



CITY OF SPRINGFIELD, MASSACHUSETTS

CONTRACT DRAWINGS FOR

SPRINGFIELD WATER AND SEWER COMMISSION

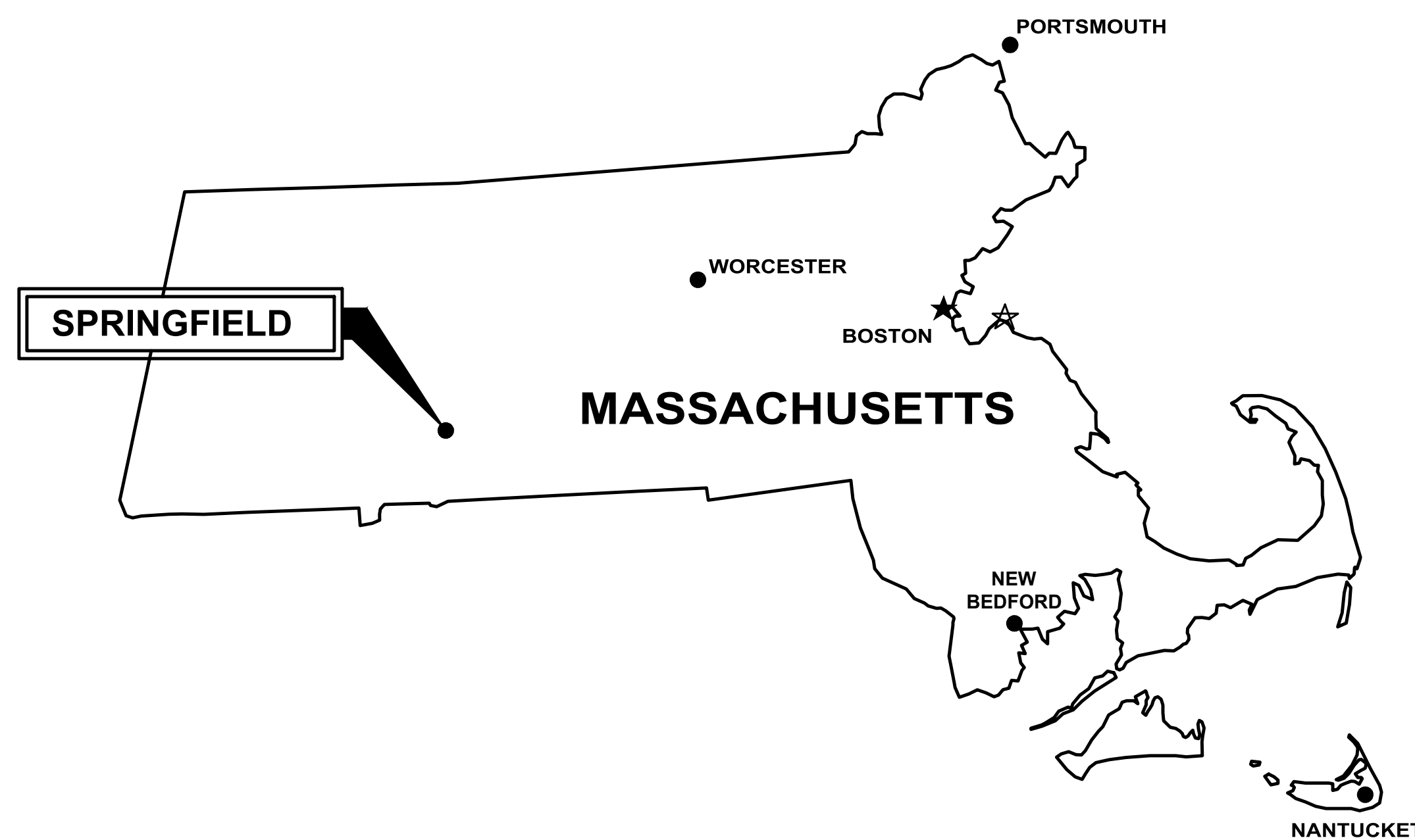
WATER INFRASTRUCTURE IMPROVEMENTS

LIBERTY STREET AND WESTFORD CIRCLE

CONTRACT NO. CA 24-67
APRIL 2024
BID SET

SPRINGFIELD WATER AND SEWER COMMISSION

COMMISSIONERS: DANIEL RODRIGUEZ
VANESSA OTERO
MATTHEW DONNELLAN
EXECUTIVE DIRECTOR: JOSHUA D. SCHIMMEL
DIRECTOR OF ENGINEERING AND CAPITAL PROJECTS: DARLEEN BUTTRICK, P.E.



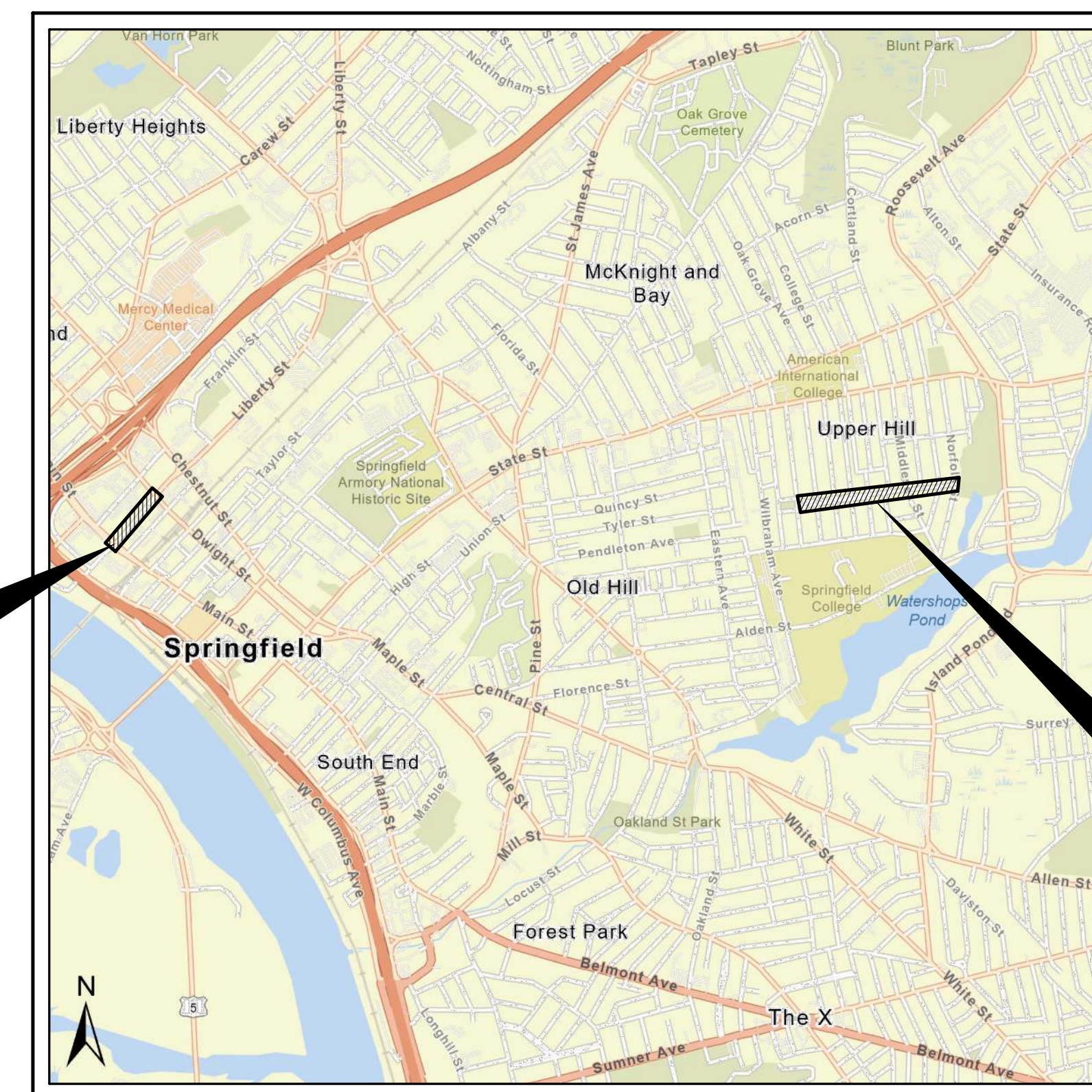
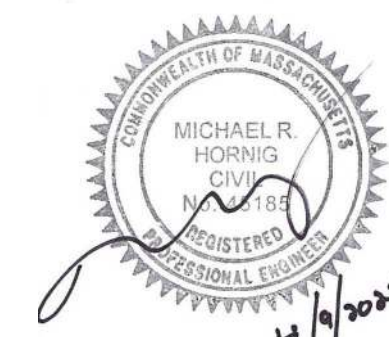
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LOCATION PLAN
SCALE: 1"=5,000'



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FOR REVIEW _____

FOR BIDDING APRIL 2024

WP PROJECT No. 21188

GENERAL NOTES

- 1. ALL REFERENCES MADE HERE TO THE PROJECT MANUAL REFER TO THE "SPRINGFIELD WATER AND SEWER COMMISSION (SWSC) WATER INFRASTRUCTURE IMPROVEMENT - FY 2024 PROJECT MANUAL BIDDING AND CONTRACT REQUIREMENTS AND SPECIFICATIONS", DATED 2024.
2. LIBERTY STREET EXISTING CONDITIONS ARE BASED ON FIELD SURVEY COMPLETED BY SHERMAN & FRYDRYK, LLC OF PALMER, MA. IN APRIL 2020.
3. WESTFORD CIRCLE EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY COMPLETED BY SHERMAN & FRYDRYK, LLC OF PALMER, MA. IN APRIL 2019.
...
29. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH THE MUTCD AND ALL STATE AND LOCAL REGULATIONS.

Table with 3 columns: ELECTRIC, WATER/SEWER, DEPT. PUBLIC WORKS; PUBLIC WORKS, TELEPHONE/CABLE, TELEPHONE/CABLE; STORM WATER DIVISION, DIG SAFE, GAS; FIRE, CITY FORESTER. Lists contact information for various departments.

- 30. THE CONTRACTOR SHALL PROVIDE THE SWSC, LOCAL FIRE/POLICE AUTHORITIES, SCHOOL BUS COMPANIES, AND LOCAL BUSINESSES A DETAILED PLAN OF APPROACH INDICATING METHODS OF PROPOSED TRAFFIC ROUTING WHEN WORKING IN THE PUBLIC WAY.
31. CONTRACTOR SHALL, AT LEAST 14 DAYS IN ADVANCE, NOTIFY THE SPRINGFIELD DPW, LOCAL FIRE AND POLICE AUTHORITIES, SCHOOL BUS COMPANIES, AND LOCAL BUSINESSES, IN WRITING, WITH A COPY TO THE SWSC, OF ANY ROAD CLOSURES, DETOURS OR PAVING.
...
41. CONTRACTOR TO CONTACT EVERSOURCE AT LEAST 72 HOURS IN ADVANCE, EXCLUDING WEEKENDS AND HOLIDAYS, OF ANY EVERSOURCE DUCT BANK BEING EXPOSED TO ALLOW EVERSOURCE PERSONNEL TO INSPECT AND OVERSEE CONSTRUCTION IN THE VICINITY OF THEIR INFRASTRUCTURE.

SURFACE RESTORATION NOTES

- 1. ALL SURFACE RESTORATION SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPRINGFIELD WATER AND SEWER COMMISSION "WATER INFRASTRUCTURE IMPROVEMENTS - FY 2024 PROJECT MANUAL BIDDING AND CONTRACT REQUIREMENTS AND SPECIFICATIONS SPECIFICATIONS AND DETAILS AND THE SUPPLEMENTAL DETAILS.
2. STONE WALLS, FENCES, MAIL BOXES, SIGNS, STAIRS, LIGHT POLES, ETC. SHALL BE SUPPORTED OR REMOVED AND REPLACED AS NECESSARY TO PERFORM THE WORK TO THE SATISFACTION OF THE SWSC.
...
7. ALL GRANITE CURB JOINTS TO BE SET IN CEMENT MORTAR 6" EACH SIDE OF JOINT TO 6" BELOW JOINT BOTTOM.

WATER MAIN INSTALLATION NOTES

- 1. WATER MAIN SHALL BE INSTALLED IN ACCORDANCE WITH THE SWSC RULES AND REGULATIONS, GUIDELINES AND POLICIES, MATERIAL SPECIFICATIONS AND STANDARD DETAILS (SPRINGFIELD WATER AND SEWER COMMISSION "WATER INFRASTRUCTURE IMPROVEMENTS - FY 2024 PROJECT MANUAL BIDDING AND CONTRACT REQUIREMENTS AND SPECIFICATIONS").
2. TEST PITS ARE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DUG WELL IN ADVANCE OF THE WATER MAIN INSTALLATION TO DETERMINE POSSIBLE OFFSETS ABOVE OR BELOW OTHER UTILITIES, STRUCTURES OR OBSTACLES.
...
10. TRENCHLESS REPLACEMENT OR PULLING OF WATER MAINS AND WATER SERVICES WILL NOT BE ALLOWED UNLESS APPROVED BY THE OWNER.

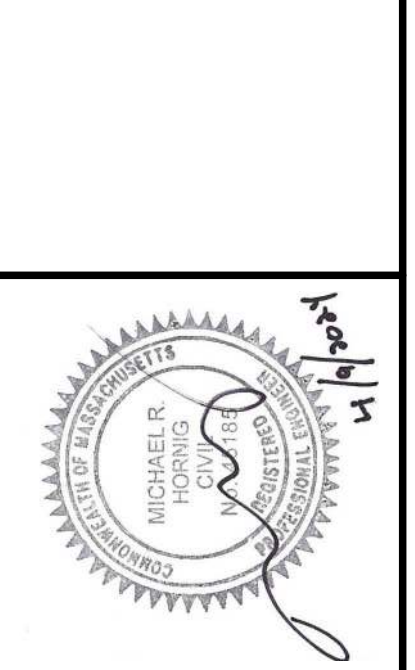
- 11. WATER SERVICES SHALL BE REPLACED AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE SWSC. WHEN RECONNECTIONS ARE MADE MID-WAY ALONG AN EXISTING SERVICE (I.E. NOT AT THE PROPERTY LINE WITH A NEW CURB STOP AND BOX), THE CONNECTION SHALL BE A THREE PART UNION COPPER COMPRESSION CONNECTOR.

DPW GENERAL NOTES

- 1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING STREET OCCUPANCY; STREET OPENING; AND TRENCH PERMITS FROM THE DPW ENGINEERING DIVISION BEFORE CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY THE SPRINGFIELD DPW OCCUPANCY MANUAL https://www.springfield-ma.gov/dwp/permits.
3. SWSC SPECIFICATIONS AND DETAILS SUPERCEDE DPW STANDARDS REGARDING TRENCH RESTORATION.

Table with 2 columns: REVISIONS, APP'D DATE. Includes a grid for tracking revisions and approvals.

Table with 2 columns: PROJECT NO., DESIGNED, CAD COORD, CAD, CHECKED, DATE, APPROVED, DATE, SUBMISSION. Lists project details and approval dates.



WRIGHT-PIERCE logo and contact information: 413.459.2003 | www.wright-pierce.com | 94 NORTH ELM STREET SUITE 205 WESTFIELD, MA.

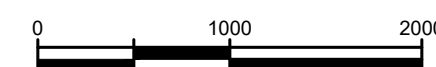
SPRINGFIELD WATER AND SEWER COMMISSION WATER INFRASTRUCTURE IMPROVEMENTS LIBERTY STREET & WESTFORD CIRCLE GENERAL NOTES



LIBERTY STREET AND WESTFORD CIRCLE

KEY PLAN

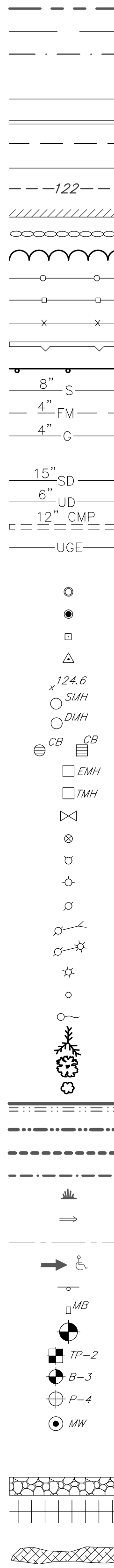
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ABBREVIATIONS

