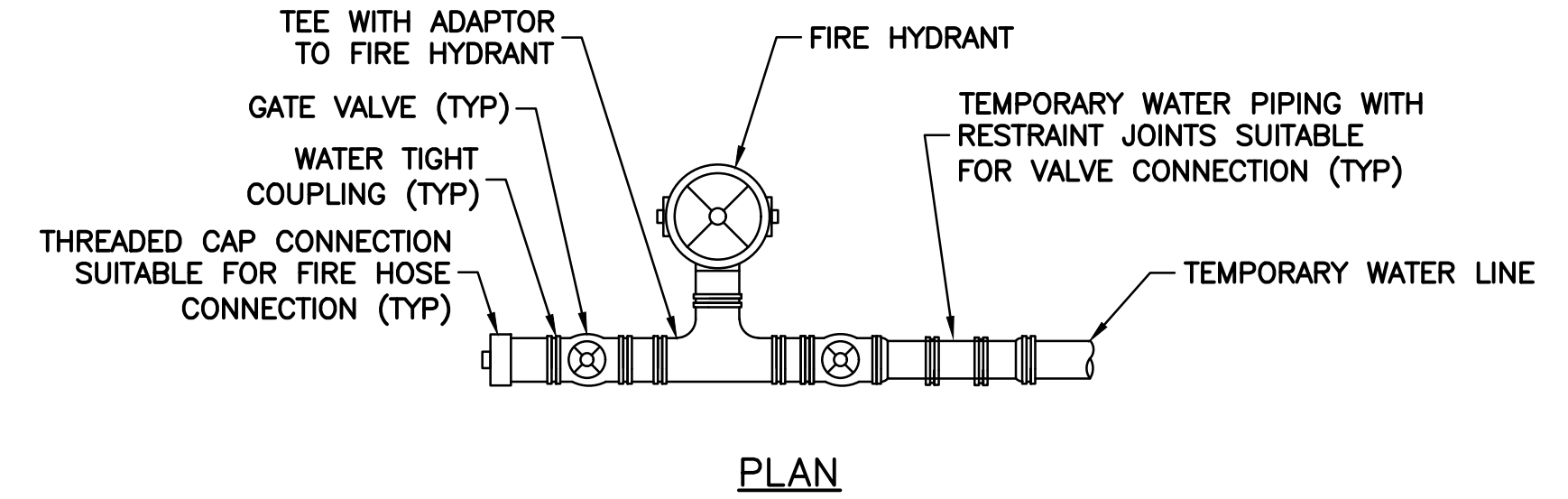
5 VALVE REPLACEMENT RECONNECTION DETAIL
SCALE: N.T.S.



6 CAP INSTALLATION DETAIL
SCALE: N.T.S.



7 PIPE CROSSING DETAIL
SCALE: N.T.S.



8 TEMPORARY WATER MAIN FIRE HYDRANT CONNECTION DETAIL
SCALE: N.T.S.

NOTE:
CONTRACTOR TO SUBMIT PROPOSED TEMPORARY WATER SERVICE TO HYDRANT CONNECTION FOR ENGINEER'S APPROVAL PRIOR TO INSTALLATION.

