BID SET No. _____

ACTON WATER DISTRICT

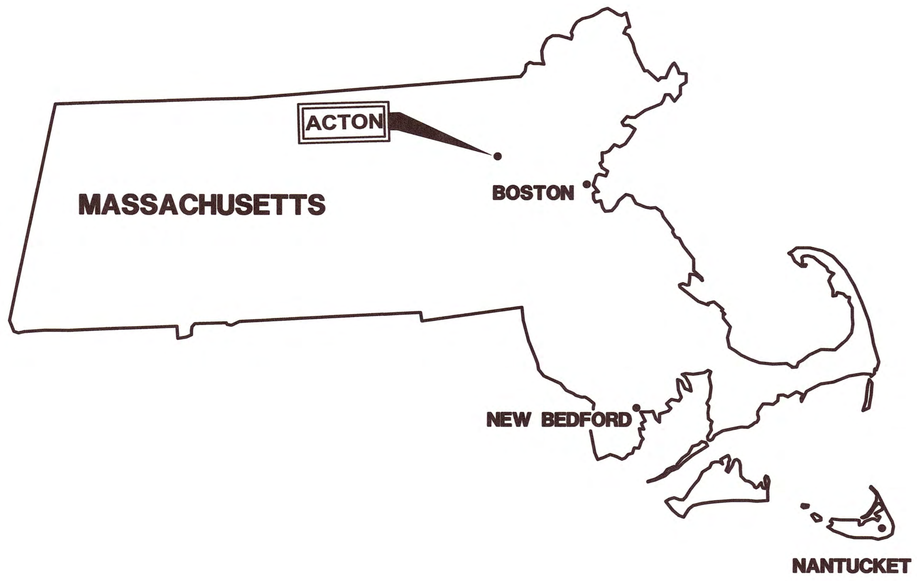
CONTRACT DRAWINGS FOR

INDIAN VILLAGE & LITTLEFIELD ROAD WATER MAIN RENEWAL

ACTON, MASSACHUSETTS

APRIL 2016

ISSUED FOR PERMITTING



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CIVIL

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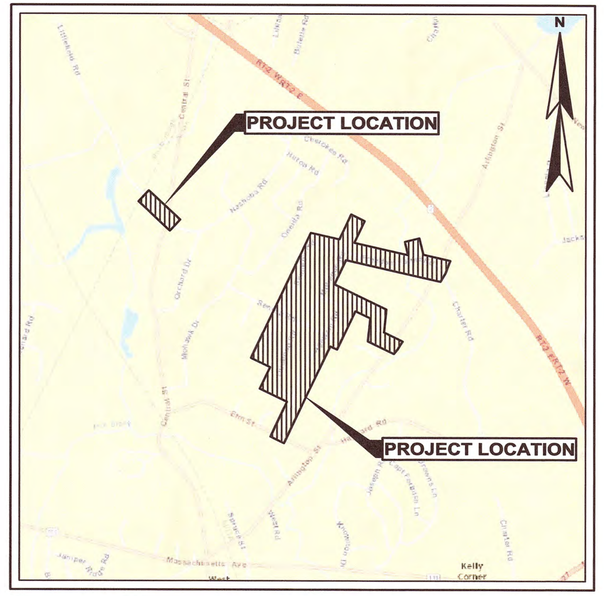

LOCATION PLAN
NTS

COMMONWEALTH OF MASSACHUSETTS
RICHARD G. PROTASOWICKI
CIVIL
No. 41685
REGISTERED PROFESSIONAL ENGINEER
4/14/16

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FOR REVIEW APRIL 2016

FOR BIDDING _____

WP PROJECT No. 13329A

GENERAL NOTES:

1. THE LOCATIONS OF ALL EXISTING DRAINS, SEWERS, WATER MAINS, POWER LINES, TELEPHONE CABLES AND OTHER UTILITIES ARE APPROXIMATE ONLY. FIELD LOCATIONS SHALL BE OBTAINED BY THE CONTRACTOR (BIDDER) PRIOR TO STARTING THE WORK. TEST PITS SHALL BE MADE AS NECESSARY TO VERIFY LOCATION AND DEPTH. TELEPHONE CABLES AND POWER LINES ARE NOT DELINEATED ON THE PLANS, COORDINATE LOCATION WITH UTILITY COMPANIES. IT IS UNDERSTOOD AND AGREED THAT EACH BIDDER WILL NOT RELY UPON THESE DRAWINGS FOR SUCH INFORMATION, BUT THAT EACH BIDDER SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE METHODS AND SHALL OBTAIN INFORMATION FROM UTILITY CORPORATIONS AND INDIVIDUALS AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES.
2. WATER SERVICE CONNECTIONS ARE SHOWN FOR ESTIMATING PURPOSES. THE ACTUAL LENGTH AND LOCATION SHALL BE FIELD DETERMINED AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL REINSTATE ALL EXISTING SERVICE PIPES. ALL TAPS SHALL BE MADE "WET" AFTER THE NEW LINE HAS BEEN TESTED AND PLACED IN SERVICE.
3. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHERS. REFER TO SPECIFICATIONS, SECTION 01050.
4. CONTRACTOR SHALL SUBMIT SEQUENCING PLAN FOR APPROVAL PRIOR TO STARTING ANY CONSTRUCTION.
5. UNDERGROUND STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATIONS SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES AND PIPELINES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNERS OF THE STRUCTURES AND PIPELINES.
6. TEMPORARY WATER SERVICE SHALL BE PROVIDED AND MAINTAINED TO ALL CUSTOMERS THROUGHOUT THE CONSTRUCTION PERIOD EXCEPT DURING SCHEDULED SHUTDOWNS AND DURING THE CHANGEOVER OF A CUSTOMER'S SERVICE. CUSTOMERS THAT ARE TO BE CHANGED OVER SHALL BE GIVEN 24 HOURS NOTICE PRIOR TO SHUT OFF.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL NEW WATER LINES. LAYOUT SHALL BE REVIEWED AND ACCEPTED BY THE OWNER AND THE ENGINEER. THE NEW WATER MAINS MUST BE LOCATED WITHIN THE RIGHT-OF-WAY OR EASEMENTS SHOWN ON THE DRAWINGS.
8. MINIMUM DEPTH OF COVER SHALL BE 5'–0". THE NEW MAINS SHALL GENERALLY FOLLOW THE GROUND CONTOUR, HOWEVER, ABRUPT CHANGES IN GRADE SHALL BE AVOIDED. IF LEDGE IS ENCOUNTERED THE MINIMUM DEPTH OF COVER SHALL BE 4'–6" AND MAINS SHALL BE INSULATED AS SHOWN ON THE DETAILS.
9. ALL HYDRANTS SHALL BE REPLACED WITH NEW HYDRANTS AND FIELD LOCATION CONFIRMED BY THE OWNER. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.
10. NEW MAINS SHALL BE DUCTILE IRON CLASS 52 AS INDICATED IN THE SPECIFICATIONS, WITH PUSH–ON JOINTS UNLESS SHOWN OTHERWISE ON THE DRAWINGS. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CLASS 350, MINIMUM UNLESS OTHERWISE REQUIRED FOR JOINT RESTRAINT OR AS SHOWN ON THE DRAWINGS. SADDLES SHALL BE USED FOR ALL SERVICES.
11. ALL BENDS, TEES, REDUCERS, HYDRANTS, AND PLUGS SHALL BE RESTRAINED BY USING CONCRETE THRUST BLOCKS AND PIPE RESTRAINTS. ANCHOR TEES SHALL BE USED FOR ALL HYDRANT BRANCHES AND FIRE PROTECTION MAINS.
12. TEST PRESSURE FOR THE COMBINED PRESSURE AND LEAKAGE TEST SHALL BE 150 PSI. TEST DURATION SHALL BE 2 HOURS, MINIMUM.
13. THE CONTRACTOR SHALL VERIFY TO HIS OWN SATISFACTION THAT ALL PERMITS HAVE BEEN OBTAINED TO COMPLETE SPECIFIED WORK.
14. THE CONTRACTOR SHALL REPAIR ALL PAVEMENT DISTURBED BY THE CONSTRUCTION WORK. THE TRENCH PATCHING SHALL BE PERFORMED AS EACH SECTION OF THE WORK IS COMPLETED AS OUTLINED IN SECTION 01010. FOR PAVEMENT REPAIRS ON TOWN ROADS, SEE THE DETAIL SHEET.
15. THE CONTRACTOR SHALL MILL THE EXISTING ROAD SURFACE WHERE DISTURBED AND PLACE OVERLAY PAVEMENT, AS REQUIRED IN THE CONTRACT DOCUMENTS. AT DRIVES AND WALKS, THE OVERLAY SHALL EXTEND AT LEAST 24 INCHES BEYOND THE EDGE OF THE TRAVELED WAY. THE OVERLAY SHALL BE TAPERED AS REQUIRED TO MATCH EXISTING PAVEMENT. THE OVERLAY PAVEMENT WORK SHALL BE DONE TO THE COMPLETE SATISFACTION OF THE ACTON ENGINEERING AND HIGHWAY DEPARTMENT.
16. SIDEWALKS AND CURBS SHALL BE REPAIRED TO MATCH EXISTING. AT LOCATIONS WHERE SHORT SECTIONS OF THE EXISTING SIDEWALKS AND CURBS ARE DISTURBED AS WOULD BE THE CASE WITH SERVICES, THE SIDEWALKS AND CURBS SHALL BE REPLACED "IN KIND".
17. TRENCHES SHALL NOT BE LEFT OPEN DURING NON–WORKING HOURS. ALL OPEN PIPES SHALL BE SECURED WITH A WATER TIGHT PLUG WHEN THE PIPE IS TEMPORARILY BACKFILLED AND WHEN PIPE LAYING IS NOT IN PROCESS.
18. THE USE OF TEMPORARY WATER MAINS AND SERVICES WILL BE REQUIRED FOR THIS PROJECT. CONTINUOUS WATER SERVICE MUST BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH NOTE 5. COORDINATE TIE–INS WITH THE OWNER.
19. ALL WATER MAINS THAT ARE TO BE LEFT IN PLACE SHALL BE CAPPED AND RESTRAINED WITH M.J. CAP OR PLUG. WATER MAINS THAT ARE REMOVED SHALL BE DISPOSED OF AT AN APPROVED LOCATION PROVIDED BY THE CONTRACTOR.
20. THE CONTRACTOR WILL ENCOUNTER ASBESTOS CEMENT PIPE DURING EXECUTION OF THE WORK. CONTRACTOR SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF OSHA AND ALL OTHER FEDERAL, STATE AND LOCAL REGULATIONS WHEN HANDLING AND/OR DISPOSING OF ASBESTOS CEMENT PRODUCTS IN ADDITION TO THE MASSDEP REQUIREMENTS.
21. NEW CURB STOPS SHALL BE INSTALLED IF REQUIRED AFTER INSPECTION BY THE WATER SYSTEM INSPECTOR FOR SERVICES THAT CANNOT BE INTERNALLY REINSTATED.
22. ALL HYDRANTS, FITTINGS AND GATE VALVES REMOVED DURING THE INSTALLATION OF THE NEW WATER MAIN SHALL REMAIN THE PROPERTY OF THE OWNER. THE CONTRACTOR SHALL DELIVER HYDRANTS, FITTINGS AND GATE VALVES, ETC. TO THE OWNER'S STORAGE YARD.
23. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL BENDS, FITTINGS, AND ANY AND ALL APPURTENANCES NECESSARY FOR THE COMPLETION OF THE WORK AS SHOWN HEREIN. NOT ALL BENDS AND FITTINGS REQUIRED ARE SHOWN OR CALLED OUT ON THE DRAWINGS.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF EROSION. ALL DISTURBED EARTH SURFACES ARE TO BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL IS TO BE IN A MANNER THAT WILL MINIMIZE EROSION. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE EXCAVATED MATERIAL AT A SITE PROVIDED BY HIM WHICH IS IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS. MATERIALS AND AND METHODS USED FOR TEMPORARY EROSION CONTROL SHALL BE AS SPECIFIED BY THE LOCAL EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES AND IN COMPLIANCE WITH THE LOCAL CONSERVATION COMMISSION. REFER TO SPECIFICATION SECTIONS 01050 AND 02270.
25. THE CONTRACTOR SHALL TAKE SPECIAL CARE NOT TO DAMAGE TREES WITHIN THE CONSTRUCTION AREA.
26. 2–INCHES OF RIGID INSULATION SHALL BE PROVIDED BETWEEN STORM DRAINAGE PIPES AND THE WATER MAIN.
27. ALL ELEVATIONS REFER TO NAVD88.
28. ALL WATER MAIN VALVES, EXCEPT HYDRANT ANCHOR VALVES, SHALL HAVE A MINIMUM 3–FOOT LENGTH OF PIPE BETWEEN THE VALVE AND ANY FITTING. ALL VALVES AND FITTINGS SHALL BE PROPERLY RESTRAINED.
29. CONTRACTOR SHALL USE CARE WHEN INSTALLING WATER MAINS ADJACENT TO EXISTING PIPE LINES, MAINTAINING ADEQUATE DISTANCE TO PROTECT ALL WATER SERVICES AND SEWER LATERALS. CONTRACTOR SHALL EXPECT A WATER SERVICE AND SEWER LATERAL AT EVERY LOT SHOWN ON THE DRAWINGS.