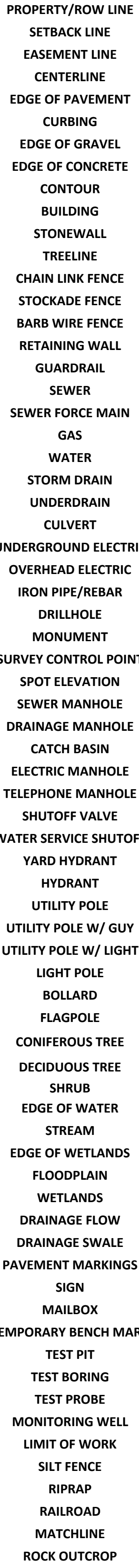
- ABAN ABANDONED
ACP ASBESTOS CONCRETE PIPE
ADD ALT ADDITIVE ALTERNATE
APPROX APPROXIMATELY
BB BITUMINOUS BERM
BIT BITUMINOUS
BIT CONC BITUMINOUS CONCRETE
BCC BITUMINOUS CONCRETE CURB
BCD BITUMINOUS CONCRETE DRIVEWAY
BCP BITUMINOUS CONCRETE PATCH
BCW BITUMINOUS CONCRETE WALK
BRW BRICK RETAINING WALL
BW BRICK WALK
CATV CABLE TELEVISION
CB CATCH BASIN
CC CONCRETE CURB
CD CONCRETE DRIVEWAY
CDF CONTROLLED DENSITY FILL
CI CAST IRON
CIP CAST IRON PIPE
CIPP CURED IN PLACE PIPE
CLF CHAIN LINK FENCE
CMH COMBINE SEWER MANHOLE
CMP CORRUGATED METAL PIPE
CONC CONCRETE
CP CONCRETE PAD, CONCRETE PIPE
CRW CONCRETE RETAINING WALL
CTE CONNECT TO EXISTING
CU CONNECTION UNKNOWN
CW CONCRETE WALK
D DRAIN
DH DRILL HOLE
DI DUCTILE IRON
DICL DUCTILE IRON CEMENT LINED
DPW DEPARTMENT OF PUBLIC WORKS (SPRINGFIELD)
DWL DOUBLE WHITE LINE
DWP DETECTABLE WARNING PANEL
ELEC ELECTRIC
EM ELECTRIC METER
EMH ELECTRIC MANHOLE
EOP EDGE OF PAVEMENT
EXIST EXISTING
FND FOUND
FOC FIBER OPTICS CABLE
G GAS
GC GRANITE CURB
GG GAS GATE
GMH GAS METER
GRAN GRANITE
GS GAS SERVICE
GV GATE VALVE
HH HANDHOLE
HOR HORIZONTAL
HW HARDWOOD
INV INVERT ELEVATION
IP IRON PIPE
LP LIGHT POST
LP/BASE LIGHT POLE BASE
LST LANDSCAPE TIMBER WALL
MA MAST ARM
MAP MAPLE
MH MANHOLE
MJ MECHANICAL JOINT
MP METAL POST
NAVD NORTH AMERICAN DATUM
N/F NORTH AMERICAN VERTICAL DATUM
N/P NOW OR FORMALLY
NPV NO PIPE VISIBLE
DHW OVERHEAD WIRES
PK PARKER KALON NAIL
P&R POST AND RAIL FENCE
PL PLANTER
PP PEDESTRIAN TRAFFIC LIGHT
PR PEDESTRIAN RAMP
PROP PROPOSED
PVC POLYVINYL CHLORIDE
(R)/REC RECORD
RCP REINFORCED CONCRETE PIPE
REHAB REHABILITATE
RIM RIM ELEVATION
RW/RET RETAINING WALL
S SEWER
SB STONE BOUND
SBK SEGMENTAL BLOCK
SGC SLOPED GRANITE CURB
SMH SANITARY MANHOLE
SPIKE SPIKE
SRW STONE RETAINING WALL
STA STATION
STK STOCKADE FENCE
SWL SINGLE WHITE LINE
SWSC SPRINGFIELD WATER AND SEWER COMMISSION
TCB TRAFFIC CONTROL BOX
TEL/T TELEPHONE
TL TRAFFIC LIGHT
TOH TOP OF HOOD
TOS TOP OF SILT
TOW TOP OF WATER
TRANS TRANSFORMER
TYP TYPICAL
UG UNKNOWN GATE
UP UTILITY POLE
UPWLT UTILITY POLE WITH LIGHT
VER VERTICAL
VC VITRIFIED CLAY
W WATER
WD WOOD
W/M WATER METER
WMH WATER MANHOLE
WRIF WROUGHT IRON FENCE
WS WATER SERVICE
WSEL WATER SHOT ELEVATION

EXISTING

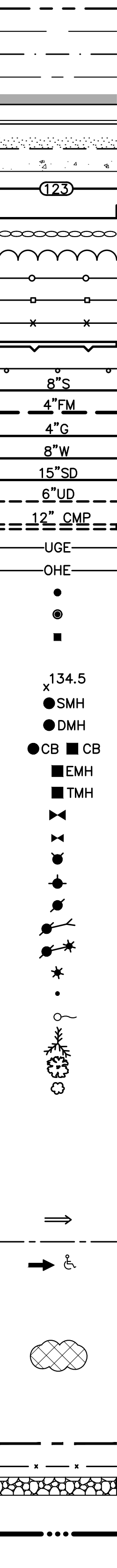


LEGEND

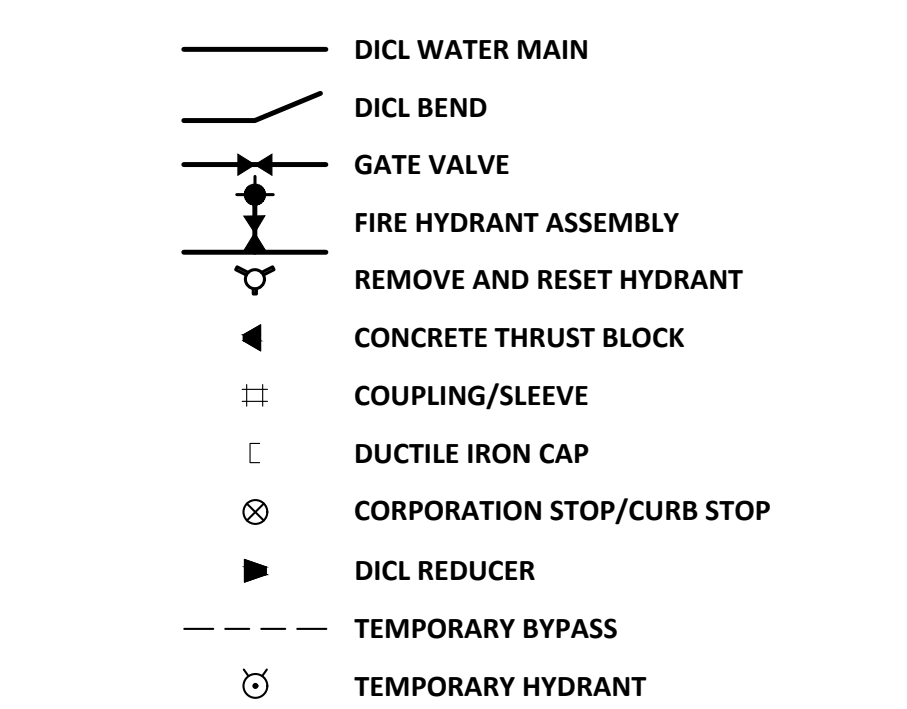
PROPERTY/ROW LINE



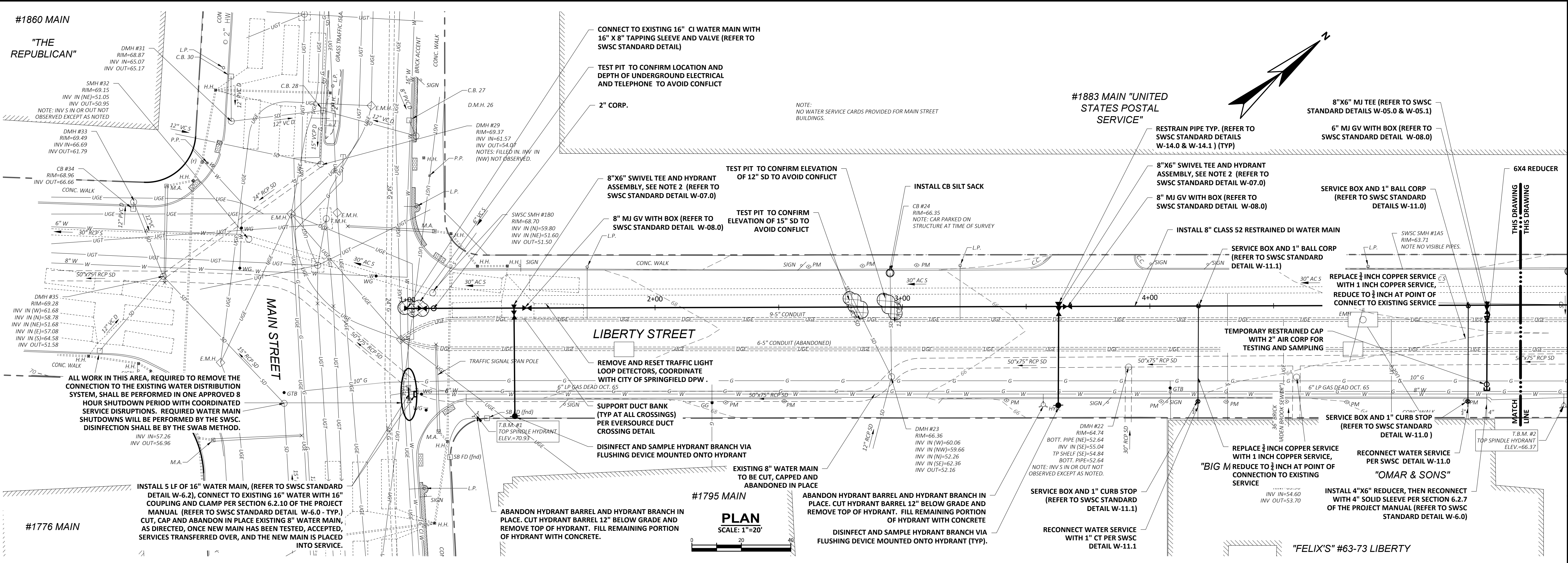
PROPOSED



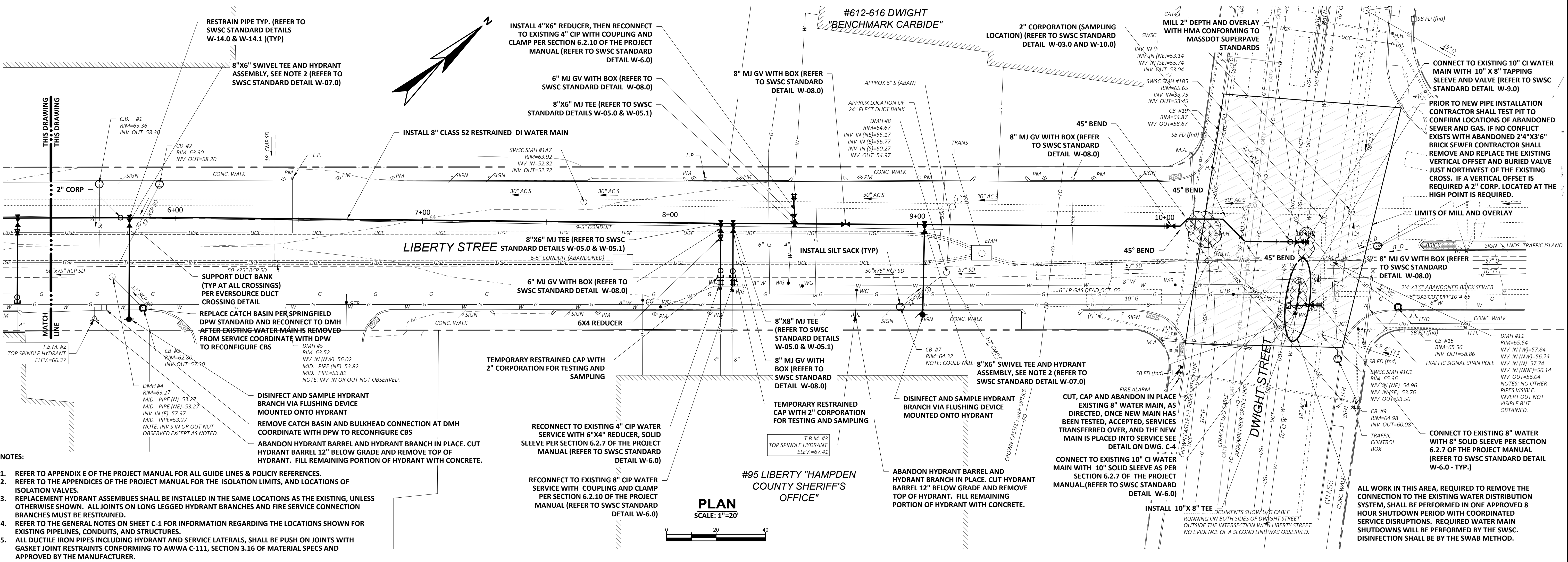
LEGEND: PROPOSED WATER



Project information including title 'SPRINGFIELD WATER AND SEWER COMMISSION WATER INFRASTRUCTURE IMPROVEMENTS LIBERTY STREET & WESTFORD CIRCLE', drawing number 'C-2', and company logo 'WRIGHT-PIERCE'.



PLAN SCALE: 1"=20'



PLAN SCALE: 1"=20'

- NOTES:
- REFER TO APPENDIX E OF THE PROJECT MANUAL FOR ALL GUIDE LINES & POLICY REFERENCES.
 - REFER TO THE APPENDICES OF THE PROJECT MANUAL FOR THE ISOLATION LIMITS, AND LOCATIONS OF ISOLATION VALVES.
 - REPLACEMENT HYDRANT ASSEMBLIES SHALL BE INSTALLED IN THE SAME LOCATIONS AS THE EXISTING, UNLESS OTHERWISE SHOWN. ALL JOINTS ON LONG LEGGED HYDRANT BRANCHES AND FIRE SERVICE CONNECTION BRANCHES MUST BE RESTRAINED.
 - REFER TO THE GENERAL NOTES ON SHEET C-1 FOR INFORMATION REGARDING THE LOCATIONS SHOWN FOR EXISTING PIPELINES, CONDUITS, AND STRUCTURES.
 - ALL DUCTILE IRON PIPES INCLUDING HYDRANT AND SERVICE LATERALS, SHALL BE PUSH ON JOINTS WITH GASKET JOINT RESTRAINTS CONFORMING TO AWWA C-111, SECTION 3.16 OF MATERIAL SPECS AND APPROVED BY THE MANUFACTURER.

NO	REVISIONS	DATE

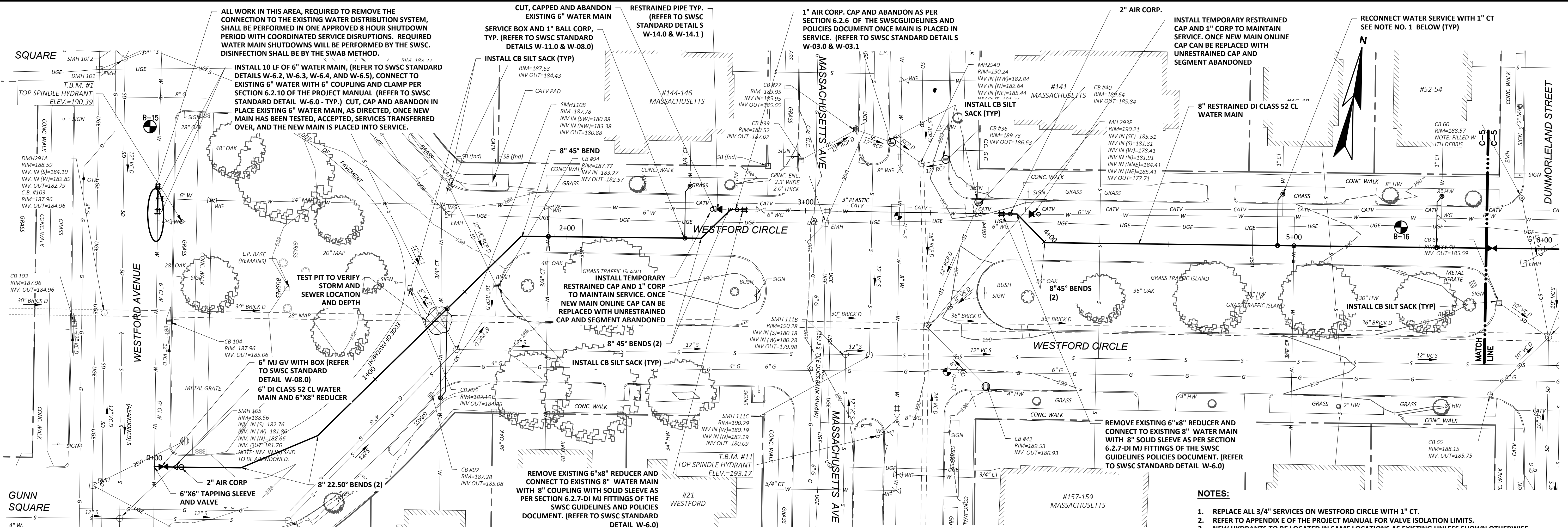
PROJECT NO: 21188
 DESIGNED: D. HOPKINS
 CAD COORD: R. BOURGET
 CAP: M. HORNIG
 CHECKED: M. HORNIG
 DATE: 04/2024
 APPROVED: M. JERCHOWSKI
 DATE: 04/2024
 SUBMISSION: CONTRACT DRAWINGS

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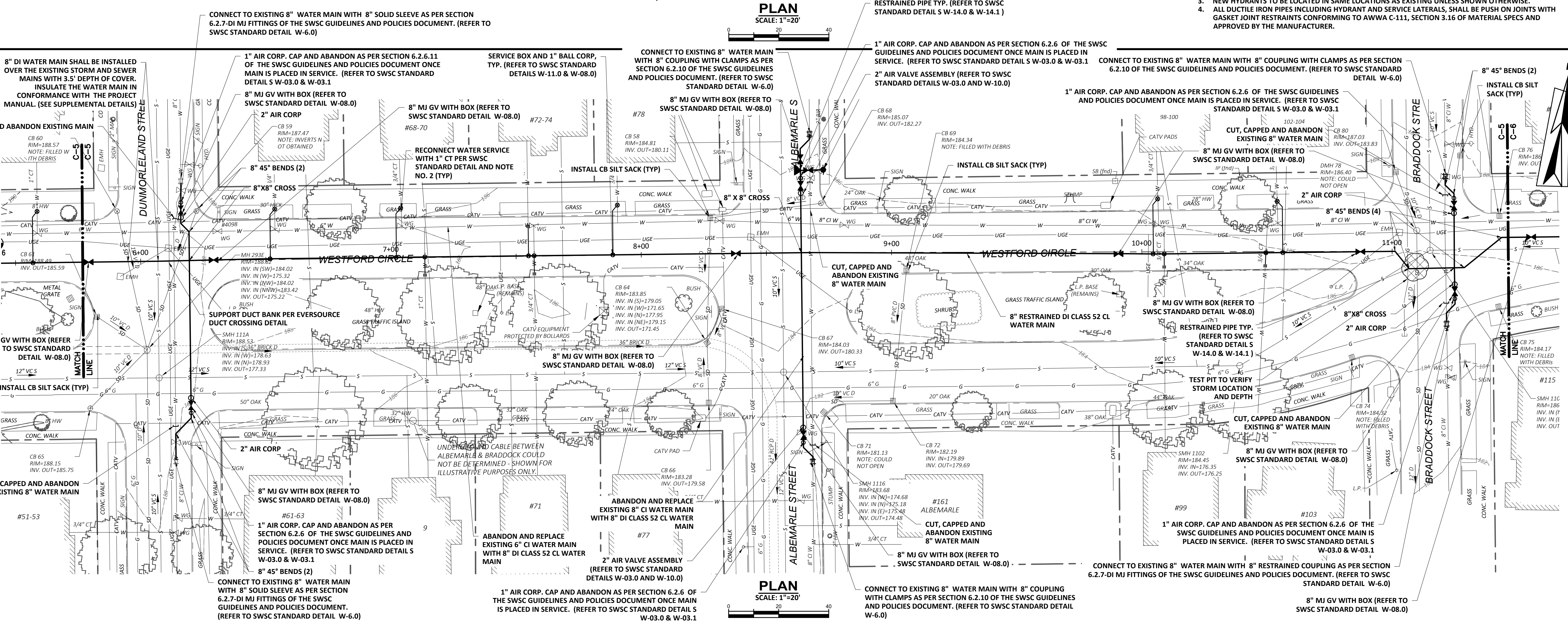
SPRINGFIELD WATER AND SEWER COMMISSION
WATER INFRASTRUCTURE IMPROVEMENTS
LIBERTY STREET & WESTFORD CIRCLE

LIBERTY STREET-PLAN VIEW 1

DRAWING C-3



PLAN SCALE: 1"=20'



PLAN SCALE: 1"=20'

ALL WORK IN THIS AREA, REQUIRED TO REMOVE THE CONNECTION TO THE EXISTING WATER DISTRIBUTION SYSTEM, SHALL BE PERFORMED IN ONE APPROVED 8 HOUR SHUTDOWN PERIOD WITH COORDINATED SERVICE DISRUPTIONS. REQUIRED WATER MAIN SHUTDOWNS WILL BE PERFORMED BY THE SWSC. DISINFECTION SHALL BE BY THE SWAB METHOD.