NO.	DATE	DESCRIPTION	APP. BY	DATE
1	7/22/15	ADDED GRANITE SPRINGS ROAD TO SET	JFB	
2	2/16		JFB	



MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

GENERAL MAINTENANCE AND PROTECTION OF TRAFFIC

1. THE MAINTENANCE AND PROTECTION PLANS SHOWN ARE STANDARDS FOR THE MOST COMMON SITUATIONS. ADDITIONAL PROTECTION SHALL BE PROVIDED WHERE SPECIAL CIRCUMSTANCES OCCUR.
2. ALL TRAFFIC CONTROL DEVICES USED FOR MAINTENANCE AND PROTECTION OF TRAFFIC SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS AS SET FORTH IN THE NYS DOT M.U.T.C.D. (LATEST REVISIONS & AMENDMENTS) AND THE STANDARD SPECIFICATIONS (LATEST REVISIONS & AMENDMENTS).
3. THE CONTRACTOR MAY SUBMIT REVISIONS TO THIS PLAN FOR APPROVAL, BUT ANY CHANGE THAT ALTERS THE BASIC CONCEPTS OF THE PLAN MUST BE APPROVED BY THE REGIONAL DIRECTOR OR HIS DESIGNEE.
4. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH ALL THE PROVISIONS OF STANDARD SPECIFICATIONS, ITEM 619.02 M - BASIC MAINTENANCE AND PROTECTION OF TRAFFIC, AND ITEM 619.02 M - CONSTRUCTION SIGNS, OR AS AMENDED ON THIS SHEET.
5. NO TEMPORARY LANE CLOSURES SHALL BE ALLOWED BEFORE SUNRISE OR AFTER SUNSET, OR AT OTHER TIMES WHEN VISIBILITY IS REDUCED TO LESS THAN 1000 FEET, UNLESS REQUIRED BY THE ENGINEER.
6. THE TRAVEL LANE WIDTH AVAILABLE SHALL BE 10 FEET MINIMUM AT ALL TIMES AND 10 FEET MINIMUM ON ALL OTHER ROADS, UNLESS OTHERWISE SHOWN IN THE PLANS.
7. MOST WORK OPERATIONS ARE CONSIDERED TO BE LONG DURATION OPERATIONS WHERE THE EQUIPMENT BEING USED PROGRESSES ALONG THE ROADWAY MORE OR LESS CONTINUOUSLY, AS IN SEEDING AND PAVEMENT MARKING OPERATIONS, CAN BE CONSIDERED MOVING WORK AREAS.
8. ALL SHADOW VEHICLES SHALL WEIGH IN EXCESS OF 8,200 KG. SHADOW VEHICLES SHALL BE EQUIPPED WITH MOBILE CONSTRUCTION ZONE IMPACT ATTENUATOR, AS CALLED FOR UNDER STANDARD SPECIFICATIONS SUBSECTION 619-1.02. BASIC MAINTENANCE AND PROTECTION OF TRAFFIC.
9. VEHICLES BELONGING TO THE CONTRACTOR, OR THE CONTRACTOR'S EMPLOYEES, SHALL NOT BE PARKED ON THE PAVEMENT OR SHOULDER, OR WITHIN 20 FEET OF THE EDGE OF PAVEMENT ALONG OR ADJACENT TO TRAVEL LANES OPEN TO TRAVEL, WITHIN THE PROJECT LIMITS.
10. THE CONTRACTOR SHALL NOT PARK EQUIPMENT OR STORE MATERIAL OVERNIGHT WHERE IT IS DEEMED BY THE ENGINEER TO BE HAZARDOUS TO TRAFFIC.
11. ALL VEHICLES THAT WILL BE MOVING IN AND OUT OF TRAFFIC AT WORK AREAS SHALL BE EQUIPPED WITH AN APPROVED AMBER ROTATING SAFETY LIGHT. THE LIGHTS SHALL BE MOUNTED SO AS TO BE EASILY SEEN BY APPROACHING TRAFFIC.
12. DRIVING AGAINST TRAFFIC AT ANY TIME, REGARDLESS OF WHETHER THE AREA HAS BEEN CLOSED TO TRAFFIC, SHALL NOT BE PERMITTED, EXCEPT FOR TRAFFIC CONE PICKUP, AND AS SPECIFICALLY PERMITTED BY THE ENGINEER.
13. ESCORT VEHICLES EQUIPPED WITH AN AMBER LIGHT OR AN OPERATING ARROW-BOARD WILL BE REQUIRED WHEN TRANSFERRING SLOW MOVING CONSTRUCTION EQUIPMENT ALONG ANY PORTION OF THE ROADWAY OPEN TO TRAFFIC.
14. WHEN REOPENING DRIVING LANES TO TRAFFIC, THE CONTRACTOR SHALL START BY REMOVING THE CONES AT THE FAR END OF THE LANE CLOSURE, AND WORKING TOWARDS THE SIGNS AT THE BEGINS ARE. THE SIGNS ARE NOT TO BE TAKEN DOWN UNTIL ALL TRAFFIC CONTROL DEVICES HAVE BEEN REMOVED.
15. PRIOR TO ANY REDUCTION IN EXISTING LANE WIDTH(S), THE CONTRACTOR SHALL PROVIDE THE ENGINEER TWENTY-ONE (21) DAYS NOTICE SO HE MAY INFORM THE REGIONAL PERMIT ENGINEER OF THE WIDTH REDUCTION(S) IN A TIMELY MANNER.
16. SEE SUBSECTION 619-3.01 IN THE STANDARD SPECIFICATIONS (LATEST REVISION) FOR REQUIRED TREATMENT OF PAVEMENT EDGE DROP-OFFS AND DELINEATION.
17. EXCAVATIONS THAT PRODUCE DROP-OFFS ON BOTH SIDERS OF THE TRAVEL WAY AT THE SAME TIME SHALL NOT BE PERMITTED. SHOULDER AREAS SHOULD BE PREPARED TO RECEIVE THE SHOULDER PAVEMENT MATERIAL IMMEDIATELY AFTER OF THE SHOULDER PAVING OPERATIONS TO MINIMIZE THE TIME A DROP-OFF EXISTS. "NO SHOULDER" (W4-13C) SIGNS SHALL BE ERCTED NO MORE THAN 400 METERS APART THROUGHOUT THE PROJECT WHERE A DROP-OFF EXISTS.