CIVIL ABBREVIATIONS

&	AND
ø, DIA	DIAMETER
#, NO	NUMBER
APP'D	APPROVED
BIT	BITUMINOUS
BLDG	BUILDING
CB	CATCH BASIN
CEN	CENTER
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
COR	CORNER
CY	CUBIC YARD
DEMO	DEMOLITION
DMH	DRAIN MANHOLE
DI	DUCTILE IRON
DR	DRAIN
DWG	DRAWING
EL	ELEVATION
EMH	ELECTRIC MANHOLE
FM	FORCE MAIN
FT	FEET
G	GAS
HYD	HYDRANT
IN	INCH
INF	INFLUENT
INV	INVERT
LBS	POUNDS
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MW	MONITORING WELL
N	NORTH
NGVD	NATIONAL GEODETIC VERTICAL DATUM
N/A	NOT AVAILABLE/APPLICABLE
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PC	PERFORATED CLAY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PS	PRIMARY SLUDGE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REQ'D	REQUIRED
S	SLOPE, SEWER
SD	STORM DRAIN
SF	SQUARE FEET
SMH	SANITARY SEWER MANHOLE
SQ	SQUARE
STA	STATION
T, XFMR	TRANSFORMER
TBM	TEMPORARY BENCH MARK
THK	THICKNESS
TOS	TOP OF STRUCTURE
TYP	TYPICAL
UD	UNDERDRAIN
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
VC	VITRIFIED CLAY
W/	WITH
W	POTABLE WATER

LEGEND

EXISTING		PROPOSED
	PROPERTY/ROW LINE	
	SETBACK LINE	
	EASEMENT LINE	
	CENTERLINE	
	EDGE OF PAVEMENT	
	CURBING	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
122	CONTOUR	123
	BUILDING	
	STONEWALL	
	TREELINE	
	CHAIN LINK FENCE	
	STOCKADE FENCE	
	BARB WIRE FENCE	
	RETAINING WALL	
	GUARDRAIL	
8" S	SEWER	8"S
4" FM	SEWER FORCE MAIN	4"FM
4" G	GAS	4"G
	WATER	8"W
15" SD	STORM DRAIN	15"SD
6" UD	UNDERDRAIN	6"UD
12" CMP	CULVERT	12" CMP
UGE	UNDERGROUND ELECTRIC	UGE
	OVERHEAD ELECTRIC	OHE
	IRON PIPE/REBAR	
	DRILLHOLE	
	MONUMENT	
	SURVEY CONTROL POINT	
x124.6	SPOT ELEVATION	x134.5
SMH	SEWER MANHOLE	SMH
DMH	DRAINAGE MANHOLE	DMH
CB CB	CATCH BASIN	CB CB
EMH	ELECTRIC MANHOLE	EMH
TMH	TELEPHONE MANHOLE	TMH
	SHUTOFF VALVE	
	WATER SERVICE SHUTOFF	
	YARD HYDRANT	
	HYDRANT	
	UTILITY POLE	
	UTILITY POLE W/ GUY	
	UTILITY POLE W/ LIGHT	
	LIGHT POLE	
	BOLLARD	
	FLAGPOLE	
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	SHRUB	
	EDGE OF WATER	
	STREAM	
	EDGE OF WETLANDS/BUFFER	
	FLOODPLAIN	
	WETLANDS	
	DRAINAGE FLOW	
	DRAINAGE SWALE	
	PAVEMENT MARKINGS	
	SIGN	
MB	MAILBOX	
	TEMPORARY BENCH MARK	
TP TP-2	TEST PIT	
B-3	TEST BORING	
P-4	TEST PROBE	
MW	MONITORING WELL	
	LIMIT OF WORK	
	SILT FENCE/STRAW WATTLE	
	RIPRAP	
	RAILROAD	
	MATCHLINE	
	ROCK OUTCROP	

NO	SUBMISSIONS/REVISIONS	APP'D	DATE
	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16
1			
2			
3			
4			

DESIGNED BY: CSJ
CAD COORD: CGH
CAD:
CHECKED BY: RGP
DATE:
APPROVED BY: RGP
DATE:
PROJECT NO: 13329A

COMMONWEALTH OF MASSACHUSETTS
RICHARD G. PROTASOWICKI
CIVIL
No. 41685
REGISTERED PROFESSIONAL ENGINEER
4/14/16

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

GENERAL NOTES, LEGEND AND ABBREVIATIONS

DRAWING
C–1

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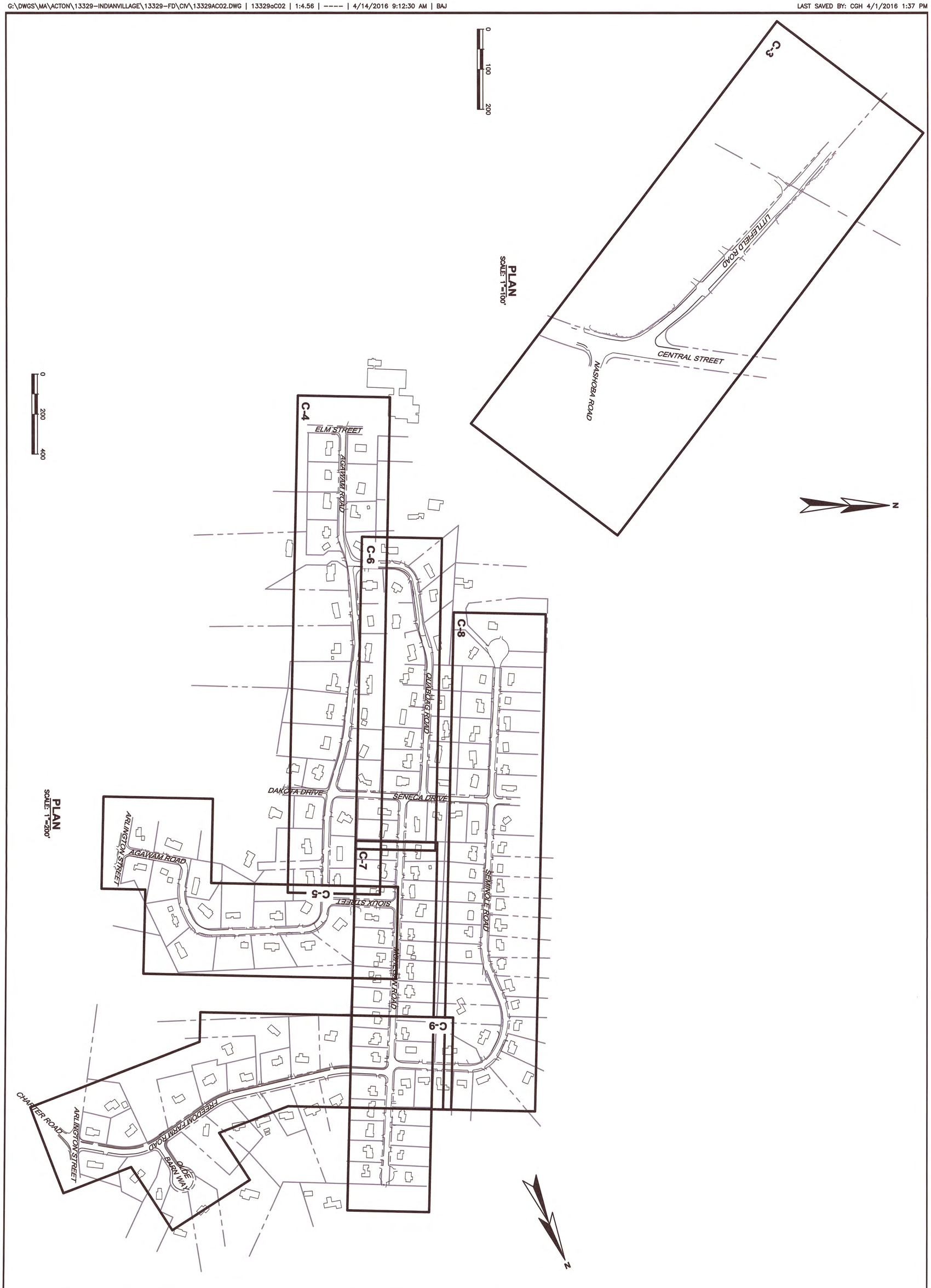