CUT, CAPPED AND ABANDON EXISTING 6" WATER MAIN SERVICE BOX AND 1" BALL CORP. TYP. (REFER TO SWSC STANDARD DETAILS W-11.0 & W-08.0)

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

INSTALL TEMPORARY RESTRAINED CAP AND 1" CORP TO MAINTAIN SERVICE. ONCE NEW MAIN ONLINE CAP CAN BE REPLACED WITH UNRESTRAINED CAP AND SEGMENT ABANDONED

RECONNECT WATER SERVICE WITH 1" CT AND 1" CORP TO MAINTAIN SERVICE. (SEE NOTE NO. 1 BELOW (TYP))

INSTALL 10 LF OF 6" WATER MAIN, (REFER TO SWSC STANDARD DETAILS W-6.2, W-6.3, W-6.4, AND W-6.5), CONNECT TO EXISTING 6" WATER WITH 6" COUPLING AND CLAMP PER SECTION 6.2.10 OF THE PROJECT MANUAL (REFER TO SWSC STANDARD DETAIL W-6.0 - TYP.) CUT, CAP AND ABANDON IN PLACE EXISTING 6" WATER MAIN, AS DIRECTED, ONCE NEW MAIN HAS BEEN TESTED, ACCEPTED, SERVICES TRANSFERRED OVER, AND THE NEW MAIN IS PLACED INTO SERVICE.

INSTALL CB SILT SACK (TYP)

RESTRAINED PIPE TYP. (REFER TO SWSC STANDARD DETAIL S W-14.0 & W-14.1)

INSTALL CB SILT SACK (TYP)

INSTALL CB SILT SACK (TYP)

TEST PIT TO VERIFY STORM AND SEWER LOCATION AND DEPTH

INSTALL TEMPORARY RESTRAINED CAP AND 1" CORP TO MAINTAIN SERVICE. ONCE NEW MAIN ONLINE CAP CAN BE REPLACED WITH UNRESTRAINED CAP AND SEGMENT ABANDONED

REMOVE EXISTING 6"x8" REDUCER AND CONNECT TO EXISTING 8" WATER MAIN WITH 8" COUPLING WITH SOLID SLEEVE AS PER SECTION 6.2.7-DI MJ FITTINGS OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

REMOVE EXISTING 6"x8" REDUCER AND CONNECT TO EXISTING 8" WATER MAIN WITH 8" SOLID SLEEVE AS PER SECTION 6.2.7-DI MJ FITTINGS OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

INSTALL CB SILT SACK (TYP)

6" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

INSTALL CB SILT SACK (TYP)

RESTRAINED PIPE TYP. (REFER TO SWSC STANDARD DETAIL S W-14.0 & W-14.1)

REMOVE EXISTING 6"x8" REDUCER AND CONNECT TO EXISTING 8" WATER MAIN WITH 8" COUPLING WITH CLAMPS AS PER SECTION 6.2.10 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

INSTALL CB SILT SACK (TYP)

CONNECT TO EXISTING 8" WATER MAIN WITH 8" SOLID SLEEVE AS PER SECTION 6.2.7-DI MJ FITTINGS OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

REMOVE EXISTING 6"x8" REDUCER AND CONNECT TO EXISTING 8" WATER MAIN WITH 8" COUPLING WITH CLAMPS AS PER SECTION 6.2.10 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

CONNECT TO EXISTING 8" WATER MAIN WITH 8" COUPLING WITH CLAMPS AS PER SECTION 6.2.10 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

INSTALL CB SILT SACK (TYP)

8" DI WATER MAIN SHALL BE INSTALLED OVER THE EXISTING STORM AND SEWER MAINS WITH 3.5' DEPTH OF COVER. INSULATE THE WATER MAIN IN CONFORMANCE WITH THE PROJECT MANUAL. (SEE SUPPLEMENTAL DETAILS)

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6.11 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

CONNECT TO EXISTING 8" WATER MAIN WITH 8" COUPLING WITH CLAMPS AS PER SECTION 6.2.10 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

INSTALL CB SILT SACK (TYP)

8" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

RECONNECT WATER SERVICE WITH 1" CT PER SWSC STANDARD DETAIL AND NOTE NO. 2 (TYP)

INSTALL CB SILT SACK (TYP)

8" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

INSTALL CB SILT SACK (TYP)

SUPPORT DUCT BANK PER EVERSOURCE DUCT CROSSING DETAIL

8" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

CUT, CAPPED AND ABANDON EXISTING 8" WATER MAIN

8" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

INSTALL CB SILT SACK (TYP)

8" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

ABANDON AND REPLACE EXISTING 8" CI WATER MAIN WITH 8" DI CLASS 52 CL WATER MAIN

ABANDON AND REPLACE EXISTING 8" CI WATER MAIN WITH 8" DI CLASS 52 CL WATER MAIN

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

CONNECT TO EXISTING 8" WATER MAIN WITH 8" SOLID SLEEVE AS PER SECTION 6.2.7-DI MJ FITTINGS OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

1" AIR CORP. CAP AND ABANDON AS PER SECTION 6.2.6 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT ONCE MAIN IS PLACED IN SERVICE. (REFER TO SWSC STANDARD DETAIL S W-03.0 & W-03.1)

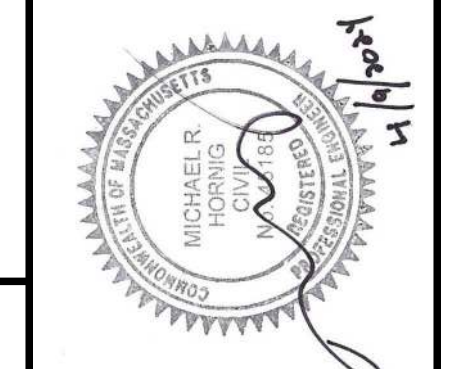
CONNECT TO EXISTING 8" WATER MAIN WITH 8" COUPLING WITH CLAMPS AS PER SECTION 6.2.10 OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

CONNECT TO EXISTING 8" WATER MAIN WITH 8" RESTRAINED COUPLING AS PER SECTION 6.2.7-DI MJ FITTINGS OF THE SWSC GUIDELINES AND POLICIES DOCUMENT. (REFER TO SWSC STANDARD DETAIL W-6.0)

8" MJ GV WITH BOX (REFER TO SWSC STANDARD DETAIL W-08.0)

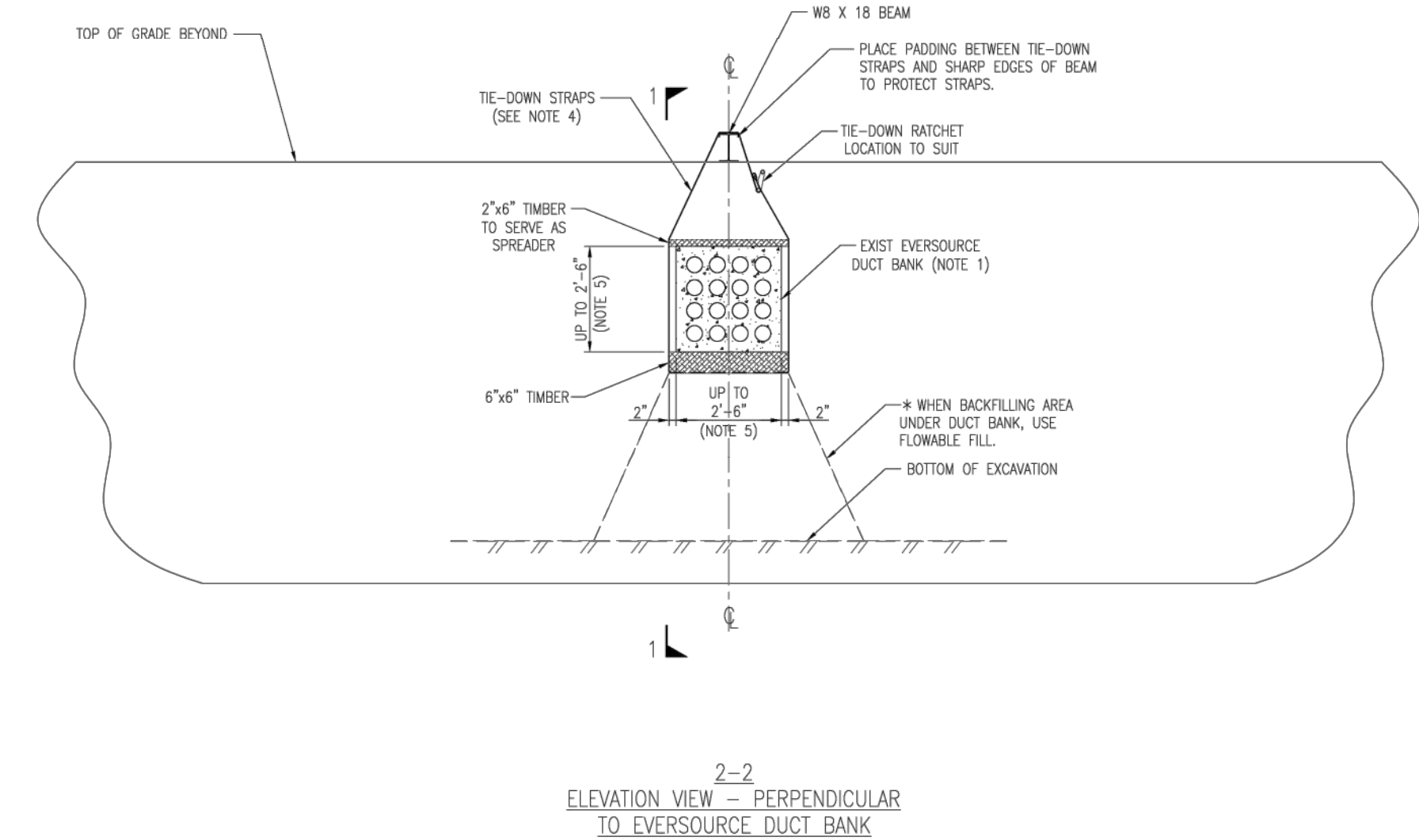
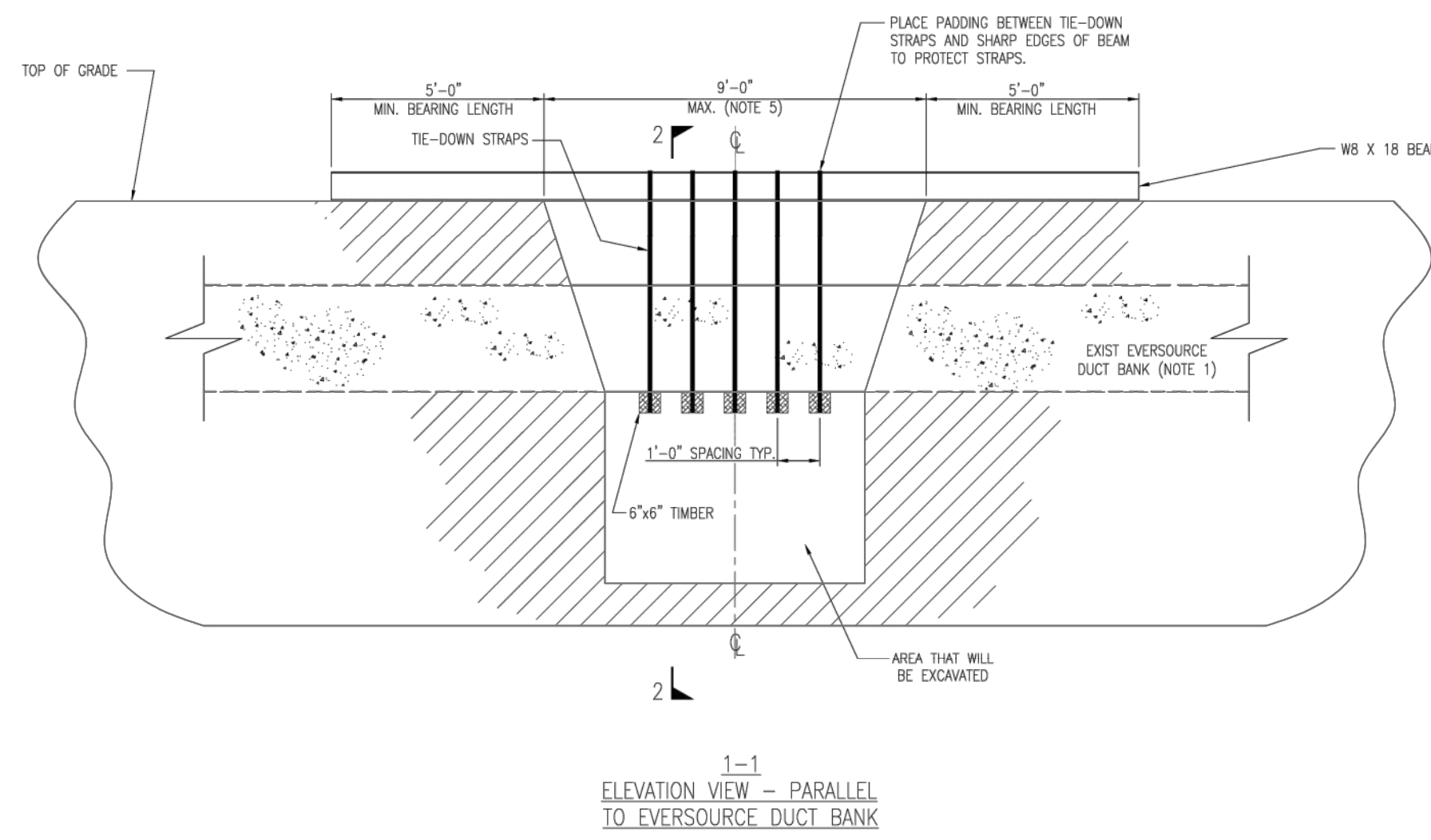
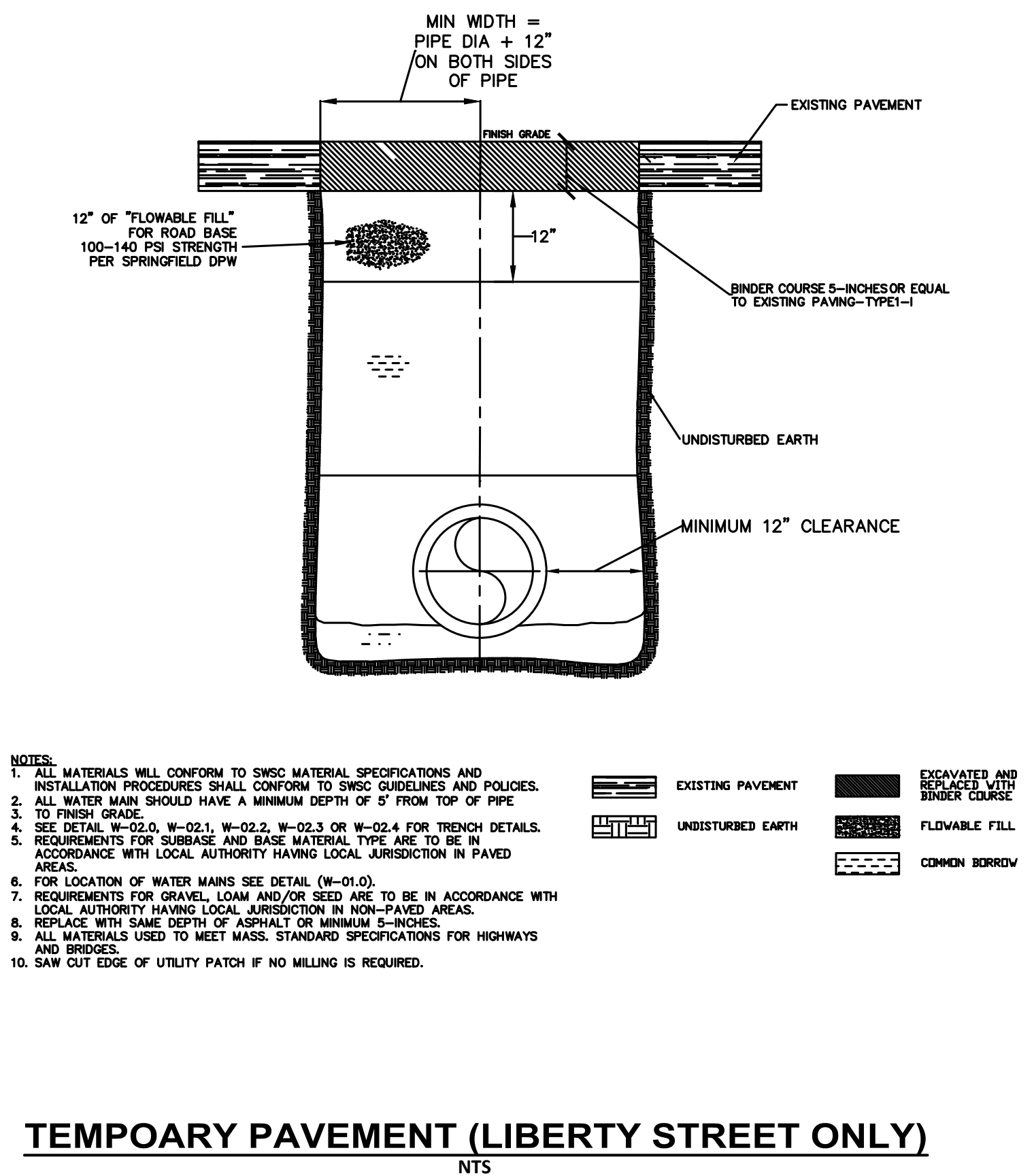
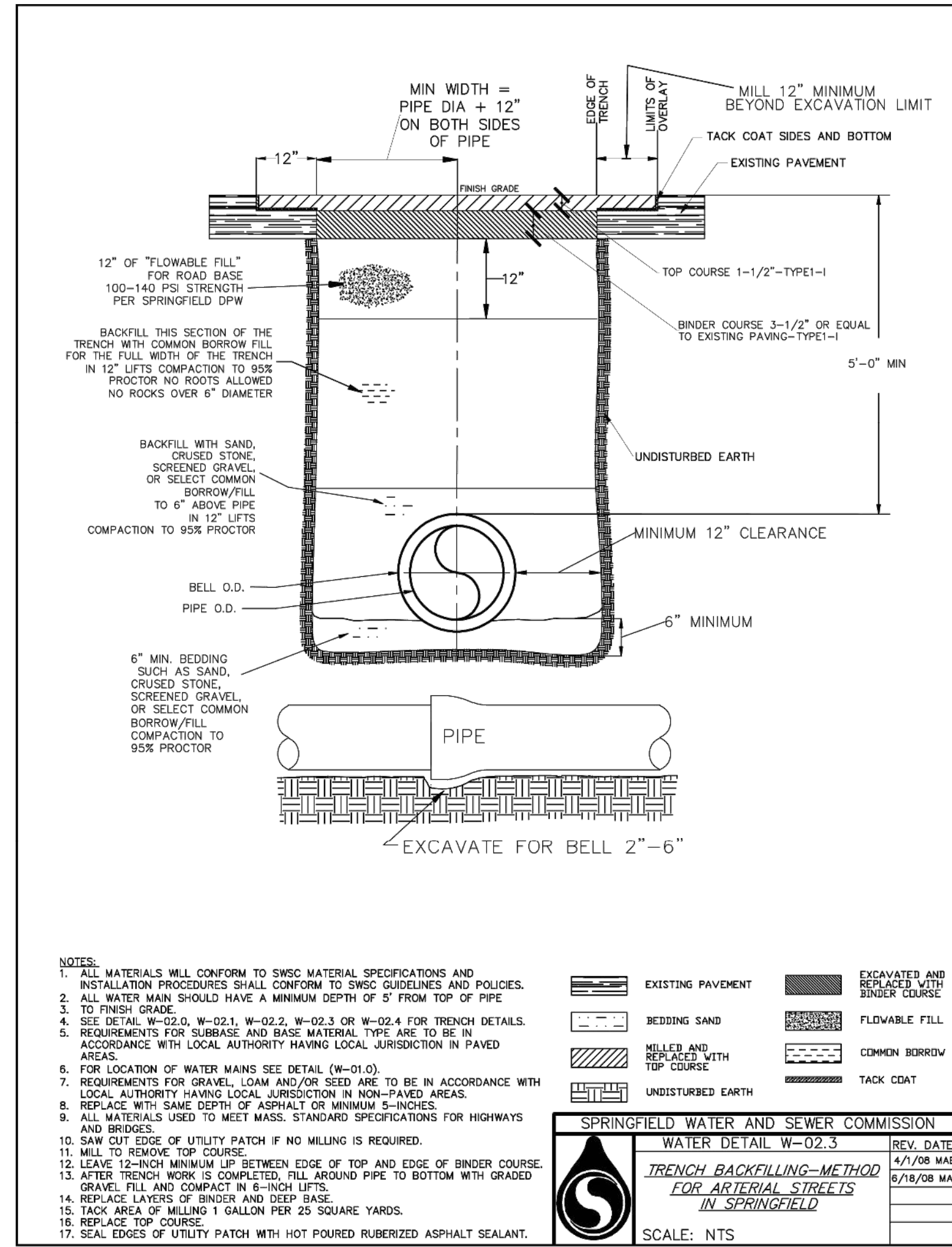
NO	REVISIONS	APPROV	DATE