18. THE BOTTOM OF ALL TEMPORARY CONSTRUCTION SIGNS SHALL BE A MINIMUM OF 7 FEET ABOVE THE SURFACE.
19. THE CONTRACTOR SHALL PROVIDE FULL PATTERN PAVEMENT WARNINGS FOR TRAFFIC CONTROL IN CONFORMANCE WITH THE REQUIREMENTS OF STANDARD SPECIFICATIONS, ITEM 619.21.01 M - CONSTRUCTION ZONE PAVEMENT MARKINGS. IT MAY BE NECESSARY TO MARK, REMARK, ALTER AND/OR OBLITERATE PAVEMENT MARKINGS ON TEMPORARY AND PERMANENT PAVEMENT WHERE REQUIRED BY THE ENGINEER, THE MARKING SHALL BE REMOVED BY MEANS WHICH COMPLETELY REMOVE ALL TRACES OF STRIPES. THE ENGINEER SHALL CONTACT THE REGIONAL TRAFFIC ENGINEER ONE WEEK PRIOR TO TOP COURSE STRIPPING TO VERIFY PATTERN AND LIMITS. ALL TOP COURSE STRIPPING SHALL CONFORM TO THE PROJECT'S FINAL MARKINGS WITH RESPECT TO COLOR AND PATTERN.
20. ALL TEMPORARY STRIPING IS TO BE REMOVED WITHIN 48 HOURS AFTER THE INSTALLATION OF PERMANENT STRIPING.
21. EXISTING GUIDE RAIL SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACTIVITIES NECESSITATE REMOVAL. NEW GUIDE RAIL SHALL BE INSTALLED WITHIN TWO WEEKS OF EXISTING RAIL REMOVAL UNLESS OTHERWISE APPROVED BY THE ENGINEER. TEMPORARY PROTECTION DEVICES OR DELINEATION SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER, WHENEVER GUIDE RAILING IS REMOVED. THE CONTRACTOR SHALL INSTALL VERTICAL PANELS OR DRUMS IN ACCORDANCE WITH SECTION 292.3 AND 292.4 OF THE NYS MUTCD. THEY SHALL BE PLACED AT 30 FEET INTERVALS. THEY SHALL BE LEFT IN PLACE UNTIL THE NEW GUIDE RAIL IS INSTALLED OR THE SLOPE FLATTENING WORK IS COMPLETED.
22. SHORT DURATION ALTERNATING ONE-WAY TRAFFIC SHALL NOT BE ALLOWED UNLESS APPROVAL HAS BEEN GRANTED BY THE REGIONAL DIRECTOR OR HIS DESIGNEE. ALTERNATING ONE-WAY TRAFFIC MAY BE MAINTAINED ON SIDE ROADS DURING WORKING HOURS IN ACCORDANCE WITH DETAILS ON MPT NOTE 9 ABOVE, HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TWO UNOBSTRUCTED LANES FOR TWO-WAY TRAFFIC DURING NON-WORKING HOURS. FLAGGERS WILL BE REQUIRED TO USE RADIO OR SIMILAR CONTACT WHEN THEY ARE MAINTAINING ONE-WAY TRAFFIC WHEN ONE FLAGGER IS NOT VISIBLE TO THE OTHER OR IF, IN THE OPINION OF THE ENGINEER, THIS COMMUNICATION IS NECESSARY. THE COST OF ANY RADIO OR FIELD TELEPHONES USED SHALL BE INCLUDED IN THE BID PRICE.
23. THE COST OF PROVIDING AND MAINTAINING SAFE AND ADEQUATE INGRESS AND EGRESS TO AND FROM HOMES AND COMMERCIAL ESTABLISHMENTS AT ALL TIMES, TO THE SATISFACTION OF THE ENGINEER, SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING SAFE PEDESTRIAN ACCESS AT ALL TIMES.
24. IF NYS DOT NOTIFIES THE CONTRACTOR OR HIS SUPERINTENDING OF ANY HAZARDOUS CONSTRUCTION PRACTICES, ALL OPERATIONS IN THAT AREA SHALL BE DISCONTINUED AND IMMEDIATE REMEDIAL ACTION SHALL BE TAKEN TO THE SATISFACTION OF NYS DOT BEFORE WORK IS RESUMED.
25. IN ORDER TO MAINTAIN EFFECTIVE TRAFFIC CONTROL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE TRAFFIC CONTROL: MAKING SURE ALL SIGNS, CONES, FLASHERS, DRUMS, ETC. ARE IN PLACE AND IN GOOD CONDITION. THE SOLE JUDGE OF THE EFFECTIVENESS OF THE CONTRACTOR'S EFFORTS TOWARDS THE PROTECTION OF TRAFFIC AND PERSONNEL SHALL BE NYS DOT.
26. FLAGGERS SHALL BE LOCATED AT ALL ACTIVE WORK AREAS AND AT OTHER LOCATIONS WITHIN A WORK AREA WHERE RESTRICTED SIGHT DISTANCE IMPEDS THE FLOW OF TRAFFIC.
27. EXISTING TRAFFIC SIGNS SHALL BE COVERED AND UNCOVERED AS NECESSARY DURING CONSTRUCTION.
28. IF, IN THE JUDGEMENT OF THE OWNER, FLAGS ON SIGNS ARE NECESSARY DUE TO LIMITED SIGHT DISTANCE, THEY SHALL BE PROVIDED BY THE CONTRACTOR.
29. THE WORK AREA IS TO BE CLEANED DAILY AND LEFT IN AN ACCEPTABLE MANNER.
30. THE UNEVEN TRANSVERSE PAVEMENT SURFACES, (I.E., PAVEMENT REBATES, END OF PAVED OR MILLED SECTIONS) SHALL BE DUAL POSTED WITH "BUMP" (W4-1C) SIGNS SHALL BE PLACED ON A TYPE III BARRICADE AND ILLUMINATED WITH A FLASHING BEACON. ALL PAVEMENT TRANSITIONS SHALL HAVE NO STEEPER THAN 1 ON 4 LONGITUDINAL SLOPE AS MEASURED IN THE DIRECTION OF TRAVEL.
31. ALL REBATES SHALL BE PAVED WITHIN TWENTY-FOUR (24) HOURS.