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

SITE KEY PLAN

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COMMONWEALTH OF MASSACHUSETTS
RICHARD G. PROVENCHER
CIVIL
No. 41635
REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: CSJ
CAD COORD: CGH
CAD: CGH
CHECKED BY: RGP
DATE:
APPROVED BY: RGP
DATE:
PROJECT NO: 13329A

NO	SUBMISSIONS/REVISIONS	APP'D	DATE
	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16
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2			
3			
4			

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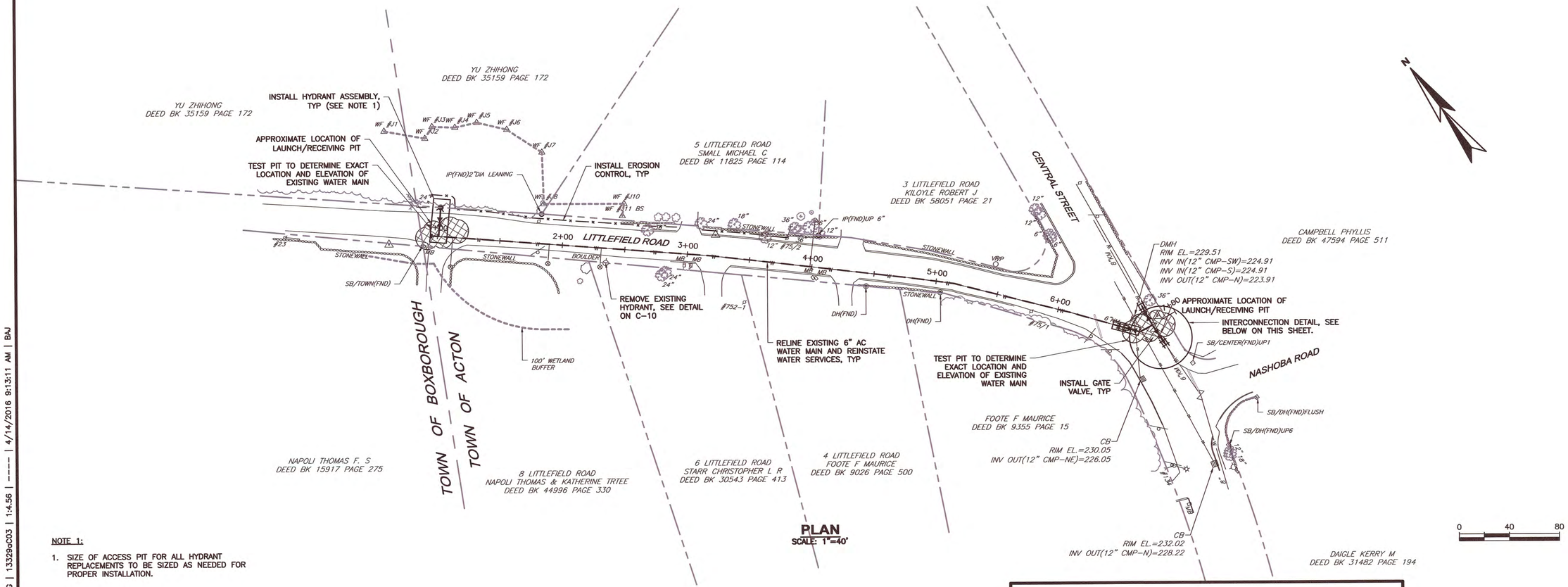
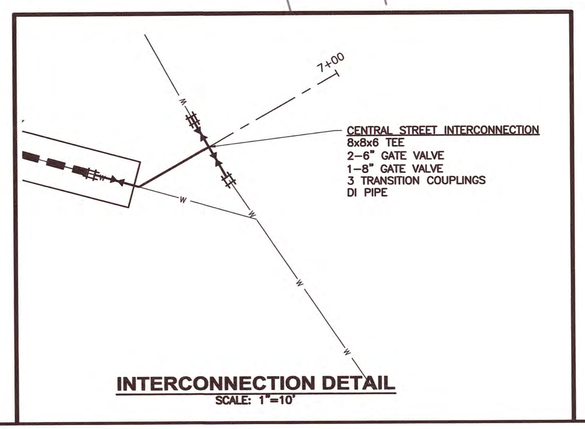


PLAN
SCALE: 1"=40'

NOTE 1:

1. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.



INTERCONNECTION DETAIL
SCALE: 1"=10'

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NO	SUBMISSIONS/REVISIONS	APP'D	DATE
1	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16

DESIGNED BY: CSJ
CAD COORD: CGH
CAD: CGH CHECKED BY: RGP
DATE:
APPROVED BY: RGP
DATE:
PROJECT NO: 13329A

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

PLAN VIEW: LITTLEFIELD ROAD

DRAWING
C-3

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N/F TOWN OF ACTON 7 ELM ST ASSESS. MAP E2 PARCEL ID. E2-247

CB RIM EL.=218.12 INV IN(12" CMP-SE)=214.02 INV OUT(12" CMP-S)=213.92

CB RIM EL.=218.62 INV IN(12" CMP-N)=213.82 INV IN(12" CMP-SW)=212.82 INV IN(12" CMP-SE)=213.42

N/F WERST LEONARD 26 ELM ST ASSESS. MAP E2 PARCEL ID. E2-253

N/F YASGUR DIANE 45 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-253-2

N/F BRENNAN JOSEPH L 43 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-253-1

N/F BRESLOVE JOHN 32 QUABOAG RD ASSESS. MAP E2 PARCEL ID. E2-250

N/F RAN TAO 35 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-231

N/F KEELER DAVID W 33 QUABOAG RD ASSESS. MAP E2 PARCEL ID. E2-236

REPLACE HYDRANT ASSEMBLY, TYP (SEE NOTE 1)

CL RIM EL.=210.71 INV OUT(12" RCP-E)=205.01

RELINE EXISTING 6" AC WATER MAIN AND REINSTATE WATER SERVICES, TYP

REPLACE HYDRANT ASSEMBLY, POST LINING, TYP (SEE NOTE 1). SEE DETAIL ON C-10.

MATCH LINE

PLAN 6A PLAN 4A

PLAN 4A PLAN 4B

QUABOAG ROAD

AGAWAM ROAD

ELM STREET

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

INTERCONNECTION DETAIL, SEE BELOW ON THIS SHEET.

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

HYDRANT INTERCONNECTION DETAIL, SEE BELOW ON THIS SHEET.

N/F LOWE JOHN M 36 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-245

CB RIM EL.=210.51 INV IN(12" RCP-W)=205.01 INV IN(12" RCP-NE)=204.91

N/F HARRIS CRAIG S 38 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-251

N/F SCHULTZE DONALD K 48 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-263

N/F GREGORITCH WILLIAM J 46 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-258

N/F TURNER MATTHEW T TR 44 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-255

N/F TVESKOV MICHAEL 42 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-254

PROJECT BENCHMARK SPK 1.0 UP UPL 21 ELEV=219.87'

0 40 80

NOTE 1:

1. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.

CB RIM EL.=218.42 INV OUT(12" CMP-NW)=214.32

PLAN 4A
SCALE: 1"=40'

HYDRANT REPLACEMENT POST-LINING
1-6X6X6 TEE
1-6" GATE VALVE
2-TRANSITION COUPLINGS
1-HYDRANT ASSEMBLY
DI PIPE

HYDRANT DETAIL
SCALE: 1"=10'

QUABOAG AND AGAWAM ROAD INTERCONNECTION
1-6x6x6 TEE
3-6" GATE VALVES
3-TRANSITION COUPLINGS
DI PIPE

INTERCONNECTION DETAIL
SCALE: 1"=10'

N/F KHOMIAKOV PAVEL 33 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-225

N/F CAMPBELL WENDY M 31 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-218

N/F KILLOY DAVID H 29 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-205

N/F GRACELY FRED 27 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-195

N/F GUNDLACH JOHN D 23 SENECA RD ASSESS. MAP E2 PARCEL ID. E2-182

N/F ORR PAUL 1 SIOUX ST ASSESS. MAP E2 PARCEL ID. E2-126

CB RIM EL.=217.91 INV OUT(12" RCP-SE)=213.61

EXISTING GATE VALVE TO BE ABANDONED IN PLACE. REMOVE BOX AND STEM AND PATCH PAVEMENT. SEE DETAIL DWG C-10.

CB RIM EL.=223.57 INV OUT(12" RCP-SE)=219.27

RELINE EXISTING 6" AC WATER MAIN AND REINSTATE WATER SERVICES, TYP

REPLACE HYDRANT ASSEMBLY, POST LINING, TYP (SEE NOTE 1). SEE DETAIL ON C-10.