PROJECT NO: 21188
 DESIGNED: D. HOPKINS
 CAD COORD: R. BOURGET
 CHECKED: M. HOBING
 DATE: 04/2024
 APPROVED: M. JERZYCHOWSKI
 DATE: 04/2024
 SUBMISSION: CONTRACT DRAWINGS



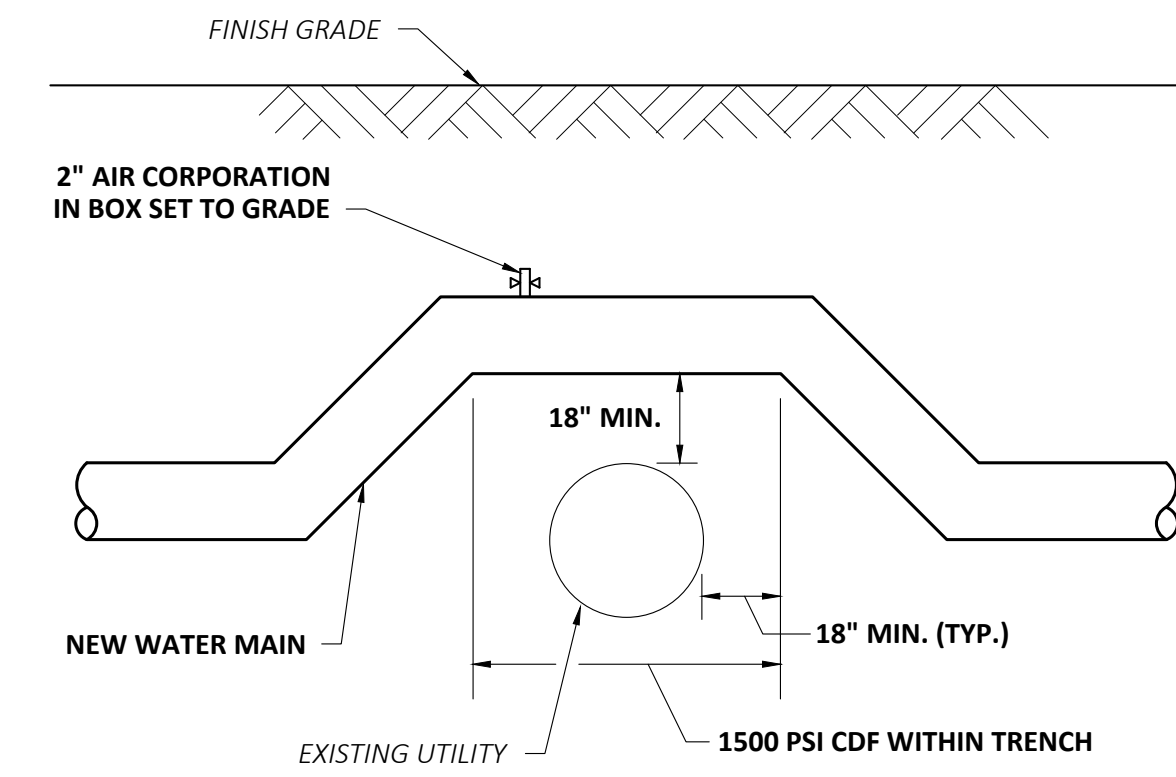
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 413.459.2003 | www.wright-pierce.com
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SPRINGFIELD WATER AND SEWER COMMISSION
 WATER INFRASTRUCTURE IMPROVEMENTS
 LIBERTY STREET & WESTFORD CIRCLE
 WESTFORD CIRCLE-PLAN VIEW I
 DRAWING C-4



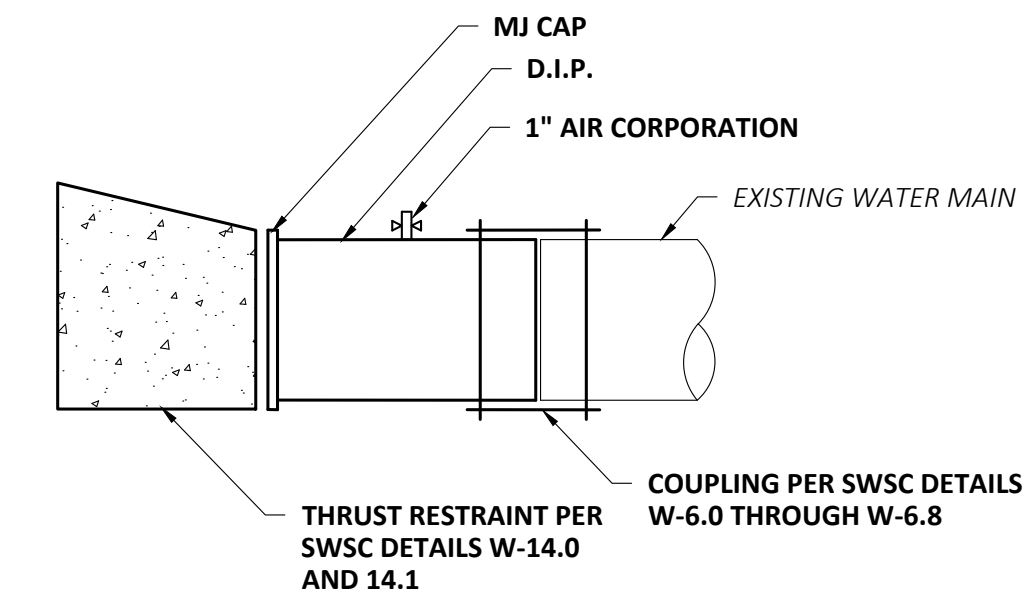
- NOTES:**
1. STRUCTURAL CONDITION OF EXISTING EVERSOURCE DUCT BANK TO BE VERIFIED BY EVERSOURCE ENGINEER OR CONSTRUCTION REPRESENTATIVE TO DETERMINE WHETHER ADDITIONAL REINFORCING OF DUCT BANK IS REQUIRED.
 2. ALL STRUCTURAL STEEL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) LATEST EDITION.
 3. STRUCTURAL STEEL SHAPES SHALL BE ASTM A-992.
 4. RATCHETING TIE-DOWN STRAPS TO BE 2" WIDE AND HAVE A MIN. WORKING LOAD LIMIT OF 1,600 LBS.
 5. FOR SPAN LENGTHS GREATER THAN 9 FEET, OR DUCTBANKS LARGER THAN 2'-6" X 2'-6", CONTACT CIVIL ENGINEERING IN THE EVERSOURCE SUBSTATION ENGINEERING AND DESIGN GROUP.

EVERSOURCE DUCT CROSSING DETAIL
 NTS



- NOTES:**
1. INSTALL INSULATION PER PROJECT MANUAL.

SHALLOW UTILITY CROSSING
 NTS



CUT, CAP AND RESTRAINT
 NTS

PROJECT NO: 21188	DESIGNED: D. HOPKINS	CAD: R. BOURGET	CHECKED: M. HORING	DATE: 04/2024	APPROVED: M. JEDRICHOWSKI	DATE: 04/2024	SUBMISSION: CONTRACT DRAWINGS
NO	REVISIONS	APPD	DATE				
1							
<p>SPRINGFIELD WATER AND SEWER COMMISSION WATER INFRASTRUCTURE IMPROVEMENTS LIBERTY STREET & WESTFORD CIRCLE</p> <p>WRIGHT-PIERCE 413.459.2003 www.wright-pierce.com 94 NORTH ELM STREET SUITE 205 WESTFIELD, MA.</p>							
<p>DETAILS</p>							
<p>DRAWING</p>							
<p>C-7</p>							

EROSION AND SEDIMENTATION CONTROL NOTES

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN URBAN AND SUBURBAN AREAS AS CONTAINED IN THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPTON, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED FOR THE PUMP STATION AND WATER METERING STATION ARE SHOWN ON THE GRADING/EROSION CONTROL PLANS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPTON, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL, AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
- SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
- INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH PERMANENT EROSION CONTROL MEASURES.
- IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT TO BE COMPLETED 30 DAYS PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING, UNTIL UPGRADIENT AREAS ARE STABILIZED.
- WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED AS FOLLOWS:
 - A MINIMUM OF FOUR (4) INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
 - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT DEEMED FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
 - FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED WITH A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED WITH A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYE GRASS. SEEDING RATE IS 3.0 LBS PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.
 - HAY MULCH AT THE RATE OF 70-90 LBS PER 1000 SQUARE FEET OR A HYDRO-APPLICATION OF CELLULOSE FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER WILL BE USED ON HAY MULCH FOR WIND CONTROL.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE WORK AREA IS STABILIZED.
- WETLANDS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- IN GENERAL, AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS SHALL HAVE A MAXIMUM PERIOD OF EXPOSURE OF NOT MORE THAN 15 DAYS.
- FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IN ALL AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS.

EROSION CONTROL DURING WINTER CONSTRUCTION

- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15.
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY PRECIPITATION EVENT.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 100 POUNDS PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEED, MULCHED, AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED, AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEED AT A RATE 200%-300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS PERMIT, ALL DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- A) BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE EITHER WOOD CELLULOSE FIBER OR BE ANCHORED WITH MULCH NETTING OR CHEMICAL TACK.
B) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3%, FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
C) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1, THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING WINTER CONSTRUCTION PERIODS, ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

MULCH ANCHORING

ANCHOR MULCH WITH: MULCH NETTING (AS PER MANUFACTURER); ASPHALT EMULSION (0.05 GALLONS PER SQ. YD.); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); OR BE WOOD CELLULOSE FIBER (2000 LBS/ACRE). WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

ADDITIONAL TEMPORARY SEED MIXTURE (OR PERIODS LESS THAN 12 MONTHS)

DATES	SEED	RATE
4/1/02 - 7/1/02 8/15/02 - 9/15/02	OATS	80 LBS/ACRE
4/1/02 - 6/1/02 (8/15/02 - 9/15/02)	ANNUAL RYE GRASS	40 LBS/ACRE
(8/15/02 - 10/15/02)	WINTER RYE	120 LBS/ACRE
(11/1/02 - 4/1/03)	MULCH W/ DORMANT SEED	80 LBS/ACRE*
(5/1/02 - 6/30/01)	FOXTAIL MILLET	30 LBS/ACRE

*SEED RATE ONLY

MULCH AND MULCH ANCHORING

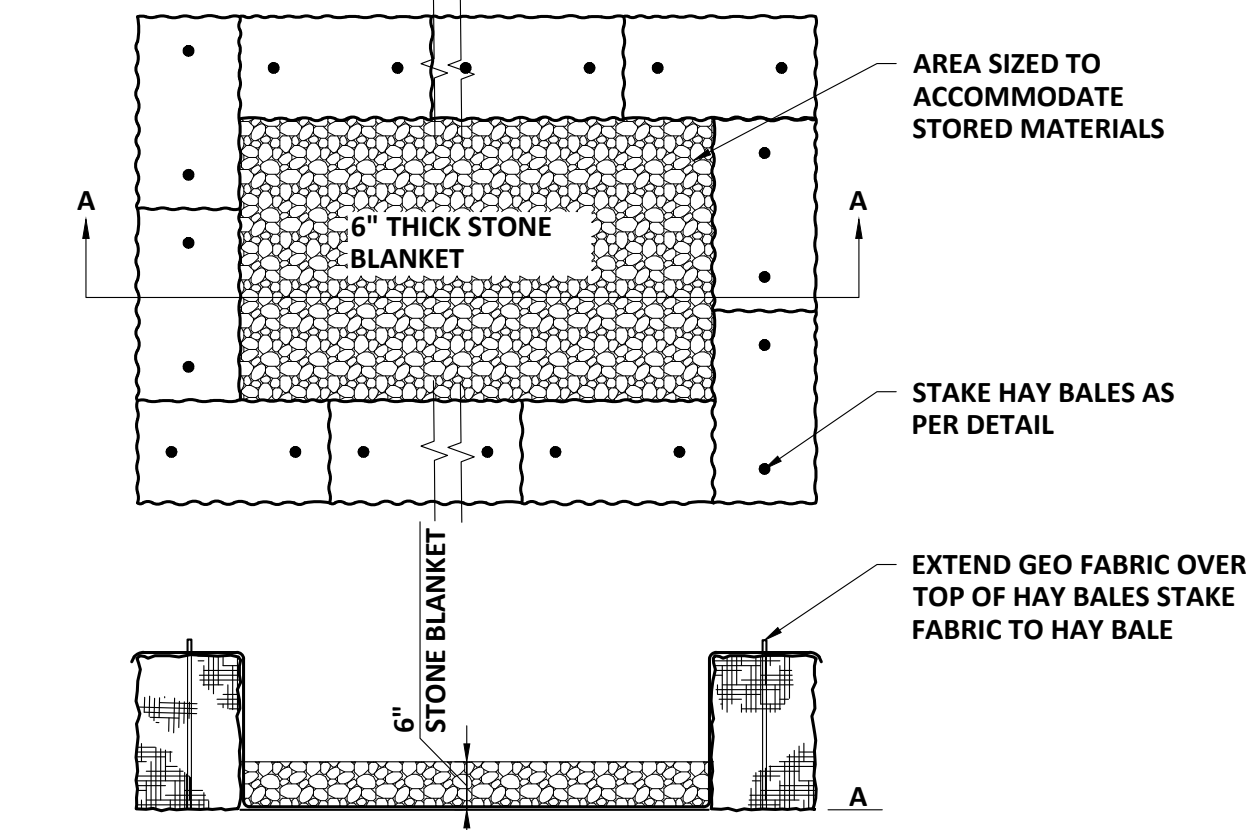
MULCH	LOCATION	MULCH	RATE (1000 S.F.)
PROTECTED AREA		STRAW OR HAY *	100 POUNDS
WINDY AREAS		STRAW OR HAY (ANCHORED) *	100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES (GREATER THAN 3:1)		JUTE MESH,	AS REQUIRED
		EXCELSIOR MAT OR EQUIV.	AS REQUIRED

* A HYDRO-APPLICATION OF CELLULOSE FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SHALL BE USED ON HAY MULCH FOR WIND CONTROL.