32. THE CONTRACTOR SHOULD NOTE THAT BURIED UTILITIES EXIST WITHIN THE PROJECT LIMITS AND MAY BE ENCOUNTERED DURING CONSTRUCTION. EXTREME CARE SHOULD BE EXERCISED TO AVOID DAMAGE TO THESE FACILITIES. ANY DAMAGE SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND TO THE OWNER OF THE UTILITY. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF REPAIRS.
34. PEDESTRIAN AND BICYCLIST TRAFFIC SHALL BE MAINTAINED AND PROTECTED AT ALL TIMES IN ACCORDANCE WITH SECTION 619 OF THE NYS DOT STANDARD SPECIFICATIONS. PEDESTRIAN ACCESS SHALL CONFORM WITH THE CURRENT AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.
35. NEW SIDEWALK CONSTRUCTION SHALL BE SCHEDULED SO THAT REMOVAL AND REPLACEMENT SHALL BE INITIATED TO THE SIDE OF THE STREET PRIOR TO THE COMMENCEMENT OF WORK ON THE OPPOSITE SIDE. WORK IS TO BE SCHEDULED AND COMPLETED BETWEEN LOGICAL TERMINI; I.E., BETWEEN INTERSECTING STREETS IN ORDER TO ENSURE SAFE PEDESTRIAN CROSSING AND ACCESSIBILITY.
36. "SIDEWALK CLOSED" SIGNS PLACED ON TYPE III BARRICADES (R8-3C) SHALL BE USED WHERE SIDEWALKS ARE CLOSED DUE TO CONSTRUCTION ACTIVITIES.
37. "SHARED ROADWAY" SIGNS (W5-6C AND W5-17 X MOD) SHALL BE INSTALLED, AS APPROPRIATE, WHERE TRAVEL LANES AND/OR SHOULDERS ARE BEING RECONSTRUCTED.
38. STOP/SLOW PADDLES USED AS SIGNALING DEVICES SHALL COMPLY WITH SECTION 293.2 OF THE NYS MUTCD, EXCEPT THAT THE MOUNTING HEIGHT SHALL BE 6 FEET MINIMUM.
39. THE CLEAR ROADSIDE AREA IS DEFINED AS THE AREA ADJACENT TO THE EDGE OF TRAVEL LANE WHICH MUST BE FREE OF OBSTACLES OR HAZARDS, THE CLEAR ROADSIDE AREA SHALL BE 20 FEET.
40. IN THE EVENT THAT THE CONTRACTOR ELECTS (WITH APPROVAL FROM THE ENGINEER), OR IS REQUIRED BY THE ENGINEER, TO SHUT DOWN OPERATIONS FOR THE WINTER SEASON PRIOR TO PROJECT COMPLETION, THE CONTRACTOR SHALL MAINTAIN TRAFFIC PATTERNS OF THE CONSTRUCTION PHASE IN EFFECT WHEN OPERATIONS CEASE. THE CONTRACTOR SHALL PROVIDE UNOBSTRUCTED TRAVEL LANES AT WIDTHS CORRESPONDING TO THOSE SHOWN ON THE CONSTRUCTION SEQUENCING PLANS, ON HARD ROADWAY SURFACES THROUGHOUT THE LENGTH OF THE PROJECT. FULL PAVEMENT STRIPING SHALL BE PROVIDED AND MAINTAINED AS SPECIFIED ON THE PLANS AND IN NOTE 20. DELINEATION DEVICES SHALL BE MOVED TO A DISTANCE OF 4 FEET MINIMUM FROM THE EDGE OF TRAVEL LANE TO PROVIDE FOR SNOW STORAGE. UNLESS OTHERWISE REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SNOW WHICH ACCUMULATES AROUND DELINEATION DEVICES AND FOR KEEPING ALL IN PROPER WORKING CONDITION. ALL APPROACH CONSTRUCTION SIGNING SHALL REFLECT THE ACTUAL CONDITIONS AT ALL TIMES AS PER NYS MUTCD. IN ADDITION THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:
 - A) PROVIDE ASPHALT WEDGES, WITH SUITABLE BOND BREAKERS, AROUND ALL DRAINAGE STRUCTURES WITHIN THE PAVEMENT AREA. ALL WATER VALVE BOXES AND MANHOLES SHALL BE SET AT THE PAVEMENT GRADE AT THE TIME OF SHUT DOWN AND SHALL BE ADJUSTED TO FINISHED GRADE THE FOLLOWING SEASON.
 - B) PROVIDE FULL PAVEMENT DELINEATION USING REFLECTORIZED PAVEMENT MARKING PAINT, CONFORMING TO SECTION 640 OF THE STANDARD SPECIFICATIONS.