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

CB RIM EL.=229.86 INV IN(12" RCP-SW)=226.16 INV IN(6" PVC-NW)=226.46 INV IN(12" RCP-SE)=226.36 INV OUT(12" RCP-E)=226.16

N/F MISKIN LUCY 23 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-165

N/F KIELY JOHN R 21 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-148

N/F KEEGAN KEVIN E 19 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-133

MATCH LINE

PLAN 4B PLAN 5A

N/F MARCUS HENRY S TRUSTEE 32 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-226

N/F PEABODY BAYARD W 30 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-219

CB RIM EL.=217.80 INV IN(12" RCP-NW)=213.10 INV IN(12" RCP-SE)=213.30 INV IN(12" RCP-NE)=213.20

N/F RALPH T NEFF + DIANE O NEFF 34 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-232

HYDRANT INTERCONNECTION DETAIL, SEE BOTTOM OF THIS SHEET.

N/F SCHMIDT ELWOOD R 28 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-206

CB RIM EL.=223.24 INV IN(12" RCP-NW)=217.84 INV IN(12" RCP-NE)=217.84 INV OUT(12" RCP-SW)=217.74

N/F BAYER MICHAEL J 26 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-196

CB RIM EL.=229.38 INV IN(12" RCP-W)=225.38 INV OUT(12" RCP-E)=225.38

CB RIM EL.=229.23 INV IN(12" RCP-W)=224.93 INV IN(12" RCP-SW)=224.93

N/F CASEY CHRISTINE D 22 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-166

N/F GEAGAN THOMAS E + BARBARA L 24 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-183

N/F TWICHELL JONATHAN C 20 AGAWAM RD ASSESS. MAP E2 PARCEL ID. E2-149

HYDRANT REPLACEMENT POST-LINING
1-6X6X6 TEE
1-6" GATE VALVE
2-TRANSITION COUPLINGS
1-HYDRANT ASSEMBLY
DI PIPE

HYDRANT DETAIL
SCALE: 1"=10'

PLAN 4B
SCALE: 1"=40'

0 40 80

FOR PERMITTING PURPOSES ONLY

NO	SUBMISSION/REVISIONS	APP'D	DATE
1	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16

DESIGNED BY: CSJ
CAD CHKD: CDH
CAD: CDH
CHECKED BY: RGP
DATE:
APPROVED BY: RGP
DATE:
PROJECT NO: 13329A

RICHARD G PROTENTO 41565 REGISTERED PROFESSIONAL ENGINEER

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL

PLAN VIEW: AGAWAM ROAD

DRAWING
C-4

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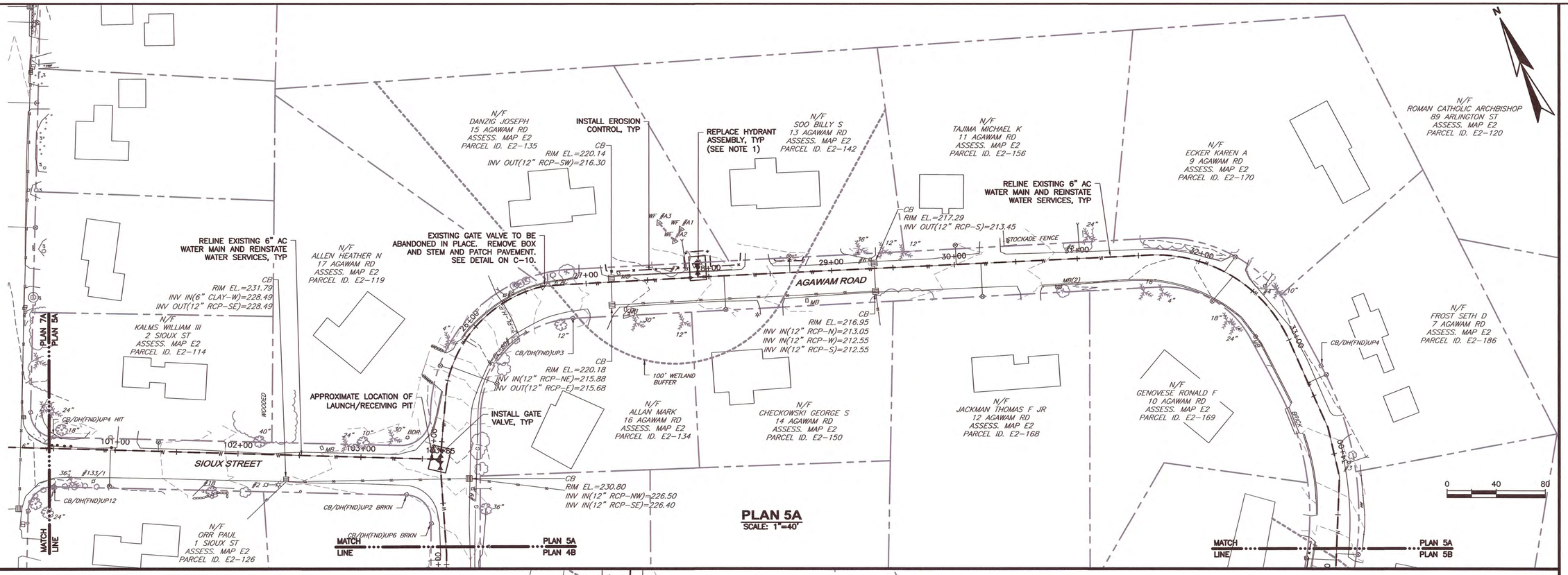

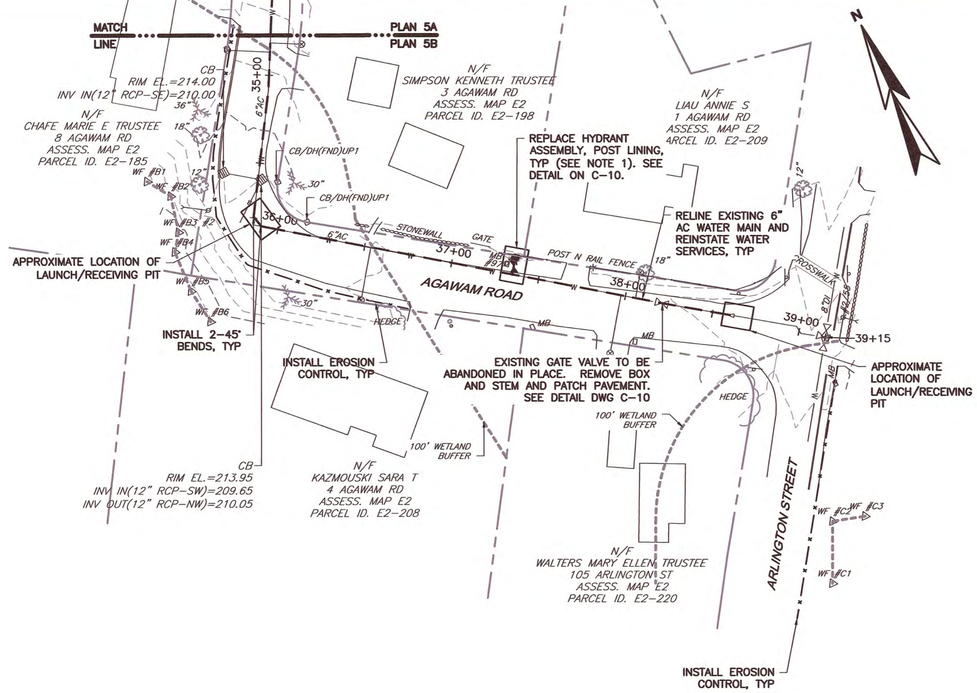

NOTE 1:

1. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL

PLAN VIEW: AGAWAM ROAD & SIOUX STREET

DRAWING
C-5

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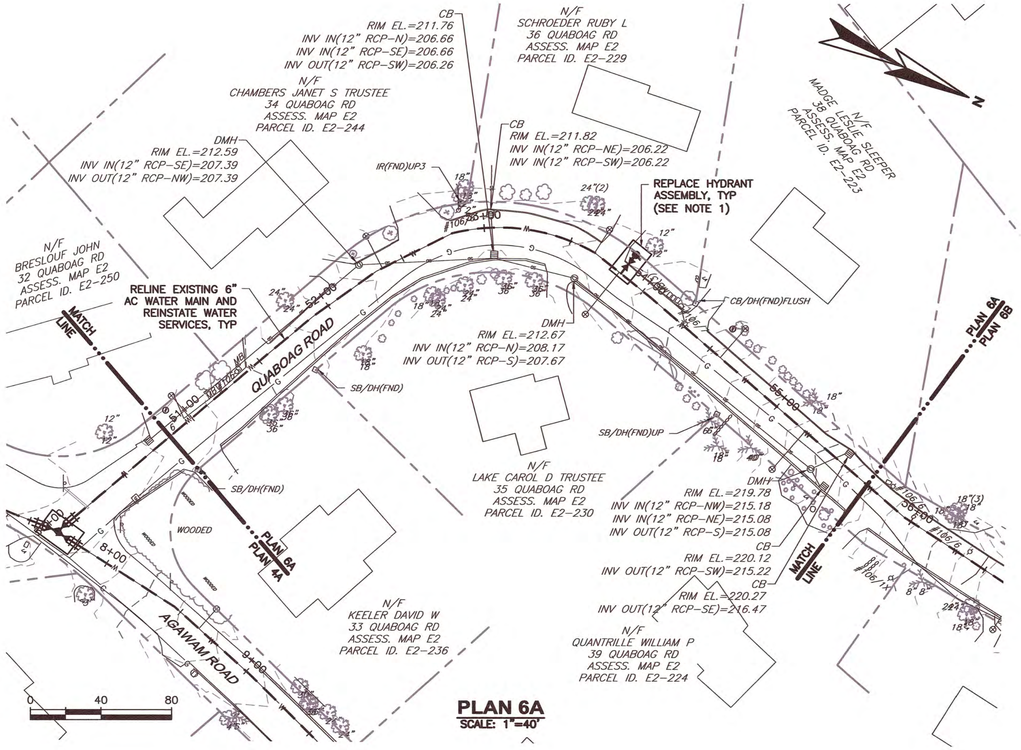
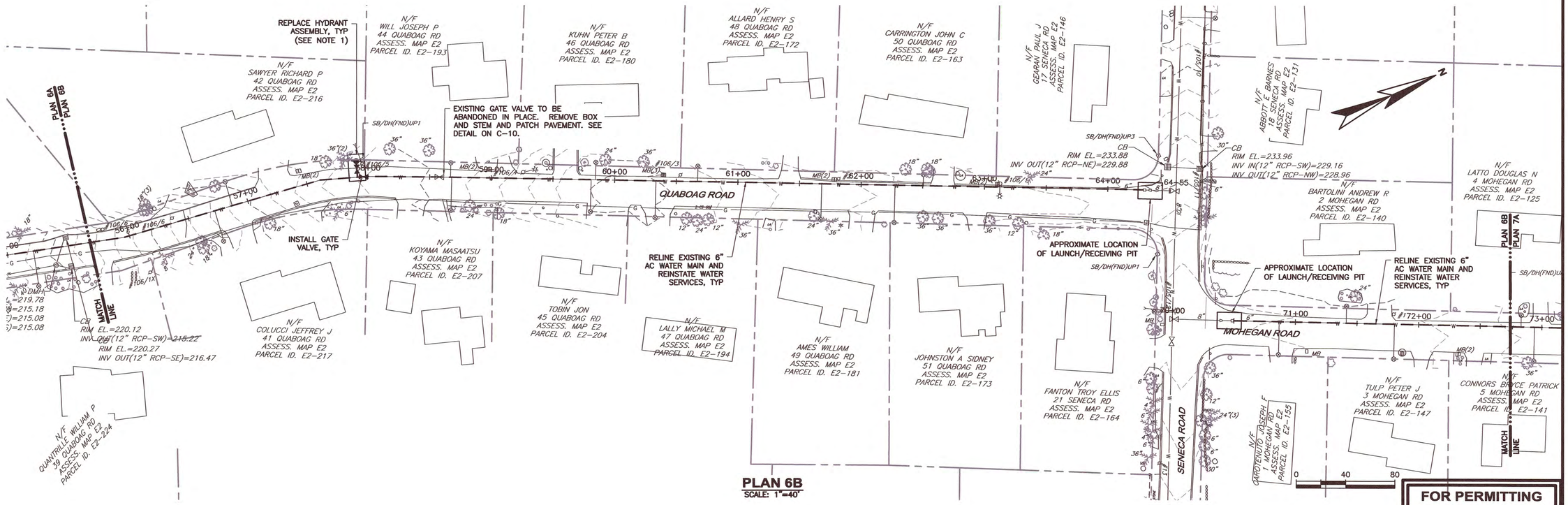


PLAN 6A
SCALE: 1"=40'

NOTE 1:

1. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.



PLAN 6B
SCALE: 1"=40'

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1	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16

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CAD: CGH
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APPROVED BY: RGP
DATE:
PROJECT NO: 13329A

COMMONWEALTH OF MASSACHUSETTS
RICHARD G. PROTOPAPAS
No. 41680
REGISTERED PROFESSIONAL ENGINEER

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

PLAN VIEW: QUABOAG ROAD & MOHEGAN ROAD

DRAWING
C-6

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N/F
TTO DOUGLAS N
MOHEGAN RD
SESS. MAP E2
CEL ID. E2-125

N/F
SJOBERG CATHERINE
6 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-118

N/F
HUANG WEI-SHENG
8 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-107

N/F
GURYANOVA IRINA A
10 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-108

N/F
KNOWLES TYSON D
12 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-95

N/F
STRICK DEBRA
14 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-84

N/F
MESSURI DAVID L
16 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-83

N/F
CIUMMEI RICHARD
18 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-69

N/F
MACKIE SUZANNE M. +
DONNELLY JEFFREY J
20 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-58

N/F
GARDECKI J
22 MOHEG
ASSESS. M
PARCEL ID.

PLAN 6B
PLAN 7A

PLAN 7A
PLAN 7B

SB/DH(FND)UP1

REPLACE HYDRANT ASSEMBLY, POST LINING, TYP (SEE NOTE 1). SEE DETAIL ON C-10.

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

CB
RIM EL.=235.42
INV OUT(12" RCP-SE)=231.59

CB
RIM EL.=233.24
INV OUT(12" RCP-SE)=229.94

73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82

MOHEGAN ROAD

MATCH LINE

PLAN 7A
PLAN 5A

CB
RIM EL.=235.40
INV IN(12" RCP-NW)=231.40
INV OUT(12" RCP-NE)=231.30

RELINE EXISTING 6" AC WATER MAIN AND REINSTATE WATER SERVICES, TYP

CB
RIM EL.=233.19
INV IN(12" RCP-SW)=229.29
INV IN(12" RCP-NW)=229.39
INV OUT(12" RCP-NE)=229.29

N/F
NORS BRYCE PATRICK
5 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-141

N/F
ARSENAULT GREGORY R
7 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-132

N/F
ORR PAUL
1 SIOUX ST
ASSESS. MAP E2
PARCEL ID. E2-126

SIOUX ROAD

101+00

102+00

N/F
KALMS WILLIAM III
2 SIOUX ST
ASSESS. MAP E2
PARCEL ID. E2-114

PROJECT BENCHMARK
SPIKE UP 1
ELEV=235.08

N/F
KAMIENIECKI KRZYSZTOF E
13 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-109

N/F
TROSTORFF ASTRID C
15 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-110

N/F
SILVA KENNETH
17 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-96

N/F
CHICK JOHN B JR
19 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-97

N/F
CARPENITO FREDERICK L
21 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-65

MATCH LINE

PLAN 7A
SCALE: 1"=40'

0 40 80

NOTE 1:

1. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.

N/F
LUCHFORD RUTH H TRUSTEE
24 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-29

N/F
GARDECKI JOSEPH A
22 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-45

N/F
MAR JAMES C
86 SEMINOLE RD
ASSESS. MAP E2
PARCEL ID. E2-11

INSTALL HYDRANT ASSEMBLY, TYP (SEE NOTE 1)

INSTALL DI PIPE BETWEEN ACCESS PITS

INSTALL DI PIPE BETWEEN ACCESS PITS

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

SEMINOLE ROAD

135+00

REMOVE EXISTING HYDRANT, SEE DETAIL ON C-10.

N/F
RAMAKRISHNAN SRINIVASAN
88 SEMINOLE RD
ASSESS. MAP E2
PARCEL ID. E2-12

N/F
BECK ARIELA GOLDSCHMIDT
30 MOHEGAN RD
ASSESS. MAP D2
PARCEL ID. D2-190

N/F
MACNEILL JOHN A
32 MOHEGAN RD
ASSESS. MAP D2
PARCEL ID. D2-179

N/F
GEEHAN WAYNE E ETUX
34 MOHEGAN RD
ASSESS. MAP D2
PARCEL ID. D2-167

N/F
PROCTOR GEORGE F
36 MOHEGAN RD
ASSESS. MAP D2
PARCEL ID. D2-157

EXISTING HYDRANT ASSEMBLY, SEE ABOVE FOR PROPOSED HYDRANT DETAIL

N/F
TOWN OF ACTON
20 CHEROKEE RD BEHIND
ASSESS. MAP D2
PARCEL ID. D2-97

PLAN 7A
PLAN 7B

PLAN 9A
PLAN 7B

MATCH LINE

CB
RIM EL.=229.79
INV OUT(12" RCP-E)=226.10

82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 89+50

MOHEGAN ROAD

MOHEGAN ROAD

HEDGE

INSTALL EROSION CONTROL, TYP

PROJECT BENCHMARK
SPK UP1
ELEV=221.31'

100' WETLAND BUFFER

PLAN 7B
PLAN 9A

EXISTING GATE VALVE TO BE ABANDONED IN PLACE. REMOVE BOX AND STEM AND PATCH PAVEMENT. SEE DETAIL C-10.

CB
RIM EL.=229.38
INV IN(6" PVC-SW)=225.98
INV IN(4" PVC-W)=224.98
INV IN(4" PVC-NW)=224.98
INV IN(4" PVC-NE)=224.78
INV IN(4" PVC-S)=224.98

CB
RIM EL.=229.42

TEST PIT REQUIRED TO DETERMINE EXACT LOCATION WHERE 6" AC TRANSITIONS TO 8" AC

RELINE EXISTING 6" AC WATER MAIN AND REINSTATE WATER SERVICES, TYP

EXISTING GATE VALVE TO BE ABANDONED IN PLACE. REMOVE BOX AND STEM AND PATCH PAVEMENT. SEE DETAIL C-10.