EROSION CONTROL AND DEWATERING NOTES

- PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
- EROSION CONTROLS TO BE INSTALLED AT THE EDGE OF PROPOSED WORK. EROSION CONTROLS TO ACT AS A LIMIT OF WORK LINE TO ENSURE THAT NO EQUIPMENT ENCROACHES ON TO ADJACENT PROPERTIES.
- EROSION CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED FOR THE DURATION OF THE PROJECT TO LIMIT THE MOVEMENT OF SILTATION AND SEDIMENTS FROM ENTERING EXISTING DRAINAGE SYSTEMS OR FROM LEAVING THE PARCEL. ANY ACCUMULATED SEDIMENTS ARE TO BE REMOVED FROM THE EROSION CONTROLS AND DISPOSED TO PROPERLY. ADDITIONALLY, ALL EROSION CONTROLS ARE TO BE INSPECTED AFTER A STORM EVENT AND THE CONTROLS REPLACED OR ARMORED AS NECESSARY AND ACCUMULATED SEDIMENTS REMOVED.
- ADDITIONAL EROSION CONTROLS ARE TO BE UTILIZED AS NECESSARY AND AS DIRECTED BY THE ENGINEER TO LIMIT SEDIMENTS FROM DISCHARGING TO ADJACENT PROPERTIES OR INTO EXISTING STORM DRAIN SYSTEMS.
- CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT EROSION SHALL NOT AFFECT ON-SITE REGULATED AREAS (WETLANDS, ETC) AND OFF-SITE AREAS, WHETHER SUCH EROSION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
- A RESERVE AMOUNT OF EROSION CONTROL MATERIALS ARE TO BE KEPT WITHIN EASY ACCESS ON SITE AT ALL TIMES.
- CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SSEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
- TEMPORARY STOCKPILING OF MATERIALS RELATED TO THE CONSTRUCTION ACTIVITIES ARE TO BE PROPERLY STABILIZED, PROTECTED AND DEMARCATED TO LIMIT MOVEMENT OF MATERIAL INTO STORM DRAIN SYSTEM OR ON TO ADJACENT PARCELS.
- REFUELING AND ANY WORK ASSOCIATED WITH THE MAINTENANCE OF CONSTRUCTION EQUIPMENT TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE REGULATIONS.
- THE AREAS OF CONSTRUCTION SHALL REMAIN IN A STABLE CONDITION AT THE CLOSE OF EACH CONSTRUCTION DAY. EROSION CONTROLS SHALL BE CHECKED AT THIS TIME AND MAINTAINED OR REINFORCED IF NECESSARY.
- EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED WITH PAVEMENT, PLANTINGS, OR WITH AN ESTABLISHED STAND OF GRASS. EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE STABILIZATION IS COMPLETE. CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS AS DIRECTED BY THE ENGINEER, DPW AND/OR SWSC.
- UTILIZE APPROPRIATE DEWATERING SYSTEMS AND TECHNIQUES TO MAINTAIN THE EXCAVATED AREA SUFFICIENTLY DRY FROM GROUNDWATER AND/OR SURFACE RUNOFF SO AS NOT TO ADVERSELY AFFECT CONSTRUCTION PROCEDURES OR CAUSE EXCESSIVE DISTURBANCE OF UNDERLYING NATURAL GROUND.
- PROVIDE AND STORE AUXILIARY DEWATERING EQUIPMENT ON THE SITE IN THE EVENT OF BREAKDOWN. PROVIDE NON-WOVEN FILTER FABRIC WHERE REQUIRED FOR UNDERDRAIN SYSTEMS. THE NON-WOVEN FILTER FABRIC SHALL BE SPECIFICALLY DESIGNED FOR SUBSURFACE DRAINAGE APPLICATIONS.
- WATER FROM THE TRENCHES AND EXCAVATIONS SHALL BE DISPOSED OF IN SUCH A MANNER AS TO AVOID PUBLIC NUISANCE, INJURY TO PUBLIC HEALTH OR THE

- ENVIRONMENT, DAMAGE OR PUBLIC OR PRIVATE PROPERTY, OR DAMAGE TO PUBLIC OR PRIVATE PROPERTY, OR DAMAGE TO THE WORK COMPLETED OR IN PROGRESS. DO NOT DISCHARGE WATER INTO ANY SANITARY SEWER SYSTEM. SILTATION BARRIERS SHALL BE UTILIZED AS NECESSARY.
- WATER FROM TRENCHES AND EXCAVATIONS SHALL NOT BE DISCHARGED DIRECTLY TO STORM DRAIN SYSTEMS. PROPER TREATMENT TO A SEDIMENTATION AREA IS TO TAKE PLACE PRIOR TO DISCHARGE TO ANY DRAINAGE SYSTEMS.
- THE CONTRACTOR SHALL REPAIR ANY DAMAGE RESULTING FROM THE FAILURE OF THE DEWATERING OPERATIONS OR FROM FAILURE TO MAINTAIN ALL THE AREAS OF WORK IN SUITABLE DRY CONDITION.
- PRECAUTIONS SHALL BE TAKEN TO PROTECT NEW WORK FROM FLOODING DURING STORMS OR FROM OTHER CAUSES. GRADING IN THE AREAS SURROUNDING ALL EXCAVATIONS SHALL BE PROPERLY SLOPED TO PREVENT WATER FROM RUNNING INTO THE EXCAVATED AREA OR TO ADJACENT PROPERTIES. WHERE REQUIRED, TEMPORARY DITCHES SHALL BE PROVIDED FOR DRAINAGE. UPON COMPLETION OF THE WORK AND WHEN DIRECTED, ALL AREAS SHALL BE RESTORED IN A SATISFACTORY MANNER AND AS DIRECTED.
- ALL PIPELINES OR STRUCTURES NOT STABLE AGAINST UPLIFT DURING CONSTRUCTION OR PRIOR TO COMPLETION SHALL BE THOROUGHLY BRACED OR OTHERWISE PROTECTED.
- DO NOT EXCAVATE UNTIL THE DEWATERING SYSTEM IS OPERATIONAL AND THE EXCAVATION MAY PROCEED WITHOUT DISTURBANCE TO THE FINAL SUBGRADE.
- UNLESS OTHERWISE SPECIFIED, CONTINUE DEWATERING UNINTERRUPTED UNTIL THE STRUCTURES, PIPES, AND APPURTENANCES TO BE BUILT HAVE BEEN PROPERLY INSTALLED. WHERE SUBGRADE MATERIALS ARE UNABLE TO MEET THE SUBGRADE DENSITY REQUIREMENTS DUE TO IMPROPER DEWATERING TECHNIQUES, REMOVE AND REPLACE THE MATERIALS AS DIRECTED BY THE ENGINEER.

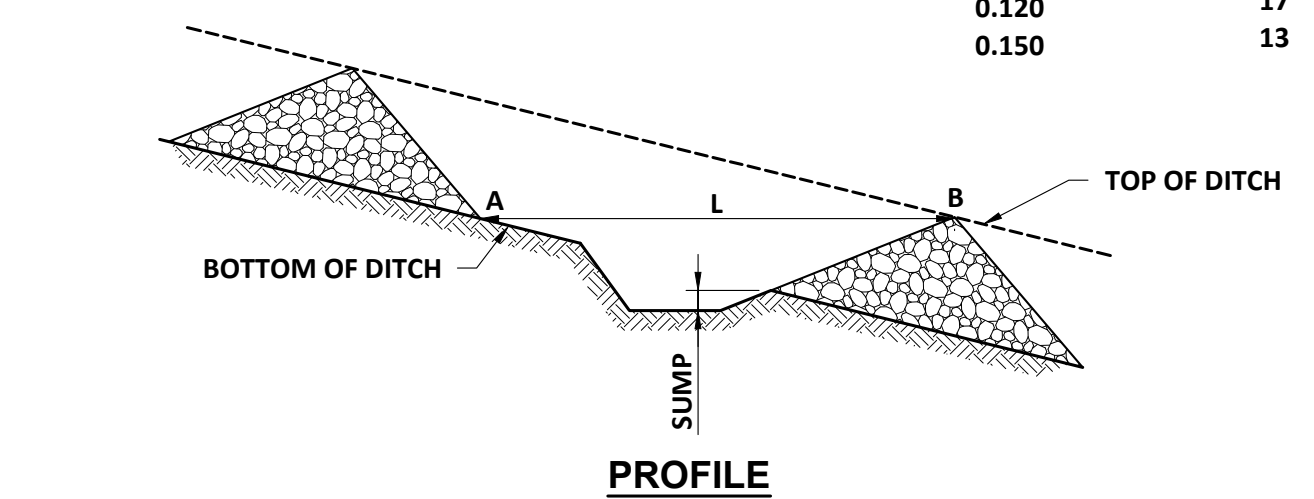


TEMPORARY HAY BALE SEDIMENT BASIN

SCALE: "NTS"

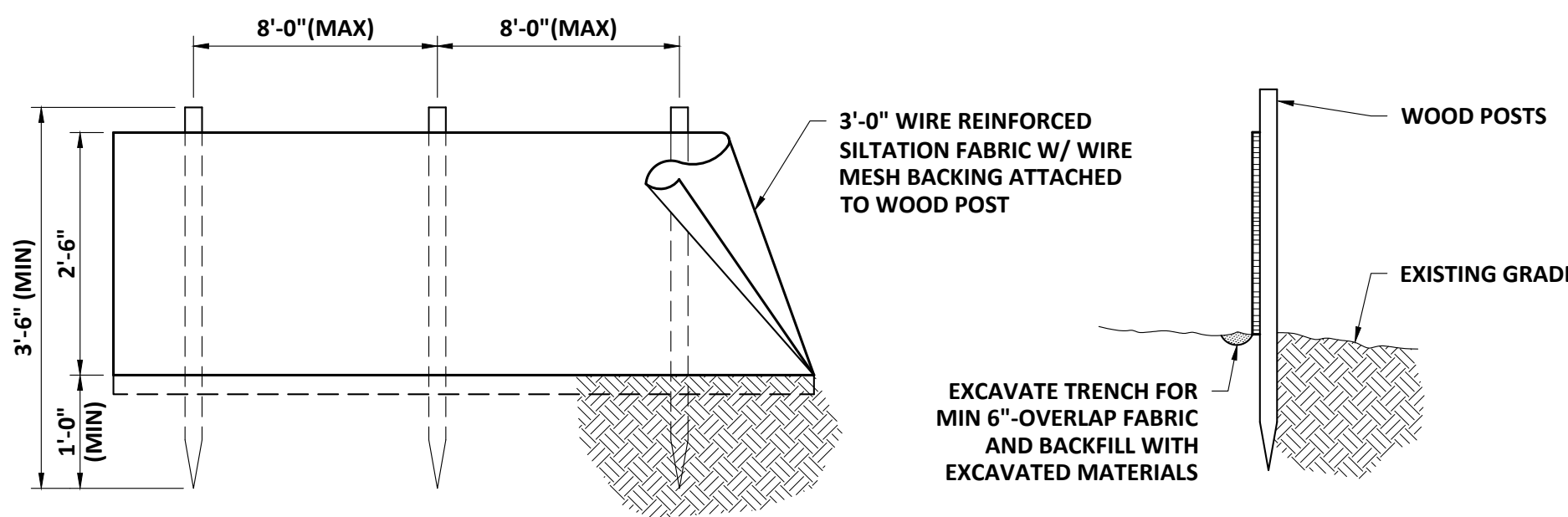
DITCH SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

CROSS SECTION



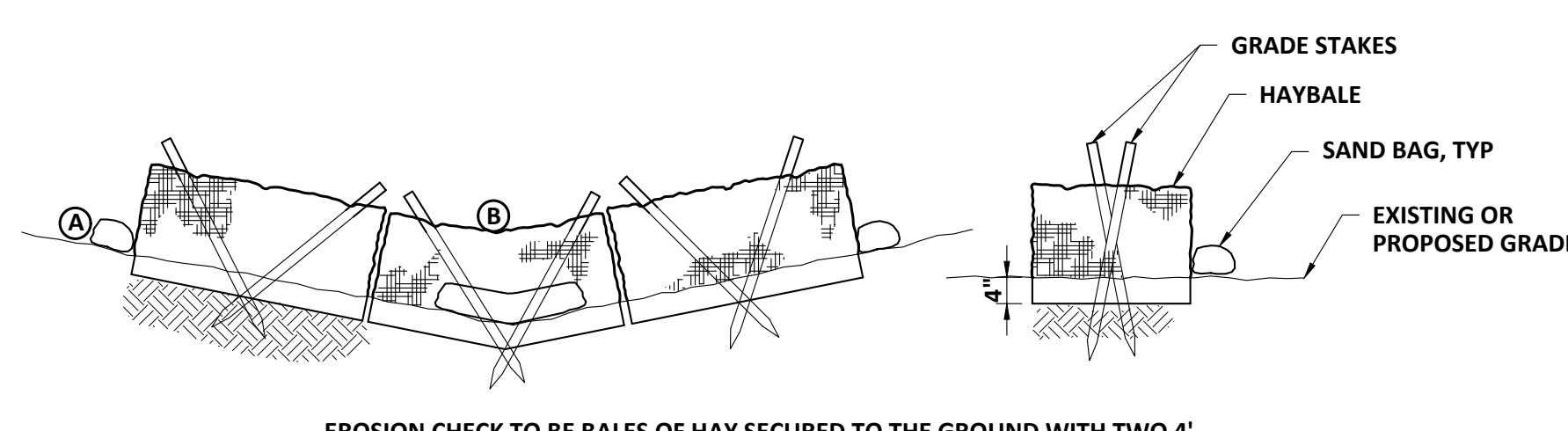
STONE CHECK DAM DETAIL

SCALE: NTS



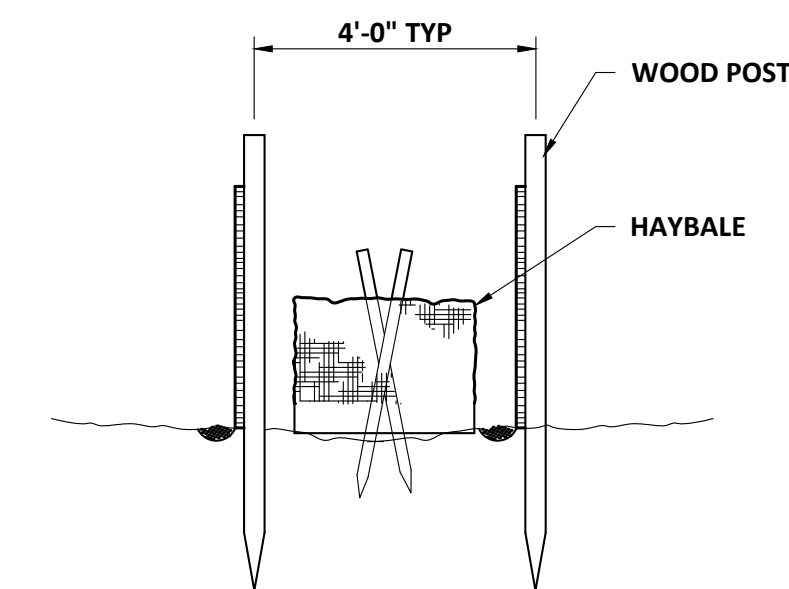
SILT FENCE INSTALLATION DETAIL

SCALE: NTS



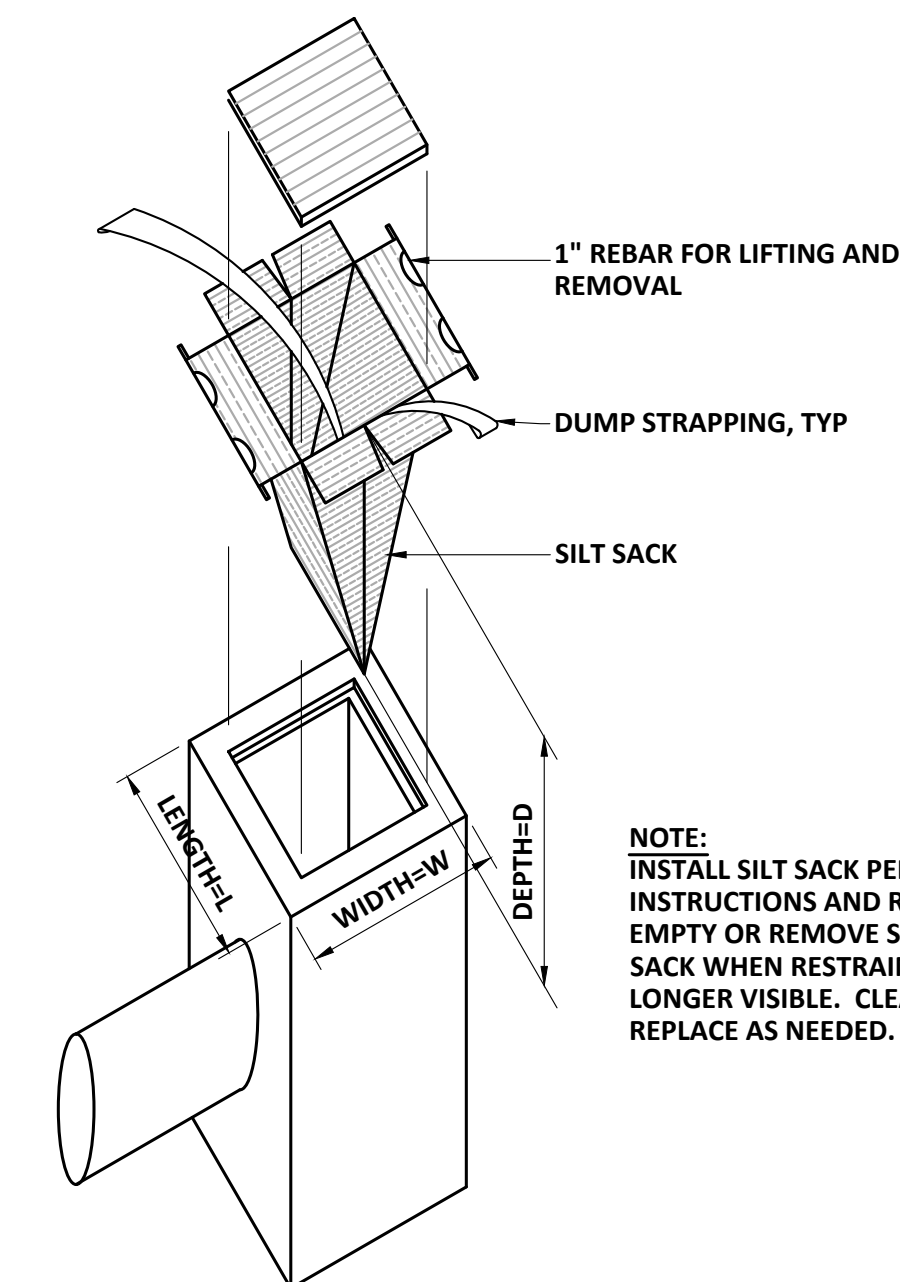
HAY BALE CHECK DAM

SCALE: "NTS"