- ALL MISCELLANEOUS WORK REQUIRED TO PREPARE THE ROADWAY FOR WINTER SHUTDOWN SHALL BE INCLUDED IN THE BID PRICE.
41. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING CULVERT AND DRAINAGE INSTALLATION TO PROVIDE ADEQUATE STORM WATER RUNOFF COLLECTION BECAUSE OF CONSTRUCTION ACTIVITIES. ANY TEMPORARY DRAINAGE CONNECTIONS, INLET ELEVATION ADJUSTMENTS, OR OTHER WORK NECESSARY OR ORDERED BY THE ENGINEER TO ENSURE RUNOFF COLLECTION SHALL BE INCLUDED IN THE BID PRICE.
 42. THE CONTRACTOR SHALL LIMIT THE LENGTH OF THE WORK ZONE TO 1000 FEET OR AS SHOWN ON THE CONTRACT DRAWINGS. THE MINIMUM DISTANCE BETWEEN WORK ZONES SHALL BE 1000 FEET.
 43. RUMBLE STRIPS, STANDARD SPECIFICATIONS ITEM 18619.6460 SHALL BE INSTALLED UPSTREAM OF ALL G11-1C SIGNS. EACH RUMBLE STRIP PATTERN SHALL CONSIST OF SIX (6) SEPARATE STRIPS PLACED ON 10 FEET CENTERS, WITH EACH STRIP TRAVERSING THE FULL WIDTH OF THE TRAVEL LANE. RUMBLE STRIPS FORMED BY APPLYING MULTIPLE LAYERS OF REMOVABLE PERFORMED PAVEMENT MARKING TAPE SHOULD NORMALLY BE USED. MILLED-IN, SAWCUT, OR RAISED ASPHALT STRIPS MAY BE USED ON PAVEMENT SURFACES THAT ARE SCHEDULED TO BE OVERLAID, REMOVED, OR REPLACED. THE CONTRACTOR SHALL REMOVE OR FILL IN THE RUMBLE STRIPS WHEN THEY ARE NO LONGER NECESSARY. RUMBLE STRIPS SHALL BE REMOVED OR FILLED IN BEFORE THE WINTER PLOWING SEASON AND BEFORE THE PLACEMENT OF AN OVERLAY.

- II. CONSTRUCTION ACTIVITIES
1. WORK ZONES ON OPPOSITE SIDERS OF THE ROAD SHALL NOT OVERLAP. A WORK ZONE IS DEFINED AS THAT AREA IN WHICH TRAFFIC IS RESTRICTED BECAUSE OF CONSTRUCTION ACTIVITIES OR THAT AREA WHICH INVOLVES A DROP-OFF WITHIN 30 FEET OF THE EDGE OF PAVEMENT.
 2. NO MATERIAL IS TO BE STORED WITHIN THE ROADSIDE AREA (DEFINED FOR THIS PROJECT AS THE AREA WITHIN 10 FEET OF THE EDGE OF PAVEMENT), EXCEPT THAT WHICH IS TO BE PLACED THAT DAY WITH THE APPROVAL OF THE ENGINEER.
 3. CONSTRUCTION EQUIPMENT SHALL BE REMOVED FROM THE ROADSIDE AREA OF ALL HIGHWAY PAVEMENT DURING THE HOURS THAT THE CONTRACTOR IS NOT WORKING. THIS REQUIREMENT SHALL NOT BE LIMITED TO THE CONTRACT LIMITS.
 4. CONTRACTOR VEHICLES NOT IN USE AND PRIVATE VEHICLES OWNED BY CONTRACTOR'S EMPLOYEES SHALL BE PARKED IN DESIGNATED PARKING AREA.
 5. ALL OPERATIONS INCLUDING PAVING, ROLLING, GRADING, SUPPLYING OF MATERIAL AND THE TRAVEL OF SUPERVISORY PERSONNEL THROUGH THE WORK ZONE, AND THE ENTIRE LENGTH OF THE CONTRACT, WILL ALWAYS BE IN THE DIRECTION OF NORMAL TRAFFIC EXCEPT WHERE SPECIFICALLY ALLOWED OTHERWISE BY NYS DOT TO PERFORM A PARTICULAR OPERATION.
 6. WHEN TRAFFIC IS TO BE MAINTAINED ON AN UNPAVED SURFACE DURING THE WORK DAY, A MINIMUM OF 12 INCHES OF SUBBASE MATERIAL, (ITEM 304.12) SHALL FIRST BE PLACED AND COMPACTED. THE CONTRACTOR SHALL USE CALCIUM CHLORIDE AS A MEANS OF DUST CONTROL. "PAVEMENT ENDS" SIGNS (W4-30) SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 234 OF THE NYS MUTCD IN ADVANCE OF ALL SUCH AREAS AS REQUIRED BY THE ENGINEER. DURING NON-WORKING HOURS, THROUGH-TRAFFIC WILL BE MAINTAINED ON A PAVED SURFACE CONSISTING OF A MINIMUM OF 12 INCHES OF SUBBASE MATERIAL (ITEM 302.12) AND 2 INCHES OF TEMPORARY PAVEMENT (ITEM 403.11.30001).
 7. DUE TO THE HIGH DENSITY OF RESIDENTIAL AND COMMERCIAL PROPERTIES WITHIN THE CONTRACT LIMITS, THE FOLLOWING WORK HOUR RESTRICTIONS SHALL BE STRICTLY ENFORCED: NO WORK MAY BE PERFORMED BETWEEN THE HOURS OF 11:00 P.M. AND 7:00 A.M.