CB
RIM EL.=229.77
INV IN(12" RCP-SW)=225.47
INV IN(12" RCP-W)=225.57
INV OUT(12" RCP-NW)=225.67

PROJECT BENCHMARK
TOP STONE BOUND
ELEV=232.15'

INSTALL GATE VALVES (3), TYP

FREEDOM FARM ROAD

151+00

152+00

N/F
LESLIE JUNE
23 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-59

N/F
MCGRAIL JOHN P
25 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-46

N/F
WINROTH CALVIN S ET UX TRUSTEE
27 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-30

N/F
LEE JAMES C
29 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-19

N/F
SCHMITZ ROBERT J
31 MOHEGAN RD
ASSESS. MAP E2
PARCEL ID. E2-13

N/F
BILLINGS SANDRA C
33 MOHEGAN RD
ASSESS. MAP D2
PARCEL ID. D2-191

N/F
WELLINGHOFF DAVID P
35 MOHEGAN RD
ASSESS. MAP D2
PARCEL ID. D2-180

PLAN 7B
SCALE: 1"=40'

0 40 80

HYDRANT DETAIL
1 - 6" GATE VALVE
1 - 6X6X6 TEE
1 - TRANSITION COUPLING
1 - HYDRANT ASSEMBLY
1 - DI CAP

5'-0"

PROPOSED HYDRANT DETAIL
NTS

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COMMONWEALTH OF MASSACHUSETTS
RICHARD G. PROTASOWICKI
No. 41585
REGISTERED PROFESSIONAL ENGINEER

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INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

PLAN VIEW: MOHEGAN ROAD

DRAWING
C-7

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HYDRANT DETAIL
1– 6" GATE VALVE
1– 6X6X6 TEE
1– TRANSITION COUPLING
1– HYDRANT ASSEMBLY
1– DI CAP

5'–0"

PROPOSED HYDRANT DETAIL
NTS

INSTALL EROSION CONTROL, TYP

APPROXIMATE LOCATION OF LAUNCH/RECEIVING PIT

EXISTING HYDRANT ASSEMBLY, SEE ABOVE FOR PROPOSED HYDRANT DETAIL

N/F KINGSBURY GLENDINE 42 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–160

N/F MORRIS KLIMENT NICHOLAS 44 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–161

N/F SOTOLONGO GERALD G 46 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–144

N/F BASKIN DAVID L 48 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–138

N/F HUBER ROBERT F ET UX TRUSTEES 50 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–130

N/F HILL HELEN TRUSTEE 11 SENECA RD ASSESS. MAP E2 PARCEL ID. E2–123

N/F HAZEN ROBERT L 54 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–105

N/F THORP JOSEPH F 56 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–92

N/F CHU MING 38 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–192–4

N/F HARDER TORRENCE C 43 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–179

N/F MOY HELEN 41 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–192–1

N/F KINZIE GEORGE R JR 45 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–171

N/F LOPICCOLO PHILIP J 47 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–162

N/F ARMISTEAD GLENN W 49 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–145

N/F ARMANGAU PHILIPPE 51 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–139

N/F ASHLINE ROBERT D 16 SENECA RD ASSESS. MAP E2 PARCEL ID. E2–124

N/F WILSON KEVIN F 53 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–117

N/F HILTUNEN STEPHEN C 57 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–113

CB RIM EL.=215.98 INV IN(12" RCP–SE)=211.98 INV OUT(12" RCP–SW)=211.88

CB RIM EL.=215.01 INV IN(12" RCP–NW)=211.71 INV OUT(12" RCP–SE)=211.81

CB RIM EL.=216.68 INV IN(12" RCP–SE)=211.68 INV IN(12" RCP–NW)=210.78

CB RIM EL.=215.04 INV IN(12" RCP–NW)=211.74

CB RIM EL.=216.10 INV OUT(12" RCP–NW)=212.10

CB RIM EL.=217.94 INV IN(12" CMP–SW)=214.00 INV OUT(12" RCP–NE)=214.10

CB RIM EL.=217.87 INV IN(12" RCP–SE)=213.47 INV IN(12" RCP–SW)=213.27 INV IN(12" RCP–NE)=213.17 INV OUT(12" RCP–NW)=213.37

100' WETLAND BUFFER

SB/DH(FND)

RELINE EXISTING 6" AC WATER MAIN AND REINSTATE WATER SERVICES, TYP

SEMINOLE ROAD

SENECA ROAD

IR(FND)UP2

PLAN 8A
SCALE: 1"=40'

NOTE 1:

1. SIZE OF ACCESS PIT FOR ALL HYDRANT REPLACEMENTS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.

N/F HONG SUNGMOOK 58 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–80

N/F FLANARY DAVID 60 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–68

N/F KEANE JOAN E 62 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–55

N/F LOMBARDO NANCY E 64 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–56

N/F DENG YANPING 66 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–43

N/F MANTINEO ANDREA A 68 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–27

N/F SZETELA BRIAN R 70 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–18

N/F KOEHLER RONALD E 72 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–8

N/F NIVEN DANIEL P 74 SEMINOLE RD ASSESS. MAP D2 PARCEL ID. D2–189

N/F COLEMAN KENNETT G 76 SEMINOLE RD ASSESS. MAP D2 PARCEL ID. D2–170

N/F DURSCHLAG DAVID E. 78 SEMINOLE RD ASSESS. MAP D2 PARCEL ID. D2–155

N/F KALIN JOHN 59 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–106

N/F ALBANO MARK G 61 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–93

N/F DONOVAN THOMAS M 63 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–94

N/F DOLAN ANTHONY E 65 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–81

N/F METZGER SHARON B 67 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–64

N/F AUSTIN ROBERT 69 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–57

N/F AUSTIN ROBERT 71 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–44

N/F AUSTIN ROBERT 73 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–28

N/F BRISSENDEN JAMES F 75 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–9

N/F XIN GEN REN 83 SEMINOLE RD ASSESS. MAP E2 PARCEL ID. E2–10

N/F DONOVAN STEPHEN F 82 SEMINOLE RD ASSESS. MAP D2 PARCEL ID. D2–145

N/F HALD MARK 80 SEMINOLE RD ASSESS. MAP D2 PARCEL ID. D2–132

REPLACE HYDRANT ASSEMBLY, TYP (SEE NOTE 1)

RELINE EXISTING 6" AC WATER MAIN AND REINSTATE WATER SERVICES, TYP

WOODED

SEMINOLE ROAD

PLAN 8B
SCALE: 1"=40'

MATCH LINE

PLAN 8A PLAN 8B

PLAN 8B PLAN 9A

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RICHARD G. PROTASCKWICZ No. 47685 REGISTERED PROFESSIONAL ENGINEER

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

PLAN VIEW: SEMINOLE ROAD

DRAWING
C–8

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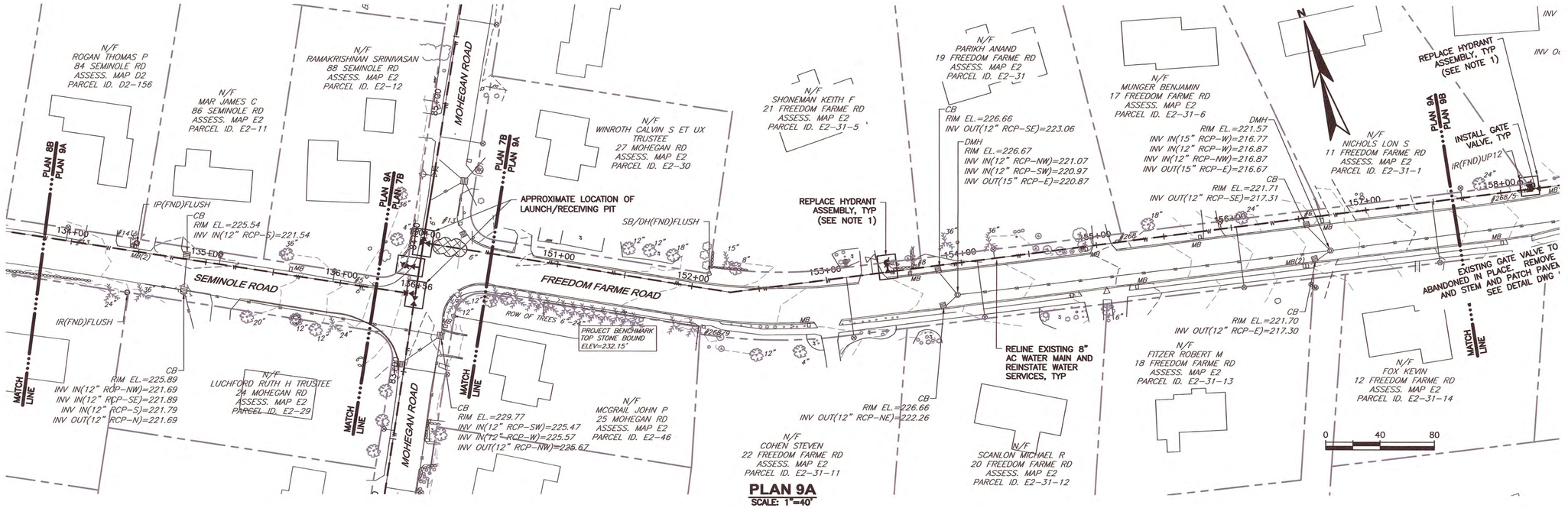