COMBINATION SILT FENCE AND HAY BALE BARRIER

SCALE: "NTS"



SILT SACK CATCH BASIN INLET

NTS

NO	REVISIONS	APPROVED	DATE

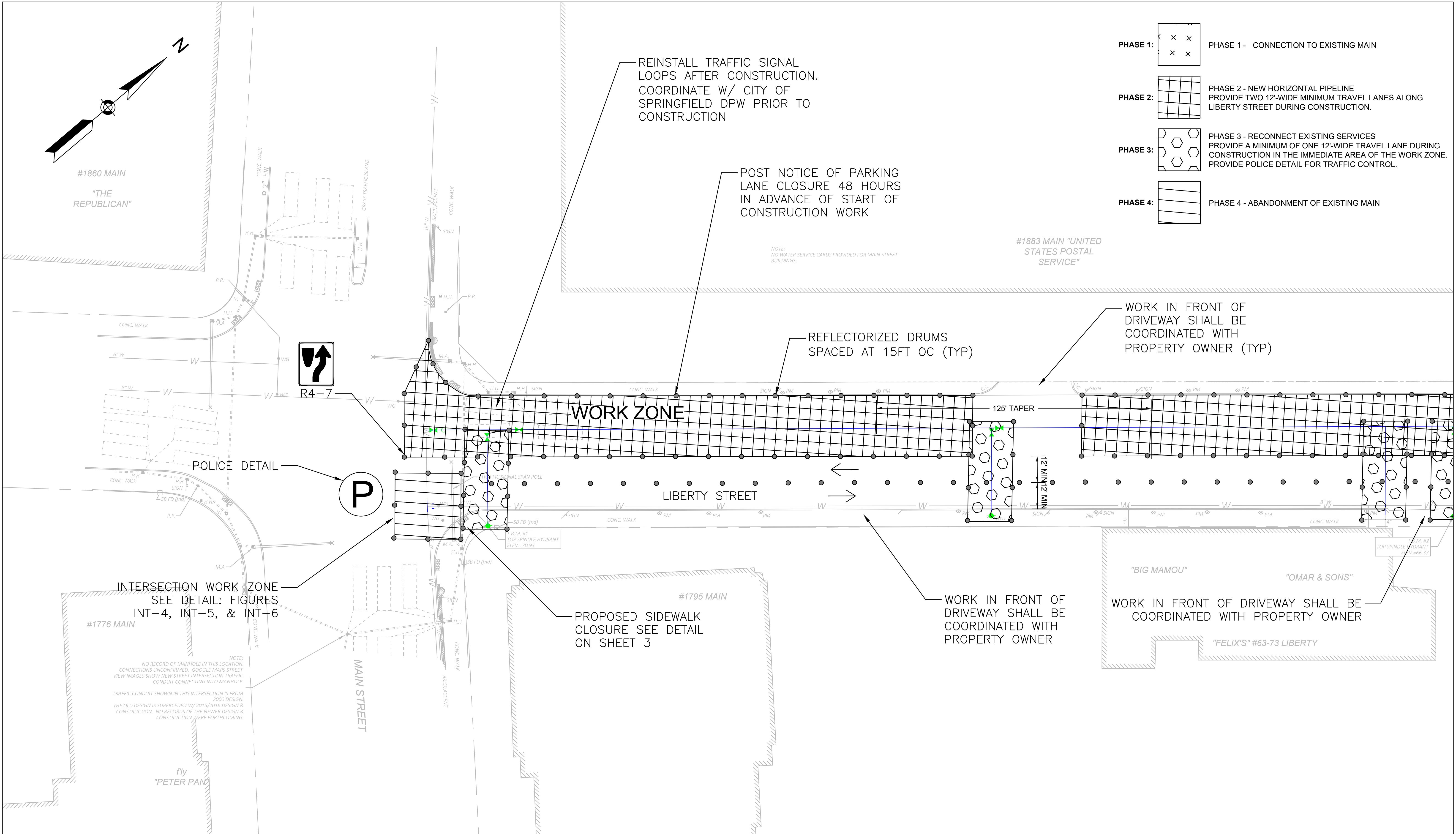
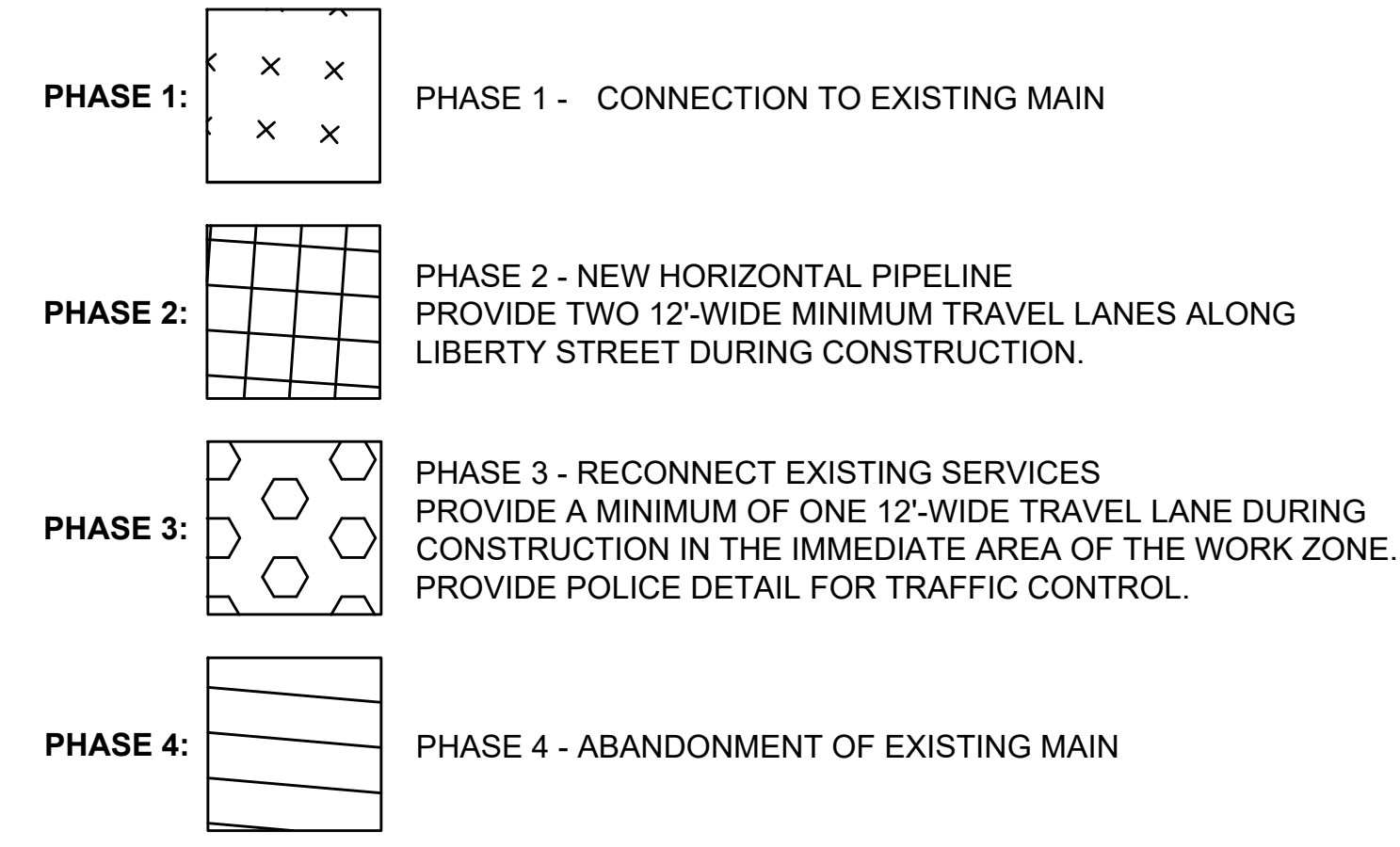
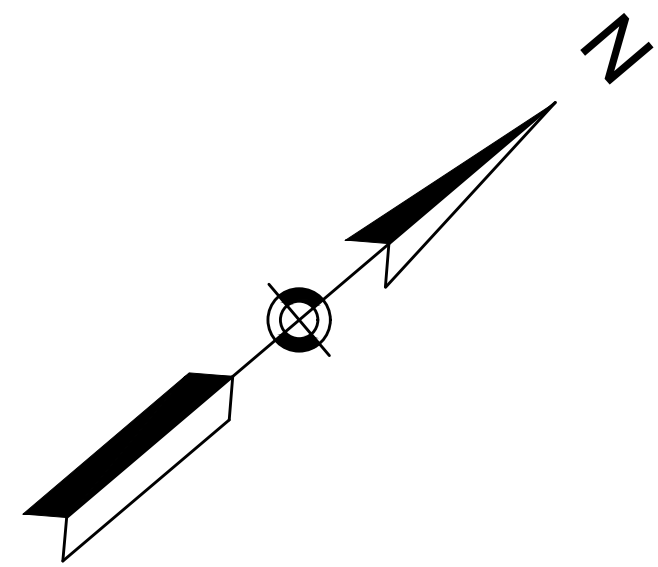
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 CAD COORD: R. BOURET
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 SUBMISSION: CONTRACT DRAWINGS

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 413-459-2003 | www.wright-pierce.com
 94 NORTH ELM STREET SUITE 205 WESTFIELD, MA

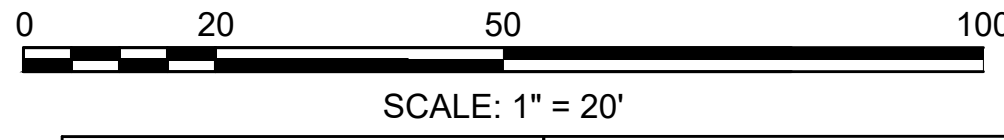
SPRINGFIELD WATER AND SEWER COMMISSION
 WATER INFRASTRUCTURE IMPROVEMENTS
 LIBERTY STREET & WESTFORD CIRCLE

EROSION CONTROL NOTES AND DETAILS

DRAWING C-8



CONTINUED ON SHEET NO. 2

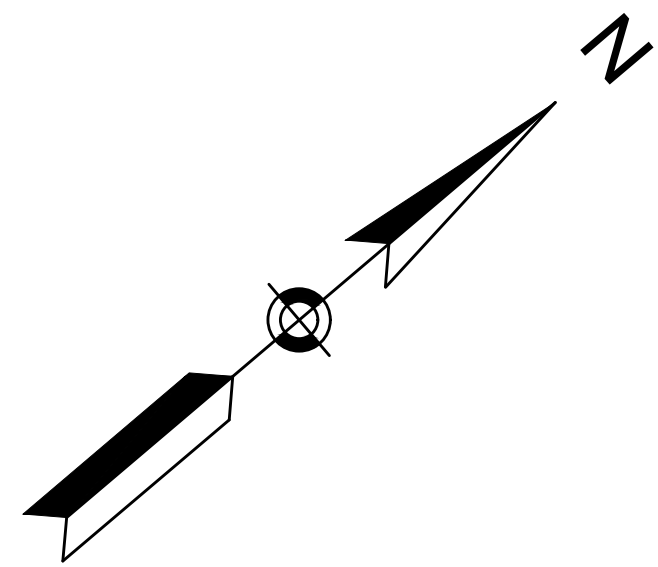


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 DRAFTER: TVT
 REVIEWER: CCC

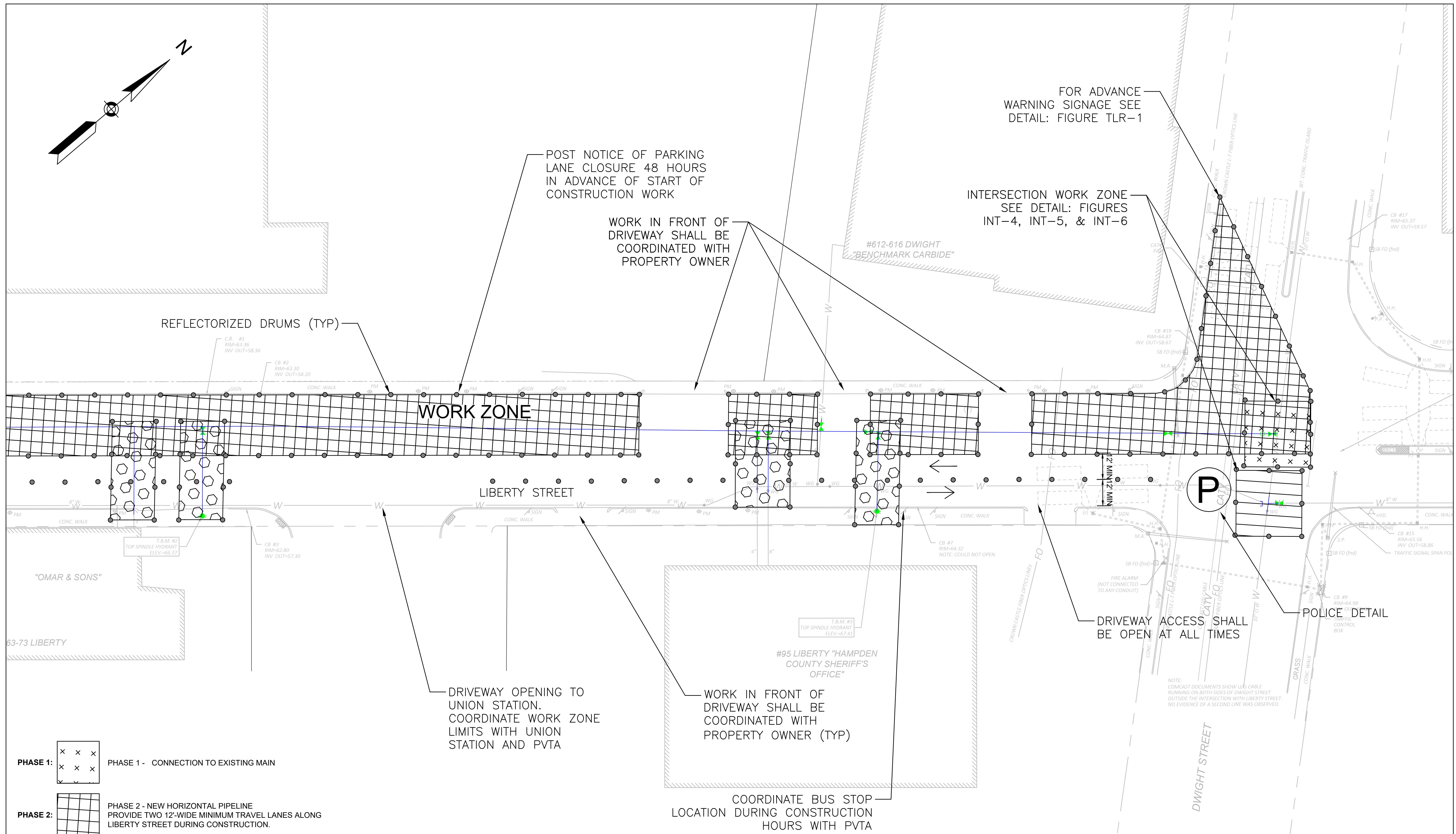
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14 BREAKNECK HILL RD SUITE 201 LINCOLN, RI 02865 TELE: (401) 648 - 7200	94 NORTH ELM STREET SUITE 308 WESTFIELD, MA TELE: (413) 875 - 8855

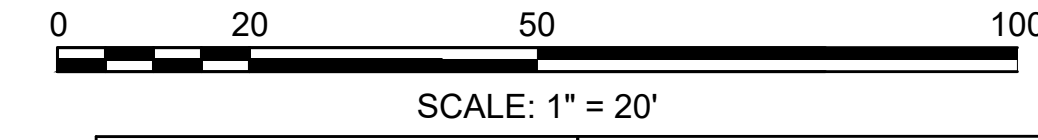
REVISIONS		REV #	DATE
TRAFFIC MANAGEMENT PLAN NO. 1 WATER INFRASTRUCTURE IMPROVEMENTS LIBERTY STREET SPRINGFIELD, MA		SHEET #	TOTAL SHEETS
		1	4



CONTINUED ON SHEET NO. 1



- PHASE 1:** PHASE 1 - CONNECTION TO EXISTING MAIN
- PHASE 2:** PHASE 2 - NEW HORIZONTAL PIPELINE PROVIDE TWO 12'-WIDE MINIMUM TRAVEL LANES ALONG LIBERTY STREET DURING CONSTRUCTION.
- PHASE 3:** PHASE 3 - RECONNECT EXISTING SERVICES PROVIDE A MINIMUM OF ONE 12'-WIDE TRAVEL LANE DURING CONSTRUCTION IN THE IMMEDIATE AREA OF THE WORK ZONE. PROVIDE POLICE DETAIL FOR TRAFFIC CONTROL.
- PHASE 4:** PHASE 4 - ABANDONMENT OF EXISTING MAIN