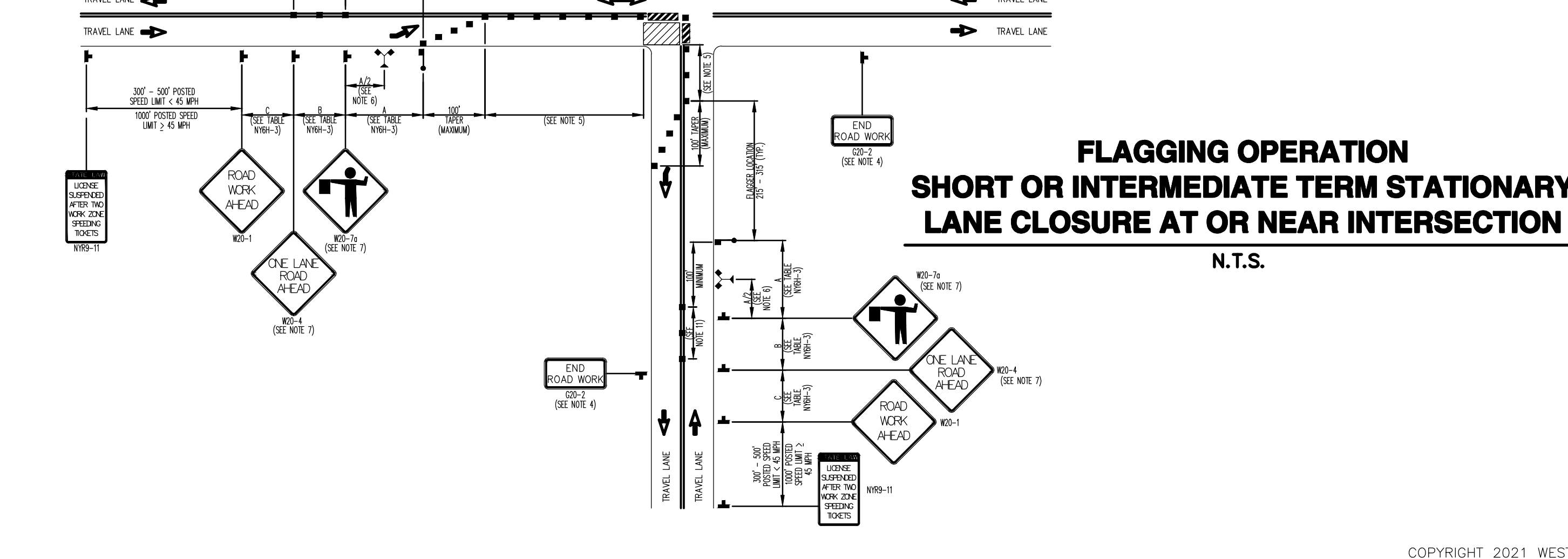
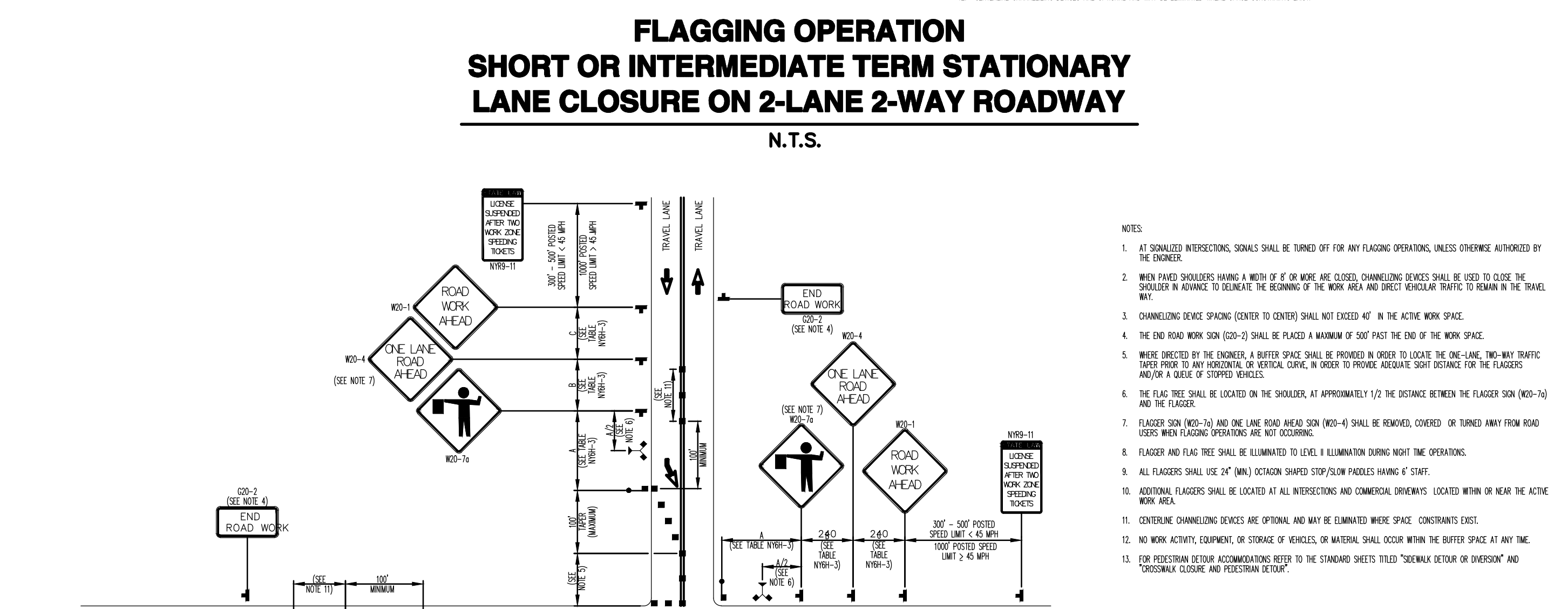
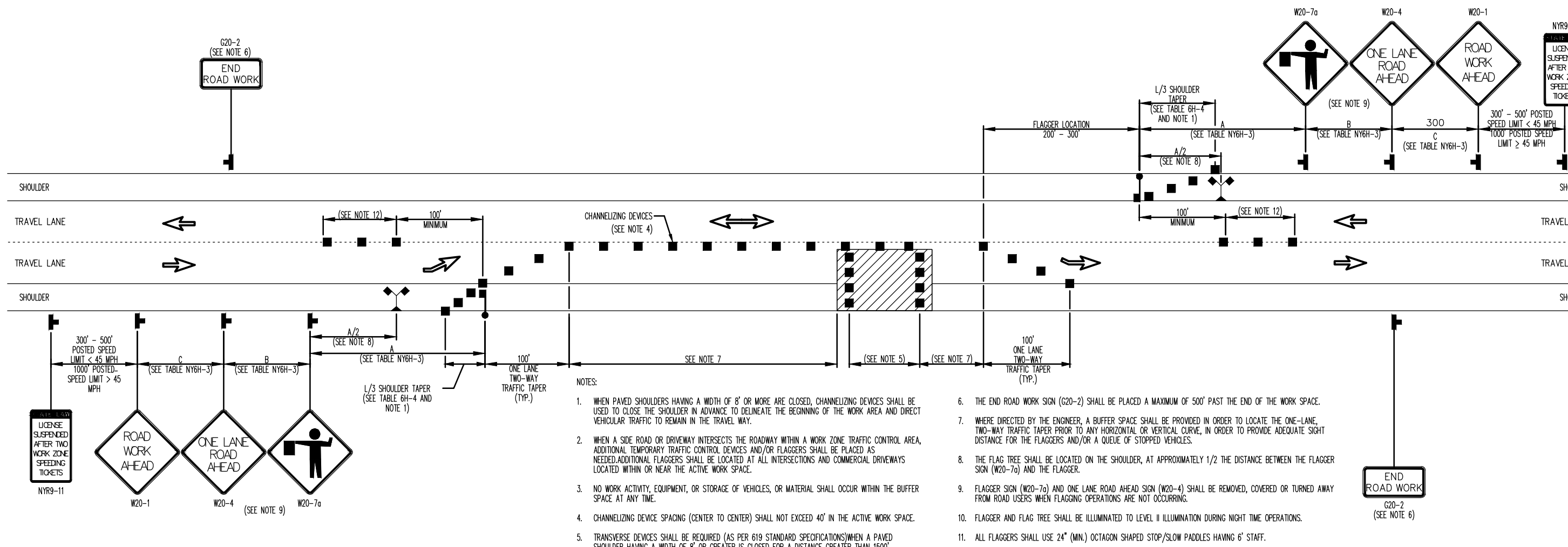
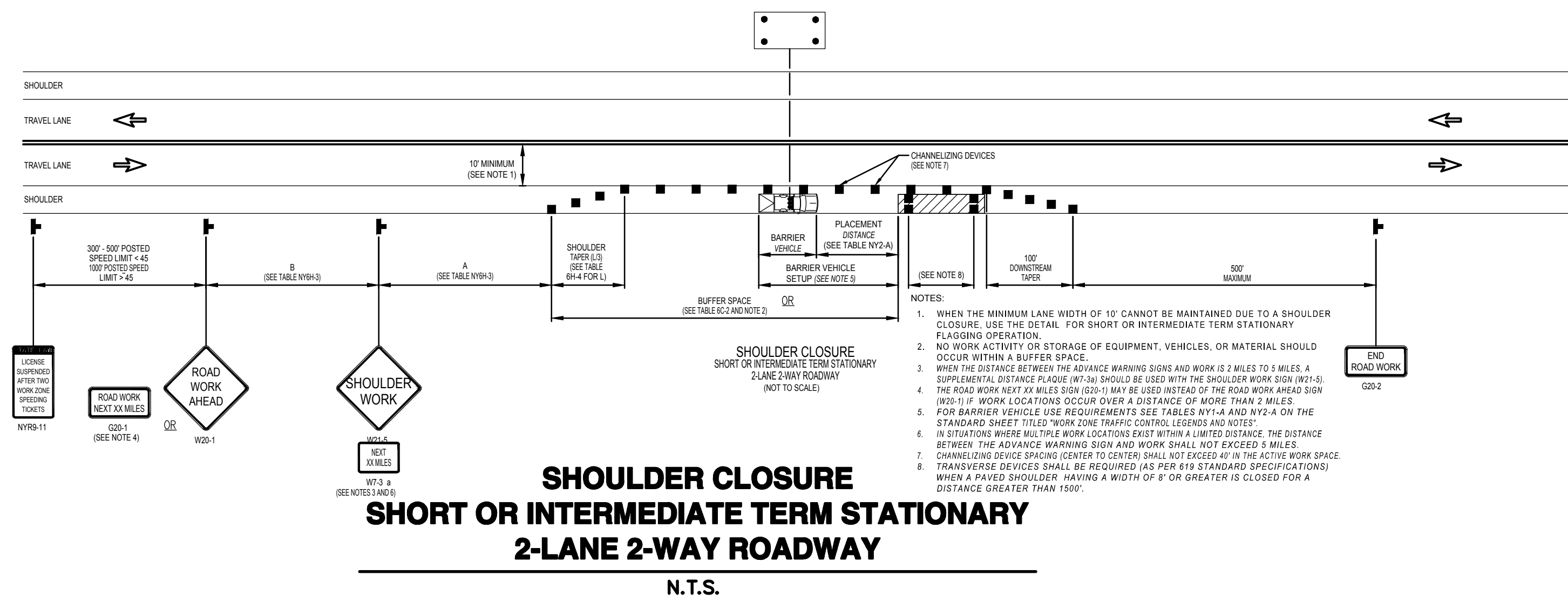
HOLIDAY CONSTRUCTION RESTRICTIONS