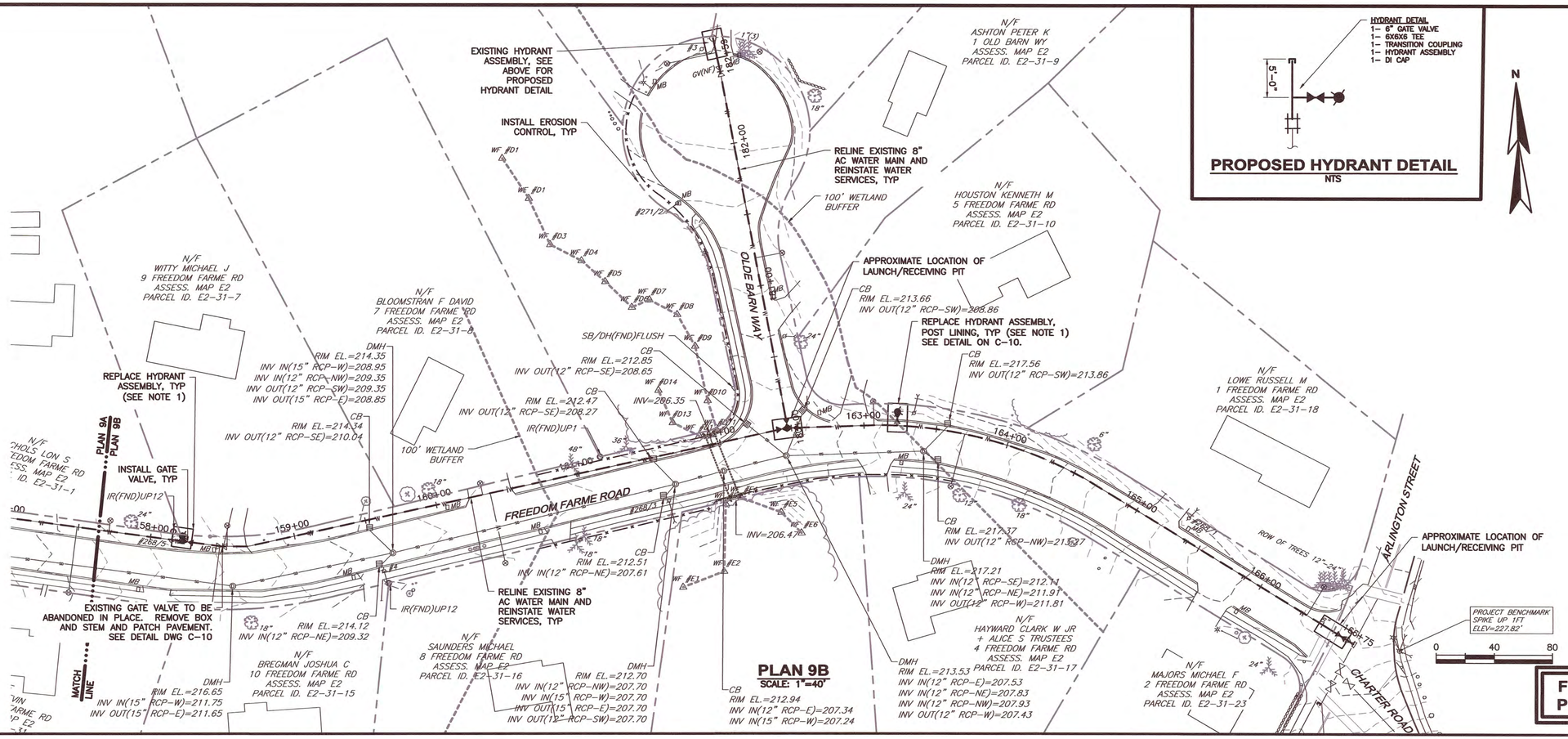

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COMMONWEALTH OF MASSACHUSETTS — RICHARD G. PROVENCHER — CIVIL — No. 41555 — REGISTERED PROFESSIONAL ENGINEER

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

PLAN VIEW: FREEDOM FARME ROAD & OLDE BARN WAY

DRAWING
C-9

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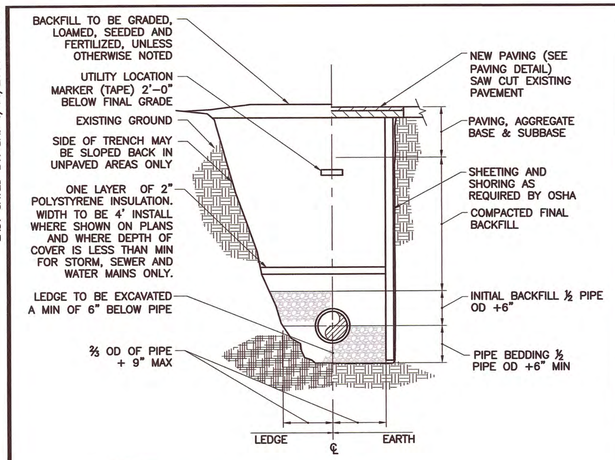
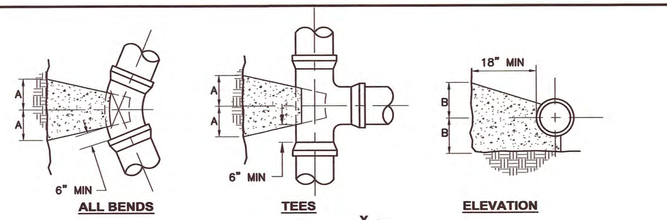


NOTES:
1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNELED ALONG BEDDING/INITIAL BACKFILL.
3. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.

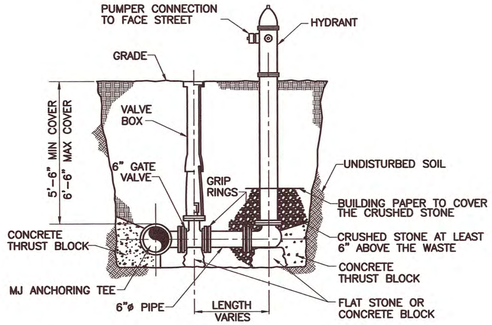
PIPE TRENCH
NTS



NOTES
1. THRUST BLOCK SIZES SHOWN ARE BASED ON A SOIL BEARING CAPACITY OF 2000 PSF AND TEST PRESSURES OF 180 PSI.
2. POLYETHYLENE (6 mil) SHALL BE PLACED AROUND FITTINGS PRIOR TO CONCRETE PLACEMENT

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		VERTICAL BEND (DOWN)	
	A	B	A	B	A	B	A	B	A	B	A	B
6"	15"	12"	12"	9"	9"	6"	6"	6"	12"	12"	24"	21"
8"	20"	15"	14"	12"	9"	9"	9"	6"	18"	12"	33"	24"
10"	21"	21"	18"	15"	15"	9"	9"	9"	20"	18"	40"	27"
12"	27"	24"	23"	15"	15"	12"	12"	9"	25"	18"	48"	30"
16"	37"	30"	30"	21"	21"	15"	13"	12"	32"	24"	57"	36"

WATER MAIN THRUST BLOCK
NTS

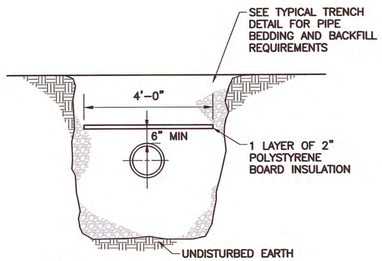


NOTES:

HYDRANT INSTALLATION POST–LINING:
1. BEFORE LINING: FULLY CLOSE GATE VALVE, EXCAVATE, REMOVE HYDRANT TEE, AND INSTALL PVC SPOOL PIECE TO CONNECT WATER MAIN TO BE LINED.
2. AFTER LINING: REMOVE PVC PIPE AND THEN INSTALL 1–6X6X6 TEE, 1–6" GATE VALVE, 2–TRANSITION COUPLINGS, HYDRANT ASSEMBLY, AND DI PIPE.

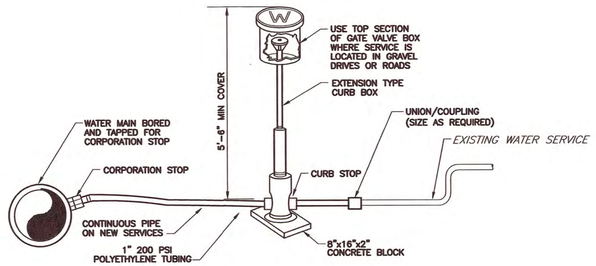
HYDRANT REMOVAL:
1. FULLY CLOSE GATE VALVE TO HYDRANT PRIOR TO LINING PIPE. LINE THROUGH HYDRANT TEE. REMOVE HYDRANT AND RISER. REMOVE GATE VALVE COVER, STEM AND BOX. FILL AND PATCH PAVE AS NEEDED.

TYPICAL HYDRANT CONNECTION
NTS



NOTE:
TRENCH PIPE INSULATION TO BE USED WHERE DEPTH OF COVER IS LESS THAN 4'–6" FEET OR AS DIRECTED BY THE ENGINEER

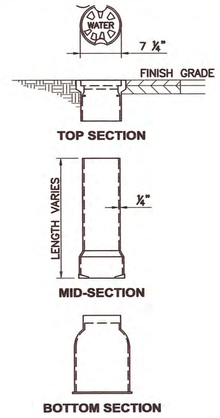
TRENCH PIPE INSULATION
NTS



NOTES:
1. LOCATE THE TOP OF VALVE BOX COVERS 3"–6" BELOW FINISHED GRADE IF LOCATED IN GRAVEL SHOULDERS TO PREVENT DAMAGE DURING PLOWING.
2. CONTRACTOR SHALL CONFIRM ALL FIELD LOCATIONS OF CURB STOPS WITH OWNER.

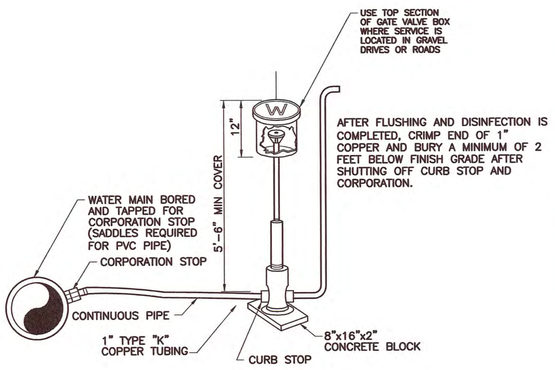
WATER SERVICE CONNECTION
NTS

* ADJUST COVER PER FROST DEPTH FOR PROJECT AREA

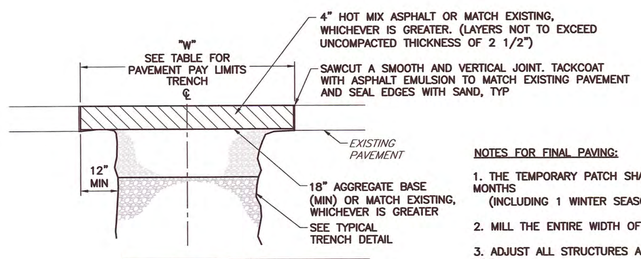


VALVE BOX
NTS

NOTES:
FOR GATE VALVE REMOVAL:
FULLY OPEN GATE VALVE, INSTALL LINER THROUGH WATER MAIN, REMOVE COVER AND STEM, AND THEN FILL AND PATCH PAVE.



1" TAP FOR FLUSHING AND DISINFECTION DETAIL
NTS



PAVEMENT PAY LIMITS	
PIPE I.D.	"W" (FOR 0' – 10' DEEP)
6" – 15"	7'–0"
16" – 21"	8'–0"

"W" SHALL BE INCREASED BY 1'–0" FOR TRENCHES 10' – 15', AND BY 2'–0" FOR TRENCHES 15' – 20' DEEP.