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350 MYLES STANDISH BLVD SUITE 103 TAUNTON, MA
 TELE: (508) 823 - 2245 FAX: (508) 823 - 2246

120 WATER ST 4TH FLOOR BOSTON, MA 02109
 TELE: (617) 556 - 0020 FAX: (617) 556 - 0025

14 BREAKNECK HILL RD SUITE 201 LINCOLN, RI 02865
 TELE: (401) 648 - 7200

94 NORTH ELM STREET SUITE 308 WESTFIELD, MA
 TELE: (413) 875 - 8855

REVISIONS		REV #	DATE
TRAFFIC MANAGEMENT PLAN NO. 2			
WATER INFRASTRUCTURE IMPROVEMENTS			
LIBERTY STREET			
SPRINGFIELD, MA			
SHEET #	2	TOTAL SHEETS	4

NOTES:

- ALL TEMPORARY TRAFFIC CONTROL SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERSEDED BY THESE PLANS.
- ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND OTHER ATTENDING DEVICES MUST MEET THE CRITERIA SET FORTH IN MUTCD CHAPTER 300, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY PERFORMANCE" (MANSO).
- CONTRACTORS SHALL NOTIFY EACH OTHER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PLACEMENT, AND SIMILAR OPERATIONS.
- THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE II LIGHTS.
- THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
- MINIMUM LANE WIDTH IS TO BE 11 FEET (3.3m) UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 3" CONE
- WORK ZONE
- WORK VEHICLE
- DIRECTION OF TRAFFIC
- TRUCK MOUNTED ATTENUATOR
- IMPACT ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- TYPE II BARRICADE
- MEDIAN BARRIER
- CHANGEABLE MESSAGE SIGN
- MEDIAN BARRIER WITH WARNING LIGHTS
- ARROW BOARD

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1800 PASSENGER CARS PER HOUR PER LANE (PCPHPL) IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY. THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES			
NUMBER OF LANES (EXISTING)	NUMBER OF STUDIES (TO TRAFFIC)	AVERAGE CAPACITY (VPH)	VPH/PL
3	1	1,170	1,170
3	2	1,340	1,340
3	3	2,740	1,370
3	4	2,980	1,490
4	3	2,980	1,490
4	4	4,560	1,140

Source: Dudgeon, C. Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT, THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

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Notes for Traffic Management
GENERAL GUIDELINES
NOT TO SCALE

FIGURE GEN-1
GENERAL GUIDELINES
NOT TO SCALE

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREeways AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,400 (800)

* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.
** DIMENSIONS ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/TYPICAL SETUP FIGURES. THE 'A' DIMENSION IS THE DISTANCE FROM THE TRAVEL OR POINT OF RESTRICTION TO THE FIRST SIGN. THE 'B' DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE 'C' DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE 'THIRD' SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TRIP SETUP. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W2-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a, R2-10b, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.
Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED			
SPEED (km/h)	DISTANCE (m)	SPEED (mph)	DISTANCE (ft)
30	25	20	75
40	35	25	100
50	50	30	150
60	75	35	225
70	100	40	300
80	130	45	390
90	160	50	495
100	195	55	590
110	225	60	670
120	250	70	750

*POSTED SPEED, OFF-PEAK BOTH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.
THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.
THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION

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Notes for Traffic Management
NOTES ON WORK ZONE DISTANCES
NOT TO SCALE

FIGURE GEN-2
NOTES ON WORK ZONE DISTANCES
NOT TO SCALE

CONVENTIONAL ROADWAY - A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.
EXPRESSWAY - A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.
FREEWAY - A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.
LOW-VOLUME ROAD - A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE, RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)†
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.3L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN (15 m) 100 FT (30 m) MAX.
DOWNSTREAM TAPER	50 FT MIN (15 m) 100 FT MAX (30 m) PER LANE

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

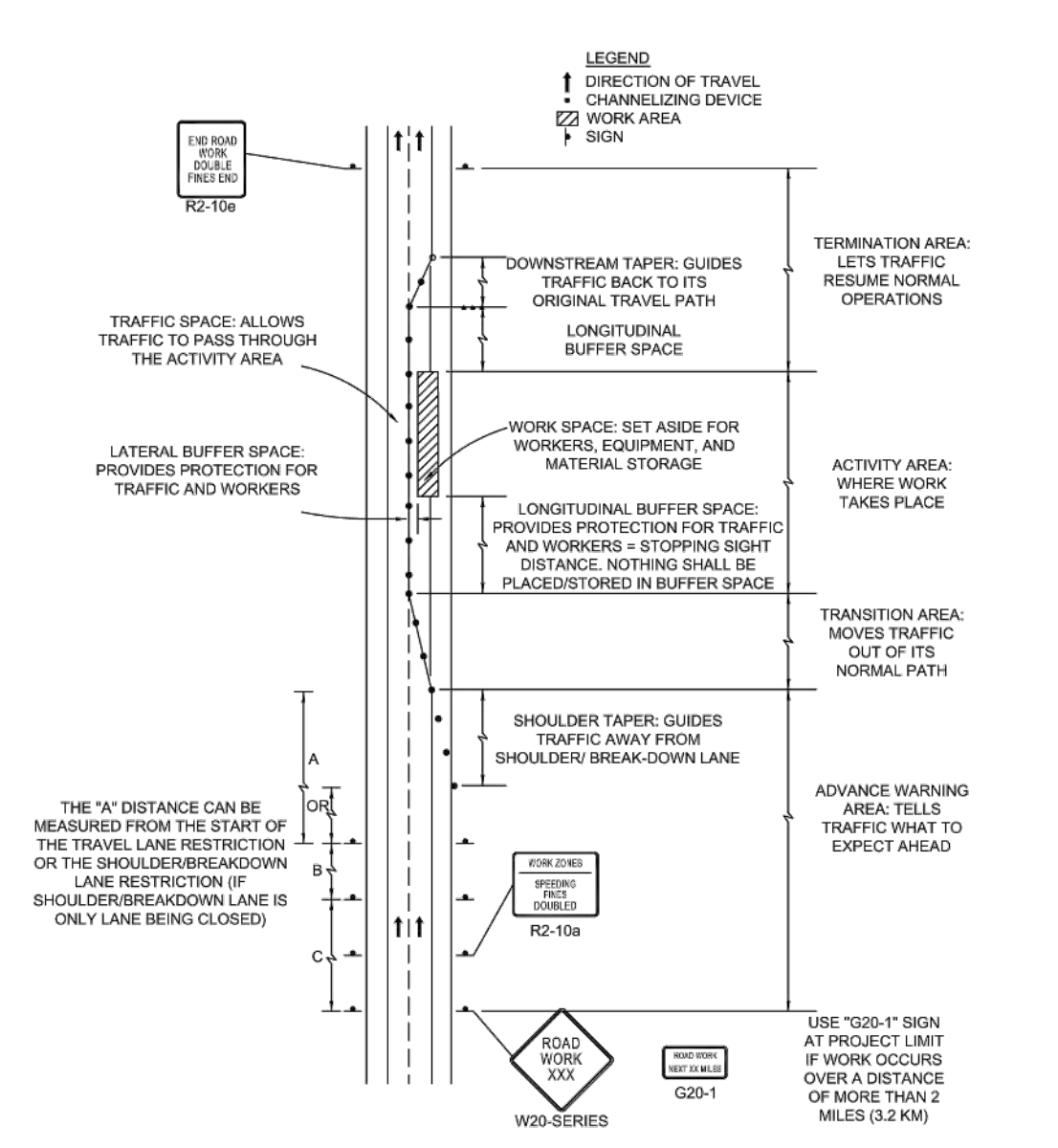
SPEED LIMIT (S)	TAPER LENGTH (L) FEET	SPEED LIMIT (S)	TAPER LENGTH (L) METERS
40 MPH OR LESS	L = WS	60 KM/H OR LESS	L = WS
45 MPH OR MORE	L = WS	70 KM/H OR MORE	L = WS

WHERE: L = TAPER LENGTH IN FEET (METERS)
W = WIDTH OF OFFSET IN FEET (METERS)
S = POSTED SPEED LIMIT, OR OFF-PEAK BOTH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 MUTCD LATEST EDITION

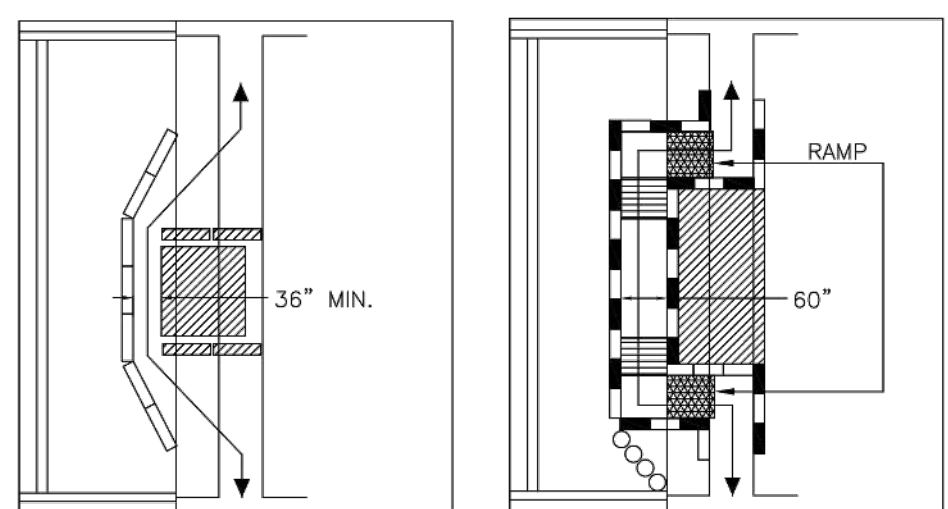
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Notes for Traffic Management
NOTES ON WORK ZONE DISTANCES
NOT TO SCALE

FIGURE GEN-3
NOTES ON WORK ZONE DISTANCES
NOT TO SCALE



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COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE
NOT TO SCALE

FIGURE GEN-4
COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE
NOT TO SCALE

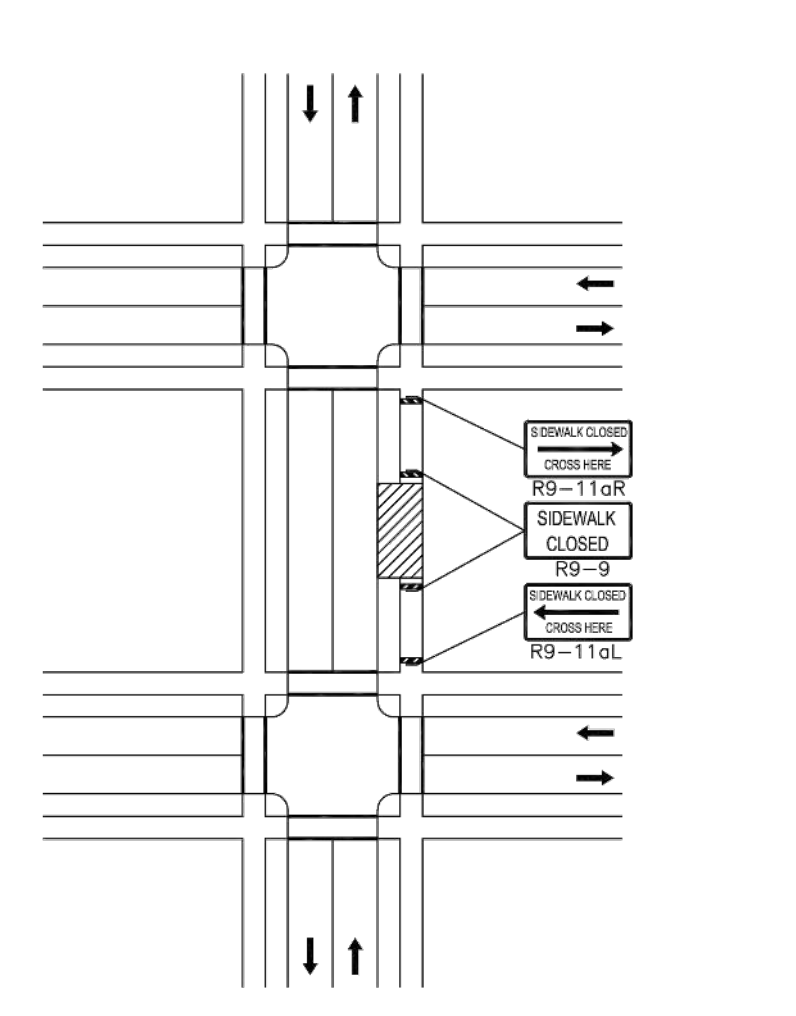


- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, temporary facilities shall be provided and include accessibility features consistent with the features present in the existing pedestrian facility.
- A pedestrian channelizing device that is detectable by a person with a visual disability traveling with the aid of a long cone shall be placed across the full width of the closed sidewalk.
- When used, temporary ramps shall comply with Americans with Disabilities Act (see Figures Ped-1 & Ped-2).
- The alternate pathway should have a smooth continuous hard surface for the entire length of the temporary pedestrian facility.
- The protective requirements of a TTC situation have priority in determining the need for temporary traffic barriers and their use in this situation should be based on engineering judgment.
- Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.

AUDIBLE DEVICES
For long term sidewalk closures (at a minimum overnight) a form of speech messaging for pedestrians with visual disabilities shall be provided. Audible information devices such as detectable barriers or barricades and other passive pedestrian activation (motion activated) devices should be considered for these cases. These audible devices can be mountable or stand alone.

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Standard Details and Drawings for the Development of Temporary Traffic Control Plans
PEDESTRIAN DETAILS
NOT TO SCALE

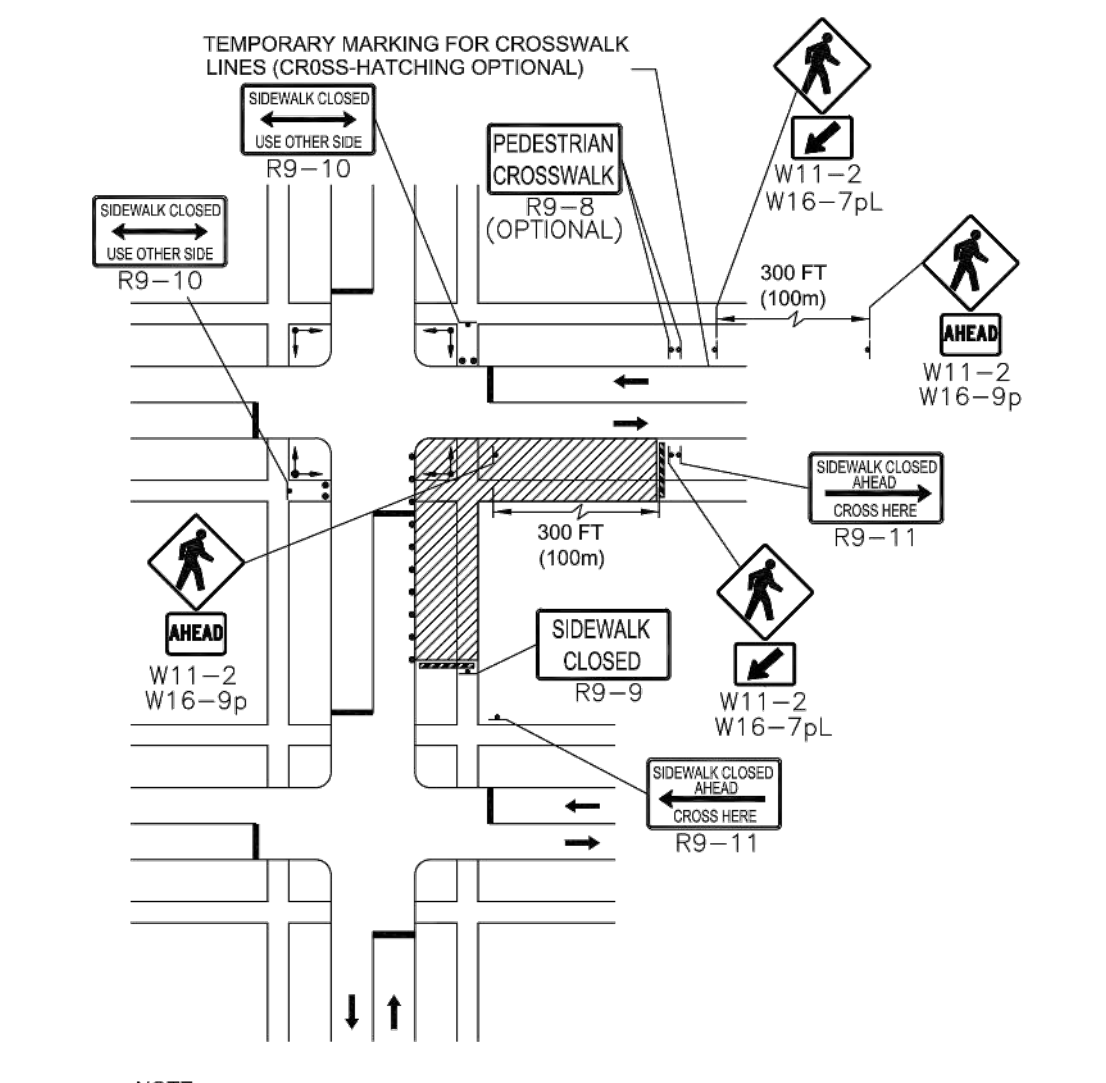
FIGURE PED-3
PEDESTRIAN DETAILS
NOT TO SCALE



NOTE: IF A MINIMUM WIDTH OF 48" OF SOLID SMOOTH UNOBSTRUCTED SURFACE REMAINS ALONG THE WORK AREA THEN THE DETAIL CAN BE DISREGARDED. DELINEATION OF THE WORK AREA WILL STILL BE REQUIRED. ALL PEDESTRIAN DETOUR ROUTES SHALL BE ADA/MANS COMPLIANT IN THEIR ENTIRETY.