1. THE CONTRACTOR SHALL CONSULT WITH THE REGIONAL DIRECTOR OR DESIGNEE FOR THE LATEST CALENDAR YEAR CONSTRUCTION RESTRICTIONS AND DURATION FOR ANY AND ALL HOLIDAYS THAT FALL WITHIN THE CONSTRUCTION PERIOD.

TRAFFIC SIGNALS:

- NONE
- COORDINATION WITH UTILITIES**
- THE CONTRACTOR SHALL COOPERATE AND COORDINATE WITH ALL OTHER CONTRACTORS AND UTILITY COMPANIES OCCUPYING THE SITE. THE FOLLOWING UTILITY COMPANIES MAY BE REQUIRED TO BE CONTACTED THROUGHOUT THE PROJECT CORRIDOR:
- | | |
|--------------------------------|--------------|
| ALGONQUIN GAS & ELECTRIC | 914-737-1892 |
| AT&T | 800-286-8311 |
| CABLEVISION | 914-962-4549 |
| COMCAST | 800-266-2278 |
| CON EDISON | 914-789-6818 |
| NY TEL ONE | 914-890-6511 |
| NYS DEPARTMENT OF PUBLIC WORKS | 914-232-3060 |
| TIME WARNER CABLE | 800-431-8878 |
| VERIZON | 914-890-7711 |
| NYSEG (GAS) | 800-572-1121 |
| NYSEG (ELECTRIC) | 800-572-1131 |
| OPTIMUM (TELEPHONE) | 866-472-0117 |
| OPTIMUM (CABLE) | 845-624-8200 |

NO WORK MAY BE PERFORMED BETWEEN THE HOURS OF 11:00 P.M. AND 7:00 A.M.



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NO.	DATE	DESCRIPTION	APP. BY	DATE
1	7/22/15			
2	2/16			

REGISTERED PROFESSIONAL ENGINEER

TOWN OF YORKTOWN, NEW YORK

CLEANING AND CEMENT MORTAR LINING OF WATER MAIN

TRAFFIC MAINTENANCE AND PROTECTION

FILE NO. ENGT-1-0417

SCALE: AS NOTED

CADD NO. T-1

DR. BY: JMB

CHK. BY: CWS

APP. BY: JFB

SHEET 19 OF 22

**TABLE NY1-A
BARRIER VEHICLE USE REQUIREMENTS
(LONG TERM, INTERMEDIATE TERM, AND SHORT TERM STATIONARY CLOSURES)**

CLOSURE TYPE	EXPOSURE CONDITION ¹	USE REQUIREMENTS ^{4,5}			
		FREEWAY	NON-FREEWAY (PRECONSTRUCTION POSTED SPEED LIMIT)		
			w 45 MPH	35-40 MPH	1 30 MPH
LANE CLOSURE	WORKERS ON FOOT OR IN VEHICLES EXPOSED TO TRAFFIC	REQUIRED ³	REQUIRED ³	REQUIRED ³	OPTIONAL ²
	NON-TRAVERSABLE HAZARD (IE. EQUIPMENT, MATERIALS, EXCAVATION) ONLY NO WORKERS EXPOSED	REQUIRED ³	REQUIRED ³	OPTIONAL ²	OPTIONAL ²
SHOULDER CLOSURE	WORKERS ON FOOT OR IN VEHICLES EXPOSED TO TRAFFIC	REQUIRED ³	REQUIRED ³	OPTIONAL ²	OPTIONAL ²
	NON-TRAVERSABLE HAZARD (IE. EQUIPMENT, MATERIALS, EXCAVATION) ONLY NO WORKERS EXPOSED	REQUIRED ³	OPTIONAL ²	OPTIONAL ²	OPTIONAL ²

- THE EXPOSURE CONDITIONS DESCRIBED IN TABLE NY1-A ASSUMES THERE IS NO POSITIVE PROTECTION (TEMPORARY TRAFFIC BARRIER) PRESENT. WHERE WORKERS OR HAZARDS ARE PROTECTED BY A TEMPORARY TRAFFIC BARRIER, BARRIER VEHICLES ARE NOT REQUIRED.
- WHERE THE REQUIREMENT IS "OPTIONAL", EITHER A BARRIER VEHICLE OR THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.
- REQUIREMENTS SHALL INCLUDE PROVIDING A SEPARATE BARRIER VEHICLE FOR EACH CLOSED LANE AND EACH CLOSED PAVED SHOULDER 8' OR GREATER IN WIDTH. IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE BARRIER VEHICLE SHALL BE REPOSITIONED ACCORDINGLY. BARRIER VEHICLES PROTECTING NON-TRAVERSABLE HAZARDS SHALL REMAIN IN PLACE DURING BOTH WORKING AND NON-WORKING HOURS UNTIL THE HAZARD NO LONGER EXISTS. EXCEPTIONS TO THESE REQUIREMENTS MAY BE MADE, AS APPROVED BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE WHERE BARRIER VEHICLE PLACEMENT WOULD BE INEFFECTIVE OR WOULD INTERFERE WITH THE SAFE OPERATION OF TRAFFIC.
- BARRIER VEHICLES ARE NOT REQUIRED FOR MILLING AND/OR PAVING OPERATIONS, BUT THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.
- BARRIER VEHICLES ARE NOT REQUIRED FOR FLAGGING OPERATIONS, BUT THE STANDARD LONGITUDINAL BUFFER SPACE (TABLE 6C-2) SHALL BE PROVIDED.

**TABLE NY1-B
SHADOW VEHICLE USE REQUIREMENTS
(MOBILE CLOSURES)**

CLOSURE TYPE	EXPOSURE CONDITION	USE REQUIREMENTS			
		FREEWAY	NON-FREEWAY (PRECONSTRUCTION POSTED SPEED LIMIT)		
			w 45 MPH	35-40 MPH	1 30 MPH
LANE CLOSURE	WHEN ANY WORKER, VEHICLE, OR OTHER HAZARD IS EXPOSED TO TRAFFIC	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}
SHOULDER CLOSURE	WHEN ANY WORKER, VEHICLE, OR OTHER HAZARD IS EXPOSED TO TRAFFIC	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}	REQUIRED ^{2,4}

- A MOBILE CLOSURE SHALL BE USED FOR ANY WORK ACTIVITY THAT MOVES CONTINUOUSLY OR INTERMITTENTLY ALONG THE TRAVELED WAY OR SHOULDER SLOWER THAN THE PREVAILING SPEED OF TRAFFIC. CHANNELIZING DEVICES ARE NOT USED FOR MOBILE CLOSURES.
- SHADOW VEHICLES SHALL BE EQUIPPED WITH AN APPROVED REAR MOUNTED ATTENUATOR (TRUCK MOUNTED OR TRAILER MOUNTED) FOR THE FOLLOWING MOBILE CLOSURES: LANE CLOSURES ON FREEWAYS, LANE CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION POSTED SPEED LIMIT OF 35 MPH OR MORE, SHOULDER CLOSURES ON FREEWAYS, AND SHOULDER CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE.
- FOR MOBILE LANE CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION POSTED SPEED LIMIT OF 30 MPH OR LESS AND MOBILE SHOULDER CLOSURES ON NON-FREEWAY ROADWAYS HAVING A PRE-CONSTRUCTION SPEED LIMIT OF 40 MPH OR LESS, SHADOW VEHICLES ARE NOT REQUIRED TO BE EQUIPPED WITH A REAR MOUNTED ATTENUATOR.
- A SHADOW VEHICLE IS USED TO PROTECT EXPOSED WORKERS (ON FOOT OR IN A VEHICLE) AND SHALL BE REQUIRED FOR ALL MOBILE CLOSURES. SHADOW VEHICLE REQUIREMENTS SHALL INCLUDE PROVIDING A SEPARATE SHADOW VEHICLE FOR EACH CLOSED LANE AND EACH CLOSED PAVED SHOULDER 8' OR GREATER IN WIDTH. ADDITIONAL SHADOW VEHICLES MAY BE REQUIRED TO PROMOTE THE SAFE OPERATION OF TRAFFIC AND THE INCREASED PROTECTION OF EXPOSED WORKERS, AS DIRECTED BY THE REGIONAL DIRECTOR OR HIS/HER DESIGNEE.