NOTES FOR FINAL PAVING:

1. THE TEMPORARY PATCH SHALL REMAIN IN PLACE FOR A MINIMUM OF 6 MONTHS (INCLUDING 1 WINTER SEASON) PRIOR TO PERMANENT PAVING.
2. MILL THE ENTIRE WIDTH OF THE ROAD TO A DEPTH OF 1 1/2".
3. ADJUST ALL STRUCTURES AS NECESSARY (CONCRETE OR HOLLOWED BRICKS ARE NOT ALLOWED).
4. PAVE ROAD WITH FULL–WIDTH PERMANENT PAVING WITH 1 1/2" THICK COMPACTED WEARING COURSES.
5. REPAIR/INSTALL DRIVEWAY APRONS AS NECESSARY DUE TO PERMANENT ROAD PAVING.

TEMPORARY TRENCH PATCHING
NTS

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	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16

DESIGNED BY: CSJ
CAD CONFIG: CSH
CAD DWG: C10
CHECKED BY: RGP
DATE:
APPROVED BY: RGP
DATE:
PROJECT NO: 13329A

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ACTON WATER DISTRICT
INDIAN VILLAGE & LITTLEFIELD ROAD
WATER MAIN RENEWAL
ACTON, MA

DETAILS I

DRAWING
C–10

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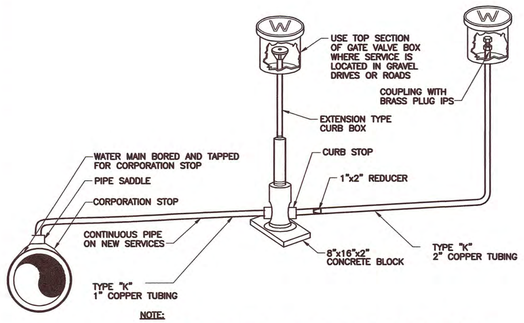


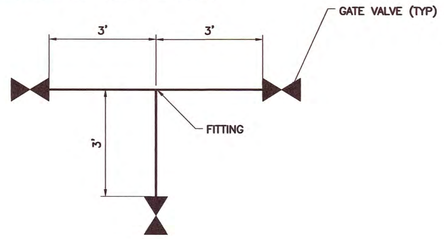
NOTE:

1. TO BE PLACED AT HIGH SPOTS IN WATER MAIN. FIELD LOCATE AS SHOWN ON DRAWINGS AND AS REQUIRED TO PREVENT AIR BINDING.

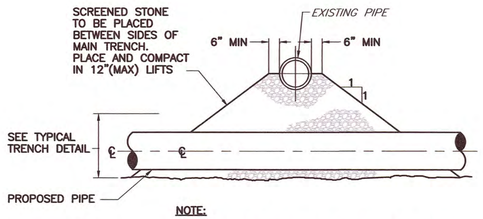
MANUAL AIR RELEASE ASSEMBLY
NTS

NOTE:

1. ALL WATER MAIN VALVES, EXCEPT HYDRANT ANCHOR VALVES, SHALL HAVE A MINIMUM 3-FOOT LENGTH OF PIPE BETWEEN THE VALVE AND ANY FITTING. ALL VALVES AND FITTINGS SHALL BE PROPERLY RESTRAINED.



INTERSECTION DETAIL
NTS

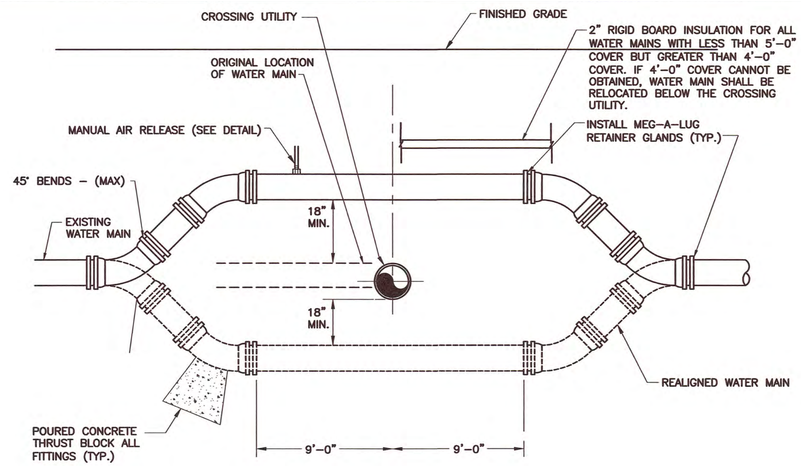


NOTE:

1. JOINTS ON EACH PIPE TO BE AS FAR FROM INTERSECTION AS POSSIBLE

PIPE CROSSING
NTS

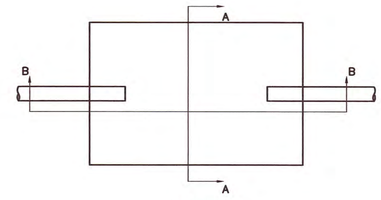
WATER MAIN-STRUCTURE INSULATION DETAIL
NTS



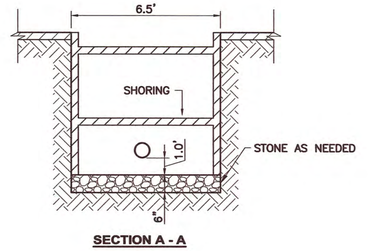
WATER MAIN RELOCATION
NTS

NOTES:

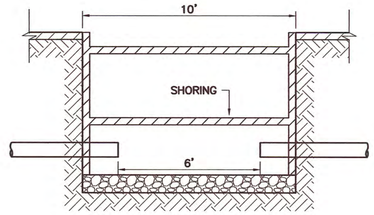
1. ALL FITTINGS AND JOINTS IN LOWERING AREA TO BE RESTRAINED.
2. WHEN IT IS IMPOSSIBLE TO OBTAIN HORIZONTAL OR VERTICAL SEPARATION AS INDICATED IN THE DETAIL ABOVE, BOTH THE WATER AND THE SEWER SHOULD BE ENCASED IN CONTROLED DENSITY FILL FOR A DISTANCE OF 10 FEET ON EITHER SIDE OF THE CROSSING.
3. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT WHEN CONTACTING POURED CONCRETE PRODUCTS



PLAN



SECTION A - A



SECTION B - B

STANDARD ACESS PIT DIMENSIONS (APPROX.)
NTS

NOTES:

1. ACCESS PITS TO BE SIZED AS NEEDED FOR PROPER INSTALLATION.

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	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16

DESIGNED BY: CSJ
CAD DRAWN BY: CGH
CAD CHECKED BY: CGH
CHECKED BY: RGP
DATE:
APPROVED BY: RGP
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PROJECT NO: 13329A

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ACTON, MA

DETAILS II

DRAWING
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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, HAMPDEN, 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, HAMPDEN, 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

INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION.

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 DECOMPOSURE. 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

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

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

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

1. WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
3. EXPOSED AREA SHOULD BE LIMITED TO THAT THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY PRECIPITATION EVENT.
4. 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 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, 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.
5. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, 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 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDED 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 ALLOW 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.
6. A) BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH 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 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
7. AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
8. 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 – 7/1 8/15 – 9/15	OATS	80 LBS/ACRE
4/1 – 6/1 (8/15 – 9/15)	ANNUAL RYE GRASS	40 LBS/ACRE
(8/15 – 10/15)	WINTER RYE	120 LBS/ACRE
(11/1 – 4/1)	MULCH W/ DORMANT SEED	80 LBS/ACRE*
(5/1 – 6/30)	FOXTAIL MILLET	30 LBS/ACRE

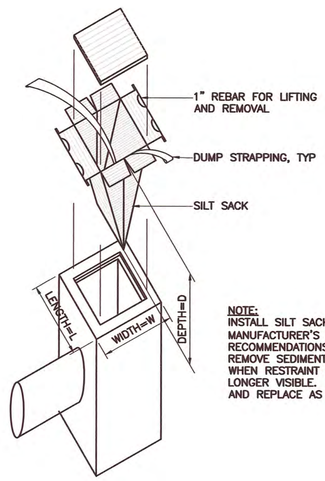
*SEED RATE ONLY

MULCH AND MULCH ANCHORING

MULCH

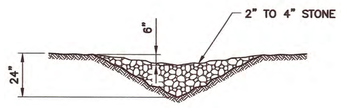
LOCATION	MULCH	RATE (1000 S.F.)
PROTECTED AREA	STRAW OR HAY *	100 POUNDS
WINDY AREAS	STRAW OR HAY (ANCHORED) *	100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES (GREATER THAN 3:1)	JUTE MESH, EXCELSIOR MAT OR EQUIV.	AS REQUIRED

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



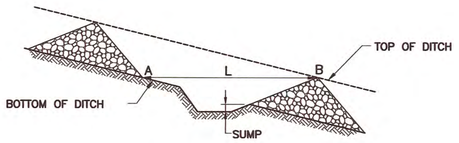
NOTE:
INSTALL SILT SACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILT SACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.

SILT SACK CATCH BASIN INLET
NTS



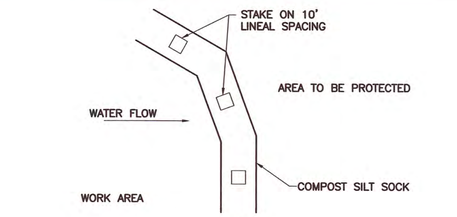
CROSS SECTION

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

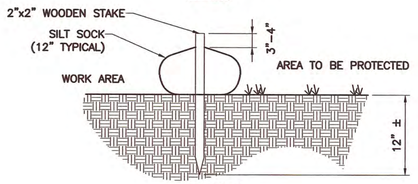


PROFILE

STONE CHECK DAM DETAIL
NTS



PLAN



SECTION

STRAW WATTLE SOCK
NTS

NOTES:
1. ALL MATERIAL TO MEET SPECIFICATIONS
2. SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
3. SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

TEMPORARY HAY BALE SEDIMENT BASIN
NTS

NO	SUBMISSIONS/REVISIONS	APP'D	DATE
1	SUBMISSION TO THE CONSERVATION COMMISSION	RGP	04/16

DESIGNED BY: CSJ
CAD COORD: CGH
CAD: CGH
CHECKED BY: RGP
DATE:
APPROVED BY: RGP
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PROJECT NO: 13329A

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EROSION CONTROL NOTES & DETAILS

DRAWING
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