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SIDEWALK CLOSED WITHOUT DETOUR
NOT TO SCALE

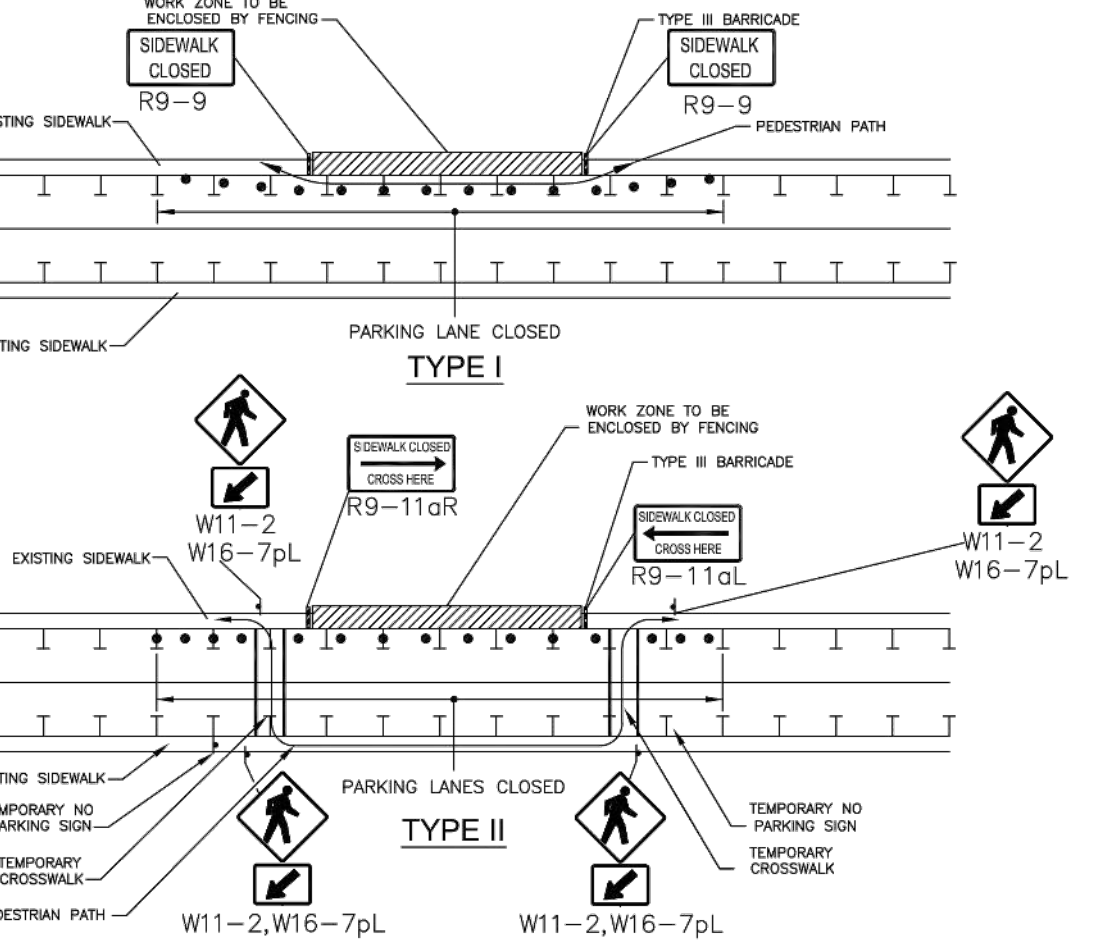
FIGURE PED-5
SIDEWALK CLOSED WITHOUT DETOUR
NOT TO SCALE



NOTE: FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

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PEDESTRIAN DETOUR
NOT TO SCALE

FIGURE PED-6
PEDESTRIAN DETOUR
NOT TO SCALE



- NOTES:
- ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
 - CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
 - STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
 - IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNING SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
 - BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
 - THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE, FOR SHORT TERM SETUPS < 10 HOURS, THIS CONDITION MAY BE WAIVED. A NOTE WOULD NEED TO BE INCLUDED IN THE TTCP THAT STATES HOW THE CONTRACTOR SHOULD ADDRESS THIS ISSUE.

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PEDESTRIAN BYPASS
NOT TO SCALE

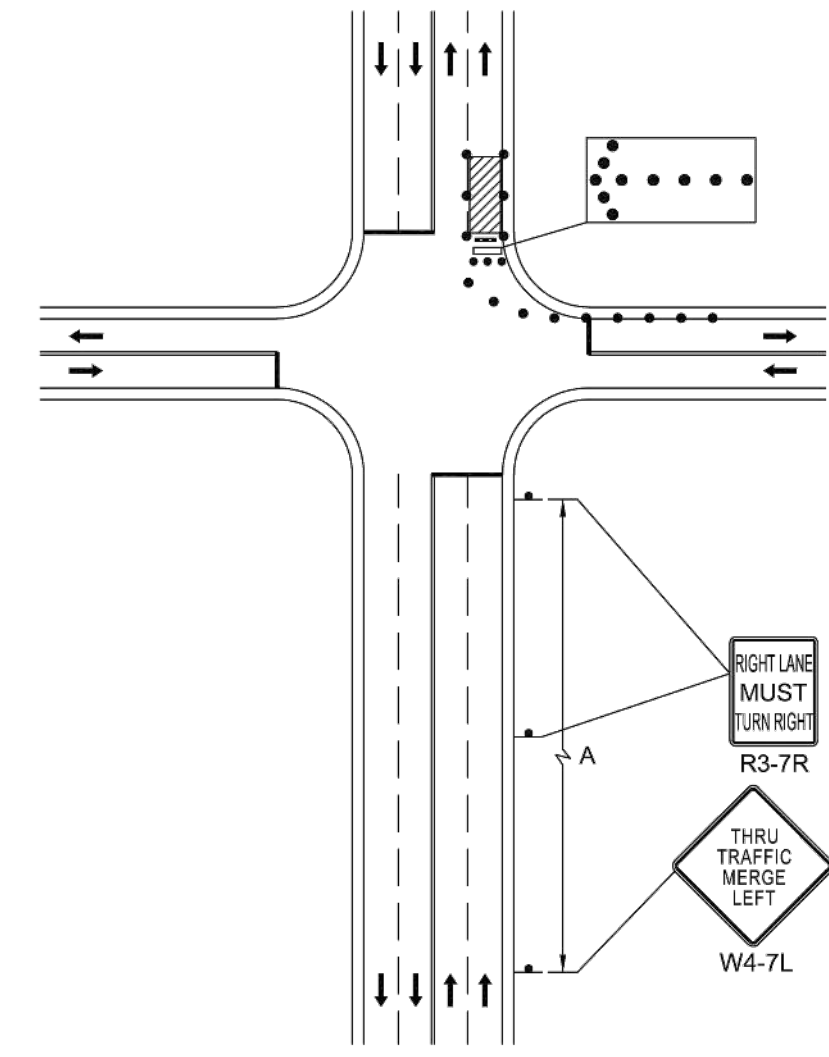
FIGURE PED-7
PEDESTRIAN BYPASS
NOT TO SCALE



PROJECT #: Y19699.21
DATE: 08/30/2022
DESIGNER: TVT
DRAFTER: TVT
REVIEWER: CCC

MCMAHON
TRANSPORTATION ENGINEERS & PLANNERS
www.mcmahonassociates.com
350 MYLES STANDISH BLVD SUITE 103 TAUNTON, MA
TELE: (508) 823-2245 FAX: (508) 823-2246
120 WATER ST 4TH FLOOR BOSTON, MA 02109
TELE: (617) 556-0020 FAX: (617) 556-0025
14 BREAKNECK HILL RD SUITE 201 LINCOLN, RI 02865
TELE: (401) 648-7200
94 NORTH ELM STREET SUITE 308 WESTFIELD, MA
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REVISIONS		REV #	DATE
TRAFFIC MANAGEMENT PLAN NO. 3			
WATER INFRASTRUCTURE IMPROVEMENTS			
LIBERTY STREET			
SPRINGFIELD, MA			
SHEET #	3	TOTAL SHEETS	4



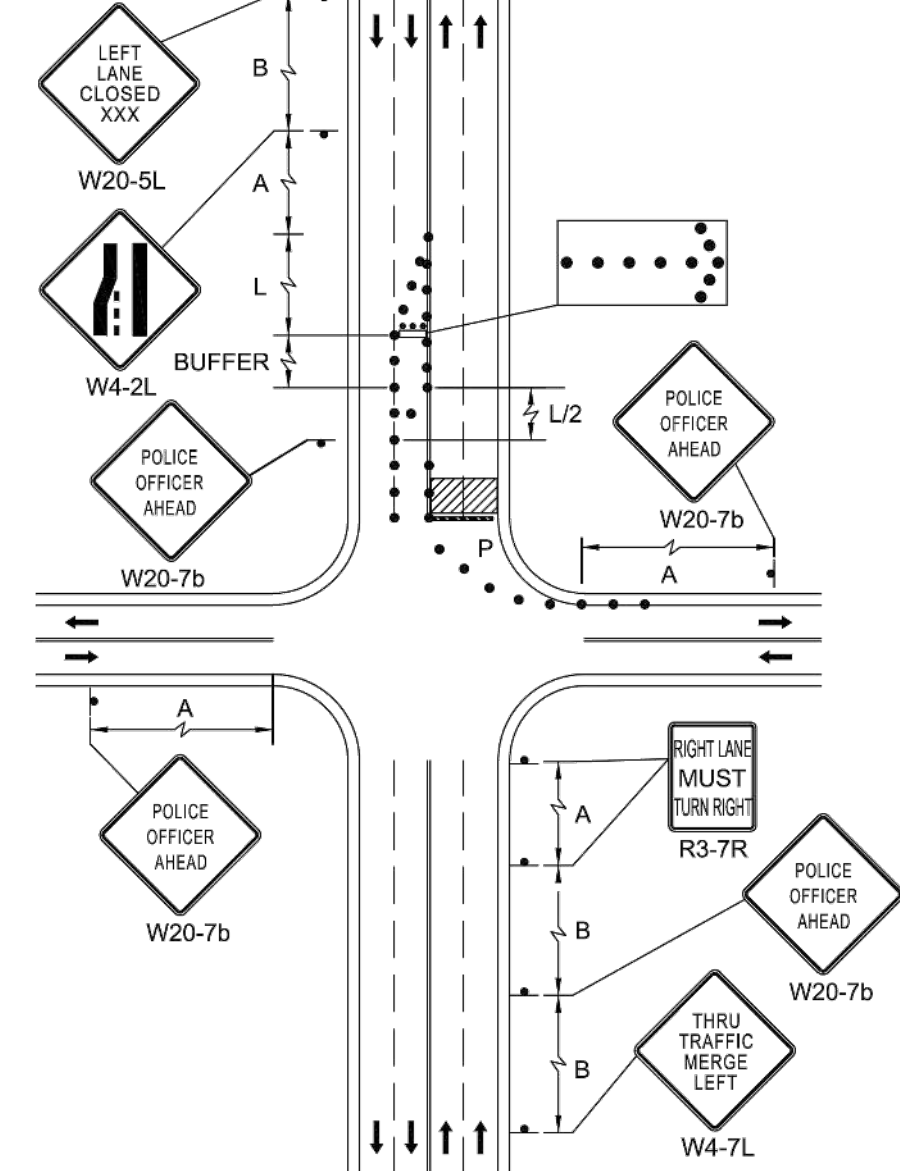
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FIGURE INT-4
DOUBLE LANE APPROACH
FAR SIDE CLOSURE
RIGHT LANE

NOT TO SCALE

FIGURE INT-4
DOUBLE LANE APPROACH FAR SIDE CLOSURE RIGHT LANE
NOT TO SCALE



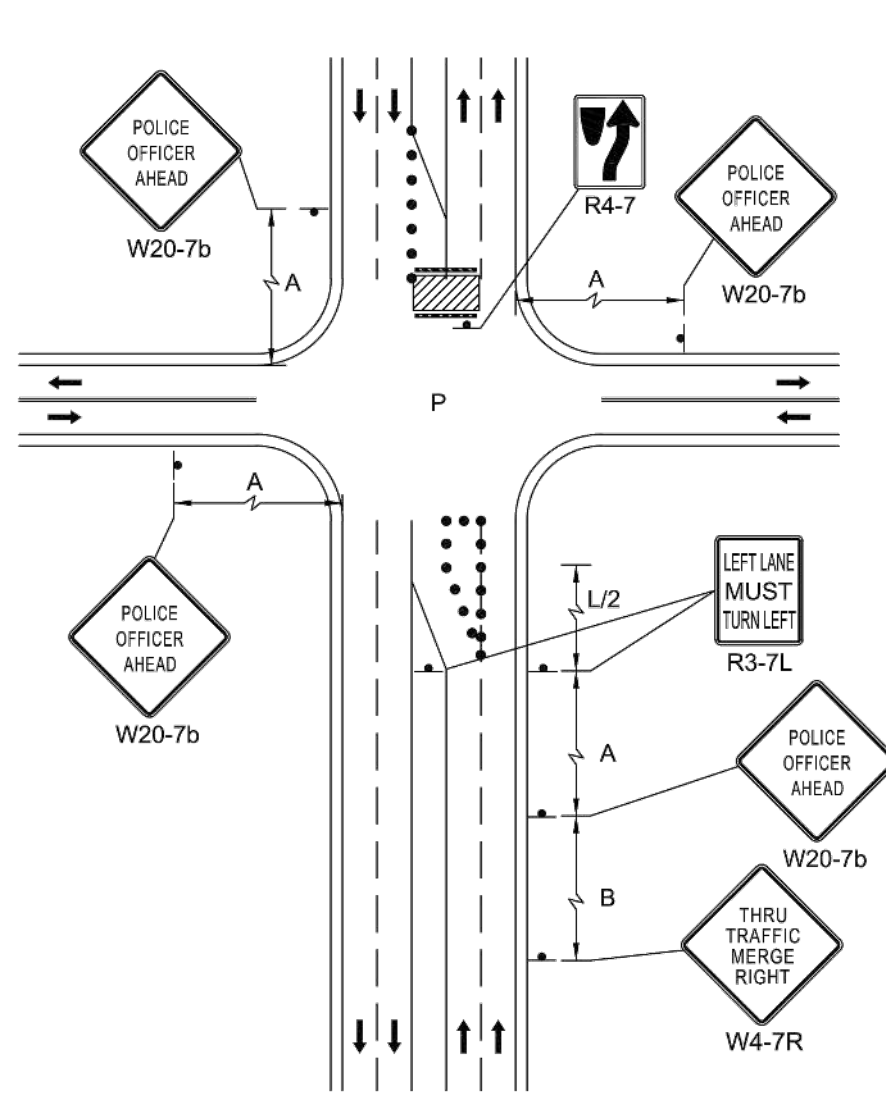
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FIGURE INT-5
DOUBLE LANE APPROACH
HALF ROAD CLOSURE

NOT TO SCALE

FIGURE INT-5
DOUBLE LANE APPROACH HALF ROAD CLOSURE
NOT TO SCALE



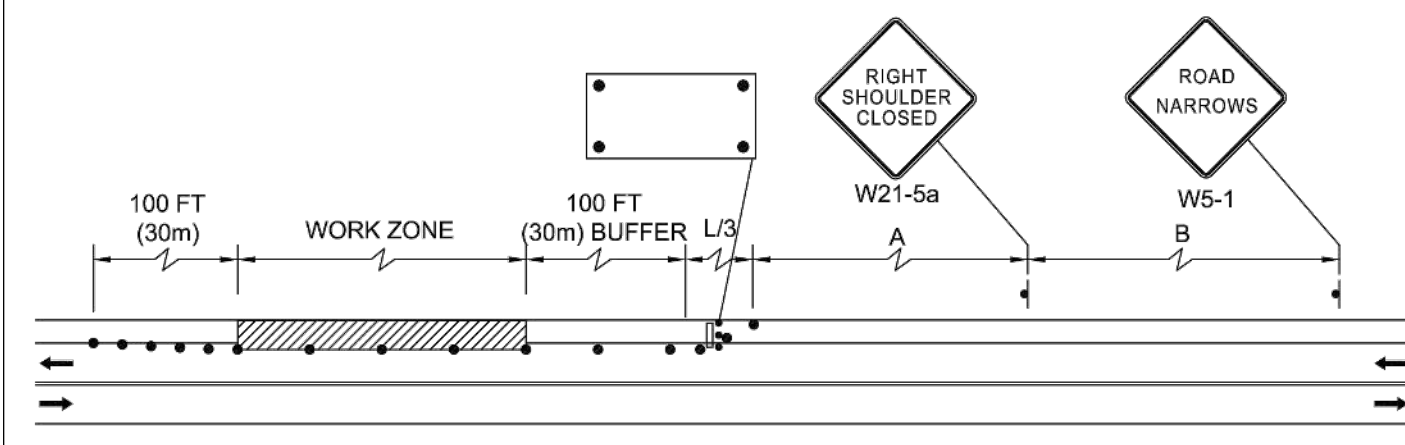
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FIGURE INT-6
MULTI-LANE APPROACH
MULTIPLE LANE CLOSURE

NOT TO SCALE

FIGURE INT-6
MULTI LANE APPROACH MULTIPLE LANE CLOSURE
NOT TO SCALE



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for the
Development of
Temporary Traffic Control Plans

FIGURE TLR-1
TWO LANE ROAD
SHOULDER CLOSED

NOT TO SCALE

FIGURE TLR-1
TWO LANE ROAD SHOULDER CLOSED
NOT TO SCALE



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350 MYLES STANDISH BLVD SUITE 103 TAUNTON, MA
TELE: (508) 823 - 2245
FAX: (508) 823 - 2246

120 WATER ST 4TH FLOOR BOSTON, MA 02109
TELE: (617) 556 - 0020
FAX: (617) 556 - 0025

14 BREAKNECK HILL RD SUITE 201 LINCOLN, RI 02865
TELE: (401) 648 - 7200

94 NORTH ELM STREET SUITE 308 WESTFIELD, MA
TELE: (413) 875 - 8855

REVISIONS		REV #	DATE
TRAFFIC MANAGEMENT PLAN NO. 4			
WATER INFRASTRUCTURE IMPROVEMENTS		SHEET #	TOTAL SHEETS
LIBERTY STREET		4	4
SPRINGFIELD, MA			