TABLE 6H-4 FORMULAS FOR DETERMINING TAPER LENGTHS

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

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 6C-2
LONGITUDINAL BUFFER SPACE**

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	DISTANCE
25	155 FT.
30	200 FT.
35	250 FT.
40	305 FT.
45	360 FT.
50	425 FT.
55	495 FT.
60	570 FT.
65	645 FT.

**TABLE NY2-A
PLACEMENT DISTANCE FOR BARRIER VEHICLES**

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	PLACEMENT DISTANCE (FT.)			
	BARRIER VEHICLES*			
	(18000 LBS.)		(24000 LBS.)	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
> 55	100 FT.	200 FT.	100 FT.	200 FT.
45 - 55	100 FT.	200 FT.	85 FT.	165 FT.
< 45	85 FT.	165 FT.	50 FT.	100 FT.

* AS DEFINED IN NYSOT STANDARD SPECIFICATION 619:

BARRIER VEHICLE - VEHICLE USED FOR STATIONARY SHOULDER CLOSURES, LANE CLOSURES, AND OTHER STATIONARY WORK ZONES.

MINIMUM DISTANCE SHOWN REFLECTS THE ACTUAL ROLL AHEAD DISTANCE FROM MANUFACTURER.

**TABLE NY2-B
PLACEMENT DISTANCE FOR SHADOW VEHICLES**

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	PLACEMENT DISTANCE (FT.)			
	SHADOW VEHICLES**			
	(18000 LBS.)		(24000 LBS.)	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
> 55	230 FT.	330 FT.	180 FT.	280 FT.
45 - 55	180 FT.	280 FT.	150 FT.	250 FT.
< 45	100 FT.	200 FT.	100 FT.	200 FT.

* AS DEFINED IN NYSOT STANDARD SPECIFICATION 619:

SHADOW VEHICLE - VEHICLE USED FOR MOBILE OR SHORT DURATION WORK OPERATIONS.

MINIMUM DISTANCE SHOWN REFLECTS THE ACTUAL ROLL AHEAD DISTANCE FROM MANUFACTURER.

**TABLE 6C-3
TAPER LENGTH FOR TEMPORARY TRAFFIC CONTROL ZONES**

TYPE OF TAPER	TAPER LENGTH (L)
MERGING TAPER	L
SHIFTING TAPER	L/2
SHOULDER TAPER	L/3
ONE-LANE, TWO-WAY TRAFFIC TAPER	100 FT. MAXIMUM
DOWNSTREAM TAPER	100 FT. PER LANE

**TABLE 619-4
FLARE RATES FOR POSITIVE BARRIER**

TYPE OF POSITIVE BARRIER	POSTED SPEED LIMIT				
	30 MPH	40 MPH	50 MPH	55 MPH	65 MPH
TEMPORARY CONCRETE BARRIER	8:1	11:1	14:1	16:1	20:1
BOX BEAM OR HEAVY POST CORRUGATED BEAM	7:1	9:1	11:1	12:1	15:1

**TABLE NY6H-3
ADVANCE WARNING SIGN SPACING**

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

* PRECONSTRUCTION POSTED SPEED LIMIT

URBAN: (MEETS MORE THAN 1 OF THE FOLLOWING CRITERIA) SIDEWALKS, BICYCLE USAGE, CURBING, CLOSED DRAINAGE SYSTEMS, DRIVEWAY DENSITIES GREATER THAN 24 DRIVEWAYS PER MILE, MINOR COMMERCIAL DRIVEWAY DENSITIES OF 10 DRIVEWAYS PER MILE OR GREATER, MAJOR COMMERCIAL DRIVEWAYS, NUMEROUS RIGHT OF WAY CONSTRAINTS, HIGH DENSITY OF CROSS STREETS, 85TH PERCENTILE SPEEDS OF 45 MPH OR LESS.

RURAL: ANY AREA NOT EXHIBITING MORE THAN ONE OF THE ABOVE CHARACTERISTICS.

EXPRESSWAY: DIVIDED HIGHWAYS FOR TRAFFIC WITH FULL OR PARTIAL CONTROL OF ACCESS AND GENERALLY WITH GRADE SEPARATIONS AT MAJOR CROSSROADS.

FREEWAYS/INTERSTATE: LOCAL OR INTER REGIONAL HIGH-SPEED, DIVIDED, HIGH-VOLUME FACILITIES WITH FULL OR PARTIAL CONTROL OF ACCESS.

WORK DURATION DEFINITIONS

LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 CONSECUTIVE DAYS.

INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.

SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.

SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.

MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

WORK ZONE TRAFFIC CONTROL LEGEND

SYMBOL	DESCRIPTION
	ARROW PANEL
	ARROW PANEL, CAUTION MODE
	ARROW PANEL TRAILER OR SUPPORT
	CHANGEABLE MESSAGE SIGN (PVMS)
	CHANNELIZING DEVICE
	CRASH CUSHION/TEMPORARY IMPACT ATTENUATOR
	DIRECTION OF TEMPORARY TRAFFIC DETOUR
	DIRECTION OF TRAFFIC
	FLAGGER
	FLAG TREE
	LUMINAIRE
	PAVEMENT MARKINGS THAT SHALL BE REMOVED FOR A LONG TERM PROJECT
	SIGN, TEMPORARY
	TEMPORARY BARRIER
	TEMPORARY BARRIER WITH WARNING LIGHTS
	TRAFFIC OR PEDESTRIAN SIGNAL
	TYPE III BARRICADE
	WARNING LIGHTS
	WORK SPACE
	WORK VEHICLE
	WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR

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